

1995 Mazda MX-5 *miata* Workshop Manual

FOREWORD

For proper repair and maintenance, a thorough familiarization with this manual is important, and it should always be kept in a handy place for quick and easy reference.

All the contents of this manual, including drawings and specifications, are the latest available at the time of printing. As modifications affecting repair or maintenance occur, relevant information supplementary to this volume will be made available at Mazda dealers. This manual should be kept up-to-date.

Mazda Motor Corporation reserves the right to alter the specifications and contents of this manual without obligation or advance notice.

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WARRANTY

The manufacturer's warranty on Mazda vehicles and engines can be voided if improper service or repairs are performed by persons other than those at an Authorized Mazda Dealer.

**Mazda Motor Corporation
HIROSHIMA, JAPAN**

APPLICATION:

This manual is applicable to vehicles beginning with the Vehicle Identification Numbers (VIN) shown on the following page.

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VEHICLE IDENTIFICATION NUMBERS (VIN)

JM1 NA353*S# 600001—

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SAFETY INFORMATION

LUBRICANTS

Avoid prolonged and repeated contact with petroleum-based oils. Used oil may irritate the skin, and can cause skin cancer and other skin disorders.

Wash thoroughly after working with oil. We recommend water soluble hand cleaners. Do not use kerosene, gasoline, or any other solvent, to remove oil from your skin.

If repeated or prolonged contact with oil is necessary, wear protective clothing. Soiled clothing, particularly those soiled with used oils and greases containing lead, should be cleaned at regular intervals.

JACKING POSITIONS

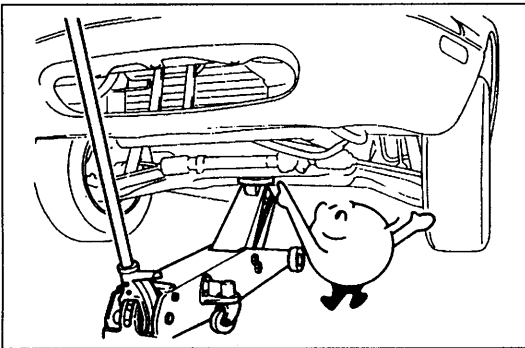
Warning

- **Improperly jacking a vehicle is dangerous. The vehicle can slip off the jack and cause serious injury. Use only the correct front and rear jacking positions and block the wheels.**

Use safety stands to support the vehicle after it has been lifted.

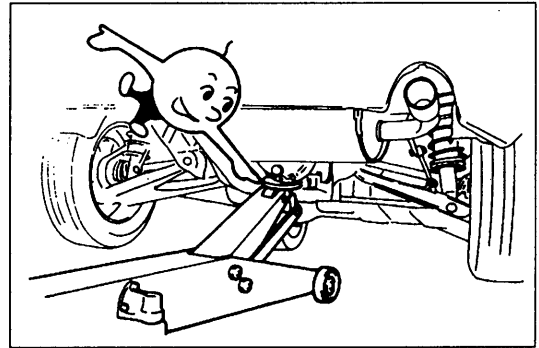
Front

At the center of the crossmember



Rear

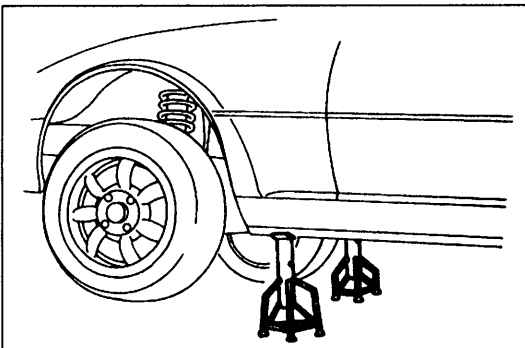
At the center of the differential



SAFETY STAND POSITIONS

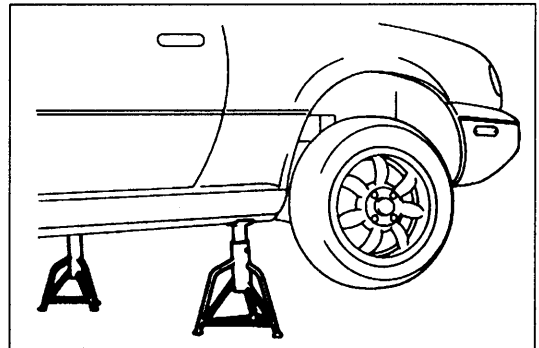
Front

Both sides of the vehicle, on side sills



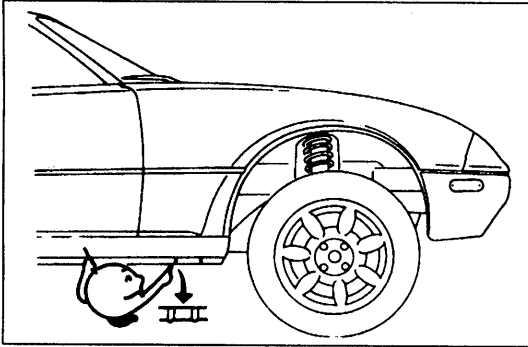
Rear

Both sides of the vehicle, on side sills

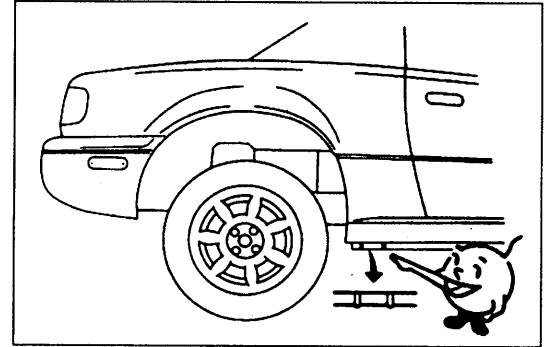


VEHICLE LIFT POSITIONS**Front**

Both sides of the side sill

**Rear**

Both sides of the side sill

**DYNAMOMETER**

When test-running a vehicle on a dynamometer:

- Place a fan, preferably a vehicle-speed proportional type, in front of the vehicle.
- Connect an exhaust gas ventilation unit.
- Cool the exhaust pipes with a fan.
- Keep the area around the vehicle uncluttered.
- Watch the water temperature gauge.

COMPRESSED AIR

When using compressed air to clean or remove parts:

- Wear protective eye wear.
- Hold a rag over the opening to prevent parts from shooting out.
- Take precautions so that people around you are not struck by flying debris.

HOW TO USE THIS MANUAL

ADVISORY MESSAGES

You'll find several **Warnings**, **Cautions**, and **Notes** in this manual.

Warning

- A **Warning** indicates a situation in which serious injury or death could result if the warning is ignored.

Caution

- A **Caution** indicates a situation in which damage to the vehicle could result if the caution is ignored.

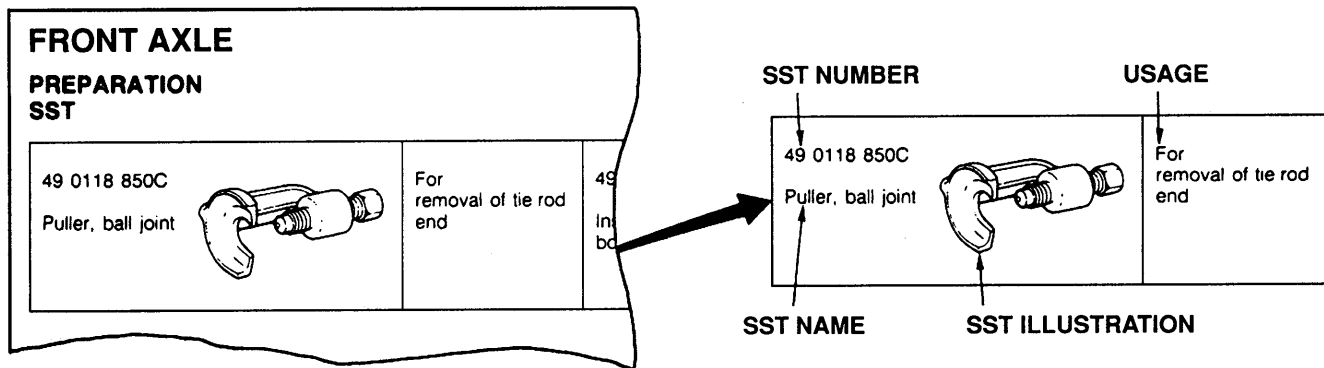
Note

- A **Note** provides added information that will help you to complete a particular procedure.

PREPARATION

This points out the needed **SSTs** for the service operation. It is best to gather all necessary **SSTs** before beginning work.

Example:



REPAIR PROCEDURE

1. Most repair operations begin with an overview illustration. It identifies the components, shows how the parts fit together, and describes visual part inspection. If a damaged or worn part is found, repair or replace it as necessary.
2. Expendable parts, tightening torques, and symbols for oil, grease, and sealant are shown in the overview illustration.
3. Pages related to service procedures are shown under the illustration. Refer to this information when servicing the related part.

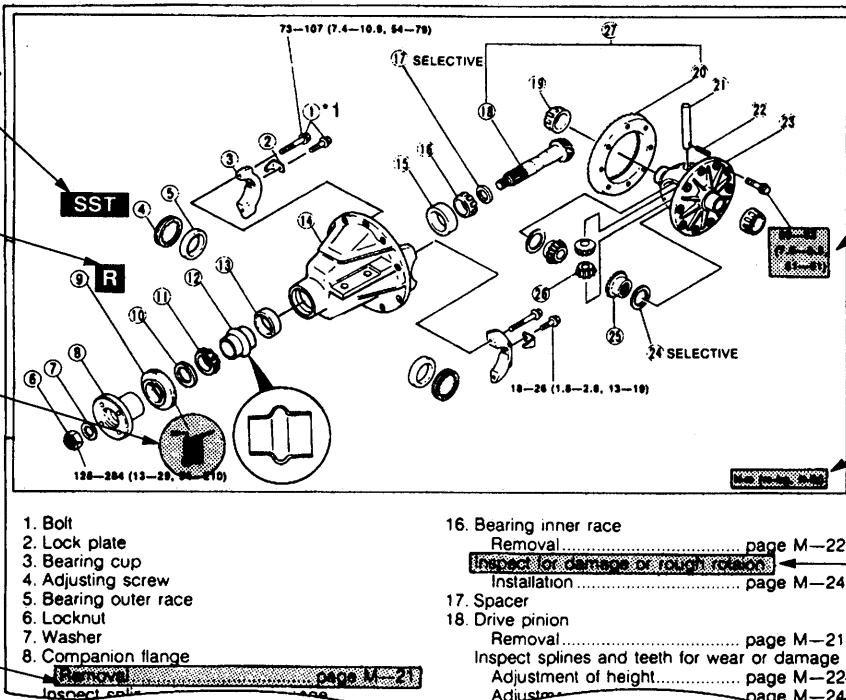
Example:

SHOWS SPECIAL SERVICE TOOL (SST) FOR THE SERVICE OPERATION

SHOWS EXPENDABLE PARTS

SHOWS APPLICATION POINT OF OIL, ETC.

SHOWS RELATED PAGE FOR SERVICE



SHOWS TIGHTENING TORQUE SPECIFICATIONS

SHOWS TIGHTENING TORQUE UNITS

SHOWS VISUAL INSPECTION INFORMATION

*1: The numbers (①, etc.) refer to part identification and servicing procedures.

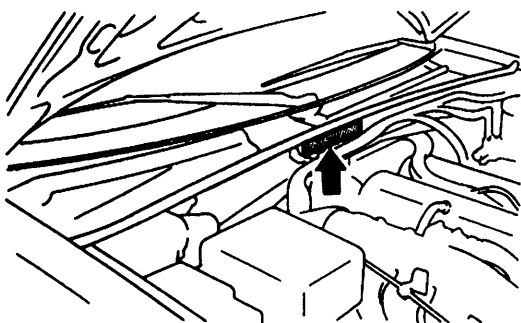
SYMBOLS

There are six symbols indicating oil, grease, and sealant. These symbols show the points of applying such materials during service.

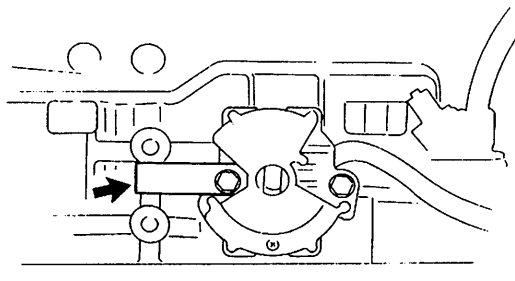
Symbol	Meaning	Kind
	Apply oil	New engine oil or gear oil as appropriate
	Apply brake fluid	FMVSS116: DOT-3
	Apply automatic transmission fluid	Dexron®II or M-III
	Apply grease	Appropriate grease
	Apply sealant	Appropriate sealant
	Apply petroleum jelly	Appropriate petroleum jelly

IDENTIFICATION NUMBER LOCATIONS

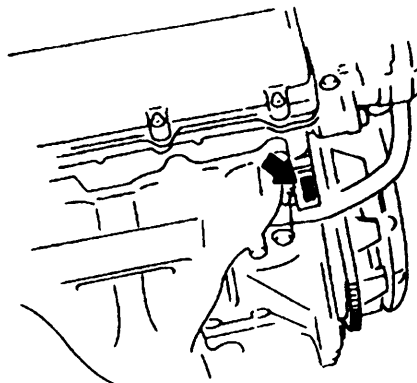
VEHICLE IDENTIFICATION NUMBER (VIN)



AUTOMATIC TRANSMISSION MODEL AND NUMBER



ENGINE MODEL AND NUMBER



UNITS

Electrical current	A (ampere)
Electric potential	V (volt)
Electric power	W (watt)
Length	mm (millimeter) in (inch)
Negative pressure	kPa (kilo Pascal) mmHg (millimeters of mercury) inHg (inches of mercury)
Positive pressure	kPa (kilo Pascal) kgf/cm ² (kilogram force per square centimeter) psi (pounds per square inch)
Resistance	Ω (ohm)
Torque	N·m (Newton meter) kgf·m (kilogram force per meter) kgf·cm (kilogram force per centimeter) ft·lbf (foot pound) in·lbf (inch pound)
Volume	L (liter) US qt (U.S. quart) Imp qt (Imperial quart) ml (milliliter) cc (cubic centimeter) cu in (cubic inch) fl oz (fluid ounce)
Weight	g (gram) oz (ounce)

Conversion to SI Units (Système International d'Unités)

All numerical values in this manual are based on SI units. Numbers shown in conventional units are converted from these values.

Rounding off

Converted values are rounded off to the same number of places as the SI unit value. For example, if the SI unit value is 17.2 and the value after conversion is 37.84, the converted value will be rounded off to 37.8.

Upper and lower limits

When the data indicates upper and lower limits, the converted values are rounded down if the SI unit value is an upper limit and rounded up if the SI unit value is a lower limit. Therefore, converted values for the same SI unit value may differ after conversion. For example, consider 2.7 kgf/cm² in the following specifications:

- 210—260 kPa { 2.1—2.7 kgf/cm² , 30—38 psi }
- 270—310 kPa { 2.7—3.2 kgf/cm² , 39—45 psi }

The actual converted values for 2.7 kgf/cm² are 264 kPa and 38.4 psi. In the top specification, 2.7 is used as an upper limit, so its converted values are rounded down to 260 and 38. In the bottom specification, 2.7 is used as a lower limit, so its converted values are rounded up to 270 and 39.

ABBREVIATIONS

AAS	.....	Air adjusting screw
ABDC	...	After bottom dead center
ABS	.....	Antilock brake system
ACC	.....	Accessory
AT	.....	Automatic transmission
ATDC	.....	After top dead center
ATF	.....	Automatic transmission fluid
ATS	.....	Ambient temperature sensor
BAC	.....	Bypass air control
BBDC	...	Before bottom dead center
BTDC	.....	Before top dead center
CID	.....	Cylinder identification display
CM	.....	Control module
D	.....	Drive
DOHC	...	Double overhead camshaft
DRL	.....	Daytime running light
EC-AT	...	Electronically controlled automatic transmission
EGRA	...	EGR air solenoid valve
EGRV	...	EGR vacuum solenoid valve
ELR	.....	Emergency locking retractor
EPC	.....	Electronic pressure control
ESPS	.....	Engine speed sensing power steering
ETS	.....	Evaporator temperature sensor
EX	.....	Exhaust
FMEM	...	Failure mode effects management
HFC	.....	High fan control
HI	.....	High
HLA	.....	Hydraulic lash adjuster
HU	.....	ABS hydraulic unit
IC	.....	Integrated circuit
IG	.....	Ignition
IN	.....	Intake
INT	.....	Intermittent
L	.....	Low
LFC	.....	Low fan control
LH	.....	Left hand
LO	.....	Low
LSD	.....	Limited slip differential
M	.....	Motor
MT	.....	Manual transmission
N	.....	Neutral
P	.....	Park
PBV	.....	Proportioning bypass valve
PCTS	....	Passenger compartment temperature sensor
PCV	.....	Positive crankcase ventilation
PIP	.....	Profile ignition pickup
PRC	.....	Pressure regulator control
P/S	.....	Power steering
P/W	.....	Power window
PWR GND		Power ground
R	.....	Reverse
RH	.....	Right hand
RPM	.....	Revolutions per minute
RTS	.....	Reduce torque signal
S	.....	Slop
SAS	.....	Sophisticated air bag sensor
SIG RTN	.	Signal return
SR	.....	Sensor rotor

SST	.....	Special service tool
ST	.....	Start
SW	.....	Switch
TDC	.....	Top dead center
TNS	.....	Tail-, parking, and licence plate lights
TRS	.....	Torque reduced signal
VPWR	...	Vehicle power
WSS	....	Wheel speed sensor

SAE STANDARDS

In accordance with new regulations, SAE (Society of Automotive Engineers) standard names and abbreviations are now used in this manual. The table below lists the names and abbreviations that have been used in Mazda manuals up to now and their SAE equivalents.

Previous Standard		SAE Standard		
Abbreviation	Name	Abbreviation	Name	Remark
—	Accelerator Pedal	AP	Accelerator Pedal	
—	Air Cleaner	ACL	Air Cleaner	
—	Air Conditioning	A/C	Air Conditioning	
—	Airflow Meter	VAF	Volume Air Flow Sensor	
—	Airflow Sensor	MAF	Mass Air Flow Sensor	
—	Alternator	GEN	Generator	
—	ATF Thermosensor	—	Transmission (Transaxle) Fluid Temperature Sensor	
—	Atmospheric Pressure	BARO	Barometric Pressure	
Vb	Battery Voltage	B+	Battery Positive Voltage	
—	Catalytic Converter	OC	Oxidation Catalytic Converter	
		TWC	Three Way Catalytic Converter	
		WU-TWC	Warm Up Three Way Catalytic Converter	#1
—	Circuit Opening Relay	FPR	Fuel Pump Relay	#2
—	Clutch Position	CPP	Clutch Pedal Position	
—	Crank Angle Sensor	CMP	Camshaft Position Sensor	
—	Crank Angle Sensor 2	CKP	Crankshaft Position Sensor	
—	Diagnosis Connector	DLC	Data Link Connector	
—	Diagnosis/Self-Diagnosis	OBD	On-Board Diagnostic	
—	Direct Ignition	DLI	Distributorless Ignition	
—	EC-AT Control Unit	TCM	Transmission (Transaxle) Control Module	
EGI	Electronic Gasoline Injection System	CIS	Continuous Fuel Injection System	
—	Electronic Spark Ignition	EI	Electronic Ignition	#3
ECU	Engine Control Unit	PCM	Powertrain Control Module	#4
		ECM	Engine Control Module	
—	Engine Modification	EM	Engine Modification	
—	Engine RPM Signal	—	Engine Speed Input Signal	
—	Engine Speed	RPM	Engine Speed	
—	Evaporative Emission	EVAP	Evaporative Emission	
—	Exhaust Gas Recirculation	EGR	Exhaust Gas Recirculation	
—	Fan Control	FC	Fan Control	
—	Feedback System	CLS	Closed Loop System	
—	Flexible Fuel	FF	Flexible Fuel	
—	Fuel Pump	FP	Fuel Pump	
—	Fully Closed	CTP	Closed Throttle Position	
—	Fully Open	WOT	Wide Open Throttle	
—	Ground/Earth	GND	Ground	

#1: Directly connected to exhaust manifold

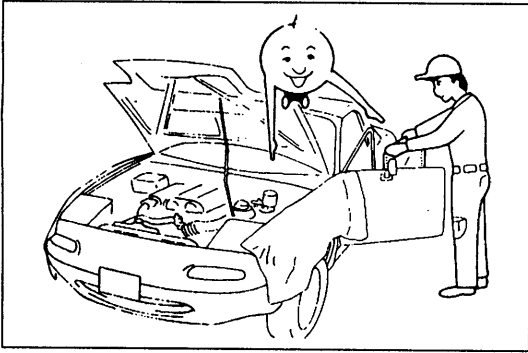
#2: In some models, there is a fuel pump relay that controls pump speed. That relay is now called the fuel pump relay (speed).

#3: Controlled by the ECM (PCM)

#4: Device that controls engine and powertrain

Previous Standard		SAE Standard		
Abbreviation	Name	Abbreviation	Name	Remark
—	IC Regulator	VR	Voltage Regulator	
—	Idle Speed Control	IAC	Idle Air Control	
—	Idle Switch	—	Closed Throttle Position Switch	
—	Igniter	ICM	Ignition Control Module	
—	Inhibitor Position	TR	Transmission (Transaxle) Range	
—	Intake Air Pressure	MAP	Manifold Absolute Pressure	
—	Intake Air Thermo	IAT	Intake Air Temperature	
—	Intercooler	CAC	Charge Air Cooler	
—	Knock Sensor	KS	Knock Sensor	
—	Line Pressure Solenoid Valve	—	Pressure Control Solenoid	
—	Lock-up Position	TCC	Torque Converter Clutch	
—	Malfunction Indicator Light	MIL	Malfunction Indicator Lamp	
—	Multiport Fuel Injection	MFI	Multiport Fuel Injection	
—	Open Loop	OL	Open Loop	
—	Overdrive	4GR	Fourth Gear	
—	Oxygen Sensor	HO2S	Heated Oxygen Sensor	With heater
		O2S	Oxygen Sensor	
—	Park/Neutral Range	PNP	Park/Neutral Position	
—	Power Steering Pressure	PSP	Power Steering Pressure	
—	Pulse Generator	—	Input/Turbine Speed Sensor	
—	Reed Valve	SAPV	Secondary Air Pulse Valve	
—	Secondary Air Injection System	PAIR	Pulsed Secondary Air Injection	Pulsed injection
		AIR	Secondary Air Injection	Inject with compressor
—	Sequential Fuel Injection	SFI	Sequential Multipoint Fuel Injection	
—	Service Code(s)	DTC	Diagnostic Trouble Code(s)	
—	Spark Ignition	DI	Distributor Ignition	
—	Stoplight Switch	—	Brake Switch	
—	Test Mode	DTM	Diagnostic Test Mode	#5
—	Throttle Body	TB	Throttle Body	
—	Throttle Sensor	TP	Throttle Position Sensor	
—	Turbocharger	TC	Turbocharger	
—	Vehicle Speed Sensor	VSS	Vehicle Speed Sensor	
—	Vehicle Speed Sensor 1	—	Output Speed Sensor	
—	Water Thermo	ECT	Engine Coolant Temperature	
—	1-2 Shift Solenoid Valve	—	Shift Solenoid A	
—	2-3 Shift Solenoid Valve	—	Shift Solenoid B	
—	3-4 Shift Solenoid Valve	—	Shift Solenoid C	
—	3rd Gear	3GR	Third Gear	
—	—	—	Incorrect Gear Ratio	

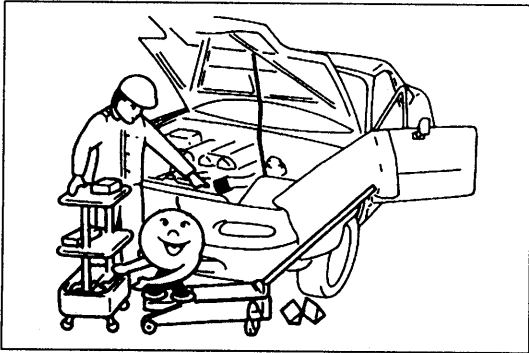
#5: Diagnostic trouble codes depend on the diagnostic test mode



FUNDAMENTAL PROCEDURES

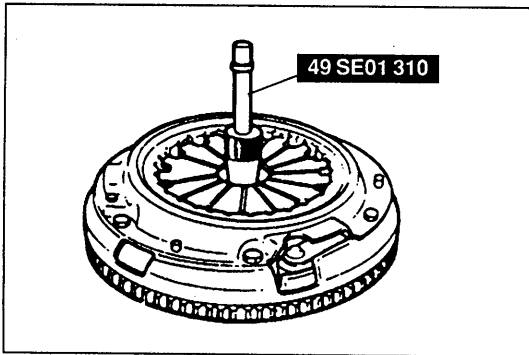
PROTECTION OF THE VEHICLE

Always be sure to cover fenders, seats, and floor areas before starting work.



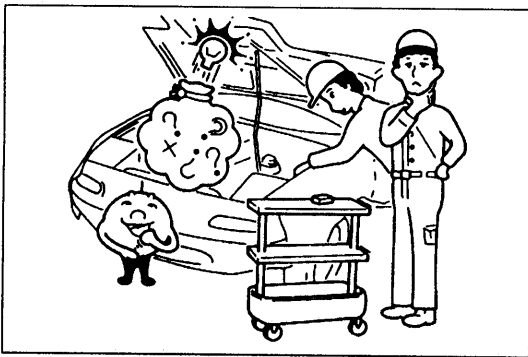
PREPARATION OF TOOLS AND MEASURING EQUIPMENT

Be sure that all necessary tools and measuring equipment are available before starting any work.



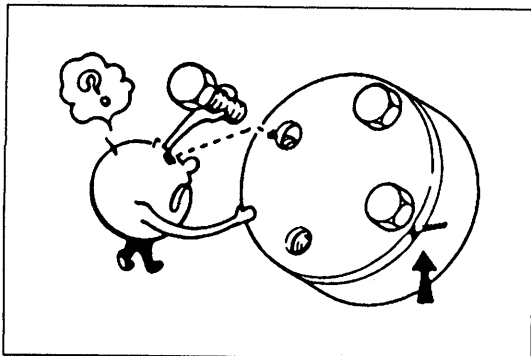
SPECIAL TOOLS

Use special tools when they are required.



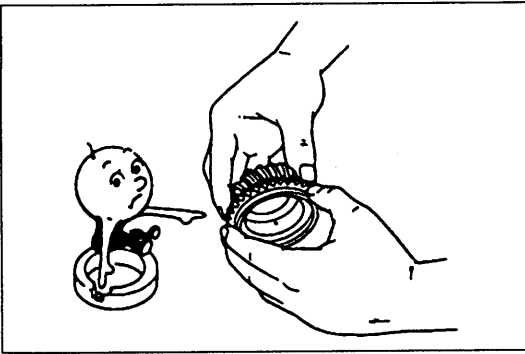
REMOVAL OF PARTS

While correcting a problem, try also to determine its cause. Begin work only after first learning which parts and subassemblies must be removed and disassembled for replacement or repair. After removing the part, plug all holes and ports to prevent foreign material from entering.



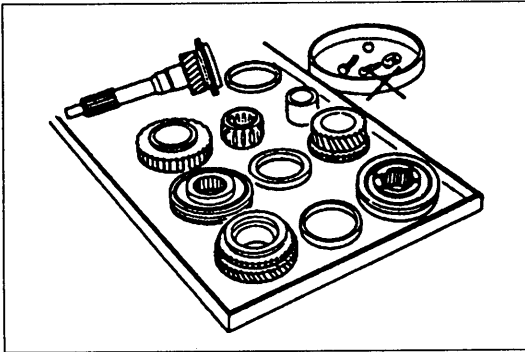
DISASSEMBLY

If the disassembly procedure is complex, requiring many parts to be disassembled, all parts should be disassembled in a way that will not affect their performance or external appearance and identified so that reassembly can be performed easily and efficiently.



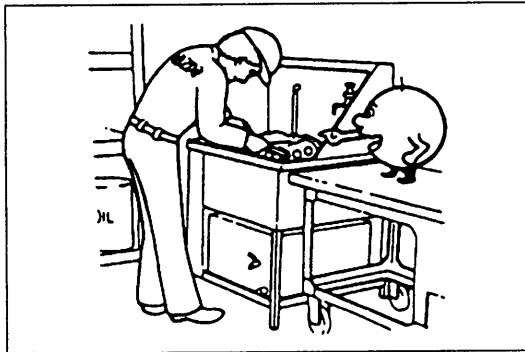
1. Inspection of parts

When removed, each part should be carefully inspected for malfunctioning, deformation, damage, and other problems.



2. Arrangement of parts

All disassembled parts should be carefully arranged for reassembly. Be sure to separate or otherwise identify the parts to be replaced from those that will be reused.

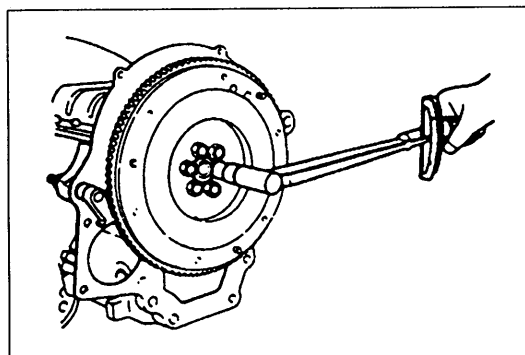


3. Cleaning parts for reuse

All parts to be reused should be carefully and thoroughly cleaned in the appropriate method.

Warning

- Using compressed air can cause dirt and other particles to fly out, causing injury to the eyes. Wear protective eye wear whenever using compressed air.



REASSEMBLY

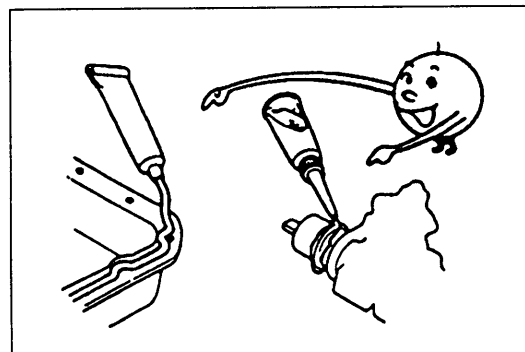
Standard values, such as torques and certain adjustments, must be strictly observed in the reassembly of all parts.

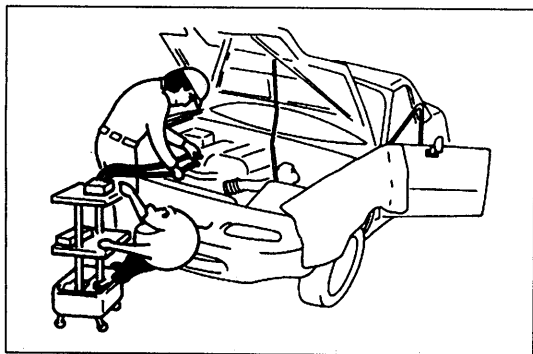
If removed, these parts should be replaced with new ones:

- | | |
|----------------|-----------------|
| 1. Oil seals | 4. Gaskets |
| 2. O-rings | 5. Lock washers |
| 3. Cotter pins | 6. Nylon nuts |

Depending on location:

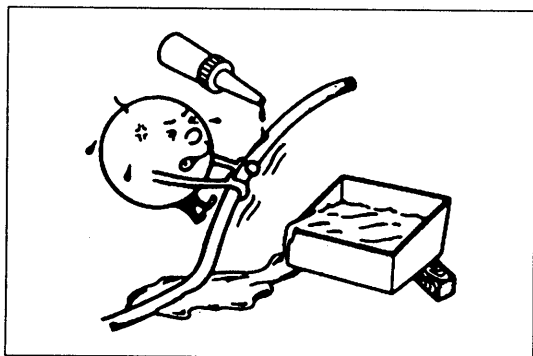
1. Sealant should be applied to gaskets.
2. Oil should be applied to the moving components of parts.
3. Specified oil or grease should be applied at the prescribed locations (such as oil seals) before reassembly.





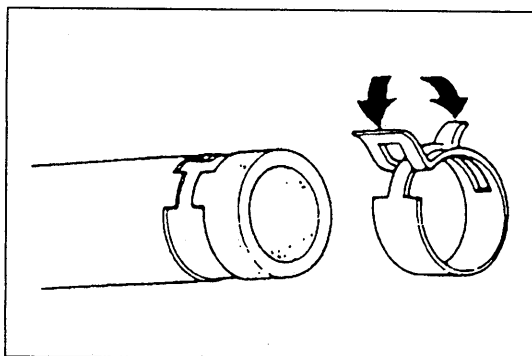
ADJUSTMENTS

Use suitable gauges and testers when making adjustments.



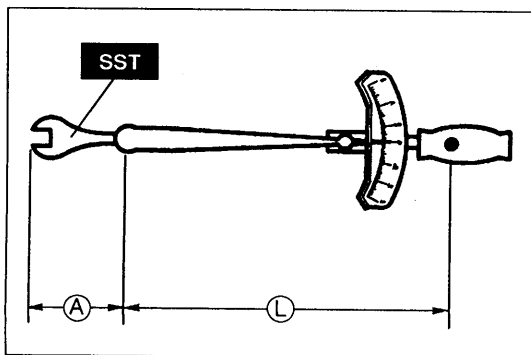
RUBBER PARTS AND TUBING

Prevent gasoline or oil from getting on rubber parts or tubing.



HOSE CLAMPS

When reinstalling, position the hose clamp in the original location on the hose, and squeeze the clamp lightly with large pliers to ensure a good fit.



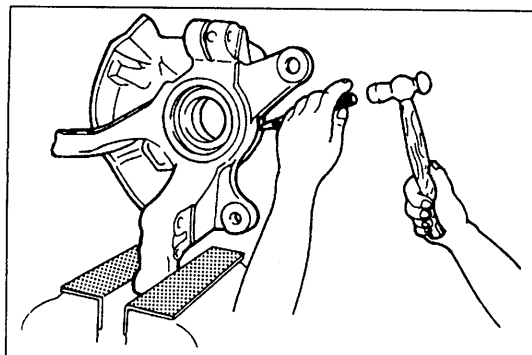
TORQUE FORMULAS

When using a torque wrench-SST combination, the written torque must be recalculated due to the extra length that the SST adds to the torque wrench. Recalculate the torque by using the following formulas. Choose the formula that applies to you.

Torque Unit	Formula
N·m	$N \cdot m \times [L / (L + A)]$
kgf·m	$kgf \cdot m \times [L / (L + A)]$
kgf·cm	$kgf \cdot cm \times [L / (L + A)]$
ft·lbf	$ft \cdot lbf \times [L / (L + A)]$
in·lbf	$in \cdot lbf \times [L / (L + A)]$

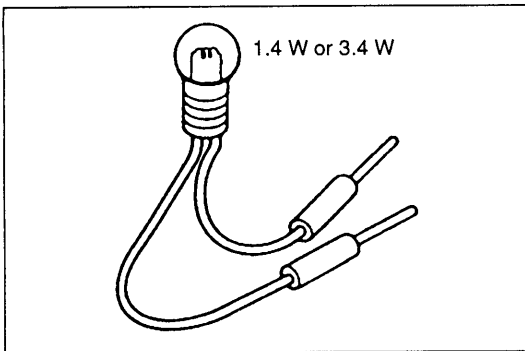
A = The length of the SST past the torque wrench drive.

L = The length of the torque wrench.



WISE

When using a vise, put protective plates in the jaws of the vise to prevent damage to parts.



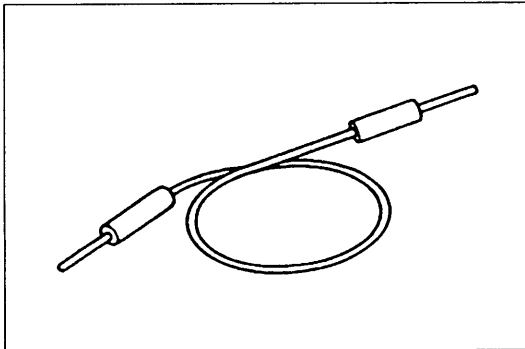
ELECTRICAL TROUBLESHOOTING TOOLS

TEST LIGHT

The test light, as shown in the figure, uses a 12V bulb. The two lead wires should be connected to probes. The test light is used for simple voltage checks and for checking for short circuits.

Caution

- Using a bulb over 3.4W when checking the control module may damage the control module.

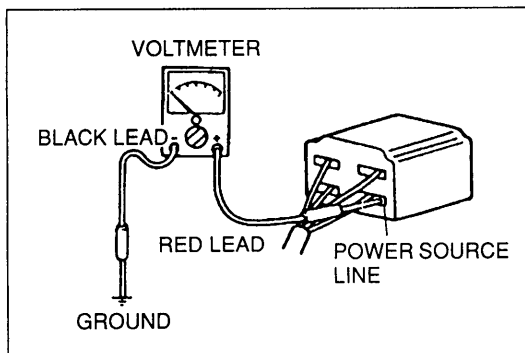


JUMPER WIRE

A jumper wire is used to create a temporary circuit. Connect the jumper wire between the terminals of a circuit to bypass a switch.

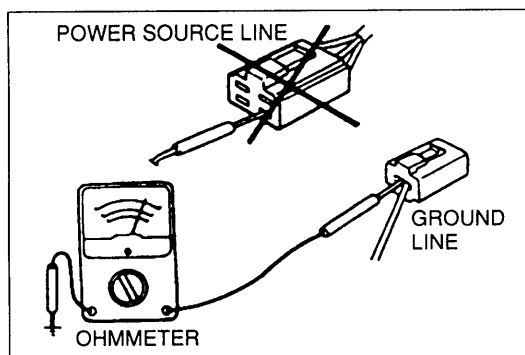
Caution

- Do not connect a jumper wire from the power source line to a body ground: This may cause burning or other damage to wiring harnesses or electronic components.



VOLTMETER

The DC voltmeter is used to measure circuit voltage. A voltmeter with a range of 15V or more is used by connecting the positive (+) probe (red lead wire) to the point where voltage is to be measured and the negative (-) probe (black lead wire) to a body ground.

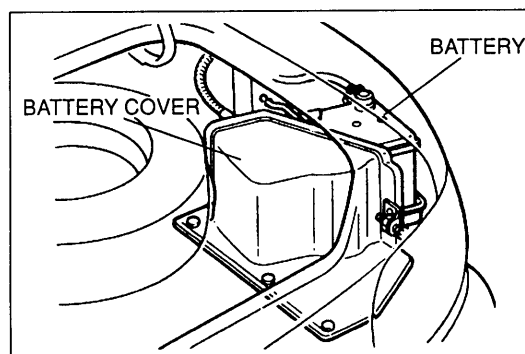


OHMMETER

The ohmmeter is used to measure the resistance between two points in a circuit, and to check for continuity and short circuits.

Caution

- Do not connect the ohmmeter to any circuit to which voltage is applied: This will damage the ohmmeter.

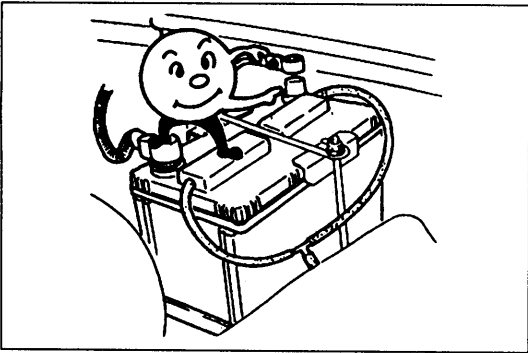


ELECTRICAL PARTS

BATTERY

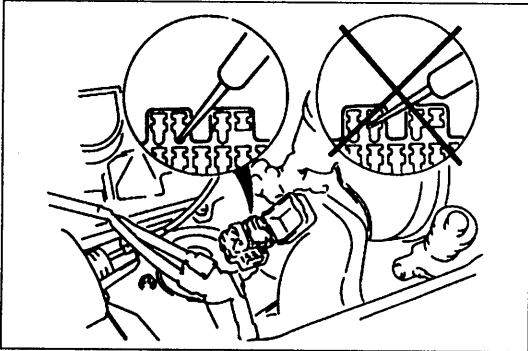
The battery installed in the right rear of the trunk is unique.

When a replacement battery is installed, install it with a genuine Mazda battery replacement kit or equivalent. (Refer to section G.)



BATTERY CABLE

Before disconnecting connectors or removing electrical parts, disconnect the negative battery cable.



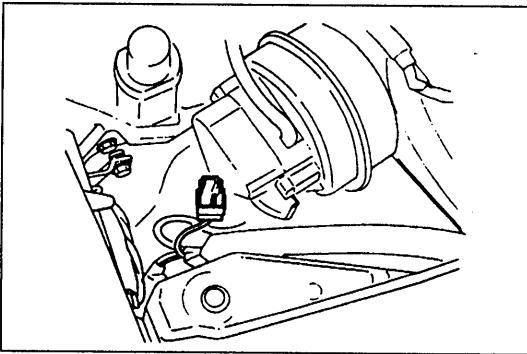
CONNECTORS

Data Link Connector

Insert the probe into the service hole when connecting a jumper wire to the data link connector.

Caution

- Inserting a jumper wire probe into the data link connector terminal may damage the terminal.

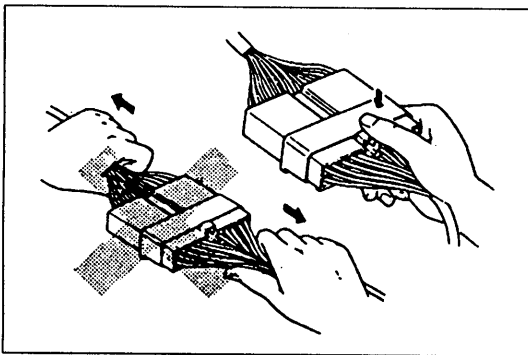


Power Connector

The special power connector in the engine compartment (Blue: 1-pin) supplies battery positive voltage for externally powered test equipment.

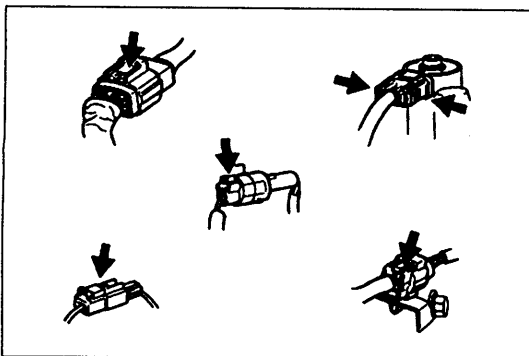
Caution

- Do not ground the power connector terminal: The 20 A wiper fuse will be burned.

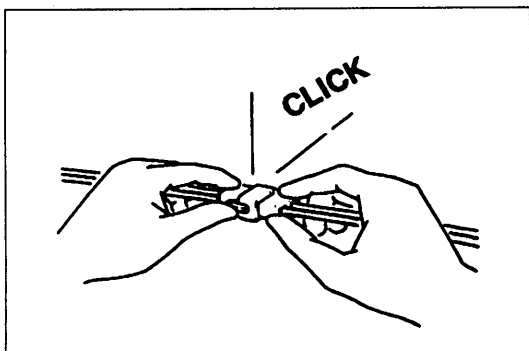


Disconnecting Connectors

When disconnecting two connectors, grasp the connectors, not the wires.

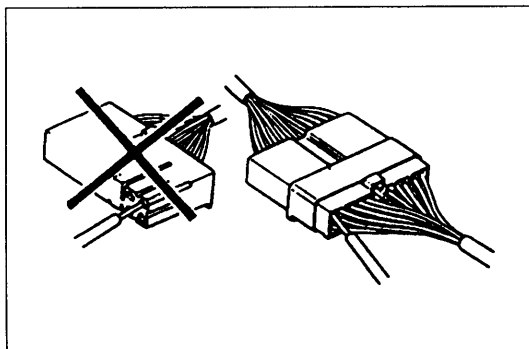


Connectors can be disconnected by pressing or pulling the lock lever as shown.



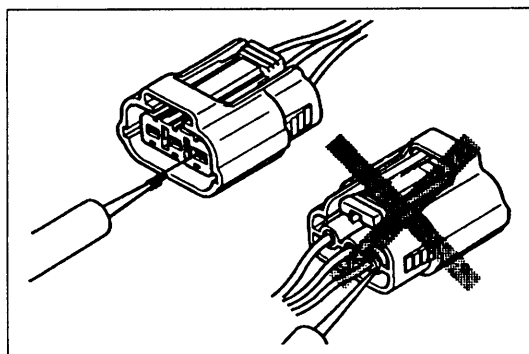
Locking Connectors

When locking connectors, listen for a click that will indicate they are securely locked.



Inspection

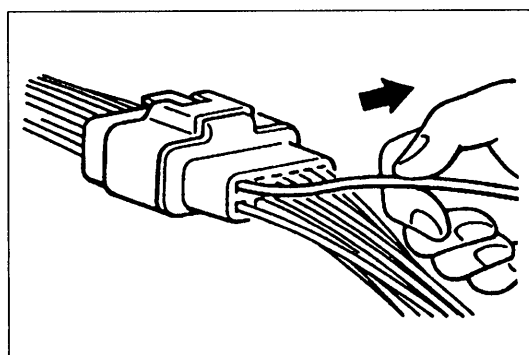
1. When a tester is used to check for continuity or to measure voltage, insert the tester probe from the wiring harness side.



2. Check the terminals of waterproof connectors from the connector side, as they cannot be accessed from the wiring harness side.

Caution

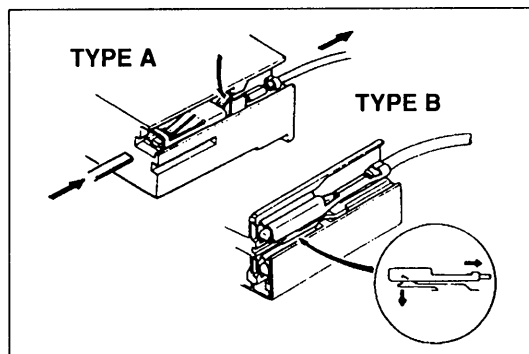
- To prevent damage to the terminal, wrap a thin wire around the lead before inserting it into the terminal.



TERMINALS

Inspection

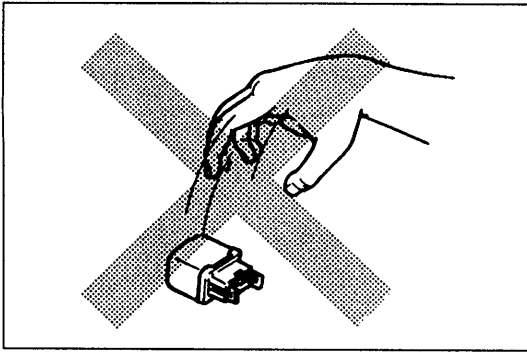
Pull lightly on individual wires to check that they are secured in the terminal.



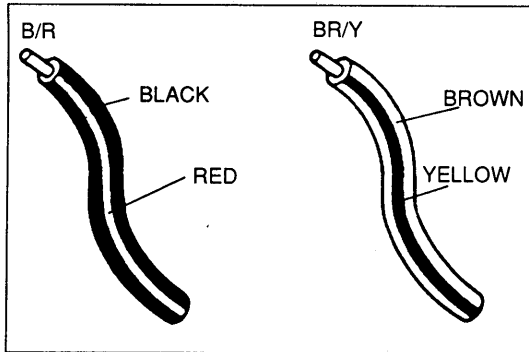
Replacement

Use the appropriate tools to remove a terminal as shown. When installing a terminal, be sure to insert it until it locks securely.

Insert a thin piece of metal from the terminal side of the connector, and then, with the terminal locking tab pressed down, pull the terminal out from the connector.

**SENSORS, SWITCHES, AND RELAYS**

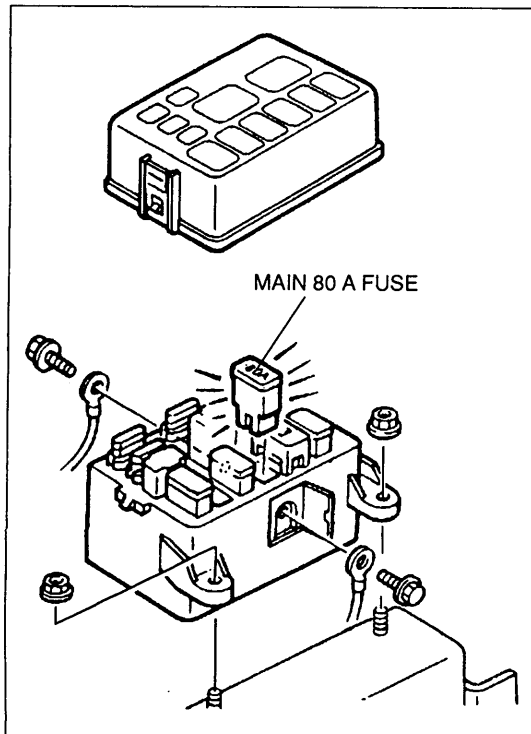
Handle sensors, switches, and relays carefully. Do not drop them or strike them against other objects.

**WIRING HARNESS****Wiring Color Codes**

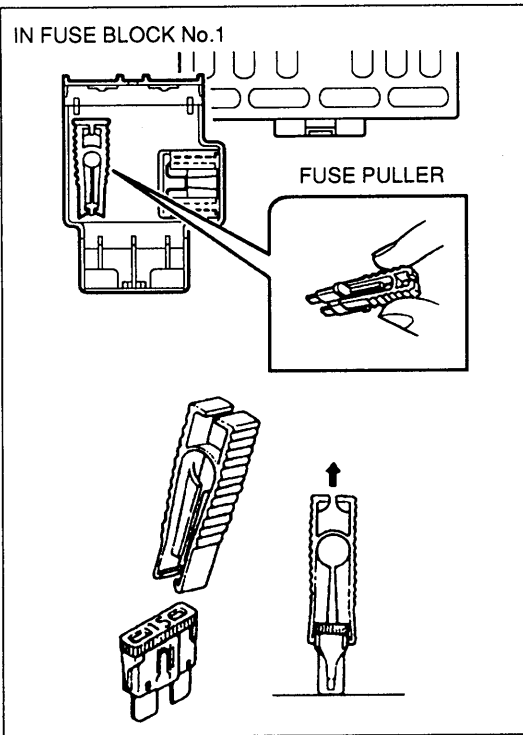
Two-color wires are indicated by a two-color code symbol.

The first letter indicates the base color of the wire and the second the color of the stripe.

CODE	COLOR	CODE	COLOR
B	Black	O	Orange
BR	Brown	P	Pink
G	Green	R	Red
GY	Gray	V	Violet
L	Blue	W	White
LB	Light Blue	Y	Yellow
LG	Light Green	—	—

**MAIN FUSE****Removal / Installation**

1. Deactivate the audio antitheft system, if installed. (Refer to section T.)
2. Disconnect the negative battery cable.
3. Remove the main fuse block mounting nuts, and remove the service cover.
4. Remove the MAIN 80 A fuse mounting bolts, and pull out the MAIN 80 A fuse.
5. Install in the reverse order of removal.

**FUSE (PLATE-TYPE)****Removal / Installation**

1. Remove the fuse with the fuse puller.

Caution

- Determine and correct the cause of a burnt fuse before replacing it. If the fuse is replaced before doing this, it may burn again.

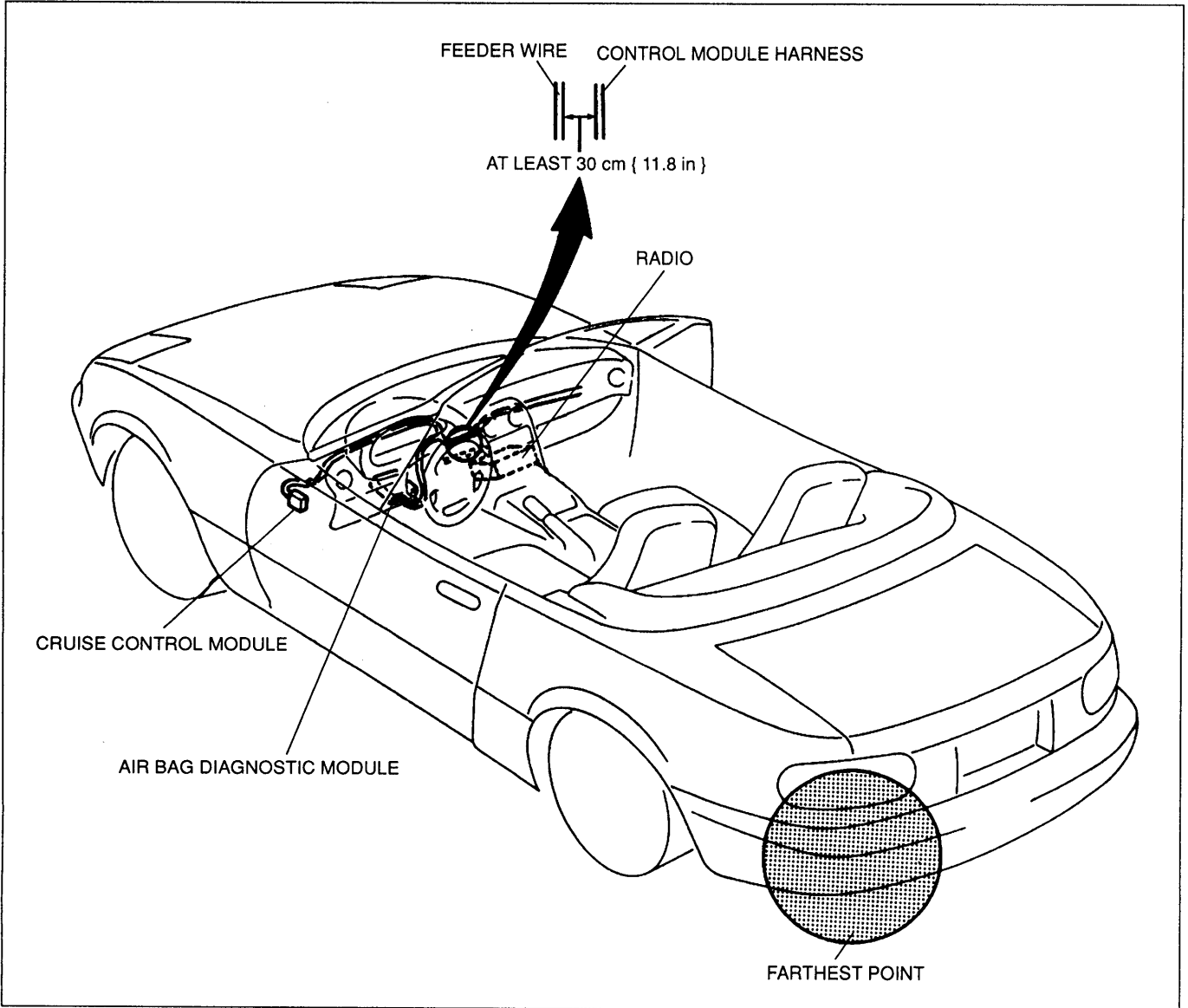
2. Install the fuse.

INSTALLATION OF A RADIO SYSTEM

If a radio system is installed improperly or if a high-powered type is used, the CIS and other systems may be affected.

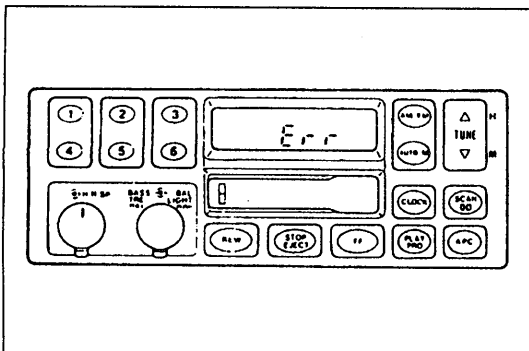
When the vehicle is to be equipped with a radio, observe the following precautions:

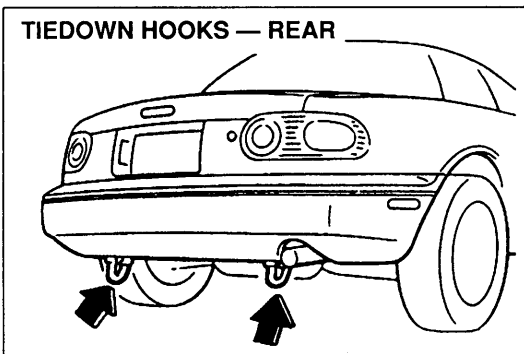
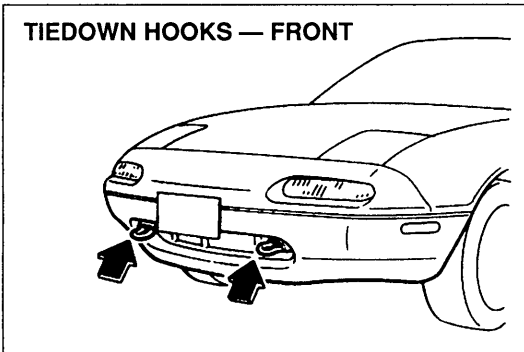
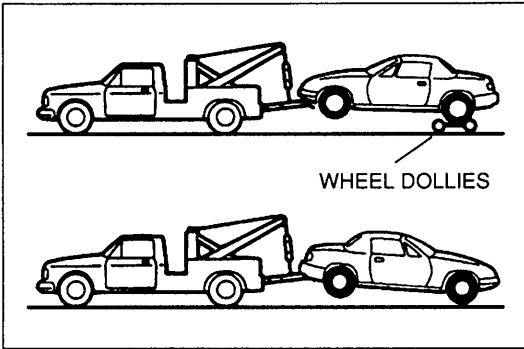
1. Install the antenna at the farthest point from control module.
2. Install the antenna feeder as far as possible from the control module harnesses (**at least 30 cm { 11.8 in }**).
3. Ensure that the antenna and feeder are properly adjusted.
4. Do not install a high-powered radio system.



AUDIO ANTITHEFT SYSTEM

An audio with an antitheft function is optionally available. Before removing the negative battery terminal or disconnecting the audio power source, obtain the code number and deactivate the audio antitheft system. (Refer to section T.)





TOWING

Proper towing equipment is necessary to prevent damage to the vehicle.

Laws and regulations applicable to vehicles in tow must always be observed.

As a general rule, towed vehicles should be pulled with the driving wheels off the ground. If excessive damage or other conditions prevent towing the vehicle with the driving wheels off the ground, use wheel dollies.

With either automatic or manual transmission.

1. Set the ignition switch in the ACC position.
2. Place the selector lever or shift lever in N (Neutral).
3. Release the parking brake.

With manual transmission

If the transmission, rear axle, and steering system are not damaged, the vehicle may be towed on all four wheels. If any of these components are damaged, use wheel dollies.

With automatic transmission

If excessive damage or other conditions prevent towing the vehicle with the driving wheels off the ground, use wheel dollies.

If all four wheels are on the ground, the vehicle may be towed only forward. Don't exceed 56 km/h { 35 mph } and a distance of 56 km { 35 miles }. You could damage the transmission.

If speed must exceed 56 km/h { 35 mph } or a towing distance of 56 km { 35 miles }, use one of these methods:

- Place the rear wheels on a dolly.
- Tow with the rear wheels off the ground.
- Disconnect the propeller shaft.

If the transmission or rear axle is inoperative, tow with the rear wheels off the ground.

Caution

- Don't tow with sling-type equipment. This could damage your vehicle. Use wheel-lift or flatbed equipment.

Caution

- Don't use the hook loops under the front and rear for towing. They are designed ONLY for tying down the vehicle when it's being transported. Using them for towing will damage the bumper.

PRE-DELIVERY INSPECTION AND SCHEDULED MAINTENANCE

PRE-DELIVERY INSPECTION	A- 2
PRE-DELIVERY INSPECTION TABLE	A- 2
SCHEDULED MAINTENANCE	A- 3
SCHEDULED MAINTENANCE TABLE (EXCEPT CANADA)	A- 3
SCHEDULED MAINTENANCE TABLE (CANADA)	A-13

PRE-DELIVERY INSPECTION

PRE-DELIVERY INSPECTION TABLE

The following items may be done at any time prior to delivery to your customer.

EXTERIOR

INSPECT and **ADJUST**, if necessary, the following items to specification:

- Glass, exterior bright metal, and paint for damage
- Convertible top and detachable hardtop (if equipped) for damage
- Wheel lug nuts and locks
89—117 N·m { 9.0—12.0 kgf·m , 66—86 ft·lbf }
- All weatherstrips for damage or detachment
- Operation of hood release and lock
- Operation of fuel lid
- Door operation and alignment
- Headlight aiming

INSTALL the following parts:

- Wheel caps (if equipped)
- Mast antenna (if equipped)

UNDER HOOD—ENGINE OFF

INSPECT and **ADJUST**, if necessary, the following items to specification:

- Fuel, coolant, and hydraulic lines, fittings, connections, and components for leaks
- Engine oil level
- Power steering fluid level (if equipped)
- Brake and clutch master cylinder fluid level
- Windshield washer reservoir fluid level
- Radiator coolant level and specific gravity
- Tightness of battery terminals

INTERIOR

INSTALL the following parts:

CHECK the operation of the following items:

- Seat controls (slide and recline)
- Door locks
- Seat belts and warning system
- Air bag system by using warning light (Refer to section T)
- Ignition switch and steering lock
- Starter interlock switch (clutch pedal)
- All lights, including warning, and indicator lights
- Anti-theft system
- Horn, wipers, and washers
- Audio system
- Cruise control system (if equipped)
- Cigarette lighter
- Power windows (if equipped)
- Power outside mirrors (if equipped)
- Heater, defroster, and air conditioner at all mode selections (if equipped)

CHECK the following items:

- Presence of spare fuses
- Upholstery and interior finish

CHECK and **ADJUST**, if necessary, the following items:

- Pedal height and free play of brake and clutch pedals

	Pedal height mm { in }	Free play mm { in }
Clutch pedal	175—185 { 6.89—7.28 } (with carpet)	0.6—3.1 { 0.02—0.12 }
Brake pedal	171—181 { 6.73—7.13 } (with carpet)	4—7 { 0.16—0.28 }

- Parking brake

7—9 notches/196 N { 20 kgf , 44 lbf }

UNDER HOOD—ENGINE RUNNING AT OPERATING TEMPERATURE

CHECK the following items:

- Automatic transmission oil level

ON HOIST

CHECK the following items:

- Underside fuel, coolant, and hydraulic lines, fittings, connections, and components for leaks
- Tires for cuts or bruises
- Steering linkage, suspension, exhaust system, and all underside hardware for looseness or damage
- Manual transmission oil level
- Differential oil level

ROAD TEST

CHECK the following items:

- Brake operation
- Clutch operation
- Steering control
- Operation of meters and gauges
- Squeaks, rattles or unusual noises
- Overall engine performance
- Seat belt emergency locking retractors
- Cruise control system (if equipped)

AFTER ROAD TEST

CHECK for owner information materials, tools, and spare tire in vehicle

The following items must be done just before delivery to your customer.

- Load test battery and charge if necessary
- Adjust tire pressure to specification
(Refer to door label)
- Clean outside of vehicle

Volts
Load test result

- Install fuses for accessories
- Remove seat and floor mat protective covers
- Vacuum and clean interior of vehicle
- Inspect installation of option parts with invoice

SCHEDULED MAINTENANCE

SCHEDULED MAINTENANCE TABLE (EXCEPT CANADA)

Schedule 1 (Normal driving conditions)

The vehicle is mainly operated where none of the "unique driving conditions" apply.

Schedule 2 (Unique driving conditions)

- Repeated short-distance driving.
- Driving in dusty conditions.
- Driving with extended use of brakes.
- Driving in areas where road salt or other corrosive materials are used.
- Driving on rough or muddy roads.
- Extended periods of idling or low-speed operation.
- Driving for long prolonged periods in cold temperatures or extremely humid climates.

Schedule 1 (Normal driving conditions)

Chart symbols:

I : Inspect and repair, clean, or replace if necessary.

R : Replace

L : Lubricate

Remarks:

- After 48 months or 60,000 miles { 96,000 km }, continue to follow the described maintenance at the recommended intervals.
- *1 This maintenance is required for all states except California. However, we recommend that it also be performed on California vehicles.
- *2 This maintenance is recommended by Mazda. However, it is not necessary for emission warranty coverage or manufacturer recall liability.

Schedule 1 (Normal driving conditions) (MT)

Maintenance Interval	Number of months or miles { kilometers }, whichever comes first										Service data and inspection point	Page
	Months	6	12	18	24	30	36	42	48			
	Kilometers	12,000	24,000	36,000	48,000	60,000	72,000	84,000	96,000			
ENGINE	Miles	7,500	15,000	22,500	30,000	37,500	45,000	52,500	60,000			
Engine oil		R	R	R	R	R	R	R	R		Oil replacement: 3.6 L { 3.8 US qt , 3.2 Imp qt }	D-5
Oil filter		R	R	R	R	R	R	R	R		Oil filter capacity: 0.15 L { 0.16 US qt , 0.13 Imp qt }	D-6
Drive belts				I							• Cracks or damage • Tension	B-6
Air cleaner element				R					R		—	F-99
Engine timing belt											Replace every 60,000 miles { 96,000 km }	B-12
Engine timing belt (California)											Inspect at 60,000 miles { 96,000 km }, and again at 90,000 miles { 144,000 km }*2 Replace every 105,000 miles { 168,000 km }	B-12
Hose and tube for emission											Fittings and connections	—
IGNITION SYSTEM												
Spark plugs											• Plug gap: 1.0—1.1 mm { 0.040—0.043 in } • Recommended spark plugs:	G-18
											NGK BKR5E-11 BKR6E-11	
											NIPPONDENSO K16PR-U11 K20PR-U11	
FUEL SYSTEM												
Idle speed											Idle speed MT: 800—900 rpm (Neutral)	F-76
Fuel filter											—	F-113
Fuel lines and hoses											Fittings, connections and components for leaks	F-107
Fuel hoses (California)											Fittings, connections and components for leaks	F-107
Hose and tube for emission											Fittings and connections	—
COOLING SYSTEM												
Cooling system											• Hoses for cracks or wear • Coolant level	E-4
Engine coolant											—	E-5

Schedule 1 (Normal driving conditions) (MT) (Cont'd)

Maintenance Interval	Number of months or miles { kilometers }, whichever comes first										Service data and inspection point	Page	
	Months	6	12	18	24	30	36	42	48				
	Miles	7,500	15,000	22,500	30,000	37,500	45,000	52,500	60,000				
CHASSIS AND BODY													
Brake lines, hoses, and connections					I							I	Proper attachment and connections P-6
Disc brakes					I							I	• Disc plate thickness Front: 18.0 mm { 0.71 in }—Minimum Rear: 8.0 mm { 0.31 in }—Minimum • Pad thickness: 1.0 mm { 0.04 in }—Minimum P-26, 30 P-25, 29
Steering operation and linkages					I							I	• Free play: 0—30 mm { 0—1.18 in } • Operation and looseness • Fluid leakage or oozing N-8
Front suspension ball joints					I							I	Damage, looseness and grease leakage R-15, 17
Manual transmission oil												R	Oil capacity: 2.0 L { 2.1 US qt, 1.8 Imp qt } J-8
Drive shaft dust boots					I							I	Cracking and damage M-17
Differential oil												R	Oil capacity: 1.00 L { 1.06 US qt, 0.88 Imp qt } M-25
Bolts and nuts on chassis and body					I							I	Retighten all loose bolts and nuts —
Exhaust system heat shields					I							I	Insulator clearance between body and exhaust system F-128
All locks and hinges					L	L	L	L	L	L	L	L	Lubricate all locks and hinges —
AIR CONDITIONER SYSTEM (IF EQUIPPED)													
Refrigerant amount			I		I							I	Refrigerant pressure Low pressure: 0.15—0.24 MPa { 1.5—2.5 kgf/cm ² , 22—35 psi } High pressure: 1.38—1.56 MPa { 14.0—16.0 kgf/cm ² , 200—227 psi } U-28
A/C compressor operation			I		I							I	— —

Schedule 1 (Normal driving conditions) (AT)

Maintenance Interval	Number of months or miles { kilometers }, whichever comes first										Service data and inspection point	Page
	Months	6	12	18	24	30	36	42	48			
	Miles	12,000	24,000	36,000	48,000	60,000	72,000	84,000	96,000			
ENGINE		7,500	15,000	22,500	30,000	37,500	45,000	52,500	60,000			
Engine oil	R	R	R	R	R	R	R	R	R	R	Oil replacement: 3.6 L { 3.8 US qt , 3.2 Imp qt }	D-5
Oil filter	R	R	R	R	R	R	R	R	R	R	Oil filter capacity: 0.15 L { 0.16 US qt , 0.13 Imp qt }	D-6
Drive belts				I						I	• Cracks or damage • Tension	B-6
Air cleaner element				R						R	—	F-99
Engine timing belt											Replace every 60,000 miles { 96,000 km }	B-12
Engine timing belt (California)											Inspect at 60,000 miles { 96,000 km }, and again at 90,000 miles { 144,000 km }*2 Replace every 105,000 miles { 168,000 km }	B-12
Hose and tube for emission										I*2	Fittings and connections	—
IGNITION SYSTEM												
Spark plugs					R						• Plug gap: 1.0—1.1 mm { 0.040—0.043 in } • Recommended spark plugs: NGK BKR5E-11 BKR6E-11 NIPPONDENSO K16PR-U11 K20PR-U11	G-18
FUEL SYSTEM												
Idle speed					I*2						Idle speed AT: 750—850 rpm (P range)	F-76
Fuel filter										R*1	—	F-113
Fuel lines and hoses					I*2					I*1	Fittings, connections and components for leaks	F-107
Fuel hoses (California)											Fittings, connections and components for leaks	F-107
Hose and tube for emission										I*2	Fittings and connections	—
COOLING SYSTEM												
Cooling system					I					I	• Hoses for cracks or wear • Coolant level	E-4
Engine coolant					R					R	—	E-5

Schedule 1 (Normal driving conditions) (AT) (Cont'd)

Maintenance Interval	Number of months or miles { kilometers }, whichever comes first							Service data and inspection point	Page		
	Months	6	12	18	24	30	36			42	48
	Miles	7,500	15,000	22,500	30,000	37,500	45,000			52,500	60,000
CHASSIS AND BODY											
Brake lines, hoses, and connections					I				I	Proper attachment and connections • Disc plate thickness Front: 18.0 mm { 0.71 in }—Minimum Rear: 8.0 mm { 0.31 in }—Minimum • Pad thickness: 1.0 mm { 0.04 in }—Minimum	P-6
Disc brakes					I				I	• Free play: 0—30 mm { 0—1.18 in } • Operation and looseness • Fluid leakage or oozing	P-26, 30 P-25, 29
Steering operation and linkages					I				I	• Free play: 0—30 mm { 0—1.18 in } • Operation and looseness • Fluid leakage or oozing	N-8
Front suspension ball joints					I				I	Damage, looseness and grease leakage	R-15, 17
Drive shaft dust boots					I				I	Cracking and damage	M-17
Differential oil									R	Oil capacity: 1.00 L { 1.06 US qt, 0.88 Imp qt }	M-25
Bolts and nuts on chassis and body					I				I	Retighten all loose bolts and nuts	—
Exhaust system heat shields					I				I	Insulator clearance between body and exhaust system	F-128
All locks and hinges	L	L	L	L	L	L	L	L	L	Lubricate all locks and hinges	—
AIR CONDITIONER SYSTEM (IF EQUIPPED)											
Refrigerant amount					I				I	Refrigerant pressure Low pressure: 0.15—0.24 MPa { 1.5—2.5 kgf/cm ² , 22—35 psi } High pressure: 1.38—1.56 MPa { 14.0—16.0 kgf/cm ² , 200—227 psi }	U-28
A/C compressor operation					I				I	—	—

Schedule 2 (Unique driving conditions)**Chart symbols:**

I : Inspect and repair, clean, or replace if necessary. (Inspect, and if necessary replace Air cleaner element only)

R : Replace

L : Lubricate

Remarks:

- After 48 months or 60,000 miles { 96,000 km }, continue to follow the described maintenance at the recommended intervals.
 - *1 This maintenance is required for all states except California. However, we recommend that it also be performed on California vehicles.
 - *2 This maintenance is recommended by Mazda. However, it is not necessary for emission warranty coverage or manufacturer recall liability.

Schedule 2 (Unique driving conditions) (MT)

Maintenance Interval	Number of months or miles { kilometers }, whichever comes first												Service data and inspection point	Page		
	Months	4	8	12	16	20	24	28	32	36	40	44			48	
	Kilometers (×1,000)	8	16	24	32	40	48	56	64	72	80	88			96	
	Miles (×1,000)	5	10	15	20	25	30	35	40	45	50	55			60	
ENGINE																
Engine oil	R	R	R	R	R	R	R	R	R	R	R	R	R	R	Oil replacement: 3.6 L { 3.8 US qt, 3.2 Imp qt }	D-5
Engine oil (Puerto Rico)	Replace every 3,000 miles { 4,800 km } or every 3 months															
Oil filter	R	R	R	R	R	R	R	R	R	R	R	R	R	R	Oil filter capacity: 0.15 L { 0.16 US qt, 0.13 Imp qt }	D-6
Drive belts						I									• Cracks or damage • Tension	B-6
Air cleaner element			I*2			R					I*2				—	F-99
Engine timing belt															—	B-12
Engine timing belt (California)															Inspect every 60,000 miles { 96,000 km }, and again at 90,000 miles { 144,000 km }*2 Replace every 105,000 miles { 168,000 km }	B-12
Hose and tube for emission															Fittings and connections	—
IGNITION SYSTEM																
Spark plugs															• Plug gap: 1.0—1.1 mm { 0.040—0.043 in } • Recommended spark plugs: NGK BKR5E-11 BKR6E-11 NIPPONDENSO K16PR-U11 K20PR-U11	G-18
FUEL SYSTEM																
Idle speed															Idle speed MT: 800—900 rpm (Neutral)	F-76
Fuel filter															—	F-113
Fuel lines and hoses															Fittings, connections and components for leaks	F-107
Fuel hoses (California)															Fittings, connections and components for leaks	F-107
COOLING SYSTEM																
Cooling system															• Hoses for cracks or wear • Coolant level	E-4
Engine coolant															—	E-5

Schedule 2 (Unique driving conditions) (MT) (Cont'd)

Maintenance Interval	Number of months or miles { kilometers }, whichever comes first													Service data and inspection point	Page			
	Months	4	8	12	16	20	24	28	32	36	40	44	48					
	Kilometers (x 1,000)	8	16	24	32	40	48	56	64	72	80	88	96					
Maintenance Item	Miles (x 1,000)	5	10	15	20	25	30	35	40	45	50	55	60					
CHASSIS AND BODY																		
Brake lines, hoses, and connections							I									I	Proper attachment and connections • Disc plate thickness Front: 18.0 mm { 0.71 in }—Minimum Rear: 8.0 mm { 0.31 in }—Minimum • Pad thickness: 1.0 mm { 0.04 in }—Minimum	P-6
Disc brakes			I				I		I							I	• Free play: 0—30 mm { 0—1.18 in } • Operation and looseness • Fluid leakage or oozing	P-26, 30 P-25, 29
Steering operation and linkages							I									I		N-8
Front suspension ball joints							I									I	Damage, looseness and grease leakage	R-15, 17
Drive shaft dust boots							I									I	Cracking and damage	M-17
Manual transmission oil							R									R	Oil capacity: 2.0 L { 2.1 US qt, 1.8 Imp qt }	J-8
Differential oil							R									R	Oil capacity: 1.00 L { 1.06 US qt, 0.88 Imp qt }	M-25
Bolts and nuts on chassis and body				I			I									I	Retighten all loose bolts and nuts	—
Exhaust system heat shields							I									I	Insulator clearance between body and exhaust system	F-128
All locks and hinges		L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	Lubricate all locks and hinges	—
AIR CONDITIONER SYSTEM (IF EQUIPPED)																		
Refrigerant amount				I			I									I	Refrigerant pressure Low pressure: 0.15—0.24 MPa { 1.5—2.5 kgf/cm ² , 22—35 psi } High pressure: 1.38—1.56 MPa { 14.0—16.0 kgf/cm ² , 200—227 psi }	U-28
A/C compressor operation				I			I									I		—

Schedule 2 (Unique driving conditions) (AT)

Maintenance Interval Maintenance Item	Number of months or miles { kilometers }, whichever comes first													Service data and inspection point	Page	
	Months	4	8	12	16	20	24	28	32	36	40	44	48			
	Kilometers (×1,000)	8	16	24	32	40	48	56	64	72	80	88	96			
Miles (×1,000)	5	10	15	20	25	30	35	40	45	50	55	60				
ENGINE																
Engine oil	R	R	R	R	R	R	R	R	R	R	R	R	R	R	Oil replacement: 3.6 L { 3.8 US qt, 3.2 Imp qt }	D-5
Engine oil (Puerto Rico)	Replace every 3,000 miles { 4,800 km } or every 3 months															
Oil filter	R	R	R	R	R	R	R	R	R	R	R	R	R	R	Oil filter capacity: 0.15 L { 0.16 US qt, 0.13 Imp qt }	D-6
Drive belts						I								I	• Cracks or damage • Tension	B-6
Air cleaner element			I*2			R								R		F-99
Engine timing belt	Replace every 60,000 miles { 96,000 km }															
Engine timing belt (California)	Inspect at 60,000 miles { 96,000 km }, and again at 90,000 miles { 144,000 km } *2															
Hose and tube for emission	Replace every 105,000 miles { 168,000 km }															
														I*2	Fittings and connections	—
IGNITION SYSTEM																
Spark plugs										R					• Plug gap: 1.0—1.1 mm { 0.040—0.043 in } • Recommended spark plugs:	G-18
															NGK BKR5E-11 BKR6E-11 NIPPONDENSO K16PR-U11 K20PR-U11	
FUEL SYSTEM																
Idle speed										I*2					Idle speed AT: 750—850 rpm (P range)	F-76
Fuel filter														R*1		F-113
Fuel lines and hoses										I*2					Fittings, connections and components for leaks	F-107
Fuel hoses (California)	Inspect every 105,000 miles { 168,000 km }															
COOLING SYSTEM																
Cooling system														I	• Hoses for cracks or wear	E-4
Engine coolant										R					• Coolant level	E-5

Schedule 2 (Unique driving conditions) (AT) (Cont'd)

Maintenance Interval	Number of months or miles { kilometers }, whichever comes first														Service data and inspection point	Page
	Months	4	8	12	16	20	24	28	32	36	40	44	48			
Maintenance Item	Kilometers (x 1,000)	8	16	24	32	40	48	56	64	72	80	88	96			
	Miles (x 1,000)	5	10	15	20	25	30	35	40	45	50	55	60			
CHASSIS AND BODY																
Brake lines, hoses, and connections							I							I	Proper attachment and connections	P-6
Disc brakes			I				I		I					I	<ul style="list-style-type: none"> Disc plate thickness Front: 18.0 mm { 0.71 in }—Minimum Rear: 8.0 mm { 0.31 in }—Minimum Pad thickness: 1.0 mm { 0.04 in }—Minimum 	P-26, 30 P-25, 29
Steering operation and linkages							I							I	<ul style="list-style-type: none"> Free play: 0—30 mm { 0—1.18 in } Operation and looseness Fluid leakage or oozing 	N-8
Front suspension ball joints							I							I	Damage, looseness and grease leakage	R-15, 17
Drive shaft dust boots							I							I	Cracking and damage	M-17
Differential oil							R							R	Oil capacity: 1.00 L { 1.06 US qt, 0.88 Imp qt }	M-25
Bolts and nuts on chassis and body							I			I				I	Retighten all loose bolts and nuts	—
Exhaust system heat shields							I							I	Insulator clearance between body and exhaust system	F-128
All locks and hinges		L	L	L	L	L	L	L	L	L	L	L	L	L	Lubricate all locks and hinges	—
AIR CONDITIONER SYSTEM (IF EQUIPPED)																
Refrigerant amount				I			I			I				I	Refrigerant pressure Low pressure: 0.15—0.24 MPa { 1.5—2.5 kgf/cm ² , 22—35 psi } High pressure: 1.38—1.56 MPa { 14.0—16.0 kgf/cm ² , 200—227 psi }	U-28
A/C compressor operation				I			I			I				I	—	—

SCHEDULED MAINTENANCE TABLE (CANADA)**Chart symbols:**

I : Inspect and repair, clean, or replace if necessary. (Inspect, and if necessary replace Air cleaner element only)

R : Replace

L : Lubricate

Rt : Rotation (tires)

Remarks:

- After 60 months or 60,000 miles { 96,000 km }, continue to follow the described maintenance at the recommended intervals.
- *1 Replacement of the timing belt is required every 60,000 miles { 96,000 km }. Failure to replace this belt may result in damage to the engine.
- *2 This maintenance is recommended by Mazda. However, it is not necessary for emission warranty coverage or manufacturer recall liability.
- *3 This maintenance is recommended by Mazda.

Schedule

Maintenance Interval	Number of months or miles { kilometers }, whichever comes first														Service data and inspection point	Page					
	Months	5	10	15	20	25	30	35	40	45	50	55	60								
	Kilometers (×1,000)	8	16	24	32	40	48	56	64	72	80	88	96								
	Miles (×1,000)	5	10	15	20	25	30	35	40	45	50	55	60								
ENGINE																					
Engine oil	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	Oil replacement: 3.6 L { 3.8 US qt, 3.2 Imp qt }	D-5				
Oil filter	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	Oil filter capacity: 0.15 L { 0.16 US qt, 0.13 Imp qt }	D-6				
Drive belts	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	• Cracks or damage • Tension	B-6				
Air cleaner element			I							I						—	F-99				
Engine timing belt*1																—	B-12				
IGNITION SYSTEM																					
Spark plugs						R									R	<ul style="list-style-type: none"> • Plug gap: 1.0—1.1 mm { 0.040—0.043 in } • Recommended spark plugs: <table border="1" style="margin-left: 20px;"> <tr> <td>NGK</td> <td>BKR5E-11 BKR6E-11</td> </tr> <tr> <td>NIPPONDENSO</td> <td>K16PR-U11 K20PR-U11</td> </tr> </table>	NGK	BKR5E-11 BKR6E-11	NIPPONDENSO	K16PR-U11 K20PR-U11	G-18
NGK	BKR5E-11 BKR6E-11																				
NIPPONDENSO	K16PR-U11 K20PR-U11																				
FUEL SYSTEM																					
Idle speed			I												I	Idle speed MT: 800—900 rpm (Neutral) AT: 750—850 rpm (P range)	F-76				
Fuel filter															R	—	F-113				
Fuel lines and hoses															I	Fittings, connections and components for leaks	F-107				
PCV valve*2															I	Operation	F-130				
Emission hoses and tubes															I	Fittings and connections	—				
COOLING SYSTEM																					
Cooling system			I												I	• Hoses for cracks or wear • Leaks	E-4				
Engine coolant															R	—	E-5				
			I	I	I	I	I	I	I	I	I	I	I	I	I	Level and strength	E-4				

Schedule (Cont'd)

Maintenance Interval	Number of months or miles { kilometers }, whichever comes first												Service data and inspection point	Page			
	Months	5	10	15	20	25	30	35	40	45	50	55			60		
	Kilometers (x 1,000)	8	16	24	32	40	48	56	64	72	80	88			96		
	Miles (x 1,000)	5	10	15	20	25	30	35	40	45	50	55			60		
CHASSIS AND BODY																	
Brake lines and hoses																Proper attachment and connections	P-6
Disc brakes (front and rear)			I													<ul style="list-style-type: none"> Disc plate thickness Front: 18.0 mm { 0.71 in }—Minimum Rear: 8.0 mm { 0.31 in }—Minimum Pad thickness: 1.0 mm { 0.04 in }—Minimum 	P-26, 30
Steering operation and linkages (Includes four wheel alignment)																<ul style="list-style-type: none"> Free play: 0—30 mm { 0—1.18 in } Operation and looseness Fluid leakage or oozing Wheel alignment 	P-25, 29
Automatic transmission fluid level		I	I	I	I	I	I	I	I	I	I	I	I	I	I	Level and condition	K-35
Transmission oil MT and AT							R									Oil capacity MT: 2.0 L { 2.1 US qt , 1.8 Imp qt } AT: 4.0 L { 4.2 US qt , 3.5 Imp qt }	J-8 K-37
Differential oil							R									Oil capacity: 1.00 L { 1.06 US qt , 0.88 Imp qt }	M-25
Drive shaft dust boots		I	I	I	I	I	I	I	I	I	I	I	I	I	I	Level and condition	M-25
Brake and clutch fluid level		I	I	I	I	I	I	I	I	I	I	I	I	I	I	Cracking and damage	M-17
Brake fluid*3																Level and condition	H-4, P-8
All chassis and body nuts and bolts																Capacity	P-8
Exhaust system heat shields																Retighten all loose bolts and nuts	—
All locks and hinges	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	Insulator clearance between body and exhaust system	F-128
																Lubricate all locks and hinges	—

Schedule (Cont'd)

Maintenance Interval	Number of months or miles { kilometers }, whichever comes first														Service data and inspection point	Page	
	Months	5	10	15	20	25	30	35	40	45	50	55	60				
	Kilometers (×1,000)	8	16	24	32	40	48	56	64	72	80	88	96				
	Miles (×1,000)	5	10	15	20	25	30	35	40	45	50	55	60				
CHASSIS AND BODY																	
Tire inflation pressure and tire wear	|	|	|	|	|	|	|	|	|	|	|	|	|	|	|	• Wear and damage • Proper pressure	Q-3
Tires			Rt			Rt				Rt					Rt		—
Power steering fluid level	|	|	|	|	|	|	|	|	|	|	|	|	|	|	|	Level and condition	N-22
Suspension components front and rear																Damage	—
Washer fluid level	|	|	|	|	|	|	|	|	|	|	|	|	|	|	|	Level	—
Function of all lights	|	|	|	|	|	|	|	|	|	|	|	|	|	|	|	• Operation • Dirt and damage	—
AIR CONDITIONER SYSTEM (IF EQUIPPED)																	
Refrigerant amount	|	|	|	|	|	|	|	|	|	|	|	|	|	|	|	Refrigerant pressure Low pressure: 0.15—0.24 MPa { 1.5—2.5 kgf/cm ² , 22—35 psi } High pressure: 1.38—1.56 MPa { 14.0—16.0 kgf/cm ² , 200—227 psi }	U-28
A/C compressor operation	|	|	|	|	|	|	|	|	|	|	|	|	|	|	|	—	—

Before beginning any service procedure, refer to section T of this manual for air bag system service warnings and audio antitheft system alarm conditions.

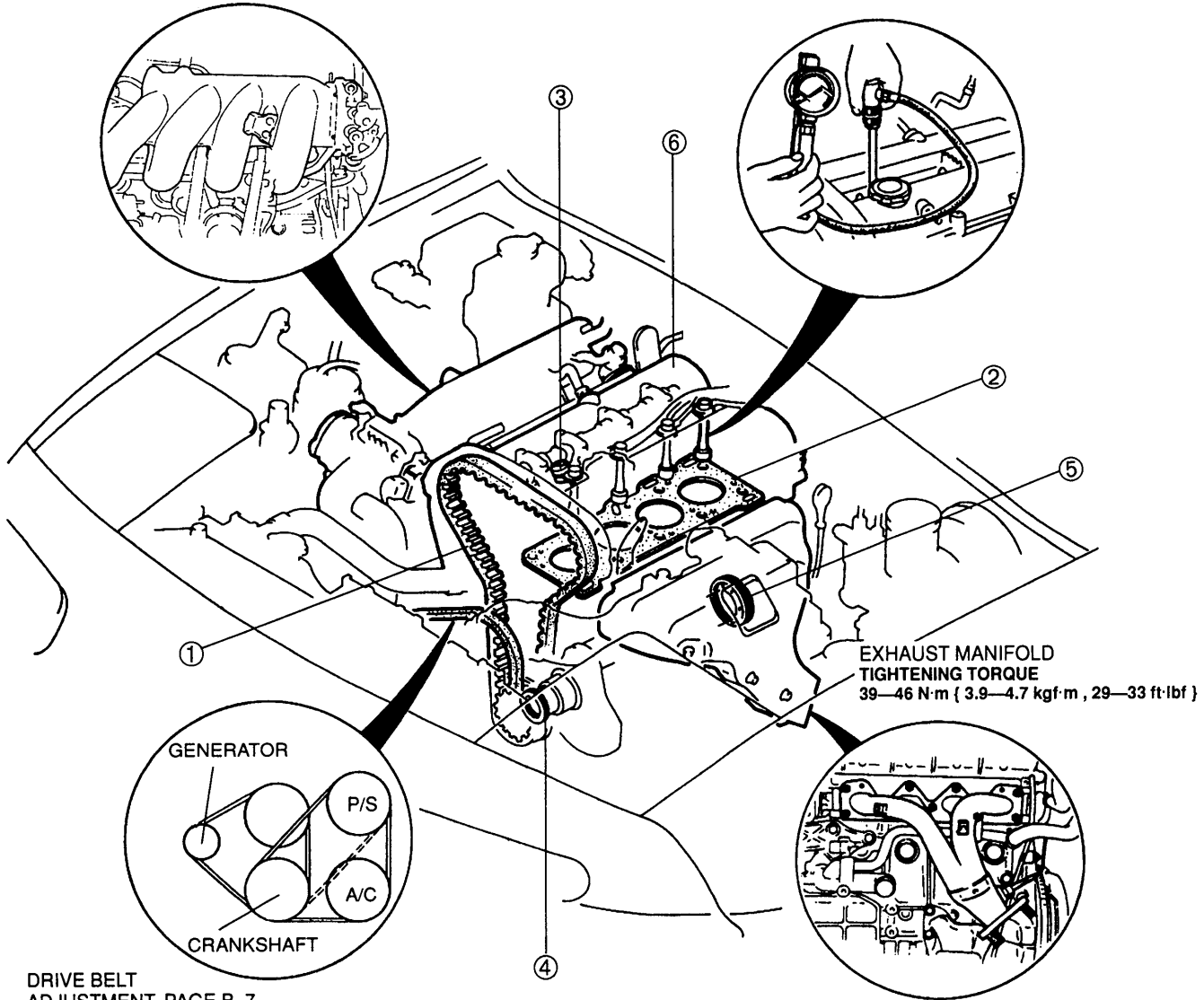
ENGINE

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FRONT OIL SEAL	B-24	PREPARATION	B-60
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CYLINDER BLOCK			
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CYLINDER BLOCK			
(INTERNAL PARTS)	B-44		

INDEX

**INTAKE MANIFOLD
TIGHTENING TORQUE**
19—25 N·m { 1.9—2.6 kgf·m , 14—18 ft·lbf }

COMPRESSION INSPECTION, PAGE B-10
STANDARD: 1,255 kPa { 12.8 kgf/cm² , 182 psi }—300 rpm
MINIMUM: 883 kPa { 9.0 kgf/cm² , 128 psi }—300 rpm



**EXHAUST MANIFOLD
TIGHTENING TORQUE**
39—46 N·m { 3.9—4.7 kgf·m , 29—33 ft·lbf }

**DRIVE BELT
ADJUSTMENT, PAGE B-7**

**ENGINE OIL INSPECTION,
SERVICE, SECTION D**

**ENGINE COOLANT INSPECTION,
SERVICE, SECTION E**

DEFLECTION

mm { in }

DRIVE BELT	NEW	USED	LIMIT
GENERATOR	5.5—7.0 { 0.22—0.27 }	6.0—7.5 { 0.24—0.29 }	8.0 { 0.31 }
P/S, P/S + A/C	8.0—9.0 { 0.32—0.35 }	9.0—10.0 { 0.36—0.39 }	11.5 { 0.45 }
A/C	8.0—9.0 { 0.32—0.35 }	9.0—10.0 { 0.36—0.39 }	11.5 { 0.45 }

- 1. Timing belt
Removal / Installation page B-12
- 2. Cylinder head gasket
Replacement page B-16
- 3. HLA
Removal / Installation page B-20
- 4. Front oil seal
Replacement page B-24
- 5. Rear oil seal
Replacement page B-26

- 6. Engine
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- Engine stand mounting page B-32
- Disassembly page B-35
- Inspection / Repair page B-47
- Assembly page B-60
- Engine stand dismounting ... page B-83
- Installation page B-85

OUTLINE

SPECIFICATIONS

Item		Engine	BP DOHC
Type			Gasoline, 4-cycle
Cylinder arrangement and number			In-line, 4-cylinders
Combustion chamber			Pentroof
Valve system			DOHC, belt-driven, 16 valves
Displacement		ml { cc , cu in }	1,840 { 1,840 , 112 }
Bore × stroke		mm { in }	83.0 × 85.0 { 3.27 × 3.35 }
Compression ratio			9.0
Compression pressure		kPa { kgf/cm ² , psi }-rpm	1,255 { 12.8 , 182 }-300
Valve timing	IN	Open BTDC°	5
		Close ABDC°	48
	EX	Open BBDC°	56
		Close ATDC°	14
Valve clearance		IN mm { in }	0 { 0 } : Maintenance-free
		EX mm { in }	0 { 0 } : Maintenance-free

TROUBLESHOOTING GUIDE

Problem	Possible Cause	Remedy	Page
Difficult starting	Malfunction of engine-related components		
	Burned valve	Replace	B-48
	Worn piston, piston ring, or cylinder	Replace or repair	B-54, 56
	Failed cylinder head gasket	Replace	B-16
	Malfunction of fuel system	Refer to section F	
	Malfunction of ignition system	Refer to section G	
Poor idling	Malfunction of engine-related components		
	Malfunction of HLA*	Replace	B-20
	Poor valve-to-valve seat contact	Replace or repair	B-50
	Failed cylinder head gasket	Replace	B-16
	Malfunction of fuel system	Refer to section F	
	Malfunction of ignition system	Refer to section G	
Excessive oil consumption	Oil working up		
	Worn piston ring groove or stuck piston ring	Replace	B-56
	Worn piston or cylinder	Replace or repair	B-54, 55
	Oil working down		
	Worn valve seal	Replace	B-39, 71
Worn valve stem or guide	Replace	B-48	
	Oil leakage	Refer to section D	

* Tappet noise may occur if the engine has set idle for an extended period. The noise should dissipate after the engine has reached normal operating temperature. (HLA troubleshooting: Refer to page B-8.)

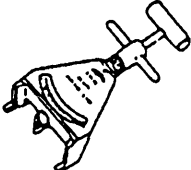
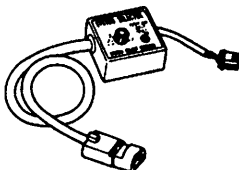
Problem	Possible Cause	Remedy	Page
Insufficient power	Insufficient compression		
	Malfunction of HLA*	Replace	B-20
	Compression leakage from valve seat	Repair	B-50
	Seized valve stem	Replace	B-48
	Weak or broken valve spring	Replace	B-51
	Failed cylinder head gasket	Replace	B-16
	Cracked or distorted cylinder head	Replace	B-47
	Stuck, damaged, or worn piston ring	Replace	B-56
	Cracked or worn piston	Replace	B-55
	Malfunction of fuel system	Refer to section F	
	Malfunction of ignition system	Refer to section G	
	Others		
	Slipping clutch	Refer to section H	
	Dragging brakes	Refer to section P	
	Wrong size tires	Refer to section Q	
Abnormal combustion	Malfunction of engine-related components		
	Malfunction of HLA*	Replace	B-20
	Stuck or burned valve	Replace	B-48
	Weak or broken valve spring	Replace	B-51
	Carbon accumulation in combustion chamber	Eliminate carbon	—
	Malfunction of fuel system	Refer to section F	
	Malfunction of ignition system	Refer to section G	
Engine noise	Crankshaft- or bearing-related parts		
	Excessive main bearing oil clearance	Replace or repair	B-64
	Main bearing seized or heat-damaged	Replace	B-58
	Excessive crankshaft end play	Replace or repair	B-65
	Excessive connecting rod bearing oil clearance	Replace or repair	B-66
	Connecting rod bearing seized or heat-damaged	Replace	B-58
	Piston-related parts		
	Worn cylinder	Replace or repair	B-54
	Worn piston or piston pin	Replace	B-56
	Seized piston	Replace	B-55
	Damaged piston ring	Replace	B-56
	Bent connecting rod	Replace	B-57
	Valves or timing-related parts		
	Malfunction of HLA*	Replace	B-20
	Broken valve spring	Replace	B-51
Excessive valve guide clearance	Replace	B-48	
	Malfunction of cooling system	Refer to section E	
	Malfunction of fuel system	Refer to section F	
	Others		
Malfunction of water pump bearing	Refer to section E		
Improper drive belt tension	Adjust	B- 6	
Malfunction of generator bearing	Refer to section G		
Exhaust gas leakage	Refer to section F		
Malfunction of timing belt tensioner	Replace	B-12	

* Tappet noise may occur if the engine has set idle for an extended period. The noise should dissipate after the engine has reached normal operating temperature. (HLA troubleshooting: Refer to page B-8.)

ENGINE TUNE-UP

PREPARATION

SST

<p>49 9200 020A</p> <p>Tension gauge, V-ribbed belt</p> 	<p>For inspection of drive belt tension</p>	<p>49 B019 9A0</p> <p>System selector</p> 	<p>For inspection of ignition timing and idle speed</p>
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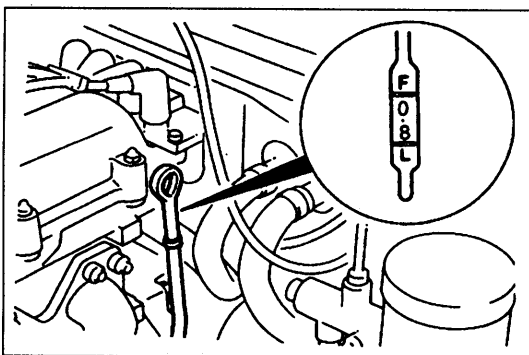
ENGINE OIL

Warning

- Continuous exposure with USED engine oil has caused skin cancer in laboratory mice. Protect your skin by washing with soap and water immediately after this work.

Inspection

1. Be sure the vehicle is on level ground.
2. Warm up the engine to normal operating temperature and stop it.
3. Wait for five minutes.
4. Remove the dipstick and check the oil level and condition.
5. Add or replace oil if necessary.



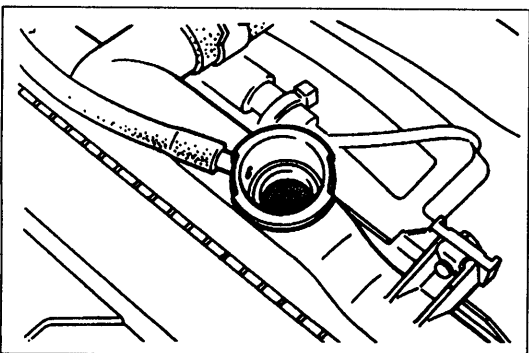
Note

- The distance between the L and F marks on the dipstick represents 0.8 L {0.85 US qt, 0.70 Imp qt}.

ENGINE COOLANT

Inspection

Coolant level (engine cold)



Warning

- Removing the radiator cap or the coolant filler cap while the engine is running, or when the engine and radiator are hot is dangerous. Scalding coolant and steam can shoot out and cause serious injury. It can also damage the engine and cooling system.

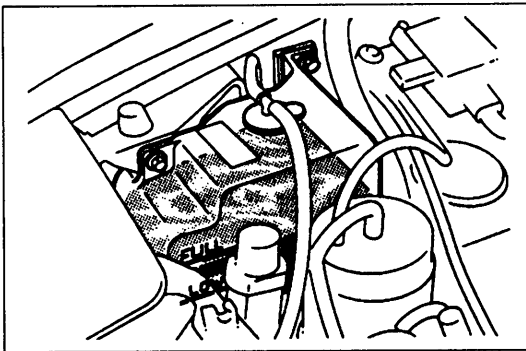
Turn off the engine and wait until it is cool. Even then, be very careful when removing the cap. Wrap a thick cloth around it and slowly turn it counterclockwise to the first stop. Step back while the pressure escapes.

When you're sure all the pressure is gone, press down on the cap — still using a cloth — turn it, and remove it.

1. Verify that the coolant level is at the radiator filler neck.
2. Verify that the coolant level in the coolant reservoir is between the FULL and LOW marks.
3. Add coolant if necessary.

Note

- The distance between the LOW and FULL marks on the coolant reservoir represents 0.55 L { 0.55 US qt , 0.44 Imp qt }.



Coolant quality

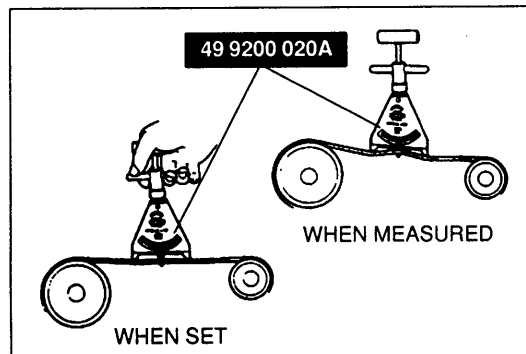
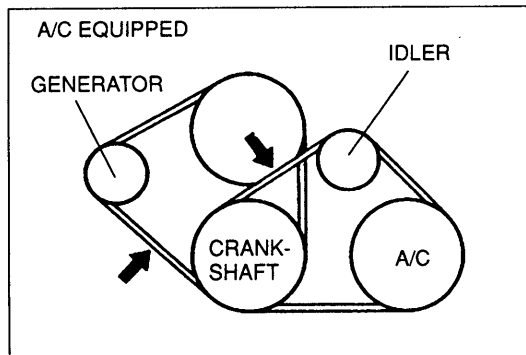
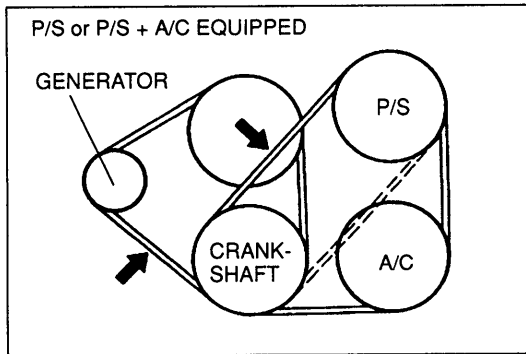
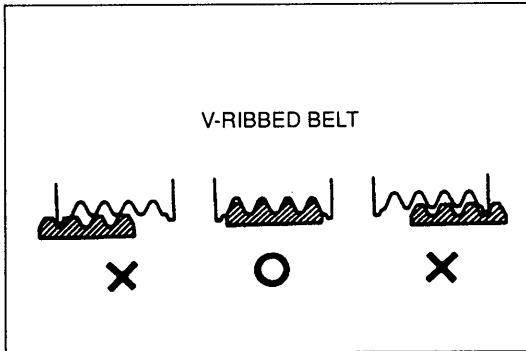
1. Verify that there is no buildup of rust or scale around the radiator cap or radiator filler neck.
2. Verify that the coolant is free of oil. Replace the coolant if necessary.

DRIVE BELT

Inspection

1. Remove the air intake pipe.
2. Check the drive belts for wear, cracks, and fraying. Replace if necessary.
3. Verify that the drive belts are correctly mounted on the pulleys.

4. Check the drive belt deflection when the engine is cold, or at least 30 minutes after the engine has stopped. Apply moderate pressure **98 N { 10 kgf , 22 lbf }** midway between the specified pulleys.



Deflection

mm { in }

Drive belt	New*	Used	Limit
Generator	5.5—7.0 { 0.22—0.27 }	6.0—7.5 { 0.24—0.29 }	8.0 { 0.31 }
P/S, P/S + A/C	8.0—9.0 { 0.32—0.35 }	9.0—10.0 { 0.36—0.39 }	11.5 { 0.45 }
A/C	8.0—9.0 { 0.32—0.35 }	9.0—10.0 { 0.36—0.39 }	11.5 { 0.45 }

* A belt that has been on a running engine for less than five minutes.

5. If the deflection is not within the specification, adjust it.
6. Install the air intake pipe.

Drive belt tension check

1. Belt tension can be checked in place of belt deflection. Check the drive belt tension when the engine is cold, or at least 30 minutes after the engine has stopped. Using the **SST**, check the belt tension between any two pulleys.

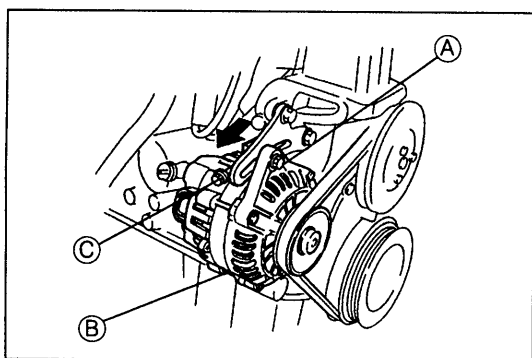
Tension

N { kgf , lbf }

Drive belt	New*	Used	Limit
Generator	491—745 { 50—76 , 110—167 }	491—706 { 50—72 , 110—158 }	343 { 35 , 77 }
P/S, P/S + A/C	491—588 { 50—60 , 110—132 }	422—490 { 43—50 , 95—110 }	245 { 25 , 55 }
A/C	491—588 { 50—60 , 110—132 }	422—490 { 43—50 , 95—110 }	245 { 25 , 55 }

* A belt that has been on a running engine for less than five minutes.

2. If the tension is not within the specification, adjust it.



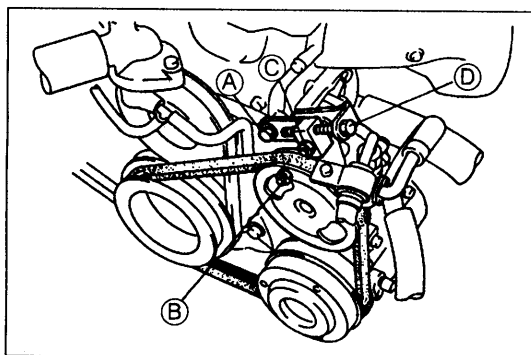
Adjustment

- (1) Generator belt

Loosen generator bolts (A) and (B) and adjust the belt deflection by turning adjusting bolt (C).

Tightening torque

- (A) : 19—25 N·m { 1.9—2.6 kgf·m , 14—18 ft·lbf }
 (B) : 38—51 N·m { 3.8—5.3 kgf·m , 28—38 ft·lbf }

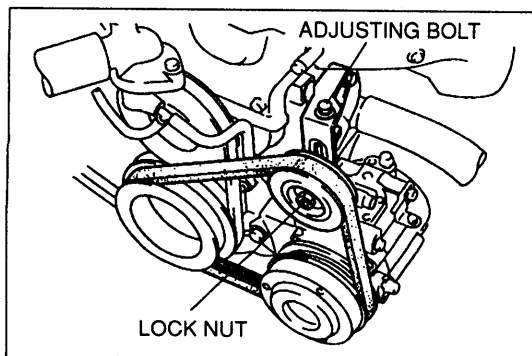


- (2) P/S belt, P/S + A/C belt

Loosen P/S oil pump bolt (A) and nuts (B) and (C), and adjust the belt deflection by turning adjusting bolt (D).

Tightening torque

- (A) : 32—46 N·m { 3.2—4.7 kgf·m , 24—33 ft·lbf }
 (B) : 37—53 N·m { 3.7—5.5 kgf·m , 27—39 ft·lbf }
 (C) : 19—25 N·m { 1.9—2.6 kgf·m , 14—18 ft·lbf }



- (3) A/C belt

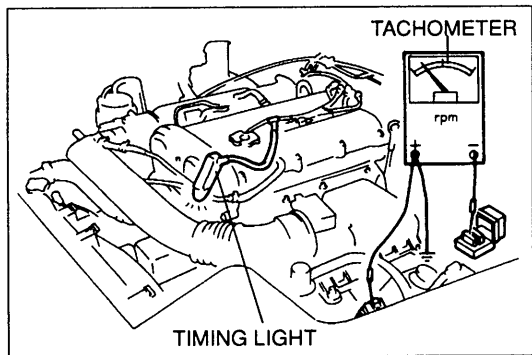
If necessary, loosen the locknut and adjust the belt deflection by turning the adjusting bolt.

Tightening torque:

- 38—51 N·m { 3.8—5.3 kgf·m , 28—38 ft·lbf }

HLA TROUBLESHOOTING GUIDE

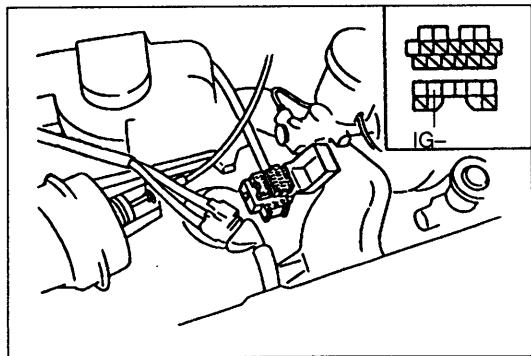
Problem	Possible Cause	Action
1. Noise when engine is started immediately after oil is changed 2. Noise when engine is started after setting approx. one day	Oil leakage in oil passage	Run engine 2,000—3,000 rpm. If noise stops after 2 seconds—10 minutes(*), HLA is normal. If not, replace HLA.
3. Noise when engine is started after cranking for 3 seconds or more 4. Noise when engine is started after new HLA is installed	Oil leakage from HLA	* Time required for engine oil to circulate within engine, includes tolerance for engine oil condition and ambient temperature.
5. Noise continues for more than 10 minutes	Insufficient oil pressure	Check oil pressure. If lower than specification, check for cause. Oil pressure; 295—392 kPa { 3.0—4.0 kgf/cm ² , 43—56 psi }—3,000 rpm
	Faulty HLA	(Refer to page B-53) Press down HLA by hand. If it does not move, HLA is normal. If it moves, replace HLA. Measure valve clearance. If more than 0 mm { 0 in }, replace HLA.
6. Noise occurs during idle after high speed running	Incorrect oil amount	Check oil level. Drain or add oil as necessary.
	Deteriorated oil	Check oil quality. If deteriorated, replace with specified type and amount of oil.

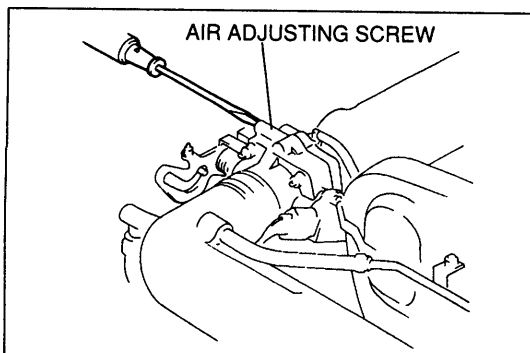
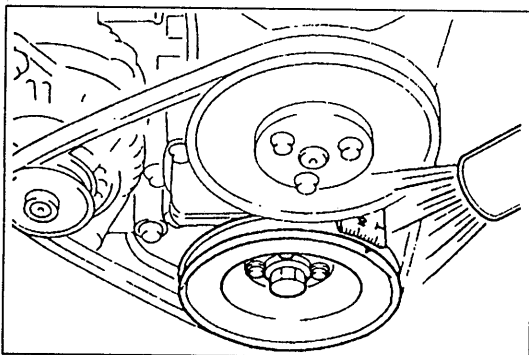
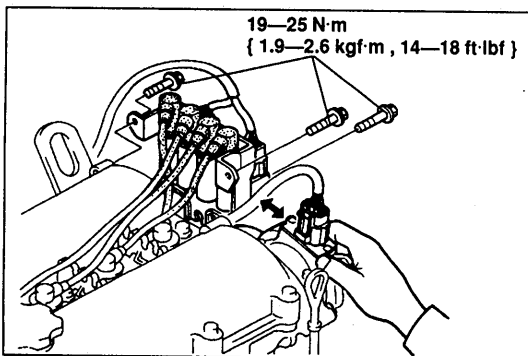
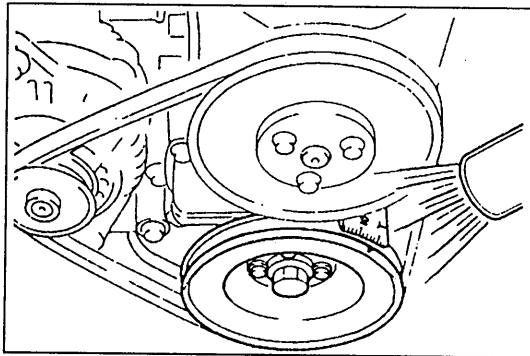
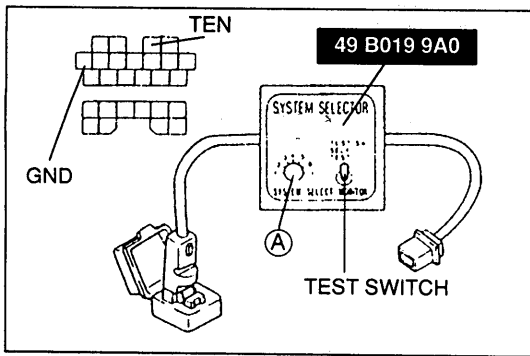


IGNITION TIMING, IDLE SPEED

Preparation

1. Warm up the engine to normal operating temperature.
2. Turn all electric loads OFF.
 - Headlight switch
 - Blower switch
 - Rear window defroster switch
3. Connect the **SST** to the data link connector.
4. Connect a timing light to the engine.
5. Connect a tachometer to the data link connector terminal **IG-** as shown.





Ignition Timing

1. Perform Preparation. (Refer to page B-8.)
2. Verify that the idle speed is within the specification; if not, adjust it.

Idle speed

Neutral: 800—900 (850 ± 50) rpm [MT]
P range: 750—850 (800 ± 50) rpm [AT]

3. Set switch A to position 1.
4. Set test switch to SELF TEST.
5. If the **SST** is not used, connect a jumper wire between the TEN terminal and the GND terminal of the data link connector.
6. Verify that the idle speed is within the specification.

Idle speed (Ground the terminal TEN): 650—975 rpm

7. Verify that the timing mark (white) on the crankshaft pulley and the mark on the timing belt cover are aligned.

Ignition timing: BTDC 9°—11° (10° ± 1°)

8. If the marks are not aligned, remove the ignition coil bracket and push the ignition coil aside for easy access and then loosen the crankshaft position sensor lock bolts, and turn the crankshaft position sensor to make the adjustment.
9. Tighten the distributor lock bolts to the specified torque.

Tightening torque:

19—25 N·m { 1.9—2.6 kgf·m, 14—18 ft·lbf }

10. After adjusting the ignition timing, disconnect the jumper wire or **SST** from the data link connector.
11. Increase the engine speed and verify that the ignition timing advances.
12. Verify that the ignition timing is within the specification.

Ignition timing: BTDC 6°—18°

Idle Speed

1. Perform Preparation. (Refer to page B-8.)
2. Set switch A to position 1.
3. Set test switch to SELF TEST.
4. With the coolant fan off, verify that the idle speed is within the specification.

Idle speed

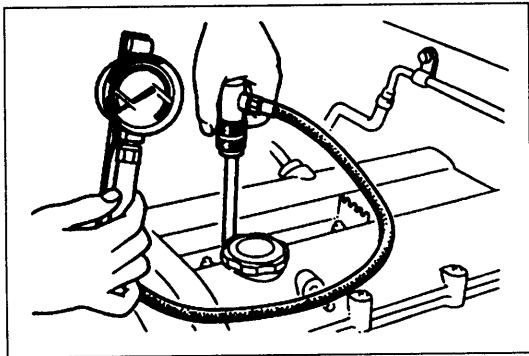
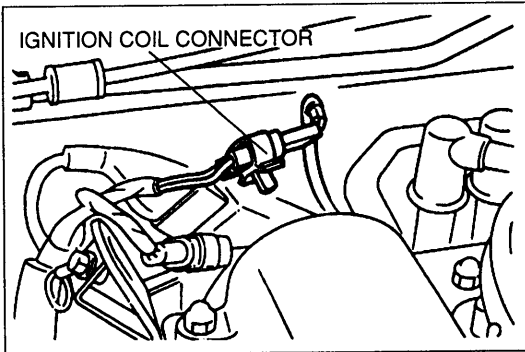
Neutral: 800—900 (850 ± 50) rpm [MT]
P range: 750—850 (800 ± 50) rpm [AT]

5. If not within the specification, adjust the idle by turning the air adjusting screw.
6. Disconnect the **SST**.

COMPRESSION

If the engine exhibits low power, poor fuel economy, or poor idle, check the following:

1. Ignition system (Refer to section G.)
2. Compression (Refer to page B-10.)
3. Fuel system (Refer to section F.)



INSPECTION

1. Check that the battery is fully charged. Recharge it if necessary. (Refer to section G.)
2. Warm up the engine to the normal operating temperature.
3. Turn the engine OFF.
4. Remove all spark plugs.
5. Disconnect the ignition coil connector.
6. Connect a compression gauge to the No.1 spark plug hole.
7. Fully depress the accelerator pedal and crank the engine.
8. Record the maximum gauge reading.
9. Check each cylinder, as above.

Compression:

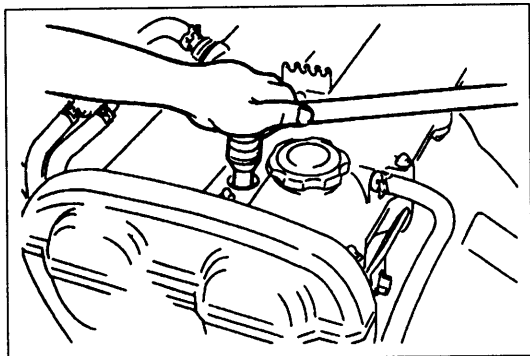
1,255 kPa { 12.8 kgf/cm² , 182 psi }–300 rpm

Minimum: 883 kPa { 9.0 kgf/cm² , 128 psi }–300 rpm

Differential limit between cylinders:

196 kPa { 2.0 kgf/cm² , 28 psi }

10. If the compression in one or more cylinders is low, pour a small amount of engine oil into the cylinder and re-check the compression.
 - (1) If the compression increases, the piston, piston rings, or cylinder wall may be worn.
 - (2) If the compression stays low, the valve may be stuck or improperly seated.
 - (3) If the compression in adjacent cylinders stays low, the cylinder head gasket may be defective or the cylinder head distorted.
11. Connect the ignition coil connector.
12. Install the spark plugs.



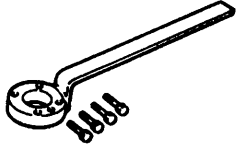
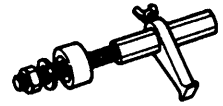



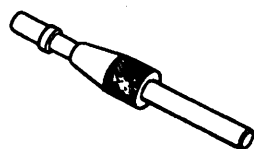
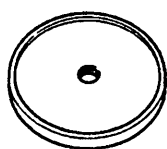

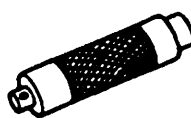
Tightening torque:

15–22 N·m { 1.5–2.3 kgf·m , 11–16 ft·lbf }

ON-VEHICLE MAINTENANCE

PREPARATION

SST

<p>49 D011 102</p> <p>Lock tool, crankshaft</p> 	<p>For removal / installation of timing belt pulley</p>	<p>49 E011 1A0</p> <p>Brake set, ring gear</p> 	<p>For prevention of engine rotation</p>
<p>49 E011 103</p> <p>Shaft (Part of 49 E011 1A0)</p> 	<p>For prevention of engine rotation</p>	<p>49 E011 105</p> <p>Stopper (Part of 49 E011 1A0)</p> 	<p>For prevention of engine rotation</p>
<p>49 E011 104</p> <p>Collar (Part of 49 E011 1A0)</p> 	<p>For prevention of engine rotation</p>	<p>49 SE01 310 A</p> <p>Centering tool, clutch disc</p> 	<p>For installation of clutch disc</p>
<p>49 W033 105</p> <p>Installer, oil seal</p> 	<p>For installation of rear oil seal</p>	<p>49 G030 795</p> <p>Installer, oil seal</p> 	<p>For installation of rear oil seal</p>
<p>49 G030 797</p> <p>Handle (Part of 49 G030 795)</p> 	<p>For installation of rear oil seal</p>	<p>—</p>	<p>—</p>

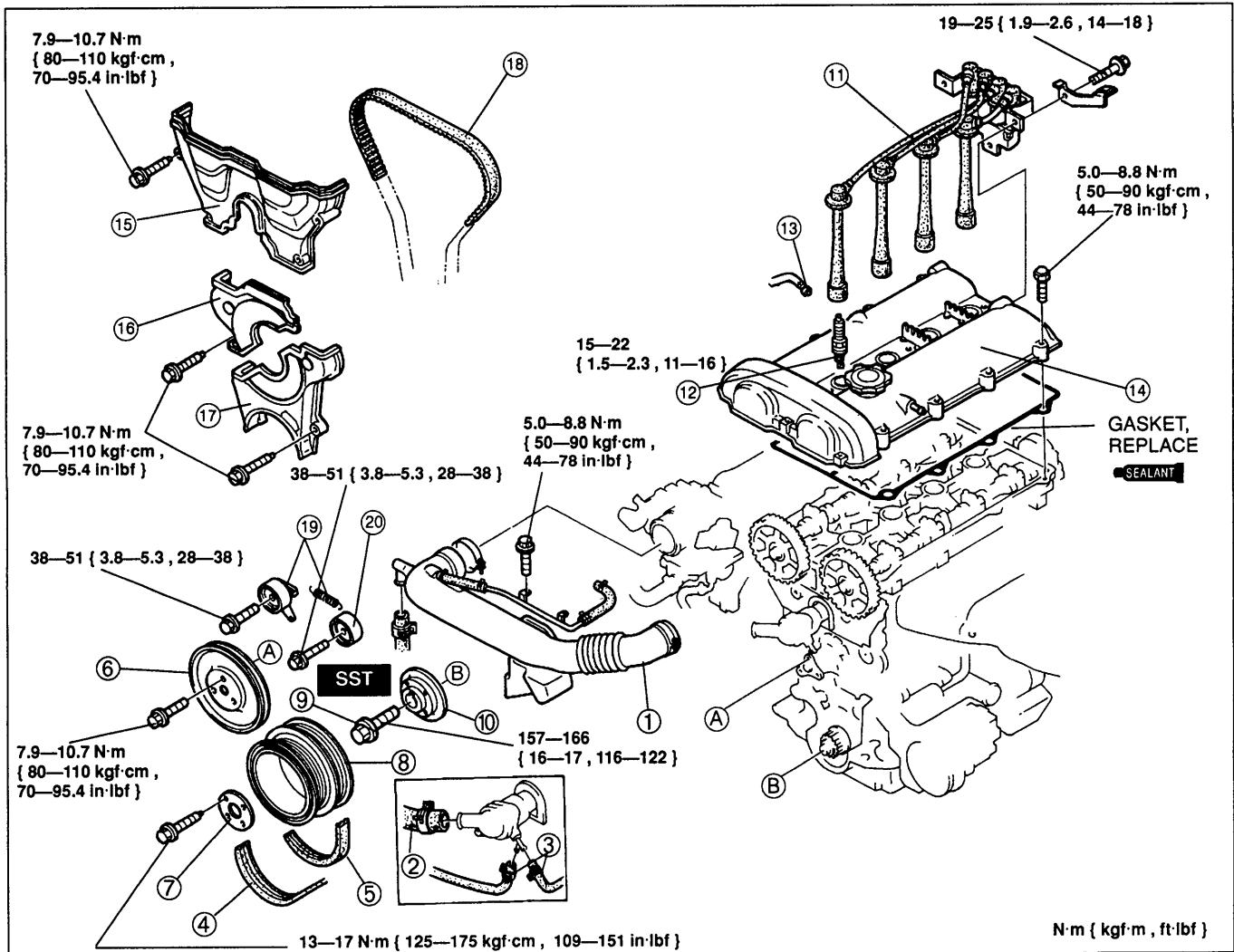
Warning

- Continuous exposure with USED engine oil has caused skin cancer in laboratory mice. Protect your skin by washing with soap and water immediately after this work.

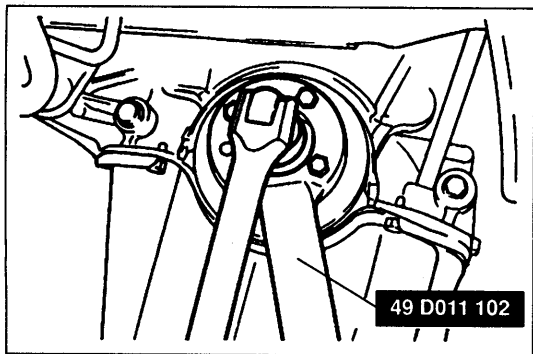
TIMING BELT

Removal / Installation

1. Disconnect the negative battery cable.
2. Drain the engine coolant.
3. Remove the splash shield.
4. Remove in the order shown in the figure, referring to **Removal Note**.
5. Install in the reverse order of removal, referring to **Installation Note**.

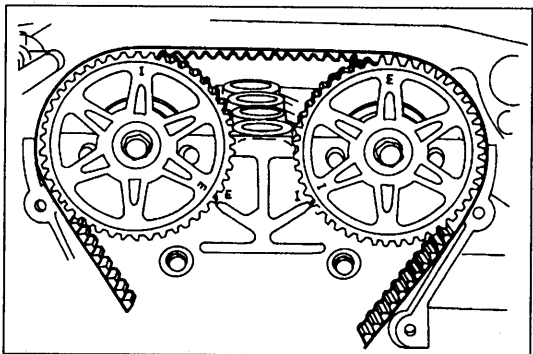


- | | |
|---|-----------------------------------|
| 1. Air intake pipe | 13. PCV valve |
| 2. Upper radiator hose | 14. Cylinder head cover |
| 3. Water hose (Connected to thermostat housing) | Installation Note page B-15 |
| 4. P/S and/or A/C drive belt | 15. Upper timing belt cover |
| Removal / Installation page B- 6 | 16. Middle timing belt cover |
| 5. Generator drive belt | 17. Lower timing belt cover |
| Removal / Installation page B- 6 | 18. Timing belt |
| 6. Water pump pulley | Removal Note page B-13 |
| 7. Plate | Installation Note page B-14 |
| 8. Crankshaft pulley | Inspection page B-58 |
| 9. Pulley lock bolt | 19. Tensioner, tensioner spring |
| Removal Note page B-13 | Installation Note page B-14 |
| Installation Note page B-15 | Inspection page B-59 |
| 10. Pulley boss | 20. Idler |
| 11. Ignition coil and high-tension lead | Inspection page B-59 |
| 12. Spark plug | |
| Removal / Installation section G | |



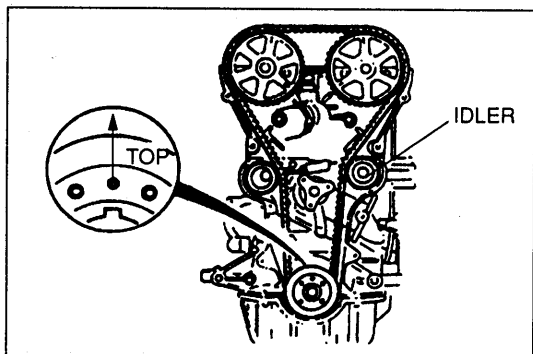
Removal Note Pulley lock bolt

1. Hold the pulley boss with the **SST**.
2. Using the **SST**, loosen the pulley lock bolt.
3. Remove the bolt and the pulley boss.

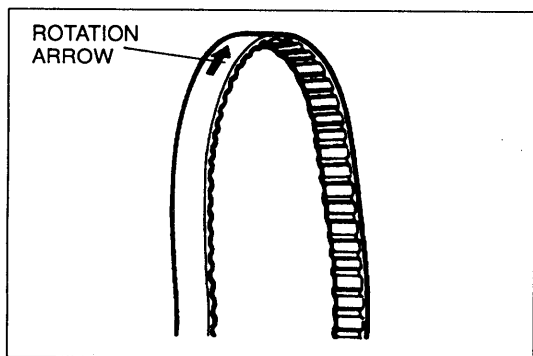


Timing belt

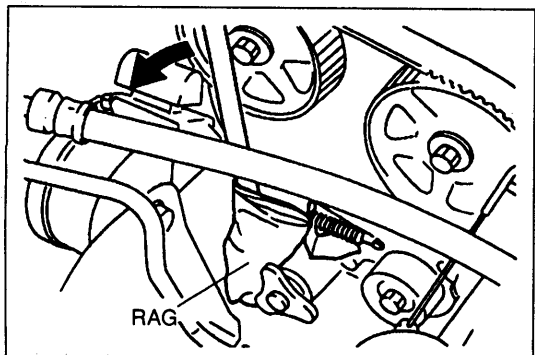
1. Install the pulley boss.
2. Install the pulley lock bolt.
3. Turn the crankshaft to align the timing marks.



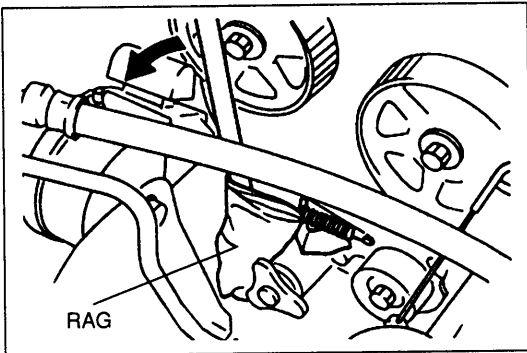
4. Do not turn the crankshaft after aligning the timing marks
5. Remove the pulley lock bolt and pulley boss.



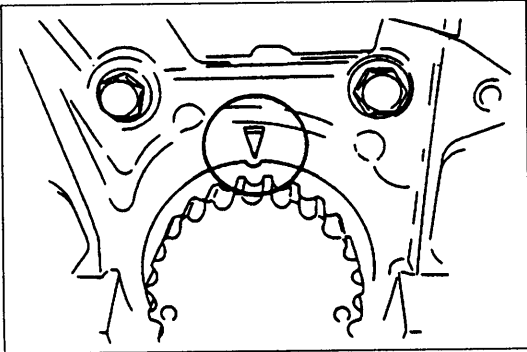
6. Mark the timing belt rotation for proper reinstallation.



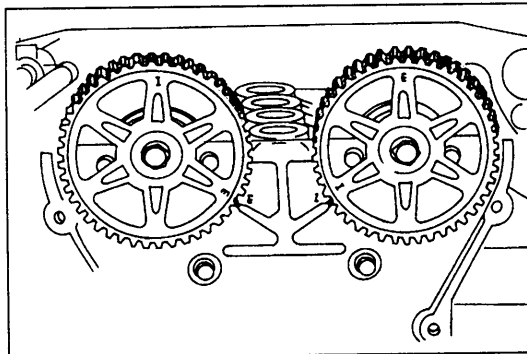
7. Loosen the tensioner lock bolt.
8. Protect the tensioner with a rag. Pry the tensioner outward with a bar.
9. Tighten the lock bolt with the tensioner spring fully extended.
10. Remove the timing belt.

**Installation Note****Tensioner and tensioner spring**

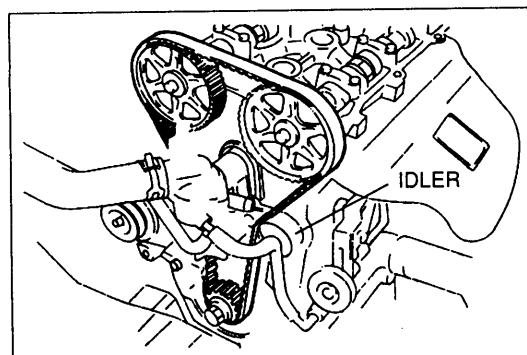
1. Install the tensioner and the tensioner spring.
2. Protect the tensioner with a rag. Pry the tensioner outward with a bar.
3. Temporarily tighten the tensioner lock bolt with the tensioner spring fully extended.

**Timing belt**

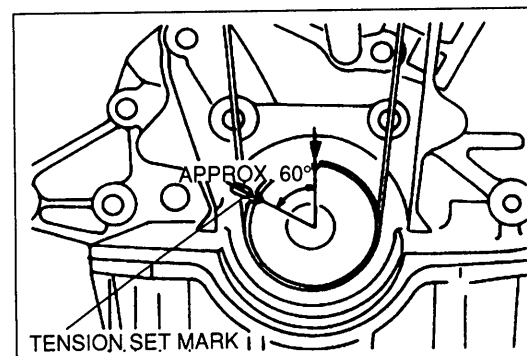
1. Verify that the timing belt pulley mark is aligned with the timing mark.



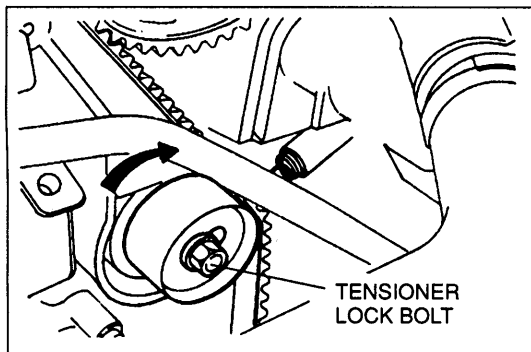
2. Verify that the camshaft pulley marks are aligned with the seal plate marks. E for intake side, and I for exhaust side.



3. Install the timing belt so that there is no looseness at the idler side or between the camshaft pulleys.
4. Install the pulley boss and pulley lock bolt.
5. Turn the crankshaft two turns clockwise and face the pin on the pulley boss straight up. Do not turn the crankshaft counterclockwise.
6. Verify that the camshaft pulley marks are again aligned with the seal plate marks.
If not aligned, remove the timing belt and repeat from tensioner installation.



7. Turn the crankshaft 1 and 5/6 turns clockwise and align the timing belt pulley mark with the tension set mark for proper timing belt tension adjustment.
8. Using the SST, loosen the pulley lock bolt and remove the bolt and pulley boss. Do not turn the crankshaft.
9. Verify that the timing belt pulley mark is aligned with the tension set mark.

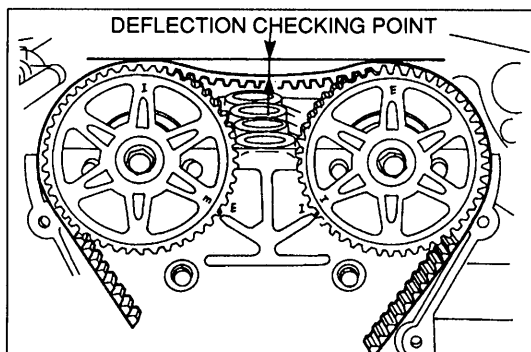


10. Loosen the tensioner lock bolt to apply spring tension to the timing belt. Be sure not to apply tension other than that of the tensioner spring.
11. Tighten the tensioner lock bolt.

Tightening torque:

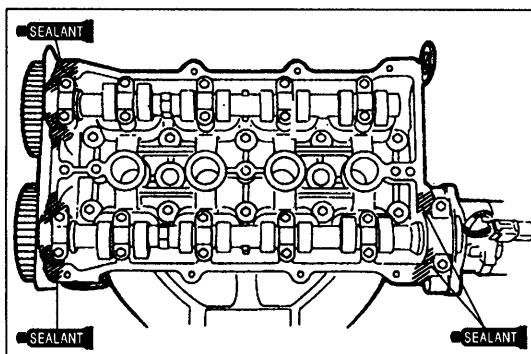
38—51 N·m { 3.8—5.3 kgf·m , 28—38 ft·lbf }

12. Install the pulley boss and pulley lock bolt.
13. Turn the crankshaft 2 and 1/6 turns clockwise and verify that the timing marks are correctly aligned.



14. Measure the timing belt deflection by applying moderate pressure **98 N { 10 kgf , 22 lbf }** midway between the camshaft pulleys. If the deflection is not correct, repeat from step 10 above.

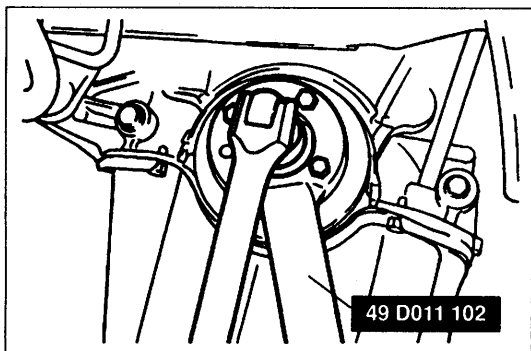
Deflection: 9.0—11.5 mm { 0.36—0.45 in }

**Cylinder Head Cover**

1. Apply silicone sealant to the shaded areas shown.
2. Install the cylinder head cover.

Tightening torque:

5.0—8.8 N·m { 50—90 kgf·cm , 44—78 in·lbf }

**Pulley lock bolt**

Hold the crankshaft with the **SST** and tighten the pulley lock bolt.

Tightening torque:

157—166 N·m { 16—17 kgf·m , 116—122 ft·lbf }

Steps After Installation

1. Fill the radiator with the specified amount and type of engine coolant. (Refer to section E.)
2. Start the engine and
 - (1) Check the engine coolant leakage.
 - (2) Check the ignition timing and idle speed. (Refer to page B-8.)
 - (3) Check the operation of the emission control system. (Refer to section F.)
3. Recheck the engine coolant levels.

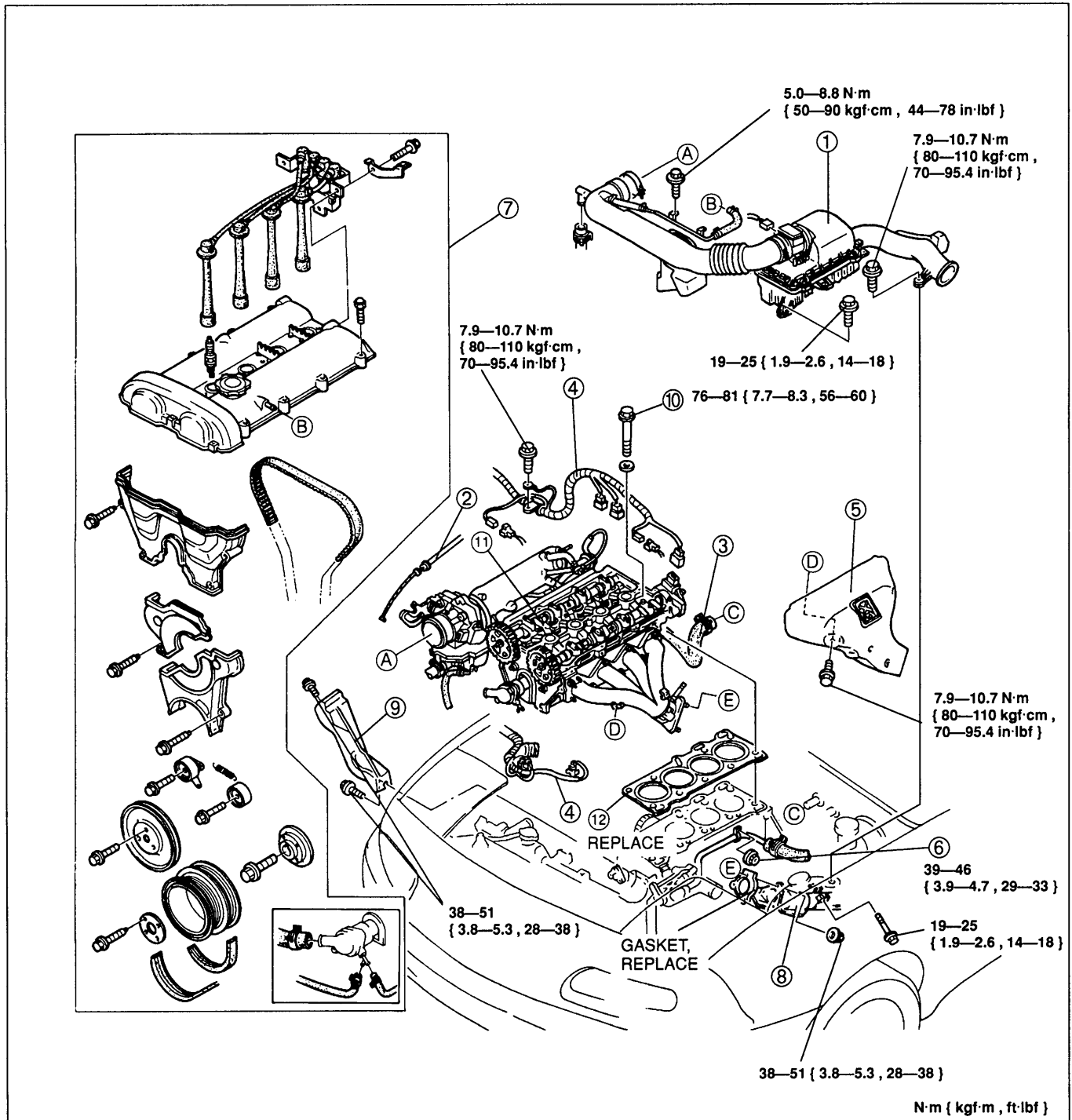
CYLINDER HEAD GASKET

Replacement

Warning

- Fuel line spills and leaks are dangerous. Fuel can ignite and cause serious injuries or death and damage. Fuel can also irritate skin and eyes. To prevent this, always complete the "Fuel Line Safety Procedures" on section F.
- Fuel vapor is hazardous. It can very easily ignite, causing serious injury and damage. Always keep sparks and flames away from fuel.

1. Disconnect the negative battery cable.
2. Drain the engine coolant. (Refer to section E.)
3. Remove in the order shown in the figure, referring to **Removal Note**.
4. Install in the reverse order of removal, referring to **Installation Note**.

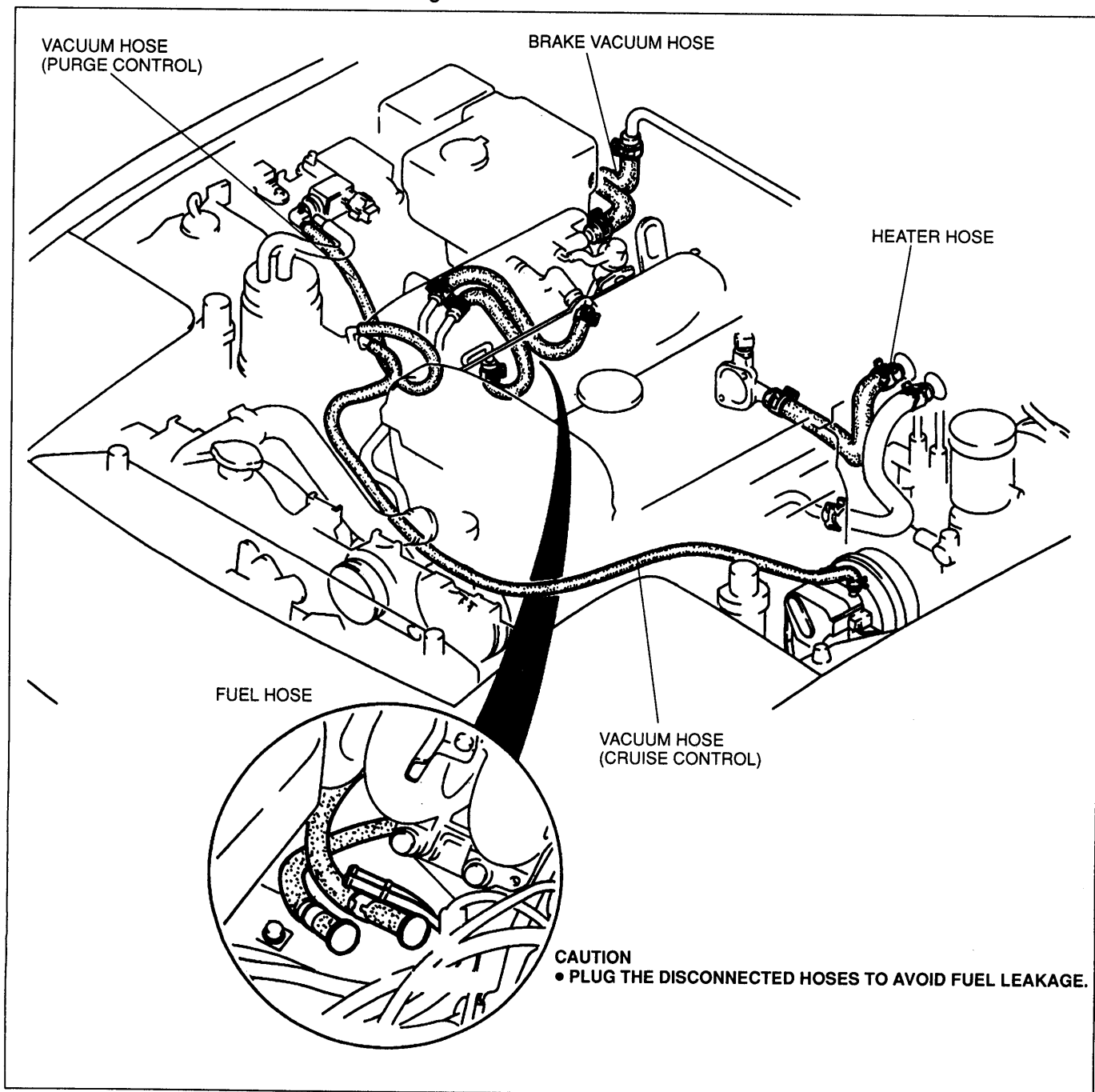


- | | |
|-----------------------------------|-----------|
| 1. Air cleaner assembly | |
| 2. Accelerator cable | |
| Installation Note | section E |
| 3. Hose | |
| Removal / Installation Note | below |
| 4. Harness | |
| Removal / Installation Note .. | page B-18 |
| 5. Exhaust manifold insulator | |
| 6. Water bypass pipe nut | |
| Removal Note | page B-18 |
| 7. Timing belt | |
| Removal / Installation | page B-12 |
| 8. Front exhaust pipe | |
| 9. Manifold bracket | |
| 10. Cylinder head bolt | |
| Removal Note | page B-18 |
| Installation Note | page B-19 |
| 11. Cylinder head | |
| Disassembly | page B-39 |
| Inspection | page B-47 |
| Assembly | page B-71 |
| 12. Cylinder head gasket | |

Removal / Installation Note

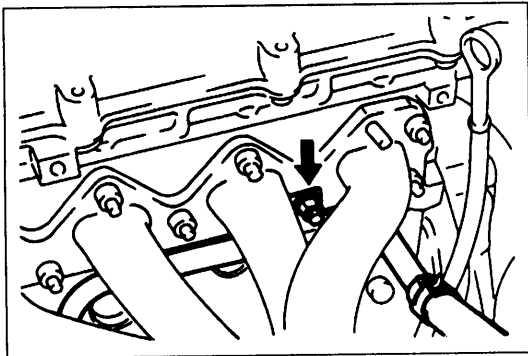
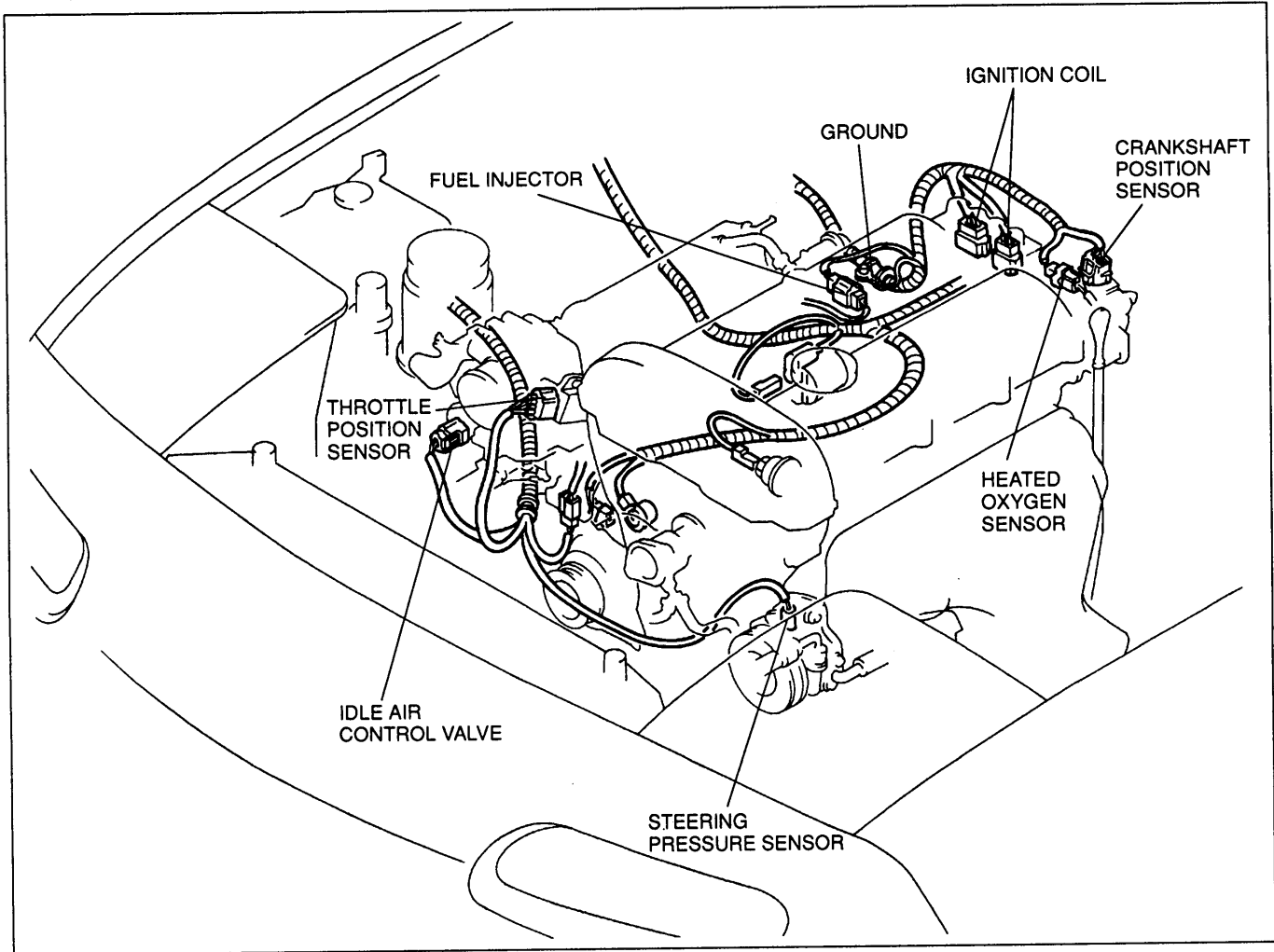
Hose

Disconnect the hoses shown in the figure.



Harness

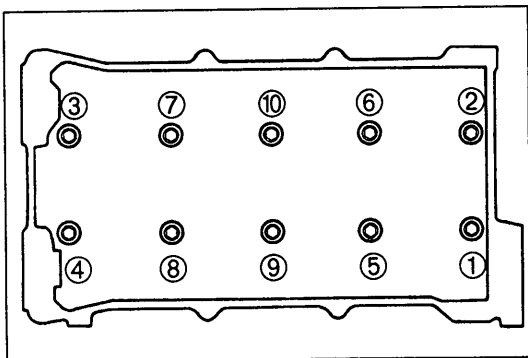
Disconnect the harness connectors shown in the figure.



Removal Note

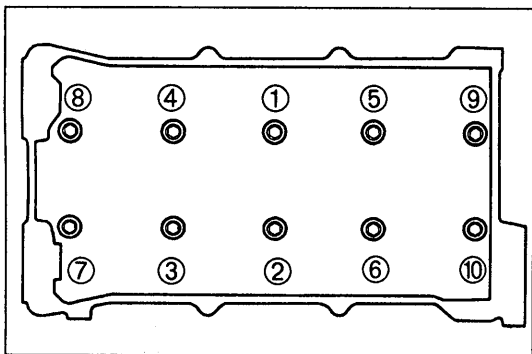
Water bypass pipe

1. Remove the exhaust manifold nut shown.
2. Remove the water bypass pipe from the cylinder head assembly.



Cylinder head bolt

1. Loosen the cylinder head bolts in two or three steps in the order shown.
2. Remove the cylinder head bolts.

**Installation Note****Cylinder head bolt**

1. Install the cylinder head bolts.
2. Tighten the cylinder head bolts in two or three steps in the order shown.

Tightening torque:

76—81 N·m { 7.7—8.3 kgf·m , 56—60 ft·lbf }

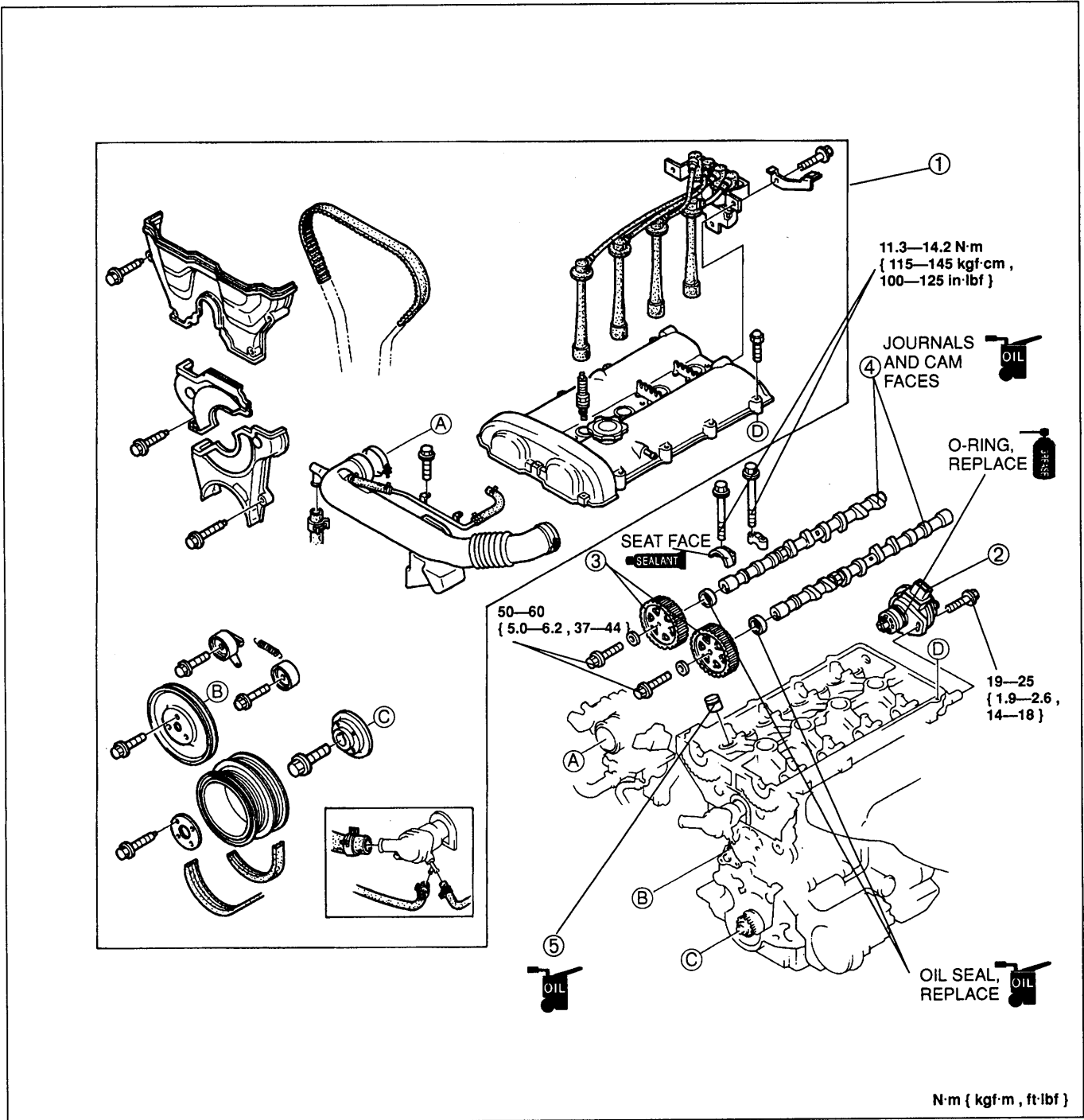
Steps After Installation

1. Fill the radiator with the specified amount and type of engine coolant. (Refer to section E.)
2. Start the engine and
 - (1) Check the engine oil and engine coolant leakage.
 - (2) Check the ignition timing and idle speed. (Refer to page B-8.)
 - (3) Check the operation of the emission control system. (Refer to section F.)
3. Recheck the engine oil and engine coolant levels.

HLA

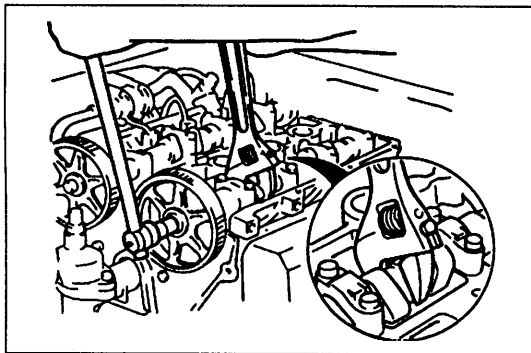
Removal / Installation

1. Disconnect the negative battery cable.
2. Drain the engine coolant. (Refer to section E.)
3. Remove in the order shown in the figure, referring to **Removal Note**.
4. Install in the reverse order of removal, referring to **Installation Note**.



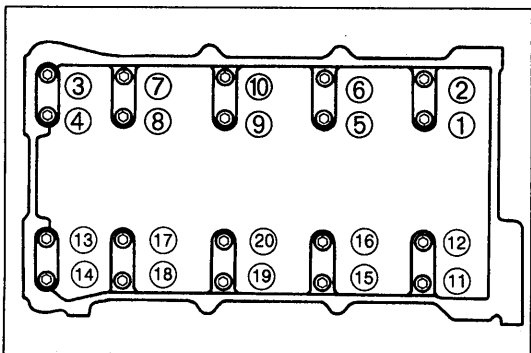
- | | |
|-------------------------------|-----------|
| 1. Timing belt | |
| Removal / Installation | page B-12 |
| 2. Crankshaft position sensor | |
| Installation Note | section G |
| 3. Camshaft pulley | |
| Removal Note | page B-21 |
| Installation Note | page B-22 |

- | | |
|-------------------|-----------|
| 4. Camshaft | |
| Removal Note | page B-21 |
| Installation Note | page B-21 |
| 5. HLA | |
| Removal Note | page B-21 |
| Installation Note | page B-21 |
| Inspection | page B-53 |



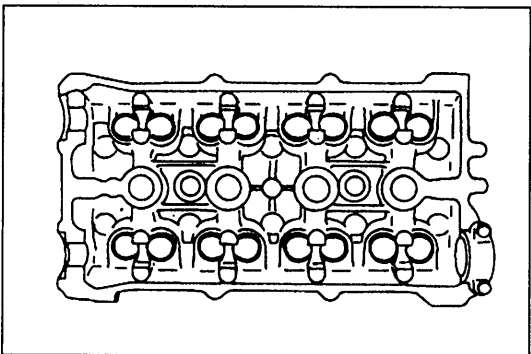
Removal Note Camshaft pulley

1. Hold the camshaft with a wrench at the cast hexagon.
2. Remove the camshaft pulley lock bolts.
3. Remove the camshaft pulleys.



Camshaft

1. Loosen the camshaft cap bolts in five or six steps in the order shown.
2. Remove the camshaft caps.
3. Remove the camshafts.
4. Remove the camshaft oil seals from the camshafts.



HLA

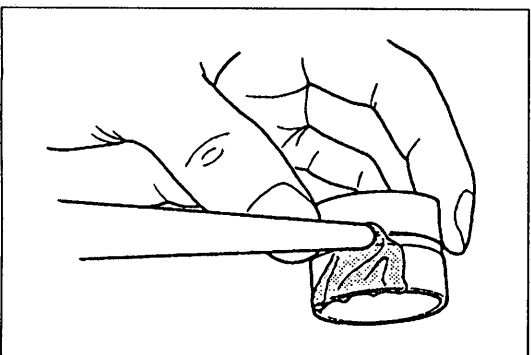
Caution

- The HLA must be reinstalled in the same positions from which they were removed. If they are not, it can cause premature and uneven wear.

Note

- Mark the HLA to show their original positions.

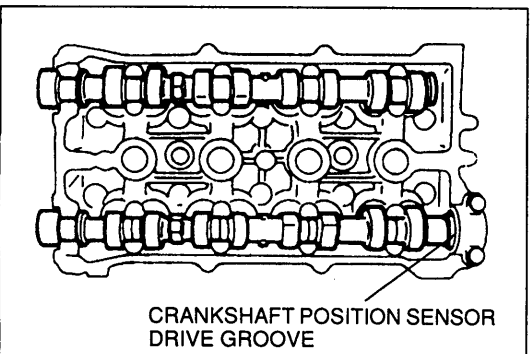
1. Remove the HLA from the cylinder head.
2. Store the HLA upside down in an oil-filled container.



Installation Note

HLA

1. Apply clean engine oil to the friction surfaces.
2. If the HLA are being reused, install them in the position from which they were removed.
3. Verify that the HLA move smoothly in their bores.

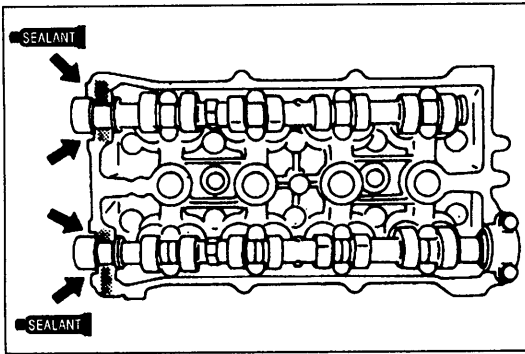


Camshaft

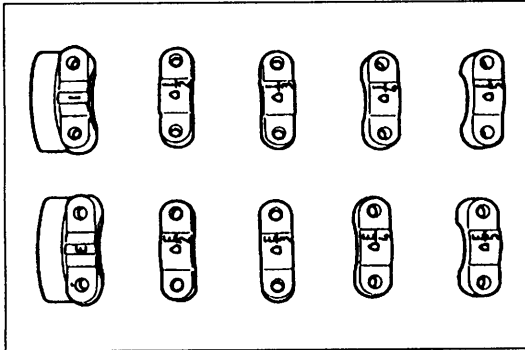
Note

- The exhaust camshaft has a groove for the crankshaft position sensor drive.

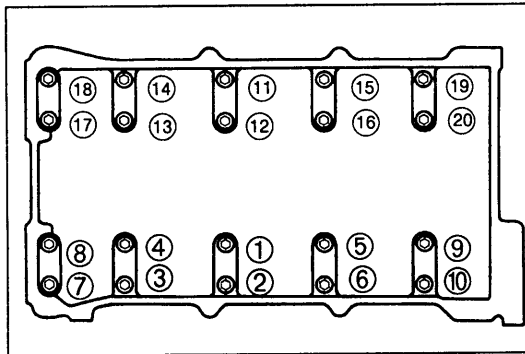
1. Apply clean engine oil to the camshaft journals and bearings.
2. Install the camshaft in position.



3. Apply silicone sealant to the shaded areas shown. Do not let any sealant get on the sealant surfaces.

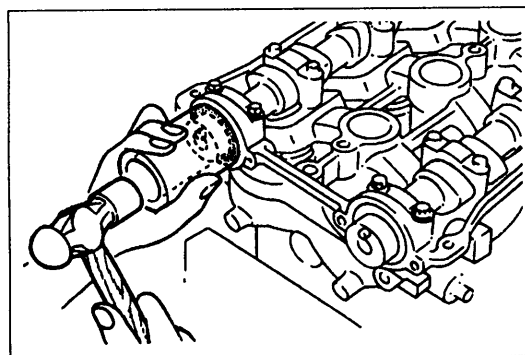


4. Install the camshaft caps according to the cap number and arrow mark.



5. Install the camshaft cap bolts and tighten them in five or six steps in the order shown.

Tightening torque: 11.3—14.2 N·m
 { 115—145 kgf·cm , 100—125 in·lbf }

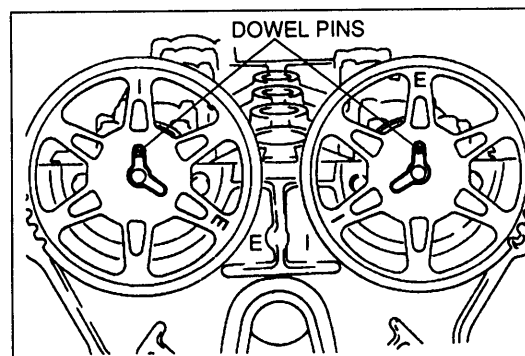


6. Apply clean engine oil to the lip of a new camshaft oil seal.
7. Push the oil seal slightly in by hand.
8. Using a pipe and a hammer, tap the oil seal in evenly until it is flush with the edge of the camshaft cap.

Protrusion: 0—0.4 mm { 0—0.015 in }

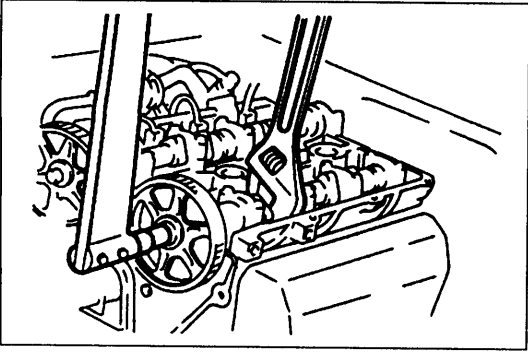
Note

- Oil seal outer diameter: 48 mm { 1.89 in }
- Oil seal inner diameter: 34 mm { 1.34 in }



Camshaft pulley

1. Turn the camshafts until the camshaft dowel pins face straight up.
2. Install the camshaft pulleys with the I mark (intake side) or the E mark (exhaust side) straight up.



3. Install the camshaft pulley lock bolts.
4. Hold the camshaft with a wrench at the cast hexagon.
5. Tighten the camshaft pulley lock bolt.

Tightening torque:

50—60 N·m { 5.0—6.2 kgf·m , 37—44 ft·lbf }

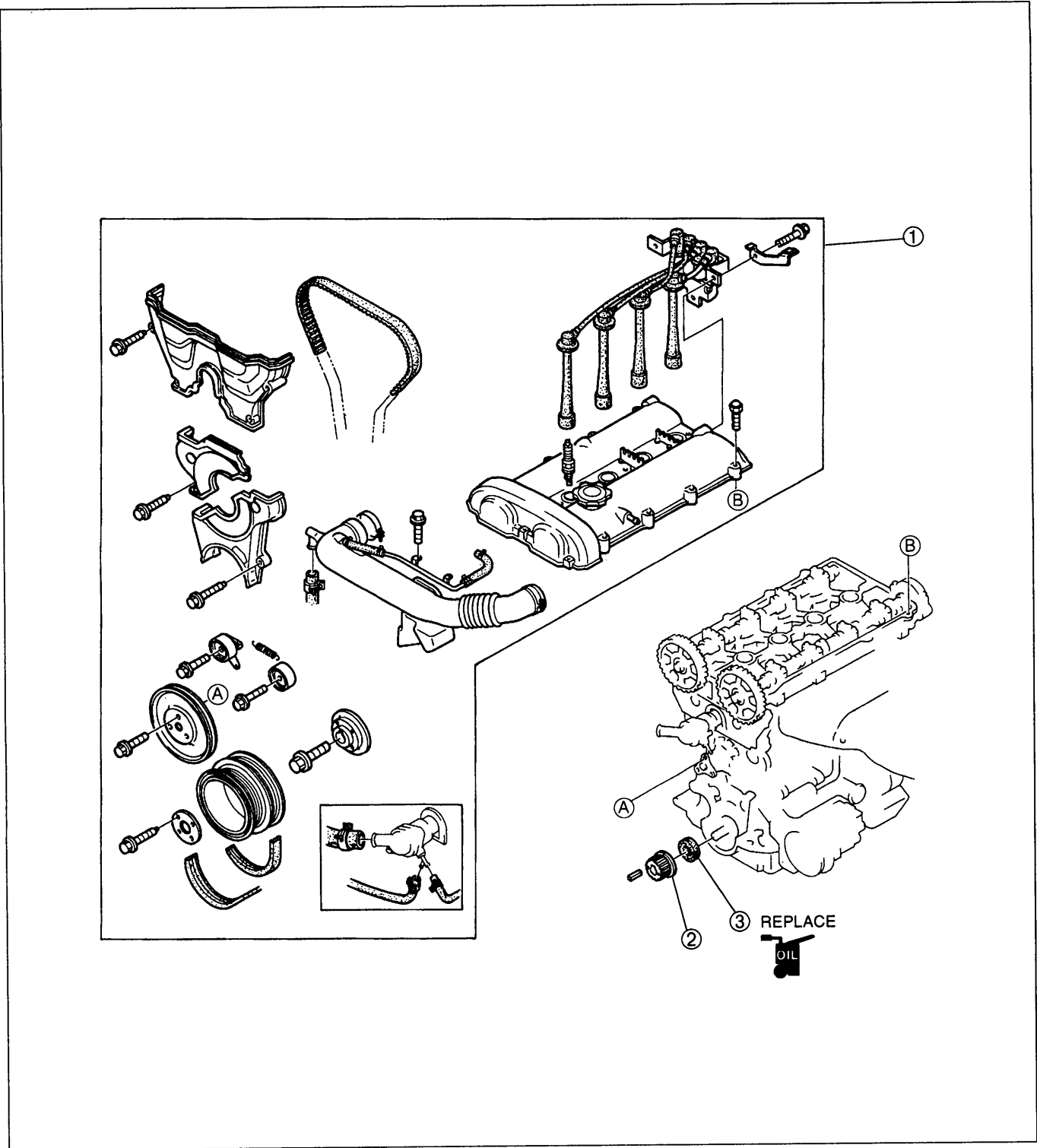
Steps After Installation

1. Fill the radiator with the specified amount and type of engine coolant. (Refer to section E.)
2. Start the engine and
 - (1) Check the engine oil and engine coolant leakage.
 - (2) Check the ignition timing. (Refer to page B-9.)
 - (3) Check the operation of the emission control system. (Refer to section F.)
 - (4) Check the HLA tappet noise. (Refer to page B-8.)
3. Recheck the engine oil and engine coolant levels.

FRONT OIL SEAL

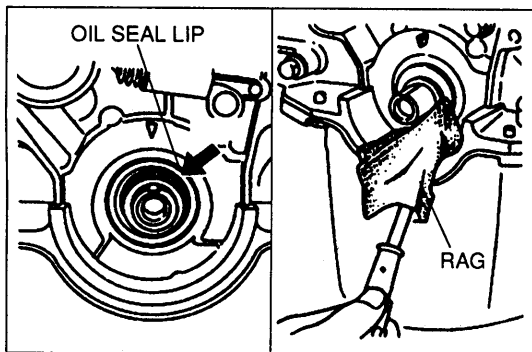
Replacement

1. Disconnect the negative battery cable.
2. Remove the splash shield.
3. Remove in the order shown in the figure, referring to **Removal Note**.
4. Install in the reverse order of removal, referring to **Installation Note**.

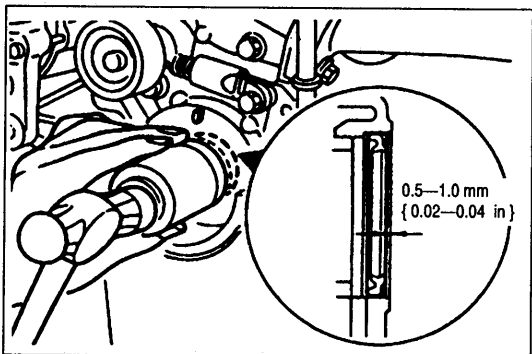


1. Timing belt
Removal / Installation page B-12
2. Timing belt pulley
Installation Note page B-25

3. Oil seal
Removal Note page B-25
Installation Note page B-25

**Oil seal**

1. Cut the oil seal lip with a razor knife.
2. Remove the oil seal by using a screwdriver protected with a rag.

**Installation Note****Oil seal**

1. Apply clean engine oil to the lip of a new oil seal.
2. Push the oil seal slightly in by hand.
3. Tap the oil seal in evenly with a pipe and a hammer until it is flush with the edge of the oil pump body.

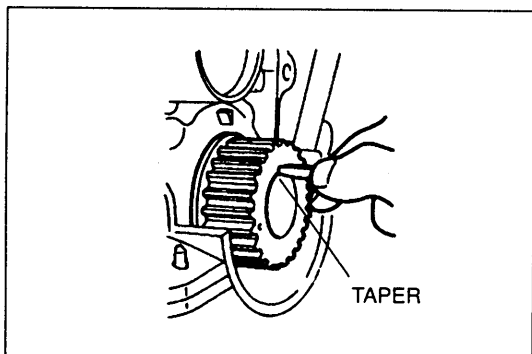
Protrusion: 0.5—1.0 mm { 0.02—0.04 in }

Note

- Oil seal outer diameter: 50.5 mm { 1.99 in }
- Oil seal inner diameter: 36.5 mm { 1.44 in }

Timing belt pulley

1. Install the timing belt pulley.
2. Install the pulley woodruff key with the tapered side toward the oil pump body.

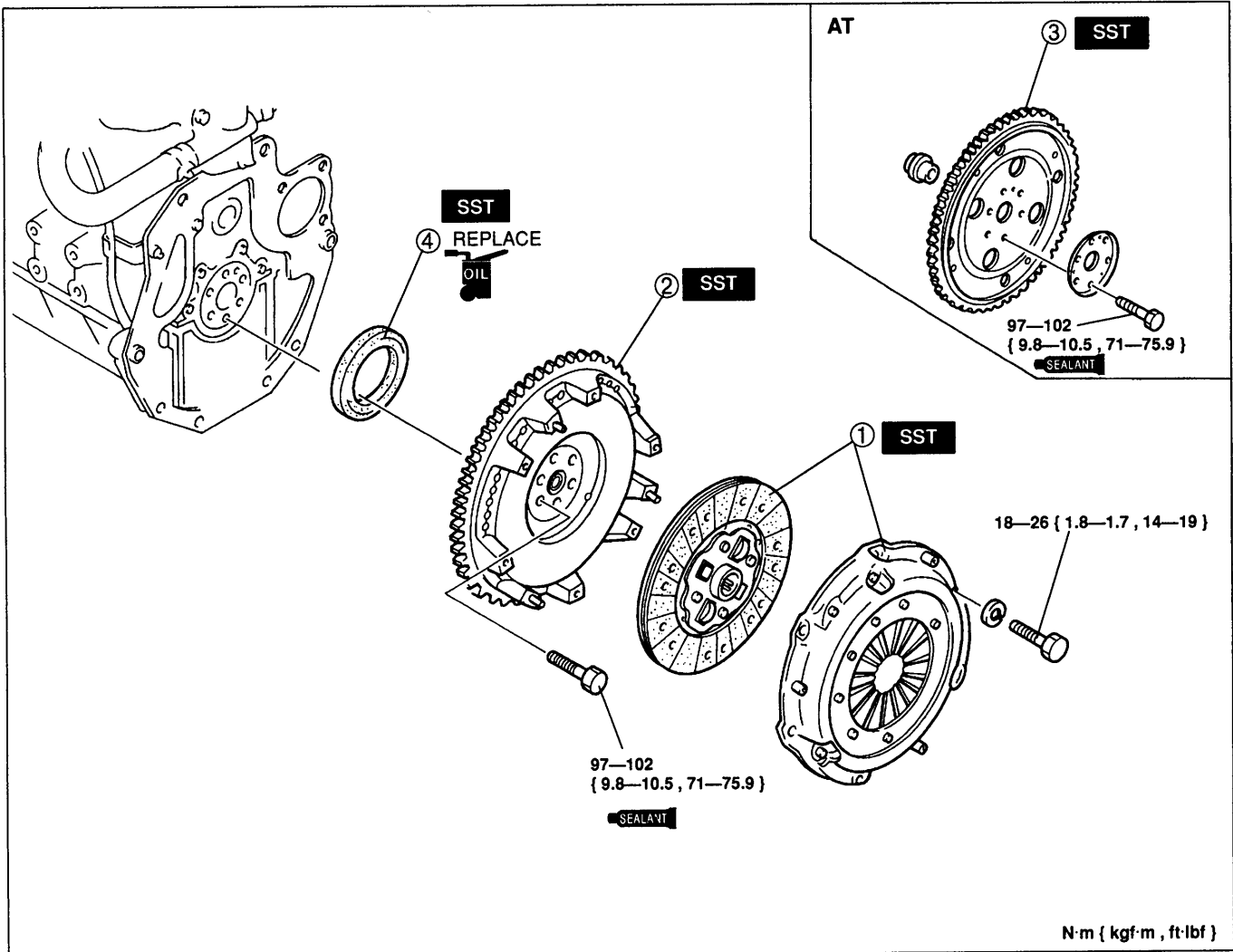
**Steps After Installation**

1. Fill the radiator with the specified amount and type of engine coolant. (Refer to section E.)
2. Start the engine and
 - (1) Check the engine coolant leakage.
 - (2) Check the ignition timing. (Refer to page B-8.)
3. Recheck the engine coolant levels.

REAR OIL SEAL

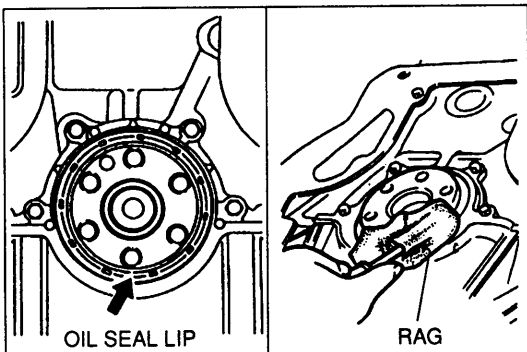
Replacement

1. Disconnect the negative battery cable.
2. Remove the transmission. (MT: Refer to section J. AT: Refer to section K.)
3. Remove in the order shown in the figure, referring to **Removal Note**.
4. Install in the reverse order of removal, referring to **Installation Note**.



1. Clutch cover, clutch disc (MT)
Removal / Installation section H
2. Flywheel (MT)
Removal / Installation section J
3. Drive plate (AT)
Removal / Installation section K

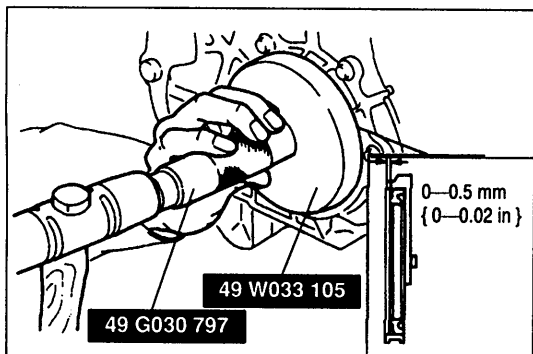
4. Oil seal
Removal Note below
Installation Note page B-27



Removal Note

Oil seal

1. Cut the oil seal lip by using a razor knife.
2. Remove the oil seal by using a screwdriver protected with a rag.

**Installation Note****Oil seal**

1. Apply clean engine oil to the lip of the new oil seal.
2. Push the oil seal slightly in by hand.
3. Tap the oil seal in evenly by using the **SST** and a hammer.

Protrusion: 0—0.5 mm { 0—0.02 in }

Steps After Installation

1. Install the transmission. (Refer to sections J, K.)
2. If the transmission oil was drained, fill with the specified amount and type of transmission oil. (Refer to sections J, K.)
3. Start the engine and check the transmission oil leakage.
4. Recheck the transmission oil levels.

REMOVAL

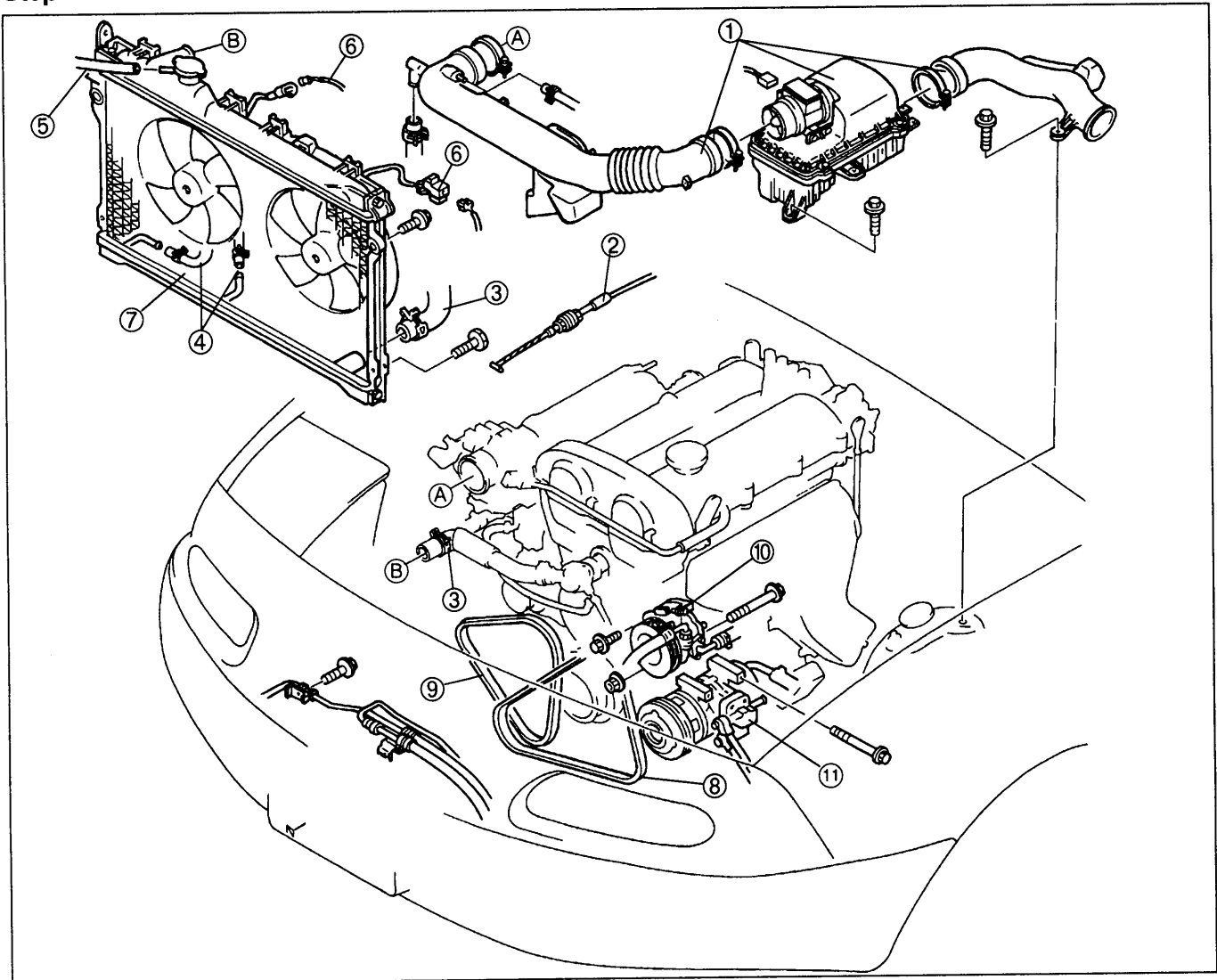
Caution

- Fuel line spills and leaks are dangerous. Fuel can ignite and cause serious injuries or death and damage. Fuel can also irritate skin and eyes. To prevent this, always complete the "Fuel Line Safety Procedures" on section F.

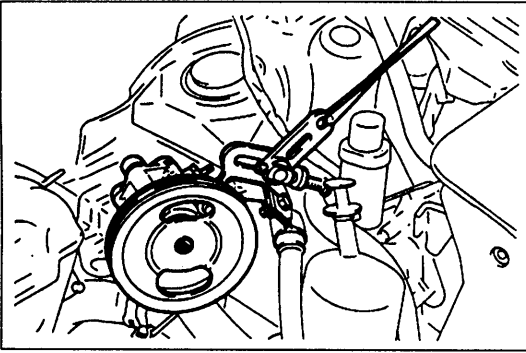
PROCEDURE

1. Disconnect the negative battery cable.
2. Drain the engine coolant. (Refer to section E.)
3. Remove the transmission.
4. Remove in the order shown in the figure, referring to **Removal Note**.

Step 1

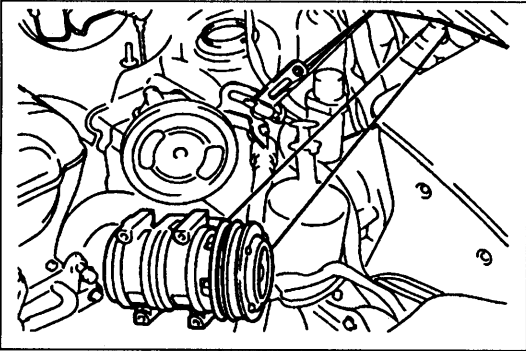


- | | |
|------------------------------|----------------------------------|
| 1. Air cleaner assembly | 9. Generator drive belt |
| 2. Accelerator cable | Removal page B- 6 |
| 3. Radiator hose | 10. P/S oil pump (If equipped) |
| 4. Oil cooler hose (AT) | Removal Note page B-29 |
| 5. Coolant reservoir hose | 11. A/C compressor (If equipped) |
| 6. Fan connector | Removal Note page B-29 |
| 7. Radiator and fan assembly | |
| 8. P/S and/or A/C drive belt | |
| Removal page B- 6 | |



Removal Note
P/S oil pump (If equipped)

1. Remove the P/S oil pump with the hoses still connected.
2. Position the pump away from the engine and affix it with wire.

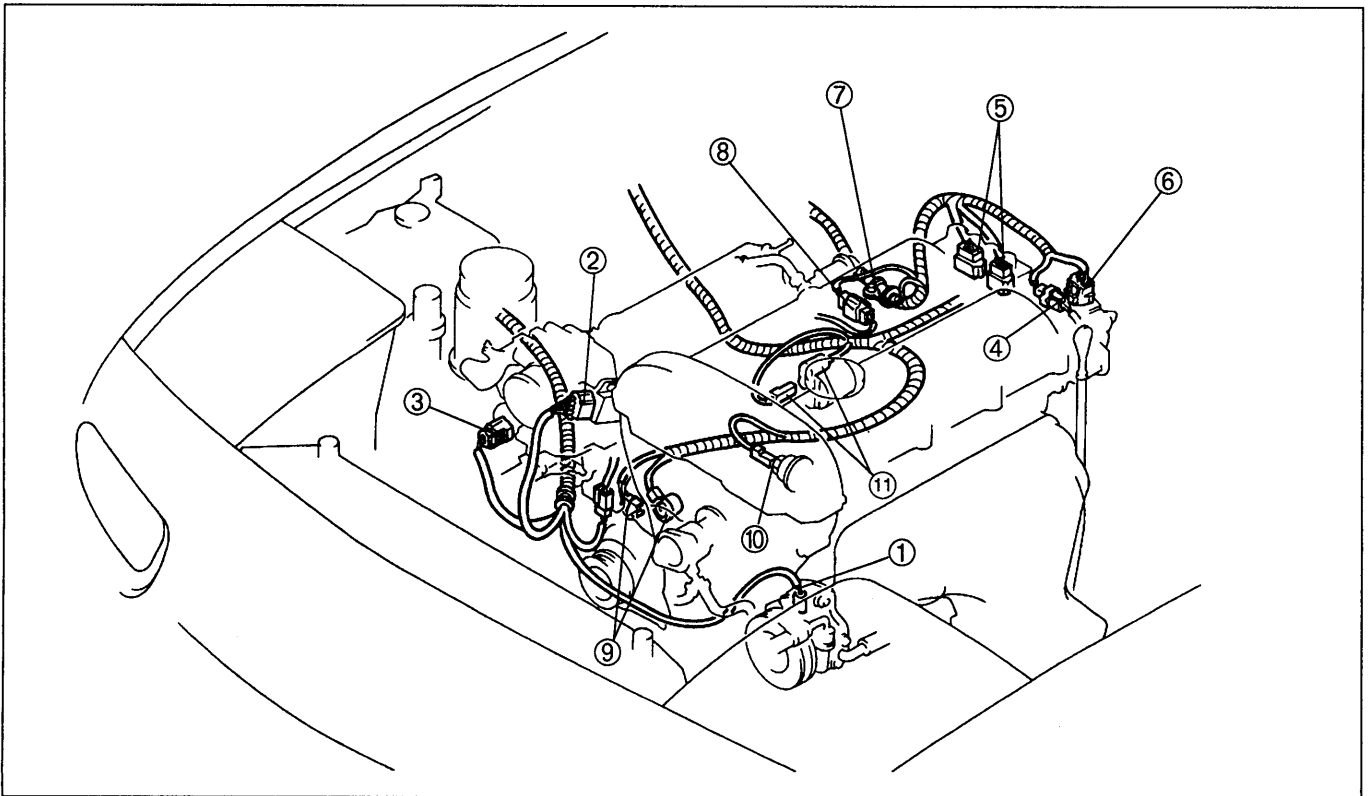


A/C compressor (If equipped)

1. Remove the A/C compressor with the hoses still connected.
2. Position the compressor away from the engine and affix it with wire.

Step 2

Disconnect the harness connectors shown in the figure.

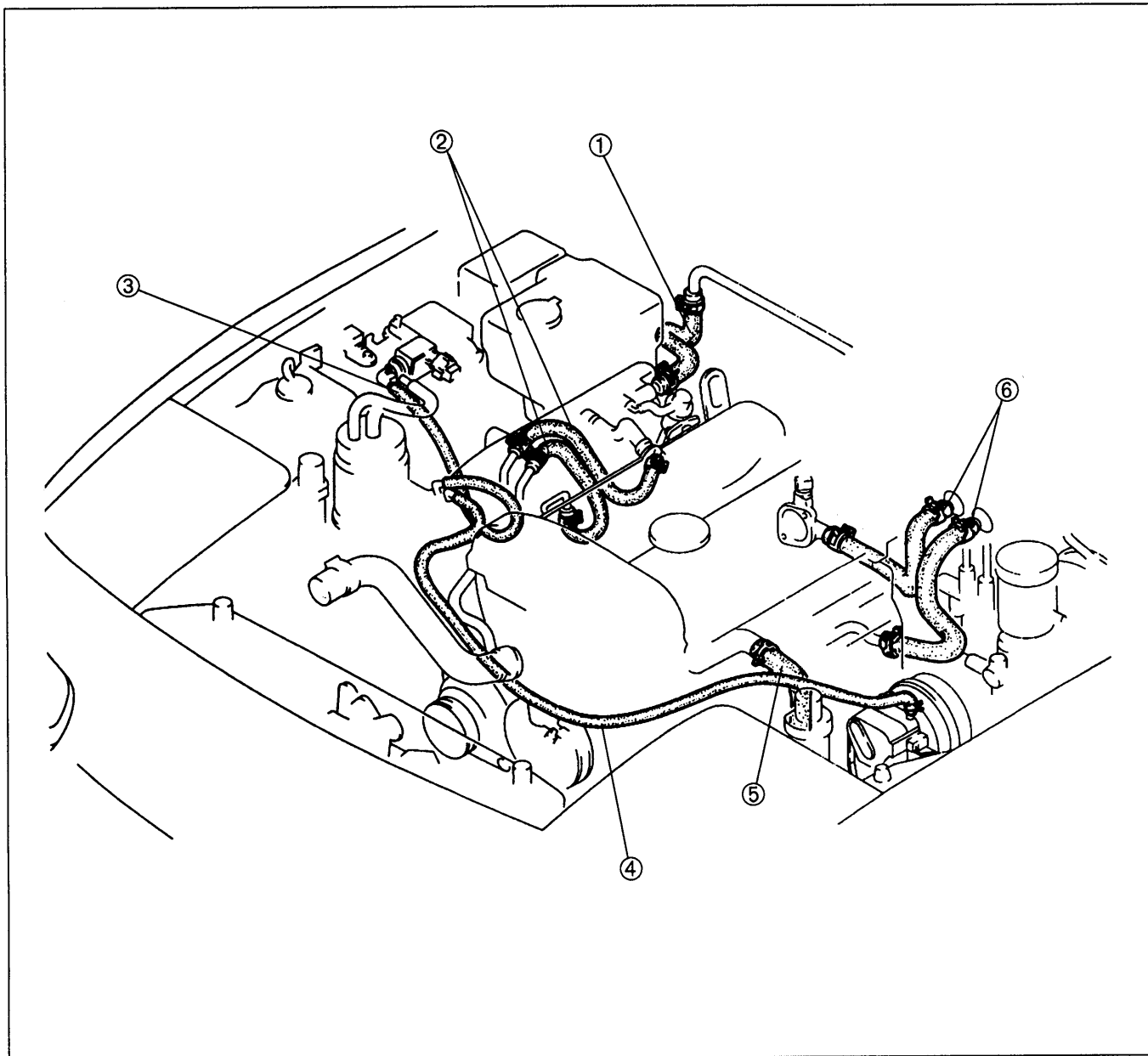


1. Steering pressure sensor
2. Throttle position sensor
3. Idle air control valve
4. Heated oxygen sensor
5. Ignition coil
6. Crankshaft position sensor

7. Ground
8. Fuel injector
9. Generator
10. Oil pressure sensor
11. Starter

Step 3

Disconnect the hoses shown in the figure.



1. Brake vacuum hose

2. Fuel hose

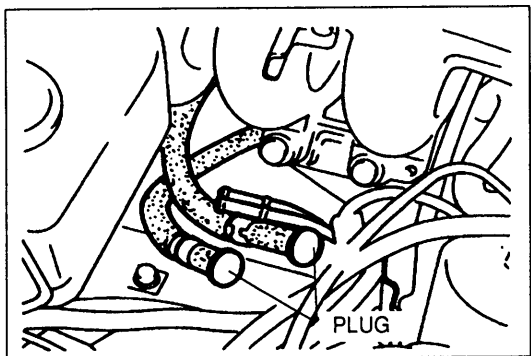
Removal Note below

3. Vacuum hose (Purge control)

4. Vacuum hose (Cruise control)

5. Water inlet hose

6. Heater hose



Removal Note

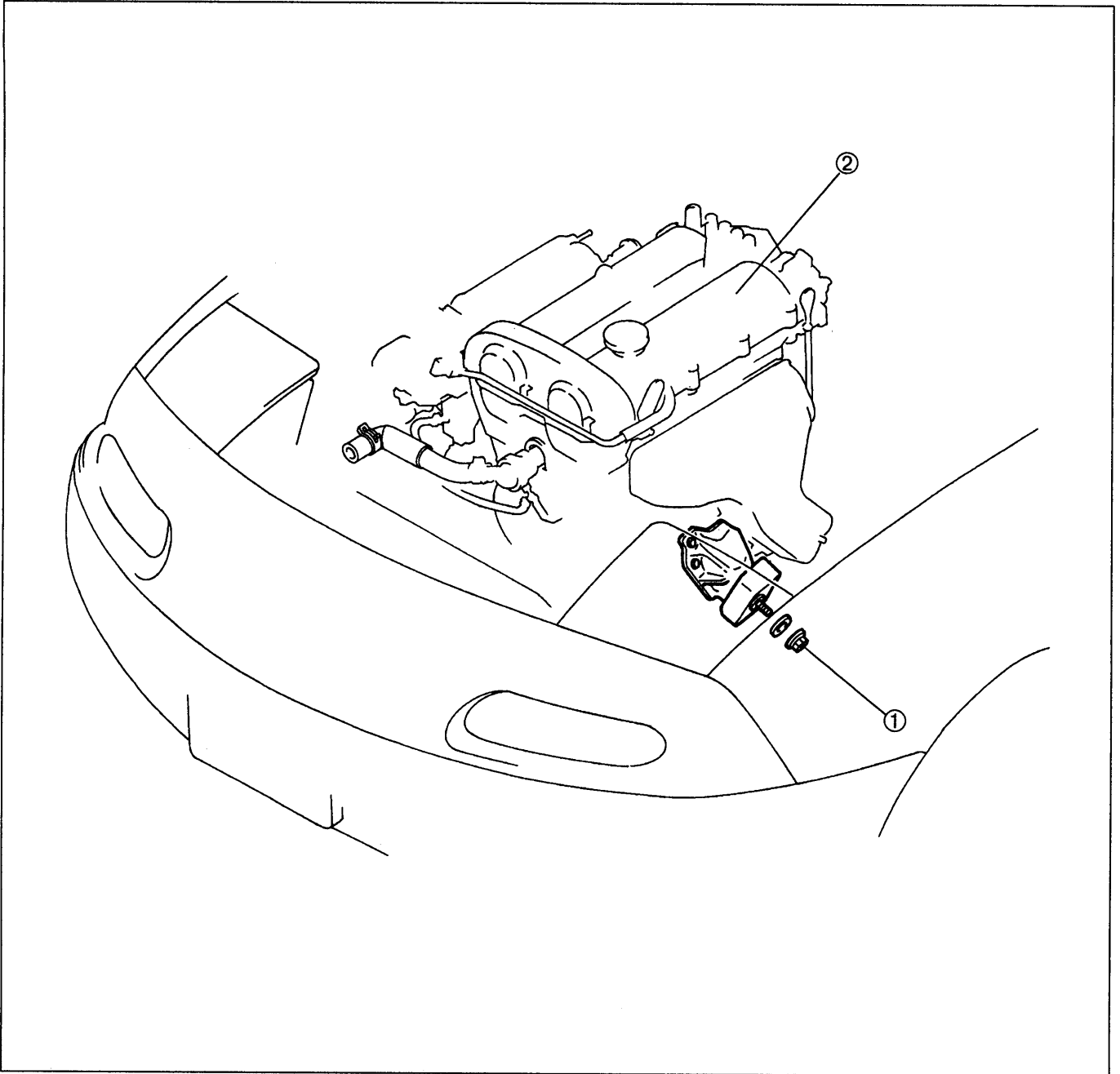
Fuel hose

Warning

- Fuel vapor is hazardous. It can very easily ignite, causing serious injury and damage. Always keep sparks and flames away from fuel.

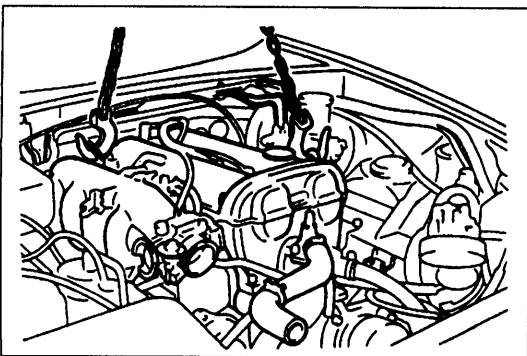
Disconnect the fuel hoses.

Step 4



1. Engine mount nut

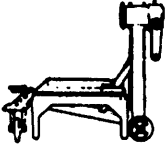
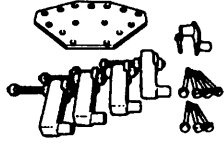
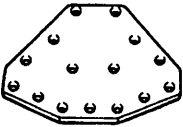





2. Engine assembly

**Removal Note**
Engine assembly

Slowly lift the engine assembly as a unit. Keep the engine from swinging or bumping into components in the engine compartment.

ENGINE STAND MOUNTING

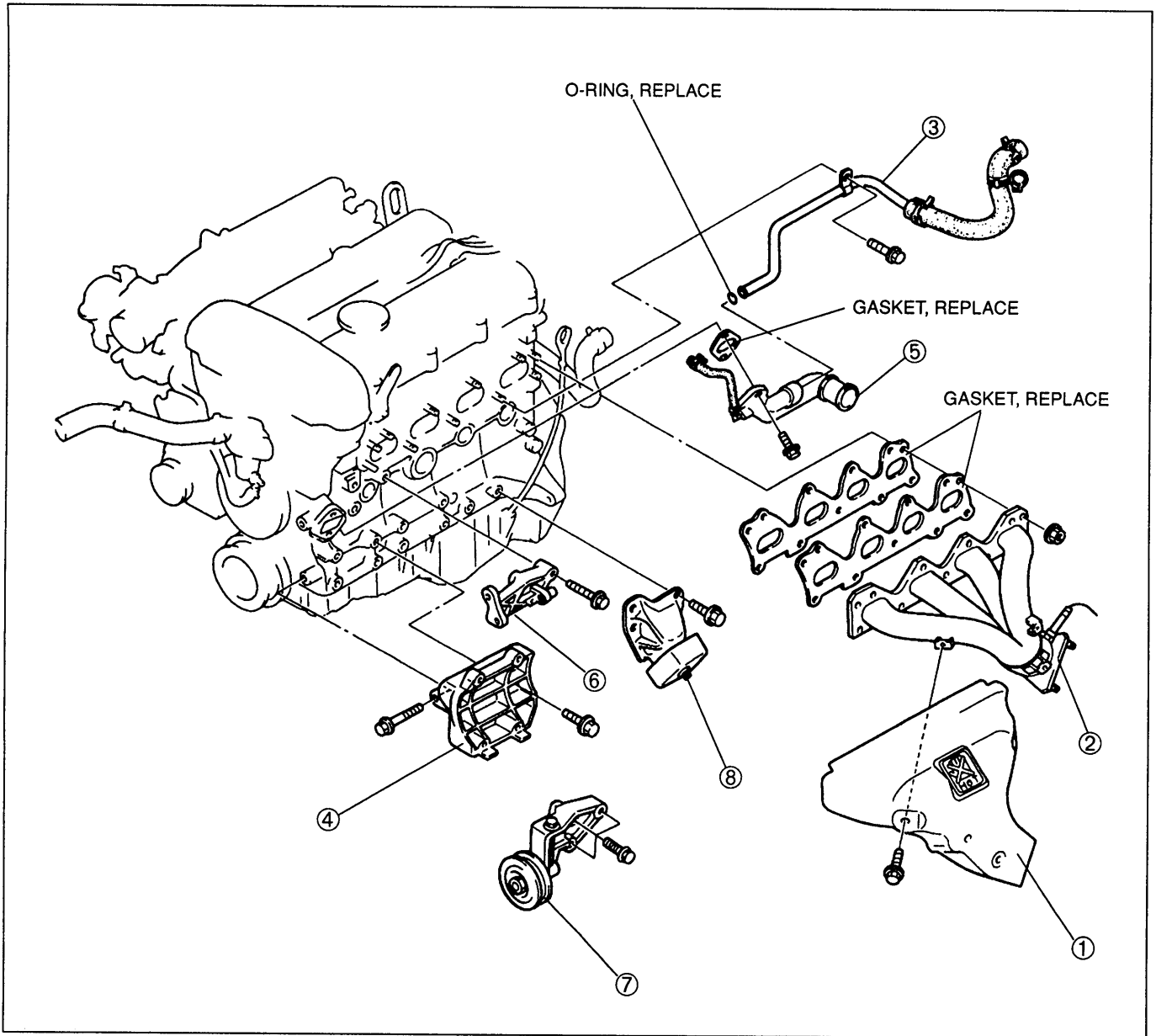
PREPARATION SST

<p>49 0107 680A Engine stand</p> 	<p>For disassembly and assembly of engine</p>	<p>49 L010 1A0 Hanger set, engine stand</p> 	<p>For disassembly and assembly of engine</p>
<p>49 L010 101 Plate (Part of 49 L010 1A0)</p> 	<p>For disassembly and assembly of engine</p>	<p>49 L010 102 Arms (Part of 49 L010 1A0)</p> 	<p>For disassembly and assembly of engine</p>
<p>49 L010 103 Hooks (Part of 49 L010 1A0)</p> 	<p>For disassembly and assembly of engine</p>	<p>49 L010 104 Nuts (Part of 49 L010 1A0)</p> 	<p>For disassembly and assembly of engine</p>
<p>49 L010 105 Bolts (Part of 49 L010 1A0)</p> 	<p>For disassembly and assembly of engine</p>	<p>49 L010 106 Bolts (Part of 49 L010 1A0)</p> 	<p>For disassembly and assembly of engine</p>

PROCEDURE

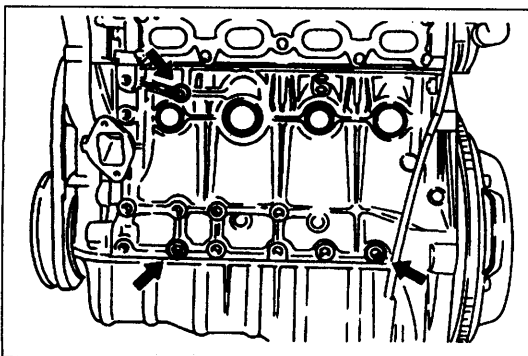
Step 1

Remove in the order shown in the figure.



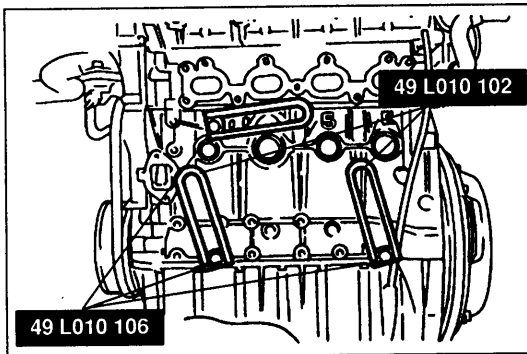
- 1. Exhaust manifold insulator
- 2. Exhaust manifold
- 3. Water bypass pipe
- 4. A/C compressor bracket (If equipped)

- 5. Water inlet pipe
- 6. P/S oil pump bracket (If equipped)
- 7. Idler pulley (A/C) (If equipped)
- 8. Left engine mount

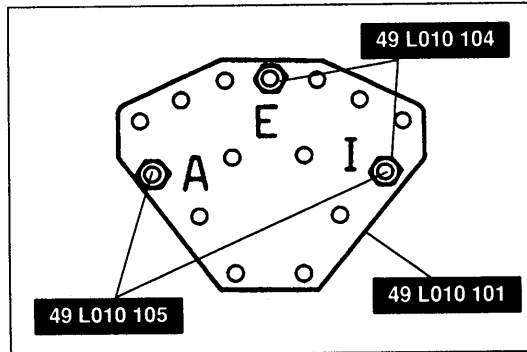


Step 2

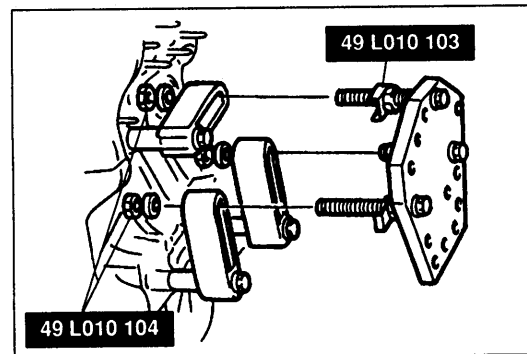
- 1. Install the **SST** (engine hanger) using the holes shown in the figure.



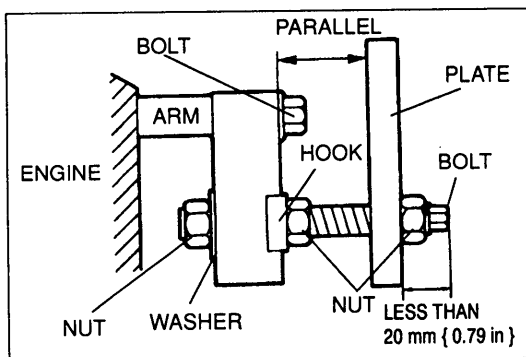
2. Install the **SST** (arms) to the holes as shown in the figure, and hand tighten the **SST** (bolts).



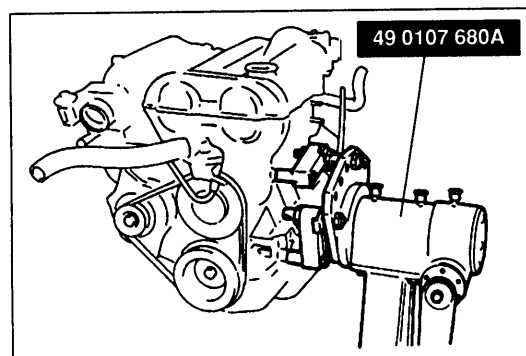
3. Assemble the **SST** (bolts and plate) in the specified position.



4. Assemble the **SST** (nuts, hooks, and bolts).
5. Install the **SST** to the respective arms.



6. Adjust the **SST** (bolts) so that less than 20 mm { 0.79 in } of thread is exposed.
7. Make the **SST** (plate and arms) parallel by adjusting the **SST** (bolts and nuts).
8. Tighten the **SST** (bolts and nuts) to affix the **SST** firmly.

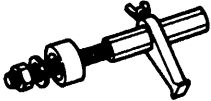



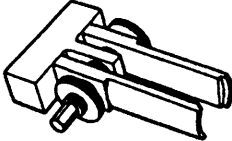
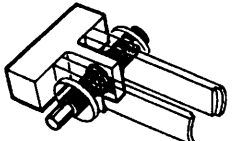
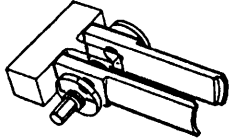
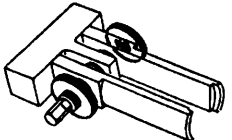


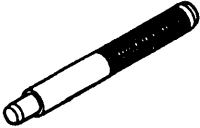


9. Mount the engine on the **SST** (engine stand).

DISASSEMBLY

PREPARATION

SST

49 E011 1A0 Brake set, ring gear 	For prevention of engine rotation	49 E011 103 Shaft (Part of 49 E011 1A0) 	For prevention of engine rotation
49 E011 105 Stopper (Part of 49 E011 1A0) 	For prevention of engine rotation	49 E011 104 Collar (Part of 49 E011 1A0) 	For prevention of engine rotation
49 B012 0A2 Pivot 	For removal / installation of valves	49 B012 012 Body (Part of 49 B012 0A2) 	For removal / installation of valves
49 B012 013 Foot (Part of 49 B012 0A2) 	For removal / installation of valves	49 B012 014 Locknut (Part of 49 B012 0A2) 	For removal / installation of valves
49 0636 100B Arm, valve spring lifter 	For removal / installation of valves	49 S120 170 Remover, valve seal 	For removal of valve seals
49 0221 061A Remover & installer, piston pin 	For removal / installation of piston pins	—	—

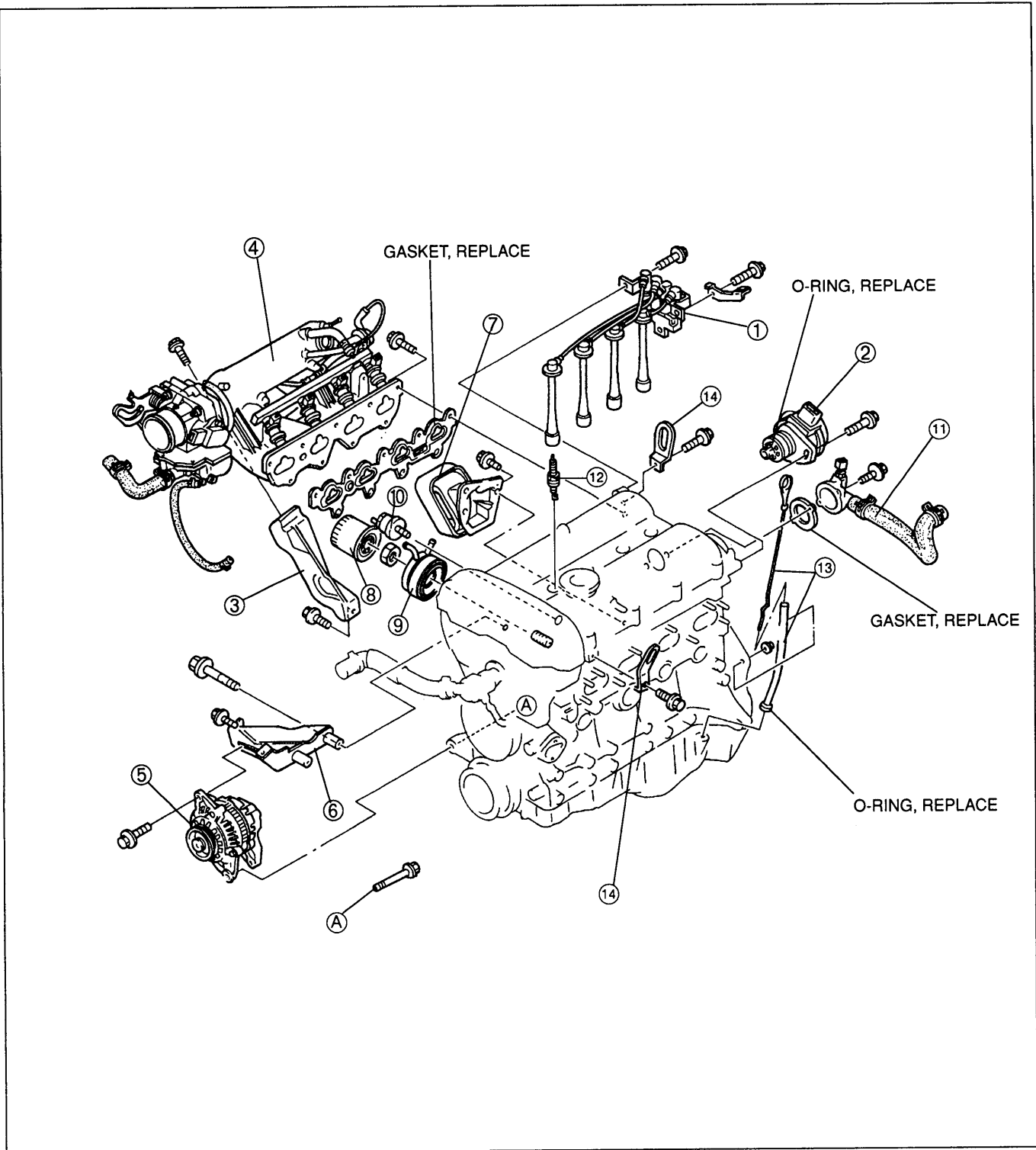
1. Code all identical parts (such as piston, piston rings, connecting rods, and valve springs) so that they can be reinstalled in the cylinder from which they were removed.
2. Clean the parts with a steam cleaner. Blow off any remaining water with compressed air.

Warning

- **Continuous exposure with USED engine oil has caused skin cancer in laboratory mice. Protect your skin by washing with soap and water immediately after this work.**

AUXILIARY PARTS

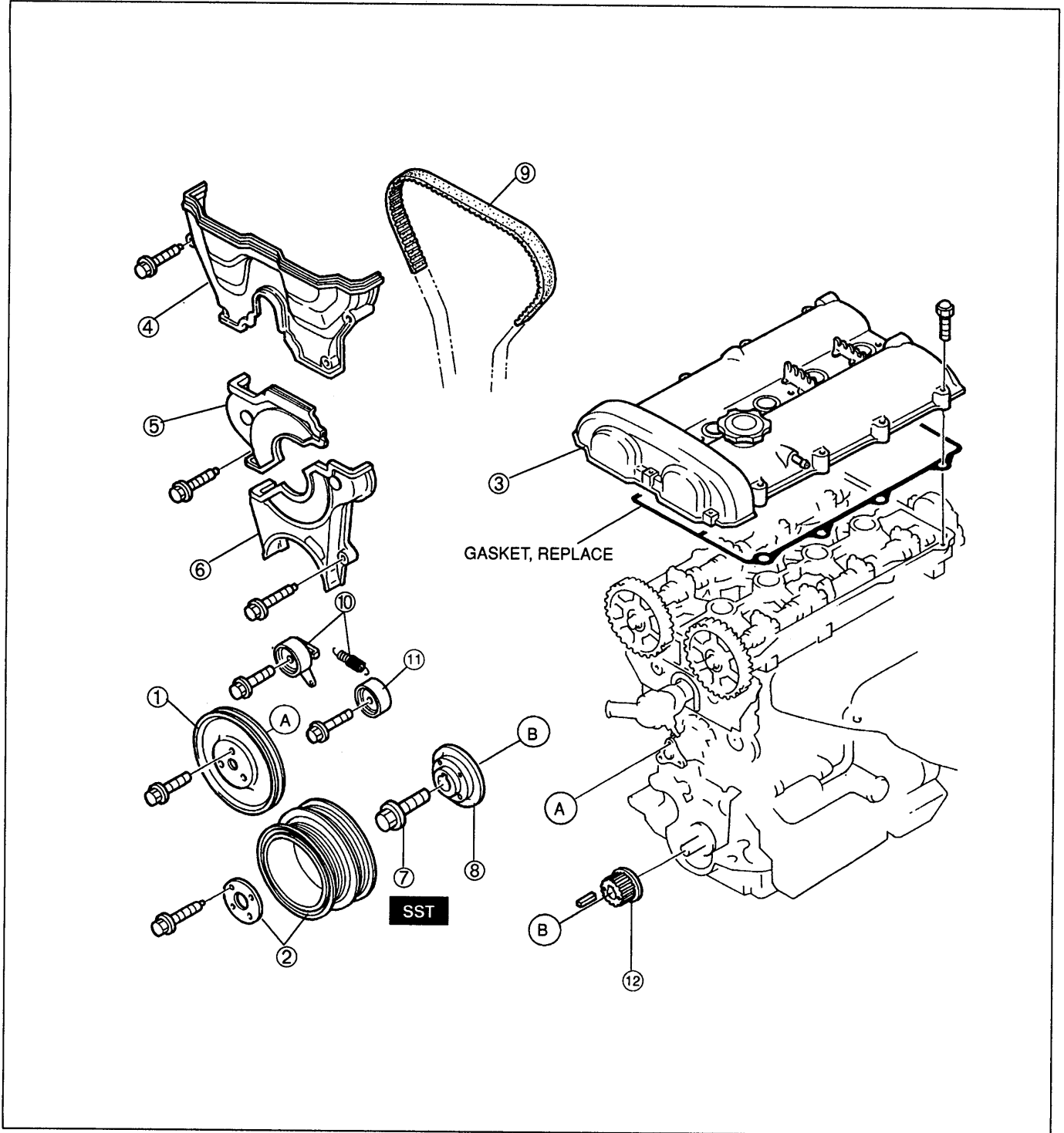
1. Drain the engine oil.
2. Disassemble in the order shown in the figure.



- | | |
|--|-------------------------|
| 1. Ignition coil and high-tension lead | 8. Oil filter |
| 2. Crankshaft position sensor | 9. Oil cooler |
| 3. Manifold bracket | 10. Oil pressure sensor |
| 4. Intake manifold assembly | 11. Water outlet pipe |
| 5. Generator | 12. Spark plug |
| 6. Generator bracket | 13. Dipstick and pipe |
| 7. Right engine mount | 14. Engine hanger |

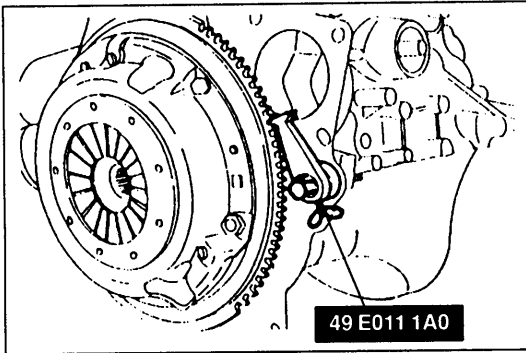
TIMING BELT

Disassemble in the order shown in the figure, referring to **Disassembly Note**.

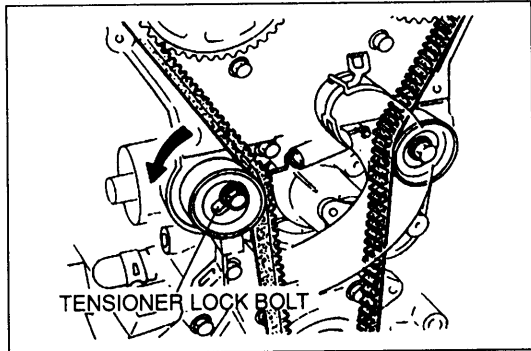


- 1. Water pump pulley
- 2. Crankshaft pulley, plate
- 3. Cylinder head cover
- 4. Upper timing belt cover
- 5. Middle timing belt cover
- 6. Lower timing belt cover
- 7. Pulley lock bolt
Disassembly Note page B-38
- 8. Pulley boss

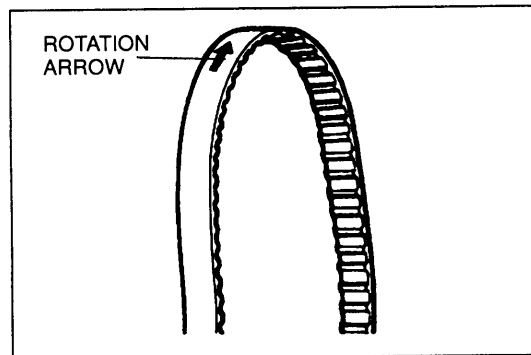
- 9. Timing belt
Disassembly Note page B-38
Inspection page B-58
- 10. Tensioner, tensioner spring
Inspection page B-59
- 11. Idler
Inspection page B-59
- 12. Timing belt pulley
Inspection page B-59

**Disassembly Note****Pulley lock bolt**

1. Hold the flywheel (MT) or drive plate (AT) with the SST.
2. Loosen the pulley lock bolt.
3. Remove the pulley lock bolt.

**Timing belt**

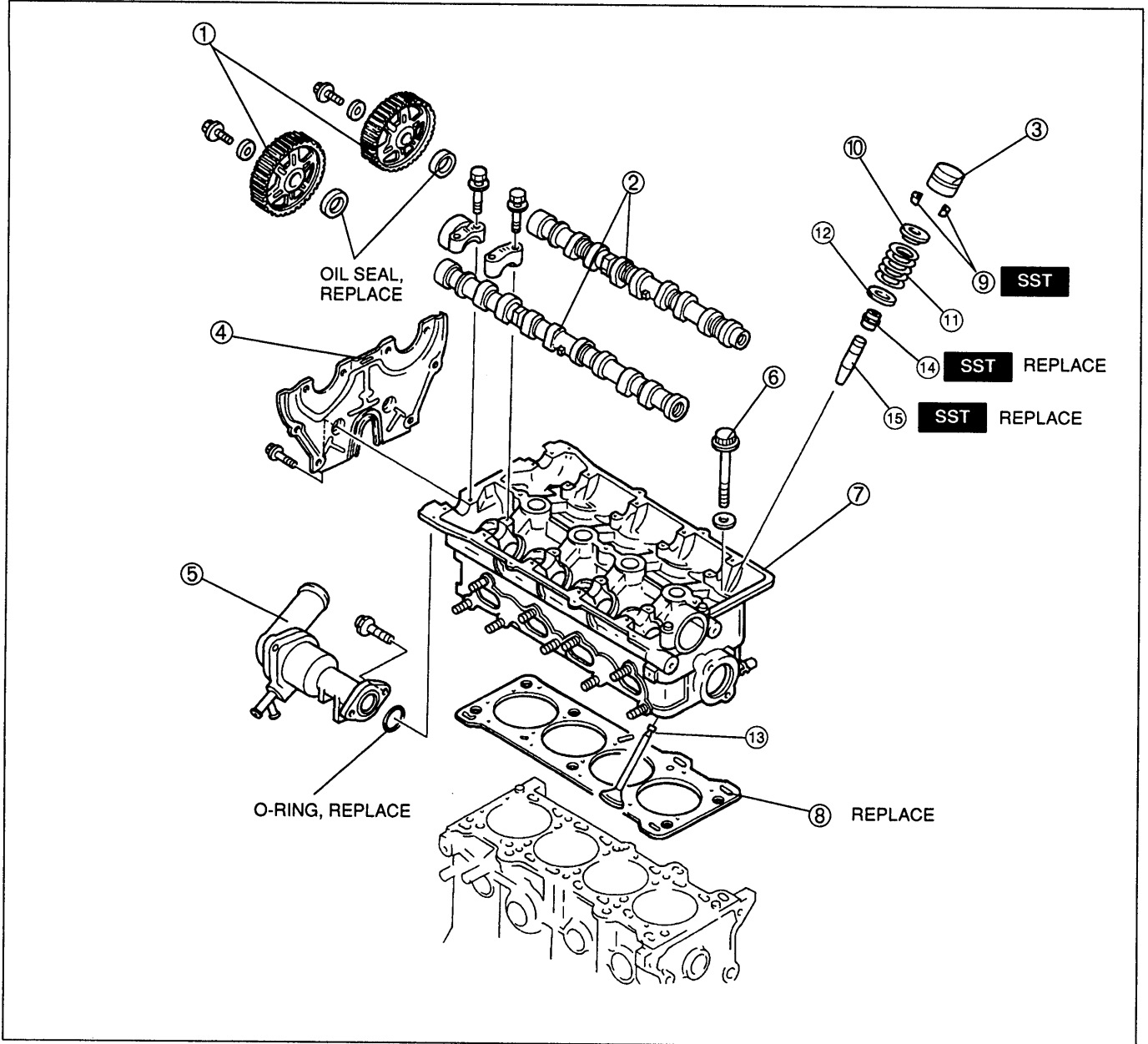
1. Protect the tensioner with a rag.
2. Loosen the tensioner lock bolt. Ply the tensioner outward with a bar.
3. Tighten the lock bolt with the tensioner spring fully extended.



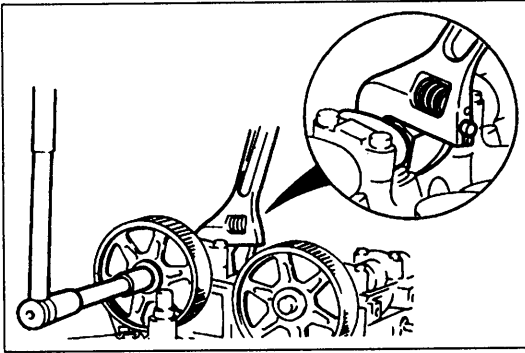
4. Mark the timing belt rotation for proper reinstallation.
5. Remove the timing belt.

CYLINDER HEAD

Disassemble in the order shown in the figure, referring to **Disassembly Note**.



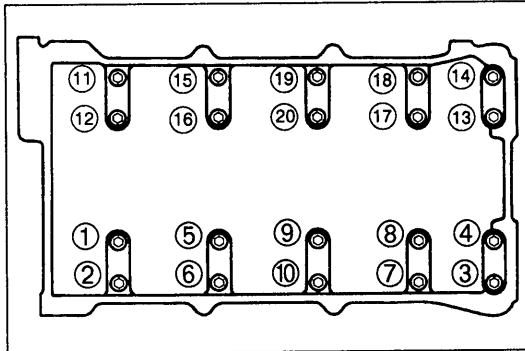
- | | |
|---|--|
| <p>1. Camshaft pulley
 Disassembly Note page B-40
 Inspection page B-59</p> <p>2. Camshaft
 Disassembly Note page B-40
 Inspection page B-51</p> <p>3. HLA
 Disassembly Note page B-40
 Inspection page B-53</p> <p>4. Seal plate</p> <p>5. Thermostat housing</p> <p>6. Cylinder head bolt
 Disassembly Note page B-40</p> <p>7. Cylinder head
 Inspection page B-47</p> | <p>8. Cylinder head gasket</p> <p>9. Valve keeper
 Disassembly Note page B-40</p> <p>10. Upper valve spring seat</p> <p>11. Valve spring
 Inspection page B-51</p> <p>12. Lower valve spring seat</p> <p>13. Valve
 Inspection page B-48</p> <p>14. Valve seal
 Disassembly Note page B-41
 Inspect for wear or damage</p> <p>15. Valve guide
 Inspection page B-48
 Replacement page B-49</p> |
|---|--|



Disassembly Note

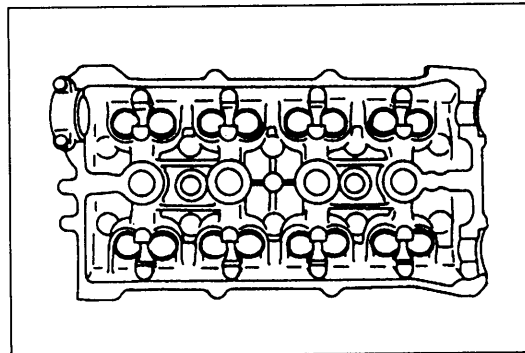
Camshaft pulley

1. Hold the camshaft with a wrench at the cast hexagon.
2. Remove the camshaft pulley lock bolts.
3. Remove the camshaft pulleys.



Camshaft

1. Loosen the camshaft cap bolts in five or six steps in the order shown.
2. Remove the camshaft caps.
3. Remove the camshafts.
4. Remove the camshaft oil seals from the camshafts.



HLA

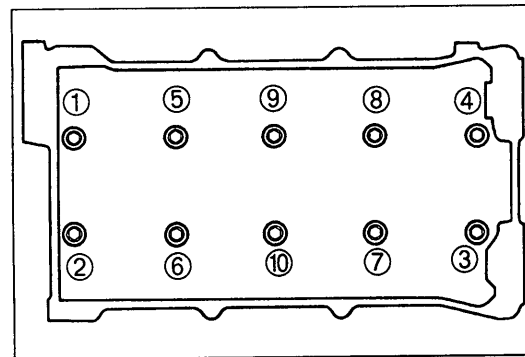
Caution

- The HLA must be reinstalled in the same position from which they were removed. If they are not, it can cause premature and uneven wear.

Note

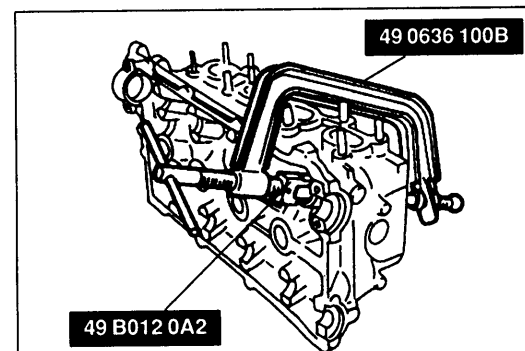
- Mark the HLA to show their original positions.

1. Remove the HLA from the cylinder head.
2. Store the HLA upside down in an oil-filled container.



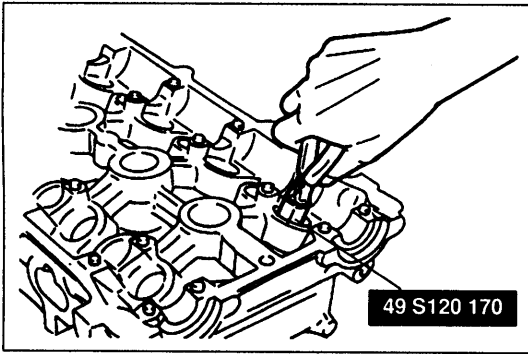
Cylinder head bolt

1. Loosen the cylinder head bolts in two or three steps in the order shown.
2. Remove the cylinder head bolts.



Valve keeper

1. Set the **SST** against the upper valve spring seat as shown.
2. Compress the spring and remove the valve keepers.

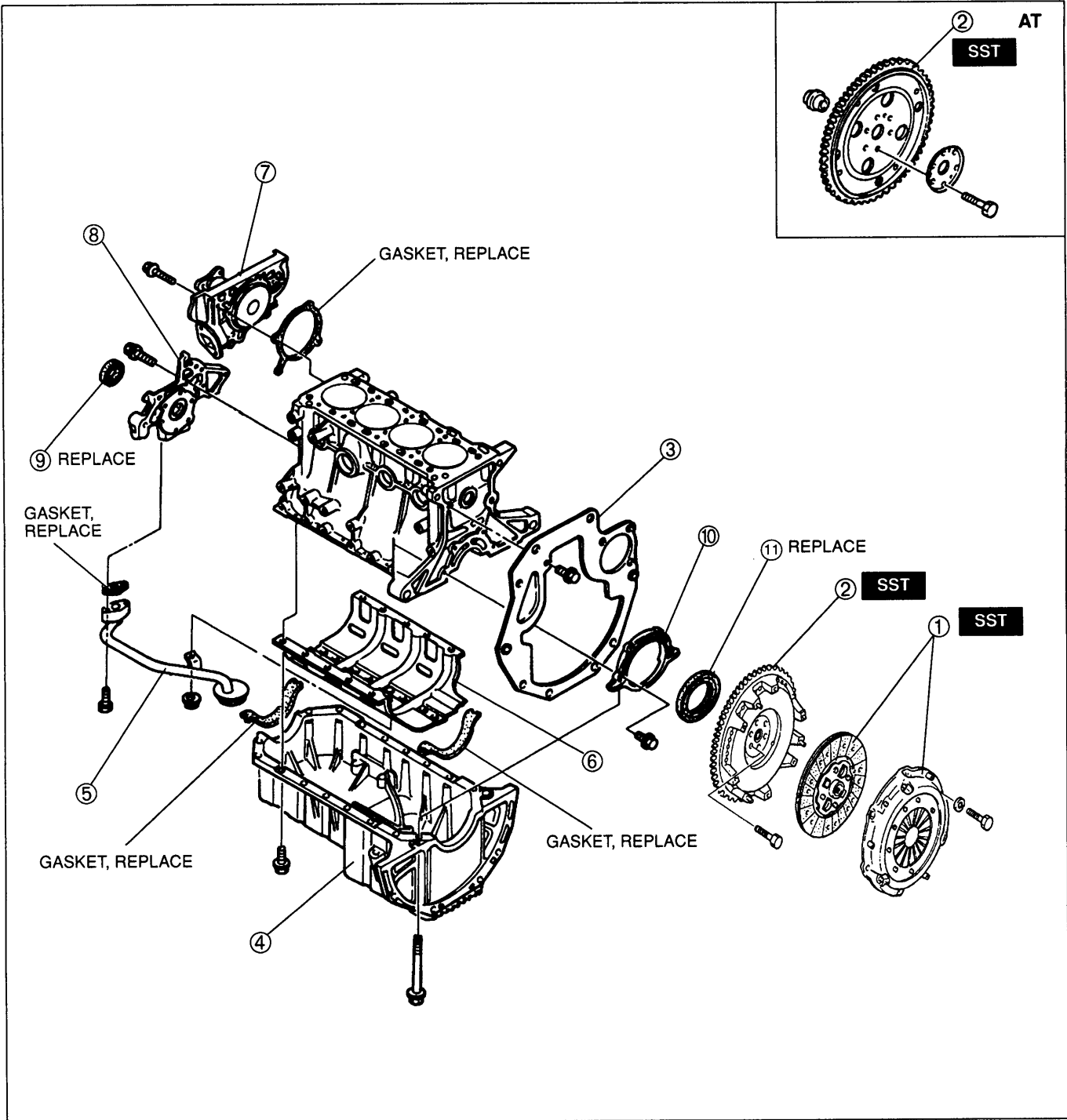


Valve seal

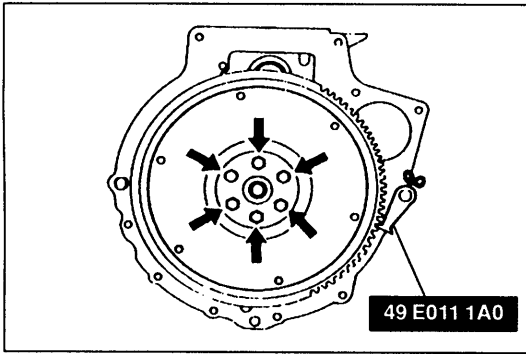
Remove the valve seals by using the SST.

CYLINDER BLOCK (EXTERNAL PARTS)

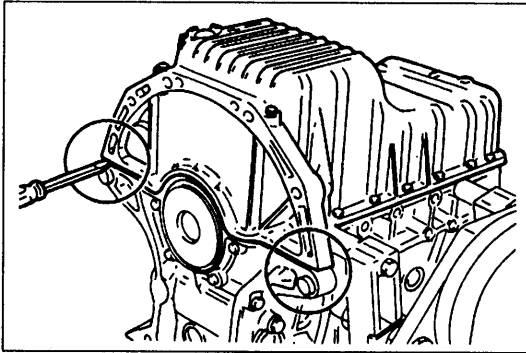
Disassemble in the order shown in the figure, referring to **Disassembly Note**.



- | | |
|--|--|
| <p>1. Clutch cover, clutch disc (MT)
Removal / Installation section H</p> <p>2. Flywheel (MT), drive plate (AT)
Disassembly Note page B-43</p> <p>3. End plate</p> <p>4. Oil pan
Disassembly Note page B-43</p> <p>5. Oil strainer</p> <p>6. Oil baffle
Disassembly Note page B-44</p> | <p>7. Water pump</p> <p>8. Oil pump
Disassembly / Assembly section D</p> <p>9. Front oil seal
Disassembly Note page B-43</p> <p>10. Rear cover</p> <p>11. Rear oil seal
Disassembly Note page B-43</p> |
|--|--|

**Disassembly Note****Flywheel (MT) or drive plate (AT)**

1. Hold the flywheel by using the **SST**.
2. Remove the flywheel lock bolts.
3. Remove the flywheel.

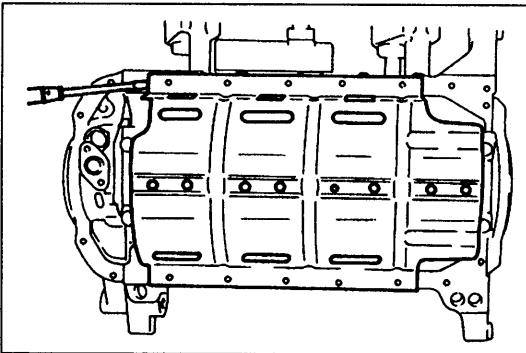
**Oil pan**

1. Remove the oil pan mounting bolts.

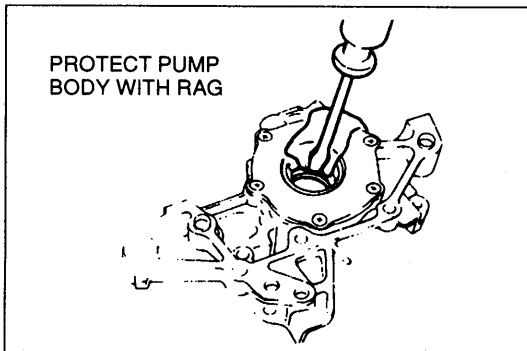
Caution

- **Pry tools can easily scratch the cylinder block and oil pan contact surfaces.**

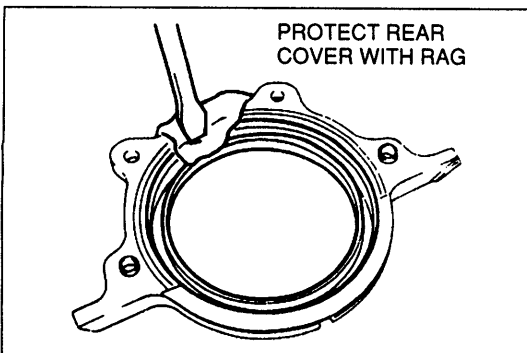
2. Insert a screwdriver only at the points shown.
3. Remove the oil pan.

**Oil baffle**

1. Insert a screwdriver between the cylinder block and the oil baffle to separate them.
2. Remove the oil baffle.

**Front oil seal**

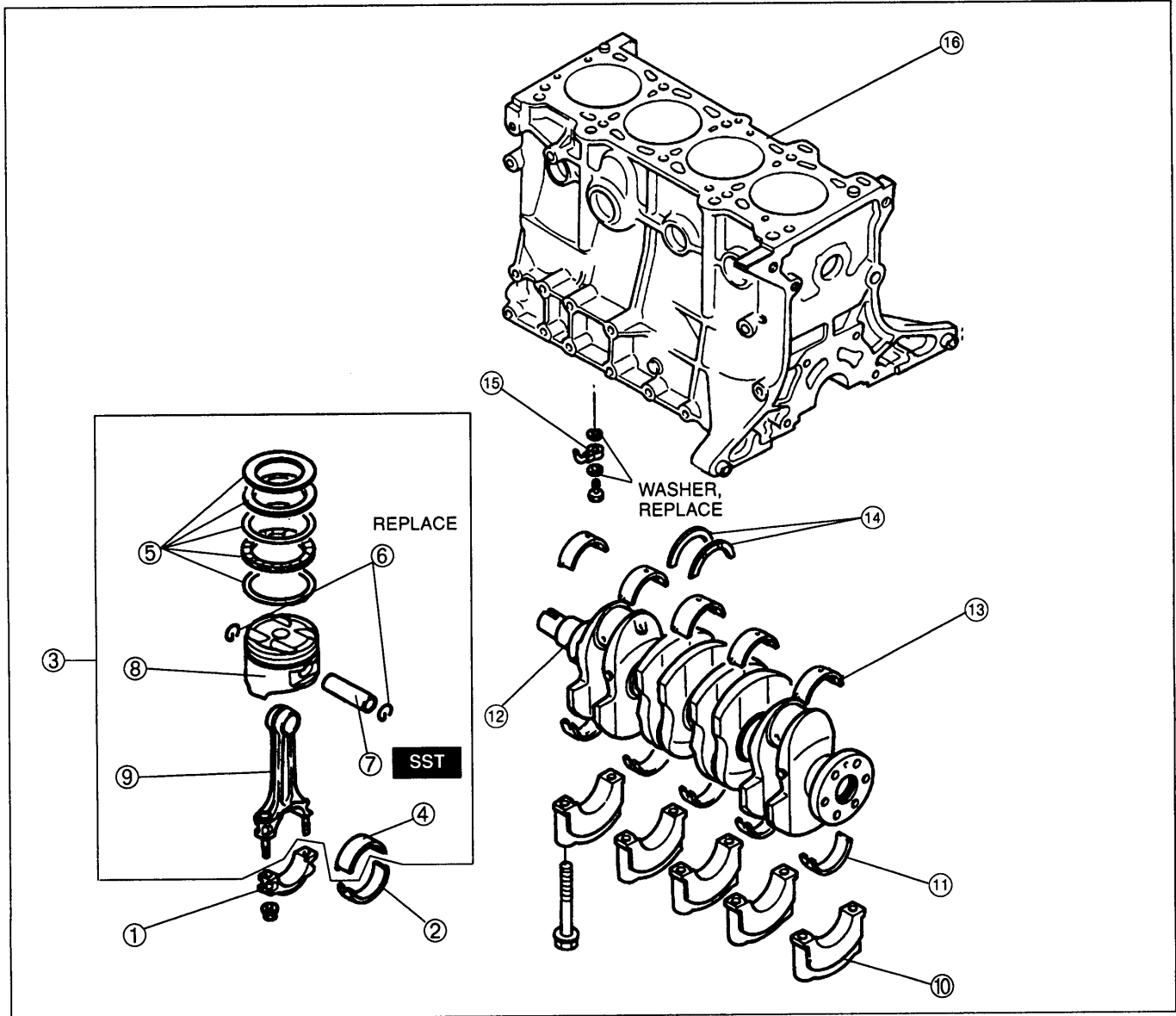
Remove the oil seal by using a screwdriver protected with a rag.

**Rear oil seal**

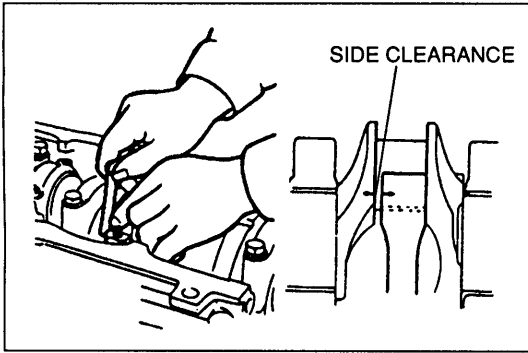
Remove the oil seal by using a screwdriver protected with a rag.

CYLINDER BLOCK (INTERNAL PARTS)

Disassemble in the order shown in the figure, referring to **Disassembly Note**.

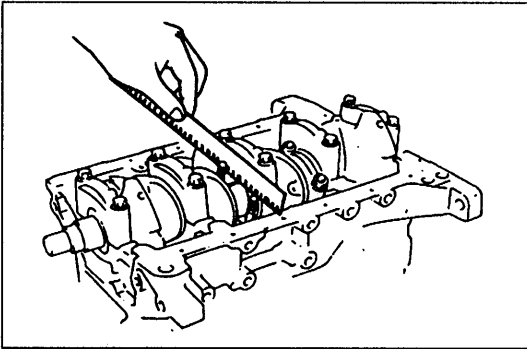


- | | | | |
|---|-----------|--|-----------|
| 1. Connecting rod cap
Disassembly Note | page B-45 | 9. Connecting rod
Inspection | page B-57 |
| 2. Lower connecting rod bearing
Disassembly Note | page B-45 | 10. Main bearing cap
Disassembly Note | page B-46 |
| Inspection | page B-58 | 11. Lower main bearing
Inspection | page B-58 |
| 3. Connecting rod and piston assembly
Disassembly Note | page B-45 | 12. Crankshaft
Disassembly Note | page B-46 |
| 4. Upper connecting rod bearing
Inspection | page B-58 | Inspection | page B-57 |
| 5. Piston ring
Disassembly Note | page B-45 | 13. Upper main bearing
Inspection | page B-58 |
| Inspection | page B-56 | 14. Thrust bearing
Inspection | page B-65 |
| 6. Piston pin clip | | 15. Oil jet
Inspection | page B-55 |
| 7. Piston pin
Disassembly Note | page B-45 | 16. Cylinder block
Inspection | page B-54 |
| Inspection | page B-56 | | |
| 8. Piston
Inspection | page B-55 | | |



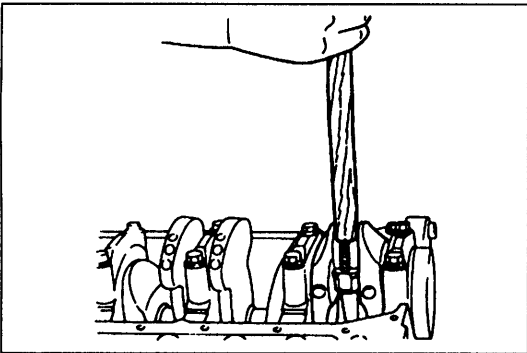
Disassembly Note
Connecting rod cap

Before removing the connecting rod caps, measure the connecting rod side clearance. (Refer to page B-66.)

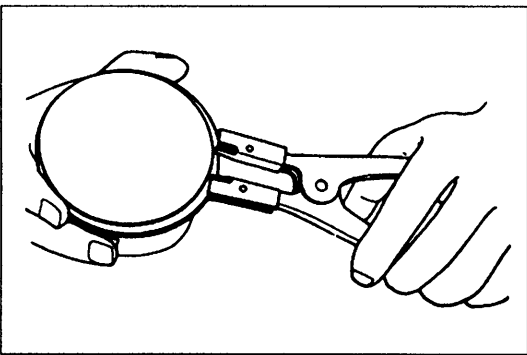


Connecting rod and piston assembly

1. Before removing the connecting rod and piston assembly, measure the connecting rod oil clearance. (Refer to page B-66.)

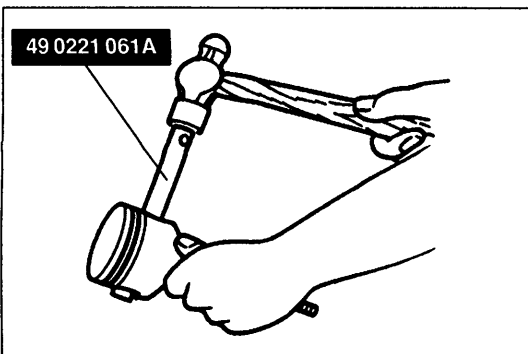


2. Remove the Plastigage from the crankpin journals.
3. Use the handle of a hammer to remove the piston and connecting rod assembly through the top of the cylinder block.



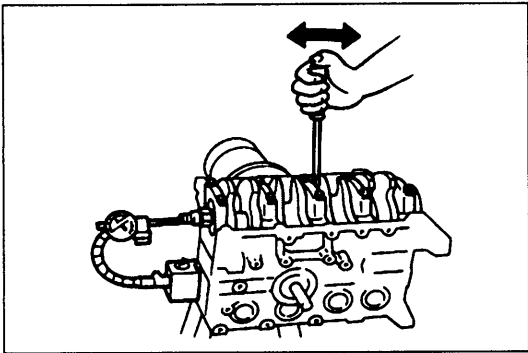
Piston ring

Remove the piston rings by using a piston ring expander.

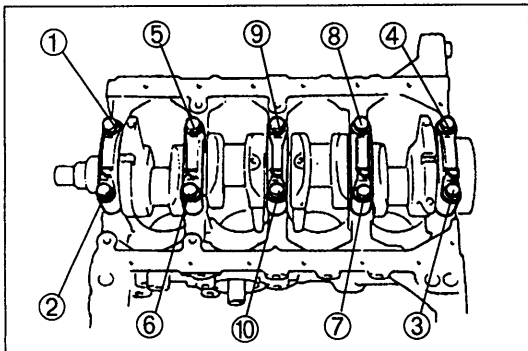


Piston pin

Remove the piston pin by using the SST.

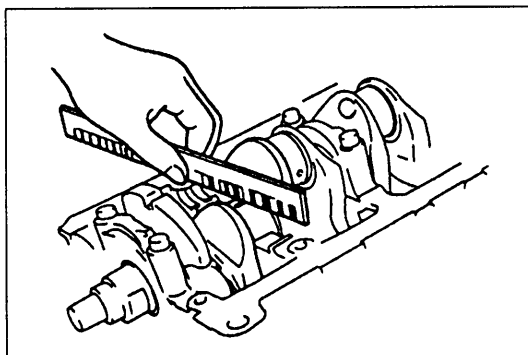
**Main bearing cap**

1. Before removing the main bearing caps, measure the crankshaft end play. (Refer to page B-65.)



2. Loosen the main bearing cap bolts in two or three steps in the order shown.

3. Remove the main bearing caps.

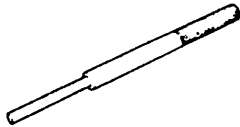
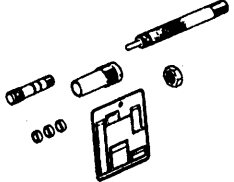
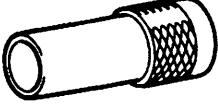
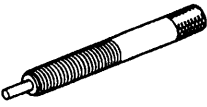

**Crankshaft**

Before removing the crankshaft, measure the main bearing oil clearances. (Refer to page B-64.)

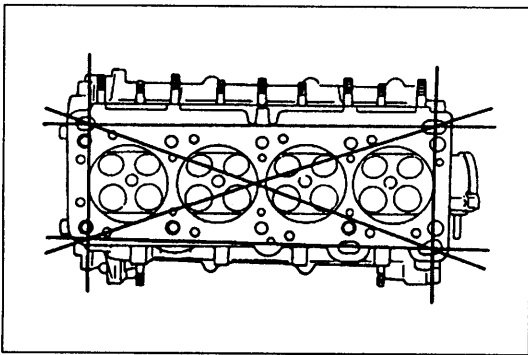
INSPECTION / REPAIR

PREPARATION

SST

<p>49 B012 005</p> <p>Remover & installer, valve guide</p> 	<p>For removal of valve guide</p>	<p>49 L012 0A0</p> <p>Installer set, valve seal & valve guide</p> 	<p>For installation of valve guide</p>
<p>49 L012 002</p> <p>Body (Part of 49 L012 0A0)</p> 	<p>For installation of valve guide</p>	<p>49 L012 003</p> <p>Installer (Part of 49 L012 0A0)</p> 	<p>For installation of valve guide</p>
<p>49 L012 004</p> <p>Nut (Part of 49 L012 0A0)</p> 	<p>For installation of valve guide</p>	<p>—</p>	<p>—</p>

1. Clean all parts, being sure to remove all foreign materials.
2. Inspection and repairs must be performed in the order specified.



CYLINDER HEAD

1. Inspect the cylinder head for damage, cracks, and leakage of water and oil. Replace the cylinder head if necessary.
2. Measure the cylinder head for distortion in the six directions as shown.

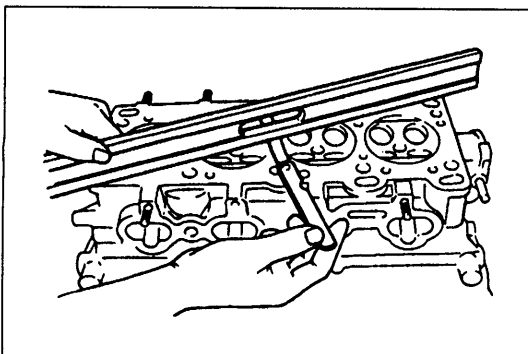
Distortion: 0.10 mm { 0.004 in } max.

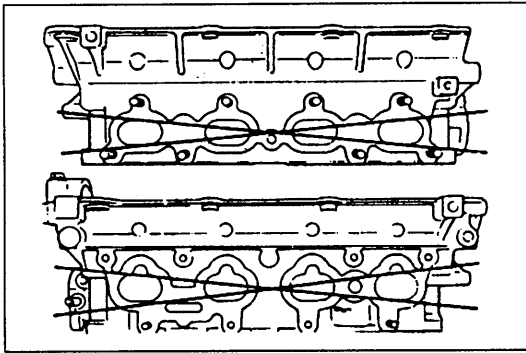
3. Inspect the following and repair or replace the cylinder head as necessary.
 - (1) Sunken valve seats
 - (2) Damaged intake and exhaust manifold contact surfaces
 - (3) Excessive camshaft oil clearances and end play
4. If the cylinder head distortion exceeds the specification, grind the cylinder head surface.

Grinding: 0.10 mm { 0.004 in } max.

5. If the cylinder head height is not within the specification, replace it.

Height: 133.8—134.0 mm { 5.268—5.275 in }





6. Measure the manifold contact surface distortion in the four directions as shown.

Distortion: 0.15 mm { 0.006 in } max.

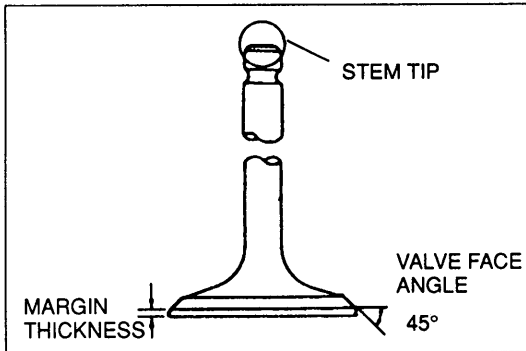
7. If distortion exceeds the maximum, grind the surface or replace the cylinder head.

Grinding: 0.20 mm { 0.008 in } max.

VALVE MECHANISM

Valve and Valve Guide

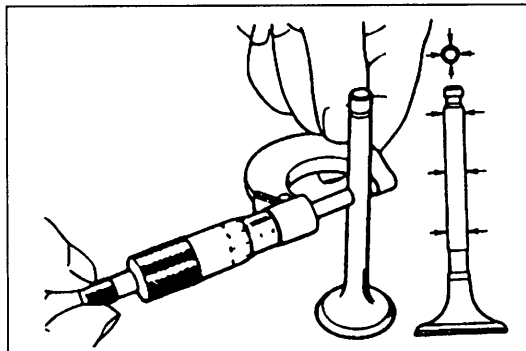
1. Inspect each valve for the following. Replace or resurface the valve if necessary.
 - (1) Damaged or bent stem
 - (2) Rough or damaged face
 - (3) Damaged or unevenly worn stem tip
2. Measure the valve head margin thickness of each valve. Replace the valve if necessary.



Margin thickness

IN : 0.9 mm { 0.035 in }
EX : 1.0 mm { 0.039 in }

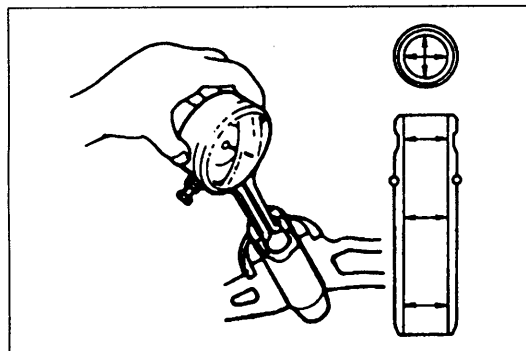
3. Measure the length of each valve.



Length

Standard
IN : 101.89 mm { 4.0114 in }
EX : 101.99 mm { 4.0153 in }
Minimum
IN : 100.39 mm { 3.9524 in }
EX : 100.49 mm { 3.9563 in }

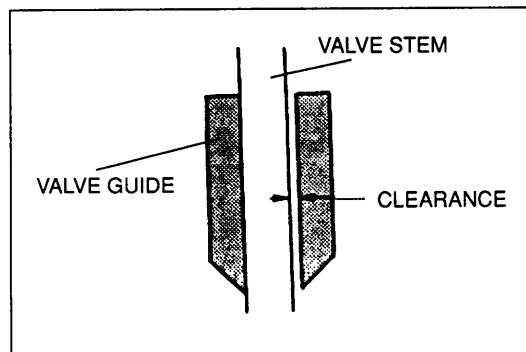
4. Measure the stem diameter of each valve at the points shown.



Diameter

IN : 5.970—5.985 mm { 0.2351—0.2356 in }
EX : 5.965—5.980 mm { 0.2349—0.2354 in }
Minimum
IN : 5.920 mm { 0.2331 in }
EX : 5.915 mm { 0.2329 in }

5. Measure the inner diameter of each valve guide at the points shown.



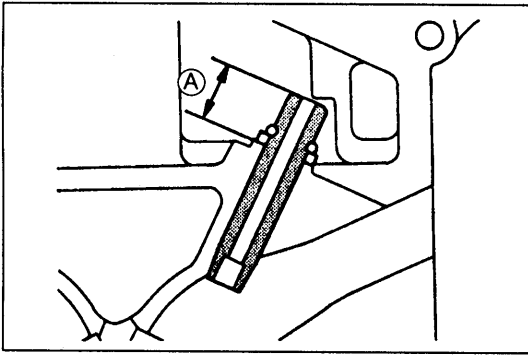
Inner diameter

IN : 6.01—6.03 mm { 0.2367—0.2374 in }
EX : 6.01—6.03 mm { 0.2367—0.2374 in }

6. Calculate the valve stem-to-guide clearance. Subtract the outer diameter of the valve stem from the inner diameter of the corresponding valve guide.

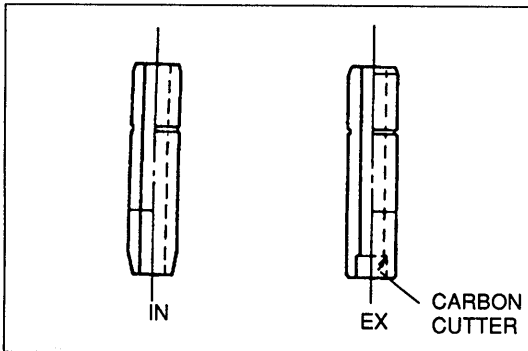
Clearance

IN : 0.025—0.060 mm { 0.0010—0.0023 in }
EX : 0.030—0.065 mm { 0.0012—0.0025 in }
Maximum: 0.20 mm { 0.008 in }



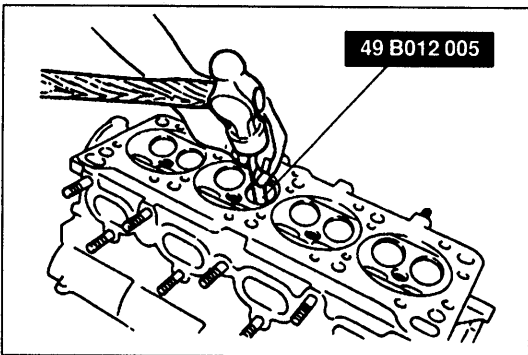
7. If the clearance exceeds specification, replace the valve and/or valve guide.
8. Measure height **A** of each valve guide. Replace the valve guide if necessary.

Height: 18.3—18.9mm {0.721—0.744 in}



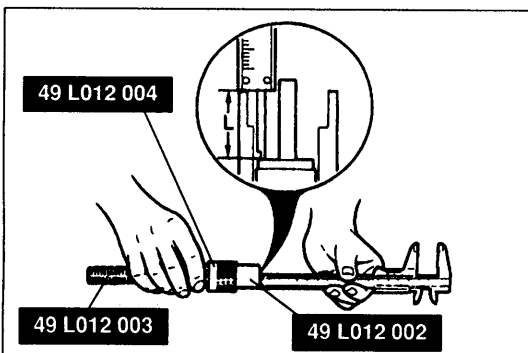
Replacement of valve guide

Although the intake and exhaust valve guides are different, use the exhaust valve guide to replace the intake valve guide.



Removal

Remove the valve guide from the combustion chamber side by using the **SST**.

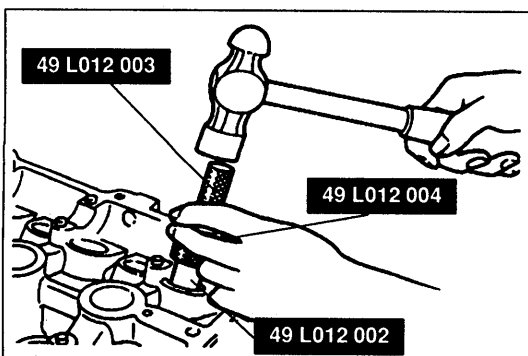


Installation

1. Assemble the **SST** so that depth **L** is as specified.

Depth L: 18.3—18.9 mm { 0.721—0.744 in }

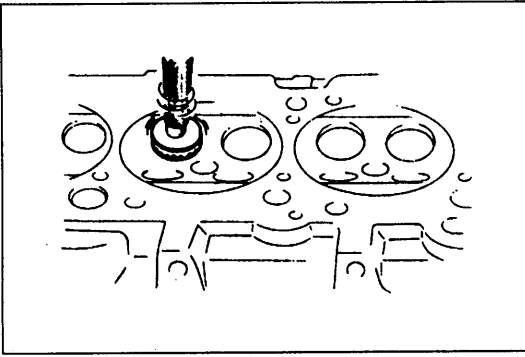
2. Tighten the nut.



3. Tap the valve guide in from the side opposite the combustion chamber until the **SST** contacts the cylinder head.
4. Verify that the valve guide height is within the specification.

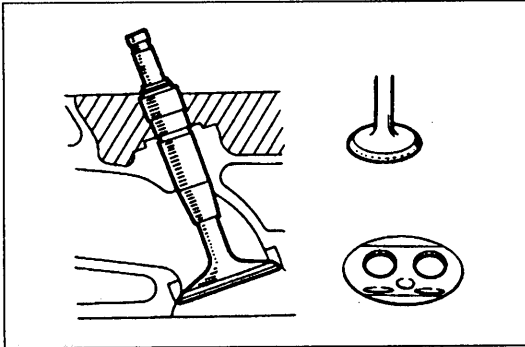
Height: 18.3—18.9 mm { 0.721—0.744 in }

5. If not, repeat steps 1—4.

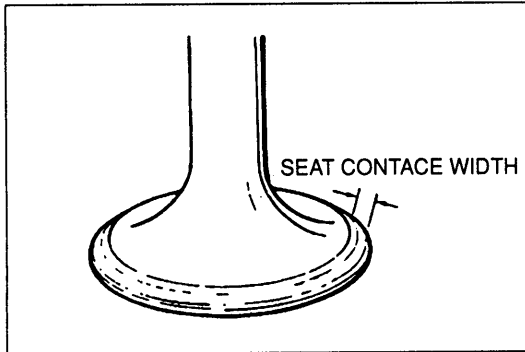


Valve Seat

1. Inspect the contact surface of each valve seat and valve face for the following:
 - (1) Roughness
 - (2) Damage
2. If necessary, resurface the valve seat with a **45°** valve seat cutter and/or resurface the valve face.

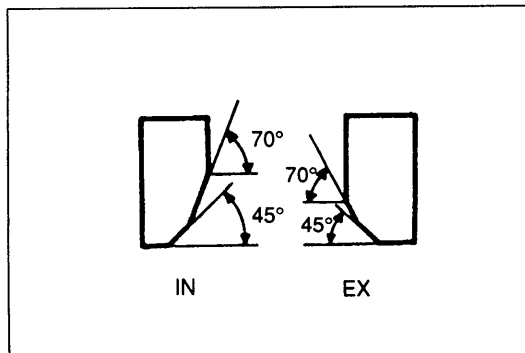


3. Apply a thin coat of Prussian blue to the valve face.
4. Inspect the valve seating by pressing the valve against the seat.
 - (1) If blue does not appear 360° around the valve face, replace the valve.
 - (2) If blue does not appear 360° around the valve seat, resurface the seat.

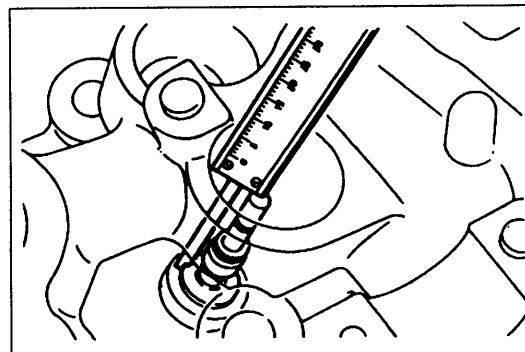


5. Measure the seat contact width.

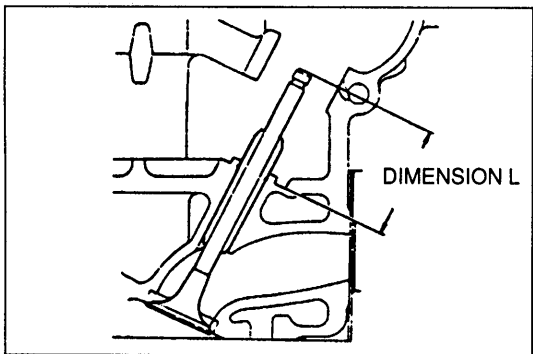
Width: 0.8—1.4 mm { 0.032—0.055 in }



6. Verify that the valve seating position is at the center of the valve face.
 - (1) If the seating position is too high, correct the valve seat with a **70°** cutter and a **45°** cutter.
 - (2) If the seating position is too low, correct the valve seat with a **0°** cutter and a **45°** cutter.
7. Seat the valve to the valve seat with lapping compound.



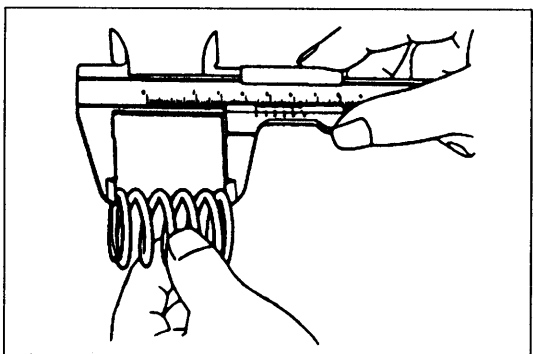
8. Inspect the sinking of the valve seat.



9. Measure the valve stem protruding length (dimension L).

Dimension L: 45.0 mm { 1.772 in }

- (1) If L is **45.0—45.5 mm { 1.772—1.791 in }**, no correction is needed.
- (2) If L is **45.5—46.5 mm { 1.792—1.830 in }**, adjust with washer on spring seat area of cylinder head.
- (3) If L is **46.5 mm { 1.831 in }** or more, replace cylinder head.



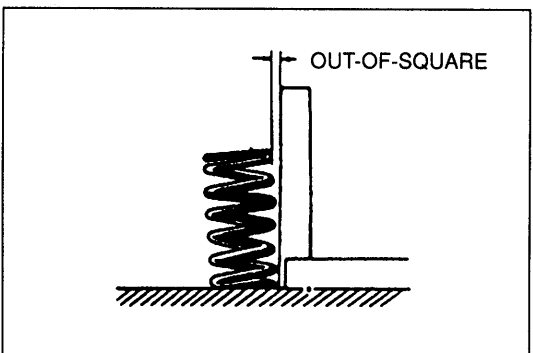
Valve Spring

1. Inspect each valve spring for cracks or damage.
2. Measure the free length and out-of-square. Replace the valve spring if necessary.

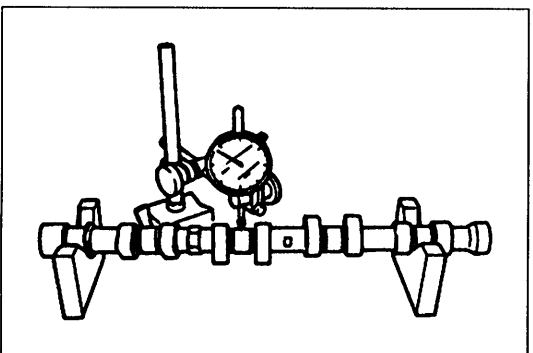
Free length

Standard: 46.26 mm { 1.821 in }

Minimum: 39.5 mm { 1.56 in } with a set load of 224—253 N { 22.8—25.8 kgf , 50.2—56.7 lbf }



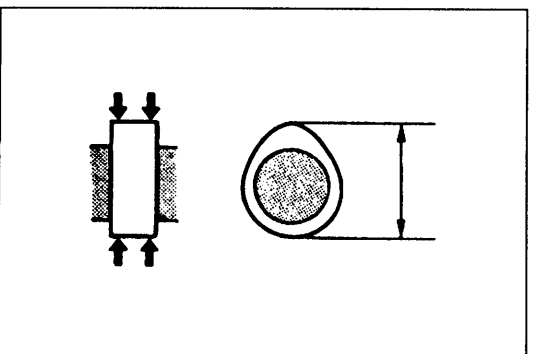
Out-of-square: 1.62 mm { 0.0638 in } max.



CAMSHAFT

1. Set the front and rear journals on V-blocks.
2. Measure the camshaft runout. Replace the camshaft if necessary.

Runout: 0.03 mm { 0.0012 in } max.



3. Inspect the camshaft for wear or damage. Replace the camshaft if necessary.
4. Measure the cam lobe heights at the two points as shown.

Height

Standard

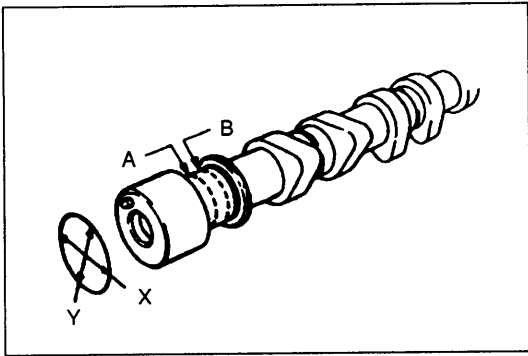
IN : 44.094 mm { 1.7360 in }

EX : 44.600 mm { 1.7559 in }

Minimum

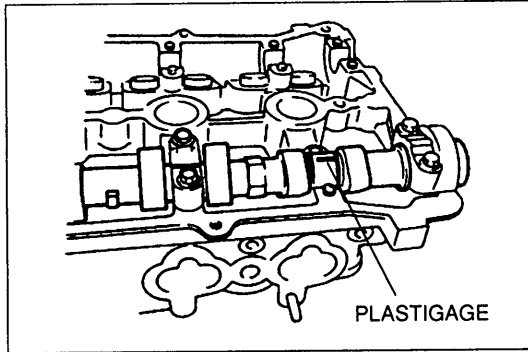
IN : 43.894 mm { 1.7281 in }

EX : 44.400 mm { 1.7480 in }

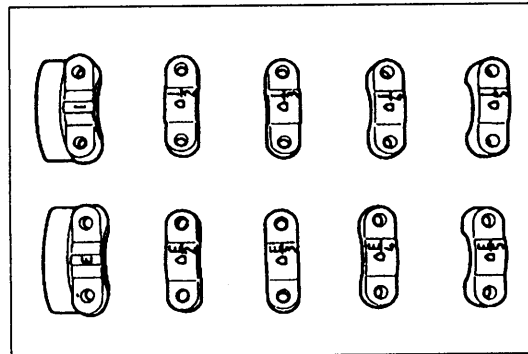


5. Measure the journal diameters in X and Y directions at the two points (A and B) as shown.

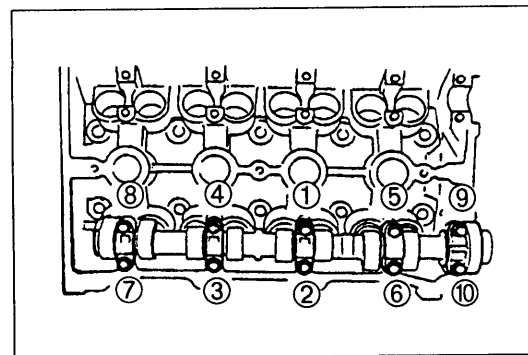
Diameter: 25.940—25.965 mm { 1.0213—1.0222 in }
Out-of-round: 0.03 mm { 0.0012 in } max.



6. Measure the camshaft journal oil clearances.
 - (1) Measure the camshaft journal oil clearance with the HLA removed.
 - (2) Remove all foreign material and oil from the journals and bearing surfaces.
 - (3) Set the camshaft onto the cylinder head.
 - (4) Position Plastigage atop the journals in the axial direction.
 - (5) Do not rotate the camshaft when measuring the oil clearance.

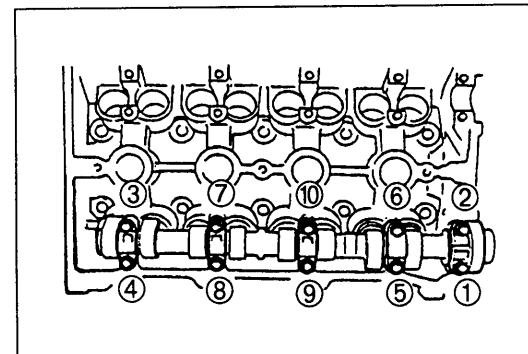


- (6) Install the camshaft caps according to the cap number and arrow mark.

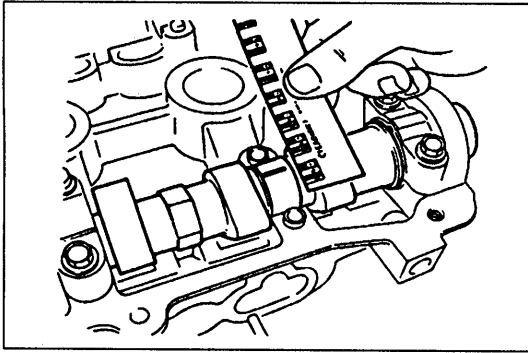


- (7) Install the camshaft cap bolts and tighten them in five or six steps in the order shown.

Tightening torque: 11.3—14.2 N·m
{ 115—145 kgf·cm , 100—125 in·lbf }



- (8) Loosen the camshaft cap bolts in five or six steps in the order shown.
- (9) Remove the camshaft caps.



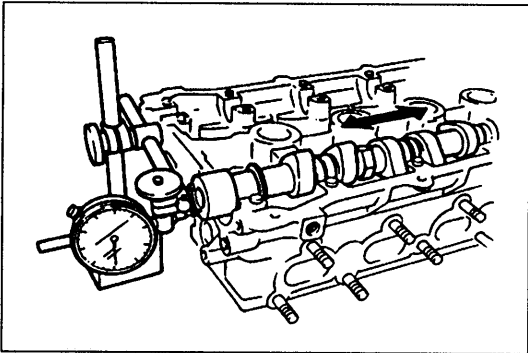
(10) Measure the oil clearances.

Oil clearance:

0.035—0.081 mm { 0.0014—0.0031 in }

Maximum: 0.15 mm { 0.006 in }

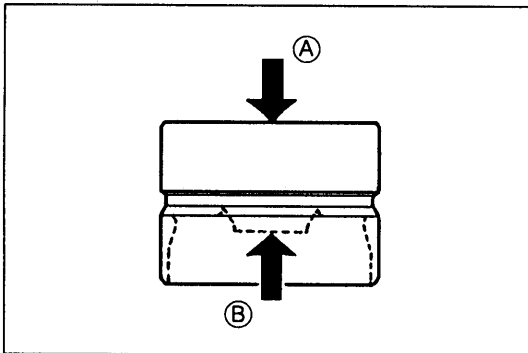
(11) If the oil clearance exceeds specification, replace the cylinder head.



7. Measure the camshaft end play. If the end play exceeds the maximum, replace the camshaft and/or the cylinder head.

End play: 0.07—0.19 mm { 0.0028—0.0074 in }

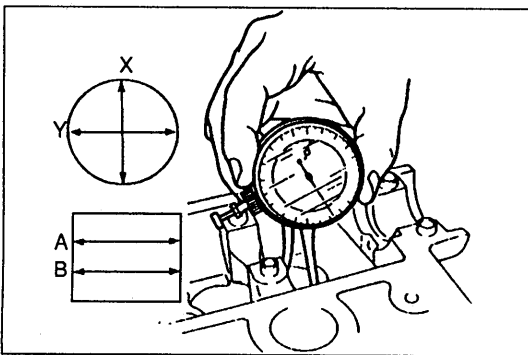
Maximum: 0.20 mm { 0.008 in }



HLA

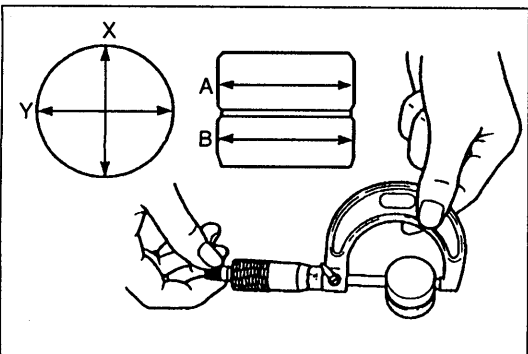
1. Inspect the friction surfaces of each HLA for wear or damage. Replace the HLA if necessary — do not attempt to repair it.

2. With the HLA filled with engine oil, hold ① and press ② by hand. If ② moves, replace the HLA — do not attempt to repair it.



3. Measure the HLA bores in X and Y directions at two points (A and B) as shown.

Distortion: 30.000—30.025 mm { 1.1811—1.1820 in }



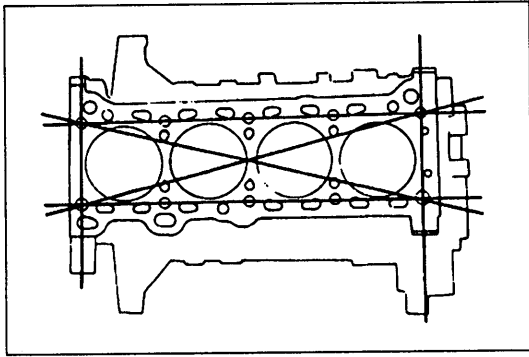
4. Measure the HLA diameters in X and Y directions at two points (A and B) as shown.

Diameter: 29.959—29.975 mm { 1.1795—1.1801 in }

5. Calculate the clearance between the HLA diameter and the related HLA bore. Replace the HLA and/or cylinder head if necessary.

Clearance: 0.025—0.066 mm { 0.00099—0.00259 in }

Maximum: 0.18 mm { 0.0071 in }



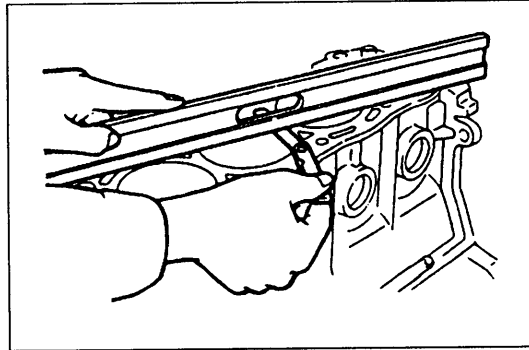
CYLINDER BLOCK

1. Inspect the cylinder block for the following. Repair or replace the cylinder block if necessary.
 - (1) Leakage damage
 - (2) Cracks
 - (3) Scoring of wall
2. Using a straightedge, measure the distortion of the top surface of the cylinder block in the six directions as shown.

Distortion: 0.15 mm { 0.006 in } max.

3. If the distortion exceeds the specification, repair by grinding or replace the cylinder block.

Height: 221.5 mm { 8.720 in }
Grinding: 0.20 mm { 0.008 in } max.



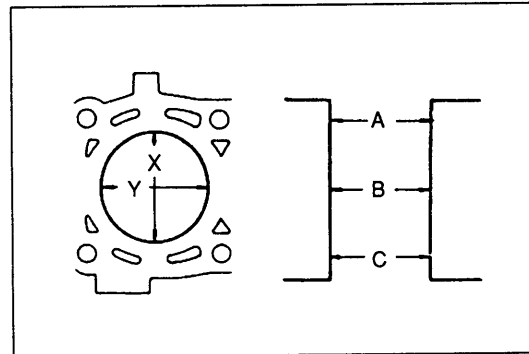
4. Measure the cylinder bores in X and Y directions at three levels (A, B, and C) in each cylinder as shown.

Cylinder bore

5. Base the boring diameter on the diameter of an oversize piston. All cylinders must be the same diameter.

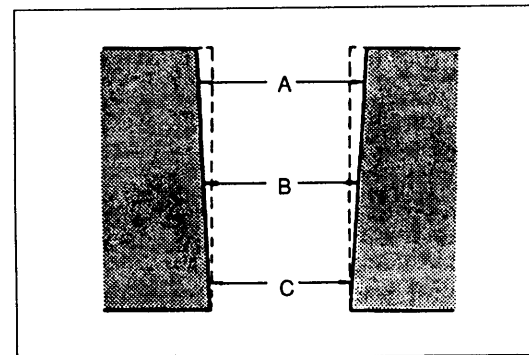
mm { in }

Bore size	Diameter
Standard	83.000—83.019 { 3.2678—3.2684 }
0.25 { 0.01 } oversize	83.256—83.263 { 3.2778—3.2780 }
0.50 { 0.02 } oversize	83.506—83.513 { 3.2877—3.2879 }



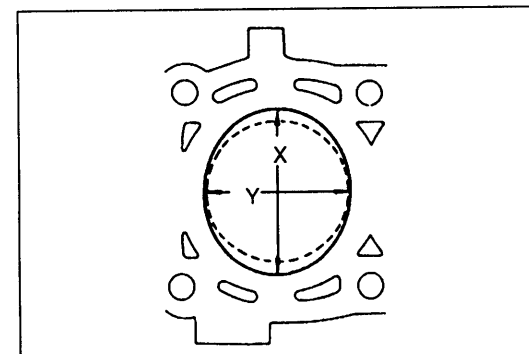
- (1) If the cylinder bore exceeds the maximum, rebore the cylinder to oversize.
- (2) If the difference between measurements A and C exceeds the maximum taper, rebore the cylinder to oversize.

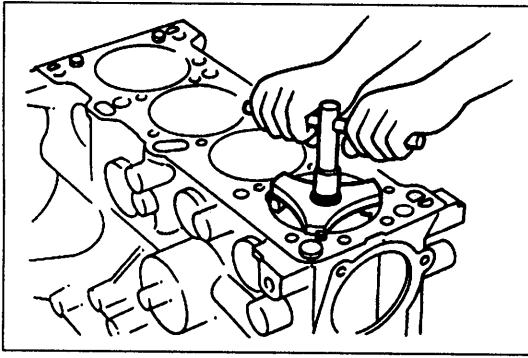
Taper: 0.019 mm { 0.0007 in } max.



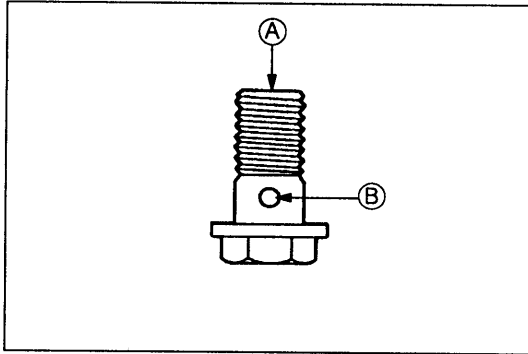
- (3) If the difference between measurements X and Y exceeds the maximum out-of-round, rebore the cylinder to oversize.

Out-of-round: 0.019 mm { 0.0007 in } max.



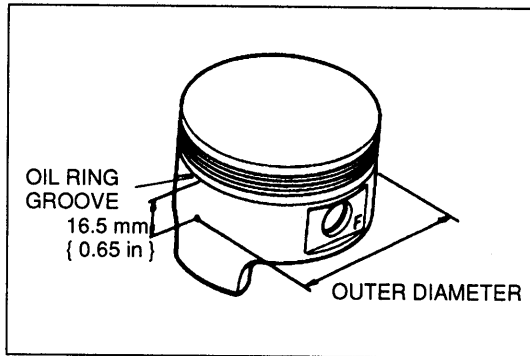


- If the upper part of a cylinder wall shows uneven wear, remove the ridge with a ridge reamer.



OIL JET

- Apply compressed air of **167—225 kPa { 1.7—2.3 kgf/cm², 25—32 psi }** to oil jet valve **(A)** and verify that air passes through oil jet valve **(B)**. If not, replace the oil jet.
- Check the oil jet nozzles for clogs. Replace the nozzle if necessary.



PISTON, PISTON RING, AND PISTON PIN

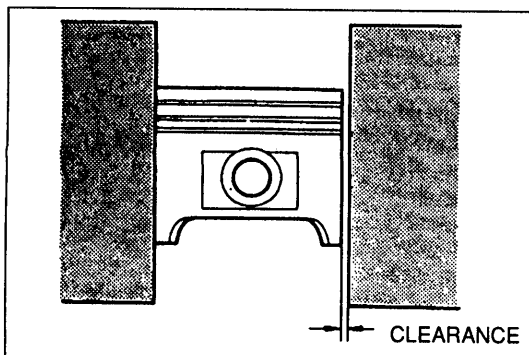
Piston

- Inspect the outer circumferences of all pistons for seizure or scoring. Replace the piston if necessary.
- Measure the outer diameter of each piston at a right angle (**90°**) to the piston **16.5 mm { 0.65 in }** below the oil ring groove lower edge.

Piston diameter

mm { in }

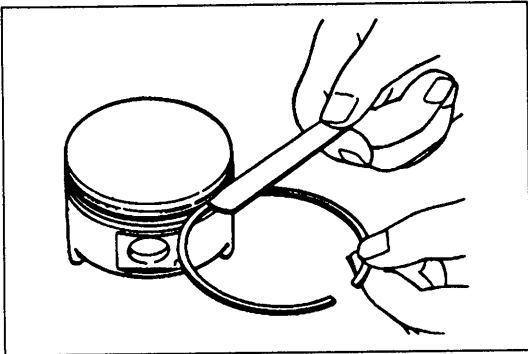
Piston size	Diameter
Standard	82.954—82.974 { 3.2660—3.2666 }
0.25 { 0.01 } oversize	83.211—83.217 { 3.2761—3.2762 }
0.50 { 0.02 } oversize	83.461—83.467 { 3.2859—3.2861 }



- Measure the piston-to-cylinder clearance.

Clearance: 0.032—0.059 mm { 0.0013—0.0023 in }
Maximum: 0.15 mm { 0.006 in }

- If the clearance exceeds the maximum, replace the piston or rebore the cylinders to fit oversize pistons.
- If the piston is replaced, the piston rings must also be replaced.

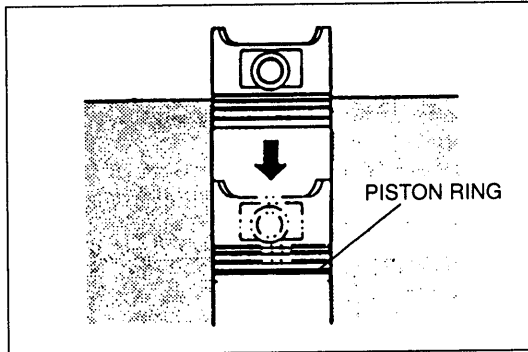


Piston and Piston Ring

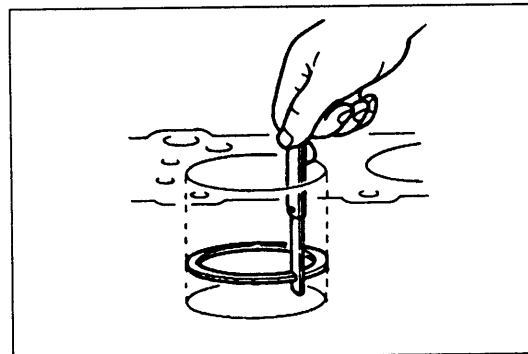
1. Measure the piston ring-to-ring land clearance around the entire circumference by using a new piston ring.

Clearance

Top: 0.03—0.065 mm { 0.0012—0.0025 in }
Second: 0.03—0.07 mm { 0.0012—0.0027 in }
Maximum: 0.15 mm { 0.006 in }



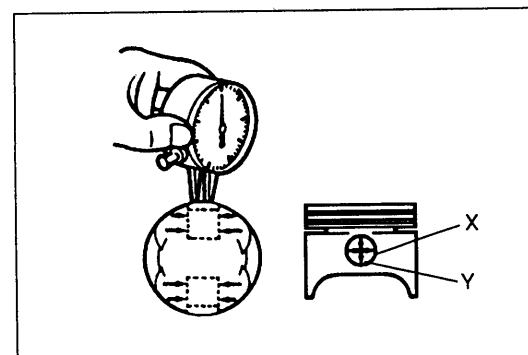
2. If the clearance exceeds the maximum, replace the piston.
3. Inspect the piston rings for damage, abnormal wear, or breakage. Replace the piston rings if necessary.
4. Insert the piston ring into the cylinder by hand and use the piston to push it to the bottom of the ring travel.



5. Measure each piston ring end gap. Replace the piston ring if necessary.

End gap

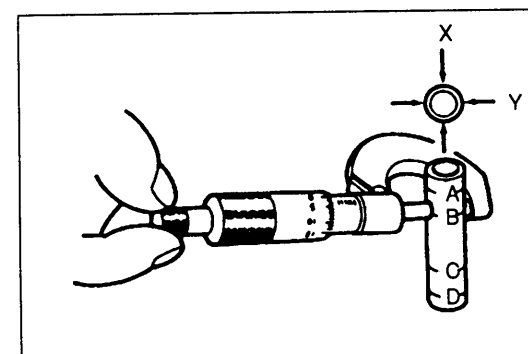
Top: 0.15—0.30 mm { 0.006—0.011 in }
Second: 0.15—0.30 mm { 0.006—0.011 in }
Oil rail: 0.20—0.70 mm { 0.008—0.027 in }
Maximum: 1.0 mm { 0.039 in }



Piston and Piston Pin

1. Measure each piston pin hole diameter in X and Y directions at four points.

Diameter: 19.988—20.000 mm { 0.7870—0.7874 in }



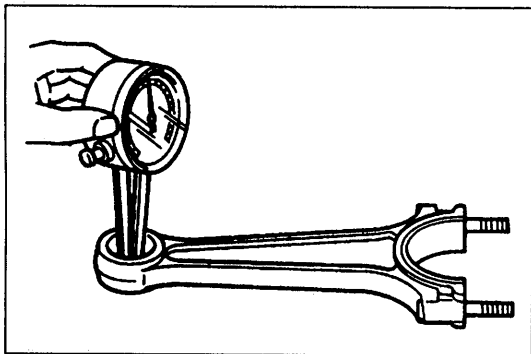
2. Measure each piston pin diameter in X and Y directions at four points.

Diameter: 19.987—19.993 mm { 0.7869—0.7871 in }

3. Calculate the piston pin-to-piston clearance.

Clearance: -0.005—0.013 mm { -0.0002—0.0005 in }

4. If the clearance exceeds the specification, replace the piston and/or piston pin.

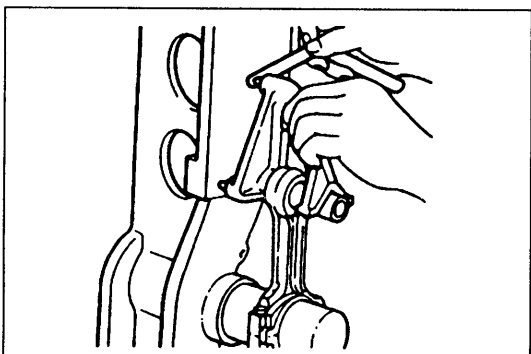
**CONNECTING ROD**

1. Measure each connecting rod bushing inner diameter.

Diameter: 20.003—20.014 mm { 0.7876—0.7879 in }

2. Calculate the clearance between the connecting rod bushing and piston pin.

Clearance: 0.010—0.027 mm { 0.0004—0.0010 in }



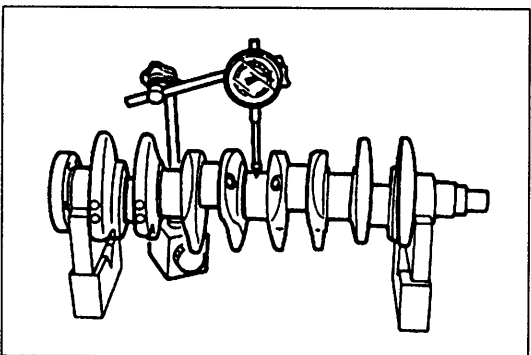
3. Check each connecting rod for bending. Replace the connecting rod if necessary.
If the connecting rod is replaced, the connecting rod cap, bolts and nuts must also be replaced because they are a matched set.

Bending:

0.030 mm { 0.0012 in } max./100 mm { 3.94 in }

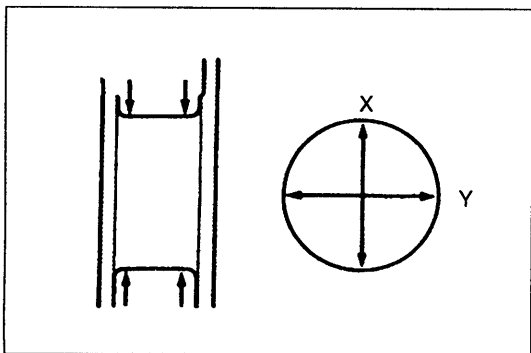
Length (Center to center):

132.85—132.95 mm { 5.231—5.234 in }

**CRANKSHAFT**

1. Check the journals and pins for damage, scoring, and oil hole clogging.
2. Set the crankshaft on V-blocks.
3. Measure the crankshaft runout at the center journal.
Replace the crankshaft if necessary.

Runout: 0.04 mm { 0.0016 in } max.



4. Measure each journal diameter in X and Y directions at two points.

Main journal**Diameter:**

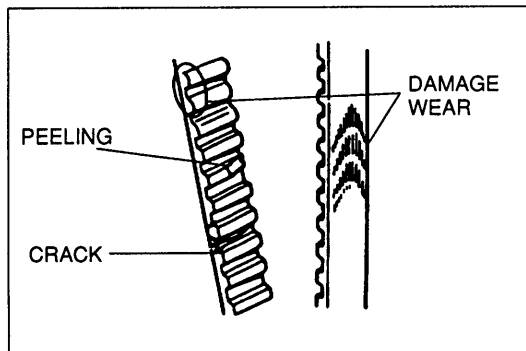
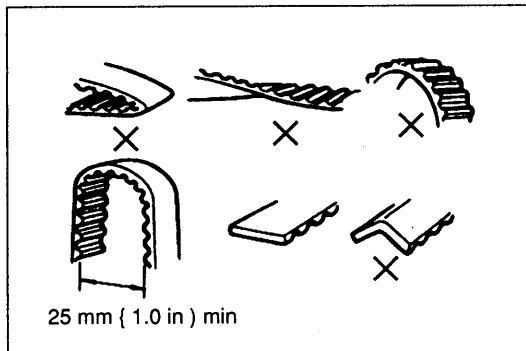
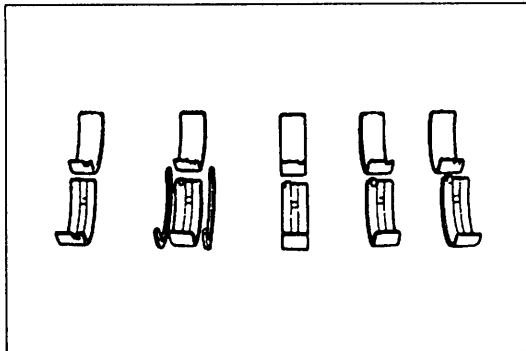
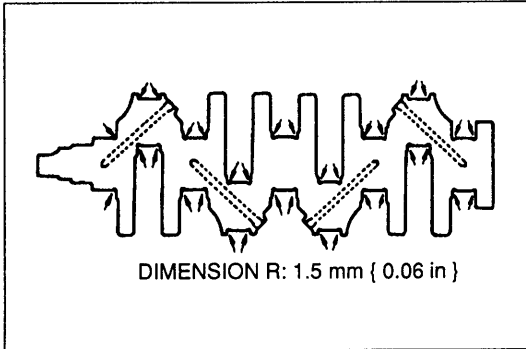
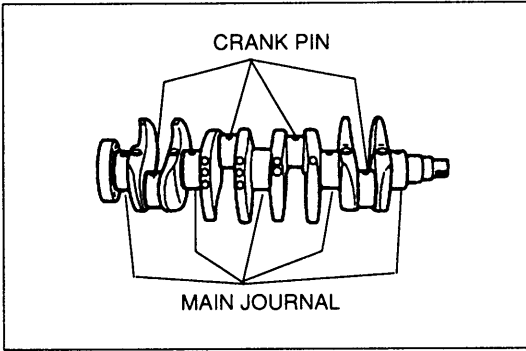
49.938—49.956 mm { 1.9661—1.9667 in }

Out-of-round: 0.05 mm { 0.0020 in } max.

Crank pin journal**Diameter:**

44.940—44.956 mm { 1.7693—1.7699 in }

Out-of-round: 0.05 mm { 0.0020 in } max.



5. If the diameter is less than the minimum, grind the journals to match an undersize bearing.

Undersize bearing:

- 0.25 mm { 0.01 in }, 0.50 mm { 0.02 in },
- 0.75 mm { 0.03 in }

Main journal diameter undersize

mm { in }

Bearing size	Diameter
0.25 { 0.01 } undersize	49.704—49.708 { 1.9569—1.9570 }
0.50 { 0.02 } undersize	49.454—49.458 { 1.9470—1.9471 }
0.75 { 0.03 } undersize	49.204—49.208 { 1.9372—1.9373 }

Crank pin journal diameter undersize

mm { in }

Bearing size	Diameter
0.25 { 0.01 } undersize	44.690—44.706 { 1.7595—1.7600 }
0.50 { 0.02 } undersize	44.440—44.456 { 1.7497—1.7502 }
0.75 { 0.03 } undersize	44.190—44.206 { 1.7398—1.7403 }

BEARING

Main Bearing and Connecting Rod Bearing

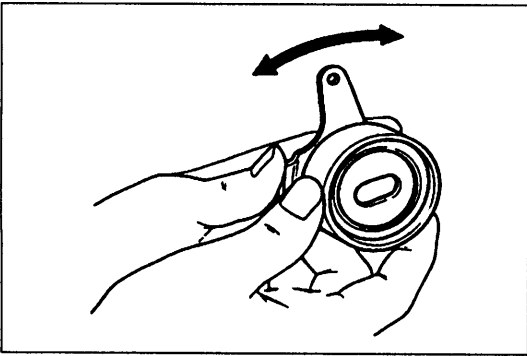
Check the main bearings and the connecting rod bearings for peeling, scoring, and other damage.

TIMING BELT

Caution

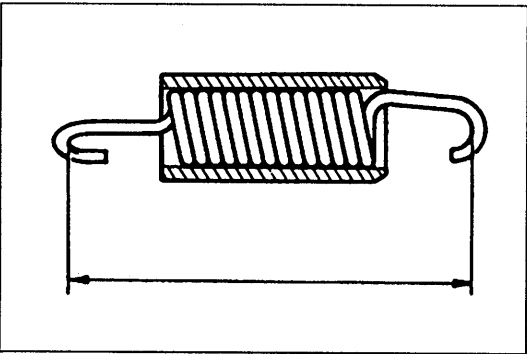
- The following will damage the belt and shorten its life; Forcefully twisting it, turning it inside out, bending it, or allowing oil or grease on it.

1. Replace the timing belt if there is any oil or grease on it.
2. Check the timing belt for damage, wear, peeling, cracks, and hardening. Replace the timing belt if necessary.

**TENSIONER, IDLER****Caution**

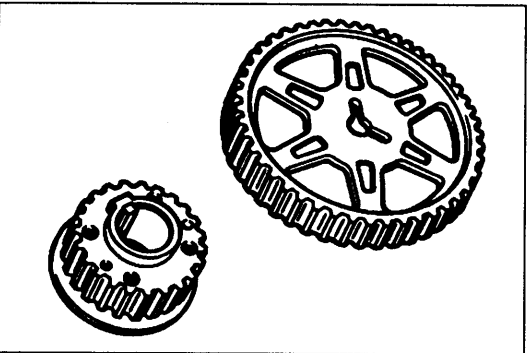
- Using cleaning fluids or a steam cleaner to clean the tensioner can dissolve the grease in its sealed bearing.

Check the tensioner and idler for smooth rotation and abnormal noise. Replace the tensioner or idler if necessary.

**TENSIONER SPRING**

Measure the free length of the tensioner spring. Replace the tensioner spring if necessary.

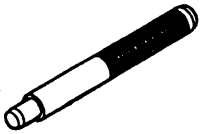




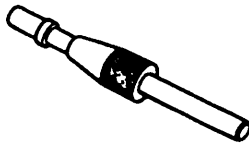

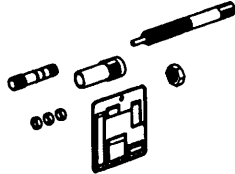

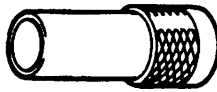
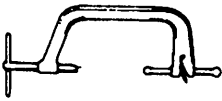
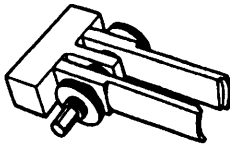
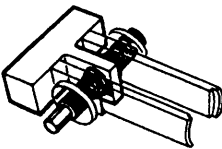
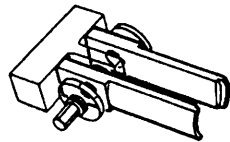
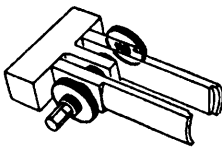
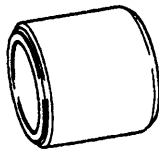
Free length: 59.2 mm { 2.331 in }

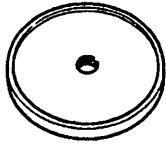

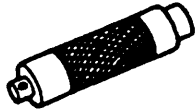
**PULLEY****Timing Belt Pulley, Camshaft Pulley**

Inspect the pulley teeth for wear, deformation, and other damage. Replace the pulley if necessary.

ASSEMBLY

PREPARATION SST

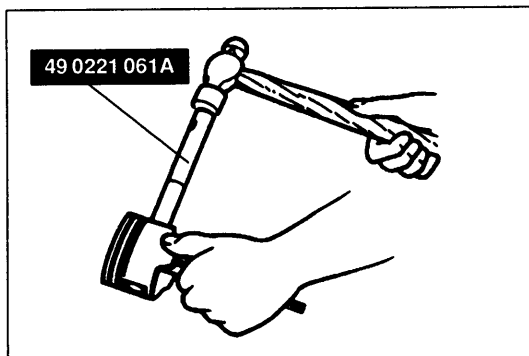
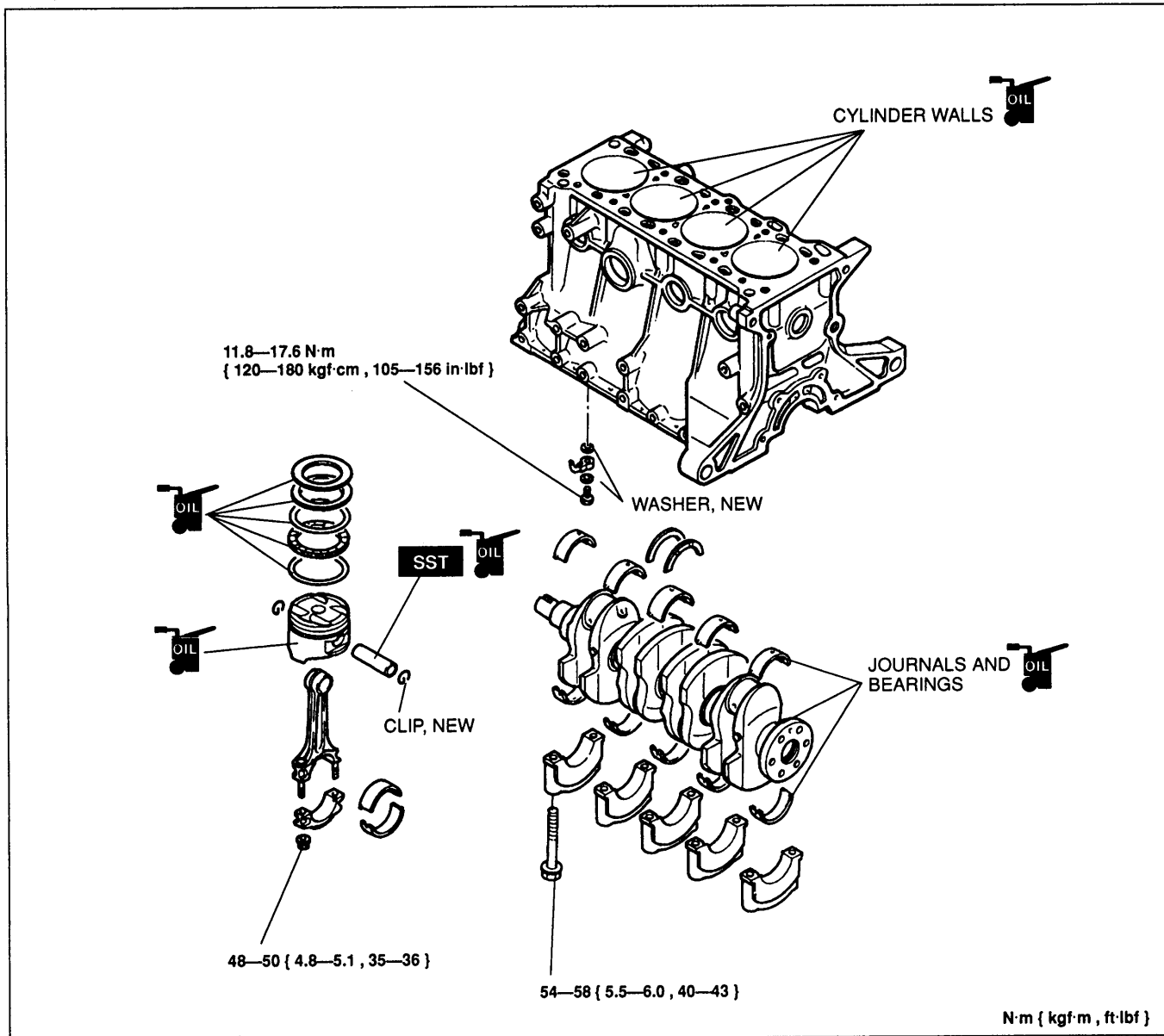
<p>49 0221 061A</p> <p>Remover & installer, piston pin</p> 	<p>For removal and installation of piston pin</p>	<p>49 E011 1A0</p> <p>Brake set, ring gear</p> 	<p>For prevention of engine rotation</p>
<p>49 E011 103</p> <p>Shaft (Part of 49 E011 1A0)</p> 	<p>For prevention of engine rotation</p>	<p>49 E011 105</p> <p>Stopper (Part of 49 E011 1A0)</p> 	<p>For prevention of engine rotation</p>
<p>49 E011 104</p> <p>Collar (Part of 49 E011 1A0)</p> 	<p>For prevention of engine rotation</p>	<p>49 SE01 310A</p> <p>Centering tool, clutch disc</p> 	<p>For installation of clutch disc</p>
<p>49 L012 001</p> <p>Installer (Part of 49 L012 0A0)</p> 	<p>For installation of valve seal</p>	<p>49 L012 0A0</p> <p>Installer set, valve seal & valve guide</p> 	<p>For installation of valve seal</p>
<p>49 L012 005</p> <p>Spacer (Part of 49 L012 0A0)</p> 	<p>For installation of valve seal</p>	<p>49 L012 002</p> <p>Body (Part of 49 L012 0A0)</p> 	<p>For installation of valve seal</p>
<p>49 0636 100B</p> <p>Arm, valve spring lifter</p> 	<p>For removal / installation of valve</p>	<p>49 B012 0A2</p> <p>Pivot</p> 	<p>For removal / installation of valves</p>
<p>49 B012 012</p> <p>Body (Part of 49 B012 0A2)</p> 	<p>For removal / installation of valves</p>	<p>49 B012 013</p> <p>Foot (Part of 49 B012 0A2)</p> 	<p>For removal / installation of valves</p>
<p>49 B012 014</p> <p>Locknut (Part of 49 B012 0A2)</p> 	<p>For removal / installation of valves</p>	<p>49 B014 001</p> <p>Installer, oil seal</p> 	<p>For installation of front oil seal</p>

<p>49 W033 105 Installer, oil seal</p> 	<p>For installation of rear oil seal</p>	<p>49 G030 795 Installer, oil seal</p> 	<p>For installation of rear oil seal</p>
<p>49 G030 797 Handle (Part of 49 G030 795)</p> 	<p>For installation of rear oil seal</p>	<p>—</p>	<p>—</p>

1. Do not reuse gaskets or oil seals.
2. Clean all parts before reinstallation.
3. Apply new engine oil to all sliding and rotating parts.
4. Replace plain bearings if they are peeled, burned, or otherwise damaged.
5. Tighten all bolts and nuts to the specified torques.

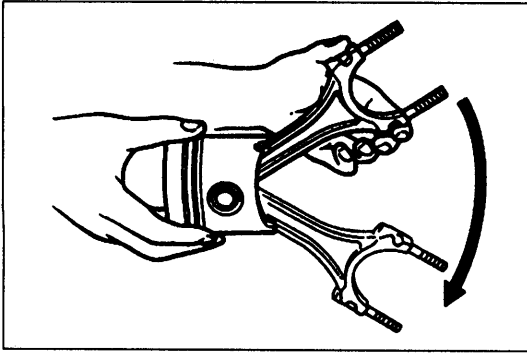
CYLINDER BLOCK (INTERNAL PARTS)

Torque Specifications

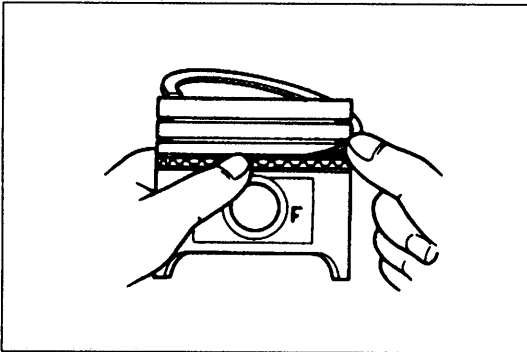


Connecting Rod and Piston Assembly

1. Install one piston pin clip into the clip groove in the piston.
2. Assemble the piston and the connecting rod.
3. Apply clean engine oil to the piston pin.
4. Install the piston pin from the side opposite the clip.
5. Tap the piston pin in with the **SST** until the pin contacts the clip.
If the pin cannot be installed easily, replace the connecting rod.
6. Install the second clip into the clip groove in the piston.



7. Check the oscillation torque of the connecting rod. If the large end does not drop by its own weight, replace the piston and/or piston pin.



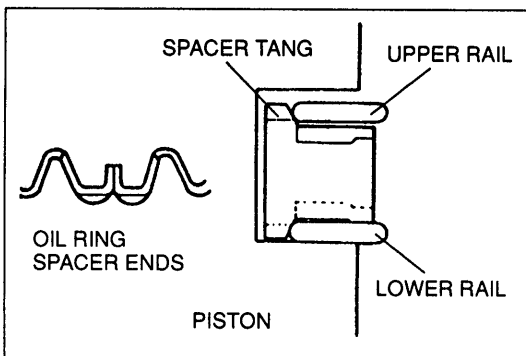
Piston Ring

1. Install the three-piece oil rings on the pistons.
 - (1) Apply clean engine oil to the oil ring spacer and rails.
 - (2) Install the oil ring spacer with the ends upward.

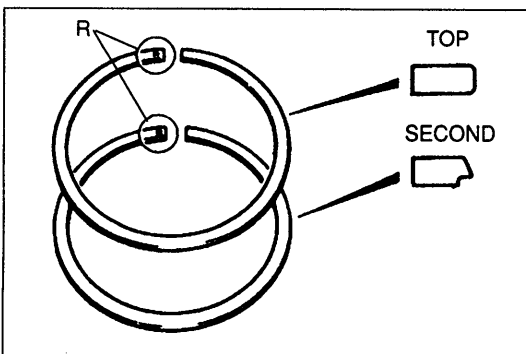
Note

- The upper and lower rails are the same. They can be installed with either face upward

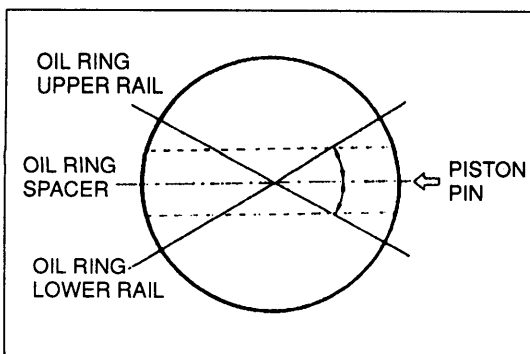
- (3) Install the upper and lower rails.



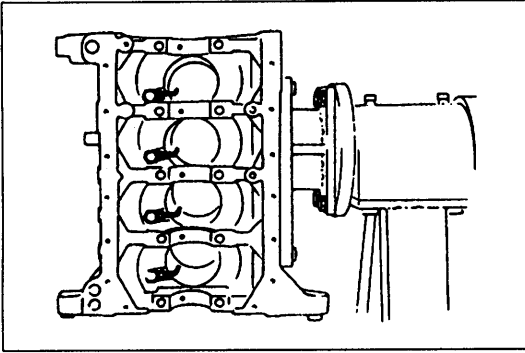
2. Verify that the spacer tang separates the rails, and that the rails turn smoothly in both directions.



3. Install the rings with the R marks upward.
4. Using a piston ring expander, install the second ring with the scraper face downward.
5. Using a piston ring expander, install the top ring.
6. Apply clean engine oil to the top and second piston rings.

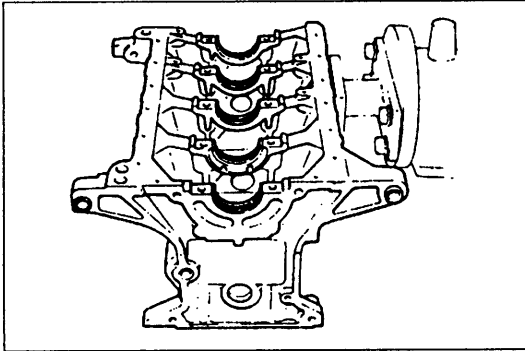


7. Position the end gaps of the rings as shown.

**Oil Jet**

Install the oil jets.

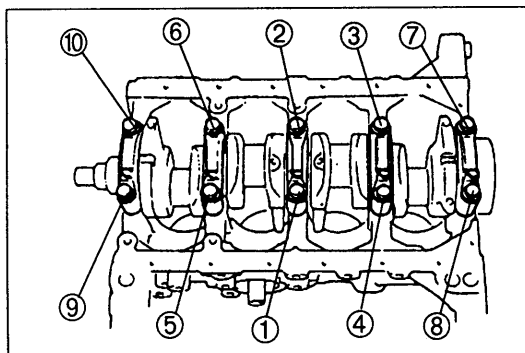
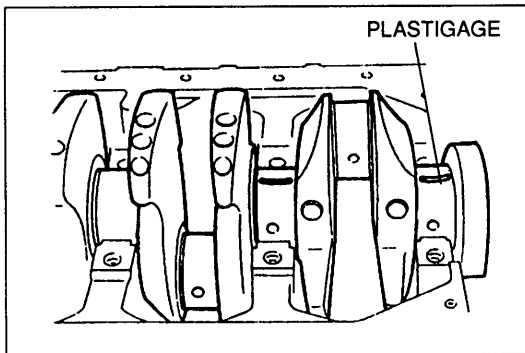
Tightening torque: 11.8—17.6 N·m
 { 120—180 kgf·cm , 105—156 in·lbf }

**Crankshaft**

1. Before installing the crankshaft, inspect the main bearing oil clearances as follows.

Oil clearance inspection

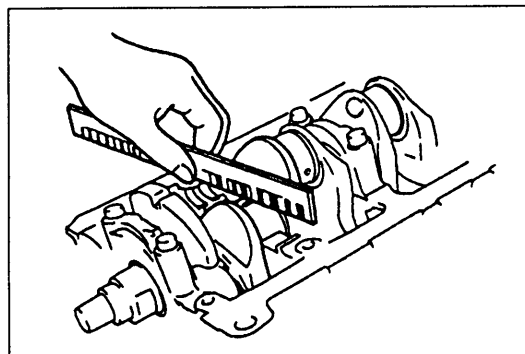
- (1) Remove all foreign material and oil from the journals and bearings.
- (2) Install the grooved upper main bearings in the cylinder block.
- (3) Install the thrust bearings with the oil groove facing the crankshaft.
- (4) Set the crankshaft in the cylinder block.
- (5) Position Plastigage atop the journals in the axial direction.
- (6) Do not rotate the crankshaft when measuring the oil clearances.



- (7) Install the lower main bearings and the main bearing caps according to the cap number and ← mark.
- (8) Tighten the main bearing cap bolts in two or three steps in the order shown in the figure.

Tightening torque:

54—58 N·m { 5.5—6.0 kgf·m , 40—43 ft·lbf }

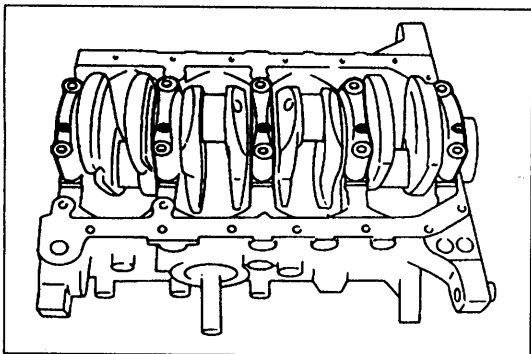


- (9) Remove the main bearing caps, and measure the Plastigage at each journal at the widest point for the smallest clearance, and at the narrowest point for the largest clearance.
- (10) If the oil clearance exceeds the maximum, grind the crankshaft and use undersize main bearings. (Refer to page B-58.)

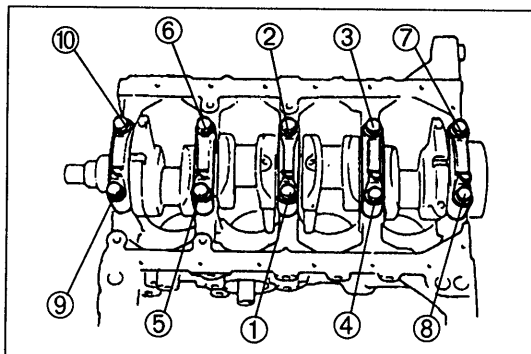
Oil clearance:

0.018—0.036 mm { 0.0008—0.0014 in }

Maximum: 0.10 mm { 0.004 in }



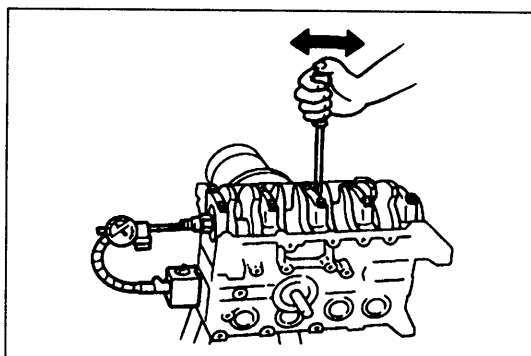
2. Apply clean engine oil to the main bearings, thrust bearings and main journals.
3. Install the crankshaft and the main bearing caps according to the cap number and ← mark.



4. Tighten the main bearing cap bolts in two or three steps in the order shown.

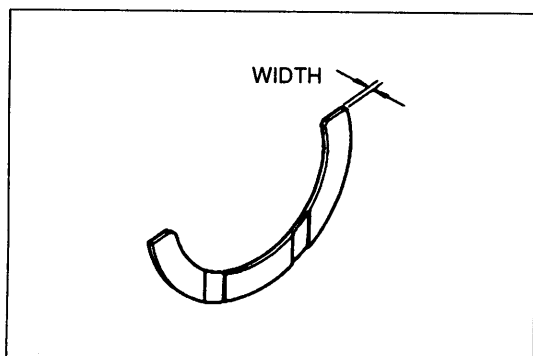
Tightening torque:

54—58 N·m { 5.5—6.0 kgf·m , 40—43 ft·lbf }



5. Measure the crankshaft end play.

End play: 0.080—0.282 mm { 0.0032—0.0111 in }
Maximum: 0.30 mm { 0.012 in }



6. If the end play exceeds the maximum, grind the crankshaft and install an oversize thrust bearing or replace the crankshaft and thrust bearing.

Thrust bearing width

Standard:

2.500—2.550 mm { 0.0985—0.1003 in }

0.25 mm { 0.01 in } oversize:

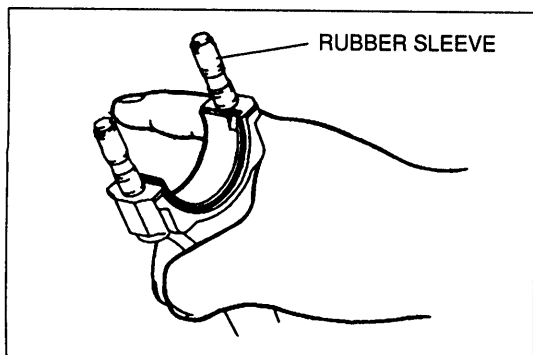
2.625—2.675 mm { 0.1034—0.1053 in }

0.50 mm { 0.02 in } oversize:

2.750—2.800 mm { 0.1083—0.1102 in }

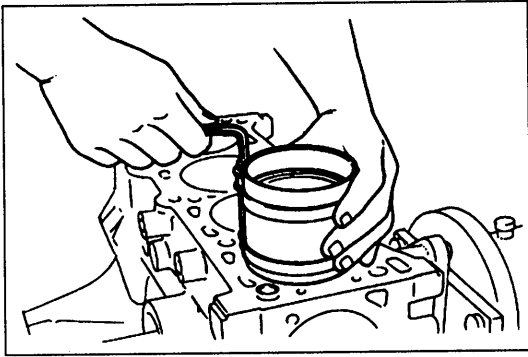
0.75 mm { 0.03 in } oversize:

2.875—2.925 mm { 0.1132—0.1151 in }

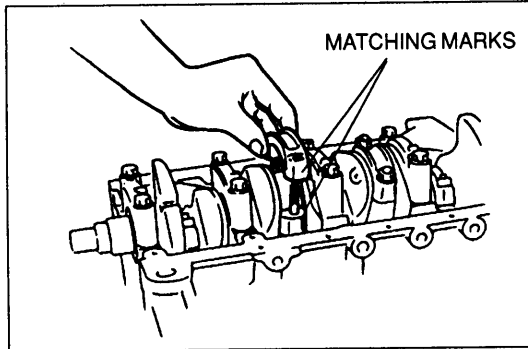


Piston and Connecting Rod Assembly

1. Protect the connecting rod bolts with rubber sleeves.



2. Apply clean engine oil to the cylinder walls, pistons, and piston rings.
3. Check the piston rings for correct end gap alignment.
4. Insert each piston assembly into the cylinder block with the F mark facing the front of the engine. Use a piston ring compressor.

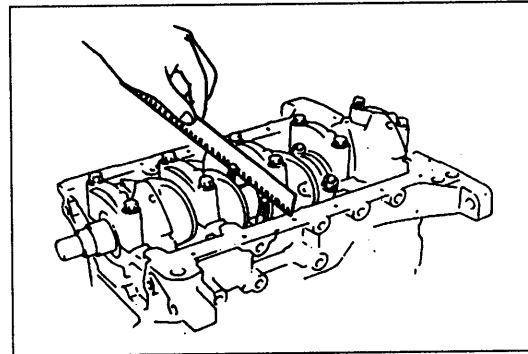


Connecting Rod Cap

1. Align the matching marks on the cap and the connecting rod and install the connecting rod cap.
2. Measure the connecting rod bearing oil clearances using the same procedure as for the main bearing oil clearance.

Tightening torque:

48—50 N·m { 4.8—5.1 kgf·m , 35—36 ft·lbf }

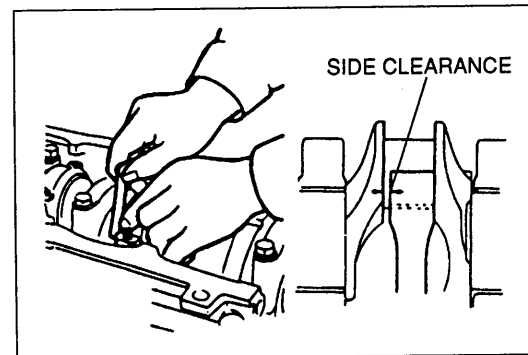


Oil clearance:

0.020—0.044 mm { 0.0008—0.0017 in }

Maximum: 0.10 mm { 0.004 in }

3. If the oil clearance exceeds the maximum, grind the crankshaft and use undersize bearings. (Refer to page B-58.)



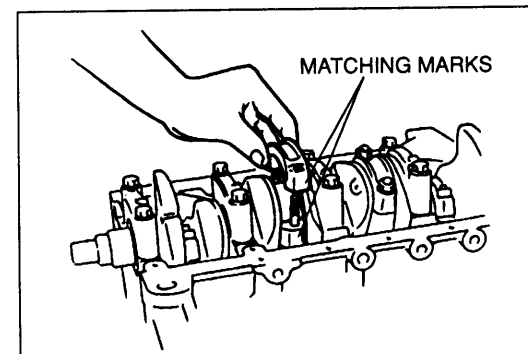
4. Measure the connecting rod side clearances.

Side clearance:

0.110—0.262 mm { 0.0044—0.0103 in }

Maximum: 0.30 mm { 0.012 in }

5. If the clearance exceeds the maximum, replace the connecting rod and cap.



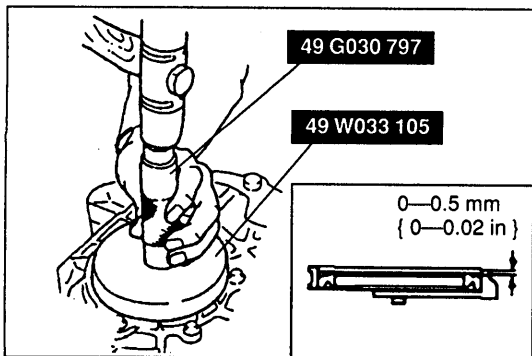
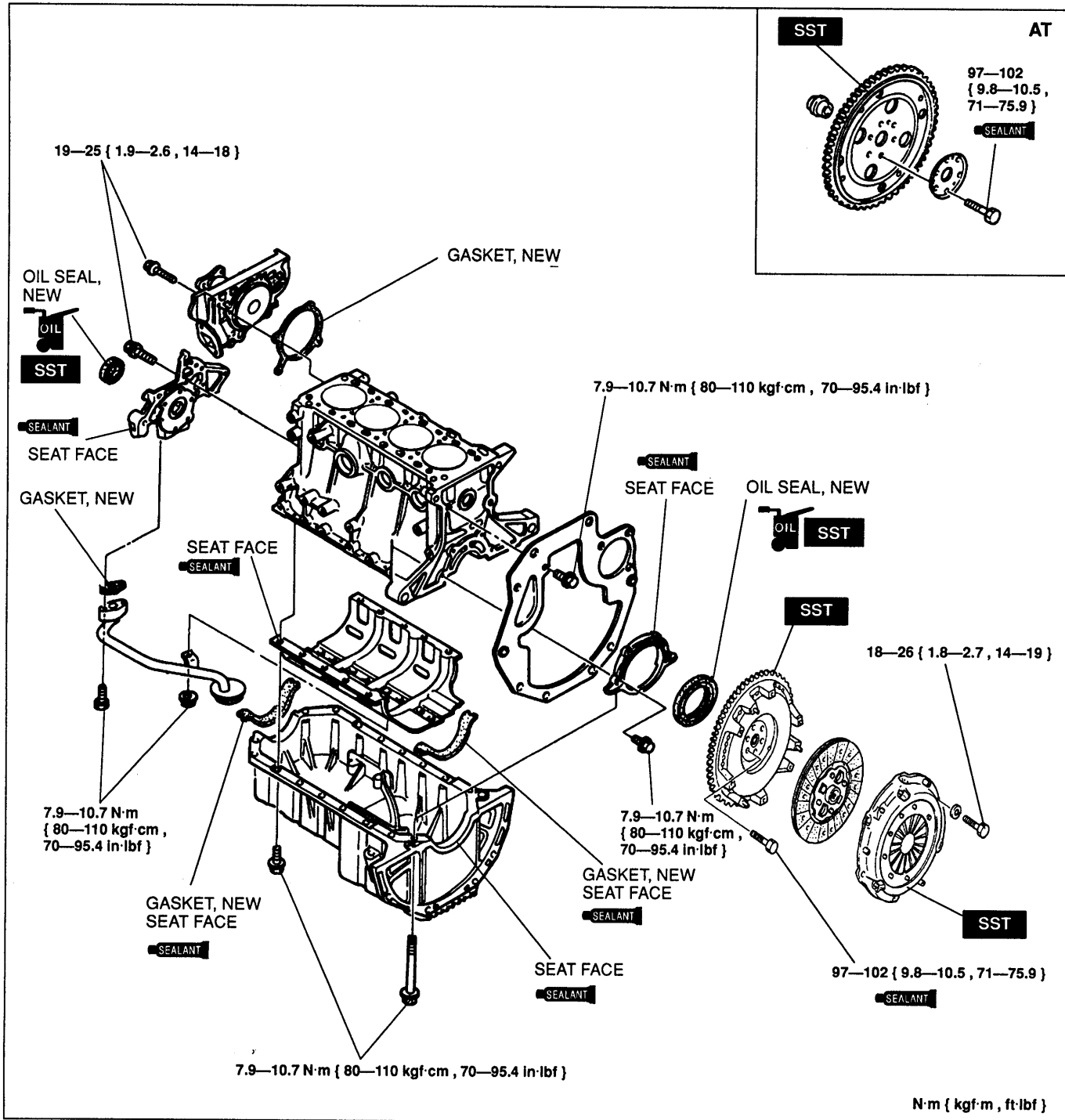
6. Apply clean engine oil to the crank pin journals and connecting rod bearings.
7. Install the connecting rod caps with the matching marks aligned.
8. Tighten the connecting rod cap nuts in two or three steps.

Tightening torque:

48—50 N·m { 4.8—5.1 kgf·m , 35—36 ft·lbf }

CYLINDER BLOCK (EXTERNAL PARTS)

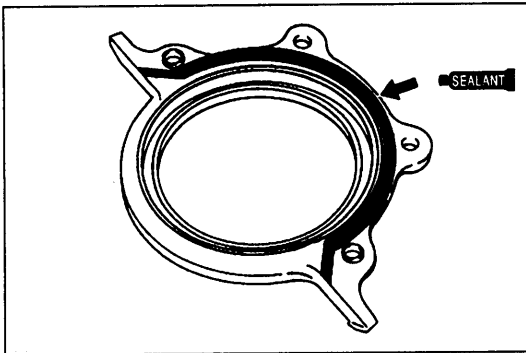
Torque Specifications



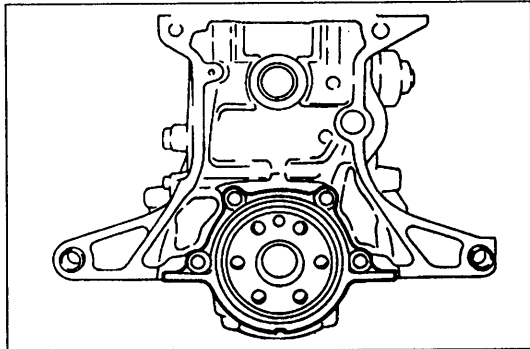
Rear Cover

1. Apply clean engine oil to the new oil seal.
2. Install the oil seal into rear cover by hand.
3. Tap the oil seal in evenly by using the SST and a hammer.

Protrusion: 0—0.5 mm { 0—0.02 in }



4. Apply silicone sealant to the shaded area shown.

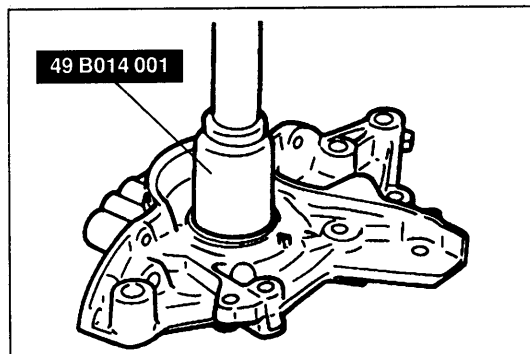


5. Install the rear cover.

Tightening torque:

7.9—10.7 N·m { 80—110 kgf·cm , 70—95.4 in·lbf }

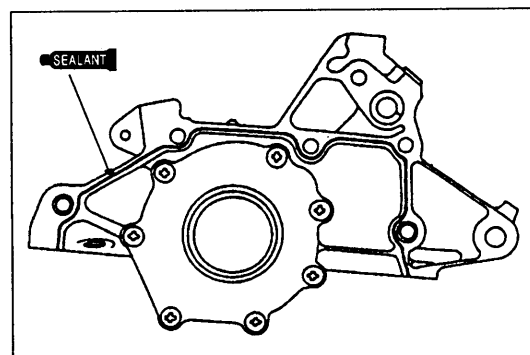
6. Cut away the portion of the silicone sealant that project from the rear cover assembly toward the oil pan side.



Oil Pump

1. Apply clean engine oil to the new oil seal.
2. Install the oil seal into the oil pump body by hand.
3. Press the oil seal into the oil pump body by using the SST.

Protrusion: 0.5—1.0 mm { 0.02—0.04 in }

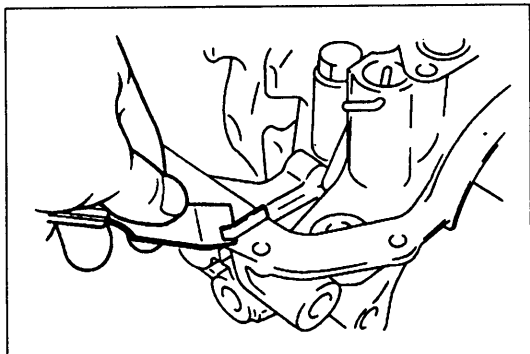


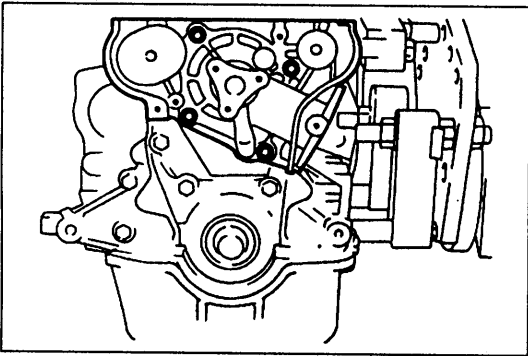
4. Apply silicone sealant to the oil pump as shown.
5. Install the oil pump within five minutes of applying the sealant.

Tightening torque:

19—25 N·m { 1.9—2.6 kgf·m , 14—18 ft·lbf }

6. Cut away the portion of the silicone sealant that projects from the body toward the oil pan side.



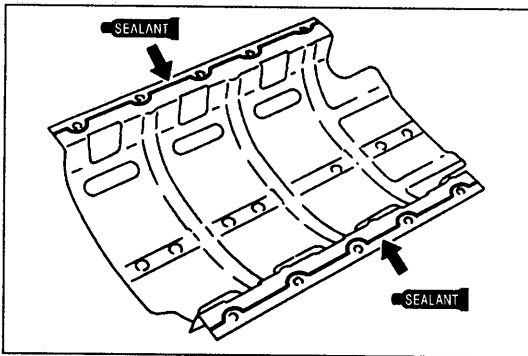


Water Pump

1. Remove all foreign material from the water pump mounting surface.
2. Install the water pump and a new gasket.

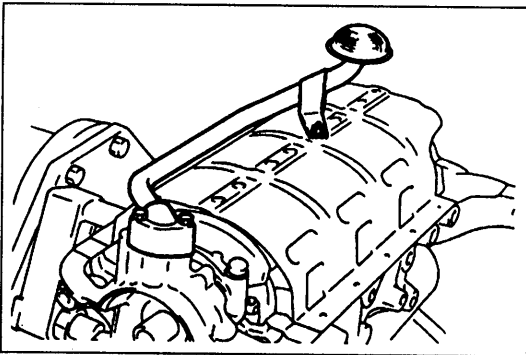
Tightening torque:

19—25 N·m { 1.9—2.6 kgf·m , 14—18 ft·lbf }



Oil Baffle

1. Remove all foreign material from the contact surfaces.
2. Apply silicone sealant to the oil baffle along the inside of the bolt holes, and install within five minutes.

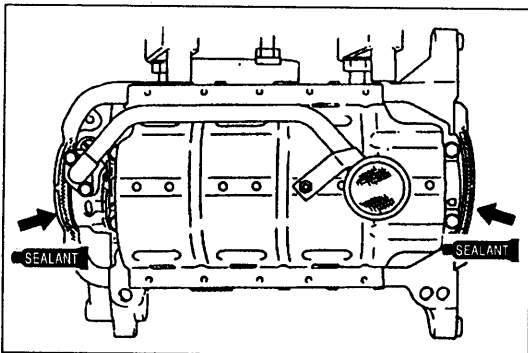


Oil Strainer

Install the oil strainer and a new gasket.

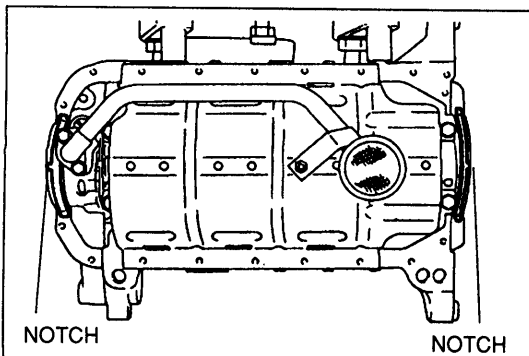
Tightening torque:

7.9—10.7 N·m { 80—110 kgf·cm , 70—95.4 in·lbf }



Oil Pan

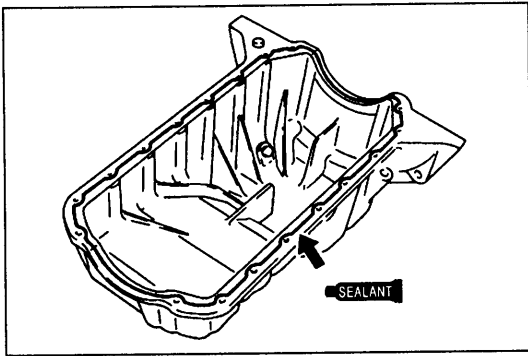
1. Remove all foreign material from the contact surfaces.
2. Apply silicone sealant to the areas indicated.



3. Install new gaskets onto the oil pump body and the rear cover with their notches facing as shown.

NOTCH

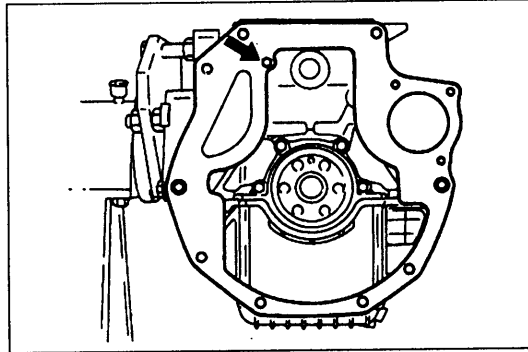
NOTCH



4. Apply silicone sealant to the oil pan along the inside of the bolt holes and overlap the ends.
5. Install the oil pan within five minutes of applying the sealant.

Tightening torque:

7.9—10.7 N·m { 80—110 kgf·cm , 70—95.4 in·lbf }

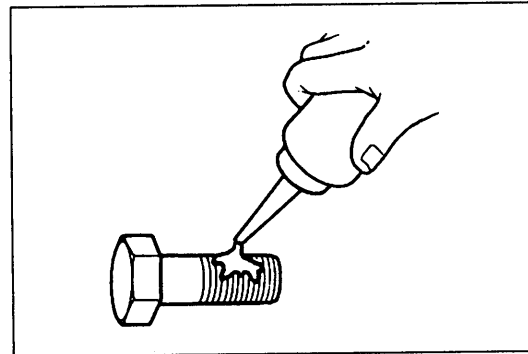


End Plate

Install the end plate.

Tightening torque:

7.9—10.7 N·m { 80—110 kgf·cm , 70—95.4 in·lbf }



Flywheel (MT) or drive plate (AT)

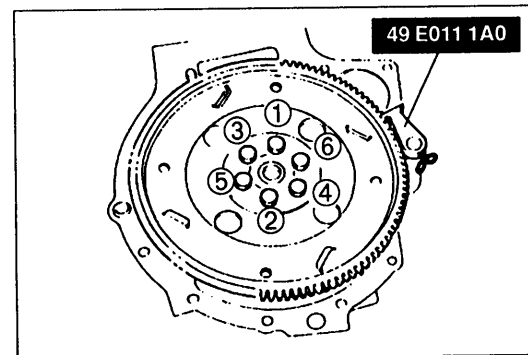
1. Remove the sealant from the bolt holes in the crankshaft and from the bolts.

Caution

- If all of the old thread locking sealant cannot be removed from the bolt, it will not torque properly. Replace the bolt.

Note

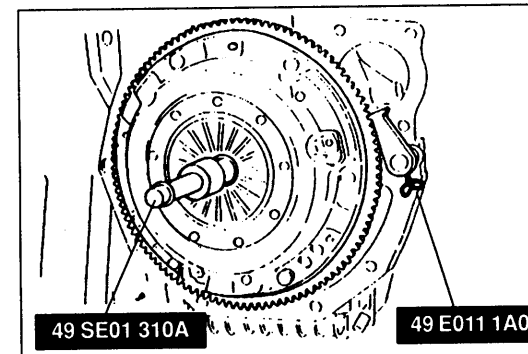
- If a new bolt is used, do not apply thread locking sealant. New Mazda bolts have sealant on them.



2. Set the flywheel onto the crankshaft.
3. Apply sealant to the flywheel bolts and install them.
4. Hold the flywheel with the **SST**.
5. Tighten the bolts in two or three steps in the order shown.

Tightening torque:

97—102 N·m { 9.8—10.5 kgf·m , 71—75.9 ft·lbf }



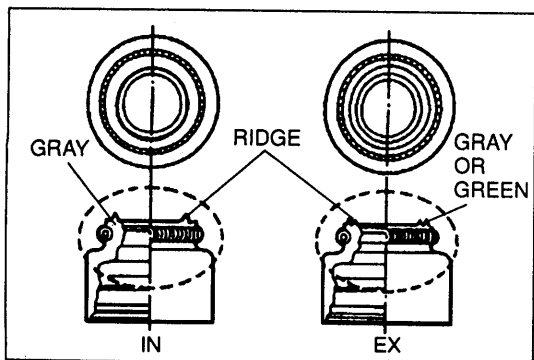
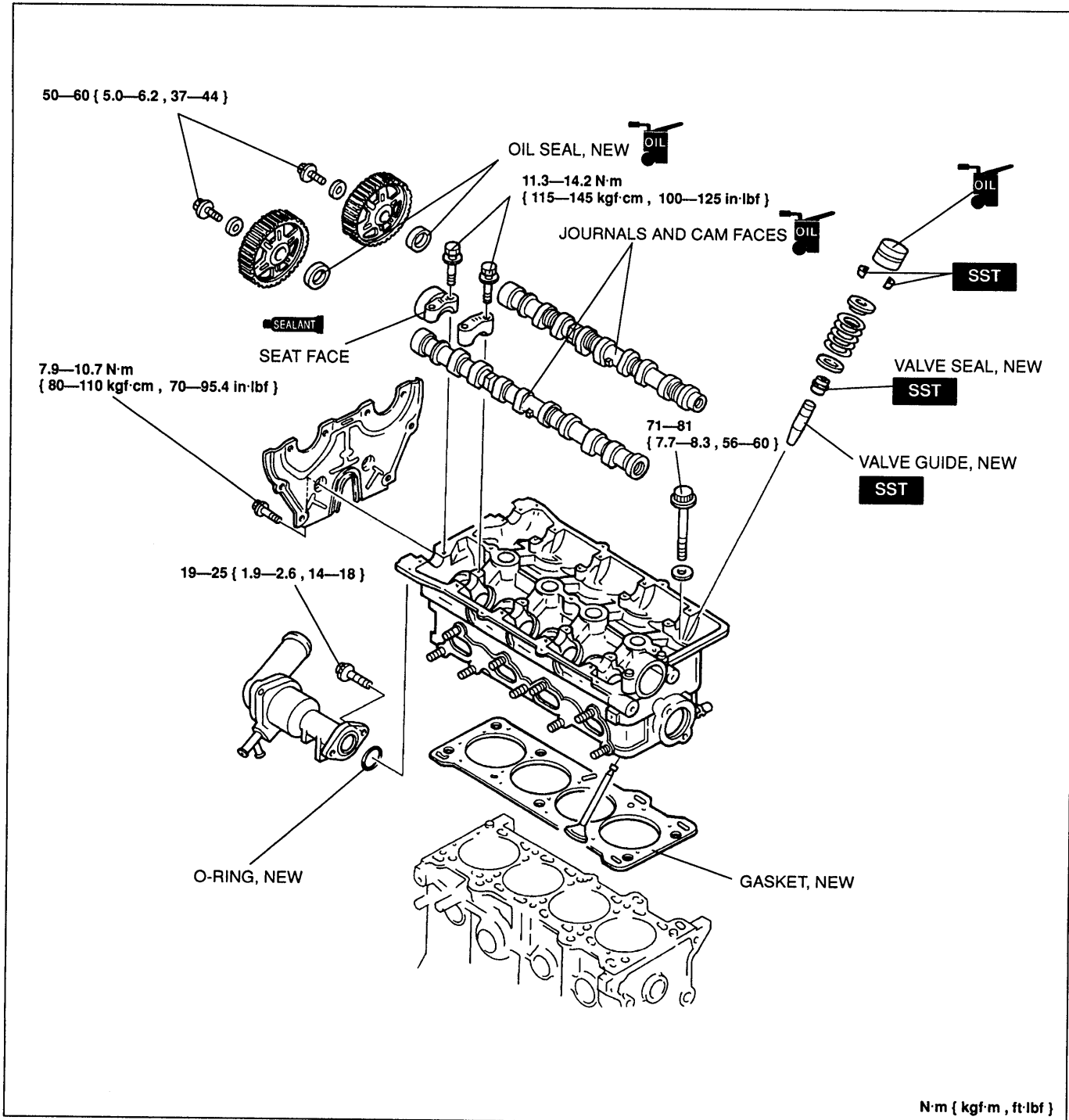
Clutch Disc and Clutch Cover (MT)

Install the clutch disc and clutch cover using the **SST**. (Refer to section H.)

Tightening torque:

18—26 N·m { 1.8—2.7 kgf·m , 14—19 ft·lbf }

CYLINDER HEAD
Torque Specifications

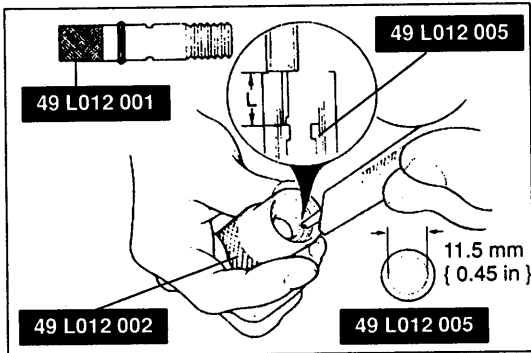


Valve Seal

Caution

- The intake and exhaust valve seals are different as shown.

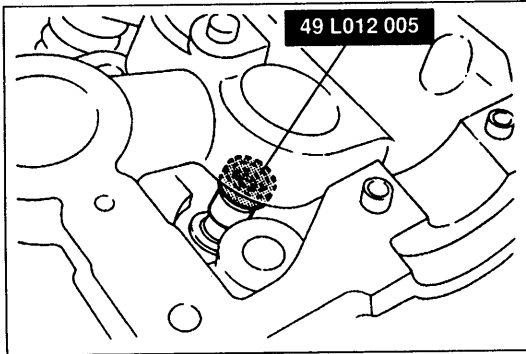
	Ridge	Color
Intake	No or One	Gray
Exhaust	Two	Gray or Green



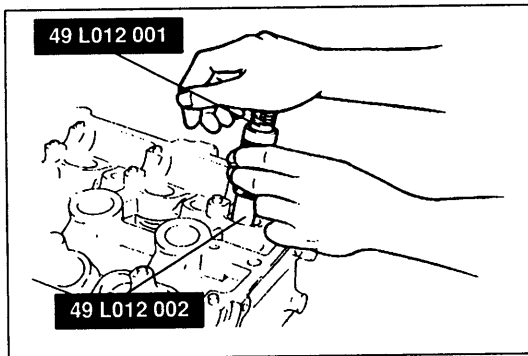
1. Assemble the **SST** so that depth **L** is as specified.

Depth L: 18.3—18.9 mm { 0.721—0.744 in }

2. Slide the valve seal onto the valve guide.
3. Set the **SST** against the valve seal.

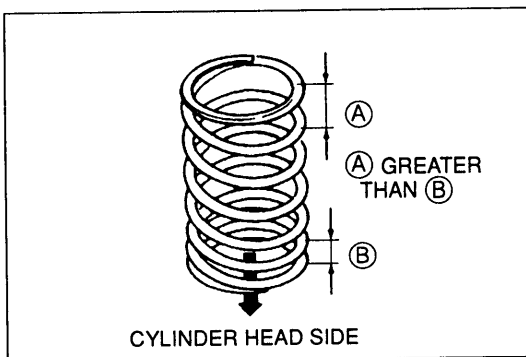


4. Press the valve seal in until the **SST** contacts the cylinder head.

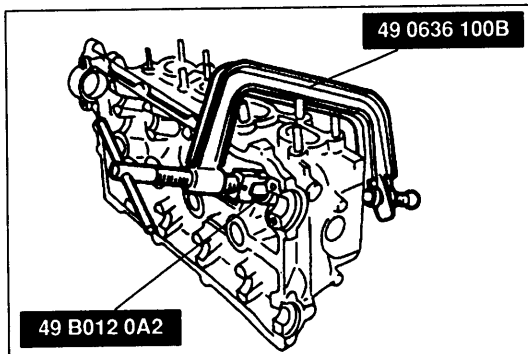


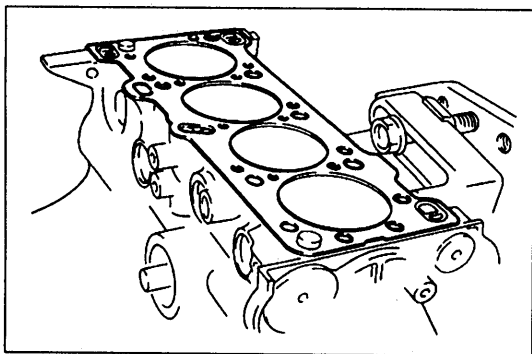
Valve and Valve Spring

1. Install the lower spring seat.
2. Install the valve.
3. Install the valve spring with the closer pitch toward the cylinder head.
4. Install the upper spring seat.

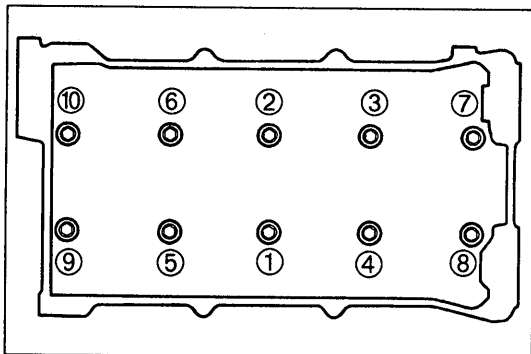


5. Compress the valve spring with the **SST**, and install the valve keepers.
6. Remove the **SST**.
7. Tap the end of the valve stem lightly two or three times with a plastic hammer to verify that the keepers are all fully seated.



**Cylinder Head Gasket**

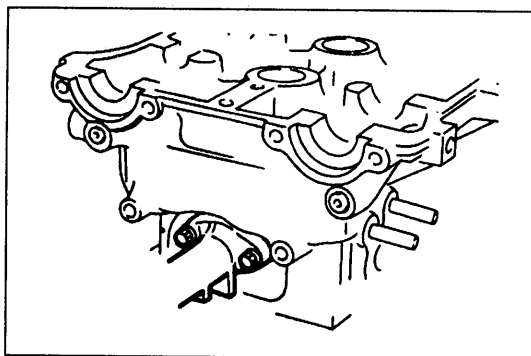
1. Remove all foreign material from the top of the cylinder block.
2. Place the new cylinder head gasket in position.

**Cylinder Head**

1. Install the cylinder head.
2. Tighten the cylinder head bolts in two or three steps in the order shown.

Tightening torque:

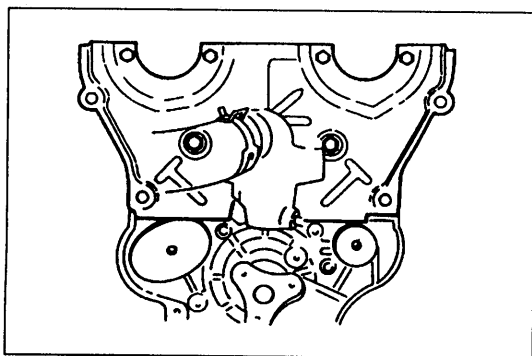
76—81 N·m { 7.7—8.3 kgf·m , 56—60 ft·lbf }

**Thermostat Housing**

1. Remove all foreign material from the thermostat housing mounting surface.
2. Install a new O-ring and the thermostat housing.

Tightening torque:

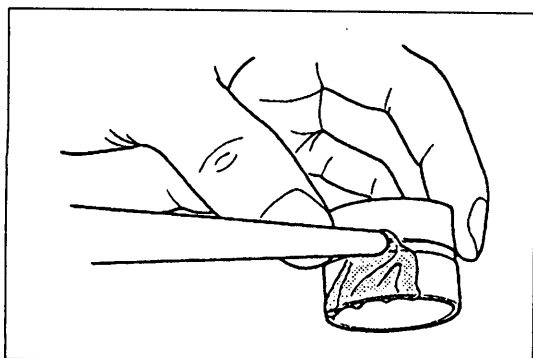
19—25 N·m { 1.9—2.6 kgf·m , 14—18 ft·lbf }

**Seal Plate**

Install the seal plate on the cylinder head.

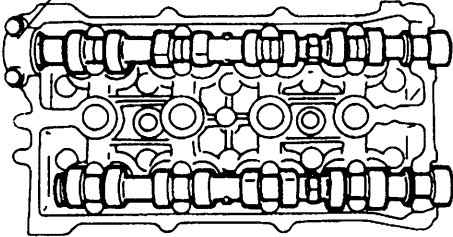
Tightening torque:

7.9—10.7 N·m { 80—110 kgf·cm , 70—95.4 in·lbf }

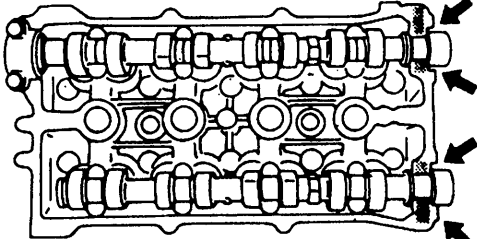
**HLA**

1. Apply clean engine oil to the friction surfaces.
2. If the HLA are being reused, install them in the position from which they were removed.
3. Verify that the HLA move smoothly in their bores.

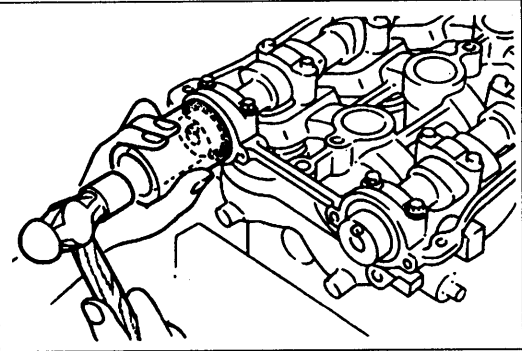
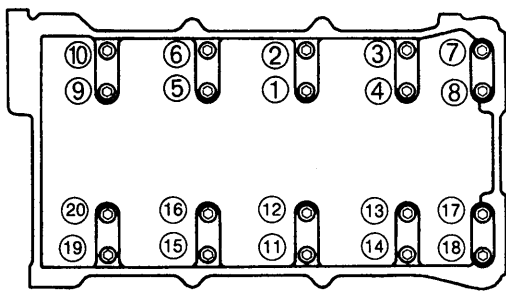
CRANKSHAFT POSITION SENSOR
DRIVE GROOVE



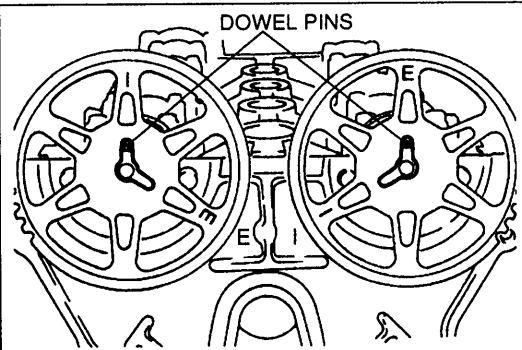
SEALANT



SEALANT



DOWEL PINS



Camshaft

Note

- The rear end of exhaust camshaft is grooved for the crankshaft position sensor drive.

- Apply clean engine oil to the camshaft journals and bearings.
- Install the camshaft in position.

- Apply silicone sealant to the shaded areas shown. Do not let any sealant get on the journal surfaces.

- Install the camshaft caps according to the cap number and arrow mark.

- Install the camshaft cap bolts, and tighten them in five or six steps in the order shown.

Tightening torque: 11.3—14.2 N·m
{ 115—145 kgf·cm , 100—125 in·lbf }

- Apply clean engine oil to the lip of the new camshaft oil seal.

- Push the oil seal slightly in by hand.

- Using a pipe and a hammer, tap the oil seal in evenly until it is flush with the edge of the camshaft cap.

Protrusion: 0—0.4 mm { 0—0.01 in }

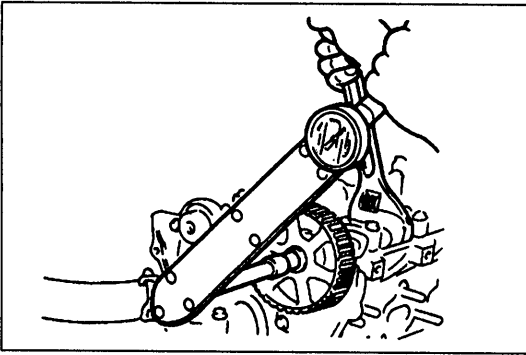
Note

- Oil seal outer diameter: 48 mm { 1.89 in }
- Oil seal inner diameter: 34 mm { 1.34 in }

Camshaft Pulley

- Turn the camshafts until the camshaft dowel pins face straight up.

- Install the camshaft pulleys with the I mark (intake side) or the E mark (exhaust side) straight up.

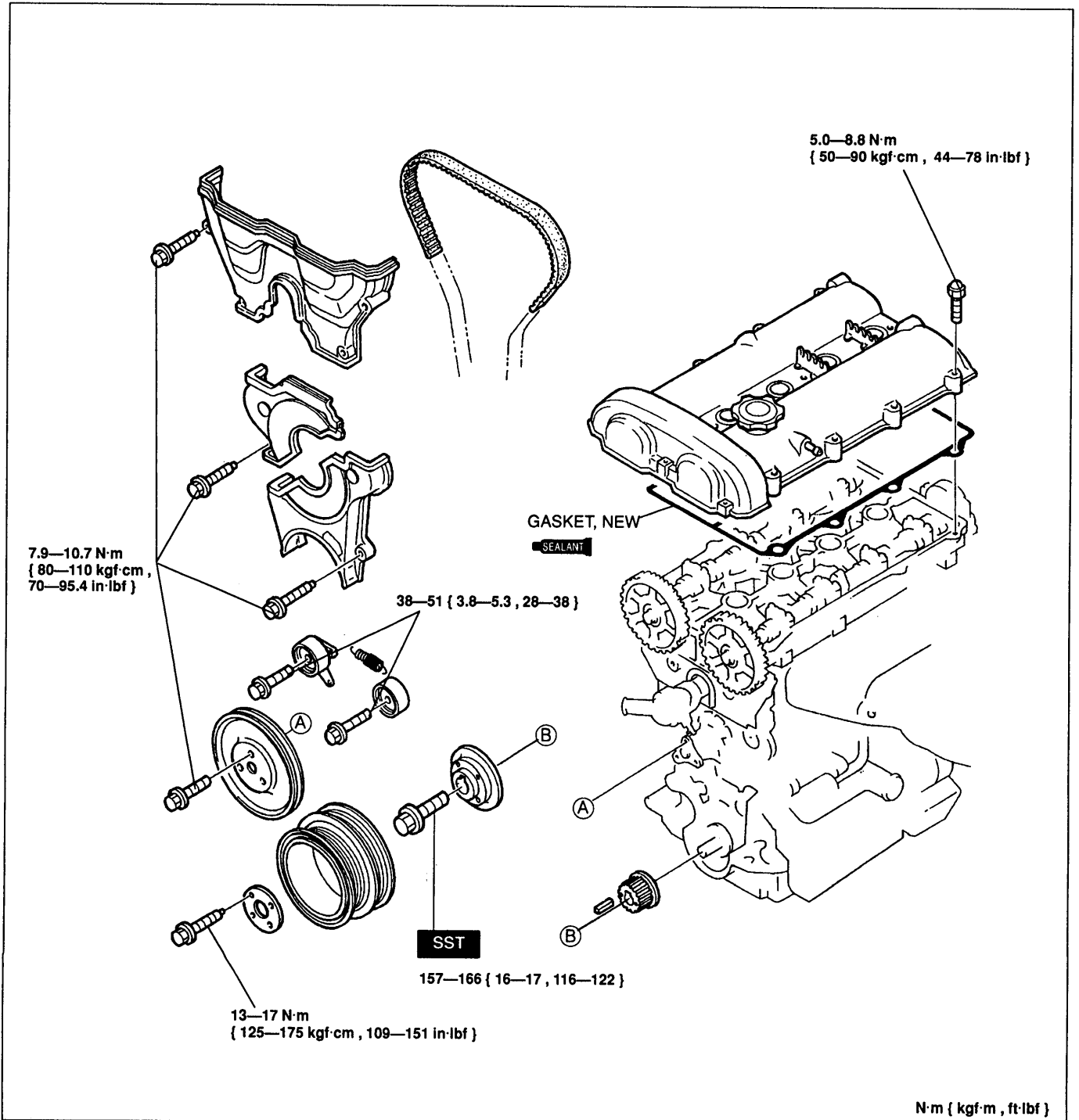


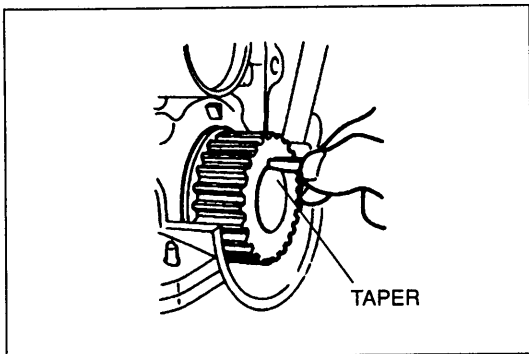
3. Install the camshaft pulley lock bolts.
4. Hold the camshaft with a wrench.
5. Tighten the camshaft pulley lock bolt.

Tightening torque:

50—60 N·m { 5.0—6.2 kgf·m , 37—44 ft·lbf }

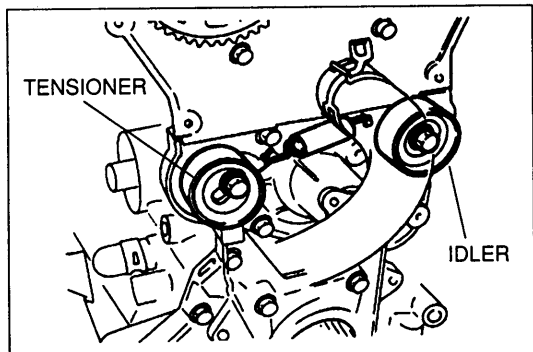
TIMING BELT
Torque Specifications





Timing Belt Pulley

1. Install the timing belt pulley.
2. Install the pulley woodruff key with the tapered side toward the oil pump body.



Idler

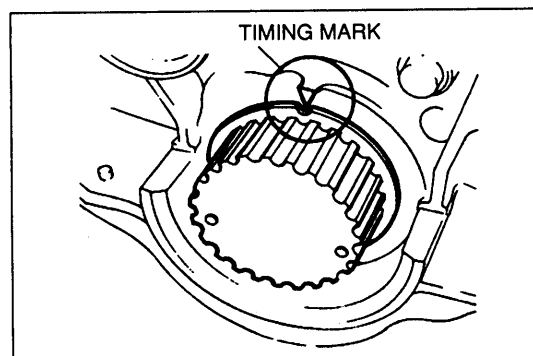
Install the idler.

Tightening torque:

38—51 N·m { 3.8—5.3 kgf·m , 28—38 ft·lbf }

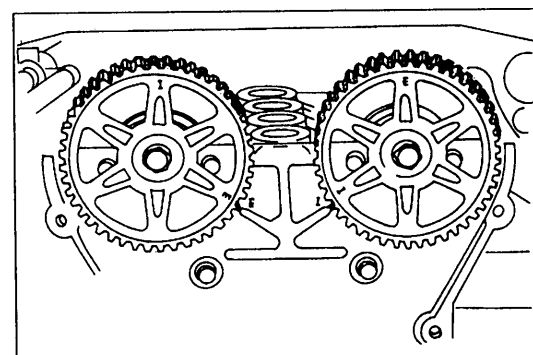
Tensioner and Tensioner Spring

1. Install the tensioner and the tensioner spring.
2. Temporarily secure the tensioner with the spring fully extended.

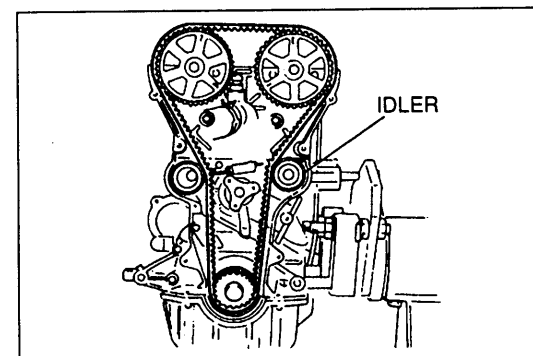


Timing Belt

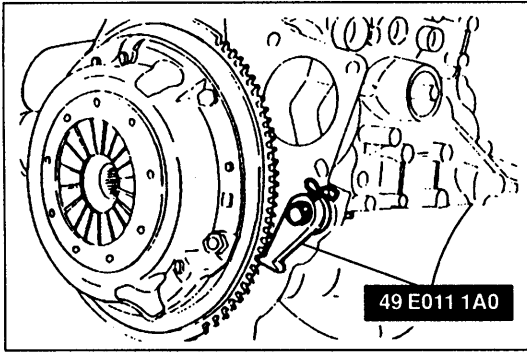
1. Turn the crankshaft and align the timing belt pulley mark with the timing mark. Do not turn the crankshaft counterclockwise.



2. Verify that the camshaft pulley marks are aligned with the seal plate marks. E for intake side and I for exhaust side. Do not turn the crankshaft counterclockwise.



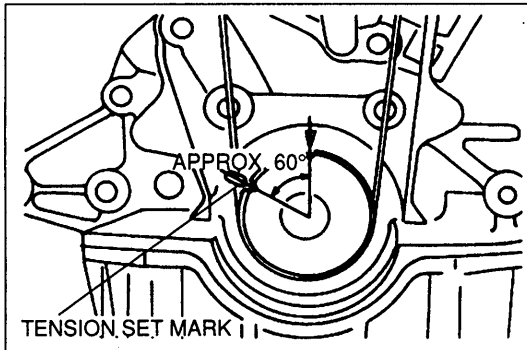
3. Install the timing belt so that there is no looseness at the idler side or between the two camshaft pulleys.
4. Install the pulley boss and pulley lock bolt.
5. Turn the crankshaft two turns clockwise, and align the timing belt pulley mark with the timing mark. Do not turn the crankshaft counterclockwise.
6. Verify that the camshaft pulley marks are aligned with the seal plate marks.
If not aligned, remove the timing belt and repeat from tensioner installation.



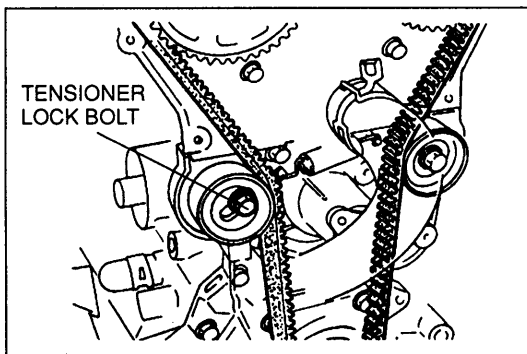
7. Reverse the direction of the **SST** on the flywheel (MT) or drive plate (AT).
8. Tighten the pulley lock bolt.

Tightening torque:

157—166 N·m { 16—17 kgf·m , 116—122 ft·lbf }



9. Turn the crankshaft 1 and 5/6 turns clockwise, and align the timing belt pulley mark with the tension set mark.

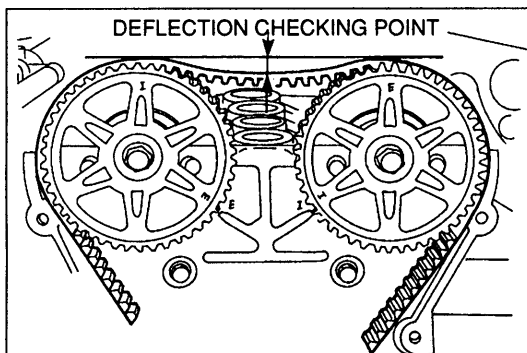


10. Loosen the tensioner lock bolt to apply tension to the timing belt. Be sure not to apply tension other than that of the tensioner spring.
11. Tighten the tensioner lock bolt.

Tightening torque:

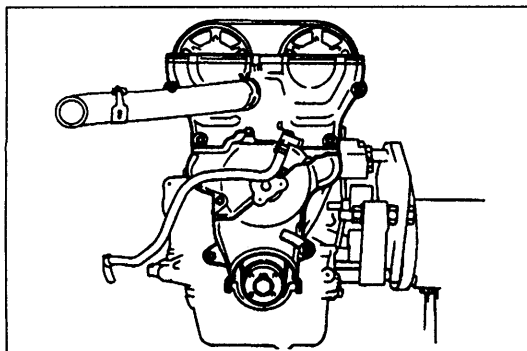
38—51 N·m { 3.8—5.3 kgf·m , 28—38 ft·lbf }

12. Turn the crankshaft 2 and 1/6 turns clockwise and verify that the timing marks are correctly aligned.



13. Measure the timing belt deflection by applying moderate pressure **98 N { 10 kgf , 22 lbf }** midway between the two camshaft pulleys. If the deflection is not correct, repeat from step 9 above.

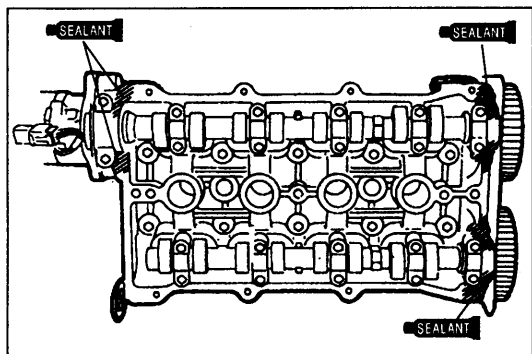
Deflection: 9.0—11.5 mm { 0.36—0.45 in }
at 98 N { 10 kgf , 22 lbf }

**Timing Belt Cover**

Install the lower, middle, and upper covers.

Tightening torque:

7.9—10.7 N·m { 80—110 kgf·cm , 70—95.4 in·lbf }

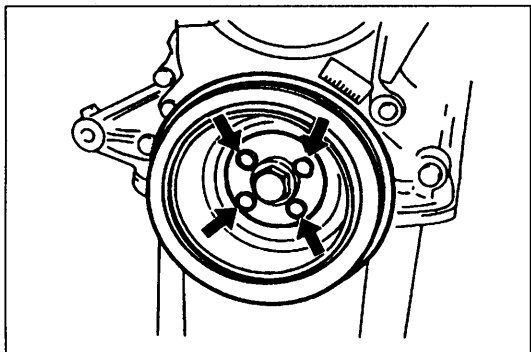


Cylinder Head Cover

1. Apply silicone sealant to the shaded areas shown.
2. Install the cylinder head cover.

Tightening torque:

5.0—8.8 N·m { 50—90 kgf·cm , 44—78 in·lbf }

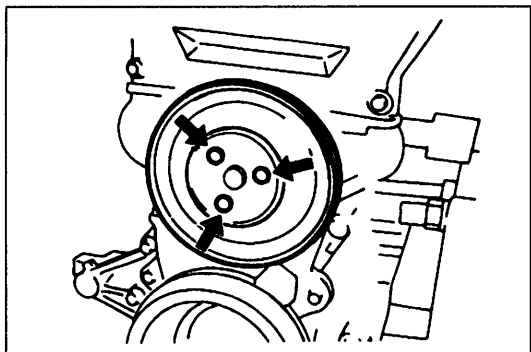


Crankshaft Pulley

1. Install the crankshaft pulley.
2. Install the plate.
3. Tighten the pulley bolts.

Tightening torque:

13—17 N·m { 125—175 kgf·cm , 109—151 in·lbf }



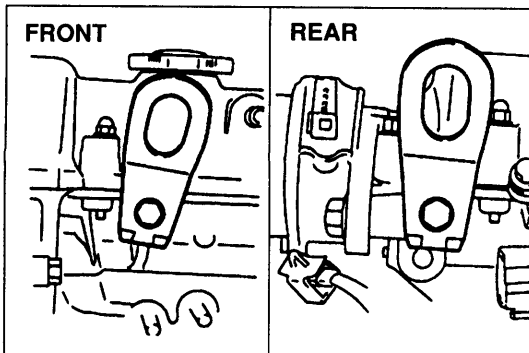
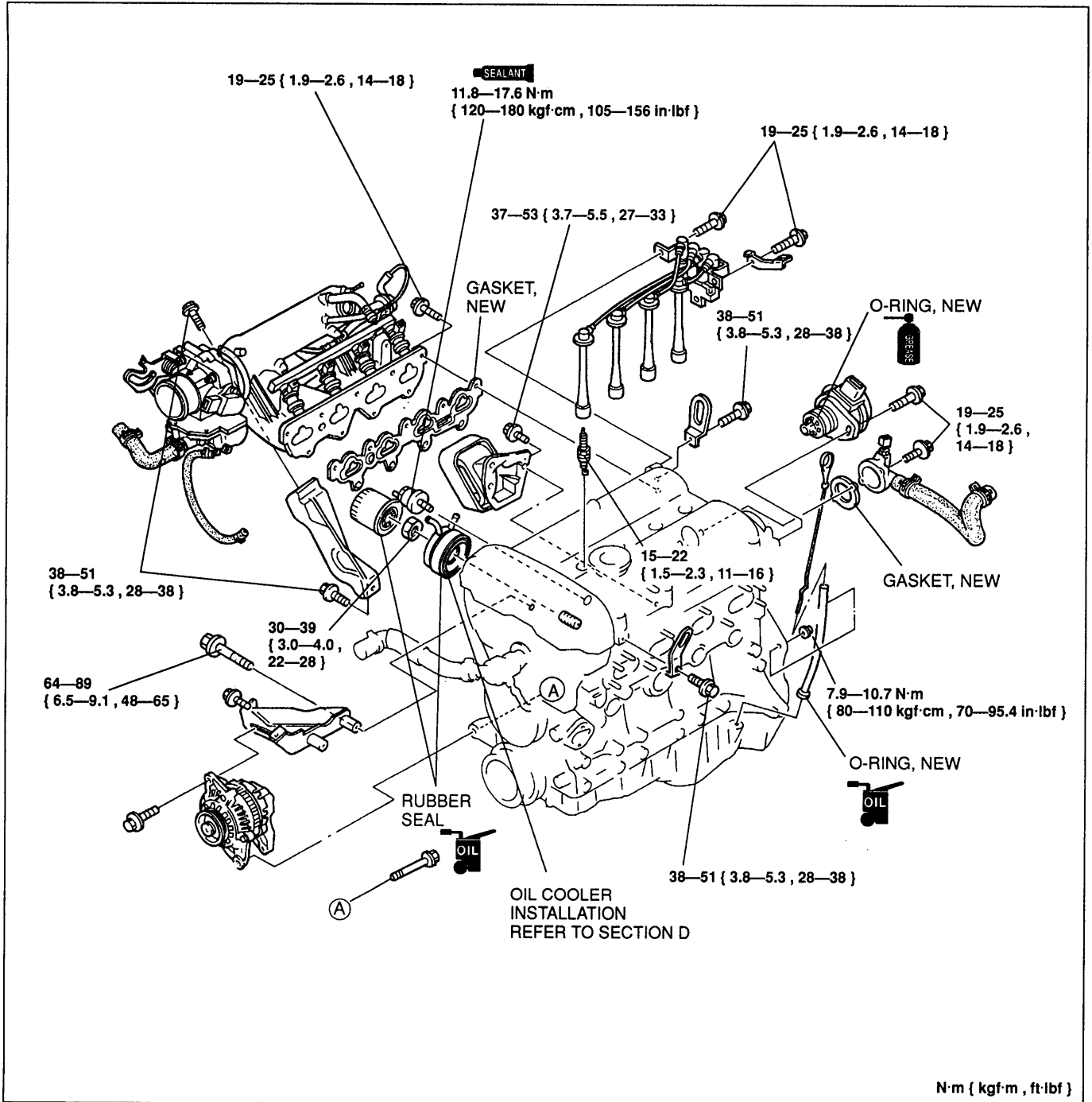
Water Pump Pulley

Install the water pump pulley and tighten the bolts.

Tightening torque:

7.9—10.7 N·m { 80—110 kgf·cm , 70—95.4 in·lbf }

AUXILIARY PARTS Torque Specifications

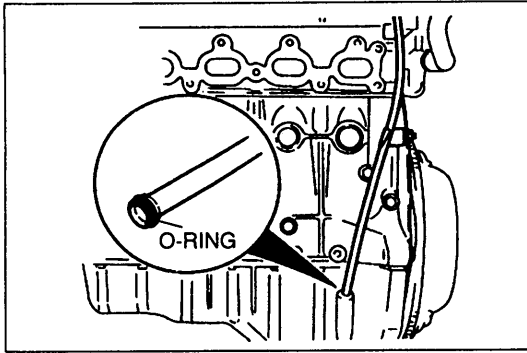


Engine Hanger

Install the front and rear engine hangers.

Tightening torque:

38-51 N·m { 3.8-5.3 kgf·m, 28-38 ft·lbf }

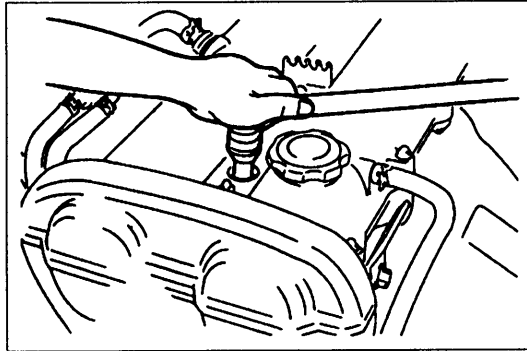
**Dipstick, Dipstick Pipe**

1. Apply clean engine oil to the new O-ring.
2. Push the dipstick pipe into the oil pan.
3. Tighten the dipstick pipe bracket nut.

Tightening torque:

7.9—10.7 N·m { 80—110 kgf·cm , 70—95.4 in·lbf }

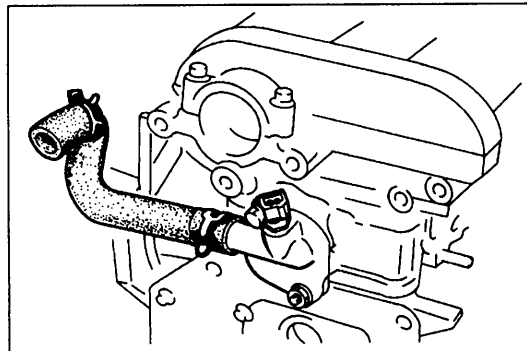
4. Install the dipstick.

**Spark Plug**

Install the spark plugs.

Tightening torque:

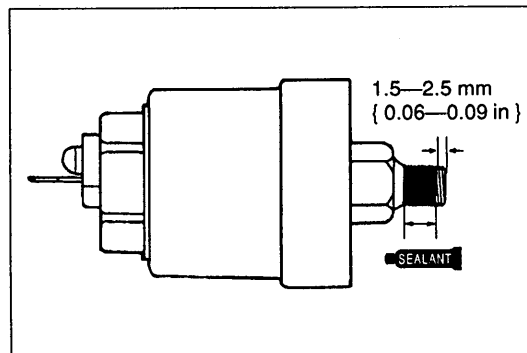
15—22 N·m { 1.5—2.3 kgf·m , 11—16 ft·lbf }

**Water Outlet Pipe**

1. Remove all foreign material from the water outlet pipe mounting surface.
2. Install a new gasket and the water outlet pipe.

Tightening torque:

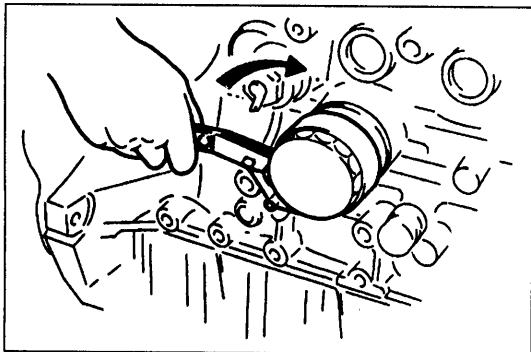
19—25 N·m { 1.9—2.6 kgf·m , 14—18 ft·lbf }

**Oil pressure sensor**

1. Apply silicone sealant to the oil pressure sensor threads as shown.
2. Install the oil pressure sensor.

Tightening torque: 11.8—17.6 N·m

{ 120—180 kgf·m , 105—156 in·lbf }



Oil Filter

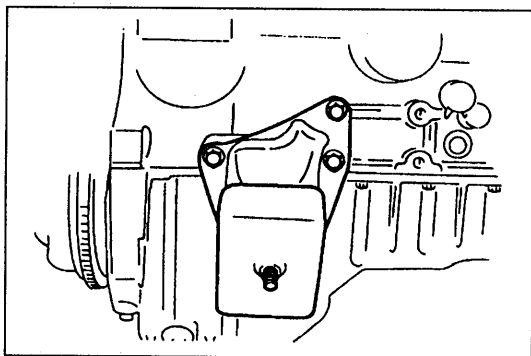
1. Remove all foreign material from the oil filter mounting surface.
2. Apply clean engine oil to the rubber seal of the oil filter.
3. Install the oil filter and tighten it by hand until the rubber seal contacts the base.
4. Hand tightening type (Numbers printed on filter)
Tighten the filter 3/4 of a turn by hand after it contacts the cylinder block.
If tightening by hand is difficult, use the filter wrench.

Example

- When the oil filter contacts the cylinder block at "1", turn it 3/4 of a turn further to "4".

Filter wrench tightening type (No numbers printed on filter)

Tighten the filter 1 and 1/6 turns with the filter wrench after it contacts the cylinder block.

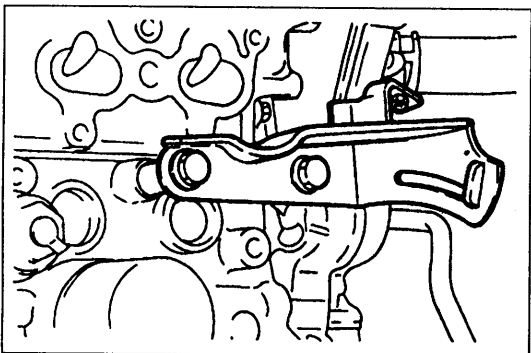


Right Engine Mount

Install the right engine mount.

Tightening torque:

37—53 N·m { 3.7—5.5 kgf·m , 27—39 ft·lbf }

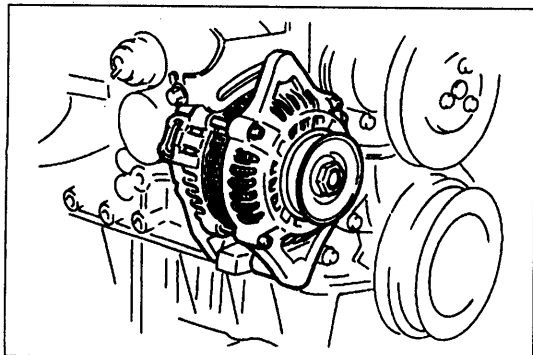


Generator Bracket

Install the generator bracket.

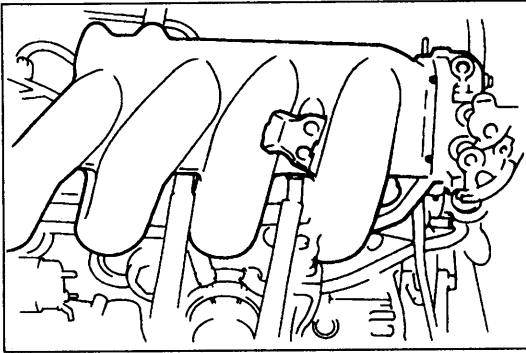
Tightening torque:

64—89 N·m { 6.5—9.1 kgf·m , 48—65 ft·lbf }



Generator

Install the generator and hand tighten the mounting bolts.

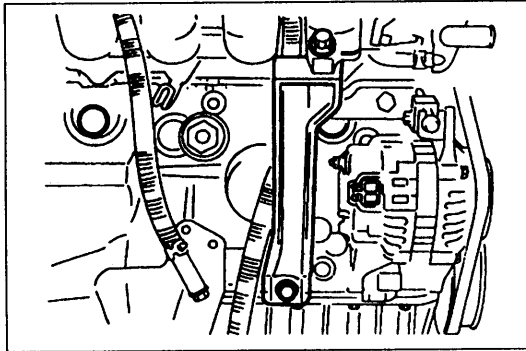


Intake Manifold Assembly

1. Remove all foreign material from the intake manifold contact surface.
2. Install a new gasket and the intake manifold assembly.

Tightening torque:

19—25 N·m { 1.9—2.6 kgf·m , 14—18 ft·lbf }

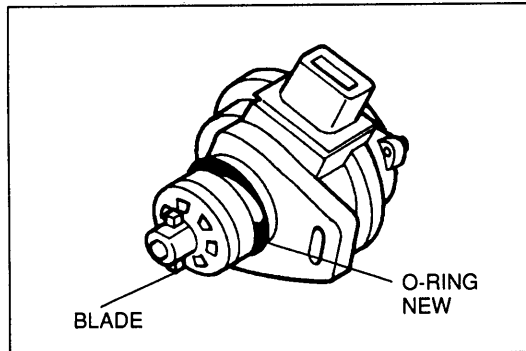


Manifold Bracket

Install the manifold bracket.

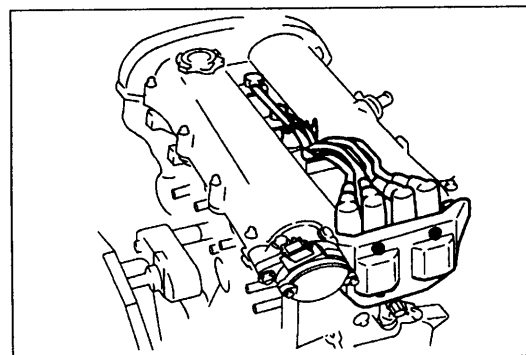
Tightening torque:

38—51 N·m { 3.8—5.3 kgf·m , 28—38 ft·lbf }



Crankshaft Position Sensor

1. Apply grease to a new O-ring and the blade.
2. Install the crankshaft position sensor to the rear end of exhaust-side camshaft and hand tighten the installation bolt.



Ignition Coil and High-tension Lead

1. Install the ignition coil.

Tightening torque:

19—25 N·m { 1.9—2.6 kgf·m , 14—18 ft·lbf }

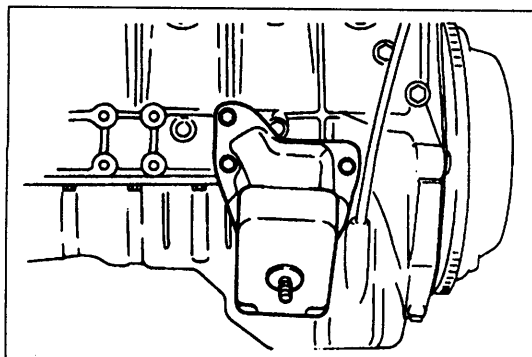
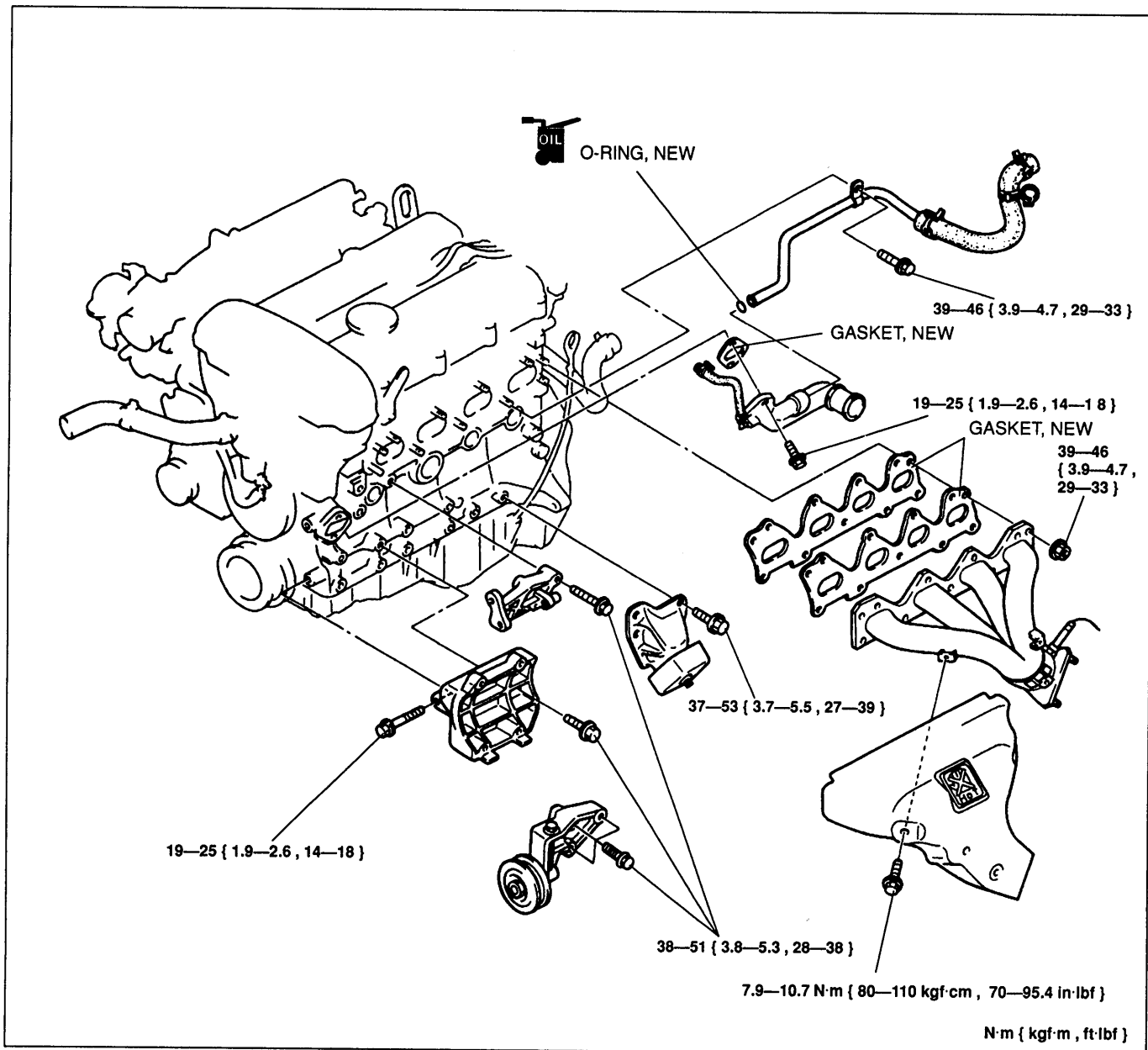
2. Connect the high-tension leads.

ENGINE STAND DISMOUNTING

PROCEDURE

1. Remove the engine from the **SST** (engine stand).
2. Remove the **SST** (engine hanger) from the engine.
3. Install the parts shown in the figure.

Torque Specifications

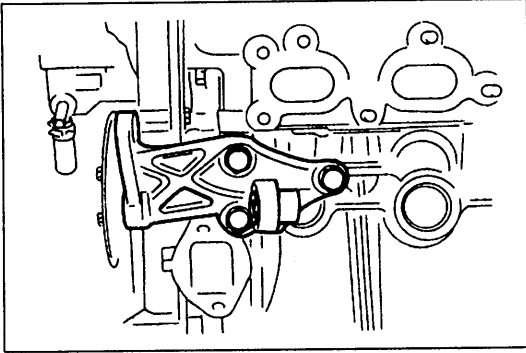


Left Engine Mount

Install the left engine mount.

Tightening torque:

37-53 N·m { 3.7-5.5 kgf·m, 27-39 ft·lbf }

**P/S Oil Pump Bracket (If equipped)**

Install the P/S oil pump bracket.

Tightening torque:

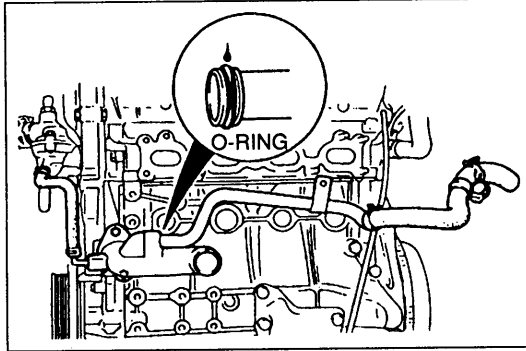
38—51 N·m { 3.8—5.3 kgf·m , 28—38 ft·lbf }

Idler Pulley (A/C) (If equipped)

Install the idler pulley.

Tightening torque:

38—51 N·m { 3.8—5.3 kgf·m , 28—38 ft·lbf }

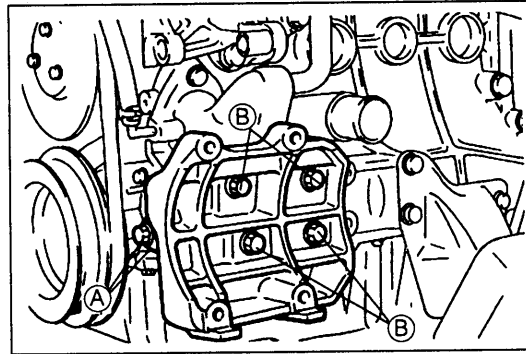
**Water Inlet Pipe and Bypass Pipe**

1. Remove all foreign material from the water inlet pipe mounting surface.
2. Install a new gasket and the water inlet pipe.

Tightening torque:

19—25 N·m { 1.9—2.6 kgf·m , 14—18 ft·lbf }

3. Apply a small amount of engine coolant to the new O-ring.
4. Install the water bypass pipe.

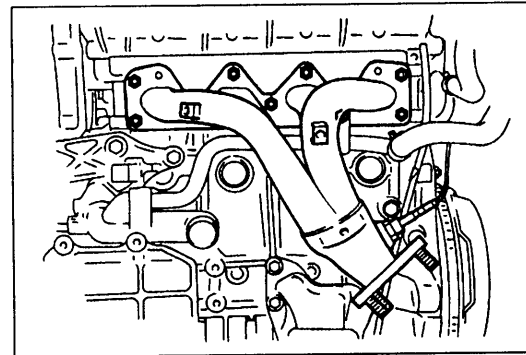
**A/C Compressor Bracket (If equipped)**

Install the A/C compressor bracket.

Tightening torque

Ⓐ: 19—25 N·m { 1.9—2.6 kgf·m , 14—18 ft·lbf }

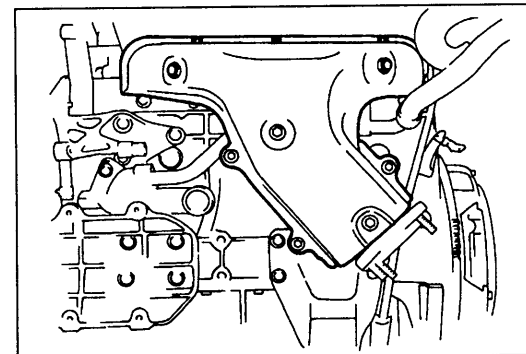
Ⓑ: 38—51 N·m { 3.8—5.3 kgf·m , 28—38 ft·lbf }

**Exhaust Manifold**

1. Remove all foreign material from the exhaust manifold contact surface.
2. Install a new gasket and the exhaust manifold.

Tightening torque:

39—46 N·m { 3.9—4.7 kgf·m , 29—33 ft·lbf }

**Exhaust Manifold Insulator**

Install the exhaust manifold insulator.

Tightening torque:

7.9—10.7 N·m { 80—110 kgf·cm , 70—95.4 in·lbf }

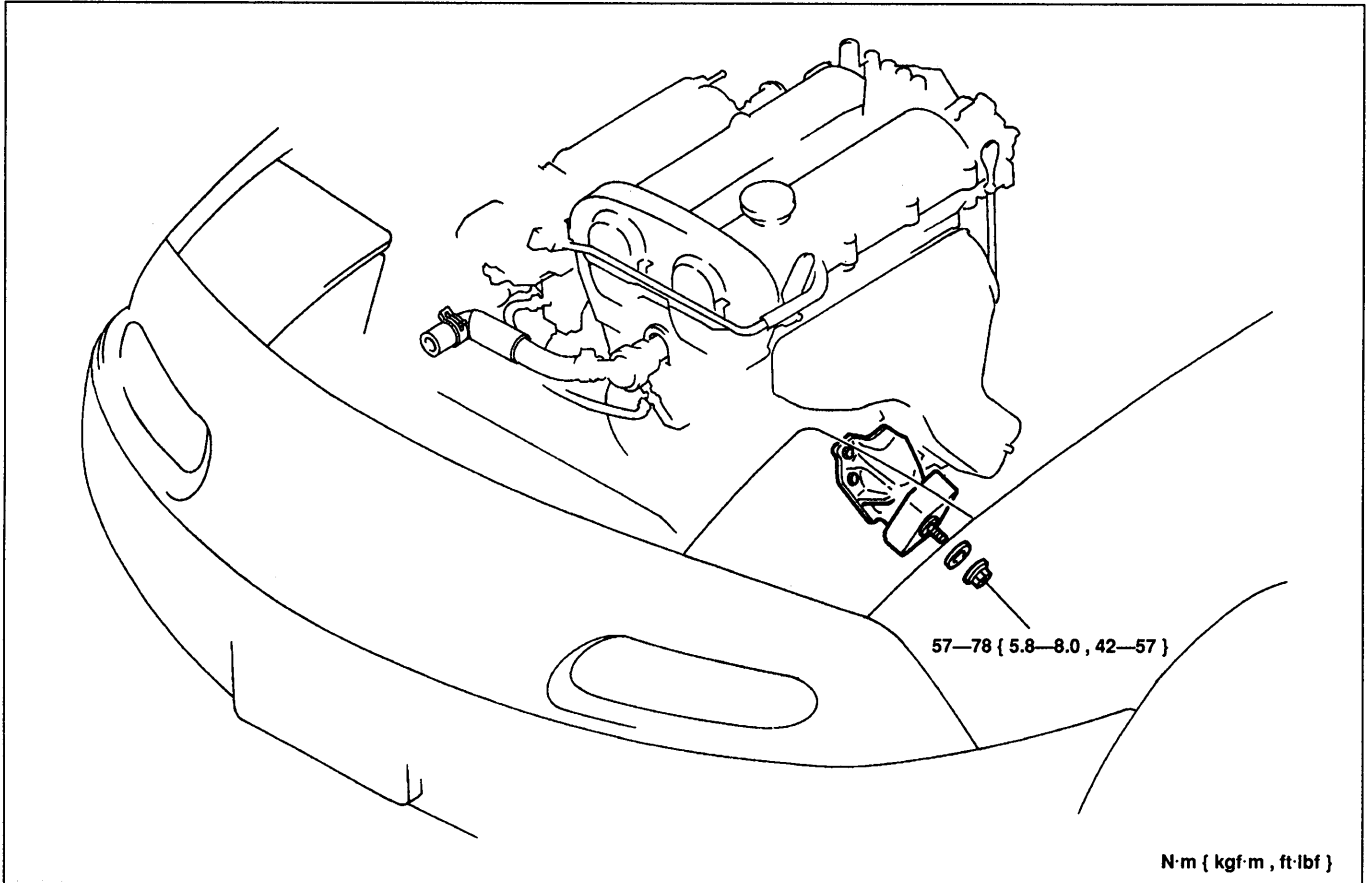
INSTALLATION

PROCEDURE

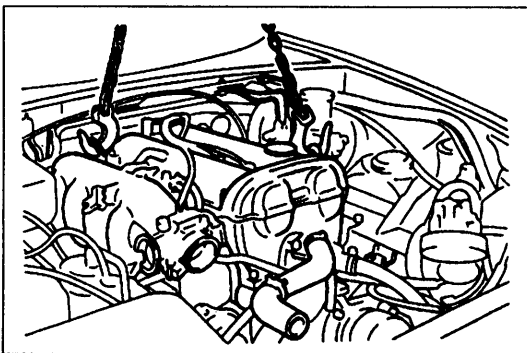
Tighten all bolts and nuts to the specified torques.

Step 1

Torque Specifications

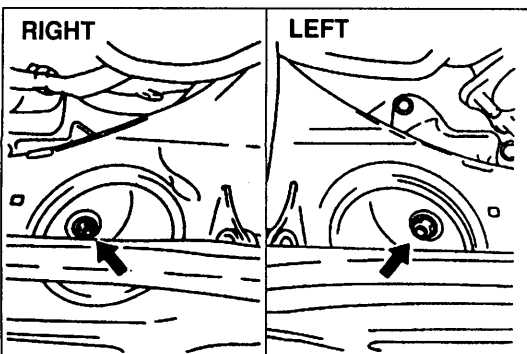


N·m { kgf·m , ft·lbf }



Engine assembly

1. Suspend the engine assembly.
Slowly lower the engine assembly as a unit. Keep the engine from swinging or bumping into components in the engine compartment.
2. Tilt the engine downward.
3. Align the engine mounts with the crossmember mounting holes.
4. Install the engine mount nuts and hand tighten them.



Engine mount nut

Tighten the engine mount nuts.

Tightening torque:

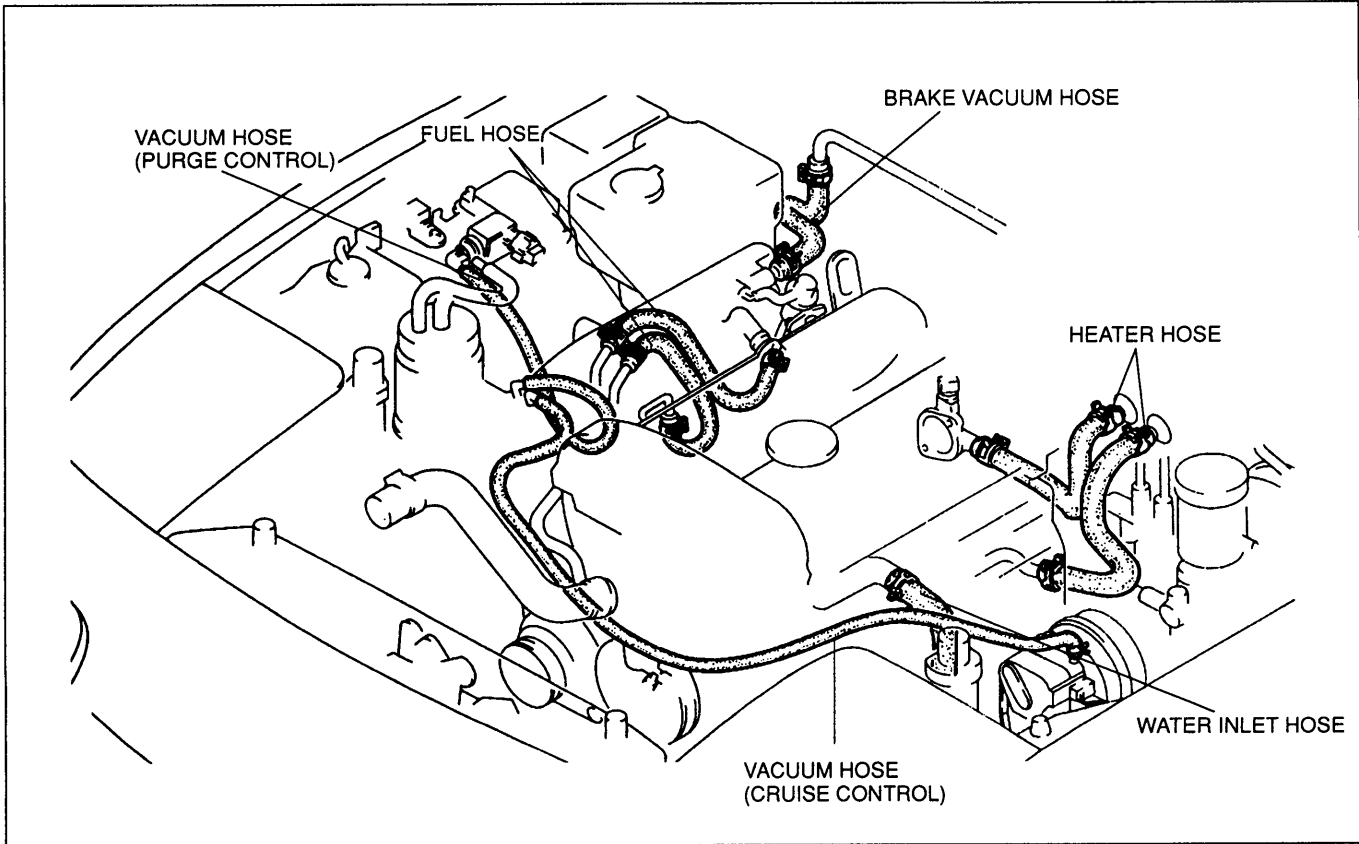
57—78 N·m { 5.8—8.0 kgf·m , 42—57 ft·lbf }

B

INSTALLATION

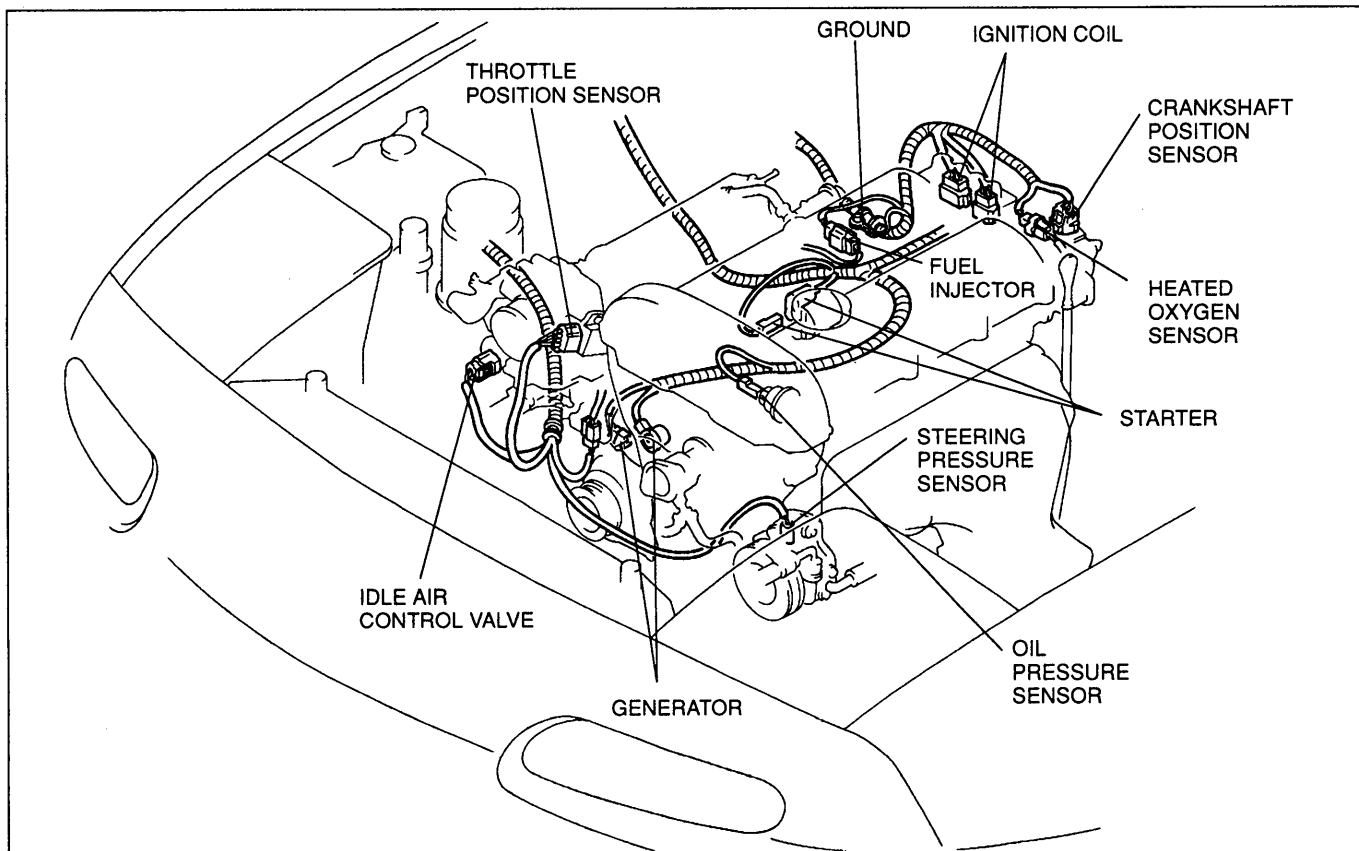
Step 2

Connect the hoses shown in the figure.

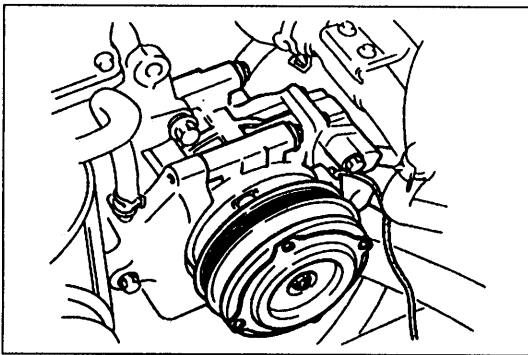
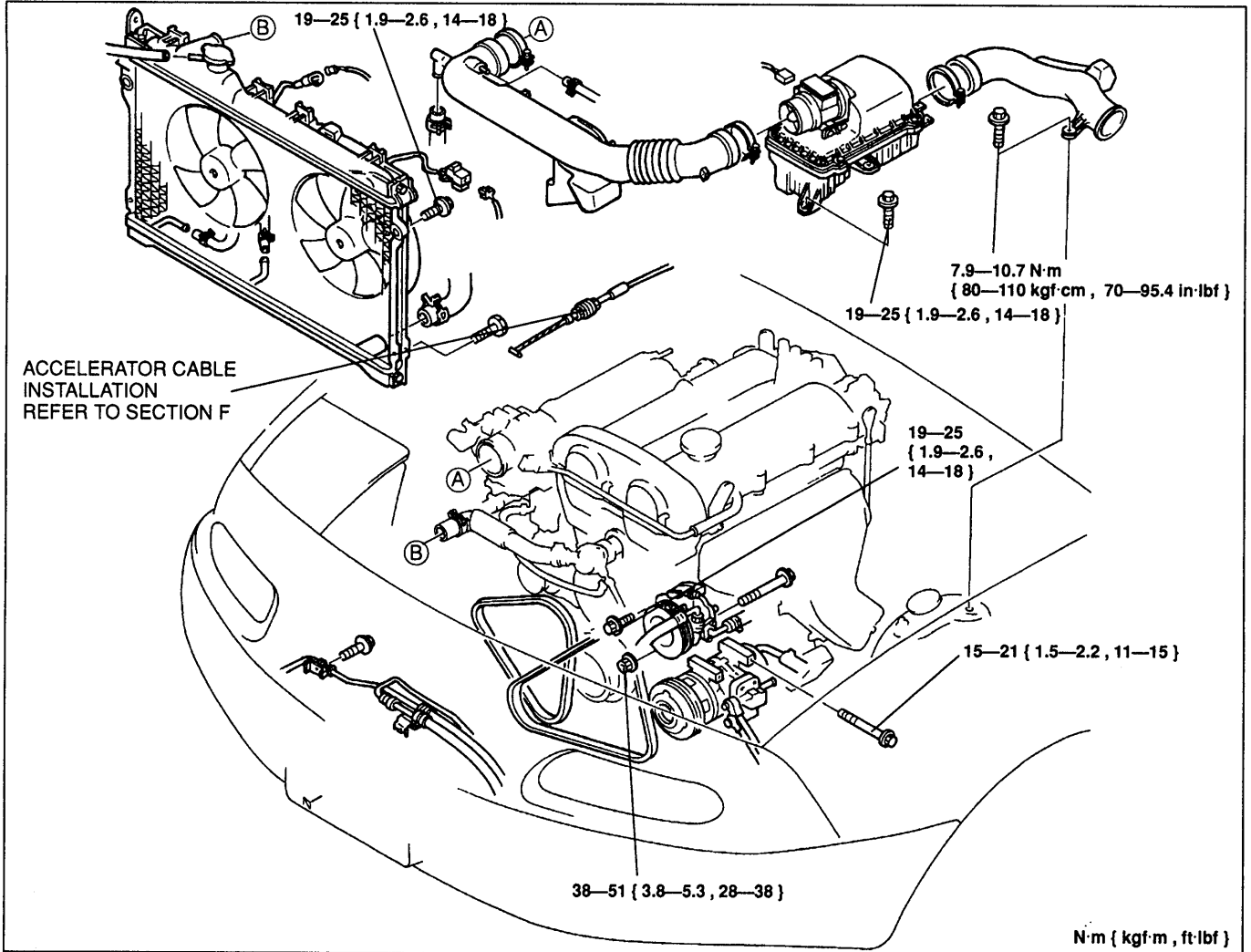


Step 3

Connect the harness connectors shown in the figure.

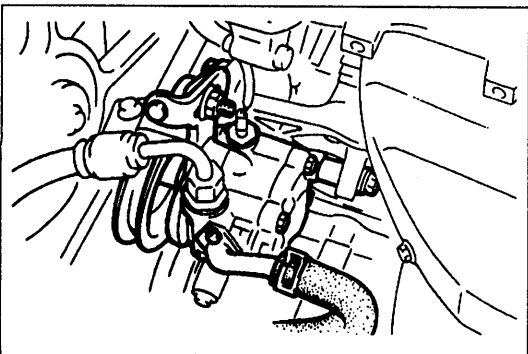


Step 4 Torque Specifications

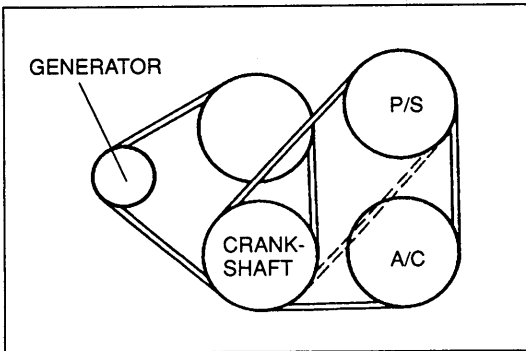


A/C compressor (If equipped)
Install the A/C compressor.

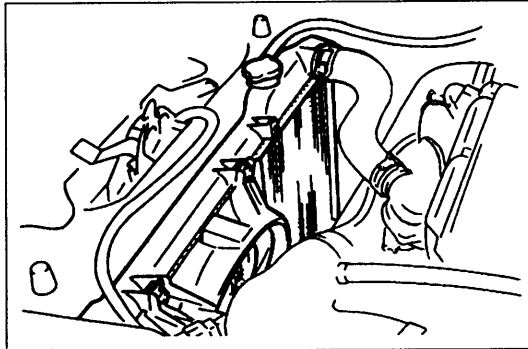
Tightening torque:
15-21 N·m { 1.5-2.2 kgf·m, 11-15 ft·lbf }



P/S oil pump (If equipped)
Install the P/S oil pump and hand tighten the mounting bolts.

**Drive belt**

1. Install the generator drive belt. (Refer to page B-7.)
2. Install the P/S and/or A/C drive belt.
3. Adjust the drive belt deflection, and tighten the generator and P/S mounting bolts and nuts. (Refer to page B-7.)

**Radiator and coolant fan assembly**

1. Install the radiator and coolant fan assembly.

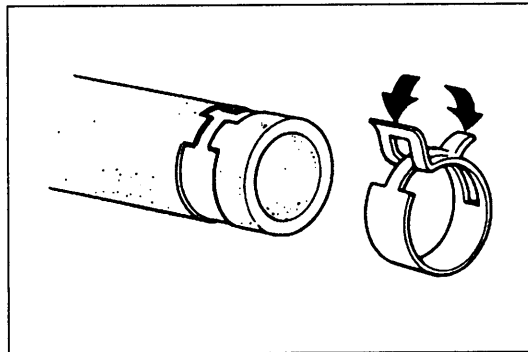
Tightening torque:

19—25 N·m { 1.9—2.6 kgf·m , 14—18 ft·lbf }

2. Install the A/C pipe bracket to the radiator.

Tightening torque:

7.9—10.7 N·m { 80—110 kgf·cm , 70—95.4 in·lbf }



3. Connect the oil cooler hoses (AT).
4. Connect the upper and lower radiator hoses.
5. Connect the coolant reservoir hose.
6. Connect the coolant fan motor connector.

Accelerator cable

Install the accelerator cable and adjust the accelerator cable deflection. (Refer to section F.)

Air cleaner assembly

Install the air cleaner assembly.

Tightening torque:

19—25 N·m { 1.9—2.6 kgf·m , 14—18 ft·lbf }

Steps After Installation

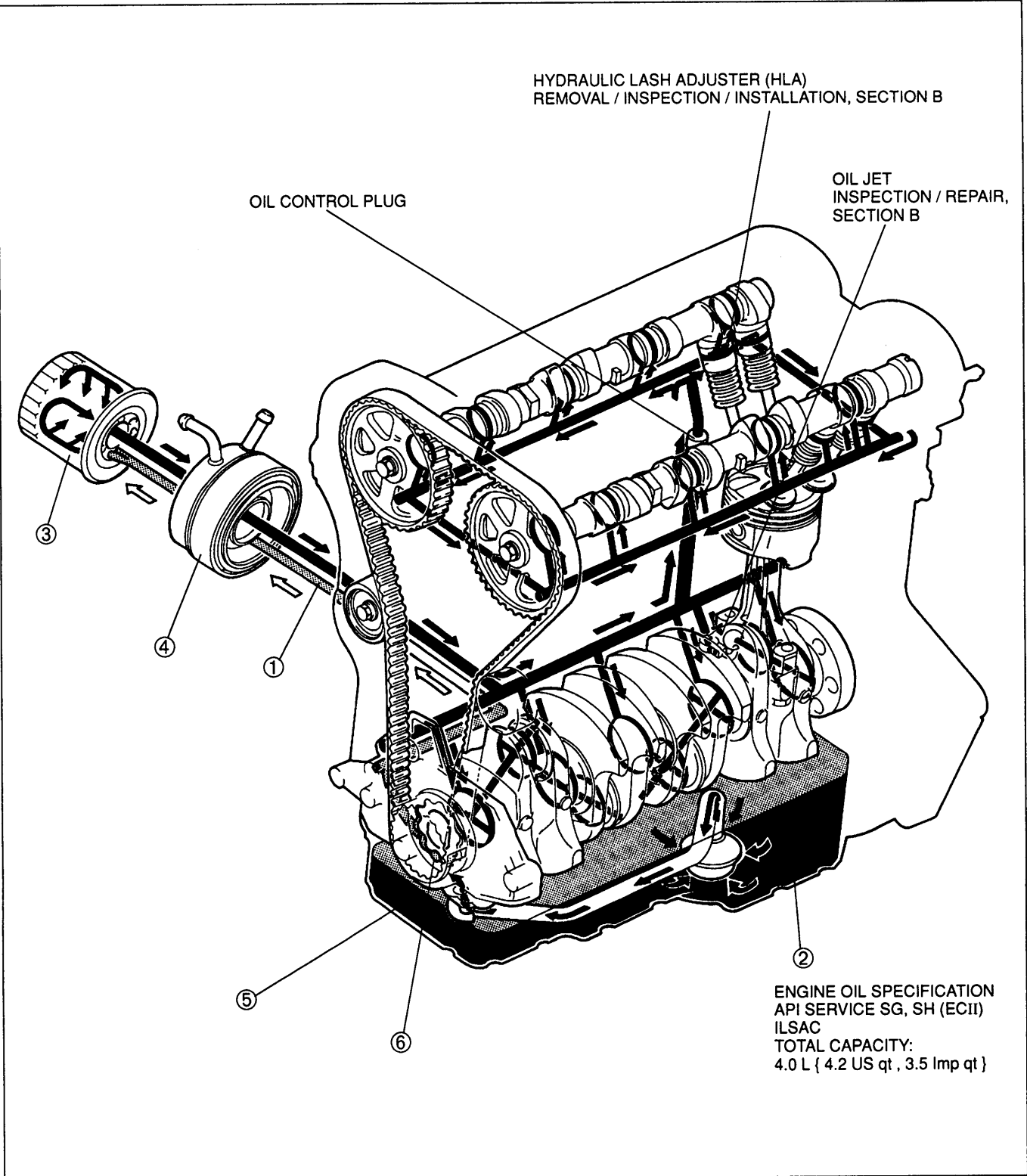
1. Install the transmission. (Refer to sections J, K.)
2. Install the splash shield.
3. If the engine oil was drained, fill with the specified amount and type of engine oil. (Refer to section D.)
4. Fill the radiator with the specified amount and type of engine coolant. (Refer to section E.)
5. If the transmission oil was drained, fill with the specified amount and type of transmission oil. (Refer to sections J, K.)
6. Connect the negative battery cable.
7. Start the engine and
 - (1) Check the engine oil, transmission oil, and engine coolant leakage.
 - (2) Check the ignition timing and idle speed. (Refer to page B-9.)
 - (3) Check the operation of the emission control system. (Refer to section F.)
8. Perform a road test.
9. Recheck the engine oil and engine coolant levels.

Before beginning any service procedure, refer to section T of this manual for air bag system service warnings and audio antitheft system alarm conditions.

LUBRICATION SYSTEM

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Inspection	page D-12

OUTLINE

SPECIFICATIONS

Item		Engine	BP DOHC
Lubrication system			Force-fed type
Oil pump	Type		Trochoid gear
	Relief pressure	kPa { kgf/cm ² , psi }	344—441 { 3.5—4.5 , 50—63 }
Oil filter	Type		Full-flow, paper element
	Relief pressure differential	kPa { kgf/cm ² , psi }	79—117 { 0.8—1.2 , 12—17 }
Oil capacity	Total (dry engine)	L { US qt , Imp qt }	4.0 { 4.2 , 3.5 }
	Oil replacement	L { US qt , Imp qt }	3.6 { 3.8 , 3.2 }
	Oil and oil filter replacement	L { US qt , Imp qt }	3.75 { 4.0, 3.3 }
Engine oil			API Service SG, SH (ECII) ILSAC
Viscosity number	Above -25 °C { -13 °F }		SAE 10W-30
	Below 0 °C { 32 °F }		SAE 5W-30

TRUBLESHOOTING GUIDE

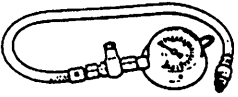
Problem	Possible Cause	Remedy	Page
Engine hard starting	Improper engine oil	Replace	D-5
	Insufficient engine oil	Add oil	D-5
Excessive oil consumption	Oil working up or down	Refer to section B	—
	Oil leakage	Repair	—
Oil pressure drop	Insufficient oil	Add oil	D-5
	Oil leakage	Repair	—
	Worn and/or damaged oil pump inner and outer rotor	Replace	D-11, 12
	Worn plunger (inside oil pump) or weak spring	Replace	D-11, 12
	Clogged oil strainer	Clean	—
	Excessive main bearing or connecting rod bearing clearance	Refer to section B	—
Oil pressure gauge (meter) does not operate	Oil pressure drop	As described above	—
	Malfunction of oil pressure sensor	Refer to section T	—
	Malfunction of electrical system	Refer to section T	—

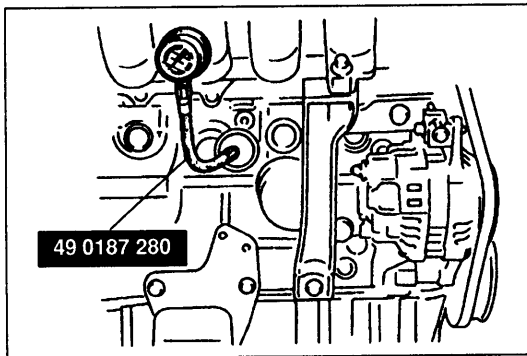
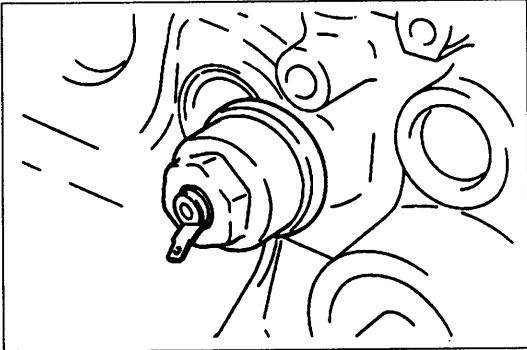
Warning

- Continuous exposure with USED engine oil has caused skin cancer in laboratory mice. Protect your skin by washing with soap and water immediately after this work.

OIL PRESSURE

PREPARATION
SST

<p>49 0187 280</p> <p>Gauge, oil pressure</p> 	<p>For inspection of oil pressure</p>
---	---------------------------------------



INSPECTION

1. Remove the oil pressure sensor.

2. Screw the **SST** into the oil pressure sensor installation hole.
3. Warm up the engine to normal operating temperature.
4. Run the engine at the specified speed and note the gauge reading.

Note

- Oil pressure varies with oil viscosity and temperature.

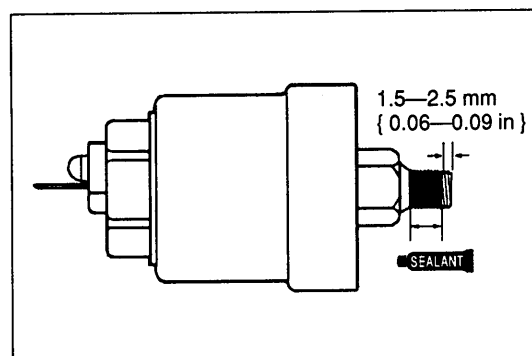
Oil pressure:

98—196 kPa

{ 1.0—2.0 kgf/cm² , 15—28 psi } -1,000 rpm

295—392 kPa

{ 3.0—4.0 kgf/cm² , 43—56 psi } -3,000 rpm

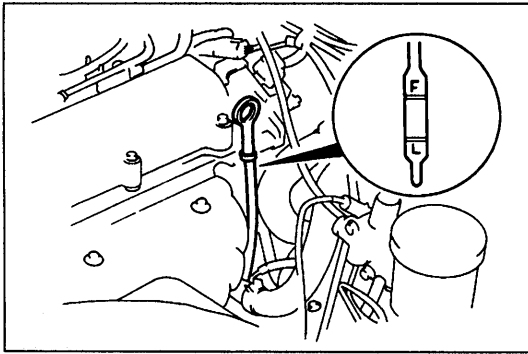


5. If the pressure is not as specified, check for the cause and repair as necessary.
6. Apply silicone sealant to the oil pressure sensor threads as shown.
7. Remove the **SST** and install the oil pressure sensor.

Tightening torque:

12—17 N·m { 1.2—1.8 kgf·m , 8.7—13 ft·lbf }

8. Start the engine and check for oil leaks.



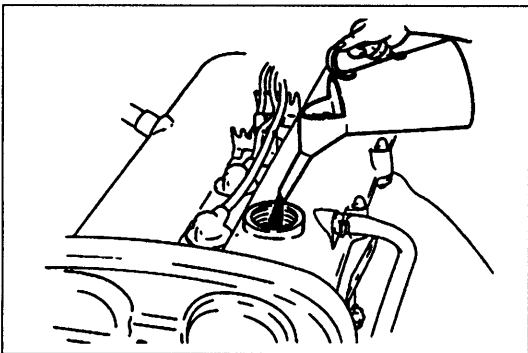
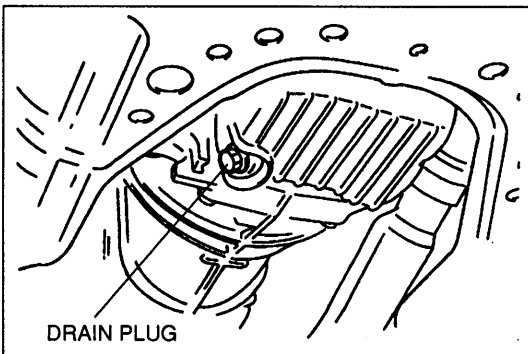
ENGINE OIL

INSPECTION

1. Be sure the vehicle is on level ground.
2. Warm up the engine to normal operating temperature and stop it.
3. Wait for five minutes.
4. Remove the dipstick and check the oil level and condition.
5. Add or replace oil as necessary.

Note

- The distance between the L and F marks on the dipstick represents 0.8 L { 0.85 US qt , 0.70 Imp qt }.



REPLACEMENT

Warning

- When the engine and the engine oil are hot, they can badly burn. Don't burn yourself with either.
- A vehicle that is lifted but not securely supported on safety stands is dangerous. It can slip or fall, causing death or serious injury. Never work around or under a lifted vehicle if it is not securely supported on safety stands.
- Continuous exposure with USED engine oil has caused skin cancer in laboratory mice. Protect your skin by washing with soap and water immediately after this work.

1. Remove the oil filler cap and the oil drain plug.
2. Drain the oil into a container.
3. Install a new gasket and the drain plug.

Tightening torque:

30—41 N·m { 3.0—4.2 kgf·m , 22—30 ft·lbf }

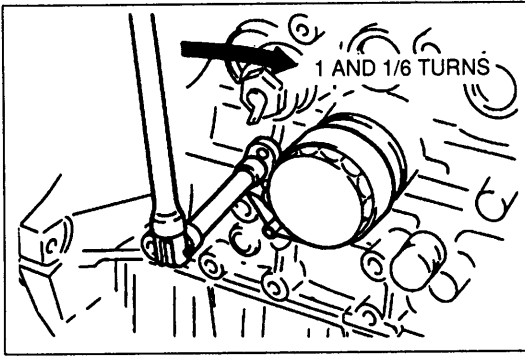
4. Refill the engine with the specified type and amount of engine oil.

Oil capacity

L { US qt , Imp qt }

Total (dry engine)	4.0 { 4.2 , 3.5 }
Oil replacement	3.6 { 3.8 , 3.2 }
Oil and oil filter replacement	3.75 { 4.0 , 3.3 }

5. Refit the oil filler cap.
6. Run the engine and check for leaks.
7. Check the oil level and add oil if necessary.



OIL FILTER

REPLACEMENT

1. Remove the oil filter with a wrench.
2. Use a clean rag to wipe off the mounting surface on the engine.
3. Apply clean engine oil to the rubber seal of the new filter.
4. Hand tightening type (Numbers printed on filter)
Tighten the filter $3/4$ of a turn by hand after it contacts the cylinder block

Example:

- When the oil filter contacts the cylinder block at "1", turn it $3/4$ of a turn further to "4".

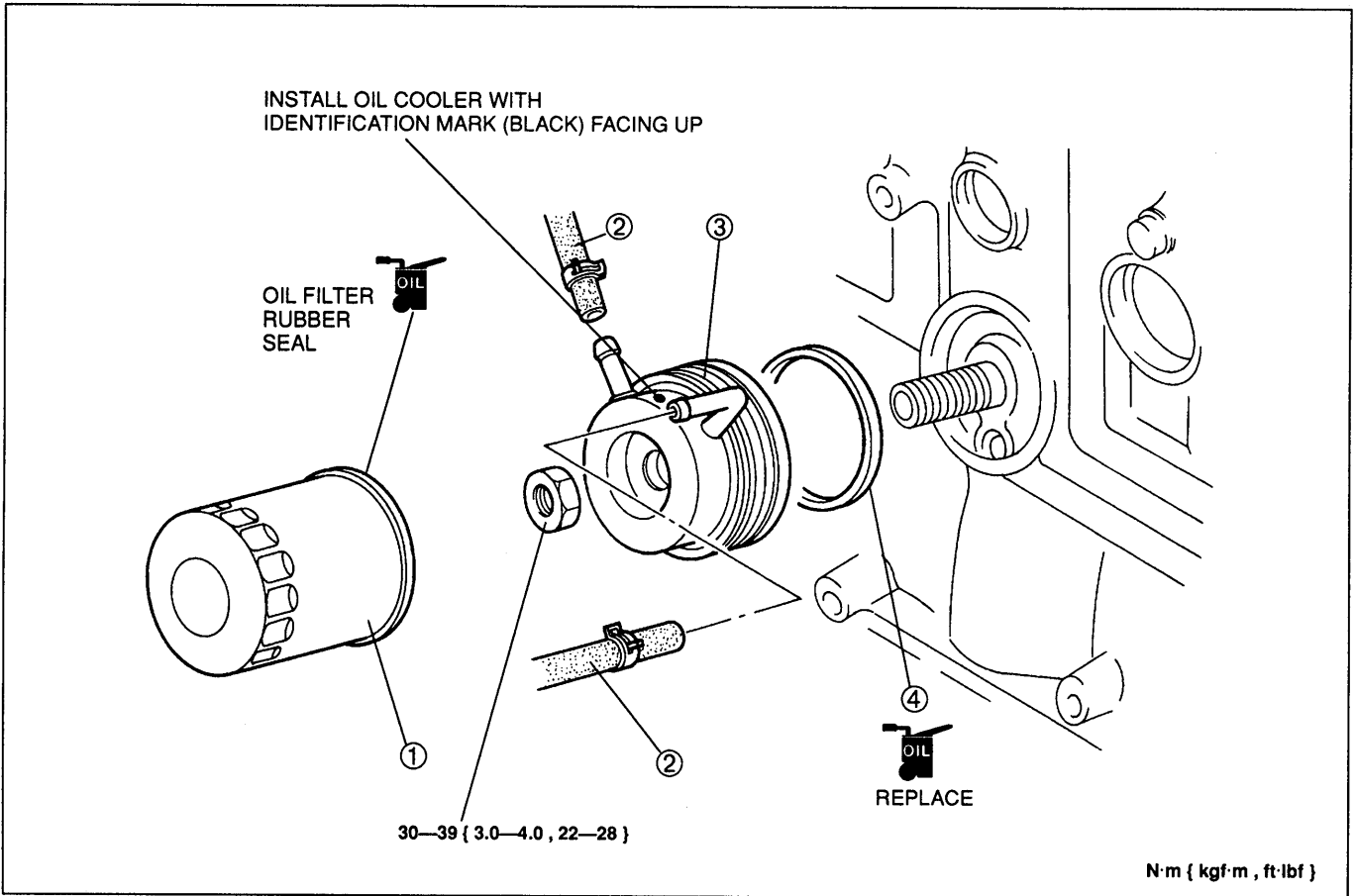
Filter wrench tightening type (No numbers printed on filter)

Tighten the filter 1 and $1/6$ turns with the filter wrench after it contacts the cylinder block.

OIL COOLER

REMOVAL / INSTALLATION

1. Disconnect the negative battery cable.
2. Drain the engine oil and engine coolant. (Refer to page D-5, section E.)
3. Remove in the order shown in the figure.
4. Install in the reverse order of removal.



- | | |
|---|---------------|
| 1. Oil filter
Replacement page D-6 | 3. Oil cooler |
| 2. Water hose | 4. O-ring |

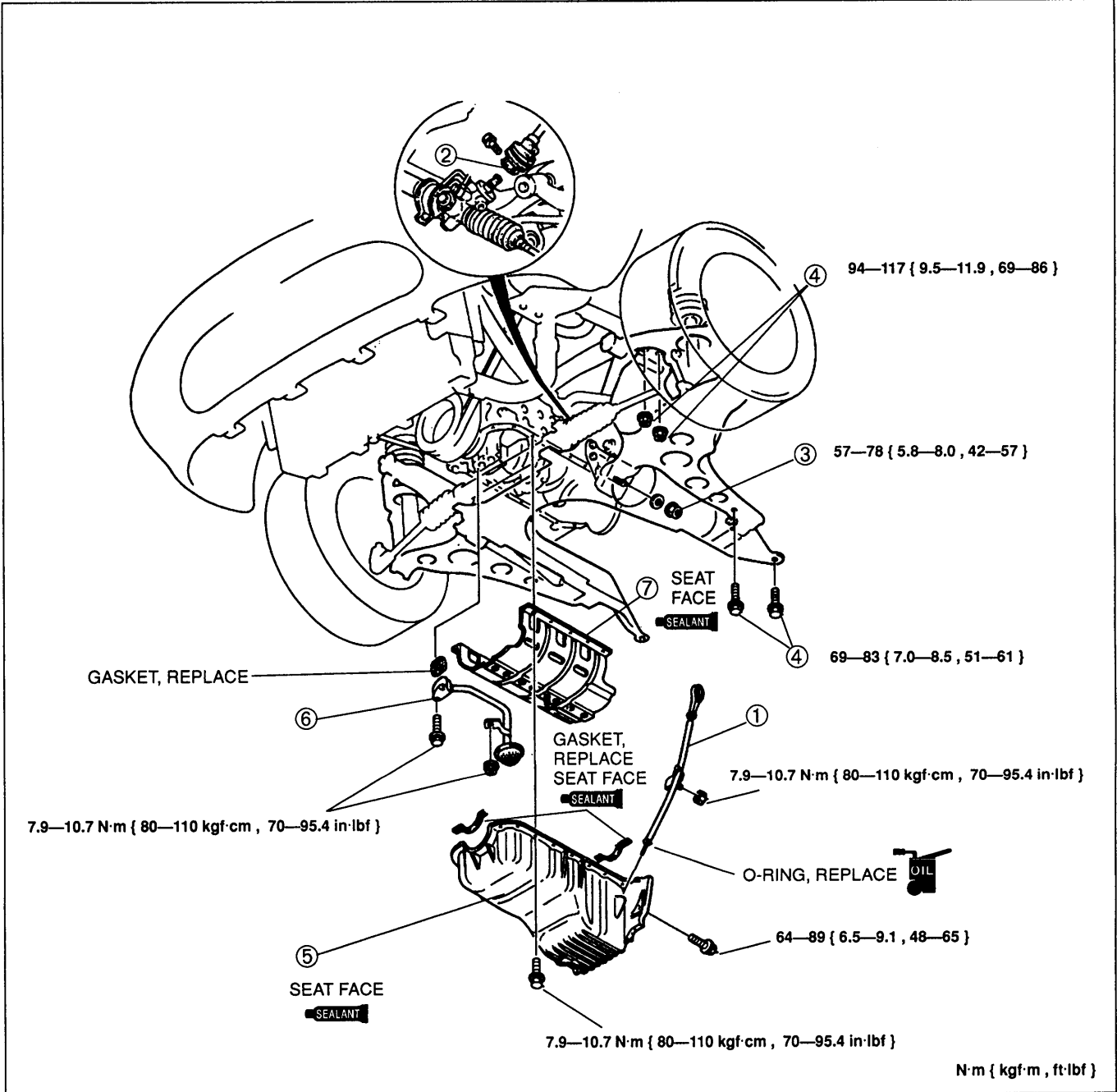
Steps After Installation

1. Fill with the specified amount and type of engine oil and engine coolant. (Refer to page D-5, section E.)
2. Start the engine and
 - (1) Check the engine oil and engine coolant leakage.
 - (2) Check the oil level and add oil if necessary.
3. Recheck the engine oil and engine coolant levels.

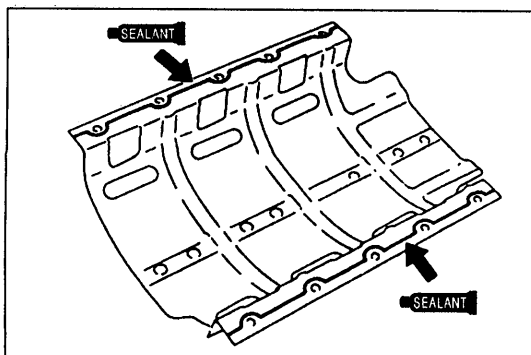
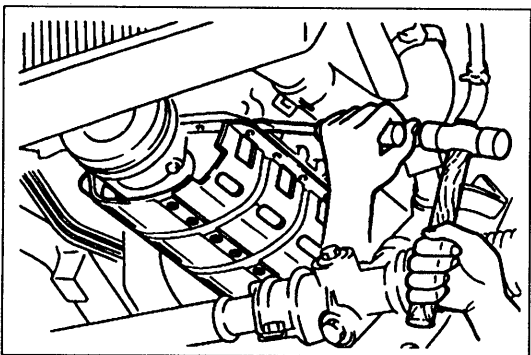
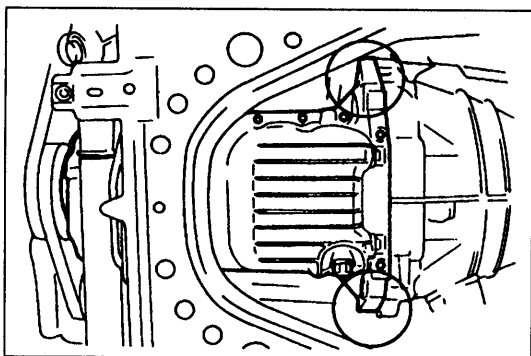
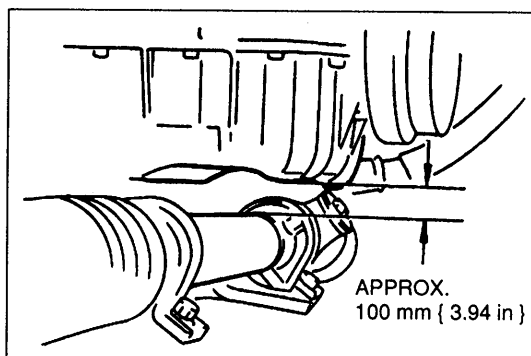
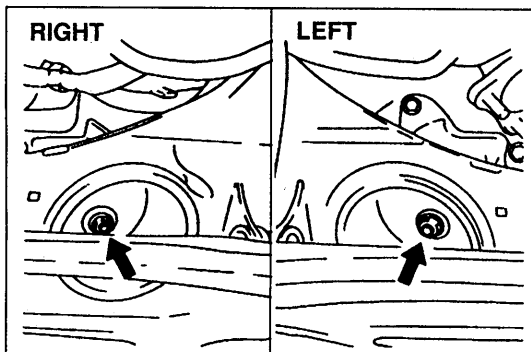
OIL PAN

REMOVAL / INSTALLATION

1. Disconnect the negative battery cable.
2. Drain the engine oil. (Refer to page D-5.)
3. Remove the splash shield.
4. Remove in the order shown in the figure, referring to **Removal Note**.
5. Install in the reverse order of removal, referring to **Installation Note**.



- | | |
|--|-----------------|
| 1. Dipstick and pipe | |
| 2. Intermediate shaft | |
| Removal / Installation | section N |
| 3. Engine mount nut | |
| Removal Note | page D- 9 |
| 4. Crossmember installation bolt and nut | |
| Removal Note | page D- 9 |
| 5. Oil pan | |
| Removal Note | page D- 9 |
| Installation Note | page D-10 |
| 6. Oil strainer | |
| 7. Oil baffle | |
| Removal Note | page D- 9 |
| Installation Note | page D- 9 |



Removal Note

Engine mount nut

1. Loosen the oil pan mounting bolts.
2. Remove the engine mounting nuts.
3. Lift the engine slightly with a hoist.

Crossmember installation bolt and nut

1. Support the crossmember with a transmission jack.
2. Remove the crossmember installation bolts and nuts.
3. Separate the steering intermediate shaft from the pinion shaft.
4. Lower the crossmember until the clearance between the oil pan and the steering gear housing exceeds **approx. 100 mm { 3.94 in }**.

Oil pan

1. Remove the oil pan mounting bolts.

Caution

- **Pry tools can easily scratch the cylinder block and the oil pan contact surfaces. Prying off the oil pan can also easily bend the oil pan flange. Refer to the following instructions before removing the oil pan.**

2. Insert a screwdriver only at the points shown in the figure.
3. Remove the oil pan.

Oil baffle

1. Insert a screwdriver between the cylinder block and the oil baffle to separate them.
2. Remove the oil baffle.

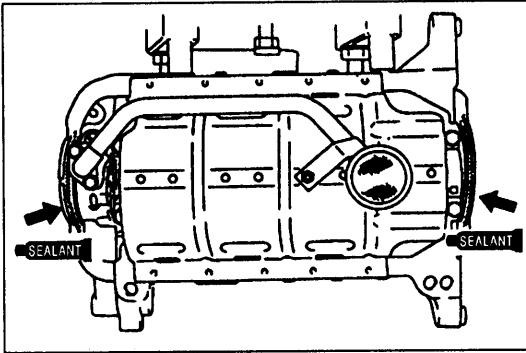
Installation Note

Oil baffle

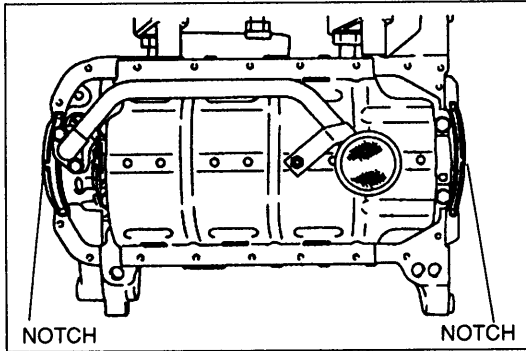
Caution

- **If the bolts are reused, remove the oil sealant from the bolt threads. Tightening a bolt that has old sealant on it can cause thread damage.**

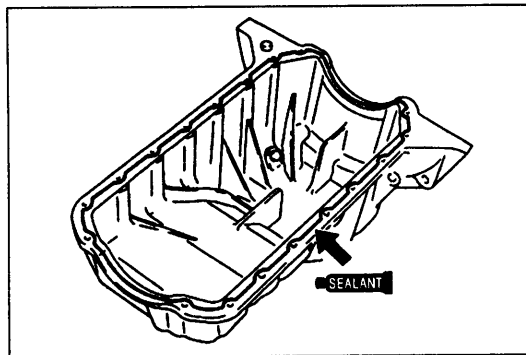
1. Remove all foreign material from the contact surfaces.
2. Apply silicone sealant to the oil baffle along the inside of the bolt holes, and install within five minutes.

**Oil pan**

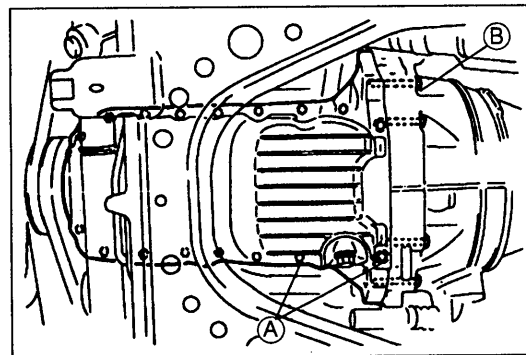
1. Remove all foreign material from the contact surfaces.
2. Apply silicone sealant to the shaded areas shown.



3. Install new gaskets onto the oil pump body and the rear cover facing the notches as shown.



4. Apply silicone sealant to the oil pan along the inside of the bolt holes and overlap the ends.



5. Install the oil pan within five minutes.

Tightening torque

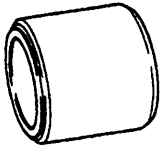
- A**: 7.9—10.7 N·m
 { 80—110 kgf·cm , 70—95.4 in·lbf }
B: 64—89 N·m { 6.5—9.1 kgf·m , 48—65 ft·lbf }

Steps After Installation

1. Install the splash shield.
2. Fill with the specified amount and type of engine oil. (Refer to page D-5.)
3. Start the engine and
 - (1) Check the engine oil leaks.
 - (2) Check the oil level and add oil if necessary.
4. Recheck the engine oil levels.

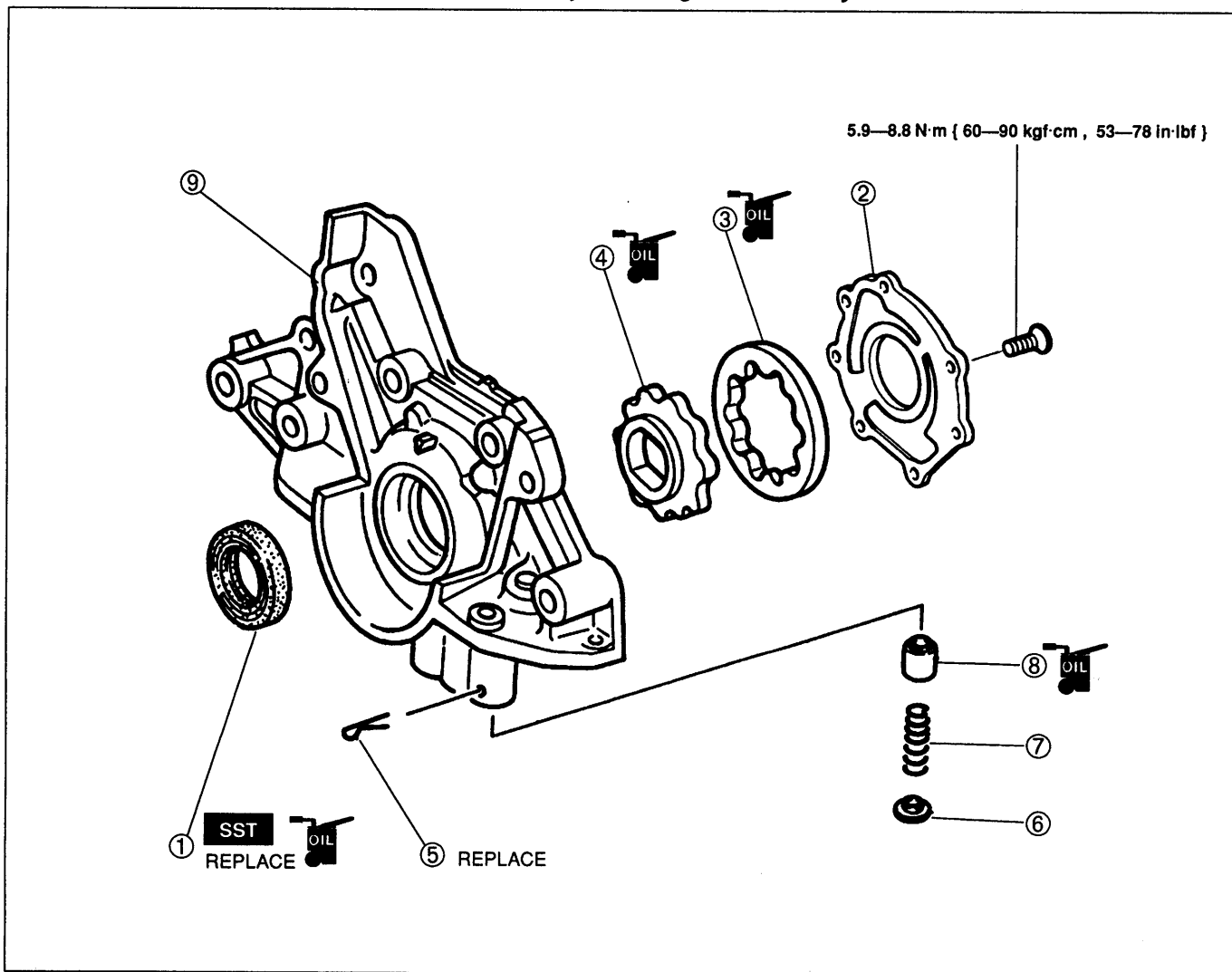
OIL PUMP

**PREPARATION
SST**

<p>49 B014 001 Installer, oil seal</p>		<p>For installation of front oil seal</p>
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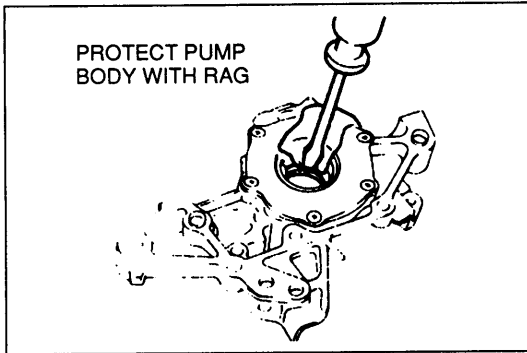
DISASSEMBLY / ASSEMBLY

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Assemble in the reverse order of disassembly, referring to **Assembly Note**.

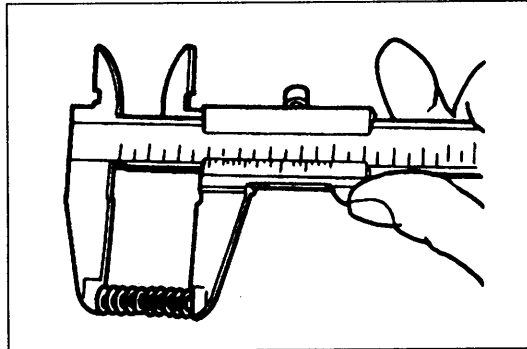


- | | |
|-------------------|-----------------|
| 1. Oil seal | |
| Disassembly Note | page D-12 |
| Assembly Note | page D-13 |
| 2. Oil pump cover | |
| 3. Outer rotor | |
| Inspection | page D-12 |
| Assembly Note | page D-13 |

- | | |
|------------------------|-----------------|
| 4. Inner rotor | |
| Inspection | page D-12 |
| Assembly Note | page D-13 |
| 5. Cotter pin | |
| 6. Oil spring seat | |
| 7. Oil pressure spring | |
| Inspection | page D-12 |
| 8. Oil control plunger | |
| 9. Oil pump body | |

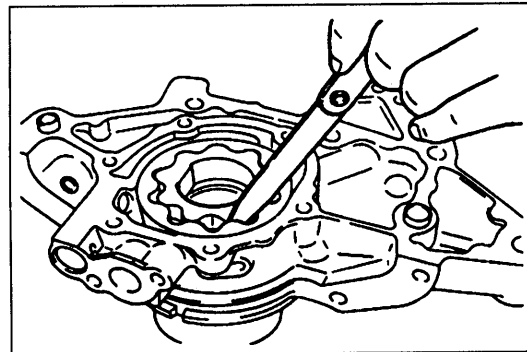
**Disassembly Note****Oil seal**

Remove the oil seal by using a screwdriver protected with a rag.

**INSPECTION****Oil Pressure Spring**

1. Inspect the spring for weakness and breakage.
2. Measure the free length. Replace the spring if necessary.

Free length: 45.94 mm { 1.809 in }

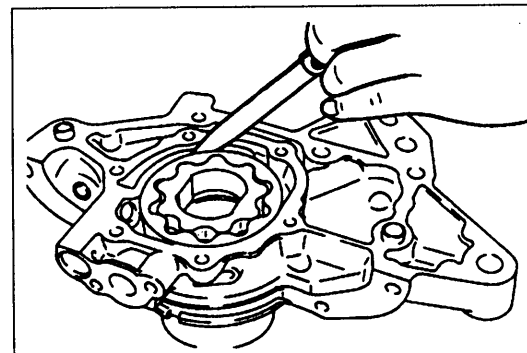
**Rotor Clearance**

Measure the following clearances. Replace the rotor if necessary.

Tooth tip clearance:

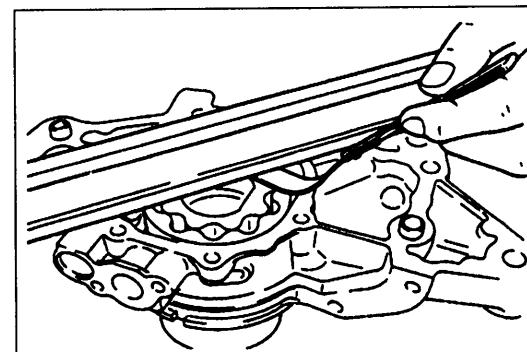
Standard: 0.02—0.18 mm { 0.0008—0.0070 in }

Maximum: 0.2 mm { 0.0079 in }

**Outer rotor-to-pump body clearance:**

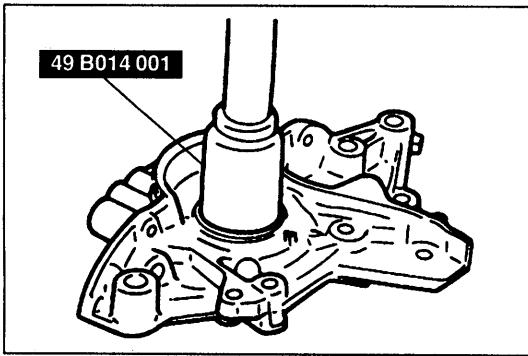
Standard: 0.09—0.18 mm { 0.0036—0.0070 in }

Maximum: 0.2 mm { 0.0079 in }

**Side clearance:**

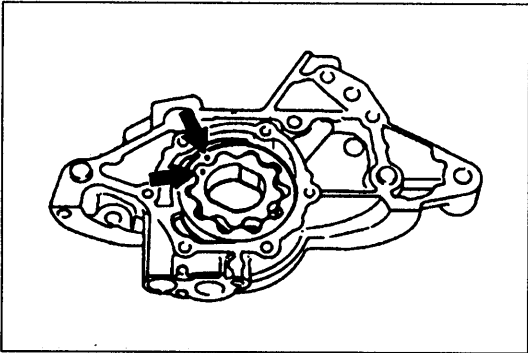
Standard: 0.03—0.12 mm { 0.0012—0.0047 in }

Maximum: 0.14 mm { 0.0055 in }

**Assembly Note****Oil seal**

1. Apply clean engine oil to the new oil seal.
2. Install the oil seal into the oil pump body by hand.
3. Press the oil seal into the oil pump body by using the SST.

Protrusion: 0.5—1.0 mm { 0.02—0.04 in }

**Inner and outer rotor**

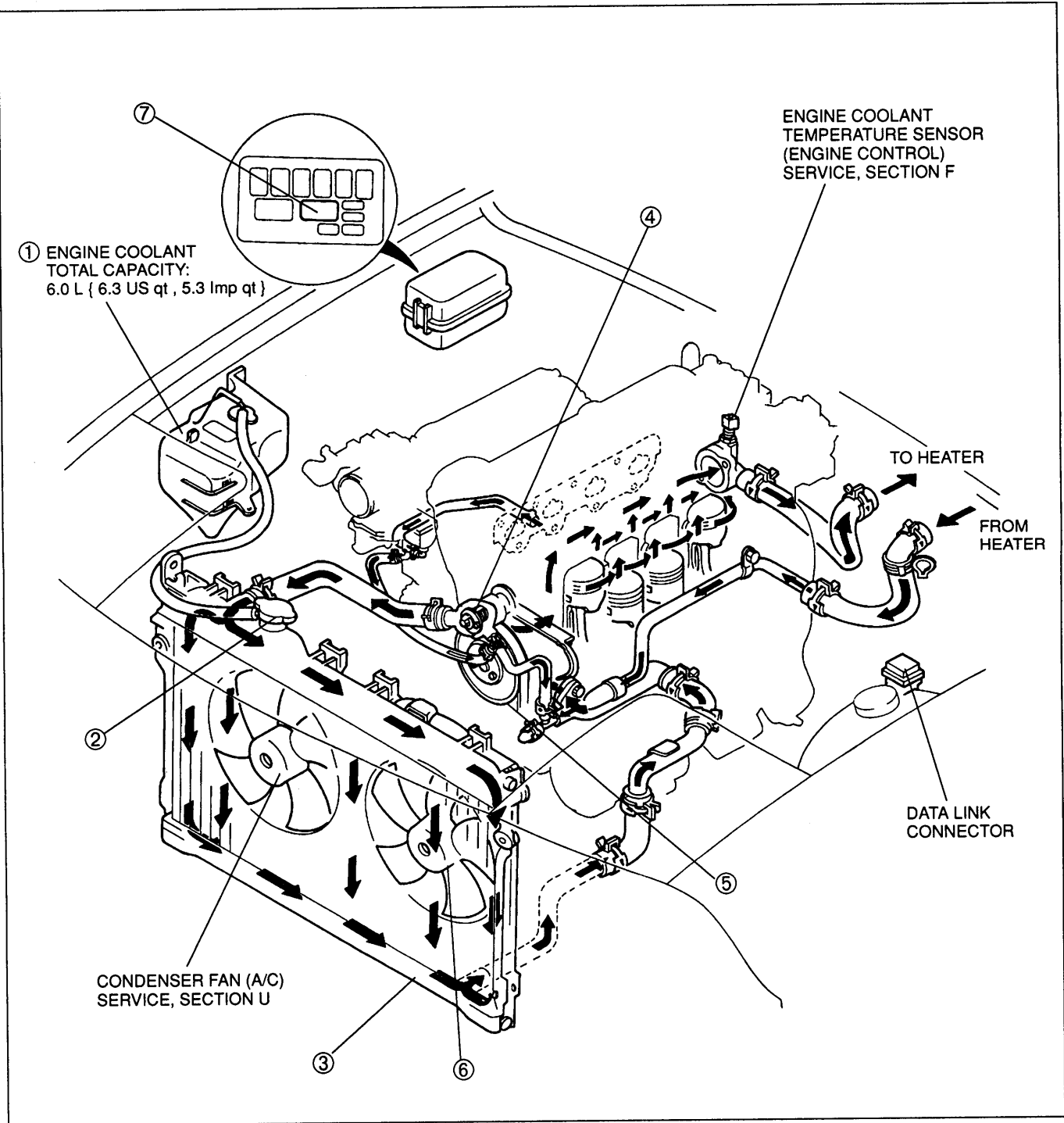
1. Apply clean engine oil the friction surface of the pump body and the rotors.
2. Install the inner and outer rotors into the oil pump body with the marks aligned as shown.

Before beginning any service procedure, refer to section T of this manual for air bag system service warnings and audio antitheft system alarm conditions.

COOLING SYSTEM

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3. Radiator		
Removal / Installation	page E-8	
Inspection	page E-8	
4. Thermostat		
Removal / Installation	page E-9	
Inspection	page E-9	
5. Water pump		
Removal / Installation	page E-10	
6. Coolant fan motor		
Inspection	page E-12	
Replacement	page E-12	
7. Coolant fan relay		
Inspection	page E-13	

OUTLINE

SPECIFICATIONS

Item		Engine	BP DOHC	
Cooling system			Water-cooled, forced circulation	
Coolant capacity		L { US qt , Imp qt }	6.0 { 6.3 , 5.3 }	
Water pump	Type		Centrifugal, V-ribbed belt driven	
	Water seal		Unified mechanical seal	
Thermostat	Type		Wax, two-stage	
	Opening temperature	°C { °F }	Main: 86.5—89.5 { 188—193 } Sub : 83.5—86.5 { 183—187 }	
	Full-open temperature	°C { °F }	100 { 212 }	
	Full-open lift	mm { in }	Main: 8.0 { 0.31 } min. Sub : 1.5 { 0.06 } min.	
Radiator	Type		Corrugated fin	
	Cap valve opening pressure	kPa { kgf/cm ² , psi }	73.6—102 { 0.75—1.05 , 10.7—14.9 }	
Coolant fan	Type		Electric	
	Blade	Outer diameter	mm { in }	320 { 12.6 }
		Number		5
	Motor	Capacity	W-V	MT: 70—12 , AT: 80—12
		Current	A	MT: 5.9+10% max , AT: 6.7+10% max

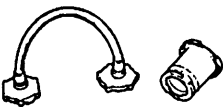
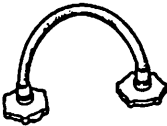
TROUBLESHOOTING GUIDE

Problem	Possible Cause	Remedy	Page
Overheating	Coolant level insufficient	Add	E- 5
	Coolant leakage	Repair	—
	Radiator fins clogged	Repair	E- 8
	Radiator cap malfunction	Replace	E- 7
	Coolant fan malfunction	Replace	E-12
	Thermostat malfunction	Replace	E- 9
	Water passage clogged	Clean	E- 5
	Water pump malfunction	Replace	E-10
Corrosion	Impurities in coolant	Replace	E- 5

ENGINE COOLANT

PREPARATION

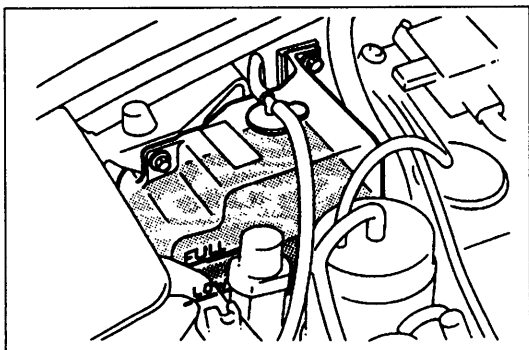
SST

<p>49 9200 145</p> <p>Adapter set, radiator cap tester</p> 	<p>For inspection of cooling system pressure</p>	<p>49 9200 146</p> <p>Adapter A (Part of 49 9200 145)</p> 	<p>For inspection of cooling system pressure</p>
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INSPECTION

Warning

- Removing the radiator cap or the coolant drain plug while the engine is running, or when the engine and radiator are hot is dangerous. Scalding coolant and steam may shoot out and cause serious injury. It may also damage the engine and cooling system. Turn off the engine and wait until it is cool. Even then, be very careful when removing the cap. Wrap a thick cloth around it and slowly turn it counterclockwise to the first stop. Step back while the pressure escapes. When you're sure all the pressure is gone, press down on the cap — still using a cloth — turn it, and remove it.

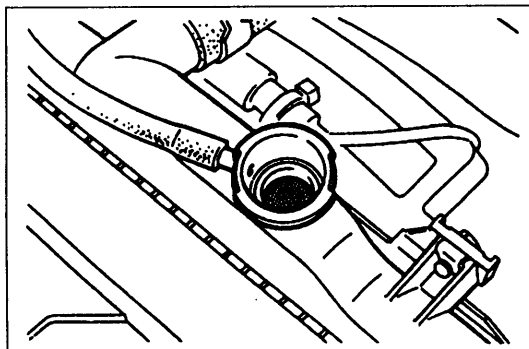


Coolant Level (Engine Cold)

1. Verify that the coolant level is near the radiator filler neck.
2. Verify that the coolant level in the coolant reservoir is between the FULL and LOW marks. Add coolant if necessary.

Note

- The distance between the LOW and FULL marks on the coolant reservoir represents 4.5 L { 4.8 US qt , 4.0 Imp qt }.



Coolant Quality

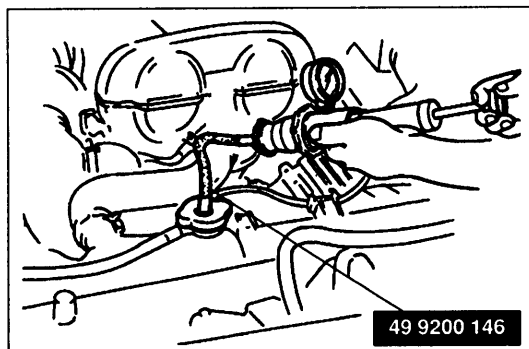
1. Verify that there is no buildup of rust or scale around the radiator cap or radiator filler neck.
2. Verify that the coolant is free of oil. Replace the coolant if necessary.

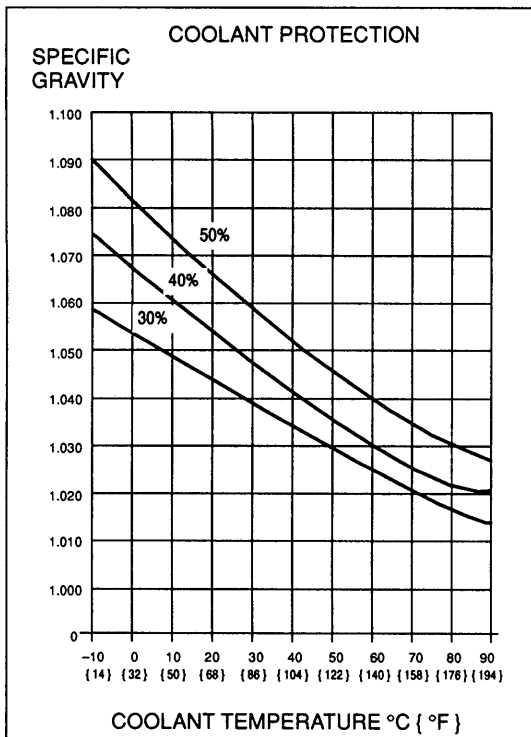
Coolant Leakage

1. Connect a radiator tester and the SST to the radiator filler neck.

Caution

- Applying more than 103 kPa { 1.05 kgf/cm² , 14.9 psi } can damage the hoses, fittings, and other components, and cause leaks.
2. Apply 103 kPa { 1.05 kgf/cm² , 14.9 psi } pressure to the system.
 3. Verify that the pressure is held. If not, check for coolant leakage.





Coolant Protection

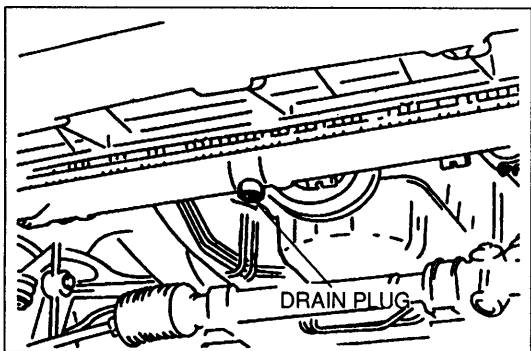
Caution

- The engine has aluminum parts that can be damaged by alcohol or methanol antifreeze. Do not use alcohol or methanol in the cooling system. Use only ethylene-glycol-based coolant.
- Use only soft (demineralized) water in the coolant mixture. Water that contains minerals will cut down on the coolant's effectiveness.

1. Measure the coolant temperature and specific gravity by using a thermometer and a hydrometer.
2. Determine the coolant protection by referring to the graph shown. If the coolant protection is not proper, add water or coolant as necessary.

Antifreeze solution mixture percentage

Coolant protection	Volume percentage		Gravity at 20 °C { 68 °F }
	Water	Coolant	
Above -16 °C { 3 °F }	65	35	1.054
Above -26 °C { -15 °F }	55	45	1.066
Above -40 °C { -40 °F }	45	55	1.078



REPLACEMENT

Draining

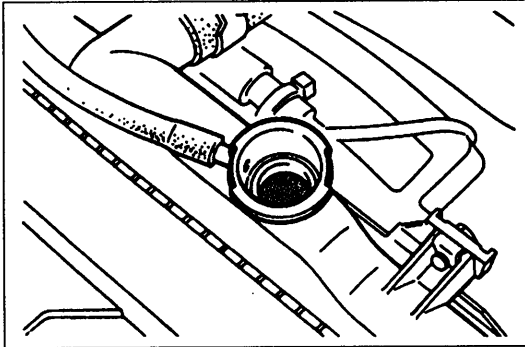
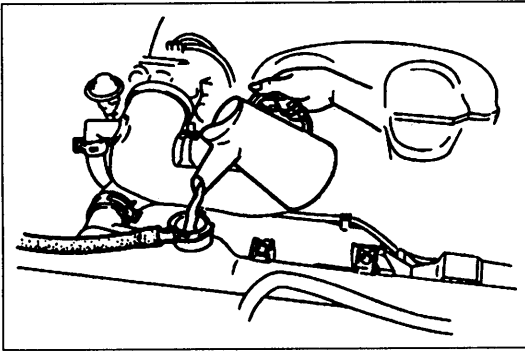
Warning

- Removing the radiator cap or the coolant drain plug while the engine is running, or when the engine and radiator are hot is dangerous. Scalding coolant and steam may shoot out and cause serious injury. It may also damage the engine and cooling system.

Turn off the engine and wait until it is cool. Even then, be very careful when removing the cap. Wrap a thick cloth around it and slowly turn it counterclockwise to the first stop. Step back while the pressure escapes.

When you're sure all the pressure is gone, press down on the cap — still using a cloth — turn it, and remove it.

1. Remove the radiator cap and loosen the drain plug.
2. Drain the coolant into a container.
3. Flush the cooling system with water until all traces of color are gone, then let the system drain completely.
4. Install the drain plug.



REFILLING

Use the proper amount and mixture of ethylene-glycol based coolant. (Refer to Coolant Protection, page E-5.)

1. Slowly pour the coolant into the radiator up to the coolant filler port.

Filling pace:

1.0 L { 1.1 US qt , 0.9 Imp qt }/min. max

2. Fill the coolant reservoir up to the FULL level.
3. Fully install the radiator cap.
4. Start the engine and let it idle until it warms up.
5. If the temperature increases beyond normal, there is excessive air in the system. Stop the engine and allow it to cool; then repeat step 1—3.
6. Run the engine at 2,200—2,800 rpm for five seconds; repeat several times.
7. Stop the engine and allow it to cool.

Warning

- Remove the radiator cap or the coolant drain plug while the engine is running, or when the engine and radiator are hot is dangerous. Scalding coolant and steam may shoot out and cause serious injury. It may also damage the engine and cooling system.

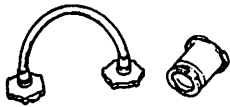

Turn off the engine and wait until it is cool. Even then, be very careful when removing the cap. Wrap a thick cloth around it and slowly turn it counterclockwise to the first stop. Step back while the pressure escapes.

When you're sure all the pressure is gone, press down on the cap — still using a cloth — turn it, and remove it.

8. Remove the radiator cap and check the coolant level. If the coolant level has dropped, repeat the procedure from step 1.

RADIATOR CAP

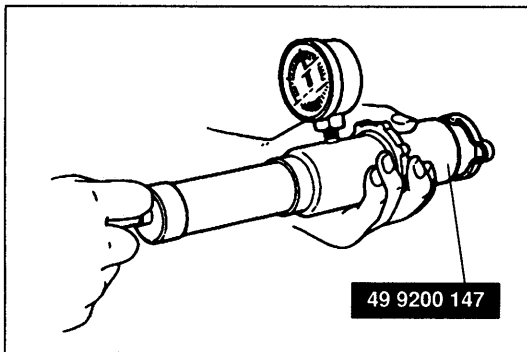
PREPARATION
SST

<p>49 9200 145</p> <p>Adapter set, radiator cap tester</p> 	<p>For inspection of radiator cap valve</p>	<p>49 9200 147</p> <p>Adapter B (Part of 49 9200 145)</p> 	<p>For inspection of radiator cap valve</p>
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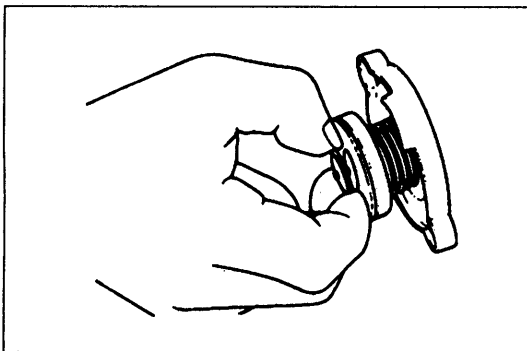
INSPECTION

Warning

- Remove the radiator cap or the coolant drain plug while the engine is running, or when the engine and radiator are hot is dangerous. Scalding coolant and steam may shoot out and cause serious injury. It may also damage the engine and cooling system. Turn off the engine and wait until it is cool. Even then, be very careful when removing the cap. Wrap a thick cloth around it and slowly turn it counterclockwise to the first stop. Step back while the pressure escapes. When you're sure all the pressure is gone, press down on the cap — still using a cloth — turn it, and remove it.

**Radiator Cap Valve**

1. Remove foreign material (such as water residue) from between the radiator cap valve and the valve seat.
2. Attach the radiator cap to a radiator cap tester by using the SST. Apply pressure gradually to 73.6—102 kPa { 0.75—1.05 kgf/cm², 10.7—14.9 psi }.
3. Verify that the pressure is held at least **10 seconds**.

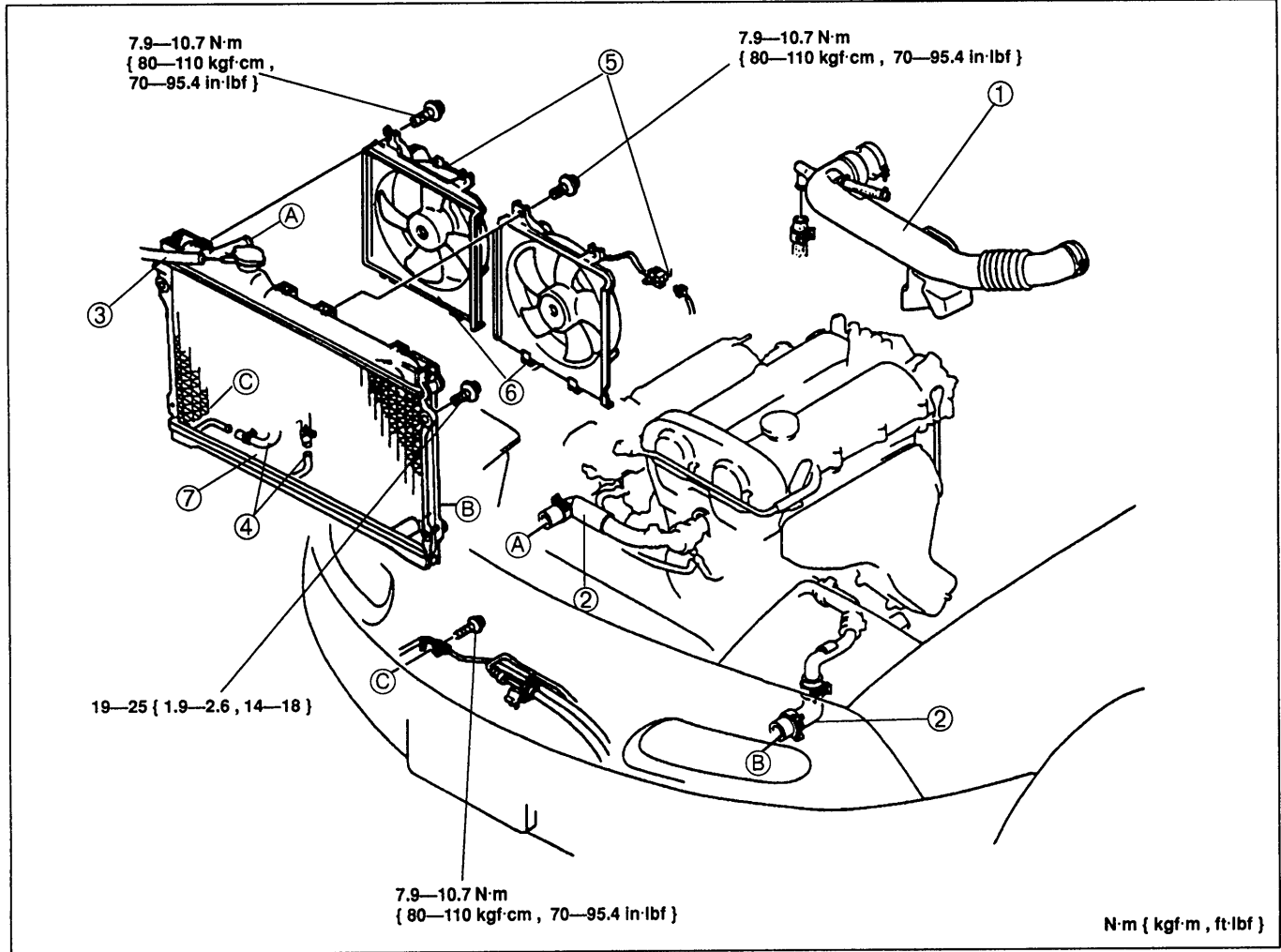
**Negative Pressure Valve**

1. Pull the negative pressure valve to open it. Verify that it closes completely when released.
2. Check for damage on the contact surfaces and for cracked or deformed seal packing.
3. Replace the radiator cap if necessary.

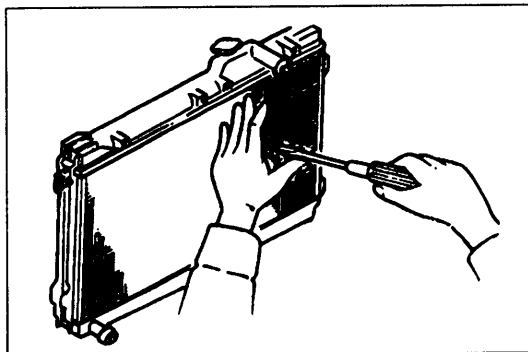
RADIATOR

REMOVAL / INSTALLATION

1. Disconnect the negative battery cable.
2. Drain the engine coolant. (Refer to page E-5.)
3. Remove the splash shield.
4. Remove in the order shown in the figure.
5. Install in the reverse order of removal.



- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Air intake pipe 2. Radiator hose 3. Coolant reservoir hose 4. Oil cooler hose (AT) | <ol style="list-style-type: none"> 5. Coolant fan motor connector, condenser fan motor connector 6. Coolant fan, condenser fan 7. Radiator <p style="text-align: right;">Inspection below</p> |
|--|--|



INSPECTION

Check for the following and repair or replace as necessary.

1. Cracks, damage, and water leakage
2. Bent fins (Repair with a screwdriver.)
3. Distorted or bent radiator inlet

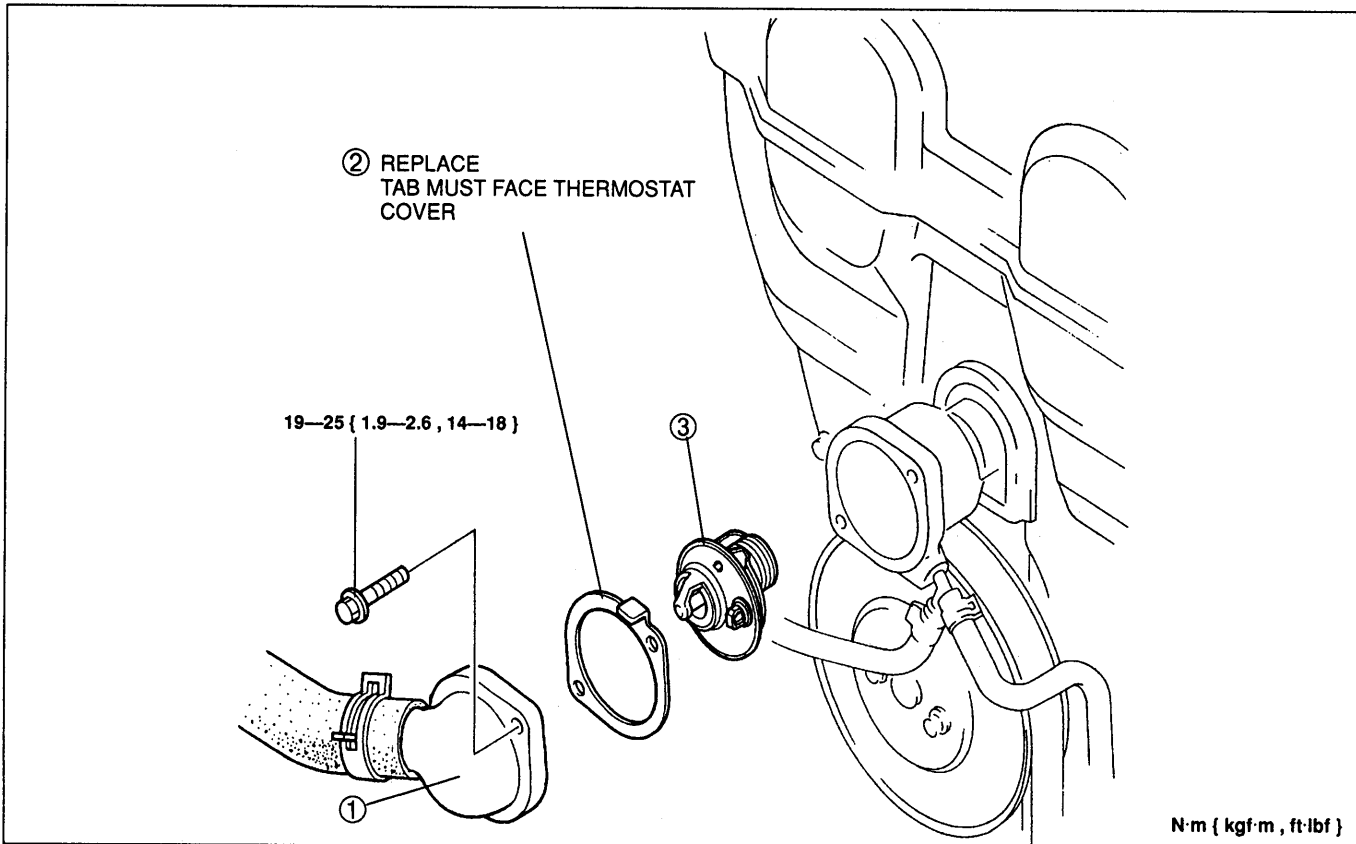
Steps After Installation

1. Install the splash shield.
2. Fill the radiator with the specified amount and type of engine coolant. (Refer to page E-6.)
3. Check for leaks.

THERMOSTAT

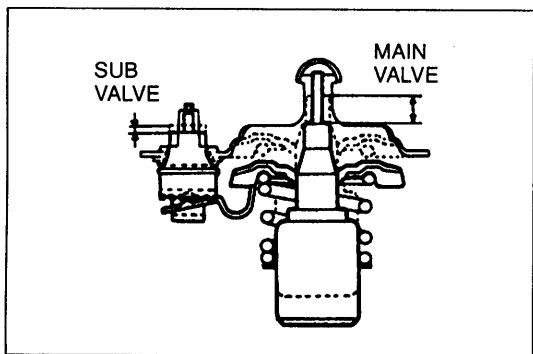
REMOVAL / INSTALLATION

1. Disconnect the negative battery cable.
2. Drain the engine coolant. (Refer to page E-5.)
3. Remove in the order shown in the figure.
4. Install in the reverse order of removal.



1. Thermostat cover
2. Thermostat cover gasket

3. Thermostat
Inspection below



INSPECTION

1. Visually check that the thermostat valve is airtight.
2. Place the thermostat and a thermometer in water.
3. Heat the water and check the following:

Initial-opening temperature

Main: 86.5—89.5 °C { 188—193 °F }

Sub: 83.5—86.5 °C { 183—187 °F }

Full-open temperature: 100 °C { 212 °F }

Full-open lift

Main: 8.0 mm { 0.31 in } min.

Sub: 1.5 mm { 0.06 in } min.

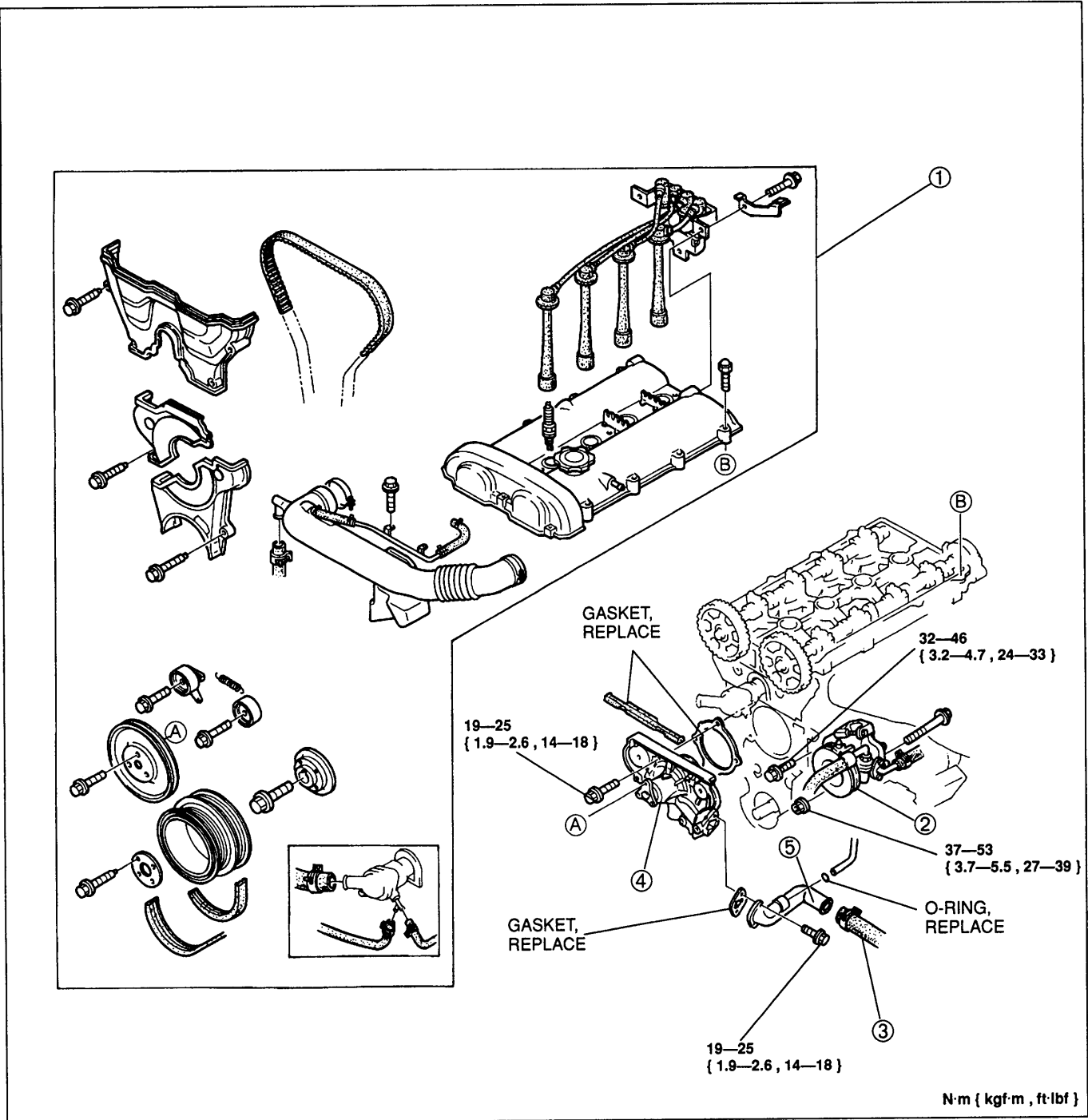
Steps After Installation

1. Connect the negative battery cable.
2. Fill the radiator with the specified amount and type of engine coolant. (Refer to page E-6.)
3. Check for leaks.

WATER PUMP

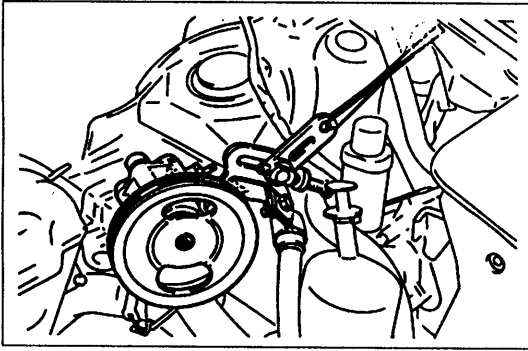
REMOVAL / INSTALLATION

1. Disconnect the negative battery cable.
2. Drain the engine coolant. (Refer to page E-5.)
3. Remove in the order shown in the figure, referring to **Removal Note**.
4. Install in the reverse order of removal.



1. Timing belt
Service section B
2. P/S oil pump
Removal Note page E-11
3. Water hose

4. Water pump
Inspect for cracks, damaged mounting surface, bearing condition, and leakage. If the water pump is damaged, replace it. Do not repair it.
5. Water inlet pipe

**Removal Note
P/S oil pump**

1. Remove the P/S oil pump with the hoses still connected.
2. Position the pump away from the water pump and affix it with wire.

Steps After Installation

1. Fill the radiator with the specified amount and type of engine coolant. (Refer to page E-6.)
2. Check for leaks.

COOLANT FAN MOTOR

INSPECTION

1. Check that the battery is fully charged.
2. Disconnect the coolant fan motor connector.

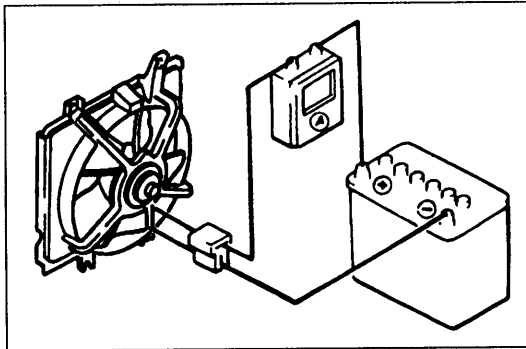
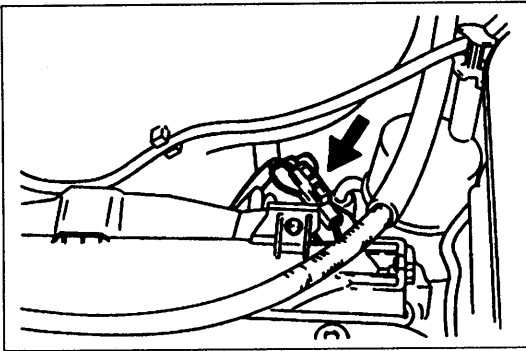
3. Connect the battery and an ammeter to the coolant fan motor connector.
4. Verify that current is as specified.

Current (A)

MT: 5.9 + 10% MAX

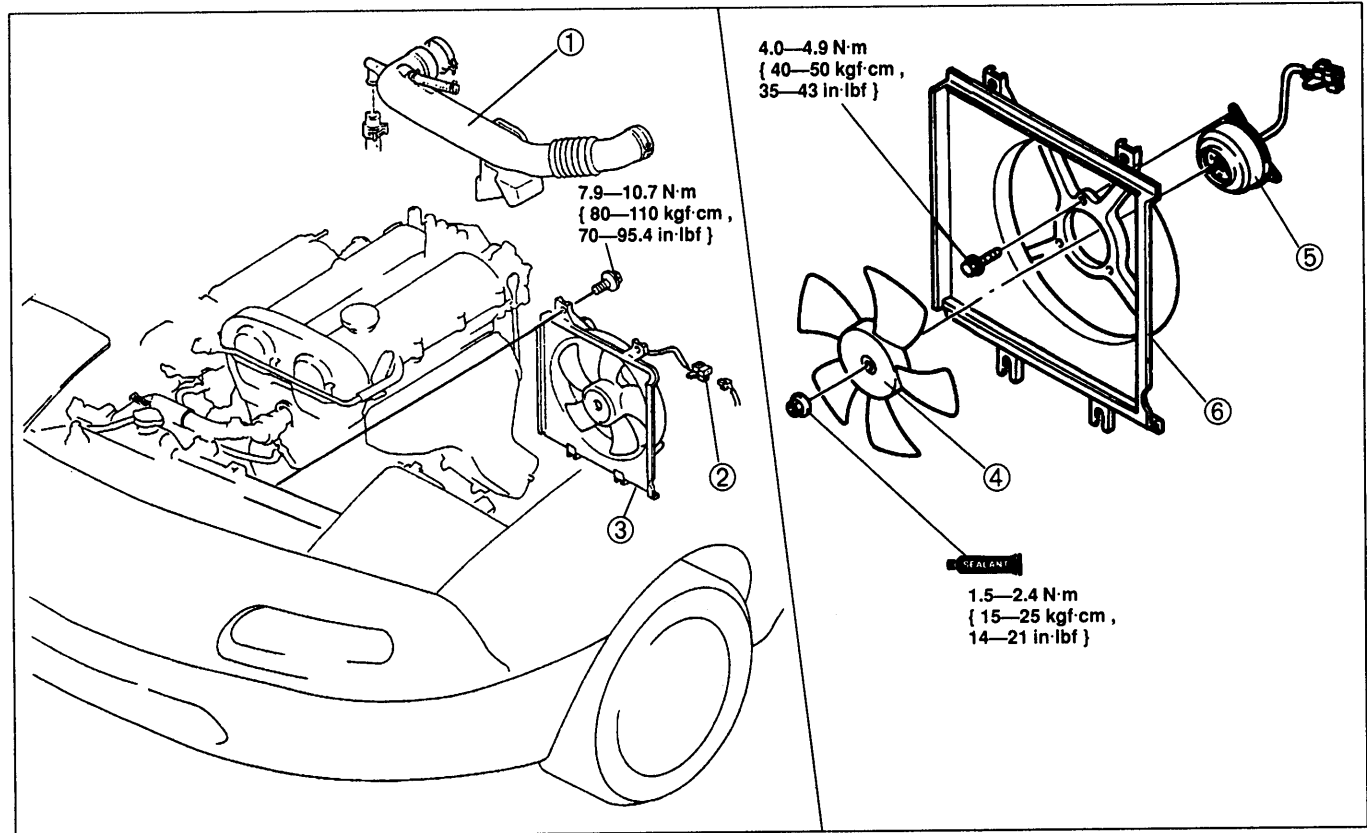
AT: 6.7 + 10% MAX

5. If current is not within the specification and/or the coolant fan does not turn smoothly, replace the coolant fan motor.



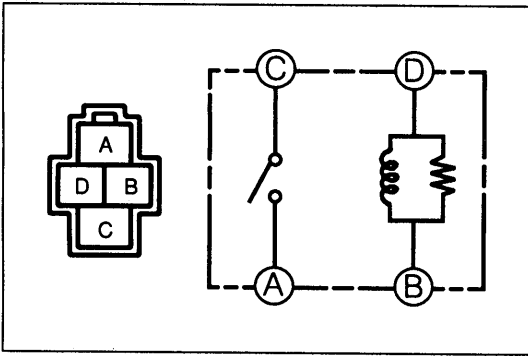
REPLACEMENT

1. Disconnect the negative battery cable.
2. Remove in the order shown in the figure.
3. Install in the reverse order of removal.



1. Air intake pipe
2. Coolant fan motor connector
3. Coolant fan assembly

4. Coolant fan blade
5. Coolant fan motor
6. Coolant fan cowling

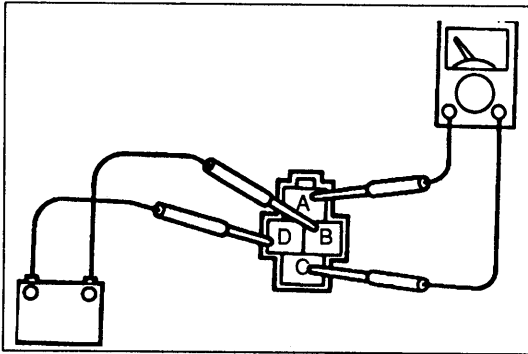


COOLANT FAN RELAY

INSPECTION

1. Check continuity as shown by using an ohmmeter.

Terminal	Continuity
A—C	No
B—D	Yes



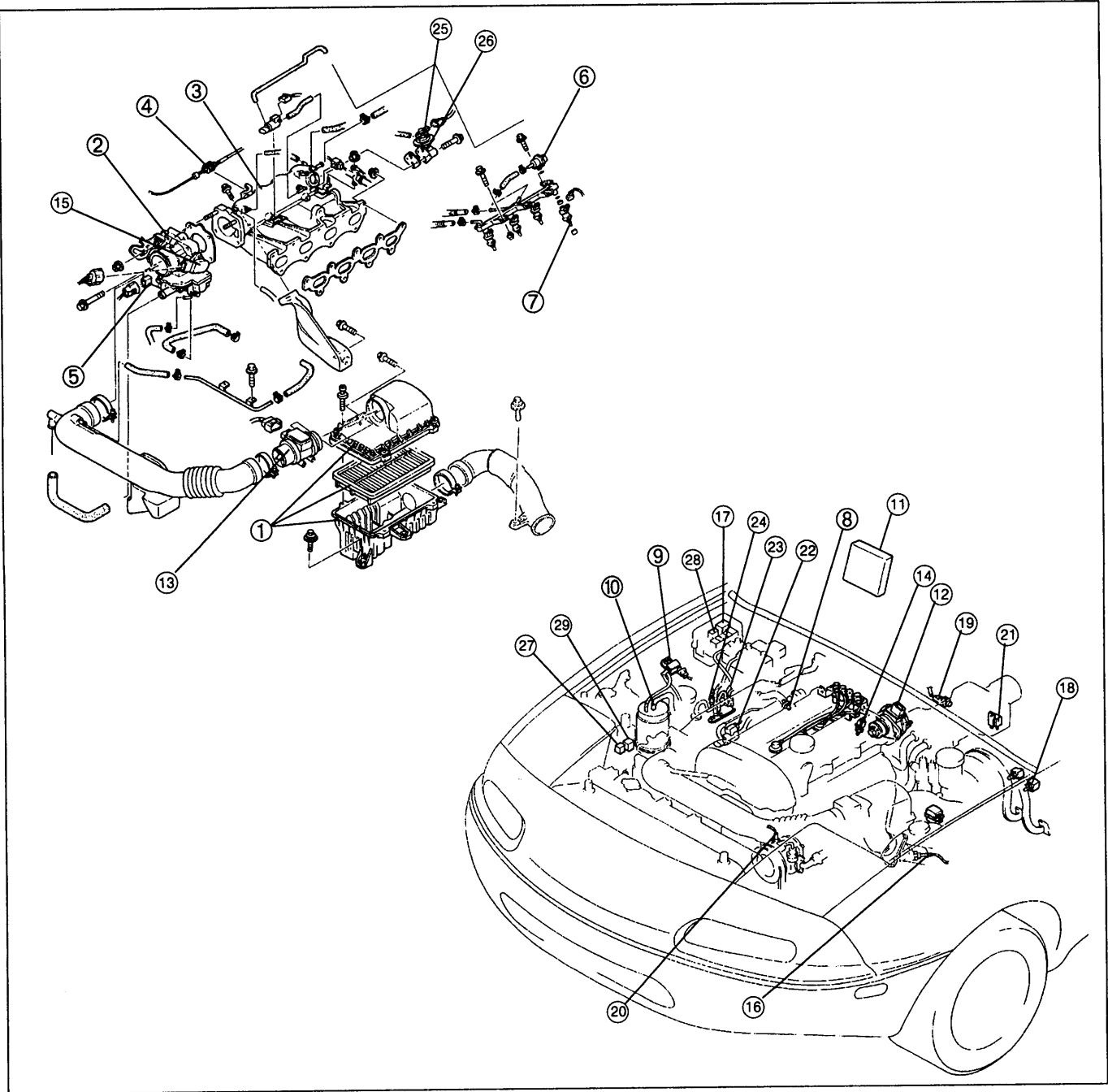
2. Apply battery positive voltage between terminals B and D.
Check for continuity between terminals A and C.
3. If there is no continuity replace the coolant fan relay.

Before beginning any service procedure, refer to section T of this manual for air bag system service warnings and audio antitheft system alarm conditions.

FUEL AND EMISSION CONTROL SYSTEMS

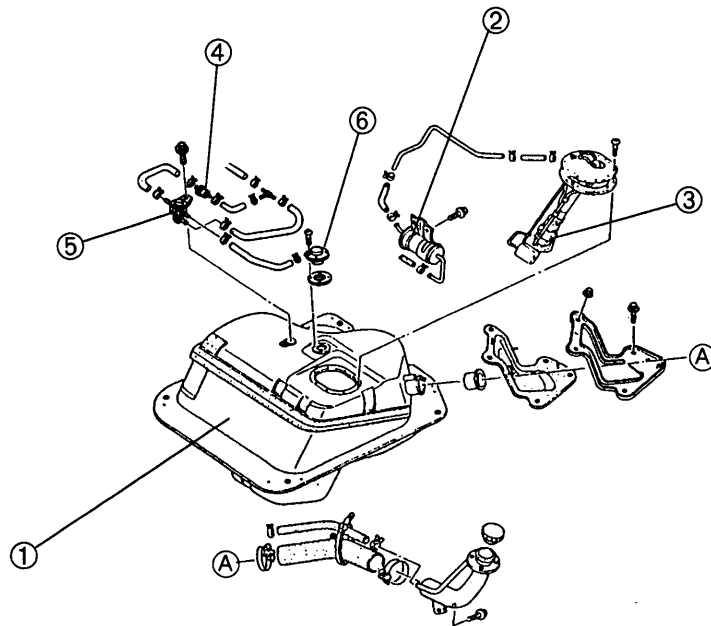
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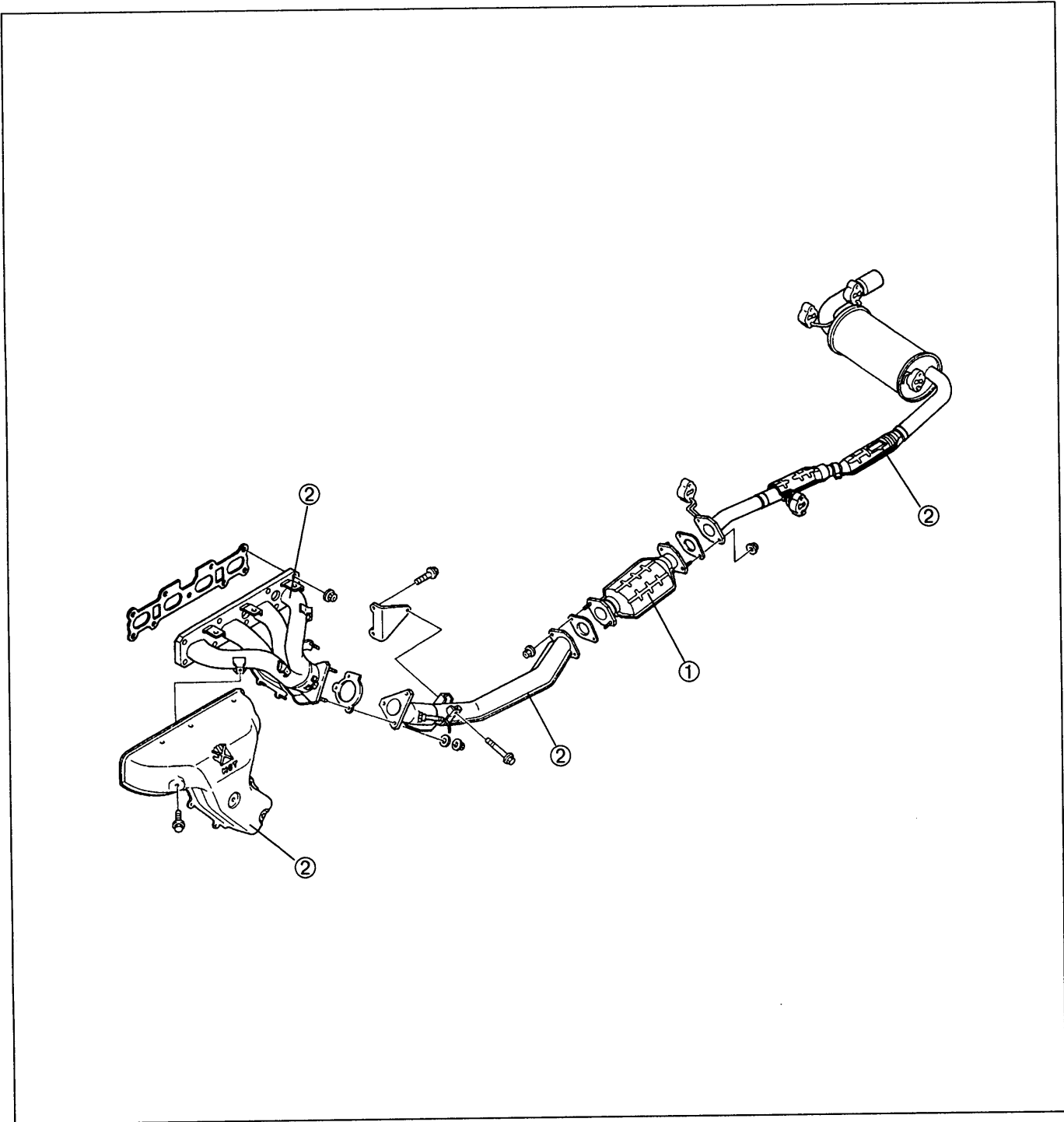


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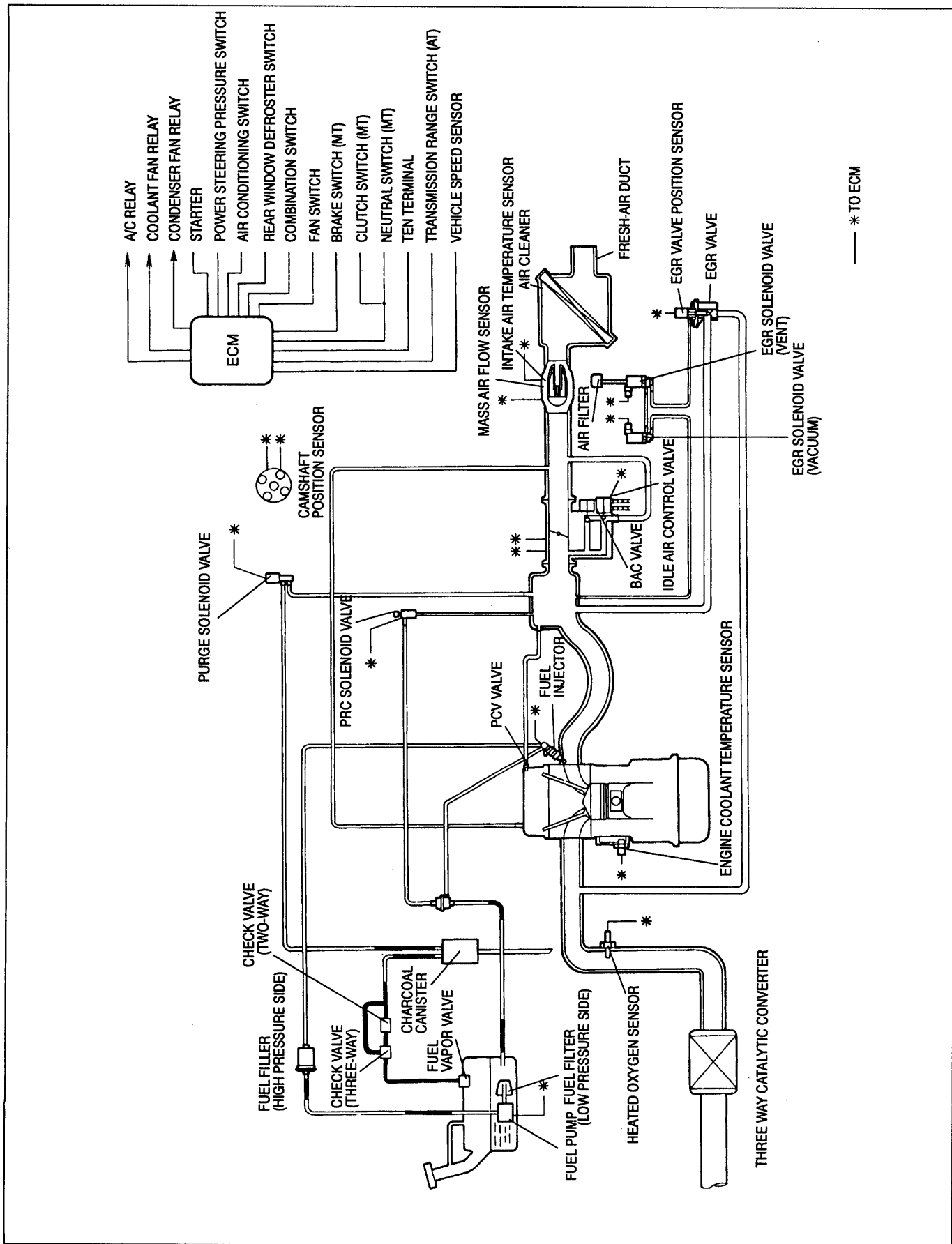


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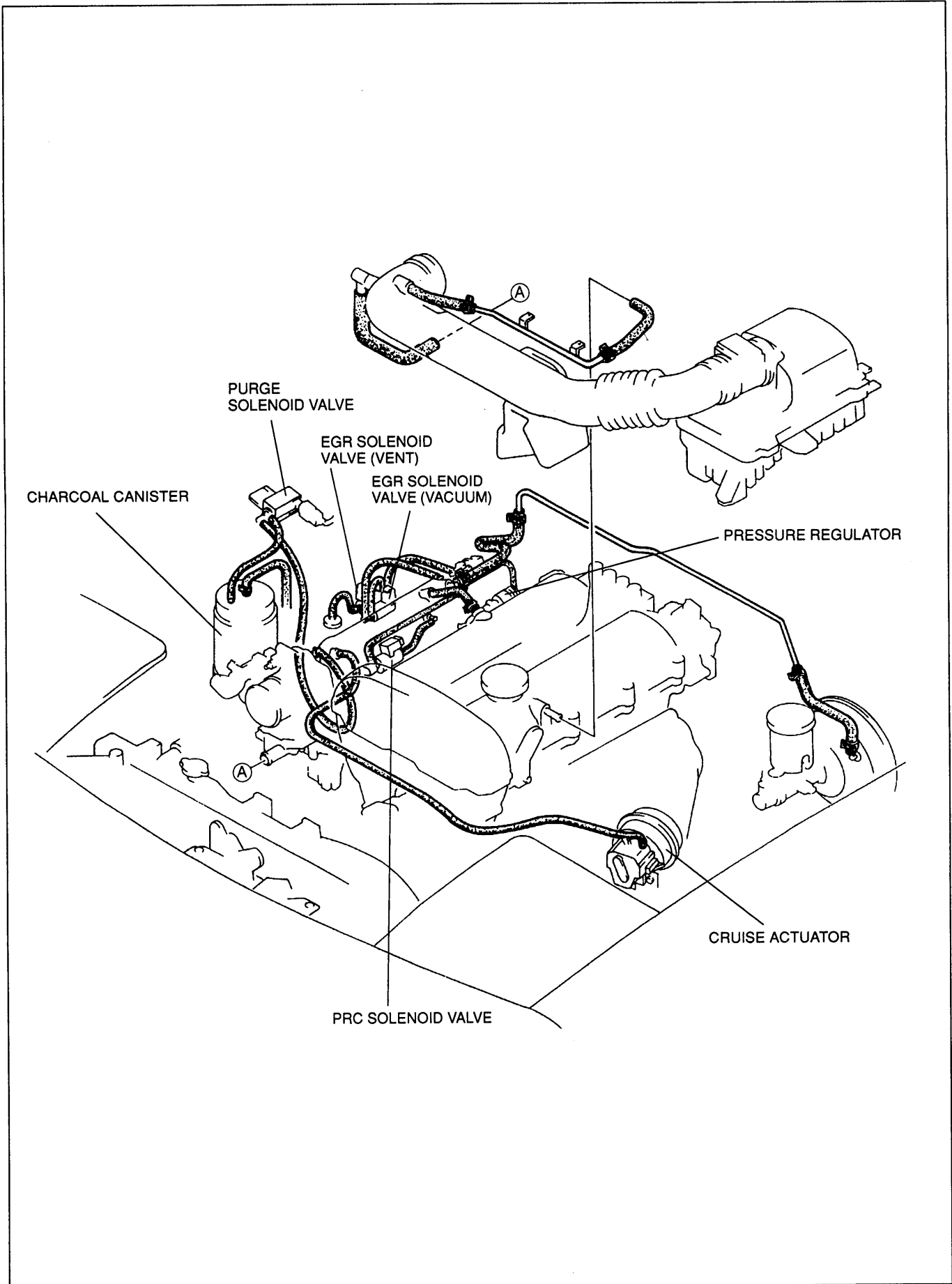
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OUTLINE

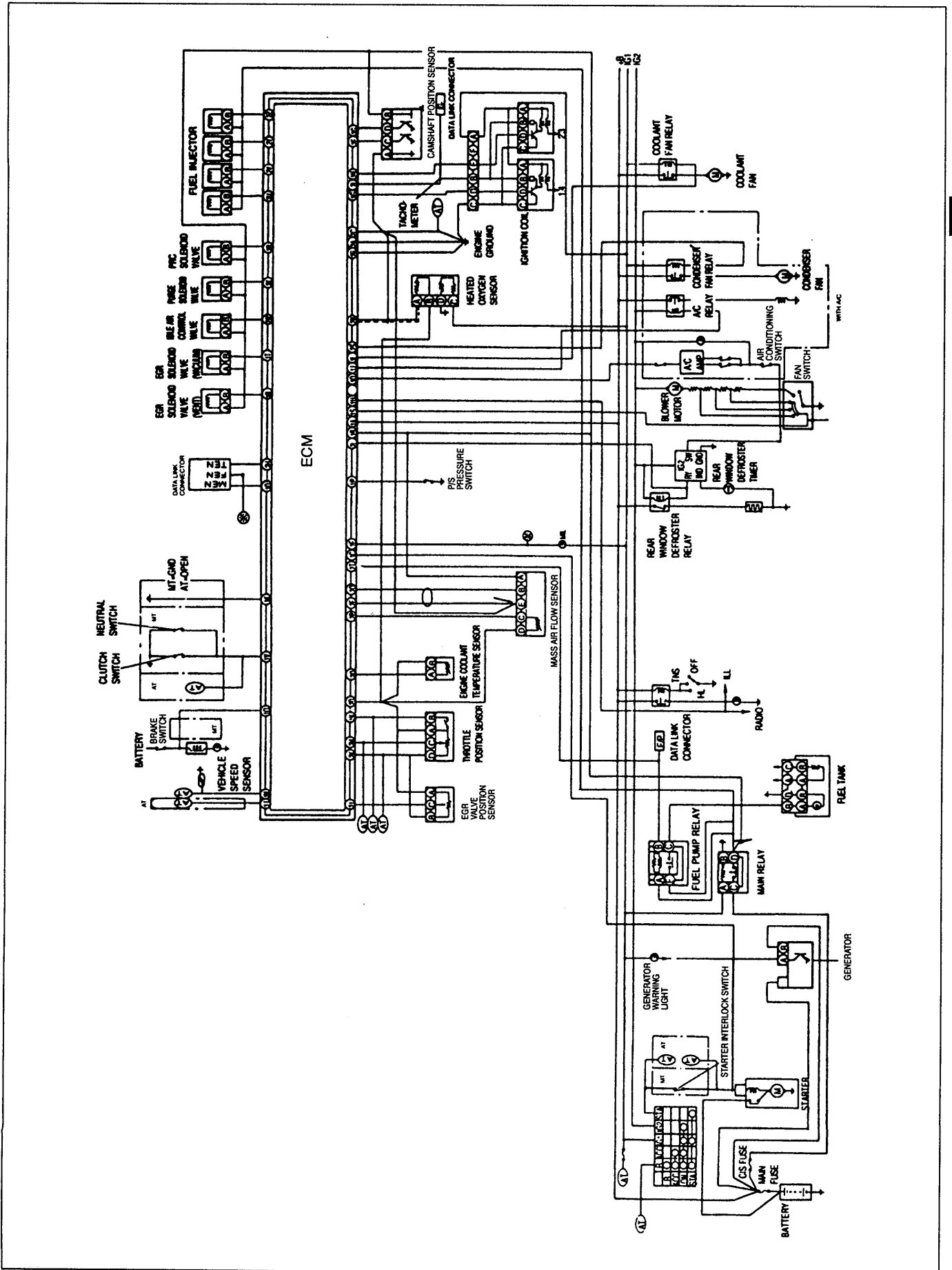
SYSTEM DIAGRAM



VACUUM HOSE ROUTING DIAGRAM



WIRING DIAGRAM



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SPECIFICATIONS

Item		Specification
Idle speed	rpm	850 ± 50 [MT]*, 800 ± 50 [AT]*
Ignition timing	BTDC	9°—11° (10° ± 1°)*
Throttle body		
Throat diameter	mm { in }	55 { 2.2 }
Fuel pump		
Type		Impeller (in-tank)
Output pressure	kPa { kgf/cm ² , psi }	480—657 { 4.9—6.7 , 69—95 }
Fuel filter		
Type	Low pressure side	Nylon element
	High pressure side	Paper element
Pressure regulator		
Type		Diaphragm
Regulating pressure	kPa { kgf/cm ² , psi }	265—314 { 2.7—3.2 , 38—46 }
Fuel injector		
Type		High-ohmic
Type of drive		Voltage
Resistance	Ω 20 °C { 68 °F }	12—16
Idle air control valve		
Solenoid resistance	Ω 20 °C { 68 °F }	10.7—12.3
Air valve		
Opening temperature		Below 40 °C { 104 °F }
Purge solenoid valve		
Solenoid resistance	Ω 20 °C { 68 °F }	23—27
Camshaft position sensor		
Type		Hall effect
Engine coolant temperature sensor		
Resistance	kΩ 20 °C { 68 °F }	2.21—2.69
	80 °C { 179 °F }	0.287—0.349
Fuel tank		
Capacity	L { US gal , Imp gal }	48 { 12.7 , 10.5 }
Air cleaner		
Element type		Oil permeated
Accelerator cable		
Free play	mm { in }	1—3 { 0.039—0.118 }
Fuel		
Specification		Unleaded regular (RON 87 or higher)

*... With System Selector (49 B019 9A0) test switch at SELF TEST.

COMPONENT DESCRIPTIONS

Component	Function	Remark
Air cleaner	Filters air entering throttle body	
Air valve	When cold, supplies bypass air into dynamic chamber	<ul style="list-style-type: none"> • Engine speed increased to shorten warm-up period • Thermowax type
Barometric pressure sensor	Detects barometric pressure; sends signal to engine control module	Built in ECM
Brake switch	Detects braking operation (deceleration); sends signal to engine control module	
Charcoal canister	Stores gas tank fumes while engine stopped	
Closed throttle position switch	Detects idle condition; sends signal to ECM	Installed in throttle position sensor
Clutch switch (MT)	Detects in-gear condition; sends signal to engine control module	Switch OFF when clutch pedal released
Camshaft position sensor		
SGC signal	Detects No.1 cylinder TDC; sends signal to engine control module	
SGT signal	Detects crank angle at 180° intervals; sends signal to engine control module	
Data link connector	Concentrated service connector Concentrated terminals are: 1. CIS on-board diagnosis terminal 2. Initial set terminal 3. Fuel pump check terminal	21-pin
Dynamic chamber	Interconnects all cylinders	
Engine coolant temperature sensor	Detects coolant temperature; sends signal to engine control module	
Engine control module (ECM)	<p>Detects following:</p> <ol style="list-style-type: none"> 1. A/C operation 2. Air/fuel ratio (Oxygen concentration) 3. Barometric pressure 4. Braking signal 5. Cranking signal 6. E/L operation 7. Engine coolant temperature 8. Engine speed 9. In-gear condition 10. Intake air amount 11. Intake air temperature 12. No.1 piston TDC 13. P/S operation 14. Initial set signal 15. Throttle valve opening angle <p>Controls operation of following:</p> <ol style="list-style-type: none"> 1. A/C (Cut-off) 2. Fail-safe function 3. Fuel injection system 4. Idle speed control 5. Ignition timing control system 6. Monitor function 7. Purge control system 8. Lockup control system 	<ol style="list-style-type: none"> 1. Air conditioning switch 2. Heated oxygen sensor 3. Barometric pressure sensor 4. Brake switch 5. Ignition switch (START position) 6. Coolant fan relay Fan switch 7. Engine coolant temperature sensor 8. Camshaft position sensor (SGT signal) 9. Neutral and clutch switches (MT) Transmission range switch (AT) 10. Mass air flow sensor 11. Intake air temperature sensor 12. Camshaft position sensor (SGC signal) 13. Power steering pressure switch 14. Data link connector 15. Throttle position sensor
EGR valve	Recirculates portion of exhaust gas	
EGR valve position sensor	Detects EGR valve operating position; sends signal to ECM	Installed in EGR valve
EGR solenoid valve (vent)	Controls vacuum to EGR valve (vent side)	<ul style="list-style-type: none"> • Controlled by duty signal from ECM

F

Component	Function	Remark
EGR solenoid valve (vacuum)	Controls vacuum to EGR valve (vacuum side)	<ul style="list-style-type: none"> Controlled by duty signal from ECM
Fuel filter	Filters particles from fuel	
Fuel injector	Injects fuel into intake port	<ul style="list-style-type: none"> Controlled by signals from engine control module High-ohmic injector Single port injector nozzle
Fuel pump	Provides fuel to fuel injectors	<ul style="list-style-type: none"> Operates while engine running Installed in fuel tank
Fuel pump relay	Supplies voltage for fuel pump operation while engine running	
Fuel vapor valve	Prevents fuel from entering canister during vehicle roll over	
Heated oxygen sensor	Detects oxygen concentration; sends signal to engine control module	<ul style="list-style-type: none"> Zirconia ceramic and platinum coating
Idle air control valve	Controls bypass air amount	<ul style="list-style-type: none"> Controlled by duty signal from engine control module Controls idle-up
Ignition control module	Receives spark signal from engine control module and generates high voltage in ignition coil Detects high voltage ignition; sends substitute ignition signal to engine control module	<ul style="list-style-type: none"> Installed in ignition coil
Ignition switch (START position)	Sends engine cranking signal to engine control module	
Intake air temperature sensor	Detects intake air temperature; sends signal to engine control module	Installed in mass air flow sensor
Main relay	Supplies electric current to fuel injectors, engine control module, etc.	
Mass air flow sensor	Detects amount of intake air; sends signal to engine control module	<ul style="list-style-type: none"> Intake air temperature sensor and fuel pump switch included Use Vref (5 volt) as power source
MIL (Malfunction indicator lamp)	Lamp illuminates when input device malfunctions	<ul style="list-style-type: none"> Data link connector terminal TEN
	Lamp flashes to indicate trouble code number of input and output devices	<ul style="list-style-type: none"> Data link connector terminal TEN
Neutral switch (MT)	Detects in-gear condition; sends signal to engine control module	<ul style="list-style-type: none"> Switch ON when in neutral
PCV valve	Controls blowby gas amount introduced into engine	
Power steering pressure switch	Detects P/S operation; sends signal to engine control module	<ul style="list-style-type: none"> Switch ON when steering wheel turned
PRC solenoid valve	Controls vacuum applied to pressure regulator	—
Pressure regulator	Adjusts fuel pressure supplied to fuel injectors	
Purge solenoid valve	Controls evaporative fumes from canister to intake manifold	<ul style="list-style-type: none"> Controlled by duty signal from engine control module
Resonance chamber	Improves mid-range torque characteristics	
Three way catalytic converter	Reduces HC, CO, and NOx by chemical reaction	Monolith type
Three-way check valve	Controls pressure in fuel tank	
Throttle body	Controls intake air amount	<ul style="list-style-type: none"> Integrated throttle position sensor, Idle air control valve, and dashpot
Throttle position sensor	Detects throttle valve closed throttle position; sends signal to engine control module Detects throttle valve opening at a preset angle; sends signal to engine control module	
Two-way check valve	Controls pressure in fuel tank	

TROUBLESHOOTING GUIDE

ENGINE CONTROL OPERATION CHART
Output Devices and Engine Conditions

ENGINE CONDITION OUTPUT DEVICE		CRANKING (COLD ENGINE)	WARMING UP (DURING IDLE)	MEDIUM LOAD		ACCELERATION	HEAVY LOAD	DECELERATION	IDLE	IG: ON (ENGINE NOT RUNNING)
				COLD	WARM					
FUEL INJECTOR	FUEL INJECTION AMOUNT	Rich		Normal		Rich		Fuel cut	Normal	No Injection
FUEL PUMP RELAY		ON								OFF
IGNITION CONTROL MODULE		Fixed at BTDC 7°	Depends on engine condition							
PURGE SOLENOID VALVE		OFF		ON (Purge)			OFF			
BAC VALVE	IDLE AIR CONTROL VALVE	ON (Fixed duty)	ON (Closed loop duty)	ON (Fixed duty)				ON (Closed loop duty)	OFF	
	AIR VALVE	OPEN		CLOSED				—		
A/C RELAY		OFF (A/C cut)	ON		OFF (A/C cut)	ON			OFF	
PRC SOLENOID VALVE		OFF (Vacuum to pressure regulator)							ON (During hot start only)	OFF
EGR SOLENOID VALVE	VENT	OFF		ON (System operates: amount of EGR changes)			OFF			
	VACUUM	OFF		ON (System operates: amount of EGR changes)			OFF			

RELATIONSHIP CHART

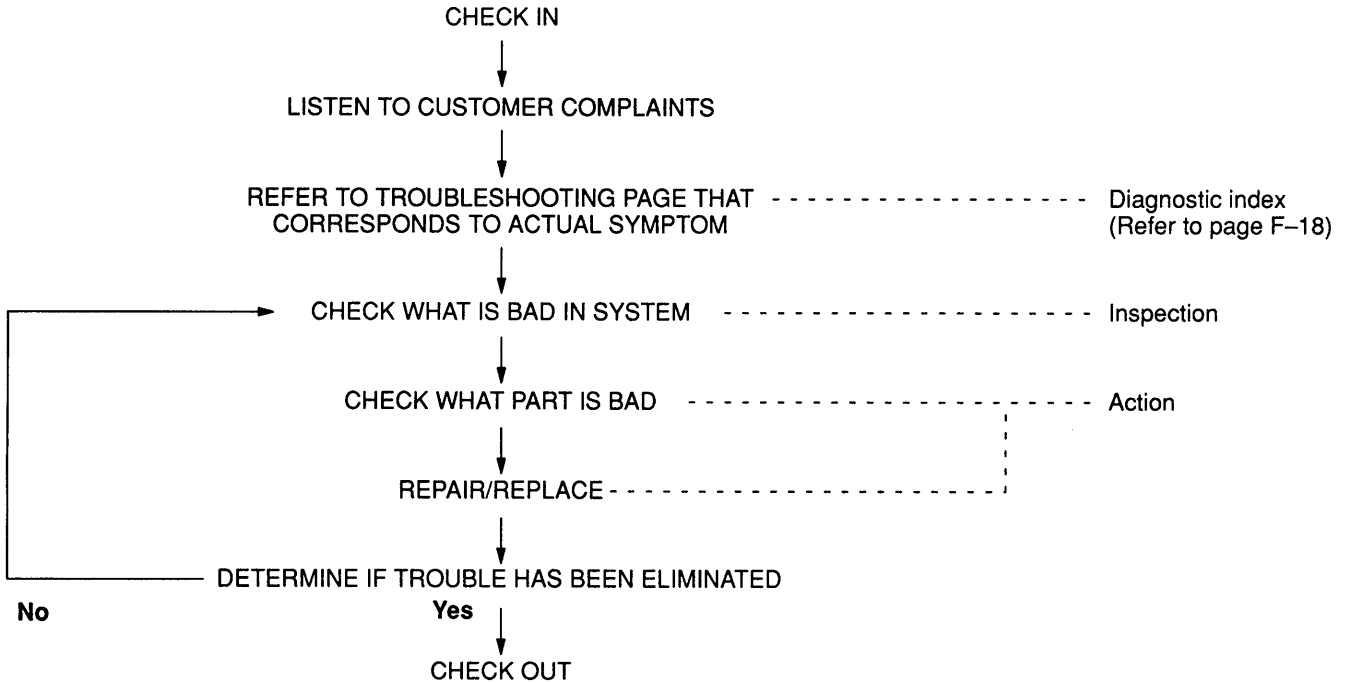
Output Devices		Fuel injector		Idle Air Control Valve	Purge Solenoid Valve	A/C Relay (A/C Cut-off)	Ignition Control Module (Ignition Timing Control)	EGR Solenoid Valve (Vacuum)	EGR Solenoid Valve (Vent)	PRC Solenoid Valve	Transmission Control Module	Coolant Fan Relay	Condenser Fan Relay
		Fuel Injection Amount	Fuel Injection Timing										
Input Devices													
TEN Terminal (Data Link Connector)				○			○			○		○	○
Ignition Switch (START Position)		○	○	○		○	○			○		○	○
Power Steering Pressure Switch				○		○							
Fan Switch				○									
Headlight Switch				○									
Brake Switch		○		○									
Neutral and Clutch Switches (MT)		○		○	○	○	○						
Transmission Range Switch (AT)		○		○	○	○	○						
Air Conditioning Switch				○		○						○	○
Throttle Position Sensor	Closed Throttle Position Switch (IDL)	○		○	○	○	○	○	○			○	○
	Sensor (TVO)	○		○	○	○	○	○	○	○			○
Barometric Pressure Sensor		○		○	○								
IGF Signal		○					○						
Heated Oxygen Sensor		○			○								
Engine Coolant Temperature Sensor		○		○	○	○	○	○	○	○	○	○	○
Mass Air Flow Sensor	Sensor	○			○		○	○	○		○		
	Intake Air Temperature Sensor	○		○	○		○	○	○	○			
Camshaft Position Sensor	SGT Signal	○	○	○	○	○	○	○	○	○			
	SGC Signal		○				○						

USING THIS SECTION

Introduction

Most of the fuel and emission control system is electrically controlled, often making it difficult to diagnose problems in the system, especially intermittent problems. Before undertaking actual checks, take a few minutes to talk with a customer who approaches with a drivability complaint. The customer is often a good source of information on such problems, especially intermittent ones. Through talks with the customer, one can find out what the symptoms are and under what conditions they occur.

Work flow



Diagnostic index

TROUBLESHOOTING GUIDE			
DIAGNOSTIC INDEX			
TROUBLESHOOTING ITEM		DESCRIPTION	PAGE
No.	TROUBLE		

No.: Each troubleshooting item is assigned a number.

TROUBLESHOOTING ITEM: There are 34 troubleshooting items. Choose the item that most closely corresponds to the actual symptom.

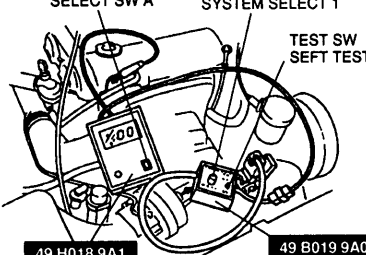
DESCRIPTION: Describes each troubleshooting item.

PAGE: Shows the reference page.

Troubleshooting chart

F

TROUBLESHOOTING GUIDE

7		CRANKS NORMALLY BUT HARD TO START — AFTER WARM-UP	
DESCRIPTION	<ul style="list-style-type: none"> • Engine cranks at normal speed but requires excessive cranking time (more than 5 sec.) before starting after running and hot soaked • Battery in normal condition • Engine starts normally when cold 		
	<p>[TROUBLESHOOTING HINTS]</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>① Air/Fuel mixture too rich</p> <ul style="list-style-type: none"> • Fuel injection control malfunction • Fuel injector fuel leakage </div> <div style="width: 45%;"> <p>② Vapor lock</p> <ul style="list-style-type: none"> • Fuel pressure not held in fuel line after engine stops • High RVP (winter) fuel used in warm weather </div> </div>		
STEP	INSPECTION		ACTION
1	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON page F-79 	Yes	Go to next step
		No	Diagnostic Trouble Code No. displayed Check for cause (Refer to specified check sequence) page F-81 "88" flashes Check ECM terminal 1E voltage page F-145 Specification: Battery positive voltage (Ignition switch ON) ↳ If OK, replace ECM page F-143 ↳ If not OK, check wiring between ECM and Self-Diagnosis Checker page F-7
2	Check if ECM terminal voltages are OK (2D, 2R and 2Q) page F-145	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") page F-148
	pressure is	Yes	Go to next step

DESCRIPTION:

Further describes the symptom. Confirm that the chart addresses the actual symptom before beginning troubleshooting.

TROUBLESHOOTING HINTS:

This describes the possible point of malfunction.

STEP:

This shows the order of troubleshooting. Proceed with troubleshooting as indicated.

INSPECTION:

This describes an inspection to quickly determine the malfunction of parts. If a detailed procedure is necessary to perform the INSPECTION, refer to the page shown by the "page" mark.

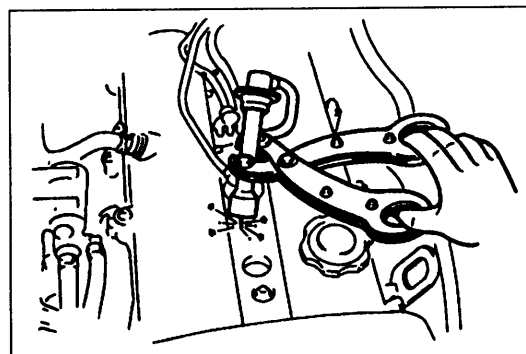
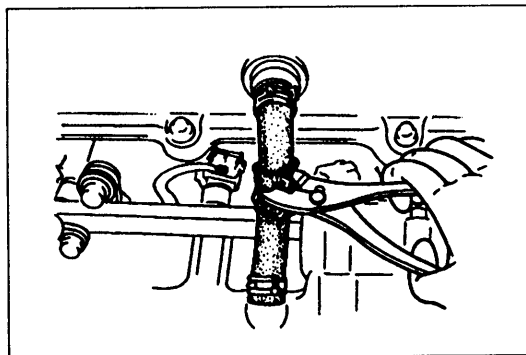
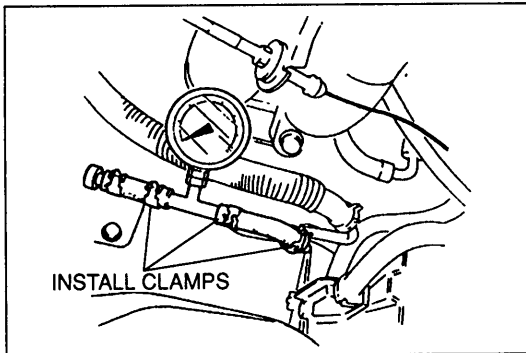
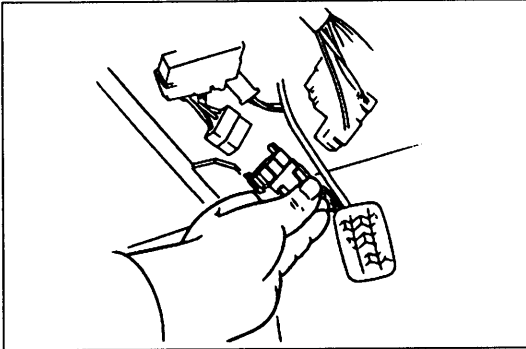
ACTION:

This recommends the appropriate action to take as a result (Yes/No) of the INSPECTION. How to perform the ACTION is described on the reference page shown by the "page" mark.

DIAGNOSTIC INDEX

No.	TROUBLESHOOTING ITEM	DESCRIPTION	PAGE
1	Will not crank or cranks slowly	Refer to Engine Electrical System	section G
2	Cranks normally but will not start (No combustion)	Engine cranks at normal speed but shows no sign of "firing"	F-17
3	Cranks normally but will not start (Partial combustion) — When engine is cold	Engine cranks at normal speed but shows partial combustion and will not continue to run	F-19
4	Cranks normally but will not start (Partial combustion) — After warm-up	Engine cranks at normal speed but shows partial combustion and will not continue to run after running and hot soaked	F-21
5	Cranks normally but hard to start — Always	Engine cranks at normal speed but requires excessive cranking time (more than 5 sec.) before starting	F-23
6	Cranks normally but hard to start — When engine is cold	Same condition as No.5 when engine is cold Restarts OK after warm-up	F-25
7	Cranks normally but hard to start — After warm-up	Same condition as No.5 after running and hot soaked Starts normally when cold	F-26
8	Rough idle — Always	Engine vibrates excessively at idle in every condition	F-27
9	Low idle speed/Rough idle — Before warm-up	Engine speed low or engine vibrates excessively at idle during warm-up	F-29
10	Low idle speed/Rough idle — After warm-up	Engine runs normally at idle during warm-up but vibrates excessively after warm-up	F-31
11	High idle speed — After warm-up	Engine idle excessive for operation mode	F-34
12	Low idle speed — When A/C, P/S, or E/L ON	Engine speed decreases at idle when A/C, P/S, or E/L is ON	F-36
13	Rough idle just after starting	Engine starts normally but vibrates excessively only just after starting	F-37
14	Idle moves up and down	Engine speed up and down periodically at idle	F-38
15	Engine stalls at idle — Always	Engine starts normally but vibrates excessively and stalls at idle in every condition	F-40
16	Engine stalls at idle — Before warm-up	Engine starts normally but vibrates excessively and stalls at idle before warm-up	F-43
17	Engine stalls at idle — After warm-up	Engine runs normally at idle during warm-up but becomes rough and stalls after warm-up	F-44
18	Engine stalls during start-up	Engine unexpectedly stops running while starting	F-45
19	Engine stalls on deceleration	Engine unexpectedly stops running while decelerating or after deceleration	F-48
20	Engine stalls at idle — When A/C, P/S, or E/L ON	Engine unexpectedly stops running at idle when A/C, P/S, or E/L is ON	F-50
21	Engine stalls suddenly (Intermittent)	Engine intermittently stops running	F-52
22	Hesitates/Stumbles on acceleration	Flat spot occurs just after accelerator is depressed or mild jerking occurs during acceleration	F-53
23	Surges while cruising	Unexpected, usually repetitive change in engine speed	F-55
24	Lack of power	Performance is poor under load Maximum speed reduced	F-57
25	Poor acceleration	Performance is poor while accelerating	F-61
26	Runs rough on deceleration/Afterburn	Engine runs rough while decelerating and abnormal combustion in exhaust system	F-65
27	Knocking	Abnormal combustion accompanied by audible "pinging" noise	F-67
28	Fuel odor	Gasoline odor in cabin	F-69
29	Exhaust sulfur smell	Exhaust gas smells abnormal (rotten egg smell)	F-70
30	High oil consumption	Oil consumption excessive	F-70
31	Poor fuel economy	Fuel economy unsatisfactory	F-71

32	MIL always ON	Self-Diagnosis Checker does not indicate diagnostic trouble code No. but MIL comes on	F-73
33	MIL never ON	Self-Diagnosis Checker indicates diagnostic trouble code No. of input device but MIL never comes on	F-73
34	A/C does not work	Blower fan operates but no cool air is discharged	F-74



Warning

- Fuel vapor is hazardous. It can very easily ignite, causing serious injury and damage. Always keep sparks and flames away from fuel.

Fuel in the fuel system is under high pressure when the engine is not running.

Warning

- Fuel line spills and leaks are dangerous. Fuel can ignite and cause serious injuries or death and damage. Fuel can also irritate skin and eyes. To prevent this, always complete the following "Fuel Line Safety Procedures".

Fuel Line Safety Procedures

- Release the fuel pressure before disconnecting a fuel line.
 - Start the engine.
 - Disconnect the fuel pump relay connector.
 - After the engine stalls, turn the ignition switch to OFF.
 - Reconnect the fuel pump relay connector.
- Avoid leakage.
 - When disconnecting a fuel line hose, wrap a rag around it to protect against fuel leakage.
 - Plug the hose after removal.
- Install hose clamps to secure the fuel pressure gauge connections.

Pinching Hose

When pinching an air hose or fuel hose with pliers, wrap the hose with a rag to prevent damage.

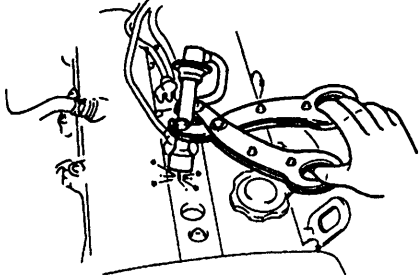
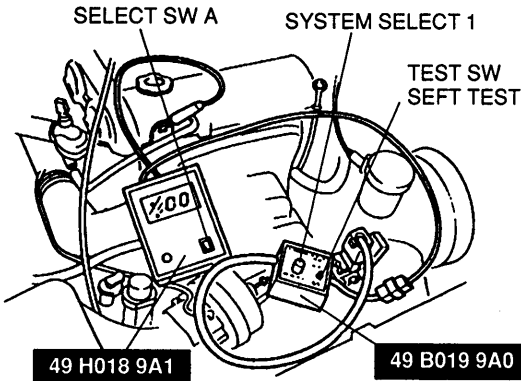
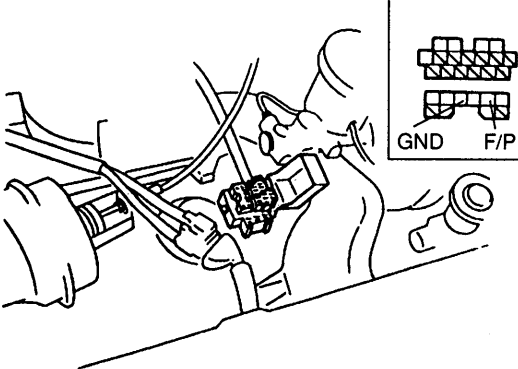
Checking ignition spark

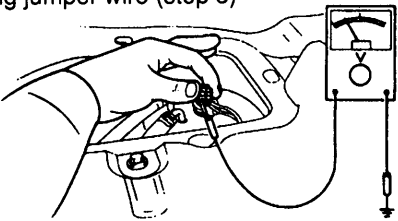


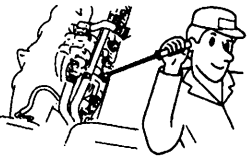
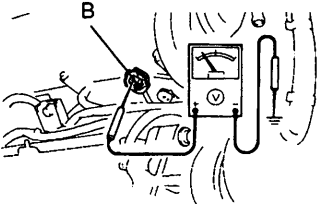



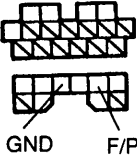
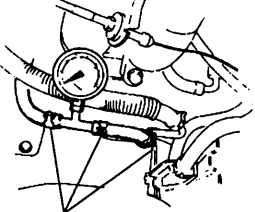







When checking ignition spark condition, hold the high-tension lead with insulated pliers.

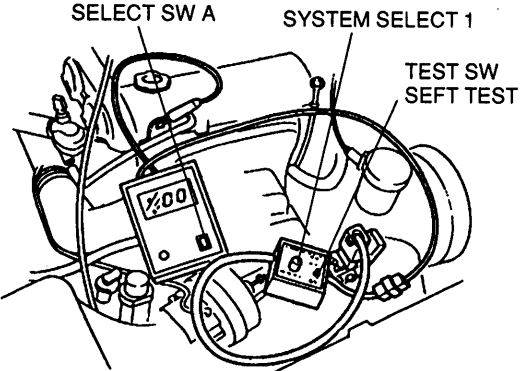
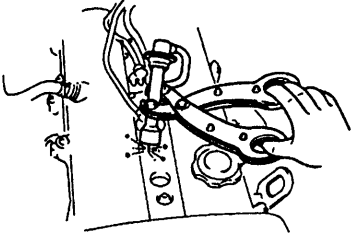
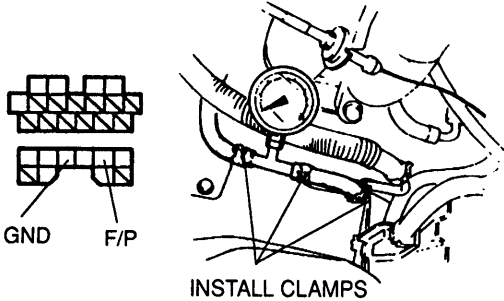
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





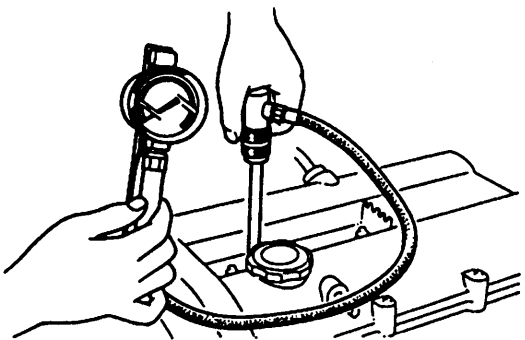

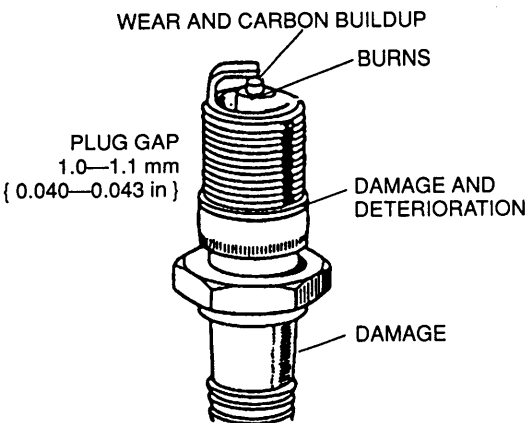


- If a timing light is used to check for spark, some lights do not illuminate at the number 2 and 4 cylinders even if the ignition system is normal.

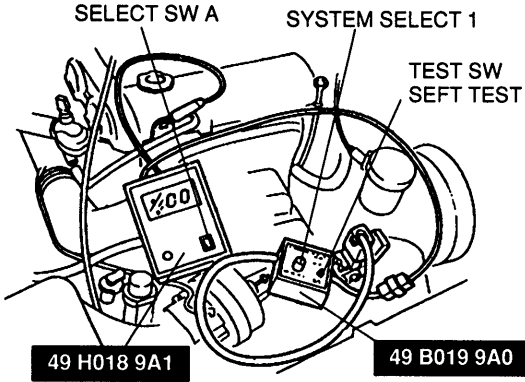
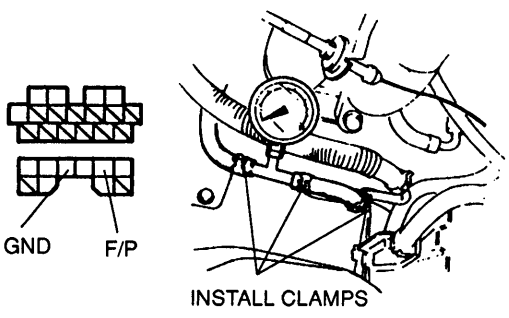
SYMPTOM TROUBLESHOOTING

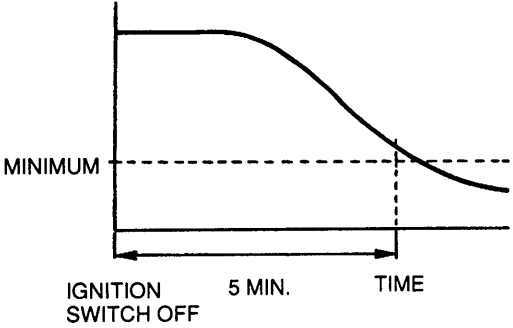
2	CRANKS NORMALLY BUT WILL NOT START (NO COMBUSTION)	
DESCRIPTION	<ul style="list-style-type: none"> • Engine cranks at normal speed but shows no sign of "firing" • Battery in normal condition • Throttle valve not held wide open throttle while cranking • Fuel in tank 	
<p>[TROUBLESHOOTING HINTS] Because of no combustion, possibly no fuel is injected to engine or no ignition at all cylinders</p> <p>① No spark</p> <ul style="list-style-type: none"> • Ignition control malfunction • Ignition system component malfunction <p>② No fuel injection</p> <ul style="list-style-type: none"> • Fuel pump does not operate • Fuel injector does not operate <p>③ Low fuel line pressure</p> <p>④ Low engine compression</p>		
STEP	INSPECTION	ACTION
1	Check if strong blue spark is visible at disconnected high-tension lead while cranking engine	Yes Go to step 3
		No Go to step 2
2	Check if "00" is displayed on Self Diagnosis Checker with ignition switch ON ☞ page F-79	Yes Check ignition system (Refer to Troubleshooting "Misfire") ☞ section G
		No Diagnostic trouble code No. displayed Check for cause (Refer to specified check sequence) ☞ page F-81
	<p>"88" flashes Check ECM terminal 1E voltage ☞ page F-145</p> <p>Specification: Battery positive voltage (Ignition switch ON)</p> <ul style="list-style-type: none"> ⇨ If OK, replace ECM ☞ page F-143 ⇨ If not OK, check wiring between ECM and Self-Diagnosis Checker ☞ page F-7 	
3	Connect data link connector terminals F/P and GND by using jumper wire and check for fuel pump operating sound with ignition switch ON ☞ page F-114	Yes Check if engine starts in this condition <ul style="list-style-type: none"> ⇨ If starts, check fuel pump relay ☞ page F-117 ⇨ If does not start, go to step 5
		No Go to step 4

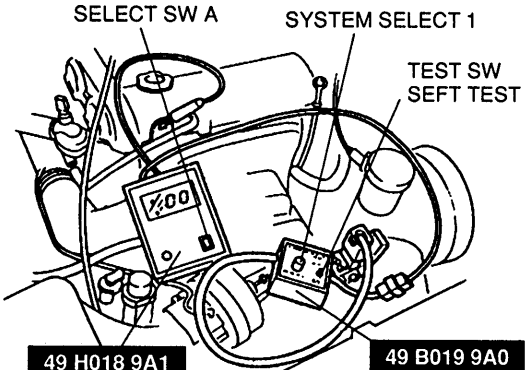
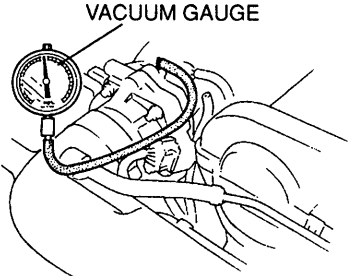
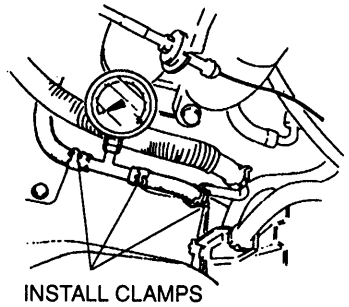
STEP	INSPECTION	ACTION	
4	Check if battery positive voltage exists at fuel pump connector with fuel pump positive terminal grounded by using jumper wire (step 3) 	Yes	Check continuity of fuel pump  page F-114
		No	Check fuel pump relay  page F-117
5	Check for fuel injector operating sound while cranking engine 	Yes	Go to step 7
		No	Go to step 6
6	Check if battery positive voltage exists at fuel injector connector terminal B with ignition switch ON 	Yes	Check voltage at ECM terminals 2A, 2U, 2V, 2Y and 2Z  page F-147
		No	Check for open circuit in wiring between main relay and fuel injector  page F-7
7	Connect data link connector terminals F/P and GND by using jumper wire and check for correct fuel line pressure with ignition switch ON  page F-110 Fuel line pressure: 265—313 kPa { 2.7—3.2 kgf/cm², 39—45 psi }   INSTALL CLAMPS	Yes	Go to next step
		No	Low pressure Check fuel line pressure while pinching fuel return hose ⇨ If fuel line pressure quickly increases, check pressure regulator  page F-118 ⇨ If fuel line pressure gradually increases, check for clogging between fuel pump and pressure regulator If not clogged, check fuel pump maximum pressure  page F-115
8	Check for correct engine compression  section B	Yes	Go to next step
		No	Check engine condition  section B <ul style="list-style-type: none"> • Worn piston, piston rings or cylinder wall • Defective cylinder head gasket • Distorted cylinder head • Improper valve seating • Valve sticking in guide
9	Check if spark plugs are OK WEAR AND CARBON BUILDUP PLUG GAP 1.0—1.1 mm { 0.040—0.043 in } 	Yes	Go to next step
		No	Repair, clean, or replace  section G
10	Try known good ECM and check if condition improves  page F-144		

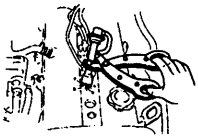
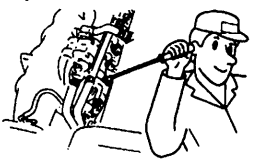
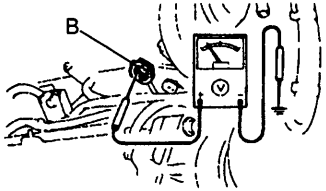
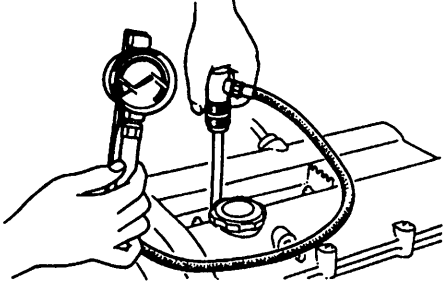
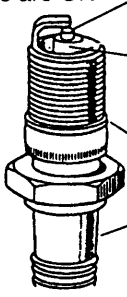
3 CRANKS NORMALLY BUT WILL NOT START (PARTIAL COMBUSTION) — WHEN ENGINE IS COLD			
DESCRIPTION	<ul style="list-style-type: none"> • Engine cranks at normal speed but shows partial combustion and will not continue to run • Battery in normal condition • Fuel in tank 		
[TROUBLESHOOTING HINTS]			
<ul style="list-style-type: none"> ① Air/fuel mixture too rich <ul style="list-style-type: none"> • Air cleaner element clogged ② Air/fuel mixture too lean <ul style="list-style-type: none"> • Fuel injection control malfunction (Correction for coolant temperature) • Low fuel line pressure • Air leakage in intake-air system ③ Low engine compression 			
STEP	INSPECTION	ACTION	
1	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ page F-79 	Yes	Go to next step
		No	Diagnostic trouble code No. displayed Check for cause (Refer to specified check sequence) ☞ page F-81
		"88" flashes Check ECM terminal 1E voltage ☞ page F-145 Specification: Battery positive voltage (Ignition switch ON) ⇨ If OK, replace ECM ☞ page F-143 ⇨ If not OK, check wiring between ECM and Self-Diagnosis Checker ☞ page F-7	
2	Check if strong blue spark is visible at each disconnected high-tension lead while cranking engine 	Yes	Go to next step
		No	Check ignition system (Refer to Troubleshooting "Misfire") ☞ section G
3	Connect data link connector terminals F/P and GND by using jumper wire and check for correct fuel line pressure with ignition switch ON ☞ page F-110 Fuel line pressure: 265—313 kPa { 2.7—3.2 kgf/cm ² , 39—45 psi } 	Yes	Go to next step
		No	Low pressure Check fuel line pressure while pinching fuel return hose ⇨ If fuel line pressure quickly increases, check pressure regulator ☞ page F-118 ⇨ If fuel line pressure gradually increases, check for clogging between fuel pump and pressure regulator If not clogged, check fuel pump maximum pressure ☞ page F-115
		High pressure Check if fuel return hose is clogged or restricted ⇨ If OK, replace pressure regulator ☞ page F-119 ⇨ If not OK, repair or replace fuel return hose	

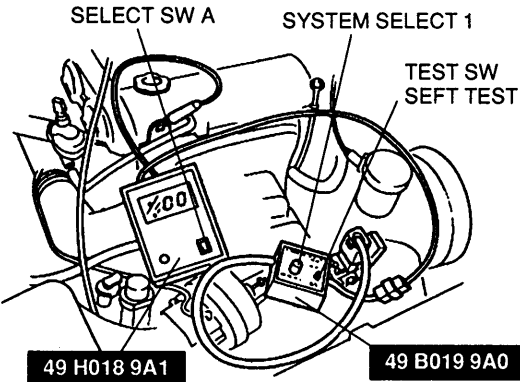
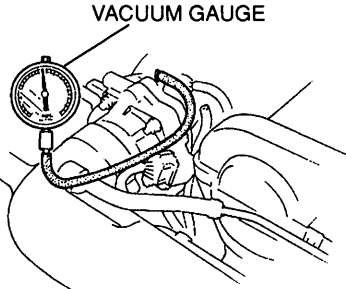
STEP	INSPECTION	ACTION	
4	Check if ECM terminals voltage are OK (1C, 1R, 1T, 2D, 2O and 2Q)  page F-146	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal")  page F-148
5	Check for air leakage of intake-air system components  page F-100	Yes	Repair or replace
		No	Go to next step
6	Check for EGR system malfunction  page F-124	Yes	Repair or replace
		No	Go to next step
7	Check if mass air flow sensor is OK  page F-152	Yes	Go to next step
		No	Repair or replace  page F-99
8	Check for correct engine compression  section B 	Yes	Go to next step
		No	Check engine condition  section B <ul style="list-style-type: none"> • Worn piston, piston rings or cylinder wall • Defective cylinder head gasket • Distorted cylinder head • Improper valve seating • Valve sticking in guide
9	Check if spark plugs are OK  <p>WEAR AND CARBON BUILDUP</p> <p>BURNS</p> <p>DAMAGE AND DETERIORATION</p> <p>DAMAGE</p> <p>PLUG GAP 1.0—1.1 mm { 0.040—0.043 in }</p>	Yes	Go to next step
		No	Repair, clean, or replace  section G
10	Try known good ECM and check if condition improves  page F-144		

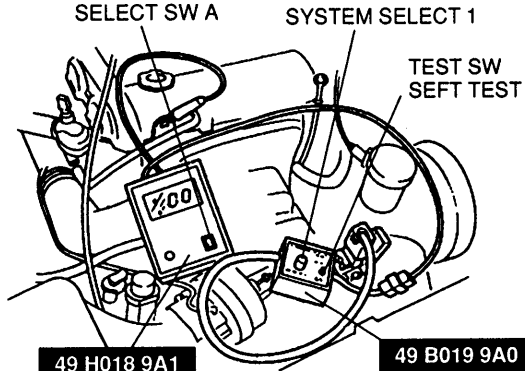
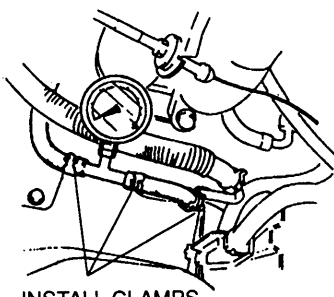
4	CRANKS NORMALLY BUT WILL NOT START (PARTIAL COMBUSTION) — AFTER WARM-UP		
DESCRIPTION	<ul style="list-style-type: none"> • Engine cranks at normal speed but shows partial combustion and will not continue to run after running and hot soaked • Battery in normal condition • Engine starts normally when cold 		
<p>[TROUBLESHOOTING HINTS]</p> <p>① Air/fuel mixture too rich</p> <ul style="list-style-type: none"> • Fuel injection control malfunction (Correction for coolant temperature) • Fuel injector fuel leakage <p>② Vapor lock</p> <ul style="list-style-type: none"> • Fuel pressure not held in fuel line after engine stops • High RVP (winter) fuel used in warm weather 			
STEP	INSPECTION	ACTION	
1	<p>Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON</p> <p style="text-align: right;">☞ page F-79</p> 	Yes	Go to next step
		No	<p>Diagnostic Trouble Code No. displayed Check for cause (Refer to specified check sequence) ☞ page F-81</p> <p>"88" flashes Check ECM terminal 1E voltage ☞ page F-145</p> <p>Specification: Battery positive voltage (Ignition switch ON)</p> <ul style="list-style-type: none"> ⇒ If OK, replace ECM ☞ page F-143 ⇒ If not OK, check wiring between ECM and Self-Diagnosis Checker ☞ page F-7
2	<p>Check if ECM terminal voltages are OK (2D and 2Q)</p> <p style="text-align: right;">☞ page F-136</p>	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ page F-148
3	<p>Connect data link connector terminals F/P and GND by using jumper wire and check for correct fuel line pressure with ignition switch ON</p> <p style="text-align: right;">☞ page F-110</p> <p>Fuel line pressure: 265—313 kPa { 2.7—3.2 kgf/cm² , 39—45 psi }</p>  <p style="text-align: center;">INSTALL CLAMPS</p>	Yes	Go to next step
		No	<p>Low pressure Check fuel line pressure while pinching fuel return hose</p> <ul style="list-style-type: none"> ⇒ If fuel line pressure quickly increases, check pressure regulator ☞ page F-118 ⇒ If fuel line pressure gradually increases, check fuel line and filter for clogging If not clogged, check fuel pump maximum pressure ☞ page F-115 <p>High pressure Check if fuel return hose is clogged or restricted</p> <ul style="list-style-type: none"> ⇒ If OK, replace pressure regulator ☞ page F-119 ⇒ If not OK, repair or replace

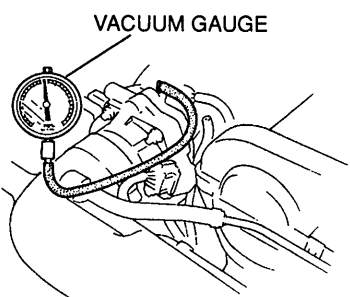
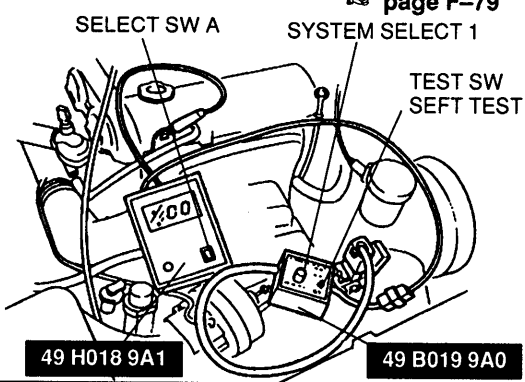
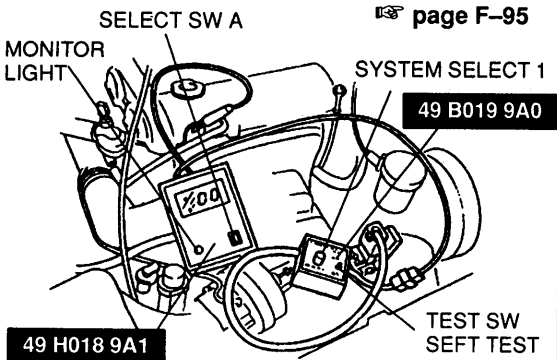
STEP	INSPECTION		ACTION
4	With condition of step 3, check if fuel line pressure is held after ignition switch is turned OFF ☞ page F-109 Fuel line pressure: More than 147 kPa { 1.5 kgf/cm² , 21 psi } for 5 min. PRESSURE 	Yes	Go to step 6
		No	Go to step 5
5	Check if fuel line pressure is held after ignition switch is turned OFF and blocking outlet of pressure regulator ☞ page F-118 Fuel line pressure: More than 147 kPa { 1.5 kgf/cm² , 21 psi } for 5 min.	Yes	Replace pressure regulator ☞ page F-119
		No	Check fuel pump hold pressure ☞ page F-114 ⇨ If OK, check fuel injector for fuel leakage ☞ page F-120 ⇨ If not OK, replace fuel pump ☞ page F-115
6	Try known good ECM and check if condition improves ☞ page F-144	Yes	Replace ECM
		No	Change fuel to another brand

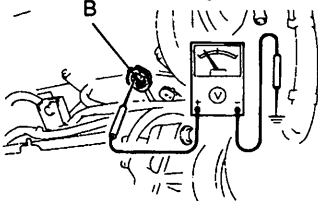




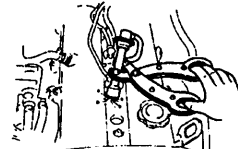

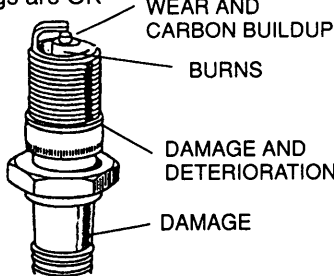










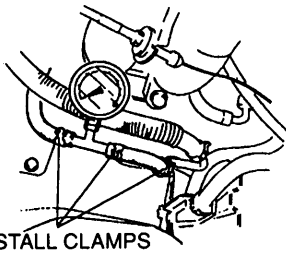



5		CRANKS NORMALLY BUT HARD TO START — ALWAYS	
DESCRIPTION		<ul style="list-style-type: none"> • Engine cranks at normal speed but requires excessive cranking time (more than 5 sec.) before starting • Battery in normal condition 	
[TROUBLESHOOTING HINTS]			
① Air/fuel mixture too lean <ul style="list-style-type: none"> • Fuel injection control malfunction (Correction for coolant temperature) • Low fuel line pressure • Air leakage 		② Air/fuel mixture too rich <ul style="list-style-type: none"> • Air cleaner element clogged • Mass air flow sensor stuck ③ Poor ignition spark	
STEP	INSPECTION	ACTION	
1	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ⚙️ page F-79 	Yes	Go to next step
		No	Diagnostic trouble code No. displayed Check for cause (Refer to specified check sequence) ⚙️ page F-81 "88" flashes Check ECM terminal 1E voltage ⚙️ page F-145 Specification: Battery positive voltage (Ignition switch ON) ⇨ If OK, replace ECM ⚙️ page F-143 ⇨ If not OK, check wiring between ECM and Self-Diagnosis Checker ⚙️ page F-7
2	Check for correct intake manifold vacuum at idle Vacuum: More than 450 mmHg { 17.7 inHg } VACUUM GAUGE 	Yes	Go to next step
		No	Check for air leakage of intake-air system components ⚙️ page F-100
3	Check if air cleaner element is clean ⚙️ page F-76	Yes	Go to next step
		No	Replace air cleaner element ⚙️ page F-99
4	Check for correct fuel line pressure at idle ⚙️ page F-110 Fuel line pressure: 265—313 kPa { 2.7—3.2 kgf/cm² , 39—45 psi } (Vacuum hose to pressure regulator disconnected) 	Yes	Go to next step
		No	Low pressure Check fuel line pressure while pinching fuel return hose ⇨ If fuel line pressure quickly increases, check pressure regulator ⚙️ page F-118 ⇨ If fuel line pressure gradually increases, check for clogging between fuel pump and pressure regulator If not clogged, check fuel pump maximum pressure ⚙️ page F-115

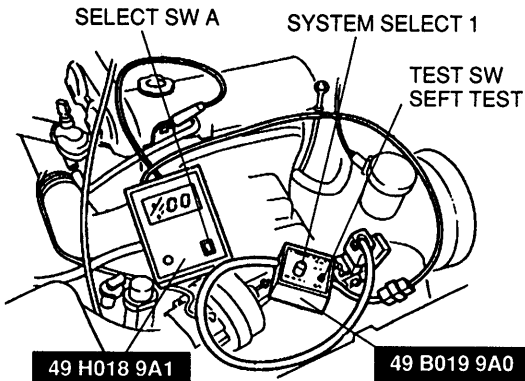
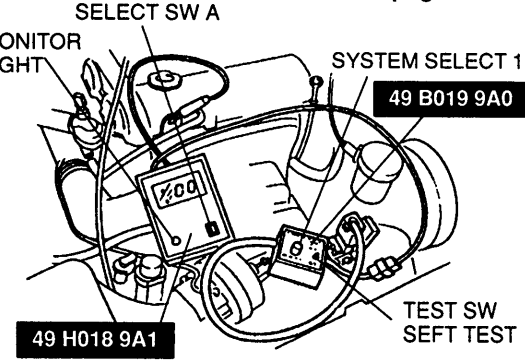
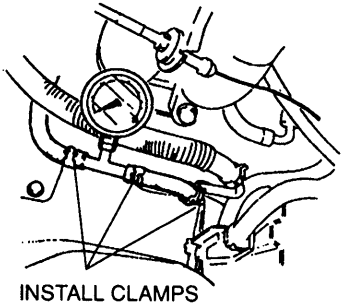
STEP	INSPECTION	ACTION	
5	Check if ECM terminals voltage are OK (1R, 1T, 2D, 2O and 2Q) ☞ page F-146	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ page F-148
6	Check if strong blue spark is visible at each disconnected high-tension lead while cranking engine 	Yes	Go to next step
		No	Check ignition system (Refer to Troubleshooting "Misfire") ☞ section G
7	Check for EGR system malfunction ☞ page F-124	Yes	Repair or replace
		No	Go to next step
8	Check for fuel injector operating sound at each fuel injector at idle 	Yes	Go to step 10
		No	Go to step 9
9	Check if battery positive voltage exists at fuel injector connector terminal B with ignition switch ON 	Yes	Check if fuel injector resistance is OK ☞ page F-119 Resistance: 12—16 Ω ⇨ If OK, check wiring between fuel injector and ECM ☞ page F-7 ⇨ If not OK, replace fuel injector ☞ page F-119
		No	Check wiring between main relay and fuel injector ☞ page F-7
10	Check for correct engine compression ☞ section B 	Yes	Go to next step
		No	Check engine condition ☞ section B <ul style="list-style-type: none"> • Worn piston, piston rings or cylinder wall • Defective cylinder head gasket • Distorted cylinder head • Improper valve seating • Valve sticking in guide
11	Check if spark plugs are OK WEAR AND CARBON BUILDUP BURNS PLUG GAP 1.0—1.1 mm { 0.040—0.043 in } DAMAGE AND DETERIORATION DAMAGE 	Yes	Go to next step
		No	Repair, clean, or replace ☞ section G
12	Try known good ECM and check if condition improves ☞ page F-144		

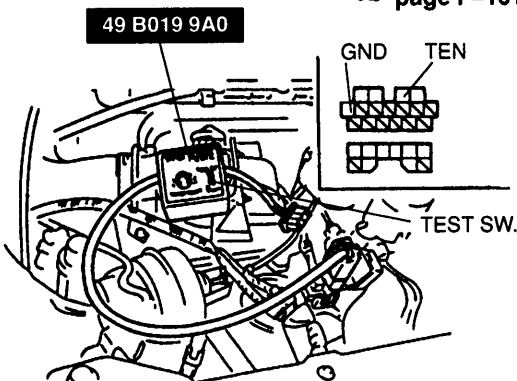
6	CRANKS NORMALLY BUT HARD TO START — WHEN ENGINE IS COLD		
DESCRIPTION	<ul style="list-style-type: none"> • Engine cranks at normal speed but requires excessive cranking time before starting • Battery in normal condition • Restarts OK after warm-up 		
<p>[TROUBLESHOOTING HINTS]</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>① Air/fuel mixture too rich</p> <ul style="list-style-type: none"> • Air cleaner element clogged • Idle speed control malfunction </div> <div style="width: 45%;"> <p>② Air/fuel mixture too lean</p> <ul style="list-style-type: none"> • Fuel injection control malfunction (Correction for coolant temperature) <p>③ Poor atomization of fuel</p> <ul style="list-style-type: none"> • Low RVP (summer) fuel used in cold weather </div> </div>			
STEP	INSPECTION	ACTION	
1	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ page F-79	Yes	Go to next step
		No	Diagnostic Trouble Code No. displayed Check for cause (Refer to specified check sequence) ☞ page F-81
			<p>"88" flashes Check ECM terminal 1E voltage ☞ page F-145</p> <p>Specification: Battery positive voltage (Ignition switch ON)</p> <p>⇔ If OK, replace ECM ☞ page F-143 ⇔ If not OK, check wiring between ECM and Self-Diagnosis Checker ☞ page F-7</p>
2	Check if ECM terminal voltages are OK (1C, 2D, 2O and 2Q) ☞ page F-145	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ page F-148
3	Check if engine starts easily when depressing accelerator while cranking	Yes	Check if idle air control valve is OK ☞ page F-106 ⇔ If OK, check air valve ☞ page F-105 ⇔ If not OK, replace IAC valve ☞ page F-106
		No	Go to next step
4	Check for correct intake manifold vacuum at idle Vacuum: More than 450 mmHg { 17.7 inHg } 	Yes	Go to next step
		No	Check for air leakage of intake air system components ☞ page F-100
5	Check if air cleaner element is clean ☞ page F-76	Yes	Go to next step
		No	Replace air cleaner element ☞ page F-99
6	Try known good ECM and check if condition improves ☞ page F-144	Yes	Replace ECM ☞ page F-143
		No	Change fuel to another brand

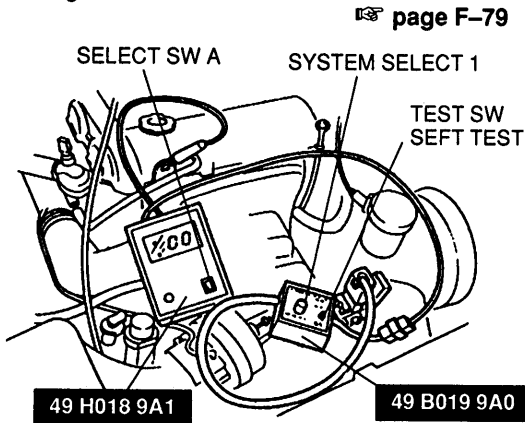
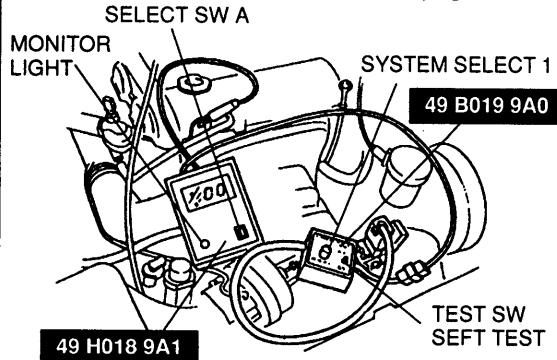
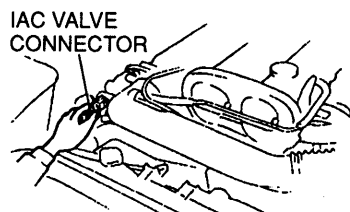
7	CRANKS NORMALLY BUT HARD TO START — AFTER WARM-UP		
DESCRIPTION	<ul style="list-style-type: none"> • Engine cranks at normal speed but requires excessive cranking time (more than 5 sec.) before starting after running and hot soaked • Battery in normal condition • Engine starts normally when cold 		
[TROUBLESHOOTING HINTS]			
① Air/fuel mixture too rich <ul style="list-style-type: none"> • Fuel injection control malfunction • Fuel injector fuel leakage 		② Vapor lock <ul style="list-style-type: none"> • Fuel pressure not held in fuel line after engine stops • High RVP (winter) fuel used in warm weather 	
STEP	INSPECTION		ACTION
1	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ↳ page F-79	Yes	Go to next step
		No	Diagnostic trouble code No. displayed Check for cause (Refer to specified check sequence) ↳ page F-81
			"88" flashes Check ECM terminal 1E voltage ↳ page F-145 Specification: Battery positive voltage (Ignition switch ON) ⇨ If OK, replace ECM ↳ page F-143 ⇨ If not OK, check wiring between ECM and Self-Diagnosis Checker ↳ page F-7
2	Check if ECM terminal voltages are OK (2D, 2R and 2Q) ↳ page F-145	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ↳ page F-148
3	Run engine at idle and check if fuel line pressure is held after ignition switch turned OFF ↳ page F-109 Fuel line pressure: More than 147 kPa { 1.5 kgf/cm² , 21 psi } for 5 min.	Yes	Go to next step
			
4	Try known good ECM and check if condition improves ↳ page F-144	Yes		Replace ECM
		No	Change fuel to another brand

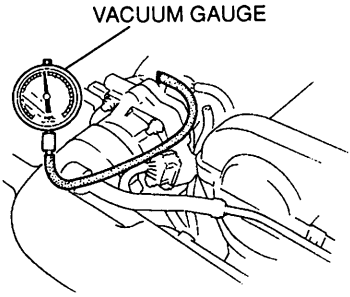
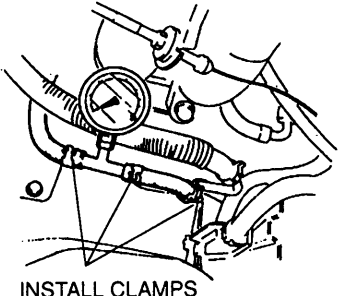
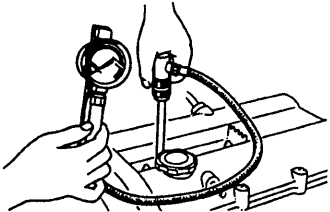
8	ROUGH IDLE — ALWAYS					
DESCRIPTION • Engine vibrates excessively at idle in every condition						
[TROUBLESHOOTING HINTS]						
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>① Air/fuel mixture too lean</p> <ul style="list-style-type: none"> • Air leakage • Fuel injection control malfunction • Low fuel line pressure </div> <div style="width: 45%;"> <p>② One or more injectors not operating or clogged</p> <p>③ One or more spark plugs not sparking</p> <p>④ Injection timing misadjustment</p> <p>⑤ Low engine compression</p> </div> </div>						
STEP	INSPECTION	ACTION				
1	Check for correct intake manifold vacuum at idle Vacuum: More than 450 mmHg { 17.7 inHg } 	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%; text-align: center;">Yes</td> <td>Go to next step</td> </tr> <tr> <td style="width: 5%; text-align: center;">No</td> <td>Check for air leakage of intake-air system components ☞ page F-100</td> </tr> </table>	Yes	Go to next step	No	Check for air leakage of intake-air system components ☞ page F-100
Yes	Go to next step					
No	Check for air leakage of intake-air system components ☞ page F-100					
2	Check if air cleaner element is clean ☞ page F-76	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%; text-align: center;">Yes</td> <td>Go to next step</td> </tr> <tr> <td style="width: 5%; text-align: center;">No</td> <td>Replace air cleaner element ☞ page F-99</td> </tr> </table>	Yes	Go to next step	No	Replace air cleaner element ☞ page F-99
Yes	Go to next step					
No	Replace air cleaner element ☞ page F-99					
3	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ page F-79 	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%; text-align: center;">Yes</td> <td>Go to next step</td> </tr> <tr> <td style="width: 5%; text-align: center;">No</td> <td> Diagnostic trouble code No. displayed Check for cause (Refer to specified check sequence) ☞ page F-81 "88" flashes Check ECM terminal 1E voltage ☞ page F-136 Specification: Battery positive voltage (Ignition switch ON) ⇨ If OK, replace ECM ☞ page F-143 ⇨ If not OK, check wiring between ECM and Self-Diagnosis Checker ☞ page F-7 </td> </tr> </table>	Yes	Go to next step	No	Diagnostic trouble code No. displayed Check for cause (Refer to specified check sequence) ☞ page F-81 "88" flashes Check ECM terminal 1E voltage ☞ page F-136 Specification: Battery positive voltage (Ignition switch ON) ⇨ If OK, replace ECM ☞ page F-143 ⇨ If not OK, check wiring between ECM and Self-Diagnosis Checker ☞ page F-7
Yes	Go to next step					
No	Diagnostic trouble code No. displayed Check for cause (Refer to specified check sequence) ☞ page F-81 "88" flashes Check ECM terminal 1E voltage ☞ page F-136 Specification: Battery positive voltage (Ignition switch ON) ⇨ If OK, replace ECM ☞ page F-143 ⇨ If not OK, check wiring between ECM and Self-Diagnosis Checker ☞ page F-7					
4	Check switches for correct operation by using Self-Diagnosis Checker Monitor Light with ignition switch ON ☞ page F-95 	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%; text-align: center;">Yes</td> <td>Go to next step</td> </tr> <tr> <td style="width: 5%; text-align: center;">No</td> <td> Light not ON/OFF with specified switch Check for cause (Refer to specified check sequence) ☞ page F-96 Light always ON Check wiring between ECM terminal 1D and Self-Diagnosis Checker ☞ page F-7 </td> </tr> </table>	Yes	Go to next step	No	Light not ON/OFF with specified switch Check for cause (Refer to specified check sequence) ☞ page F-96 Light always ON Check wiring between ECM terminal 1D and Self-Diagnosis Checker ☞ page F-7
Yes	Go to next step					
No	Light not ON/OFF with specified switch Check for cause (Refer to specified check sequence) ☞ page F-96 Light always ON Check wiring between ECM terminal 1D and Self-Diagnosis Checker ☞ page F-7					
5	Check if ECM terminal voltages are OK (1R, 1T, 2D, 2O and 2Q) ☞ page F-146	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%; text-align: center;">Yes</td> <td>Go to next step</td> </tr> <tr> <td style="width: 5%; text-align: center;">No</td> <td>Check for cause (Refer to "Check Point for Each Terminal") ☞ page F-148</td> </tr> </table>	Yes	Go to next step	No	Check for cause (Refer to "Check Point for Each Terminal") ☞ page F-148
Yes	Go to next step					
No	Check for cause (Refer to "Check Point for Each Terminal") ☞ page F-148					

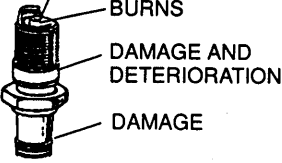
STEP	INSPECTION	ACTION	
6	Check for fuel injector operating sound at idle by using soundscope or screwdriver	Yes	Go to step 8
		No	Go to step 7
7	Check if battery positive voltage exists at fuel injector connector terminal B with ignition switch ON 	Yes	Check if fuel injector resistance is OK  page F-119 Resistance: 12—16 Ω ⇨ If OK, check wiring between ECM and fuel injector  page F-7 ⇨ If not OK, replace fuel injector  page F-119
		No	Check wiring between ECM and fuel injector  page F-7
8	Disconnect each high-tension lead at idle and check if engine speed decreases equally each time 	Yes	Disconnect each fuel injector connector at idle and check if engine speed decreases equally each time ⇨ If OK, go to step 10 ⇨ If not OK, check fuel injector for fuel leakage  page F-120
		No	Go to step 9
9	Check if spark plugs are OK 	Yes	Check for correct engine compression  section B ⇨ If OK, replace fuel injector  page F-119 ⇨ If not OK, check for cause  section B
		No	Repair, clean, or replace  section G
10	Check for correct ignition timing at idle  page F-76 Ignition timing: 10° ± 1° BTDC	Yes	Check for correct idle speed  page F-77 Idle speed: 850 ± 50 rpm (MT) 800 ± 50 rpm (AT) ⇨ If OK, go to next step ⇨ If not OK, adjust idle speed  page F-77
		No	Adjust  page F-72
11	Check for EGR system malfunction  page F-124	Yes	Repair or replace
		No	Go to next step
12	Check for correct fuel line pressure at idle  page F-110 Fuel line pressure: 265—313 kPa { 2.7—3.2 kgf/cm², 39—45 psi } (Vacuum hose to pressure regulator disconnected)  INSTALL CLAMPS	Yes	Go to next step
		No	Low pressure Check fuel line pressure while pinching fuel return hose ⇨ If fuel line pressure quickly increases, check pressure regulator  page F-118 ⇨ If fuel line pressure gradually increases, check for clogging between fuel pump and pressure regulator If not clogged, check fuel pump maximum pressure  page F-115
13	Try known good ECM and check if condition improves  page F-144		

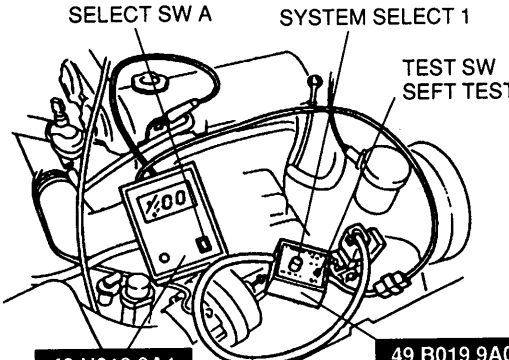
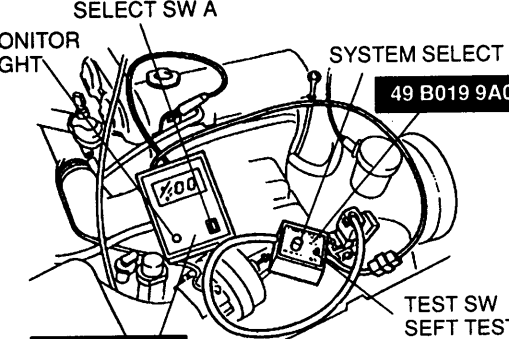
9	LOW IDLE SPEED/ROUGH IDLE — BEFORE WARM-UP		
DESCRIPTION	• Engine speed low or engine vibrates excessively at idle during warm-up		
[TROUBLESHOOTING HINTS]	<p>① Low intake air amount</p> <ul style="list-style-type: none"> • Mass air flow sensor stuck • Air cleaner element clogged • Idle speed control <p>[Air valve Correction for coolant temperature]</p> <p>② Low fuel injection amount</p> <ul style="list-style-type: none"> • Fuel injection control malfunction (Correction for coolant temperature) <p>③ Poor atomization of fuel</p> <ul style="list-style-type: none"> • Low RVP (summer) fuel used in cold weather 		
STEP	INSPECTION	ACTION	
1	<p>Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON</p> <p style="text-align: right;">☞ page F-79</p> 	Yes	Go to next step
		No	<p>Diagnostic trouble code No. displayed Check for cause (Refer to specified check sequence) ☞ page F-81</p>
			<p>"88" flashes Check ECM terminal 1E voltage ☞ page F-145</p> <p>Specification: Battery positive voltage (Ignition switch ON)</p> <p>⇒ If OK, replace ECM ☞ page F-143</p> <p>⇒ If not OK, check wiring between ECM and Self-Diagnosis Checker ☞ page F-7</p>
2	<p>Check switches for correct operation by using Self-Diagnosis Checker Monitor Light with ignition switch ON</p> <p style="text-align: right;">☞ page F-95</p> 	Yes	Go to next step
		No	<p>Light not ON/OFF with specified switch Check for cause (Refer to specified check sequence) ☞ page F-96</p>
			<p>Light always ON Check wiring between ECM terminal 1D and Self-Diagnosis Checker ☞ page F-7</p>
3	<p>Check if ECM terminal voltages are OK (2D, 2O and 2Q)</p> <p style="text-align: right;">☞ page F-146</p>	Yes	Go to next step
		No	<p>Check for cause (Refer to "Check Point for Each Terminal") ☞ page F-148</p>
4	<p>Check for correct intake manifold vacuum at idle</p> <p>Vacuum: More than 450 mmHg { 17.7 inHg }</p> 	Yes	Go to next step
		No	<p>Check for air leakage of intake-air system components ☞ page F-100</p>

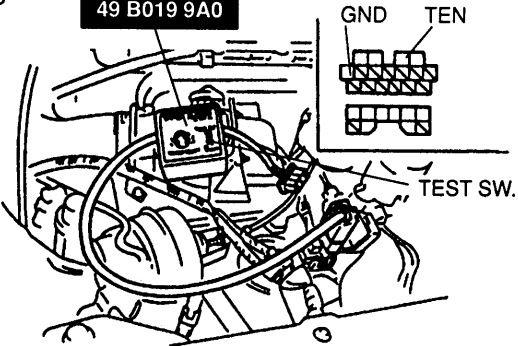
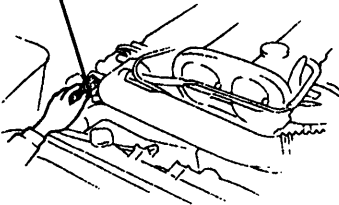
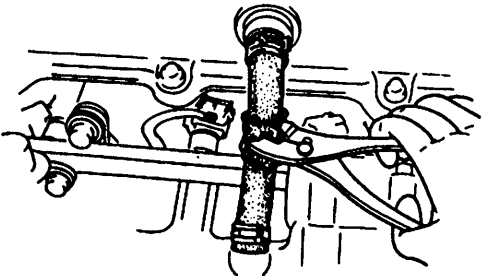
STEP	INSPECTION	ACTION	
5	Check if air cleaner element is clean ↳ page F-76	Yes	Go to next step
		No	Replace air cleaner element ↳ page F-99
6	Connect System Selector to data link connector and set Test Switch to "SELF TEST" when engine is cold Check if engine speed decreases as engine warms up ↳ page F-101 	Yes	Go to next step
		No	Check air valve ↳ page F-105
7	With condition of step 5, check for correct ignition timing at idle after warm-up ↳ page F-76 Ignition timing: $10^\circ \pm 1^\circ$ BTDC	Yes	Go to next step
		No	Adjust ↳ page F-76
8	Try known good ECM and check if condition improves ↳ page F-144	Yes	Replace ECM ↳ page F-143
		No	Change fuel to another brand

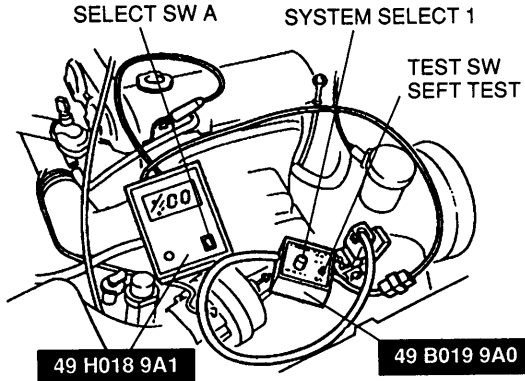
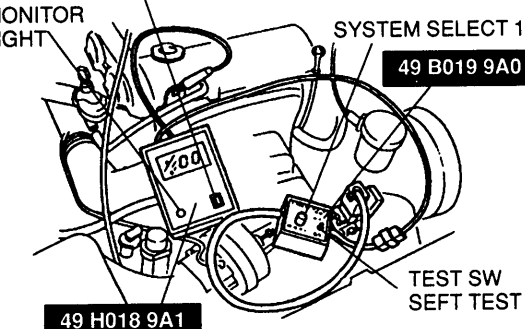
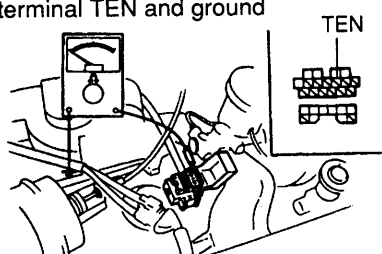
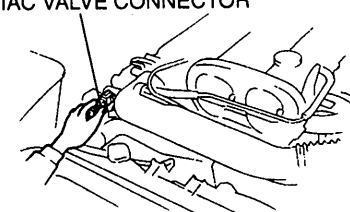
10	LOW IDLE SPEED/ROUGH IDLE — AFTER WARM-UP	
DESCRIPTION • Engine runs normally at idle during warm-up but vibrates excessively after warm-up		
[TROUBLESHOOTING HINTS]		
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>① Idle speed control malfunction</p> <p>② Air/fuel mixture too lean</p> <ul style="list-style-type: none"> • Air leakage in intake-air system • Low fuel line pressure </div> <div style="width: 45%;"> <p>③ Air/fuel mixture too rich</p> <ul style="list-style-type: none"> • Fuel injection control malfunction (Correction for coolant temperature) <p>④ Poor ignition spark</p> <p>⑤ Low engine compression</p> </div> </div>		
STEP	INSPECTION	ACTION
1	<p>Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON</p> <p style="text-align: right;">☞ page F-79</p> 	<p>Yes: Go to next step</p> <p>No: Diagnostic trouble code No. displayed Check for cause (Refer to specified check sequence) ☞ page F-81</p> <p>"88" flashes Check ECM terminal 1E voltage ☞ page F-145</p> <p>Specification: Battery positive voltage (Ignition switch ON)</p> <p>⇒ If OK, replace ECM ☞ page F-143 ⇒ If not OK, check wiring between ECM and Self-Diagnosis Checker ☞ page F-7</p>
2	<p>Check switches for correct operation by using Self-Diagnosis Checker Monitor Light with ignition switch ON</p> <p style="text-align: right;">☞ page F-95</p> 	<p>Yes: Go to next step</p> <p>No: Light not ON/OFF with specified switch Check for cause (Refer to specified check sequence) ☞ page F-96</p> <p>Light always ON Check wiring between ECM terminal 1D and Self-Diagnosis Checker ☞ page F-7</p>
3	<p>Disconnect idle air control valve connector at idle and check if engine condition is changed</p> 	<p>Yes: Go to next step</p> <p>No: Check idle air control valve ☞ page F-106</p>

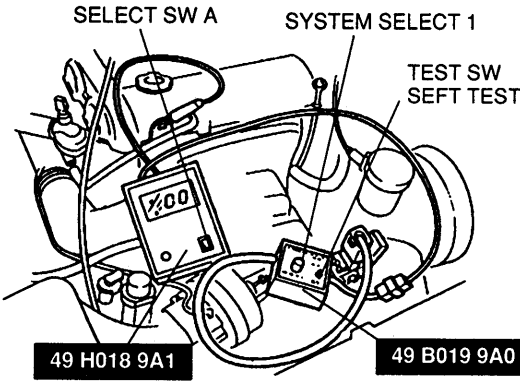
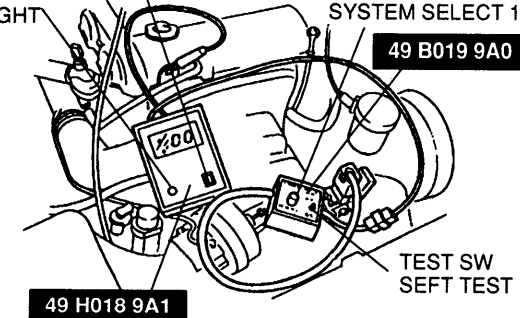
STEP	INSPECTION		ACTION
4	Check for correct intake manifold vacuum at idle Vacuum: More than 450 mmHg { 17.7 inHg } 	Yes	Go to next step
		No	Low vacuum Check for air leakage of intake-air system components ☞ page F-100
5	Check if ECM terminal voltages are OK (2D, 2O and 2Q) ☞ page F-146	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ page F-148
6	Check for correct ignition timing at idle ☞ page F-76 Ignition timing: 10° ± 1° BTDC	Yes	Check for correct idle speed ☞ page F-77 ⇨ If OK, go to next step ⇨ If not OK, adjust idle speed ☞ page F-77
		No	Adjust ☞ page F-76
7	Check for correct fuel line pressure at idle ☞ page F-110 Fuel line pressure: 265—313 kPa { 2.7—3.2 kgf/cm², 39—45 psi } (Vacuum hose to pressure regulator disconnected) 	Yes	Go to next step
		No	Low pressure Check fuel line pressure while pinching fuel return hose ⇨ If fuel line pressure quickly increases, check pressure regulator ☞ page F-118 ⇨ If fuel line pressure gradually increases, check for clogging between fuel pump and pressure regulator If not clogged, check fuel pump maximum pressure ☞ page F-115
8	Check if strong blue spark is visible at each disconnected high-tension lead while cranking engine	Yes	Go to next step
		No	Check ignition system (Refer to Troubleshooting "Misfire") ☞ section G
9	Check for correct engine compression ☞ section B 	Yes	Go to next step
		No	Check engine condition ☞ section B <ul style="list-style-type: none"> • Worn piston, piston rings or cylinder wall • Defective cylinder head gasket • Distorted cylinder head • Improper valve seating • Valve sticking in guide

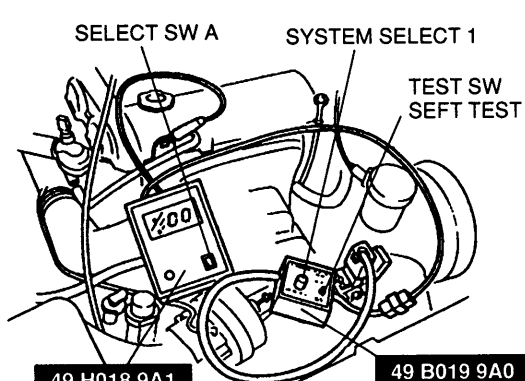
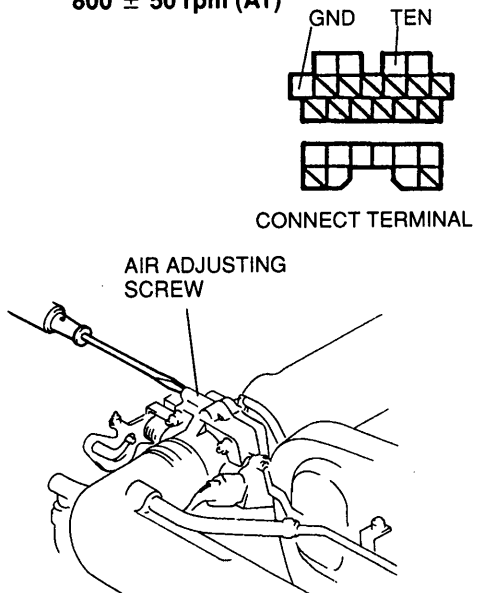
STEP	INSPECTION		ACTION
10	Check if spark plugs are OK WEAR AND CARBON BUILDUP PLUG GAP 1.0—1.1 mm { 0.040—0.043 in }		Yes Go to next step
	No Repair, clean, or replace ➤ section G		
11	Try known good ECM and check if condition improves ➤ page F-144		

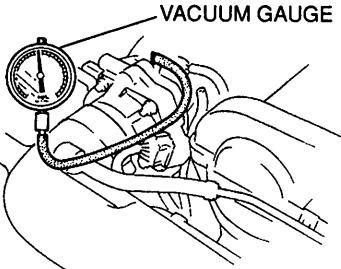
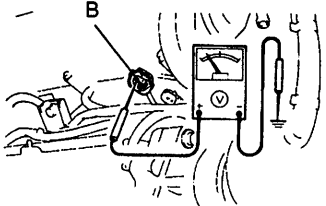
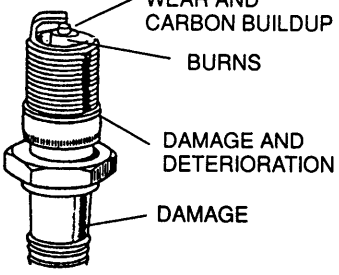
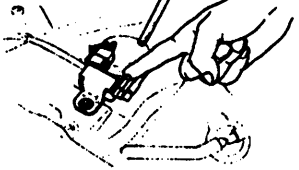
11	HIGH IDLE SPEED — AFTER WARM-UP	
<p>[TROUBLESHOOTING HINTS] Excessive intake air supplied to engine</p> <ul style="list-style-type: none"> ① Throttle valve not fully closed ② Idle speed control malfunction <ul style="list-style-type: none"> • Air valve not closing • Idle air control valve stuck • Incorrect coolant temperature signal 		
STEP	INSPECTION	ACTION
1	Check if throttle valve is fully closed when accelerator released	Yes: Go to next step No: Check if throttle linkage is correctly installed and operates freely ⇨ If OK, go to next step ⇨ If not OK, clean, adjust or replace linkage
2	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ⇨ page F-79 	Yes: Go to next step No: Diagnostic trouble code No. displayed Check for cause (Refer to specified check sequence) ⇨ page F-81 "88" flashes Check ECM terminal 1E voltage ⇨ page F-145 Specification: Battery positive voltage (Ignition switch ON) ⇨ If OK, replace ECM ⇨ If not OK, check wiring between ECM and Self-Diagnosis Checker
3	Check switches for correct operation by using Self-Diagnosis Checker Monitor Light with ignition switch ON ⇨ page F-95 	Yes: Go to next step No: Light not ON/OFF with specified switch Check for cause (Refer to specified check sequence) ⇨ page F-96 Light always ON Check wiring between ECM terminal 1D and Self-Diagnosis Checker ⇨ page F-7

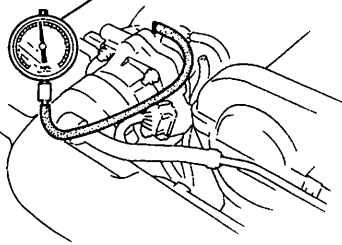
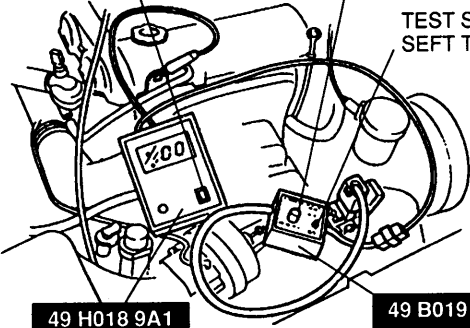
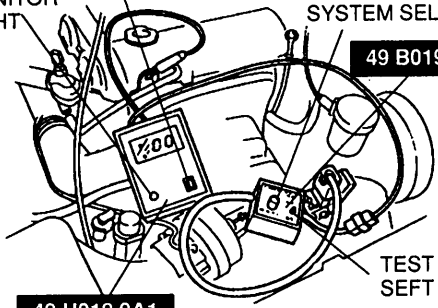
STEP	INSPECTION	ACTION	
4	Connect System Selector to data link connector and set test switch to "SELF TEST" when engine is cold Check if engine speed decreases as engine warms up 	Yes	Go to next step
		No	Check air valve ☞ page F-105
5	Disconnect idle air control valve connector at idle and check if engine condition is changed IAC VALVE CONNECTOR 	Yes	Go to next step
		No	Check idle air control valve ☞ page F-106
6	Pinch PCV hose with pliers and check if engine speed decreases 	Yes	Check PCV valve ☞ page F-130
		No	Go to next step
7	Check if ECM terminal voltages are OK (1R, 2D, 2O and 2Q) ☞ page F-146	Yes	Try known good ECM ☞ page F-144
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ page F-148

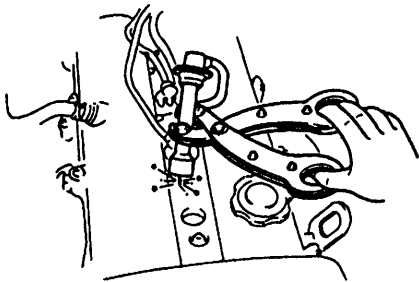
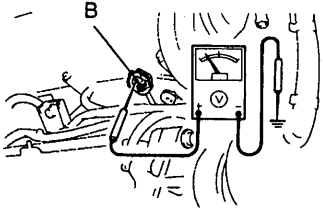
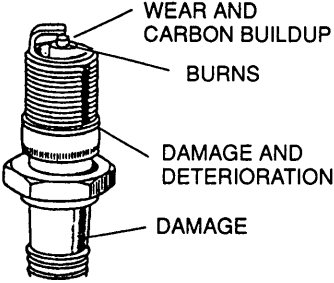
12	LOW IDLE SPEED — WHEN A/C, P/S, OR E/L ON	
DESCRIPTION	<ul style="list-style-type: none"> • Engine speed decreases at idle when A/C, P/S, or E/L ON • A/C, P/S, headlights, blower fan and electric coolant fan operate normally 	
[TROUBLESHOOTING HINTS]		
① Idle speed control malfunction <ul style="list-style-type: none"> • Engine speed feedback control malfunction • Idle air control valve stuck 		
STEP	INSPECTION	ACTION
1	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON page F-79	Yes: Go to next step
		No: Diagnostic trouble code No. displayed Check for cause (Refer to specified check sequence) page F-81 "88" flashes Check ECM terminal 1E voltage page F-145 Specification: Battery positive voltage (Ignition switch ON) ⇨ If OK, replace ECM page F-143 ⇨ If not OK, check wiring between ECM and Self-Diagnosis Checker page F-7
	2 Check switches for correct operation by using Self-Diagnosis Checker Monitor Light with ignition switch ON page F-95	Yes: Go to next step
		No: Light not ON/OFF with specified switch Check for cause (Refer to specified check sequence) page F-96 Light always ON Check wiring between ECM terminal 1D and Self-Diagnosis Checker page F-7
3	Check if continuity exists between data link connector terminal TEN and ground 	Yes: Check for short circuit in wiring between data link connector terminal TEN and ground page F-7
	No: Go to next step	
4	Disconnect idle air control valve connector at idle and check if engine condition is changed IAC VALVE CONNECTOR 	Yes: Try known good ECM and check if condition improves page F-144
	No: Check idle air control valve page F-106	

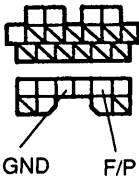
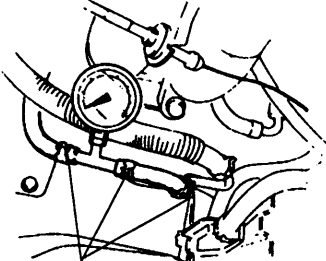
13	ROUGH IDLE JUST AFTER STARTING		
DESCRIPTION • Engine starts normally but vibrates excessively just after starting			
[TROUBLESHOOTING HINTS]			
① Fuel injection control and idle speed control malfunction • Start signal not input to ECM		② Idle speed misadjustment ③ Ignition timing misadjustment	
STEP	INSPECTION	ACTION	
1	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ page F-79	Yes	Go to next step
		No	Diagnostic trouble code No. displayed Check for cause (Refer to specified check sequence) ☞ page F-81
			"88" flashes Check ECM terminal 1E voltage ☞ page F-145 Specification: Battery positive voltage (Ignition switch ON) ⇨ If OK, replace ECM ☞ page F-143 ⇨ If not OK, check wiring between ECM and Self-Diagnosis Checker ☞ page F-7
2	Check switches for correct operation by using Self-Diagnosis Checker Monitor Light with ignition switch ON ☞ page F-95	Yes	Go to next step
		No	Light not ON/OFF with specified switch Check for cause (Refer to specified check sequence) ☞ page F-96
		Light always ON Check wiring between ECM terminal 1D and Self-Diagnosis Checker ☞ page F-7	
3	Check if ECM terminal 1C voltage is OK ☞ page F-145	Yes	Go to next step
	Voltage: Approx. 10 V (While cranking)	No	Check for cause (Refer to "Check Point for Each Terminal") ☞ page F-148
4	Check for correct ignition timing at idle ☞ page F-76	Yes	Check for correct idle speed ☞ page F-77 ⇨ If OK, go to next step ⇨ If not OK, adjust idle speed ☞ page F-77
	Ignition timing: 10° ± 1° BTDC	No	Adjust ☞ page F-76
5	Try known good ECM and check if condition improves ☞ page F-144		

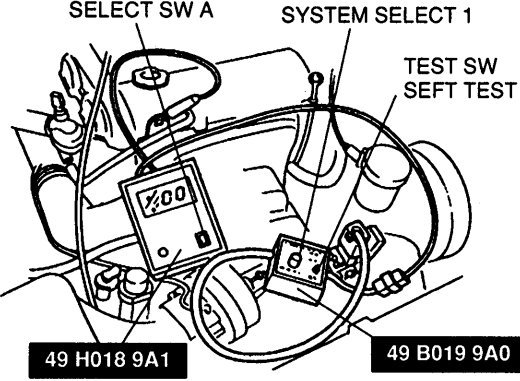
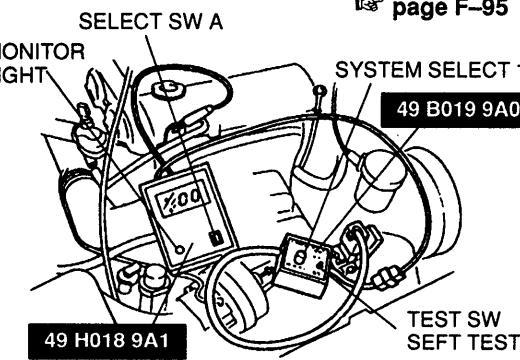
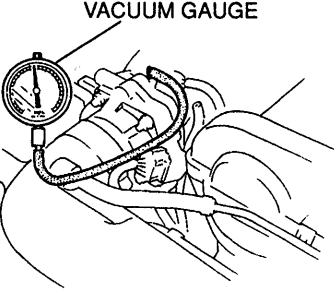
14	IDLE MOVES UP AND DOWN					
DESCRIPTION • Engine speeds up and down periodically at idle						
[TROUBLESHOOTING HINTS]						
① Fuel cut occurs at idle <ul style="list-style-type: none"> • Air valve not closing after warm-up and idle speed reaches to fuel cut speed ② Fuel injection amount fluctuating <ul style="list-style-type: none"> • Bad contact point inside mass air flow sensor ③ Air leakage in intake-air system ④ Poor ignition spark ⑤ Air/fuel mixture too rich <ul style="list-style-type: none"> • Fuel evaporative system malfunction ⑥ Low engine compression						
STEP	INSPECTION	ACTION				
1	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ page F-79 	<table border="0"> <tr> <td>Yes</td> <td>Go to next step</td> </tr> <tr> <td>No</td> <td> Diagnostic trouble code No. displayed Check for cause (Refer to specified check sequence) ☞ page F-81 "88" flashes Check ECM terminal 1E voltage ☞ page F-145 Specification: Battery positive voltage (Ignition switch ON) ⇨ If OK, replace ECM ☞ page F-143 ⇨ If not OK, check wiring between ECM and Self-Diagnosis Checker ☞ page F-7 </td> </tr> </table>	Yes	Go to next step	No	Diagnostic trouble code No. displayed Check for cause (Refer to specified check sequence) ☞ page F-81 "88" flashes Check ECM terminal 1E voltage ☞ page F-145 Specification: Battery positive voltage (Ignition switch ON) ⇨ If OK, replace ECM ☞ page F-143 ⇨ If not OK, check wiring between ECM and Self-Diagnosis Checker ☞ page F-7
Yes	Go to next step					
No	Diagnostic trouble code No. displayed Check for cause (Refer to specified check sequence) ☞ page F-81 "88" flashes Check ECM terminal 1E voltage ☞ page F-145 Specification: Battery positive voltage (Ignition switch ON) ⇨ If OK, replace ECM ☞ page F-143 ⇨ If not OK, check wiring between ECM and Self-Diagnosis Checker ☞ page F-7					
2	Check for correct idle speed ☞ page F-77 Idle speed: 850 ± 50 rpm (MT) 800 ± 50 rpm (AT) 	<table border="0"> <tr> <td>Yes</td> <td>Go to next step</td> </tr> <tr> <td>No</td> <td> Check if idle speed can be adjusted by turning air adjusting screw ⇨ If OK, adjust idle speed ⇨ If not OK, check air valve ☞ page F-105 </td> </tr> </table>	Yes	Go to next step	No	Check if idle speed can be adjusted by turning air adjusting screw ⇨ If OK, adjust idle speed ⇨ If not OK, check air valve ☞ page F-105
Yes	Go to next step					
No	Check if idle speed can be adjusted by turning air adjusting screw ⇨ If OK, adjust idle speed ⇨ If not OK, check air valve ☞ page F-105					
3	Check for correct ignition timing at idle ☞ page F-76 Ignition timing: 10° ± 1° BTDC	<table border="0"> <tr> <td>Yes</td> <td>Go to next step</td> </tr> <tr> <td>No</td> <td>Adjust ☞ page F-76</td> </tr> </table>	Yes	Go to next step	No	Adjust ☞ page F-76
Yes	Go to next step					
No	Adjust ☞ page F-76					

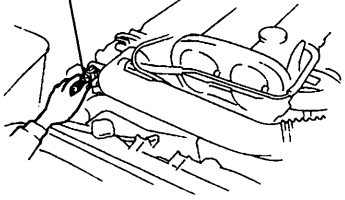
STEP	INSPECTION	ACTION	
4	Check for correct intake manifold vacuum at idle Intake manifold vacuum: More than 450 mmHg { 17.7 inHg } 	Yes	Go to next step
		No	Low vacuum Check for air leakage of intake-air system components ☞ page F-100
5	Check for fuel injector operating sound at idle by using sound scope or screwdriver	Yes	Go to step 7
		No	Go to step 6
6	Check if battery positive voltage exists at fuel injector connector terminal B with ignition switch ON 	Yes	Check if fuel injector resistance is OK ☞ page F-119 Resistance: 12—16 Ω ⇨ If OK, check wiring between ECM and fuel injector ☞ page F-7 ⇨ If not OK, replace fuel injector ☞ page F-119
		No	Check wiring between ECM and fuel injector ☞ page F-7
7	Disconnect each high-tension lead at idle and check if engine speed decreases equally each time	Yes	Disconnect each fuel injector connector at idle and check if engine speed decreases equally each time ⇨ If OK, go to step 9 ⇨ If not OK, check fuel injector for fuel leakage ☞ page F-120
		No	Go to step 8
8	Check if spark plugs are OK 	Yes	Check for correct engine compression ☞ section B ⇨ If OK, replace fuel injector ☞ page F-119 ⇨ If not OK, check for cause ☞ section B
		No	Repair, clean, or replace ☞ section G
9	Check if ECM terminal voltages are OK (1R, 1T, 2D, 2Q and 2X) ☞ page F-146	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ page F-148
10	Check if vacuum is felt at purge solenoid valve at idle 	Yes	Check purge solenoid valve ☞ page F-132
		No	Go to next step
11	Try known good ECM and check if condition improves ☞ page F-144		

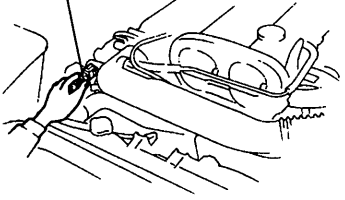
15	ENGINE STALLS AT IDLE — ALWAYS		
DESCRIPTION • Engine starts normally but vibrates excessively and stalls at idle in every condition			
[TROUBLESHOOTING HINTS]			
① Incorrect idle speed <ul style="list-style-type: none"> • Idle speed misadjustment • Idle speed control malfunction 		② Air/fuel mixture too rich or lean <ul style="list-style-type: none"> • Injector clogged or inoperative • Low fuel line pressure • Low intake air amount or air leakage ③ Poor ignition spark	
STEP	INSPECTION	YES/NO	ACTION
1	Check for correct intake manifold vacuum at idle Vacuum: More than 450 mmHg { 17.7 inHg } VACUUM GAUGE 	Yes	Go to next step
		No	Check for air leakage of intake air system components ☞ page F-100
2	Check if air cleaner element is clean ☞ page F-76	Yes	Go to next step
		No	Replace air cleaner element ☞ page F-99
3	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ page F-79 SELECT SW A SYSTEM SELECT 1  TEST SW SEFT TEST 49 H018 9A1 49 B019 9A0	Yes	Go to next step
		No	Diagnostic Trouble Code No. displayed Check for cause (Refer to specified check sequence) ☞ page F-81
		"88" flashes Check ECM terminal 1E voltage ☞ page F-145 Specification: Battery positive voltage (Ignition switch ON) ⇨ If OK, replace ECM ☞ page F-143 ⇨ If not OK, check wiring between ECM and Self-Diagnosis Checker ☞ page F-7	
4	Check switches for correct operation by using Self-Diagnosis Checker Monitor Light with ignition switch ON ☞ page F-95 SELECT SW A MONITOR LIGHT  SYSTEM SELECT 1 49 B019 9A0 TEST SW SEFT TEST 49 H018 9A1	Yes	Go to next step
		No	Light not ON/OFF with specified switch Check for cause (Refer to specified check sequence) ☞ page F-96
		Light always ON Check wiring between ECM terminal 1D and Self-Diagnosis Checker ☞ page F-7	




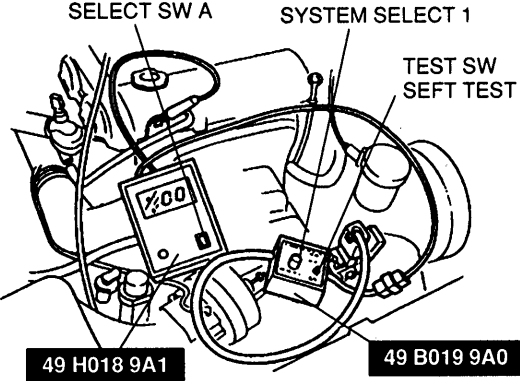





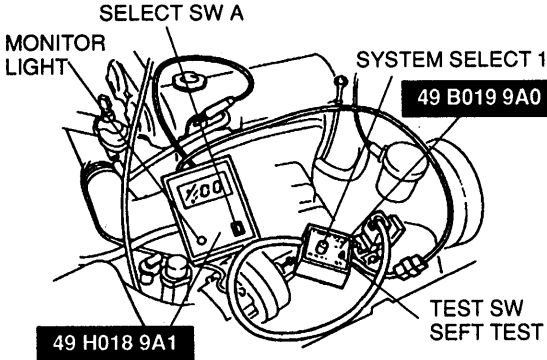


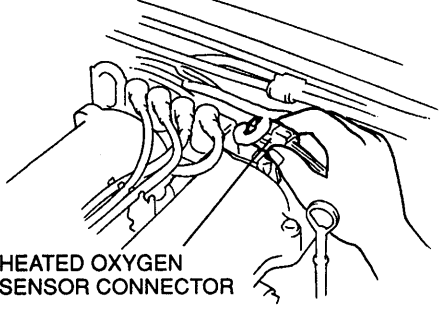

STEP	INSPECTION		ACTION
5	Check if ECM terminal voltages are OK (1R, 1T, 2D, 2O and 2Q) ☞ page F-146	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ page F-148
6	Check if strong blue spark is visible at each disconnected high-tension lead while cranking engine 	Yes	Go to next step
		No	Check ignition system (Refer to Troubleshooting "Misfire") ☞ section G
7	Check for fuel injector operating sound at each fuel injector at idle	Yes	Go to step 9
		No	Go to step 8
8	Check if battery positive voltage exists at fuel injector connector terminal B with ignition switch ON 	Yes	Check if fuel injector resistance is OK ☞ page F-119 Resistance: 12—16 Ω ⇨ If OK, check wiring between ECM and fuel injector ☞ page F-7 ⇨ If not OK, replace fuel injector ☞ page F-119
		No	Check wiring between ECM and fuel injector ☞ page F-7
9	Check if spark plugs are OK  <p>WEAR AND CARBON BUILDUP BURNS DAMAGE AND DETERIORATION DAMAGE</p> <p>PLUG GAP 1.0—1.1 mm { 0.040—0.043 in }</p>	Yes	Go to next step
		No	Repair or replace ☞ section G
10	Check for EGR system malfunction ☞ page F-124	Yes	Repair or replace
		No	Go to next step

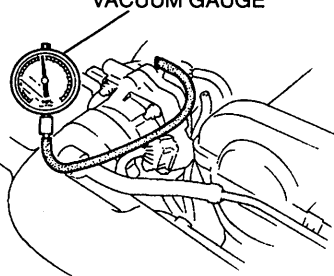
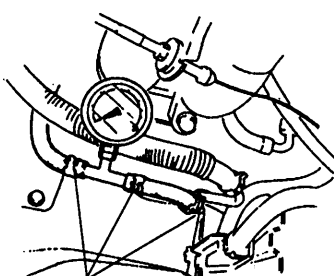
STEP	INSPECTION	ACTION
11	<p>Connect data link connector terminals F/P and GND by using jumper wire and check for correct fuel line pressure with ignition switch ON ➤ page F-110</p> <p>Fuel line pressure: 265—313 kPa { 2.7—3.2 kgf/cm², 39—45 psi }</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>GND F/P</p> </div> <div style="text-align: center;">  <p>INSTALL CLAMPS</p> </div> </div>	<p>Yes Go to next step</p> <hr/> <p>No Low pressure Check fuel line pressure while pinching fuel return hose</p> <ul style="list-style-type: none"> ⇒ If fuel line pressure quickly increases, check pressure regulator ➤ page F-118 ⇒ If fuel line pressure gradually increases, check for clogging between fuel pump and pressure regulator If not clogged, check fuel pump maximum pressure ➤ page F-115
12	<p>Try known good ECM and check if condition improves ➤ page F-144</p>	

16	ENGINE STALLS AT IDLE — BEFORE WARM-UP	
DESCRIPTION • Engine starts normally but vibrates excessively and stalls at idle before warm-up		
[TROUBLESHOOTING HINTS] ① Low intake air amount <ul style="list-style-type: none"> • Idle speed control malfunction • Air cleaner element clogged ② Air/fuel mixture too lean <ul style="list-style-type: none"> • Air leakage in intake-air system ③ Poor atomization of fuel <ul style="list-style-type: none"> • Low RVP (summer) fuel used in cold weather 		
STEP	INSPECTION	ACTION
1	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON page F-79  49 H018 9A1 49 B019 9A0	Yes Go to next step No Diagnostic trouble code No. displayed Check for cause (Refer to specified check sequence) page F-81 "88" flashes Check ECM terminal 1E voltage page F-145 Specification: Battery positive voltage (Ignition switch ON) ⇨ If OK, replace ECM page F-143 ⇨ If not OK, check wiring between ECM and Self-Diagnosis Checker page F-7
2	Check switches for correct operation by using Self-Diagnosis Checker Monitor Light with ignition switch ON page F-95  49 H018 9A1 49 B019 9A0	Yes Go to next step No Light not ON/OFF with specified switch Check for cause (Refer to specified check sequence) page F-96 Light always ON Check wiring between ECM terminal 1D and Self-Diagnosis Checker page F-7
3	Check if ECM terminal voltages are OK (2D, 2O and 2Q) page F-146	Yes Go to next step No Check for cause (Refer to "Check Point for Each Terminal") page F-148
4	Check for correct intake manifold vacuum at idle Vacuum: More than 450 mmHg { 17.7 inHg }  VACUUM GAUGE	Yes Go to next step No Check for air leakage of intake-air system components page F-95

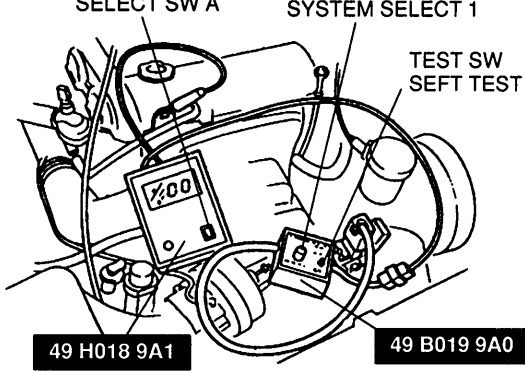
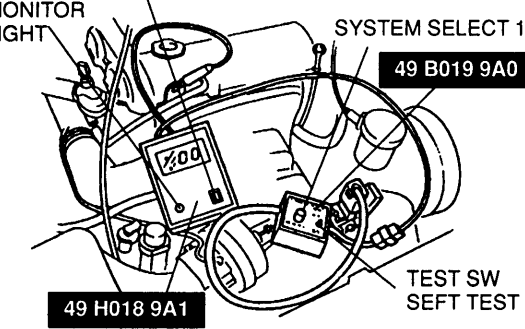
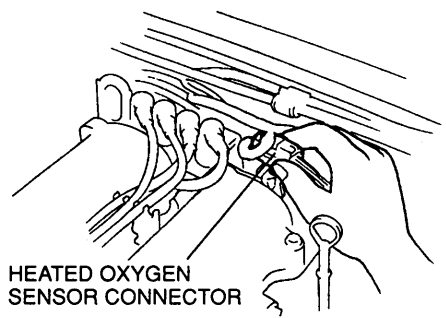
STEP	INSPECTION	ACTION	
5	Check if air cleaner element is clean ☞ page F-76	Yes	Go to next step
		No	Replace air cleaner element ☞ page F-99
6	Disconnect idle air control valve connector when engine is cold and note idle speed Check if engine speed decreases after warm-up IAC VALVE CONNECTOR 	Yes	Go to next step
		No	Check idle air control valve ☞ page F-106
7	Try known good ECM and check if condition improves ☞ page F-144	Yes	Replace ECM ☞ page F-143
		No	Change fuel to another brand

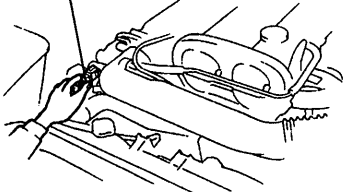
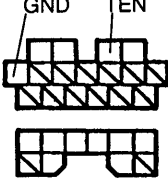
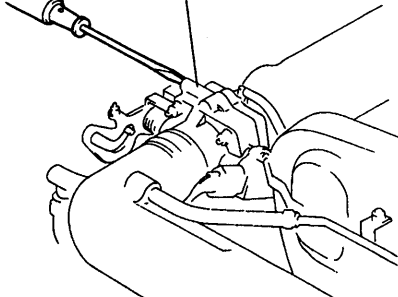
17	ENGINE STALLS AT IDLE — AFTER WARM-UP		
DESCRIPTION	• Engine runs normally at idle during warm-up but becomes rough and stalls after warm-up		
[TROUBLESHOOTING HINTS]			
① Air/fuel mixture too lean		② Low intake air amount	
• Air leakage in intake-air system		• Idle speed control malfunction	
STEP	INSPECTION	ACTION	
1	Check if air is leaked from intake-air system component ☞ page F-100	Yes	Repair or replace ☞ page F-99
		No	Go to next step
2	Disconnect idle air control valve connector at idle and check if engine condition is changed IAC VALVE CONNECTOR 	Yes	Go to next step
		No	Check idle air control valve ☞ page F-106
3	Go to troubleshooting No.10 "LOW IDLE SPEED/ROUGH IDLE—AFTER WARM-UP" ☞ page F-31		

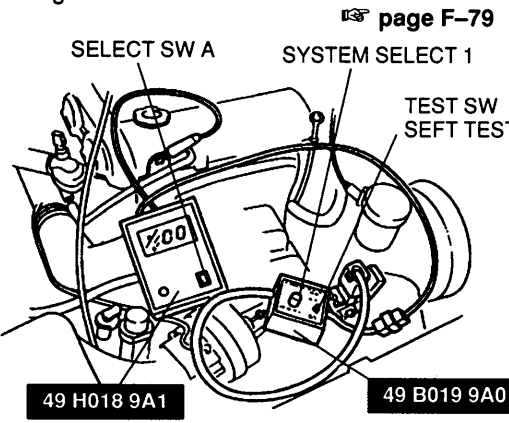
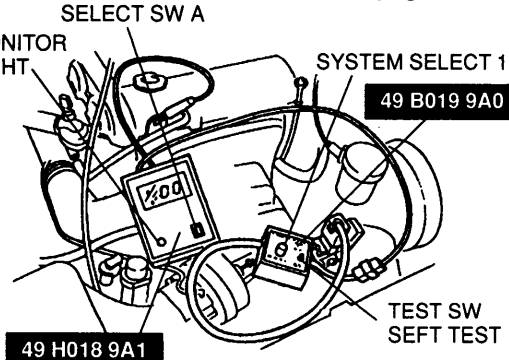
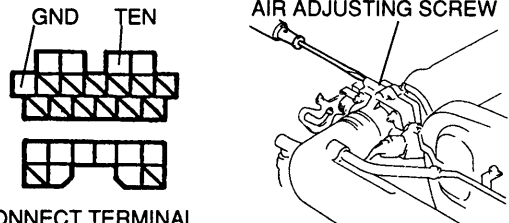
18	ENGINE STALLS DURING START-UP		
DESCRIPTION • Engine unexpectedly stops running while starting			
[TROUBLESHOOTING HINTS] ① Misfire occurs when depressing accelerator <ul style="list-style-type: none"> • Air/fuel mixture too rich or too lean • Incorrect ignition timing • Weak ignition ② Lack of engine torque for start-up <ul style="list-style-type: none"> • Air/fuel mixture too rich or too lean • Low intake air amount • Low engine compression 			
STEP	INSPECTION		ACTION
1	Check if brakes are dragging  section P	Yes	Repair  section P
		No	Go to next step
2	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON  page F-79 	Yes	Go to next step
		No	Diagnostic trouble code No. displayed Check for cause (Refer to specified check sequence)  page F-81
			"88" flashes Check ECM terminal 1E voltage  page F-145 Specification: Battery positive voltage (Ignition switch ON) ⇨ If OK, replace ECM  page F-143 ⇨ If not OK, check wiring between ECM and Self-Diagnosis Checker  page F-7
3	Check switches for correct operation by using Self-Diagnosis Checker Monitor Light with ignition switch ON  page F-95 	Yes	Go to next step
		No	Light not ON/OFF with specified switch Check for cause (Refer to specified check sequence)  page F-96
			Light always ON Check wiring between ECM terminal 1D and Self-Diagnosis Checker  page F-7
4	Disconnect heated oxygen sensor connector and check if condition improves 	Yes	Check heated oxygen sensor  page F-156
		No	Go to next step

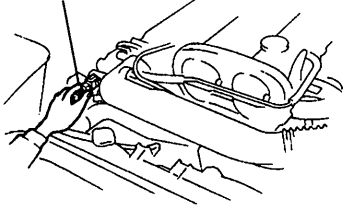


STEP	INSPECTION	ACTION	
5	Check if ECM terminal voltages are OK (2M, 2O and 2Q) ☞ page F-146	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ page F-139
6	Check if throttle linkage is correctly installed and operates freely	Yes	Go to next step
		No	Correct, clean, or replace as required any binding or damaged linkage and adjust cable deflection at throttle body ☞ page F-101
7	Check for correct intake manifold vacuum at idle Vacuum: More than 450 mmHg { 17.7 inHg } VACUUM GAUGE 	Yes	Go to next step
		No	Check for air leakage of intake-air system components ☞ page F-110
8	Check if air cleaner element is clean ☞ page F-76	Yes	Go to next step
		No	Replace air cleaner element ☞ page F-99
9	Check for correct ignition timing at idle ☞ page F-76 Ignition timing: 10° ± 1° BTDC	Yes	Check if ignition timing advances when accelerating ⇨ If advances, go to next step ⇨ If no advance, replace ECM ☞ page F-143
		No	Adjust ☞ page F-76
10	Check for correct fuel line pressure at idle ☞ page F-110 Fuel line pressure: 265—313 kPa { 2.7—3.2 kgf/cm², 39—45 psi } (Vacuum hose to pressure regulator disconnected)  INSTALL CLAMPS	Yes	Check if fuel line pressure decreases when accelerating quickly ⇨ If decreases, check fuel pump maximum pressure ☞ page F-115 ⇨ If not decrease, check fuel line and filter for clogging
		No	Low pressure Check fuel line pressure while pinching fuel return hose ⇨ If fuel line pressure quickly increases, check pressure regulator ☞ page F-118 ⇨ If fuel line pressure gradually increases, check for clogging between fuel pump and pressure regulator If not clogged, check fuel pump maximum pressure ☞ page F-115
		High pressure Check if fuel return hose is clogged or restricted ⇨ If OK, replace pressure regulator ☞ page F-119 ⇨ If not OK, replace fuel return hose	

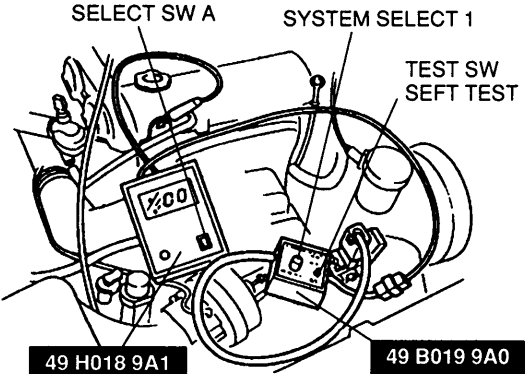
STEP	INSPECTION	ACTION	
11	Check for correct engine compression ☞ section B	Yes	Go to next step
		No	Check engine condition ☞ section B <ul style="list-style-type: none"> • Worn piston, piston rings or cylinder wall • Defective cylinder head gasket • Distorted cylinder head • Improper valve seating • Valve sticking in guide
12	Try known good ECM and check if condition improves ☞ page F-144		

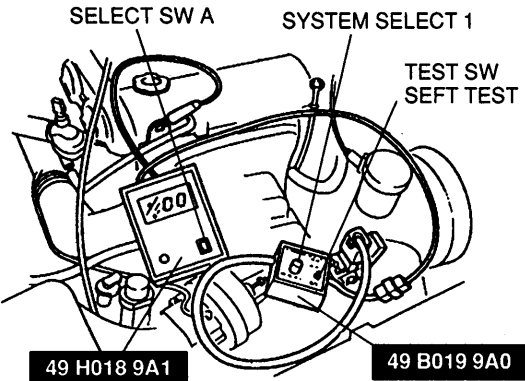
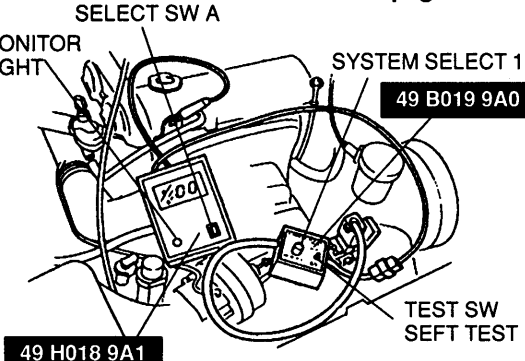
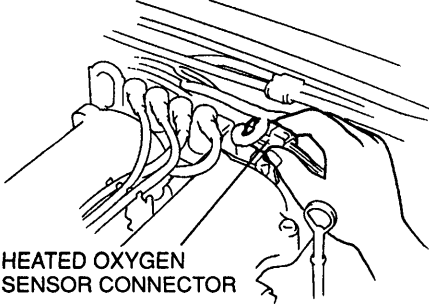
19	ENGINE STALLS ON DECELERATION		
DESCRIPTION • Engine unexpectedly stops running while decelerating or after deceleration			
[TROUBLESHOOTING HINTS]			
Engine speed drops too much when releasing accelerator			
① Idle speed control malfunction ② Fuel cut control malfunction		③ Engine feedback control malfunction ④ Idle speed misadjustment	
STEP	INSPECTION	ACTION	
1	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ➡ page F-79	Yes	Go to next step
		No	Diagnostic trouble code No. displayed Check for cause (Refer to specified check sequence) ➡ page F-81
			"88" flashes Check ECM terminal 1E voltage ➡ page F-145 Specification: Battery positive voltage (Ignition switch ON) ⇨ If OK, replace ECM ➡ page F-143 ⇨ If not OK, check wiring between ECM and Self-Diagnosis Checker ➡ page F-7
2	Check switches for correct operation by using Self-Diagnosis Checker Monitor Light with ignition switch ON ➡ page F-95	Yes	Go to next step
		No	Light not ON/OFF with specified switch Check for cause (Refer to specified check sequence) ➡ page F-96
			Light always ON Check wiring between ECM terminal 1D and Self-Diagnosis Checker ➡ page F-7
3	Disconnect heated oxygen sensor connector and check if condition improves 	Yes	Check heated oxygen sensor ➡ page F-156
		No	Go to next step
4	Check if ECM terminal voltages are OK (2D, 2O, 2U, 2V 2Q, 2Y and 2Z) ➡ page F-146	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ➡ page F-148

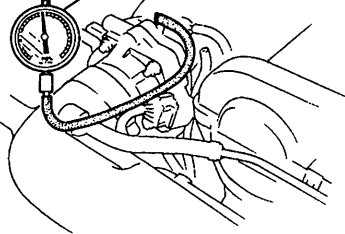
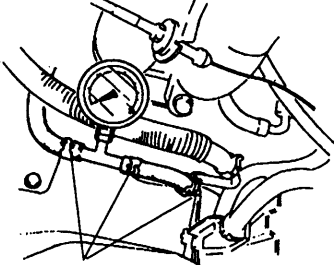
STEP	INSPECTION		ACTION
5	Disconnect idle air control valve connector at idle and check if engine condition is changed IAC VALVE CONNECTOR 	Yes	Go to next step
		No	Check idle air control valve ☞ page F-106
6	Check for correct idle speed ☞ page F-77  CONNECT TERMINAL AIR ADJUSTING SCREW 	Yes	Go to next step
		No	Adjust ☞ page F-77
7	Try known good ECM and check if condition improves ☞ page F-144		

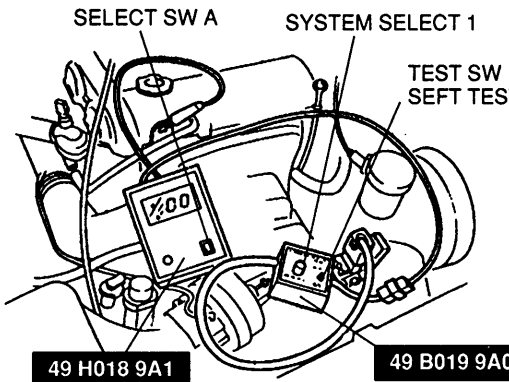
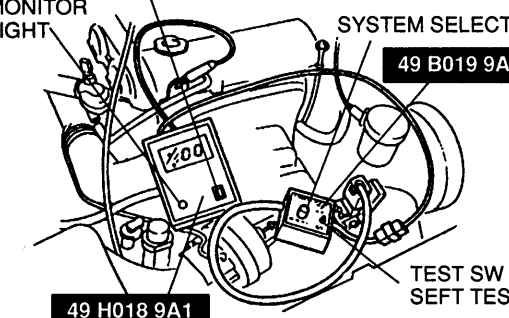
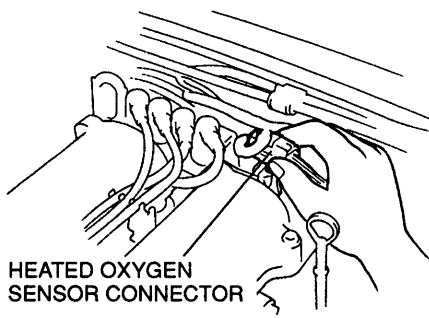
20	ENGINE STALLS AT IDLE — WHEN A/C, P/S, OR E/L ON		
DESCRIPTION	<ul style="list-style-type: none"> • Engine unexpectedly stops running at idle when A/C, P/S, or E/L ON • A/C, P/S, headlight, blower fan and electric coolant fan OK 		
[TROUBLESHOOTING HINTS]	① Idle speed control malfunction <ul style="list-style-type: none"> • No input signal from switch • Idle speed misadjustment • Idle air control valve stuck 		
STEP	INSPECTION		ACTION
1	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ page F-79 	Yes	Go to next step
		No	Diagnostic trouble code No. displayed Check for cause (Refer to specified check sequence) ☞ page F-81
			"88" flashes Check ECM terminal 1E voltage ☞ page F-145 Specification: Battery positive voltage (Ignition switch ON) ⇨ If OK, replace ECM ☞ page F-143 ⇨ If not OK, check wiring between ECM and Self-Diagnosis Checker ☞ page F-7
2	Check switches for correct operation by using Self-Diagnosis Checker Monitor Light with ignition switch ON ☞ page F-95 	Yes	Go to next step
		No	Light not ON/OFF with specified switch Check for cause (Refer to specified check sequence) ☞ page F-96
			Light always ON Check wiring between ECM terminal 1D and Self-Diagnosis Checker ☞ page F-7
3	Check if ECM terminal voltages are OK (1G, 1P, 1U, 2D, 2Q and 2W) ☞ page F-146	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ page F-148
4	Check for correct idle speed ☞ page F-77 	Yes	Go to next step
		No	Adjust ☞ page F-77

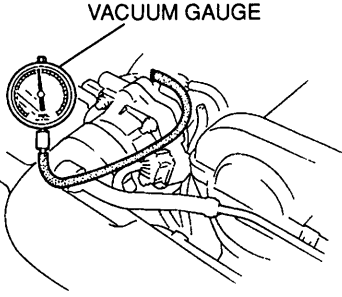
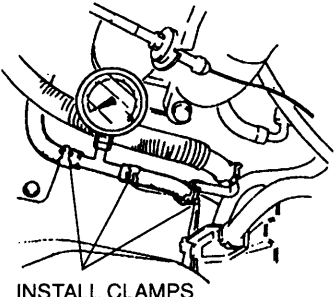
STEP	INSPECTION		ACTION
5	Disconnect idle air control valve connector at idle and check if engine condition is changed IAC VALVE CONNECTOR 	Yes	Go to next step
		No	Check idle air control valve  page F-106
6	Try known good ECM and check if condition improves  page F-144		

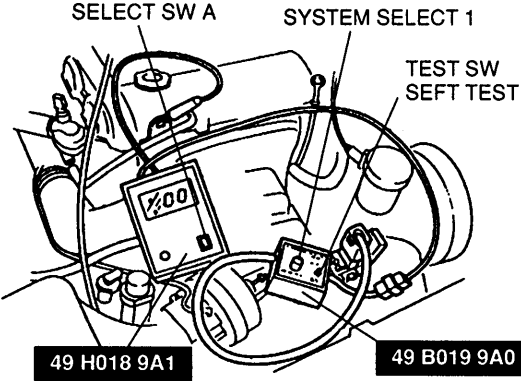
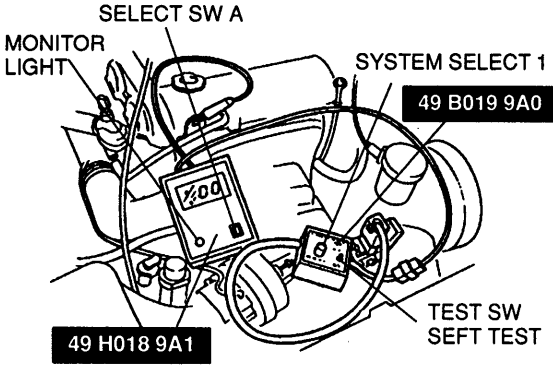
21	ENGINE STALLS SUDDENLY (INTERMITTENT)		
DESCRIPTION	<ul style="list-style-type: none"> • Engine intermittently stops running • Before stalling, engine condition OK 		
[TROUBLESHOOTING HINTS]			
① Intermittently no spark or no fuel injection <ul style="list-style-type: none"> • Poor connection in wiring harness 			
STEP	INSPECTION		ACTION
1	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ↳ page F-79	Yes	Go to next step
		No	Diagnostic trouble code No. displayed Check for cause (Refer to specified check sequence) ↳ page F-81 When checking wiring harness and connectors, tap, move, and wiggle suspected faulty sensor and/or harness to recreate problem "88" flashes Check ECM terminal 1E voltage ↳ page F-145 Specification: Battery positive voltage (Ignition switch ON) ⇨ If OK, replace ECM ↳ page F-143 ⇨ If not OK, check wiring between ECM and Self-Diagnosis Checker ↳ page F-7
2	Tap, move, and wiggle harness and connectors to check if ECM terminal voltages are OK (1B, 2A, 2B and 2C) ↳ page F-146	Yes	Go to Troubleshooting No.2 "CRANKS NORMALLY BUT WILL NOT START (NO COMBUSTION)" ↳ page F-17
		No	Check for cause (Refer to "Check Point for Each Terminal") ↳ page F-148




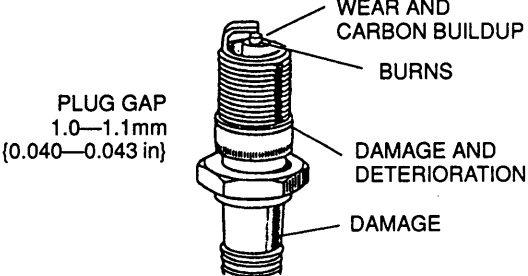

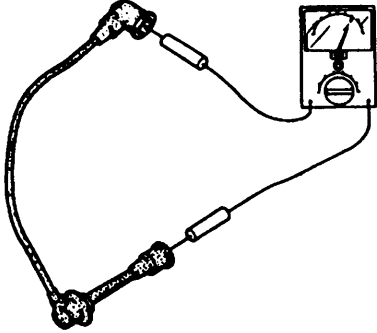




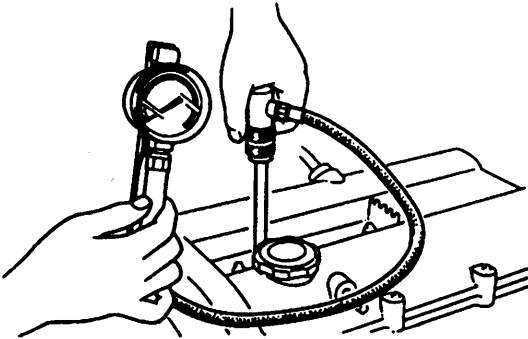

22	HESITATES/STUMBLES ON ACCELERATION		
DESCRIPTION • Flat spot occurs just after accelerator depressed or mild jerking occurs during acceleration			
[TROUBLESHOOTING HINTS]			
① Air/fuel mixture leaning when depressing accelerator <ul style="list-style-type: none"> • Fuel injection control malfunction (Correction for accelerating condition) • Air leakage in intake-air system • Fuel line pressure low • Spark advance control malfunction 			
STEP	INSPECTION		ACTION
1	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ page F-79	Yes	Go to next step
		No	Diagnostic trouble code No. displayed Check for cause (Refer to specified check sequence) ☞ page F-81 "88" flashes Check ECM terminal 1E voltage ☞ page F-145 Specification: Battery positive voltage (Ignition switch ON) ⇨ If OK, replace ECM ☞ page F-143 ⇨ If not OK, check wiring between ECM and Self-Diagnosis Checker ☞ page F-7
2	Check switches for correct operation by using Self-Diagnosis Checker Monitor Light with ignition switch ON ☞ page F-95	Yes	Go to next step
		No	Light not ON/OFF with specified switch Check for cause (Refer to specified check sequence) ☞ page F-96 Light always ON Check wiring between ECM terminal 1D and Self-Diagnosis Checker ☞ page F-7
3	Disconnect heated oxygen sensor connector and check if condition improves	Yes	Check heated oxygen sensor ☞ page F-156
		No	Go to next step
4	Check if ECM terminal voltages are OK (2M, 2O, and 2Q) ☞ page F-146	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ page F-148

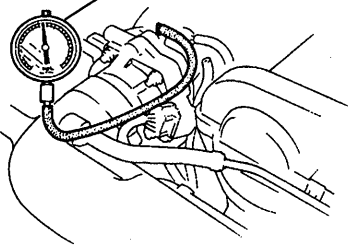
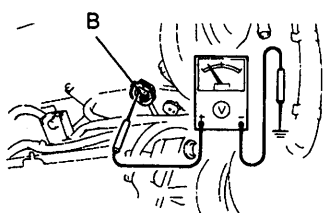
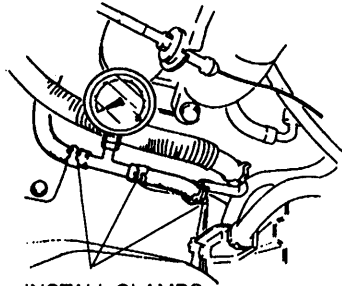
STEP	INSPECTION	ACTION	
5	Check if throttle linkage is correctly installed and operates freely	Yes	Go to next step
		No	Correct, clean, or replace any binding or damaged linkage and adjust cable deflection at throttle body ☞ page F-103
6	Check if air duct and air hoses are correctly installed ☞ page F-99	Yes	Go to next step
		No	Repair ☞ page F-99
7	Check for correct intake manifold vacuum at idle Vacuum: More than 450 mmHg { 17.7 inHg } VACUUM GAUGE 	Yes	Go to next step
		No	Check for air leakage of intake-air system components ☞ page F-100
8	Check if air cleaner element is clean ☞ page F-76	Yes	Go to next step
		No	Replace air cleaner element ☞ page F-99
9	Check for correct ignition timing at idle ☞ page F-76 Ignition timing: 10° ± 1° BTDC	Yes	Check if ignition timing advances when accelerating ⇒ If advances, go to next step ⇒ If no advance, replace ECM ☞ page F-143
		No	Adjust ☞ page F-76
10	Check for correct fuel line pressure at idle ☞ page F-110 Fuel line pressure: 265—313 kPa { 2.7—3.2 kgf/cm², 39—45 psi } (Vacuum hose to pressure regulator disconnected)  INSTALL CLAMPS	Yes	Check if fuel line pressure decreases when accelerating quickly ⇒ If decreases, check fuel line and filter for clogging ⇒ If no decrease, go to next step
		No	Low pressure Check fuel line pressure while pinching fuel return hose ⇒ If fuel line pressure quickly increases, check pressure regulator ☞ page F-118 ⇒ If fuel line pressure gradually increases, check for clogging between fuel pump and pressure regulator If not clogged, check fuel pump maximum pressure ☞ page F-115
11	Check for EGR system malfunction ☞ page F-124	Yes	Repair or replace
		No	Go to next step
12	Check if exhaust system is restricted ☞ page F-128	Yes	Repair or replace ☞ page F-128
		No	Go to next step
13	Try known good ECM and check if condition improves ☞ page F-144		


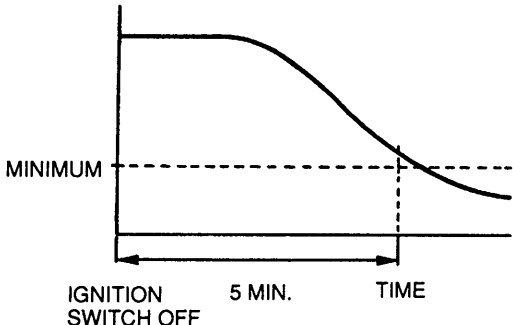


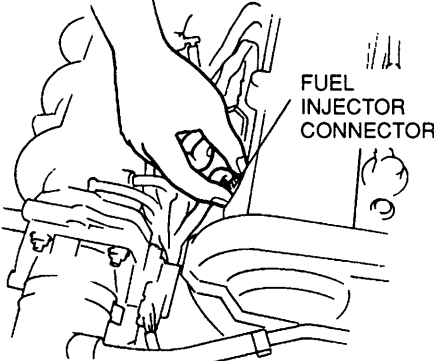


23	SURGES WHILE CRUISING		
DESCRIPTION • Unexpected change in engine speed which is usually repetitive			
[TROUBLESHOOTING HINTS] ① Air/Fuel mixture too lean or too rich <ul style="list-style-type: none"> • Fuel injection control malfunction • Air leakage of intake air system • Fuel line pressure low • Fuel evaporative system malfunction • Spark advance control malfunction 			
STEP	INSPECTION		ACTION
1	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ page F-79	Yes	Go to next step
		No	Diagnostic trouble code No. displayed Check for cause (Refer to specified check sequence) ☞ page F-81
			"88" flashes Check ECM terminal 1E voltage ☞ page F-145 Specification: Battery positive voltage (Ignition switch ON) ⇨ If OK, replace ECM ☞ page F-143 ⇨ If not OK, check wiring between ECM and Self-Diagnosis Checker ☞ page F-7
2	Check switches for correct operation by using Self-Diagnosis Checker Monitor Light with ignition switch ON ☞ page F-95	Yes	Go to next step
		No	Light not ON/OFF with specified switch Check for cause (Refer to specified check sequence) ☞ page F-96
			Light always ON Check wiring between ECM terminal 1D and Self-Diagnosis Checker ☞ page F-7
3	Disconnect heated oxygen sensor connector and check if condition improves 	Yes	Check heated oxygen sensor ☞ page F-156
		No	Go to next step
4	Check if ECM terminal voltages are OK (1R, 1T, 2M, 2O, and 2Q) ☞ page F-146	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ page F-148

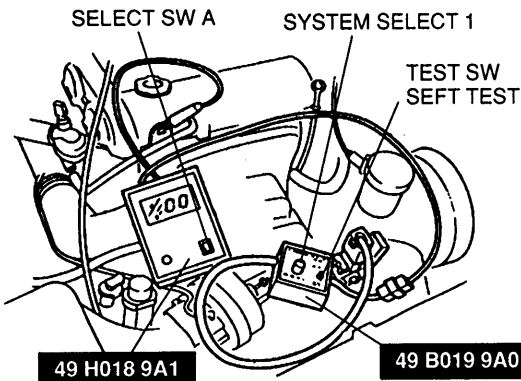
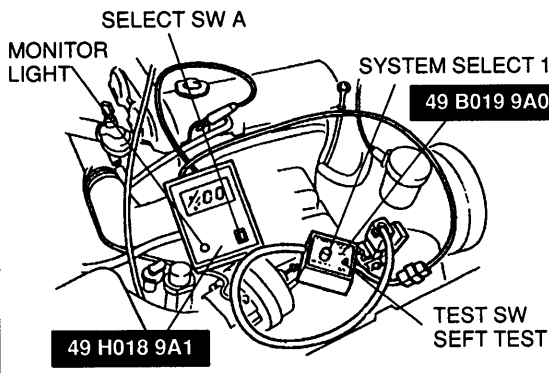
STEP	INSPECTION	ACTION	
5	Check if throttle linkage is correctly installed and operates freely	Yes	Go to next step
		No	Correct, clean, or replace any binding or damaged linkage and adjust cable deflection at throttle body 🔧 page F-103
6	Check for correct intake manifold vacuum at idle Vacuum: More than 450 mmHg { 17.7 inHg } 	Yes	Go to next step
		No	Check for air leakage of intake air system components 🔧 page F-100
7	Check if air cleaner element is clean 🔧 page F-76	Yes	Go to next step
		No	Replace air cleaner element 🔧 page F-99
8	Check for correct ignition timing at idle 🔧 page F-76 Ignition timing: 10° ± 1° BTDC	Yes	Check if ignition timing advances when accelerating ⇨ If advances, go to next step ⇨ If no advance, replace ECM 🔧 page F-143
		No	Adjust 🔧 page F-76
9	Check for correct fuel line pressure at idle 🔧 page F-110 Fuel line pressure: 265—313 kPa { 2.7—3.2 kgf/cm² , 39—45 psi } (Vacuum hose to pressure regulator disconnected) 	Yes	Check if fuel line pressure decreases when accelerating quickly ⇨ If decreases, check fuel line and filter for clogging ⇨ If no decrease, go to next step
		No	Low pressure Check fuel line pressure while pinching fuel return hose ⇨ If fuel line pressure quickly increases, check pressure regulator 🔧 page F-113 ⇨ If fuel line pressure gradually increases, check for clogging between fuel pump and pressure regulator If not clogged, check fuel pump maximum pressure 🔧 page F-115
10	Check for EGR system malfunction 🔧 page F-124	Yes	Repair or replace
		No	Go to next step
11	Check if exhaust system is restricted 🔧 page F-128	Yes	Repair or replace
		No	Go to next step
12	Try known good ECM and check if condition improves 🔧 page F-144		

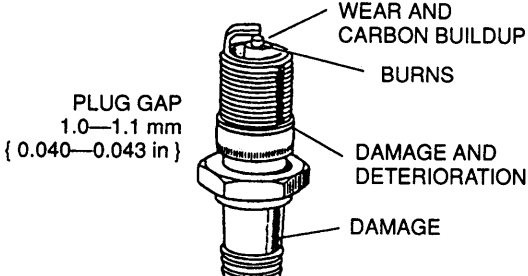
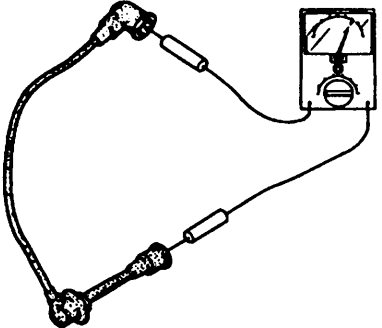
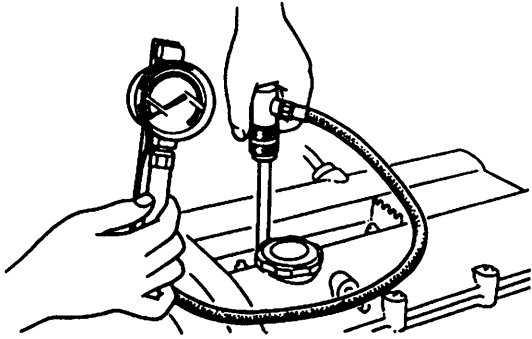
24	LACK OF POWER	
DESCRIPTION	<ul style="list-style-type: none"> • Poor performance under load • Reduced maximum speed 	
<p>[TROUBLESHOOTING HINTS]</p> <p>① Factors other than engine malfunction</p> <ul style="list-style-type: none"> • Clutch slipping • Brake dragging • Low tire pressure • Unrecommended tire size • Overloaded <p>② Low intake air amount</p> <ul style="list-style-type: none"> • Throttle valve not open fully • Clogged intake-air system <p>③ Air/fuel mixture too lean or too rich</p> <ul style="list-style-type: none"> • Fuel line pressure low or high • Insufficient fuel injection <p>④ Poor ignition</p> <p>⑤ Low engine compression</p>		
STEP	INSPECTION	ACTION
1	Check factors other than engine <ul style="list-style-type: none"> • Clutch slipping • Brake dragging • Low tire pressure • Unrecommended tire size ↳ section H ↳ section P ↳ section Q ↳ section Q	Yes: Go to next step No: Repair
2	Check if throttle valve opens fully when depressing accelerator fully	Yes: Go to next step No: Check if accelerator cable is correctly installed ↳ page F-103 ⇨ If OK, check throttle body ↳ page F-101 ⇨ If not OK, install accelerator cable correctly ↳ page F-103
3	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ↳ page F-79 	Yes: Go to next step No: Diagnostic trouble code No. displayed Check for cause (Refer to specified check sequence) ↳ page F-81 "88" flashes Check ECM terminal 1E voltage ↳ page F-145 Specification: Battery positive voltage (Ignition switch ON) ⇨ If OK, replace ECM ↳ page F-143 ⇨ If not OK, check wiring between ECM and Self-Diagnosis Checker ↳ page F-7
4	Check switches for correct operation by using Self-Diagnosis Checker Monitor Light with ignition switch ON ↳ page F-95 	Yes: Go to next step No: Light not ON/OFF with specified switch Check for cause (Refer to specified check sequence) ↳ page F-96 Light always ON Check wiring between ECM terminal 1D and Self-Diagnosis Checker ↳ page F-7

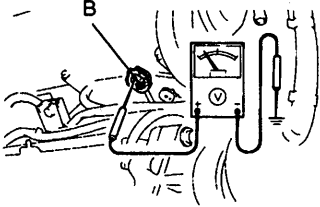
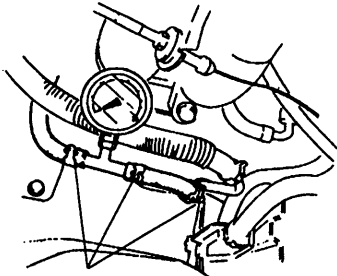
STEP	INSPECTION	ACTION	
5	Check for correct ignition timing at idle  page F-76 Ignition timing: 10° ± 1° BTDC	Yes	Check if ignition timing advances when accelerating ⇨ If advances, go to next step ⇨ If no advance, replace ECM  page F-143
		No	Adjust  page F-76
6	Check if spark plugs are OK 	Yes	Go to next step
		No	Repair, clean, or replace  section G
7	Check if resistance of high-tension leads are OK Resistance: 16 kΩ per 1 m { 3.28 ft } 	Yes	Go to next step
		No	Replace  section G
8	Check if resistance of ignition coil is OK  section G Resistance: Secondary coil ... 8.7—12.9 kΩ [20 °C { 68 °F }]	Yes	Go to next step
		No	Replace  section G
9	Check for correct engine compression  section B 	Yes	Go to next step
		No	Check engine condition  section B <ul style="list-style-type: none"> • Worn piston, piston rings or cylinder wall • Defective cylinder head gasket • Distorted cylinder head • Improper valve seating • Valve sticking in guide


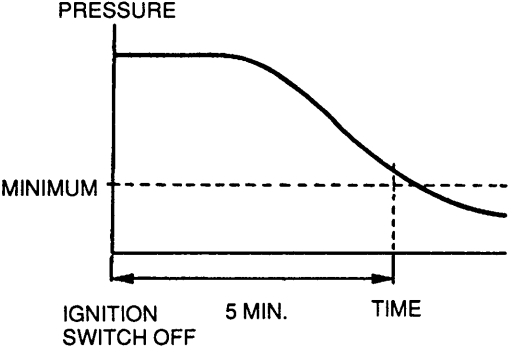


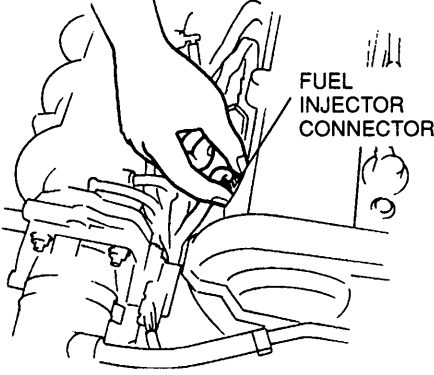


STEP	INSPECTION		ACTION
10	Check for correct intake manifold vacuum at idle Vacuum: More than 450 mmHg { 17.7 inHg } VACUUM GAUGE 	Yes	Go to next step
		No	Check for air leakage of intake-air system components ☞ page F-100
11	Check if air cleaner element is clean ☞ page F-76	Yes	Go to next step
		No	Replace air cleaner element ☞ page F-99
12	Check for fuel injector operating sound at idle	Yes	Go to step 14
		No	Go to step 13
13	Check if battery positive voltage exists at fuel injector connector terminal B with ignition switch ON 	Yes	Check if fuel injector resistance is OK ☞ page F-119 Resistance: 12—16 Ω ⇨ If OK, check wiring between ECM and fuel injector ☞ page F-7 ⇨ If not OK, check fuel injector for fuel leakage ☞ page F-120
		No	Check wiring between ECM and fuel injector ☞ page F-7
14	Check if ECM terminal voltages are OK (1R, 1T, 2D, 2O and 2Q) ☞ page F-146	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ page F-148
15	Check for correct fuel line pressure at idle ☞ page F-110 Fuel line pressure: 265—313 kPa { 2.7—3.2 kgf/cm², 39—45 psi } (Vacuum hose to pressure regulator disconnected)  INSTALL CLAMPS	Yes	Check if fuel line pressure decreases when accelerating quickly ⇨ If decreases, check fuel pump maximum pressure ☞ page F-115 If OK, check fuel line and filter for clogging ⇨ If no decreases, go to next step
		No	Low pressure Check fuel line pressure while pinching fuel return hose ⇨ If fuel line pressure quickly increases, check pressure regulator ☞ page F-118 ⇨ If fuel line pressure gradually increases, check for clogging between fuel pump and pressure regulator ☞ page F-119 If not clogged, check fuel pump maximum pressure ☞ page F-115

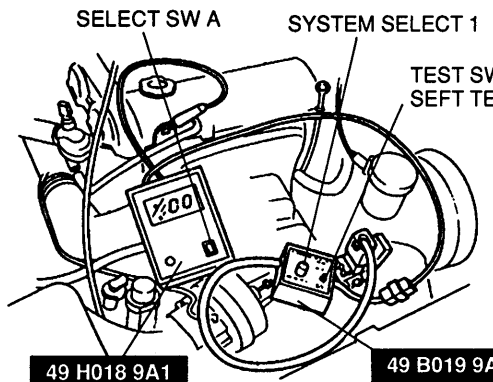
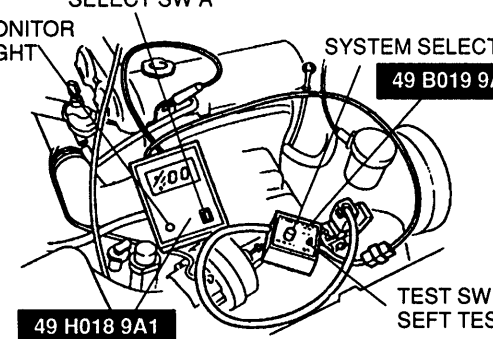
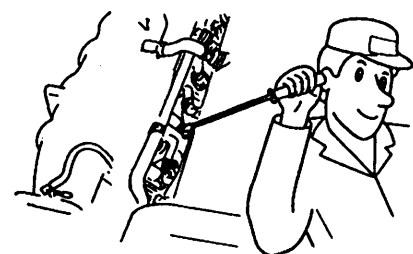
STEP	INSPECTION	ACTION	
16	<p>Run engine at idle and check if fuel line pressure is held after ignition switch turned OFF  page F-109</p> <p>Fuel line pressure: More than 147 kPa { 1.5 kg/cm², 21 psi } for 5 min.</p> <p>PRESSURE</p>  <p>IGNITION SWITCH OFF 5 MIN. TIME</p>	Yes	<p>High pressure Check if vacuum hose to pressure regulator is damaged or poorly connected</p> <p>⇒ If OK, replace pressure regulator  page F-119 ⇒ If not OK, repair or replace hose</p>
		No	<p>Check fuel injector for fuel leakage  page F-120</p>
17	<p>Disconnect each fuel injector connector at idle and check if engine speed decreases equally each time</p>  <p>FUEL INJECTOR CONNECTOR</p>	Yes	<p>Go to next step</p>
		No	<p>Replace fuel injector  page F-119</p>
18	<p>Try known good ECM and check if condition improves  page F-144</p>		


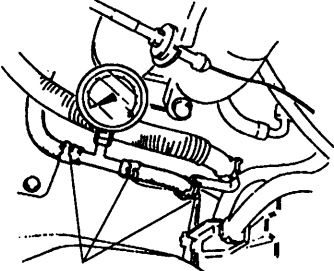


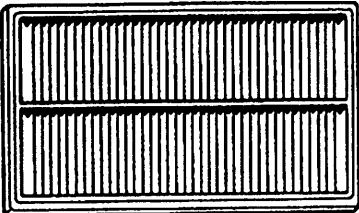


25	POOR ACCELERATION	
DESCRIPTION • Poor performance while accelerating		
[TROUBLESHOOTING HINTS] ① Factors other than engine malfunction <ul style="list-style-type: none"> • Clutch slipping • Brake dragging • Low tire pressure • Unrecommended tire size • Overloaded ② Low intake air amount <ul style="list-style-type: none"> • Throttle valve not open fully • Clogged intake-air system ③ Air/fuel mixture too lean or too rich <ul style="list-style-type: none"> • Fuel line pressure low or high • Insufficient fuel injection ④ Poor ignition ⑤ Low engine compression		
STEP	INSPECTION	ACTION
1	Check factors other than engine <ul style="list-style-type: none"> • Clutch slipping • Brake dragging • Low tire pressure • Unrecommended tire size ↳ section H ↳ section P ↳ section Q ↳ section Q	Yes: Go to next step No: Repair
2	Check if throttle valve opens fully when depressing accelerator fully	Yes: Go to next step No: Check if accelerator cable is correctly installed ↳ page F-103 ⇨ If OK, check throttle body ↳ page F-101 ⇨ If not OK, install accelerator cable correctly ↳ page F-103
3	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ↳ page F-79 	Yes: Go to next step No: Diagnostic trouble code No. displayed Check for cause (Refer to specified check sequence) ↳ page F-81 "88" flashes Check ECM terminal 1E voltage ↳ page F-145 Specification: Battery positive voltage (Ignition switch ON) ⇨ If OK, replace ECM ↳ page F-143 ⇨ If not OK, check wiring between ECM and Self-Diagnosis Checker ↳ page F-7
4	Check switches for correct operation by using Self-Diagnosis Checker Monitor Light with ignition switch ON ↳ page F-95 	Yes: Go to next step No: Light not ON/OFF with specified switch Check for cause (Refer to specified check sequence) ↳ page F-96 Light always ON Check wiring between ECM terminal 1D and Self-Diagnosis Checker ↳ page F-7

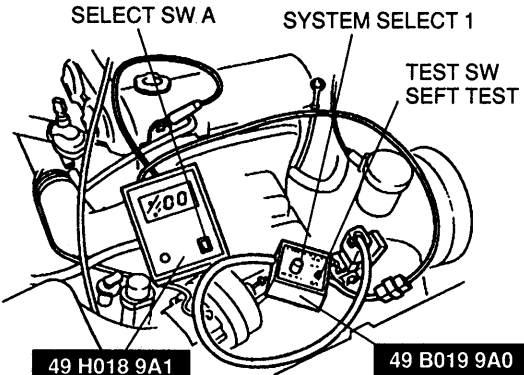
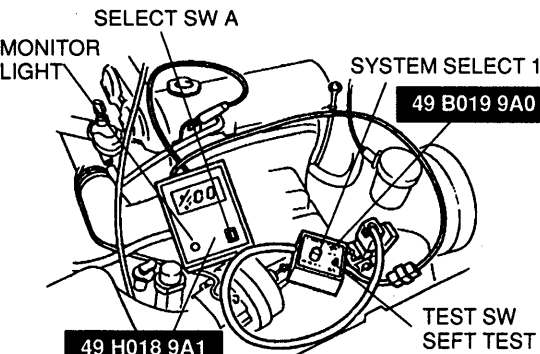
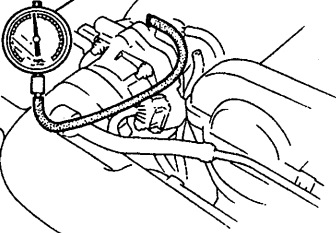
STEP	INSPECTION	ACTION	
5	Check for correct ignition timing at idle ☞ page F-76 Ignition timing: $10^\circ \pm 1^\circ$ BTDC	Yes	Check if ignition timing advances when accelerating ⇨ If advances, go to next step ⇨ If no advance, replace ECM ☞ page F-143
		No	Adjust ☞ page F-76
6	Check if spark plugs are OK 	Yes	Go to next step
		No	Repair, clean, or replace ☞ section G
7	Check if resistance of high-tension leads are OK Resistance: $16\text{ k}\Omega$ per 1 m { 3.28 ft } 	Yes	Go to next step
		No	Replace ☞ section G
8	Check if resistance of ignition coil is OK ☞ section G Resistance): Secondary coil ... $8.7\text{--}12.9\text{ k}\Omega$ [at 20°C { 68°F }]	Yes	Go to next step
		No	Replace ☞ section G
9	Check for correct engine compression ☞ section B 	Yes	Go to next step
		No	Check engine condition ☞ section B <ul style="list-style-type: none"> • Worn piston, piston rings or cylinder wall • Defective cylinder head gasket • Distorted cylinder head • Improper valve seating • Valve sticking in guide
10	Check for correct intake manifold vacuum at idle Vacuum: More than 450 mmHg { 17.7 inHg }	Yes	Go to next step
		No	Check for air leakage of intake-air system components ☞ page F-100
11	Check if air cleaner element is clean ☞ page F-76	Yes	Go to next step
		No	Replace air cleaner element ☞ page F-99




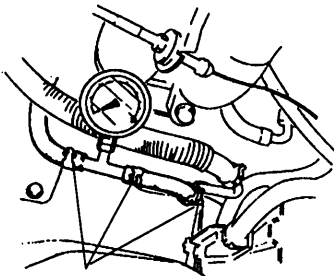












STEP	INSPECTION	ACTION	
12	Check for EGR system malfunction ☞ page F-124	Yes	Repair or replace
		No	Go to next step
13	Check for fuel injector operating sound at idle	Yes	Go to step 15
		No	Go to step 14
14	Check if battery positive voltage exists at fuel injector connector terminal B with ignition switch ON 	Yes	Check if fuel injector resistance is OK ☞ page F-119 Resistance: Approx. 12—16 Ω ⇨ If OK, check wiring between ECM and fuel injector ☞ page F-7 ⇨ If not OK, check fuel injector for fuel leakage ☞ page F-120
		No	Check wiring between ECM and fuel injector ☞ page F-7
15	Check if ECM terminal voltages are OK (1B, 1T, 2D, 2O and 2Q) ☞ page F-137	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ page F-148
16	Check for correct fuel line pressure at idle ☞ page F-110 Fuel line pressure: 265—313 kPa { 2.7—3.2 kgf/cm ² , 39—45 psi } (Vacuum hose to pressure regulator disconnected)  INSTALL CLAMPS	Yes	Check if fuel line pressure decreases when accelerating quickly ⇨ If decreases, check fuel pump maximum pressure ☞ page F-115 If OK, check fuel line and filter for clogging ⇨ If not decrease, go to next step
		No	Low pressure Check fuel line pressure while pinching fuel return hose ⇨ If fuel line pressure quickly increases, check pressure regulator ☞ page F-118 ⇨ If fuel line pressure gradually increases, check for clogging between fuel pump and pressure regulator If not clogged, check fuel pump maximum pressure ☞ page F-115



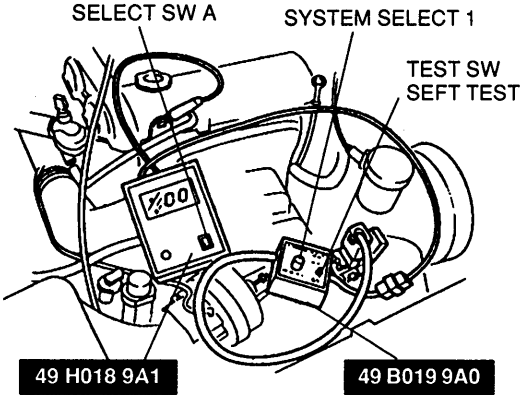




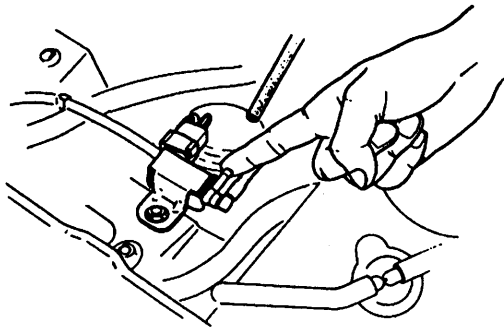

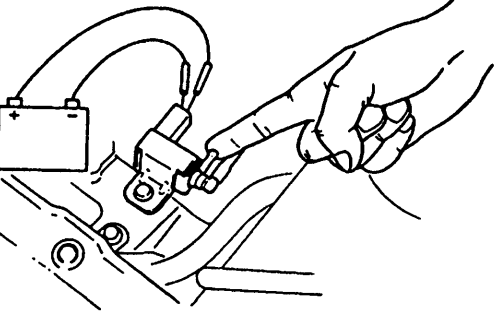



STEP	INSPECTION	ACTION	
17	<p>Run engine at idle and check if fuel line pressure is held after ignition switch turned OFF  page F-109</p> <p>Fuel line pressure: More than 147 kPa { 1.5 kgf/cm² , 21 psi } for 5 min.</p> 	Yes	<p>High pressure Check if vacuum hose to pressure regulator is damaged or poorly connected</p> <p>⇒ If OK, replace pressure regulator  page F-119 ⇒ If not OK, repair or replace hose</p>
		No	Check fuel injector for fuel leakage  page F-120
18	<p>Disconnect each fuel injector connector at idle and check if engine speed decreases equally each time</p> 	Yes	Go to next step
		No	Replace fuel injector  page F-119
19	<p>Try known good ECM and check if condition improves  page F-144</p>		

26	RUNS ROUGH ON DECELERATION/AFTERBURN		
DESCRIPTION • Engine runs rough while decelerating and abnormal combustion occurs in exhaust system			
[TROUBLESHOOTING HINTS]			
① Air/fuel mixture too rich <ul style="list-style-type: none"> • Air cleaner element clogged • Fuel injection control malfunction (Fuel cut control) • Fuel injector fuel leakage • Ignition timing misadjustment 			
STEP	INSPECTION		ACTION
1	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON ☞ page F-79	Yes	Go to next step
		No	Diagnostic trouble Code No. displayed Check for cause (Refer to specified check sequence) ☞ page F-81
			"88" flashes Check ECM terminal 1E voltage ☞ page F-145 Specification: Battery positive voltage (Ignition switch ON) ⇨ If OK, replace ECM ☞ page F-143 ⇨ If not OK, check wiring between ECM and Self-Diagnosis Checker ☞ page F-7
2	Check switches for correct operation by using Self-Diagnosis Checker Monitor Light with ignition switch ON ☞ page F-95	Yes	Go to next step
		No	Light not ON/OFF with specified switch Check for cause (Refer to specified check sequence) ☞ page F-96
			Light always ON Check wiring between ECM terminal 1D and Self-Diagnosis Checker ☞ page F-7
3	Check for correct ignition timing at idle ☞ page F-76	Yes	Go to next step
	Ignition timing: 10° ± 1° BTDC	No	Adjust ☞ page F-76
4	Check if fuel cut operation is OK during deceleration Fuel cut: Above 1,900 rpm after warm-up	Yes	Go to next step
		No	Try known good ECM and check if condition improves ☞ page F-144

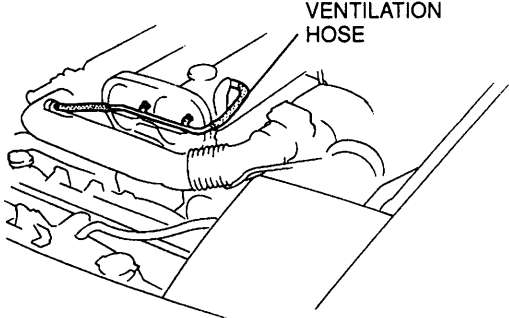
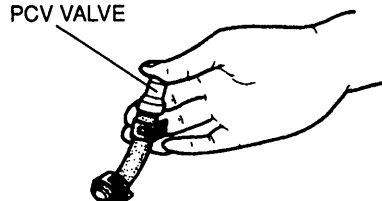
STEP	INSPECTION	ACTION	
5	<p>Run engine at idle and check if fuel line pressure is held after ignition switch turned OFF  page F-109</p> <p>Fuel line pressure: More than 147 kPa { 1.5 kgf/cm² , 21 psi } for 5 min.</p>  <p>INSTALL CLAMPS</p>	Yes	Go to next step
		No	Check fuel injector for fuel leakage  page F-120
6	<p>Check if air cleaner element is clean  page F-76</p> 	Yes	Go to next step
		No	Replace air cleaner element  page F-99
7	<p>Try known good ECM and check if condition improves  page F-144</p>		

27	KNOCKING	
<p>[TROUBLESHOOTING HINTS]</p> <p>① Air/fuel mixture too lean • Fuel injection amount incorrect • Fuel line pressure decreases while accelerating</p> <p>② Incorrect ignition timing (too advance) ③ Overheating ④ Carbon deposits in engine</p>		
STEP	INSPECTION	ACTION
1	<p>Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON</p> <p style="text-align: right;">☞ page F-79</p> 	<p>Yes Go to next step</p> <p>No Diagnostic trouble code No. displayed Check for cause (Refer to specified check sequence) ☞ page F-81</p> <p>"88" flashes Check ECM terminal 1E voltage ☞ page F-145</p> <p>Specification: Battery positive voltage (Ignition switch ON)</p> <p>⇒ If OK, replace ECM ☞ page F-143 ⇒ If not OK, check wiring between ECM and Self-Diagnosis Checker ☞ page F-7</p>
2	<p>Check switches for correct operation by using Self-Diagnosis Checker Monitor Light with ignition switch ON</p> <p style="text-align: right;">☞ page F-95</p> 	<p>Yes Go to next step</p> <p>No Light not ON/OFF with specified switch Check for cause (Refer to specified check sequence) ☞ page F-96</p> <p>Light always ON Check wiring between ECM terminal 1D and Self-Diagnosis Checker ☞ page F-7</p>
3	<p>Check if ECM terminal voltages are OK (1R, 1T, 2D, 2O, and 2Q)</p> <p style="text-align: right;">☞ page F-146</p>	<p>Yes Go to next step</p> <p>No Check for cause (Refer to "Check Point for Each Terminal") ☞ page F-148</p>
4	<p>Check for correct intake manifold vacuum at idle</p> <p>Vacuum: More than 450 mmHg { 17.7 inHg }</p> <p style="text-align: center;">VACUUM GAUGE</p> 	<p>Yes Go to next step</p> <p>No Check for air leakage of intake-air system components ☞ page F-100</p>
5	<p>Check if air cleaner element is clean</p> <p style="text-align: right;">☞ page F-76</p>	<p>Yes Go to next step</p> <p>No Replace air cleaner element ☞ page F-99</p>

STEP	INSPECTION	ACTION	
6	Check for correct fuel line pressure at idle  section B	Yes	Go to next step
		No	High compression Check engine condition <ul style="list-style-type: none"> • Carbon deposits  section B
7	Check for correct fuel line pressure at idle  page F-110 Fuel line pressure: 265—313 kPa { 2.7—3.2 kgf/cm ² , 39—45 psi } (Vacuum hose to pressure regulator disconnected)  INSTALL CLAMPS	Yes	Check if fuel line pressure decreases when accelerating quickly ⇨ If decreases, check for clogging between fuel pump and pressure regulator ⇨ If no decrease, go to next step
		No	Low pressure Check fuel line pressure while pinching fuel return hose ⇨ If fuel line pressure quickly increases, check pressure regulator  page F-118 ⇨ If fuel line pressure gradually increases, check for clogging between fuel pump and pressure regulator If not clogged, check fuel pump maximum pressure  page F-115
8	Check for correct ignition timing at idle  page F-76 Ignition timing: 10° ± 1° BTDC	Yes	Check if ignition timing advances when accelerating ⇨ If advances, go to next step ⇨ If no advance, replace ECM  page F-143
		No	Adjust  page F-76
9	Check for EGR system malfunction  page F-124	Yes	Repair or replace
		No	Go to next step
10	Check if cooling system is OK  section E	Yes	Go to next step
		No	Repair or replace <ul style="list-style-type: none"> • Thermostat • Electric coolant fan • Radiator  section E  section E  section E
11	Try known good ECM and check if condition improves  page F-144	Yes	Replace ECM  page F-143
		No	Change fuel to another brand or use higher octane fuel

28	FUEL ODOR		
DESCRIPTION • Gasoline odor in cabin			
[TROUBLESHOOTING HINTS]			
① Poor connection or damaged fuel system or fuel evaporative system			
② Charcoal canister overflow due to fuel evaporative system malfunction			
STEP	INSPECTION	ACTION	
1	Check if fuel leak or damage are visible at fuel system and fuel evaporative system	Yes	Repair or replace  page F-107
		No	Go to next step
2	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON  page F-79 	Yes	Go to next step
		No	Diagnostic trouble code No. displayed Check for cause (Refer to specified check sequence)  page F-81
			"88" flashes Check ECM terminal 1E voltage  page F-145 Specification: Battery positive voltage (Ignition switch ON) ⇨ If OK, replace ECM  page F-143 ⇨ If not OK, check wiring between ECM and Self-Diagnosis Checker  page F-7
3	Check if vacuum is felt at purge solenoid valve with engine running and throttle valve opened (Neutral switch connector disconnected) 	Yes	Go to step 5
		No	Check for purge solenoid valve operating sound in this condition ⇨ If OK, check vacuum hoses for clogging  page F-6 ⇨ If not OK, go to next step
4	Apply battery positive voltage and ground to purge solenoid valve and check if air flows through valve 	Yes	Check ECM terminal 2X voltage  page F-146
		No	Replace purge solenoid valve  page F-132
5	Try known good ECM and check if condition improves  page F-144		

29	EXHAUST SULFUR SMELL	
DESCRIPTION • Exhaust gas smells abnormal (Rotten egg smell)		
[TROUBLESHOOTING HINTS] High sulfur content fuel used		
STEP	INSPECTION	ACTION
1	Change fuel to another brand	

30	HIGH OIL CONSUMPTION	
[TROUBLESHOOTING HINTS] ① PCV system malfunction ② Engine malfunction (Oil working up, working down, or leakage)		
STEP	INSPECTION	ACTION
1	Check if PCV hose, ventilation hose or their attaching nipples are separated, damaged, clogged, or restricted ☞ page F-130	Yes Repair or replace ☞ page F-122
		No Go to next step
2	Check if air pressure or oil is present at ventilation hose 	Yes Go to next step
		No Check engine condition • Oil leakage • Worn valve seal • Worn valve stem • Worn valve guide ☞ section B
3	Check if vacuum is felt at PCV valve at idle ☞ page F-130 	Yes Check engine condition • Worn piston ring groove • Stuck piston ring • Worn piston or cylinder ☞ section B
		No Replace PCV valve ☞ page F-130

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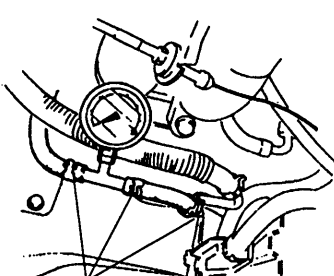
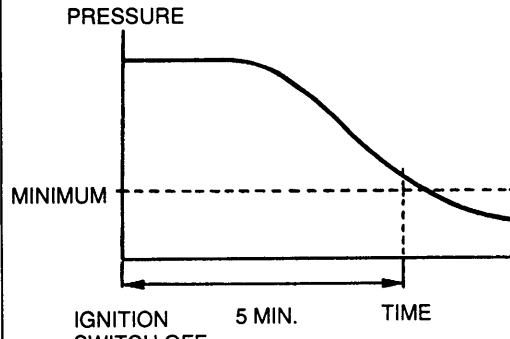
POOR FUEL ECONOMY

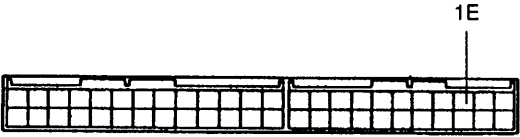
[TROUBLESHOOTING HINTS]

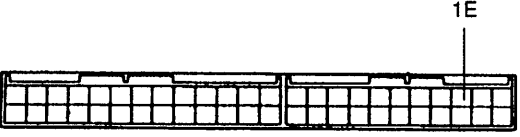
While fuel consumption is drastically increased during city driving, short-run operation, stop-and-go driving, extended winter warm-up periods, etc., as opposed to "trip mileage", an attempt should be made to determine these factors when confronted with "poor mileage" conditions. However, since the operator is not always at fault, the following is offered.

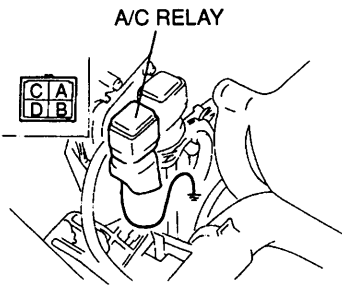





- ① Operator depressing accelerator more than usual due to low engine power
 - Poor ignition
 - Low intake air amount
 - Electronic spark advance control malfunction
 - Clutch slipping
 - Exhaust component restricted
- ② Air/fuel mixture too rich
 - High fuel line pressure
- ③ Alcohol blended fuel used
- ④ High vehicle load
 - Low tire pressure
 - Unrecommended tire used
 - Brake dragging
- ⑤ Fuel cut control malfunction
- ⑥ High idle speed

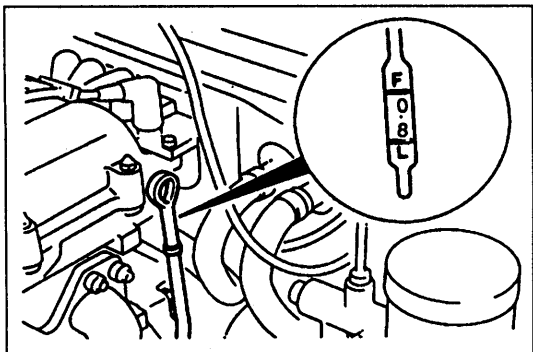
STEP	INSPECTION	ACTION	
1	Check factors other than engine <ul style="list-style-type: none"> • Low tire pressure section Q • Unrecommended tire used section Q • Clutch slipping section H • Brake dragging section P • Exhaust component restricted page F-128 	Yes	Go to next step
		No	Repair or replace
2	Check if air hoses are connected correctly page F-99	Yes	Go to next step
		No	Repair page F-99
3	Check if air cleaner element is clean page F-76	Yes	Go to next step
		No	Replace air cleaner element page F-99
4	Check if "00" is displayed on Self-Diagnosis Checker with ignition switch ON page F-79 	Yes	Go to next step
		No	Diagnostic trouble code No. displayed Check for cause (Refer to specified check sequence) page F-81
		"88" flashes Check ECM terminal 1E voltage page F-145 Specification: Battery positive voltage (Ignition switch ON) <ul style="list-style-type: none"> ⇨ If OK, replace ECM page F-143 ⇨ If not OK, check wiring between ECM and Self-Diagnosis Checker page F-7 	
5	Check switches for correct operation by using Self-Diagnosis Checker Monitor Light with ignition switch ON page F-95 	Yes	Go to next step
		No	Light not ON/OFF with specified switch Check for cause (Refer to specified check sequence) page F-96
		Light always ON Check wiring between ECM terminal 1F and Self-Diagnosis Checker page F-7	

STEP	INSPECTION		ACTION
6	Check if ECM terminal voltages are OK (2D, 2N, 2O, 2P, 2Q, 2R, 2U and 2V) ☞ page F-146	Yes	Go to next step
		No	Check for cause (Refer to "Check Point for Each Terminal") ☞ page F-148
7	Check if fuel cut operation is OK during deceleration Fuel cut: Above 1,900 rpm after warm-up	Yes	Go to next step
		No	Try known good ECM and check if condition improves ☞ page F-144
8	Check for correct ignition timing at idle ☞ page F-76 Ignition timing: $10^\circ \pm 1^\circ$ BTDC	Yes	Go to next step
		No	Adjust ☞ page F-76
9	Check for correct fuel line pressure at idle ☞ page F-118 Fuel line pressure: 216—264 kPa { 2.2—2.7 kgf/cm² , 32—38 psi }  INSTALL CLAMPS	Yes	Go to next step
		No	High pressure Check if vacuum hose to pressure regulator is damaged or poorly connected ⇨ If OK, replace pressure regulator ☞ page F-119 ⇨ If not OK, repair or replace hose
10	Run engine at idle and check if fuel line pressure is held after ignition switch turned OFF ☞ page F-109 Fuel line pressure: More than 147 kPa { 1.5 kgf/cm² , 21 psi } for 5 min. 	Yes	Go to next step
		No	Check fuel injector for fuel leakage ☞ page F-120
11	Change fuel to another brand		

32	MIL ALWAYS ON		
DESCRIPTION		<ul style="list-style-type: none"> • Self-Diagnosis Checker does not indicate diagnostic trouble code No. but MIL always ON 	
[TROUBLESHOOTING HINTS]			
<ul style="list-style-type: none"> • Short circuit in wiring harness • ECM malfunction 			
STEP	INSPECTION	ACTION	
1	Disconnect (1E) wire from ECM and check if MIL goes out <div style="text-align: center;">  </div>	Yes	Replace ECM 📖 page F-143
		No	Check for short circuit in wiring between instrument cluster and ECM 📖 page F-7

33	MIL NEVER ON		
DESCRIPTION		<ul style="list-style-type: none"> • Self-Diagnosis Checker indicates diagnostic trouble code No. of input device but MIL never ON • Other indicator and warning lights OK 	
[TROUBLESHOOTING HINTS]			
<ul style="list-style-type: none"> • Bulb burned out • Open circuit in wiring harness • ECM malfunction 			
STEP	INSPECTION	ACTION	
1	Ground (1E) wire at ECM by using jumper wire and check if MIL comes on <div style="text-align: center;">  </div>	Yes	Check connection condition of ECM connector 📖 page F-144 ⇨ If OK, replace ECM ⇨ If not OK, repair ECM connector 📖 page F-143
		No	Check if bulb is OK ⇨ If OK, repair (1E) wire between ECM and instrument cluster ⇨ If not OK, replace bulb 📖 page F-7 📖 section T

34	A/C DOES NOT WORK		
DESCRIPTION • Blower fan operates but cool air not expelled			
[TROUBLESHOOTING HINTS] <ul style="list-style-type: none"> • Open or short circuit in wiring harness • A/C relay malfunction • Air conditioning switch malfunction • Magnetic clutch malfunction • ECM malfunction 			
STEP	INSPECTION	ACTION	
1	Ground terminal B at A/C relay by using jumper wire and check if condenser fan operates when ignition switch is turned ON 	Yes	Go to next step
		No	Go to A/C system Troubleshooting  section U
2	Ground terminal B at ECM terminal 1J by using jumper wire and check if condenser fan operates when ignition switch is turned ON	Yes	Go to next step
		No	Repair wire between ECM and A/C relay  page F-7
3	Check if Air conditioning switch is OK  Section U	Yes	Try known good ECM and check if condition improves  page F-144
		No	Check Air conditioning switch and wiring  section U

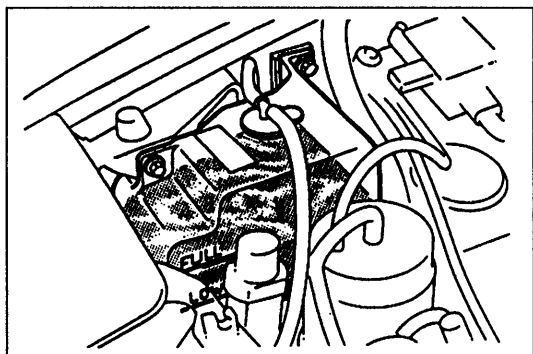


ENGINE TUNE-UP

BASIC INSPECTION

Engine Oil

1. Remove the dipstick and check the engine oil level and condition.
2. Add or change oil if necessary.



Coolant (engine cold)

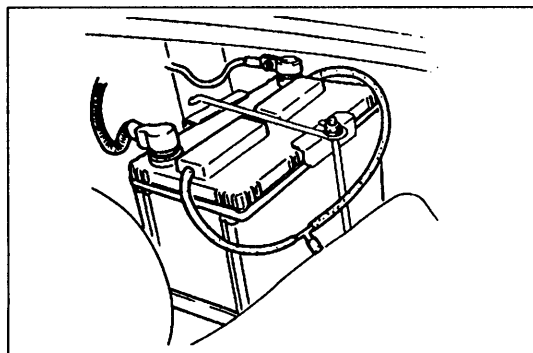
Warning

- Removing the radiator cap or the coolant drain plug while the engine is running, or when the engine and radiator are hot is dangerous. Scalding coolant and steam may shoot out and cause serious injury. It may also damage the engine and cooling system.

Turn off the engine and wait until it is cool. Even then, be very careful when removing the cap. Wrap a thick cloth around it and slowly turn it counterclockwise to the first stop. Step back while the pressure escapes.

When you're sure all the pressure is gone, press down on the cap — still using a cloth — turn it, and remove it.

1. Verify that the coolant level is near the radiator filler neck.
2. Verify that the coolant level in the coolant reservoir is between the FULL and LOW marks.
3. Add coolant if necessary.



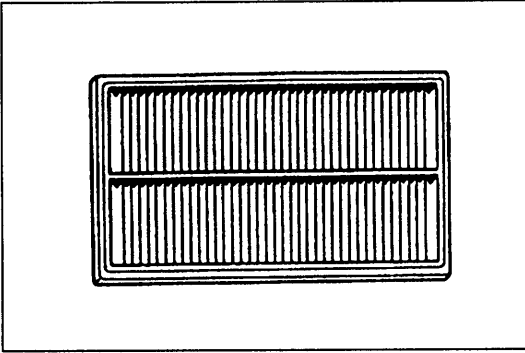
Battery

Removing the label on the top of the battery or removing the vent caps will void the battery's warranty.

1. Clean any corrosion on the clamps or battery posts.
2. Verify that the battery top is clean. If necessary, clean with baking soda and water.
3. Verify that cables are in good condition and not frayed or corroded. Repair or replace if necessary.
4. Verify that cable clamps are tight.

Note

- Because this is a maintenance-free battery, it is not necessary to check the fluid level.



Air Cleaner Element

Inspection

1. Check the air cleaner element for excessive dirt and for oil and damage.

Caution

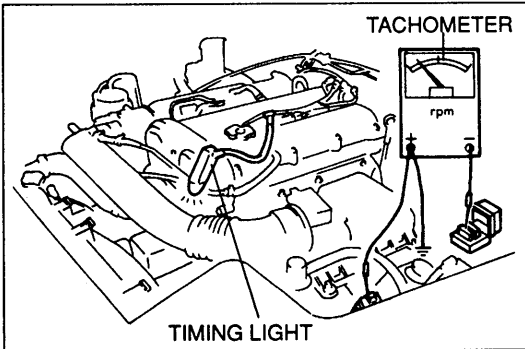
- Cleaning the element with compressed air will reduce the element's ability to filter the air. Don't use compressed air to clean the element.

2. Replace the element if necessary.

ADJUSTMENT

Preparation

1. Warm up the engine to normal operating temperature.
2. Turn all electrical loads OFF.
 - Headlight switch
 - Fan switch
 - Rear window defroster switch
3. Connect a tachometer to the data link connector terminal IG- as shown.

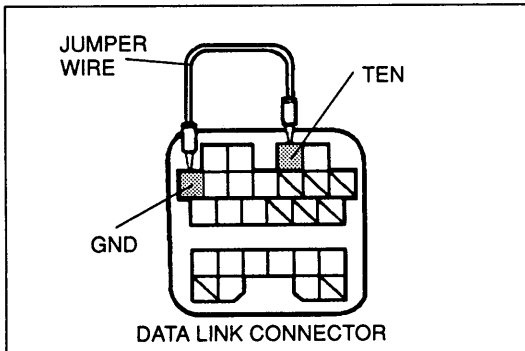


Ignition Timing

1. Perform "Preparation". (Refer to above.)
2. Verify that the idle speed is within the specification; if not, adjust it.

Idle speed

(Neutral): 800—900 (850 ± 50) rpm [MT]
 (P range): 750—850 (800 ± 50) rpm [AT]

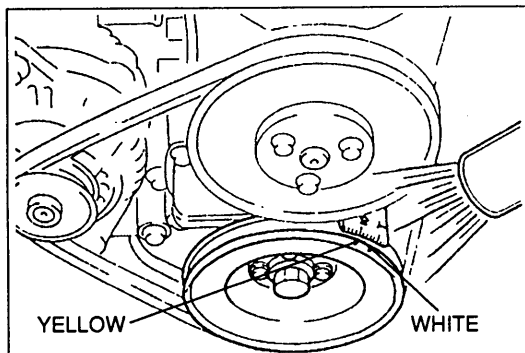


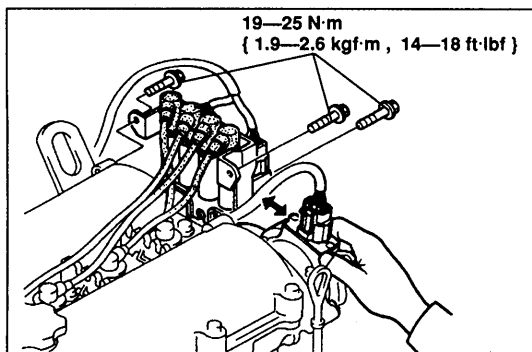
3. Connect a jumper wire between the TEN terminal and the GND terminal of the data link connector.
4. Verify that the idle speed is within the specification.

Idle speed: 650—975 rpm (Terminal TEN grounded)

5. Verify that the timing mark (white) on the crankshaft pulley and the T mark on the timing belt cover are aligned.

Ignition timing: BTDC 9°—11° (10° ± 1°)
(TIMING MARK [YELLOW])



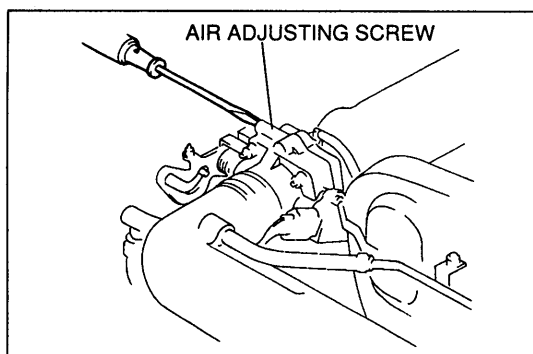


6. If the marks are not aligned, remove the ignition coil bracket and push the ignition coil aside for easy access and then loosen the camshaft position sensor lock bolts, and turn the camshaft position sensor to make the adjustment.
7. Tighten the distributor lock bolts to the specified torque.

Tightening torque:

19–25 N·m { 1.9–2.6 kgf·m , 14–18 ft·lbf }

8. Disconnect the jumper wire from the data link connector.
9. Increase the engine speed and verify that the ignition timing advances.



Idle Speed

1. Perform "Preparation". (Refer to page F-76.)
2. Connect a jumper wire between terminals TEN and GND of the data link connector.
3. With the coolant fan off, verify that the idle speed is within the specification.

Idle speed

(Neutral): 800–900(850 ± 50) rpm [MT]

(P range): 750–850(800 ± 50) rpm [AT]

4. If not within the specification, adjust the idle speed by turning the air adjusting screw.
5. Disconnect the jumper wire.

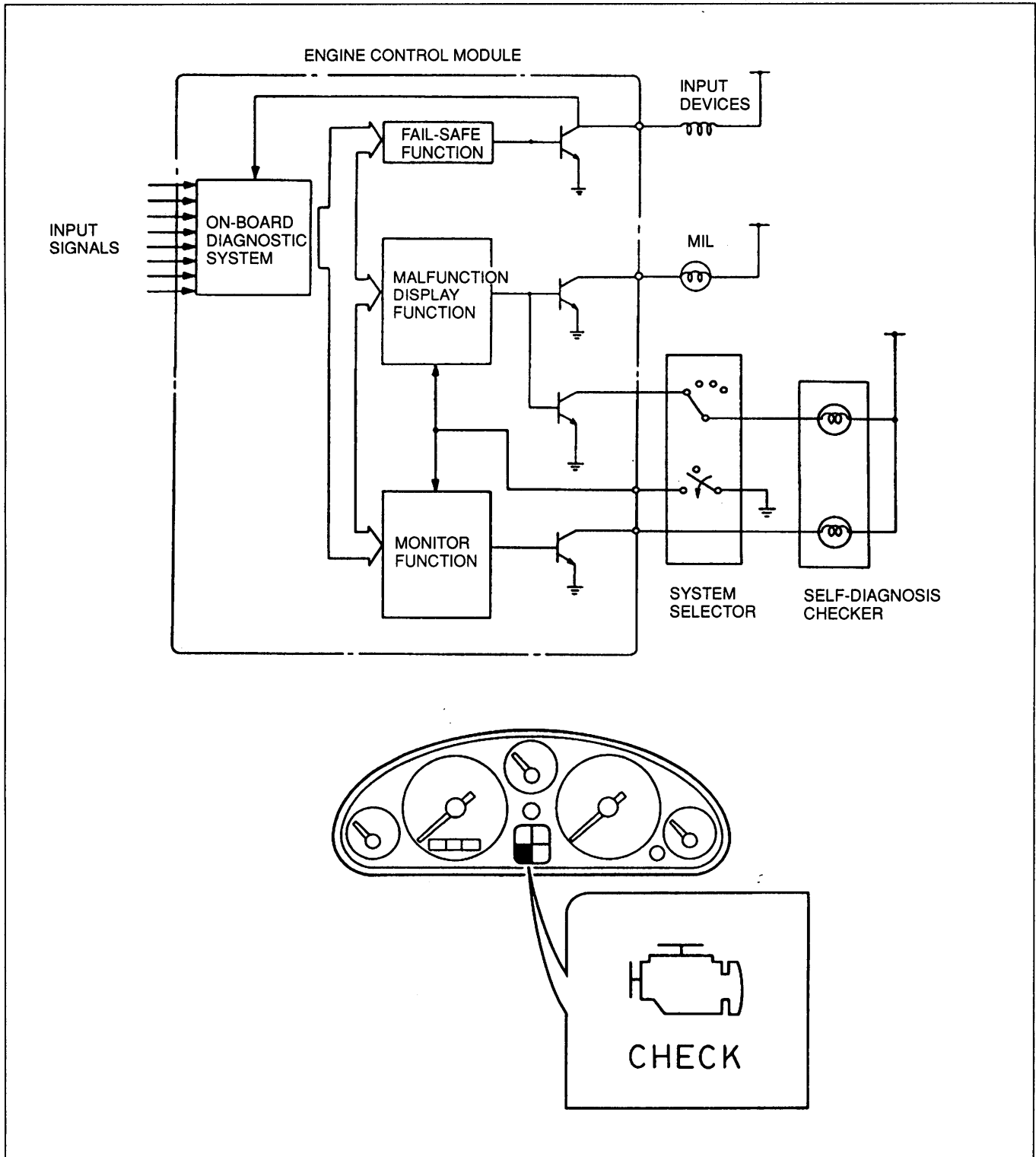
ON-BOARD DIAGNOSTIC SYSTEM

DESCRIPTION

When troubles occur in the main input devices or output devices, check for the cause by using the SST. Failures of each input and output device are indicated and retrieved from the engine control module as diagnosis trouble code numbers.

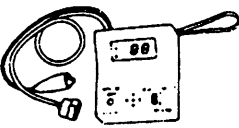
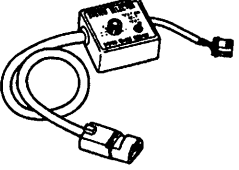
Note

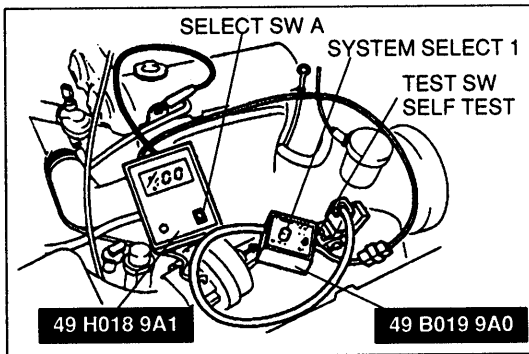
- For input devices, the ECM continuously checks for malfunctions. For output devices, it checks for malfunctions only in a three-second period after the ignition switch is turned to ON, or terminal TEN of the data link connector is grounded.



PREPARATION

SST

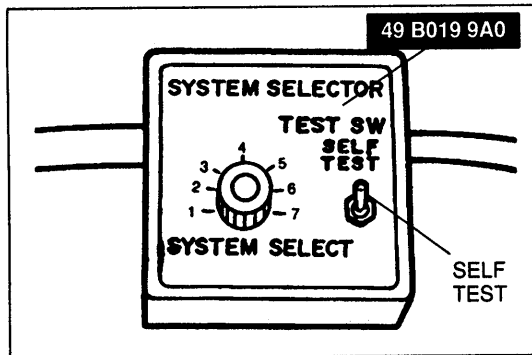
<p>49 H018 9A1 Self-Diagnosis Checker</p> 	<p>For diagnosis</p>	<p>49 B019 9A0 System Selector</p> 	<p>For diagnosis</p>
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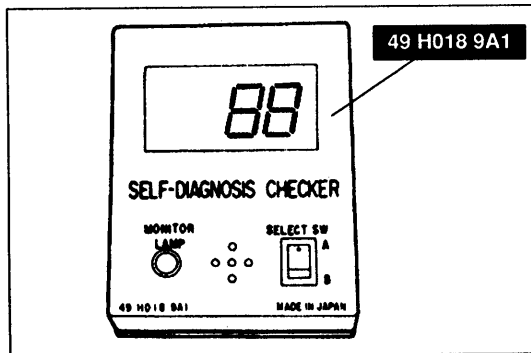
DIAGNOSTIC TROUBLE CODE NUMBER

Inspection procedure

1. Connect the **SSTs** to the data link connector and a ground.
2. Set the select switch to position A.



3. Set the System Selector to position 1 and TEST SW to SELF TEST as shown.



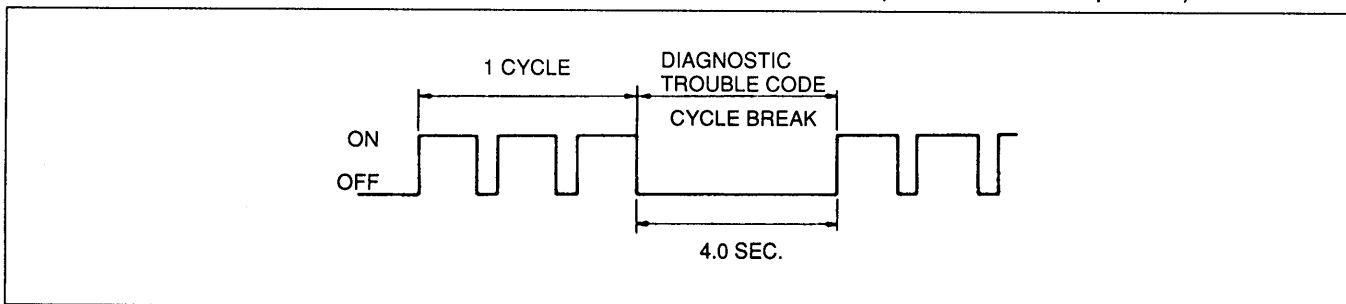
4. Turn the ignition switch to ON.
5. Verify that **88** flashes on the digital display and that the buzzer sounds for **3 sec.** after turning the ignition switch ON.
6. If **88** does not flash, check the main relay (Refer to page F-156.), power supply circuit, and check connector wiring.
7. If **88** flashes and the buzzer continues for more than **20 sec.**, check for a short circuit between the engine control module terminal 1E and the data link connector. Replace the engine control module if necessary and perform steps 3 and 4 again.
8. Note any code numbers and check for the causes by referring to the check sequences shown on pages F-83 to F-93. Repair as necessary.
9. After repairs, cancel the code numbers by performing "After-repair Procedure". (Refer to page F-94.)

Principle of Code Cycle

Diagnostic trouble codes are determined as shown below.

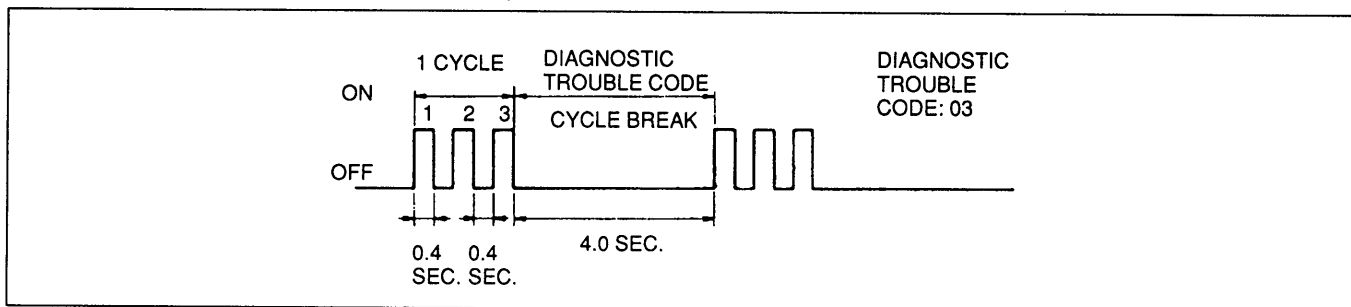
1. Code cycle break

The time between diagnostic trouble code cycles is 4.0 seconds (the time the lamp is off).



2. Second digit of diagnostic trouble code (ones position)

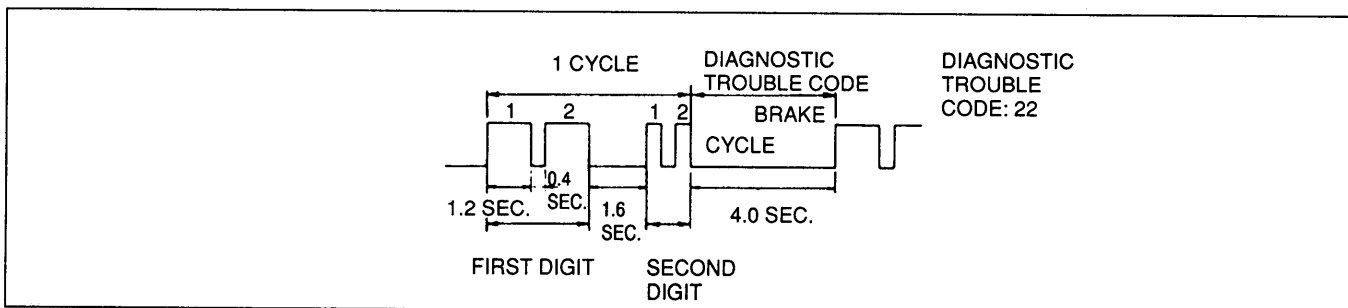
The digit in the ones position of the diagnostic trouble code represents the number of times the buzzer sounds for 0.4 second during one cycle.



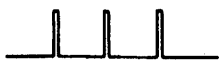




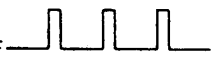









3. First digit of diagnostic trouble code (tens position)


The digit in the tens position of the diagnostic trouble code represents the number of times the buzzer sounds for 1.2 seconds during one cycle.

It should also be noted that the light goes out for 1.6 seconds between the long and short pulses of the buzzer.



Code Numbers

Malfunction display		Sensor or subsystem	On-board diagnostic system	Fail-safe
Code No.	Pattern of output signal (Self-Diagnosis System Checker)			
01	ON OFF 	IGF signal	No IGF signal	—
03	ON OFF 	SGT signal	No SGT signal	Cancels fuel injection
04	ON OFF 	SGC signal	No SGC signal	Cancels fuel injection and electronic spark advance
08	ON OFF 	Mass air flow sensor	Open or short circuit	Basic fuel injection amount fixed as for two driving modes (1) Closed throttle position switch: ON (2) Closed throttle position switch: OFF
09	ON OFF 	Engine coolant temperature sensor	Open or short circuit	Maintains constant 35 °C { 95 °F } command
10	ON OFF 	Intake air temperature sensor (Mass air flow sensor)	Open or short circuit	Maintains constant 20 °C { 68 °F } command
12	ON OFF 	Throttle position sensor	Open or short circuit	Maintains constant command of throttle valve wide open throttle
14	ON OFF 	Barometric pressure sensor	Open or short circuit	Maintains constant command of sea level pressure
15	ON OFF 	Heated oxygen sensor (Inactivation)	Sensor output continues less than 0.55 V 180 sec. after engine speed exceeds 1,500 rpm	Cancels engine closed loop operation
16	ON OFF 	EGR valve position sensor	Open or short circuit	Maintains constant command of EGR valve
17	ON OFF 	Heated oxygen sensor (sticking)	Sensor output continues unchanged 20 sec. after engine speed exceeds 1,500 rpm	Cancels engine closed loop operation
25	ON OFF 	PRC solenoid valve	Open or short circuit	—
26	ON OFF 	Purge solenoid valve	Open or short circuit	—
28	ON OFF 	EGR solenoid valve (vacuum)	Open or short circuit	—
29	ON OFF 	EGR solenoid valve (vent)	Open or short circuit	—

Malfunction display		Sensor or subsystem	On-board diagnostic system	Fail-safe
Code No.	Pattern of output signal (Self-Diagnosis System Checker)			
34	ON  OFF	Idle air control valve	Open or short circuit	—

Note

- If more than one failure is present, the code numbers will be indicated in numerical order.

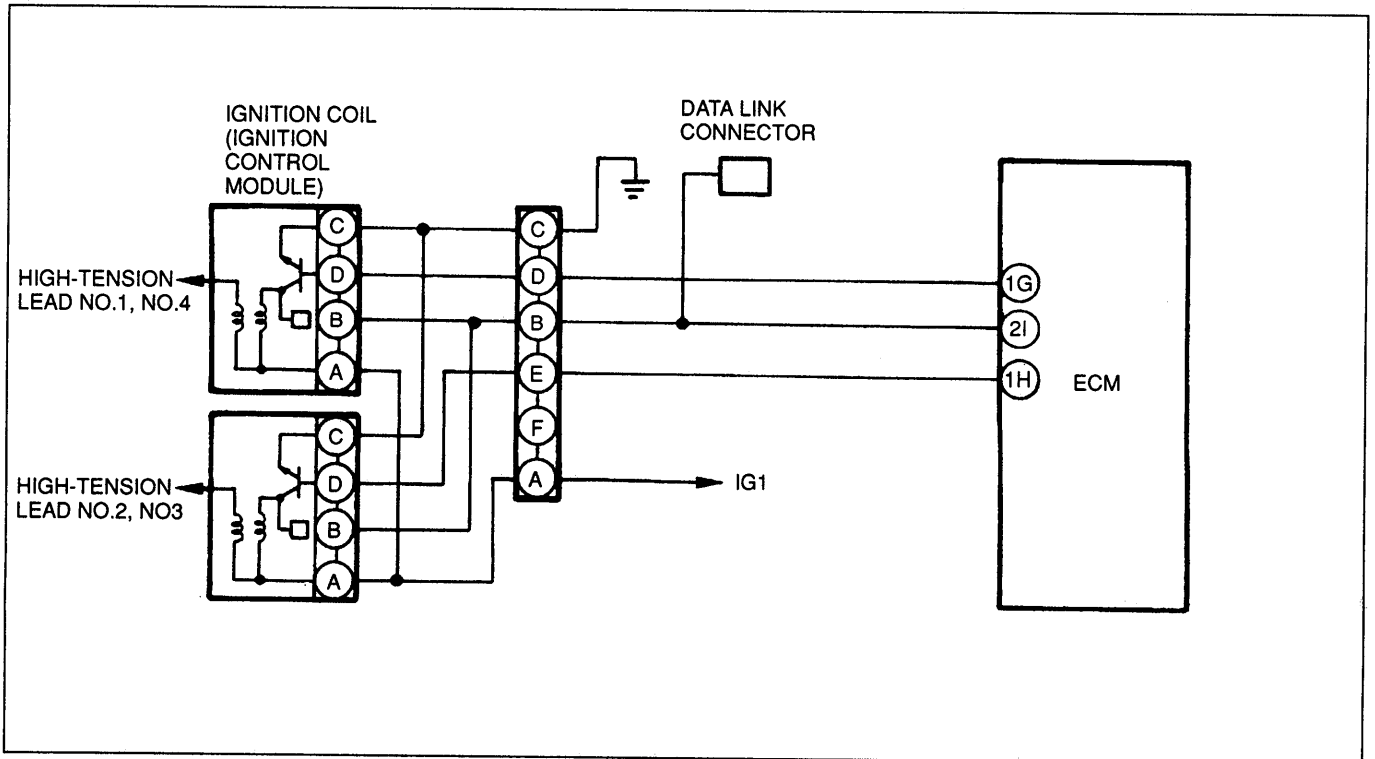
After repairs, cancel the code numbers by performing "After-repair Procedure". (Refer to page F-88.)



Troubleshooting



If a diagnostic trouble code number is shown on the **SST**, check for the cause by using the chart related to the code number shown.

CODE No.		01 (IGF SIGNAL)	
STEP	INSPECTION		ACTION
1	Are there any poor connections at ignition coil connectors?	Yes	Repair or replace connector
		No	Go to next step
2	Does tachometer operate?	Yes	Go to next step
		No	Check for open circuit in wiring from ignition oil to ECM terminal 2I
3	Is resistance of ignition coil OK? Resistance: Secondary coil ... 8.7—12.9 kΩ [20 °C { 68 °F }]	Yes	Go to next step
		No	Replace ignition coil section G
4	Is ignition coil terminal A voltage OK? section G	Yes	Go to next step
		No	Check for open circuit in wiring from ignition coil to ignition switch
5	Is there continuity between ignition coil terminal C and ground?	Yes	Go to next step
		No	Check for open circuit in wiring from ignition coil to ground
6	Are ECM terminal 1G and 1H voltages OK? page F-145	Yes	Replace ECM page F-143
		No	Check for circuit in wiring from ignition coil to ECM

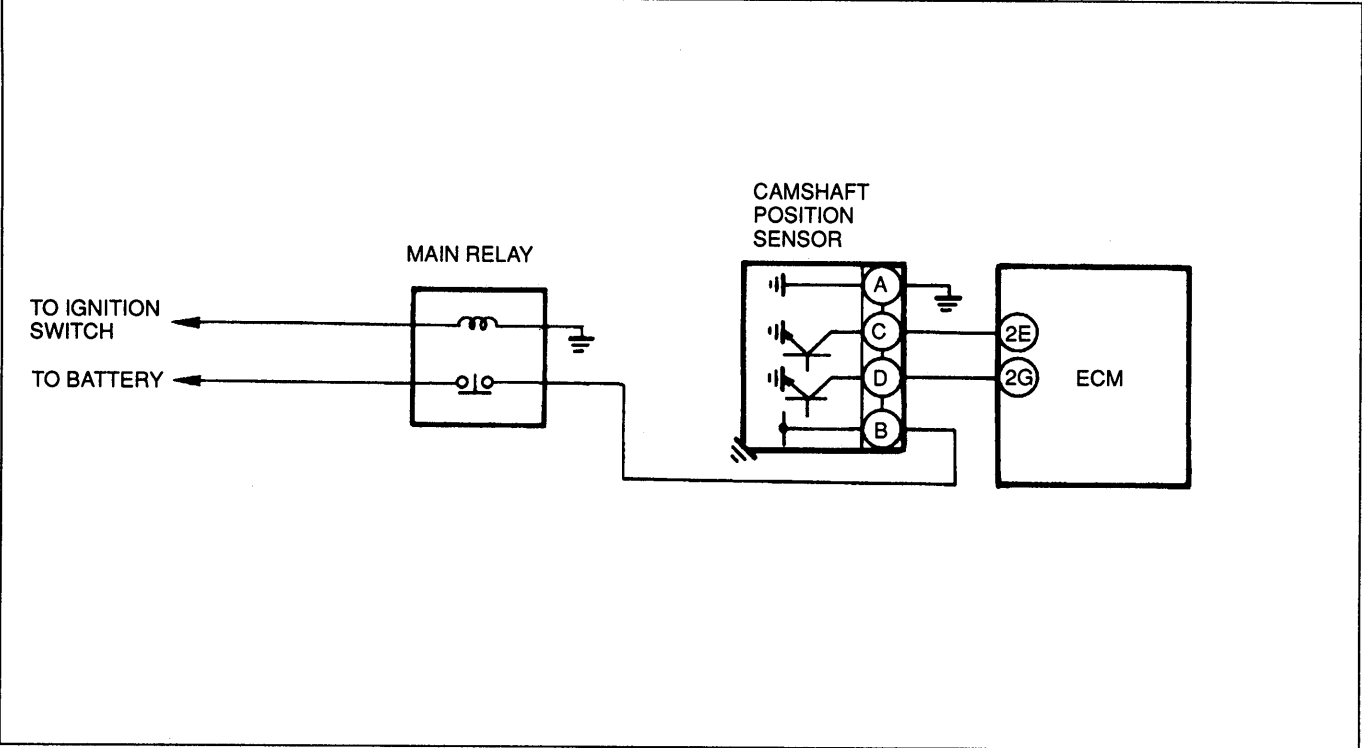
Circuit Diagram



CODE No.		03 (SGT SIGNAL)					
STEP	INSPECTION	ACTION					
1	Are there any poor connections in camshaft position sensor circuit?	Yes	Repair or replace connector				
		No	Go to next step				
2	Is code No.04 present at same time?	Yes	Go to next step				
		No	Go to step 5				
3	Is there continuity between camshaft position sensor terminal A and ground?	Yes	Go to next step				
		No	Check for open circuit in wiring from camshaft position sensor to ground				
4	Is there battery positive voltage at camshaft position sensor terminal B?	Yes	Go to next step				
		No	Check for open circuit in wiring from camshaft position sensor to main relay				
5	Is there continuity between camshaft position sensor and ECM? <table border="1"> <tr> <td>Camshaft position sensor</td> <td>ECM</td> </tr> <tr> <td>C</td> <td>2E</td> </tr> </table>	Camshaft position sensor	ECM	C	2E	Yes	Go to next step
		Camshaft position sensor	ECM				
C	2E						
No	Check for open circuit in wiring from camshaft position sensor to ECM						
6	Is there approx. 5 V at ECM terminal 2E? (With camshaft position sensor connector disconnected)	Yes	Go to next step				
		No	Replace ECM  page F-143				
7	Is there approx. 5 V at camshaft position sensor harness-side connector terminal C? (With camshaft position sensor connector disconnected)	Yes	Replace camshaft position sensor  page F-153				
		No	Check for short circuit in wiring from camshaft position sensor to ECM				





CODE No.		04 (SGC SIGNAL)					
STEP	INSPECTION	ACTION					
1	Are there any poor connections in camshaft position sensor circuit?	Yes	Repair or replace connector				
		No	Go to next step				
2	Is code No.03 also present?	Yes	Go to next step				
		No	Go to step 5				
3	Is there continuity between camshaft position sensor terminal A and ground?	Yes	Go to next step				
		No	Check for open circuit in wiring from camshaft position sensor to ground				
4	Is there battery positive voltage at camshaft position sensor terminal B?	Yes	Go to next step				
		No	Check for open circuit in wiring from camshaft position sensor to main relay				
5	Is there continuity between camshaft position sensor and ECM? <table border="1"> <tr> <td>Crankshaft position sensor</td> <td>ECM</td> </tr> <tr> <td>D</td> <td>2G</td> </tr> </table>	Crankshaft position sensor	ECM	D	2G	Yes	Go to next step
		Crankshaft position sensor	ECM				
D	2G						
No	Check for open circuit in wiring from camshaft position sensor to ECM						
6	Is there approx. 5 V at ECM terminal 2G? (With camshaft position sensor connector disconnected)	Yes	Go to next step				
		No	Replace ECM  page F-143				
7	Is there approx. 5 V at camshaft position sensor terminal D? (At harness-side connector with connector disconnected)	Yes	Replace camshaft position sensor  page F-153				
		No	Check for short circuit in wiring from camshaft position sensor to ECM				



Circuit Diagram




CODE No.		08 (MASS AIR FLOW SENSOR)							
STEP	INSPECTION	ACTION							
1	Are there any poor connections in mass air flow sensor circuit?	Yes	Repair or replace connector						
		No	Go to next step						
2	Is code No.10 present at same time?	Yes	Check for open circuit in wiring from mass air flow sensor terminal E to ground						
		No	Go to next step						
3	Is there continuity between mass air flow sensor connector and ECM? <table border="1"> <thead> <tr> <th>Mass air flow sensor</th> <th>ECM</th> </tr> </thead> <tbody> <tr> <td>E</td> <td>2F</td> </tr> <tr> <td>B</td> <td>2O</td> </tr> </tbody> </table>	Mass air flow sensor	ECM	E	2F	B	2O	Yes	Go to next step
		Mass air flow sensor	ECM						
E	2F								
B	2O								
		No	Check for open circuit in wiring from mass air flow sensor to ECM						
4	Are ECM terminal 2O and 2F voltages OK? ☞ page F-146	Yes	Replace ECM ☞ page F-143						
		No	Check for short circuit in wiring from mass air flow sensor to ECM						

CODE No.		09 (ENGINE COOLANT TEMPERATURE SENSOR)							
STEP	INSPECTION	ACTION							
1	Are there any poor connections in engine coolant temperature sensor circuit?	Yes	Repair or replace connector						
		No	Go to next step						
2	Is there continuity between engine coolant temperature sensor and ECM? <table border="1"> <thead> <tr> <th>Engine coolant temperature sensor</th> <th>ECM</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>2Q</td> </tr> <tr> <td>B</td> <td>2D</td> </tr> </tbody> </table>	Engine coolant temperature sensor	ECM	A	2Q	B	2D	Yes	Go to next step
		Engine coolant temperature sensor	ECM						
A	2Q								
B	2D								
		No	Check for open circuit in wiring from engine coolant temperature sensor to ECM						
3	Is resistance of engine coolant temperature sensor OK? <table border="1"> <thead> <tr> <th>Coolant temperature</th> <th>Resistance</th> </tr> </thead> <tbody> <tr> <td>20 °C { 68 °F }</td> <td>2.21—2.69 kΩ</td> </tr> <tr> <td>80 °C { 176 °F }</td> <td>0.287—0.349 Ω</td> </tr> </tbody> </table>	Coolant temperature	Resistance	20 °C { 68 °F }	2.21—2.69 kΩ	80 °C { 176 °F }	0.287—0.349 Ω	Yes	Go to next step
		Coolant temperature	Resistance						
20 °C { 68 °F }	2.21—2.69 kΩ								
80 °C { 176 °F }	0.287—0.349 Ω								
		No	Replace engine coolant temperature sensor ☞ page F-154						
4	Is same code No. present after performing "After-repair Procedure"? ☞ page F-94	Yes	Go to next step						
		No	Engine coolant temperature sensor and circuit OK						
5	Are ECM terminal 2Q and 2D voltages OK? ☞ page F-146	Yes	Replace ECM ☞ page F-143						
		No	Check for short circuit in wiring from engine coolant temperature sensor to ECM						

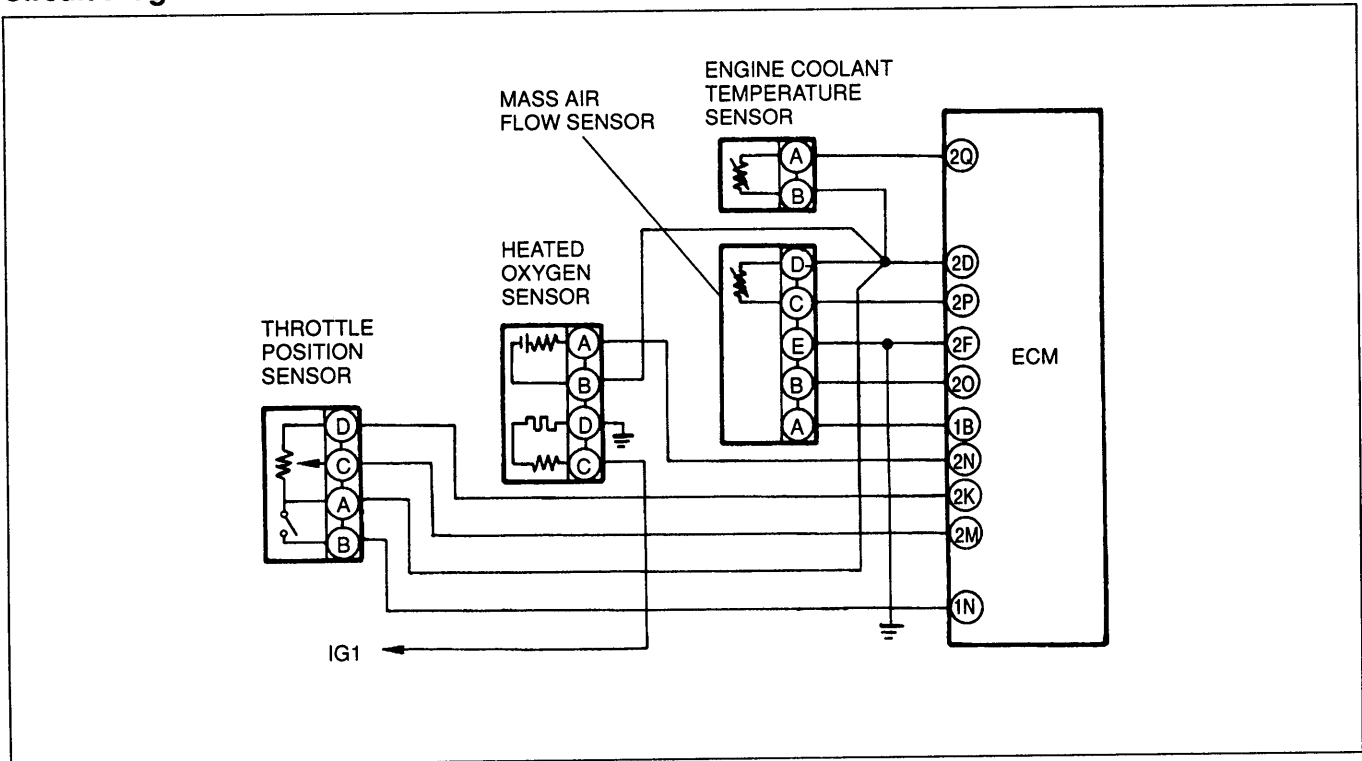
CODE No.	10 (INTAKE AIR TEMPERATURE SENSOR — IN MASS AIR FLOW SENSOR)								
STEP	INSPECTION		ACTION						
1	Are there any poor connections in intake air temperature sensor circuit?	Yes	Repair or replace connector						
		No	Go to next step						
2	Is there continuity between intake air temperature sensor (in mass air flow sensor) and ECM? <table border="1"> <thead> <tr> <th>Intake air temperature sensor</th> <th>ECM</th> </tr> </thead> <tbody> <tr> <td>C</td> <td>2D</td> </tr> <tr> <td>D</td> <td>2P</td> </tr> </tbody> </table>	Intake air temperature sensor	ECM	C	2D	D	2P	Yes	Go to next step
		Intake air temperature sensor	ECM						
C	2D								
D	2P								
No	Check for open circuit in wiring from intake air temperature sensor (in mass air flow sensor) to ECM								
3	Is resistance of intake air temperature sensor (in mass air flow sensor) OK? <table border="1"> <thead> <tr> <th>Terminal</th> <th>Temperature</th> <th>Resistance</th> </tr> </thead> <tbody> <tr> <td>C—D</td> <td>20 °C { 68 °F }</td> <td>2.21—2.69 kΩ</td> </tr> </tbody> </table>	Terminal	Temperature	Resistance	C—D	20 °C { 68 °F }	2.21—2.69 kΩ	Yes	Go to next step
		Terminal	Temperature	Resistance					
C—D	20 °C { 68 °F }	2.21—2.69 kΩ							
No	Replace mass air flow sensor  page F-152								
4	Is same Code No. present after performing "After-repair Procedure"?  page F-94	Yes	Go to next step						
		No	Intake air temperature sensor and circuit OK						
5	Are engine control module terminal 2P and 2D voltages OK?  page F-146	Yes	Replace ECM  page F-143						
		No	Check for short circuit in wiring from intake air temperature sensor to ECM						

CODE No.	12 (THROTTLE POSITION SENSOR)										
STEP	INSPECTION		ACTION								
1	Check throttle position sensor circuit for poor connection	Yes	Repair or replace connector								
		No	Go to next step								
2	Check wire harness between throttle position sensor and ECM for continuity <table border="1"> <thead> <tr> <th>Throttle position sensor</th> <th>ECM</th> </tr> </thead> <tbody> <tr> <td>D</td> <td>2K</td> </tr> <tr> <td>C</td> <td>2M</td> </tr> <tr> <td>A</td> <td>2D</td> </tr> </tbody> </table>	Throttle position sensor	ECM	D	2K	C	2M	A	2D	Yes	Go to next step
		Throttle position sensor	ECM								
D	2K										
C	2M										
A	2D										
No	Repair or replace										
3	Check if ECM terminal 2M voltage is OK  page F-146	Yes	Replace ECM  page F-143								
		No	Check for short circuit in wiring from throttle position sensor to ECM								

CODE No.	14 (BAROMETRIC PRESSURE SENSOR)		
Replace ECM  page F-143			

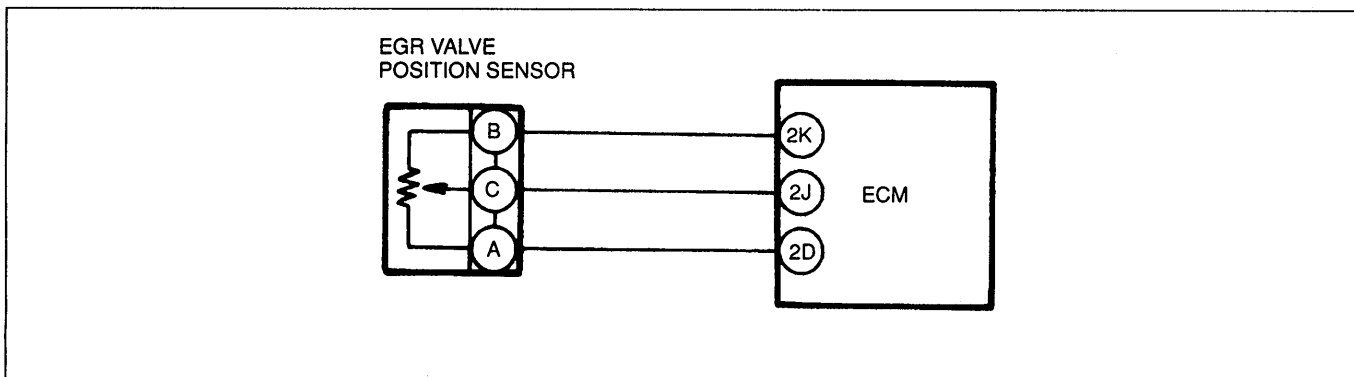
CODE No.	15 (HEATED OXYGEN SENSOR: INACTIVATION)		
Note • If code Nos.15 and 17 are both present, first perform the checking procedure for code No.17			
STEP	INSPECTION		ACTION
1	Are there any poor connections in heated oxygen sensor circuit?	Yes	Repair or replace connector
		No	Go to next step
2	Is heated oxygen sensor output voltage OK? ☞ page F-155	Yes	Go to next step
		No	Replace heated oxygen sensor ☞ page F-156
3	Is there continuity between heated oxygen sensor and ECM terminal 2N?	Yes	Go to next step
		No	Check for open circuit in wiring from heated oxygen sensor to ECM
4	Is ECM terminal 2N voltage OK?	Yes	Go to next step
		No	Check for short circuit in wiring from heated oxygen sensor to ECM
5	Is sensitivity of heated oxygen sensor OK? ☞ page F-156	Yes	Replace ECM ☞ page F-143
		No	Replace heated oxygen sensor ☞ page F-156

Circuit Diagram



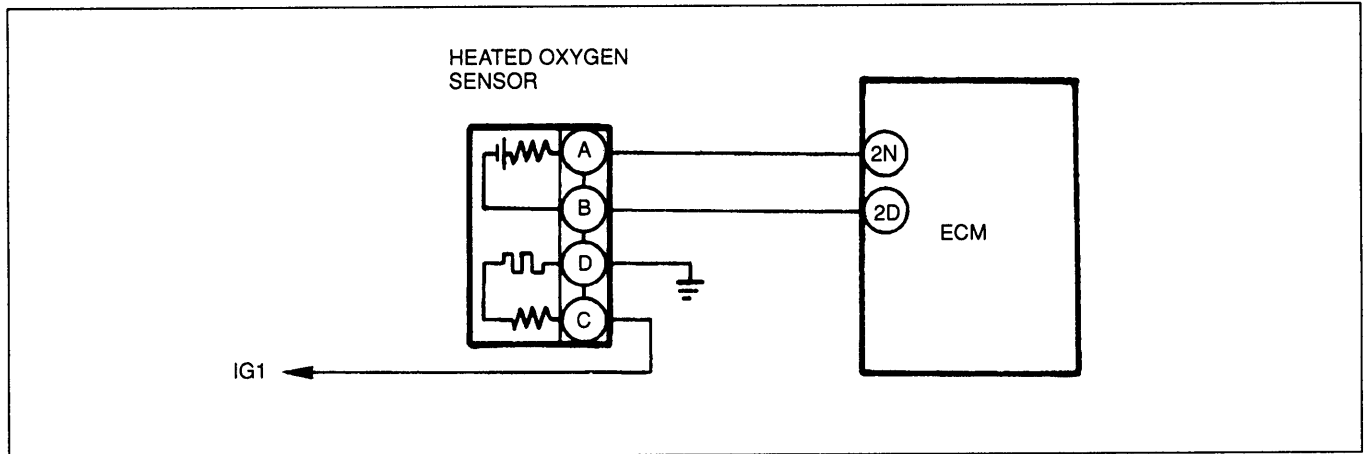
CODE No.		16 (EGR VALVE POSITION SENSOR)									
STEP	INSPECTION	ACTION									
1	Does EGR valve position sensor circuit have a poor connection?	Yes	Repair or replace connector								
		No	Go to next step								
2	Is EGR valve OK? <i>☞</i> page F-125	Yes	Go to next step								
		No	Replace EGR valve								
3	Is resistance of EGR valve position sensor OK? Resistance: (A) ↔ (B) Approx. 2.7 kΩ (A) ↔ (C) 0.5—2.7 kΩ (B) ↔ (C) 0.1—2.4 kΩ	Yes	Go to next step								
		No	Replace EGR valve								
4	Is there continuity between EGR valve position sensor and ECM? <table border="1"> <thead> <tr> <th>EGR valve position sensor</th> <th>ECM</th> </tr> </thead> <tbody> <tr> <td>C</td> <td>2J</td> </tr> <tr> <td>B</td> <td>2K</td> </tr> <tr> <td>A</td> <td>2D</td> </tr> </tbody> </table>	EGR valve position sensor	ECM	C	2J	B	2K	A	2D	Yes	Replace ECM
		EGR valve position sensor	ECM								
C	2J										
B	2K										
A	2D										
No	Check for open circuit in wiring from EGR valve position sensor to ECM										
5	Is there 4.5—5.5 V at terminal C of EGR valve position sensor connector? <i>☞</i> page F-124	Yes	Go to next step								
		No	Check for short circuit in wiring from EGR valve position sensor terminal C to ECM								
6	Is ECM terminal 2J voltage OK? <i>☞</i> page F-146	Yes	Replace ECM								
		No	Short circuit in wiring from EGR valve position sensor terminal C to ECM								

Circuit Diagram



CODE No.	17 (HEATED OXYGEN SENSOR: STICKING)		
STEP	INSPECTION		ACTION
1	Warm up engine and run it at 2,500—3,000 rpm for 3 min.		
2	Does monitor light of Self-Diagnosis Checker illuminate at idle?	Yes	Go to next step
		No	Check for air leak in vacuum hoses or emission components Check for contaminated heated oxygen sensor Check for insufficient fuel injection
3	Are spark plugs clean?	Yes	Go to next step
		No	Clean or replace spark plugs
4	Is heated oxygen sensor voltage OK? ☞ page F-156	Yes	Go to next step
		No	Replace heated oxygen sensor ☞ page F-156
5	Is same Code No. present after performing "After-repair Procedure"? ☞ page F-90	Yes	Go to next step
		No	Check for short circuit in wiring from heated oxygen sensor to ECM terminal 2N
6	Is there continuity between heated oxygen sensor and ECM terminal 2N?	Yes	Go to next step
		No	Check for open circuit in wiring from heated oxygen sensor to ECM
7	Is ECM terminal 2N voltage OK? ☞ page F-146	Yes	Replace ECM ☞ page F-143
		No	Check for short circuit in wiring from heated oxygen sensor to ECM

Circuit Diagram



CODE No.	25 (PRC SOLENOID VALVE)						
STEP	INSPECTION		ACTION				
1	Does PRC solenoid valve circuit have a poor connection?		Yes: Repair connector and/or wiring harness No: Go to next step				
2	Is connector terminal A voltage OK with PRC solenoid valve connector disconnected?		Yes: Go to next step No: Check for open or short circuit in wiring harness (PRC solenoid valve terminal A — Main relay terminal D)				
	<table border="1"> <thead> <tr> <th align="center">Condition</th> <th align="center">Voltage</th> </tr> </thead> <tbody> <tr> <td align="center">Ignition switch ON</td> <td align="center">Battery positive voltage</td> </tr> </tbody> </table>		Condition	Voltage	Ignition switch ON	Battery positive voltage	
Condition	Voltage						
Ignition switch ON	Battery positive voltage						
3	Is continuity between PRC solenoid valve terminal B and ECM terminal 2R?		Yes: Check for short circuit in wiring harness (PRC solenoid valve terminal B — ECM terminal 2R) ⇒ If OK, go to next step ⇒ If not OK, repair wiring harness No: Repair wiring harness				
4	Is PRC solenoid valve OK? page F-123		Yes: Replace ECM page F-143 No: Replace PRC solenoid valve				

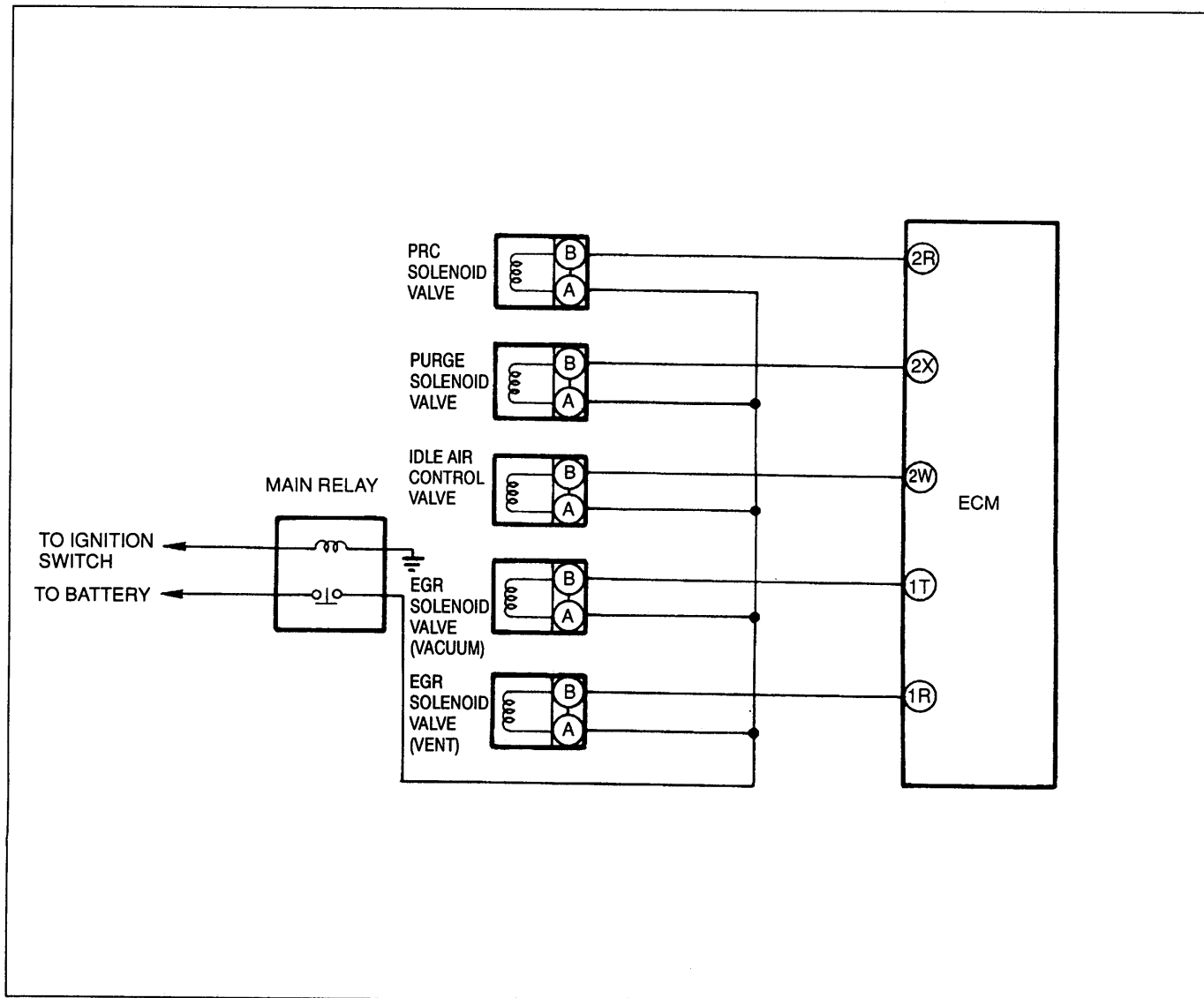
CODE No.	26 (PURGE SOLENOID VALVE)						
STEP	INSPECTION		ACTION				
1	Are there any poor connections in purge solenoid valve circuit?		Yes: Repair or replace connector No: Go to next step				
2	Is resistance of purge solenoid valve OK? Resistance: 25 ± 2 Ω		Yes: Go to next step No: Replace purge solenoid valve page F-132				
3	Is there battery positive voltage at terminal A of purge solenoid valve circuit?		Yes: Go to next step No: Check for open circuit in wiring from purge solenoid valve to main relay				
4	Is there continuity between purge solenoid valve and ECM?		Yes: Go to next step No: Check for open circuit in wiring from purge solenoid valve to ECM				
	<table border="1"> <thead> <tr> <th align="center">Solenoid valve</th> <th align="center">ECM</th> </tr> </thead> <tbody> <tr> <td align="center">B</td> <td align="center">2X</td> </tr> </tbody> </table>		Solenoid valve	ECM	B	2X	
Solenoid valve	ECM						
B	2X						
5	Is ECM terminal 2X voltage OK? page F-147		Yes: Replace ECM page F-143 No: Check for short circuit in wiring from purge solenoid valve to ECM				

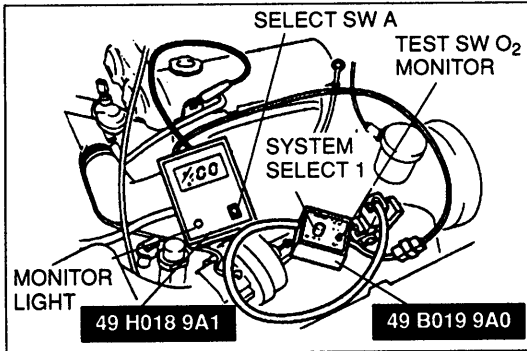
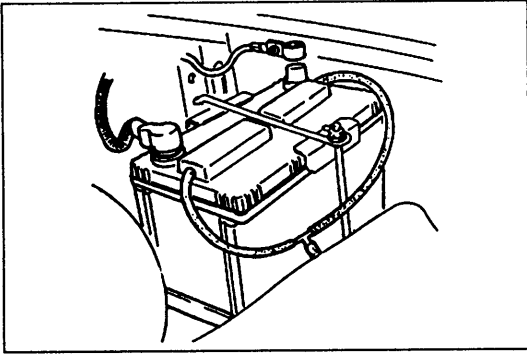
CODE No.		28 (EGR SOLENOID VALVE (VACUUM))					
STEP	INSPECTION		ACTION				
1	Is there a poor connection in EGR solenoid valve (vacuum) circuit?	Yes	Repair or replace connector				
		No	Go to next step				
2	Is connector terminal A voltages OK with EGR solenoid valve (vacuum) connector disconnected?	Yes	Go to next step				
		No	Check for open or short circuit in wiring from EGR solenoid valve (vacuum) terminal A to main relay terminal				
<table border="1"> <thead> <tr> <th>Condition</th> <th>Voltage</th> </tr> </thead> <tbody> <tr> <td>IG switch ON</td> <td>Battery positive voltage</td> </tr> </tbody> </table>		Condition	Voltage	IG switch ON	Battery positive voltage		
Condition	Voltage						
IG switch ON	Battery positive voltage						
3	Is continuity between EGR solenoid valve (vacuum) terminal B and ECM terminal 1T OK?	Yes	Check for short circuit in wiring from EGR solenoid valve (vacuum) terminal B to ECM terminal 1T ⇒ If OK, go to next step ⇒ If not OK, repair or replace wiring harness				
		No	Repair or replace wire harness				
4	Is EGR solenoid valve (vacuum) OK?	Yes	Replace ECM				
		No	Replace EGR solenoid valve (vacuum)				

CODE No.		29 (EGR SOLENOID VALVE (VENT))					
STEP	INSPECTION		ACTION				
1	Is there a poor connection in EGR solenoid valve (vent) circuit?	Yes	Repair or replace connector				
		No	Go to next step				
2	Is connector terminal A voltages OK with EGR solenoid valve (vent) connector disconnected?	Yes	Go to next step				
		No	Check for open or short circuit in wiring from EGR solenoid valve (vent) terminal A to main relay terminal				
<table border="1"> <thead> <tr> <th>Condition</th> <th>Voltage</th> </tr> </thead> <tbody> <tr> <td>IG switch ON</td> <td>Battery positive voltage</td> </tr> </tbody> </table>		Condition	Voltage	IG switch ON	Battery positive voltage		
Condition	Voltage						
IG switch ON	Battery positive voltage						
3	Is continuity between EGR solenoid valve (vent) terminal B and ECM terminal 1R OK?	Yes	Check for short circuit in wiring from EGR solenoid valve (vent) terminal B to ECM terminal 1R ⇒ If OK, go to next step ⇒ If not OK, repair or replace wiring harness				
		No	Repair or replace wire harness				
4	Is EGR solenoid valve (vent) OK?	Yes	Replace ECM				
		No	Replace EGR solenoid valve (vent)				

CODE No.	34 (IDLE AIR CONTROL VALVE)						
STEP	INSPECTION		ACTION				
1	Are there any poor connections in idle air control valve circuit?	Yes	Repair or replace connector				
		No	Go to next step				
2	Is resistance of idle air control valve OK? Resistance: $11.5 \pm 0.8 \Omega$ [20 °C { 68 °F }]	Yes	Go to next step				
		No	Replace idle air control valve page F-106				
3	Is there battery positive voltage at terminal A of idle air control valve circuit?	Yes	Go to next step				
		No	Check for open circuit in wiring from idle air control valve to main relay				
4	Is there continuity between idle air control valve and ECM? <table border="1"> <tr> <td>Idle air control valve</td> <td>ECM</td> </tr> <tr> <td>B</td> <td>2W</td> </tr> </table>	Idle air control valve	ECM	B	2W	Yes	Go to next step
		Idle air control valve	ECM				
B	2W						
5	Is ECM terminal 2W voltage OK? page F-147	Yes	Replace ECM page F-143				
		No	Check for short circuit in wiring from idle air control valve to ECM				

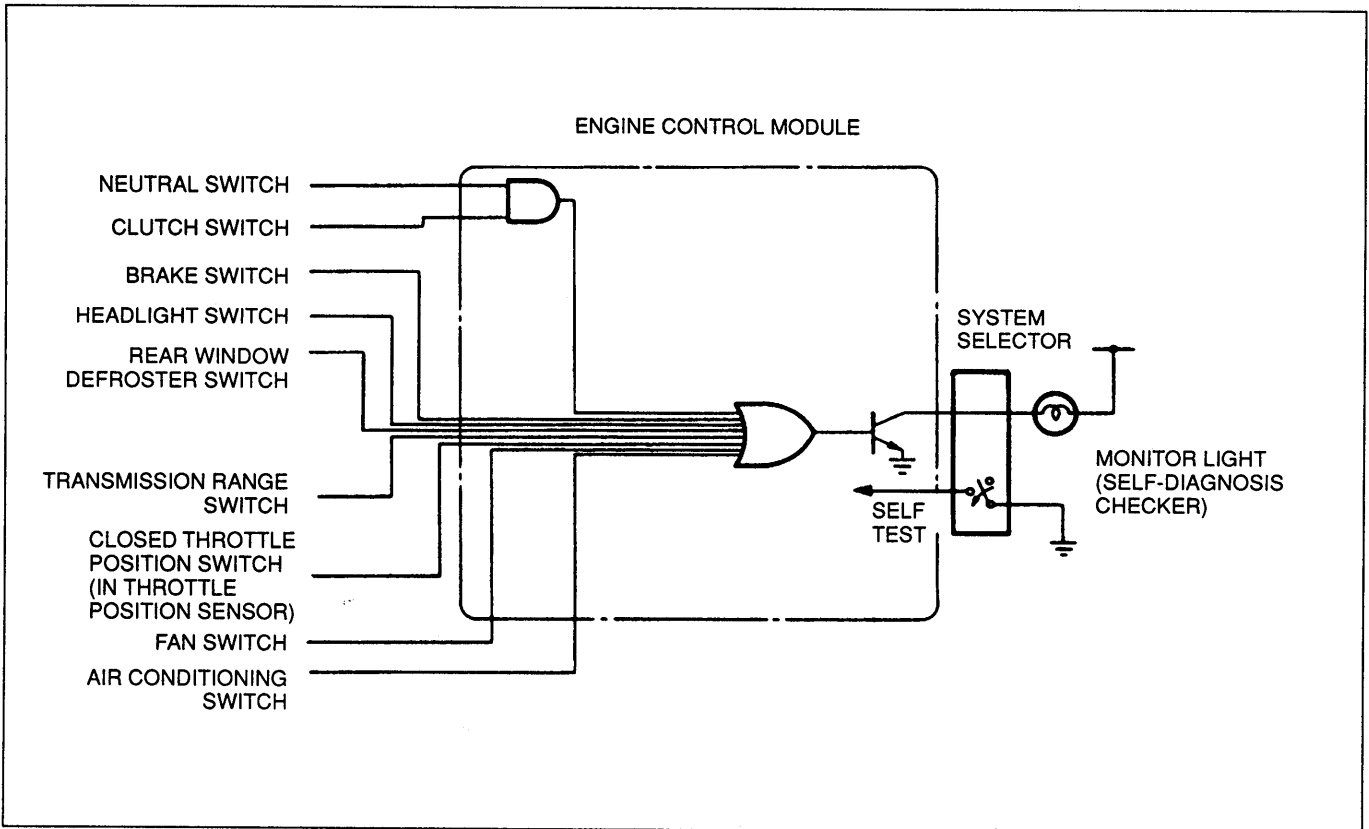
Circuit Diagram



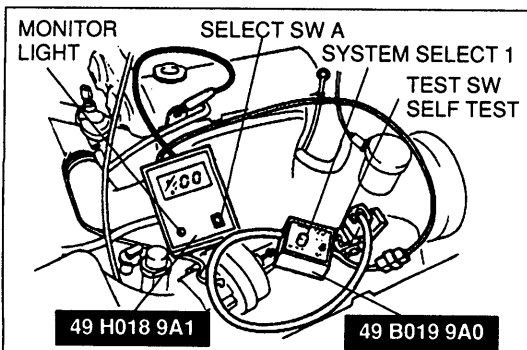
**After-repair Procedure**

1. Cancel the memory of malfunctions by disconnecting the negative battery cable **at least 20 seconds** and depress the brake pedal. Reconnect the negative battery cable.
2. Connect the **SSTs** to the data link connector as shown.
3. Turn the ignition switch to ON, but do not start the engine for **six seconds**.
4. Start and warm up the engine, then run it at **2,000 rpm for three minutes**.
5. Verify that no code numbers are displayed.

SWITCH MONITOR FUNCTION
Inspection Procedure

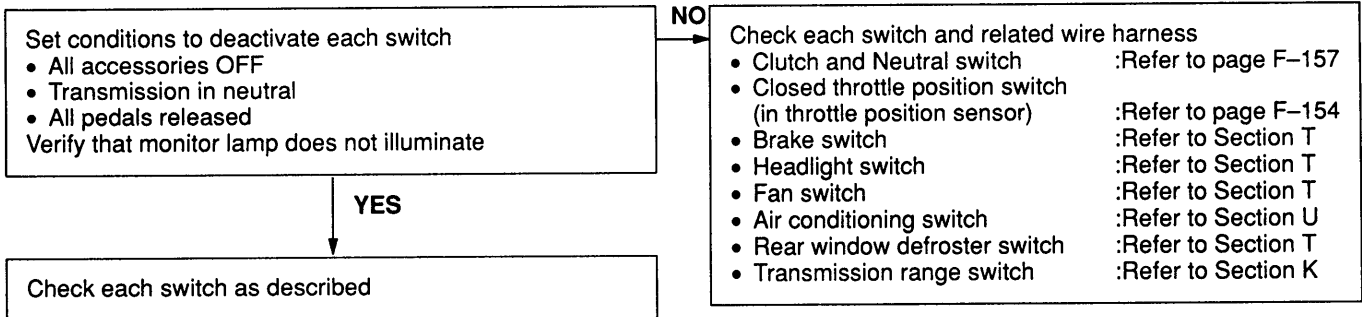


Switch	Self-Diagnosis Checker (Monitor light)		Remark
	Light ON	Light OFF	
Clutch switch (MT)	Pedal released	Pedal depressed	In gear
Neutral switch (MT)	In gear	Neutral	Clutch pedal released
Transmission range switch (AT)	L, S, D and R range	N and P range	—
Closed throttle position switch (in throttle position sensor)	Pedal depressed	Pedal released	—
Brake switch (MT)	Pedal depressed	Pedal released	—
Headlight switch	ON	OFF	—
Fan switch	ON	OFF	Blower motor position: "medium" "high" or "super high"
Air conditioning switch	ON	OFF	Fan speed control: Low position
Rear window defroster switch	ON	OFF	—

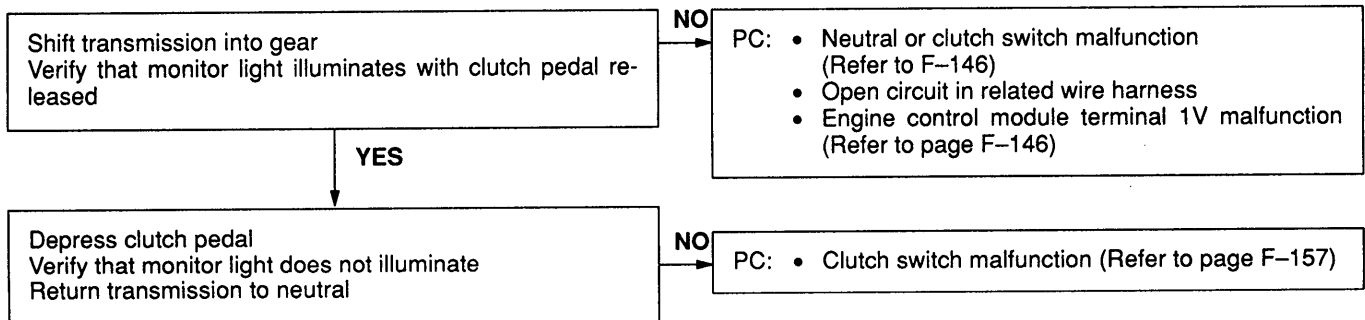


1. Connect the **SSTs** to the data link connector as shown.
2. Turn the ignition switch to ON.
3. Set conditions to deactivate all switches and verify that the monitor light does not illuminate. If any switch remains activated, the monitor light will be illuminated.
4. Check if the monitor light illuminates when each switch is made to function as described below.
5. If the monitor light will not illuminate at some switch, check the switch and related wire harness and repair or replace as necessary.

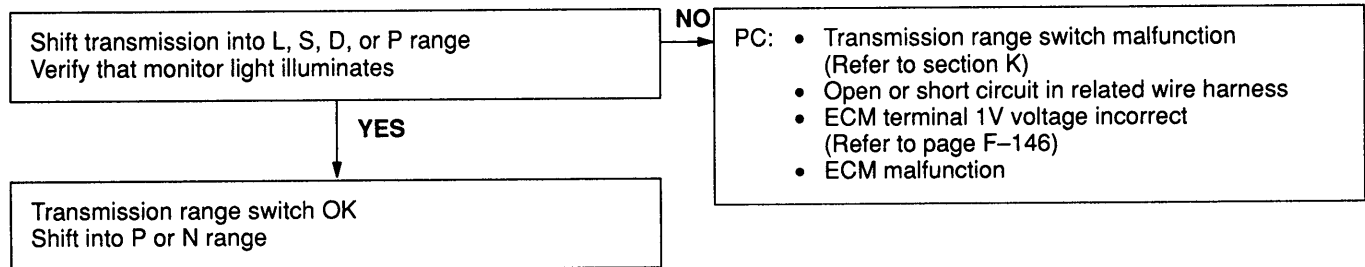
Procedure



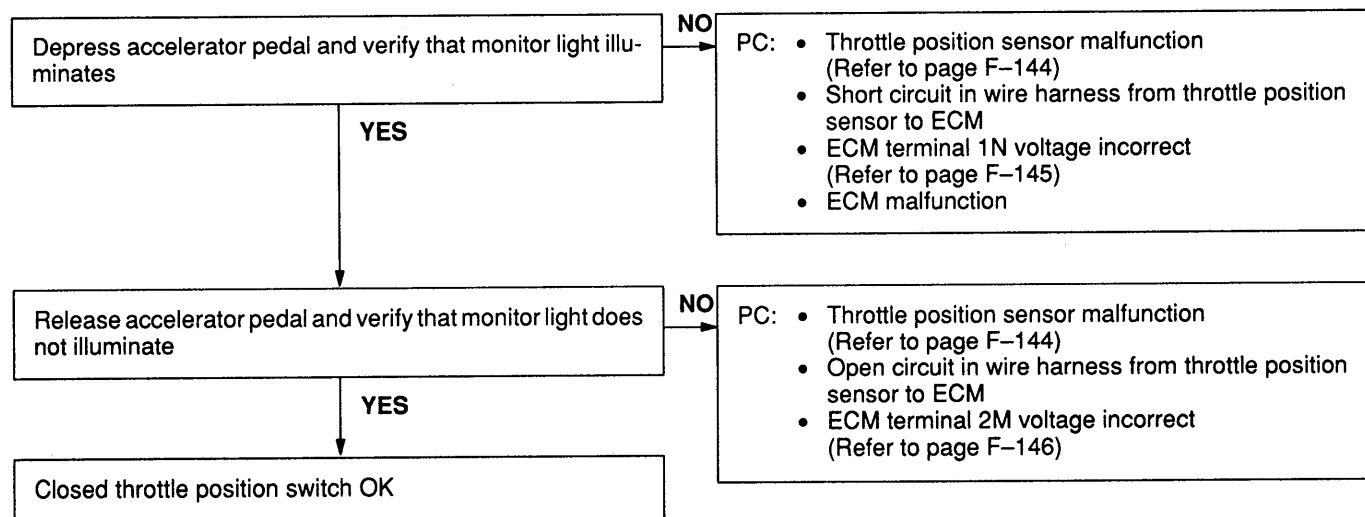
Neutral and clutch switches (MT)

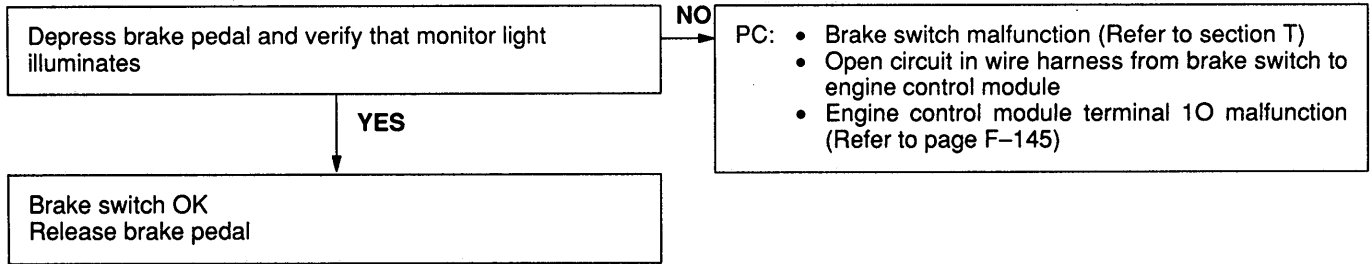
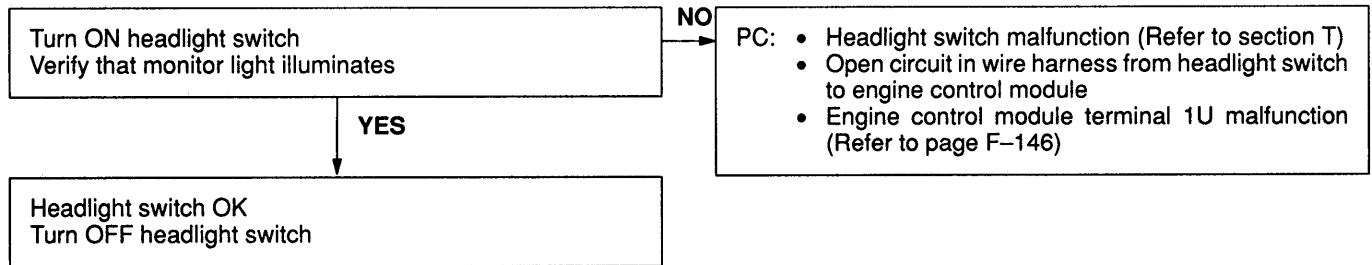
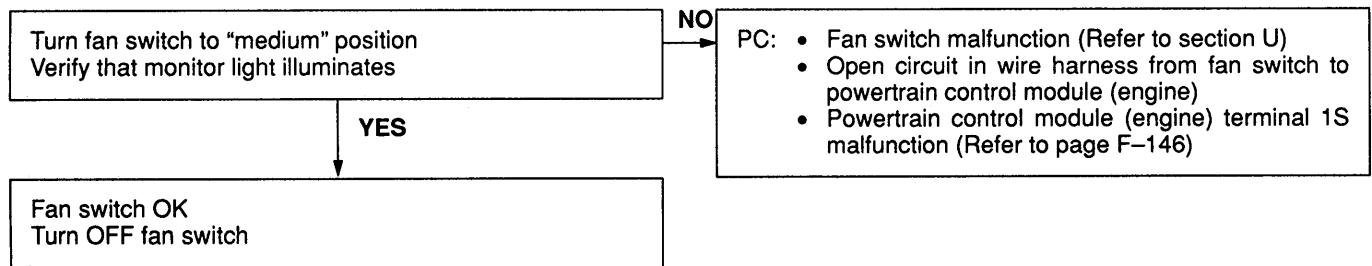
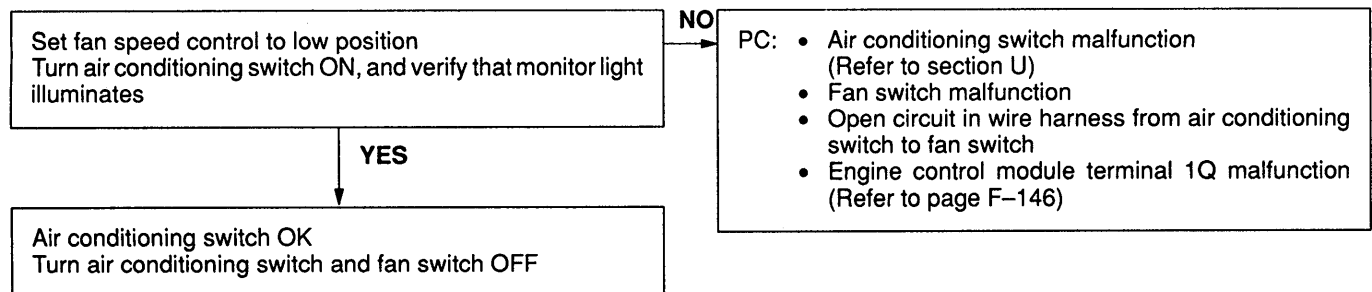
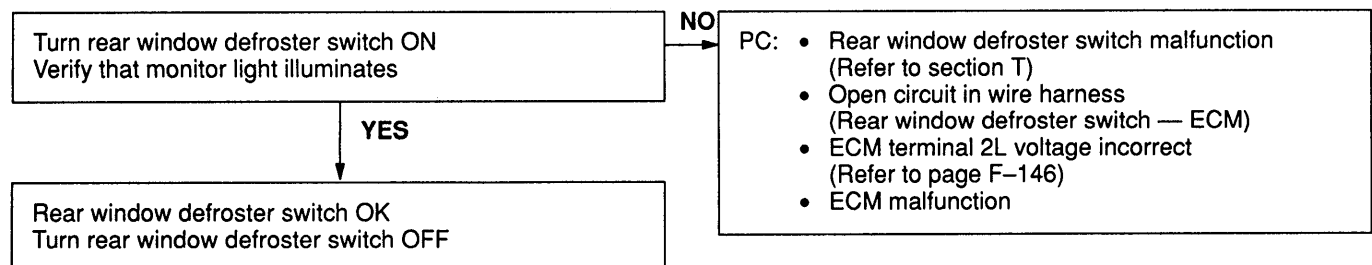


Transmission range switch (AT)



Closed throttle position switch (in throttle position sensor)



Brake switch (MT)**Headlight switch****Fan switch****Air conditioning switch****Rear window defroster switch**

INTAKE-AIR SYSTEM

COMPONENTS

Removal / Inspection / Installation

Warning

- **Fuel vapor is hazardous. It can very easily ignite, causing serious injury and damage. Always keep sparks and flames away from fuel.**

Fuel in the fuel system is under high pressure when the engine is not running.

Warning

- **Fuel line spills and leaks are dangerous. Fuel can ignite and cause serious injuries or death and damage. Fuel can also irritate skin and eyes. To prevent this, always complete the following "Fuel Line Safety Procedures".**

Fuel Line Safety Procedures

A. Release the fuel pressure before disconnecting a fuel line.

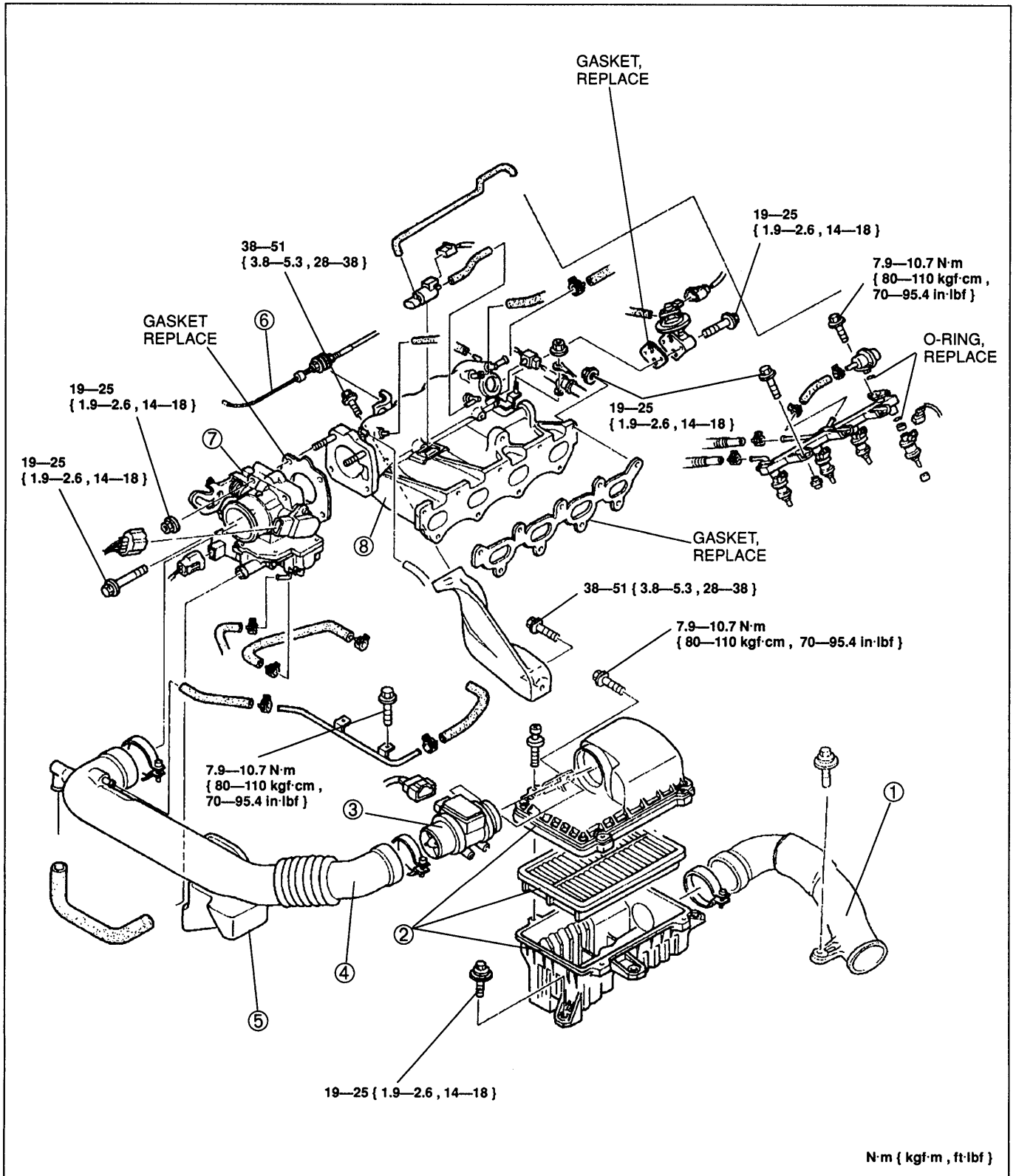
1. Start the engine.
2. Remove the fuel pump relay.
3. After the engine stalls, turn the ignition switch to OFF.
4. Install the fuel pump relay.

B. Avoid leakage.

1. When disconnecting a fuel line hose, wrap a rag around it to protect against fuel leakage.
2. Plug the hose after removal.

C. Install hose clamps to secure the fuel pressure gauge connections.

1. Drain the engine coolant. (Refer to section E.)
2. Remove in the order shown in the figure.
3. Check the components for damage and repair or replace as necessary.
4. Install in the reverse order of removal, using new gaskets.
5. Refill the engine coolant. (Refer to section E.)

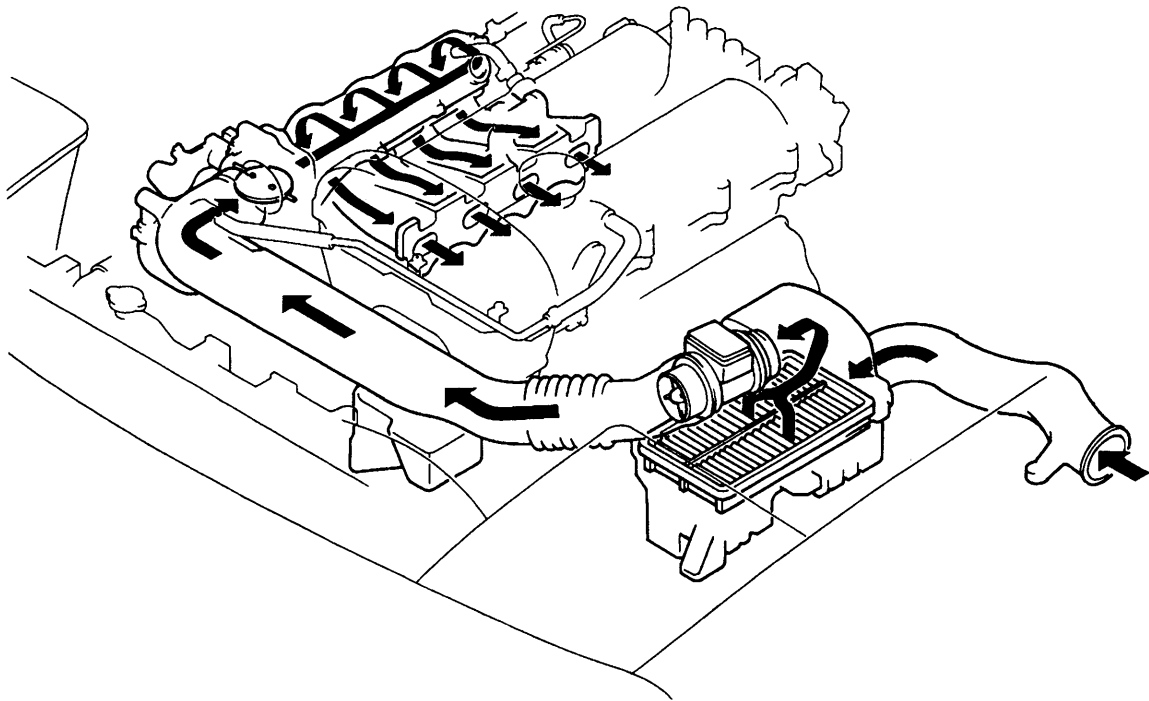


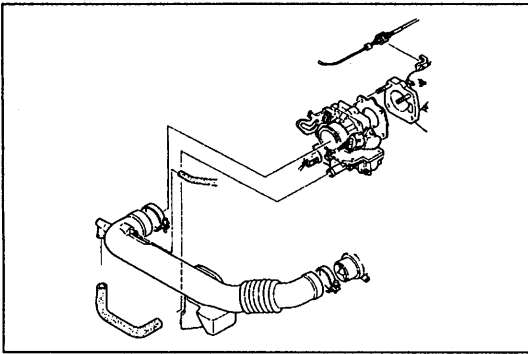
- 1. Air duct
- 2. Air cleaner
Inspection page F- 76
- 3. Mass air flow sensor
Inspection / Replacement page F-142
- 4. Air hose
- 5. Resonance chamber

- 6. Accelerator pedal/cable
Inspection / Replacement page F-103
- 7. Throttle body
Removal / Inspection /
Installation page F-101
- 8. Intake manifold
Removal / Installation page F-102

SYSTEM OPERATION**Inspection of Air Leakage**

Check for possible air leakage and repair or replace as necessary.

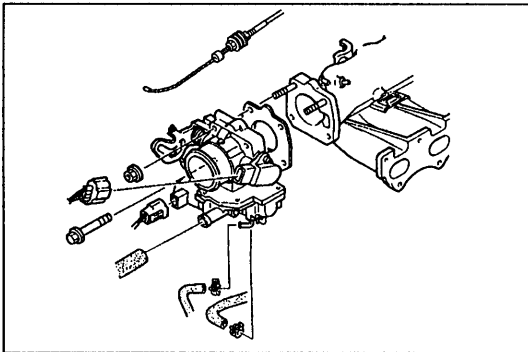




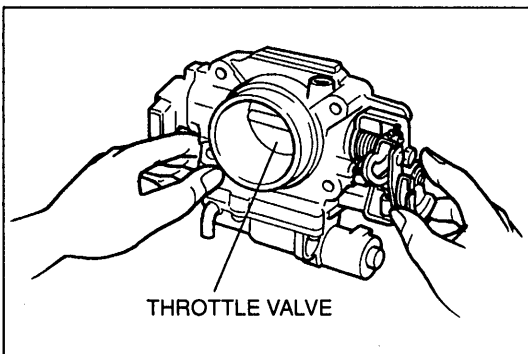
THROTTLE BODY

Removal

1. Disconnect the negative battery cable.
2. Remove the air pipe.
3. Remove the accelerator cable from the throttle lever.



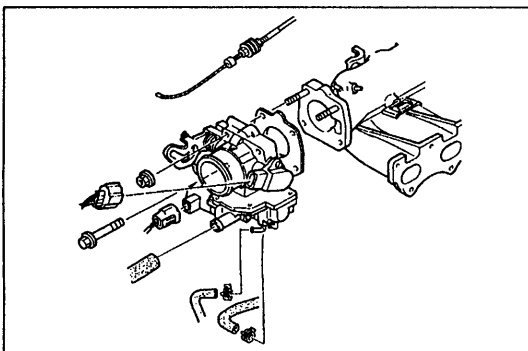
4. Drain the engine coolant.
5. Disconnect the water hoses.
6. Disconnect the connectors from the idle air control valve and the throttle position sensor.
7. Remove the throttle body.



Inspection

Do not remove the thin seal coating from the throttle valve or bore.

1. Verify that the throttle valve is closed throttle position.
2. Verify that the throttle valve moves smoothly when the throttle lever is moved from closed throttle position to wide open throttle.
3. Replace the throttle body if necessary.



Installation

Install in the reverse order of removal, using a new mounting gasket.

Tightening torque:

19—25 N·m { 1.9—2.6 kgf·m , 14—18 ft·lbf }

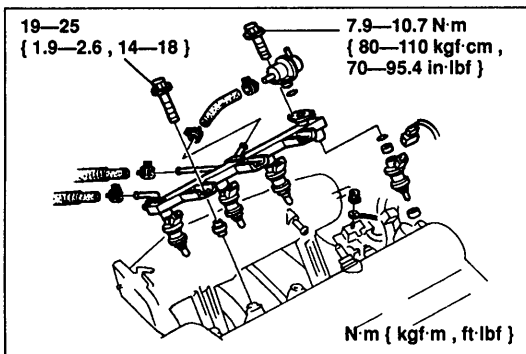
INTAKE MANIFOLD

Removal

Warning

- Fuel line spills and leaks are dangerous. Fuel can ignite and cause serious injuries or death and damage. Fuel can also irritate skin and eyes. To prevent this, always complete the "Fuel Line Safety Procedures" on page F-108.

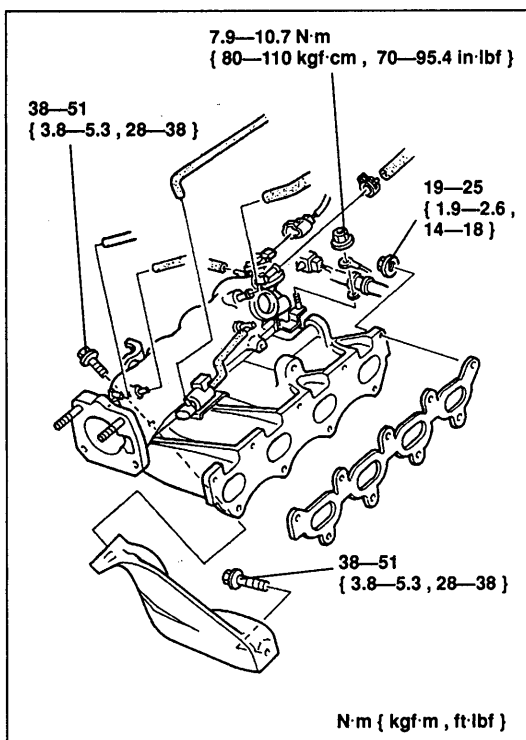
1. Remove the throttle body.
2. Disconnect the vacuum hoses.
3. Remove the accelerator cable.
4. Disconnect the fuel hoses.
5. Disconnect the connectors from the fuel injectors.
6. Remove the fuel distributor and fuel injectors.
7. Remove the fuel injector harness.

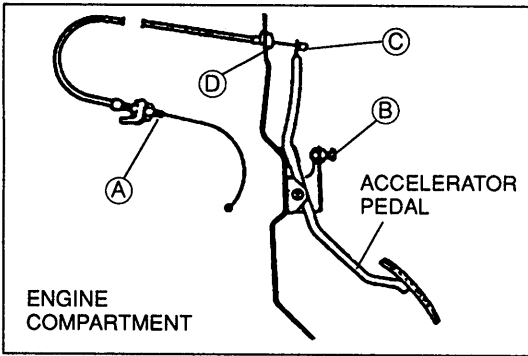


8. Remove the intake manifold bracket.
9. Remove the intake manifold.

Installation

Install in the reverse order of removal, using a new mounting gasket.





ACCELERATOR PEDAL AND CABLE

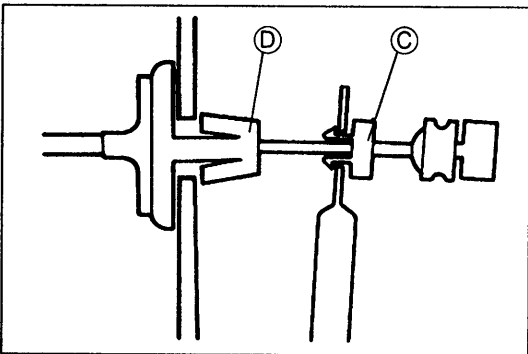
Accelerator Cable

Inspection

1. Check deflection of the cable. If deflection exceeds 1—3 mm { 0.039—0.118 in }, adjust it by turning nut (A).
2. Depress the accelerator pedal to the floor and verify that the throttle valve opens fully. Adjust with bolt (B) if necessary.

Replacement

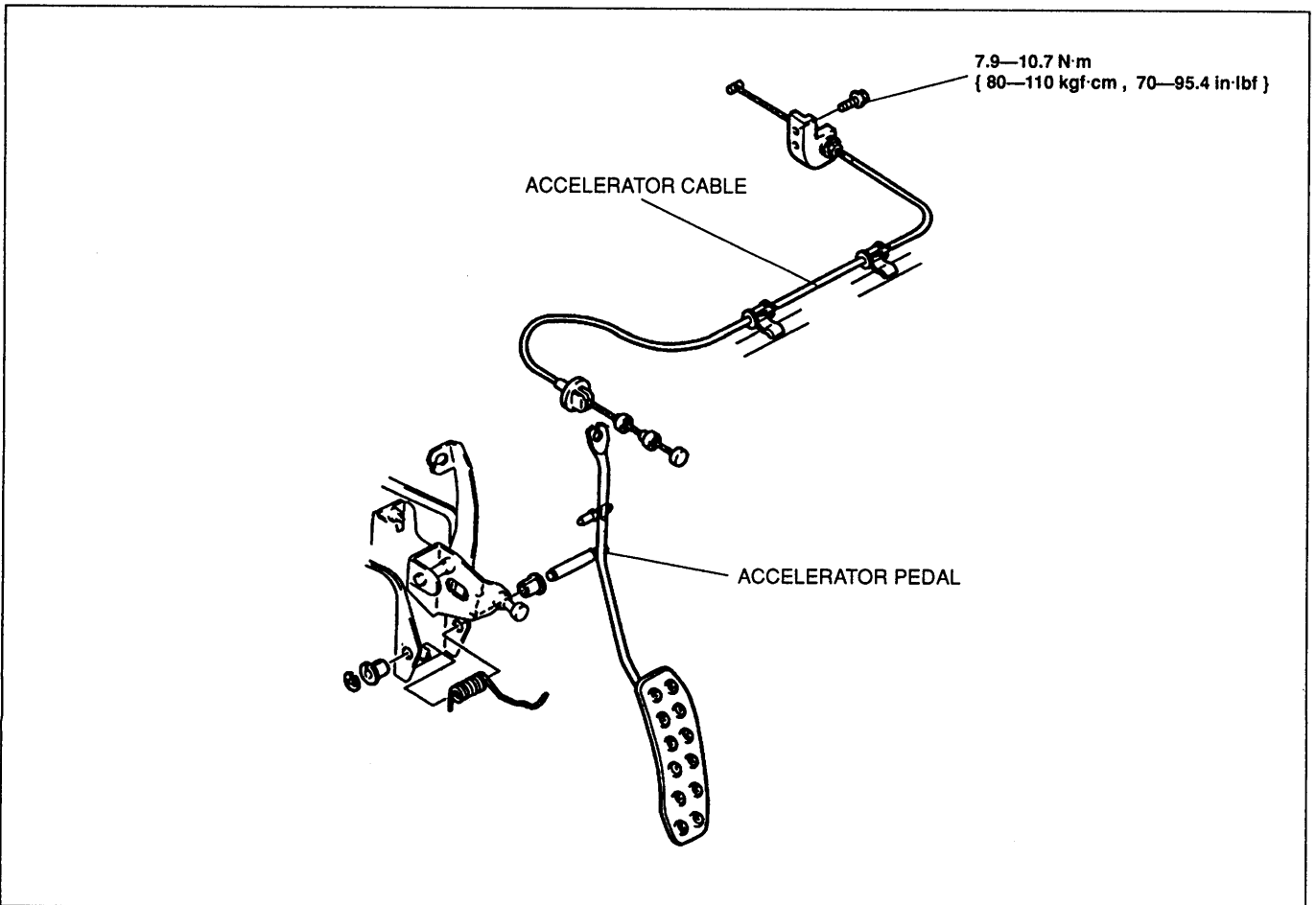
1. Remove the accelerator cable from the throttle lever.
2. Loosen the throttle adjustment nuts and remove the cable from the bracket.
3. Compress the tabs of stay (C) and remove the accelerator cable from the pedal arm.
4. Compress the tabs of stay (D) and push the cable through the firewall.
5. Remove the accelerator cable.
6. Install in the reverse order of removal.
7. Adjust deflection of the cable after installation. (Refer to above.)



Accelerator Pedal

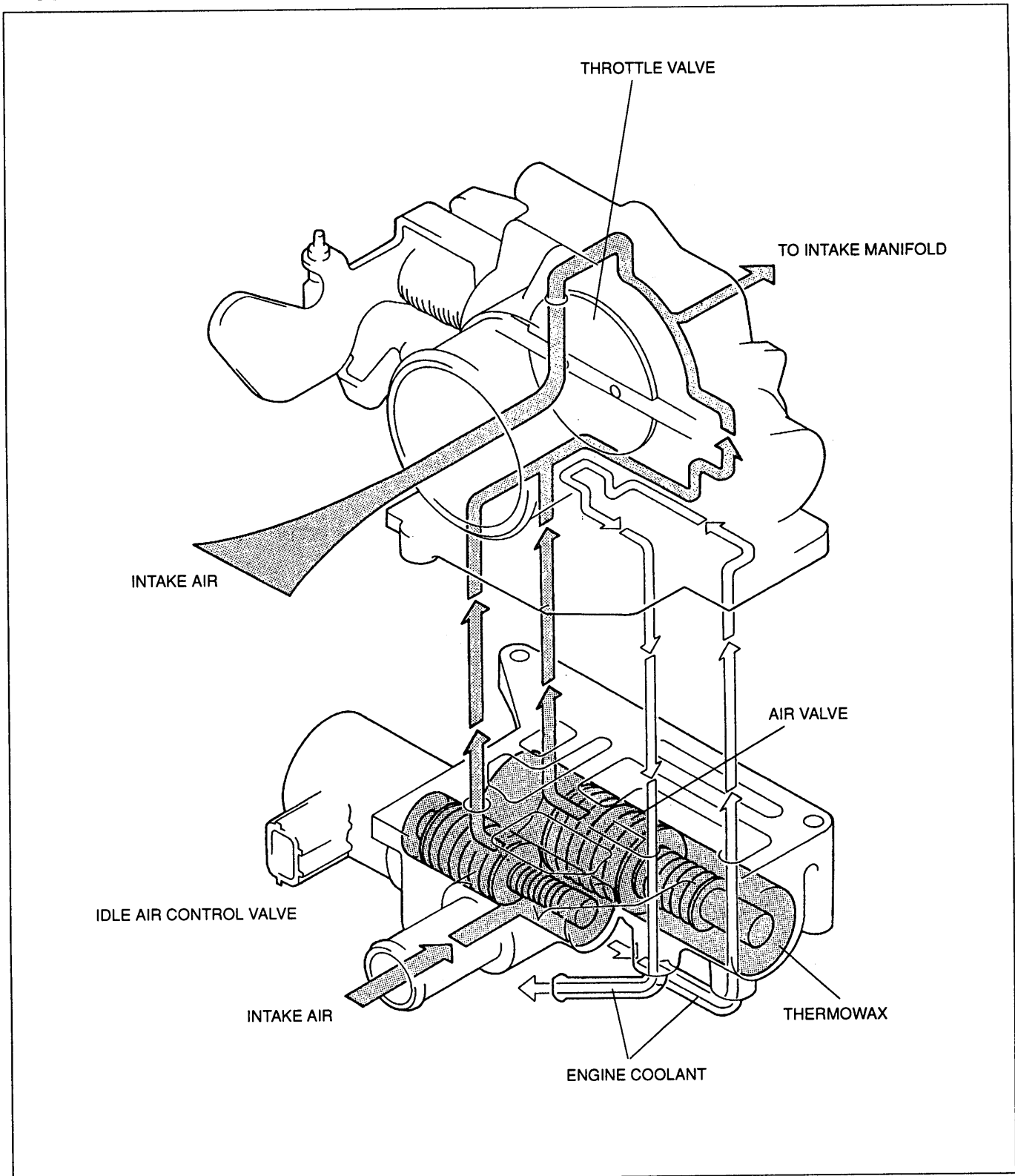
Replacement

1. Disconnect the accelerator cable.
2. Remove the accelerator pedal as shown in the figure.
3. Install in the reverse order of removal.

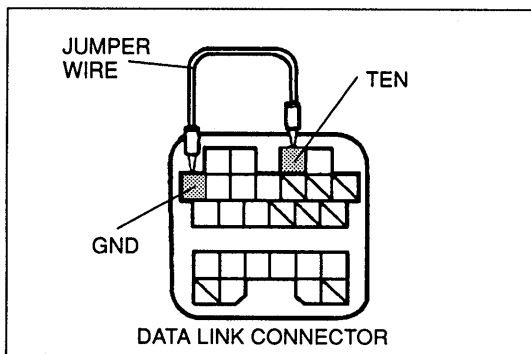
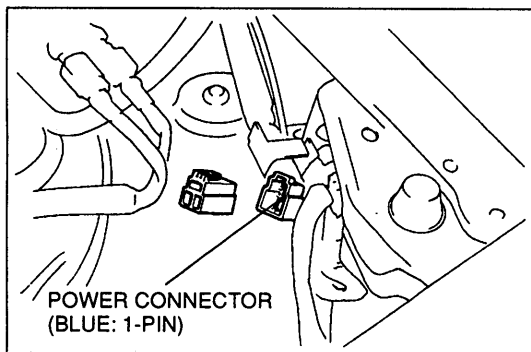


IDLE AIR CONTROL SYSTEM

DESCRIPTION



To improve idle smoothness, the IAC system controls the intake air amount by regulating amount of the bypass air that passes through the throttle valve. This system consists of the air valve that functions only when the engine is cold, the idle air control valve that works throughout the entire engine speed range, and the control system.



BAC VALVE

System Operation

Air valve

Perform this inspection when the engine is cold. (Engine coolant temperature below 20 °C { 68 °F }.)

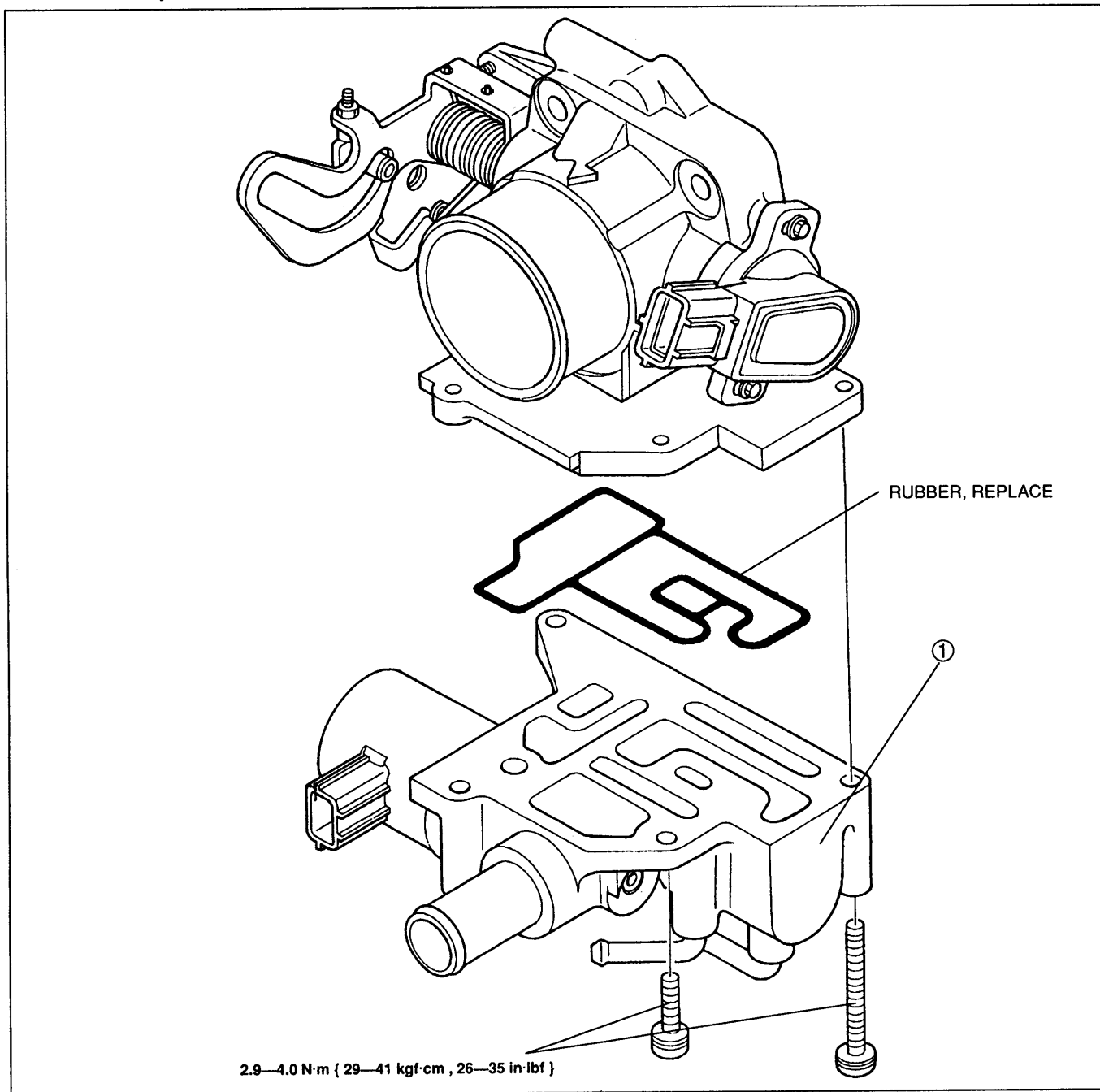
1. Connect a tachometer to the data link connector terminal IG-. When using an externally powered timing light and/or tachometer connect it to the power connector (Blue: 1-pin).

Caution

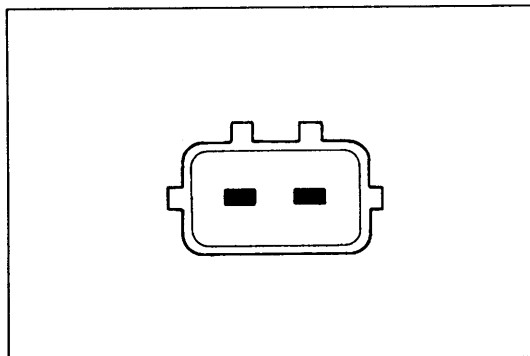
- **Grounding the power connector terminal (Blue: 1-pin) will burn out the 20 A wiper fuse.**

2. Connect data link connector terminals TEN and GND by using a jumper wire.
3. Verify that the engine speed gradually decreases as the engine warms up.
4. Disconnect the jumper wire.

Removal / Inspection



1. BAC valve
System operation page F-105



IDLE AIR CONTROL VALVE Inspection

1. Disconnect the idle air control valve connector.
2. Connect an ohmmeter between the terminals of the idle air control valve and measure the resistance.

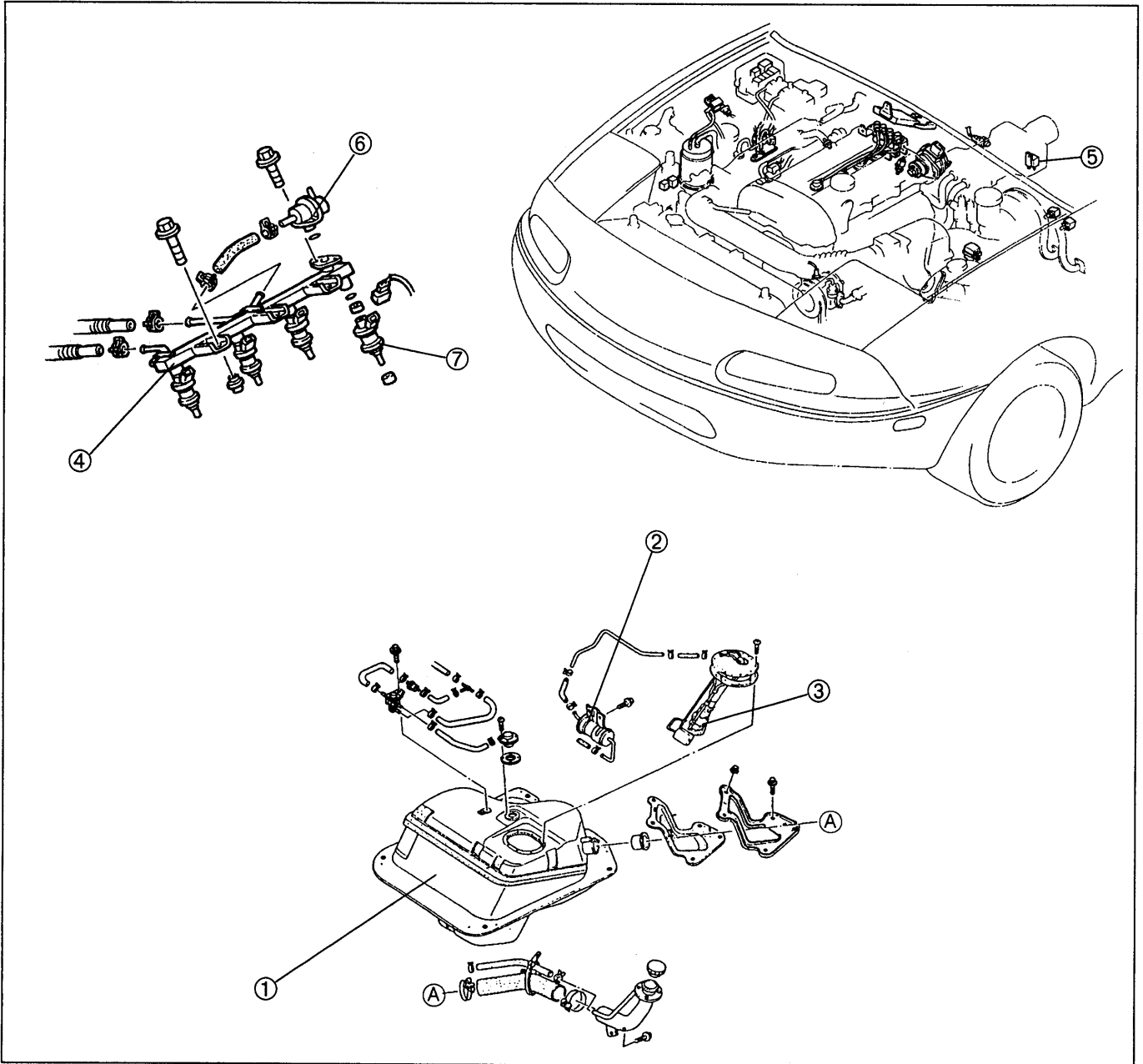
Resistance: $11.5 \pm 0.8 \Omega$ [at 20 °C { 68 °F }]

3. If not as specified, replace the BAC valve.

FUEL SYSTEM

DESCRIPTION

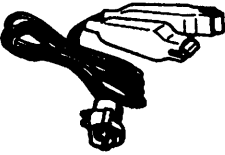
This system supplies the necessary fuel for combustion at a constant pressure to the fuel injectors. Fuel is metered and injected into the intake manifold according to the injection control signals from the engine control module. The system consists of the fuel tank, fuel pump, fuel filters, fuel distributor, pressure regulator, fuel injectors, and fuel pump relay.

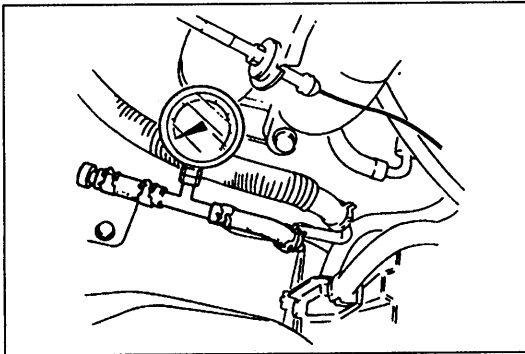
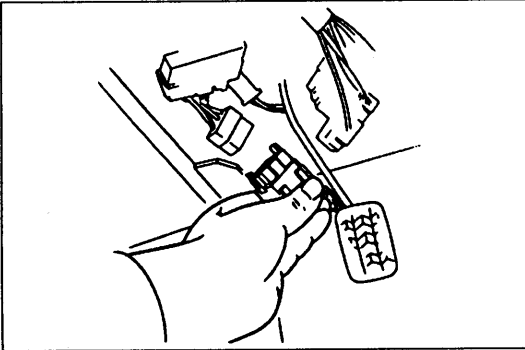


<p>1. Fuel tank Removal / Inspection / Installation page F-111</p> <p>2. Fuel filter Replacement page F-113</p> <p>3. Fuel pump Inspection page F-114 Replacement page F-115</p> <p>4. Fuel distributor</p>	<p>5. Fuel pump relay Inspection page F-117 Replacement page F-117</p> <p>6. Pressure regulator Inspection page F-118 Replacement page F-119</p> <p>7. Fuel injector Inspection page F-119 Removal page F-119 Installation page F-121</p>
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PREPARATION

SST

<p>49 L018 901</p> <p>Checker, injector</p>		<p>For inspection of fuel injector</p>
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Warning

- **Fuel vapor is hazardous. It can very easily ignite, causing serious injury and damage. Always keep sparks and flames away from fuel.**

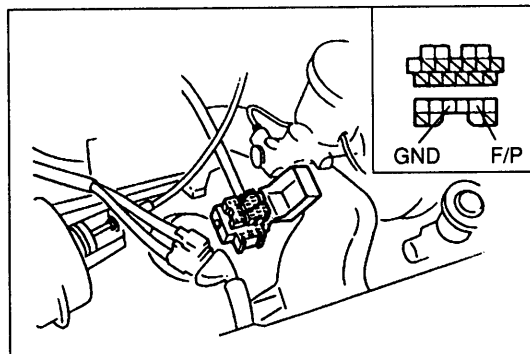
Fuel in the fuel system is under high pressure when the engine is not running.

Warning

- **Fuel line spills and leaks are dangerous. Fuel can ignite and cause serious injuries or death and damage. Fuel can also irritate skin and eyes. To prevent this, always complete the following "Fuel Line Safety Procedures".**

Fuel Line Safety Procedures

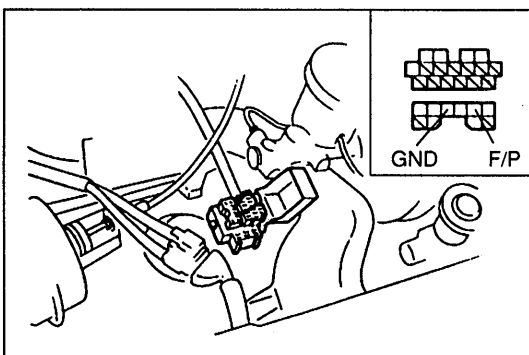
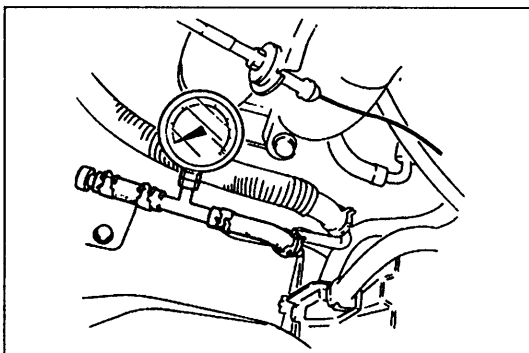
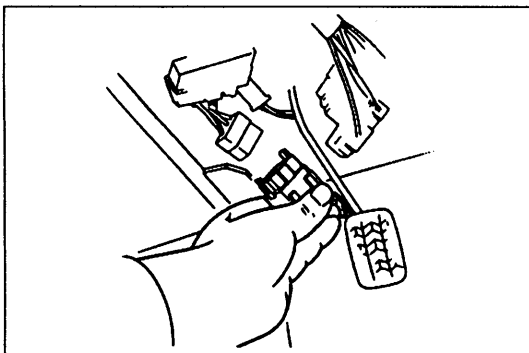
- Release the fuel pressure before disconnecting a fuel line.
 - Start the engine.
 - Disconnect the fuel pump relay connector.
 - After the engine stalls, turn the ignition switch to OFF.
 - Reconnect the fuel pump relay connector.
- Avoid leakage.
 - When disconnecting a fuel line hose, wrap a rag around it to protect against fuel leakage.
 - Plug the hose after removal.
- Install hose clamps to secure the fuel pressure gauge connections.



Priming Fuel System

After releasing the fuel system pressure for repairs or inspection, the system must be primed to avoid excessive cranking when first starting the engine. Follow the steps below.

1. Connect data link connector terminals F/P and GND by using a jumper wire.
2. Turn the ignition switch to ON for **approx. 10 sec.** and check for fuel leaks.
3. Turn the ignition switch to OFF and remove the jumper wire.



SYSTEM OPERATION

Fuel Pressure Hold Inspection

Warning

- Fuel line spills and leaks are dangerous. Fuel can ignite and cause serious injuries or death and damage. Fuel can also irritate skin and eyes. To prevent this, always complete the "Fuel Line Safety Procedures" on page F-108.

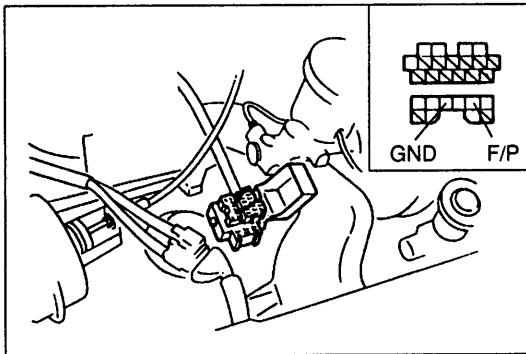
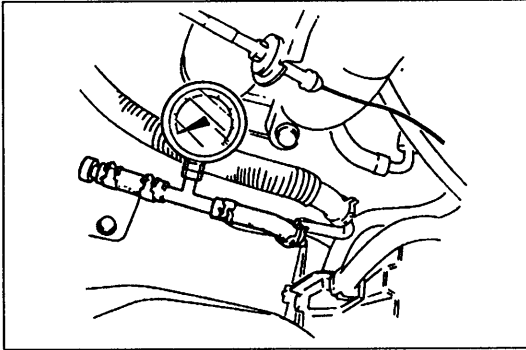
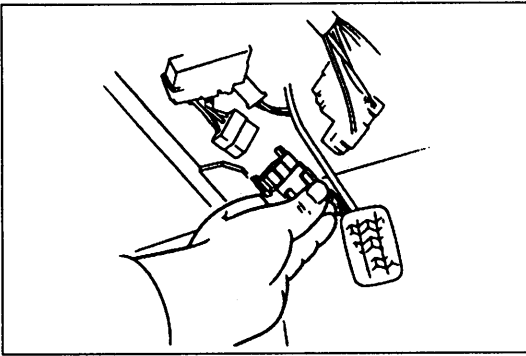
1. Disconnect the negative battery cable.
2. Install a fuel pressure gauge between the fuel pipe and the fuel main hose. (Install clamps as shown.)
3. Connect the negative battery cable.

4. Connect data link connector terminals F/P and GND by using a jumper wire.
5. Turn the ignition switch to ON for **10 sec.** to operate the fuel pump.
6. Turn the ignition switch to OFF and disconnect the jumper wire.
7. Observe the fuel pressure **after 5 min.**

Fuel pressure:

More than 147 kPa { 1.5 kgf/cm² , 21 psi }

8. If not as specified, perform the following inspections.
 - Fuel pump hold pressure (Refer to page F-114.)
 - Pressure regulator hold pressure (Refer to page F-118.)
 - Fuel injector fuel leakage (Refer to page F-120.)



Fuel Line Pressure Inspection

Warning

- Fuel line spills and leaks are dangerous. Fuel can ignite and cause serious injuries or death and damage. Fuel can also irritate skin and eyes. To prevent this, always complete the "Fuel Line Safety Procedures" on page F-108.

1. Disconnect the negative battery cable.
2. Install a fuel pressure gauge between the fuel pipe and the fuel main hose. (Install clamps as shown.)
3. Connect the negative battery cable.

4. Connect data link connector terminals F/P and GND by using a jumper wire.
5. Turn the ignition switch to ON.
6. Measure the fuel line pressure.

Fuel line pressure:

265—313 kPa { 2.7—3.2 kgf/cm² , 39—45 psi }

- Pressure low——Check fuel pump maximum pressure. (Refer to page F-115.) If as specified, fuel line or fuel filter might be clogged or restricted.
- Pressure high——Replace the pressure regulator. (Refer to page F-118.)

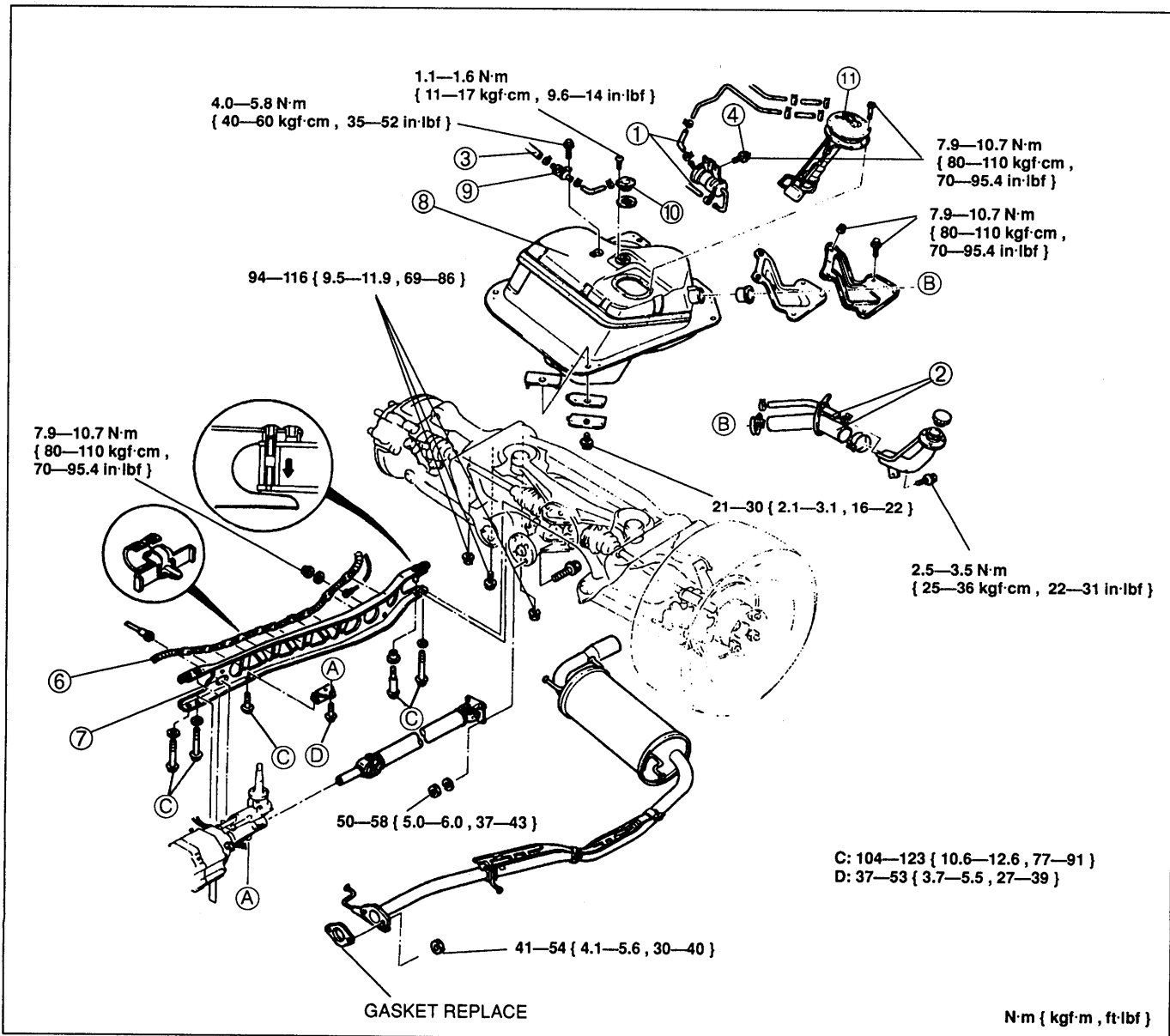
FUEL TANK

Removal / Inspection / Installation

Warning

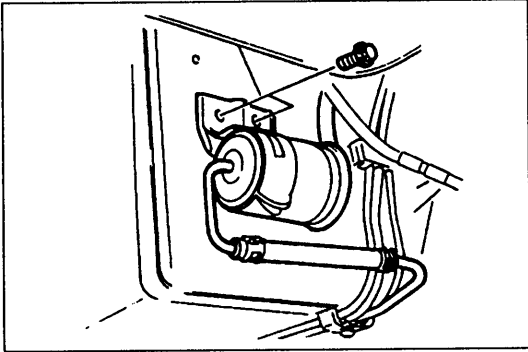
- Fuel vapor is hazardous. It can very easily ignite, causing serious injury and damage. Always keep sparks and flames away from fuel.
- Fuel line spills and leaks are dangerous. Fuel can ignite and cause serious injuries or death and damage. Fuel can also irritate skin and eyes. To prevent this, always complete the "Fuel Line Safety Procedures" on page F-108.
- Repairing a fuel tank that has not been properly steam cleaned can be dangerous. Explosion or fire may cause death or serious injury. Always properly steam clean a fuel tank before repairing it.

1. Disconnect the negative battery terminal.
2. Drain the fuel from the fuel tank.
3. Remove the main silencer. (Refer to page F-128.)
4. Remove the power plant frame. (Refer to section J.)
5. Remove in the order shown in the figure, referring to **Removal note**.
6. Install in the reverse order of removal, referring to **Installation note**.



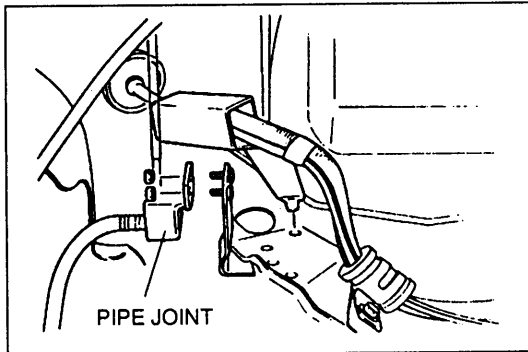
1. Fuel filler hose
2. Fuel hose
3. Evaporative hose
4. Fuel filter bolt
Removal note page F-112
5. Brake pipe joint
Removal note page F-112
6. Battery cable
Removal note page F-112

7. Rear crossmember assembly
Removal Note page F-112
8. Fuel tank unit
9. Two-way check valve
10. Fuel vapor valve
11. Fuel pump



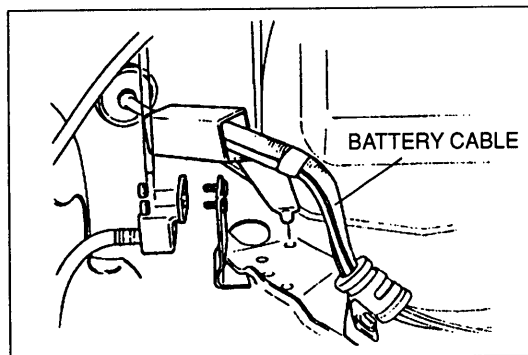
Removal note
Fuel filter bolts

1. Remove the fuel filter cover.
2. Remove the fuel filter bolts. (MT)
3. Remove the fuel filter nuts. (AT)
4. Remove the fuel filter with the fuel hoses still connected.



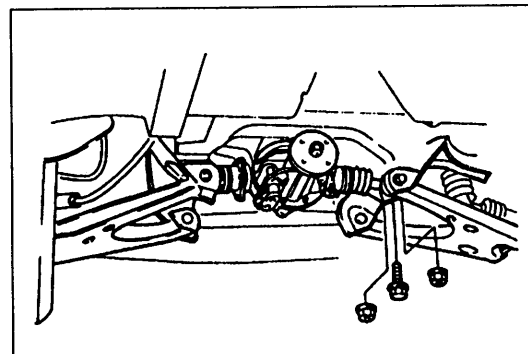
Brake pipe joint

1. Remove the brake pipe joint nuts.
2. Remove the brake pipe joint with the brake pipe and brake hose still connected.



Battery cable

Remove the battery cable clamp as shown in the figure.



Rear crossmember assembly

1. Support the rear crossmember assembly by using a transmission jack.
2. Remove the rear crossmember mounting bolts and nuts.
3. Lower the rear crossmember assembly.

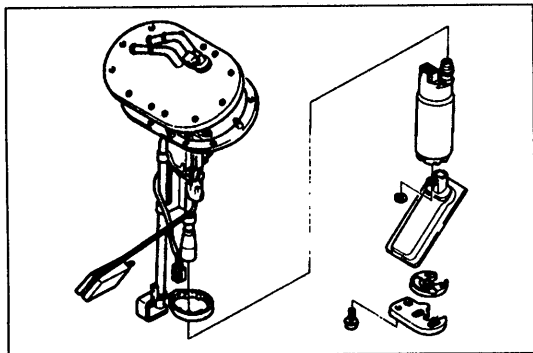
Installation note

Fuel hoses and fuel filler hoses

- Push the ends of the main fuel hose, fuel return hose, and evaporation hose onto the fuel tank fittings at least 25 mm { 1.0 in }.
- Push the fuel filler hose onto the fuel tank pipe and filler pipe at least 35 mm { 1.4 in }.

Power plant frame

- Install the power plant frame referring to the installation procedure on section J.

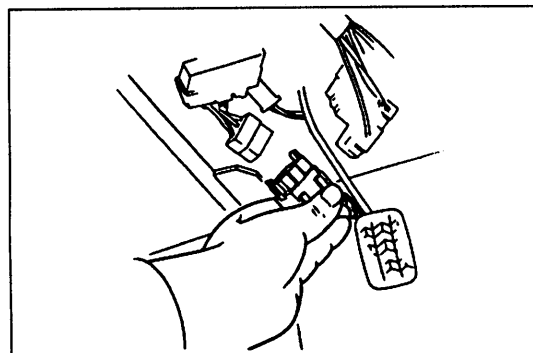


FUEL FILTER

Replacement

Low-pressure side (In-tank filter)

Refer to page F-116.

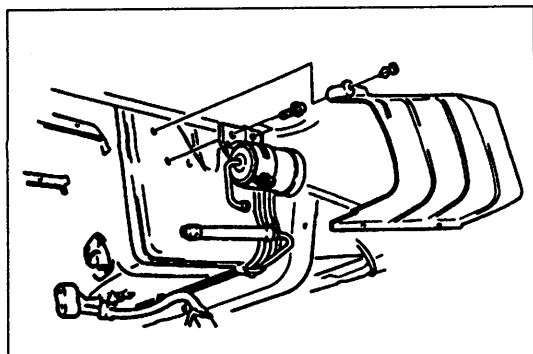


High pressure side

The fuel filter must be replaced at the intervals outlined in the maintenance schedule.

Warning

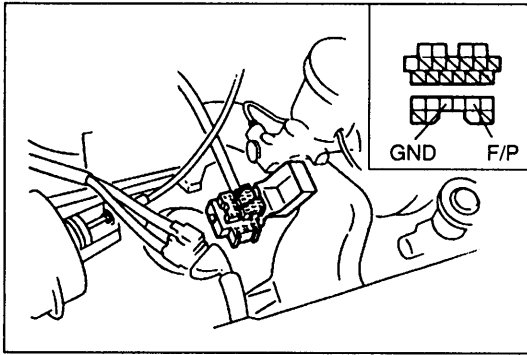
- Fuel vapor is hazardous. It can very easily ignite, causing serious injury and damage. Always keep sparks and flames away from fuel.
- Fuel line spills and leaks are dangerous. Fuel can ignite and cause serious injuries or death and damage. Fuel can also irritate skin and eyes. To prevent this, always complete the "Fuel Line Safety Procedures" on page F-108.



1. Raise the rear of the vehicle and support it with safety stands.
2. Remove the fuel filter protector.
3. Disconnect the fuel hoses from the fuel filter.
4. Remove the fuel filter and bracket.
5. Install in the reverse order of removal.
6. Verify that the fuel hoses are pushed fully onto the fuel filter nipples.

Tightening torque:

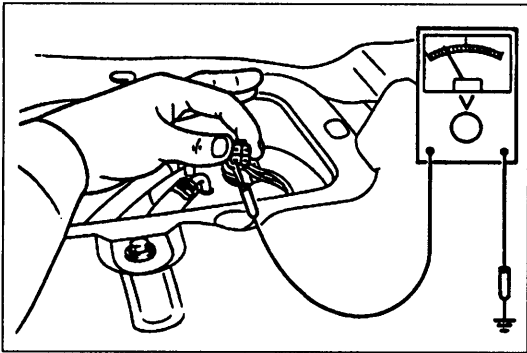
7.9—10.7 N·m { 80—110 kgf·cm , 70—95.4 in·lbf }

**FUEL PUMP****Inspection****Fuel pump operation**

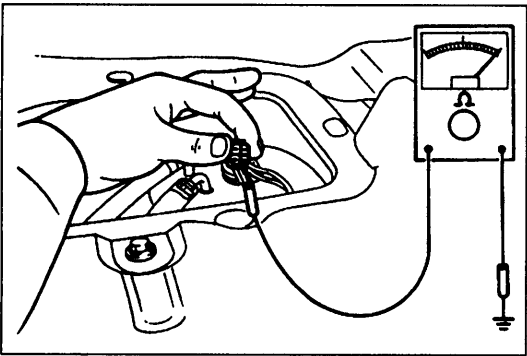
1. Connect the data link connector terminals F/P and GND by using a jumper wire.
2. Remove the fuel filler cap.
3. Turn the ignition switch to ON.
4. Listen for operational sound of the fuel pump at the filler inlet.
5. Install the fuel filler cap.
6. If no sound was heard, measure the voltage between the fuel pump connector wire to ground.

Voltage: Battery positive voltage

7. If not correct, check the fuel pump relay and its circuits. (Refer to page F-116.)



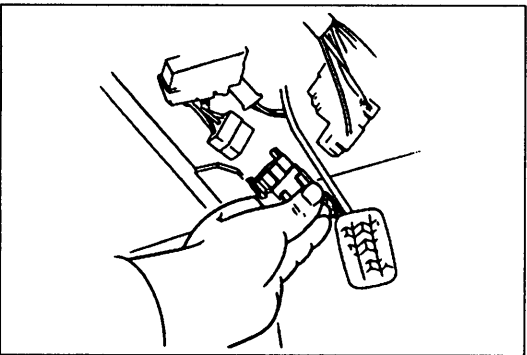
8. If the voltage is normal, check for continuity between fuel pump connector (B) and a ground.
9. If there is continuity, replace the fuel pump.
10. If no continuity, repair the ground circuit.

**Hold pressure**

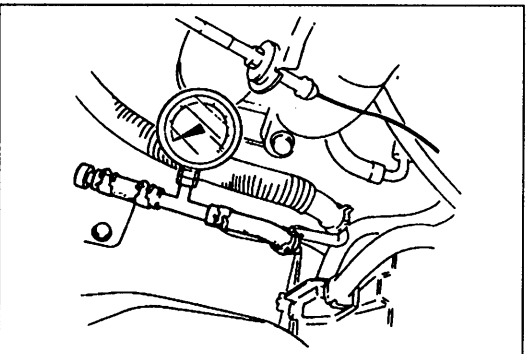
Perform this inspection if the fuel pressure hold inspection is not as specified. (Refer to page F-109.)

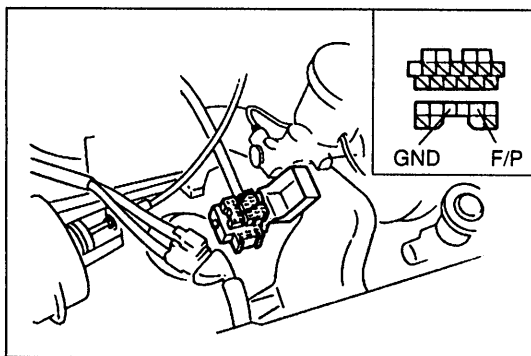
Warning

- **Fuel line spills and leaks are dangerous. Fuel can ignite and cause serious injuries or death and damage. Fuel can also irritate skin and eyes. To prevent this, always complete the "Fuel Line Safety Procedures" on page F-108.**



1. Disconnect the negative battery cable.
2. Connect a fuel pressure gauge to the fuel main pipe and plug the outlet of the fuel pressure gauge as shown. (Install clamps as shown.)
3. Connect the negative battery cable.





4. Connect data link connector terminals F/P and GND by using a jumper wire.
5. Turn the ignition switch to ON for 10 sec. to operate the fuel pump.
6. Turn the ignition switch to OFF and disconnect the jumper wire.
7. Observe the fuel pressure after 5 min.

Fuel pressure:

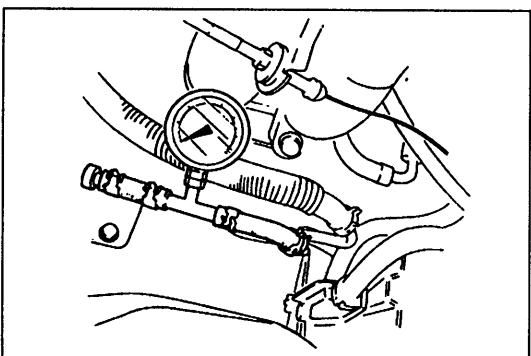
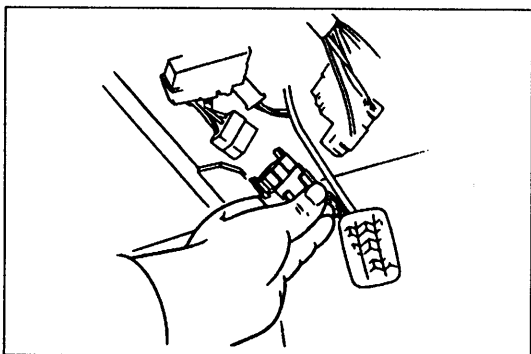
More than 343 kPa { 3.5 kgf/cm² , 50 psi }

8. If not as specified, replace the fuel pump.

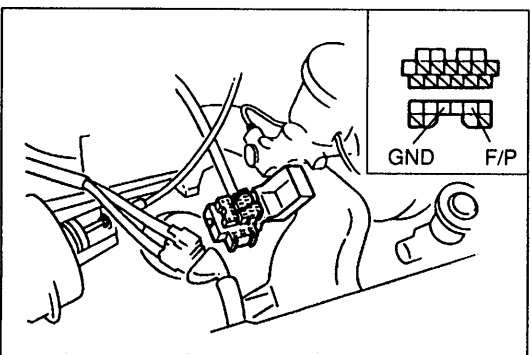
Fuel pump maximum pressure

Warning

- Fuel line spills and leaks are dangerous. Fuel can ignite and cause serious injuries or death and damage. Fuel can also irritate skin and eyes. To prevent this, always complete the "Fuel Line Safety Procedures" on page F-108.



1. Disconnect the negative battery cable.
2. Connect a fuel pressure gauge to the fuel main pipe and plug the outlet of the fuel pressure gauge as shown. (Install clamps as shown.)
3. Connect the negative battery cable.



4. Connect data link connector terminals F/P and GND by using a jumper wire.
5. Turn the ignition switch to ON to operate the fuel pump.
6. Measure the pump maximum pressure.

Fuel pump maximum pressure:

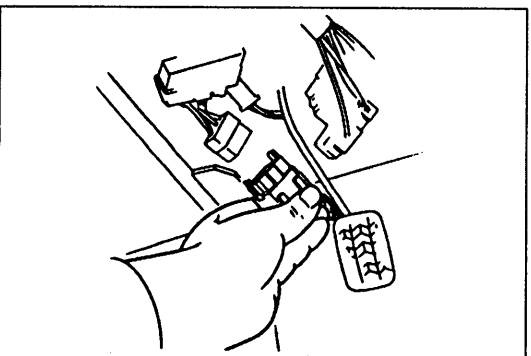
481—657 kPa { 4.9—6.7 kgf/cm² , 70—95 psi }

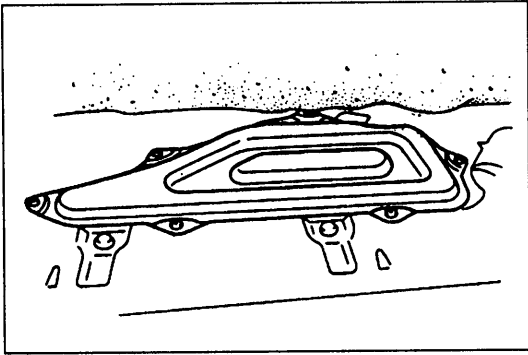
7. Turn the ignition switch to OFF and disconnect the jumper wire.
8. If not as specified, replace the fuel pump.

Replacement

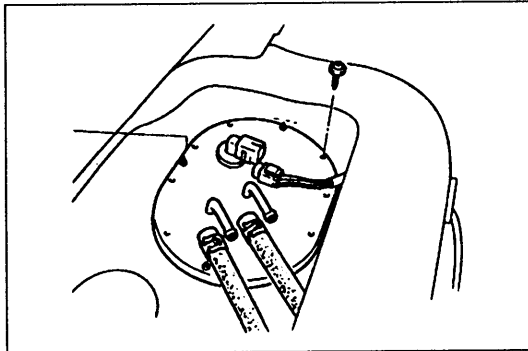
Warning

- Fuel line spills and leaks are dangerous. Fuel can ignite and cause serious injuries or death and damage. Fuel can also irritate skin and eyes. To prevent this, always complete the "Fuel Line Safety Procedures" on page F-108.

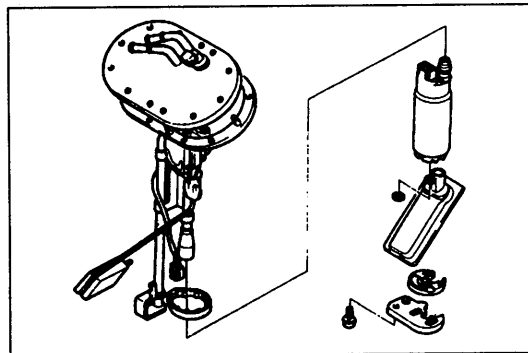




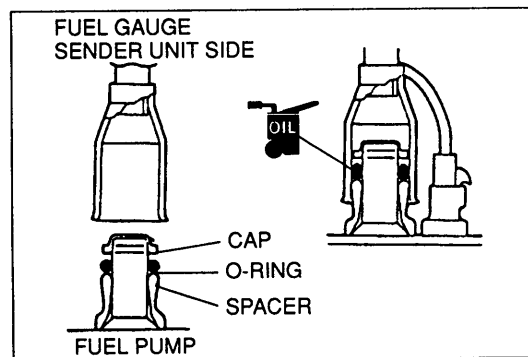
1. Remove the rear package trim.
2. Remove the service hole cover.



3. Remove the fuel pump cover.
4. Disconnect the fuel pump connector.
5. Disconnect the fuel hoses.
6. Remove the fuel pump and fuel gauge sender unit assembly.



7. Remove the fuel pump.
8. Install in the reverse order of removal, referring to **Installation note**.



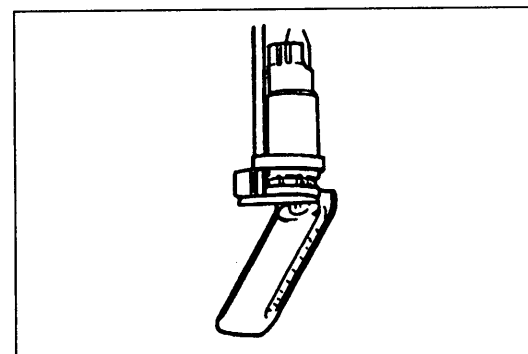
Installation note

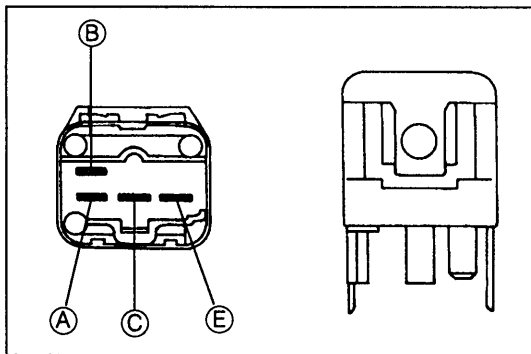
O-ring set

1. Use a new O-ring set. (O-ring, cap, and spacer)
2. Apply clean engine oil or fuel to the O-ring set before installing.
3. To confirm sealing of the O-ring, after assembling the fuel pump and fuel gauge sender unit, blow air through the fuel main pipe and verify that no air flows. If air flows, the check ball may be stuck. Shake the fuel pump 2 or 3 times and recheck.

Fuel pump

After installing the fuel pump to the bracket, pull down the fuel pump down so that it is tight against the bracket.





FUEL PUMP RELAY

Inspection

Apply battery positive voltage and a ground to the terminals below and check the fuel pump relay operation as described.

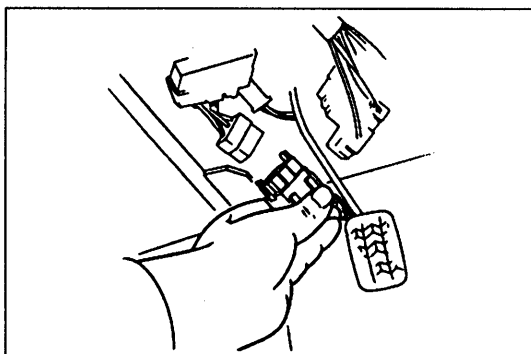
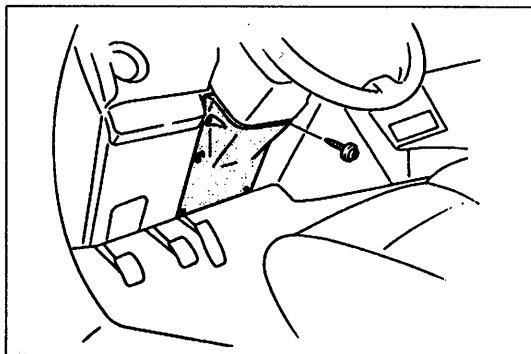
B+: Battery positive voltage

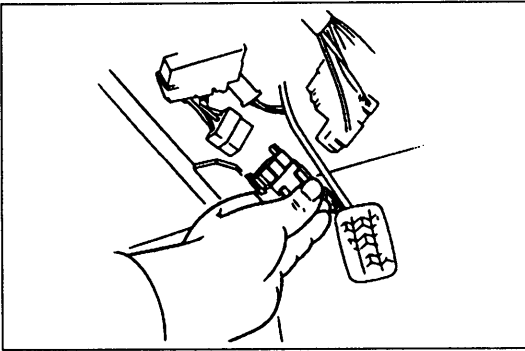
B+	Grounded	Correct result
A	B	C — E: Continuity

If not as specified, replace the fuel pump relay.

Replacement

1. Remove the undercover.
2. Remove the fuel pump relay.
3. Install in the reverse order of removal.



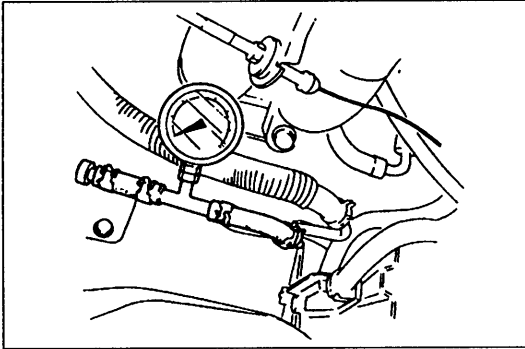


PRESSURE REGULATOR

Inspection Fuel line pressure

Warning

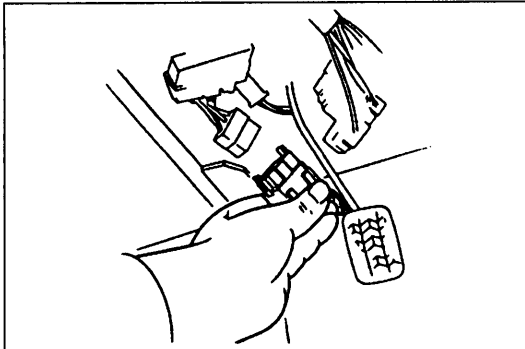
- Fuel line spills and leaks are dangerous. Fuel can ignite and cause serious injuries or death and damage. Fuel can also irritate skin and eyes. To prevent this, always complete the "Fuel Line Safety Procedures" on page F-108.



1. Disconnect the negative battery cable.
2. Connect a fuel pressure gauge between the fuel main pipe and the fuel main hose. (Install clamps as shown.)
3. Connect the negative battery cable.
4. Start the engine and run it at idle.
5. Measure the fuel line pressure.

Fuel line pressure:

216—264 kPa { 2.2—2.7 kgf/cm² , 32—38 psi }

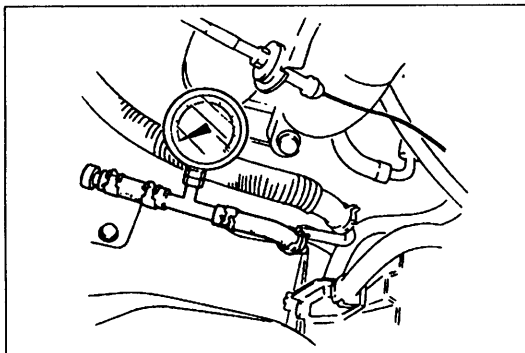


Hold pressure

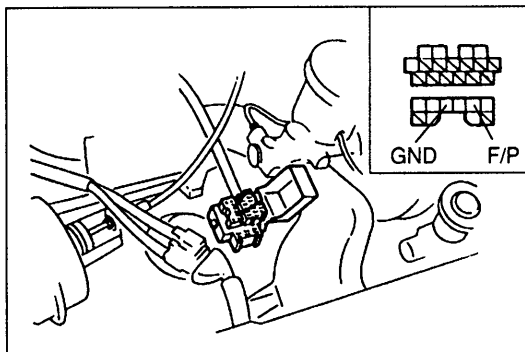
Perform this inspection if the fuel pressure hold inspection is not as specified. (Refer to page F-104.)

Warning

- Fuel line spills and leaks are dangerous. Fuel can ignite and cause serious injuries or death and damage. Fuel can also irritate skin and eyes. To prevent this, always complete the "Fuel Line Safety Procedures" on page F-108.



1. Disconnect the negative battery cable.
2. Install a fuel pressure gauge between the fuel pipe and the fuel main hose. (Install clamps as shown.)
3. Connect the negative battery cable.

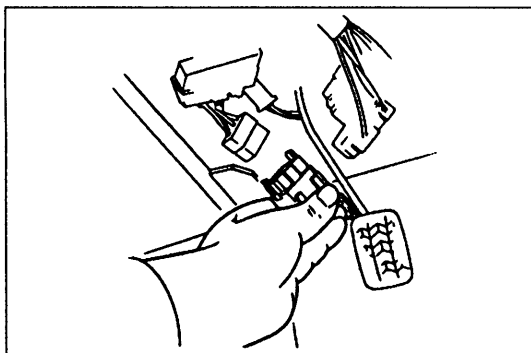


4. Connect data link connector terminals F/P and GND by using a jumper wire.
5. Turn the ignition switch to ON for 10 sec. to operate the fuel pump.
6. Turn the ignition switch to OFF and disconnect the jumper wire.
7. Block the outlet of the pressure regulator.
8. Observe the fuel pressure for 5 min.

Fuel pressure:

More than 147 kPa { 1.5 kgf/cm² , 21 psi }

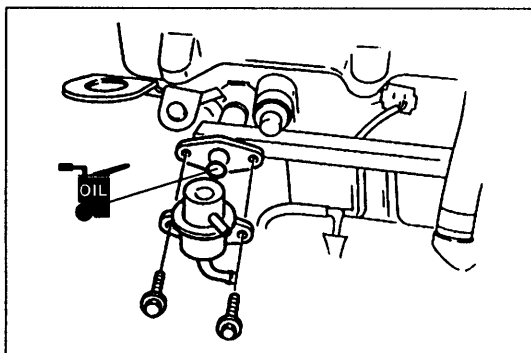
9. If pressure is as specified, replace the pressure regulator.



Replacement

Warning

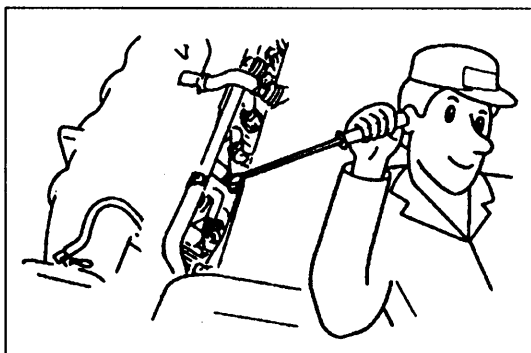
- Fuel line spills and leaks are dangerous. Fuel can ignite and cause serious injuries or death and damage. Fuel can also irritate skin and eyes. To prevent this, always complete the “Fuel Line Safety Procedures” on page F-108.



1. Disconnect the vacuum hose.
2. Disconnect the fuel return hose.
3. Remove the pressure regulator.
4. Use new O-ring.
5. Install in the reverse order of removal.

Tightening torque:

7.9—10.7 N·m { 80—110 kgf·cm , 70—95.4 in·lbf }

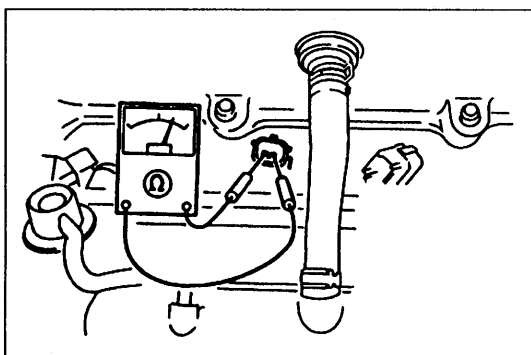


FUEL INJECTOR

Inspection

Operation check

1. Warm up the engine and run it at idle.
2. Listen for operational sound of the fuel injector by using a screwdriver or a soundscope.
3. If no sound is heard, measure fuel injector resistance.
4. If the fuel injector resistance is OK, check wiring to the fuel injector and engine control module terminals 2U, 2V, 2Y and 2Z voltage. (Refer to page F-147.)

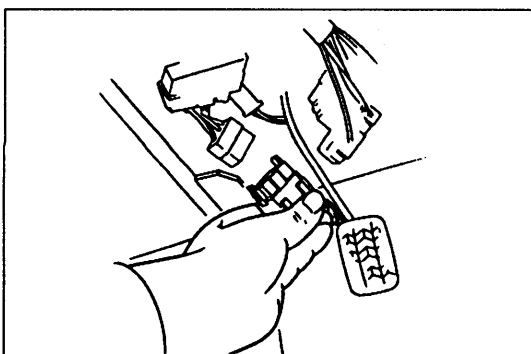


Fuel injector resistance

1. Disconnect the fuel injector harness.
2. Measure resistance of the fuel injector with an ohmmeter.

Resistance: 12—16 Ω [at 20 °C { 68 °F }]

3. If not as specified, replace the fuel injector.

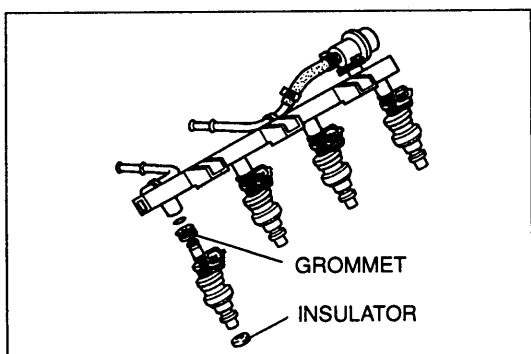


Removal

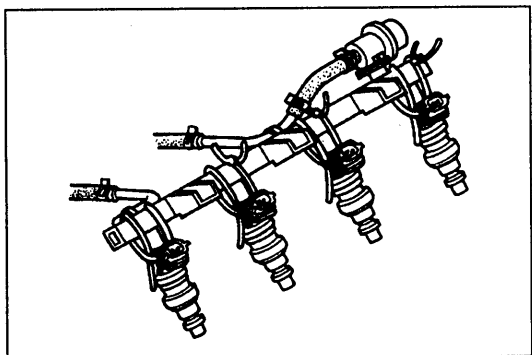
Warning

- Fuel line spills and leaks are dangerous. Fuel can ignite and cause serious injuries or death and damage. Fuel can also irritate skin and eyes. To prevent this, always complete the “Fuel Line Safety Procedures” on page F-108.

1. Disconnect the negative battery cable.
2. Disconnect the PCV hose.
3. Disconnect the vacuum hose.
4. Disconnect the fuel injector connectors.



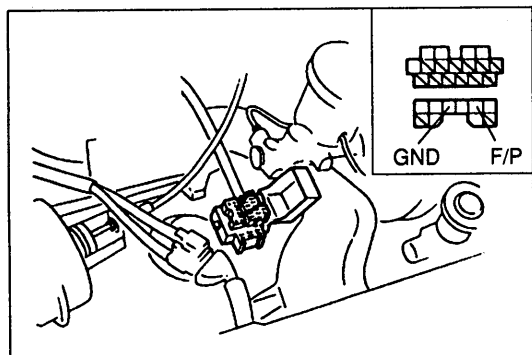
5. Remove the fuel distributor and the pressure regulator.
6. Remove the grommets, fuel injectors, and insulators.



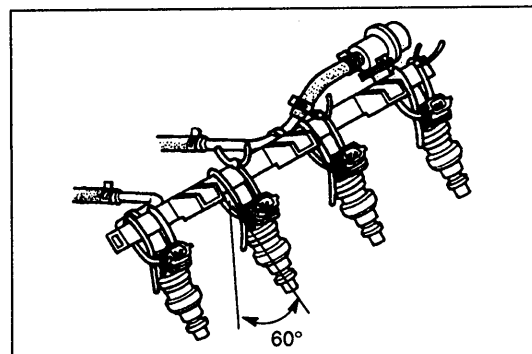
Inspection

Fuel leakage test

1. Firmly affix the fuel injectors to the fuel distributor with wire.
2. Disconnect the fuel injector connectors.
3. Remove the fuel distributor and fuel injectors together with the fuel hoses connected.



4. Connect data link connector terminals F/P and GND by using a jumper wire.

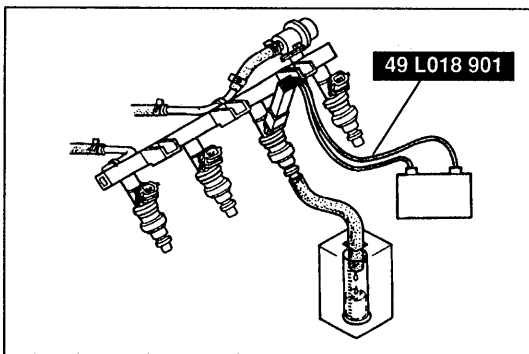
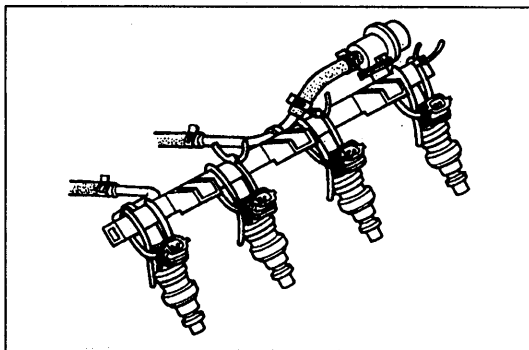


5. Turn the ignition switch to ON.
6. Tilt the fuel injectors **approx. 60 degrees** and verify that no fuel leaks from the fuel injector nozzles.
7. If fuel leaks from an fuel injector, replace it.

Leakage Specification

If there is more than **one drop per 2 minutes**, replace the fuel injector.

8. Turn the ignition switch to OFF and remove the jumper wire.



Volume test

Warning

- Fuel vapor is hazardous. It can very easily ignite, causing serious injury and damage. Always keep sparks and flames away from fuel.

1. Remove the air valve.
2. Firmly affix the fuel injectors to the fuel distributor with wire.
3. Disconnect the fuel injector connectors.
4. Remove the fuel distributor and fuel injectors together with the fuel hoses connected.
5. Connect the **SST** to the battery and an fuel injector.
6. Check the injection volume by using a graduated container.

Injection volumes:

59—76 ml { 59—76 cc , 2.0—2.5 fl oz }/15 sec.

7. If not as specified, replace the fuel injectors.

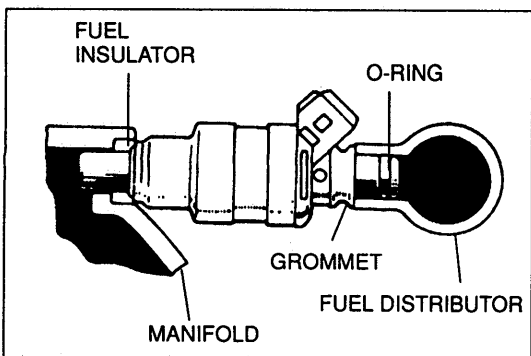
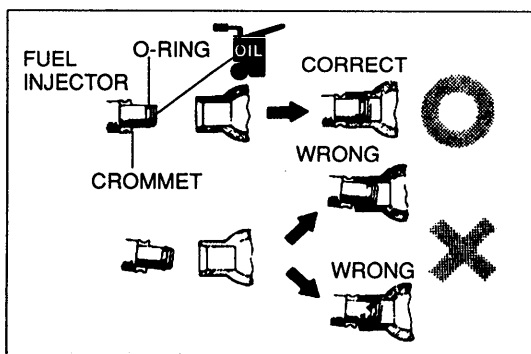
Installation

Install in the reverse order of removal, referring to **Installation note**.

Tightening torque:

Delivery pipe

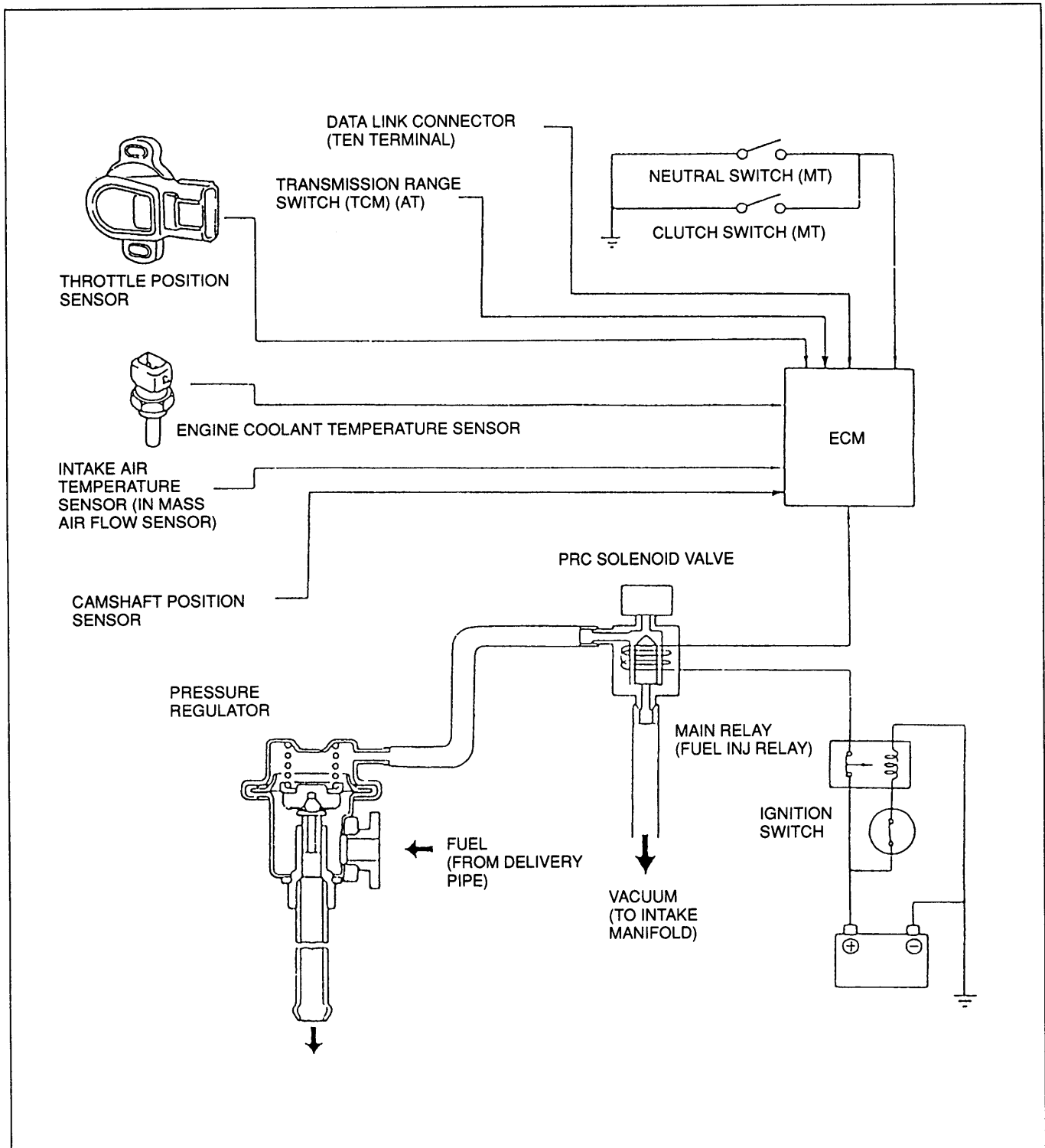
19—25 N·m { 1.9—2.6 kgf·m , 14—18 ft·lbf }



Installation note

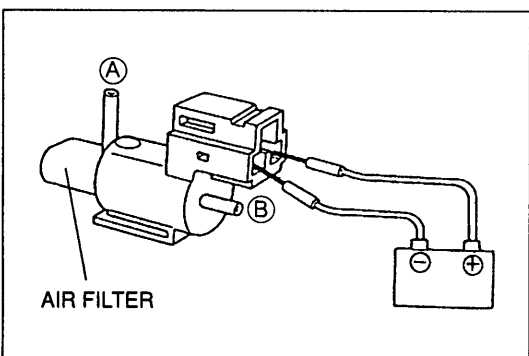
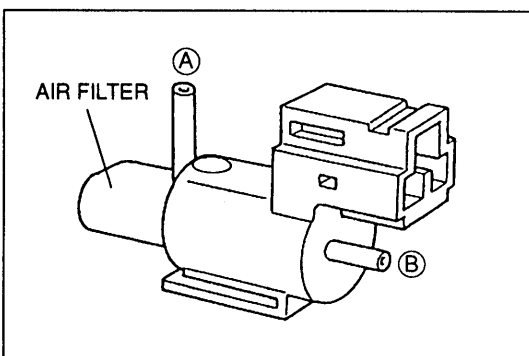
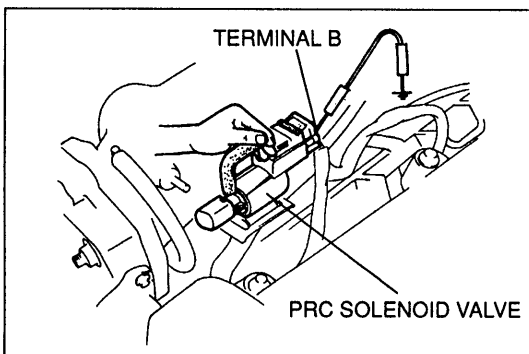
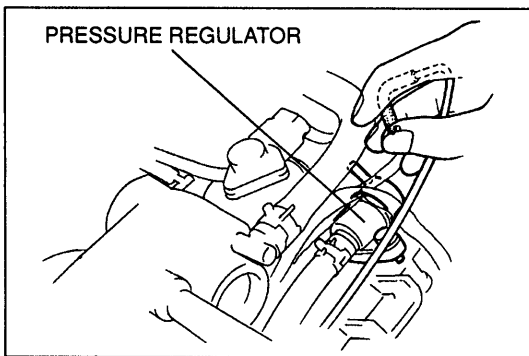
1. Use new fuel injector O-rings.
2. Apply a small amount of clean engine oil to the O-rings before installing.
3. Use new fuel injector insulators.
4. Install the fuel injectors and new fuel injector insulators.

PRESSURE REGULATOR CONTROL SYSTEM



Operating condition			Operating time (sec)
Coolant temperature	Intake air temperature	Engine condition	
Above 90 °C { 194 °F }	Above 70 °C { 158 °F }	Throttle valve fully closed or no load condition	Approx. 150

To prevent percolation of the fuel during hot restart idle, vacuum to the pressure regulator is momentarily cut, and the fuel injection pressure is increased to slightly more than **284 kPa { 2.9 kgf/cm² , 41.2 psi }**.



PRC SOLENOID VALVE

Inspection (On-vehicle)

1. Start the engine and run it at idle.
2. Disconnect the vacuum hose from the pressure regulator. Verify that vacuum is felt.
3. Ground PRC solenoid valve terminal B by using a jumper wire. Verify that no vacuum is felt.
4. If vacuum exists, check the PRC solenoid valve.

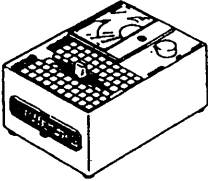
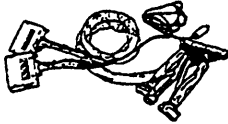
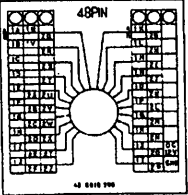
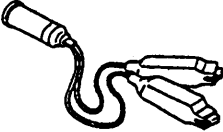
Inspection

1. Disconnect the vacuum hose from the PRC solenoid valve and the vacuum pipe.
2. Blow through the PRC solenoid valve from port A.
3. Verify that air flows from port B.
4. Disconnect the PRC solenoid valve connector.
5. Connect battery positive voltage and a ground to the terminals of the PRC solenoid valve.
6. Blow through the PRC solenoid valve from the port A.
7. Verify that air flows from the valve air filter.
8. If not as specified, replace the PRC solenoid valve.

EXHAUST GAS RECIRCULATION (EGR)

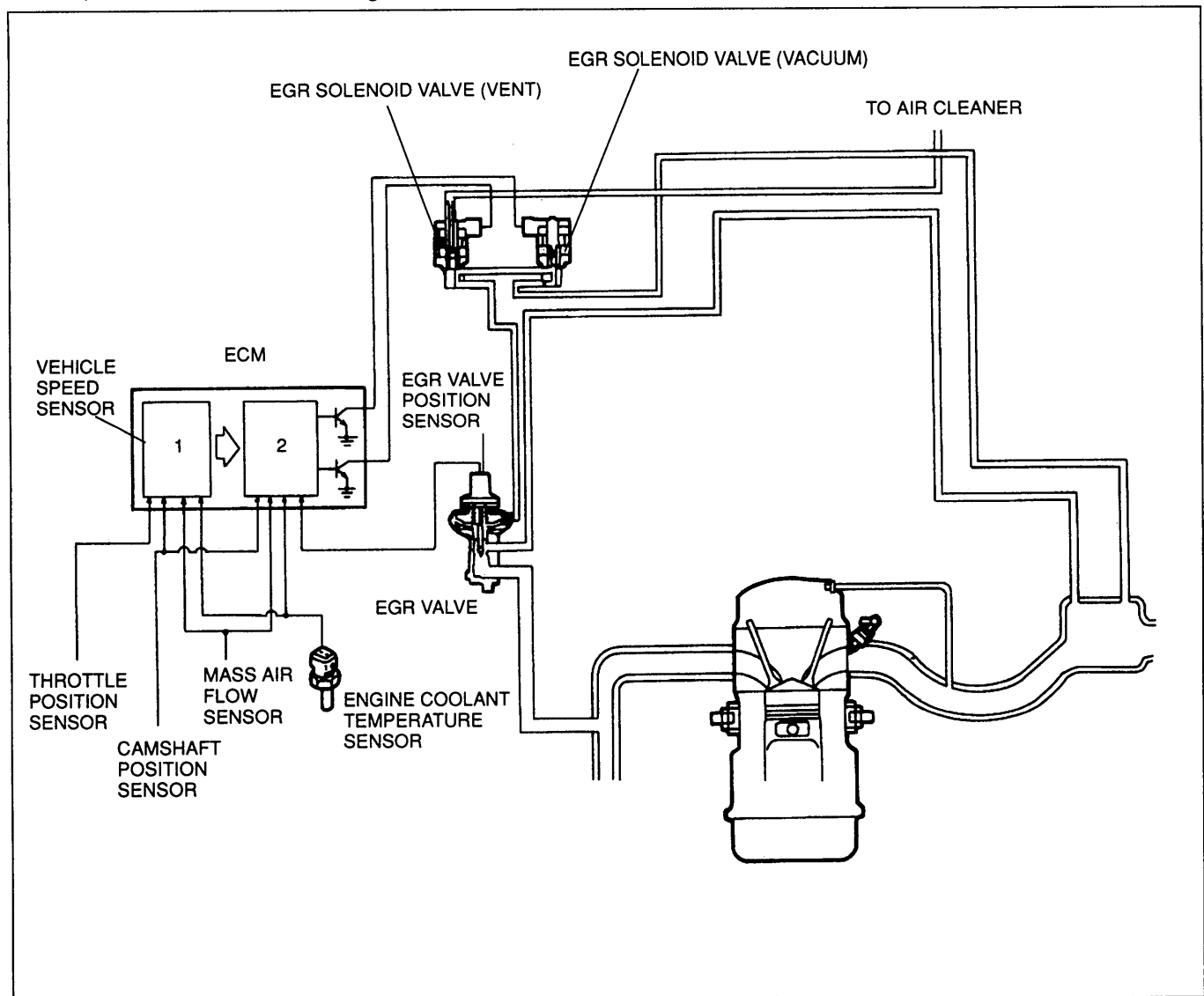
PREPARATION

SST

<p>49 9200 162A</p> <p>Engine Signal Monitor</p> 	<p>For inspection of EGR</p>	<p>49 T018 902</p> <p>Adapter harness</p> 	<p>For inspection of EGR</p>
<p>49 G018 906</p> <p>Sheet</p> 	<p>For inspection of EGR</p>	<p>49 D088 008</p> <p>Harness adapter power</p> 	<p>For inspection of EGR</p>

DESCRIPTION

This system recirculates a small amount of exhaust gas into the intake manifold to reduce the combustion temperature, and reduce the NOx emissions. This system consists of the EGR valve, EGR valve position sensor, two solenoid valves, engine control module (ECM) and input devices.



OPERATION

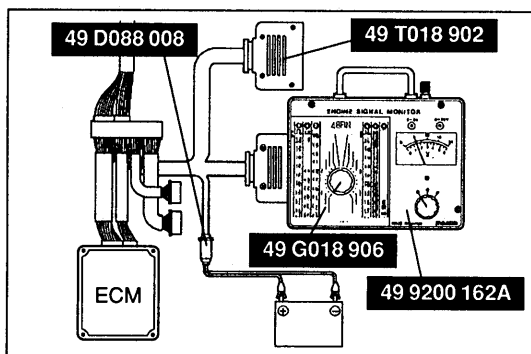
Cold Engine (Coolant temperature less than 55 °C { 131 °F })

EGR operation is stopped to improve drivability when the engine temperature is cold.

Warm Engine

The engine control module controls the solenoid valves (vacuum side and vent side) to supply EGR gas as described below.

Operating condition	EGR operation	Remark
Idle	Stopped	Closed throttle position switch: ON
Deceleration		
High speed		Above 3,125 rpm
Heavy load		—
Acceleration	Reduced EGR gas amount	—
Warming up		Coolant temperature: Between 55 °C { 131 °F } and 60 °C { 140 °F }
Other		Control supply of EGR gas amount by using signal from EGR valve position sensor



SYSTEM OPERATION

1. Connect the **SSTs** to the ECM as shown.
2. Start the engine.
3. Drive the vehicle and verify that ECM terminal 1R and 1T voltages is battery positive voltage (B+) while the engine is still cold.
4. Warm up the engine to normal operating temperature and let it idle.
5. Drive the vehicle and verify that the Engine Signal Monitor green and red lights flash when the **SST** is set to 1R and 1T.
6. Ground the ECM terminal 1T by using a jumper wire.
7. Verify that the engine runs roughly or stalls at idle.

Note

- If the tires are rotated by using a chassis roller with the ignition switch at ON, the ABS control module may memorize the action as a malfunction and the ABS warning light may illuminate. (Refer to the Troubleshooting Notes for the antilock brake system, section P.) If the ignition switch is turned to LOCK and then to ON again, the ABS warning light will not illuminate, because the action will be considered a past malfunction.

EGR SOLENOID VALVE

Inspection

EGR solenoid valve (vacuum)

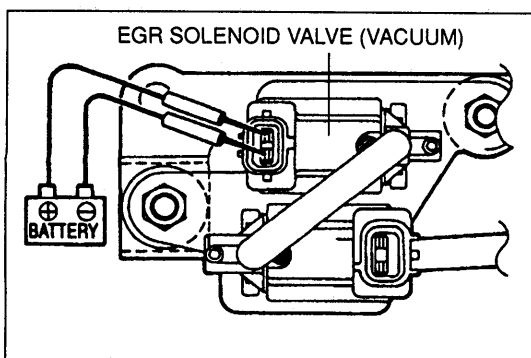
1. Remove the solenoid valve.
2. Apply battery positive voltage to terminal A and ground terminal B of the solenoid valve. Verify that air flows as shown below.

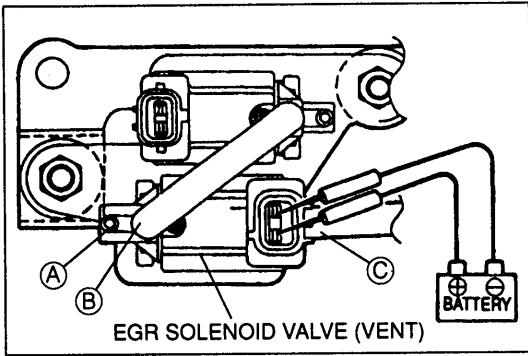
Specification

B+: Battery positive voltage

Terminal A—B	Air flow
Apply B+	Yes
Not apply B+	No

3. If not as specified, replace the EGR solenoid valve (vacuum).





EGR solenoid valve (vent)

1. Remove the solenoid valve.
2. Verify that air flows as shown below.

Specification

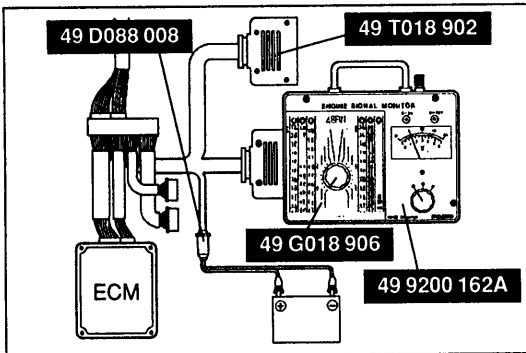
Port	Air flow
A—B	Yes
A—C	Yes
B—C	Yes

3. If not as specified, replace the EGR solenoid valve (vent).
4. Apply battery positive voltage to terminal A and ground terminal B of the solenoid valve. Verify that air flows as shown below.

Specification

Port	Air flow
A—B	Yes
A—C	No
B—C	No

5. If not as specified, replace the EGR solenoid valve (vent).



EGR VALVE POSITION SENSOR

Inspection

Output voltage inspection

1. Disconnect the ECM connector.
2. Connect the **SSTs** to the ECM as shown and connect a vacuum pump.
3. Turn the ignition switch to ON (engine OFF).
4. Measure voltage at the terminals as shown in the table.

Terminal	ECM	Vacuum	
		Approx. 0 kPa { 0 mmHg , 0 inHg }	Approx. 20 kPa { 150 mmHg , 5.9 inHg }
B	2K	4.5—5.5 V	
A	2D	0 V	
C	2J	Approx. 0.8 V	Approx. 5 V

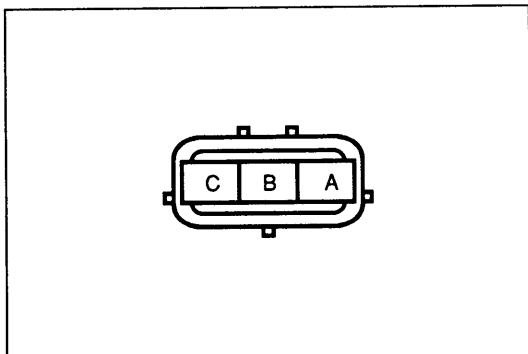
5. If not correct at terminal 2J, check the wiring harness and terminal 2I of the ECM.

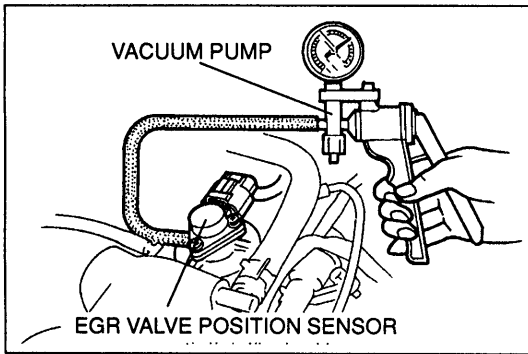
Resistance

1. Disconnect the EGR valve position sensor connector.
2. Measure the resistance between terminals A and B.

Specification: Approx. 2.7 kΩ

3. If not as specified, replace the EGR control valve.



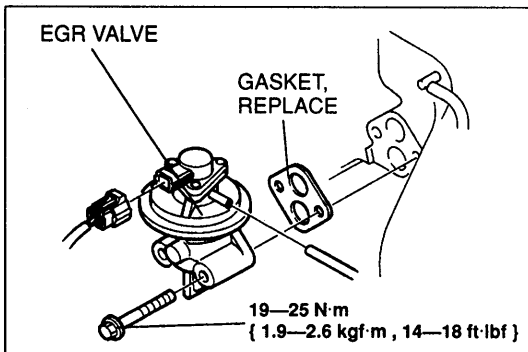
**EGR VALVE****Inspection**

1. Start the engine and let it idle.
2. Connect a vacuum pump as shown and apply vacuum.
3. Verify that the engine runs roughly or stalls at more than the specified vacuum.

Specification:

5.4—11 kPa { 40—90 mmHg , 1.6—3.5 inHg }

4. If not as specified, replace the EGR valve.

**Replacement**

Plug the water hoses after disconnecting them.

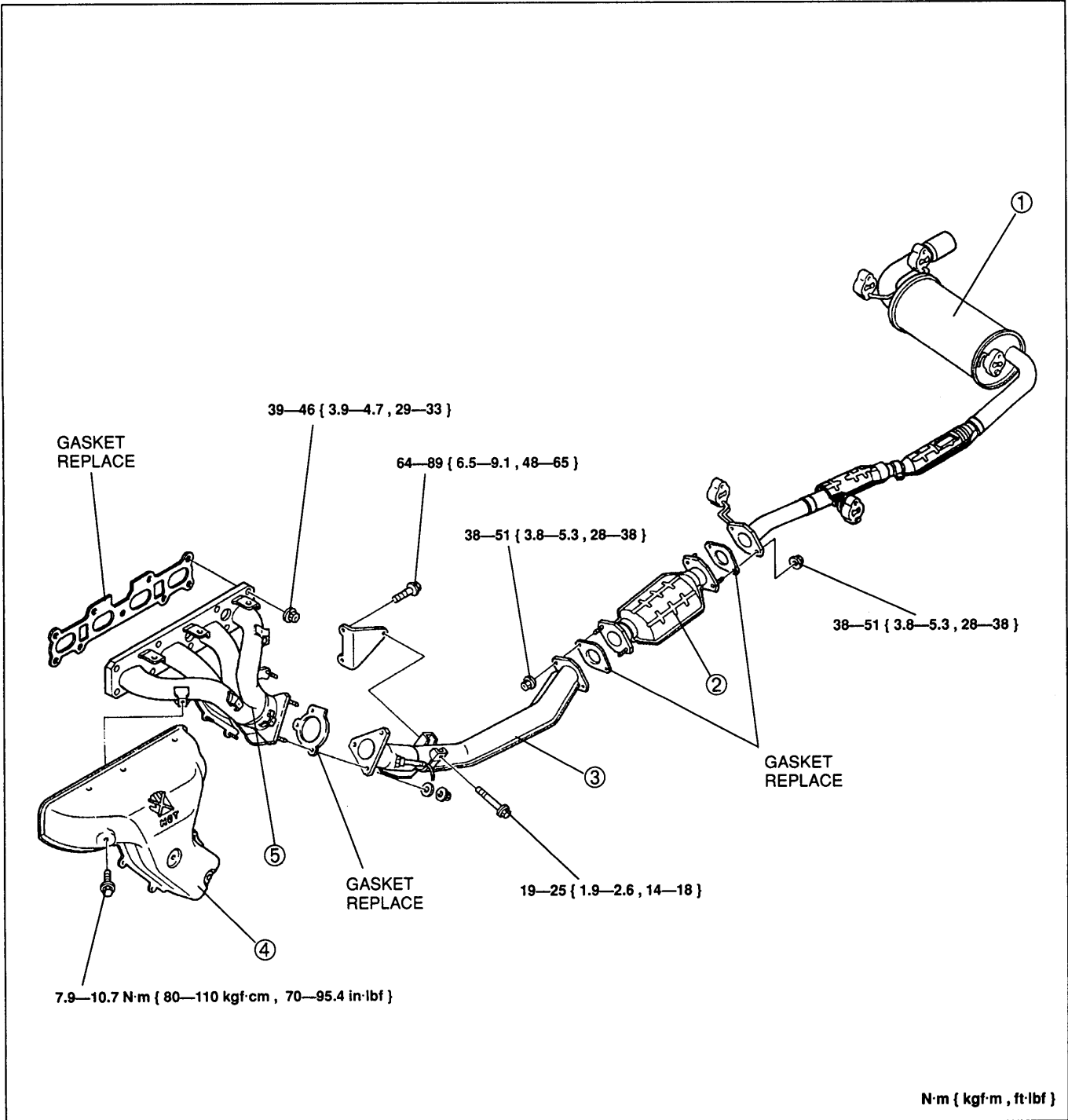
1. Remove the EGR valve in the sequence shown below.
 - (1) EGR hoses
 - (2) Vacuum hose
 - (3) EGR valve position sensor connector
 - (4) EGR valve and gasket
2. Install a new gasket, and then install the EGR valve in the reverse order of removal.

EXHAUST SYSTEM

COMPONENTS

Removal / Inspection / Installation

1. Remove in the sequence shown in the figure.
2. Check all components for damage, deterioration, and restriction and repair or replace as necessary.
3. Install in the reverse order of removal.



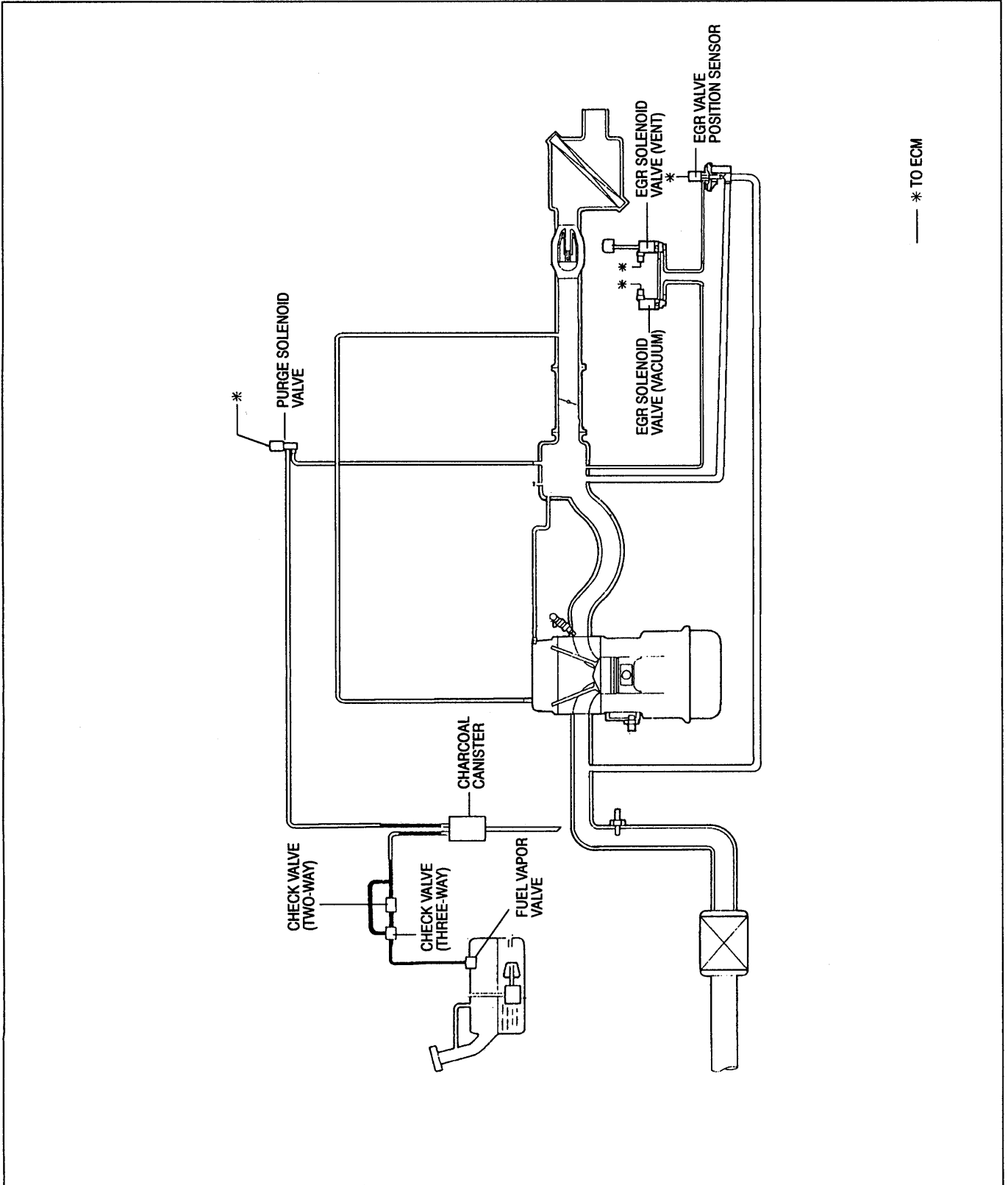
- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Main silencer
Inspect for deterioration and restriction 2. Three way catalytic converter
Inspect page F-134 | <ol style="list-style-type: none"> 3. Front exhaust pipe
Inspect for deterioration and restriction 4. Exhaust manifold insulator 5. Exhaust manifold
Inspect for damage |
|---|--|

OUTLINE OF EMISSION CONTROL SYSTEM

STRUCTURAL VIEW

The following systems are employed to reduce CO, HC, and NOx emissions.

1. Positive crankcase ventilation (PCV) system
2. Fuel evaporative system
3. Three way catalytic converter
4. Deceleration control system



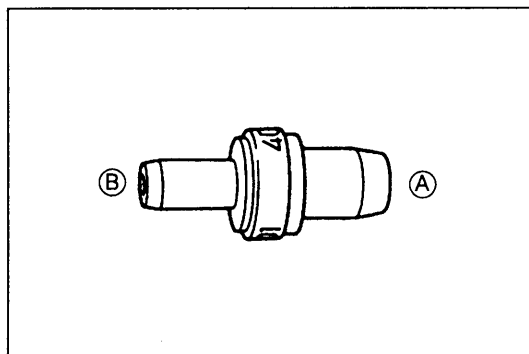
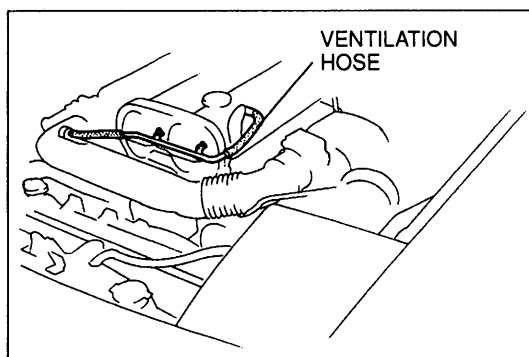
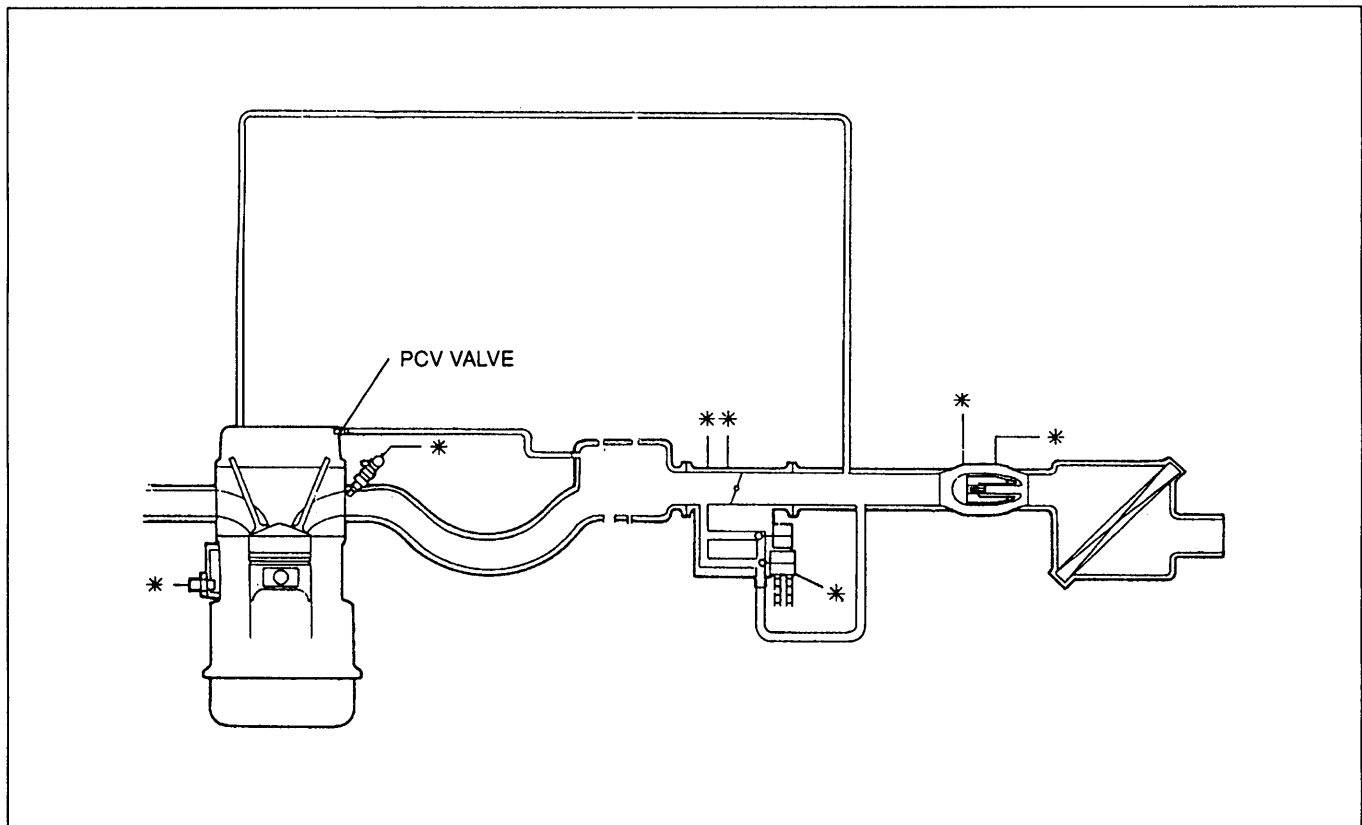
POSITIVE CRANKCASE VENTILATION (PCV) SYSTEM

DESCRIPTION

The PCV valve is operated by the intake manifold vacuum.

When the engine is running at idle, the PCV valve is opened slightly and a small amount of blowby gas is drawn into the intake manifold to be burned.

At higher engine speeds, the PCV valve is opened further, allowing a larger amount of blowby gas to be drawn into the intake manifold.



PCV VALVE

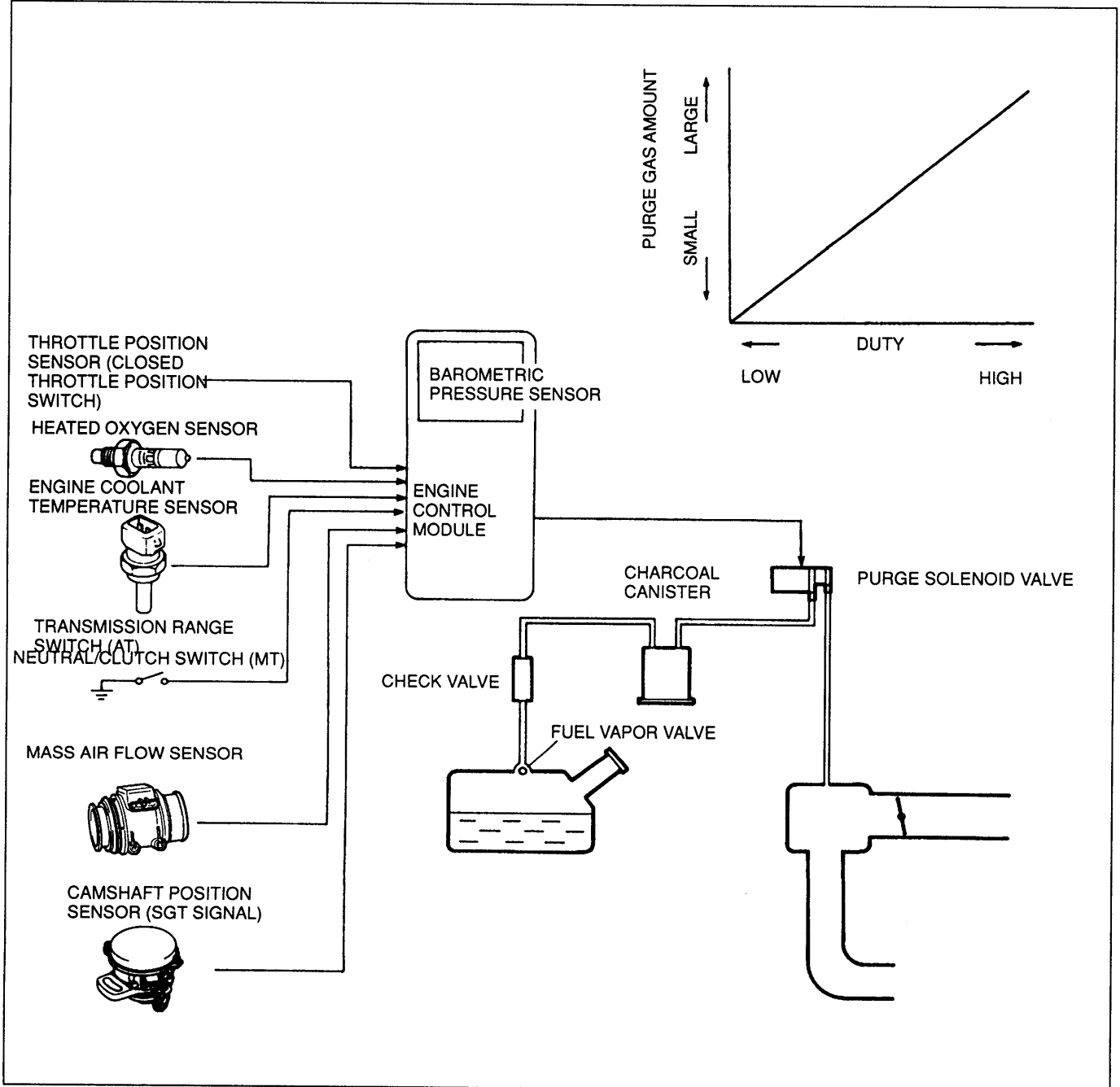
Inspection

1. Warm up the engine to the normal operating temperature and run it at idle.
2. Disconnect the PCV valve together with the ventilation hose from the cylinder head cover.
3. Block the PCV valve opening.
4. Verify that vacuum is felt.
5. Remove the PCV valve.
6. Blow through the valve from port (A) and verify that air comes out from port (B).
7. Blow through the valve from port (B) and verify that no air comes out from port (A).
8. Replace the PCV valve if necessary.

FUEL EVAPORATIVE SYSTEM

DESCRIPTION

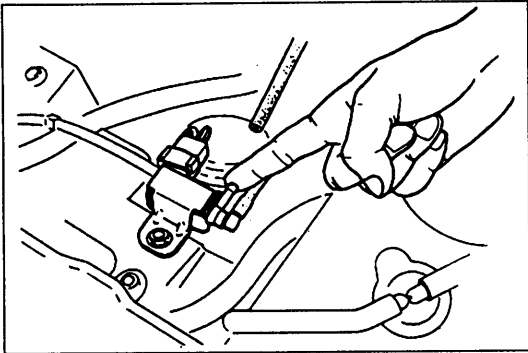
The fuel evaporative system consists of the fuel vapor valve, the two-way check valve, the charcoal canister, the purge solenoid valve, the engine control module, and the input devices. The amount of evaporative fumes introduced into the engine and burned is controlled by the solenoid valve in relation to the engine's operating conditions. To maintain the best engine performance, the solenoid valve is controlled by the engine control module.



Operation

The purge solenoid valve is controlled by duty signals from the engine control module to perform purging of the charcoal canister. Purging is done when these conditions are met:

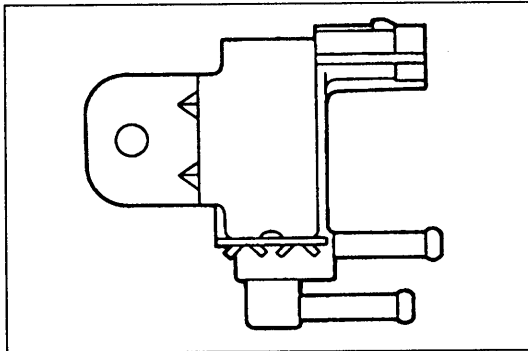
1. After warm-up
2. Driving in gear
3. Accelerator pedal depressed (closed throttle position switch OFF)
4. Heated oxygen sensor functioning normally



PURGE SOLENOID VALVE

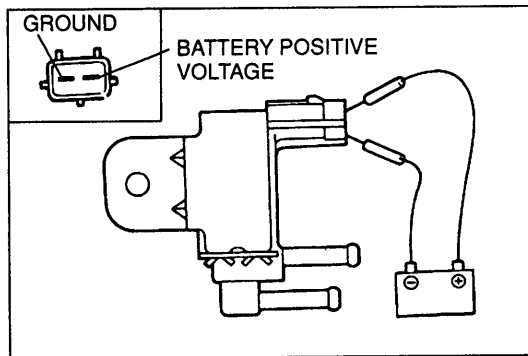
On-vehicle Inspection

1. Warm up the engine to normal operating temperature.
2. Run the engine at idle.
3. Disconnect the vacuum hose from the purge solenoid valve and verify that no vacuum is felt at the purge solenoid valve.
4. If not as specified, check the purge solenoid valve.

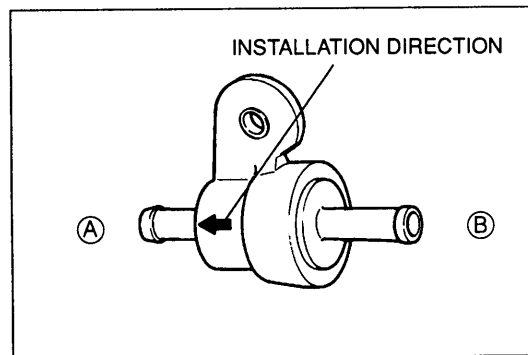


Inspection

1. Disconnect the vacuum hoses from the purge solenoid valve.
2. Verify that no air flows through the purge solenoid valve.



3. Disconnect the purge solenoid valve connector and connect battery positive voltage and a ground to the terminals of the purge solenoid valve.
4. Verify that air flows through the valve.
5. If not as specified, replace the purge solenoid valve.



TWO-WAY CHECK VALVE

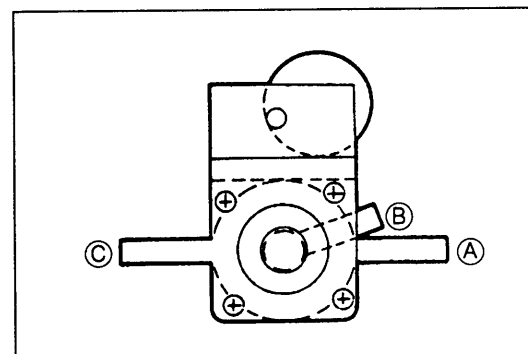
Inspection

1. Remove the valve.
2. Check the operation of the valve by using a vacuum pump.

Specification

Apply approx. 15 mmHg { 0.59 inHg } vacuum at port(A)	Airflow
Apply approx. 44 mmHg { 1.73 inHg } vacuum at port(B)	Airflow

3. If not as specified, replace the two-way check valve.



THREE-WAY CHECK VALVE

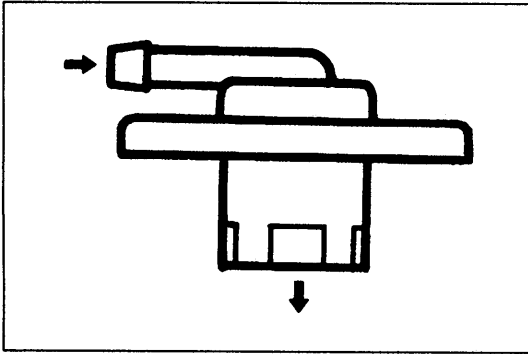
Inspection

1. Remove the valve and plug port (C).
2. Check operation of the valve by using a vacuum pump.

Specification

Apply approx. 37 mmHg { 1.46 inHg } vacuum at port(A)	Airflow
Apply approx. 70 mmHg { 2.76 inHg } vacuum at port(B)	Airflow

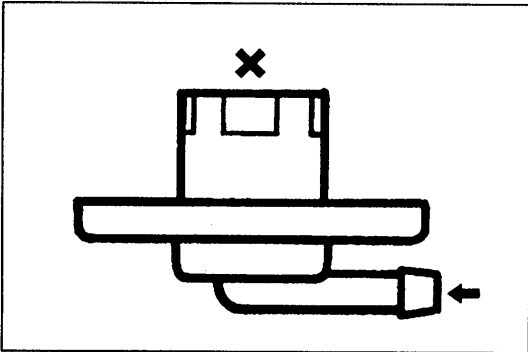
3. If not as specified, replace the three-way check valve.



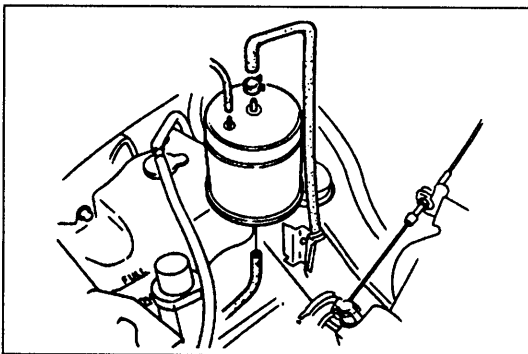
FUEL VAPOR VALVE

Inspection

1. Remove the valve.
2. Blow through the valve and verify that air flows in the direction shown.



3. Turn the valve over and blow through the valve. Verify that no air flows.
4. Replace the valve if necessary.



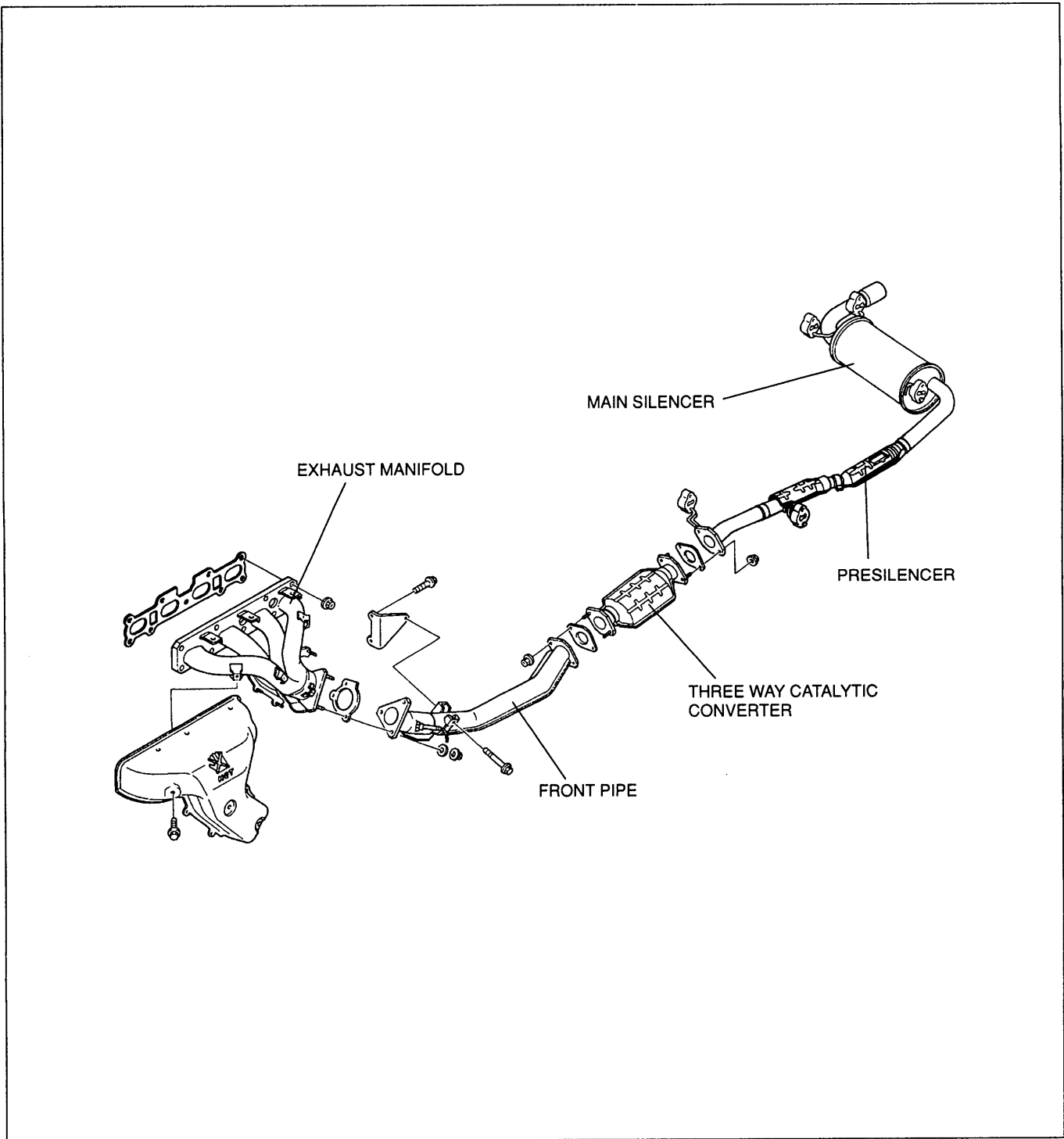
CHARCOAL CANISTER

Inspection

Visually check for damage and replace the charcoal canister if necessary.

CATALYTIC CONVERTER SYSTEM

DESCRIPTION

**THREE WAY CATALYTIC CONVERTER****Inspection**

Check the three way catalytic converter for deterioration or restriction. Check for damage to the insulation covers welded to the three way catalytic converter. Replace the three way catalytic converter if necessary. The floor will get hot if the insulation cover is touching the three way catalytic converter.

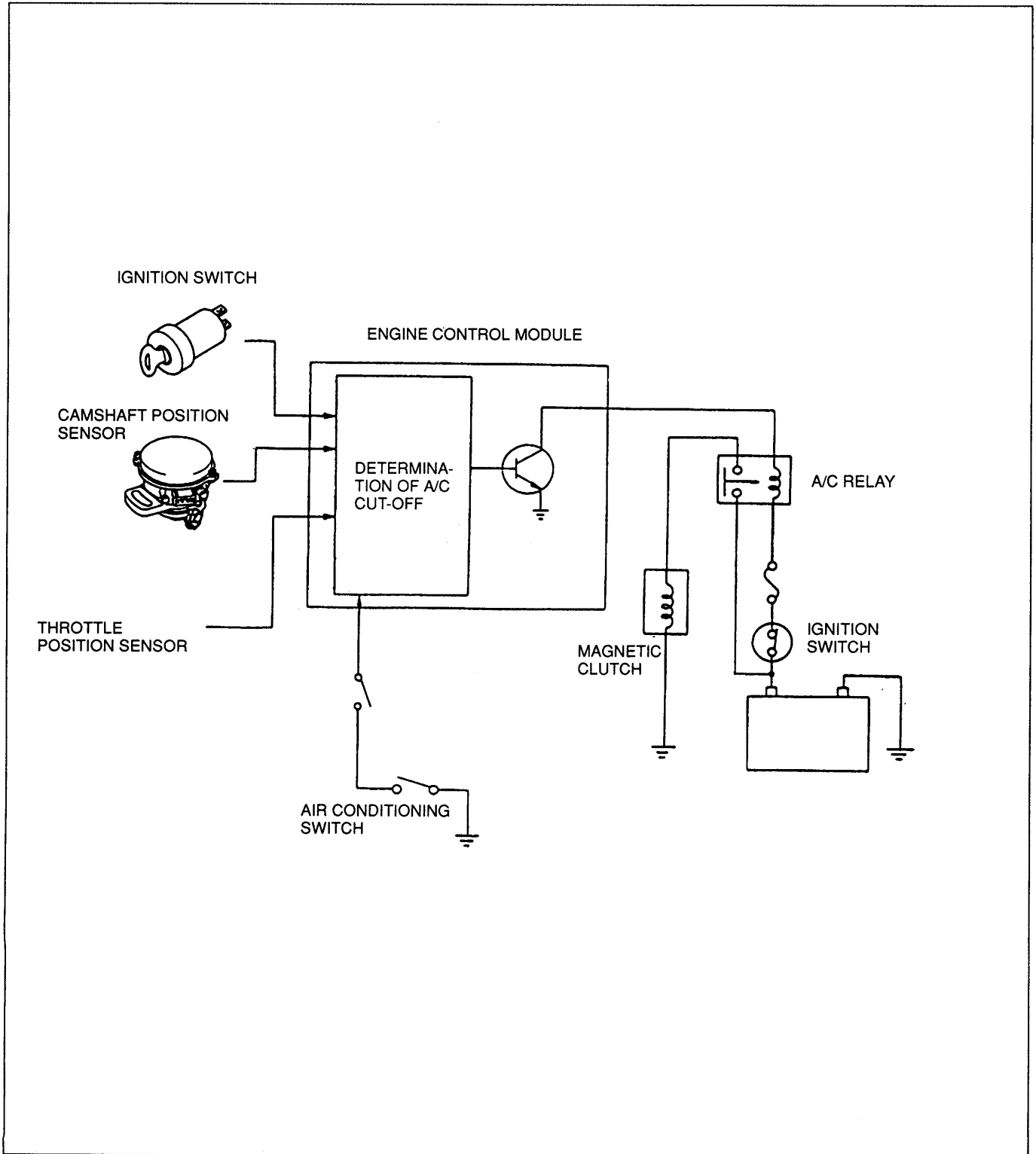
Replacement

Refer to page F-128.

A/C CUT-OFF CONTROL SYSTEM

DESCRIPTION

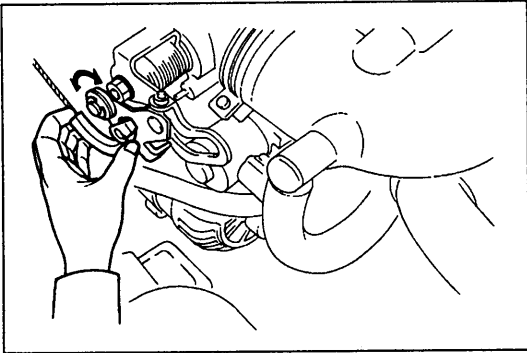
An A/C cut-off system is used to improve idle smoothness after just starting the engine and to improve acceleration performance.

**After engine has been started**

The A/C is cut off for **2 sec.** just after the engine is started.

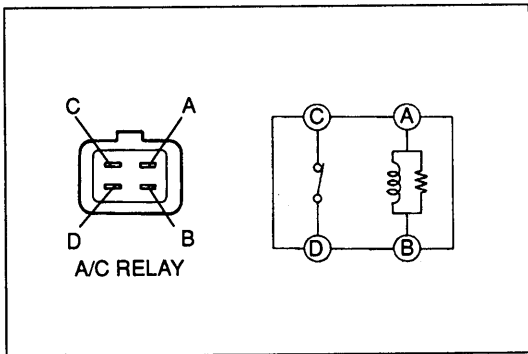
Acceleration

The A/C is cut off upon wide open throttle acceleration for **approx. 5 sec.**



SYSTEM INSPECTION

1. Turn the ignition switch to ON.
2. Turn the fan switch and air conditioning switch on.
3. Start the engine.
4. Verify that the A/C stops for approx. 2 sec. after the engine start.
5. Rotate the throttle link to fully open position.
6. Verify that the A/C stops for approx. 5 sec. after the throttle link is turned to fully open position.
7. If not as specified, inspect the following.
 - ECM 1Q terminal voltage
 - A/C relay
 - Throttle position sensor



A/C RELAY

Inspection

1. Remove the A/C relay.
2. Check the continuity between the terminals of the relay.

B+: Battery positive voltage

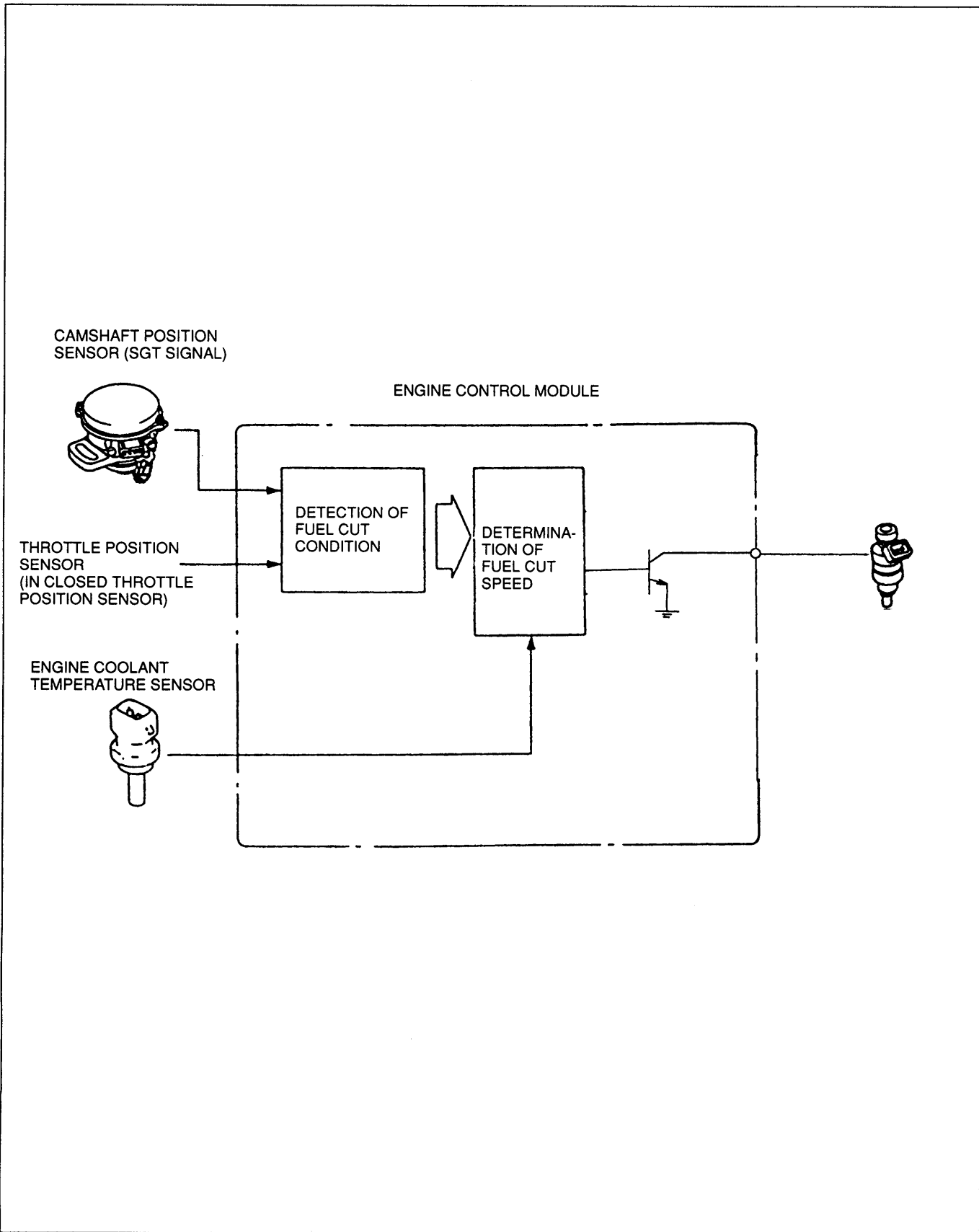
Terminal A — B	Terminal C — D
Apply B+	Continuity
B+ not applied	No continuity

3. If not as specified, replace the A/C relay.

DECHOKE CONTROL SYSTEM

DESCRIPTION

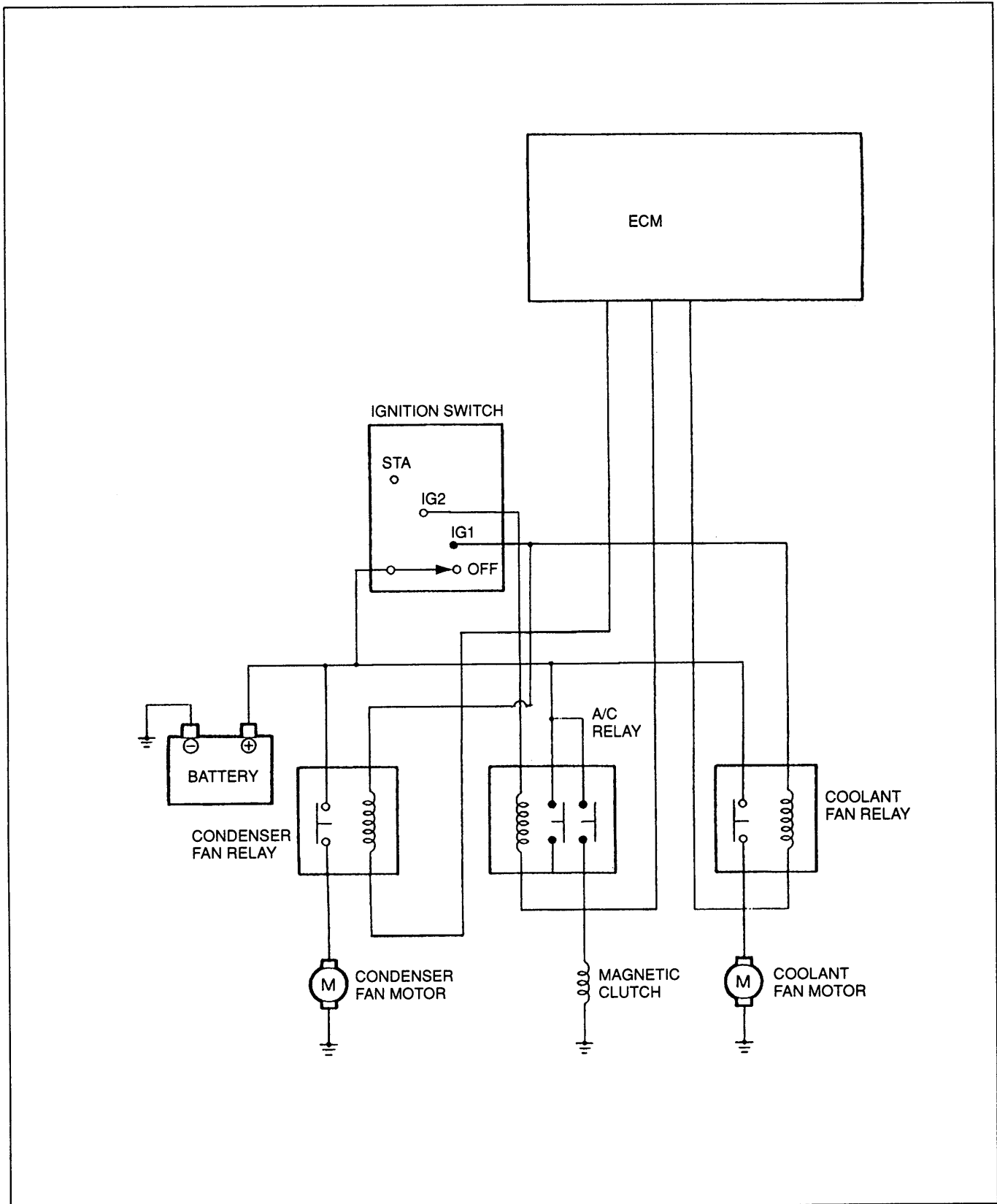
To clean out excessive fuel in cylinders, as in the case of engine flooding, when the engine is cold, no fuel will be injected when the accelerator is held fully depressed while cranking the engine.



COOLANT FAN CONTROL

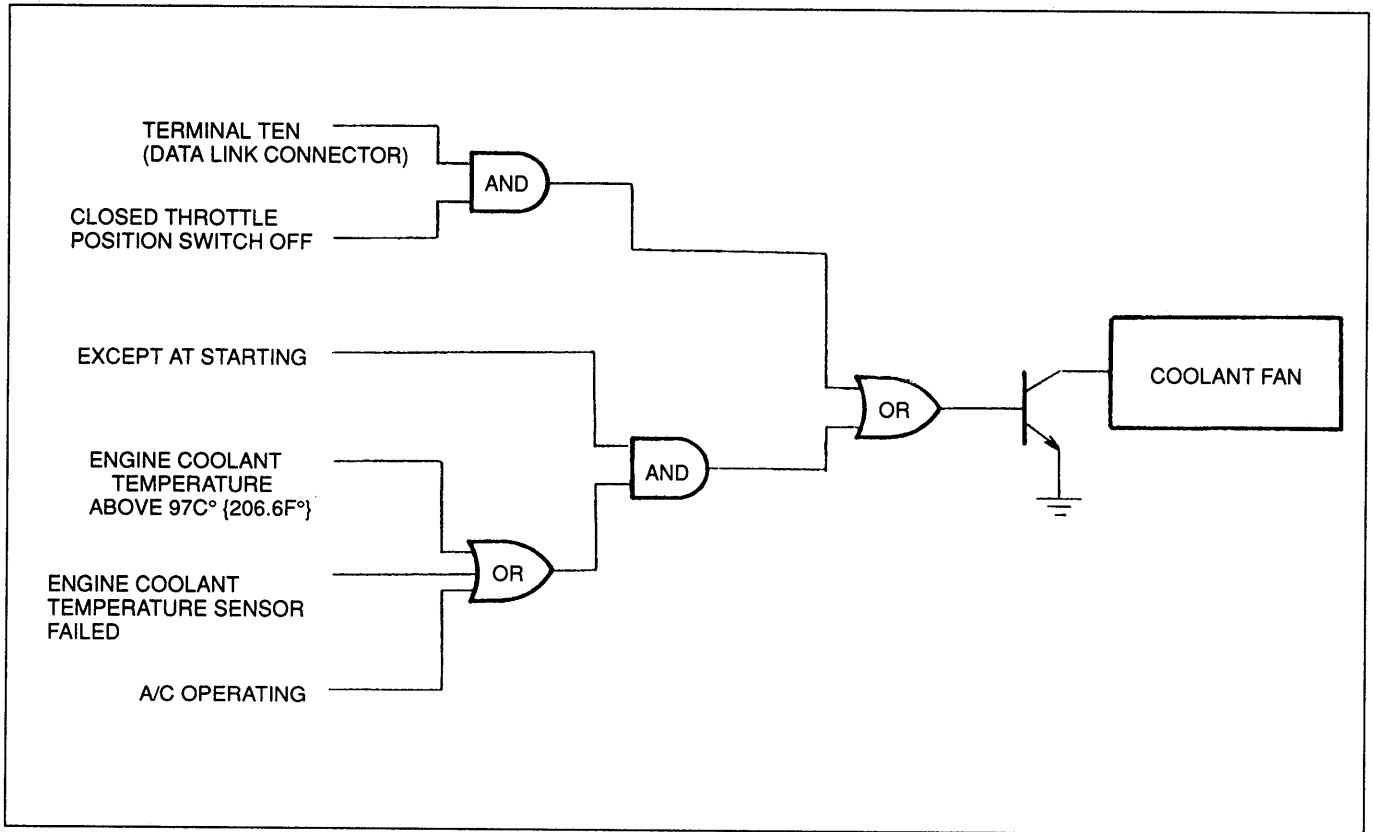
OUTLINE

- The ECM controls the coolant fan and the condenser fan to provide more efficient fan control. This improves the performance reliability and stability during idling of an engine.
- The coolant fan is normal when it starts to operate with data link connector terminal TEN grounded and the accelerator pedal is depressed (Ignition switch ON).



COOLANT FAN

The coolant fan rotates at a constant velocity.

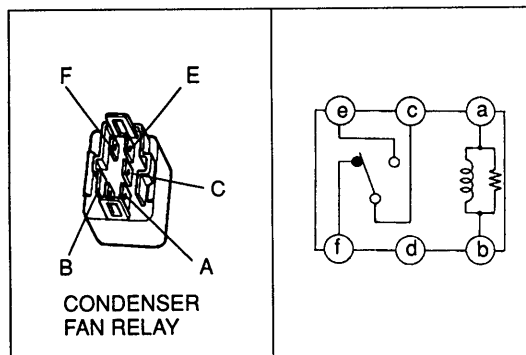
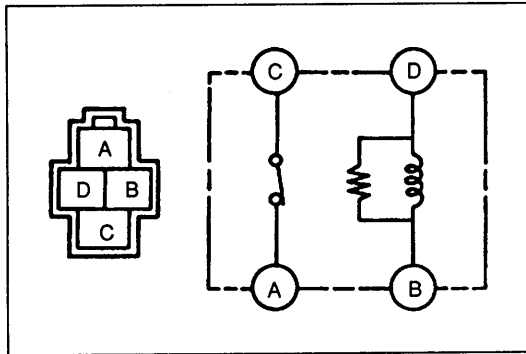
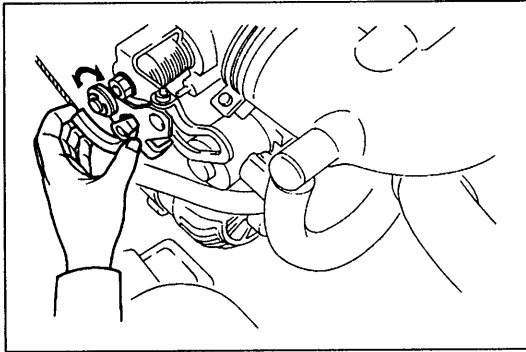
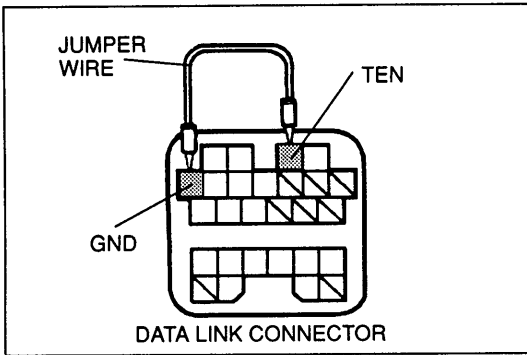
Operation Condition**CONDENSER FAN**

- The condenser fan is operated by the ECM.
- The condenser fan rotates at a constant velocity.

Operation Condition

The condenser fan operates when either of the following three condition is satisfied.

- Except during acceleration, except at starting, other than wide open throttle, and air conditioner is operating.
- Engine coolant temperature is above 108 °C { 226 °F }.
- Terminal TEN grounded and closed throttle position switch off.



SYSTEM INSPECTION

1. Connect a jumper wire between the terminals TEN and GND of the data link connector.
2. Turn the ignition switch to ON.

3. Rotate the throttle link by hand and verify that coolant fan and condenser fan operates.
4. Disconnect the jumper wire.
5. If not specified, inspect as following. (Refer to page F-145.)
 - ECM terminal 1N voltage
 - ECM terminal 2H voltage
 - Coolant fan relay
 - Condenser fan relay

COOLANT FAN RELAY

Inspection

1. Remove the coolant fan relay.
2. Check continuity between the terminals of the relay.

B+: Battery positive voltage

Terminal B — D	Terminal A — C
Apply B+	Continuity
B+ not applied	No continuity

3. If not as specified, replace the coolant fan relay.

CONDENSER FAN RELAY

Inspection

1. Remove the condenser fan relay.
2. Check continuity between the terminals of the relay.

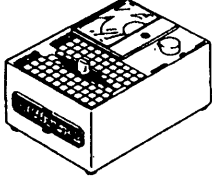
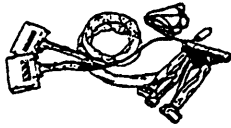
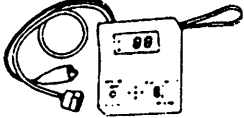
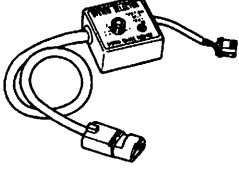
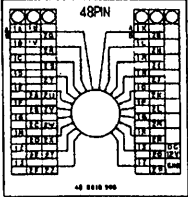
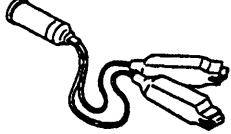
B+: Battery positive voltage

Terminal A — B	Terminal C — E
Apply B+	Continuity
B+ not applied	No continuity

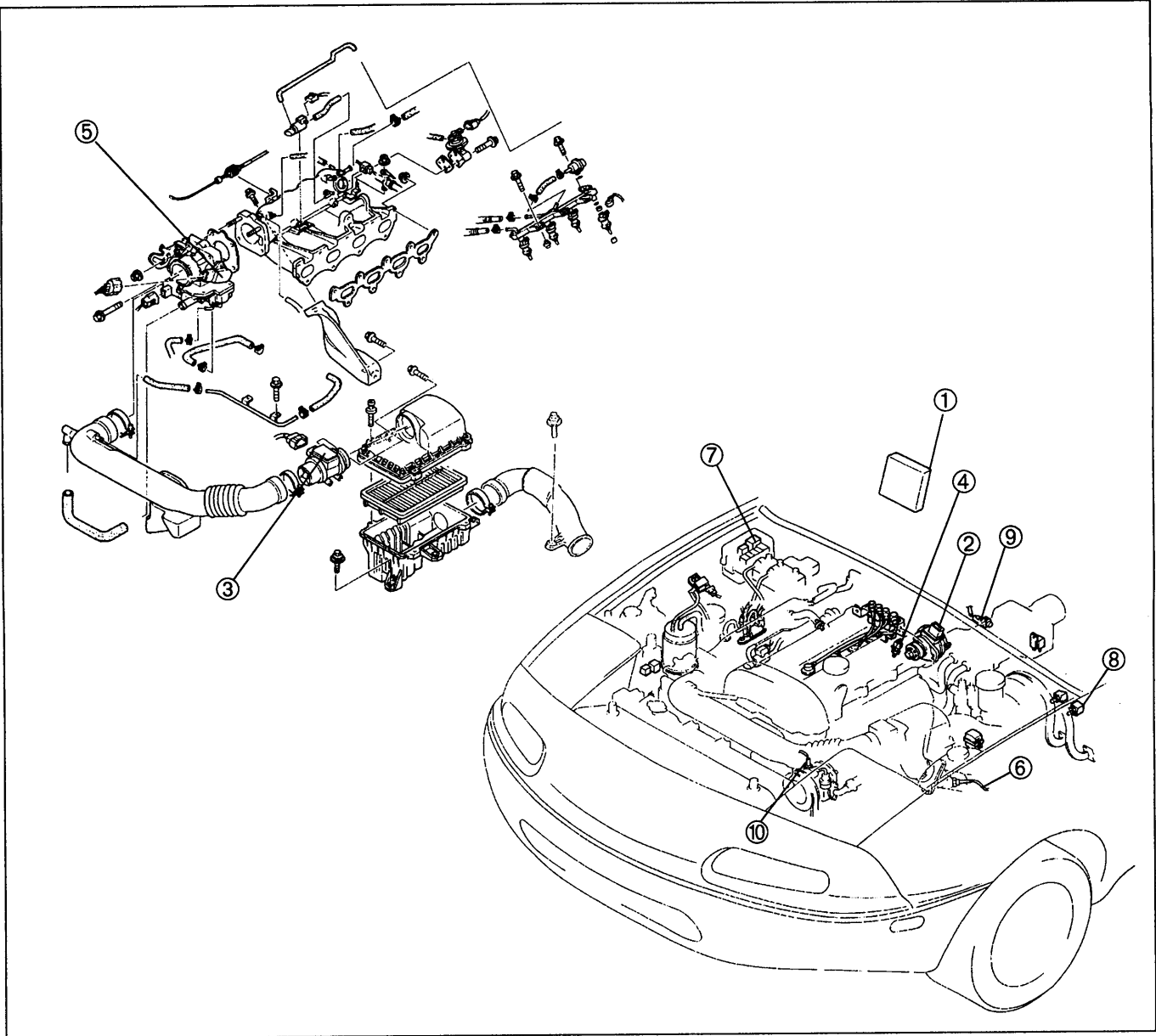
3. If not as specified, replace the condenser fan relay.

CONTROL SYSTEM

PREPARATION
SST

<p>49 9200 162A Engine Signal Monitor</p> 	<p>For inspection of engine control module</p>	<p>49 T018 902 Adapter harness</p> 	<p>For inspection of engine control module</p>
<p>49 H018 9A1 Self-Diagnosis Checker</p> 	<p>For inspection of heated oxygen sensor</p>	<p>49 B019 9A0 System Selector</p> 	<p>For inspection of heated oxygen sensor</p>
<p>49 G018 906 Sheet</p> 	<p>For inspection of engine control module</p>	<p>49 D088 008 Harness adapter power</p> 	<p>For inspection of ECM</p>

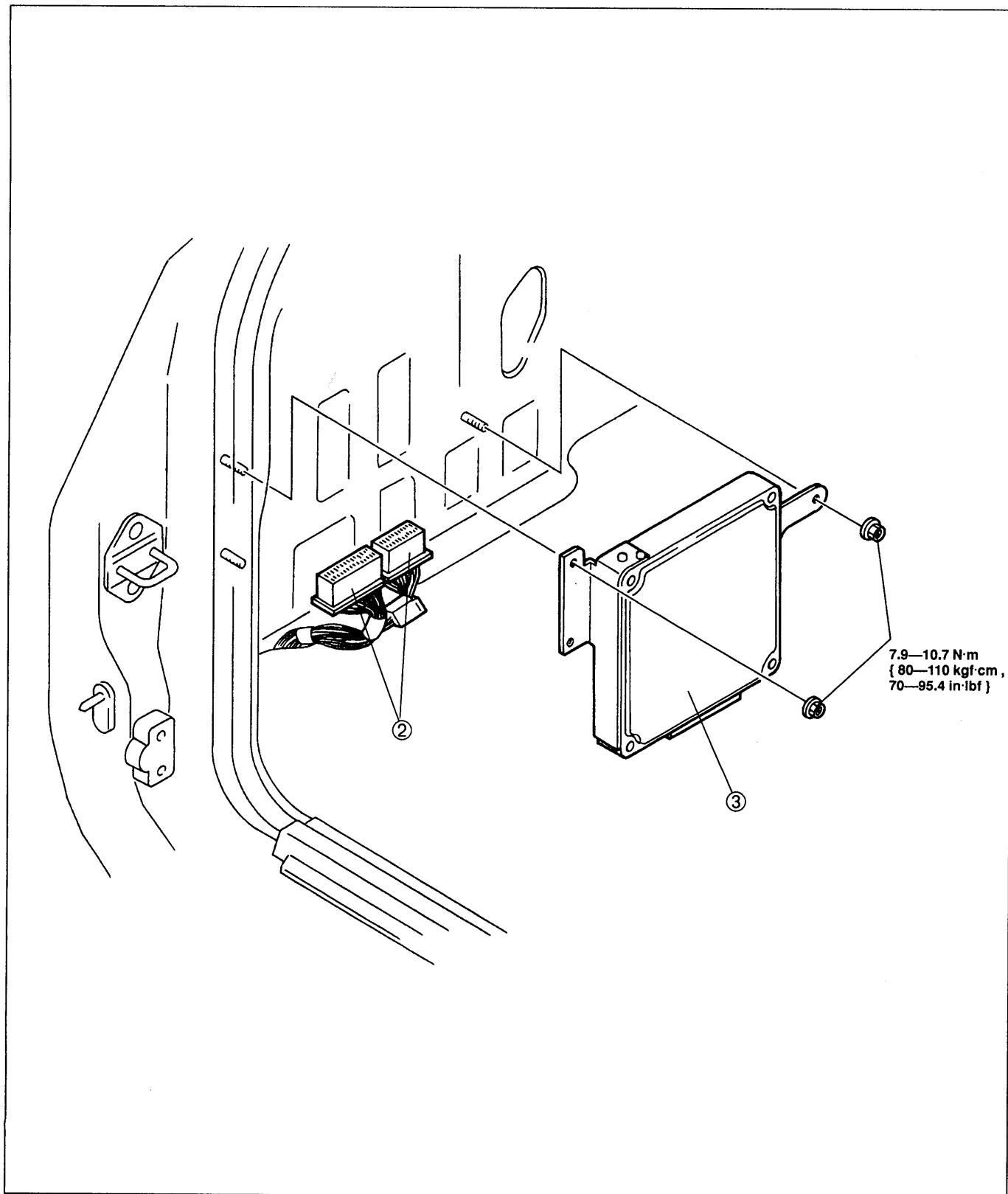
STRUCTURAL VIEW



- | | |
|--------------------------------------|------------|
| 1. Engine control module | |
| Inspection | page F-144 |
| Removal / Installation | page F-143 |
| 2. Camshaft position sensor | |
| Removal | page F-153 |
| Inspection | page F-153 |
| Installation | page F-153 |
| 3. Mass air flow sensor | |
| System inspection | page F-152 |
| Inspection | page F-152 |
| 4. Engine coolant temperature sensor | |
| Removal | page F-154 |
| Inspection | page F-154 |
| Installation | page F-154 |
| 5. Throttle position sensor | |
| Inspection | page F-155 |
| Adjustment | page F-155 |
| Replacement | page F-156 |
| 6. Heated oxygen sensor | |
| Inspection | page F-156 |
| Replacement | page F-156 |
| 7. Main relay | |
| Inspection | page F-156 |
| 8. Clutch switch | |
| Inspection | page F-157 |
| Replacement | page F-157 |
| 9. Neutral switch | |
| Inspection | page F-157 |
| Replacement | page F-157 |
| 10. Power steering pressure switch | |
| Inspection | page F-158 |
| Replacement | page F-158 |

ENGINE CONTROL MODULE (ECM)**Removal / Installation**

1. Remove the negative battery cable.
2. Remove in the order shown in the figure.
3. Install in the reverse order of removal.



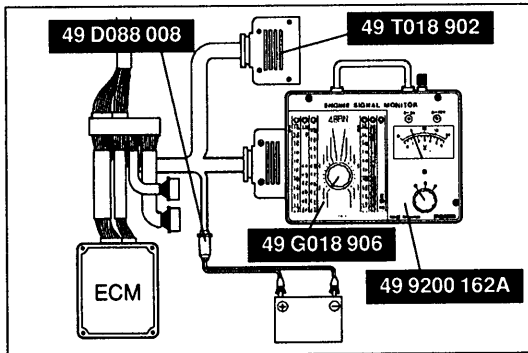
1. ECM connector

2. ECM

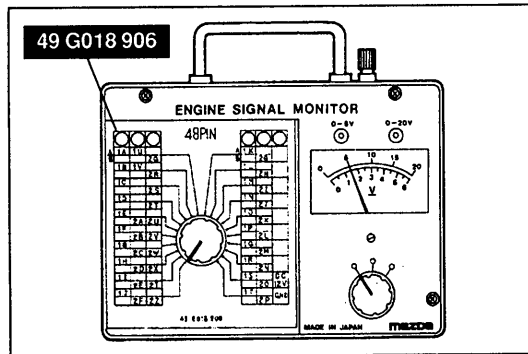
Inspection page F-144

Inspection

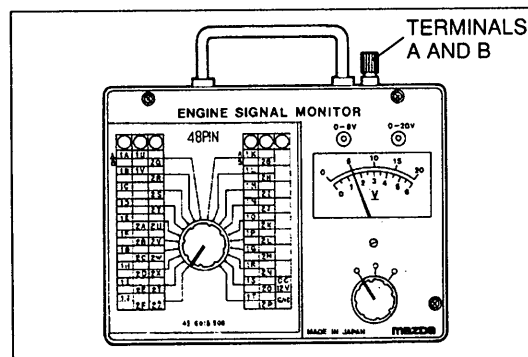
1. Lift up the floor covering in front of the passenger's seat.
(Refer to section S.)



2. Connect the **SST** (Engine Signal Monitor) between the engine control module and the wiring harness by using the **SST** (Adapter, Harness adapter power) as shown.



3. Place the **SST** (Sheet) on the **SST** (Engine Signal Monitor).
4. Measure the voltage at each terminal.
(Refer to pages F-148 to F-151.)



5. If any engine control module terminal voltage is incorrect, check the input or output device and related wiring.
6. If they are normal, replace the engine control module.
(Refer to pages F-143.)

Caution

- Applying voltage to SST terminals A or B will damage the SST.

Note

- If the tires are rotated by using a chassis roller with the ignition switch at ON, the ABS control module may memorize the action as a malfunction and the ABS warning light may illuminate. (Refer to the Troubleshooting Notes for the antilock brake system, section P.) If the ignition switch is turned to LOCK and then to ON again, the ABS warning light will not illuminate, because the action will be considered a past malfunction.

Terminal voltage

B+: Battery positive voltage

Terminal	Input	Output	Connection to	Test condition	Voltage	Remark	
1A	○	—	Battery	Constant	B+	For backup	
1B	○		Main relay	Ignition switch OFF	0 V	—	
				Ignition switch ON	B+		
1C	○		Ignition switch (START position)	While cranking	Approx. 10 V	—	
				Ignition switch ON	0 V		
1D		○	Data link connector (Terminal MEN)	Test switch at "SELF-TEST" Monitor light illuminated for 3 sec. after ignition switch OFF→ON	4.5—5.5 V	With Self-Diagnosis Checker and System Selector	
				Lamp not illuminated after 3 sec.	B+		
				Test switch at "O ₂ MONITOR" at idle Monitor light illuminated	4.5—5.5 V		
				Test switch at "O ₂ MONITOR" at idle Monitor light not illuminated	B+		
1E		○	Malfunction indicator lamp/Data link connector (Terminal FEN)	Lamp illuminated and buzzer sounded for 3 sec. after ignition switch OFF→ON	Below 2.5 V	<ul style="list-style-type: none"> With System Selector test switch at "SELF-TEST" With Self-Diagnosis Checker and System Selector 	
				Lamp not illuminated and buzzer not sounded after 3 sec.	B+		
				Lamp illuminated and buzzer sounded	Below 2.5 V		
				Lamp not illuminated and buzzer not sounded	B+		
1F	—	—	—	—	—	—	
1G		○	#1, 4 Ignition control module (in IG coil)	Ignition switch ON	0 V	—	
				Idle	Approx. 0.2 V		
1H		○	#2, 3 Ignition control module (in IG coil)	Ignition switch ON	0 V	—	
				Idle	Approx. 0.2 V		
1I		○	Transmission control module	Ignition switch ON (Engine coolant temp. below 60 °C { 140 °F })	Below 1.0 V	—	
1J		○	A/C relay	Ignition switch ON	B+	Blower motor ON	
				Air conditioning switch ON at idle	Below 2.5 V		
				Air conditioning switch OFF at idle	B+		
1K	○		Ground (MT)	Ignition switch ON	Below 1.0 V	—	
			Open (AT)	Ignition switch ON	B+		
1L		○	Coolant fan relay	Ignition switch ON	B+	—	
				Idle	Engine coolant temp. Above 97 °C { 206.6 °F }		Below 1.0 V
					Other conditions		B+
				<ul style="list-style-type: none"> Ignition switch On Ground data link connector terminal TEN Closed throttle position switch OFF 	Blow 1.0 V		
1M	○		Vehicle speed sensor	While driving	2—5 V	—	
				Vehicle stopped	1 or 7 V		
1N	○		Closed throttle position switch (in throttle position sensor)	Accelerator pedal released	0 V	Ignition switch ON	
				Accelerator pedal depressed	B+		
1O	○		Brake switch	Brake pedal released	0 V	—	
				Brake pedal depressed	B+		
1P	○		Power steering pressure switch	Ignition switch ON	B+	—	
				P/S ON (at idle)	0 V		
				P/S OFF (at idle)	B+		

B+: Battery positive voltage

Terminal	Input	Output	Connection to	Test condition	Voltage	Remark
1Q	○		Air conditioning switch	Air conditioning switch ON (Ignition switch ON)	Below 2.5 V	Blower motor ON
				Air conditioning switch OFF (Ignition switch ON)	B+	
1R		○	EGR solenoid valve (vent)	Idle	B+	* Engine Signal Monitor: Green and red lamps flash
				Driving	B+*	
1S	○		Fan switch	Fan switch at mid, high or super high position	Approx. 0 V	Ignition switch ON
				Fan switch OFF or low	Approx. 12 V	
1T		○	EGR solenoid valve (vacuum)	Idle	B+	* Engine Signal Monitor: Green and red lamps flash
				Driving	B+*	
1U	○		Headlight switch	Headlights ON (Tail, parking, low beam/high beam)	Approx. 12 V	—
				Headlights OFF	0 V	
1V	○		Neutral or clutch switch (MT)	Neutral position or clutch pedal depressed	0 V	—
				Other conditions	B+	
			Transmission range switch (AT)	N or P range	Approx. 1.0 V	
				Other conditions	B+	
2A	—	—	Ground (Fuel injector)	Constant	0 V	—
2B	—	—	Ground (Output)	Constant	0 V	—
2C	—	—	Ground (ECM)	Constant	0 V	—
2D	—	—	Ground (Input)	Constant	0 V	—
2E	○		Camshaft position sensor (SGT signal)	Ignition switch ON	0 V or 5 V	—
				Idle	Approx. 2 V	
2F	○		Mass air flow sensor	Ignition switch ON	Below 1.0 V	—
				Idle	Below 1.0 V	
2G	○		Camshaft position sensor (SGC signal)	Ignition switch ON	0 V or 5 V	—
				Idle	Approx. 1.5 V	
2H	○		Data link connector (Terminal TEN)	System Selector test switch at "O ₂ MONITOR"	B+	—
				System Selector test switch at "SELF-TEST"	0 V	
2I	○		Ignition control module	Ignition switch ON	Approx. 10 V	—
				Idle	Approx. 11 V	
2J	○		EGR valve position sensor	Ignition switch ON	Approx. 1.0 V	—
				While running	Approx. 0—5 V	
2K		○	Vref	Ignition switch ON	4.5—5.5 V	—
2L	○		Rear window defroster relay	Rear window defroster switch OFF	B+	Ignition switch ON
				Rear window defroster switch ON	Below 1.0 V	
2M	○		Throttle position sensor	Accelerator pedal released	0.1—1.0 V	Ignition switch ON
				Accelerator pedal fully depressed	3.1—4.5 V	
2N	○		Heated oxygen sensor	Ignition switch ON	Below 1.0 V	—
				Idle (Cold engine)	Below 1.0 V	
				Idle (After warm-up)	0—1 V	
				Increase engine speed (After warm-up)	0.5—1 V	
				Deceleration	0—0.4 V	
2O	○		Mass air flow sensor	Ignition switch ON	Below 1.0 V	—
				Idle	1.0—2.0 V	
2P	○		Intake air temperature sensor	At 20 °C { 68 °F }	Approx. 2.5 V	Built in mass air flow sensor

B+: Battery positive voltage

Terminal	Input	Output	Connection to	Test condition	Voltage	Remark	
2Q	○		Engine coolant temperature sensor	Engine coolant temperature 20 °C { 68 °F }	Approx. 2.5 V	Ignition switch ON	
				After warm-up	Approx. 0.4 V		
2R		○	PRC solenoid valve	Hot condition: Engine coolant temp. above 70 °C { 158 °F } and intake air temp. above 50 °C { 122 °F } for 150 sec. after engine starting	Below 1.0 V	—	
				Other conditions	B+		
2S		○	Condenser fan relay	Ignition switch ON	B+	—	
				Idle	Engine coolant temp. above 108 °C { 226 °F }		Below 1.0 V
					Other conditions		B+
2T		○	Fuel pump relay	Ignition switch ON	B+	—	
				Idle	Approx. 0 V		
2U		○	Fuel injector No.1	Ignition switch ON	B+	* Engine Signal Monitor: Green and red lights flash	
				Idle	Approx. 12 V*		
				Deceleration from 3,000 rpm to 1,900 rpm (After warm-up)	Approx. 12 V		
2V		○	Fuel injector No.2	Ignition switch ON	B+	* Engine Signal Monitor: Green and red lights flash	
				Idle	Approx. 12 V*		
				Deceleration from 3,000 rpm to 1,900 rpm (After warm-up)	Approx. 12 V		
2W		○	IAC valve	Ignition switch ON	Approx. 1.0 V	—	
				Idle	Approx. 10 V		
2X		○	Purge solenoid valve	Ignition switch ON	B+	—	
				Idle	B+		
2Y		○	Fuel injector No.3	Ignition switch ON	B+	* Engine Signal Monitor: Green and red lights flash	
				Idle	Approx. 12 V*		
				Deceleration from 3,000 rpm to 1,900 rpm (After warm-up)	Approx. 12 V		
2Z		○	Fuel injector No.4	Ignition switch ON	B+	* Engine Signal Monitor: Green and red lights flash	
				Idle	Approx. 12 V*		
				Deceleration from 3,000 rpm to 1,900 rpm (After warm-up)	Approx. 12 V		

Check Point for Each Terminal

B+: Battery positive voltage

Terminal	Connection to	Abnormal voltage	Possible cause
1A	Battery	Always 0 V (Battery OK)	<ul style="list-style-type: none"> ROOM 10A fuse burned Open circuit in wiring from ROOM 10 A fuse to ECM terminal 1A
1B	Main relay	Always 0 V	<ul style="list-style-type: none"> Main relay malfunction (Refer to page F-156) Open circuit in wiring from main relay to ECM terminal 1B
1C	Ignition switch (START position)	Always 0 V (Starter turns)	<ul style="list-style-type: none"> Open circuit in wiring from starter interlock switch to ECM terminal 1C
1D	Self-Diagnosis Checker (Monitor light)	Always 0 V	<ul style="list-style-type: none"> Main relay malfunction (Refer to page F-156) Open circuit in wiring from main relay to data link connector terminal +B Open or short circuit in wiring from data link connector terminal MEN to ECM terminal 1D
		Always B+	<ul style="list-style-type: none"> Poor connection at ECM connector ECM malfunction
		Always approx. 5 V	<ul style="list-style-type: none"> ECM malfunction
1E	Malfunction indicator lamp (MIL)	Always below 2.5 V (MIL always ON)	<ul style="list-style-type: none"> Short circuit in wiring from instrument cluster to ECM terminal 1E ECM malfunction
		Always below 2.5 V (MIL never ON)	<ul style="list-style-type: none"> Open circuit in wiring from instrument cluster to ECM terminal 1E
		Always B+	<ul style="list-style-type: none"> Poor connection at ECM connector ECM malfunction
	Self-Diagnosis Checker (Code No.)	Always below 2.5 V (No display on Self-Diagnosis Checker)	<ul style="list-style-type: none"> Main relay malfunction (Refer to page F-156) Open circuit in wiring from main relay to data link connector terminal +B
		Always below 2.5 V ("88" is displayed and buzzer sounds continuously)	<ul style="list-style-type: none"> Open or short circuit in wiring from data link connector terminal FEN to ECM terminal 1E
		Always B+	<ul style="list-style-type: none"> Poor connection at ECM connector ECM malfunction
1F	—	—	—
1G 1H	Ignition control module	Always 0 V	<ul style="list-style-type: none"> Refer to Code No.01 Troubleshooting (Refer to section G)
1I	Transmission control module	Always B+	<ul style="list-style-type: none"> ECM malfunction
1J	A/C relay	Always below 2.5 V (A/C does not operate)	<ul style="list-style-type: none"> A/C relay malfunction (Refer to section U) Open circuit in wiring from main relay to A/C relay Open circuit in wiring from A/C relay to ECM terminal 1J
		Always below 2.5 V (Air conditioning switch OFF but A/C operates)	<ul style="list-style-type: none"> Short circuit in wiring from A/C relay to ECM terminal 1J ECM malfunction
		Always B+	<ul style="list-style-type: none"> Air conditioning switch malfunction (Refer to section U) Poor connection at ECM connector ECM malfunction
1K	Ground (MT)	Always B+	<ul style="list-style-type: none"> Open circuit in wiring from ECM terminal 1K to ground ECM malfunction
	Open (AT)	Always 0 V	<ul style="list-style-type: none"> Short circuit in wiring from ECM terminal 1K to ground ECM malfunction
1L	Coolant fan relay	Always below 1.0 V (Coolant fan OK)	<ul style="list-style-type: none"> Open or short circuit in wiring from fan relay to ECM terminal 1L ECM malfunction

B+: Battery positive voltage

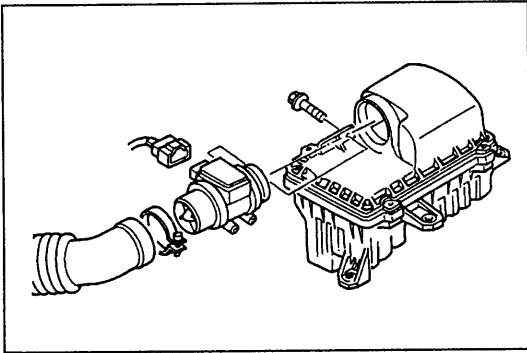
Terminal	Connection to	Abnormal voltage	Possible cause
1M	Vehicle speed sensor	Always approx. 1 V	<ul style="list-style-type: none"> • Vehicle speed sensor malfunction • Short circuit in wiring from vehicle speed sensor to ECM terminal 1M
		Always approx. 7 V	<ul style="list-style-type: none"> • Vehicle speed sensor malfunction • Open circuit in wiring from vehicle speed sensor to ECM terminal 1M
1N	Throttle position sensor (in closed throttle position switch)	Always 0 V	<ul style="list-style-type: none"> • Throttle position sensor misadjustment (Refer to page F-154) • Short circuit in wiring from ECM terminal 1N to throttle position sensor • ECM malfunction
		Always B+	<ul style="list-style-type: none"> • Throttle position sensor misadjustment (Refer to page F-154) • Open circuit in wiring from ECM terminal 1N to throttle position sensor • Open circuit in wiring from throttle position sensor to ground
1O	Brake switch	Always 0 V (Stoptlights OK)	<ul style="list-style-type: none"> • Open circuit in wiring from brake switch to ECM terminal 1O
1P	Power steering pressure switch	Always 0 V	<ul style="list-style-type: none"> • Power steering pressure switch malfunction (Refer to page F-158) • Short circuit in wiring from ECM terminal 1P to power steering pressure switch • ECM malfunction
		Always B+	<ul style="list-style-type: none"> • Power steering pressure switch malfunction (Refer to F-158) • Open circuit in wiring from ECM terminal 1P to power steering pressure switch • Open circuit in wiring from power steering pressure switch to ground
1Q	Air conditioning switch	Always 0 V (with fan switch ON)	<ul style="list-style-type: none"> • Air conditioning switch malfunction (Refer to section U) • Short circuit in wiring from ECM terminal 1Q to air conditioning switch • Poor connection at ECM connector • ECM malfunction
		Always B+ (with fan switch ON) (Blower fan OK)	<ul style="list-style-type: none"> • Air conditioning switch malfunction (Refer to section U) • Open circuit in wiring from ECM terminal 1Q to air conditioning switch • Open circuit in wiring from air conditioning switch to fan switch
1R	EGR solenoid valve (vent)	Always 0 V	<ul style="list-style-type: none"> • Refer to code No.29 Troubleshooting (Refer to page F-92)
1S	Fan switch	Always 0 V (Blower fan OK)	<ul style="list-style-type: none"> • Short circuit in wiring from fan switch to ECM terminal 1S • Poor connection at ECM connector • ECM malfunction
		Always B+ (Blower fan OK)	<ul style="list-style-type: none"> • Open circuit in wiring from fan switch to ECM terminal 1S
1T	EGR solenoid (vacuum)	Always 0 V	<ul style="list-style-type: none"> • Refer to code No.28 Troubleshooting (Refer to page F-92)
1U	Headlight switch	Always 0 V (Headlights OK)	<ul style="list-style-type: none"> • Open or short circuit in wiring from headlight relay to ECM terminal 1U

B+: Battery positive voltage

Terminal	Connection to	Abnormal voltage		Possible cause
1V	Neutral switch/Clutch switch (MT)	Always 0 V		<ul style="list-style-type: none"> • Neutral switch malfunction (Refer to page F-157) • Clutch switch malfunction (Refer to page F-156) • Short circuit in wiring from ECM terminal 1V to neutral or clutch switch
		Always B+		<ul style="list-style-type: none"> • Neutral switch malfunction (Refer to page F-157) • Clutch switch malfunction (Refer to page F-156) • Open circuit in wiring from ECM terminal 1V to neutral or clutch switch • Poor connection at ECM connector
	Transmission range switch (AT)	Always 0 V		<ul style="list-style-type: none"> • Transmission range switch malfunction (Refer to section K) • Short circuit in wiring from transmission range switch to ECM terminal 1V
		Always B+		<ul style="list-style-type: none"> • Transmission range switch malfunction (Refer to section K) • Open circuit in wiring from transmission range switch to ECM terminal 1V
2A 2B 2C 2D	Ground	More than 0 V		<ul style="list-style-type: none"> • Poor contact at ground terminal • Open circuit in wiring from ECM to ground
2E	Camshaft position sensor (SGT signal)	Always 0 V or approx. 5 V		<ul style="list-style-type: none"> • Refer to code No.03 Troubleshooting (Refer to page F-84)
2F	Mass air flow sensor	Always below 2 V or 4 V		<ul style="list-style-type: none"> • Refer to code No.08 Troubleshooting (Refer to page F-86)
2G	Crankshaft position sensor (SGC signal)	Always 0 V or approx. 5 V		<ul style="list-style-type: none"> • Refer to code No.04 Troubleshooting (Refer to page F-84)
2H	Data link connector (Terminal TEN)	Always 0 V		<ul style="list-style-type: none"> • Short circuit in wiring from ECM terminal 2H to data link connector terminal TEN
		Always B+		<ul style="list-style-type: none"> • Open circuit in wiring from ECM terminal 2H data link connector terminal TEN • Open circuit in wiring from data link connector terminal GND to ground
2I	Ignition control module	Always 0 V		<ul style="list-style-type: none"> • Refer to Code No.01 Troubleshooting (Refer to page F-83)
2J	EGR valve position sensor	Always approx. 0 V or approx. 5 V		<ul style="list-style-type: none"> • Refer to Code No.16 Troubleshooting (Refer to page F-89)
2K	Vref	Always 0 V		<ul style="list-style-type: none"> • Short circuit in wiring from ECM terminal 2K to throttle position sensor, ECM, or mass air flow sensor • Poor connection at ECM connector • ECM malfunction
2L	Rear window defroster switch	Always below 1.0 V	Illumination light ON when rear window defroster switch ON	<ul style="list-style-type: none"> • Open or short circuit in wiring from rear window defroster switch to ECM terminal 2L
			Illumination light never ON	<ul style="list-style-type: none"> • Open circuit in wiring from ignition switch to rear window defroster switch • Rear window defroster switch malfunction (Refer to section T)
2M	Throttle position sensor	Always constant		<ul style="list-style-type: none"> • Open circuit in wiring from ECM terminal 2M to throttle position sensor • Open circuit in wiring from ECM terminal 2K to throttle position sensor • Open circuit in wiring from ECM terminal 2D to throttle position sensor
		Always above 1 V		<ul style="list-style-type: none"> • Throttle position sensor misadjustment
2N	Heated oxygen sensor	0 V after warm-up		<ul style="list-style-type: none"> • Refer to code No.15 Troubleshooting (Refer to page F-88)
		Always approx. 1 V after warm-up		<ul style="list-style-type: none"> • Refer to code No.17 Troubleshooting (Refer to page F-90)

B+: Battery positive voltage

Terminal	Connection to	Abnormal voltage	Possible cause
2O	Mass air flow sensor	Always 0 V or approx. 5 V	<ul style="list-style-type: none"> Refer to code No.08 Troubleshooting (Refer to page F-86)
2P	Mass air flow sensor (Intake air temperature sensor)	Always 0 V or approx. 5 V	<ul style="list-style-type: none"> Refer to code No.10 Troubleshooting (Refer to page F-87)
			<ul style="list-style-type: none"> Intake air temperature sensor malfunction (Refer to page F-152)
2Q	Engine coolant temperature sensor	Always 0 V or approx. 5 V	<ul style="list-style-type: none"> Refer to code No.09 Troubleshooting (Refer to page F-87)
			<ul style="list-style-type: none"> Engine coolant temperature sensor malfunction (Refer to page F-154)
2R	PRC solenoid valve	Always 0 V or B+	<ul style="list-style-type: none"> Refer to code No.25 Troubleshooting (Refer to page F-91)
2S	Condenser fan relay	Always below 2.0 V	<ul style="list-style-type: none"> Open or short circuit in wiring from condenser fan relay to ECM terminal 2S ECM malfunction
2T	Fuel pump relay	Always below 1.0 V	<ul style="list-style-type: none"> Open or short circuit in wiring from fuel pump relay to ECM terminal 2T
2U 2V	Fuel injector	Always 0 V	<ul style="list-style-type: none"> Main relay malfunction (Refer to page F-156) Open or short circuit in wiring from fuel injector to ECM terminal 2U or 2V
		Always B+	<ul style="list-style-type: none"> ECM malfunction
2W	IAC valve	Always 0 V or B+	<ul style="list-style-type: none"> Refer to code No.34 Troubleshooting (Refer to page F-93)
			<ul style="list-style-type: none"> Idle air control solenoid valve malfunction (Refer to page F-106)
2X	Purge solenoid valve	Always 0 V or B+	<ul style="list-style-type: none"> Refer to code No.26 Troubleshooting (Refer to page F-91)
			<ul style="list-style-type: none"> Purge solenoid valve malfunction (Refer to page F-132)
2Y 2Z	Fuel injector	Always 0 V	<ul style="list-style-type: none"> Main relay malfunction (Refer to page F-156) Open or short circuit in wiring from fuel injector to ECM terminal 2Y or 2Z
		Always B+	<ul style="list-style-type: none"> ECM malfunction



MASS AIR FLOW SENSOR

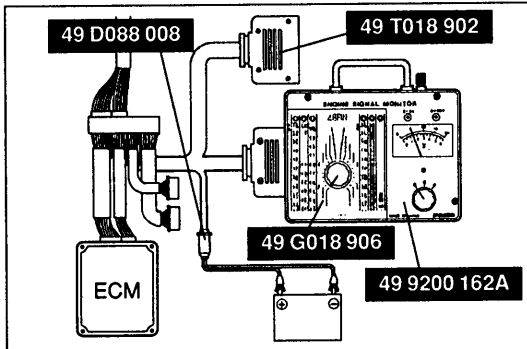
Inspection

Visual inspection

Caution

- Do not drop the sensor, subject it to sharp shocks, put or allow anything in it. It is very sensitive and easily damaged.

1. Disconnect the mass air flow sensor connector.
2. Remove the mass air flow sensor.
3. Check for damage of the sensor.
4. Install the mass air flow sensor.

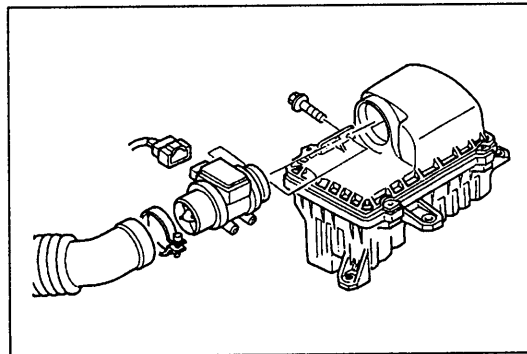


Voltage inspection

1. Disconnect the ECM connectors.
2. Connect the **SSTs** to the ECM as shown.
3. Check the voltage at terminals 2O and 2F.

Specification

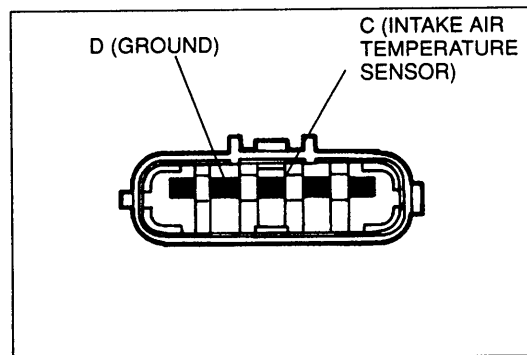
Terminal	Condition	IG ON	Idle
	2O		Below 1.0 V	1.0—2.0 V
2F		Below 1.0 V	



4. If not as specified, replace the mass air flow sensor.

Tightening torque:

7.9—10.7 N·m { 80—110 kgf·cm , 70—95.4 in·lbf }



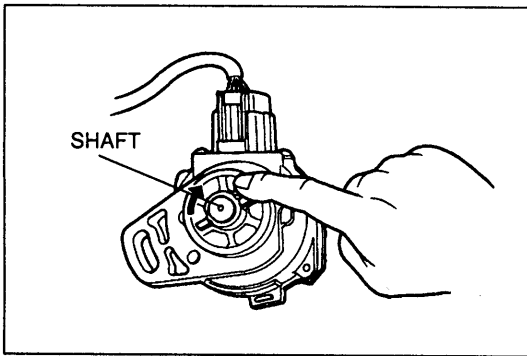
Inspection

Intake air temperature sensor

1. Verify that the ignition switch is OFF.
2. Disconnect the mass air flow sensor connector.
3. Measure resistance of the intake air temperature sensor as shown.

Specification: 2.21—2.69 [at 20 °C { 68 °F }]

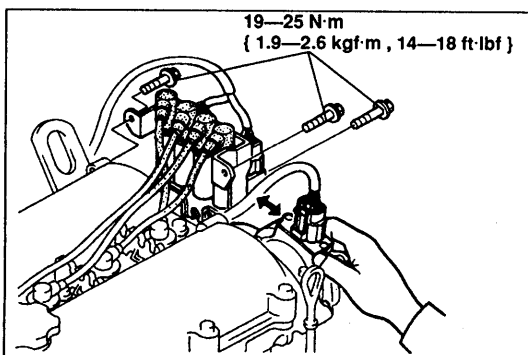
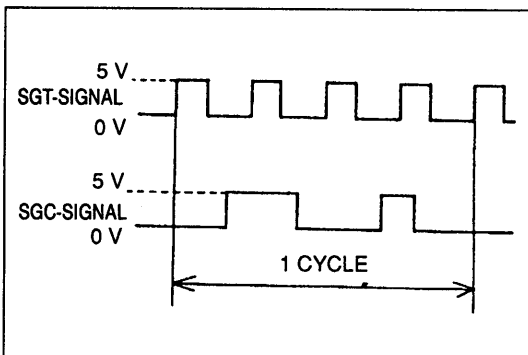
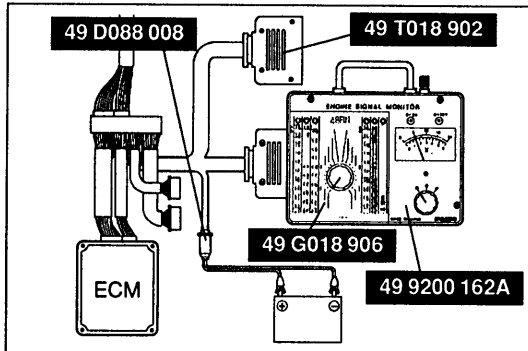
4. If not as specified, replace the mass air flow sensor.

**CAMSHAFT POSITION SENSOR****Inspection**

1. Remove the camshaft position sensor.
2. Verify that the ignition control module connector is disconnected.
3. Connect the camshaft position sensor connector shown in figure.
4. Disconnect the fuel injector connector.
5. Turn the ignition switch to ON.
6. Connect the **SSTs** to the ECM.
7. Rotate the sensor drive by hand and measure the output voltage.

Specification

Position	Voltage
2E (SGT signal)	Approx. 5 V (4 pulses/rev)
2G (SGC signal)	Approx. 5 V (2 pulses/rev)



8. After the inspection, install the camshaft position sensor.
9. Start the engine and adjust the ignition timing. (Refer to page F-76.)

Ignition timing: BTDC 9°—11° (10° ± 1°)

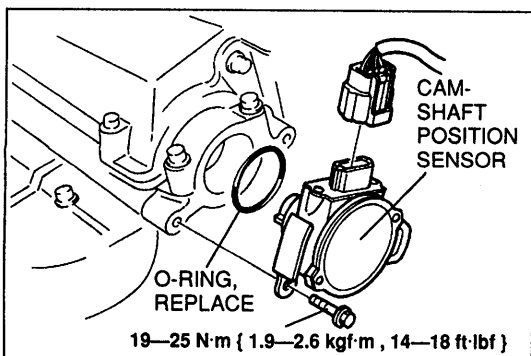
10. Tighten the camshaft position sensor lock bolt to the specified torque.

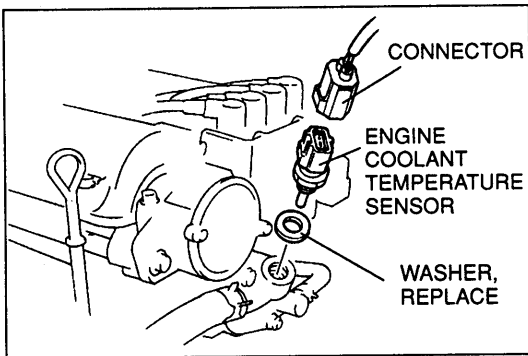
Tightening torque:

19—25 N·m { 1.9—2.6 kgf·m , 14—18 ft·lbf }

Replacement

1. Remove the ignition coil. (Refer to section G.)
2. Remove in the order shown in the figure.
3. Install in the reverse order of removal.

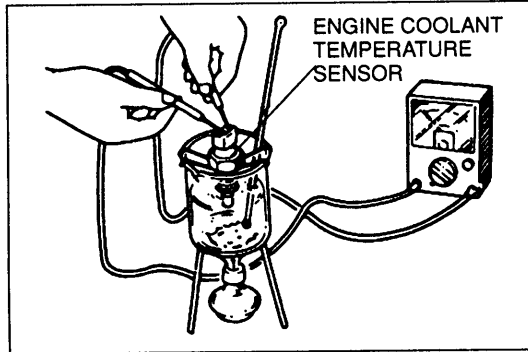




ENGINE COOLANT TEMPERATURE SENSOR

Removal

1. Remove the ignition coil assembly. (Refer to section G.)
2. Disconnect the engine coolant temperature sensor connector.
3. Remove the engine coolant temperature sensor.



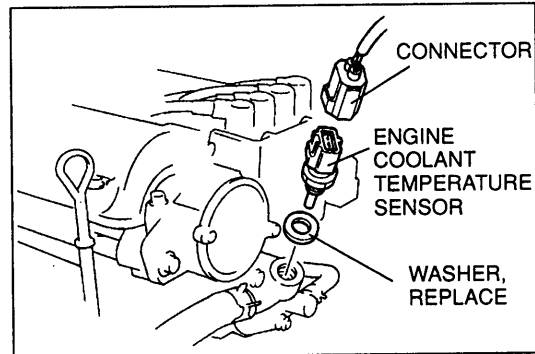
Inspection

1. Place the sensor in water with a thermometer and heat the water gradually.
2. Measure resistance of the sensor by using an ohmmeter.

Specification

Coolant temperature	Resistance kΩ
20 °C { 68 °F }	2.21 — 2.69
80 °C { 176 °F }	0.287— 0.349

3. If not as specified, replace the engine coolant temperature sensor.



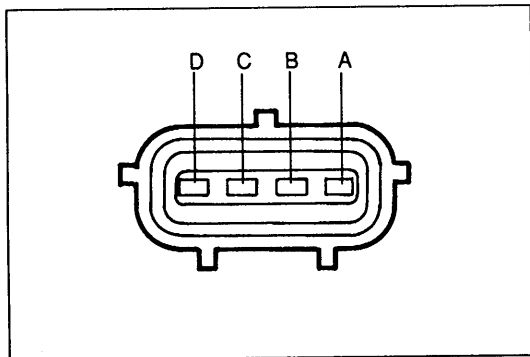
Installation

1. Install the engine coolant temperature sensor and a new washer.

Tightening torque:

25—29 N·m { 2.5—3.0 kgf·m , 19—21 ft·lbf }

2. Connect the engine coolant temperature sensor connector.
3. Install the ignition coil assembly. (Refer to section G.)



THROTTLE POSITION SENSOR

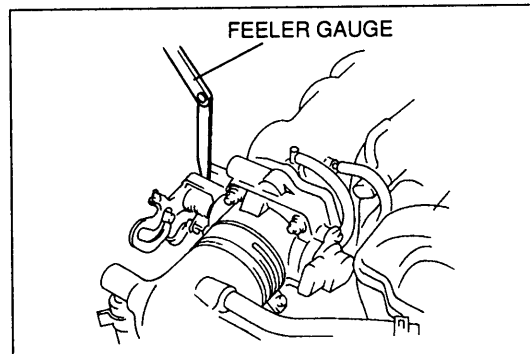
Inspection

Closed throttle position switch

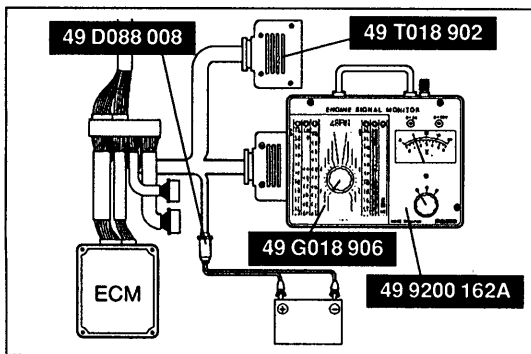
1. Turn the ignition switch OFF and the throttle valve closed throttle position.
2. Disconnect the throttle position sensor connector.
3. Check continuity between throttle position sensor terminals C and D.

Specification

Terminals	Throttle valve fully closed
C — D	Continuity



4. If not as specified, adjust the throttle position sensor. (Refer to page F-155.)
5. Insert a feeler gauge 0.4 mm { 0.016 in } between the stopper and the throttle lever.
6. Verify that there is no continuity between the throttle position sensor terminals C and D.
7. If continuity, adjust the throttle position sensor. (Refer to page F-155.)

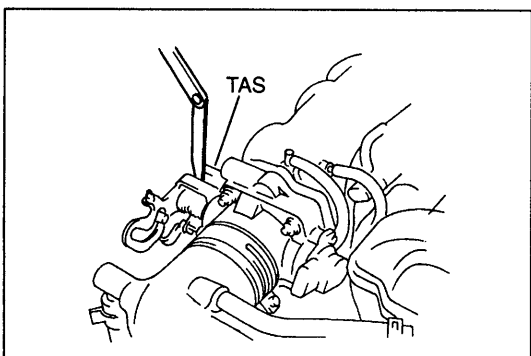
**Variable resistor**

1. Remove the ECM. (Refer to page F-143.)
2. Connect the **SSTs** (Engine Signal Monitor and Adapter Harness) to the ECM.
3. Set the **SST** (Engine Signal Monitor) to position 2M.
4. Turn the ignition switch to ON.
5. Rotate the throttle link by hand and verify that voltage is within the specification.

Specification

ECM terminal	Throttle valve position	
	Closed throttle position	Wide open throttle
2M	0.1—1.0 V	3.1—4.5 V

6. If not as specified, adjust the throttle position sensor. (Refer to below.)

**Adjustment****Note**

- The throttle adjusting screw is set at the factory and must not be adjusted. Any adjustment will negatively effect the engine performance.

Closed throttle position switch

1. Turn the ignition switch to OFF and the throttle valve to the closed throttle position.
2. Disconnect the throttle position sensor connector.
3. Loosen the throttle position sensor screws.
4. Rotate the throttle position sensor and adjust continuity between the sensor terminals C and D as shown.

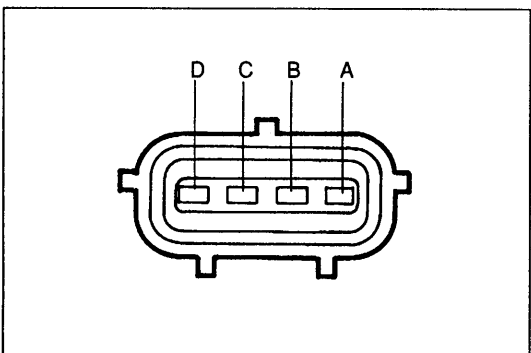
Specification

Clearance	Continuity
0.3 mm { 0.012 in }	Yes
0.4 mm { 0.016 in }	No

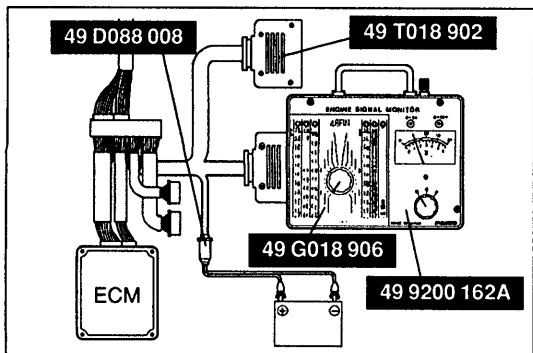
5. Tighten the throttle position sensor screws.

Tightening torque:

1.6—2.3 N·m { 16—24 kgf·cm , 14—20 in·lbf }

**Variable resistor**

1. Remove the ECM. (Refer to page F-143.)
2. Connect the **SSTs** to the ECM connector as shown.
3. Verify that the throttle valve is fully closed.
4. Loosen the attaching screws.
5. Turn the ignition switch to ON.
6. Measure the ECM terminal 2M voltage.
7. Adjust the voltage to the specification



Specification

Fully closed: 0.1—1.1 V

Fully open: 3.1—4.5 V

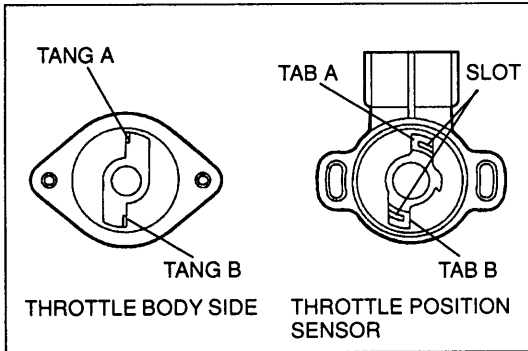
(Verify that the voltage increase is directly proportioned to the throttle valve opening angle.)

8. Tighten the attaching screws.

Tightening torque:

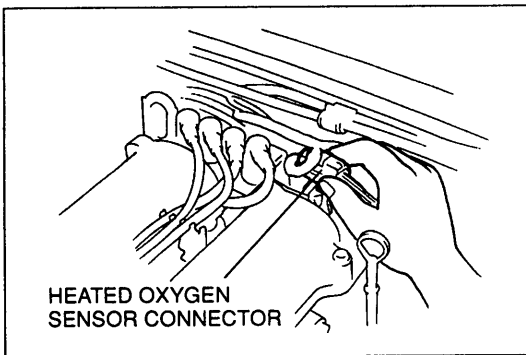
1.6—2.3 N·m { 16—24 kgf·cm , 14—20 in·lbf }

9. If not adjusted, replace the throttle position sensor.



Replacement

1. Disconnect the throttle position sensor connector.
2. Remove the attaching screws.
3. Remove the throttle position sensor.
4. Verify that the throttle valve is fully closed.
5. Open the throttle valve slightly and catch the tang of the throttle body on the throttle position sensor plastic tabs. Align tang A on the throttle body with tab A on the throttle position sensor. Note tangs on the throttle body mate with the tab on the throttle position sensor on the side of the tab without a slot.
6. Position the throttle position sensor on the throttle body so that the mounting holes align.
7. Install and hand tighten the attaching screws.
8. Release the throttle.
9. Adjust the throttle position sensor output voltage and closed throttle position switch. (Refer to page F-155.)



HEATED OXYGEN SENSOR

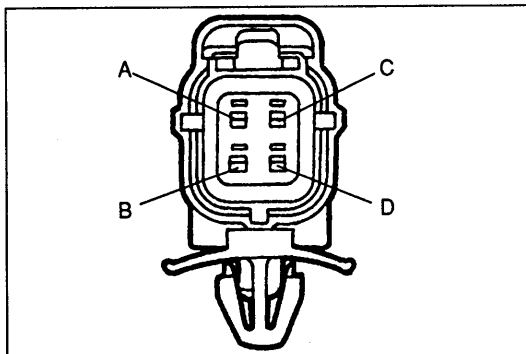
Inspection

On-vehicle

1. Warm up the engine to normal operating temperature and run it at idle.
2. Disconnect the heated oxygen sensor connector.
3. Measure the voltage at terminal A.

Specification

Engine condition	Idle (V)	Increasing engine speed (V)	Decreasing engine speed (V)
Terminal A	Below 1.0	0.5—1.0	0—0.4



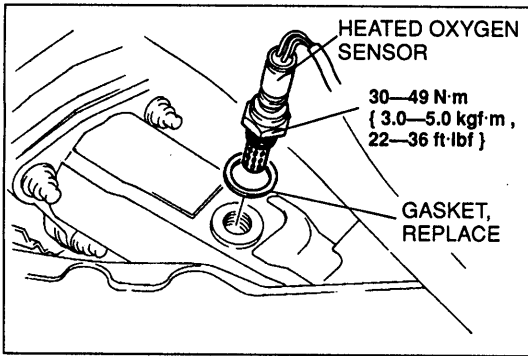
4. If not as specified, check the intake air system, the fuel system and run the on-board diagnosis test.
5. If these systems are OK, replace the heated oxygen sensor.

Heater

1. Disconnect the heated oxygen sensor connector.
2. Measure the resistance between terminals C and D.

Resistance: Approx. 13 Ω [20 °C { 68 °F }]

3. Replace the heated oxygen sensor if not as specified.

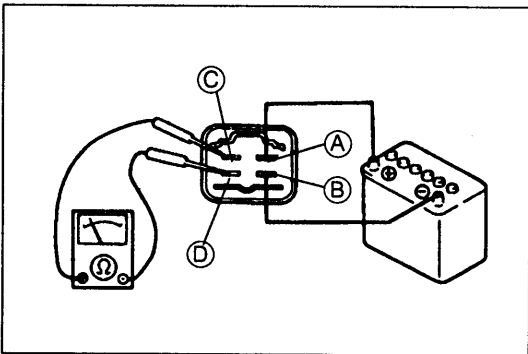


Replacement

1. Disconnect the heated oxygen sensor connector.
2. Remove the heated oxygen sensor.
3. Install in the reverse order of removal.

Tightening torque:

30—49 N·m { 3.0—5.0 kgf·m , 22—36 ft·lbf }



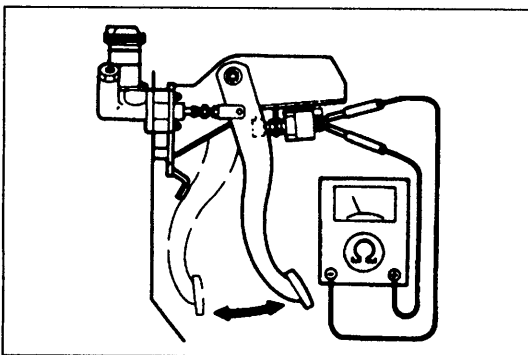
MAIN RELAY

Inspection

1. Verify that the main relay clicks when turning the ignition switch OFF → ON.
2. Apply battery positive voltage to terminal A and ground terminal B of the main relay.
3. Use an ohmmeter to check continuity of the terminals as shown.

Terminals	Battery positive voltage not applied	Battery positive voltage applied
C—D	No continuity	Continuity

4. If not as specified, replace the main relay.



CLUTCH SWITCH

Inspection

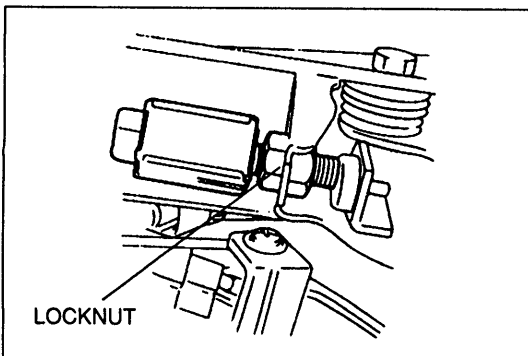
1. Disconnect the clutch switch connector.
2. Connect an ohmmeter to the switch.
3. Check continuity of the switch.

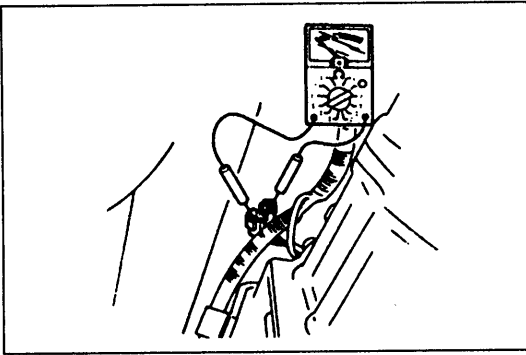
Pedal	Continuity
Depressed	Yes
Released	No

4. If not as specified, replace the clutch switch.

Replacement

1. Disconnect the clutch switch connector.
2. Loosen the locknut.
3. Remove the clutch switch.
4. Install in the reverse order of removal.
5. Adjust the pedal height. (Refer to section H.)





NEUTRAL SWITCH

Inspection

1. Disconnect the neutral switch connector.
2. Connect an ohmmeter to the switch.
3. Check continuity of the switch.

Transmission	Continuity
Neutral	Yes
Other ranges	No

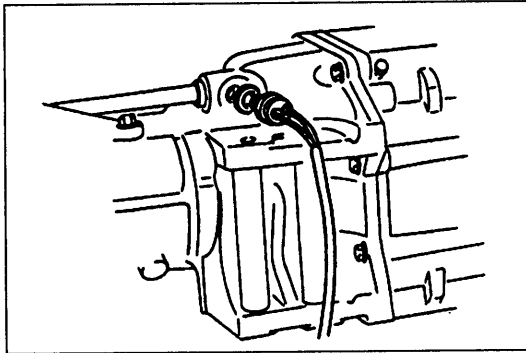
4. If not as specified, replace the neutral switch.

Replacement

Replace the neutral switch as shown in the figure.

Tightening torque:

25—29 N·m { 2.5—3.0 kgf·m , 19—21 ft·lbf }



POWER STEERING PRESSURE SWITCH

Inspection

1. Disconnect the power steering pressure switch connector.
2. Connect an ohmmeter to the switch.
3. Start the engine and let it idle. Check continuity of the switch while turning the steering wheel.

P/S	Continuity
Turning	Yes
Not turning	No

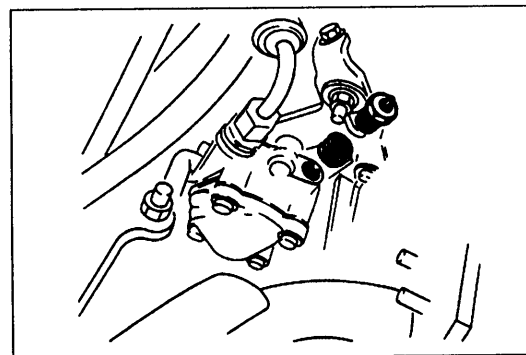
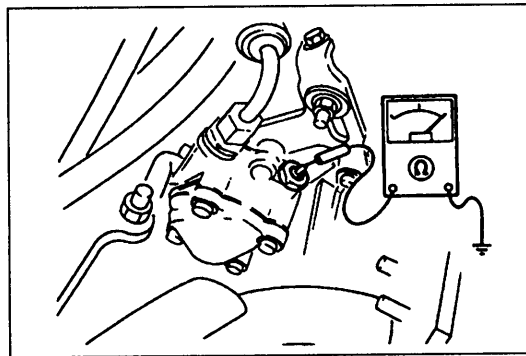
4. If not as specified, replace the power steering pressure switch.

Replacement

Replace the power steering pressure switch as shown in the figure.

Tightening torque:

25—29 N·m { 2.5—3.0 kgf·m , 19—21 ft·lbf }

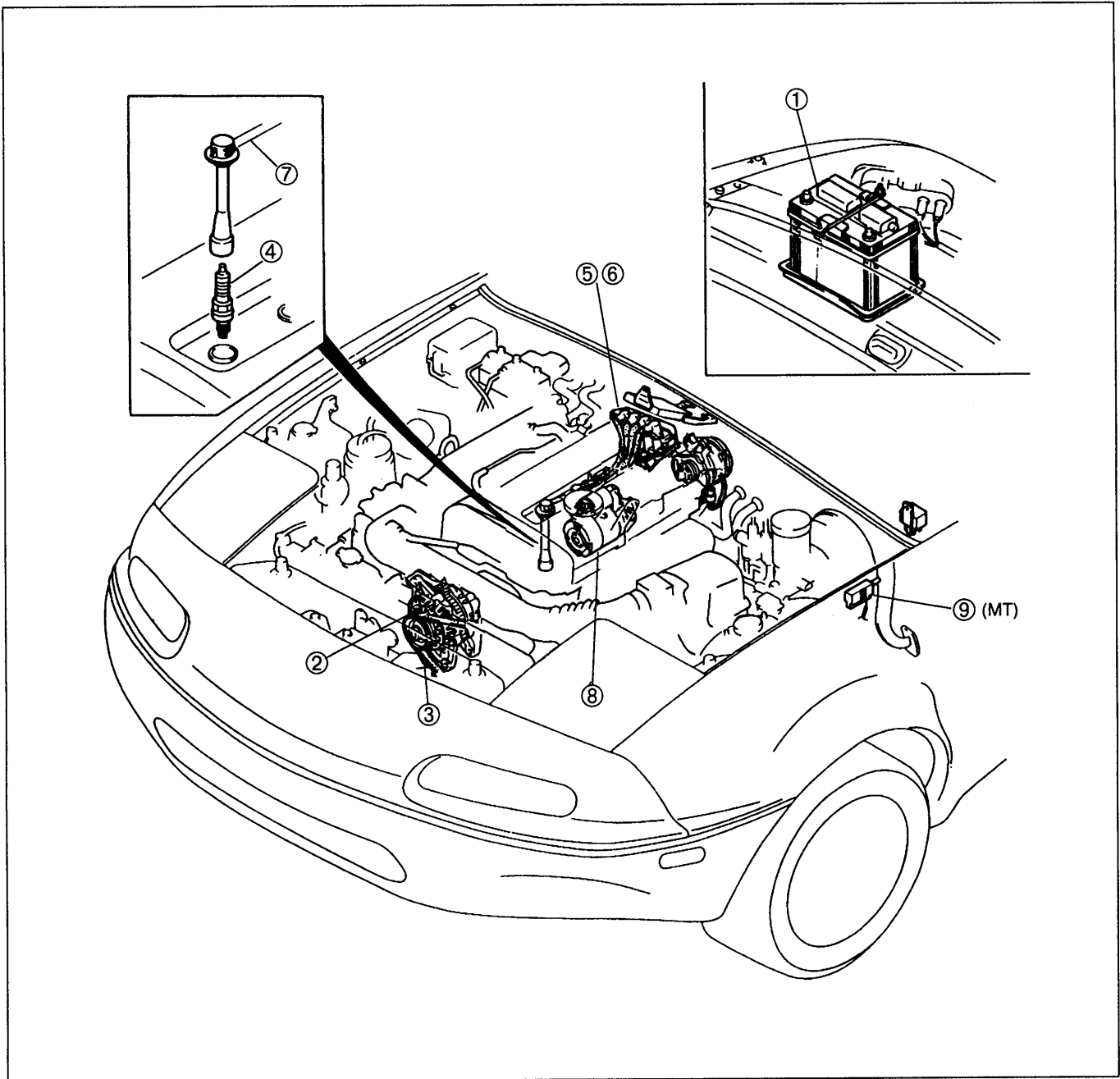


Before beginning any service procedure, refer to section T of this manual for air bag system service warnings and audio antitheft system alarm conditions.

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OUTLINE

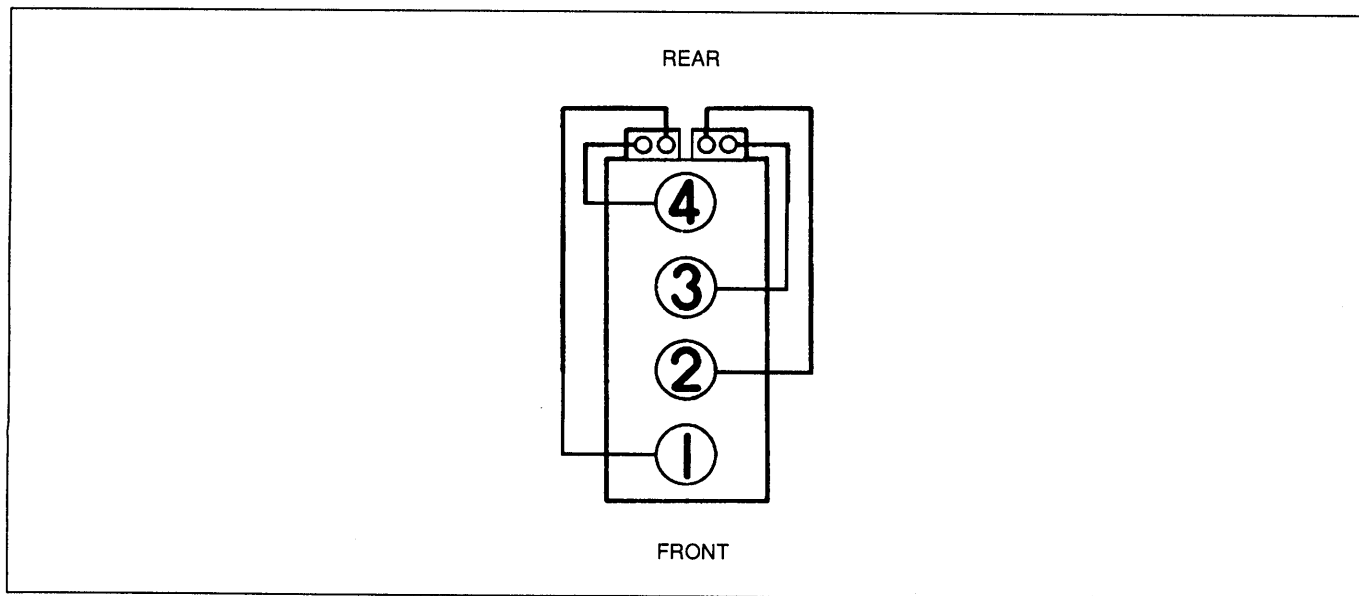
SPECIFICATIONS

Item		Engine/Transmission		BP DOHC		
				MT	AT	
Battery	Positive voltage	V		12		
	Type and capacity (5-hour rate A·h)			S46A24L(S) (32) Maintenance-free		
Dark current* ¹		mA		MAX. 20		
Generator	Type			A.C.		
	Output	V-A		12-65	12-70	
	Regulator type			Transistorized (built in voltage regulator)		
	Regulated voltage	V		14.3-14.9		
	Brush length mm { in }	Standard			21.5 { 0.846 }	
		Minimum			8.0 { 0.32 }	
	Drive belt deflection mm { in }	New			5.5-7.0 { 0.22-0.27 }	
Used				6.0-7.5 { 0.24-0.29 }		
Starter	Type			Direct	Coaxial reduction	
	Output	V-kW		12-0.95	12-1.4	
	Brush length mm { in }	Standard			17.0 { 0.67 }	17.5 { 0.69 }
		Minimum			11.5 { 0.46 }	12.0 { 0.47 }
Ignition system	Type			Electronic spark advance (ESA)		
	Spark advance control			Powertrain control module controls spark advance		
Ignition timing* ²		BTDC (°CA)/rpm		10/850	10/800	
Ignition coil	Type			Molded (with ignition control module)		
	Primary coil winding	Ω		—		
	Secondary coil winding	kΩ		8.7-12.9 [20 °C { 68 °F }]		
Spark plug	Type			NGK : BKR5E-11 (Standard) BKR6E-11	NIPPONDENSO : K16PR-U11 (Standard) K20PR-U11	
	Plug gap	mm { in }		1.0-1.1 { 0.040-0.043 }		
	Firing order			1-3-4-2		

*¹ Dark current is the constant flow of current while the ignition switch is OFF. (i.e. audio unit, clock, etc.)

*² TEN terminal of data link connector ground.

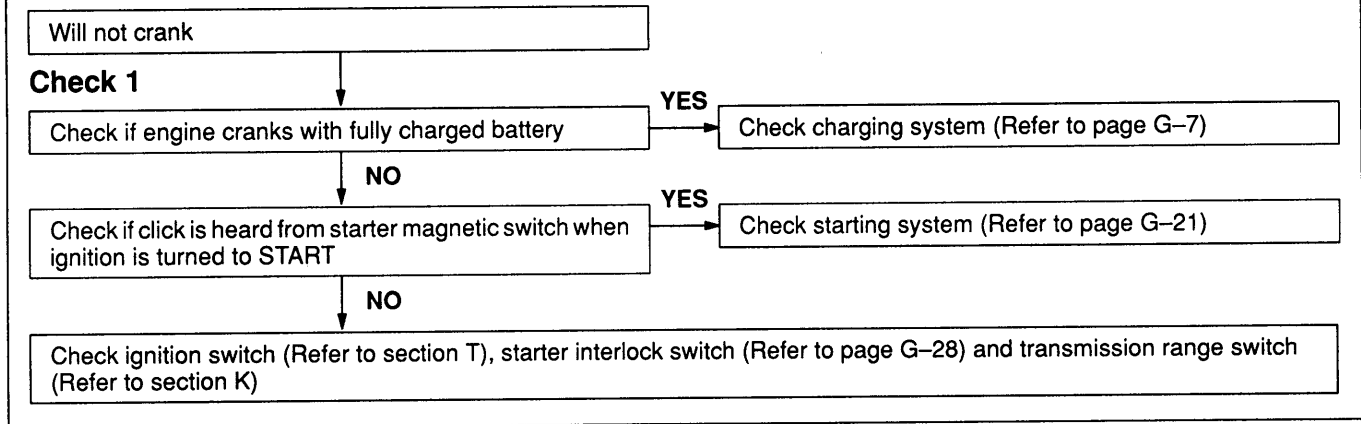
Cylinder Arrangement



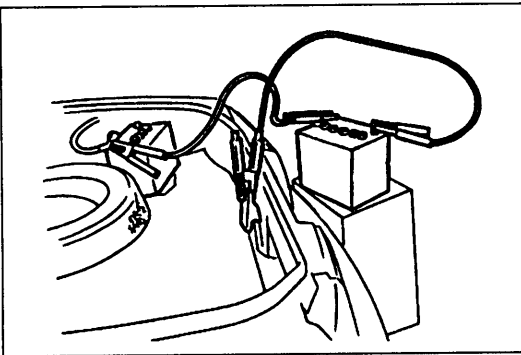
TROUBLESHOOTING GUIDE

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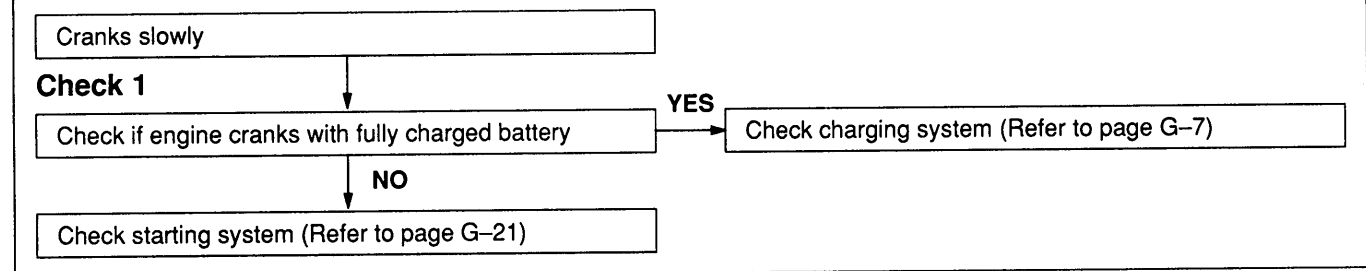
Will not crank



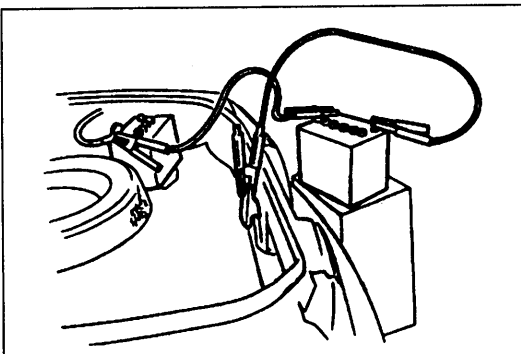
Check 1



Cranks slowly



Check 1



Discharged battery

Discharged battery

Check charging system (Refer to page G-7)

Misfire

Misfire

Check ignition system (Refer to page G-16)

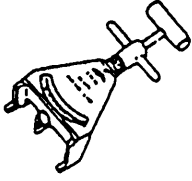
CHARGING SYSTEM

PREPARATION

SST

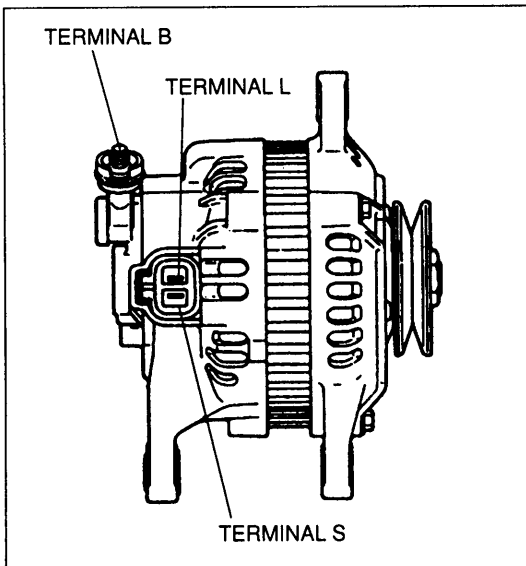
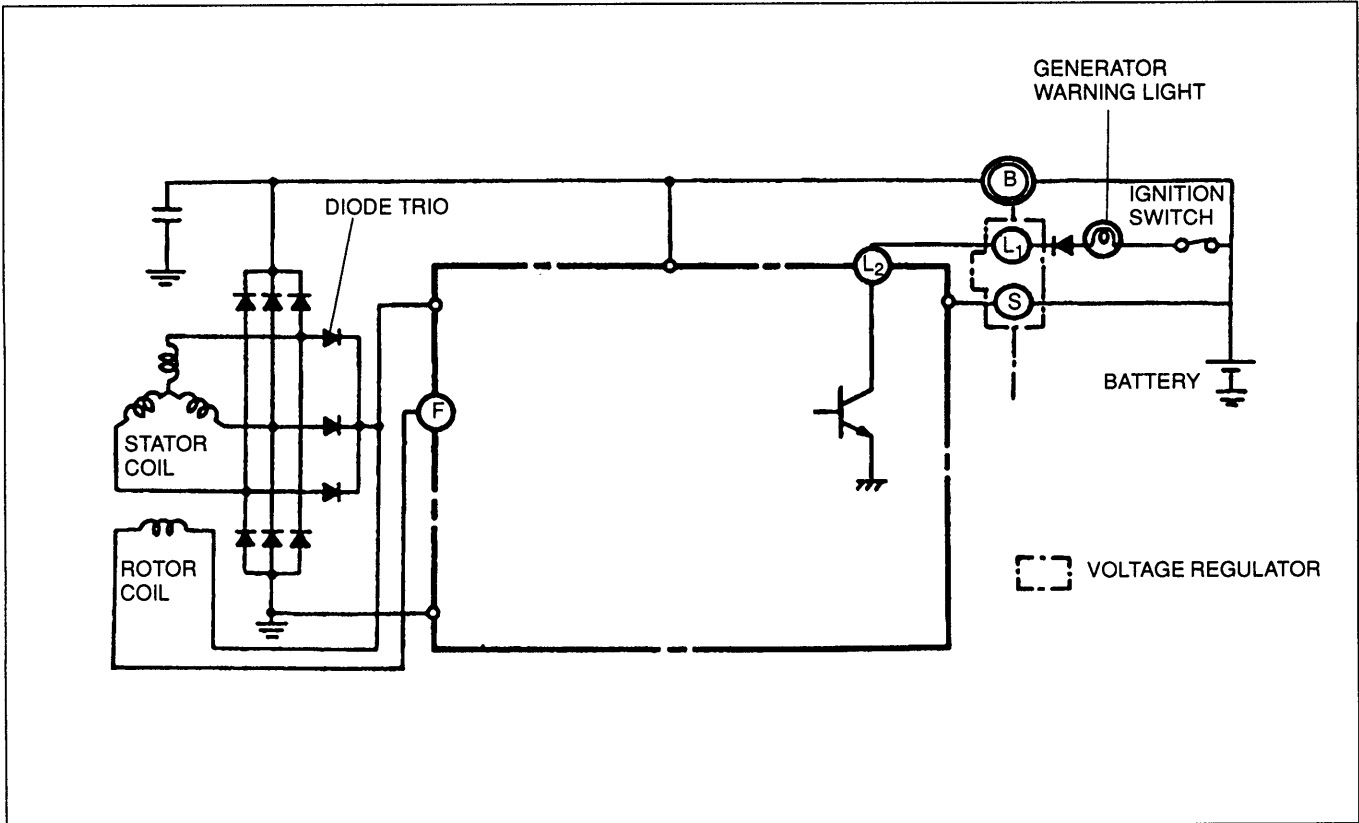
49 9200 020A

V-ribbed belt tension gauge

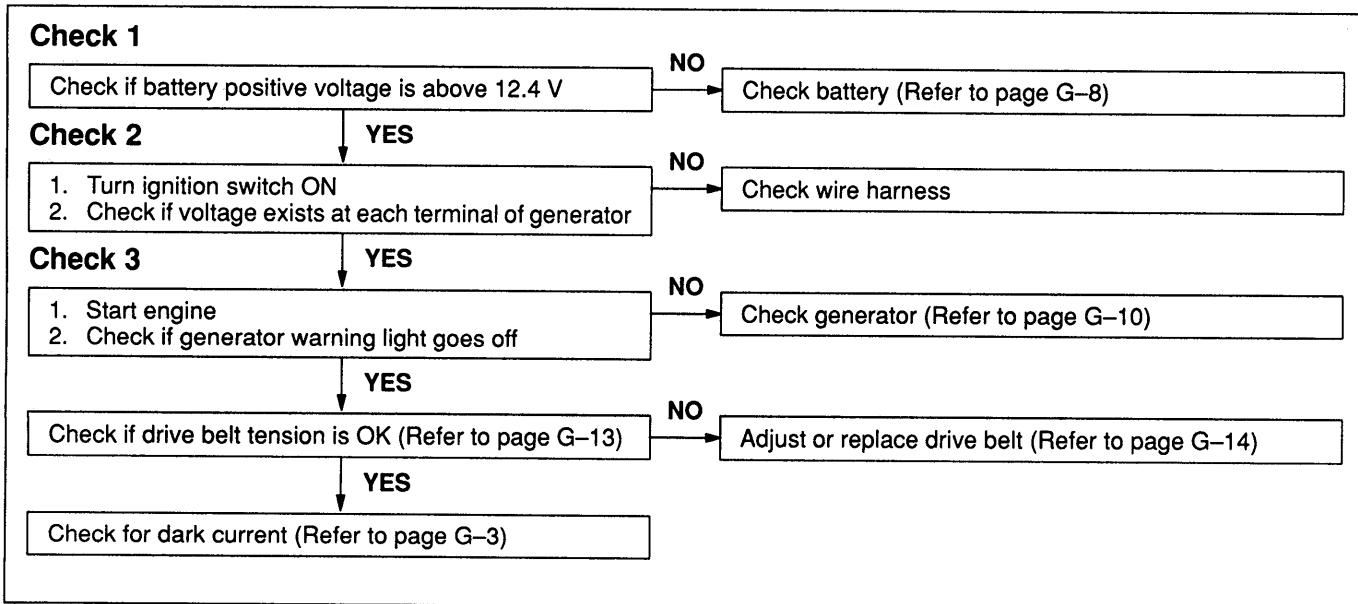


For inspection of drive belt tension

CIRCUIT DIAGRAM

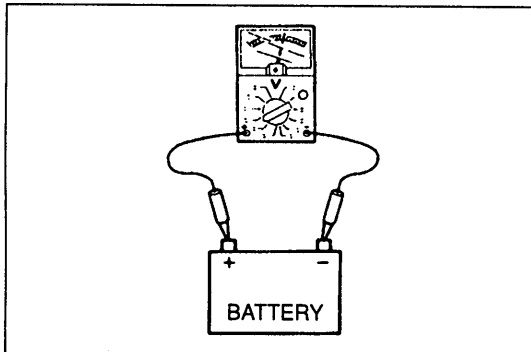


TROUBLESHOOTING



G

Check 1

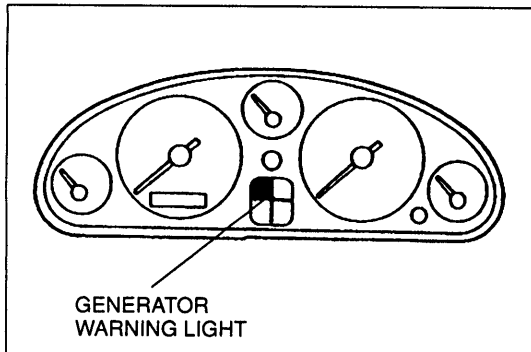


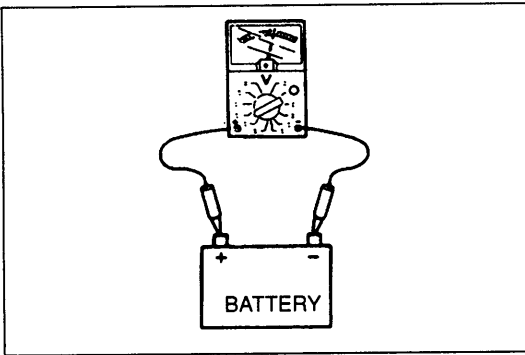
Check 2

B+: Battery positive voltage

Terminal	Ignition switch		
	OFF	ON	ON (Idle)
B	Approx. 12 V	Approx. 12 V	B+
L	0 V	Approx. 1 V	B+
S	Approx. 12 V	Approx. 12 V	B+

Check 3





BATTERY

Warning

- Hydrogen gas is produced during normal battery operation. A battery-related explosion can cause serious injury. Keep all flames (including cigarettes), heat, and sparks away from the top and surrounding area of open battery cells.

Caution

- To prevent damage to electrical components or the battery, turn all accessories off and stop the engine before performing maintenance or recharging the battery.
- Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to section T.)

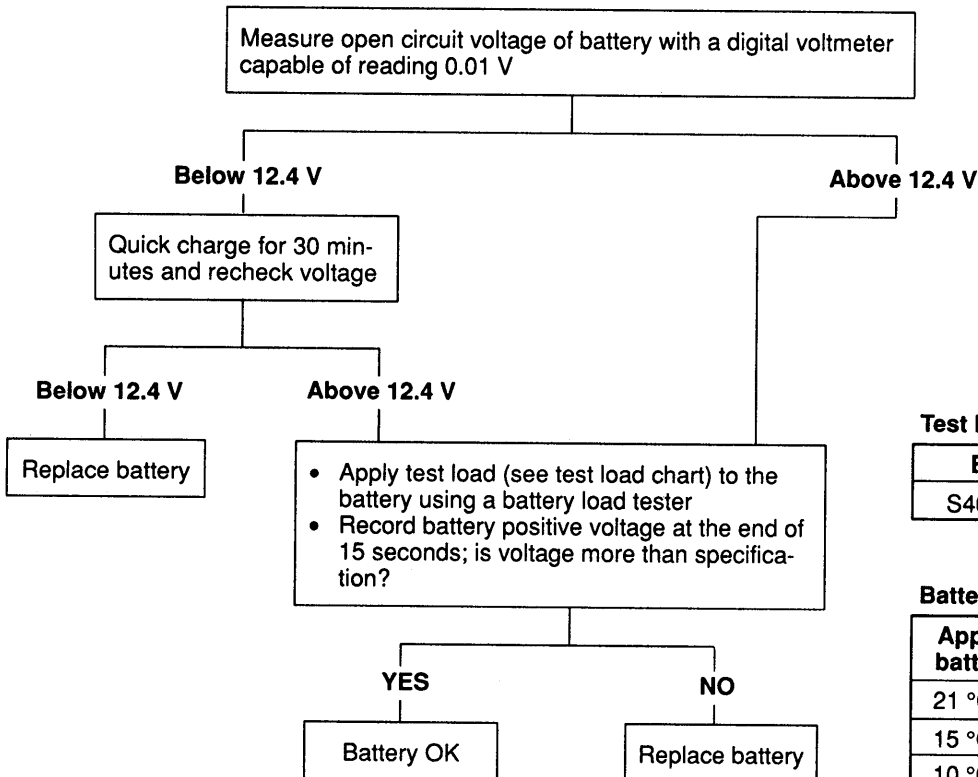
Inspection

Caution

- When disconnecting the battery, remove the negative cable first and install it last to prevent damage to electrical components or the battery.

1. Disconnect the battery cables from the battery.
2. Connect a voltmeter to the battery.

Battery discharge test



Test load

Battery	Load (A)
S46A24L(S)	105

Battery voltage with load

Approximate battery temp.	Minimum voltage (V)
21 °C { 70 °F }	9.6
15 °C { 60 °F }	9.5
10 °C { 50 °F }	9.4
4 °C { 40 °F }	9.3
-1 °C { 30 °F }	9.1
-7 °C { 20 °F }	8.9
-12 °C { 10 °F }	8.7
-18 °C { 0 °F }	8.5

Terminal and cable

1. Clean and tighten the battery terminals and cables.
2. Coat the terminals with grease.
3. Inspect for corroded or frayed battery cables.
4. Check the rubber protector on the positive terminal for proper coverage.

Recharging

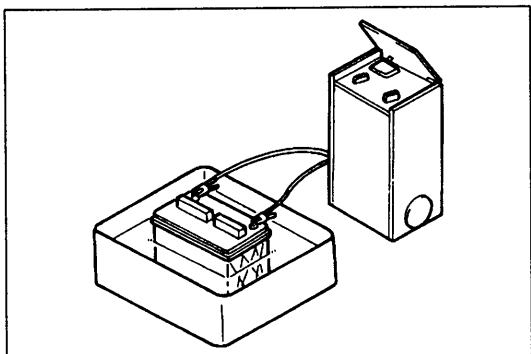
Warning

- Hydrogen gas is produced during normal battery operation. A battery-related explosion can cause serious injury. Keep all flames (including cigarettes), heat, and sparks away from the top and surrounding area of open battery cells.

Caution

- Do not quick charge for over 30 minutes. It will damage the battery.

Battery	Slow charge (A)	Quick charge (A)
S46A24L(S)	Under 3	Max. 20



1. Remove the battery cover.
2. Disconnect the battery cable from the battery.
3. Remove the battery from the vehicle.
4. Place the battery in a pan of water to prevent it from overheating. The water level should come up about halfway on the battery. Keep water off of the top of the battery.
5. Charge the battery.

Replacement

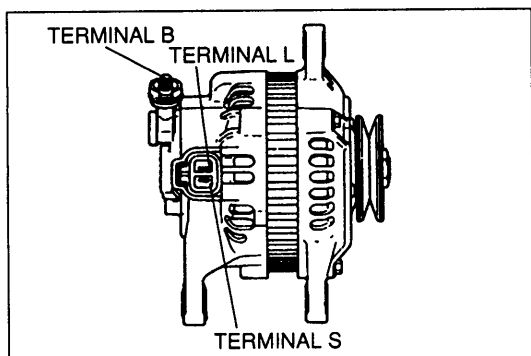
Note

- When replacing the battery, replace it with the same type Mazda genuine battery (with vent manifold).

GENERATOR

Warning

- When the battery cables are connected, touching the vehicle body with generator terminal B will generate sparks. This can cause personal injury, fire, and damage to the electrical components. Always disconnect the battery before performing the following operation.

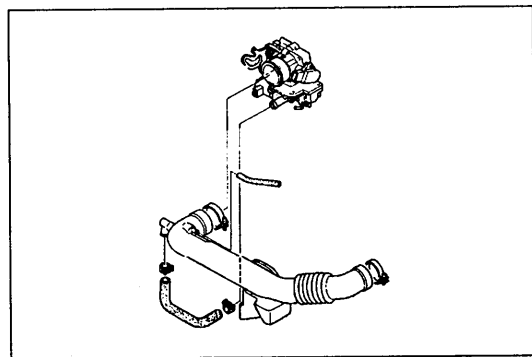


Caution

- Reversing the battery connections or using high-voltage testers will damage the rectifier.
- Do not start the engine while the connector is disconnected from terminals L and S. It can damage the generator.

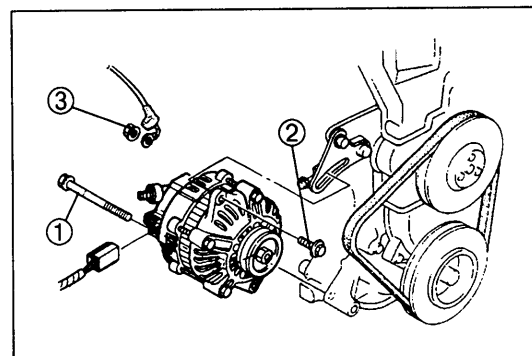
Note

- Battery positive voltage is always present at generator terminal B when the battery is connected.



Removal / Installation

1. Disconnect the negative battery cable.
2. Disconnect the power steering pressure switch connector.
3. Disconnect the water thermostats connector.
4. Disconnect the IAC valve connector.
5. Remove the intake air pipe.
6. Disconnect the wire and connector from the generator.
7. Remove the generator bolts and nut.
8. Remove the generator.
9. Install in the reverse order of removal.



Tightening torque

Bolt ①:

38—51 N·m { 3.8—5.3 kgf·m , 27—38 ft·lbf }

Bolt ②:

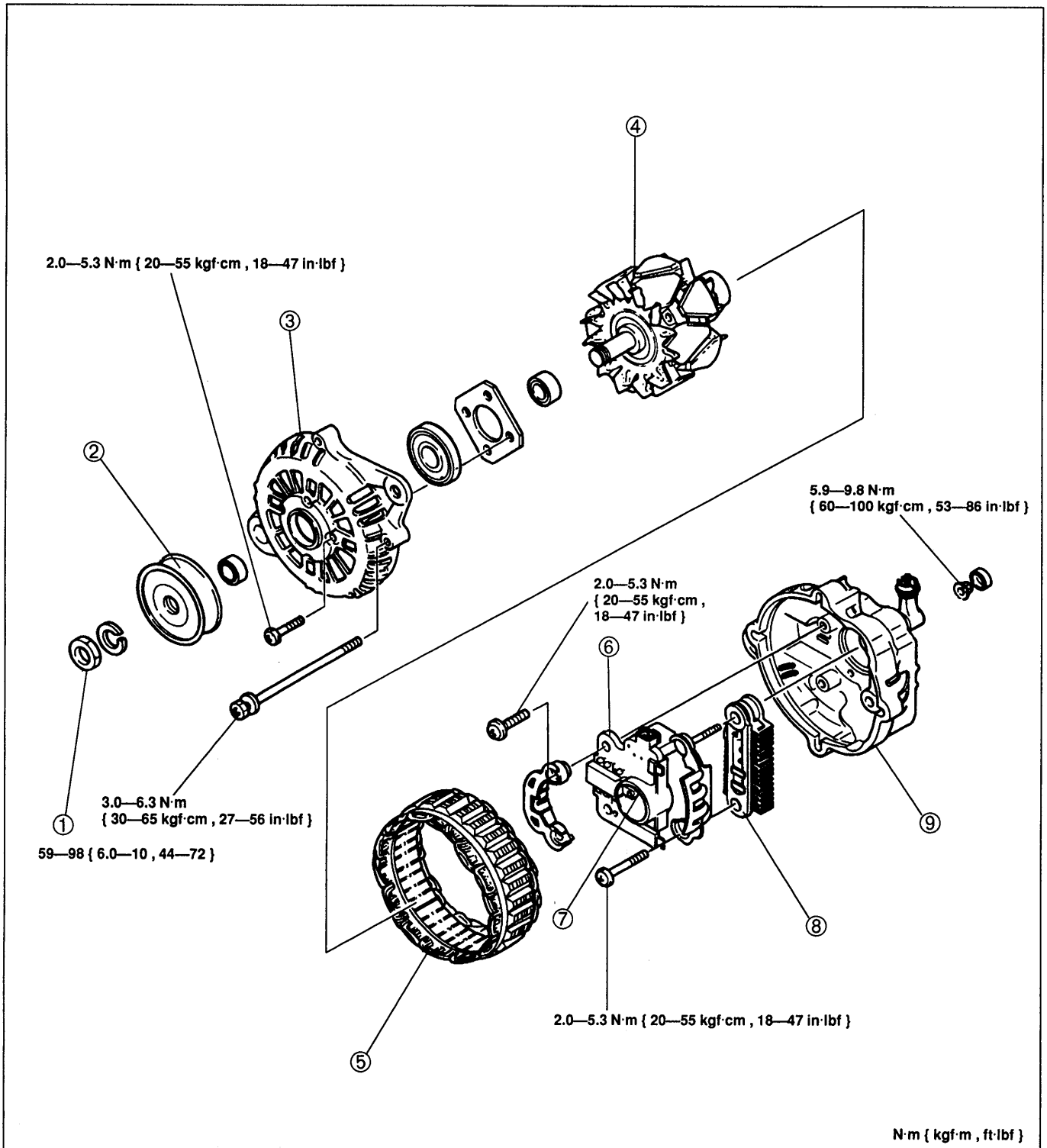
19—25 N·m { 1.9—2.6 kgf·m , 14—18 ft·lbf }

Nut ③: 9.81—14.7 N·m

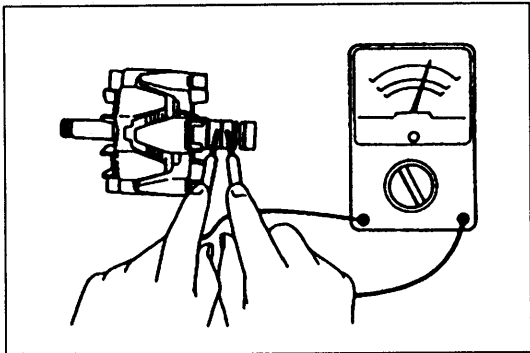
{ 100—150 kgf·cm , 87—130 in·lbf }

Disassembly / Assembly

1. Disassemble in the order shown in the figure.
2. Assemble in the reverse order of disassembly.



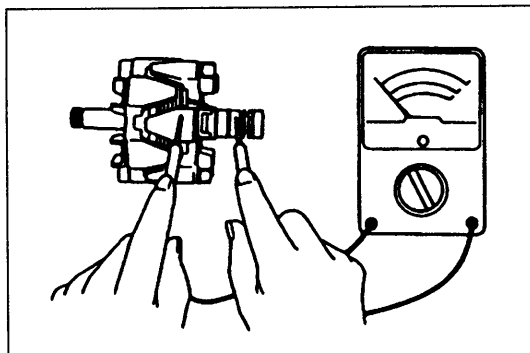
- | | |
|----------------------------|----------------------------|
| 1. Pulley nut | 6. Brush holder assembly |
| 2. Pulley | 7. Brush |
| 3. Front cover | 8. Rectifier |
| 4. Rotor | 8. Rectifier |
| Inspection page G-12 | Inspection page G-13 |
| 5. Stator | 9. Rear cover |
| Inspection page G-12 | |

**Inspection****Rotor**

1. Winding damage
 - (1) Check the resistance between the slip rings with an ohmmeter.

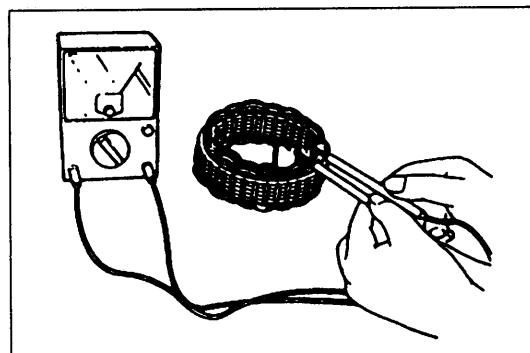
Specification: 3.5—4.5 Ω [20 °C { 68 °F }]

- (2) If not within the specification, replace the rotor.

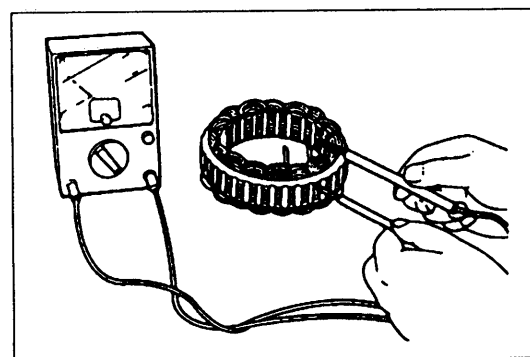


2. Ground of field coil
 - (1) Check for no continuity between each slip ring and the core with an ohmmeter.
 - (2) Replace the rotor if there is continuity.
3. Slip ring surface

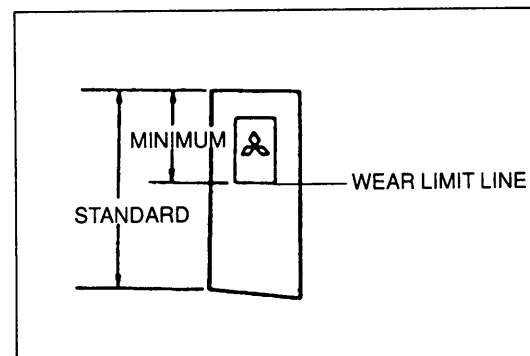
If the slip ring surface is rough, use fine sandpaper to repair it.

**Stator**

1. Wiring damage
 - (1) Check for continuity between the stator coil leads with an ohmmeter.
 - (2) Replace the stator if there is no continuity.



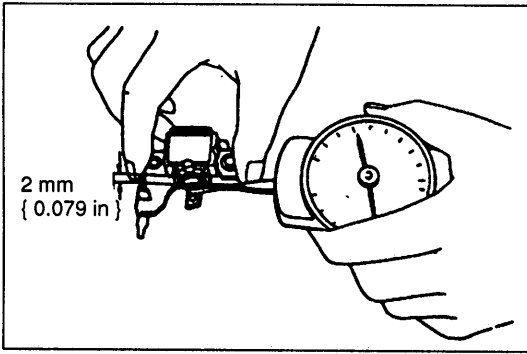
2. Ground of stator coil
 - (1) Check for no continuity between the stator coil leads and the core with an ohmmeter.
 - (2) Replace the stator if there is continuity.

**Brush**

If any brush is worn almost to or beyond the wear limit, replace all the brushes.

Standard: 21.5 mm { 0.846 in }

Minimum: 8.0 mm { 0.32 in }



Brush spring

1. Measure the force of the brush spring with a spring pressure gauge.
2. Replace the spring if necessary.

Standard force:

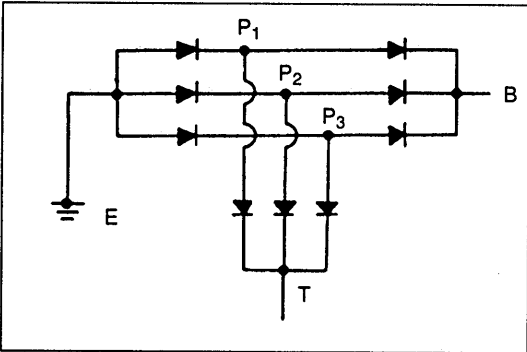
3.2—4.3 N { 0.32—0.44 kgf , 0.71—0.96 lbf }

Minimum:

1.6—2.3 N { 0.16—0.24 kgf , 0.36—0.52 lbf }

Note

- Read the spring pressure gauge at a brush tip projection of 2 mm { 0.079 in }.

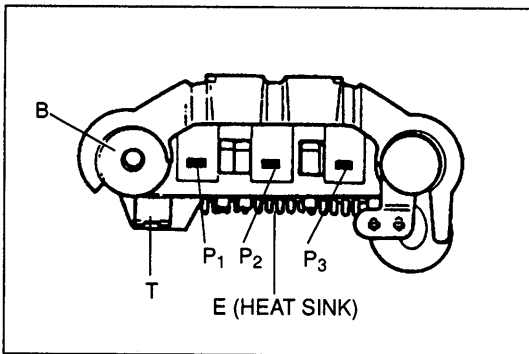


Rectifier

1. Check for continuity of the diodes with an ohmmeter.

Negative (Black)	Positive (Red)	Continuity
E	P ₁ , P ₂ , P ₃	Yes
B		No
T		No
P ₁ , P ₂ , P ₃	E	No
	B	Yes
	T	Yes

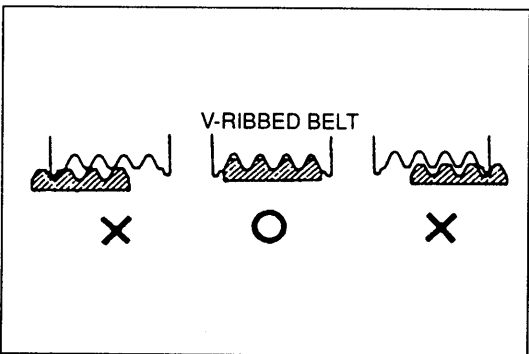
2. Replace the rectifier if necessary.



DRIVE BELT

Inspection

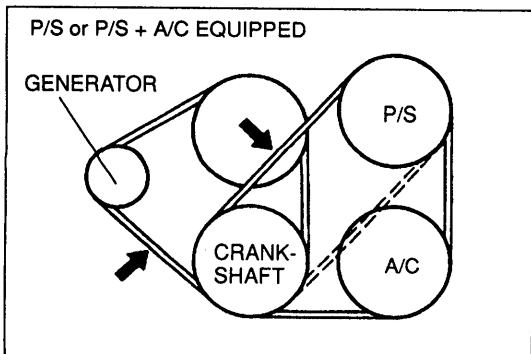
1. Remove the intake air pipe.
2. Check the drive belts for wear, cracks, or fraying. Replace if necessary.
3. Verify that the drive belts are correctly mounted on the pulleys.
4. Check the drive belt deflection when the engine is cold, or at least 30 minutes after the engine has stopped. Apply moderate pressure 98 N { 10 kgf , 22 lbf } midway between the specified pulleys.

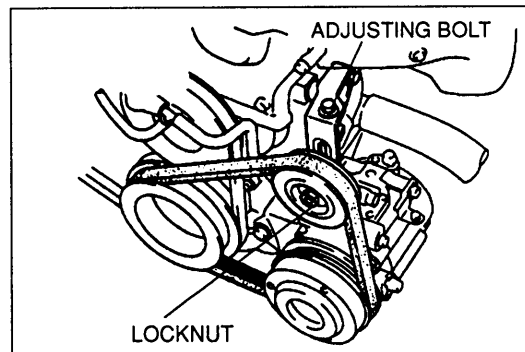
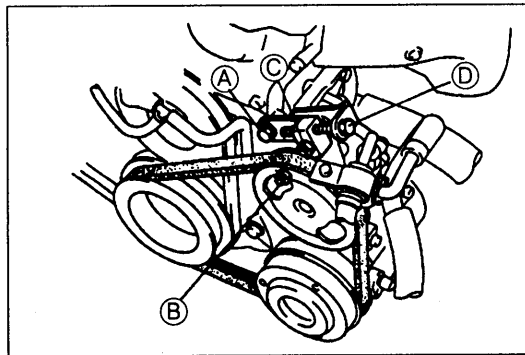
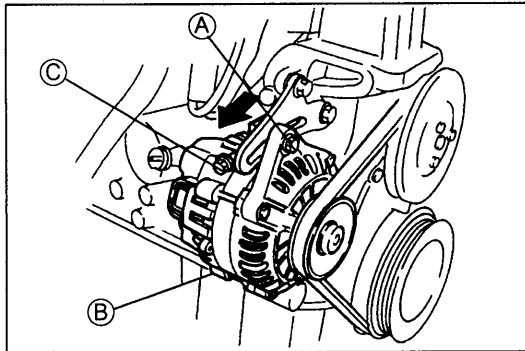
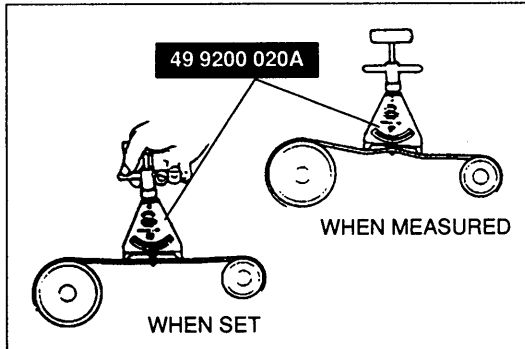
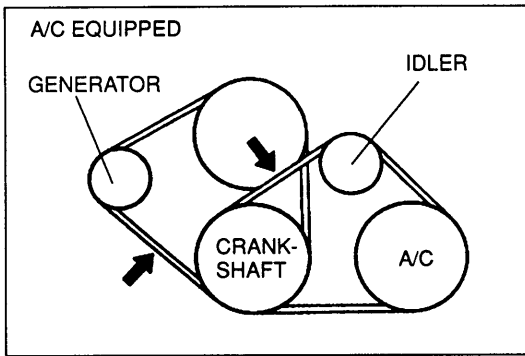


Deflection

Drive belt	mm { in }	
	New*	Used
Generator	5.5—7.0 { 0.22—0.27 }	6.0—7.5 { 0.24—0.29 }
P/S, P/S + A/C	8.0—9.0 { 0.32—0.35 }	9.0—10.0 { 0.36—0.39 }
A/C	8.0—9.0 { 0.32—0.35 }	9.0—10.0 { 0.36—0.39 }

* A belt that has been on a running engine for less than five minutes.





5. Check the drive belt tension with a tension gauge.

Note

- Belt tension can be measured between any pulleys.

Tension

Drive belt	N { kgf , lbf }	
	New*	Used
Generator	491—745 { 50—76 , 110—167 }	491—706 { 50—72 , 110—158 }
P/S, P/S + A/C	491—588 { 50—60 , 110—132 }	422—490 { 43—50 , 95—110 }
A/C	491—588 { 50—60 , 110—132 }	422—490 { 43—50 , 95—110 }

* A belt that has been on a running engine for less than five minutes.

6. Install the intake air pipe.

Adjustment

- (1) Generator belt

Loosen generator bolts **A** and **B** and adjust the belt deflection by turning adjusting bolt **C**.

Tightening torque

- A**: 19—25 N·m { 1.9—2.6 kgf·m , 14—18 ft·lbf }
B: 38—51 N·m { 3.8—5.3 kgf·m , 28—38 ft·lbf }

- (2) P/S belt, P/S + A/C belt

Loosen P/S oil pump bolts **A** and **B** and nut **C**, and adjust the belt deflection by turning adjusting bolt **D**.

Tightening torque

- A**: 32—46 N·m { 3.2—4.7 kgf·m , 24—33 ft·lbf }
B: 37—53 N·m { 3.7—5.5 kgf·m , 27—39 ft·lbf }
C: 19—25 N·m { 1.9—2.6 kgf·m , 14—18 ft·lbf }

- (3) A/C belt

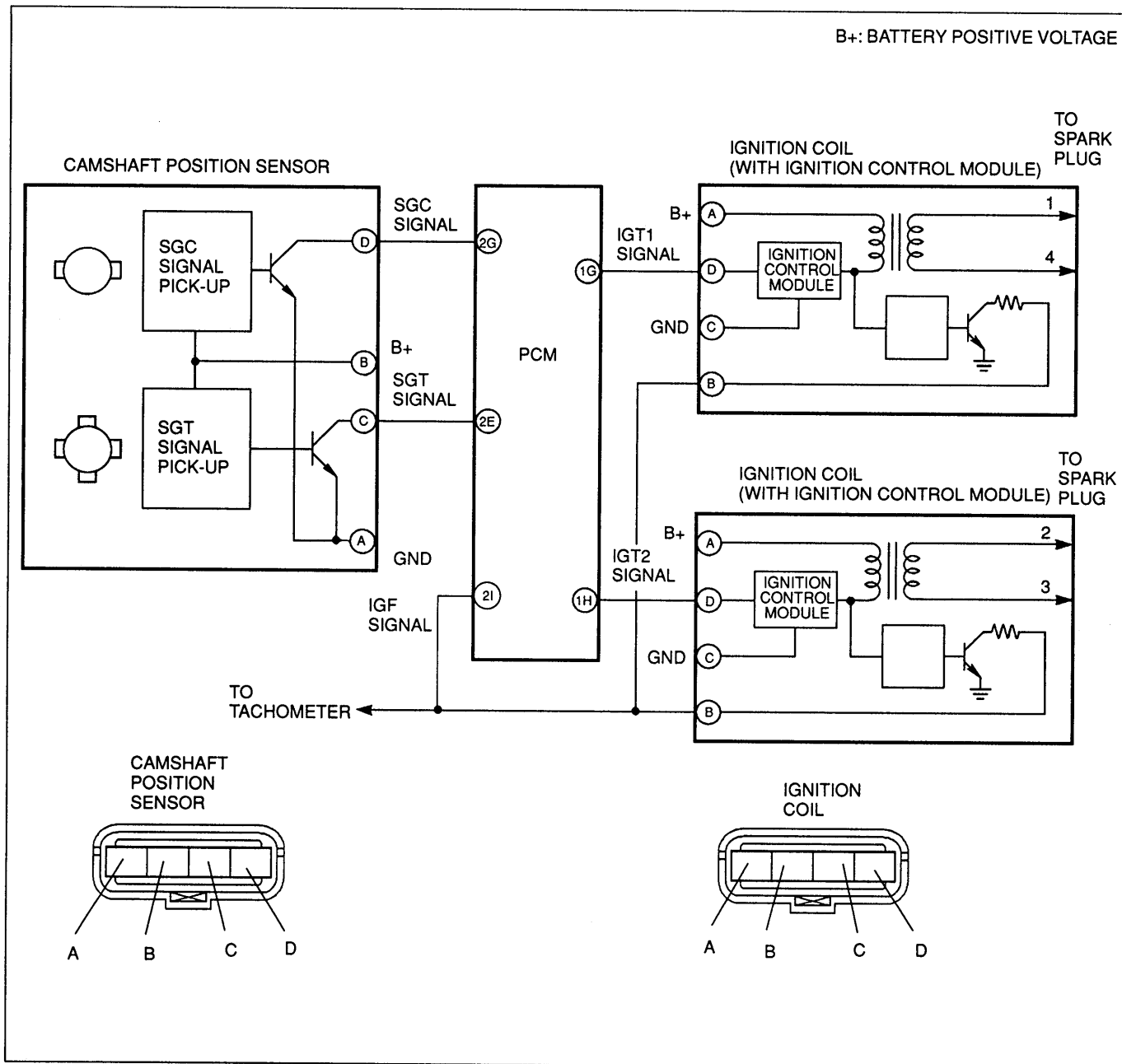
Loosen the locknut and adjust the belt deflection by turning the adjusting bolt.

Tightening torque:

- 38—51 N·m { 3.8—5.3 kgf·m , 28—38 ft·lbf }

IGNITION SYSTEM

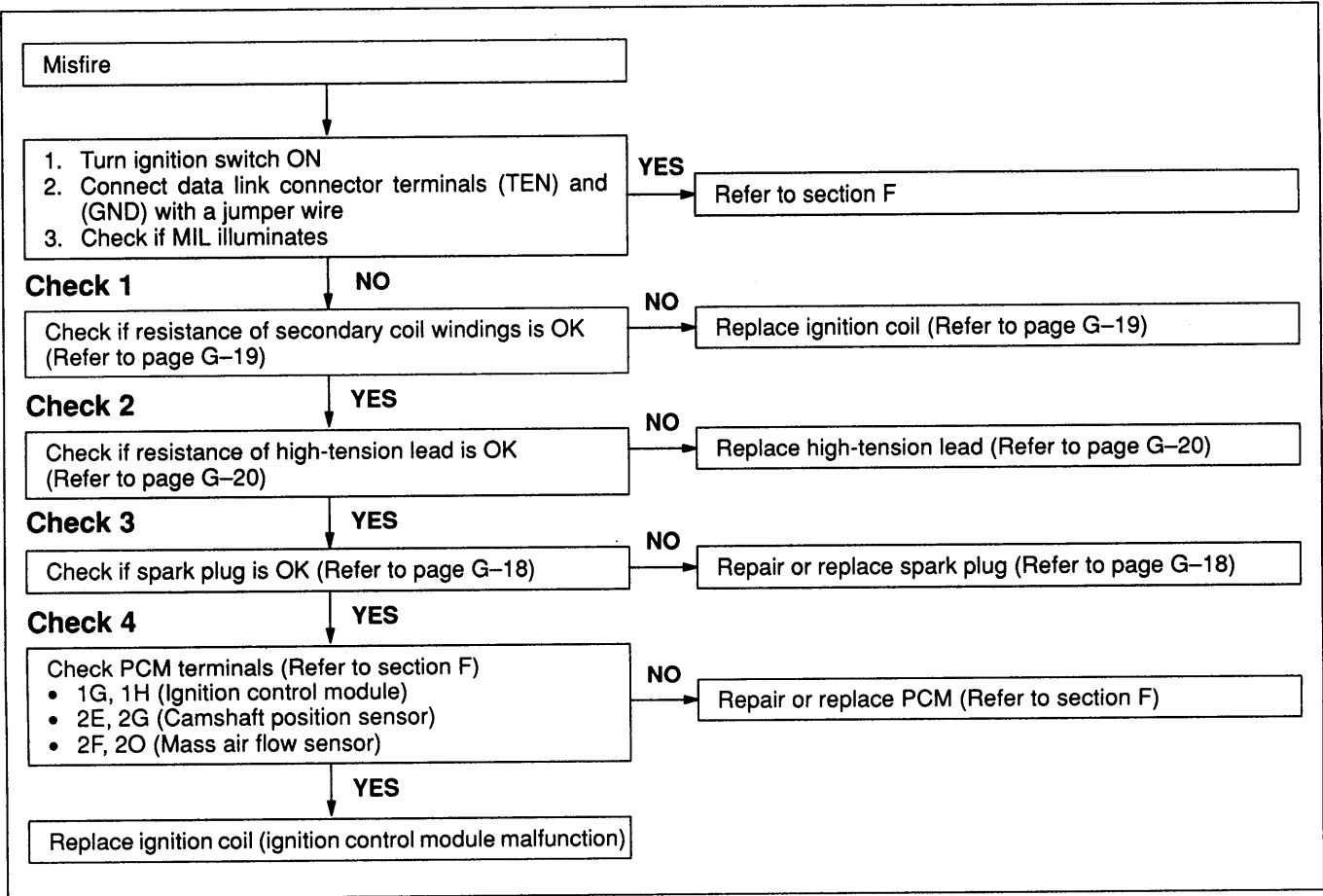
CIRCUIT DIAGRAM



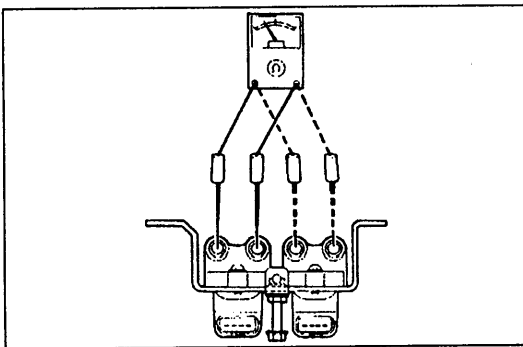
Note

- If a timing light is used to check for spark, some lights will not illuminate at No.2 and No.4 cylinders even if the ignition system is normal.

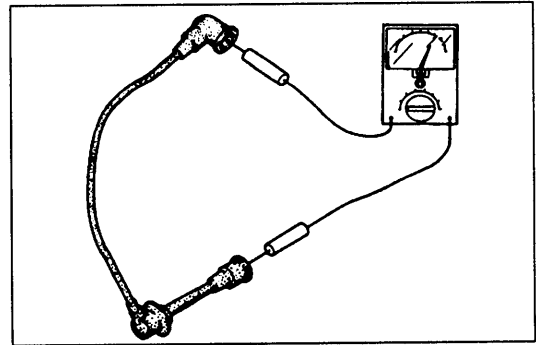
TROUBLESHOOTING



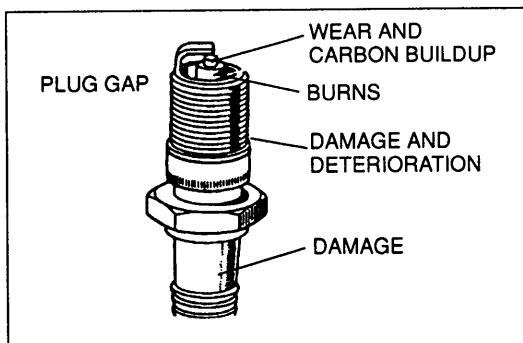
Check 1

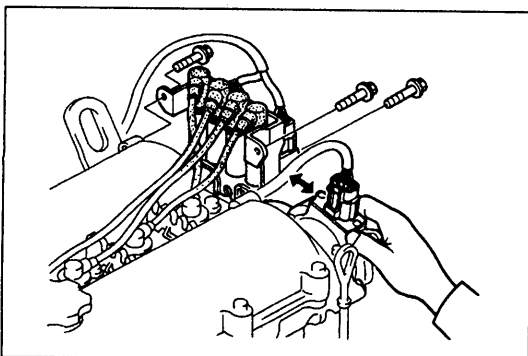
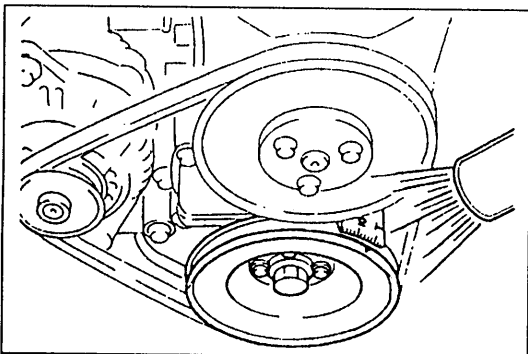
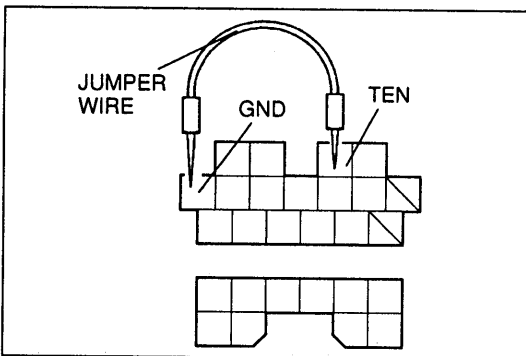
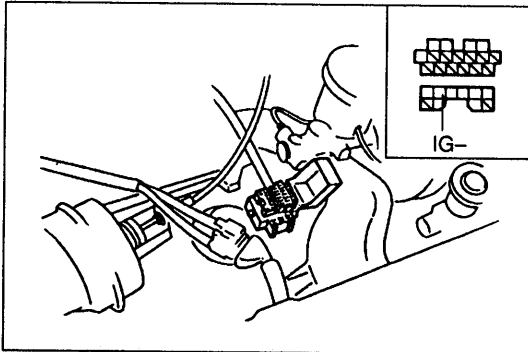
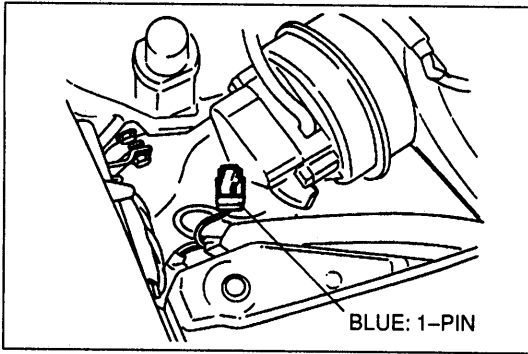


Check 2



Check 3





IGNITION TIMING

1. Check the condition of the engine (spark plugs, leaks in hoses, etc.).
2. Verify that all accessories are OFF.
3. Warm up the engine to the normal operating temperature.

Note

- When using an externally powered timing light and/or tachometer, connect it to the power connector (Blue: 1-pin).

Warning

- Do not ground the power connector terminal (Blue: 1-pin); some fuses will be burned.
4. Connect the timing light and tachometer to the data link connector terminal IG-.

5. Connect the data link connector terminals TEN and GND with a jumper wire.
6. Check the idle speed and set it to specification if necessary. (Refer to section F.)

**Specification: 800—900 (850 ± 50) rpm (MT)
750—850 (800 ± 50) rpm (AT)**

7. Verify that the timing mark (white) on the crankshaft pulley is aligned with the indicator pin.

Specification: -1°—1° (0 ± 1°) BTDC (at idle)

8. If not, remove the ignition coil bracket, push the ignition coil aside for easy access, loosen the camshaft position sensor lock bolts, and turn the camshaft position sensor to make the adjustment.
9. Tighten the camshaft position sensor lock bolts to the specified torque.

Tightening torque:

19—25 N·m { 1.9—2.6 kgf·m , 14—19 ft·lbf }

10. After adjusting the ignition timing, disconnect the jumper wire from the data link connector.
11. Increase the engine speed and verify that the ignition timing advances.

SPARK PLUG**Removal / Installation****Caution**

- Pulling on the wire part of the spark plug lead may break it. To remove the lead, pull only on the boot.
- To avoid breaking the spark plug, be sure to fit the socket squarely over it.

Tighten the spark plug to the specified torque.

Tightening torque:

15—22 N·m { 1.5—2.3 kgf·m , 11—16 ft·lbf }

Spark Test

1. Disconnect the high-tension lead from the spark plug.
2. Connect a new spark plug to the high-tension lead.
3. Hold the high-tension lead with insulated pliers **approx. 5—10 mm { 0.20—0.39 in }** from a ground.
4. Crank the engine and verify that a strong blue spark is visible. If not, replace the spark plug or high-tension lead as necessary.

Note

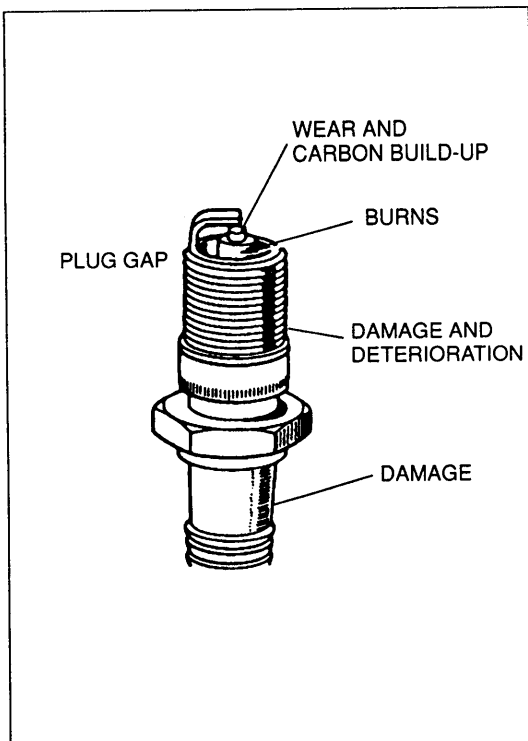
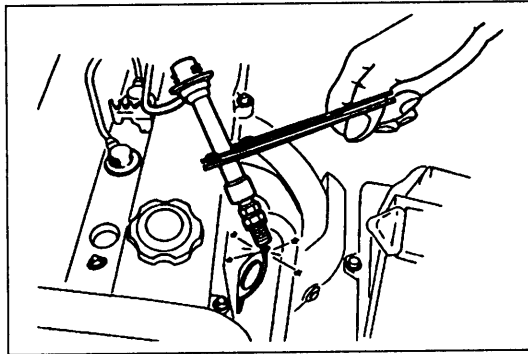
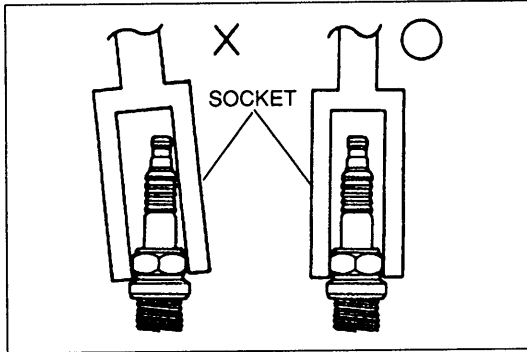
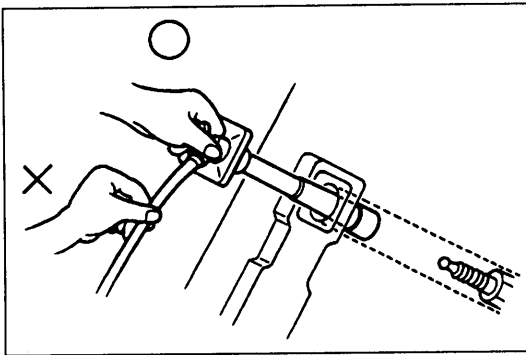
- If a timing light is used to check for spark, some lights will not illuminate at No.2 and No.4 cylinders even if the ignition system is normal.

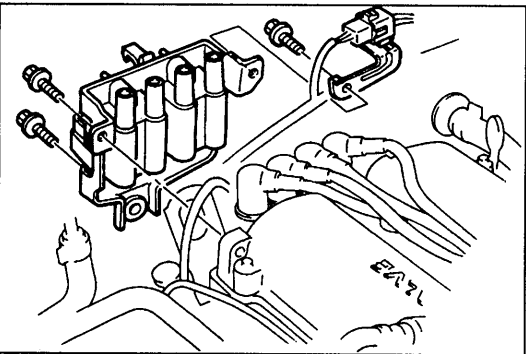
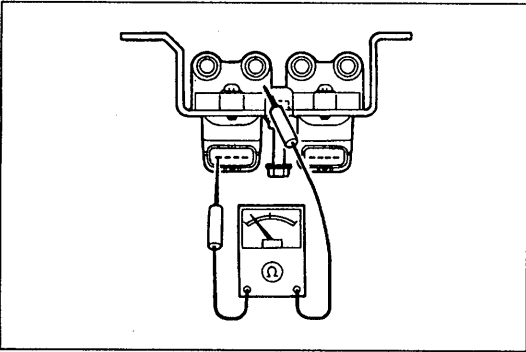
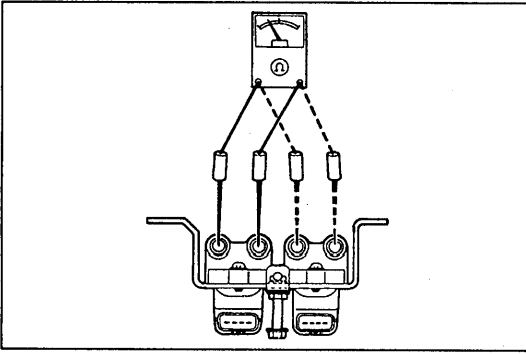
Inspection

Check the following and replace the spark plugs as necessary.

1. Damaged insulation
2. Worn electrodes
3. Carbon deposits
If cleaning is necessary, use a plug cleaner or a wire brush. Wipe upper insulator.
4. Damaged gasket

Plug gap: 1.0—1.1 mm { 0.040—0.043 in }





IGNITION COIL

Inspection

Secondary coil winding

1. Remove the high-tension leads.
2. Measure resistance of the secondary coil winding of each coil with an ohmmeter.

Secondary coil winding resistance

[at 20 °C { 68 °F }]: 8.7—12.9 k Ω

3. If not within the specification, replace the ignition coil.

Insulation resistance of case

1. Remove the high-tension leads and disconnect the connectors.
2. Use a **500 V megger** tester to measure the insulation resistance between the primary terminal and the coil case.

Resistance : Above 10 M Ω

3. If not as specified, replace the ignition coil.

Replacement

1. Disconnect the high-tension leads and ignition coil connector.
2. Remove the installation bolts and the ignition coil.
3. Install in the reverse order of removal.

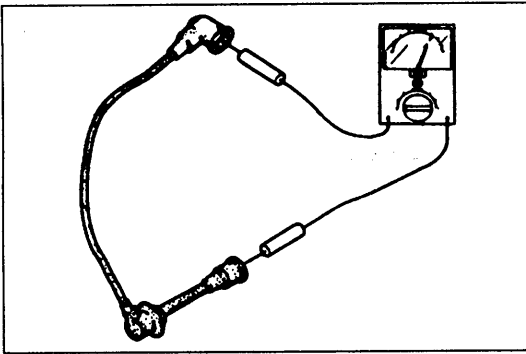
Tightening torque:

19—25 N·m { 1.9—2.6 kgf·m , 14—18 ft·lbf }

IGNITION CONTROL MODULE

Inspection

1. Check the poor connection of ignition coil, high-tension leads and PCM.
2. Check the ignition coil and high-tension leads.
3. Measure the voltage at the following PCM terminals.
(Refer to section F.)
 - 1G ignition control module (No.1, 4)
 - 1H ignition control module (No.2, 3)
 - 2E, 2G camshaft position sensor (SGT, SGC)
 - 2F, 2O mass air flow sensor
4. If all are normal, but misfire still occurs, replace the ignition coil.



HIGH-TENSION LEAD Removal / Installation

Caution

- Reinstall the high-tension leads to their original positions. Incorrect installation can damage the leads and cause power loss, and negatively effect electronic components.

Inspection

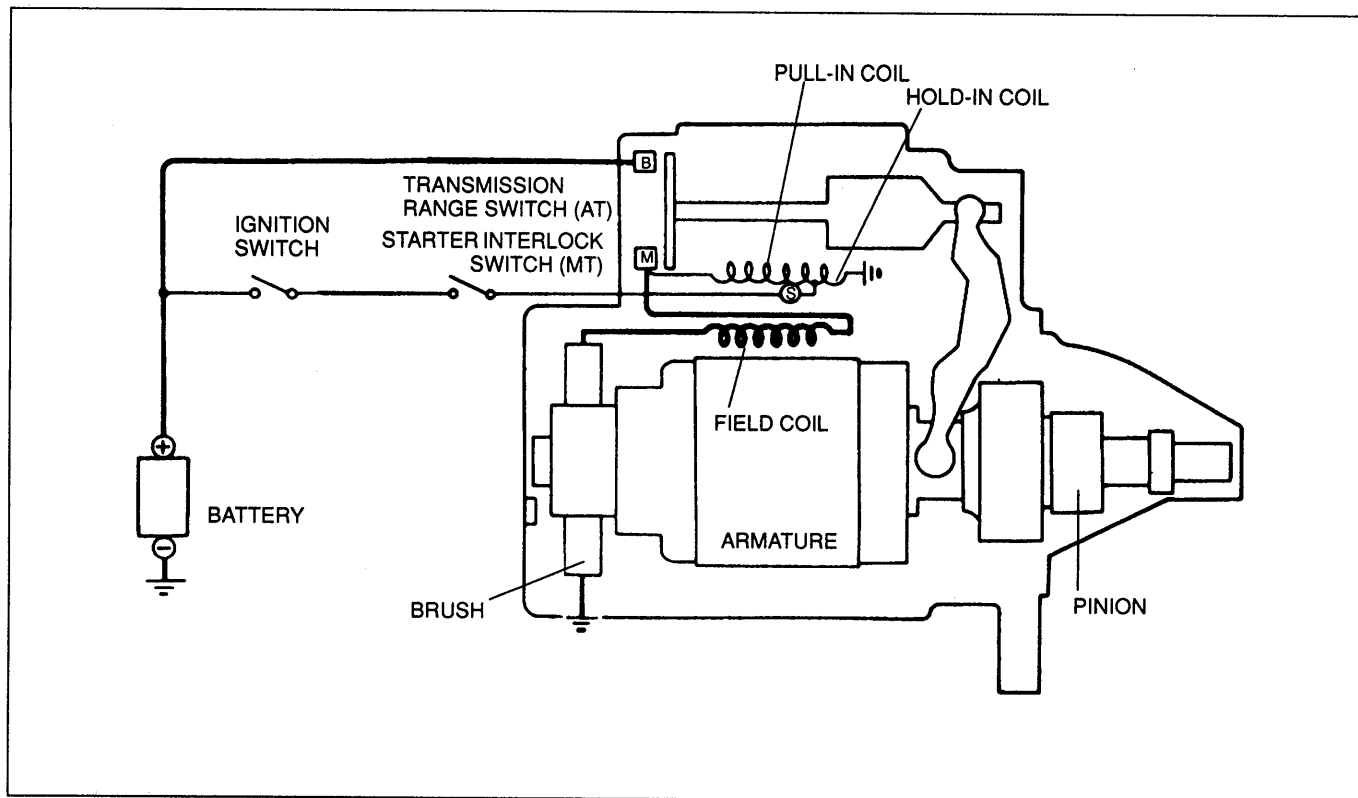
1. Use an ohmmeter to measure the resistance of each lead.

Resistance: 16 k Ω per 1.00 m { 3.28 ft }

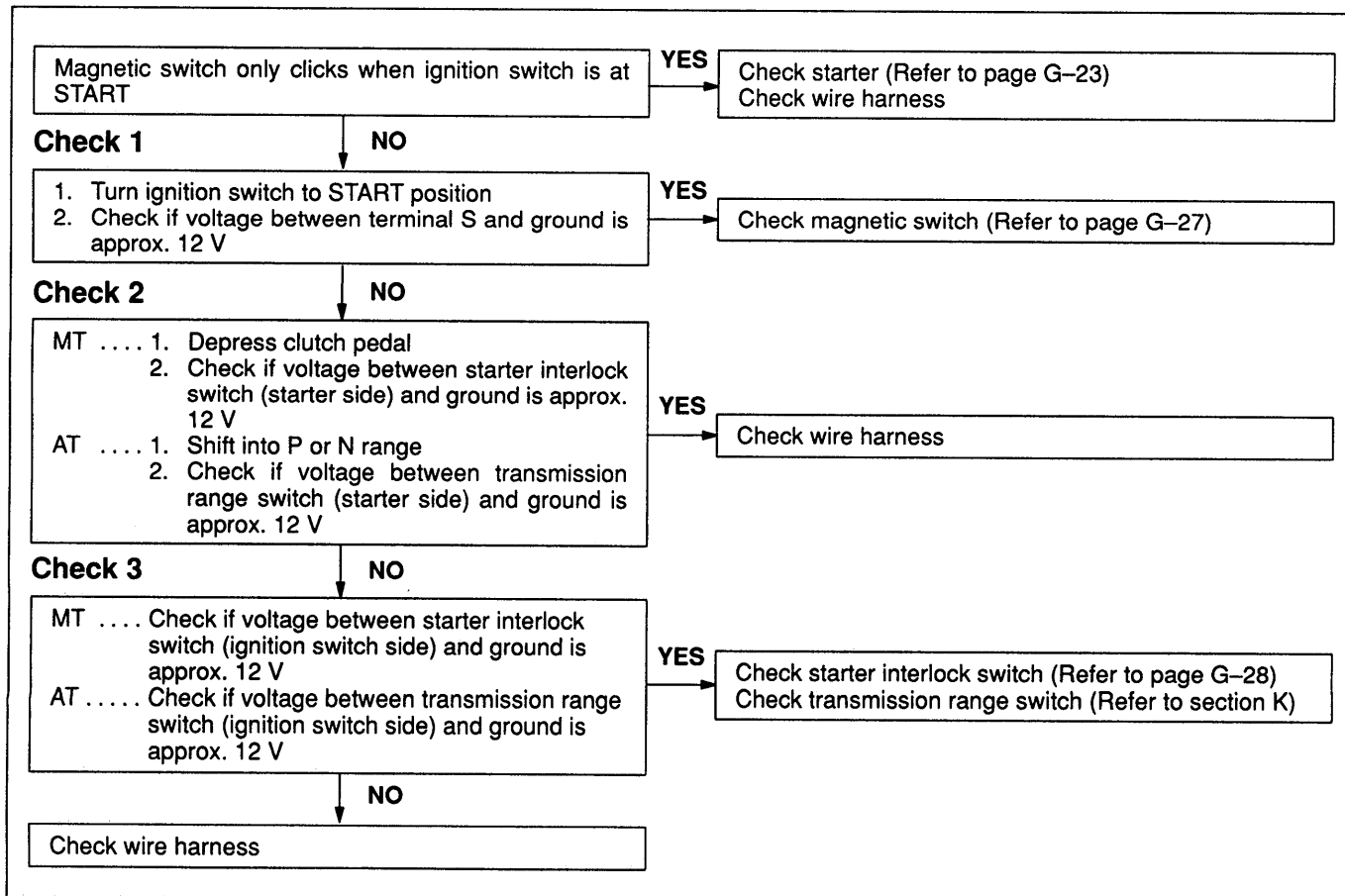
2. If not as specified, replace the high-tension lead.

STARTING SYSTEM

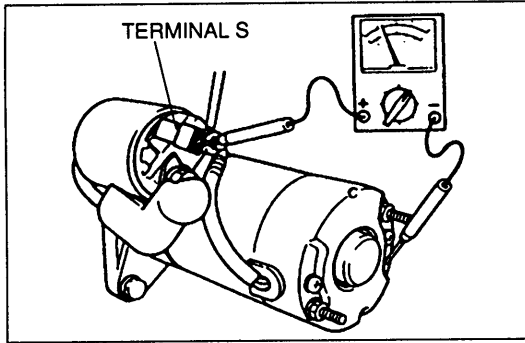
CIRCUIT DIAGRAM



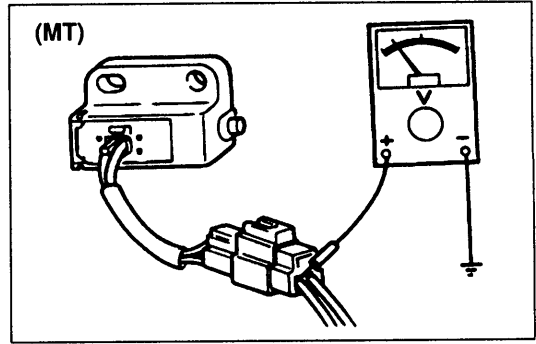
TROUBLESHOOTING



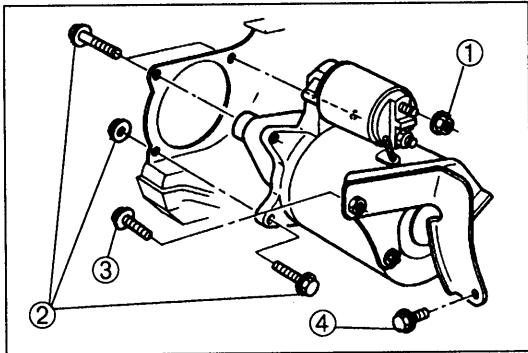
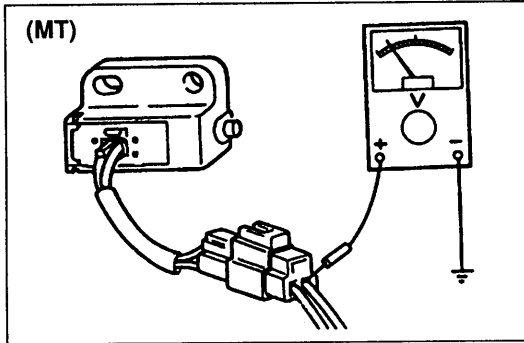
Check 1



Check 2



Check 3



STARTER

Caution

- Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to section T.)

Removal / Installation

1. Disconnect the negative battery cable.
2. Disconnect the wiring from the starter.
3. Remove the starter bracket. (MT)
4. Raise the front of the vehicle and support it with safety stands.
5. Remove the bolts and the starter.
6. Install in the reverse order of removal.

Tightening torque

Nut ①: 9.81—10.7 N·m

{ 100—120 kgf·cm , 86.9—95.4 in·lbf }

Bolt, Nut ②:

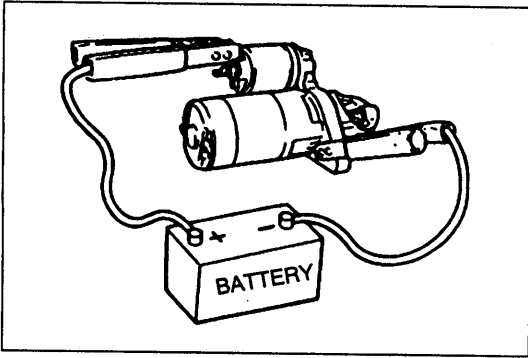
38—51 N·m { 3.8—5.3 kgf·m , 28—38 ft·lbf }

Bolt ③:

16—22 N·m { 1.6—2.3 kgf·m , 12—16 ft·lbf }

Bolt ④:

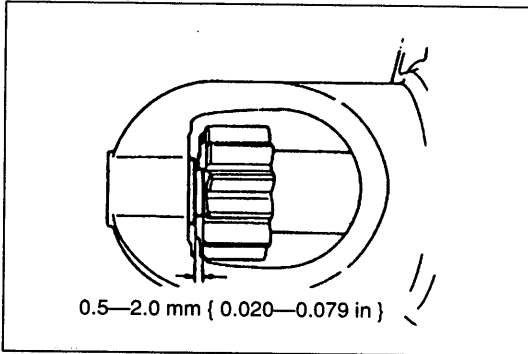
38—51 N·m { 3.8—5.3 kgf·m , 28—38 ft·lbf }



Performance Inspection

Pull-out test

Verify that the pinion is pulled out with battery positive voltage connected to terminal S and the starter body grounded.

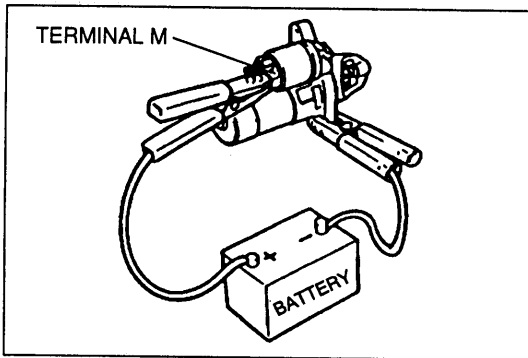


Pinion gap check

1. Measure the pinion gap while the pinion is pulled out.

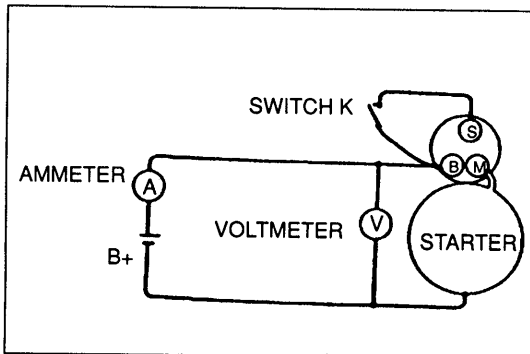
Specification: 0.5—2.0 mm { 0.020—0.079 in }

2. Adjust the pinion gap with an adjustment washer (between drive housing front cover and magnetic switch) if it is not within the specification.



Return test

1. Disconnect the motor wire from terminal M.
2. Connect battery positive voltage to terminal M and ground the body.
3. Pull out the overrunning clutch with a screwdriver. Verify that it returns to its original position when released.



No-load test

1. After adjusting the pinion gap, form a test circuit with a voltmeter and an ammeter.

Note

- Use heavy gauge wires and tighten each terminal fully.

2. Close switch K to run the starter.
3. Check for the following:

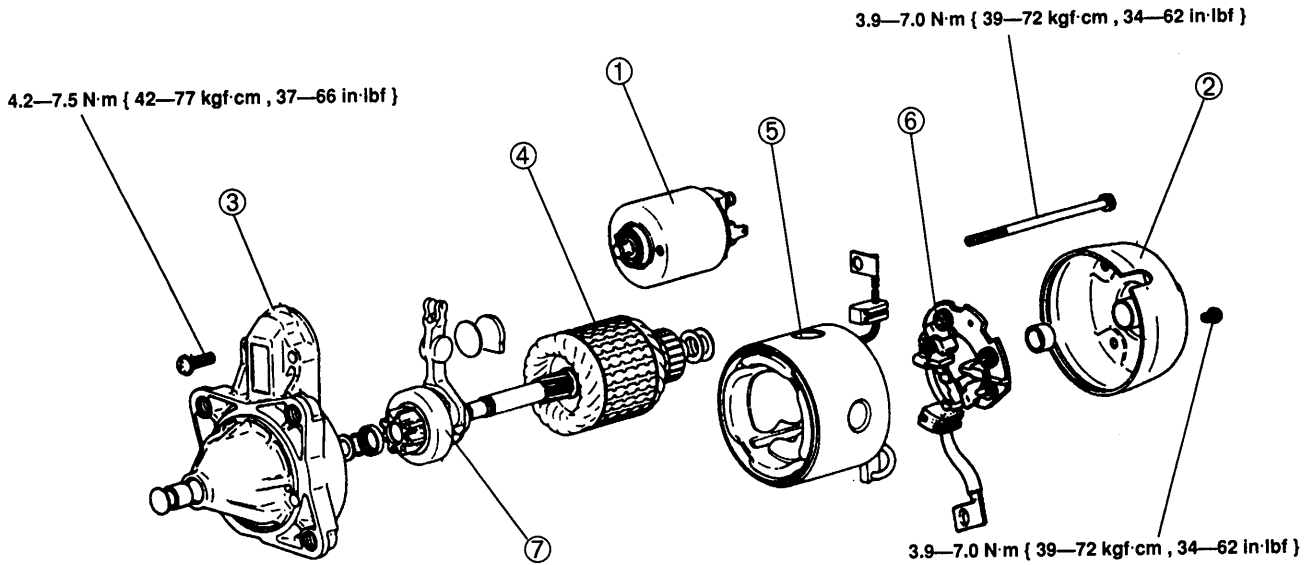
		MT	AT
Starter type	kW	0.95	1.4
Voltage	V	11.5	11
Current	A	Max. 60	Max. 90
Gear shaft speed	rpm	Min. 6,600	Min. 3,000

4. If not as specified, check for the cause by referring to Inspection.

Disassembly / Assembly

1. Disassemble in the order shown in the figure.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly.

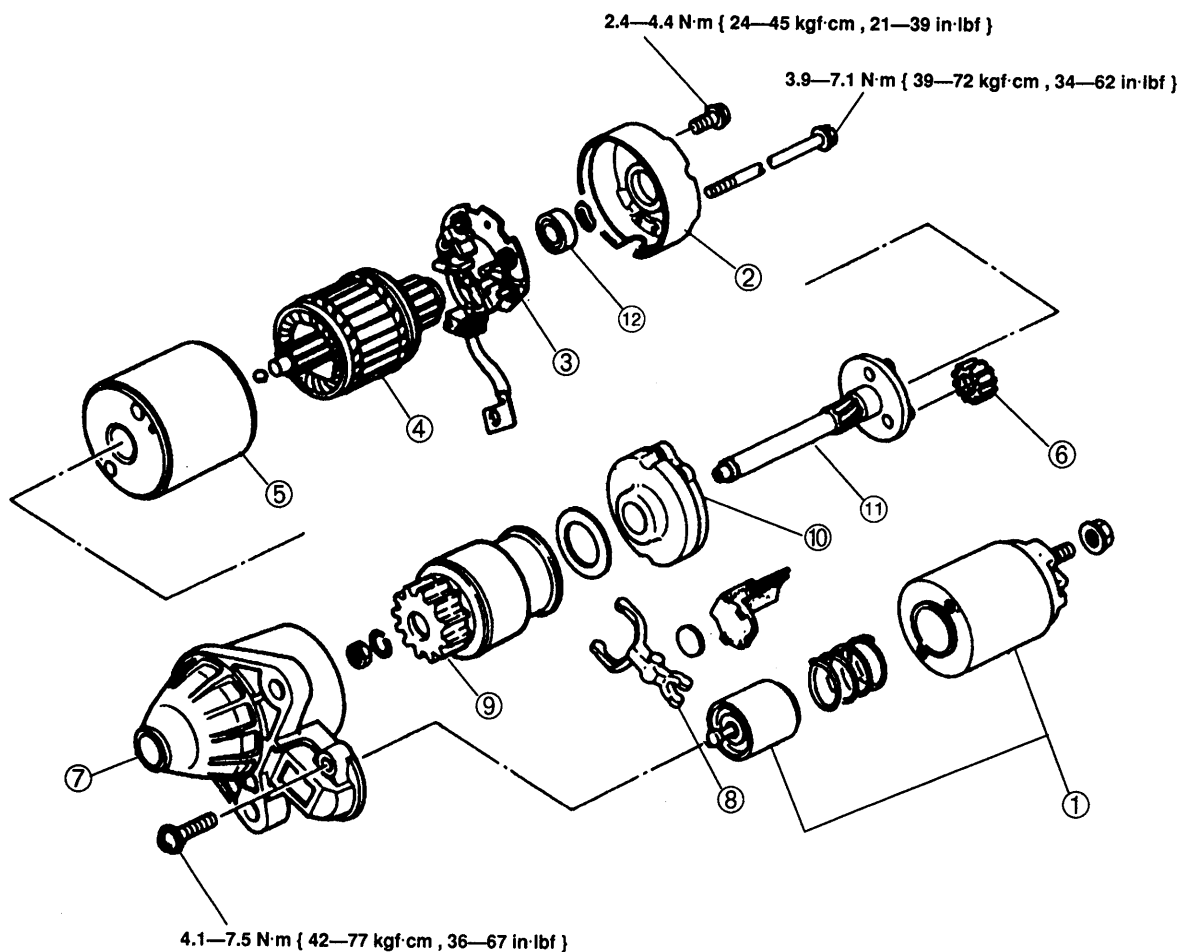
MT



- | | |
|--------------------|-----------|
| 1. Magnetic switch | |
| Inspection | page G-27 |
| 2. Rear housing | |
| 3. Front cover | |
| 4. Armature | |
| Inspection | page G-26 |

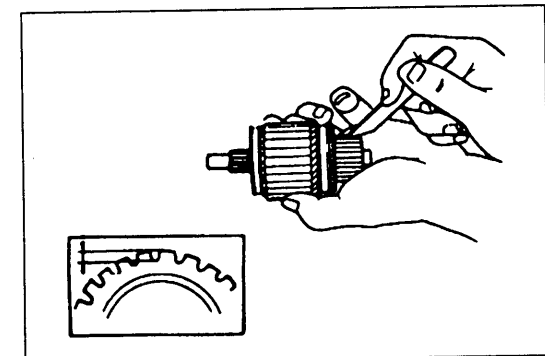
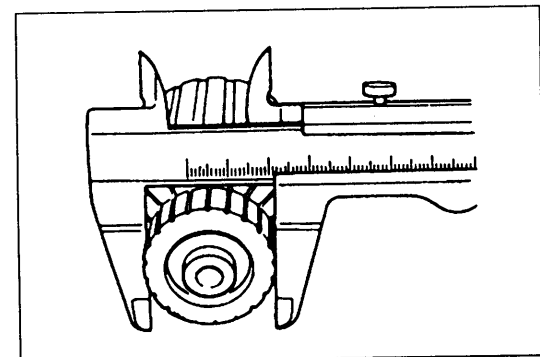
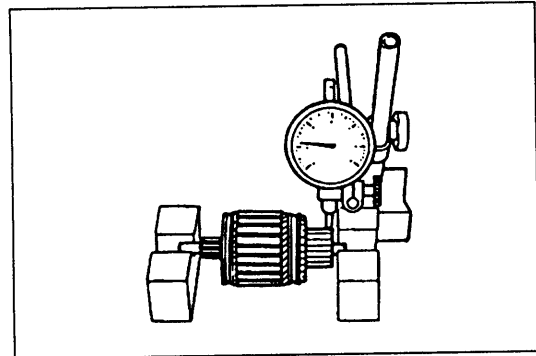
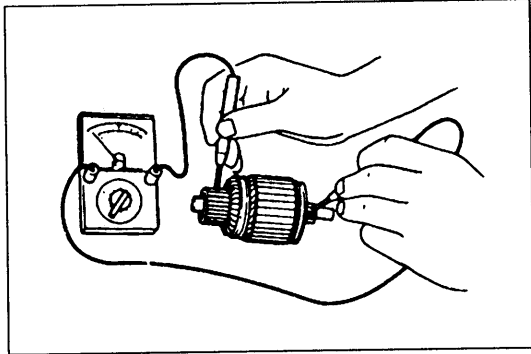
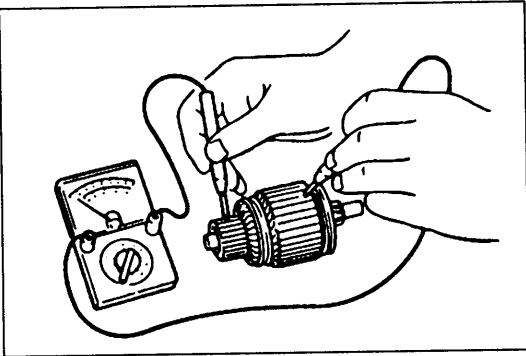
- | | |
|--------------------------|-----------|
| 5. Yoke assembly | |
| Inspection | page G-27 |
| 6. Brush holder assembly | |
| Inspection | page G-27 |
| 7. Drive pinion | |

AT



- 1. Magnetic switch
Inspection page G-27
- 2. Rear housing
- 3. Brush and brush holder
Inspection page G-27
- 4. Armature
Inspection page G-26
- 5. Yoke assembly
Inspection page G-27

- 6. Planetary gear
- 7. Front cover
- 8. Lever
- 9. Drive pinion
- 10. Internal gear
- 11. Gear shaft
- 12. Bearing



Inspection

Armature

1. Ground of armature coil
Check for no continuity between the commutator and the core with an ohmmeter. Check the entire circumference of the commutator. Replace the armature if there is continuity.
2. Insulation of armature coil
Check for no continuity between the commutator and the shaft with an ohmmeter. Check the entire circumference of the commutator. Replace the armature if there is continuity.
3. Runout of commutator
 - (1) Place the armature on V-blocks, and measure the runout with a dial indicator.
 - (2) Repair with a lathe if the runout exceeding the specification is small, or replace the armature if necessary.

Runout: 0.03 mm { 0.001 in }

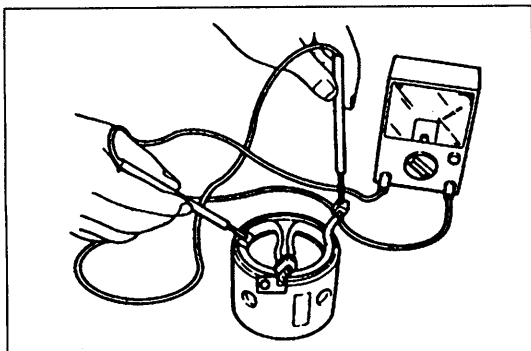
4. Outer diameter of commutator
Replace the armature if the outer diameter of the commutator is at the grind limit or less.
5. Roughness of commutator surface
If the commutator surface is dirty, wipe it with a cloth; if it is rough, repair with a lathe or fine sandpaper.

Grind limit: 30.8 mm { 1.21 in }

6. Segment groove depth
If the depth of the molding between segments is at the depth limit or less, undercut the grooves to the standard depth.

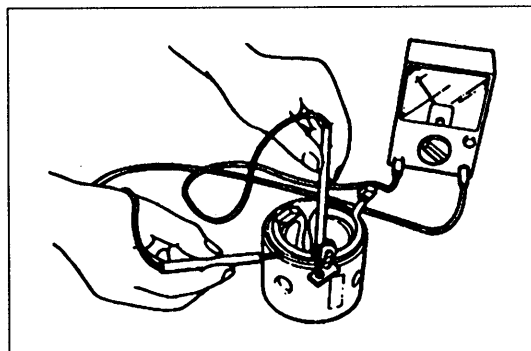
Standard depth: 0.5—0.8 mm { 0.02—0.03 in }

Depth limit: 0.2 mm { 0.008 in }



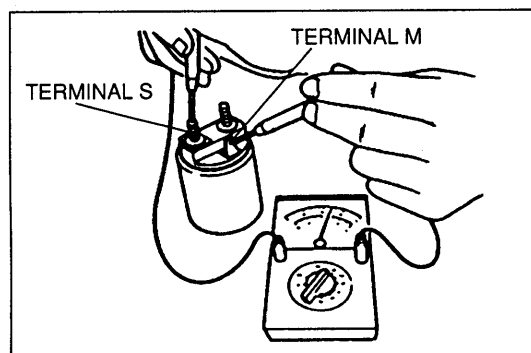
Yoke assembly

1. Wiring damage of field coil
 - (1) Check for continuity between the connector and the brushes with an ohmmeter.
 - (2) Replace the yoke assembly if there is no continuity.



2. Ground of field coil
 - (1) Check for no continuity between the connector and the yoke with an ohmmeter.
 - (2) Repair or replace the yoke assembly if there is continuity.
3. Installation of field coil

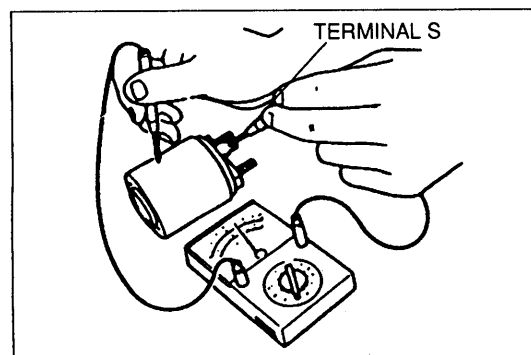
Replace the yoke assembly if the field coil is loose.



Magnetic switch

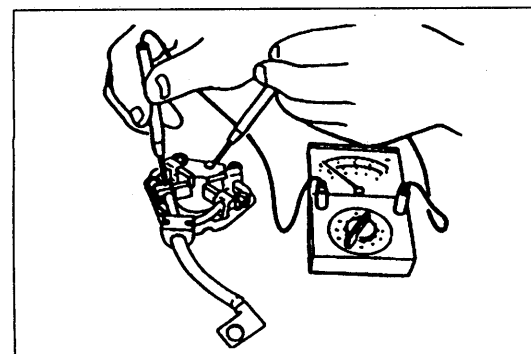
1. Wiring damage (terminal S — terminal M)

Check for continuity between terminals S and M with an ohmmeter. Replace the magnetic switch if there is no continuity.



2. Wiring damage (terminal S — body)

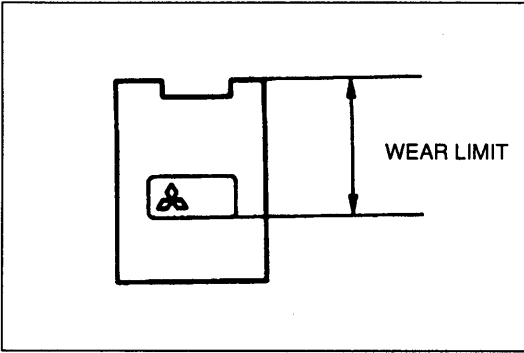
Check for continuity between terminal S and the body with an ohmmeter. Replace the magnetic switch if there is no continuity.



Brush and brush holder

Insulation of brush holder

Check for no continuity between each insulated brush and the plate with an ohmmeter. Replace the brush holder if there is continuity.



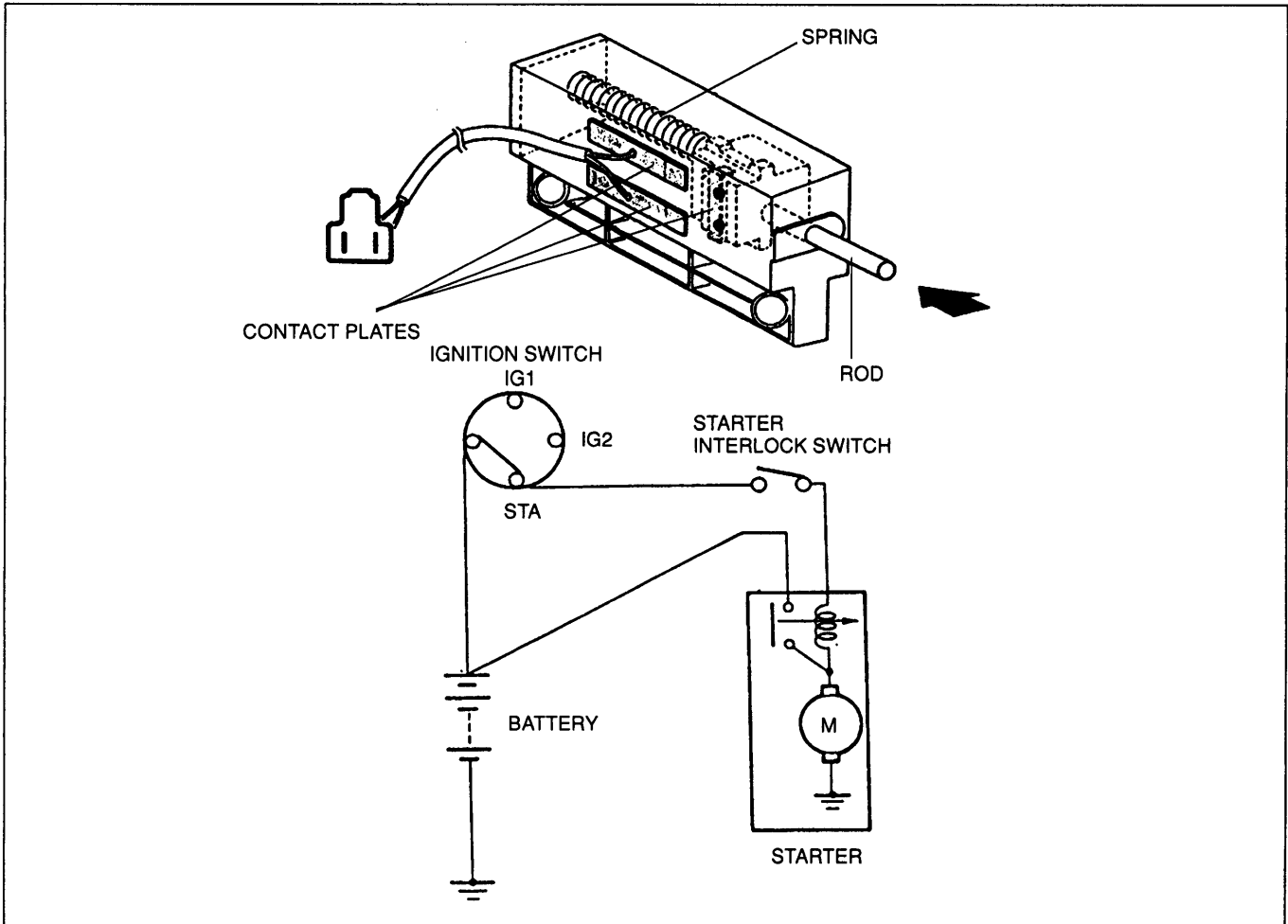
Brush

If any brush is worn almost to or beyond the wear limit, replace all the brushes.

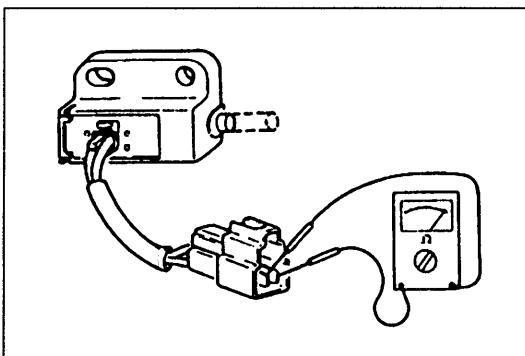
mm { in }

	MT	AT
Standard	17 { 0.67 }	17.5 { 0.69 }
Wear limit	11.5 { 0.46 }	12.0 { 0.47 }

STARTER INTERLOCK SWITCH



The clutch pedal must be depressed during starting for battery power to be supplied to the starter.



Inspection

1. Disconnect the starter interlock switch connector.
2. Check continuity of the switch with an ohmmeter.

Pedal	Continuity
Depressed	Yes
Released	No

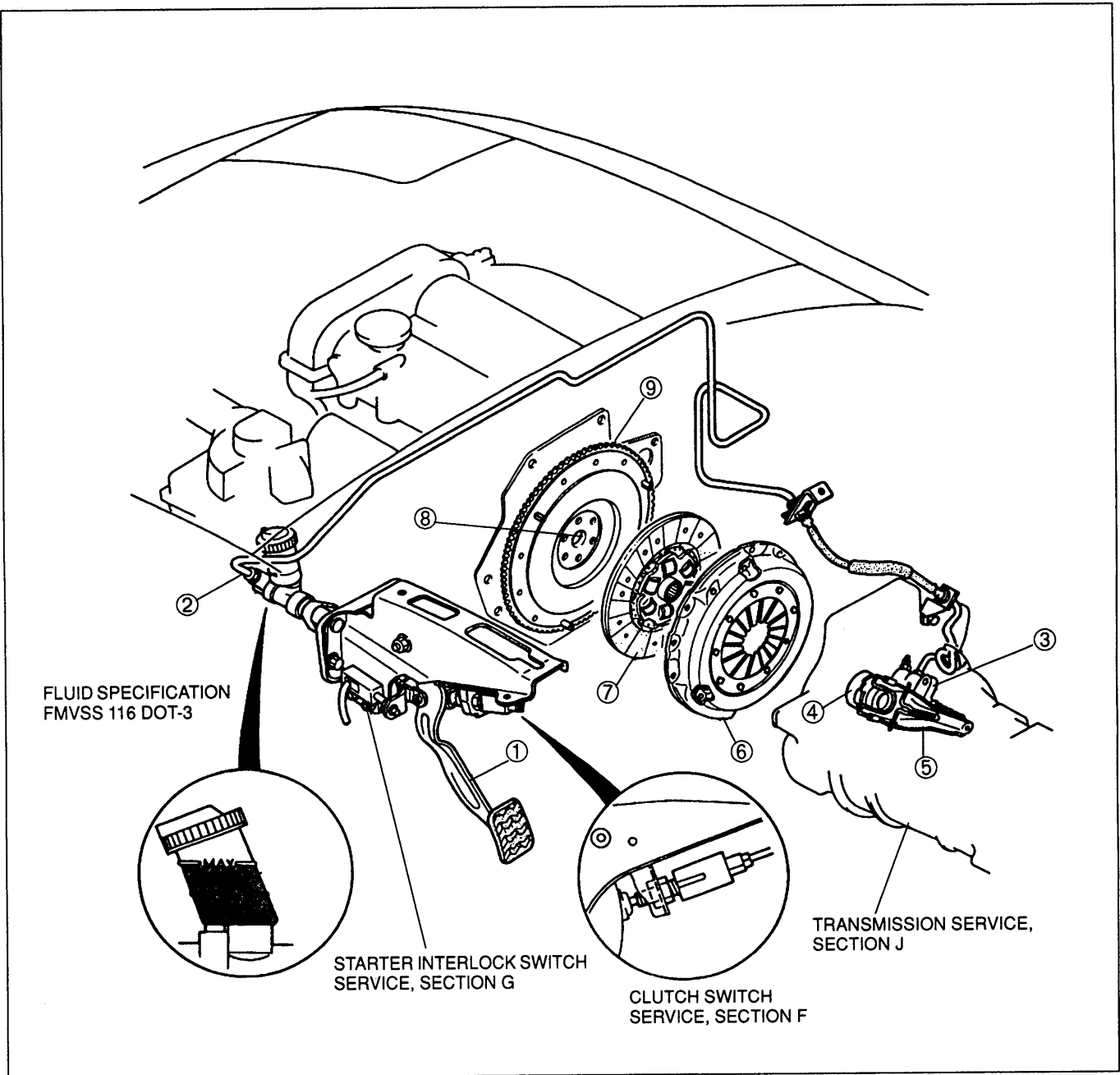
3. If not as specified, replace the starter interlock switch.

Before beginning any service procedure, refer to section T of this manual for air bag system service warnings and audio antitheft system alarm conditions.

CLUTCH

- INDEX H- 2
- OUTLINE H- 3
 - SPECIFICATIONS H- 3
- TROUBLESHOOTING GUIDE H- 3
- CLUTCH FLUID H- 4
 - PREPARATION H- 4
 - REPLACEMENT H- 4
- CLUTCH PEDAL H- 5
 - ADJUSTMENT H- 5
 - REMOVAL / INSPECTION / INSTALLATION H- 6
- CLUTCH MASTER CYLINDER H- 7
 - PREPARATION H- 7
 - REMOVAL / INSTALLATION H- 8
 - AIR BLEEDING H- 9
 - OVERHAUL H-10
- CLUTCH RELEASE CYLINDER H-12
 - PREPARATION H-12
 - REMOVAL / INSTALLATION H-12
 - AIR BLEEDING (REFER TO PAGE H-9.)
 - OVERHAUL H-13
- CLUTCH UNIT H-14
 - PREPARATION H-14
 - REMOVAL / INSTALLATION H-14
- CLUTCH RELEASE COLLAR H-17
 - INSPECTION H-17
- CLUTCH COVER H-17
 - INSPECTION H-17
- CLUTCH DISC H-17
 - INSPECTION H-17
- PILOT BEARING H-18
 - INSPECTION H-18
- FLYWHEEL H-18
 - INSPECTION H-18

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| 1. Clutch pedal | | |
| Adjustment | page H- | 5 |
| Removal / Inspection / | | |
| Installation | page H- | 6 |
| 2. Clutch master cylinder | | |
| Removal / Installation | page H- | 8 |
| Overhaul | page H- | 10 |
| Air bleeding | page H- | 9 |
| 3. Clutch release cylinder | | |
| Removal / Installation | page H- | 12 |
| Overhaul | page H- | 13 |
| Air bleeding | page H- | 9 |
| 4. Clutch release collar | | |
| Removal / Installation | page H- | 14 |
| Inspection | page H- | 17 |
| 5. Clutch release fork | | |
| Removal / Installation | page H- | 14 |
| 6. Clutch cover | | |
| Removal / Installation | page H- | 14 |
| Inspection | page H- | 17 |
| 7. Clutch disc | | |
| Removal / Installation | page H- | 14 |
| Inspection | page H- | 17 |
| 8. Pilot bearing | | |
| Removal / Installation | page H- | 14 |
| Inspection | page H- | 18 |
| 9. Flywheel | | |
| Removal / Installation | page H- | 14 |
| Inspection | page H- | 18 |

OUTLINE

SPECIFICATIONS

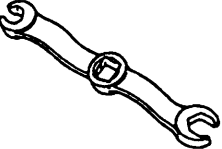
Item	Engine/Transmission		BP DOHC	
			M15M-D	
Clutch control			Hydraulic	
Clutch cover	Type		Diaphragm spring	
	Set load	N { kgf , lbf }	4,310 { 440 , 968 }	
Clutch disc	Outer diameter		mm { in }	
	Inner diameter		mm { in }	
	Thickness	Pressure plate side		mm { in }
		Flywheel side		mm { in }
Clutch pedal	Type		Suspended	
	Pedal ratio		6.13	
	Full stroke	mm { in }	120 { 4.72 }	
	Height	mm { in }	175—185 { 6.89—7.28 }	
Master cylinder inner diameter		mm { in }	15.87 { 0.625 }	
Release cylinder inner diameter		mm { in }	19.05 { 0.750 }	
Clutch fluid			FMVSS116 DOT-3	

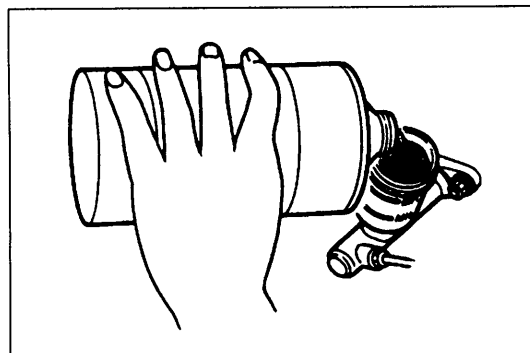
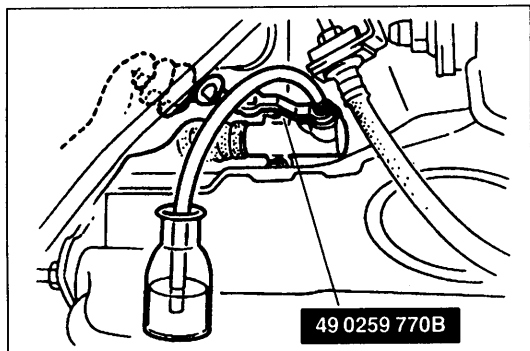
TROUBLESHOOTING GUIDE

Problem	Possible Cause	Action	Page
Slipping	Clutch disc facing worn excessively	Replace	H-14
	Clutch disc facing surface hardened or oil on surface	Repair or replace	H-14
	Pressure plate damaged	Repair or replace	H-14
	Diaphragm spring damaged or weak	Replace	H-14
	Insufficient clutch pedal play	Adjust	H- 5
	Flywheel damaged	Repair or replace	H-14
Faulty disengagement	Clutch disc damaged or excessive runout	Replace	H-14
	Clutch disc spines rusted or worn	Remove rust or replace	H-14
	Oil on clutch disc facing	Repair or replace	H-14
	Diaphragm spring weak	Replace	H-14
	Excessive clutch pedal play	Adjust	H- 5
	Insufficient clutch fluid	Add fluid	H- 2
	Leakage of clutch fluid	Locate and repair or replace	H-2, 4
Clutch vibrates when accelerating	Oil on clutch disc facing	Repair or replace	H-14
	Torsion dampers weak	Replace	H-14
	Clutch disc facing hardened or damaged	Repair or replace	H-14
	Clutch disc facing rivets loose	Replace	H-14
	Pressure plate damaged or excessive runout	Replace	H-14
	Flywheel surface hardened or damaged	Repair or replace	H-14
	Loose or worn engine mount	Tighten or replace	section B
Clutch pedal sticks	Pedal shaft not properly lubricated	Lubricate or replace	H- 6
Abnormal noise	Clutch release collar damaged	Replace	H-14
	Poor lubrication of release collar sleeve	Lubricate or replace	H-14
	Torsion dampers weak	Replace	H-14
	Excessive crankshaft end play	Repair	section B
	Pilot bearing worn or damaged	Replace	H-14
	Worn pivot points of release fork	Repair or replace	H-14

CLUTCH FLUID

PREPARATION

<p>49 0259 770B</p> <p>Wrench, flare nut</p> 	<p>For air bleeding</p>
--	-------------------------



REPLACEMENT

Caution

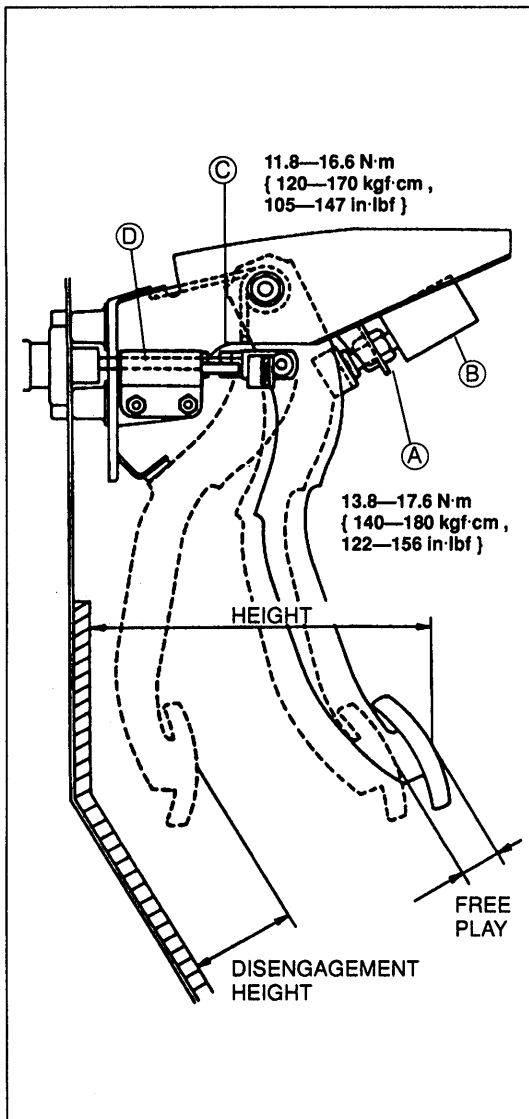
- Clutch fluid will damage painted surfaces. If clutch fluid does get on a painted surface, wipe it off immediately.

1. Drain the fluid from the reservoir by using a suction pump. (Refer to section P.)
2. Remove the bleeder cap from the clutch release cylinder and attach a vinyl hose to the bleeder screw.
3. Insert the other end of the vinyl hose into a clear container.
4. Loosen the bleeder screw by using the SST.
5. With another person slowly pumping the clutch pedal, drain the fluid from the clutch system.
6. Repeat step 5 until all the fluid is drained.
7. Modify the bleeder screw tightening torque to allow for a torque wrench-SST combination (Refer to section GI "Torque Formulas".)
8. Tighten the bleeder screw by using the SST.

Tightening torque:

5.9—8.8 N·m { 60—90 kgf·cm , 53—78 in·lbf }

9. Fill the reservoir to MAX with new fluid of the specified type.
10. Bleed the air from the clutch. (Refer to page H-9.)
11. Check for correct clutch operation.
12. Verify that there is no fluid leakage.



CLUTCH PEDAL

ADJUSTMENT

Height

Inspection

1. Measure the distance from the upper surface of the pedal pad to the carpet.

Pedal height:

175—185 mm { 6.89—7.28 in } (With carpet)

2. If necessary, adjust the height.

Adjustment

1. Disconnect the clutch switch connector.
2. Loosen locknut (A) and turn clutch switch (B) until the height is correct.
3. Tighten locknut (A).

Tightening torque: 13.8—17.6 N·m

{ 140—180 kgf·cm, 122—156 in·lbf }

4. After adjustment, inspect the free play.

Free Play

Inspection

1. Depress the clutch pedal by hand until clutch resistance is felt.

Free play: 0.6—3.1 mm { 0.02—0.12 in }

Total free play: 5—13 mm { 0.20—0.51 in }

2. If necessary, adjust the free play.

Adjustment

1. Loosen locknut (C) and turn push rod (D) until free play is correct.
2. Verify that the disengagement height as measured from the upper surface of the pedal pad to the carpet is correct when the pedal is fully depressed.

Minimum disengagement height:

68 mm { 2.68 in } (With carpet)

3. Tighten locknut (C).

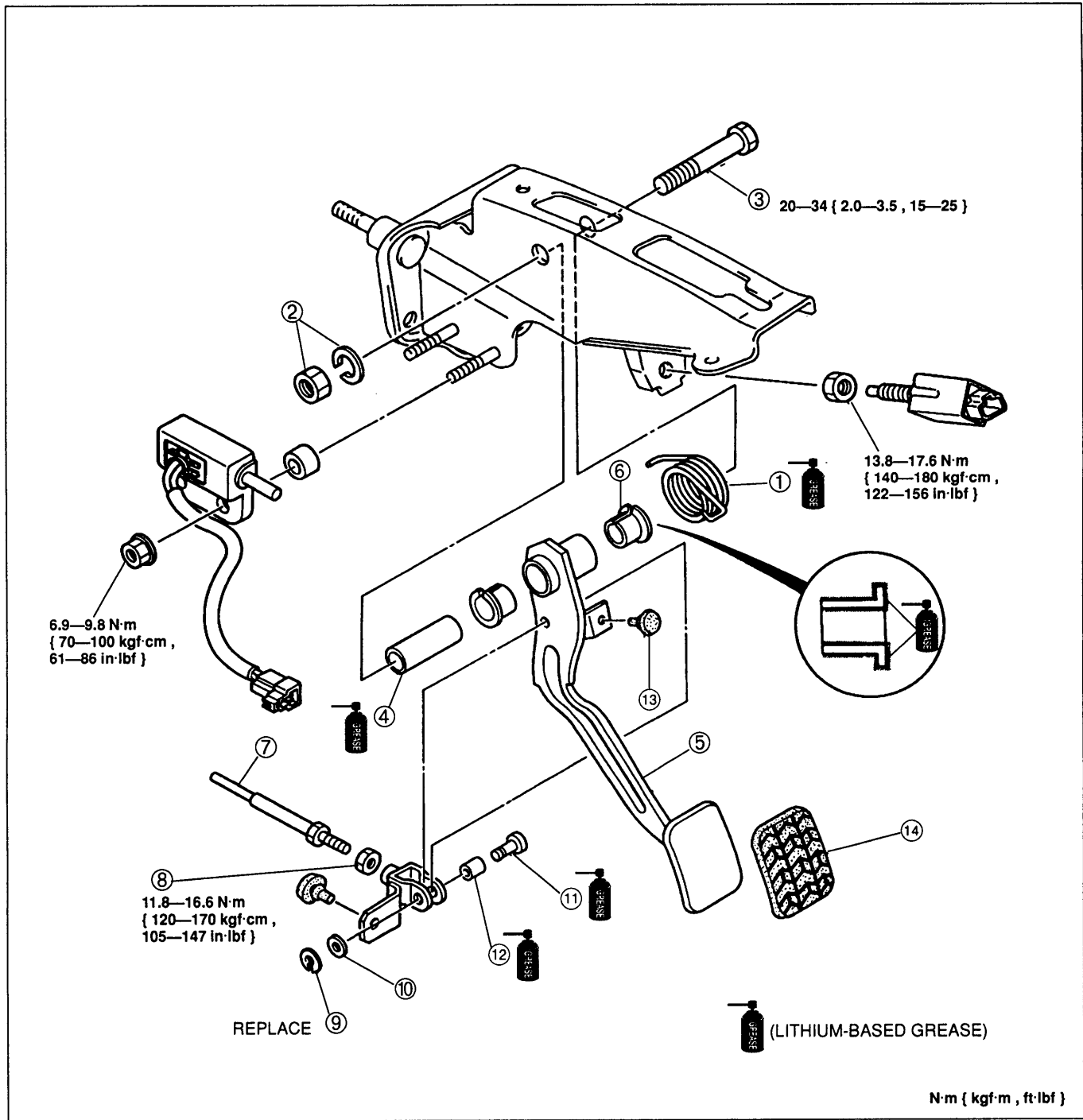
Tightening torque: 11.8—16.6 N·m

{ 120—170 kgf·cm, 105—147 in·lbf }

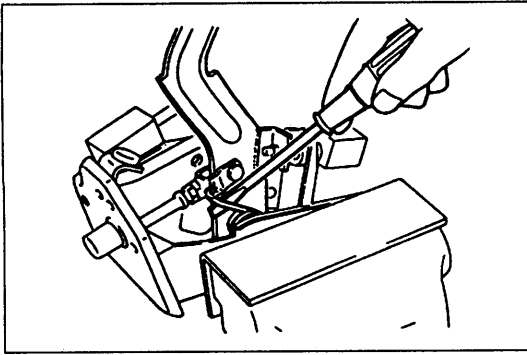
4. After adjustment, inspect the height.

REMOVAL / INSPECTION / INSTALLATION

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Inspect all parts and repair or replace as necessary.
3. Install in the reverse order of removal, referring to **Installation Note**.



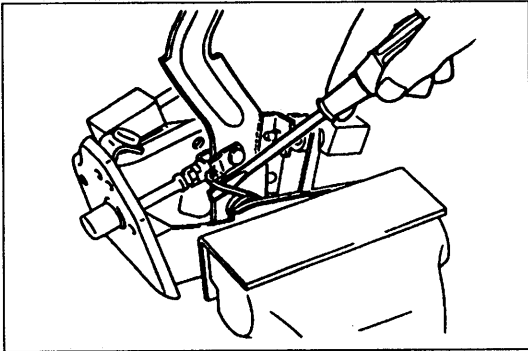
- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Spring
Removal Note page H-7
Installation Note page H-7 2. Nut and lock washer 3. Bolt 4. Spacer 5. Clutch pedal 6. Bushing | <ol style="list-style-type: none"> 7. Push rod
Inspect for damage and bending 8. Nut 9. Clip 10. Wave washer 11. Pin 12. Spacer 13. Stop 14. Pedal pad |
|---|--|



Removal Note

Spring

1. Place the clutch pedal assembly in the vise.
2. Pry the spring off the clutch pedal as shown in the figure.



Installation Note

Spring

1. Place the clutch pedal assembly in the vise.
2. Install the spring onto the clutch pedal as shown in the figure.
3. Adjust the clutch pedal height and free play after installation. (Refer to page H-5.)

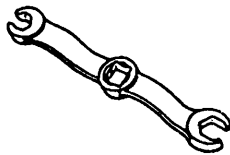
CLUTCH MASTER CYLINDER

PREPARATION

SST

49 0259 770B

Wrench, flare
nut



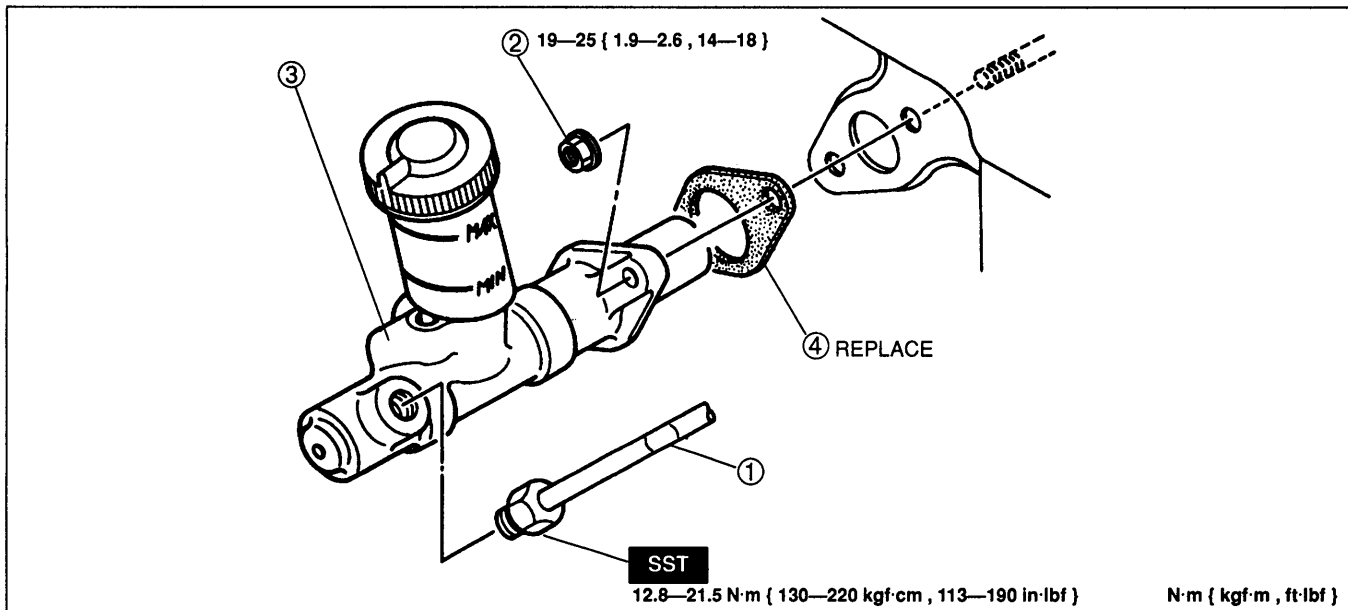
For
disconnecting
and connecting
clutch pipe

REMOVAL / INSTALLATION

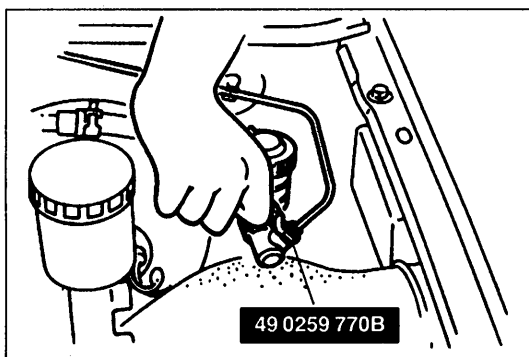
Caution

- Clutch fluid will damage painted surfaces. If clutch fluid does get on a painted surface, wipe it off immediately.

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Install in the reverse order of removal, referring to **Installation Note**.
3. Refer to **After-installation Procedure** on page H-9.



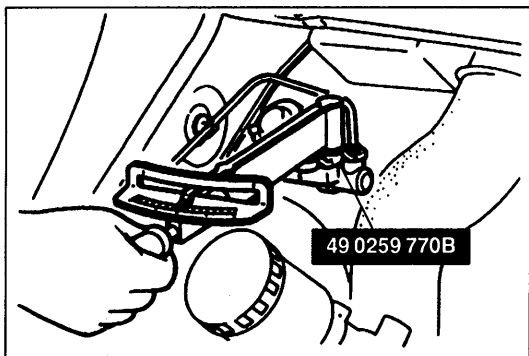
- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Clutch pipe
Removal Note below
Installation Note below 2. Nut | <ol style="list-style-type: none"> 3. Clutch master cylinder
Check for fluid leakage from cylinder bore
Overhaul page H-10
Air bleeding page H- 9 4. Gasket |
|---|---|



Removal Note

Clutch pipe

Disconnect the clutch pipe by using the **SST**.



Installation Note

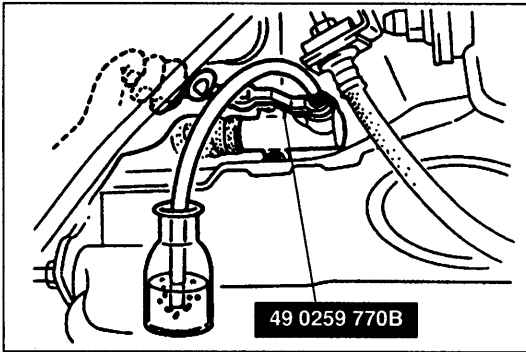
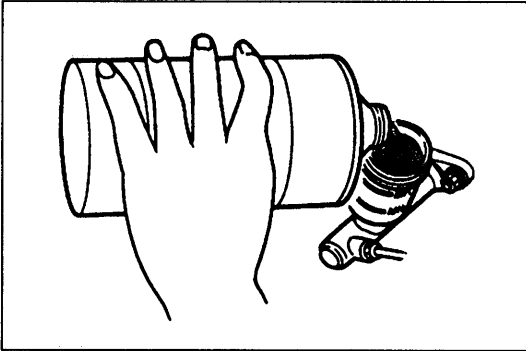
Clutch pipe

1. Modify the clutch pipe tightening torque to allow for use of a torque wrench-**SST** combination. (Refer to section GI "Torque Formulas".)
2. Tighten the clutch pipe by using the **SST**.

Tightening torque: 12.8–21.5 N·m
{ 130–220 kgf·cm , 113–190 in·lbf }

After-installation Procedure

1. Bleed the clutch system. (Below)
2. Add fluid to the reservoir MAX mark.
3. Inspect and adjust the clutch pedal height and free play. (Refer to page H-5.)

**AIR BLEEDING**

The clutch hydraulic system must be bled to remove air introduced whenever a hydraulic line is disconnected.

Caution

- Clutch fluid will damage painted surfaces. If clutch fluid does get on a painted surface, wipe it off immediately.

1. Remove the bleeder cap from the clutch release cylinder and attach a vinyl hose to the bleeder plug.
2. Insert the other end of the vinyl hose into a fluid-filled clear container.
3. Working with another person, have the person depress the clutch pedal several times, then hold it down.
4. With the clutch pedal depressed, loosen the bleeder screw by using the **SST** to let fluid and air escape. Close the bleeder screw.
5. Repeat steps 3 and 4 until no air bubbles are seen in the fluid. Make sure the reservoir is always 3/4 full or more during this procedure.
6. Modify the bleeder screw tightening torque to allow for use of a torque wrench-**SST** combination. (Refer to section G1 "Torque Formulas".)
7. Tighten the bleeder screw by using the **SST**.

Tightening torque:

5.9—8.8 N·m { 60—90 kgf·cm , 53—78 in·lbf }

8. Fill the reservoir to MAX with new fluid of the specified type.
9. Check for correct clutch operation.
10. Verify that there is no fluid leakage.

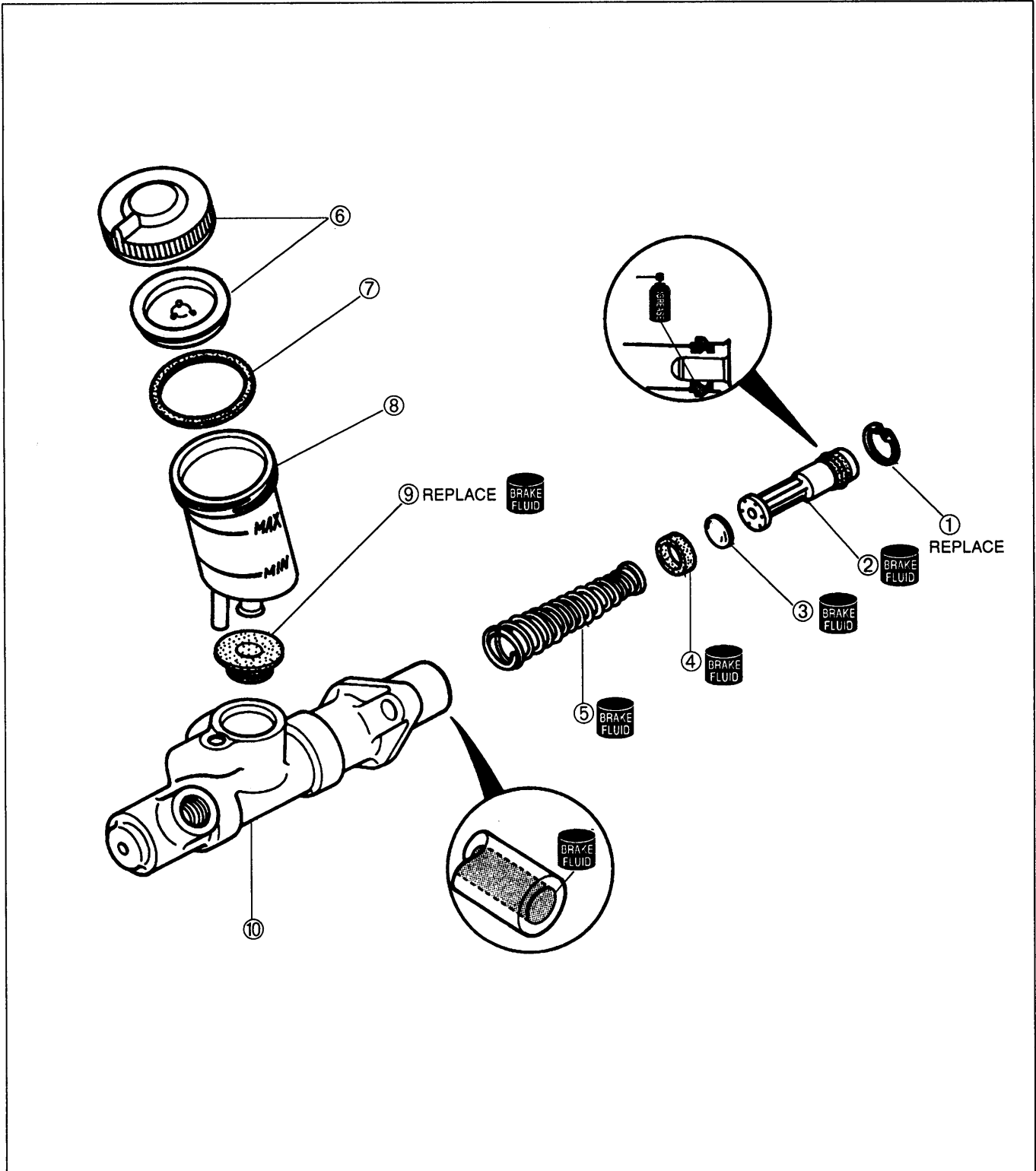
OVERHAUL

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and repair or replace as necessary.

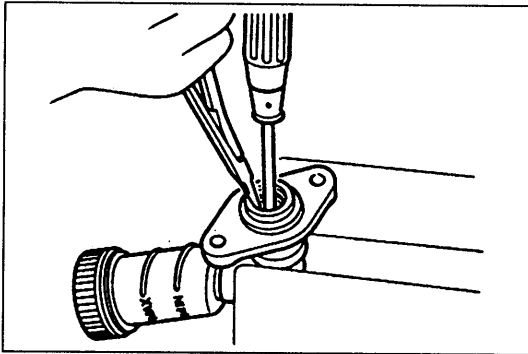
Warning

- Using compressed air can cause dirt and other particles to fly out, causing injury to the eyes. Wear protective eye wear whenever using compressed air.

3. Wipe all parts, and clean all ports, passages, and inner parts with compressed air.
4. Assemble in the reverse order of disassembly, referring to **Assembly Note**.



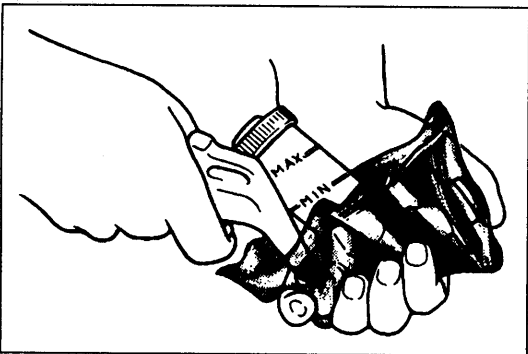
- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Snap ring
Disassembly Note below
Assembly Note below 2. Piston and secondary cup assembly
Disassembly Note below
Inspect for wear, scoring, and cracks
Assembly Note below 3. Spacer 4. Primary cup
Inspect for wear and cracks | <ol style="list-style-type: none"> 5. Return spring 6. Cap 7. Packing 8. Reservoir 9. Bushing 10. Master cylinder body
Inspect cylinder bore for scoring and corrosion |
|---|--|



Disassembly Note

Snap ring

While holding the piston down with a cloth-wrapped Phillips screwdriver, remove the snap ring.

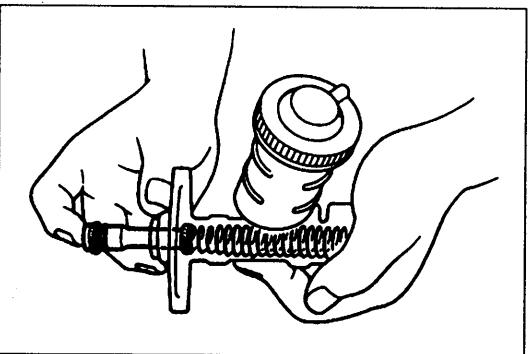


Piston and secondary cup assembly

Warning

- Applying compressed air to the cylinder assembly can make the contents suddenly pop out, possibly causing injury. Hold a rag over the cylinder opening when using compressed air.

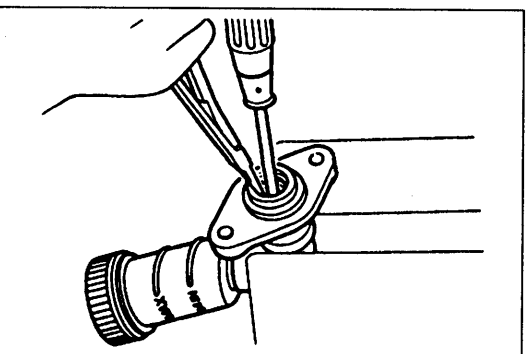
Remove the piston-and-secondary-cup assembly, spacer, and primary cup by applying compressed air through the clutch pipe installation hole.



Assembly Note

Piston and secondary cup assembly

Install the spring, primary cup, spacer, and piston and secondary cup assembly, noting the proper direction of the parts. (Refer to page H-10.)



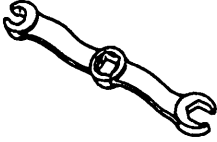
Snap ring

While holding the piston down with a cloth-wrapped Phillips screwdriver, remove the snap ring.

CLUTCH RELEASE CYLINDER

PREPARATION

SST

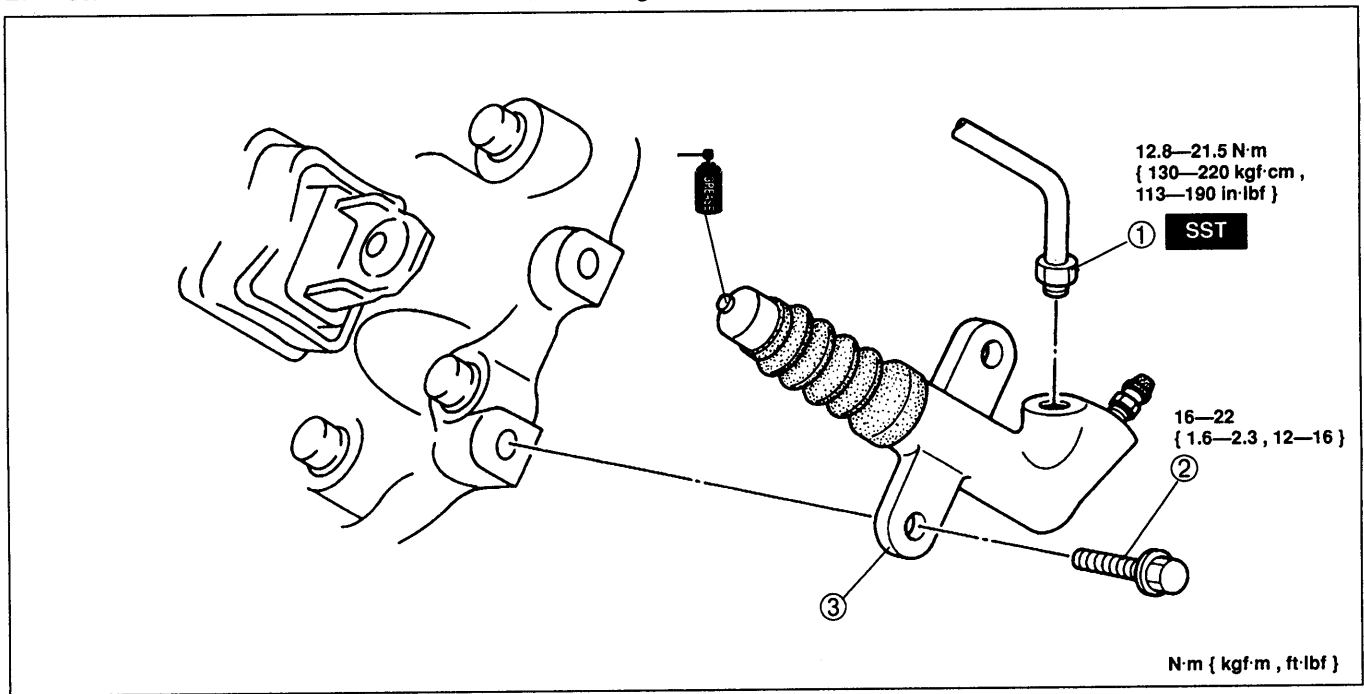
<p>49 0259 770B Wrench, flare nut</p>		<p>For disconnecting and connecting clutch pipe</p>
---	---	---

REMOVAL / INSTALLATION

Caution

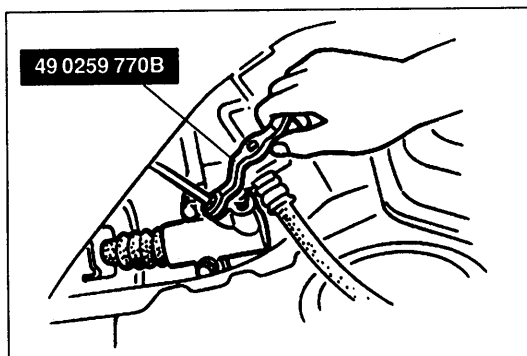
- Clutch fluid will damage painted surfaces. If clutch fluid does get on a painted surface, wipe it off immediately.

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Install in the reverse order of removal, referring to **Installation Note**.



1. Clutch pipe
Removal Note below
Installation Note page H-13
2. Bolt

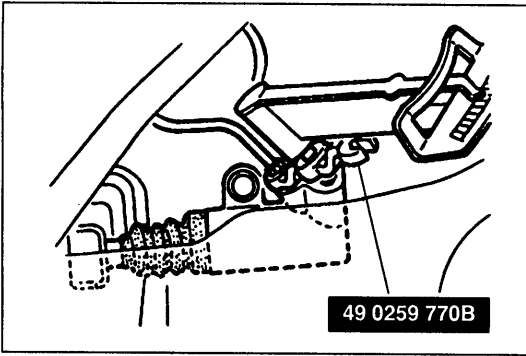
3. Clutch release cylinder
Remove boot and check for fluid leakage
Overhaul page H-13
Air Bleeding page H-13



Removal Note

Clutch pipe

1. Disconnect the clutch pipe from the clutch release cylinder by using the **SST**.
2. Plug the clutch pipe after removing, to avoid fluid leakage.



Installation Note

Clutch pipe

1. Modify the clutch pipe tightening torque to allow for use of a torque wrench-SST combination. (Refer to section GI "Torque Formulas".)
2. Tighten the clutch pipe by using the SST.

Tightening torque: 12.8—21.5 N·m
 { 130—220 kgf·cm , 113—190 in·lbf }

Air Bleeding

After installation, bleed the clutch system.
 (Refer to page H-9.)

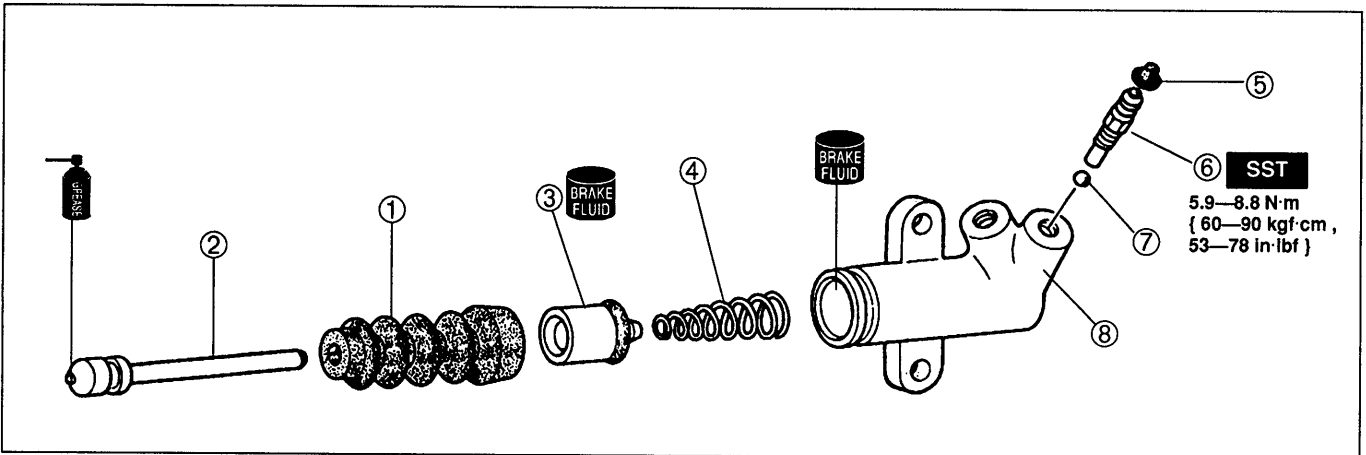
OVERHAUL

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and repair or replace as necessary.

Warning

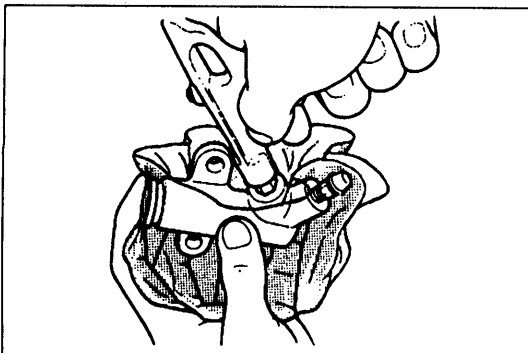
- **Using compressed air can cause dirt and other particles to fly out, causing injury to the eyes. Wear protective eye wear whenever using compressed air.**

3. Wipe all parts, and clean all ports, passages, and inner parts with compressed air.
4. Assemble in the reverse order of disassembly.



1. Boot
2. Push rod
3. Piston and cup assembly
 Disassembly Note below
 Inspect for wear, scoring, and cracks
4. Spring

5. Bleeder cap
6. Bleeder screw
7. Steel ball
8. Release cylinder body
 Inspect cylinder bore for scoring and corrosion



Disassembly Note

Piston and cup assembly

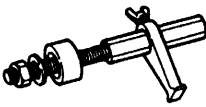
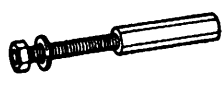


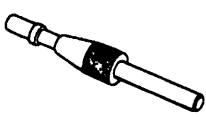

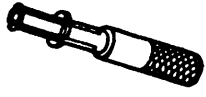
Warning

- **Applying compressed air to the cylinder assembly can make the contents suddenly pop out, possibly causing injury. Hold a rag over the cylinder opening when using compressed air.**

Remove the piston-and-cup assembly by applying compressed air through the clutch pipe installation hole.

CLUTCH UNIT

PREPARATION SST

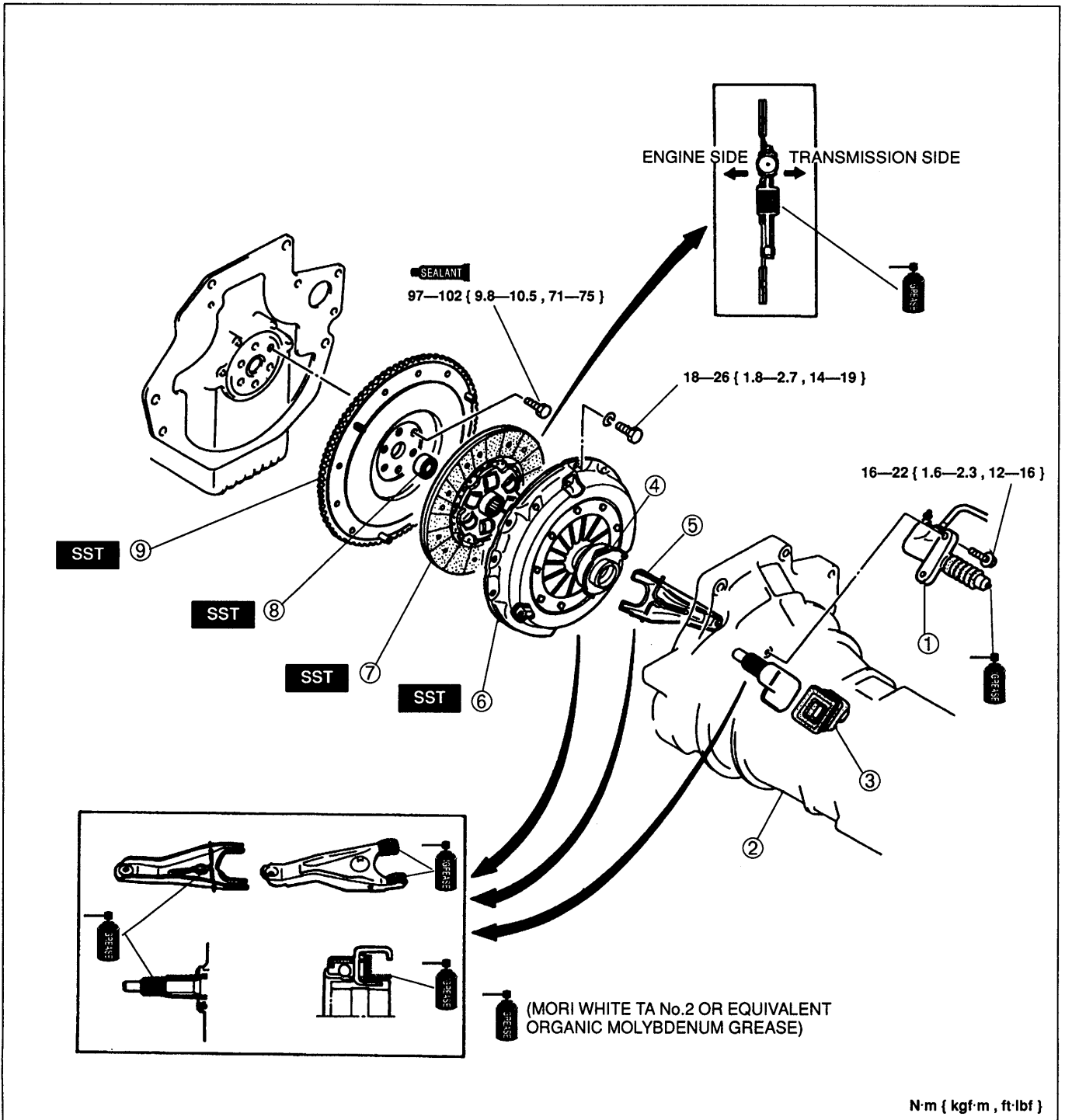
<p>49 E011 1A0 Brake set, ring gear</p> 	<p>For holding ring gear</p>	<p>49 E011 103 Shaft (Part of 49 E011 1A0)</p> 	<p>For holding ring gear</p>
<p>49 E011 104 Collar (Part of 49 E011 1A0)</p> 	<p>For holding ring gear</p>	<p>49 E011 105 Stopper (Part of 49 E011 1A0)</p> 	<p>For holding ring gear</p>
<p>49 SE01 310A Clutch disc centering tool</p> 	<p>For removal and installation of clutch disc</p>	<p>49 1285 071 Puller, bearing</p> 	<p>For removal of pilot bearing</p>
<p>49 1285 073 Chuck (Part of 49 1285 071)</p> 	<p>For removal of pilot bearing</p>	<p>—</p>	<p>—</p>

REMOVAL / INSTALLATION

Note

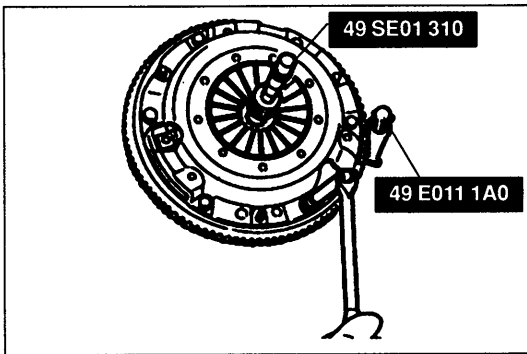
- The clutch release cylinder can be removed from the transaxle with the clutch pipe connected.

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Install in the reverse order of removal, referring to **Installation Note**.

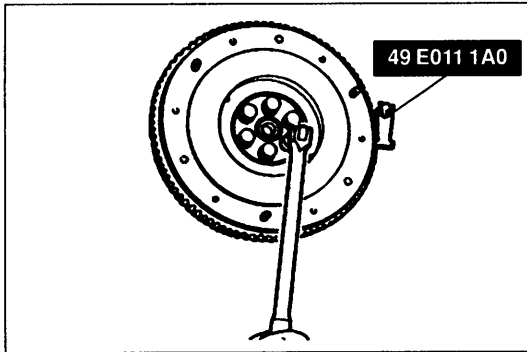


- 1. Clutch release cylinder
- 2. Transmission
Service section J
- 3. Boot
- 4. Clutch release collar
Inspection page H-17
- 5. Clutch release fork
- 6. Clutch cover
Removal Note page H-16
Inspection page H-17
Installation Note page H-17

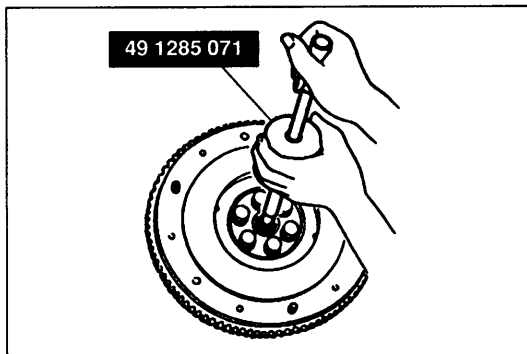
- 7. Clutch disc
Removal Note page H-16
Inspection page H-17
Installation Note page H-17
- 8. Pilot bearing
Inspection page H-18
Removal Note page H-16
Installation Note page H-16
- 9. Flywheel
Removal Note page H-16
Inspection page H-18
Installation Note page H-16

**Removal Note****Clutch cover and disc**

1. Install the **SST**.
2. Hold the flywheel by using the **SST** or equivalent.
3. Loosen each bolt one turn at a time in a crisscross pattern until spring tension is released. Then remove the clutch cover and disc.

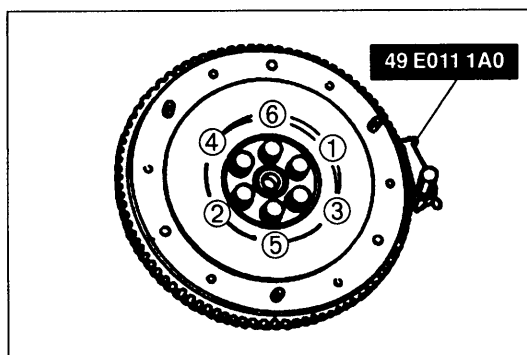
**Flywheel**

1. Hold the flywheel by using the **SST** or equivalent.
2. Remove the flywheel.
3. Inspect for oil leakage from the crankshaft rear oil seal. If there is any such leakage or if the oil seal is damaged, refer to section B and replace the crankshaft oil seal.

**Pilot bearing****Note**

- The pilot bearing does not need to be removed unless you are replacing it.

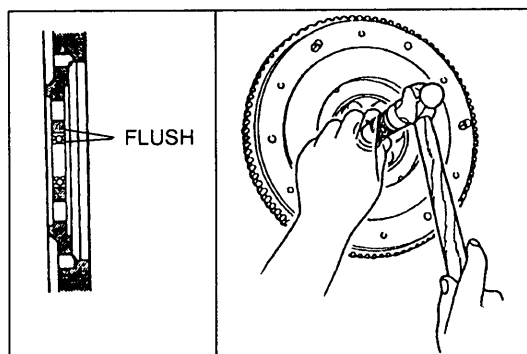
Remove the pilot bearing by using the **SST**.

**Installation Note****Flywheel**

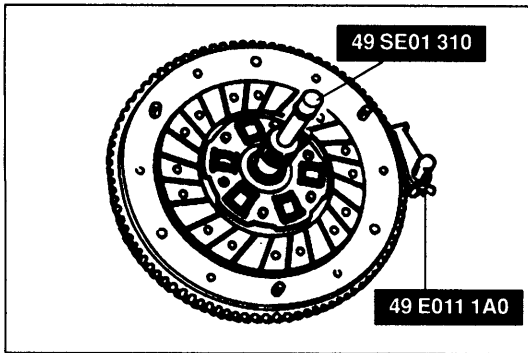
1. Wipe the bolts clean, and apply sealant to the bolt threads.
2. Install the flywheel, and secure it by using the **SST** or equivalent.
3. Tighten the bolts in the pattern shown.

Tightening torque:

97—102 N·m { 9.8—10.5 kgf·m , 71—75 ft·lbf }

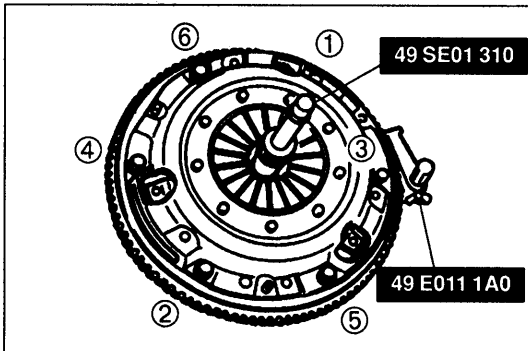
**Pilot bearing**

Install a new pilot bearing flush with the flywheel by using a suitable pipe.



Clutch disc

1. Clean the clutch disc splines and main drive gear splines, and apply Mori White TA No.2 or equivalent organic molybdenum grease.
2. Hold the clutch disc in position by using the **SST**.

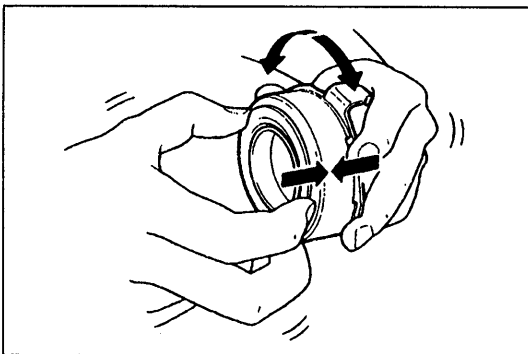


Clutch cover

1. Hold the flywheel by using the **SST** or equivalent.
2. Align the dowel holes with the flywheel dowels.
3. Tighten the bolts evenly and gradually in the pattern shown.

Tightening torque:

18—26 N·m { 1.8—2.7 kgf·m , 14—19 ft·lbf }



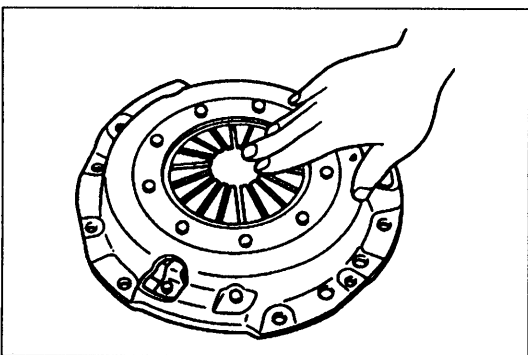
CLUTCH RELEASE COLLAR

INSPECTION

Caution

- Cleaning the clutch release collar with cleaning fluids or a steam cleaner can wash the grease out of the sealed bearing.

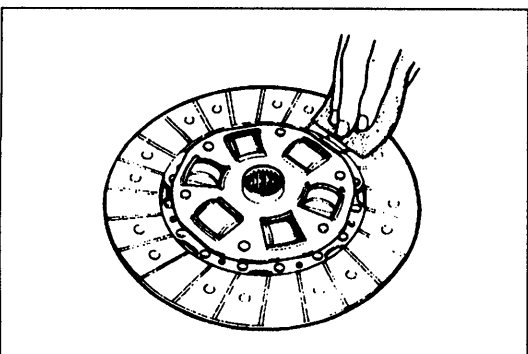
Turn the collar while applying force in the axial direction. If the collar sticks or has excessive resistance, replace it.



CLUTCH COVER

INSPECTION

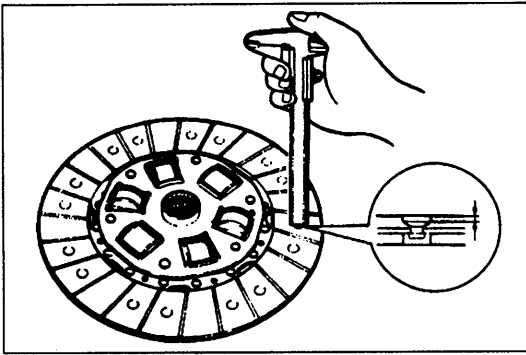
1. Inspect the contact surface for scoring, cracks, and burning. Repair or replace as necessary.
2. Remove minor scoring or burning with emery paper. Repair if scoring or burning is major. Replace if cracked.
3. Inspect the tips of the diaphragm spring for wear and cracks.
4. If there is wear or cracks, replace the clutch cover.



CLUTCH DISC

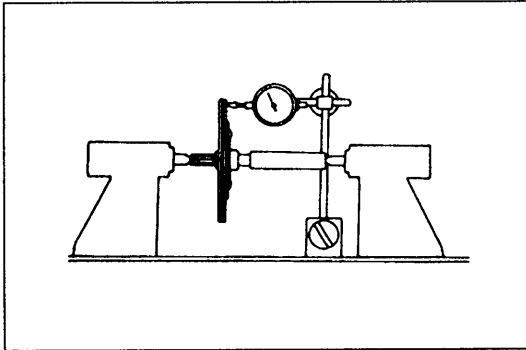
INSPECTION

1. Inspect the lining surface for burning and oil contamination. Repair with sandpaper if the trouble is minor. Replace the clutch disc if it is badly burned or oil soaked.
2. Inspect for loose facing rivets or torsion dampers. Replace the clutch disc if any are loose.



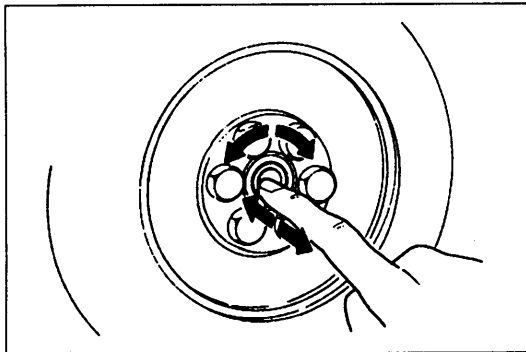
3. Measure the thickness of the lining at a rivet head on both sides with vernier calipers.
Replace the clutch disc if less than minimum.

Minimum thickness: 0.3 mm { 0.012 in }



4. Measure the clutch disc runout with a dial indicator.
Replace the clutch disc if runout is excessive.

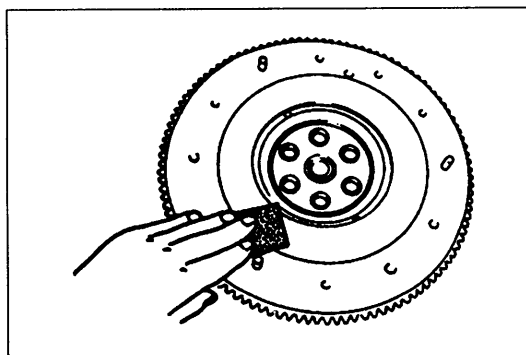
Maximum runout: 0.7 mm { 0.028 in }



PILOT BEARING

INSPECTION

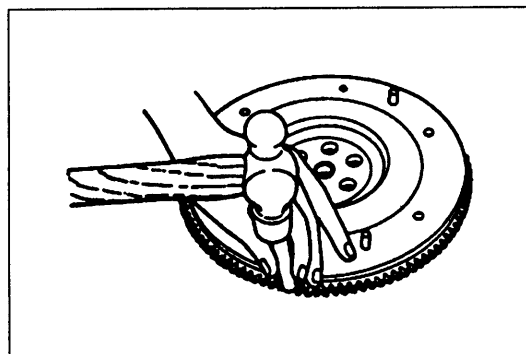
Turn the bearing while applying force in the axial direction.
If the bearing sticks or has excessive resistance, replace it.



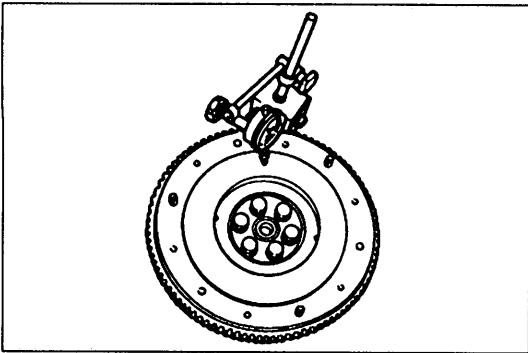
FLYWHEEL

INSPECTION

1. Inspect the contact surface for scoring, cracks, and burning.
2. Remove minor scoring or burning with emery paper.
Repair if scoring or burning is major. Replace if cracked.



3. Inspect the ring gear teeth for wear or damage. If necessary, replace the ring gear as follows:
 - (1) Heat the ring gear with a blow torch. Tap around the gear to remove it from the flywheel.
 - (2) Heat the new ring gear to **250—300 °C { 482—572 °F }**; then fit it onto the flywheel.



4. Measure the flywheel runout with a dial indicator. Replace the flywheel if runout is excessive.

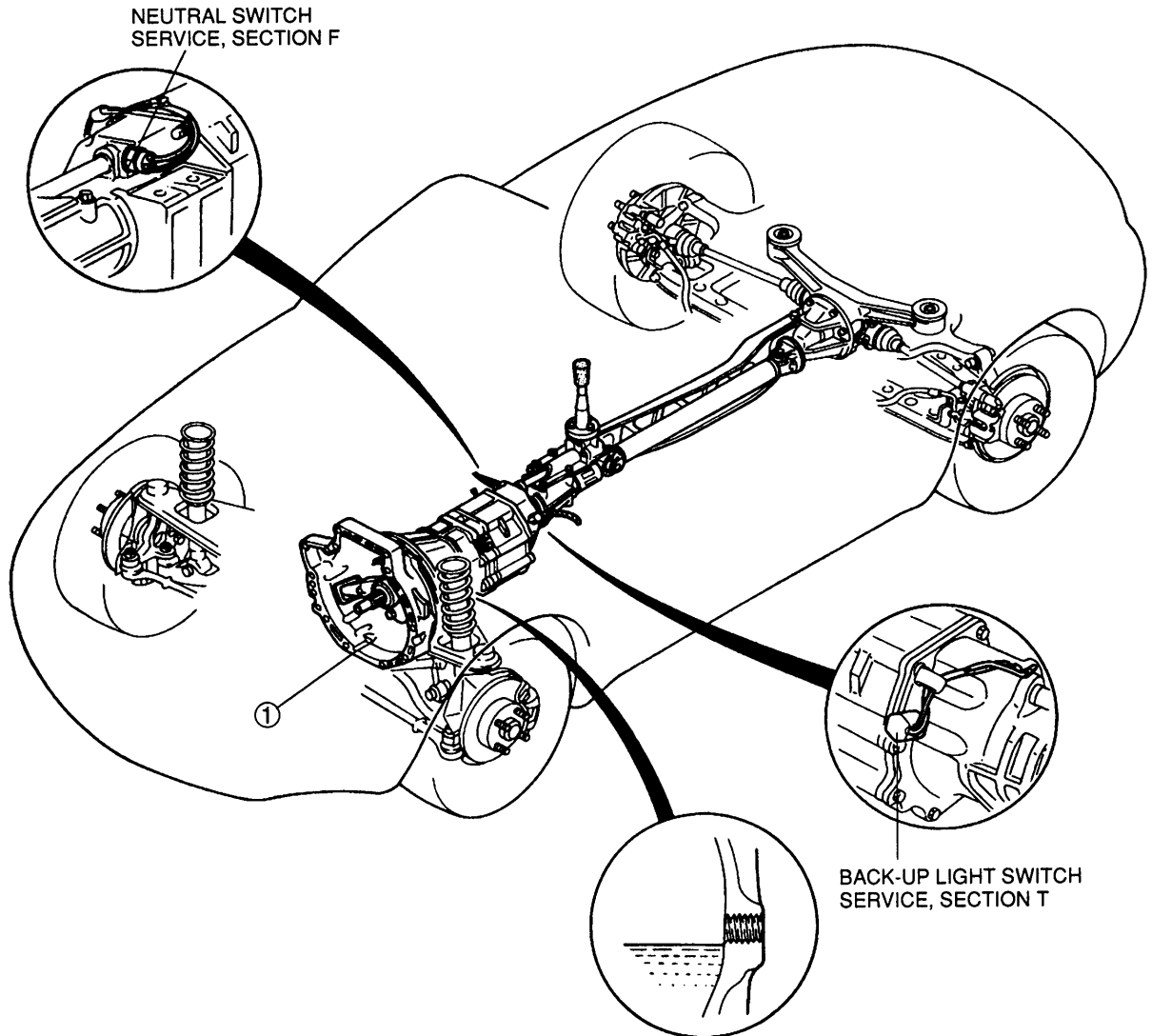
Maximum runout: 0.2 mm { 0.008 in }

Before beginning any service procedure, refer to section T of this manual for air bag system service warnings and audio antitheft system alarm conditions.

MANUAL TRANSMISSION

INDEX	J- 2
OUTLINE	J- 3
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REPLACEMENT	J- 8
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ASSEMBLY	J-26
INSTALLATION	J-45

INDEX



OIL SPECIFICATION
 API SERVICE GL-4 OR GL-5
 ALL-SEASON TYPE: SAE 75 W-90
 ABOVE 10 °C { 50 °F } : SAE 80 W-90
 CAPACITY: 2.0 L { 2.1 US qt , 1.8 Imp qt }

1. Transmission
 Removal page J-10
 Disassembly page J-13
 Inspection page J-23
 Assembly page J-26
 Installation page J-45

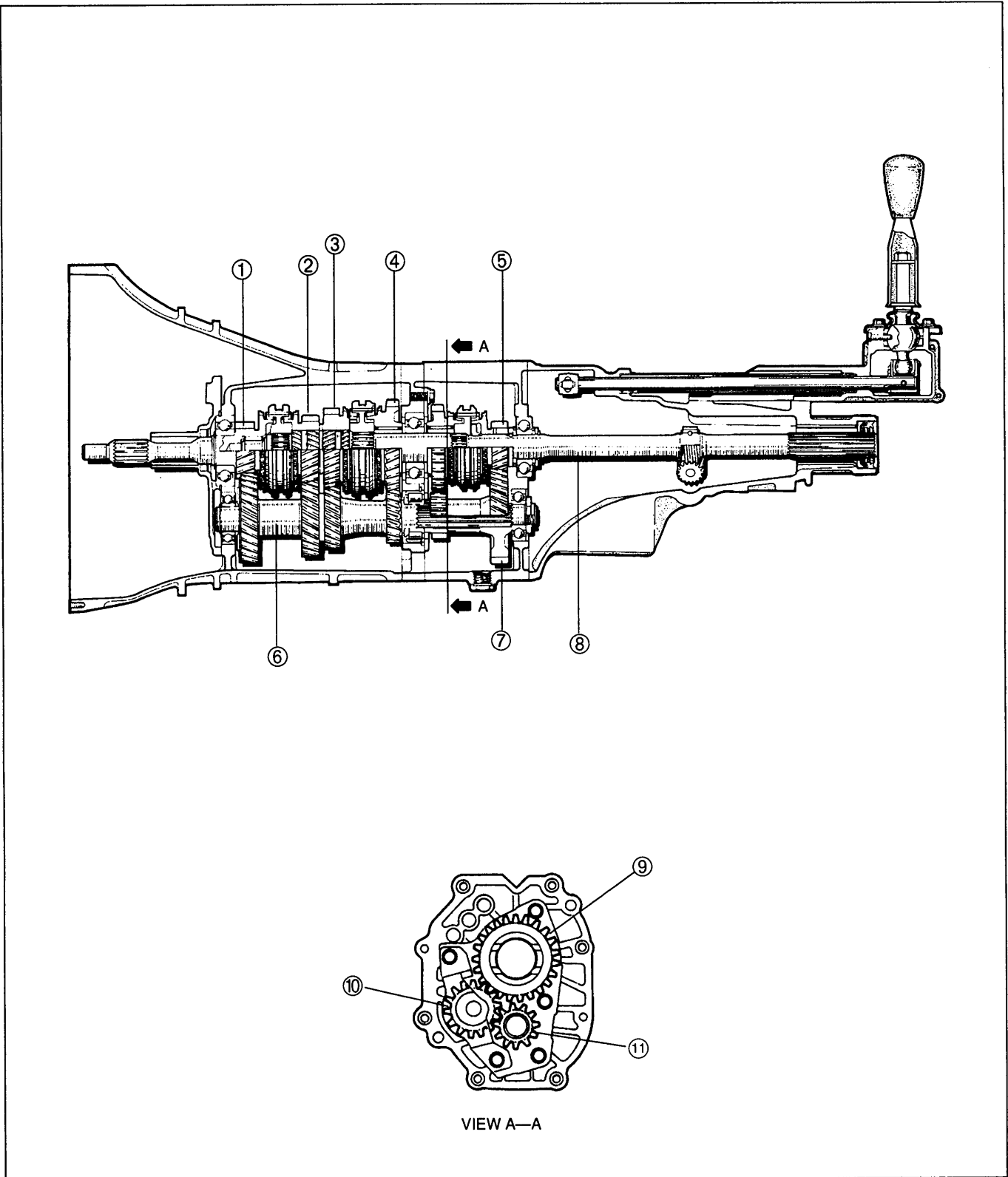
OUTLINE

SPECIFICATIONS

Item		Transmission	M15M-D
Synchronization mechanism			Forward: Synchromesh Reverse: Synchromesh
Shift type			5-speed, floor shift
Gear ratio	1st		3.136
	2nd		1.888
	3rd		1.330
	4th		1.000
	5th		0.814
	Reverse		3.758
Oil	Grade		API service GL-4 or GL-5
	Viscosity	All-season	SAE 75 W-90
		Above 10 °C { 50 °F }	SAE 80 W-90
	Capacity	L { US qt , Imp qt }	2.0 { 2.1 , 1.8 }

J

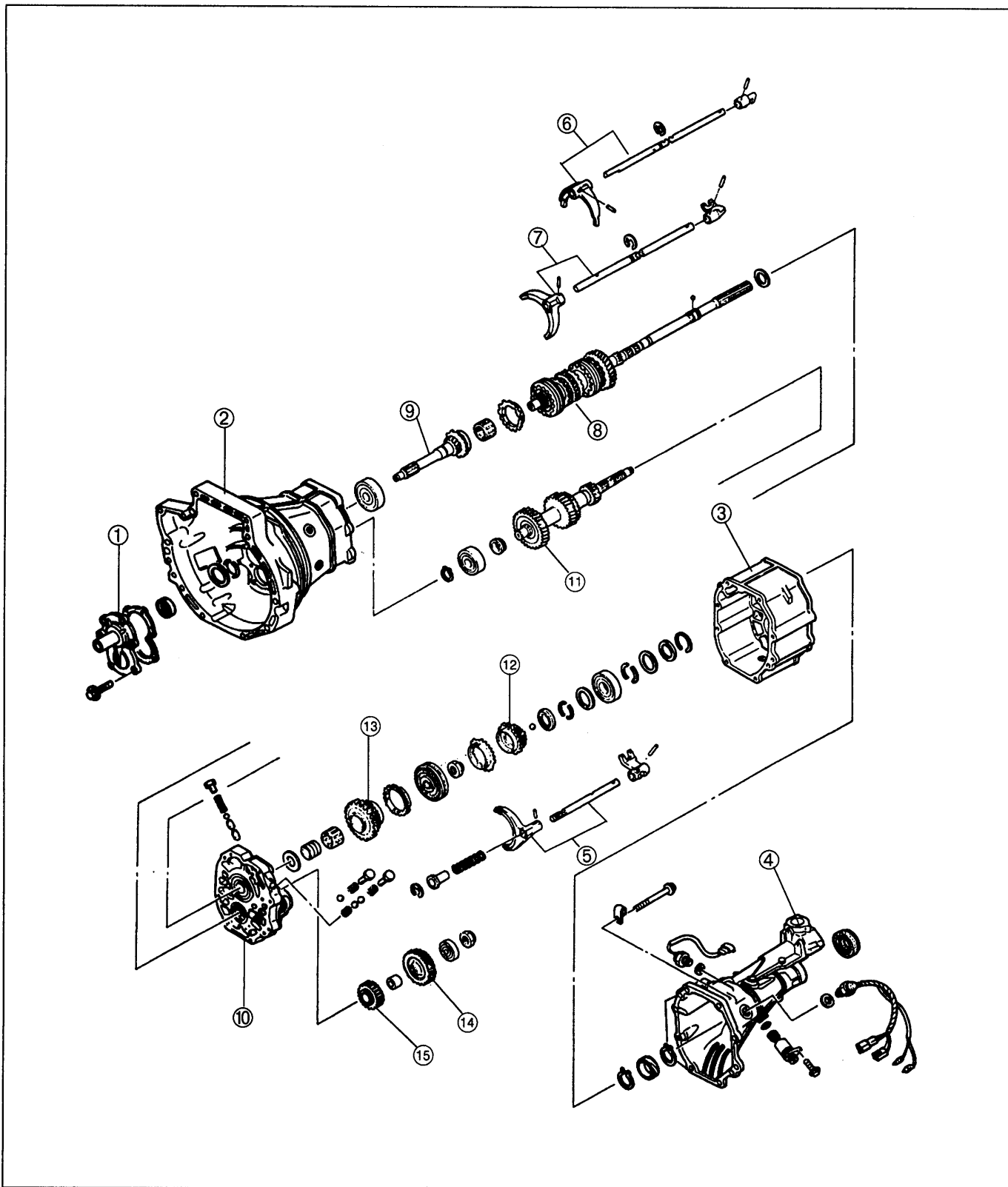
STRUCTURAL VIEW



- 1. Main drive gear (4th gear)
- 2. 3rd gear
- 3. 2nd gear
- 4. 1st gear
- 5. 5th gear
- 6. Countershaft

- 7. Counter 5th gear
- 8. Mainshaft
- 9. Reverse gear
- 10. Reverse idler gear
- 11. Counter reverse gear

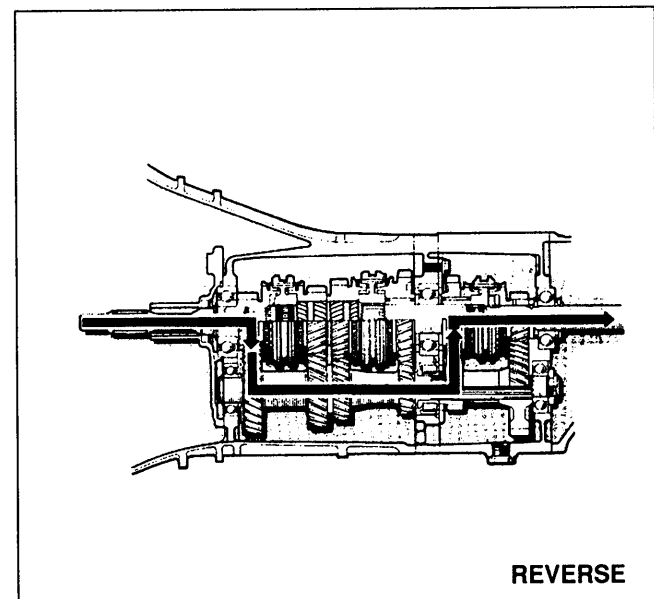
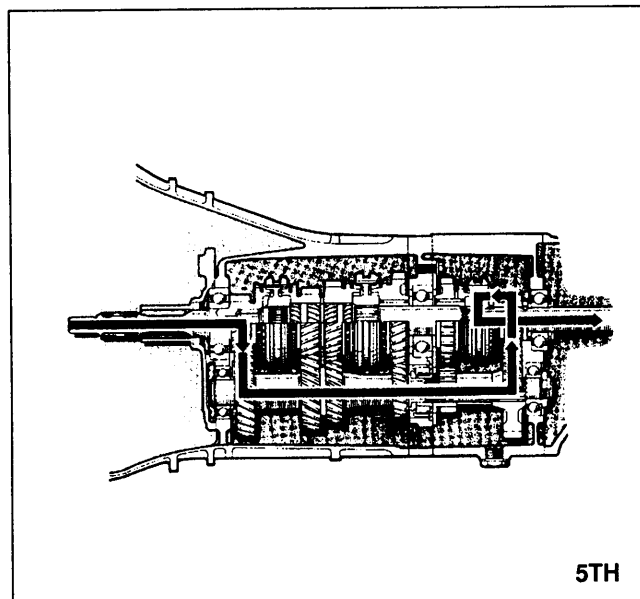
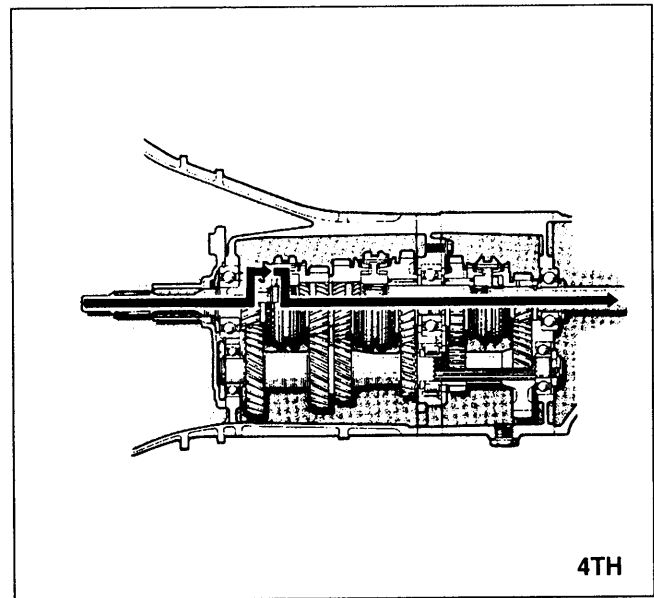
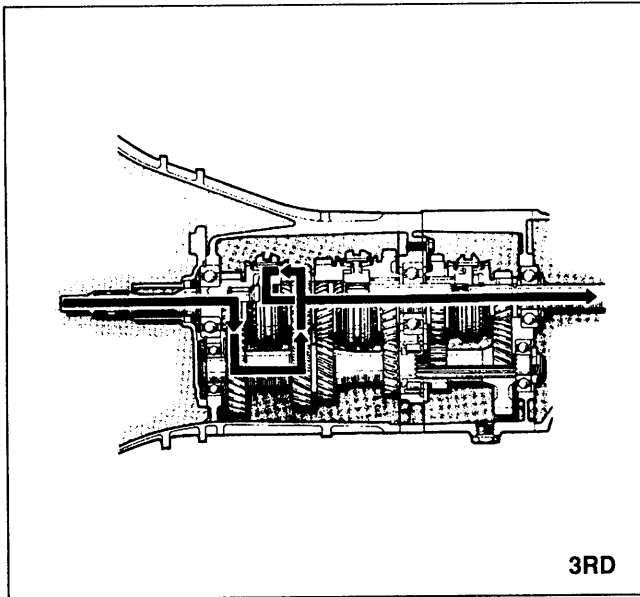
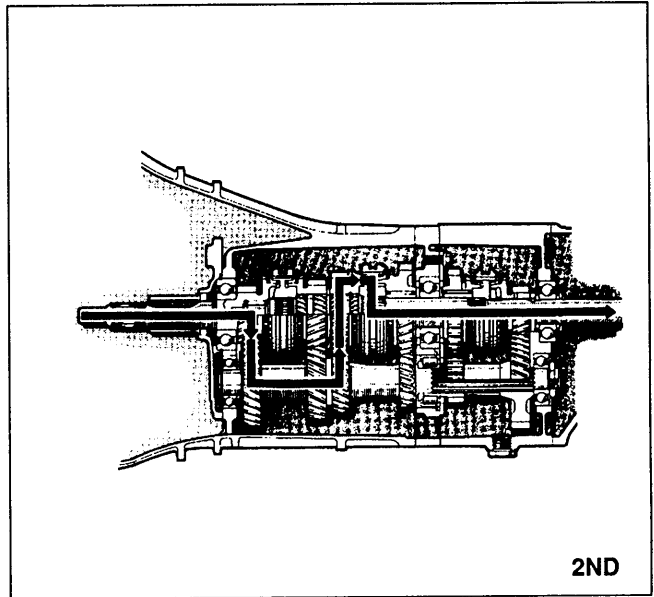
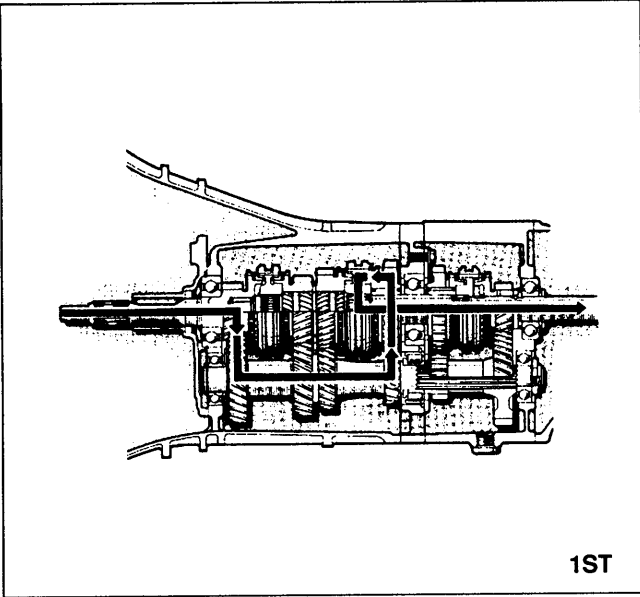
COMPONENTS



J

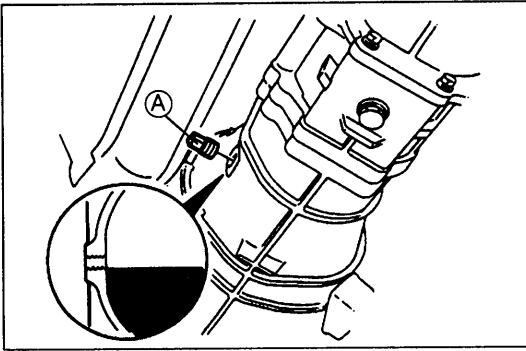
- | | | |
|-----------------------------------|-------------------------------|--------------------------|
| 1. Front cover | 6. 1st/2nd shift fork and rod | 11. Countershaft |
| 2. Transmission case | 7. 3rd/4th shift fork and rod | 12. 5th gear |
| 3. Intermediate housing | 8. Mainshaft gear assembly | 13. Reverse gear |
| 4. Extension housing | 9. Main drive gear | 14. Counter 5th gear |
| 5. 5th/Reverse shift fork and rod | 10. Bearing housing assembly | 15. Counter reverse gear |

POWER FLOW



TROUBLESHOOTING GUIDE

Problem	Possible Cause	Action	Page
Abnormal noise	Insufficient oil	Add oil	J-8
	Deterioration of oil quality	Replace with specified oil	J-8
	Worn bearing	Replace	J-13
	Worn contact surface of countershaft gear	Replace	J-16
	Worn contact surface of gears	Replace	J-16, 19, 20
	Excessive gear backlash	Replace	J-16, 19, 20
Difficult to shift	Damaged gear teeth	Replace	J-16, 19, 20
	Insufficient oil	Add oil	J-8
	Deterioration of oil quality	Replace with specified oil	J-8
	Worn synchronizer ring	Replace	J-16, 19
	Worn synchronizer cone of gear	Replace	J-16, 19
	Poor contact of synchronizer ring and gear cone	Replace	J-16, 19
	Excessive longitudinal play of gears	Replace	J-16, 19, 20
	Worn bearing	Replace	J-13
Improper disengagement of clutch	Repair or replace	section H	
Jumps out of gear	Weak detent ball spring	Replace	J-15
	Worn shift fork	Replace	J-15
	Worn clutch hub	Replace	J-16, 19
	Worn clutch hub sleeve	Replace	J-16, 19
	Worn gears	Replace	J-16, 19, 20
	Excessive gear backlash	Replace	J-16, 19, 20
	Worn bearing	Replace	J-13
Vibration	Incorrect installation or looseness of power plant frame	Correct or tighten	J-45



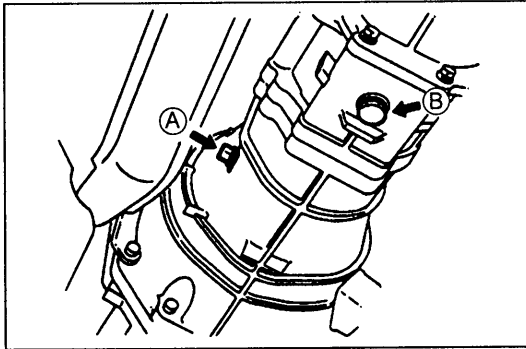
TRANSMISSION OIL

INSPECTION

1. Remove check plug **(A)**.
2. Verify that the oil is at the bottom of the check plug hole. If it is low, add the specified oil from check plug **(A)**.
3. Wipe the plug clean and apply sealant to the plug threads before installing.

Tightening torque

(A): 25—39 N·m { 2.5—4.0 kgf·m , 19—28 ft·lbf }

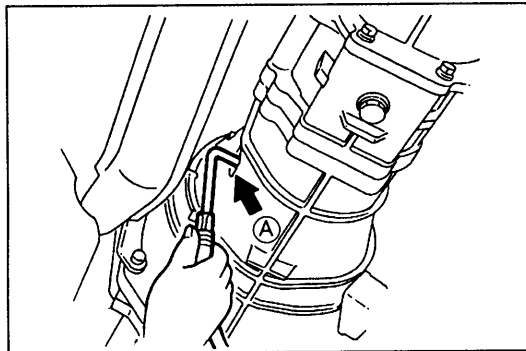


REPLACEMENT

1. Remove plugs **(B)** (with washer) and **(A)**.
2. Drain the oil into a suitable container.
3. Wipe all plugs clean.
4. Install drain plug **(B)** (with new washer).

Tightening torque

(B): 40—58 N·m { 4.0—6.0 kgf·m , 29—43 ft·lbf }



5. Add the specified oil from check plug **(A)** port until the level reaches the bottom of check plug hole.

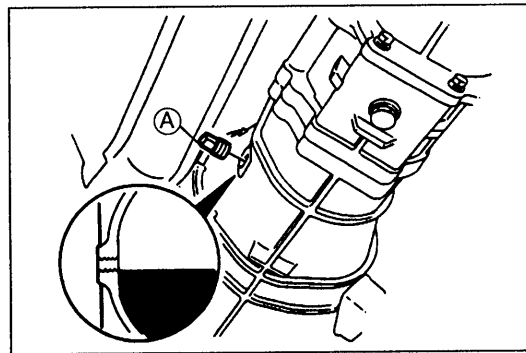
Specified oil:

API service GL-4 or GL-5

All-season: SAE 75W-90

Above 10 °C { 50 °F } : SAE 80W-90

Capacity: 2.0 L { 2.1 US qt , 1.8 Imp qt }



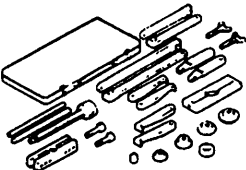
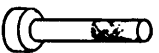
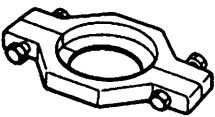
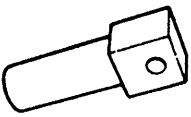
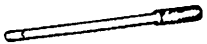
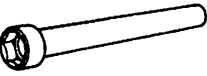
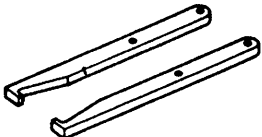

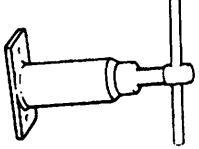

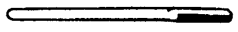
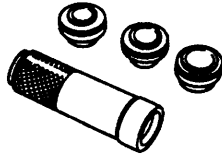

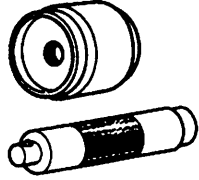
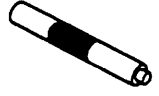
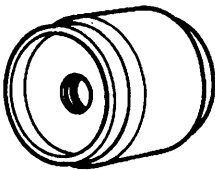
6. Apply sealant to threads of plug **(A)**.
7. Install plug **(A)**.

Tightening torque

(A): 25—39 N·m { 2.5—4.0 kgf·m , 19—28 ft·lbf }

TRANSMISSION

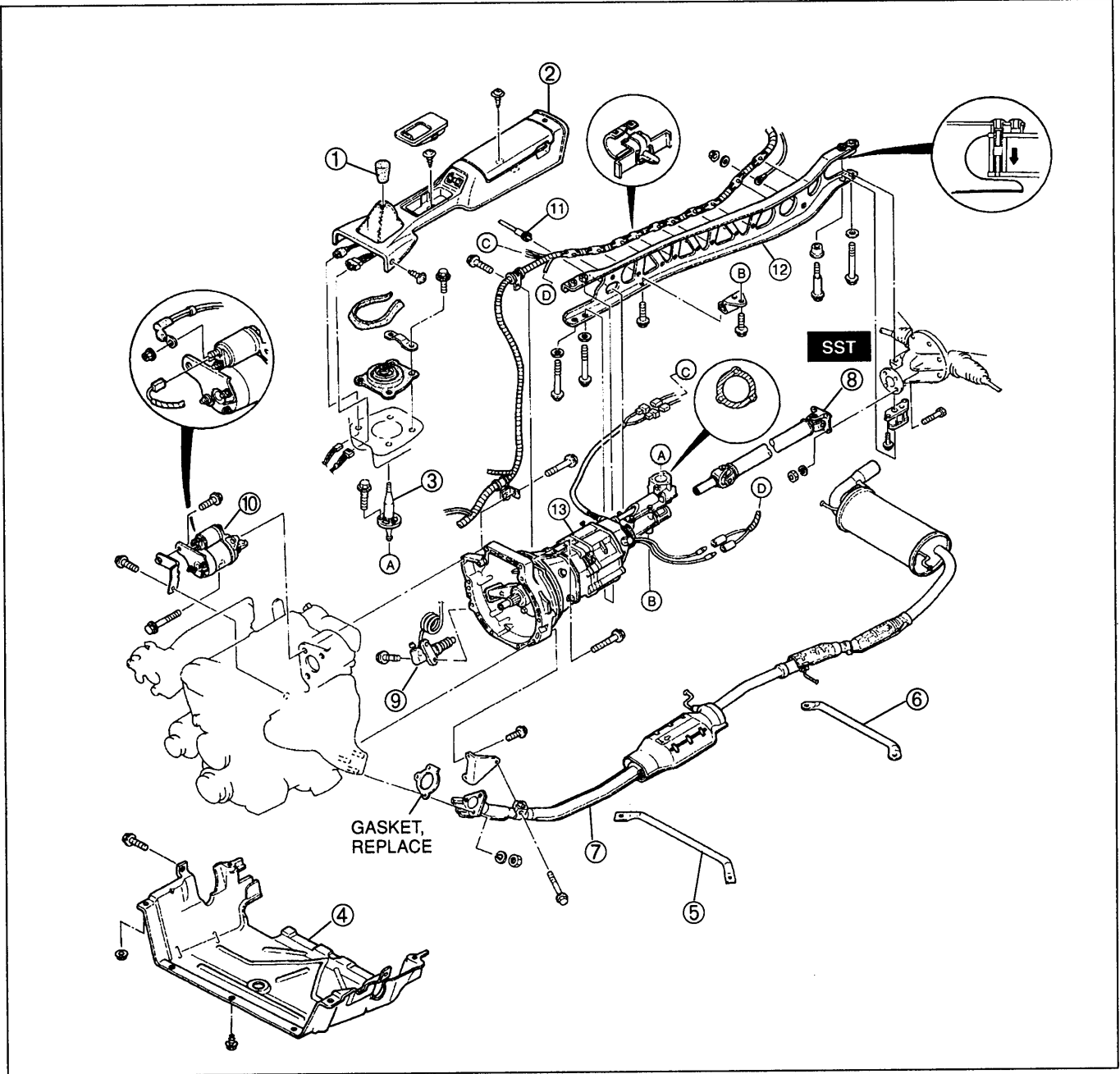
PREPARATION
SST

<p>49 0839 425C Puller set, bearing</p> 	<p>For removal of bearing</p>	<p>49 0500 330 Installer, bearing</p> 	<p>For installation of bearing</p>
<p>49 0636 145 Puller, fan pulley boss</p> 	<p>For removal of clutch hub assembly</p>	<p>49 0259 440 Holder, mainshaft</p> 	<p>For holding mainshaft</p>
<p>49 0862 350 Guide, shift fork</p> 	<p>For installation of interlock pin</p>	<p>49 1243 465A Wrench, mainshaft locknut</p> 	<p>For removal of locknut</p>
<p>49 H017 101 Hook</p> 	<p>For removal of bearing</p>	<p>49 0710 520 Puller, bearing</p> 	<p>For removal of bearing</p>
<p>49 0305 430 Pusher, main drive shaft</p> 	<p>For removal of transmission case</p>	<p>49 0180 321A Installer, bearing</p> 	<p>For installation of bearing</p>
<p>49 0187 451A Guide, interlock pin</p> 	<p>For installation of spring and ball</p>	<p>49 F401 330B Installer set, bearing</p> 	<p>For installation of bearing</p>
<p>49 F401 331 Body (Part of 49 F401 330B)</p> 	<p>For installation of clutch hub assembly</p>	<p>49 B025 0A0 Installer, oil seal</p> 	<p>For installation of dust seal</p>
<p>49 G030 797 Handle (Part of 49 B025 0A0)</p> 	<p>For installation of oil seal</p>	<p>49 B025 001 Body (Part of 49 B025 0A0)</p> 	<p>For installation of oil seal</p>

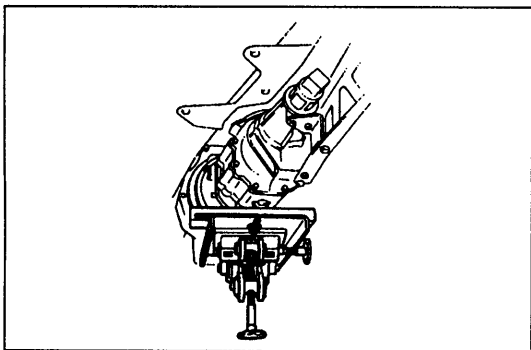
J

REMOVAL

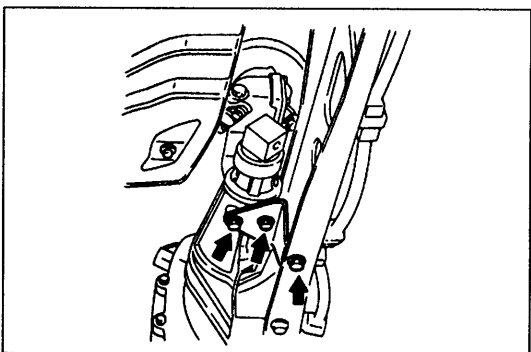
1. Obtain the code number and deactivate the audio antitheft system before disconnecting the battery. (Refer to section T.)
2. Disconnect the negative battery cable.
3. On level ground, jack up the vehicle and support it evenly on safety stands.
4. Drain the transmission oil into a suitable container.
5. Remove in the order shown in the figure, referring to **Removal Note**.



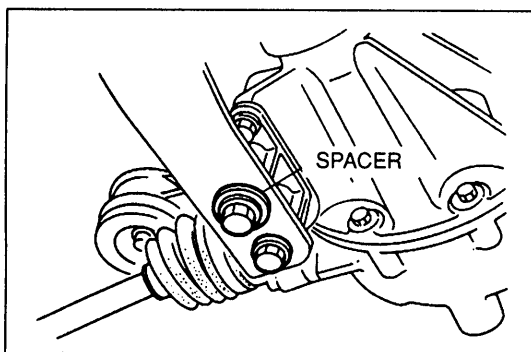
- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Shift lever knob 2. Rear console 3. Shift lever 4. Undercover 5. Performance rod 6. Differential mounting pipe 7. Exhaust pipe 8. Propeller shaft
Service section L | <ol style="list-style-type: none"> 9. Clutch release cylinder 10. Starter 11. Speedometer cable 12. Power plant frame (PPF)
Removal Note page J-11 13. Transmission
Removal Note page J-12 |
|---|---|

**Removal note****Power plant frame (PPF)**

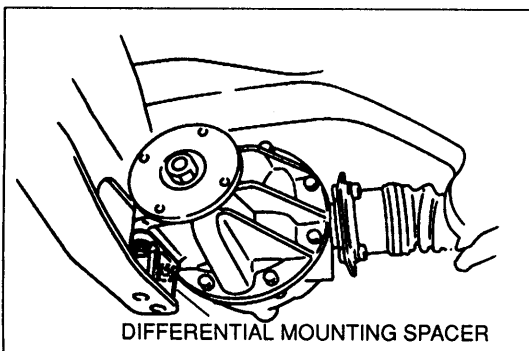
1. Disconnect the wire harness from the PPF.
2. Support the transmission with a jack.



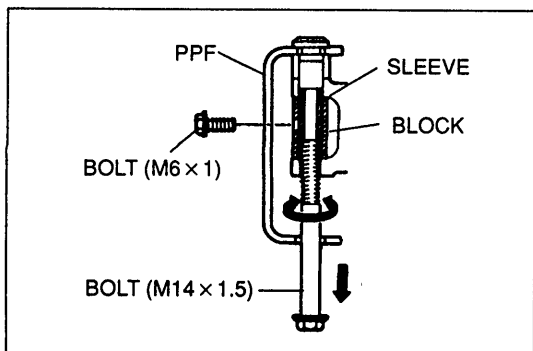
3. Remove the PPF bracket.



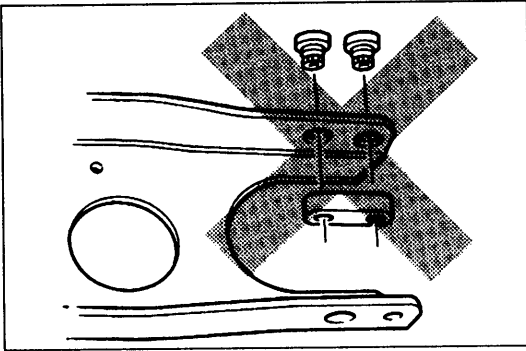
4. Remove the differential-side bolts, and pry out the spacer.



5. Remove the differential mounting spacer.



6. Screw a long bolt (M14 x 1.5) into the sleeve.
7. Twist and pull the bolt and sleeve downward.
8. Install a bolt (M6 x 1) into the hole in the block to keep the sleeve from turning, and unscrew the long bolt (M14 x 1.5).
9. Remove the bolt (M6 x 1).

**Caution**

- Removing the PPF spacers will reduce the performance of the PPF. If the spacers are removed, replace the PPF as an assembly.

10. Remove the transmission-side bolts, and remove the PPF.

Transmission

1. Support the transmission with a transmission jack.
2. Loosen the transmission installation bolts.

Caution

- Shaking the transmission could damage the crank angle sensor on the engine. When removing the transmission, do not shake it up and down or side to side.

3. Remove the transmission.

DISASSEMBLY

Precaution

1. Clean the transmission exterior thoroughly with a steam cleaner or cleaning solvent before disassembly.

Warning

- Using compressed air can cause dirt and other particles to fly out, causing injury to the eyes. Wear protective eye wear whenever using compressed air.

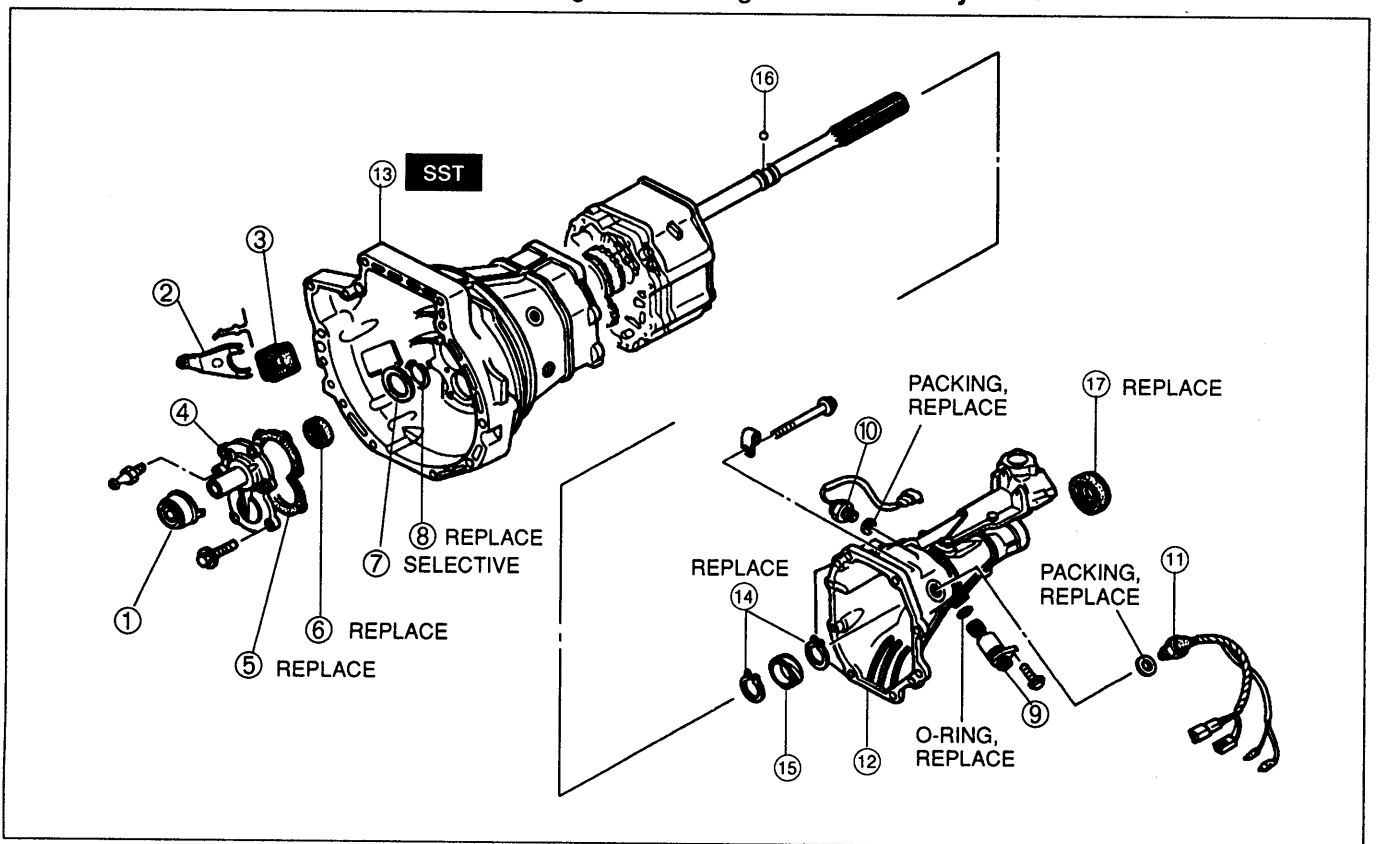
2. Clean the removed parts (except sealed bearings) and all sealing surfaces with cleaning solvent, and dry with compressed air. Clean out all holes and passages with compressed air, and check that there are no obstructions.

Housing Components

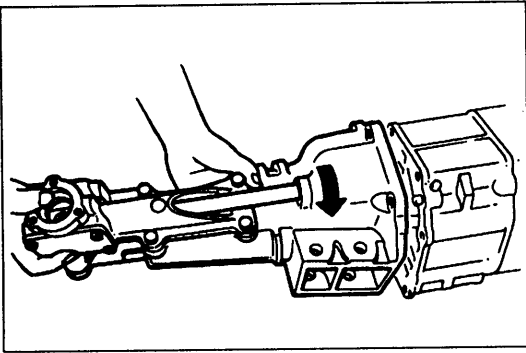
Note

- The front and rear oil seals do not need to be removed unless you are replacing them.

Disassemble in the order shown in the figure, referring to **Disassembly Note**.

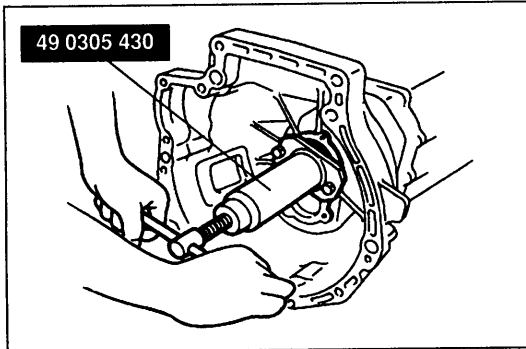


- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Clutch release collar 2. Clutch release fork 3. Boot 4. Front cover 5. Gasket 6. Oil seal (front)
Inspect for damage of oil seal lip.
If necessary, replace it. 7. Adjustment shim 8. Snap ring 9. Speedometer driven gear 10. Neutral switch 11. Back-up light switch | <ol style="list-style-type: none"> 12. Extension housing
Disassembly Note page J-14
Disassembly page J-22 13. Transmission case
Disassembly Note page J-14 14. Snap rings 15. Speedometer drive gear 16. Steel ball 17. Oil seal (rear)
Inspect for damage of oil seal lip.
If necessary, replace it.
On-vehicle replacement page J-14 |
|---|--|



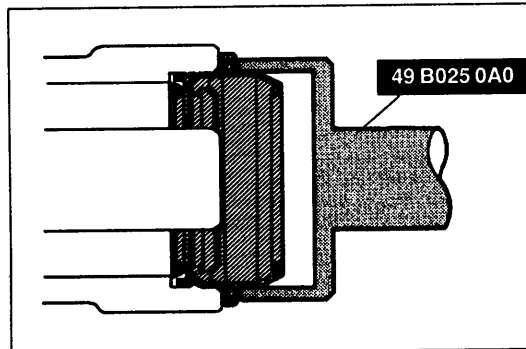
Disassembly note
Extension housing

Turn the extension housing to remove it.



Transmission case

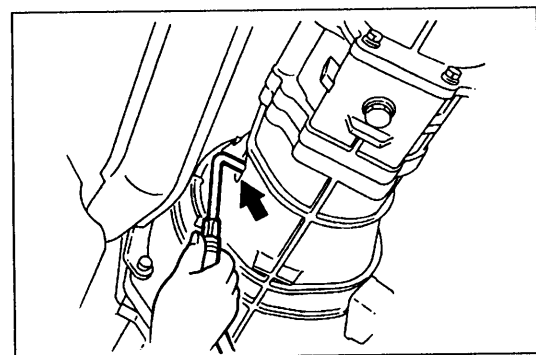
Remove the transmission case from the intermediate housing and gear assembly by using the **SST**.



On-vehicle replacement

Oil seal (rear)

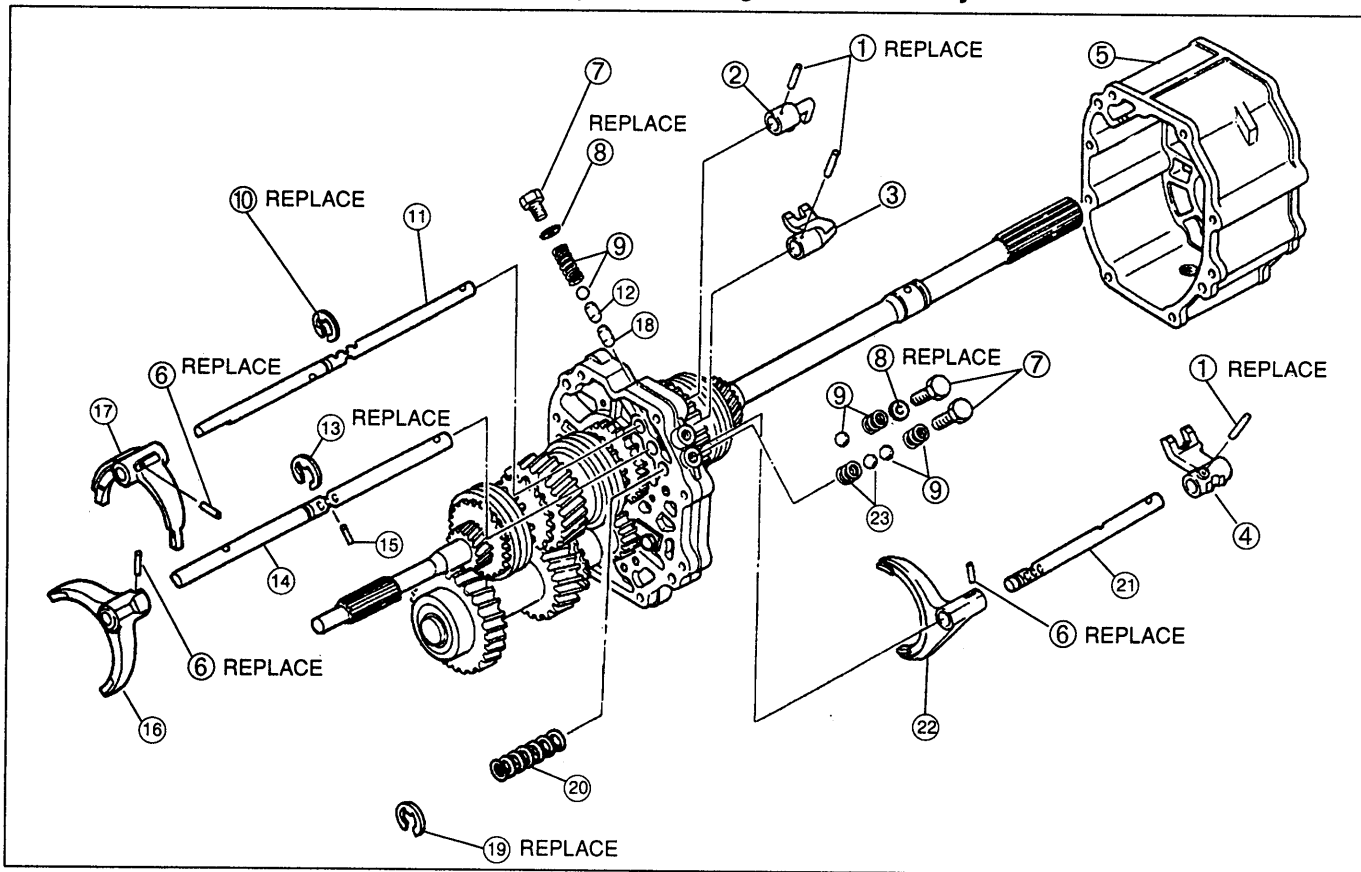
1. Raise the vehicle and support it with safety stands.
2. Remove the propeller shaft. (Refer to section L.)
3. Remove the oil seal from the extension housing.
4. Apply the specified oil to a new oil seal.
5. Install the new oil seal by using the **SST**.



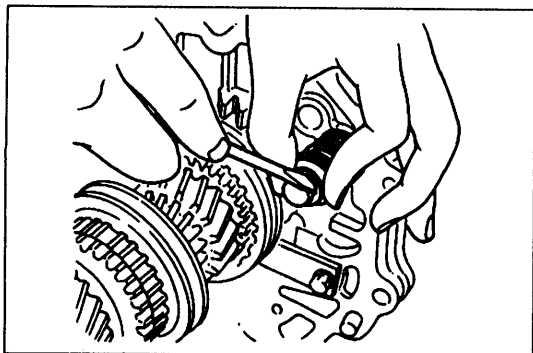
6. Install the propeller shaft. (Refer to section L.)
7. Inspect the oil level. (Refer to page J-8.)

Shift Fork and Shift Rod Parts

Disassemble in the order shown in the figure, referring to **Disassembly Note**.



- | | |
|---|--|
| 1. Roll pin | 15. Interlock pin |
| 2. 1st/2nd shift rod end | 16. 3rd/4th shift fork
Inspection page J-23 |
| 3. 3rd/4th shift rod end | 17. 1st/2nd shift fork
Inspection page J-23 |
| 4. 5th/Reverse shift rod end | 18. Interlock pin |
| 5. Intermediate housing
Inspection page J-25 | 19. Clip
Disassembly Note below |
| 6. Roll pin | 20. Spring
Inspection page J-25 |
| 7. Cap plug | 21. 5th/Reverse shift rod |
| 8. Washer | 22. 5th/Reverse shift fork
Inspection page J-23 |
| 9. Spring and ball
Inspection page J-25 | 23. Spring and ball
Inspection page J-25 |
| 10. Clip | |
| 11. 1st/2nd shift rod | |
| 12. Interlock pin | |
| 13. Clip | |
| 14. 3rd/4th shift rod | |



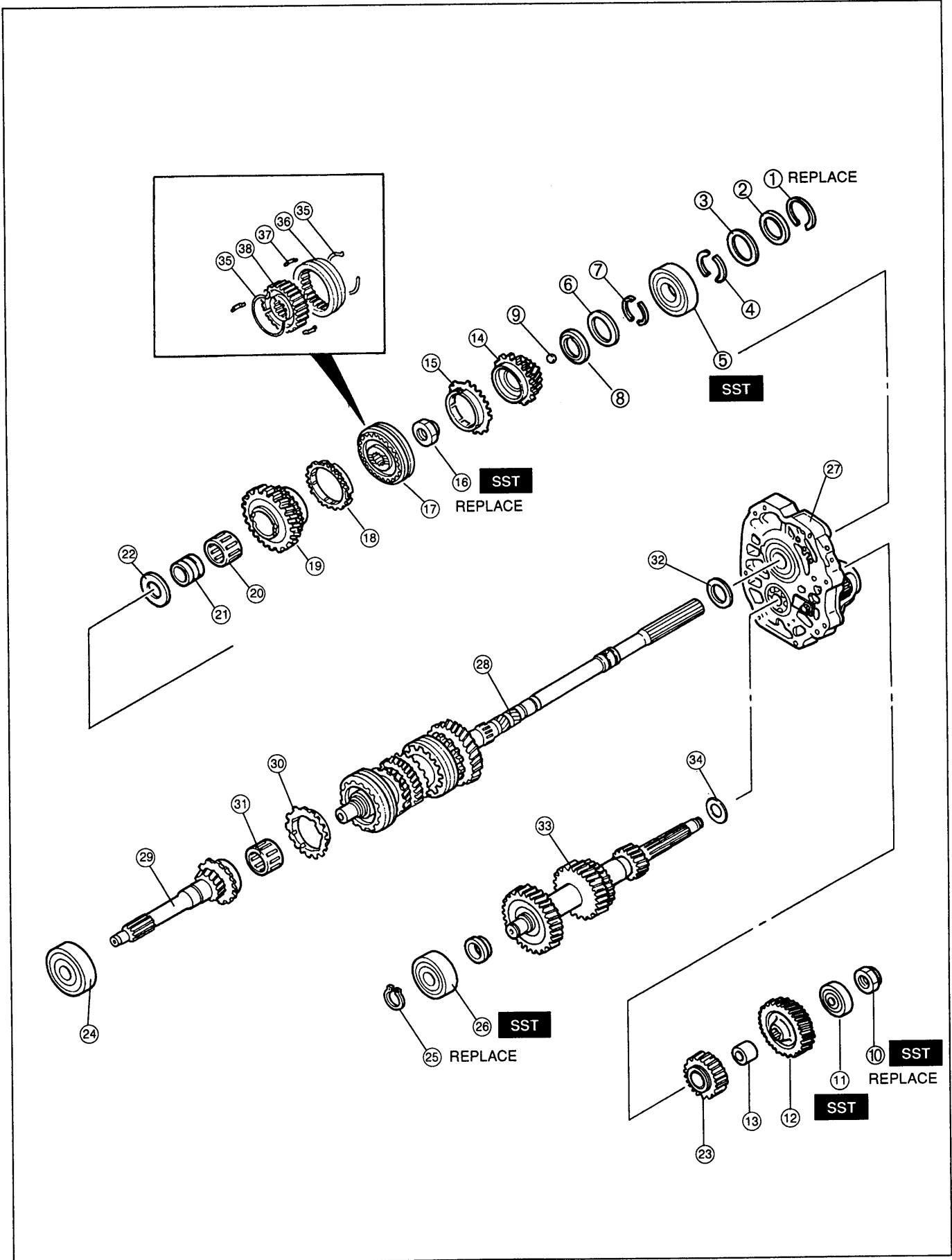
Disassembly note

Clip

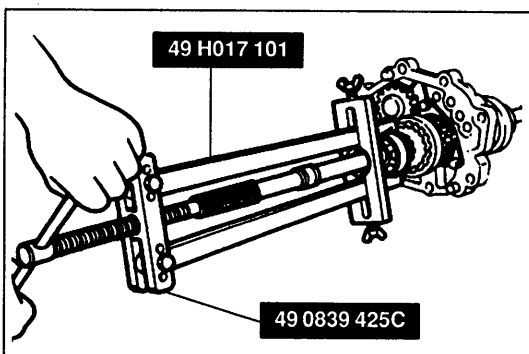
Remove the clip, spacer, and spring from the 5th/Reverse shift rod.

Mainshaft and Countershaft Parts

Disassemble in the order shown in the figure, referring to **Disassembly Note**.

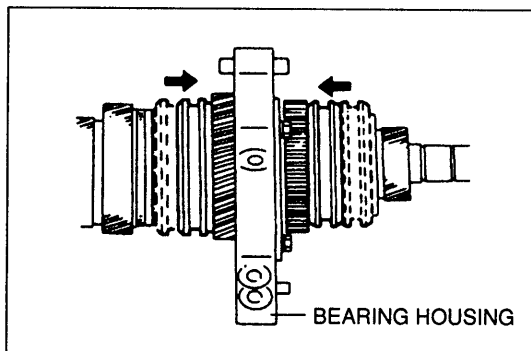


- | | | |
|--|--|--|
| <ul style="list-style-type: none"> 1. Snap ring 2. Washer 3. Retaining ring 4. C-washer 5. Mainshaft rear bearing
Disassembly Note . below
Inspection ... page J-25 6. Retaining ring 7. C-washer 8. Thrust lock washer 9. Steel ball 10. Locknut (Countershaft)
Disassembly Note
..... below 11. Countershaft rear bearing
Disassembly Note
..... page J-18
Inspection ... page J-25 12. Counter 5th gear
Inspection ... page J-23 13. Spacer 14. 5th gear
Inspection ... page J-23 | <ul style="list-style-type: none"> 15. 5th synchronizer ring
Inspection ... page J-24 16. Locknut (Mainshaft)
Disassembly Note
..... page J-18 17. Clutch hub assembly
(5th/Reverse)
Inspection ... page J-23 18. Reverse synchronizer ring
Inspection ... page J-24 19. Reverse gear
Inspection ... page J-23 20. Bearing
Inspection ... page J-25 21. Bearing race 22. Washer 23. Counter reverse gear
Inspection ... page J-23 24. Main drive gear bearing
Disassembly Note
..... page J-18
Inspection ... page J-25 25. Snap ring | <ul style="list-style-type: none"> 26. Countershaft front bearing
Disassembly Note
..... page J-18
Inspection ... page J-25 27. Bearing housing assembly
Disassembly Note
..... page J-18
Disassembly page J-20 28. Mainshaft gear assembly 29. Main drive gear
Inspection ... page J-23 30. 4th synchronizer ring
Inspection ... page J-24 31. Bearing
Inspection ... page J-25 32. Washer 33. Countershaft
Inspection ... page J-23 34. Spacer 35. Synchronizer key springs 36. Clutch hub sleeve 37. Synchronizer key 38. Clutch hub |
|--|--|--|



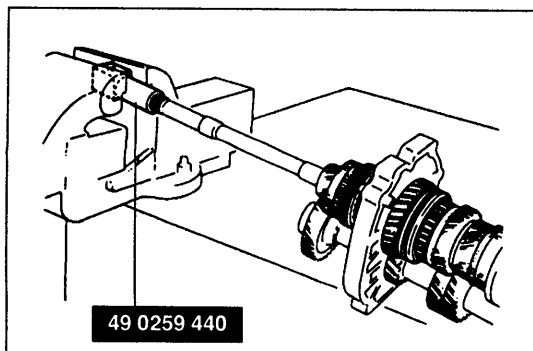
**Disassembly note
Mainshaft rear bearing**

Remove the mainshaft rear bearing by using the **SSTs**.

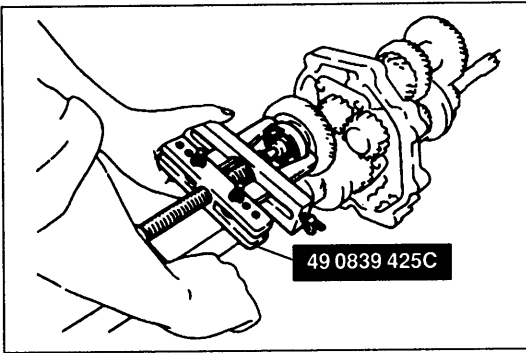


Locknut (Countershaft)

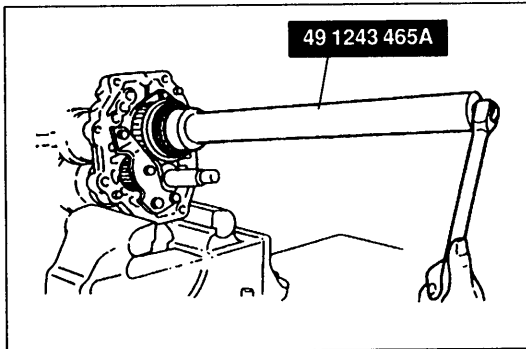
1. Shift the clutch hub sleeves into 1st and reverse gears to lock the rotation of the mainshaft.
2. Use a suitable tool to uncrimp the tabs of the locknut.



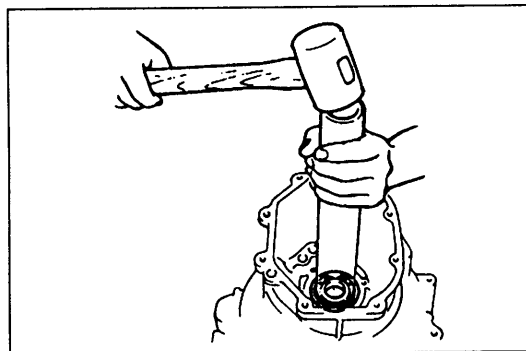
3. Connect the **SST** to the mainshaft and secure it in a vise.
4. Remove the locknut.

**Countershaft rear bearing**

Remove the countershaft rear bearing by using the SST.

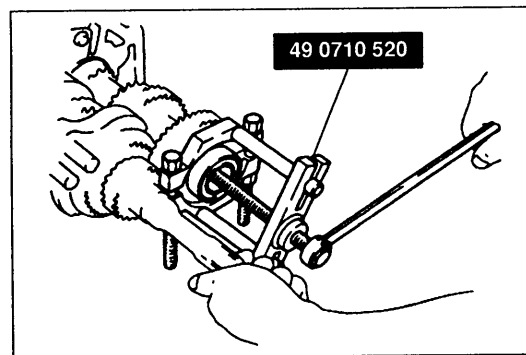
**Locknut (Mainshaft)**

1. Shift the clutch hub sleeves into 1st and reverse gears to lock the rotation of the mainshaft.
2. Use a suitable tool to uncrimp the tabs of the locknut.
3. Secure the bearing housing in a vise.
4. Remove the locknut by using the SST.

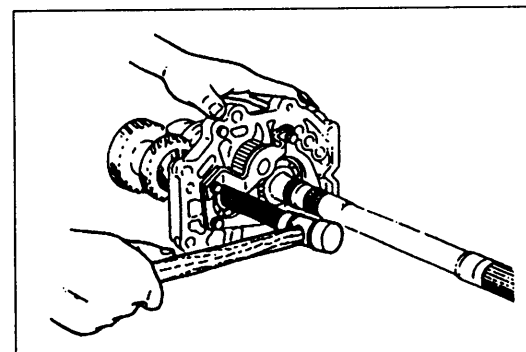
**Main drive gear bearing**

Remove the main drive gear bearing with a suitable pipe.

Outer diameter of pipe: 70.0 mm { 2.76 in }

**Countershaft front bearing**

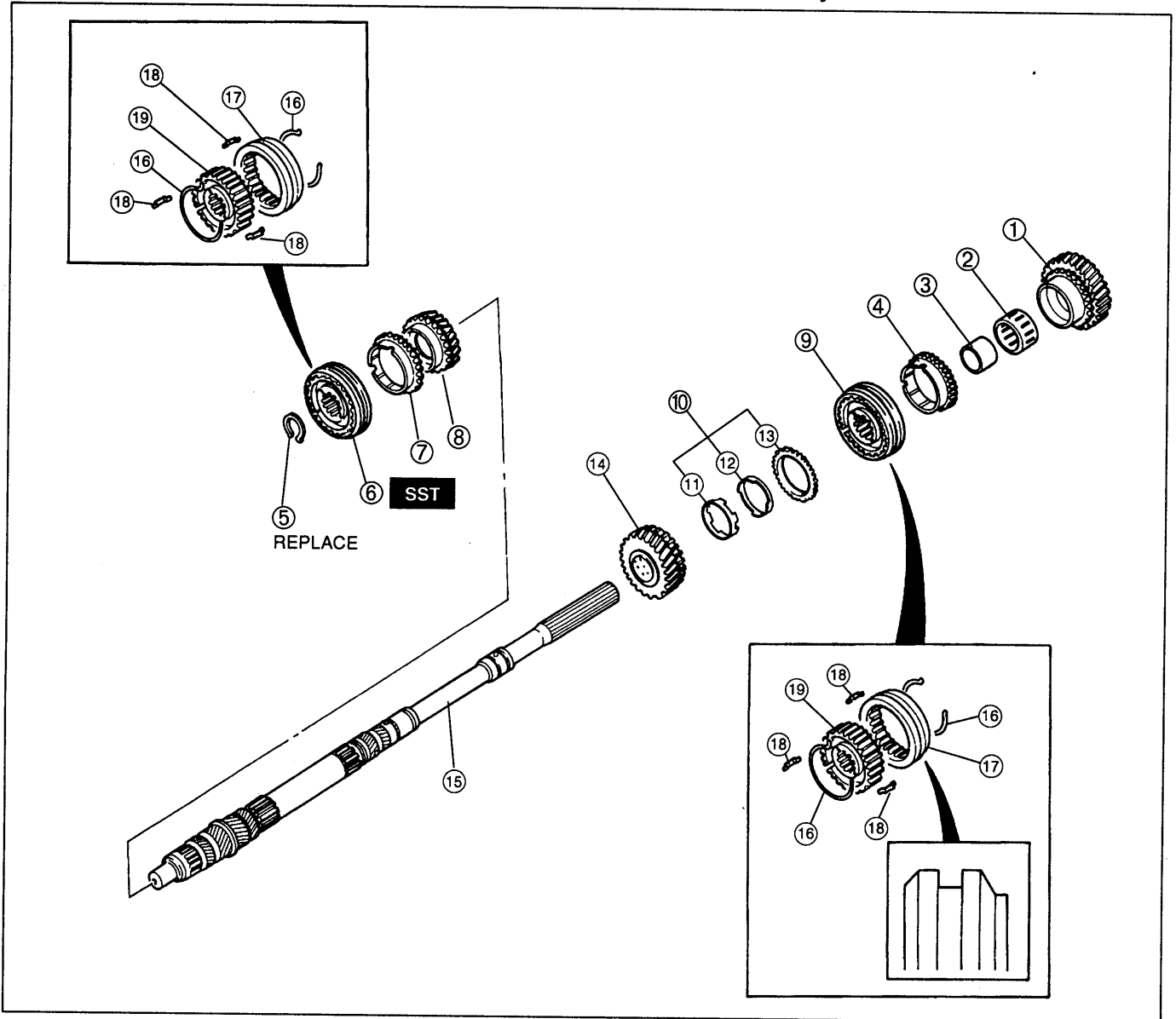
Remove the countershaft front bearing by using the SST.

**Bearing housing assembly**

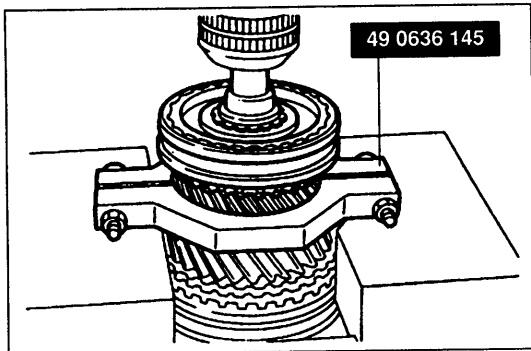
Remove the bearing housing by lightly tapping the countershaft with a copper hammer.

Mainshaft Parts

Disassemble in the order shown in the figure, referring to **Disassembly Note**.

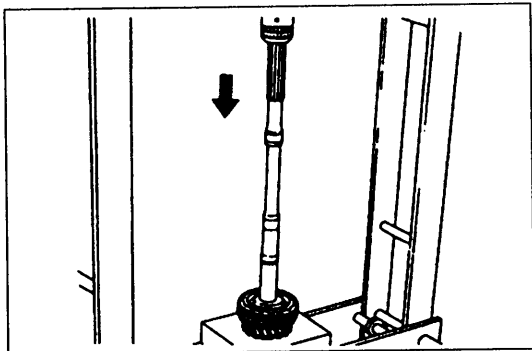


- | | | | |
|--|-----------|---|-----------|
| 1. 1st gear
Inspection | page J-23 | 10. Synchronizer assembly (2nd)
Inspection | page J-24 |
| 2. Bearing
Inspection | page J-25 | 11. Inner cone | |
| 3. Bearing race | | 12. Double cone | |
| 4. 1st synchronizer ring
Inspection | page J-24 | 13. 2nd synchronizer ring
Inspection | page J-24 |
| 5. Snap ring | | 14. 2nd gear
Inspection | page J-23 |
| 6. Clutch hub assembly (3rd/4th)
Disassembly Note | page J-20 | 15. Mainshaft
Inspection | page J-23 |
| Inspection | page J-23 | 16. Synchronizer key springs | |
| 7. 3rd synchronizer ring
Inspection | page J-24 | 17. Clutch hub sleeve | |
| 8. 3rd gear
Inspection | page J-23 | 18. Synchronizer key | |
| 9. Clutch hub assembly (1st/2nd)
Disassembly Note | page J-20 | 19. Clutch hub | |
| Inspection | page J-23 | | |



Disassembly note
3rd/4th clutch hub assembly

1. Position the **SST** between 2nd and 3rd gears, and hold the mainshaft from underneath.
2. Press the mainshaft out of the clutch hub assembly (3rd/4th) and 3rd gear.

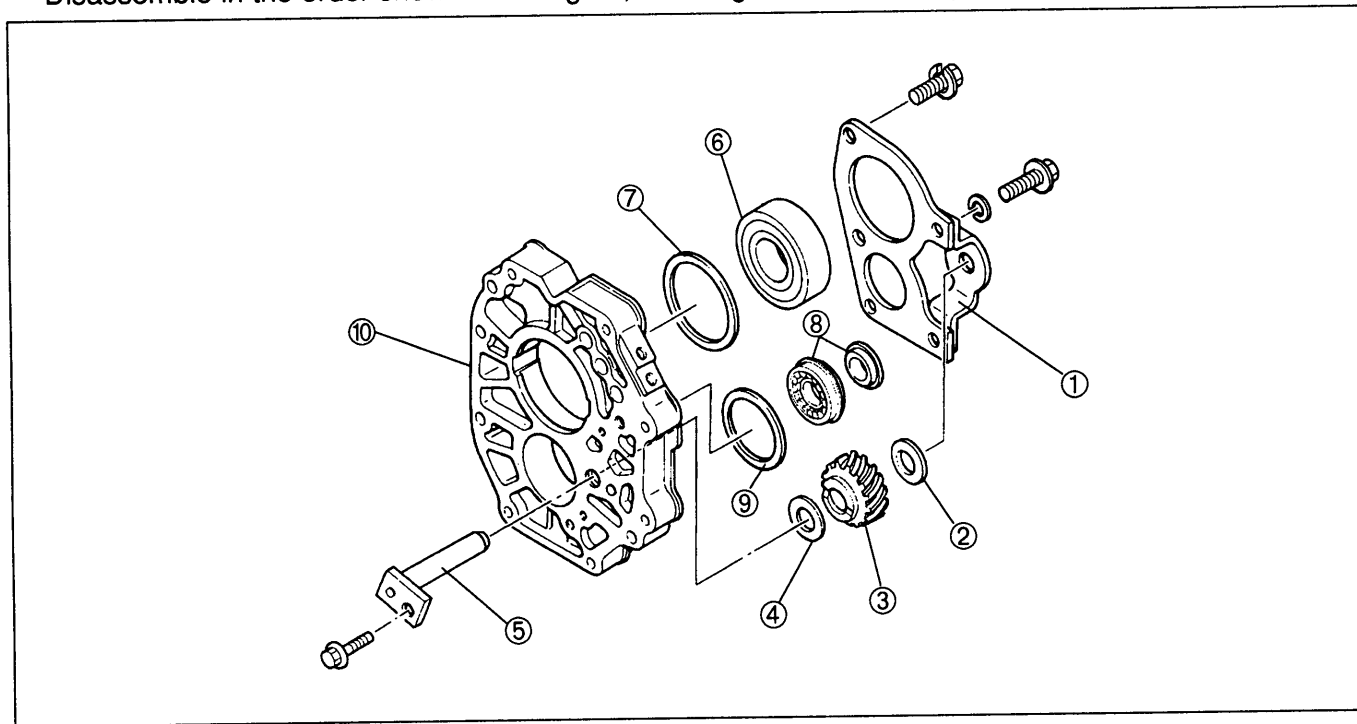


1st/2nd clutch hub assembly

Hold the mainshaft, and press the 1st/2nd clutch hub assembly, 2nd synchronizer assembly, and 2nd gear from the mainshaft.

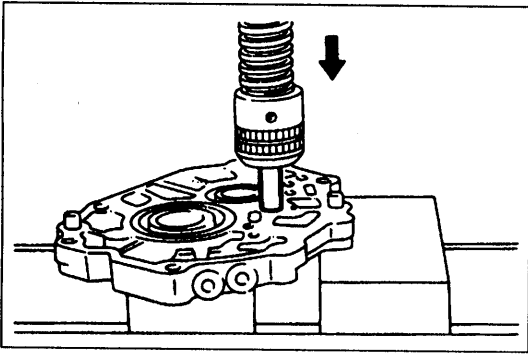
Bearing Housing Assembly

Disassemble in the order shown in the figure, referring to **Disassembly Note**.



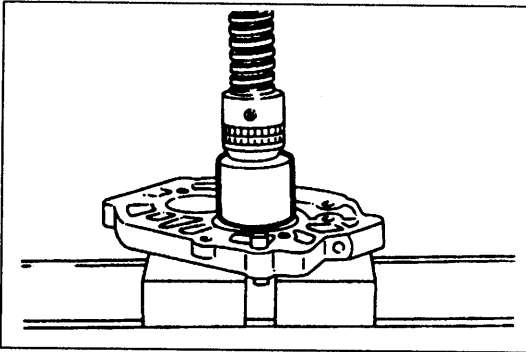
1. Bearing cover
2. Washer
3. Reverse idler gear
Inspection page J-25
4. Washer
5. Reverse idler gear shaft
Disassembly Note page J-21
Inspection page J-25

6. Mainshaft front bearing
Disassembly Note page J-21
Inspection page J-25
7. Adjustment shim
8. Countershaft center bearing
Disassembly Note page J-21
Inspection page J-25
9. Adjustment shim
10. Bearing housing



**Disassembly not
Reverse idler gear shaft**

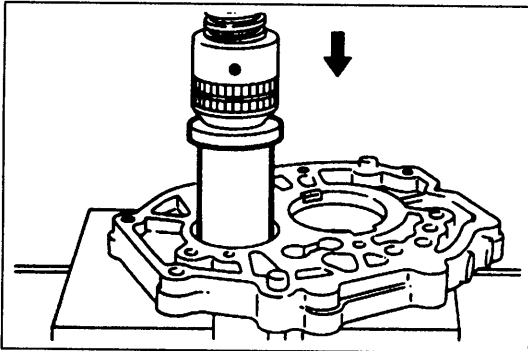
1. Remove the reverse idler gear shaft installation bolt.
2. Support the reverse idler gear shaft, and press it from the bearing housing.



Mainshaft front bearing

Support the mainshaft front bearing, and press it out from the bearing housing by using a suitable pipe.

Outer diameter of pipe: 70.0 mm { 2.76 in }



Countershaft center bearing

Note

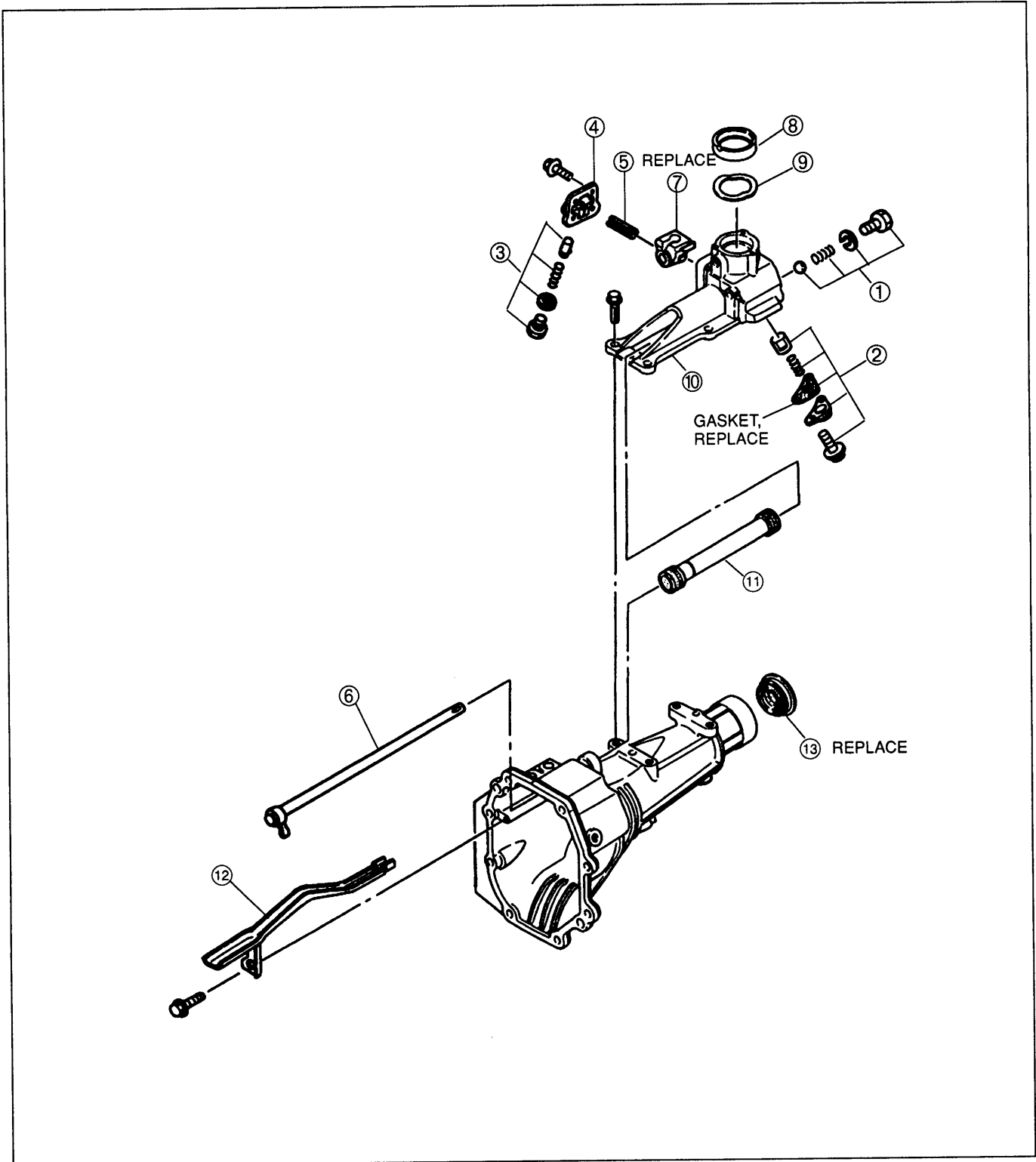
- If countershaft center bearing is replaced, replace the spacer also.

Support the countershaft center bearing, and press it out from the bearing housing by using a suitable pipe.

Outer diameter of pipe: 50.0 mm { 1.97 in }

Extension Housing Parts

Disassemble in the order shown in the figure.



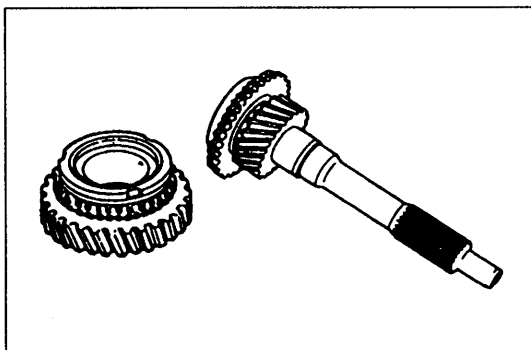
- 1. Steel ball, spring, and spring cap
- 2. Select-lock spindle, spring, and spring cap
- 3. Plug, spring, and pushpin
- 4. Blind cover
- 5. Roll pin
- 6. Control rod
- 7. Control rod end

- 8. Change bushing
- 9. Wave washer
- 10. Change control case
- 11. Rod cover
- 12. Oil passage
- 13. Oil seal

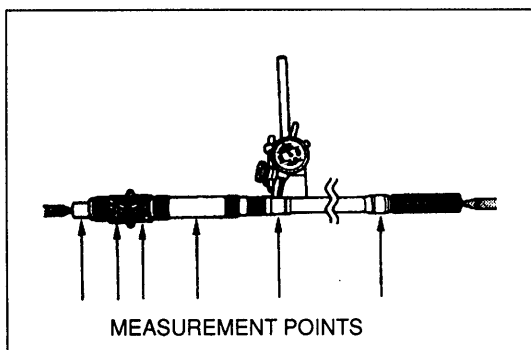
Do not remove unless necessary

INSPECTION

Inspect all parts and repair or replace as necessary.

**Each Gear and Main Drive Gear**

1. Inspect synchronizer cones for wear.
2. Inspect individual gear teeth for damage, wear, and cracks.
3. Inspect synchronizer ring matching teeth for damage and wear.
4. Inspect main drive gear splines for damage and wear.

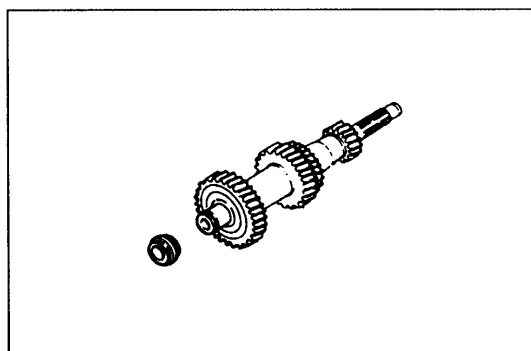
**Mainshaft**

1. Measure the mainshaft runout as shown.

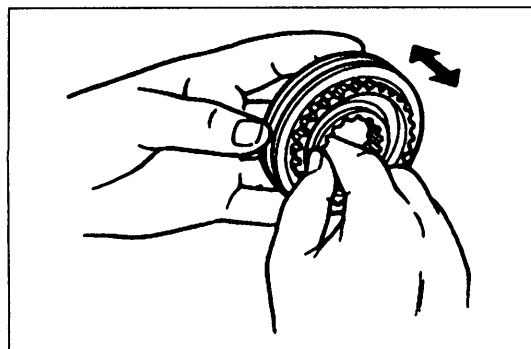
Maximum runout: 0.03 mm { 0.0012 in }

2. Inspect splines for damage or wear.
3. Measure the clearance between mainshaft and gear (or bushing).

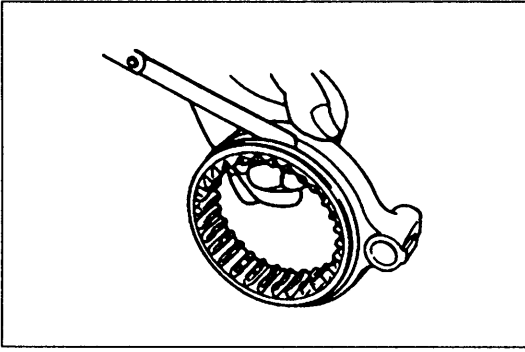
Maximum clearance: 0.15 mm { 0.006 in }

**Countershaft**

1. Inspect gear teeth for damage, wear, and cracks.
2. Inspect splines for damage and wear.

**Clutch Hub Assembly and Shift Fork**

1. Inspect clutch hub sleeve and hub operation.
2. Inspect individual gear teeth for damage, wear, and cracks.
3. Inspect synchronizer keys for damage, wear, and cracks.

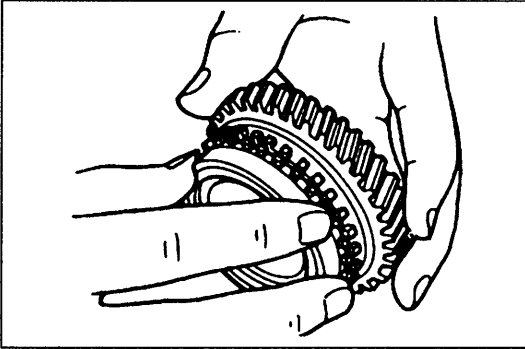


4. Measure the clearance between the hub sleeve and shift fork.

Standard clearance:

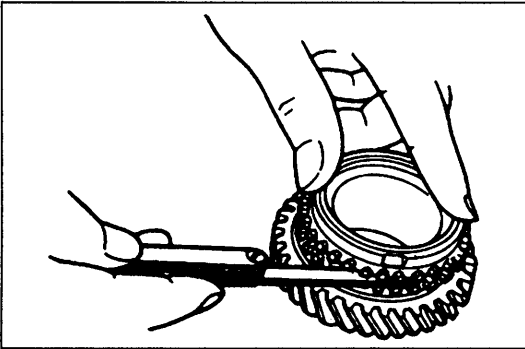
0.2—0.3 mm { 0.008—0.012 in }

Maximum: 0.5 mm { 0.020 in }



Synchronizer Ring (1st, 3rd, 4th, 5th and Reverse)

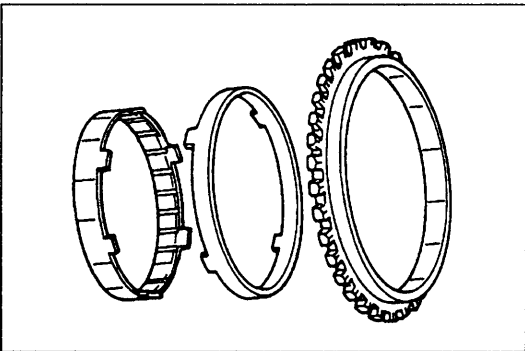
1. Inspect individual synchronizer ring teeth for wear and cracks.
2. Inspect the tapered surface for wear and cracks.



3. Set the synchronizer ring squarely in the gear.
4. Measure the clearance between the synchronizer ring and flank surface of gear all around the circumference.

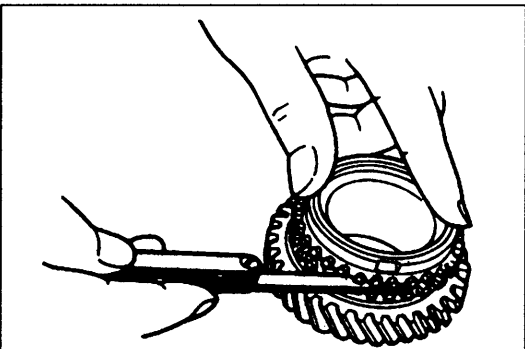
Standard clearance: 1.5 mm { 0.059 in }

Minimum: 0.8 mm { 0.031 in }



Synchronizer Assembly (2nd)

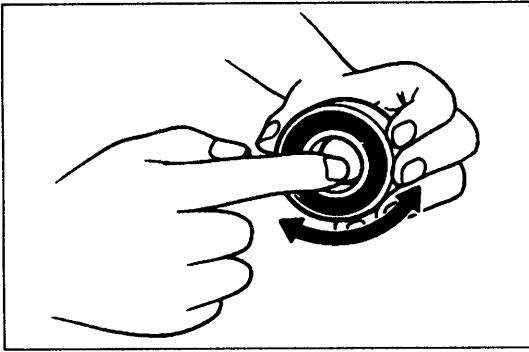
1. Inspect individual synchronizer ring gear teeth for damage, wear, and cracks. Replace the synchronizer assembly if any such damage is found.
2. Inspect for wear and damage to the tapered surfaces of the inner cone, double cone, and synchronizer ring. Replace the synchronizer assembly if any such damage is found.



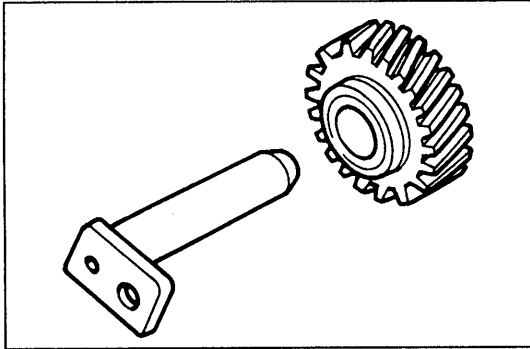
3. Set the synchronizer ring squarely in the gear.
4. Measure the clearance between the synchronizer ring and the flank surface of gear all around the circumference.

Clearance: 1.5 mm { 0.059 in }

Minimum: 0.8 mm { 0.031 in }

**Bearing**

Inspect for damage and rough rotation.

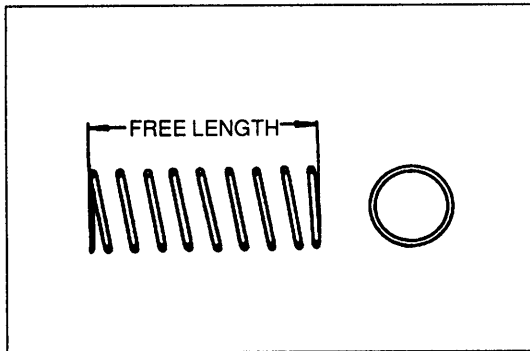
**Reverse Idler Gear and Shaft**

1. Inspect gear teeth for wear and cracks.
2. Measure the clearance between the reverse idler gear bushing and shaft.

Standard clearance:

0.02—0.05 mm { 0.0008—0.0020 in }

Maximum: 0.15 mm { 0.006 in }

**Springs**

Measure the free length of the springs.

Standard free length

Shift rod (5th/Reverse) spring:

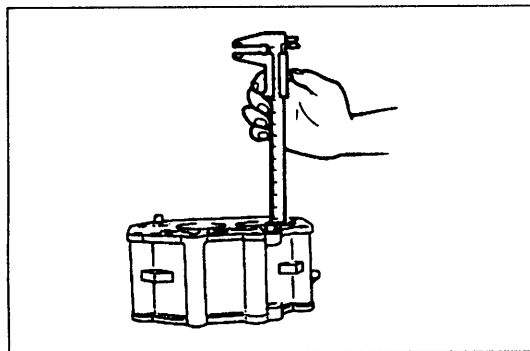
76.5 mm { 3.012 in }

Detent ball spring (1st/2nd, 3rd/4th):

22.5 mm { 0.886 in }

Detent ball spring (5th/Reverse):

17.0 mm { 0.669 in }

**Intermediate housing**

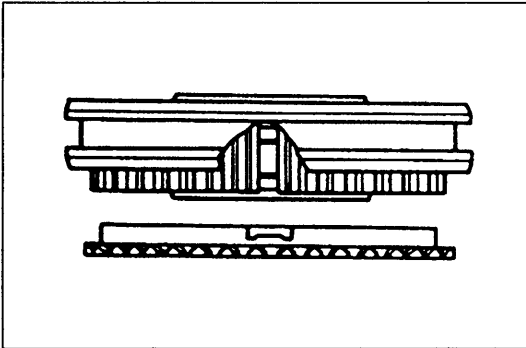
Measure the intermediate housing pin height.

Standard height: 9.0—10.0 mm { 0.354—0.394 in }

ASSEMBLY

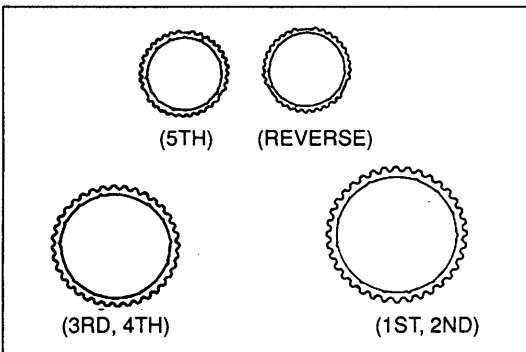
Precaution

1. All O-rings and gaskets must be replaced with the new ones included in the overhaul kit.
2. Before assembly, make sure all parts are completely clean.
3. Assemble the parts within 10 minutes after applying sealant. Allow all sealant to cure at least 30 minutes after assembly before filling the transmission with transmission oil.

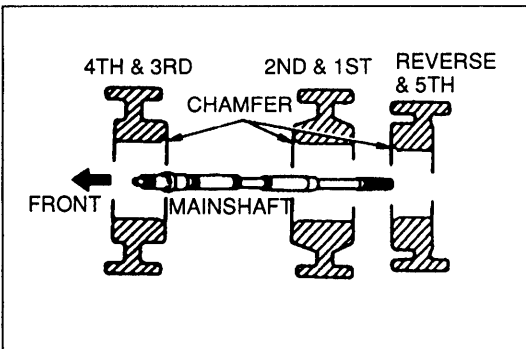


Clutch hub

For the synchronizer assemblies, align the synchronizer ring grooves and synchronizer keys.



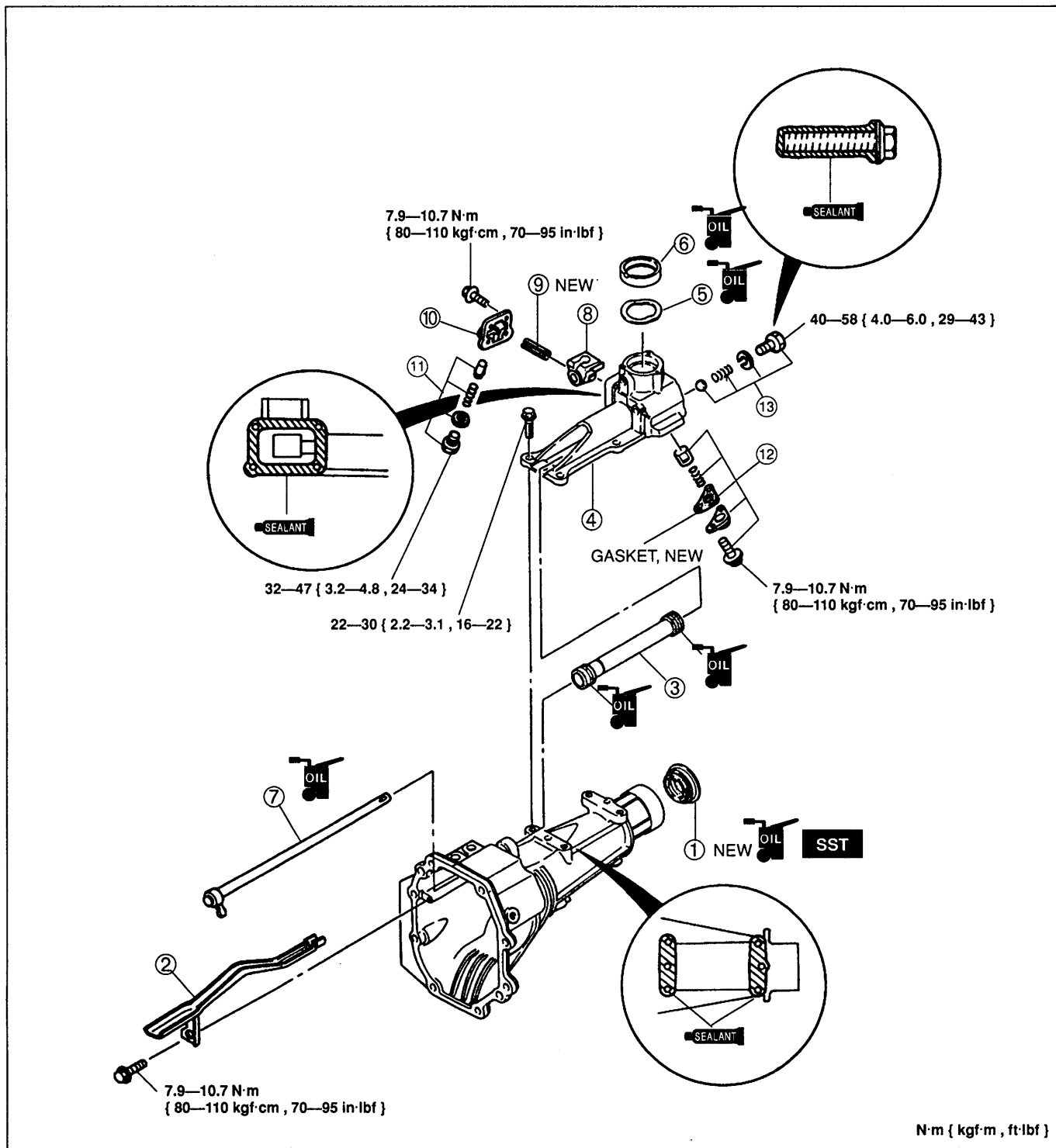
The synchronizer rings can be distinguished as shown in the figure. The inner diameters of the 2nd synchronizer ring is larger than the 1st.



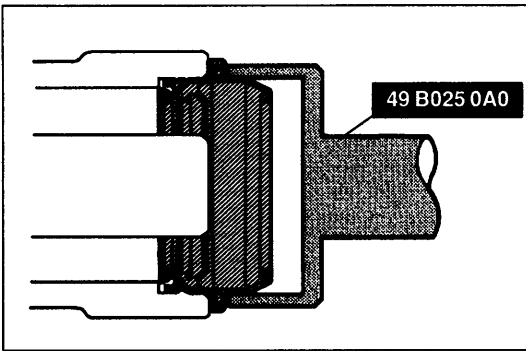
When installing the gears and clutch hub assemblies in the following procedure, make sure that they are installed in the direction shown in the figure.

Extension Housing Parts

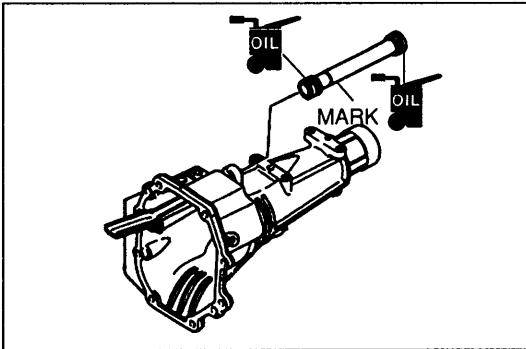
Assemble in the order shown in the figure, referring to **Assembly Note**.



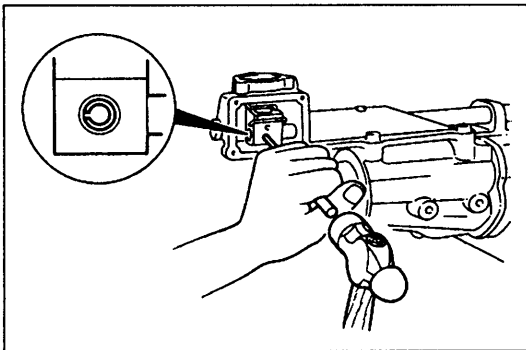
- | | |
|--|---|
| <p>1. Oil seal
 Assembly Note page J-28</p> <p>2. Oil passage
 Assembly Note page J-28</p> <p>3. Rod cover
 Assembly Note page J-28</p> <p>4. Change control case</p> <p>5. Wave washer</p> <p>6. Change bushing</p> <p>7. Control rod</p> | <p>8. Control rod end</p> <p>9. Roll pin
 Assembly Note page J-28</p> <p>10. Blind cover</p> <p>11. Plug, spring, and pushpin</p> <p>12. Select-lock spindle, spring, and spring cap
 Assembly Note page J-28</p> <p>13. Steel ball, spring, and spring cap</p> |
|--|---|

**Assembly note****Oil seal**

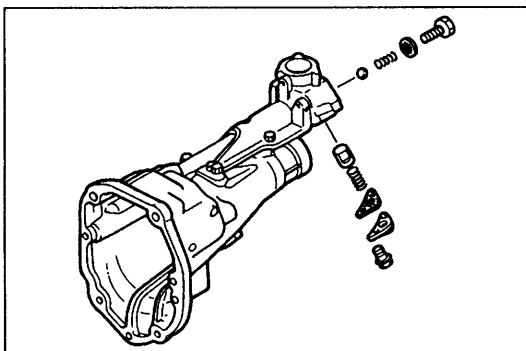
1. Apply the specified oil to a new oil seal.
2. Install the new oil seal by using the SST.

**Rod cover**

1. Apply transmission oil to the rubber bushings on the rod cover.
2. Install the rod cover with the mark facing forward.

**Roll pin**

Install a new roll pin into the control rod end. The split in the roll pin must be facing in the direction shown in the figure.

**Select-lock spindle, spring, and spring cap**

1. Install the select-lock spindle, spring, and spring cap.

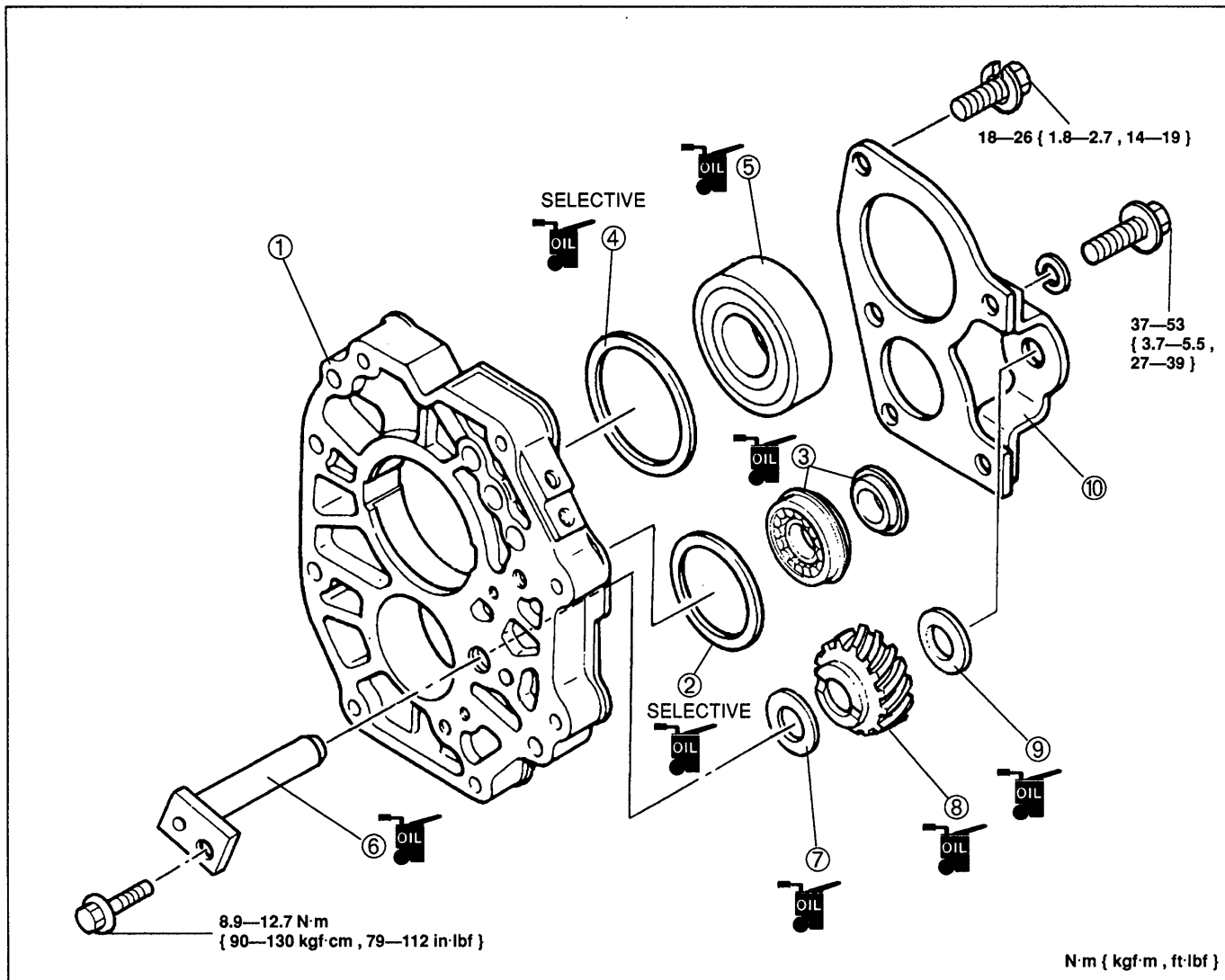
Tightening torque:

7.9—10.7 N·m { 80—110 kgf·cm , 70—95 in·lbf }

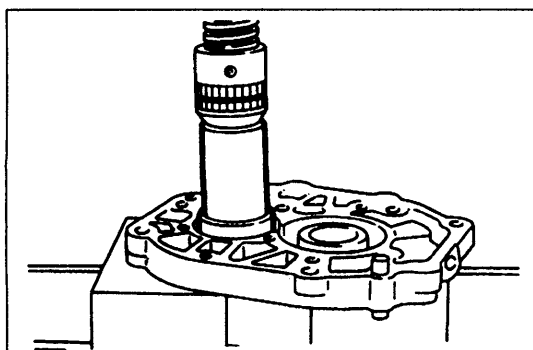
2. Push the select-lock spindle down by pushing on the control rod. This will ensure that the steel ball correctly engages the select-lock spindle.

Bearing Housing Assembly

Assemble in the order shown in the figure, referring to **Assembly Note**.



- | | |
|--------------------------------|-----------------|
| 1. Bearing housing | |
| 2. Adjustment shim | |
| Assembly Note | page J-30 |
| 3. Countershaft center bearing | |
| Assembly Note | below |
| 4. Adjustment shim | |
| Assembly Note | page J-30 |
| 5. Mainshaft front bearing | |
| Assembly Note | page J-30 |
| 6. Reverse idler gear shaft | |
| Assembly Note | page J-30 |
| 7. Washer | |
| 8. Reverse idler gear | |
| Assembly Note | page J-30 |
| 9. Washer | |
| 10. Bearing cover | |

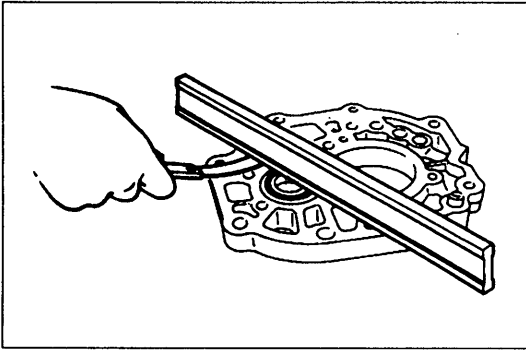


Assembly note

Countershaft center bearing

Press the countershaft center bearing into the bearing housing with a suitable pipe.

Outer diameter of pipe: 50.0 mm { 1.97 in }

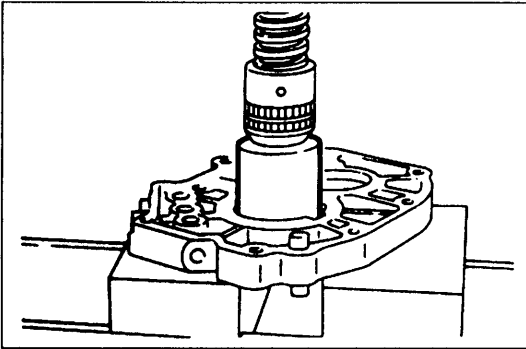
**Adjustment shim**

Measure the clearance between the countershaft center bearing and the bearing housing. If not within specification, adjust the clearance by installing the correct adjustment shim(s).

Standard clearance: 0—0.1 mm { 0—0.004 in }

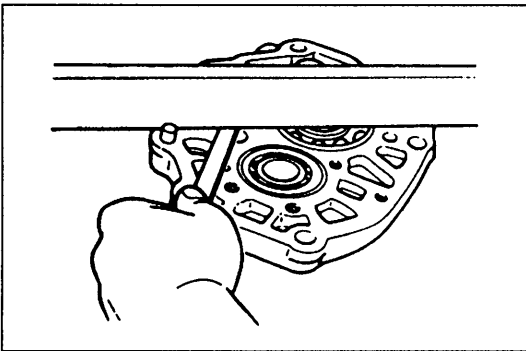
Adjustment shim:

0.1 mm { 0.004 in } , 0.3 mm { 0.012 in }

**Mainshaft front bearing**

Press the mainshaft front bearing into the bearing housing with a suitable pipe.

Outer diameter of pipe: 70.0 mm { 2.76 in }

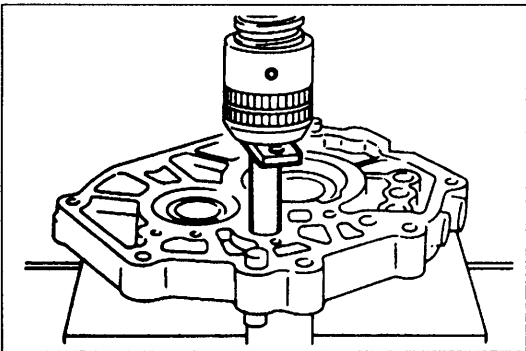
**Adjustment shim**

Measure the clearance between the mainshaft front bearing and the bearing housing. If not within specification, adjust the clearance by installing the correct adjustment shim(s).

Standard clearance: 0—0.1 mm { 0—0.004 in }

Adjustment shim:

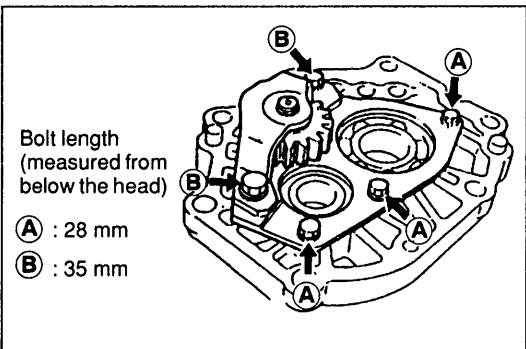
0.1 mm { 0.004 in } , 0.15 mm { 0.006 in } ,
0.3 mm { 0.012 in }

**Reverse idler gear shaft**

1. Press the reverse idler gear shaft into the bearing housing.
2. Install and tighten the reverse idler gear shaft installation bolt.

Tightening torque:

8.9—12.7 N·m { 90—130 kgf·cm , 79—112 in·lbf }

**Reverse idler gear**

1. Install the reverse idler gear, end washer, and bearing cover.
2. Tighten the bearing cover installation bolts.

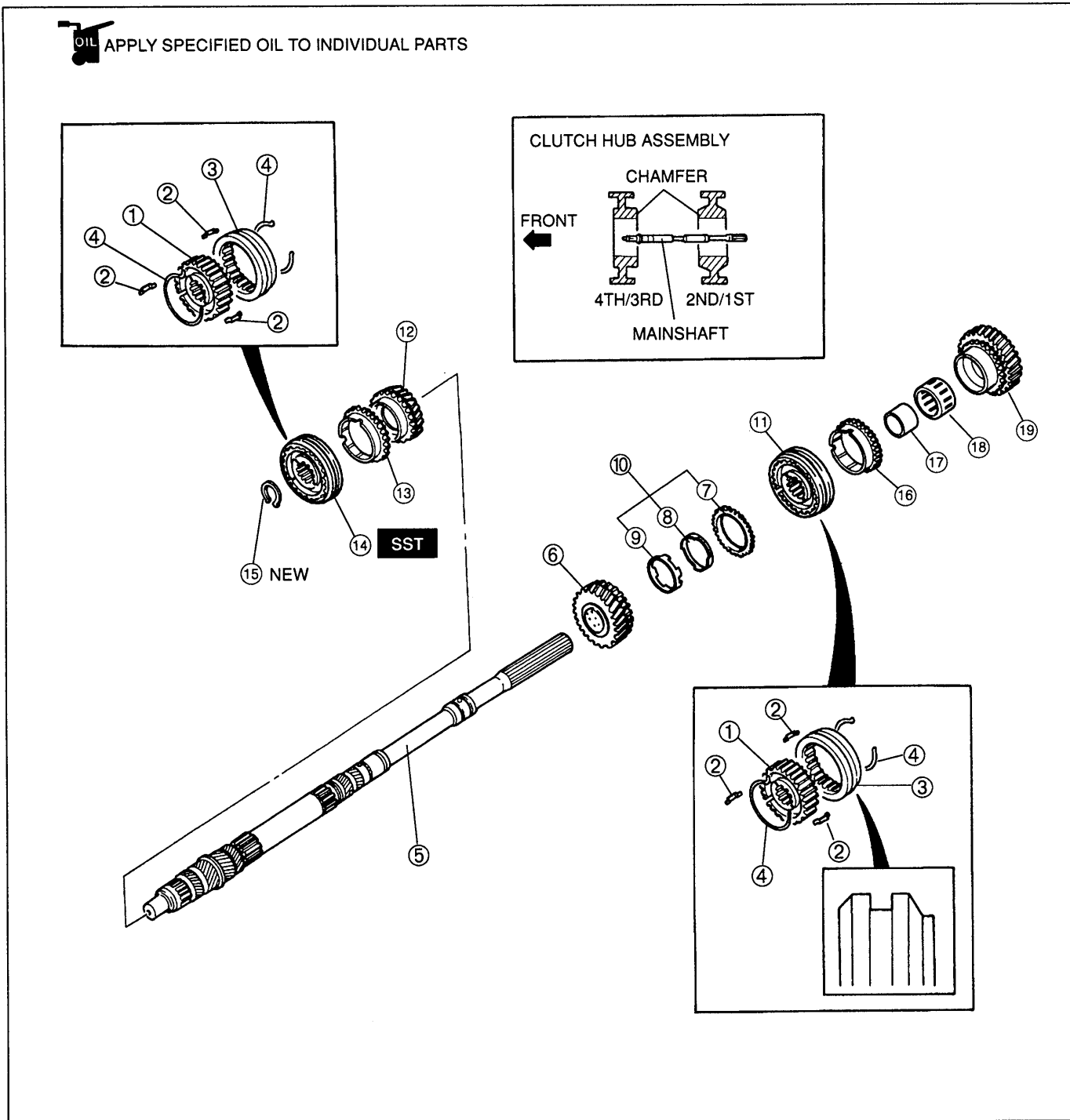
Tightening torque

Ⓐ : 18—26 N·m { 1.8—2.7 kgf·m , 14—19 ft·lbf }

Ⓑ : 37—53 N·m { 3.7—5.5 kgf·m , 27—39 ft·lbf }

Mainshaft Parts

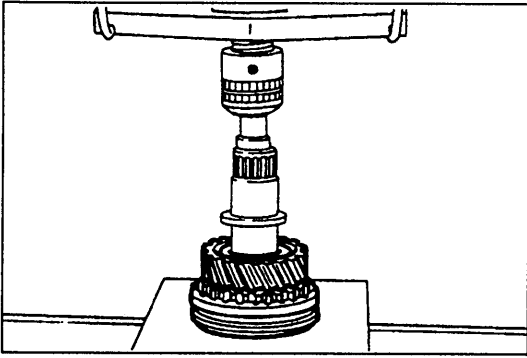
Assemble in the order shown in the figure, referring to **Assembly Note**.



- 1. Clutch hub
- 2. Synchronizer key
- 3. Clutch hub sleeve
- 4. Synchronizer key springs
- 5. Mainshaft
- 6. 2nd gear
- 7. 2nd synchronizer ring
- 8. Double cone
- 9. Inner cone
- 10. Synchronizer assembly (2nd)

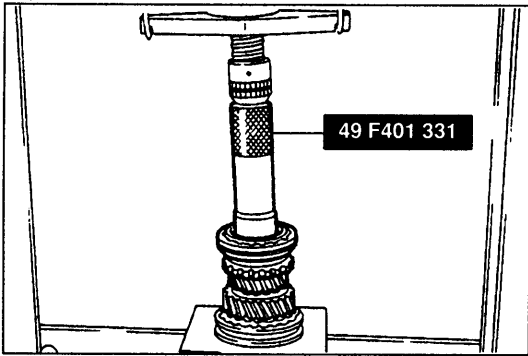
- 11. Clutch hub assembly (1st/2nd)
- 12. 3rd gear
- 13. 3rd synchronizer ring
- 14. Clutch hub assembly (3rd/4th)
- 15. Snap ring
- 16. 1st synchronizer ring
- 17. Bearing race
- 18. Bearing
- 19. 1st gear

Assembly Note page J-32

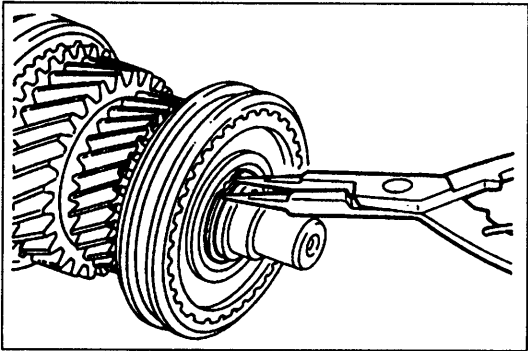


Assembly note
Clutch hub assembly

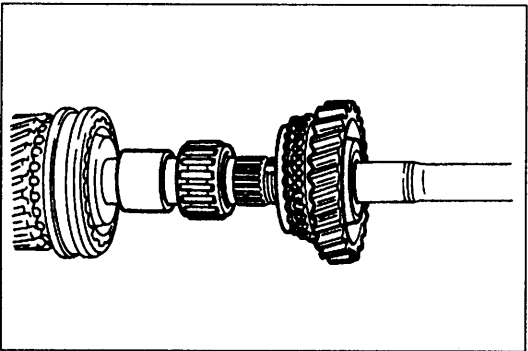
1. Set the 2nd gear, 2nd synchronizer ring, and 1st/2nd clutch hub assembly on the mainshaft, then press in the mainshaft.



2. Set the 3rd gear, 3rd synchronizer ring, and 3rd/4th clutch hub assembly on the mainshaft, then press them onto the mainshaft by using the **SST**.



3. Install a new snap ring on the front of the mainshaft.

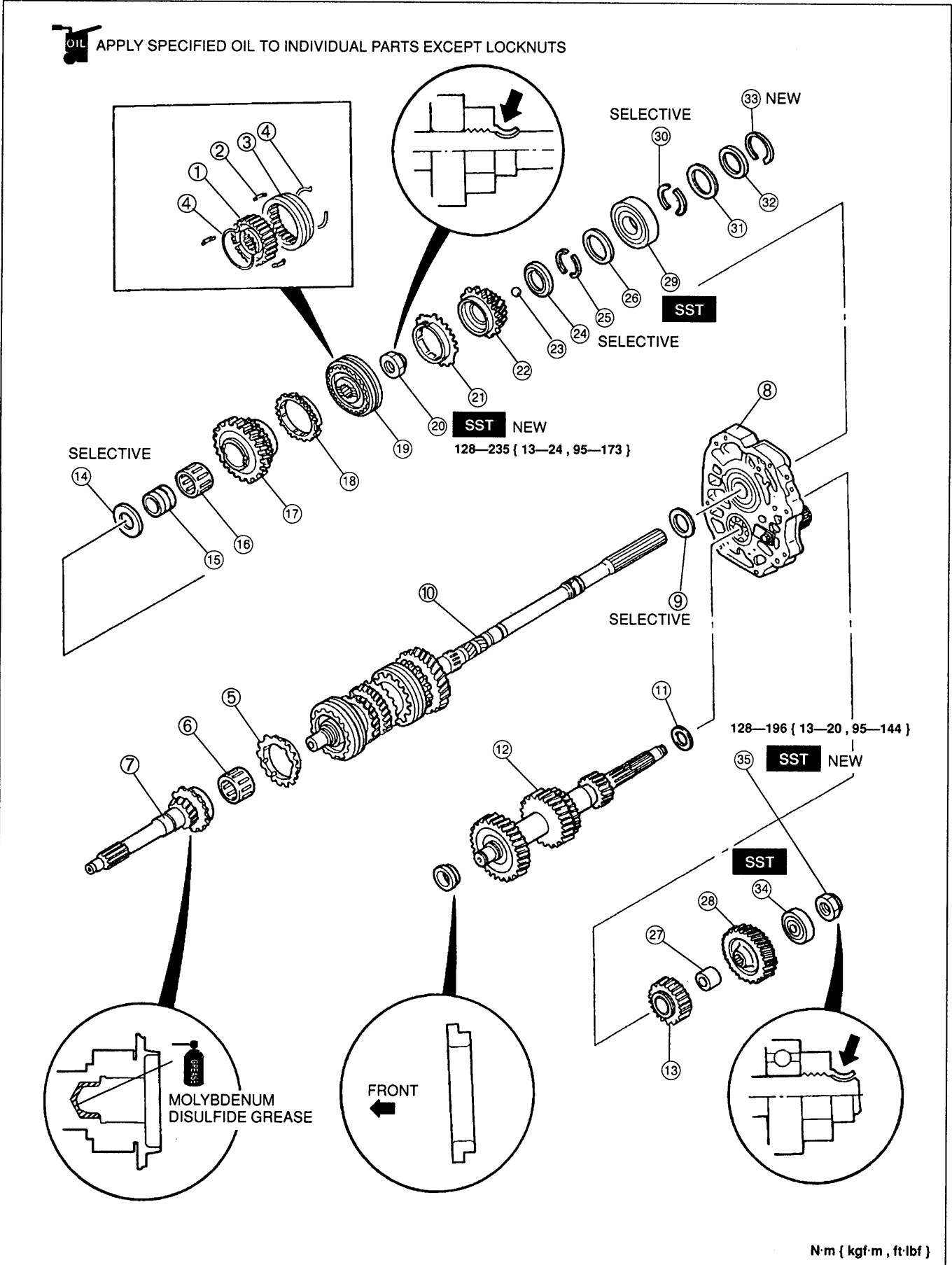


4. Install the bearing race, bearing, and 1st gear.

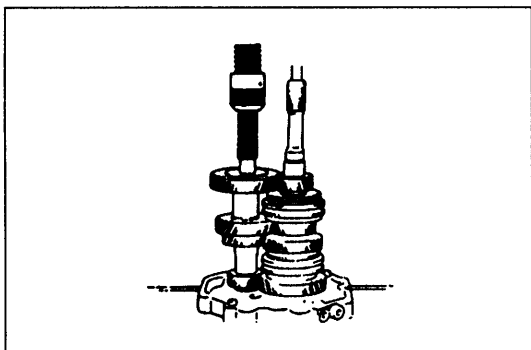
MEMO

Mainshaft and Countershaft Parts

Assemble in the order shown in the figure, referring to **Assembly Note**.



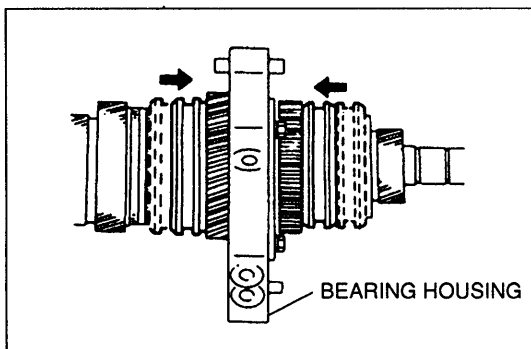
- | | |
|--|--|
| 1. Clutch hub | 20. Locknut (Mainshaft)
Assembly Note below |
| 2. Synchronizer key | 21. 5th synchronizer ring |
| 3. Clutch hub sleeve | 22. 5th gear |
| 4. Synchronizer key springs | 23. Steel ball |
| 5. 4th synchronizer ring | 24. Thrust lock washer
Assembly Note page J-36 |
| 6. Bearing | 25. C-washer |
| 7. Main drive gear | 26. Retaining ring |
| 8. Bearing housing assembly | 27. Spacer |
| 9. Washer | 28. Counter 5th gear |
| 10. Mainshaft gear assembly
Assembly Note below | 29. Mainshaft rear bearing
Assembly Note page J-36 |
| 11. Spacer | 30. C-washer |
| 12. Countershaft
Assembly Note below | 31. Retaining ring |
| 13. Counter reverse gear | 32. Washer |
| 14. Washer | 33. Snap ring |
| 15. Bearing race | 34. Countershaft rear bearing
Assembly Note page J-36 |
| 16. Bearing | 35. Locknut (Countershaft)
Assembly Note page J-37 |
| 17. Reverse gear | |
| 18. Reverse synchronizer ring | |
| 19. Clutch hub assembly (5th/Reverse) | |



Assembly note

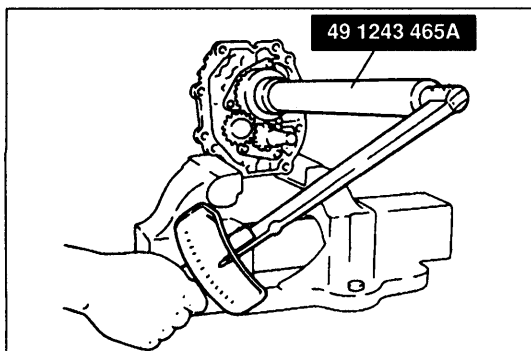
Mainshaft and countershaft

1. Place the mainshaft gear assembly and the countershaft on the bearing housing.
2. Use a suitable bar to press in the countershaft.



Locknut (Mainshaft)

1. Secure the bearing housing assembly in a vise.
2. Shift the clutch hub sleeves into 1st and reverse gears to lock the rotation of the mainshaft.

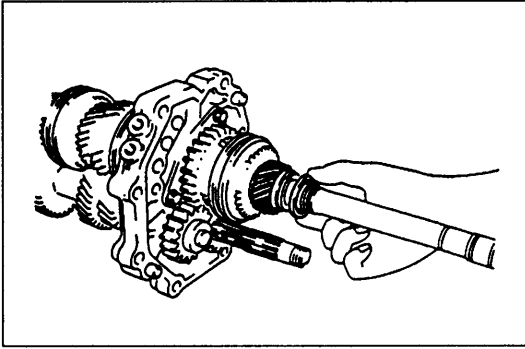


3. Install a new locknut and tighten it by using the SST.

Tightening torque:

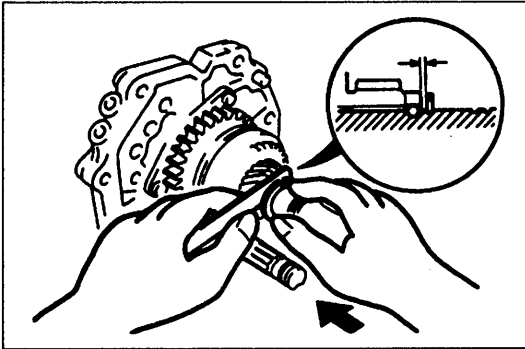
128—235 N·m { 13—24 kgf·m , 95—173 ft·lbf }

4. Use a chisel to stake the locknut.



Thrust lock washer

1. Install the synchronizer ring and 5th gear.
2. Insert the steel ball and thrust lock washer.
3. Install only the two 3.0 mm { 0.118 in } thick C-washers in the front mainshaft groove.



4. Push the C-washers fully toward 5th gear and measure the clearance between the thrust lock washer and C-washers.

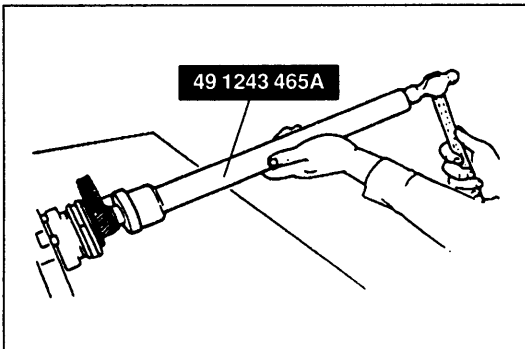
If the clearance is not as specified, select the proper thrust lock washer.

Standard play: 0.1—0.3 mm { 0.004—0.012 in }

Thrust lock washer thickness:

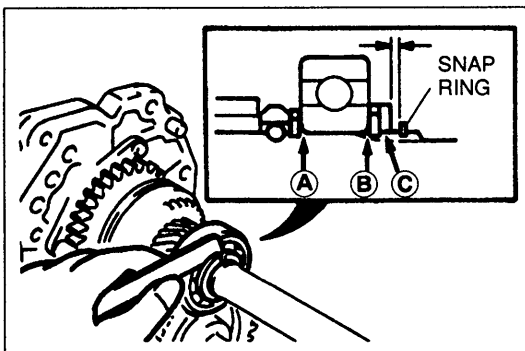
6.2 mm { 0.244 in }, 6.4 mm { 0.252 in },
6.5 mm { 0.256 in }, 6.6 mm { 0.260 in }

5. Install the retaining ring.



Mainshaft rear bearing

1. Install the mainshaft rear bearing by using the **SST**, and fully seat it against the front C-washers.
2. Install the original C-washers and hold them with the retaining ring.
3. Install the washer and new snap ring.
4. If the C-washers do not fit into the rear mainshaft groove, select the proper thickness C-washers.
5. Verify that both C-washers at one position are the same thickness.

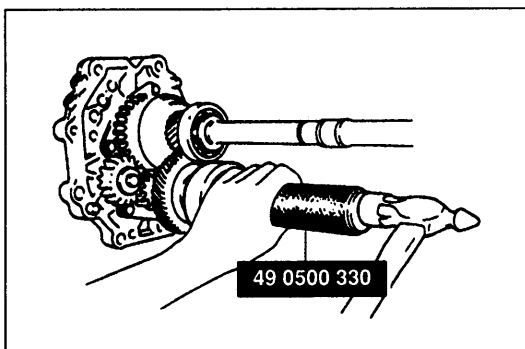


6. With points **A** through **C** pressed tightly together, measure the clearance between the washer and snap ring. If the clearance is not as specified, select the proper C-washers.

Standard play: 0—0.1 mm { 0—0.004 in }

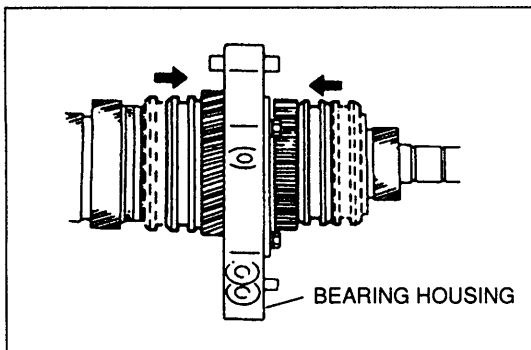
C-washer thickness:

2.9 mm { 0.114 in }, 3.0 mm { 0.118 in },
3.1 mm { 0.122 in }, 3.2 mm { 0.126 in }

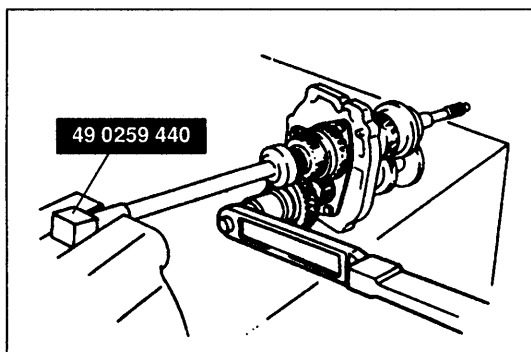


Countershaft rear bearing

Install the countershaft rear bearing onto the countershaft by using the **SST**.

**Locknut (Countershaft)**

1. Shift the clutch hub sleeves into 1st and reverse gears to lock the rotation of the mainshaft.



2. Connect the **SST** to the mainshaft and secure it in a vise.
3. Install a new locknut and tighten it.

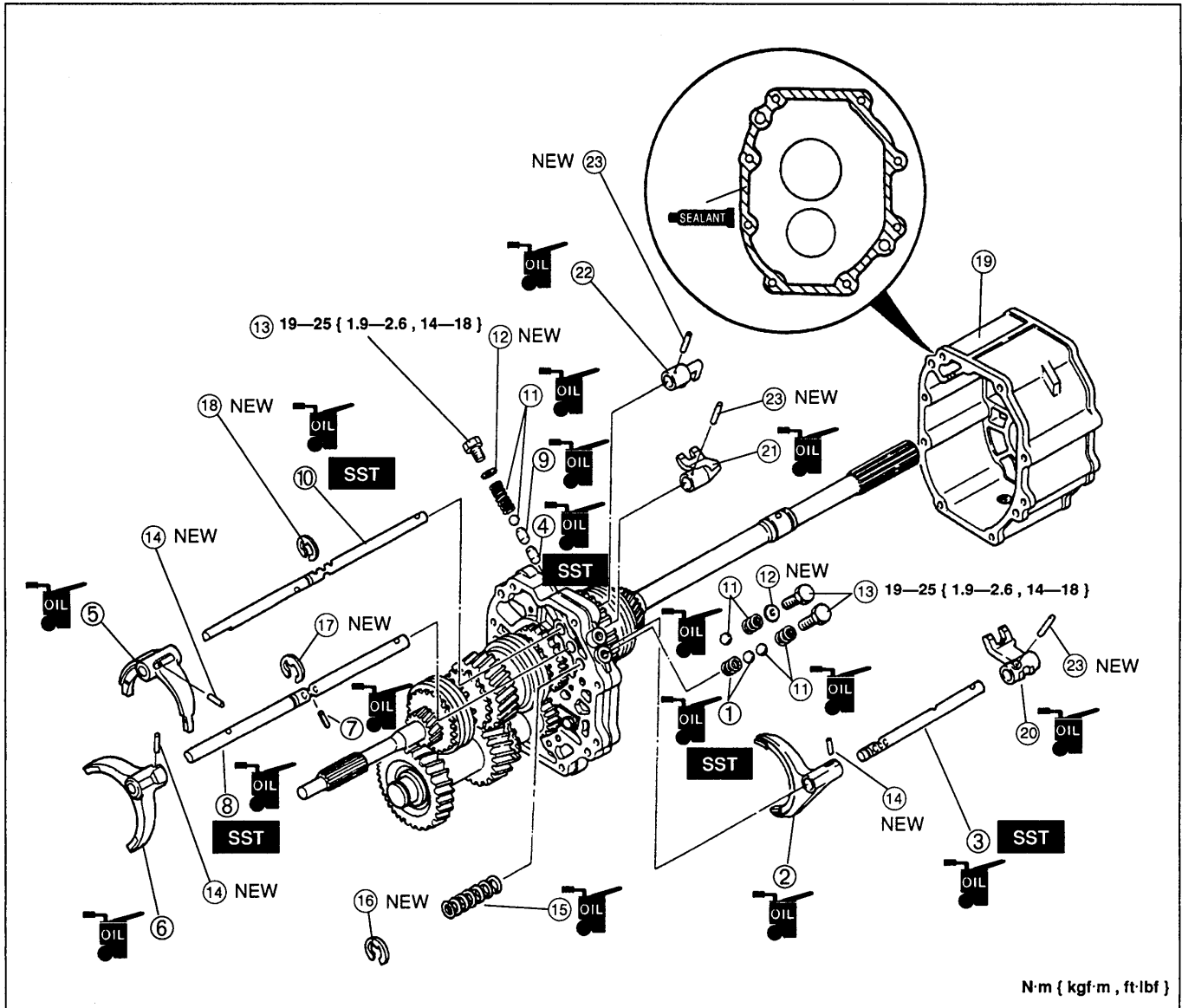
Tightening torque:

128—196 N·m { 13—20 kgf·m , 95—144 ft·lbf }

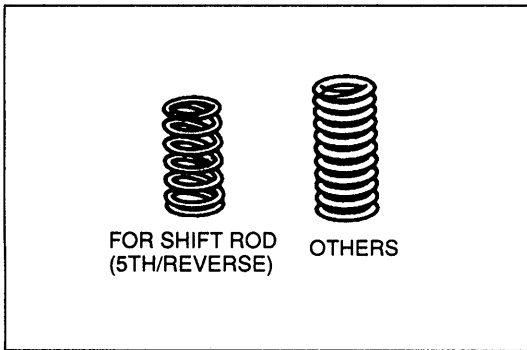
4. Use a chisel to stake the locknut.

Shift Fork and Shift Rod Parts

Assemble in the order shown in the figure, referring to **Assembly Note**.

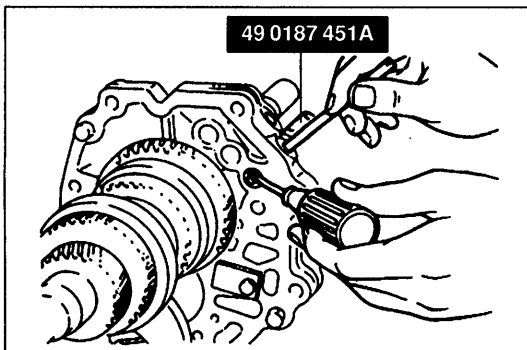


- | | |
|--|---|
| 1. Spring and ball
Assembly Note page J-39 | 12. Washer |
| 2. 5th/Reverse shift fork
Assembly Note page J-39 | 13. Cap plug |
| 3. 5th/Reverse shift rod
Assembly Note page J-39 | 14. Roll pin
Assembly Note page J-40 |
| 4. Interlock pin
Assembly Note page J-39 | 15. Spring
Assembly Note page J-40 |
| 5. 1st/2nd shift fork
Assembly Note page J-40 | 16. Clip
Assembly Note page J-40 |
| 6. 3rd/4th shift fork
Assembly Note page J-40 | 17. Clip
Assembly Note page J-40 |
| 7. Interlock pin
Assembly Note page J-40 | 18. Clip
Assembly Note page J-40 |
| 8. 3rd/4th shift rod
Assembly Note page J-40 | 19. Intermediate housing
Assembly Note page J-41 |
| 9. Interlock pin
Assembly Note page J-40 | 20. 5th/Reverse shift rod end |
| 10. 1st/2nd shift rod | 21. 3rd/4th shift rod end |
| 11. Ball and spring | 22. 1st/2nd shift rod end |
| | 23. Roll pin
Assembly Note page J-41 |

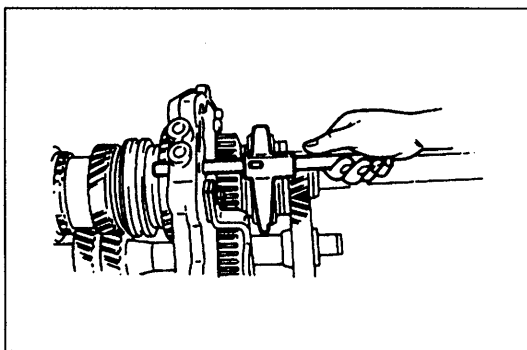


Assembly note Spring and ball

1. Insert the spring and ball (5th/reverse) into the bearing housing.

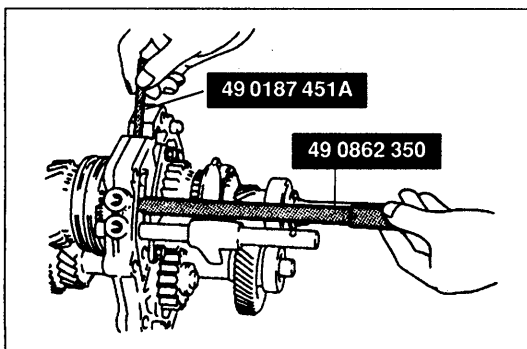


2. Press down the spring and ball (5th/reverse) by using the SST and a screwdriver, and install the shift rod.



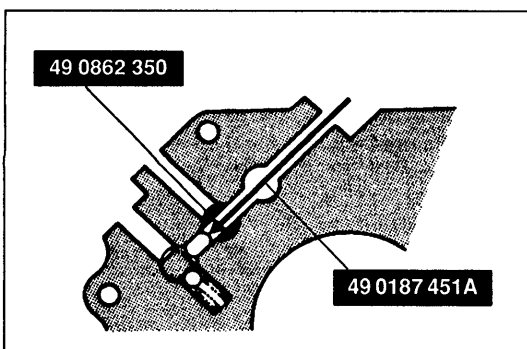
Shift fork and rod

- Install the 5th/reverse shift fork and 5th/reverse shift rod into the bearing housing.

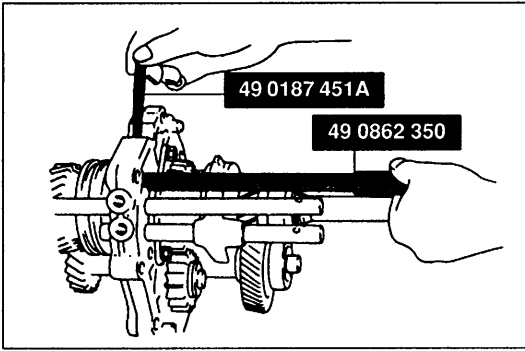


Interlock pin

1. Position the interlock pin into the bearing housing by using the SSTs.

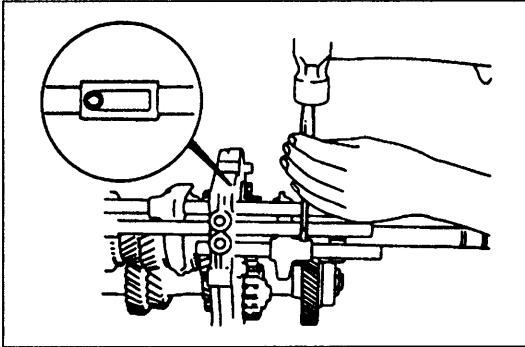


2. Verify that the interlock pin is correctly installed.



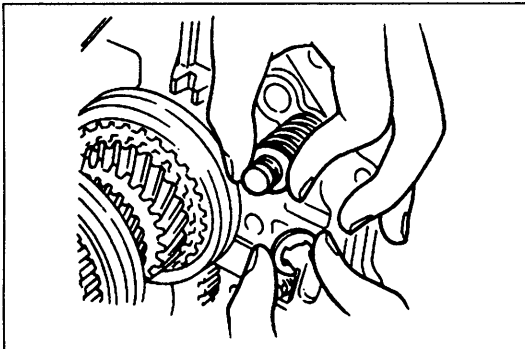
Shift fork and rod, interlock pin

1. Set the 1st/2nd shift fork onto the 1st/2nd clutch hub assembly.
2. Install the 3rd/4th shift fork and 3rd/4th shift rod, and install the interlock pin into the bearing housing as shown in the interlock pin assembly note. (Refer to page J-39.)



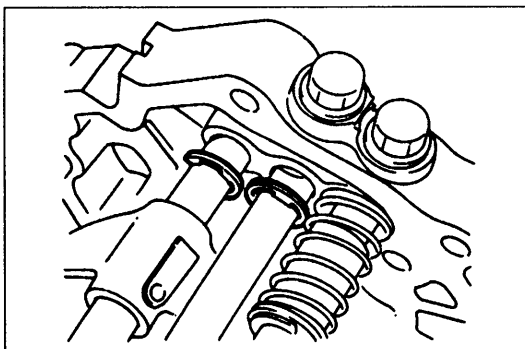
Roll pin

Install a new roll pin into each shift fork. The roll pin must be installed with the split facing as shown.

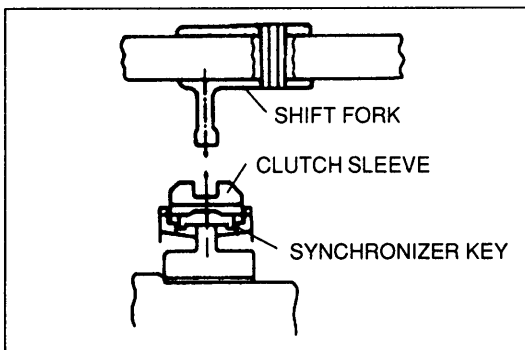


Spring, clip

1. Slide the spring onto the 5th/Reverse shift rod. While pressing the spring, install a new clip.

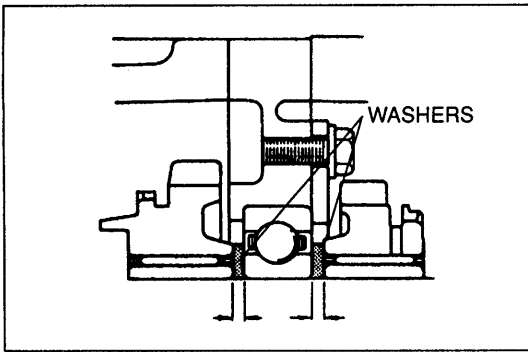


2. Install new clips to the 3rd/4th shift rod and 1st/2nd shift rod.



3. Verify that the centers of the shift fork and clutch hub sleeve are aligned properly.

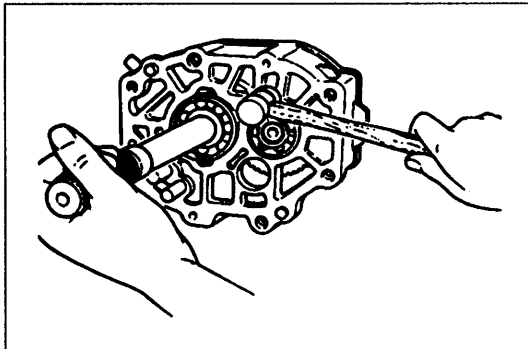
If they are not, select the proper washer to install between 1st gear and the mainshaft front bearing, and between reverse gear and the mainshaft front bearing.



4. The following washer thicknesses are available. The total thickness of the front and rear washers should be 5.9—6.0 mm { 0.232—0.236 in }.

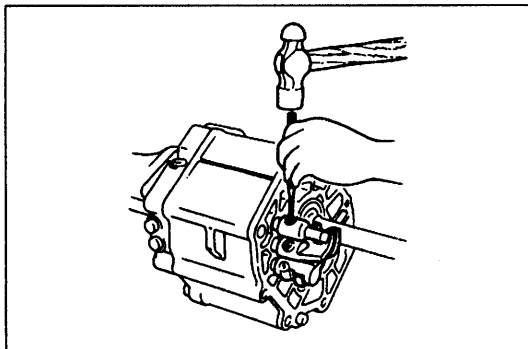
Washer thickness:

- 2.2 mm { 0.087 in } , 2.7 mm { 0.106 in }
 3.0 mm { 0.118 in } , 3.2 mm { 0.126 in }
 3.7 mm { 0.146 in }



Intermediate housing

1. Apply sealant to the contact surfaces of the intermediate housing and bearing housing.
2. Mount the intermediate housing to the bearing housing by tapping it lightly with a plastic hammer.

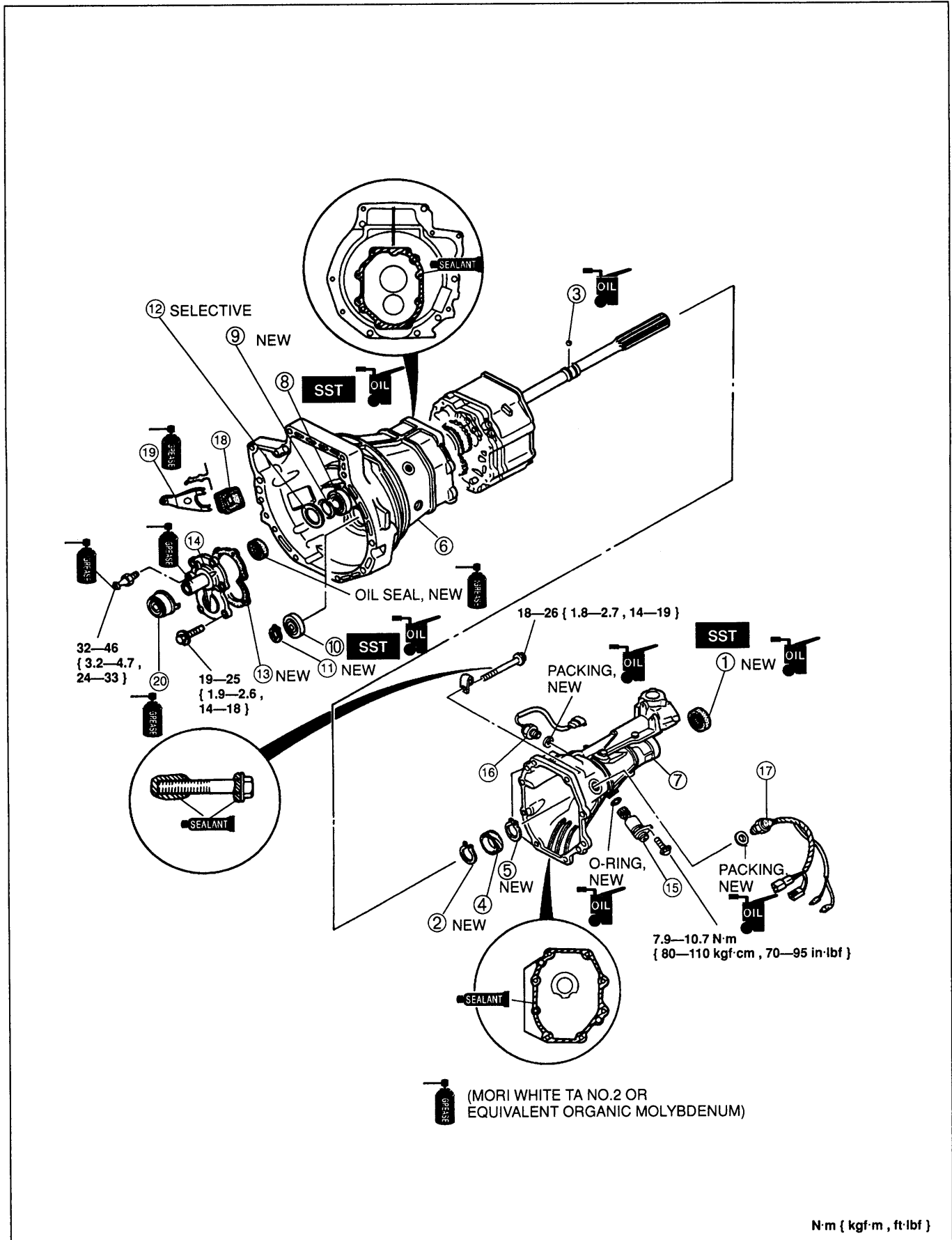


Roll pin

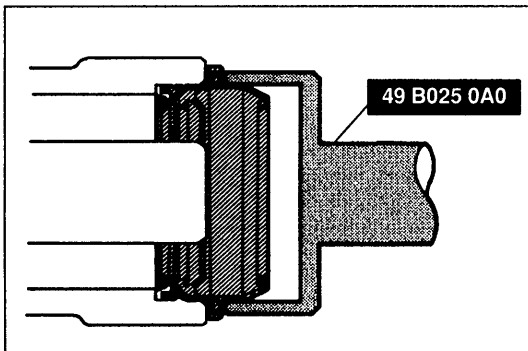
Install a new roll pin into each shift rod end. The roll pin must be installed with the split facing forward.

Housing Components

1. Assemble in the order shown in the figure, referring to **Assembly Note**.
2. Check the gearshift lever operation.



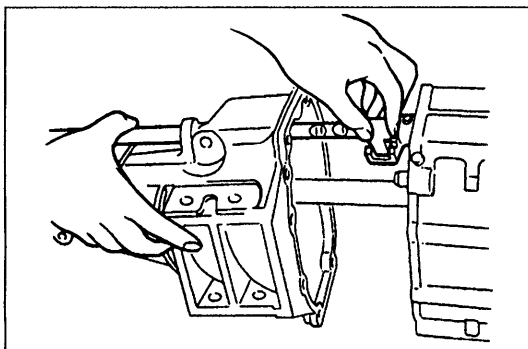
- | | |
|---|--|
| <ul style="list-style-type: none"> 1. Oil seal
 Assembly Note below 2. Snap ring 3. Steel ball 4. Speedometer drive gear 5. Snap ring 6. Transmission case 7. Extension housing
 Assembly Note below 8. Main drive gear bearing
 Assembly Note below 9. Snap ring 10. Countershaft front bearing
 Assembly Note page J-44 | <ul style="list-style-type: none"> 11. Snap ring 12. Adjustment shim
 Assembly Note page J-44 13. Gasket 14. Front cover 15. Speedometer driven gear 16. Neutral switch 17. Back-up light switch 18. Boot 19. Clutch release fork
 Assembly Note page J-44 20. Clutch release collar
 Assembly Note page J-44 |
|---|--|



Assembly note

Oil seal

1. Apply transmission oil to the outer periphery.
2. Install a new oil seal with the **SST**.

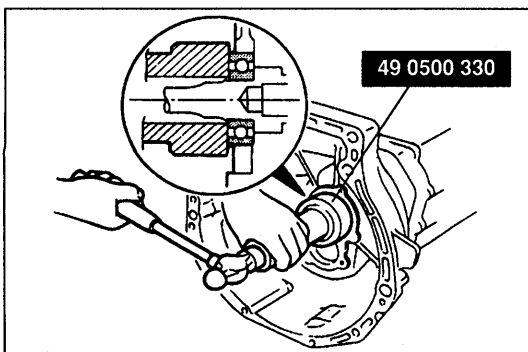


Extension housing

1. Apply sealant to the contact surfaces of the bearing housing and transmission case.
2. Align the inner shift lever and shift rod end groove, and install the extension housing.
3. Apply sealant to the bolt threads, and install the bolts.

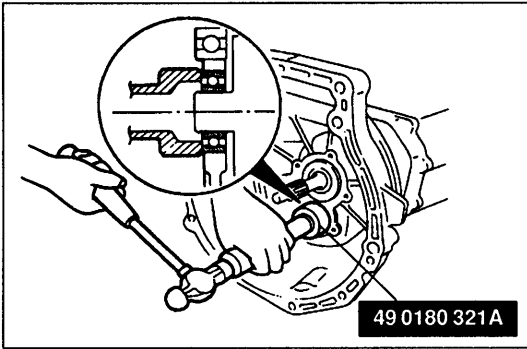
Tightening torque:

18—26 N·m { 1.8—2.7 kgf·m , 14—19 ft·lbf }



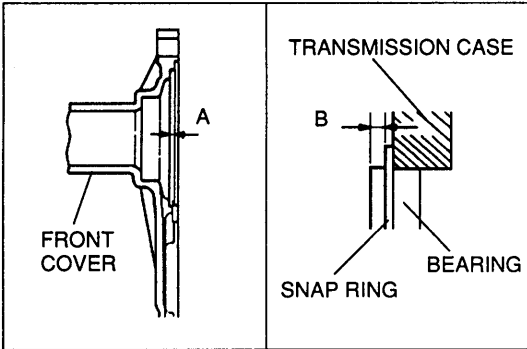
Main drive gear bearing

Install the main drive gear bearing by using the **SST**, and secure it with a new snap ring.



Countershaft front bearing

Install the countershaft front bearing by using the SST, and secure it with a new snap ring.



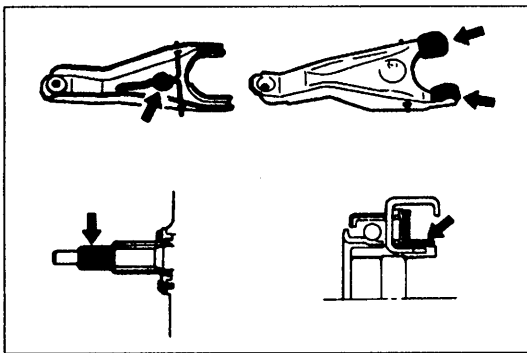
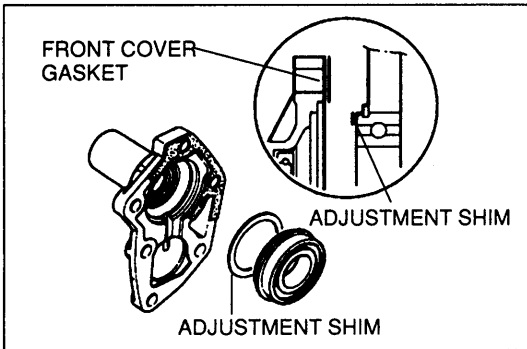
Adjustment shim

After measuring dimensions (A) and (B) shown in the figure, use an adjustment shim(s), as specified below, of the thickness corresponding to the value of (A) minus (B), so that bearing end play will be within specification.

Bearing end play: 0—0.1 mm { 0—0.004 in }

Adjustment shim thickness:

0.10 mm { 0.004 in }, 0.15 mm { 0.006 in },
0.30 mm { 0.012 in }

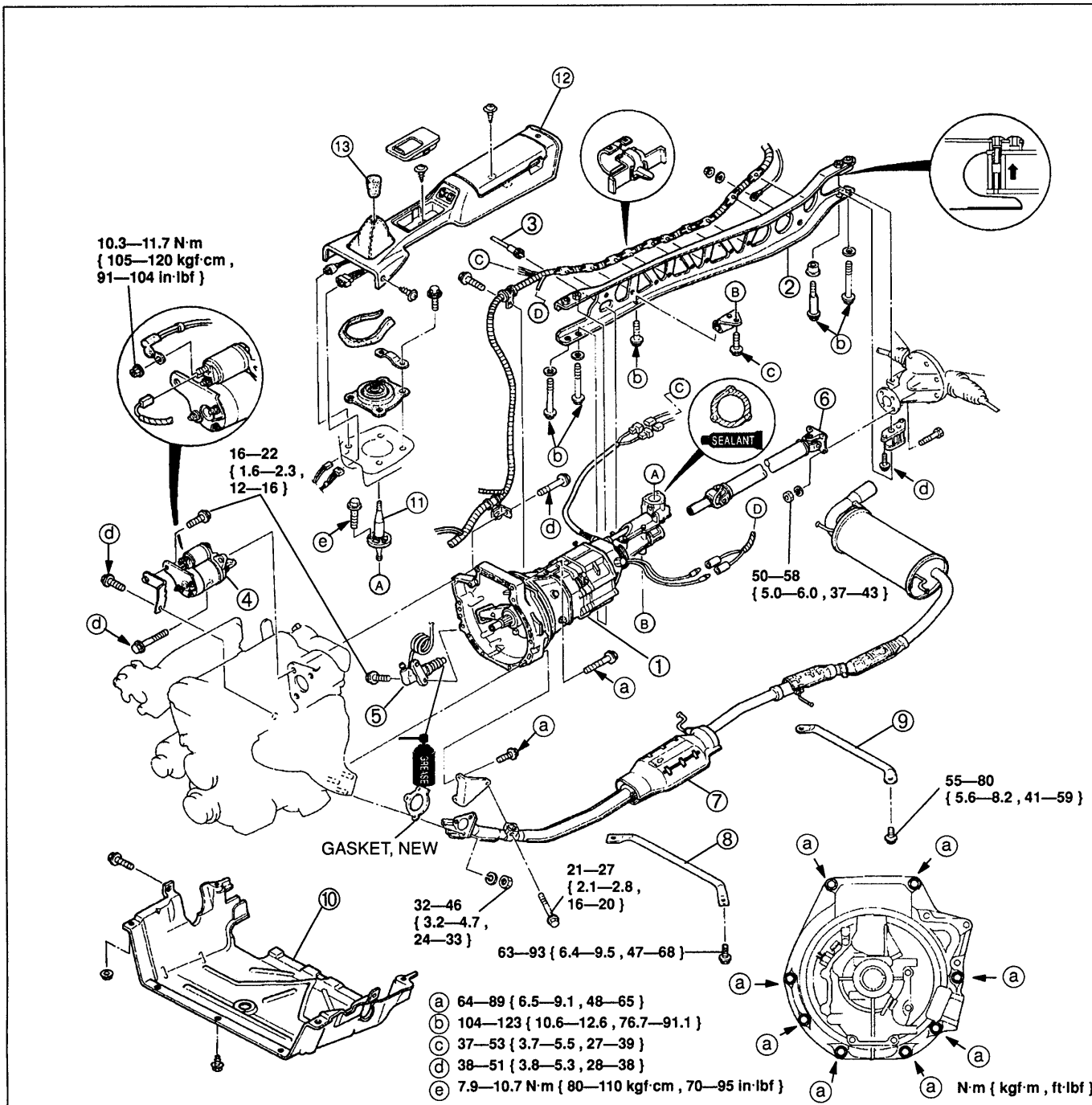


Clutch release fork and clutch release collar

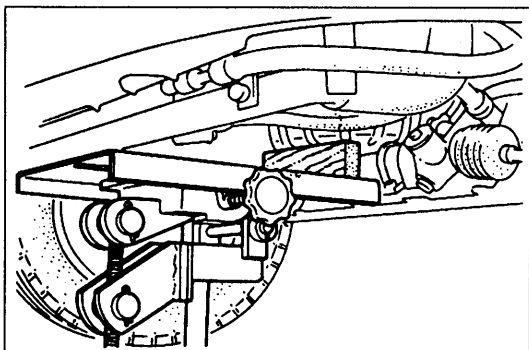
1. Apply Mori White TA No.2 or equivalent organic molybdenum grease to the shaded areas of the clutch release collar and release fork.
2. Install the clutch release collar and clutch release fork.

INSTALLATION

1. On level ground, jack up the vehicle and support it evenly on safety stands.
2. Install in the order shown in the figure, referring to **Installation Note**.
3. Add the specified amount of the specified transmission oil. (Refer to page J-8.)
4. Warm up the engine and transmission, and inspect for oil leakage and transmission problems.



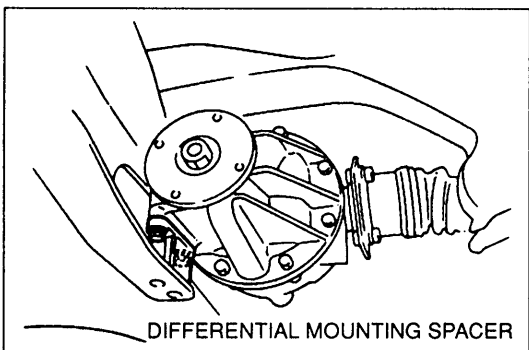
- | | | | |
|---|-----------|--|-----------|
| 1. Transmission
Installation Note | page J-46 | 7. Exhaust pipe | |
| 2. Power plant frame (PPF)
Installation Note | page J-46 | 8. Performance rod | |
| 3. Speedometer cable | | 9. Differential mounting pipe | |
| 4. Starter | | 10. Undercover | |
| 5. Clutch release cylinder | | 11. Shift lever
Installation Note | page J-47 |
| 6. Propeller shaft
Service | section L | 12. Rear console | |
| | | 13. Shift lever knob | |

**Installation note****Transmission**

1. Tilt the engine by pushing up on the front of the oil pan with a wooden block and a transmission jack.
2. Support the transmission with a transmission jack.
3. Raise the transmission into place and install and tighten the installation bolts.

Tightening torque:

64—89 N·m { 6.5—9.1 kgf·m , 48—65 ft·lbf }

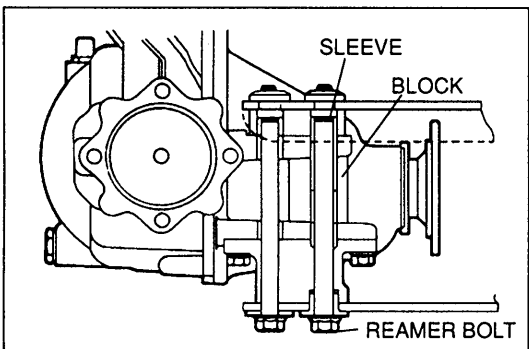
**Power plant frame (PPF)**

1. Install the differential mounting spacer.

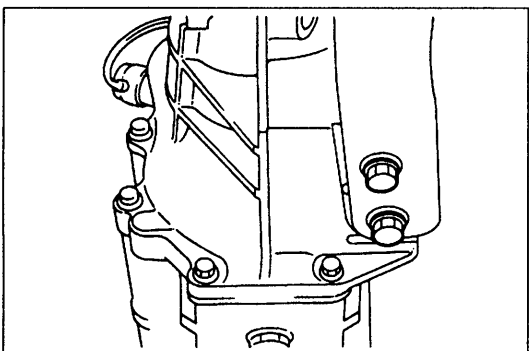
Tightening torque:

38—51 N·m { 3.8—5.3 kgf·m , 28—38 ft·lbf }

2. Support the transmission with a jack so that it is level.
3. Position the PPF and tighten the transmission-side bolts by hand.
4. Verify that the sleeve is installed into the block.



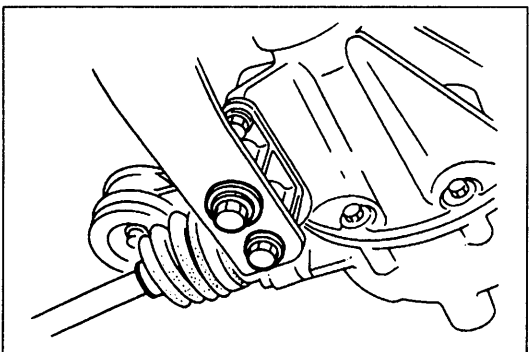
5. Install the spacer and reamer bolts in the forward hole, then hand tighten them.



6. Snugly install the power plant frame bracket.
7. Tighten the transmission-side bolts.

Tightening torque: 104—123 N·m

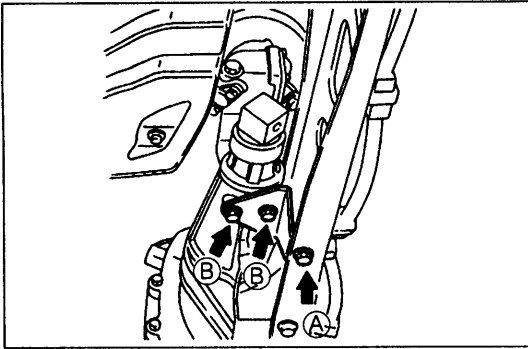
{ 10.6—12.6 kgf·m , 76.7—91.1 ft·lbf }



8. Tighten the differential-side bolts.

Tightening torque: 104—123 N·m

{ 10.6—12.6 kgf·m , 76.7—91.1 ft·lbf }

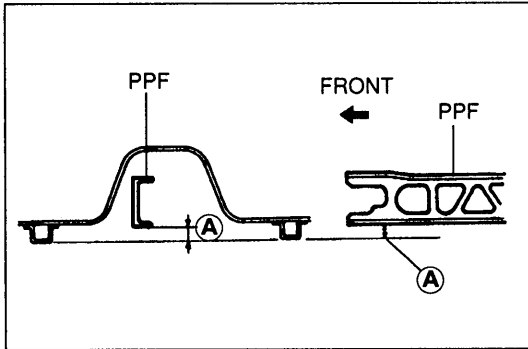


9. Install the power plant frame bracket.

Tightening torque

- Ⓐ: 104—123 N·m
 { 10.6—12.6 kgf·m , 76.7—91.1 ft·lbf }
- Ⓑ: 37—53 N·m { 3.7—5.5 kgf·m , 27—39 ft·lbf }

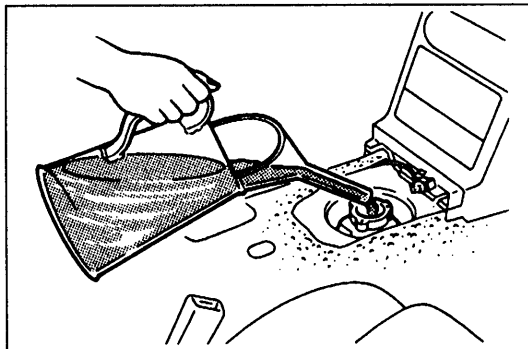
10. Remove the jack, and connect the wire harness.



11. Measure distance A with a straightedge and vernier calipers.

Distance A: 66.0 ± 5 mm { 2.60 ± 0.197 in }

12. If the distance is not within specification, reposition the PPF to the transmission.



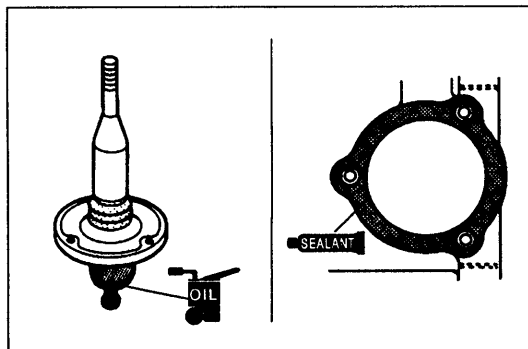
Shift lever

1. Pour the specified amount of oil into the change control case. The change control case must also be filled with the specified amount of oil whenever the extension housing has been removed or the transmission has been overhauled.

Specified oil

- Grade: API service GL-4 or GL-5**
- All season: SAE 75 W-90**
- Above 10 °C { 50 °F } : SAE 80 W-90**
- Specified amount: 80—95 cc { 4.9—5.8 cu in }**

2. Apply oil to the shift lever as shown.
3. Apply sealant to the contact surfaces of the boot panel and the change control case.

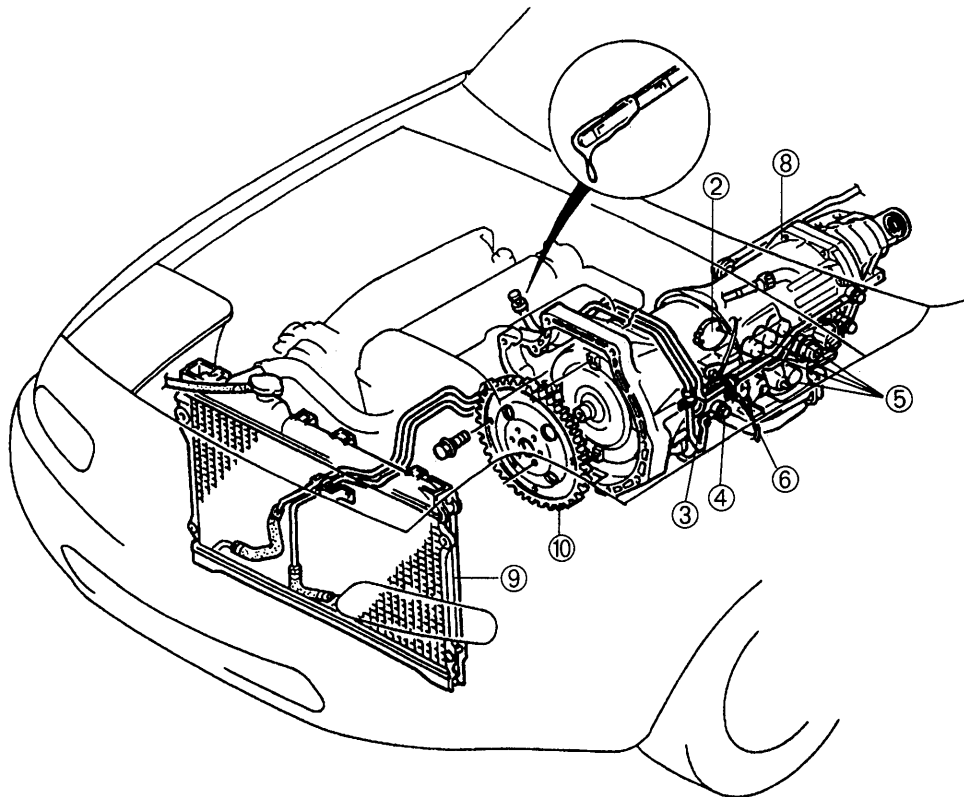
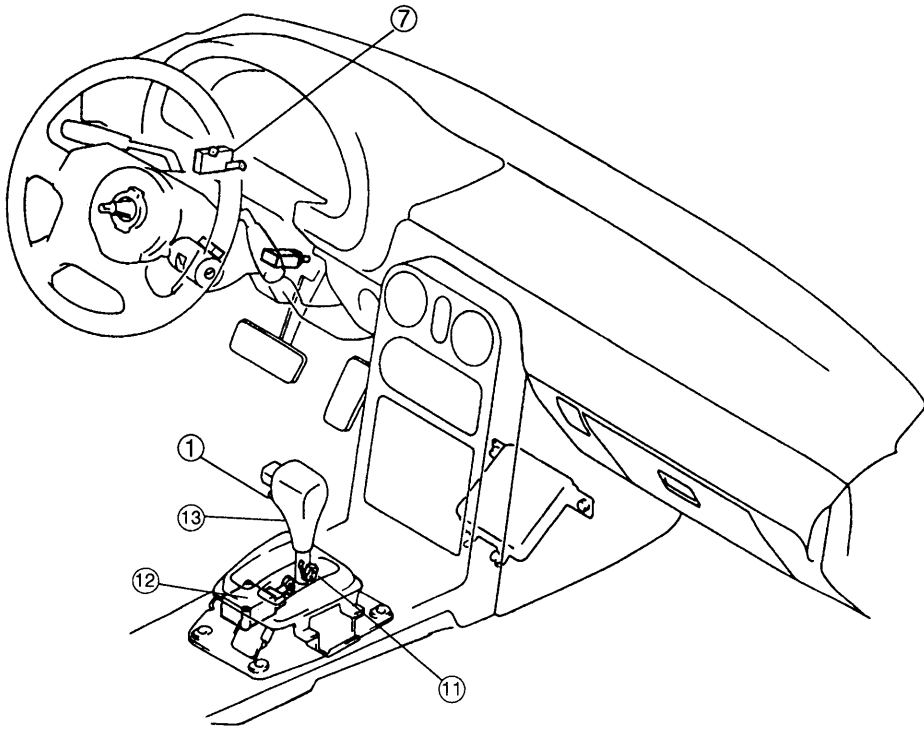


Before beginning any service procedure, refer to section T of this manual for air bag system service warnings and audio antitheft system alarm conditions.

AUTOMATIC TRANSMISSION (Electronically-controlled)

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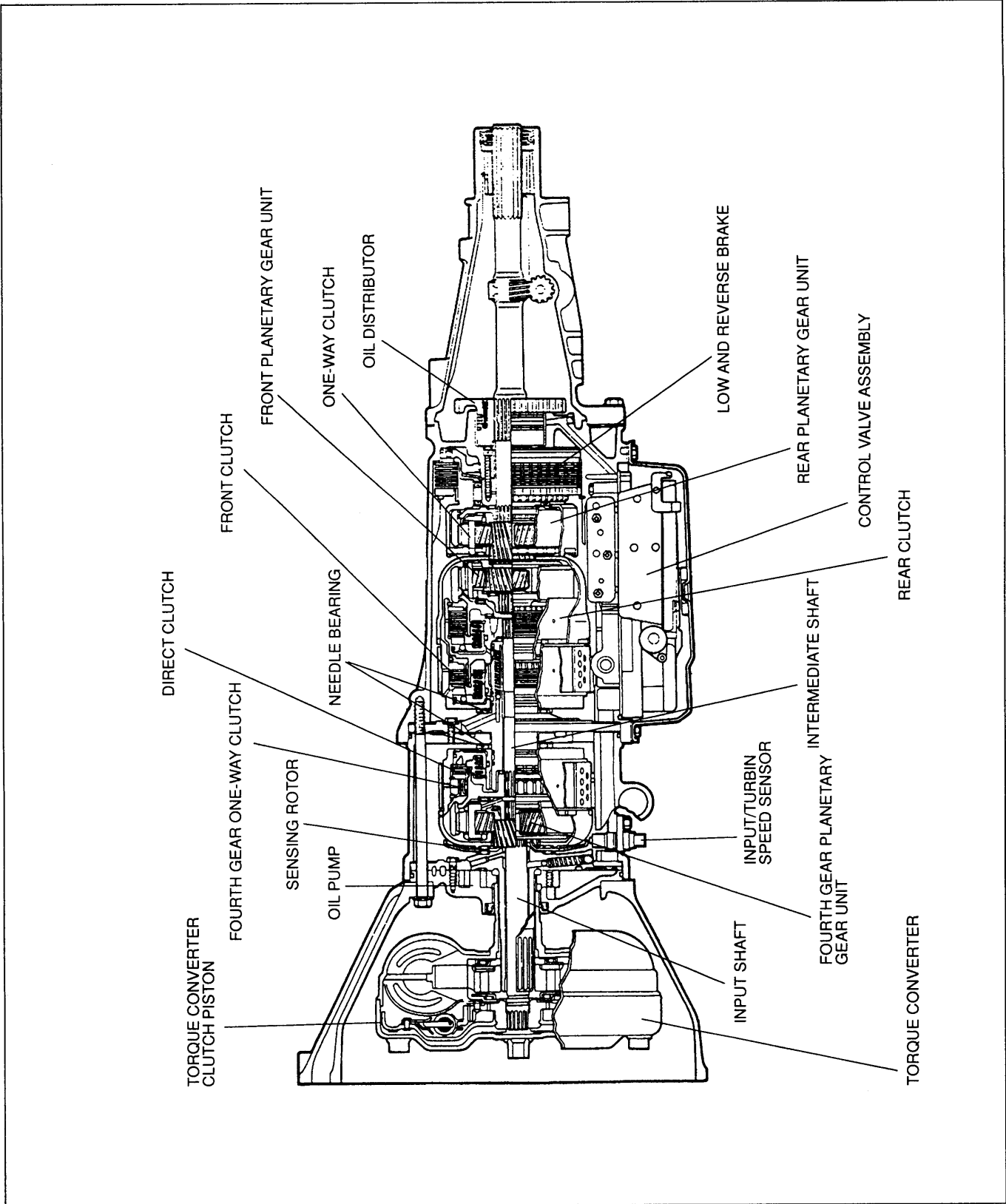
1. HOLD switch	Inspection	page K- 38	8. Automatic transmission	Removal	page K- 46
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OUTLINE

SPECIFICATIONS

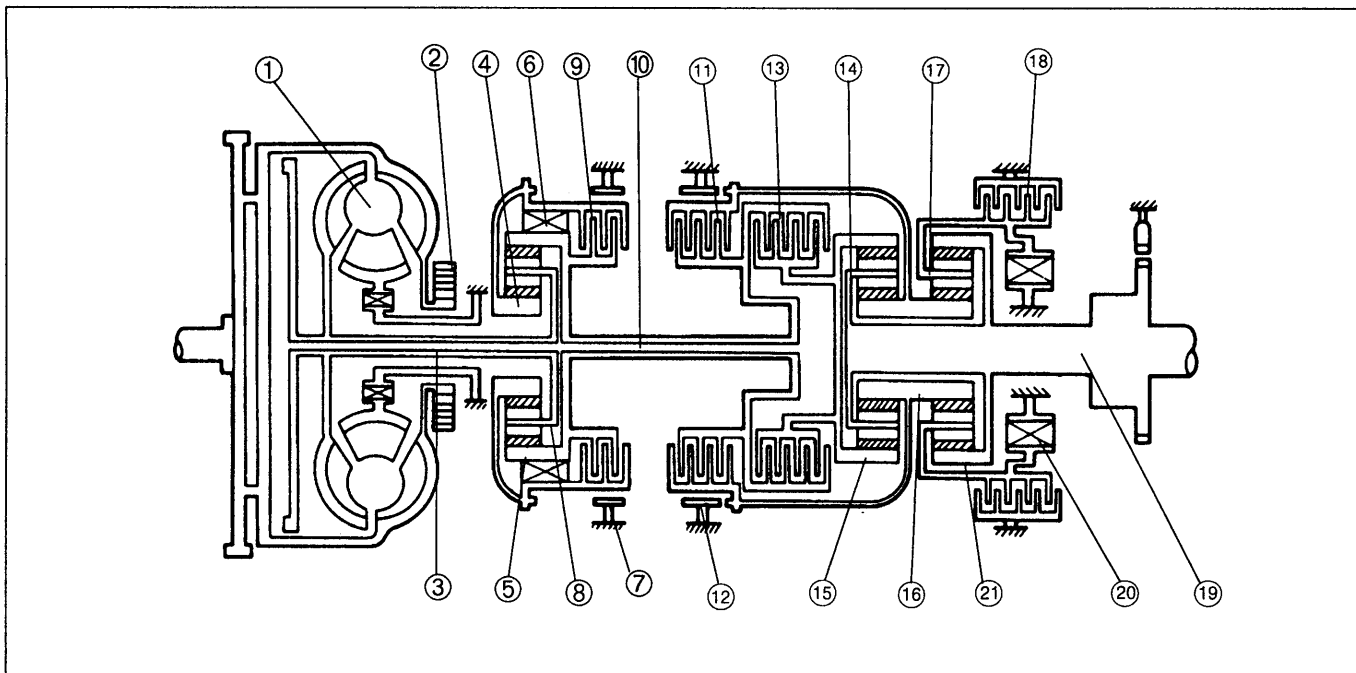
Item		Model	NC4A-EL
Torque converter stall torque ratio			1.900 : 1
Gear ratio	1GR		2.458
	2GR		1.458
	3GR		1.000
	4GR		0.720
	Reverse		2.182
Number of drive/driven plates	Direct clutch		2/2
	Front clutch		3/5
	Rear clutch		5/5
	Low and reverse brake		4/4
Servo diameter (Piston outer diameter/retainer inner diameter) mm { in }	4GR gear band servo		56/36 { 2.205/1.417 }
	2GR band servo		72/50 { 2.835/1.969 }
Automatic transmission fluid (ATF)	Type		Dexron®II or M-III
	Capacity L { US qt , Imp qt }	Total	7.3 { 7.7 , 6.4 }
		Oil pan	4.0 { 4.2 , 3.5 }

CROSS-SECTIONAL VIEW
Power train



The powertrain provides first gear, second gear, third gear, third gear torque converter clutch operation, fourth gear, fourth gear torque converter clutch operation, neutral, and reverse gears according to the line pressure flow from the control valve. It consists of the torque converter, oil pump, three brakes, three one-way clutches, three planetary gears, sensing rotor, and Input/turbin speed sensor.

POWER FLOW DIAGRAM



K

- | | | |
|---|---|--------------------------------------|
| 1. Torque converter | 8. Fourth gear planetary pinion carrier | 15. Internal gear |
| 2. Oil pump | 9. Direct clutch (D/C) | 16. Sun gear |
| 3. Input shaft | 10. Intermediate shaft | 17. Rear planetary pinion carrier |
| 4. Fourth gear sun gear | 11. Front clutch (F/C) | 18. Low and reverse brake (L&R Brk.) |
| 5. Internal gear | 12. Second gear brake band (2GR Brk.) | 19. Internal gear |
| 6. Fourth gear one-way clutch (4GR OWC) | 13. Rear clutch (R/C) | 20. One-way clutch (OWC) |
| 7. Fourth gear brake band (4GR Brk.) | 14. Front planetary pinion carrier | 21. Output shaft |

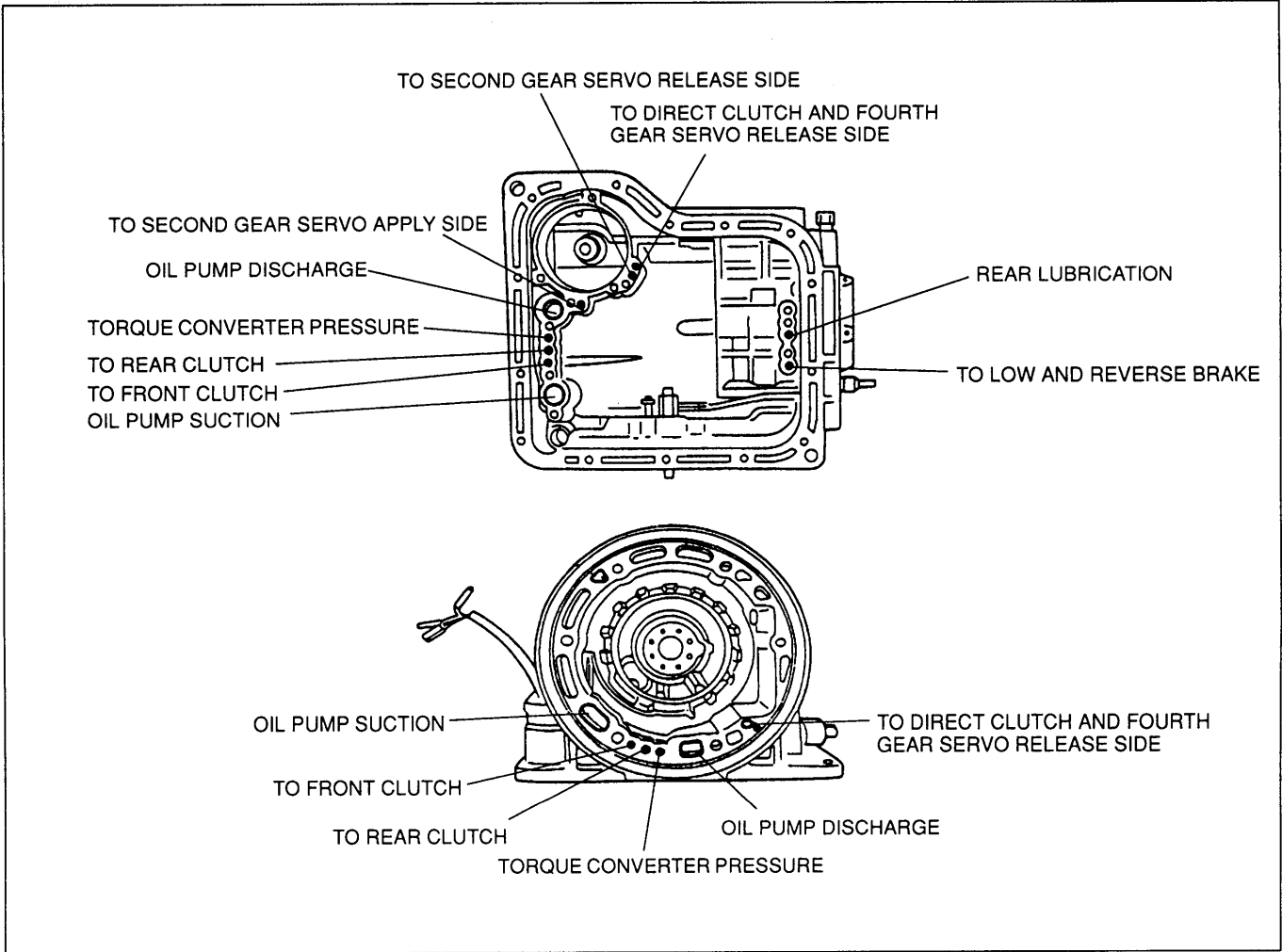
OPERATION OF COMPONENTS

Position/Range	Gear position	D/C	4GR Brk.		4GR OWC	R/C	F/C	2GR Brk.		L & R Brk.	OWC	Shift solenoid valve		
			Apl.	Rel.				Apl.	Rel.			A	B	C
P	—	○	⊗	○						○		○	○	○
R	—	○	⊗	○	○		○		○	○				○
N	Below 7 km/h { 4.34 mph }	○	⊗	○								○	○	○
	Above 9 km/h { 5.58 mph }	○	⊗	○										○
D	1GR	○	⊗	○	○	○					○	○	○	○
	2GR	○	⊗	○	○	○		○					○	○
	3GR	○	⊗	○	○	○	○	⊗	○					○
	4GR	○	○			○	○	⊗	○					
S	1GR	○	⊗	○	○	○					○	○	○	○
	2GR	○	⊗	○	○	○		○					○	○
	3GR	○	⊗	○	○	○	○	⊗	○					○
L	1GR	○	⊗	○	○	○				○		○	○	○
	2GR	○	⊗	○	○	○		○					○	○

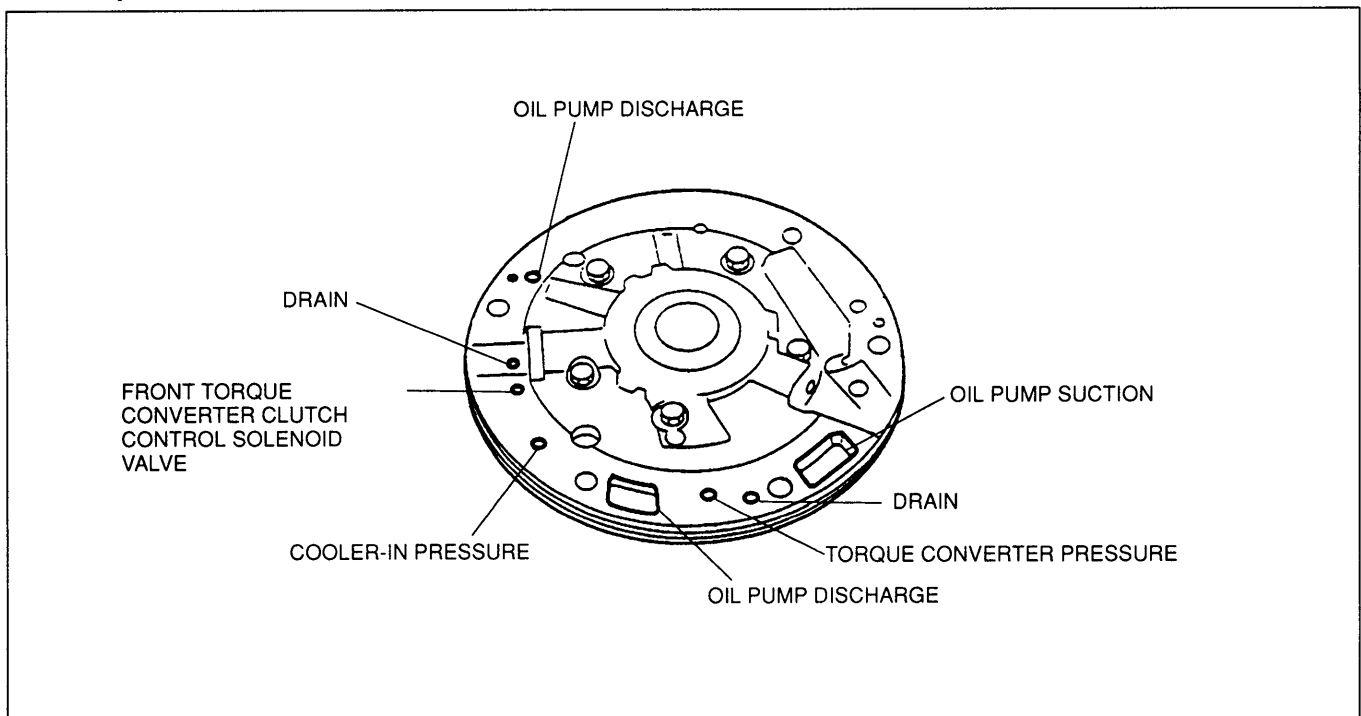
○ Operating
 ⊗ indicates operation although the band servo remains deactivated due to the large area of the release pressure side.
 The torque converter clutch control solenoid valve operates only during torque converter clutch operation.
 The 3-2 control solenoid valve operates momentarily during 3-2 downshift.
 The fourth gear one-way clutch operates momentarily during 4-3 downshift.

FLUID PASSAGE LOCATIONS

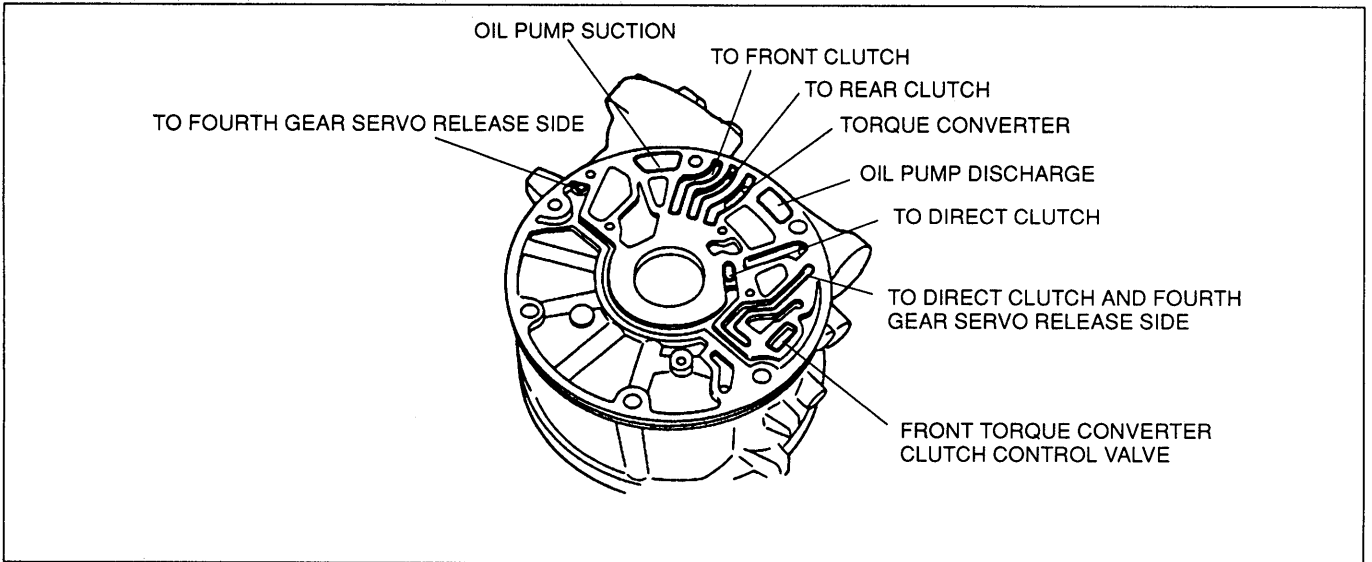
Transmission Case



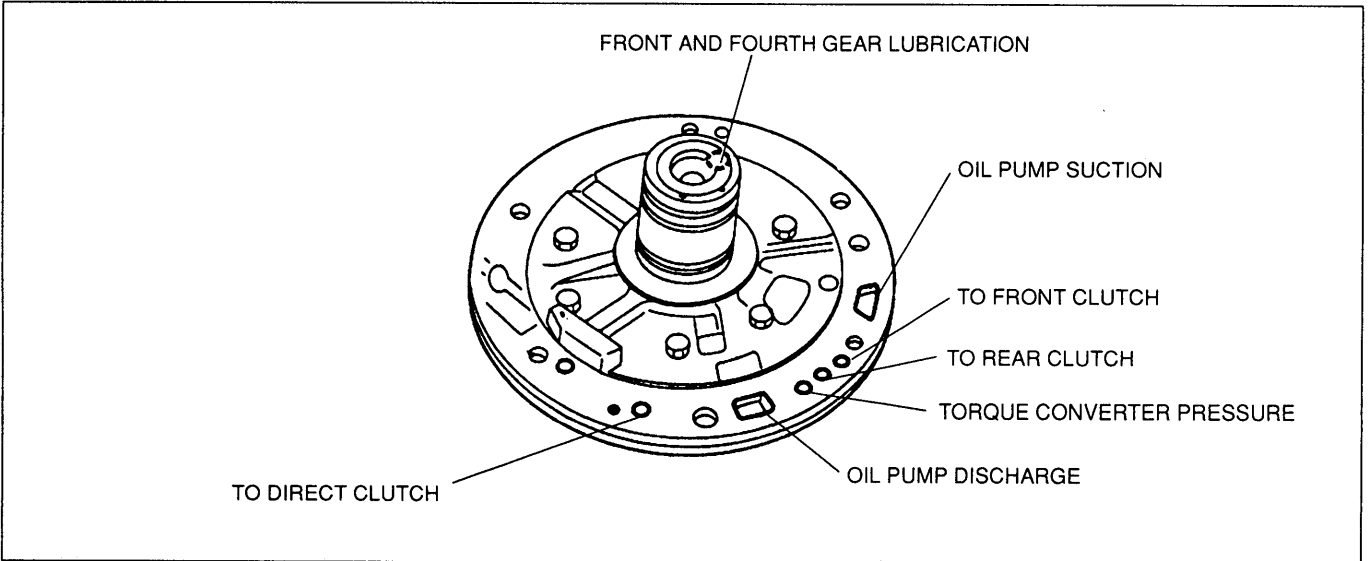
Oil Pump



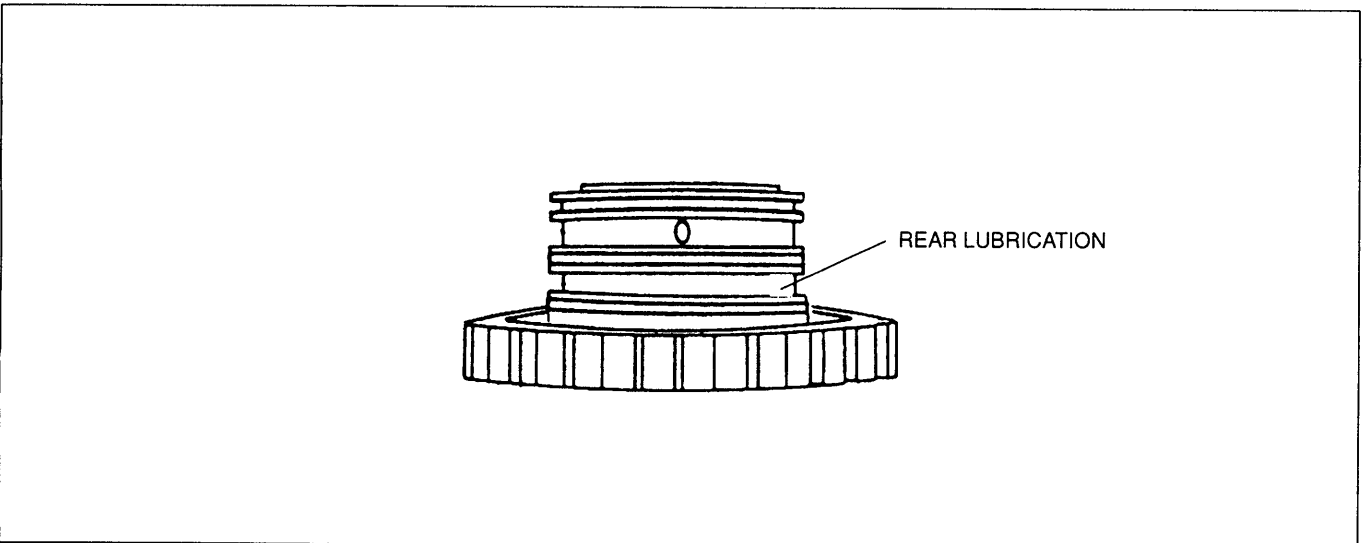
Fourth Gear Case



Drum Support



Oil Distributor

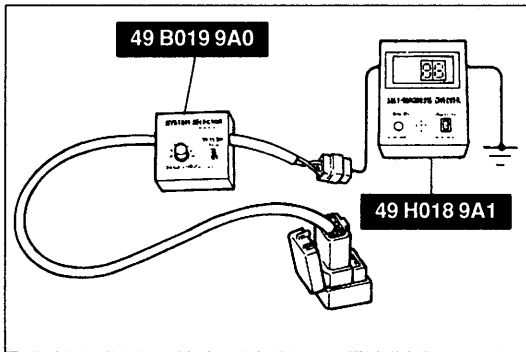


TROUBLESHOOTING

GENERAL NOTES

A problem with the EC-AT may be caused by the engine, the EC-AT powertrain, the hydraulic control system, or the electronic control system.

When troubleshooting, therefore, begin from these points, which can be inspected quickly and easily. The recommended troubleshooting sequence is described below.

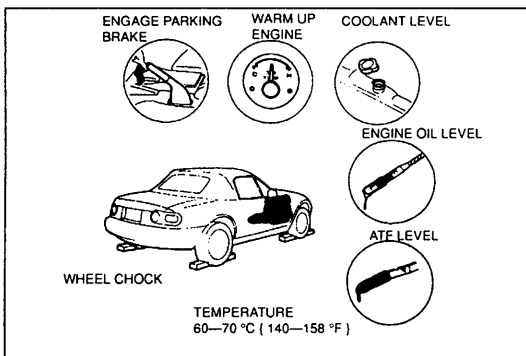


Step 1: On-board Diagnosis System Inspection

Check for diagnostic trouble code(s) memorized in the transmission control module with the Self-Diagnosis Checker. (Refer to page K-11.)

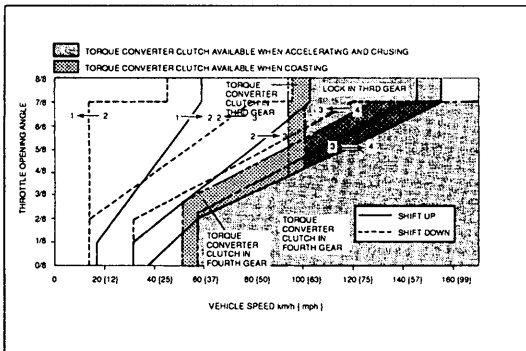
Note

- You can also check the flashing sequence of the HOLD indicator light for diagnostic trouble code(s). (Refer to page K-11.)



Step 2: Mechanical System Test

Check the engine stall speed, time lag, and line pressure. (Refer to page K-22.)



Step 3: Road Test

Check the shift point, shift schedule, and shift shock. (Refer to page K-29.)

If the 3 steps on page K-8 are followed, the cause of the problem should be located.

Another guide to faster location of the causes of problems, the QUICK DIAGNOSIS CHART, is on page K-10.

In this chart, numbers are used to indicate the components that may be the cause of 22 possible problems.

It is necessary to check only those components indicated by numbers during each step of the troubleshooting process to locate the cause of the problem quickly.

QUICK DIAGNOSIS CHART

The QUICK DIAGNOSIS CHART shows different problems and the relationship of components that might be the cause.

1. Components indicated in the "Adjustment" row indicate the possibility that the problem may result from an incorrect adjustment.
Check the adjustment of each component, and readjust if necessary.
2. Components indicated in the "On-board Diagnosis" row are diagnosed by the Transmission control module on-board diagnosis system.
3. Input and output signals of the Transmission control module for components indicated in the "Tester" row can be easily checked with the Engine Signal Monitor.
4. Components indicated in the "Mechanical System Test" row can be checked for malfunction by the results of oil pressure test.
5. Components indicated in the "Road Test" row can be checked for malfunction by the results of the road test.
6. The numbers in the chart indicate the order of inspection for detecting malfunctions.
7. Circled numbers indicate that the transmission must be removed from the vehicle.
8. The checking, adjusting, repair, and replacement procedures for components are described in the page(s) shown in the "Reference page" row.

Problem	Possible Cause	Electronic control system				Preliminary	Hydraulic control system		Powertrain																		
		Transmission range switch	HOLD switch	Cruise control switch	Vehicle speed sensor	Throttle position sensor (Full range)	Shift sol. and 3-2 control sol.	Input/turbine speed sensor	TCC control sol.	ATF level and condition	Selector lever	Idle speed & ignition timing	Vacuum diaphragm and rod	Control valve body	Accumulator	Oil pump	Torque converter	Direct clutch	Fourth gear brake band	Fourth gear one-way clutch	Front clutch	Second gear brake band	Rear clutch	Low and reverse brake	One-way clutch	Fourth gear band servo	Second gear band servo
Accelerating	On-board diag.																										
	Adjustment	○							○	○	○															○	○
	TESTER	○	○	○	○	○	○	○																			
	Stall Test																○				○		○				
	Time Lag Test																				○		○				○
	Oil Pressure Test												○	○		○											
	Road Test										○			○	○			○	○	○	○	○	○	○	○	○	○
	Reference page	K-39	K-38	section T	section T	section F	K-42	K-41	K-42	K-35	K-161	section F	K-130	K-112	K-79	K-62	K-61	K-70	K-76	K-70	K-86	K-83	K-91	K-102	K-98	K-76	K-83
Shifting	Vehicle does not move in D, S, L range, or R position								○	○			○	○	○	○	○			○		○	○	○			
	Vehicle moves in N position								○	○			○	○	○	○	○										
	Excessive creep										○					○											
	Not creep at all										○					○											
Slipping	No shift	○	○						○	○			○	○	○												
	Abnormal shift sequence	○	○	○					○	○			○	○				○			○					○	
	Frequent shifting	○	○						○	○			○	○												○	
	Excessively high or low shift point	○	○						○	○			○	○			○										
	No TCC			○					○	○			○	○		○											
	No kickdown	○	○						○	○																	
Shift shock	Engine runaway or slip when starting vehicle	○							○			○	○	○			○				○	○	○	○		○	
	Engine runaway or slip when up- or downshifting								○			○	○	○			○	○	○	○						○	
	Excessive N to D range or N to R position shift shock	○		○							○	○	○	○												○	
Noise	Excessive shift shock when upshifting or downshifting											○	○	○				○			○					○	
	Excessive shift shock during change in range	○								○			○	○												○	
	Transmission noisy in N or P position								○			○	○				○										
Other	Transmission noisy in D, S, L range or R position											○	○			○											
	No engine braking						○		○	○			○	○	○	○	○			○	○	○	○	○	○	○	
	Transmission overheats							○	○				○	○		○	○										
	White smoke discharged from exhaust								○			○	○														
	HOLD indicator flashes			○	○	○	○	○																			
Engine will not start	○									○																	

ON-BOARD DIAGNOSIS SYSTEM

DESCRIPTION

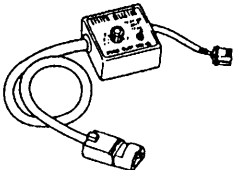
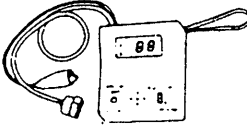
The on-board diagnosis system integrated in the transmission control module diagnoses malfunctions of the main sensors (input) and solenoid valves (output) and the transmission control module itself. Malfunctions or intermittent malfunctions are memorized in the transmission control module to later be output as diagnostic trouble codes.

The **Self-Diagnosis Checker** can be used to retrieve these diagnostic trouble codes. The **Self-Diagnosis Checker** indicates a malfunction by displaying a code and sounding a buzzer.

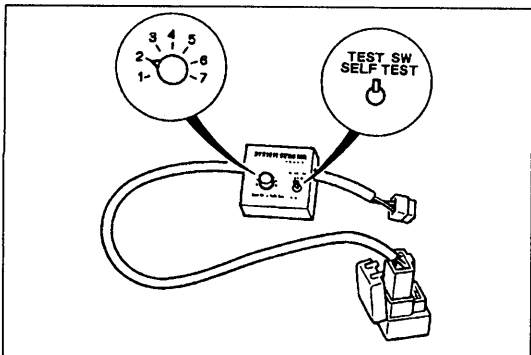
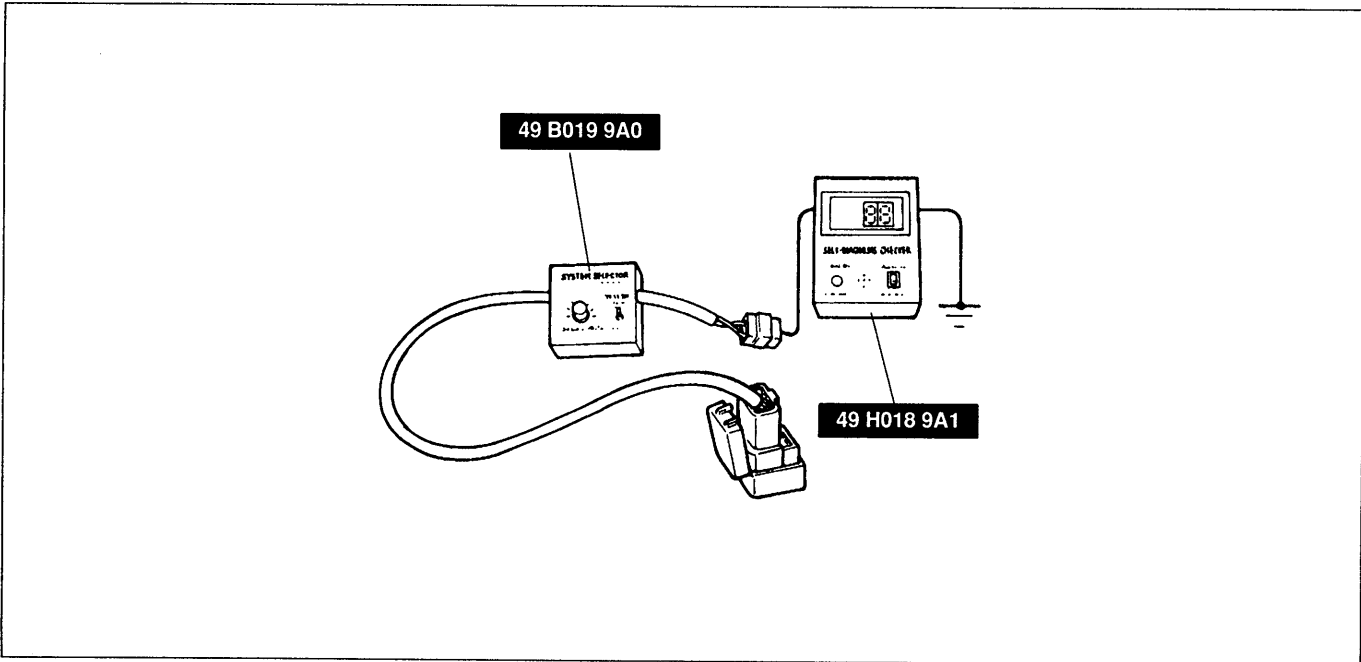
When the TAT and GND terminals of the data link connector are shorted with the ignition switch ON, the transmission control module outputs any memorized diagnostic trouble codes by flashing the HOLD indicator light.

PREPARATION

SST

<p>49 B019 9A0</p> <p>System selector</p> 	<p>For diagnosis of EC-AT</p>	<p>49 H018 9A1</p> <p>Self-Diagnosis checker</p> 	<p>For diagnosis of EC-AT</p>
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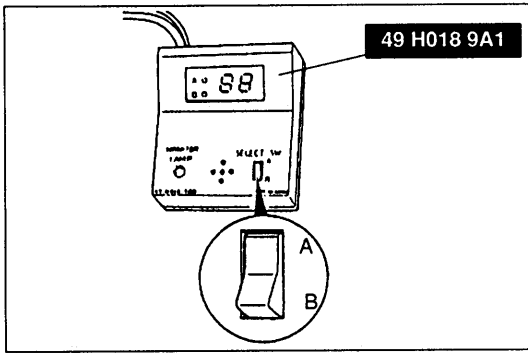
Assembly of SST



DIAGNOSTIC TROUBLE CODE

Inspection Procedure
Self-Diagnosis Checker

1. Connect the **SST** (System Selector) to the data link connector.
2. Set the **SYSTEM SELECT** switch A to position 2.
3. Set the **TEST SW** to **SELF TEST** position.

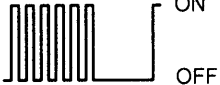





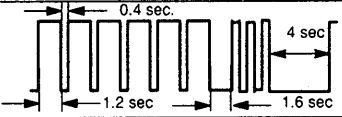



4. Connect the **SST** (Self-Diagnosis Checker) to the **SST** (System Selector) and a ground.
5. Set the SELECT SW to position A.
6. Turn on the ignition switch.
7. Verify that "88" flashes on the digital display and that the buzzer sounds for 3 seconds.
8. If "88" does not flash, check the main relay and 2S and 2Q terminals of the transmission control module for an open or short circuit.
9. If "88" flashes and the buzzer sounds continuously for more than 20 seconds, check the wiring to terminal 1C of the transmission control module for an open or short circuit.
If necessary, replace the transmission control module and repeat from step 2.
10. Note any code(s) and check for the cause(s). Repair as necessary. (Refer to page K-12.)
11. After repairs are made, do the After-Repair Procedure (page K-21) to verify that there are no remaining codes.



Troubleshooting


If a diagnostic trouble code is shown on the **SST** (Self-Diagnosis Checker), check for the cause by using the chart related to the code shown.

Diagnostic trouble code

CODE NO.	LOCATION OF MALFUNCTION	BUZZER (HOLD INDICATOR LIGHT FLASH CYCLE)
06	Vehicle speed sensor or circuit	
12	Throttle position sensor or circuit	
55	Input/turbin speed sensor or circuit	
60	Shift solenoid A or circuit	
61	Shift solenoid B or circuit	
62	Shift solenoid C or circuit	
63	Torque converter clutch control solenoid valve or circuit	
64	3-2 control solenoid valve or circuit	

DIAGNOSTIC TROUBLE CODE No.06		VEHICLE SPEED SENSOR											
STEP	INSPECTION	ACTION											
1	Are there any poor connections at vehicle speed sensor and transmission control module connectors?	Yes	Repair or replace connector										
		No	Go to next step										
2	Connect a circuit tester to terminal as shown. Is input voltage of vehicle speed sensor at transmission control module OK? <p style="text-align: center;">page K-43</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">(+ term.</th> <th style="width: 15%;">(-) term.</th> <th style="width: 20%;">Voltage (V)</th> <th style="width: 50%;">Condition</th> </tr> </thead> <tbody> <tr> <td rowspan="2" style="text-align: center; vertical-align: middle;">1P</td> <td rowspan="2" style="text-align: center; vertical-align: middle;">Ground</td> <td style="text-align: center;">Approx. 7—9 or Below 1.5</td> <td style="text-align: center;">Vehicle stopped</td> </tr> <tr> <td style="text-align: center;">Approx. 4</td> <td style="text-align: center;">While driving</td> </tr> </tbody> </table>	(+ term.	(-) term.	Voltage (V)	Condition	1P	Ground	Approx. 7—9 or Below 1.5	Vehicle stopped	Approx. 4	While driving	Yes	Go to step 5
		(+ term.	(-) term.	Voltage (V)	Condition								
1P	Ground	Approx. 7—9 or Below 1.5	Vehicle stopped										
		Approx. 4	While driving										
		No	Go to next step										
3	Remove instrument cluster Is there continuity between terminal 2D of meter connector and terminal 1M of transmission control module	Yes	Go to next step										
		No	Repair or replace wiring and/or connector										
4	Connect circuit tester to terminals 2D and 2A of meter connector Does pointer of circuit tester move slightly when front wheels are slowly turned?	Yes	Go to next step										
		No	Replace vehicle speed sensor ➡ section T										
5	Disconnect the negative battery cable for at least 20 seconds and depress the brake pedal Connect the battery cable and recheck for code. Is diagnostic trouble code displayed <p style="text-align: center;">page K-21</p>	Yes	Replace transmission control module ➡ page K-45										
		No	Intermittent poor connection check for cause										


DIAGNOSTIC TROUBLE CODE No.12		THROTTLE POSITION SENSOR											
STEP	INSPECTION	ACTION											
1	Are there any poor connections at throttle position sensor and transmission control module connector or terminal?	Yes	Repair or replace connector										
		No	Go to next step										
2	Connect a circuit tester to terminal as shown Is input voltage of throttle position sensor (TVO) at transmission control module OK? page K-43 <table border="1"> <thead> <tr> <th>(+) term.</th> <th>(-) term.</th> <th>Voltage (V)</th> <th>Condition</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2T</td> <td rowspan="2">Ground</td> <td>Approx. 0</td> <td>Ignition OFF</td> </tr> <tr> <td>Approx. 0.8—4.3</td> <td>Closed throttle position to wide open throttle</td> </tr> </tbody> </table>	(+) term.	(-) term.	Voltage (V)	Condition	2T	Ground	Approx. 0	Ignition OFF	Approx. 0.8—4.3	Closed throttle position to wide open throttle	Yes	Go to step 5
		(+) term.	(-) term.	Voltage (V)	Condition								
2T	Ground	Approx. 0	Ignition OFF										
		Approx. 0.8—4.3	Closed throttle position to wide open throttle										
		No	Go to next step										
3	Connect a circuit tester to terminals as shown Is input voltage of throttle position sensor (VREF) at transmission control module OK? page K-43 <table border="1"> <thead> <tr> <th>(+) term.</th> <th>(-) term.</th> <th>Voltage (V)</th> <th>Condition</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2A</td> <td rowspan="2">Ground</td> <td>Approx. 4.5—5.5</td> <td>Ignition switch ON</td> </tr> <tr> <td>0</td> <td>Ignition switch OFF</td> </tr> </tbody> </table>	(+) term.	(-) term.	Voltage (V)	Condition	2A	Ground	Approx. 4.5—5.5	Ignition switch ON	0	Ignition switch OFF	Yes	Go to next step
		(+) term.	(-) term.	Voltage (V)	Condition								
2A	Ground	Approx. 4.5—5.5	Ignition switch ON										
		0	Ignition switch OFF										
		No	Check voltage at terminal 2I of engine control module Voltage: 4.5—5.5 V (Ignition switch ON) If OK, go to next step If not OK, repair wiring and/or connector										
4	Is throttle position sensor OK? section F	Yes	Check wiring and connectors from transmission control module to throttle position sensor If OK, go to next step If not OK, repair wiring and/or connector										
		No	Adjust or replace throttle position sensor  section F										
5	Disconnect the negative battery cable for at least 20 seconds and depress the brake pedal Connect the battery cable and recheck for diagnostic trouble code Is diagnostic trouble code displayed? page K-21	Yes	Replace transmission control module  page K-45										
		No	Intermittent poor connection Check for cause										

DIAGNOSTIC TROUBLE CODE No.55		INPUT/TURBIN SPEED SENSOR											
STEP	INSPECTION	ACTION											
1	Are there any poor connections at input/turbin speed sensor and transmission control module connector or terminal?	Yes	Repair or replace connector										
		No	Go to next step										
2	Connect a circuit tester to terminal as shown Is input voltage of input/turbin speed sensor at transmission control module OK? page K-43	Yes	Go to step 5										
		No	Go to next step										
<table border="1"> <thead> <tr> <th>(+) term.</th> <th>(-) term.</th> <th>Voltage (V)</th> <th>Condition</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2J</td> <td rowspan="2">2L</td> <td>0—0.1 (AC)</td> <td>Engine running (N position)</td> </tr> <tr> <td>0 (AC)</td> <td>Engine stopped</td> </tr> </tbody> </table>		(+) term.	(-) term.	Voltage (V)	Condition	2J	2L	0—0.1 (AC)	Engine running (N position)	0 (AC)	Engine stopped		
(+) term.	(-) term.	Voltage (V)	Condition										
2J	2L	0—0.1 (AC)	Engine running (N position)										
		0 (AC)	Engine stopped										
3	Disconnect 20-pin transmission control module connector Is resistance between terminal 2J and terminal 2L OK? Resistance: 200—400 Ω	Yes	Go to step 5										
		No	Go to next step										
4	Disconnect input/turbin speed sensor connector Is resistance between terminal E and terminal F OK? page K-41 Resistance: 200—400 Ω	Yes	Check wiring and connectors form transmission control module input/turbin speed sensor If OK, go to next step If not OK, repair wiring and/or connector										
		No	Replace input/turbin speed sensor										
5	Disconnect the negative battery cable for at least 20 seconds and depress the brake pedal Connect the battery cable and recheck for diagnostic trouble code Is diagnostic trouble code displayed? page K-21	Yes	Replace transmission control module  page K-45										
		No	Intermittent poor connection Check for cause										

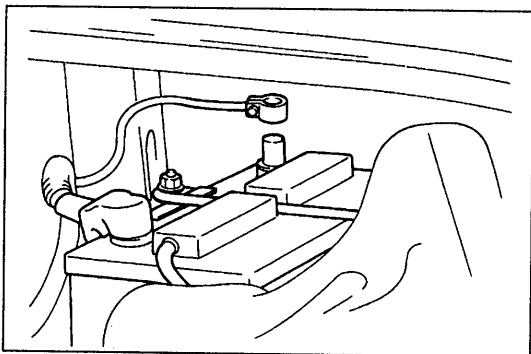
DIAGNOSTIC TROUBLE CODE No.60		SHIFT SOLENOID A											
STEP	INSPECTION	ACTION											
1	Are there any poor connections at solenoid valve and transmission control module connectors?	Yes	Repair or replace connector										
		No	Go to next step										
2	Connect a circuit tester to terminal as shown Is output voltage of shift solenoid A at transmission control module OK? page K-43 B+: Battery positive voltage <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>(+) term.</th> <th>(-) term.</th> <th>Voltage (V)</th> <th>Condition</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2E</td> <td rowspan="2">Ground</td> <td>B+</td> <td>1GR</td> </tr> <tr> <td>0</td> <td>2GR, 4GR</td> </tr> </tbody> </table>	(+) term.	(-) term.	Voltage (V)	Condition	2E	Ground	B+	1GR	0	2GR, 4GR	Yes	Check wiring and go to step 5
		(+) term.	(-) term.	Voltage (V)	Condition								
2E	Ground	B+	1GR										
		0	2GR, 4GR										
		No	Go to next step										
3	Disconnect 20-pin transmission control module connector Is resistance between terminal 2E and ground Resistance: 13—27Ω	Yes	Go to step 5										
		No	Go to next step										
4	Disconnect solenoid connector Is resistance between ground and terminal A of shift solenoid A OK? page K-42 Resistance: 13—27 Ω	Yes	Check wiring and connectors form transmission control module to shift solenoid A If OK, go to next step If not OK, repair wiring and/or connector										
		No	Replace shift solenoid A										
5	Disconnect the negative battery cable for at least 20 seconds and depress the brake pedal Connect the battery cable and recheck for code Is diagnostic trouble code displayed? page K-21	Yes	Replace transmission control module page K-45										
		No	Intermittent poor connection Check for cause										

DIAGNOSTIC TROUBLE CODE No.61		SHIFT SOLENOID B											
STEP	INSPECTION	ACTION											
6	Are there any poor connections at solenoid valve and transmission control module connectors?	Yes	Repair or replace connector										
		No	Go to next step										
7	Connect a circuit tester to terminal as shown Is output voltage of shift solenoid B at transmission control module? page K-43 B+: Battery positive voltage <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>(+) term.</th> <th>(-) term.</th> <th>Voltage (V)</th> <th>Condition</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2G</td> <td rowspan="2">Ground</td> <td>B+</td> <td>1GR, 2GR</td> </tr> <tr> <td>0</td> <td>3GR, 4GR</td> </tr> </tbody> </table>	(+) term.	(-) term.	Voltage (V)	Condition	2G	Ground	B+	1GR, 2GR	0	3GR, 4GR	Yes	Check wiring and go to step 5
		(+) term.	(-) term.	Voltage (V)	Condition								
2G	Ground	B+	1GR, 2GR										
		0	3GR, 4GR										
		No	Go to next step										
8	Disconnect 20-pin transmission control module connector Is resistance between terminal 2G and ground OK? Resistance: 13—27 Ω	Yes	Go to step 5										
		No	Go to next step										
9	Disconnect solenoid connector Is resistance between ground and terminal B of shift solenoid B OK? page K-42 Resistance: 13—27 Ω	Yes	Check wiring and connectors from transmission control module to shift solenoid B If OK, go to next step If not OK, repair wiring and/or connector										
		No	Replace shift solenoid B										
10	Disconnect the negative battery cable for at least 20 seconds and depress the brake pedal Connect the battery cable and recheck for code Is diagnostic trouble code displayed? page K-21	Yes	Replace transmission control module page K-45										
		No	Intermittent poor connection Check for cause										

DIAGNOSTIC TROUBLE CODE No.62		SHIFT SOLENOID C											
STEP	INSPECTION	ACTION											
1	Are there any poor connections at solenoid valve and transmission control module connectors?	Yes	Repair or replace connector										
		No	Go to next step										
2	Connect a circuit tester to terminal as shown Is output voltage of shift solenoid C at transmission control module? page K-43 B+: Battery positive voltage <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>(+) term.</th> <th>(-) term.</th> <th>Voltage (V)</th> <th>Condition</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2I</td> <td rowspan="2">Ground</td> <td>B+</td> <td>1GR, 2GR</td> </tr> <tr> <td>0</td> <td>4GR</td> </tr> </tbody> </table>	(+) term.	(-) term.	Voltage (V)	Condition	2I	Ground	B+	1GR, 2GR	0	4GR	Yes	Check wiring and go to step 5
		(+) term.	(-) term.	Voltage (V)	Condition								
2I	Ground	B+	1GR, 2GR										
		0	4GR										
		No	Go to next step										
3	Disconnect 20-pin transmission control module connector Is resistance between terminal 2I and ground OK? Resistance: 13—27 Ω	Yes	Go to step 5										
		No	Go to next step										
4	Disconnect solenoid connector Is resistance between ground and terminal B of shift solenoid C OK? page K-42 Resistance: 13—27 Ω	Yes	Check wiring and connectors form transmission control module to shift solenoid C If OK, go to next step If not OK, repair wiring and/or connector										
		No	Replace shift solenoid C										
5	Disconnect the negative battery cable for at least 20 seconds and depress the brake pedal Connect the battery cable and recheck for code Is diagnostic trouble code displayed? page K-21	Yes	Replace transmission control module page K-45										
		No	Intermittent poor connection Check for cause										

DIAGNOSTIC TROUBLE CODE No.63		TORQUE CONVERTER CLUTCH CONTROL SOLENOID VALVE											
STEP	INSPECTION	ACTION											
1	Are there any poor connections at solenoid valve and transmission control module connectors?	Yes	Repair or replace connector										
		No	Go to next step										
2	Connect a circuit tester to terminal as shown Is output voltage of torque converter clutch control solenoid valve at transmission control module? page K-43 B+: Battery positive voltage <table border="1"> <thead> <tr> <th>(+) term.</th> <th>(-) term.</th> <th>Voltage (V)</th> <th>Condition</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2K</td> <td rowspan="2">Ground</td> <td>B+</td> <td>Solenoid ON, TCC operation</td> </tr> <tr> <td>0</td> <td>Solenoid OFF, TCC non-operation</td> </tr> </tbody> </table>	(+) term.	(-) term.	Voltage (V)	Condition	2K	Ground	B+	Solenoid ON, TCC operation	0	Solenoid OFF, TCC non-operation	Yes	Check wiring and go to step 5
		(+) term.	(-) term.	Voltage (V)	Condition								
2K	Ground	B+	Solenoid ON, TCC operation										
		0	Solenoid OFF, TCC non-operation										
		No	Go to next step										
3	Disconnect 20-pin transmission control module connector Is resistance between terminal 2K and ground OK? Resistance: 13—27 Ω	Yes	Go to step 5										
		No	Go to next step										
4	Disconnect solenoid connector Is resistance between ground and terminal B of torque converter clutch control solenoid valve OK? page K-42 Resistance: 13—27 Ω	Yes	Check wiring and connectors form transmission control module to torque converter clutch control solenoid valve If OK, go to next step If not OK, repair wiring and/or connector										
		No	Replace torque converter clutch control solenoid valve										
5	Disconnect the negative battery cable for at least 20 seconds and depress the brake pedal Connect the battery cable and recheck for code Is diagnostic trouble code displayed? page K-21	Yes	Replace transmission control module  page K-45										
		No	Intermittent poor connection Check for cause										

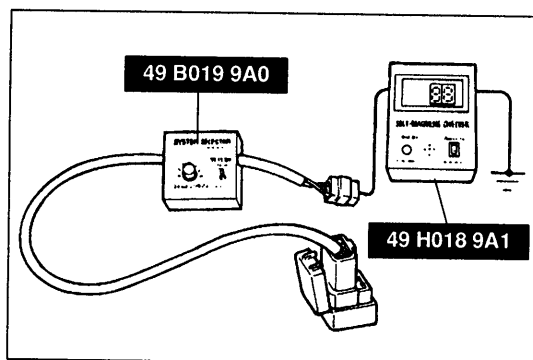
DIAGNOSTIC TROUBLE CODE No.64		3-2 CONTROL SOLENOID VALVE											
STEP	INSPECTION	ACTION											
1	Are there any poor connections at solenoid valve and transmission control module connectors?	Yes	Repair or replace connector										
		No	Go to next step										
2	Connect a circuit tester to terminal as shown Is output voltage of 3-2 control solenoid valve at transmission control module OK? page K-43 B+: Battery positive voltage <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>(+) term.</th> <th>(-) term.</th> <th>Voltage (V)</th> <th>Condition</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2M</td> <td rowspan="2">Ground</td> <td>B+</td> <td>3-2 or 4-2 downshift</td> </tr> <tr> <td>0</td> <td>Other conditions</td> </tr> </tbody> </table>	(+) term.	(-) term.	Voltage (V)	Condition	2M	Ground	B+	3-2 or 4-2 downshift	0	Other conditions	Yes	Check wiring and go to step 5
		(+) term.	(-) term.	Voltage (V)	Condition								
2M	Ground	B+	3-2 or 4-2 downshift										
		0	Other conditions										
		No	Go to next step										
3	Disconnect 20-pin transmission control module connector Is resistance between terminal 2M and ground Resistance: 13—27 Ω	Yes	Go to step 5										
		No	Go to next step										
4	Disconnect solenoid connector Is resistance between ground and terminal A of 3-2 control solenoid valve OK? page K-42 Resistance: 13—27 Ω	Yes	Check wiring and connectors from transmission control module to 3-2 control solenoid valve If OK, go to next step If not OK, repair wiring and/or connector										
		No	Replace 3-2 control solenoid valve										
5	Disconnect the negative battery cable for at least 20 seconds and depress the brake pedal Connect the battery cable and recheck for code Is diagnostic trouble code displayed? page K-21	Yes	Replace transmission control module page K-45										
		No	Intermittent poor connection Check for cause										



DRIVE AT 50 km/h { 31 mph }

KICKDOWN

STOP VEHICLE



After-Repair Procedure

1. Cancel the memory of diagnostic trouble codes by disconnecting the negative battery cable for at least **20 seconds** and the depressing the brake pedal. Reconnect the battery cable.
2. Remove the **SSTs** (Self-Diagnosis Checker and system selector) if connected.

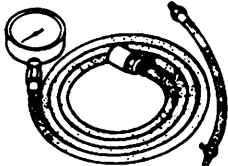

Note

- If the tires are rotated by using a chassis roller with the ignition switch at ON, the ABS control module may memorize the action as a malfunction and the ABS warning light may illuminate. (Refer to the Troubleshooting Notes for the antilock brake system, section P.) If the ignition switch is turned to LOCK and then to ON again, the ABS warning light will not illuminate, because the action will be considered a past malfunction.
3. Drive the vehicle at 50 km/h { 31 mph }, and depress the accelerator pedal fully to activate kickdown. Stop the vehicle gradually.
 4. Connect the **SSTs** to the data link connector.
 5. Turn the ignition switch to ON.
 6. Verify that no codes are displayed.

MECHANICAL SYSTEM TEST

PREPARATION

SST

<p>49 0378 400A</p> <p>Gauge set, oil pressure</p> 	<p>For oil pressure test</p>	<p>49 B019 901</p> <p>Gauge, oil pressure</p> 	<p>For oil pressure test</p>
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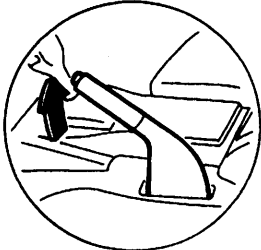
STALL TEST

This test is performed to determine if there is slippage of the friction elements or malfunction of the hydraulic components.

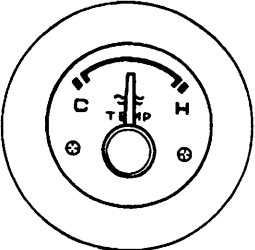
Preparation

1. Check the engine coolant, engine oil, and ATF levels before testing.
2. Warm the engine thoroughly to raise the ATF temperature to operating level (50—80 °C, 122—176 °F).
3. Engage the parking brake and use wheel chocks at the front and rear of the wheels.

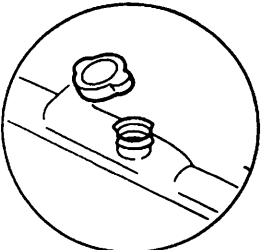
ENGAGE PARKING BRAKE



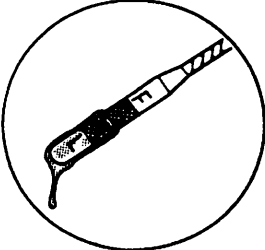
WARM UP ENGINE



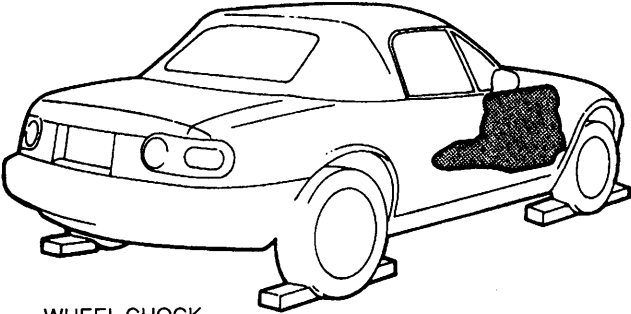
COOLANT LEVEL



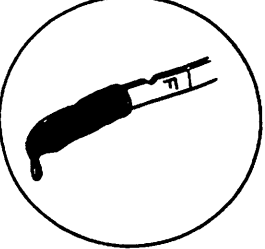
ENGINE OIL LEVEL



WHEEL CHOCK



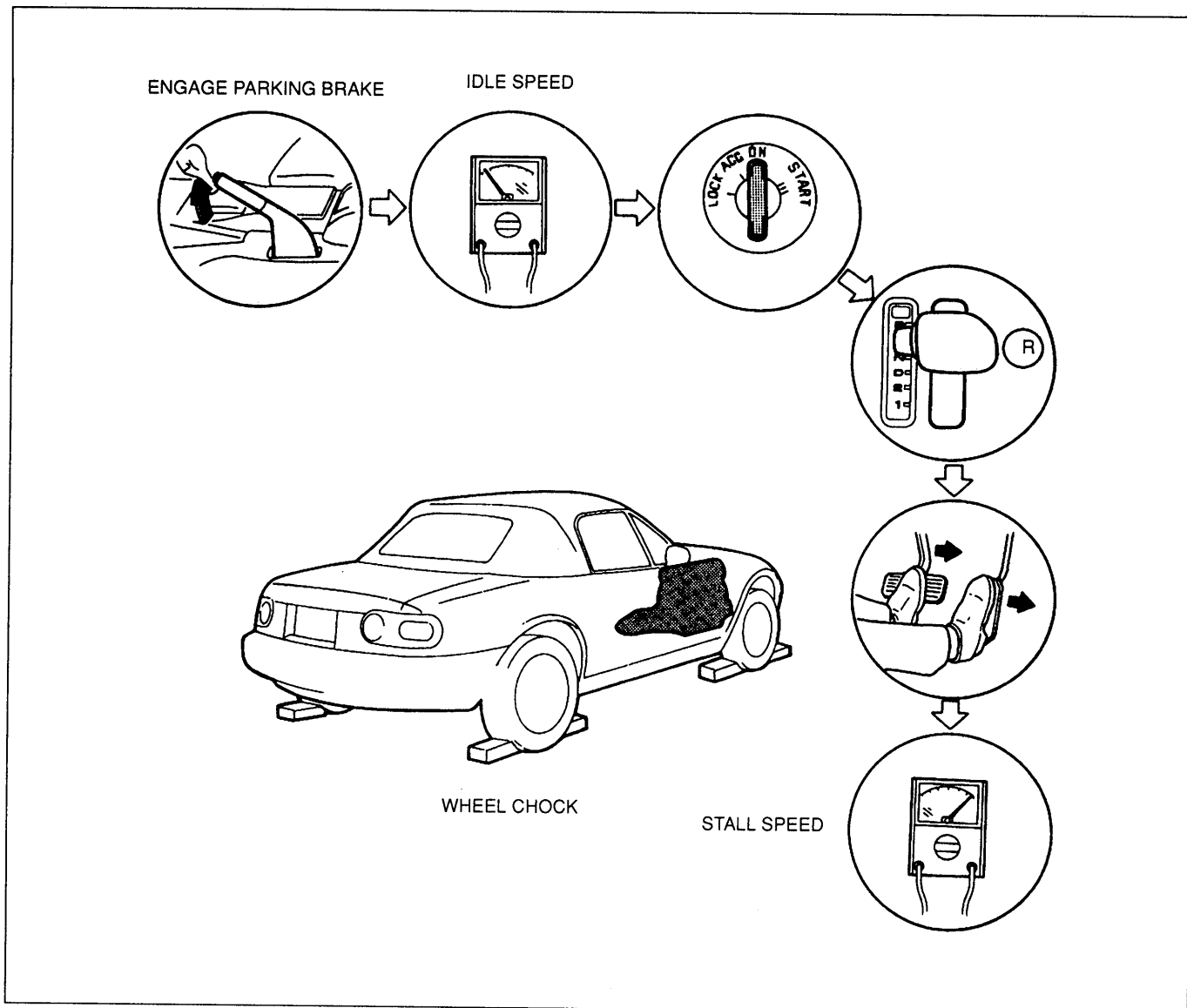
ATF LEVEL



TEMPERATURE

60—70 °C { 140—158 °F }

Procedure



1. Connect a tachometer to the engine.
2. Start the engine and check the idle speed in P position. (Refer to section F.)

Idle speed: 750—850 rpm

3. Shift the selector lever to R position.

Caution

- If the accelerator pedal is pressed for longer than 5 seconds while the brake pedal is pressed, the transmission could be damaged. Therefore, do steps 4 and 5 within 5 seconds of each other.

4. Firmly depress the foot brake with the left foot, and gently depress the accelerator pedal with the right.
5. When the engine speed no longer increases, quickly read the engine speed and release the accelerator.
6. Shift the selector to N position and let the engine idle for 1 minute or more to cool the ATF.
7. Perform the stall test for the following ranges in the same manner.
 - (1) D range
 - (2) S range
 - (3) L range

Engine stall speed: 1,900—2,100 rpm

Evaluation of Stall Test

Condition		Possible cause	
Above specification	In R positions and all ranges	Insufficient line pressure	Worn oil pump
			Oil leakage from oil pump, control valve, and/or transmission case
			Stuck pressure regulator valve
			Direct clutch and overdrive one-way clutch slipping
	In D (NORMAL), and L ranges	Rear clutch slipping	
In D (NORMAL) range only	One-way clutch slipping		
In R position only	Low and reverse brake slipping		
	Front clutch slipping		
	Perform road test to determine if this is caused by low and reverse brake or front clutch as follows: a) Effective engine braking in L range Front clutch b) No engine braking in L range Low and reverse brake		
Within specification	All shift control elements within transmission are functioning normally		
Below specification	Engine out of tune		
	One-way clutch slipping within torque converter		

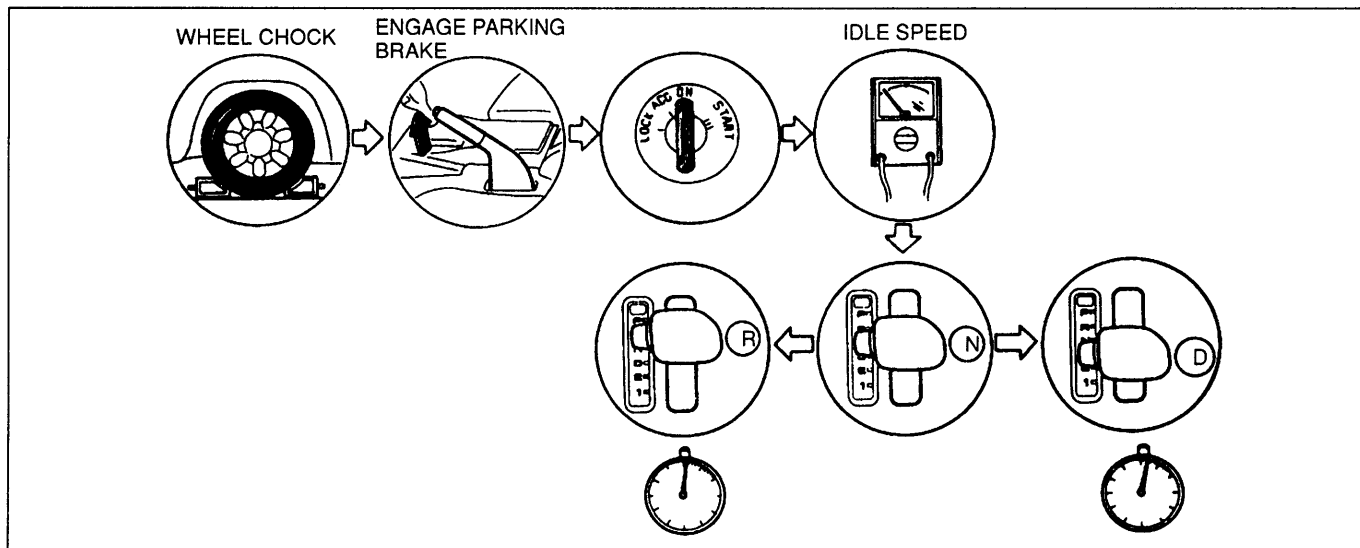
TIME LAG TEST

If the selector lever is shifted while the engine is idling, there will be a certain time lapse, or time lag, before shock is felt. This step checks this time lag for checking condition of the 1-2, N-R/2-3 and N-D accumulators, front, rear and one-way clutches, second gear brake band, and low and reverse brake.

Preparation

Perform the preparation procedure shown in the STALL TEST. (Refer to page K-22.)

Procedure



1. Start the engine and check the idle speed in P position. (Refer to section F.)

Idle speed: 750—850 rpm

2. Shift from N position to D range.
3. Use a stopwatch to measure the time it takes from shifting until shock is felt.
4. Shift the selector to N position and let the engine idle for 1 minute or more to cool the ATF.
5. Do the time lag test for the following shifts in the same manner. Make three measurements for each test and average the results.
 - (1) N position → D range (NORMAL mode)
 - (2) N position → D range (HOLD mode)
 - (3) N position → R position

Specified time lag: N position → D range 0.5—0.6 second
 N position → R position 0.75—0.85 second

Evaluation of Time Lag Test

Condition		Possible Cause
N → D (NORMAL) shifting	More than specification	Insufficient line pressure Rear clutch slipping One-way clutch slipping
	Less than specification	N-D accumulator not operating properly Excessive line pressure
N → D (HOLD) shifting	More than specification	Insufficient line pressure Rear clutch slipping 2GR brake band slipping
	Less than specification	1-2 accumulator not operating properly Excessive line pressure
N → R shifting	More than specification	Insufficient line pressure Low and reverse brake slipping Front clutch slipping
	Less than specification	N-R/2-3 accumulator not operating properly Excessive line pressure

LINE PRESSURE TEST

This test measures line pressures for checking the hydraulic components and inspecting for oil leakage.

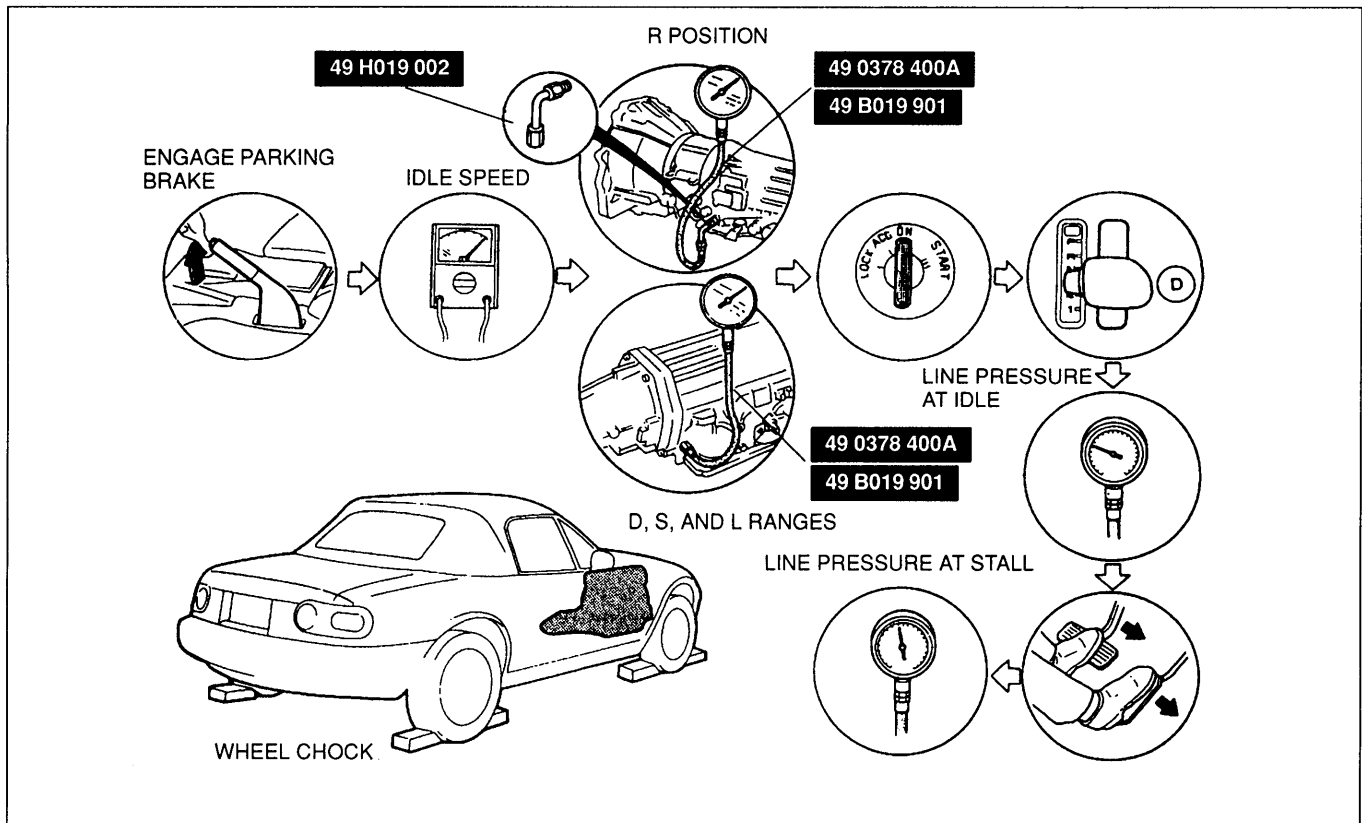
Preparation

1. Perform the preparation procedure shown in the STALL TEST. (Refer to page K-22.)
2. Connect a tachometer to the engine.

Warning

- **Removing the square-head plug when the ATF is hot is dangerous. Hot ATF can come out of the opening and badly burn. Before removing the square-head plug, allow the ATF to cool.**

3. Connect the **SST** to the line pressure inspection hole(s).

Procedure

1. Start the engine and check the idle speed in P position. (Refer to section F.)

Idle speed: 750—850 rpm

2. Shift the selector lever to D range and read the line pressure at idle.

Caution

- **If the accelerator pedal is pressed for longer than 5 seconds while the brake pedal is pressed, the transmission could be damaged. Therefore, do steps 3 and 4 within 5 seconds of each other.**

3. Depress the brake pedal firmly with the left foot and gradually depress the accelerator pedal with the right foot.
4. Read the line pressure as soon as the engine speed becomes constant, then release the accelerator pedal.
5. Shift the selector to N position and let the engine idle for 1 minute or more to cool the ATF.
6. Read the line pressure at idle and at the engine stall speed for each range in the same manner.

Specified line pressure:

Position/Range	Pressure kPa { kgf/cm ² , psi }	
	Idle	Stall
D range	285—362 { 2.9—3.7 , 42—52 }	795—912 { 8.1—9.3 , 116—132 }
S range	785—921 { 8.0—9.4 , 114—133 }	795—912 { 8.1—9.3 , 116—132 }
L range	295—392 { 3.0—4.0 , 43—56 }	883—1,078 { 9.0—11.0 , 128—156 }
R position	775—970 { 7.9—9.9 , 113—140 }	1,972—2,167 { 20.1—22.1 , 286—314 }

7. Cool the transmission and reconnect the **SST** to the line pressure inspection hole.
8. Connect a vacuum pump to the vacuum diaphragm and place the pump inside the vehicle.
9. Shift the selector lever to R position.
10. Read the line pressure at idle as described below.

Specified line pressure:

Vacuum	Line pressure kPa { kgf/cm ² , psi }
Atmospheric pressure	883—1,078 { 9.0—11.0 , 128—156 }
200 mmHg { 7.87 inHg }	687—784 { 7.0—8.0 , 100—113 }
400 mmHg { 15.7 inHg }	393—490 { 4.0—5.0 , 57—71 }

Evaluation of Line Pressure Test

Condition		Possible Cause
Below specification	In R positions and all ranges	Worn oil pump Fluid leakage from the oil pump, control valve body, and/or transmission case Stuck pressure regulator valve Fluid leakage from the direct clutch and/or fourth gear band servo release side hydraulic circuit
	In D (NORMAL), S (non-HOLD), and L ranges	Fluid leakage from the rear clutch hydraulic circuit Stuck pressure modifier valve
	In S (non-HOLD & HOLD) and L ranges	Fluid leakage from the throttle backup valve hydraulic circuit
	In L range and R position	Fluid leakage from the low and reverse hydraulic circuit
	In R position only	Fluid leakage from the front clutch and/or second gear band servo release side hydraulic circuit
	In S range (HOLD)	Stuck throttle backup valve Stuck backup control valve Backup control function (electronic) not operating properly
Excessive line pressure		Stuck pressure modifier valve Stuck backup control valve
Below specification		Same as Line Pressure Test
Excessive pressure	In all positions and ranges	Leaking or disconnected vacuum hose Leaking vacuum diaphragm Diaphragm rod too long Stuck vacuum throttle valve Stuck pressure regulator valve
	In S range (HOLD)	Stuck pressure modifier valve

	Condition	Possible Cause
Incorrect line pressure with specified vacuum at vacuum diaphragm	No variation	Missing diaphragm rod
	Incorrect variation (Above or below specification)	Incorrect diaphragm rod length Stuck vacuum throttle valve Stuck pressure regulator valve Stuck pressure regulator plug

ROAD TEST

Note

- If the tires are rotated by using a chassis roller with the ignition switch at ON, the ABS control module may memorize the action as a malfunction and the ABS warning light may illuminate. (Refer to the Troubleshooting Notes for the antilock brake system, section P.) If the ignition switch is turned to LOCK and then to ON again, the ABS warning light will not illuminate, because the action will be considered a past malfunction.

A road test is necessary to inspect for problems in the different gear ranges. If a range or function targeted by the road test is found to have any problem, refer to the ELECTRONIC SYSTEM COMPONENT segment or the TRANSMISSION, OIL COOLER, DRIVE PLATE, and SHIFT MECHANISM segments of this section. Do the road test only when the ATF is 50—80 °C { 122—176 °F }.

D-RANGE TEST

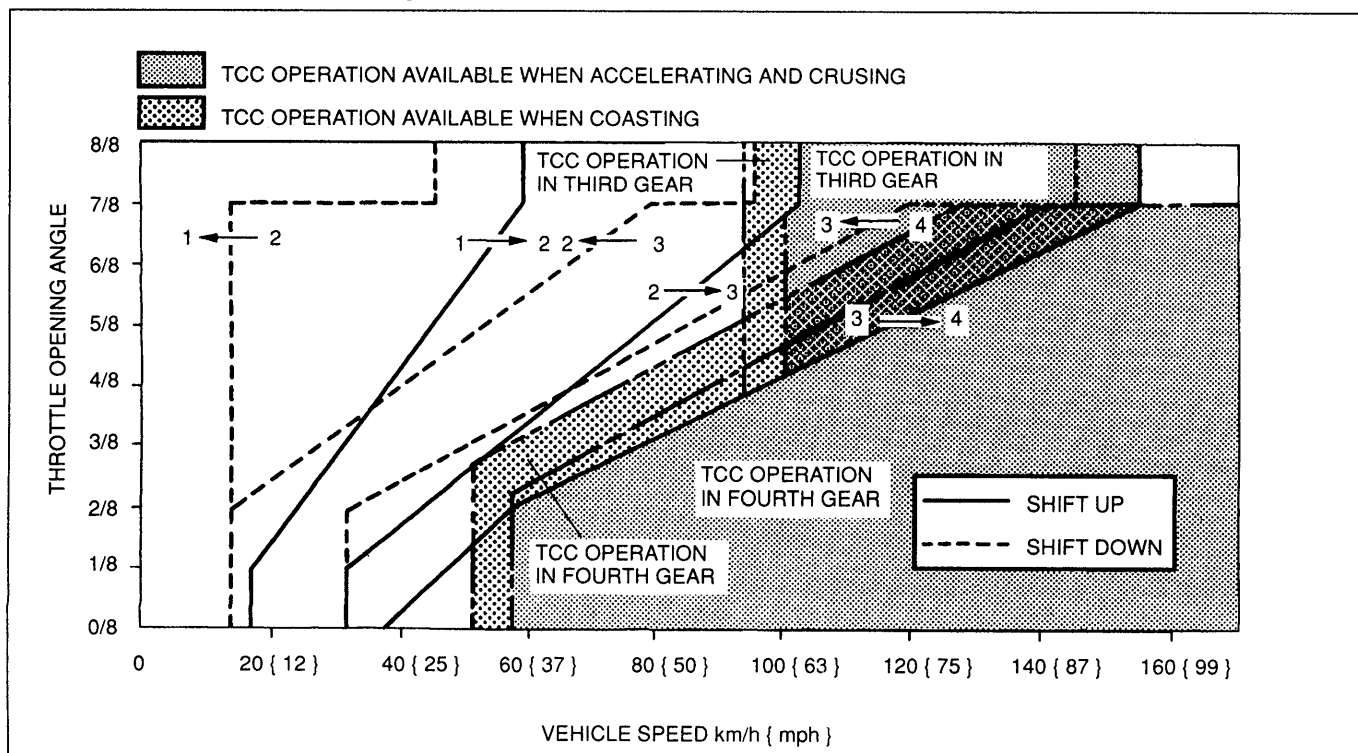
Shift Point, Shift Pattern, and Shift Shock

- Shift the selector lever to D range and select the NORMAL mode.
- Accelerate the vehicle with half and wide open throttle opening.
- Verify that 1–2, 2–3, and 3–4 upshifts, downshifts, and torque converter clutch operation are obtained. The shift points must be as shown in the D range (NORMAL) shift diagram.

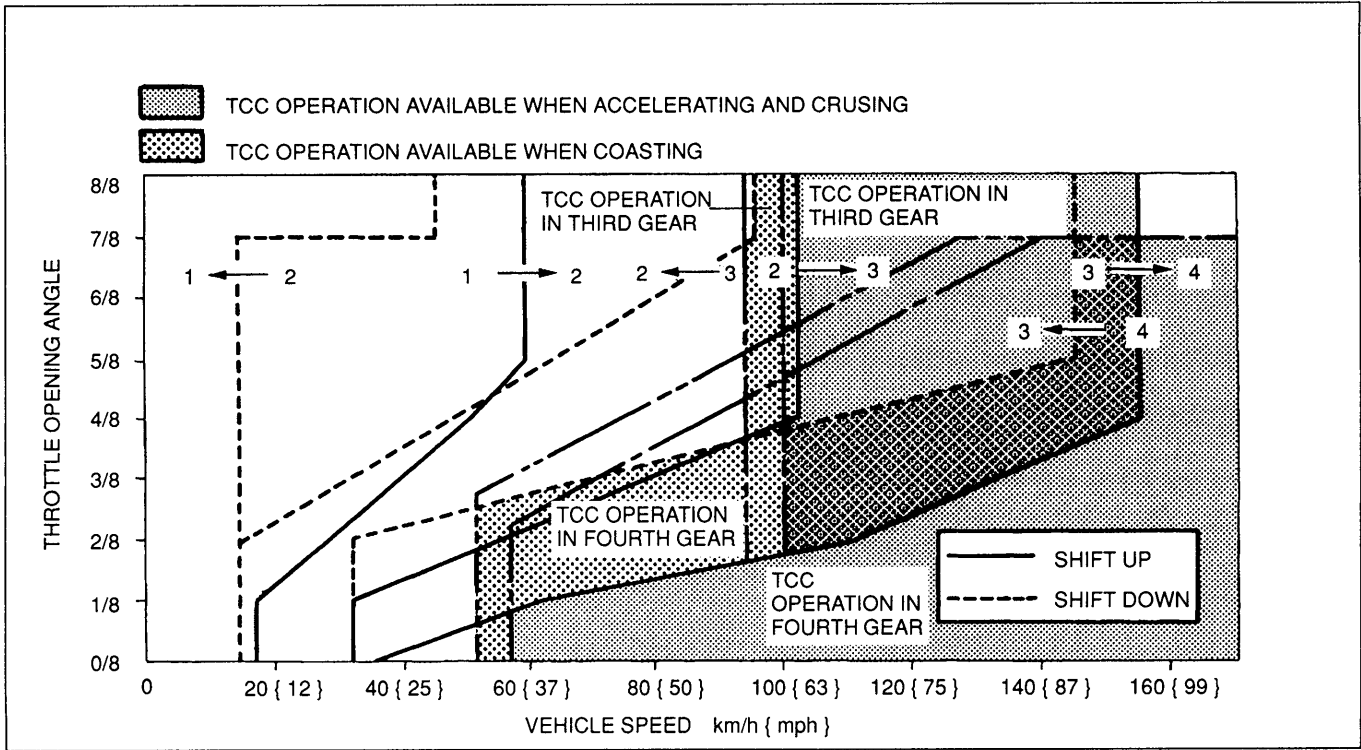
Note

- There is fourth gear is any of the following conditions.
 - The cruise control is operating, and there is an 8 km/h { 5 mph } difference between the preset cruise speed and the vehicle speed.
 - The SET or RESUME switch is ON.
 - There is no torque converter clutch operation when water temperature is below 50 °C { 122 °F } or in the closed throttle position.
- Check the upshifts for shift shock or slippage in the same manner.
 - While driving in overdrive, shift the selector lever to S range and verify that 4–3 downshift immediately occurs, then decelerate and verify that engine braking effect is felt in only third gear and second gears.

D-range (NORMAL) shift diagram

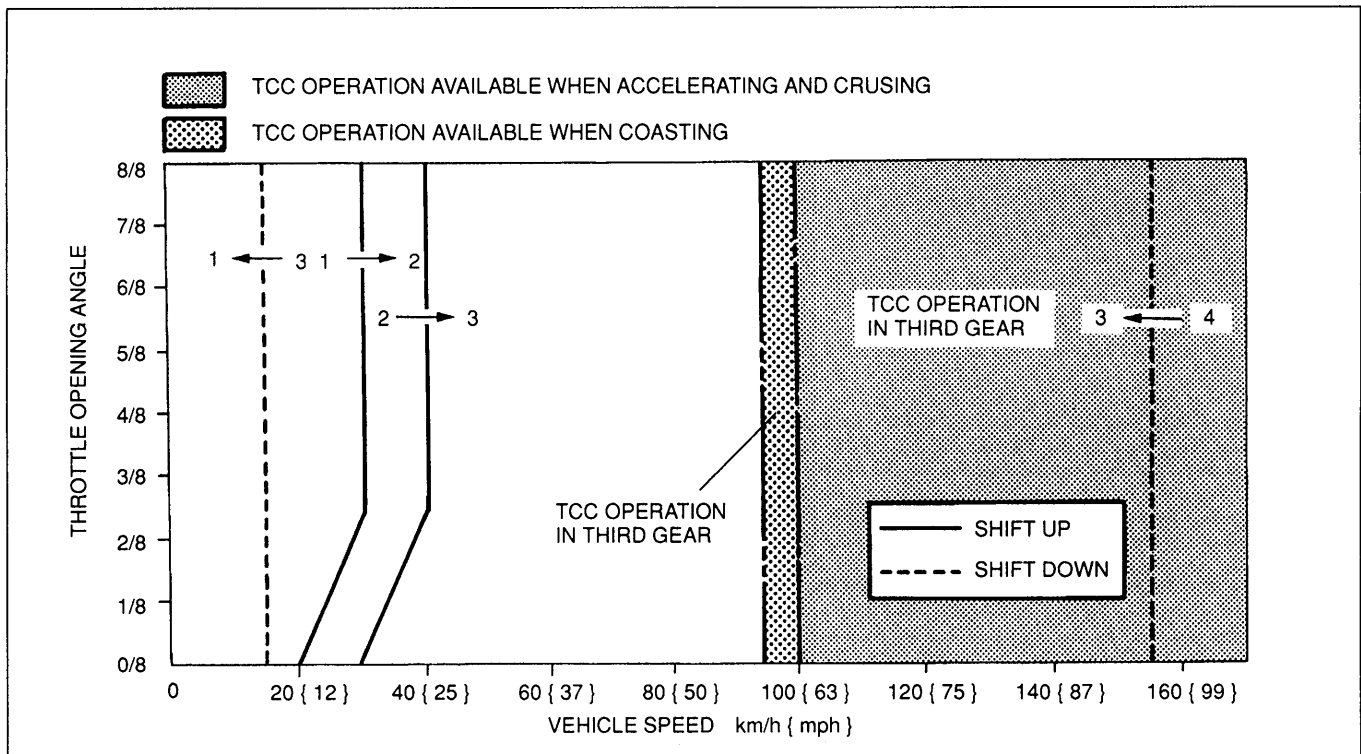


D range (POWER) shift diagram



6. Select the HOLD mode.
7. Accelerate the vehicle and check 2–3 up-and-downshifts, verify that no first gear and no fourth gear is obtained, and verify that the 2–3 shift points are as shown in the D range (HOLD) shift diagram.

D-range (HOLD) shift diagram



Evaluation

Condition	Possible Cause
No 1-2 up or downshift	Stuck shift solenoid A Stuck 1-2 shift valve
No 2-3 up or downshift	Stuck shift solenoid B Stuck 2-3 shift valve
No 3-4 up or downshift	Stuck shift solenoid C Stuck 3-4 shift valve
No TCC operation shift	Stuck TCC control solenoid valve Stuck TCC control valve
Incorrect shift point	Misadjusted throttle position sensor Sticking shift valves
Excessive shift shock or slippage	Stuck accumulators Stuck or no one-way check orifice Stuck 3-2 control solenoid valve Stuck 3-2 control valve Worn clutches, brakes, or one-way clutch
No engine braking effect	Worn clutches, brakes

Noise and Vibration

Drive the vehicle in fourth gear (torque converter clutch operation), fourth gear (torque converter clutch non-operation), and third gear (HOLD) and listen closely for any out of the ordinary noise or vibration. The torque converter, propeller shaft, and differential can be sources of abnormal noise and vibration if they are not functioning properly. Check these when searching for sources of noise and vibration.

Kickdown

Drive the vehicle in fourth gear, third gear, and second gear and check that kickdown occurs for 4→3, 4→2, 4→1, 3→2, 3→1, 2→1, and that the shift points are as shown in the shift diagram. (Refer to pages K-29, 30.)

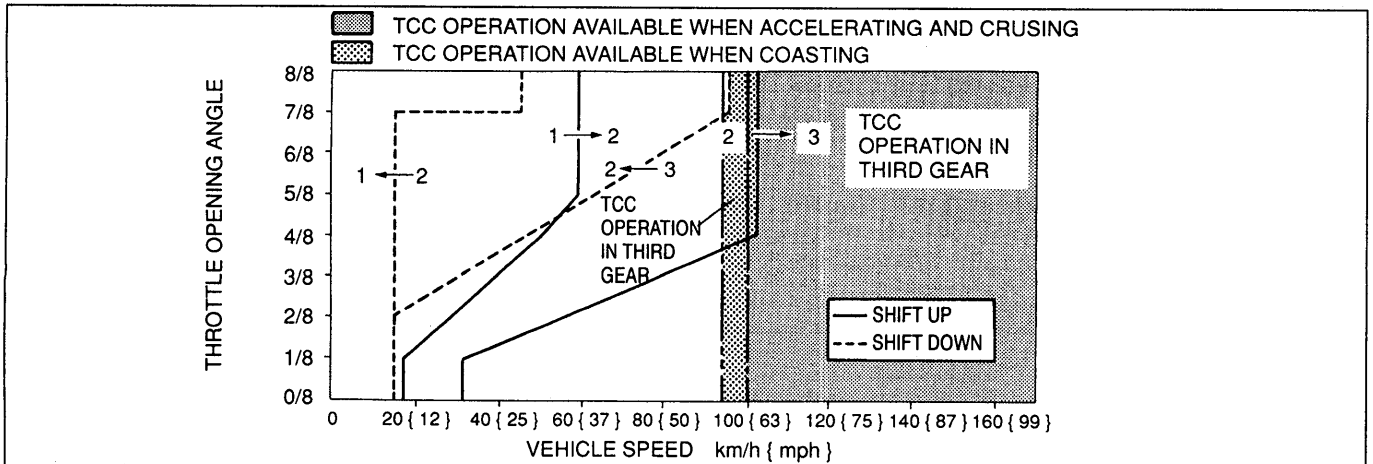
S-RANGE TEST

Shift Pattern

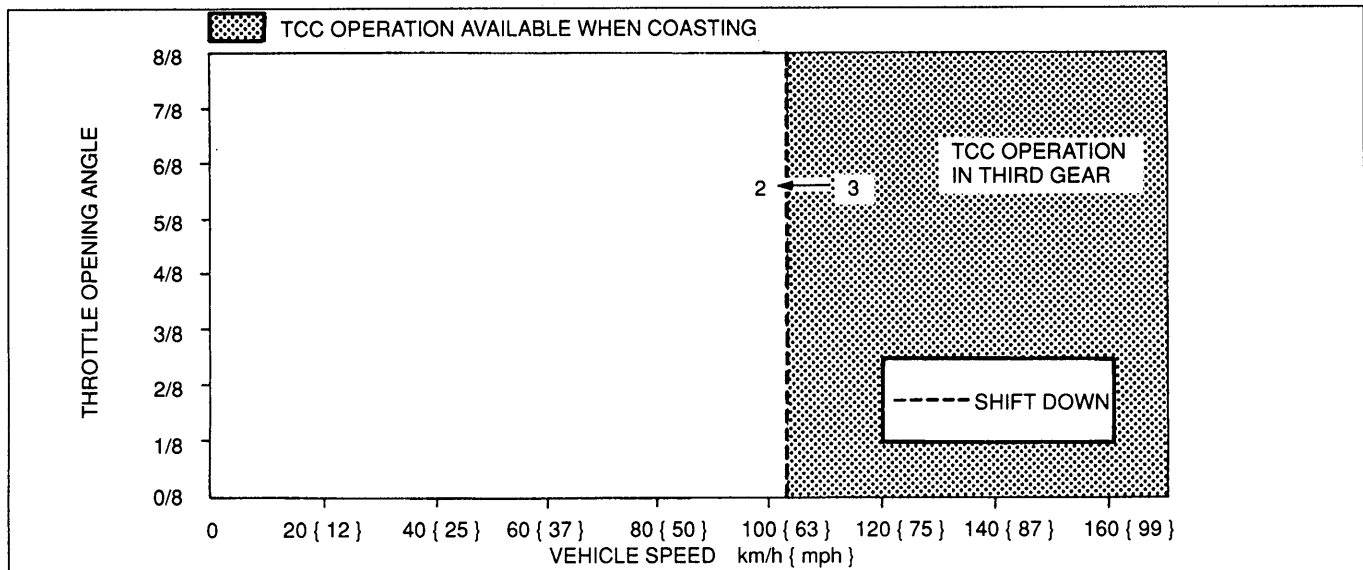
For this test it is not necessary to inspect shift shock and shift points, since they are almost exactly the same as those for the D-range test. However, in the D-range (NORMAL) shift diagram, the shift points are different. In S range, the shift patterns for NORMAL mode are the same.

- Shift the selector lever to S range and select the NORMAL mode.
- Accelerate the vehicle and verify that 1-2 and 2-3 up-and-downshifts are obtained, and that no fourth gear and no torque converter clutch operation (below approx. 100 km/h { 63 mph }) are obtained.
- While driving in S range (non-HOLD mode) and third gear, select the HOLD mode and verify that third gear is held until the 3-2 downshift point as shown in the S range (HOLD) shift diagram is achieved.
- Accelerate the vehicle in S range (HOLD mode) and verify that second gear is held.

S-range (Non-HOLD) shift diagram



S-range (HOLD) shift diagram



Noise and Vibration

Drive the vehicle in second gear (HOLD) and listen closely for any out of the ordinary noise or vibration. The torque converter, propeller shift, and differential can be sources of abnormal noise and vibration if they are not functioning properly. Check these when searching for sources of noise and vibration.

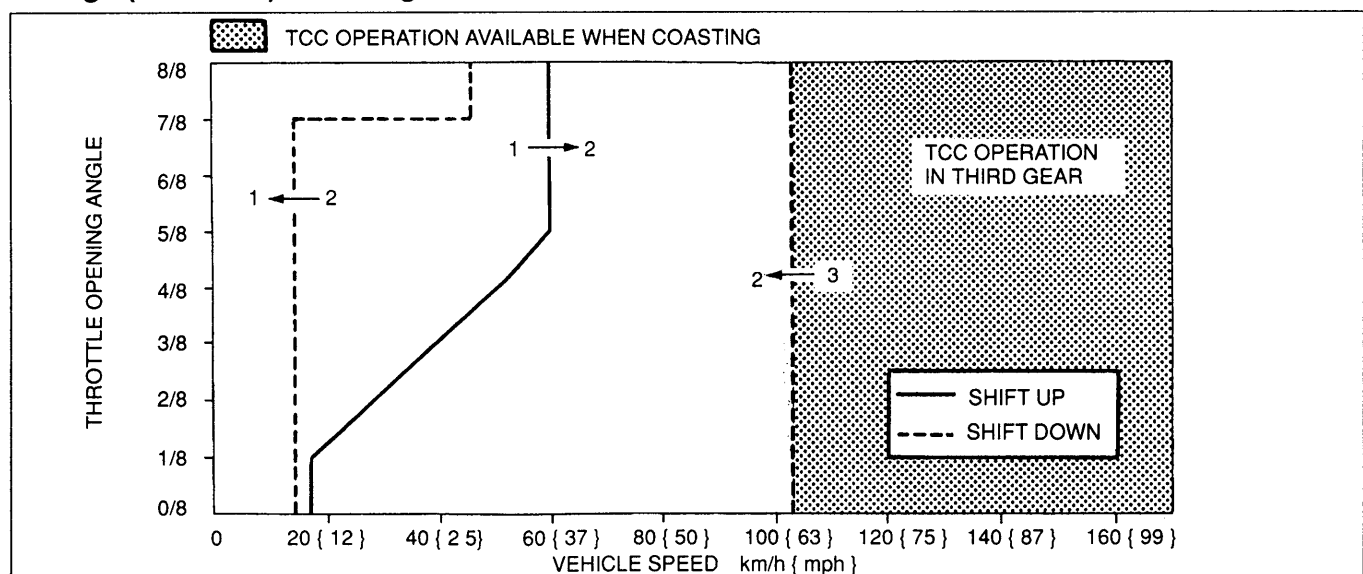
L-RANGE TEST

Shift Pattern

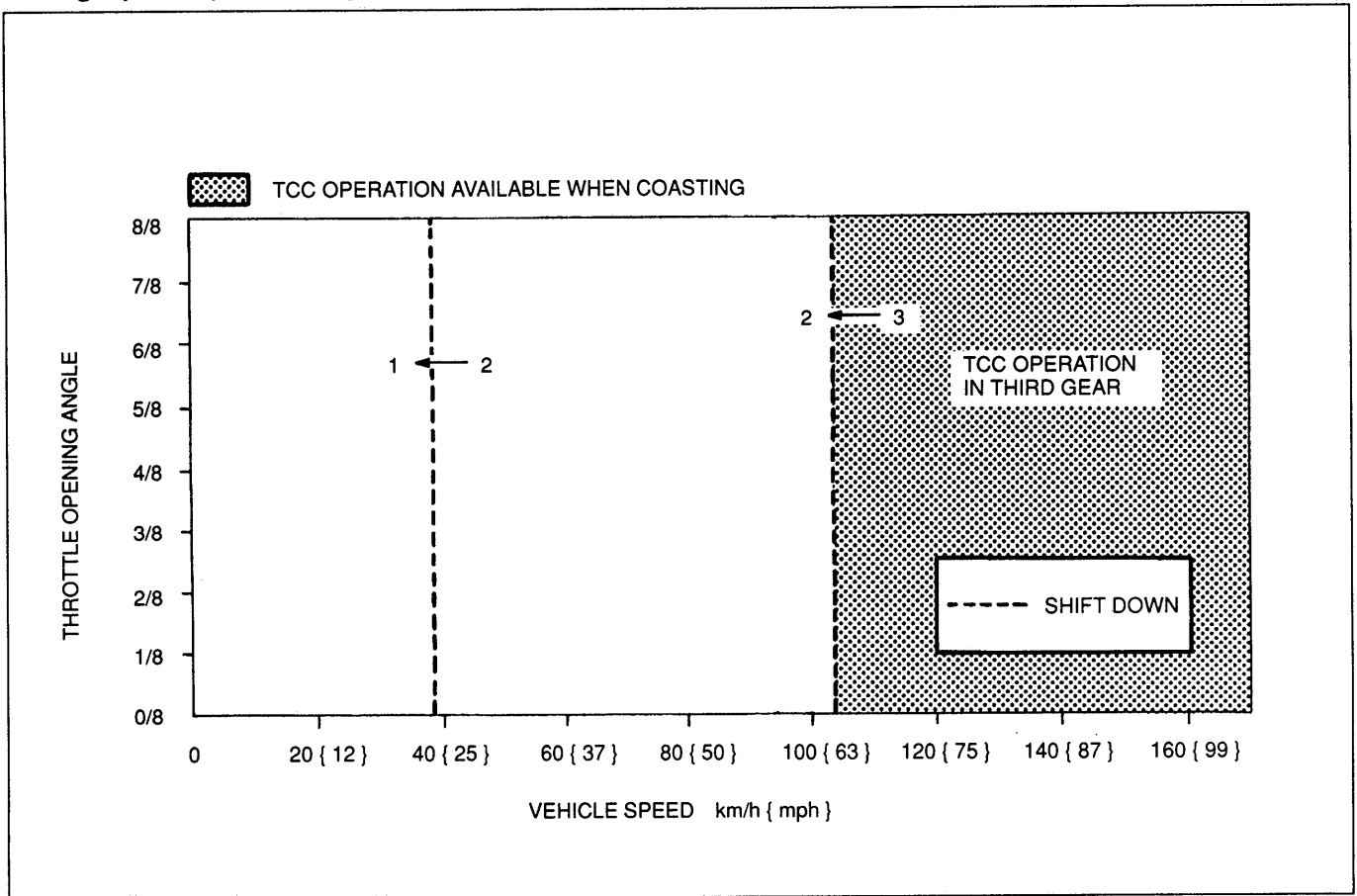
For this test it is not necessary to inspect shift shock and shift points, since they are almost exactly the same as those for the D-range test. However, in the D-range (NORMAL) shift diagram, the shift points are different. In L-range, the shift patterns for NORMAL mode are the same.

1. Shift the selector lever to L-range and select the NORMAL mode.
2. Accelerate the vehicle and verify that 1–2 up and downshifts are obtained, and that no third gear, no fourth gear, and no torque converter clutch operation are obtained.
3. Drive in first gear, then decelerate and verify that engine braking effect is felt.
4. While driving in D-range (HOLD mode) and third gear, shift the selector lever to L-range and verify that third gear is held until the 3–2 downshift point as shown in the L-range (HOLD) shift diagram, and that second gear is held until 2–1 downshift point is achieved.
5. Accelerate the vehicle in L-range (HOLD mode) and verify that first gear is held.

L-range (Non-Hold) shift diagram



L-range (HOLD) shift diagram

**Noise and Vibration**

Drive the vehicle in first gear (HOLD) and listen closely for any out of the ordinary noise or vibration. The torque converter, propeller shift, and differential can be sources of abnormal noise and vibration if they are not functioning properly. Check these when searching for sources of noise and vibration.

P-POSITION TEST

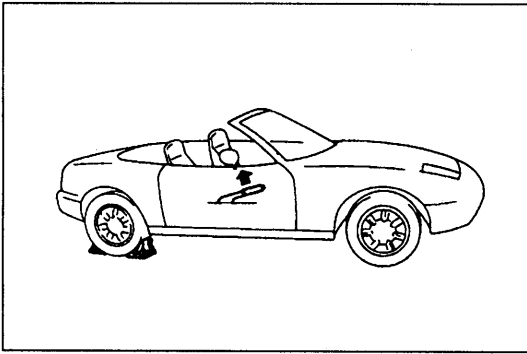
1. Shift into P position on a gentle slope, release the brake, and verify that the vehicle does not roll.
2. Shift into P position while driving the vehicle at **4 km/h { 2.5 mph } maximum** on a level surface, and verify that the vehicle stops.

Vehicle Speed at Shiftpoint Table

Note

- Because of mechanical time lag, vehicle speed at shift during full-throttle is 5—6 km/h { 3—4 mph } higher than the specified vehicle speed.

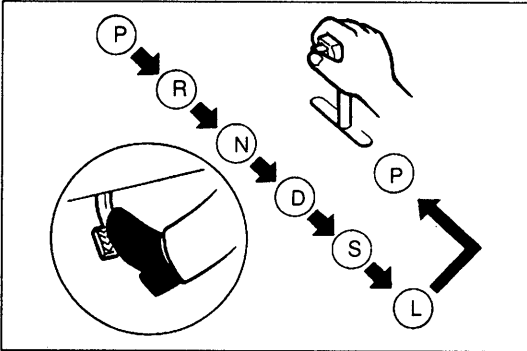
Range	Mode	Throttle condition	Shift	Vehicle speed km/h { mph }	
D	NORMAL	Wide open throttle	D ₁ →D ₂	58—64 { 36—39 }	
			D ₂ →D ₃	100—108 { 62—66 }	
			D ₃ TCC operation	98—106 { 61—65 }	
			D ₃ →D ₄	152—162 { 95—100 }	
		Half throttle	D ₁ →D ₂	33—46 { 21—28 }	
			D ₂ →D ₃	58—76 { 36—47 }	
			D ₃ →D ₄	82—110 { 51—68 }	
			D ₄ TCC operation	74—100 { 46—62 }	
		Closed throttle position	D ₄ →D ₃	28—34 { 17—21 }	
			D ₃ →D ₁	11—17 { 7—10 }	
		Kickdown (Wide open throttle)	D ₄ →D ₃	140—150 { 87—93 }	
			D ₃ →D ₂	92—100 { 57—62 }	
	D ₂ →D ₁		42—48 { 26—29 }		
	D ₁ →D ₂		58—64 { 36—39 }		
	POWER	Wide open throttle	D ₂ →D ₃	100—108 { 62—66 }	
			D ₃ TCC operation	98—106 { 61—65 }	
			D ₃ →D ₄	152—162 { 94—100 }	
			D ₁ →D ₂	44—55 { 28—34 }	
		Half throttle	D ₂ →D ₃	99—108 { 56—66 }	
			D ₃ TCC operation	98—106 { 61—65 }	
			D ₃ →D ₄	140—164 { 87—101 }	
			D ₄ →D ₃	28—34 { 17—21 }	
		Closed throttle position	D ₃ →D ₁	11—17 { 7—10 }	
			D ₄ →D ₃	140—150 { 87—93 }	
Kickdown (Wide open throttle)		D ₃ →D ₂	92—100 { 57—62 }		
		D ₂ →D ₁	42—48 { 26—29 }		
	D ₁ →D ₂	27—33 { 17—20 }			
	D ₂ →D ₃	35—45 { 22—27 }			
HOLD	All positions	D ₄ →D ₃	152—158 { 94—97 }		
		D ₃ →D ₁	12—18 { 8—11 }		
		D ₃ TCC operation	95—105 { 59—65 }		
		S ₁ →S ₂	58—64 { 36—39 }		
		S ₂ →S ₃	100—108 { 62—66 }		
S	Non-HOLD	Wide open throttle	S ₃ TCC operation	98—105 { 61—65 }	
			S ₁ →S ₂	44—55 { 28—34 }	
			S ₂ →S ₃	90—108 { 56—67 }	
		Half throttle	S ₃ TCC operation	94—106 { 58—66 }	
			Closed throttle position	S ₃ →S ₁	11—17 { 7—10 }
			Kickdown (Wide open throttle)	S ₃ →S ₂	92—100 { 57—62 }
	S ₂ →S ₁	42—48 { 26—29 }			
	HOLD	All positions	S ₃ →S ₂	99—105 { 61—65 }	
			S ₃ TCC operation	95—105 { 59—65 }	
	L	Non-HOLD	Wide open throttle	L ₁ →L ₂	56—62 { 35—38 }
				L ₁ →L ₂	44—55 { 27—34 }
			Half throttle	L ₃ →L ₂	96—104 { 60—64 }
L ₂ →L ₁				11—17 { 7—10 }	
Closed throttle position			L ₃ →L ₂	99—105 { 61—65 }	
			L ₂ →L ₁	42—48 { 26—29 }	
Kickdown (Wide open throttle)		L ₂ →L ₁	35—41 { 21—25 }		
		L ₃ TCC operation	95—105 { 59—65 }		



AUTOMATIC TRANSMISSION FLUID (ATF)

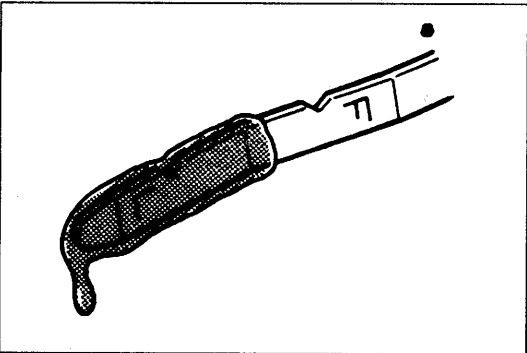
**ATF
Inspection
Level**

1. Park the vehicle on level ground.
2. Apply the parking brake and position wheel chocks securely to prevent the vehicle from rolling.
3. Warm up the engine until the ATF reaches **60—70 °C { 140—158 °F }**.
4. While depressing the brake pedal, shift the selector lever to each range (P—L), pausing momentarily in each range.
5. Shift back to P position.



Note

- In some cases it may be necessary to inspect the ATF in the cool range **15—25 °C { 59—77 °F }** before warming up the engine.
6. Ensure that the ATF level is in the HOT (65 °C) range. Add ATF to the specification, if necessary.

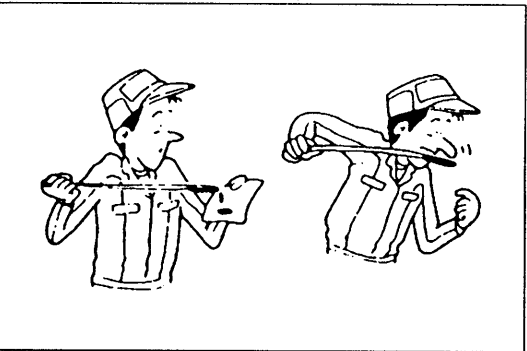


ATF type: Dexron®II or M-III

Condition

Determine whether the transmission should be disassembled by noting.

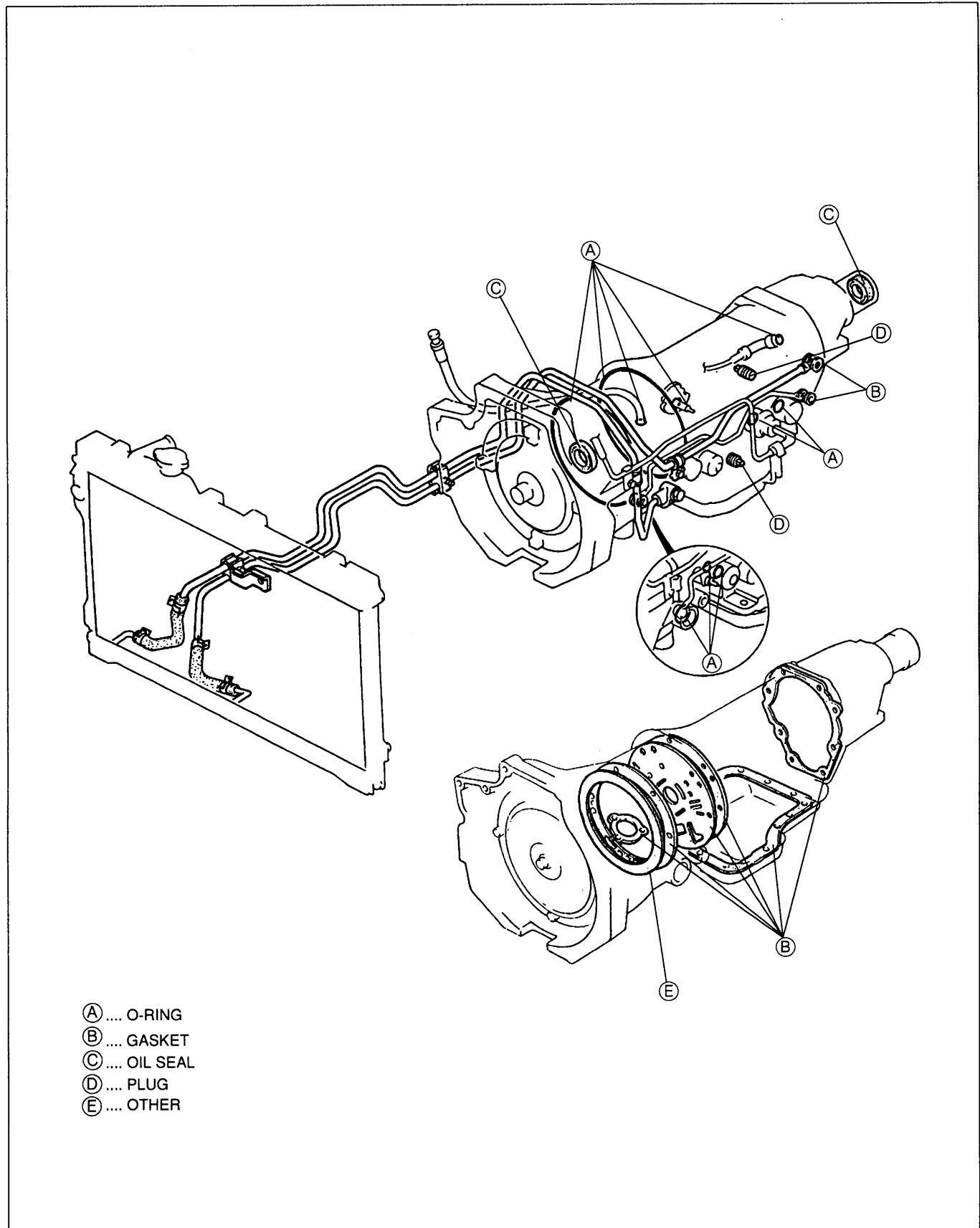
1. If the ATF is muddy or varnished.
2. If the ATF smells strange or unusual.



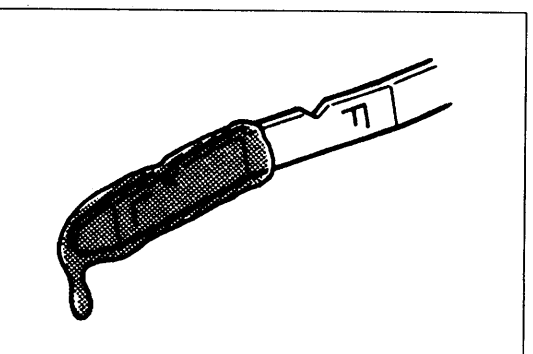
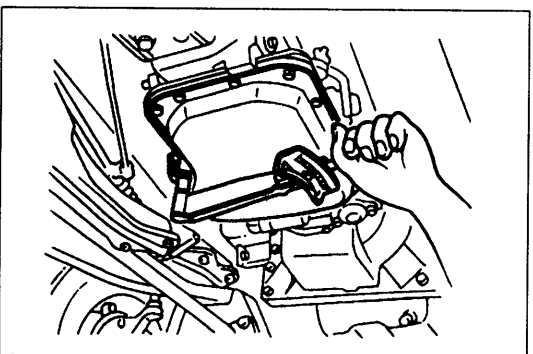
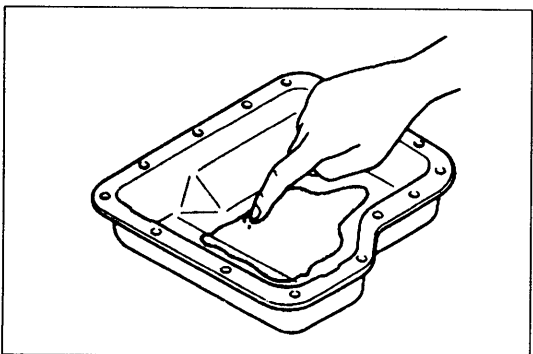
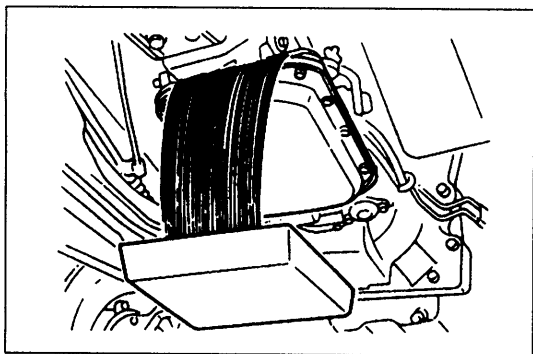
Fluid leaks

Check for fluid leaks of the transmission as shown below, and repair or replace as necessary.

1. Gaskets, O-ring, and plugs
2. Oil hoses, oil pipes, and connections
3. Oil cooler



- (A) O-RING
- (B) GASKET
- (C) OIL SEAL
- (D) PLUG
- (E) OTHER



REPLACEMENT

1. On level ground, jack up the vehicle and support it evenly on safety stands.

Warning

- When the transmission and the ATF are hot, they can cause burns to the skin. Allow the transmission and the ATF to cool before doing this procedure.

2. Loosen the oil pan installation bolts, and drain the ATF into a container.
3. Remove the oil pan and gasket.
4. Clean the oil pan and the magnet.

5. Install the oil pan along with a new gasket.

Tightening torque:

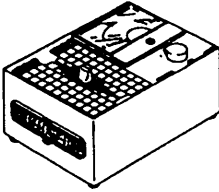
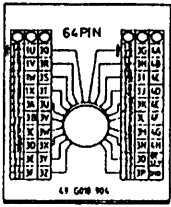
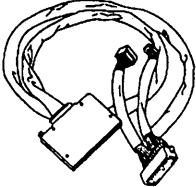
5.9—7.8 N·m { 60—80 kgf·cm , 53—69 in·lbf }

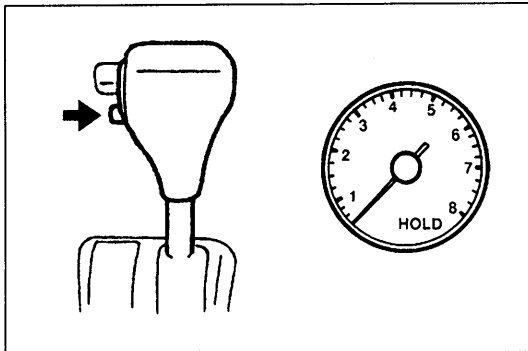
6. Add approximately **4.0 L { 4.2 US qt , 3.5 Imp qt }** ATF, and check the ATF level. (Refer to page K-35.)

Specified ATF: Dexron®II or M-III

ELECTRICAL SYSTEM COMPONENTS

PREPARATION SST

<p>49 9200 162</p> <p>Monitor, Engine Signal</p> 	<p>For inspection of transmission control module terminal voltage</p>	<p>49 G018 904</p> <p>Sheet</p> 	<p>For inspection of transmission control module terminal voltage</p>
<p>49 D019 902</p> <p>Adapter Harness</p> 	<p>For inspection of transmission control module terminal voltage</p>	<p>—</p>	<p>—</p>

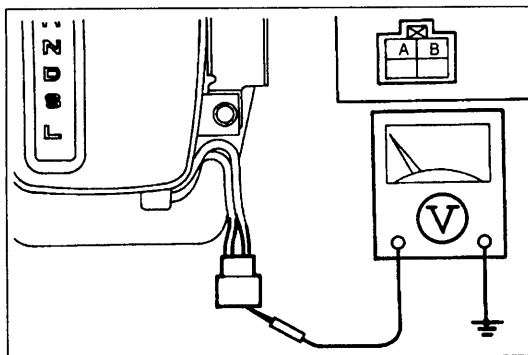


HOLD SWITCH

Inspection

Inspection of operation

1. Turn the ignition switch from OFF to ON.
2. Verify that the HOLD indicator light is not illuminated. Depress the HOLD switch and verify that the HOLD indicator light illuminates.
3. If not as specified, check the terminal voltage of the HOLD switch.



Inspection of voltage

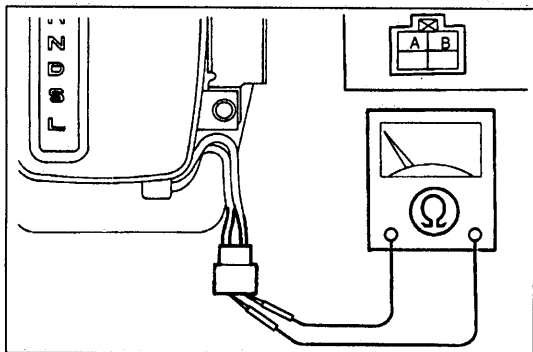
1. Remove the front console.
2. Turn the ignition switch ON.
3. Measure voltage at the HOLD switch connector.

B+: Battery positive voltage

Position	Connector terminal	
	A	B
Normal (V)	B+	0
Depressed (V)	0	0

(V): Voltage

4. If not as specified, check the continuity of the HOLD switch.

**Inspection of continuity**

1. Disconnect the negative battery cable.
2. Disconnect the HOLD switch connector.
3. Check continuity of the switch.

Position	Terminal	
	A	B
Normal		
Depressed	○—○	○—○

○—○: Continuity

4. If not as specified, replace the selector lever knob assembly. (Refer to below.)
5. If the switch is OK, check the wiring harness. (HOLD switch — transmission control module, HOLD switch — Body ground.)
6. Install the front console.
7. Connect the negative battery cable.

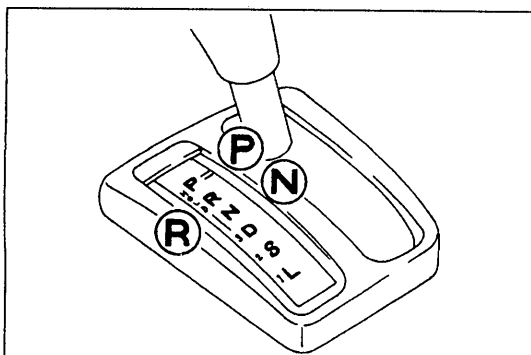
Replacement

1. Disconnect the negative battery cable.
2. Remove the front console.
3. Remove the indicator panel installation screws.
4. Disconnect the connector and remove the HOLD switch terminals.
5. Remove the selector lever knob assembly.
6. Install a new selector lever knob assembly.

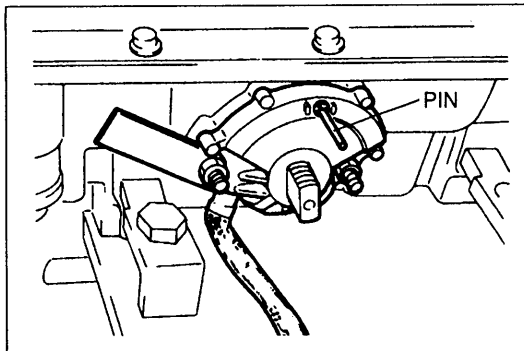
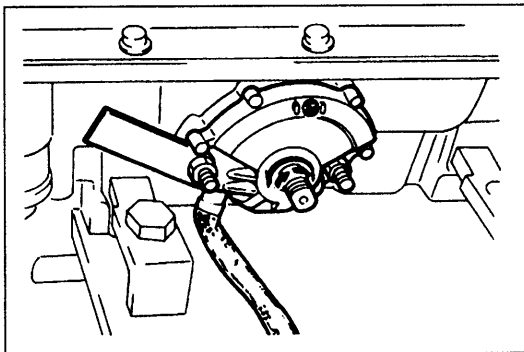
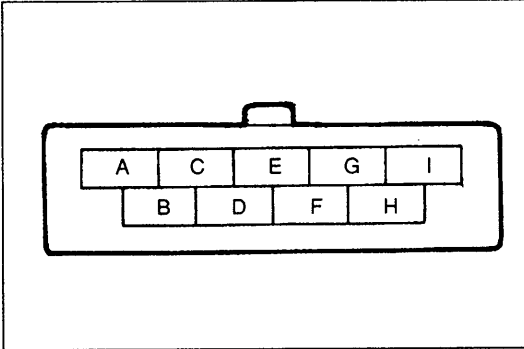
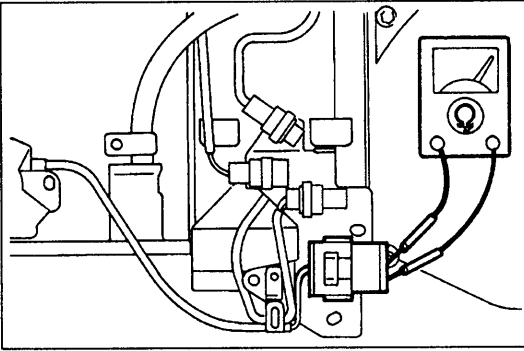
Tightening torque:

2.0—2.9 N·m { 20—30 kgf·cm , 18—26 in·lbf }

7. Install the HOLD switch terminals and connect the connector.
8. Install the indicator panel installation screws. (Refer to page K-163.)
9. Install the front console.
10. Connect the negative battery cable.

**TRANSMISSION RANGE SWITCH****Inspection****Inspection of operation**

1. Verify that the starter operates only with the ignition switch at the START position and the selector lever in P and N position.
2. Verify that the back-up lights illuminate when shifted to R position with the ignition switch in the ON position.
3. Verify that the positions of the selector lever and the selector indicator light of the instrument cluster are aligned.
4. Check the Transmission range switch if not as specified.



Continuity

1. On level ground, jack up the vehicle and support it evenly on safety stands.
2. Disconnect the select lever from the manual shaft.
3. Disconnect the transmission range switch connector.
4. Check continuity of the terminals.

Position/ Range	Connector terminal								
	A	B	C	D	E	F	G	H	I
P		○			○			○	○
R							○		○
N		○		○				○	○
D			○						○
S						○			○
L	○								○

○—○: Indicates continuity

5. If not correct, adjust the transmission range switch.
6. If correct, check or adjust the selector lever.
(Refer to page K-163.)

Adjustment

1. Move the manual shaft to N position.
2. Loosen the transmission range switch mounting Nuts.
3. Remove the screw on the switch body and move the transmission range switch so that the screw hole is aligned with the small hole inside the switch. Check their alignment by inserting a 2.0 mm { 0.079 in } diameter pin through the holes.

4. Tighten the mounting nuts and remove the pin.

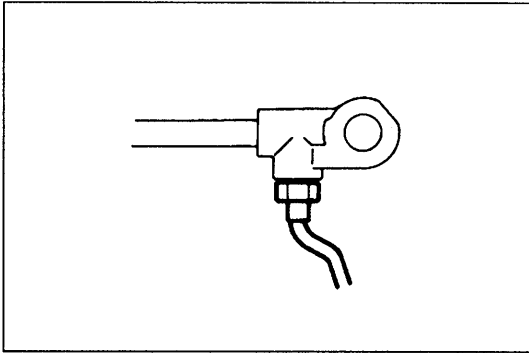
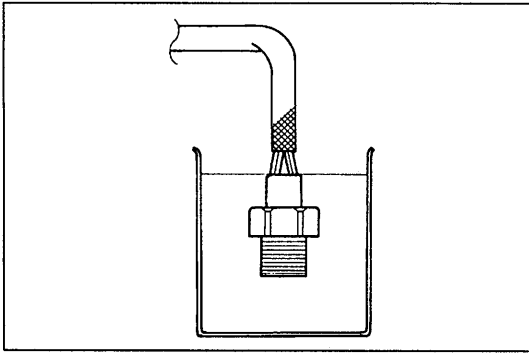
Tightening torque:

5.0—6.8 N·m { 50—70 kgf·cm , 44—60 in·lbf }

5. Install and tighten the screw in the switch body.
6. Check the continuity of the transmission range switch.
7. If not correct, replace the transmission range switch.
8. Connect the selector lever.

Tightening torque:

45—63 N·m { 4.5—6.5 kgf·m , 33—47 ft·lbf }

**TRANSMISSION FLUID TEMPERATURE SENSOR****Inspection**

1. Refer to "Replacement" below for removal of the transmission fluid temperature sensor.
2. Place the transmission fluid temperature sensor in ATF with a thermometer as shown, and heat the ATF gradually.
3. Measure resistance between the terminals of the transmission fluid temperature sensor.

ATF temperature °C { °F }	Resistance (kΩ)
20 { 68 }	2.5
60 { 140 }	0.6
80 { 176 }	0.35

4. If not correct, replace the transmission fluid temperature sensor.
5. Refer to "Replacement" for installation of the transmission fluid temperature sensor.

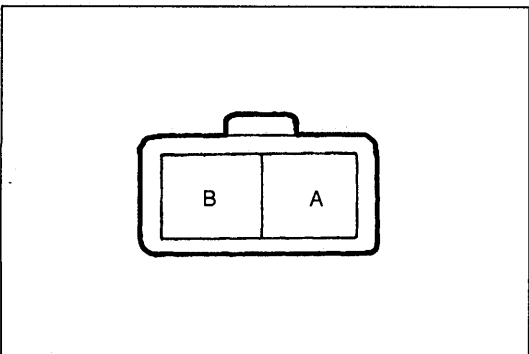
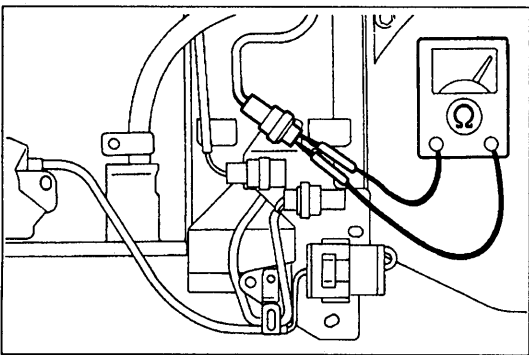
Replacement

1. Disconnect the negative battery cable.
2. On level ground, jack up the vehicle and support it evenly on safety stands.
3. Disconnect the transmission fluid temperature sensor connector.
4. Remove the transmission fluid temperature sensor.
5. Install the new transmission fluid temperature sensor.

Tightening torque:

7.9—10.7 N·m { 80—110 kgf·cm , 70—95.4 in·lbf }

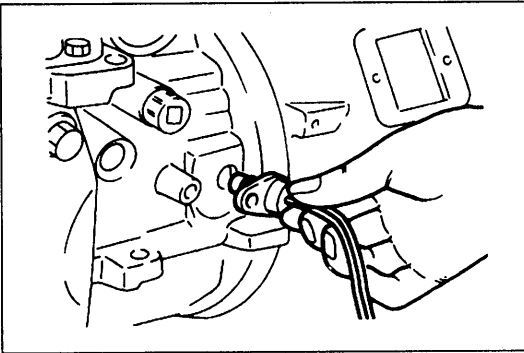
6. Connect the transmission fluid temperature sensor connector.
7. Connect the negative battery cable.

**INPUT/TURBIN SPEED SENSOR****Inspection**

1. Disconnect the negative battery cable.
2. On level ground, jack up the vehicle and support it evenly on safety stands.
3. Disconnect the input/turbin speed sensor connector.
4. Measure resistance between the terminals of the input/turbin speed sensor.

Resistance: 245 Ω

5. If not correct, replace the input/turbin speed sensor.
6. Connect the input/turbin speed sensor connector.
7. Connect the negative battery cable.



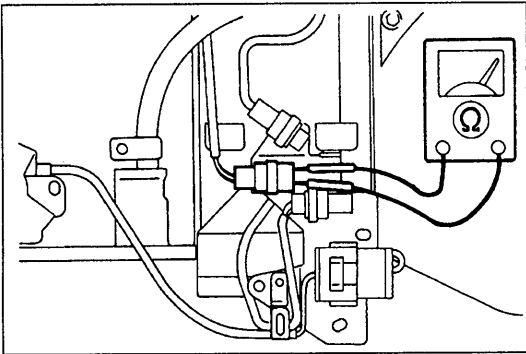
Replacement

1. Disconnect the negative battery cable.
2. On level ground, jack up the vehicle and support it evenly on safety stands.
3. Disconnect the input/turbin speed sensor connector.
4. Remove the input/turbin speed sensor.
5. Install the new input/turbin speed sensor.

Tightening torque:

7.9—10.7 N·m { 80—110 kgf·cm , 70—95.4 in·lbf }

6. Connect the input/turbin speed sensor connector.
7. Connect the negative battery cable.



SHIFT SOLENOID A, B, C, 3-2 CONTROL SOLENOID VALVE

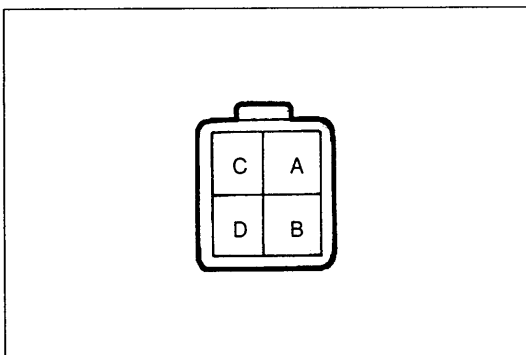
Inspection

1. On level ground, jack up the vehicle and support it evenly on safety stands.
2. Disconnect the solenoid valve connector.
3. Measure resistance between each terminal and ground.

Resistance: 13—27 Ω

Solenoid valve	Terminal
Shift solenoid A	C
Shift solenoid B	D
Shift solenoid C	A
3-2 control	B

4. If not correct, check the wiring harness for an open or short circuit. Replace the solenoid valve.



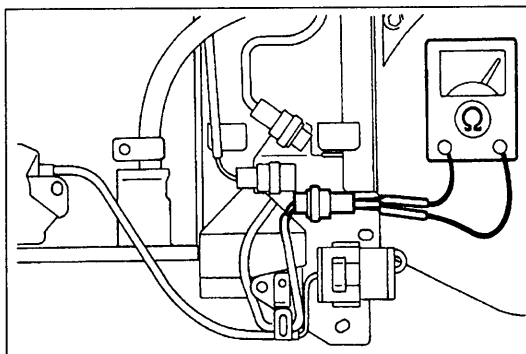
TORQUE CONVERTER CLUTCH CONTROL SOLENOID VALVE

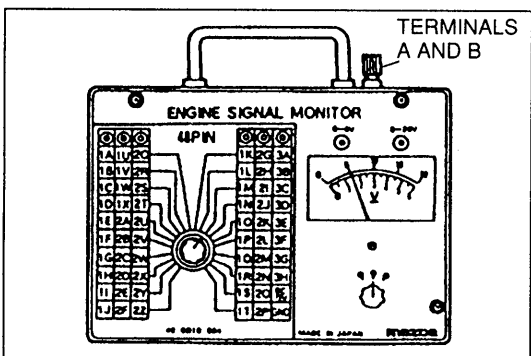
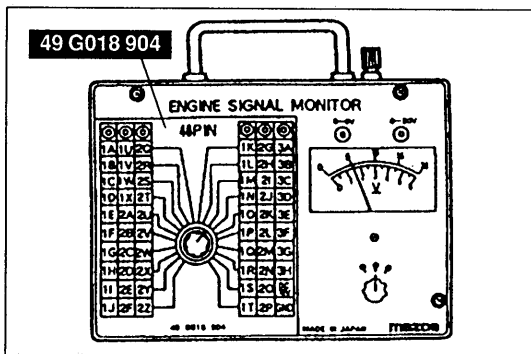
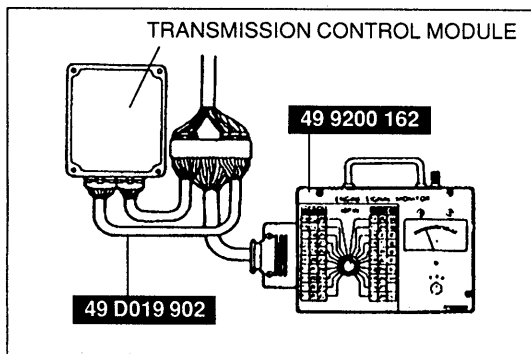
Inspection

1. Disconnect the solenoid valve connector.
2. Measure the resistance between the terminals.

Resistance: 13—25 Ω

3. If not correct, replace the solenoid valve.





TRANSMISSION CONTROL MODULE

Inspection

1. Remove the transmission control module.
(Refer to page K-45.)
2. Disconnect the control module connectors.
3. Connect the **SSTs** (Engine Signal Monitor and Adapter Harness) to the transmission control module as shown.
4. Place the **SST** (sheet) on the **Engine Signal Monitor**.
5. Turn the ignition switch **ON**.
6. Measure the terminal voltage at each terminal.
7. If any control module terminal voltage is incorrect, check the related input of output devices and wiring. If no problem is found, replace the transmission control module.

Caution

- Applying voltage to terminals **A** and **B** of this **SST** will damage the **SST**.

Note

- If the tires are rotated by using a chassis roller with the ignition switch at **ON**, the **ABS** control module may memorize the action as a malfunction and the **ABS** warning light may illuminate. (Refer to the Troubleshooting Notes for the antilock brake system, section P.) If the ignition switch is turned to **LOCK** and then to **ON** again, the **ABS** warning light will not illuminate, because the action will be considered a past malfunction.

Terminal Voltage Chart (Reference Data)

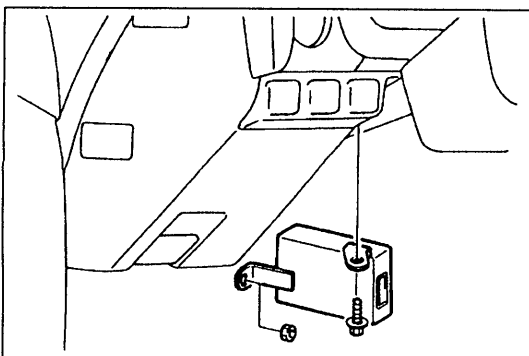
2S	2Q	2O	2M	2K	2I	2G	2E	2C	2A	1O	1M	1K	1I	1G	1E	1C	1A
2T	2R	2P	2N	2L	2J	2H	2F	2D	2B	1P	1N	1L	1J	1H	1F	1D	1B

B+: Battery positive voltage

Terminal	Connected to	Voltmeter		Voltage	Condition
		+ terminal	- terminal		
1A	—	—	—	—	—
1B (Output)	HOLD indicator light	1B	Ground	B+	Non-HOLD mode
				Below 1.5 V	HOLD mode
				B+	Normal
1C (Output)	FAT terminal (data link connector)	1C		Below 1.5 V or B+ (fluctuating)	If malfunction present
				Code Signal	TAT terminal grounded
1D (Output)	Engine control module (terminal R)	1D		Below 2.5 V	N or P position
				B+	All ranges R position
1E (Input)	TAT terminal (data link connector)	1E		B+	—
1F	—	—	—	—	—
1G	Transmission fluid temperature sensor	1G	Ground	3.3 V	ATF temperature 25 °C { 77 °F }
				B+	Switch depressed
				0 V	Switch released
1I	—	—	—	—	—
1J	—	—	—	—	—
1K	—	—	—	—	—
1L	—	—	—	—	—
1M (Input)	Cruise control unit	1M	Ground	B+	Normal conditions
				Below 1.5 V	Set or Resume switch ON or vehicle speed 8 km/h { 5 MPH } lower than preset speed (Driving vehicle cruise control operation)
				Below 1.5 V	Water temperature below 50 °C { 122 °F }
				B+	Water temperature above 60 °C { 140 °F }
				0 V	Accelerator pedal depressed
				B+	Accelerator pedal released
				Approx. 4 V	While driving
				Approx. 7—9 V or Below 1.5 V	Vehicle stopped
				Approx. 4.4—5.5 V	Ignition switch ON
				0 V	Ignition switch OFF
1N (Input)	Engine control module (terminal 3M)	1N		0 V	N or P position
			B+	All ranges R position	
1O	Closed throttle position switch	1O		—	—
1P (Input)	Vehicle speed sensor	1P		—	—
2A (Input)	Throttle position sensor	2A		—	—
2B (Input)	Transmission range switch (N and P position)	2B		—	—
2C	—	—	—	—	—

Terminal	Connected to	Voltmeter		Voltage	Condition
		+ terminal	- terminal		
2D (Input)	Transmission range switch (D range)	2D	Ground	B+	D range
				0 V	Other ranges All positions
2E (Output)	Shift solenoid A	2E		B+	Solenoid ON in following condition: • 1GR position
				0 V	Solenoid OFF in following condition: • 2GR, 3GR, and 4GR positions
2F (Input)	Transmission range switch (S range)	2F		B+	S range
				0 V	Other ranges All positions
2G (Output)	Shift solenoid B	2G		B+	Solenoid ON in following condition: • 1GR and 2GR gear positions
				0 V	Solenoid OFF in following condition: • 3GR, and 4GR positions
2H (Input)	Transmission range switch (L range)	2H		B+	L range
				0 V	Other ranges All positions
2I (Output)	Shift solenoid C	2I	B+	Solenoid ON in following condition: • 1GR, 2GR and 3GR positions	
			0 V	Solenoid OFF in following condition: • 4GR position	
2J (Input)*	Input/turbin speed sensor	2J	0—0.1 V (AC)	Engine running	
			0 V (AC)	Engine stopped	
2K (Output)	TCC control solenoid valve	2K	B+	Solenoid ON, TCC operation	
			0 V	Solenoid OFF, TCC non-operation	
2L (Ground)*	Input/turbin speed sensor	2L	Blow 1.5 V	—	
2M (Output)	3-2 control solenoid valve	2M	B+	3-2 or 4-2 downshift	
			0 V	Other conditions	
2N	—	—	—	—	
2O (Memory power)	Battery	2O	Ground	B+	Constant
2P (Ground)	—	2P		0 V	—
2Q (Battery power)	Battery	2Q		B+	Ignition switch ON
			0 V	Ignition switch OFF	
2R	—	—	—	—	
2S (Battery power)	Battery	2S	Ground	B+	Ignition switch ON
				0 V	Ignition switch OFF
2T (Input)	Throttle position sensor	2T		Approx. 0.4—4.1 V	Closed throttle position to wide open throttle

*: Checked with AC range



Replacement

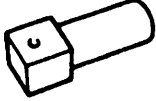
1. Disconnect the negative battery cable.
2. Disconnect the transmission control module connector.
3. Remove the bolt and nut shown in the figure, and remove the transmission control module.
4. Install the new transmission control module.

Tightening torque:

19—25 N·m { 1.9—2.6 kgf·m , 14—18 ft·lbf }

5. Connect the transmission control module.
6. Connect the negative battery cable.

TRANSMISSION**TRANSMISSION UNIT (REMOVAL)****Preparation****SST**

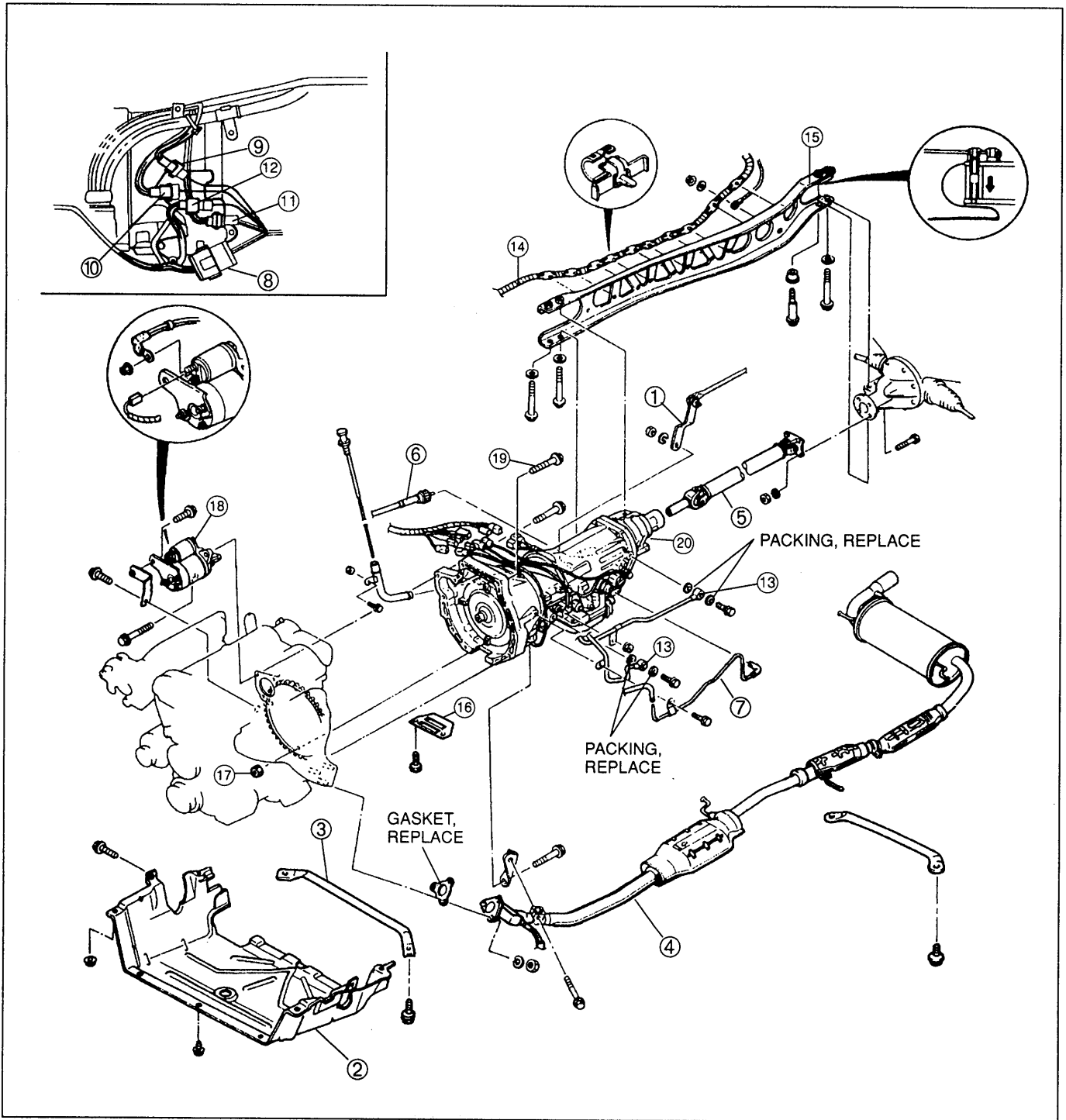
49 0259 440 Holder, mainshaft		For prevention of oil leakage
---	---	-------------------------------------

1. Shift the selector lever to N position.
2. Disconnect the negative battery cable.
3. On level ground, jack up the vehicle and support it evenly on safety stands.
4. The oil pan could contain small chips, shavings, and other particles helpful in checking the condition of the transmission and diagnosing certain problems. To ensure that all foreign particles stay in the oil pan, make sure that the transmission is never tipped completely over while the oil pan is still installed.

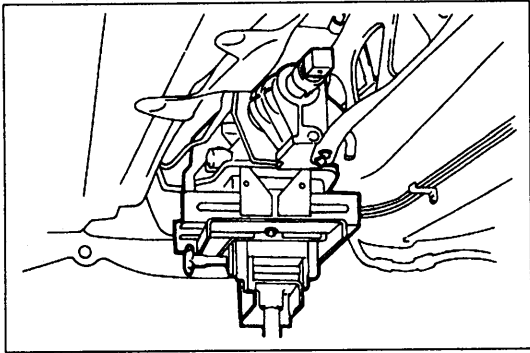
Warning

- **When the transmission and the ATF are hot, they can cause burns to the skin. Allow the transmission and the ATF to cool before doing this procedure.**

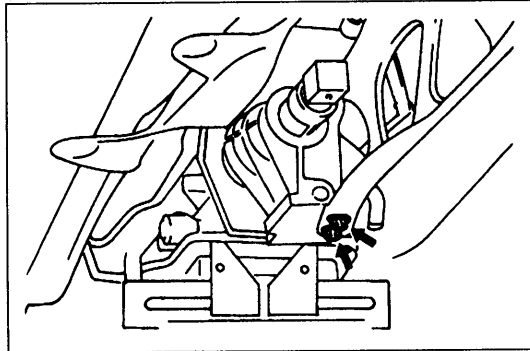
5. Drain the ATF into a suitable container.
6. Remove in the order shown in the figure, referring to **Removal Note**.
7. After removal, remove the oil pan to check condition of the transmission.



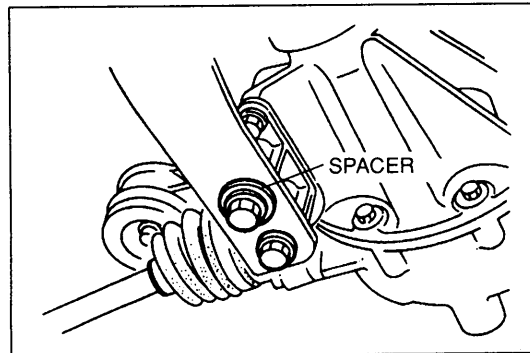
- | | |
|--|--|
| <ul style="list-style-type: none"> 1. Shift rod 2. Undercover 3. Performance rod 4. Exhaust pipe 5. Propeller shaft Removal section L 6. Speedometer cable 7. Vacuum hose 8. Transmission range switch connector 9. Input/turbin speed sensor connector 10. Solenoid connector 11. transmission fluid temperature sensor connector | <ul style="list-style-type: none"> 12. Torque converter clutch solenoid connector 13. Oil pipe 14. Harness 15. Power plant frame (PPF) Removal Note page K-48 16. Undercover 17. Torque converter nut 18. Starter 19. Transmission mount bolt 20. Transmission Removal Note page K-49 |
|--|--|

**Removal note****Power plant frame (PPF)**

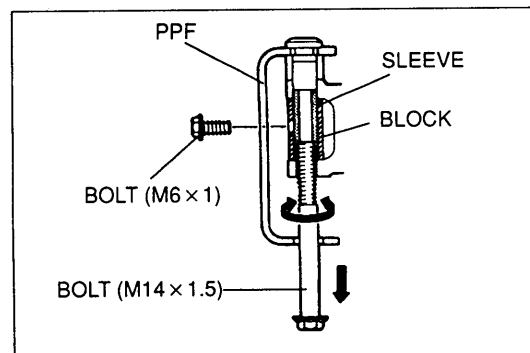
1. Disconnect the wire harness from the power plant frame.
2. Support the transmission with a jack.



3. Remove the front bolts.



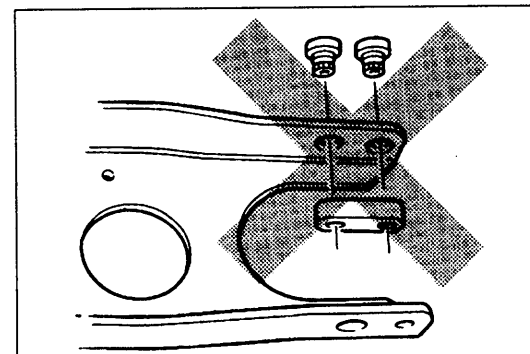
4. Remove the rear bolts, and pry out the bolt spacer.



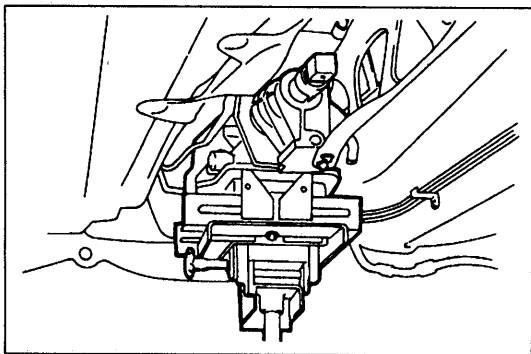
5. Screw a long bolt (M14 × 1.5) into the sleeve.
6. Twist and pull the bolt and sleeve downward.
7. Install a bolt (M6 × 1) into the hole in the block to keep the sleeve from turning and unscrew the long bolt (M14 × 1.5).
8. Remove the remaining bolt (M6 × 1).

Caution

- Removing the PPF spacers will reduce the performance of the PPF. If the spacers are removed, replace the PPF as an assembly.



9. Remove the power plant frame.



Transmission

Caution

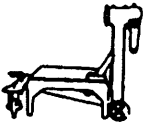
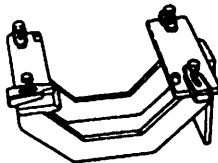
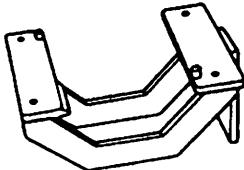
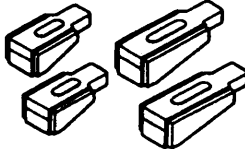
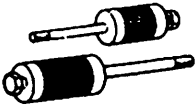
- Shaking the transmission could damage the crank angle sensor on the engine. When removing the transmission, do not shake it up and down or side to side.

Remove the transmission.

TRANSMISSION UNIT (DISASSEMBLY)

Preparation

SST

<p>49 0107 680A</p> <p>Engine stand</p> 	<p>For disassembly of transmission</p>	<p>49 U019 0A0A</p> <p>Hanger set, transmission</p> 	<p>For disassembly of transmission</p>
<p>49 H075 495B</p> <p>Body (Part of 49 U019 0A0A)</p> 	<p>For disassembly of transmission</p>	<p>49 U019 003</p> <p>Holder (Part of 49 U019 0A0A)</p> 	<p>For disassembly of transmission</p>
<p>49 0378 390</p> <p>Puller, oil pump</p> 	<p>For disassembly of transmission</p>	<p>—</p>	<p>—</p>

Precaution**General notes:**

1. The oil pan could contain small chips, shavings, and other particles helpful in checking the condition of the transmission and diagnosing certain problems. To ensure that all foreign particles stay in the oil pan, make sure that the transmission is never tipped completely over while the oil pan is still installed.
2. Disassemble transmission in a clean area (dust proof work space) to prevent entry of dust into the mechanisms.
3. Inspect the individual transmission components in accordance with the QUICK DIAGNOSIS CHART during disassembly.
4. Use only plastic hammers when applying force to separate the light alloy case joints.
5. Never use rags during disassembly; they may leave particles that can clog fluid passages.
6. Several parts resemble one another; organize them so they do not get mixed up.
7. Disassemble the control valve assembly and thoroughly clean it when a clutch or brake band is burned; or when the ATF has degenerated.

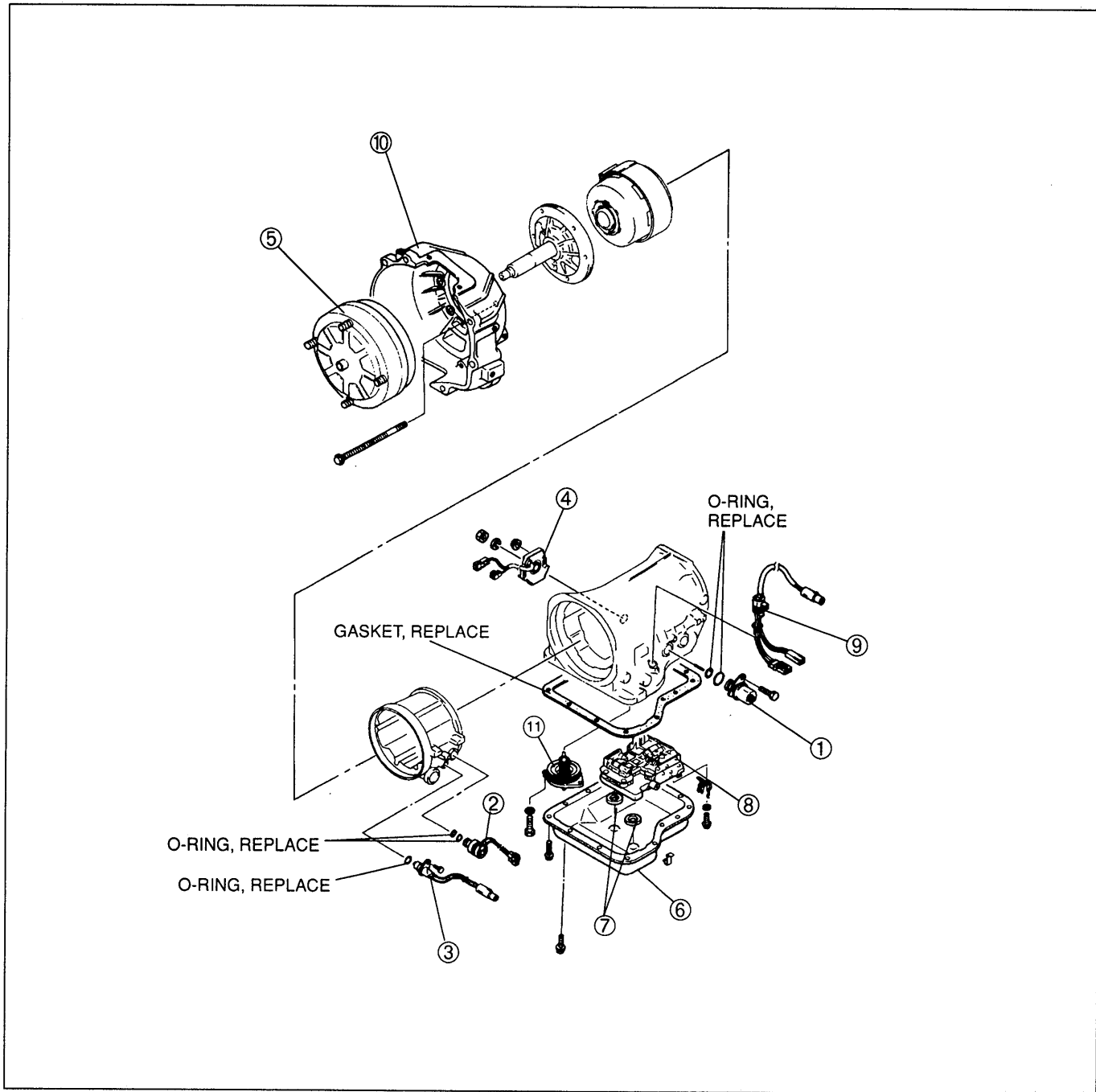
Cleaning notes:

1. Clean the transmission exterior thoroughly with steam or cleaning solvents, or both, before disassembly.

Warning

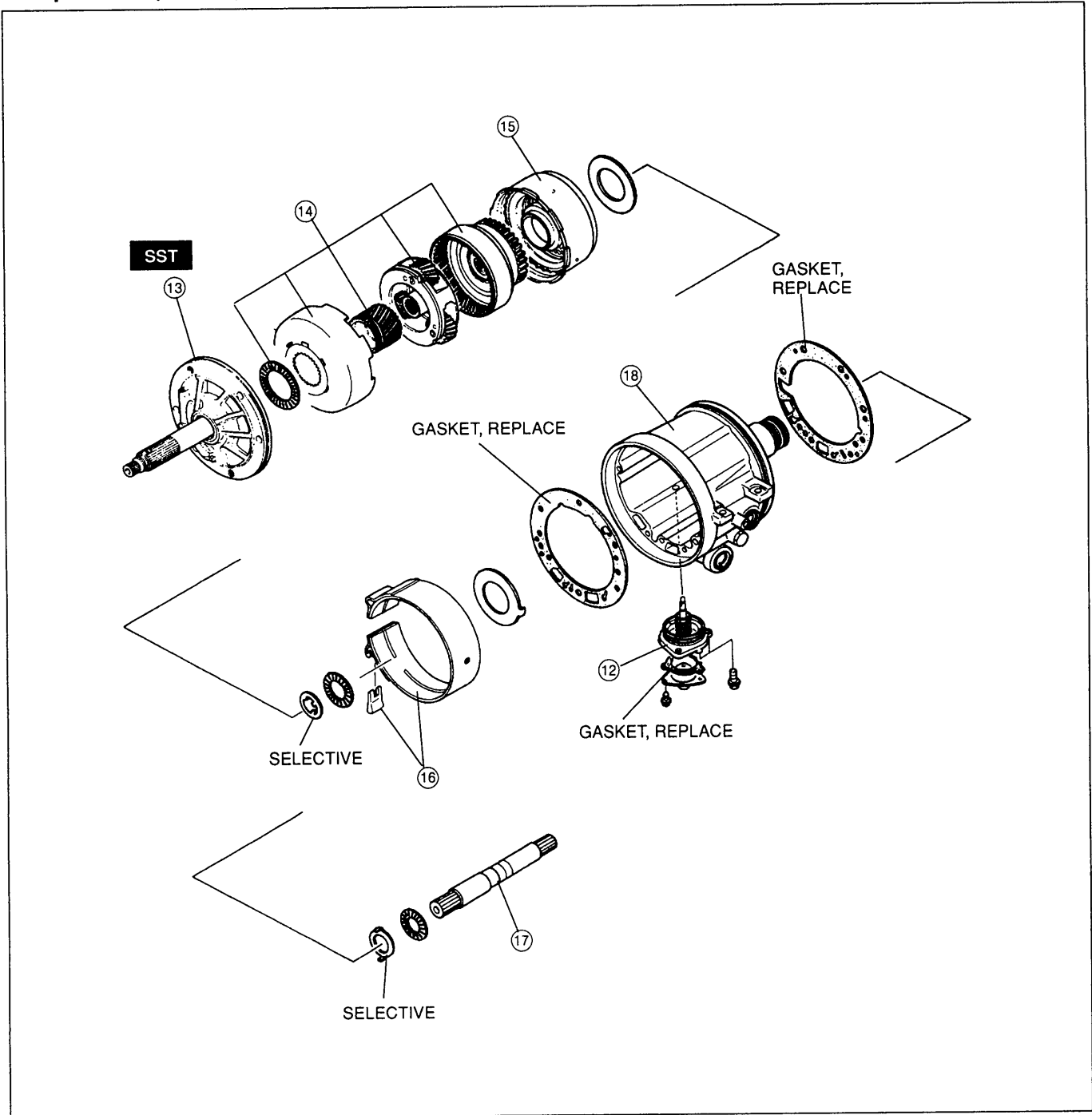
- **Using compressed air can cause dirt and other particles to fly out, causing injury to the eyes. Wear protective eye wear whenever using compressed air.**
2. Clean the removed parts with cleaning solvent, and dry with compressed air. Clean out all holes and passages with compressed air, and check that there are no obstructions.

Components



- | | |
|---|---|
| <p>1. Vacuum diaphragm
 On-vehicle Removal page K-130
 Inspection page K-130
 On-vehicle Installation page K-131
 On-vehicle Adjustment page K-131</p> <p>2. Torque converter clutch control solenoid valve
 Inspection page K- 42</p> <p>3. Input/turbin speed sensor
 Inspection page K- 41</p> <p>4. Transmission range switch
 Inspection page K- 39
 Adjustment page K- 40</p> <p>5. Torque converter
 Inspection page K- 61</p> | <p>6. Oil pan</p> <p>7. Magnet</p> <p>8. Control valve body
 Disassembly / Inspection ... page K-112
 Assembly page K-125
 On-vehicle Removal page K-128
 On-vehicle Installation page K-129</p> <p>9. Solenoid valve connector</p> <p>10. Converter housing</p> <p>11. Second gear band servo
 Disassembly / Inspection /
 Assembly page K- 83
 On-vehicle Adjustment page K- 85</p> |
|---|---|

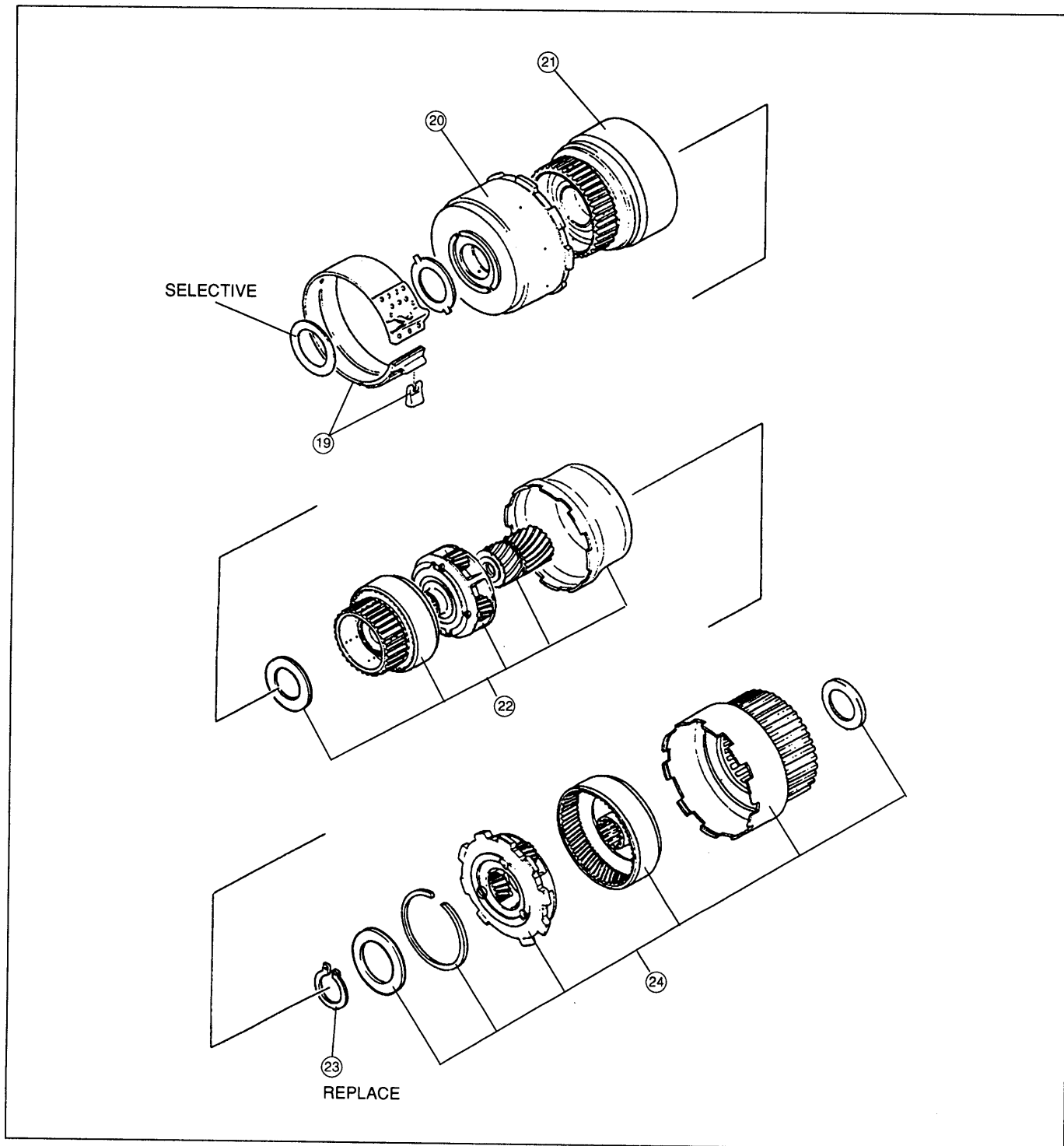
Components (Cont'd)



- 12. Fourth gear band servo
Disassembly / Inspection /
Assembly page K-76
On-vehicle Adjustment page K-78
- 13. Oil pump
Disassembly / Inspection /
Assembly page K-63
- 14. Fourth gear connecting shell and Fourth
gear planetary gear unit (Fourth gear sun
gear, Fourth gear planetary pinion carrier,
Fourth gear clutch hub)
Disassembly / Inspection /
Assembly page K-67

- 15. Direct clutch
Disassembly / Inspection /
Assembly page K-71
- 16. Fourth gear brake band and band strut
- 17. Intermediate shaft
- 18. Drum support, accumulator, and Fourth gear
case
Disassembly / Inspection /
Assembly page K-79

Components (Cont'd)



19. Second gear brake band and band strut

20. Front clutch

Disassembly / Inspection /
 Assembly page K-87

21. Rear clutch

Disassembly / Inspection /
 Assembly page K-92

22. Connecting shell and front planetary gear unit (rear clutch hub, front planetary pinion carrier, rear sun gear)

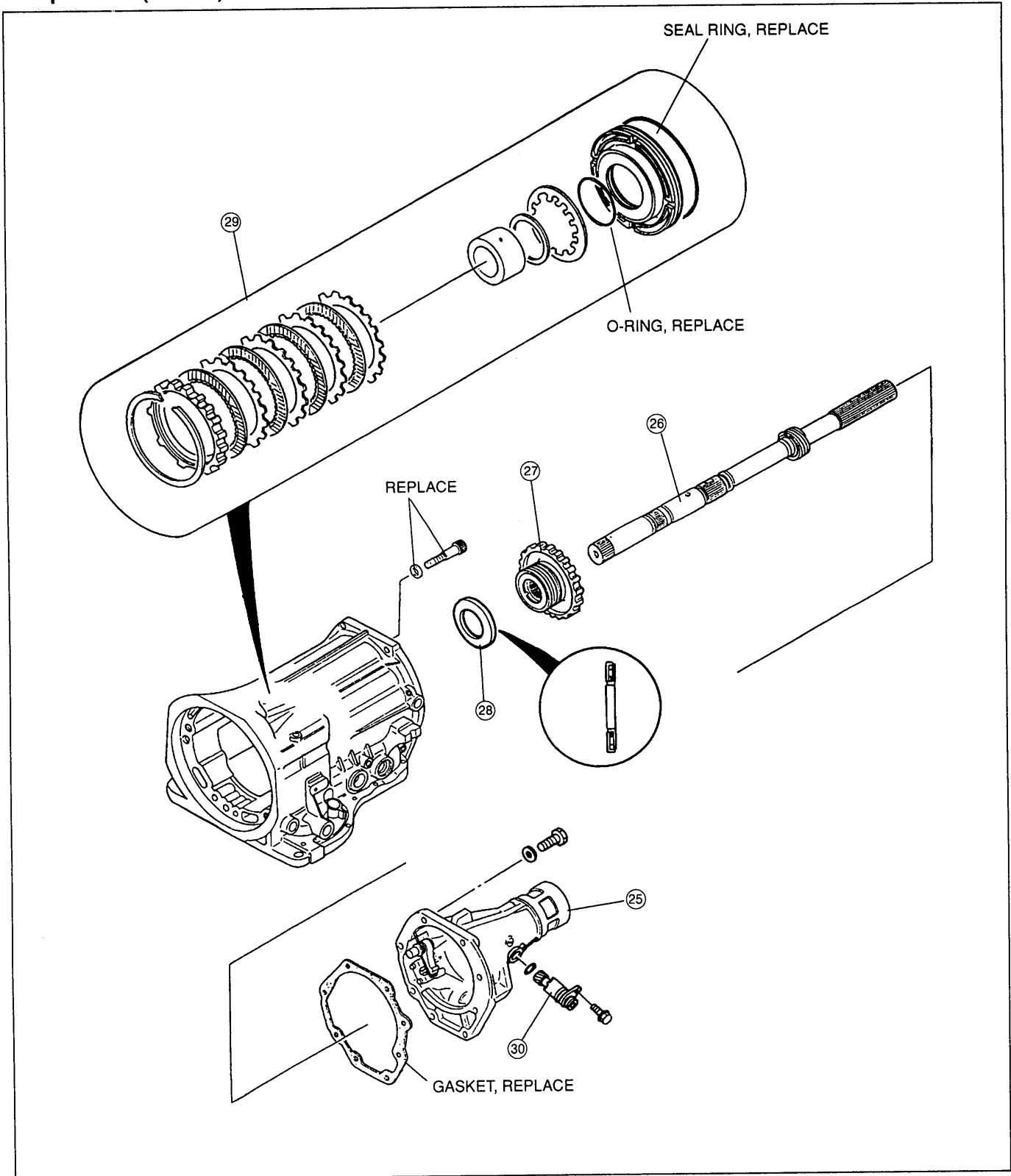
Disassembly / Inspection /
 Assembly page K-96

23. Snap ring

24. Rear planetary gear unit (connecting drum, rear planetary pinion carrier, one-way clutch)

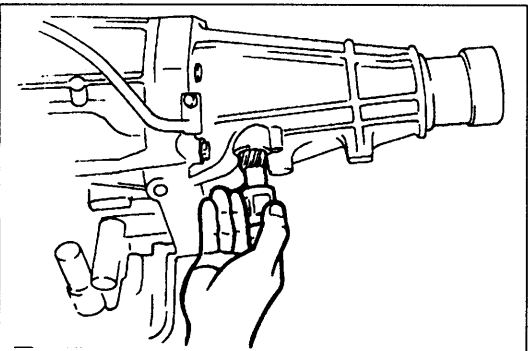
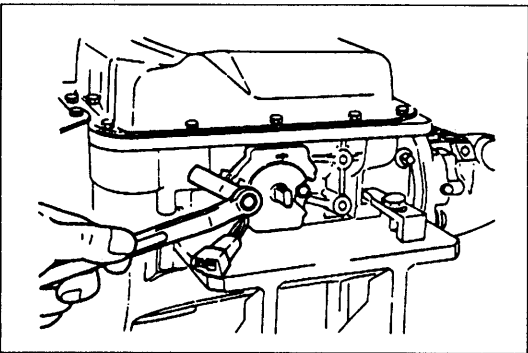
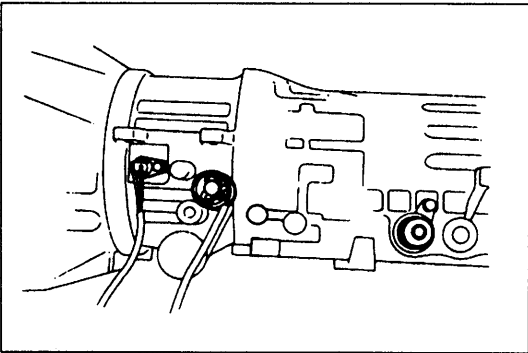
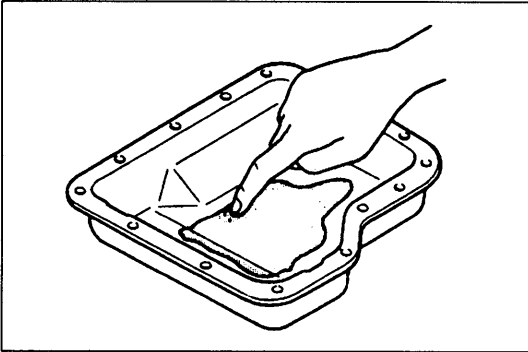
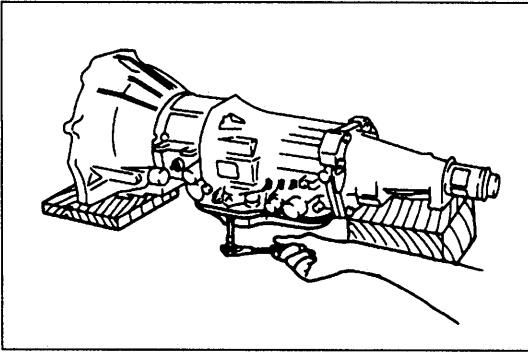
Disassembly / Inspection /
 Assembly page K-99

Components (Cont'd)



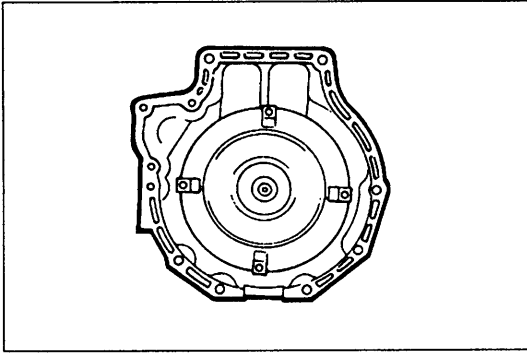
- 25. Extension housing
 - Disassembly / Inspection / Assembly page K-107
 - On-vehicle Removal page K-110
 - On-vehicle Installation page K-110
- 26. Output shaft

- 27. Oil distributor
- 28. Bearing
- 29. Low and reverse brake
 - Disassembly / Inspection / Assembly page K-103
- 30. Speedometer driven gear

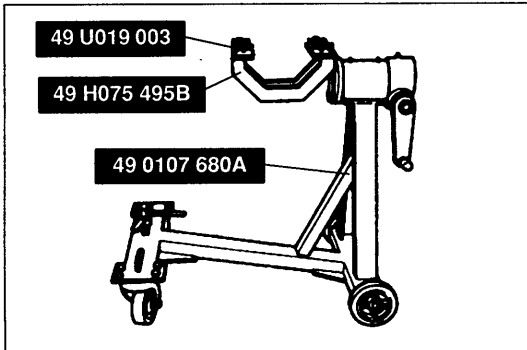


Disassembly Procedure

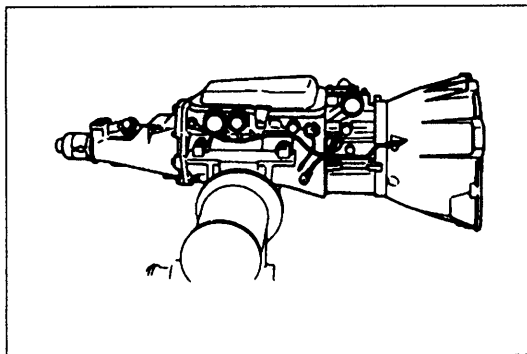
1. Place wooden blocks under the transmission at the converter housing and the extension housing positions.
2. Remove the oil pan and gasket.
Examine any material found in the pan or on the magnet to determine the condition of the transmission.
Clutch facing material Drive plate and brake band wear
Steel (magnetic) Bearing, gear, and driven plate wear
Aluminum (nonmagnetic) Bushings or cast aluminum parts wear
If large amounts of material are found, replace the torque converter and carefully check the transmission for the cause.
3. Install the oil pan and gasket with a few bolts to protect the valve body.
4. Remove the vacuum diaphragm, torque converter clutch control solenoid valve, input/turbin speed sensor, and O-rings.
5. Remove the transmission range switch.
6. Remove the speedometer driven gear from the extension housing.
7. Remove the O-ring from the speedometer driven gear.



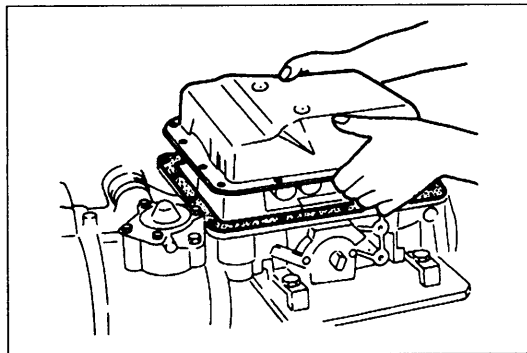
8. Remove the torque converter, and immediately turn it so that the hole faces upward. This will help to keep any remaining fluid from spilling.



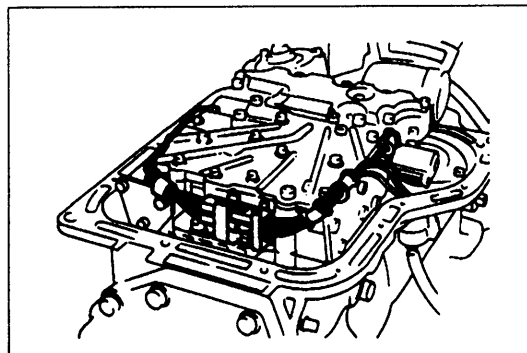
9. Assemble the **SST** as shown.



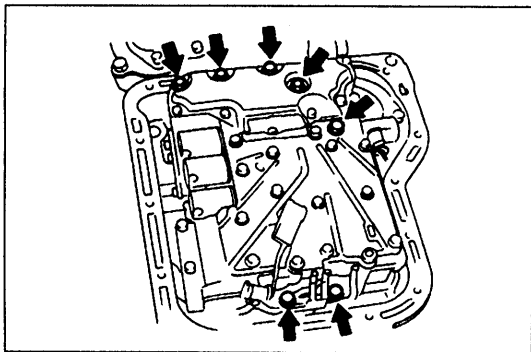
10. Mount the transmission onto the **SST**.



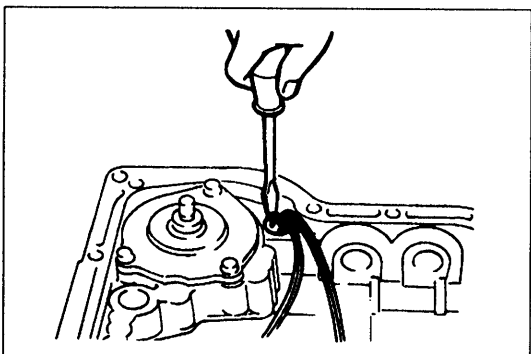
11. Remove the oil pan and gasket.
12. Remove the magnets.



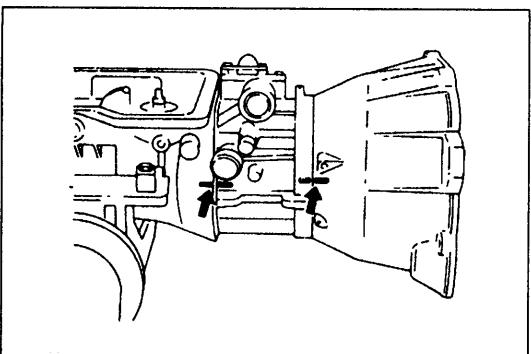
13. Disconnect the solenoid valve connectors.
14. Remove the harnesses from the bracket.



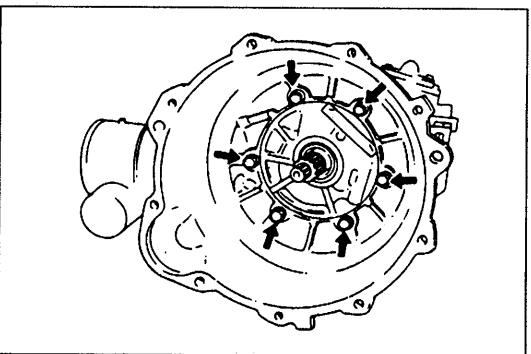
15. Remove the control valve body as shown in the figure.



16. Remove the solenoid valve connector from the transmission case.



17. Mark the converter housing, fourth gear case, and transmission case for proper reassembly.



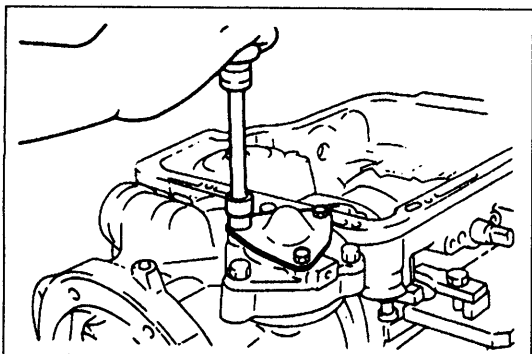
18. Remove the converter housing from the fourth gear case.

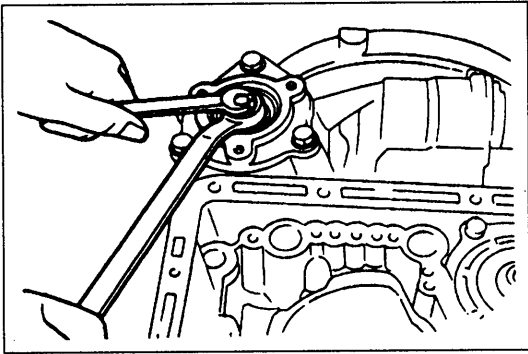
Caution

- The converter housing is made of aluminum, and is therefore easily dented and scratched by metal tools. When removing old sealant, do not gouge or strike the sealing surface of the converter housing.

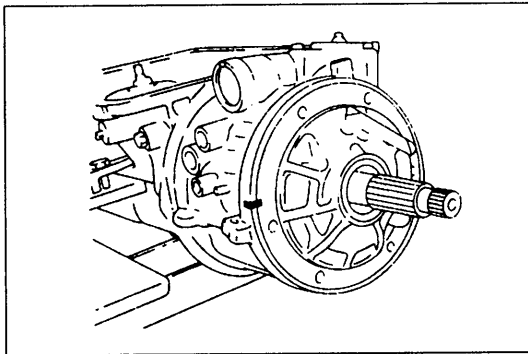
19. Clean the sealing compound from the converter housing.

20. Remove the fourth gear band servo cover and gasket.

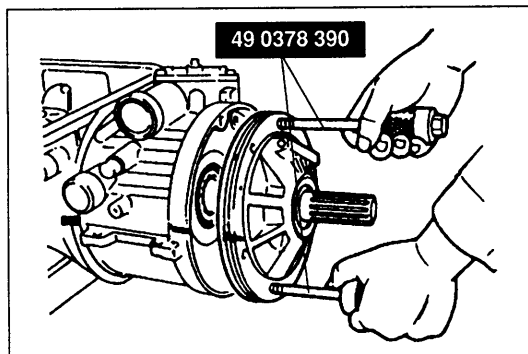




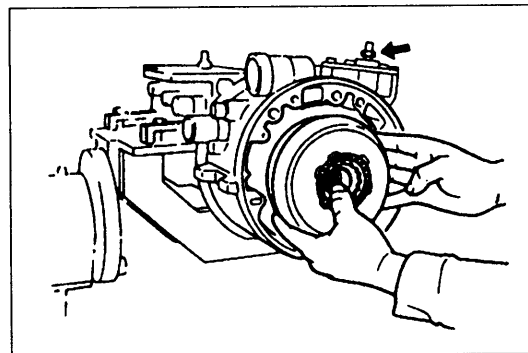
21. Loosen the fourth gear band servo locknut and tighten the piston stem.



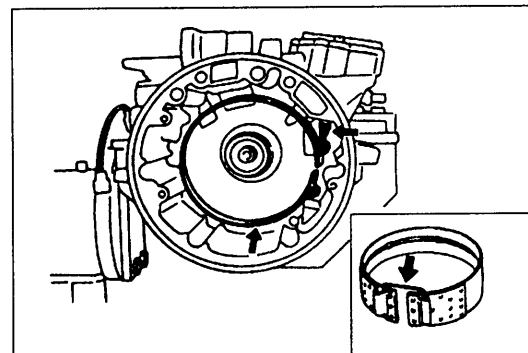
22. Mark the fourth gear case and oil pump for proper reassembly.



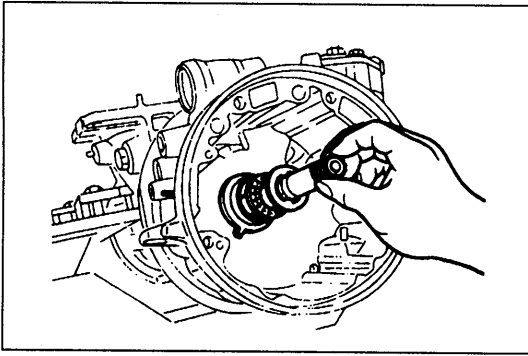
23. Install the **SST** to the oil pump assembly.
 24. Slowly remove the oil pump from the transmission case by evenly sliding the weights of the **SST**.
 25. Remove the **SST** from the oil pump.



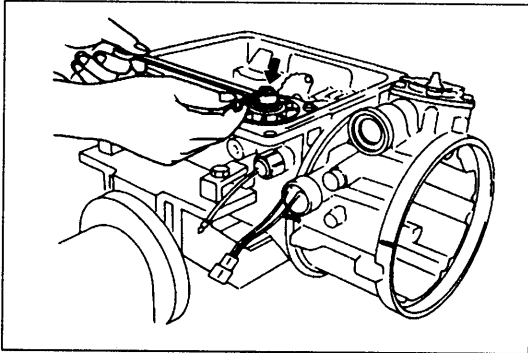
26. Loosen the piston stem of the fourth gear band servo. Remove the fourth gear connecting shell and fourth gear planetary gear unit (fourth gear sun gear, fourth gear planetary pinion carrier, fourth gear clutch hub), and direct clutch.



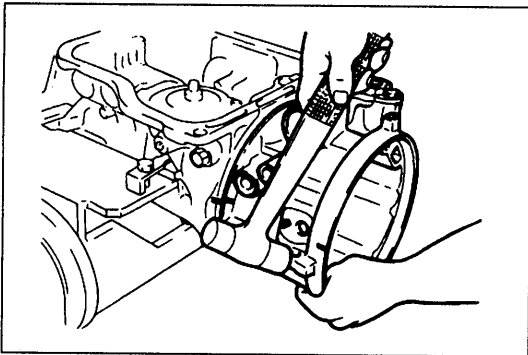
27. Remove the fourth gear brake band, and hold it together with a piece of wire as shown in the figure.
 28. Remove the band strut.



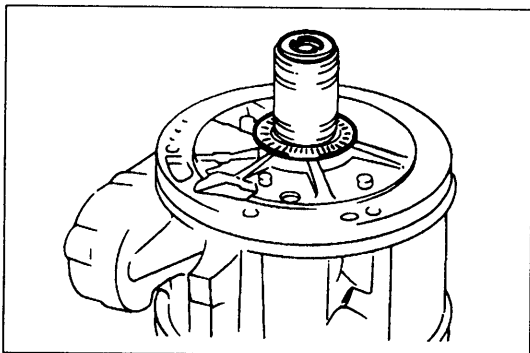
- 29. Remove the bearing races and bearing.
- 30. Remove the intermediate shaft.



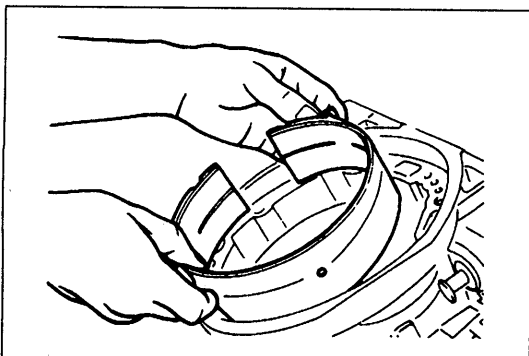
- 31. Loosen the second gear band servo locknut and tighten the piston stem.



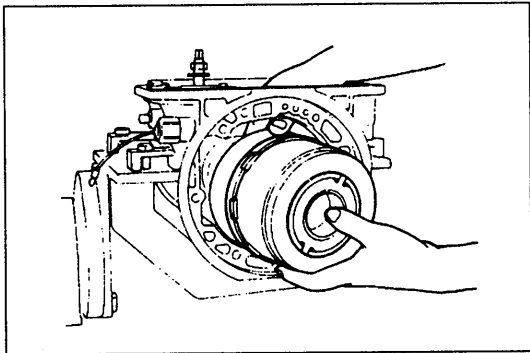
- 32. Separate the drum support, accumulator and fourth gear case from the transmission case by tapping it lightly with a plastic hammer. Remove the gasket.



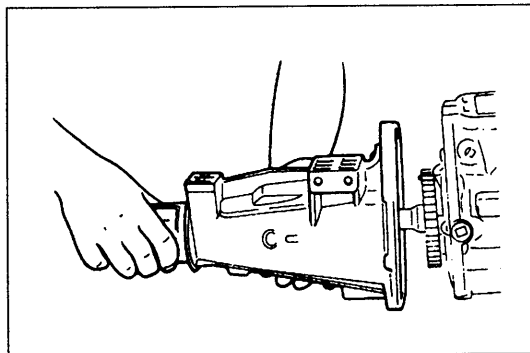
- 33. Remove the bearing races and bearing from the drum support, accumulator and fourth gear case. Remove the bearing from the front clutch hole.



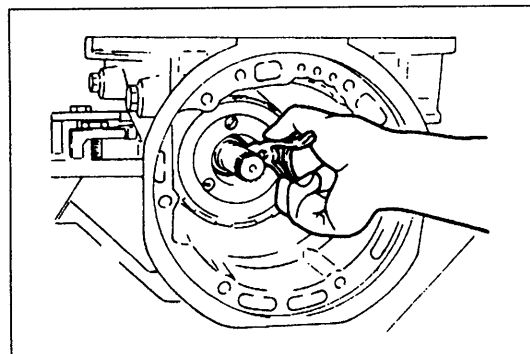
- 34. Loosen the second gear band servo piston stem and remove the second gear band strut. Hold the brake band together with a piece of wire as shown in the figure.
- 35. Remove the band strut.



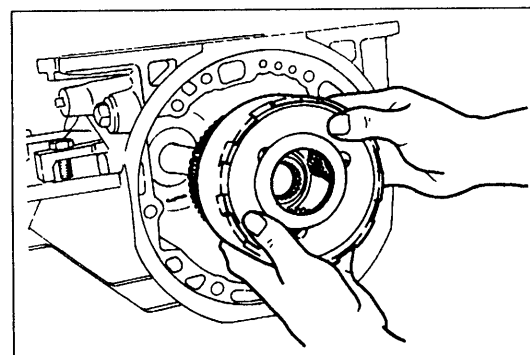
36. Remove the bearing race, front clutch, rear clutch, connecting shell, and front planetary gear unit (rear clutch hub, front planetary pinion carrier, rear sun gear) as a unit.



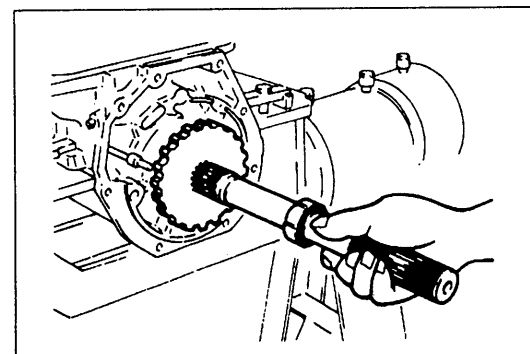
37. Remove the extension housing and gasket.



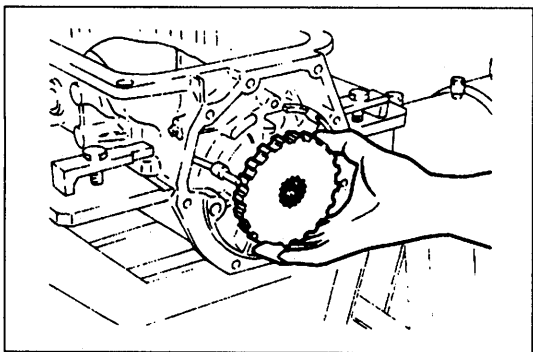
38. Remove the snap ring from the output shaft with snap ring pliers.



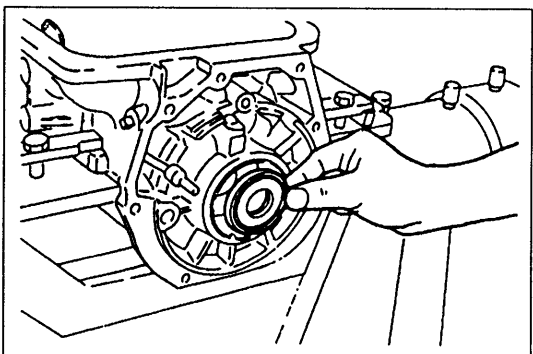
39. Remove the rear planetary gear unit (connecting drum, rear planetary pinion carrier, one-way clutch).



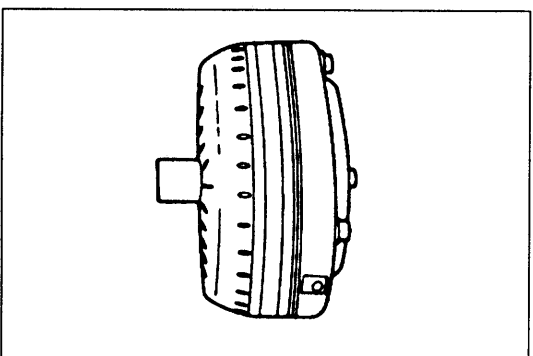
40. Pull out the output shaft.



41. Remove the oil distributor.



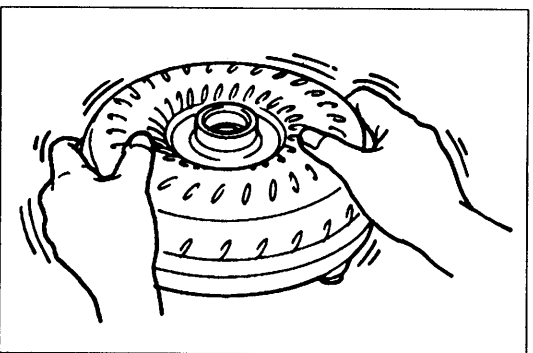
42. Remove the bearing.



TORQUE CONVERTER

Inspection


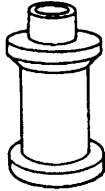
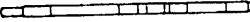
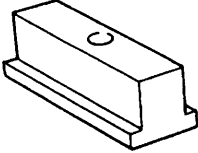
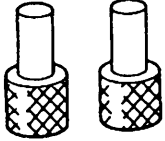
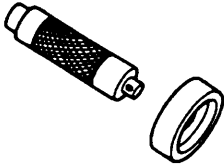

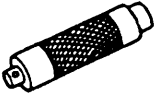
1. Check the outside of the converter for damage and cracks, and replace the torque converter if there is any problem.
2. Check for rust on the pilot hub or on the boss, and remove the rust completely if there is any.



Washing inside the converter

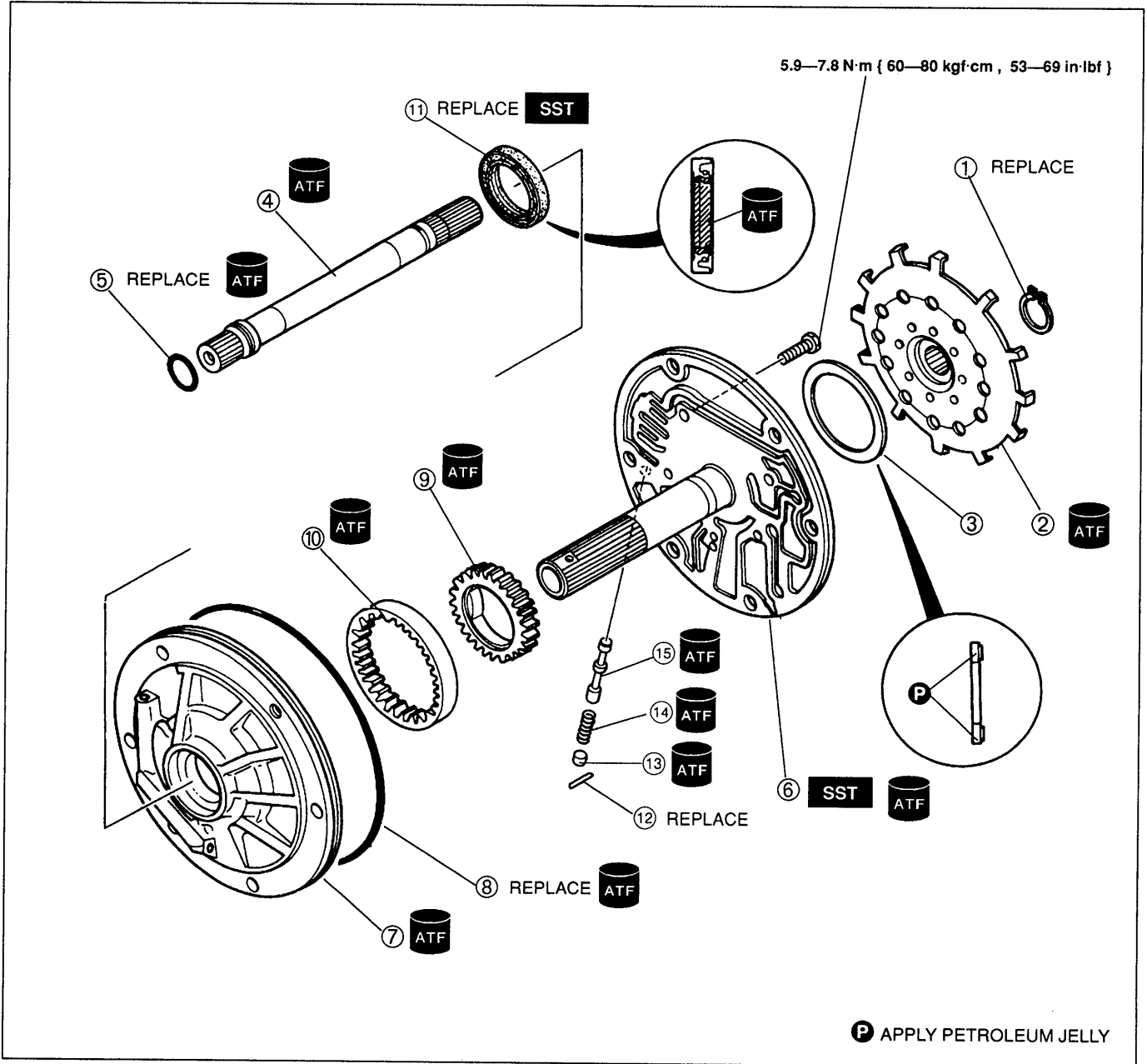
1. Drain any ATF remaining in the converter.
2. Pour in solvent (0.5 L { 0.5 US qt , 0.4 Imp qt }).
3. Shake the converter to clean the inside. Pour out the solvent.
4. Clean the inside of the converter with compressed air so that the inside is completely empty.
5. Pour in ATF.
6. Shake the converter to clean the inside. Pour out the ATF.

OIL PUMP Preparation SST

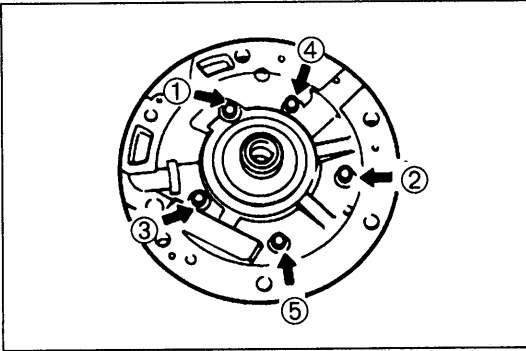
<p>49 S019 0A0</p> <p>Set, centering tool</p> 	<p>For installation of oil pump</p>	<p>49 S019 001</p> <p>Holder (Part of 49 S019 0A0)</p> 	<p>For installation of oil pump</p>
<p>49 S019 002</p> <p>Shaft (Part of 49 S019 0A0)</p> 	<p>For installation of oil pump</p>	<p>49 S019 003</p> <p>Stand (Part of 49 S019 0A0)</p> 	<p>For installation of oil pump</p>
<p>49 S019 004</p> <p>Pin (Part of 49 S019 0A0)</p> 	<p>For installation of oil pump</p>	<p>49 G030 795</p> <p>Installer, oil seal</p> 	<p>For installation of oil seal</p>
<p>49 G030 796</p> <p>Body (Part of 49 G030 795)</p> 	<p>For installation of oil seal</p>	<p>49 G030 797</p> <p>Handle (Part of 49 G030 795)</p> 	<p>For installation of oil seal</p>

Disassembly / Inspection / Assembly

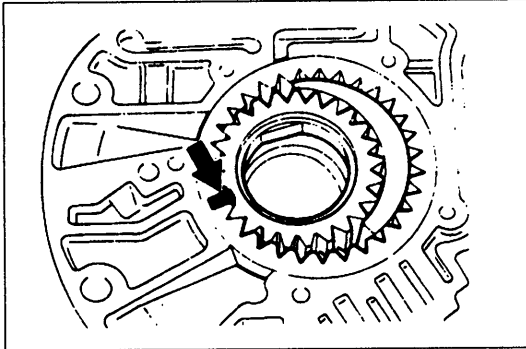
1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts, and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly Procedure**.



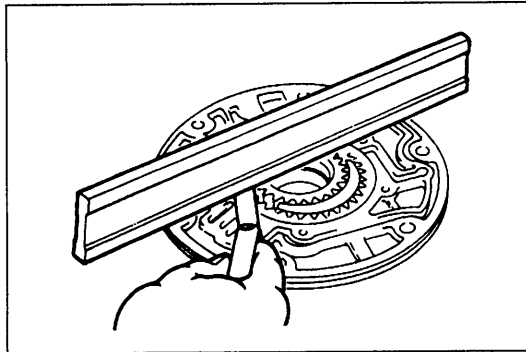
- | | |
|---|-----------|
| 1. Snap ring | |
| 2. Sensing rotor | |
| 3. Bearing | |
| 4. Input shaft | |
| 5. O-ring | |
| 6. Oil pump cover | |
| Disassembly note | page K-64 |
| Inspection | page K-64 |
| 7. Oil pump housing | |
| Inspection | page K-64 |
| 8. O-ring | |
| 9. Inner gear | |
| Disassembly note | page K-64 |
| Inspection | page K-64 |
| 10. Outer gear | |
| Disassembly note | page K-64 |
| Inspection | page K-64 |
| 11. Oil seal | |
| 12. Roll pin | |
| 13. Plug | |
| 14. Spring | |
| Inspection | page K-65 |
| 15. Torque converter clutch control valve | |

**Disassembly note****Oil pump cover**

Loosen the mounting bolts evenly in the pattern shown, and remove the oil pump cover from the oil pump housing.

**Inner gear and outer gear**

1. Mark the inner and outer gear positions without scratching or denting the gears.
2. Remove the gears from the housing.

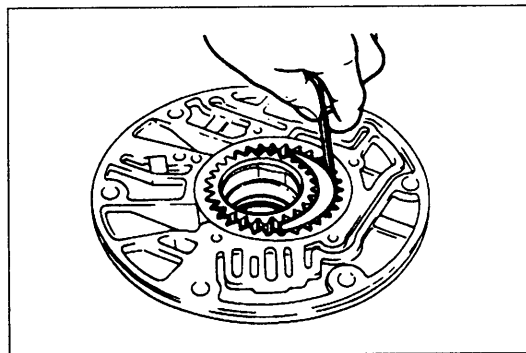
**Inspection****Clearance**

1. Measure the clearance between the gears and the pump cover.

Standard clearance:

0.02—0.04 mm { 0.0008—0.0015 in }

Maximum clearance: 0.08 mm { 0.0031 in }

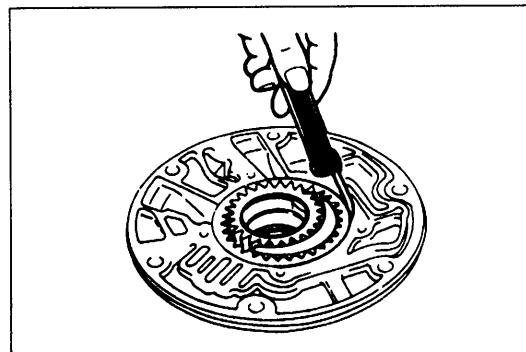


2. Measure the clearance between the outer gear teeth tip and the crescent.

Standard clearance:

0.14—0.21 mm { 0.0056—0.0082 in }

Maximum clearance: 0.25 mm { 0.0098 in }



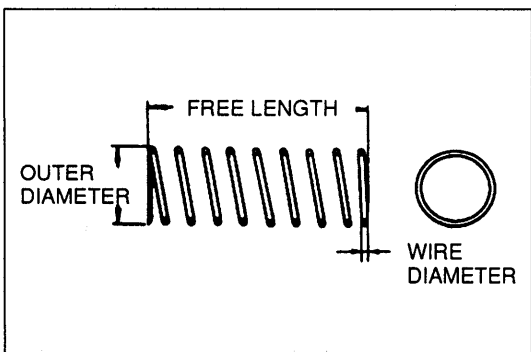
3. Measure the side clearance between the outer gear and the housing.

Standard clearance:

0.05—0.20 mm { 0.0020—0.0078 in }

Maximum clearance: 0.25 mm { 0.0098 in }

4. If not within specification, replace the oil pump assembly.



Spring

1. Measure the spring specifications.

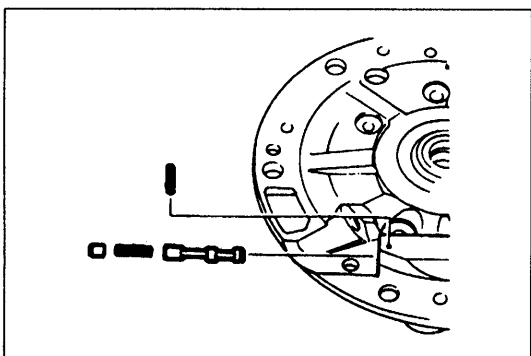
Specifications

Outer dia. mm { in }	Free length mm { in }	No. of coils	Wire dia. mm { in }
5.45 { 0.215 }	25.7 { 1.012 }	16.5	0.65 { 0.026 }

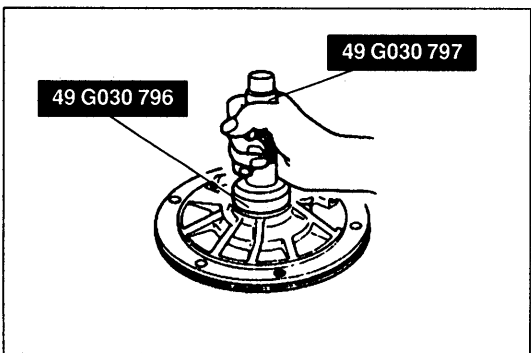
2. If not within specification, replace the spring.

Assembly procedure

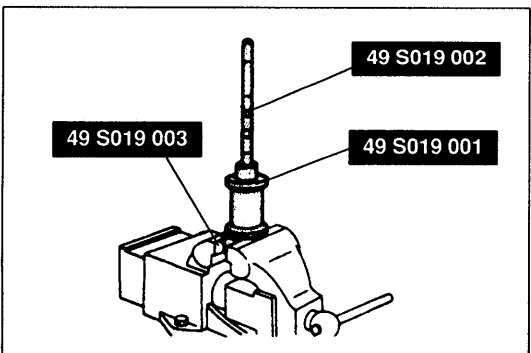
1. Apply ATF to the torque converter clutch control valve, spring, and plug, and install them into the oil pump housing.
2. Tap in the new roll pin.



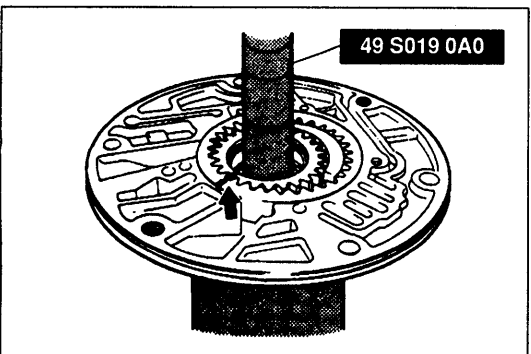
3. Apply ATF to a new oil seal, and install it by using the SST.

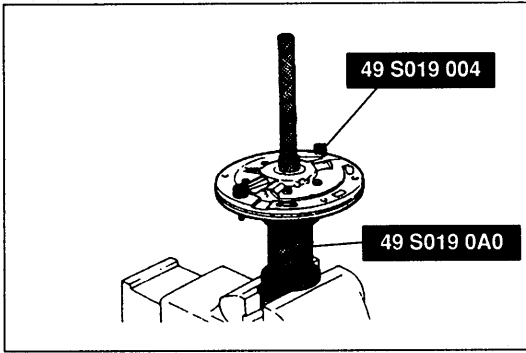


4. Assemble the SST and secure it in a vise.

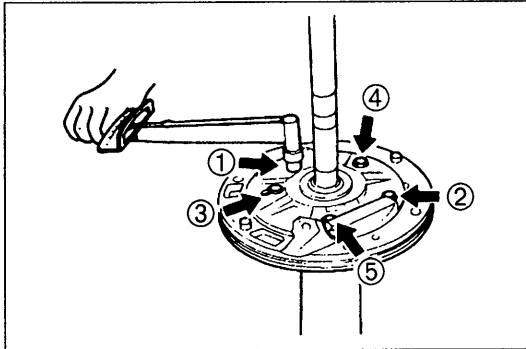


5. Apply ATF to the new O-ring, and place it on the pump cover.
6. Set the pump housing on the SST.
7. Apply ATF to the inner and outer gears, and install them in the pump housing with their matching marks toward the pump cover.





8. Carefully install the oil pump cover onto the oil pump housing.
9. Install the **SST** (pins) for alignment.

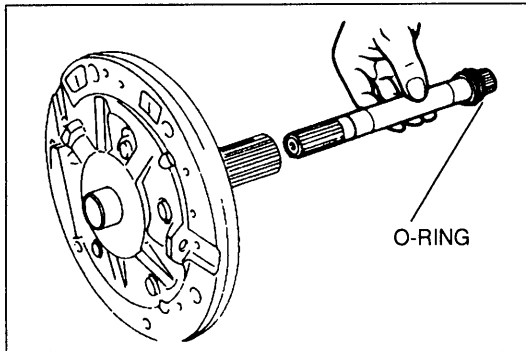


10. Tighten the bolts evenly and gradually in the order shown.

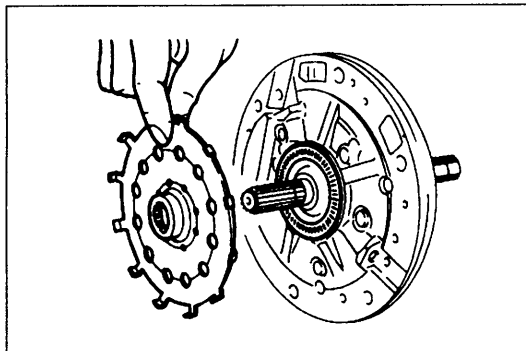
Tightening torque:

5.9—7.8 N·m { 60—80 kgf·cm , 53—69 in·lbf }

11. Remove the **SST** (pins).



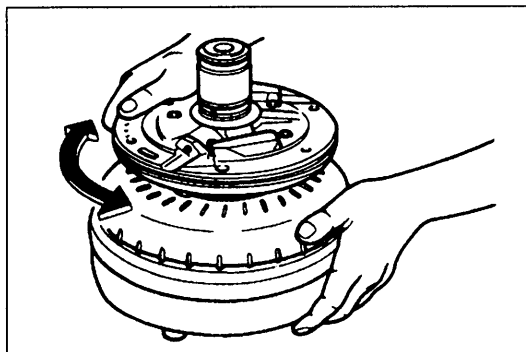
12. Apply ATF to a new O-ring, and install it onto the input shaft.
13. Apply ATF to the input shaft, and install it into the oil pump.



14. Apply petroleum jelly to the bearing, and install it onto the oil pump.

Bearing race outer diameter: 70.0 mm { 2.756 in }

15. Apply ATF to the sensing rotor splines, and install the sensing rotor onto the input shaft.
16. Install the snap ring on the input shaft with snap ring pliers.

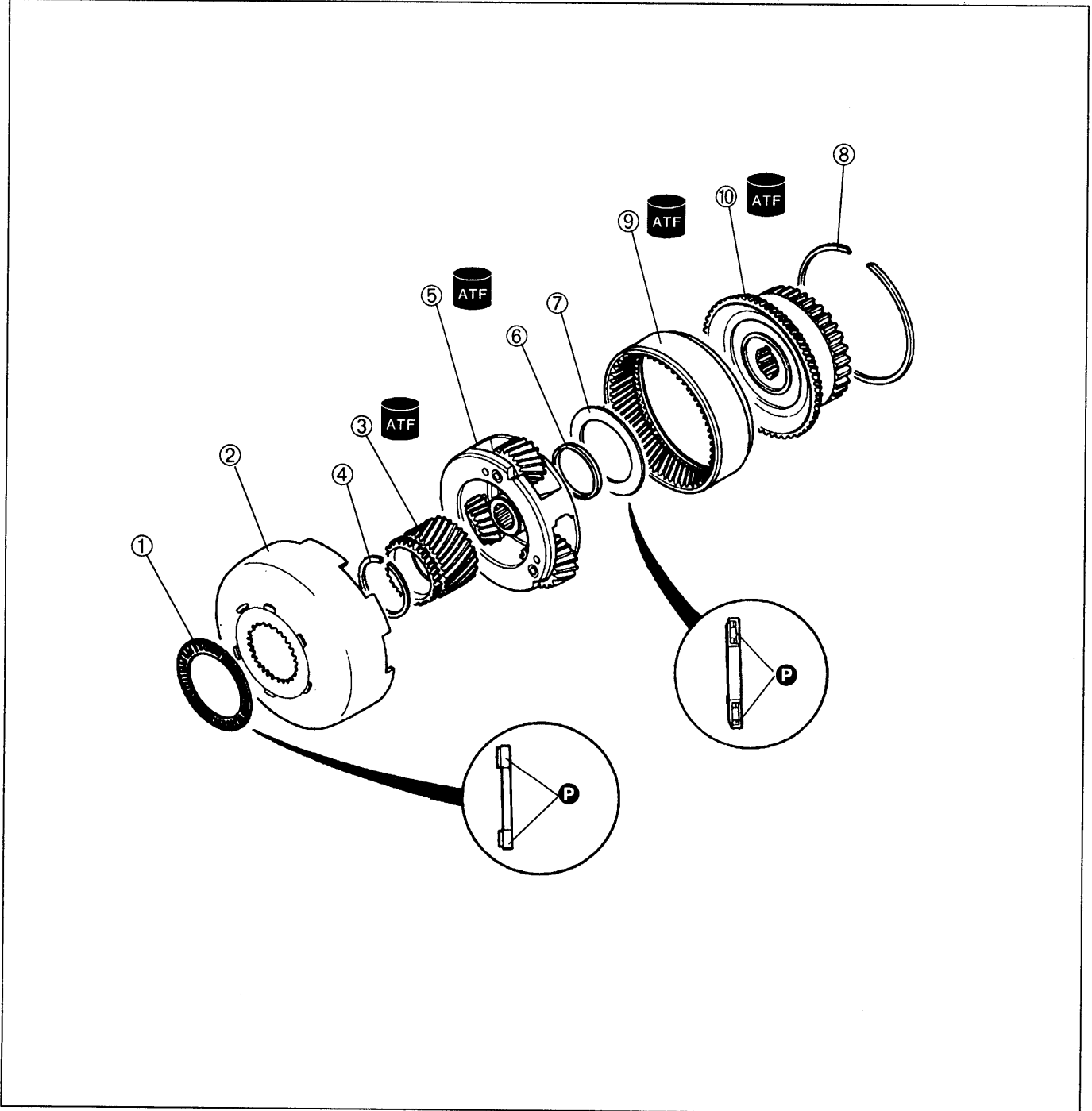


17. Set the oil pump on the torque converter, and verify that the pump turns smoothly.

**FOURTH GEAR CONNECTING SHELL AND FOURTH GEAR PLANETARY GEAR UNIT
(FOURTH GEAR SUN GEAR, FOURTH GEAR PLANETARY PINION CARRIER, FOURTH GEAR CLUTCH HUB)**

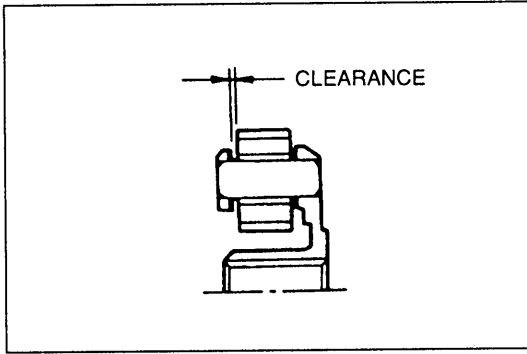
Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure.
2. Inspect all parts, and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly Procedure**.



- | | |
|---|----------------------------|
| 1. Bearing | 6. Seal sleeve |
| 2. Fourth gear connecting shell | 7. Bearing |
| 3. Sun gear | 8. Snap ring |
| 4. Snap ring | 9. Internal gear |
| 5. Fourth gear planetary pinion carrier | 10. Fourth gear clutch hub |

Inspection page K-68



Inspection

Fourth gear planetary pinion carrier

1. Measure the clearance between the pinion washer and the planetary pinion carrier.

Clearance

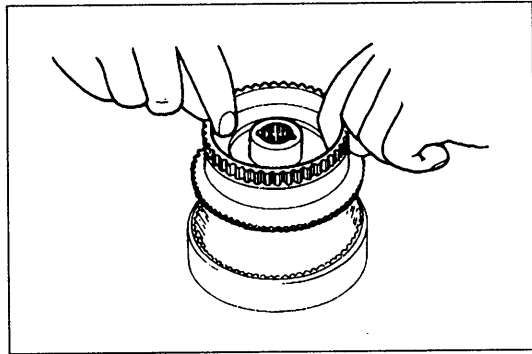
Standard: 0.2—0.7 mm { 0.008—0.027 in }

Maximum: 0.8 mm { 0.031 in }

2. If not within specification, replace the planetary pinion carrier.

Assembly procedure

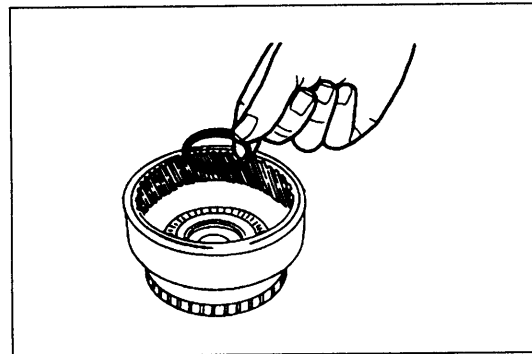
1. Apply ATF to the fourth gear clutch hub and internal gear, and assemble them with the snap ring.



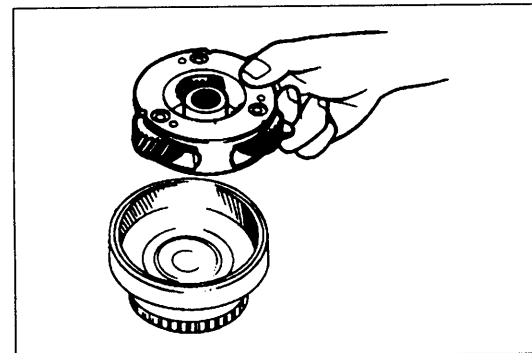
2. Apply petroleum jelly to the bearing, and install it onto the fourth gear clutch hub with the black surface facing upward.

Bearing outer diameter: 70.0 mm { 2.756 in }

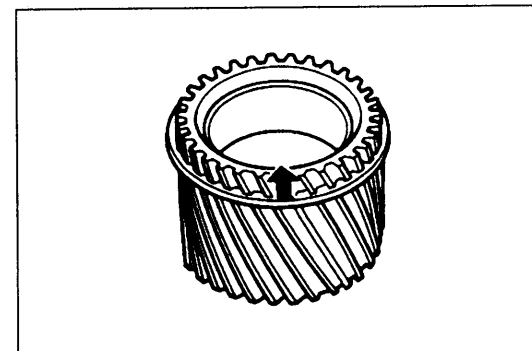
3. Apply ATF to the new seal sleeve, and install it into the fourth gear clutch hub.

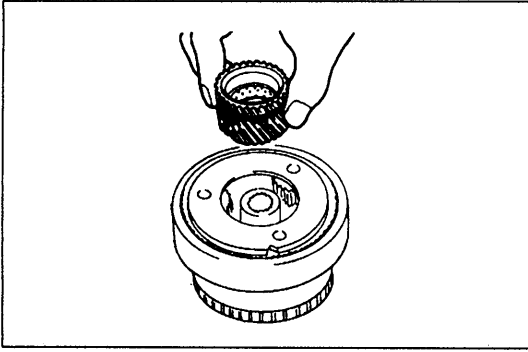


4. Apply ATF to the fourth gear planetary pinion carrier, and install it into the internal gear.



5. Apply ATF to the sun gear, and install it into the fourth gear planetary pinion carrier with the snap ring facing the front (arrow).



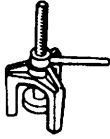
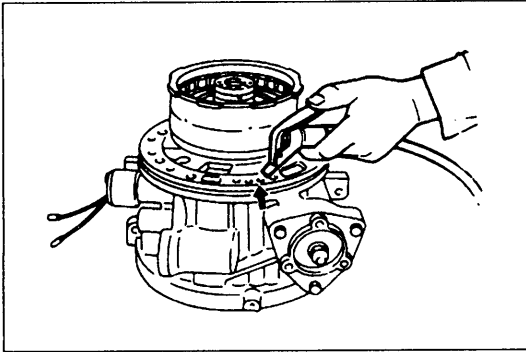


6. Apply ATF to the sun gear, and install it into the fourth gear planetary pinion carrier.
7. Apply petroleum jelly to the bearing, and install it onto the fourth gear connecting shell.

Bearing outer diameter: 70 mm { 2.756 in }

DIRECT CLUTCH**Preparation****SST**

49 0378 375

Compressor,
clutch springFor
removal /
installation of
direct clutch**Preinspection****Direct clutch operation**

1. Install the direct clutch onto the drum support along with the seal rings.
Apply compressed air through the oil passage as shown.

Air pressure: 392 kPa { 4.0 kg/cm² , 57 psi } max.

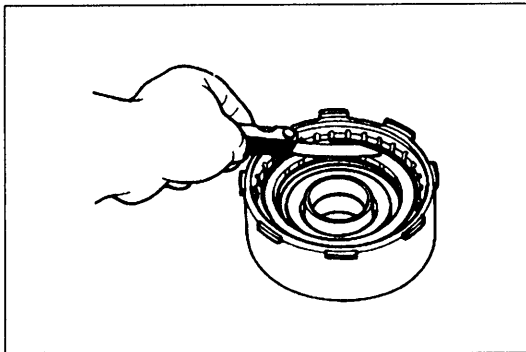
2. Verify that the side plate moves toward the snap ring. If not, the seal ring or O-ring may be damaged or fluid may be leaking at the piston check ball. Inspect them, and replace as necessary when assembling.

Clearance between side plate and snap ring

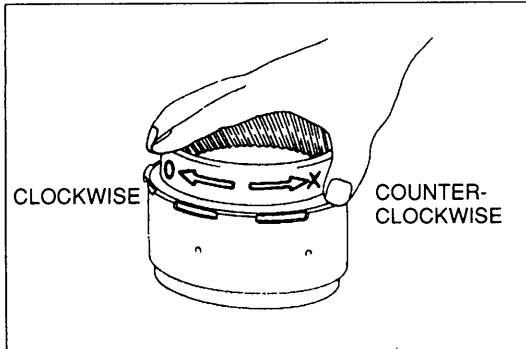
1. Measure the clearance between the side plate and the snap ring.

Clearance**Maximum: 0.2 mm { 0.008 in }**

2. Select and install the correct side plate when assembling.

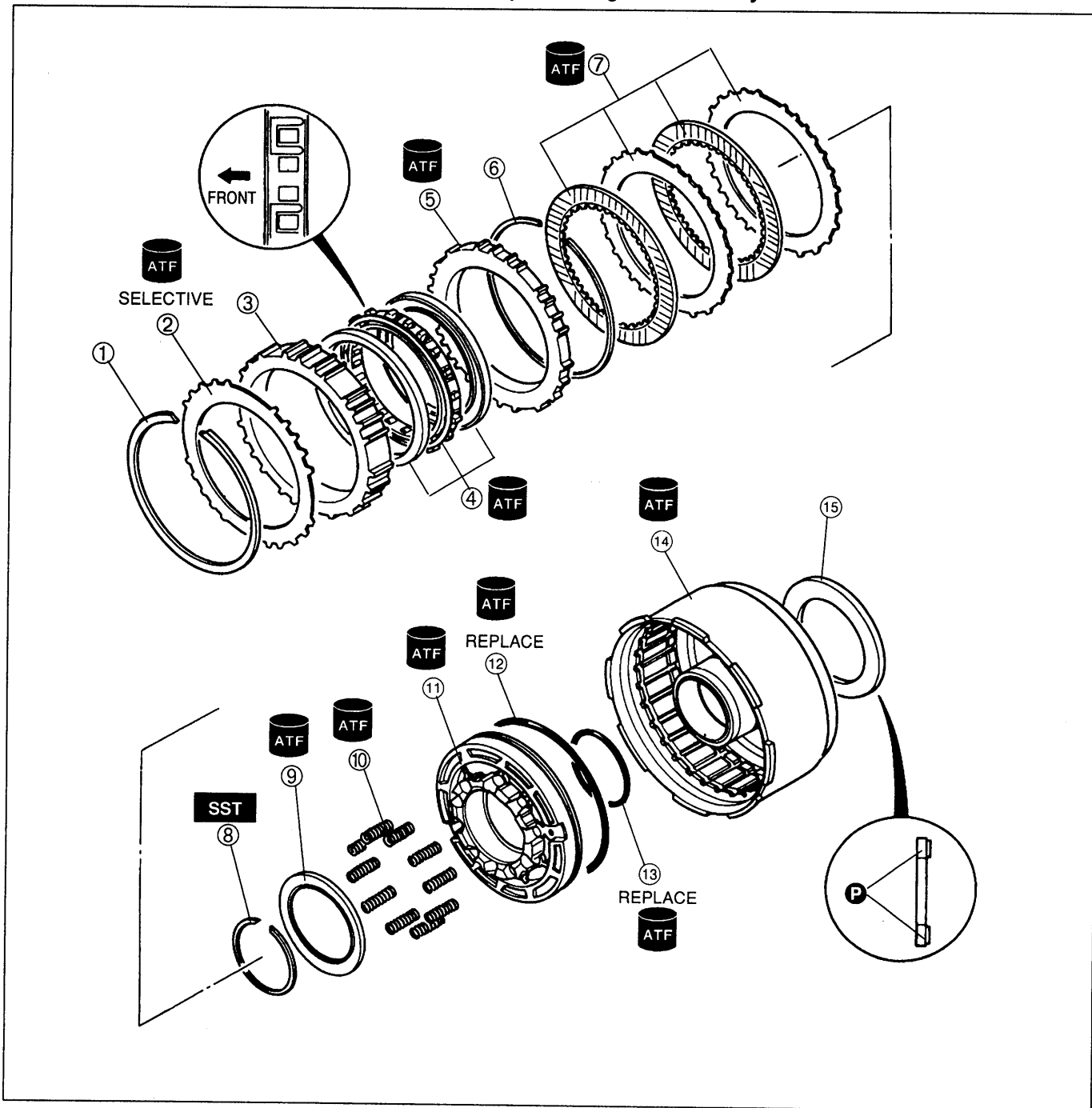
**One-way clutch operation**

Insert the fourth gear clutch hub on the top of the direct clutch, and verify that the fourth gear clutch hub rotates smoothly when turned clockwise and locks when turned counterclockwise. If not, replace the one-way clutch.

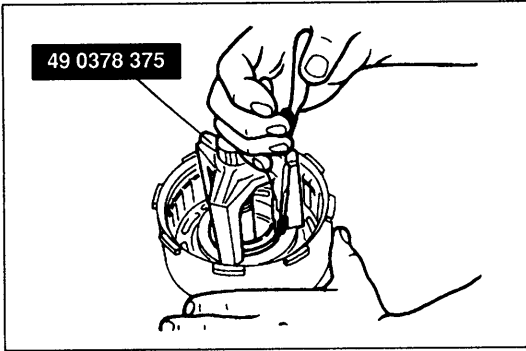


Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts, and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly Procedure**.



- | | |
|-----------------------------------|----------------------------------|
| 1. Snap ring | 9. Spring retainer |
| 2. Side plate | 10. Return spring |
| 3. Outer race | Inspection page K-72 |
| 4. One-way clutch | 11. Clutch piston |
| 5. Retaining plate | Disassembly note page K-72 |
| 6. Snap ring | Inspection page K-72 |
| 7. Drive plates and driven plates | 12. Seal ring |
| Inspection page K-72 | 13. O-ring |
| 8. Snap ring | 14. Direct clutch drum |
| Disassembly note page K-72 | 15. Bearing |



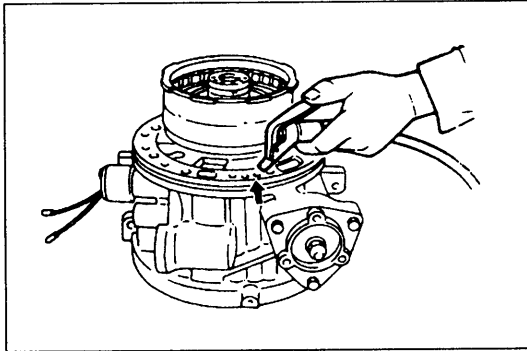
Disassembly note

Snap ring

Caution

- Depress the spring retainer only enough to remove the snap ring. Overpressing will damage the retainer assembly edges.

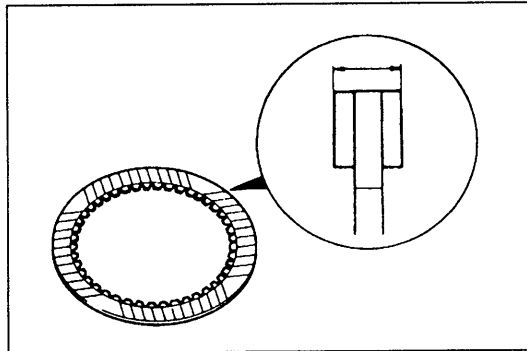
1. Compress the spring by using the **SST**, then remove the snap ring with snap ring pliers.
2. Remove the **SST**.
3. Remove the spring retainer and spring.



Clutch piston

1. Install the direct clutch drum onto the drum support along with the seal rings.
2. Remove the piston by applying compressed air through the oil passage.

Air pressure: 392 kPa { 4.0 kg/cm² , 57 psi } max.



Inspection

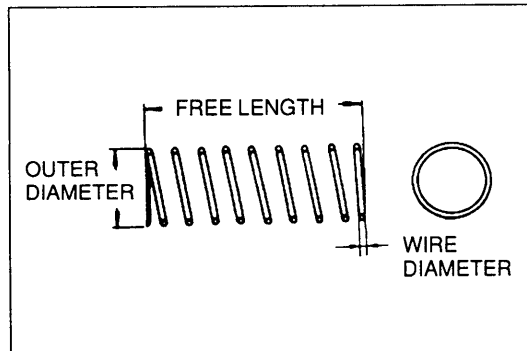
Drive plate

1. Measure the facing thickness in three places, and determine the average of the three readings.

Standard thickness: 1.6 mm { 0.063 in }

Minimum thickness: 1.4 mm { 0.055 in }

2. If not within specification, replace the drive plates.



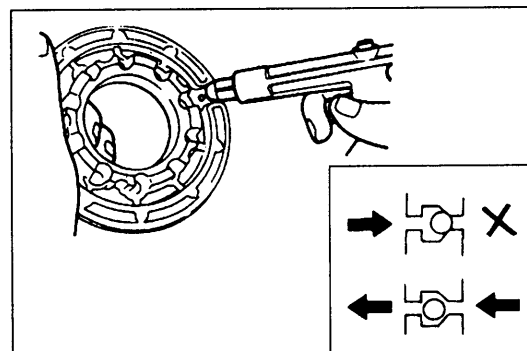
Return spring

1. Measure the spring specifications.

Specifications

Outer dia. mm { in }	Free length mm { in }	No. of coils	Wire dia. mm { in }
8.0 { 0.315 }	30.5 { 1.201 }	14.5	1.3 { 0.051 }

2. If not within specification, replace the return spring.

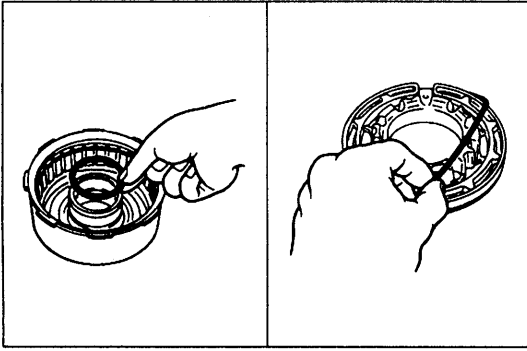


Clutch piston

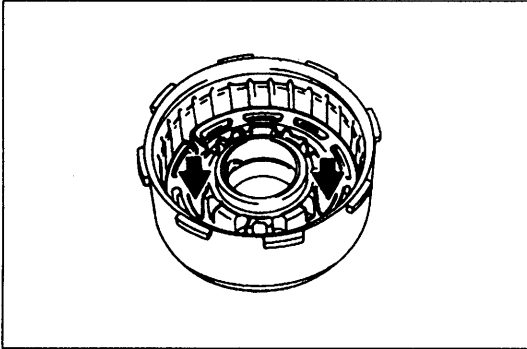
1. Verify that there is no air leakage when applying compressed air through the oil hole opposite the return spring.
2. Verify that there is airflow when applying compressed air through the oil hole on the return spring side.

Air pressure: 392 kPa { 4.0 kg/cm² , 57 psi } max.

3. If not correct, replace the clutch piston.

**Assembly procedure**

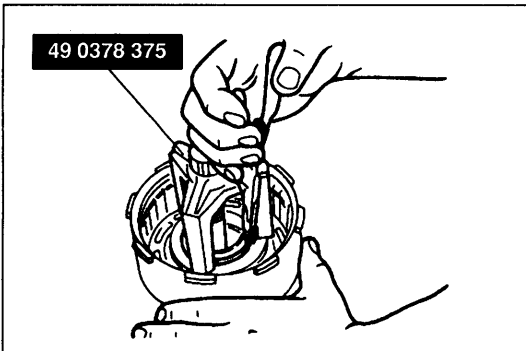
1. Apply ATF to a new O-ring, and install it onto the direct clutch drum.
2. Apply ATF to a new seal ring, and install it onto the piston.



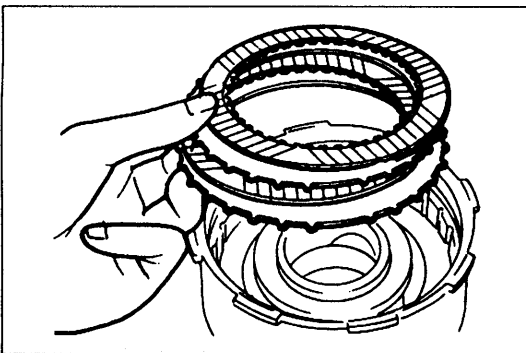
3. Apply ATF to the inside of the direct clutch drum.
4. Apply even pressure to the perimeter of the clutch piston, and install it into the direct clutch drum by turning it evenly and gradually.
5. Verify that the piston can be turned by hand. If it cannot, then remove it and check for damage to the seal ring.

Caution

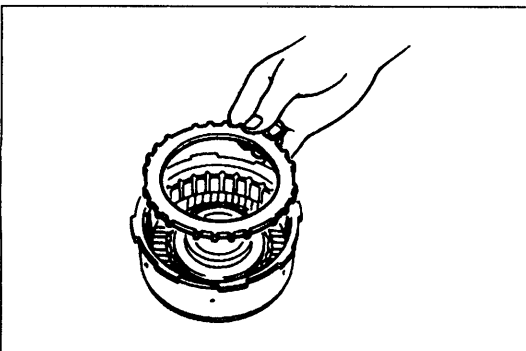
- **Depress the spring retainer only enough to install the snap ring. Overpressing will damage the retainer assembly edges.**



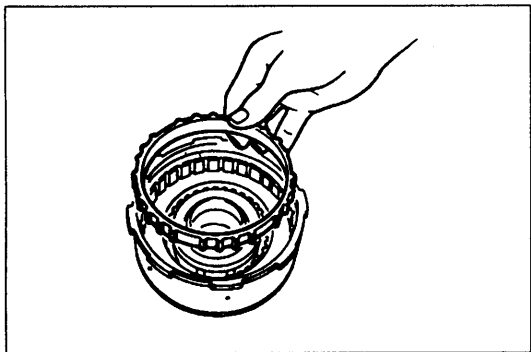
6. Install the springs and spring retainer and compress them by using the **SST**.
7. While holding the spring retainer down by using the **SST**, install the snap into the spring retainer stopper.
8. Remove the **SST**.



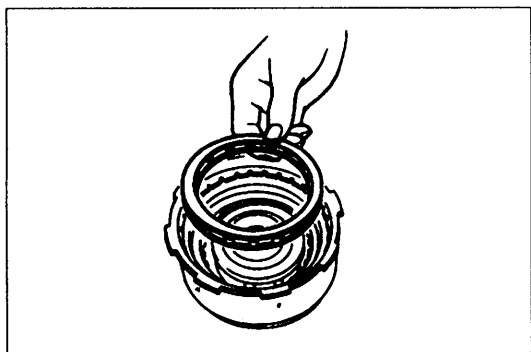
9. Soak new drive plates in ATF for at least two hours.
10. Apply ATF to the driven plates immediately before assembly.
11. Arrange the drive and driven plates so that the toothless areas are in line with the lubrication hole in the direct clutch drum.
12. Install the drive and driven plates into the direct clutch drum in the following order:

Driven–Drive–Driven–Drive

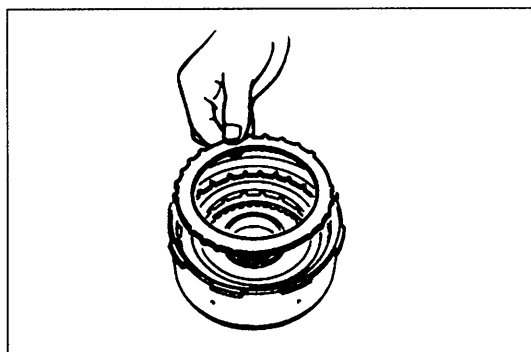
13. Install the snap ring.
14. Apply ATF to the retaining plate, and install the retaining plate so that the toothless area is in line with the lubrication hole in the direct clutch drum.



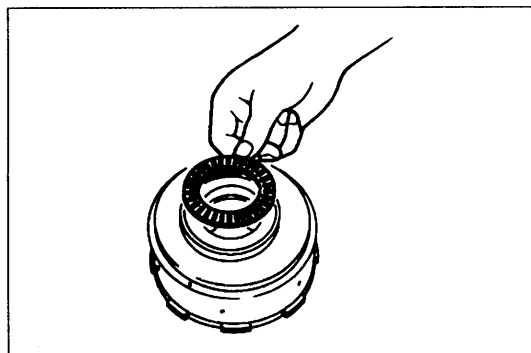
15. Apply ATF to the outer race, and install the outer race so that the toothless area is in line with the lubrication hole in the direct clutch drum.



16. Apply ATF to the one-way clutch, and install it into the outer race. Verify that the spring cage of the one-way clutch faces toward the direct clutch drum.

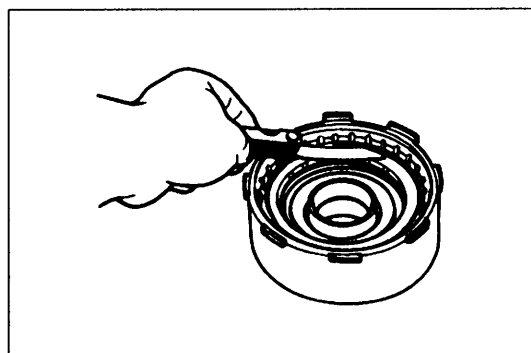


17. Apply ATF to the side plate, and install the side plate so that the toothless area is in line with the lubrication hole in the direct clutch drum.
18. Install the snap ring.



19. Apply petroleum jelly to the bearing, and install it onto the direct clutch drum.

Bearing outer diameter: 70.0 mm { 2.756 in }



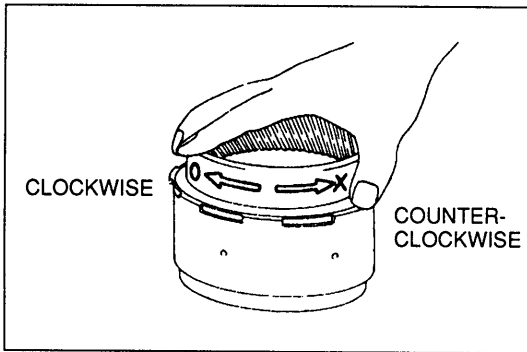
20. Measure the clearance between the side plate and the snap ring with a feeler gauge. If not within specification, adjust the clearance by installing the correct side plate.

Clearance
Maximum: 0.2 mm { 0.008 in }

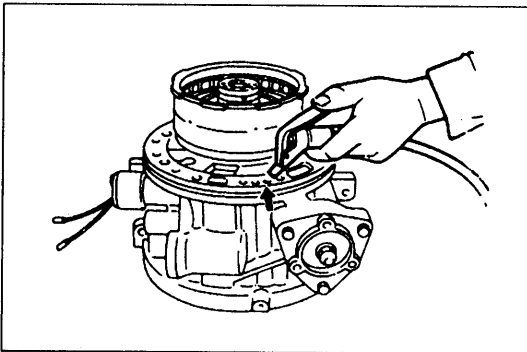
Side plate sizes

mm { in }

0.4 { 0.016 }	0.6 { 0.024 }	0.8 { 0.031 }
1.0 { 0.039 }	1.2 { 0.047 }	—



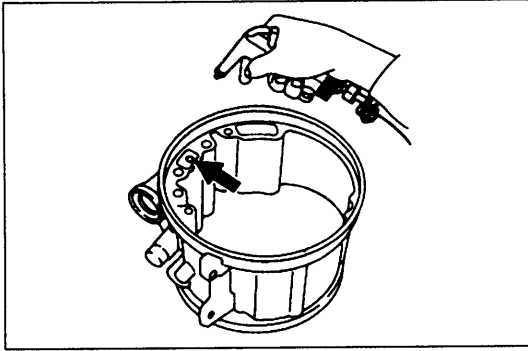
21. Insert the fourth gear clutch hub on the top of the direct clutch and verify that the fourth gear clutch hub rotates smoothly when turned clockwise and locks when turned counterclockwise. If it does not, then the one-way clutch is installed upside down.



Caution

- Applying compressed air to the assembled clutch pack for longer than 3 seconds at a time will damage the seal.
22. Install the direct clutch onto the drum support along with the seal rings. Apply compressed air to the oil passage and check the clutch operation.

Air pressure: 392 kPa { 4.0 kg/cm² , 67 psi } max.



FOURTH GEAR BAND SERVO

Preinspection

Fourth gear band servo operation

1. Apply compressed air through the oil passage as shown.

Air pressure: 392 kPa { 4.0 kg/cm² , 57 psi } max.

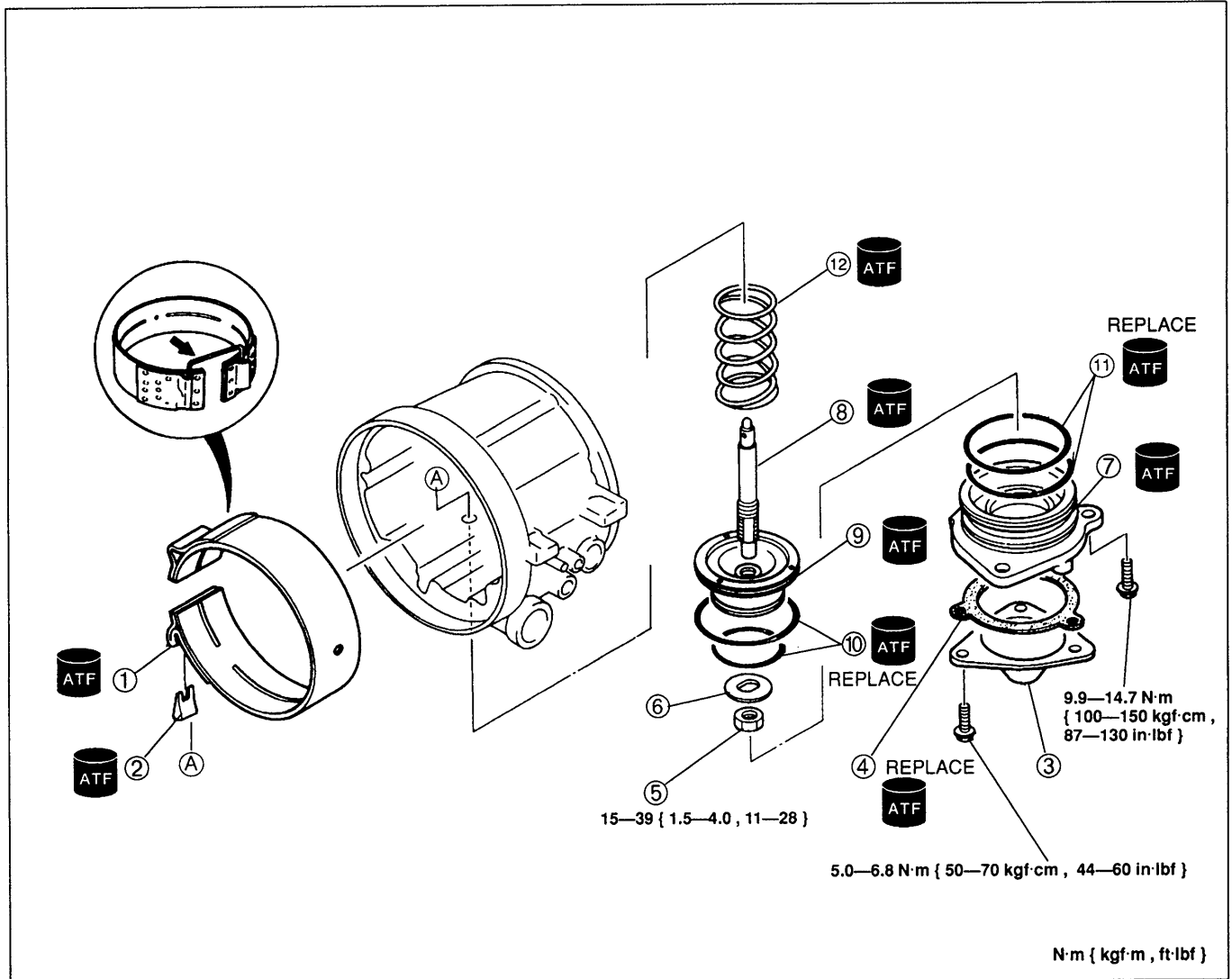
2. Verify that the piston stem moves to the brake band. If not, the seal rings or the oil seal may be damaged or the piston assembly may be sticking. Inspect them, and replace as necessary when assembling.

Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.

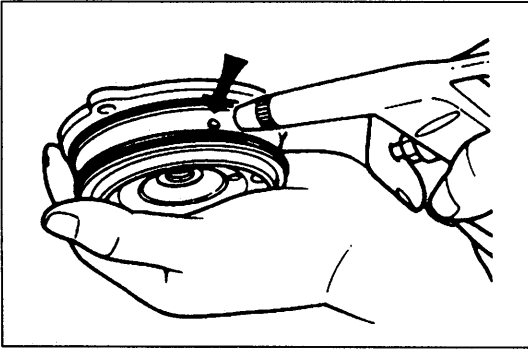
2. Inspect all parts, and repair or replace as necessary.

3. Assemble in the reverse order of disassembly, referring to **Assembly Procedure**.



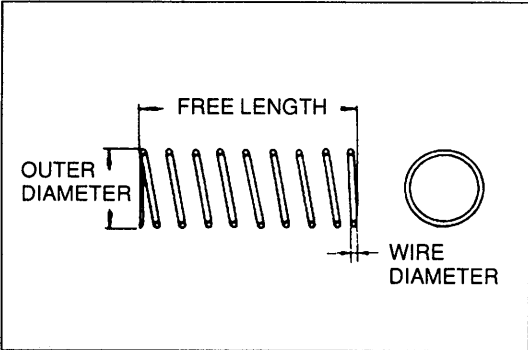
- 1. Brake band
- 2. Band strut
- 3. Fourth gear band servo cover
- 4. Gasket
- 5. Nut
- 6. Washer
- 7. Body

- 8. Piston stem
- 9. Piston assembly
Disassembly note page K-77
- 10. Seal rings
- 11. O-rings
- 12. Return spring
Inspection page K-77

**Disassembly note****Piston assembly**

Remove the piston assembly from the body by applying compressed air through the oil passage hole.

Air pressure: 392 kPa { 4.0 kg/cm² , 57 psi } max.

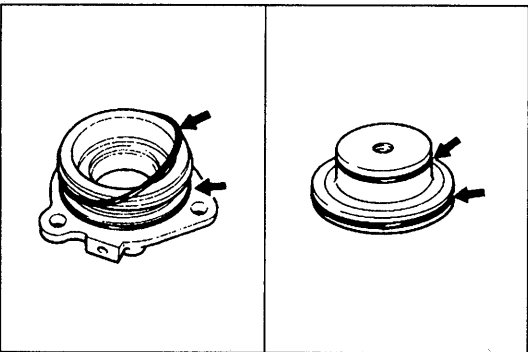
**Inspection****Return spring**

1. Measure the spring specifications.

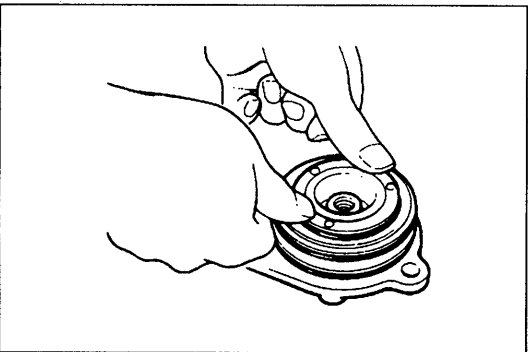
Specifications

Outer dia. mm { in }	Free length mm { in }	No. of coils	Wire dia. mm { in }
27.7 { 1.091 }	47.0 { 1.850 }	7.0	3.5 { 0.138 }

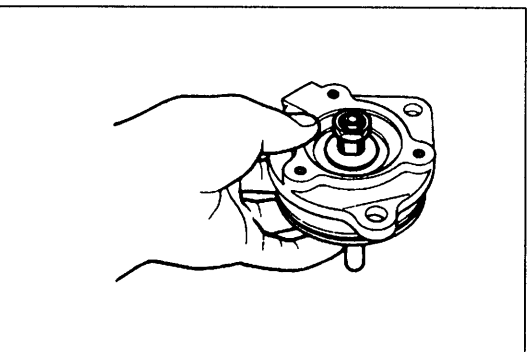
2. If not within specification, replace the return spring.

**Assembly procedure**

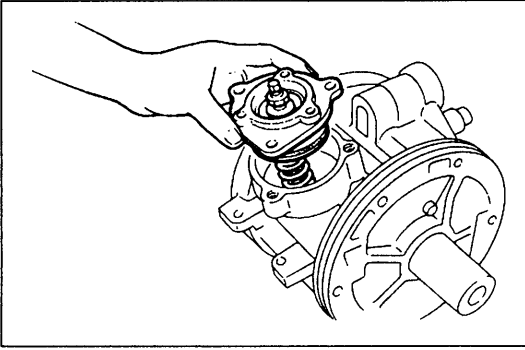
1. Apply ATF to the new seal rings, and install them onto the body.
2. Apply ATF to the new O-rings, and install them onto the piston assembly.



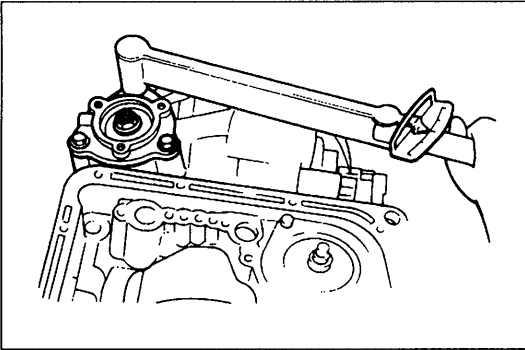
3. Apply ATF to the piston assembly and body.
4. Apply even pressure to the perimeter of the piston, and install it into the body.



5. Verify that the piston can be turned by hand. If it cannot, then remove it and check for damage to the seal ring.
6. Apply ATF to the piston stem and washer, and install them into the body.
7. Loosely tighten the nut.



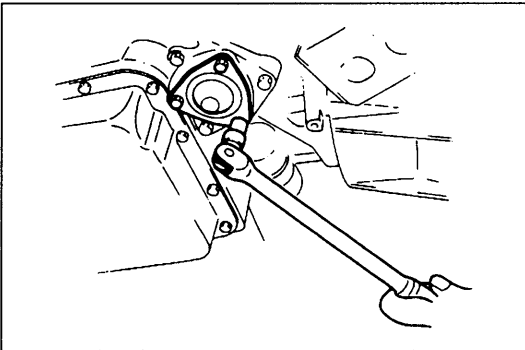
8. Apply ATF to the return spring, and install it into the transmission case.
9. Apply even pressure to the perimeter of the body, and install it into the transmission case.
10. Install the piston assembly.



11. Install and tighten the bolts.

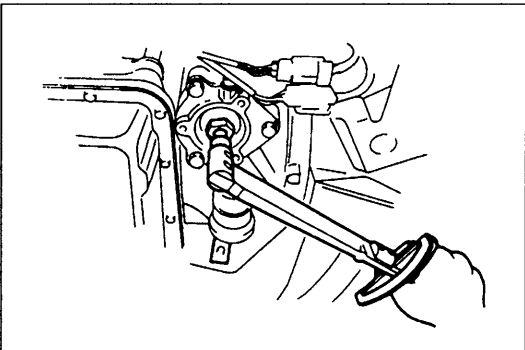
Tightening torque:

9.9—14.7 N·m { 100—150 kgf·cm , 87—130 in·lbf }



On-vehicle Adjustment

1. Remove the exhaust pipe. (Refer to page K-46.)
2. Remove the fourth gear band servo cover and gasket.



3. Loosen the locknut and tighten the piston stem.

Tightening torque: 11.8—14.7 N·m

{ 120—150 kgf·cm , 105—130 in·lbf }

4. Loosen the stem the number of turns shown below.

Stem: 2 turns

5. Hold the piston stem and tighten the locknut.

Tightening torque:

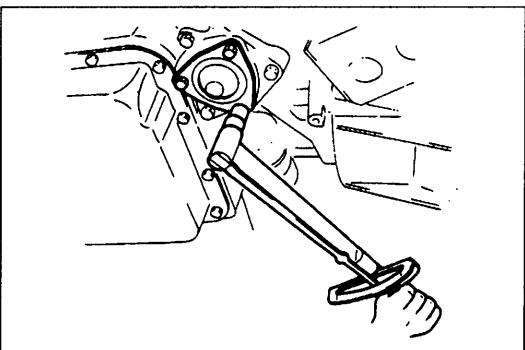
15—39 N·m { 1.5—4.0 kgf·m , 11—28 ft·lbf }

6. Install a new gasket and the fourth gear band servo cover.

Tightening torque:

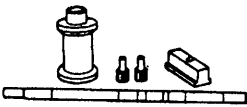
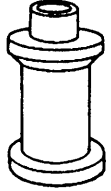
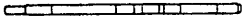
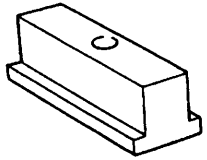
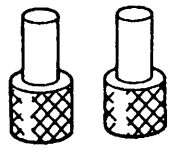
5.0—6.8 N·m { 50—70 kgf·cm , 44—60 in·lbf }

7. Install the exhaust pipe. (Refer to page K-148.)



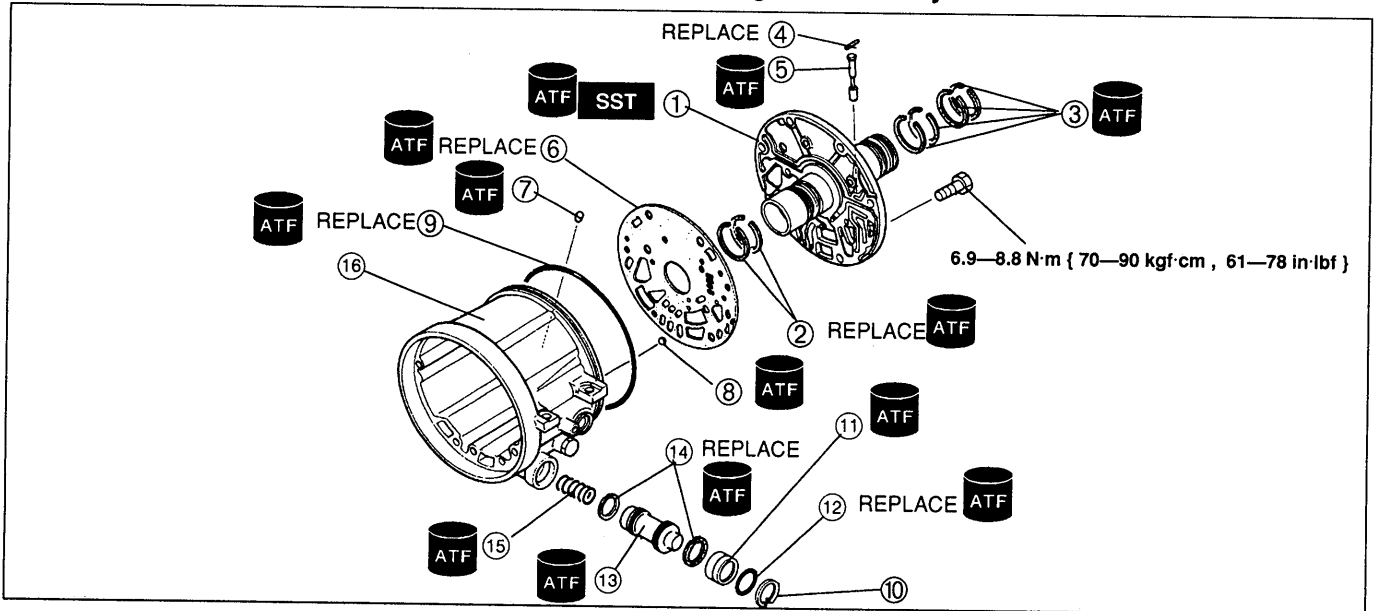
DRUM SUPPORT, ACCUMULATOR, AND FOURTH GEAR CASE

**Preparation
SST**

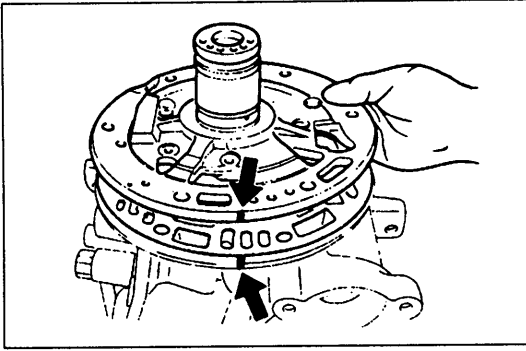
<p>49 S019 0A0 Set, centering tool</p> 	<p>For installation for drum support</p>	<p>49 S019 001 Holder (Part of 49 S019 0A0)</p> 	<p>For installation for drum support</p>
<p>49 S019 002 Shaft (Part of 49 S019 0A0)</p> 	<p>For installation for drum support</p>	<p>49 S019 003 Stand (Part of 49 S019 0A0)</p> 	<p>For installation for drum support</p>
<p>49 S019 004 Pin (Part of 49 S019 0A0)</p> 	<p>For installation for drum support</p>	<p>—</p>	<p>—</p>

Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts, and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly Procedure**.



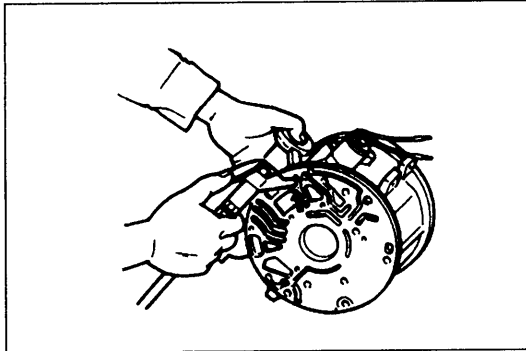
- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Drum support
Disassembly note page K-80
Inspection page K-80 2. Seal rings 3. Seal rings 4. Roll pin 5. Plug 6. Gasket 7. One-way valve 8. Steel ball | <ol style="list-style-type: none"> 9. D ring 10. Snap ring 11. Accumulator plug
Disassembly note page K-80 12. O-ring 13. Accumulator piston 14. Seal rings 15. Spring
Inspection page K-80 16. Fourth gear case |
|---|--|



Disassembly note

Drum support

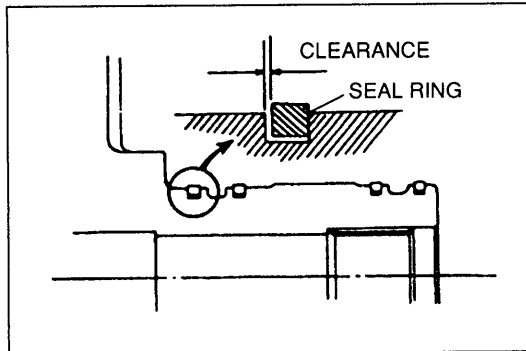
Mark the fourth gear case and the drum support for proper reassembly, then remove the drum support.



Accumulator plug

Remove the accumulator plug, piston, and spring by applying compressed air through the oil passage.

Air pressure: 392 kPa { 4.0 kg/cm² , 57 psi } max.



Inspection

Drum support

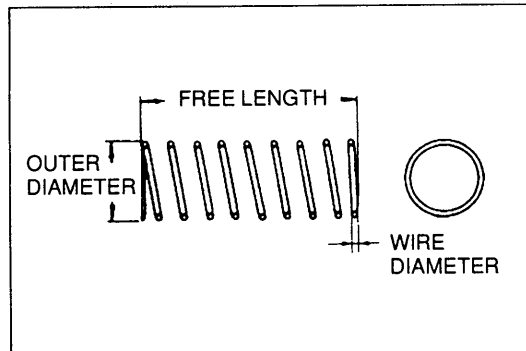
1. Apply ATF to the new seal rings and install them into the seal ring grooves of the drum support.
2. Measure the clearance between the seal rings and the seal ring grooves.

Clearance

Standard: 0.04—0.16 mm { 0.0016—0.0062 in }

Maximum: 0.40 mm { 0.016 in }

3. If not within specification, replace the drum support.



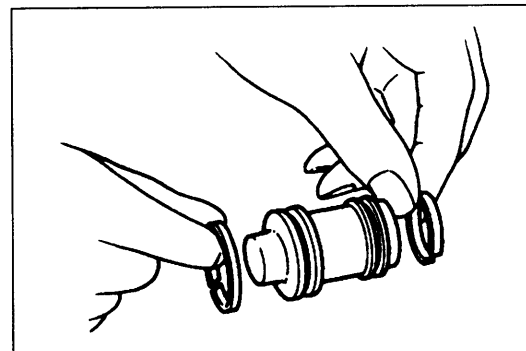
Spring

1. Measure the spring specifications.

Specifications

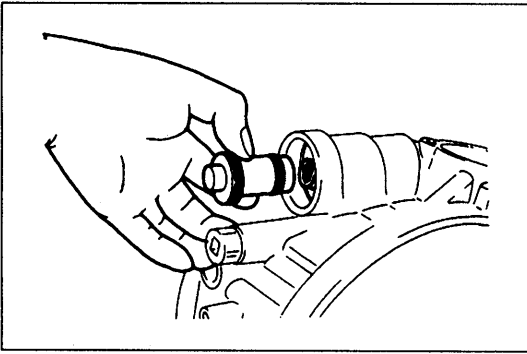
Outer dia. mm { in }	Free length mm { in }	No. of coils	Wire dia. mm { in }
16.0 { 0.630 }	40.4 { 1.590 }	9.8	2.6 { 0.102 }

2. If not within specification, replace the return spring.

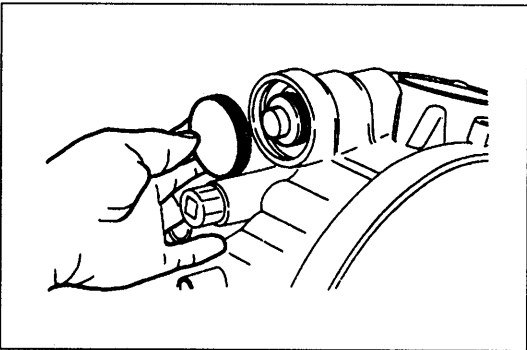


Assembly procedure

1. Apply ATF to the new seal rings, and install them onto the accumulator piston.



2. Apply ATF to the spring and install it into the fourth gear case.
3. Apply ATF to the accumulator piston.
4. Apply even pressure to the perimeter of the piston, and install it into the fourth gear case.
5. Verify that the piston can be turned by hand. If it cannot, then remove it and check for damage to the seal ring.



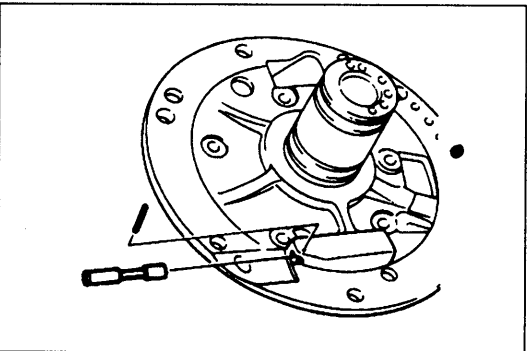
6. Apply ATF to a new O-ring, and install it on the accumulator plug.
7. Install the accumulator plug and snap ring.

Caution

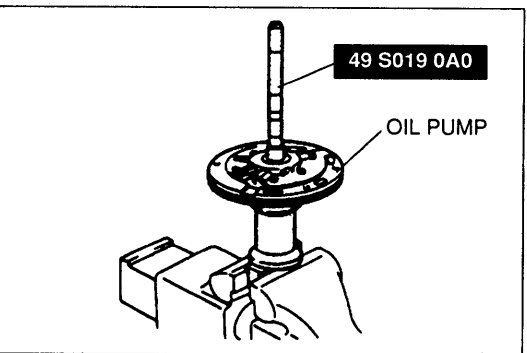
- Applying compressed air to the assembled clutch pack for longer than 3 seconds at a time will damage the seal.

8. Check the accumulator operation by applying compressed air through the oil passage.

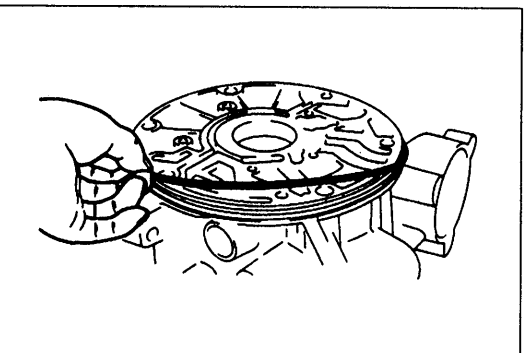
Air pressure: 392 kPa { 4.0 kg/cm² , 57 psi } max.



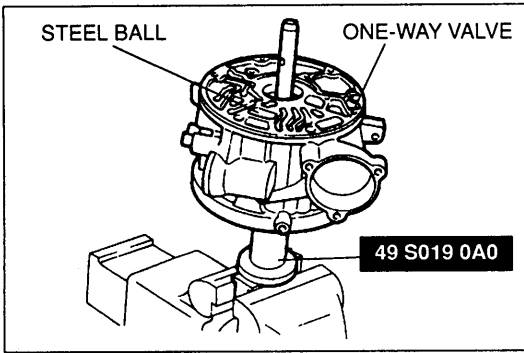
9. Apply ATF to the plug, and install it into the drum support.
10. Tap in a new roll pin.



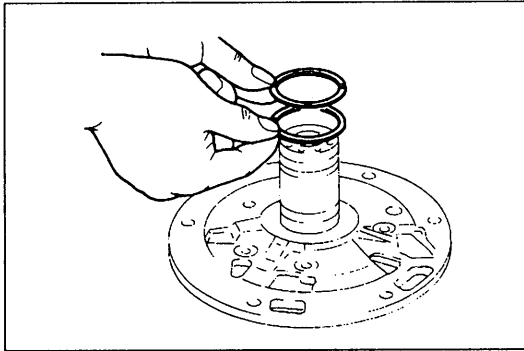
11. Set the oil pump onto the SST.



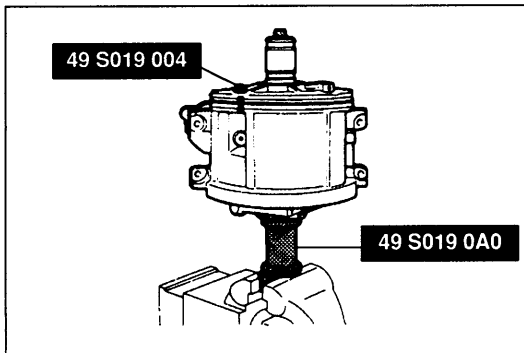
12. Apply ATF to a new seal ring, and install it onto the drum support.



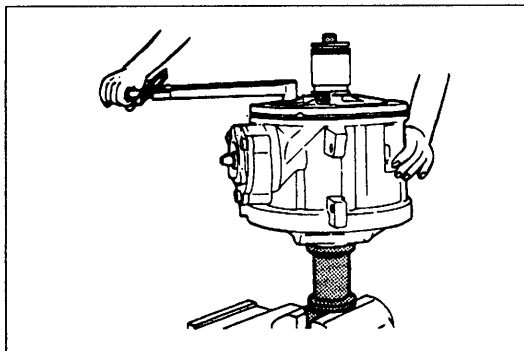
13. Apply ATF to the fourth gear case, and mount it onto the oil pump.
14. Install the steel ball and the one-way valve.



15. Apply ATF to the new seal rings, and install them onto the drum support.



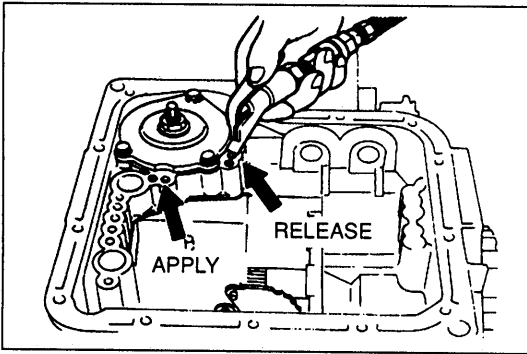
16. Apply ATF to the drum support, and install the support and a new gasket onto the fourth gear case, aligning the marks.
17. Install the SST (pins).



18. Tighten the drum support mounting bolts.

Tightening torque:

6.9—8.8 N·m { 70—90 kgf·cm , 61—78 in·lbf }



SECOND GEAR BAND SERVO

Preinspection

Second gear band servo operation

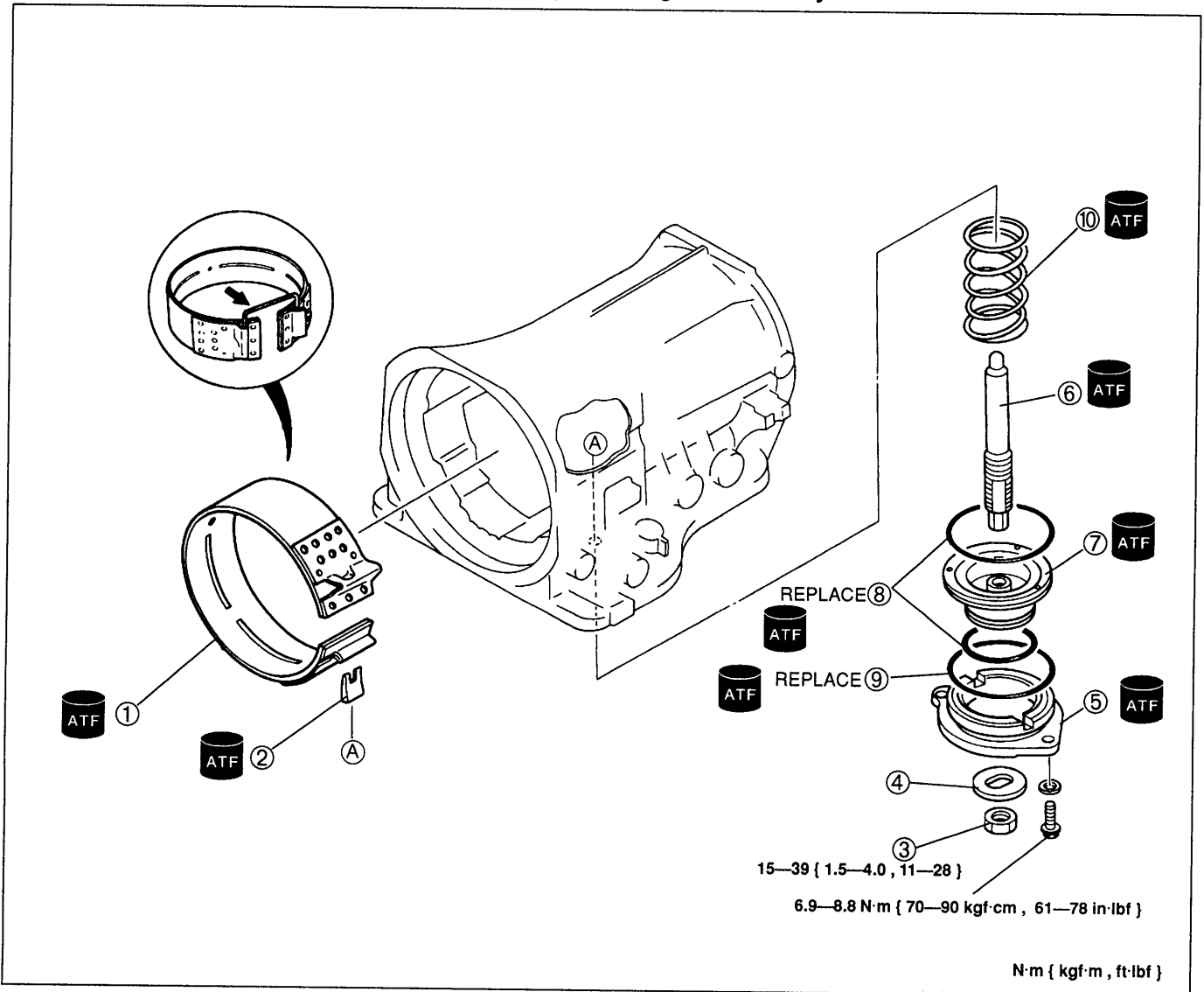
1. Apply compressed air through the oil passage as shown.

Air pressure: 392 kPa { 4.0 kg/cm² , 57 psi } max.

2. Verify that the piston stem moves to the brake band. If not, the seal rings or the oil seal may be damaged or the piston assembly may be sticking. Inspect them, and replace as necessary when assembling.

Disassembly / Inspection / Assembly

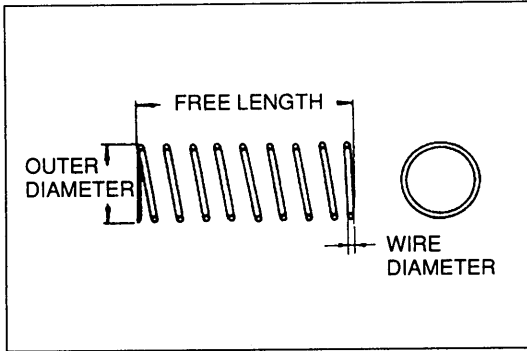
1. Disassemble in the order shown in the figure
2. Inspect all parts, and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly Procedure**.



1. Brake band
Inspect for wear and burning
2. Band strut
3. Nut
4. Washer
5. Body

6. Piston stem
7. Piston assembly
8. Seal rings
9. O-ring
10. Return spring

Inspection page K-84



Inspection Return spring

1. Measure the spring specifications.

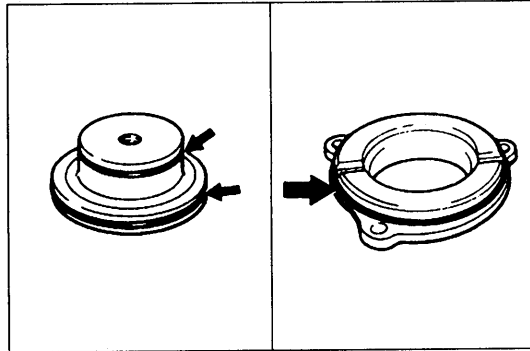
Specifications

Outer dia. mm { in }	Free length mm { in }	No. of coils	Wire dia. mm { in }
28.2 { 1.110 }	38.7 { 1.524 }	6.324	3.5 { 0.138 }

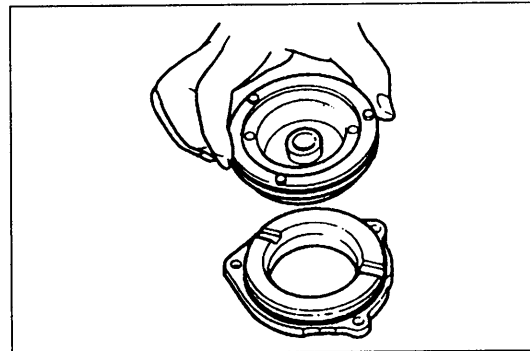
2. If not within specification, replace the return spring.

Assembly procedure

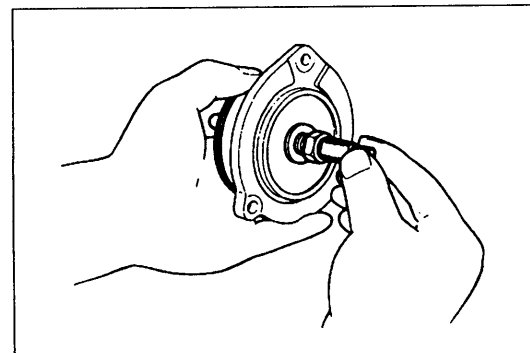
1. Apply ATF to the new seal rings, and install them onto the piston assembly.
2. Apply ATF to a new O-ring, and install it onto the piston assembly.



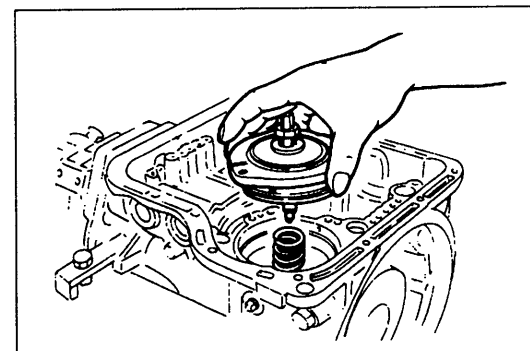
3. Apply ATF to the piston assembly and body.
4. Apply even pressure to the perimeter of the piston, and install it into the body.
5. Verify that the piston can be turned by hand. If it cannot, then remove it and check for damage to the seal ring.

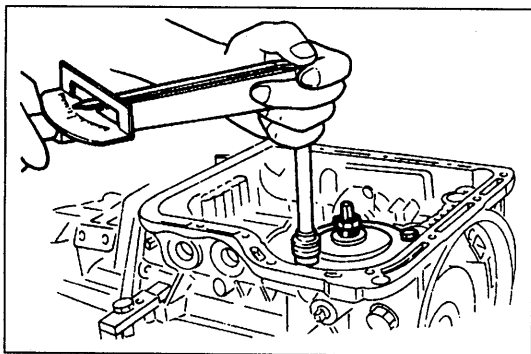


6. Apply ATF to the piston stem and washer, and install them into the body.
7. Loosely tighten the nut.



8. Apply even pressure to the perimeter of the body, and install it into the transmission case.
9. Install the piston assembly.

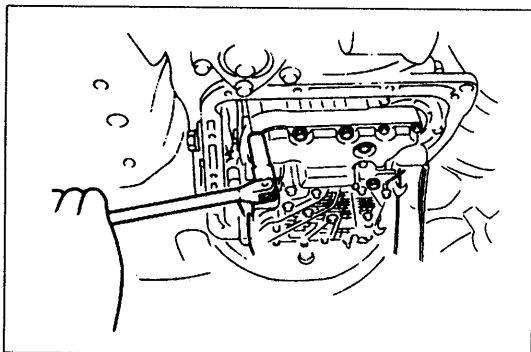




10. Install and tighten the bolts.

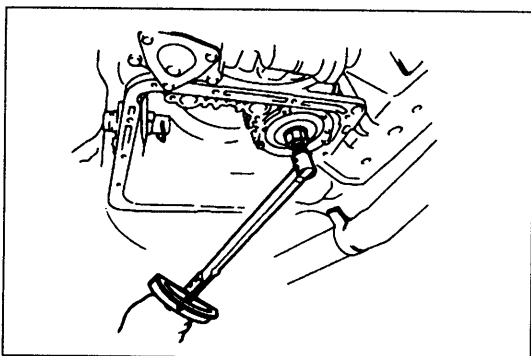
Tightening torque:

6.9—8.8 N·m { 70—90 kgf·cm , 61—78 in·lbf }



On-vehicle Adjustment

1. Remove the exhaust pipe. (Refer to page K-47.)
2. Remove the valve body assembly. (Refer to page K-127.)



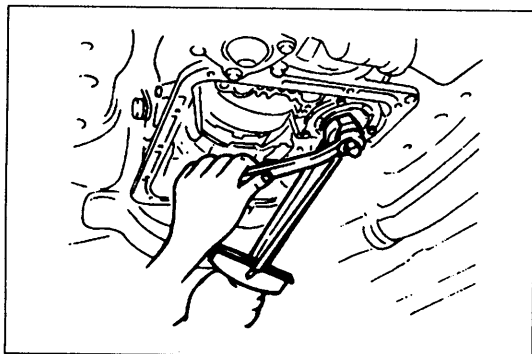
3. Loosen the locknut and tighten the piston stem.

Tightening torque: 12.3—14.2 N·m

{ 125—145 kgf·cm , 109—125 in·lbf }

4. Loosen the stem the number of turns shown below.

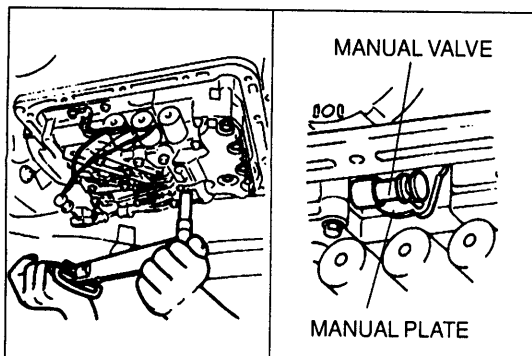
Stem: 2 1/2 turns



5. Hold the piston stem and tighten the locknut.

Tightening torque:

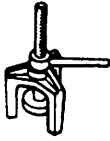
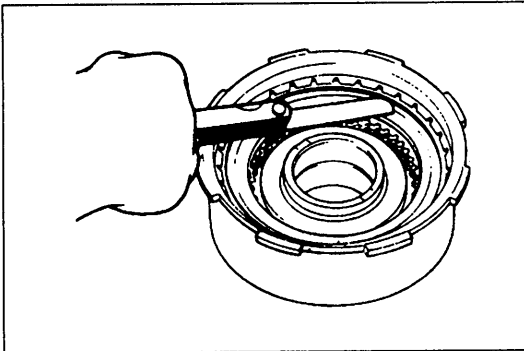
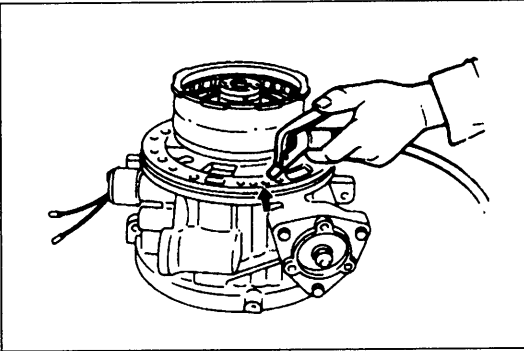
15—39 N·m { 1.5—4.0 kgf·m , 11—28 ft·lbf }



6. Install a new body assembly. (Refer to page K-129.)
7. Install the exhaust pipe. (Refer to page K-148.)

FRONT CLUTCH**Preparation****SST**

49 0378 375

Compressor,
clutch springFor
removal /
installation of
front clutch**Preinspection****Front clutch operation**

1. Install the front clutch onto the drum support along with the seal rings. Apply compressed air through the oil passage as shown.

Air pressure: 392 kPa { 4.0 kg/cm² , 57 psi } max.

2. Verify that the retaining plate moves toward the snap ring. If not, the seal ring or O-ring may be damaged or fluid may be leaking at the piston check ball. Inspect them, and replace when assembling.

Clearance between retaining plate and snap ring

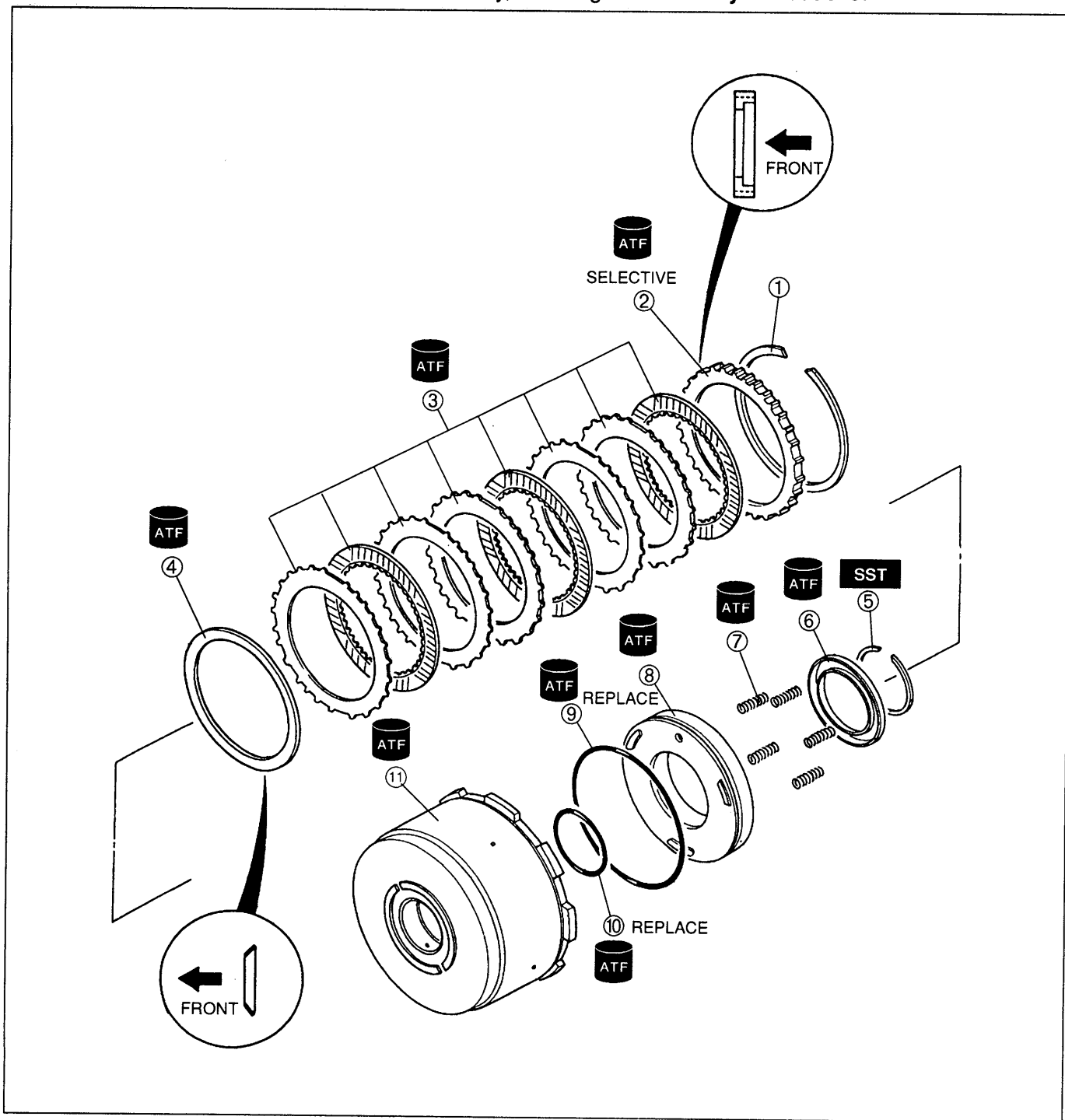
Measure the clearance between the retaining plate and the snap ring.

Clearance: 0.9—1.1 mm { 0.036—0.043 in }

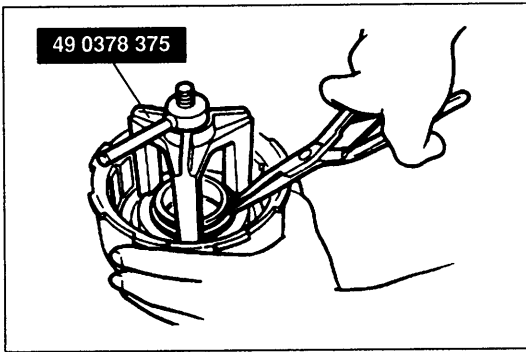
Select and install the correct retaining plate when assembling.

Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts, and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly Procedure**.



- | | | |
|-----------------------------------|------------------------|-----------|
| 1. Snap ring | 7. Return spring | |
| 2. Retaining plate | Inspection | page K-88 |
| 3. Drive plates and driven plates | 8. Clutch piston | |
| Inspection | Disassembly note | page K-88 |
| page K-88 | Inspection | page K-88 |
| 4. Dished plate | 9. Seal ring | |
| 5. Snap ring | 10. O-ring | |
| Disassembly note | 11. Front clutch drum | |
| page K-88 | | |
| 6. Spring retainer | | |

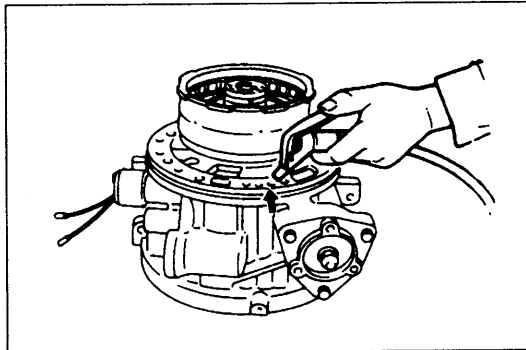


Disassembly note
Snap ring

Caution

- Depress the spring retainer only enough to install the snap ring. Overpressing will damage the retainer assembly edges.

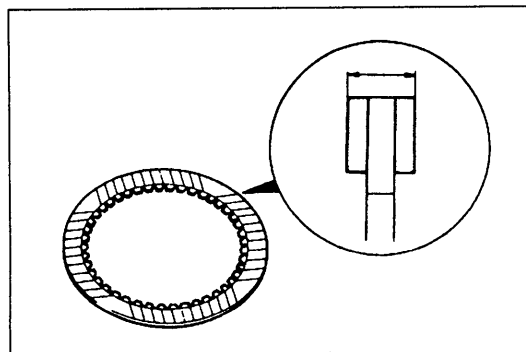
1. Compress the spring by using the SST, then remove the snap ring with snap ring pliers.
2. Remove the spring retainer and spring.



Clutch piston

1. Install the front clutch drum onto the drum support along with the seal rings.
2. Remove the piston by applying compressed air through the oil passage.

Air pressure: 392 kPa { 4.0 kg/cm² , 57 psi } max.



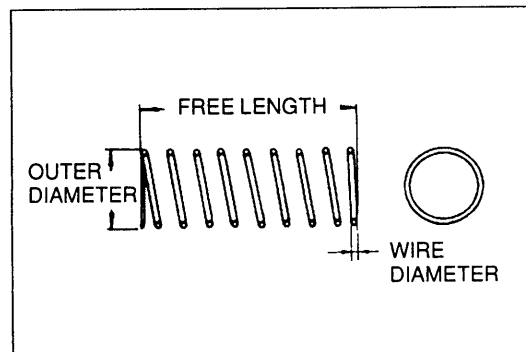
Inspection

Drive plate

1. Measure the facing thickness in three places, and determine the average of the three readings.

Standard thickness: 1.6 mm { 0.063 in }
Minimum thickness: 1.4 mm { 0.055 in }

2. If not within specification, replace the drive plates.



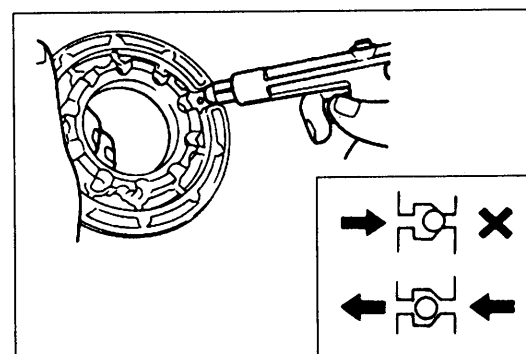
Return spring

1. Measure the spring specifications.

Specifications

Outer dia. mm { in }	Free length mm { in }	No. of coils	Wire dia. mm { in }
8.0 { 0.315 }	30.5 { 1.201 }	14.5	1.3 { 0.051 }

2. If not within specification, replace the return spring.

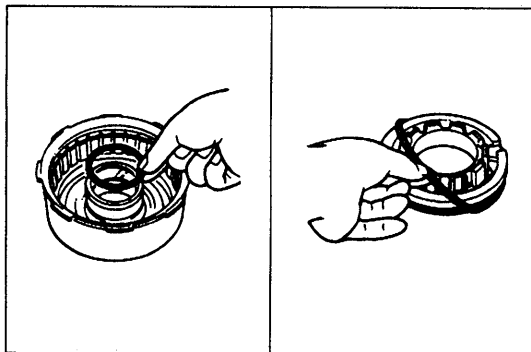


Clutch piston

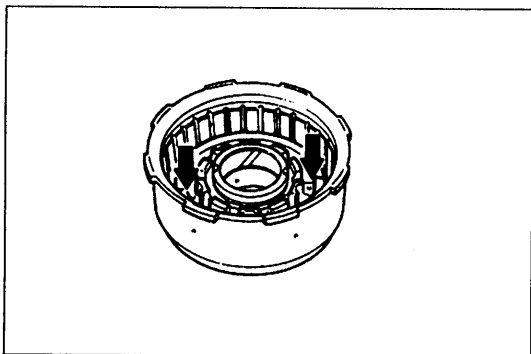
1. Verify that there is no air leakage when applying compressed air through the oil hole opposite the return spring.
2. Verify that there is airflow when applying compressed air through the oil hole on the return spring side.

Air pressure: 392 kPa { 4.0 kg/cm² , 57 psi } max.

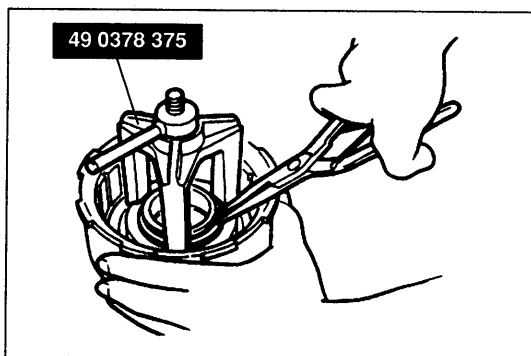
3. If not correct, replace the clutch piston.

**Assembly procedure**

1. Apply ATF to a new O-ring and install it onto the front clutch drum.
2. Apply ATF to a new seal ring and install it onto the piston.

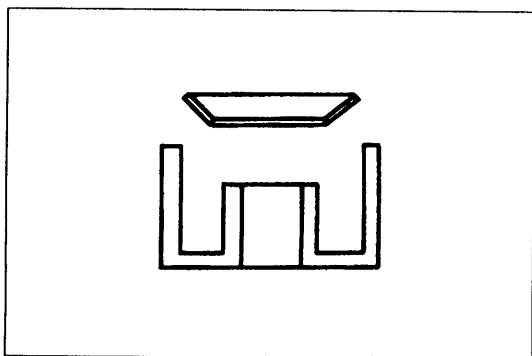


3. Apply ATF to the inside of the front clutch drum.
4. Apply even pressure to the perimeter of the piston, and install it into the front clutch drum.
5. Verify that the piston can be turned by hand. If it cannot, then remove it and check for damage to the seal rings.

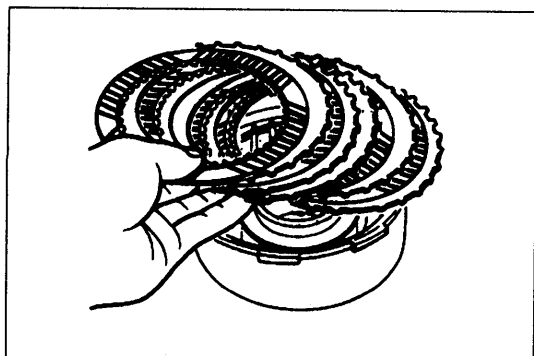
**Caution**

- Depress the spring retainer only enough to install the snap ring. Overpressing will damage the retainer assembly edges.

6. Install the springs and spring retainer, then compress them by using the **SST**.
7. While holding the spring retainer down by using the **SST**, install the snap ring into the spring retainer stopper.

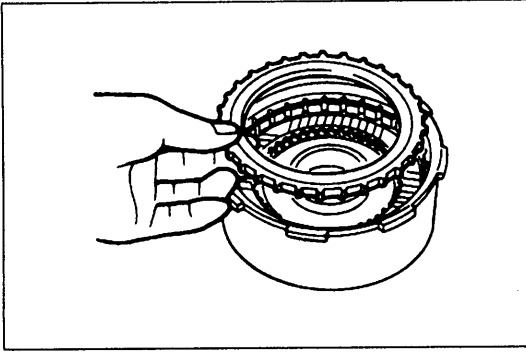


8. Install the dished plate as shown.

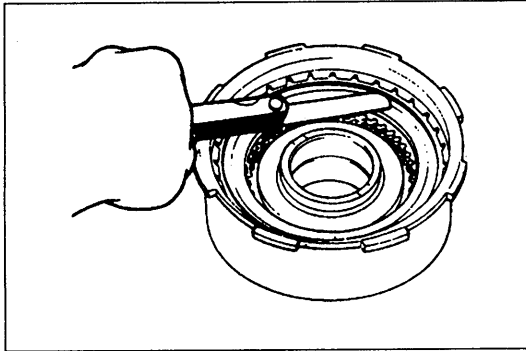


9. Soak new drive plates in ATF for at least two hours.
10. Apply ATF to the driven plates immediately before assembly.
11. Arrange the drive and driven plates so that the toothless areas are in line with the lubrication hole in the front clutch drum.
12. Install the drive and driven plates into the front clutch drum in the following order:

Driven–Drive–Driven–Driven–Drive–Driven–Driven–Drive



13. Arrange the retaining plate so that the toothless area is in line with the lubrication hole in the front clutch drum.
14. Install the retaining plate into the front clutch drum, with the step of the retaining plate facing upward.
15. Install the snap ring.

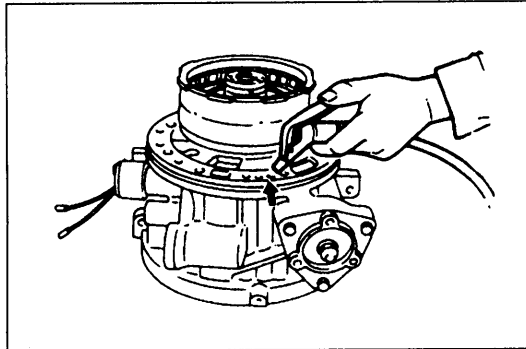


16. Measure the clearance between the retaining plate and snap ring with a feeler gauge. If not within specification, adjust the clearance by installing the correct retaining plate.

Clearance: 0.9—1.1 mm { 0.036—0.043 in }

Retaining plate size

			mm { in }
5.8 { 0.228 }	6.0 { 0.236 }	6.2 { 0.244 }	
6.4 { 0.252 }	6.6 { 0.260 }	6.8 { 0.268 }	
7.0 { 0.276 }	—	—	



Caution

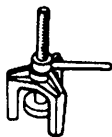
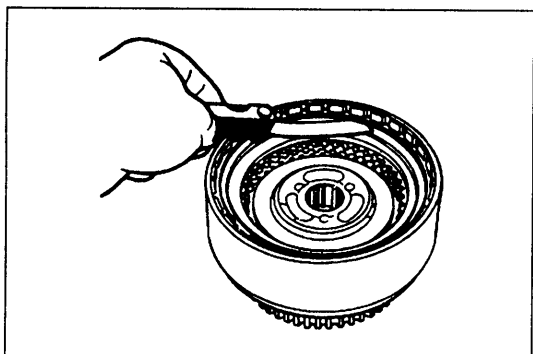
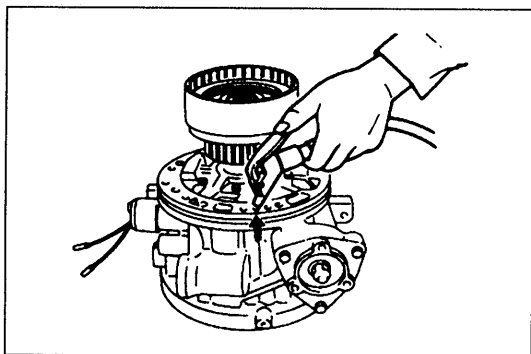
- Applying compressed air to the assembled clutch pack for longer than 3 seconds at a time will damage the seal.

17. Install the front clutch onto the drum support along with the seal rings. Apply compressed air through the oil passage and check the clutch operation.

Air pressure: 392 kPa { 4.0 kg/cm² , 57 psi } max.

REAR CLUTCH**Preparation****SST**

49 0378 375

Compressor,
clutch springFor
removal /
installation of rear
clutch**Preinspection****Rear clutch operation**

1. Install the rear clutch onto the drum support along with the seal rings. Apply compressed air through the oil passage as shown.

Air pressure: 392 kPa { 4.0 kg/cm² , 57 psi } max.

2. Verify that the retaining plate moves toward the snap ring. If not, the seal ring or O-ring may be damaged or fluid may be leaking at the piston check ball. Inspect them, and replace when assembling.

Clearance between retaining plate and snap ring

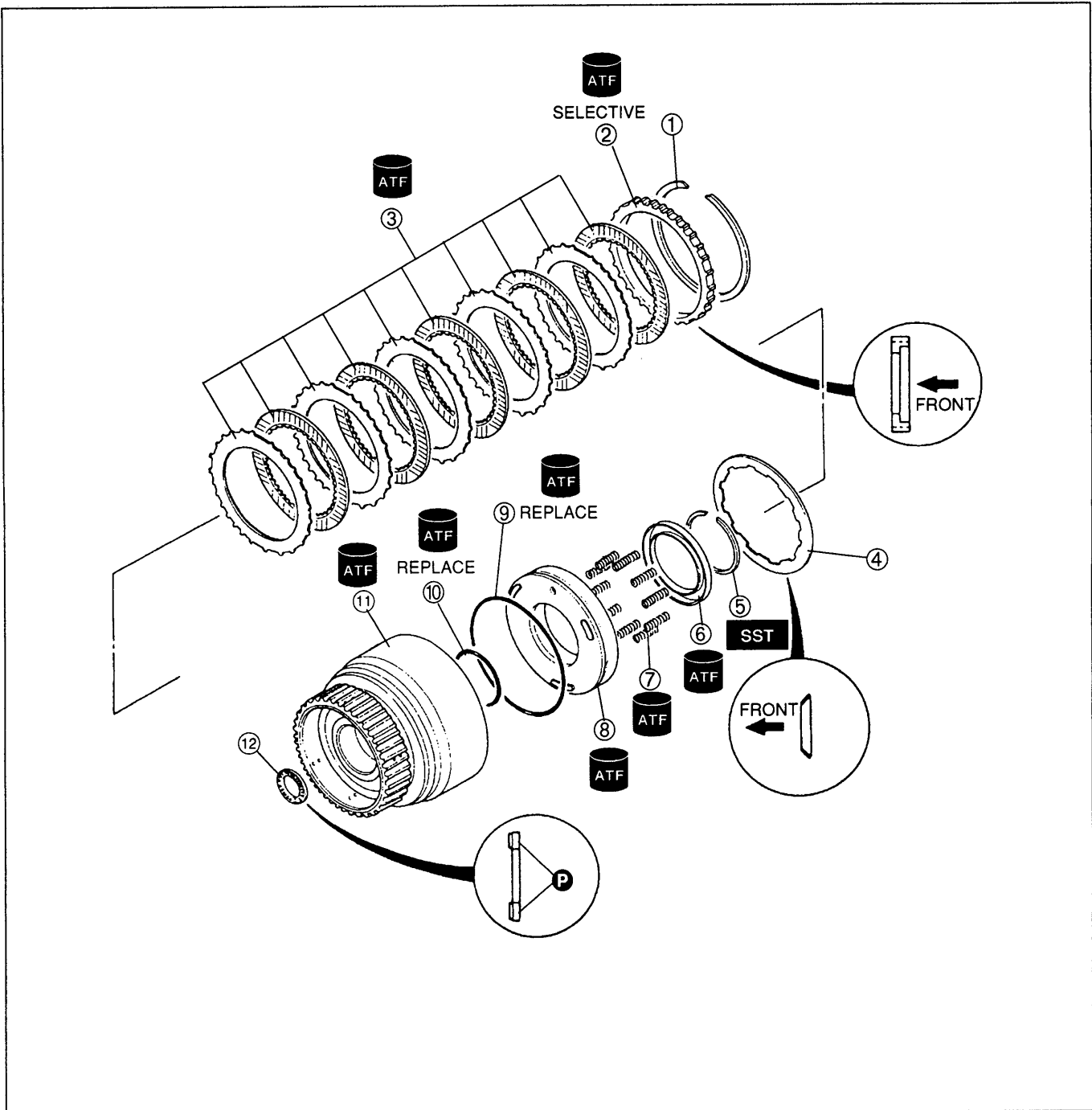
Measure the clearance between the retaining plate and the snap ring.

Clearance: 0.8—1.0 mm { 0.032—0.039 in }

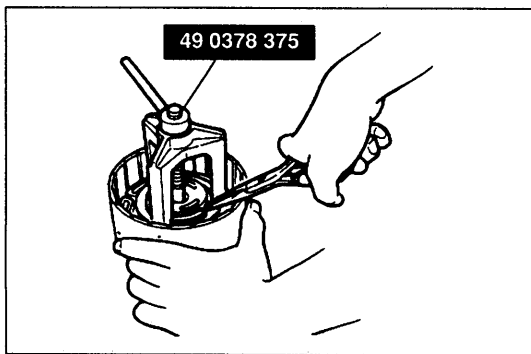
Adjust the clearance by installing the correct retaining plate.

Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts, and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly Procedure**.



- | | |
|--|---|
| <ul style="list-style-type: none"> 1. Snap ring 2. Retaining ring 3. Drive plates and driven plates
Inspection page K-93 4. Dishes plate 5. Snap ring
Disassembly note page K-93 6. Spring retainer 7. Return spring
Inspection page K-93 | <ul style="list-style-type: none"> 8. Clutch piston
Disassembly note page K-93
Inspection page K-93 9. Seal ring 10. O-ring 11. Rear clutch drum 12. Bearing |
|--|---|

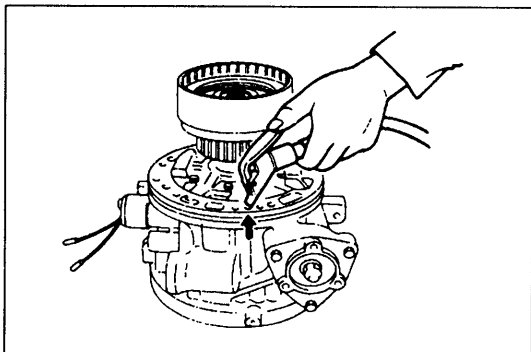


Disassembly note
Snap ring

Caution

- Depress the spring retainer only enough to remove the snap ring. Overpressing will damage the retainer assembly edges.

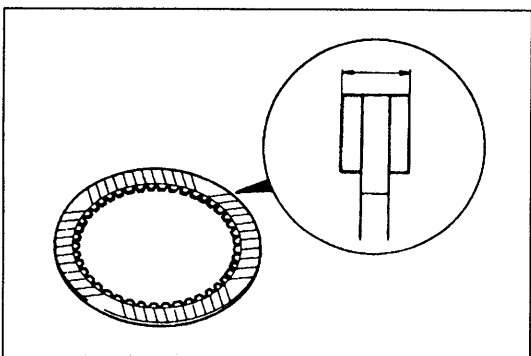
1. Compress the spring by using the **SST**, and remove the snap ring with snap ring pliers.
2. Remove the spring retainer and spring.



Clutch piston

1. Install the rear clutch drum onto the drum support along with seal rings.
2. Remove the piston by applying compressed air through the oil passage.

Air pressure: 392 kPa { 4.0 kg/cm² , 57 psi } max.

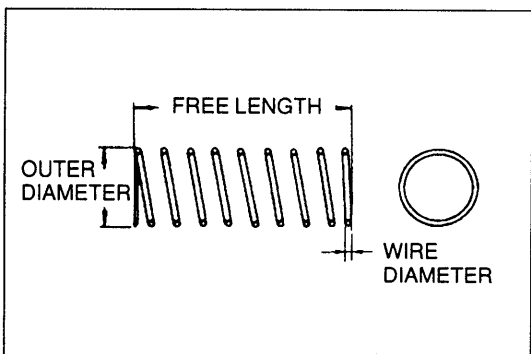


Inspection
Drive plate

1. Measure the facing thickness in three places and determine the average of the three readings.

Standard thickness: 1.6 mm { 0.063 in }
Minimum thickness: 1.4 mm { 0.055 in }

2. If not within specification, replace the drive plates.



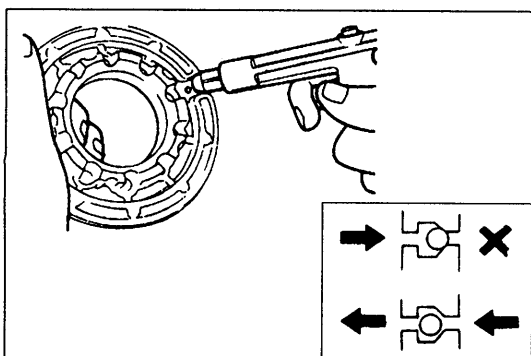
Return spring

1. Measure the spring specifications.

Specifications

Outer dia. mm { in }	Free length mm { in }	No. of coils	Wire dia. mm { in }
8.0 { 0.315 }	30.5 { 1.201 }	14.5	1.3 { 0.051 }

2. If not within specification, replace the return spring.

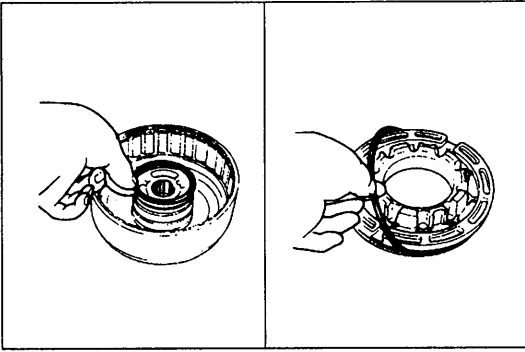


Clutch piston

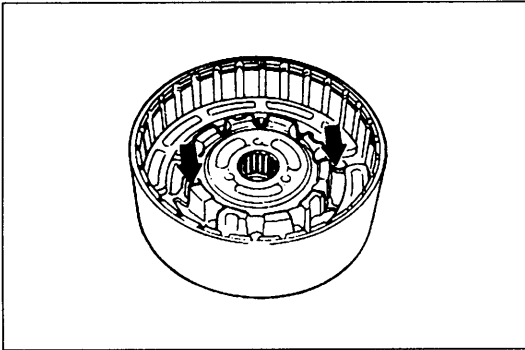
1. Verify that there is no air leakage when applying compressed air through the oil hole opposite the return spring.
2. Verify that there is airflow when applying compressed air through the oil hole on the return spring side.

Air pressure: 392 kPa { 4.0 kg/cm² , 57 psi } max.

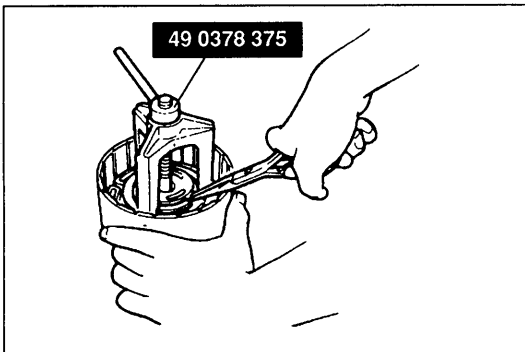
3. If not correct, replace the clutch piston.

**Assembly procedure**

1. Apply ATF to a new O-ring and install it onto the rear clutch drum.
2. Apply ATF to a new seal ring and install it onto the piston.

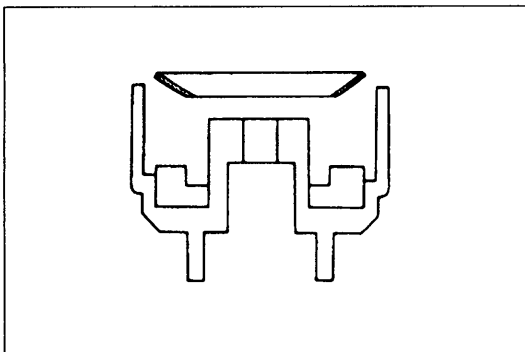


3. Apply ATF to the inside of the rear clutch drum.
4. Apply even pressure to the perimeter of the piston, and install it into the rear clutch drum by turning it evenly and gradually.
5. Verify that the piston can be turned by hand. If it cannot, then remove it and check for damage to the seal rings.

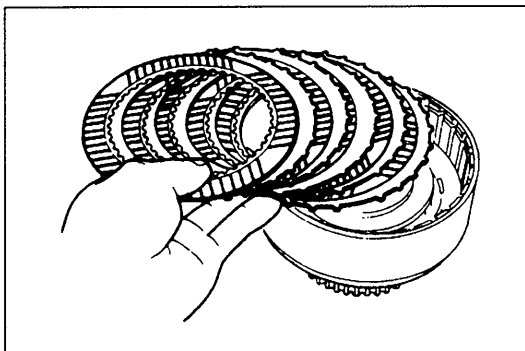
**Caution**

- **Depress the spring retainer only enough to install the snap ring. Overpressing will damage the retainer assembly edges.**

6. Install the springs and spring retainer, then compress them by using the **SST**.
7. While holding the spring retainer down by using the **SST**, install the snap ring into the spring retainer stopper.

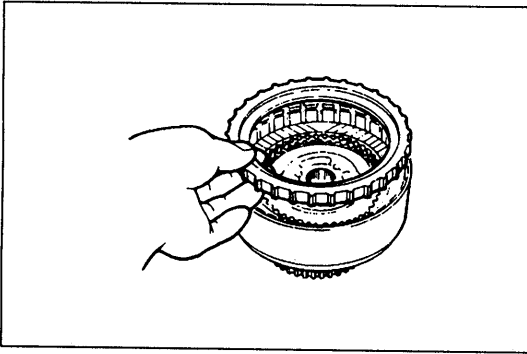


8. Install the dished plate as shown.

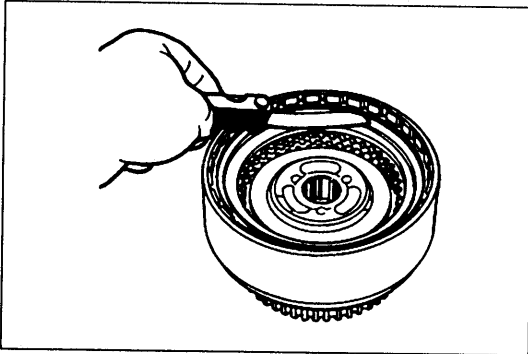


9. Soak new drive plates in ATF for at least two hours.
10. Apply ATF to the driven plates immediately before assembly.
11. Arrange the drive and driven plates so that the toothless areas are in line with the lubrication hole in the rear clutch drum.
12. Install the drive and driven plates into the front clutch drum in the following order:

Driven–Drive–Driven–Drive–Driven–Drive–Driven–Drive–Driven–Drive



13. Arrange the retaining plate so that the toothless area is in line with the lubrication hole in the rear clutch drum.
14. Install the retaining plate into the rear clutch drum, with the step of the retaining plate facing upward.
15. Install the snap ring.

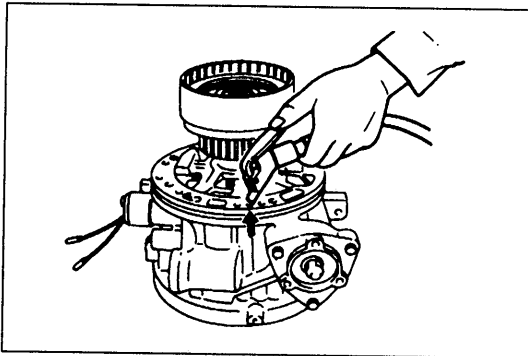


16. Measure the clearance between the retaining plate and snap ring with a feeler gauge. If not within specification, adjust the clearance by installing the correct retaining plate.

Clearance: 0.8—1.0 mm { 0.032—0.039 in }

Retaining plate size

			mm { in }
9.4 { 0.370 }	9.6 { 0.378 }	9.8 { 0.386 }	
10.0 { 0.394 }	10.2 { 0.402 }	10.4 { 0.409 }	
10.6 { 0.417 }	—	—	

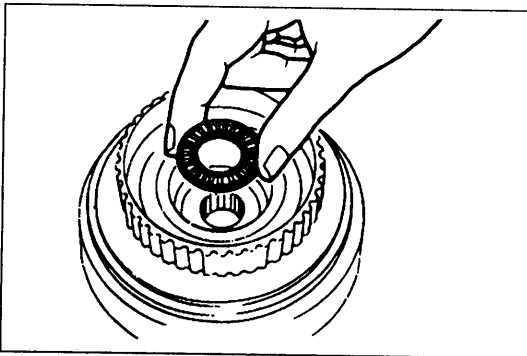


Caution

- Applying compressed air to the assembled clutch pack for longer than 3 seconds at a time will damage the seal.

17. Install the rear clutch onto the drum support along with the seal rings. Apply compressed air through the oil passage and check the clutch operation.

Air pressure: 392 kPa { 4.0 kg/cm² , 57 psi } max.



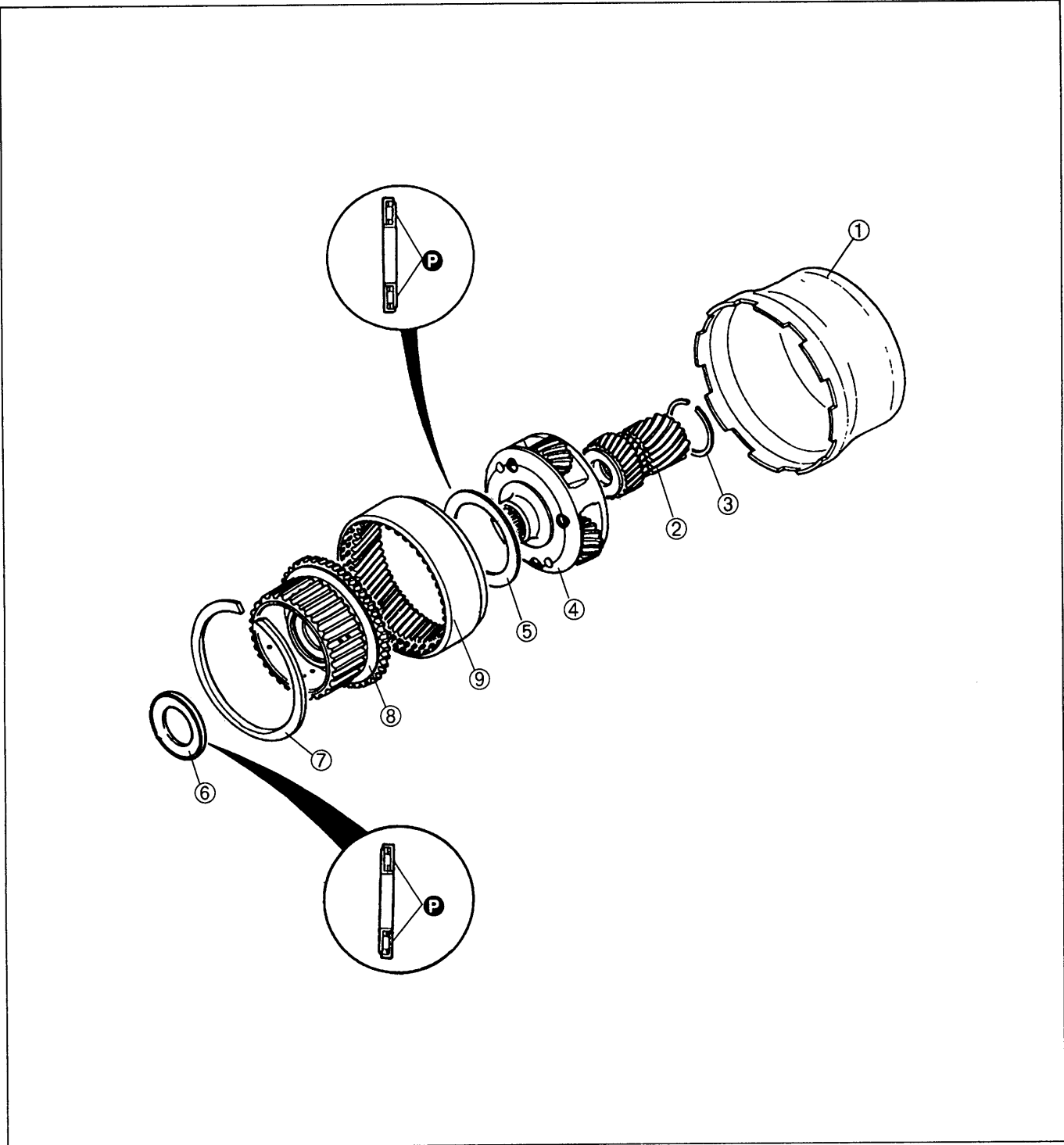
18. Apply petroleum jelly to the bearing, and install it onto the rear clutch drum.

Bearing outer diameter: 35.0 mm { 1.378 in }

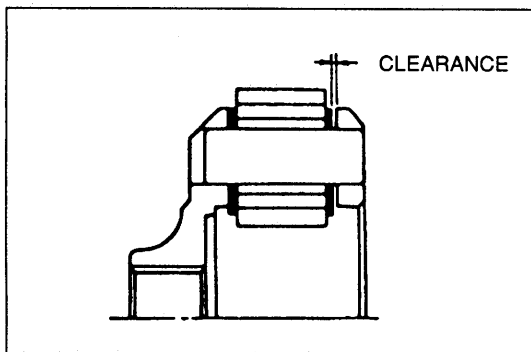
CONNECTING SHELL AND FRONT PLANETARY GEAR UNIT (REAR CLUTCH HUB, FRONT PLANETARY PINION CARRIER, REAR SUN GEAR)

Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure.
2. Inspect all parts, and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly Procedure**.



- | | |
|-----------------------------------|--------------------|
| 1. Connecting shell | 5. Bearing |
| 2. Front sun gear | 6. Bearing |
| 3. Snap ring | 7. Snap ring |
| 4. Front planetary pinion carrier | 8. Rear clutch hub |
| Inspection page K-97 | 9. Internal gear |

**Inspection****Front planetary pinion carrier**

1. Measure the clearance between the pinion washer and the planetary pinion carrier.

Clearance

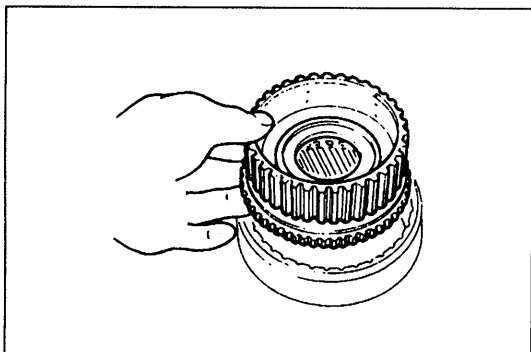
Standard : 0.2—0.7 mm { 0.008—0.027 in }

Maximum : 0.8 mm { 0.031 in }

2. If not within specification, replace the planetary pinion carrier.

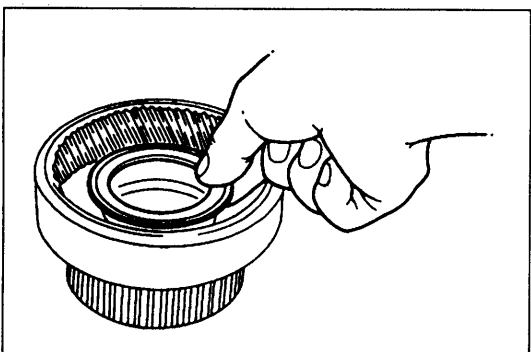
Assembly procedure

1. Apply ATF to the rear clutch hub and internal gear, and assemble them with the snap ring.



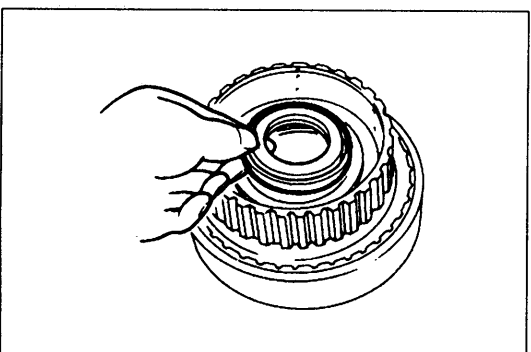
2. Apply petroleum jelly to the bearing, and install it onto the rear clutch hub with the black surface facing upward.

Bearing outer diameter: 70.0 mm { 2.756 in }

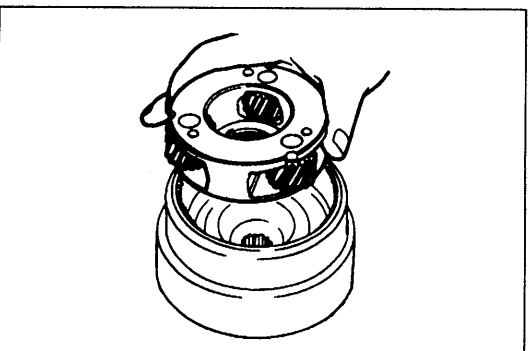


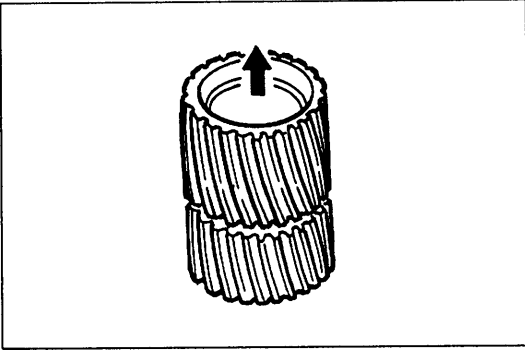
3. Apply petroleum jelly to the bearing, and install it onto the rear clutch hub with the black surface facing upward.

Bearing outer diameter: 53.0 mm { 2.087 in }

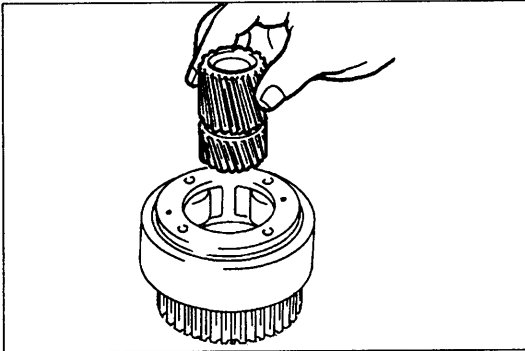


4. Apply ATF to the front planetary pinion carrier, and install it into the internal gear.

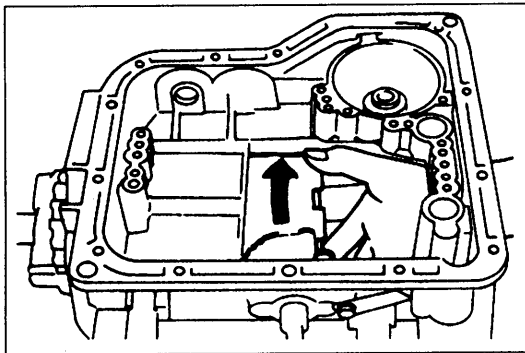




5. Apply ATF to the sun gear, and install it into the front planetary pinion carrier with the groove facing the front (arrow).



6. Apply ATF to the sun gear, and install it into the front planetary pinion carrier.



REAR PLANETARY GEAR UNIT (CONNECTING DRUM, REAR PLANETARY PINION CARRIER, ONE-WAY CLUTCH)

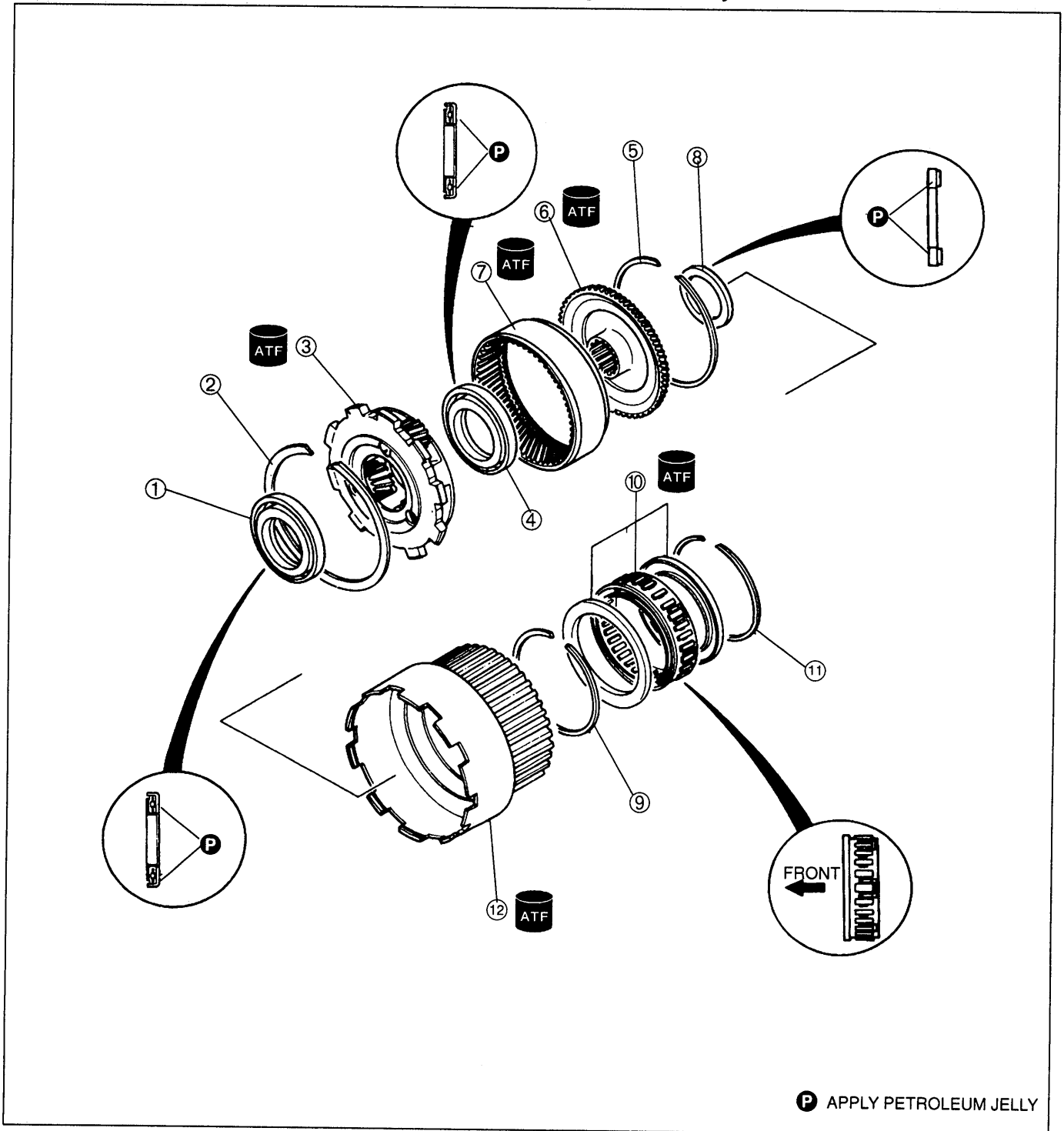
Preinspection

One-way clutch operation

Install the rear planetary gear unit and verify that the rear planetary gear unit rotates smoothly when turned clockwise and locked when turned counterclockwise. If not, replace the one-way clutch.

Disassembly / Inspection / Assembly

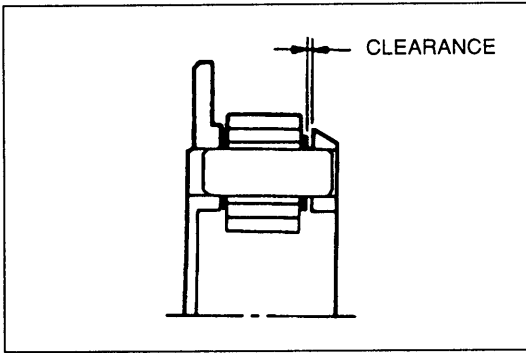
1. Disassemble in the order shown in the figure.
2. Inspect all parts, and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly Procedure**.



P APPLY PETROLEUM JELLY

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Bearing 2. Snap ring 3. Rear planetary pinion carrier 4. Bearing 5. Bearing 6. Snap ring | <ol style="list-style-type: none"> 7. Drive flange 8. Internal gear 9. Snap ring 10. One-way clutch 11. Snap ring 12. Connecting drum |
|--|---|

Inspection page K-100

**Inspection****Rear planetary pinion carrier**

1. Measure the clearance between the pinion washer and the planetary pinion carrier.

Clearance

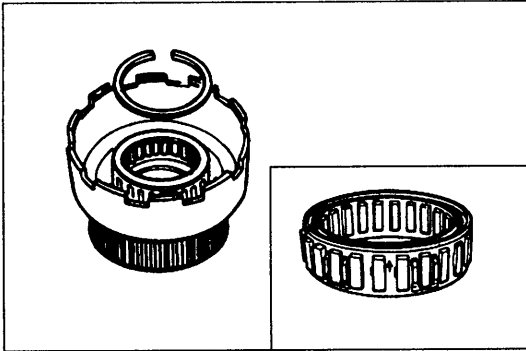
Standard : 0.2—0.7 mm { 0.008—0.027 in }

Maximum : 0.8 mm { 0.031 in }

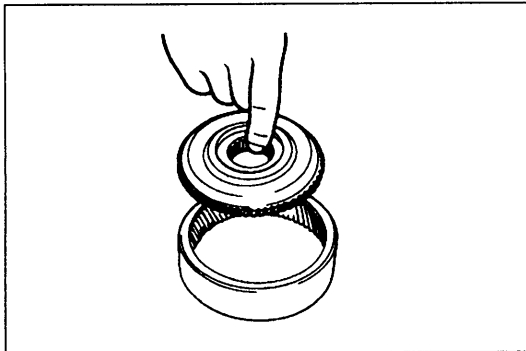
2. If not within specification, replace the planetary pinion carrier.

Assembly procedure

1. Install the snap ring into the connecting drum.
2. Apply ATF to the one-way clutch. Install it into the connecting drum, with the arrow pointing toward the front.

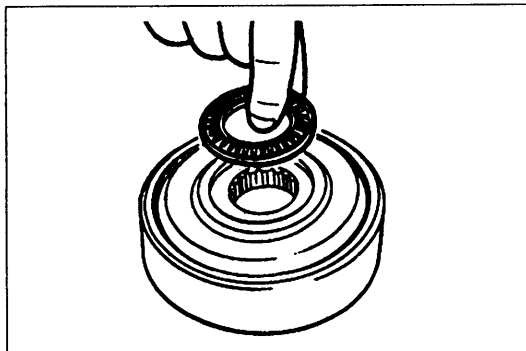


3. Apply ATF to the drive flange and internal gear, and install it into the internal gear.
4. Install the snap ring.



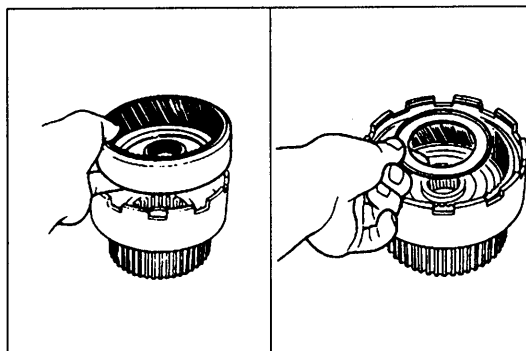
5. Apply petroleum jelly to the bearing, and install it onto the drive flange.

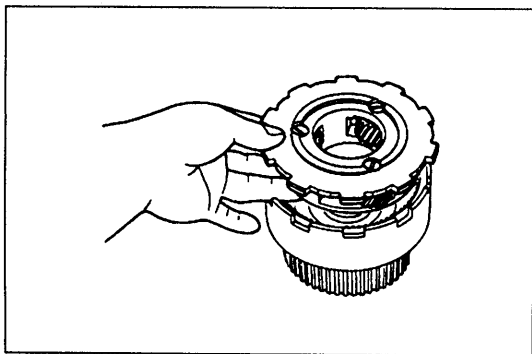
Bearing outer diameter: 47.0 mm { 1.850 in }



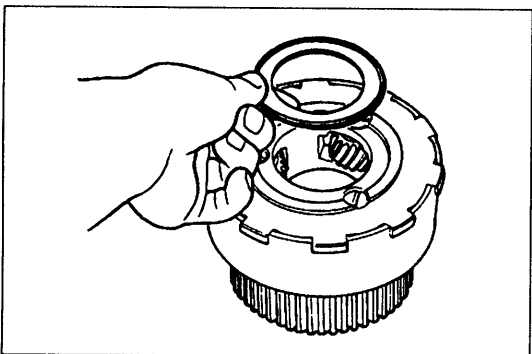
6. Install the internal gear and the drive flange into the connecting drum.
7. Apply petroleum jelly to the bearing, and install it onto the drive flange with the black surface facing upward.

Bearing outer diameter: 70.0 mm { 2.756 in }



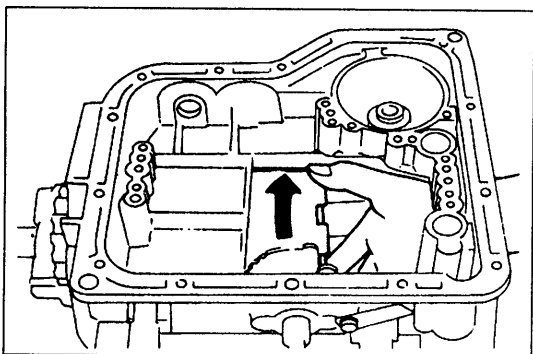


8. Apply ATF to the rear planetary pinion carrier, and install it into the connecting drum.
9. Install the snap ring.



10. Apply petroleum jelly to the bearing, and install it onto the rear planetary pinion carrier with the black surface facing upward.

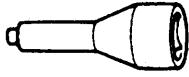
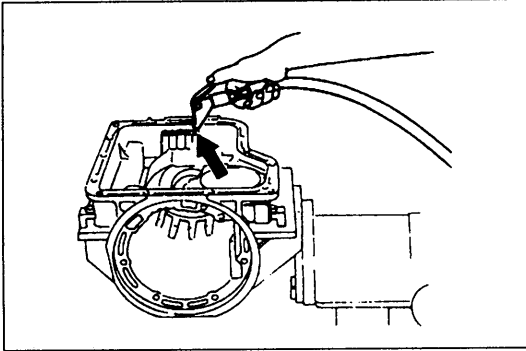
Bearing outer diameter: 70.0 mm { 2.756 in }



11. Insert the rear planetary gear unit into the transmission case, and verify that the one-way clutch turns counter-clockwise. If it does not, then the one-way clutch is installed upside down.

LOW AND REVERSE BRAKE**Preparation****SST**

49 0378 346

Hex head
wrenchFor
removal /
installation of
one-way clutch**Preinspection****Low and reverse brake operation**

1. Apply compressed air through the oil passage as shown.

Air pressure: 392 kPa { 4.0 kg/cm² , 57 psi } max.

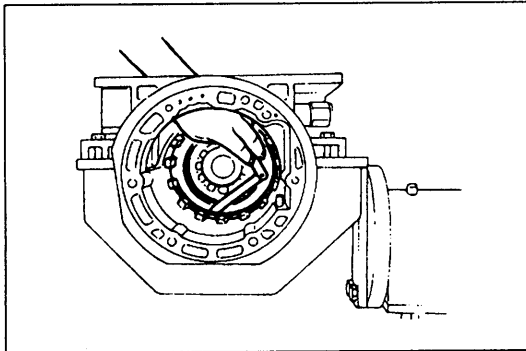
2. Verify that the retaining plate moves toward the snap ring. If not, the seal ring or O-ring may be damaged or fluid may be leaking at the piston check ball. Inspect them, and replace as necessary when assembling.

Clearance between retaining plate and snap ring

1. Measure the clearance between the retaining plate and the snap ring.

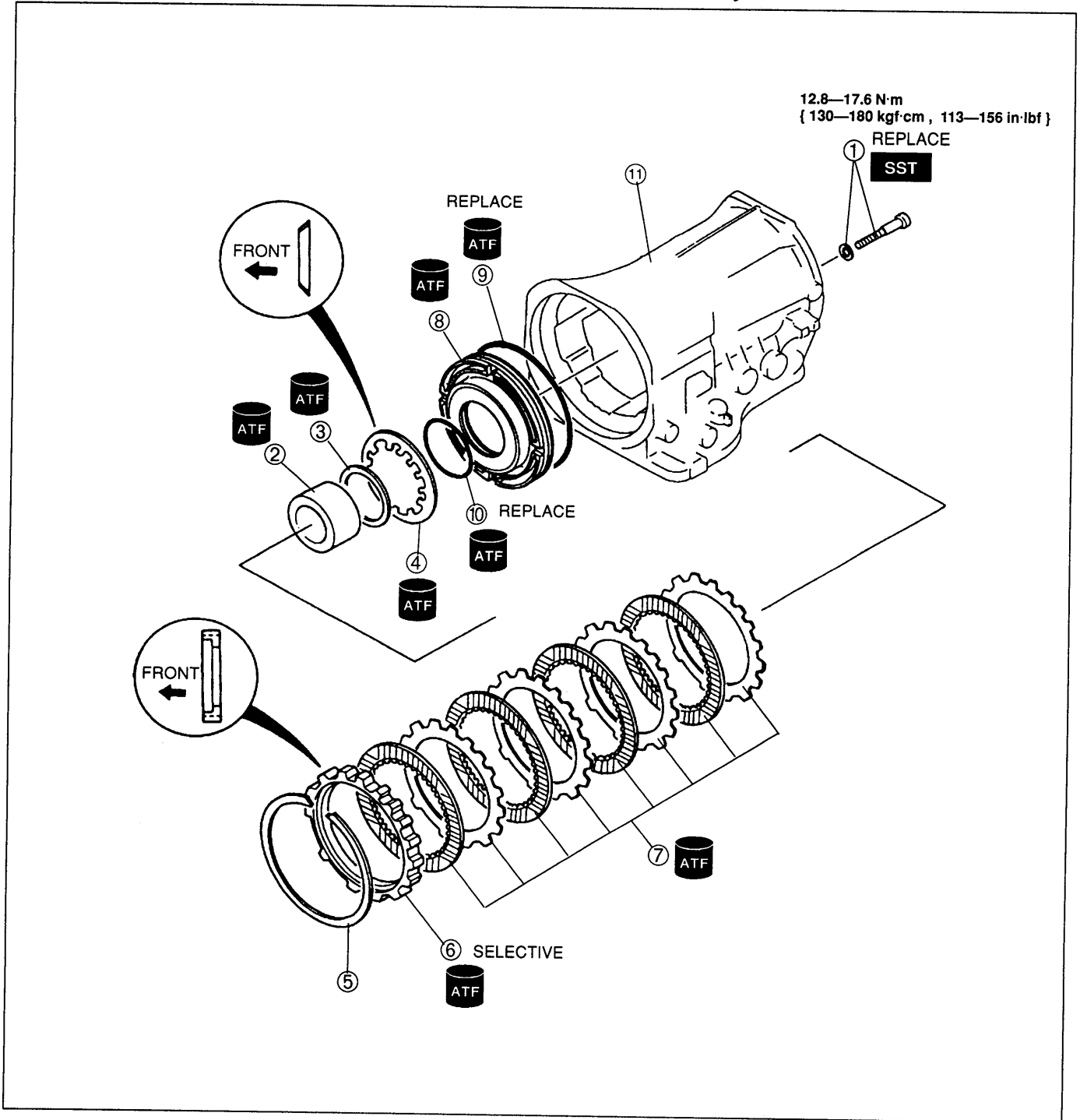
Clearance: 0.8—1.05 mm { 0.032—0.041 in }

2. Select and install the correct retaining plate when assembling.

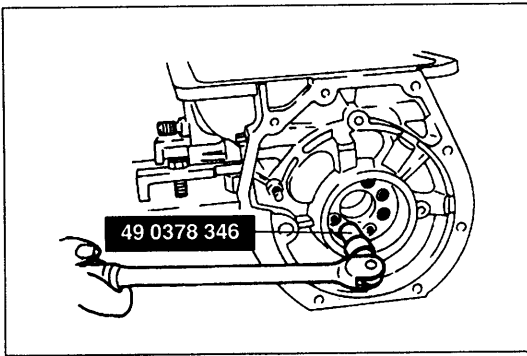


Disassembly / Inspection / Assembly

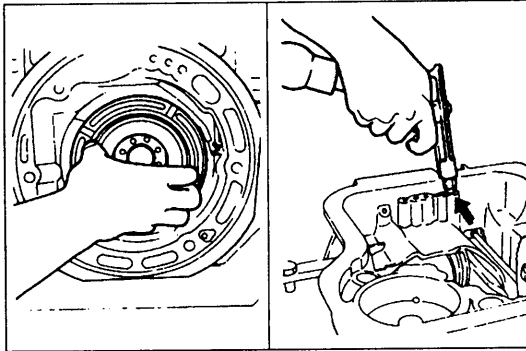
1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts, and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly Procedure**.



- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Allen-head bolts and dished washers 2. One-way clutch inner race
Disassembly note page K-104 3. Thrust washer 4. Return spring
Inspection page K-104 5. Snap ring 6. Retaining plate | <ol style="list-style-type: none"> 7. Drive plates and driven plates
Inspection page K-104 8. Low and reverse brake piston
Disassembly note page K-104
Inspection page K-104 9. Seal ring 10. O-ring 11. Transmission case |
|--|---|

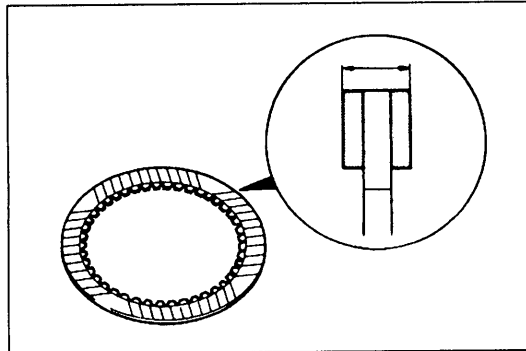
**Disassembly note****One-way clutch inner race**

1. Remove the allen-head bolts from the rear of the transmission case by using the **SST**.
2. Remove the one-way clutch inner race, thrust washer, and piston return spring.

**Low and reverse brake piston**

Remove the piston by applying compressed air through the oil passage.

Air pressure: 392 kPa { 4.0 kg/cm² , 57 psi } max.

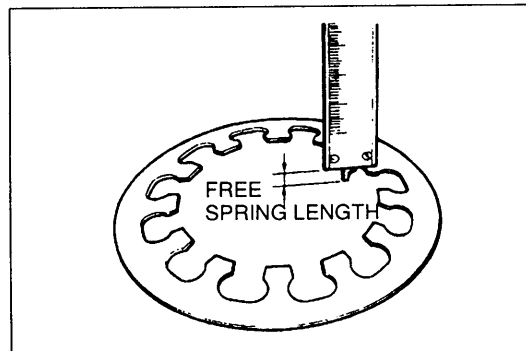
**Inspection****Drive plate**

1. Measure the facing thickness in three places, and determine the average of the three readings.

Standard thickness: 2.0 mm { 0.079 in }

Minimum thickness: 1.8 mm { 0.071 in }

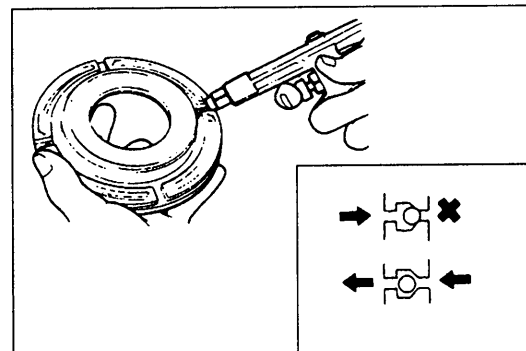
2. If not within specification, replace the drive plates.

**Return spring**

1. Measure the return spring free length.

Spring free length: 5.9—6.2 mm { 0.233—0.244 in }

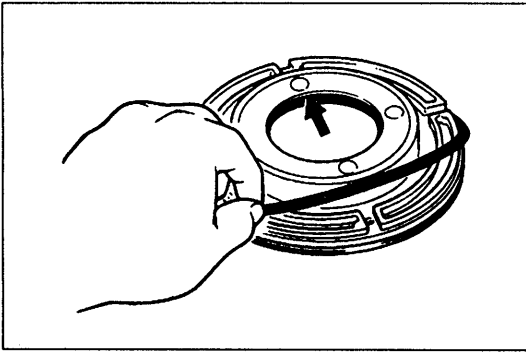
2. If not within specification, replace the return spring.

**Clutch piston**

1. Verify that there is no air leakage when applying compressed air through the oil hole opposite the return spring.
2. Verify that there is airflow when applying compressed air through the oil hole on the return spring side.

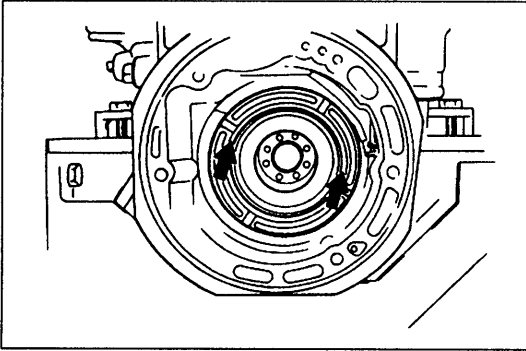
Air pressure: 392 kPa { 4.0 kg/cm² , 57 psi } max.

3. If not correct, replace the clutch piston.

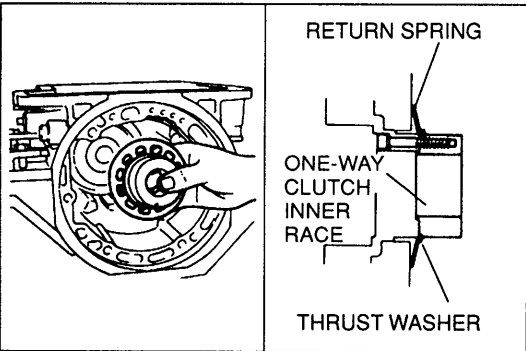


Assembly procedure

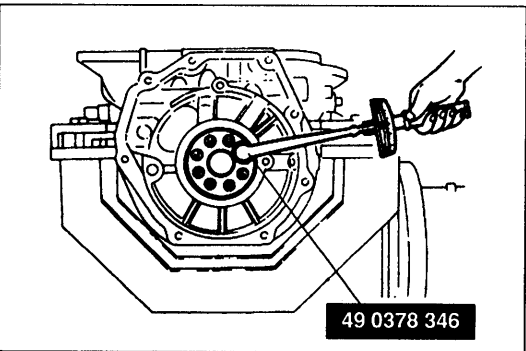
1. Apply ATF to a new O-ring and install it onto the piston.
2. Apply ATF to a new seal ring and install it onto the piston.



3. Apply even pressure to the perimeter of the low and reverse brake piston, and install it into the transmission case.
4. Verify that the piston can be turned by hand. If it cannot, then remove it and check for damage to the seal ring and O-ring.

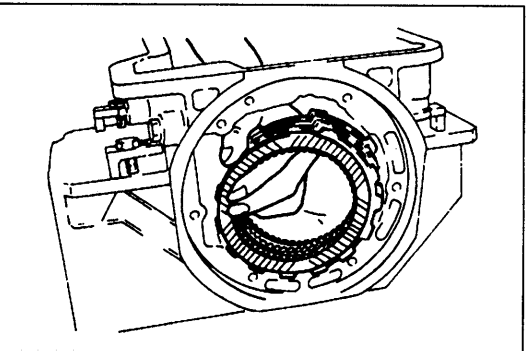


5. Apply ATF to the one-way clutch inner race, thrust washer, and return spring.
6. Assemble the one-way clutch inner race, thrust washer, and return spring, and install them in the transmission case.
7. Verify that the return spring, thrust washer, and rings are properly positioned before securing the bolts.



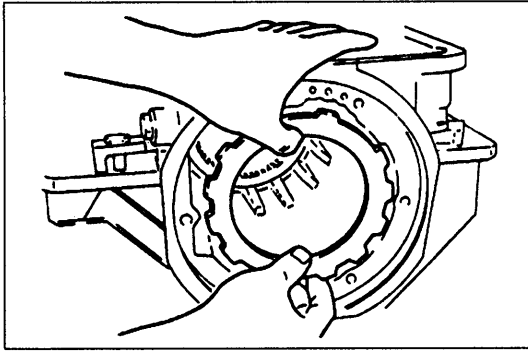
8. Tighten the allen head bolts by using the **SST**.

Tightening torque: 12.8—17.6 N·m
 { 130—180 kgf·cm , 113—156 in·lbf }

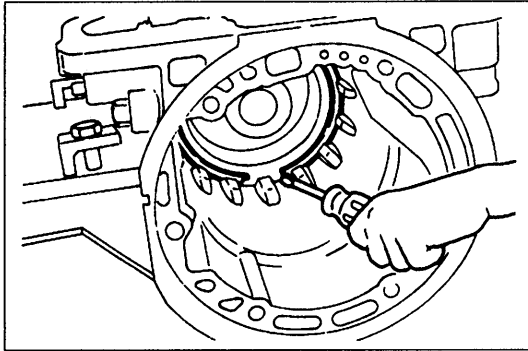


9. Soak new drive plates in ATF for at least two hours.
10. Apply ATF to the driven plates immediately before assembly.
11. Install the drive and driven plates into the transmission case in the following order:

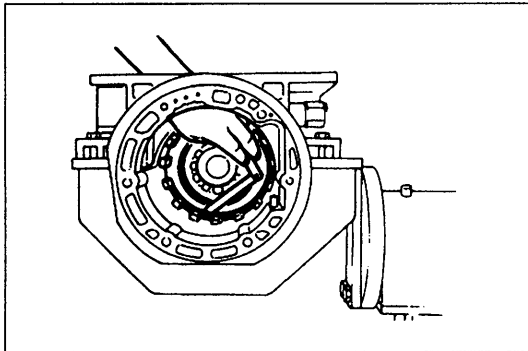
Driven—Drive—Driven—Drive—Driven—Drive—Driven—Drive



12. Install the retaining plate .



13. Install the snap ring with a screwdriver.



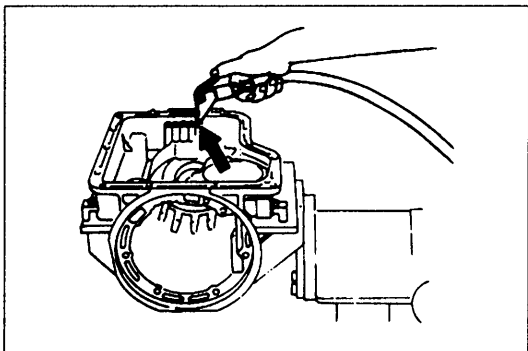
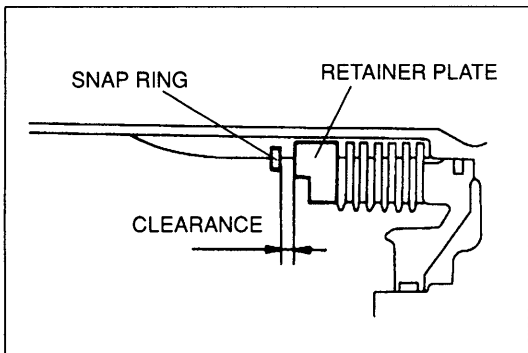
14. Measure the clearance between the snap ring and the retaining plate with a feeler gauge. If not within specification, adjust the clearance by installing the proper retaining plate.

Clearance: 0.8—1.05 mm { 0.032—0.041 in }

Retaining plate size

mm { in }

11.8 { 0.465 }	12.0 { 0.472 }	12.2 { 0.480 }
12.4 { 0.488 }	12.6 { 0.496 }	12.8 { 0.504 }



Caution

- Applying compressed air to the assembled clutch pack for longer than 3 seconds at a time will damage the seal.

15. Check operation of the piston by applying compressed air through the oil passage of the low and reverse brake.

Air pressure: 392 kPa { 4.0 kg/cm² , 57 psi } max.

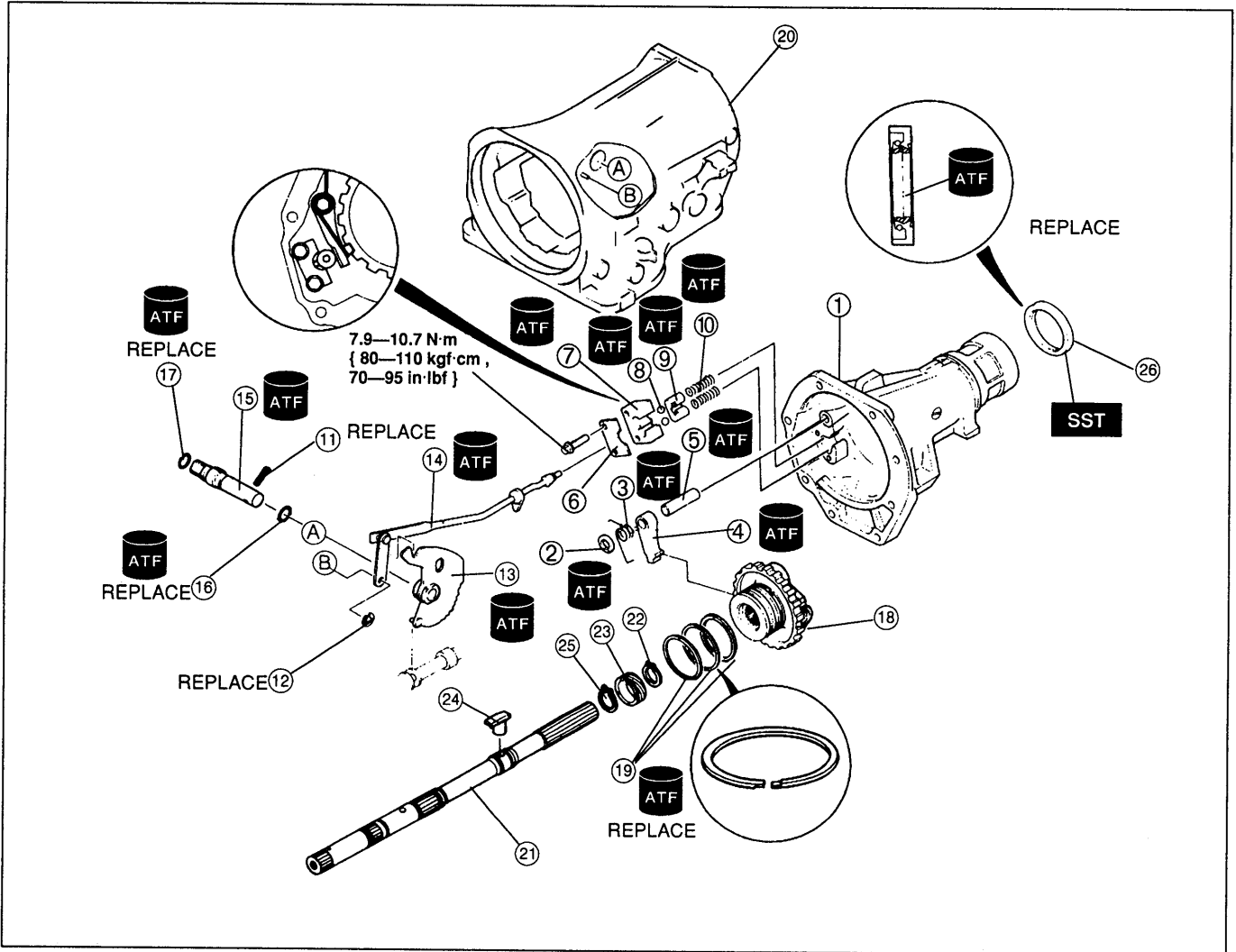
EXTENSION HOUSING AND PARKING MECHANISM

Disassembly / Inspection / Assembly

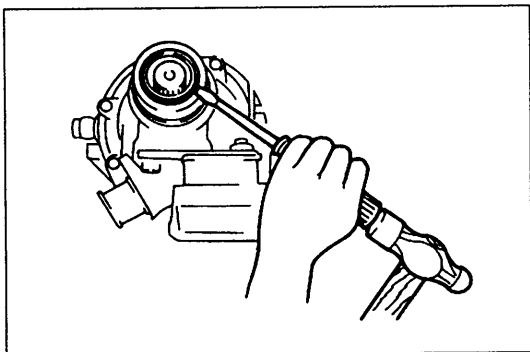
Note

- The oil seal does not have to be removed unless it is being replaced.

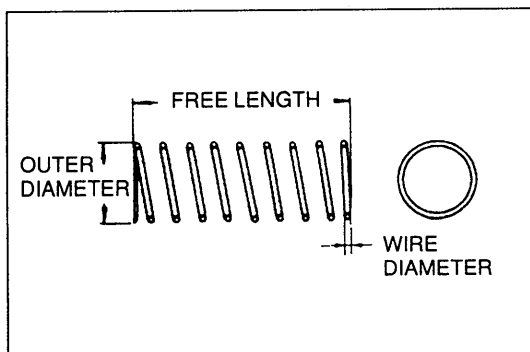
1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts, and repair or replace if necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly Procedure**.



- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Extension housing 2. Dowel spacer 3. Return spring 4. Parking pawl 5. Pawl shaft 6. Retainer plate 7. Actuator support 8. Steel ball 9. Retainer 10. Spring
Inspection page K-108 11. Spring pin 12. Retaining ring 13. Manual plate 14. Parking rod | <ol style="list-style-type: none"> 15. Manual shaft 16. O-ring 17. O-ring 18. Oil distributor
Inspection page K-108 19. Seal rings 20. Transmission case 21. Output shaft 22. Snap ring 23. Speedometer drive gear 24. Key 25. Snap ring 26. Oil seal
Disassembly note page K-108 |
|--|---|

**Disassembly note****Oil seal**

Remove the oil seal with a screwdriver.

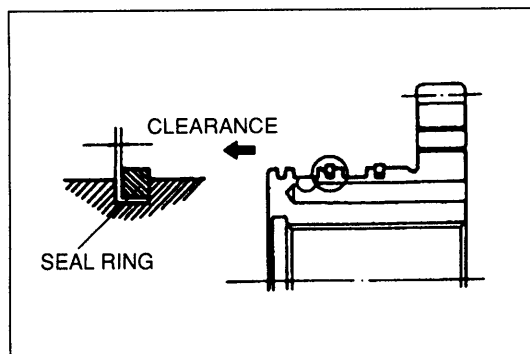
**Inspection****Spring**

1. Measure the spring specifications.

Specifications

Outer dia. mm { in }	Free length mm { in }	No. of coils	Wire dia. mm { in }
7.2 { 0.283 }	32.0 { 1.260 }	14.0	0.7 { 0.028 }

2. If not within specification, replace the spring.

**Oil distributor**

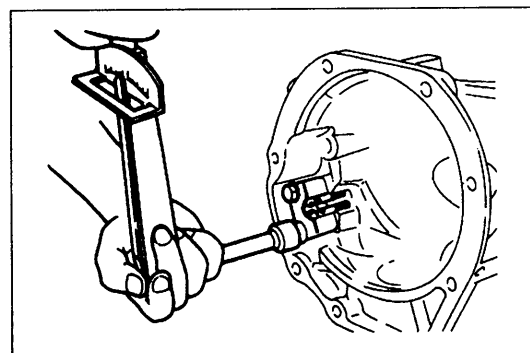
1. Measure the clearance between the seal rings and the grooves.

Clearance

Standard: 0.04—0.16 mm { 0.002—0.006 in }

Maximum: 0.40 mm { 0.016 in }

2. If not within specification, replace the oil distributor.

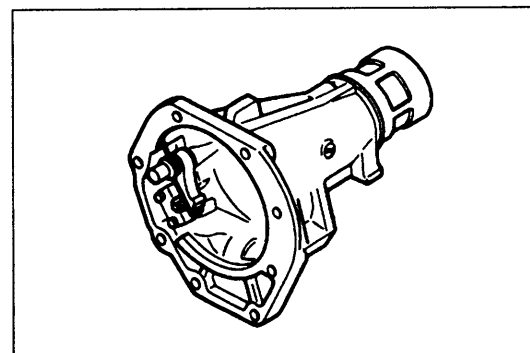
**Assembly procedure**

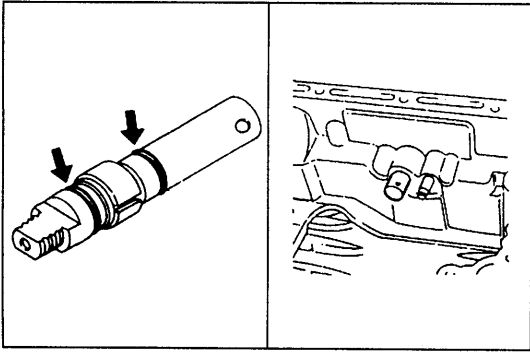
1. Apply ATF to a new oil seal, and install it into the extension housing.
2. Apply ATF to the springs and retainer and install them into the extension housing.
3. Apply ATF to the steel balls and actuator support and install them into the extension housing.
4. Apply ATF to the retainer plate, and install it into the extension housing.

Tightening torque:

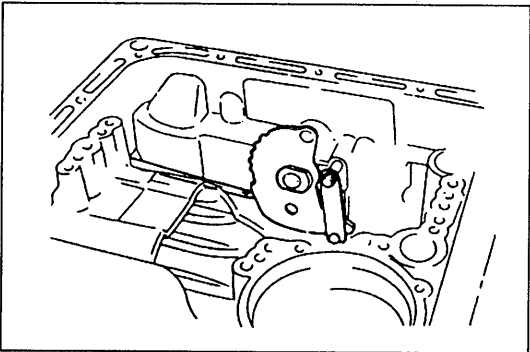
7.9—10.7 N·m { 80—110kgf·cm , 70—95 in·lbf }

5. Apply ATF to the pawl shaft, and install it into the extension housing.
6. Apply ATF to the parking pawl and return spring, and install it into the extension housing.
7. Apply ATF to the dowel spacer, and install it into the extension housing.

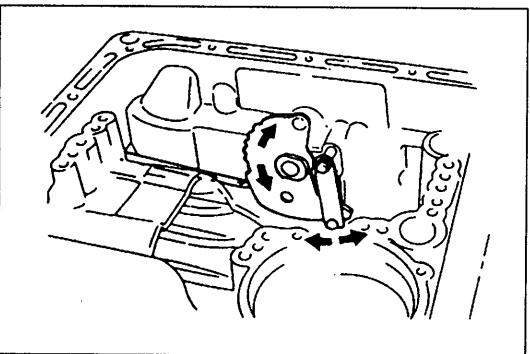




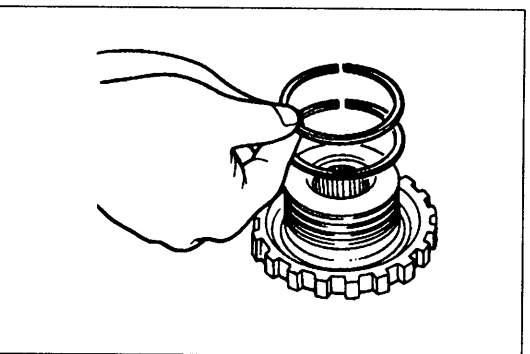
8. Apply ATF to the new O-rings, and install them onto the manual shaft.
9. Apply ATF to the manual shaft, and install it into the transmission case.



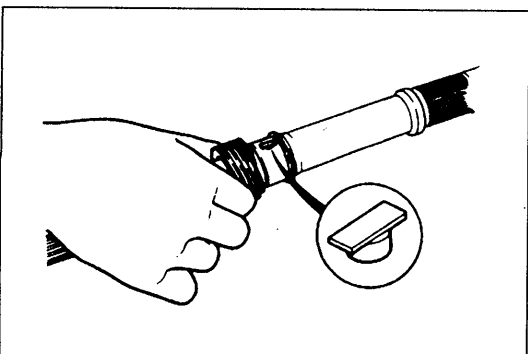
10. Install the parking rod and retaining ring.
11. Apply ATF to the manual plate, and install it onto the manual shaft.
12. Drive the spring pin.



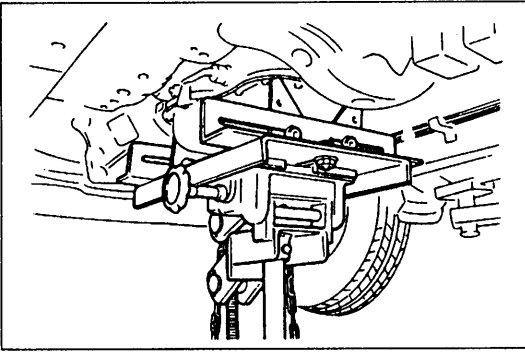
13. Check the parking mechanism operation.



14. Apply ATF to the new seal rings, and install them onto the oil distributor.

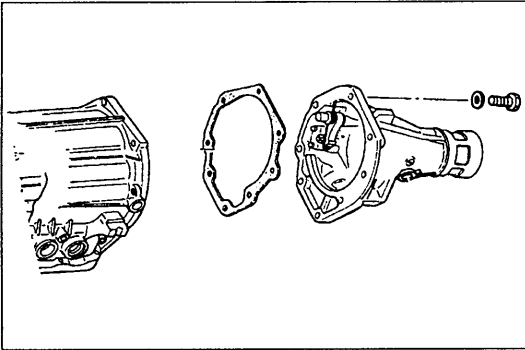


15. Install the snap ring, key, and speedometer drive gear onto the output shaft.
16. Secure the speedometer drive gear with the snap ring.



On-vehicle Removal

1. Disconnect the negative battery cable.
 2. On level ground, jack up the vehicle and support it evenly on safety stands.
 3. Remove the exhaust pipe. (Refer to page K-46.)
 4. Remove the propeller shaft. (Refer to section L.)
 5. Disconnect the speedometer cable.
 6. Support the transmission with a transmission jack.
 7. Remove the power plant frame. (Refer to page K-46.)
8. Remove the extension housing and gasket, making sure to allow any ATF to drain into a container.



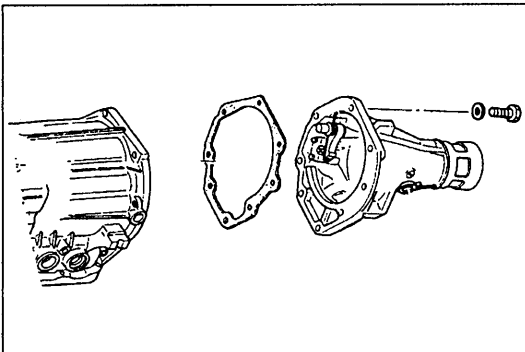
On-vehicle Installation

1. Install a new gasket on the transmission case.
2. Install the extension housing.

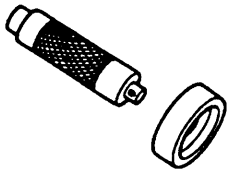
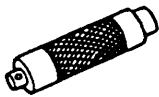
Tightening torque:

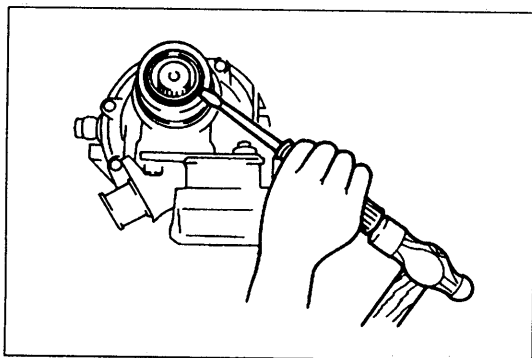
20—24 N·m { 2.0—2.5 kgf·m , 15—18 ft·lbf }

3. Install the power plant frame. (Refer to page K-148.)
4. Connect the speedometer cable.
5. Install the propeller shaft. (Refer to section L.)
6. Install the exhaust pipe. (Refer to page K-148.)
7. Add ATF, and check the ATF level. (Refer to page K-35.)



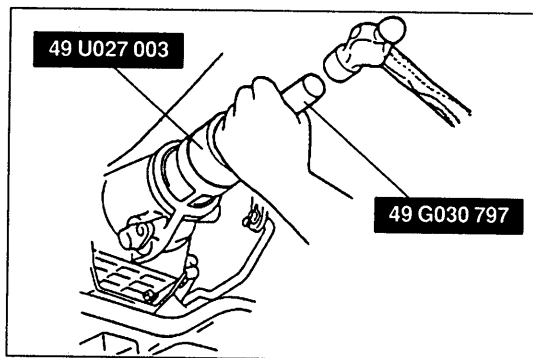
**OIL SEAL
Preparation
SST**

<p>49 G030 795 Installer, oil seal</p> 	<p>For installation of oil seal</p>	<p>49 G030 797 Handle (Part of 49 G030 795)</p> 	<p>For installation of oil seal</p>
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Inspection

Check for damage, wear, or oil leaking from the oil seal. Replace if necessary.



On-vehicle Replacement

1. Remove the exhaust pipe. (Refer to page K-46.)
2. Remove the propeller shaft. (Refer to section L.)
3. Remove the oil seal from the extension housing.
4. Apply ATF to outer periphery and lip surface.
5. Install the new oil seal by using the **SST**.
6. Install the propeller shaft. (Refer to section L.)
7. Install the exhaust pipe. (Refer to page K-148.)

CONTROL VALVE BODY Disassembly / Inspection

Caution

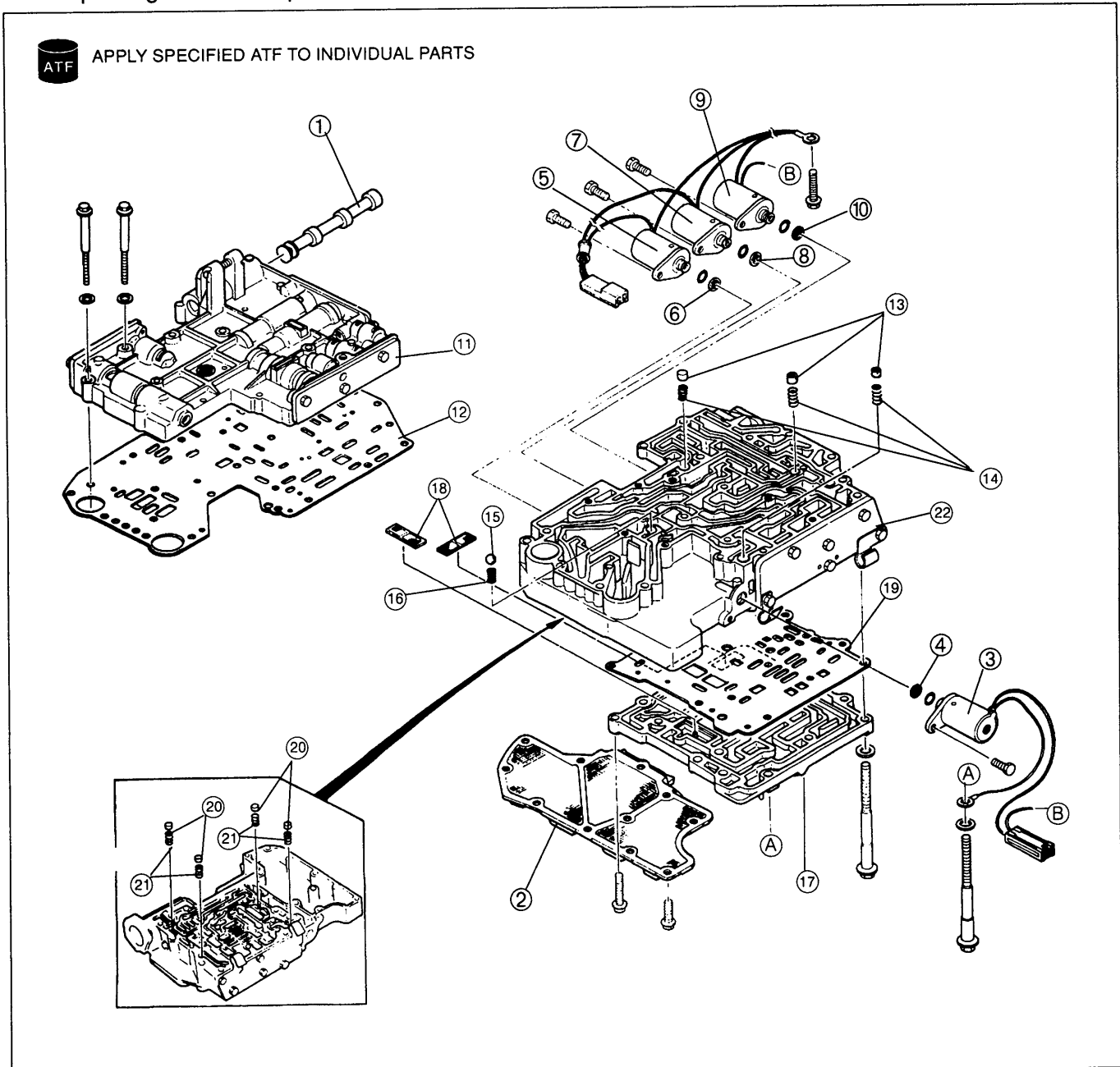
- Denting or scratching these components will reduce the ability of the transaxle to shift properly. When handling these components or the valve body that contains them, be careful not to drop or hit them.

1. Disassemble in the order shown in the figure, referring to **Disassembly Procedure**.
2. Neatly arrange the removed parts to avoid confusing similar parts.
3. Inspect all parts and repair or replace as necessary.

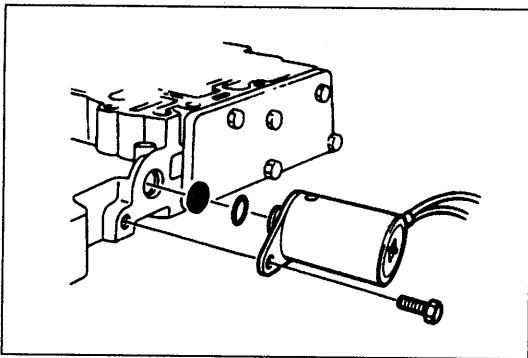
Warning

- Using compressed air can cause dirt and other particles to fly out, causing injury to the eyes. Wear protective eye wear whenever using compressed air.

4. Clean the removed parts with cleaning solvent, and dry them with compressed air. Clean out all holes and passages with compressed air.

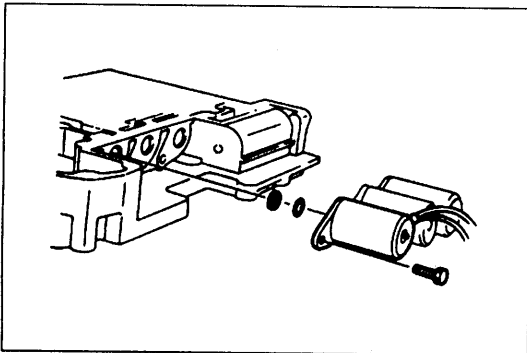


1. Manual valve	
2. Oil strainer	
3. 3-2 control solenoid valve	
Inspection	page K- 42
4. Oil strainer	
5. shift solenoid A	
Inspection	page K- 42
6. Oil strainer	
7. shift solenoid B	
Inspection	page K- 42
8. Oil strainer	
9. shift solenoid C	
Inspection	page K- 42
10. Oil strainer	
11. Upper valve body	
Disassembly / Inspection /	
Assembly	page K-116
12. Separator plate	
13. Orifice check valve	
14. Orifice check spring	
Inspection	page K-115
15. Throttle relief ball	
16. Throttle relief spring	
Inspection	page K-115
17. Valve body cover	
18. Inner strainer	
19. Separator plate	
20. Orifice check valve	
21. Orifice shock spring	
Inspection	page K-115
22. Lower valve body	
Disassembly / Inspection /	
Assembly	page K-120

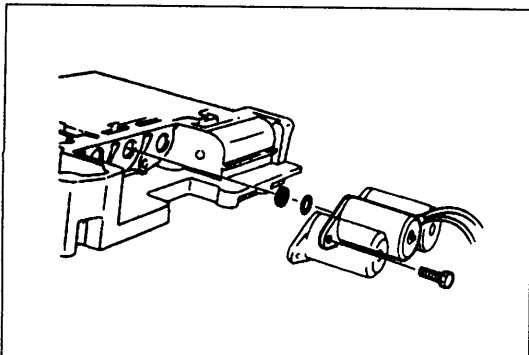


Disassembly procedure

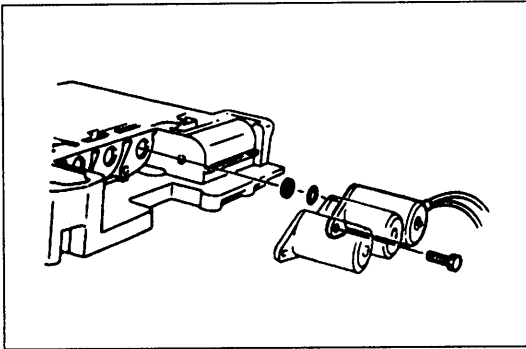
1. Remove the 3-2 control solenoid valve.
2. Remove the oil strainer and O-ring.



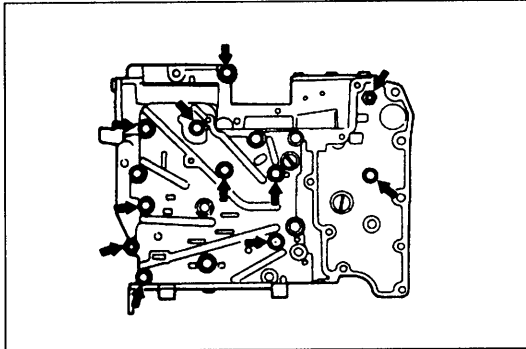
3. Remove the shift solenoid A.
4. Remove the oil strainer and O-ring.



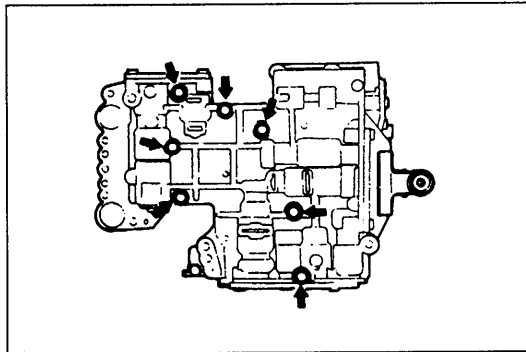
5. Remove the shift solenoid B.
6. Remove the oil strainer and O-ring.



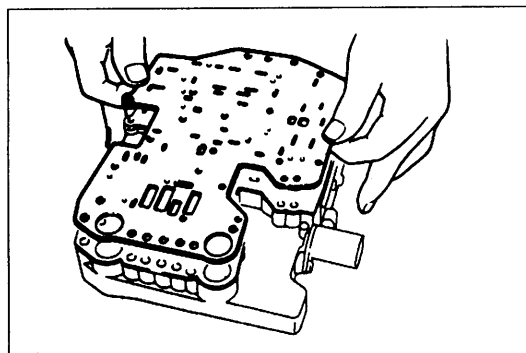
7. Remove the shift solenoid C.
8. Remove the oil strainer and O-ring.



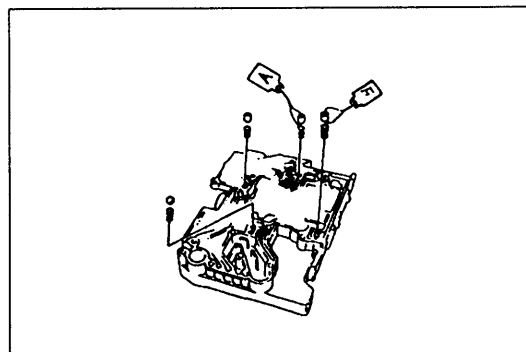
9. Remove the bolts and nuts shown in the figure.



10. Hold the lower valve body and separator plate together with a large clip.
11. Remove the upper valve body.



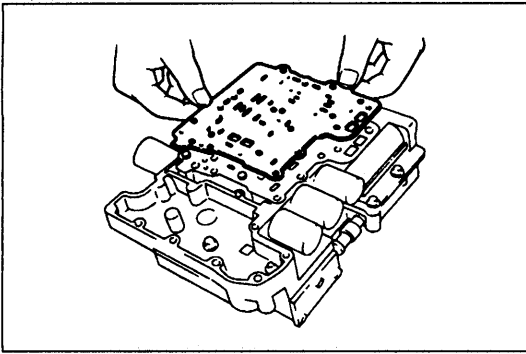
12. Remove the clip.
13. Gently remove the separator plate.



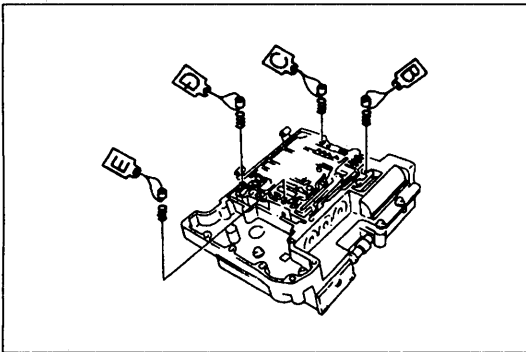
Note

- Tag the orifice check valves for proper reassembly.

14. Remove the orifice check valves, throttle relief ball, and springs.



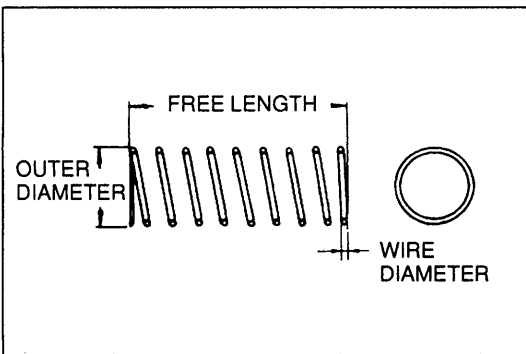
15. Gently remove the separator plate.



Note

- Tag the orifice check valves for proper reassembly.

16. Remove the orifice check valves and springs.



Inspection

1. Measure the spring specifications.
2. If not within specification, replace the spring(s).

Spring	Item	Outer dia. mm { in }	Free length mm { in }	No. of coils	Wire dia. mm { in }
	Orifice check	5.0 { 0.197 }	15.5 { 0.610 }	12.0	0.23 { 0.009 }
	Throttle relief	6.5 { 0.256 }	26.8 { 1.055 }	14.0	0.9 { 0.035 }

UPPER VALVE BODY

Disassembly / Inspection / Assembly

Caution

- Denting or scratching these precisely machined components will reduce the ability of the transaxle to shift properly. When handling these components or the valve body that contains them, be careful not to drop or hit them.
- Using a magnet in this procedure could magnetize the valve body inner components, reducing the ability of the transmission to shift properly.

Note

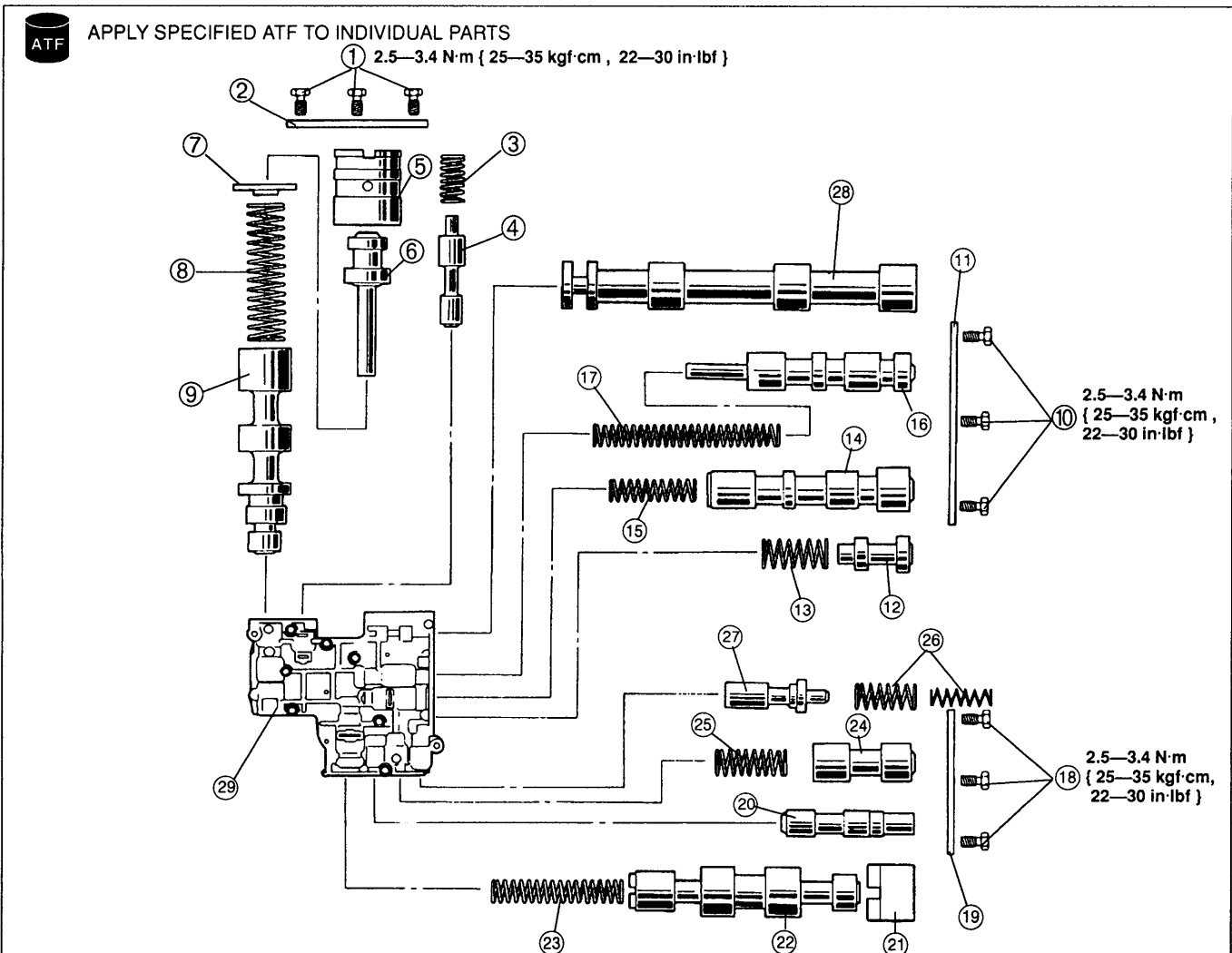
- If a valve does not slide out under its own weight, place the valve body open-side down and tap on the valve body lightly with a plastic hammer.

1. Disassemble in the order shown in the figure, noting the proper reassembly direction of the valves and internal parts.
2. Inspect all parts and repair or replace as necessary.

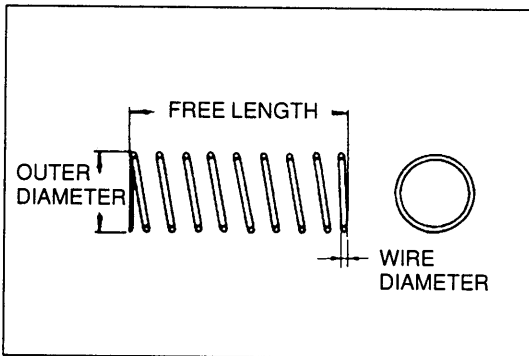
Warning

- Using compressed air can cause dirt and other particles to fly out, causing injury to the eyes. Wear protective eye wear whenever using compressed air

3. Clean all parts and bores with compressed air and apply ATF to them immediately before assembly.
4. Assemble in the reverse order of disassembly, referring to **Assembly Procedure**.



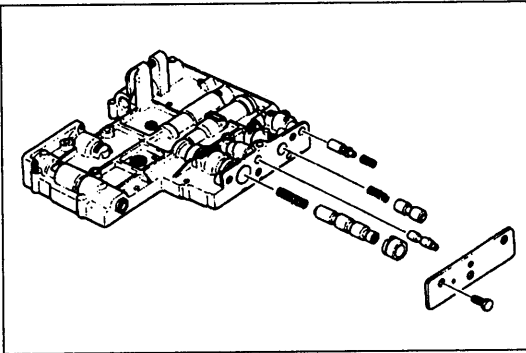
- | | | | |
|------------------------------|------------|----------------------------|------------|
| 1. Bolts | | 16. 2-3 shift valve | |
| 2. Side plate | | 17. 2-3 shift spring | |
| 3. N-R reducing spring | | Inspection | page K-117 |
| Inspection | page K-117 | 18. Bolts | |
| 4. N-R reducing valve | | 19. Side plate | |
| 5. Pressure regulator sleeve | | 20. Vacuum throttle valve | |
| 6. Pressure regulator plug | | 21. 3-4 shift sleeve | |
| 7. Spring seat | | 22. 3-4 shift valve | |
| 8. Pressure regulator spring | | 23. 3-4 shift spring | |
| Inspection | page K-117 | Inspection | page K-117 |
| 9. Pressure regulator valve | | 24. Backup control valve | |
| 10. Bolts | | 25. Backup control spring | |
| 11. Side plate | | Inspection | page K-117 |
| 12. Pressure modifier valve | | 26. Throttle backup spring | |
| 13. Pressure modifier spring | | Inspection | page K-117 |
| Inspection | page K-117 | 27. Throttle backup valve | |
| 14. 1-2 shift valve | | 28. Manual valve | |
| 15. 1-2 shift spring | | 29. Upper valve body | |
| Inspection | page K-117 | | |



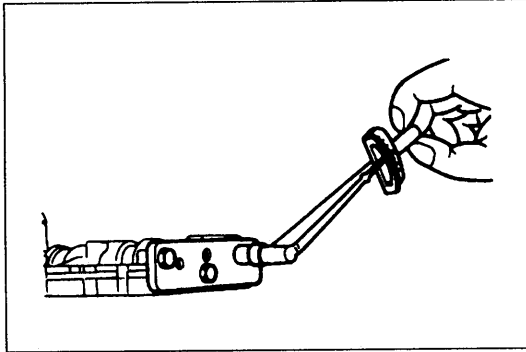
Inspection

1. Measure the spring specifications.
2. If not within specification, replace the spring(s).

Spring	Item	Outer dia. mm { in }	Free length mm { in }	No. of coils	Wire dia. mm { in }
Pressure regulator		11.7 { 0.461 }	43.0 { 1.693 }	13.0	1.2 { 0.047 }
1-2 shift		7.4 { 0.291 }	26.4 { 1.039 }	9.6	0.7 { 0.028 }
2-3 shift		10.0 { 0.394 }	50.0 { 1.969 }	13.7	1.0 { 0.039 }
3-4 shift		7.5 { 0.295 }	40.2 { 1.583 }	15.0	0.8 { 0.031 }
Pressure modifier		9.2 { 0.362 }	19.8 { 0.780 }	5.3	0.7 { 0.028 }
Throttle backup		9.0 { 0.354 }	17.5 { 0.689 }	5.2	0.9 { 0.035 }
N-R reducing		7.4 { 0.291 }	14.5 { 0.571 }	5.0	0.6 { 0.024 }
Backup control		8.5 { 0.335 }	21.3 { 0.839 }	7.3	0.9 { 0.035 }

**Assembly procedure**

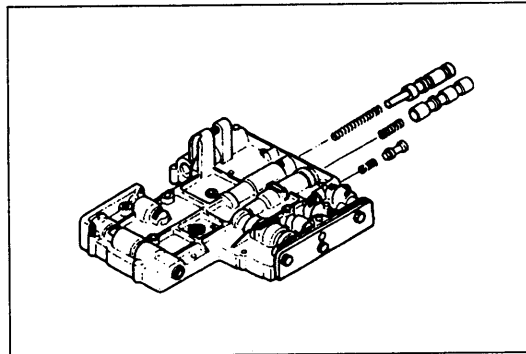
1. Insert the throttle backup valve and spring.
2. Insert the backup control spring and valve.
3. Insert the 3-4 shift spring, valve, and sleeve.
4. Insert the vacuum throttle valve.
5. Install the side plate so that it does not contact the vacuum throttle valve.



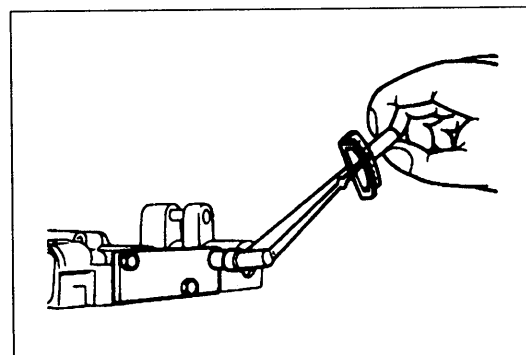
6. Tighten the installation bolts.

Tightening torque:

2.5—3.4 N·m { 25—35 kgf·cm , 22—30 in·lbf }



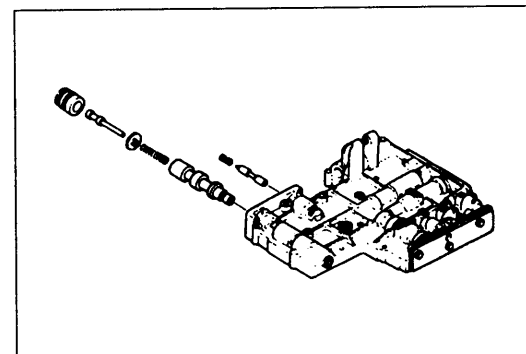
7. Insert the 2-3 shift spring and valve.
8. Insert the 1-2 shift spring and valve.
9. Insert the pressure modifier spring and valve.



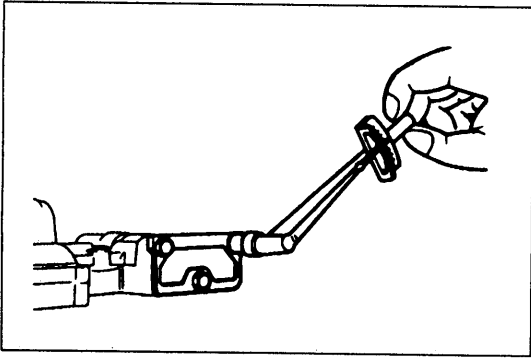
10. Install the side plate.
11. Tighten the installation bolts.

Tightening torque:

2.5—3.4 N·m { 25—35 kgf·cm , 22—30 in·lbf }



12. Insert the pressure regulator valve, spring, spring seat, plug, and sleeve.
13. Insert the N-R reducing valve and spring.



14. Install the side plate.
15. Tighten the installation bolts.

Tightening torque:

2.5—3.4 N·m { 25—35 kgf·cm , 22—30 in·lbf }

LOWER VALVE BODY

Disassembly / Inspection / Assembly

Caution

- Denting or scratching these precisely machined components will reduce the ability of the transaxle to shift properly. When handling these components or the valve body that contains them, be careful not to drop or hit them.
- Using a magnet in this procedure could magnetize the valve body inner components, reducing the ability of the transmission to shift properly.

Note

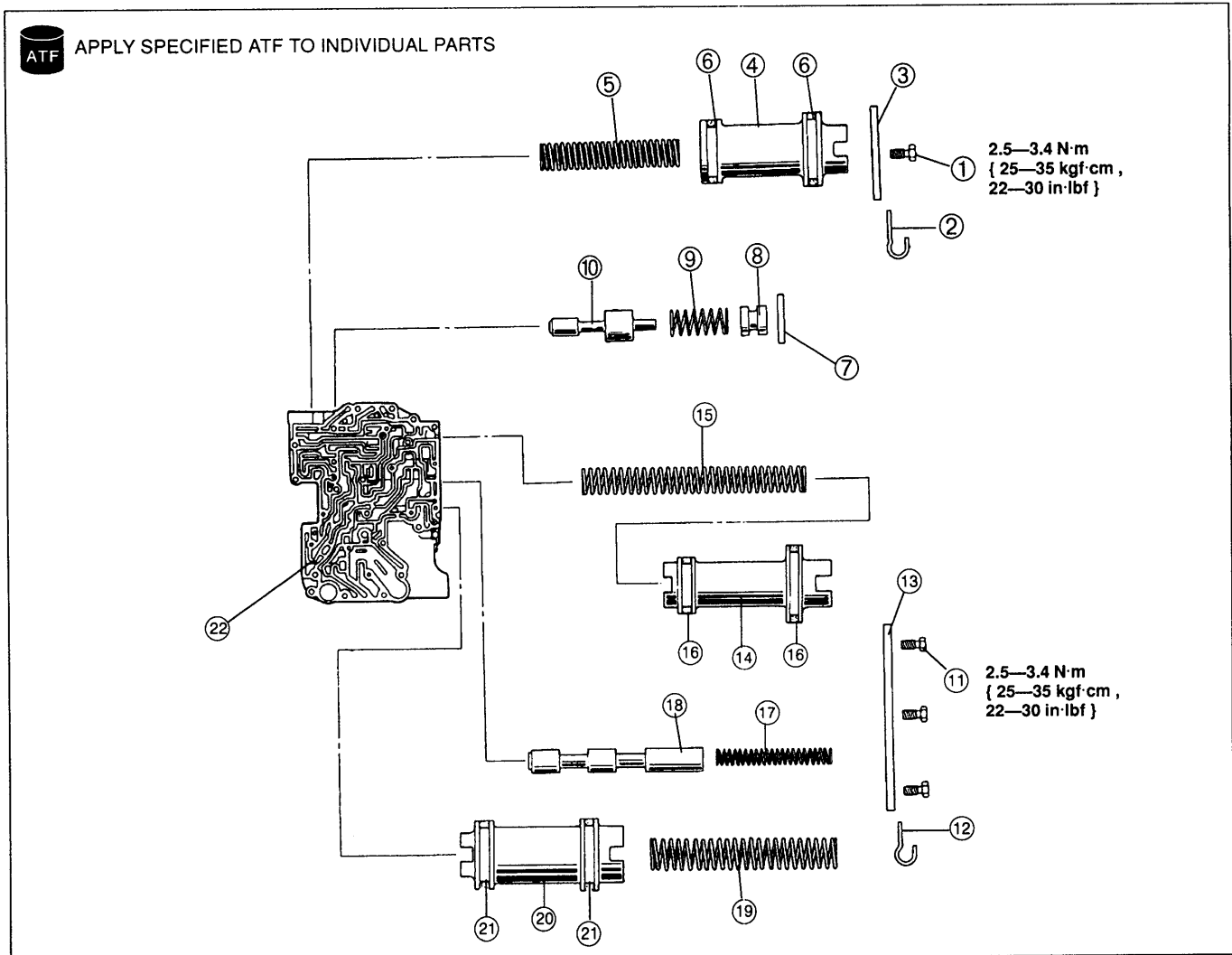
- If a valve does not slide out under its own weight, place the valve body open-side down and tap on the valve body lightly with a plastic hammer.

1. Disassemble in the order shown in the figure, noting the proper reassembly direction of the valves and internal parts.
2. Inspect all parts and repair or replace as necessary.

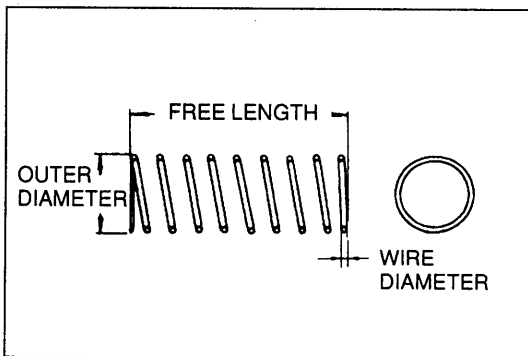
Warning

- Using compressed air can cause dirt and other particles to fly out, causing injury to the eyes. Wear protective eye wear whenever using compressed air.

3. Clean all parts and bores with compressed air and apply ATF to them immediately before assembly.
4. Assemble in the reverse order of disassembly, referring to **Assembly Procedure**.



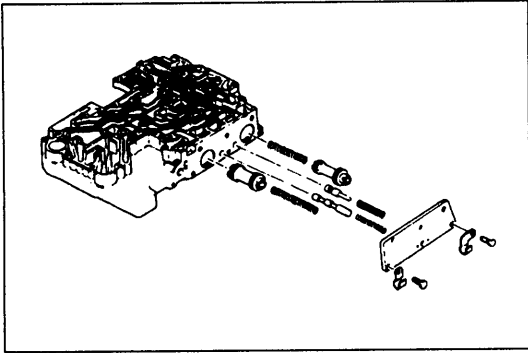
- | | |
|--|---|
| 1. Bolts | 13. Side plate |
| 2. Clip | 14. N-R/2-3 accumulator piston |
| 3. Side plate | 15. N-R/2-3 accumulator spring
Inspection page K-121 |
| 4. N-D accumulator piston | 16. Seal ring |
| 5. N-D accumulator spring
Inspection page K-121 | 17. 3-2 control spring
Inspection page K-121 |
| 6. Seal ring | 18. 3-2 control valve |
| 7. Pin | 19. 1-2 accumulator spring
Inspection page K-121 |
| 8. Stopper plug | 20. 1-2 accumulator piston |
| 9. 1-2 reducing spring
Inspection page K-121 | 21. Seal ring |
| 10. 1-2 reducing valve | 22. Lower valve body |
| 11. Bolts | |
| 12. Clip | |



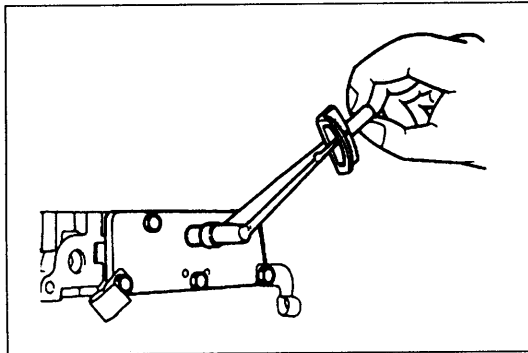
Inspection

1. Measure the spring specifications.
2. If not within specification, replace the spring(s).

Spring	Item	Outer dia. mm { in }	Free length mm { in }	No. of coils	Wire dia. mm { in }
N-R/2-3 accumulator		8.9 { 0.350 }	82.5 { 3.248 }	29.7	1.1 { 0.043 }
N-D accumulator		9.3 { 0.366 }	43.4 { 1.709 }	22.0	1.4 { 0.055 }
1-2 reducing		9.4 { 0.370 }	19.5 { 0.768 }	5.0	0.8 { 0.031 }
3-2 control		5.5 { 0.217 }	39.5 { 1.555 }	22.4	0.65 { 0.026 }
1-2 accumulator		11.2 { 0.441 }	62.0 { 2.441 }	21.3	1.2 { 0.047 }

**Assembly procedure**

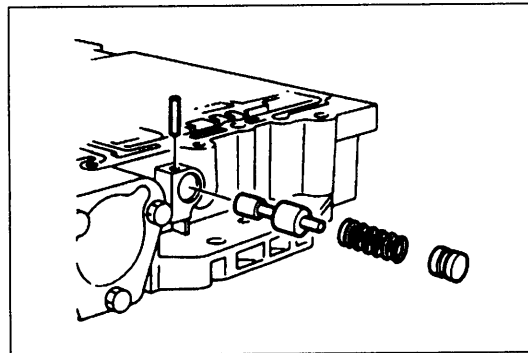
1. Apply ATF to the seal rings and install them onto the 1-2 accumulator piston.
2. Insert the 1-2 accumulator piston and spring.
3. Insert the 3-2 control valve and spring.
4. Insert the throttle relief valve and spring.
5. Apply ATF to the seal rings and install them onto the N-R/2-3 accumulator piston.
6. Insert the N-R/2-3 accumulator spring and valve.
7. Install the side plate.



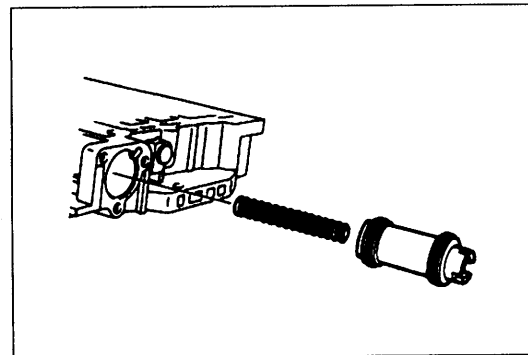
8. Install the clip and bolts.

Tightening torque:

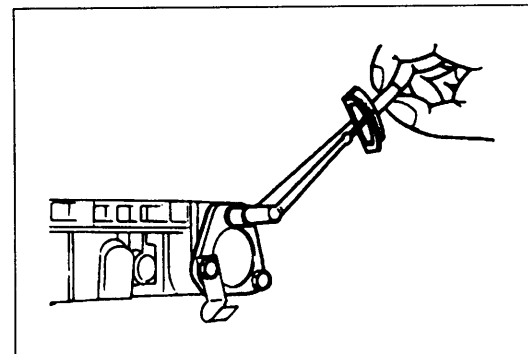
2.5—3.4 N·m { 25—35 kgf·cm , 22—30 in·lbf }



9. Insert the 1-2 reducing valve, spring, and stopper plug.
10. Tap in the roll pin.



11. Apply ATF to the seal rings and install them onto the N-D accumulator piston.
12. Insert the N-D accumulator spring and piston.

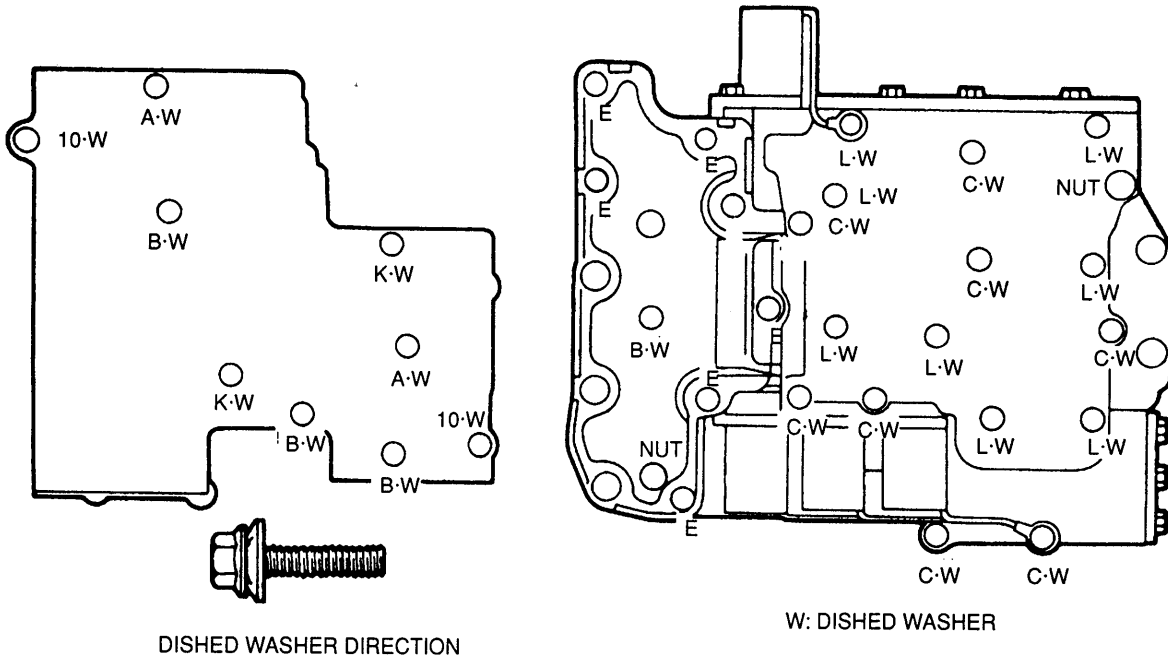


13. Install the clip and bolts.

Tightening torque:

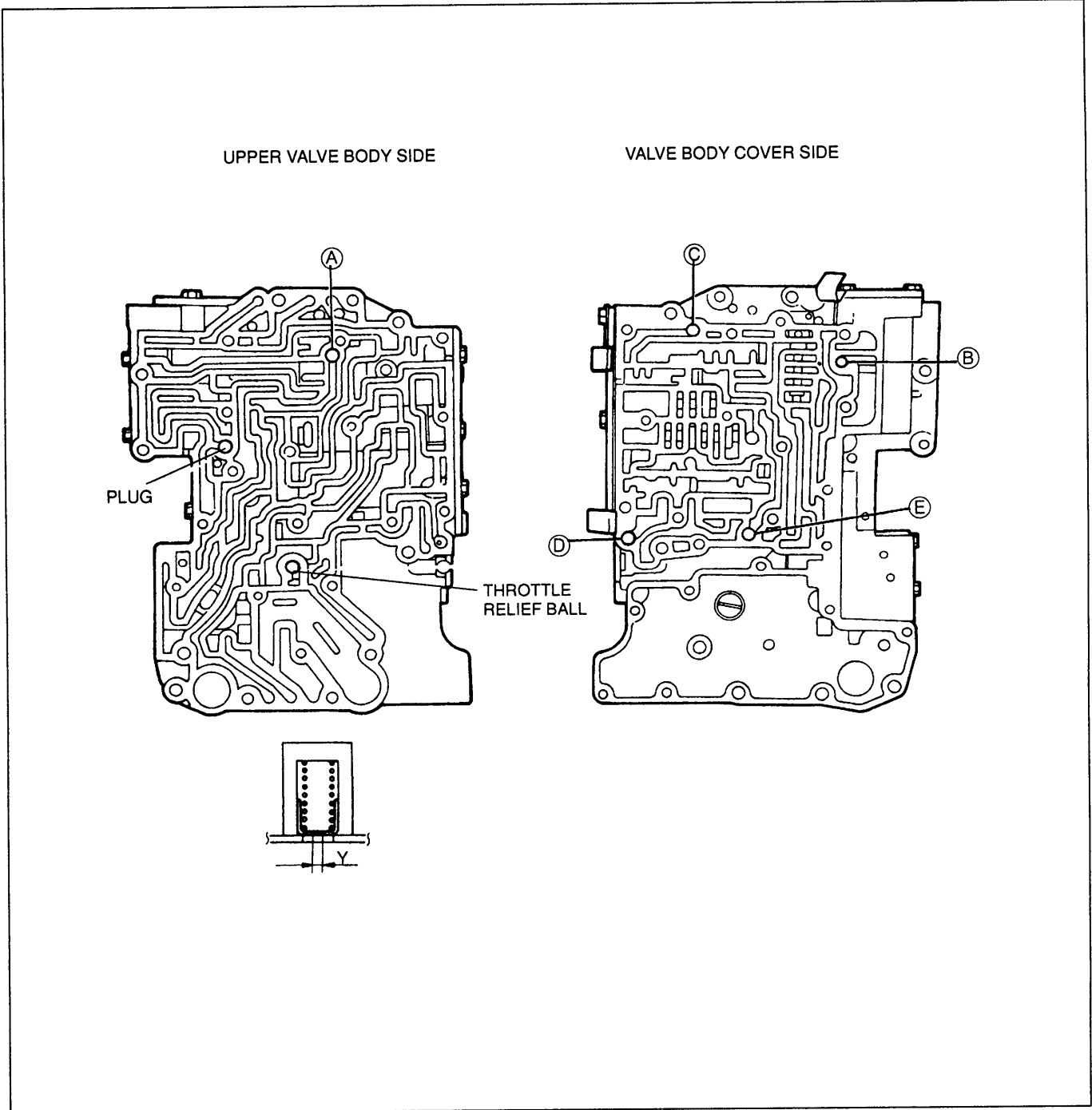
2.5—3.4 N·m { 25—35 kgf·cm , 22—30 in·lbf }

Bolt locations



Identification letter	Bolts	Torque specification
L		6.5—7.8 N·m { 66—80 kgf·cm , 57—69 in·lbf }
A		
B		
K		
C		
E		
10		10.8—14.7 N·m { 110—150 kgf·cm , 96—130 in·lbf }
10		

Orifice check valve location

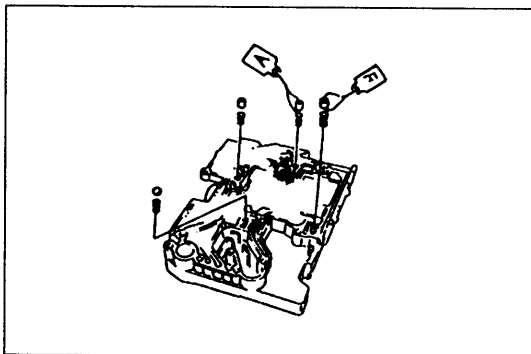


Orifice check valve specification

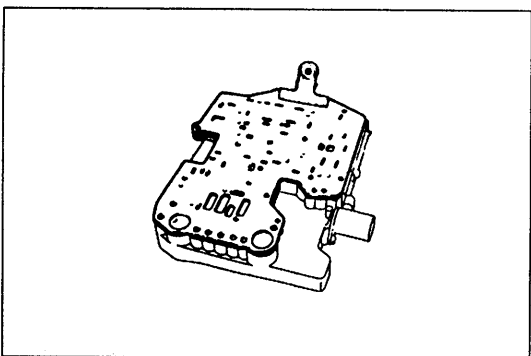
			Y diameter
Upper valve body side	mm { in }	(A)	$\phi 1.8 \{ 0.071 \}$
Valve body cover side	mm { in }	(B)	$\phi 2.2 \{ 0.087 \}$
		(C)	$\phi 1.5 \{ 0.059 \}$
		(D)	$\phi 1.2 \{ 0.047 \}$
		(E)	$\phi 1.0 \{ 0.039 \}$

CONTROL VALVE BODY**Assembly**

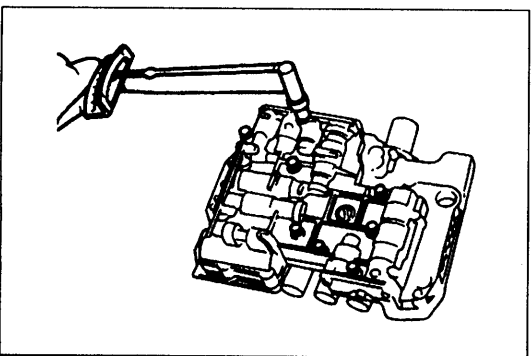
1. Verify that all parts are clean and free of dust and other small particles.
2. Apply ATF to all O-rings and gaskets.

**Assembly procedure**

1. Insert the orifice check valve, plug and springs, and the check ball and spring in the lower valve body.



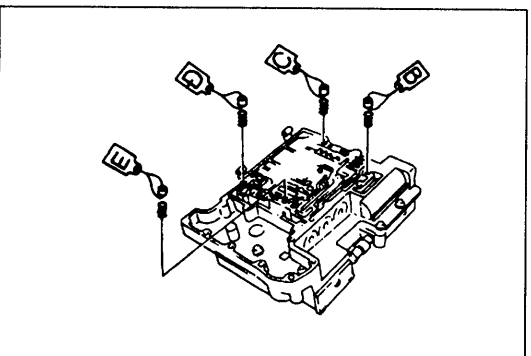
2. Position the separator plate on the lower valve body. Align the plate and valve body and hold them together with large clips.



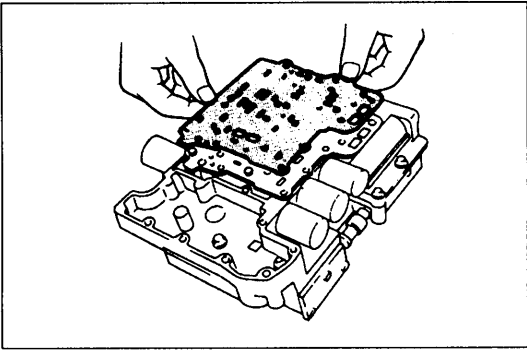
3. Install the upper valve body on the separator plate.
4. Install the bolts, referring to page K-124 for their correct sizes. Tighten the bolts to the specified torque.

Tightening torque:

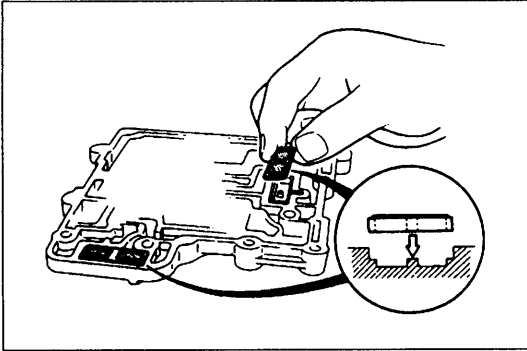
6.5—7.8 N·m { 66—80 kgf·cm , 58—69 in·lbf }



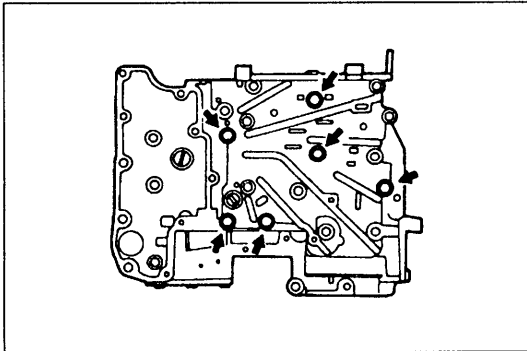
5. Turn over the valve body assembly and insert the orifice check valves and springs in the lower valve body.



6. Install the separator plate.



7. Install the inner strainer in the valve body cover.



8. Install the valve body cover on the separator plate.
9. Install the bolts and nuts, referring to page K-124 for their correct sizes. Tighten the bolts and nuts to the specified torque.

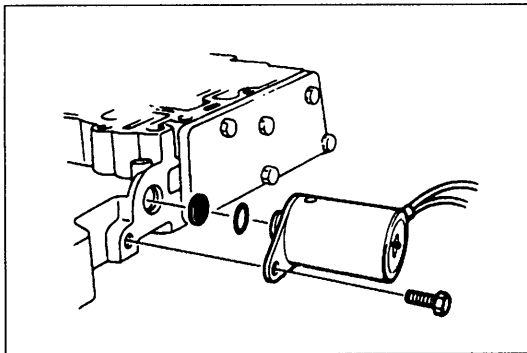
Tightening torque:

Bolt:

6.5—7.8 N·m { 66—80 kgf·cm , 58—69 in·lbf }

Nut: 10.8—14.7 N·m

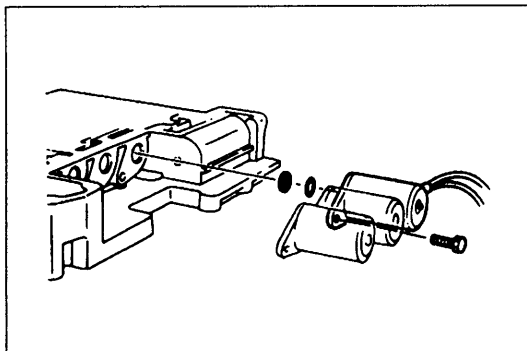
{ 110—150 kgf·cm , 96—130 in·lbf }



10. Install the O-rings onto each solenoid valve.
11. Install the oil strainer in the lower valve body.
12. Install the 3-2 control solenoid valve.
13. Tighten the installation bolt.

Tightening torque:

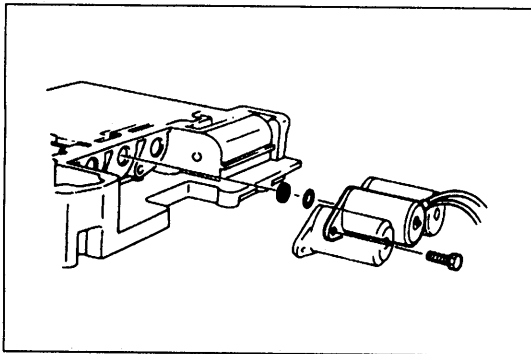
2.5—3.4 N·m { 25—35 kgf·cm , 22—30 in·lbf }



14. Install the oil strainer in the lower valve body.
15. Install the shift solenoid C.
16. Tighten the installation bolt.

Tightening torque:

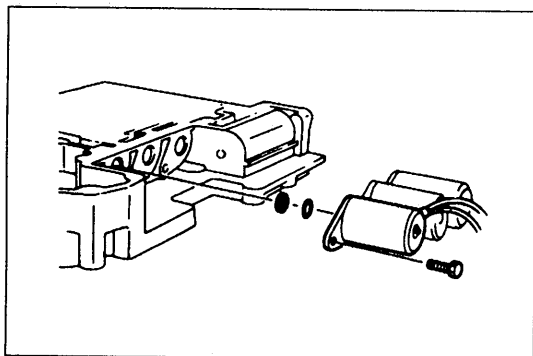
2.5—3.4 N·m { 25—35 kgf·cm , 22—30 in·lbf }



17. Install the oil strainer in the lower valve body.
18. Install the shift solenoid B.
19. Tighten the installation bolt.

Tightening torque:

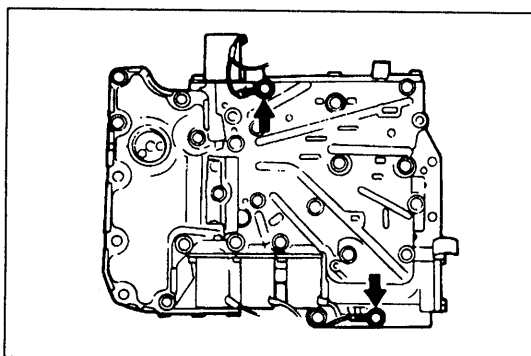
2.5—3.4 N·m { 25—35 kgf·cm , 22—30 in·lbf }



20. Install the oil strainer in the lower valve body.
21. Install the shift solenoid A.
22. Tighten the installation bolt.

Tightening torque:

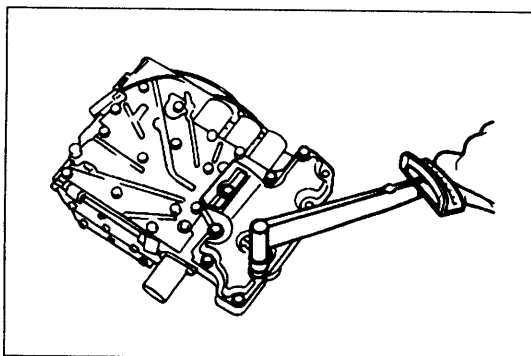
2.5—3.4 N·m { 25—35 kgf·cm , 22—30 in·lbf }



23. Connect the ground terminals and install the bolts, referring to page K-123 for the correct bolt sizes.
24. Tighten the bolt.

Tightening torque:

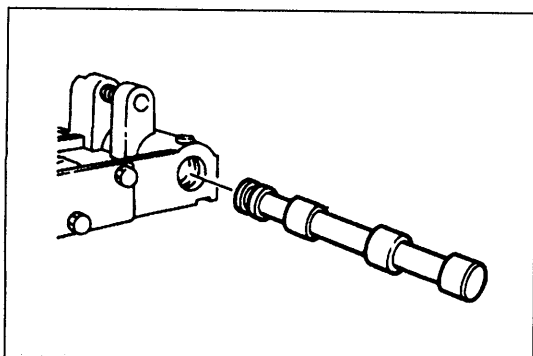
6.5—7.8 N·m { 66—80 kgf·cm , 58—69 in·lbf }



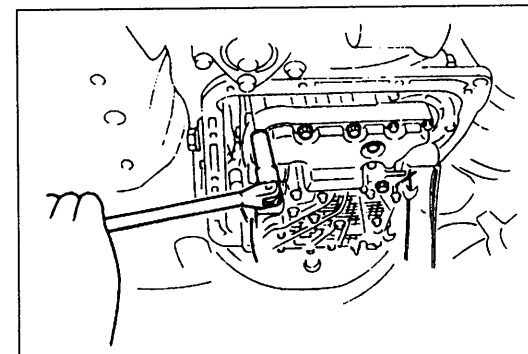
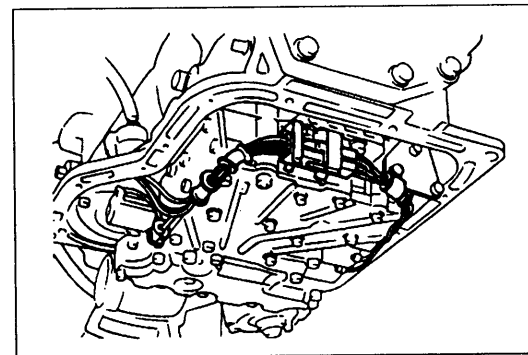
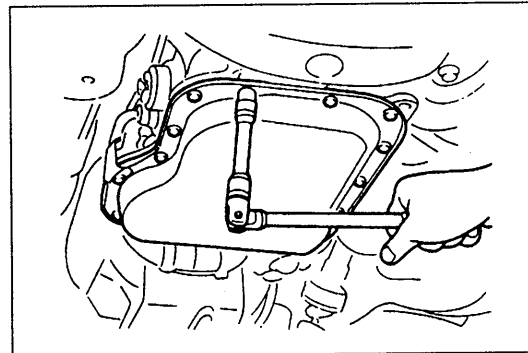
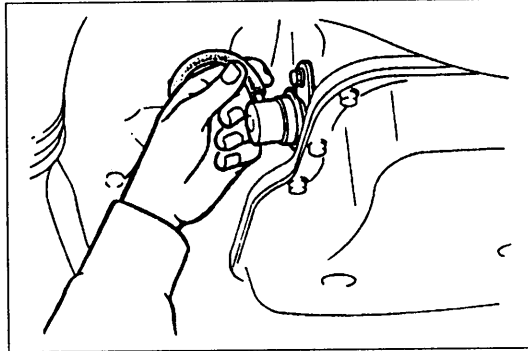
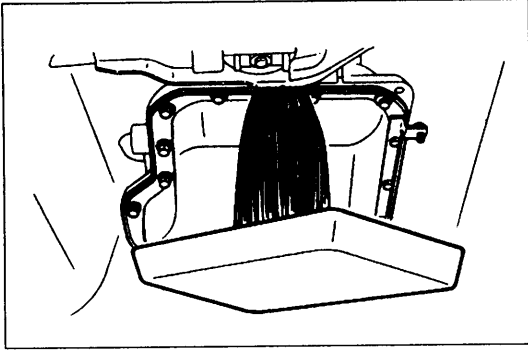
25. Install the oil strainer.
26. Install the bolts, referring to page K-123 for their correct sizes.

Tightening torque:

6.5—7.8 N·m { 66—80 kgf·cm , 58—69 in·lbf }



27. Install the manual valve.



On-vehicle Removal

1. Disconnect the negative battery cable.
2. On level ground, jack up the vehicle and support it evenly on safety stands.
3. Remove the exhaust pipe. (Refer to page K-45.)

Warning

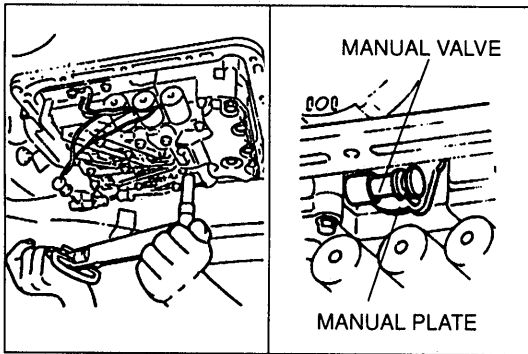
- When the transmission and the ATF are hot, they can cause burns to the skin. Allow the transmission and the ATF to cool before doing this procedure.

4. Loosen the oil pan installation bolts, and drain the ATF into a container.
5. Disconnect the vacuum hose.
6. Remove the vacuum diaphragm, O-rings, and vacuum diaphragm rod.

7. Remove the oil pan, and the gasket.

8. Disconnect the solenoid valve connector.
9. Remove the harness from the bracket.

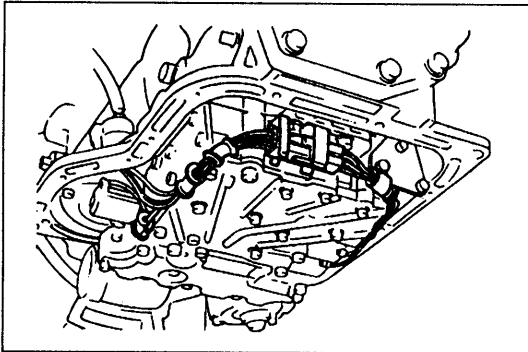
10. Remove the control valve body assembly.

**On-vehicle Installation**

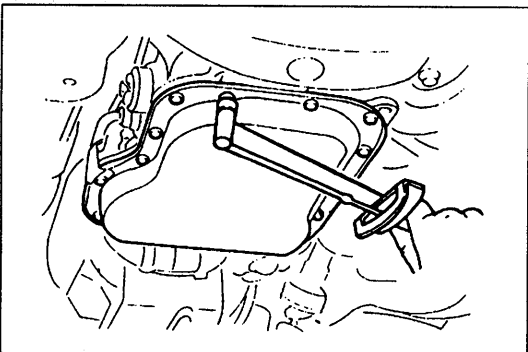
1. Set the valve body assembly in position, and align the manual plate and manual valve.

Tightening torque:

10.8—14.7 N·m { 110—150 kgf·m , 96—130 ft·lbf }



2. Connect the solenoid valve connector.
3. Install the harness.



4. Install the oil pan along with a new gasket.

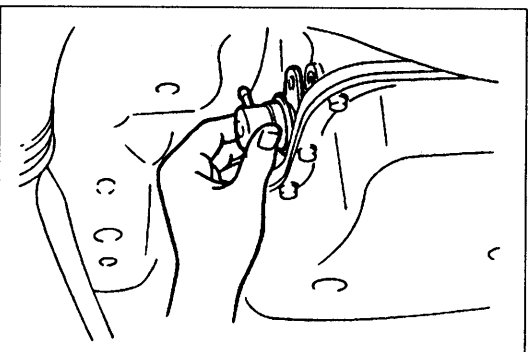
Tightening torque:

5.9—7.8 N·m { 60—80 kgf·cm , 53—69 in·lbf }

5. Install the bolts.

Tightening torque:

5.9—7.8 N·m { 60—80 kgf·cm , 53—69 in·lbf }



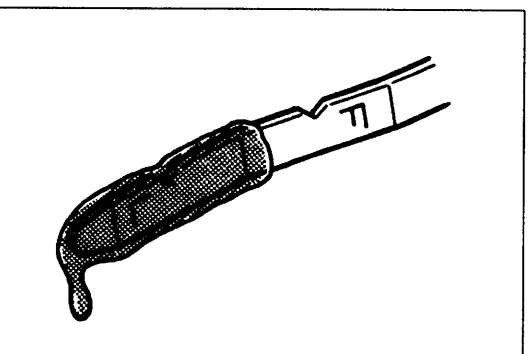
6. Apply ATF to a new O-ring and install it onto the vacuum diaphragm.
7. Apply ATF to a new O-ring and install it into the transmission case.
8. Apply ATF to the vacuum diaphragm rod and vacuum diaphragm, and install them into the transmission case.

Tightening torque:

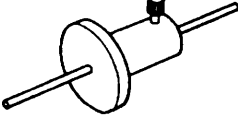
7.9—10.7 N·m { 80—110 kgf·cm , 70—95 in·lbf }

9. Connect the vacuum hose.

10. Install the exhaust pipe. (Refer to page K-148.)
11. Add approximately **4.0 L { 4.2 US qt , 3.5 Imp qt }** ATF, and check the ATF level. (Refer to page K-35.)



VACUUM DIAPHRAGM**Preparation****SST**

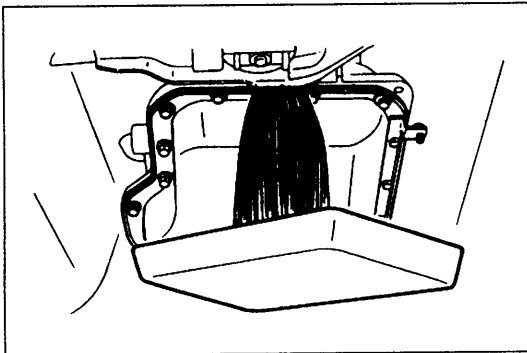
49 G032 355		For adjustment of vacuum diaphragm rod
Adjustment gauge		

Note

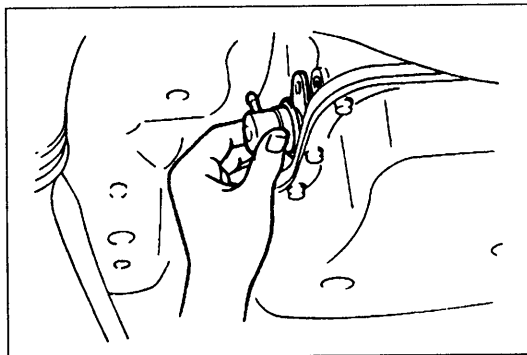
- Excessive shift shock and improper shifting often indicate a vacuum diaphragm malfunction.

Warning

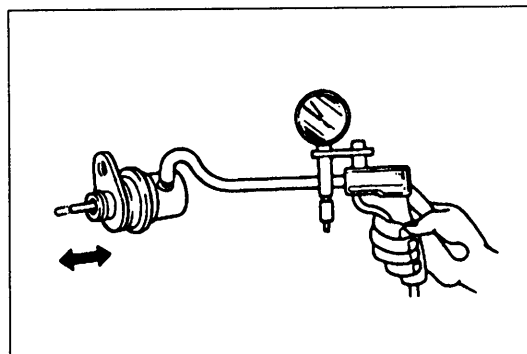
- When the transmission and the ATF are hot, they can cause burns to the skin. Allow the transmission and the ATF to cool before doing this procedure.

**On-vehicle Removal**

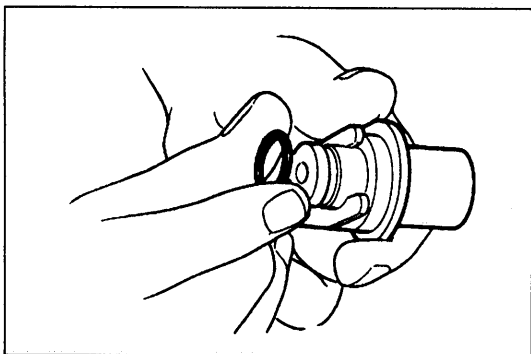
- On level ground, jack up the vehicle and support it evenly on safety stands.
- Remove the exhaust pipe. (Refer to page K-45.)
- Loosen the oil pan mounting bolts, and drain **approx. 1.0 L { 1.1 US qt , 0.9 Imp qt }** of ATF.



- Disconnect the vacuum hose.
- Remove the vacuum diaphragm, O-rings, and vacuum diaphragm rod.

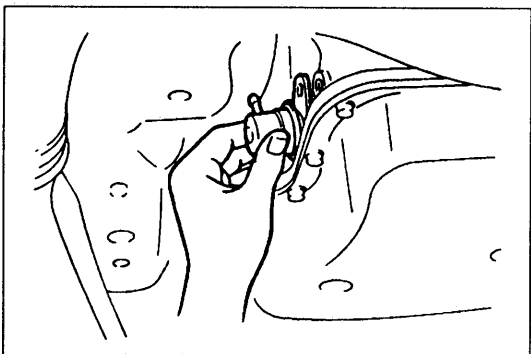
**Inspection**

- Check that the vacuum diaphragm rod moves when vacuum is applied to the vacuum diaphragm.
- If not correct, replace the vacuum diaphragm.



On-vehicle Installation

1. Apply ATF to a new O-ring, and install it onto the vacuum diaphragm.
2. Apply ATF to a new O-ring, and install it into the transmission case.

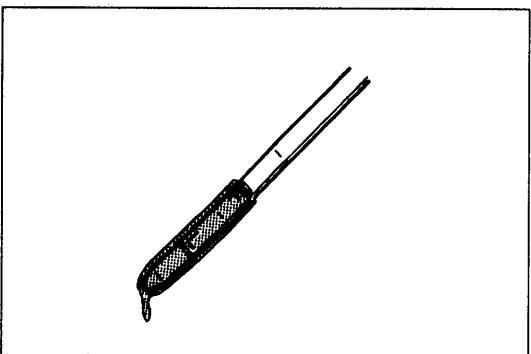


3. Apply ATF to the vacuum diaphragm rod and vacuum diaphragm, and install them into the transmission case.

Tightening torque:

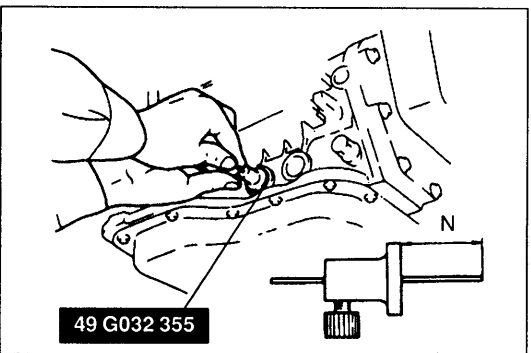
7.9—10.7 N·m { 80—110 kgf·cm , 70—95 in·lbf }

4. Connect the vacuum hose.
5. Install the exhaust pipe. (Refer to page K-148.)



6. Add approximately 1.0 L { 1.1 US qt , 0.9 Imp qt } ATF, and check the ATF level. (Refer to page K-35.)

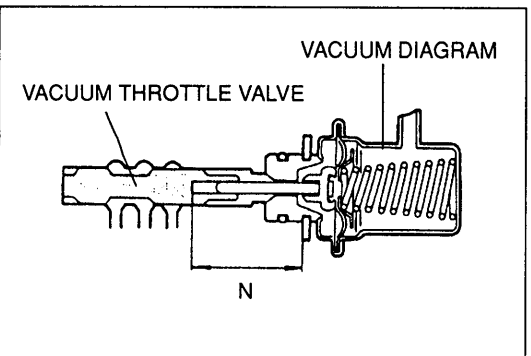
7. Warm up the ATF to normal operating temperature (50—80 °C { 122—176 °F }), then check for the following:
 - (1) Fluid leakage
 - (2) Vacuum leakage



On-vehicle Adjustment

1. Remove the vacuum diaphragm, vacuum diaphragm rod, and O-rings from the transmission case. (Refer to On-vehicle Removal, page K-130.)
2. Measure dimension N indicated in the figure by using the SST and a scale.
3. Select the proper diaphragm rod from the table.

Dimension N	Applicable diaphragm rod
Below 25.65 mm { 1.0099 in }	29.0 mm { 1.14 in }
25.65—26.15 mm { 1.0099—1.0295 in }	29.5 mm { 1.16 in }
25.90—26.40 mm { 1.0197—1.0394 in }	29.75 mm { 1.17 in }
26.15—26.65 mm { 1.0295—1.0492 in }	30.0 mm { 1.18 in }
26.65—27.15 mm { 1.0492—1.0689 in }	30.5 mm { 1.20 in }
27.15 mm { 1.0689 in } or over	31.0 mm { 1.22 in }

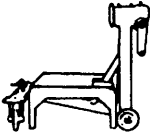
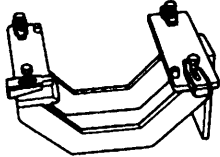
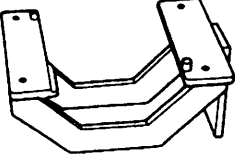
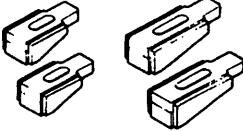
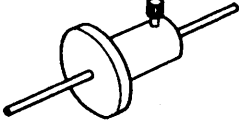


4. Install the correct vacuum diaphragm rod, O-rings, and vacuum diaphragm. (Refer to On-vehicle Installation, page K-131.)

TRANSMISSION UNIT (ASSEMBLY)

Preparation

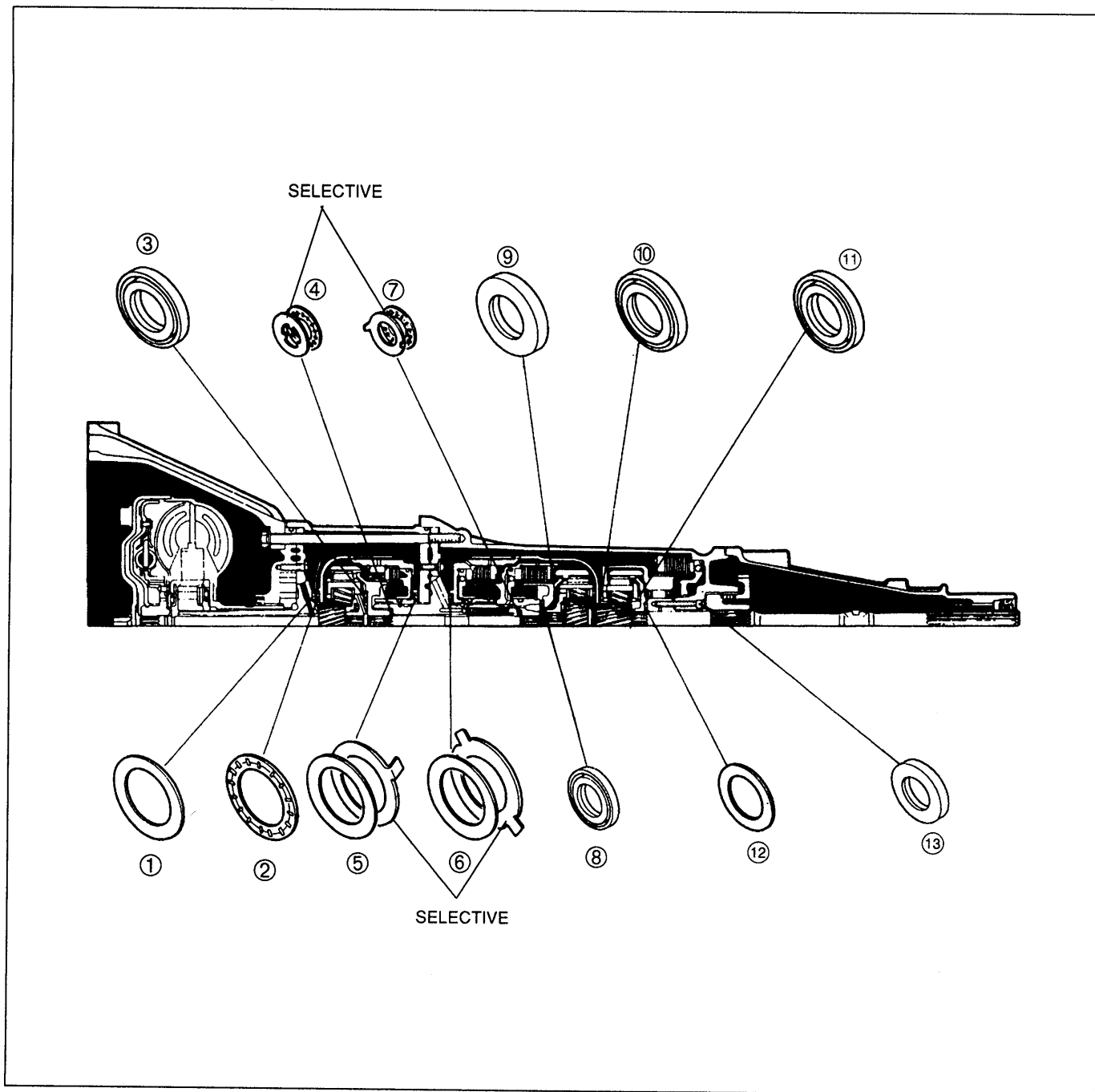
SST

<p>49 0107 680A Engine stand</p> 	<p>For assembly of transmission</p>	<p>49 U019 0A0A Transmission hanger</p> 	<p>For assembly of transmission</p>
<p>49 H075 495B Body (Part of U019 0A0A)</p> 	<p>For assembly of transmission</p>	<p>49 U019 003 Holder (Part of U019 0A0A)</p> 	<p>For assembly of transmission</p>
<p>49 G032 355 Adjustment gauge</p> 	<p>For adjustment of vacuum diaphragm rod</p>	<p>—</p>	<p>—</p>

Precaution

1. If the drive plates or brake bands are replaced with new ones, soak the new ones in ATF for at least two hours before installation.
2. Before assembly, apply ATF to all seal rings, rotating parts, O-rings, and sliding parts.
3. All O-rings, seals, and gaskets must be replaced with the new ones included in the overhaul kit.
4. Use petroleum jelly, not grease, during reassembly.
5. When it is necessary to replace a bushing, replace the subassembly that includes that bushing.
6. Assemble the housing within 10 minutes after applying sealant, and allow it to cure at least 30 minutes after assembly before filling the transmission with ATF.

Thrust Washer, Bearing, and Race Location

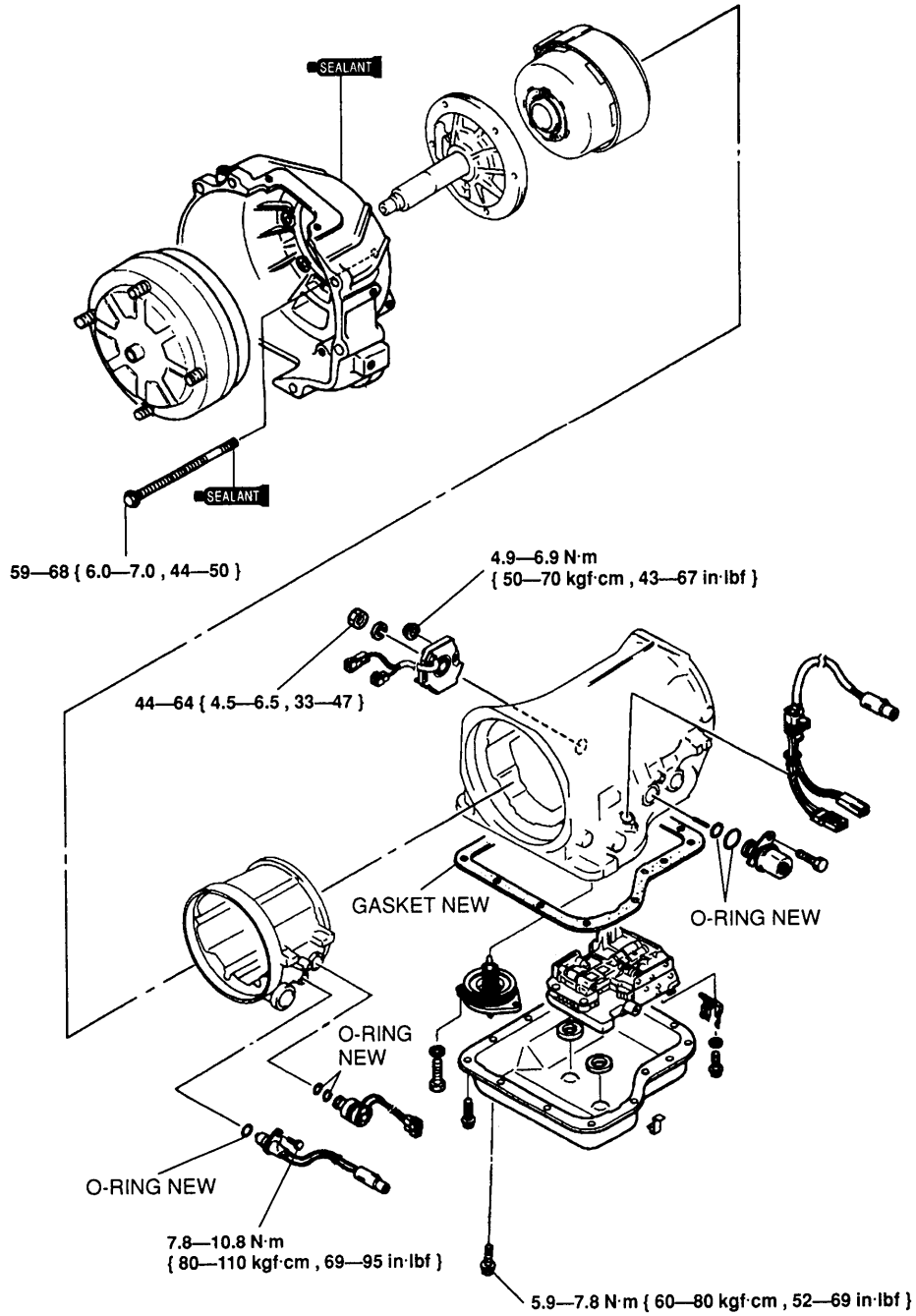


Outer diameter of bearing and race

		1	2	3	4	5	6	7
Bearing	mm { in }	70.0 { 2.756 }	70.0 { 2.756 }	70.0 { 2.756 }	35.0 { 1.378 }	70.0 { 2.756 }	70.0 { 2.756 }	35.0 { 1.378 }
Race	mm { in }	—	—	—	33.0 { 1.299 }	70.0 { 2.756 }	76.0 { 2.992 }	33.0 { 1.299 }

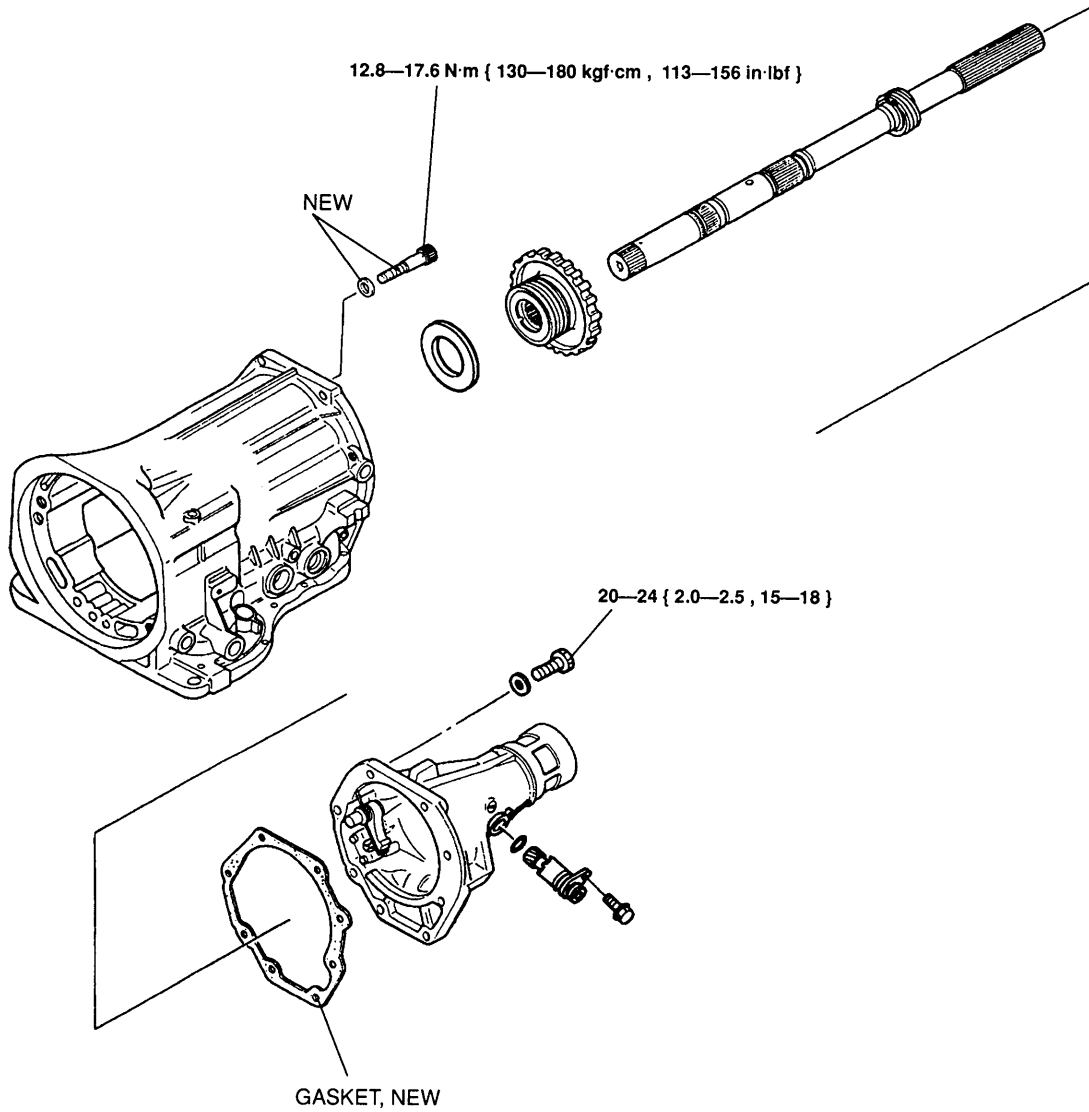
		8	9	10	11	12	13
Bearing	mm { in }	53.0 { 2.087 }	70.0 { 2.756 }	70.0 { 2.756 }	70.0 { 2.756 }	47.0 { 1.850 }	53.0 { 2.087 }
Race	mm { in }	—	—	—	—	—	—

Torque specifications

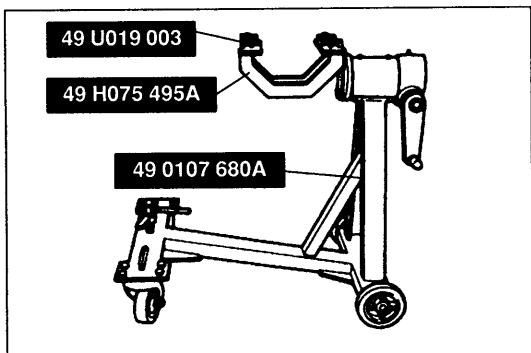


N·m { kgf·m, ft·lbf }

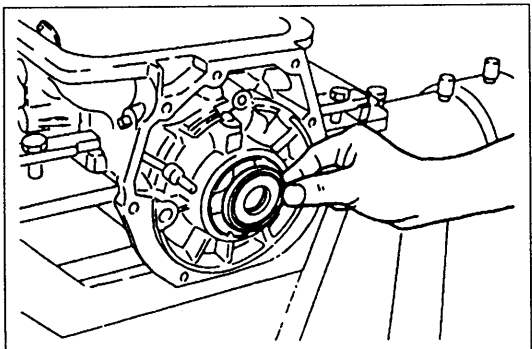
Torque specifications (cont'd)



N·m { kgf·m , ft·lbf }

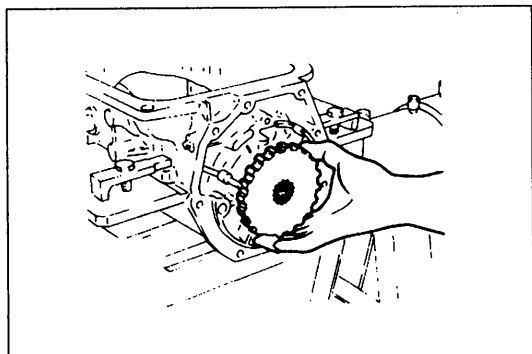
**Assembly Procedure**

1. Assemble the **SST** as shown.
2. Mount the transmission case onto the **SST**.

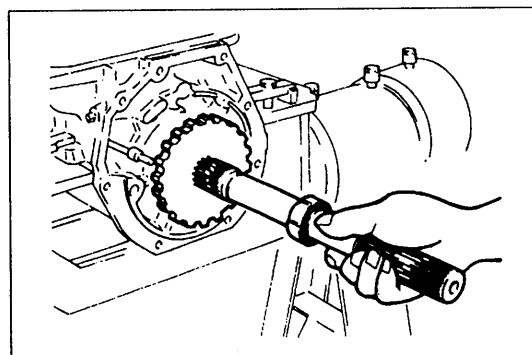


3. Apply petroleum jelly to the bearing, and install it into the rear of the transmission case with the black surface facing outward.

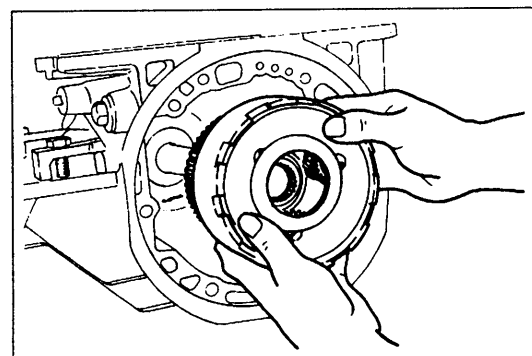
Bearing outer diameter: 53.0 mm { 2.087 in }



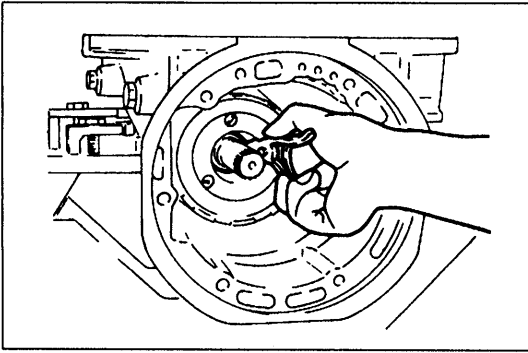
4. Install the oil distributor in the transmission case.



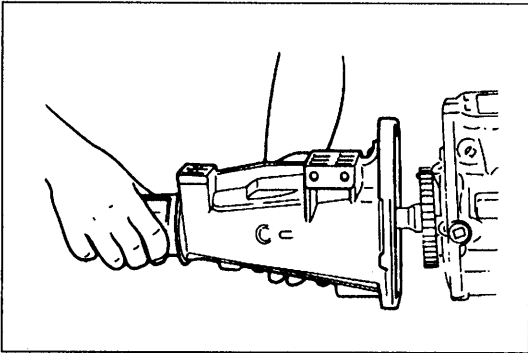
5. Insert the output shaft.



6. Install the rear planetary gear unit (connecting drum, rear planetary pinion carrier and one-way clutch) in the low and reverse brake side.



7. Install a new snap ring onto the front of the output shaft.

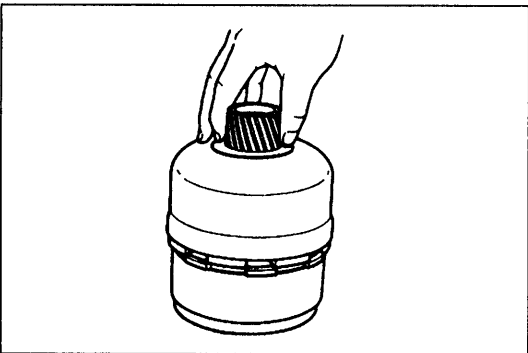


8. Install the extension housing along with a new gasket.

Tightening torque:

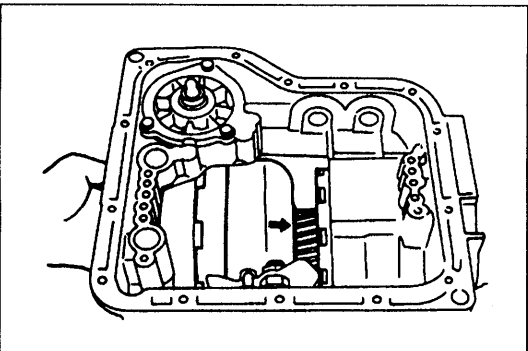
20—24 N·m { 2.0—2.5 kgf·m , 15—18 ft·lbf }

9. Verify that the output shaft is locked with the manual lever in P position.

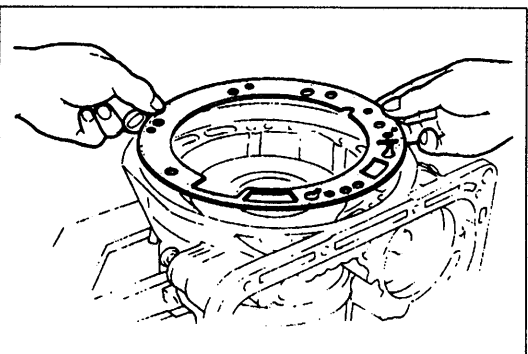


10. Set the rear clutch assembly on the top of the front clutch assembly.

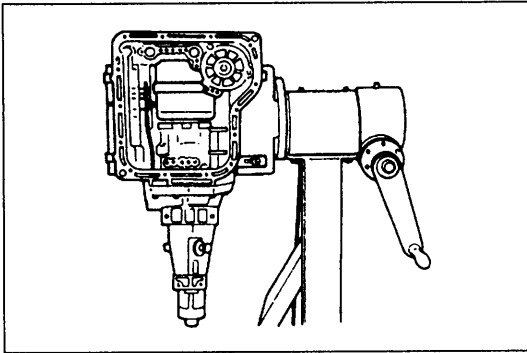
11. Install the connecting shell and front planetary gear unit (rear clutch hub, front planetary pinion carrier, rear sun gear) onto the rear clutch assembly.



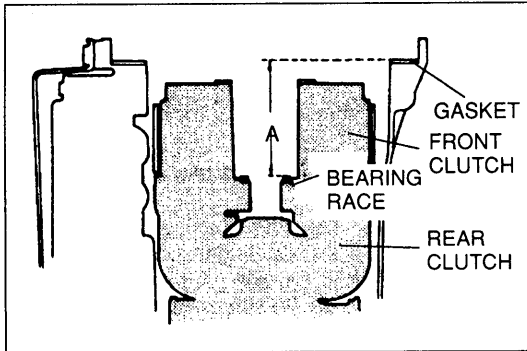
12. Install the front clutch, rear clutch, rear clutch hub, front planetary pinion carrier, connecting shell, internal gear, sun gear, bearing, and bearing races as a unit into the transmission case.



13. Set a new gasket into the front of the case.



14. Check and adjust the rear clutch total end play.
- (1) Position the front of the transmission case upward.
 - (2) Set the drum support bearing and race on the rear clutch.



- (3) Measure distances A and B with a straight edge and vernier calipers.
- (4) Calculate the total end play by using the formula below.

Formula: $T=A-B-0.1 \text{ mm } \{ 0.0039 \text{ in } \}$

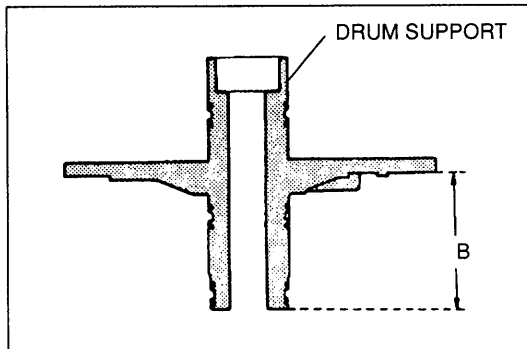
T: Total end play

A: The distance between the drum support mounting surface (including the drum support gasket) and the drum support bearing race surface on the rear clutch assembly.

B: The distance between the drum support bearing race contact surface and the drum support gasket contact surface.

0.1: The compression amount of a new gasket.

Total end play: $0.25-0.50 \text{ mm } \{ 0.010-0.019 \text{ in } \}$

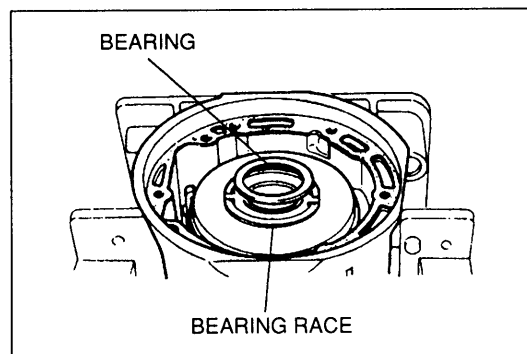
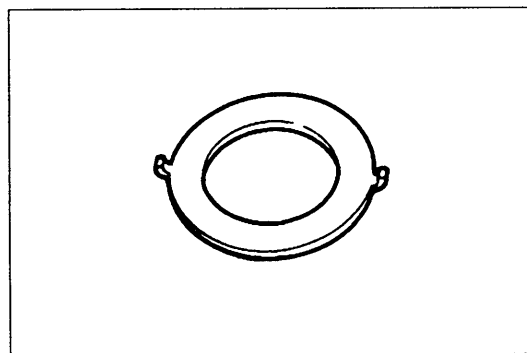


- (5) Adjust the total end play by selecting the proper bearing race.

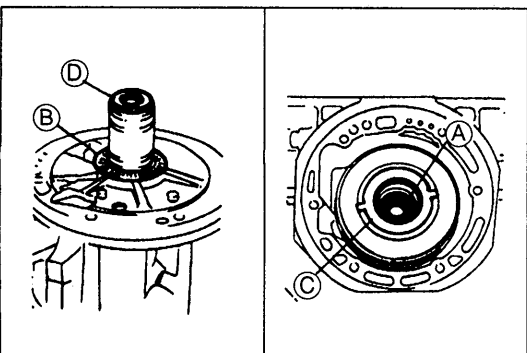
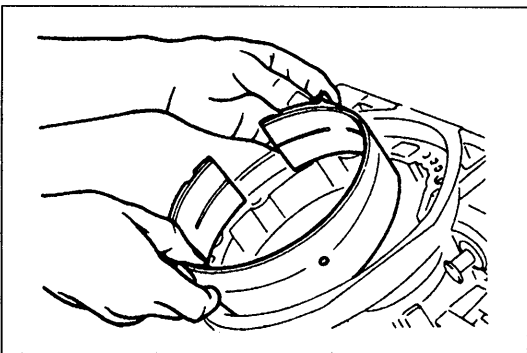
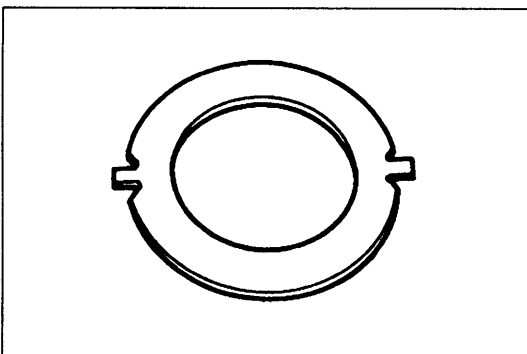
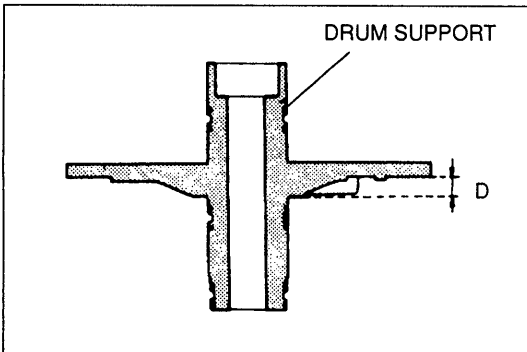
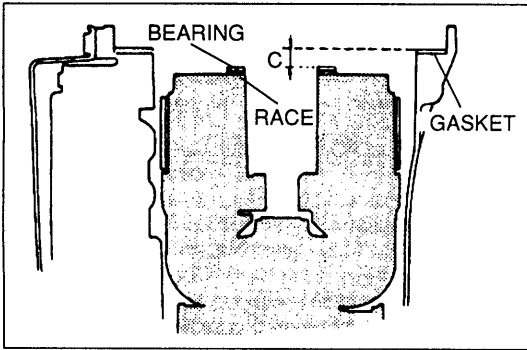
Bearing race sizes

mm { in }

1.2 { 0.047 }	1.4 { 0.055 }	1.6 { 0.063 }
1.8 { 0.071 }	2.0 { 0.079 }	2.2 { 0.087 }



15. Check and adjust the front clutch end play.
- (1) Set the bearing race and bearing in position.



- (2) Measure distances C and D with a straight edge and vernier calipers.
- (3) Calculate the front clutch end play by using the formula below.

Formula: $T=C-D-0.1 \text{ mm } \{ 0.0039 \text{ in } \}$

- T: Front clutch end play.
- C: The distance between the drum support mounting surface (including the drum support gasket) of the transmission case and the bearing surface on the front clutch assembly.
- D: The distance between the sliding surface of the bearing and the drum support gasket contact surface.
- 0.1: The compression amount of a new gasket.

Front clutch end play:
0.5—0.8 mm { 0.020—0.031 in }

- (4) Adjust the front clutch end play by selecting the proper bearing race.

Bearing race sizes

mm { in }		
0.8 { 0.031 }	1.0 { 0.039 }	1.2 { 0.047 }
1.4 { 0.055 }	1.6 { 0.063 }	1.8 { 0.071 }
2.0 { 0.079 }	2.2 { 0.087 }	—

- 16. Set the second gear brake band and strut in position.
- 17. Tighten the piston stem lightly.

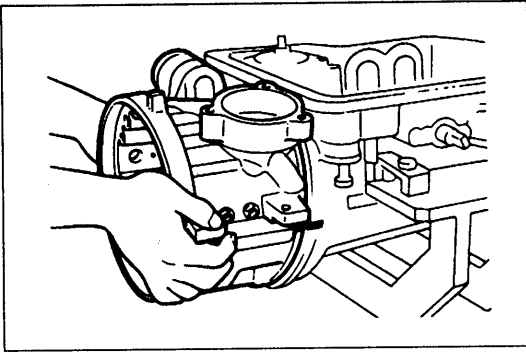
- 18. Apply petroleum jelly to the bearings and bearing races, and install them as shown.

Bearing outer diameter

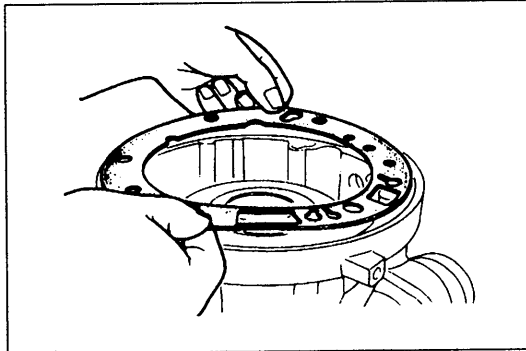
- A: 35.0 mm { 1.38 in }**
- B: 70.0 mm { 2.76 in }**

Bearing race outer diameter

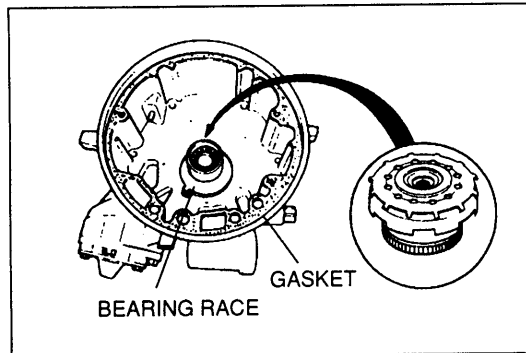
- C: 76.0 mm { 2.99 in }**
- D: 33.0 mm { 1.30 in }**



19. Align the marks of the transmission case and fourth gear case. Tap lightly with a plastic hammer to avoid damaging the seal rings when installing.



20. Set a new gasket in place.



Note

- The sensing rotor and bearing are part of the oil pump assembly.

21. Check and adjust the fourth gear planetary gear unit total end play. Do not install the direct clutch drum at this time.

- Position the fourth gear case upright.
- Install the bearing and race on the fourth gear case.
- Install the planetary carrier, sun gear, connecting shell, and bearing as unit in the fourth gear case.
- Install the sensing rotor and bearing on the connecting shell.
- Measure distances E and H with a straightedge and vernier calipers.
- Calculate the fourth gear train total end play by using the formula below.

$$\text{Formula: } T = E - H - 0.1 \text{ mm } \{ 0.0039 \text{ in } \}$$

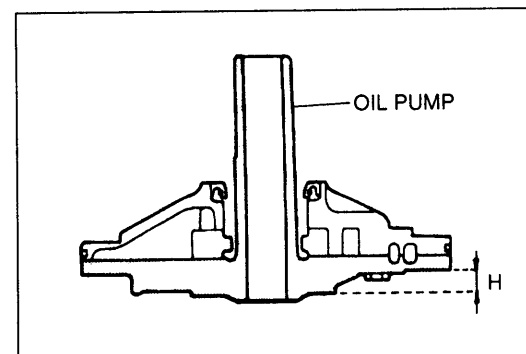
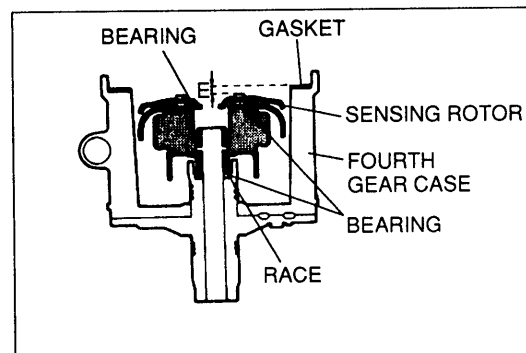
T: Total end play.

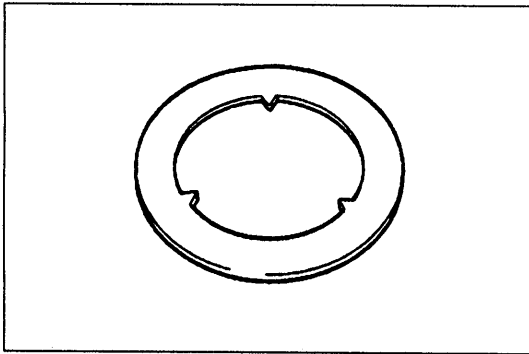
E: The distance between the oil pump mounting surface (including the oil pump gasket) and the sensing rotor bearing surface.

H: The distance between the oil pump side sensing rotor bearing contact surface and the oil pump gasket contact surface.

0.1: The compression amount of a new gasket.

Total end play: 0.25—0.50 mm { 0.010—0.020 in }

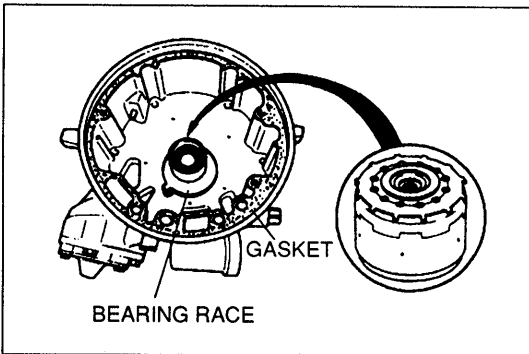




(7) Adjust the total end play by selecting the proper bearing race.

Bearing race sizes

mm { in }		
1.2 { 0.047 }	1.4 { 0.055 }	1.6 { 0.063 }
1.8 { 0.071 }	2.0 { 0.079 }	2.2 { 0.087 }

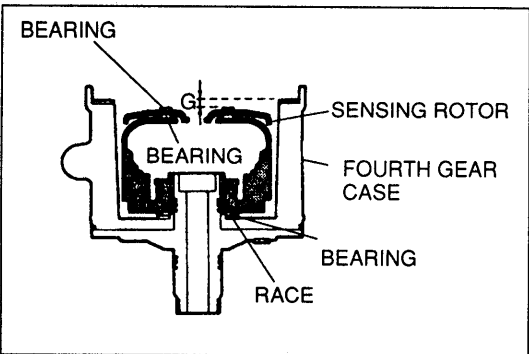


Note

- The sensing rotor and bearing are part of the oil pump assembly.

22. Check and adjust the direct clutch end play. Do not install the planetary pinion carrier at this time.

- Install the bearing race in the fourth gear case.
- Install the direct clutch, sun gear, connecting shell, and bearings in the fourth gear case.
- Install the sensing rotor and bearing on the connecting shell.
- Measure distances G and H with a straightedge and vernier calipers.
- Calculate the direct clutch end play by using the formula below.



Formula: $T = G - H - 0.1 \text{ mm } \{ 0.0039 \text{ in } \}$

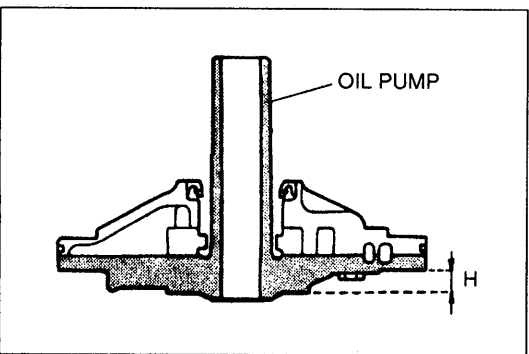
T: Total end play

G: The distance between the oil pump mounting surface (including the oil pump gasket) and the sensing rotor bearing surface.

H: The distance between the oil pump side sensing rotor bearing contact surface and the oil pump gasket contact surface.

0.1: The compression amount of a new gasket.

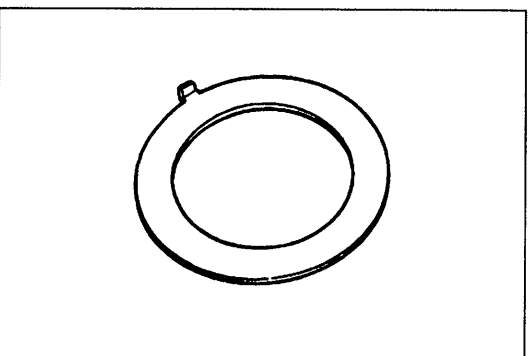
Total end play: $0.5 - 0.8 \text{ mm } \{ 0.020 - 0.031 \text{ in } \}$

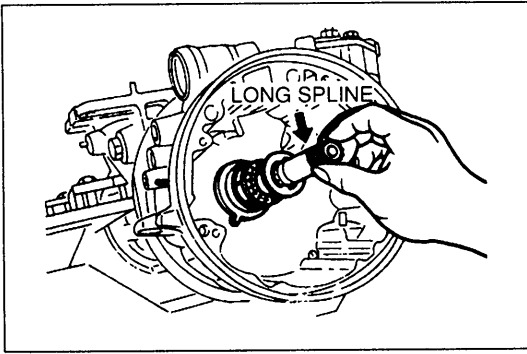


(6) Adjust the direct clutch end play by selecting the proper bearing race.

Bearing race sizes

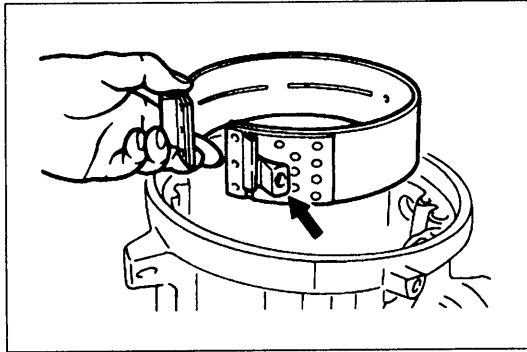
mm { in }		
0.8 { 0.031 }	1.0 { 0.039 }	1.2 { 0.047 }
1.4 { 0.055 }	1.6 { 0.063 }	1.8 { 0.071 }
2.0 { 0.079 }	2.2 { 0.087 }	—





23. Insert the intermediate shaft. The end with the long splines should face front.
24. Apply petroleum jelly to the large bearing race and install it into the fourth gear case.

Bearing race outer diameter: 70 mm { 2.756 in }

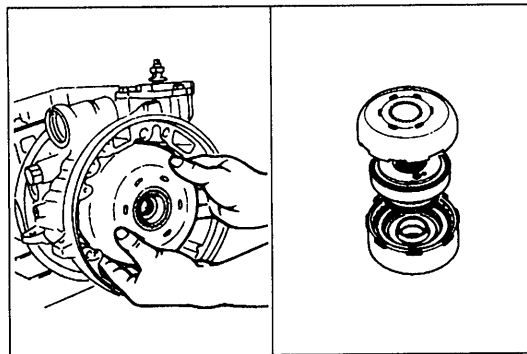


25. Apply petroleum jelly to the small bearing and small bearing race, and install them as shown.

Bearing outer diameter: 35.0 mm { 1.378 in }

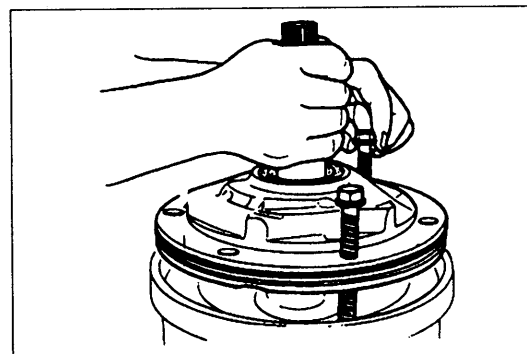
Bearing race outer diameter: 33.0 mm { 1.299 in }

26. Install the fourth gear brake band and band strut.

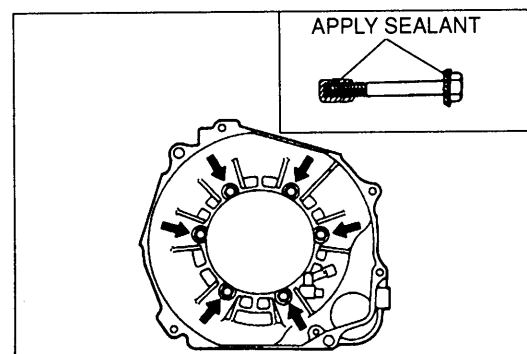


27. Install the fourth gear connecting shell and fourth gear planetary gear unit (fourth gear sun gear, fourth gear planetary pinion carrier, fourth gear clutch hub) onto the direct clutch.

28. Install the direct clutch assembly into the fourth gear case.



29. Install the oil pump assembly into the transmission case by hand only, using two converter housing bolts as guides. Measure the height difference between the top of the transmission case and the oil pump.



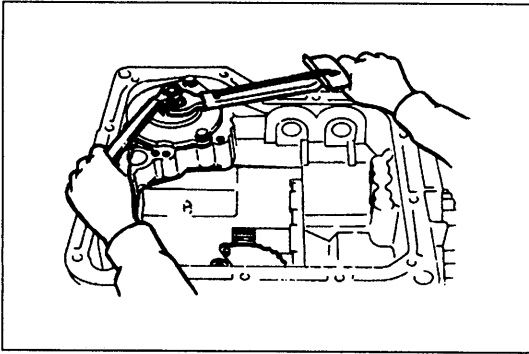
30. Remove the converter housing bolts. Apply sealant to the bolts.

31. Apply sealant to the contact surfaces of the converter housing and oil pump.

32. Install the converter housing onto the oil pump, and tighten the bolts evenly in a crisscross pattern.

Tightening torque:

59—68 N·m { 6.0—7.0 kgf·m , 44—50 ft·lbf }



33. Apply ATF to the piston stem.
34. Adjust the second gear brake band.
 - (1) Loosen the locknut and tighten the piston stem.

Tightening torque: 12.3—14.2 N·m
 { 125—145 kgf·cm , 109—125 in·lbf }

- (2) Loosen the stem the number of turns shown below.

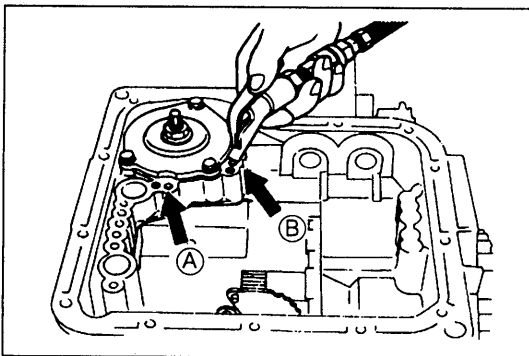
Stem: 2 1/2 turns

- (3) Hold the stem and tighten the locknut.

Tightening torque:
 15—39 N·m { 1.5—4.0 kgf·m , 11—28 ft·lbf }

Caution

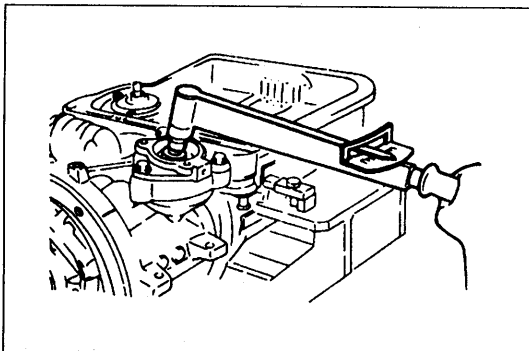
- Applying compressed air to the servo piston for longer than 3 seconds at a time will damage the seal.



35. Check the servo piston operation by applying compressed air through the oil passages of the second gear band servo.

- Ⓐ: Engage
- Ⓑ: Release

Air pressure: 392 kPa { 4.0 kg/cm² , 57 psi } max.

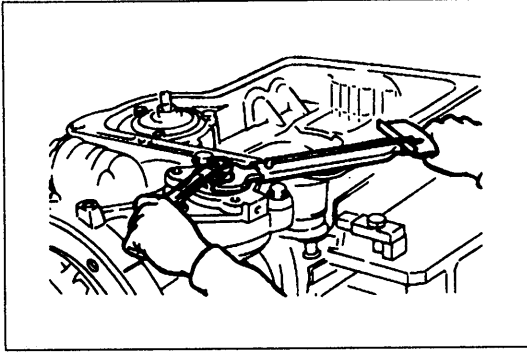


36. Apply ATF to the piston stem. Adjust the fourth gear brake band.
 - (1) Loosen the locknut and tighten the piston stem.

Tightening torque:
 12—15 N·m { 1.2—1.5 kgf·m , 8.7—11 ft·lbf }
 11.8—14.7 N·m
 { 120—150 kgf·cm , 105—130 in·lbf }

- (2) Loosen the stem the number of turns shown below.

Stem: 2 turns



- (3) Hold the stem and tighten the locknut.

Tightening torque:

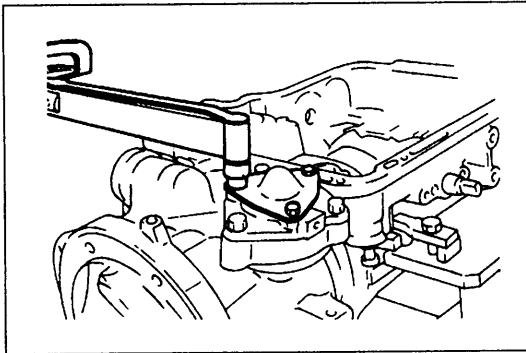
15—39 N·m { 1.5—4.0 kgf·m , 11—28 ft·lbf }

Caution

- Applying compressed air to the servo piston for longer than 3 seconds at a time will damage the seal.

37. Check the servo piston operation by applying compressed air through the oil passage of the fourth gear band servo.

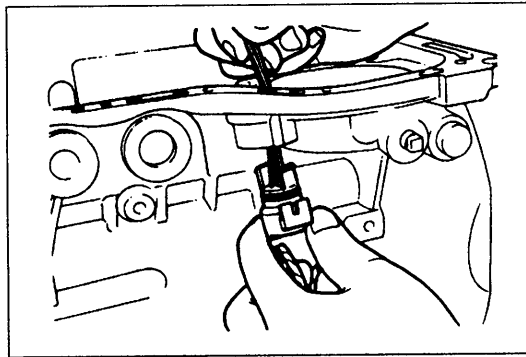
Air pressure: 392 kPa { 4.0 kg/cm² , 57 psi } max.



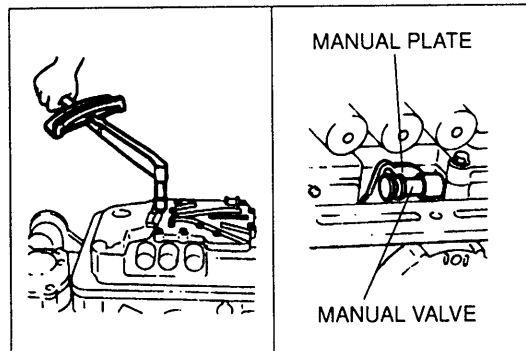
38. Set a new gasket on the fourth gear band servo. Install the fourth gear band servo cover.

Tightening torque:

5.0—6.8 N·m { 50—70 kgf·cm , 44—60 in·lbf }



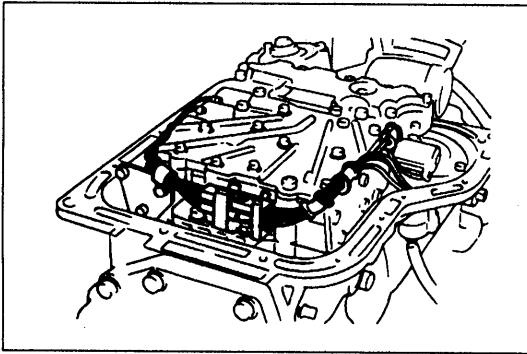
39. Apply ATF to a new O-ring and install it onto the solenoid valve connector.
40. Install the solenoid valve connector in the transmission case.



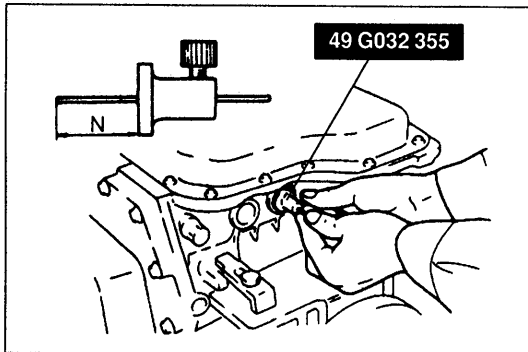
41. Set the valve body assembly in piston, and align the manual plate and manual valve.
42. Install the bolts.

Tightening torque:

10.8—14.7 N·m { 110—150 kgf·cm , 96—130 in·lbf }

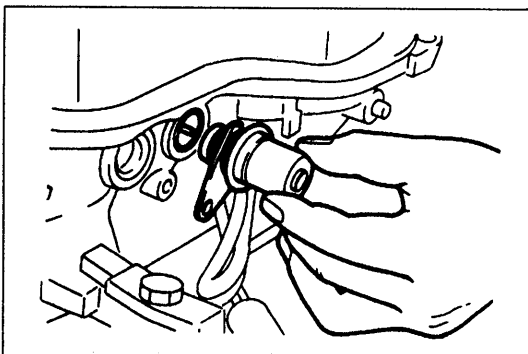


- 43. Connect the solenoid valve connectors.
- 44. Install the harnesses.

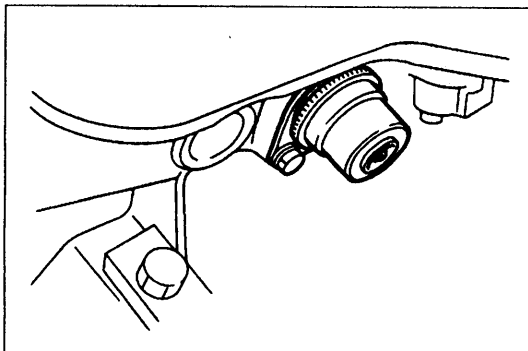


- 45. Apply ATF to a new O-ring, and install it onto the vacuum diaphragm.
- 46. Select the diaphragm rod.
 - (1) Measure dimension N by using the **SST** and a scale.
 - (2) Select the proper diaphragm rod in accordance with the table below.

Dimension N	Applicable diaphragm rod
Below 25.65 mm { 1.0099 in }	29.0 mm { 1.14 in }
25.65—26.15 mm { 1.0099—1.0295 in }	29.5 mm { 1.16 in }
25.90—26.40 mm { 1.0197—1.0394 in }	29.75 mm { 1.17 in }
26.15—26.65 mm { 1.0295—1.0492 in }	30.0 mm { 1.18 in }
26.65—27.15 mm { 1.0492—1.0689 in }	30.5 mm { 1.20 in }
27.15 mm { 1.0689 in } or over	31.0 mm { 1.22 in }



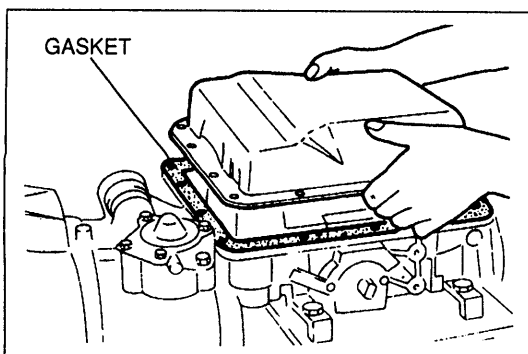
- 47. Apply ATF to a new O-ring, and install it into the transmission case.



- 48. Install the vacuum diaphragm to the transmission case.

Tightening torque:

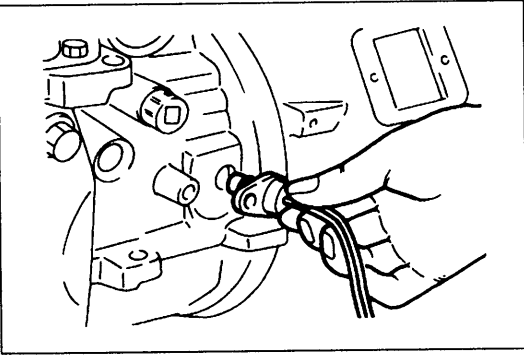
7.9—10.7 N·m { 80—110 kgf·cm , 70—95 in·lbf }



- 49. Set the magnets in the oil pan.
- 50. Install the oil pan along with a new gasket.
- 51. Install the oil pan mounting bolts.

Tightening torque:

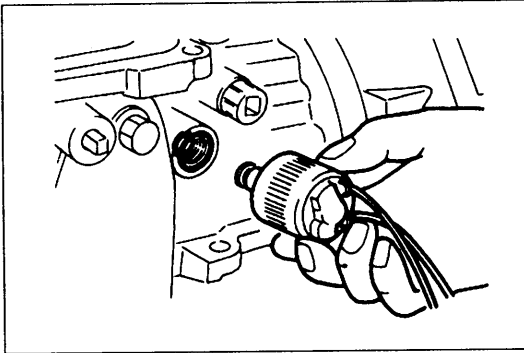
5.9—7.8 N·m { 60—80 kgf·cm , 53—69 in·lbf }



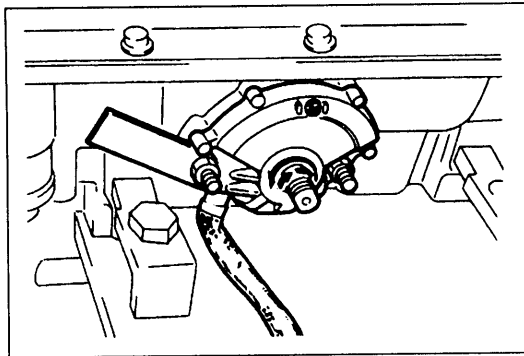
52. Apply ATF to a new O-ring and install it onto the input/turbine speed sensor.
53. Apply locking compound to the mounting bolt threads, then install the input/turbine speed sensor.

Tightening torque:

7.9—10.7 N·m { 80—110 kgf·cm , 70—95 in·lbf }



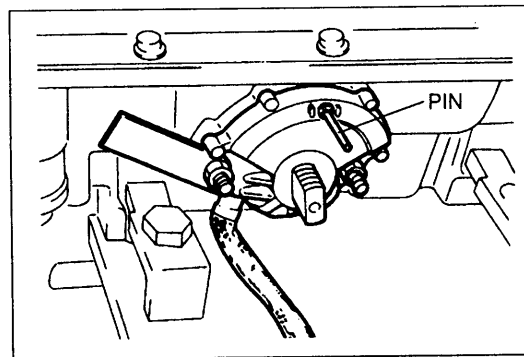
54. Apply ATF to the new O-rings and install them into the transmission case.
55. Install the torque converter clutch control solenoid.



56. Rotate the manual shaft fully rearward; then return it two notches to the N position.
57. Loosely tighten the transmission range switch nuts.
58. Remove the screw on the switch body and move the transmission range switch so that the screw hole on the switch body is aligned with the small hole inside the switch. Check their alignment by inserting a **2.0 mm { 0.0079 in }** diameter pin into the holes.
59. Tighten the switch attaching nuts.
60. Remove the pin, and tighten the screw into the hole.

Tightening torque:

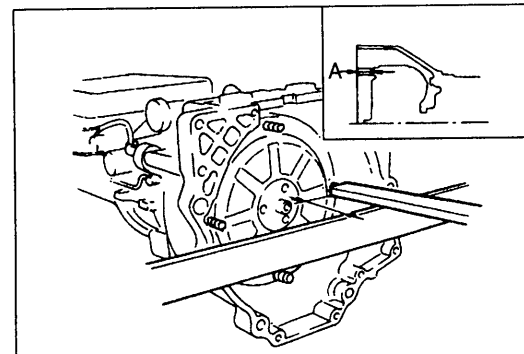
5.0—6.8 N·m { 50—70 kgf·cm , 44—60 in·lbf }



61. Ensure that the torque converter is installed correctly by measuring the distance (A) between the end of the torque converter and the end of the converter housing.

“A”: **22.5 mm { 0.89 in }**



62. Remove the transmission from the engine stand.



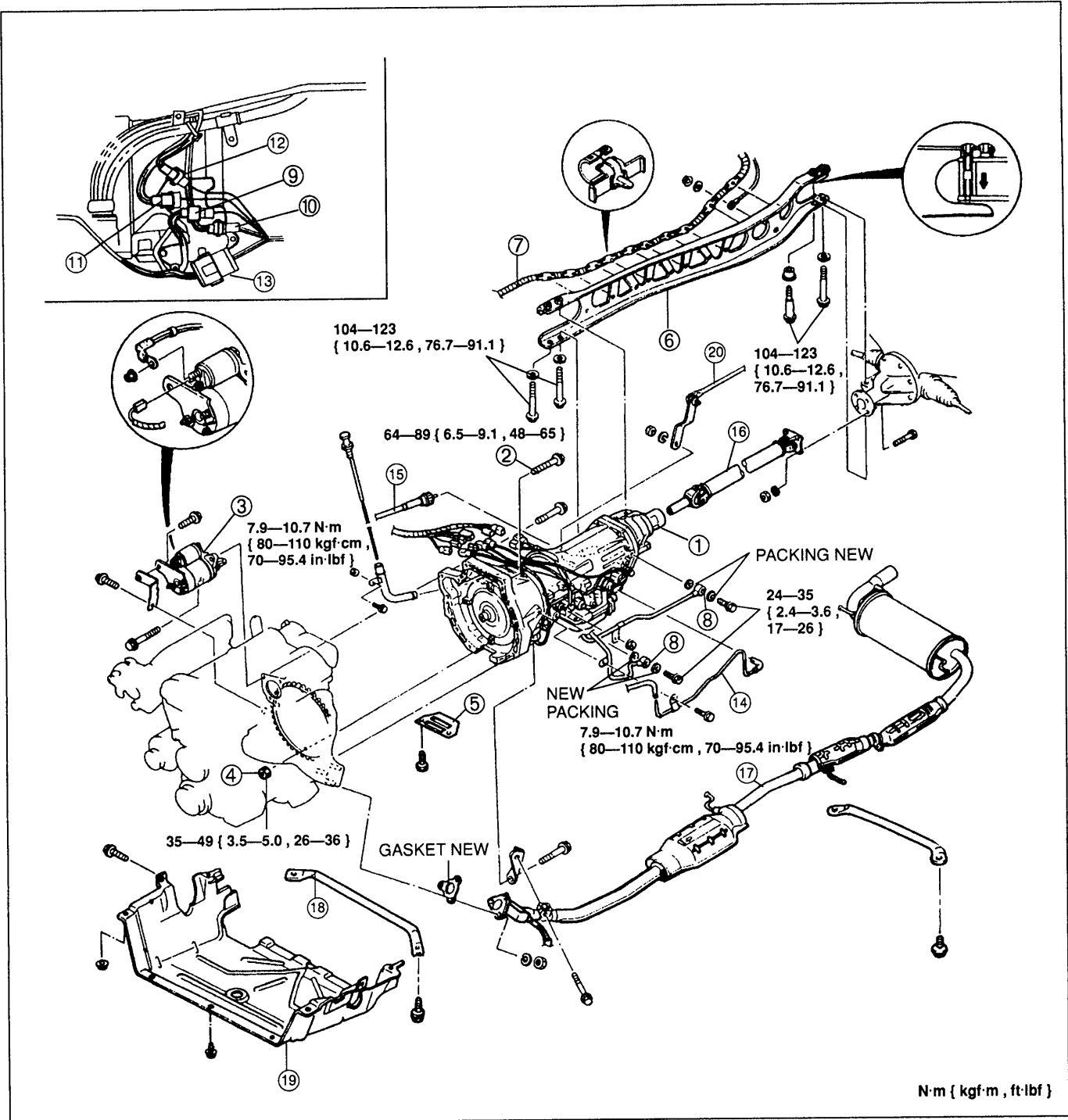
TRANSMISSION UNIT (INSTALLATION)

Preparation

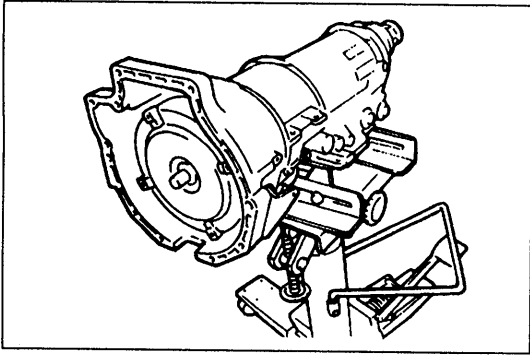
SST

49 0259 440 Holder, mainshaft 	For prevention of oil leakage	49 0877 435 Wrench 	For installation of torque converter bolts
--	-------------------------------------	--	---

1. On level ground, raise the vehicle and support it evenly on safety stands.
2. Install in the order shown in figure, referring to **Installation Note**.
3. Fill the transmission with the specified amount and type of the ATF after installation.
4. Warm up the engine, inspect for oil leakage, and verify correct transmission operation.

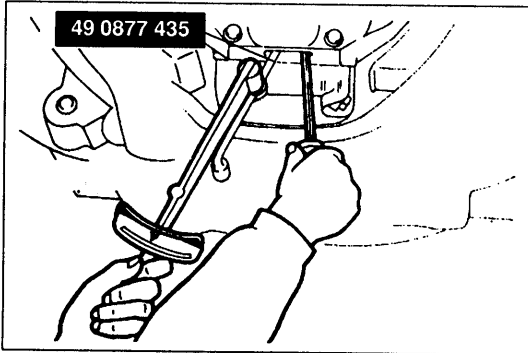


- | | |
|--|---|
| <ul style="list-style-type: none"> 1. Transmission
Installation Note page K-149 2. Transmission mount bolt 3. Starter 4. Torque converter bolt
Installation Note page K-149 5. Under cover 6. Power plant frame (PPF)
Installation Note page K-149 7. Harness 8. Oil pipe 9. Torque converter clutch solenoid connector | <ul style="list-style-type: none"> 10. transmission fluid temperature sensor connector 11. Solenoid connector 12. Input/turbin speed sensor connector 13. Transmission range switch connector 14. Vacuum hose 15. Speedometer cable 16. Propeller shaft
Installation section L 17. Exhaust pipe 18. Performance rod 19. Undercover 20. Shift rod |
|--|---|



Installation Note Transmission

Set the transmission onto the transmission jack, paying special attention not to damage the oil pipes. Make sure that the torque converter side of the transmission is tilted slightly upward.

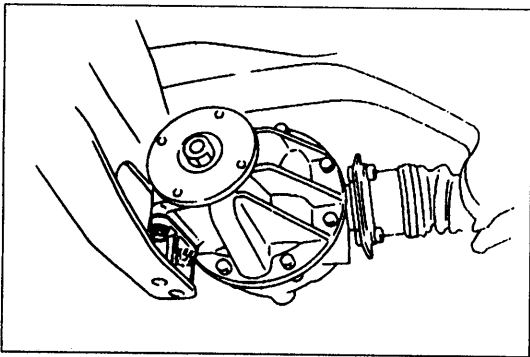


Torque converter bolts

1. Align the holes by turning the torque converter.
2. Lock the drive plate by using a screwdriver.
3. Hand-tighten the torque converter mounting bolts in a crisscross pattern.
4. Modify the torque converter mounting bolts tightening torque to allow for a torque wrench-SST combination (Refer to Section GI "Torque Formulas")
5. Tighten the torque converter mounting bolts by using the SST.

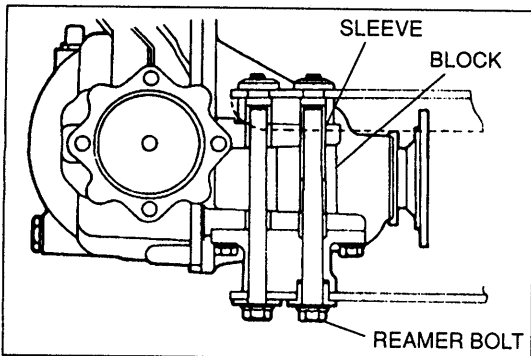
Tightening torque:

35—49 N·m { 3.5—5.0 kgf·m , 26—36 ft·lbf }

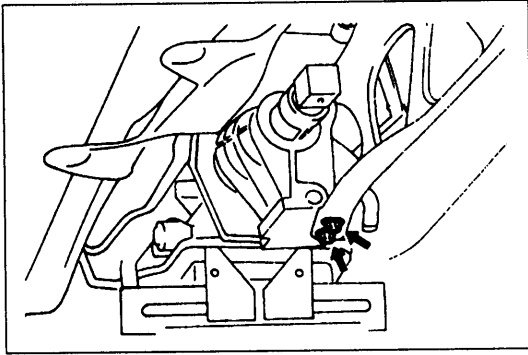


Power plant frame (PPF)

1. Support the transmission with a jack so that it is level.
2. Position the power plant frame and tighten the transmission-side bolts by hand.

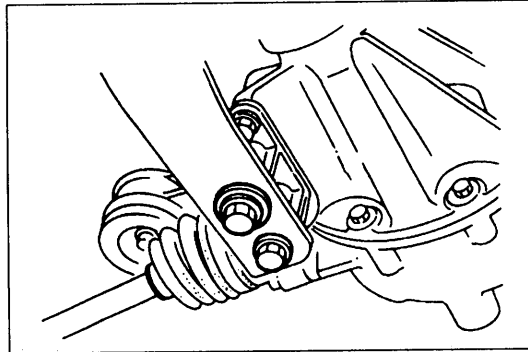


3. Verify that the sleeve is installed into the block.
4. Install the spacer and reamer bolts in the forward hole, and hand-tighten them.



5. Tighten the transmission-side bolts.

Tightening torque: 104—123 N·m
 { 10.6—12.6 kgf·m , 76.7—91.1 ft·lbf }



6. Tighten the differential-side bolts.

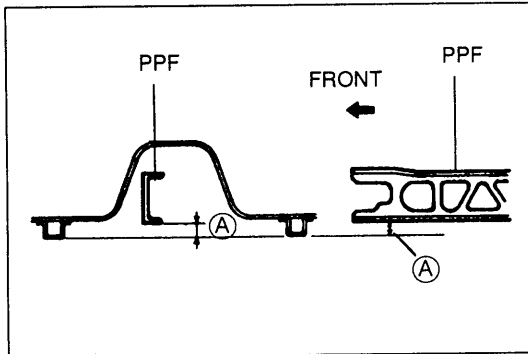
Tightening torque: 104—123 N·m
 { 10.6—12.6 kgf·m , 76.7—91.1 ft·lbf }

7. Remove the jack.

8. Measure distance A with a straightedge and vernier calipers.

Distance A: 51.5—61.5 mm { 2.023—2.417 in }

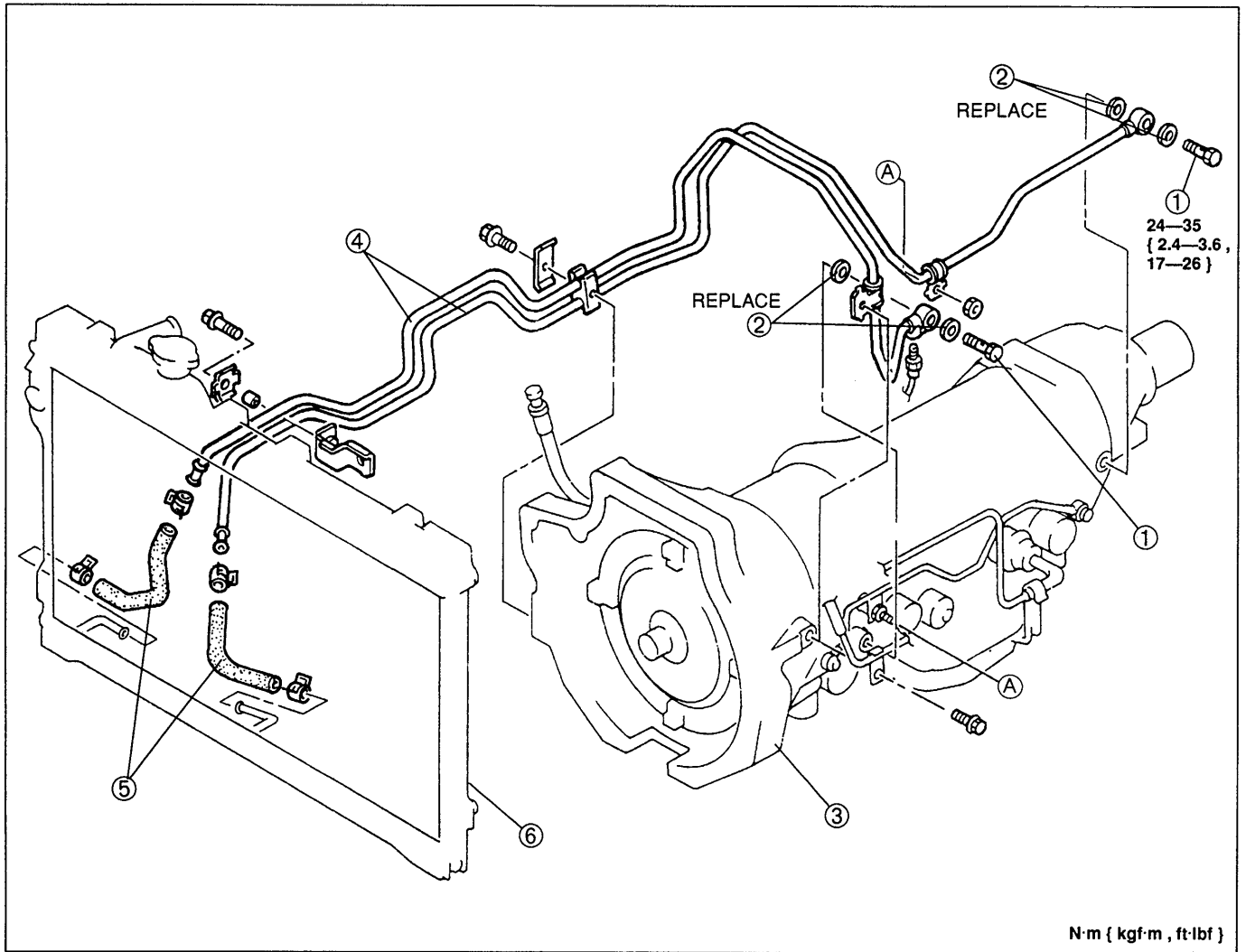
9. If the distance is not within specification, reposition the power plant frame at the transmission.



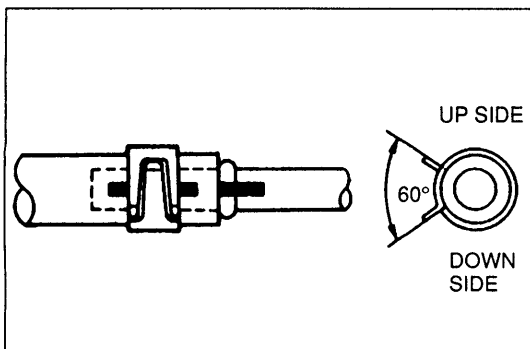
OIL COOLER

REMOVAL / INSPECTION / INSTALLATION

1. Remove in the order shown in the figure.
2. Inspect all parts and repair or replace as necessary.
3. Install in the reverse order of removal, referring to **Installation Note**.



- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Connector bolts
Inspect for clogging 2. Packing 3. Transmission
Removal page K- 45
Installation page K-148 | <ol style="list-style-type: none"> 4. Oil pipe
Inspect for damage or cracks
Installation Note below 5. Oil hose
Inspect for damage or cracks 6. Radiator |
|---|---|



Installation Note





Oil pipe

1. Align the marks, and slide the oil cooler hose onto the oil cooler pipe until it contacts the ridge.
2. Install the hose clamp onto the hose at the center of the mark and at the angle shown. If reusing the hose, position the new hose clamp in the mark left by the previous hose clamp.
3. Verify that the hose clamp does not interfere with any other parts.

DRIVE PLATE

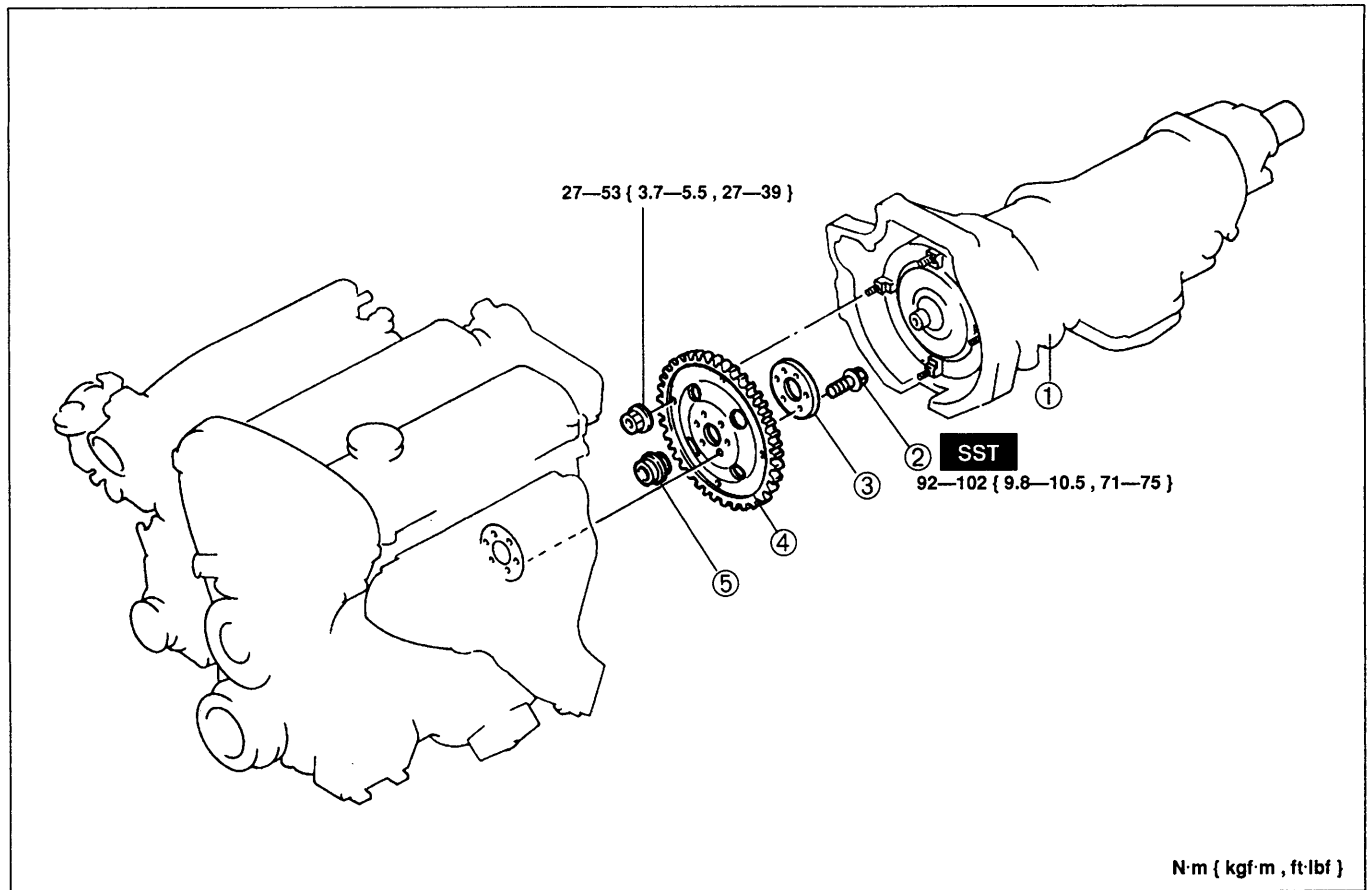
PREPARATION

SST

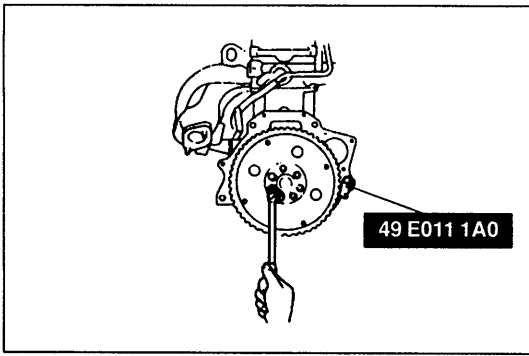
<p>49 E011 1A0</p> <p>Brake set, ring gear</p> 	<p>For holding ring gear</p>	<p>49 E011 103</p> <p>Shaft (Part of 49 E011 1A0)</p> 	<p>For holding ring gear</p>
<p>49 E011 104</p> <p>Collar (Part of 49 E011 1A0)</p> 	<p>For holding ring gear</p>	<p>49 E011 105</p> <p>Stopper (Part of 49 E011 1A0)</p> 	<p>For holding ring gear</p>

REMOVAL / INSPECTION / INSTALLATION

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Inspect all parts and repair or replace as necessary.
3. Install in the reverse order of removal, referring to **Installation Note**.



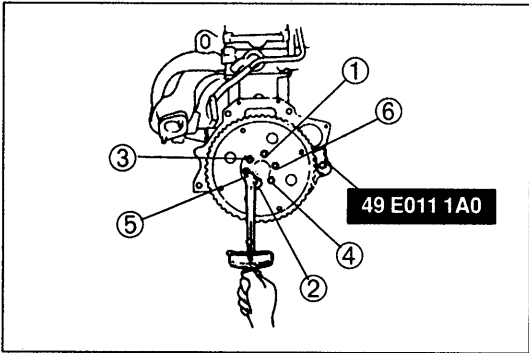
- | | |
|---|--|
| <p>1. Transmission
Removal page K- 45
Installation page K-148</p> | <p>4. Drive plate
Removal Note page K-153
Inspect for cracks. Inspect ring gear for wear and damage
Installation Note page K-153</p> |
| <p>2. Bolts
3. Backing plate</p> | <p>5. Adapter</p> |



Removal Note

Drive plate

Hold the drive plate by using the **SST** or equivalent, for removal of the mounting bolts.



Installation Note

Drive plate

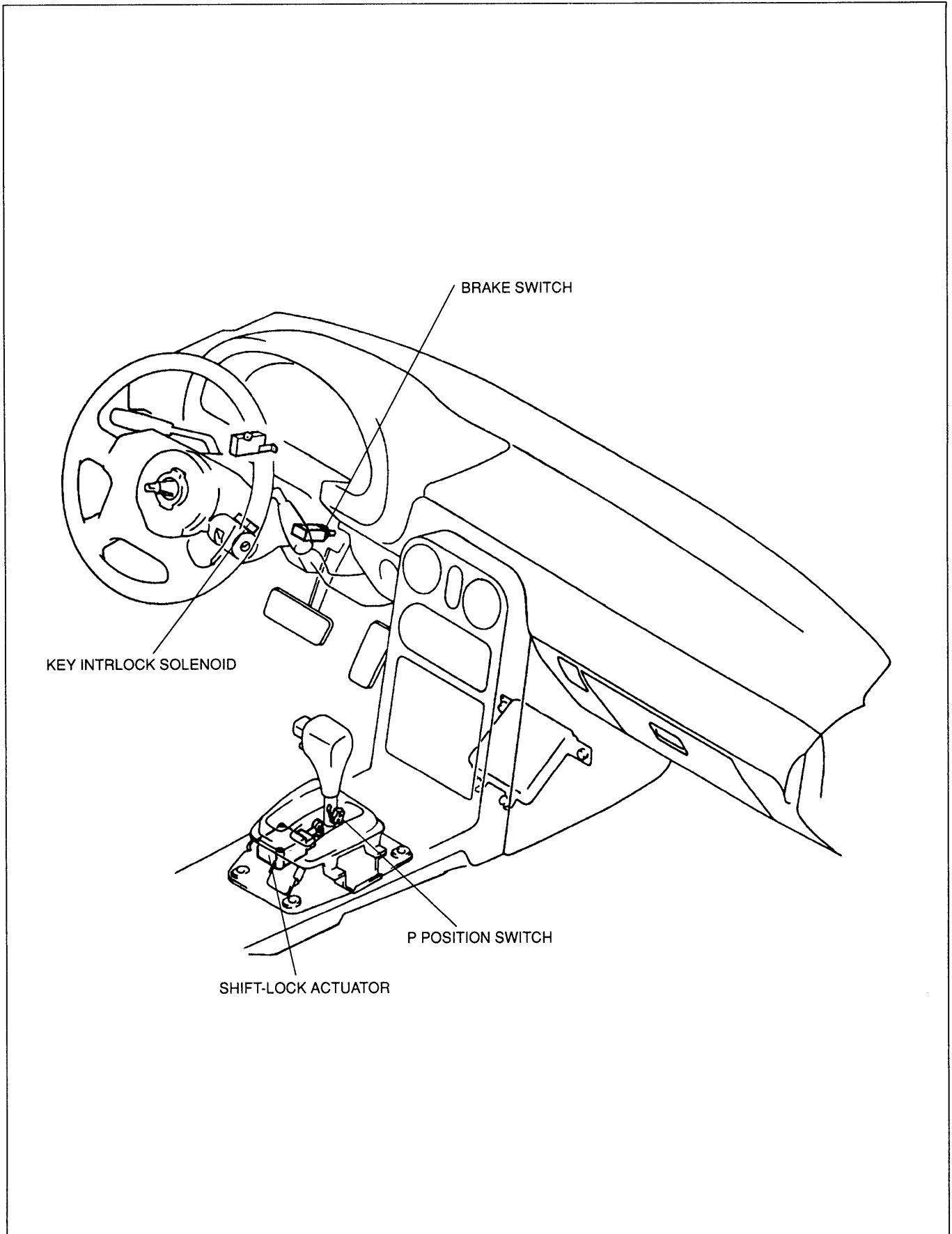
1. Assemble the adapter, drive plate, and backing plate.
2. Install the **SST** or equivalent, and tighten the bolts in the order shown.

Tightening torque:

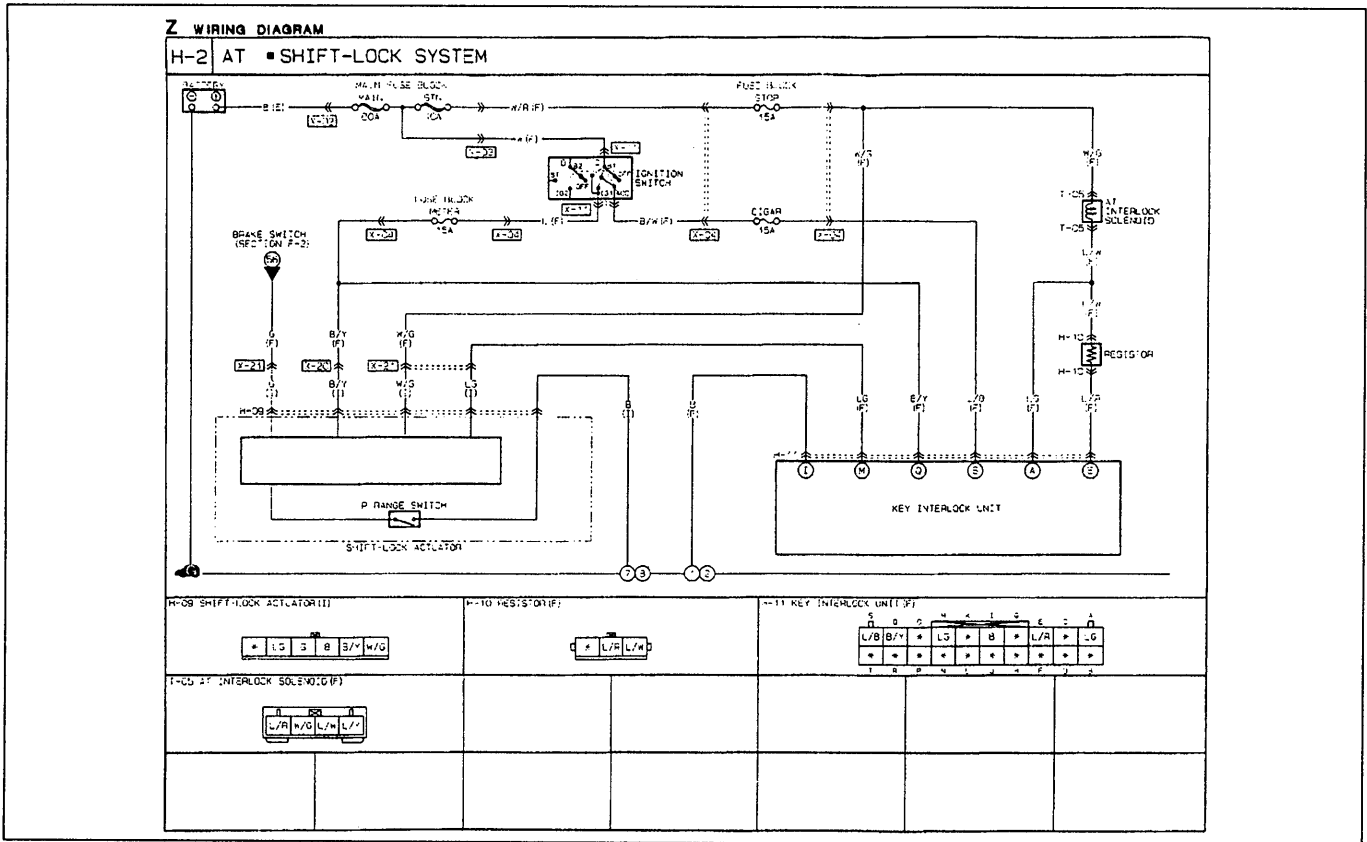
97—102 N·m { 9.8—10.5 kgf·m , 71—75 ft·lbf }

SHIFT MECHANISM (WITH SHIFT-LOCK SYSTEM)

SHIFT-LOCK SYSTEM COMPONENTS



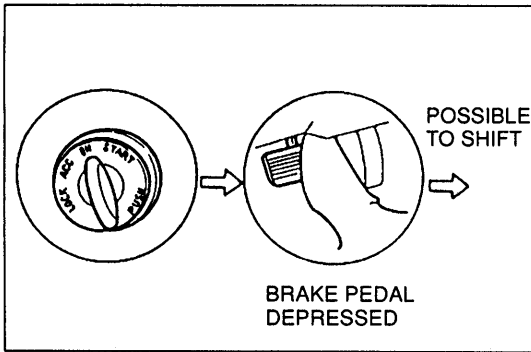
TROUBLESHOOTING Circuit Diagram



Diagnosis chart

Problem	Possible cause	Action	Page
Selector lever cannot be moved from P position with brake pedal depressed and ignition switch ON	ROOM 10 A fuse burned or not installed	Install or replace	K-155
	METER 10 A fuse burned	Replace	K-155
	IG1 system malfunction <ul style="list-style-type: none"> • Wire harness broken • Poor connection • IG 80 A fuse burned 	Repair or replace Connect firmly Replace	K-155 K-155 K-155
	Ignition switch malfunction	Inspect and replace	section T
	Brake switch remains OFF	Adjust or replace	section T
	Stop light system malfunction <ul style="list-style-type: none"> • Wire harness broken • Poor connection • STOP 15 A fuse burned 	Repair or replace Connect firmly Replace	K-155 K-155 K-155
	P position switch remains OFF	Inspect and replace	K-158
	P position switch system malfunction <ul style="list-style-type: none"> • Wire harness broken (poor ground) • Poor connection 	Repair or replace Connect firmly	K-155 K-155
	Shift-lock actuator malfunction <ul style="list-style-type: none"> • Wire harness broken • Poor connection 	Inspect and replace Repair or replace Connect firmly	K-155 K-155
	Misadjustment of selector lever or improper assembly of shift-lock actuator	Adjust or repair	K-159

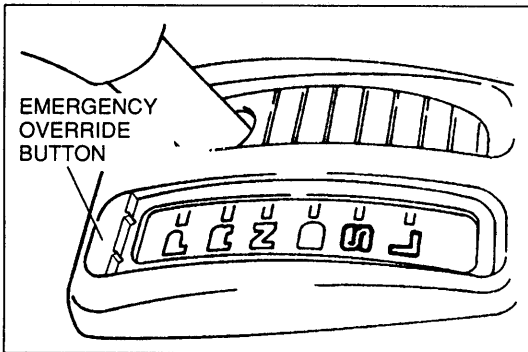
Problem	Possible cause	Action	Page
Selector lever can be moved from P position with ignition switch ON, but without brake pedal depressed	ROOM 10 A fuse burned or not installed	Install or replace	K-155
	Brake switch remains ON	Adjust or replace	section T
	Shift-lock actuator malfunction	Inspect and replace	K-159
	Misadjustment of selector lever or improper assembly of shift-lock actuator	Adjust or replace	K-159
Selector lever can be moved from P position with ignition switch OFF and brake pedal depressed	ROOM 10 A fuse burned or not installed	Install or replace	K-155
	Ignition switch malfunction	Inspect and replace	section T
	Shift-lock actuator malfunction	Inspect and replace	K-159
	Misadjustment of selector lever or improper assembly of shift-lock actuator	Adjust or replace	K-159
Shift-lock actuator operation heard when brake pedal depressed with ignition switch ON in other than P position	P position switch remains ON	Inspect and replace	K-159
	Misadjustment of selector lever or improper assembly of shift-lock actuator	Adjust or replace	K-159
Selector lever remains locked when emergency override button operated	Emergency override button not pushed fully down	Push down fully and hold emergency override button, move selector lever	—
	Broken emergency override button	Replace	K-163
	Misadjustment of indicator pedal	Adjust	K-161
Ignition key can be turned to lock position with selector lever in other than P position	ROOM 10 A fuse burned or not installed	Install or replace	K-151
	P position switch remains ON	Inspect and replace	K-159
	P position switch system malfunction <ul style="list-style-type: none"> • Wire harness broken • Poor connection 	Repair or replace Connect firmly	K-166 K-166
	Key interlock solenoid malfunction <ul style="list-style-type: none"> • Wire harness broken • Poor connection 	Inspect and replace Repair or replace Connect firmly	K-158 K-158 K-158
	Key cylinder (push switch) malfunction <ul style="list-style-type: none"> • Wire harness broken • Poor connection 	Inspect and replace Repair or replace Connect firmly	section T K-155 K-155
	Key interlock unit malfunction	Inspect and replace	section T
	Key interlock solenoid malfunction	Inspect and replace	section T
Ignition key cannot be turned to lock position with selector lever in P position	P position switch remains OFF	Inspect and replace	K-158
	Key interlock solenoid malfunction	Inspect and replace	K-158
	Key cylinder (push switch) malfunction	Inspect and replace	section T
	Misadjustment of selector lever	Adjust	K-160



SHIFT-LOCK

Inspection

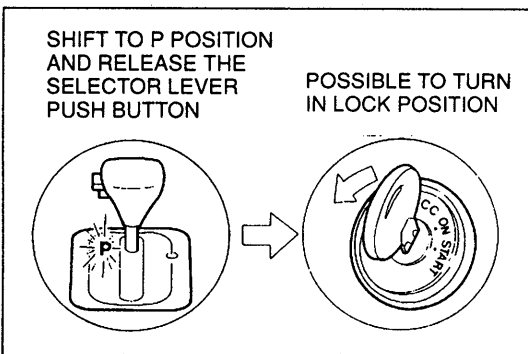
1. Turn the ignition switch to ON engine OFF.
2. Verify that the selector lever is in P position.
3. Without the brake pedal depressed, verify that the selector lever cannot be shifted from P position.
4. Depress the brake pedal and verify that the selector lever can be shifted from P position.
5. If not as specified, check the P position switch continuity and/or shift-lock actuator terminal voltage and continuity. (Refer to page K-159.)



EMERGENCY OVERRIDE BUTTON

Inspection

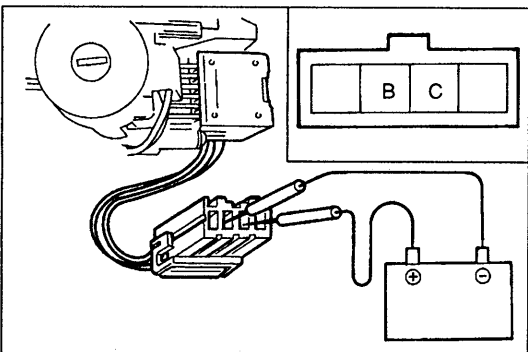
1. Verify that the engine is off.
2. Verify that the selector is locked in P position.
3. Remove the indicator panel cover with the screwdriver as shown.
4. Insert the screwdriver into the emergency override hole, push down, and verify that the selector lever can be shifted from P position.
5. If not as specified, inspect and repair as necessary, referring to the Troubleshooting diagnosis chart. (Refer to page K-155.)



KEY INTERLOCK

Inspection

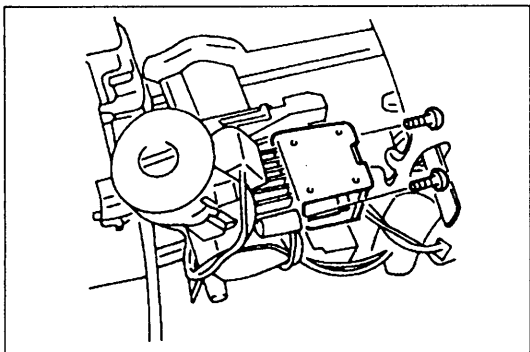
1. Turn the ignition switch to ON engine OFF.
2. Shift the selector lever to R position.
3. Verify that the ignition key cannot be turned to the LOCK position.
4. Shift the selector lever to P position.
5. Verify that the ignition key can be turned to the LOCK position.
6. If not as specified, inspect and repair as necessary, referring to Troubleshooting. (Refer to page K-155.)



KEY INTERLOCK SOLENOID

Inspection

1. Disconnect the negative battery cable.
2. Remove the column cover.
3. Disconnect the key interlock solenoid connector.
4. Insert the ignition key in the key cylinder.
5. Apply battery voltage between terminals B and C, and verify that the solenoid operates.
6. If not as specified, replace key interlock solenoid.
7. Connect the key interlock solenoid connector.
8. Install the column cover.
9. Connect the negative battery cable.



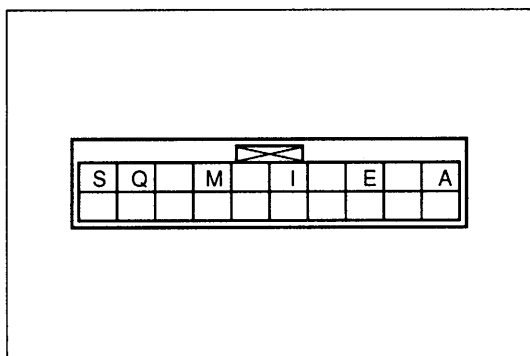
Replacement

1. Disconnect the negative battery cable.
2. Remove the column cover.
3. Disconnect the key interlock solenoid connector.
4. Remove the screws and the key interlock solenoid.
5. Install the key interlock solenoid and tighten the screws.

Tightening torque:

6.9—13 N·m { 70—130 kgf·m , 61—113 ft·lbf }

6. Verify that the key interlock solenoid operates. (Refer to "Inspection" above.)
7. Connect the key interlock solenoid connector.
8. Install the column cover.
9. Connect the negative battery cable.



KEY INTERLOCK UNIT

Inspection

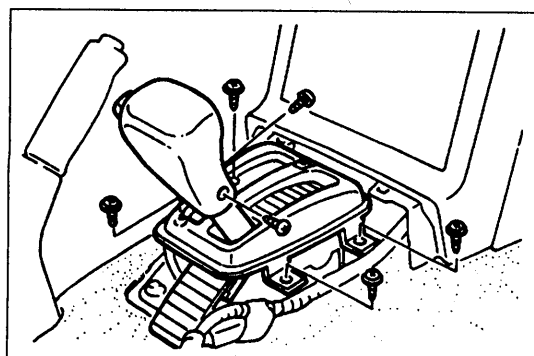
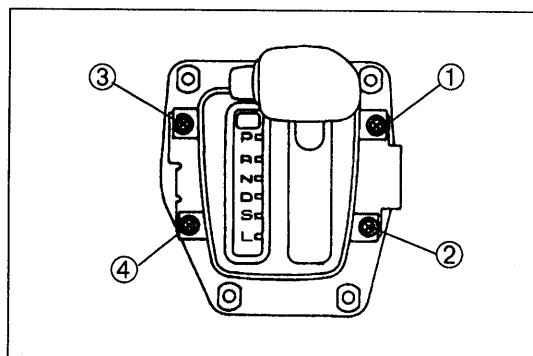
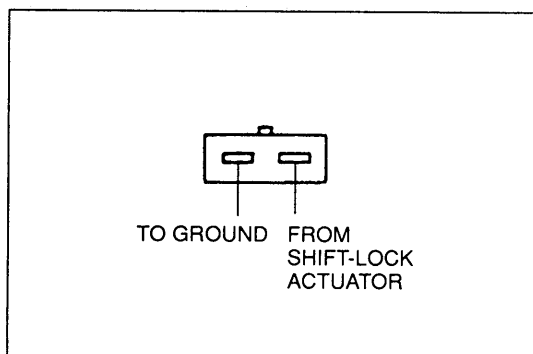
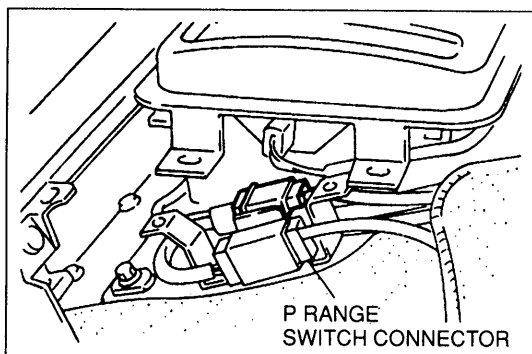
1. Remove the column cover.
2. Turn the ignition switch ON, and check terminal voltages, referring to the chart below.
3. If not as specified, repair the wiring harness and/or key interlock unit.

B+: Battery positive voltage

Terminal	⊖ terminal connected to	Condition	Correct measurement valve
A	I	Within 2 seconds of twning the P-position switch ON, and either the ACC or IG ON.	0
		Except above conditions	B+
E	I	P-position switch and ACC are ON, or IG is ON	0
		Except above condition	B+
I	Ground	Constant	0
M	I	P-position switch ON	0
		P-position switch OFF	B+
Q	I	Ignition switch ON	B+
		Ignition switch OFF	0
S	I	ACC switch ON	B+
		ACC switch OFF	0

Replacement

1. Disconnect the negative battery cable.
2. Disconnect the key interlock unit connector.
3. Remove the key interlock unit.
4. Install the new key interlock unit.
5. Connect the key interlock unit connector.
6. Connect the negative battery cable.



P POSITION SWITCH

Inspection

Continuity

1. Disconnect the negative battery cable.
2. Remove the rear console.
3. Remove the screws and lift up the indicator panel.
4. Disconnect the P position switch connector.
5. Check continuity between the terminals.

Position/Range	Selector lever release button	Continuity
P	Released	Yes
	Depressed	No
R, N, D, S, L	—	No

6. If not as specified, replace the P position switch. (Refer to page K-166.)

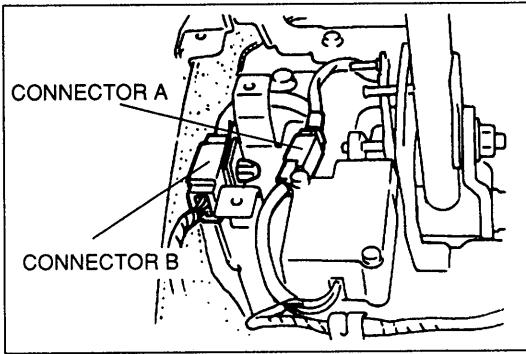
7. Connect the P position switch connector.
8. Adjust the indicator panel. (Refer to page K-161.) Install the screws in the order shown in the figure.
9. Install the rear console.
10. Connect the negative battery cable.
11. Verify correct operation of the shift-lock system.

SHIFT-LOCK ACTUATOR

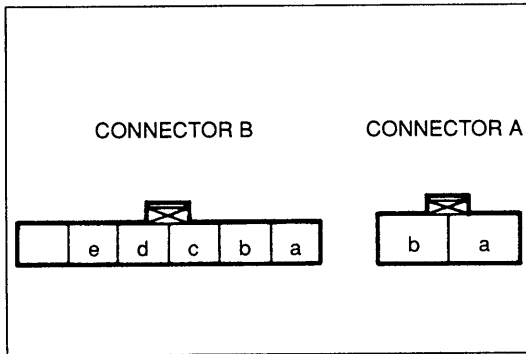
Inspection

Terminal voltage and continuity

1. Remove the rear console
2. Remove the selector knob and indicator panel screws.



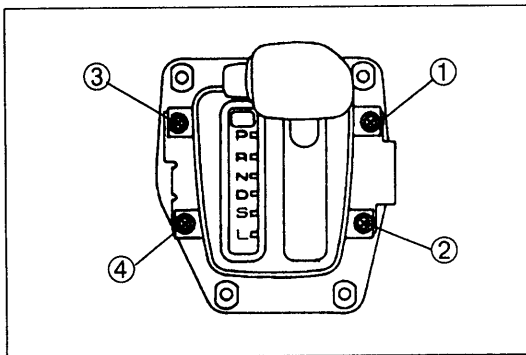
3. Lift up slightly on the selector lever, selector sleeve, and indicator panel, and disconnect the HOLD switch connector.
4. Disconnect the HOLD switch connector.
5. Shift the selector lever to P position.



6. Turn the ignition switch ON, and check terminal voltages and continuity, referring to the chart below. Disconnect the shift-lock actuator connector to check continuity between terminal c (harness side) and ground.
7. If not as specified, repair the wiring harness and/or shift-lock actuator.

B+: Battery positive voltage

Connector	Terminal	⊖ terminal connected to	Condition	Correct measurement valve
A	a	B—C	P position, selector lever release button not depressed	0 Ω
A	b	B—C	Constant	0 Ω
B	a	B—C	Ignition switch OFF	B+
B	b	B—C	Ignition switch ON	B+
B	C (harness side)	Body	Constant	0 Ω
B	d	B—C	Brake pedal released → depressed	0 V → B+
B	e	B	P position, selector lever release button not depressed	0 V

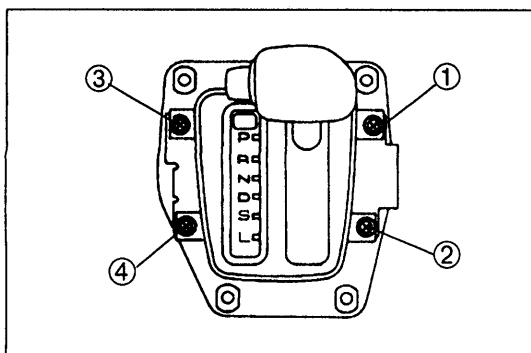
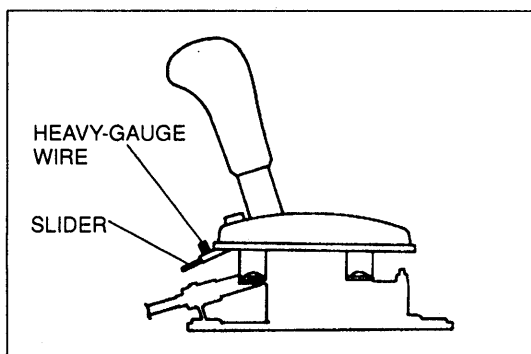
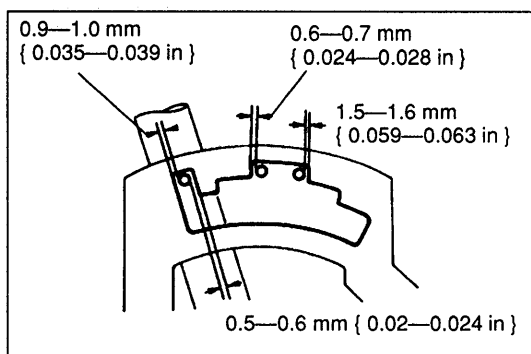
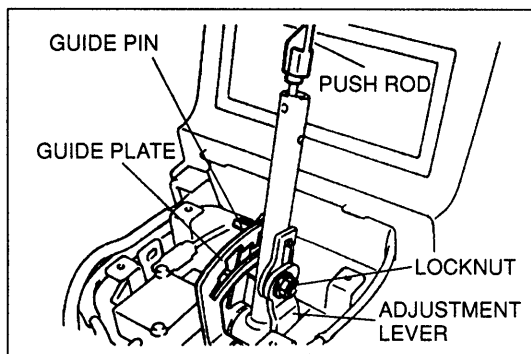
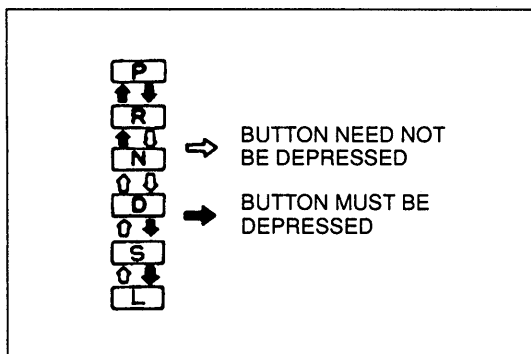


8. Grasp the HOLD switch wiring harness and pull it while pushing the selector knob down fully onto the selector lever.
9. Connect the HOLD switch connector.
10. Adjust the indicator panel. (Refer to page K-161.) Install the screws in the order shown in the figure.
11. Apply locking compound to the selector knob screw threads after the threads have been cleaned. Tighten the screws.

Tightening torque:

2.0—2.9 N·m { 20—30 kgf·cm , 18—26 in·lbf }

12. Install the rear console.
13. Connect the negative battery cable.
14. Verify correct operation of the shift-lock system.



SELECTOR LEVER

Inspection

1. Verify that the selector lever can only be shifted as shown in the figure. When shifting from P position, do so with the ignition switch ON and the brake pedal depressed.
2. Verify there is a click at each range when shifted from P → L range.
3. Verify that the positions of the selector lever and the indicator are aligned.
4. Verify that the button returns smoothly when pushed to shift.

Adjustment

Lever position

1. Disconnect the negative battery cable to deactivate the shift-lock.
2. Remove the rear console, selector knob, selector sleeve, and indicator panel. (Refer to "Shift-lock actuator inspection"; page K-159, steps 1—6.)
3. Loosen the locknut.
4. Shift the transmission to P position by pushing the adjustment lever forward.
5. Adjust the lever so that the clearance between the guide plate and the guide pin in P position with the push rod lightly depressed is as shown.
6. Tighten the locknut.

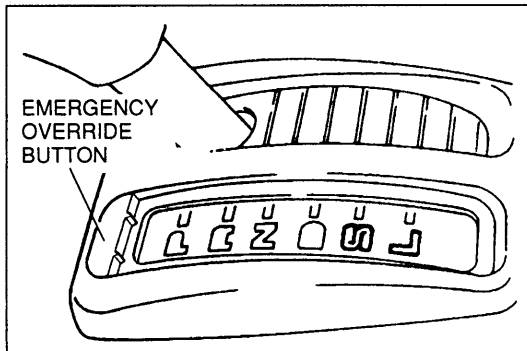
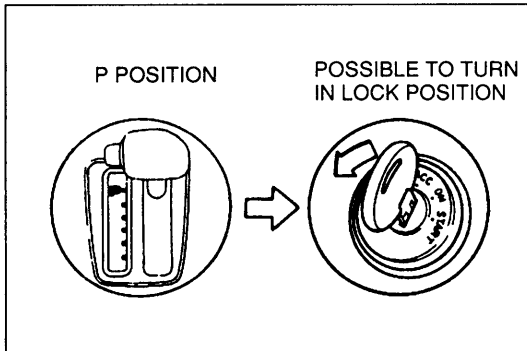
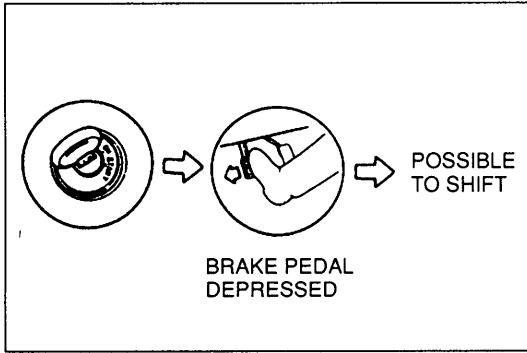
Tightening torque:

18—24 N·m { 1.8—2.5 kgf·m , 14—18 ft·lbf }

7. Move the selector lever to N position and D range and verify that there is the same clearance between the guide plate and the guide pin.
8. If not as specified, readjust the lever.
9. Install the indicator panel, selector sleeve, selector knob, and rear console in the reverse order of removal.
10. Check the selector lever operation. (Refer to "Inspection"; page K-161.)

Indicator panel

1. Remove the rear console.
2. Shift the selector lever to P position.
3. Loosen the indicator screws.
4. Align the alignment hole in the slider with the hole in the indicator panel. Install suitable heavy-gauge wire to hold the slider.
5. Tighten the indicator mounting screws in the order shown in the figure.
6. Remove the wire from the slider.
7. Verify that the selector lever properly aligns with the indicator in each range.
8. Verify correct operation of the emergency override button.



Shift-lock System Operation Inspection

Shift-lock system

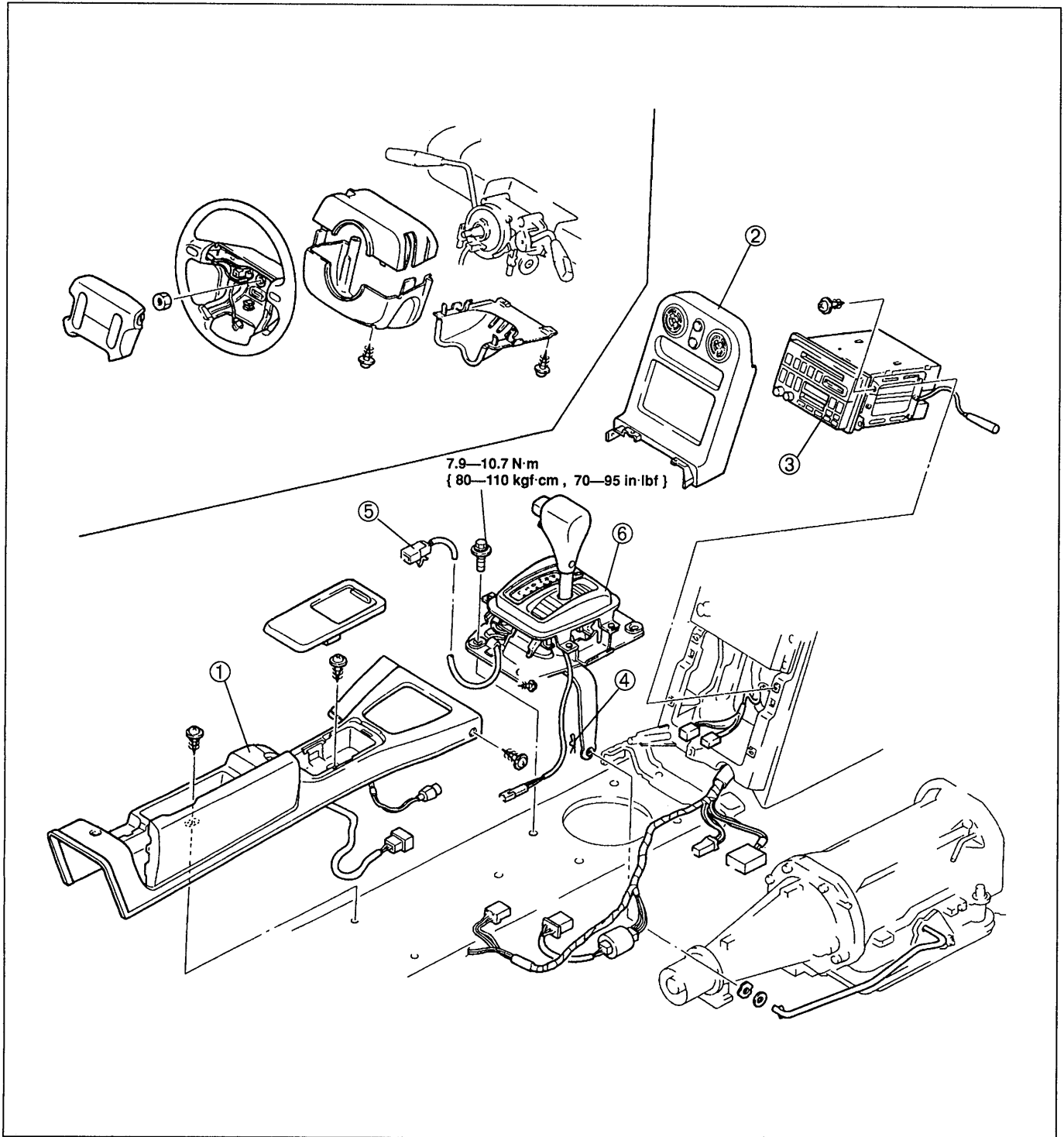
1. Turn the ignition switch ON, engine OFF
2. Verify that the selector lever is in P position.
3. Without the brake pedal depressed, verify that the selector lever cannot be shifted from P position.
4. Depress the brake pedal. Verify that the selector lever can be shifted from P position.
5. Shift the selector lever to R position.
6. Verify that the ignition key cannot be turned to the LOCK position.
7. Shift the selector lever to P position.
8. Verify that the ignition key can be turned to the LOCK position.
9. If not as specified, inspect and repair as necessary, referring to "Troubleshooting".

Emergency override button

1. Verify that the engine is off.
2. Verify that the selector is locked in P position.
3. Remove the indicator panel cover with the screwdriver as shown.
4. Insert the screwdriver into the emergency override hole, push down, and verify that the selector lever can be shifted from P position.
5. If not as specified, inspect and repair as necessary, referring to "Troubleshooting".

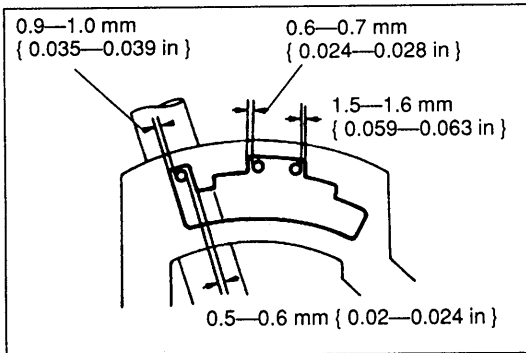
Removal / Inspection / Installation

1. Disconnect the negative battery cable.
2. Remove in the order shown in the figure, referring to **Removal Note**.
3. Inspect all parts and repair or replace as necessary.
4. Install in the reverse order of removal, referring to **Installation Note**.



- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Rear console 2. Center panel 3. Audio unit 4. Spring pin | <ol style="list-style-type: none"> 5. Shift-lock actuator connector 6. Selector lever |
|--|---|

Removal Note page K-164
 Installation Note page K-164

**Removal note****Selector knob**

Refer to shift-lock actuator inspection; page K-159, Steps 2—6.

Spring pin

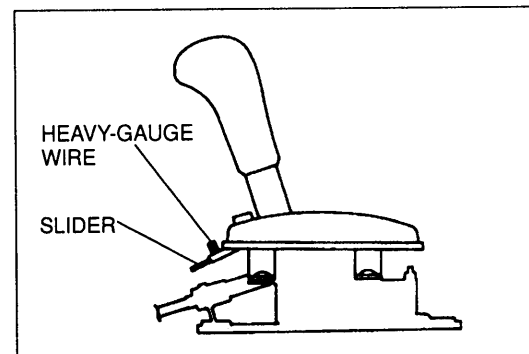
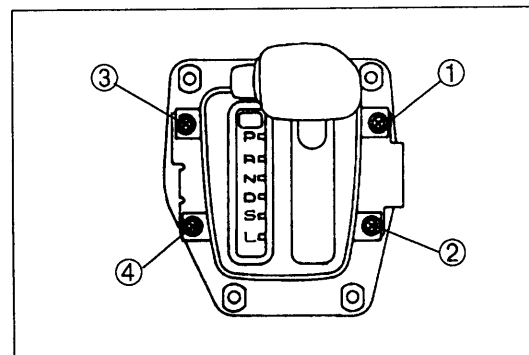
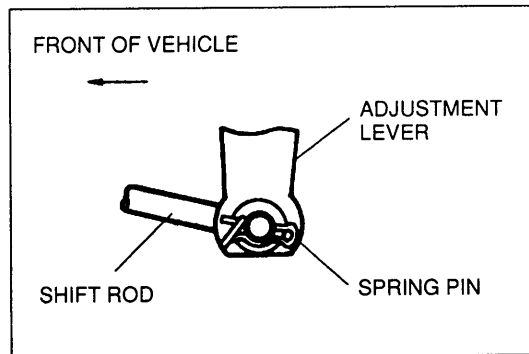
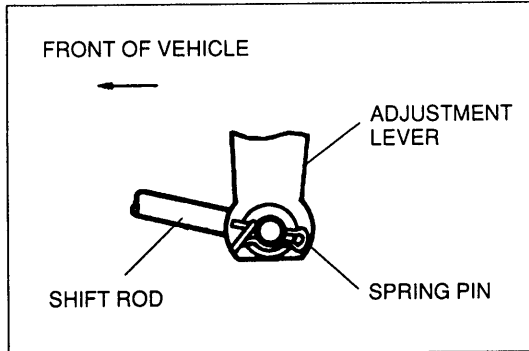
1. On level ground, jack up the vehicle and support it evenly on safety stands.
2. Remove the spring pin.

Installation note**Spring pin**

1. On level ground, jack up the vehicle and support it evenly on safety stands.
2. Install a new spring pin forward as shown in the figure.
3. Adjust the selector lever position. (Refer to page K-161.)

Indicator panel

1. Set the selector sleeve over the selector lever.
2. Grasp the HOLD switch wiring harness and pull it while pushing the selector knob down fully on the selector lever.
3. Connect the HOLD switch connector.
4. Shift the selector lever to P position.
5. Align the alignment hole in the slider with the hole in the indicator panel. Install suitable heavy-gauge wire to hold the slider.
6. Tighten the indicator mounting screws in the order shown in the figure.
7. Remove the wire from the slider.
8. Verify that the selector lever properly aligns with the indicator in each range.
9. Verify correct operation of the emergency override button.



Selector knob

1. Apply locking compound to the selector knob screws after the threads have been cleaned. Tighten the screws.

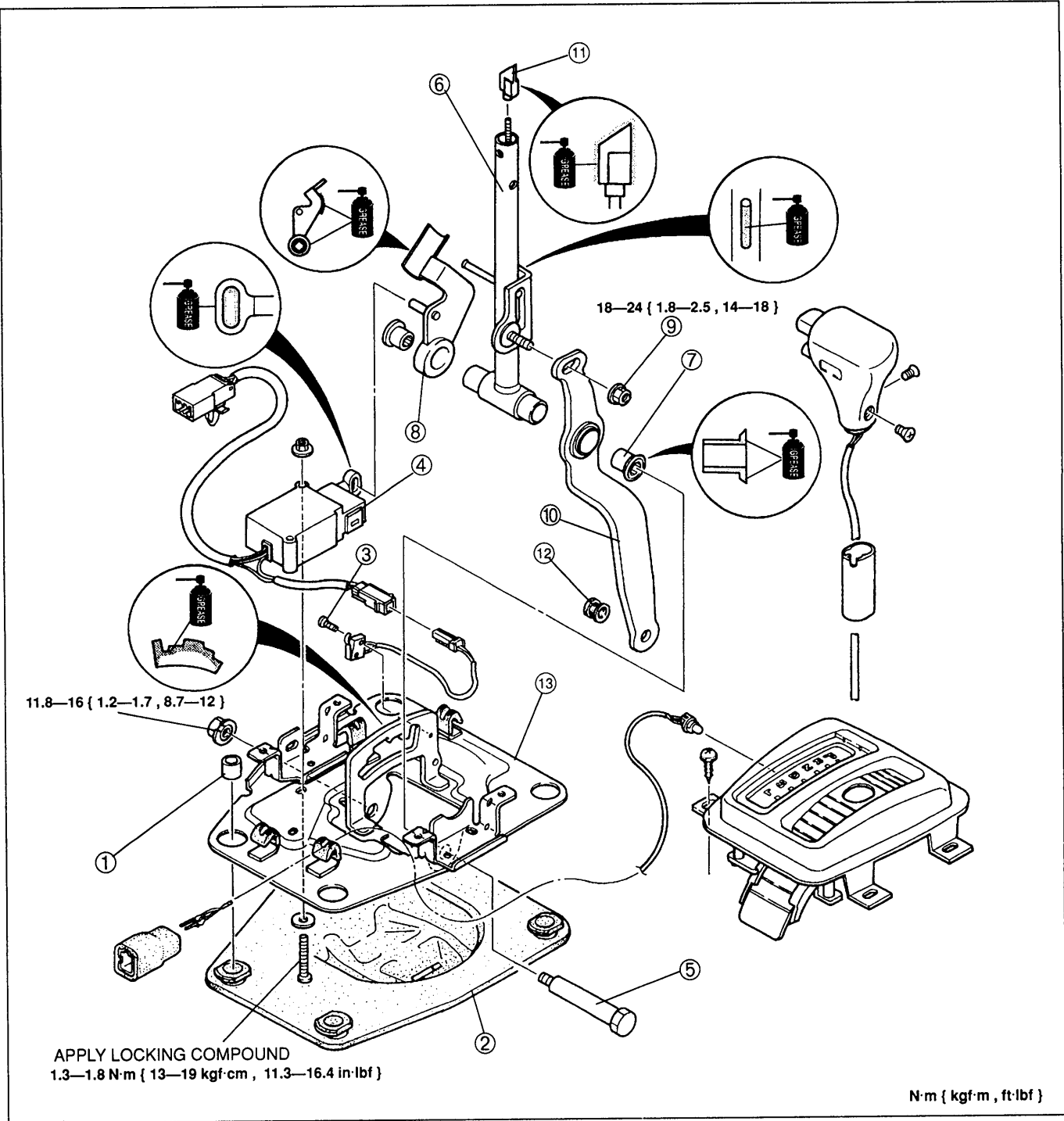
Tightening torque:

2.0—2.9 N·m { 20—30 kgf·cm , 18—26 in·lbf }

2. Check the selector lever and shift-lock system operation. (Refer to pages K-161, 162.)

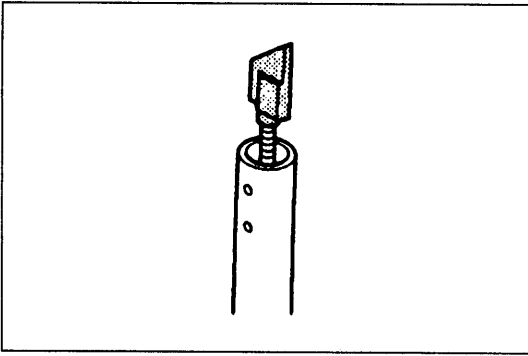
Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly Note**.



- | | |
|------------------------|------------|
| 1. Spacer | |
| 2. Boot | |
| 3. P position switch | |
| Inspection | page K-159 |
| 4. Shift lock actuator | |
| 5. Spindle | |
| 6. Push rod assembly | |
| 7. Bushing | |

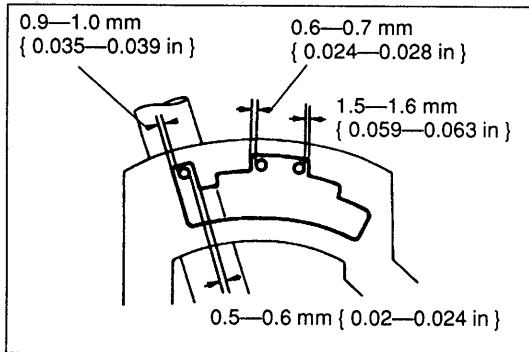
- | | |
|----------------------------|------------|
| 8. Lock lever | |
| 9. Locknut | |
| 10. Adjustment lever | |
| 11. Cam | |
| Assembly Note | page K-167 |
| 12. Bushing | |
| 13. Selector lever bracket | |

**Assembly note****Cam**

1. Loosely install the cam to the push rod.

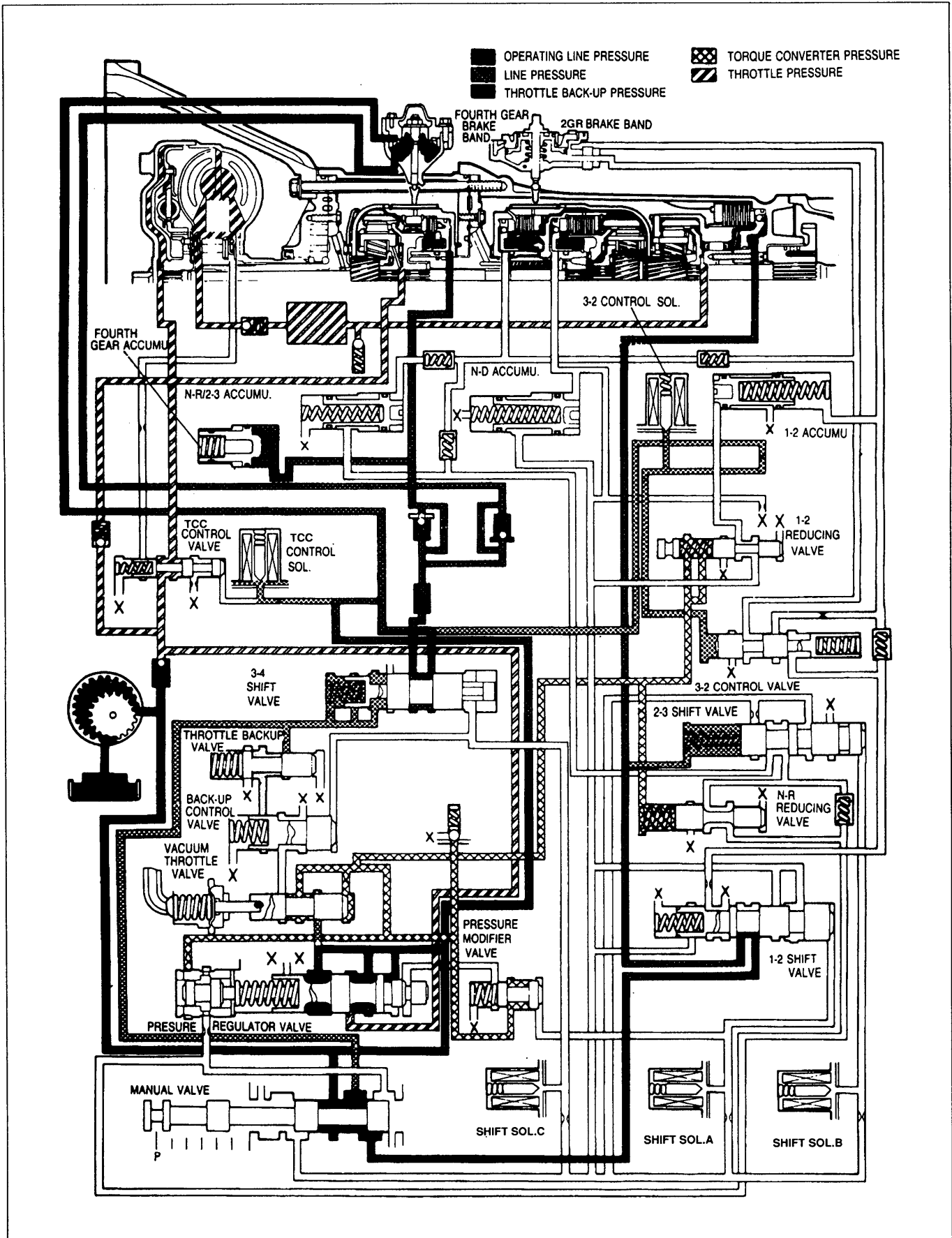
Note

- Clearance becomes smaller by turning the cam clockwise.
2. Adjust the clearance between the guide plate and the guide pin by turning the cam.
 3. Install the selector lever knob and verify that the clearance is as specified.
 4. If not, repeat from step 2.
 5. Remove the selector lever knob.
 6. Apply grease to the cam as shown.

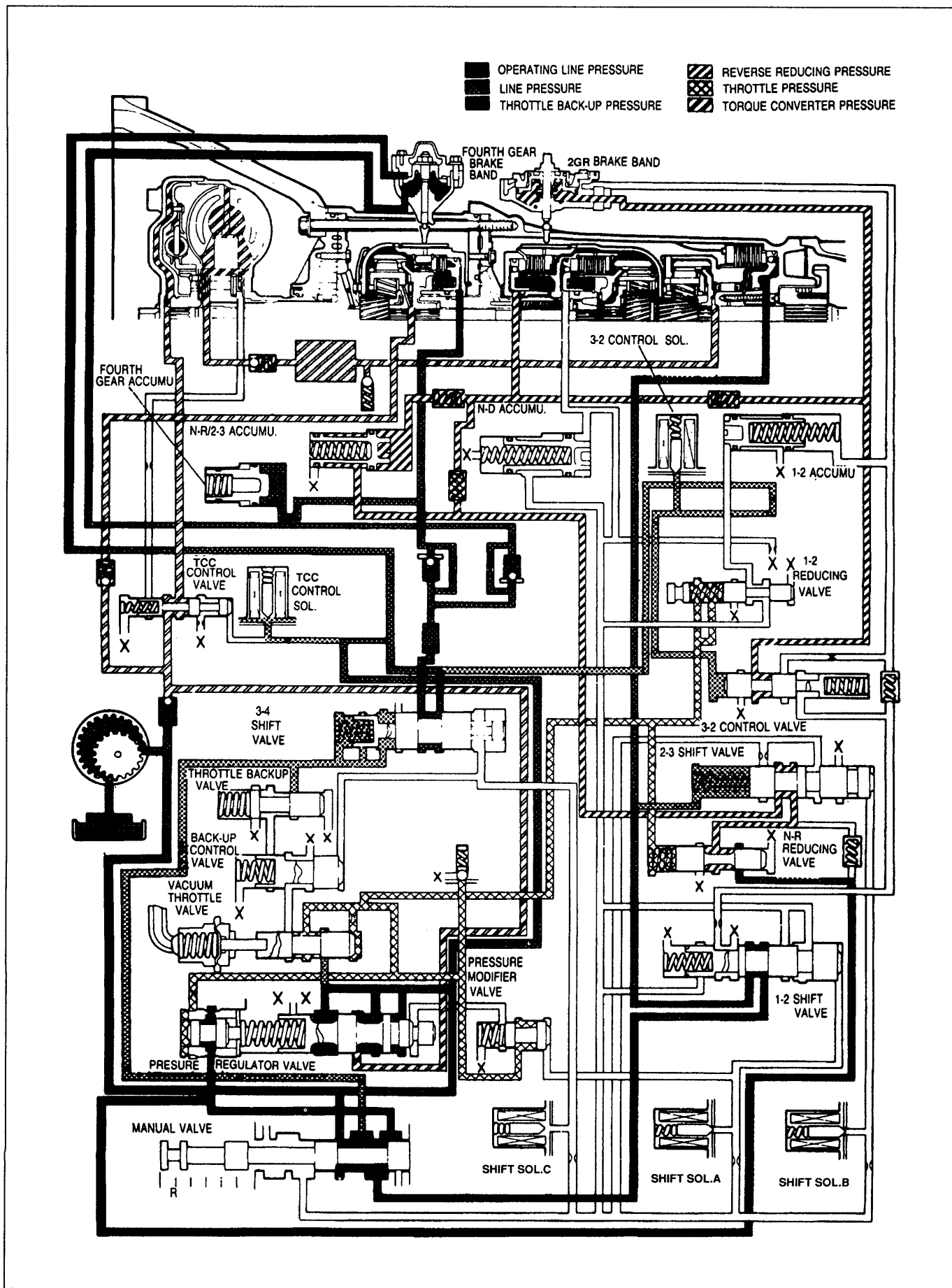


HYDRAULIC CIRCUIT

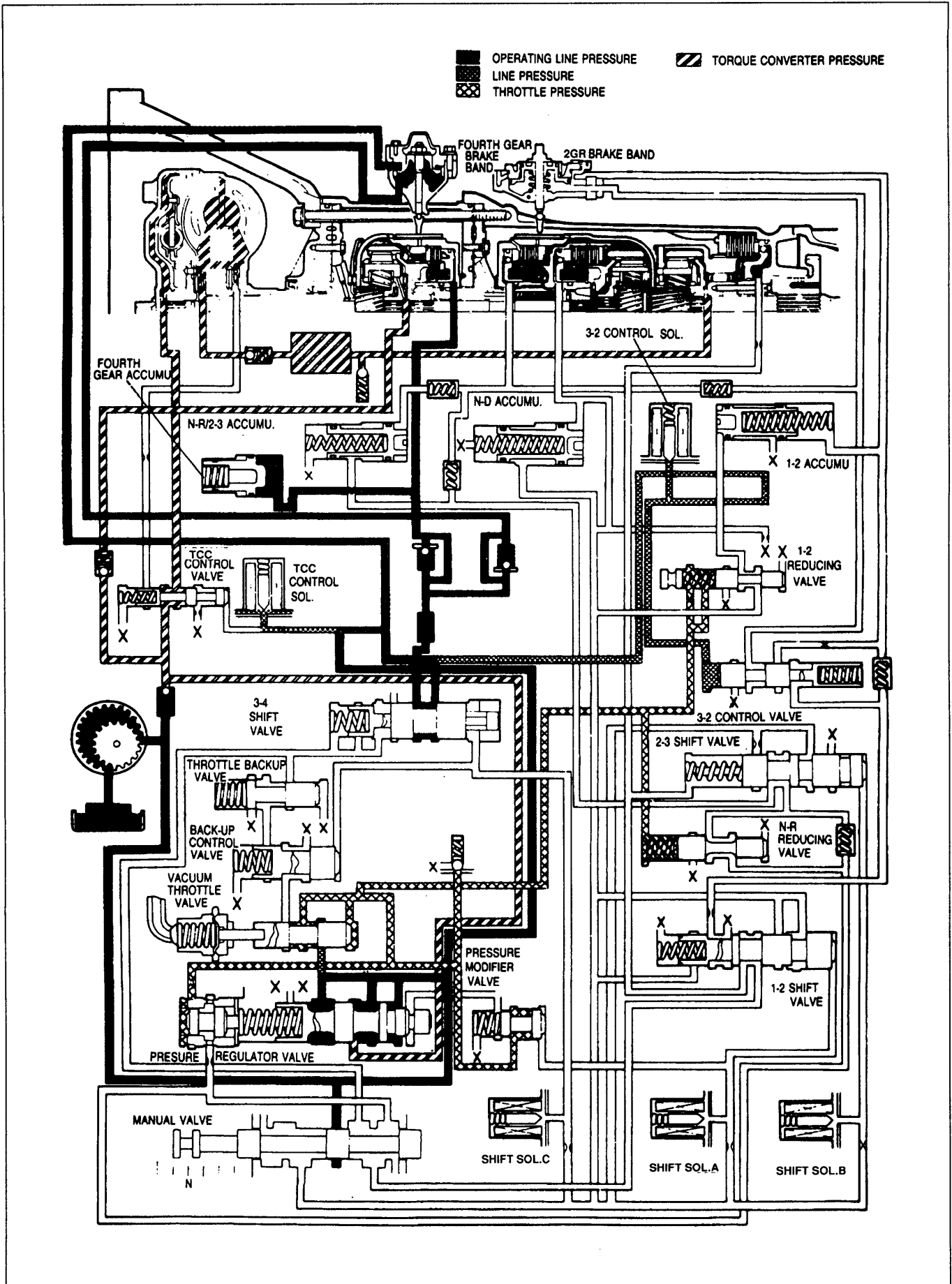
P POSITION



R POSITION



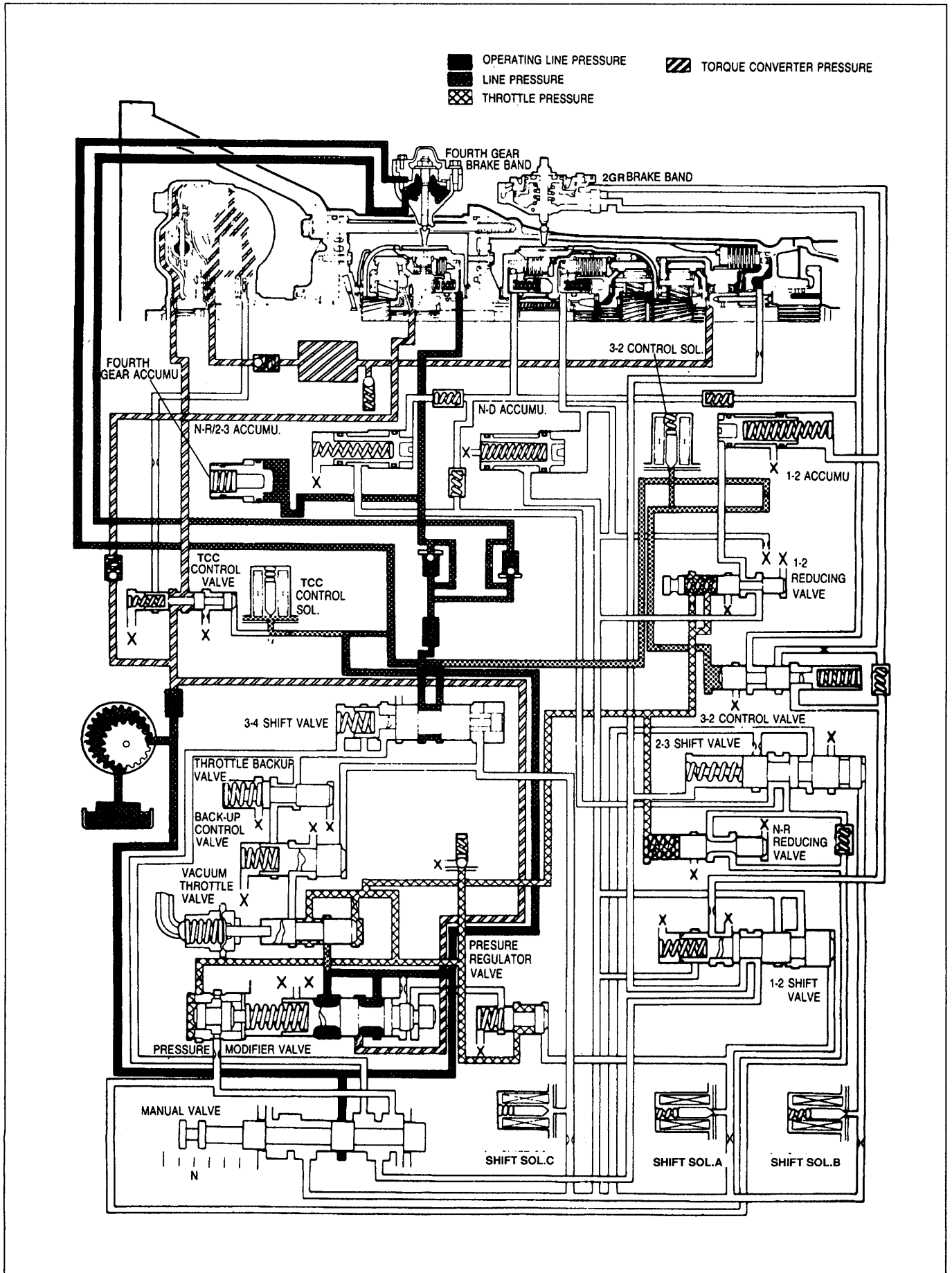
N POSITION; BELOW 7 km/h { 4.34 mph }



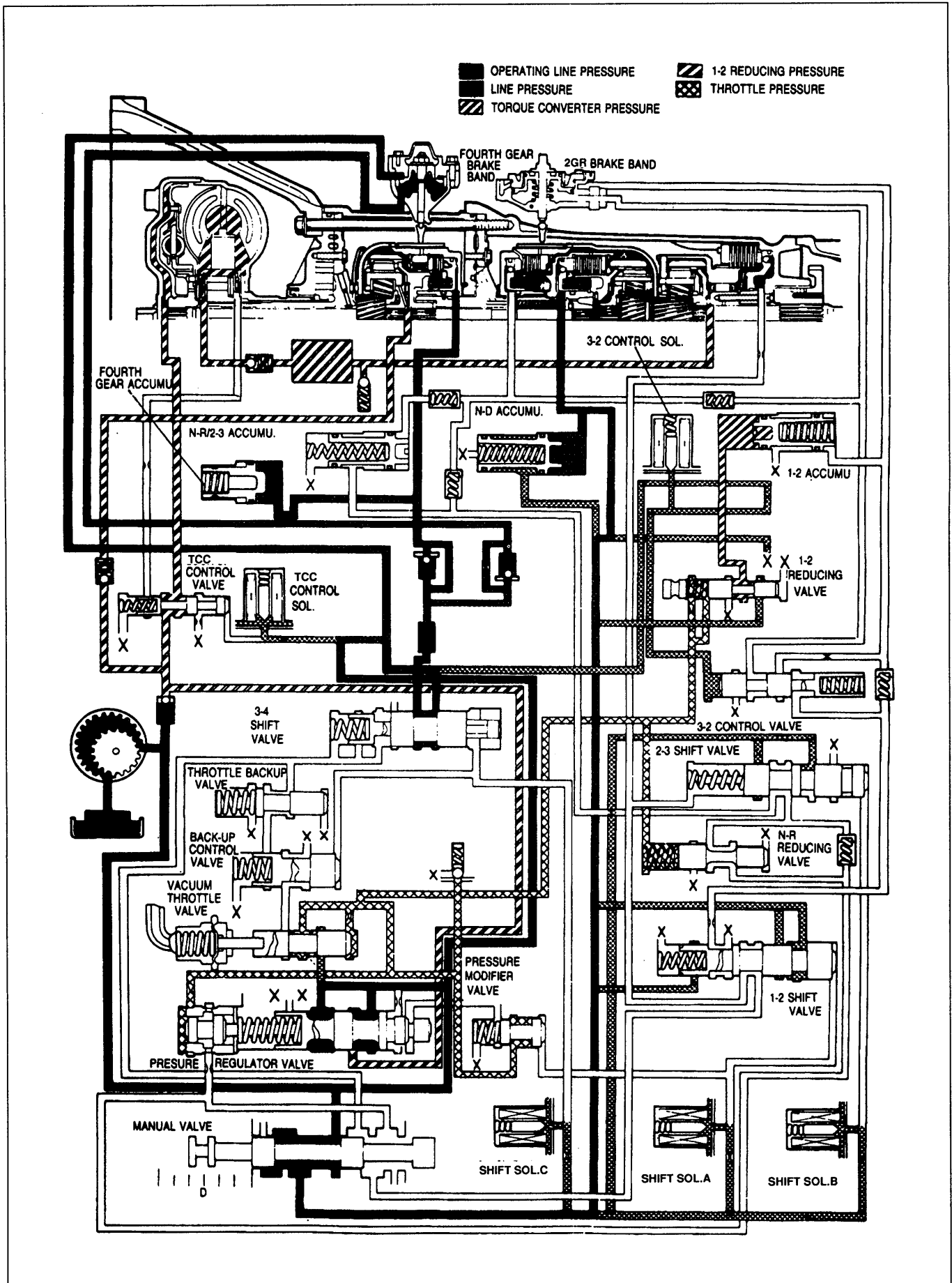
HYDRAULIC CIRCUIT

K

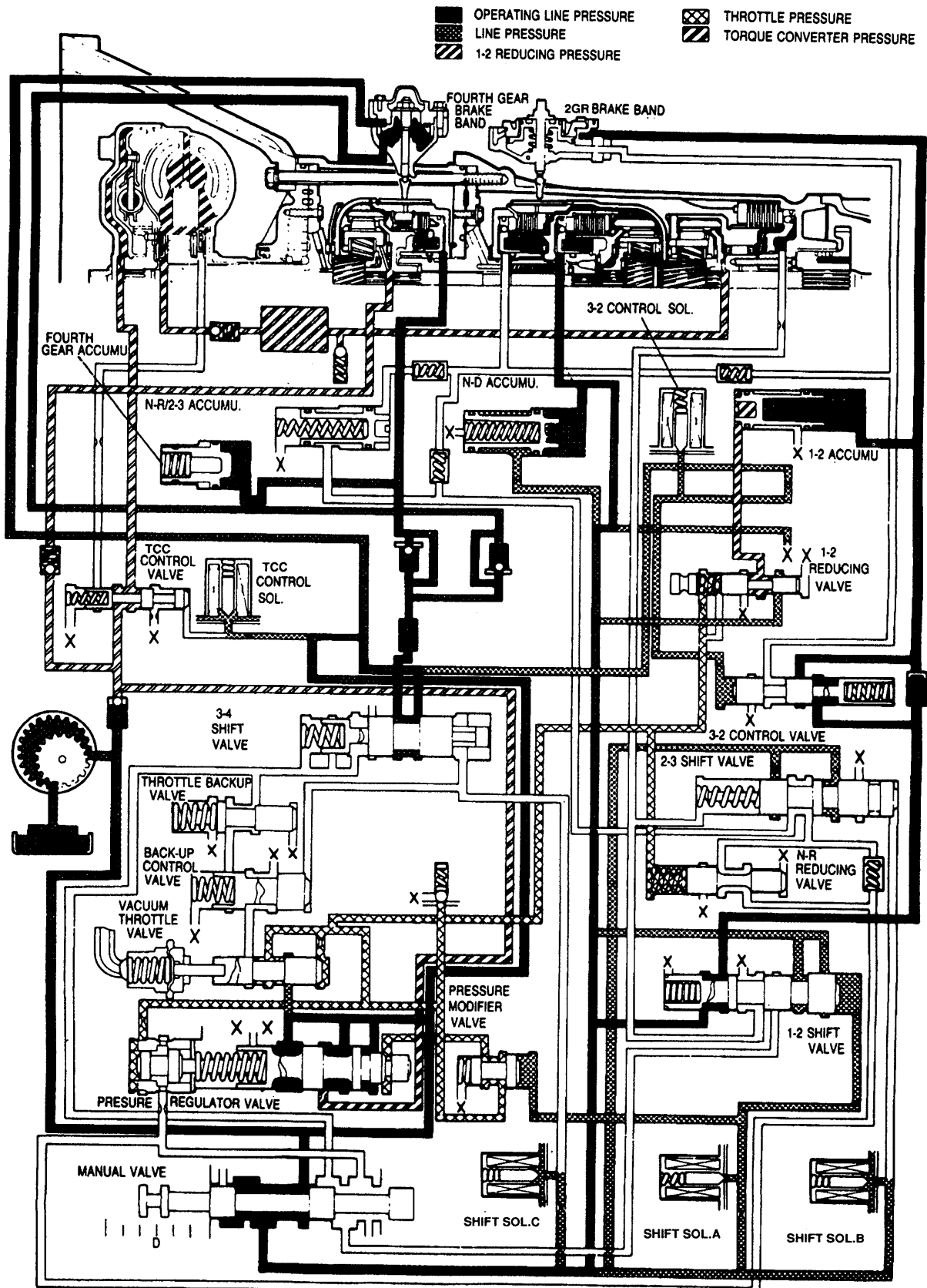
N POSITION; ABOVE 9 km/h { 5.58 mph }



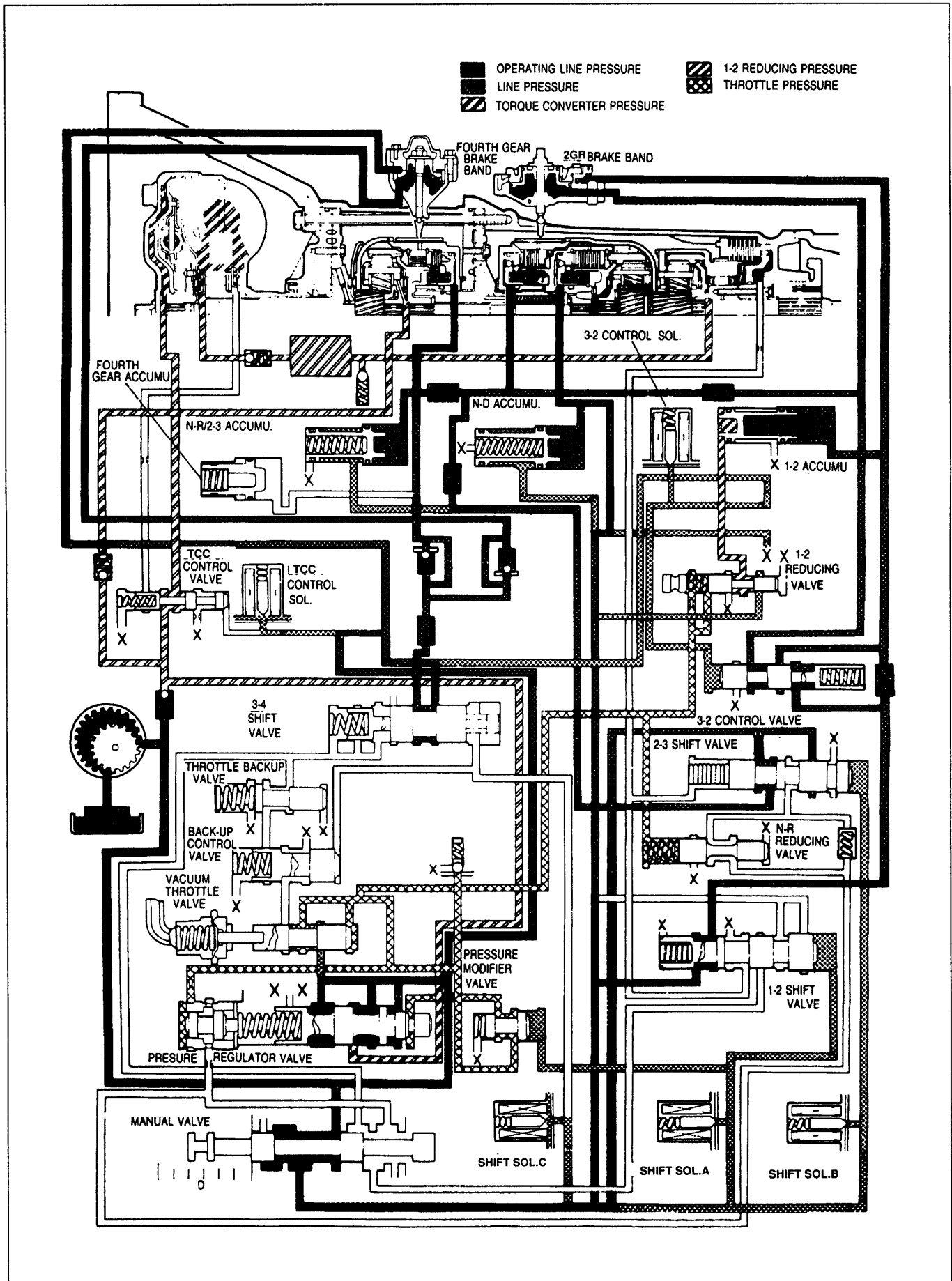
D RANGE; FIRST GEAR



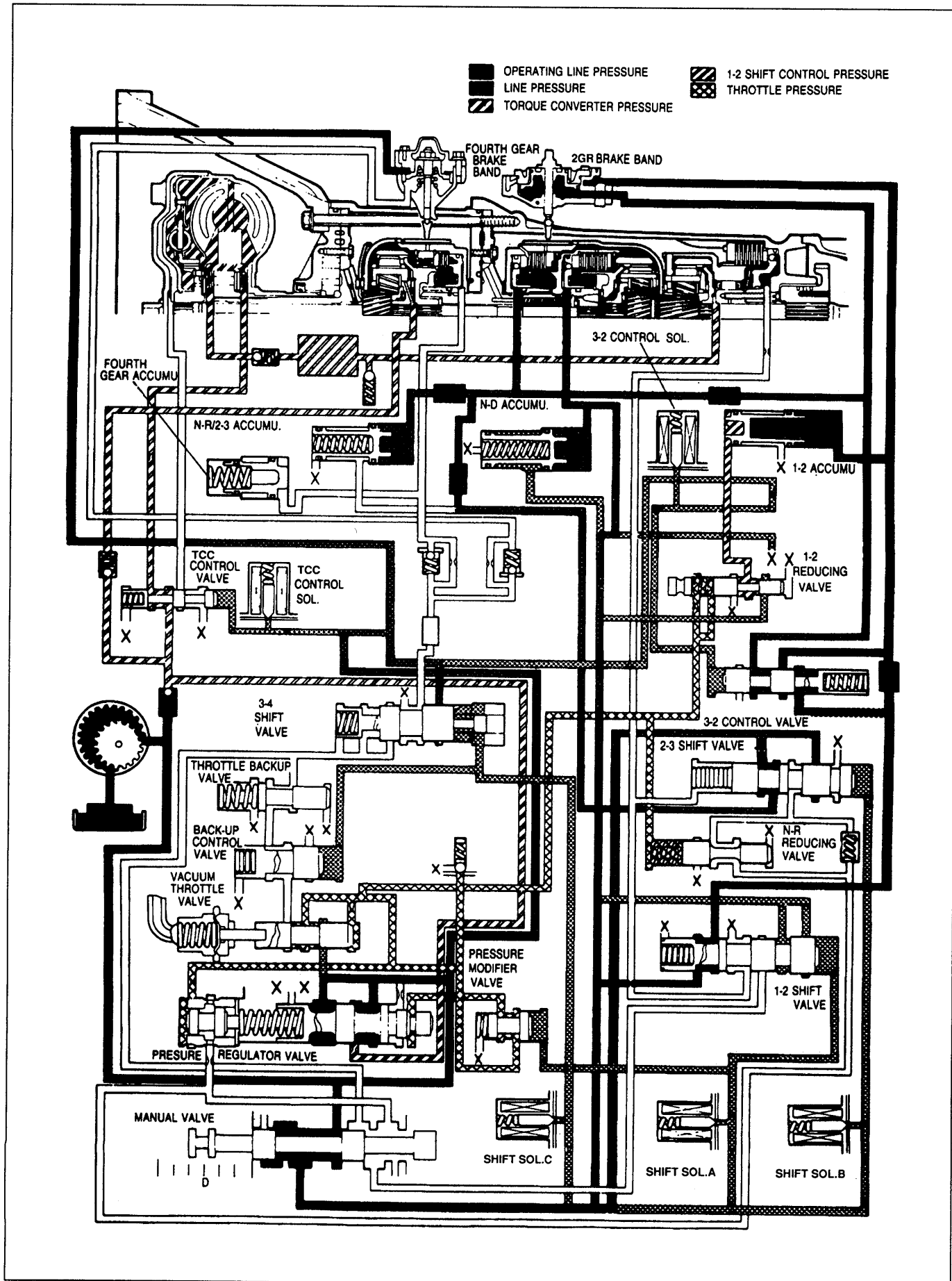
D RANGE; SECOND GEAR



D RANGE; THIRD GEAR

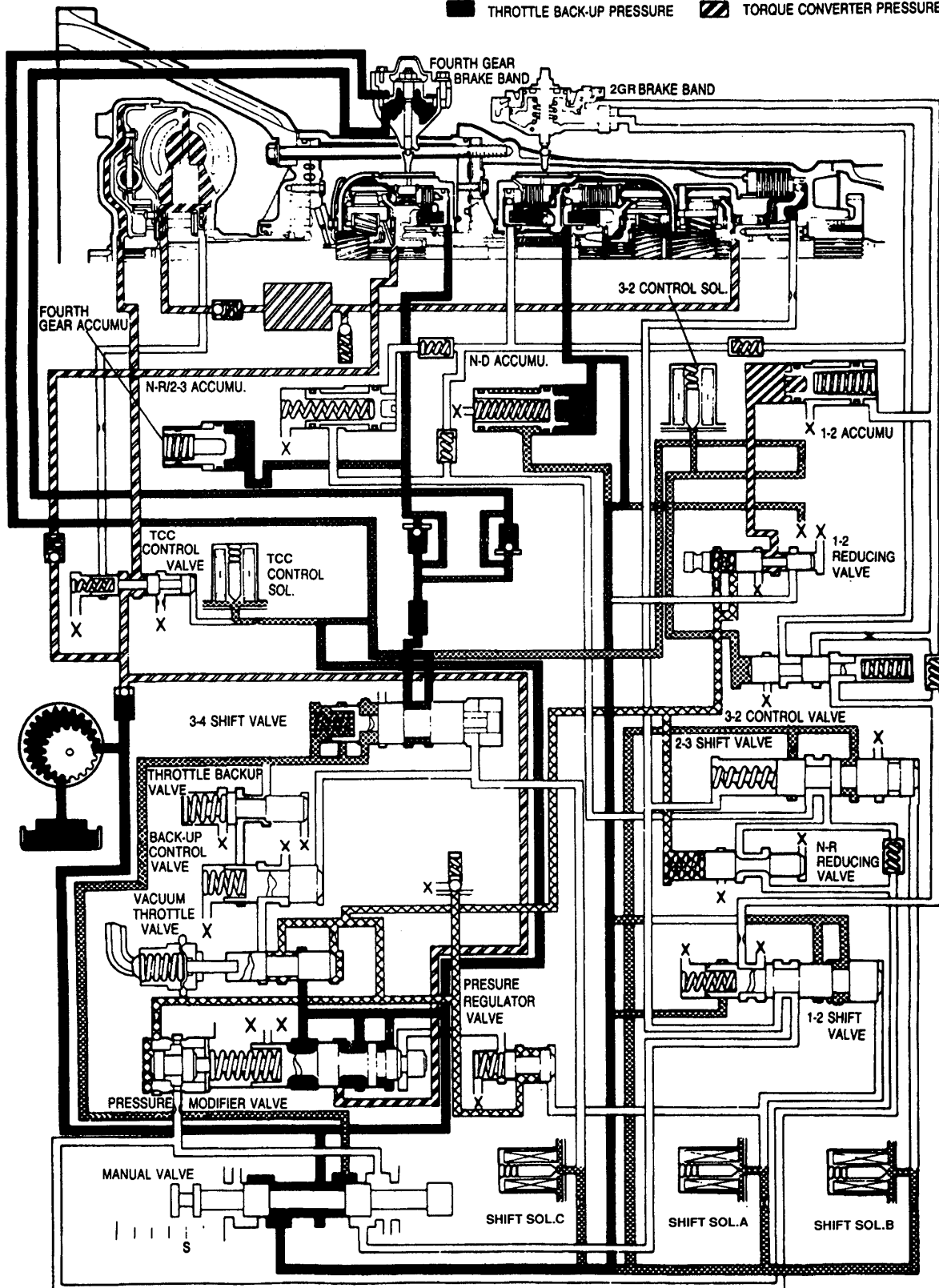


D RANGE; FOURTH GEAR, TORQUE CONVERTER CLUTCH OPERATION

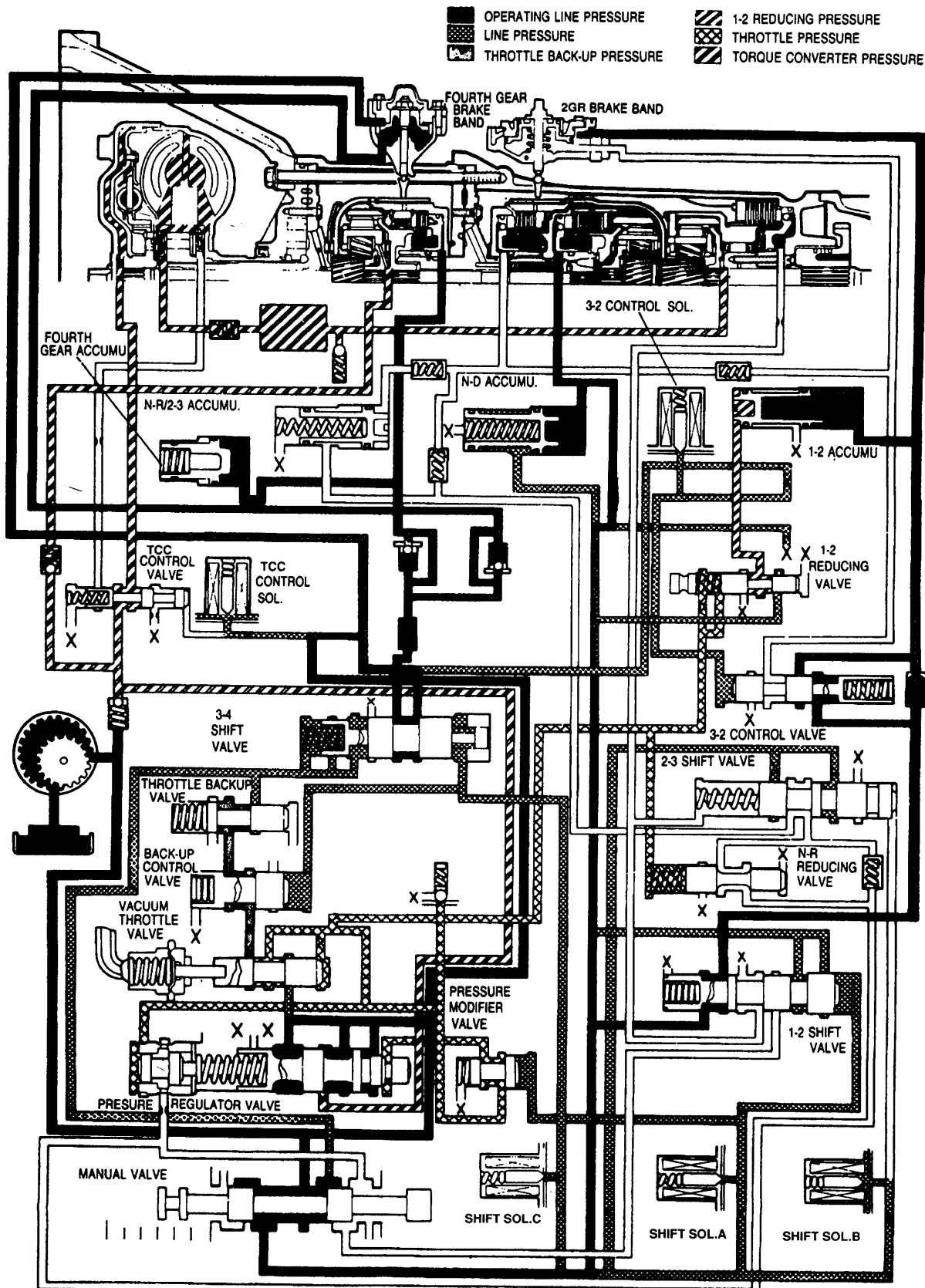


S RANGE; FIRST GEAR

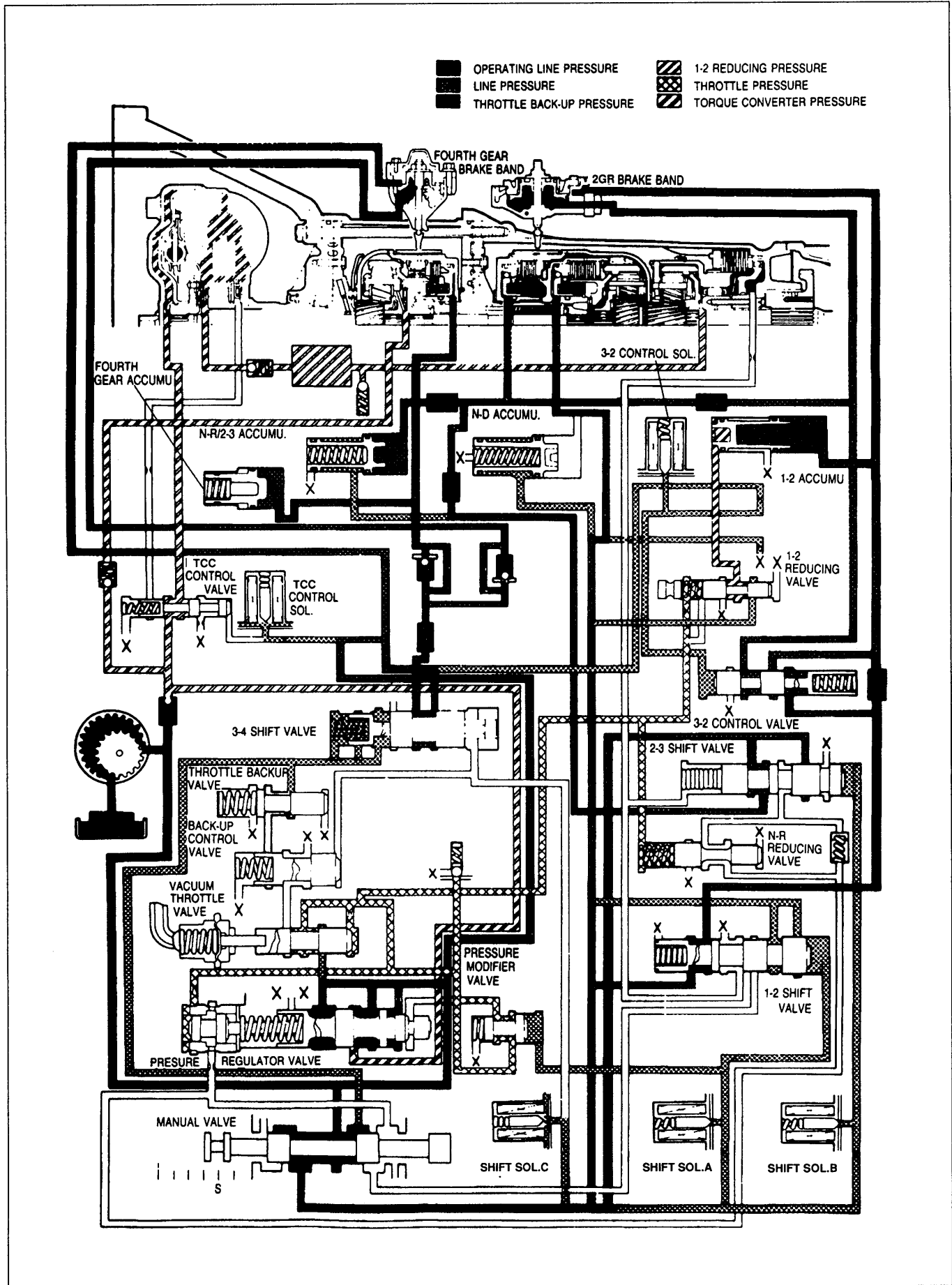
- | | | | |
|---|---------------------------|---|---------------------------|
|  | OPERATING LINE PRESSURE |  | 1-2 REDUCING PRESSURE |
|  | LINE PRESSURE |  | THROTTLE PRESSURE |
|  | THROTTLE BACK-UP PRESSURE |  | TORQUE CONVERTER PRESSURE |



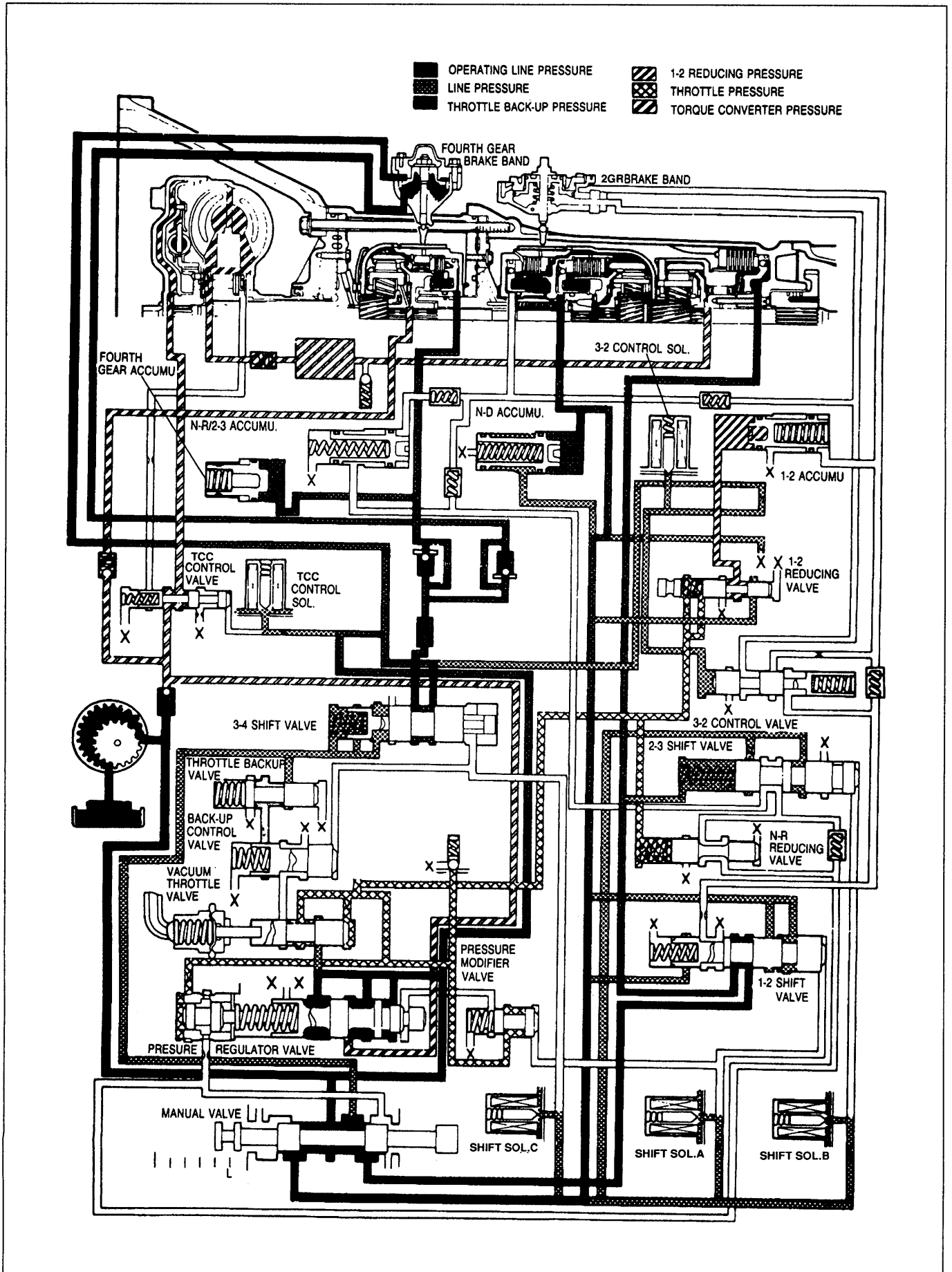
S RANGE; SECOND GEAR



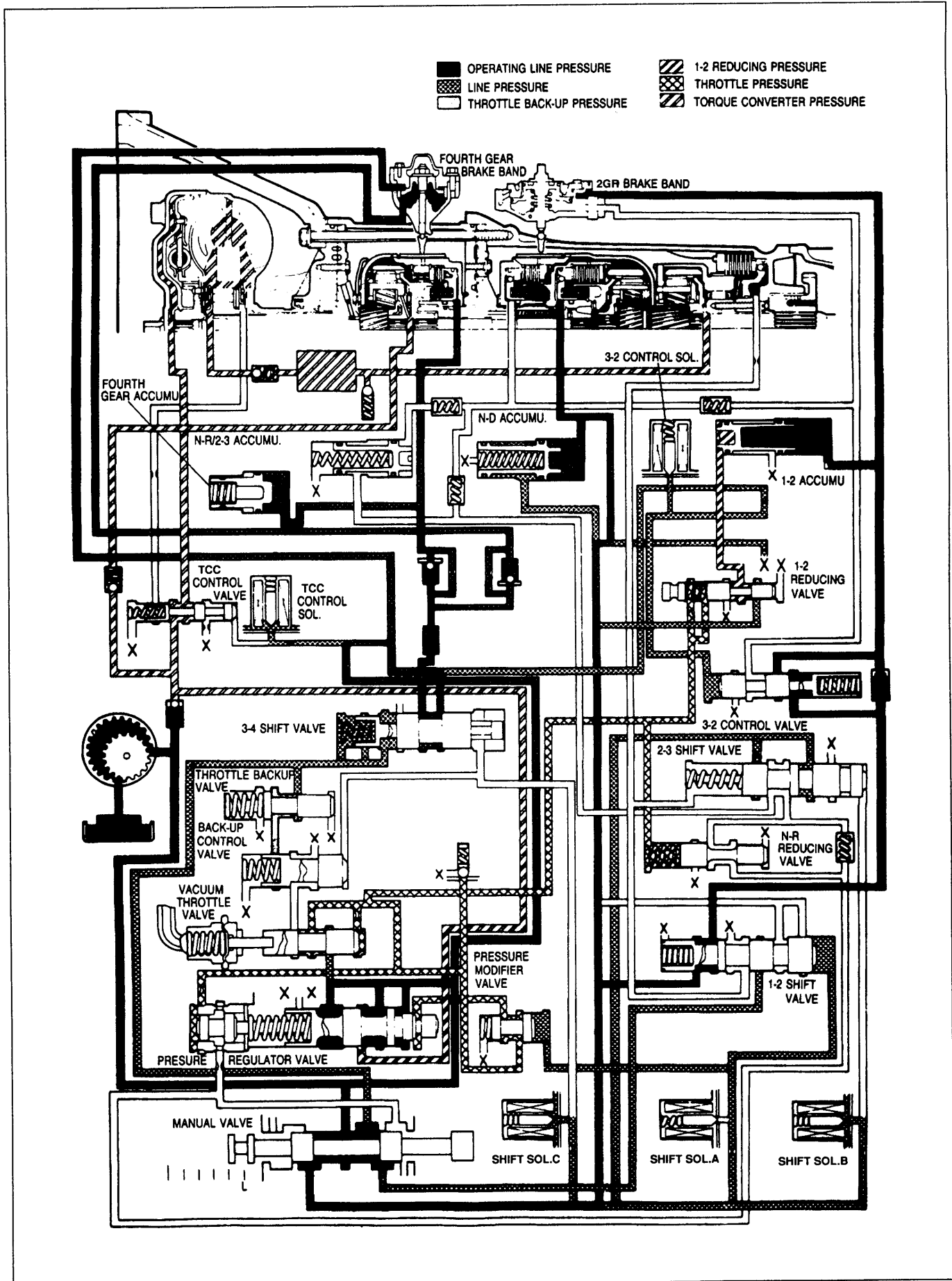
S RANGE; THIRD GEAR



L RANGE; FIRST GEAR



L RANGE; SECOND GEAR



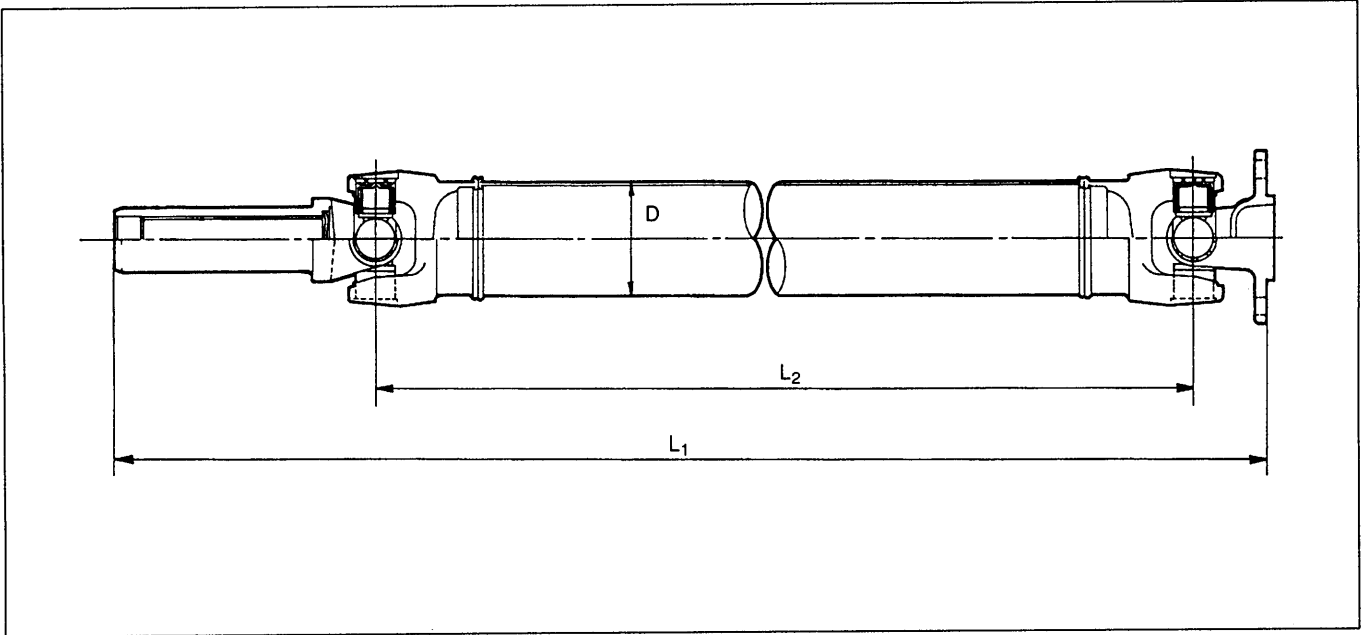
PROPELLER SHAFT

OUTLINE L-2
 SPECIFICATIONS L-2
TROUBLESHOOTING GUIDE L-2
PROPELLER SHAFT L-2
 PREPARATION L-2
 REMOVAL / INSPECTION / INSTALLATION L-3

OUTLINE

SPECIFICATIONS

Engine/Transmission			BP DOHC	
			M15M-D	NC4A-EL
Length	mm { in }	L1	1,001 { 39.41 }	
		L2	816 { 32.1 }	
Outer diameter	mm { in }	D	60.5 { 2.38 }	



TROUBLESHOOTING GUIDE

Problem	Possible Cause	Action	Page
Vibration	Worn universal joint	Replace	L-3
	Bent propeller shaft	Replace	L-3
	Worn slip yoke splines	Replace	L-3
	Runout of propeller shaft	Replace	L-3
	Unbalanced propeller shaft	Replace	L-3
Abnormal noise	Worn or damaged universal joint	Replace	L-3
	Worn slip yoke splines	Replace	L-3

PROPELLER SHAFT

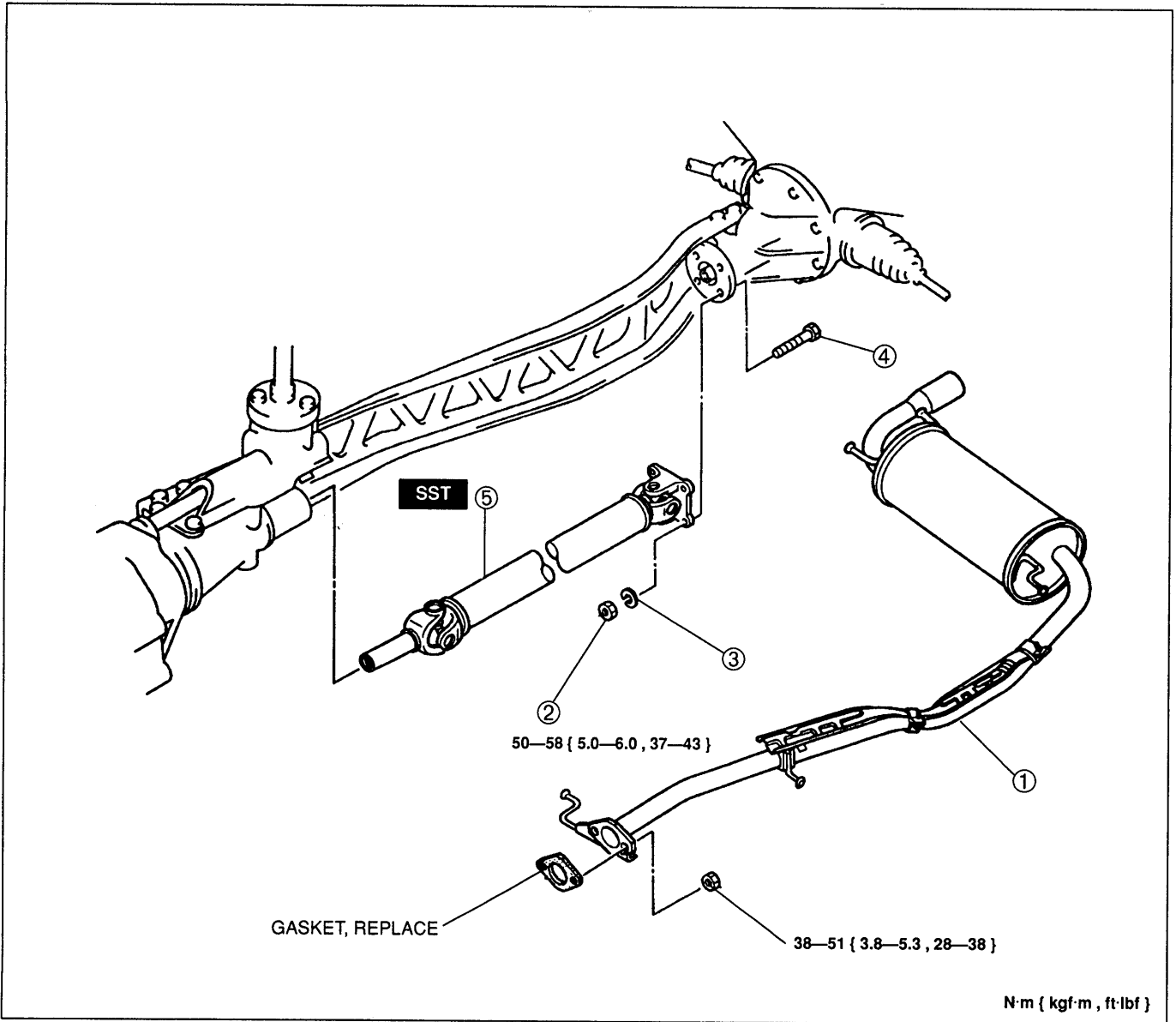
PREPARATION

SST

49 0259 440		For prevention of oil leakage
Holder, main shaft		

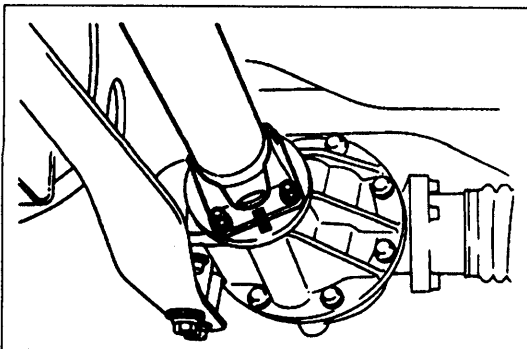
REMOVAL / INSPECTION / INSTALLATION

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Inspect all parts and repair or replace as necessary.
3. Install in the reverse order of removal, referring to **Installation Note**.



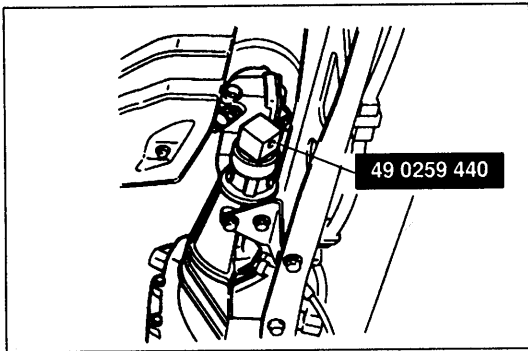
1. Exhaust pipe
2. Nut
3. Lock washer
4. Bolt

5. Propeller shaft
 - Removal Note below
 - Inspection page L-4
 - Installation Note page L-4

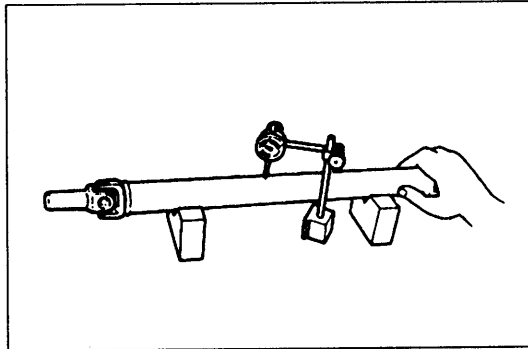


**Removal Note
Propeller shaft**

1. Before removing the propeller shaft, mark the flanges for correct installation.



2. Remove the propeller shaft from the extension housing, and immediately install the **SST** to prevent oil leakage.



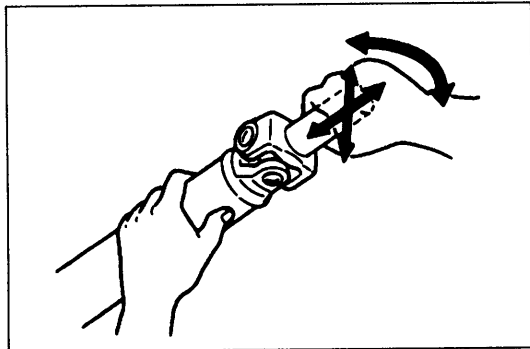
Inspection Propeller shaft

Caution

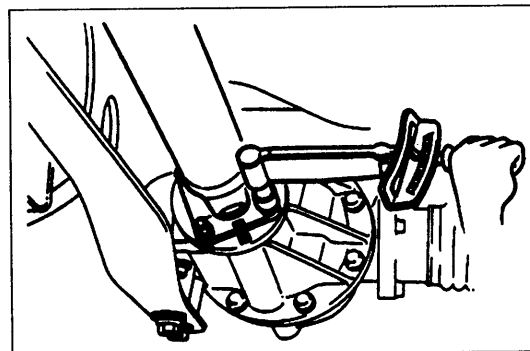
- **Cleaning sealed bearings with cleaning fluids or a steam cleaner can wash the grease out of the bearing.**

1. Clean the propeller shaft (except for the universal joint) with a steam cleaner or solvent.
2. Measure the propeller shaft runout with a dial indicator. Replace the propeller shaft if runout is excessive.

Maximum runout: 0.4 mm { 0.016 in }



3. Move the universal joints in the directions shown, and check for universal joint looseness. If there is looseness, replace the propeller shaft.
4. Check operation of the universal joint. If the universal joint has excessive resistance, replace the propeller shaft.

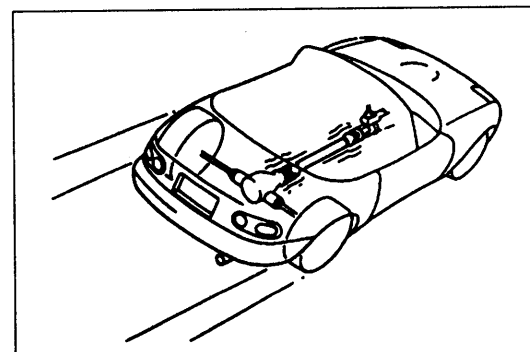


Installation Note Propeller shaft

1. Align the marks, and install the propeller shaft.

Tightening torque:

50—58 N·m { 5.0—6.0 kgf·m , 37—43 ft·lbf }



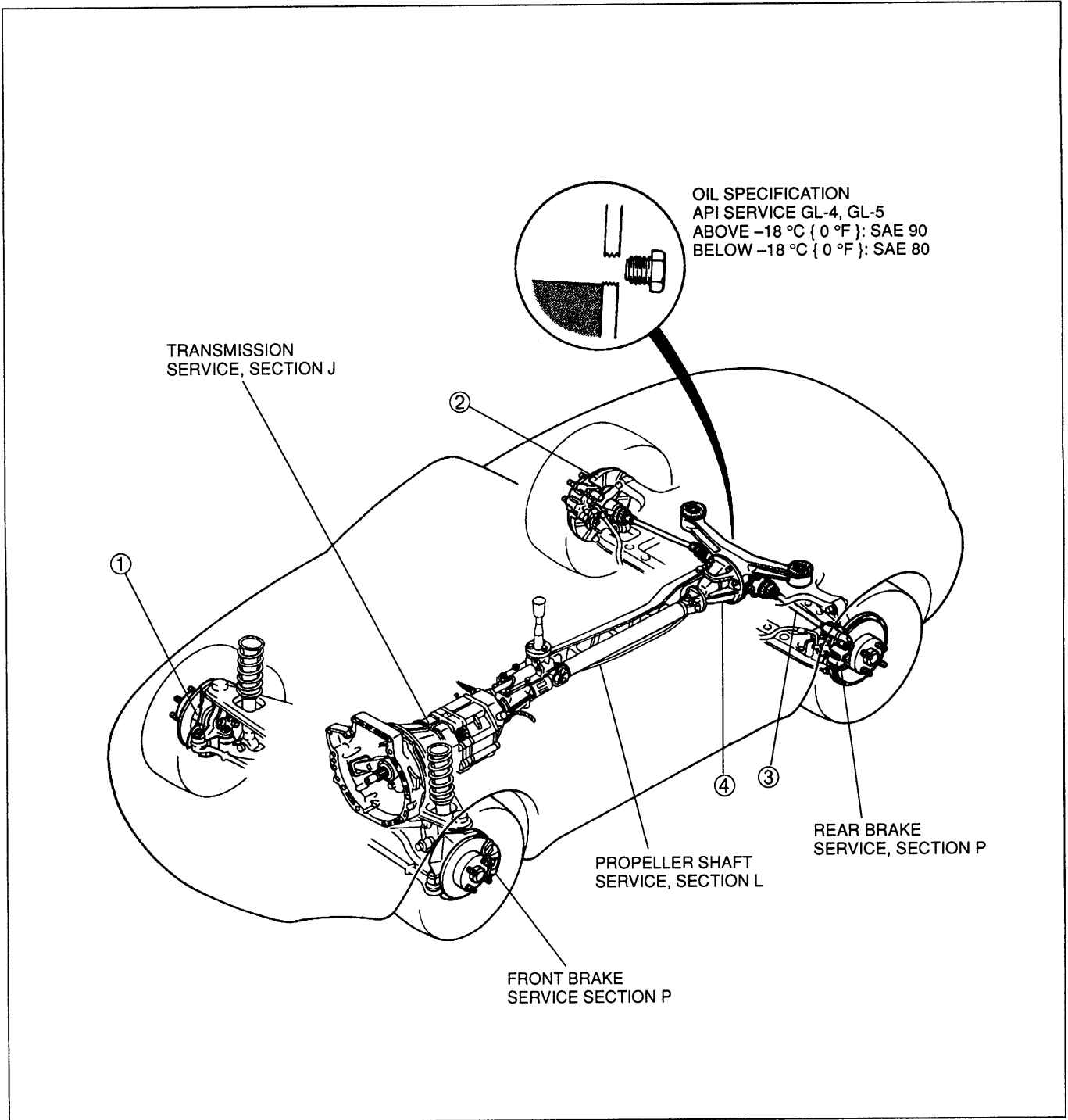
2. Verify that there is no abnormal noise or vibration when driving the vehicle. If noise or vibration comes from the propeller shaft, replace the propeller shaft.

Before beginning any service procedure, refer to section T of this manual for air bag system service warnings and audio antitheft system alarm conditions.

FRONT AND REAR AXLES

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DIFFERENTIAL, STANDARD; DIFFERENTIAL, TORQUE SENSING LIMITED SLIP ("TORSEN" LSD)	M-27

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- 1. Front axle
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 - Disassembly / Inspection / Assembly page M- 8
- 2. Rear axle
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- 3. Drive shaft
 - Inspection / Removal / Installation page M-17
 - Disassembly / Inspection / Assembly page M-19
- 4. Differential (Standard, Torque sensing limited slip differential)
 - Differential oil page M-25
 - Oil seal (Output shaft) page M-25
 - Removal / Installation page M-27
 - Disassembly / Inspection / Assembly page M-32

OUTLINE

SPECIFICATIONS

Item		Specifications	
Front axle	Type	Double-wishbone	
	Bearing	Angular ball bearing	
	Maximum wheel bearing play mm { in }	0.05 { 0.002 }	
Rear axle	Type	Double-wishbone	
	Bearing	Angular ball bearing	
	Maximum wheel bearing play mm { in }	0.05 { 0.002 }	
Differential	Type	Standard "TORSEN" LSD	
	Reduction gear	Hypoid gear Worm gear	
	Reduction ratio	4.100	
	Differential gear	Straight-bevel gear	
	Ring gear size mm { in }	182.88 { 7.20 }	
	Oil	Grade	API service GL-4, GL-5
		Viscosity	Above -18 °C { 0 °F } : SAE 90 Below -18 °C { 0 °F } : SAE 80
Capacity L { US qt , Imp qt }		1.00 { 1.06 , 0.88 }	
Drive shaft	Type	Constant velocity (double offset) joint	
	Length mm { in }	640.6 { 25.220 }	

M

TROUBLESHOOTING GUIDE

FRONT AXLE

Problem	Possible Cause	Action	Page
Steering wheel vibration	Worn or damaged wheel bearing	Replace	M-6
Pulls or one-sided braking	Worn or damaged wheel bearing	Replace	M-6

REAR AXLE

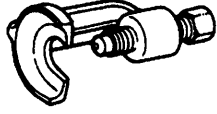
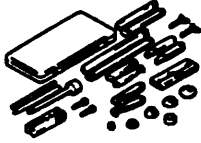
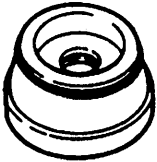
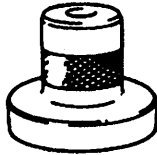
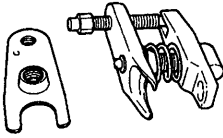
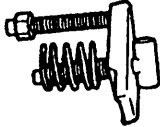

Problem	Possible Cause	Action	Page
Abnormal noise	Bent drive shaft	Replace	M-17
	Worn or damaged wheel bearing	Replace	M-13
	Worn drive shaft spline	Replace	M-17
Body "rolls"	Worn or deteriorated upper arm bushing	Replace	M-13, section R
Body leans	Weak upper arm bushing	Replace	M-13, section R
Abnormal noise from suspension system	Worn or deteriorated upper arm bushing	Replace	M-13, section R

DIFFERENTIAL

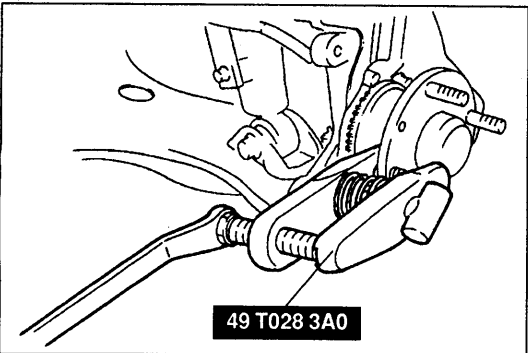
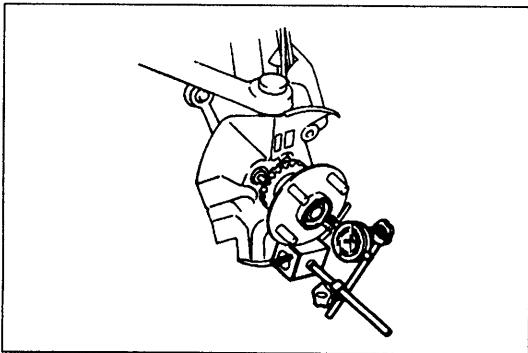
Problem	Possible Cause	Action	Page
Abnormal noise	Insufficient differential oil	Add oil	M-25
	Incorrect differential oil	Replace	M-25
	Improperly adjusted ring gear backlash	Adjust	M-40
	Poor contact of ring gear teeth	Adjust	M-41
	Worn or damaged side bearing	Replace	M-32
	Worn or damaged ring gear	Replace	M-32
	Worn or damaged drive pinion bearing	Replace	M-32
	Worn or damaged pinion and side gear (STANDARD)	Replace	M-32
	Worn or damaged gear in LSD assembly ("TORSEN" LSD)	Replace	M-32
	Seized side gear and case	Replace	M-32
	Worn side gear spline	Replace	M-32
	Worn pinion shaft	Replace	M-32
	Worn thrust washer	Replace	M-32
	Worn or damaged needle bearing ("TORSEN" LSD)	Replace	M-32
	Improperly adjusted side gear backlash	Adjust	M-40
Improperly adjusted drive pinion gear preload	Adjust	M-39	
Heat buildup	Insufficient differential oil	Add oil	M-25
	Insufficient drive pinion gear backlash	Adjust	M-40
	Excessive bearing preload	Adjust	M-38, 40
Oil leakage	Excessive differential oil	Remove oil	M-25
	Loose differential carrier	Tighten or repair	M-42
	Worn or damaged oil seal	Replace	M-32
No differential operation	Misassembled or damaged	Repair	M-32

FRONT AXLE

PREPARATION
SST

<p>49 0118 850C Puller, ball joint</p> 	<p>For disconnection of upper arm ball joint</p>	<p>49 0839 425C Puller set, bearing</p> 	<p>For removal of sensor rotor (ABS)</p>
<p>49 F027 007 Attachment φ72</p> 	<p>For removal of sensor rotor (ABS)</p>	<p>49 V001 795 Installer, oil seal</p> 	<p>For installation of sensor rotor (ABS)</p>
<p>49 T028 3A0 Puller set, ball joint</p> 	<p>For removal of ball joint</p>	<p>49 T028 303 Body (Part of 49 T028 3A0)</p> 	<p>For removal of ball joint</p>
<p>49 T028 304 Attachment (Part of 49 T028 3A0)</p> 	<p>For removal of ball joint</p>	<p>—</p>	<p>—</p>

M



WHEEL HUB, STEERING KNUCKLE

Preinspection

Wheel bearing play

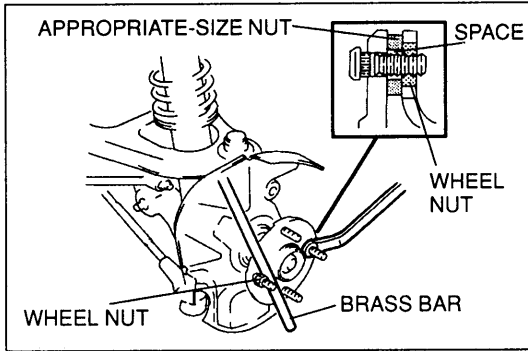
1. Remove the brake caliper assembly and disc plate.
2. Position a dial indicator against the wheel hub. Push and pull the wheel hub by hand in the axial direction and measure the wheel bearing play.
3. If the bearing play exceeds the specification, check and adjust the locknut torque or replace the wheel bearing if necessary. (Refer to page N-6.)

Maximum wheel bearing play: 0.05 mm { 0.002 in }

On-vehicle service

Wheel hub bolt replacement

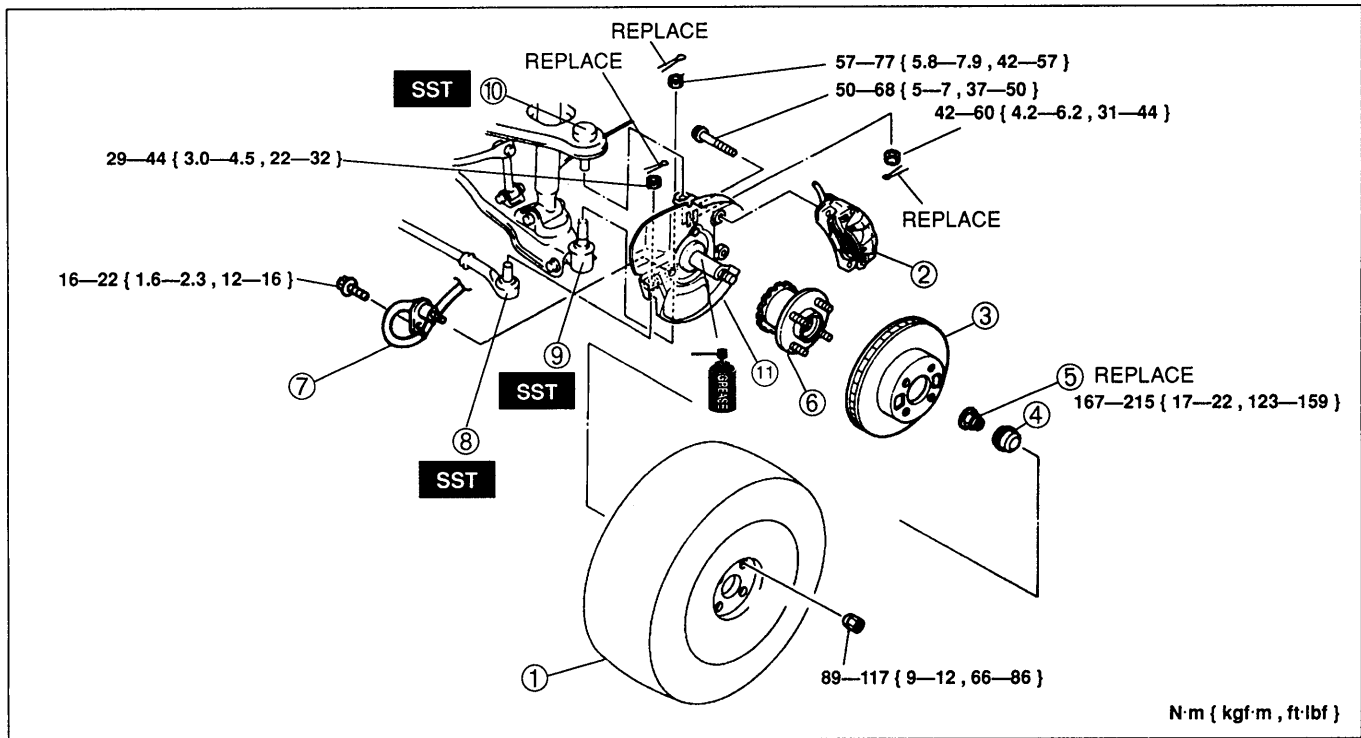
1. Remove the wheel hub bolt by using the SSTs.



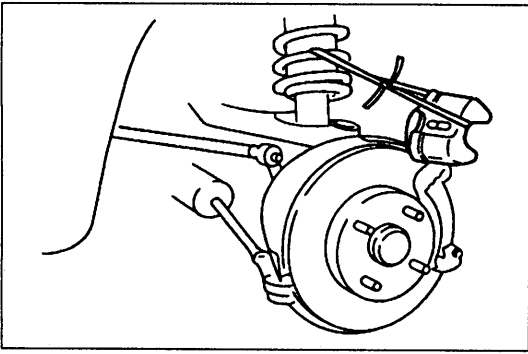
2. As shown in the figure, install the wheel hub bolt into the wheel hub and set a washer and wheel hub nut in the wheel hub bolt.
3. Tighten the wheel hub nut while holding the wheel hub by using the brass bar.

Inspection / Removal / Installation

1. Inspect wheel bearing play, referring to **Preinspection**.
2. Remove in the order shown in the figure, referring to **Removal Note**.
3. Inspect all parts and repair or replace as necessary.
4. Install in the reverse order of removal, referring to **Installation Note**.
5. After installation, adjust the front wheel alignment. (Refer to section R.)



- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Front wheel 2. Brake caliper assembly
Removal Note page M-7 3. Disc plate 4. Hub cap 5. Locknut
Installation Note page M-7 6. Front wheel hub assembly
Inspect for cracks and damage
Disassembly / Inspection /
Assembly page M-8 7. Wheel speed sensor (ABS) 8. Tie-rod end
Removal Note page M-7
Service section N | <ol style="list-style-type: none"> 9. Lower arm
Removal Note page M-7
Service section R 10. Upper arm
Removal Note page M-7
Service section R 11. Dust cover and knuckle spindle
Inspect dust cover for damage and
distortion
Inspect knuckle spindle for cracks and
damage
Disassembly / Inspection /
Assembly page M-8 |
|--|---|

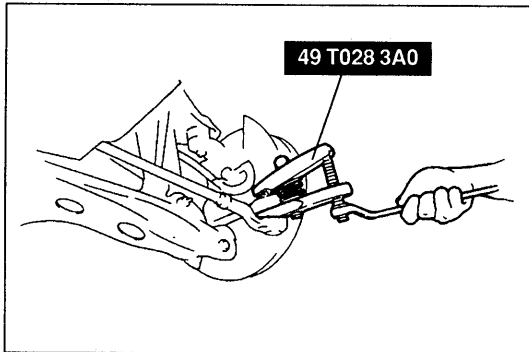


Removal note Brake caliper assembly

Note

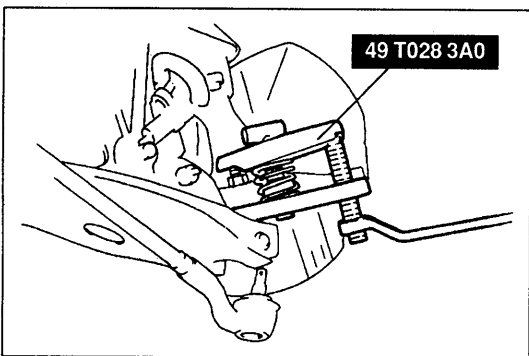
- For easier installation, do not depress the brake pedal after removing the brake caliper assembly.

Suspend the brake caliper assembly with a rope.



Tie-rod end

1. Remove the tie rod nut.
2. Separate the tie rod end from the steering knuckle by using the SST.

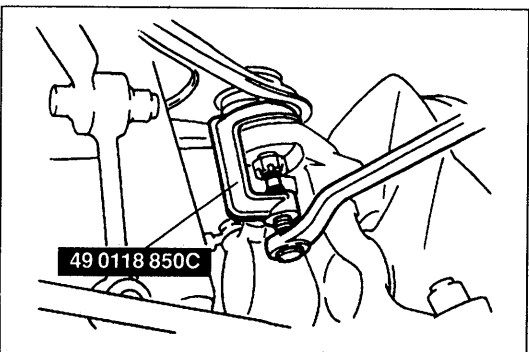


Lower arm

Caution

- The sharp edges of the SST can slice the lower arm dust boot. Install the SST so that the sharp edges are between the dust boot and the knuckle.

Loosen the nut and disconnect the lower arm by using the SST.



Upper arm

Caution

- The sharp edges of the SST can slice the upper arm dust boot. Install the SST so that the sharp edges are between the dust boot and the knuckle.

Loosen the nut and disconnect the upper arm by using the SST.

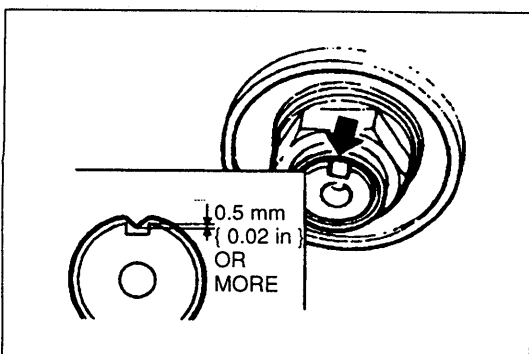
Installation note

Locknut

Install a new locknut and stake it.

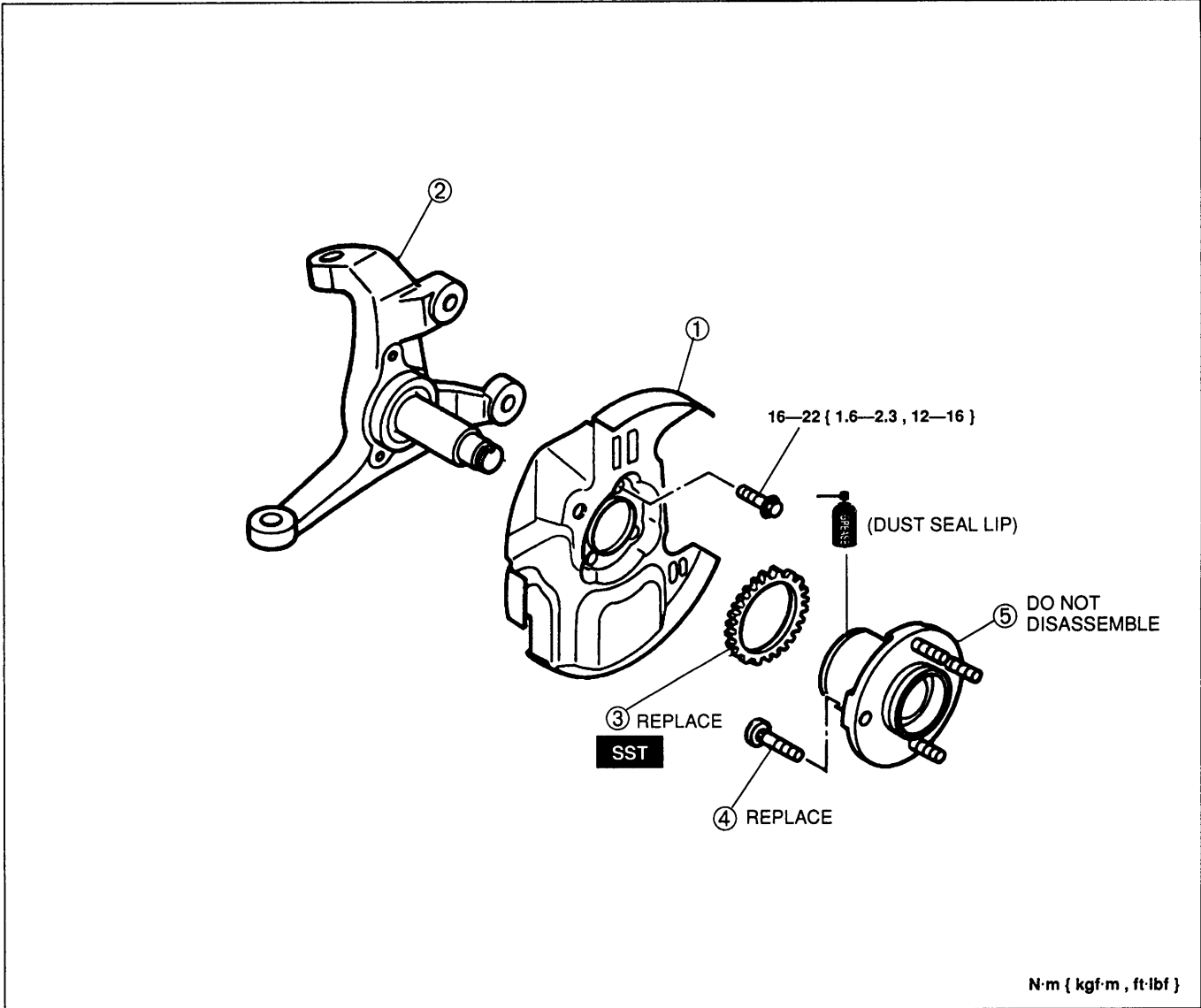
Tightening torque:

167—215 N·m { 17—22 kgf·m , 123—159 ft·lbf }

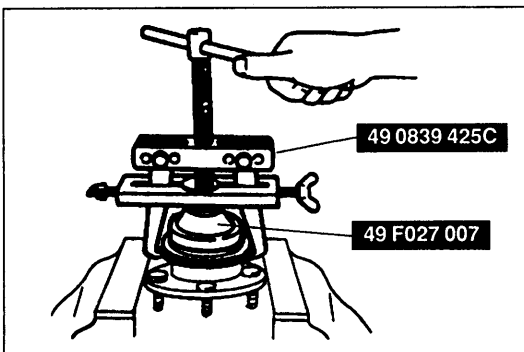


Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly Note**.



- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Dust cover 2. Knuckle spindle 3. Sensor rotor (ABS)
Disassembly Note below
Assembly Note page M-9 | <ol style="list-style-type: none"> 4. Hub bolt
Disassembly Note page M-9
Assembly Note page M-9 5. Front wheel hub assembly
Inspect for damage |
|--|--|

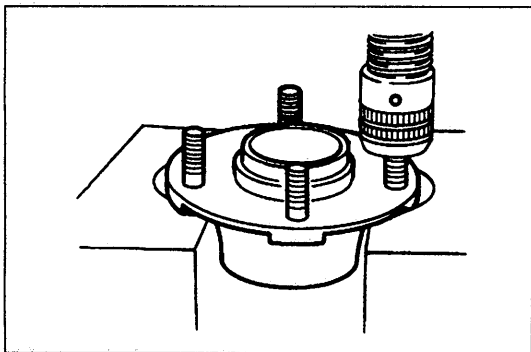


Disassembly note Sensor rotor (ABS)

Secure the front wheel hub in a vise and remove the sensor rotor by using the **SSTs**.

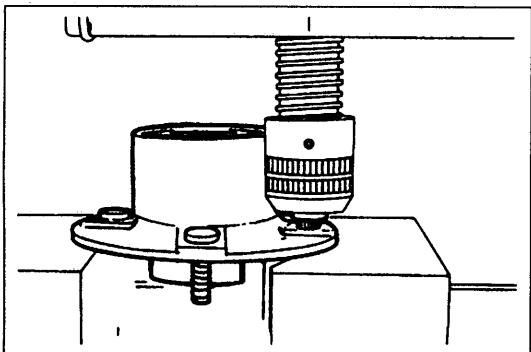
Note

- The sensor rotor does not need to be removed unless you are replacing it.

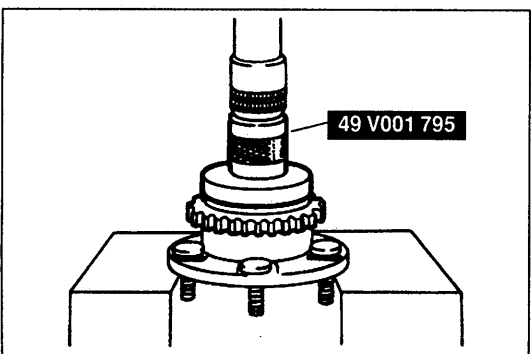
**Hub bolt****Note**

- The hub bolts do not need to be removed unless you are replacing them.

Remove the hub bolts with a press.

**Assembly note****Hub bolt**

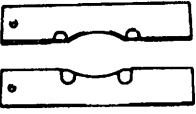
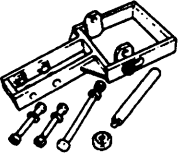
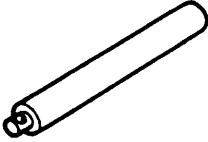




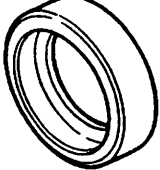
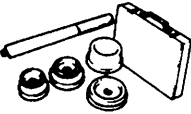
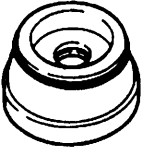
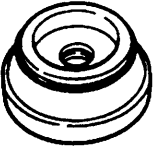
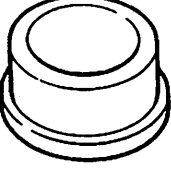
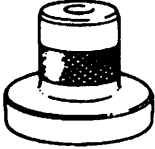
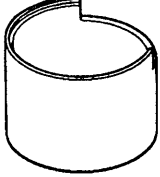
Install the new hub bolts with a press.

**Sensor rotor (ABS)**

Install a new sensor rotor by using the **SST** and a press.

REAR AXLE

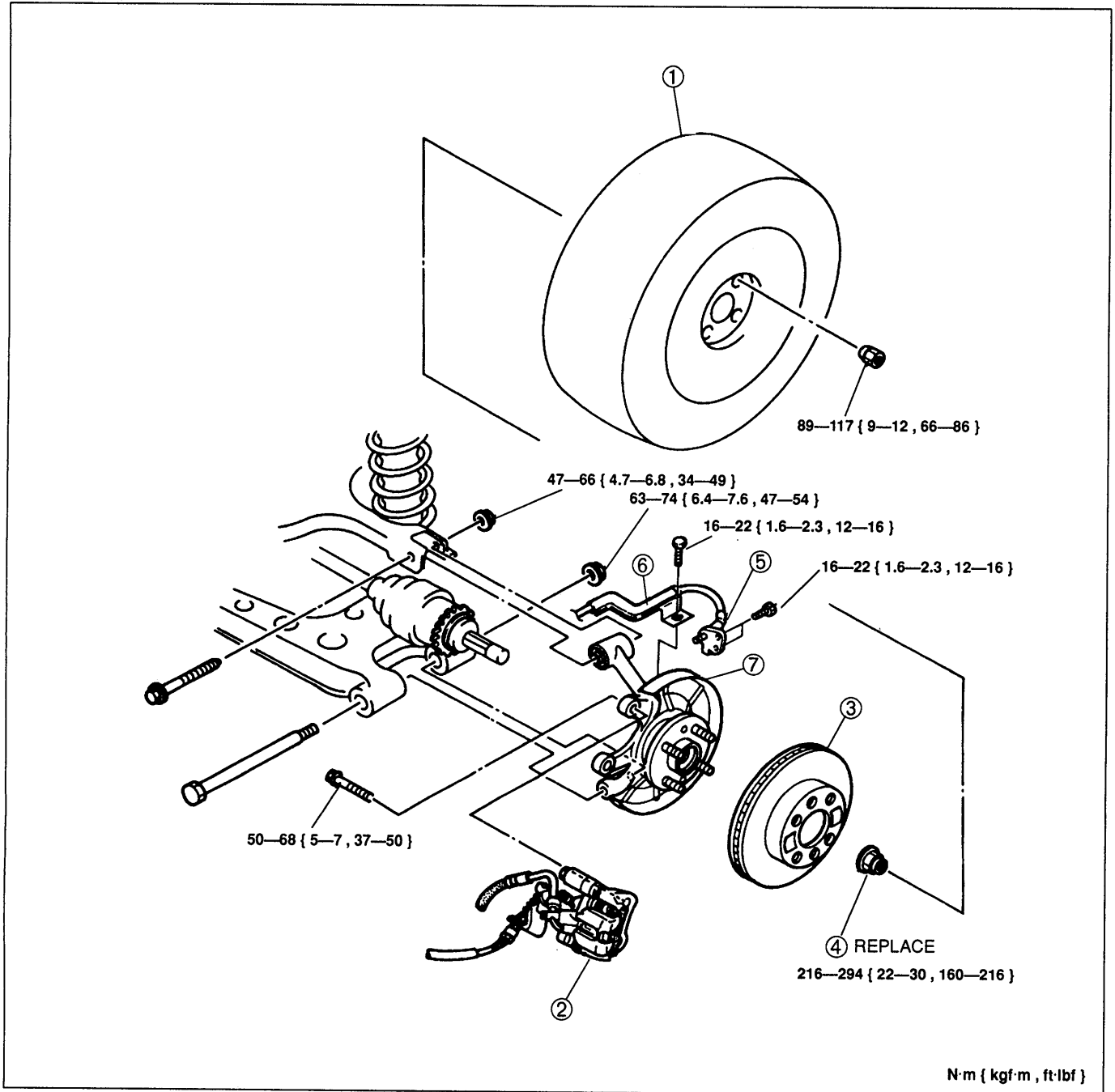
PREPARATION SST

<p>49 F026 103</p> <p>Puller, wheel hub</p> 	<p>For disassembly and assembly of rear axle</p>	<p>49 B026 1A0</p> <p>Puller, wheel hub</p> 	<p>For disassembly and assembly of wheel hub</p>
<p>49 G033 102</p> <p>Handle (Part of 49 B026 1A0)</p> 	<p>For removal and installation of rear wheel hub</p>	<p>49 G030 727</p> <p>Attachment A (Part of 49 B026 1A0)</p> 	<p>For removal and installation of rear wheel hub</p>
<p>49 G030 795</p> <p>Installer, oil seal</p> 	<p>For installation of oil seal</p>	<p>49 G030 797</p> <p>Handle (Part of 49 G030 795)</p> 	<p>For removal and installation of wheel bearing</p>
<p>49 0636 145</p> <p>Puller, fan pulley boss</p> 	<p>For removal of wheel bearing</p>	<p>49 G033 107</p> <p>Installer, dust cover</p> 	<p>For installation of dust cover</p>
<p>49 F027 0A1</p> <p>Installer set, bearing</p> 	<p>For installation of bearing</p>	<p>49 F027 005</p> <p>Attachment φ62 (Part of 49 F027 0A1)</p> 	<p>For disassembly of wheel bearing</p>
<p>49 F027 007</p> <p>Attachment φ72 (Part of 49 F027 0A1)</p> 	<p>For assembly of wheel bearing</p>	<p>49 F027 009</p> <p>Attachment φ68 & 77 (Part of 49 F027 0A1)</p> 	<p>For assembly of wheel bearing</p>
<p>49 V001 795</p> <p>Installer, oil seal</p> 	<p>For installation of oil seal</p>	<p>49 B034 201</p> <p>Support, block</p> 	<p>For replacement of rear knuckle bushing</p>

DISC BRAKE TYPE

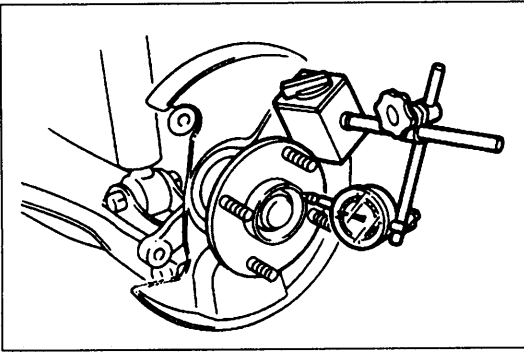
Inspection / Removal / Installation

1. Inspect wheel bearing play, referring to **Inspection**.
2. Remove in the order shown in the figure, referring to **Removal Note**.
3. Inspect all parts and repair or replace as necessary.
4. Install in the reverse order of removal, referring to **Installation Note**.
5. After installation, adjust the rear wheel alignment. (Refer to section R.)



N·m { kgf·m , ft·lbf }

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Rear wheel 2. Brake caliper assembly
Removal Note page M-12 3. Disc plate 4. Locknut
Installation Note page M-12 5. ABS wheel-speed sensor 6. Sensor bracket | <ol style="list-style-type: none"> 7. Knuckle, wheel hub, and dust cover
Inspect knuckle for cracks and damage
Inspect wheel hub for cracks and damage
Inspect dust cover for damage and distortion
Disassembly / Inspection /
Assembly page M-13 |
|--|--|



Inspection

Wheel bearing play

1. Remove the wheel, brake caliper assembly, and disc plate, referring to **Removal note** below.
2. Position a dial indicator against the wheel hub. Push and pull the wheel hub by hand in the axial direction and measure the wheel bearing play.

If the bearing play exceeds specification, check and adjust the locknut torque or replace the wheel bearing if necessary.

Maximum wheel bearing play: 0.05 mm { 0.002 in }

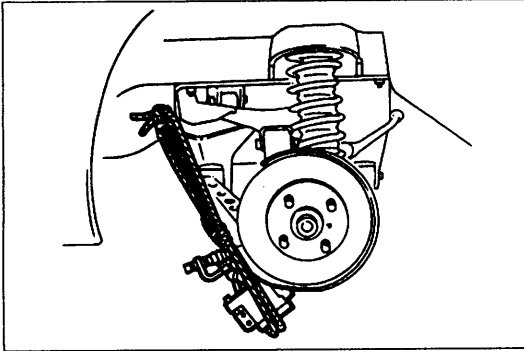
Removal note

Brake caliper assembly

Note

- For easier installation, do not depress the brake pedal after removing the brake caliper assembly.

Suspend the brake caliper assembly with a rope.



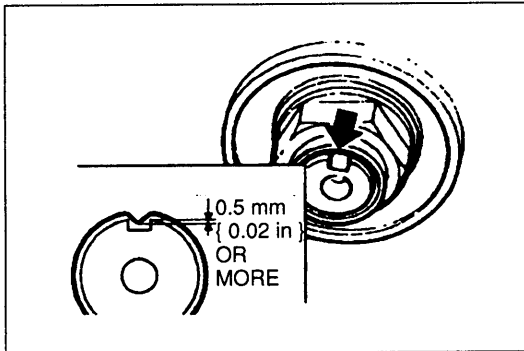
Installation note

Locknut

Install a new locknut and stake it.

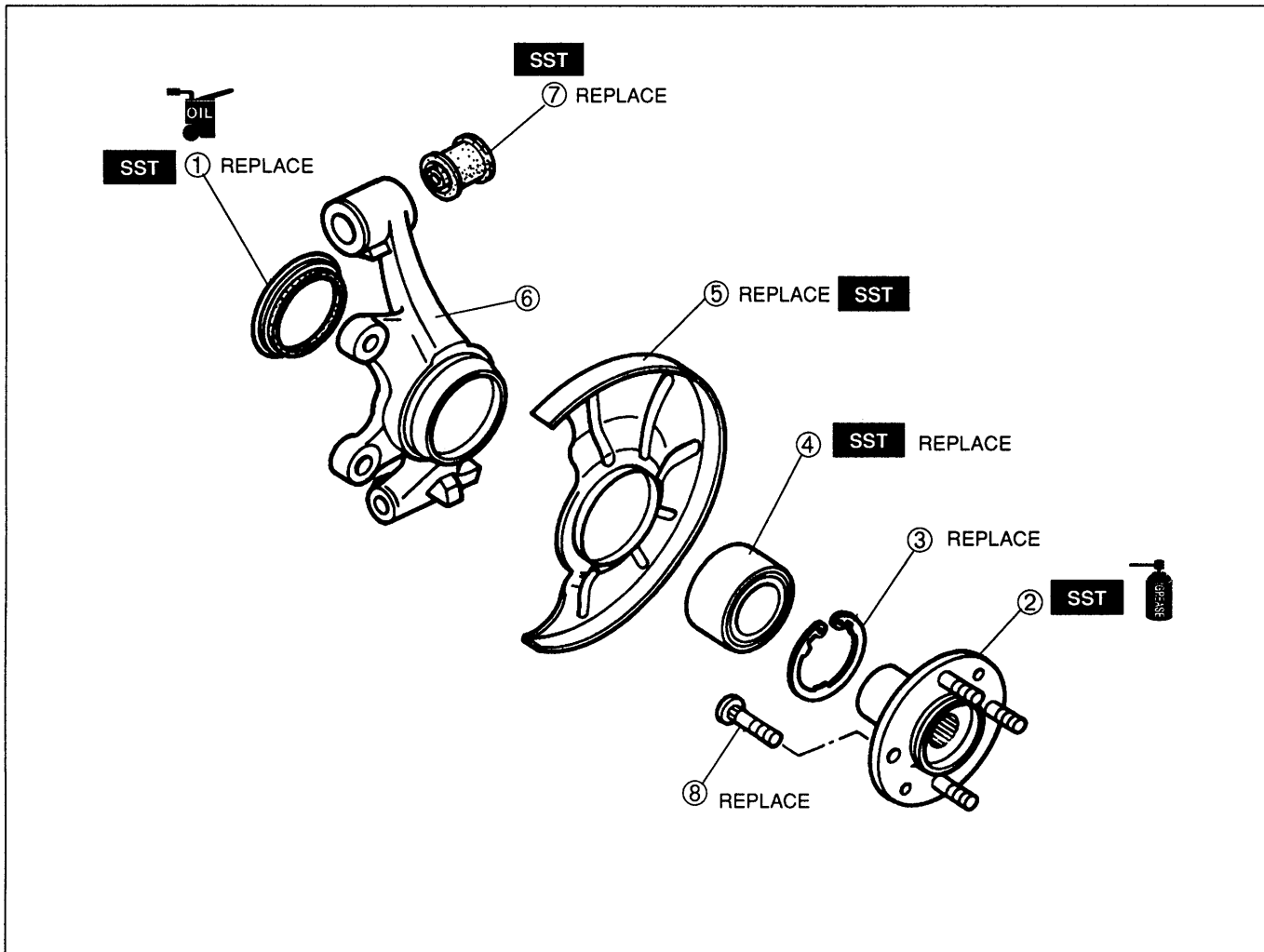
Tightening torque:

216—294 N·m { 22—30 kgf·m , 160—216 ft·lbf }



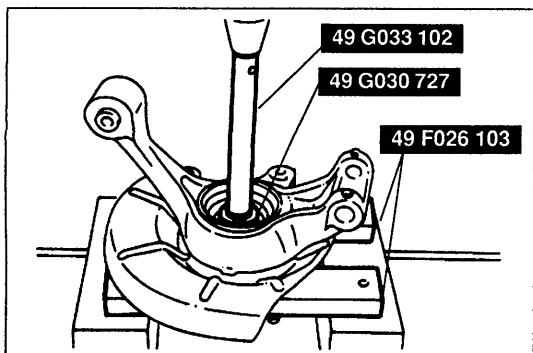
Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly Note**.



- | | |
|----------------------------|--------------------------------------|
| 1. Oil seal | Assembly Note page M-16 |
| 2. Rear wheel hub assembly | Disassembly Note below |
| | Assembly Note page M-16 |
| 3. Retaining ring | |
| 4. Wheel bearing | Disassembly Note page M-14 |
| | Assembly Note page M-16 |

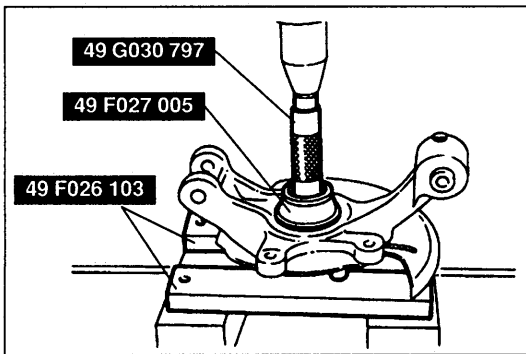
- | | |
|---------------|--------------------------------------|
| 5. Dust cover | Disassembly Note page M-14 |
| | Assembly Note page M-15 |
| 6. Knuckle | |
| 7. Bushing | Disassembly Note page M-15 |
| | Assembly Note page M-15 |
| 8. Hub bolt | Disassembly Note page M-15 |
| | Assembly Note page M-15 |



Disassembly note

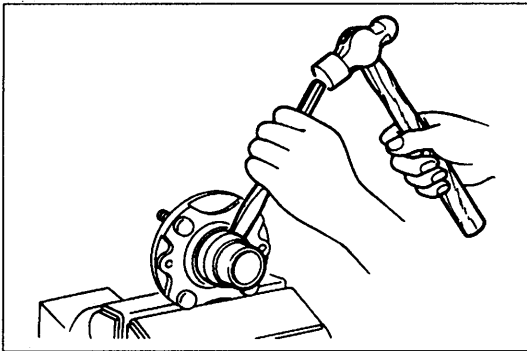
Rear wheel hub assembly

Press out the rear wheel hub assembly with the **SSTs**.

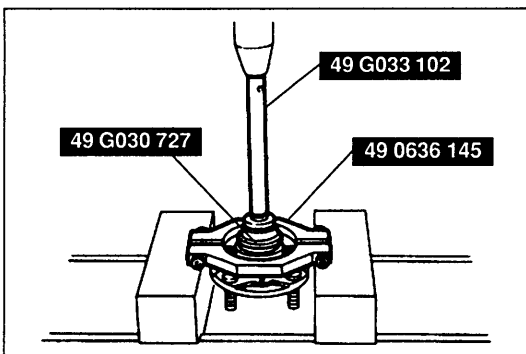


Wheel bearing

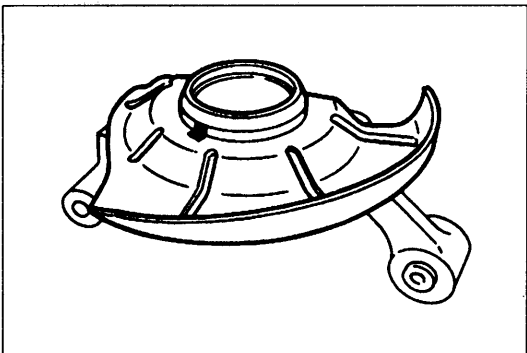
1. Press out the wheel bearing by using the SSTs.



2. Move the bearing inner race away from the rear wheel hub assembly by using a chisel.



3. Press the bearing inner race off the wheel hub by using the SSTs.

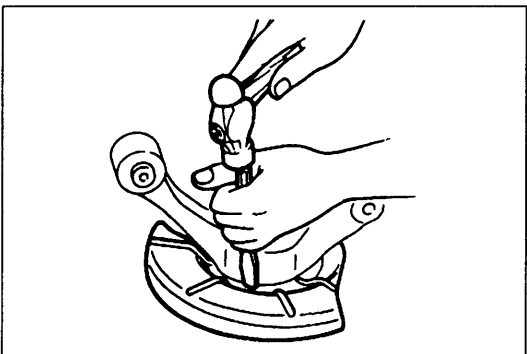


Dust cover

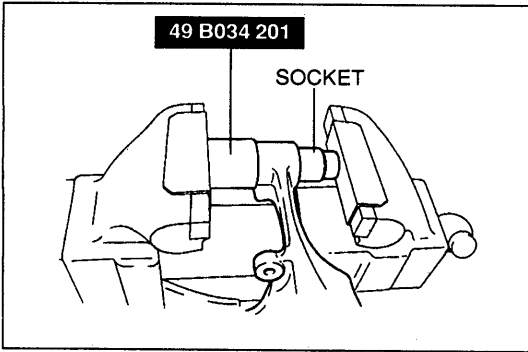
Note

- The dust cover does not need to be removed unless you are replacing it.

1. Mark the dust cover and knuckle for proper reassembly.

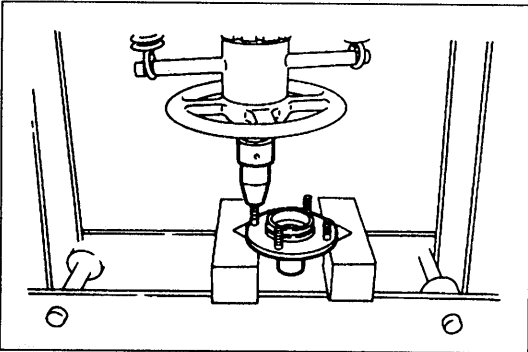


2. Remove the dust cover with a chisel.



Bushing

Press out the bushing with the **SST** and a socket.

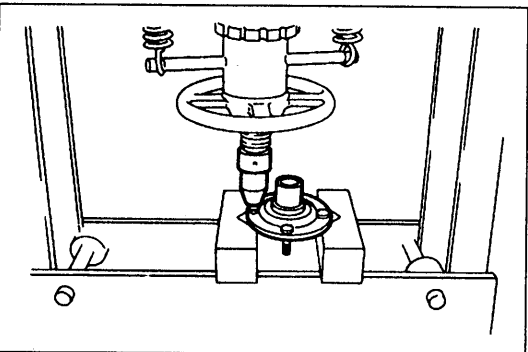


Hub bolt

Note

- The hub bolts do not need to be removed unless you are replacing them.

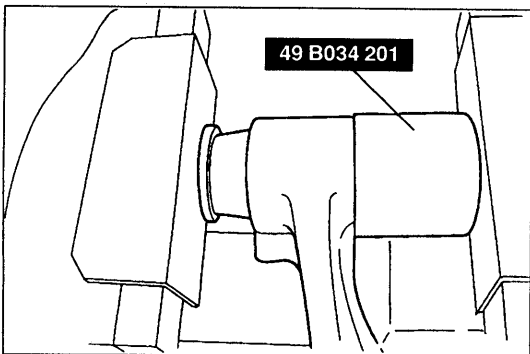
Press out the hub bolts.



Assembly note

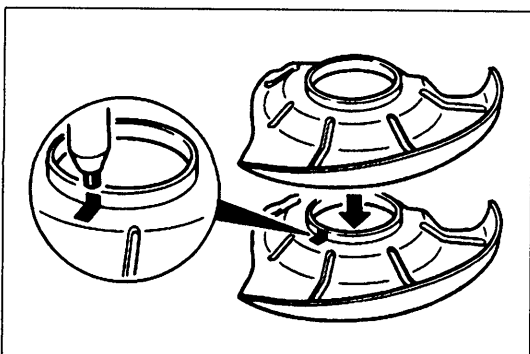
Hub bolt

Press in new hub bolts.



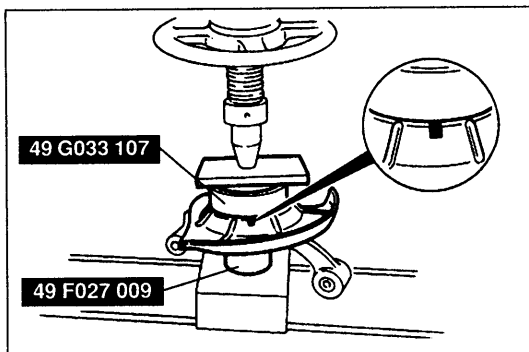
Bushing

Apply soapy water to the bushing, then press it into the knuckle with the **SST**.

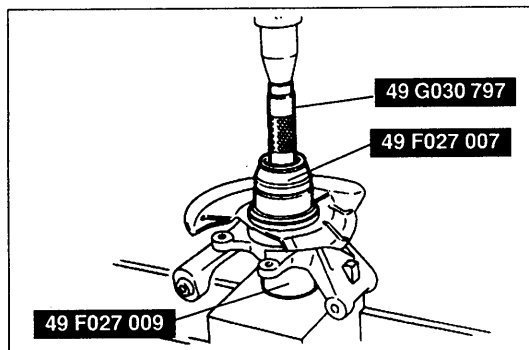


Dust cover

1. Mark the new dust cover the same as the one that was removed.

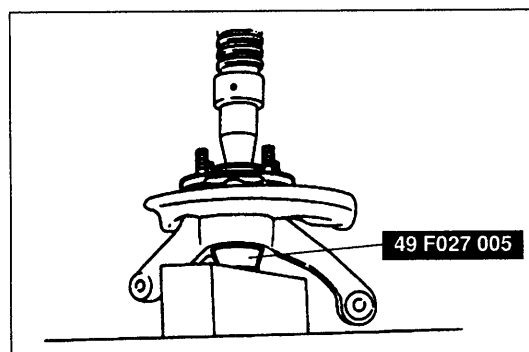


2. Align the marks of the new dust cover and the knuckle.
3. Install the new dust cover by using the **SSTs**.



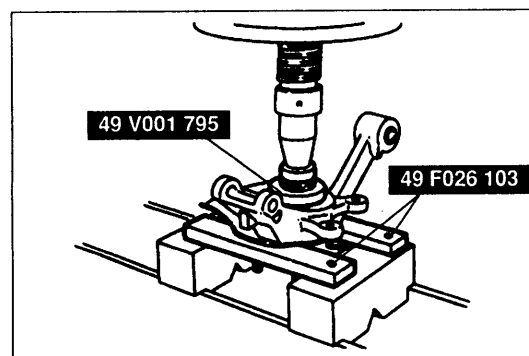
Wheel bearing

- Press the new wheel bearing into the knuckle by using the **SSTs**.



Rear wheel hub assembly

1. Apply grease to the wheel bearing inner race.
2. Press the rear wheel hub assembly in by using the **SST**.



Oil seal

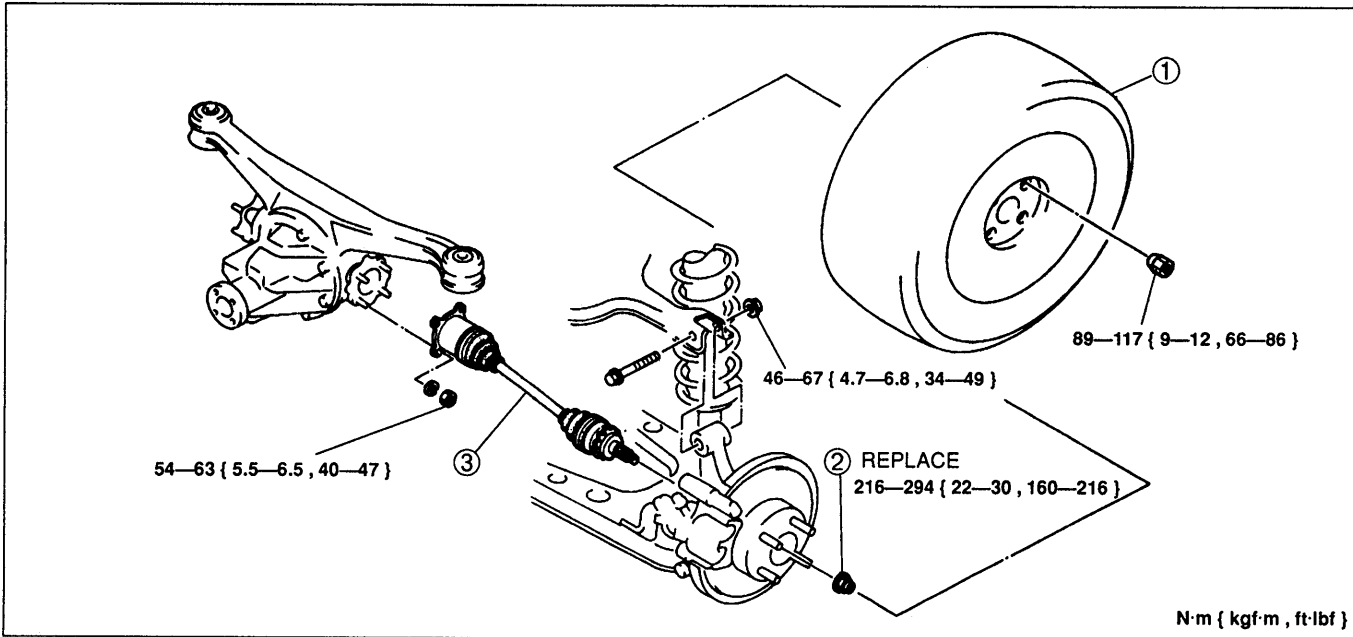
1. Apply grease to the new oil seal lip.
2. Install the new oil seal with the **SSTs**.

DRIVE SHAFT

DOUBLE OFFSET JOINT

Inspection / Removal / Installation

1. Inspect the drive shaft, referring to **Inspection**.
2. Remove in the order shown in the figure, referring to **Removal Note**.
3. Install in the reverse order of removal, referring to **Installation Note**.

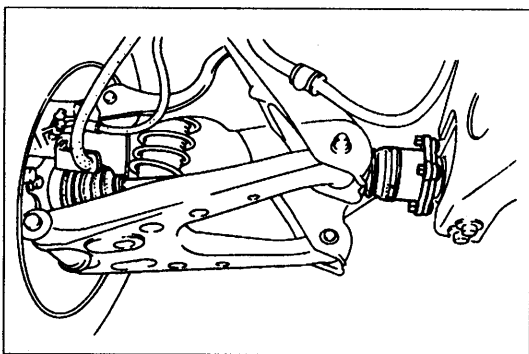


1. Rear wheel
2. Locknut

Installation Note page M-18

3. Drive shaft

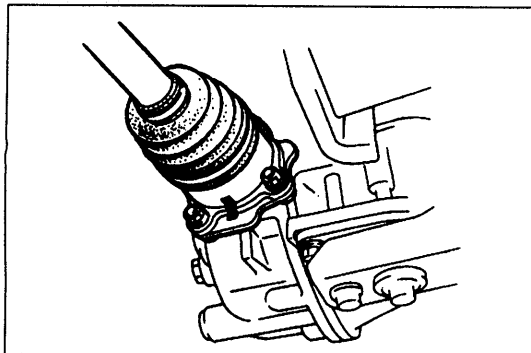
Inspection below
 Removal Note below
 Installation Note page M-18
 Disassembly / Inspection /
 Assembly page M-19



Inspection

Drive shaft

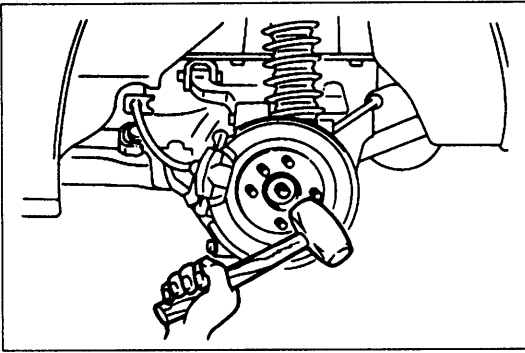
1. Check the dust boot on the drive shaft for cracks, damage, leaking grease, and a loose boot band.
2. Check the drive shaft for bending, cracks, and wear of joints and splines.
3. Repair or replace the drive shaft if necessary.



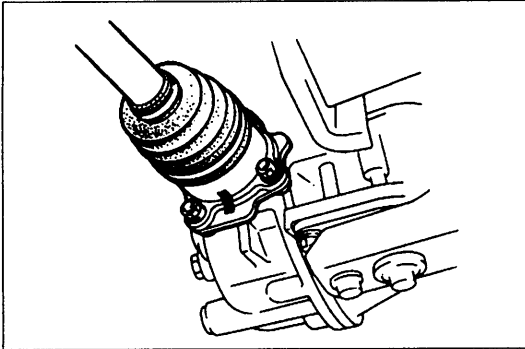
Removal note

Drive shaft

Before removing the drive shaft, mark the drive shaft and output shaft for proper installation.

**Note**

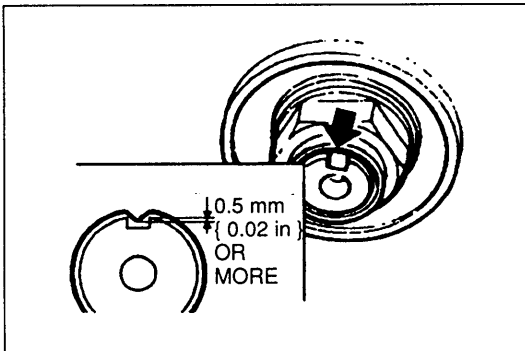
- If the drive shaft will not come out of the wheel hub easily, install a discarded nut onto the drive shaft so that the nut is flush with the end of the drive shaft. Tap the nut with a copper hammer to loosen the drive shaft from the wheel hub.

**Installation note****Drive shaft**

Align the marks and install the drive shaft.

Tightening torque:

54—63 N·m { 5.5—6.5 kgf·m , 40—47 ft·lbf }

**Locknut**

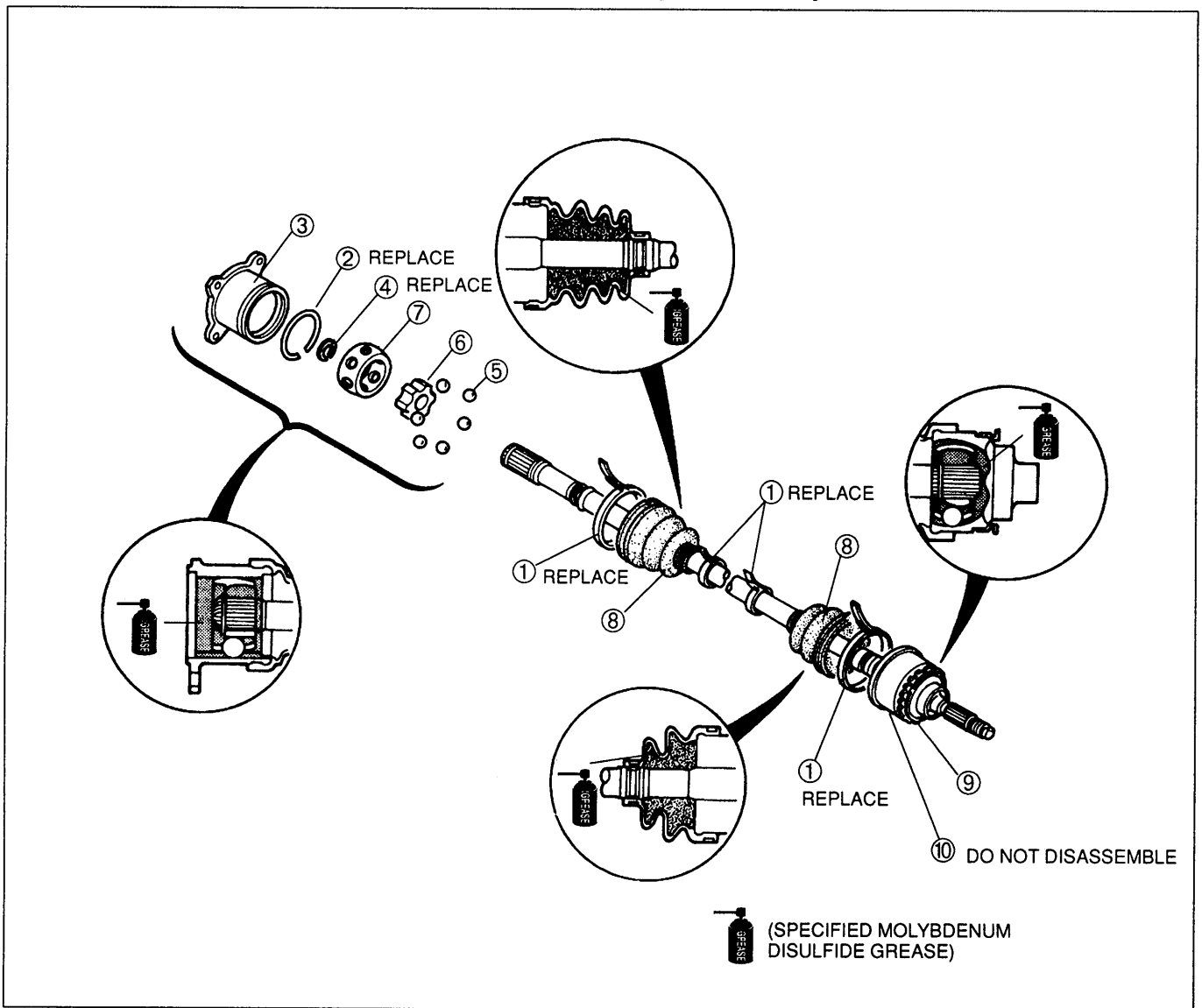
Install a new locknut and stake it.

Tightening torque:

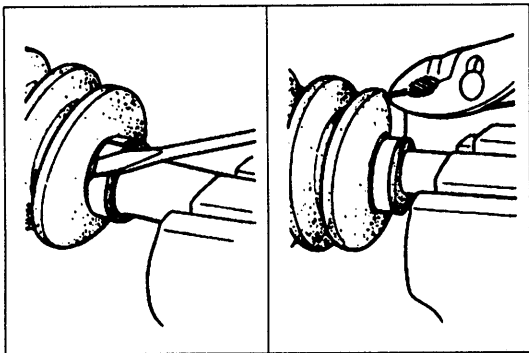
216—294 N·m { 22—30 kgf·m , 160—216 ft·lbf }

Disassembly / Inspection / Assembly

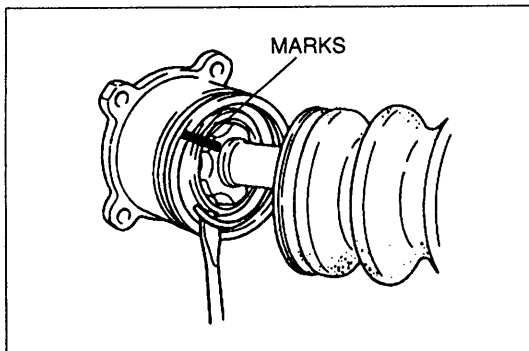
1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and repair or replace as necessary.
3. Verify that all parts are free of dust, dirt and other foreign material immediately before reassembly. Do not wash the joint unless it is being disassembled.
4. Assemble in the reverse order of disassembly, referring to **Assembly Note**.



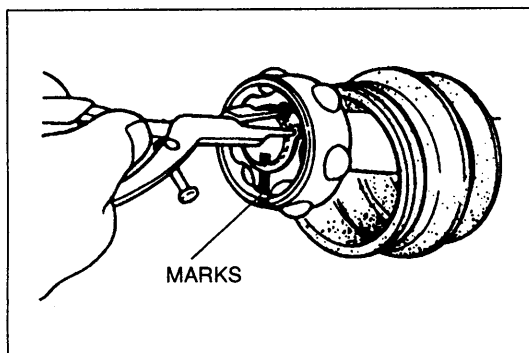
- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Boot bands
Disassembly Note page M-20
Assembly Note page M-22 2. Clip
Disassembly Note page M-20 3. Outer ring
Inspect inside bore for wear, corrosion, and scoring 4. Snap ring
Disassembly Note page M-20 5. Balls
Disassembly Note page M-20
Assembly Note page M-21 | <ol style="list-style-type: none"> 6. Inner ring
Disassembly Note page M-20
Assembly Note page M-21 7. Cage
Disassembly Note page M-20
Assembly Note page M-21 8. Boots
Disassembly Note page M-21
Assembly Note page M-21 9. Sensor rotor (ABS)
Service section P 10. Shaft and ball joint assembly
Inspect splines for damage and wear
Inspect wheel-side joint for excessive play and rough rotation |
|--|--|

**Disassembly note****Boot bands**

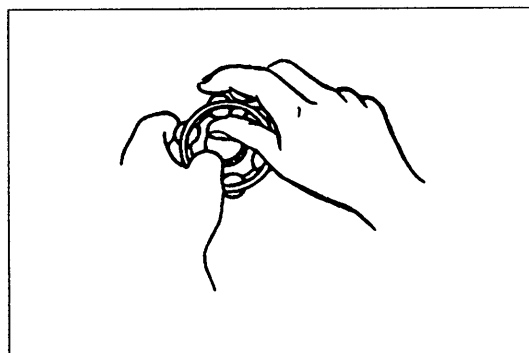
To remove the boot bands, pry up the locking clip with a screwdriver, then raise the end of the band.

**Clip**

1. Mark the drive shaft and outer ring with paint as shown.
2. Remove the clip.

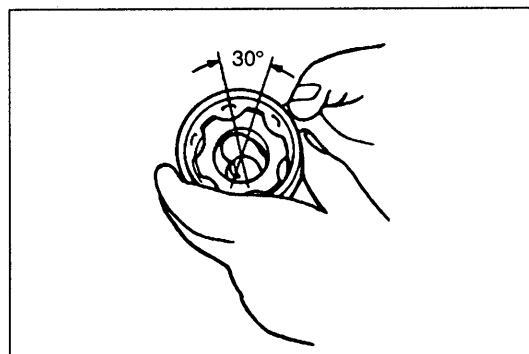
**Snap ring**

1. Mark the drive shaft end and inner ring with paint as shown.
2. Remove the snap ring with snap ring pliers.

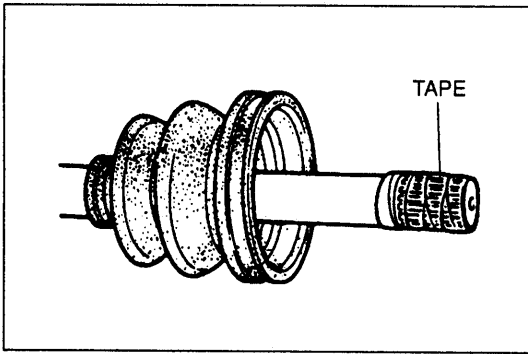
**Cage, inner ring, balls**

Disassemble in the following order:

1. Insert a screwdriver between the inner ring and cage to remove the balls.

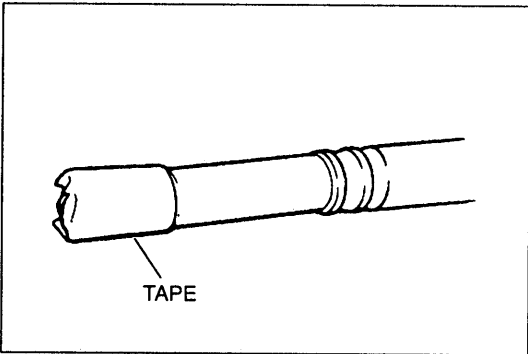


2. Mark the inner ring and cage with paint.
3. Turn the cage approximately 30° , then pull it away from the inner ring.



Boots

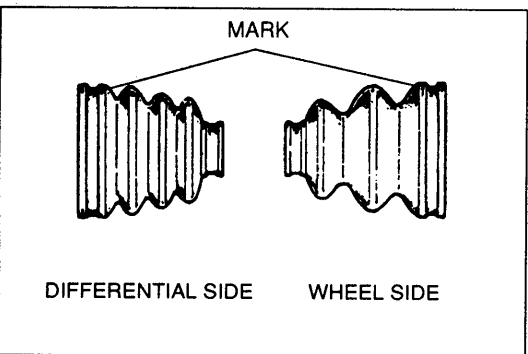
1. Wrap the shaft splines with tape.
2. Remove the boot.



Assembly note

Boots

1. Before putting the boot onto the shaft, wrap the shaft splines with tape.

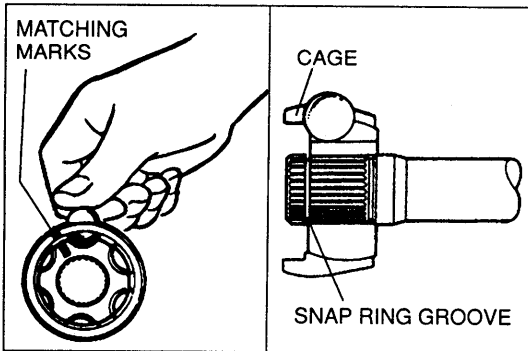


Note

- The initials TJ and BJ are stamped on the wheel-side and differential-side boots respectively.
2. Install the wheel-side and differential-side boots, noting the shape and size of each one in the figure.

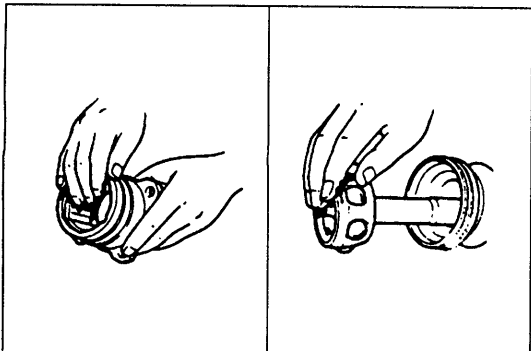
Outer diameter of large boot end

Differential side: 87.4 mm { 3.441 in }
 Wheel side : 90.8 mm { 3.575 in }



Cage, inner ring, balls

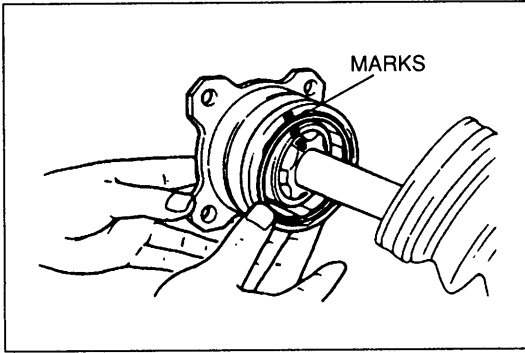
1. Align the marks and install the balls to the inner ring.
2. Install the cage, inner ring, and ball assembly to the drive shaft in the direction shown in the figure. The larger diameter of the cage should be facing the snap ring groove.
3. Install a new snap ring in the drive shaft snap ring groove.



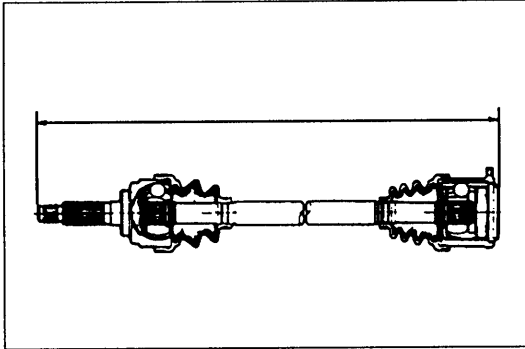
4. Apply the specified grease (**molybdenum disulfide**) to the joints and boots.

Total quantity

Differential side: 75—95 g { 2.65—3.35 oz }
 Wheel side : 55—75 g { 1.94—2.65 oz }



5. Align the marks, then install a new clip.

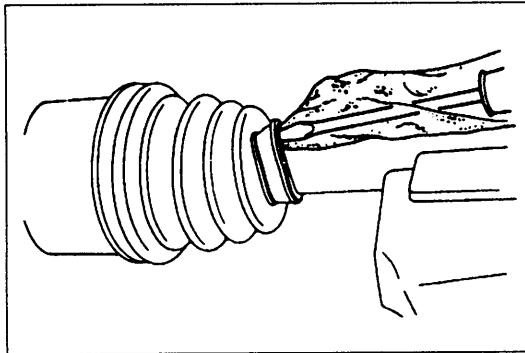


Boot bands

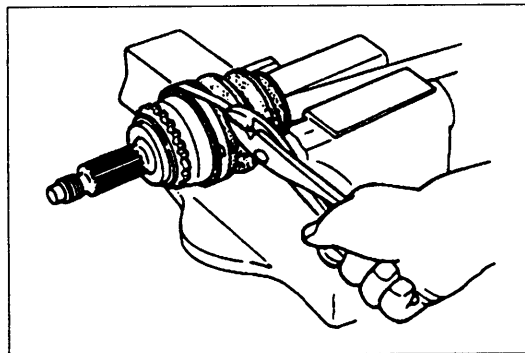
1. Verify that the boots are not dented or twisted.
2. Set the drive shaft to the standard length.

Standard length:

640.8—650.8 mm { 25.228—25.622 in }



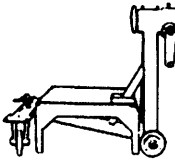
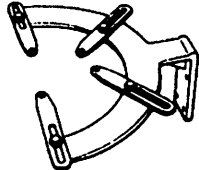
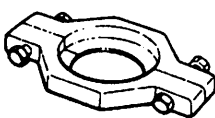
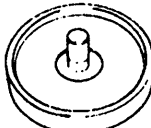


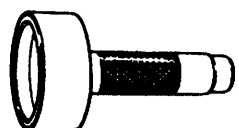
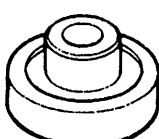
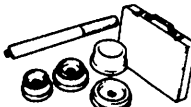
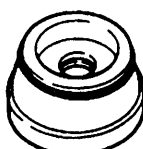
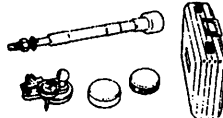
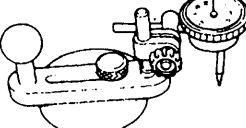
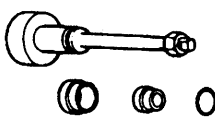

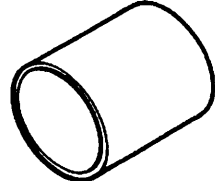
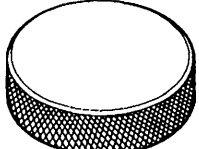
3. Release any trapped air from the boots by carefully lifting up the small end of each boot with a cloth-wrapped screwdriver.
4. Verify that the drive shaft length is within the standard.
5. If the drive shaft length is not within the standard, return to step 1.


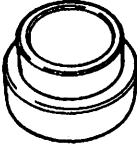

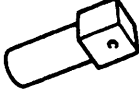

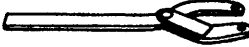
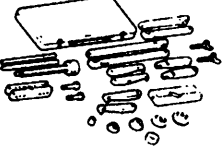
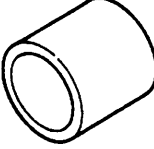
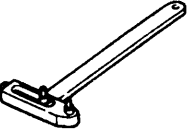


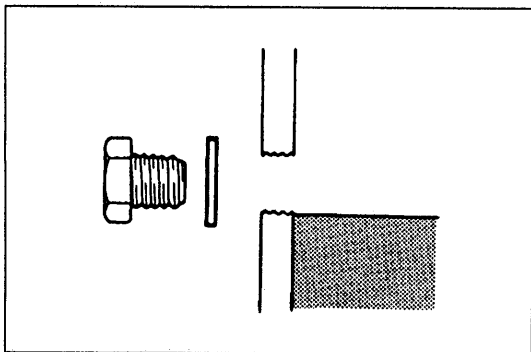
6. Fold the new band back by pulling on the end of it with pliers. The band should be folded in the direction opposite the forward revolving direction of the drive shaft.
7. Lock the end of the band by bending the locking clips.

DIFFERENTIAL

PREPARATION
SST

<p>49 0107 680A Engine stand</p> 	<p>For disassembly and assembly of differential</p>	<p>49 M005 561 Hanger, differential carrier</p> 	<p>For disassembly and assembly of differential</p>
<p>49 0636 145 Puller, fan pulley boss</p> 	<p>For removal of bearing inner race (side bearing)</p>	<p>49 N034 213 Installer, rubber bushing</p> 	<p>For installation of differential mounting rubber</p>
<p>49 G030 795 Installer, oil seal</p> 	<p>For installation of oil seal</p>	<p>49 G030 797 Handle (Part of 49 G030 795)</p> 	<p>For installation of bearing outer race</p>
<p>49 B001 795 Installer, oil seal</p> 	<p>For installation of oil seal (output shaft)</p>	<p>49 F027 004 Attachment $\phi 80$</p> 	<p>For installation of bearing outer race (rear bearing)</p>
<p>49 F027 0A1 Installer set, bearing</p> 	<p>For installation of bearing</p>	<p>49 F027 005 Attachment $\phi 62$ (Part of 49 F027 0A1)</p> 	<p>For installation of bearing outer race (front bearing)</p>
<p>49 F027 0A0 Gauge set, pinion height adjustment</p> 	<p>For adjustment of pinion height</p>	<p>49 0727 570 Gauge body, pinion height (Part of 49 F027 0A0)</p> 	<p>For adjustment of pinion height</p>
<p>49 8531 565 Pinion model</p> 	<p>For adjustment of pinion height</p>	<p>49 8531 567 Collar A (Part of 49 8531 565)</p> 	<p>For adjustment of pinion height</p>
<p>49 H027 001 Collar</p> 	<p>For adjustment of pinion height</p>	<p>49 0305 555 Gauge block</p> 	<p>For adjustment of pinion height</p>

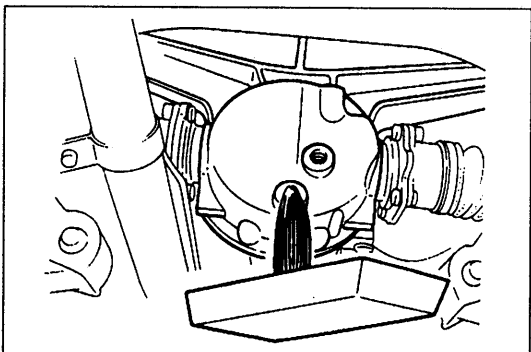
<p>49 D017 2A1</p> <p>Installer set, bearing</p> 	<p>For installation of bearing</p>	<p>49 F401 337A</p> <p>Attachment C (Part of 49 D017 2A1)</p> 	<p>For installation of bearing inner race (rear bearing)</p>
<p>49 F401 331</p> <p>Body (Part of 49 D017 2A1)</p> 	<p>For installation of bearing inner race (rear bearing)</p>	<p>49 0259 440</p> <p>Holder, main shaft</p> 	<p>For prevention of oil leakage</p>
<p>49 G030 338</p> <p>Attachment E (Part of 49 D017 2A1)</p> 	<p>For installation of bearing inner race (side bearing)</p>	<p>49 S120 710</p> <p>Holder, coupling flange</p> 	<p>For removal and installation of companion flange</p>
<p>49 0839 425C</p> <p>Puller set, bearing</p> 	<p>For removal and installation of companion flange</p>	<p>49 U027 003</p> <p>Installer, oil seal</p> 	<p>For installation of oil seal (companion flange)</p>
<p>49 0259 720</p> <p>Wrench, differential side bearing adjusting nut</p> 	<p>For adjustment of drive pinion and ring gear backlash</p>	<p>—</p>	<p>—</p>

**DIFFERENTIAL OIL****Inspection**

1. Remove the filler plug.
2. Verify that the oil is at the bottom of the filler plug hole. If it is low, add the specified oil.
3. Install the filler plug.

Tightening torque:

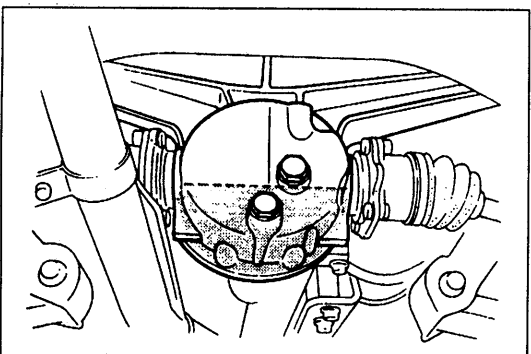
39—53 N·m { 4.0—5.5 kgf·m , 29—39 ft·lbf }

**Replacement**

1. Remove the filler and drain plugs.
2. Drain the differential oil into a suitable container.
3. Wipe the plugs clean.
4. Install the drain plug and a new washer.

Tightening torque:

39—53 N·m { 4.0—5.5 kgf·m , 29—39 ft·lbf }



5. Add the specified oil from the filler plug until the level reaches the bottom of the plug hole.

Specified oil

Type (API service GL-4, GL-5)

Above -18 °C { 0 °F } : SAE 90

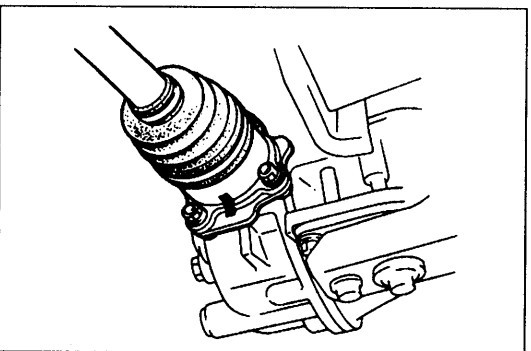
Below -18 °C { 0 °F } : SAE 80

Capacity: 1.00 L { 1.06 US qt , 0.88 Imp qt }

6. Install the filler plug.

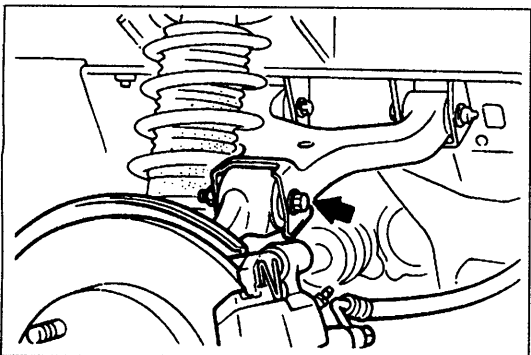
Tightening torque:

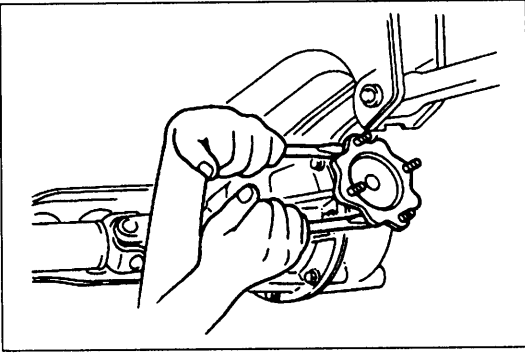
39—53 N·m { 4.0—5.5 kgf·m , 29—39 ft·lbf }

**OIL SEAL (OUTPUT SHAFT)****Replacement**

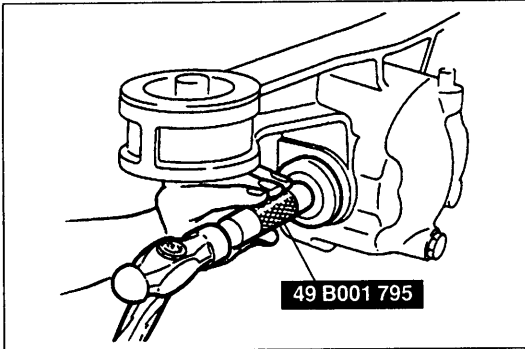
1. On level ground, Jack up the vehicle and support it on safety stands.
2. Drain the differential gear oil.
3. Mark the drive shaft and output shaft flanges for proper reassembly.

4. Remove the upper arm installation bolt and nut.

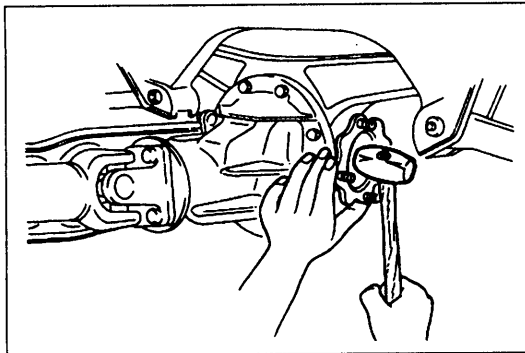




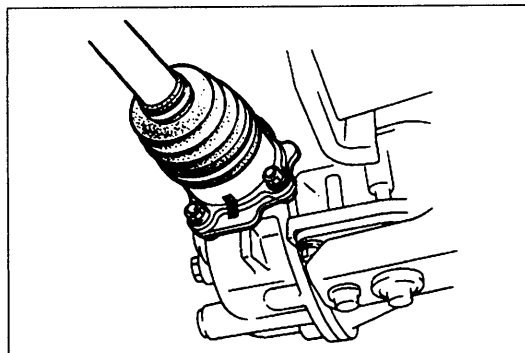
5. Separate the driveshaft from the differential and suspend it.
6. Remove the output shaft by using two pry bars as shown in the figure.
7. Remove the oil seal.



8. Apply lithium-based grease to the new oil seal lip and install it by using the **SST**.



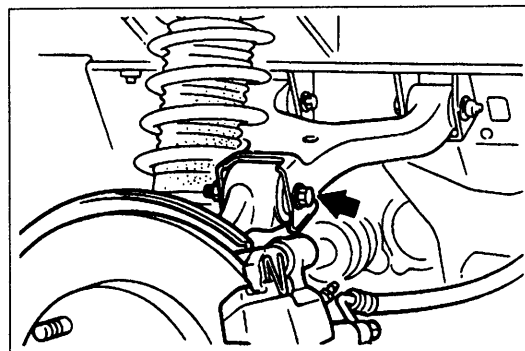
9. Install the new clips.
10. Install the output shaft into the side gears by lightly tapping with a plastic hammer.
11. Verify that the output shaft is hooked into the side gears by pulling it by hand.



12. Align the marks and install the drive shaft.

Tightening torque:

54—63 N·m { 5.5—6.5 kgf·m , 40—47 ft·lbf }



13. Install the upper arm installation bolt and nut.

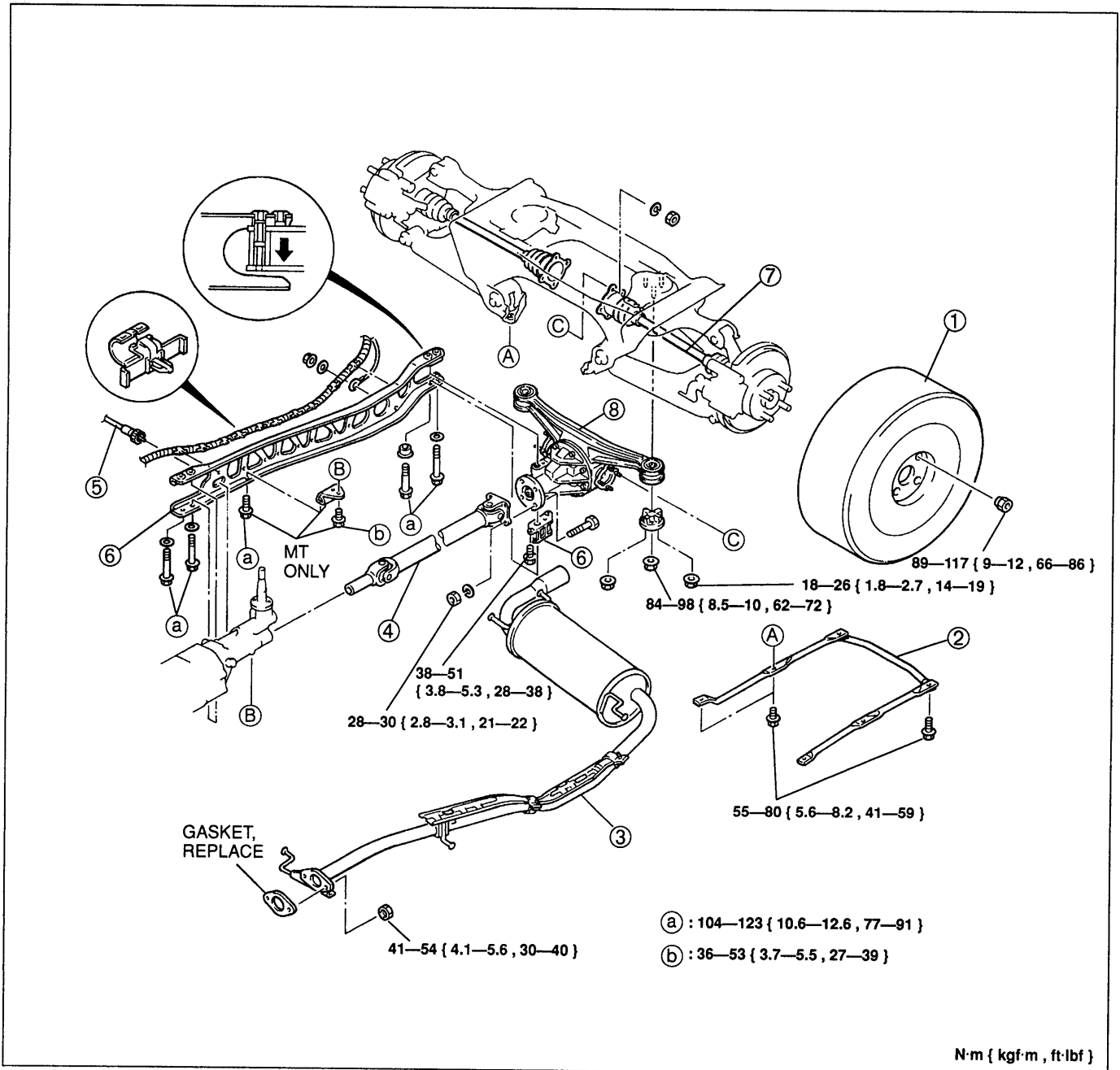
Tightening torque:

47—66 N·m { 4.7—6.8 kgf·m , 34—49 ft·lbf }

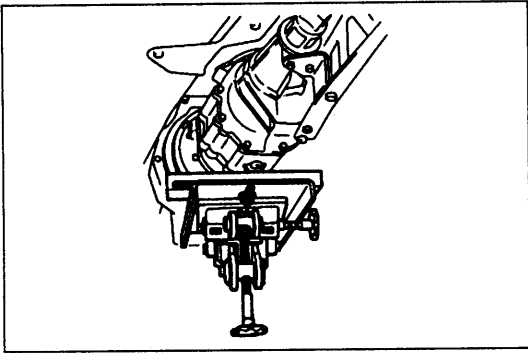
14. Add the specified oil.
15. Adjust the rear wheel alignment. (Refer to section R.)

**DIFFERENTIAL, STANDARD; DIFFERENTIAL, TORQUE SENSING LIMITED SLIP ("TORSEN" LSD)
Removal / Installation**

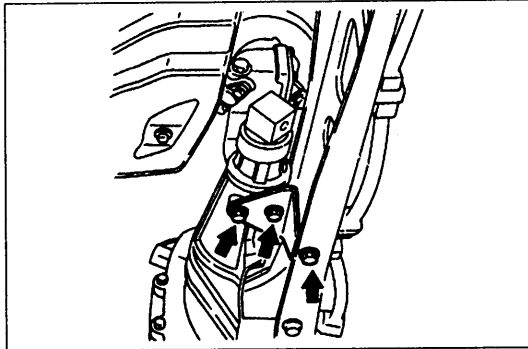
1. Drain the differential oil.
2. Remove in the order shown in the figure, referring to **Removal Note**.
3. Install in the reverse order of removal, referring to **Installation Note**.
4. Add the specified oil to the specified level.



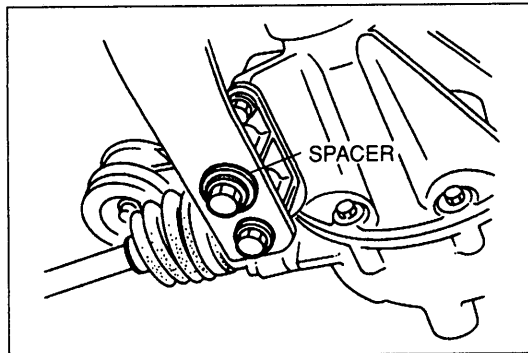
- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Rear wheels 2. Differential mounting pipe 3. Exhaust pipe 4. Propeller shaft
Service section L 5. Speedometer cable 6. Power plant frame (PPF),
Differential mounting spacer
Removal Note page M-28
Installation Note page M-30 | <ol style="list-style-type: none"> 7. Drive shafts
Removal Note page M-29 8. Differential
Removal Note page M-29
Installation Note page M-30
Disassembly / Inspection /
Assembly page M-32 |
|---|--|

**Removal note****Power plant frame (PPF)**

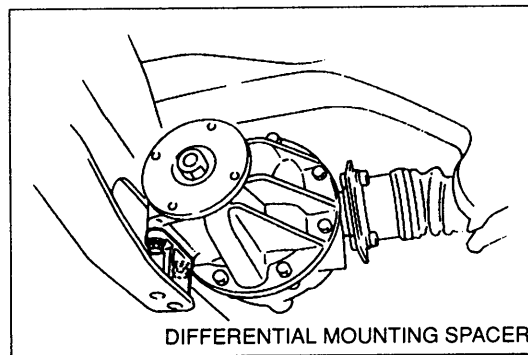
1. Disconnect the wire harness from the PPF.
2. Support the transmission with a jack.



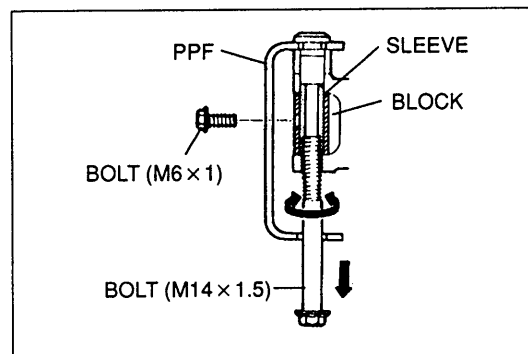
3. Remove the power plant frame bracket. (Manual transmission)



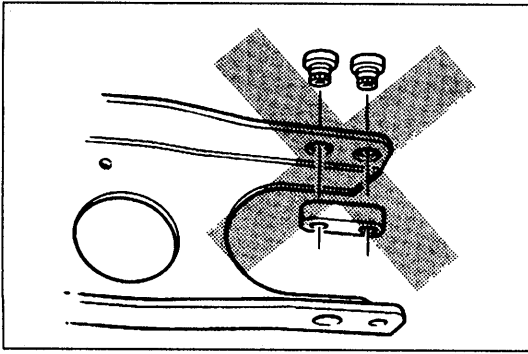
4. Remove the differential-side bolts, and pry out the spacer.



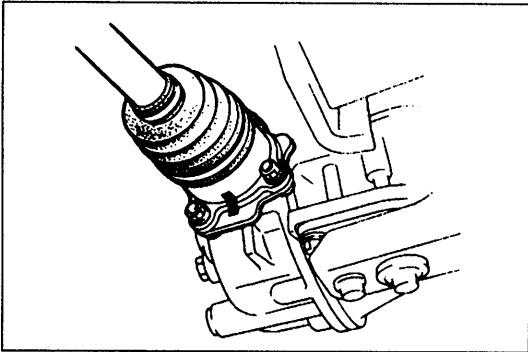
5. Remove the differential mounting spacer.



6. Turn a bolt (M14 × 1.5) into the sleeve.
7. Twist and pull the bolt downward.
8. Install a bolt (M6 × 1) into the hole in the block to hold the sleeve, and remove the long bolt (M14 × 1.5).
9. Remove the bolt (M6 × 1).

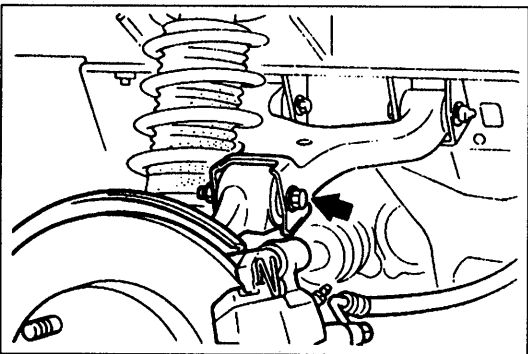


- Remove the transmission-side bolts, and remove the PPF. Do not remove the spacers from the PPF. If they are removed, replace the PPF as an assembly.



Drive shaft

Mark the drive shaft and output shaft for proper installation.



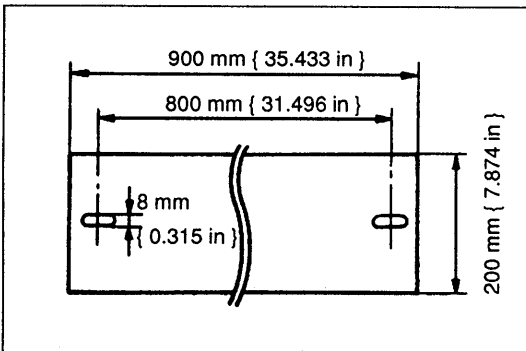
Differential

- Support the differential with a jack.
- Lower the differential and move it forward.

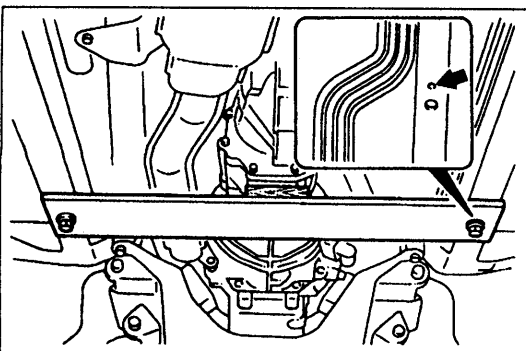
Note

- If the drive shaft will not separate easily from the output shaft, remove a bolt and nut from one side of the upper arm.

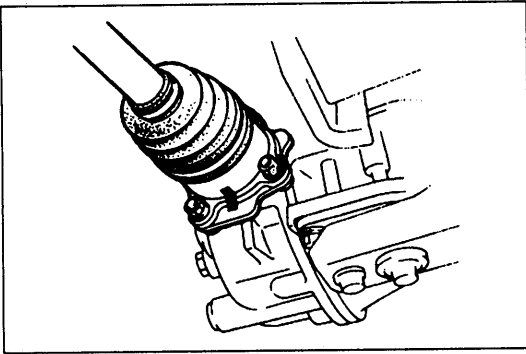
- Separate the driveshaft from the output shaft.



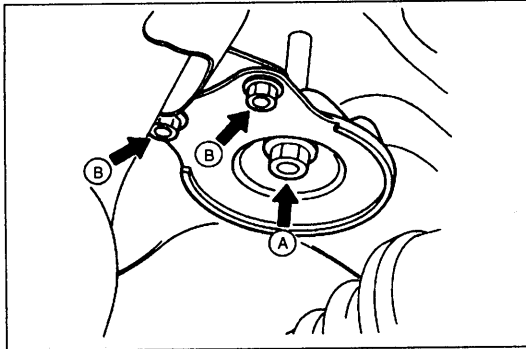
- To prevent damaging the fire wall, crank angle sensor, and engine mount, support the transmission as follows.
 - Prepare a steel plate (as shown in the figure), a wooden block, bolts (M8 × 1.25), and washers.



- Install the parts as shown in the figure.

**Installation note****Differential**

1. Connect the drive shaft to the output shaft with the marks aligned.



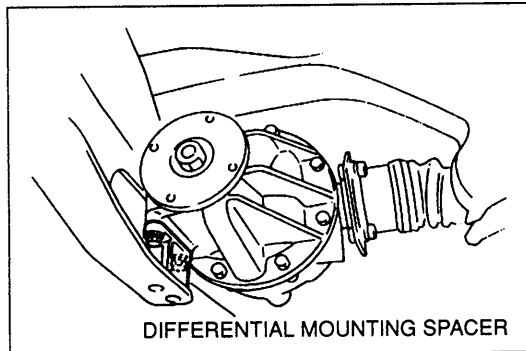
2. Install the differential.

Tightening torque

Ⓐ: 84—98 N·m { 8.5—10 kgf·m , 62—72 ft·lbf }

Ⓑ: 18—26 N·m { 1.8—2.7 kgf·m , 14—19 ft·lbf }

3. Adjust the rear wheel alignment if the upper arm installation bolt and nut were removed. (Refer to section R.)

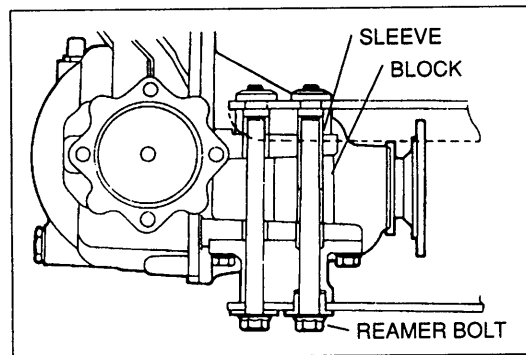
**Power plant frame (PPF)**

1. Install the differential mounting spacer.

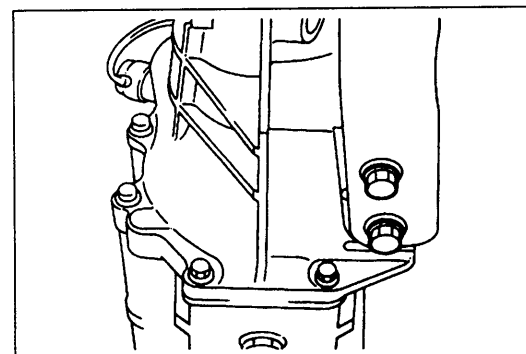
Tightening torque:

38—51 N·m { 3.8—5.3 kgf·m , 28—38 ft·lbf }

2. Support the transmission with a jack so that it is level.
3. Position the PPF and snugly tighten the transmission-side bolts by hand.



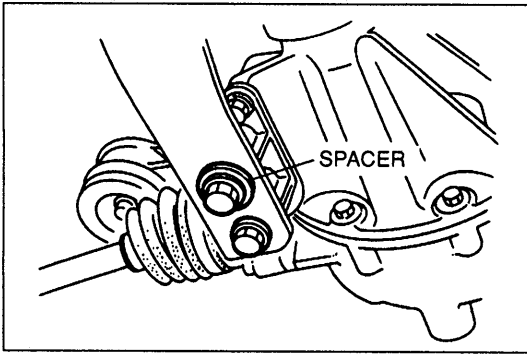
4. Verify that the sleeve is installed into the block.
5. Install the spacer and bolts and snugly tighten them. The reamer bolt should be installed in the forward hole.



6. Snugly install the power plant frame bracket.
7. Tighten the transmission-side bolts.

Tightening torque:

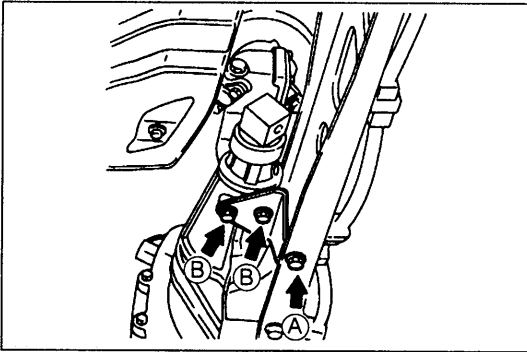
104—123 N·m { 10.6—12.6 kgf·m , 77—91 ft·lbf }



8. Tighten the differential-side bolts.

Tightening torque:

104—123 N·m { 10.6—12.6 kgf·m , 77—91 ft·lbf }



9. Install the power plant frame bracket. (Manual transmission)

Tightening torque

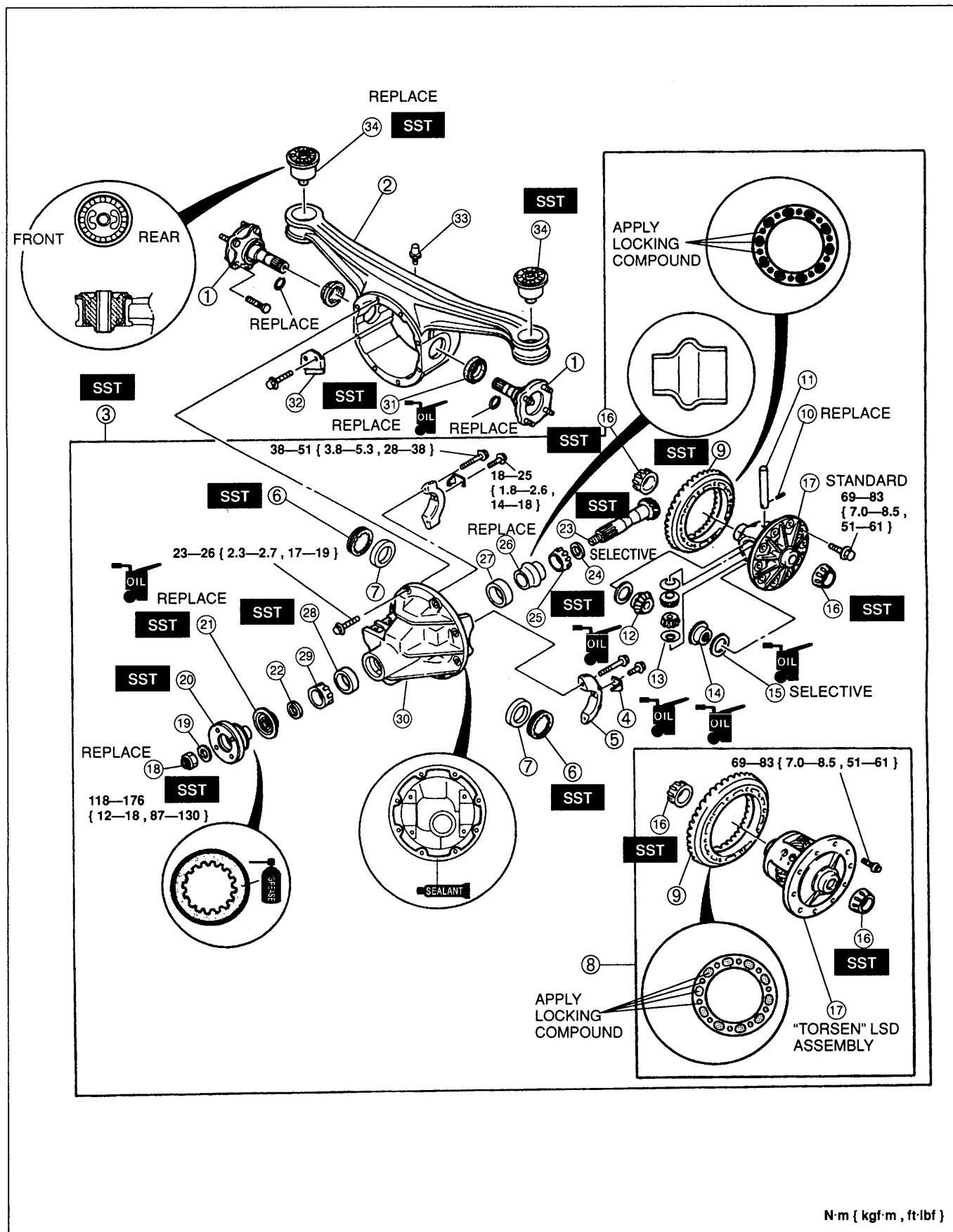
Ⓐ: 104—123 N·m { 10.6—12.6 kgf·m , 77—91 ft·lbf }

Ⓑ: 36—53 N·m { 3.7—5.5 kgf·m , 27—39 ft·lbf }

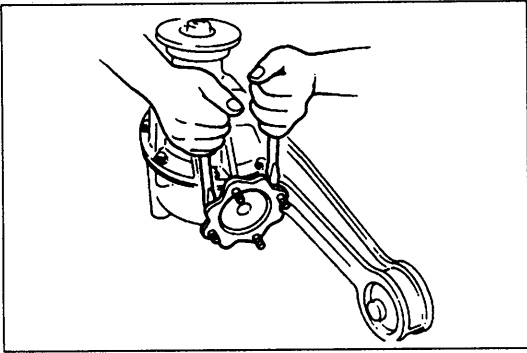
10. Remove the jack, and connect the wire harness.

Disassembly / Inspection / Assembly

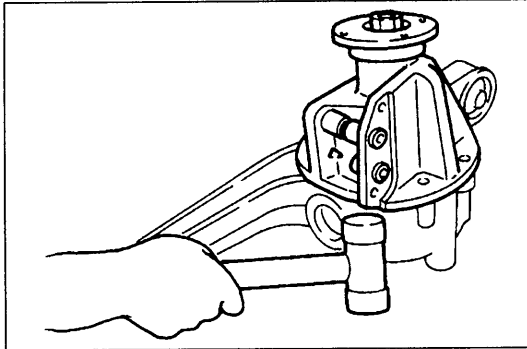
1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly Note**.



1. Output shafts
 - Disassembly Note page M-34
 - Assembly Note page M-42
2. Differential case
 - Disassembly Note page M-34
 - Assembly Note page M-42
3. Differential gear assembly
 - Disassembly Note page M-34
4. Lock plates
5. Bearing caps
 - Disassembly Note page M-34
 - Assembly Note page M-42
6. Adjusting nuts
 - Disassembly Note page M-34
7. Bearing outer races (Side bearing)
8. Gear case assembly ("TORSEN" LSD)
9. Ring gear
 - Inspect individual gear teeth for wear and cracks
10. Knock pin (Standard)
 - Disassembly Note page M-34
11. Pinion shaft (Standard)
12. Pinion gears (Standard)
 - Inspect individual gear teeth for wear and cracks
13. Thrust washers (Standard)
14. Side gears (Standard)
 - Inspect individual gear teeth for wear and cracks
15. Thrust washers (Standard)
 - Assembly Note page M-40
16. Bearing inner races (Side bearing)
 - Disassembly Note page M-34
 - Inspect for damage and rough rotation
17. Gear case
18. Locknut (Companion flange)
 - Disassembly Note page M-35
19. Washer
20. Companion flange
 - Disassembly Note page M-35
 - Inspect splines for wear and damage
21. Oil seal (Companion flange)
22. Washer
23. Drive pinion
 - Disassembly Note page M-35
 - Inspect splines for wear and damage
 - Inspect individual gear teeth for wear and cracks
24. Spacer
 - Assembly Note page M-37
25. Bearing inner race (Front bearing)
 - Inspect for damage and rough rotation
 - Assembly Note page M-38
26. Collapsible spacer
27. Bearing outer race (Rear bearing)
 - Disassembly Note page M-35
 - Assembly Note page M-37
28. Bearing outer race (Front bearing)
 - Disassembly Note page M-35
 - Assembly Note page M-36
29. Bearing inner race (Rear bearing)
 - Disassembly Note page M-35
 - Inspect for damage and rough rotation
 - Assembly Note page M-37
30. Differential carrier
31. Oil seal (Output shaft)
 - Assembly Note page M-36
32. Baffle
33. Breather
34. Differential mount
 - Disassembly Note page M-36
 - Assembly Note page M-36

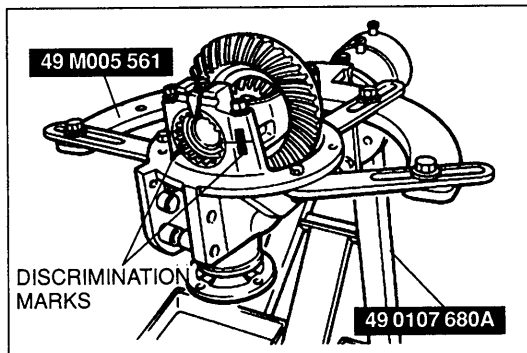
**Disassembly note****Output shafts**

Remove the output shafts with two pry bars as shown in the figure.

**Differential case****Caution**

- The differential case is made of aluminum, and is therefore easily dented and scratched by metal tools. When separating the differential carrier from the case, use only a plastic hammer at the point shown in the figure.

Strike the differential carrier with a plastic hammer to separate it from the case.

**Differential gear assembly**

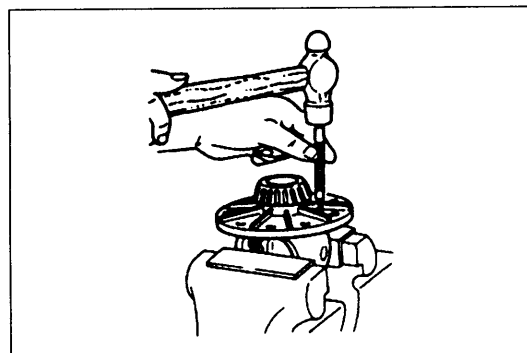
Mount the differential gear assembly on the SSTs.

Bearing caps

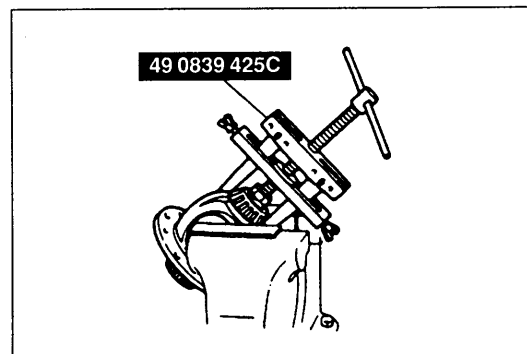
Mark one bearing cap and the carrier.

Adjusting nuts

Mark one adjusting nuts and the carrier.

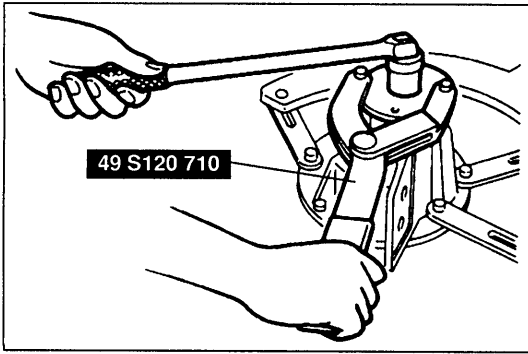
**Knock pin**

Secure the gear case in a vise and tap out the knock pin toward the ring gear side.

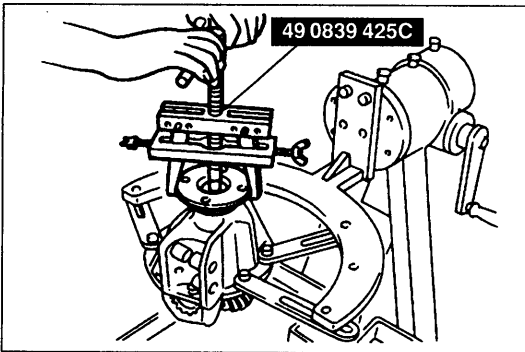
**Bearing inner races (Side bearing)****Note**

- Mark the bearings so that they can later be reinstalled in the same position.

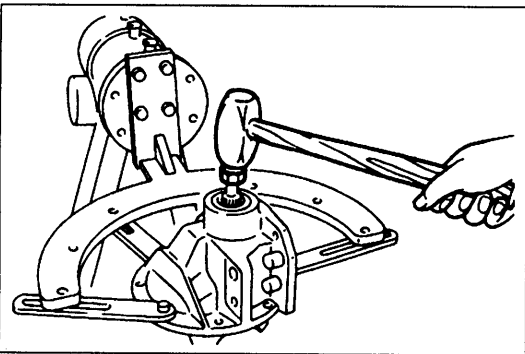
Remove the bearing inner races (side bearing) from the gear case by using the SST.

**Locknut (Companion flange)**

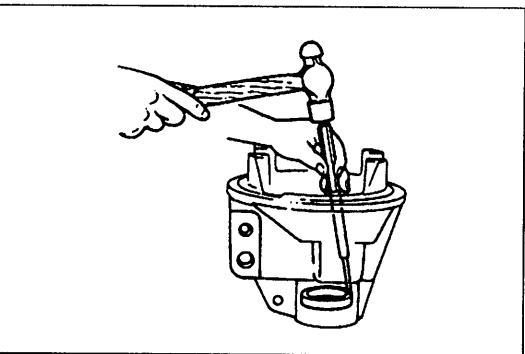
Hold the companion flange by using the SST and remove the locknut.

**Companion flange**

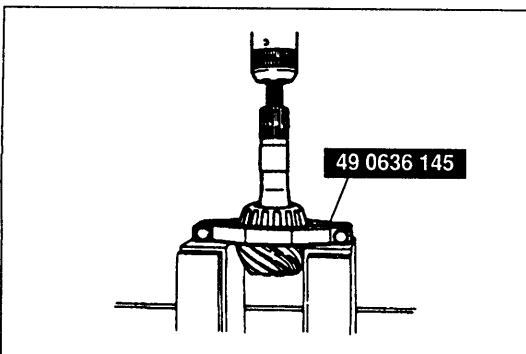
Pull the companion flange off by using the SST.

**Drive pinion**

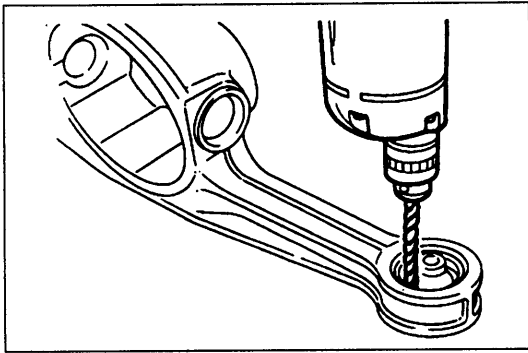
Push out the drive pinion by attaching a miscellaneous locknut to the drive pinion, and tapping it with a copper hammer.

**Bearing outer races (Front, and rear bearing)**

Remove the bearing outer races using the two grooves in the carrier and alternately tapping the sides of the races.

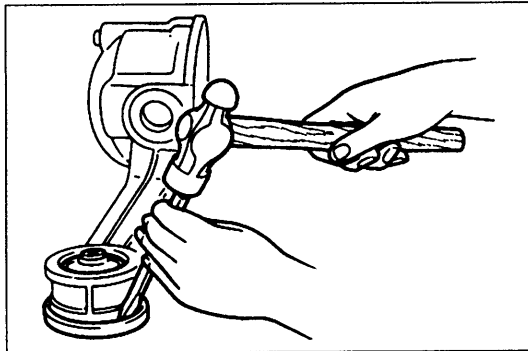
**Bearing inner race (Rear bearing)**

While supporting the drive pinion to keep it from falling, remove the bearing inner race (rear bearing) by using the SST.

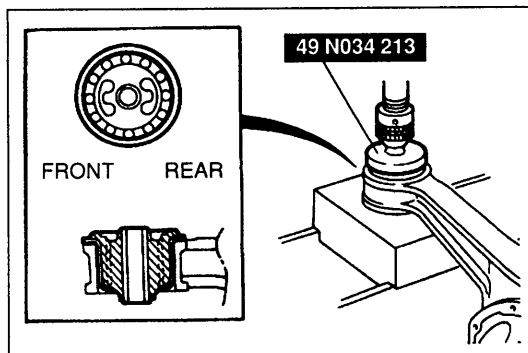


Differential mount

1. Drill holes around the differential mount.



2. Hit the edge of the differential mount to remove it.

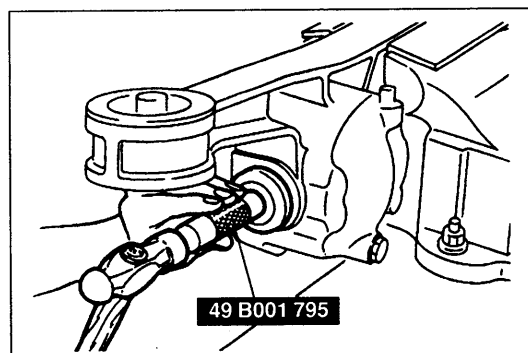


Assembly note

Differential mounting rubber

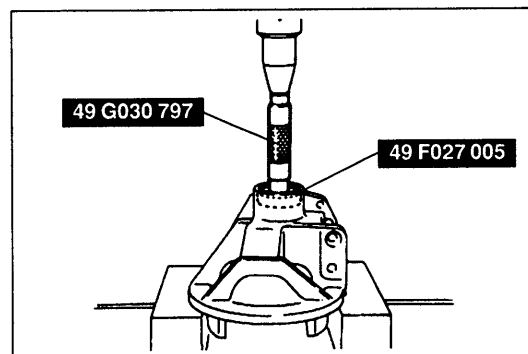
1. Install the new differential mount with the voids facing front and rear.
2. Press in the differential mount by using the SST.

Press force: 19,600 N { 2,000 kgf , 4,400 lbf }



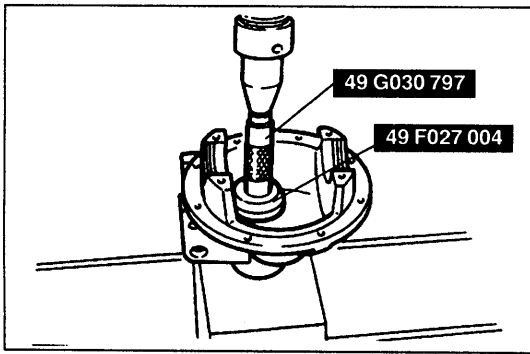
Oil seal (Output shaft)

Apply lithium based grease to the new oil seal lip and install it by using the SST.

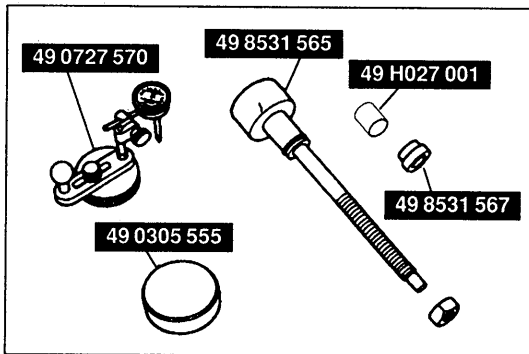


Bearing outer race (front bearing)

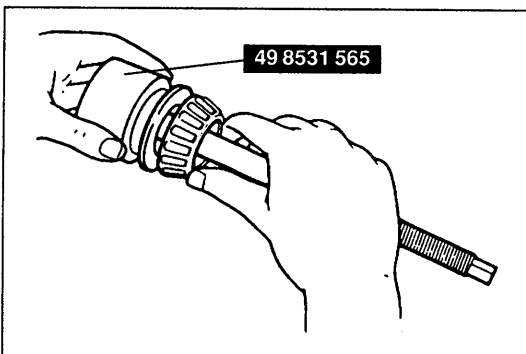
Install the bearing outer race (front bearing) by using the SSTs.

**Bearing outer race (rear bearing)**

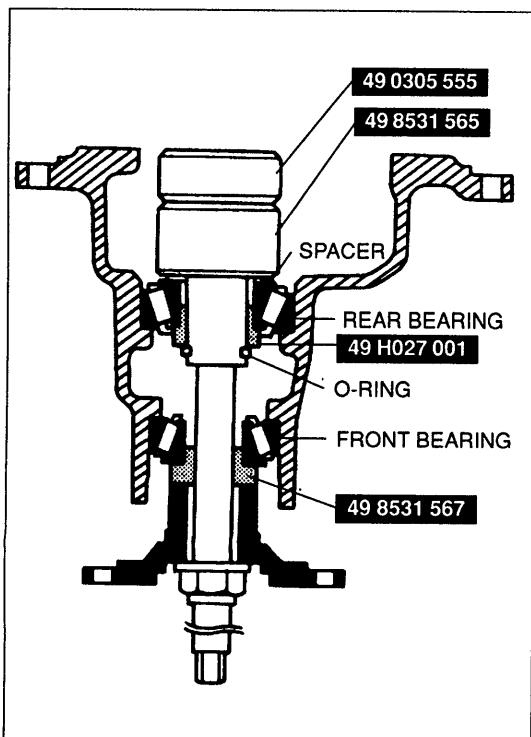
Install the bearing outer race (rear bearing) by using the SSTs.

**Bearing inner race (rear bearing), Bearing inner race (front bearing), Spacer**

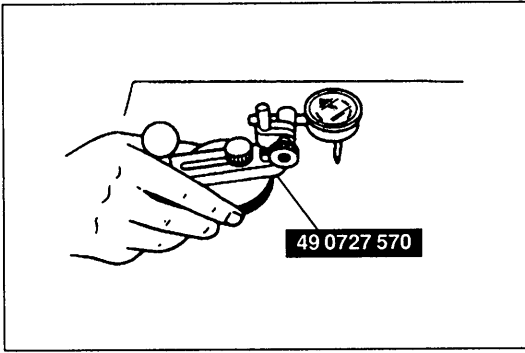
1. Adjust the drive pinion height as follows, by using the SSTs.



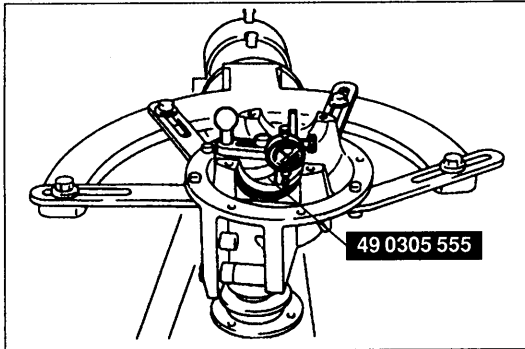
- (1) Install the previously-removed spacer onto the **SST** so that the beveled side of the spacer faces the drive pinion. Then install the rear bearing and O-ring onto the **SST/spacer** as shown in the figure.



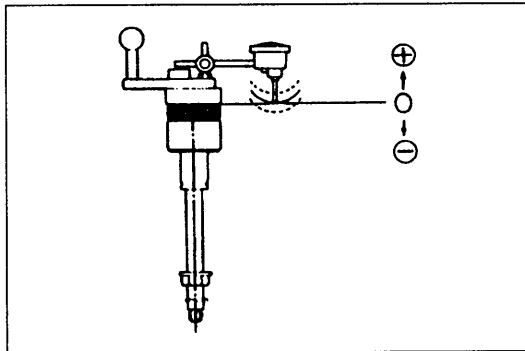
- (2) Assemble the spacer, bearing inner race (rear bearing), and **SSTs**. Secure the **SST** with the O-ring. Install this assembly in the carrier. Install the bearing inner race (front bearing), the **SST**, companion flange, washer, and nut.
- (3) Tighten the nut just enough so that the companion flange can still be turned by hand.



- (4) Place the **SST** on the surface plate and set the dial indicator to "Zero".



- (5) Place the **SST** atop the drive pinion model. Set the gauge body atop the gauge block.
 (6) Place the feeler of the dial indicator so that it contacts where the bearing inner race (side bearing) is installed in the carrier. Measure the lowest position on the left and right sides of the carrier.

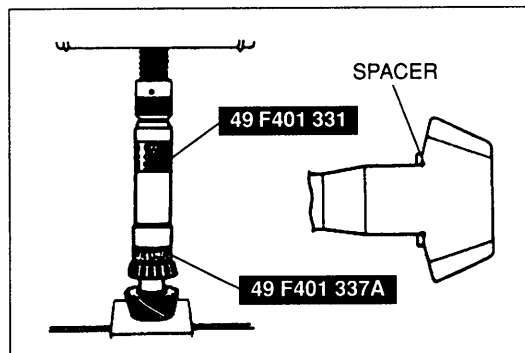


- (7) Add the two (left and right) values obtained in step (6) and divide the total by 2.

Specification: 0 mm { 0 in }

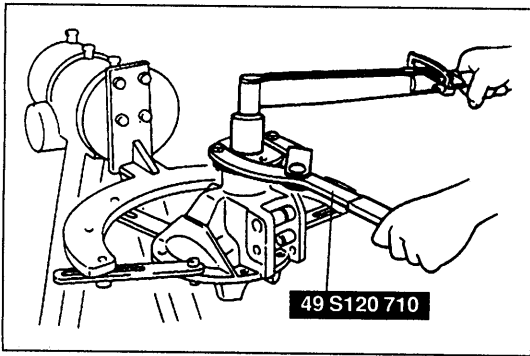
Mark	Thickness	Mark	Thickness
08	3.08 mm { 0.1213 in }	29	3.29 mm { 0.1295 in }
11	3.11 mm { 0.1224 in }	32	3.32 mm { 0.1307 in }
14	3.14 mm { 0.1234 in }	35	3.35 mm { 0.1319 in }
17	3.17 mm { 0.1248 in }	38	3.38 mm { 0.1331 in }
20	3.20 mm { 0.1260 in }	41	3.41 mm { 0.1343 in }
23	3.23 mm { 0.1271 in }	44	3.44 mm { 0.1354 in }
26	3.26 mm { 0.1283 in }	47	3.47 mm { 0.1366 in }

- (8) If not within specification, adjust the pinion height by selecting a spacer. Select the spacer of the thickness closest to that necessary. Spacers are available in increments of **0.03 mm { 0.0012 in }**.
 (9) Install the spacer, selected in the procedure above, with the beveled side facing the drive pinion.



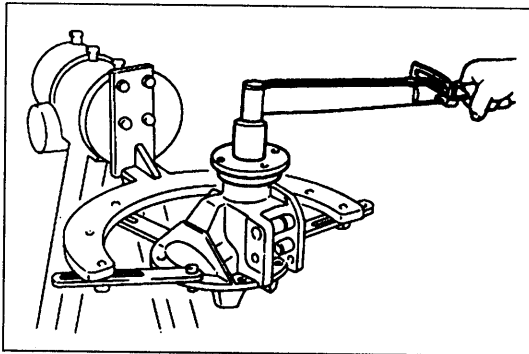
- (10) Press the spacer onto the drive pinion until the force required starts to increase sharply.

2. Install the spacer.
3. Press the bearing inner race (rear bearing) on with the **SSTs**.



4. Without installing the oil seal, install the drive pinion, spacer, new collapsible spacer, front bearing, washer, and companion flange to the carrier, and temporarily tighten the locknut by using the **SST**.

Tightening torque: 128 N·m { 13.0 kgf·m , 94.0 ft·lbf }

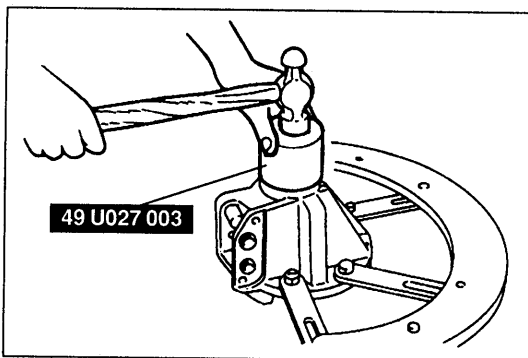


5. Turn the companion flange several turns by hand to seat the bearing.
6. Measure the drive pinion preload. Adjust the preload by tightening the locknut, and record the tightening torque.

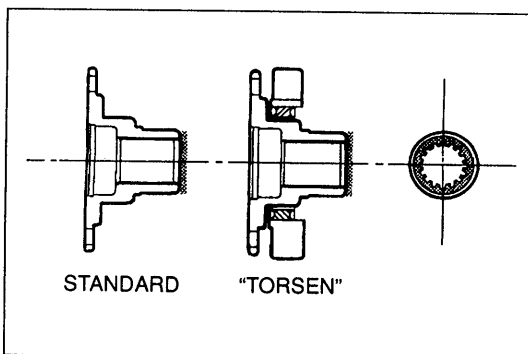
Preload:

0.9—1.3 N·m { 9—14 kgf·cm , 7.9—12.1 in·lbf }

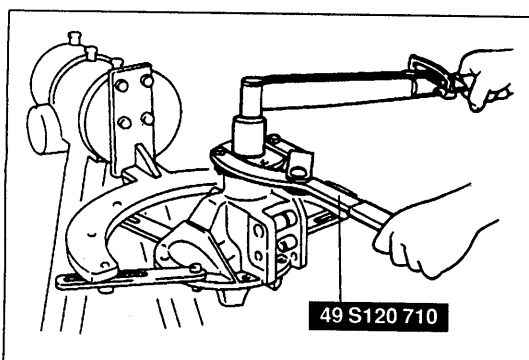
**Tightening torque: 128—284 N·m
{ 13.0—29.0 kgf·m , 94.1—209.7 ft·lbf }**



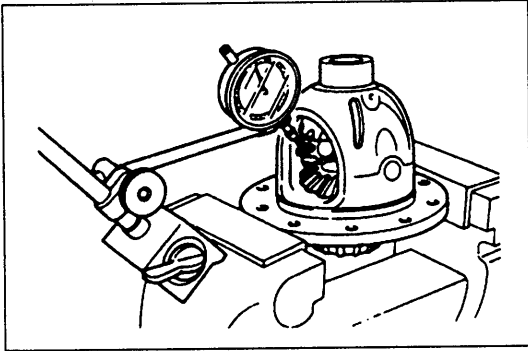
7. Remove the locknut, washer, and companion flange.
8. Tap a new oil seal into the differential carrier with the **SST**.



9. Apply a light coat of grease to the end face of the companion flange.



10. Install the companion flange and washer; while holding the flange with the **SST**, and tighten a new locknut to the tightening torque recorded in step 6.



Thrust washers (Standard)

- Adjust the backlash of the side gears and pinion gear as follows.
 - Set a dial gauge against the pinion gear as shown.
 - Secure one of the side gears.
 - Move the pinion gear, and measure the backlash at the end of it.

Standard backlash: 0—0.1 mm { 0—0.0039 in }

- If the backlash exceeds the standard, use the selectable thrust washers for adjustment.

Thrust washer thickness:

Identification mark	Thickness
0	2.00 mm { 0.0787 in }
0.5	2.05 mm { 0.0807 in }
1	2.10 mm { 0.0827 in }
1.5	2.15 mm { 0.0847 in }
2	2.20 mm { 0.0866 in }

- Install the new knock pin to secure the pinion shaft. Stake the pin with a punch to prevent it from coming out of the case.

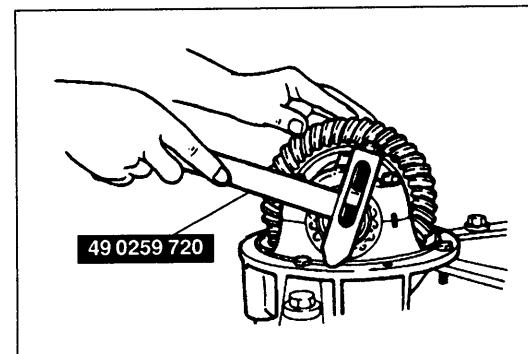
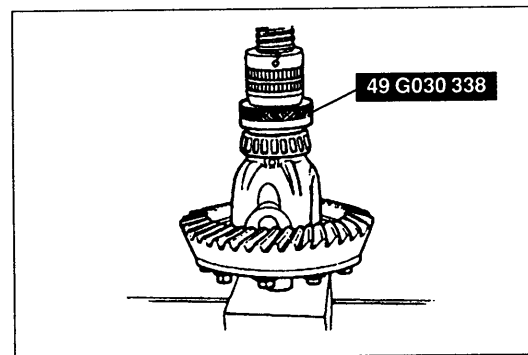
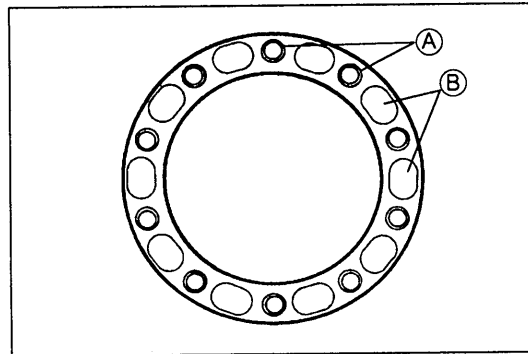
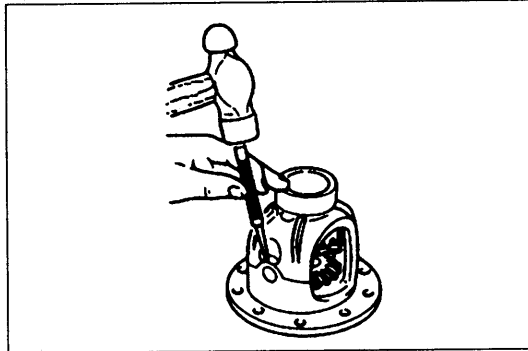
- Apply thread-locking compound to bolt threads **Ⓐ** and points **Ⓑ** of the gear back face. Apply approximately **0.04 cm³ { 0.04 cc , 0.0024 cu in }** of thread-locking compound at each point and bolt thread.
- Install the ring gear onto the gear case.

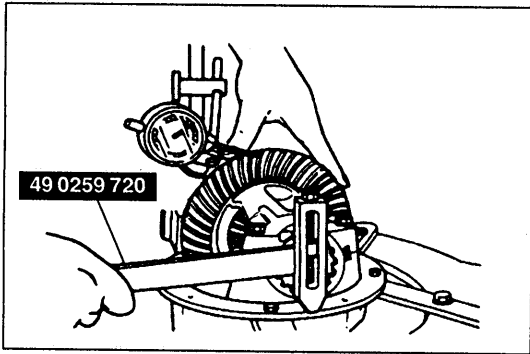
Tightening torque:

69—83 N·m { 7.0—8.5 kgf·m , 51—61 ft·lbf }

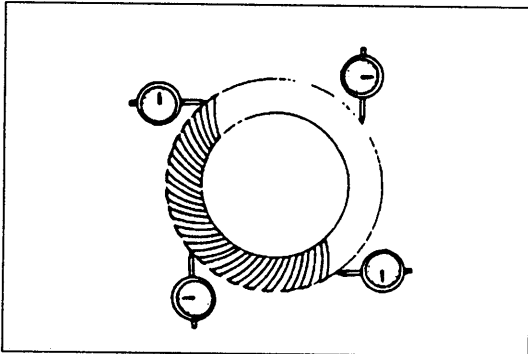
- Press the bearing inner races (side bearing) on by using the **SST**.

- Install the differential gear assembly in the carrier.
- Note the identification marks on the adjusting nuts, and install them on their respective sides.
- Install the differential bearing caps, making sure that the identification mark on the cap corresponds with the one on the carrier by using the **SST**. Then temporarily tighten the bolts.

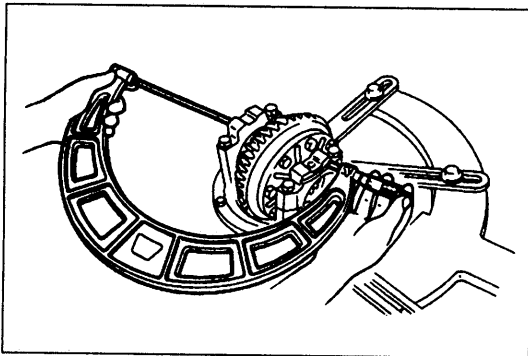




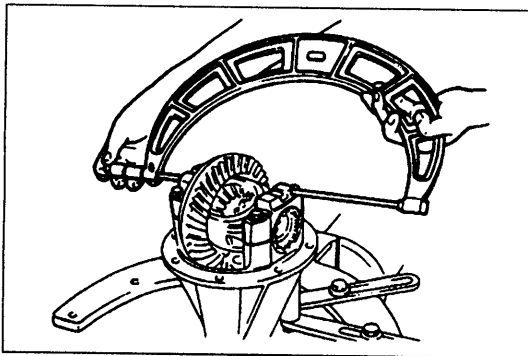
- (1) Mark the ring gear at four points at approx. 90° intervals. Mount a dial indicator to the carrier so that the feeler comes in contact at a right angle with one of the ring gear teeth.
- (2) Turn both bearing adjusters equally by using the SST until the backlash is $0.09\text{--}0.11\text{ mm}$ { $0.0035\text{--}0.0043\text{ in}$ }.



- (3) Check the backlash at the three other marked points, and make sure the maximum backlash is less than 0.07 mm { 0.0028 in }.

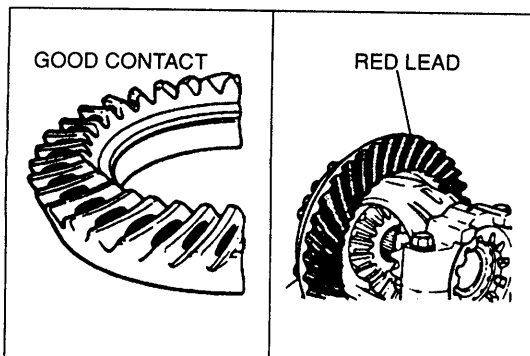


9. Tighten or loosen the adjusting nuts equally until the distance between the pilot sections on the bearing caps is $185.428\text{--}185.50\text{ mm}$ { $7.3003\text{--}7.3031\text{ in}$ }.
10. Recheck the back lash.

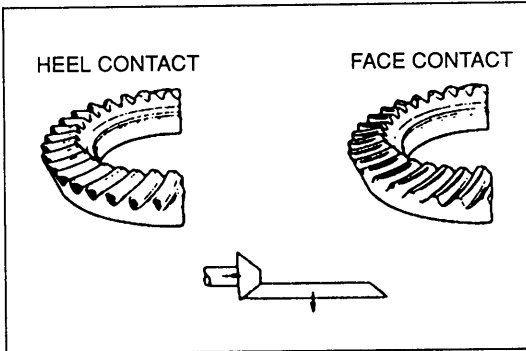


Inspection and adjustment of teeth contact

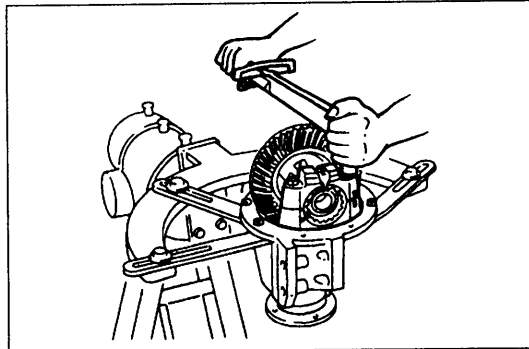
1. Coat both surfaces of 6—8 teeth of the ring gear with a thin coat of red lead.
2. While moving the ring gear back and forth by hand, rotate the drive pinion several times and check the tooth contact.
3. If the tooth contact is good, wipe off the red lead.
4. If it is not good, adjust the pinion height, and then adjust the backlash.



- (1) Toe and flank contact
Replace the spacer with a thinner one to move the drive pinion outward.



- (2) Heel and face contact
Replace the spacer with a thicker one to bring the drive pinion in.

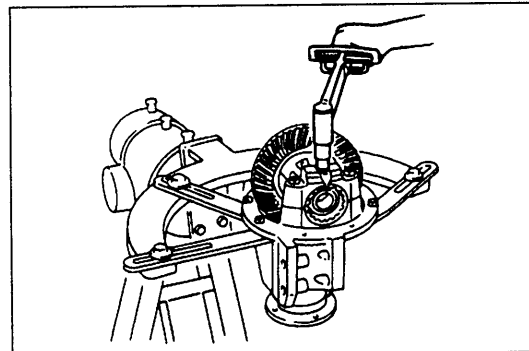


Bearing caps

1. Tighten the bearing cap bolts.

Tightening torque:

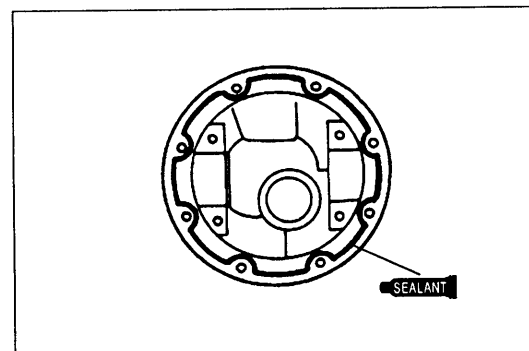
37—51 N·m { 3.8—5.3 kgf·m , 28—38 ft·lbf }



2. Install the lock plates on the bearing caps.

Tightening torque:

18—25 N·m { 1.8—2.6 kgf·m , 14—18 ft·lbf }

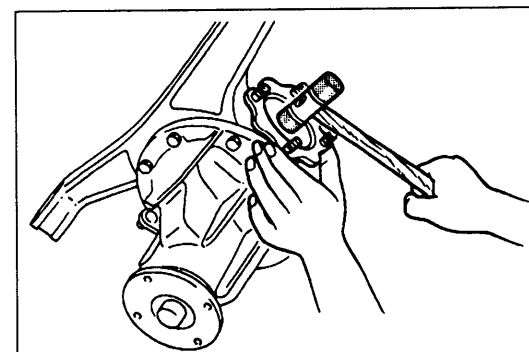


Differential case

1. Apply sealant to the housing face.
2. Tighten the bolts.

Tightening torque:

23—26 N·m { 2.3—2.7 kgf·m , 17—19 ft·lbf }



Output shaft

1. Install a new clip.
2. Install the output shafts into the side gears by lightly tapping them with a plastic hammer.
3. Verify that the output shafts are hooked into the side gears by pulling them by hand.

Before beginning any service procedure, refer to section T of this manual for air bag system service warnings and audio antitheft system alarm conditions.

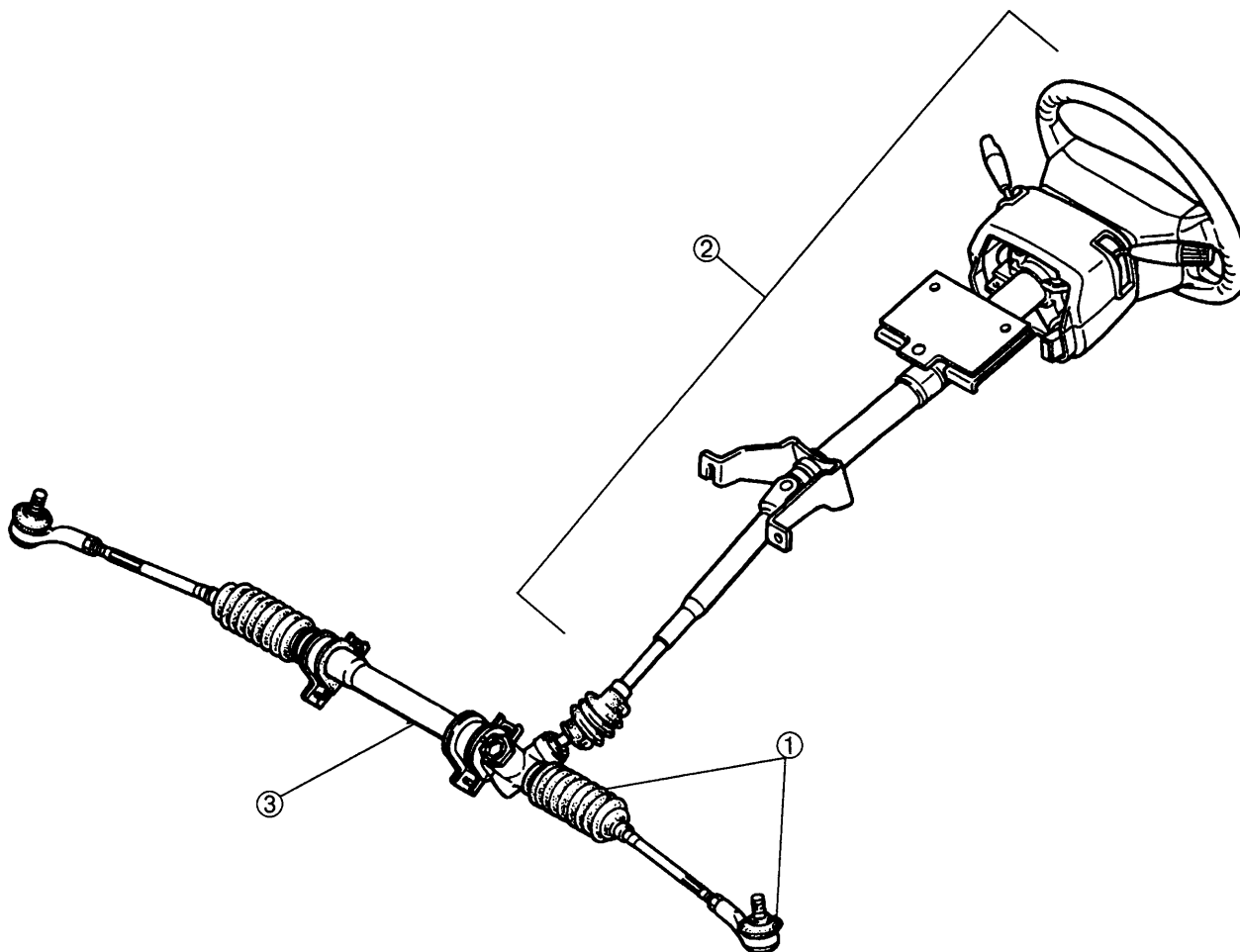
STEERING SYSTEM

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INDEX

MANUAL STEERING

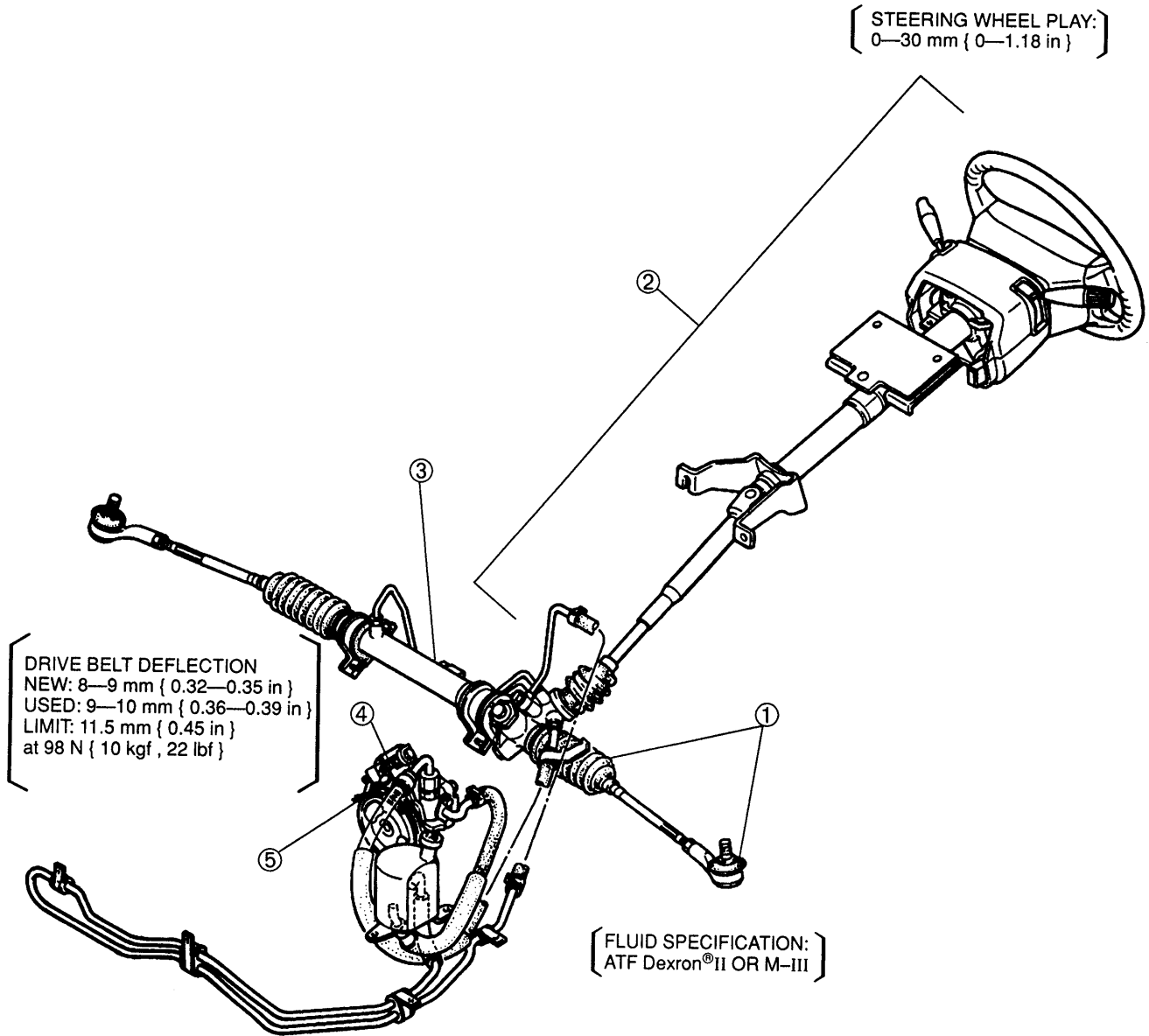
{ STEERING WHEEL PLAY:
0—30 mm { 0—1.18 in }



- 1. Boot
Replacement page N- 6
- 2. Steering wheel and column
On-vehicle inspection page N- 8
Removal / Installation page N- 9
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- 3. Steering gear and linkage
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POWER STEERING



N

- | | |
|---|---|
| <p>1. Boot
Replacement page N- 6</p> <p>2. Steering wheel and column
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Assembly page N-10</p> <p>3. Steering gear and linkage
Removal / Installation page N-25
Air bleeding page N-21
Disassembly / Inspection /
Assembly page N-26</p> | <p>4. Power steering oil pump
Removal / Installation page N-33
Air bleeding page N-21
Power steering fluid page N-22</p> <p>5. Drive belt
Inspection page N-37
Adjustment page N-38
Replacement page N-38</p> |
|---|---|

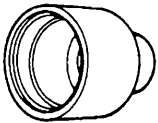
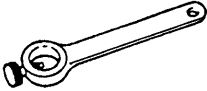
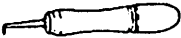

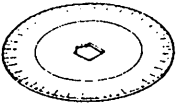
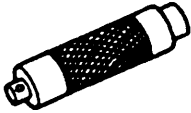
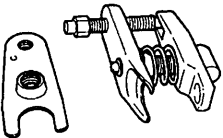
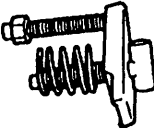

OUTLINE

SPECIFICATIONS

Item		Type	Manual steering	Power steering
Steering wheel	Outer diameter	mm { in }	370 { 14.6 }	
	Lock-to-lock	turns	3.36	2.8
Steering shaft and joint	Shaft		Collapsible, non-tilt	
	Joint		2-cross joint	
Steering gear	Power assist		—	Engine speed sensing
	Gear		Rack-and-pinion	
	Total gear ratio		17.3	14.4
	Rack stroke	mm { in }	121.0 { 4.76 }	
	Power steering fluid		—	ATF Dexron®II or M-III
	Fluid capacity	L { US qt , Imp qt }	—	0.8 { 0.85, 0.70 }

MANUAL STEERING

PREPARATION SST

49 1243 785 Installer, boot		For installation of tie-rod end boot	49 0180 510B Preload attachment		For measurement of pinion torque
49 0208 701A Boot air out tool		For removal of oil seal	49 H032 321A Hexagon wrench		For removal and installation of adjusting cover
49 D032 316 Protractor		For tightening of adjusting cover	49 G030 797 Handle		For installation of bushing
49 T028 3A0 Puller set, ball joint		For removal of ball joint	49 T028 303 Body (Part of 49 T028 3A0)		For removal of ball joint
49 T028 304 Attachment (Part of 49 T028 3A0)		For removal of ball joint	—	—	—

TROUBLESHOOTING GUIDE

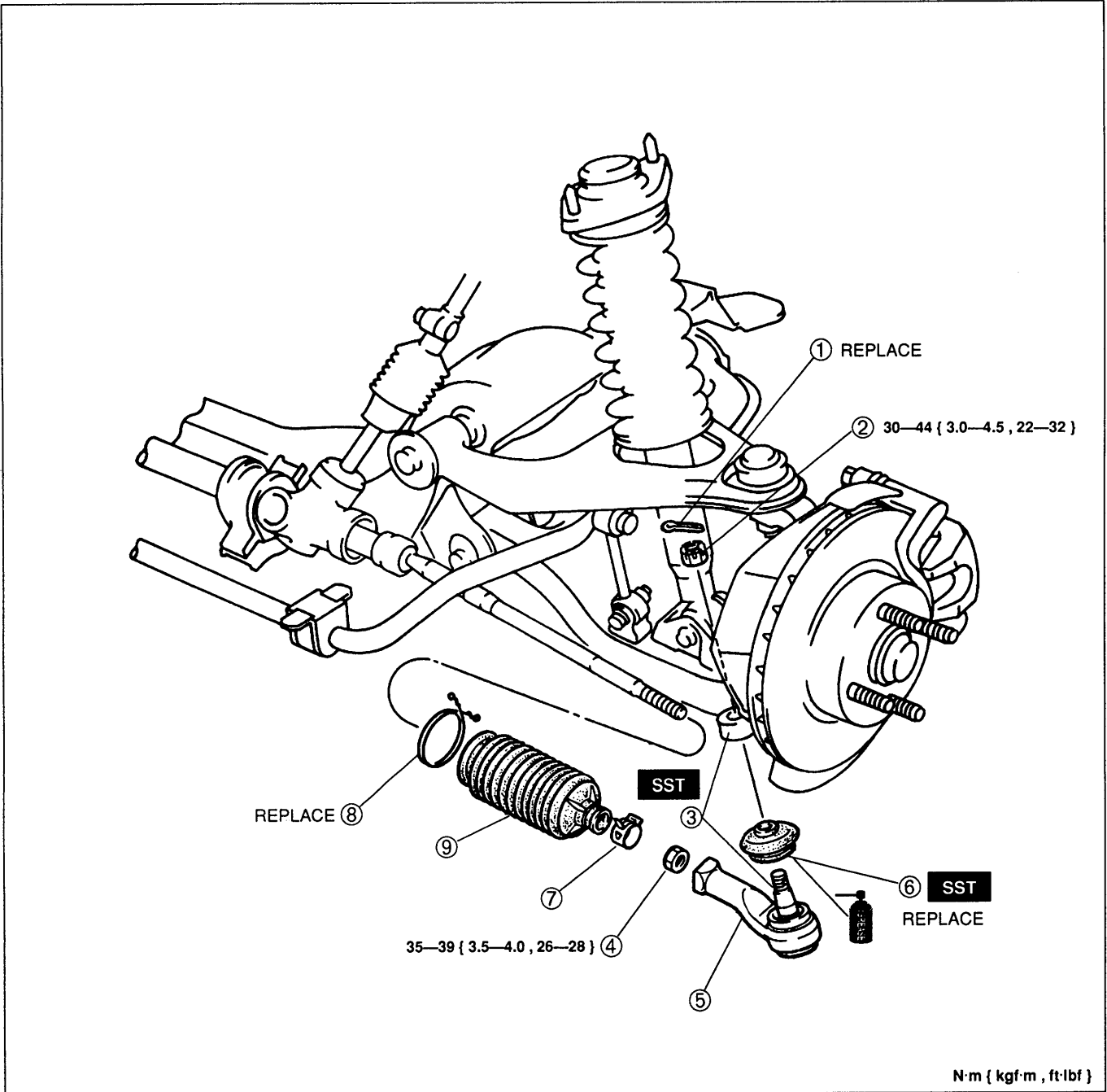
Problem	Possible Cause	Action	Page/Section	
Steering heavy	Poor lubrication, foreign material, or abnormal wear of steering ball joint	Lubricate or replace	N-13	
	Stuck or damaged lower arm ball joints	Replace	section R	
	Improper steering pinion preload	Replace gear	N-12	
	Damaged steering gear	Replace	N-12	
	Malfunction of steering shaft joint	Replace	N- 9	
	Improperly adjusted wheel alignment	Adjust	section R	
	Malfunctioning steering gear	Replace	N-12	
Steering wheel pulls to one side	Incorrect tire pressure	Adjust	section Q	
	Unevenly worn tires	Replace	section Q	
	Weak front spring	Replace	section R	
	Worn or damaged stabilizer and/or suspension arm bushings	Replace	section R	
	Dragging brake	Repair	section P	
	Loose lower arm	Tighten	section R	
	Improperly adjusted wheel alignment	Adjust	section R	
General instability while driving	Incorrect tire pressure	Adjust	section Q	
	Damaged or unbalanced wheel	Adjust or replace	section Q	
	Worn or damaged steering joints	Replace	N- 9	
	Improper steering pinion preload	Replace gear	N-12	
	Weak front coil spring	Replace	section R	
	Worn or damaged stabilizer and/or suspension arm bushings	Replace	section R	
	Malfunctioning shock absorber	Replace	section R	
Shake (Steering wheel vibrates up/down)	Excessive tire and/or wheel runout	Adjust	section Q	
	Loose lug nuts	Tighten	section Q	
	Unbalanced wheel(s)	Adjust or replace	section Q	
	Cracked or worn engine mount	Replace	section B	
	Cracked or worn transmission mount	Replace	section J, K	
	Shimmy (Steering wheel vibrates circumferentially)	Cracked or worn steering gear mount	Replace	N-12
		Loose steering gear mounting bolts	Tighten	N-12
Stuck or damaged steering ball joint		Replace	N-13	
Excessive tire and/or wheel runout		Replace	section Q	
Loose lug nuts		Tighten	section Q	
Unbalanced wheel(s)		Adjust or replace	section Q	
Incorrect tire pressure		Adjust	section Q	
Unevenly worn tires		Replace	section Q	
Malfunction of shock absorber		Replace	section R	
Loose shock absorber mounting bolts		Tighten	section R	
Stuck or damaged lower arm ball joint		Replace	section R	
Cracked or worn suspension bushings		Replace	section R	
Damaged or worn front wheel bearing		Replace	section M	
Improperly adjusted front wheel alignment		Adjust	section R	
Excessive steering wheel play		Worn steering gear	Replace	N-12
	Worn or damaged steering joints	Replace	N- 9	
	Worn or damaged suspension arm bushings	Replace	section R	
	Loose steering gear mounting bolts	Tighten	N-12	
	Worn linkage or ball joint	Replace	N-12	
Poor steering wheel return	Incorrect tire pressure	Adjust	section Q	
	Stuck or damaged steering joints	Replace	N- 9	
	Improperly adjusted front wheel alignment	Adjust	section R	
	Improper steering pinion preload	Replace gear	N-12	
	Ball joint not operating smoothly	Replace	N-13	
	Steering shaft contacting something	Repair	N- 9	
Abnormal noise from steering system	Loose steering gear	Tighten	N-12	
	Malfunctioning steering gear	Replace	N-12	
	Obstruction near steering column	Repair or replace	N- 9	
	Loose steering linkage	Tighten or replace	N-12	
	Worn steering joints	Replace	N- 9	

N

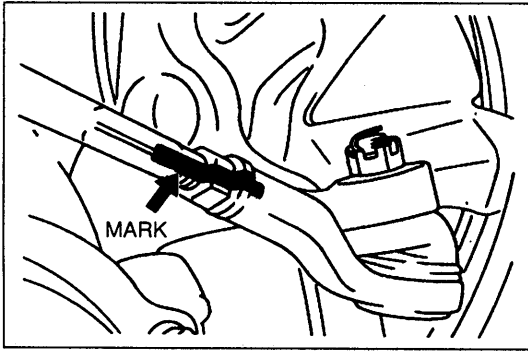
BOOT

Replacement

1. Loosen the wheel lug nuts.
2. On level ground, jack up the front of the vehicle and support it on safety stands.
3. Remove the wheel.
4. Remove in the order shown in the figure, referring to **Removal Note**.
5. Install in the reverse order of removal, referring to **Installation Note**.
6. After installation, check the steering angle and toe-in, and adjust if necessary. (Refer to section R.)



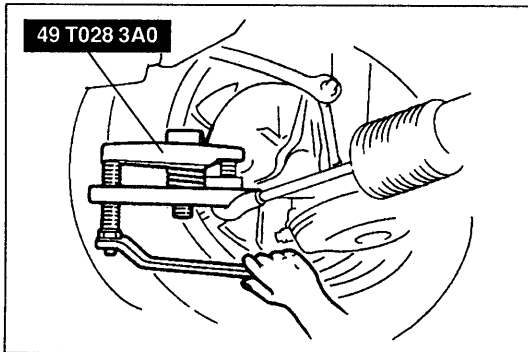
- | | |
|---------------------------------|----------------------------------|
| 1. Cotter pin | 5. Tie-rod end |
| 2. Nut | 6. Tie-rod end boot |
| 3. Tie-rod end/Steering knuckle | Removal Note page N-7 |
| Removal Note page N-7 | Installation Note page N-7 |
| 4. Locknut | 7. Boot clamp |
| Removal Note page N-7 | 8. Boot wire |
| 5. Tie-rod end | 9. Steering gear boot |
| | Installation Note page N-7 |



Removal note

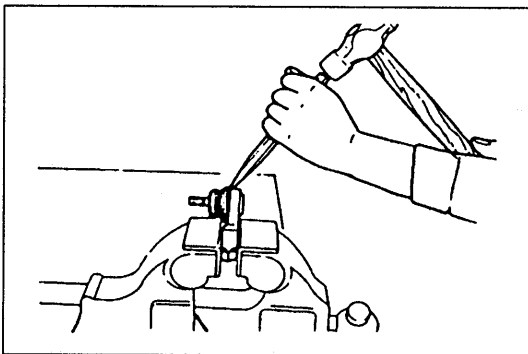
Locknut

Before loosening the locknut from the tie-rod end, make a reference mark for proper reinstallation.



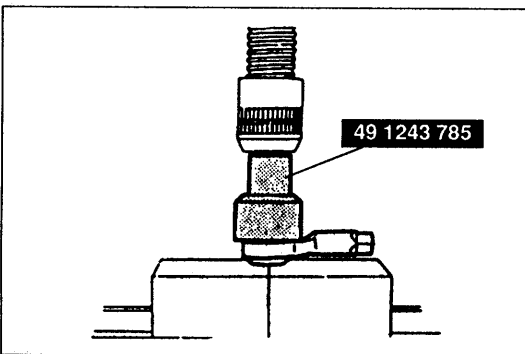
Tie-rod end/Steering knuckle

1. Remove the cotter pin.
2. Remove the tie-rod end nut.
3. Separate the tie-rod end from the knuckle by using the SST.



Tie-rod end boot

1. Secure the tie-rod end in a vise.
2. Place a chisel against the boot and hold it at the angle shown.
3. Remove the boot by tapping it with a hammer.



Installation note

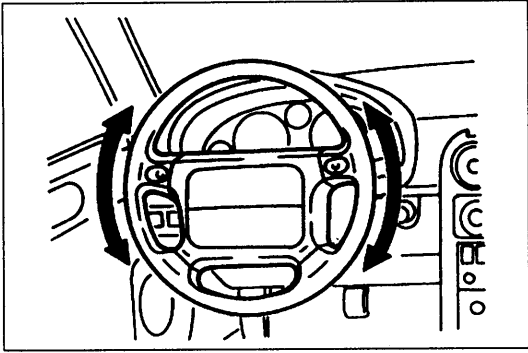
Tie-rod end boot

1. Wipe the grease off the ball joint.
2. Put a small amount of lithium-based grease into a new dust boot.
3. Install the dust boot onto the tie-rod end by using the SST and a press.
4. Wipe away any excess grease.

Steering gear boot

Verify that the boot is not twisted or dented.

N



STEERING WHEEL AND COLUMN

Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery. (Refer to section T.)

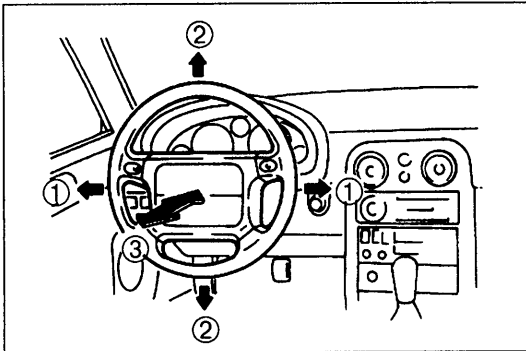
On-vehicle Inspection

Steering wheel play

If the play exceeds specification, either the steering joints are worn or the backlash of the steering gear is excessive.

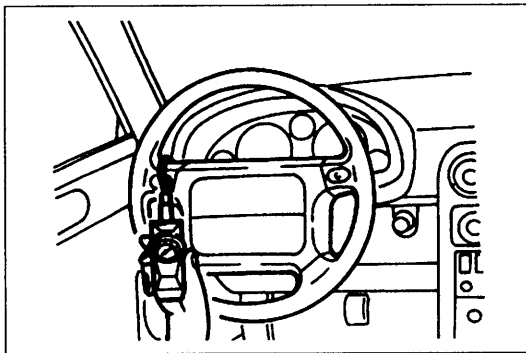
With the wheels in the straight-ahead position, gently turn the steering wheel to the left and right and verify that the play is within specification.

Play: 0—30 mm { 0—1.18 in }



Looseness or play of steering wheel

Move the steering wheel in directions ①, ②, and ③ to check for column bearing wear, steering shaft joint play, steering wheel looseness, and column looseness.



Steering wheel effort

1. On level ground, jack up the front of the vehicle and support it on safety stands.
2. Turn the steering wheel fully to the left and right at least 5 times.
3. Move the steering wheel to put the wheels in the straight ahead position.

4. Attach a pull scale to the outermost point of the steering wheel spoke.

Then, starting with the wheels in the straight-ahead position, measure the effort required to turn the steering wheel to the left and to the right.

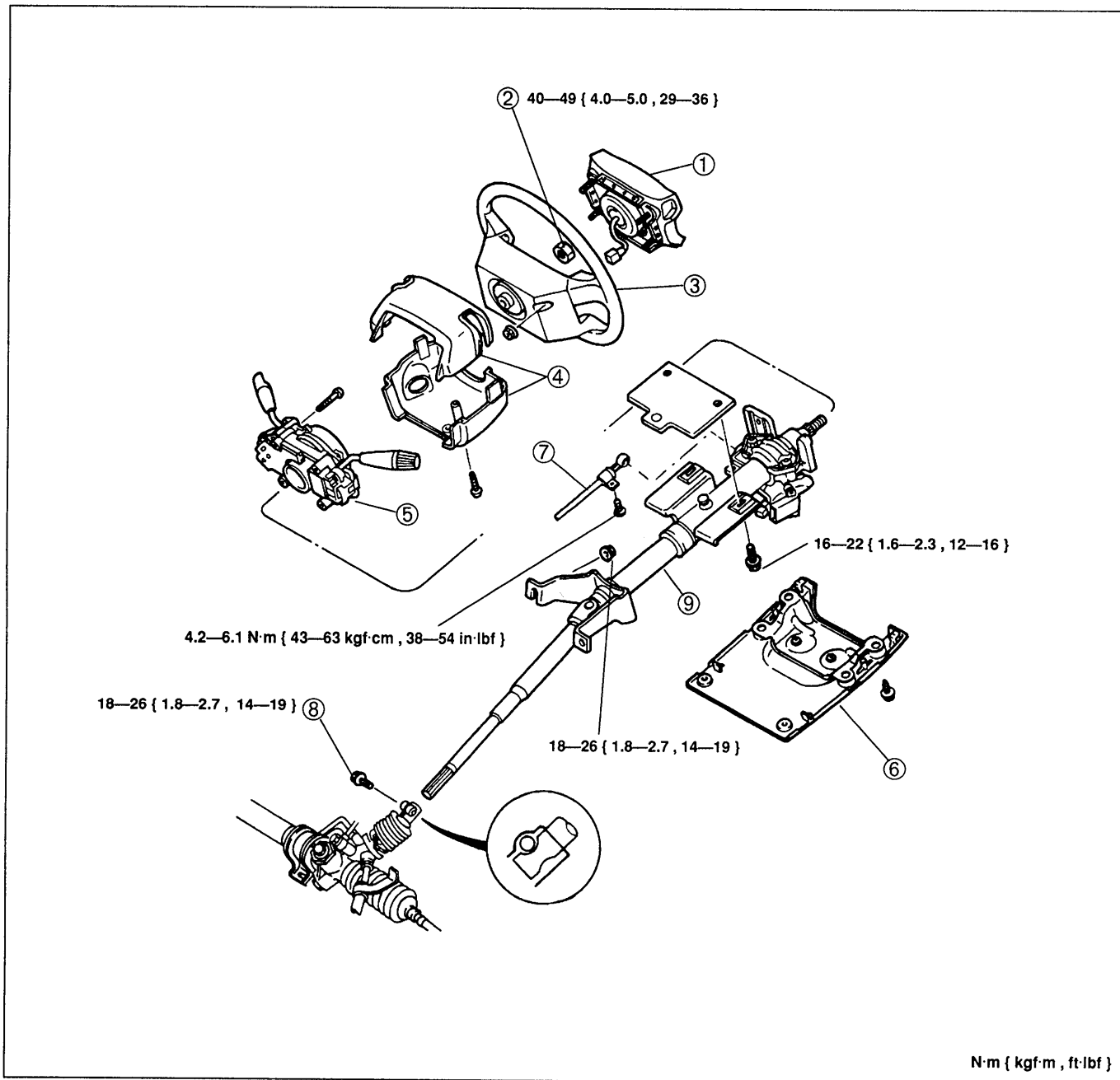
Steering wheel effort:

5.0—29 N { 0.5—3.0 kgf , 1.1—6.6 lbf }
(during one turn of steering wheel)

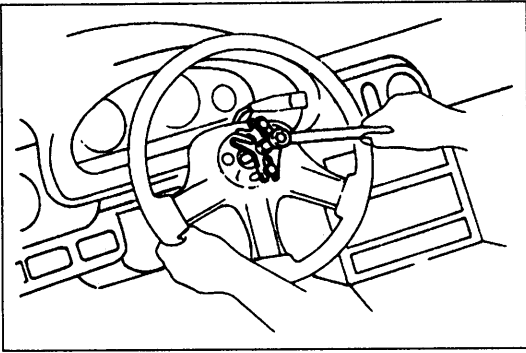
5. If not within specification, check the following: rotation starting torque of pinion, rotation torque of each ball joint, and steering joints.

Removal / Installation

1. Disconnect the negative battery cable.
2. Remove in the order shown in the figure, referring to **Removal Note**.
3. Inspect all parts and repair or replace as necessary.
4. Install in the reverse order of removal.
5. Tighten all necessary nuts and bolts to the specified torque.
6. After installation, check if the horn sounds. If the horn does not sound, remove the air bag module and connect the module connectors. (Refer to section T.)



- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Air bag module
Removal / Installation section T 2. Locknut 3. Steering wheel
Removal Note page N-10 4. Column cover 5. Combination switch
Removal / Installation section T | <ol style="list-style-type: none"> 6. Lower panel 7. Key interlock cable (Automatic transmission) 8. Intermediate shaft bolt 9. Steering shaft
Disassembly / Inspection /
Assembly page N-10 |
|---|--|



Removal note Steering wheel

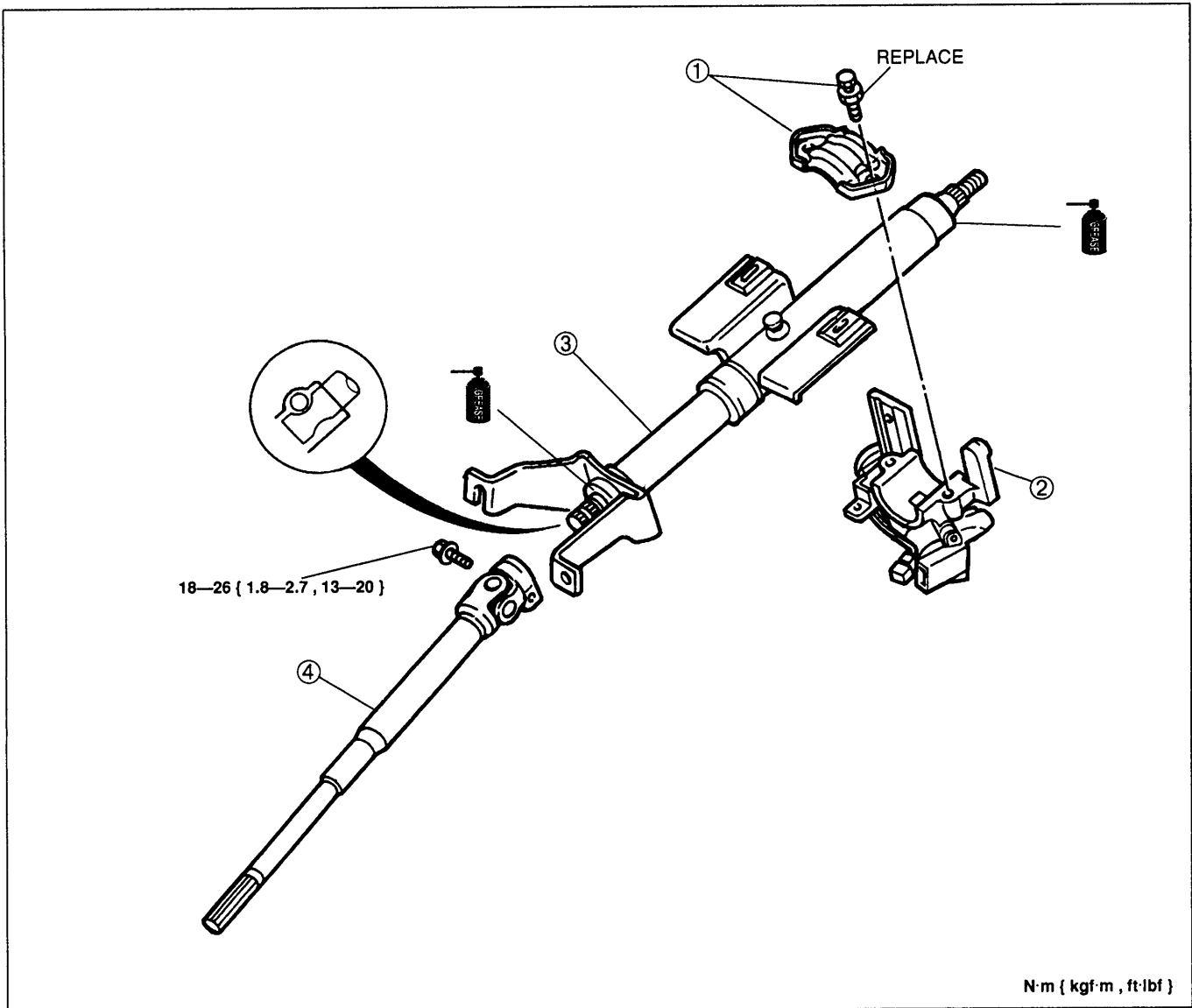
Caution

- Do not try to remove the steering wheel by hitting the shaft with a hammer. The column will collapse.

Remove the steering wheel with a suitable puller.

Disassembly / Inspection / Assembly

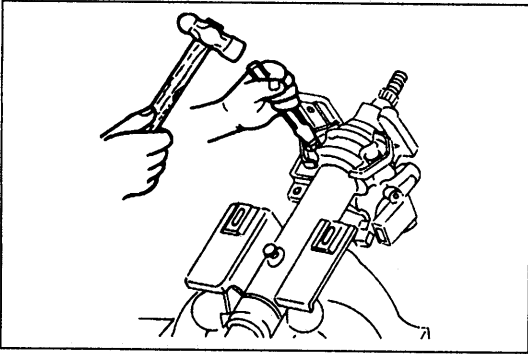
1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Assemble in the reverse order of disassembly, referring to **Assembly Note**.



N·m { kgf·m , ft·lbf }

1. Steering lock mounting bolts and bracket
Disassembly Note page N-11
Assembly Note page N-11
2. Steering lock assembly

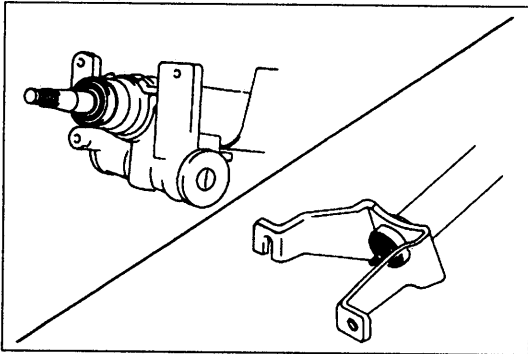
3. Steering shaft
Inspection page N-11
4. Intermediate shaft
Inspect universal joint for looseness, abnormal noise, and sticking



Disassembly note

Steering lock mounting bolts and bracket

Use a chisel to make a groove in the heads of the steering lock mounting bolts. Remove the bolts with a screwdriver. Remove the steering lock assembly.



Inspection

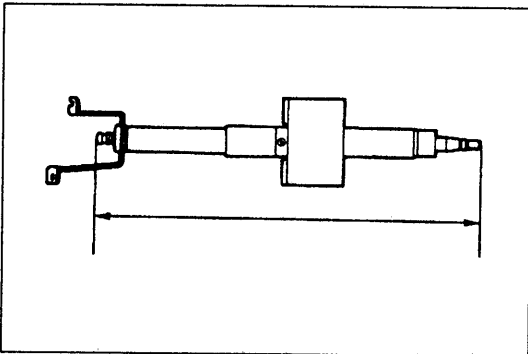
Check the following, and replace the column assembly if necessary.

Steering shaft

1. Column bearing damage.

2. Steering shaft length.

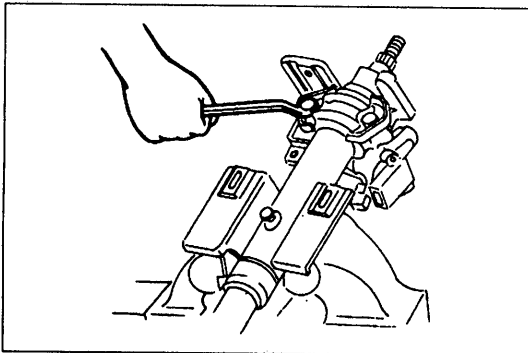
Length: 577.8—579.8 mm { 22.75—22.82 in }



Assembly note

Steering lock mounting bolts and bracket

Install the steering lock assembly on the jacket. Install the new steering lock mounting bolts. Tighten the bolts until the heads break off.



STEERING GEAR AND LINKAGE

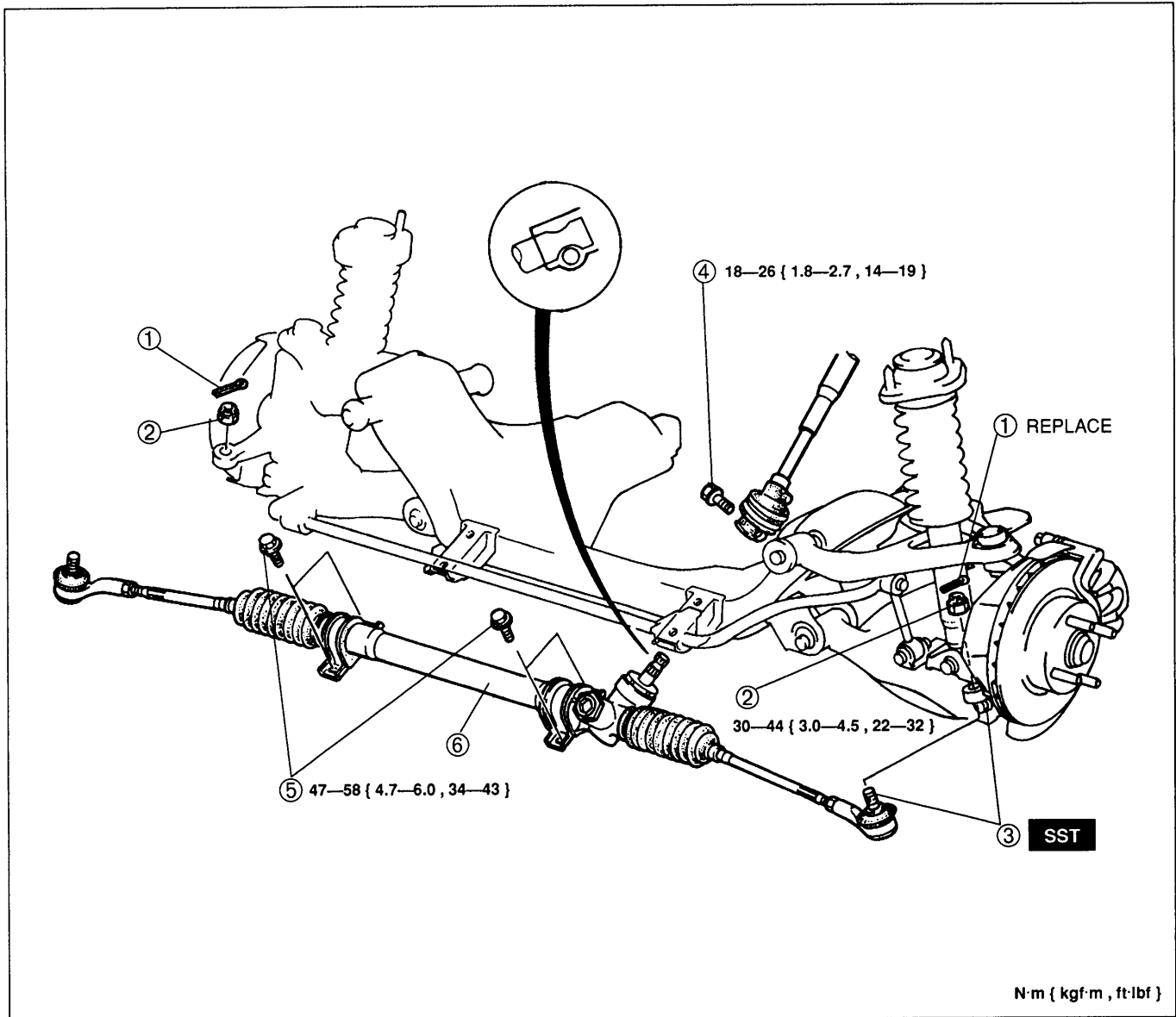
Removal / Installation

1. Turn the wheels to the straight-ahead position.
2. Loosen the wheel lug nuts.
3. On level ground, jack up the front of the vehicle and support it on safety stands.
4. Remove the wheel.

Note

- Turning the steering wheel while the steering gear is removed will make reinstallation difficult. Do not turn the steering wheel while the steering gear is removed. If the steering wheel is turned in that condition, the clockspring connector may have to be adjusted. (Refer to section T.)

5. Remove the undercover.
6. With the wheels in the straight-ahead position, remove in the order shown in the figure.
7. Install in the reverse order of removal.
8. Adjust the front wheel alignment. (Refer to section R.)

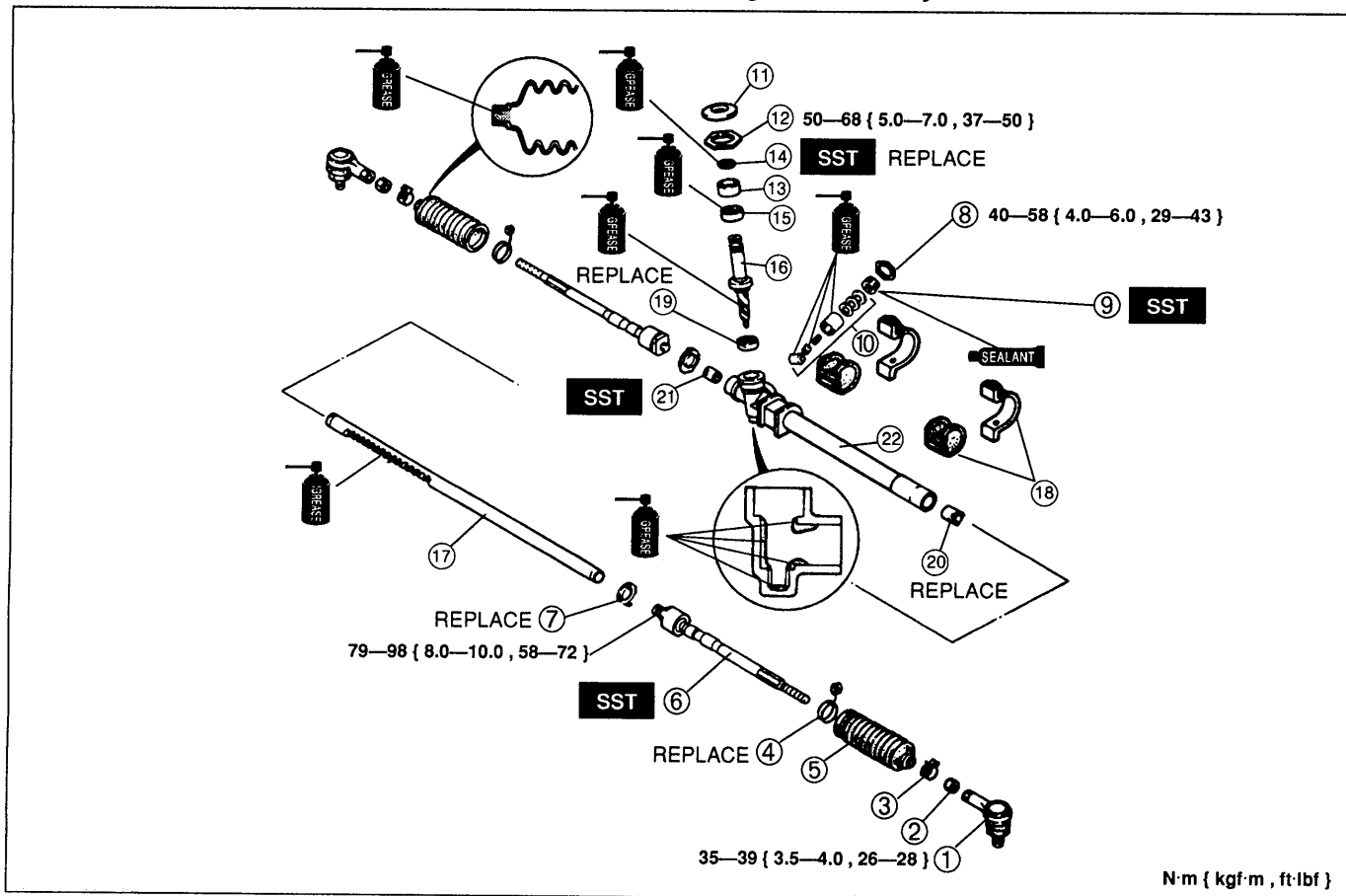


1. Cotter pin
2. Nut
3. Tie-rod end/Steering knuckle
Removal Note page N-7
4. Intermediate shaft bolt

5. Mounting bracket bolt
6. Steering gear and linkage
Disassembly / Inspection /
Assembly page N-13

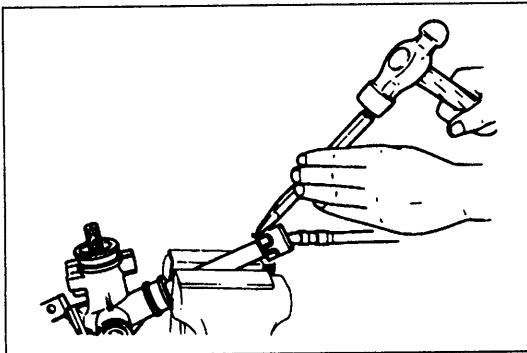
Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly Note**.

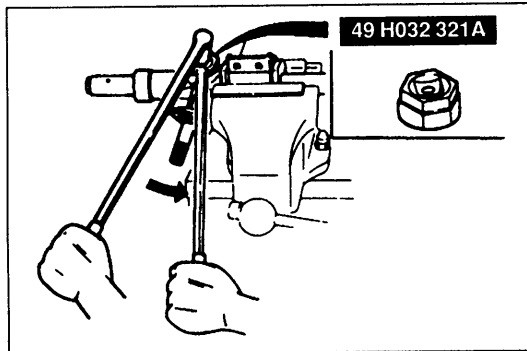


N·m { kgf·m , ft·lbf }

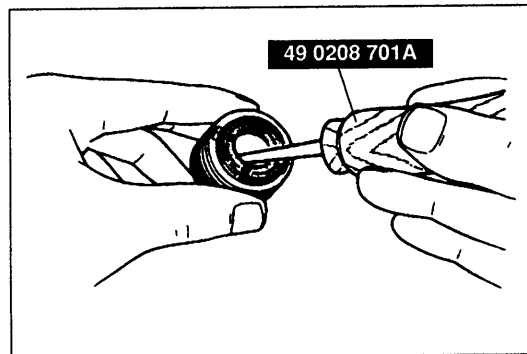
- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Tie-rod end
Inspect ball joint for damage and malfunction 2. Locknut (Tie-rod end) 3. Boot band 4. Boot wire 5. Boot
Inspect for cracks and other damage 6. Tie rod
Disassembly Note page N-14
Assembly Note page N-32 7. Washer 8. Locknut (Adjusting cover) 9. Adjusting cover
Disassembly Note page N-14
Assembly Note page N-17 10. Roller assembly
Inspect parts for wear, damage, weakness and malfunction 11. Dust cover
Inspect for cracks and other damage 12. Locknut (Rear cover) 13. Rear cover
Assembly Note page N-17 14. Oil seal
Disassembly Note page N-14 | <ol style="list-style-type: none"> 15. Upper bearing
Inspect for wear, damage, and malfunction 16. Pinion shaft
Assembly Note page N-16
Inspect teeth for wear, damage and cracks 17. Rack
Disassembly Note page N-14
Inspection page N-15
Assembly Note page N-16 18. Mounting bracket and mount 19. Lower bearing
Disassembly Note page N-14
Assembly Note page N-16
Inspect for wear, damage, and malfunction 20. Rack bushing
Disassembly Note page N-15
Assembly Note page N-15
Inspect for wear and damage 21. Bushing
Disassembly Note page N-15
Assembly Note page N-15
Inspect for wear and damage 22. Gear housing
Inspect for cracks and other damage |
|---|--|

**Disassembly note****Tie rod**

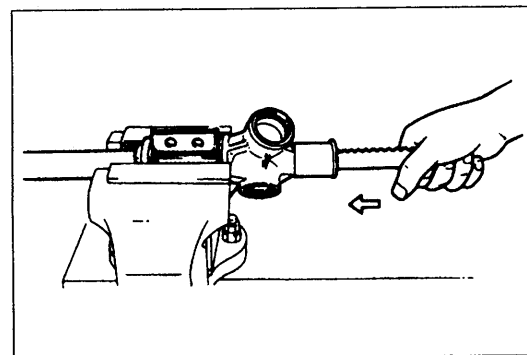
1. Uncrimp the washer.
2. Remove the tie rod.

**Adjusting cover**

Remove the adjusting cover by using the SST.

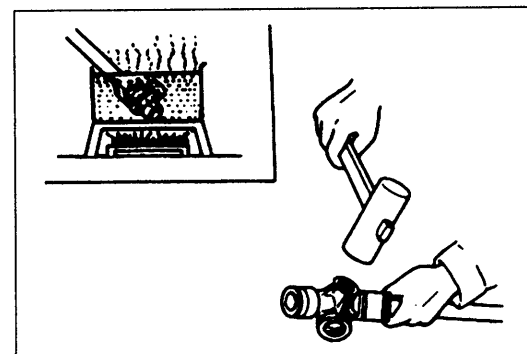
**Oil seal**

Remove the oil seal by using the SST.

**Rack****Caution**

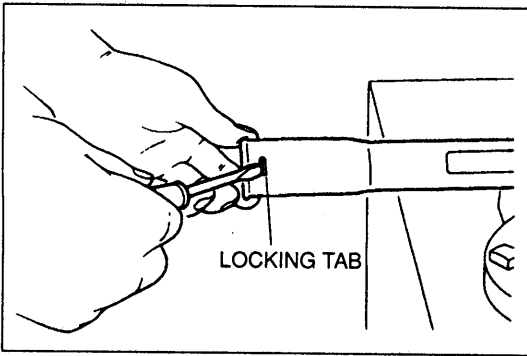
- Removing the rack from the tube side can damage the rack bushing by dragging the rack teeth across it. When removing the rack, remove it slowly and carefully.

Remove the rack from the tube side.

**Lower bearing****Note**

- The lower bearing does not need to be removed unless you are replacing it.

1. Heat the gear housing in water to about 80 °C { 180 °F }.
2. Tap the end of the housing with a plastic hammer to remove the lower bearing.

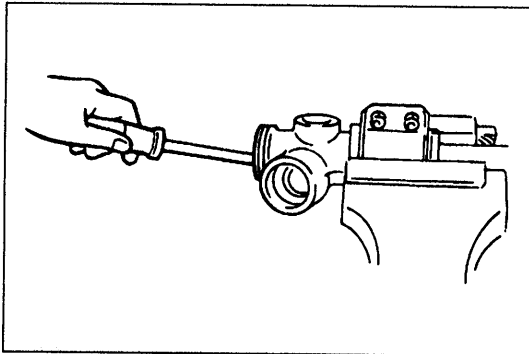


Rack bushing

Note

- The rack bushing does not need to be removed unless you are replacing it.

Depress the locking tab, and carefully remove the rack bushing.

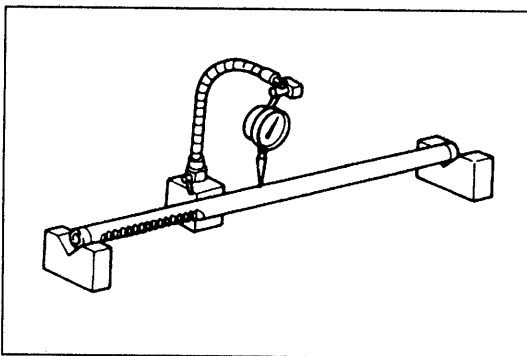


Bushing

Note

- The bushing does not need to be removed unless you are replacing it.

Carefully break the bushing to remove it.



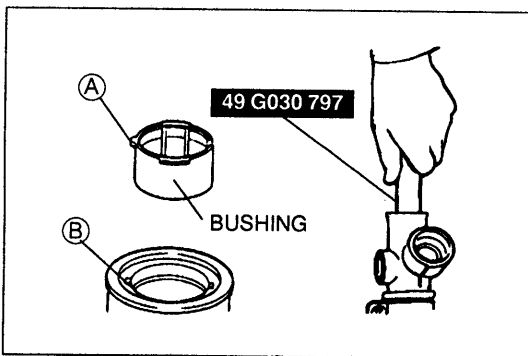
Inspection

Rack

1. Inspect for cracking, damage, and tooth wear. Replace if necessary.
2. Measure runout of the rack.

Runout: 0.3 mm { 0.012 in } max.

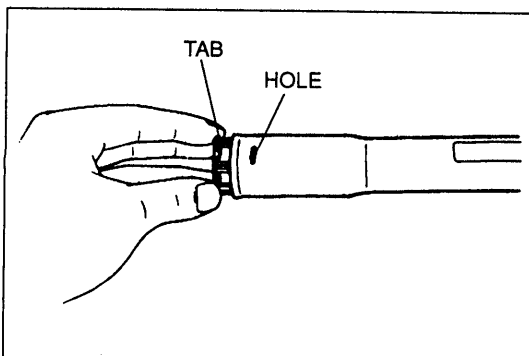
3. If not within specification, replace the rack.



Assembly note

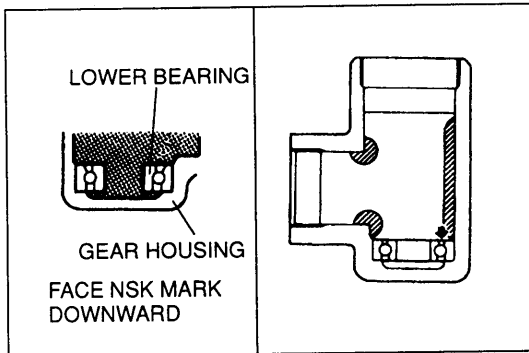
Bushing

Align A and B and press a new bushing into the gear housing by using the **SST** until the bushing is fully seated.



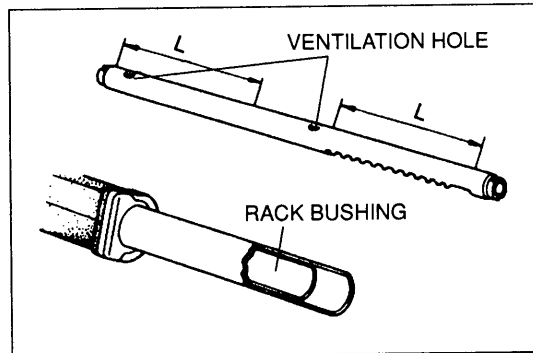
Rack bushing

1. Align the tab of a new rack bushing with the hole in the column.
2. Push the rack bushing in until it is locked in place by the tab.



Lower bearing

1. Apply grease to a new lower bearing.
2. Set the lower bearing onto the pinion shaft so that the NSK mark on the bearing faces downward.
3. Insert the pinion shaft together with the lower bearing.
4. Press the pinion shaft to seat the lower bearing.
5. Apply grease to the inside of the gear housing as shown.

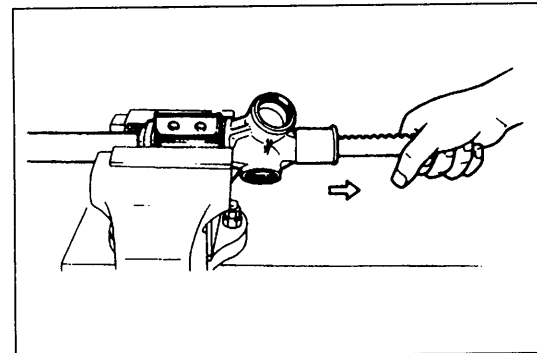


Rack

1. Secure the mounting bracket in a vise.
2. Apply grease to the rack bushing.
3. Apply grease to the rack teeth and the sliding surface.

Caution

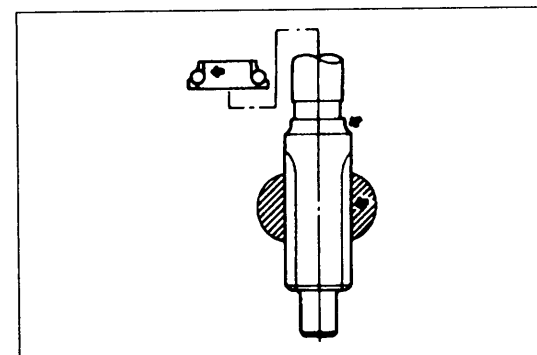
- Do not plug the ventilation holes with the grease.



Caution

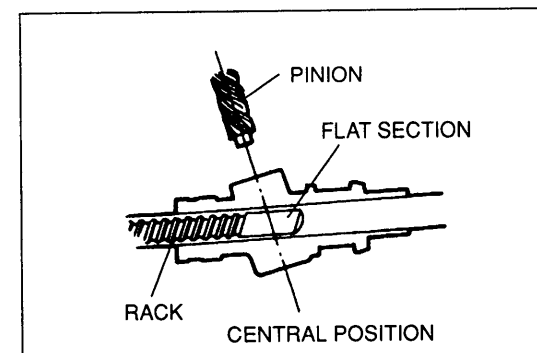
- Installing the rack from the tube side can damage the rack bushing by dragging the rack teeth across it. When installing the rack, install it slowly and carefully.

4. Slide the rack in from the tube side.

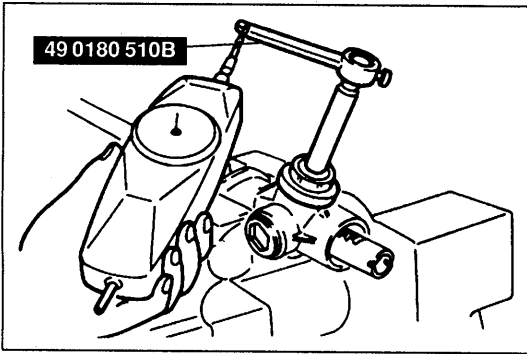


Pinion shaft

1. Apply grease to the inner race of the upper bearing and install it to the pinion shaft.
2. Apply grease to the teeth of the pinion shaft.

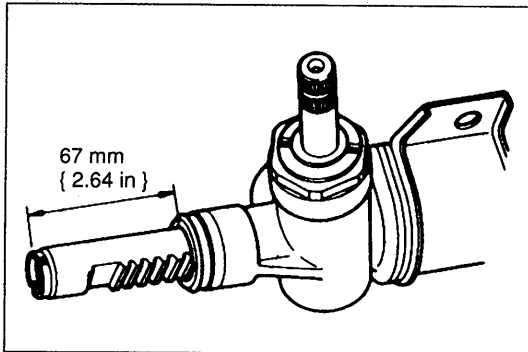


3. Turn the flat section of the rack toward the pinion, and insert the pinion.



Rear cover

1. Apply grease to the outer race of the upper bearing and install it in the gear housing.
2. Install a new oil seal to the rear cover.
3. Apply sealant to the threads of the rear cover and install it into the gear housing.
4. Rotate the pinion to the left and right a few times to seat the bearing.
5. Tighten the rear cover so that the starting torque of the pinion is **2.0—3.4 N·m { 20—35 kgf·cm , 18—30 in·lbf }** (Pull scale reading: **20—34 N { 2.0—3.5 kgf , 4.6—7.6 lbf }**) as checked by using the **SST** and a pull scale.
6. Tighten the locknut. Do not allow the rear cover to turn.

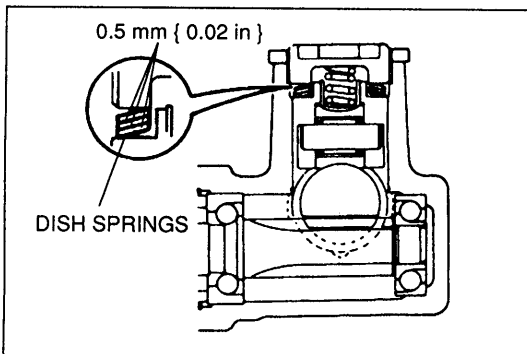


Tightening torque:

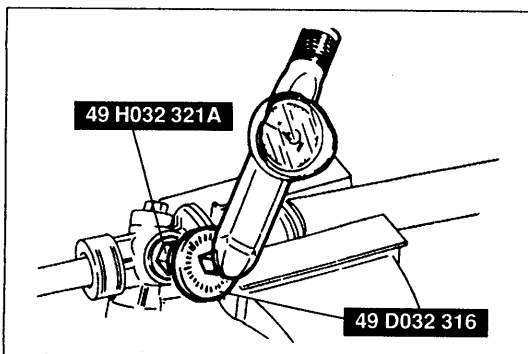
50—68 N·m { 5.0—7.0 kgf·m , 37—50 ft·lbf }

Adjusting cover

1. Carefully move the rack so that the pinion is set to the center (neutral position) of the rack gear as shown.



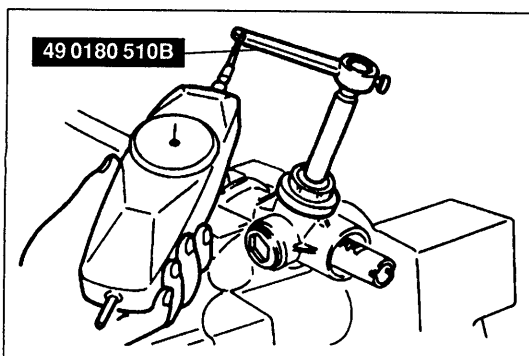
2. Install the roller assembly, needle roller, holder, dish springs, friction block, and the spring as shown.



3. Torque the adjusting cover to **9.8 N·m { 100 kgf·cm , 87 in·lbf }**, then loosen it **25°—45°**. Use the **SSTs** to secure the adjusting cover and the locknut.

Tightening torque:

40—58 N·m { 4.0—6.0 kgf·m , 29—43 ft·lbf }



4. Measure the starting torque of the pinion by using the **SST**.

Center position ± 90°

Pull scale reading:

9.9—13.7 N { 1.0—1.4 kgf , 2.2—3.0 lbf }

Any other position

Pull scale reading:

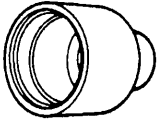
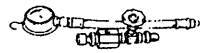


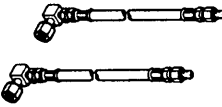

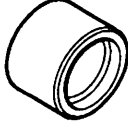
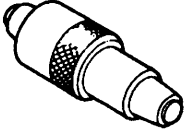

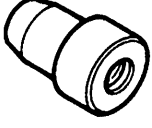
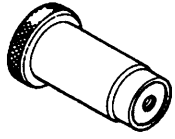
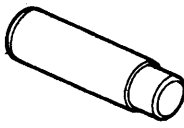
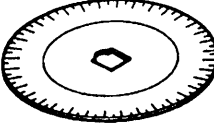
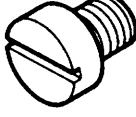


less than 16.6 N { 1.7 kgf , 3.7 lbf }



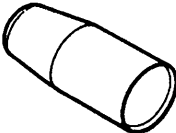


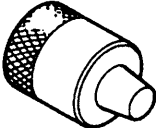
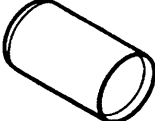
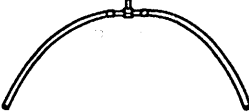

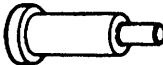
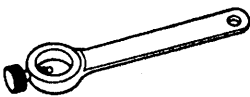
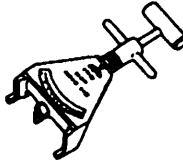
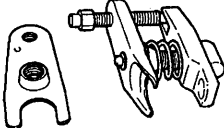


5. If not within specification, repeat steps 2 and 3.

ENGINE SPEED SENSING POWER STEERING

PREPARATION

SST

<p>49 1243 785</p> <p>Installer, boot</p> 	<p>For installation of tie-rod end boot</p>	<p>49 1232 670A</p> <p>Gauge set, power steering</p> 	<p>For inspection of power steering fluid pressure</p>
<p>49 1232 672</p> <p>Gauge (Part of 49 1232 670A)</p> 	<p>For inspection of power steering fluid pressure</p>	<p>49 1232 673</p> <p>Valve body (Part of 49 1232 670A)</p> 	<p>For inspection of power steering fluid pressure</p>
<p>49 H002 671</p> <p>Adapter, power steering gauge</p> 	<p>For inspection of power steering fluid pressure</p>	<p>49 B032 302</p> <p>Adapter, power steering gauge</p> 	<p>For inspection of power steering fluid pressure</p>
<p>49 D032 306</p> <p>Support block</p> 	<p>For removal and installation of upper bearing For pressurize oil seal</p>	<p>49 D032 304</p> <p>Installer, oil seal and bearing</p> 	<p>For removal of upper bearing For pressurize oil seal</p>
<p>49 F032 303</p> <p>Handle</p> 	<p>For removal of backup ring and oil seal</p>	<p>49 N032 303</p> <p>Remover, backup ring and oil seal</p> 	<p>For removal of backup ring and oil seal</p>
<p>49 D032 301</p> <p>Installer body, oil seal and bearing</p> 	<p>For installation of oil seal and center bearing</p>	<p>49 D032 307</p> <p>Remover, oil seal and bearing</p> 	<p>For removal of oil seal and center bearing</p>
<p>49 D032 316</p> <p>Protractor</p> 	<p>For installation of adjusting cover</p>	<p>49 D032 303</p> <p>Attachment</p> 	<p>For installation of center bearing</p>
<p>49 D032 302</p> <p>Attachment</p> 	<p>For installation of oil seal</p>	<p>49 N032 301</p> <p>Protector body, oil seal</p> 	<p>For installation of oil seal</p>

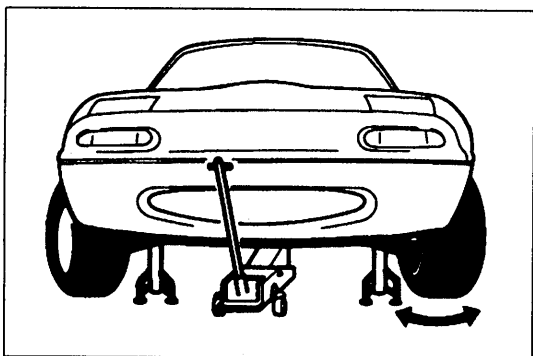
<p>49 N032 302 Guide, oil seal</p> 	<p>For installation of oil seal</p>	<p>49 N032 305 Protector, backup ring and oil seal</p> 	<p>For installation of steering rack assembly</p>
<p>49 N032 304 Protector, oil seal</p> 	<p>For installation of holder</p>	<p>49 D032 313 Seal ring former</p> 	<p>For formation of seal ring of pinion shaft</p>
<p>49 D032 315 Former and guide, seal ring</p> 	<p>For formation of seal ring of control valve</p>	<p>49 D032 305 Remover, oil seal and bearing</p> 	<p>For pressurize upper bearing</p>
<p>49 D032 310 Protector, pinion shaft</p> 	<p>For installation of plug assembly</p>	<p>49 G032 317 Hose</p> 	<p>For inspection of cylinder sealing</p>
<p>49 G032 319 Adapter</p> 	<p>For inspection of cylinder sealing</p>	<p>49 B032 305 Holder</p> 	<p>For disassembly of oil pump</p>
<p>49 0180 510B Preload attachment</p> 	<p>For measurement of pinion torque</p>	<p>49 9200 020 V-ribbed belt tension gauge</p> 	<p>For measurement of drive belt tension</p>
<p>49 T028 3A0 Puller set, ball joint</p> 	<p>For removal of ball joint</p>	<p>49 T028 303 Body (Part of 49 T028 3A0)</p> 	<p>For removal of ball joint</p>
<p>49 T028 304 Attachment (Part of 49 T028 3A0)</p> 	<p>For removal of ball joint</p>	<p>—</p>	<p>—</p>

TROUBLESHOOTING GUIDE

Problem	Possible Cause	Action	Page/Section
Steering feels heavy	Poor lubrication, foreign material, or abnormal wear of steering ball joint	Lubricate or replace	N-25
	Stuck or damaged lower arm ball joints	Replace	section R
	Improper steering pinion preload	Adjust	N-32
	Damaged steering gear	Replace	N-25
	Malfunctioning steering shaft joint	Replace	N- 9
	Improperly adjusted wheel alignment	Adjust	section R
	Malfunctioning steering gear	Replace	N-25
	Incorrect tire pressure	Adjust	section Q
	Loose or damaged oil pump drive belt	Adjust or replace	N-37
	Low fluid level or air in fluid	Add fluid or bleed air	N-21, 22
Leakage of fluid	Repair or replace	—	
Insufficient oil pump pressure	Replace	N-33, 35	
Steering wheel pulls to one side	Incorrect tire pressure	Adjust	section Q
	Unevenly worn tires	Replace	section Q
	Weak front spring	Replace	section R
	Worn or damaged stabilizer and/or upper or lower arm bushing	Replace	section R
	Dragging brake	Repair	section P
	Loose lower arm	Tighten or replace	section R
	Improperly adjusted wheel alignment	Adjust	section R
General instability while driving	Incorrect tire pressure	Adjust	section Q
	Damaged or unbalanced wheel	Adjust or replace	section Q
	Worn or damaged steering joint(s)	Replace	N- 9
	Improper steering pinion preload	Adjust	N-32
	Weak front coil spring	Replace	section R
	Worn or damaged stabilizer and/or upper or lower arm bushing	Replace	section R
	Malfunctioning shock absorber	Replace	section R
Improperly adjusted wheel alignment	Adjust	section R	
Shake (Steering wheel vibrates up/down)	Excessive tire and/or wheel runout	Replace	section Q
	Loose lug nuts	Tighten	section Q
	Unbalanced wheel(s)	Adjust or replace	section Q
	Cracked or worn engine mount	Replace	section B
	Cracked or worn transmission mount	Replace	section J, K
Shimmy (Steering wheel vibrates left/right)	Cracked or worn steering gear mount	Replace	N-26
	Loose steering gear mounting bolts	Tighten	N-25
	Stuck or damaged steering ball joint	Replace	N-25
	Excessive tire and/or wheel runout	Replace	section Q
	Loose lug nuts	Tighten	section Q
	Unbalanced wheel(s)	Adjust or replace	section Q
	Incorrect tire pressure	Adjust	section Q
	Unevenly worn tires	Replace	section Q
	Malfunctioning shock absorber	Replace	section R
	Loose shock absorber mounting bolts	Tighten	section R
	Stuck or damaged lower arm ball joint	Replace	section R
	Cracked or worn suspension bushings	Replace	section R
	Damaged or worn front wheel bearing	Replace	section M
Improperly adjusted front wheel alignment	Adjust	section R	
Excessive steering wheel play	Worn steering gear	Replace	N-25
	Worn or damaged steering joints	Replace	N- 9
	Worn or damaged lower arm bushing	Replace	section R
	Loose steering gear mounting bolts	Tighten	N-25
	Worn linkage or ball joints	Replace	N-25
Poor steering wheel return	Incorrect tire pressure	Adjust	section Q
	Stuck or damaged steering joints	Replace	N- 9
	Improperly adjusted front wheel alignment	Adjust	section R
	Improper steering pinion preload	Adjust	N-32
	Ball joint not operating smoothly	Replace	N-25
Steering shaft contacting something	Repair	N- 9	

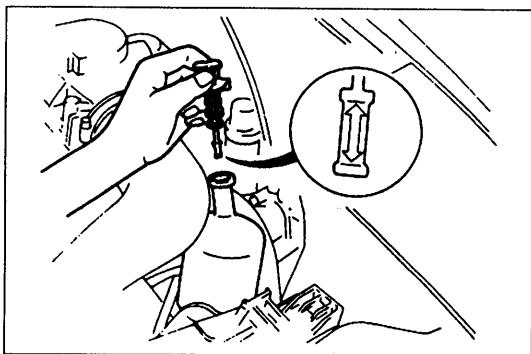
TROUBLESHOOTING GUIDE (CONT'D)

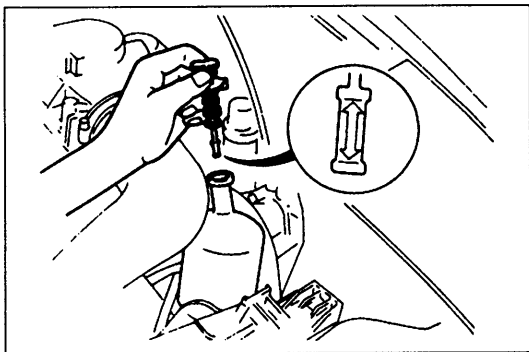
Problem	Possible Cause	Action	Page/Section
Abnormal noise from steering system	Loose oil pump	Tighten	N-33
	Loose steering gear	Tighten	N-25
	Loose oil pump bracket	Tighten	section B
	Drive belt loose/tight	Adjust	N-38
	Air in system	Bleed air	N-21
	Malfunctioning steering gear	Replace	N-25
	Malfunctioning oil pump	Replace	N-33
	Obstruction near steering column or pressure hose	Repair or replace	N- 9
	Loose steering linkage	Tighten or replace	N-25
Worn steering joints	Replace	N- 9	



AIR BLEEDING

1. Check the fluid level. (Refer to page N-22.)
2. Turn the steering wheel fully to the left and right several times with the engine not running.
3. Recheck the fluid level. If it has dropped, add fluid.
4. Repeat steps 2 and 3 until the fluid level stabilizes.
5. Start the engine and let it idle.
6. Turn the steering wheel fully to the left and right several times.
7. Verify that the fluid is not foamy and that the fluid level has not dropped.
8. Add fluid if necessary, and repeat steps 6 and 7.



**POWER STEERING FLUID****Inspection****Fluid level**

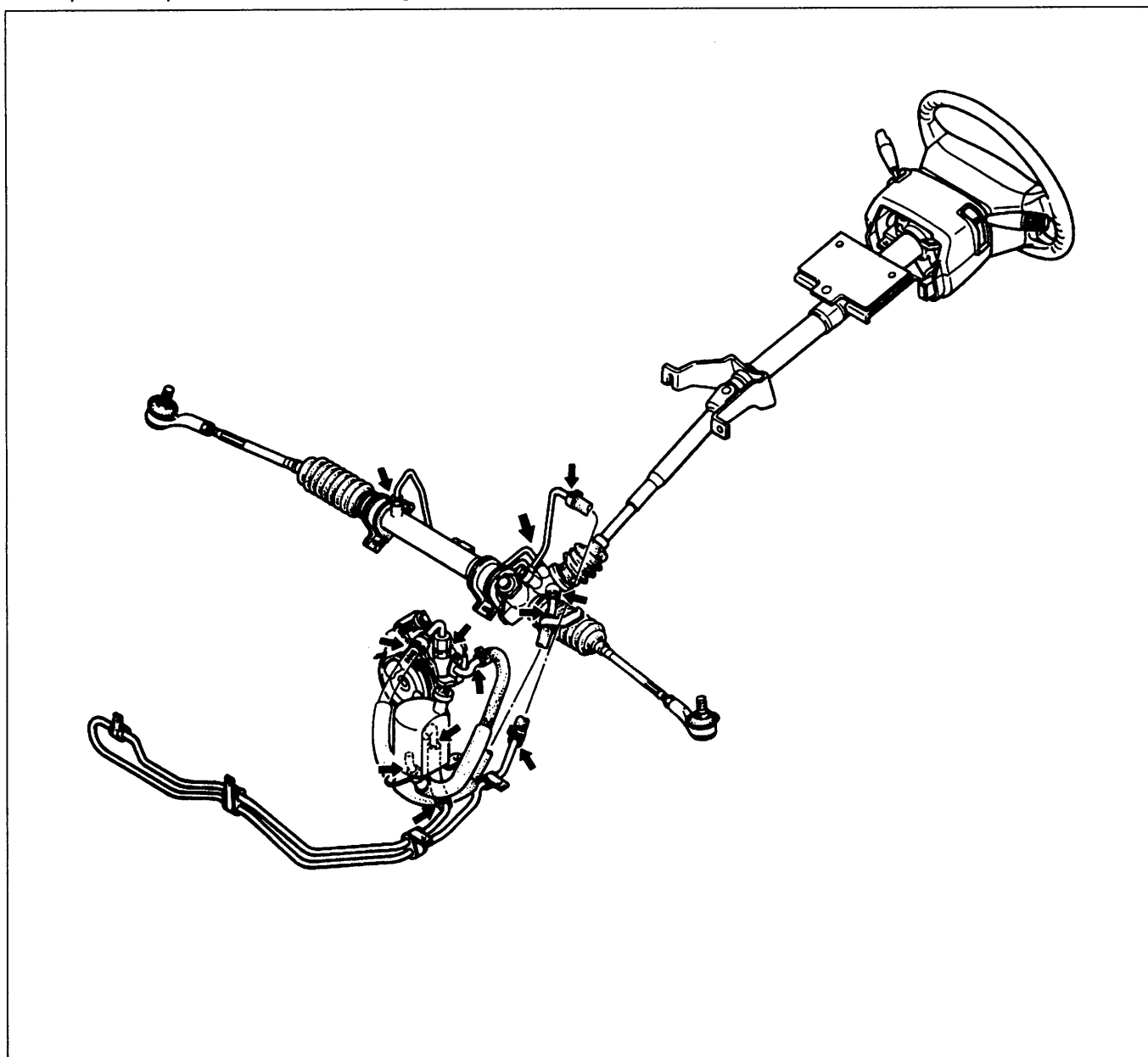
1. Verify that the fluid level is between the H and L marks.
2. Add the specified power steering fluid if it is below the L mark. Remove the fluid if it is above the H mark.

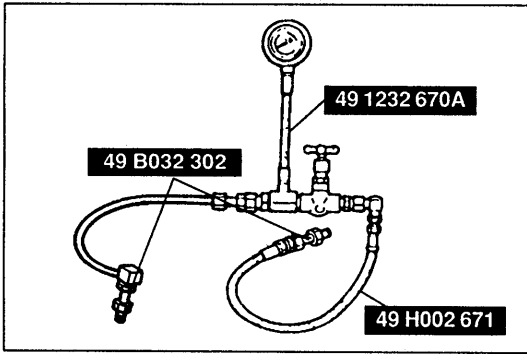
Fluid specification: ATF Dexron®II or M-III

Fluid leakage**Caution**

- **Never hold the steering wheel to the extreme left or right for more than five seconds with the engine running. This could damage the power steering pump.**

Start the engine and let it idle. Turn the steering wheel fully left and fully right to apply fluid pressure. Inspect the points shown in the figure for fluid leakage.



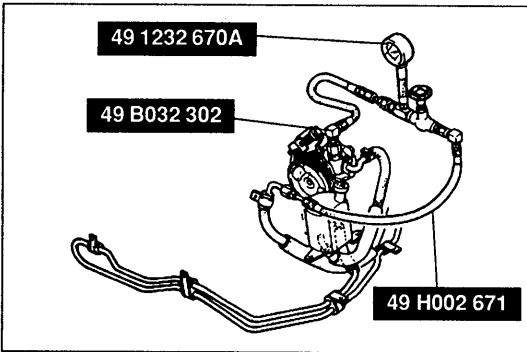


Fluid pressure

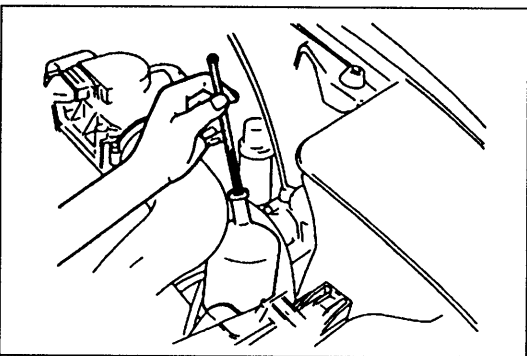
1. Assemble the SSTs as shown in the figure.

Tightening torque:

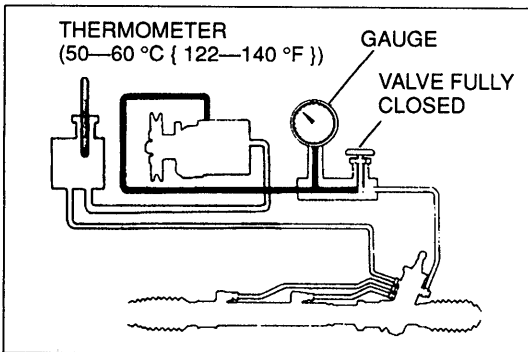
40—49 N·m { 4.0—5.0 kgf·m , 29—36 ft-lbf }



2. Mark both hose connections to ensure that the hose is reinstalled in its original position.
3. Disconnect the pressure hose from the oil pump. Attach the SSTs.
4. Bleed the air from the system. (Refer to page N-21.)



5. Open the gauge valve fully. Start the engine and turn the steering wheel fully left and right to raise the fluid temperature to 50—60 °C { 122—140 °F }.

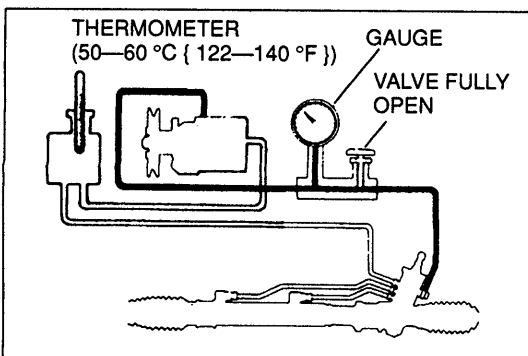


Caution

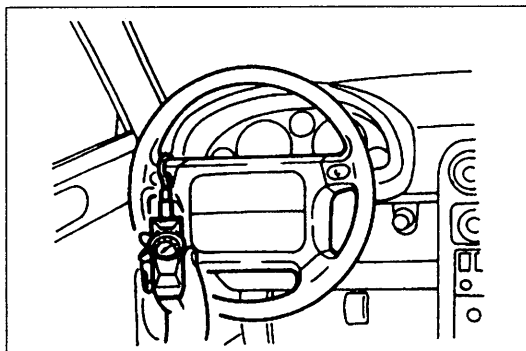
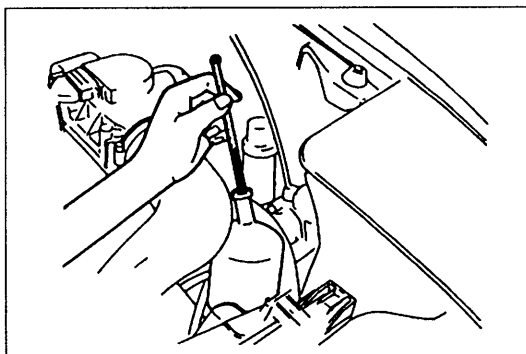
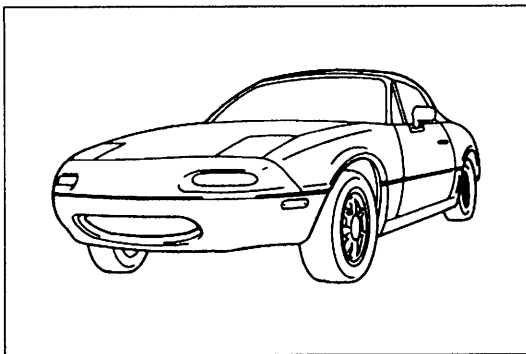
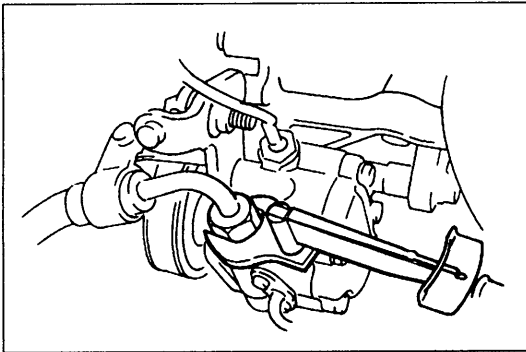
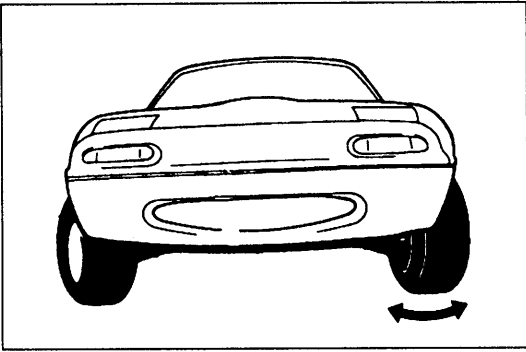
- Do not let the valve stay closed for more than 5 seconds. The increase in fluid temperature will damage the oil pump.

6. Close the gauge valve completely. Increase the engine speed to 1,000—1,500 rpm and measure the fluid pressure generated by the oil pump. If the pressure is not within specification, replace the oil pump assembly.

Oil pump fluid pressure: 7,601—8,335 kPa
{ 77.5—85.0 kgf/cm² , 1,103—1,208 psi }



7. Open the gauge valve fully and increase the engine speed to 1,000—1,500 rpm.

**Caution**

- Never hold the steering wheel to the extreme left or right for more than five seconds with the engine running. This could damage the power steering pump.

8. Turn the steering wheel fully to the left and right and measure the fluid pressure generated by the gear housing. If the pressure is not within specification, replace the gear housing assembly.

**Gear housing fluid pressure: 7,601—8,335 kPa
{ 77.5—85.0 kgf/cm² , 1,103—1,208 psi }**

9. Remove the gauge set. Install and tighten the pressure hose to the specified torque.

Tightening torque:

32—47 N·m { 3.2—4.8 kgf·m , 24—34 ft·lbf }

10. Bleed the air from the system. (Refer to page N-21.)

STEERING WHEEL AND COLUMN

Obtain the code number and deactivate the audio anti-theft system before disconnecting the battery.
(Refer to section T.)

On-vehicle Inspection**Steering wheel effort**

1. With the vehicle on a hard, level surface, put the wheels in the straight-ahead position.
2. Start the engine and warm the power steering fluid to 50—60 °C { 122—140 °F }.

3. With the engine running at idle, attach a pull scale to the outermost point of the steering wheel spoke. Then, starting with the wheels in the straight-ahead position, measure the effort required to turn the steering wheel to the left and to the right.

Steering wheel effort:

24—35 N { 2.4—3.6 kgf , 5.3—7.9 lbf }
(during one turn of the steering wheel)

4. If not within specification, check the following: fluid level, air in system, fluid leakage at hose or connections, function of oil pump and steering gear, and tire pressure.

STEERING GEAR AND LINKAGE

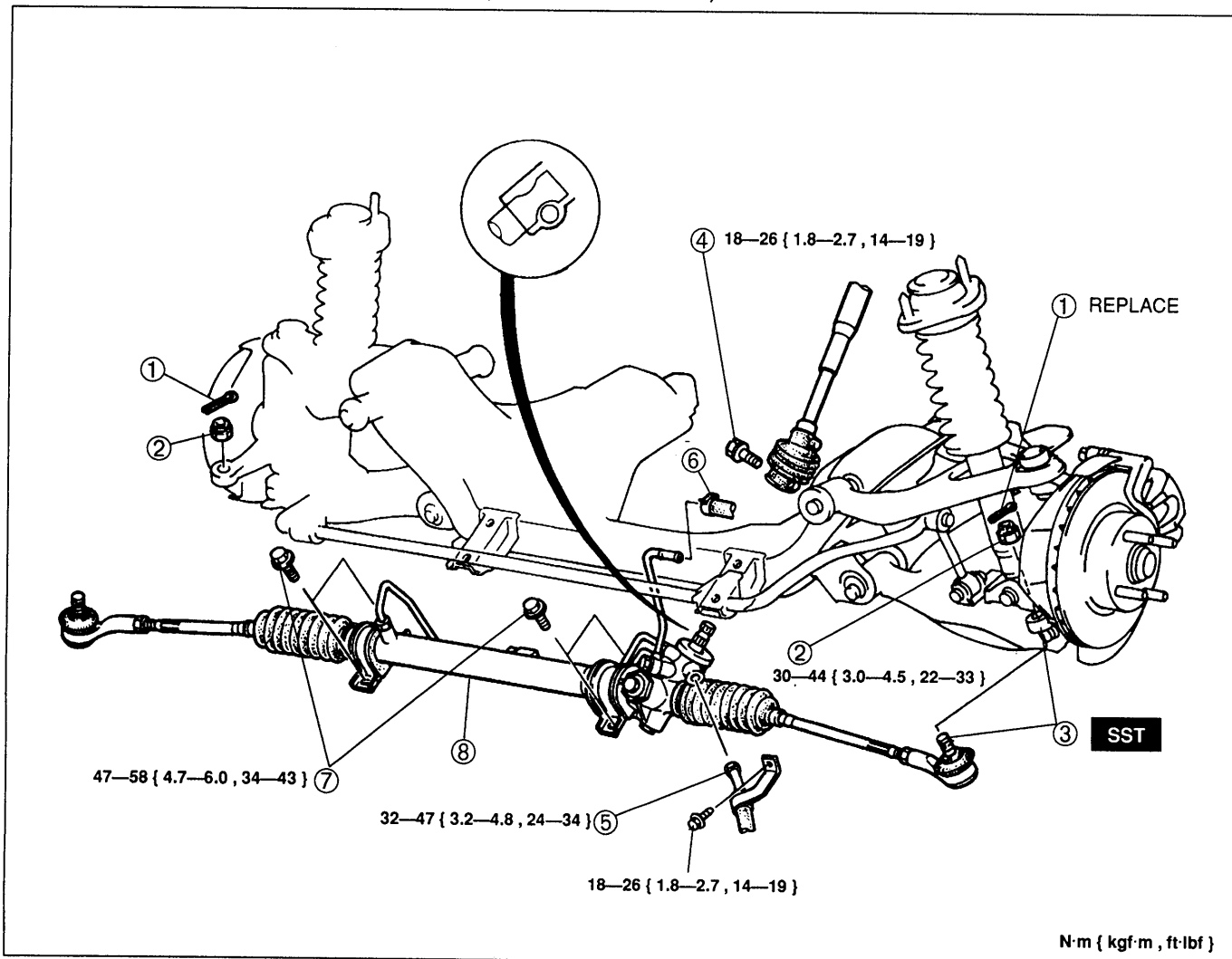
Removal / Installation

1. Turn the wheels to the straight-ahead position.
2. Loosen the wheel lug nuts.
3. On level ground, jack up the front of the vehicle and support it on safety stands.
4. Remove the wheels.

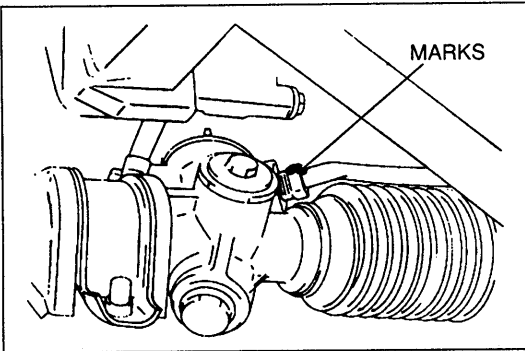
Note

- Turning the steering wheel while the steering gear is removed will make reinstallation difficult. Do not turn the steering wheel while the steering gear is removed. If the steering wheel is turned in that condition, the clockspring connector may have to be adjusted. (Refer to section T.)

5. Remove in the order shown in the figure, referring to **Removal Note**.
6. With the wheels in the straight-ahead position, install in the reverse order of removal.
7. Tighten all necessary bolts and nuts to the specified torque.
8. After installation:
 - (1) Check for fluid leakage. (Refer to page N-22.)
 - (2) Bleed air from the system. (Refer to page N-21.)
 - (3) Adjust the front wheel alignment. (Refer to section R.)



- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Cotter pin 2. Nut 3. Tie-rod end/Steering knuckle
Removal Note page N- 7 4. Bolt | <ol style="list-style-type: none"> 5. Pressure pipe
Removal Note page N-26 6. Return hose 7. Mounting bracket bolt 8. Steering gear and linkage |
|--|---|

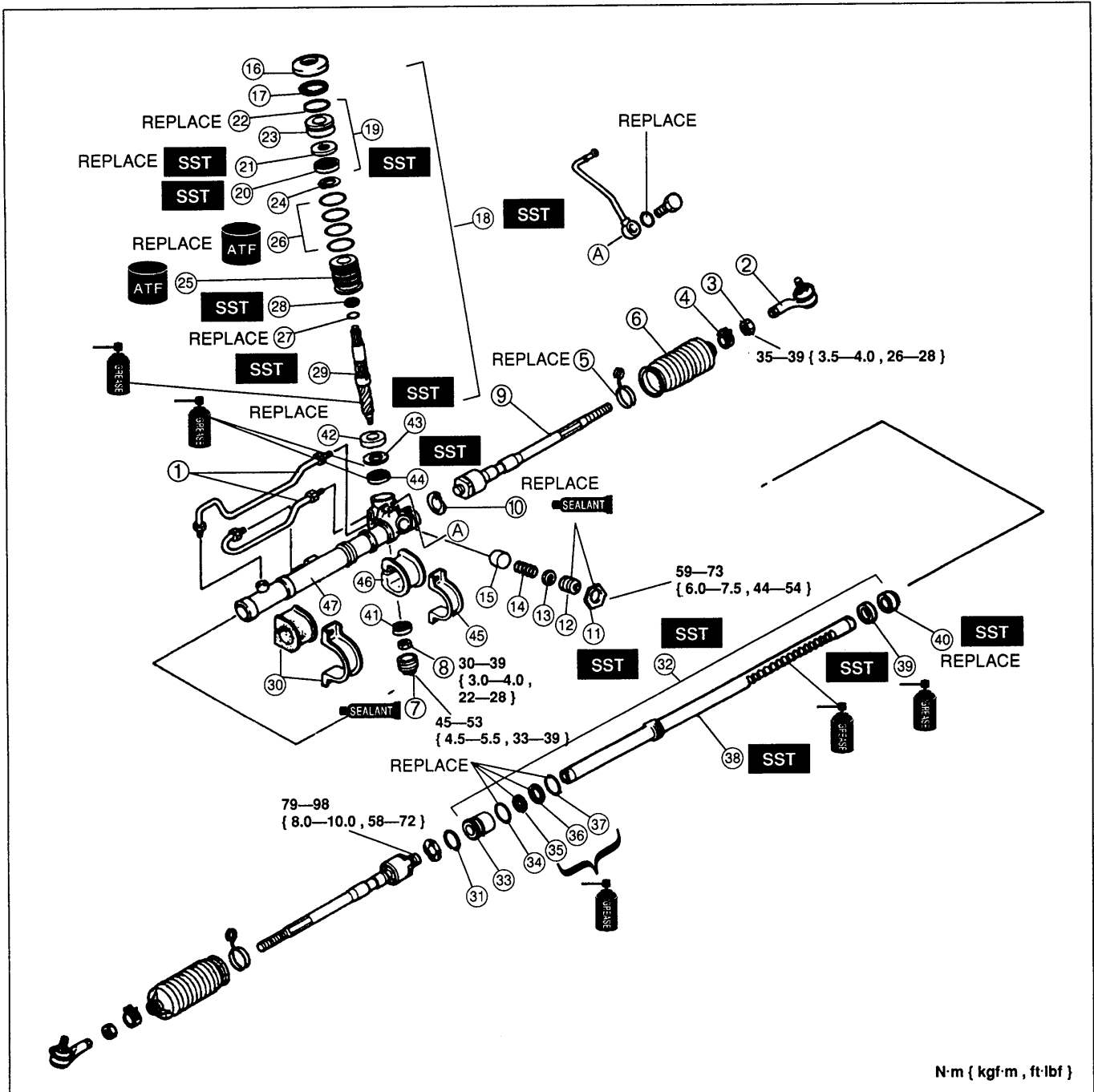


Removal note Pressure pipe

Before removing the pressure pipe, make marks for proper reinstallation.

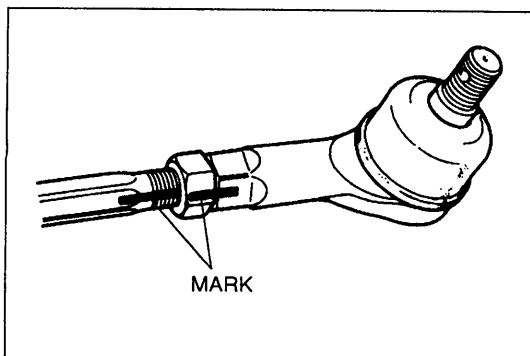
Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly Note**.



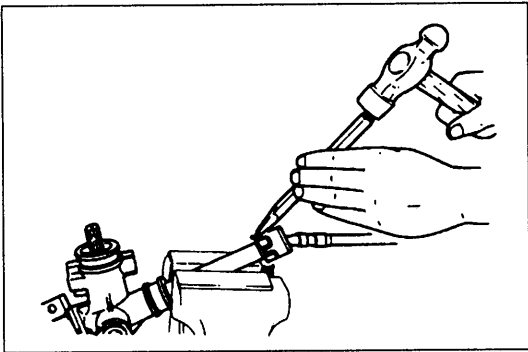
N·m { kgf·m , ft·lbf }

- | | |
|---|---|
| <ul style="list-style-type: none"> 1. Oil pipe
Inspect for clogging and damage 2. Tie-rod end
Disassembly Note below
Inspect ball joint for damage and malfunction 3. Locknut (Tie-rod end) 4. Boot band 5. Boot wire 6. Boot
Inspect for cracks and other damage 7. Housing cover 8. Locknut (Pinion shaft) 9. Tie rod
Disassembly Note page N-28
Assembly Note page N-32
Inspect for bending
Inspect ball joint for damage and malfunction 10. Washer 11. Locknut (Adjusting cover) 12. Adjusting cover
Assembly Note page N-32 13. Plate 14. Yoke spring
Inspect for weakness and damage 15. Support yoke
Inspect for damage and wear 16. Dust cover
Inspect for cracks and other damage 17. Retaining ring 18. Pinion shaft assembly
Disassembly Note page N-28
Inspection page N-29
Assembly Note page N-31 19. Plug assembly
Disassembly Note page N-28
Assembly Note page N-31 20. Upper bearing
Inspect for wear, damage and malfunction 21. Oil seal 22. O-ring 23. Plug 24. Snap ring | <ul style="list-style-type: none"> 25. Control valve
Assembly Note page N-31 26. Seal ring 27. O-ring 28. Seal ring 29. Pinion shaft 30. Mounting bracket and mount 31. Stop ring 32. Steering rack assembly
Disassembly Note page N-28
Assembly Note page N-30 33. Holder
Assembly Note page N-30
Inspect for wear and damage 34. O-ring 35. Y-packing 36. Seal ring 37. O-ring 38. Steering rack
Inspect for cracks, damage and wear 39. Oil seal
Disassembly Note page N-28
Assembly Note page N-30 40. Backup ring
Disassembly Note page N-28
Assembly Note page N-30
Inspect for cracks and other damage 41. Lower bearing
Disassembly Note page N-29
Inspect for wear, damage and malfunction 42. Oil seal
Disassembly Note page N-29
Assembly Note page N-29 43. Spacer
Disassembly Note page N-29
Inspect for cracks, damage and wear 44. Center bearing
Disassembly Note page N-29
Assembly Note page N-29
Inspect for wear, damage and malfunction 45. Mounting bracket 46. Mount 47. Gear housing
Inspect for cracks and other damage |
|---|---|

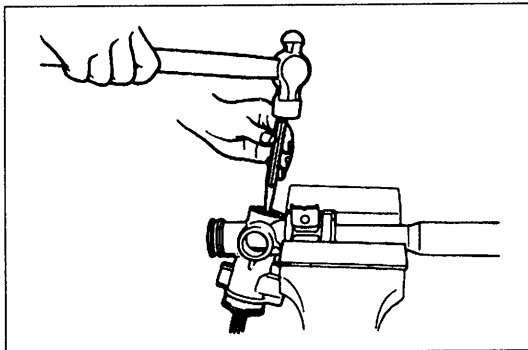


Disassembly note
Tie-rod end

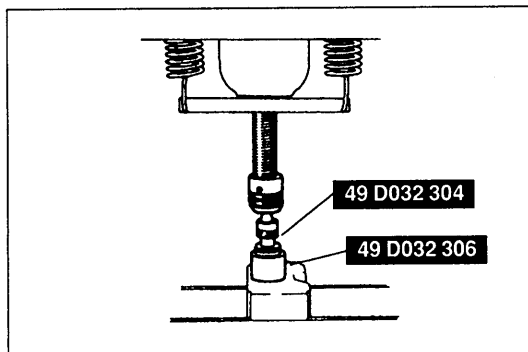
Mark the tie rod, locknut and tie-rod end for proper reassembly.

**Tie rod**

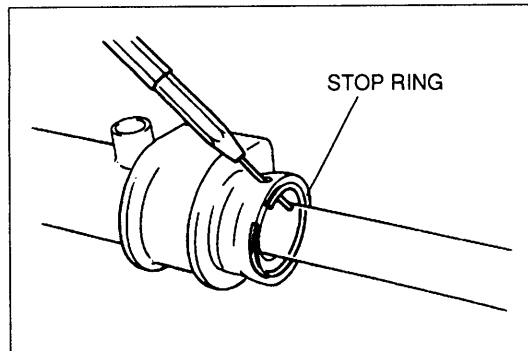
1. Uncrimp the washer.
2. Carefully remove the tie rod.

**Pinion shaft assembly**

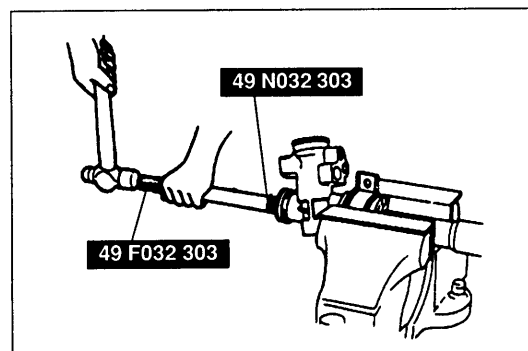
1. Secure the mounting bracket in a vise.
2. Remove the retaining ring.
3. Tap the pinion shaft with a punch to remove it.

**Plug assembly**

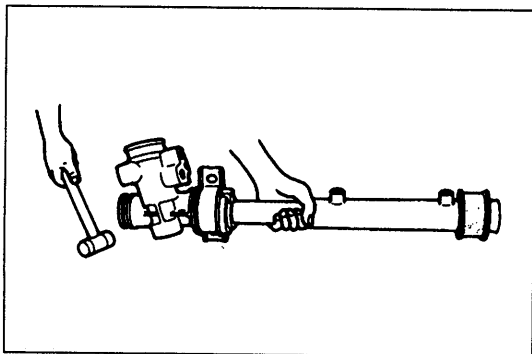
1. Remove the plug assembly from the pinion shaft.
2. Press out the upper bearing and oil seal by using the **SSTs**.
3. Remove the O-ring from the plug.

**Steering rack assembly**

1. Remove the stop ring with a pin punch.
2. Temporarily tighten the tie rod to the tube side and pull it carefully to remove the rack.

**Backup ring, oil seal**

- Tap the **SSTs** from the gear housing side to remove the backup ring and the oil seal.

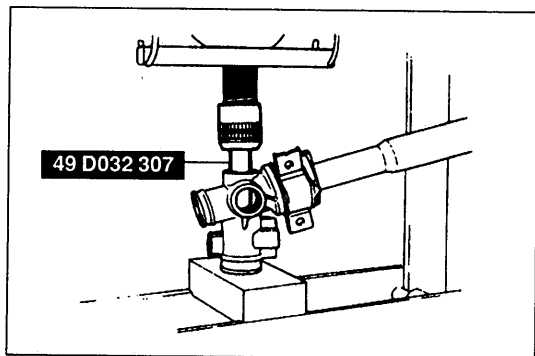


Lower bearing

Note

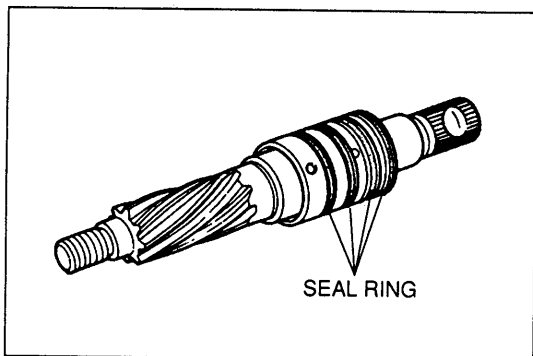
- The lower bearing does not need to be removed unless you are replacing it.

Tap the end of the gear housing column to remove the lower bearing.



Oil seal, spacer, center bearing

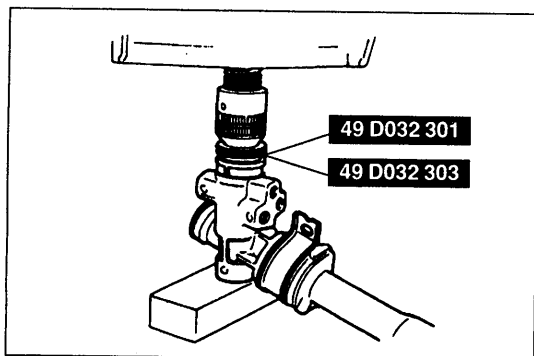
Press out the oil seal, the spacer and the center bearing by using the SST.



Inspection

Pinion shaft assembly

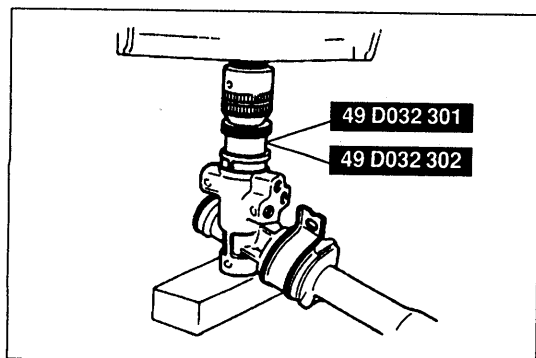
1. Inspect the teeth of the pinion shaft for wear and damage. Replace the pinion shaft assembly if necessary.
2. Inspect the control valve for damage, oil passage clogging, seal ring and friction surface wear and damage. Replace the pinion shaft assembly if necessary.



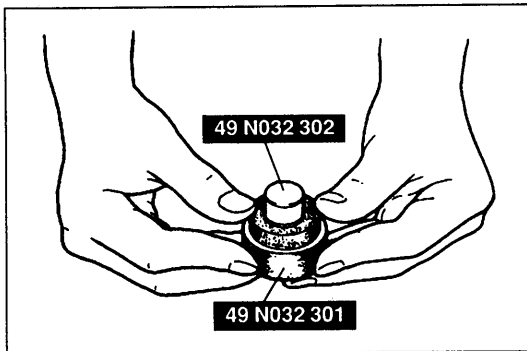
Assembly note

Oil seal, center bearing

1. Apply grease to the center bearing and set it in the gear housing.
2. Press in the center bearing by using the SSTs.

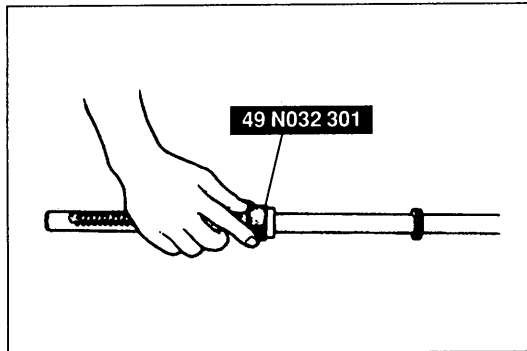


3. Set the spacer in the gear housing.
4. Apply grease to a new oil seal and set it in the gear housing.
5. Press in the oil seal by using the SSTs.

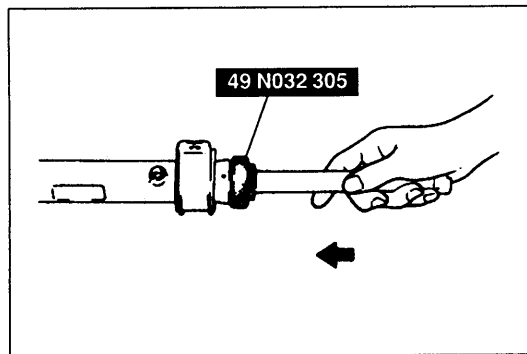


Backup ring, oil seal

1. Apply grease to a new oil seal.
2. Install the oil seal to the **SSTs (Protector body and guide)**.
3. Remove the **SST (guide)**.

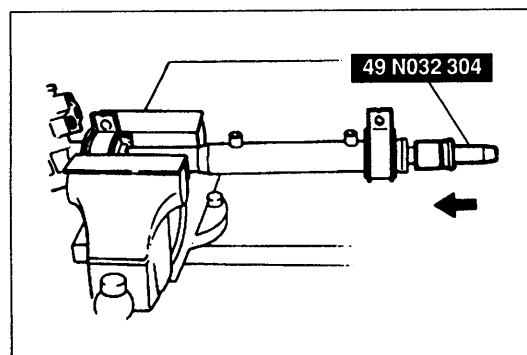


4. Slide the oil seal and the **SST** over the rack from the gear side to the piston. Remove the **SST**.
5. Install the backup ring.



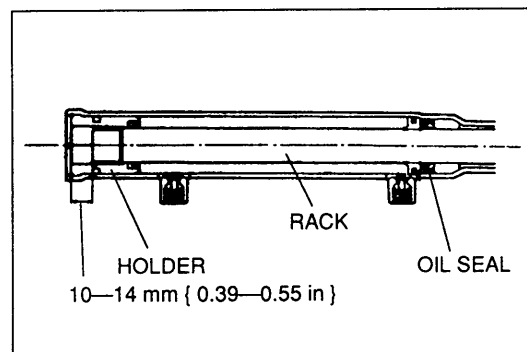
Steering rack assembly

1. Apply grease to the teeth and friction surface of the rack.
2. Using the **SST**, slide the rack into the gear housing from the tube side.



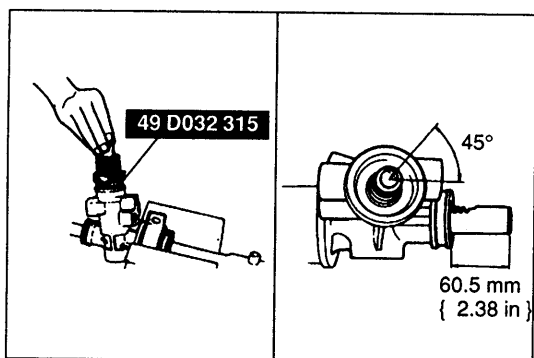
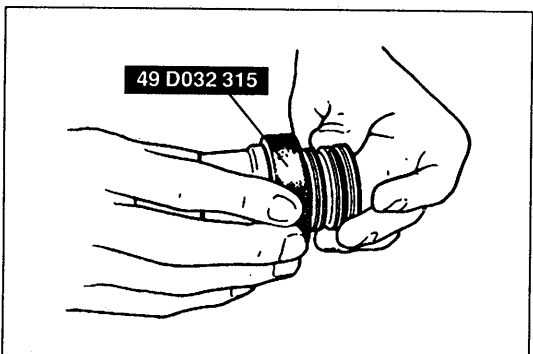
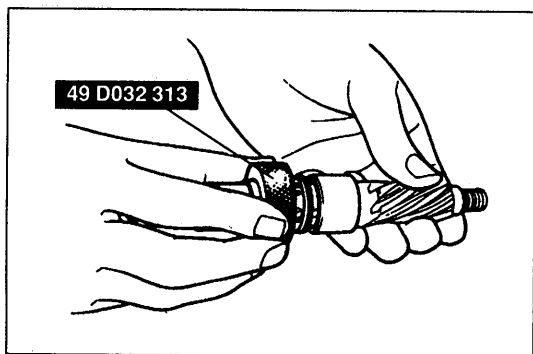
Holder

1. Apply grease to a new Y-packing and install it into the holder.
2. Install a new O-ring onto the holder.
3. Install the **SST** over the rack end and install the holder.
4. Install the new stop ring.



Oil seal

1. Press in a new oil seal from tube side with a suitable pipe (Dia. 22 mm { 0.87 in }). Do not press over 3,920 N { 400 kgf , 880 lbf }.
2. Verify that the distance between the end of the rack and the holder is 10—14 mm { 0.40—0.55 in }.



Control valve

1. Install a new O-ring and a new seal ring onto the pinion shaft.
2. Pass the pinion shaft back and forth through the **SST** until the O-ring and the seal rings are set.

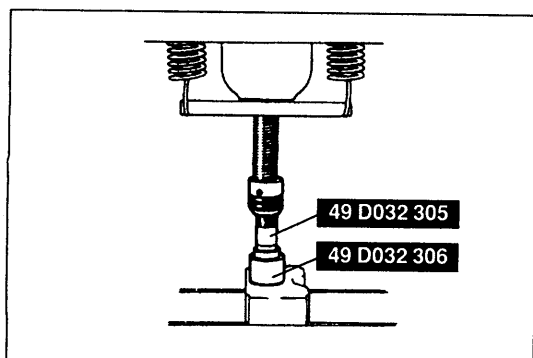
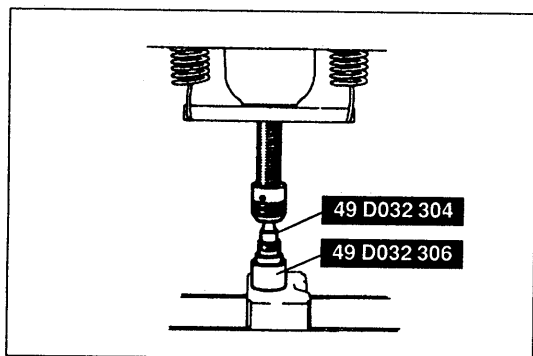
3. Fit new seal rings onto the control valve by using the **SST**.
4. Remove the **SST** from pinion shaft and align the pin position of the control valve with the thread of the pinion shaft assembly. Install the control valve assembly.
5. Install the new snap ring to the pinion shaft assembly.

Pinion shaft assembly

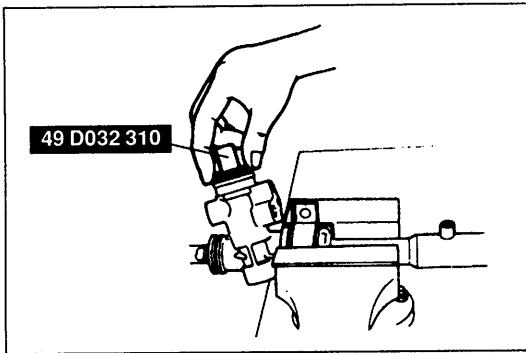
1. Apply sufficient grease to the teeth of the pinion shaft.
2. Apply ATF to the seal ring and the friction surface of the control valve.
3. Attach the **SST** to the gear housing and install the pinion shaft.

Plug assembly

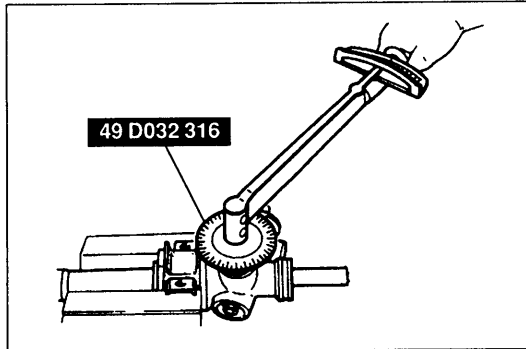
1. Apply ATF to the upper bearing and the new oil seal.
2. Set the oil seal into the plug.
3. Press in the oil seal by using the **SSTs**.



4. Put the upper bearing into the plug.
5. Press in the upper bearing by using the **SSTs**.
6. Install a new O-ring to the plug assembly.

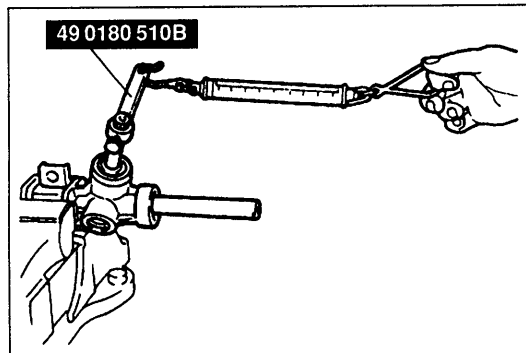


- Attach the **SST** to the pinion and install the plug assembly.



Adjusting cover

- Tighten the mounting bracket in a vise.
- Set the rack to the center position.
- Tighten the adjusting cover to **4.9 N·m { 50 kgf·cm , 43 in·lbf }** three times, then return it **25°** by using the **SST**.
- Apply sealant to the threads of the locknut.
- Attach the locknut.



- Measure the pinion torque by using the **SST** and a pull scale.

Standard

Center of rack $\pm 90^\circ$:

1.0—1.1 N·m { 10—12 kgf·cm , 8.7—10.4 in·lbf }

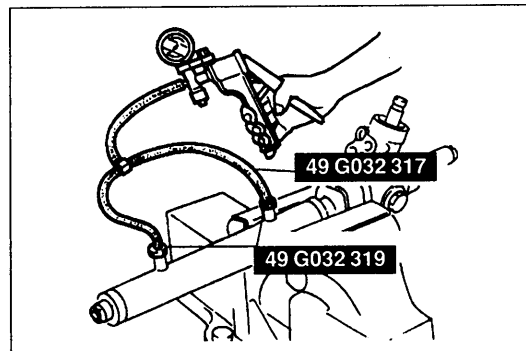
Scale reading:

10—11 N { 1.0—1.2 kgf , 2.2—2.64 lbf }

- If not within specification, repeat steps 3 through 6.
- Install the locknut.

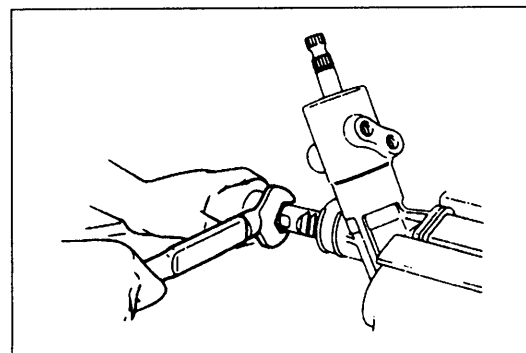
Tightening torque:

59—74 N·m { 6.0—7.5 kgf·m , 44—54 ft·lbf }



Hermetic sealing inspection

- Connect the **SSTs** to the power cylinder section of the gear housing.
- Apply **53.3 kPa { 400 mmHg , 15.7 inHg }** vacuum with a vacuum pump and verify that it is held for at least **30 seconds**.
- If the vacuum is not held, replace the oil seal.



Tie rod

- Secure the rack gear in a vise, and tighten the tie rods with the wrench.

Tightening torque:

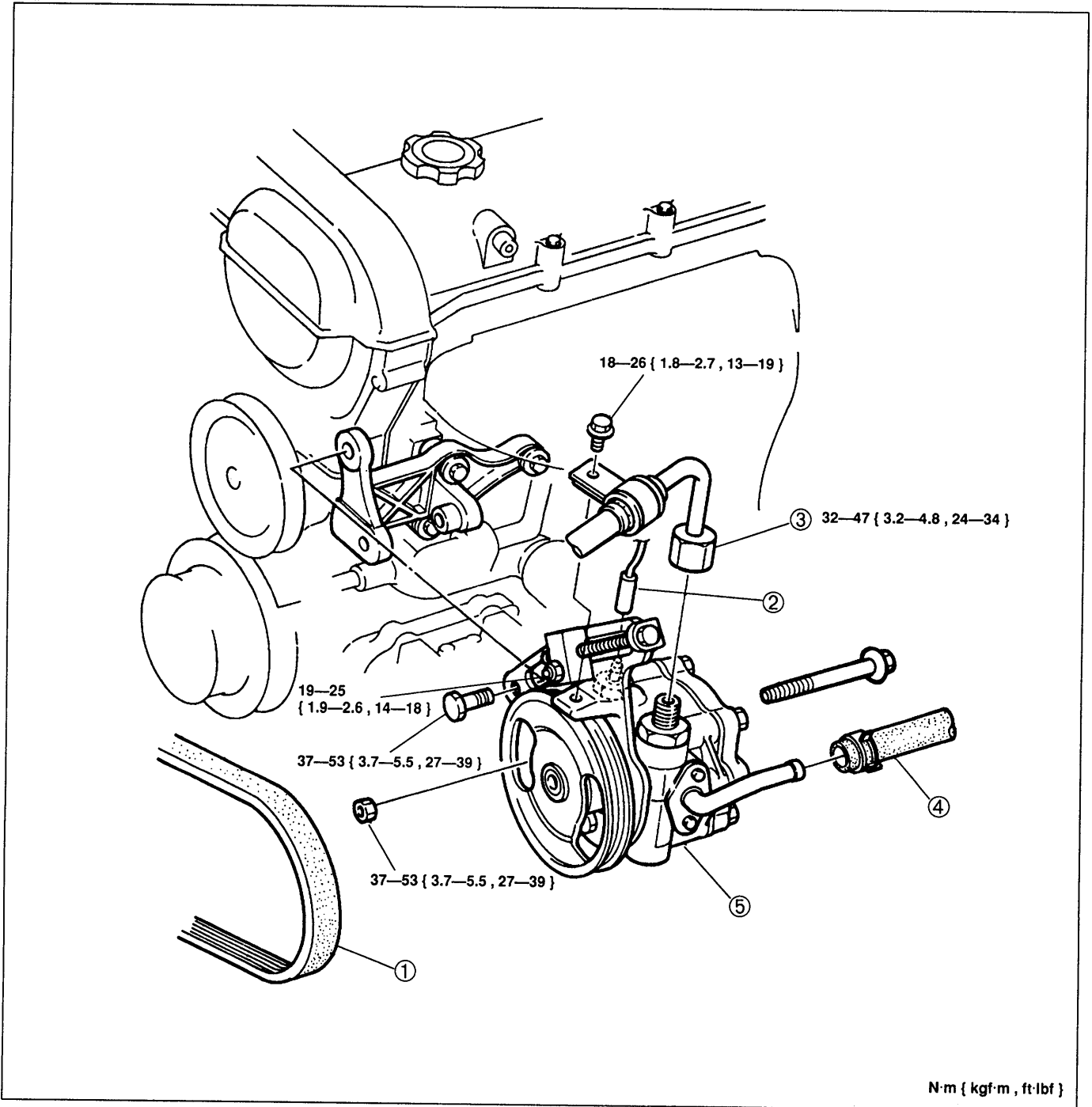
79—98 N·m { 8.0—10.0 kgf·m , 58—72 ft·lbf }

- Align the washer with the rack groove, and crimp the washer.

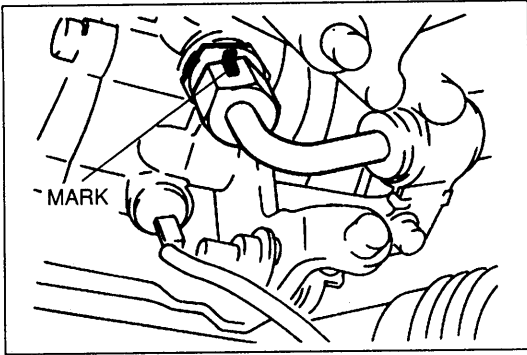
POWER STEERING OIL PUMP

Removal / Installation

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Install in the reverse order of removal.
3. After installation:
 - (1) Check connections for fluid leakage. (Refer to page N-22.)
 - (2) Bleed air from the system. (Refer to page N-21.)



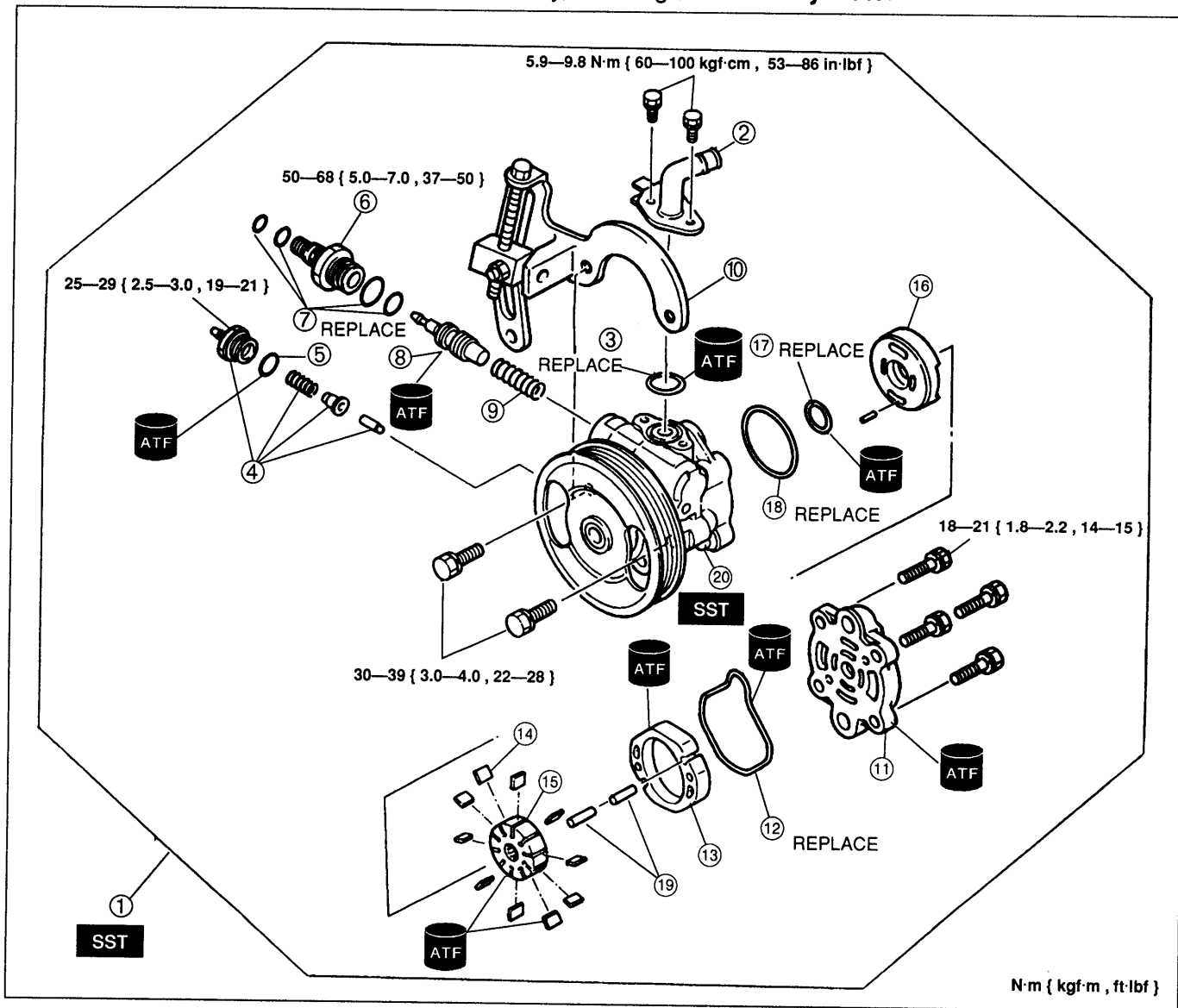
- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Drive belt <ul style="list-style-type: none"> Inspection page N-37 Adjustment page N-38 Replacement page N-38 2. Power steering pressure switch connector | <ol style="list-style-type: none"> 3. Pressure pipe <ul style="list-style-type: none"> Removal Note page N-34 4. Return hose 5. Power steering oil pump <ul style="list-style-type: none"> Disassembly / Inspection / Assembly page N-35 |
|---|---|

**Removal note****Pressure pipe**

Mark the pressure pipe for reference during installation before loosening.

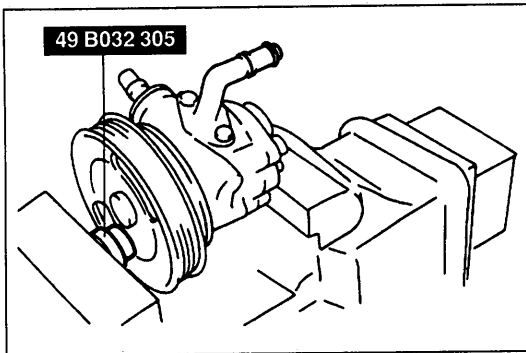
Disassembly / Inspection / Assembly

1. The following procedure is for replacement of the O-rings only. Replace the pump assembly if other repairs are necessary.
2. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
3. Assemble in the reverse order of disassembly, referring to **Assembly Note**.

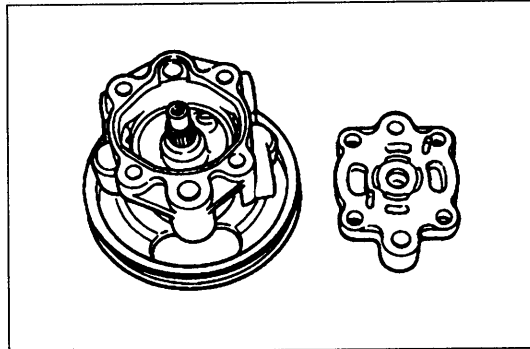


N·m { kgf·m , ft·lbf }

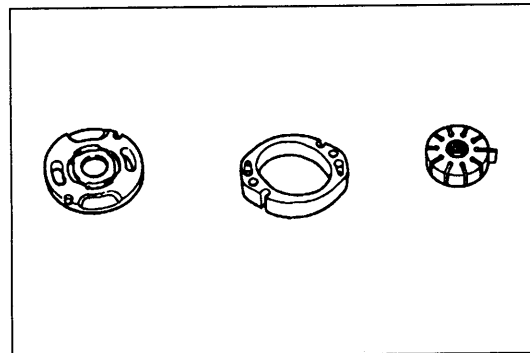
- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Oil pump
Disassembly Note page N-36 2. Suction pipe 3. O-ring 4. Power steering pressure switch assembly 5. O-ring 6. Connector 7. O-ring 8. Control valve
Inspection page N-36 9. Spring
Inspection page N-36 10. Bracket 11. Pump body rear
Inspection page N-36 12. O-ring | <ol style="list-style-type: none"> 13. Cam ring
Inspection page N-36
Assembly Note page N-37 14. Blade
Inspection page N-36
Assembly Note page N-37 15. Rotor
Inspection page N-36
Assembly Note page N-36 16. Side plate
Inspection page N-36 17. O-ring 18. O-ring 19. Pin 20. Pump body front
Inspection page N-36 |
|---|---|

**Disassembly note****Oil pump**

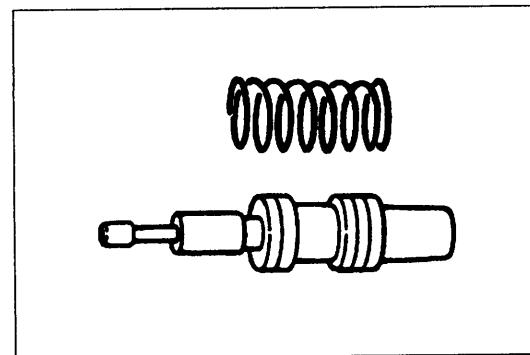
Use the **SST** when securing the oil pump in a vise, so that force is not applied to the pulley or shaft.

**Inspection****Pump body front, rear**

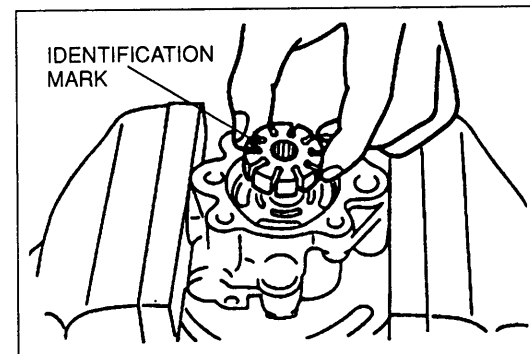
Inspect the front and rear of the pump body for cracks and damage, and the friction surface of the rotor for wear. Replace the pump assembly if a problem is found.

**Cam ring, rotor, blade, side plate**

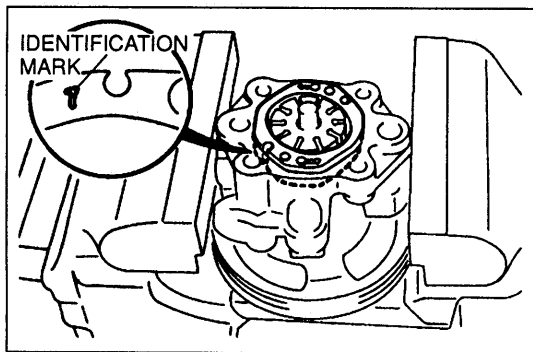
1. Inspect the blade friction surface of the cam ring for wear.
2. Inspect the pump body of the rotor and side plate friction surface for wear.
3. Inspect the cam ring friction surface of the blade for wear.
4. Inspect clearance between the rotor and blade.

**Control valve, spring**

1. Inspect the control valve for cracks, damage and blockage, and the friction surface for wear.
2. Inspect the spring for damage.

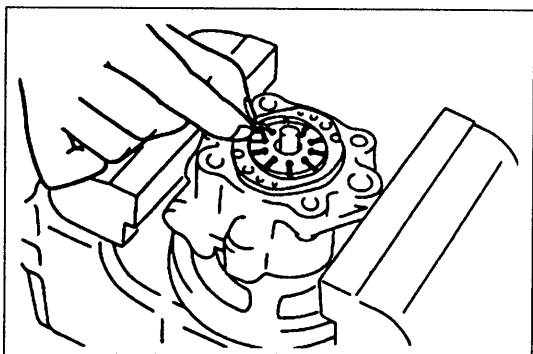
**Assembly note****Rotor**

Install the rotor with the identification mark facing upward.



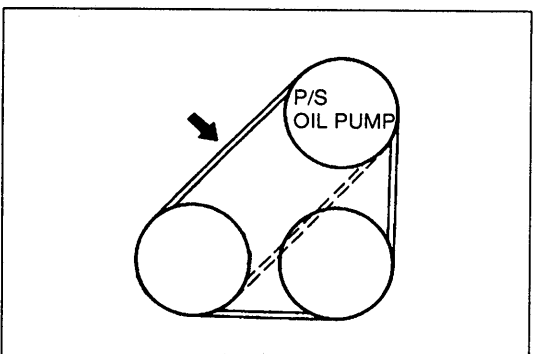
Cam ring

Install the cam ring with the identification mark facing downward.



Blade

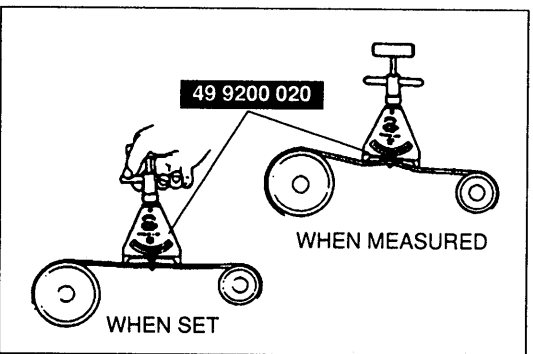
Install the blades into the rotor with the rounded edges facing outward.



DRIVE BELT

Inspection

1. Check the drive belt for wear, cracks, and fraying. Replace as necessary.
2. Verify that the drive belts are correctly mounted on the pulleys.
3. Check the drive belt deflection when the engine is cold, or at least 30 minutes after the engine has stopped. Apply moderate pressure (98 N { 10 kgf , 22 lbf }) midway between the specified pulleys.



Deflection

mm { in }		
New*	Used	Limit
8—9 { 0.32—0.35 }	9—10 { 0.36—0.39 }	11.5 { 0.45 }

* A belt that has been on a running engine for less than five minutes.

4. If the deflection is not within specification, adjust it.

Drive belt tension check

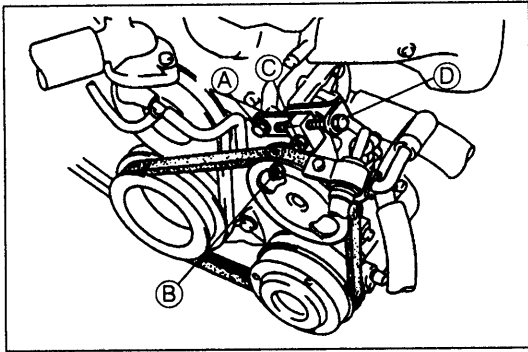
1. Belt tension can be checked in place of belt deflection. Check the drive belt tension when the engine is cold, or at least 30 minutes after the engine has stopped. Using the SST, check the belt tension between any two pulleys.

Tension

N { kgf , lbf }		
New*	Used	Limit
491—588 { 50—60 , 110—132 }	422—490 { 43—50 , 95—110 }	245 { 25 , 55 }

* A belt that has been on a running engine for less than five minutes.

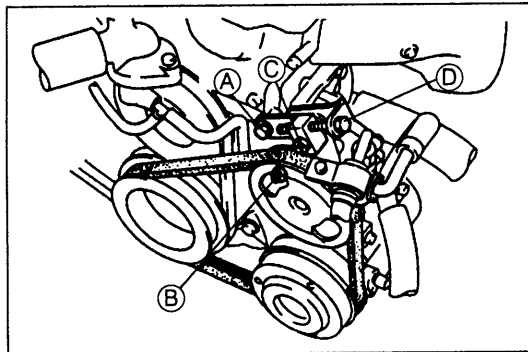
2. If the tension is not within specification, adjust it.

**Adjustment**

Loosen P/S oil pump bolt (A) and nuts (B) and (C). Adjust the belt deflection by turning adjusting bolt (D).

Tightening torque

- (A): 37—53 N·m { 3.7—5.5 kgf·m , 27—39 ft·lbf }
- (B): 37—53 N·m { 3.7—5.5 kgf·m , 27—39 ft·lbf }
- (C): 19—25 N·m { 1.9—2.6 kgf·m , 14—18 ft·lbf }

**Replacement**

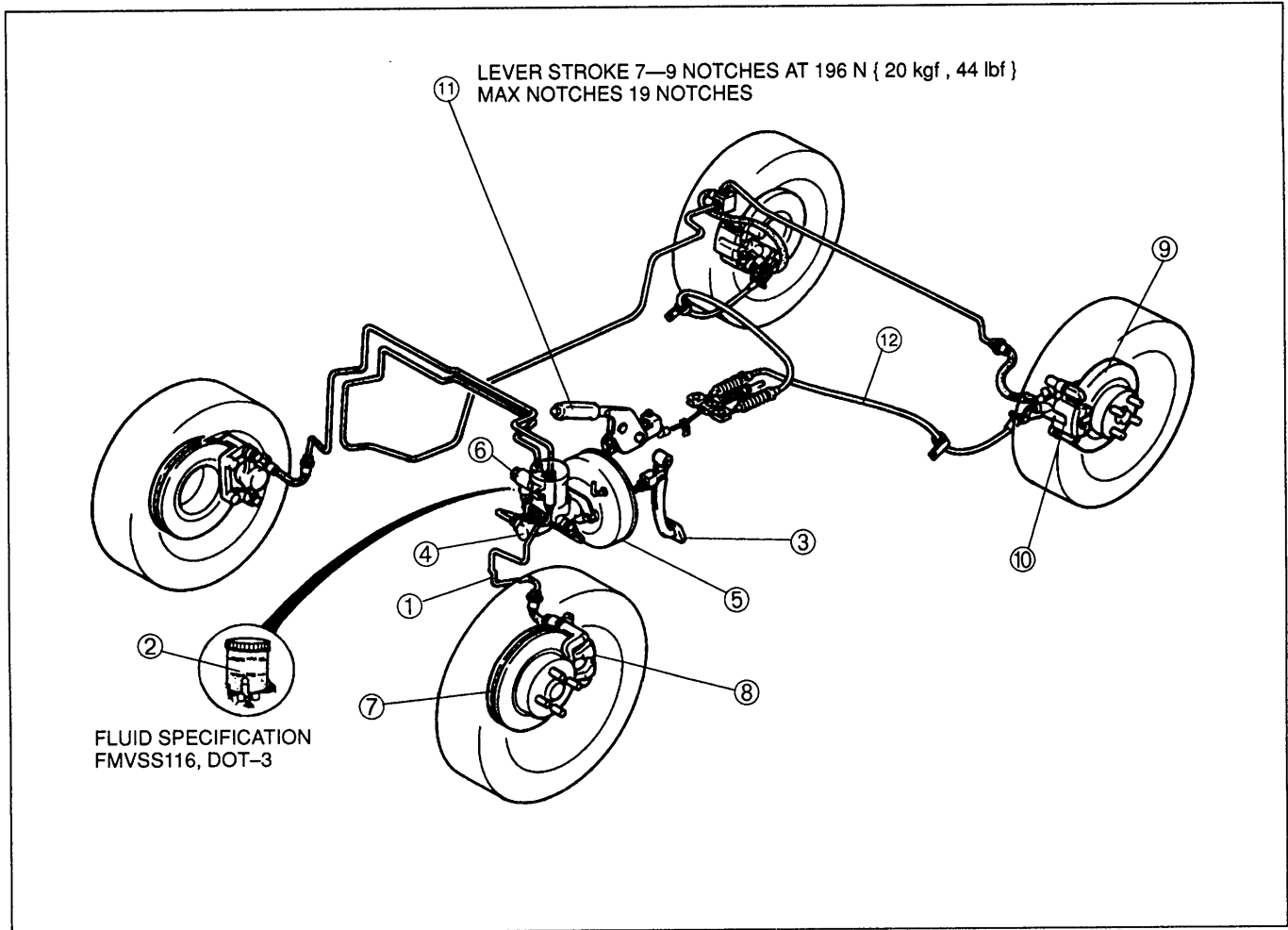
1. Loosen bolt (A), nuts (B) and (C), and adjusting bolt (D).
2. Remove and replace the drive belt.
3. Adjust the deflection (tension). (Refer to page N-37.)

Before beginning any service procedure, refer to section T of this manual for air bag system service warnings and audio antitheft system alarm conditions.

BRAKING SYSTEM

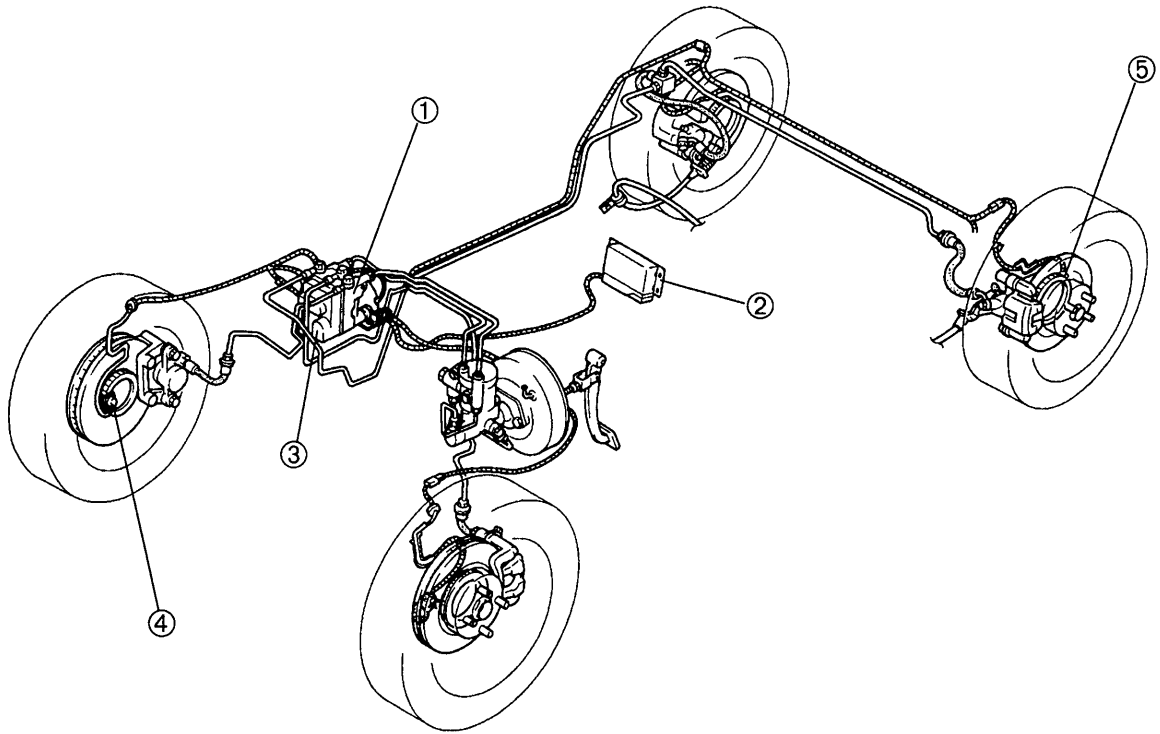
INDEX	P- 2
OUTLINE	P- 4
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ANTILOCK BRAKE SYSTEM (ABS)



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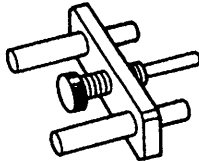
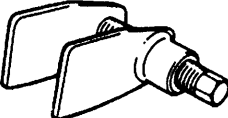
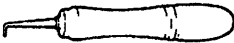
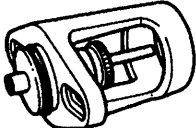
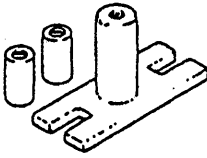
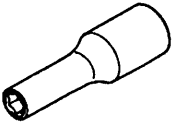

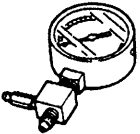
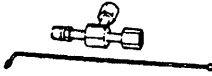
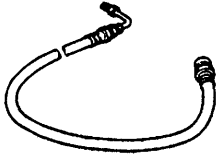
OUTLINE

SPECIFICATIONS

Item		Specifications
Brake pedal	Type	Suspended
	Pedal level ratio	4.1 : 1
	Maximum stroke	mm { in } 120 { 4.72 }
Master cylinder	Type	Tandem (with level sensor)
	Bore	mm { in } 22.22 { 0.875 }
Front disc brake	Type	Disc (ventilated)
	Cylinder bore	mm { in } 51.1 { 2.01 }
	Pad dimensions (area × thickness) mm ² × mm { in ² × in }	1,849 × 8.0 { 2.76 × 0.31 }
	Disc plate dimension (effective diameter × thickness) mm { in }	255 × 20 { 10.04 × 0.79 }
Rear disc brake	Type	Disc (solid)
	Cylinder bore	mm { in } 31.75 { 1.25 }
	Pad dimensions (area × thickness) mm ² × mm { in ² × in }	2,704 × 8.0 { 4.19 × 0.31 }
	Disc plate dimensions (effective diameter × thickness) mm { in }	251 × 9 { 9.88 × 0.35 }
Power brake unit	Type	Vacuum multiplier
	Size	mm { in } 214 { 8 }
Braking force control device	Type	Proportioning bypass valve (PBV)
Brake fluid		FMVSS 116: DOT-3
Parking brake	Type	Mechanical, two rear brakes
	Operation system	Hand lever

BRAKE SYSTEM

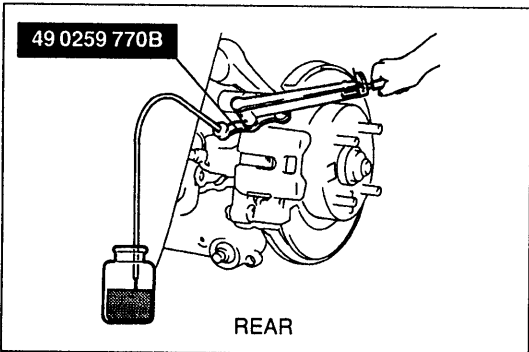
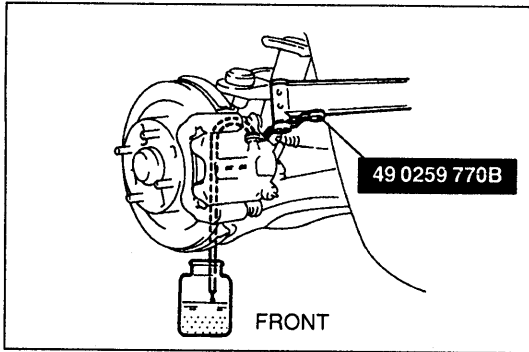
**PREPARATION
SST**

<p>49 0259 770B Wrench, flare nut</p> 	<p>For removal and installation brake pipes</p>	<p>49 F043 001 Adjust gauge</p> 	<p>For adjustment of push rod clearance</p>
<p>49 0221 600C Expand tool, disc brake</p> 	<p>For installation of disc pads</p>	<p>49 0208 701A Boot air out tool</p> 	<p>For removal of piston seal</p>
<p>49 B043 001 Adjust gauge</p> 	<p>For Adjustment of push rod clearance</p>	<p>49 E043 003A Lock tool, turning</p> 	<p>For adjustment of push rod clearance</p>
<p>49 B043 004 Wrench, socket</p> 	<p>For adjustment of push rod clearance</p>	<p>49 U043 0A0 Gauge set, oil pressure</p> 	<p>For inspection of brake fluid pressure</p>
<p>49 U043 004 Gauge, oil pressure (Part of 49 U043 0A0)</p> 	<p>For inspection of brake fluid pressure</p>	<p>49 U043 005 Joint (Part of 49 U043 0A0)</p> 	<p>For inspection of brake fluid pressure</p>
<p>49 U043 006 Hose (Part of 49 U043 0A0)</p> 	<p>For inspection of brake fluid pressure</p>	<p>—</p>	<p>—</p>

P

TROUBLESHOOTING GUIDE

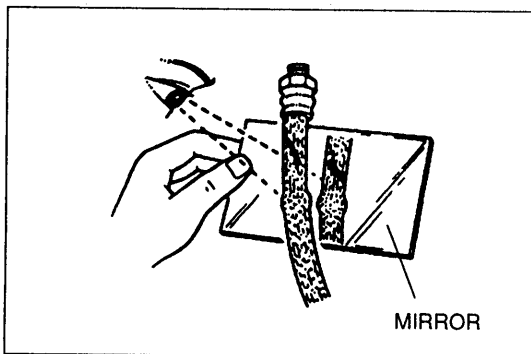
Problem	Possible cause	Action	Page
Poor braking	Leakage of brake fluid	Repair	—
	Air in lines	Air bleed	P- 7
	Worn pad	Replace	P-25, 29
	Brake fluid, grease, oil, or water on pad	Clean or replace	P-25, 29
	Hardening of pad surface or poor contact	Grind or replace	P-25, 29
	Malfunction of disc brake piston	Replace	P-28, 32
	Malfunction of master cylinder	Repair or replace	P-11, 14
	Malfunction of power brake unit	Repair or replace	P-22
	Malfunction of check valve (vacuum hose)	Repair or replace	P-22
	Damaged vacuum hose	Replace	P-22
	Deterioration of flexible hose	Replace	P- 7
Malfunction of proportioning bypass valve (PBV)	Replace	P-23, 24	
Brakes pull to one side	Worn pad	Replace	P-25, 29
	Brake fluid, grease, oil, or water on pad	Clean or replace	P-25, 29
	Hardening of pad surface or poor contact	Grind or replace	P-25, 29
	Abnormal wear, distortion, or eccentricity of disc	Repair or replace	section M
	Malfunction of automatic adjuster in rear brake	Repair	—
	Looseness or deformation of dust cover mounting bolt	Tighten or replace	section M
	Malfunction of disc brake piston	Repair or replace	P-28, 32
	Worn or improperly adjusted wheel bearing preload	Replace or adjust	section M
	Improper adjustment of wheel alignment	Adjust	section R
	Unequal tire air pressure	Adjust	section Q
Brakes do not release	No brake pedal play	Adjust	P- 9
	Improper adjustment of push rod clearance	Adjust	P-12, 15
	Clogged master cylinder return port	Clean	—
	Pad not returning properly	Repair	—
	Improper return or malfunction of brake caliper piston	Replace	P-28, 32
	Excessive runout of disc plate	Replace	section M
	Improper adjustment of wheel bearing preload	Adjust or replace	section M
Pedal goes too far (Too much pedal stroke)	Air in system because of insufficient brake fluid	Add fluid and bleed air	P- 7
	Improper adjustment of pedal play	Adjust	P- 9
	Worn pad	Replace	P-25, 29
	Air in lines	Bleed air	P- 7
Abnormal noise or vibration during braking	Worn pad	Replace	P-25, 29
	Deterioration of pads	Grind or replace	P-25, 29
	Brakes do not release	Repair	—
	Foreign material or scratches on disc plate contact surface	Clean	—
	Looseness of caliper mounting bolt(s)	Tighten	P-26, 30
	Damage or deviation of disc contact surface	Replace	section M
	Poor contact of pads	Repair or replace	P-25, 29
	Insufficient grease on sliding parts	Apply grease	—



AIR BLEEDING

The brakes should be bled whenever a brake line is disconnected. If a hydraulic line is disconnected at the master cylinder, start at the slave cylinder farthest from the brake master cylinder, and move to the next closest slave cylinder until all four cylinders have been bled. If the disconnection point is anywhere except the master cylinder, start at the point closest to the disconnection, and move to the next farthest slave cylinder until all four cylinders have been bled.

1. On level ground jack up the vehicle and support it evenly on safety stands.
2. Remove the bleeder cap and attach a vinyl tube to the bleeder screw.
3. Place the other end of the vinyl tube in a clear container.
4. One person should depress the brake pedal a few times, and then hold it in the depressed position.
5. A second person should loosen the bleeder screw, drain out the fluid, and close the screw by using the **SST**.
6. Repeat steps 4 and 5 until only clean fluid is seen. The reservoir should be kept about 3/4 full during bleeding to prevent air from reentering the lines.
7. Modify the brake pipe tightening torque to allow for a torque wrench-**SST** combination. (Refer to section G) **P** "Torque Formulas".
8. Tighten the brake pipe by using **SST**.
9. Check for correct brake operation.
10. Verify that there is no fluid leakage. Clean away any spilled fluid with rags.
11. After bleeding the air, add brake fluid to the reservoir up to the specified level.

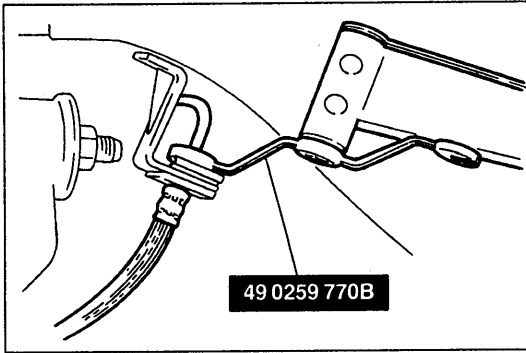


BRAKE HYDRAULIC LINE

On-vehicle Inspection

Check the following and replace parts as necessary.

1. Cracks, damage, and corrosion of the brake hose
2. Damage to the brake hose threads
3. Scars, cracks, and swelling of the flexible hose
4. All lines for fluid leakage



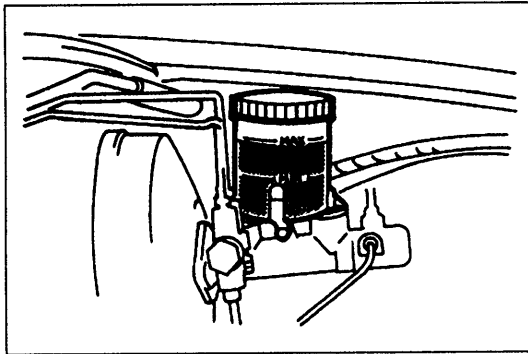
Removal / Installation

1. When disconnecting the flexible hose and brake line, remove the clip after loosening the flare nut by using the **SST**.
2. When connecting the flexible hose, do not over tighten or twist it.
3. Verify that the hose does not contact other parts when the vehicle bounces or when the steering wheel is turned all the way to the left or right.
4. Modify the brake pipe tightening torque to allow for a torque wrench-**SST** combination. (Refer to section GI) "Torque Formulas".
5. Tighten the flare nut by using the **SST**.

Tightening torque:

13—22 N·m { 1.3—2.2 kgf·m , 9.4—16 ft·lbf }

6. Bleed the air from the brake system.



BRAKE FLUID

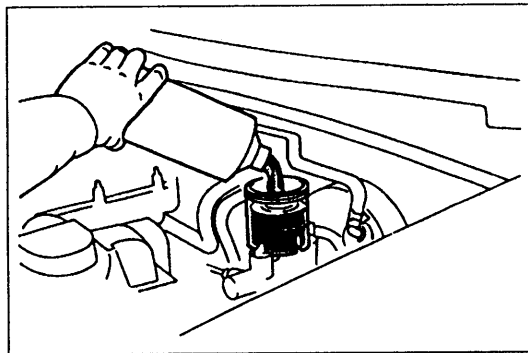
Inspection

Check the fluid level in the reservoir. It should be between MAX and MIN.

If the fluid level is extremely low, check the brake system for leaks.

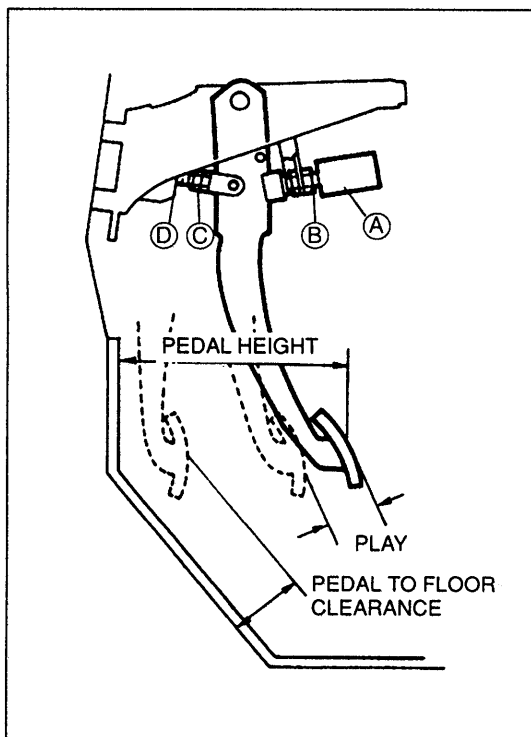
Fluid specification:

FMVSS 116: DOT-3



Replacement

1. Follow the procedure outlined in Air Bleeding. (Refer to page P-7.)
2. Continuity air bleeding and replacing the brake fluid until only clean fluid is seen.
3. Fill the reservoir to MAX.

**BRAKE PEDAL****On-vehicle Inspection****Pedal height**

Verify that the distance from the center of the upper surface of the pedal pad to the carpet is as specified.

Pedal height: 171—181 mm { 6.73—7.13 in }
(With carpet)

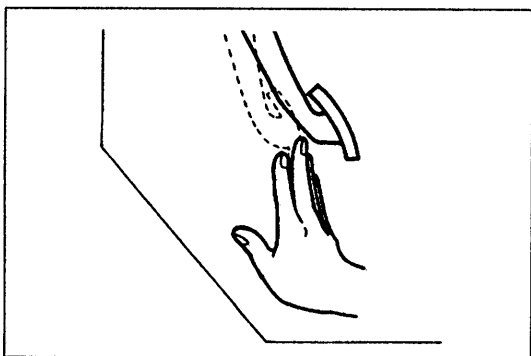
Adjustment

1. Disconnect the brake switch connector.
2. Loosen locknut (B) and turn switch (A) until it does not contact the pedal.
3. Loosen locknuts (D) and turn rod (C) to adjust the height.
4. Adjust the pedal free play and tighten operating rod locknuts (D).
5. Turn the brake switch until it contacts the pedal; then turn an additional 1/2 turn. Tighten the locknuts.

Tightening torque:

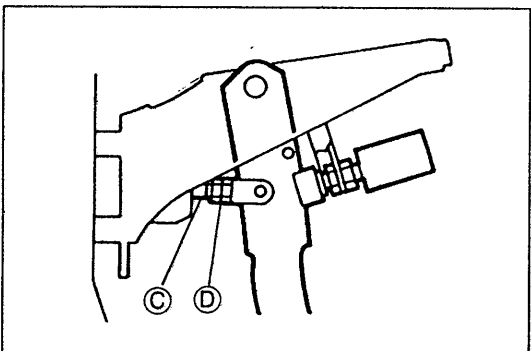
14—18 N·m { 1.4—1.8 kgf·m , 11—13 ft·lbf }

6. Connect the brake switch connector.
7. Verify that the brake light operates correctly.

**Pedal play**

1. Depress the pedal a few times to eliminate the vacuum in the system.
2. Lightly depress the pedal by hand until resistance is felt, and check the free play.

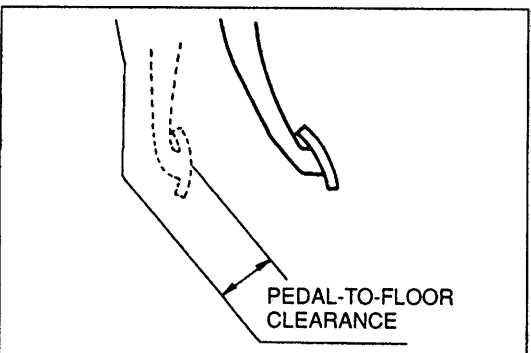
Free play: 4—7 mm { 0.16—0.28 in }

**Adjustment**

1. Loosen locknuts (D) and turn rod (C) to adjust the free play.
2. Check the pedal height and verify that the brake switch operates correctly.

Tightening torque:

24—34 N·m { 2.4—3.5 kgf·m , 17—25 ft·lbf }

**Pedal-to-floor clearance**

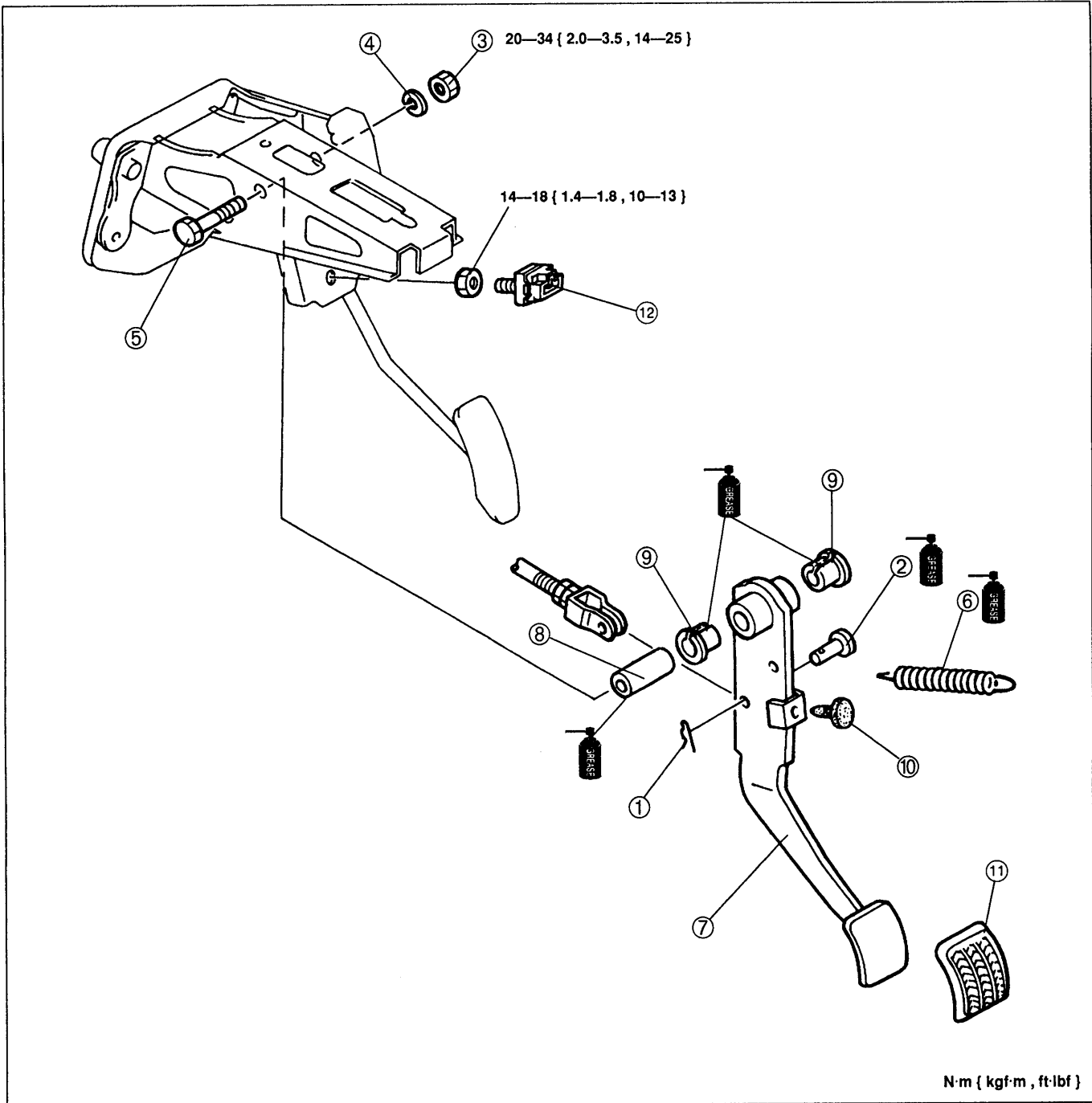
1. Verify that the distance from the floor panel to the center of the upper surface of the pedal pad is as specified when the pedal is depressed with a force of 589 N { 60 kgf , 132 lbf }.

Pedal-to-floor clearance: 95 mm { 3.74 in }
(Without carpet)

2. If the distance is less than specified, inspect for air in the brake system.

Removal / Inspection / Installation

1. Remove in the order shown in the figure.
2. Inspect all parts and repair or replace as necessary.
3. Install in the reverse order of removal.
4. After installation, check and adjust the pedal height and free play if necessary.

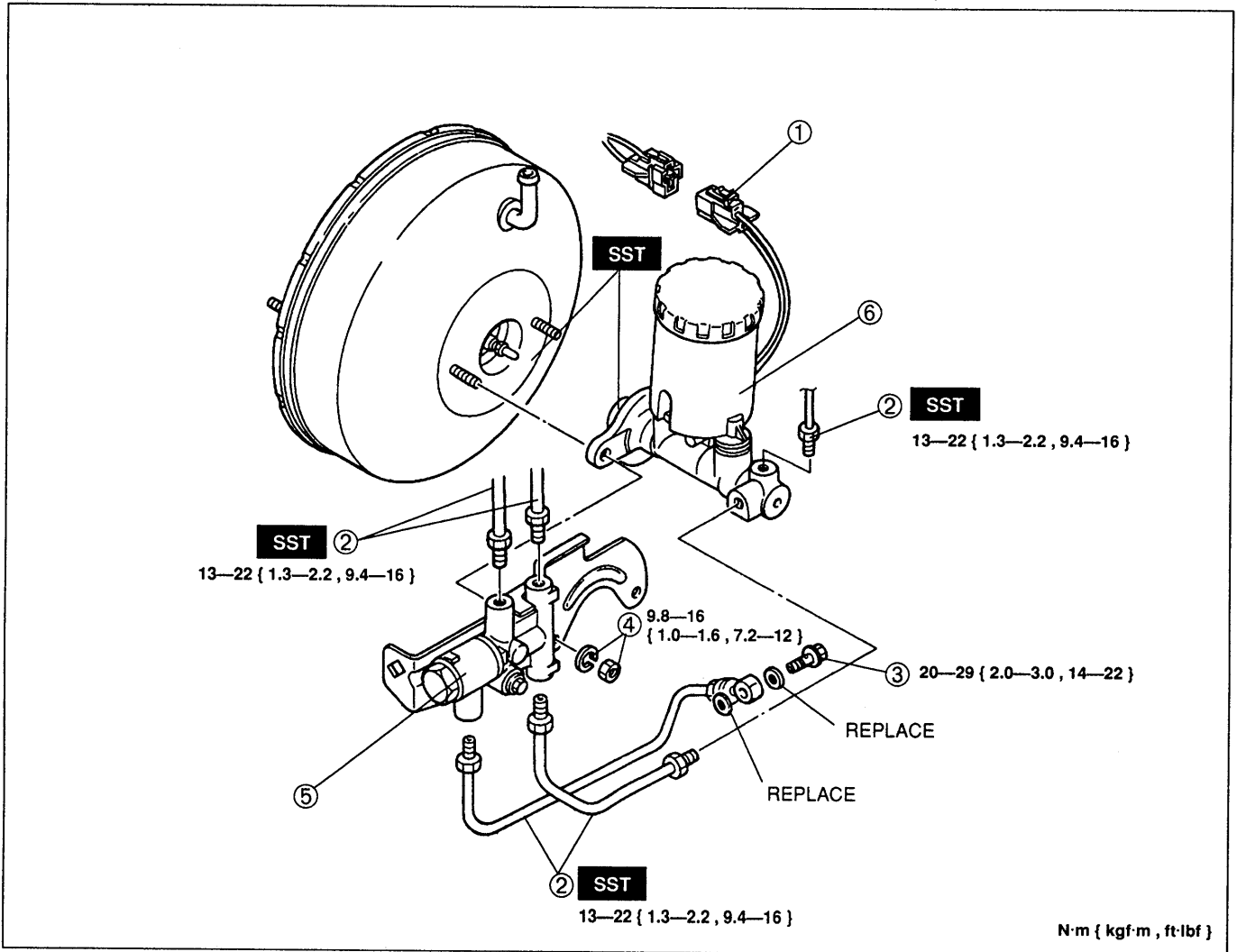


- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Spring clip 2. Clevis pin 3. Nut 4. Spring washer 5. Bolt 6. Return spring
Inspect for weakness and damage 7. Brake pedal
Inspect for bending | <ol style="list-style-type: none"> 8. Guide pipe 9. Bushing
Inspect for wear 10. Stopper
Inspect for wear 11. Pedal pad
Inspect for wear and damage 12. Brake switch |
|--|---|

MASTER CYLINDER (STANDARD)

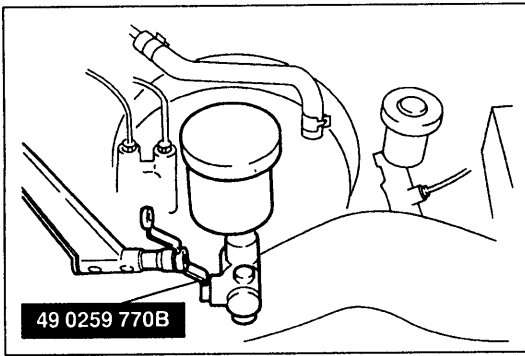
Removal / Installation / Inspection

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Install in the reverse order of removal, referring to **Installation Note**.
3. After installation, add brake fluid, bleed the brakes, and check for fluid leakage.



- | | |
|---------------------------------|-----------|
| 1. Fluid level sensor connector | |
| Inspection | page P-13 |
| 2. Brake pipe | |
| Removal Note | page P-12 |
| 3. Connector bolt | |
| 4. Nut and washer | |

- | | |
|---|-----------|
| 5. Proportioning bypass valve and bracket | |
| 6. Master cylinder | |
| Installation Note | page P-12 |
| Disassembly / Assembly / | |
| Inspection | page P-18 |



Removal note

Brake pipe

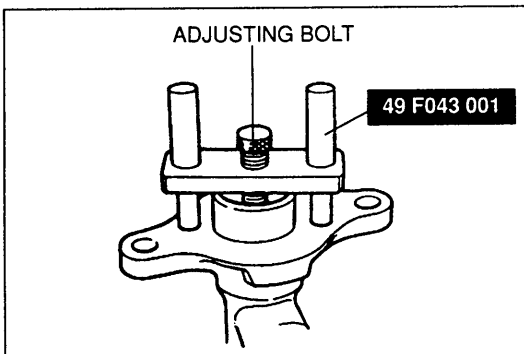
Caution

- Brake fluid will damage painted surfaces. If brake fluid does get on a painted surface, wipe it off immediately.

1. Modify the brake pipe tightening torque to allow for use of a torque wrench-SST combination. (Refer to section GI) "Torque Formulas"
2. Disconnect/connect the brake pipe from/to the master cylinder by using the SST.
3. Tighten the brake pipe by using the SST.

Tightening torque:

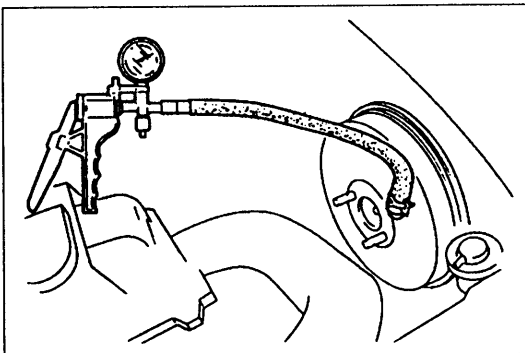
13—22 N·m { 1.3—2.2 kgf·m , 9.4—16 ft·lbf }



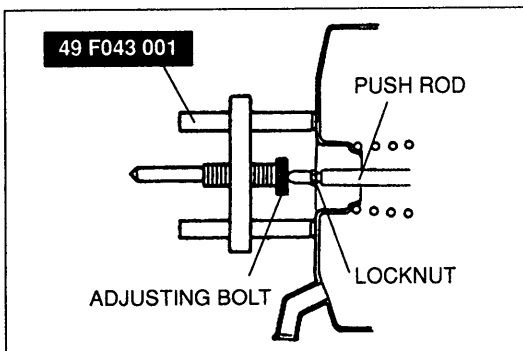
Installation note

Master cylinder

1. Measure the clearance between the push rod of the power brake unit and the piston of the master cylinder.
 - (1) Place the SST atop the master cylinder. Turn the adjusting bolt until it bottoms in the piston.

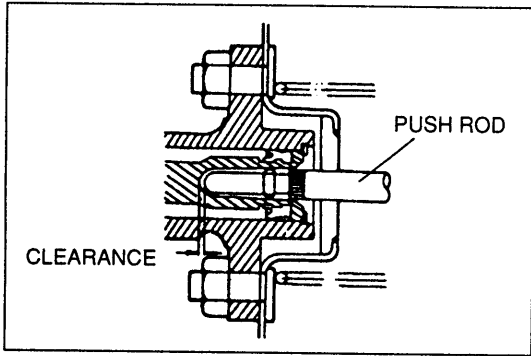


- (2) Apply 66.7 kPa { 500 mmHg , 19.7 inHg } vacuum to the power brake unit with a vacuum pump.



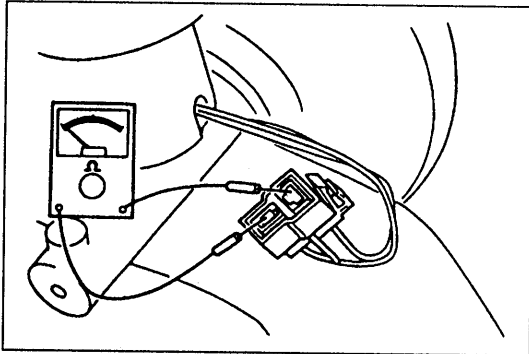
- (3) Invert the SST used in step 1, and place it on the power brake unit.
- (4) Measure the clearance between the end of the adjusting bolt and the push rod of the power brake unit.

If it is not 0 mm { 0 in }, loosen the push rod locknut and turn the push rod to make the adjustment.



- By making the above adjustment, the clearance between the push rod and piston (after installation of the brake master cylinder and the power brake unit) will be as shown in the table below.

	Clearance
When vacuum applied to unit is approx. 66.7 kPa { 500 mmHg , 19.7 inHg }	0.1—0.4 mm { 0.004—0.016 in }



Inspection

Fluid level sensor connector

- Disconnect the sensor connector.
- Connect an ohmmeter to the connector.
- Starting with the fluid level above the MIN mark on the reservoir, verify that there is no continuity.
- Remove the brake fluid and verify continuity when the level is below the MIN mark.
- Replace the sensor if necessary.

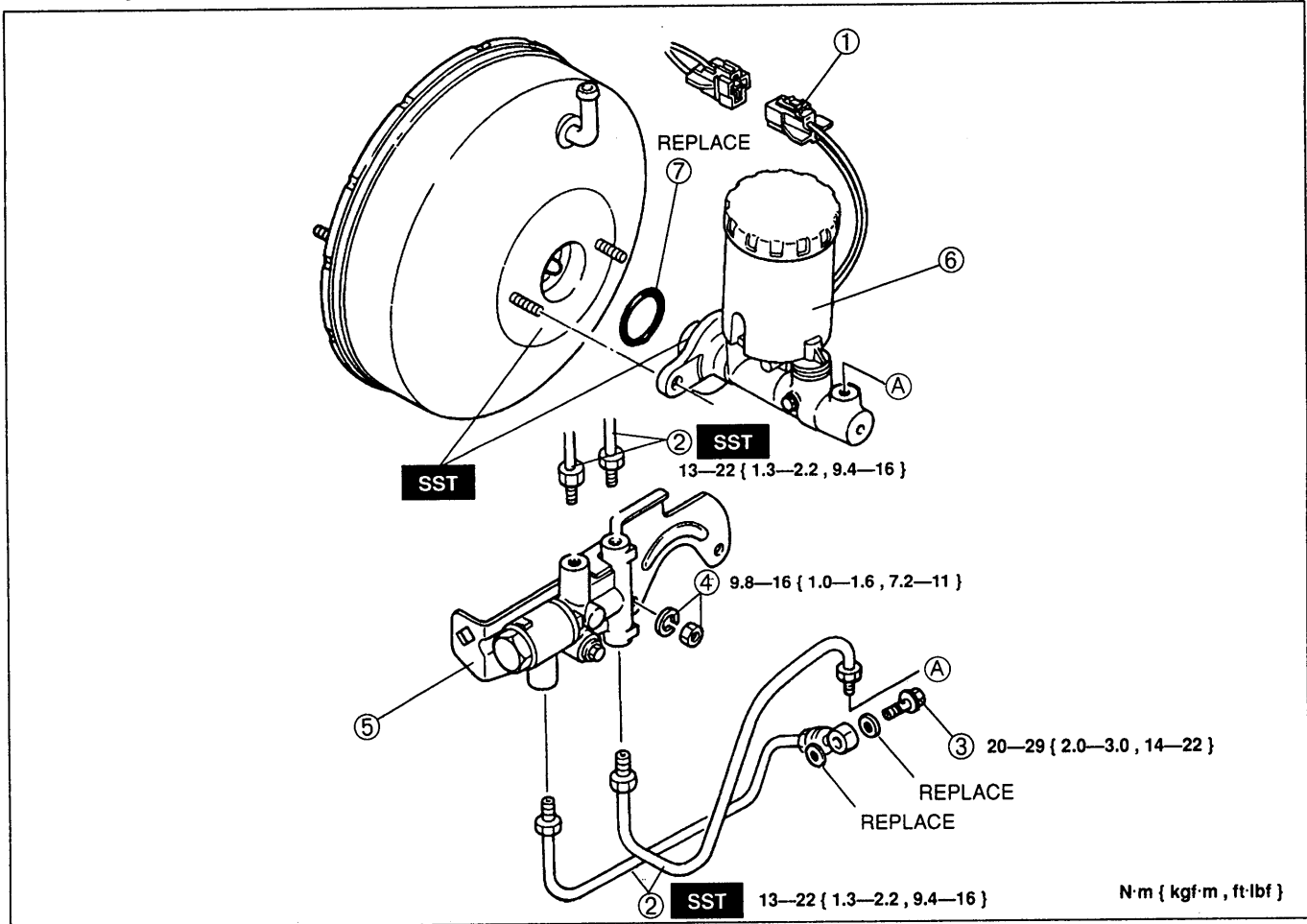
MASTER CYLINDER (ABS)

Removal / Installation / Inspection

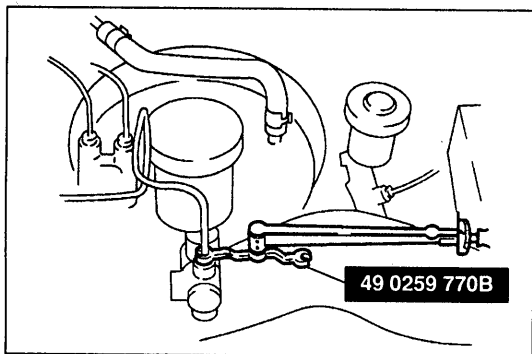
1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Install in the reverse order of removal, referring to **Installation Note**.
3. After installation, add brake fluid, bleed air, and check for fluid leakage.

Caution

- Brake fluid will damage painted surfaces. If it does get on a painted surface, wipe it off immediately.



- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Fluid level sensor connector
Inspection page P-17 2. Brake pipe
Removal Note page P-15 3. Connector bolt 4. Nut and washer | <ol style="list-style-type: none"> 5. Proportioning bypass valve and bracket 6. Master cylinder
Installation Note page P-15
Disassembly / Assembly /
Inspection page P-18 7. O-ring (ABS) |
|--|--|

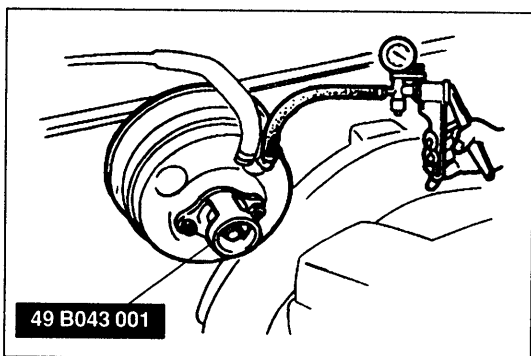
**Removal note****Brake pipe****Caution**

- Brake fluid will damage painted surfaces. If brake fluid does get on a painted surface, wipe it off immediately.

1. Modify the brake pipe tightening torque to allow for use of a torque wrench-SST combination. (Refer to section GI) "Torque Formulas"
2. Disconnect/connect the brake pipe from/to the master cylinder by using the SST.
3. Tighten the brake pipe by using the SST.

Tightening torque:

13—22 N·m { 1.3—2.2 kgf·m , 9.4—16 ft·lbf }

**Installation note****Master cylinder**

Inspect the push rod clearance as follows.

1. Turn the nut of the SST clockwise to fully retract the SST gauge rod. Attach the SST to the power brake unit.

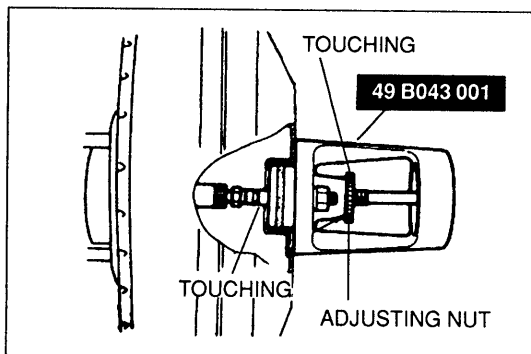
Tightening torque:

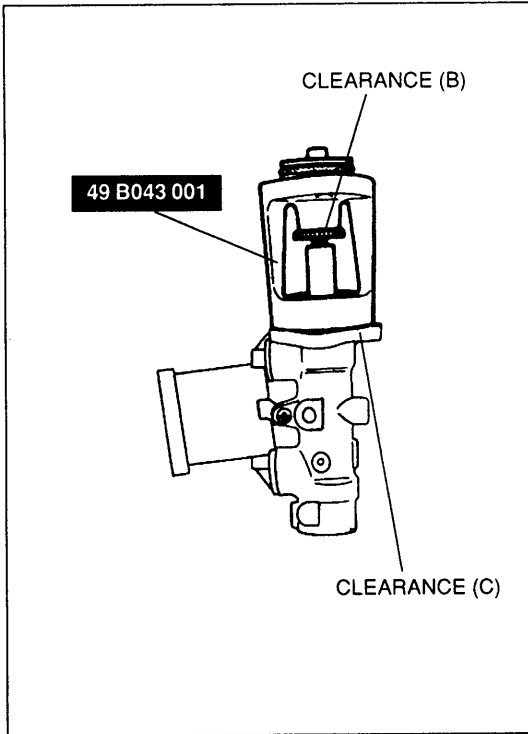
9.8—16 N·m { 1.0—1.6 kgf·m , 7.2—11 ft·lbf }

2. Apply 66.7 kPa { 500 mmHg , 19.7 inHg } vacuum using a vacuum pump.

3. Turn the adjusting nut of the SST counterclockwise until the gauge rod just contacts the push rod end of the power brake unit.

Push lightly on the end of the gauge rod to be sure it is seated. Verify that there is no gap between the adjusting nut and SST body.





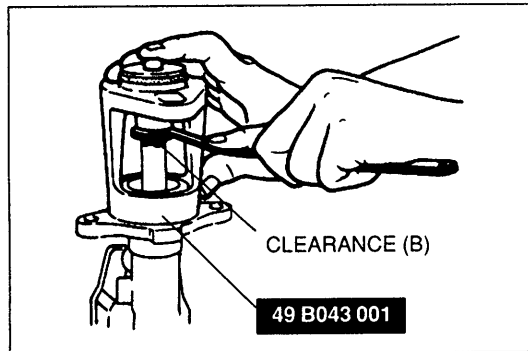
- Remove the **SST** from the power brake unit without disturbing the adjusting nut. Set the **SST** onto the master cylinder as shown in the figure.

Caution

- When pushing only use enough pressure to bottom the rod in the piston. If too much pressure is applied a false reading will occur.

- Push lightly on the end of the **SST** gauge rod to be sure it is bottomed in the master cylinder piston, but do not push so hard that the piston moves. Note Any clearance between the **SST** body and the adjusting nut (clearance B) or between the body and the master cylinder (clearance C). Adjust the push rod as necessary as outlined in "Adjustment" below.

Measurement	Push rod
Clearance at (B)	Too short
Clearance at (C)	Too long
No clearance at (B) or (C)	OK

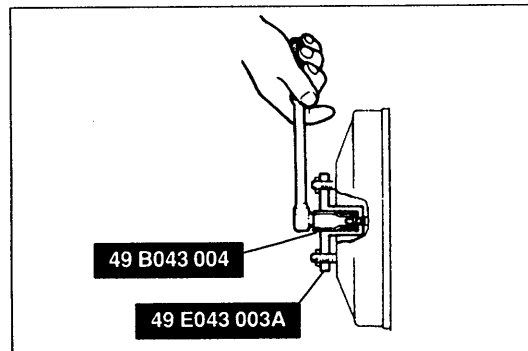


Adjustment

The threads of the push rod are specially designed so that the bolt becomes harder to turn past a certain point. This is to prevent the bolt from coming loose. Turn the bolt only within this range when adjusting.

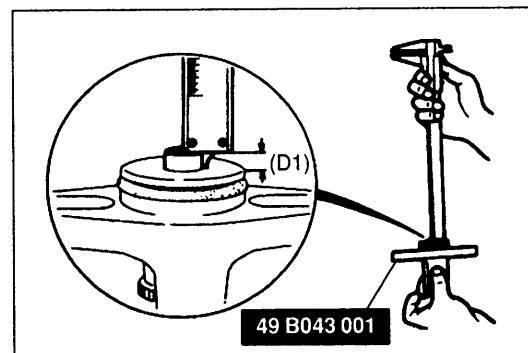
Clearance at B

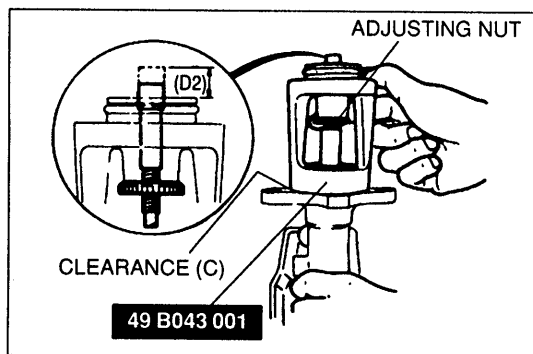
- Push lightly on the end of the **SST** gauge rod, and measure the clearance between the adjusting nut and the **SST** body.
- Using the **SST**, turn the nut to lengthen the power booster push rod an amount equal to the clearance measured at B.



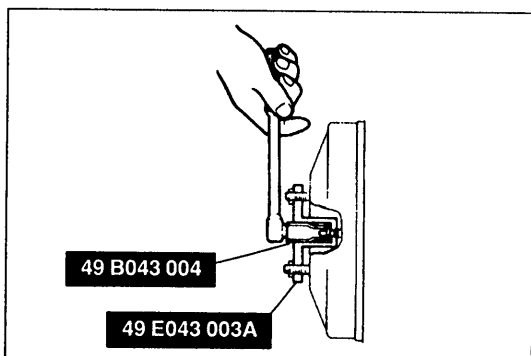
Clearance at C

- Measure and record height D1 of the gauge rod.

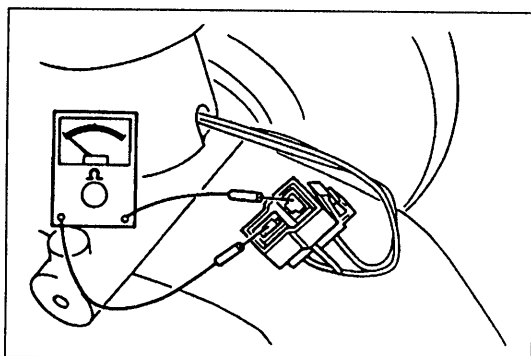




2. Turn the adjusting nut until the **SST** body sets squarely on the master cylinder. (Turn only enough for the body to touch.)
3. Measure and record height D2 of the gauge rod.



4. Subtract D1 from D2 and, by using the **SST**, turn the nut to shorten the power booster push rod an amount equal to the sum.



Inspection

Fluid level sensor connector

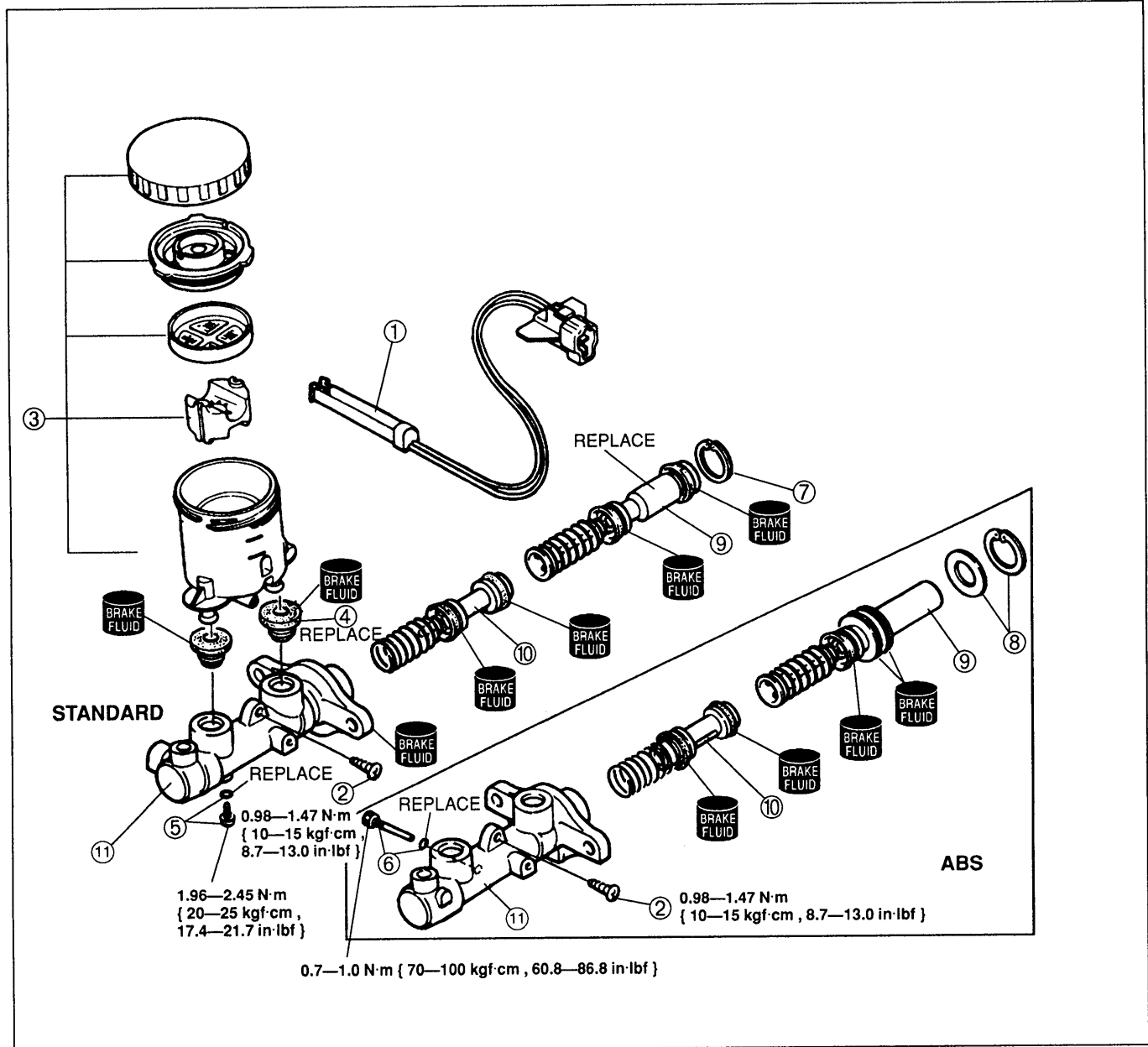
1. Disconnect the sensor connector.
2. Connect an ohmmeter to the connector.
3. Starting with the fluid level above the MIN mark on the reservoir, verify that there is no continuity.
4. Remove the brake fluid and verify continuity when the level is below the MIN mark.
5. Replace the sensor if necessary.

Disassembly / Inspection / Assembly

1. After removing the brake fluid, disassemble in the order shown in the figure.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of removal, referring to **Assembly Note**.

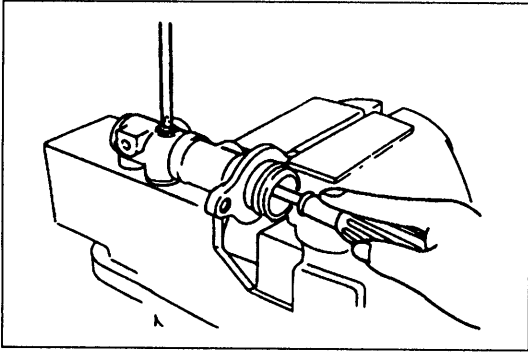
Caution

- The brake master cylinder is made of aluminum, and can be easily damaged by tightening in a vise. When securing the master cylinder in a vise, tighten only the master cylinder flange.

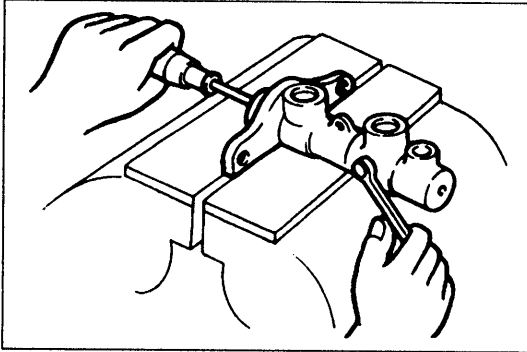


1. Fluid level sensor connector
Inspection page P-17
2. Screw
3. Reservoir assembly
Inspect for damage and deformation
4. Bushings
5. Stop screw and O-ring
Assembly Note page P-19
6. Stop pin and O-ring (ABS)
Assembly Note page P-19

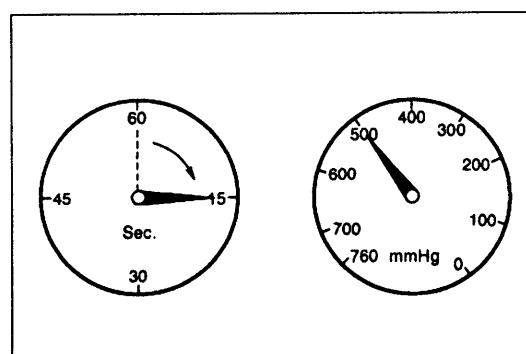
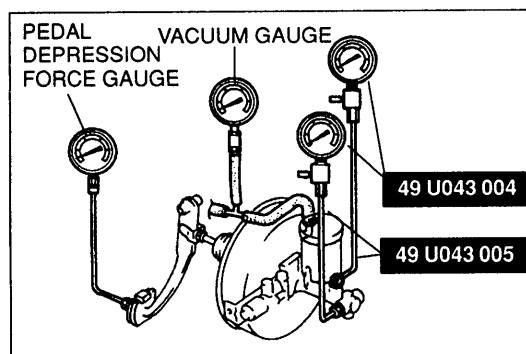
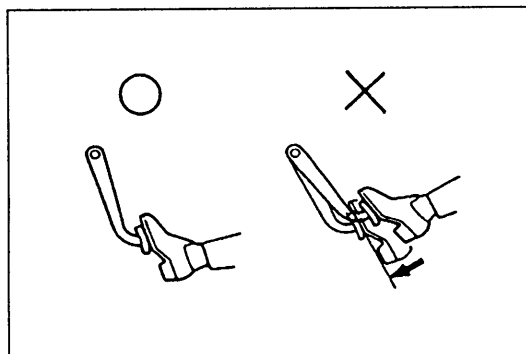
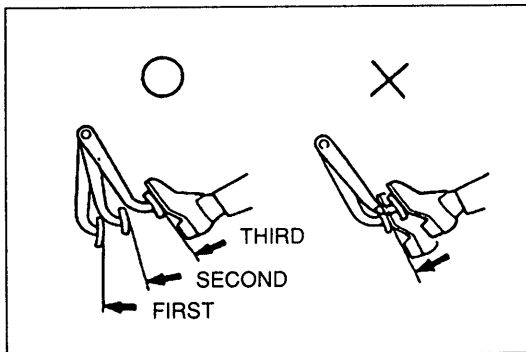
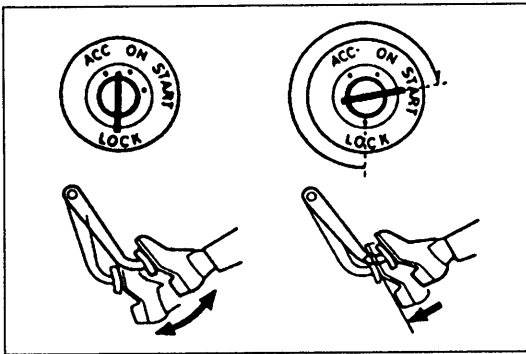
7. Snap ring
8. Snap ring and spacer (ABS)
9. Primary piston assembly
Inspect for abnormal wear, rust, and damage
10. Secondary piston assembly
Inspect for abnormal wear, rust, and damage
11. Master cylinder body
Inspect for abnormal wear, rust, and damage
Replace unit as an assembly if damaged

**Assembly note****Stop screw and O-ring**

1. Push the primary piston assembly in fully.
2. Install and tighten a new O-ring and the stop screw.
3. Push and release the piston to verify that it is held by the stop screw.

**Stop pin and O-ring (ABS)**

1. Install the secondary piston assembly with the piston hole facing the stop pin.
2. Install and tighten a new O-ring and the stop pin.
3. Push and release the piston to verify that it is held by the stop pin.



POWER BRAKE UNIT

Quick Inspection, On-vehicle

Power brake unit function check (Simple method)

Step 1

1. With the engine stopped, depress the pedal a few times.
2. With the pedal depressed, start the engine.
3. If immediately after the engine starts the pedal moves down slightly, the unit is operating.

Step 2

1. Start the engine and let it run **1 or 2 minutes**.
2. Stop the engine.
3. Depress the pedal with the usual force.
4. If the first pedal stroke is long and becomes shorter with subsequent strokes, the unit is operating.
5. If a problem is found, inspect for damage or improper connection of the check valve or vacuum hose. Repair if necessary, and inspect it once again.

Step 3

1. Start the engine.
2. Depress the pedal with the usual force.
3. Stop the engine with the pedal depressed.
4. Hold the pedal down for **about 30 seconds**.
5. If the pedal height does not change, the unit is operating.
6. If there is a problem, check for damage or improper connection of the check valve or vacuum hose. Repair if necessary, and check once again.

If the nature of the problem is still not clear after following the 3 steps above, follow the more detailed check described in "Method using tester," below.

(Method using tester)

Connect the **SST**, vacuum gauge, and pedal depression force gauge as shown in the figure. After bleeding the air from the **SST**, conduct the test as described in the 3 steps below.

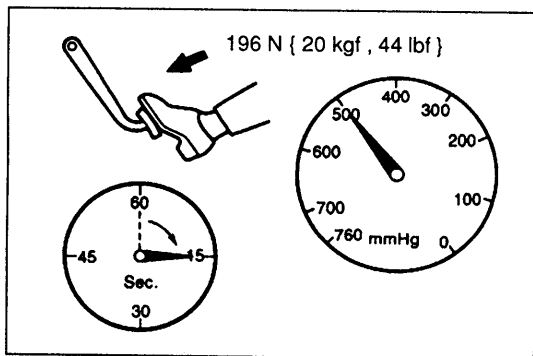
Inspection using gauges

Connect the **SST** gauges, a vacuum gauge, and a pedal depression gauge as shown. Bleed the air from the **SST** gauges before performing the following tests.

a) Checking for vacuum loss

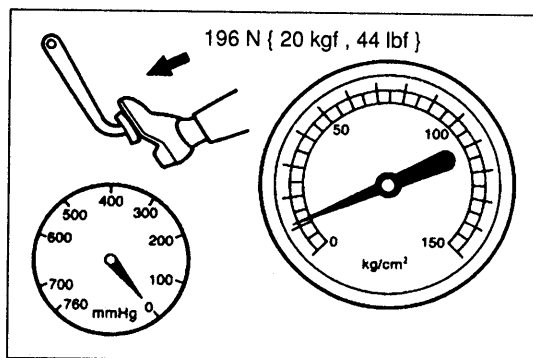
Unloaded condition

1. Start the engine.
2. Stop the engine when the vacuum gauge indicates **66.7 kPa { 500 mmHg , 19.7 inHg }**.
3. Observe the vacuum gauge for **15 seconds**. If the gauge indicates **63.4—66.6 kPa { 475—500 mmHg , 18.7—19.7 inHg }**, the unit is operating.



Loaded condition

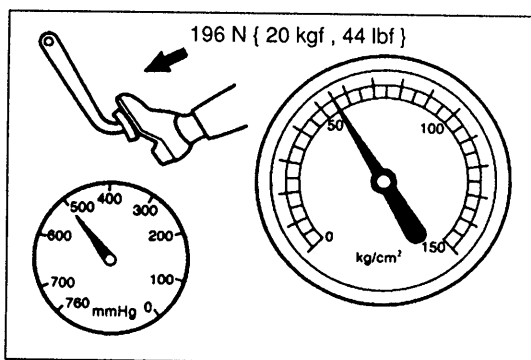
1. Start the engine.
2. Depress the brake pedal with a force of **196 N { 20 kgf , 44 lbf }**.
3. With the brake pedal depressed, stop the engine when the vacuum gauge indicates **66.7 kPa { 500 mmHg , 19.7 inHg }**.
4. Observe the vacuum gauge for **15 seconds**. If the gauge indicates **63.4—66.6 kPa { 475—500 mmHg , 18.7—19.7 inHg }**, the unit is operating.



b) Checking for hydraulic pressure

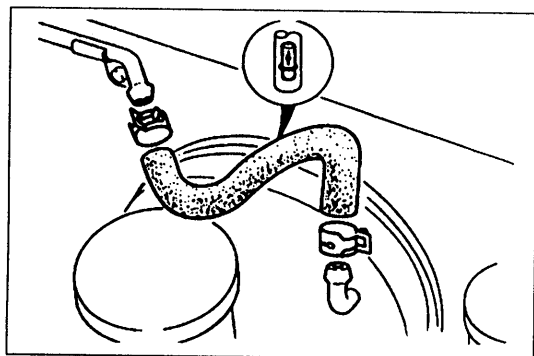
1. If with the engine stopped (**vacuum 0 kPa { 0 mmHg , 0 inHg }**) the fluid pressure is within specification, the unit is operating.

Pedal force	Fluid pressure
196 N { 20 kgf , 44 lbf }	1,079—1,177 kPa { 11—12 kgf/cm ² , 156—171 psi }



2. Start the engine. Depress the brake pedal when the vacuum reaches **66.7 kPa { 500 mmHg , 19.7 inHg }**. If the fluid pressure is within specification, the unit is operating.

Pedal force	Fluid pressure
196 N { 20 kgf , 44 lbf }	5,199—5,494 kPa { 53—56 kgf/cm ² , 754—796 psi }



Inspection of Check Valve

Note

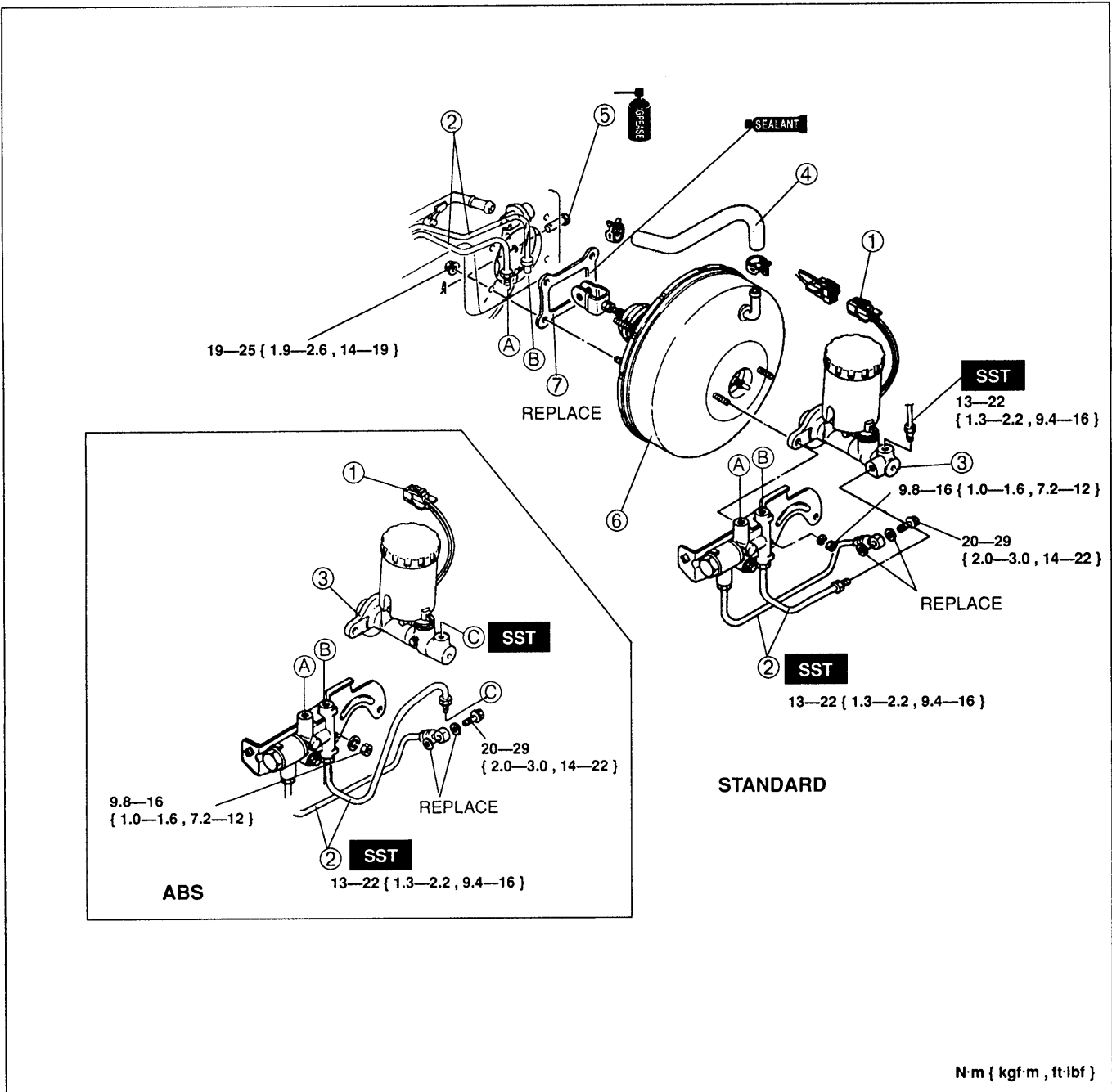
- There is an arrow on the hose to indicate direction of hose installation.

Inspection

1. Disconnect both ends of the vacuum hose.
2. Apply suction and pressure to the hose from the engine side. Verify that air flows only toward the engine. If air passes in both directions or not at all, replace the vacuum hose (along with the check valve).

Removal / Installation

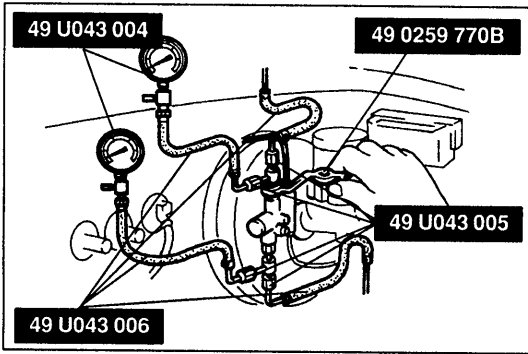
1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.
3. Take the following steps after installation:
 - (1) Check and adjust the push rod and piston clearance.
(Standard: refer to page P-12 / ABS: refer to page P-15.)
 - (2) Add fluid and bleed the air. (Refer to page P-7.)
 - (3) Check all parts for fluid leakage.
 - (4) Check and adjust the brake pedal height and free play. (Refer to page P-9.)
 - (5) Make an on-vehicle check of the unit. (Refer to page P-20.)
 - (6) Check that the vacuum hose does not contact other parts.



1. Fluid level sensor connector
2. Brake pipe and proportioning bypass valve
3. Master cylinder
4. Vacuum hose with check valve

5. Clevis pin
6. Power brake unit
7. Gasket

Apply sealant to the gasket contact surface



PROPORTIONING BYPASS VALVE

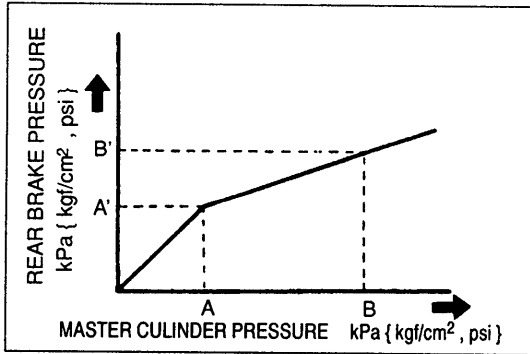
Inspection

When disconnecting and connecting the brake pipes, do so by using the flare nut wrench **SST**.

1. Connect the **SSTs** and the adapters to the brake pipes as shown in the figure.
2. Bleed the air from the brake system. (Refer to page P-7.)
3. Measure the fluid pressure from the master cylinder and to the rear brakes. If not as specified, replace the valve assembly.

Specification

	Fluid pressure kPa { kgf/cm ² , psi }			
	A	A'	B	B'
NON ABS	2,943 { 30 , 427 }	2,943 { 30 , 427 } ± 294 { 3 , 43 }	5,884 { 60 , 850 }	4,120 { 42 , 597 } ± 392 { 4 , 57 }
ABS	3,923 { 40 , 569 }	3,923 { 40 , 569 } ± 294 { 3 , 43 }	5,884 { 60 , 850 }	4,707 { 48 , 683 } ± 392 { 4 , 57 }



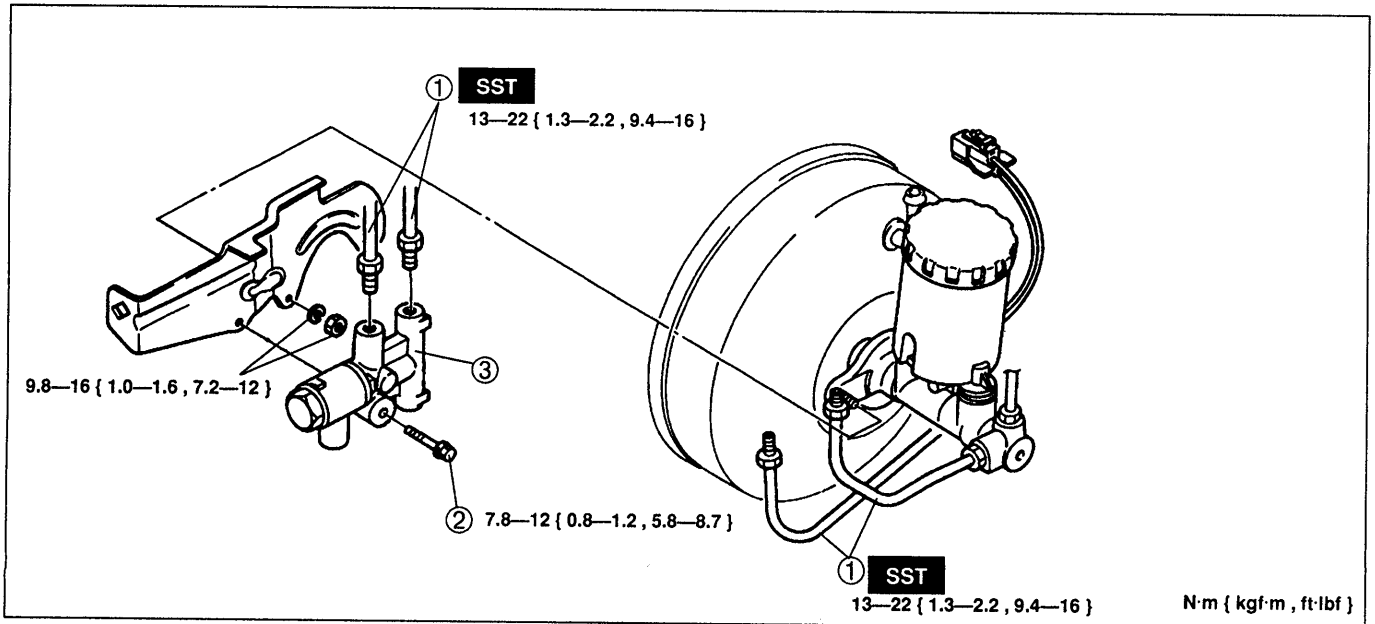
4. Add brake fluid and bleed the air. (Refer to page P-7.)
5. Check the brake lines for fluid leakage.

Replacement

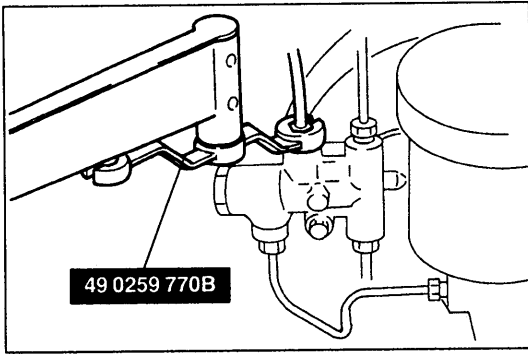
Caution

- Brake fluid will damage painted surfaces. If brake fluid does get on a painted surface, wipe it off immediately.

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Install in the reverse order of removal, referring to **Installation Note**.
3. After installation:
 - (1) Add brake fluid and bleed the air. (Refer to page P-7.)
 - (2) Check the brake lines for fluid leakage.



1. Brake pipe
Removal Note page P-24
Installation Note page P-24
2. Bolt
3. Proportioning bypass valve

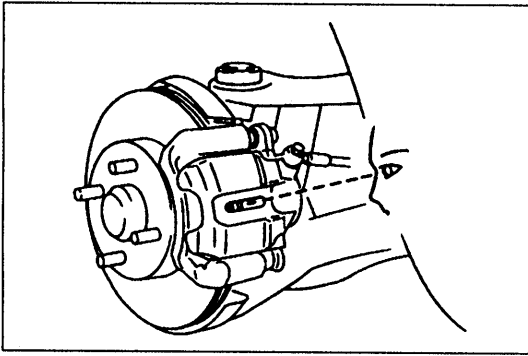
**Removal / Installation note****Brake pipe****Caution**

- Brake fluid will damage painted surfaces. If brake fluid does get on a painted surface, wipe it off immediately.

1. Modify the brake pipe tightening torque to allow for use of a torque wrench-SST combination. (Refer to section GI) "Torque Formulas"
2. Disconnect/connect the brake pipes by using the SST.
3. Tighten the brake pipe by using the SST.

Tightening torque:

13—22 N·m { 1.3—2.2 kgf·m , 9.4—16 ft·lbf }



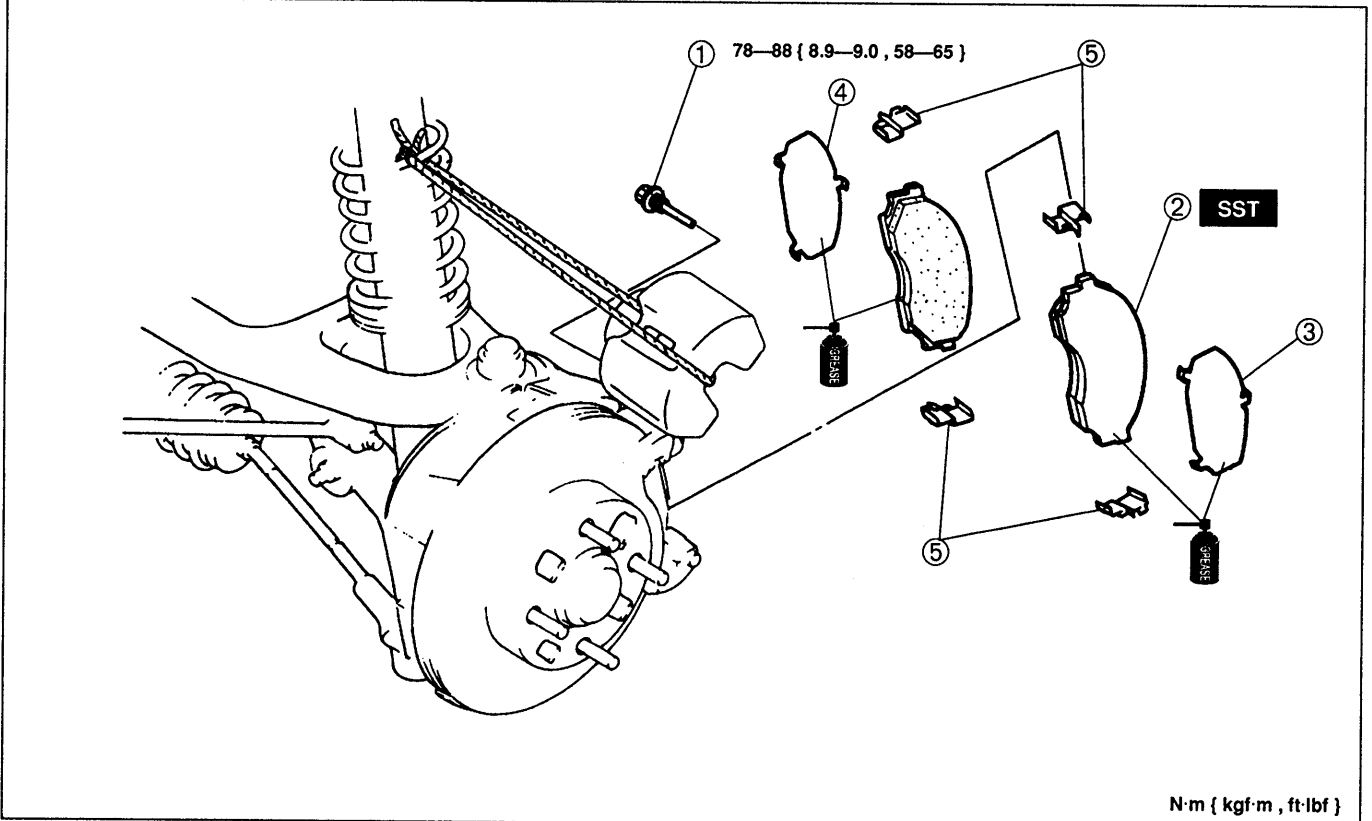
**FRONT BRAKE (DISC)
Quick Inspection, On-vehicle
Disc pad**

1. On level ground, jack up the front of the vehicle and support it with safety stands.
2. Remove the wheels.
3. Sight through the caliper inspection hole and verify the remaining thickness of the pad.

Thickness: 1.0 mm { 0.04 in } min.

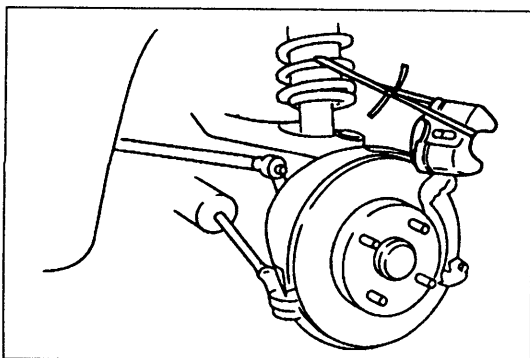
Replacement (Disc pad)

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Install in the reverse order of removal, referring to **Installation Note**.



N·m { kgf·m , ft·lbf }

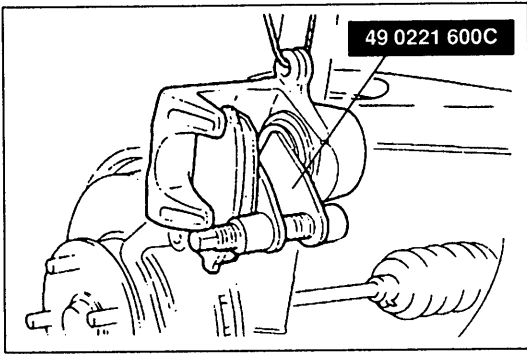
- | | |
|-------------------------|----------------|
| 1. Lock bolt | 3. Outer shim |
| Removal Note | 4. Inner shim |
| below | 5. Guide plate |
| 2. Disc pad | |
| Installation Note | |
| page P-26 | |



Removal note

Lock bolt

1. Remove the lower lock bolt.
2. Rotate the caliper upward and support it with a piece of rope.



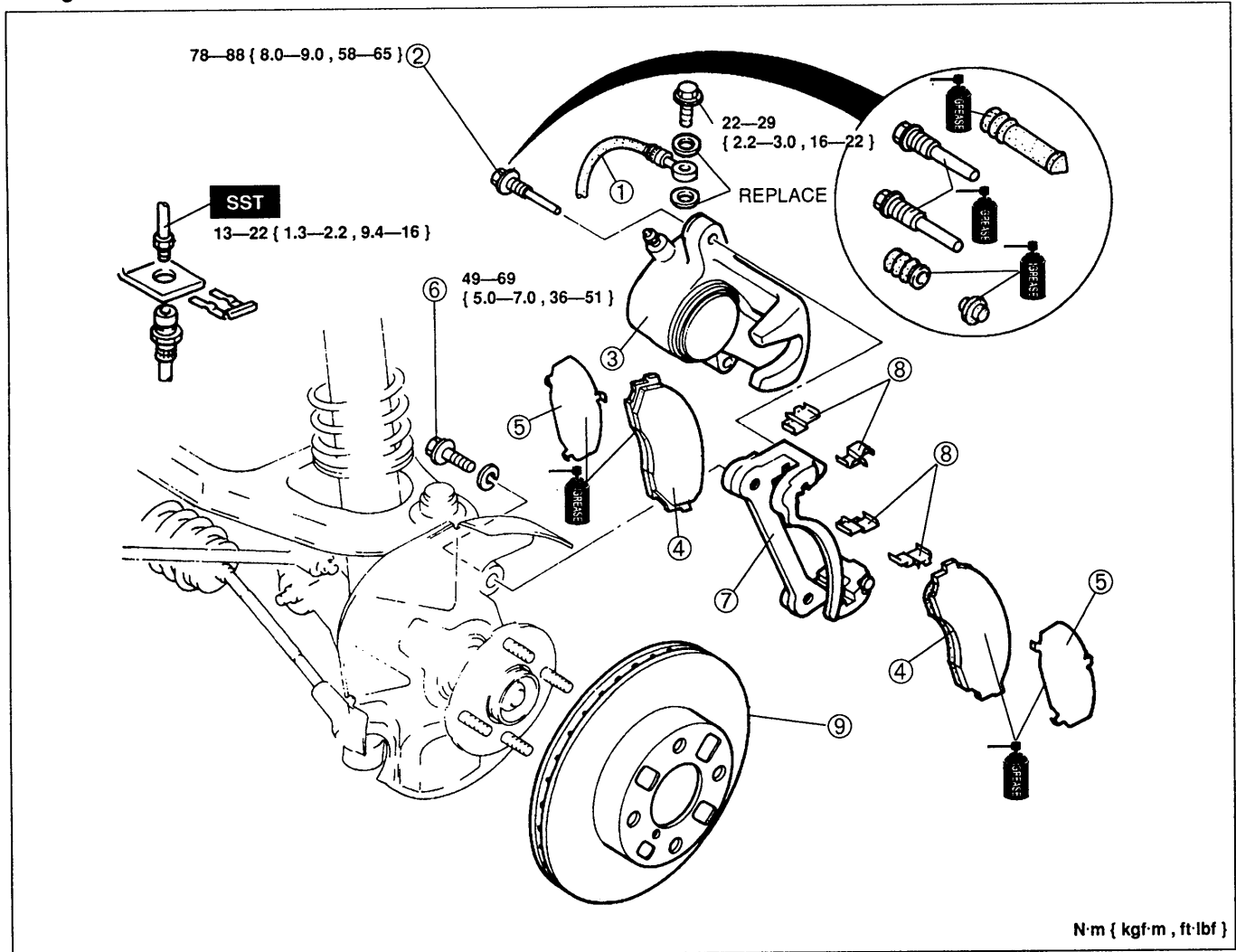
Installation note

Disc pad

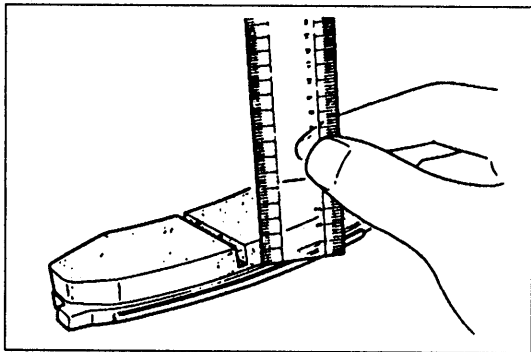
1. Push the piston inward by using the **SST**.
2. Install the new pads in the mounting support.

Removal / Installation (Caliper)

1. On level ground, jack up the front of the vehicle and support it with safety stands.
2. Remove the wheels; then remove components in the order shown in the figure.
3. Install in the reverse order of removal.
4. Tighten all nuts and bolts to the specified torques, referring to the figure.



- | | |
|----------------------------|----------------------------|
| 1. Brake hose | 5. Shim |
| 2. Connecting bolt | 6. Bolt |
| 3. Caliper | 7. Mounting support |
| Disassembly / Inspection / | 8. Guide plate |
| Assembly page P-28 | 9. Disc plate |
| 4. Disc pad | Inspection page P-27 |
| Inspection page P-27 | |

**Inspection**

Check the following and repair or replace parts as necessary.

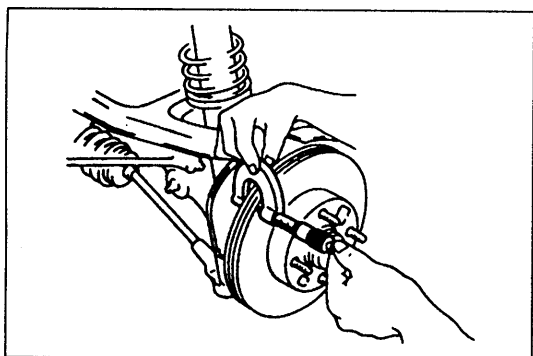
Disc pad

1. Oil or grease on facing.
2. Abnormal wear or cracks.
3. Deterioration or damage by heat.
4. Remaining lining thickness.

Thickness

Standard: 8.0 mm { 0.31 in }

Minimum: 1.0 mm { 0.04 in }

**Disc plate thickness**

1. Measure the thickness of the disc plate.

Caution

- Runout will increase if the machining is performed off-vehicle.

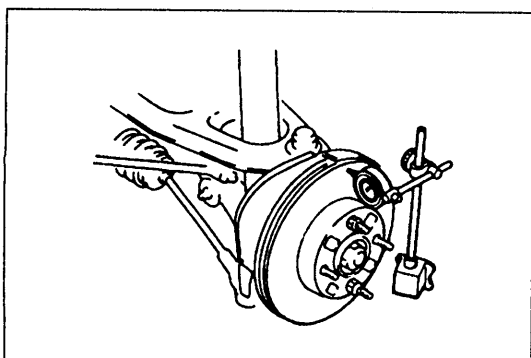
Standard : 20.0 mm { 0.79 in }

Minimum : 18.0 mm { 0.71 in }

Minimum thickness after machining by using a brake lathe on-vehicle

: 18.8 mm { 0.74 in }

2. If the thickness is not within the specification, replace the disc plate.

**Disc plate runout**

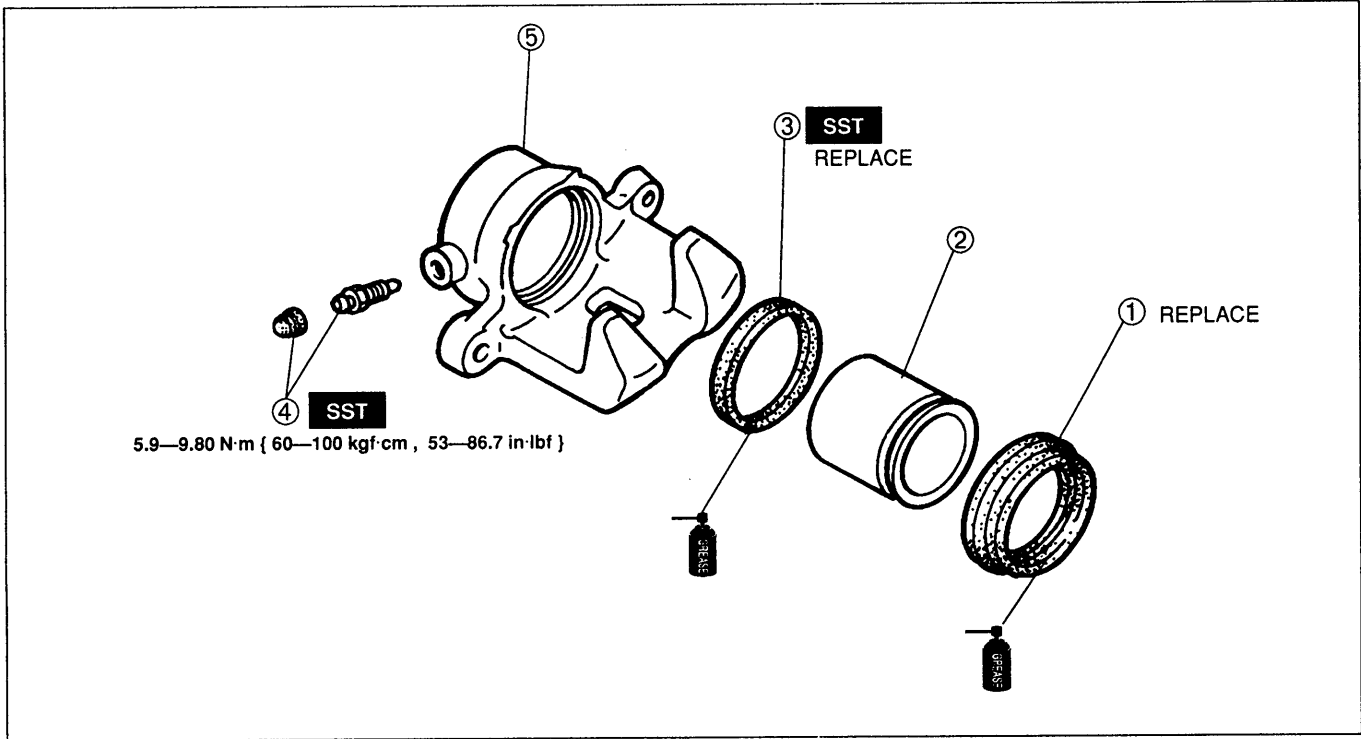
Tighten the disc plate to the wheel hub by using two wheel nuts. When measuring runout, measure at the outer edge of the disc plate surface.

Runout: 0.05 mm { 0.002 in } max.

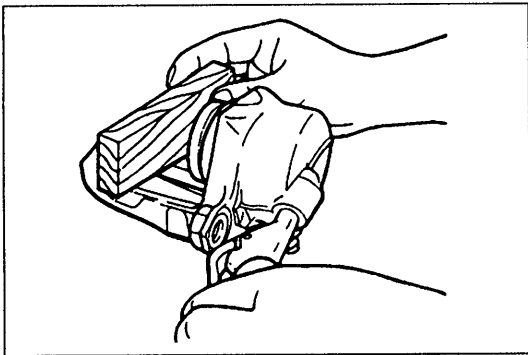
CALIPER

Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and repair or replace as necessary.
3. Install in the reverse order of removal.



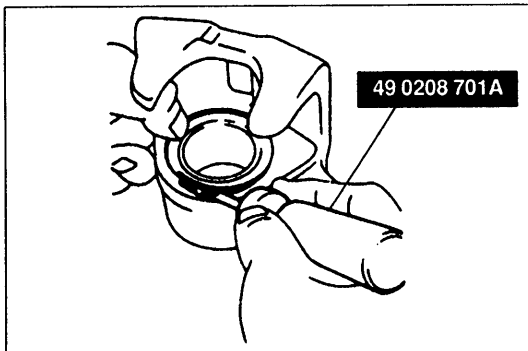
- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Dust seal
Inspect for damage and poor sealing 2. Piston
Disassembly Note below
Inspect for wear and rust | <ol style="list-style-type: none"> 3. Piston seal
Disassembly Note below 4. Bleeder screw and bleeder cap 5. Caliper body
Inspect for damage and cracks |
|--|--|



Disassembly note

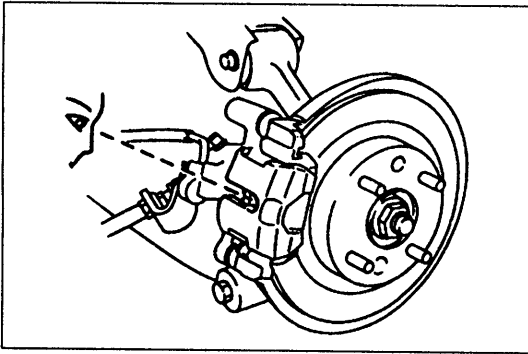
Piston

1. Place a piece of wood in the caliper.
2. Gently blow compressed air through the hole to force the piston out of the caliper.



Piston seal

Remove the piston seal by using the SST.



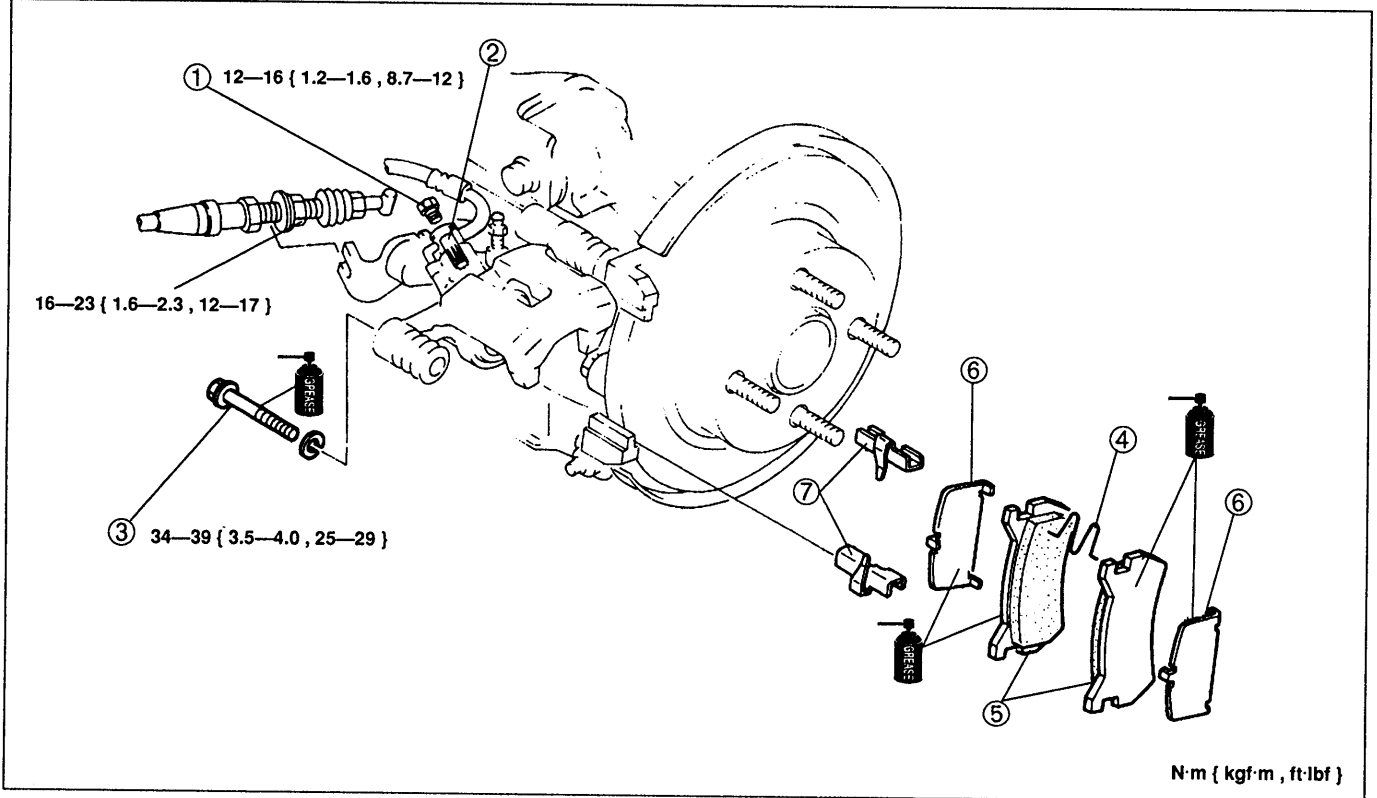
**REAR BRAKE (DISC)
Quick Inspection, On-vehicle
Disc pad**

1. On level ground, jack up the rear of the vehicle and support it with safety stands.
2. Remove the wheels.
3. Sight through the caliper inspection hole and verify the remaining thickness of the pad.

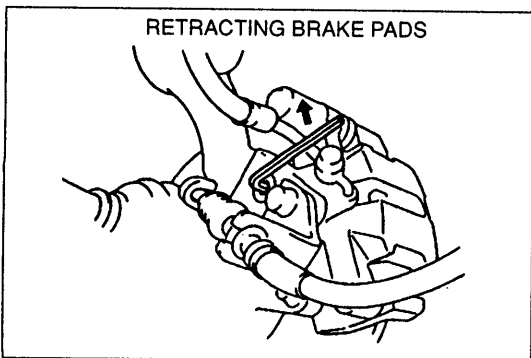
Thickness: 1.0 mm { 0.04 in } min.

Replacement (Disc pad)

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Install in the reverse order of removal, referring to **Installation Note**.



- | | |
|-----------------------------------|----------------------------|
| 1. Plug | 4. M-spring |
| 2. Manual adjustment gear | 5. Disc pad |
| Removal Note below | Inspection page P-31 |
| Installation Note page P-30 | 6. Shim |
| 3. Lock bolt | 7. Guide plate |

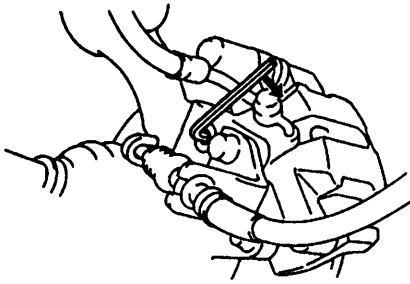


Removal note

Manual adjustment gear

Turn the manual adjustment gear counterclockwise with an Allen wrench to pull the brake caliper piston back.

ADJUSTING BRAKE PADS



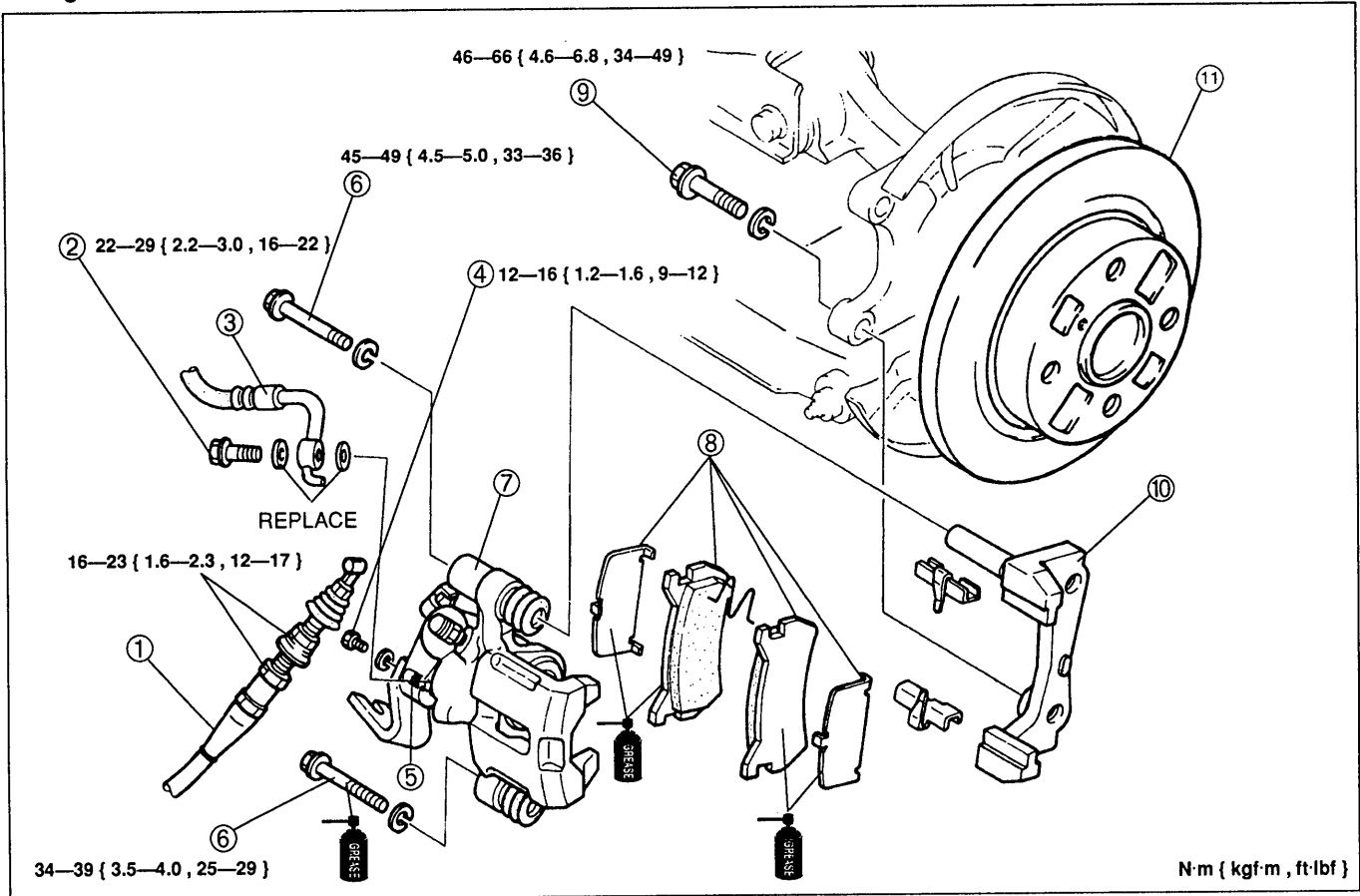
Installation note

Manual adjustment gear

1. Turn the manual adjustment gear clockwise until the brake pads just touch the disc plate.
2. Return the manual adjustment gear counterclockwise 1/3 turn.

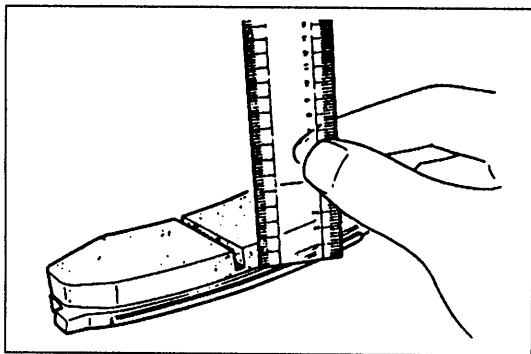
Removal / Installation (Caliper)

1. On level ground, jack up the rear of the vehicle and support it with safety stands.
2. Remove the wheels; then remove components in the order shown in the figure, referring to **Removal Note**.
3. Install in the reverse order of removal, referring to **Installation Note**.
4. Inspect all parts and repair or replace as necessary.
5. Tighten all nuts and bolts to the specified torques, referring to the figure.



1. Parking brake cable
Removal / Inspection /
Installation page P-36
2. Connecting bolt
3. Brake hose
4. Plug
5. Manual adjustment gear
Removal Note page P-29
Installation Note above
6. Lock bolt

7. Caliper
Disassembly / Inspection /
Assembly page P-32
8. Disc pad
Replacement page P-29
Inspection page P-31
9. Bolt
10. Mounting support
11. Disc plate
Inspection page P-31

**Inspection**

Check the following and repair or replace parts as necessary.

Disc pad

1. Oil or grease on facing.
2. Abnormal wear or cracks.
3. Deterioration or damage by heat.
4. Remaining lining thickness.

Specified thickness : 8.0mm { 0.31 in }

Minimum : 1.0mm { 0.04 in }

Disc plate thickness

1. Measure the thickness of the disc plate.

Caution

- Runout will increase if the machining is performed off-vehicle.

Thickness

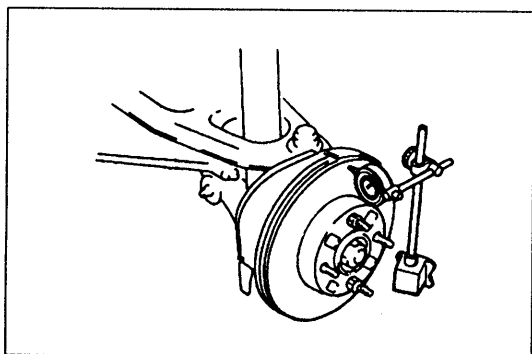
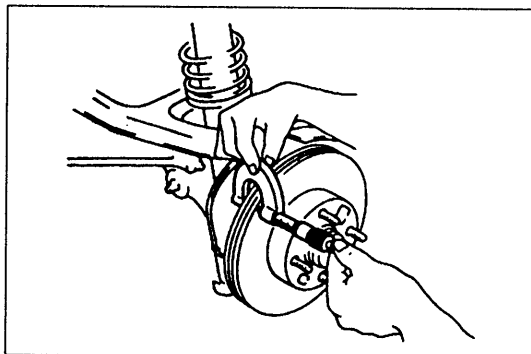
Standard : 9.0 mm { 0.35 in }

Minimum : 8.0 mm { 0.31 in }

Minimum thickness after machining by using a brake lathe on-vehicle

: 8.4 mm { 0.33 in }

2. If the thickness is not within the specification, replace the disc plate.

**Disc plate runout**

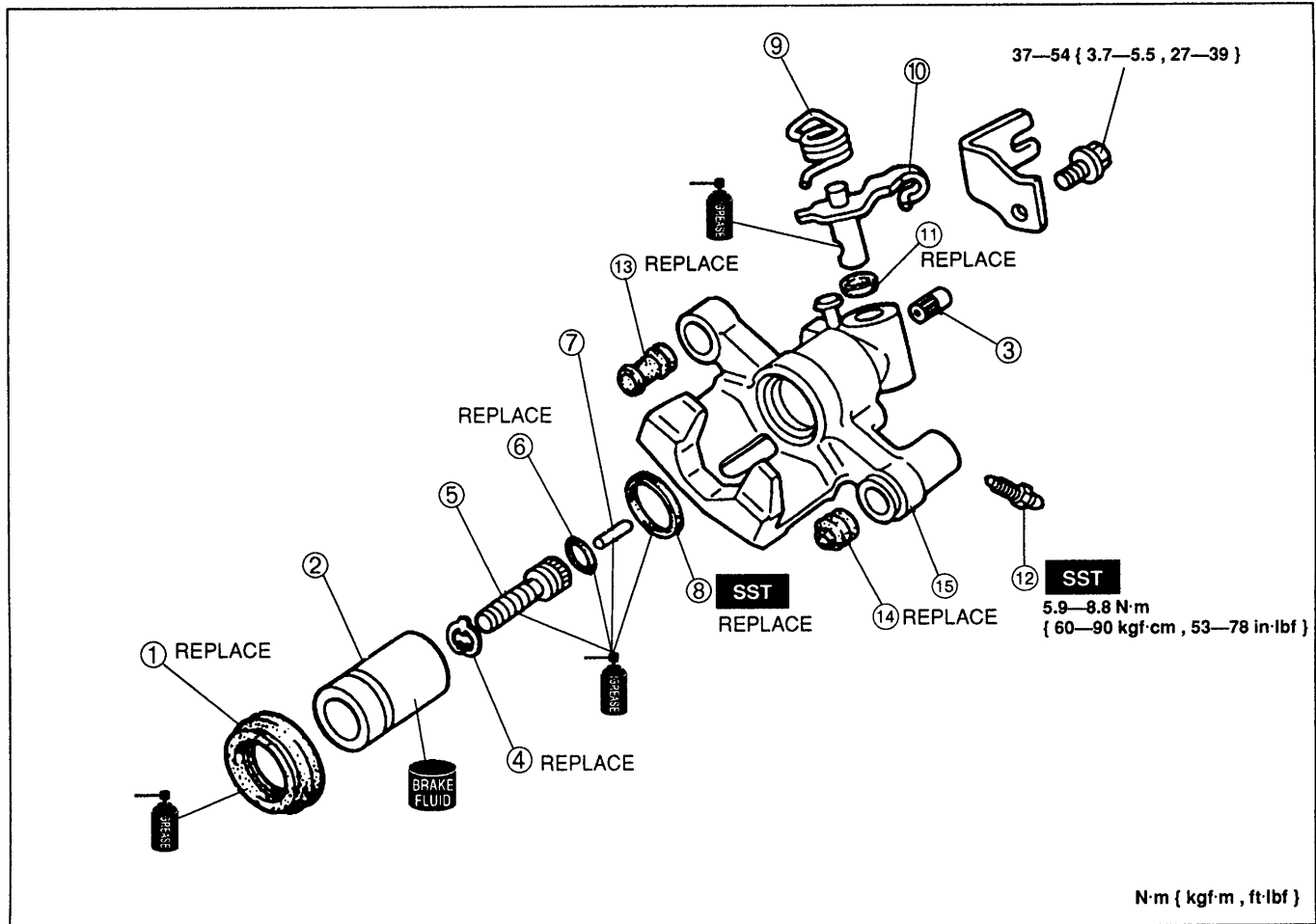
Tighten the disc plate to the wheel hub by using two wheel nuts. When measuring runout, measure at the outer edge of the disc plate surface.

Runout: 0.05 mm { 0.002 in } max.

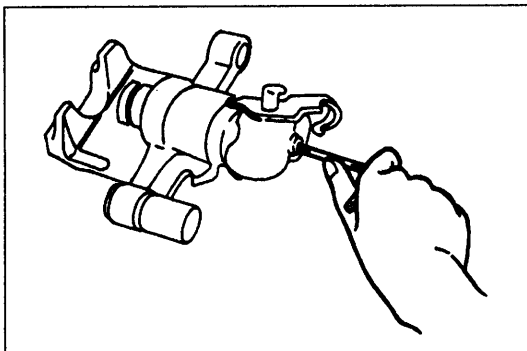
CALIPER

Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Assemble in the reverse order of disassembly, referring to **Assembly Note**.



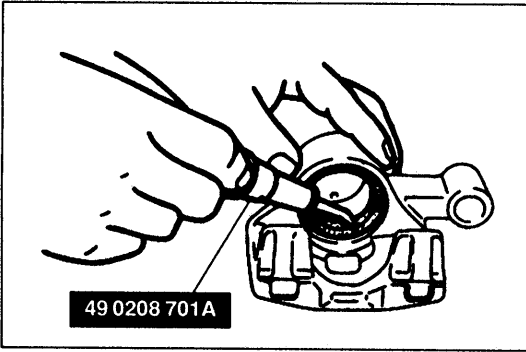
- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Dust seal
Inspect for damage and poor sealing 2. Piston
Disassembly Note below
Assembly Note page P-33
Inspect for wear and rust 3. Manual adjustment gear 4. Snap ring 5. Adjusting bolt 6. O-ring 7. Connecting link | <ol style="list-style-type: none"> 8. Piston seal
Disassembly Note page P-33 9. Spring 10. Operating lever 11. Boot 12. Cap and bleeder screw 13. Boot 14. Boot 15. Caliper body
Inspect for damage and cracks |
|---|--|



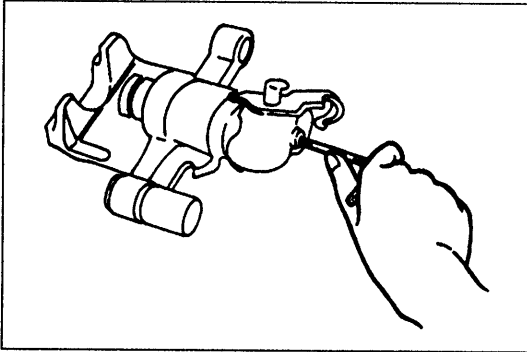
Disassembly note

Piston

1. Turn the manual adjustment gear clockwise with an Allen wrench. (Turn the manual adjustment gear until it turns easily.)
2. Remove the piston.

**Piston seal**

Remove the piston seal by using the SST.

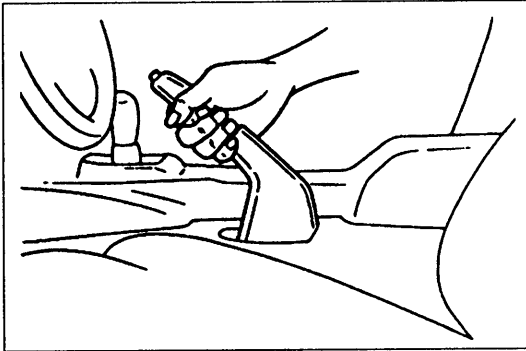
**Assembly note****Piston**

Insert the piston into the caliper and turn the adjustment gear counterclockwise with an Allen wrench to pull the piston in fully. (Turn the adjustment gear until it stops.)

PARKING BRAKE SYSTEM

TROUBLESHOOTING GUIDE

Problem	Possible cause	Action	Page
Brakes do not release	Improper return of parking brake cable or improper adjustment	Repair or adjust	P-36
Parking brake does not hold well	Excessive lever stroke Brake cable stuck or damaged Brake fluid or oil on pads Hardening of pad surfaces or poor contact	Adjust Repair or replace Clean or replace Grind or replace	P-34 P-36 P-29, 30 P-29, 30

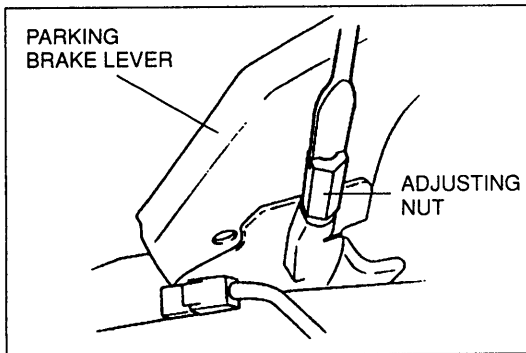


PARKING BRAKE LEVER

Inspection

1. Depress the brake pedal several times.
2. Verify that the stroke is within specification when the parking brake lever is pulled with a force of **196 N { 20 kgf , 44 lbf }**.

Stroke: 7—9 notches

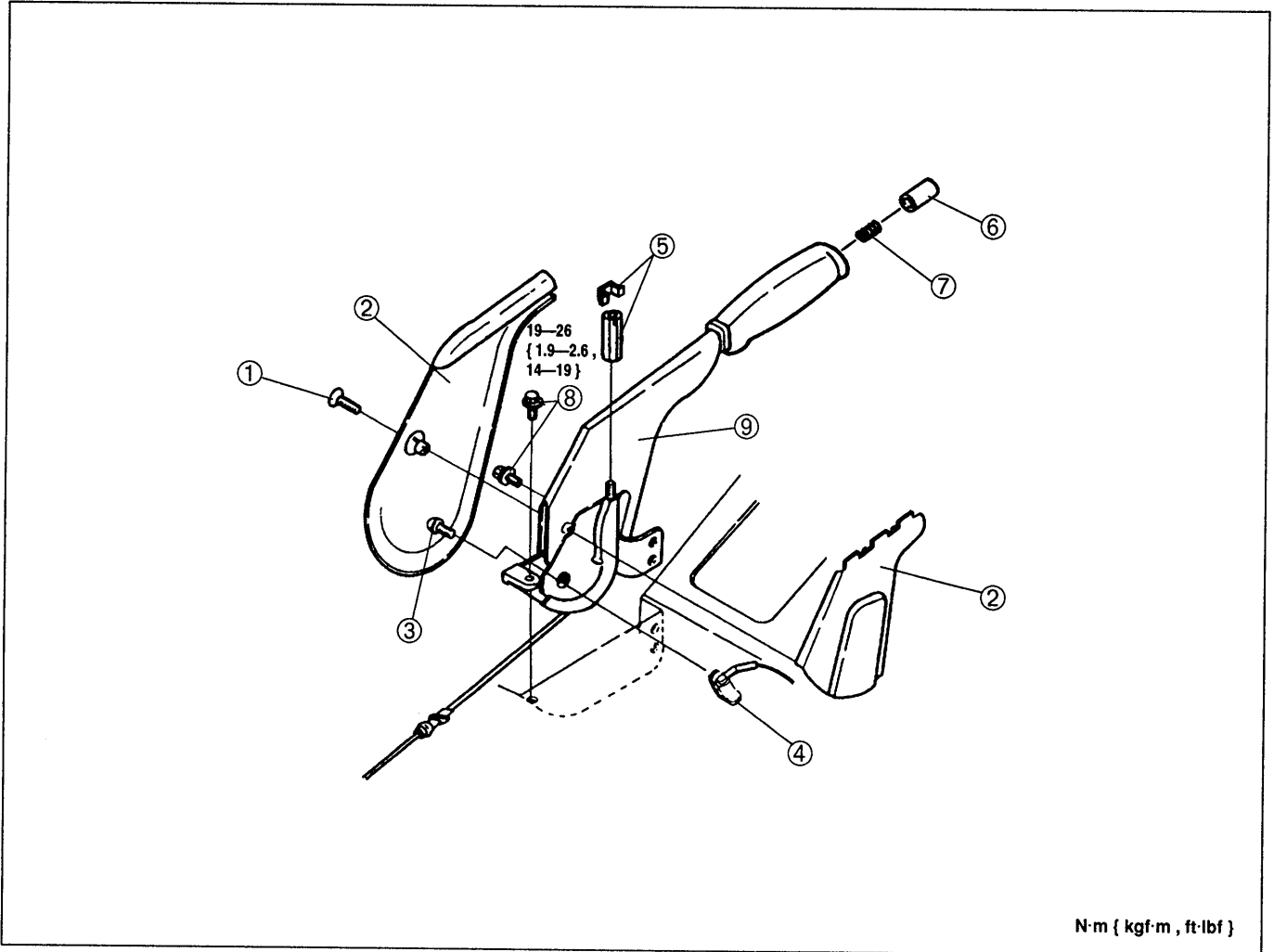


Adjustment

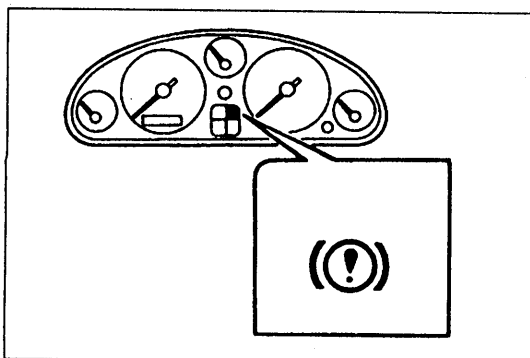
1. On level ground, jack up the rear of the vehicle until the wheels are free to turn, and support it with stands.
2. Depress the brake pedal several times.
3. Remove the cover.
4. Turn the adjusting nut to adjust the lever stroke.
5. Depress the parking brake pedal one notch, and verify that the parking brake warning light comes on. Release the parking brake.
6. Turn the wheels by hand, and verify that the brakes do not drag.
7. Lower the vehicle.

Removal / Inspection / Installation

1. Block the wheels firmly.
2. Release the parking brake.
3. Remove in the order shown in the figure.
4. Inspect all parts and repair or replace as necessary.
5. Install in the reverse order of removal, referring to **Installation Note**.
6. After installation, adjust the parking lever stroke. (Refer to page P-34.)



- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Screw 2. Cover 3. Bolt 4. Parking brake switch
Installation Note below 5. Adjusting nut and clip | <ol style="list-style-type: none"> 6. Release button 7. Spring
Inspect for weakness 8. Bolt 9. Parking brake lever
Inspect for damage and cracks |
|---|--|



Installation note

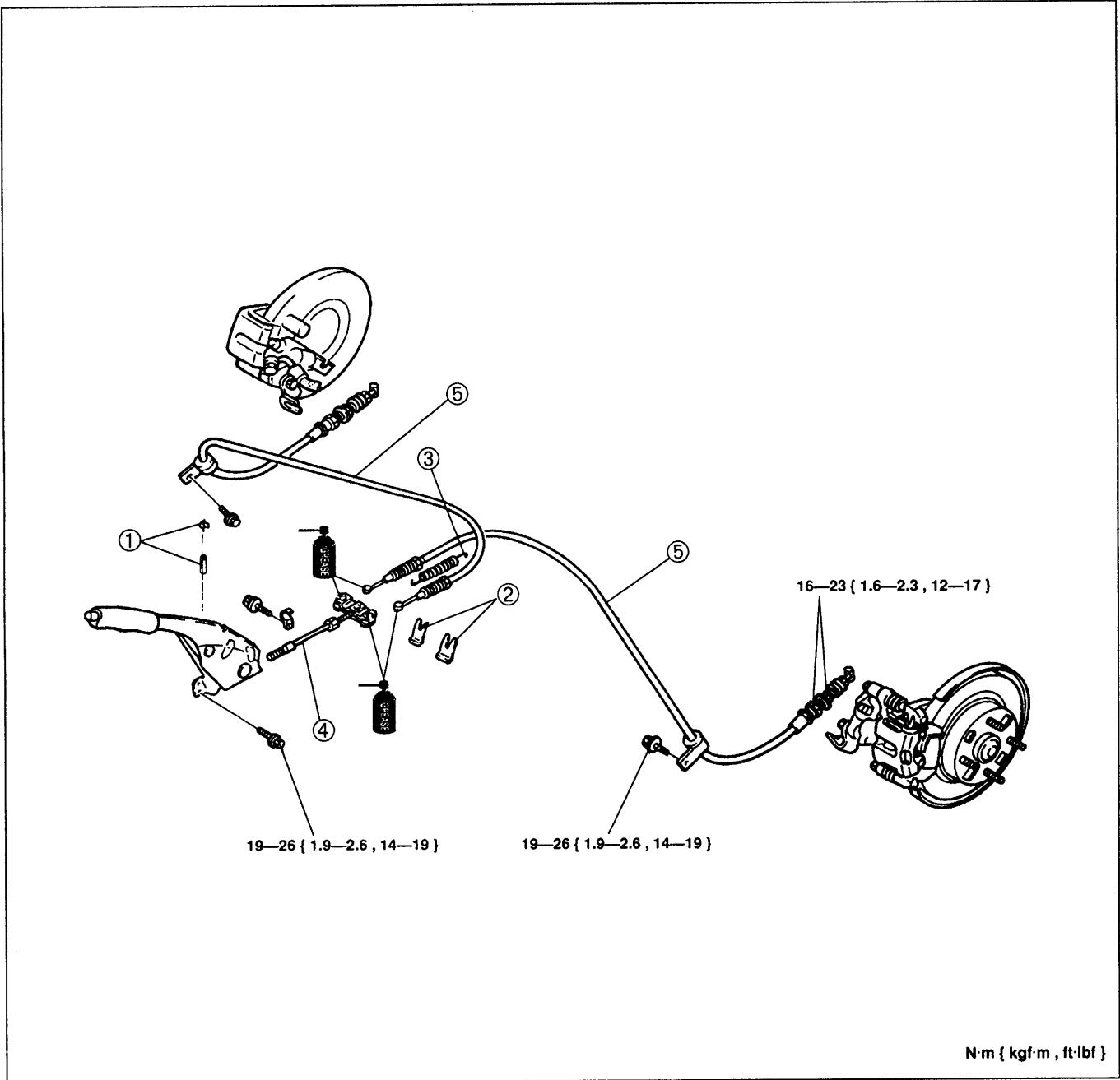
Parking brake switch

1. Install the parking brake switch so that it contacts the parking brake lever when the lever is fully released.
2. Turn the ignition switch ON, and verify that the parking brake warning light illuminates with the lever pulled up one notch.

PARKING BRAKE CABLE

Removal / Inspection / Installation

1. Block the wheels firmly.
2. Release the parking brake.
3. Remove the parking brake lever.
4. On level ground, jack up the vehicle and support it evenly on safety stands.
5. Remove the parking brake cable in the order shown in the figure.
6. Install in the reverse order of removal.
7. After installation:
 - (1) Adjust the parking brake lever stroke. (Refer to page P-34.)
 - (2) Depress the brake pedal a few times.
 - (3) Verify that the rear brakes do not drag while the wheels are rotated by hand.




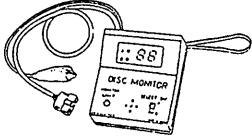
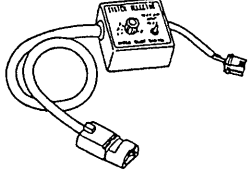
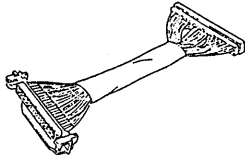
1. Adjusting nut and clip
2. Clip
3. Spring
Inspect for weakness

4. Front cable
Inspect for damage
5. Rear cable
Inspect for damage

ANTILOCK BRAKE SYSTEM (ABS)

PREPARATION

SST

<p>49 0259 770B</p> <p>Wrench, flare nut</p> 	<p>For removal and installation of brake pipe</p>	<p>49 H018 9A1</p> <p>Self-Diagnosis Checker</p> 	<p>For diagnosis of ABS</p>
<p>49 B019 9A0</p> <p>System Selector</p> 	<p>For diagnosis of ABS</p>	<p>49 F066 002</p> <p>Harness adapter</p> 	<p>For inspection of wiring harness</p>

TROUBLESHOOTING

Troubleshooting Notes

The ABS is composed of electrical components, mechanical components (ABS hydraulic unit), and the components of the standard system.

Fundamentally, malfunction of the ABS electrical or mechanical components is judged by the on-board diagnostic function within the ABS control module. Malfunctions are indicated by the warning light in the instrument panel. The technicians can locate a malfunction by switching the system to the diagnostic test mode.

The on-board diagnostic system must be used when diagnosis of the ABS.

Precaution

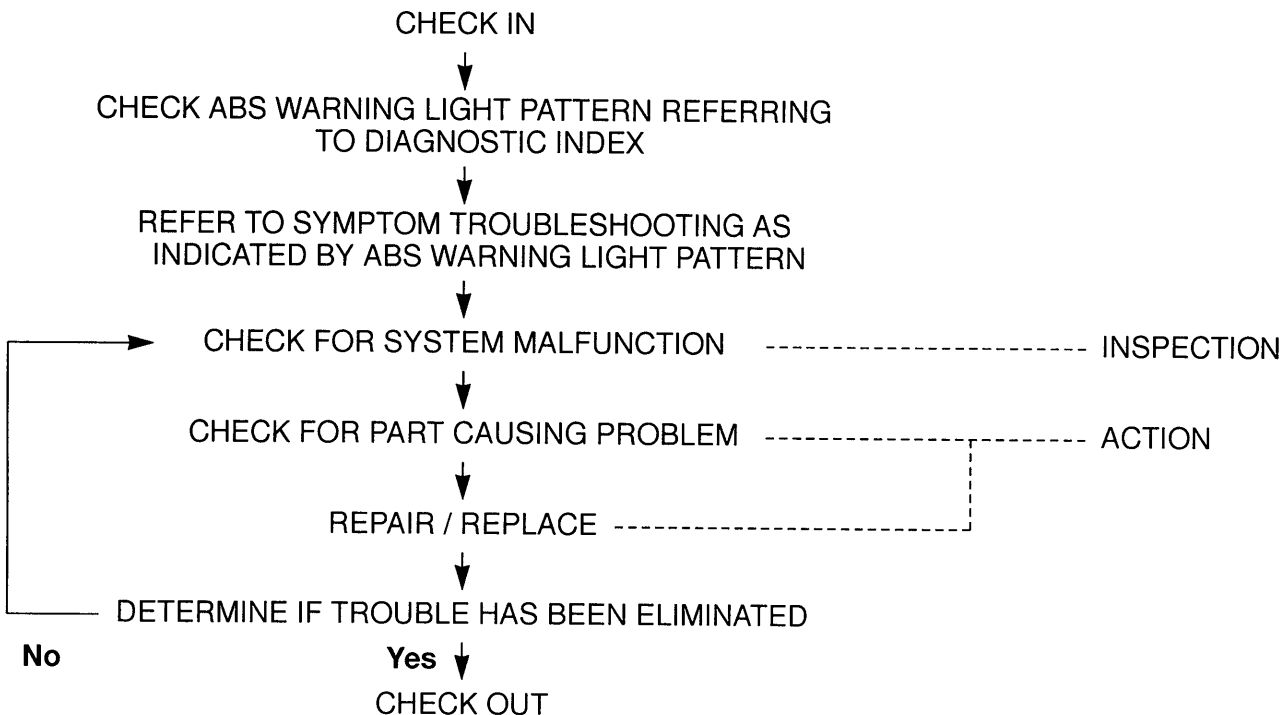
Conditions that are not malfunctions

1. Vibrations can sometimes be felt in the steering wheel, body, and/or brake pedal when the ABS is functioning; such vibrations are simply an indication that the ABS is functioning.
2. When (while the vehicle is jacked up, stuck or on a chassis roller) the rear wheels only are spun for **20 seconds** or more, the ABS warning light may illuminate. In this condition, the warning light will not illuminate a second time when ignition switch is turned OFF then back ON. However, diagnostic trouble code 12 (front left wheel-speed sensor) may be memorized as a past failure. If this occurs, do the following procedures.
 - (1) Activate the on-board diagnostic system and check for diagnostic trouble codes. (Refer to page P-45.)
 - (2) If code 12 only is memorized, erase it. (Refer to P-46.)
If code 12 and other codes are memorized, check for the causes by referring to the applicable diagnostic chart for the other codes. (Refer to page P-48.)
3. When battery voltage is insufficient, the warning light will illuminate and the ABS will not work. In this condition, at the moment battery voltage increases to the specified level, the warning light will go off and the system will return to normal control. There will also be no diagnostic trouble code entries made to the control module memory.

Diagnostic Chart

Symptom \ Cause		ABS wheel-speed sensor	Brake switch	ABS hydraulic unit				ABS warning light	Data link connector	ABS control module	Mechanical system	Power supply
				Valve relay	Motor relay	Solenoid valve	ABS motor					
1	ABS warning light not illuminated when ignition switch turned ON							<input type="radio"/>				
2	ABS warning light remains ON	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>			<input type="radio"/>
3	ABS warning light flashes with vehicle stopped							<input type="radio"/>				<input type="radio"/>
4	ABS warning light illuminates during driving till IG SW turned OFF	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>			
5	ABS warning light illuminates/goes off with vehicle stopped and during driving						<input type="radio"/>					<input type="radio"/>
6	ABS warning light indicates normal, however, ABS does not operate correctly									<input type="radio"/>		

Using This Section
Work flow



Diagnostic index

TROUBLESHOOTING ITEMS		DESCRIPTION	PAGE
No.	TROUBLE		
1	ABS warning light not illuminated when IG SW turned ON	—	below
2	ABS warning light remains ON	—	P-44
3	ABS warning light illuminated when vehicle stopped	ABS warning light goes off when vehicle started	P-45
		If IG SW turned ON again, ABS warning light goes off after a few seconds illumination	P-45
		—	

No.:
Each troubleshooting item is assigned a number.

TROUBLESHOOTING ITEM:
There are 6 troubleshooting items. Choose the item indicated by the ABS warning light.

DESCRIPTION:
Describes details of the symptom.

PAGE:
Shows the reference page.

Symptom troubleshooting

1	ABS WARNING LIGHT NOT ILLUMINATED WHEN IGNITION SWITCH TURNED ON		
DESCRIPTION		—	
[TROUBLESHOOTING HINTS]			
<ul style="list-style-type: none"> • If other warning indicators do not illuminate, METER 15A fuse may be burnt. • Failed warning light or open in related wiring harness. 			
STEP	INSPECTION	ACTION	
1	Is METER 15 A fuse OK?	Yes	Go to next step
		No	Replace METER 15 A fuse
2	Is harness of ABS warning light normal?	Yes	Inspect ABS warning light bulb and replace if necessary
		No	<ul style="list-style-type: none"> • Inspect harness between ABS CM and ABS relay • Inspect harness between instrument panel and ABS CM • Inspect harness between instrument panel and ABS relay • Inspect ABS warning light bulb • Correct as necessary

DESCRIPTION:

Further describes the system. Confirm that the chart addresses the actual symptom before beginning troubleshooting.


TROUBLESHOOTING HINTS:

This describes the possible point of malfunction.


STEP:

This shows the order of troubleshooting. Proceed with troubleshooting as indicated.

INSPECTION:

This describes an inspection procedure to quickly determine where the faulty parts are. If a detailed procedure is necessary to perform the INSPECTION, refer to the page specified by the “” mark.

ACTION:

As a result of the “Yes/No” answers given under INSPECTION, this section recommends the appropriate action to take. The “” mark indicates the relevant reference page.

Diagnosis Index

TROUBLESHOOTING ITEMS		DESCRIPTION	PAGE
No.	TROUBLE		
1	ABS warning light not illuminated when IG SW turned ON	—	below
2	ABS warning light remains ON	—	P-43
3	ABS warning light flashes with vehicle stopped	ABS warning light goes off when vehicle started	P-44
4	ABS warning light illuminates during driving till IG SW turned OFF	If IG SW turned ON again, ABS warning light goes off after a few seconds illumination	P-44
5	ABS warning light illuminates/goes off with vehicle stopped and during driving	—	P-45
6	ABS warning light indicates normal, however ABS does not operates correctly	—	P-45

Symptom Troubleshooting

1	ABS WARNING LIGHT NOT ILLUMINATED WHEN IGNITION SWITCH TURNED ON		
DESCRIPTION			
[TROUBLESHOOTING HINTS]			
<ul style="list-style-type: none"> • Malfunction of meter • Failed warning light or open in related wiring harness 			
STEP	INSPECTION		ACTION
1	With IG ON, do other indicators illuminate?	Yes	Check if failure(s) is memorized Note and check it later if necessary Go to next step
		No	Inspect meter
2	Disconnect ABS CM connector. Turn IG SW ON. Does ABS warning light illuminate?	Yes	Go to next step
		No	Go to step 6

STEP	INSPECTION		ACTION
3	Connect ABS CM connector. Turn IG SW ON. Does ABS warning light illuminate?	Yes	There was a temporarily poor contact in wiring harness or connector
		No	Go to next step
4	Is terminal AD of harness connector deformed?	Yes	Replace harness connector
		No	Replace ABS CM
5	With ABS CM connector disconnected, ground terminal AD of harness connector Does ABS warning light illuminate?	Yes	Go to next step
		No	Go to step 7
6	With ABS CM connector disconnected, is there continuity between following terminals: AB-body GND, AC-body GND, AM-body GND	Yes	Replace harness connector
		No	Repair harness
7	Is ABS warning light bulb burnt?	Yes	Replace bulb
		No	Go to next step
8	Is there continuity between AD of harness connector and 1K (C-01 connector) of meter?	Yes	Inspect meter
		No	Repair harness

Caution

- **Disconnecting and connecting the ABS CM connector must be done with the ignition switch OFF.**
- **When attaching the tester lead to the terminal of the harness connector, the SST must be used. (Refer to page P-59.)**
- **After above procedures have been completed, recheck for DTC and repair if necessary.**

Note

- **If the above symptom has appeared in the past and it is normal at present, the possible cause is a temporarily poor contact in the wiring harness or connector. The ABS CM is normal.**

2	ABS WARNING LIGHT REMAINS ON		
DESCRIPTION			
[TROUBLESHOOTING HINTS]			
<ul style="list-style-type: none"> • Low battery voltage at ABS CM • Malfunction of ABS warning light harness (short to ground) • Malfunction of meter <ul style="list-style-type: none"> • ABS CM detects a failure 			
STEP	INSPECTION		ACTION
1	Is battery voltage as specified?	Yes	Check if failure(s) is memorized and note it if necessary Go to next step
		No	Charge or replace if necessary
2	Verify that ABS CM connector is correctly connected. Turn IG SW ON. Does ABS warning light go off?	Yes	There was a temporarily poor contact in wiring harness or connector
		No	Go to next step
3	Disconnect ABS CM connector. Is voltage between following terminals of harness connector at B+? A (voltage supply)–AM (GND), A–AB (GND), A–AC (GND)	Yes	Go to next step
		No	Repair voltage supply harness
4	Are there any codes in step 1?	Yes	Follow diagnostic chart ↗ page P-49
		No	Go to next step
5	Disconnect ABS CM connector. Connect the SST (49 F066 022) and turn IG SW ON. Does ABS warning light go off?	Yes	Replace ABS CM
		No	Repair short of ABS warning light drive harness or meter

Caution

- **Disconnecting and connecting the ABS CM connector must be done with the ignition switch OFF.**
- **When attaching the tester lead to the terminal of the harness connector, the SST must be used. (Refer to page P-59.)**

Note

- If voltage between terminal A (voltage supply) and GND at ABS CM is below approx. 10 V, the ABS warning light will illuminate.

ANTILOCK BRAKE SYSTEM (ABS)

3	ABS WARNING LIGHT FLASHES WITH VEHICLE STOPPED		
DESCRIPTION	ABS warning light goes off when vehicle started		
[TROUBLESHOOTING HINTS]			
<ul style="list-style-type: none"> • Terminal TBS at data link connector grounded • Low battery voltage at ABS CM 			
STEP	INSPECTION		ACTION
1	Is battery voltage as specified?	Yes	Go to next step
		No	Charge or replace if necessary
2	Is there jumper wire between TBS and GND at data link connector?	Yes	Remove jumper wire
		No	Go to next step
3	Disconnect ABS CM connector. Is there continuity between terminal P of harness connector and GND?	Yes	Repair TBS harness
		No	Replace ABS CM

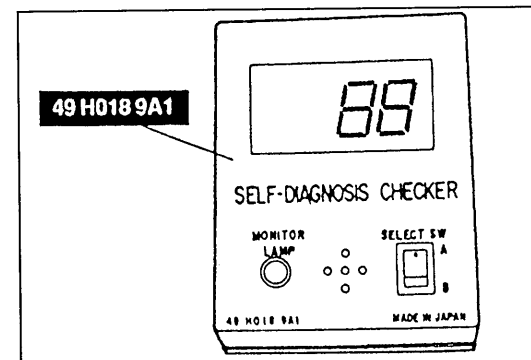
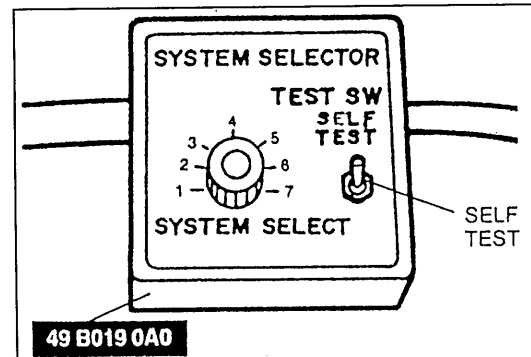
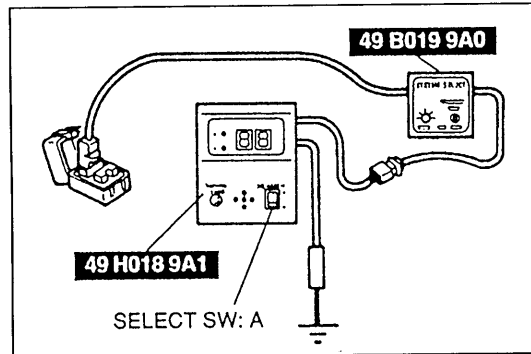
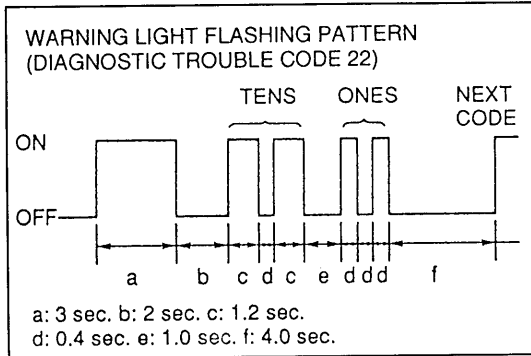
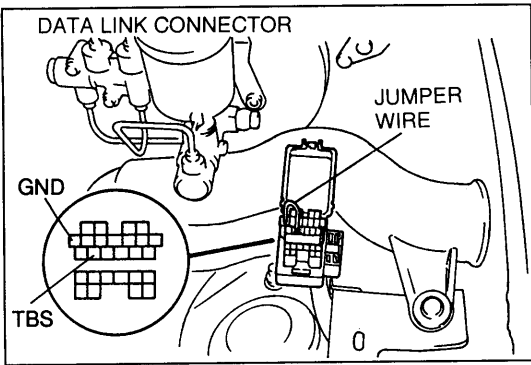
Caution

- **Disconnecting and connecting the ABS CM connector must be done with the ignition switch OFF.**
- **When attaching the tester lead to the terminal of the harness connector, the SST must be used. (Refer to page P-59.)**

4	ABS WARNING LIGHT ILLUMINATES DURING DRIVING TILL IG SW TURNED OFF		
DESCRIPTION	If IG SW is turned ON again, ABS warning light goes off after illuminating for a few seconds		
[TROUBLESHOOTING HINTS]			
STEP	INSPECTION		ACTION
1	Activate OBD system and check for DTC. Are there any?	Yes	Read DTC and follow diagnostic chart page P-49
		No	Go to next step
2	Verify that ABS CM connector is correctly connected. Drive vehicle and recheck for symptom. Does it remain?	Yes	Replace ABS CM
		No	There was a temporarily poor contact in wiring harness or connector

5	ABS WARNING LIGHT ILLUMINATES/GOES OFF WITH VEHICLE STOPPED AND DURING DRIVING		
DESCRIPTION			
[TROUBLESHOOTING HINTS]			
<ul style="list-style-type: none"> • Low battery voltage at ABS CM • Malfunction of ground harness • Malfunction of ABS warning light harness (short to ground) • Malfunction of meter 			
STEP	INSPECTION		ACTION
1	Check if failure(s) is memorized. Note and check it later if necessary. Disconnect ABS CM connector. Turn IG SW ON. Does ABS warning light illuminate?	Yes	Go to next step
		No	Repair ABS warning light harness or meter
2	Disconnect ABS CM connector. Is voltage between following terminals of harness connector at B+? A (voltage supply)–AM (GND), A–AB (GND), A–AC (GND)	Yes	Go to next step
		No	Repair voltage supply or ground harness
3	Connect ABS CM connector. Drive vehicle and recheck for symptom. Does it remain?	Yes	Replace ABS CM
		No	There was a temporarily poor contact in wiring harness or connector

6	ABS WARNING LIGHT INDICATES NORMAL, HOWEVER, ABS DOES NOT OPERATE CORRECTLY		
DESCRIPTION			
[TROUBLESHOOTING HINTS]			
<ul style="list-style-type: none"> • Malfunction of mechanical system 			
STEP	INSPECTION		ACTION
1	Activate OBD system and check for DTC. Are there any?	Yes	Read DTC and follow diagnostic chart ☞ page P-49
		No	Inspect mechanical system



ON-BOARD DIAGNOSTIC FUNCTION

Diagnostic Trouble Code

Inspection using ABS warning light

1. Connect the TBS terminal to GND at the data link connector by using a jumper wire.
2. Turn the ignition switch ON.

Note

- If the ignition switch is turned ON before connecting the terminals the diagnostic test mode will not start.

3. After the warning light illuminates for three seconds, it will indicate a diagnostic trouble code(s).
4. Read and note the code number(s) and check for the causes by referring to the Diagnostic chart (page P-49).
5. After servicing is finished, erase the code(s). (Refer to page P-47.)

Inspection using SST

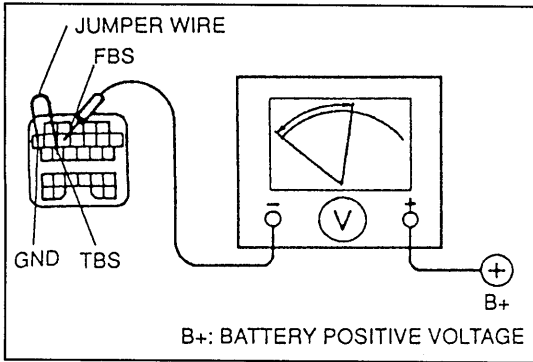
1. Connect the **SSTs** to the data link connector and a ground.
2. Set the select switch to position A.

3. Set the System Selector to position 3 and SELF TEST as shown.
4. Turn the ignition switch ON.

Note

- If the ignition switch is turned ON before connecting the **SSTs** the diagnostic test mode will not start.

5. Verify that "88" flashes on the digital display and the buzzer sounds for **3 sec.** after turning the ignition switch ON.
6. If "88" does not flash, check the power supply circuit and the ground wiring.
7. If "88" flashes and the buzzer continues for more than **20 sec.**, check for a short circuit between terminal TBS and ground. Replace the ABS control module if necessary and perform steps 3 and 4 again.
8. Note any code numbers and check for the causes by referring to the Diagnostic Chart (page P-49).
9. After servicing is finished, erase the code(s). (Refer to page P-47.)

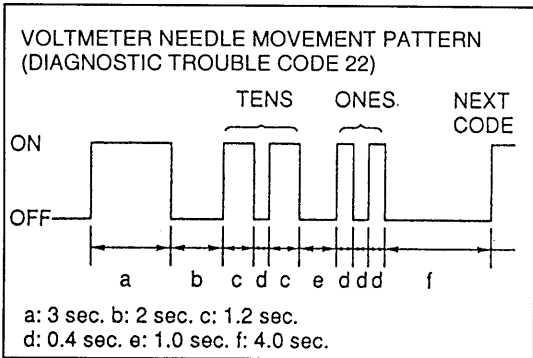


Inspection using voltmeter

1. Connect the TBS terminal to GND at the data link connector by using a jumper wire.
2. Connect an analog voltmeter as shown.
3. Turn the ignition switch ON.

Note

- If the ignition switch is turned ON before connecting the terminals, the diagnostic test mode will not start.



4. Read and note the code number(s) and check for the causes by referring to the Diagnostic Chart (page P-49).
5. After servicing is finished, erase the code(s). (Refer to below.)

Memory cancel

The ABS control module has a nonvolatile memory. Diagnostic trouble codes are not erased if the battery is disconnected. The memory should be cleared when servicing is finished. Diagnostic trouble codes memorized in the ABS control module are canceled by performing the following steps.

1. Connect the TBS terminal to GND at the data link connector.
2. Turn the ignition switch ON.
3. Output all memorized codes.
4. After verifying that the first code is repeated, depress the brake pedal 10 times at intervals of less than one second (**1 sec.**)

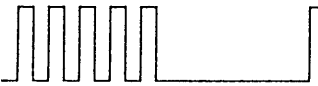



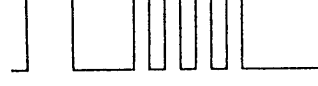
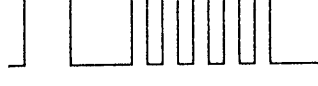
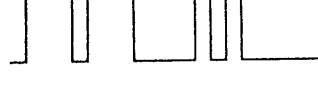

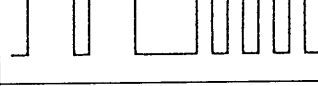
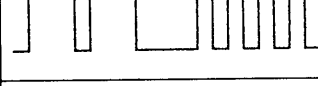
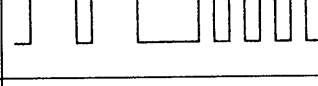
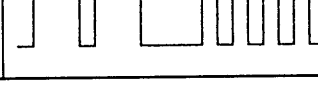
Diagnostic trouble codes cannot be canceled if the following occur:


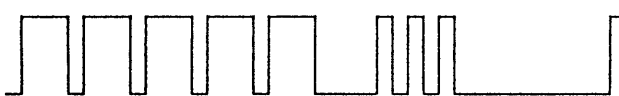
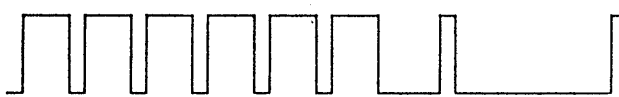
- If intervals of depressing the brake pedal exceed one second (**1 sec.**)
- The brake switch has failed.

Note

- When the memory cancel operation is finished, the ABS warning light comes on for 3 seconds, then goes off.
- After the memory is canceled, the ABS returns to normal control.

Diagnostic Trouble Code Table

Code No. (SST)	ABS warning light flashing pattern Voltmeter indicating pattern	Possible cause	Page
05		Harness between brake switch to ABS CM	P-49
11		Right front wheel-speed sensor/ sensor rotor	P-50
12		Left front wheel-speed sensor/ sensor rotor	P-50
13		Right rear wheel-speed sensor/ sensor rotor	P-50
14		Left rear wheel-speed sensor/ sensor rotor	P-50
15		Wheel-speed sensor/sensor rotor	P-50
22		Right front solenoid valve (AV)	P-51
23		Right front solenoid valve (EV)	P-51
24		Left front solenoid valve (AV)	P-51
25		Left front solenoid valve (EV)	P-51
26		Rear solenoid valve (AV)	P-51
27		Rear solenoid valve (EV)	P-51

Code No. (SST)	ABS warning light flashing pattern Voltmeter indicating pattern	Possible cause	Page
51		Valve relay	P-51
53		Motor relay Motor	P-52
61		ABS control module	P-52

Diagnostic chart

Diagnostic trouble code No.05 | Harness between brake light and ABS CM			
Possible cause		• Malfunction of related wiring harness	
STEP	INSPECTION	ACTION	
1	Inspect harness between brake light and ABS CM. • Open circuit Is harness normal?	Yes	Go to next step
		No	Repair harness
2	Erase diagnostic trouble code, and recheck for diagnostic trouble codes Is diagnostic trouble code 05 obtained?	Yes	Replace ABS CM
		No	There was a temporarily poor contact in wiring harness or connector

Caution

- When attaching the tester lead to the terminal of the ABS CM harness connector, the SST must be used. (Refer to page P-59.)

ANTILOCK BRAKE SYSTEM (ABS)

Diagnostic trouble codes No.11—14		ABS wheel-speed sensor (11: Right front 12: Left front 13: Right rear 14: Left rear)	
Possible cause		<ul style="list-style-type: none"> • Malfunction of ABS wheel-speed sensor, sensor rotor, or ABS hydraulic unit • Malfunction of related wiring harness 	
STEP	INSPECTION	ACTION	
1	Is ABS CM connector connected properly?	Yes	Go to next step
		No	Correct as necessary
2	Is wiring harness between ABS CM and wheel-speed sensor OK?	Yes	Go to next step
		No	Correct as necessary
3	Is ABS wheel-speed sensor OK? ☞ page P-64	Yes	Go to next step
		No	Replace ABS wheel-speed sensor ☞ page P-64, 65
4	Are there missing or damaged teeth on sensor rotor?	Yes	Replace sensor rotor ☞ Section M
		No	Go to next step
5	Is brake line OK?	Yes	Go to next step
		No	Replace brake line
6	Is ABS hydraulic unit OK? ☞ page P-53	Yes	Go to next step
		No	Replace ABS hydraulic unit ☞ page P-56
7	Erase diagnostic trouble code, and recheck for diagnostic trouble codes after driving over 10 km/h {6.2 MPH} . Are diagnostic trouble codes 11—14 obtained?	Yes	Replace ABS CM ☞ page P-58
		No	There was a temporarily poor contact in wiring harness or connector

Diagnostic trouble code No.15		ABS wheel-speed sensor	
Possible cause		<ul style="list-style-type: none"> • Malfunction of ABS wheel-speed sensor, sensor rotor, or ABS hydraulic unit • Malfunction of related wiring harness 	
STEP	INSPECTION	ACTION	
1	Refer to above chart for each of the four wheel-speed sensors.		

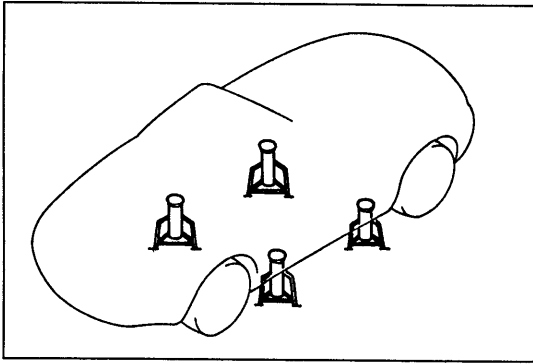
Diagnostic trouble codes No.22, 23, 24, 25, 26, 27		Solenoid valve (22:Right front OUT 23: Right front IN 24: Left front OUT 25: Left front IN 26: Rear OUT 27: Rear IN)	
Possible cause		<ul style="list-style-type: none"> Malfunction of solenoid valve Malfunction of related wiring harness 	
STEP	INSPECTION		ACTION
1	Is ABS CM connector connected properly?	Yes	Go to next step
		No	Correct as necessary
2	Inspect solenoid valve including valve relay Is it OK? ☞ page P-54	Yes	Go to step 5
		No	Go to next step
3	Is solenoid valve OK? ☞ page P-54	Yes	Go to next step
		No	Replace ABS hydraulic unit ☞ page P-56
4	Is harness between solenoid valve and ABS CM	Yes	Go to next step
		No	Repair harness
5	Erase diagnostic trouble code, and recheck for diagnostic trouble codes Are diagnostic trouble codes 22—27 obtained?	Yes	Replace ABS CM ☞ page P-58
		No	There was a temporarily poor contact in wiring harness or connector

Diagnostic trouble code No.51		Valve relay	
Possible cause		<ul style="list-style-type: none"> Malfunction of valve relay Malfunction of related wiring harness 	
STEP	INSPECTION		ACTION
1	Is BTN fuse (40 A) OK?	Yes	Go to next step
		No	Replace fuse
2	Inspect valve relay including harness Is it OK? ☞ page P-63	Yes	Go to step 4
		No	Go to next step
3	Is valve relay OK? ☞ page P-63	Yes	Go to next step
		No	Replace valve relay ☞ page P-62
4	Erase diagnostic trouble code, and recheck for diagnostic trouble codes Is diagnostic trouble code 51 obtained?	Yes	Replace ABS CM ☞ page P-58
		No	There was a temporarily poor contact in wiring harness or connector

ANTILOCK BRAKE SYSTEM (ABS)

Diagnostic trouble code No.53		ABS motor, motor relay	
Possible cause		<ul style="list-style-type: none"> • Malfunction of ABS motor or motor relay • Malfunction of related wiring harness 	
STEP	INSPECTION	ACTION	
1	With IG SW OFF, is motor operating?	Yes	Replace motor relay ☞ page P-62
		No	Go to next step
2	Is ABS fuse (30 A) OK?	Yes	Go to next step
		No	Replace fuse
3	Inspect motor relay including harness Is it OK? ☞ page P-62	Yes	Go to step 7
		No	Go to next step
4	Is motor relay OK? ☞ page P-63	Yes	Go to next step
		No	Replace motor relay ☞ page P-62
5	Inspect ABS motor, including harness Is it OK? ☞ page P-54	Yes	Go to step 7
		No	Go to next step
6	Is ABS motor OK? ☞ page P-54	Yes	Correct harness as necessary
		No	Replace ABS hydraulic unit ☞ page P-56
7	Erase diagnostic trouble code, and recheck for diagnostic trouble codes Is diagnostic trouble code 53 obtained?	Yes	Replace ABS CM ☞ page P-58
		No	There was a temporarily poor contact in wiring harness or connector

Diagnostic trouble code No.61		ABS control module	
Possible cause		<ul style="list-style-type: none"> • Malfunction of ABS control module 	
STEP	INSPECTION	ACTION	
1	Erase diagnostic trouble code, and recheck for diagnostic trouble code Is diagnostic trouble code 61 obtained?	Yes	Replace ABS CM ☞ page P-58
		No	There was a temporarily poor contact in wiring harness or connector

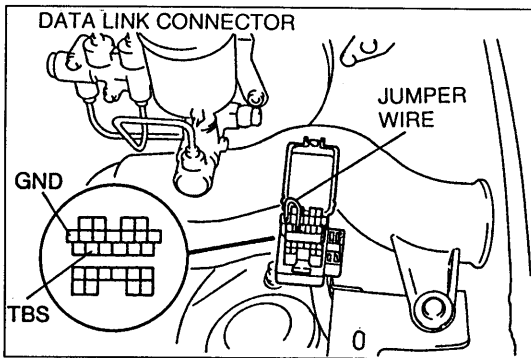


ABS HYDRAULIC UNIT Inspection (on-vehicle) System inspection

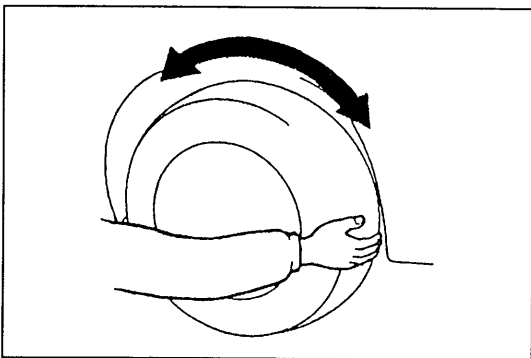
Note

- If a past diagnostic trouble code(s) is memorized, the system inspection mode will not work. Make sure that there is no code(s) in the ABS memory before doing this inspection.

1. Verify that the battery is fully charged.
With the ignition switch ON, verify that the ABS warning light goes out after **2—4 seconds**.
2. If the light stays ON after **2—4 seconds** the ABS control module detects a failure and will not activate the ABS hydraulic unit. Follow the troubleshooting procedures.
3. Turn the ignition switch OFF.

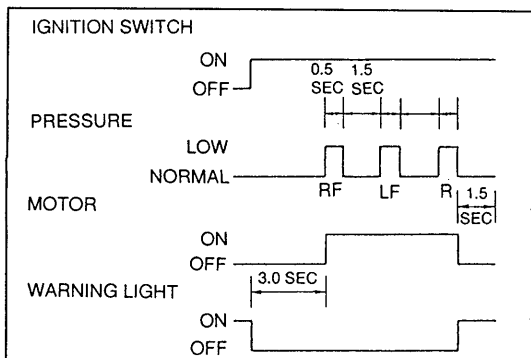


4. On level ground, jack up the vehicle and support it evenly on safety stands. Shift the transaxle to neutral or N position.
5. Release the parking brake.
6. Rotate the wheels by hand, and inspect for brake drag.
7. Using a jumper wire, connect the TBS and GND terminals of the data link connector.
8. Depress the brake pedal, and have an assistant verify that the right front wheel will not turn.

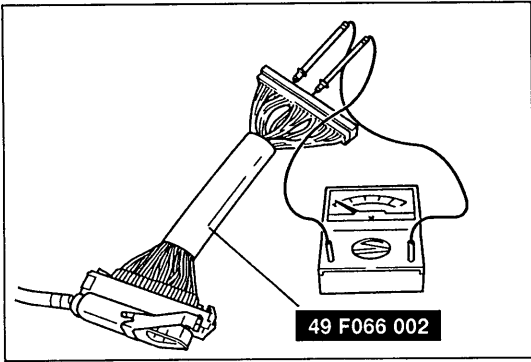


9. With the brake pedal still depressed, turn the ignition switch ON and verify that the brake is released momentarily (approx. **0.5 sec.**) and that the wheel turns when pressure-reduction operates.
10. Check operation of the remaining wheels in order: left front, right rear, left rear.
11. If Steps 9 and 10 show correct operation, the following systems are OK:

- Brake piping to ABS hydraulic unit
- Braking system, including ABS hydraulic unit
- Electrical system in ABS hydraulic unit (solenoid, ABS motor, etc.)
- ABS control module, its output system (solenoid, relay, etc.) and harness
- The following are not checked with the above steps
- Input system and harness of ABS control module
- Intermittent failure
- Fluid leakage



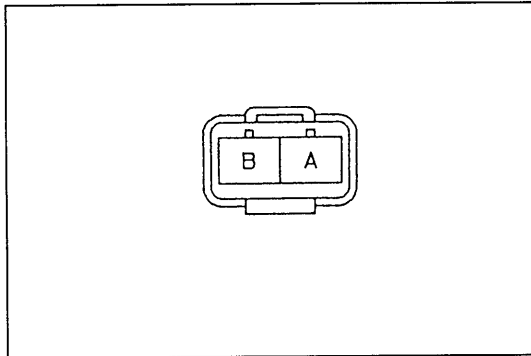
12. Replace the ABS hydraulic unit if necessary.



- ABS motor (including harness to ABS control module)**
1. Turn the ignition switch OFF, and disconnect the ABS control module connector.
 2. Connect the **SST** to the ABS control module connector.
 3. Measure the resistance between X terminal of the control module connector and a ground.

Resistance: 1 Ω max.

4. If not as specified, check the wiring harness between the ABS motor and the control module and check the ABS motor. (Refer to below.)

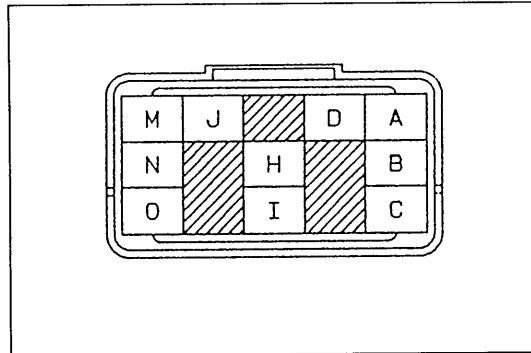


ABS motor

1. Turn the ignition switch OFF.
2. Disconnect the ABS hydraulic unit connector (2 pin).
3. Measure the resistance between terminal B of the ABS hydraulic unit connector and ground.

Resistance: 1 Ω max.

4. Verify that the motor operates when applying 12 V to the connector (2 pin).
5. If not as specified, repair harness or replace the ABS hydraulic unit if necessary.

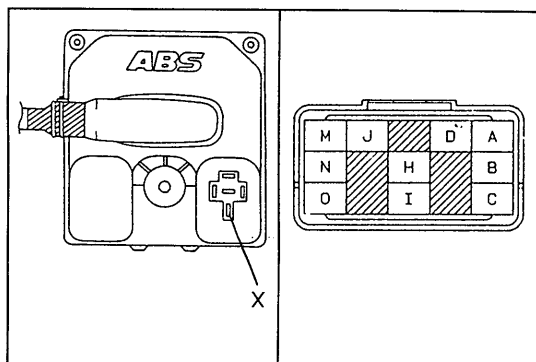


Solenoid valve (including valve relay)

1. Turn the ignition switch OFF.
2. Disconnect the ABS hydraulic unit connector (12 pin).
3. Apply 12 V between terminal A and D. Measure the resistance between terminal B and the following terminals at the ABS hydraulic unit connector (12 pin).

Terminal	H	I	J	M	N	O
Resistance (Ω)	4.7	4.7	4.7	9	9	9

4. If not as specified, check the valve relay and solenoid valves.



Solenoid valve

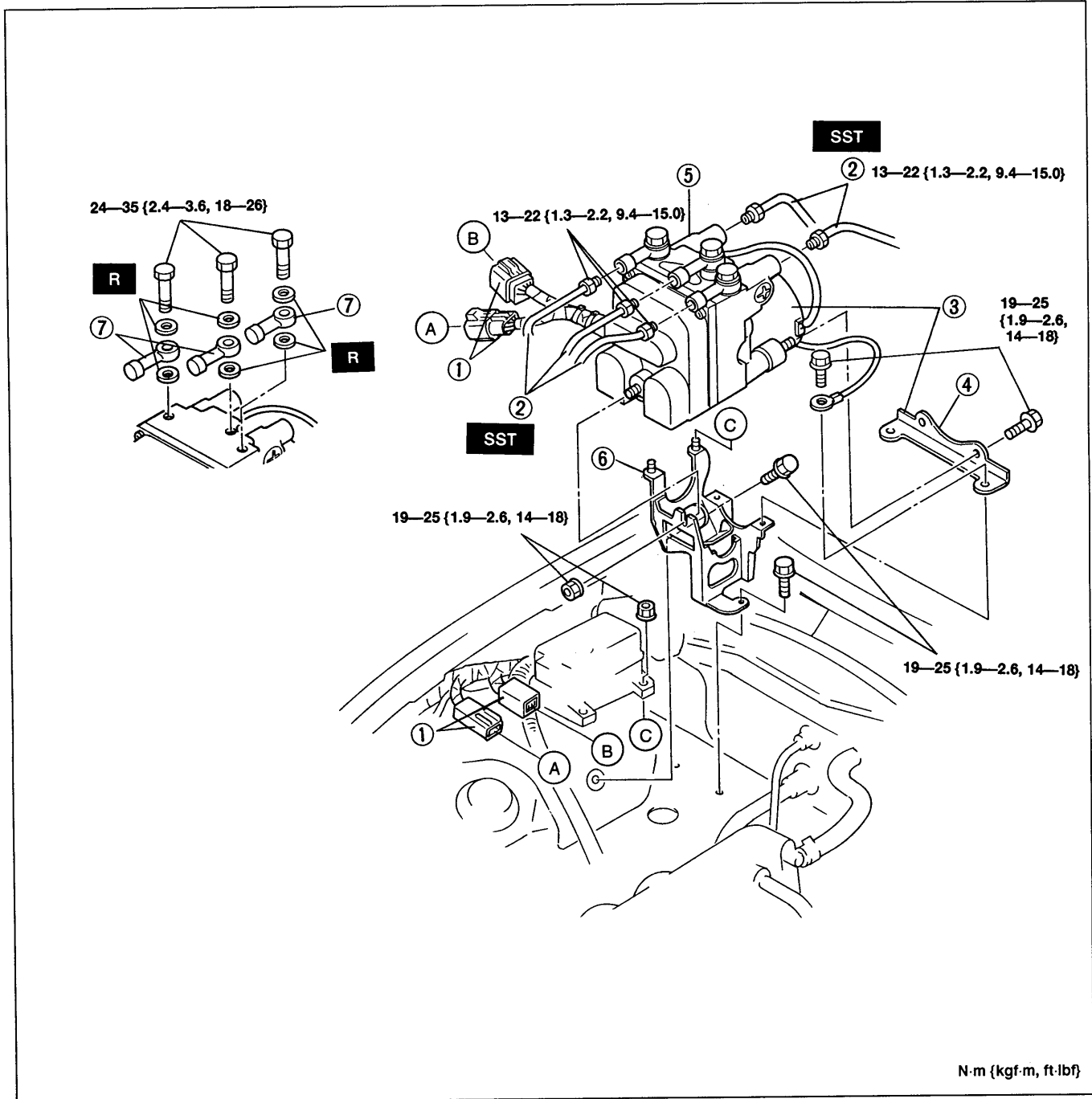
1. Remove the ABS hydraulic unit.
2. Remove the valve relay. Measure the resistance between terminal X at the ABS hydraulic unit valve and the following terminals at the ABS hydraulic unit connector.

Terminal	H	I	J	M	N	O
Resistance (Ω)	4.7	4.7	4.7	9	9	9

3. If not as specified, repair the harness or replace the ABS hydraulic unit if necessary.

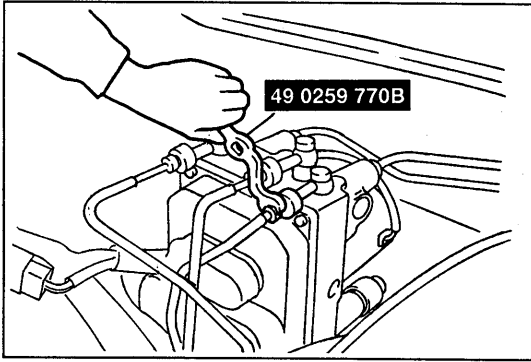
Removal / Installation

1. Disconnect the negative battery cable.
2. Remove in the order shown in the figure, referring to **Removal Note**.
3. The only serviceable parts of the hydraulic unit are the valve relay and the motor relay. If there is a failure of any other part, replace the hydraulic unit assembly.
4. Install in the reverse order of removal, referring to **Installation Note**.
5. After installation, perform the following.
 - (1) Add fluid and bleed the air. (Refer to page P-7, 8.)
 - (2) Check for fluid leakage. (Refer to page P-7.)



N·m {kgf·m, ft·lbf}

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Connectors 2. Brake pipes | <ol style="list-style-type: none"> 3. ABS hydraulic unit and bracket assembly 4. Bracket 5. ABS hydraulic unit 6. Bracket 7. Brake pipe connectors |
|---|---|
- Removal Note..... page P-57
 Installation Note..... page P-57

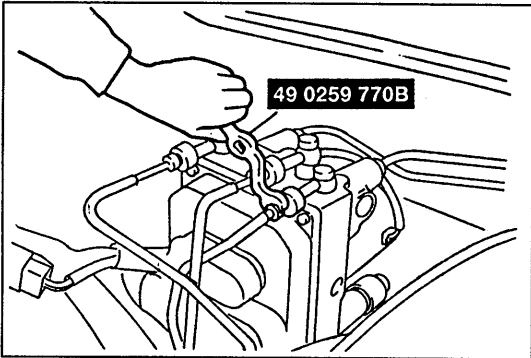


Removal Note
Brake pipes

Caution

- Brake fluid will damage painted surfaces. If brake fluid does get on a painted surface, wipe it off immediately.

Loosen the brake pipes by using the **SST**.



Installation Note
Brake pipes

Caution

- Brake fluid will damage painted surfaces. If brake fluid does get on a painted surface, wipe it off immediately.

Tighten the brake pipes by using the **SST**.

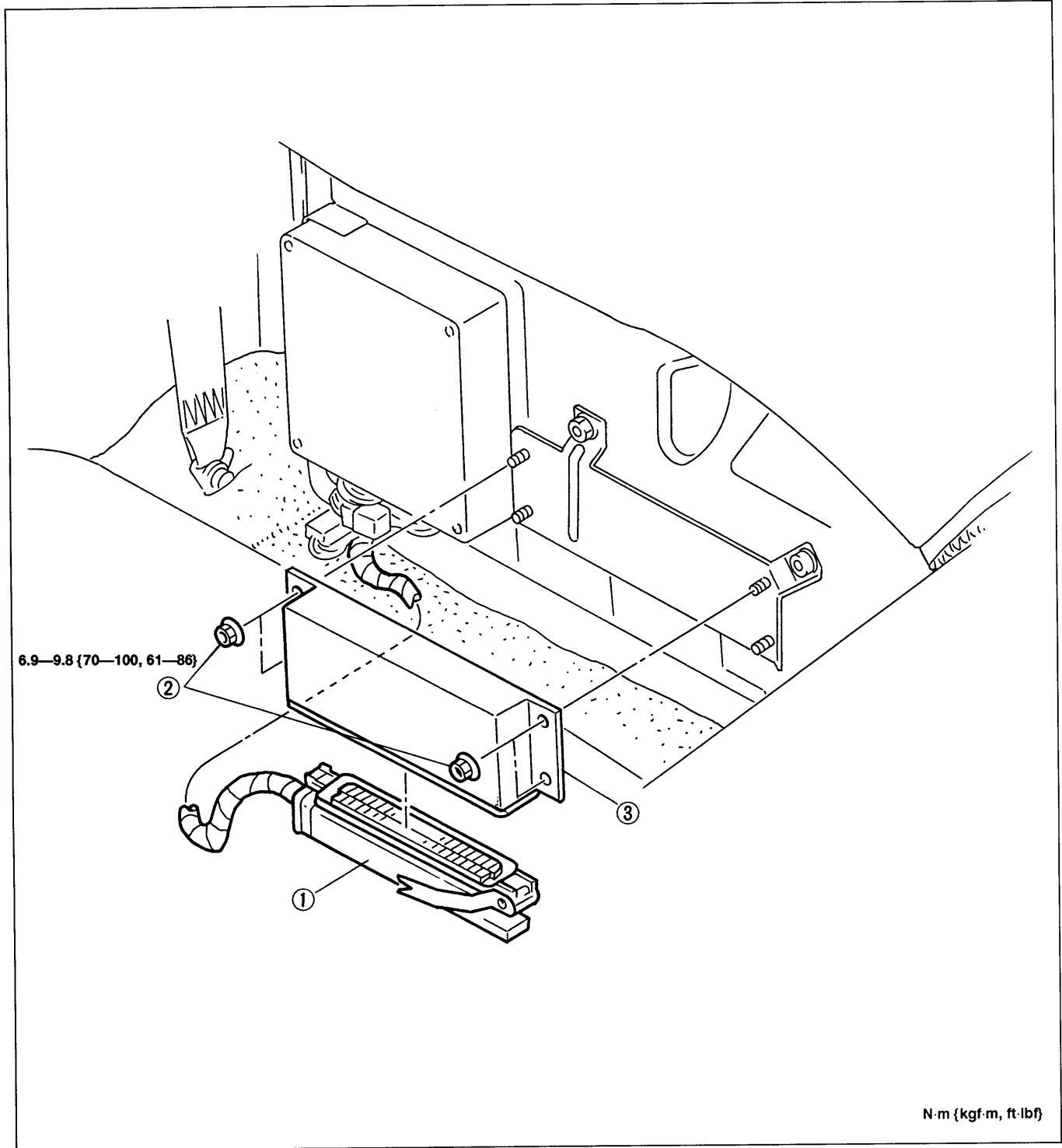
ABS CONTROL MODULE

Removal / Installation

1. Disconnect the negative battery cable.
2. Fold the passenger seat forward and lift up the carpet.
3. Remove in the order shown in the figure.
4. Install in the reverse order of removal.

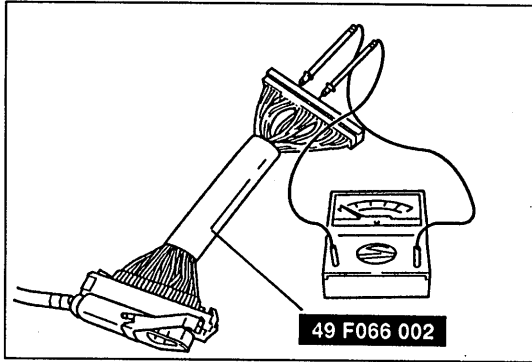
Caution

- Connect the connector securely. If a poor contact occurs, the ABS system may malfunction.



1. Connector
2. Nuts

3. ABS control module



Inspection at ABS Control Module Harness Connector

Caution

- Disconnecting and connecting the ABS CM connector must be done with the ignition switch OFF.
- When checking the harness connector, the SST must be used.

1. Disconnect the ABS CM connector and connect the **SST** to the harness connector with the ignition switch OFF.
2. Attach the tester leads to the **SST** to check voltage, continuity or resistance, referring to the table below.

Terminal	Signal name	Connected to	Item	Condition	Specifi- cation	Possible cause
A	Voltage supply (System)	IG SW	Voltage	IG SW ON	B+	Harness (IG SW-ABS CM connector)
				IG SW OFF	0 V	
B	Voltage supply (Relay drive)	HU (motor relay, valve relay coil)	Continuity	B – GND B – A (IG SW ON)	No No	Harness (B-motor relay-valve relay, G-motor relay, B-valve relay) Motor relay Valve relay
			Resistance	B – G B – AK	72—88 Ω 93—113 Ω	
G	Motor relay drive	HU (motor relay coil)	Continuity	G – GND G – A (IG SW ON)	No No	Harness (B-motor relay-valve relay, G-motor relay, B-valve relay) Motor relay Valve relay
			Resistance	B – G	72—88 Ω	
AK	Valve relay drive	HU (valve relay coil)	Continuity	AK – GND AK – A (IG SW ON)	No No	Harness (B-motor relay-valve relay, G-motor relay, B-valve relay) Motor relay Valve relay
			Resistance	B – AK	93—113 Ω	
P	On-board diagnosis TBS	Data link connector TBS	Continuity	P – GND P – A (IG SW ON) P – TBS at DLC	No No Yes	Harness (P-TBS at DLC)
AT	On-board diagnosis FBS	Data link connector FBS	Continuity	AT – GND AT – A (IG SW ON) AT – FBS at DLC	No No Yes	Harness (AT-FBS at DLC)

Note

- Voltage is measured between applicable terminal and GND terminal of ABS CM harness connector.

ANTILOCK BRAKE SYSTEM (ABS)

Terminal	Signal name	Connected to	Item	Condition	Specification	Possible cause
X	Motor monitor	HU (ABS motor)	Voltage	When B+ applied between B and G	B+	Harness (B-motor relay-G, motor relay-battery, X-motor relay-motor, motor-motor GND) Motor Motor relay
				When open between B and G	0 V	
	Continuity	X – GND	Yes			
AB	System GND (power)	Ground point	Continuity	AB – ground point	Yes	Harness (Each terminal-ground point)
AC	System GND (power)			AC – ground point	Yes	
AM	System GND (signal)			AM – ground point	Yes	
				AB – AD, AC – AD AM – AD	Yes Yes	Short plate of harness connector
AD	Warning light	ABS warning light	Continuity	AD – GND (IG OFF) AD – A (IG OFF)	Yes No	Harness (AD-meter, meter-IG SW) Meter
			Voltage	When IG SW ON	B+	
AV	Brake switch	Brake switch	Voltage	When brake pedal depressed When brake pedal released	B+ 0 V	Harness (AV-brake SW) (When brake light normal)
AJ J	LF wheel-speed	LF wheel-speed sensor	Voltage	Vehicle stopped When turned 1 revolution per second	0 V (AC) 0.25—1.2 V (AC)	Harness (sensor-ABS CM harness connector)
			Resistance	AJ – J	0.8—1.2 kΩ		Sensor, Installation condition
O N	RF wheel-speed	RF wheel-speed sensor	Voltage	Vehicle stopped When turned 1 revolution per second	0 V (AC) 0.25—1.2 V (AC)	Harness (sensor-ABS CM harness connector)
			Resistance	O – N	0.8—1.2 kΩ		Sensor, Installation condition
K AL	RR wheel-speed	RR wheel-speed sensor	Voltage	Vehicle stopped When turned 1 revolution per second	0 V (AC) 0.25—1.2 V (AC)	Harness (sensor-ABS CM harness connector)
			Resistance	K – AL	0.8—1.2 kΩ		Sensor, Installation condition
AN L	LR wheel-speed	LR wheel-speed sensor	Voltage	Vehicle stopped When turned 1 revolution per second	0 V (AC) 0.25—1.2 V (AC)	Harness (sensor-ABS CM harness connector)
			Resistance	AN – L	0.8—1.2 kΩ		Sensor, Installation condition

Note

- Voltage is measured between applicable terminal and GND terminal of ABS CM harness connector.

Terminal	Signal name	Connected to	Item	Condition	Specifi- cation	Possible cause
E	Left front solenoid valve (EV) drive	HU (LF solenoid valve)	Voltage	When B+ applied between B and AK	B+	Harness (B-motor relay-AK, valve relay-battery, valve relay-solenoid Each terminal-solenoid valve) Valve relay Solenoid valve
			Continuity	E – GND E – A	No No	
AG	Left front solenoid valve (AV) drive	HU (LF solenoid valve)	Voltage	When B+ applied between B and AK	B+	
			Continuity	AG – GND AG – A	No No	
BB	Right front solenoid valve (EV) drive	HU (RF solenoid valve)	Voltage	When B+ applied between B and AK	B+	
			Continuity	BB – GND BB – A	No No	
Z	Right front solenoid valve (AV) drive	HU (RF solenoid valve)	Voltage	When B+ applied between B and AK	B+	
			Continuity	Z – GND Z – A	No No	
BA	Rear solenoid valve (EV) drive	HU (Rear solenoid valve)	Voltage	When B+ applied between B and AK	B+	
			Continuity	BA – GND BA – A	No No	
Y	Rear solenoid valve (AV) drive	HU (Rear solenoid valve)	Voltage	When B+ applied between B and AK	B+	
			Continuity	Y – GND Y – A	No No	

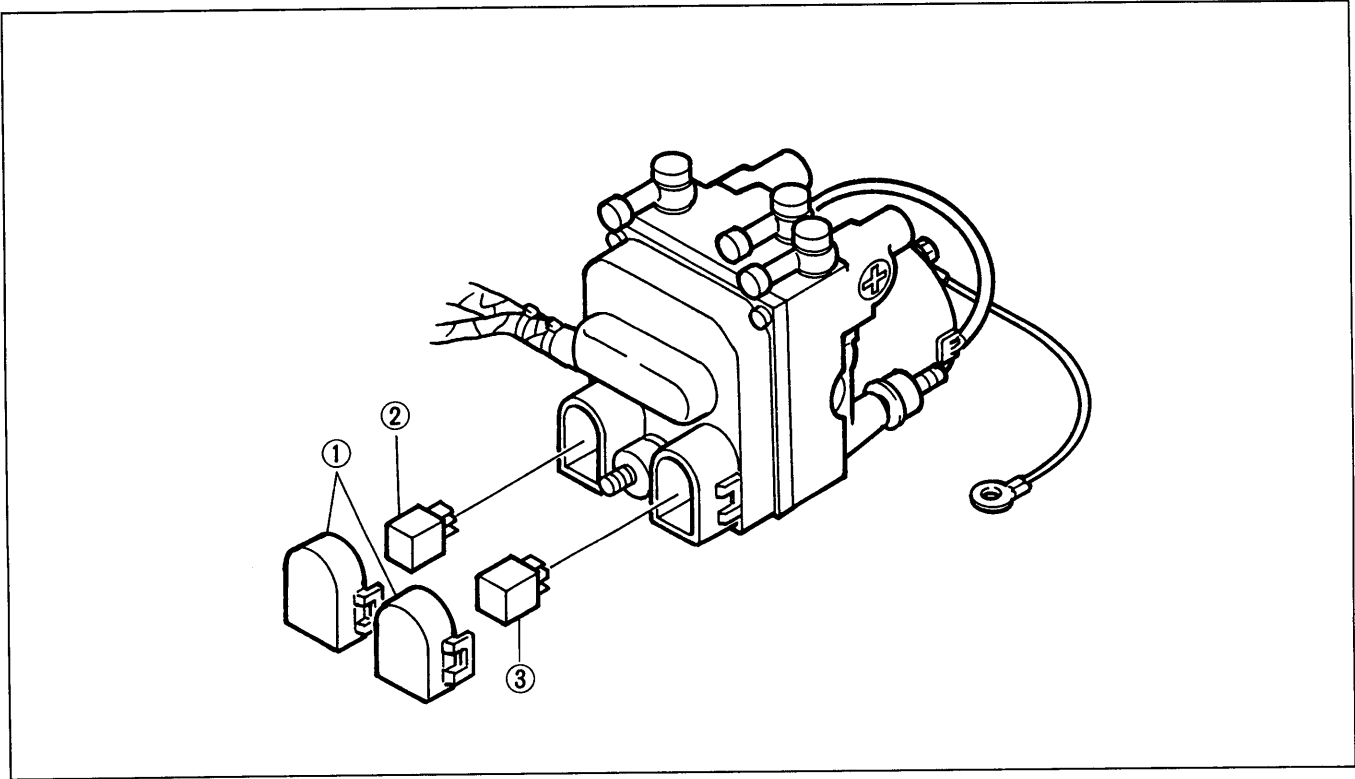
Note

- Voltage is measured between applicable terminal and GND terminal of ABS CM harness connector.

ABS RELAY

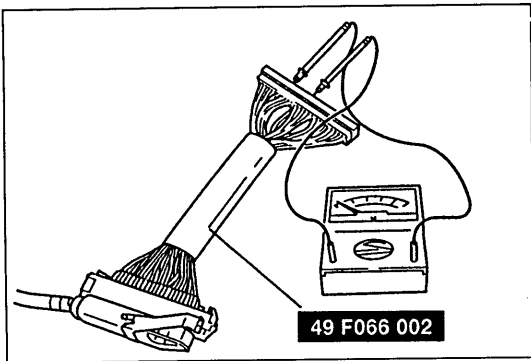
Removal / Inspection / Installation

1. Disconnect the negative battery cable.
2. Remove the ABS hydraulic unit.
3. Remove in the order shown in the figure.
4. Install in the reverse order of removal.



1. Cover
 2. Motor relay
 Inspection below

3. Valve relay
 Inspection page P-63



Inspection

Motor relay (including harness to ABS-CM)

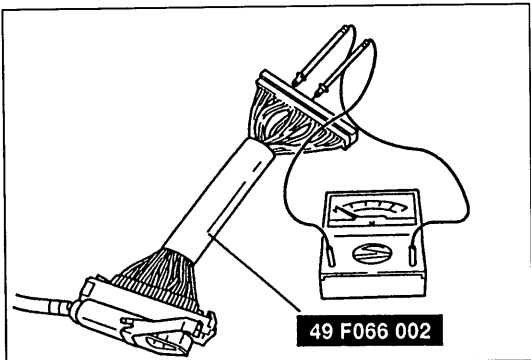
1. Turn the ignition switch OFF and disconnect the ABS control module connector.
2. Connect the **SST** to the ABS control module connector.
3. Turn the ignition switch ON.
4. Measure the voltage between terminal X and AB of the ABS control module connector.

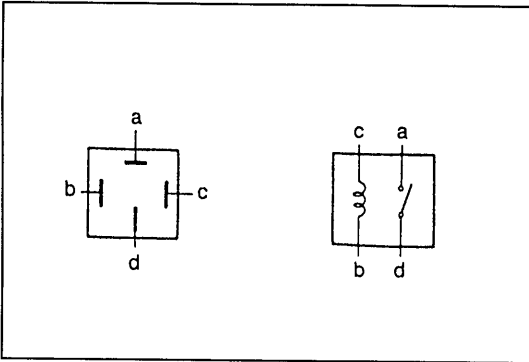
Voltage: 0 V

5. Apply 12 V to terminals B and G. Measure the voltage between terminal X and AB of the ABS control module connector.

Voltage: 12 V

6. If not as specified, inspect the wiring harness and the motor relay.





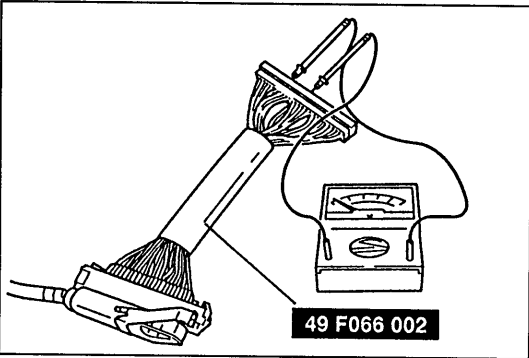
Motor relay

- Using an ohmmeter, check continuity of the relay terminals.

Connect to		a	b	c	d
12 V	Ground		○—○		
—	—				
c	b	○—			○—

○—○ : Indicates continuity

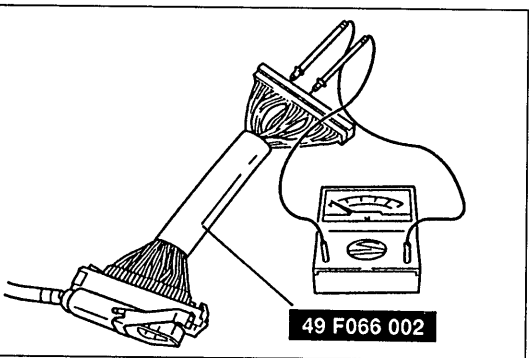
- If not as specified, replace the motor relay.



Valve relay (including harness to ABS-CM)

- Turn the ignition switch OFF and disconnect the ABS control module connector.
- Connect the **SST** to the ABS control module connector.
- Turn the ignition switch ON.
- Measure the voltage between the ground terminal AB and the following terminals at the ABS control module connector.
Terminal: E, Z, Y, AG, BA, BB

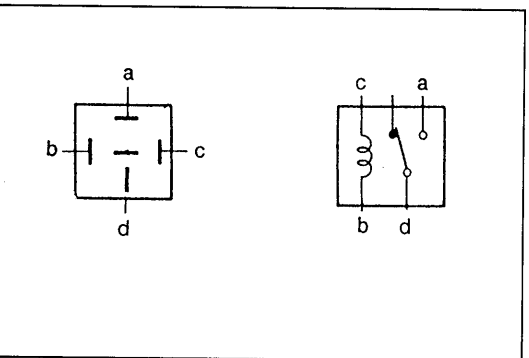
Voltage: 0 V



- Apply 12 V to terminals B and AK. Measure the voltage between the ground terminal AB and the following terminals at the ABS control module connector.
Terminal: E, Z, Y, AG, BA, BB

Voltage: 12 V

- If not as specified, inspect the wiring harness and the valve relay.



Valve relay

- Using an ohmmeter, check continuity of the relay terminals.

Connect to		a	b	c	d
12 V	Ground		○—○		
—	—				
b	c	○—			○—

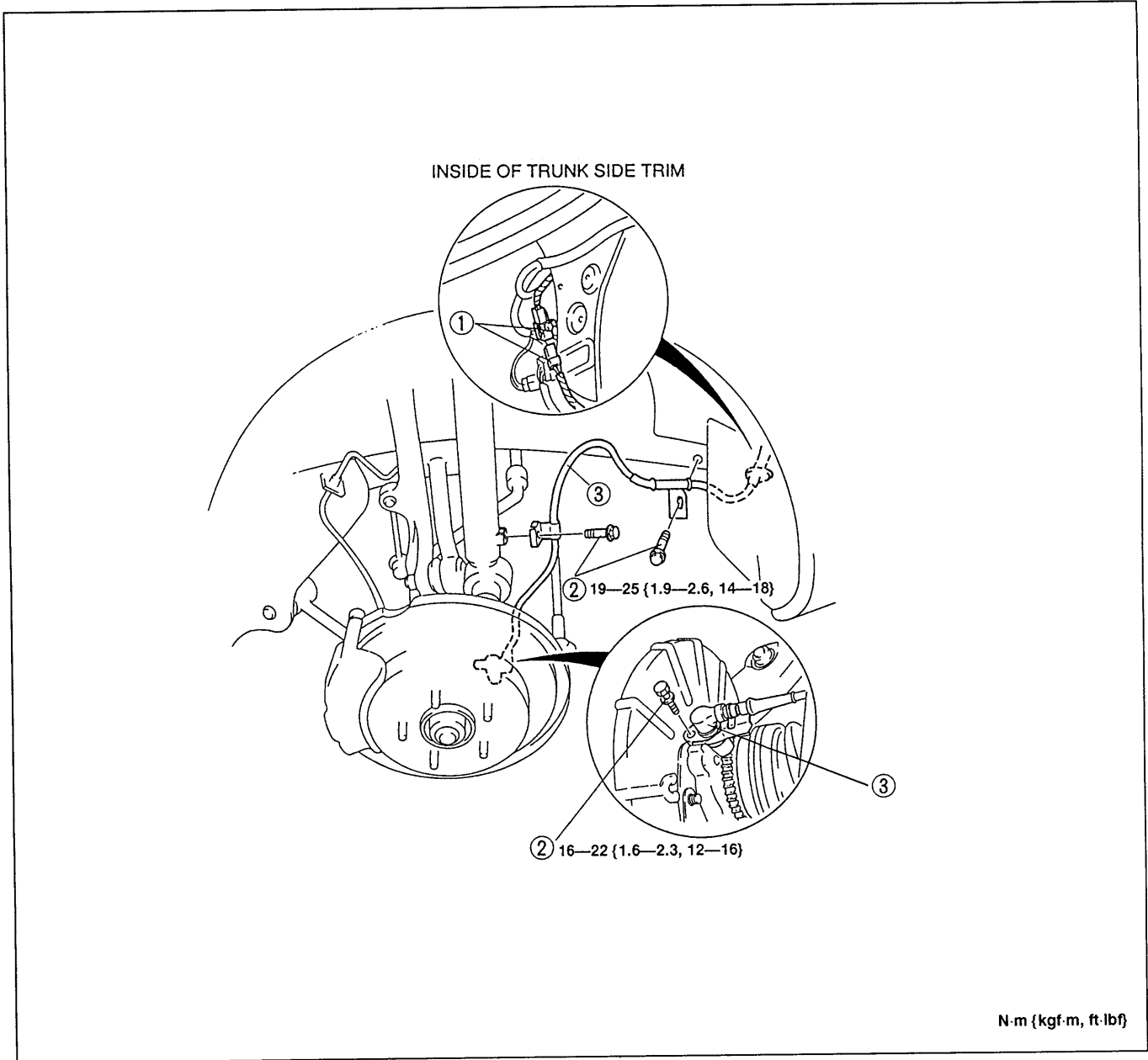
○—○ : Indicates continuity

- If not as specified, replace the valve relay.

ABS WHEEL-SPEED SENSOR (FRONT)

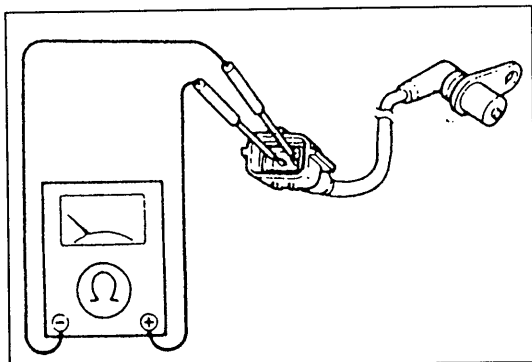
Removal / Installation

1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.



1. Connector
2. Bolt

3. ABS wheel-speed sensor
Inspection (on-vehicle) below

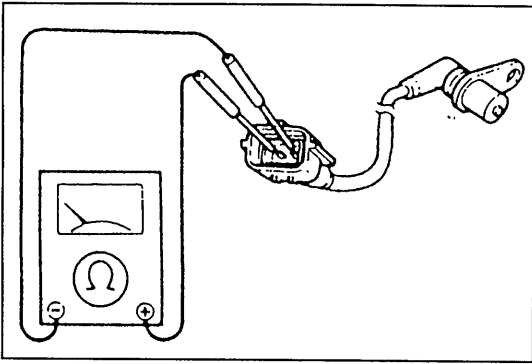


Inspection (on-vehicle)

1. Remove the wheel and tire, and inspect the sensor for looseness and damage. Replace the sensor if necessary.
2. Check the clearance between the ABS wheel-speed sensor and the sensor rotor.

Clearance: 0.3—1.1 mm {0.012—0.043 in}

3. If not as specified, replace the ABS wheel-speed sensor or sensor rotor as necessary.



Resistance of ABS wheel-speed sensor

1. Disconnect the ABS wheel-speed sensor connector.
2. Check resistance at the ABS wheel-speed sensor.

Resistance: 0.8—1.2 kΩ

Voltage of ABS wheel-speed sensor

1. On level ground, jack up the vehicle and support it evenly on safety stands.
2. Disconnect the ABS wheel-speed sensor connector.
3. Check each wheel by rotating it at one revolution per second.

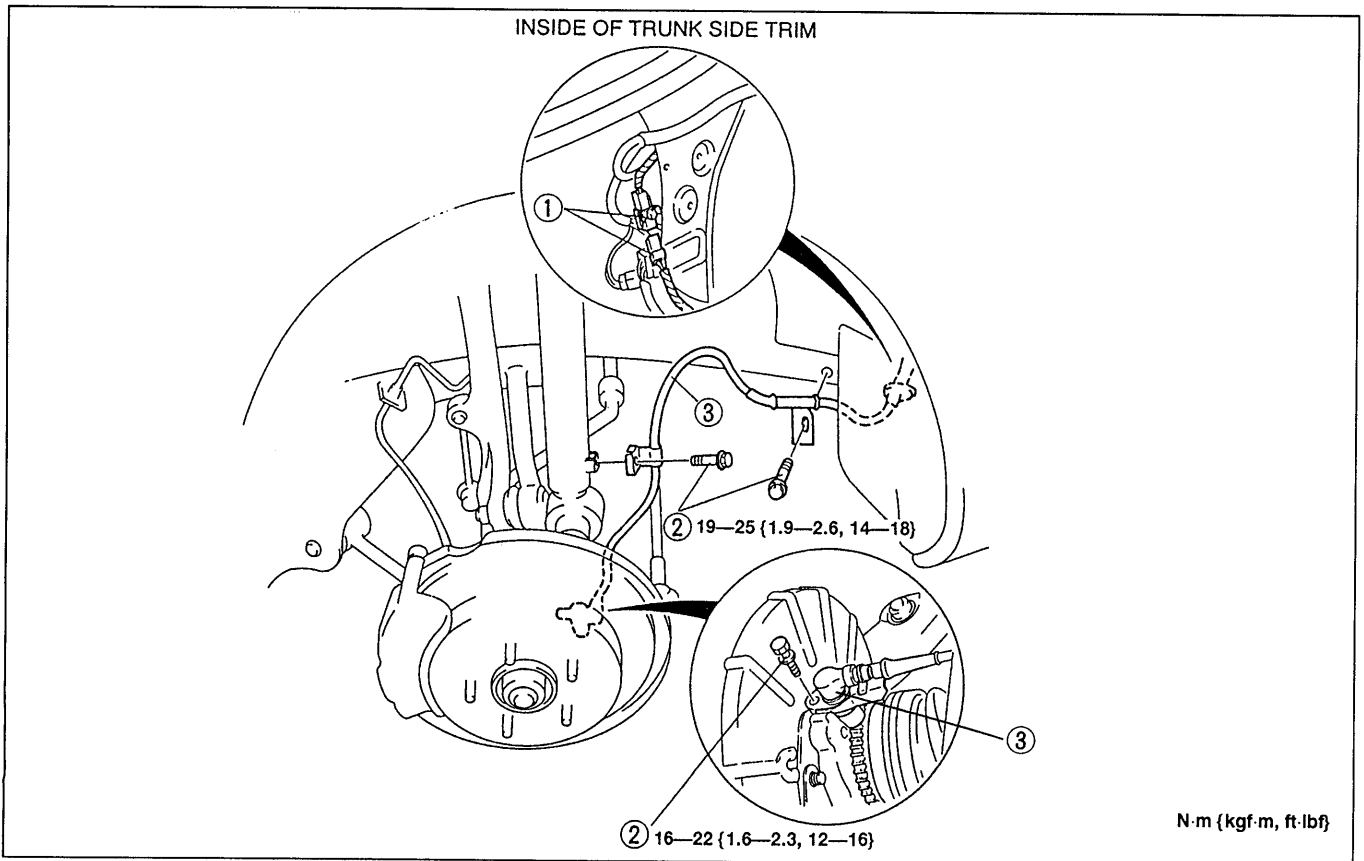
Voltage: 0.25—1.2 V (AC)

4. If not as specified, replace the ABS wheel-speed sensor or sensor rotor as necessary.

ABS WHEEL-SPEED SENSOR (REAR)

Removal / Installation

1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.



N·m {kgf·m, ft·lbf}

1. Connector
2. Bolt

3. ABS wheel-speed sensor

Inspection (on-vehicle) page P-64

WHEELS AND TIRES

OUTLINE	Q- 2
SPECIFICATIONS	Q- 2
TROUBLESHOOTING GUIDE	Q- 2
WHEELS AND TIRES	Q- 3
SPECIAL NOTES ABOUT WHEELS AND TIRES	Q- 3
NOTES REGARDING TIRE REPLACEMENT ...	Q- 3
INSPECTION / ADJUSTMENT	Q- 3
REMOVAL / INSTALLATION	Q- 4
TIRE ROTATION	Q- 5
WHEEL BALANCE ADJUSTMENT	Q- 5

OUTLINE

SPECIFICATIONS

Item		Type	Standard		Temporary spare
Wheels	Size		15×6 JJ	14×5 1/2-JJ	14×4T
	Offset	mm { in }	45 { 1.77 }		
	Pitch circle diameter	mm { in }	100 { 3.94 }		
	Material		Aluminum Alloy		Steel
Tires	Size		195/50R15 81V	185/60R14 82H	T115/70D14
	Air pressure	kPa { kgf/cm ² , psi }	177 { 1.8 , 26 }		412 { 4.2 , 60 }

TROUBLESHOOTING GUIDE

Problem	Possible Cause	Action	Page
Excessive or irregular tire wear	Refer to page Q-4 for details.		
Premature tire wear	Incorrect tire pressure	Adjust	Q-3
Tire squeal	Incorrect tire pressure	Adjust	Q-3
	Tire deterioration	Replace	—
Road noise or body vibration	Insufficient tire pressure	Adjust	Q-3
	Unbalanced wheel(s)	Adjust	Q-5
	Deformed wheel(s) or tire(s)	Repair or replace	—
	Irregular tire wear	Replace	Q-4
Shake (Steering wheel vibrates up/down)	Excessive tire and wheel runout	Replace	—
	Loose lug nuts	Tighten	Q-4
	Unbalanced wheel(s)	Adjust or replace	Q-5
	Cracked or worn engine mount	Replace	section B
Shimmy (Steering wheel vibrates left/right)	Cracked or worn steering gear mount	Replace	section N
	Loose steering gear mounting bolts	Tighten	section N
	Stuck or damaged steering ball joint	Replace	section N
	Excessive tire and wheel runout	Replace	Q-3
	Loose lug nuts	Tighten	Q-4
	Unbalanced wheel(s)	Adjust or replace	Q-5
	Insufficient tire pressure	Adjust	Q-3
	Unevenly worn tires	Replace	Q-4
	Malfunction of shock absorber	Replace	section R
	Loose shock absorber mounting bolts	Tighten	section R
	Stuck or damaged lower arm ball joint	Replace	section R
	Cracked or worn suspension bushings	Replace	section R
	Damaged or worn front wheel bearing	Replace	section M
Improperly adjusted front wheel alignment	Adjust	section R	
Uneven (one-sided) braking	Unequal tire pressures	Adjust	Q-3
Steering wheel doesn't return properly or pulls to either left or right	Incorrect tire pressure	Adjust	Q-3
	Irregular tire wear (left/right)	Replace	Q-4
	Unequal tire pressures	Adjust	Q-3
	Different types or brands of tires mixed (left/right)	Replace	—
	Loose lug nuts	Tighten	Q-4
General driving instability	Unequal tire pressures	Adjust	Q-3
	Damaged or unbalanced wheel(s)	Replace or adjust	Q-5
	Loose lug nuts	Tighten	Q-4
Excessive steering wheel play	Loose lug nuts	Tighten	Q-4

WHEELS AND TIRES

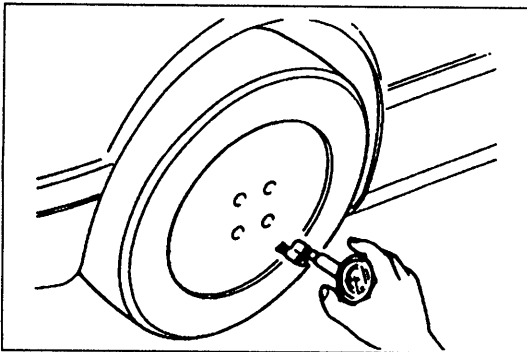
SPECIAL NOTES ABOUT WHEELS AND TIRES

1. Do not use wheels or tires other than those types specified.
2. Aluminum wheels are easily scratched. When washing them, use a soft cloth, never a wire brush. If the vehicle is steam cleaned, do not allow boiling water to contact the wheels.
3. If alkaline compounds (such as salt-water or road salts) get on aluminum wheels, wash them as soon as possible to prevent damage. Use only a neutral detergent.

NOTES REGARDING TIRE REPLACEMENT

Note the following points when tires are to be removed from or mounted onto the wheels.

1. Be careful not to damage the tire bead, the rim bead, or the edge of the rim.
2. Apply a soapy solution to the tire bead and the edge of the rim.
3. Use a wire brush, sandpaper, or cloth to clean and remove all rust and dirt from the rim edge and the rim bead. For aluminum wheels, use only a cloth for this purpose; never use a wire brush or sandpaper.
4. Remove pebbles, glass, nails, and other foreign items embedded in the tire tread.
5. Be sure the air valve is installed correctly.
6. After mounting a tire on a wheel, inflate it to **250—300 kPa { 2.55—3.06 kgf/cm² , 35.55—42.66 psi }**. Verify that the bead is seated correctly on the rim and that there are no air leaks. Then reduce the pressure to the specified level.
7. If a tire iron is used to change a tire on an aluminum wheel, be sure to use a piece of rubber between the iron lever and the wheel to avoid damage to the wheel. Work should be done on a rubber mat, not on a hard or rough surface.



INSPECTION / ADJUSTMENT

Check the following and adjust or replace as necessary.

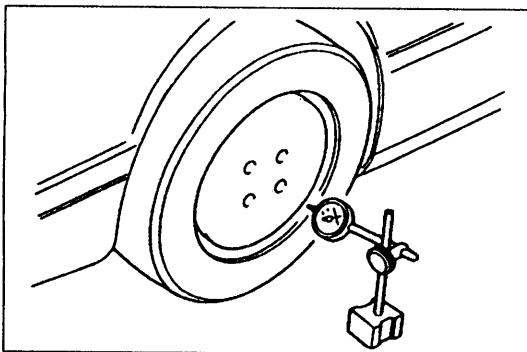
1. Air pressure.
Check the air pressure of all tires when they are cold, including the spare tire, with an air pressure gauge.

Air pressure

Standard tires: 177 kPa { 1.8 kgf/cm² , 26 psi }

Temporary spare tires:

412 kPa { 4.2 kgf/cm² , 60 psi }

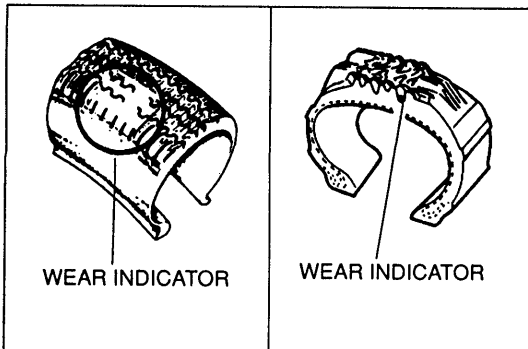


2. Wheel runout.
Set the probe of a dial indicator against the wheel, and turn the wheel one full revolution.

Wheel runout

Radial: 2.0 mm { 0.0787 in } max.

Lateral: 1.5 mm { 0.0591 in } max.



3. Tire wear.

Specifications

Remaining tread

Ordinary tires: 1.6 mm { 0.063 in } min.

(Tire should be replaced if wear indicators are exposed.)

Snow tires: 50% of tread

(Tire should be replaced if wear indicators are exposed.)

Troubleshooting guide

Abnormal tire wear patterns, such as those shown in the illustration can occur. Refer to the chart for the possible causes and actions.

	Possible cause	Action
(a)	<ul style="list-style-type: none"> Underinflation (both sides worn) Incorrect camber (one side worn) Hard cornering Lack of rotation 	<ul style="list-style-type: none"> Measure and adjust pressure Repair or replace suspension parts Reduce speed Rotate tires
(b)	<ul style="list-style-type: none"> Overinflation Lack of rotation 	<ul style="list-style-type: none"> Measure and adjust pressure Rotate tires
(c)	<ul style="list-style-type: none"> Incorrect toe-in 	<ul style="list-style-type: none"> Adjust toe-in
(d)	<ul style="list-style-type: none"> Incorrect camber or caster Malfunctioning suspension Unbalanced wheel Out-of-round brake drum or disc Other mechanical conditions Lack of rotation 	<ul style="list-style-type: none"> Repair or replace suspension parts Repair or replace Balance or replace Correct or replace Correct or replace Rotate tires

1. Cracks, damage, and foreign matter (such as metal pieces, nails, and stones) in the tire and cracks, deformation, and damage to the wheel.
2. Loose wheel lug nut(s).
3. Air leaking from valve stem.

REMOVAL / INSTALLATION

When reinstalling a wheel, retighten the lug nuts to the specified torque after about **1,000 km { 620 miles }** driving.

Caution

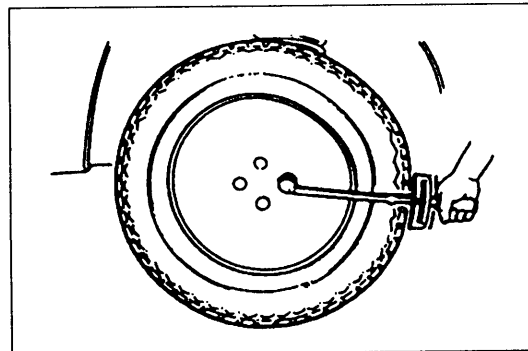
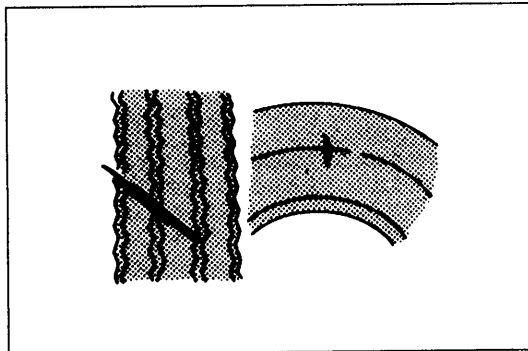
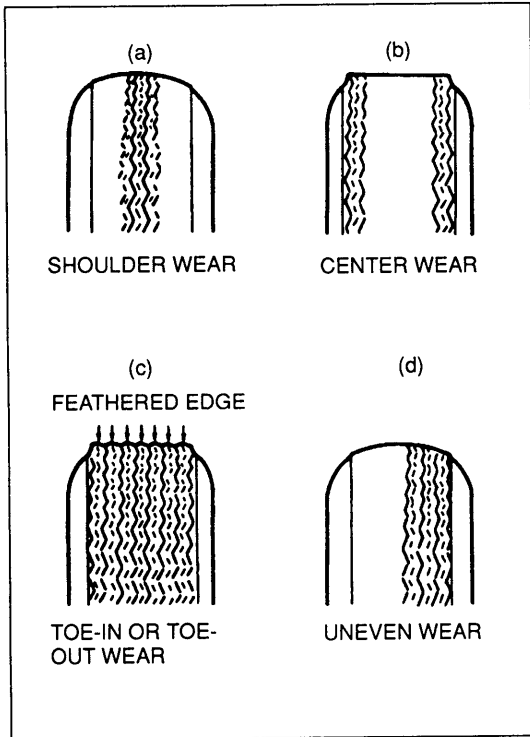
- **Applying oil to the lug nuts, bolts, or wheels will cause the lug nuts to become loosened.**

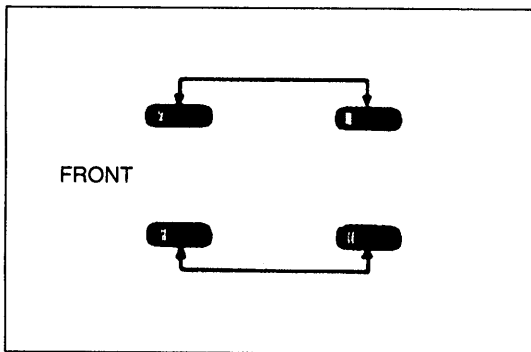
Tighten the lug nuts to the specified torque in a criss-cross fashion.

Verify that the wheel-to-hub contact surfaces are clean.

Tightening torque:

89—117 N·m { 9—12 kgf·m , 66—86 ft·lbf }

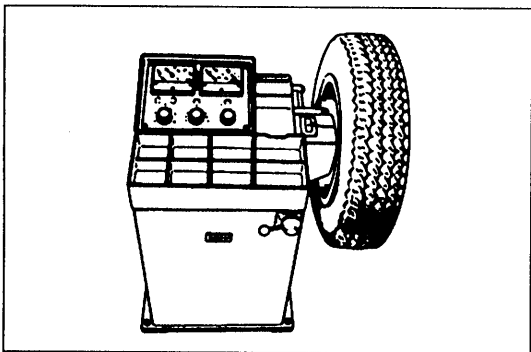




TIRE ROTATION

To prolong tire life and assure uniform tire wear, rotate the tires as specified below except the "TEMPORARY-USE ONLY" spare tire. After rotating the tires, adjust each tire to the specified air pressure. (Refer to page Q-3.)

U.S.A: Every 6,000 km { 3,750 miles }
Canada: Every 24,000 km { 15,000 miles } or 15 months (Whichever comes first)

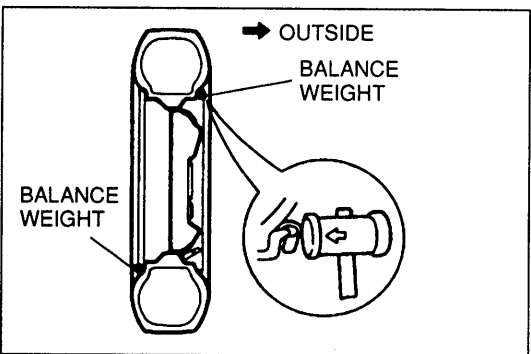


WHEEL BALANCE ADJUSTMENT

If a wheel becomes unbalanced or if a tire is replaced or repaired, the wheel must be rebalanced to within specification.

When balancing a wheel:

- (1) Use no more than two balance weights on the inner or outer side of the wheel.
- (2) One balance weight should weigh no more than **60 g { 2.1 oz }**. If the total weight of all the balance weights on one side exceeds **100 g { 3.53 oz }**, then rebalance after repositioning the tire on the rim.
- (3) Select suitable balance weights for steel or aluminum alloy wheels.



Caution

- **Using an on-vehicle balancer may cause damage to the transmission. Always use an off-vehicle balancer whenever balancing a wheel(s).**

Maximum unbalance (at rim edge): 10 g { 0.35 oz }

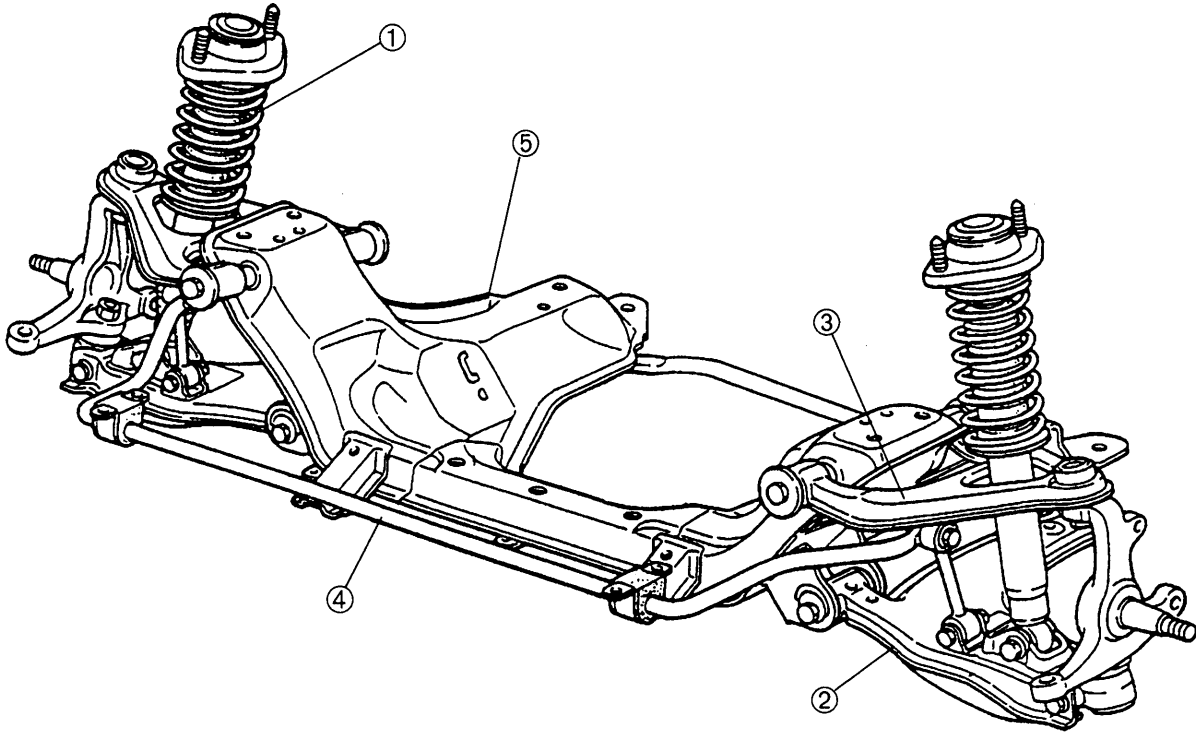
Before beginning any service procedure, refer to section T of this manual for air bag system service warnings and audio antitheft system alarm conditions.

SUSPENSION

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- OUTLINE** R- 4
 - SPECIFICATIONS R- 4
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 - PRE-INSPECTION R- 6
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- FRONT SUSPENSION (DOUBLE-WISHBONE)** ... R-11
 - PREPARATION R-11
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 - UPPER ARM R-22
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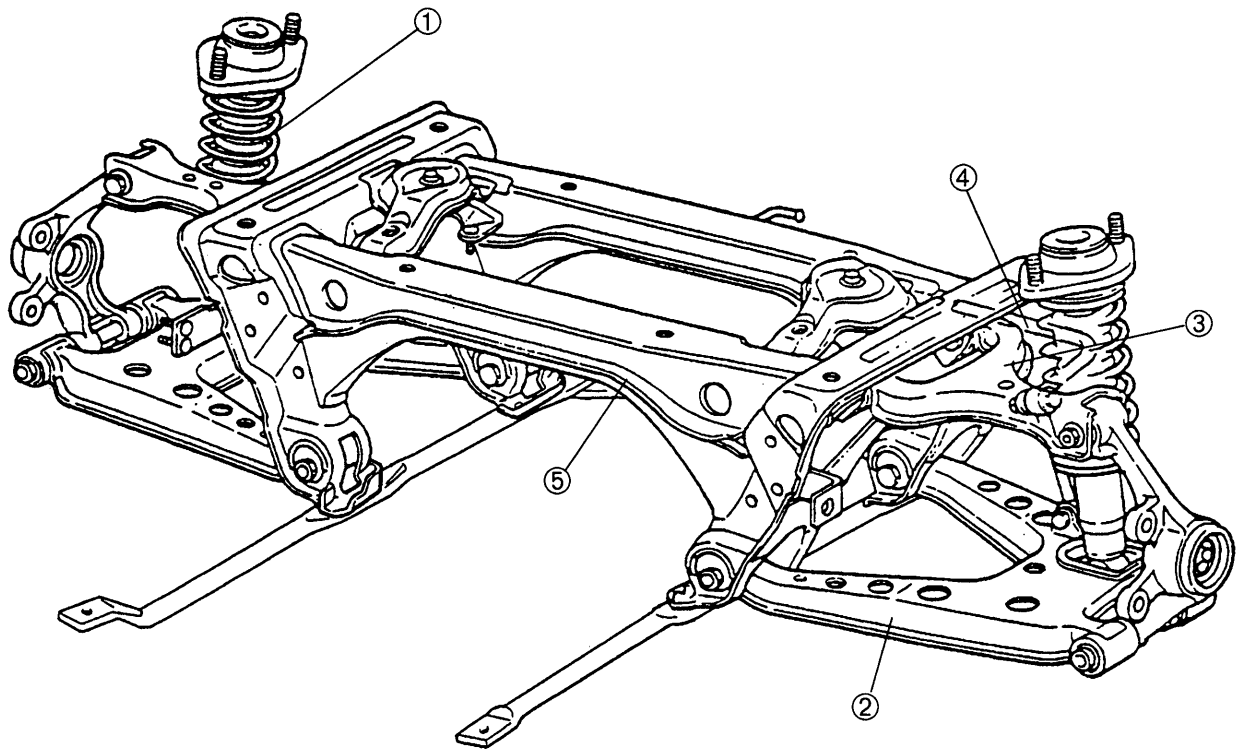
FRONT SUSPENSION



1. Shock absorber and spring
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 Disassembly / Inspection /
 Assembly page R-14
2. Lower arm
 Removal / Inspection /
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REAR SUSPENSION



R

- | | |
|---|--|
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 Removal / Installation page R-28
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|---|--|

OUTLINE

SPECIFICATIONS

Front Suspension

Item		Transmission	Specifications	
			MT	AT
Suspension type			Double-wishbone	
Stabilizer	Type		Torsion bar	
	Diameter	mm { in }	19.0 { 0.75 }	
Shock absorber			Cylindrical double acting, low-pressure-gas charged	
Front wheel alignment (Unladen* ¹)	Total toe-in	mm { in }	3 ± 4 { 0.12 ± 0.15 }	
		degree	0°18' ± 24'* ²	
	Maximum steering angle	Inner	37° 23' ± 2°	
		Outer	32° 32' ± 2°	
	Camber angle* ³		0°24' ± 1°	
	Caster angle* ³		4°26' ± 1°	
SAI* ⁴		11°20'		

Rear Suspension

Item		Transmission	Specifications	
			MT	AT
Suspension type			Double-wishbone	
Stabilizer	Type		Torsion bar	
	Diameter	mm { in }	11.0 { 0.43 }	
Shock absorber			Cylindrical double acting, low-pressure-gas charged	
Rear wheel alignment (Unladen* ¹)	Total toe-in	mm { in }	3 ± 4 { 0.12 ± 0.15 }	
		degree	0°18' ± 24'* ²	
	Camber angle* ³		-0°43' ± 1°	

*¹ • Fuel tank full; radiator coolant and engine oil at specified levels; spare tire, jack, and tools in designated positions

• Adjust to the median when carrying out wheel alignment

*² Indicates measurements made by using the 4-wheel alignment tester

*³ Difference between left and right must not exceed 1.5°

*⁴ SAI: Steering Axis Inclination

TROUBLESHOOTING GUIDE

Problem	Possible cause	Action	Page
General instability	Weak coil spring Malfunction of shock absorber Worn or damaged stabilizer and/or suspension arm bushings	Replace Replace Replace	R-14 R-13, 28 R-19, 22, 25, 29, 31, 33 section M
	Worn or damaged upper or lower arm ball joint Improperly adjusted wheel alignment	Replace Adjust	R-19, 22 R- 6
Body "rolls"	Weak stabilizer Worn or damaged stabilizer and/or suspension arm bushings	Replace Replace	R-25, 33 R-19, 22, 25, 29, 31, 33 section M
"Heavy" steering wheel operation	Insufficiently lubricated or stuck upper arm lower arm ball joint	Replace	R-19, 22
	Improperly adjusted wheel alignment	Adjust	R- 6
Steering wheel pulls to one side	Weak coil spring	Replace	R-14
	Worn or damaged stabilizer and/or suspension arm bushings	Replace	R-19, 22, 25, 29, 31, 33
	Deformed upper or lower arm or knuckle	Replace	R-19, 22 section M
	Loose upper or lower arm bushing	Replace	R-19, 22
Excessive steering wheel play	Worn or damaged upper or lower arm bushing	Replace	R-19, 22
	Worn or damaged upper or lower arm ball joint	Replace	R-19, 22
Body leans	Weak coil spring	Replace	R-14
	Weak stabilizer and/or suspension arm bushings	Replace	R-19, 22, 25, 29, 31, 33 section M
Abnormal noise from suspension system	Loose mounting component	Tighten	—
	Poorly lubricated or worn upper or lower arm ball joint	Replace	R-19, 22
	Malfunction of shock absorber	Replace	R-12, 28
	Worn or damaged stabilizer and/or suspension arm bushings	Replace	R-19, 22, 25, 29, 31, 33 section M
Shake (Steering wheel vibrates up/down)	Excessive tire or wheel runout	Replace	—
	Loose lug nuts	Tighten	section Q
	Unbalanced wheel(s)	Adjust or replace	section Q
	Cracked or worn engine mounting rubber	Replace	section B
Shimmy (Steering wheel vibrates circumferentially)	Cracked or worn steering gear mounting rubber	Replace	section N
	Loose steering gear mounting bolts	Tighten	section N
	Stuck or damaged steering ball joint	Replace	section N
	Excessive tire or wheel runout	Replace	—
	Loose lug nuts	Tighten	section Q
	Unbalanced wheel(s)	Adjust or replace	section Q
	Insufficient tire pressure	Adjust	section Q
	Unevenly worn tires	Replace	section Q
	Malfunction of shock absorber	Replace	R-13, 26
	Loose shock absorber mounting bolts	Tighten	R-13, 26
	Stuck or damaged upper or lower arm ball joint	Replace	R-19, 22
	Cracked or worn suspension bushings	Replace	R-19, 22, 25
	Damaged or worn front wheel bearing	Replace	section M
	Improperly adjusted front wheel alignment	Adjust	R- 6

WHEEL ALIGNMENT

PRE-INSPECTION

1. Check the tire inflations, and adjust to the recommended pressure if necessary.
2. Inspect the front wheel bearing play and correct if necessary.
3. Inspect the wheel and tire runouts.
4. Inspect the ball joints and steering linkage for excessive looseness.
5. The vehicle must be on level ground and carry no luggage or passengers.
6. Measure the height from the center of the wheel to the fender brim. The difference between left and right measurement must not exceed **10 mm { 0.39 in }**, and the rear measurement must be larger than the front measurement by **10—30 mm { 0.4—1.1 in }**.

Caution

- The proper caster and camber angle vary depending on the vehicle height. Refer to the following and to page R-9 for the specifications.
- Inspection and adjustment of wheel alignment must be done with the vehicle unladen*1.

FRONT WHEEL ALIGNMENT Specifications (Unladen*1)

Item		Specifications	
Total toe-in	mm { in }	$3 \pm 4 \{ 0.12 \pm 0.15 \}$	
	degree	$0^{\circ}18' \pm 24'^{*2}$	
Maximum steering angle	Inner	$37^{\circ}23' \pm 2^{\circ}$	
	Outer	$32^{\circ}32' \pm 2^{\circ}$	
SAI*3		$11^{\circ}20'$	
Camber angle*4	Height from center of wheel to fender brim mm { in }	328—337 { 12.9—13.3 }	$-0^{\circ}20' \pm 1^{\circ}$
		338—347 { 13.3—13.7 }	$0^{\circ}03' \pm 1^{\circ}$
		348—357 { 13.7—14.1 }	$0^{\circ}24' \pm 1^{\circ}$
		358—367 { 14.1—14.4 }	$0^{\circ}44' \pm 1^{\circ}$
		368—377 { 14.4—14.8 }	$1^{\circ}02' \pm 1^{\circ}$
Caster angle*4	Height from center of wheel to fender brim mm { in }	328—337 { 12.9—13.3 }	$5^{\circ}16' \pm 1^{\circ}$
		338—347 { 13.3—13.7 }	$5^{\circ}02' \pm 1^{\circ}$
		348—357 { 13.7—14.1 }	$4^{\circ}49' \pm 1^{\circ}$
		358—367 { 14.1—14.4 }	$4^{\circ}35' \pm 1^{\circ}$
		368—377 { 14.4—14.8 }	$4^{\circ}21' \pm 1^{\circ}$

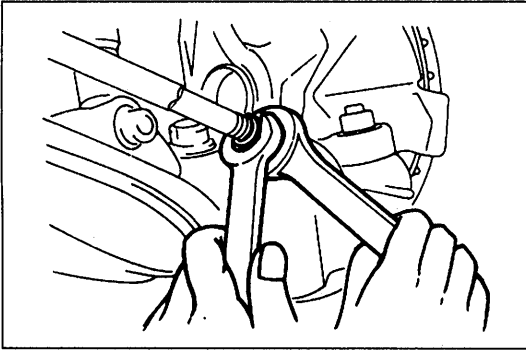
*1 • Fuel tank full; radiator coolant and engine oil at specified levels; spare tire, jack, and tools in designated positions

• Adjust to the median when carrying out wheel alignment

*2 Indicates measurements made by using the 4-wheel alignment tester

*3 SAI: Steering Axis Inclination

*4 Difference between left and right must not exceed 1.5°



Adjustment

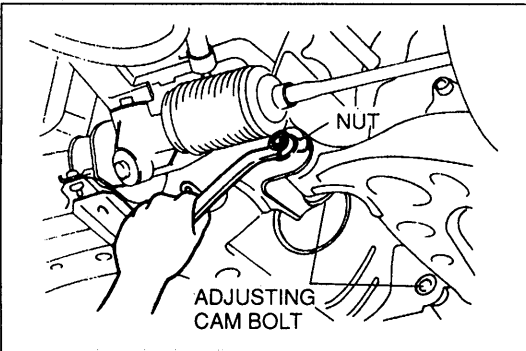
Maximum steering angle

1. Remove the steering gear boot clamp.
2. Loosen the tie rod locknut.
3. Turn the tie rod to provide the correct maximum steering angle.
4. After adjustment, tighten the locknut to the specified torque.

Tightening torque:

35—39 N·m { 3.5—4.0 kgf·m , 26—28 ft·lbf }

5. Adjust the toe-in. (Refer to page R-8.)
6. Verify that the boot is not twisted, and install the boot clamp.



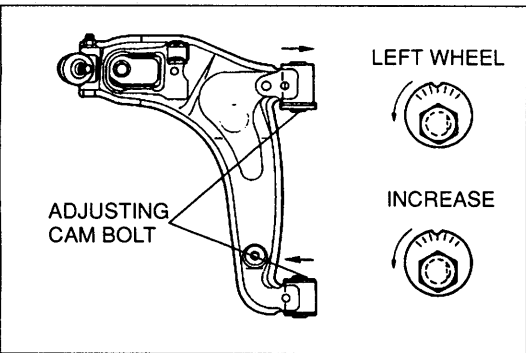
Caster

Caster is adjusted by turning the front and/or rear adjusting cam bolts at the lower arm.

Caution

- **Adjust the caster before adjusting the camber.**

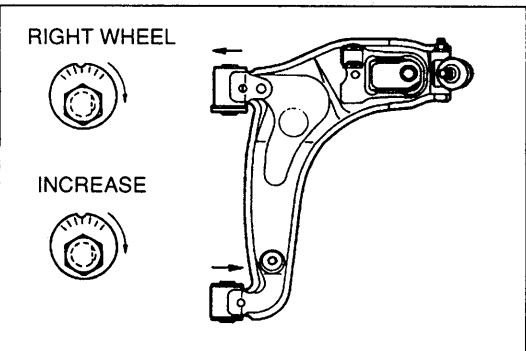
1. Loosen the front and/or rear cam nuts.
2. Turn the front and/or rear adjusting cam bolts to provide the correct caster angle.



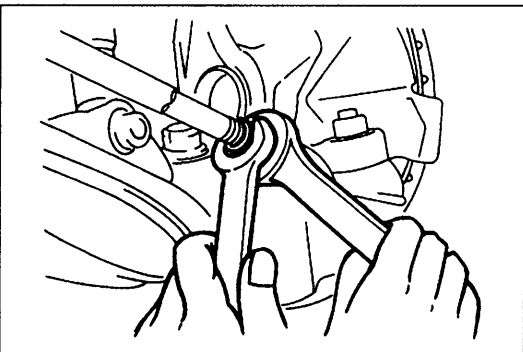
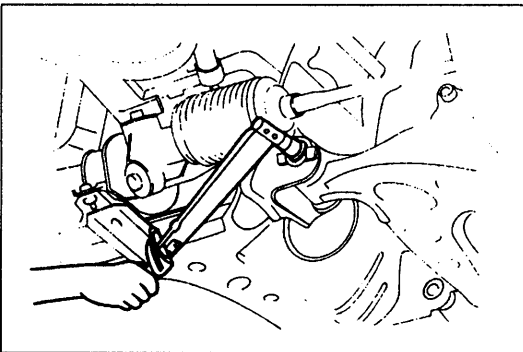
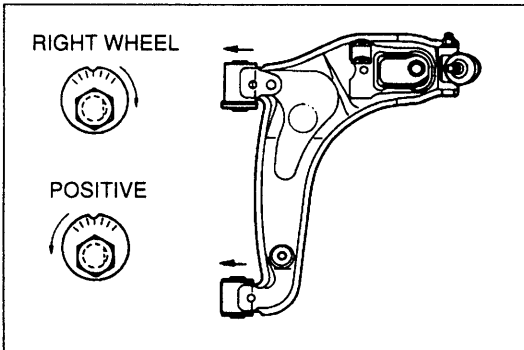
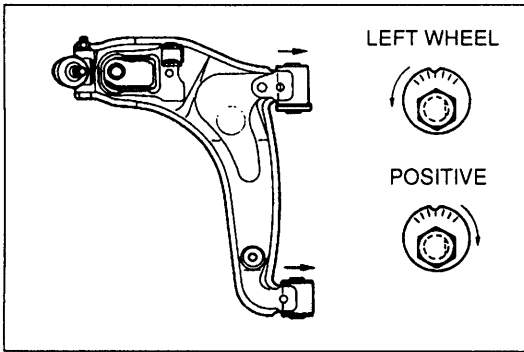
Caster	Left wheel		Right wheel	
	Front cam	Rear cam	Front cam	Rear cam
Increase	Counter-clockwise	Counter-clockwise	Clockwise	Clockwise
Decrease	Clockwise	Clockwise	Counter-clockwise	Counter-clockwise

Note

- Turning the front cam one graduation on the scale changes the caster angle about 22' and the camber about 25'. Turning the rear cam one graduation changes the caster angle about 22' and the camber about 2'.



3. Adjust the camber and the toe-in.



Camber

Camber is adjusted by turning the front and rear adjusting cam bolts at the lower arm.

Caution

- **Adjust the camber after adjusting the caster.**

1. Loosen the front and rear cam nuts.
2. Turn the front and rear adjusting cam bolts the same amount in the opposite direction to provide the correct camber angle.

Caster	Left wheel		Right wheel	
	Front cam	Rear cam	Front cam	Rear cam
Positive	Counter-clockwise	Clockwise	Clockwise	Counter-clockwise
Negative	Clockwise	Counter-clockwise	Counter-clockwise	Clockwise

Note

- Turning the front cam one graduation changes the camber about **25'** and the caster about **22'**. Turning the rear cam one graduation changes the camber about **2'** and the caster about **22'**.

Note

- If the cam cannot be turned far enough to make the adjustment, begin again at adjustment of the caster using the other cam.

3. Tighten the nuts.

Tightening torque:

94—112 N·m { 9.5—11.5 kgf·m , 69—83 ft·lbf }

4. Adjust the toe-in.

Toe-in

1. Remove the steering gear boot clamp.
2. Loosen the left and right tie rod locknuts, and turn the tie rods by the same amount.
3. Loosen the left and right tie rod locknuts and turn the tie rods equally. Both tie rods are right threaded, so turning the right tie rod toward the front of the vehicle and the left toward the rear increases toe-in.

Note

- Turning both tie rods one complete turn changes toe-in by about **7 mm { 0.28 in }**.

4. Tighten the tie rod locknuts to the specified torque.

Tightening torque:

35—39 N·m { 3.5—4.0 kgf·m , 26—28 ft·lbf }

5. Verify that the boot is not twisted, and install the boot clamp.

REAR WHEEL ALIGNMENT
Specifications (Unladen*1)

Item		Specifications	
Total toe-in		mm { in }	3 ± 4 { 0.12 ± 0.15 }
		degree	0°18' ± 24'*2
Camber angle*3	Height from center of wheel to fender brim*2 mm { in }	346—355 { 13.6—14.0 }	-1°08' ± 1°
		356—365 { 14.0—14.4 }	-0°54' ± 1°
		366—375 { 14.4—14.8 }	-0°43' ± 1°
		376—385 { 14.8—15.2 }	-0°35' ± 1°
		386—395 { 15.2—15.6 }	-0°30' ± 1°

- *1 • Fuel tank full; radiator coolant and engine oil at specified levels; spare tire, jack, and tools in designated positions
- Adjust to the median when carrying out wheel alignment
- *2 Indicates measurements made by using the 4-wheel alignment tester
- *3 Difference between left and right must not exceed 1.5°

Toe-in

Toe-in is adjusted by turning the front and/or rear adjusting cam bolts at the lower arm.

Caution

- **Adjust the toe-in before adjusting the camber.**

1. Loosen the front and/or rear cam nuts.
2. Turn the front and/or rear adjusting cam bolts to provide the correct toe-in.

Toe-in	Left wheel		Right wheel	
	Front cam	Rear cam	Front cam	Rear cam
Increase	Counter-clockwise	Counter-clockwise	Clockwise	Clockwise
Decrease	Clockwise	Clockwise	Counter-clockwise	Counter-clockwise

Note

- Turning the front cam one graduation changes the toe-in about **2.8 mm { 0.11 in }** and the camber about **15'**. Turning the rear cam one graduation changes the toe-in about **2.8 mm { 0.11 in }** and the camber about **6'**.

3. Adjust the camber.

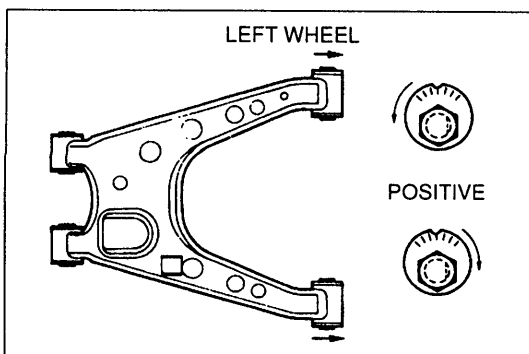
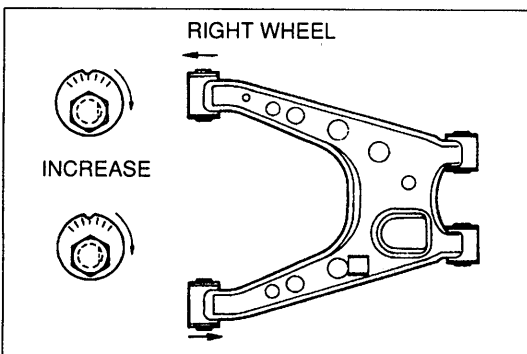
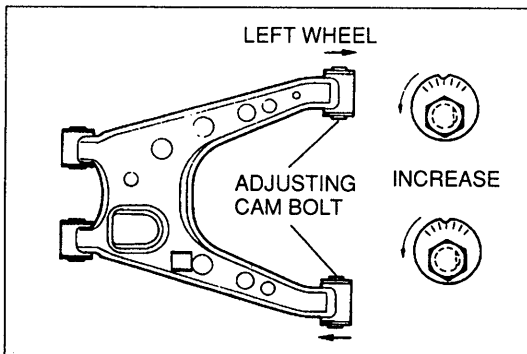
Camber

Camber is adjusted by turning the front and rear cams at the lower arm.

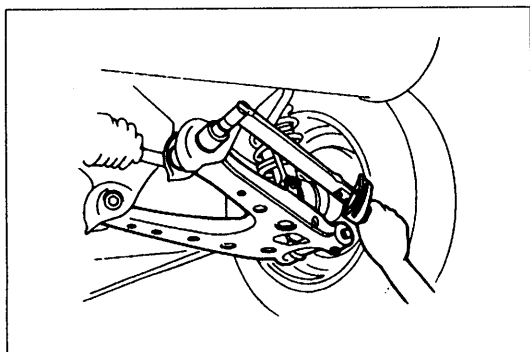
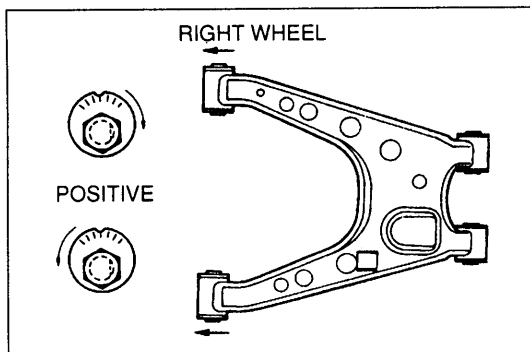
Caution

- **Adjust the camber after adjusting the toe-in.**

1. Loosen the front and rear cam nuts.
2. Turn the front and rear adjusting cam bolts the same amount in the opposite direction to provide the correct camber angle.



R



Caster	Left wheel		Right wheel	
	Front cam	Rear cam	Front cam	Rear cam
Positive	Counter-clockwise	Clockwise	Clockwise	Counter-clockwise
Negative	Clockwise	Counter-clockwise	Counter-clockwise	Clockwise

Note

- Turning the front cam one graduation changes the camber about $15'$ and the toe-in about 2.8 mm { 0.11 in }. Turning the rear cam one graduation changes the camber about $6'$ and the toe-in about 2.8 mm { 0.11 in }.
- If the cam cannot be turned far enough to make the adjustment, begin again at adjustment of the toe-in using the other cam.

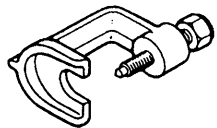
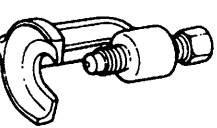

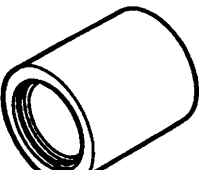
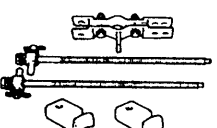

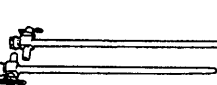

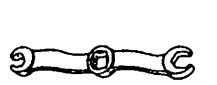
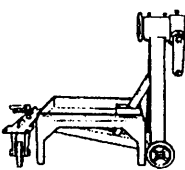
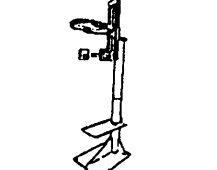
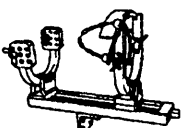
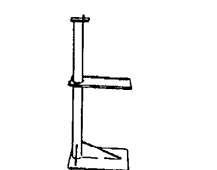
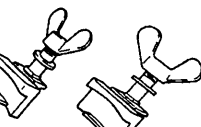
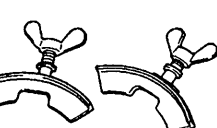
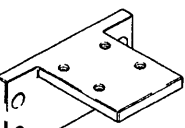
3. Tighten the nuts.

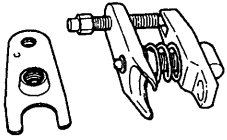
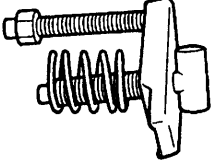

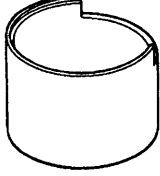
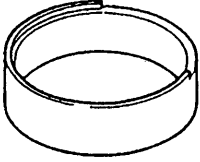
Tightening torque:

$73\text{--}95 \text{ N}\cdot\text{m}$ { $7.4\text{--}9.7 \text{ kgf}\cdot\text{m}$, $54\text{--}70 \text{ ft}\cdot\text{lbf}$ }

FRONT SUSPENSION (DOUBLE-WISHBONE)

PREPARATION
SST

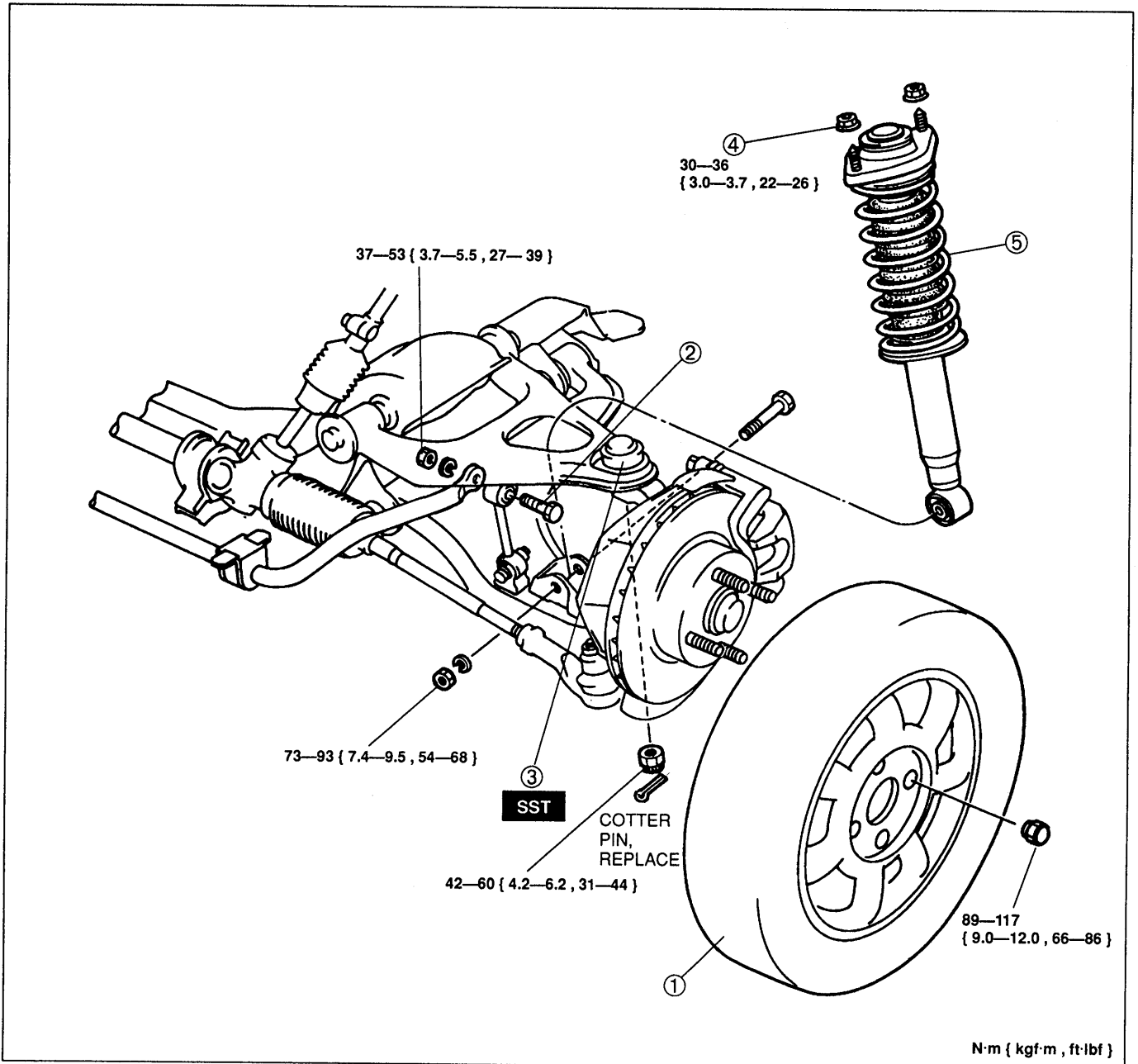
<p>49 0727 575</p> <p>Puller, socket joint</p>		<p>For removal of lower arm ball joint</p>	<p>49 0118 850C</p> <p>Puller, ball joint</p>		<p>For removal of upper arm ball joint</p>
<p>49 0180 510B</p> <p>Attachment, steering worm bearing preload measuring</p>		<p>For inspection of upper arm ball joint</p>	<p>49 H028 301</p> <p>Installer, dust boot</p>		<p>For installation of front lower arm boot</p>
<p>49 G034 1A0</p> <p>Compressor, coil spring</p>		<p>For removal and installation of coil spring</p>	<p>49 G034 101</p> <p>Body (Part of 49 G034 1A0)</p>		<p>For removal and installation of coil spring</p>
<p>49 G034 102</p> <p>Screw (Part of 49 G034 1A0)</p>		<p>For removal and installation of coil spring</p>	<p>49 G034 103</p> <p>Arm (Part of 49 G034 1A0)</p>		<p>For removal and installation of coil spring</p>
<p>49 0259 770B</p> <p>Wrench, flare nut</p>		<p>For removal and installation of brake pipe</p>	<p>49 0107 680A</p> <p>Engine stand</p>		<p>For removal and installation of coil spring</p>
<p>49 T034 1A0</p> <p>Compressor, coil spring</p>		<p>For removal and installation of coil spring</p>	<p>49 T034 101</p> <p>Compressor, spring (Part of 49 T034 1A0)</p>		<p>For removal and installation of coil spring</p>
<p>49 T034 102</p> <p>Stand (Part of 49 T034 1A0)</p>		<p>For removal and installation of coil spring</p>	<p>49 T034 103</p> <p>Hook (Part of 49 T034 1A0)</p>		<p>For removal and installation of coil spring</p>
<p>49 T034 104</p> <p>Support (Parts of 49 T034 1A0)</p>		<p>For removal and installation of coil spring</p>	<p>49 T034 105</p> <p>Attachment</p>		<p>For removal and installation of coil spring</p>

<p>49 T028 3A0</p> <p>Puller set, ball joint</p> 	<p>For removal of ball joint</p>	<p>49 T028 303</p> <p>Body (Part of 49 T028 3A0)</p> 	<p>For removal of ball joint</p>
<p>49 T028 304</p> <p>Attachment (Part of 49 T028 3A0)</p> 	<p>For removal of ball joint</p>	<p>49 B034 201</p> <p>Support block</p> 	<p>For removal and installation of bushing</p>
<p>49 N028 201</p> <p>Support block</p> 	<p>For removal of bushing</p>	<p>—</p>	<p>—</p>

SHOCK ABSORBER AND SPRING

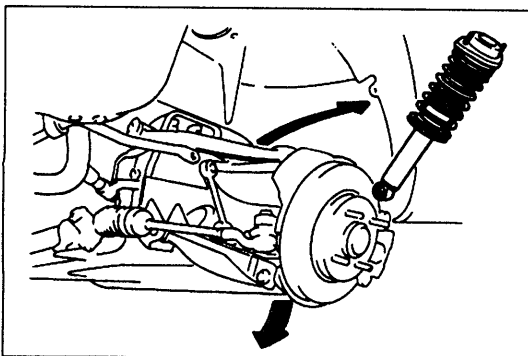
Removal / Installation

1. Jack up the front of the vehicle and support it with safety stands.
2. Remove the undercover.
3. Remove the band for the wheel-speed sensor harness.
4. Remove in the order shown in the figure, referring to **Removal Note**.
5. Inspect all parts and repair or replace as necessary.
6. Install in the reverse order of removal.
7. Loosely tighten the shock absorber, upper arm, stabilizer control link, and stabilizer bracket bolts.
Tighten all other nuts and bolts to the specified torques.
8. Install the band for the wheel speed sensor.
9. Lower the vehicle.
10. With the vehicle unloaded, tighten the upper arm and shock absorber bolts to the specified torques.
11. Adjust the front wheel alignment. (Refer to page R-6.)



- 1. Wheel and tire
- 2. Stabilizer control link bolt
- 3. Upper arm ball joint
Removal Note page R-22
- 4. Mounting plate nut

- 5. Shock absorber and spring
Removal Note below
Disassembly / Inspection /
Assembly page R-14



Removal note
Shock absorber and spring

- 1. Loosen the lower arm bolts.

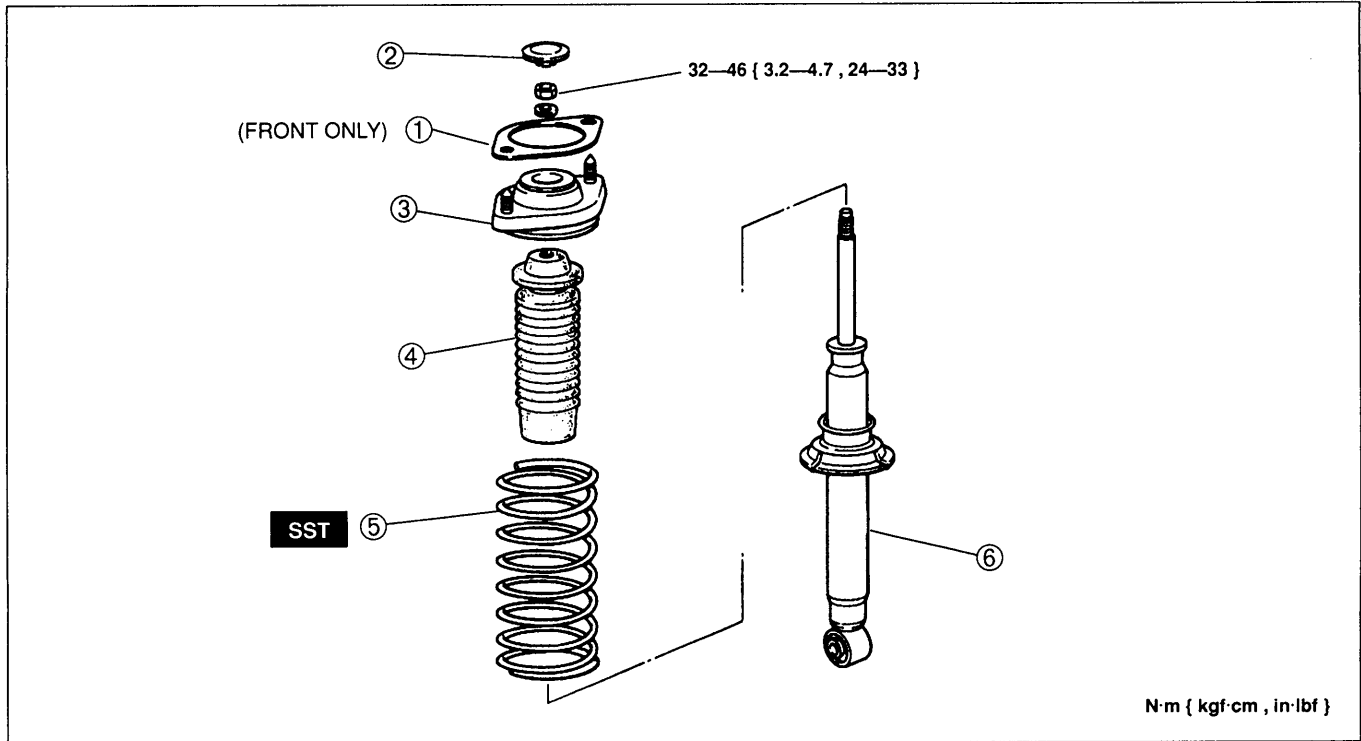
Caution

- Do not lower the arm excessively, which may damage the brake hose.

- 2. Lower the lower arm to remove the shock absorber.

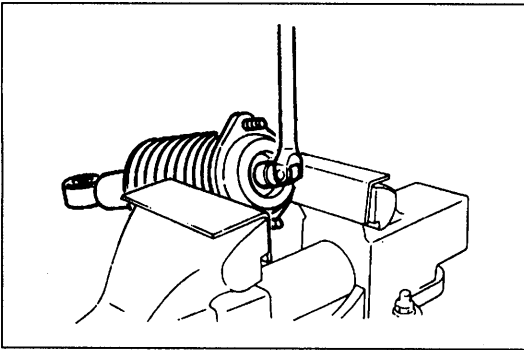
Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly Note**.
4. Tighten all nuts and bolts to the specified torques, referring to the figure.



1. Sheet (front only)
2. Cap
3. Mounting plate
4. Bound stopper
Inspect for damage

5. Coil spring
 - Disassembly Note
 - When using SST
 - 49 G034 1A0 page R-15
 - 49 T034 1A0 page R-17
 - Assembly Note
 - When using SST
 - 49 G034 1A0 page R-16
 - 49 T034 1A0 page R-18
6. Shock absorber
 - Inspection page R-15



Disassembly note

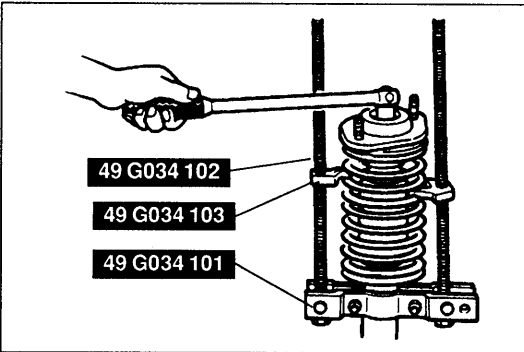
Coil spring

When using SST 49 G034 1A0

Warning

- Removing the coil spring nut is dangerous. The shock absorber and spring could fly off under tremendous pressure and cause serious injury or death. Secure the shock absorber in the SSTs before removing the coil spring nut.

1. Loosen the piston rod upper nut several turns, but do not remove the nut.
2. Assemble the SSTs.
3. Compress the coil spring with the SSTs, and remove the upper nut.
4. Remove the coil spring.

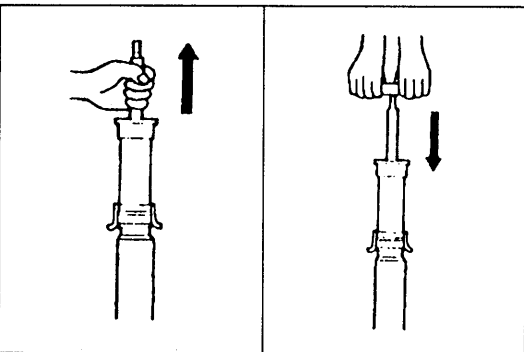


Inspection

Shock absorber

Check the following and replace if necessary.

1. Inspect for damage and oil leakage.
2. Inspect the rubber bushing for deterioration and wear.
3. Compress and extend the shock piston at least three (3) times. Verify that the operational force does not change and that there is no unusual noise.
4. (1) Compress the shock absorber piston and release it.
(2) Verify that the piston extends fully at a normal speed.

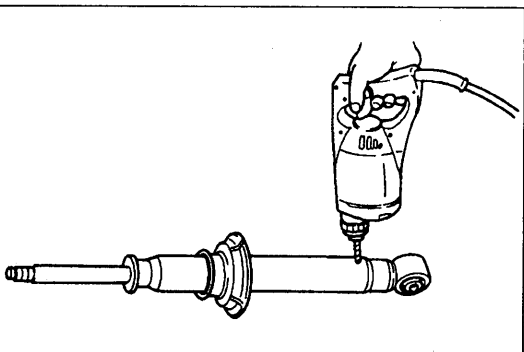


Disposal of shock absorber

Warning

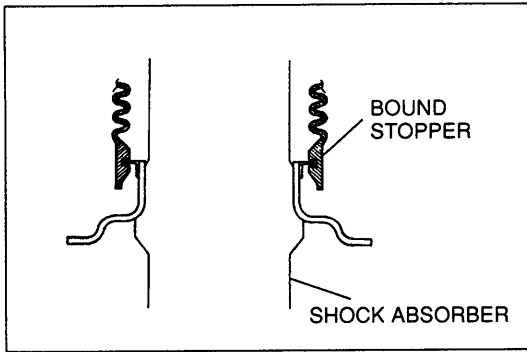
- The gas in the shock absorber is pressurized, and could spray metal chips into the eyes and face when drilling. Whenever drilling into a shock absorber, wear protective eye wear.

1. Clamp a shock absorber flat or with piston downwards.
2. Drill the 2—3 mm { 0.08—0.12 in } hole at a point of 20—30 mm { 0.79—1.18 in } from the bottom of the tube, so that the gas can escape.
3. Turn the hole downwards.
4. The oil can be collected by moving the piston rod several times up and down and cutting the tube at the end.
5. Dispose of waste oil according to the waste disposal law.

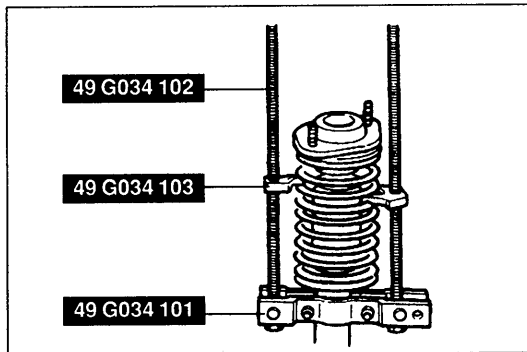


Note

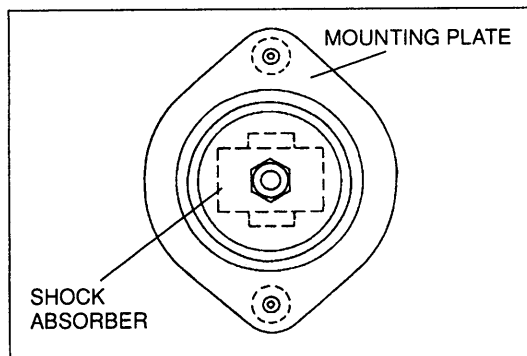
- Shock absorber gas is nitrogen gas.
- Shock absorber oil is mineral oil.

**Assembly note****Coil spring, bound stopper****When using SST 49 G034 1A0**

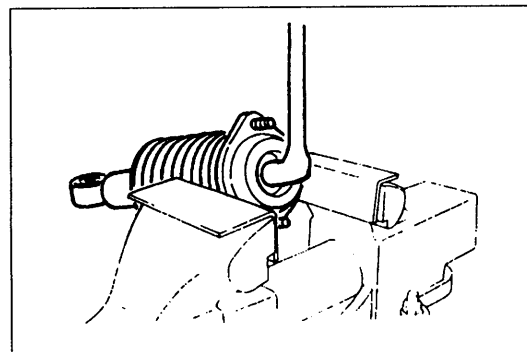
1. Set the shock absorber in a vise.
2. Install the bound stopper on the shock absorber as shown.



3. Install the compressed coil spring (compressed with SSTs).



4. Install the mounting plate as shown
5. Tighten the nut several turns.



6. Remove the SSTs.
7. Secure the mounting plate in a vise.
8. Tighten the nut.

Tightening torque:

32—46 N·m { 3.2—4.7 kgf·m , 24—33 ft·lbf }

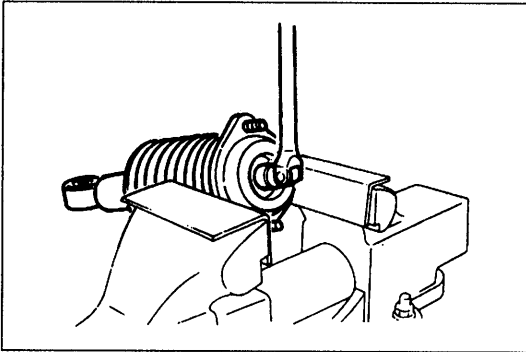
Disassembly note

Coil spring

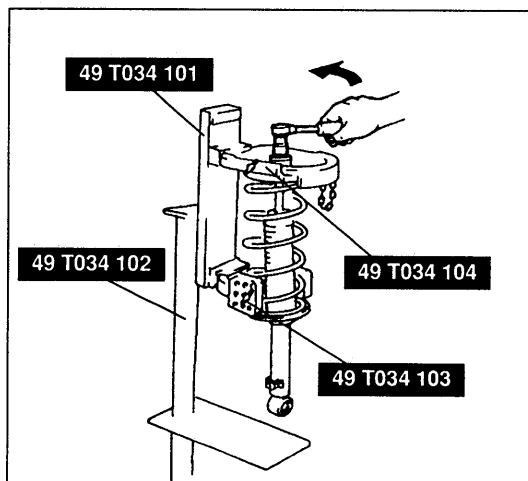
When using SST 49 T034 1A0

Warning

- Removing the coil spring nut is dangerous. The shock absorber and spring could fly off under tremendous pressure and cause serious injury or death. Secure the shock absorber in the SSTs before removing the coil spring nut.

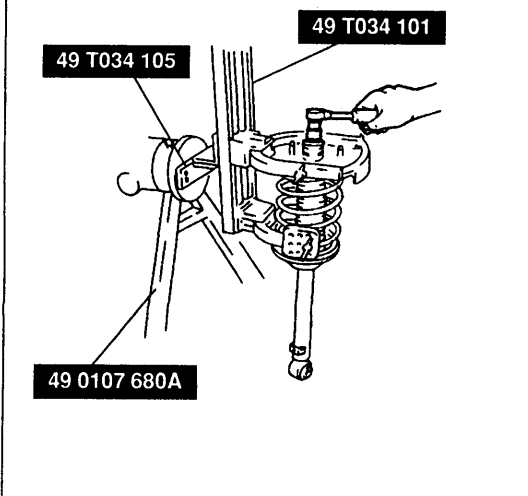


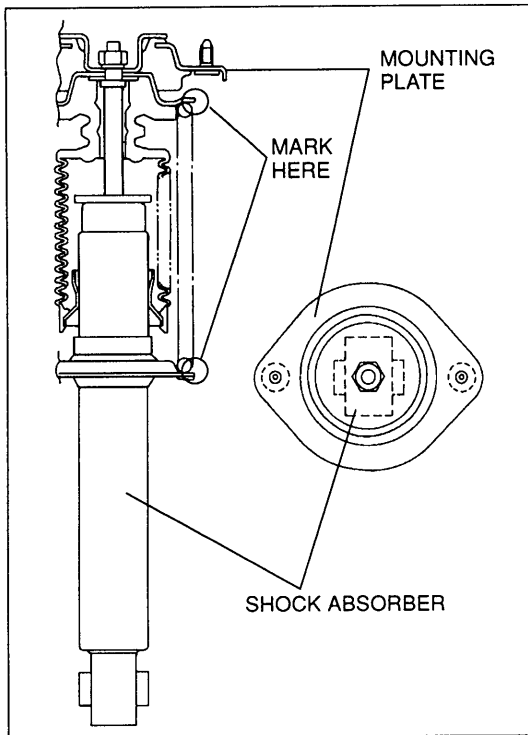
1. Loosen the piston rod upper nut several turns, but do not remove the nut.



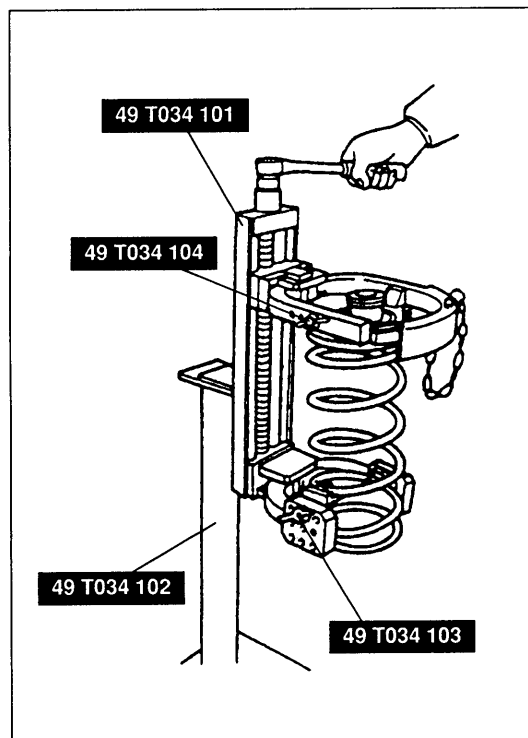
2. Assemble the SSTs.
3. Secure the shock absorber in the SSTs.
4. Compress the coil spring by using the SSTs and remove the nut.

WHEN USING ENGINE STAND

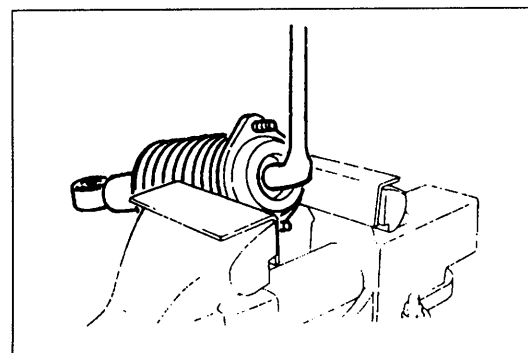


**Assembly note****Coil spring****When using SST 49 T034 1A0**

1. Temporarily assemble the mounting plate and coil spring to the shock absorber, as shown.
2. Mark the mounting plate, shock absorber and coil spring for proper reassembly.



3. Align the marks of the mounting plate and coil spring. Protect the mounting plate and the coil spring with a piece of cloth; then assemble the **SSTs**.
4. Use the **SSTs** to compress the spring.
5. Install the bound stopper.
6. Install the shock absorber, make sure that the marks on the shock absorber and coil spring are aligned.
7. Tighten the nut several turns.
8. Remove the **SSTs**.



9. Secure the mounting rubber in a vise.
10. Tighten the nut.

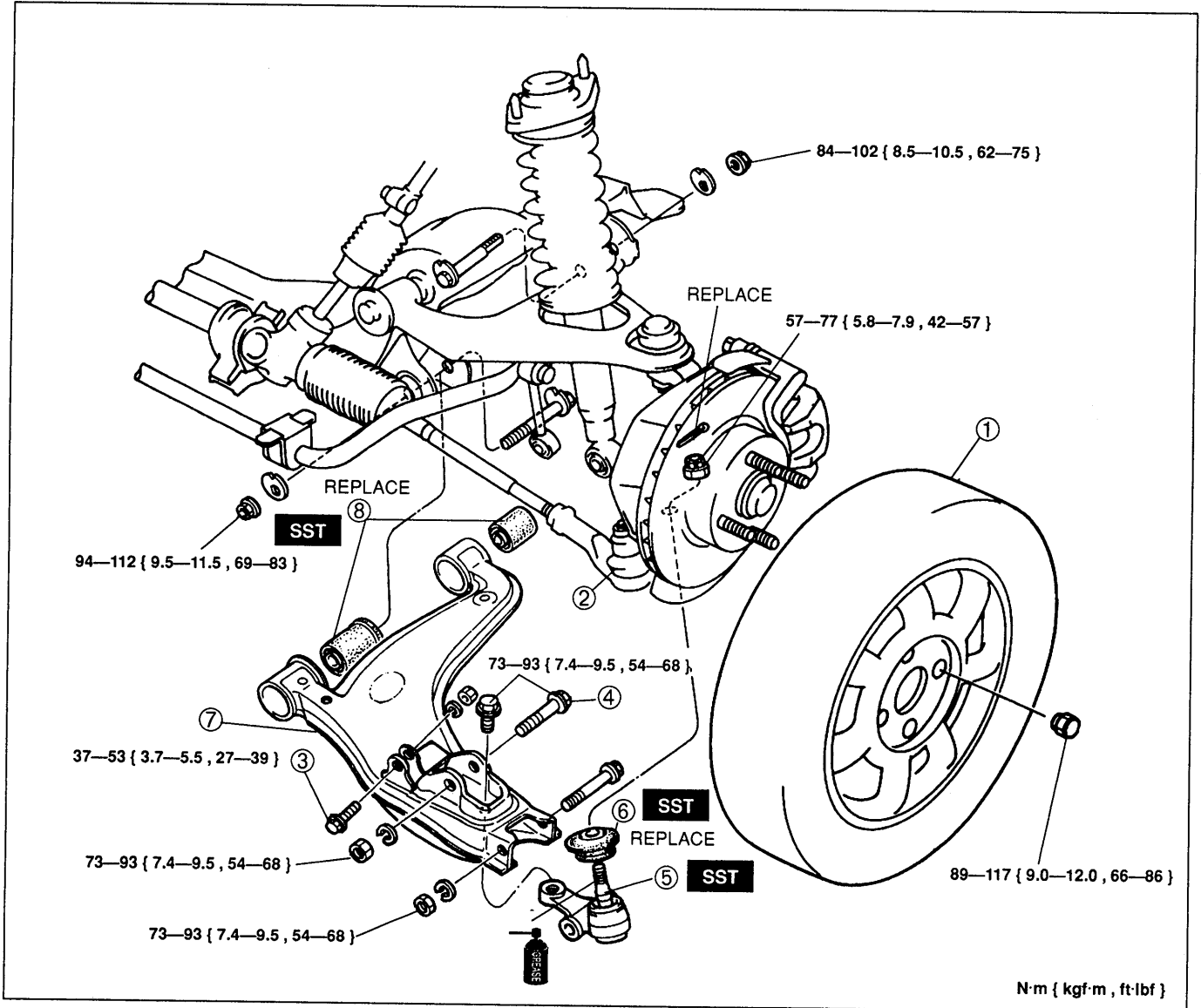
Tightening torque:

32—46 N·m { 3.2—4.7 kgf·m , 24—33 ft·lbf }

LOWER ARM

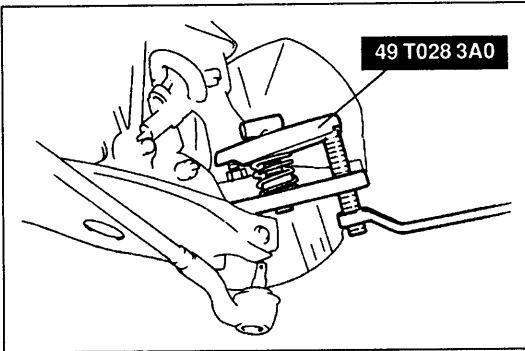
Removal / Inspection / Installation

1. Jack up the front of the vehicle and support it with safety stands.
2. Remove the undercover.
3. Remove in the order shown in the figure, referring to **Removal Note**.
4. Inspect all parts and repair or replace as necessary.
5. Install in the reverse order of removal, referring to **Installation Note**.
6. Loosely tighten the lower arm, shock absorber, and stabilizer control link bolts. Tighten all other nuts and bolts to the specified torque with the vehicle unladen.
7. Lower the vehicle.
8. With the vehicle unloaded, tighten the lower arm, shock absorber, and stabilizer control link bolts to the specified torques.
9. Adjust the front wheel alignment. (Refer to page R-6.)

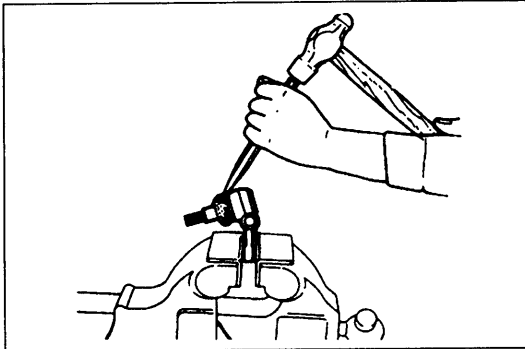


N·m { kgf·m, ft·lbf }

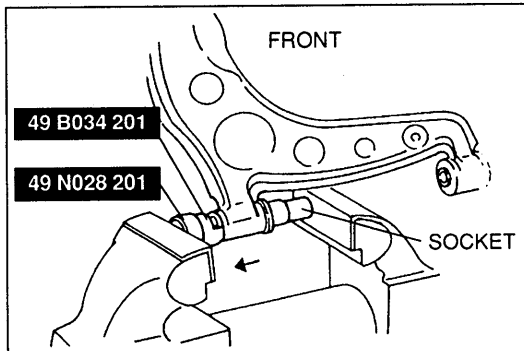
- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Wheel and tire 2. Tie-rod end/Steering knuckle
Service section N 3. Stabilizer control link bolt 4. Shock absorber bolt 5. Lower arm ball joint
Removal Note page R-20
Inspection page R-21 | <ol style="list-style-type: none"> 6. Ball joint dust boot
Removal Note page R-20
Installation Note page R-20 7. Lower arm
Inspect for damage and cracks 8. Lower arm bushing (front and rear)
Removal note page R-20
Installation note page R-21
Inspection for deterioration and wear |
|--|--|

**Removal note****Lower arm ball joint**

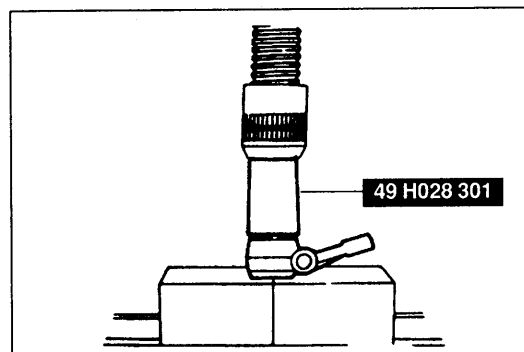
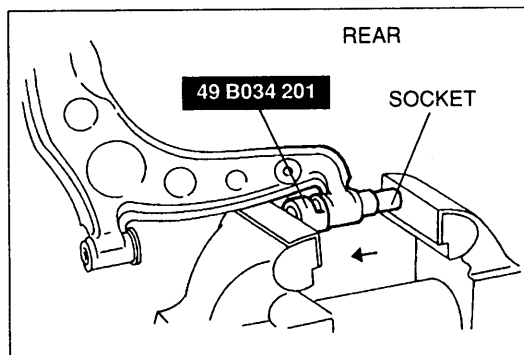
Separate the ball joint from the knuckle with the **SST**.

**Ball joint dust boot**

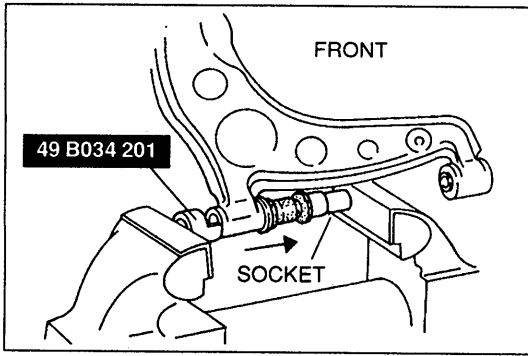
Carefully remove the dust boot with a chisel.

**Lower arm bushing (front and rear)**

Press the lower arm bushing out with the **SST** and a socket as shown.

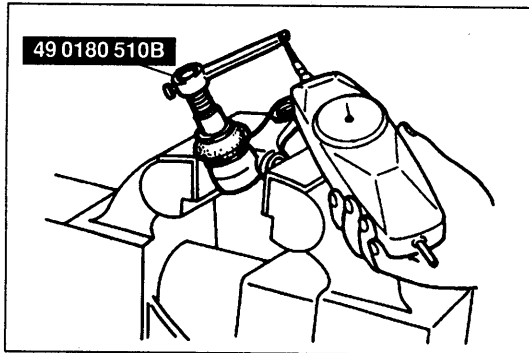
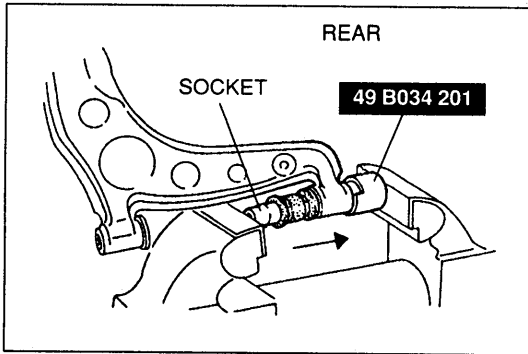
**Installation note****Ball joint dust boot**

1. Wipe away the grease on the ball joint.
2. Liberally coat the inside of the new dust boot with grease.
3. Press the dust boot onto the ball joint with the **SST**.
4. Wipe away any grease that has been expelled from the dust boot.



Lower arm bushing (front and rear)

1. Apply soapy water to the lower arm bushing.
2. Press the bushing in with the **SST** and socket in the direction of the arrow.



Inspection

Lower arm ball joint

Ball joint rotation torque

1. Shake the ball joint stud 5 times.
2. Connect the **SST** to the ball stud, and measure the rotation torque with a pull scale.

Rotation torque:

0.5—1.4 N·m { 5—15 kgf·cm , 4.4—13 in·lbf }

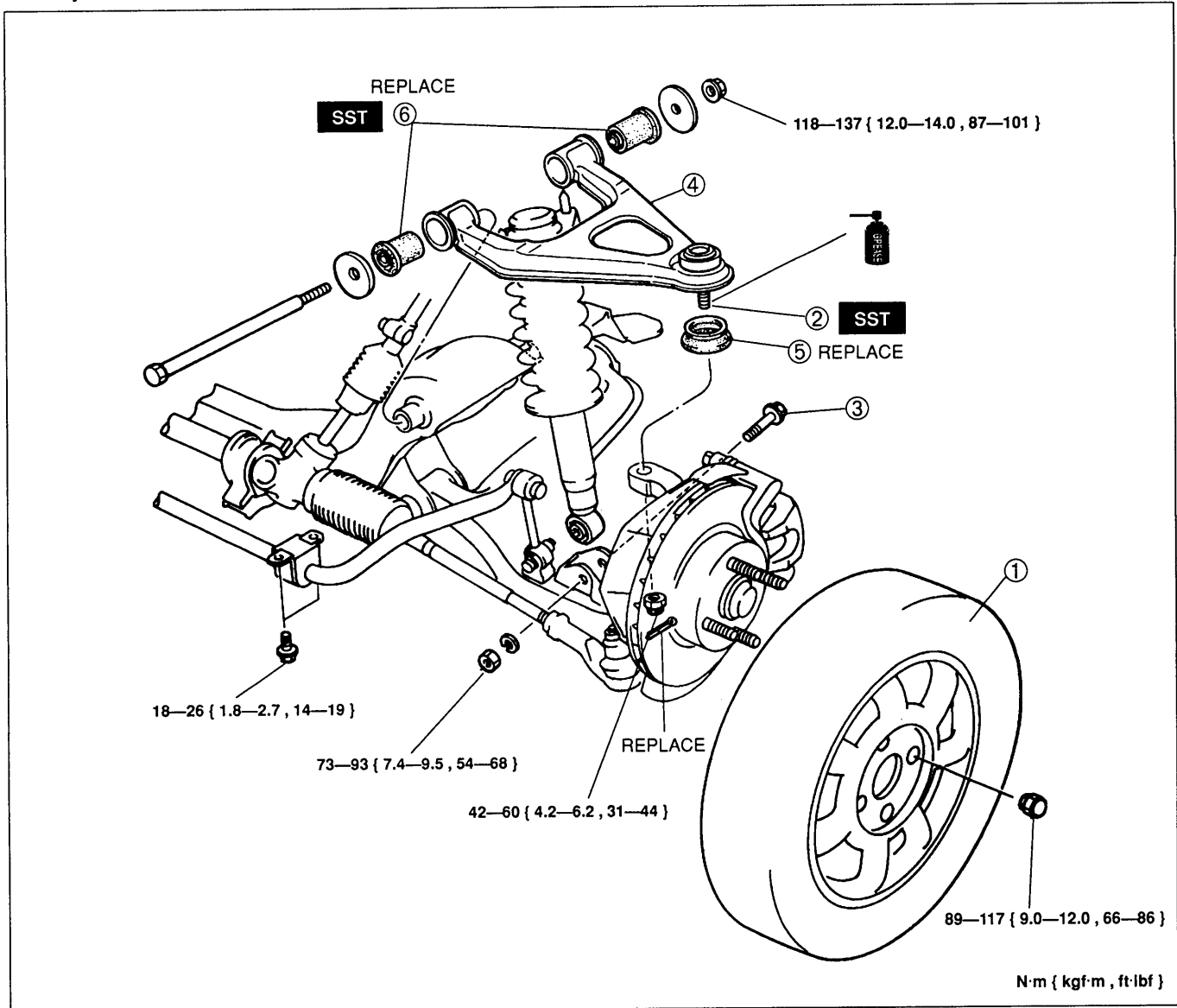
Pull scale reading:

5.0—14.7 N { 0.5—1.5 kgf , 1.1—3.3 lbf }

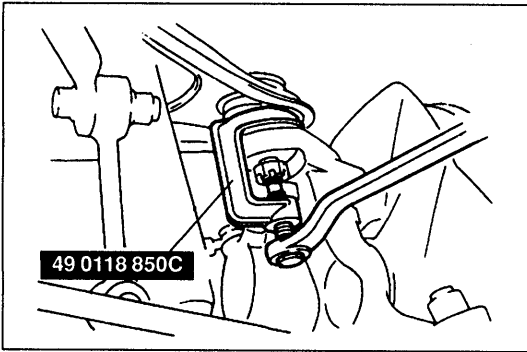
UPPER ARM

Removal / Inspection / Installation

1. Jack up the front of the vehicle and support it with safety stands.
2. Remove the undercover.
3. Remove the band for the wheel speed sensor harness.
4. Remove in the order shown in the figure, referring to **Removal Note**.
5. Inspect all parts and repair or replace as necessary.
6. Install in the reverse order of removal, referring to **Installation Note**.
7. Loosely tighten the upper arm and shock absorber bolts. Tighten all other nuts and bolts to the specified torques.
8. Install the band for the ABS wheel-speed sensor harness.
9. Lower the vehicle.
10. With the vehicle unloaded, tighten the upper arm and shock absorber bolts to the specified torques.
11. Adjust the front wheel alignment. (Refer to page R-6.)



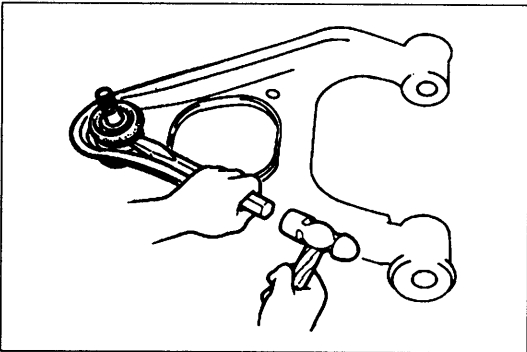
- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Wheel and tire 2. Upper arm ball joint
Removal Note page R-23
Inspection page R-24 3. Shock absorber bolt 4. Upper arm
Inspect for damage and cracks | <ol style="list-style-type: none"> 5. Ball joint dust boot
Removal Note page R-23
Installation Note page R-23 6. Upper arm bushing (front and rear)
Removal note page R-23
Installation note page R-24
Inspect for deterioration and damage |
|--|---|



Removal note

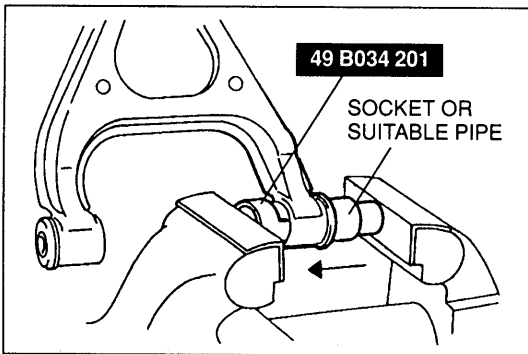
Upper arm ball joint

Separate the upper arm ball joint from the knuckle with the SST.



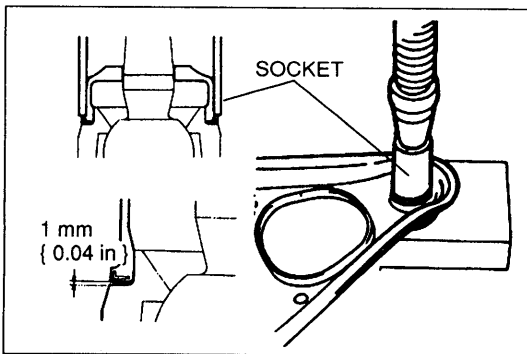
Ball joint dust boot

Carefully remove the dust boot with a chisel.



Upper arm bushing (front and rear)

Press the upper arm bushing out with the SST and a socket as shown.



Installation note

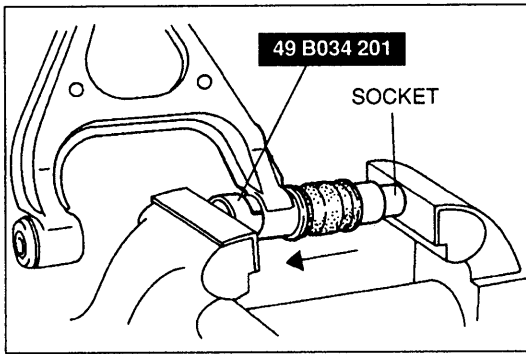
Ball joint dust boot

1. Liberally coat the inside of the new dust boot with grease.
2. Press the dust boot on with a 30 mm { 1 1/8 in } socket until the dust boot contacts the seat.

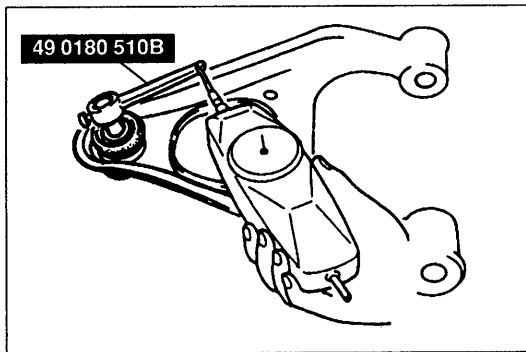
Caution

- Install the dust boot squarely and do not press excessively; the inner metal ring will be deformed if not done correctly.

3. Verify that the clearance between the boot and the seat is less than 1 mm { 0.04 in }.

**Upper arm bushing (front and rear)**

1. Apply soapy water to the upper arm bushing.
2. Press the bushing in with the **SST** and a socket in the direction of the arrow.

**Inspection****Upper arm ball joint****Ball joint rotation torque**

1. Shake the ball joint stud 5 times.
2. Connect the **SST** to the ball stud, and measure the rotation torque with a pull scale.

Rotation torque:

0.4—1.7 N·m { 4—18 kgf·cm , 3.5—15.6 in·lbf }

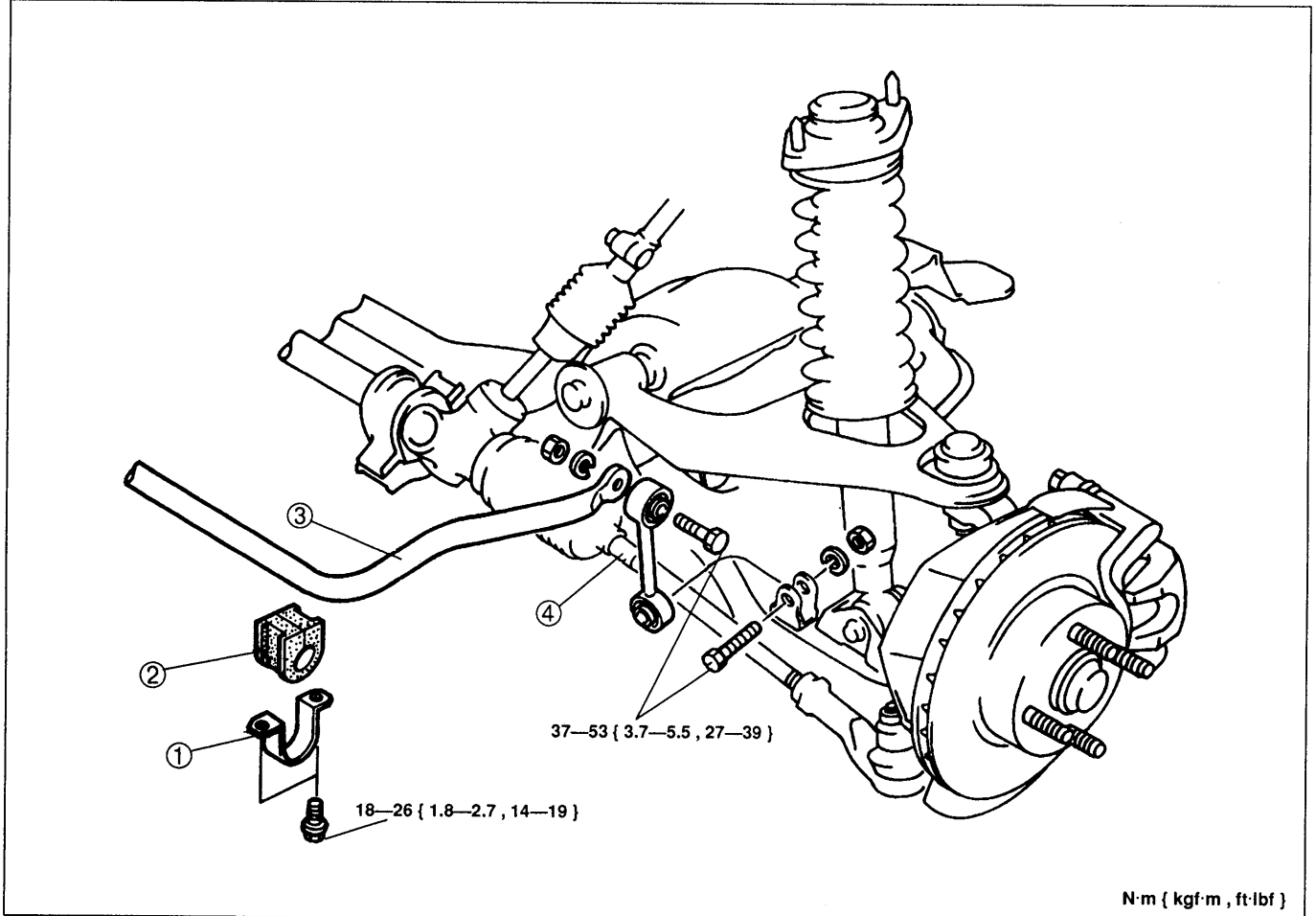
Pull scale reading:

4.0—17.6 N { 0.4—1.8 kgf , 0.9—3.9 lbf }

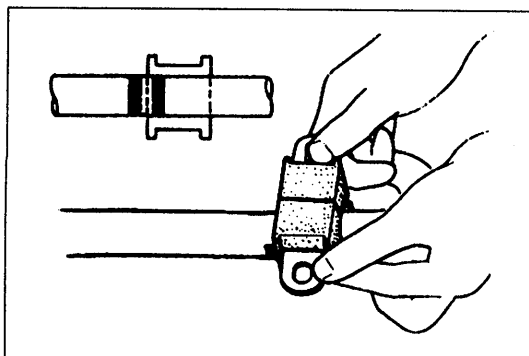
STABILIZER

Removal / Inspection / Installation

1. Jack up the front of the vehicle and support it with safety stands.
2. Remove the undercover.
3. Remove in the order shown in the figure.
4. Inspect all parts and repair or replace as necessary.
5. Install in the reverse order of removal, referring to **Installation Note**.
6. Loosely tighten the stabilizer control link and bracket bolts. Tighten all other nuts and bolts to the specified torques.
7. Lower the vehicle.
8. With the vehicle unloaded, tighten the stabilizer control link and bolts to the specified torques.



- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Stabilizer bracket 2. Stabilizer bushing
Inspect for deterioration and wear
Installation Note below | <ol style="list-style-type: none"> 3. Stabilizer bar
Inspect for bending and damage 4. Stabilizer control link
Inspect for bending and damage |
|---|---|



Installation note

Align the bushing with the installation mark on the stabilizer.

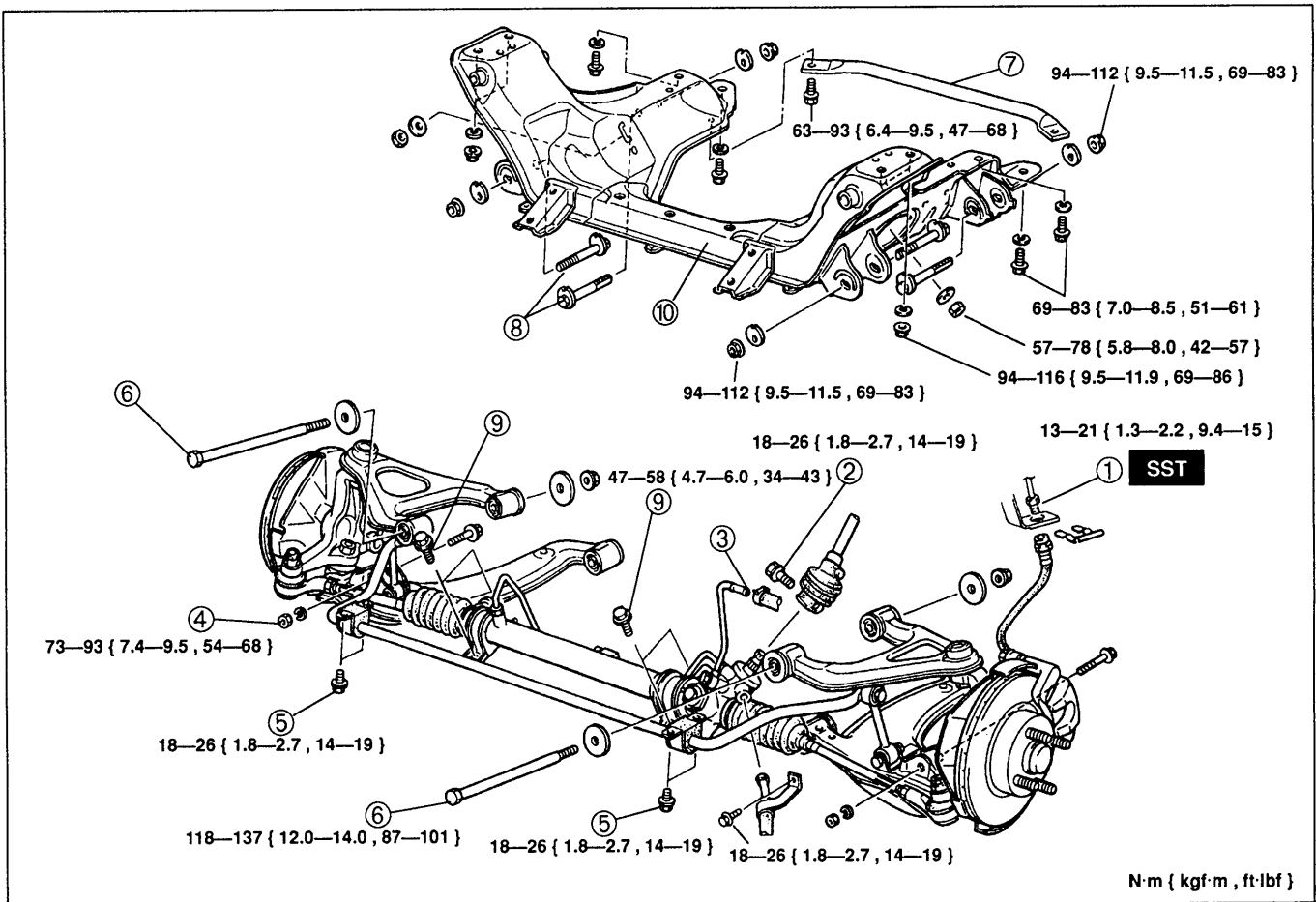
CROSSMEMBER

Removal / Inspection / Installation

Note

- Use a container or rags to collect the power steering fluid when disconnecting the power steering pipes.

1. Jack up the vehicle.
2. Remove the wheels and the undercover.
3. Support the engine with a hoist.
4. Lower the crossmember and other suspension parts as an assembly, and then separate the parts.
5. Remove in the order shown in the figure.
6. Inspect all parts and repair or replace as necessary.
7. Loosely tighten the stabilizer bracket, upper arm, and lower arm bolts. Tighten all other nuts and bolts to the specified torques.
8. Lower the vehicle.
9. With the vehicle unloaded, tighten the stabilizer bracket, upper arm, and lower arm bolts to the specified torques.
10. Adjust the front wheel alignment. (Refer to page R-6.)
11. Bleed the air from the brake system. (Refer to section P.)
12. Bleed the air from the power steering system. (Refer to section N.)

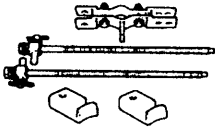
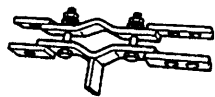
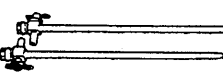
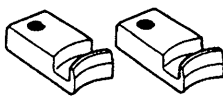


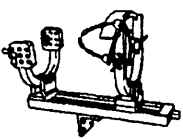
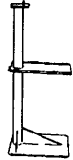
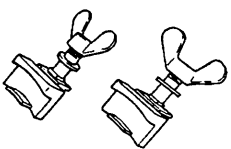
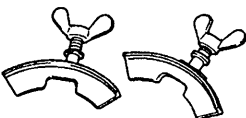
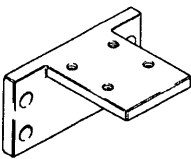
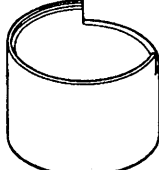
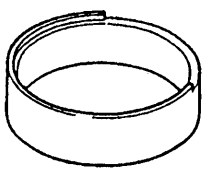


N·m { kgf·m, ft·lbf }

- | | |
|--|--|
| 1. Brake pipe
Removal / Installation section P | 5. Stabilizer bracket bolt |
| 2. Pinion shaft bolt
Removal / Installation section N | 6. Upper arm bolt |
| 3. Power steering pipe
Removal / Installation section N | 7. Performance rod |
| 4. Shock absorber bolt | 8. Adjusting cam bolt |
| | 9. Steering gear bracket bolt |
| | 10. Front crossmember assembly
Inspect for damage |

REAR SUSPENSION (DOUBLE-WISHBONE)

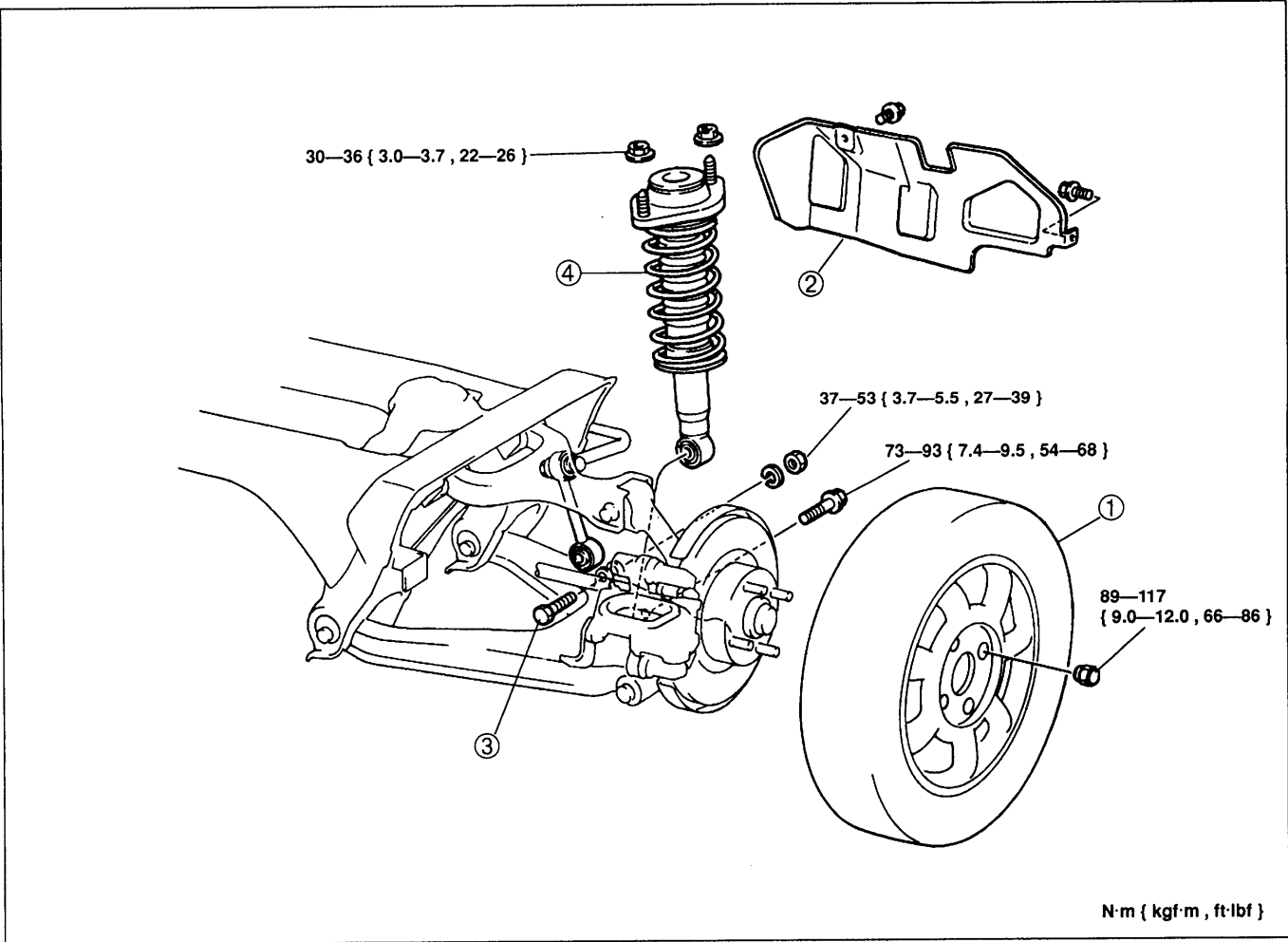
PREPARATION
SST

<p>49 G034 1A0 Compressor, coil spring</p> 	<p>For removal and installation of coil spring</p>	<p>49 G034 101 Body (Part of 49 G030 1A0)</p> 	<p>For removal and installation of coil spring</p>
<p>49 G034 102 Screw (Part of 49 G034 1A0)</p> 	<p>For removal and installation of coil spring</p>	<p>49 G034 103 Arm (Part of 49 G034 1A0)</p> 	<p>For removal and installation of coil spring</p>
<p>49 0259 770B Wrench, flare nut</p> 	<p>For removal and installation of brake pipe</p>	<p>49 T034 1A0 Compressor, coil spring</p> 	<p>For removal and installation of coil spring</p>
<p>49 T034 101 Compressor, spring (Part of 49 T034 1A0)</p> 	<p>For removal and installation of coil spring</p>	<p>49 T034 102 Stand (Part of 49 T034 1A0)</p> 	<p>For removal and installation of coil spring</p>
<p>49 T034 103 Hook (Part of 49 T034 1A0)</p> 	<p>For removal and installation of coil spring</p>	<p>49 T034 104 Support (Parts of 49 T034 1A0)</p> 	<p>For removal and installation of coil spring</p>
<p>49 T034 105 Attachment</p> 	<p>For removal and installation of coil spring</p>	<p>49 B034 201 Support block</p> 	<p>For removal and installation of bushing</p>
<p>49 N028 201 Support block</p> 	<p>For removal and installation of bushing</p>	<p>—</p>	<p>—</p>

SHOCK ABSORBER AND SPRING

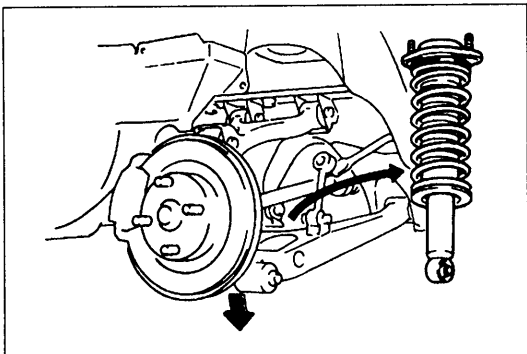
Removal / Installation

1. Jack up the front of the vehicle and support it with safety stands.
2. Remove in the order shown in the figure, referring to **Removal Note**.
3. Inspect all parts and repair or replace as necessary.
4. Install in the reverse order of removal.
5. Loosely tighten the stabilizer control link bolt. Tighten all other nuts and bolts to the specified torques.
6. Lower the vehicle.
7. With the vehicle unloaded, tighten the stabilizer control link bolt to the specified torques.
8. Adjust the rear wheel alignment. (Refer to page R-9.)



1. Wheel and tire
2. Filler pipe protector (left side)
3. Stabilizer control link bolt

4. Shock absorber and spring
Removal Note below
Disassembly / Inspection /
Assembly page R-14



Removal note Shock absorber and spring

Caution

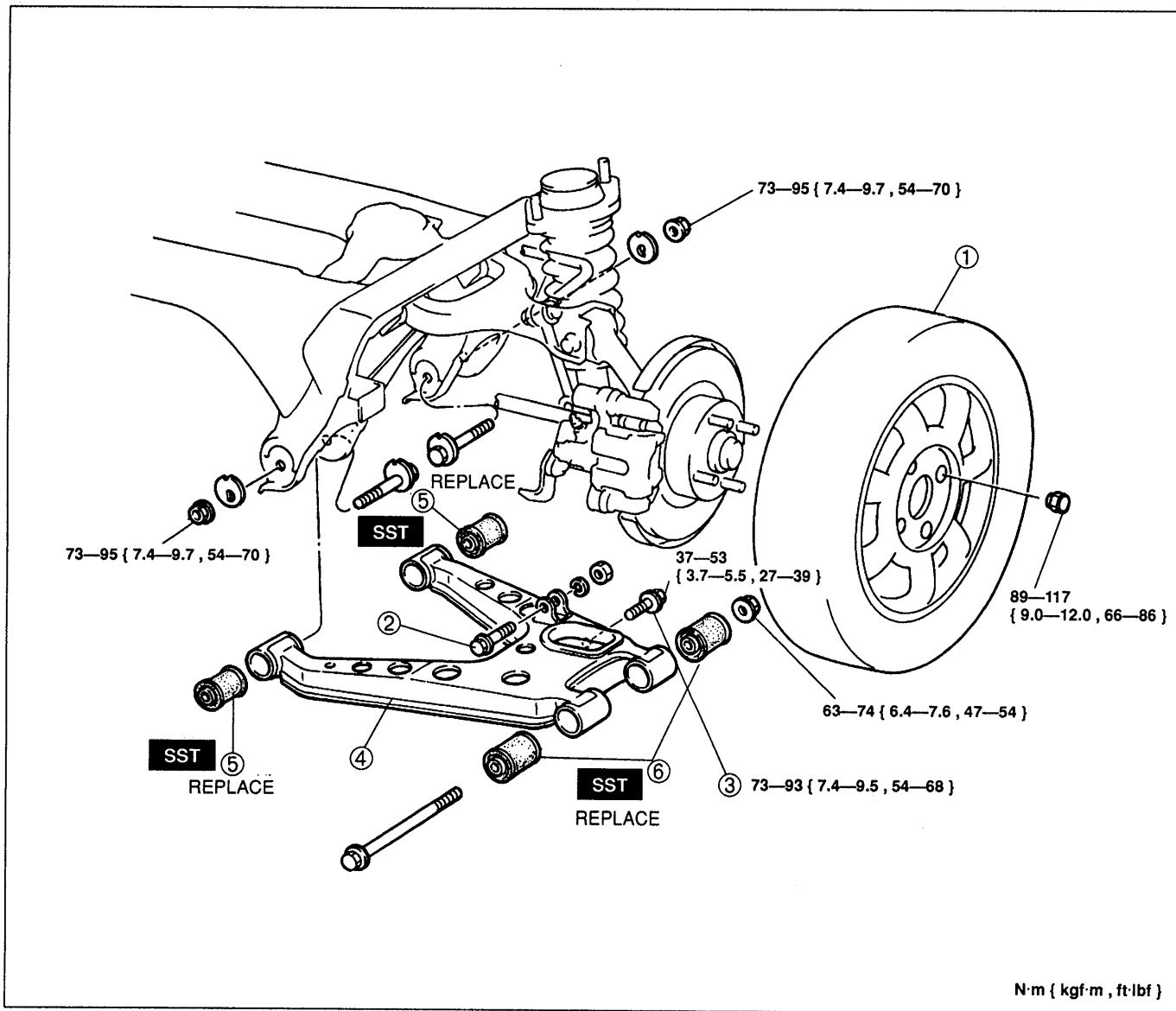
- Do not lower the arms excessively, which may damage the brake hose.

1. Loosen the upper arm and Adjusting cam nuts.
2. Lower the upper and lower arms to remove the shock absorber and spring.

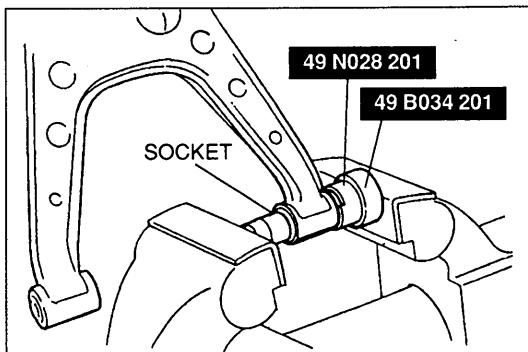
LOWER ARM

Removal / Inspection / Installation

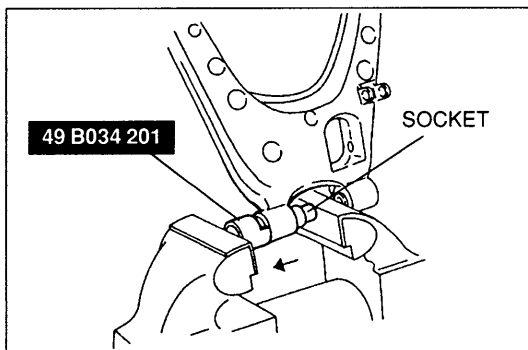
1. Jack up the rear of the vehicle and support it with safety stands.
2. Remove in the order shown in the figure.
3. Inspect all parts and repair or replace as necessary.
4. Install in the reverse order of removal.
5. Loosely tighten the lower arm, shock absorber, and stabilizer control link bolts. Tighten all other nuts and bolts to the specified torques.
6. Lower the vehicle.
7. With the vehicle unloaded, tighten the lower arm, shock absorber, and stabilizer control link bolts to the specified torques.
8. Adjust the rear wheel alignment. (Refer to page R-9.)



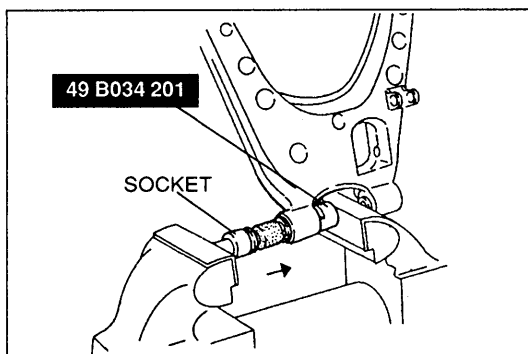
- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Wheel and tire 2. Stabilizer control link bolt 3. Shock absorber bolt 4. Lower arm
Inspect for damage and cracks 5. Lower arm bushing (crossmember side)
Removal Note page R-30
Installation Note page R-30
Inspect for deterioration and wear | <ol style="list-style-type: none"> 6. Lower arm bushing (knuckle side)
Removal Note page R-30
Installation Note page R-30
Inspect for deterioration and wear |
|---|---|

**Removal note****Lower arm bushing (crossmember side)**

Press the lower arm bushing out by using the **SSTs** and a socket as shown.

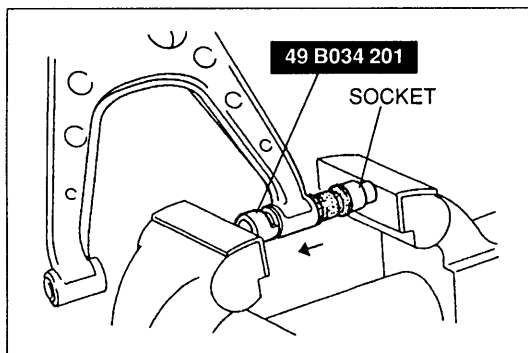
**Lower arm bushing (knuckle side)**

Press the lower arm bushing out with the **SST** and a socket as shown.

**Installation note****Lower arm bushing (knuckle side)****Caution**

- Install the bushing with a white mark for the front side.

1. Apply soapy water to the lower arm bushing.
2. Press the bushing in by using the **SST** and a socket in the direction of the arrow.

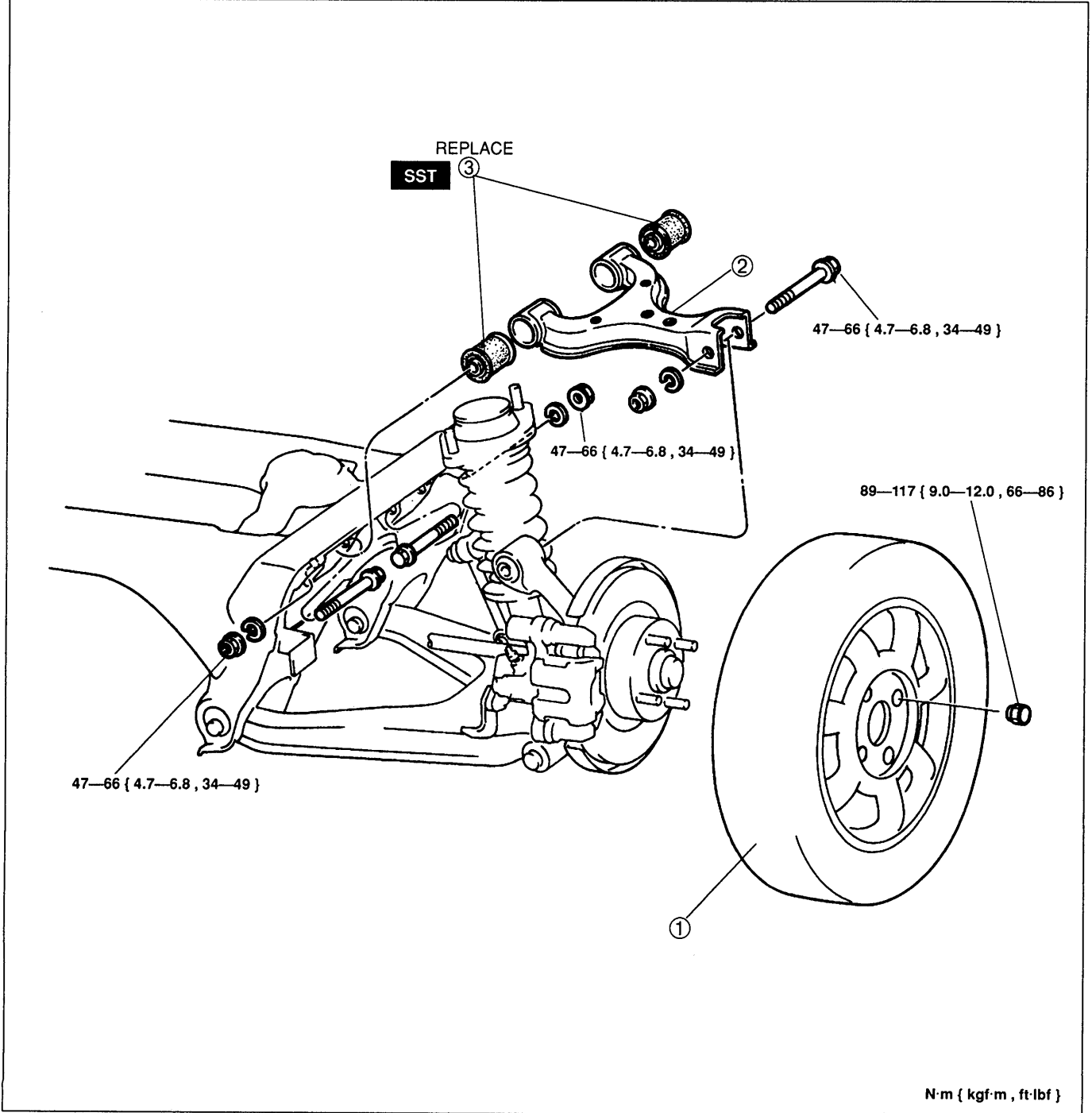
**Lower arm bushing (crossmember side)**

1. Apply soapy water to the lower arm bushing.
2. Press the bushing in with the **SST** and a socket in the direction of the arrow.

UPPER ARM

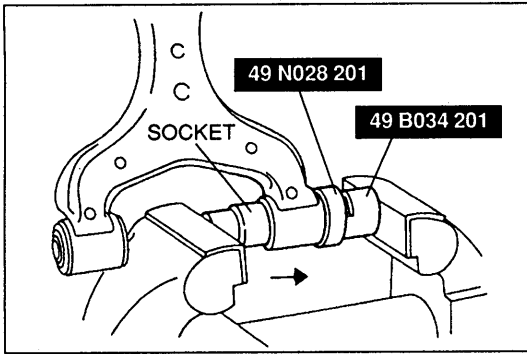
Removal / Inspection / Installation

1. Jack up the rear of the vehicle and support it with safety stands.
2. Remove in the order shown in the figure.
3. Inspect all parts and repair or replace as necessary.
4. Install in the reverse order of removal.
5. Loosely tighten the upper arm bolts. Tighten all other nuts and bolts to the specified torques.
6. Lower the vehicle.
7. With the vehicle unloaded, tighten the upper arm bolts to the specified torques.
8. Adjust the rear wheel alignment. (Refer to page R-9.)

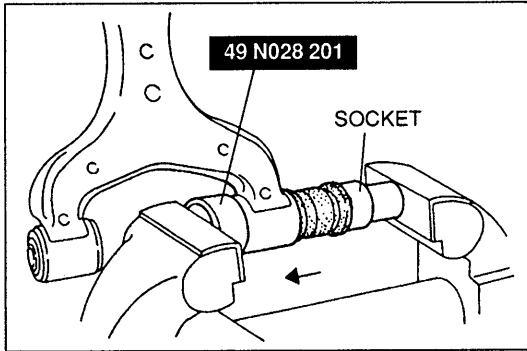


1. Wheel and tire
2. Upper arm
Inspect for damage and cracks

3. Upper arm bushing
Removal Note page R-32
Installation Note page R-32
Inspect for deterioration and wear

**Removal note****Upper arm bushing**

Press the upper arm bushing out by using the **SSTs** and a socket as shown.

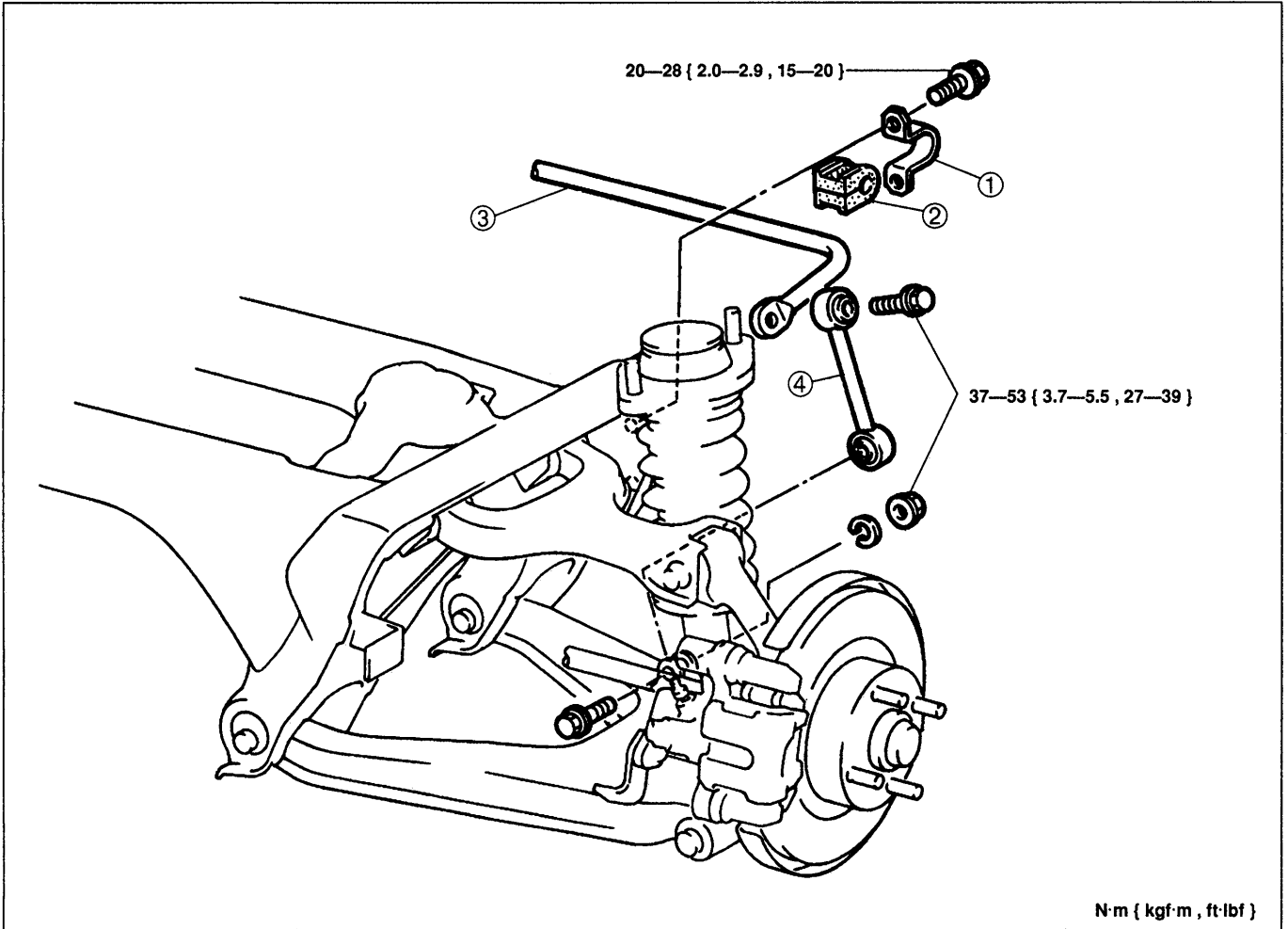
**Installation note****Upper arm bushing**

1. Apply soapy water to the upper arm bushing.
2. Press the bushing in by using the **SST** and a socket in the direction of the arrow.

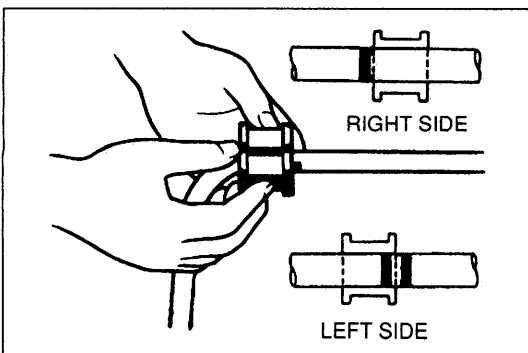
STABILIZER

Removal / Inspection / Installation

1. Jack up the rear of the vehicle and support it with safety stands.
2. Remove in the order shown in the figure.
3. Inspect all parts and repair or replace as necessary.
4. Install in the reverse order of removal, referring to **Installation Note**.
5. Loosely tighten the stabilizer bracket and control link bolts. Tighten all other nuts and bolts to the specified torques.
6. Lower the vehicle.
7. With the vehicle unloaded, tighten the stabilizer bracket and control link bolts to the specified torques.



- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Stabilizer bracket 2. Stabilizer bushing
Inspect for deterioration and wear
Installation Note below | <ol style="list-style-type: none"> 3. Stabilizer bar
Inspect for bending and damage 4. Control link
Inspect for bending and damage |
|---|--|



Installation note

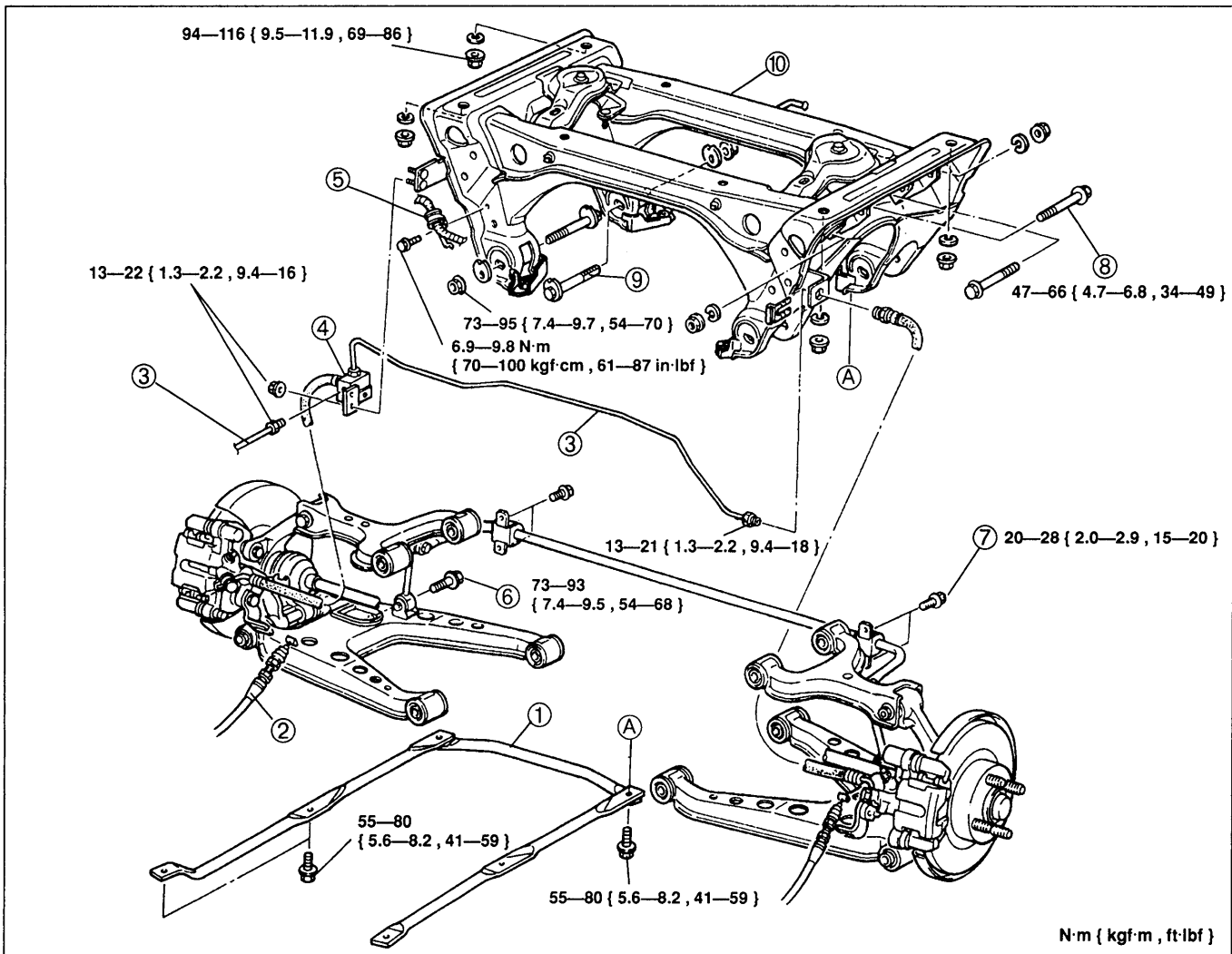
Stabilizer bushing

Align the bushing with the installation mark on the stabilizer.

CROSSMEMBER

Removal / Inspection / Installation

1. Jack up the vehicle and support it with safety stands.
2. Remove the wheels and tires.
3. Remove the differential and the power plant frame. (Refer to section M.)
4. Lower the crossmember and other suspension parts as an assembly, and then separate the parts.
5. Remove in the order shown in the figure.
6. Inspect parts and repair or replace as necessary.
7. Install in the reverse order of removal.
8. Loosely tighten the stabilizer bracket, upper arm, and lower arm bolts. Tighten all other nuts and bolts to the specified torques.
9. Lower the vehicle.
10. With the vehicle unloaded, tighten the stabilizer bracket, upper arm, and lower arm bolts to the specified torques.
11. Adjust the rear wheel alignment. (Refer to page R-9.)
12. Bleed the air from the brake system. (Refer to section P.)
13. Adjust the parking brake lever stroke. (Refer to section P.)



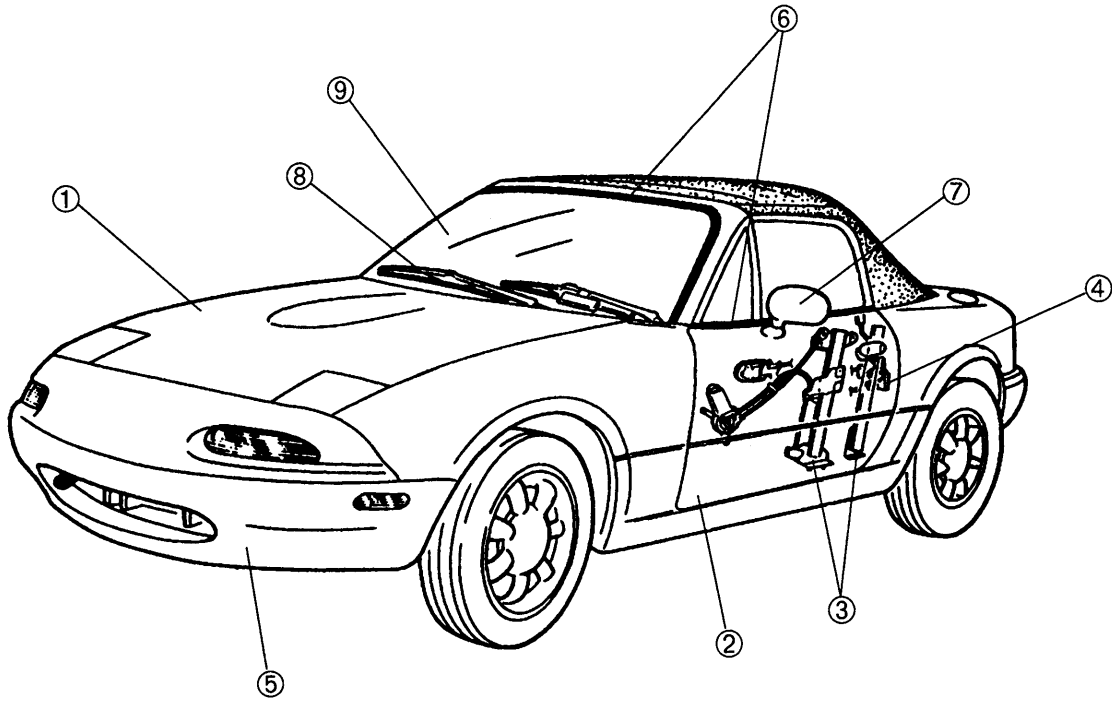
- | | |
|--|-------------------------------|
| 1. Differential mounting pipe | 6. Shock absorber bolt |
| 2. Parking brake cable | 7. Stabilizer bracket |
| Removal / Installation section P | 8. Upper arm bolt |
| 3. Brake pipe | 9. Adjusting cam bolt |
| Removal / Installation section P | 10. Rear crossmember assembly |
| 4. Brake pipe joint | Inspect for damage |
| 5. Battery cable bracket | |

Before beginning any service procedure, refer to section T of this manual for air bag system service warnings and audio antitheft system alarm conditions.

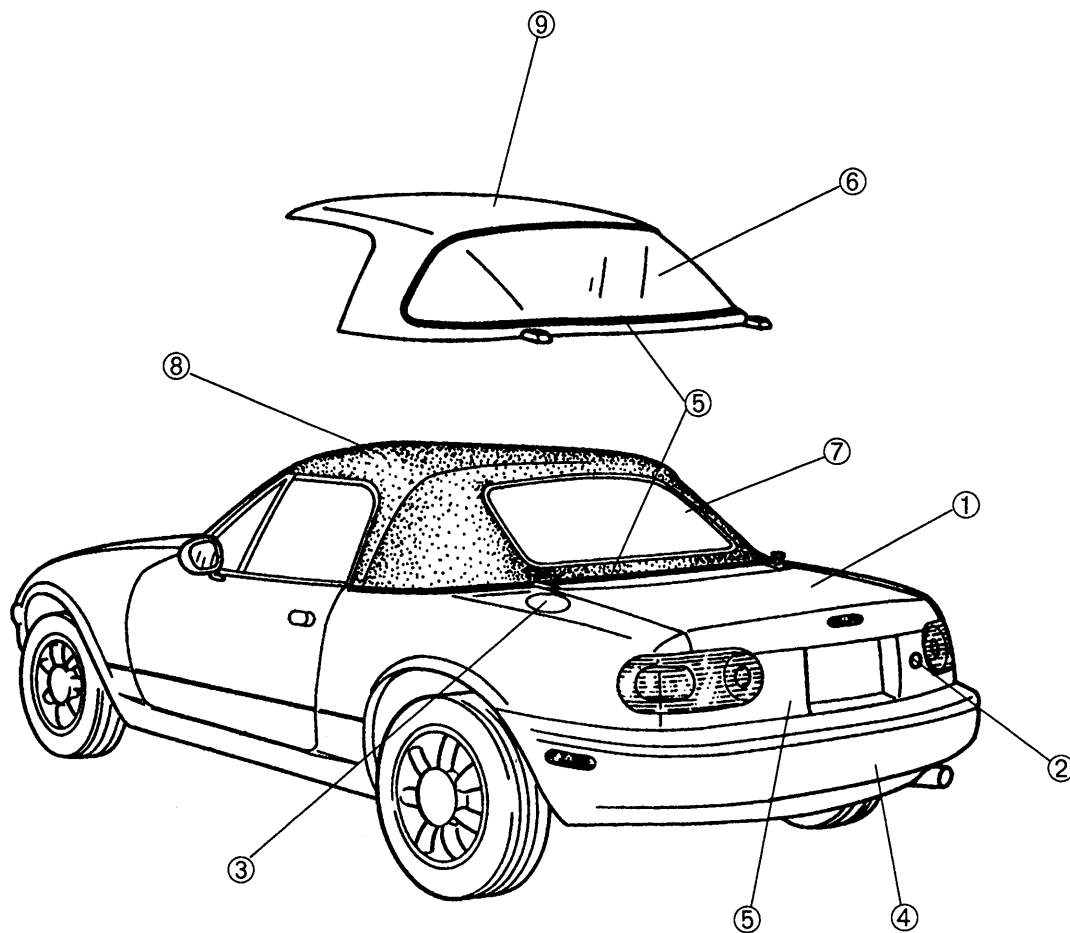
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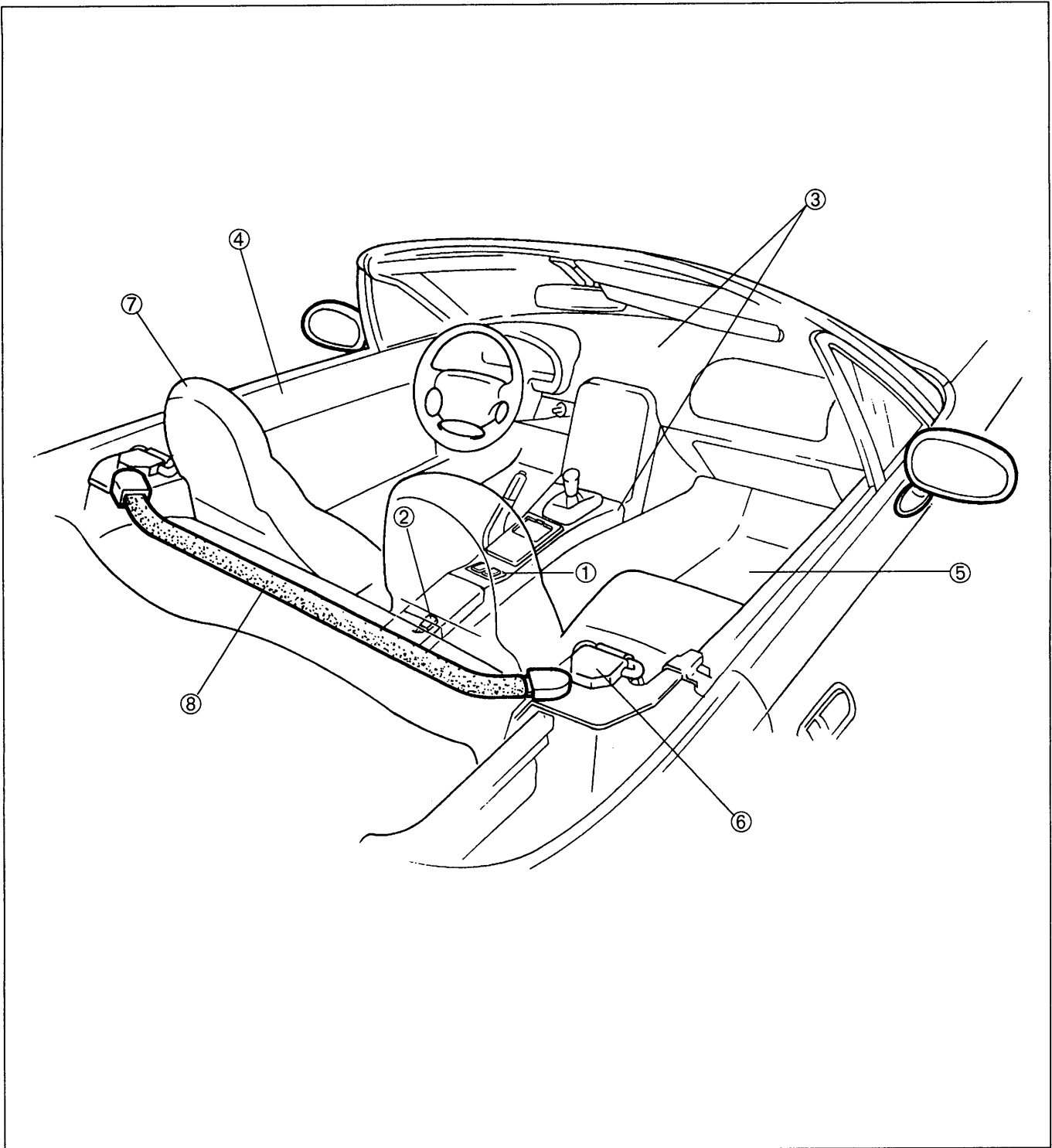
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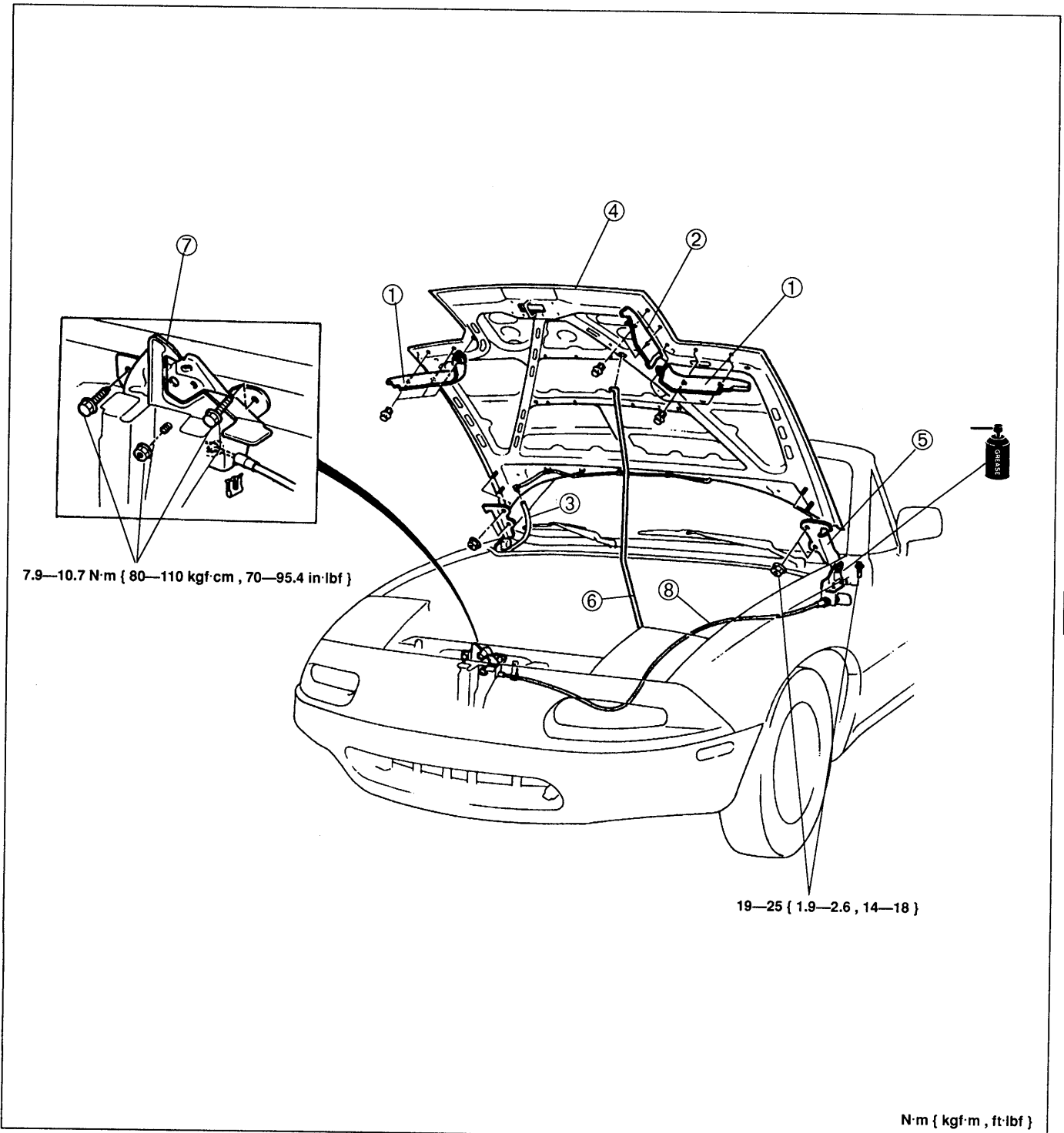
- | | |
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HOOD

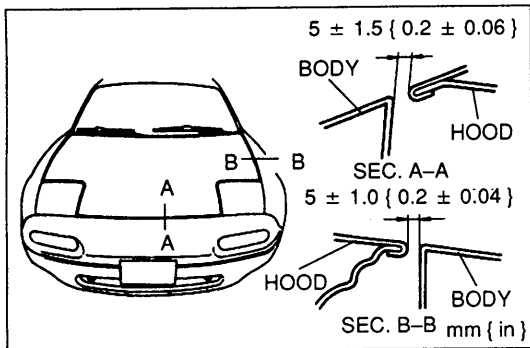
COMPONENTS

Removal / Installation

1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.



- | | |
|---------------------------|---------------------------|
| 1. Headlight seal | 5. Hood hinge |
| 2. Side headlight seal | 6. Hood stay |
| 3. Windshield washer pipe | 7. Hood lock |
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| Adjustment page S-6 | 8. Release wire |



Adjustment

Hood

Adjust the hood laterally and vertically by loosening the hood-to-hinge mounting nuts and repositioning the hood.

Tightening torque:

$19-25 \text{ N}\cdot\text{m} \{ 1.9-2.6 \text{ kgf}\cdot\text{m}, 14-18 \text{ ft}\cdot\text{lbf} \}$

Hood lock

1. Verify that the hood is properly aligned. (Refer above.)
2. Loosen the hood lock mounting bolts and nut, and align the lock with the striker on the hood.

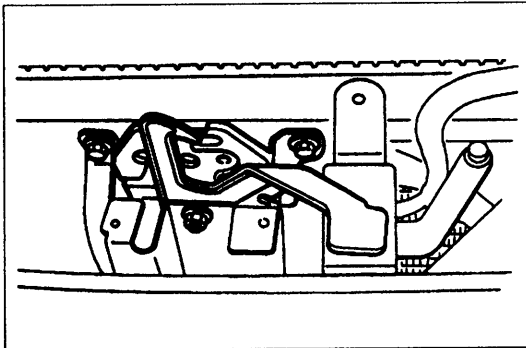
Tightening torque

Bolt: $7.9-10.7 \text{ N}\cdot\text{m}$

$\{ 80-110 \text{ kgf}\cdot\text{cm}, 70-95.4 \text{ in}\cdot\text{lbf} \}$

Nut: $7.9-10.7 \text{ N}\cdot\text{m}$

$\{ 80-110 \text{ kgf}\cdot\text{cm}, 70-95.4 \text{ in}\cdot\text{lbf} \}$

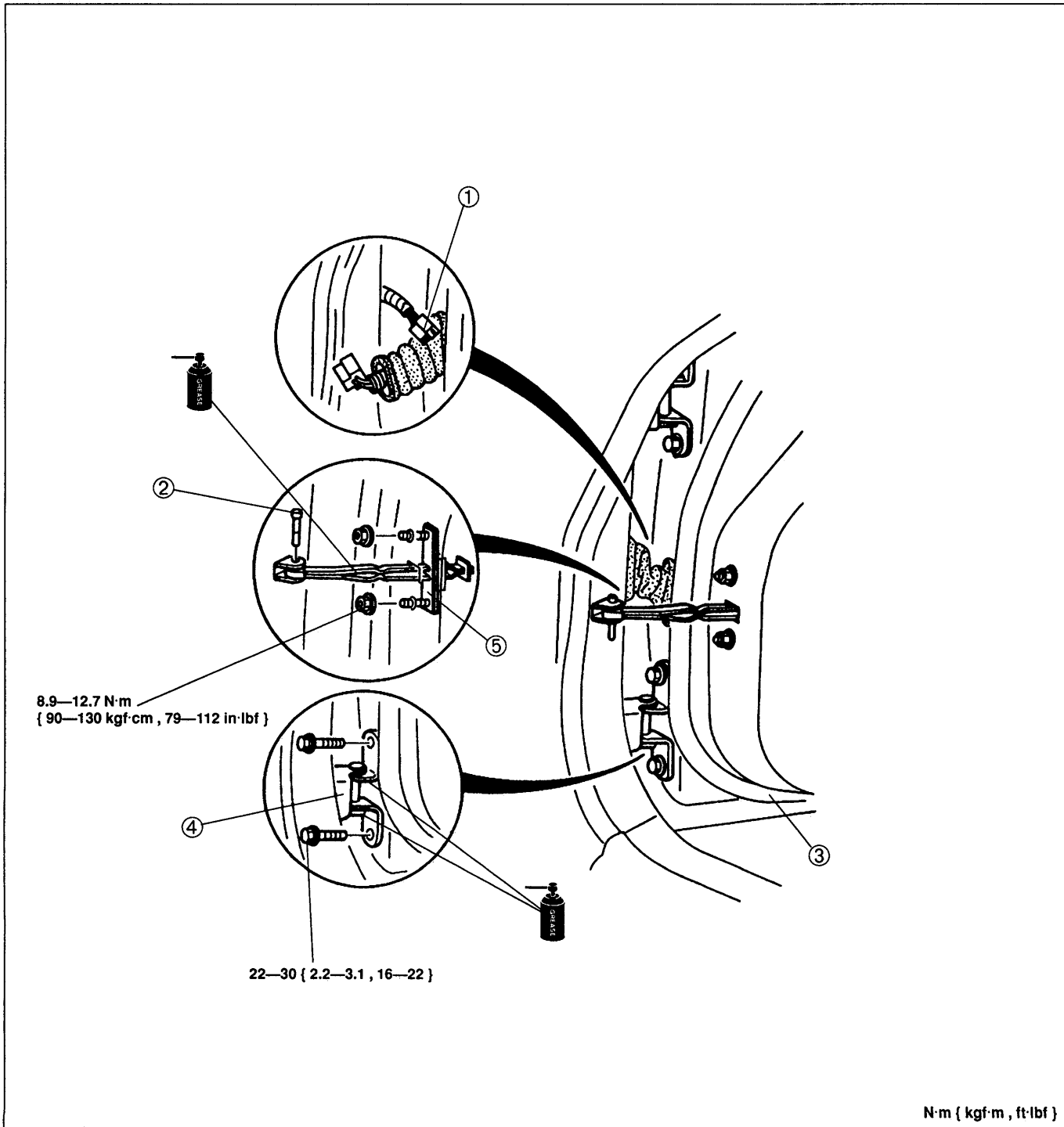


DOOR

COMPONENTS

Removal / Installation

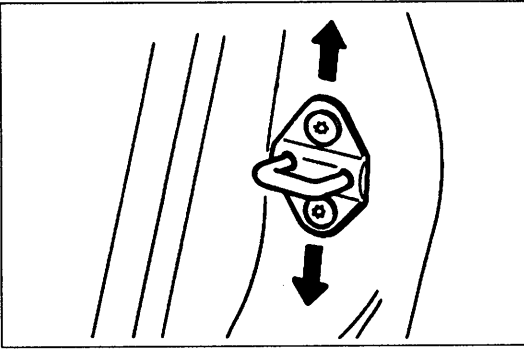
1. Disconnect the negative battery cable.
2. Remove in the order shown in the figure. To remove the checker, remove the door trim and door screen.
(Refer to page S-9.)
3. Install in the reverse order of removal.



S

- | | |
|----------------------|---------------|
| 1. Harness connector | 4. Door hinge |
| 2. Checker pin | 5. Checker |

3. Door
Adjustment page S-8

**Adjustment****Door lock striker**

1. Verify that the door can be closed easily and that there is no looseness. If there is a problem, loosen the striker mounting screws and move the striker vertically.
2. Verify that the rear offset of the door to the body is not excessive. If the offset is excessive, move the door lock striker vertically.

Tightening torque:

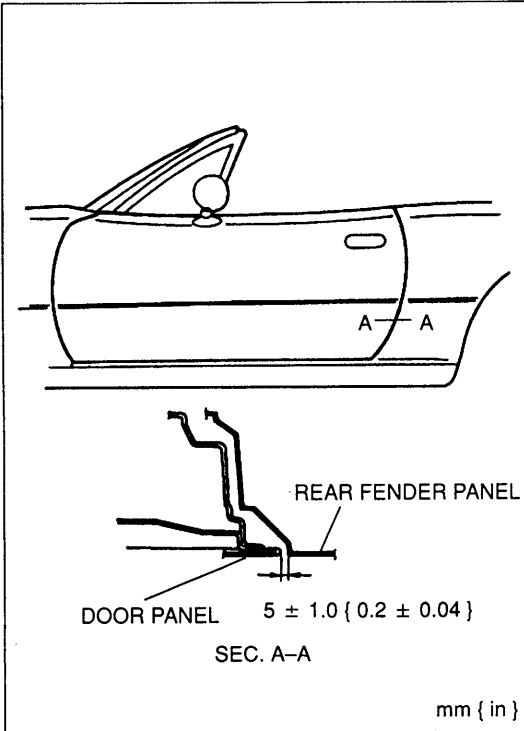
18—26 N·m { 1.8—2.7 kgf·m , 14—19 ft·lbf }

Door

Loosen the door hinge bolts and adjust as shown in the figure. Tighten the bolts to the specified torque.

Tightening torque:

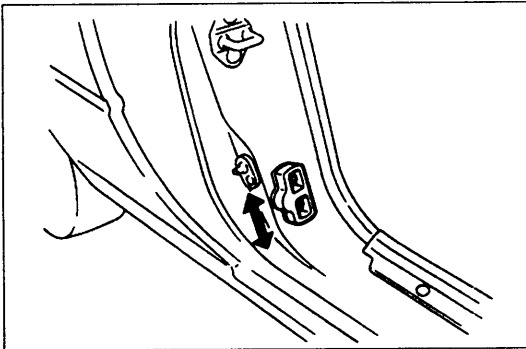
22—30 N·m { 2.2—3.1 kgf·m , 16—22 ft·lbf }

**Door wedge**

Verify that the door wedge and dovetail are properly aligned. If there is a problem, move the door wedge vertically.

Tightening torque:

4.3—6.1 N·m { 43—63 kgf·cm , 38—54 in·lbf }



WINDOW REGULATOR, GLASS, AND GUIDE

COMPONENTS

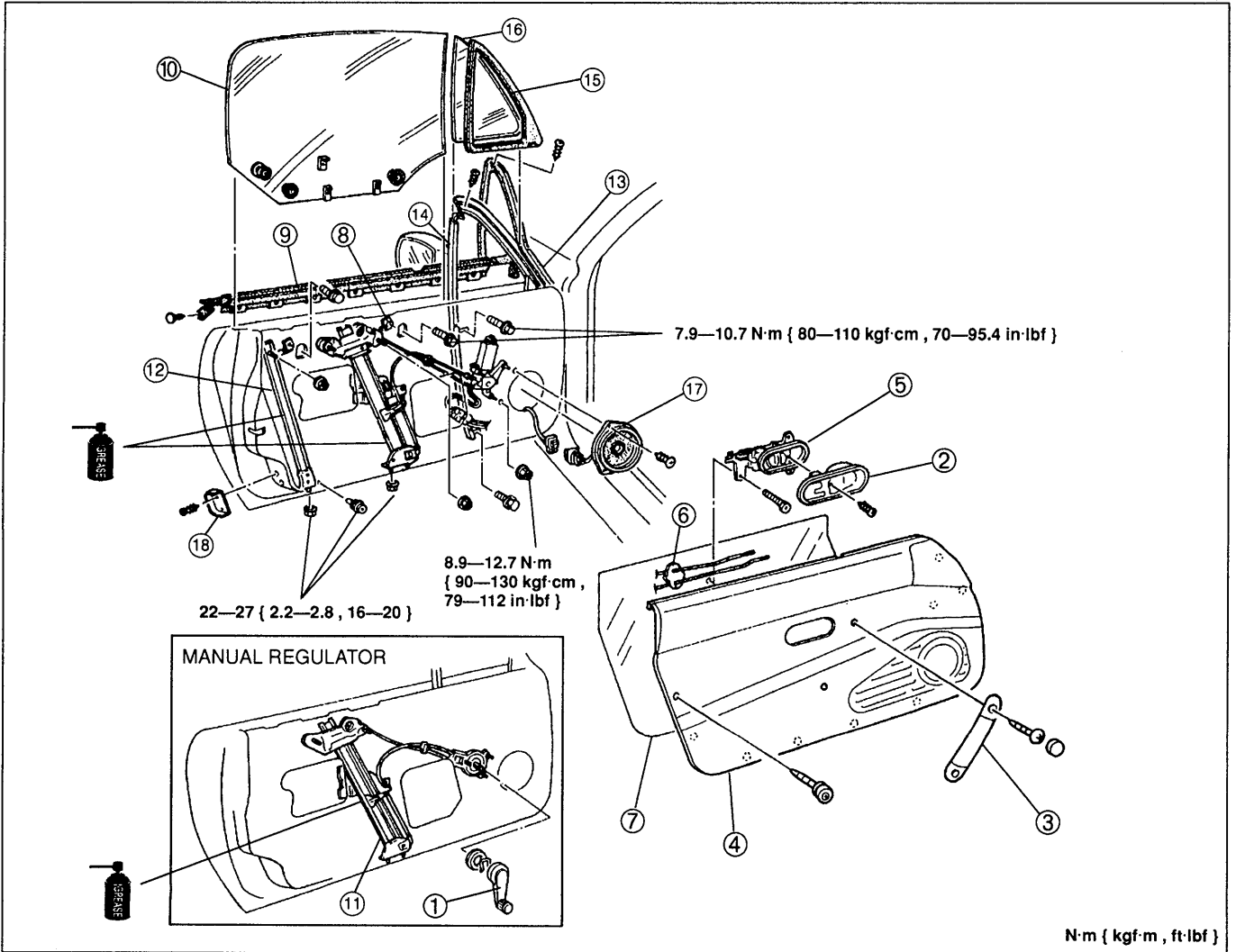
Removal / Installation

1. Raise the door glass about 190 mm { 7.5 in } from the fully open position.
2. Disconnect the negative battery cable.

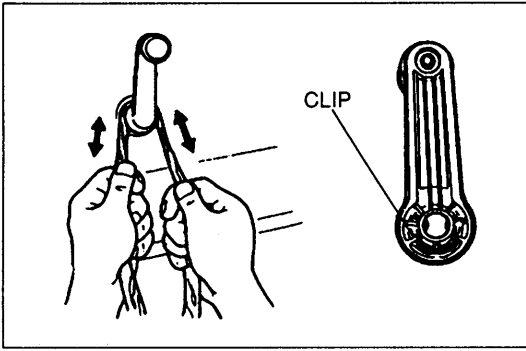
Note

- Remove the door screen carefully so that it may be reused.

3. Remove in the order shown in the figure, referring to **Removal note**.
4. Install in the reverse order of removal, referring to **Installation note**.

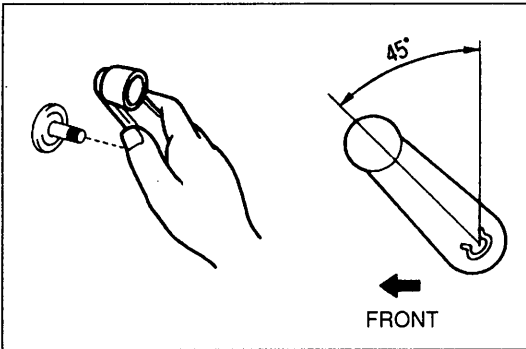


- | | |
|--|---|
| 1. Regulator handle
Removal note page S-10
Installation note page S-10 | 9. Front beltline molding
Removal note page S-28 |
| 2. Inner handle cover | 10. Door glass
Adjustment page S-10 |
| 3. Pull handle | 11. Window regulator |
| 4. Door trim
Removal note page S-63 | 12. Glass guide |
| 5. Inner handle | 13. Door weatherstrip |
| 6. Sealing pad | 14. Division channel |
| 7. Door screen | 15. Quarter glass weatherstrip |
| 8. Upper glass stopper | 16. Quarter glass |
| | 17. Speaker |
| | 18. Dovetail |



Removal note
Regulator handle

Remove the regulator handle clip by using a rag as shown.

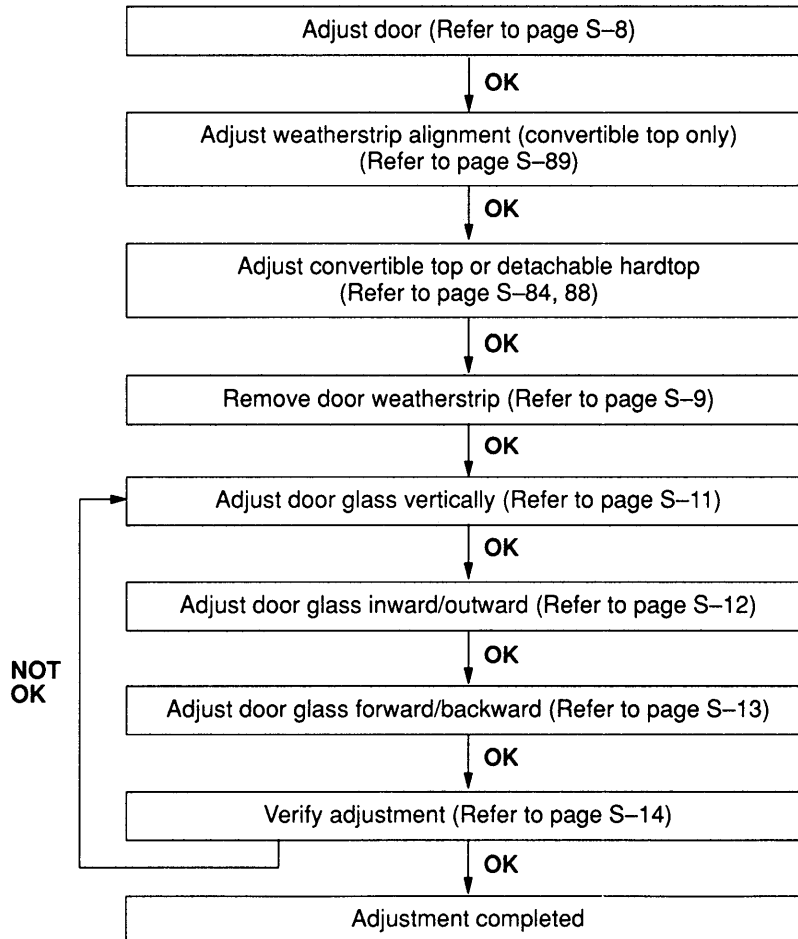


Installation note
Regulator handle

Install the regulator handle as shown with the door glass fully closed.

Adjustment
Door glass

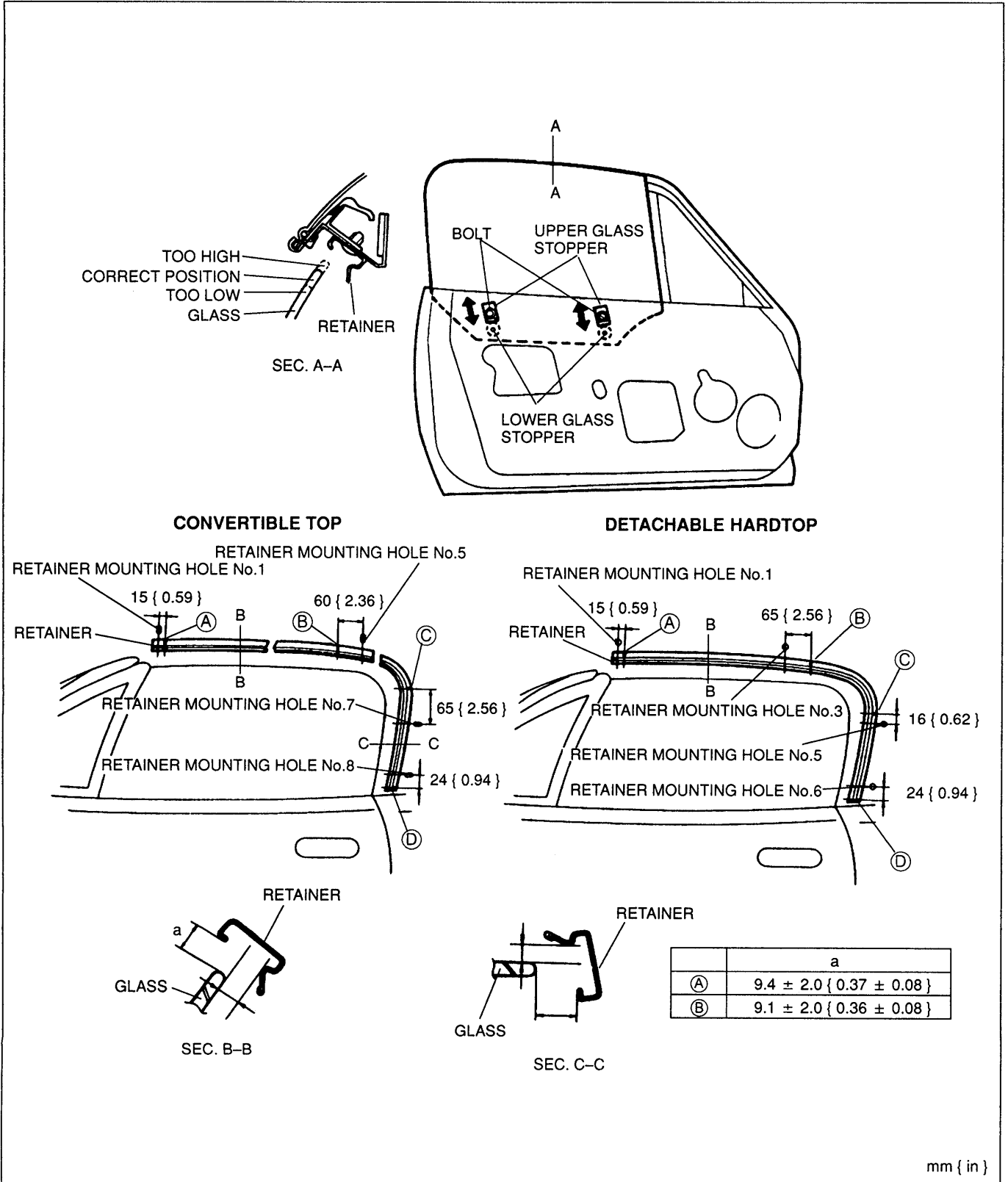
Adjust the door glass as follows:



Vertical adjustment of door glass

1. Loosen the upper glass stopper installation bolts.
2. Lower the door glass slightly.
3. Move the upper glass stoppers up or down so that the upper edge of the door glass is in the correct position.
4. Tighten the installation bolts.

Tightening torque: 7.9—10.7 N·m { 80—110 kgf·cm , 70—95.4 in·lbf }

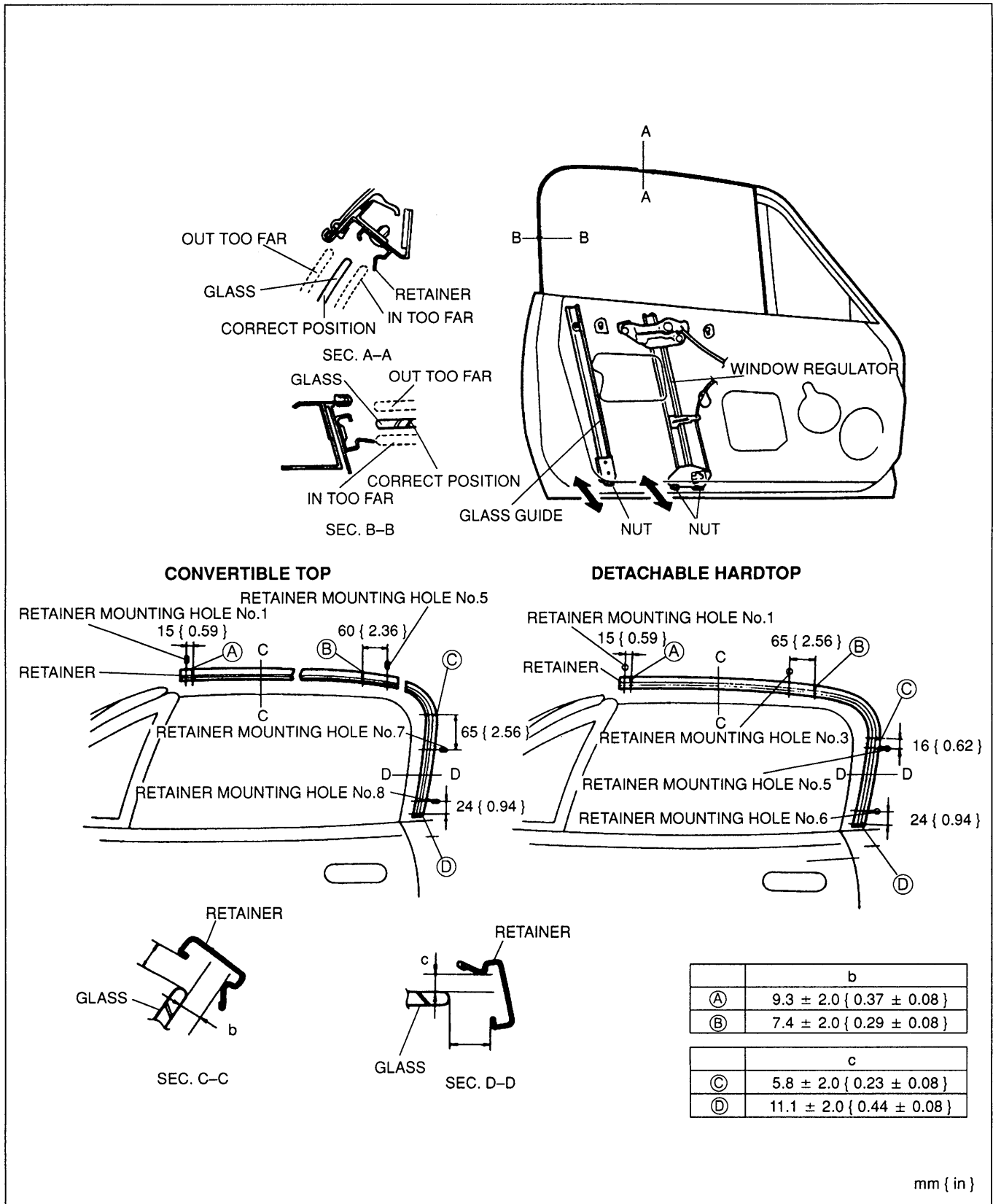


mm { in }

Inward/outward adjustment of door glass

1. Loosen the window regulator lower installation nuts and the glass guide lower installation nut.
2. Move the window regulator and glass guide inward or outward so that the upper and side edges of the door glass are in the correct position.
3. Tighten the installation nuts.

Tightening torque: 22—27 N·m { 2.2—2.8 kgf·m , 16—20 ft·lbf }

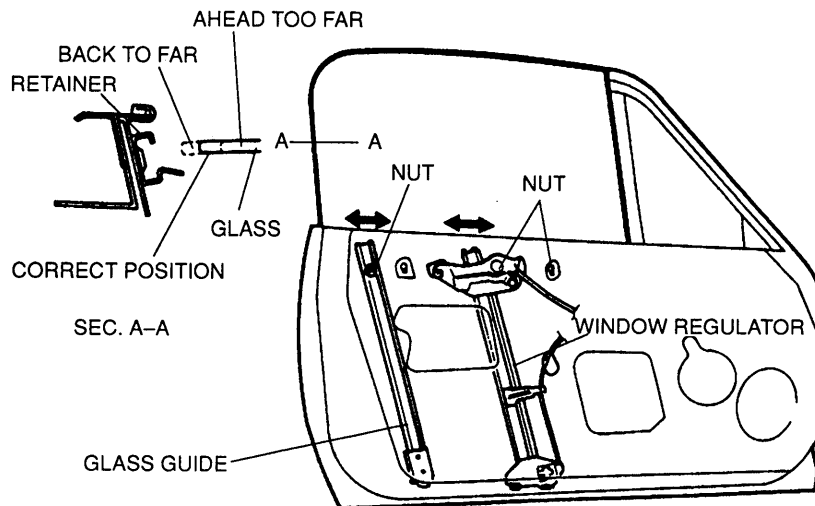


mm { in }

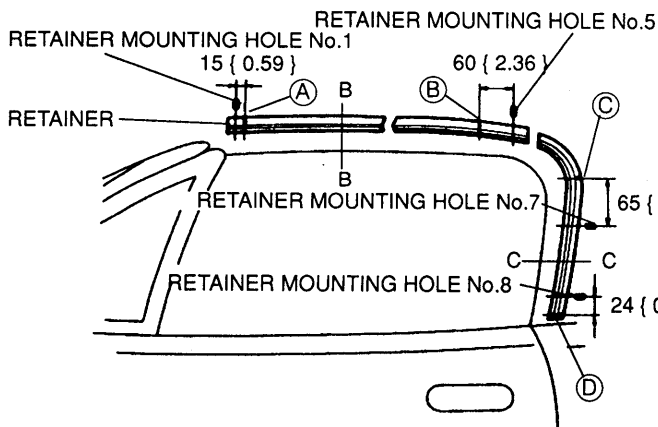
Forward/backward adjustment of door glass

1. Loosen the window regulator upper installation nuts and the glass guide upper installation nut.
2. Move the window regulator and glass guide forward or backward so that the side edge of the door glass is in the correct position.
3. Tighten the installation nuts.

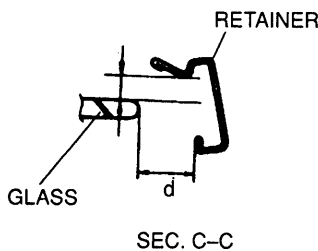
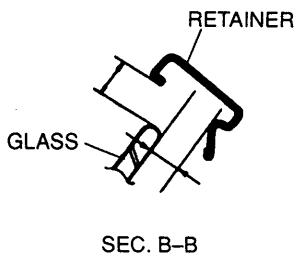
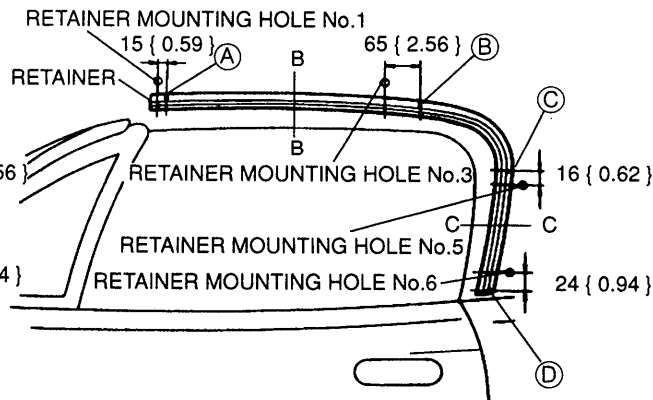
Tightening torque: 22—27 N·m { 2.2—2.8 kgf·m , 16—20 ft·lbf }



CONVERTIBLE TOP



DETACHABLE HARDTOP

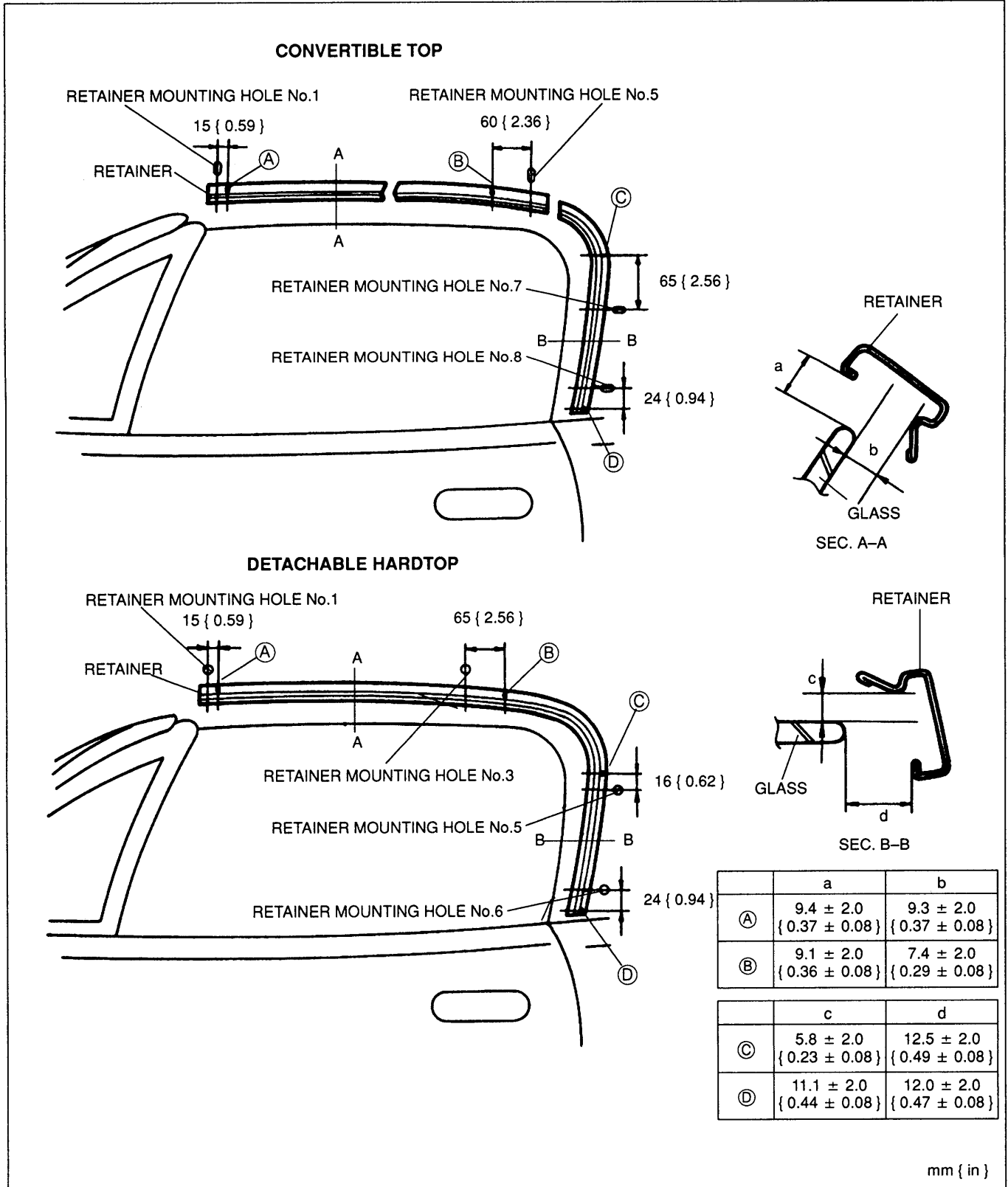


	d
Ⓒ	12.5 ± 2.0 { 0.49 ± 0.08 }
Ⓓ	12.0 ± 2.0 { 0.47 ± 0.08 }

mm { in }

After completion of adjustment

1. Verify the following with the weatherstrip removed:
 - (1) When the door glass is raised, the lower glass stoppers contact the upper glass stoppers simultaneously.
 - (2) The door glass is in the correct position when fully closed.
2. Verify the following with the weatherstrip installed:
 - (1) The door glass raises and lowers smoothly with the door closed.
 - (2) Alignment of the weatherstrip is correct (convertible top only).



DOOR LOCK AND OPENER

COMPONENTS

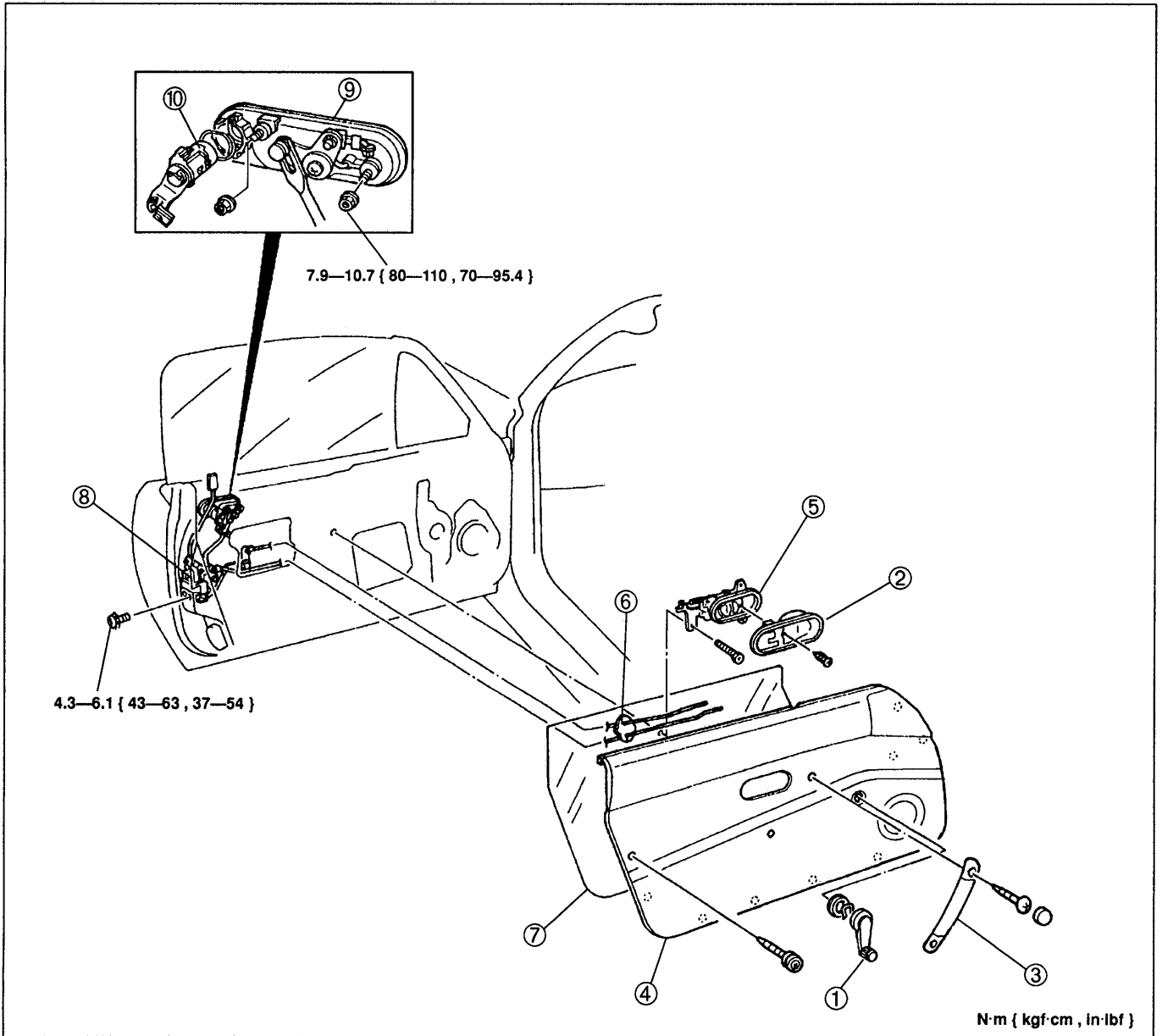
Removal / Installation

1. Raise the door glass fully.
2. Disconnect the negative battery cable.

Note

- Remove the door screen carefully so that it may be reused.

3. Remove in the order shown in the figure, referring to **Removal note**.
4. Install in the reverse order of removal, referring to **Installation note**.



- | | |
|-----------------------|-----------------|
| 1. Regulator handle | |
| Removal note | page S-10 |
| Installation note | page S-10 |
| 2. Inner handle cover | |
| 3. Pull handle | |
| 4. Door trim | |
| Removal note | page S-63 |

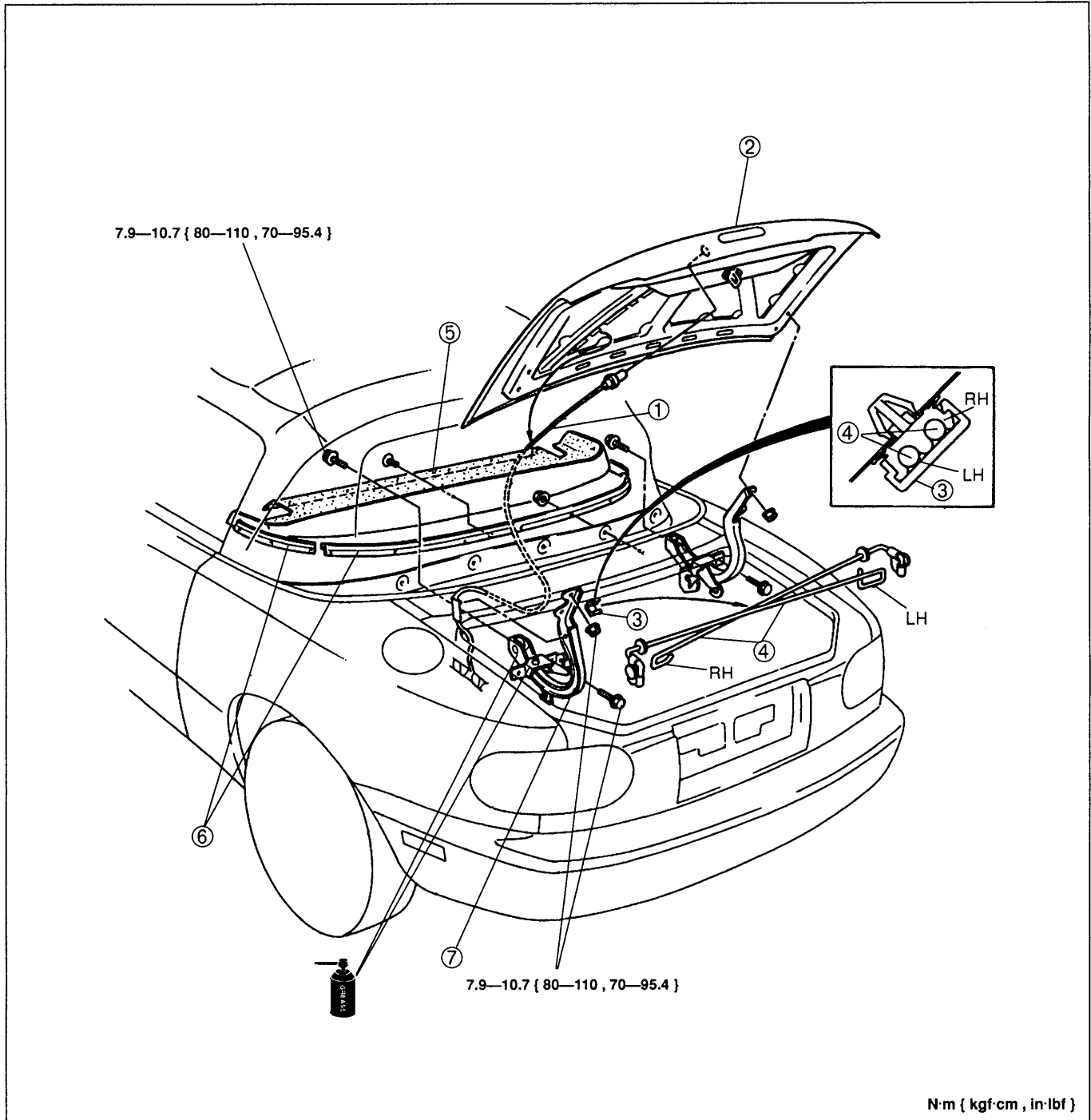
- | |
|------------------|
| 5. Inner handle |
| 6. Sealing pad |
| 7. Door screen |
| 8. Door lock |
| 9. Outer handle |
| 10. Key cylinder |

TRUNK LID

COMPONENTS

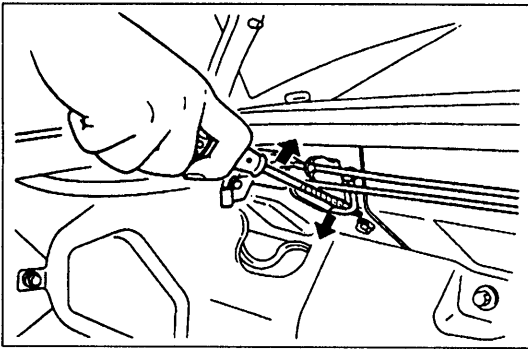
Removal / Installation

1. Disconnect the negative battery cable.
2. Remove in the order shown in the figure, referring to **Removal note**.
3. Install in the reverse order of removal.



- 1. Wiring harness
- 2. Trunk lid
Adjustment page S-17
- 3. Rod holder

- 4. Balance spring
Removal note page S-17
Adjustment page S-17
- 5. Rear package trim
- 6. Set plate
- 7. Trunk lid hinge

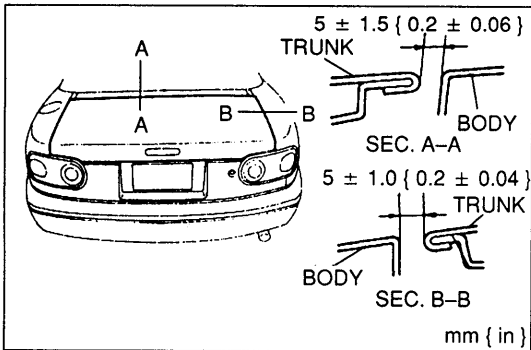


Removal note
Balance spring

Warning

- Removing the balance spring without securing the trunk lid can be dangerous. The trunk lid may fall and injure you. Open the trunk lid fully and secure it before removing the balance spring.

1. Lift the balance spring by using a protected screwdriver.
2. Remove the balance spring.

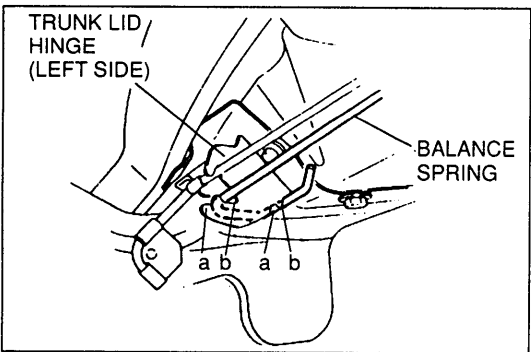


Adjustment
Trunk lid

Loosen the trunk lid mounting nuts and adjust as shown.

Tightening torque:

7.9—10.7 N·m { 80—110 kgf·cm , 70—95.4 in·lbf }



Balance spring

Slide the balance spring to the desired position by using a protected screwdriver.

Tension	Hinge	Set position	
		a	b
Standard	Left side		○
	Right side	○	
Increase	Left side	○	
	Right side	○	
Decrease	Left side		○
	Right side		○

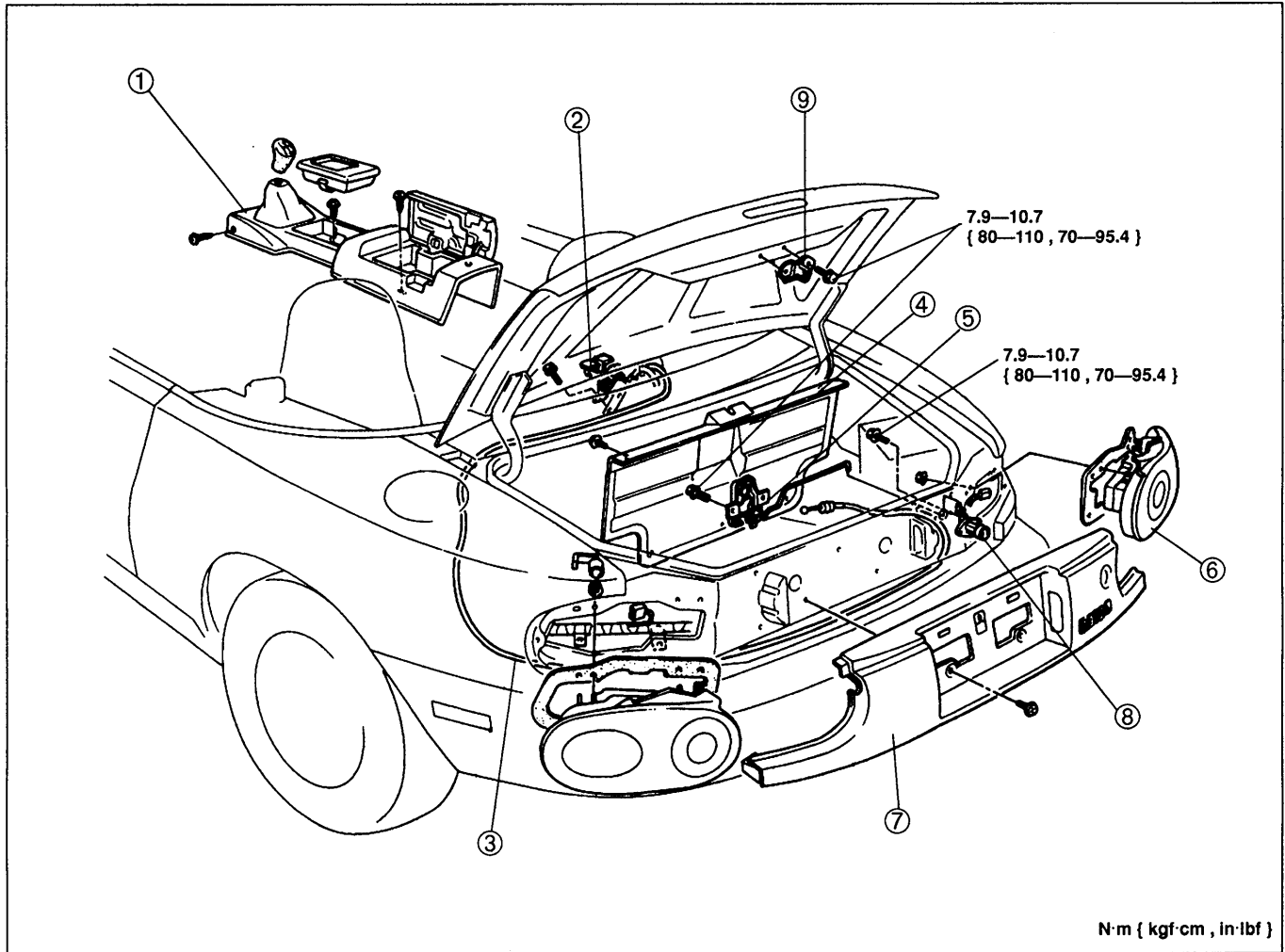
○: Indicated position

TRUNK LID LOCK AND OPENER

COMPONENTS

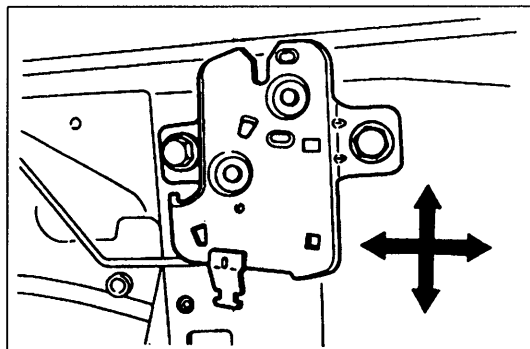
Removal / Installation

1. Disconnect the negative battery cable.
2. Remove in the order shown in the figure, referring to **Removal note**.
3. Install in the reverse order of removal.



N·m { kgf·cm , in·lbf }

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Rear console
Removal / Installation page S-58 2. Trunk lid opener lever 3. Trunk lid opener cable 4. Trunk end trim 5. Trunk lid lock
Adjustment below | <ol style="list-style-type: none"> 6. Rear combination light
Removal section T 7. Rear finisher
Removal note page S-28 8. Key cylinder 9. Trunk lid striker |
|---|---|



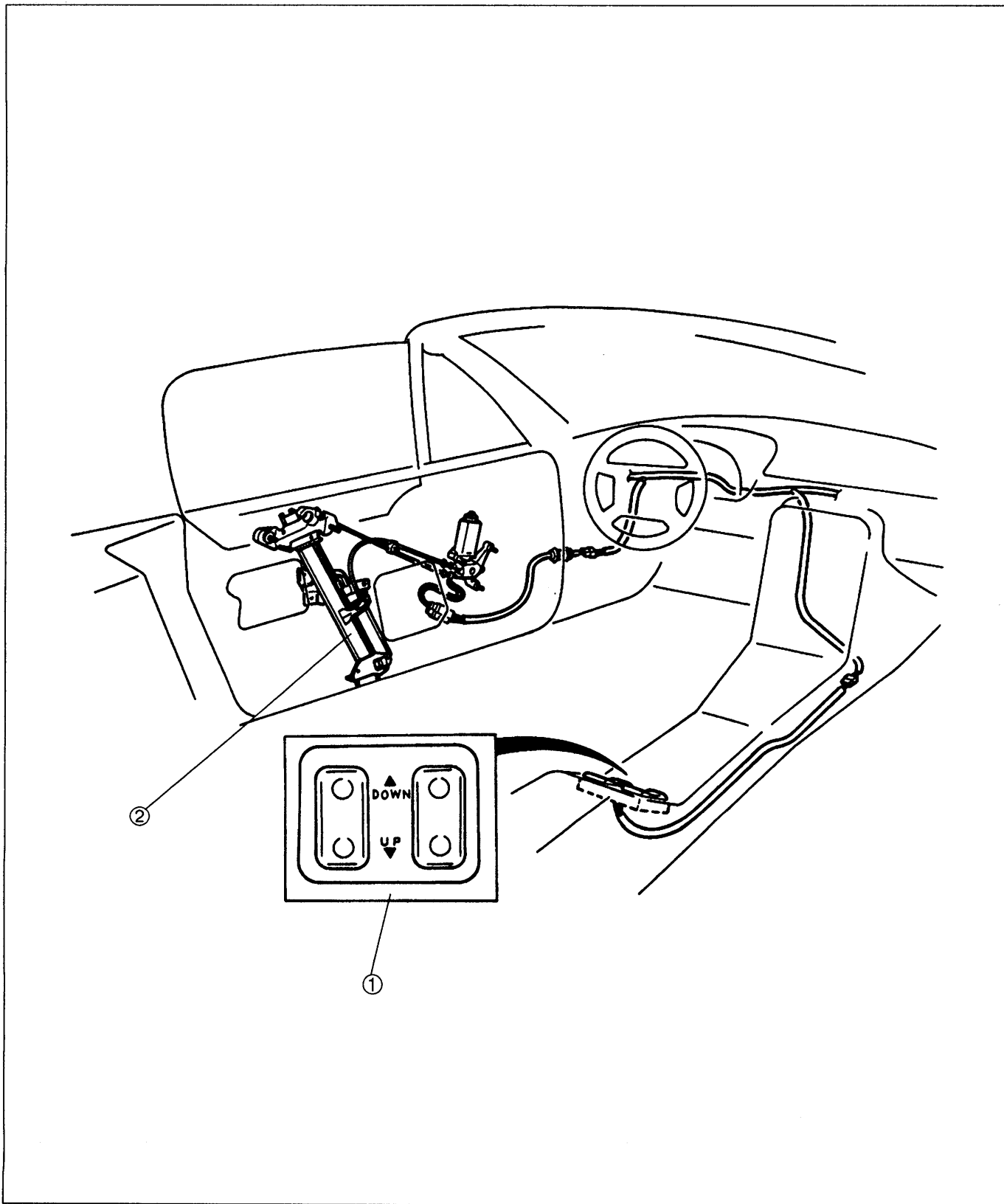
Adjustment
Trunk lid lock

Verify that the trunk lid can be closed easily and that there is no looseness. If necessary, loosen the trunk lid lock mounting bolts and adjust the trunk lid lock.

Tightening torque:
7.9—10.7 N·m { 80—110 kgf·cm , 70—95.4 in·lbf }

POWER WINDOW SYSTEM

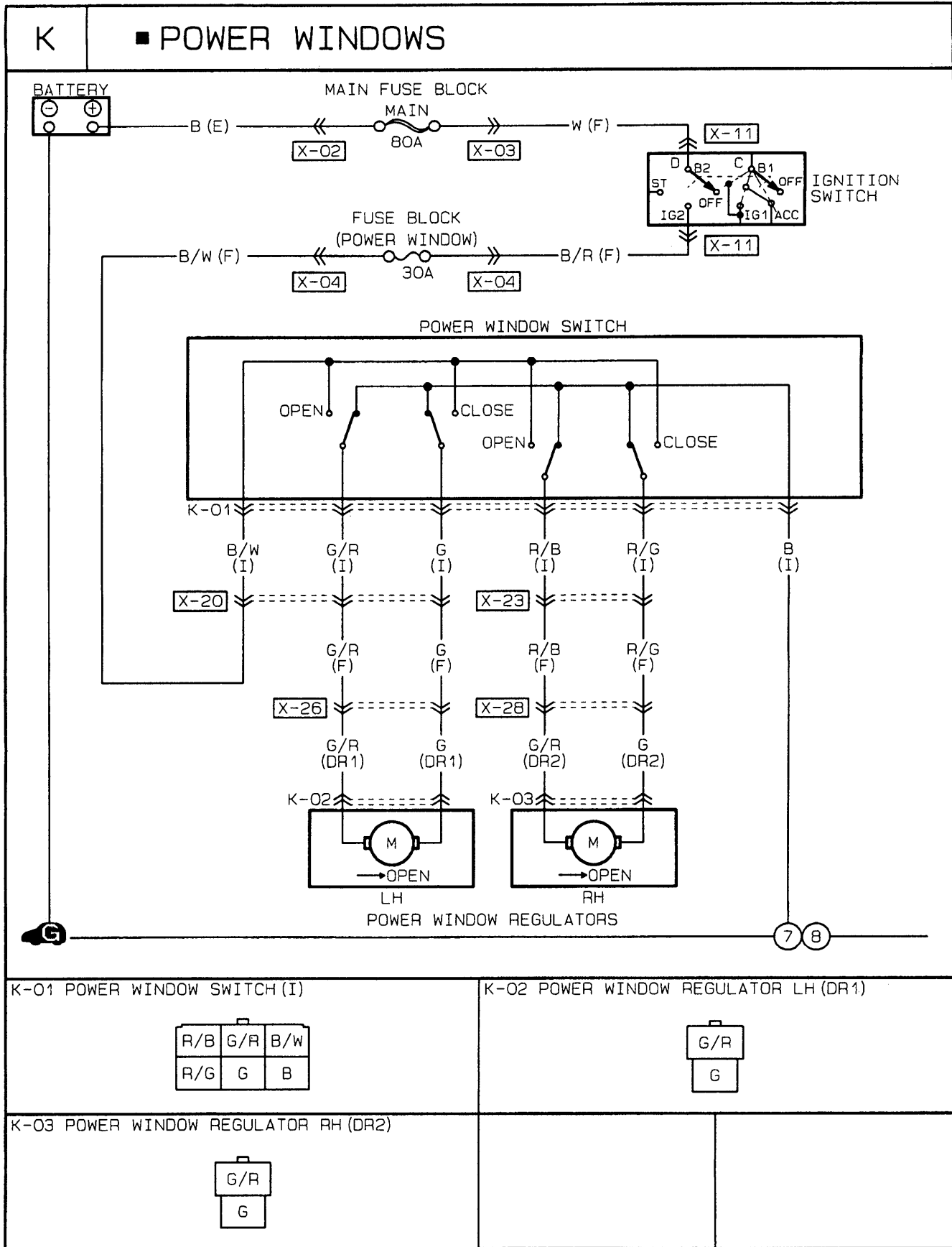
STRUCTURAL VIEW

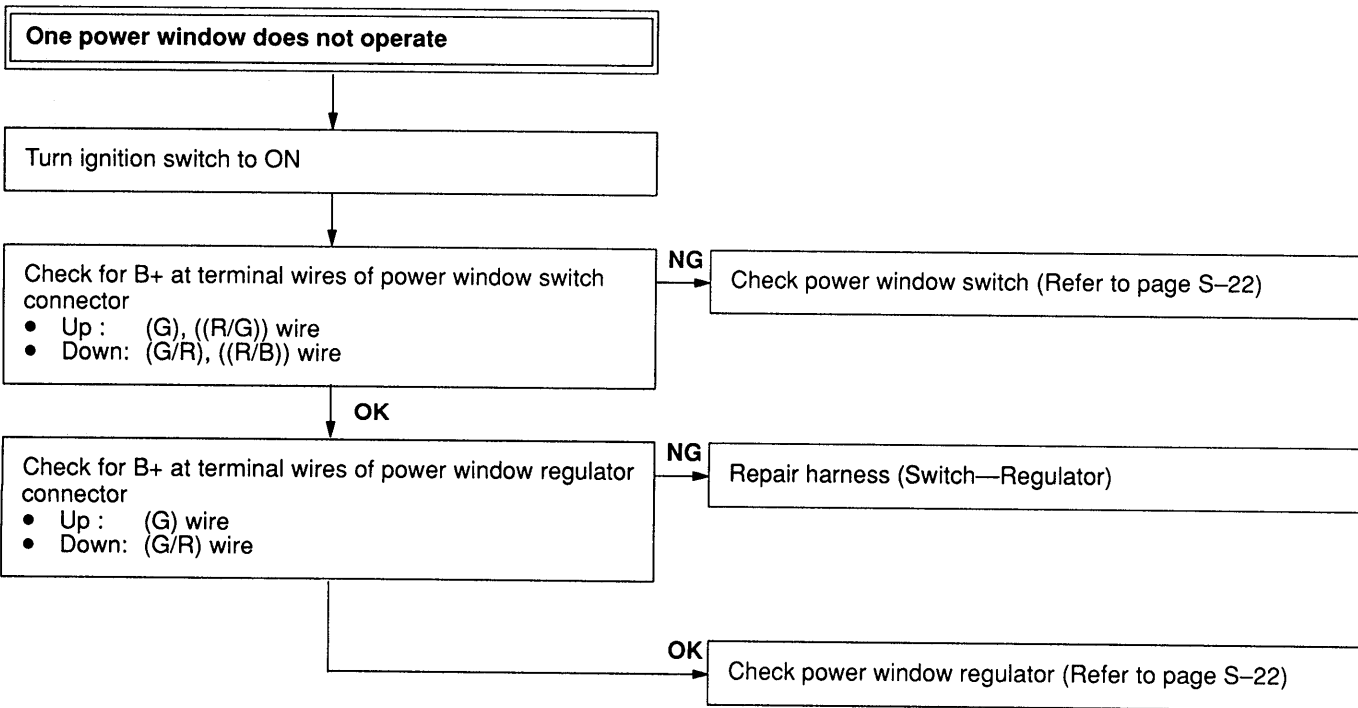
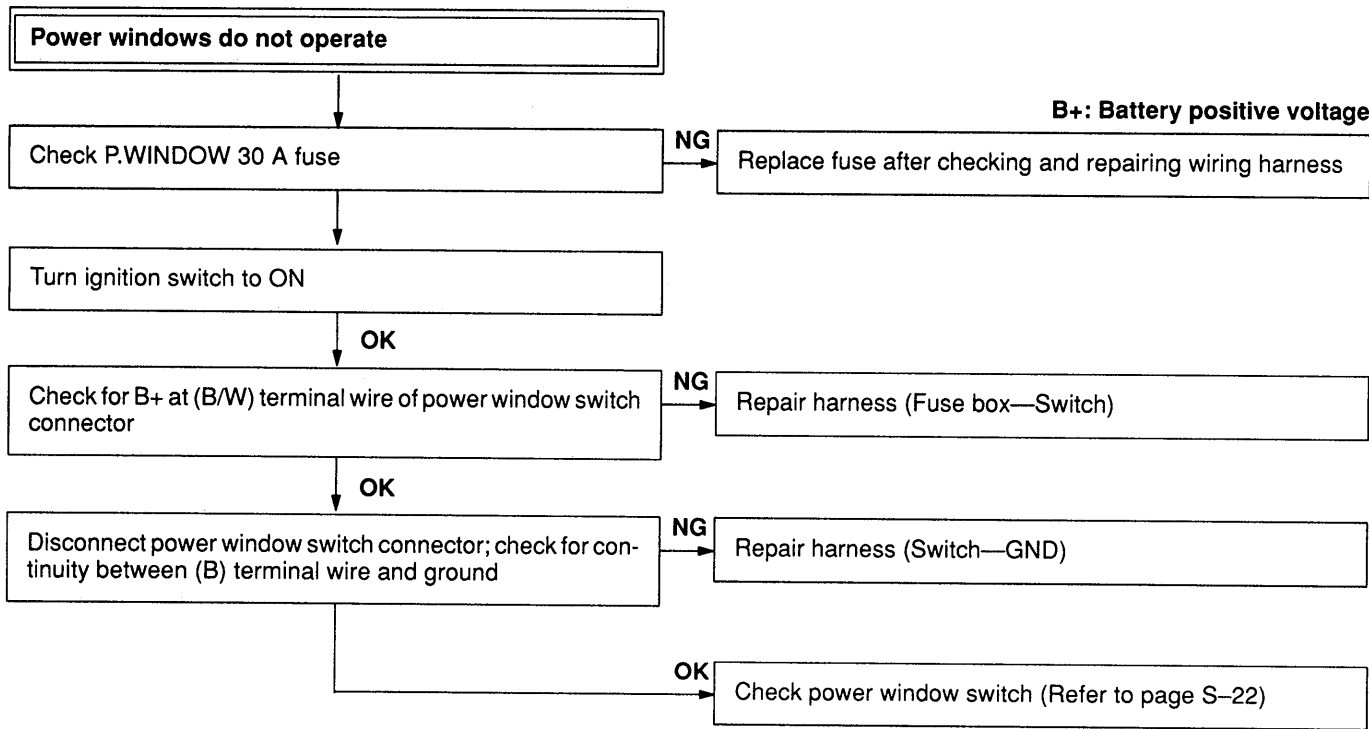


1. Power window switch
Removal / Installation page S-58
Inspection page S-22

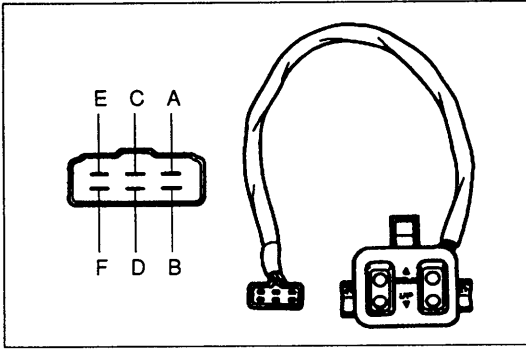
2. Power window regulator
Removal / Installation page S- 9
Inspection page S-22

TROUBLESHOOTING
Circuit Diagram





(()): Passenger side



POWER WINDOW SWITCH

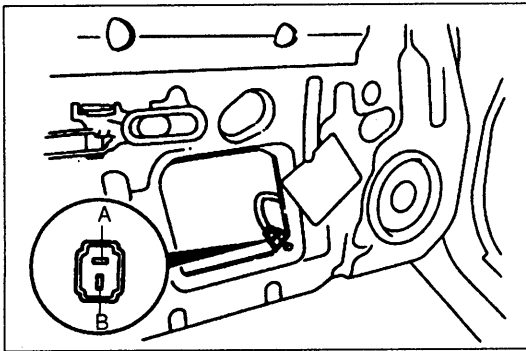
Inspection

1. Check for continuity between the terminals of the connector with the power window switch in the following positions.

Terminal Switch position	Driver side				Passenger side			
	A	B	C	D	A	B	E	F
UP	○			○	○			○
OFF		○—○				○—○		
DOWN	○		○		○		○	

○—○: Continuity

2. If not as specified, replace the power window switch.



POWER WINDOW REGULATOR

Inspection

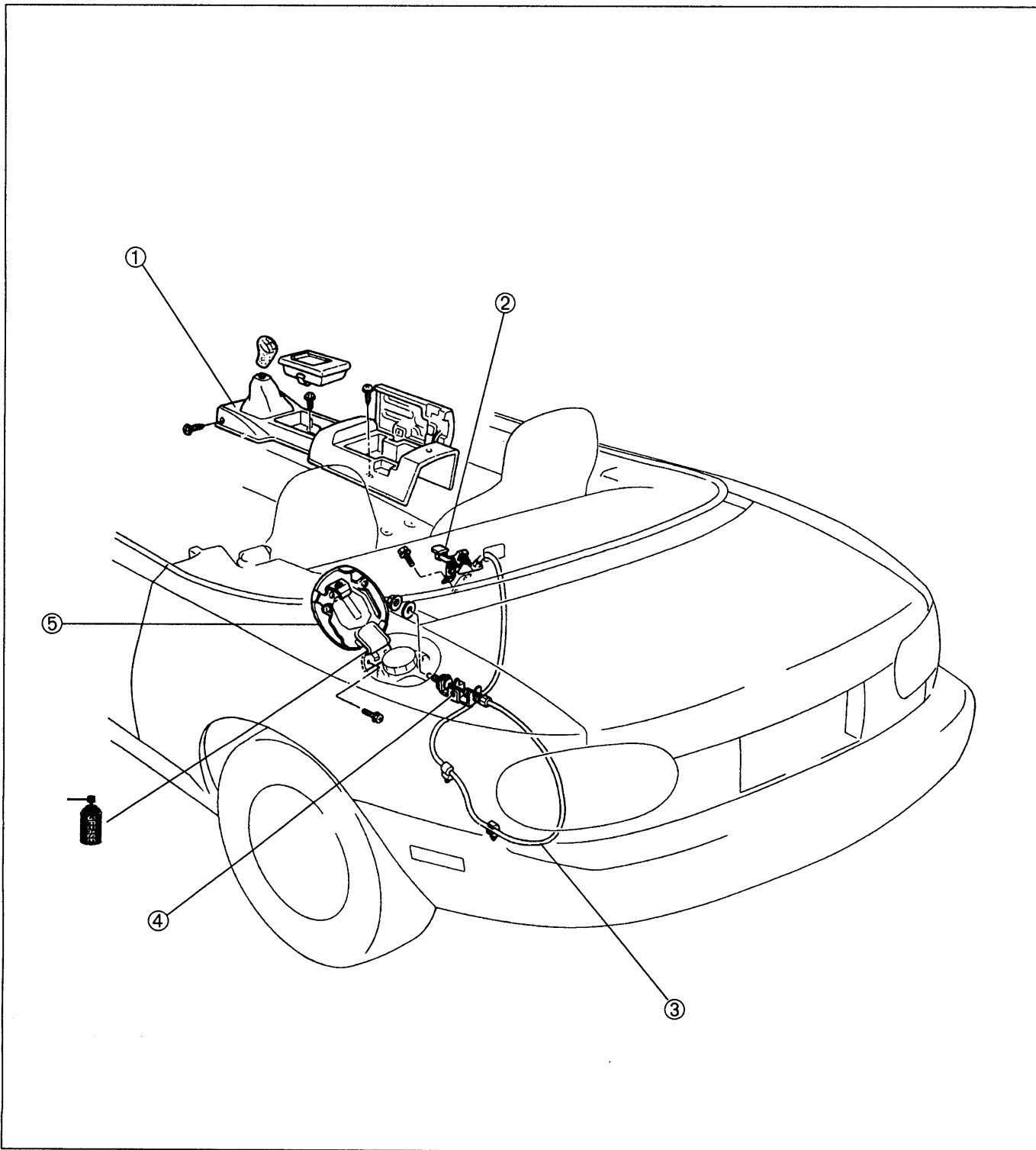
1. Connect battery positive voltage to terminal A and ground to terminal B of the power window regulator connector. Verify that the power window regulator operates.
2. Reverse the above connections and check for reverse operation of the power window regulator.
3. If not as specified, replace the power window regulator.

FUEL-FILLER LID OPENER

COMPONENTS

Removal / Installation

1. Remove in the order shown in the figure. To remove the fuel-filler lid opener cable, remove the rear package trim (page S-61) and rear end mat (page S-64).
2. Install in the reverse order of removal.



1. Rear console
Removal / Installation page S-58
2. Fuel-filler lid opener lever

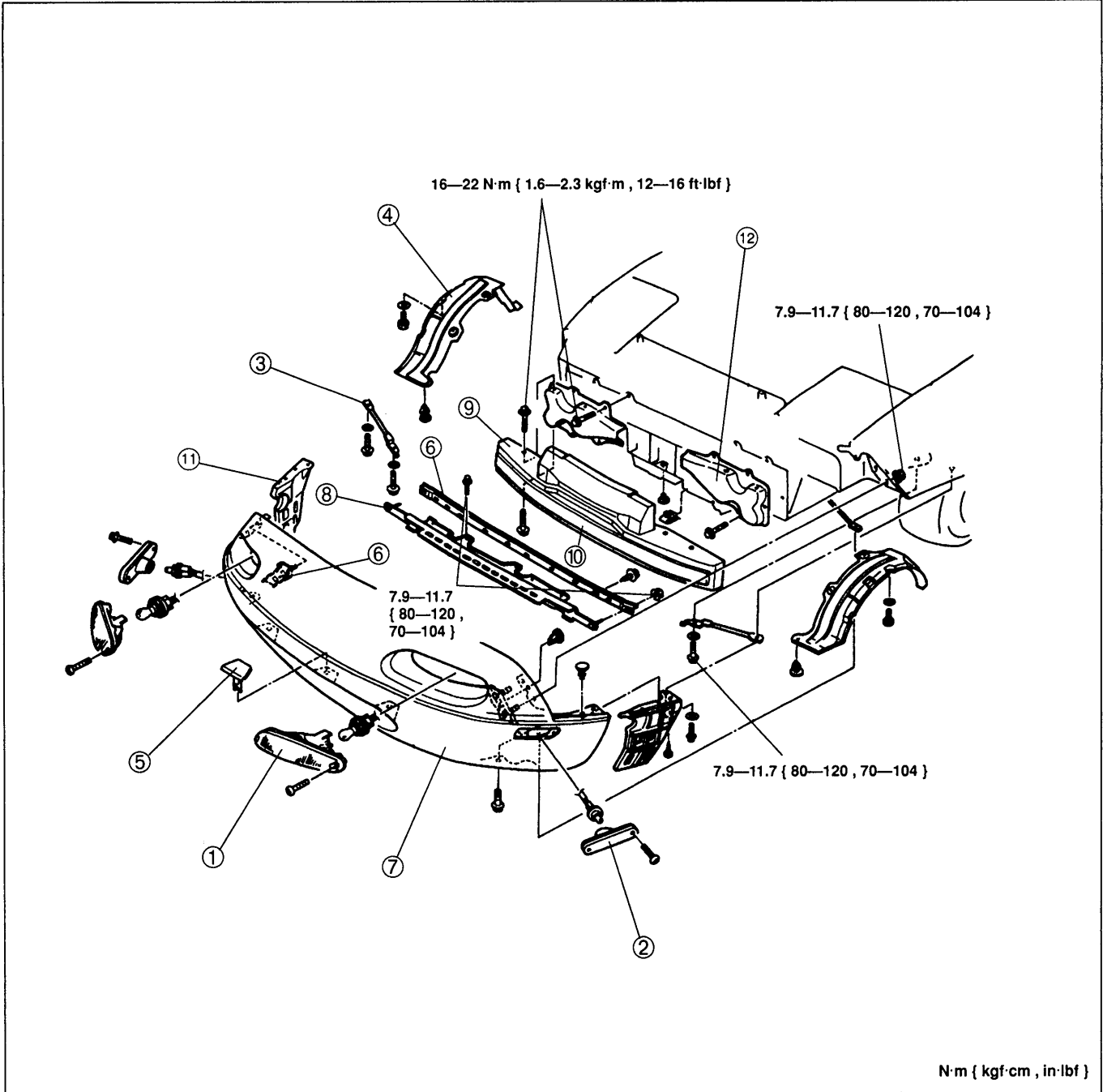
3. Fuel-filler lid opener cable
4. Fuel-filler lid opener
5. Fuel-filler lid

FRONT BUMPER

COMPONENTS

Removal / Installation

1. Raise the headlights.
2. Disconnect the negative battery cable.
3. Remove in the order shown in the figure.
4. Install in the reverse order of removal.



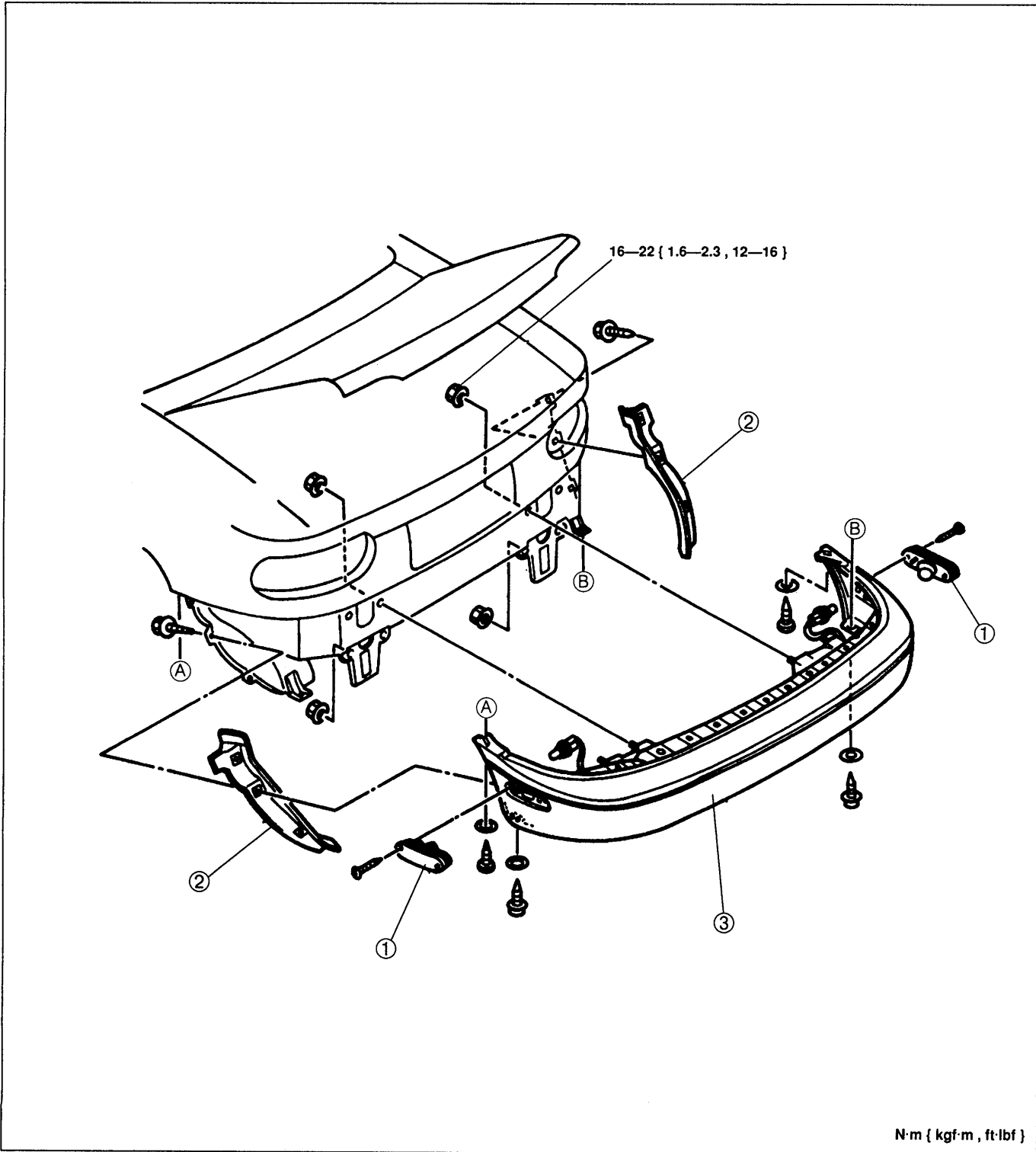
- | | |
|--|---------------------------|
| 1. Front combination light
Removal / Installation section T | 6. Set plate |
| 2. Front side marker light
Removal / Installation section T | 7. Front bumper fascia |
| 3. Fender bracket | 8. Retainer |
| 4. Mud guard | 9. Bumper reinforcement |
| 5. Grille cover | 10. Spacer |
| | 11. Front bumper retainer |
| | 12. Front bumper bracket |

REAR BUMPER

COMPONENTS

Removal / Installation

- 1. Disconnect the negative battery cable.
- 2. Remove in the order shown in the figure.
- 3. Install in the reverse order of removal.



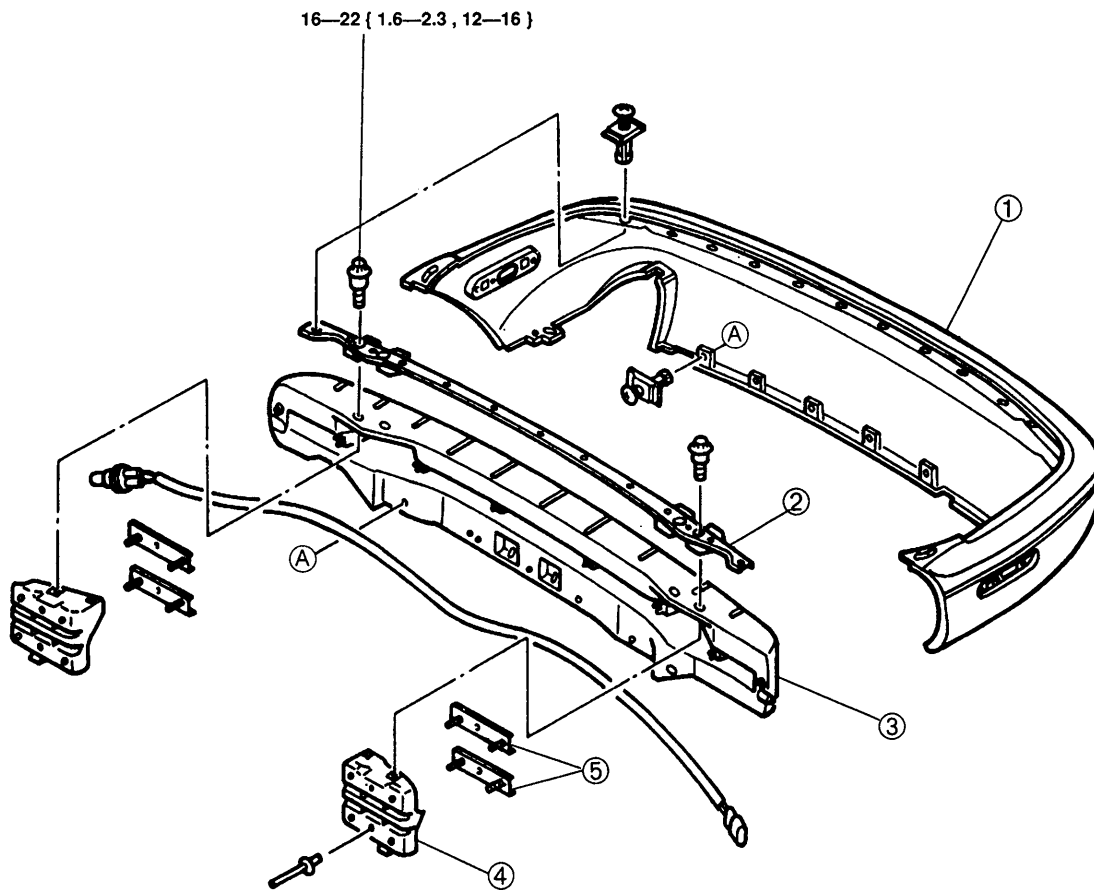
N·m { kgf·m , ft·lbf }

- 1. Rear side marker light
Removal / Installation section T
- 2. Splash shield

- 3. Rear bumper
Disassembly / Assembly page S-26

Disassembly / Assembly

1. Disassemble in the order shown in the figure.
2. Assemble in the reverse order of disassembly.



N·m { kgf·m , ft·lbf }

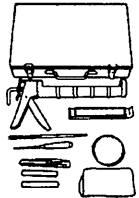

1. Rear bumper fascia
2. Retainer
3. Bumper reinforcement

4. Bumper stay
5. Set plate

MOLDING AND GARNISH

PREPARATION

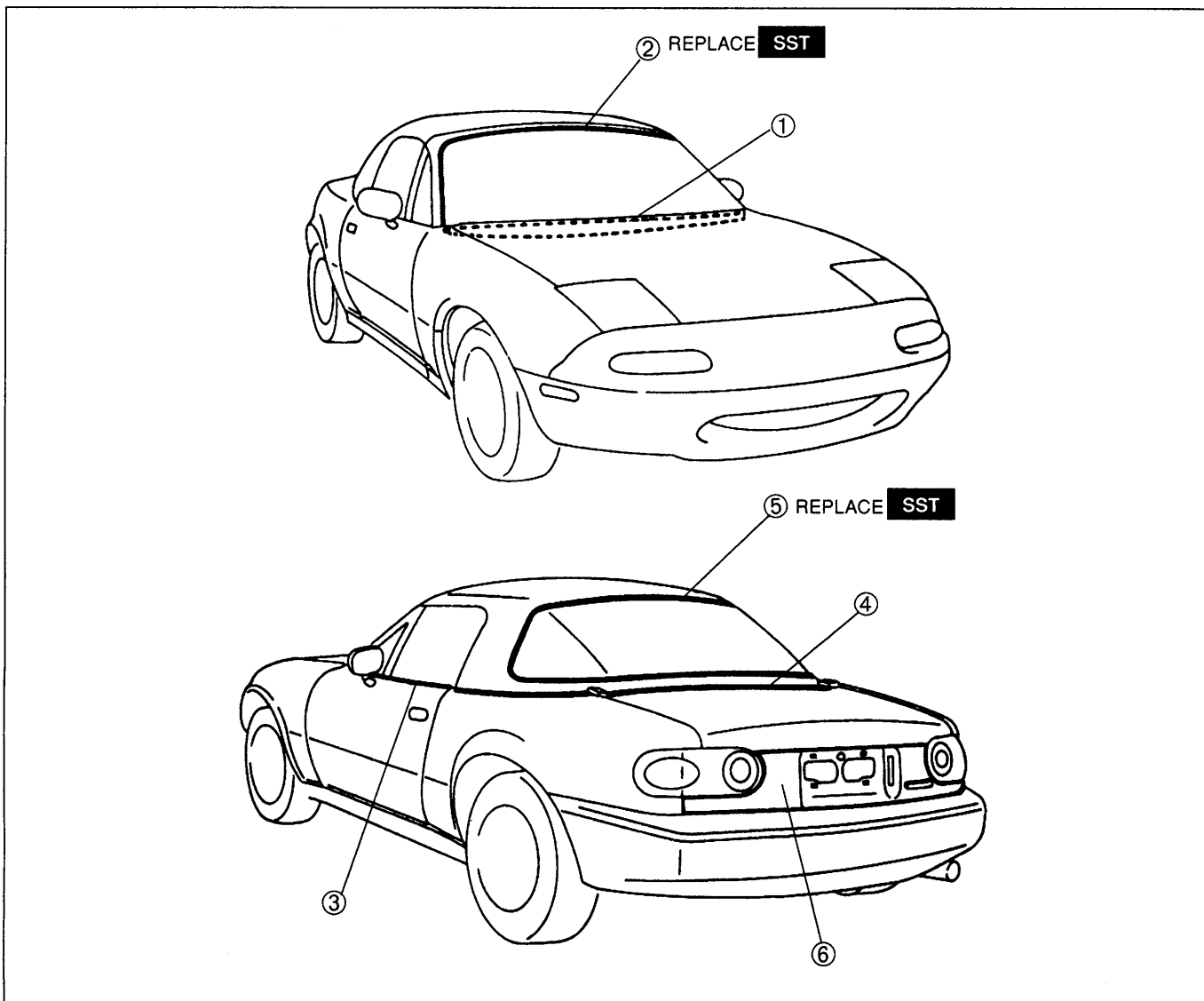
SST

<p>49 0305 870A</p> <p>Tool set, window</p> 	<p>For removal / installation of molding</p>	<p>49 G050 1A0</p> <p>Remover, sealant</p> 	<p>For removal of sealant</p>
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COMPONENTS

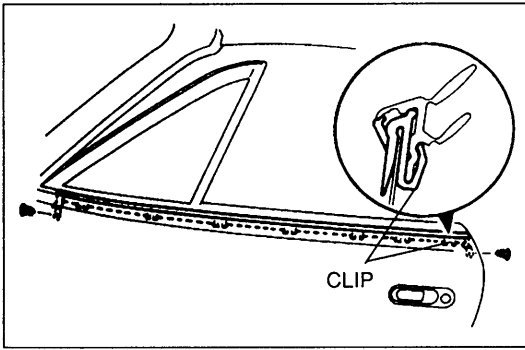
Removal / Installation

1. Remove in the order shown in the figure, referring to **Removal note**.
2. Install in the reverse order of removal, referring to **Installation note**.



1. Cowl grille
Removal / Installation page S-46
2. Windshield molding
Installation note page S-28
3. Front beltline molding
Removal note page S-28

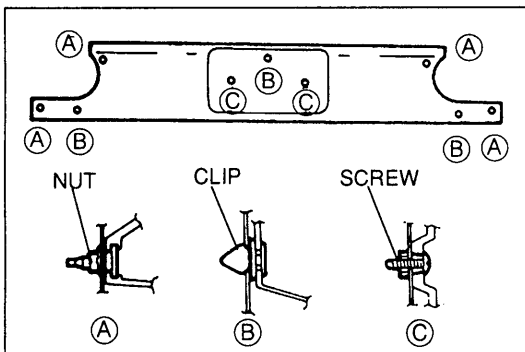
4. Beltline molding
Removal note page S-28
5. Rear window molding (detachable hardtop)
Installation note page S-30
6. Rear finisher
Removal note page S-28

**Removal note****Front beltline molding**

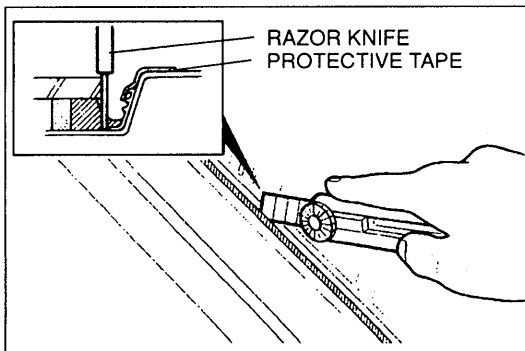
1. Remove the outside mirror. (Refer to page S-34.)
2. Pull the front beltline molding upward to disengage the clips from the body.

Beltline molding

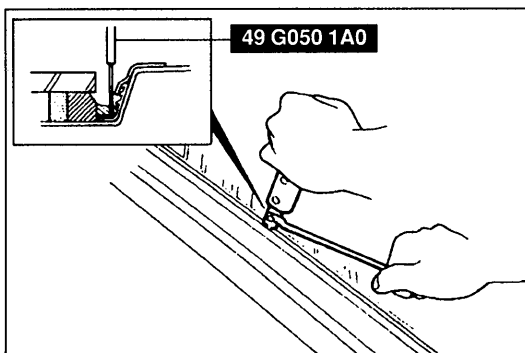
1. Remove the rear package trim. (Refer to page S-61.)
2. Remove the set plate. (Refer to page S-54.)
3. Remove the top fabric studs.
4. Remove the beltline molding.

**Rear finisher**

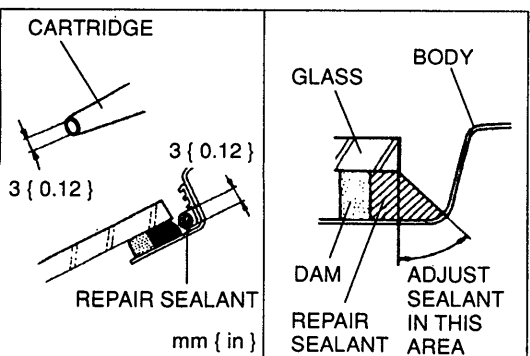
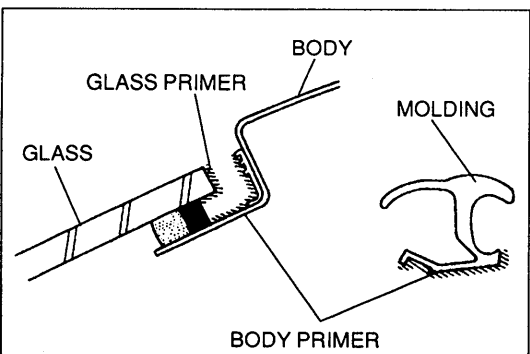
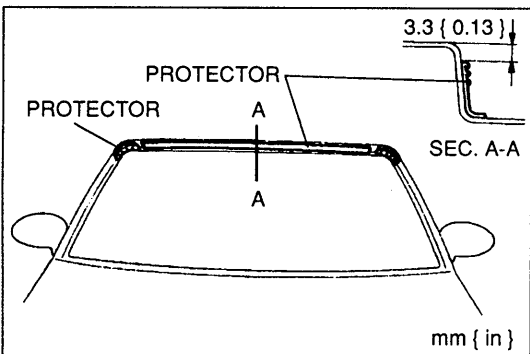
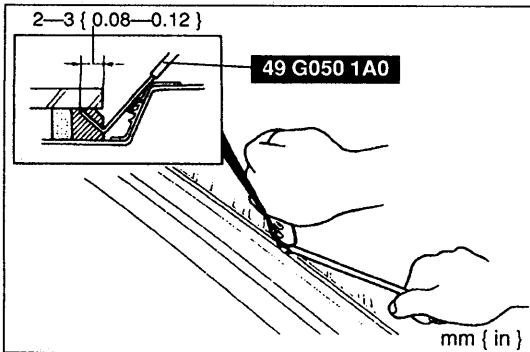
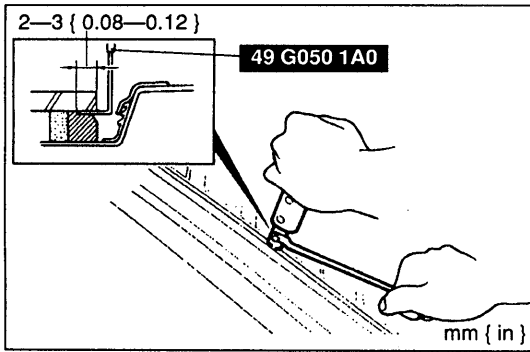
1. Remove the rear combination light. (Refer to section T.)
2. Remove the rear finisher installation nuts and screws.
3. Pull the rear finisher forward to disengage the clips from the body.

**Installation note****Windshield molding**

1. Apply protective tape along the edge of the body to protect it from damage.
2. Cut the sealant by using a razor knife as shown.



3. Insert the blade of the **SST** into the sealant, and pull on the bar to cut the sealant near the body as shown.



4. Insert blade of the **SST** into the sealant, and pull on the bar to cut the sealant near the glass as shown.

5. Remove as much sealant as possible from between the body and the glass.

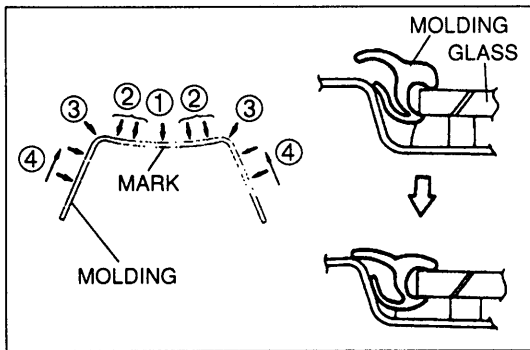
6. Carefully clean around the edge of the glass and the adhesion surface of the body.

7. If the protector is damaged, replace it with a new one.

8. Apply primer onto the bonding area of the glass, body, and new windshield molding by using a brush. Use only glass primer on the glass and body primer on the body and molding. Keep the area free of dirt or grease, and do not touch the surface. Allow the primer to dry for approximately **30 minutes**.

9. Apply a **3 mm { 0.12 in }** bead of repair sealant between the glass and the body.

10. Reshape the repair sealant as shown if necessary.

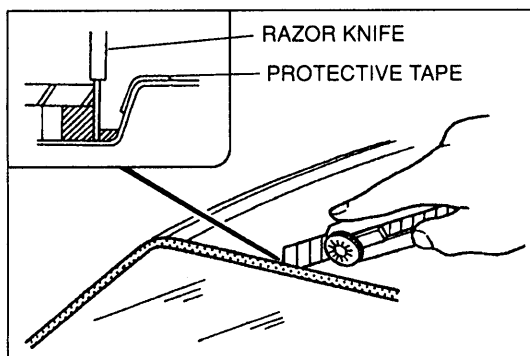


11. Install the windshield molding before the sealant hardens.
 - ① Align the center mark in the molding with the glass mark.
 - ② Install the upper portions of the molding into the body.
 - ③ Push the corners of the molding onto the body.
 - ④ Push the sides of the molding onto the body, beginning from the bottom.

Hardening time of repair sealant

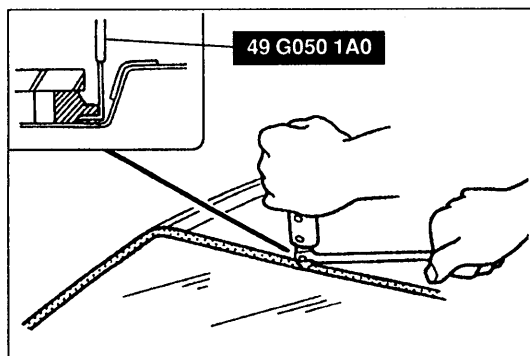
Temperature	Surface hardening time	Time required until car can be put into service
5 °C { 41 °F }	Approx. 1.5 hr	12 hr
20 °C { 68 °F }	Approx. 1 hr	4 hr
35 °C { 95 °F }	Approx. 10 min	2 hr

12. Check for water leaks. If a leak is found, wipe the water off well and repeat the installation.

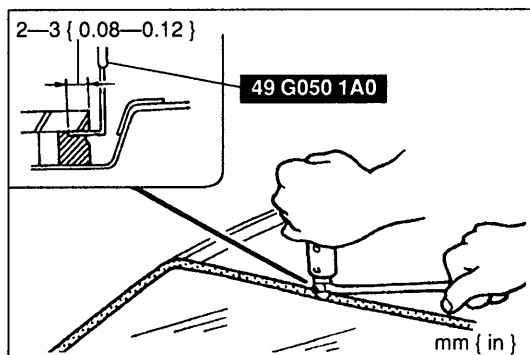


Rear window molding (detachable hardtop)

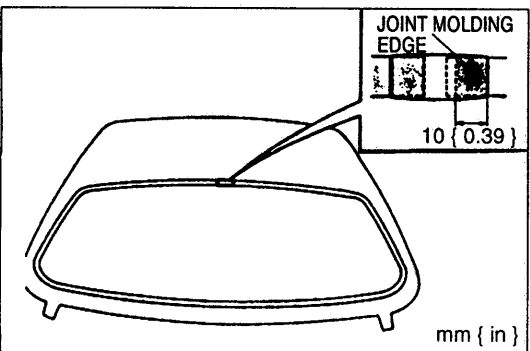
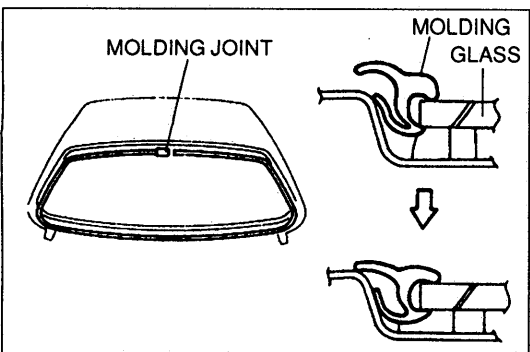
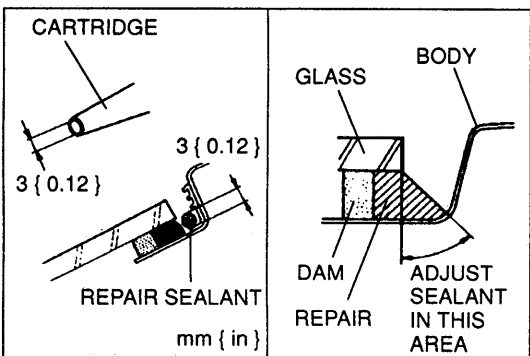
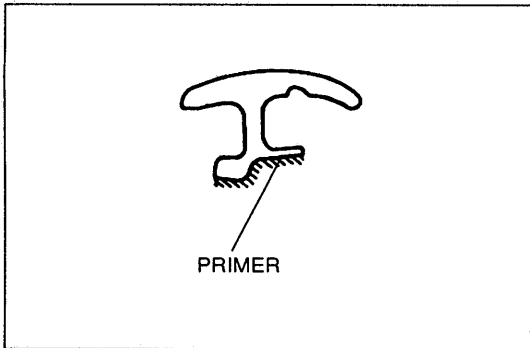
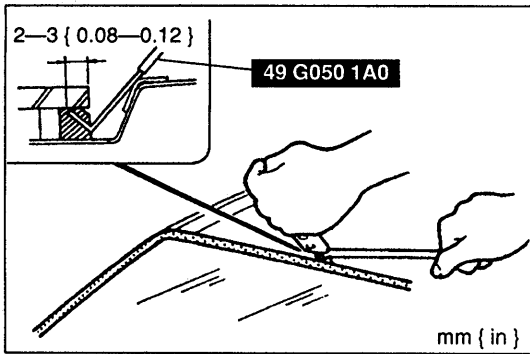
1. Apply protective tape along the edge of the body to protect it from damage.
2. Cut the sealant by using a razor knife as shown.



3. Insert the blade of the **SST** into the sealant, and pull on the bar to cut the sealant near the body as shown.



4. Insert the blade of the **SST** into the sealant, and pull on the bar to cut the sealant near the glass as shown.



5. Remove as much sealant as possible from between the body and the glass.
6. Carefully clean around the edge of the glass and the adhesion surface at the body.

7. Apply primer to the bonding area of the new rear window molding by using a brush. Keep the area free of dirt and grease, and do not touch the surface. Allow the primer to dry for approximately **30 minutes**.

8. Apply a **3 mm { 0.12 in }** bead of repair sealant between the glass and the body.
9. Reshape the repair sealant as shown if necessary.

10. Install the rear window molding before the sealant hardens.
 - (1) Attach the molding as shown with the molding joint at the top.
 - (2) If the molding is too long, cut the excess molding **10 mm { 0.39 in }** inside the molding joint edge.

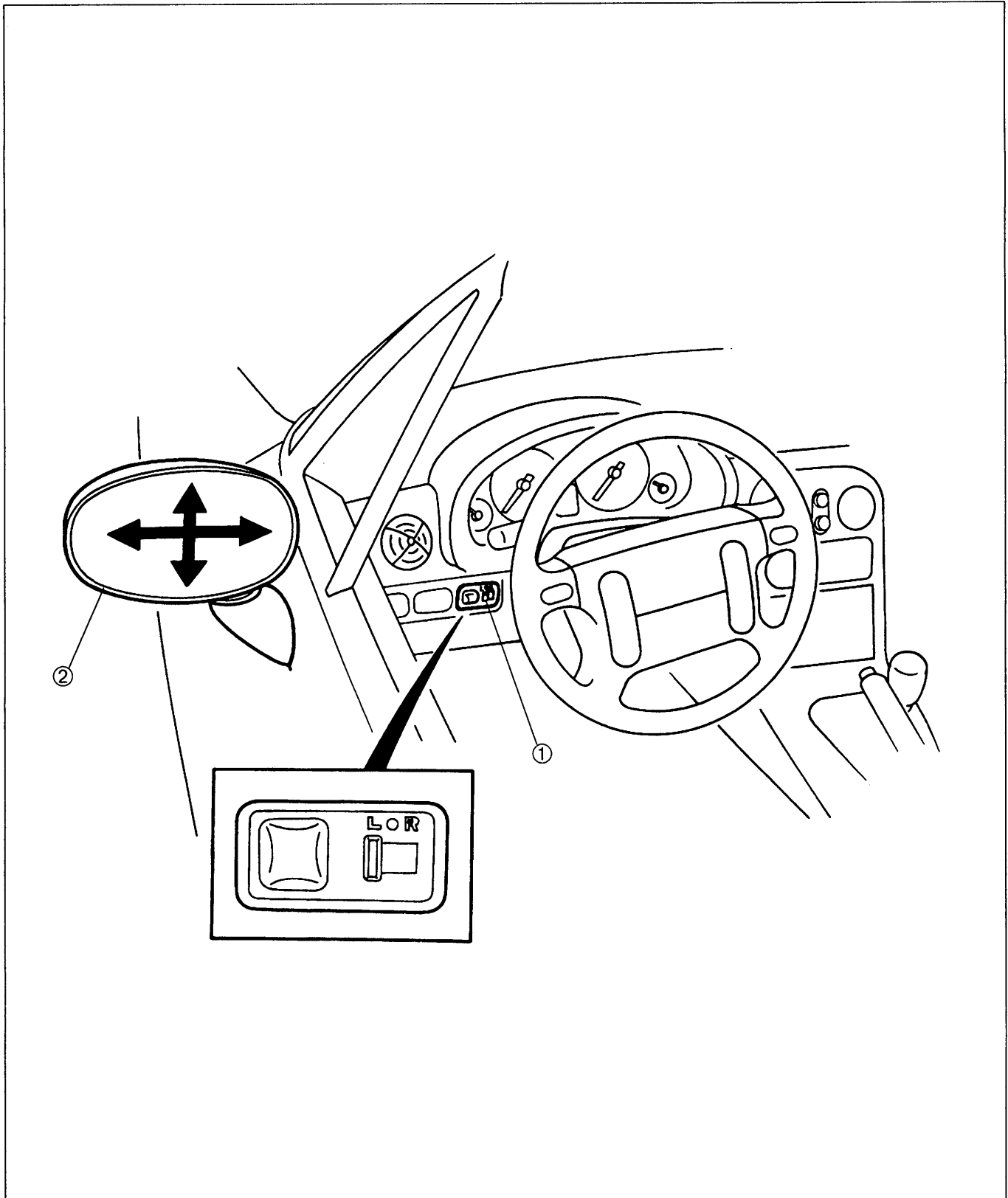
Hardening time of repair sealant

Temperature	Surface hardening time	Time required until car can be put into service
5 °C { 41 °F }	Approx. 1.5 hr	12 hr
20 °C { 68 °F }	Approx. 1 hr	4 hr
35 °C { 95 °F }	Approx. 10 min	2 hr

11. Check for water leaks. If a leak is found, wipe the water off well and repeat the installation.

OUTSIDE MIRROR

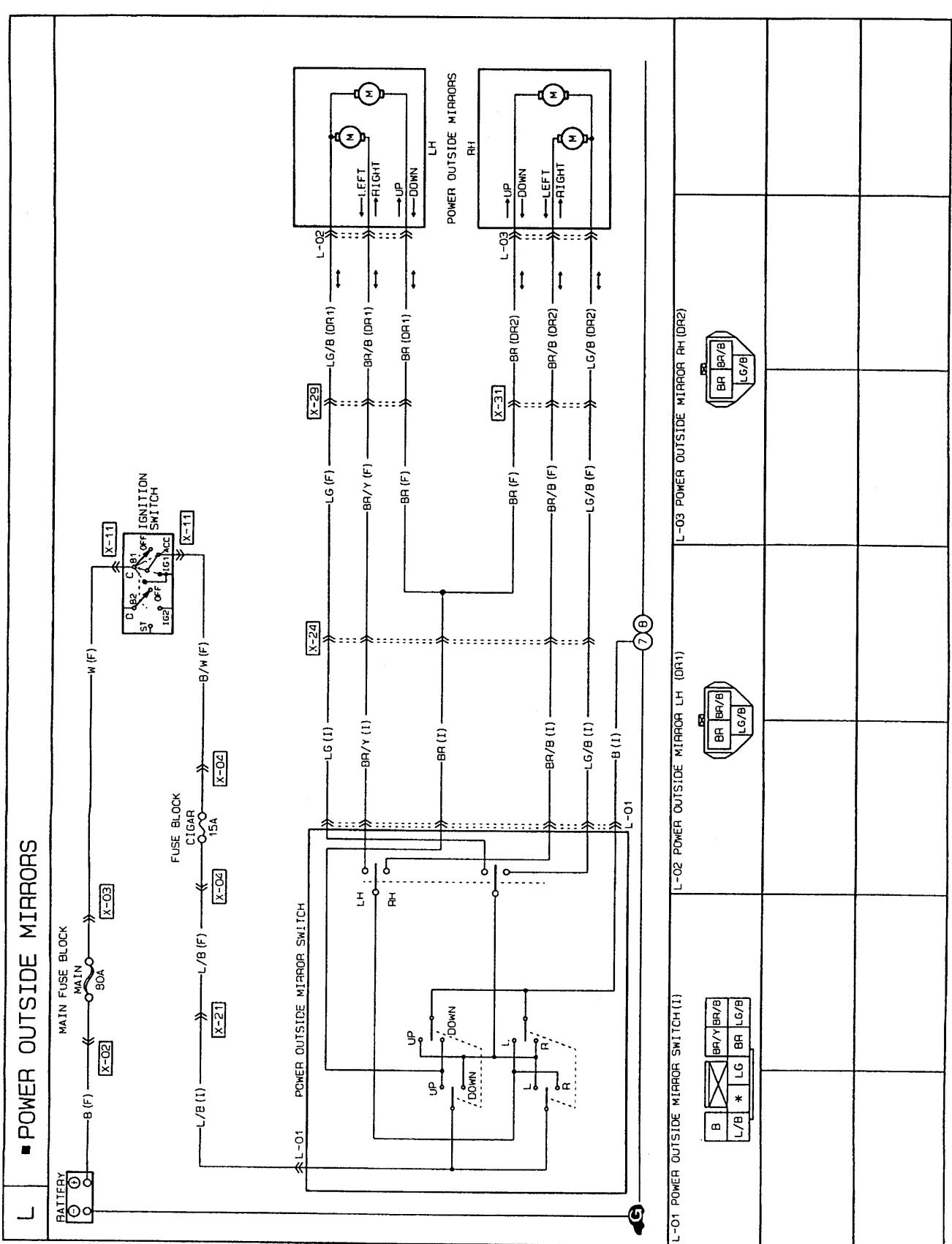
STRUCTURAL VIEW



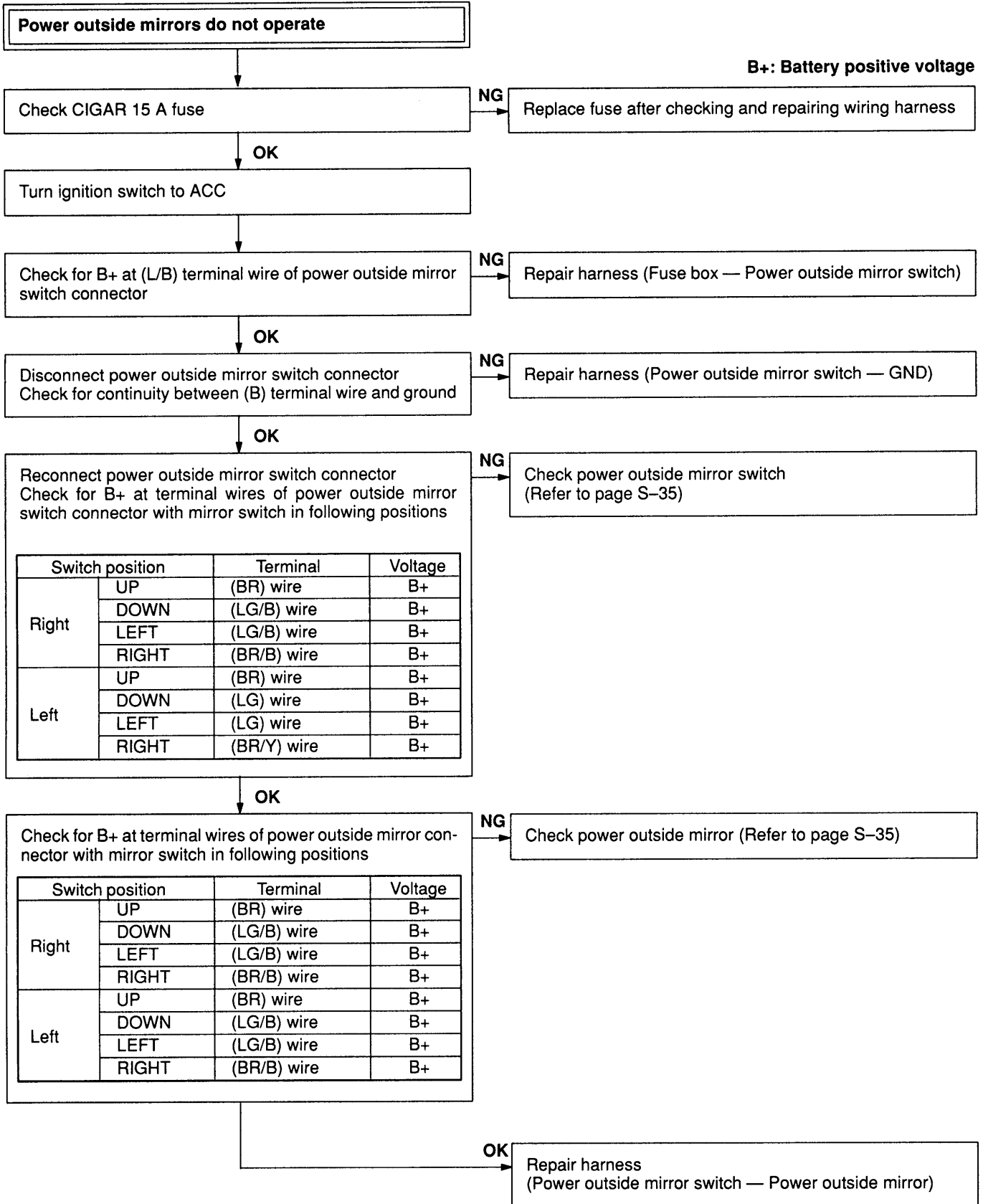
1. Power outside mirror switch
Inspection page S-35
Removal / Installation page S-36

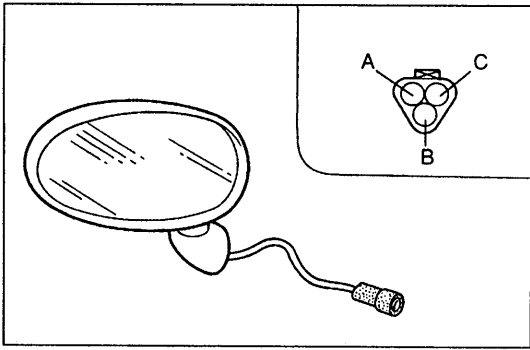
2. Power outside mirror
Inspection page S-35
Removal / Installation page S-36

TROUBLESHOOTING
Circuit Diagram



L-01 POWER OUTSIDE MIRROR SWITCH (L)	<table border="1"> <tr> <td>B</td> <td>BR/Y</td> <td>BR/B</td> </tr> <tr> <td>L/B</td> <td>*</td> <td>LG</td> </tr> <tr> <td></td> <td>BR</td> <td>LG/B</td> </tr> </table>	B	BR/Y	BR/B	L/B	*	LG		BR	LG/B	L-02 POWER OUTSIDE MIRROR LH (DR1)	<table border="1"> <tr> <td>BR</td> <td>BR/B</td> </tr> <tr> <td>LG/B</td> <td></td> </tr> </table>	BR	BR/B	LG/B		L-03 POWER OUTSIDE MIRROR RH (DR2)	<table border="1"> <tr> <td>BR</td> <td>BR/B</td> </tr> <tr> <td>LG/B</td> <td></td> </tr> </table>	BR	BR/B	LG/B	
B	BR/Y	BR/B																				
L/B	*	LG																				
	BR	LG/B																				
BR	BR/B																					
LG/B																						
BR	BR/B																					
LG/B																						





POWER OUTSIDE MIRROR

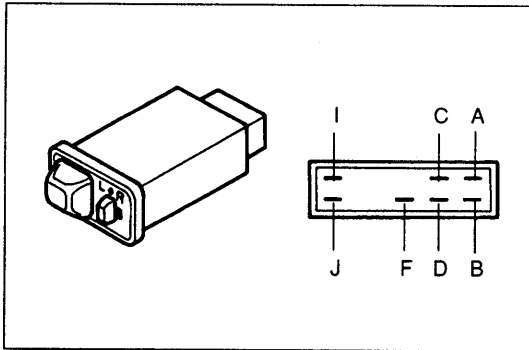
Inspection

1. Remove the power outside mirror. (Refer to page S-36.)
2. Check for continuity between the mirror terminals.

Terminal	A	B	C
Function			
Movement	○—○	○—○	○—○

○—○: Continuity

3. If not as specified, replace the power outside mirror.



POWER OUTSIDE MIRROR SWITCH

Inspection

1. Remove the power outside mirror switch. (Refer to page S-36.)
2. Check for continuity between the switch terminals.

Switch position		Terminal							
		A	B	C	D	F	I	J	
Left	UP				○—○				
	DOWN					○—○			
	LEFT			○—○			○—○		
	RIGHT			○—○				○—○	
Right	UP		○—○		○—○				
	DOWN		○—○			○—○			
	LEFT	○—○	○—○				○—○		
	RIGHT	○—○						○—○	

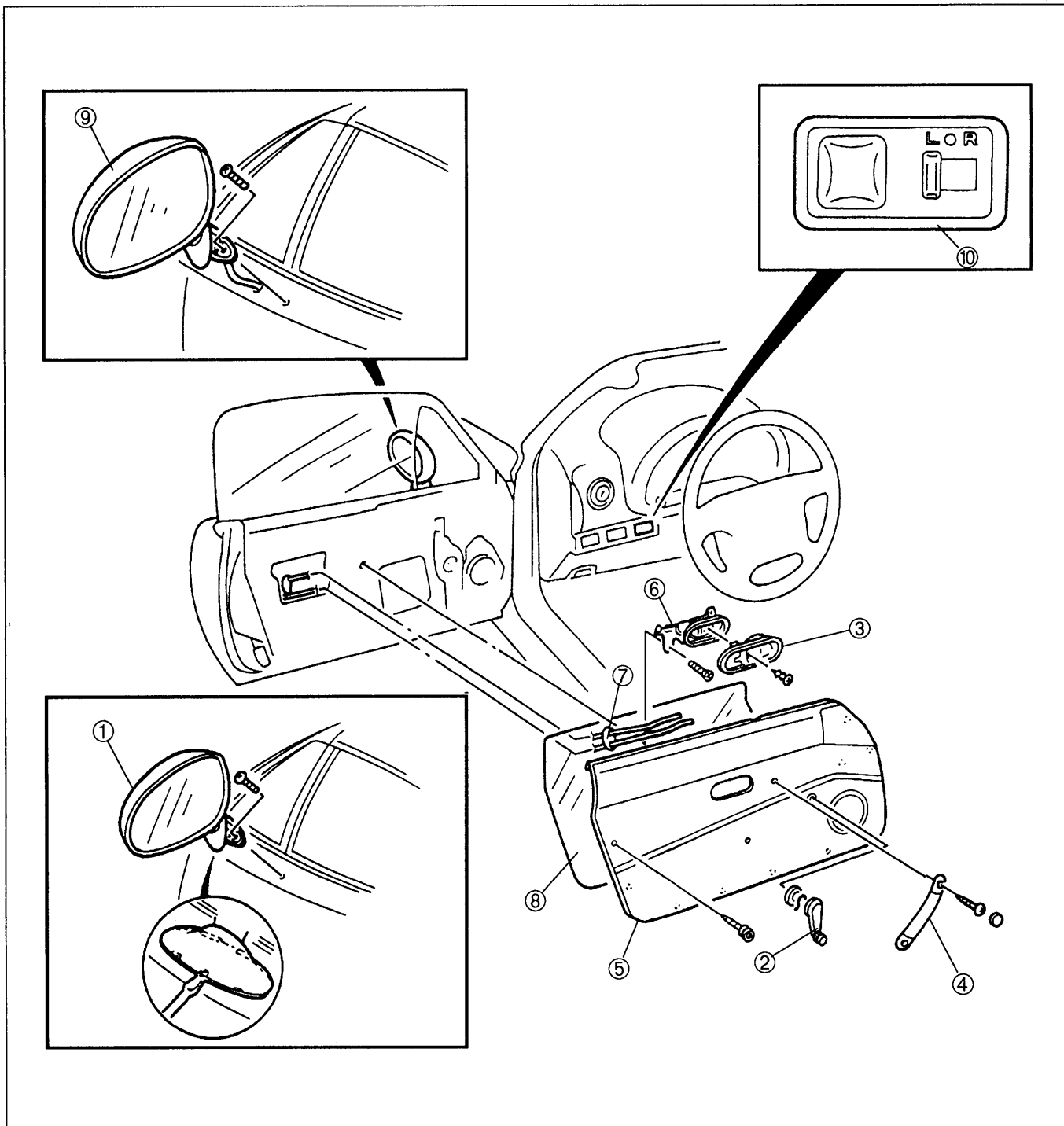
○—○: Continuity

3. If not as specified, replace the power outside mirror switch.

COMPONENTS

Removal / Installation

1. Disconnect the negative battery cable.
2. Remove in the order shown in the figure, referring to **Removal note**.
3. Install in the reverse order of removal, referring to **Installation note**.



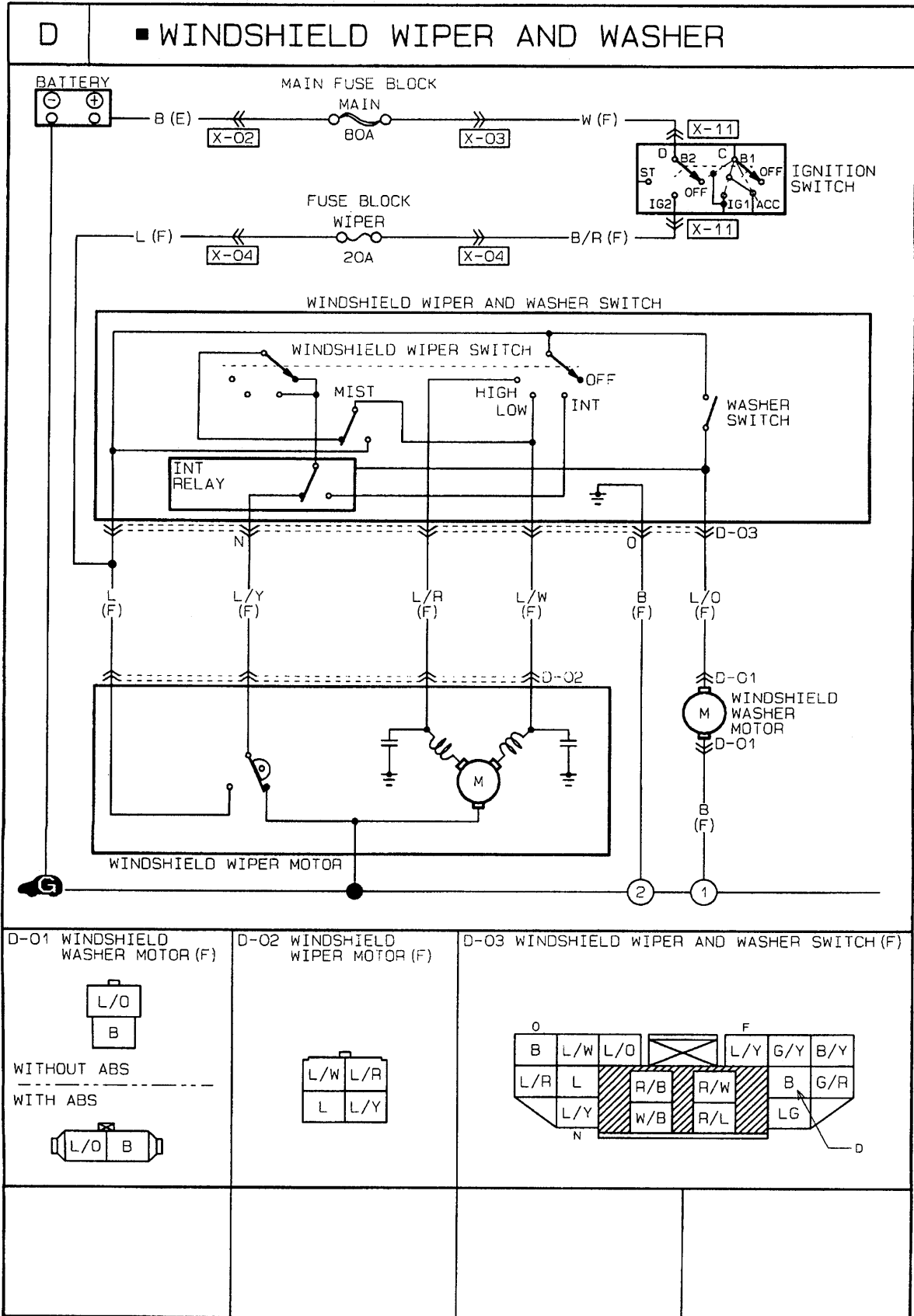
1. Outside mirror
2. Regulator handle
Removal note page S-10
Installation note page S-10
3. Inner handle cover
4. Pull handle

5. Door trim
Removal / Installation page S-61
6. Inner handle
7. Sealing pad
8. Door screen
9. Power outside mirror
10. Power outside mirror switch

WINDSHIELD WIPER AND WASHER

TROUBLESHOOTING

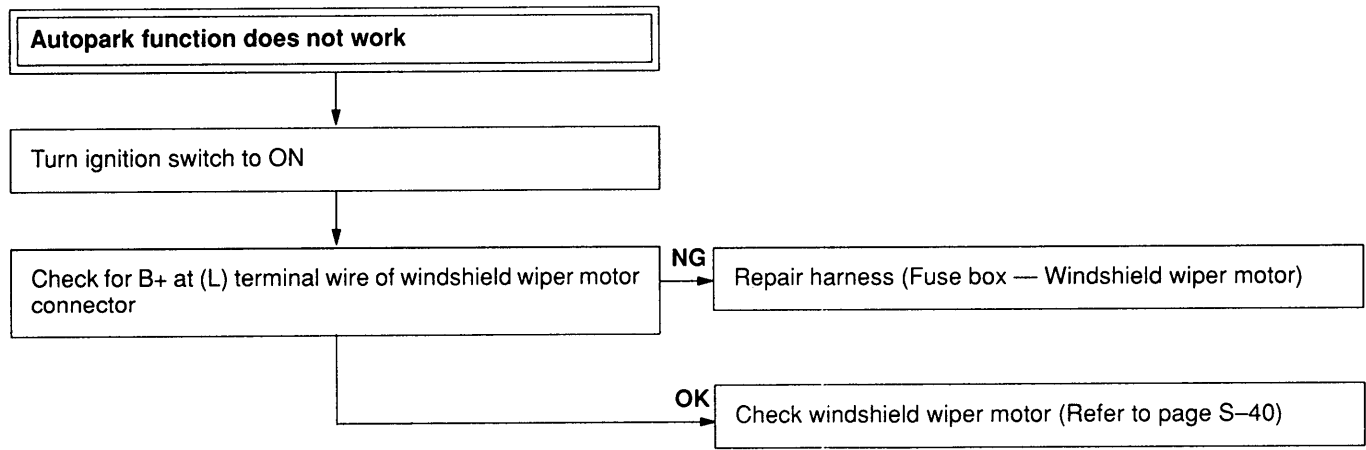
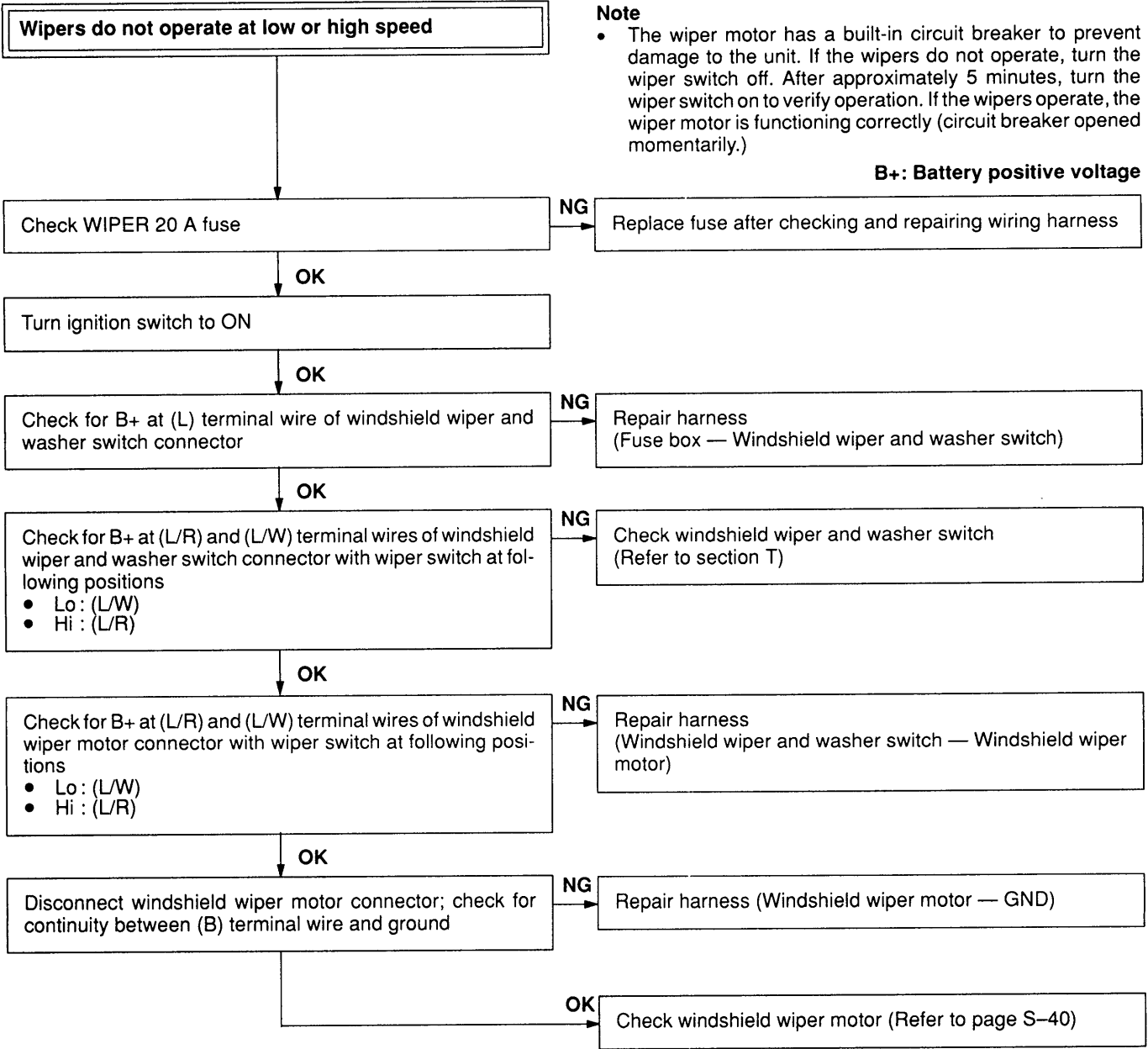
Circuit Diagram

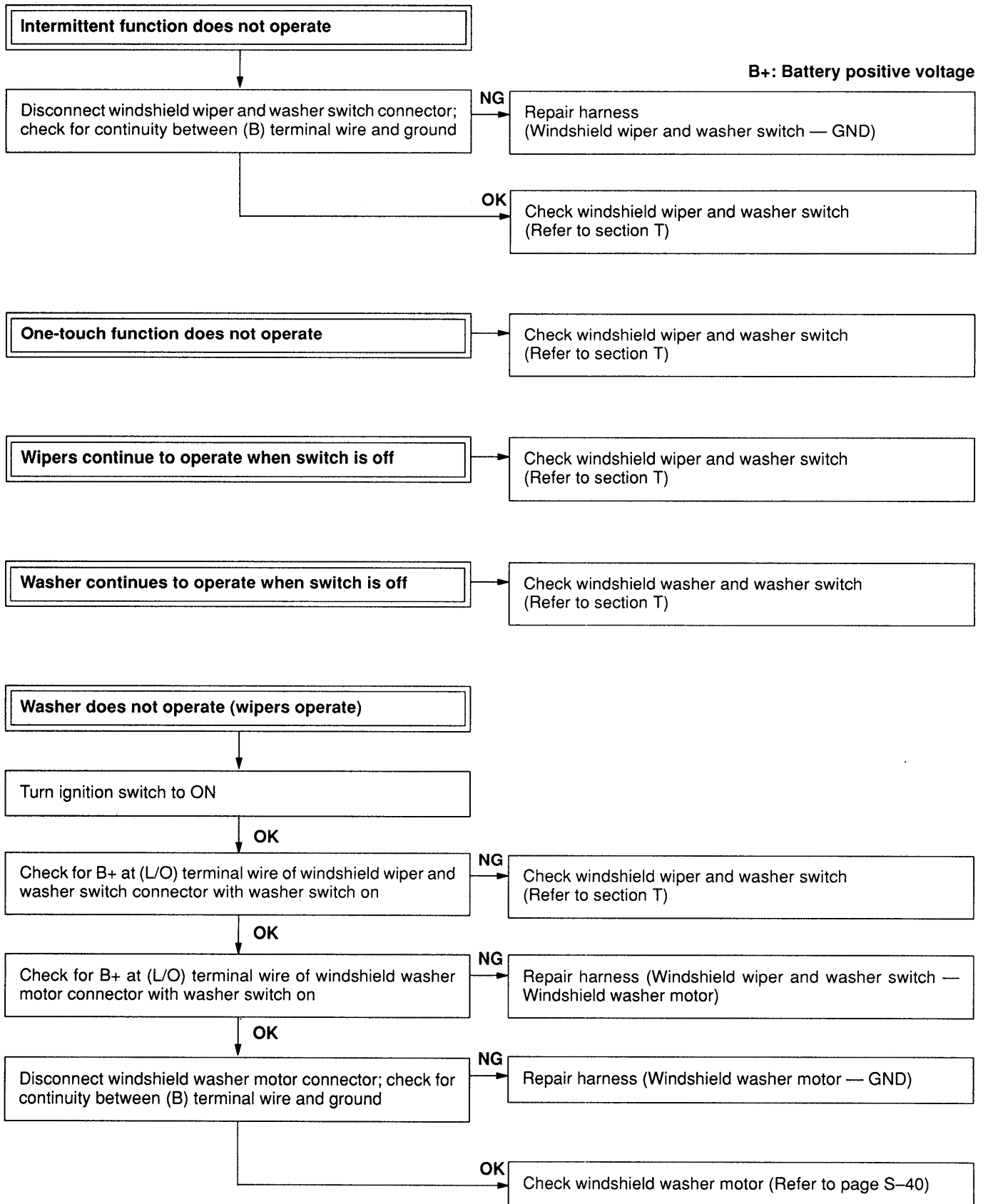


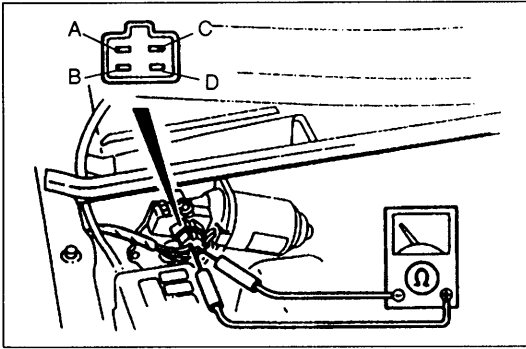
Note

- The wiper motor has a built-in circuit breaker to prevent damage to the unit. If the wipers do not operate, turn the wiper switch off. After approximately 5 minutes, turn the wiper switch on to verify operation. If the wipers operate, the wiper motor is functioning correctly (circuit breaker opened momentarily.)

B+ : Battery positive voltage







WINDSHIELD WIPER MOTOR

Inspection

1. Disconnect the windshield wiper motor harness connector.
2. Check for continuity between the motor terminals with the wipers in the park position.

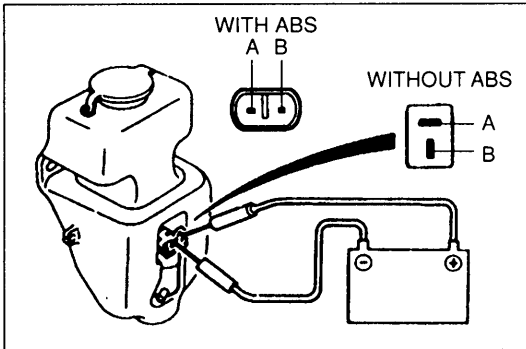
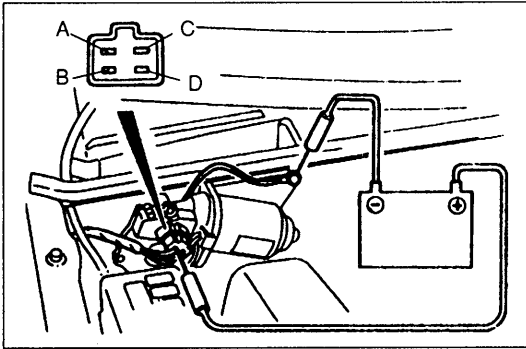
Terminal	Continuity	Terminal	Continuity
A—B	No	B—C	No
A—C	Yes	B—D	No
A—D	Yes	C—D	Yes

3. Apply battery positive voltage and check the operation of the motor.

B+: Battery positive voltage

Connection	Operation speed
B+	
A	Low
C	High

4. If not as specified, replace the windshield wiper motor.



WINDSHIELD WASHER MOTOR

Inspection

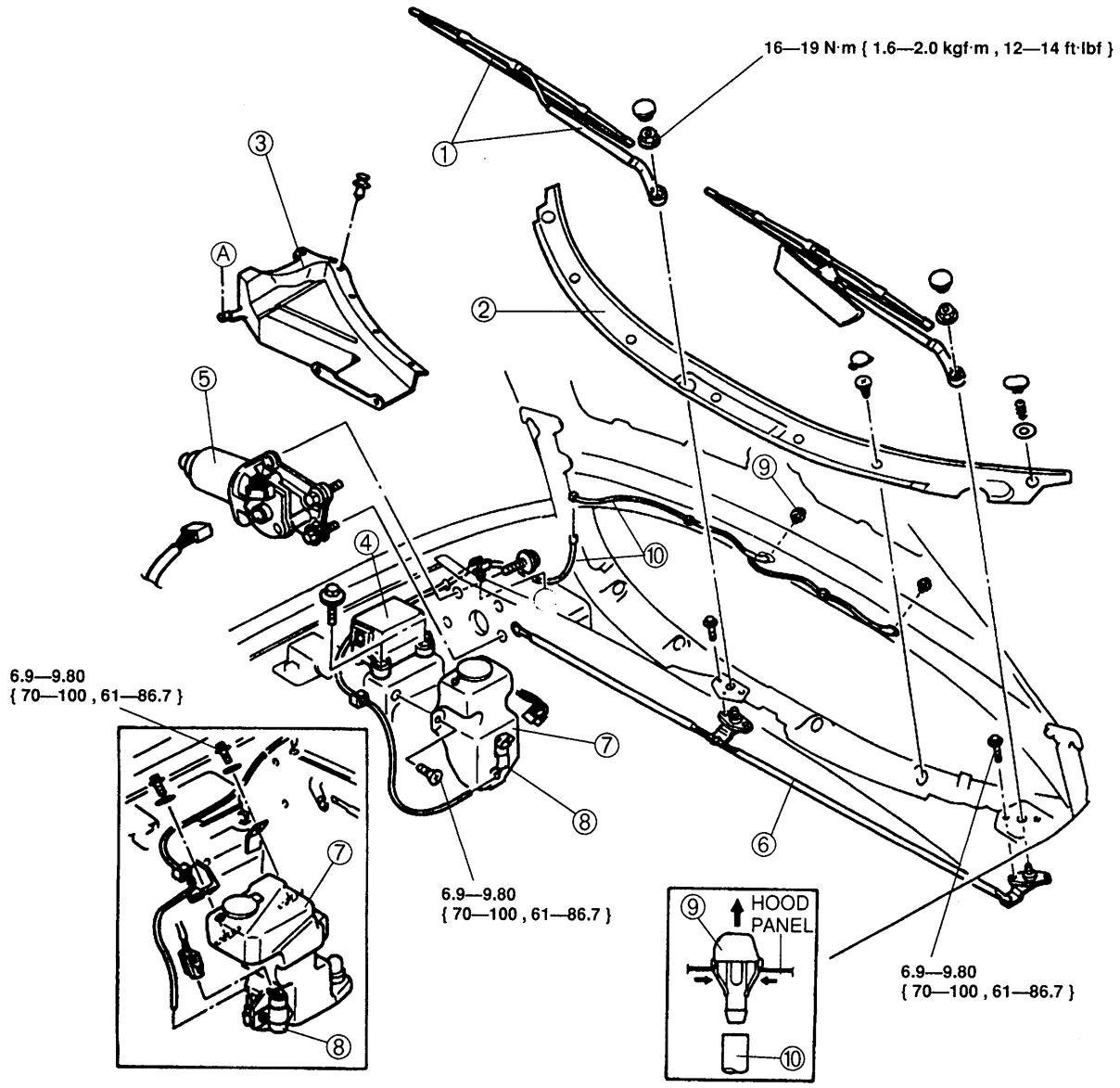
1. Disconnect the windshield washer motor connector.
2. Connect battery positive voltage to terminal A and ground to terminal B, and verify that the motor operates.
3. If the motor does not operate, replace it.

COMPONENTS

Removal / Installation

1. Disconnect the negative battery cable.
2. Remove in the order shown in the figure.
3. Install in the reverse order of removal, referring to **Installation note**.

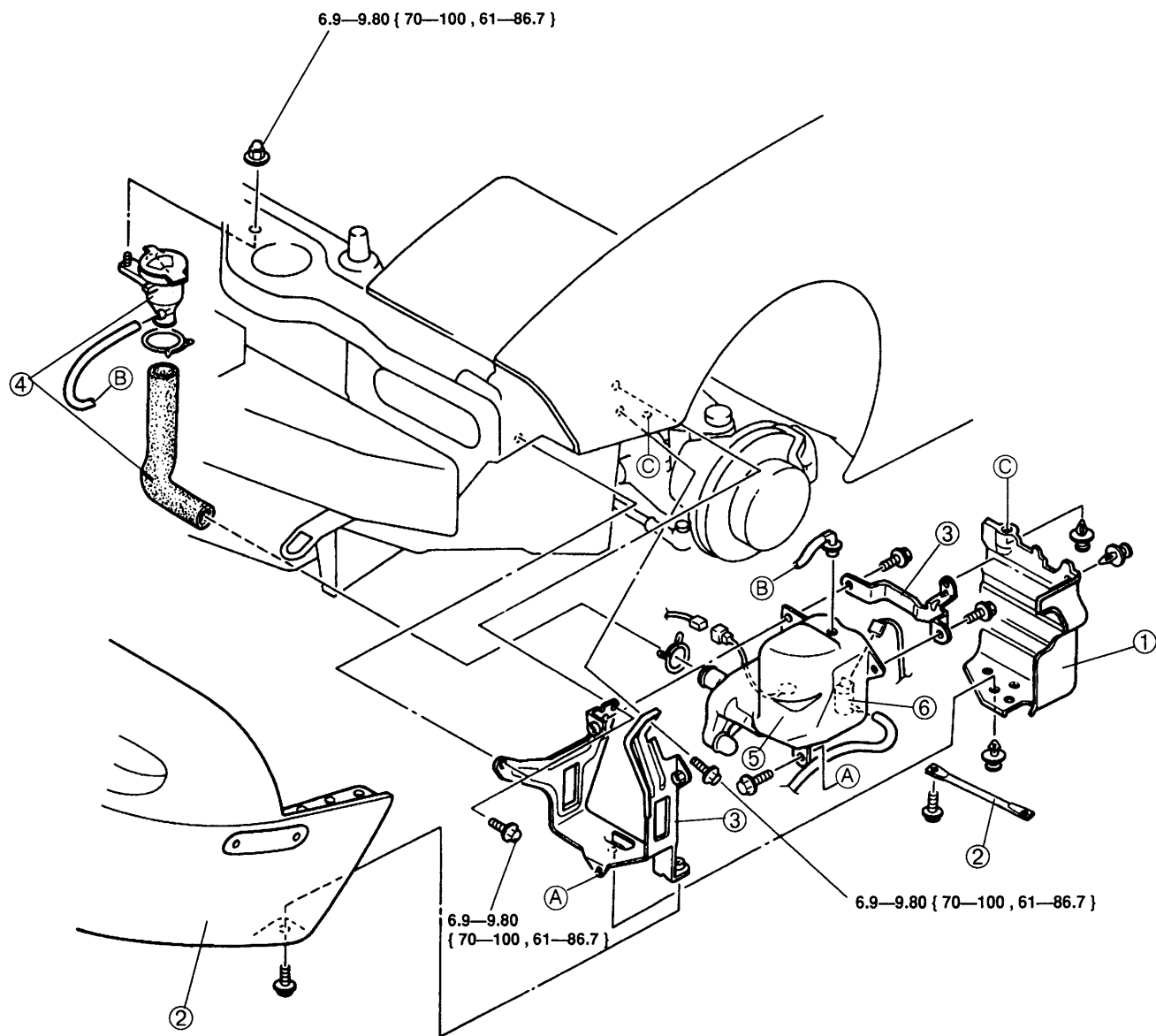
WITHOUT ABS



N·m { kgf·cm , in·lbf }

- | | |
|--|---|
| 1. Windshield wiper arm and blade
Adjustment page S-44
Installation note page S-44 | 6. Windshield wiper link |
| 2. Cowl grille | 7. Windshield washer tank |
| 3. Baffle cover | 8. Windshield washer motor
Inspection page S-40 |
| 4. Main fuse block | 9. Windshield washer nozzle
Adjustment page S-44 |
| 5. Windshield wiper motor
Inspection page S-40 | 10. Windshield washer pipe |

WITH ABS

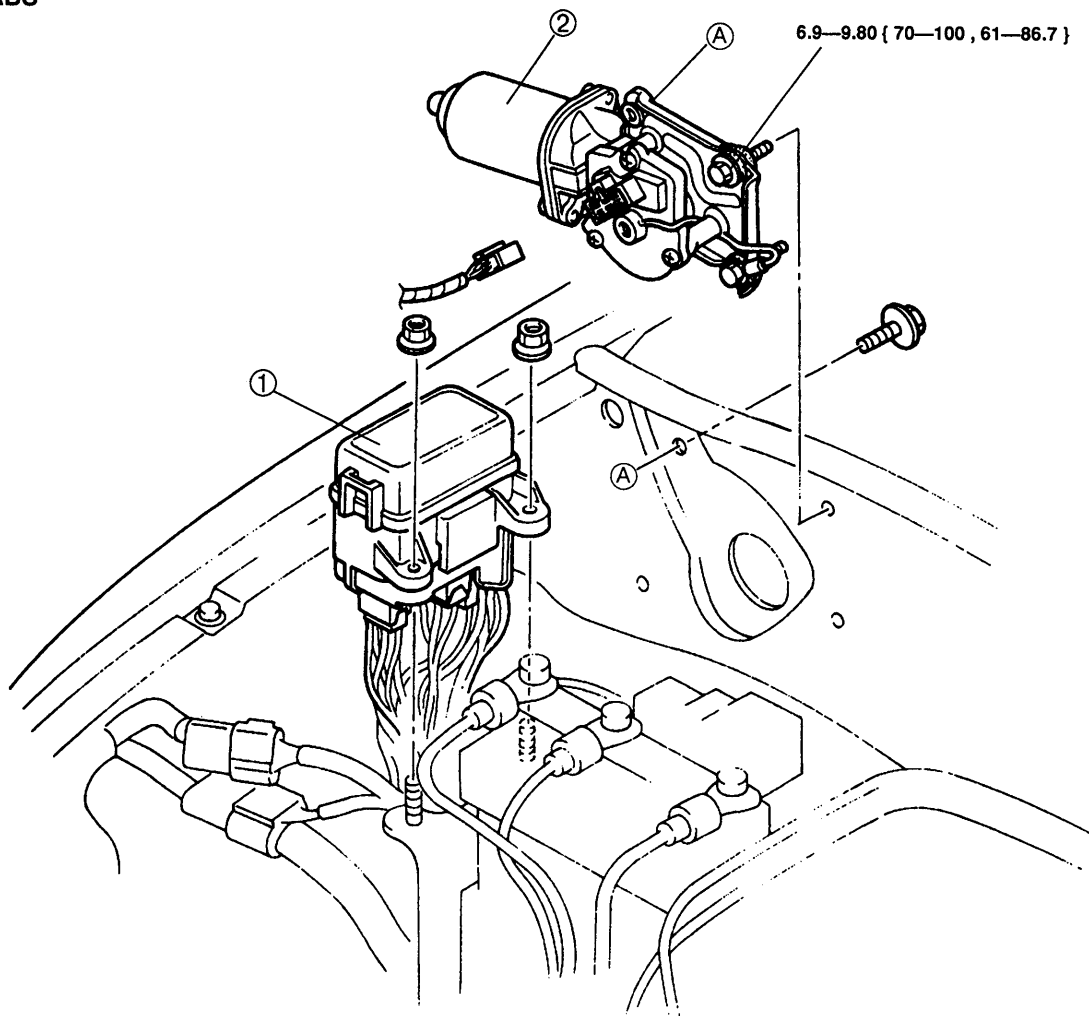


N·m { kgf·cm , in·lbf }

- 1. Windshield washer tank cover
- 2. Front bumper and bracket
Removal / Installation page S-24
- 3. Tank bracket

- 4. Windshield washer tank hose
- 5. Windshield washer tank
- 6. Windshield washer motor
Inspection page S-40

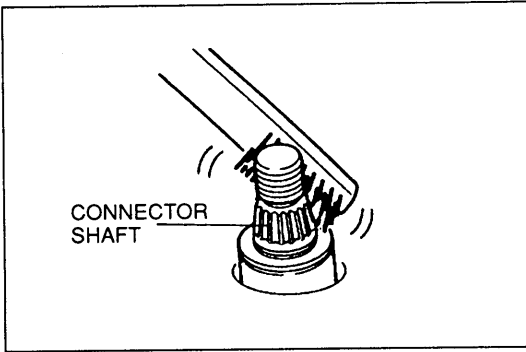
WITH ABS



N·m { kgf·cm , in·lbf }

1. Main fuse block

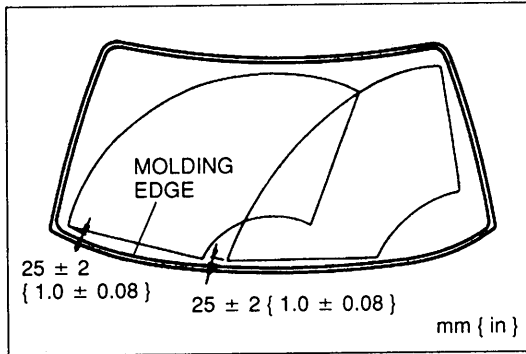
2. Windshield wiper motor
Inspection page S-40



Installation note

Windshield wiper arm and blade

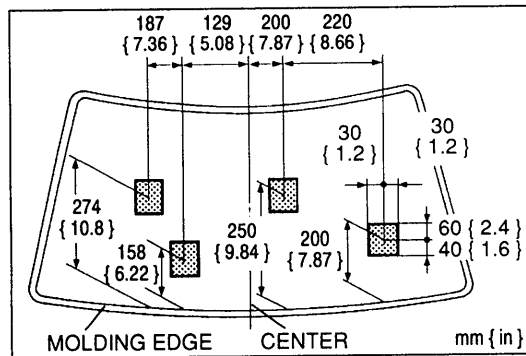
Clean the wiper arm connector shafts with a wire brush before installing the wiper arms.



Adjustment

Windshield wiper arm and blade

1. Operate the windshield wiper motor to set the wipers in the park position.
2. Set the arm height as shown.

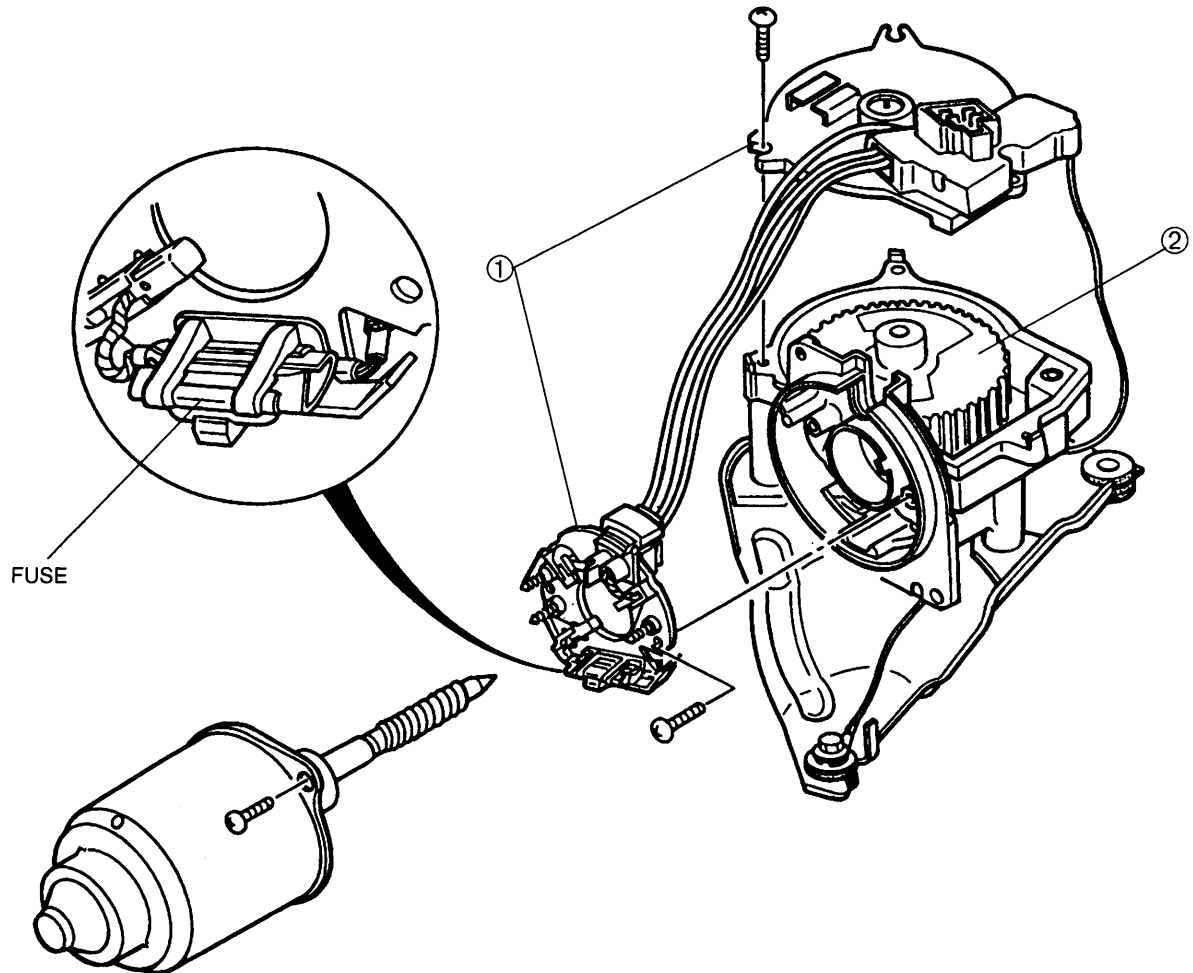


Windshield washer nozzle

Insert a needle or similar object into the nozzle hole and move the nozzle to adjust the spray direction.

Disassembly / Assembly

1. Disassemble in the order shown in the figure.
2. Assemble in the reverse order of disassembly.



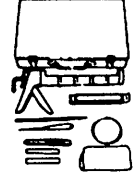
1. Brush plate holder

2. Motor gear shaft

WINDSHIELD

PREPARATION

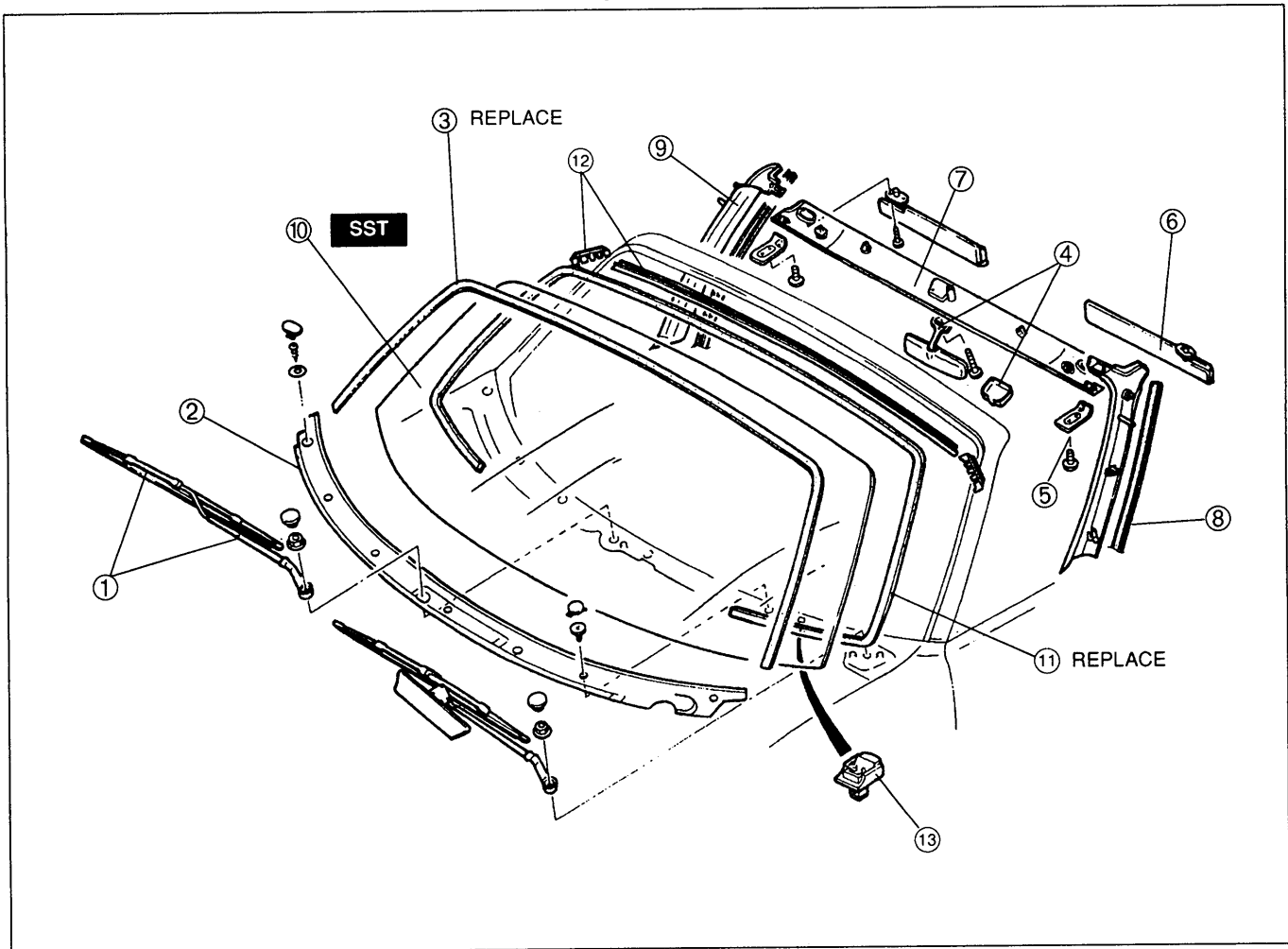
SST

<p>49 0305 870A</p> <p>Tool set, window</p>		<p>For removal and installation of glass</p>
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COMPONENTS

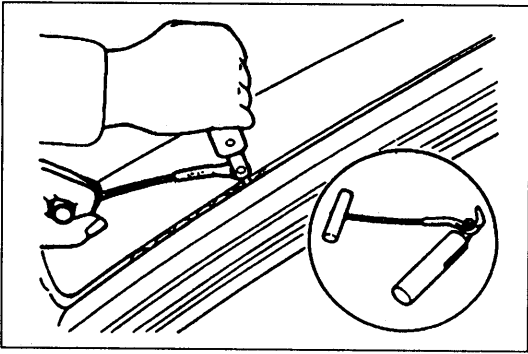
Removal / Installation

1. Remove in the order shown in the figure, referring to **Removal note**.
2. Install in the reverse order of removal, referring to **Installation note**.



1. Windshield wiper arm and blade
Adjustment page S-44
2. Cowl grille
3. Windshield molding
Installation note page S-28
4. Rearview mirror and cover
5. Striker
6. Sunvisor
7. Front header trim
Removal note page S-62

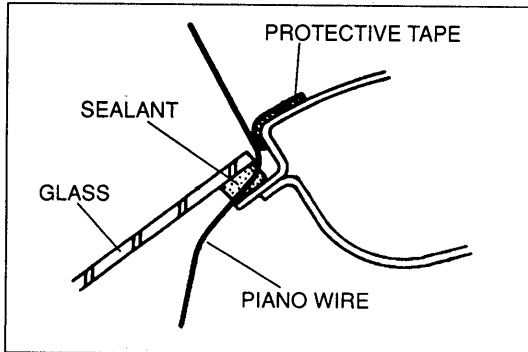
8. Weatherstrip
9. A-pillar trim
Removal note page S-62
10. Windshield
Removal note page S-47
Installation note page S-47
11. Dam
12. Protector
13. Spacer

**Removal note****Windshield**

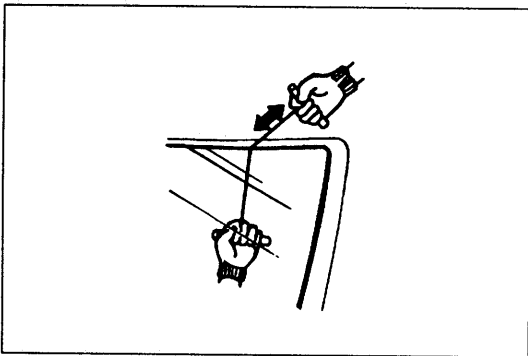
1. Apply protective tape along the edge of the body to protect it from damage.

If the glass will not be reused

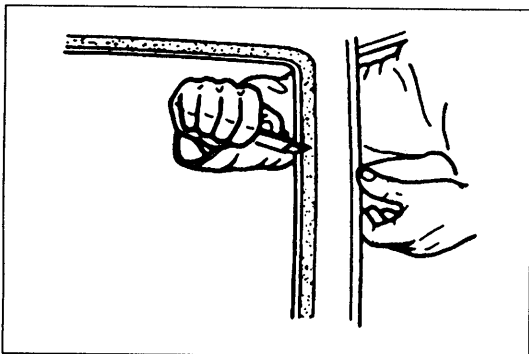
2. Use a tool like that shown in the figure and insert the blade into the sealant.
3. Pull through the sealant around the edge of the glass.
4. Remove the glass.

**If the glass will be reused**

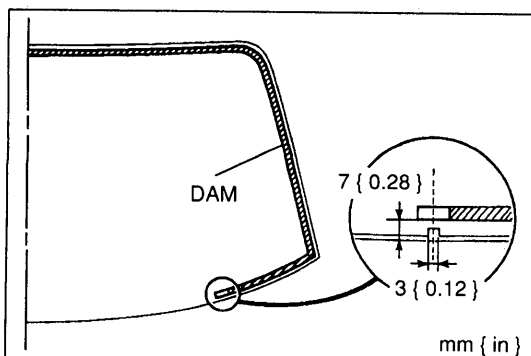
1. Using an awl, make a hole through the sealant from the inside of the vehicle.
2. Pass piano wire through the hole.

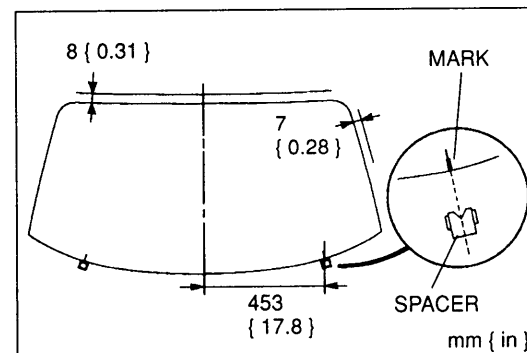
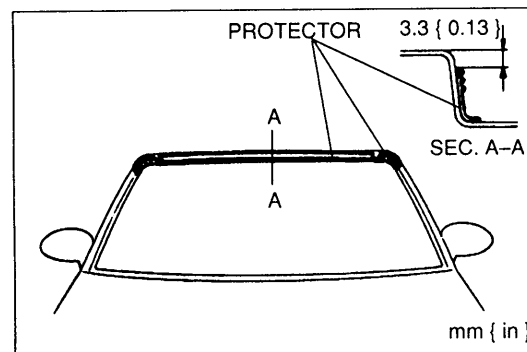
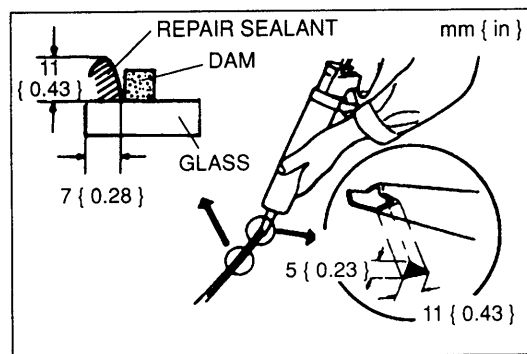
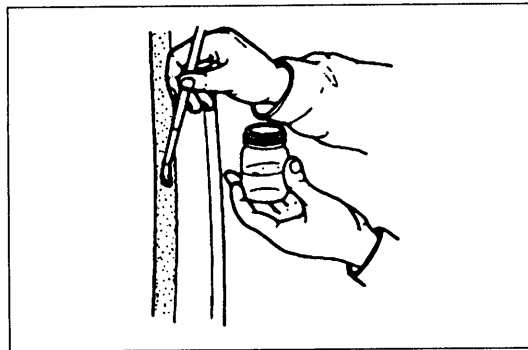
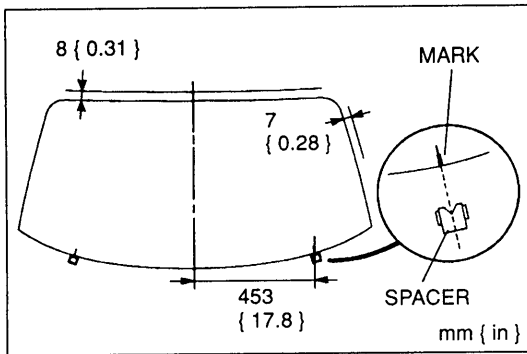


3. Wind each end of the wire around a bar.
4. Working with another person, saw through the sealant around the edge of the glass. Use a long sawing action to spread the work over the whole length of wire to prevent it from breaking.
5. Remove the glass.

**Installation note****Windshield**

1. Cut away the old sealant with a razor knife so that **1 to 2 mm { 0.04 to 0.08 in }** of sealant remains around the circumference of the frame. If all the sealant has come off in any one place, apply some primer after degreasing, and allow it **30 minutes** to dry. Then apply new sealant to create a **2 mm { 0.08 in }** layer.
2. Carefully clean an area **50 mm { 2.0 in }** wide around the circumference of the glass and clean the bonding area of the body.
3. Securely bond a new dam **7 mm { 0.28 in }** from the edge of the glass as shown. Allow it to dry completely.





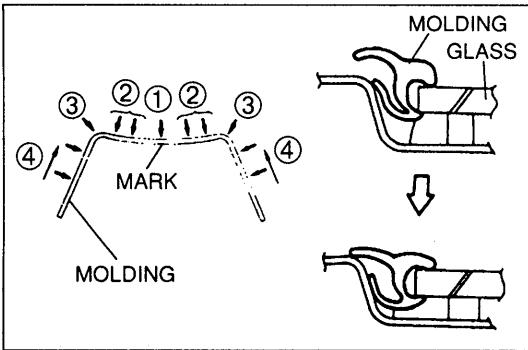
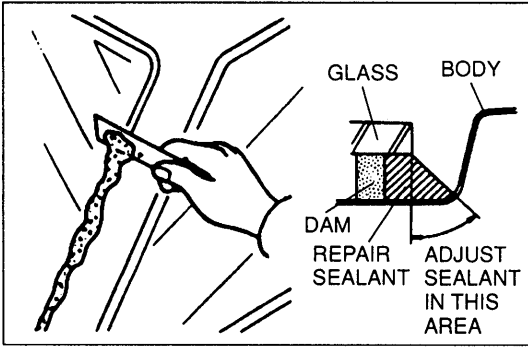
4. Install the spacers onto the body. If a spacer is damaged, replace it.
5. Temporarily install the glass onto the body and adjust the glass-to-body clearance.
6. Make a mark on the glass directly above the V-notch of the spacers.
7. Remove the glass.

8. Apply primer onto bonding area of the glass, body, and molding by using a brush. Use only glass primer on the glass and body primer on the body and molding. Keep the area free of dirt and grease, and do not touch the surface. Allow it to dry for approximately **30 minutes**.

9. After the primer has dried, apply an **11 mm { 0.43 in }** high bead of repair sealant around the circumference of the glass as shown. Keep the bead of sealant smooth and even, reshaping it with a spatula where necessary. If the windshield is being reused, apply new repair sealant over the original.

10. If a protector is damaged, bond a new one onto the body as shown. Allow it to dry completely.

11. Align the glass marks with the notches in the spacers and install the glass onto the body.
12. Press firmly on the glass to compress the sealant. Verify that the body-to-glass clearance is as shown.



13. Use a scraper to smooth away any sealant that oozes out. Add more sealant to any points of poor contact. Adjust the upper and side sealant as shown, if necessary.

14. Install the windshield molding before the sealant hardens.

- ① Align the center mark on the molding with the glass mark.
- ② Install the upper part of the molding.
- ③ Install the corners of the molding.
- ④ Install the sides of the molding, starting from the bottom and working toward the top.

15. To prevent the glass from being pushed out by air pressure if a door is closed, open all of the windows until the repair sealant has hardened.

Hardening time of repair sealant

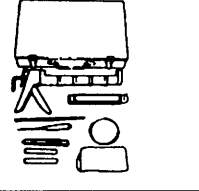
Temperature	Surface hardening time	Time required until car can be put into service
5 °C { 41 °F }	Approx. 1.5 hr	12 hr
20 °C { 68 °F }	Approx. 1 hr	4 hr
35 °C { 95 °F }	Approx. 10 min	2 hr

16. Check for water leaks. If a leak is found, wipe the water off well and reinstall the windshield.

REAR WINDOW GLASS (DETACHABLE HARDTOP)

PREPARATION

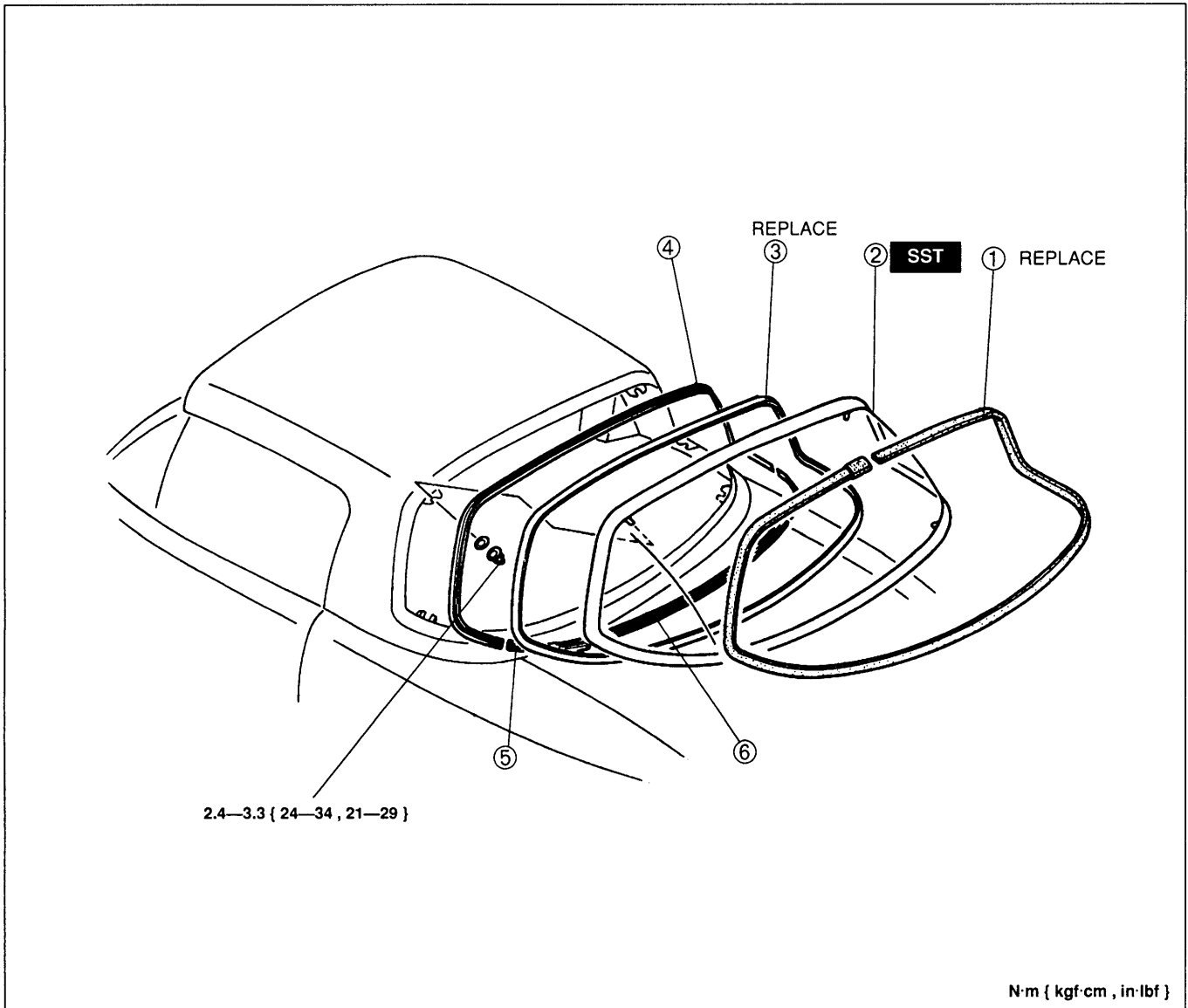
SST

<p>49 0305 870A</p> <p>Tool set, window</p>		<p>For removal and installation of glass</p>
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COMPONENTS

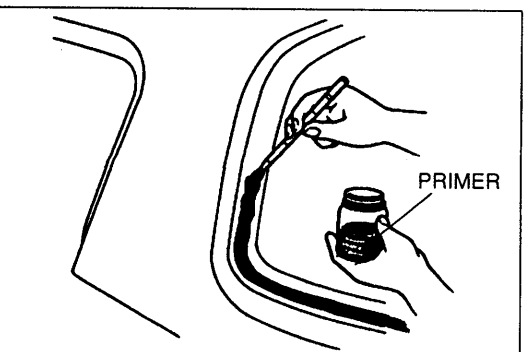
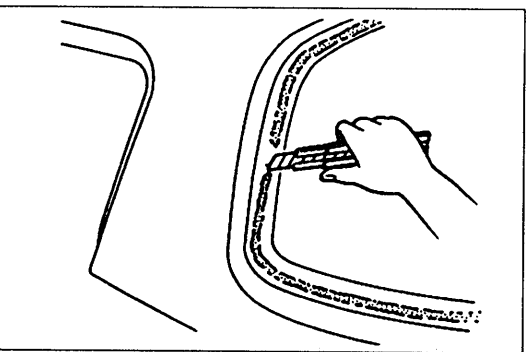
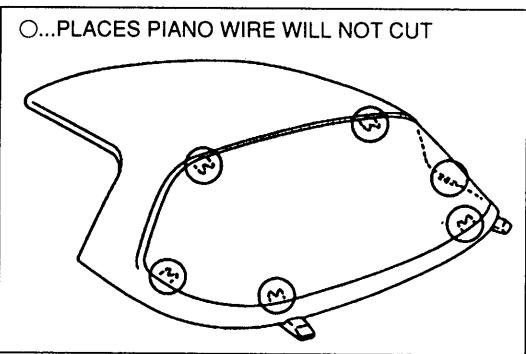
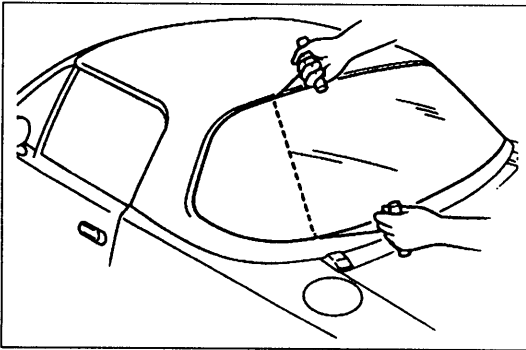
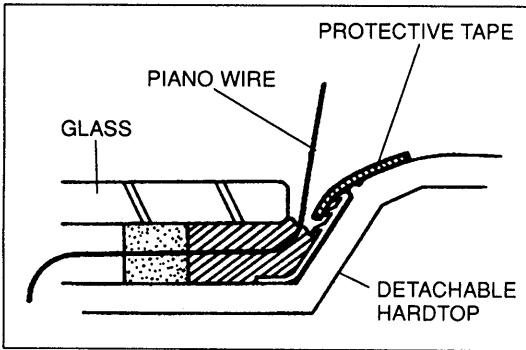
Removal / Installation

1. Remove in the order shown in the figure, referring to **Removal note**.
2. Install in the reverse order of removal, referring to **Installation note**.



- | | |
|------------------------|-----------|
| 1. Rear window molding | |
| Installation note | page S-30 |
| 2. Rear window glass | |
| Removal note | page S-51 |
| Installation note | page S-51 |

- | |
|--------------------|
| 3. Dam |
| 4. Upper protector |
| 5. Side protector |
| 6. Lower protector |

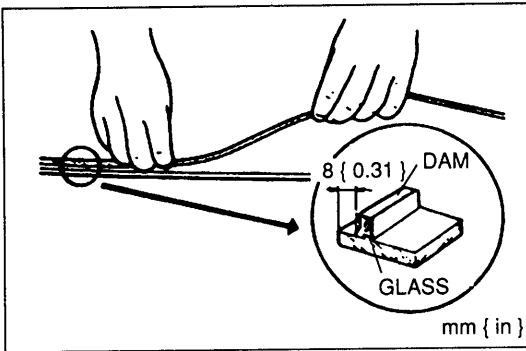


Removal note
Rear window glass

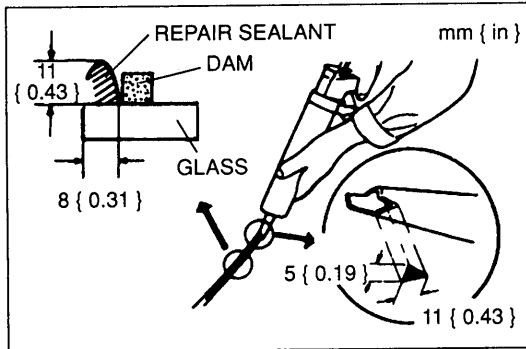
1. Apply protective tape along the edge of the detachable hardtop to protect it from damage.
2. Remove the glass mounting nuts.
3. Using an awl, make a hole through the sealant from the inside of the vehicle.
4. Pass piano wire through the hole.
5. Wind each end of the wire around a bar.
6. Saw through the sealant around the edge of the glass. Use a long sawing action to spread the work over the whole length of wire to prevent it from breaking.
7. Use a razor knife to cut where the piano wire will not cut.
8. Remove the glass.

Installation note
Rear window glass

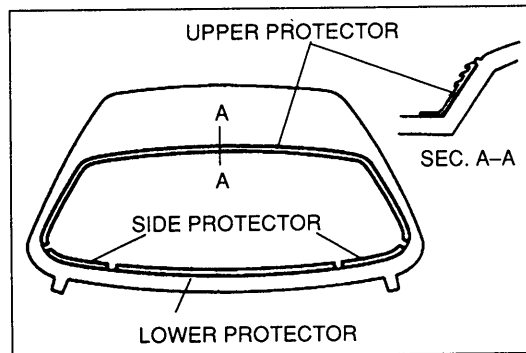
1. Cut away the old sealant with a razor knife so that **1 to 2 mm { 0.04 to 0.08 in }** of sealant remains around the circumference of the frame. If all the sealant has come off in any one place, apply some primer after degreasing, and allow it **30 minutes** to dry. Then apply new sealant to create a **2 mm { 0.08 in }** layer.
2. Carefully clean an area **50 mm { 2.0 in }** wide around the circumference of the glass and clean the bonding area of the top.
3. Apply primer onto the bonding area of the glass, top, and molding by using a brush. Use only glass primer on the glass and body primer on the body and molding. Keep the area free of dirt and grease, and do not touch the surface. Allow the primer to dry for approximately **30 minutes**.



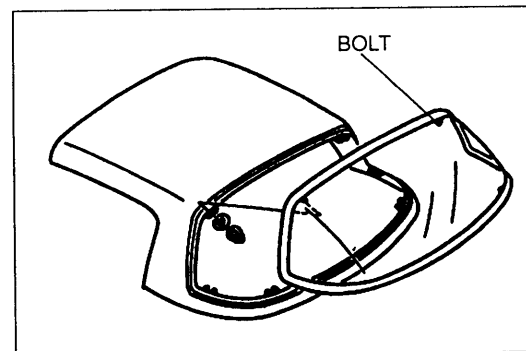
4. Securely bond a new dam along the circumference of the glass **8 mm { 0.31 in }** from the edge. Allow it to dry completely.



5. After the primer has dried, apply an **11 mm { 0.43 in }** high bead of repair sealant around the circumference of the glass as shown. Keep the bead of sealant smooth and even, reshaping it with a spatula where necessary.



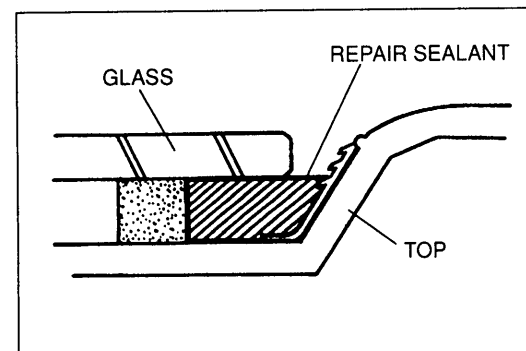
6. If a protector is damaged, securely bond a new protector onto the detachable hardtop as shown. Allow it to dry completely.



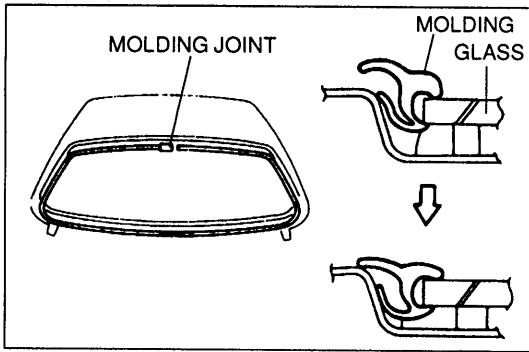
7. Align the bolts and install the glass onto the detachable hardtop.
8. Press firmly on the glass to compress the sealant.
9. Install the nuts onto the bolts.

Tightening torque:

2.4—3.3 N·m { 24—34 kgf·cm , 21—29 in·lbf }

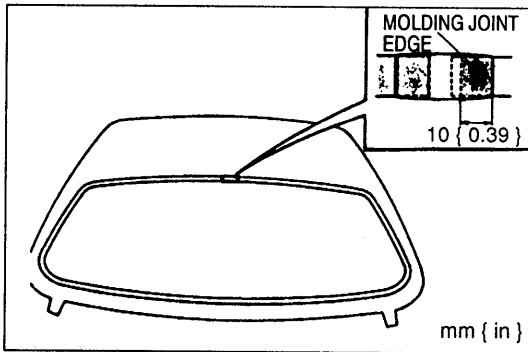


10. Use a scraper to smooth away any sealant that oozes out. Add more sealant to any points of poor contact.



11. Install the rear window molding before the sealant hardens.

- (1) Attach the molding as shown with the molding joint at the top.



- (2) If the molding is too long, cut the excess molding **10 mm { 0.4 in }** inside the molding joint edge.

12. To prevent the glass from being pushed out by air pressure if a door is closed, open all of the windows until the repair sealant has hardened.

Hardening time of repair sealant

Temperature	Surface hardening time	Time required until car can be put into service
5 °C { 41 °F }	Approx. 1.5 hr	12 hr
20 °C { 68 °F }	Approx. 1 hr	4 hr
35 °C { 95 °F }	Approx. 10 min	2 hr

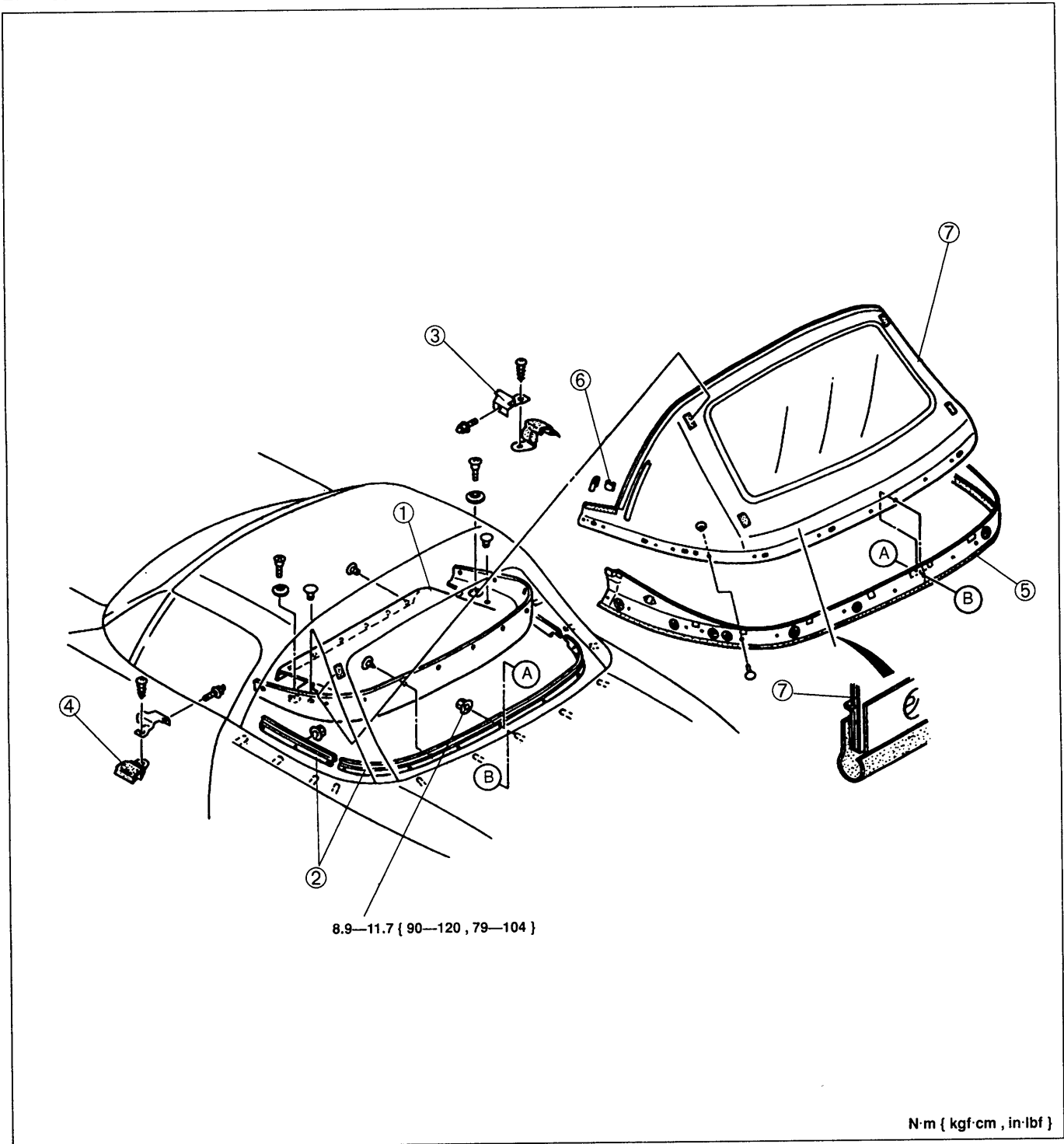
13. Check for water leaks. If a leak is found, wipe the water off well and reinstall the rear window.

REAR WINDOW (CONVERTIBLE TOP)

COMPONENTS

Removal / Installation

1. Remove in the order shown in the figure, referring to **Removal note**.
2. Install in the reverse order of removal, referring to **Installation note**.

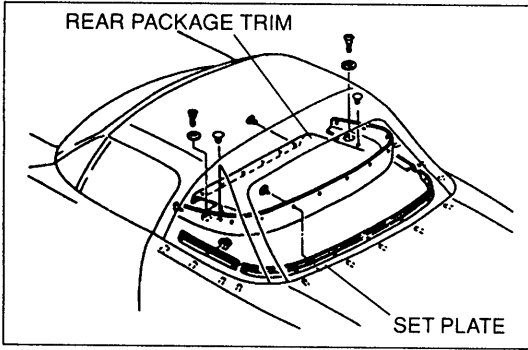


N·m { kgf·cm , in·lbf }

1. Rear package trim
2. Set plate
3. Beltline cover
4. Beltline protector
5. Rain rail

6. Zipper stop
7. Rear window

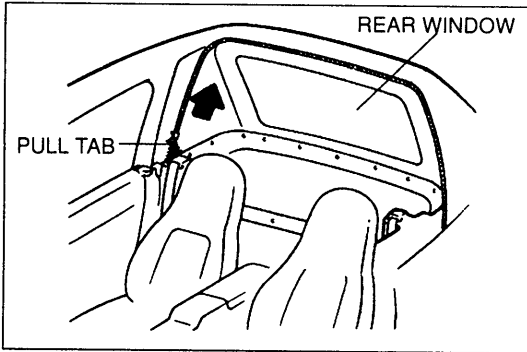
Removal note page S-55
Installation note page S-56



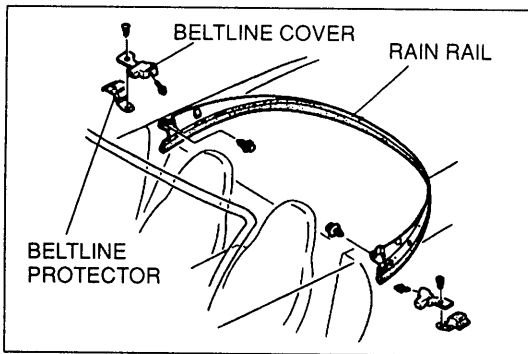
Removal note

Rear window

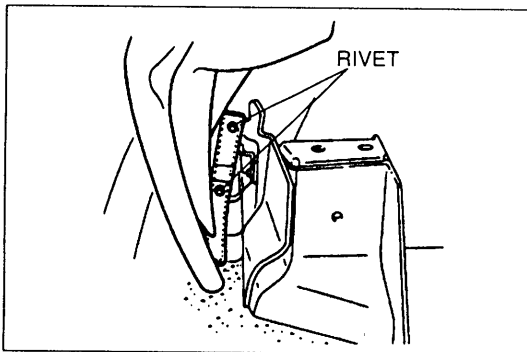
1. Remove the rear package trim.
2. Remove the set plates.



3. Unzip the rear window, and lower the convertible top fully.

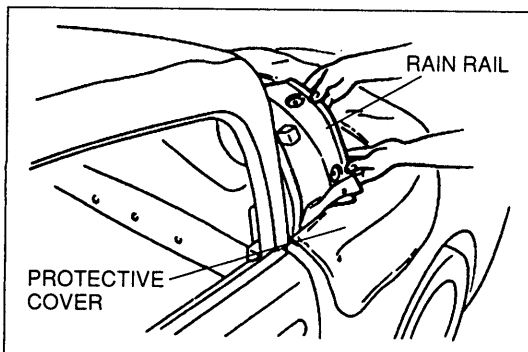


4. Remove the beltline covers.
5. Remove the beltline protectors.
6. Remove the rain rail mounting fasteners from the body.

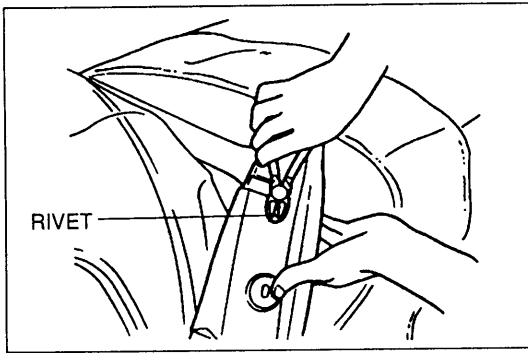


7. Leave the top latch assemblies in the unlocked position. Raise the convertible top completely.
8. Remove the rain rail from the studs.
9. Remove the rivets from the link assembly with a drill.

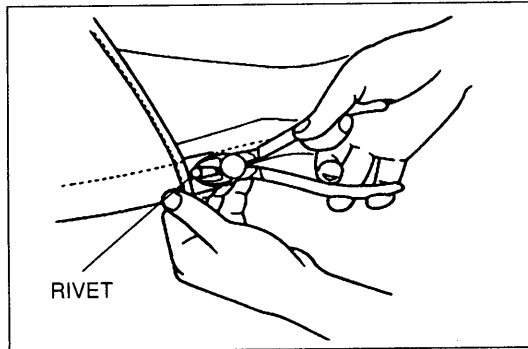
Drill size: $\phi 4.0$ mm { $\phi 0.16$ in }



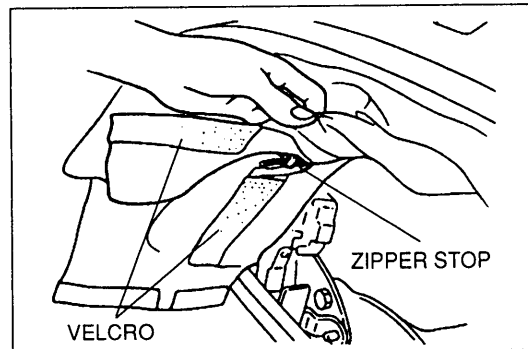
10. Remove the rain rail from the body.



11. Remove the rivets from the rain rail with a cutter, and remove the rain rail from the convertible top.



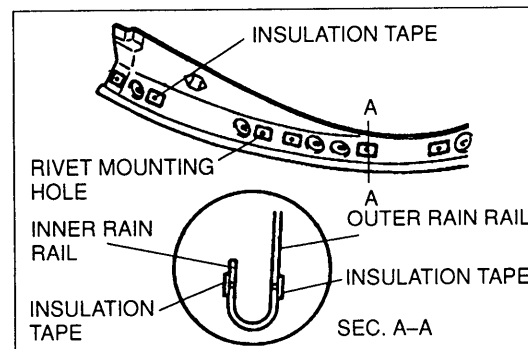
12. Remove the rivets from the rear window with a cutter.



13. Peel apart the Velcro.

Note

- Save the zipper stops for reuse.
14. Carefully remove the zipper stops from the rear window and top fabric, and remove the rear window.



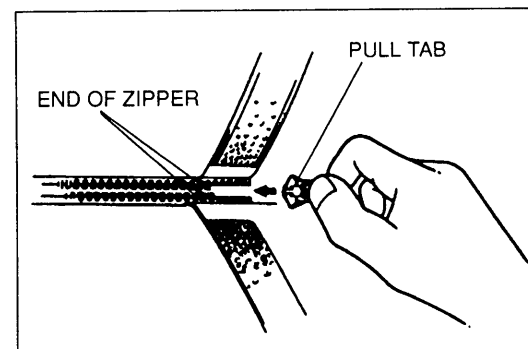
Installation note

Rear window

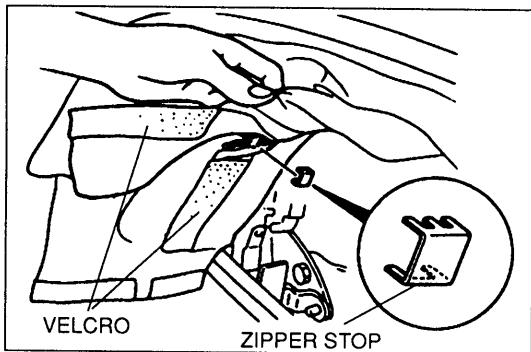
1. Degrease the rain rail by using ethyl alcohol.
2. Install insulation tape to the rivet mounting holes of the rain rail.

Insulation tape

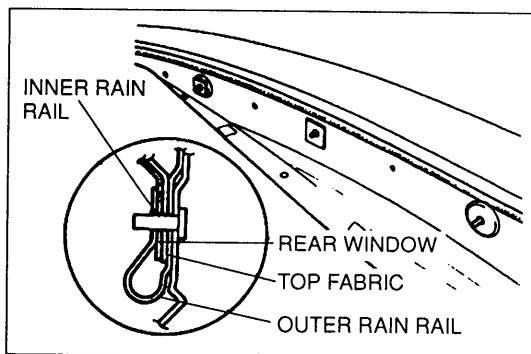
Width : 20 mm { 0.8 in }
Height : 15 mm { 0.6 in }
Thickness: 3 mm { 0.12 in }



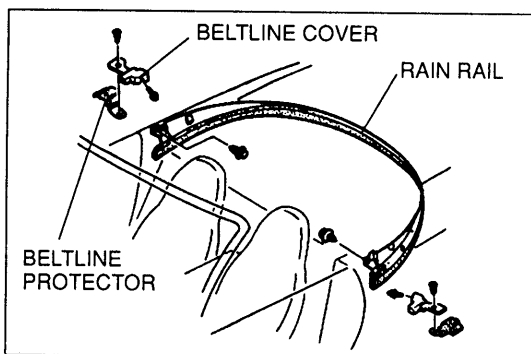
3. Align the ends of the zipper, and install the zipper pull tab.
4. Zip the rear window into place.



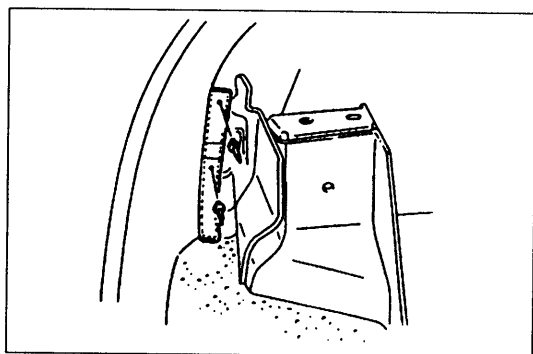
5. Install the zipper stops to the rear window and the top fabric.
6. Affix the rear window to the top fabric with the Velcro.



7. Mount the outer rain rail to the studs.
8. Mount the top fabric to the studs.
9. Mount the rear window to the studs.
10. Mount the inner rain rail to the studs.
11. Loosely install the set plates, beginning at the left side.



12. Unzip the rear window, and lower the convertible top fully.
13. Install the rain rail with the fasteners.
14. Install the beltline protectors.
15. Install the beltline cover.



16. Raise the convertible top completely, and lock the top latch assemblies.
17. Zip the rear window into place.
18. Tighten the set plate mounting nuts.

Tightening torque:

8.9—11.7 N·m { 90—120 kgf·cm , 79—104 ft·lbf }

19. Rivet the top fabric to the link assembly.
20. Install the rear package trim.
21. If there is any sagging of the top fabric, remove the pull tab and realign the zipper.

DASHBOARD AND CONSOLE

COMPONENTS

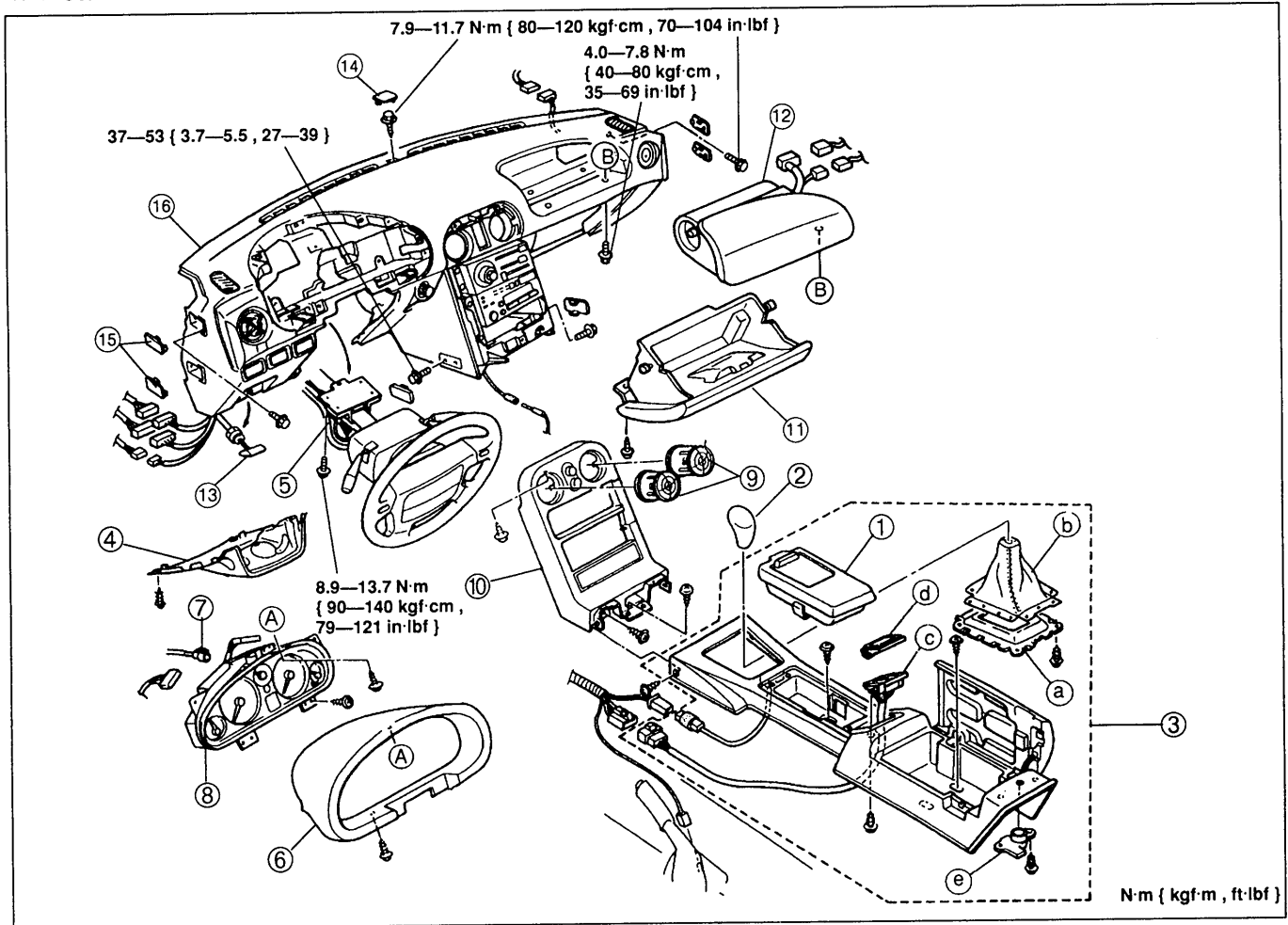
Removal / Installation

1. Disconnect the negative battery cable.
2. Remove the A-pillar trim. (Refer to page S-62.)

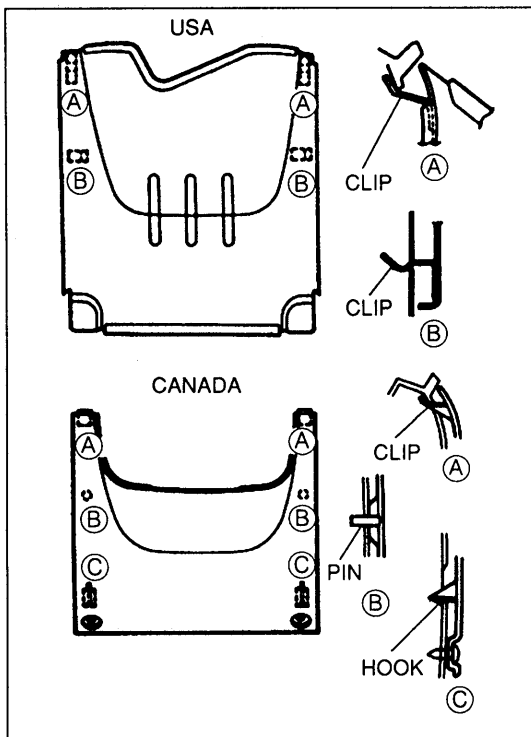
Warning

- Handling the air bag module improperly can accidently deploy the air bag, which may seriously injure you. Read SERVICE WARNINGS, section T, before handling the air bag module.

3. Remove in the order shown in the figure, referring to Removal note. To remove the dashboard, remove the control wires of the heater unit and blower unit. (Refer to section U.)
4. Install in the reverse order of removal.



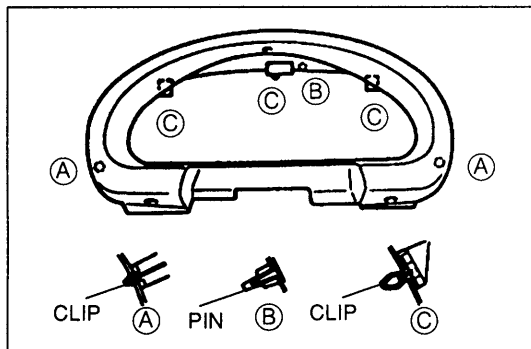
- | | |
|---------------------------------|---|
| 1. Ashtray | 7. Speedometer cable |
| 2. Change lever knob | 8. Instrument cluster |
| 3. Rear console | 9. Center louver |
| a. Back plate | Removal note page S-59 |
| b. Shift lever boot | 10. Center panel |
| c. Power window switch | Removal note page S-60 |
| d. Cover (without power window) | 11. Glove compartment |
| e. Console lock | 12. Passenger-side air bag module (if equipped) |
| 4. Center lower panel | Removal / Installation section T |
| Removal note page S-59 | 13. Hood release knob |
| 5. Steering shaft | 14. Center hole cover |
| 6. Meter hood | 15. Side cover |
| Removal note page S-59 | 16. Dashboard |



Removal note

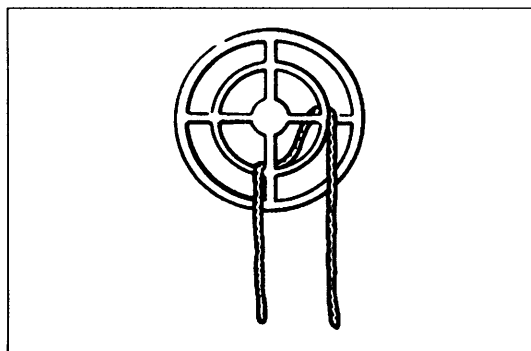
Center lower panel

Pull the center lower panel forward to disengage the clips from the body.



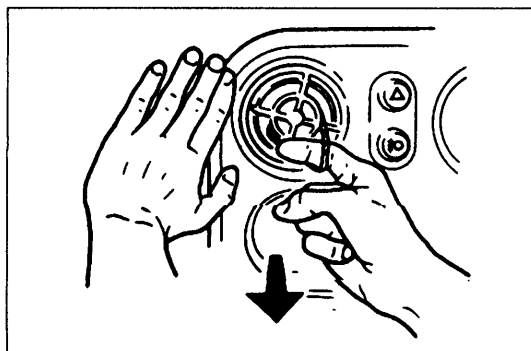
Meter hood

Pull the meter hood forward to disengage the clips from the body.

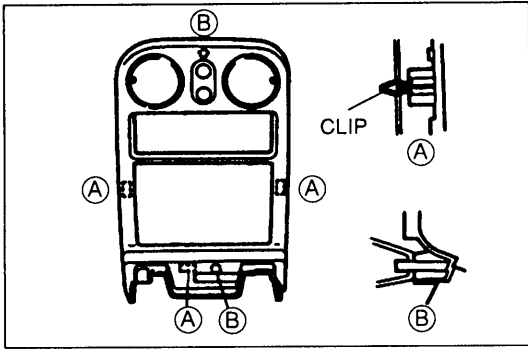


Center louver

1. Thread a piece of string through the center louver.



2. Pull the string straight out while holding onto the center panel.



Center panel

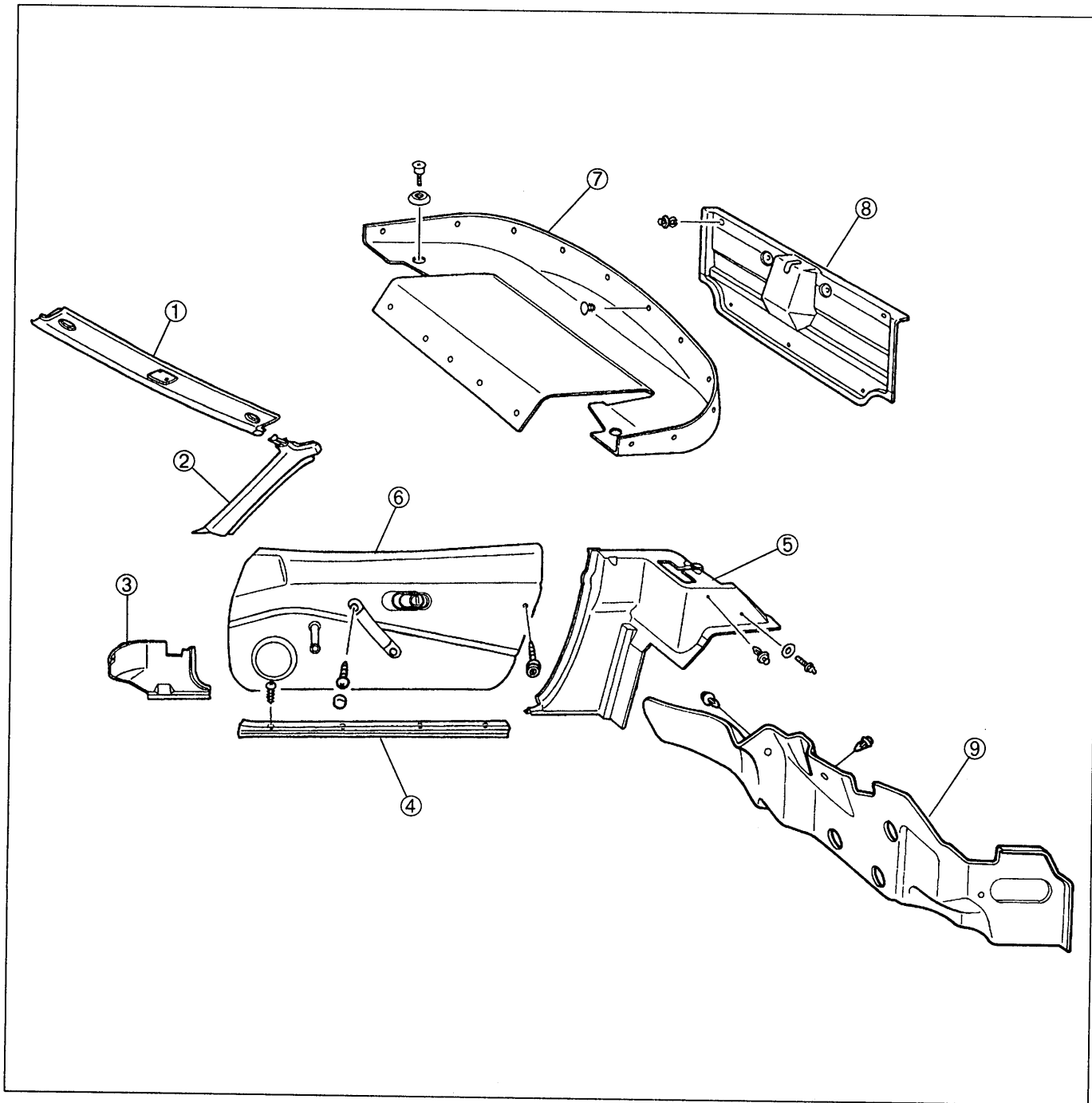
Pull the center panel forward to disengage the clips from the body.

TRIM

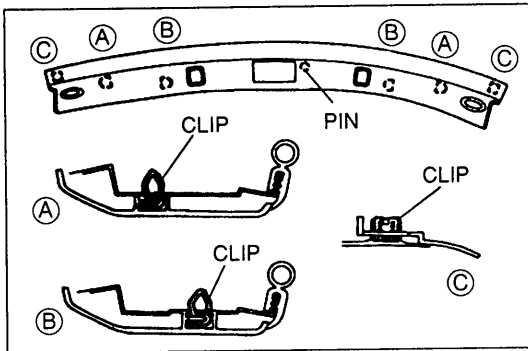
COMPONENTS

Removal / Installation

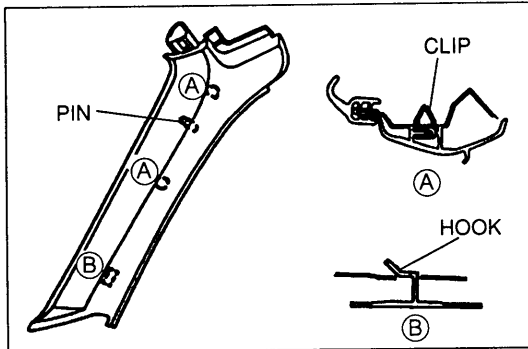
1. Remove as shown by prying out the trim clips, referring to **Removal note**.
2. Install in the reverse order of removal.



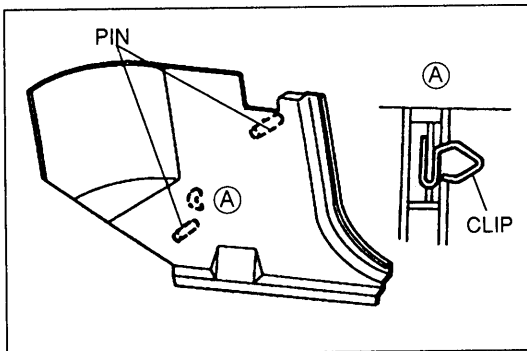
- | | | |
|----------------------|-------|-----------|
| 1. Front header trim | | |
| Removal note | ..... | page S-62 |
| 2. A-pillar trim | | |
| Removal note | ..... | page S-62 |
| 3. Front side trim | | |
| Removal note | ..... | page S-62 |
| 4. Scuff plate | | |
| Removal note | ..... | page S-62 |
| 5. Quarter trim | | |
| Removal note | ..... | page S-62 |
| 6. Door trim | | |
| Removal note | ..... | page S-63 |
| 7. Rear package trim | | |
| 8. Trunk end trim | | |
| 9. Trunk side trim | | |

**Removal note****Front header trim**

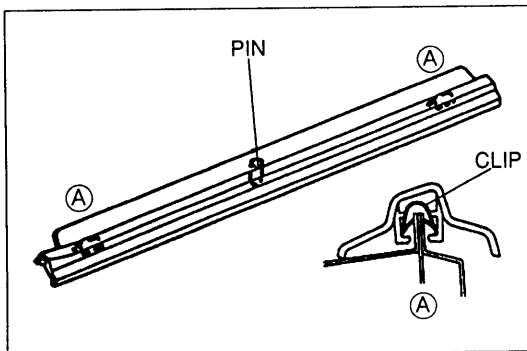
1. Remove the striker. (Refer to page S-69.)
2. Remove the sunvisor and adapter. (Refer to page S-46.)
3. Pull the front header trim forward to disengage the clips from the body.

**A-pillar trim**

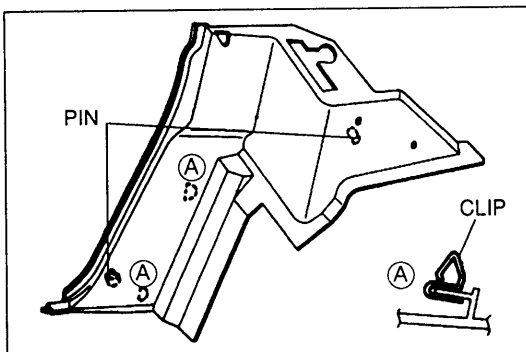
1. Pull the A-pillar trim forward to disengage the clips from the body.
2. Pull the A-pillar trim upward to disengage the hook from the body.

**Front side trim**

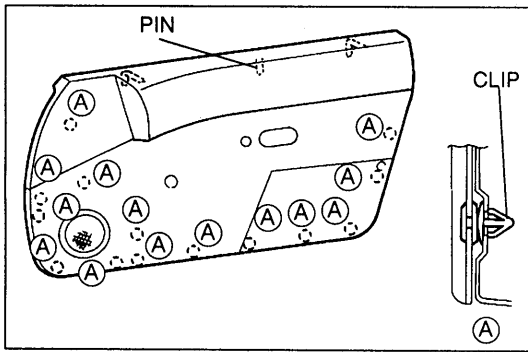
Pull the front side trim forward to disengage the clips from the body.

**Scuff plate**

Pull the scuff plate upward to disengage the clips from the body.

**Quarter trim**

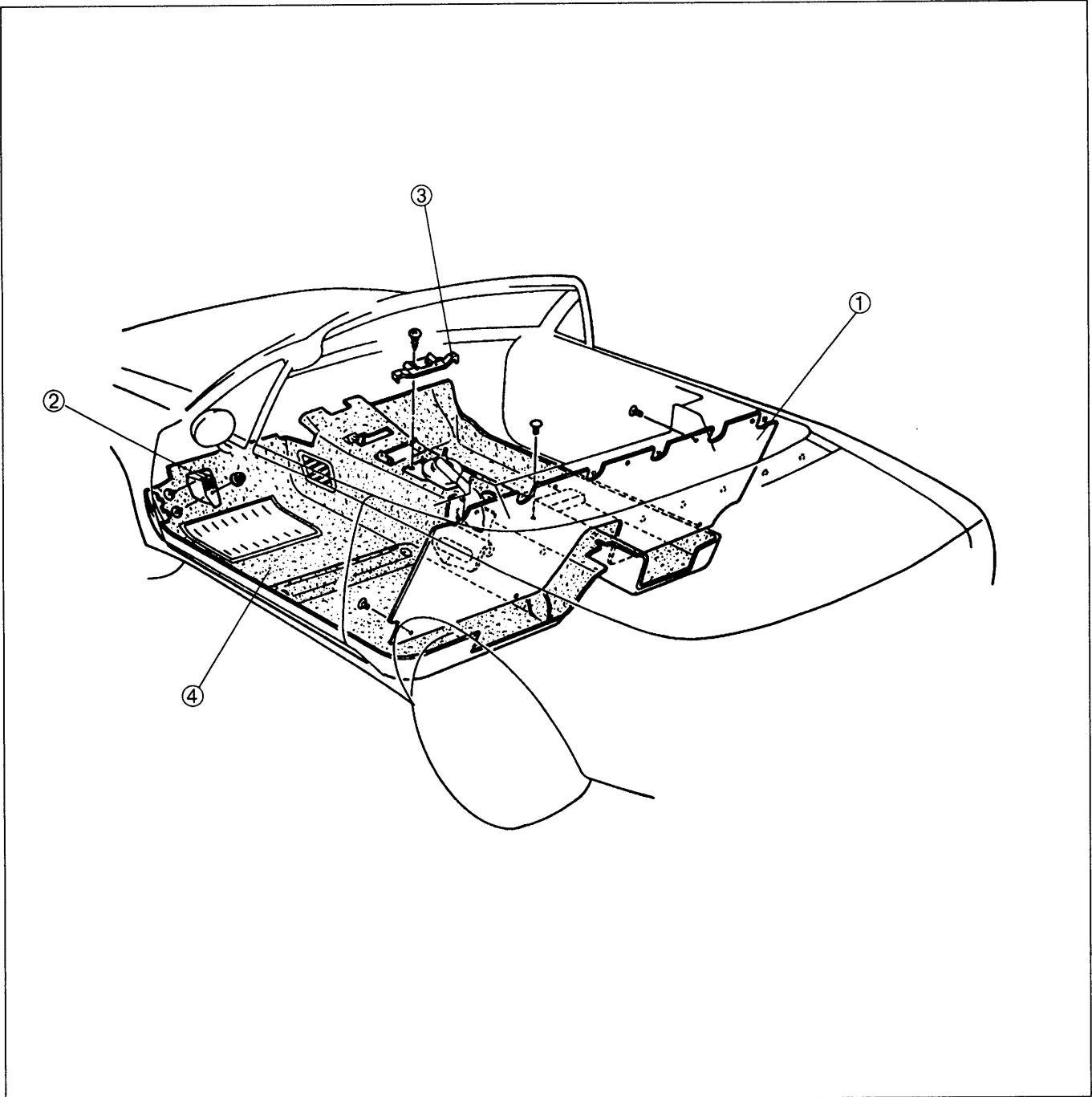
1. Remove the brace bar. (Refer to page S-90.)
2. Pull the quarter trim forward to disengage the clips from the body.

**Door trim**

1. Pull the door trim forward to disengage the clips from the body
2. Lift the door trim to remove it.

FLOOR COVERING**COMPONENTS****Removal / Installation**

1. Remove the following:
 - a Seats (Refer to page S-67.)
 - b Dashboard (Refer to page S-58.)
 - c Heater unit (Refer to section U.)
 - d Front side trim, scuff plates, quarter trim, and rear package trim (Refer to page S-61.)
 - e Front seat belts (Refer to page S-65.)
2. Remove in the order shown in the figure.
3. Install in the reverse order of removal.



1. Rear end mat
2. Footrest

3. Bracket
4. Cabin carpet

SEAT BELT

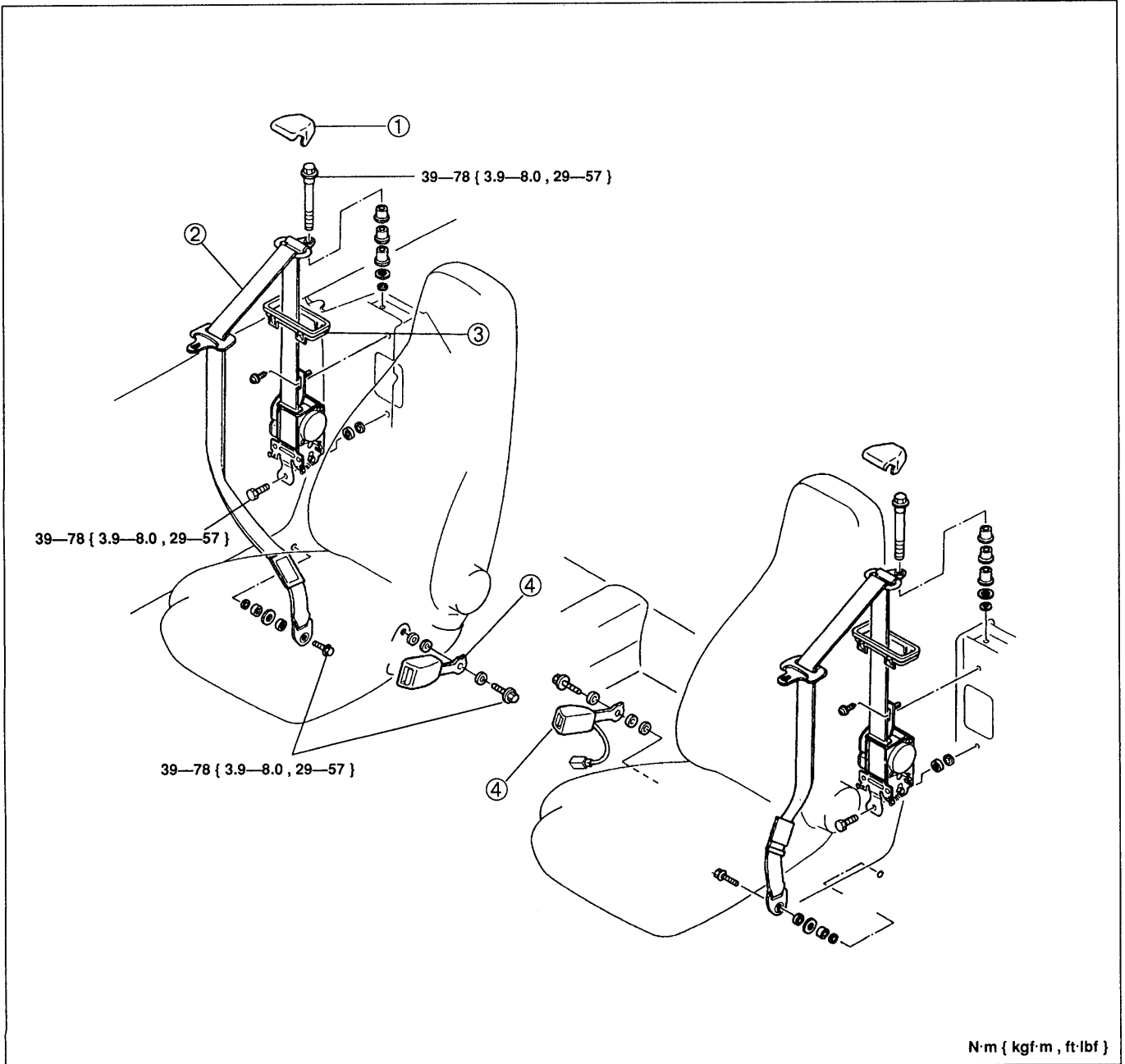
COMPONENTS

Removal / Installation

Caution

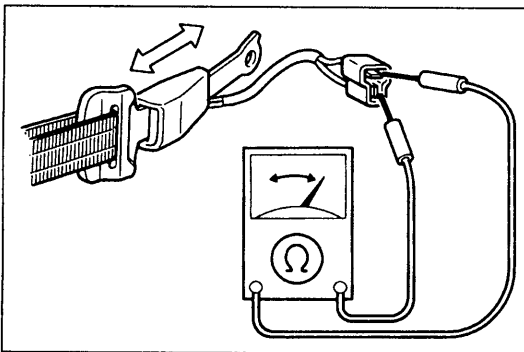
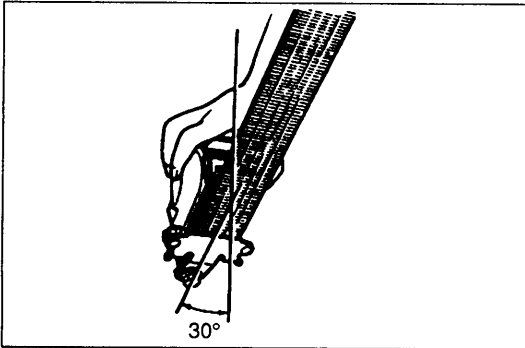
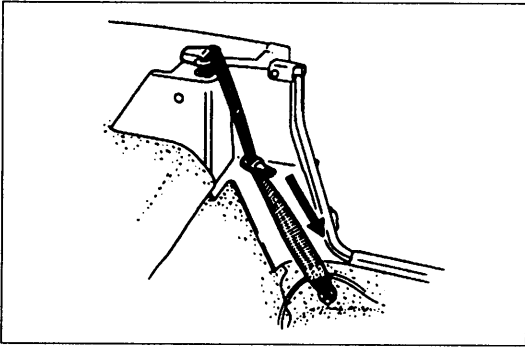
- The ELR has a spring that will unwind if the retractor's cover is removed. The spring cannot be rewound by hand. If this occurs, the ELR will not work properly. Therefore, do not disassemble the retractor.

1. Remove the brace bar (page S-90) and quarter trim (page S-61).
2. Remove in the order shown in the figure.
3. Install in the reverse order of removal.



1. Anchor cover
 2. Seat belt
 Inspection page S-66

3. Bezel
 4. Buckle
 Inspection page S-66

**SEAT BELT****Inspection****ELR**

1. Verify that the belt can be pulled out smoothly, and that it moves smoothly when worn.
2. Verify that the retractor locks when the belt is quickly pulled.

3. Remove the retractor.
4. Hold the retractor as it would be installed.
5. Slowly incline the retractor while pulling out the belt.
6. Verify that the retractor locks at approximately 30 degrees inclination.

Webbing

Inspect the webbing for scars, tears, and wear and for deformation of the fittings.

BUCKLE**Inspection**

1. Disconnect the seat belt buckle switch connector.
2. Check for continuity between the switch terminals.

Seat belt	Continuity
Buckled	No
Unbuckled	Yes

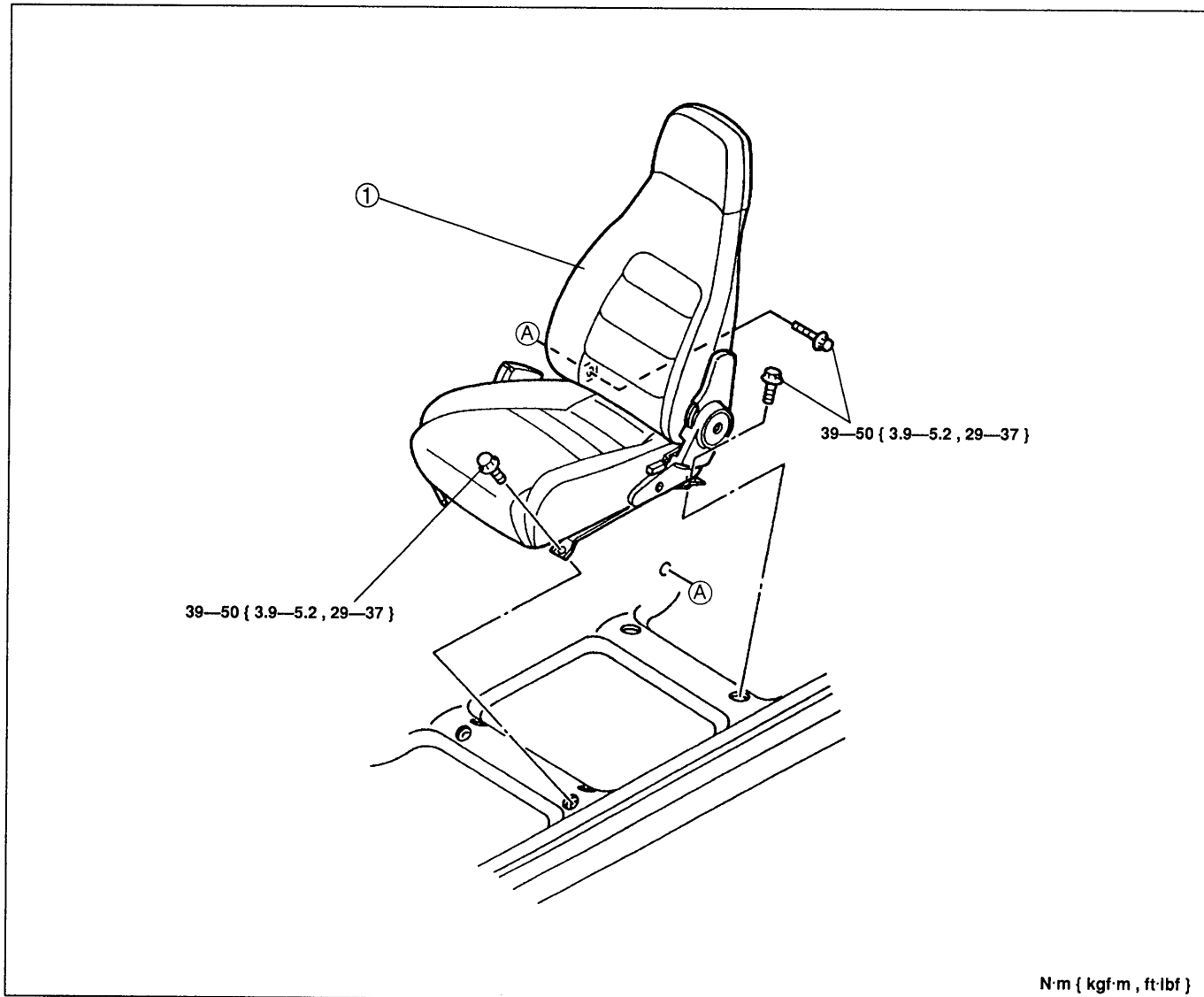
3. If not as specified, replace the buckle.

SEAT

COMPONENTS

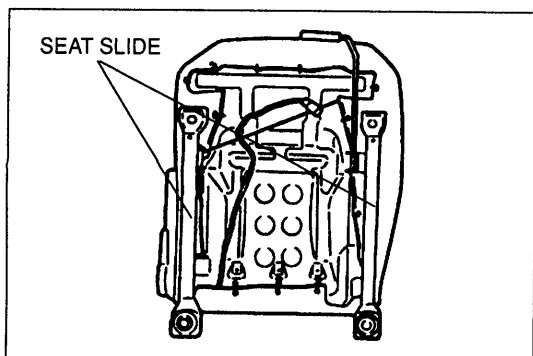
Removal / Installation

1. Remove in the order shown in the figure. If a headrest speaker is installed, disconnect the speaker connector to remove the seat.
2. Install in the reverse order of removal.



1. Seat

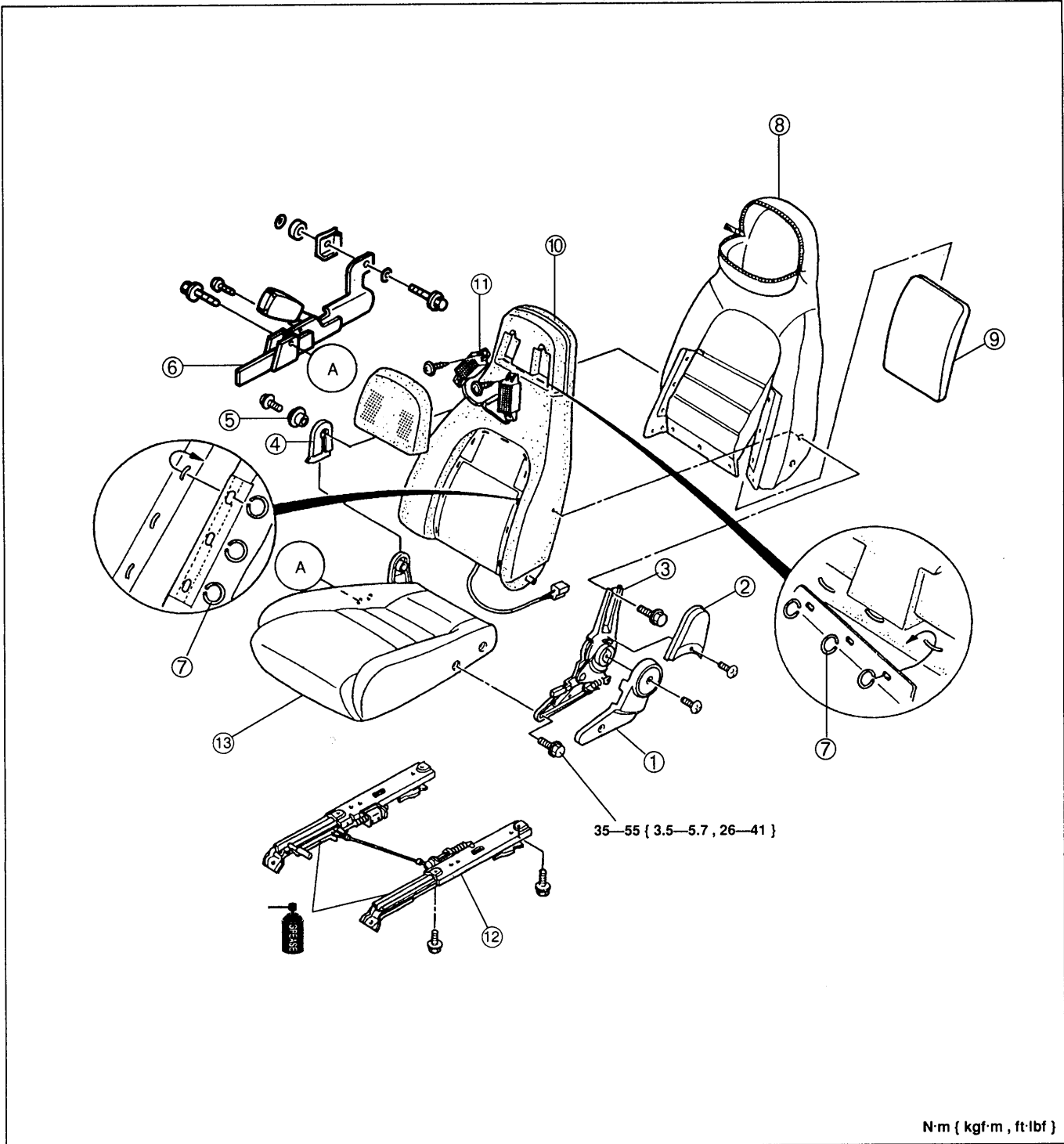
Inspection below
 Disassembly / Assembly page S-68

SEAT
Inspection

1. Verify that the seat adjuster lever and reclining knuckle move smoothly.
2. Check the adjustment lever for wear.
3. Check the front seat mounting bolts for looseness.
4. Check for grease on the seat slides.

Disassembly / Assembly

1. Disassemble in the order shown in the figure. (Refer to section T for disassembly / assembly of the body sonic seat.)
2. Assemble in the reverse order of disassembly.



- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Recliner knuckle cover 2. Side cover 3. Recliner knuckle 4. Hinge cover 5. Bushing 6. Belt anchor unit 7. Hog ring | <ol style="list-style-type: none"> 8. Seat back trim 9. Pad 10. Seat back frame 11. Headrest speaker (if equipped) Inspection section T 12. Seat slide 13. Seat cushion |
|---|--|

CONVERTIBLE TOP

PREPARATION

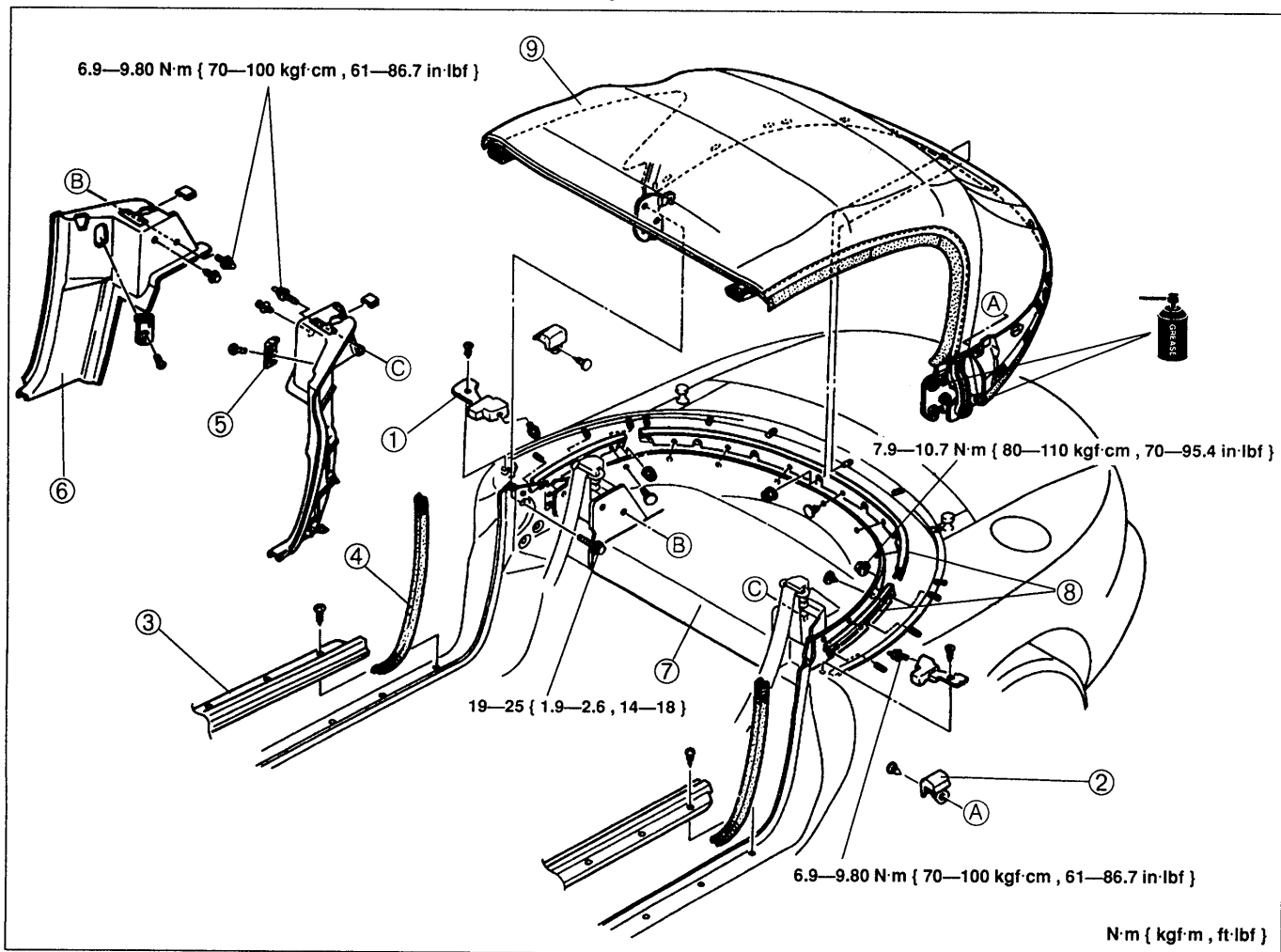
Tools for Repair and Replacement

Adhesive agent K180 W0 313	For repairing top fabric	Drill φ4.0 mm { φ0.16 in }	For removing
Repair sheet NAYI R1 211	For repairing top fabric	Double-sided adhesive tape	For installing top fabric
Hand riveter	For installing top fabric	Ethyl alcohol	For cleaning repaired parts
Aluminum rivet φ4.0 mm { φ0.16 in }	For installing top fabric	—	—

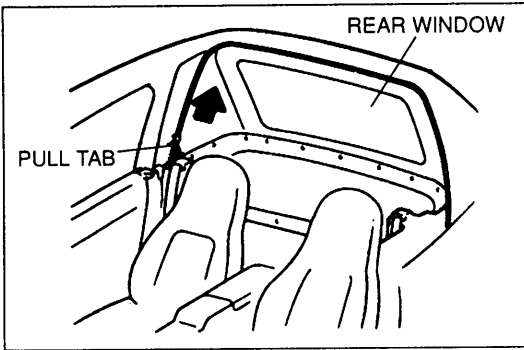
COMPONENTS

Removal / Installation

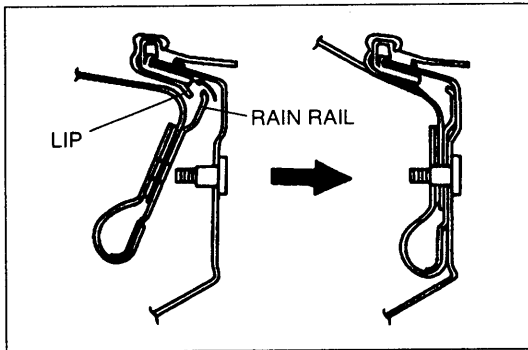
1. Cover both sides of the rear window with thick cloth to protect the window.
2. Remove in the order shown in the figure, referring to **Removal note**.
3. Install in the reverse order of removal, referring to **Installation note**.



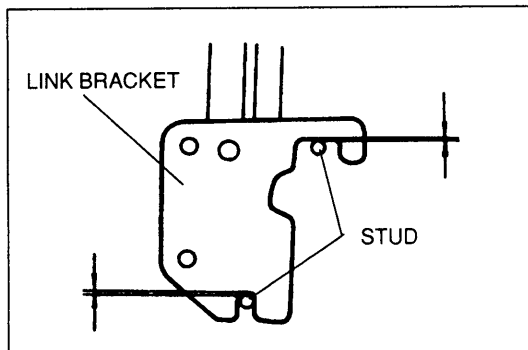
- | | |
|--------------------------|--|
| 1. Beltline cover | |
| 2. Beltline protector | |
| 3. Scuff plate | |
| 4. Seaming welt | |
| 5. Striker (if equipped) | |
| 6. Quarter trim | |
| 7. Rear package trim | |
| 8. Set plate | |
| 9. Convertible top | |
- Removal note page S-62
- Removal note page S-70
- Installation note page S-70

**Removal note****Convertible top**

1. Unlock the top latch assemblies.
2. Unzip the rear window, and lower the convertible top fully.

**Installation note****Convertible top**

1. Insert the rain rail into the beltline molding lip, and mount it over the studs.



2. Align and install the link bracket over the studs with no clearance between the studs and the bracket.
3. Tighten the bolts to the specified torque.

Tightening torque:

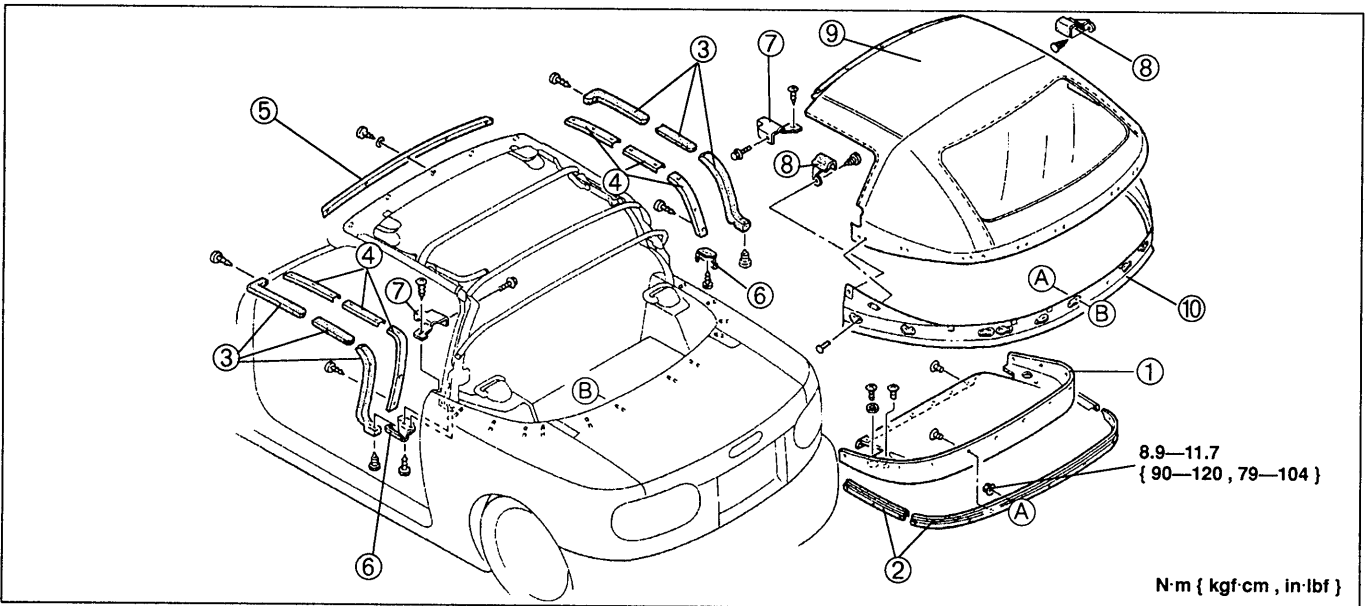
19—25 N·m { 1.9—2.6 kgf·m , 14—18 ft·lbf }

Removal / Installation (top fabric only)

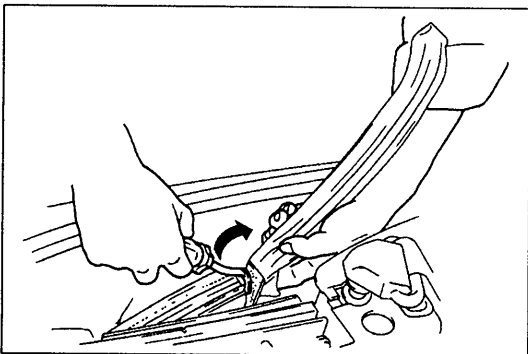
1. Remove in the order shown in the figure, referring to **Removal note**.
2. Install in the reverse order of removal, referring to **Installation note**.

Note

- Cover over rear deck area by using a protective rag.



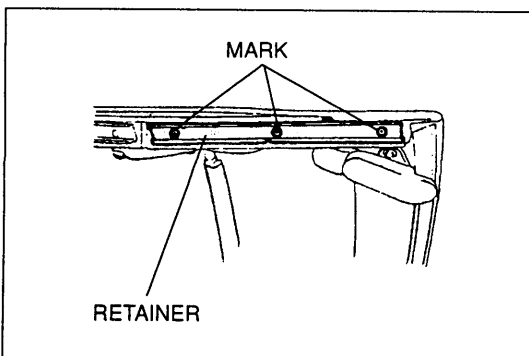
- | | |
|----------------------------|-----------------------------------|
| 1. Rear package trim | 7. Beltline cover |
| 2. Set plate | 8. Beltline protector |
| 3. Weatherstrip | 9. Top fabric |
| Removal note below | Removal note page S-72 |
| Adjustment page S-89 | Installation note page S-73 |
| 4. Retainer | 10. Rain rail |
| Removal note below | Removal note page S-72 |
| 5. Set plate | Installation note page S-73 |
| 6. End plate | |



Removal note

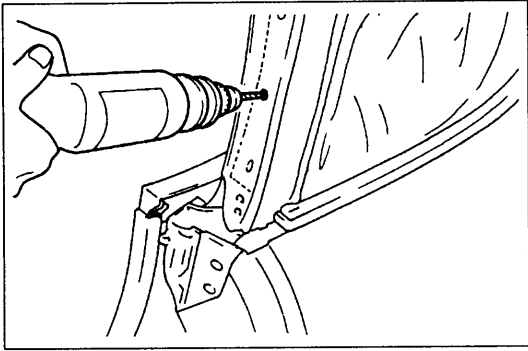
Weatherstrip (vertical section)

1. Lower the convertible top fully.
2. Remove the fastener as shown in the figure by using a fastener remover.



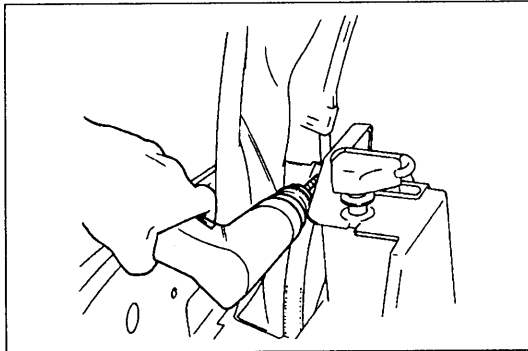
Retainer

Mark around the retainer mounting screws with paint before removing them.

**Top fabric, cable**

1. Remove the rivets from the link assembly with a drill.

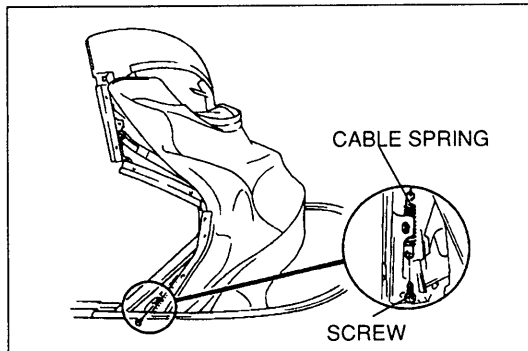
Drill size: $\phi 4.0$ mm { $\phi 0.16$ in }



2. Peel the top fabric end.

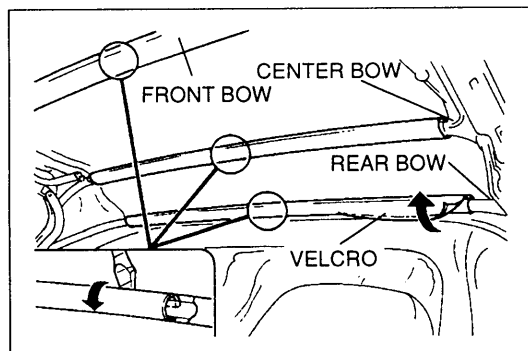
3. Remove the rivets from the link assembly with a drill.

Drill size: $\phi 4.0$ mm { $\phi 0.16$ in }



4. Lower the convertible top to release the cable spring tension, and unhook the spring.

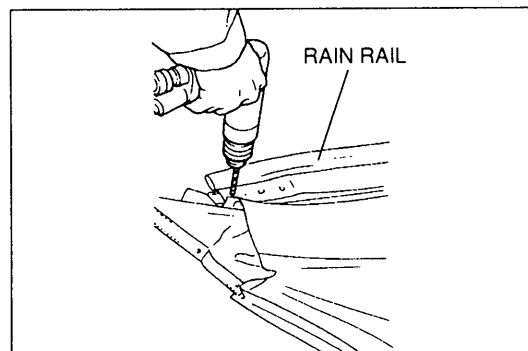
5. Remove the cable from the top fabric.



6. Peel off the Velcro at the rear bow.

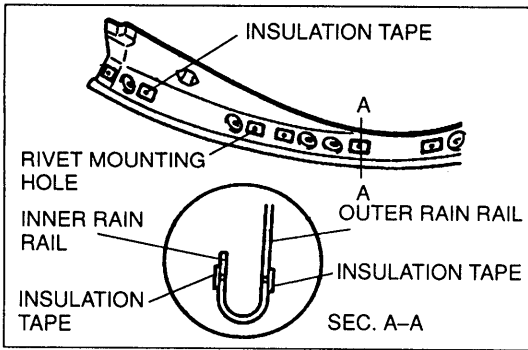
7. Pry back the bow retainers by using a protected screw driver.

8. Remove the top fabric from the bow retainer.

**Rain rail**

Remove the rivets from the top fabric by using a drill.

Drill size: $\phi 4.0$ mm { $\phi 0.16$ in }



Installation note

Rain rail

If the rivets will not be used

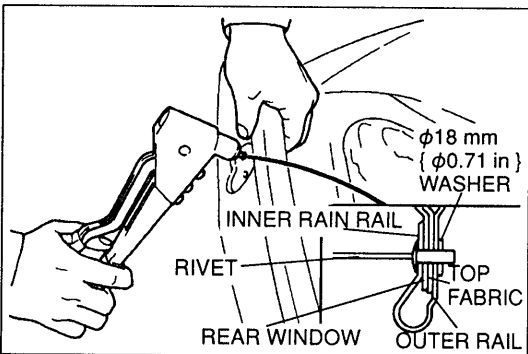
1. Degrease the rain rail by using ethyl alcohol.
2. Install insulation tape to the rivet mounting holes of the rain rail.

Insulation tape

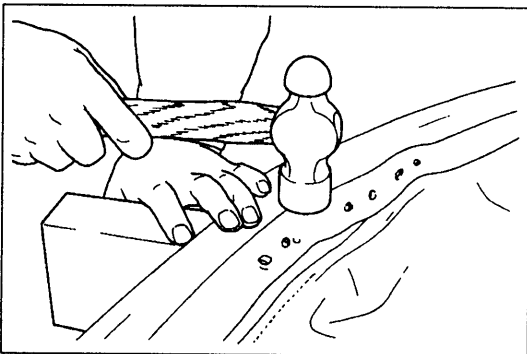
- Width : 20 mm { 0.8 in }
- Height : 15 mm { 0.6 in }
- Thickness: 3 mm { 0.12 in }

If the rivets will be used

1. Rivet the rain rail to the top fabric.

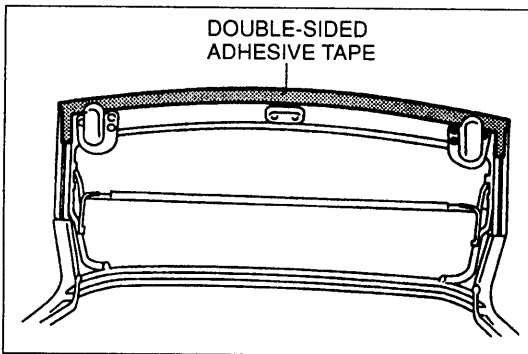


2. Flatten the stem by using a hammer.

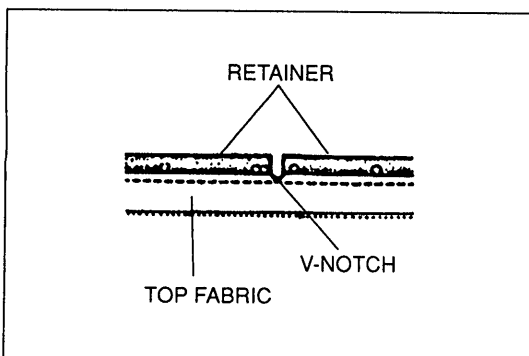


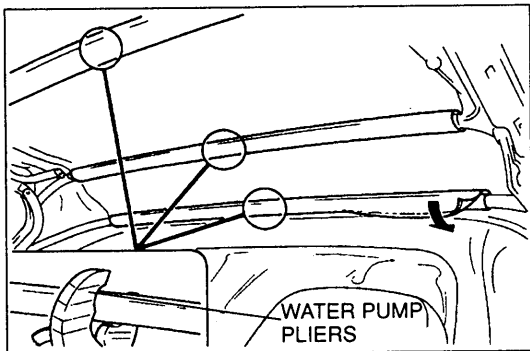
Top fabric

1. Remove the double-sided adhesive tape from the front header.
2. Degrease the front header by using ethyl alcohol.
3. Install new double-sided adhesive tape onto the front header.

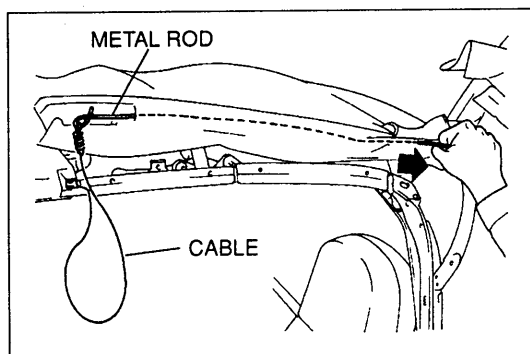


4. Place the top fabric onto the link assembly.
5. Install the top fabric to the bows, beginning from the rear bow.
6. Align the center of the retainer and V-notch in the top fabric, and roll the top fabric over the bow retainer.

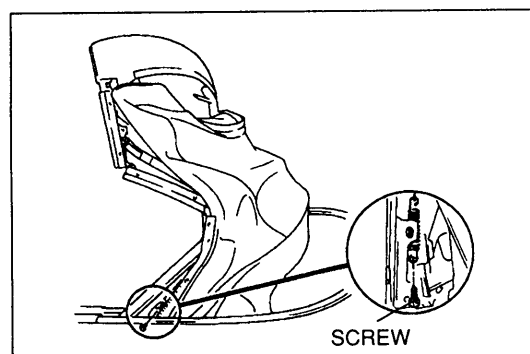




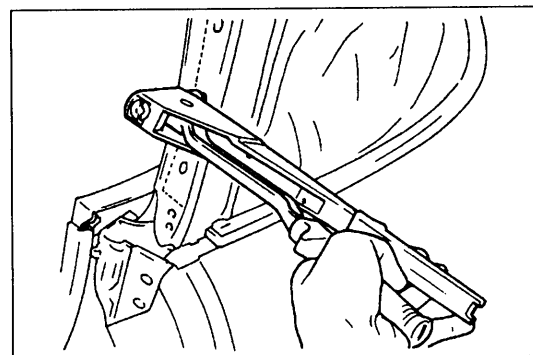
7. Hang the end of the top fabric on the bow retainer.
8. Clamp the top fabric to the bow by using protected water pump pliers.
9. Pull the top fabric by hand to verify that it is held securely.
10. Affix the top fabric to rear bow by using the Velcro.



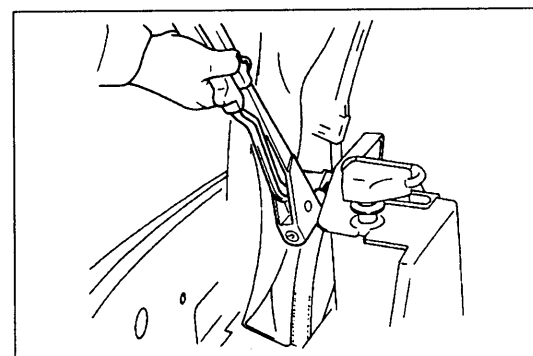
11. Inset a metal rod into the fabric as shown, tie the cable around the rod, and pull the cable through the fabric.



12. Raise the convertible top as shown in the figure.
13. Install the screw.



14. Rivet the top fabric upper side to the link assembly.



15. Peel the top fabric end.
16. Rivet the top fabric lower side to the link assembly.

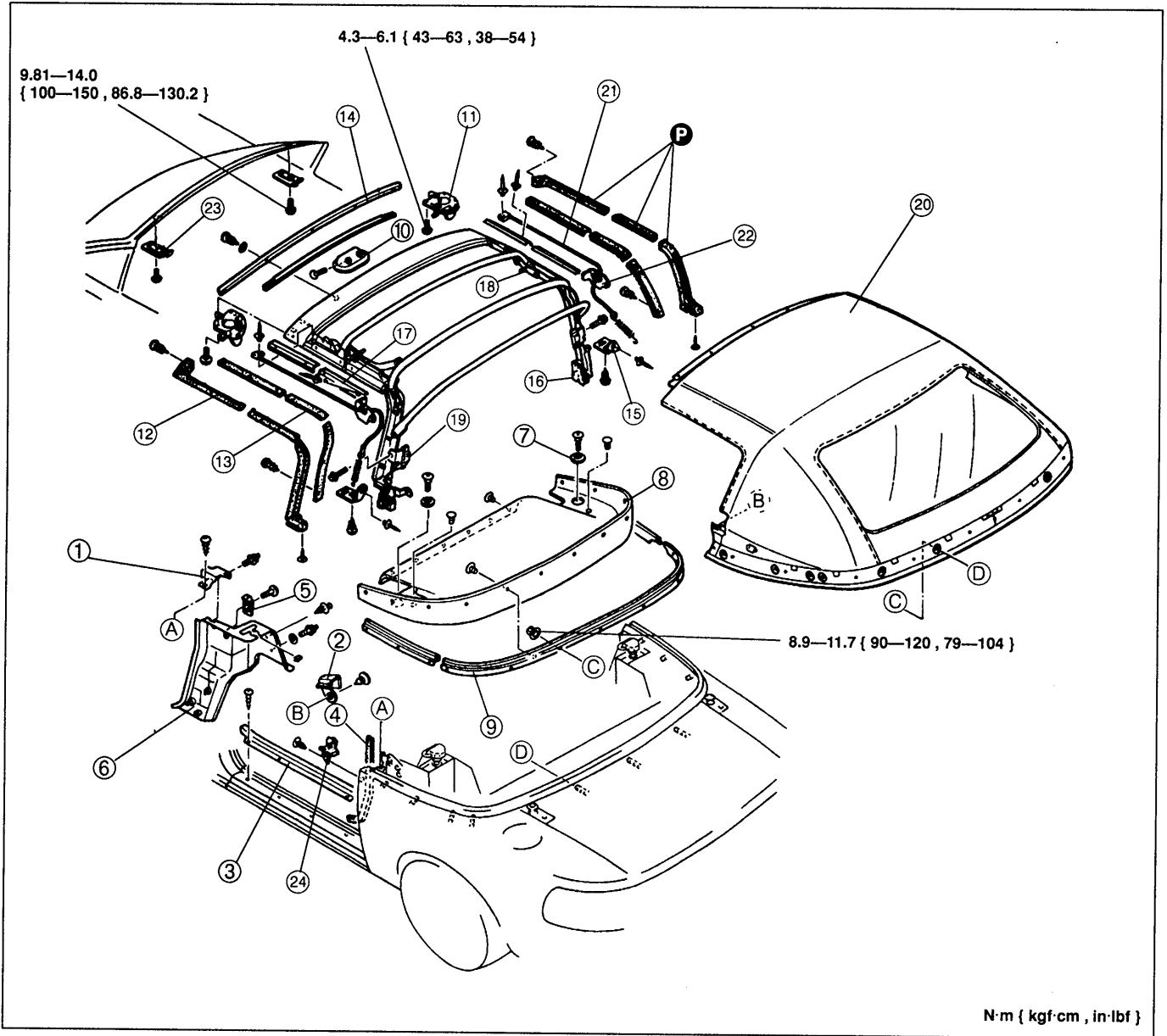
Note

- If lower side rivet is difficult to install to the link assembly, install the top fabric by using a tinnerman clip and a screw.

Tinnerman clip part no. G158 50803
Screw part no. 99768 0410

Disassembly / Assembly

1. Disassemble in the order shown in the figure, referring to **Disassembly note**.
2. Assemble in the reverse order of disassembly, referring to **Assembly note**.

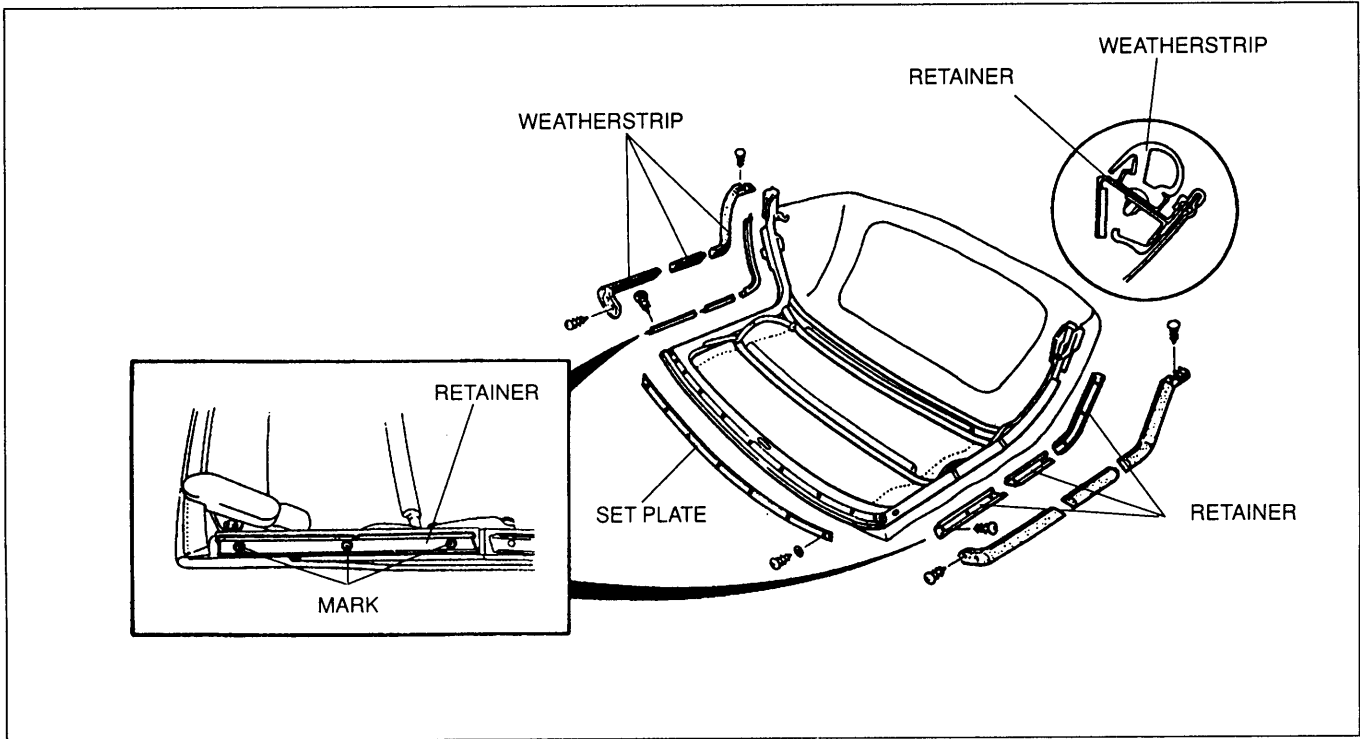


N·m { kgf·cm , in·lbf }

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Beltline cover 2. Beltline protector 3. Scuff plate
Removal / Installation page S-61 4. Seaming welt 5. Striker (if equipped) 6. Quarter trim
Removal / Installation page S-61 7. Stopper 8. Rear package trim 9. Set plate 10. Top handle 11. Top latch assembly
Adjustment page S-84 12. Weatherstrip
Adjustment page S-85 | <ol style="list-style-type: none"> 13. Retainer 14. Set plate 15. End plate 16. Link assembly 17. Protector 18. Link stopper 19. Open stopper 20. Top fabric
Disassembly note page S-76
Assembly note page S-80
Repair page S-85 21. Cable 22. Cable guide 23. Striker 24. Cab-side weatherstrip |
|--|--|

Disassembly note**Top fabric**

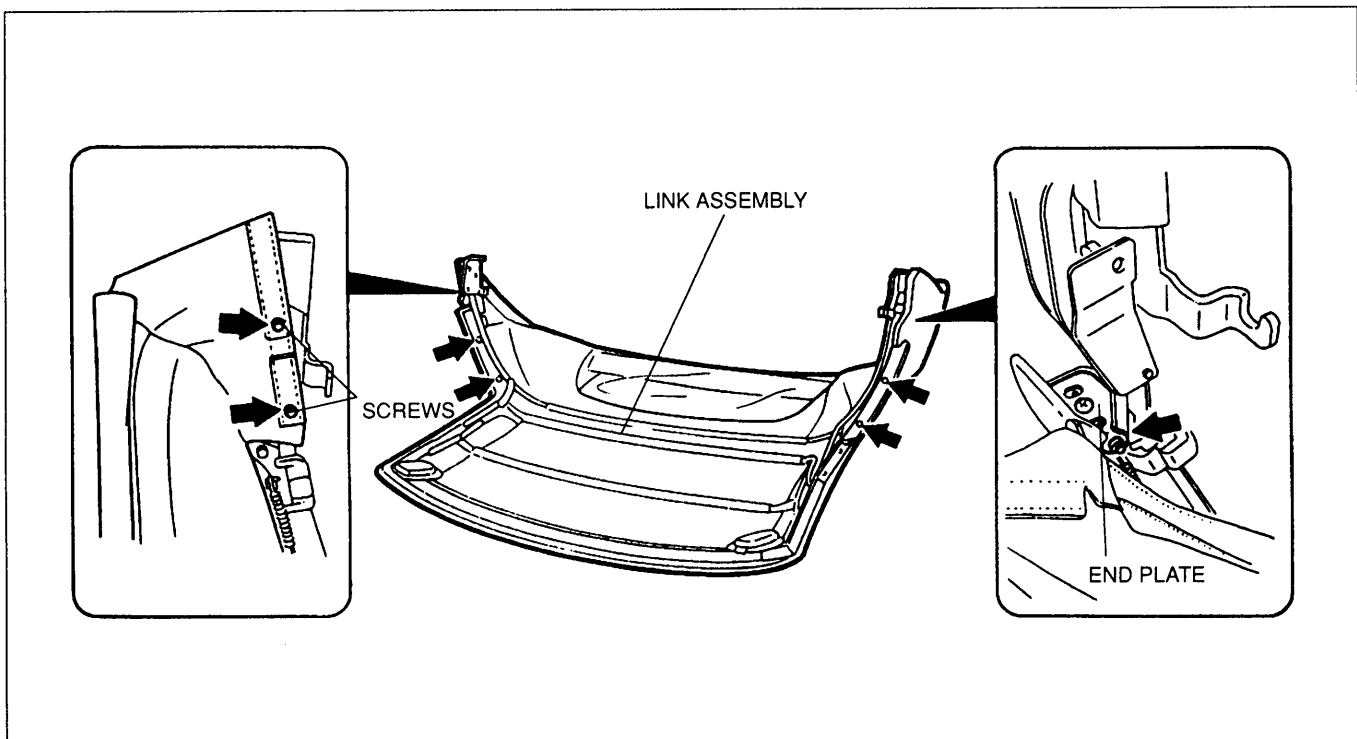
1. Remove the convertible top from the body. (Refer to page S-69.)
2. Set the convertible top upside down on a workbench covered with clean, thick cloth.
3. Mark around the retainer mounting screws with paint before removing them.
4. Remove the set plate, weatherstrip, and retainers.



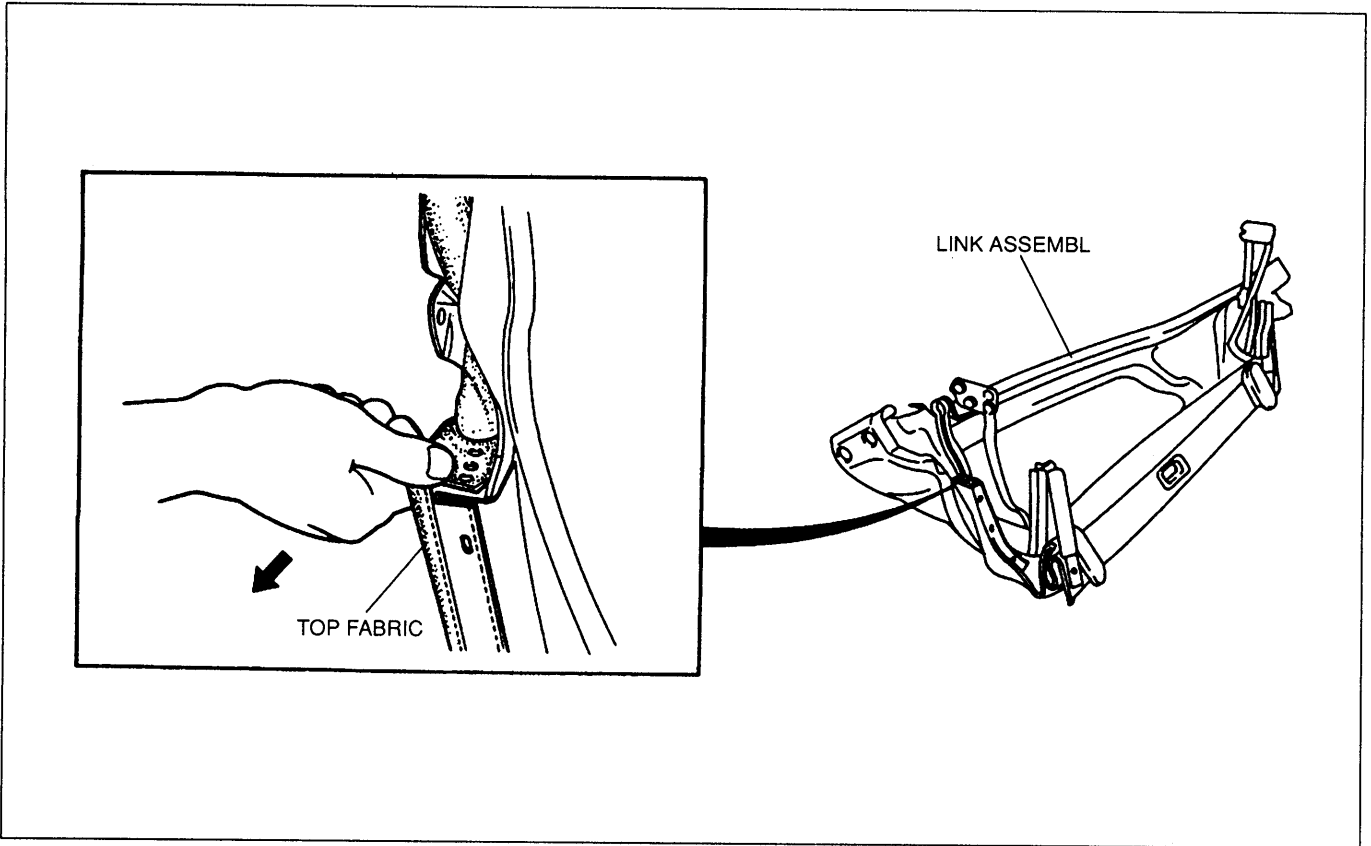
5. Remove the rivets (10 pieces) from the link assembly with a drill.

Drill size: $\phi 4.0$ mm { $\phi 0.16$ in }

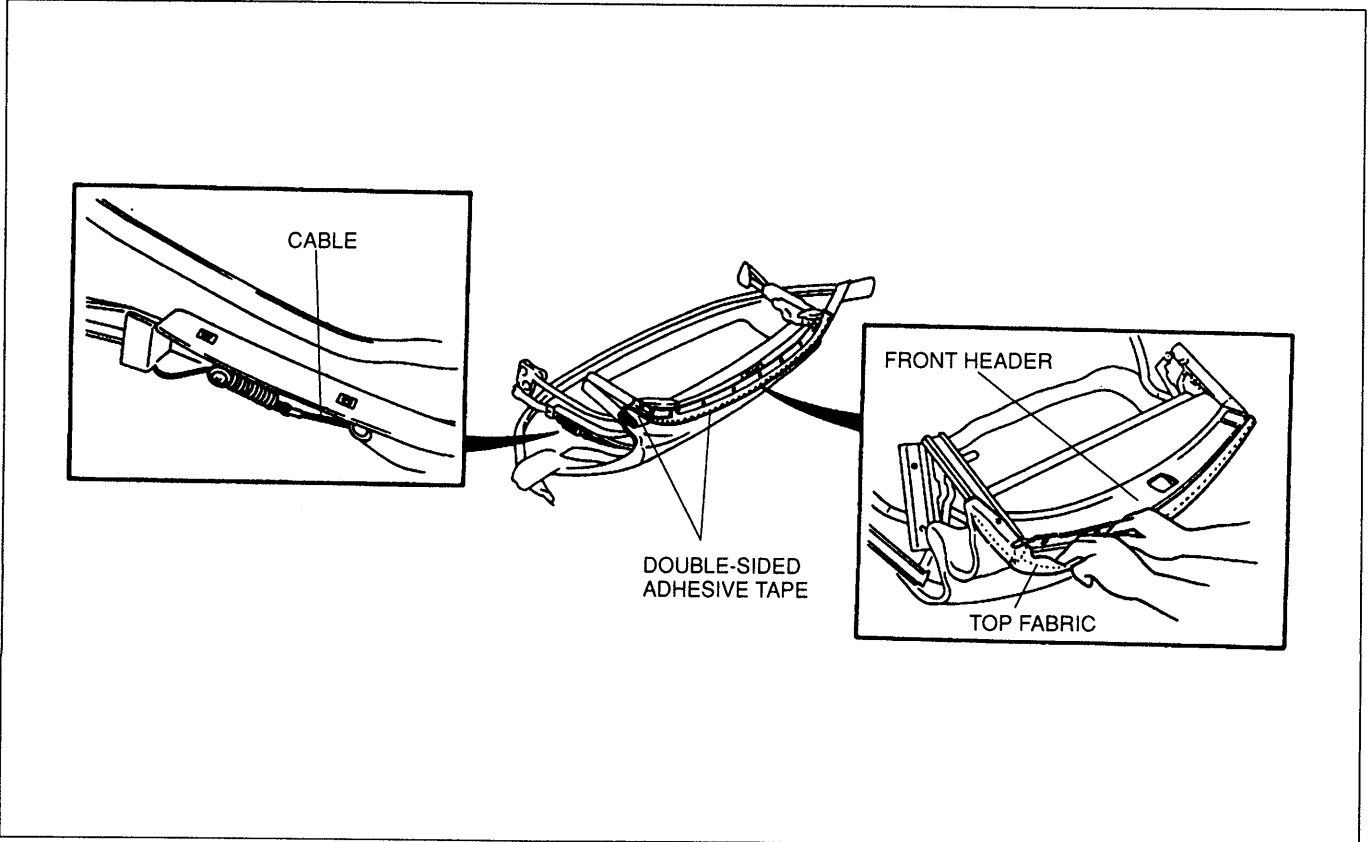
6. Remove the screws and remove the end plates from the link assembly.



- 7. Unzip the rear window, and fold the convertible top.
- 8. Remove the top fabric from the link assembly.

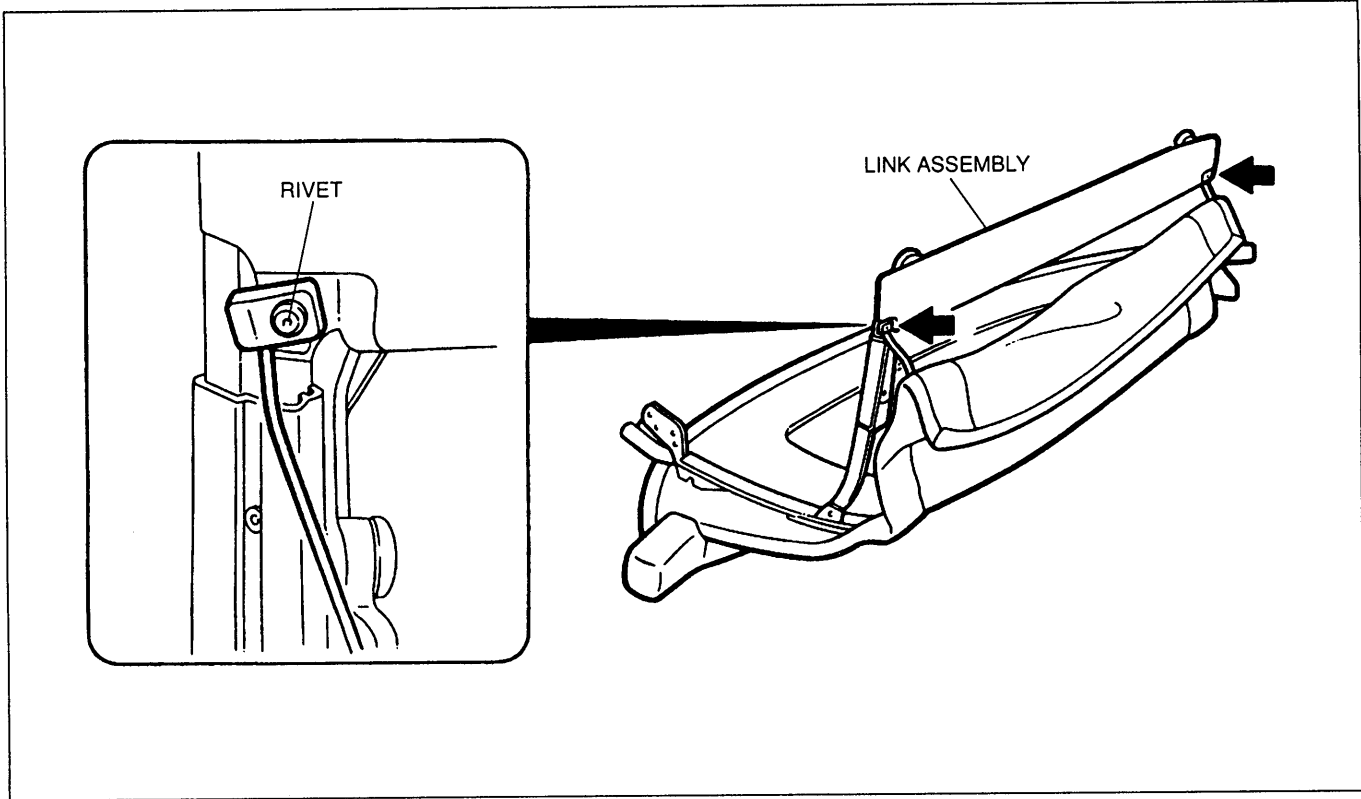


- 9. Peel back the top fabric from the front header.
- 10. Remove the screws and disconnect the cables from the rear of the link assembly.

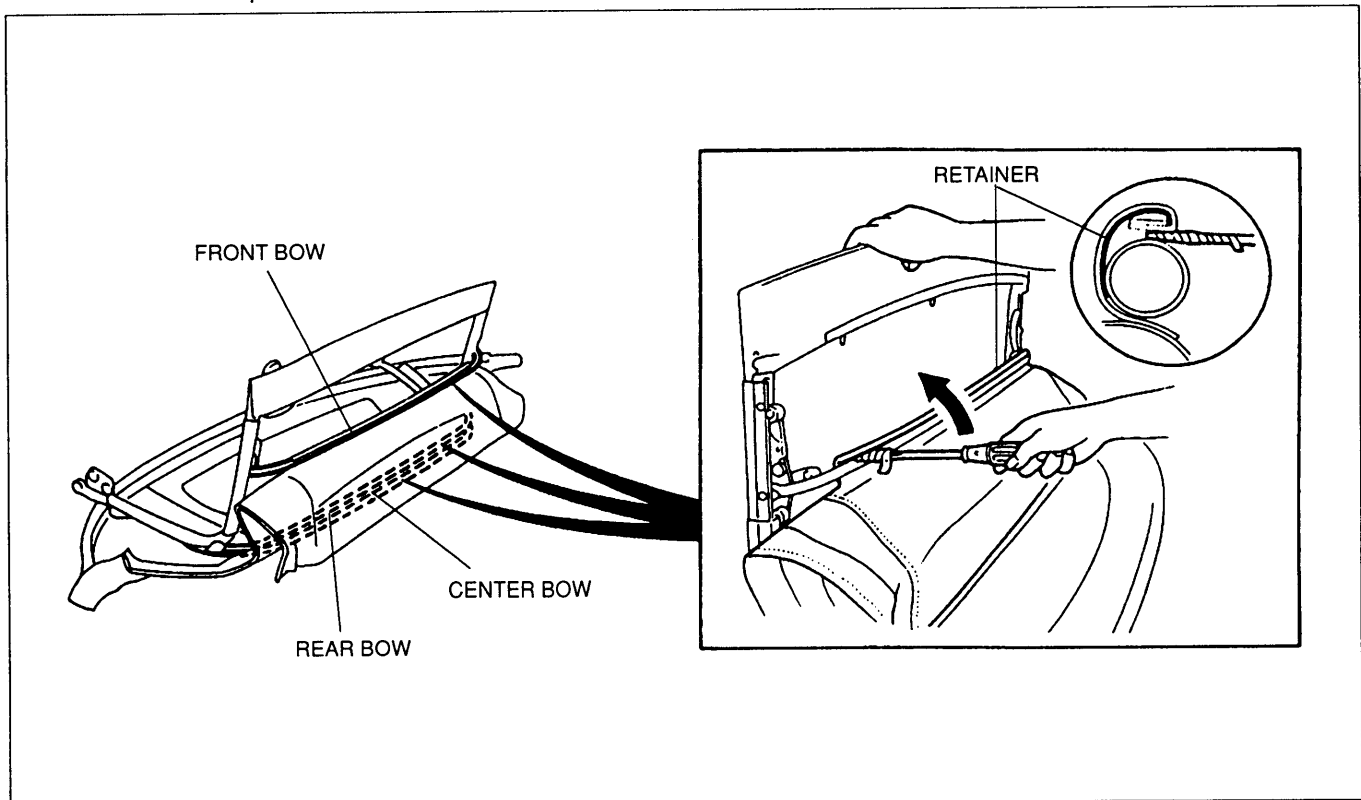


11. Unfold the convertible top and set it upright.
12. Remove the rivets from the link assembly by using a drill.

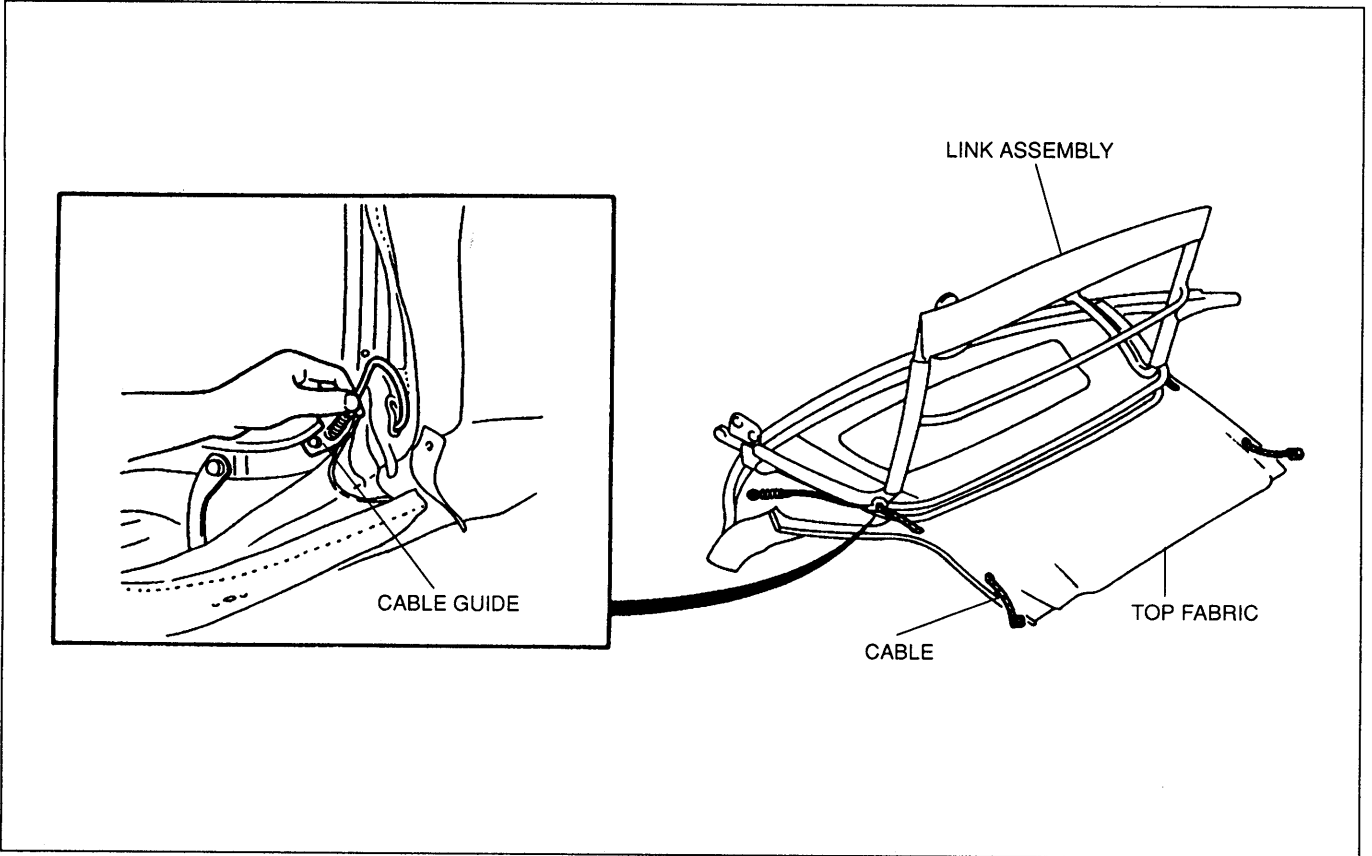
Drill size: $\phi 4.0$ mm { $\phi 0.16$ in }



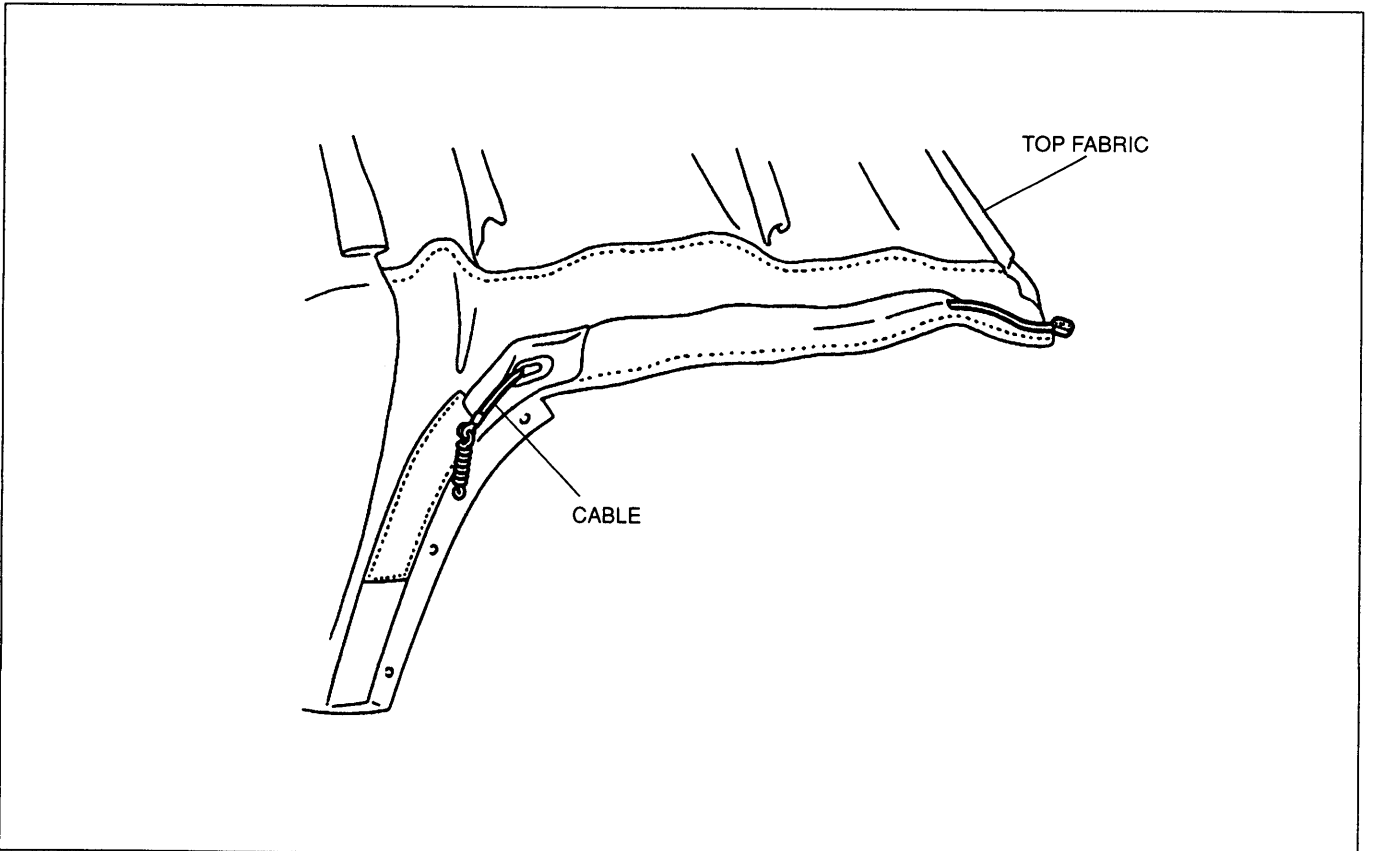
13. Peel off the Velcro at the rear bow.
14. Pry back the bow retainers by using a protected screwdriver.
15. Remove the top fabric from the bow retainer.



- 16. Remove the cables from the cable guides.
- 17. Remove the top fabric and cables from the link assembly.

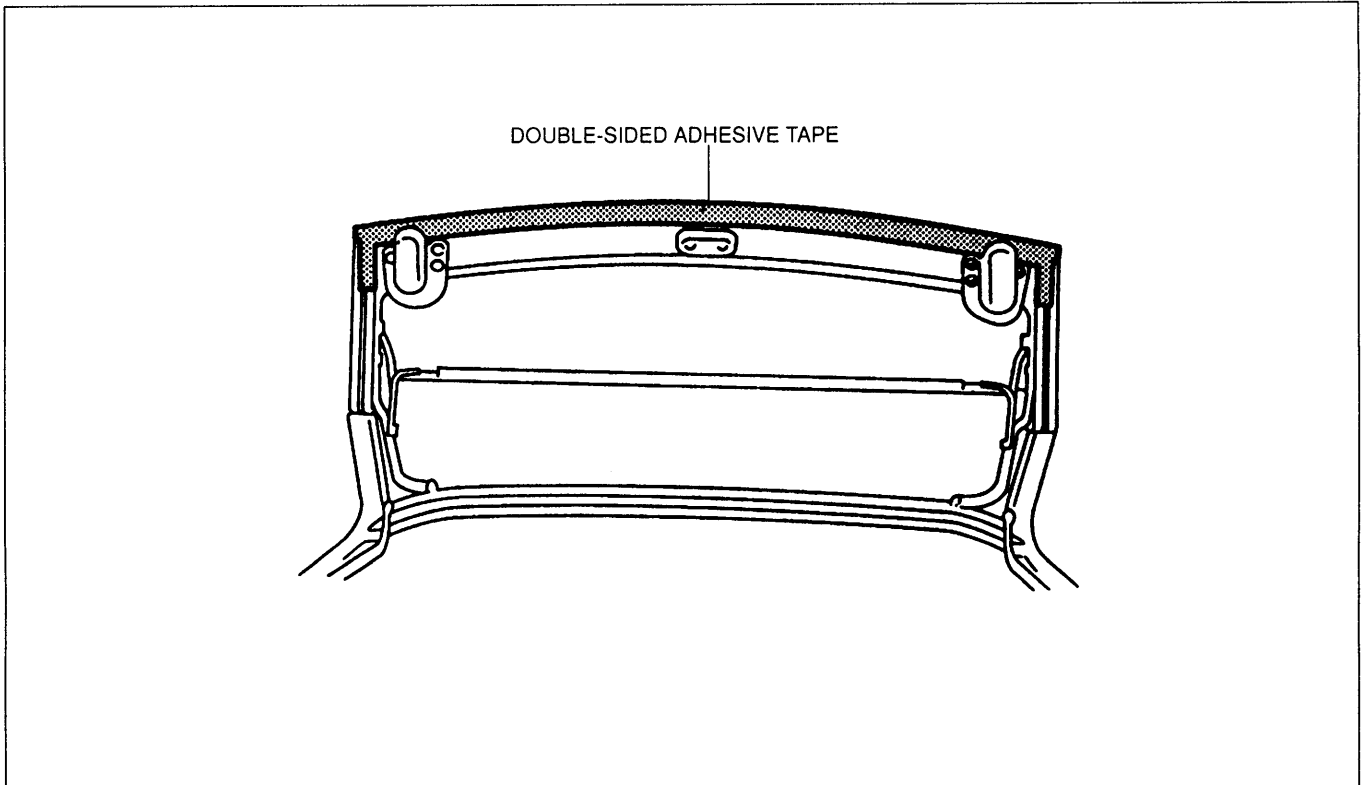


- 18. Remove the cables from the top fabric.

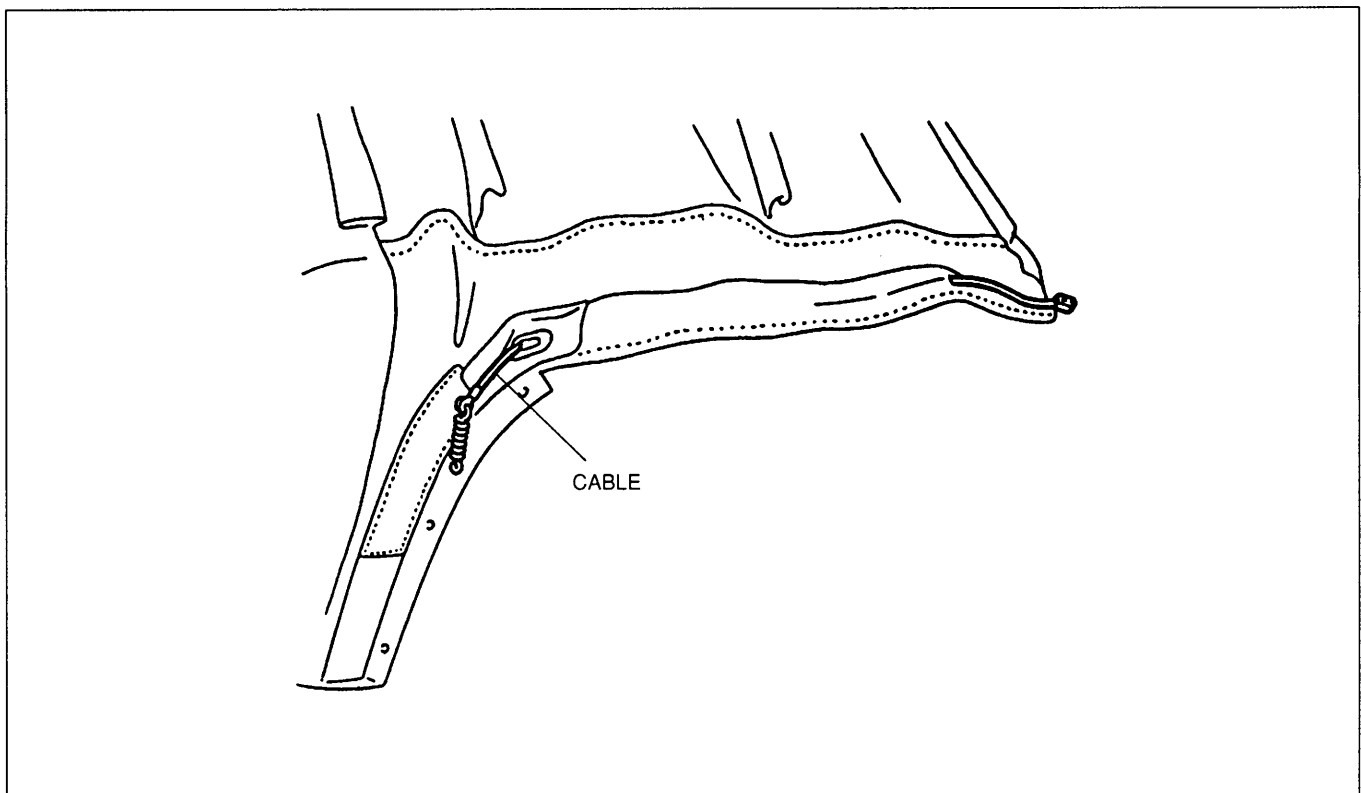


Assembly note**Top fabric**

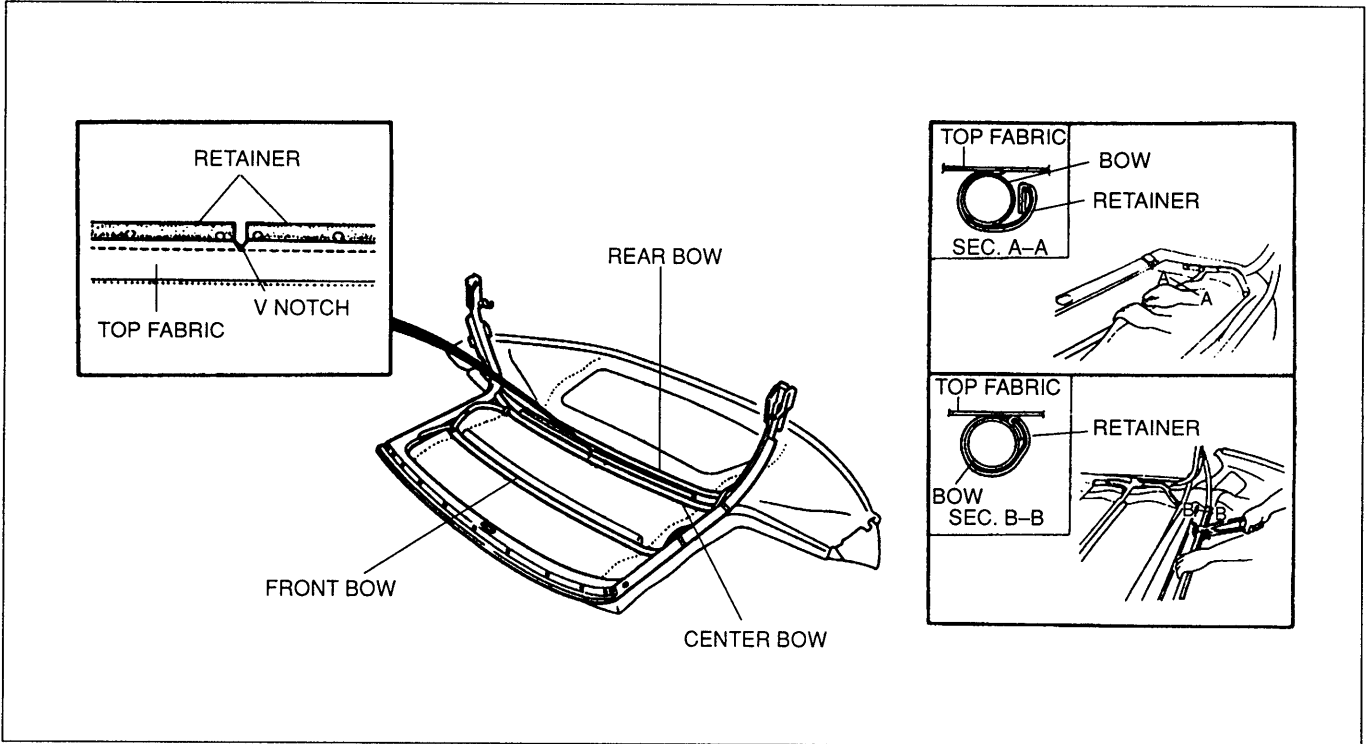
1. Cover the workbench with thick cloth to prevent damaging the top fabric and rear window.
2. Remove the original double-sided adhesive tape from the front header.
3. Degrease the front header by using ethyl alcohol.
4. Install new double-sided adhesive tape onto the front header.



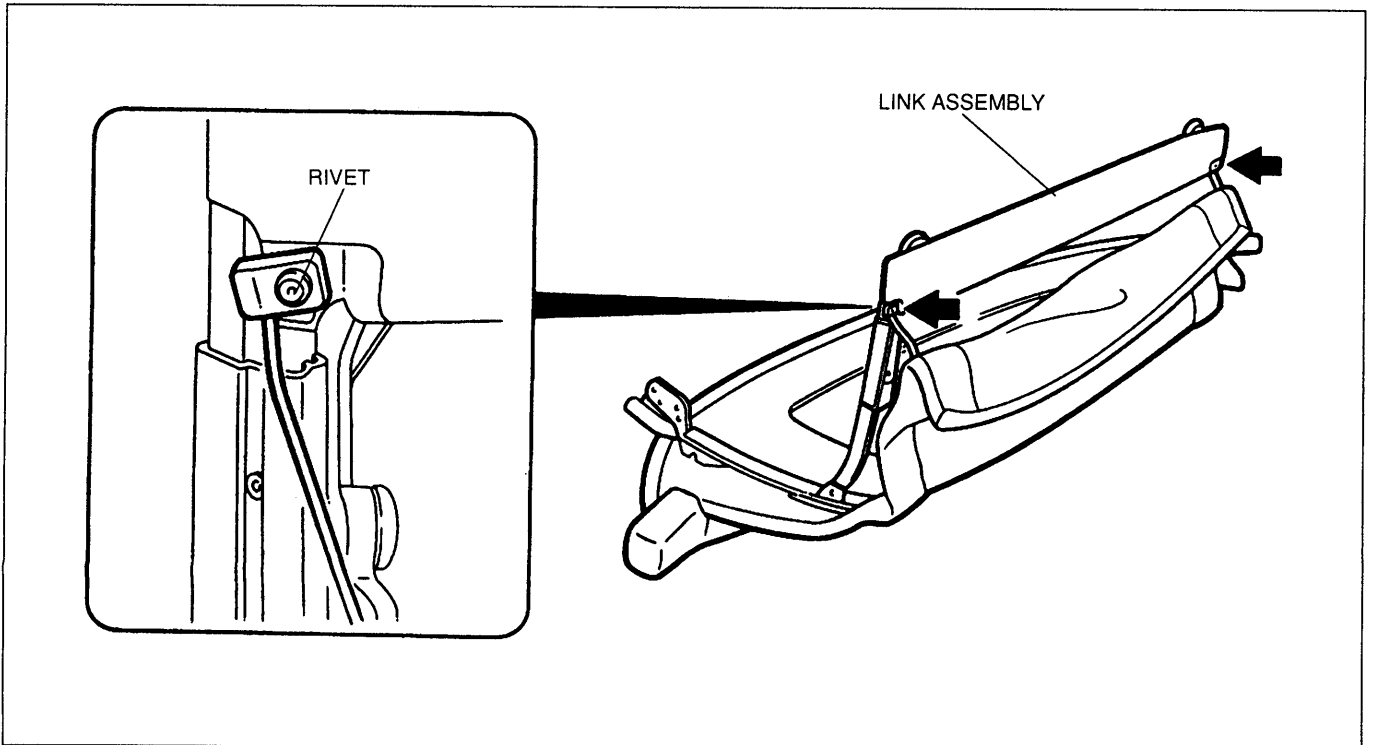
5. Thread the cables into the top fabric.



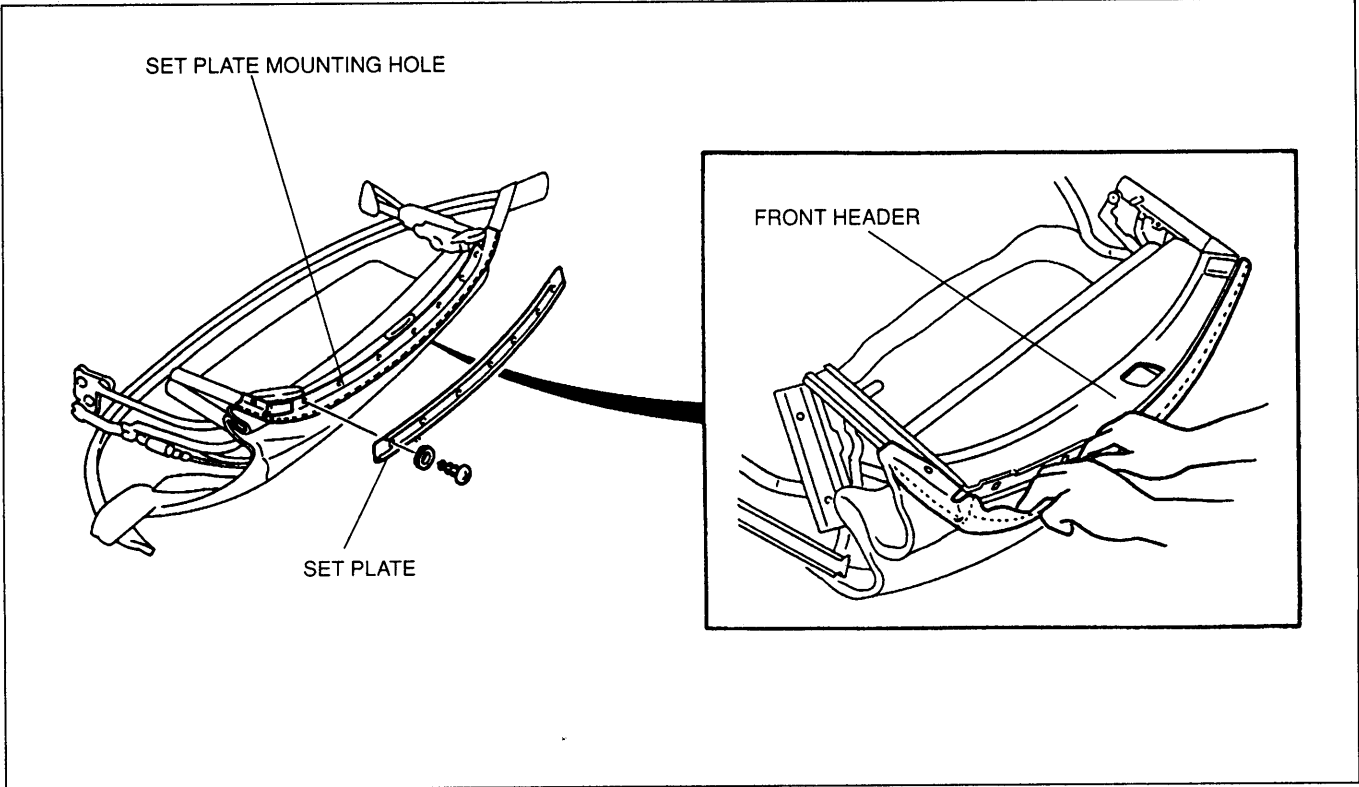
6. Place the link assembly onto the top fabric.
7. Install the top fabric to the bows, beginning from the rear bow.
8. Align the center of the retainer and the V-notch in the top fabric, and roll the top fabric over the bow retainer.
9. Hang the end of the top fabric on the bow retainer.
10. Clamp the top fabric to the bow by using protected water pump pliers. Pull the top fabric by hand to verify that it is held securely.
11. Affix the top fabric to the rear bow by using the Velcro.



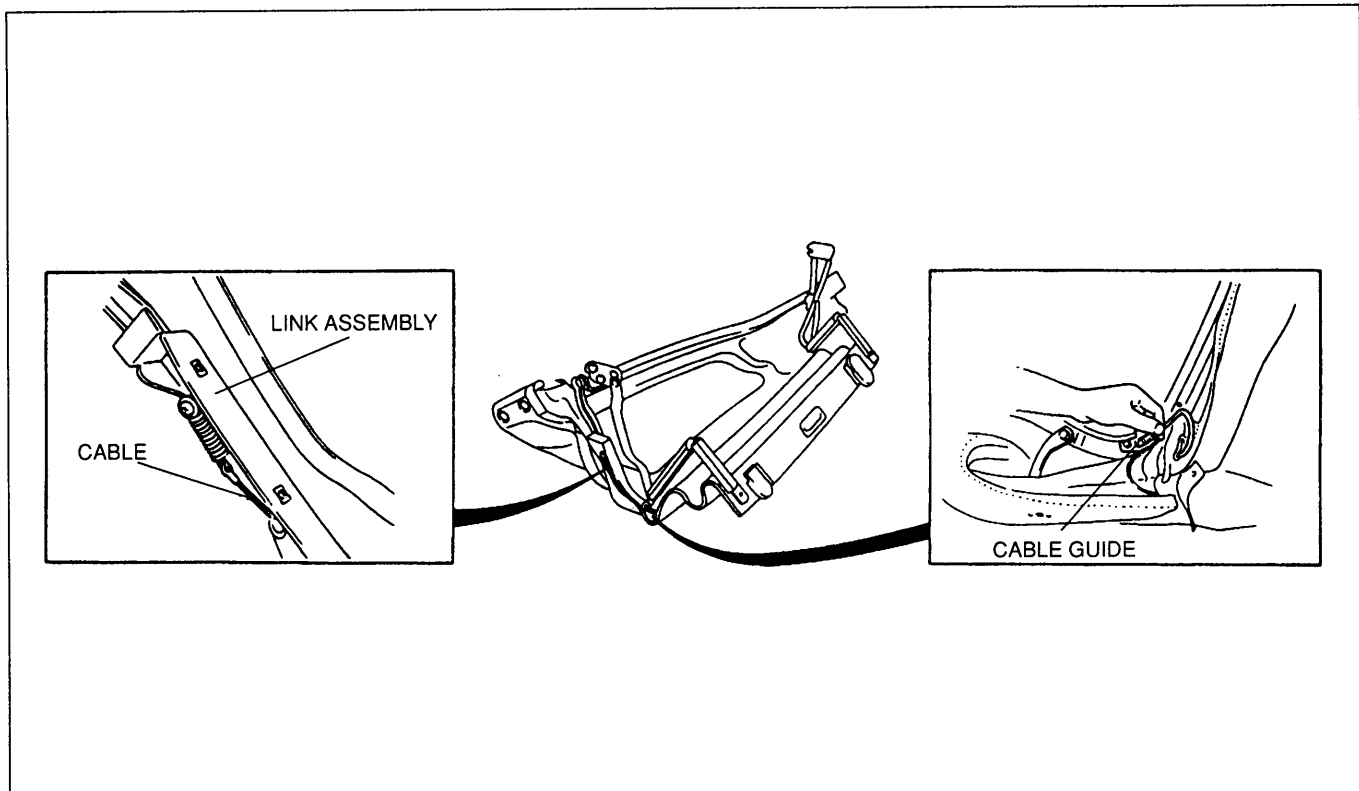
12. Set the convertible top upright.
13. Rivet the cables to the front of the link assembly.



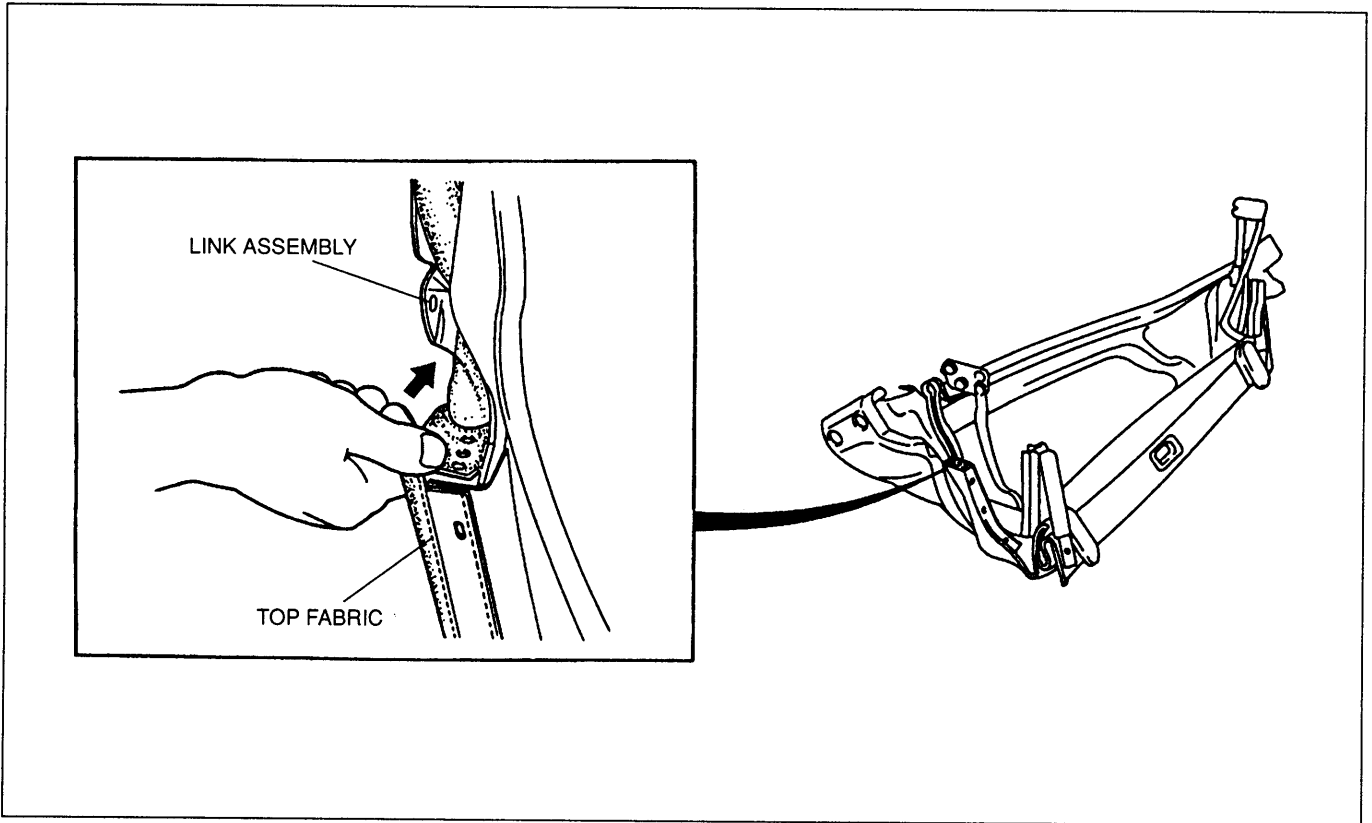
14. Turn the convertible top over and fold it.
15. Install the front of the top fabric to the front header.
16. Align the set plate and top fabric with the set plate mounting holes.
17. Install the set plate to the link assembly.



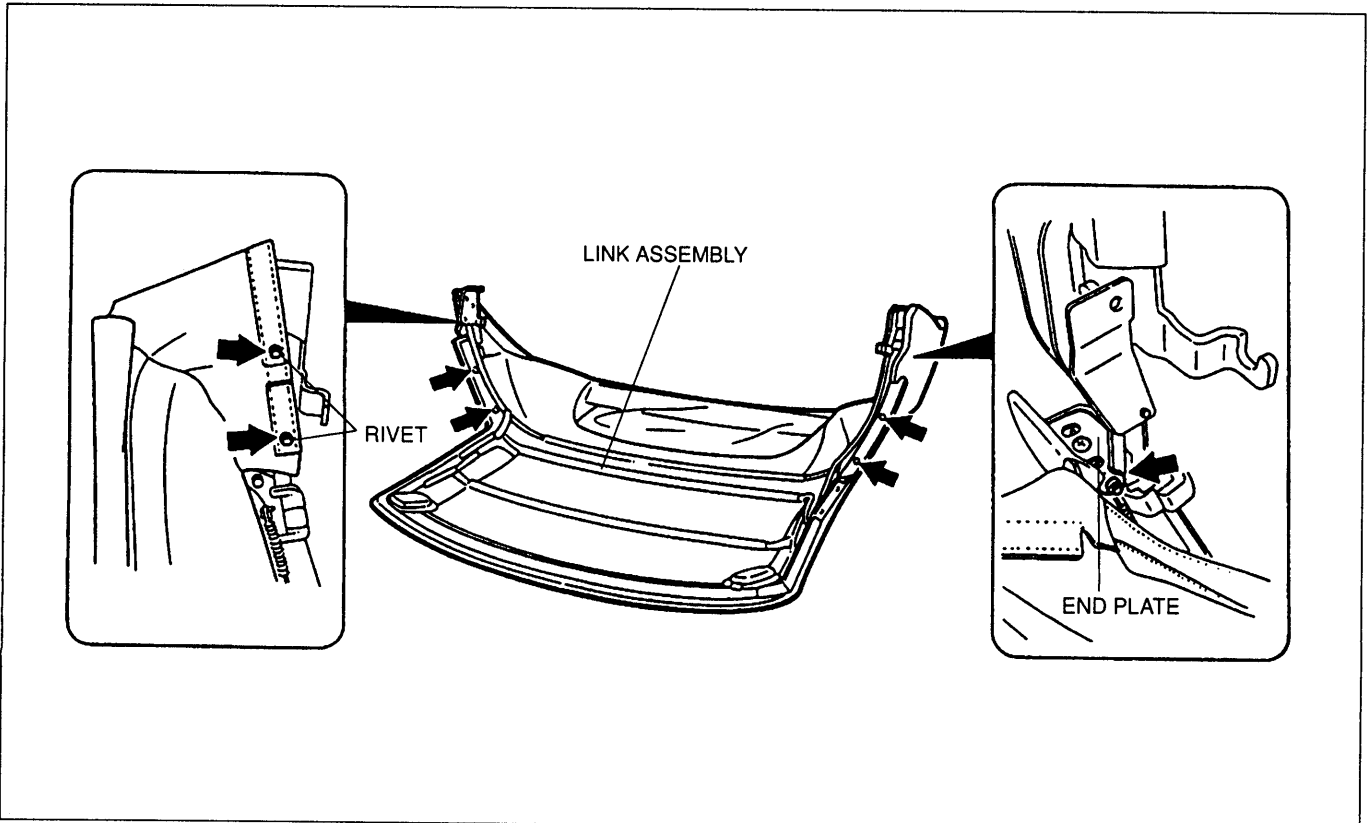
18. Unfold the convertible top half-way.
19. Pass the cables through the cable guides.
20. Install the cables to the rear of the link assembly.



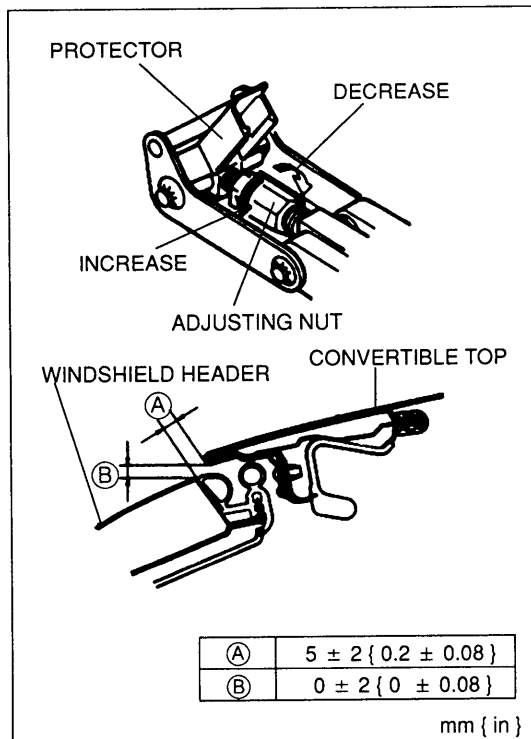
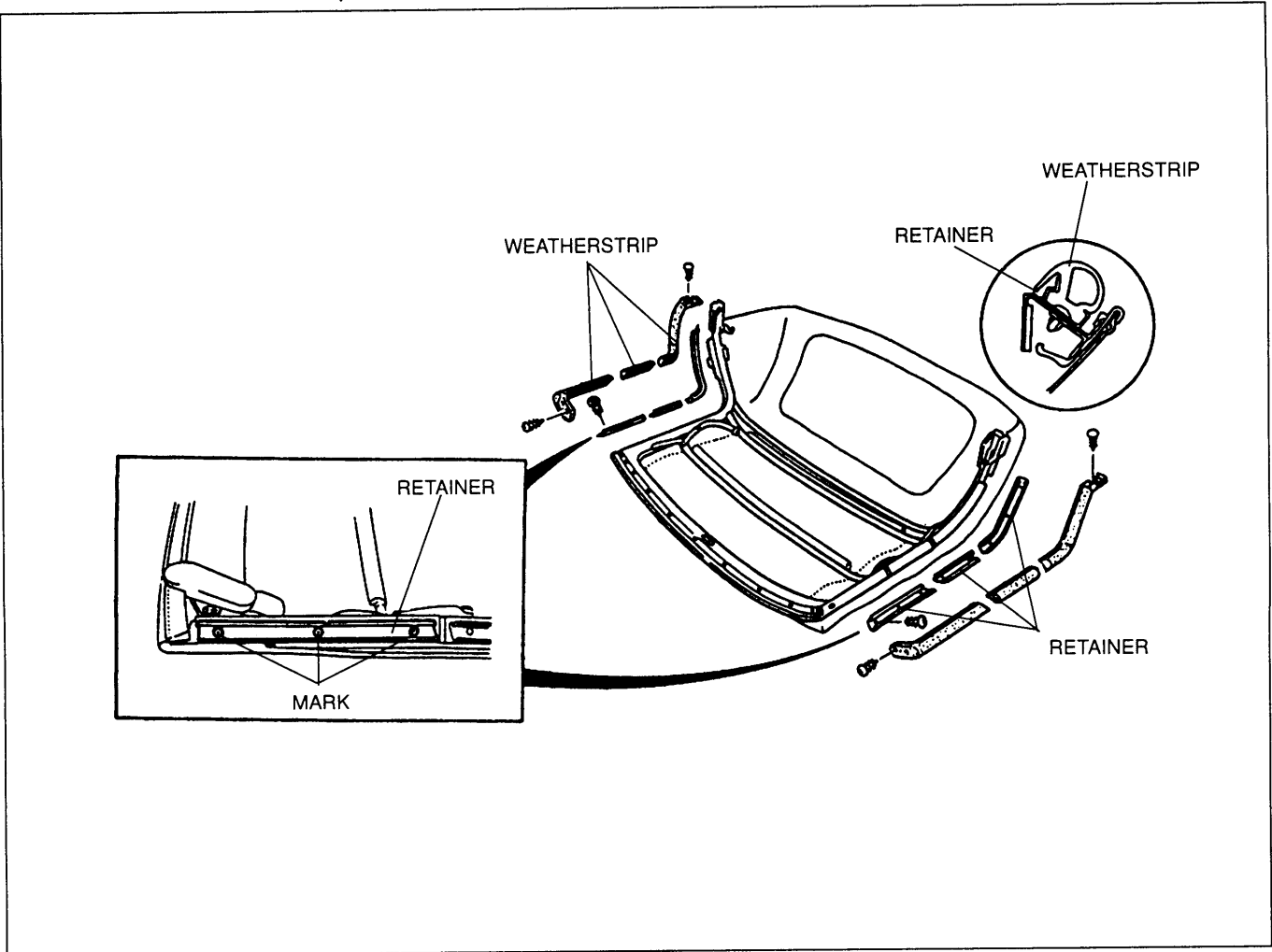
21. Fold the convertible top.
22. Install the top fabric to the link assembly.



23. Unfold the convertible top.
24. Install the end plates to the link assembly.
25. Rivet the top fabric and the end plates to the link assembly.



26. Install the retainers to the link assembly, aligning the retainer marks with the retainer mounting screws.
27. Install the weatherstrips to the link assembly.
28. Install the convertible top to the body. (Refer to page S-69.)



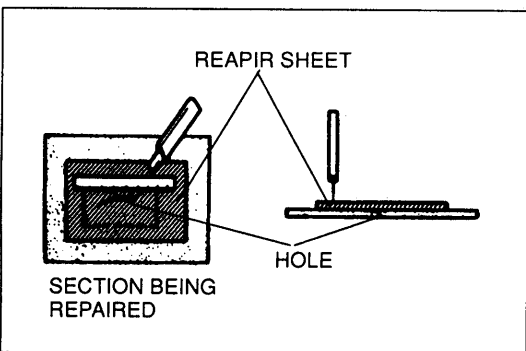
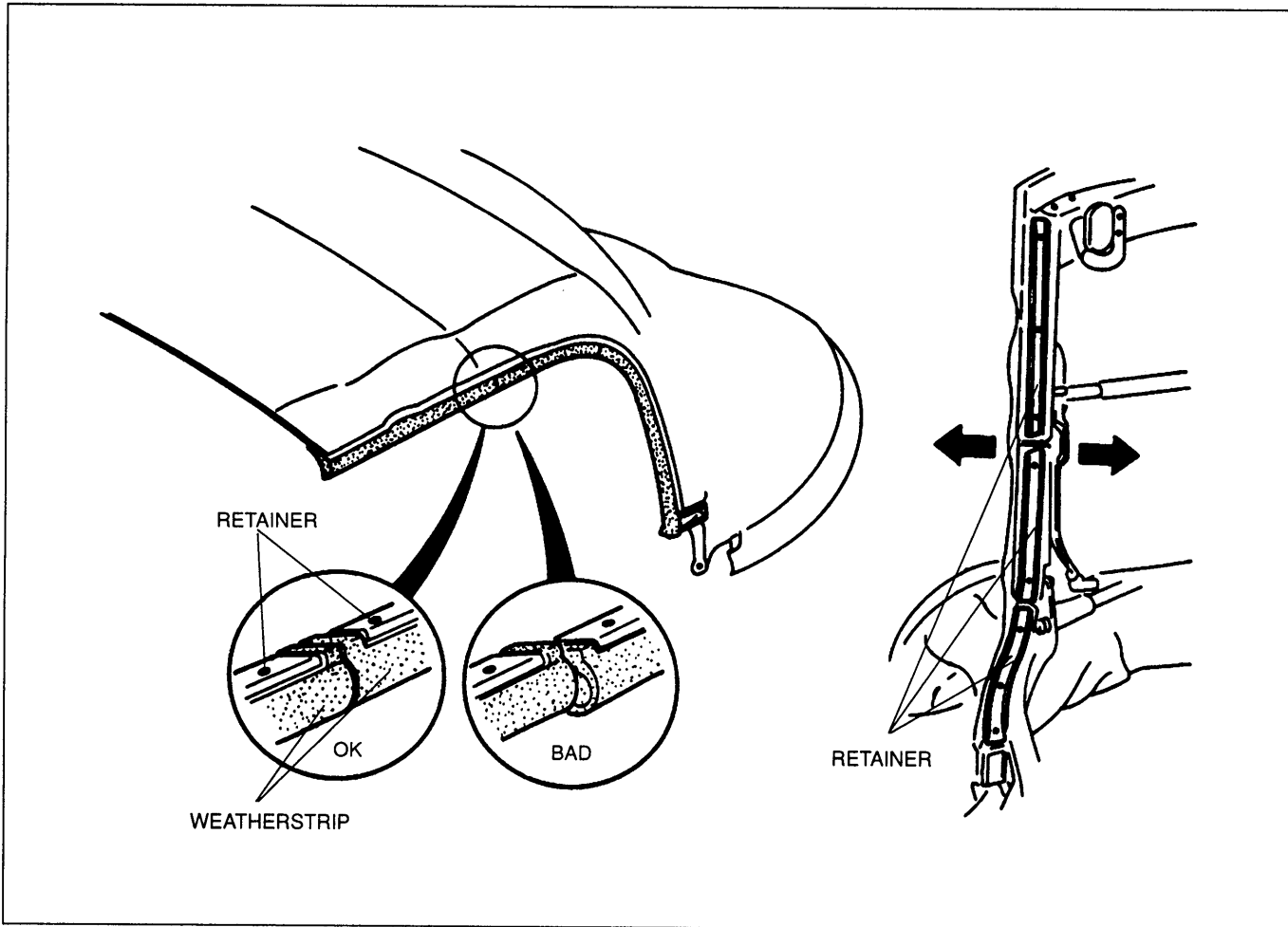
Adjustment

Top latch assembly

1. Lift the protector away from the top latch assembly adjusting nut.
2. Turn the adjusting nut clockwise to decrease clearance A and height B; turn the nut counterclockwise to increase them.
3. Secure the adjusting nut with the protector.

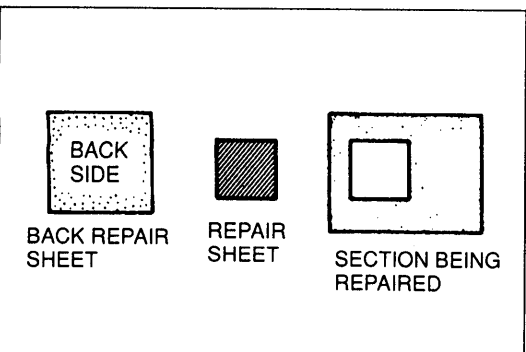
Weatherstrip

1. Remove the weatherstrip.
2. Loosen the retainer screws and adjust the retainer as necessary.
3. Tighten the screws and reinstall the weatherstrip.

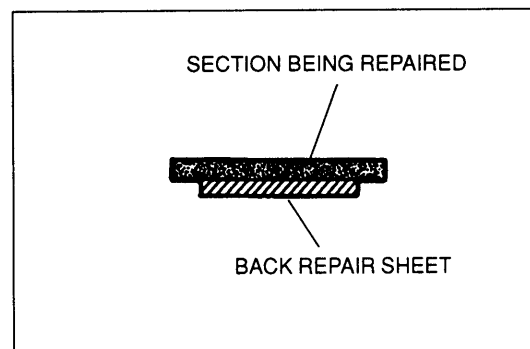
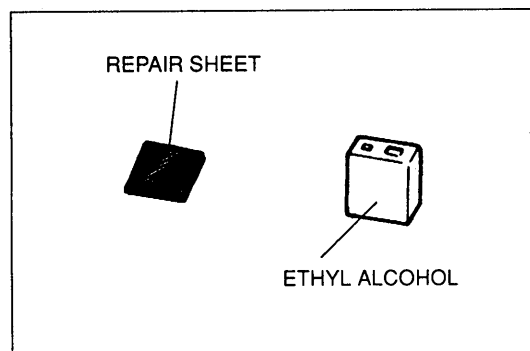
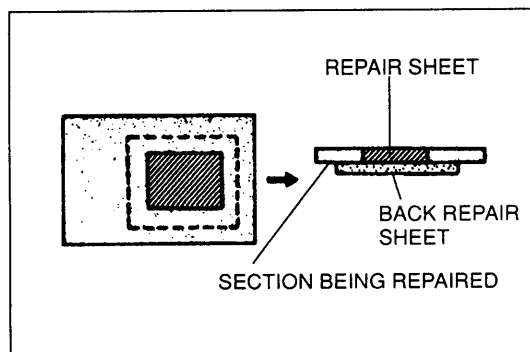
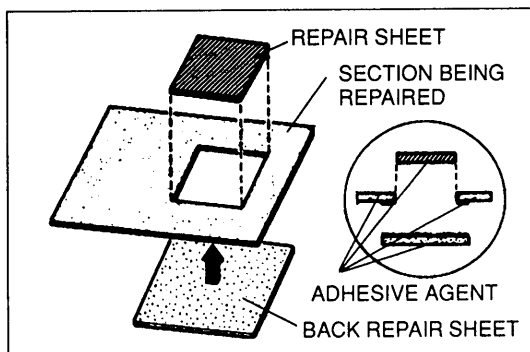
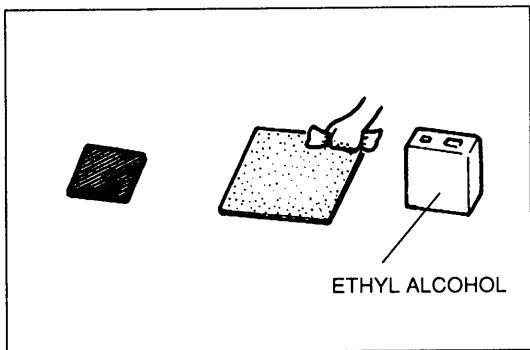


Repair Top fabric Holes

1. Place the repair sheet (NAY1 R1 211) over the damaged section. Cut both the top fabric and the repair sheet by using a razor knife and a straightedge.



2. Cut another piece of repair sheet larger than the first for use as a back repair sheet.
3. Trim the top fabric and the repair sheets by using scissors.



4. Decrease the repair sheets by using ethyl alcohol.

5. Apply a generous amount of adhesive agent (K180 W0 313) or equivalent to the section being repaired, the repair sheet, and the back repair sheet. Let stand for a few minutes.

6. Insert the repair sheet squarely into the section of the top fabric being repaired. Then install the back repair sheet from the underside of the top.

7. Press the repair sheets firmly together.

8. Let the top fabric stand until the adhesive agent is fully dry.

Tears

1. Cut a piece of repair sheet (NAY1 R1 211) larger than the damaged section for use as a back repair sheet.

2. Degrease the repair sheet by using ethyl alcohol.

3. Apply a generous amount of adhesive agent (K180 W0 313) or equivalent to the section being repaired and the back repair sheet. Let stand for a few minutes.

4. Install the back repair sheet from the underside of the top.

5. Press the repair sections firmly together.

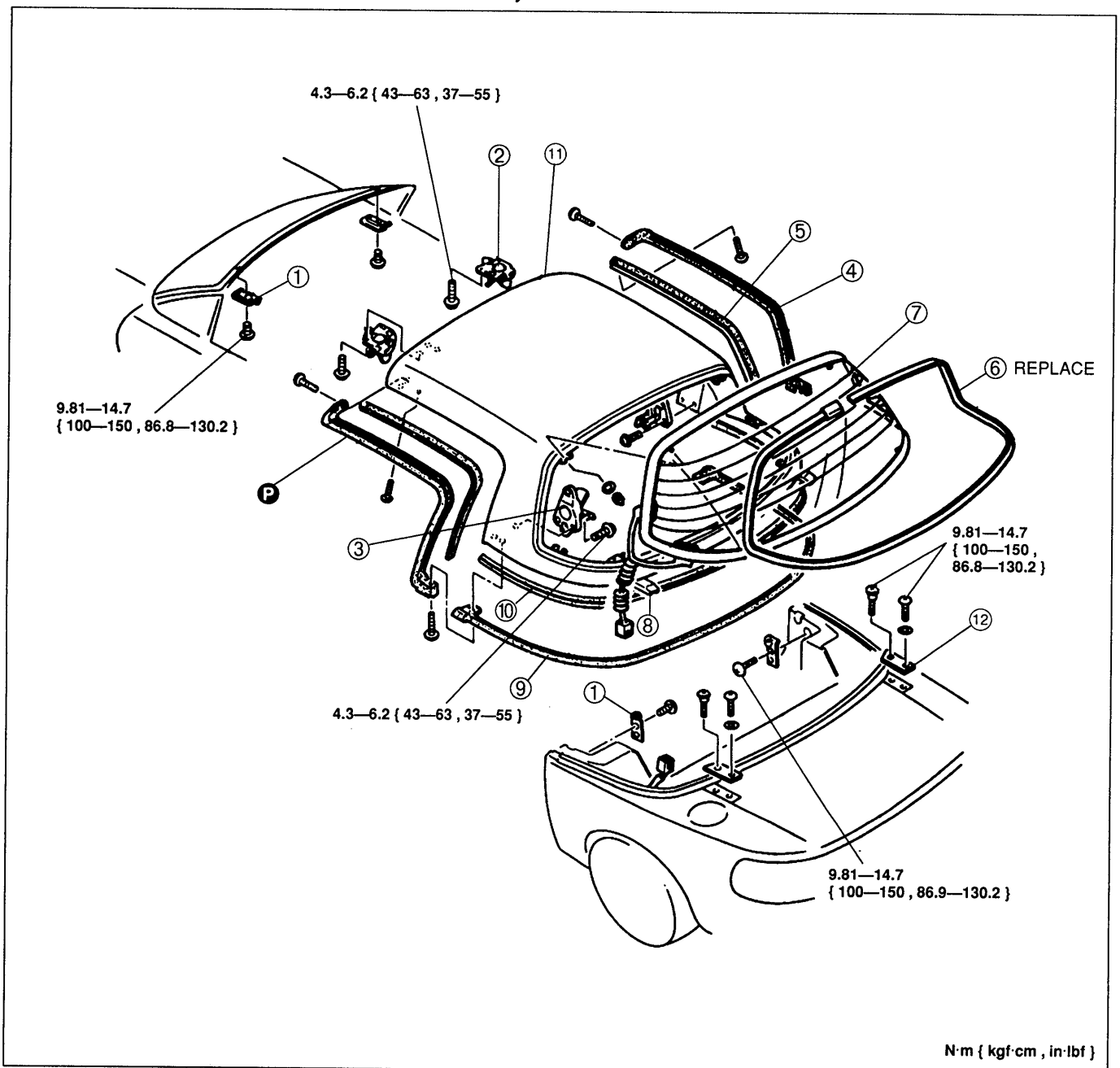
6. Let the top fabric stand until the adhesive agent is fully dry.

DETACHABLE HARDTOP

COMPONENTS

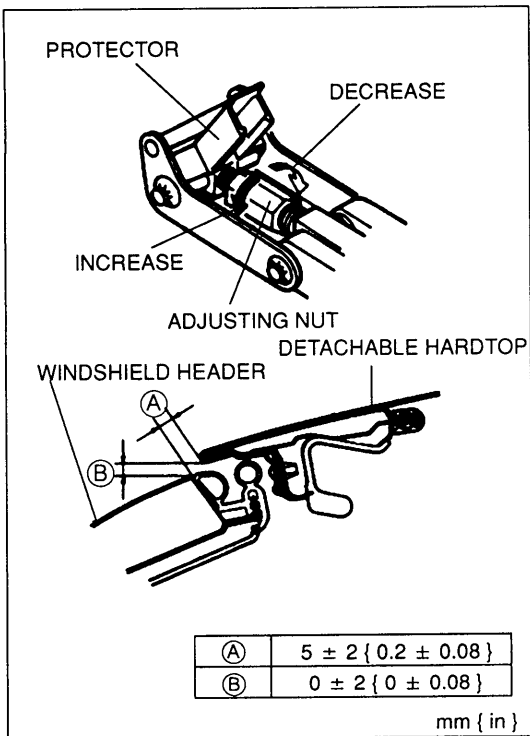
Disassembly / Assembly

1. Disassemble in the order shown in the figure.
2. Assemble in the reverse order of disassembly.

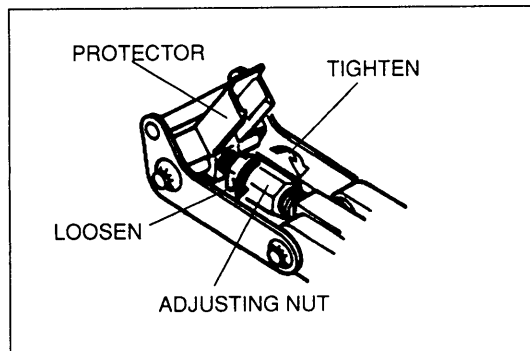


- | | |
|------------------------|-----------|
| 1. Striker | |
| 2. Top latch assembly | |
| Adjustment | page S-88 |
| 3. Side latch assembly | |
| Adjustment | page S-88 |
| 4. Weatherstrip | |
| Adjustment | page S-89 |
| 5. Retainer | |
| 6. Rear window molding | |
| Installation | page S-27 |

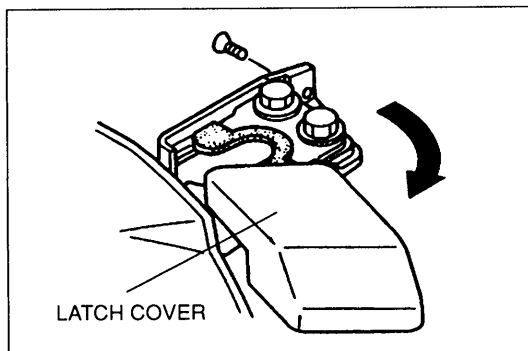
- | | |
|------------------------------|-----------|
| 7. Rear window glass | |
| Removal / Installation | page S-50 |
| 8. Rear deck latch assembly | |
| Adjustment | page S-88 |
| 9. Rear weatherstrip | |
| 10. Edge protector | |
| 11. Detachable hardtop | |
| 12. Rear deck plate | |

**Adjustment****Top latch assembly**

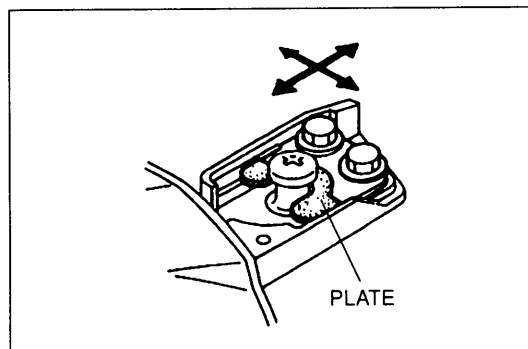
1. Lift the protector away from the top latch assembly adjusting nut.
2. Turn the adjusting nut clockwise to decrease clearance A and height B; turn the nut counterclockwise to increase them.
3. Secure the adjusting nut by using the protector.

**Side latch assembly**

1. Lift the protector away from the side latch assembly adjusting nut.
2. Turn the adjusting nut clockwise to tighten the striker and side latch assembly engagement; turn the nut counterclockwise to loosen the engagement.
3. Secure the adjusting nut by using the protector.

**Rear deck latch assembly**

1. Remove the screw and open the latch cover.



2. Loosen the plate mounting bolts.
3. Install the detachable hardtop to the body.
4. Move the plate right, left, fore, or aft until it is tight.
5. Tighten the plate mounting bolts.

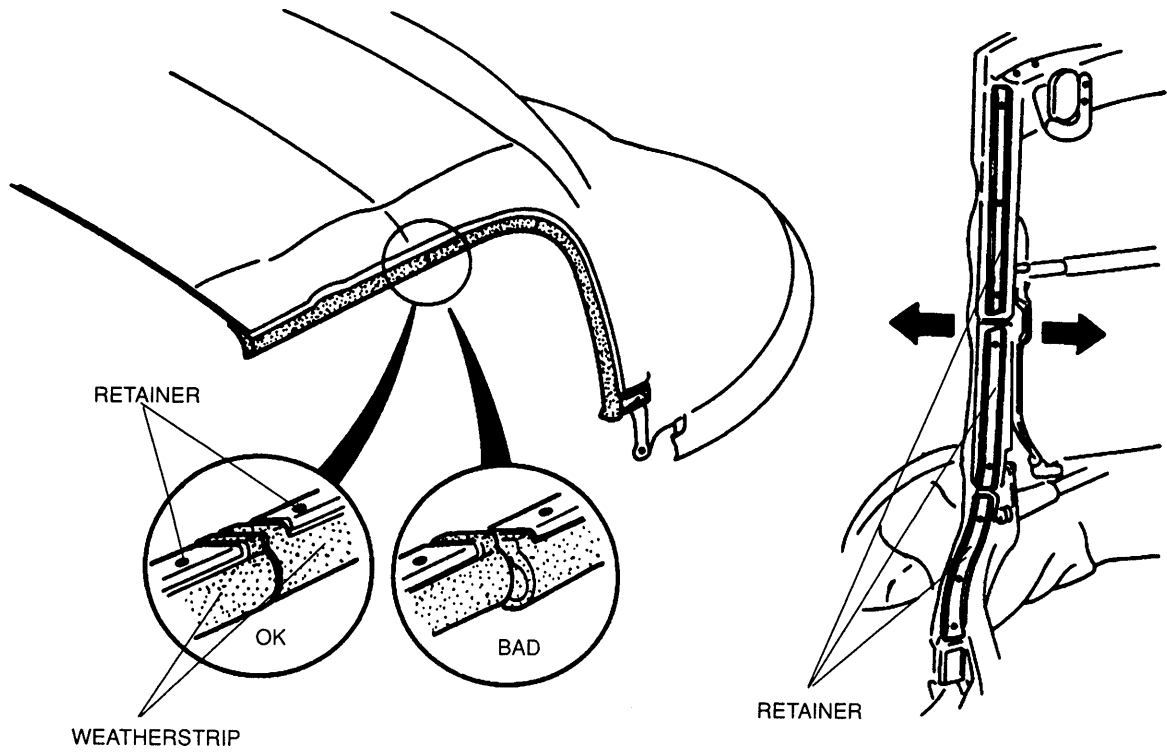
Tightening torque:

18—26 N·m { 1.8—2.7 kgf·m , 14—19 ft·lbf }

6. Close the latch cover and install the screw.

Weatherstrip

1. Remove the weatherstrip.
2. Loosen the retainer screws and adjust the retainer as necessary.
3. Tighten the screws and reinstall the weatherstrip.
4. Recheck the alignment.

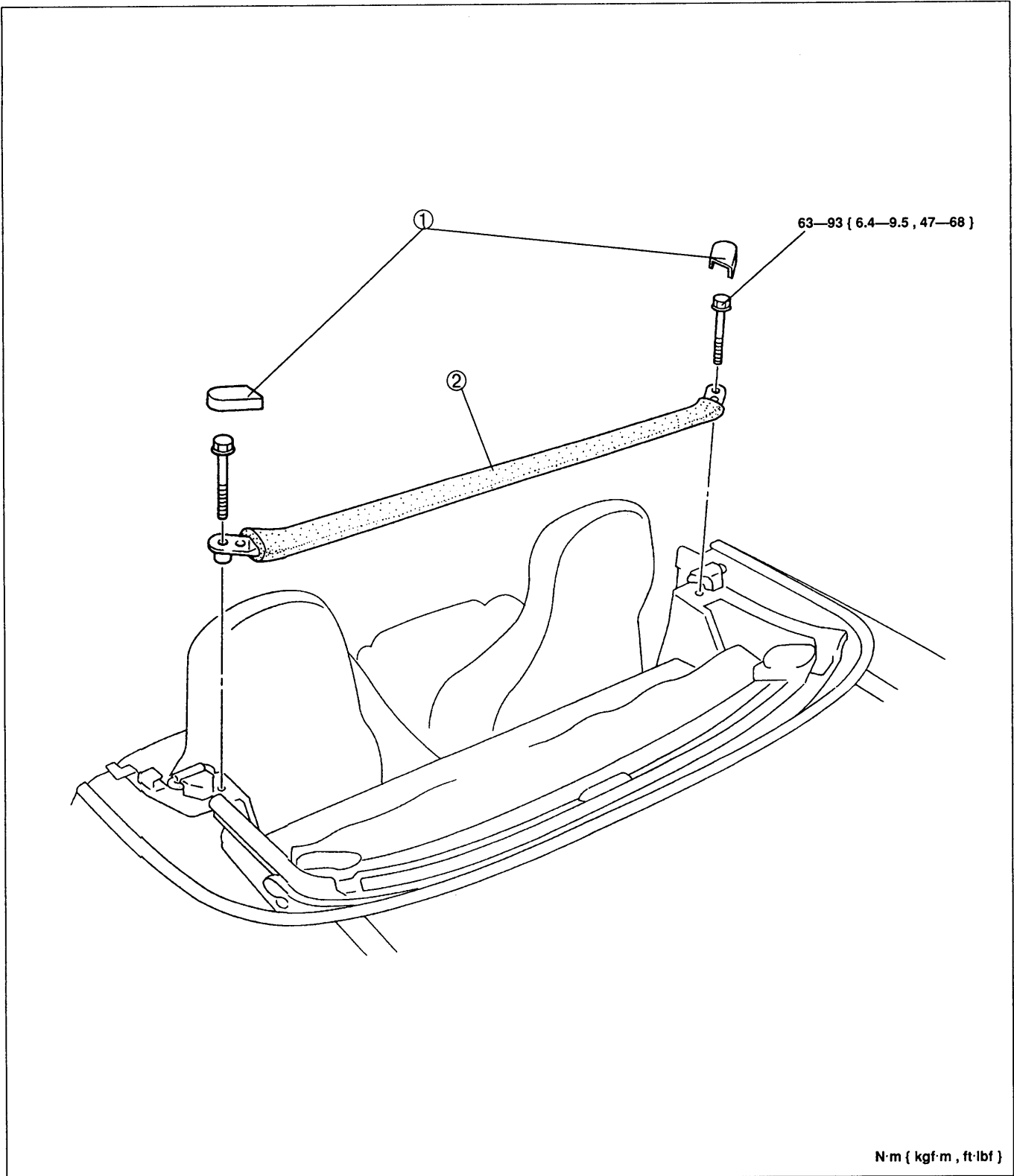


BRACE BAR

COMPONENTS

Removal / Installation

1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.



1. Cover

2. Brace bar

BODY ELECTRICAL SYSTEM

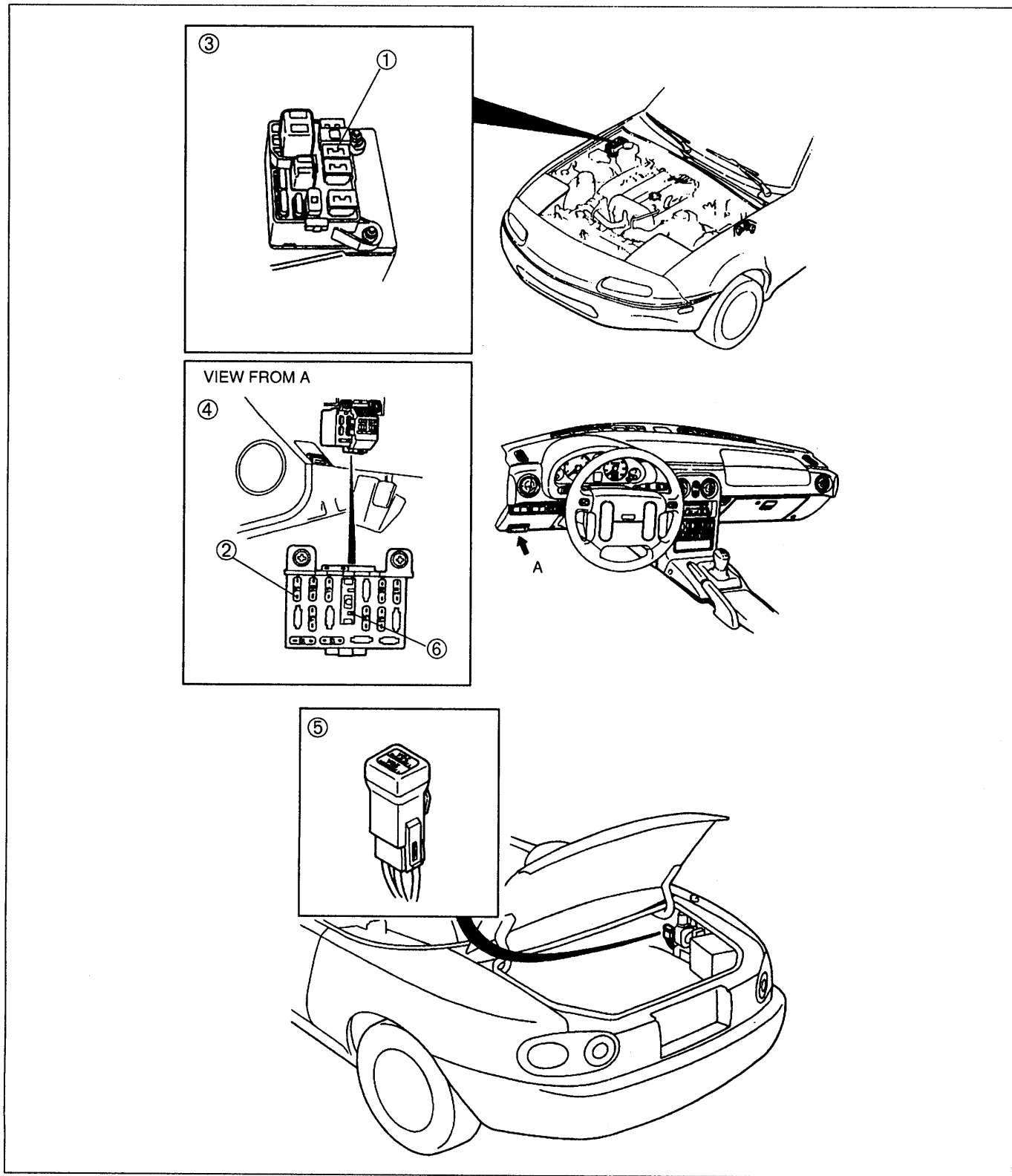
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AIR BAG MODULE DISPOSAL PROCEDURE	T-176
INSPECTION OF SST (DEPLOYMENT TOOL)	T-178

INDEX

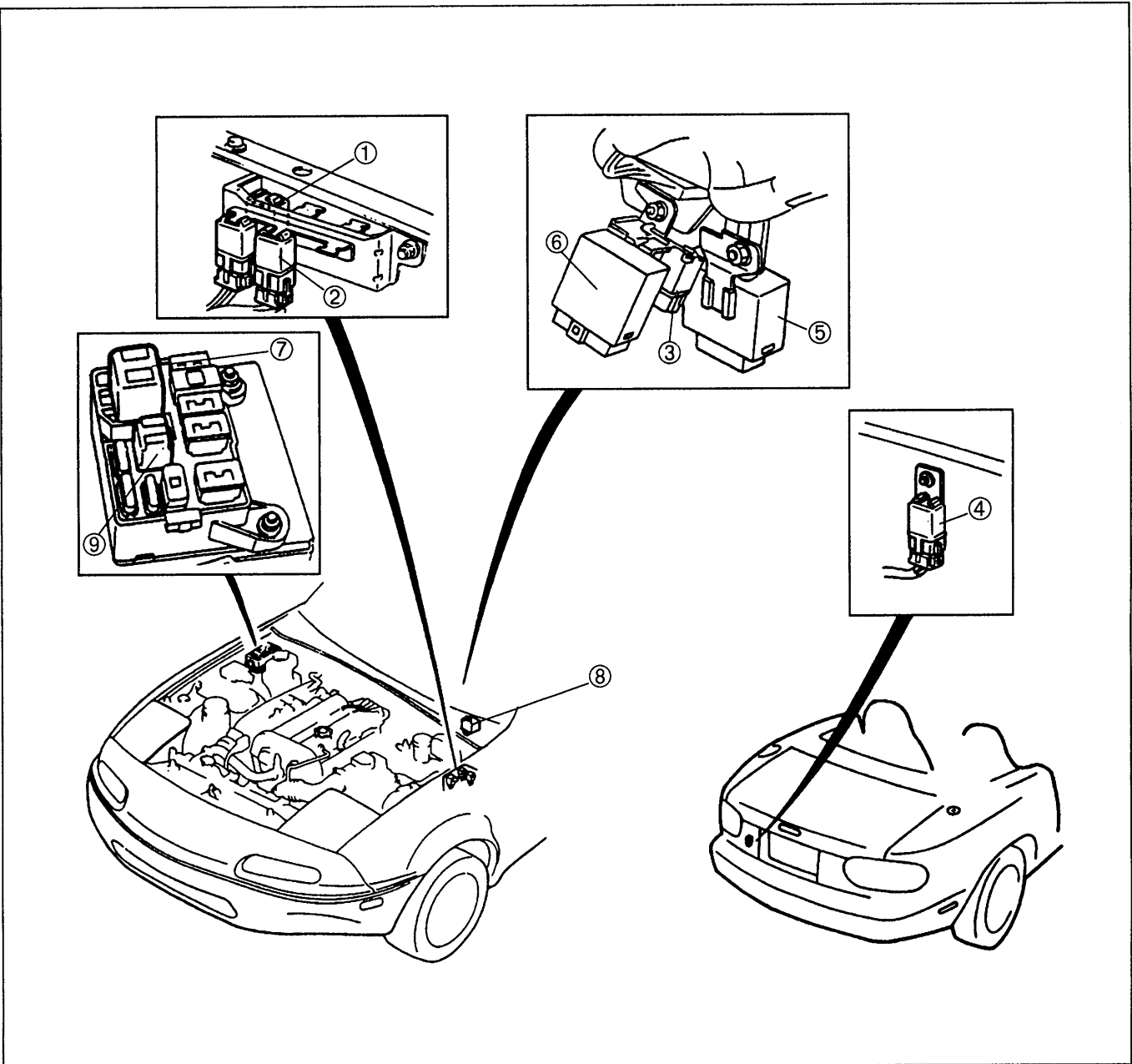
FUSE



- 1. Main fuse
Removal / Installation page T-18
- 2. Fuse (plate type)
Removal / Installation page T-18

- 3. Main fuse block
- 4. Fuse block No.1
- 5. Fuse block No.2
- 6. Circuit breaker

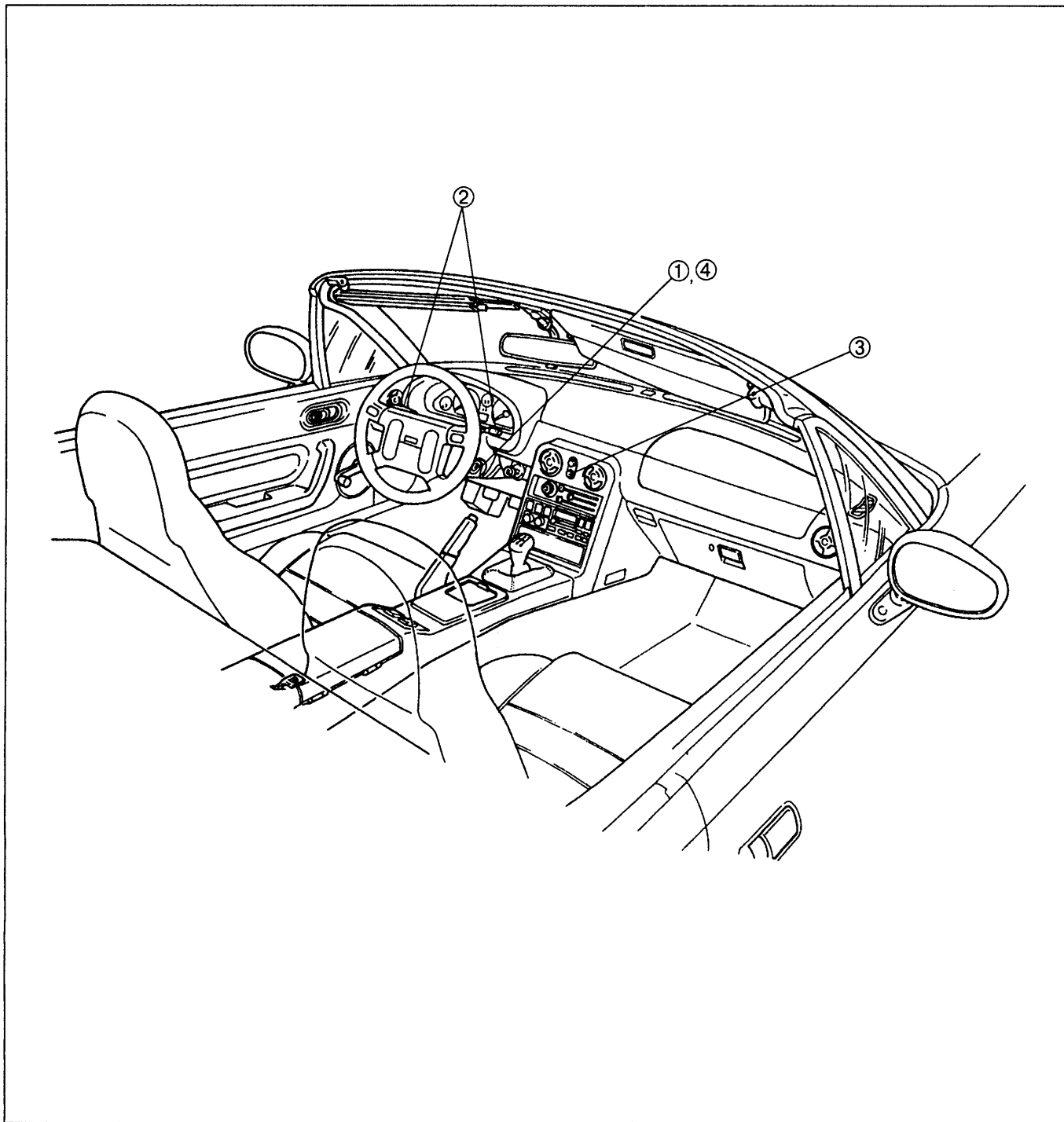
RELAY



- 1. Headlight relay
Inspection page T-20
- 2. TNS relay
Inspection page T-20
- 3. Horn relay
Inspection page T-20
- 4. Rear window defroster relay
Inspection page T-21

- 5. Retractable headlight relay
Inspection page T-21
- 6. Flasher unit
Inspection page T-22
- 7. EGI main relay
- 8. Circuit-opening relay
- 9. Coolant fan relay

SWITCH

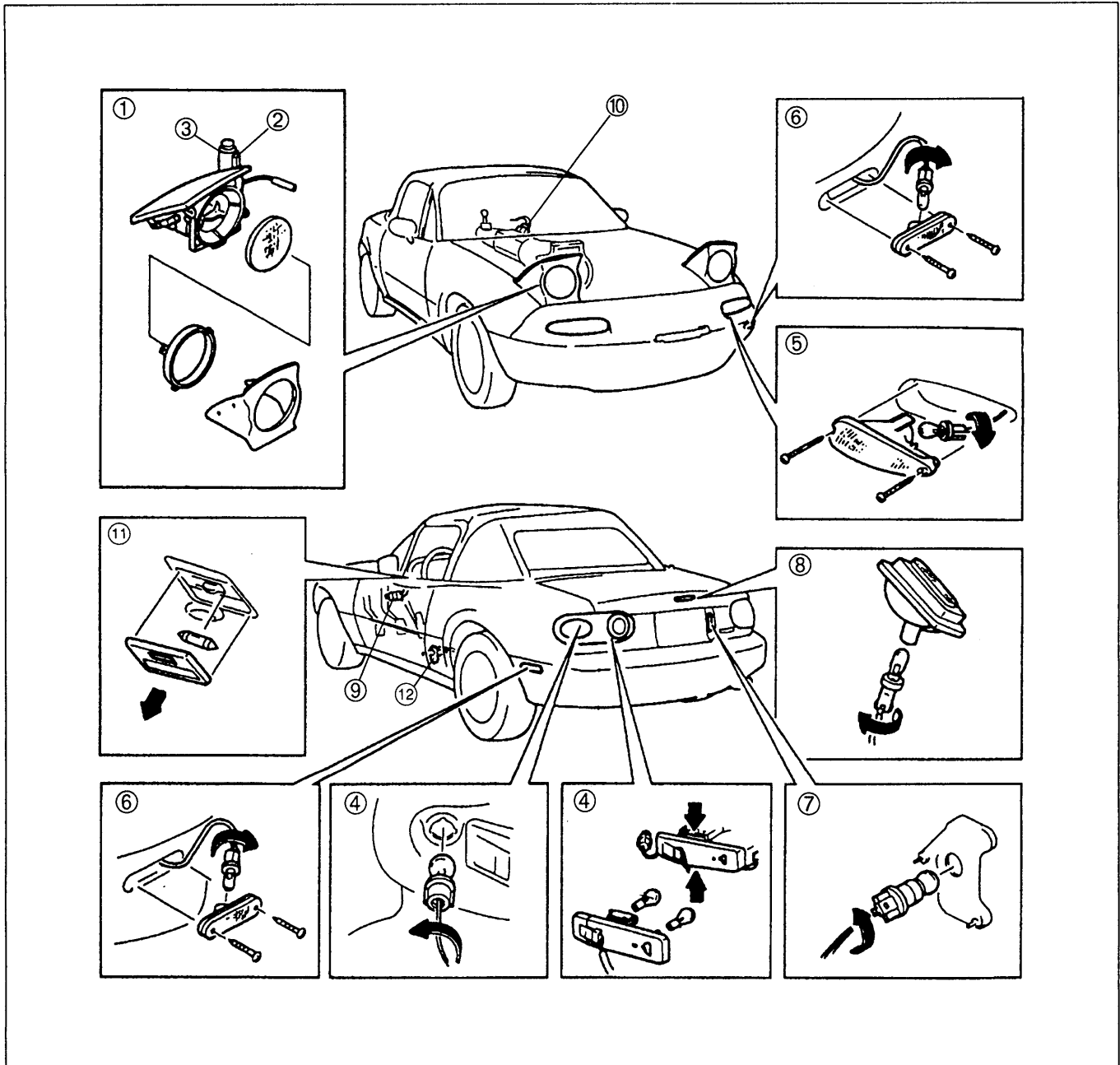


- 1. Ignition switch
 - Removal / Installation page T-24
 - Inspection page T-24
- 2. Combination switch
 - Removal / Installation page T-25
 - Inspection page T-26
 - Adjustment page T-28

- 3. Retractor and hazard warning switch
 - Removal / Installation page T-29
 - Inspection page T-29
- 4. Key reminder switch
 - Inspection page T-24

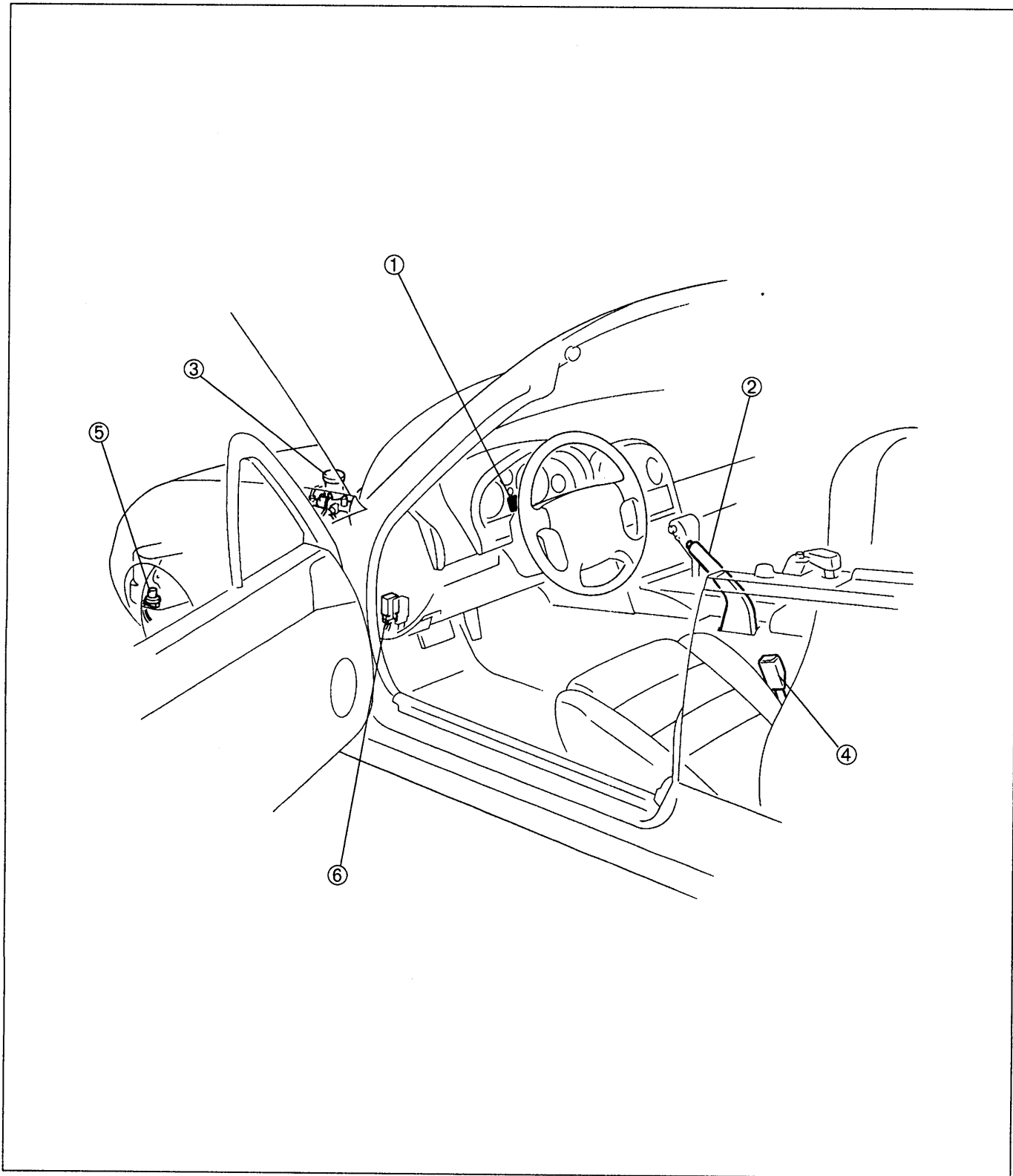
T

LIGHTING SYSTEM



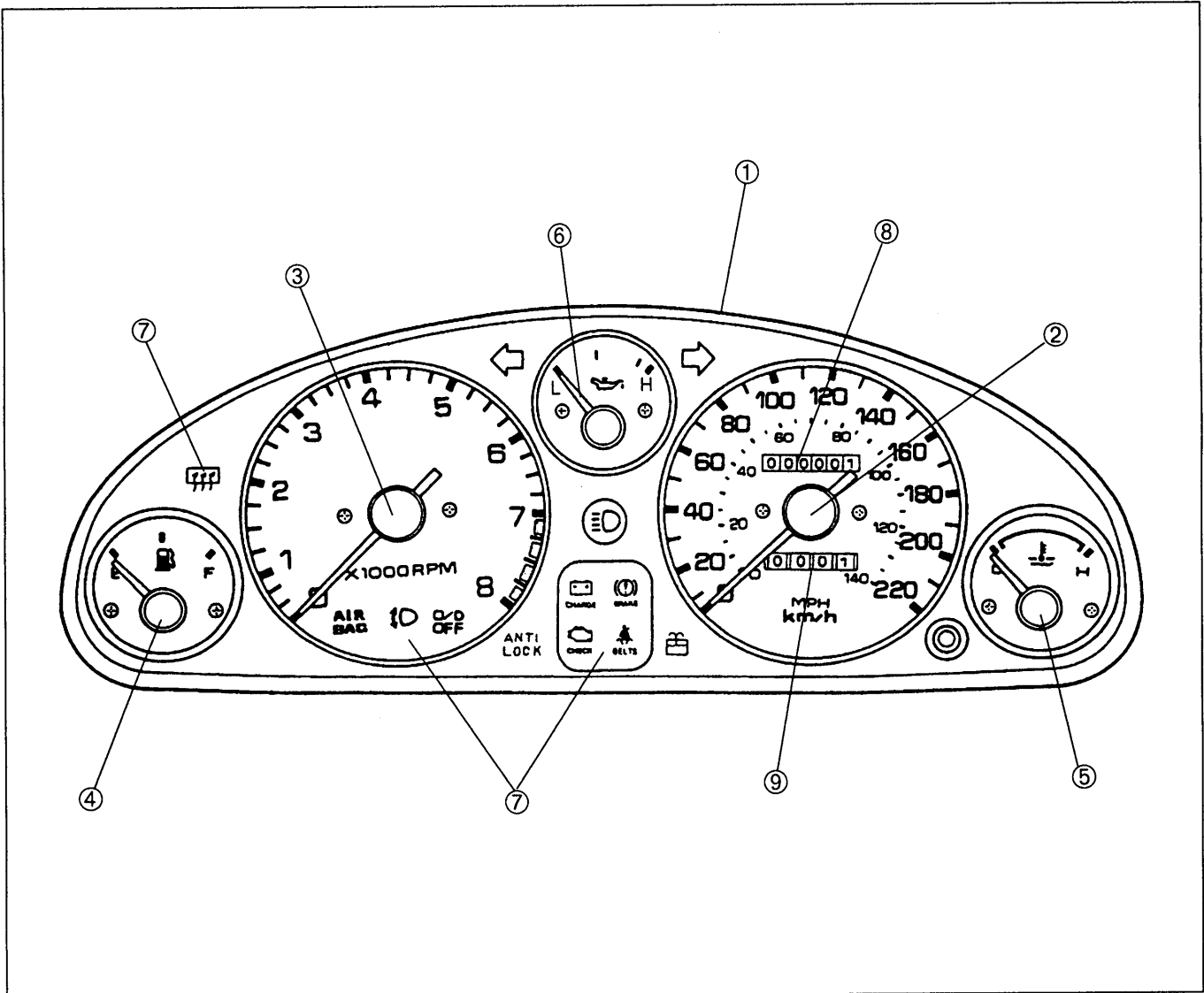
1. Headlight Removal / Installation page T-61 Aiming page T-61	7. Licence plate light Bulb replacement page T-66
2. Retractable hinge Adjustment page T-62	8. High-mount brake light Removal / Installation page T-65
3. Retractable headlight actuator Inspection page T-62	9. Brake switch Inspection page T-66
4. Rear combination light Removal / Installation page T-63 Bulb replacement page T-63 Disassembly page T-64 Assembly page T-64	10. Back-up light switch Inspection page T-66
5. Front combination light Removal / Installation page T-66	11. Interior light Removal / Installation page T-67
6. Side marker light Removal / Installation page T-66	12. Door switch Removal / Installation page T-67 Inspection page T-67

WARNING SYSTEM



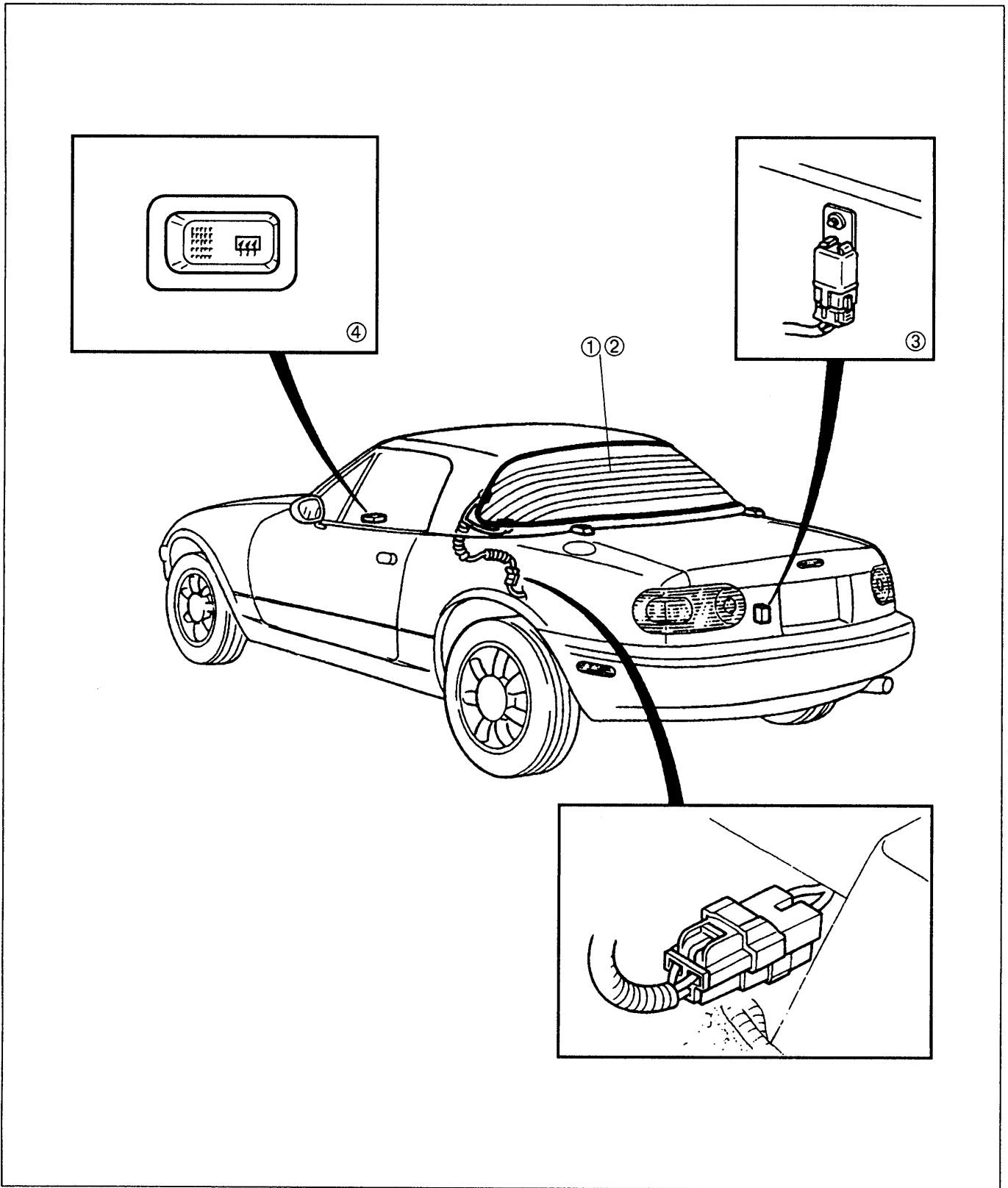
- | | |
|---|--|
| <p>1. Warning and indicator lights
(in instrument cluster)
Bulb replacement page T-76</p> <p>2. Parking brake switch
Inspection page T-77</p> <p>3. Brake fluid level sensor
Inspection page T-77</p> | <p>4. Buckle switch
Inspection page T-77</p> <p>5. Washer fluid-level sensor
Inspection page T-77</p> <p>6. Warning unit
Removal / Installation page T-78
Inspection page T-78</p> |
|---|--|

INSTRUMENT CLUSTER



- | | |
|---------------------------------|-----------|
| 1. Instrument cluster | |
| Removal / Installation | page T-87 |
| Disassembly / Assembly | page T-88 |
| 2. Speedometer | |
| Inspection | page T-89 |
| 3. Tachometer | |
| Inspection | page T-89 |
| 4. Fuel gauge | |
| Inspection | page T-90 |
| 5. Water temperature gauge | |
| Inspection | page T-89 |
| 6. Oil pressure gauge | |
| Inspection | page T-90 |
| 7. Warning and indicator lights | |
| Structural view | page T-76 |
| 8. Odometer | |
| 9. Tripmeter | |

REAR WINDOW DEFROSTER

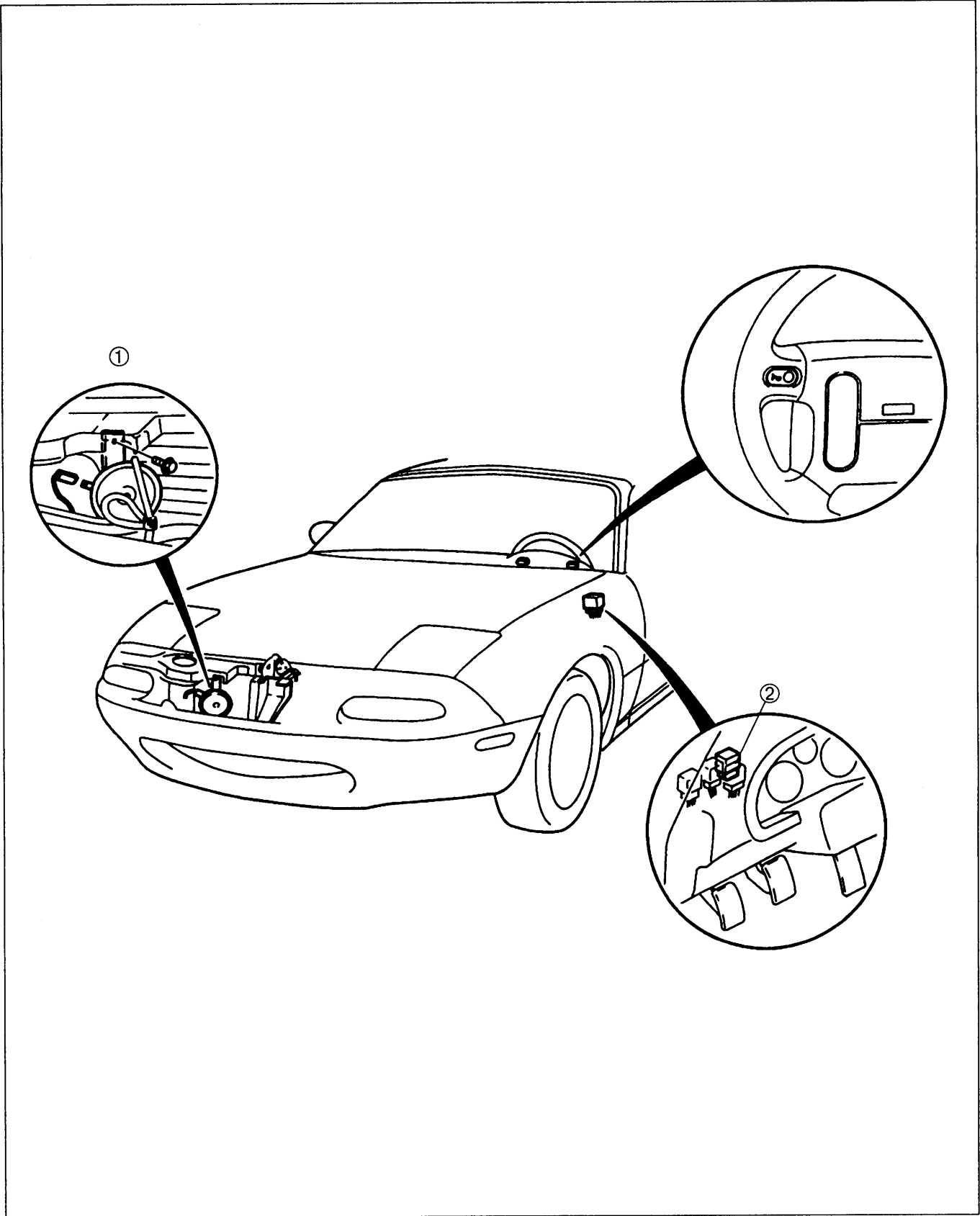


T

1. Rear window defroster	
Troubleshooting	page T-94
2. Filament	
Inspection	page T-97
Repair	page T-98

3. Rear window defroster relay	
Inspection	page T-98
4. Rear window defroster switch	
Inspection	page T-98

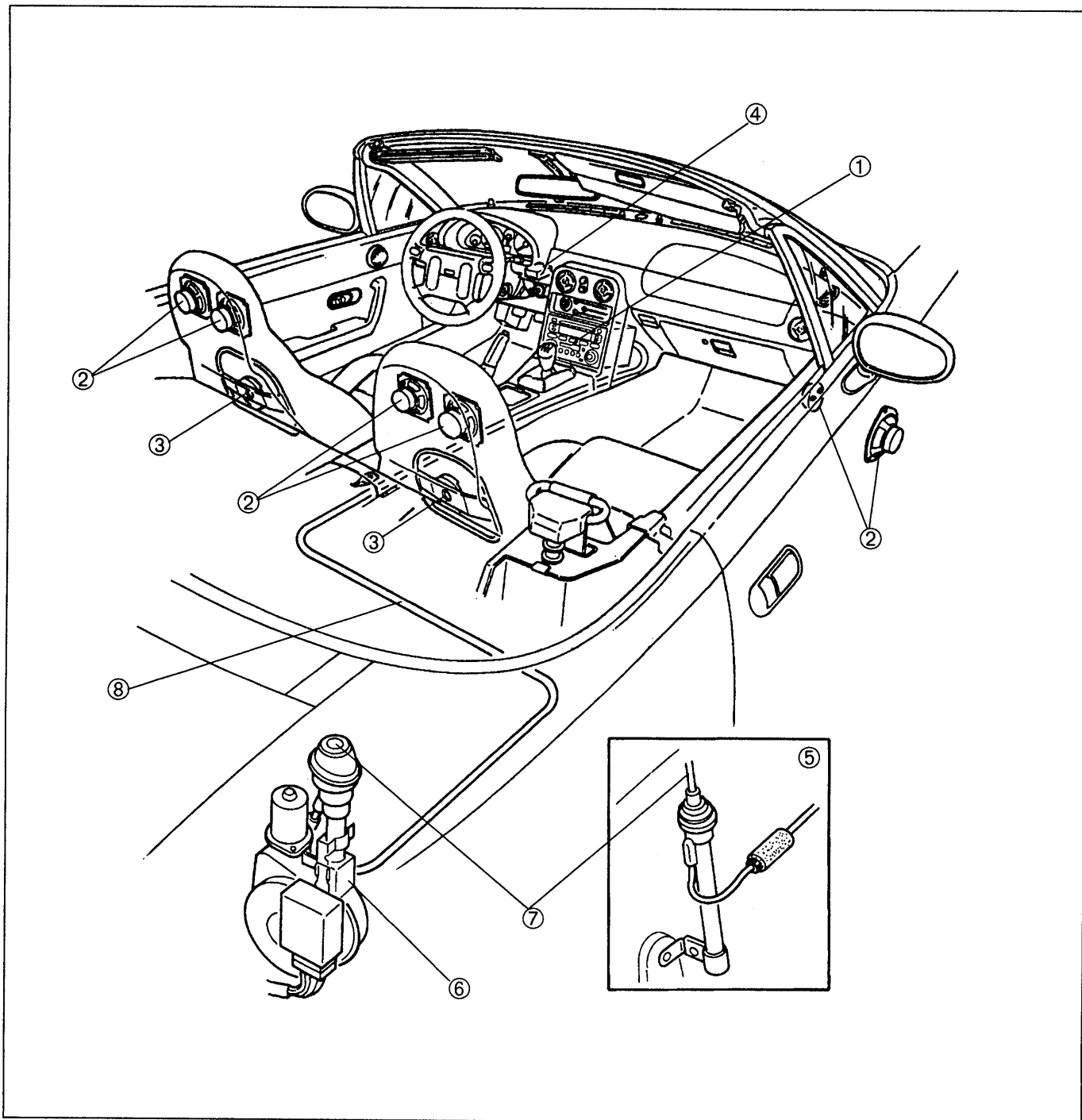
HORN



1. Horn
Removal / Installation page T-104
On-vehicle inspection page T-104

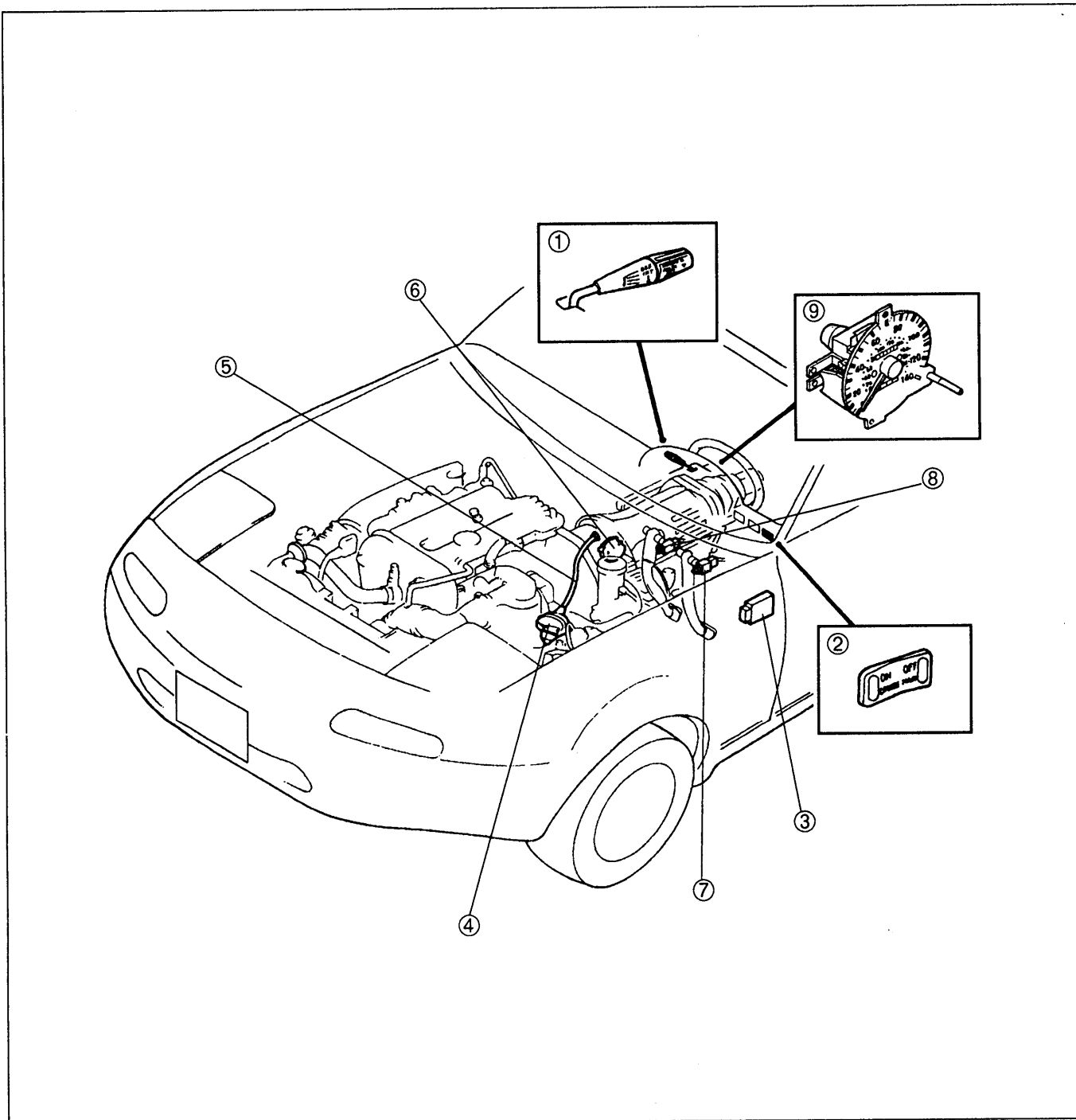
2. Horn relay
Inspection page T-104

AUDIO



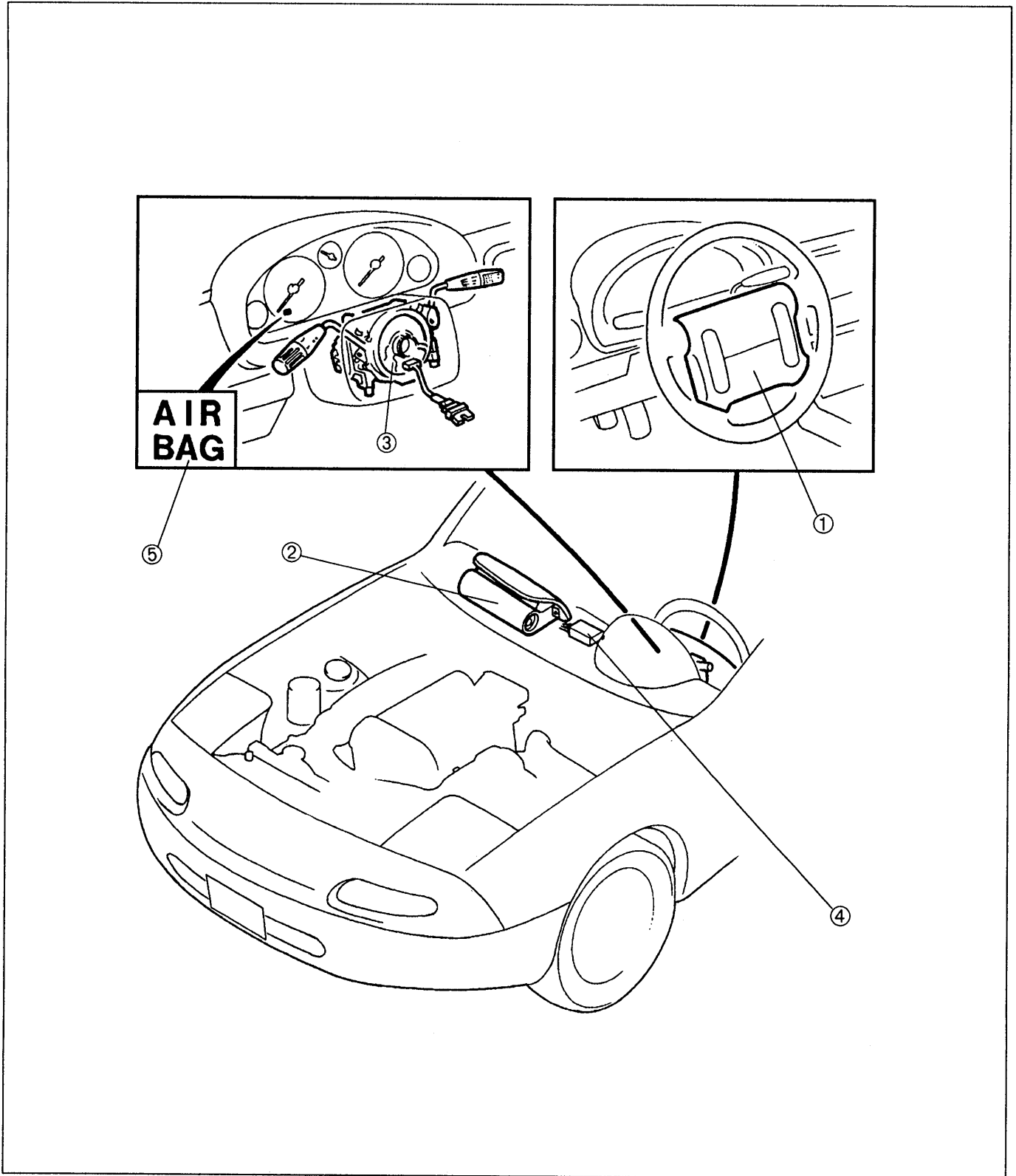
- | | | | |
|--|------------|---|------------|
| 1. Audio unit
Removal / Installation | page T-133 | 6. Power antenna
Removal / Installation | page T-140 |
| 2. Speaker
Removal / Installation | page T-134 | Disassembly / Assembly | page T-141 |
| Inspection | page T-136 | Inspection | page T-142 |
| 3. Bodysonic
Removal / Installation | page T-137 | 7. Antenna mast
Removal | page T-142 |
| Inspection | page T-137 | Installation | page T-143 |
| 4. Audio amplifier
Removal / Installation | page T-138 | 8. Antenna feeder
Removal / Installation | page T-143 |
| 5. Manual antenna
Removal / Installation | page T-139 | Inspection | page T-144 |

CRUISE CONTROL SYSTEM



- | | |
|---|--|
| <p>1. Cruise control switch
Inspection page T-157</p> <p>2. Cruise control main switch
Removal / Installation page T-157
Inspection page T-157</p> <p>3. Cruise control module
Removal / Installation page T-153
Terminal voltage list page T-153</p> <p>4. Cruise actuator
Removal / Installation page T-154
Inspection page T-154</p> | <p>5. Actuator cable
Removal / Installation page T-155
Adjustment page T-155</p> <p>6. Transmission range switch (AT)
Inspection page T-156</p> <p>7. Clutch switch (MT)
Inspection page T-156</p> <p>8. Brake switch
Inspection page T-156</p> <p>9. Vehicle speed sensor
Inspection page T-156</p> |
|---|--|

AIR BAG SYSTEM



- | | |
|--|--|
| <p>1. Driver-side air bag module
 Removal / Installation page T-172
 Disposal procedure page T-176</p> <p>2. Passenger-side air bag module
 Removal / Installation page T-173
 Disposal procedure page T-176</p> | <p>3. Clock spring
 Inspection page T- 27</p> <p>4. SAS-unit
 Removal / Installation page T-174</p> <p>5. Air bag system warning light</p> |
|--|--|

TROUBLESHOOTING GUIDE

TROUBLESHOOTING INDEX

System		Symptom	Reference page
Lighting system	Headlights	Headlights do not illuminate	T-32
		One headlight does not illuminate	T-34
		Retractable headlight actuators do not operate	T-35
		One retractable headlight actuator does not operate	T-37
	Brake lights	Brake lights do not illuminate	T-39
		One brake light does not illuminate	T-40
	Turn and hazard warning lights	Turn and hazard warning functions do not operate	T-42
		Turn signal function does not operate (hazard warning function operates normally)	T-45
		Hazard warning function does not operate (turn signal function operates normally)	T-47
	Back-up lights	Back-up lights do not illuminate	T-49
	Taillights, side marker lights, parking lights and licence plate lights	Taillights, side marker lights, and licence plate lights do not illuminate	T-52
	Daytime running lights (Canada)	Daytime running lights (DRL) do not illuminate (turn signal function operates normally)	T-55
		Daytime running lights (DRL) function do not cancel	T-56
Interior light	Interior light does not illuminate	T-59	
Warning system	Brake system warning light remains illuminated	T-70	
	Brake system warning light does not illuminate when parking brake is on and ignition switch is at ON	T-71	
	Brake system warning light does not illuminate when brake fluid in reservoir tank is below MIN	T-71	
	O/D OFF indicator light does not illuminate when O/D OFF switch is turned on	T-73	
	Seat belt warning light remains on six seconds after ignition switch is turned to ON (timer function does not operate)	T-73	
	Seat belt warning light does not illuminate when ignition switch is turned to ON	T-74	
Instrument cluster	Speedometer does not operate or indication is incorrect	T-81	
	Tachometer does not operate	T-82	
	Water temperature gauge does not operate or is incorrect	T-83	
	Fuel gauge does not operate or is incorrect	T-84	
	Oil pressure gauge does not operate or is incorrect	T-85	
Rear window defroster	Rear window defroster does not operate	T-95	
Horn	Horns do not sound	T-101	
	Only one horn sounds	T-103	

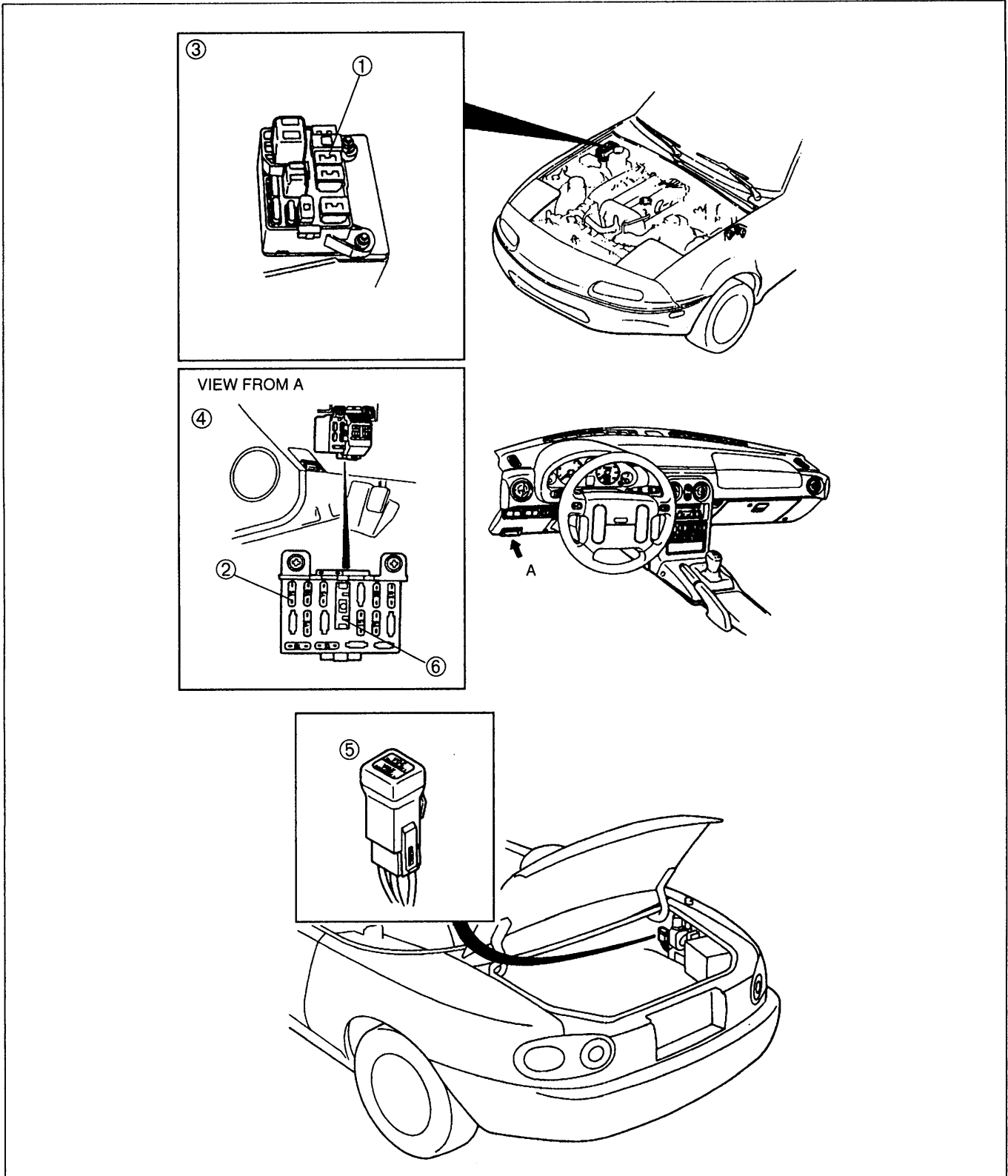
System	Symptom	Reference page
Audio	No sound can be heard	T-110
	Speaker(s) do not operate (without headrest speakers)	T-112
	Speaker(s) do not operate (with headrest speakers)	T-114
	Some speakers do not operate (with bodysonic)	T-117
	Bodysonic will not play	T-121
	Poor sound quality when radio is played	T-123
	Cassette tape will not load	T-124
	Cassette tape will not play	T-126
	Compact disc will not load	T-127
	Compact disc skips	T-128

System	Mode of on-board diagnostic	Symptom	Code No.	Reference page
Cruise control system	Condition detection mode	Diagnostic trouble code indicated	01	T-151
			05	
			07	
			11	
			15	
	Operation mode	Diagnostic trouble code not indicated	21	T-152
			22	
			31	
			35	
			37	

System	Code No.	Malfunction location	Reference page
Air bag system	0	SAS-unit	T-167
	3	Power source circuit	T-168
	6	Driver-side air bag module	T-169
	7	Passenger-side air bag module	T-171

FUSE

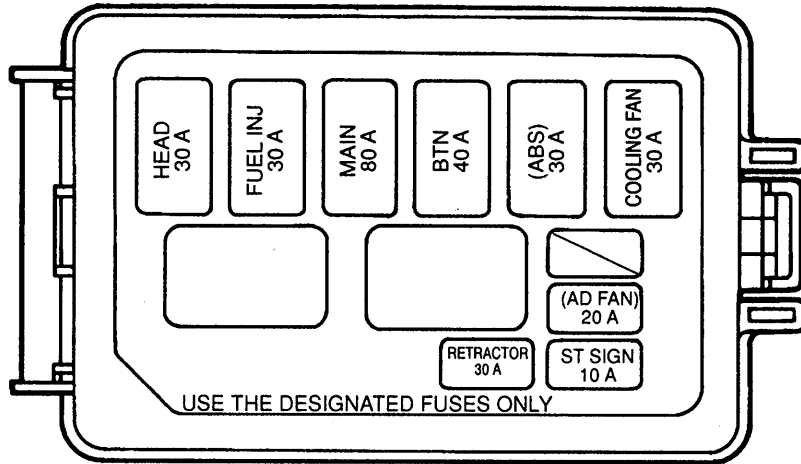
STRUCTURAL VIEW



- 1. Main fuse
Removal / Installation page T-18
- 2. Fuse (plate type)
Removal / Installation page T-18

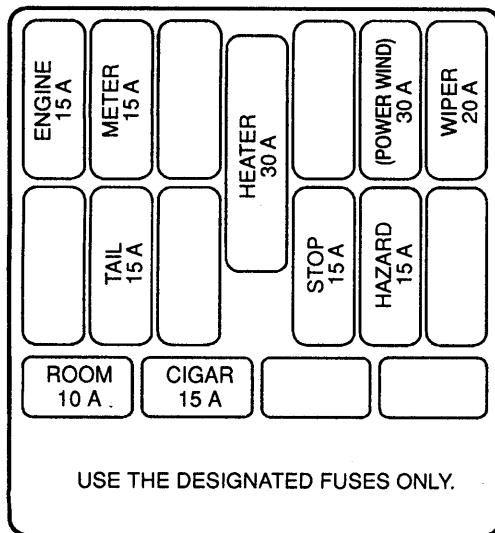
- 3. Main fuse block
- 4. Fuse block No.1
- 5. Fuse block No.2
- 6. Circuit breaker

SPECIFICATIONS
Main Fuse Block

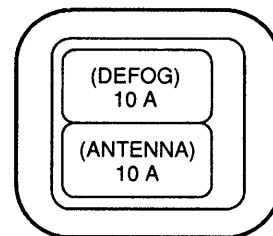


Fuse Block

FUSE BLOCK No.1



FUSE BLOCK No.2

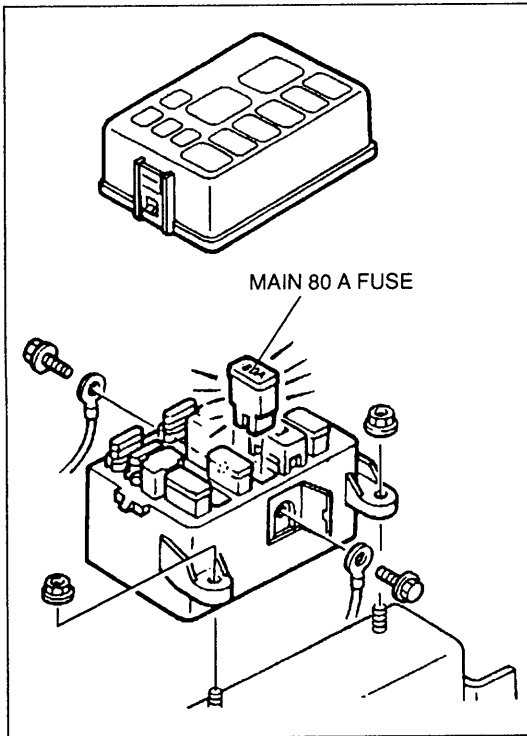


DESCRIPTION**Main Fuse Block**

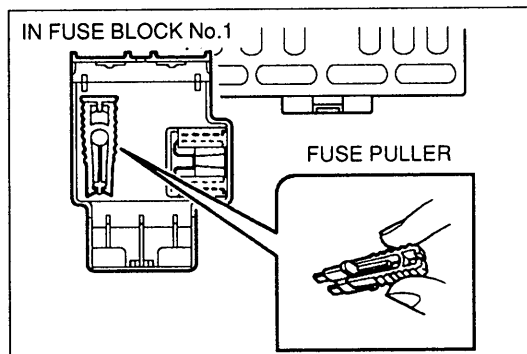
The main fuse block is located on the right side of the engine compartment and contains nine fuses and two relays.

Fuse Block

Fuse block No.1 is located above the footrest of the driver side. The fuse block cover shows the specified fuse locations. A circuit breaker is included in the fuse block to protect the blower motor circuit. Fuse block No.2 is located to the side of the battery in the trunk compartment.

**MAIN FUSE****Removal / Installation**

1. Deactivate the audio antitheft system, if installed. (Refer to page T-129.)
2. Disconnect the negative battery cable.
3. Remove the main fuse block mounting nuts, and remove the service cover.
4. Remove the MAIN 80 A fuse mounting bolts, and pull out the MAIN 80 A fuse.
5. Install in the reverse order of removal.

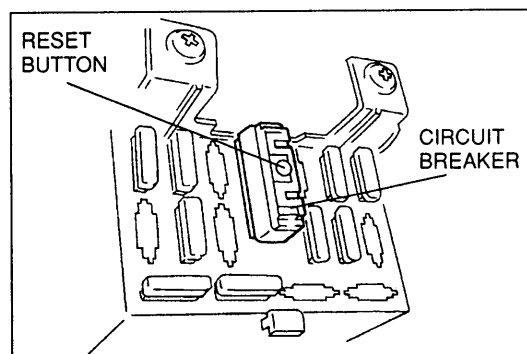
**FUSE (PLATE TYPE)****Removal / Installation**

1. Remove the fuse by using the fuse puller.

Caution

- Determine and correct the cause of a burnt fuse before replacing it. If the fuse is replaced before doing this, it may burn again.

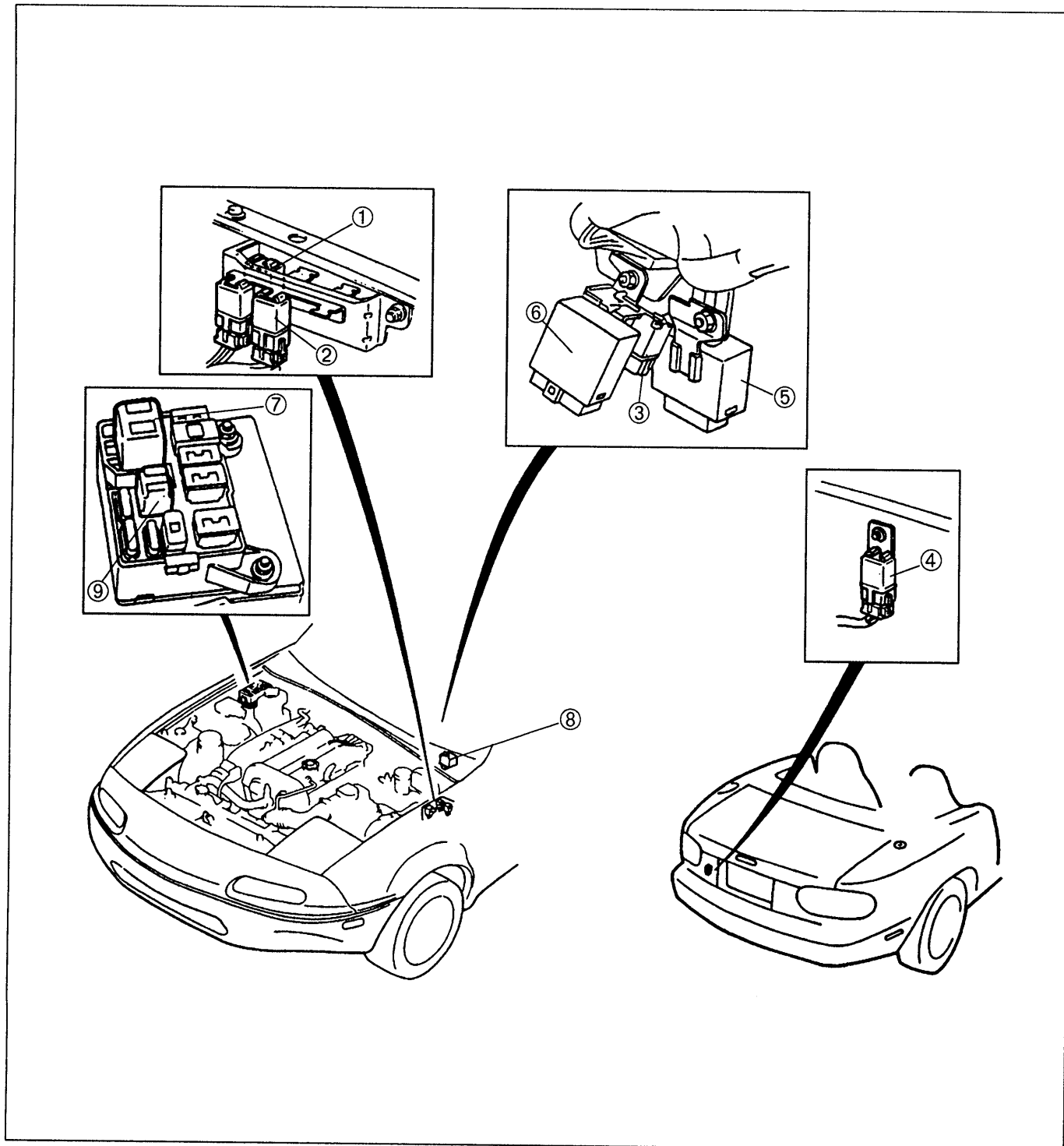
2. Install the fuse.

**CIRCUIT BREAKER**

1. If a circuit breaker opens, find and repair the cause before trying to reset it.
2. Press the reset button to reset the circuit breaker.

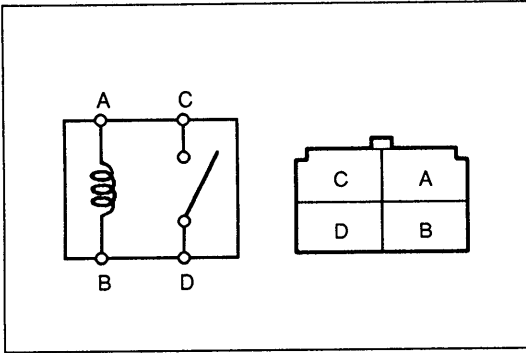
RELAY

STRUCTURAL VIEW



- 1. Headlight relay
Inspection page T-20
- 2. TNS relay
Inspection page T-20
- 3. Horn relay
Inspection page T-20
- 4. Rear window defroster relay
Inspection page T-21

- 5. Retractable headlight relay
Inspection page T-21
- 6. Flasher unit
Inspection page T-22
- 7. EGI main relay
- 8. Circuit-opening relay
- 9. Coolant fan relay



HEADLIGHT RELAY

Inspection

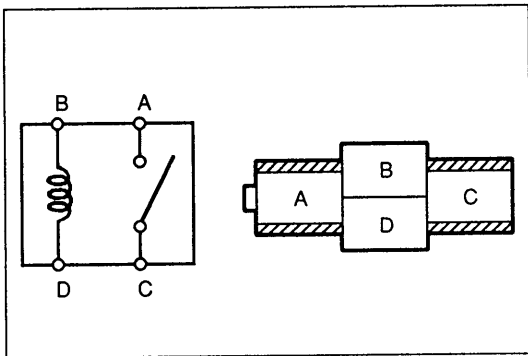
1. Remove the headlight relay.
2. Apply battery positive voltage and check for continuity between the relay terminals.

B+: Battery positive voltage

Step \ Terminal	A	B	C	D
1	○—○	○—○		
2	B+	GND	○—○	○—○

○—○: Continuity

3. If not as specified, replace the headlight relay.



TNS RELAY

Inspection

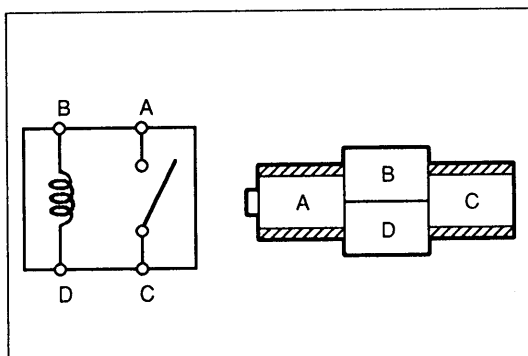
1. Remove the TNS relay.
2. Apply battery positive voltage and check for continuity between the relay terminals.

B+: Battery positive voltage

Step \ Terminal	A	C	B	D
1			○—○	○—○
2	○—○	○—○	B+	GND

○—○: Continuity

3. If not as specified, replace the TNS relay.



HORN RELAY

Inspection

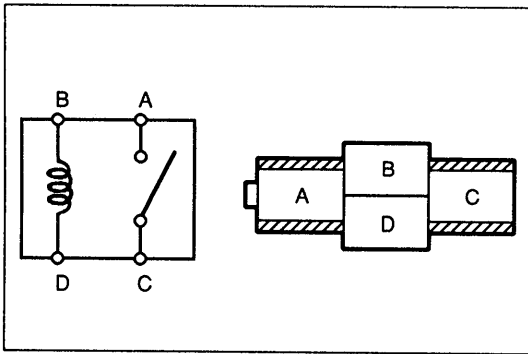
1. Remove the horn relay.
2. Apply battery positive voltage and check for continuity between the relay terminals.

B+: Battery positive voltage

Step \ Terminal	A	C	B	D
1			○—○	○—○
2	○—○	○—○	B+	GND

○—○: Continuity

3. If not as specified, replace the horn relay.



REAR WINDOW DEFROSTER RELAY

Inspection

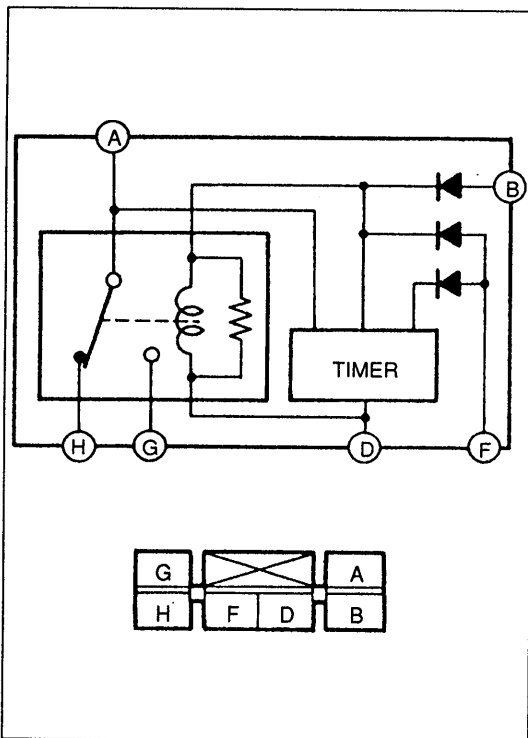
1. Remove the rear window defroster relay.
2. Apply battery positive voltage and check for continuity between the relay terminals.

B+: Battery positive voltage

Step \ Terminal	A	C	B	D
1			○—○	○—○
2	○—○	○—○	B+	GND

○—○: Continuity

3. If not as specified, replace the rear window defroster relay.



RETRACTABLE HEADLIGHT RELAY

Inspection

1. Remove the retractable headlight relay.
2. Apply battery positive voltage and check for continuity between the relay terminals.

B+: Battery positive voltage

Step \ Terminal	A	H	G	B	D	F
1	○—○			○—○	○—○	○—○
2	○—○		○—○	B+	GND	

○—○: Continuity ◀: Diode

3. If not as specified, replace the retractable headlight relay.

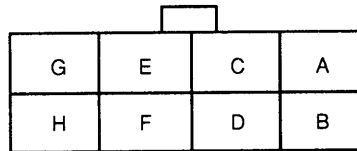
FLASHER UNIT

Inspection

1. Measure the voltage at the flasher unit terminals as indicated below.
2. If not as specified, inspect the parts listed under "Inspection area" and the related wiring harnesses.
3. If the parts and wiring harnesses are OK but the system still does not work properly, replace the flasher unit.

Terminal voltage list

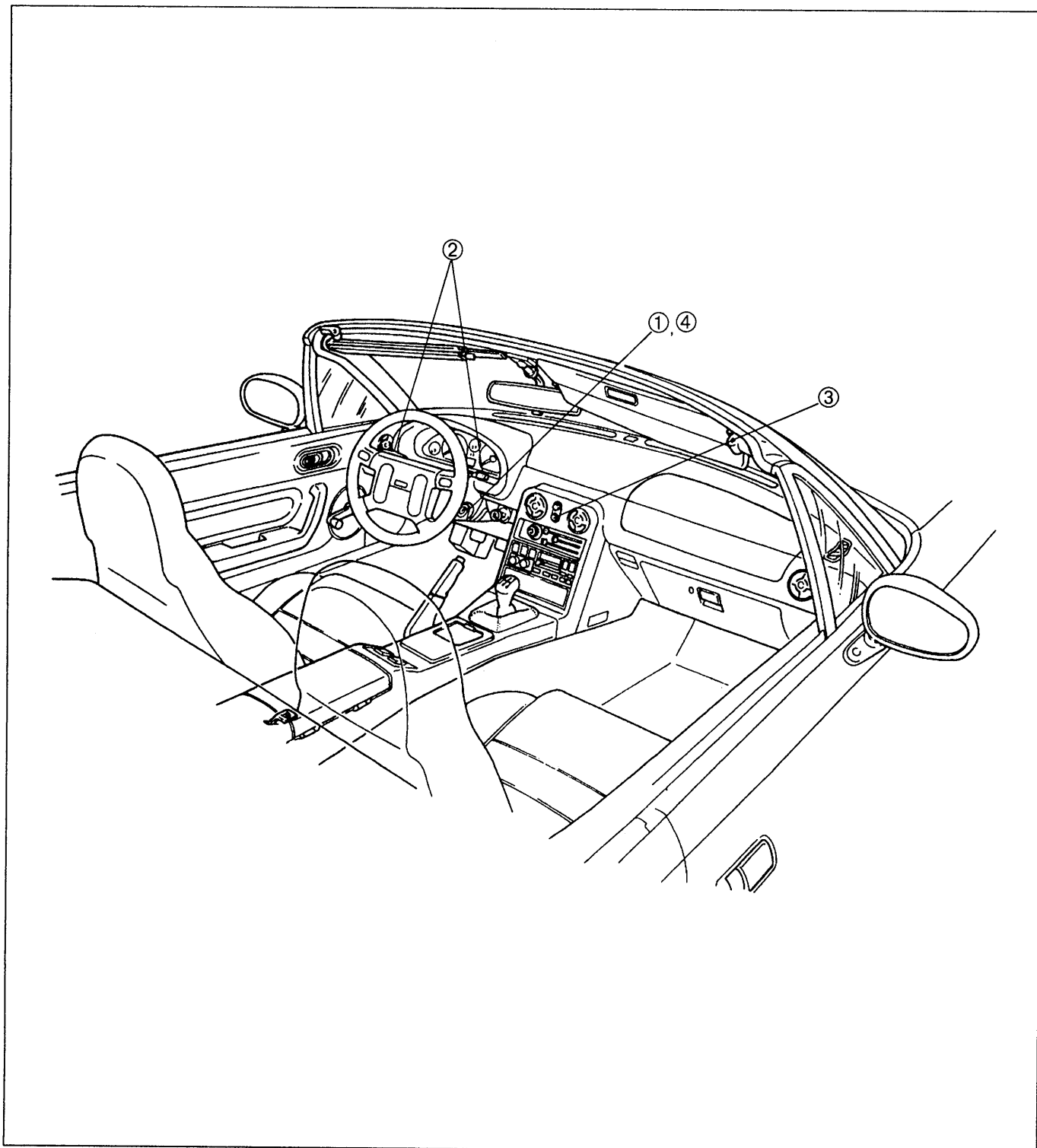
B+: Battery positive voltage



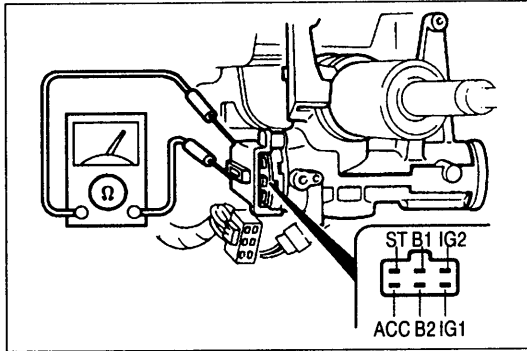
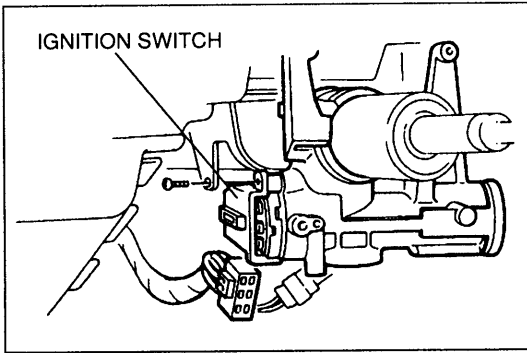
Terminal	Connection	Test condition	Voltage/ Continuity	Inspection area
A	GND	Constant: check for continuity to ground	Yes	GND
B	—	—	—	—
C	Hazard warning switch	Hazard warning switch: on	0 V	Hazard warning switch
		Hazard warning switch: off	B+	
D	Turn signal light (LH)	Turn signal light (LH) flashes	Alternates 0 V and B+	Turn signal light (LH)
		Other	0 V	
E	Turn switch (RH)	Ignition switch and turn switch (RH): on	B+	Turn switch (RH)
		Other	0 V	
F	Turn switch (LH)	Ignition switch and turn switch (LH): on	B+	Turn switch (LH)
		Other	0 V	
G	Turn signal light (RH)	Turn signal light (RH) flashes	Alternates 0 V and B+	Turn signal light (RH)
		Other	0 V	
H	B+	Constant	B+	HAZARD 15 A fuse

SWITCH

STRUCTURAL VIEW



- | | |
|--|-----------|
| 1. Ignition switch | |
| Removal / Installation | page T-24 |
| Inspection | page T-24 |
| 2. Combination switch | |
| Removal / Installation | page T-25 |
| Inspection | page T-26 |
| Adjustment | page T-28 |
| 3. Retractor and hazard warning switch | |
| Removal / Installation | page T-29 |
| Inspection | page T-29 |
| 4. Key reminder switch | |
| Inspection | page T-24 |



IGNITION SWITCH

Removal / Installation

1. Deactivate the audio antitheft system, if installed. (Refer to page T-129.)
2. Disconnect the negative battery cable.
3. Remove the column covers.
4. Remove the screw and the ignition switch.
5. Install in the reverse order of removal.

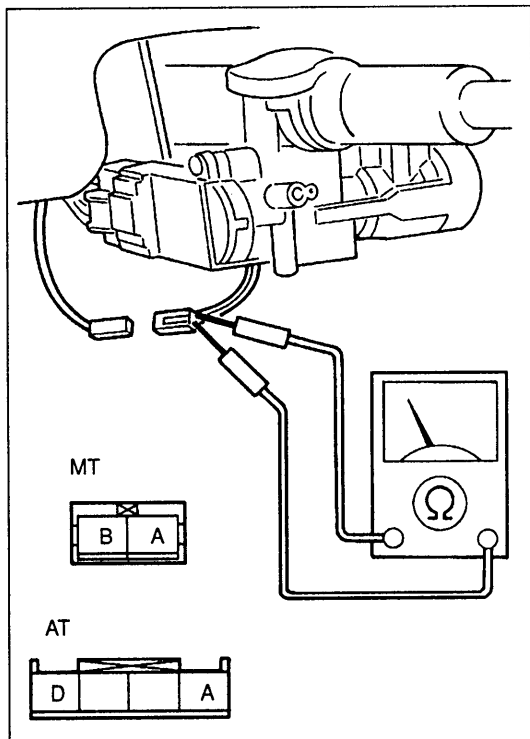
Inspection

1. Check for continuity between the switch terminals.

Terminal / Switch position	B1	B2	ACC	IG1	IG2	ST
LOCK						
ACC	○		○			
ON	○	○	○	○	○	
START	○	○		○		○

○—○: Continuity

2. If not as specified, replace the ignition switch.



KEY REMINDER SWITCH

Inspection

1. Remove the column covers.
2. Disconnect the key reminder switch connector.
3. Check for continuity between the terminals of the key reminder switch.

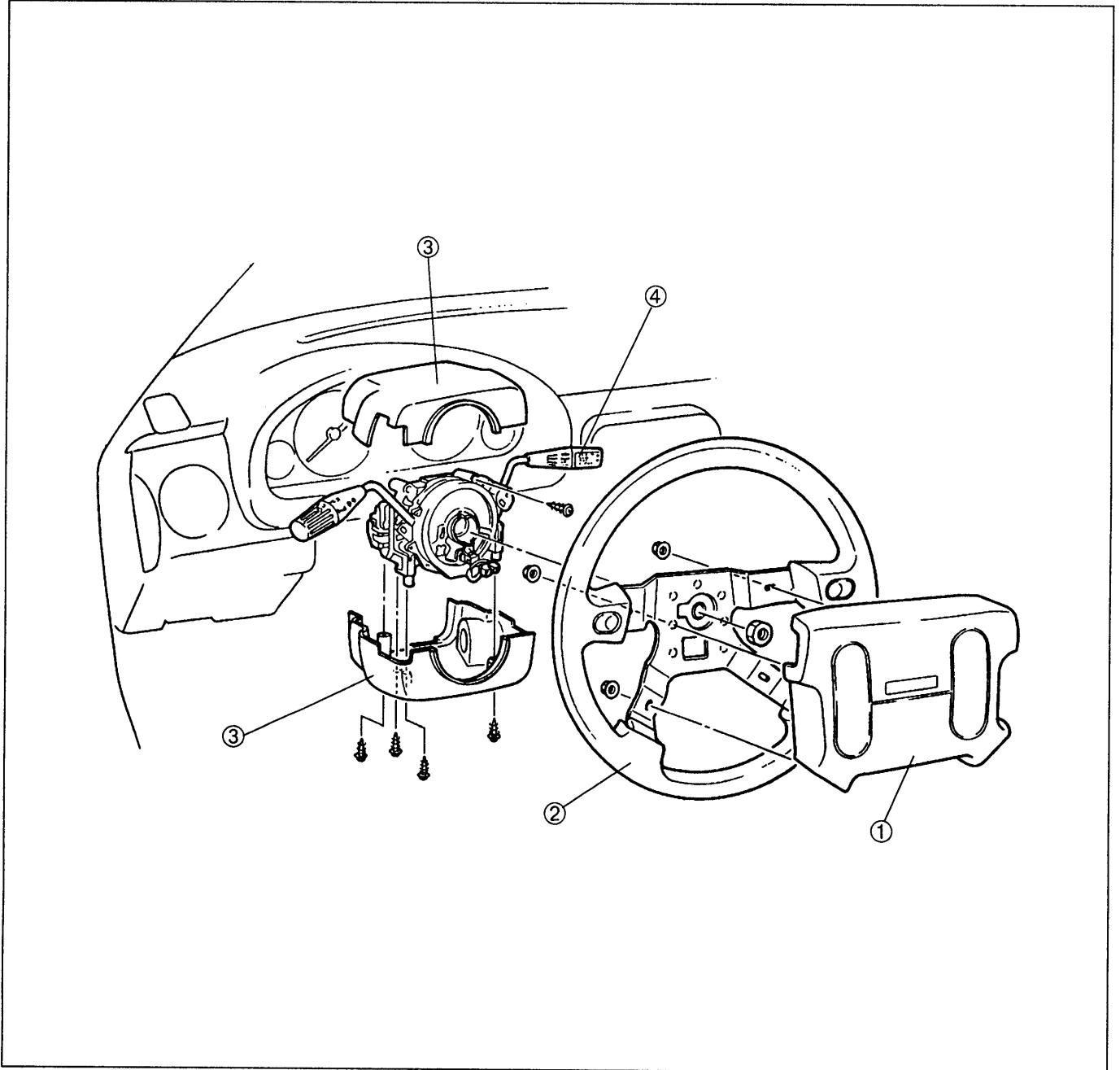
Switch condition	Continuity
Key inserted	Yes
Key removed	No

4. If not as specified, replace the steering lock. (Refer to section N.)

COMBINATION SWITCH**Removal / Installation****Warning**

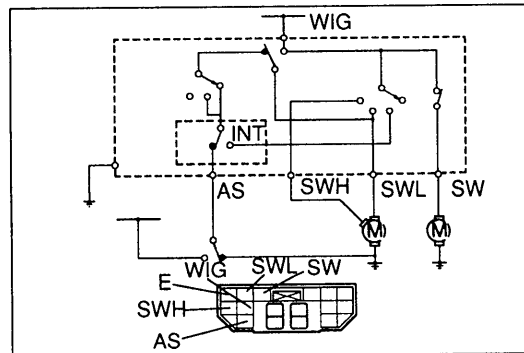
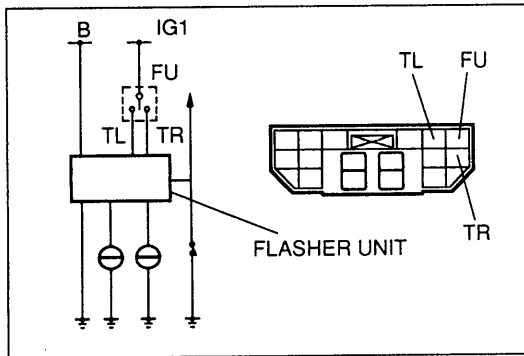
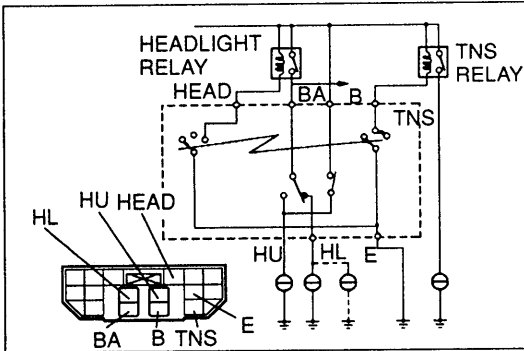
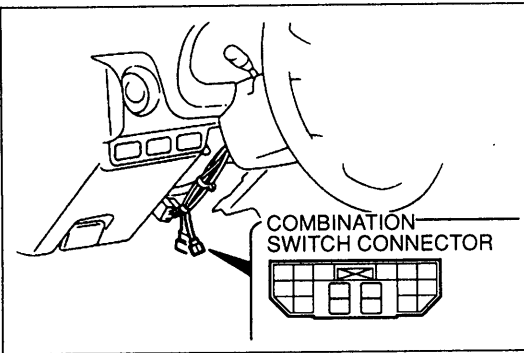
- Handling the air bag module improperly can accidentally deploy the air bag, which may seriously injure you, Read **SERVICE WARNINGS**, refer to page T-162 before handling the air bag module.

1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.



1. Air bag module
Removal / Installation page T-172
2. Steering wheel
Removal / Installation section N
3. Column cover
Removal / Installation section S

4. Combination switch
Inspection page T-26
Adjustment page T-28



Inspection

1. Remove the combination switch. (Refer to page T-25.)
2. Check for continuity between the switch terminals as indicated below.
3. If not as specified, replace the combination switch.

Headlight switch

Switch position		Terminal						
		E	HL	HU	TNS	HEAD	BA	B
Off								
Headlight	Low beam	○—○	○		○		○	
	High beam	○—○			○		○	
Passing				○				○
Tail, parking		○—○			○			

○—○: Continuity

Turn switch

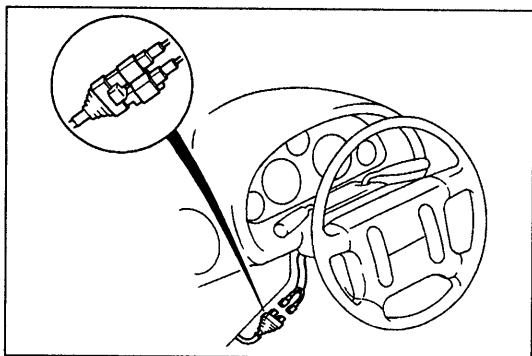
Switch position		Terminal		
		FU	TL	TR
Left		○—○	○—○	
Off				
Right		○—○		○—○

○—○: Continuity

Windshield wiper and washer switch

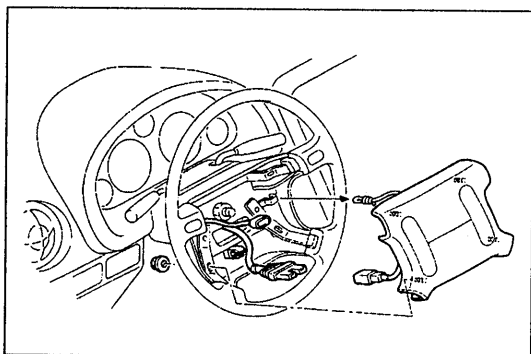
Switch position		Terminal					
		One touch	AS	WIG	SWL	SWH	SW
Wiper switch	OFF	OFF	○		○		
		ON		○	○		
	INT		○		○		
	I (Low)			○	○		
	II (High)			○		○	
Washer switch on				○			○

○—○: Continuity

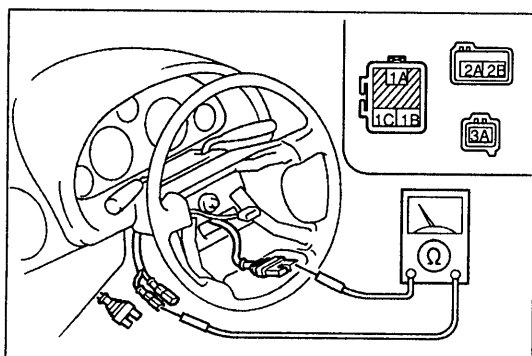


Clock spring

1. Disconnect the negative battery cable.
2. Remove the lower panel and disconnect the orange and blue clock spring connectors.



3. Remove the nuts and remove the air bag module.



4. Check for continuity between the blue terminals of the clock spring connectors as shown.

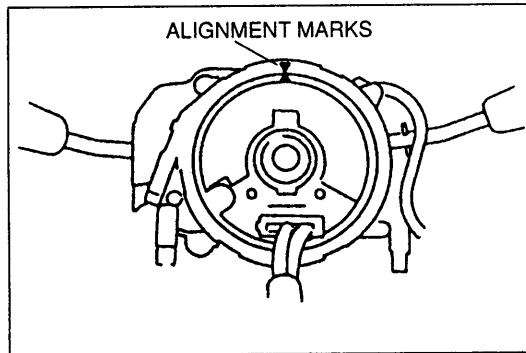
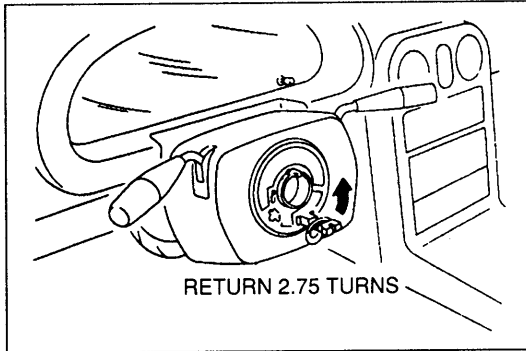
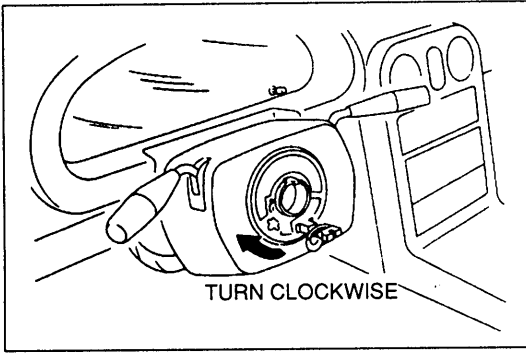
Step \ Terminal	1A	1B	1C	3A	2A	2B
1	○			○		
2		○			○	
3			○			○

○—○: Continuity

5. If not as specified, replace the combination switch.

Note

- The clock spring is part of the combination switch.



Adjustment Clock spring

Before installing the steering wheel, adjust the clock spring.

1. Set the front wheels straight ahead.
2. Turn the clock spring clockwise until it stops. Do not force it.

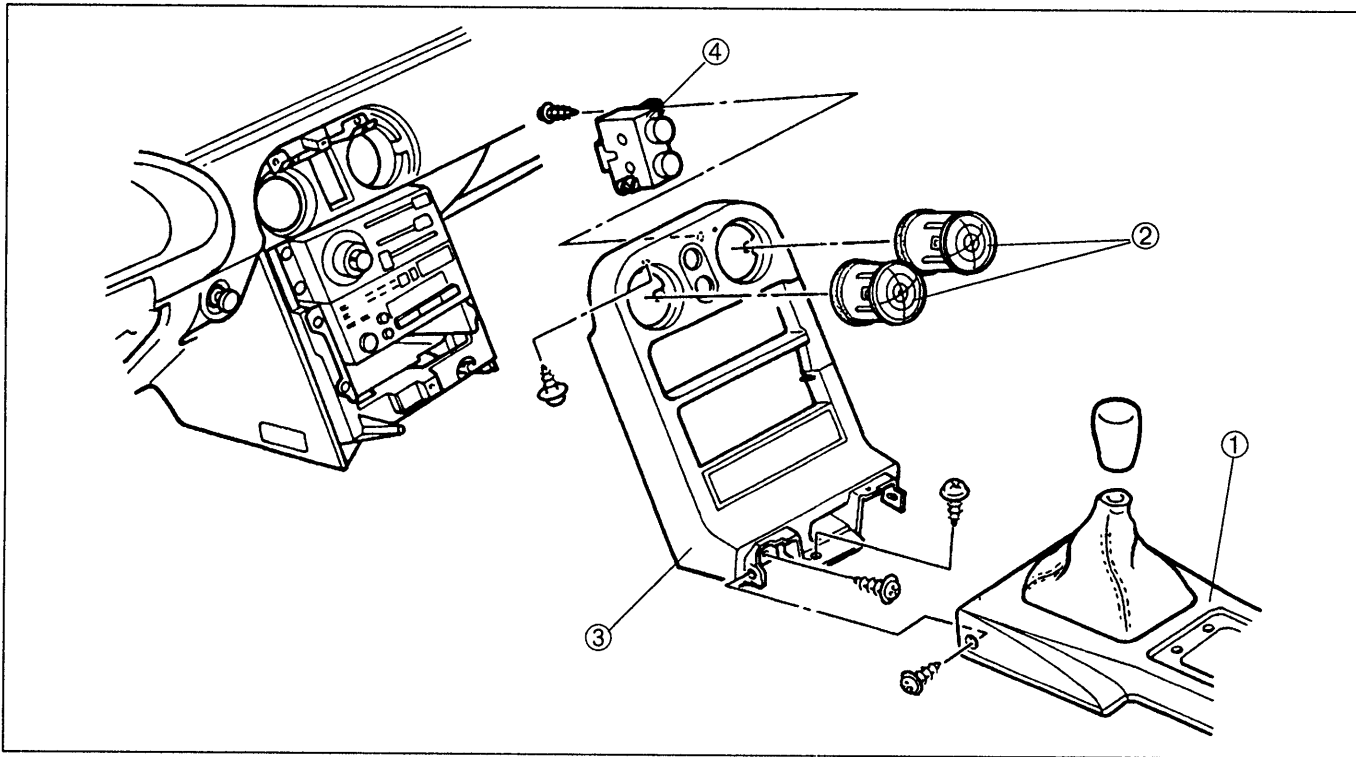
3. Turn the clock spring counterclockwise 2.75 turns.

4. Align the mark on the clock spring connector with that on the outer housing.

RETRACTOR AND HAZARD WARNING SWITCH

Removal / Installation

1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.



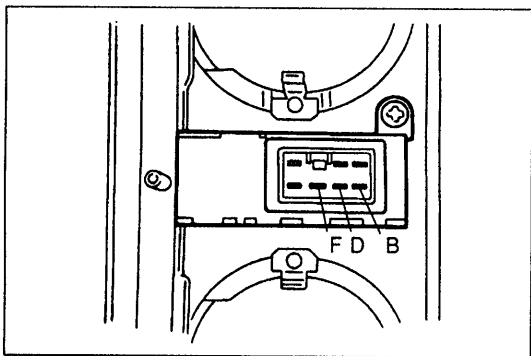
1. Rear console
2. Center louver

3. Center panel
4. Retractor and hazard warning switch

Inspection

Retractor switch

1. Remove the retractor and hazard warning switch.
2. Check for continuity between terminals of the switch.



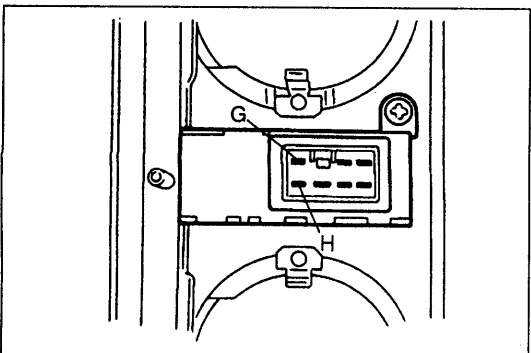
Switch position \ Terminal	B	D	F
OFF	○		○
ON		○	○

○—○: Continuity

3. If not as specified, replace the retractor and hazard warning switch.

Hazard warning switch

1. Remove the retractor and hazard warning switch.
2. Check for continuity between terminals of the switch.



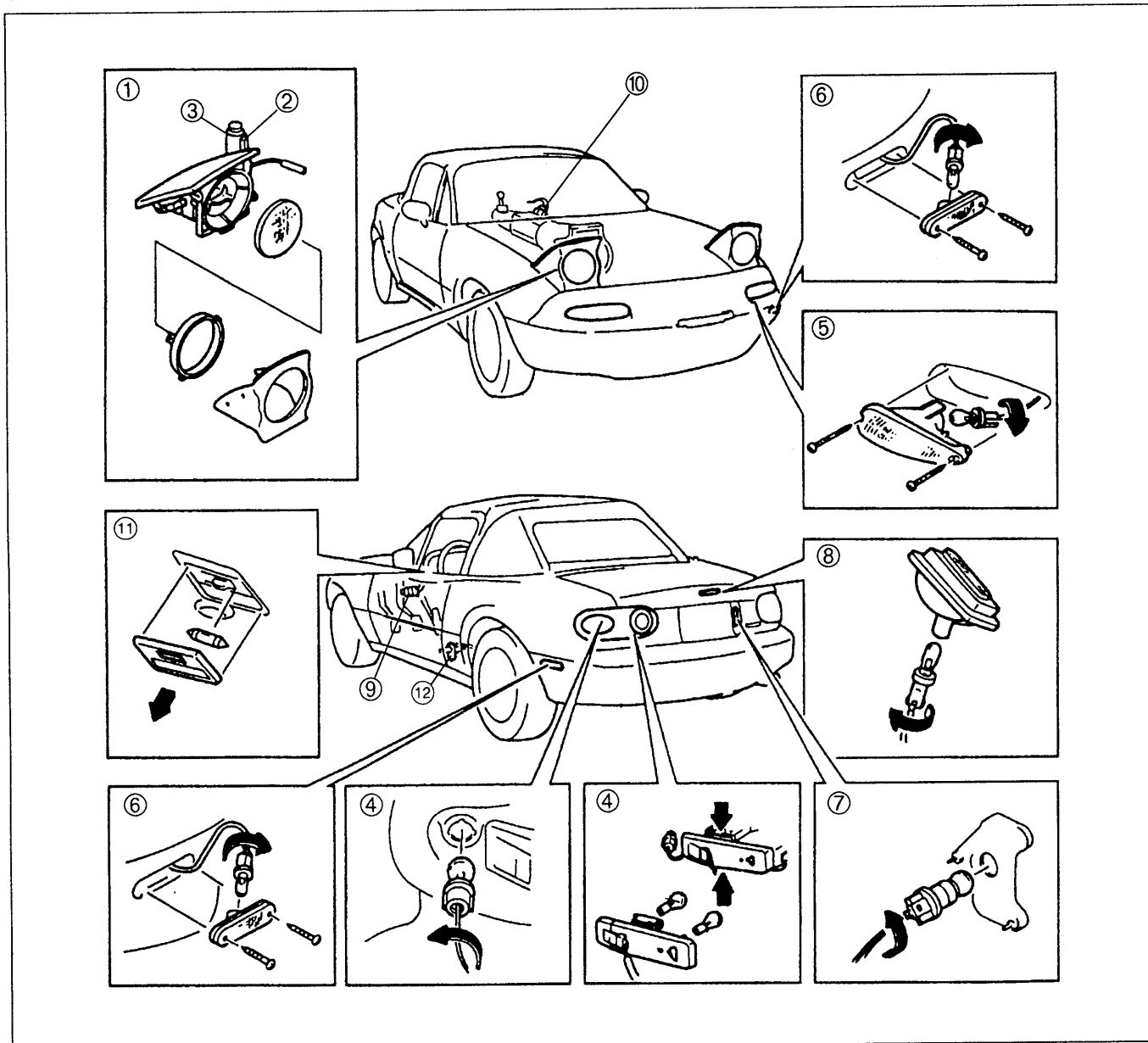
Switch position \ Terminal	G	H
OFF		
ON	○	○

○—○: Continuity

3. If not as specified, replace the retractor and hazard warning switch.

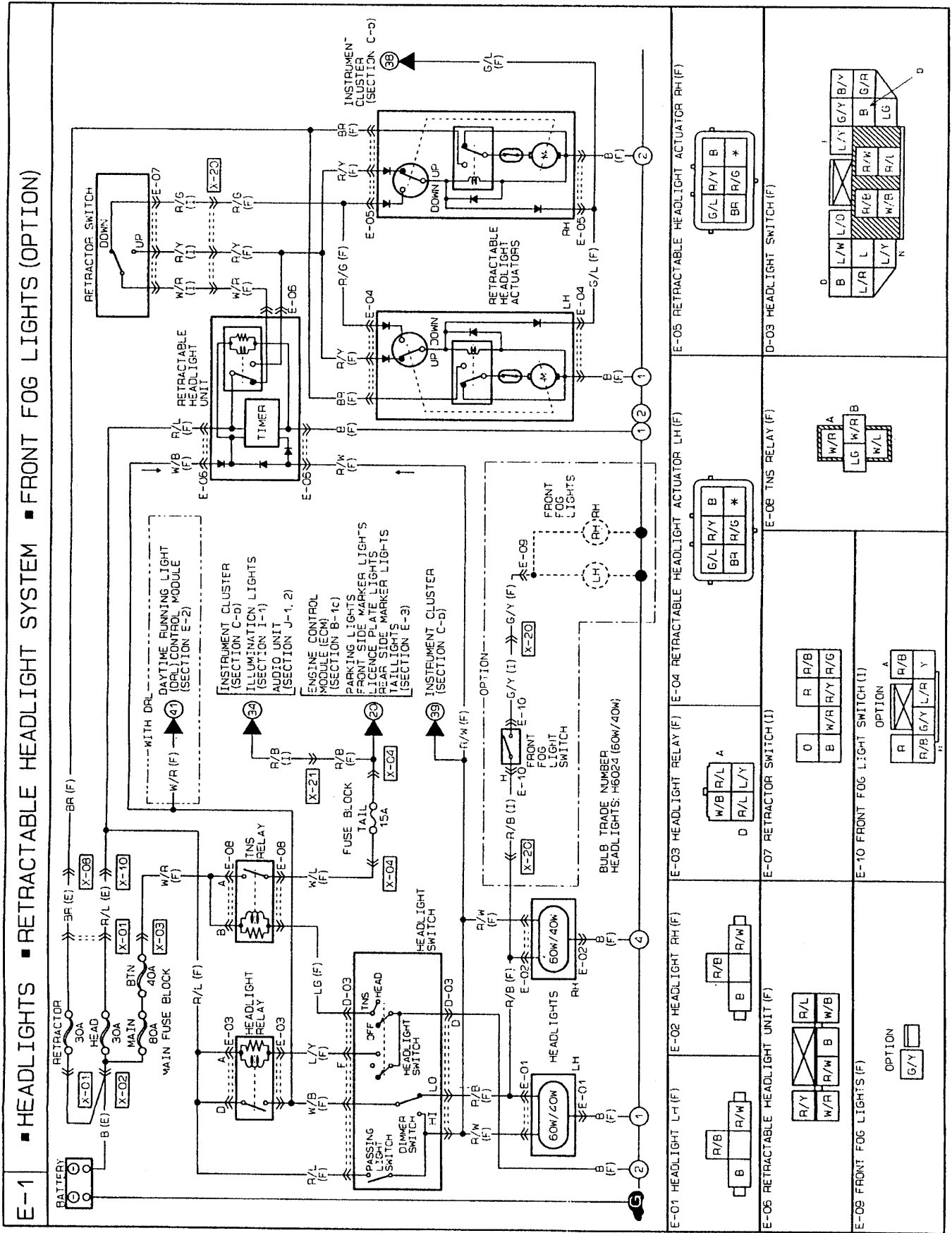
LIGHTING SYSTEM

STRUCTURAL VIEW

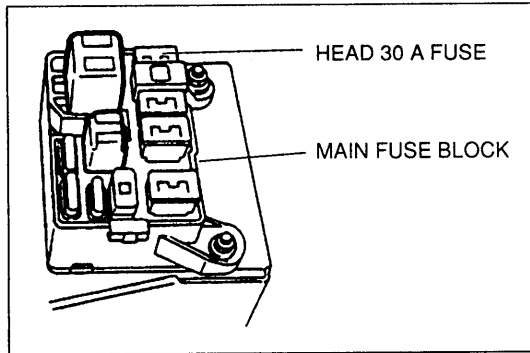


- | | |
|--|---|
| <p>1. Headlight
Removal / Installation page T-61
Aiming page T-61</p> <p>2. Retractable hinge
Adjustment page T-62</p> <p>3. Retractable headlight actuator
Inspection page T-62</p> <p>4. Rear combination light
Removal / Installation page T-63
Bulb replacement page T-63
Disassembly page T-64
Assembly page T-64</p> <p>5. Front combination light
Removal / Installation page T-66</p> <p>6. Side marker light
Removal / Installation page T-66</p> | <p>7. Licence plate light
Bulb replacement page T-66</p> <p>8. High-mount brake light
Removal / Installation page T-65</p> <p>9. Brake switch
Inspection page T-66</p> <p>10. Back-up light switch
Inspection page T-66</p> <p>11. Interior light
Removal / Installation page T-67</p> <p>12. Door switch
Removal / Installation page T-67
Inspection page T-67</p> |
|--|---|

TROUBLESHOOTING
Headlights
Circuit diagram



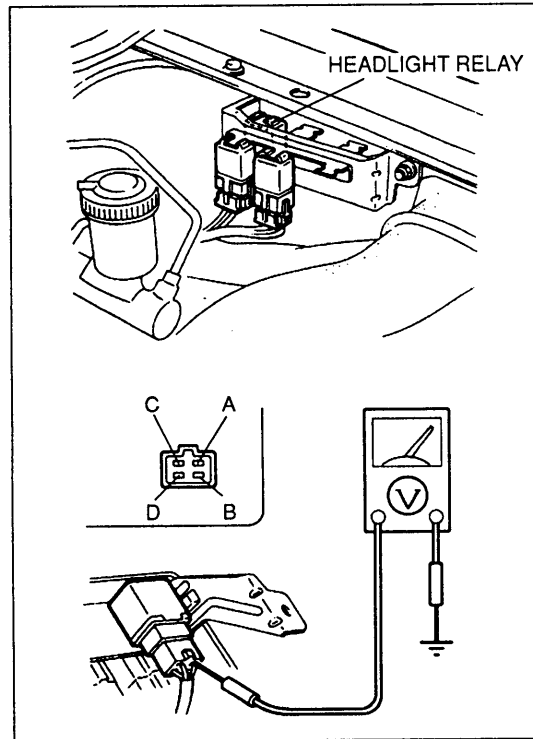
Symptom	Headlights do not illuminate
----------------	------------------------------



Step 1

Check the HEAD 30 A fuse in the main fuse block.

Fuse	Action
OK	Go to Step 2
Burnt	Replace fuse after checking and repairing wiring harness

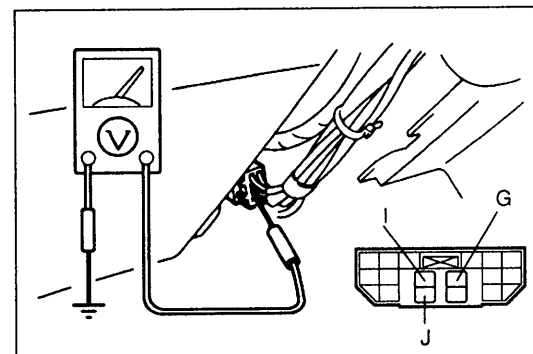


Step 2

1. Turn the headlight switch to the second position.
2. Measure the voltage at the following terminals of the headlight relay connector.

B+: Battery positive voltage

Terminal	Voltage	Action
C	B+	Go to Step 3
	Other	Measure voltage at terminal B
B	B+	Go to Step 6
	Other	Measure voltage at terminal A
A	B+	Measure voltage at terminal D
	Other	Repair wiring harness (HEAD 30 A fuse — Headlight relay)
D	B+	Replace headlight relay
	Other	Repair wiring harness (HEAD 30 A fuse — Headlight relay)

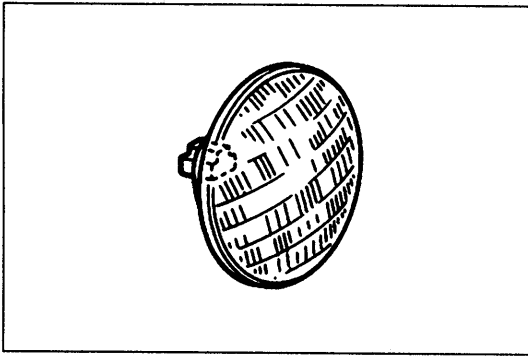


Step 3

Measure the voltage at the following terminals of the headlight switch connector.

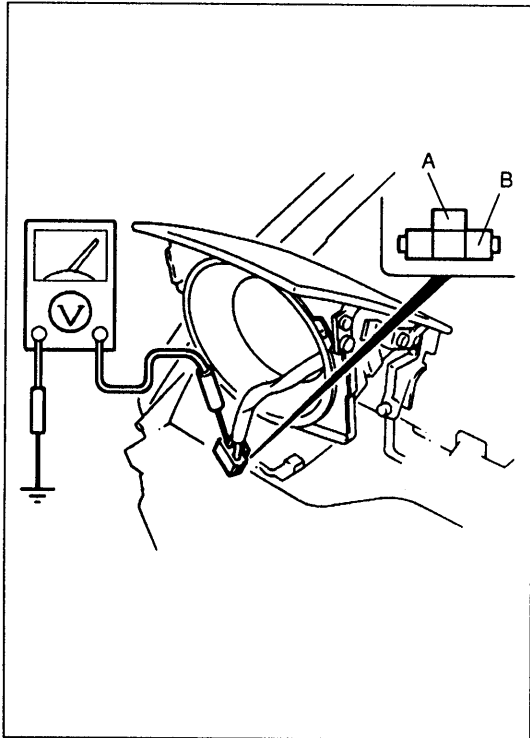
B+: Battery positive voltage

Terminal	Switch position	Voltage	Action
J	—	B+	Measure voltage at terminal I
		Other	Repair wiring harness (Headlight relay — Combination switch)
I	Low beam	B+	Measure voltage at terminal G
		Other	Replace combination switch
G	High beam	B+	Go to Step 4
		Other	Replace combination switch



Step 4

1. Turn the headlight switch off.
2. Check the headlight bulbs.
3. If the bulbs are OK, go to Step 5.
4. If a bulb is burnt, replace it.

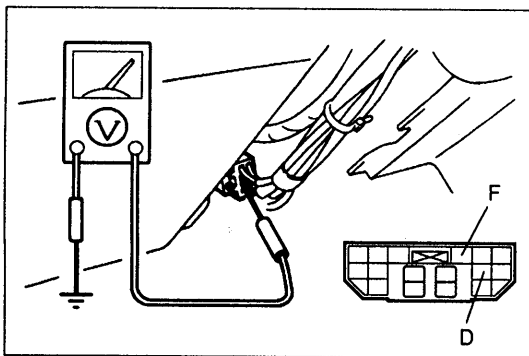


Step 5

1. Disconnect the headlight connector.
2. Turn the headlight switch to the second position.
3. Measure the voltage at the following terminals of the headlight connector.

B+: Battery positive voltage

Terminal	Switch position	Voltage	Action
A	Low beam	B+	Measure voltage at terminal B
		Other	Repair wiring harness (Combination switch — Headlight)
B	High beam	B+	Repair wiring harness (Headlight — GND)
		Other	Repair wiring harness (Combination switch — Headlight)



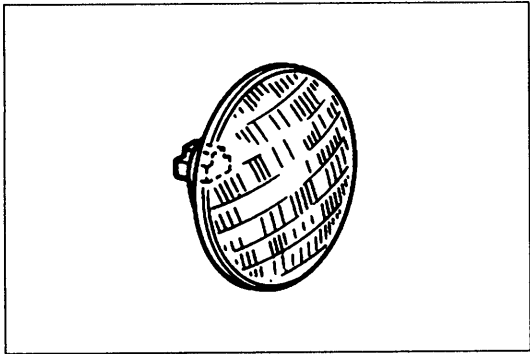
Step 6

Measure the voltage at the following terminals of the combination switch connector.

B+: Battery positive voltage

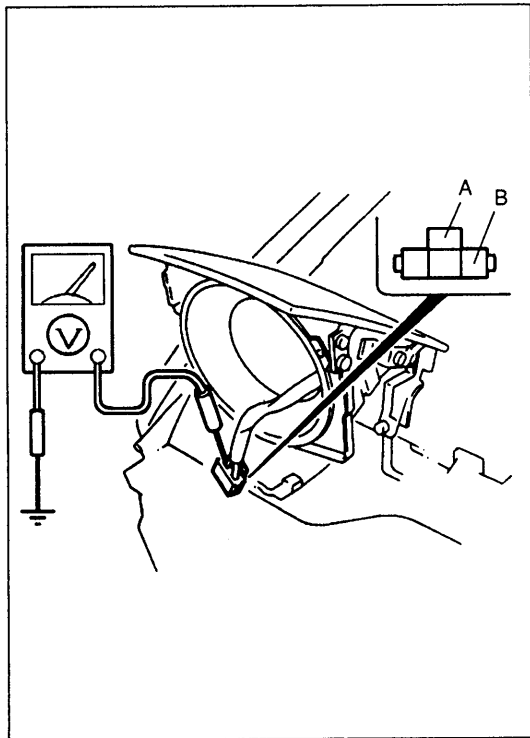
Terminal	Voltage	Action
F	B+	Measure voltage at terminal D
	Other	Repair wiring harness (Headlight relay — Combination switch)
D	B+	Repair wiring harness (Combination switch — GND)
	Other	Replace combination switch

Symptom	One headlight does not illuminate
----------------	-----------------------------------



Step 1

1. Check the headlight bulbs.
2. If the bulbs are OK, go to Step 2.
3. If a bulb is burnt, replace it.



Step 2

1. Disconnect the headlight connector of the faulty side.
2. Turn the headlight switch to the second position.
3. Measure the voltage at the following terminals of the headlight connector.

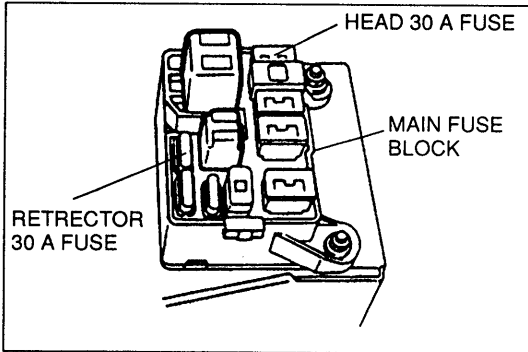
B+: Battery positive voltage

Terminal	Switch position	Voltage	Action
A	Low beam	B+	Measure voltage at terminal B
		Other	Repair wiring harness (Combination switch — Headlight)
B	High beam	B+	Repair wiring harness (Headlight — GND)
		Other	Repair wiring harness (Combination switch — Headlight)

Symptom	Retractable headlight actuators do not operate
----------------	--

Activate the headlight switch and retractor switch and follow the appropriate action.

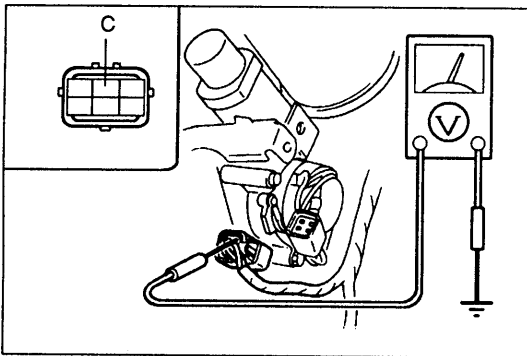
Switch	Retractor motor(s)	Action
Headlight switch on	Operate	Begin troubleshooting from Step 5
	Do not operate	Turn retractor switch on
Retractor switch on	Operate	Begin troubleshooting from Step 4
	Do not operate	Begin troubleshooting from Step 1



Step 1

Check the RETRACTOR 30 A and HEAD 30 A fuses in the main fuse block.

Fuse	Action
OK	Go to Step 2
Burnt	Replace fuse after checking and repairing wiring harness

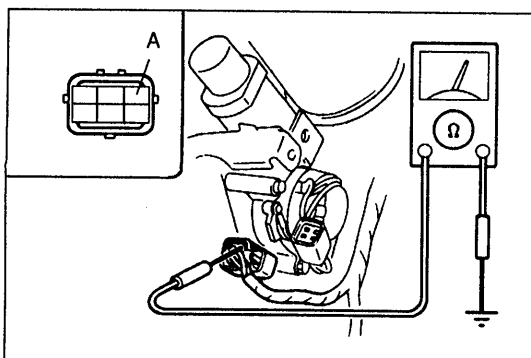


Step 2

1. Deactivate the audio antitheft system, if installed. (Refer to page T-129.)
2. Disconnect the negative battery cable.
3. Retract the headlights fully by using the manual knobs.
4. Disconnect the retractable headlight actuator connectors.
5. Reconnect the negative battery cable.
6. Turn the headlight switch and retractor switch on.
7. Measure the voltage at terminal C (R/Y) of the retractable headlight actuator connectors.

B+: Battery positive voltage

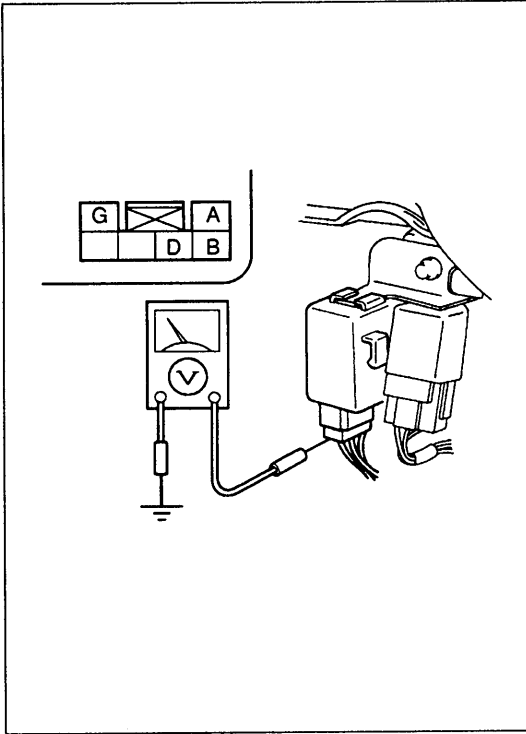
Voltage	Action
B+	Go to Step 3
Other	Go to Step 4



Step 3

Check for continuity between terminal A (B) of the retractable headlight actuator connectors and ground.

Continuity	Action
No	Repair wiring harness (Retractable headlight actuator — GND)
Yes	Inspect retractable headlight actuator (Refer to page T-62)

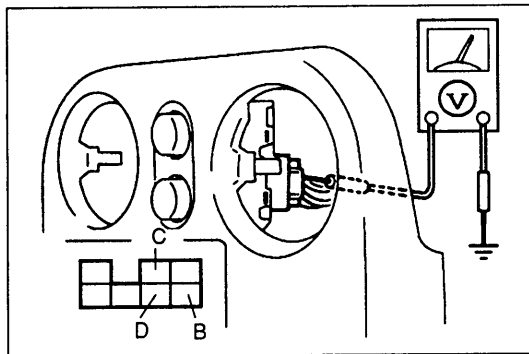


Step 4

1. Turn the retractor switch off.
2. Turn the headlight switch to the second position.
3. Measure the voltage at the following terminals of the retractable headlight relay connector.

B+: Battery positive voltage

Terminal	Voltage	Action
A	B+	Measure voltage at terminal B
	Other	Go to Step 5
B	B+	Measure voltage at terminal D
	Other	Repair wiring harness (Headlight relay — Retractable headlight relay)
D	B+	Repair wiring harness (Retractable headlight relay — GND)
	Other	Measure voltage at terminal G
G	B+	Repair wiring harness (Retractable headlight relay — Retractable headlight actuator)
	Other	Replace retractable headlight relay



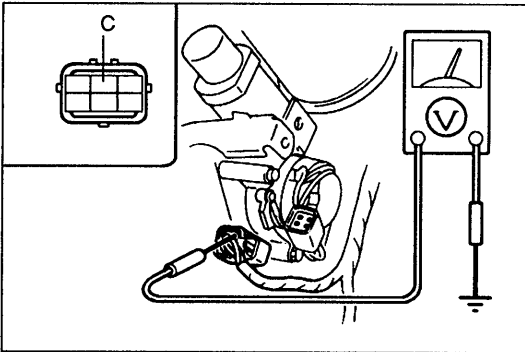
Step 5

Measure the voltage at the following terminals of the retractor switch.

B+: Battery positive voltage

Terminal	Retractor switch position	Voltage	Action
C	Any	B+	Measure voltage at terminals B and D
		Other	Repair wiring harness (RETRACTOR 30 A fuse — Retractor switch)
B	OFF	B+	Repair wiring harness (Retractor switch — Retractable headlight actuator)
		Other	Replace retractor switch
D	ON	B+	Repair wiring harness (Retractor switch — Retractable headlight actuator)
		Other	Replace retractor switch

Symptom	One retractable headlight actuator does not operate
----------------	---

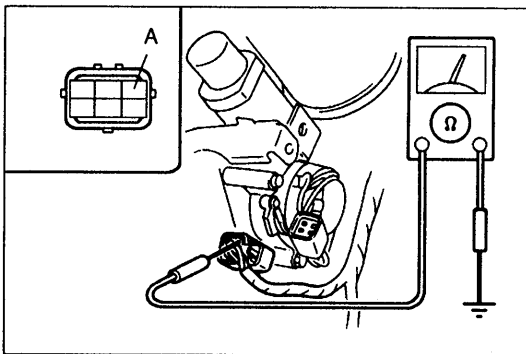


Step 1

1. Deactivate the audio antitheft system, if installed. (Refer to page T-129.)
2. Disconnect the negative battery cable.
3. Retract the inoperative headlight fully by using the manual knob.
4. Disconnect the retractable headlight actuator connector on the faulty side.
5. Reconnect the negative battery cable.
6. Turn the headlight switch and retractor switch on.
7. Measure the voltage at terminal C (R/Y) of the retractable headlight actuator connector.

B+: Battery positive voltage

Voltage	Action
B+	Go to Step 2
Other	Repair wiring harness (Retractable headlight relay — Retractable headlight actuator)



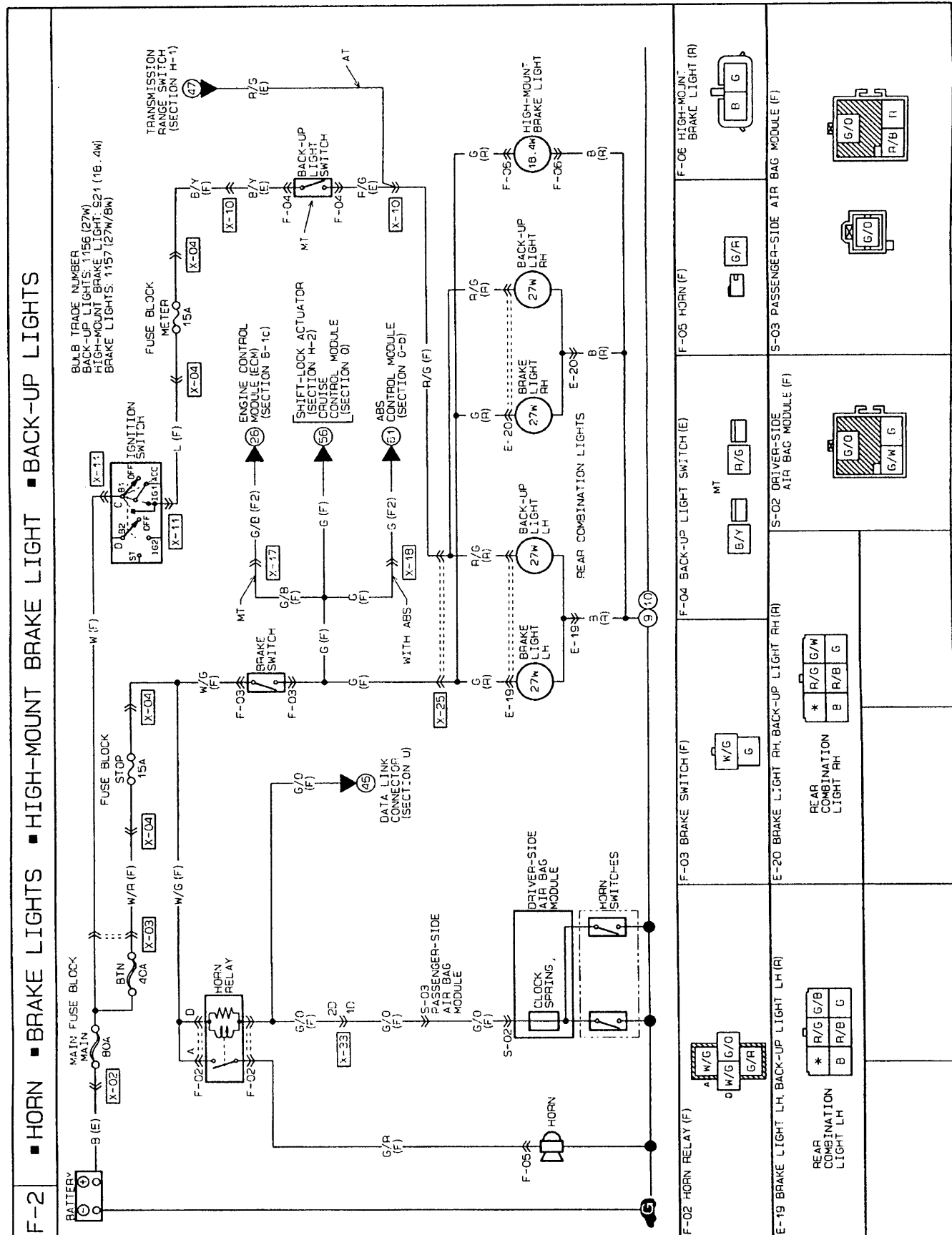
Step 2

Check for continuity between terminal A (B) of the faulty retractable headlight actuator connector and ground.

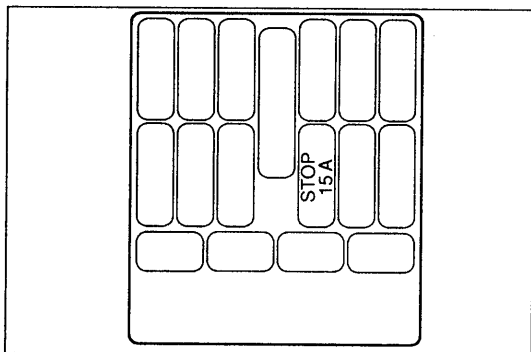
Continuity	Action
No	Repair wiring harness (Retractable headlight actuator — GND)
Yes	Inspect retractable headlight actuator (Refer to page T-62)

**Brake Lights
Circuit diagram**

LIGHTING SYSTEM



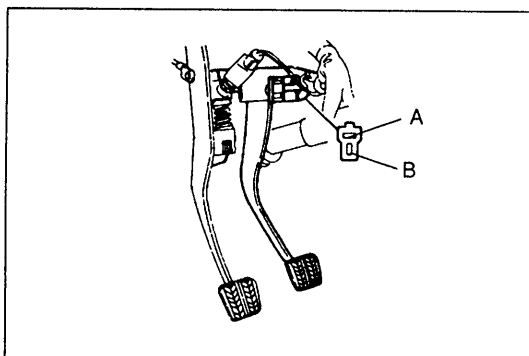
Symptom	Brake lights do not illuminate
----------------	--------------------------------



Step 1

Check the STOP 15 A fuse in the fuse block No.1.

Fuse	Action
OK	Go to Step 2
Burnt	Replace fuse after checking and repairing wiring harness

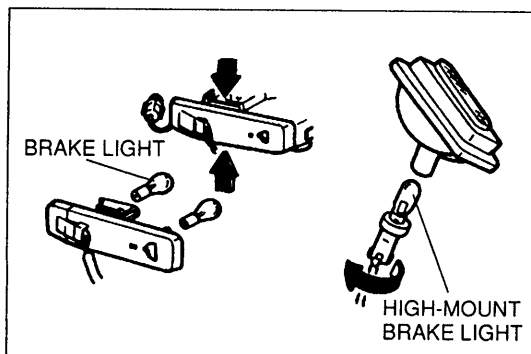


Step 2

Measure the voltage at the following terminals of the brake switch connector.

B+: Battery positive voltage

Inspection condition	Terminal	Voltage	Action
Constant	A	B+	Measure voltage at terminal B
		Other	Repair wiring harness (STOP 15 A fuse — Brake switch)
Brake pedal depressed	B	B+	Go to Step 3
		Other	Inspect brake switch



Step 3

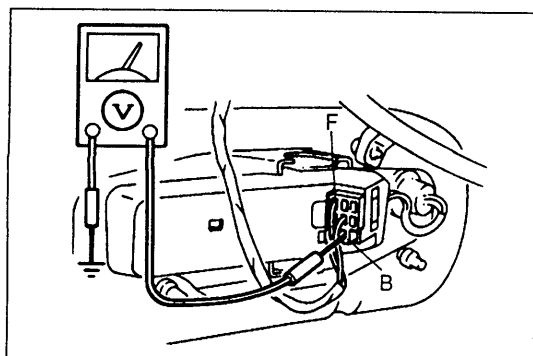
1. Check the brake light bulbs.
2. If the bulbs are OK, go to Step 4.
3. If a bulb is burnt, replace it.

Step 4

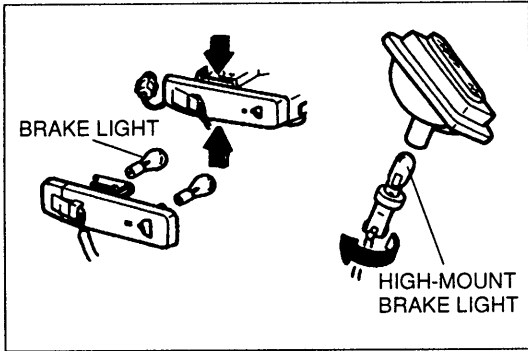
Measure the voltage at the following terminals of the right and left rear combination light connector.

B+: Battery positive voltage

Inspection condition	Terminal	Voltage	Action
Brake pedal depressed	B	B+	Measure voltage at terminal F
		Other	Repair wiring harness (Brake switch — Rear combination light)
	F	B+	Repair wiring harness (Rear combination light — GND)
		Other	Check for poor connection of connectors

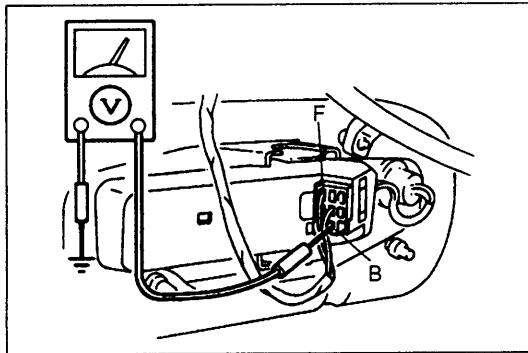


Symptom	One brake light does not illuminate
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Step 1

1. Check the brake light bulb of the faulty side.
2. If the bulb is OK, go to Step 2.
3. If the bulb is burnt, replace it.



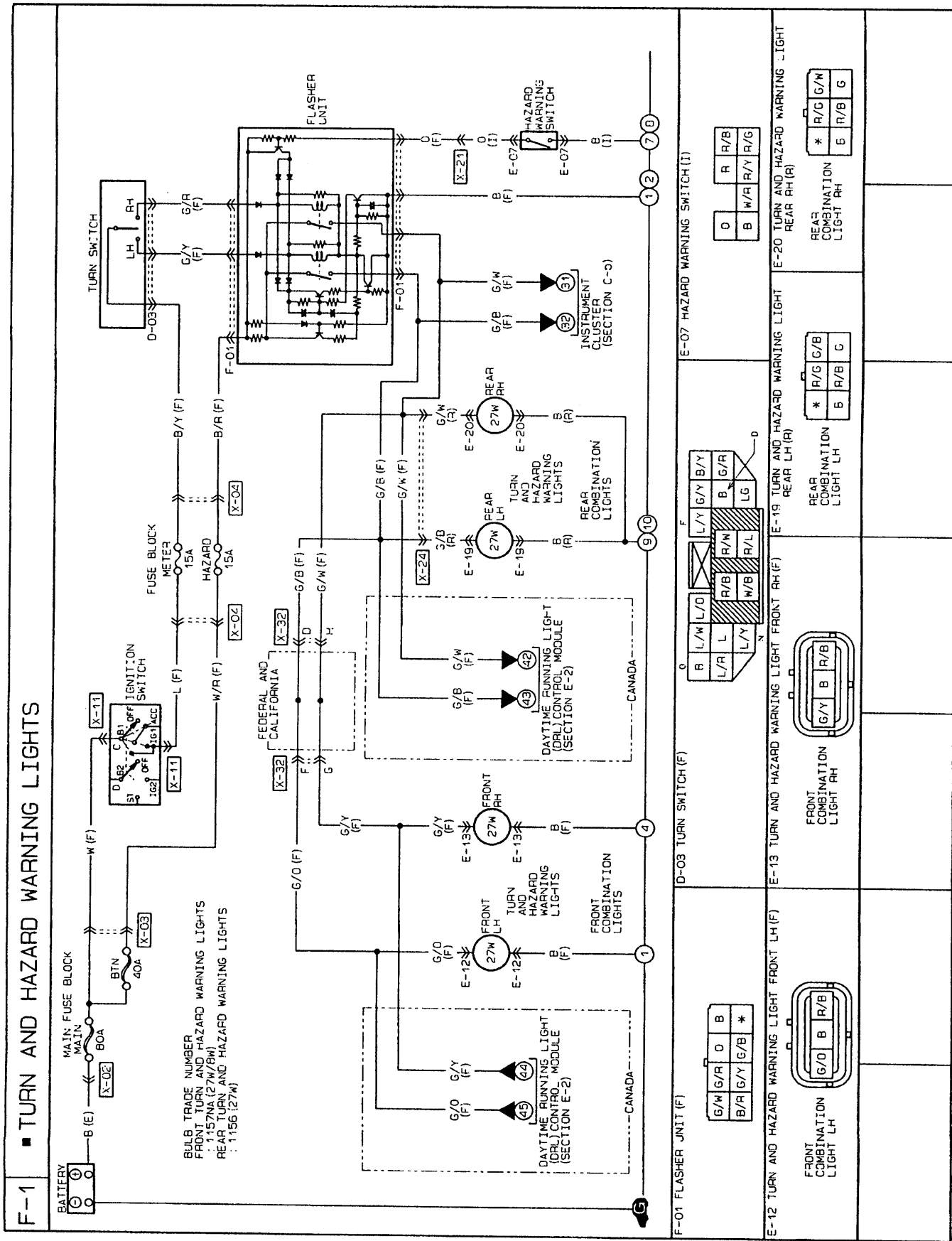
Step 2

Measure the voltage at the following terminals of the faulty rear combination light connector.

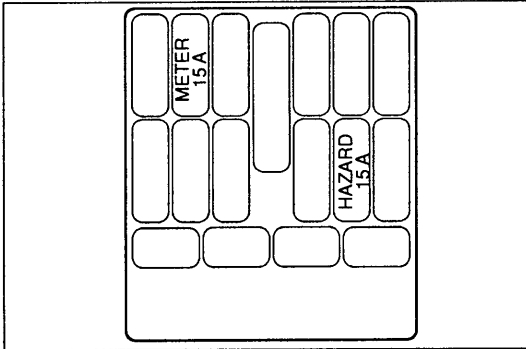
B+: Battery positive voltage

Inspection condition	Terminal	Voltage	Action
Brake pedal depressed	B	B+	Measure voltage at terminal F
		Other	Repair wiring harness (Brake switch — Rear combination light)
	F	B+	Repair wiring harness (Rear combination light — GND)
		Other	Check for poor connection of connectors

Turn and Hazard Warning Lights
Circuit diagram



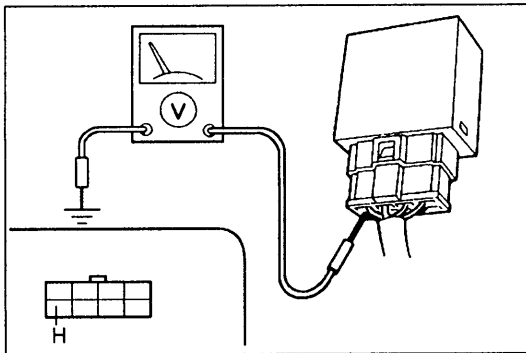
Symptom	Turn and hazard warning functions do not operate
----------------	--



Step 1

Check the HAZARD 15 A fuse and METER 15 A fuse in the fuse block No.1.

Fuse	Action
OK	Go to Step 2
Burnt	Replace fuse after checking and repairing wiring harness

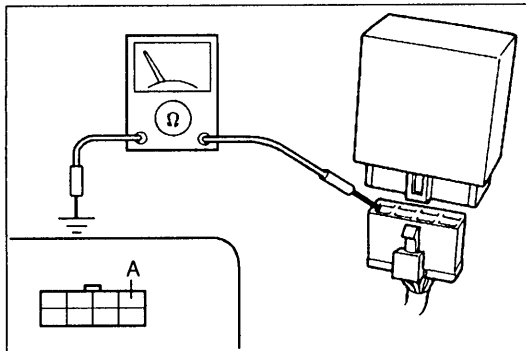


Step 2

Measure the voltage at terminal H (B/R) of the flasher unit connector.

B+: Battery positive voltage

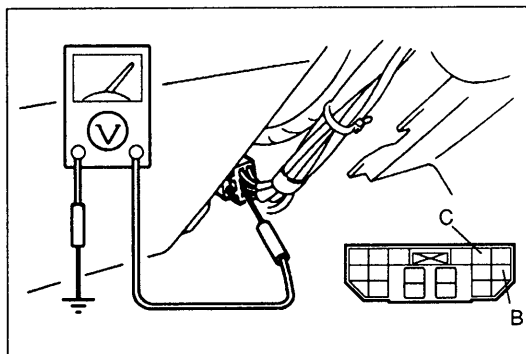
Voltage	Action
B+	Go to Step 3
Other	Repair wiring harness (HAZARD 15 A fuse — Flasher unit)



Step 3

1. Disconnect the flasher unit connector.
2. Check for continuity between terminal A (B) of the flasher unit connector and ground.

Continuity	Action
Yes	Reconnect connector and go to Step 4
No	Repairing wiring harness (Flasher unit — GND)

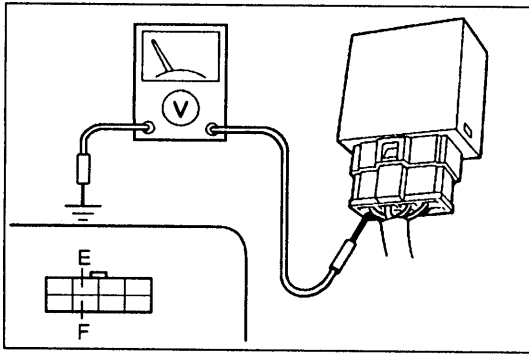


Step 4

1. Turn the ignition switch to ON.
2. Set the turn switch on (right or left).
3. Measure the voltage at terminals C (G/Y) and B (G/R) of the combination switch connector.

B+: Battery positive voltage

Terminal	Voltage	Action
C	B+	Go to Step 5
	Other	Inspect combination switch
B	B+	Go to Step 5
	Other	Inspect combination switch



Step 5

1. Set the turn switch to the right position.
2. Measure the voltage at terminal F (G/Y) of the flasher unit connector.

B+: Battery positive voltage

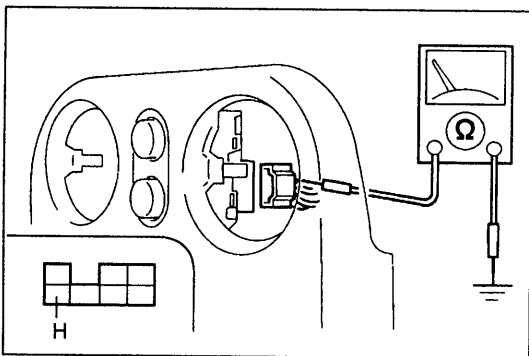
Voltage	Action
B+	Go to Step 6
Other	Repair wiring harness (Combination switch — Flasher unit)

Step 6

1. Set the turn switch to the left position.
2. Measure the voltage at terminal E (G/R) of the flasher unit connector.

B+: Battery positive voltage

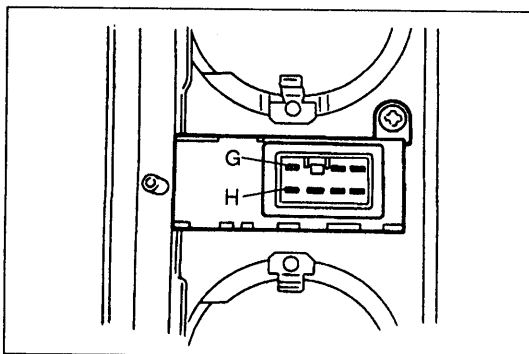
Voltage	Action
B+	Turn ignition switch to LOCK and go to Step 7
Other	Repair wiring harness (Combination switch — Flasher unit)



Step 7

1. Disconnect the hazard warning switch connector.
2. Check for continuity between terminal H (B) of the hazard warning switch connector and ground.

Continuity	Action
Yes	Go to Step 8
No	Repair wiring harness (Hazard warning switch — GND)



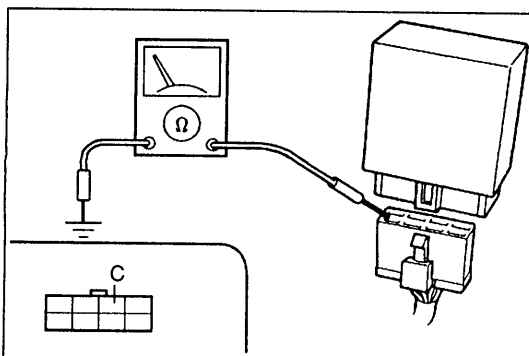
Step 8

1. Check for continuity between the terminals of the hazard warning switch.

Terminal	G	H
Switch position OFF		
ON	○	○

○—○: Continuity

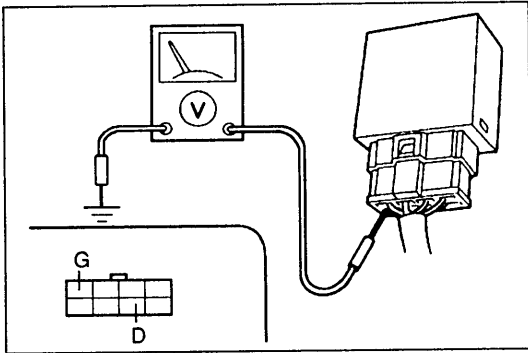
2. If correct, reconnect the connector and go to Step 9.
3. If not as specified, replace the hazard warning switch.



Step 9

1. Disconnect the flasher unit connector.
2. Turn the hazard warning switch on.
3. Check for continuity between terminal C (O) of the flasher unit connector and ground.

Continuity	Action
Yes	Turn hazard warning switch off and go to Step 10
No	Repair wiring harness (Flasher unit — Hazard warning switch)



Step 10

1. Reconnect the flasher unit connector and turn the ignition switch to ON.
2. Set the turn switch to the right position.
3. Measure the voltage at terminal G (G/W) of the flasher unit connector.

B+: Battery positive voltage

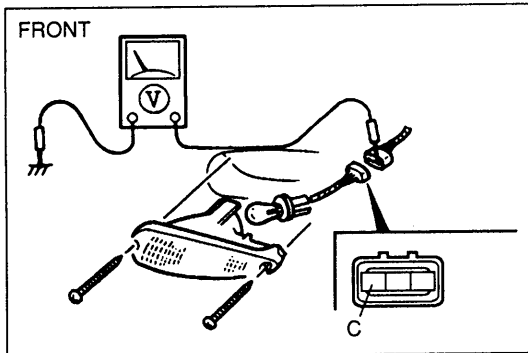
Voltage	Action
Alternates 0 V and B+	Go to Step 11
Other	Replace flasher unit

Step 11

1. Set the turn switch to the left position.
2. Measure the voltage at terminal D (G/B) of the flasher unit connector.

B+: Battery positive voltage

Voltage	Action
Alternates 0 V and B+	Go to Step 12
Other	Replace flasher unit

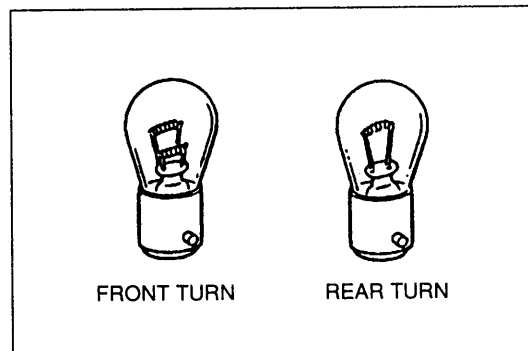
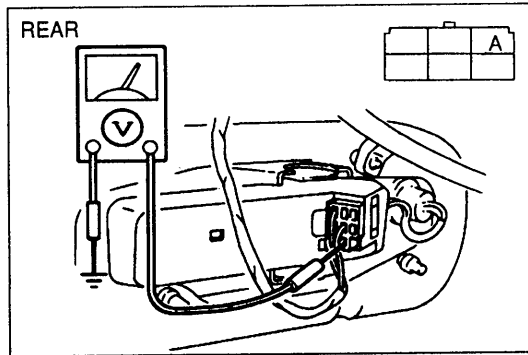


Step 12

1. Disconnect the turn light connectors.
2. Set the turn switch to the left or right position.
3. Measure the voltage at the terminals of the combination light connector.

B+: Battery positive voltage

Light	Terminal	Voltage	Action
Front RH	C	Alternates 0 V and B+	Go to Step 13
		Other	Repair wiring harness (Flasher unit — Front combination light)
Rear RH	A	Alternates 0 V and B+	Go to Step 13
		Other	Repair wiring harness (Flasher unit — Rear combination light)
Front LH	C	Alternates 0 V and B+	Go to Step 13
		Other	Repair wiring harness (Flasher unit — Front combination light)
Rear LH	A	Alternates 0 V and B+	Go to Step 13
		Other	Repair wiring harness (Flasher unit — Rear combination light)

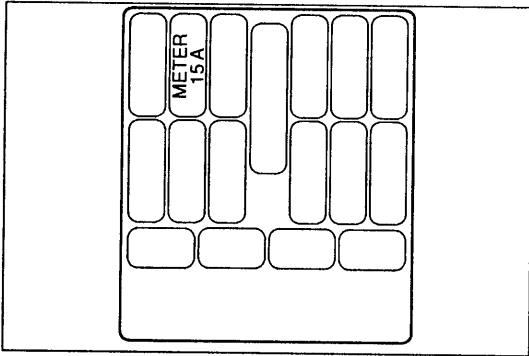


Step 13

1. Turn the ignition switch to LOCK.
2. Remove and check the bulbs.

Bulb	Action
OK	Repair wiring harness (Front/rear combination light — GND)
Burnt	Replace bulb

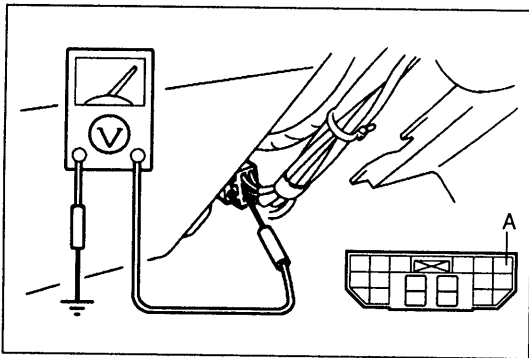
Symptom	Turn signal function does not operate (hazard warning function operates normally)
----------------	---



Step 1

Check the METER 15 A fuse in the fuse block No.1.

Fuse	Action
OK	Go to Step 2
Burnt	Replace fuse after checking and repairing wiring harness

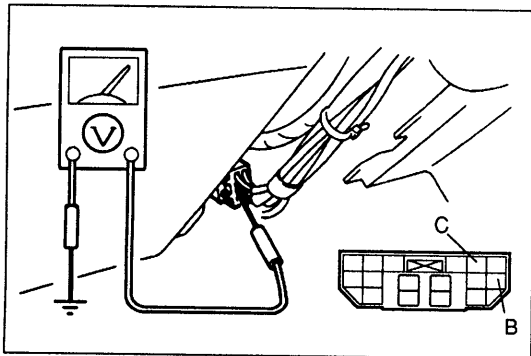


Step 2

1. Turn the ignition switch to ON.
2. Measure the voltage at terminal A (B/Y) of the combination switch connector.

B+: Battery positive voltage

Voltage	Action
B+	Go to Step 3
Other	Repair wiring harness (METER 15 A fuse — Combination switch)

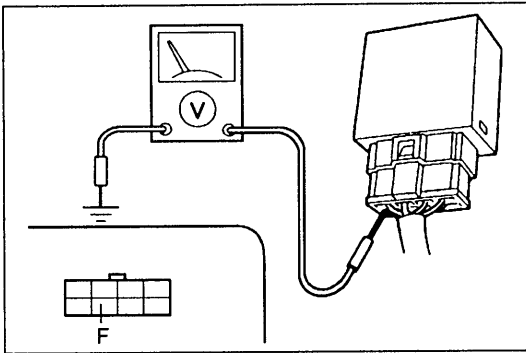


Step 3

1. Set the turn switch to on (right or left).
2. Measure the voltage at terminals C (G/Y) and B (G/R) of the combination switch connector.

B+: Battery positive voltage

Terminal	Voltage	Action
C	B+	Go to Step 4
	Other	Inspect combination switch (Refer to page T-26)
B	B+	Go to Step 5
	Other	Inspect combination switch (Refer to page T-26)

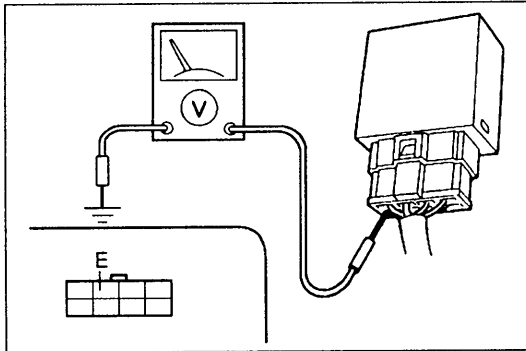


Step 4

1. Set the turn switch to the right position.
2. Measure the voltage at terminal F (G/Y) of the flasher unit connector.

B+: Battery positive voltage

Voltage	Action
B+	Replace flasher unit
Other	Repair wiring harness (Combination switch — Flasher unit)



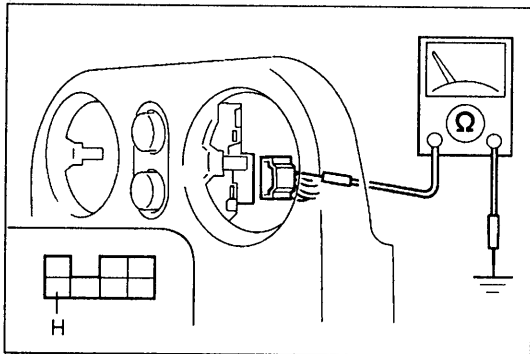
Step 5

1. Set the turn switch to the left position.
2. Measure the voltage at terminal E (G/R) of the flasher unit connector.

B+: Battery positive voltage

Voltage	Action
B+	Replace flasher unit
Other	Repair wiring harness (Combination switch — Flasher unit)

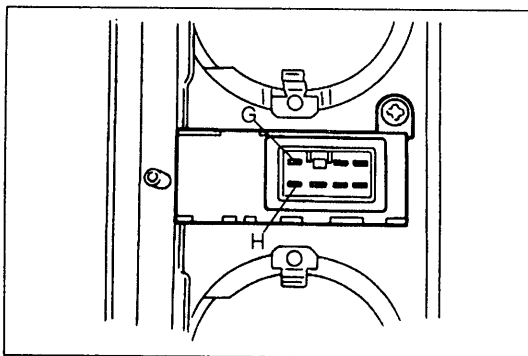
Symptom	Hazard warning function does not operate (turn signal function operates normally)
----------------	---



Step 1

1. Disconnect the hazard warning switch connector.
2. Check for continuity between terminal H (B) of the hazard warning switch connector and ground.

Continuity	Action
Yes	Go to Step 2
No	Repair wiring harness (Hazard warning switch — GND)



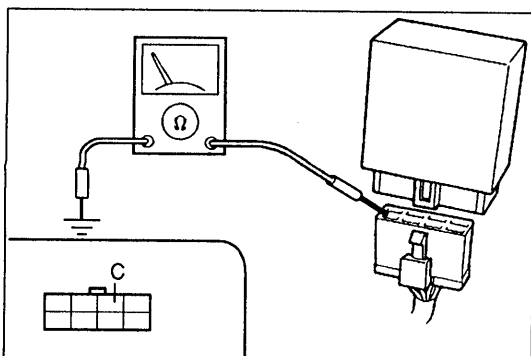
Step 2

1. Check for continuity between the terminals of the hazard warning switch.

Switch position \ Terminal	G	H
	ON	○—○
OFF		

○—○: Continuity

2. If correct, reconnect the hazard warning switch connector and go to Step 3.
3. If not as specified, replace the hazard warning switch.

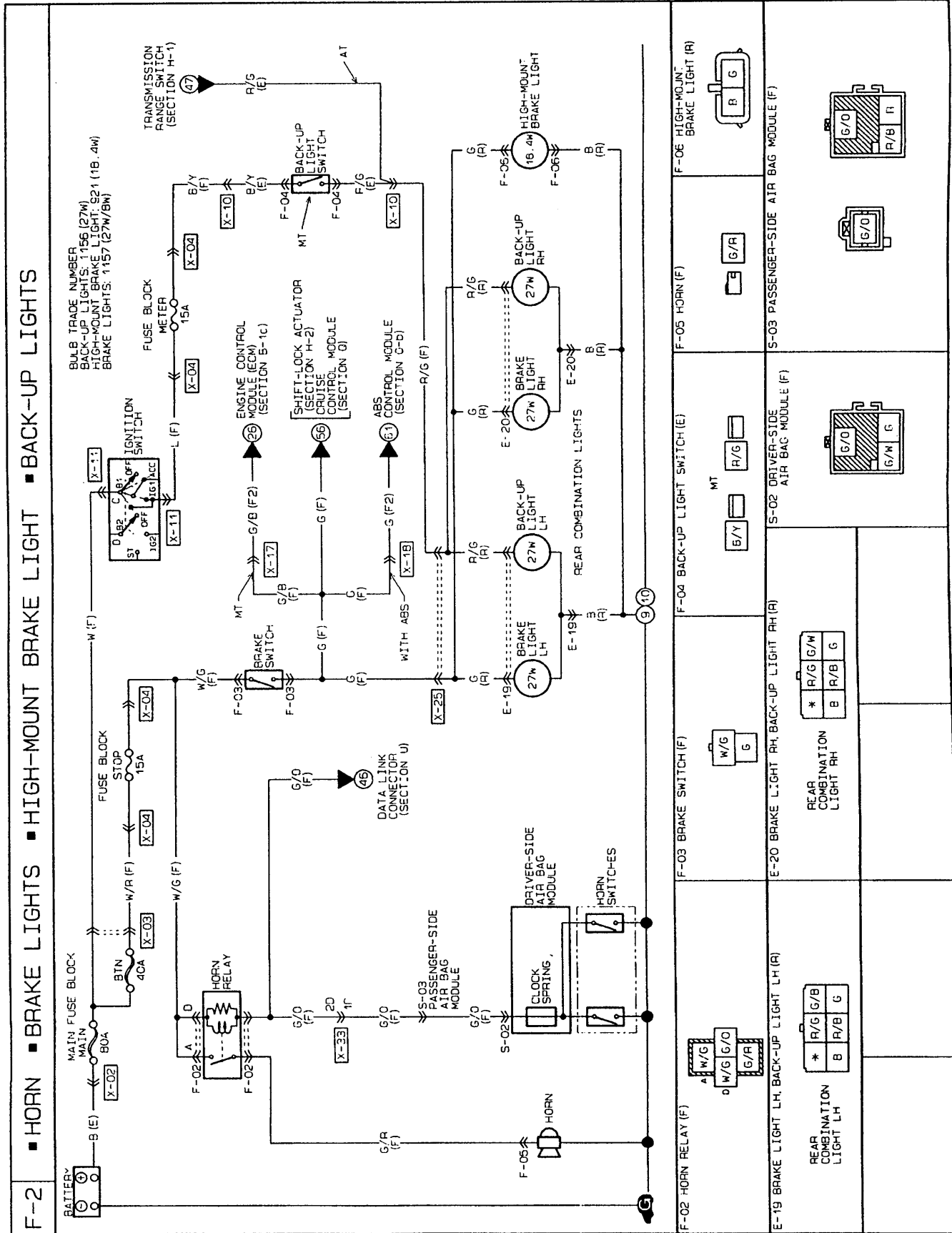


Step 3

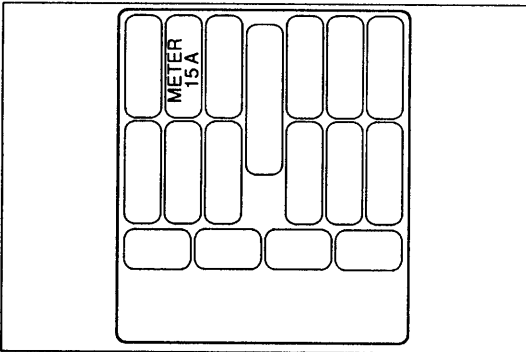
1. Disconnect the flasher unit connector.
2. Turn the hazard warning switch on.
3. Check for continuity between terminal C (O) of the flasher unit and ground.

Continuity	Action
Yes	Replace flasher unit
No	Repair wiring harness (Flasher unit — Hazard warning switch)

Back-up Lights Circuit diagram



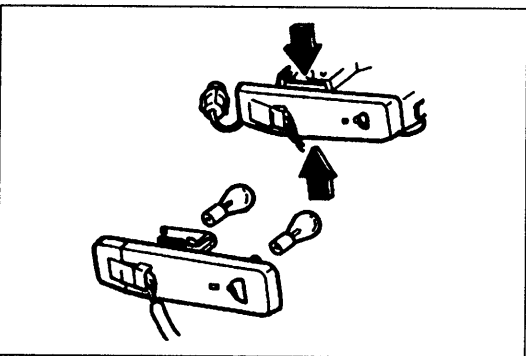
Symptom	Back-up lights do not illuminate
----------------	----------------------------------



Step 1

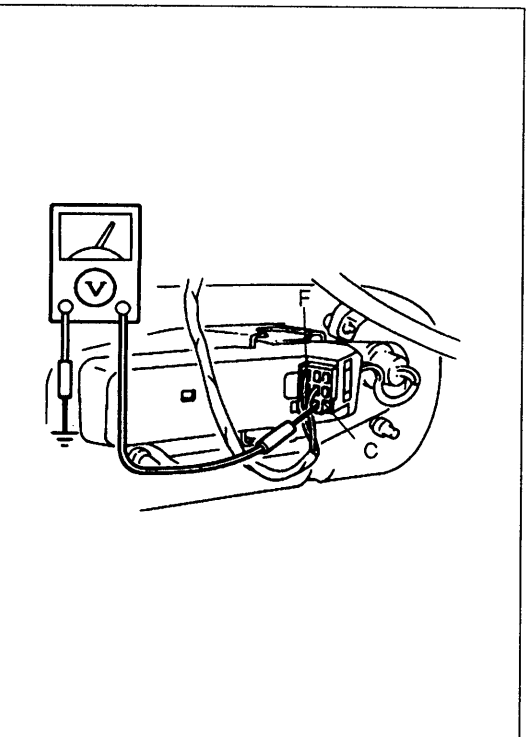
Check the METER 15 A fuse in the fuse block No.1.

Fuse	Action
OK	Go to Step 2
Burnt	Replace fuse after checking and repairing wiring harness



Step 2

1. Check the back-up light bulbs.
2. If the bulbs are OK, go to Step 3.
3. If a bulb is burnt, replace it.

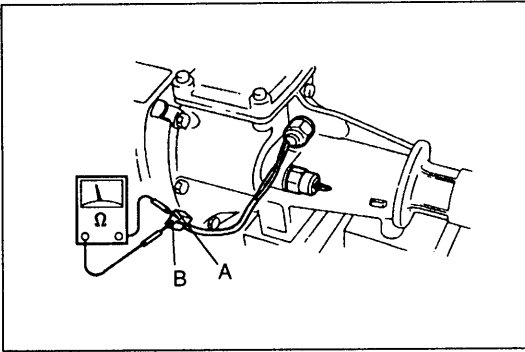


Step 3

1. Turn the ignition switch to ON and shift the transmission to reverse.
2. Measure the voltage at the following terminals of the rear combination light connectors.

B+: Battery positive voltage

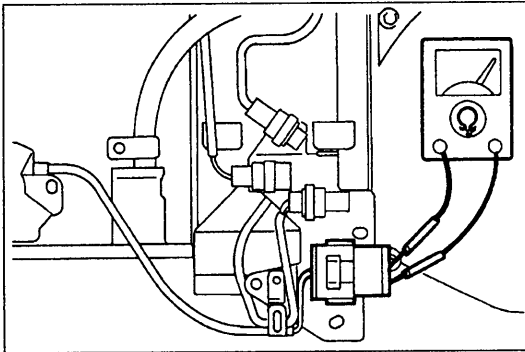
Terminal	Voltage	Action
C	B+	Measure voltage at terminal F
	Other	Go to Step 4
F	B+	Repair wiring harness (Rear combination light — GND)
	Other	Check for poor connection of back-up light connector



Step 4 (MT)

1. Disconnect the back-up light switch connector.
2. Check for continuity between the switch terminals with the transmission in reverse.

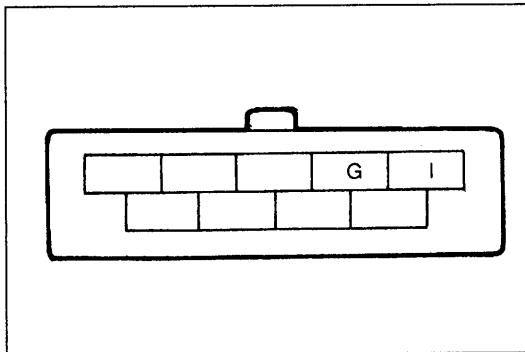
Continuity	Action
Yes	Repair wiring harness (METER 15 A fuse — Back-up light switch — Back-up light)
No	Replace back-up light switch



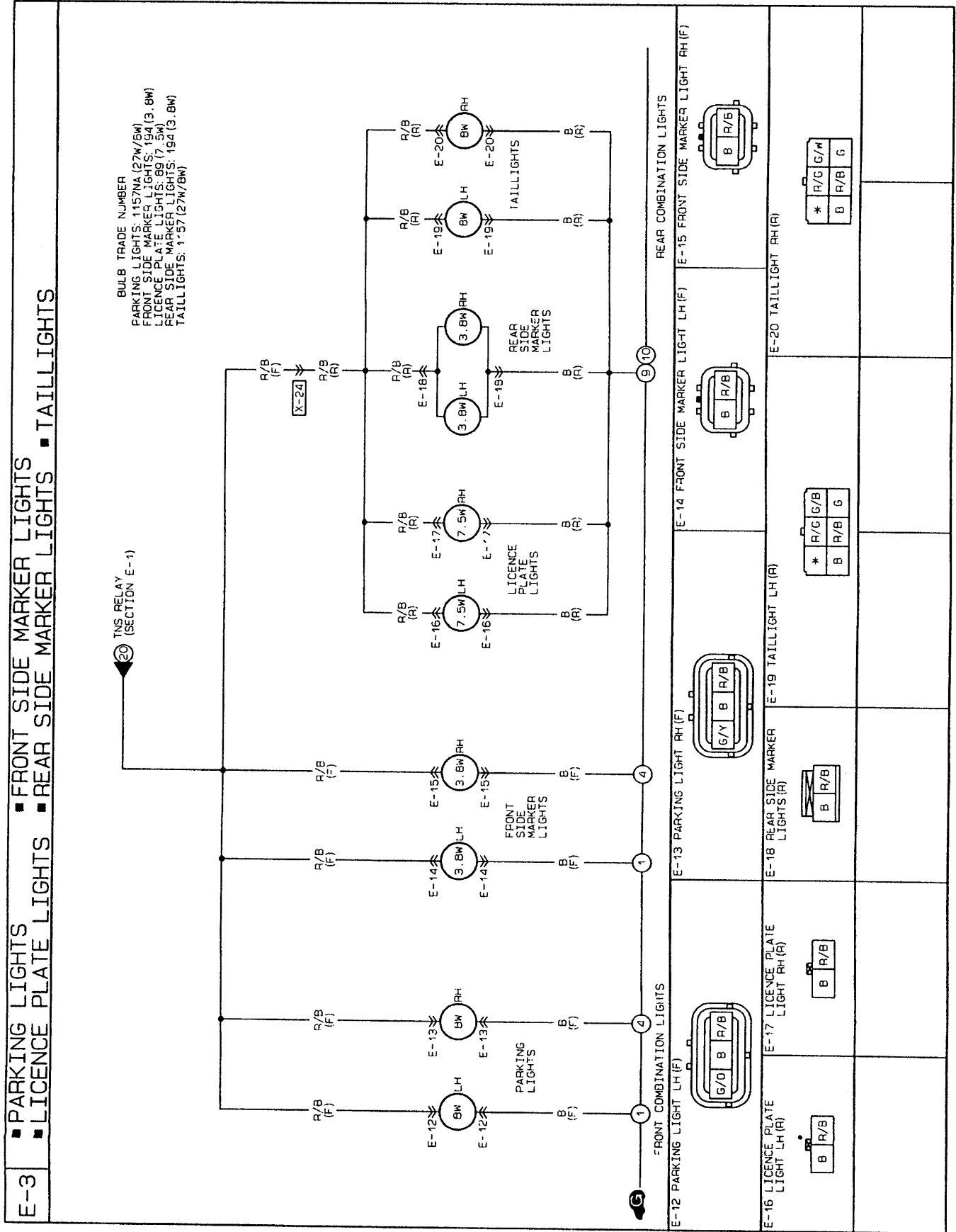
(AT)

1. Disconnect the transmission range switch connector.
2. Check for continuity between terminals G and I with the transmission in reverse.

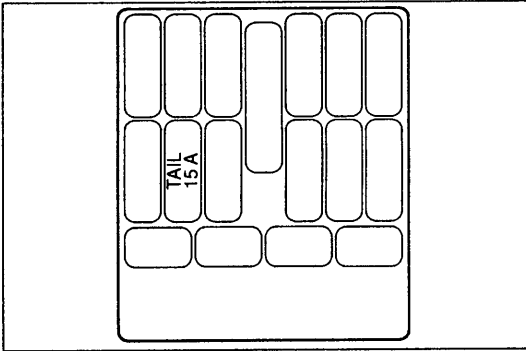
Continuity	Action
Yes	Repair wiring harness (METER 15 A fuse — Transmission range switch)
No	Replace transmission range switch



Taillights, Side Marker Lights, Parking Lights, and Licence Plate Lights Circuit diagram



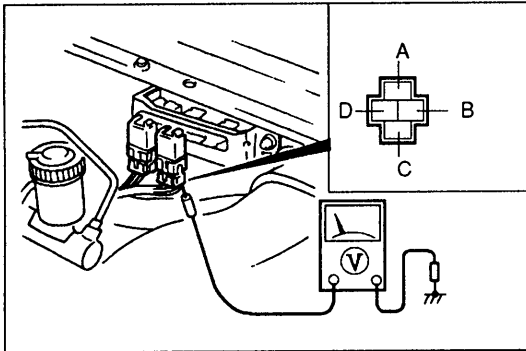
Symptom	Taillights, side marker lights, and licence plate lights do not illuminate
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Step 1

Check the TAIL 15 A fuse in the fuse block No.1.

Fuse	Action
OK	Go to Step 2
Burnt	Replace fuse after checking and repairing wiring harness

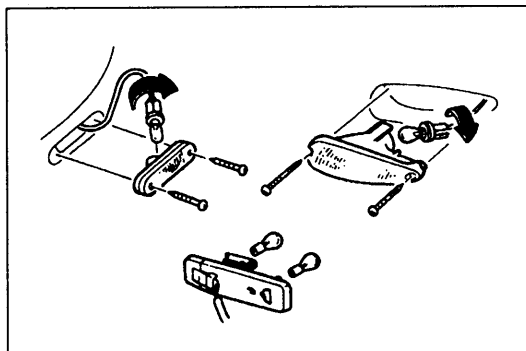


Step 2

1. Turn the headlight switch to the first position.
2. Measure the voltage at the following terminals of the TNS relay connector.

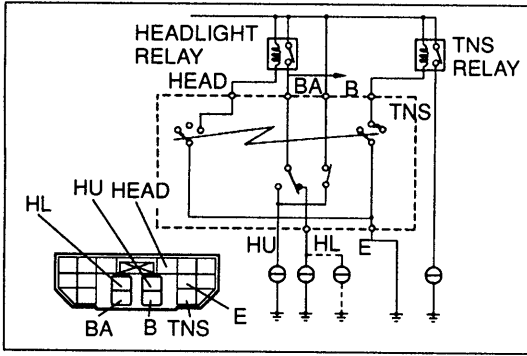
B+: Battery positive voltage

Terminal	Voltage	Action
C	B+	Go to Step 3
	Other	Measure voltage at terminal D
D	B+	Go to Step 4
	Other	Measure voltage at terminal A
A	B+	Measure voltage at terminal B
	Other	Repair wiring harness (TAIL 15 A fuse — TNS relay)
B	B+	Replace TNS relay
	Other	Repair wiring harness (TAIL 15 A fuse — TNS relay)



Step 3

1. Check the bulbs of each light.
2. If the bulbs are OK, repair the wiring harness (TNS relay — GND).
3. If a bulb is burnt, replace the bulb.



Step 4

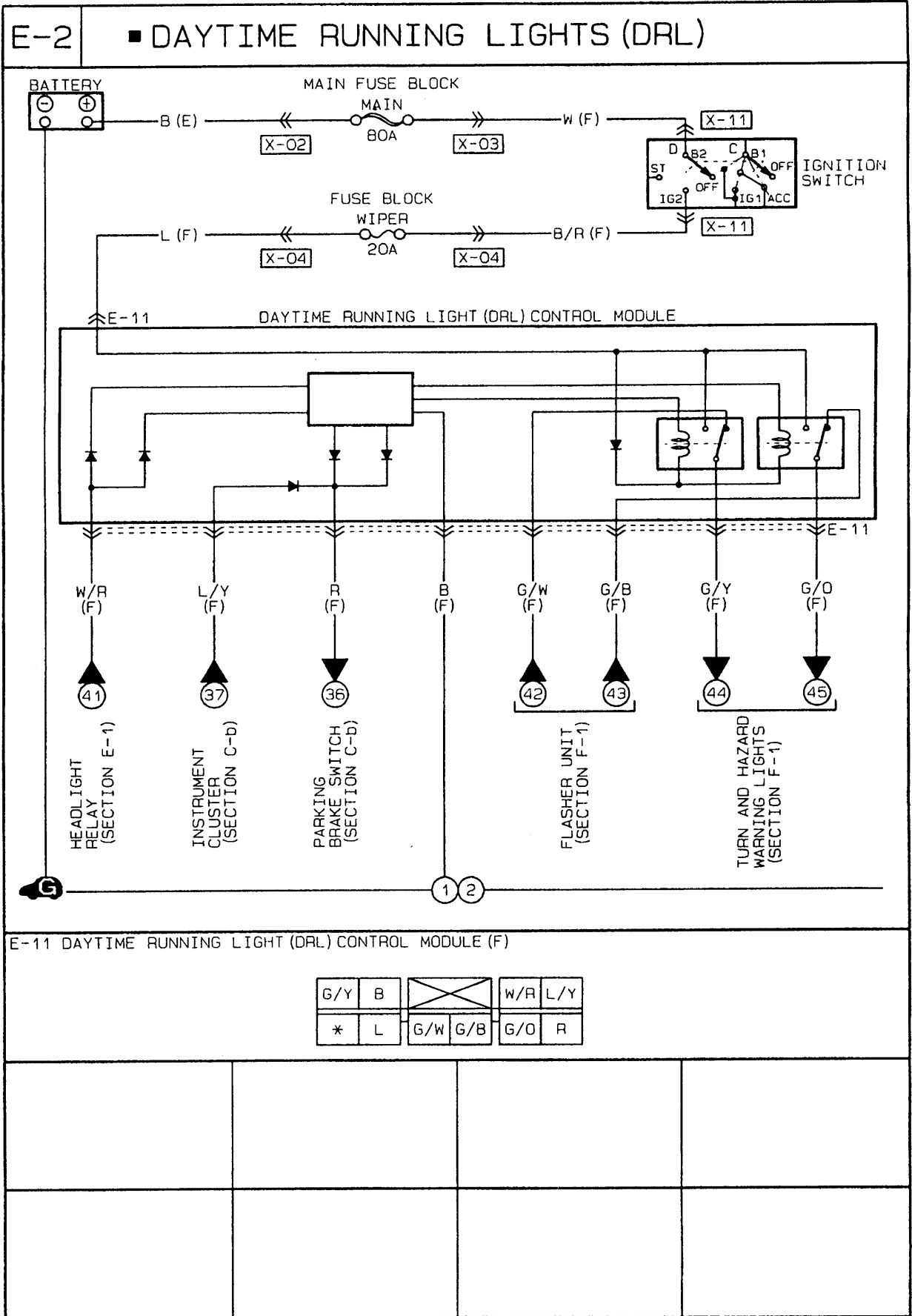
1. Deactivate the audio antitheft system, if installed. (Refer to page T-129.)
2. Disconnect the negative battery cable.
3. Remove the lower panel.
4. Disconnect the combination switch connector.
5. Check for continuity between the following terminals of the combination switch.

Terminal		Switch position						
		E	HL	HU	TNS	HEAD	BA	B
Headlight	Low beam	○	○	○	○	○		
	High beam	○	○		○	○		
Passing				○	○		○	○
Tail, parking		○			○			

○—○: Continuity

6. If correct, repair the wiring harness (TNS relay — combination switch).
7. If not as specified, replace the combination switch.

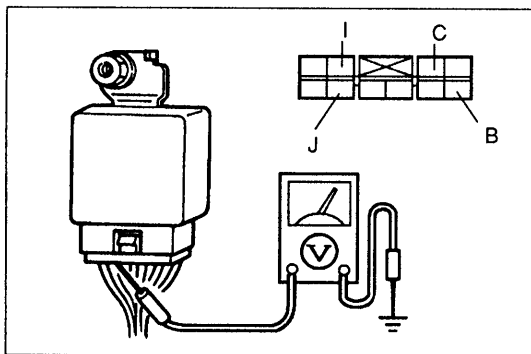
Daytime Running Lights (Canada)
Circuit diagram



Symptom	Daytime running lights (DRL) do not illuminate (turn signal function operates normally)
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Note

- The DRL operate with the engine running and the following switches off:
 1. Headlight switch
 2. Turn switch
 3. Hazard warning switch
 4. Parking brake switch (parking brake released)

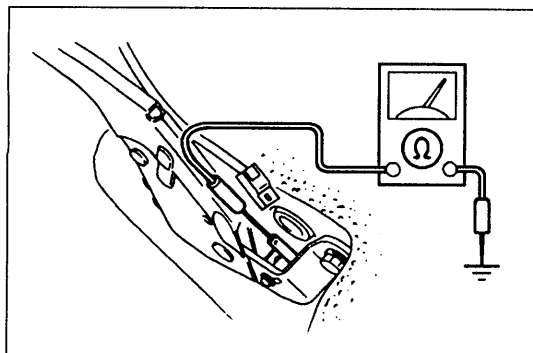


Step 1

1. Position the vehicle on a flat surface and block the wheels to prevent vehicle movement.
2. Turn the ignition switch to ON.
3. Measure the voltage at the following terminals of the DRL control module.
4. If correct, replace the DRL control module.

B+: Battery positive voltage

Terminal	Connection	Test condition	Regular voltage	Action	
				OK	NG
J	WIPER 20 A fuse	Constant	B+	OK	Measure voltage at terminal I
				NG	Repair wiring harness (WIPER 20 A fuse— DRL control module)
I	GND	Constant	Yes	OK	Measure voltage at terminal B and C
				NG	Repair wiring harness (DRL control module — GND)
B	Parking brake switch	Parking brake released	B+	OK	Go to step 2
				NG	Replace the DRL control module
C	Headlight switch	Headlight switch off	0	OK	Go to step 3
				NG	Replace the DRL control module

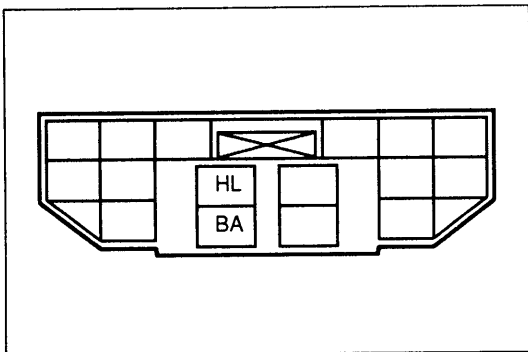


Step 2

1. Disconnect the parking brake switch.
2. Check for continuity between the switch terminal of the parking brake switch and ground.

Parking brake lever	Continuity
Pulled one notch	Yes
Released	No

3. If correct, repair the wiring harness (DRL control module — parking brake switch).
4. If not as specified, adjust or replace the parking brake switch. (Refer to section P.)



Step 3

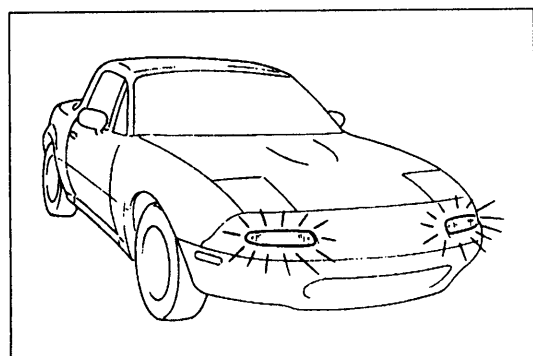
1. Remove the column cover and disconnect the combination switch connector.
2. Check for continuity between the terminals of the combination switch.

Switch position \ Terminal	HL	BA
High beam	○—○	○—○
Low beam		

○—○: Continuity

3. If correct, repair the wiring harness (combination switch — DRL control module).
4. If not as specified, replace the combination switch.

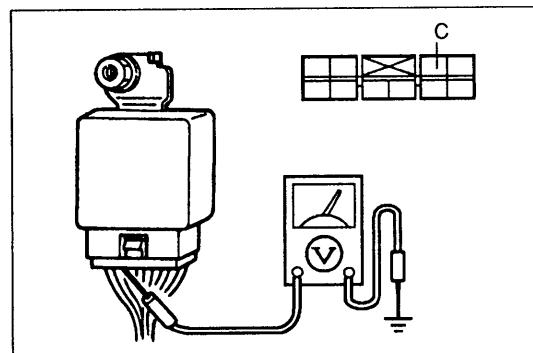
Symptom	Daytime running lights (DRL) function do not cancel
----------------	---



Step 1

1. Turn the ignition switch to ON.
2. Operate the following switches. If the DRL do not cancel when the switch is turned on, take the appropriate action.

Switch	Action
Headlight switch	Go to Step 2
Hazard warning switch	Go to Step 4
Turn switch	Go to Step 4
Parking brake switch	Go to Step 5

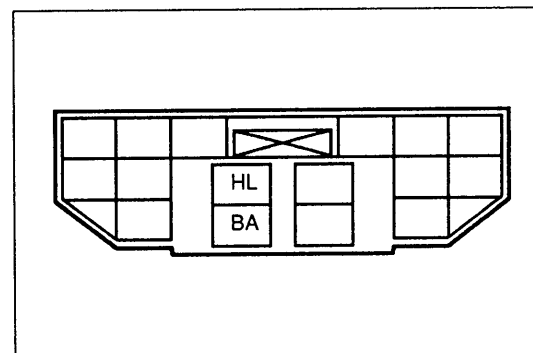


Step 2

1. Turn the headlight switch to the first position.
2. Measure the voltage at terminal C (W/R) of the DRL control module connector.

B+: Battery positive voltage

Voltage	Action
B+	Go to Step 3
Other	Replace DRL control module



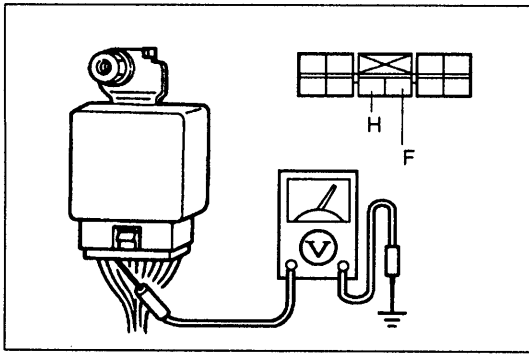
Step 3

1. Remove the column cover and disconnect combination switch connector.
2. Check for continuity between the terminals of the combination switch.

Switch position \ Terminal	HL	BA
High beam		
Low beam	○—○	○—○

○—○: Continuity

3. If correct, repair the wiring harness (combination switch — DRL control module).
4. If not as specified, replace the combination switch.



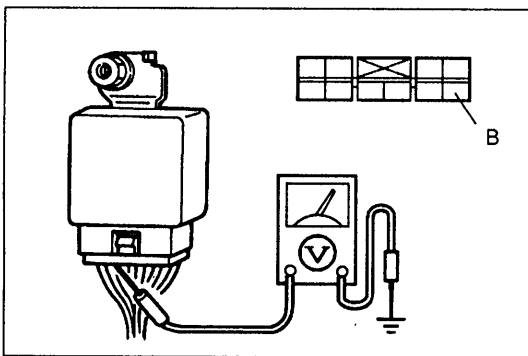
Step 4

1. Turn the turn switch on.
2. Measure the voltage at the following terminals of the DRL control module connector.

B+: Battery positive voltage

Terminal	Voltage
F	Alternates B+ and 0 V
H	Alternates B+ and 0 V

3. If correct, replace the DRL control module.
4. If not as specified, repair the wiring harness (flasher unit — DRL control module).

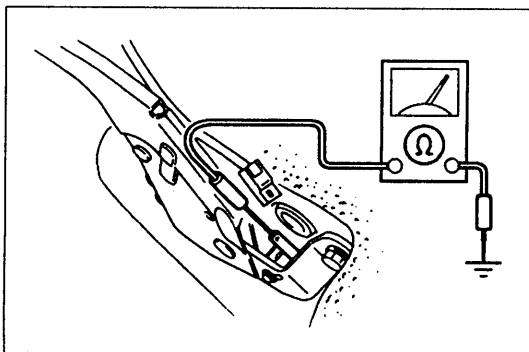


Step 5

1. Pull the parking brake lever more than one notch.
2. Measure the voltage at terminal B (R) of the DRL control module connector.

B+: Battery positive voltage

Voltage	Action
B+	Go to Step 6
Other	Replace DRL control module



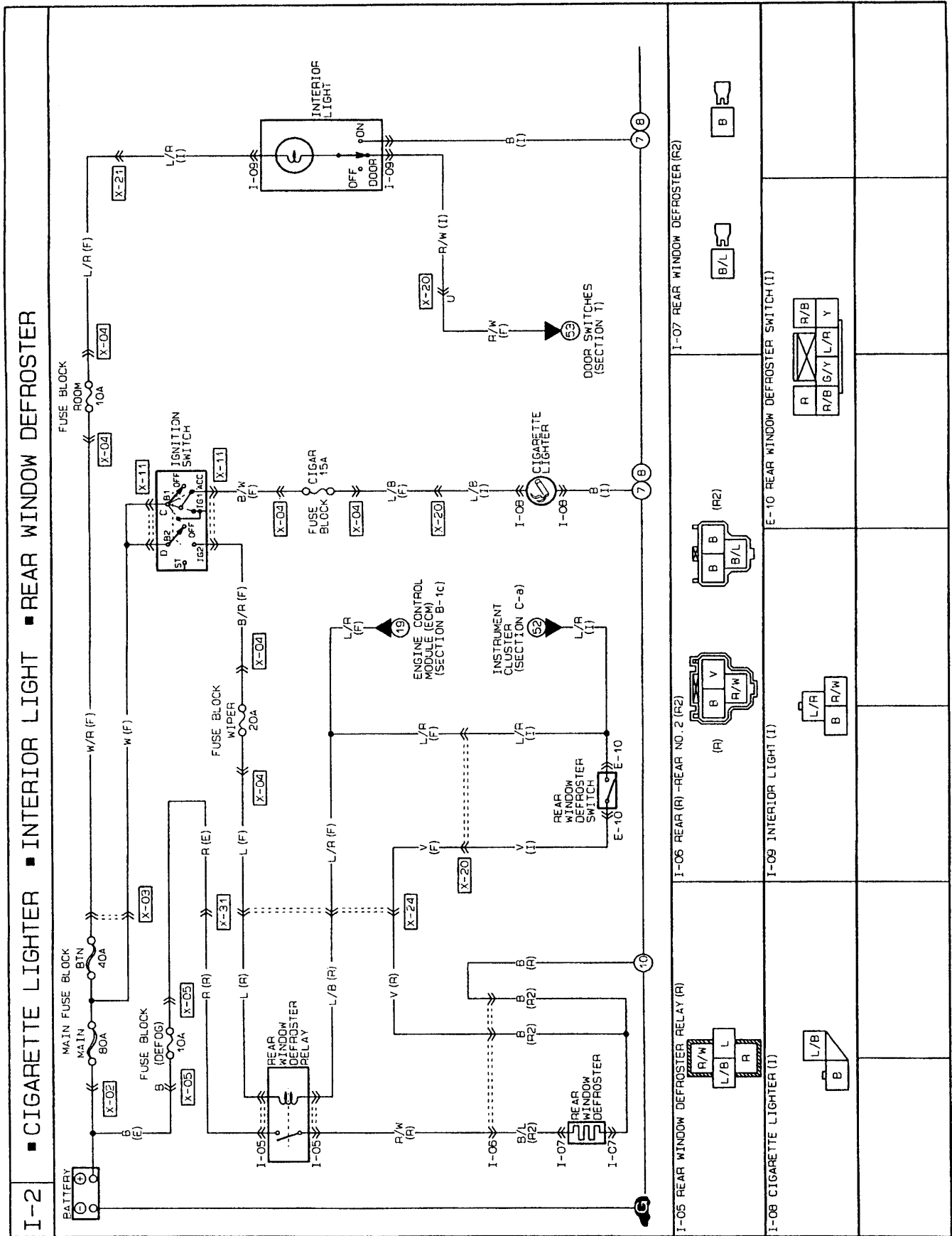
Step 6

1. Disconnect the parking brake switch.
2. Check for continuity between terminal of the parking brake switch and ground.

Parking brake lever	Continuity
Pulled one notch	Yes
Released	No

3. If correct, repair the wiring harness (parking brake switch — DRL control module).
4. If not as specified, adjust or replace the parking brake switch. (Refer to section P.)

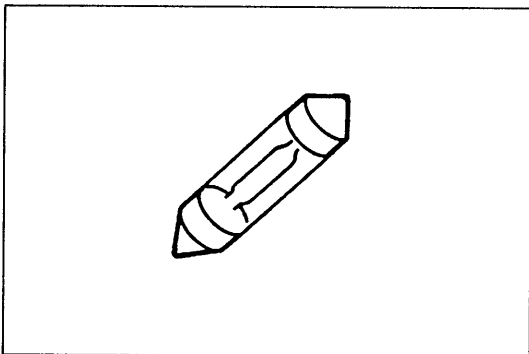
Interior Light
Circuit diagram



Symptom	Interior light does not illuminate
----------------	------------------------------------

Possible cause

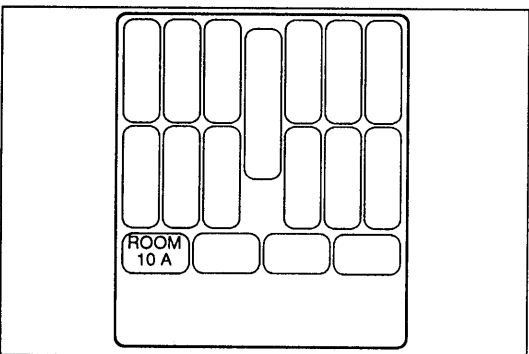
- Burnt ROOM 10 A fuse
- Burnt interior light bulb
- Damaged door switch
- Open or short circuit in wiring harness
- Poor connection of connector



Step 1

Remove and check the interior light bulb.

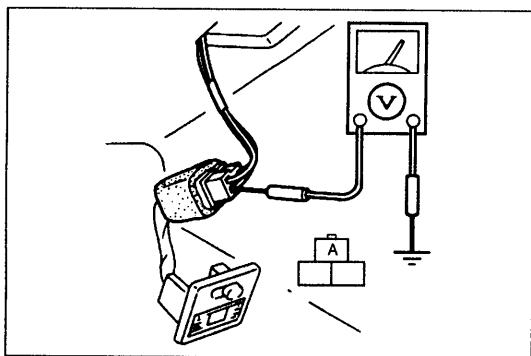
Bulb	Action
OK	Go to Step 2
Burnt	Replace interior light bulb



Step 2

Check the ROOM 10 A fuse in the fuse block No.1.

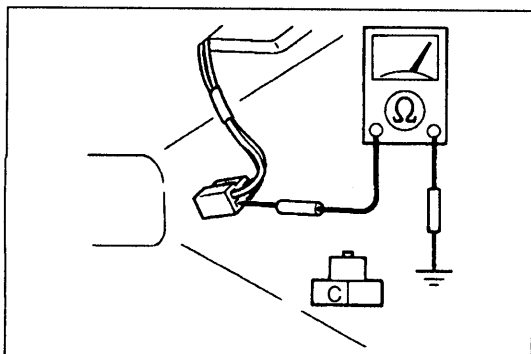
Fuse	Action
OK	Go to Step 3
Burnt	Replace fuse after checking and replacing wiring harness



Step 3

1. Remove the interior light. (Refer to page T-67.)
2. Measure the voltage at terminal A (L/R) of the interior light connector.

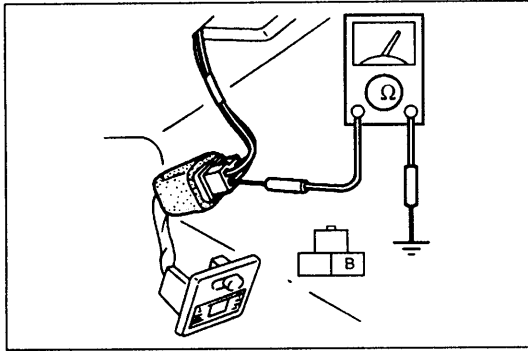
Voltage	Action
B+	Go to Step 4
Other	Repair wiring harness (ROOM 10 A fuse — Interior light)



Step 4

1. Disconnect the interior light connector.
2. Check for continuity between terminal C (B) of the interior light connector and ground.

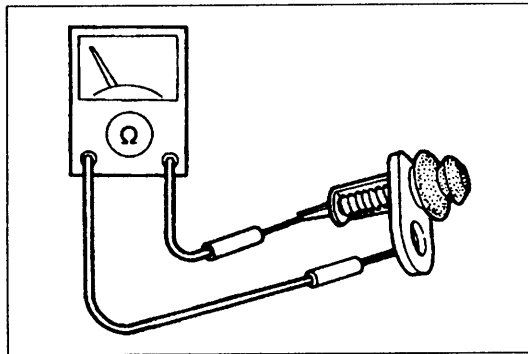
Voltage	Action
Yes	Connect interior light connector and go to Step 5
No	Repair wiring harness (Interior light — GND)



Step 5

1. Turn the interior light switch to door.
2. Open the any door.
3. Check for continuity between terminal B (R/W) of the interior light connector and ground.

Continuity	Action
Yes	Replace interior light
No	Go to Step 6



Step 6

1. Remove the door switch.
2. Check for continuity between the switch terminal and the switch body as shown in the figure.

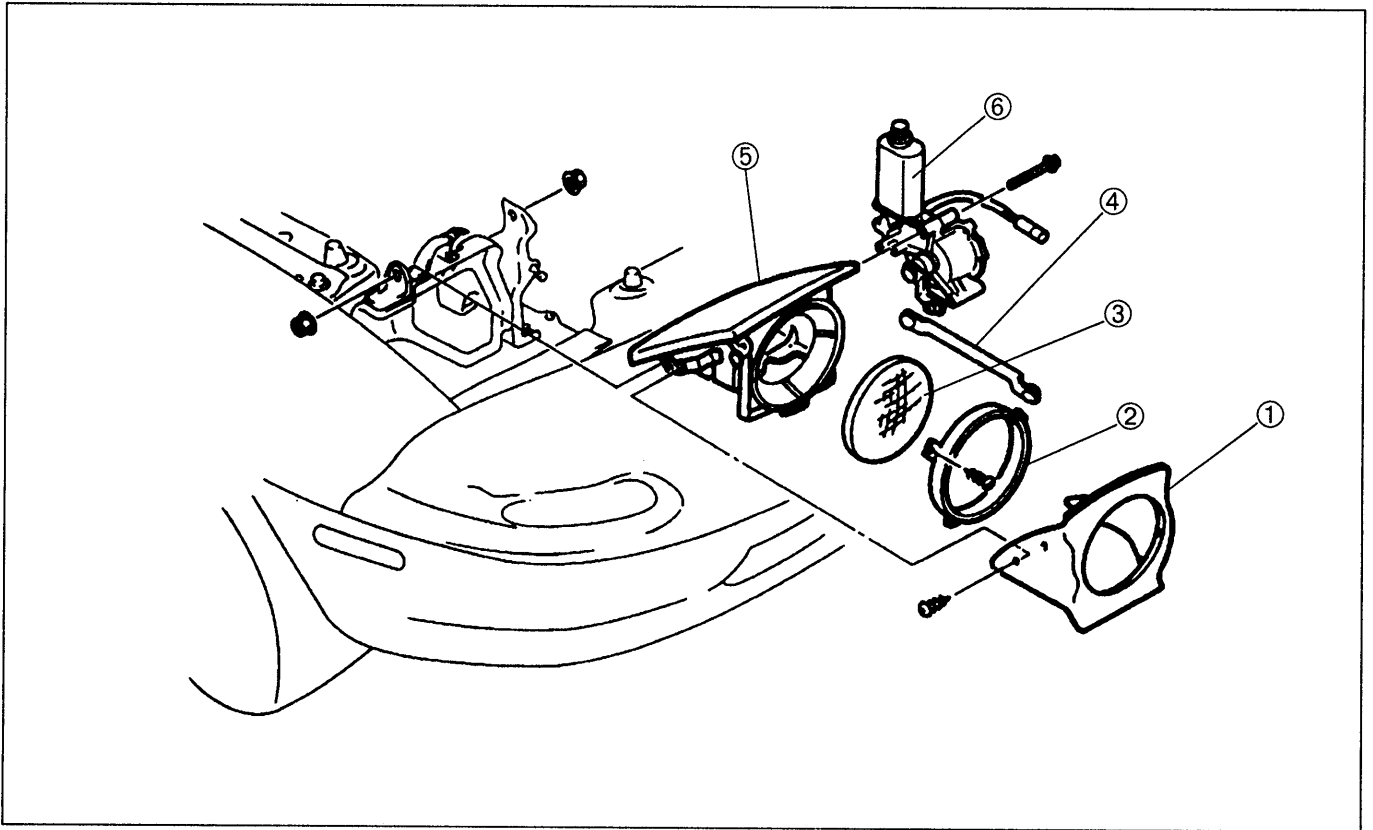
Switch condition	Continuity
Pressed	No
Released	Yes

3. If correct, repair wiring harness. (Interior light — door switch)
4. If not as specified, replace the door switch.

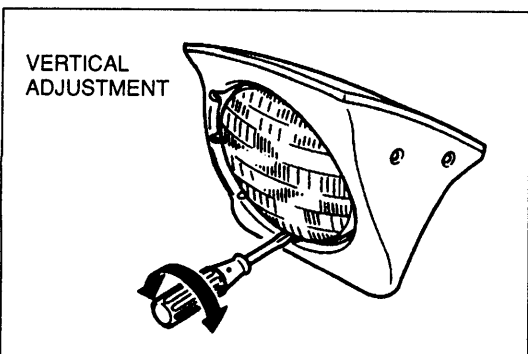
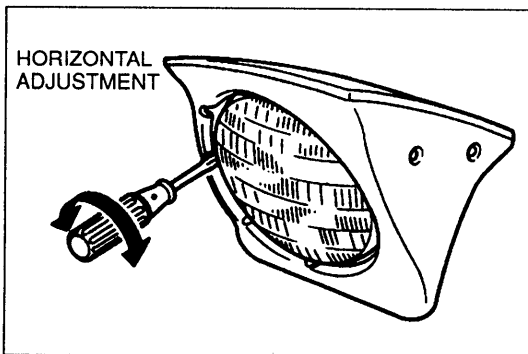
HEADLIGHT

Removal / Installation

1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.

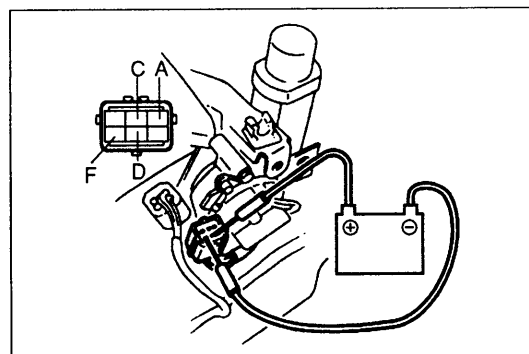
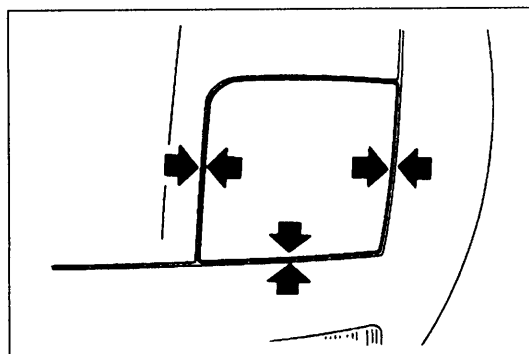
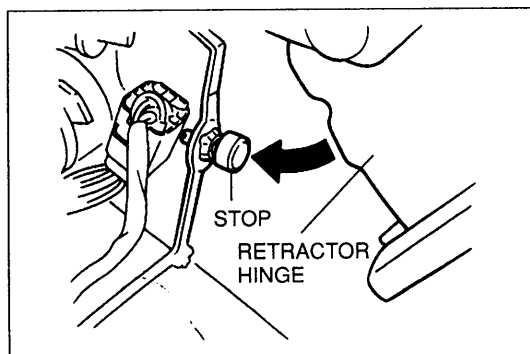
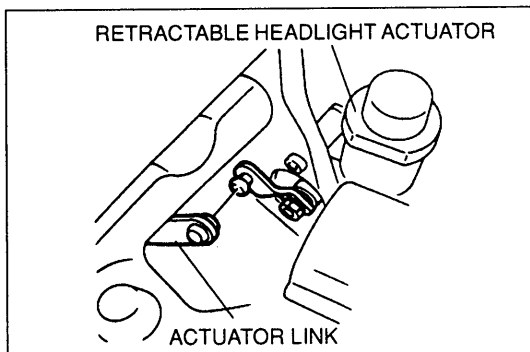


- | | |
|----------------------|-----------------------------------|
| 1. Bezel | 4. Motor link |
| 2. Headlight housing | 5. Retractable hinge |
| 3. Headlight | 6. Retractable headlight actuator |



Aiming

1. Adjust the tire air pressure to specification.
2. Turn the retractor switch on to raise the retractable headlights.
3. Position the unloaded vehicle on a flat, level surface.
4. Adjust the headlights to meet local regulations by turning the two adjusting screws.



RETRACTABLE HINGE

Adjustment

1. Fully retract the headlights.
2. Obtain the code number and deactivate the audio anti-theft function, if installed. (Refer to page T-129.)
3. Disconnect the negative battery cable.
4. Disconnect the actuator link.

5. Lower the retractor hinge until the hinge is stopped by the stop.

6. Adjust the stop so that the headlight lid is flush with the fender, hood and front bumper.

RETRACTABLE HEADLIGHT ACTUATOR

Inspection

1. Disconnect the actuator link.
2. Disconnect the retractable headlight actuator connector.
3. Connect battery positive voltage to terminal F and ground to terminal A of the actuator connector.
4. Connect battery positive voltage and check the operation of the motor.

B+: Battery positive voltage

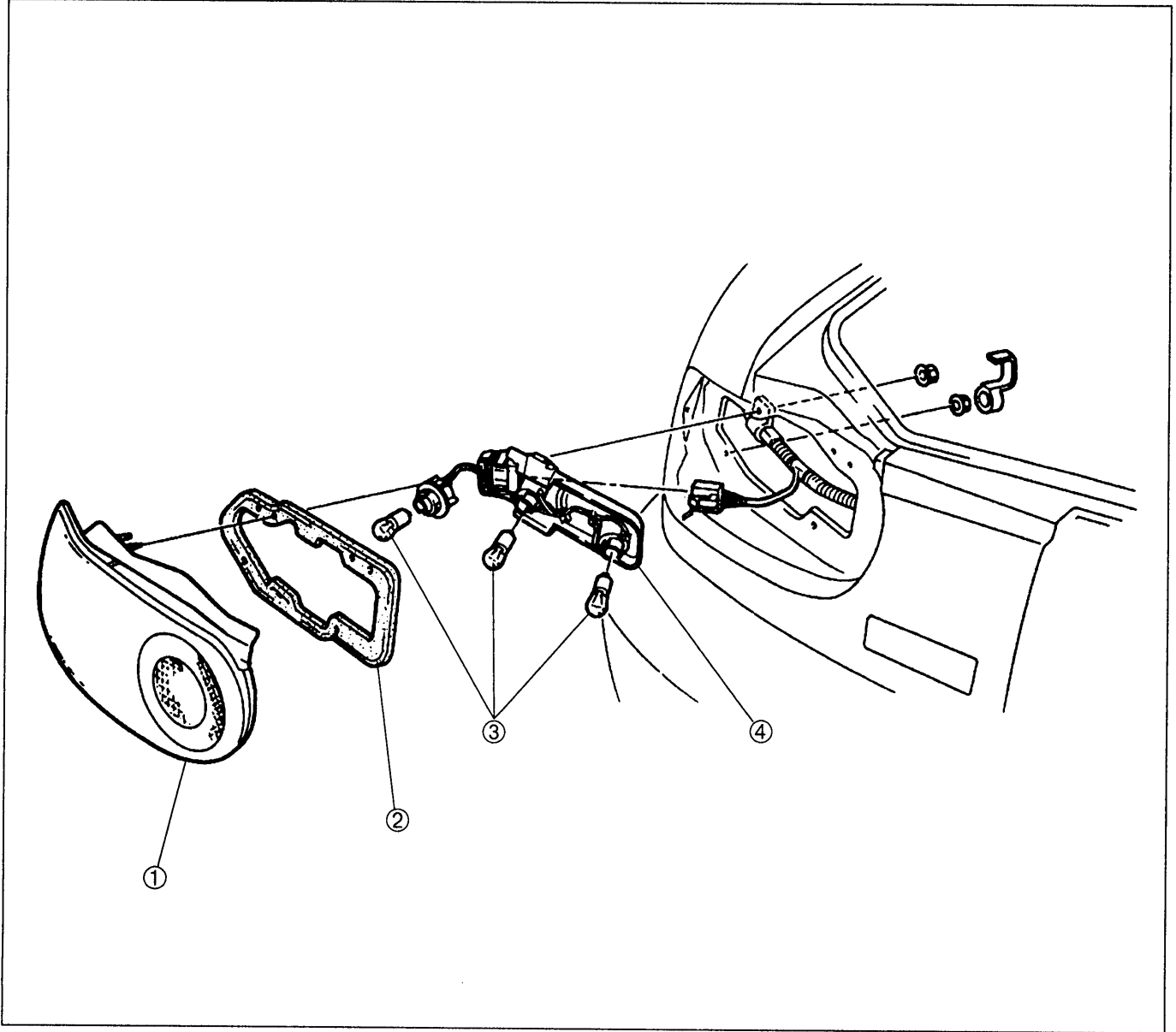
Terminal		Motor operation
B+	GND	
C	A	Raise
D	A	Retract

5. If not as specified, replace the retractable headlight actuator.

REAR COMBINATION LIGHT

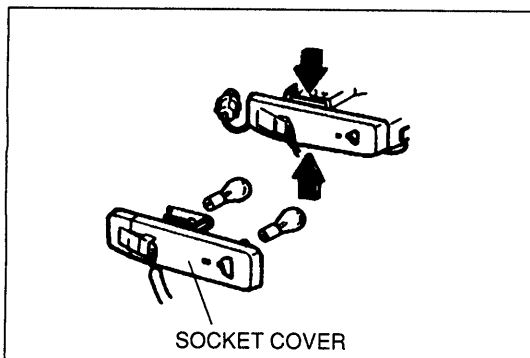
Removal / Installation

1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.



1. Lens
2. Gasket

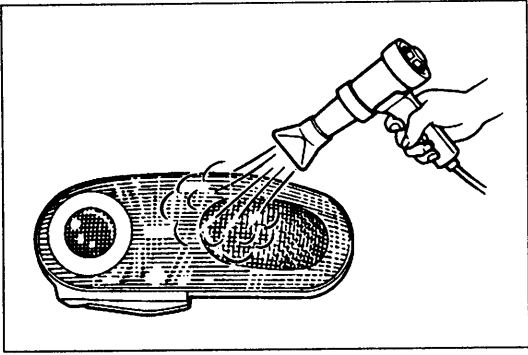
3. Bulbs
4. Bracket



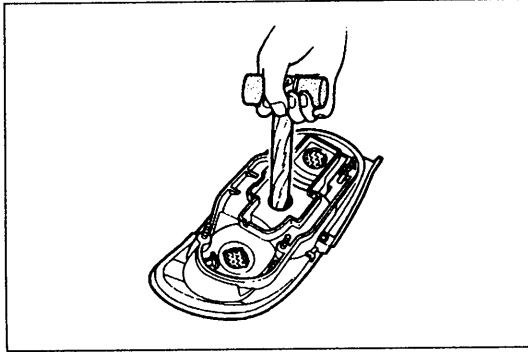
Bulb Replacement

1. Remove the socket cover.
2. Remove the bulb.
3. Install in the reverse order of removal.

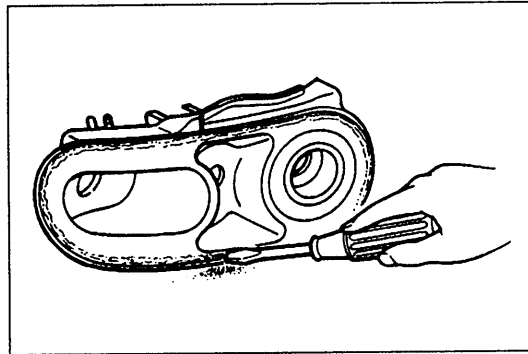
Brake light/Taillight bulb: 27/8 W
Rear turn light bulb: 27 W

**Disassembly**

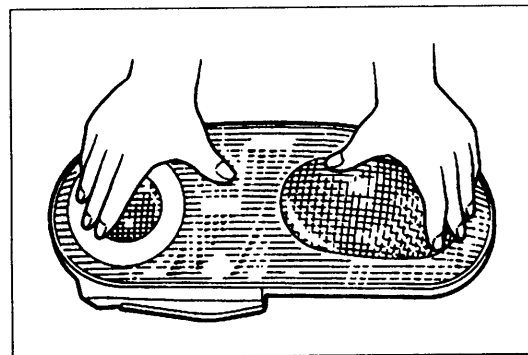
1. Use a hot-air blower to soften the "hot melt" (bonding agent) around the lens.



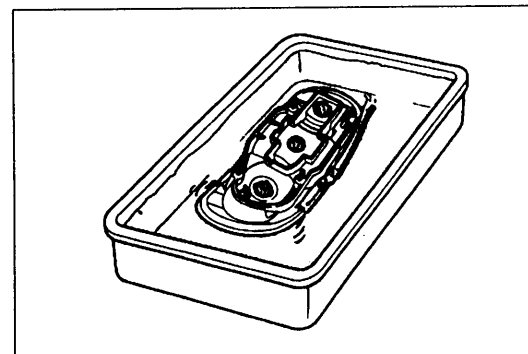
2. Remove the lens from the light housing by pushing the rear of the lens with a hammer handle or round bar.



3. Remove the old hot melt from the light housing.

**Assembly**

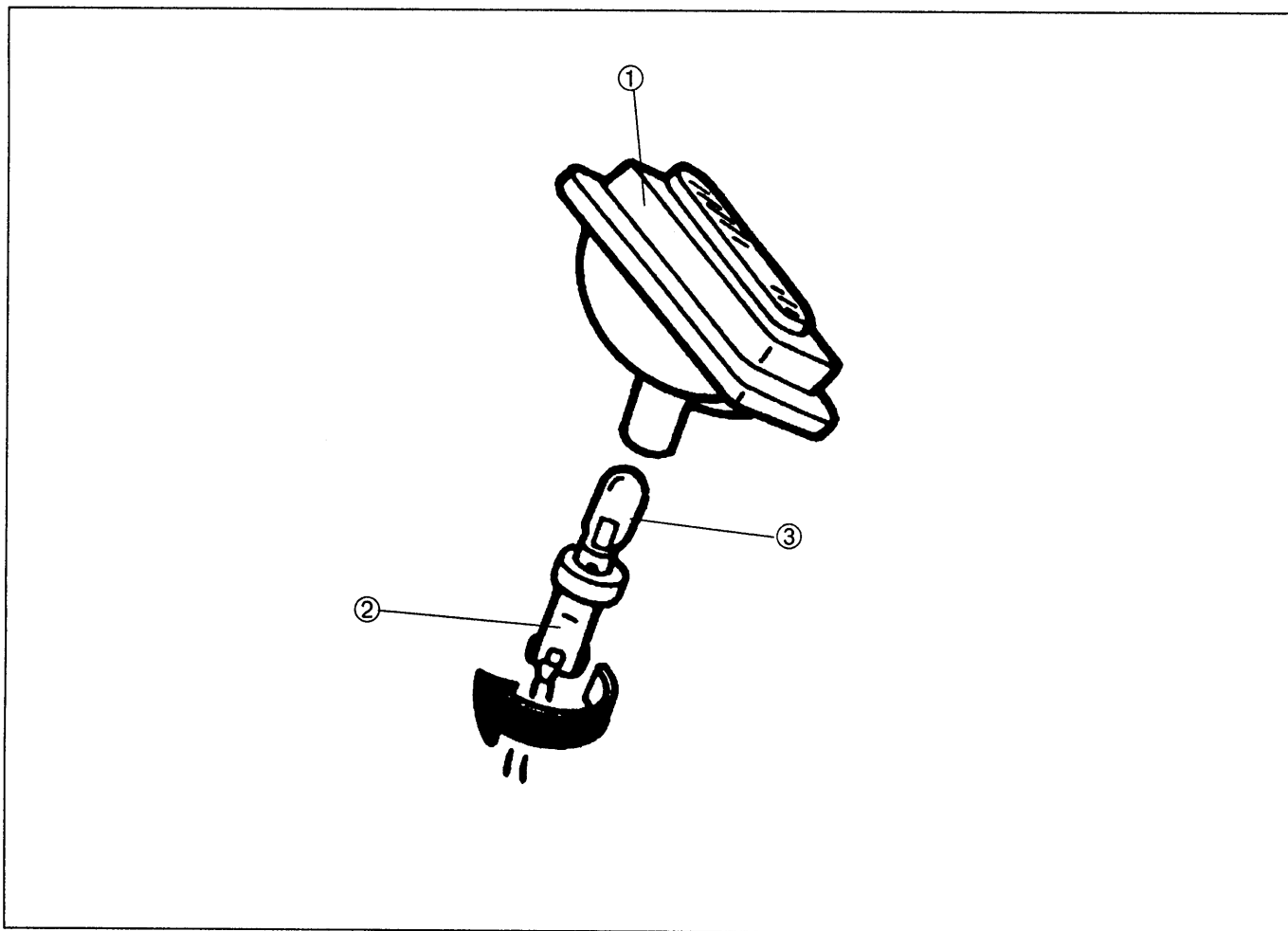
1. If new hot melt is used, put sealant adhesive in the light housing groove.
2. Fit the new lens onto the light housing. Press the lens firmly so that it will adhere.



3. Allow the sealer to dry for about one hour.
4. Immerse the combination light in water to check for leaks.

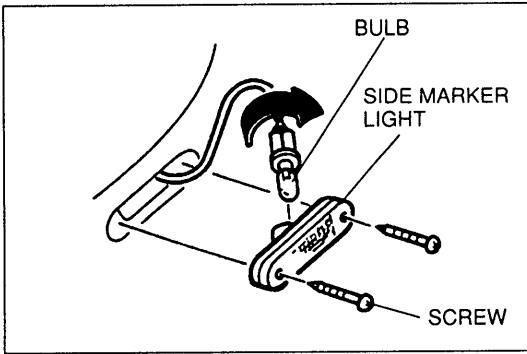
HIGH-MOUNT BRAKE LIGHT**Removal / Installation**

1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.



1. High-mount brake light
2. Socket

3. Bulb (18.4 W)

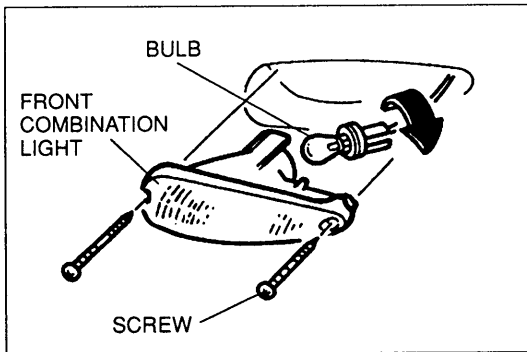


SIDE MARKER LIGHT

Removal / Installation

1. Remove the screws.
2. Remove the side marker light.
3. Install in the reverse order of removal.

Side marker light bulb: 3.8 W

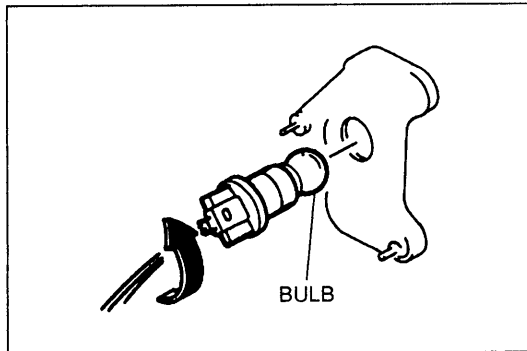


FRONT COMBINATION LIGHT

Removal / Installation

1. Remove the screws.
2. Remove the front combination light.
3. Install in the reverse order of removal.

Front turn light/Parking light bulb: 27/8 W

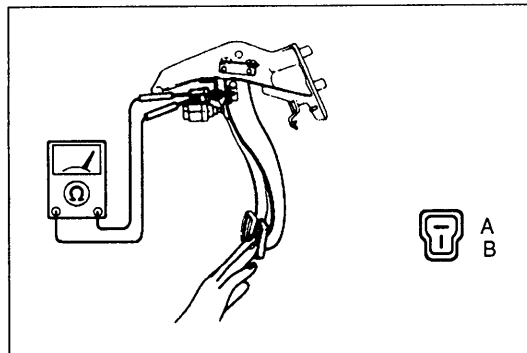


LICENCE PLATE LIGHT

Bulb Replacement

1. Remove the bulb.
2. Install in the reverse order of removal.

Licence plate light bulb: 7.5 W



BRAKE SWITCH

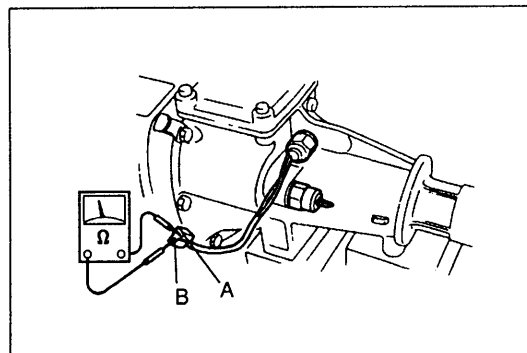
Inspection

1. Disconnect the brake switch connector.
2. Check for continuity between the switch terminals.

	Terminal	A	B
Brake pedal			
Depressed		○—○	○—○
Released			

○—○: Continuity

3. If not as specified, replace the brake switch.



BACK-UP LIGHT SWITCH

Inspection

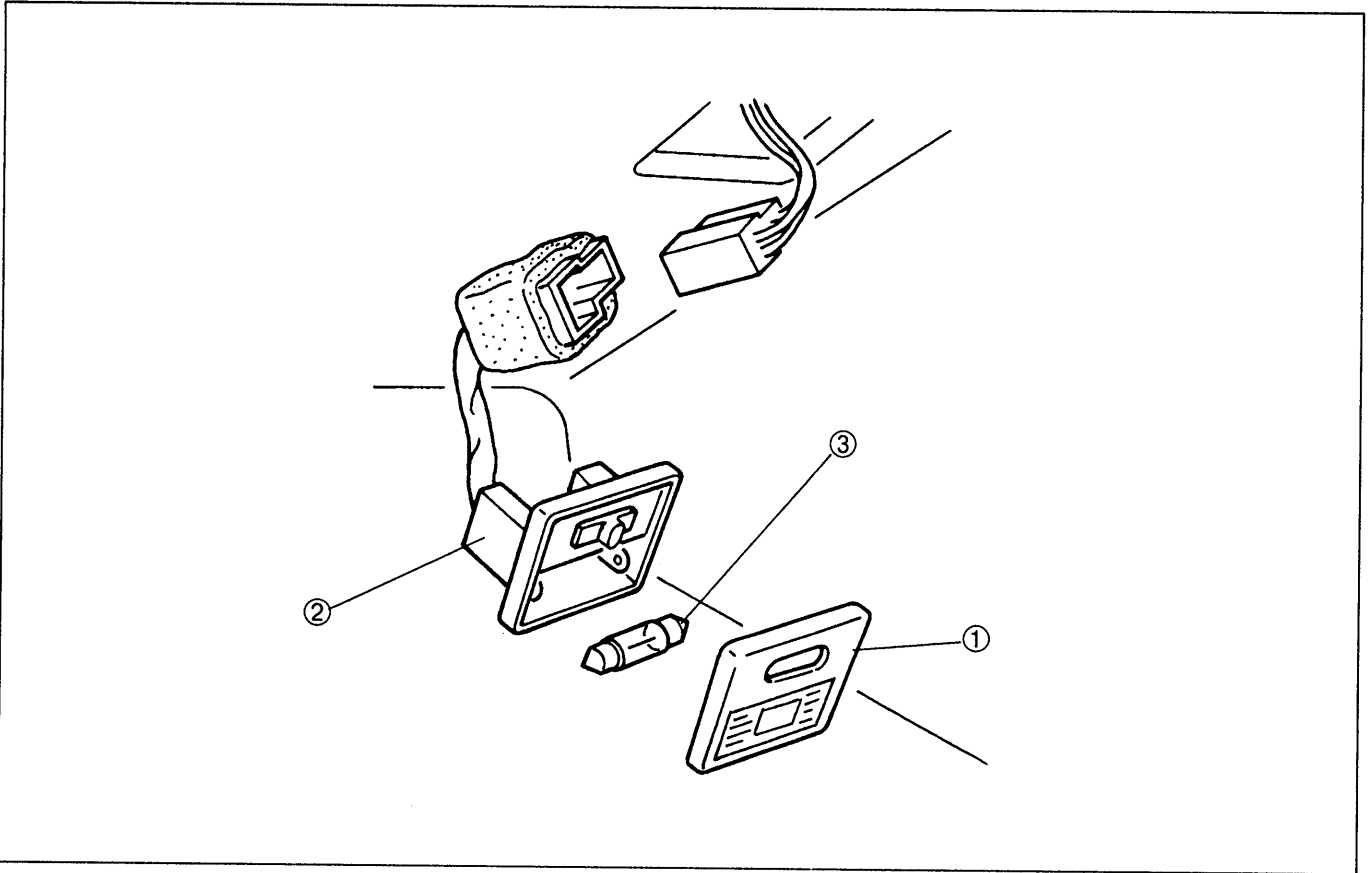
1. Disconnect the back-up light switch connector.
2. Check for continuity between the switch terminals.

Transmission	Continuity
Reverse	Yes
Other	No

3. If not as specified, replace the back-up light switch.

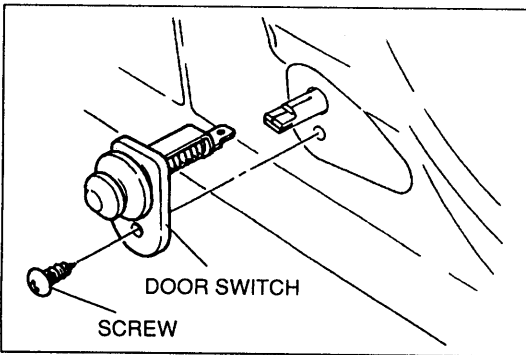
INTERIOR LIGHT
Removal / Installation

1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.



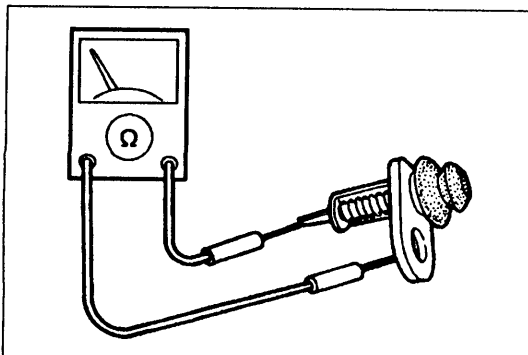
1. Lens
2. Housing

3. Bulb (10 W)



DOOR SWITCH
Removal / Installation

1. Remove the screw.
2. Disconnect the door switch connector and remove the door switch.
3. Install in the reverse order of removal.



Inspection

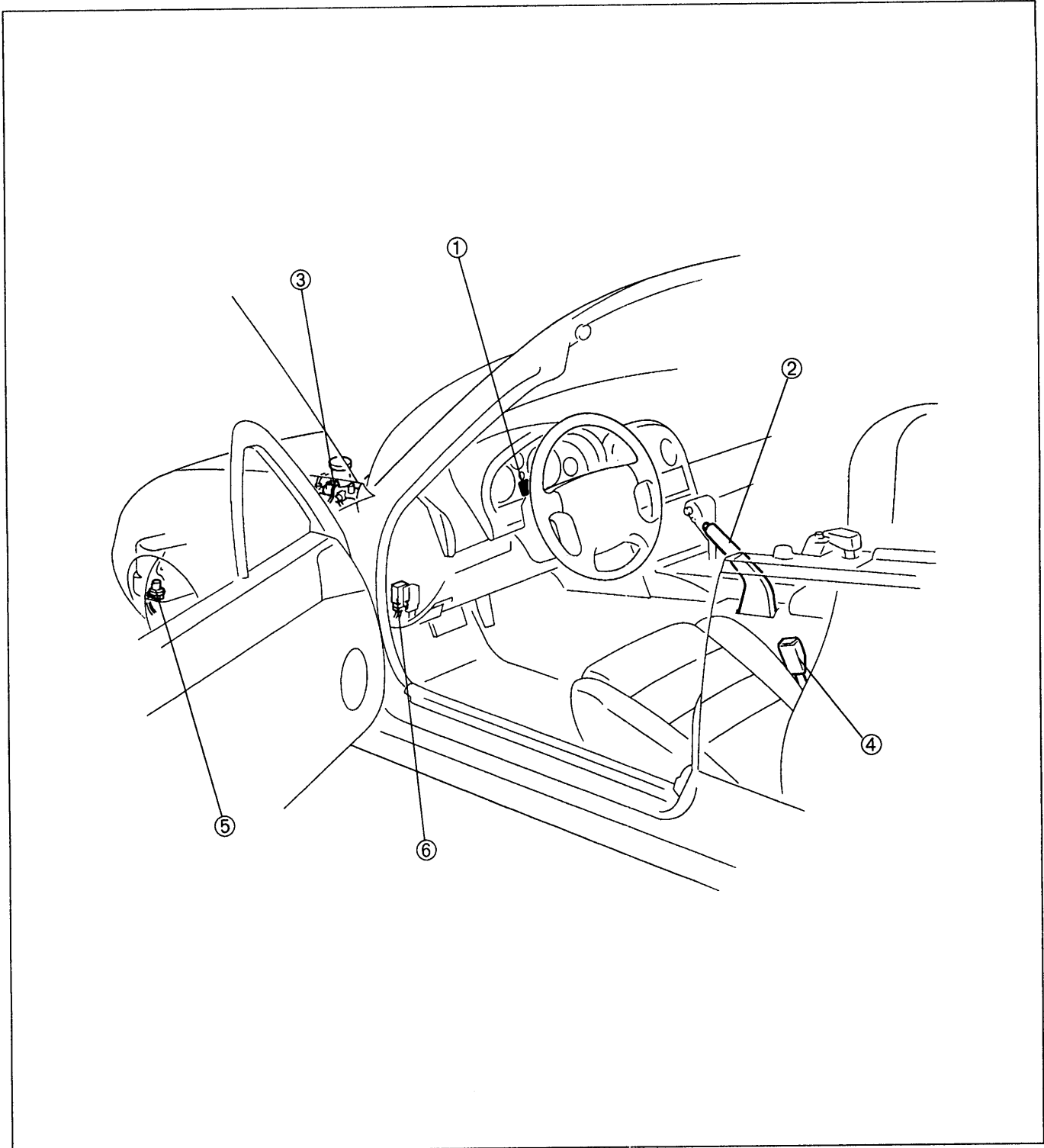
1. Remove the door switch.
2. Check for continuity between the switch terminal and the switch body as shown in the figure.

Switch condition	Continuity
Pressed	No
Released	Yes

3. If not as specified, replace the door switch.

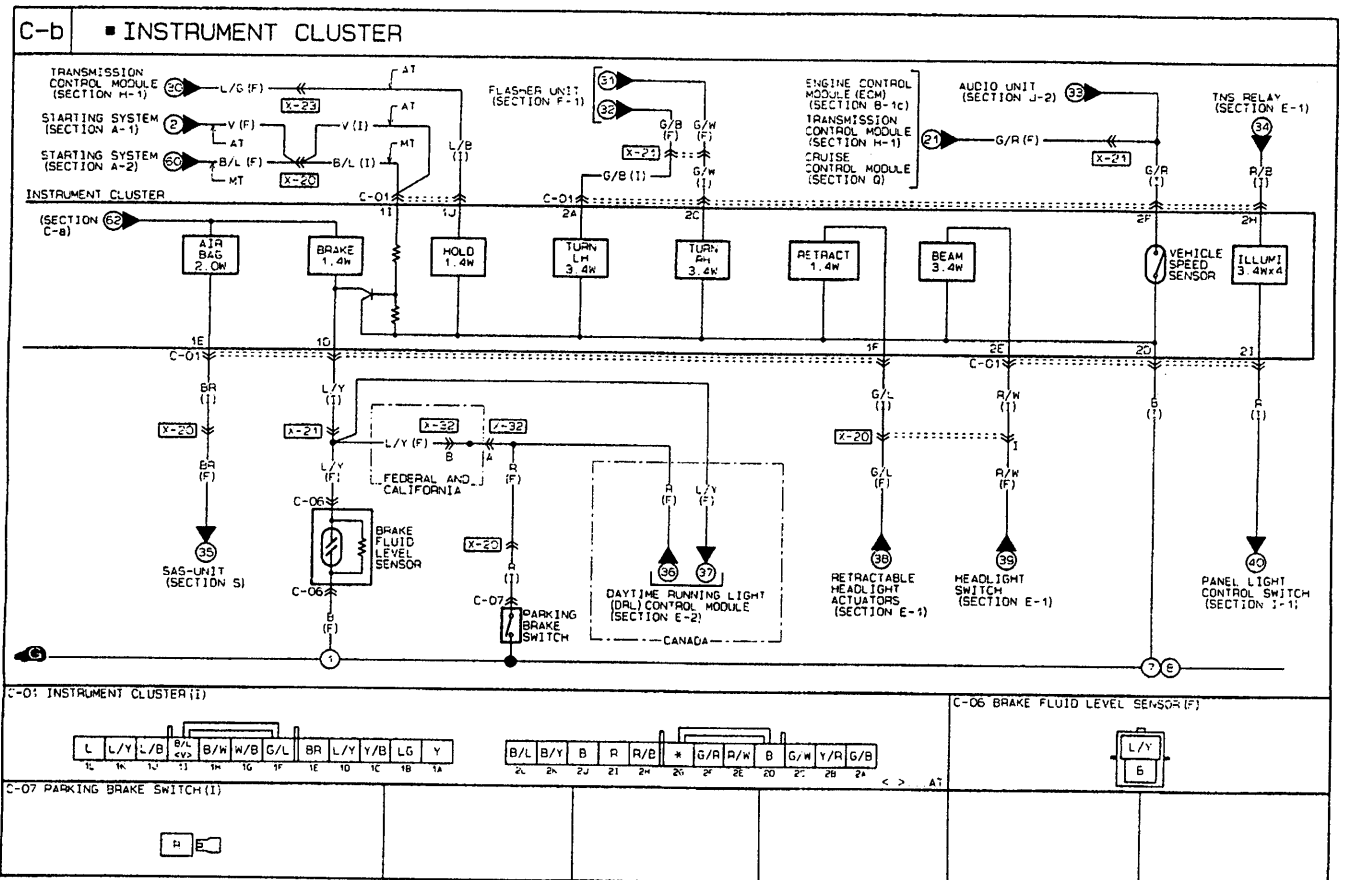
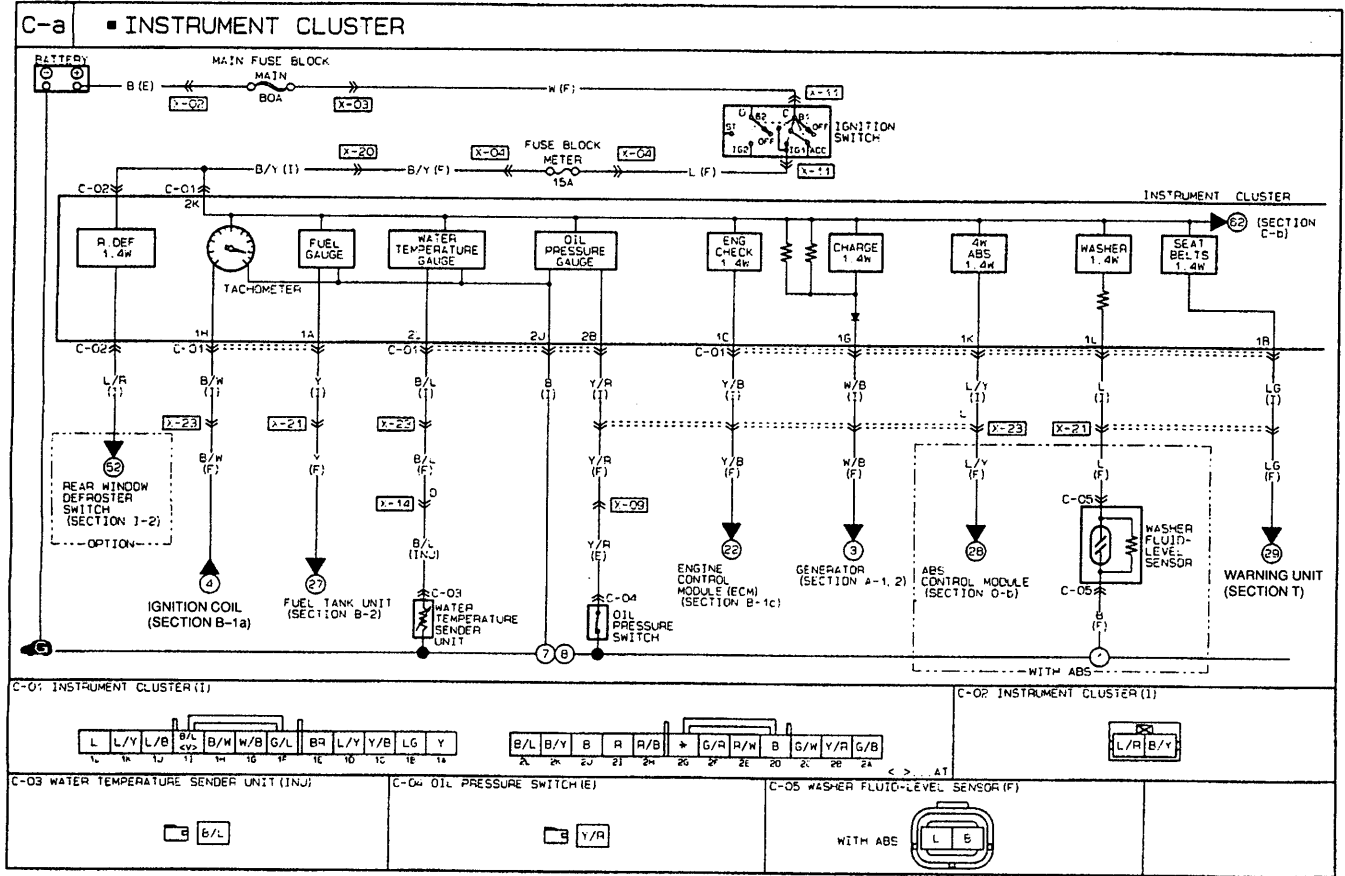
WARNING SYSTEM

STRUCTURAL VIEW



- | | |
|--|---|
| 1. Warning and indicator lights
(in instrument cluster)
Bulb replacement page T-76 | 4. Buckle switch
Inspection page T-77 |
| 2. Parking brake switch
Inspection page T-77 | 5. Washer fluid-level sensor
Inspection page T-77 |
| 3. Brake fluid level sensor
Inspection page T-77 | 6. Warning unit
Removal / Installation page T-78
Inspection page T-78 |

TROUBLESHOOTING Circuit Diagram

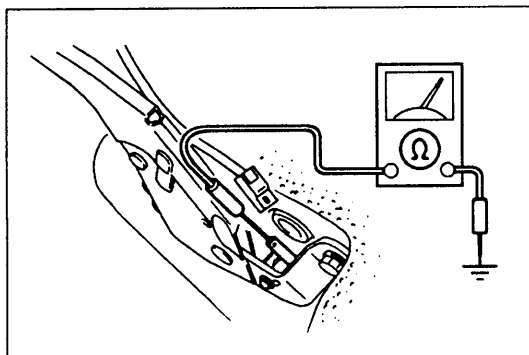
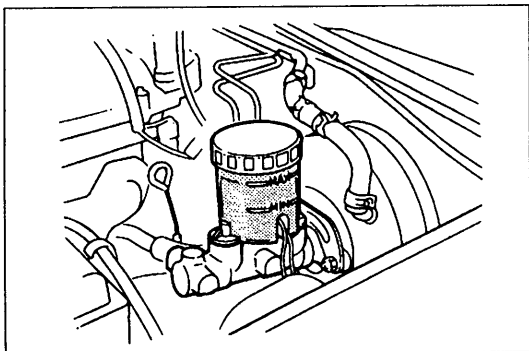


Symptom

Brake system warning light remains illuminated

Possible cause

- Shortage of brake fluid
- Damaged parking brake switch
- Damaged brake fluid level sensor
- Open or short circuit in wiring harness
- Poor connection of connector

**Step 1**

Check the brake fluid level.

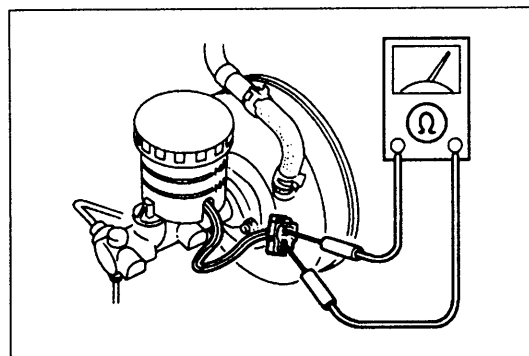
Fluid level	Action
Below MIN	Check brake system (Refer to section P)
Above MIN	Go to Step 2

Step 2

1. Disconnect the parking brake switch connector.
2. Check for continuity between the switch terminal and ground.

Parking brake	Continuity
Set	Yes
Released	No

3. If correct go to Step 3.
4. If not as specified, adjust or replace the parking brake switch. (Refer to section P.)

**Step 3**

1. Check for continuity between the terminals of the brake fluid level sensor.

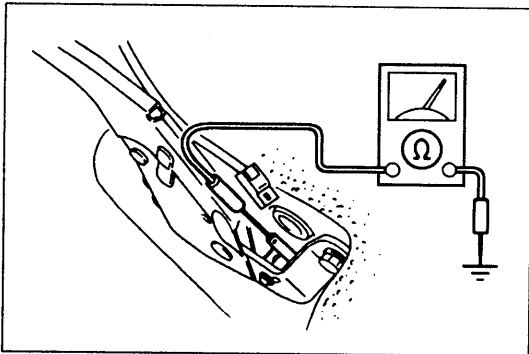
Fluid level	Continuity
Below MIN	Yes
Above MIN	No

2. If correct, repair the wiring harness (instrument cluster — brake fluid level sensor — parking brake switch).
3. If not as specified, replace the brake fluid level sensor.

Symptom	Brake system warning light does not illuminate when parking brake is on and ignition switch is at ON
----------------	--

Possible cause

- Damaged parking brake switch
- Open or short circuit in wiring harness
- Poor connection of connector



Remedy

1. Disconnect the parking brake switch connector.
2. Check for continuity between the switch terminal and ground.

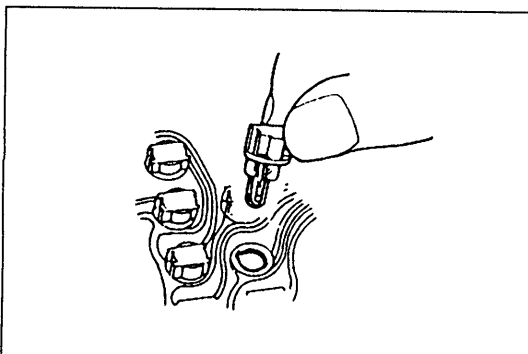
Parking brake	Continuity
Set	Yes
Released	No

3. If correct, repair the wiring harness (instrument cluster — parking brake switch).
4. If not as specified, adjust or replace the parking brake switch. (Refer to section P.)

Symptom	Brake system warning light does not illuminate when brake fluid in reservoir tank is below MIN
----------------	--

Possible cause

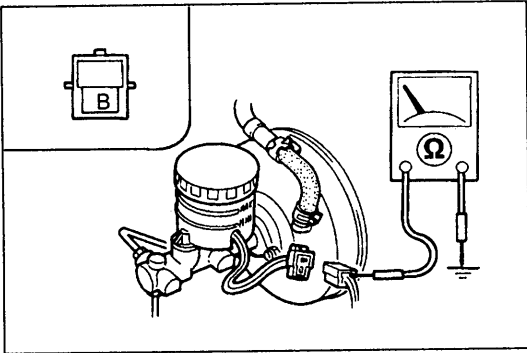
- Burnt brake system warning light bulb
- Shortage of brake fluid level
- Open or short circuit in wiring harness
- Poor connection of connector



Step 1

1. Remove the instrument cluster. (Refer to page T-87.)
2. Check the brake system warning light bulb.

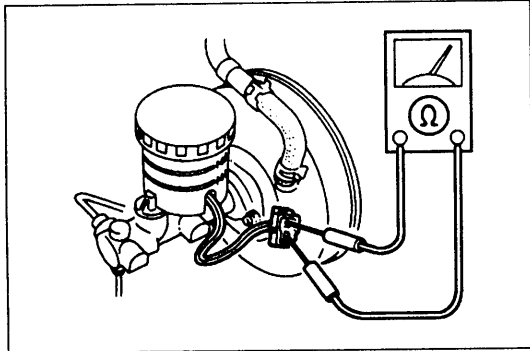
Bulb	Action
OK	Install warning light bulb and go to Step 2
Burnt	Replace bulb (Refer to page T-76)



Step 2

1. Disconnect the brake fluid level sensor connector.
2. Check for continuity between terminal B (B) of the brake fluid level sensor connector and ground.

Continuity	Action
Yes	Go to Step 3
No	Repair wiring harness (Brake fluid level sensor — GND)



Step 3

1. Check for continuity between the terminals of the brake fluid level sensor.

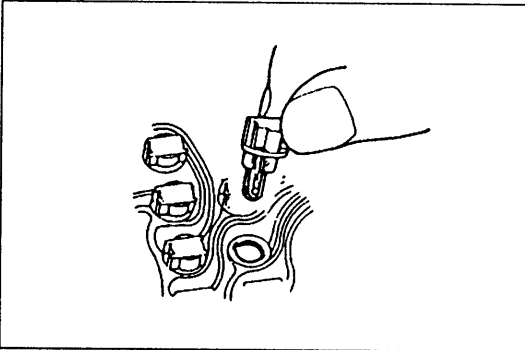
Fluid level	Continuity
Below MIN	Yes
Above MIN	No

2. If correct, repair the wiring harness (instrument cluster — brake fluid level sensor).
3. If not as specified, replace the brake fluid level sensor.

Symptom	HOLD indicator light does not illuminate when HOLD switch is turned on
----------------	--

Possible cause

- Burnt HOLD indicator light bulb
- Open or short circuit in wiring harness
- Poor connection of connector



Remedy

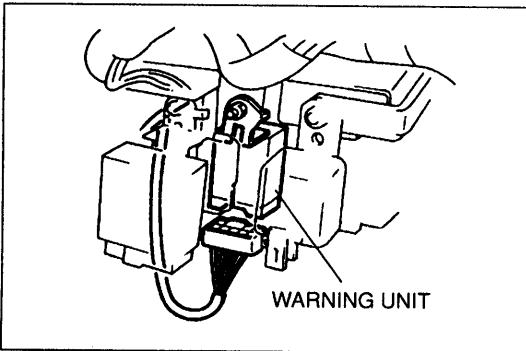
1. Remove the instrument cluster. (Refer to page T-87.)
2. Remove and check the HOLD indicator light bulb.

Bulb	Action
OK	Repair wiring harness (Instrument cluster — PCM) or inspect PCM (Refer to section K)
Burnt	Replace HOLD indicator light bulb

Symptom	Seat belt warning light remains on six seconds after ignition switch is turned to ON (timer function does not operate)
----------------	--

Possible cause

- Damaged warning unit
- Open or short circuit in wiring harness
- Poor connection of connector



Remedy

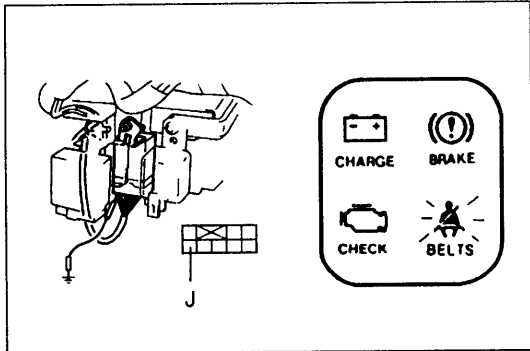
1. Disconnect the warning unit connector.
2. Turn the ignition switch to ON, and verify that the seat belt warning light illuminates.

Warning light	Action
Illuminates	Repair wiring harness (Instrument cluster — Warning unit)
Does not illuminate	Replace warning unit

Symptom	Seat belt warning light does not illuminate when ignition switch is turned to ON
----------------	--

Possible cause

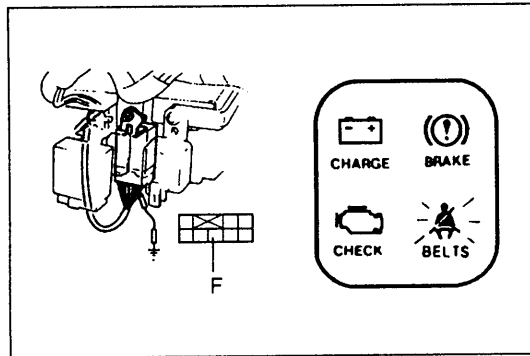
- Burnt seat belt warning light bulb
- Damaged buckle switch
- Damaged warning unit
- Open or short circuit in wiring harness
- Poor connection of connector



Step 1

1. Connect terminal J of the warning unit connector to ground.
2. Turn the ignition switch to ON, and verify that the seat belt warning light illuminates.

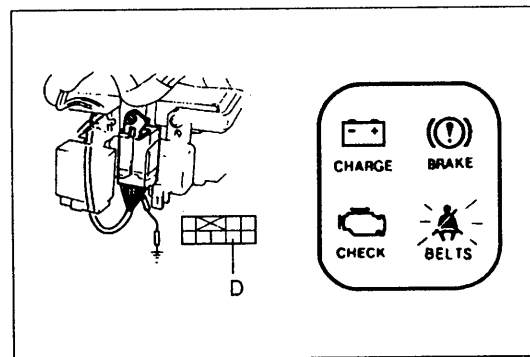
Warning light	Action
Illuminates	Repair wiring harness (Warning unit — GND)
Does not illuminate	Go to Step 2



Step 2

1. Connect terminal F of the warning unit connector to ground
2. Turn the ignition switch to ON, and verify that the seat belt warning light illuminates.

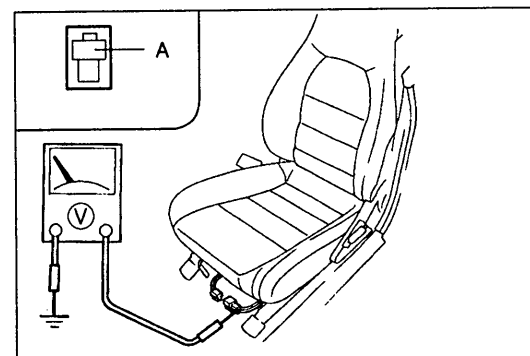
Warning light	Action
Illuminates	Go to Step 3
Does not illuminate	Repair wiring harness (Instrument cluster — Warning unit)



Step 3

1. Connect terminal D of the warning unit connector to ground.
2. Turn the ignition switch to ON, and verify that the seat belt warning light illuminates.

Warning light	Action
Illuminates	Go to Step 4
Does not illuminate	Replace warning unit

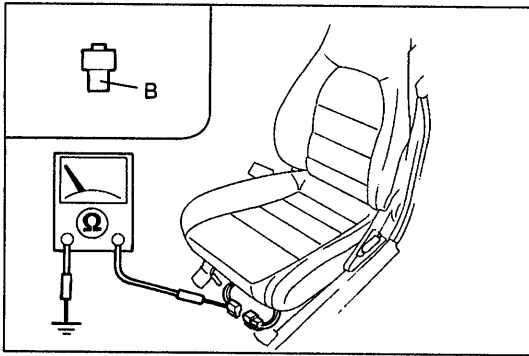


Step 4

1. Disconnect the buckle switch connector.
2. Turn the ignition switch to ON.
3. Measure the voltage at terminal A (L/W) of buckle switch connector.

B+: Battery positive voltage

Voltage	Action
B+	Go to Step 5
Other	Repair wiring harness (Buckle switch — Warning unit)



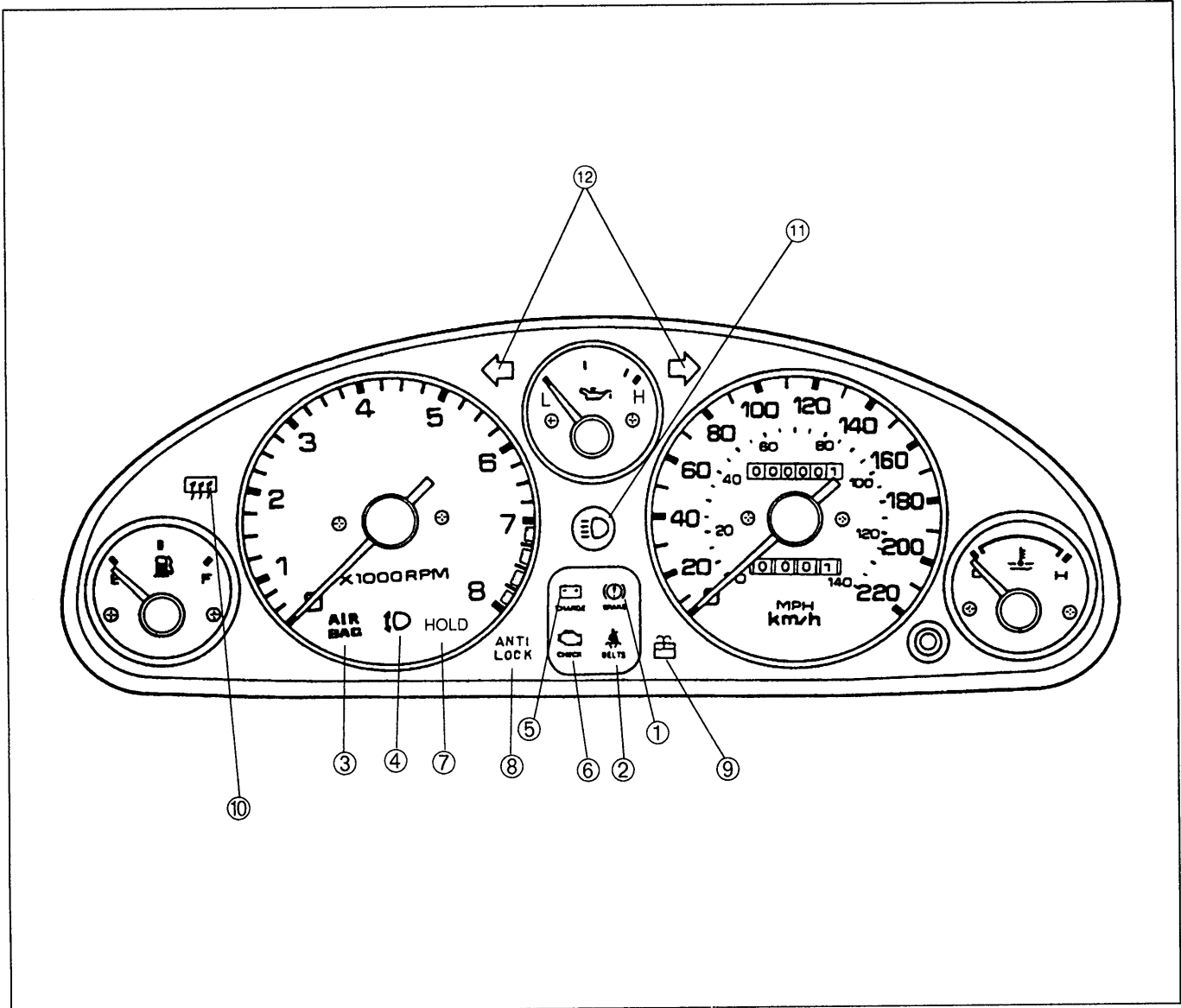
Step 5

1. Disconnect the buckle switch connector.
2. Check for continuity between terminal B (B) of the connector and ground.

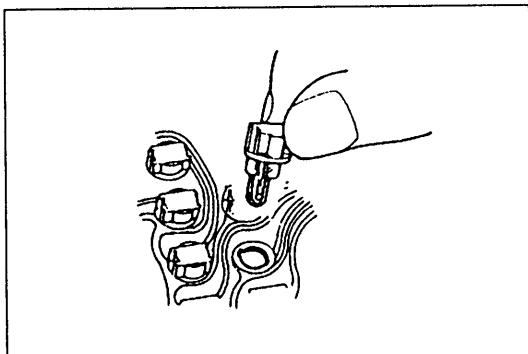
Continuity	Action
Yes	Inspect buckle switch (Refer to page T-77)
No	Repair wiring harness (Buckle switch — GND)

WARNING AND INDICATOR LIGHTS

Structural View

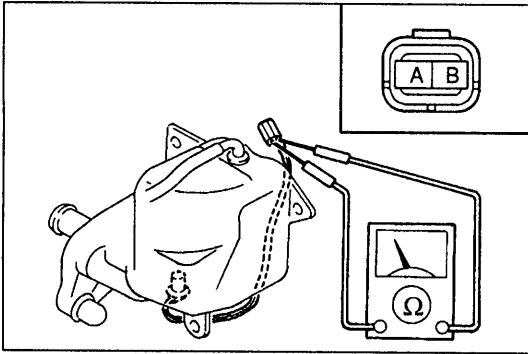


- | | |
|---|---|
| 1. Brake system warning light (1.4 W) | 7. HOLD indicator light (1.4 W) |
| 2. Seat belt warning light (1.4 W) | 8. ABS warning light (1.4 W) |
| 3. Air bag system warning light (1.4 W) | 9. Washer fluid-level warning light (1.4 W) |
| 4. Retractor indicator light (1.4 W) | 10. Rear window defroster indicator light (1.4 W) |
| 5. Generator warning light (1.4 W) | 11. High beam indicator light (3.4 W) |
| 6. MIL (malfunction indicator lamp) (1.4 W) | 12. Turn indicator light (3.4 W) |



Bulb Replacement

1. Remove the instrument cluster. (Refer to page T-87.)
2. Replace the faulty bulbs as shown in the figure.



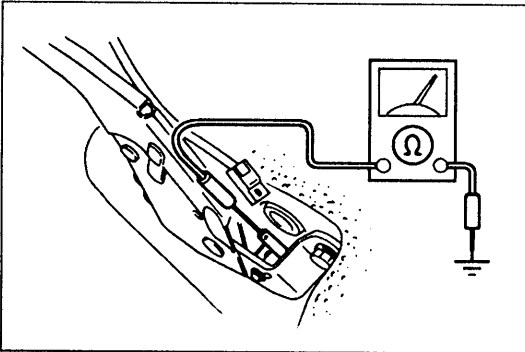
WASHER FLUID-LEVEL SENSOR

Inspection

1. Disconnect the washer fluid-level sensor connector.
2. Check for continuity between terminals A and B of the sensor.

Float level	Continuity
Below MIN	Yes
Above MIN	No

3. If not as specified, replace the washer fluid-level sensor.



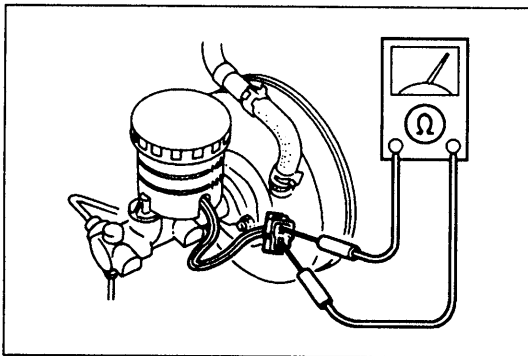
PARKING BRAKE SWITCH

Inspection

1. Disconnect the parking brake switch connector.
2. Check for continuity between the parking brake switch terminal and ground.

Brake lever	Continuity
Pulled one notch	Yes
Released	No

3. If not as specified, replace the parking brake switch.
(Refer to section P.)



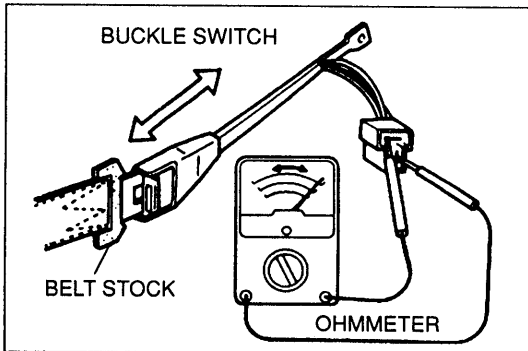
BRAKE FLUID LEVEL SENSOR

Inspection

1. Disconnect the brake fluid level sensor connector.
2. Check for continuity between the sensor terminals.

Float level	Continuity
Below MIN	Yes
Above MIN	No

3. If not as specified, replace the brake fluid level sensor.



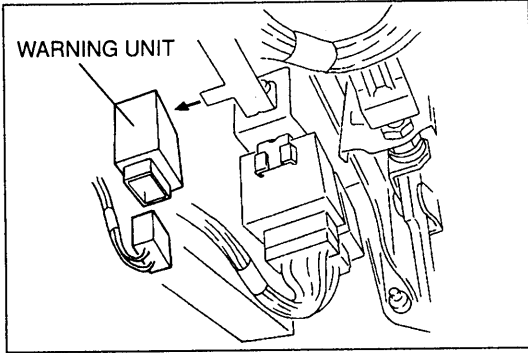
BUCKLE SWITCH

Inspection

1. Disconnect the buckle switch connector.
2. Check for continuity between the terminals of the buckle switch.

Seat belt	Continuity
Buckled	No
Unbuckled	Yes

3. If not as specified, replace the buckle.
(Refer to section S.)



**WARNING UNIT
Removal / Installation**

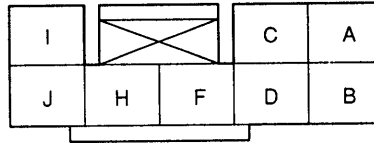
1. Disconnect the warning unit connector.
2. Remove the warning unit.
3. Install in the reverse order of removal.

Inspection

1. Measure the voltage at the warning unit terminals as indicated below.
2. If not as specified, inspect the parts listed under "Inspection area" and the related wiring harnesses.
3. If the parts and wiring harnesses are OK but the system still does not work properly, replace the warning unit.

Terminal voltage list

B+: Battery positive voltage

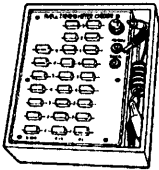


Terminal	Signal	Connection	Test condition	Voltage/ Continuity	Inspection area	
A	—	—	—	—	—	
B	—	—	—	—	—	
C	Door open closed	Door switch	Door open: Check for continuity to ground	Yes	<ul style="list-style-type: none"> • Door switch • Wiring harness (Warning unit — Door switch) 	
			Door closed: Check for continuity to ground	No		
D	Seat belt warning input	Buckle switch	Ignition switch at ON	Seat belt buckled	B+	<ul style="list-style-type: none"> • Buckle switch • Wiring harness (Warning unit — Buckle switch)
				Other	0 V	
F	Seat belt warning output	<ul style="list-style-type: none"> • Instrument cluster (seat belt warning light) 	Ignition switch at ON	Seat belt buckled	B+	<ul style="list-style-type: none"> • Instrument cluster • Wiring harness (Instrument cluster — Warning unit)
				Other	0 V	
H	Key insert	Key reminder switch	Ignition key inserted	B+	<ul style="list-style-type: none"> • Key reminder switch • Wiring harness (Warning unit — Key reminder switch) 	
I	IG1	METER 15 A fuse	Ignition switch at ON	B+	<ul style="list-style-type: none"> • Ignition switch • Wiring harness (Ignition switch — METER 15 A fuse — Warning unit) 	
J	GND	GND	Constant: Check for continuity to ground	Yes	Wiring harness (Warning unit — GND)	

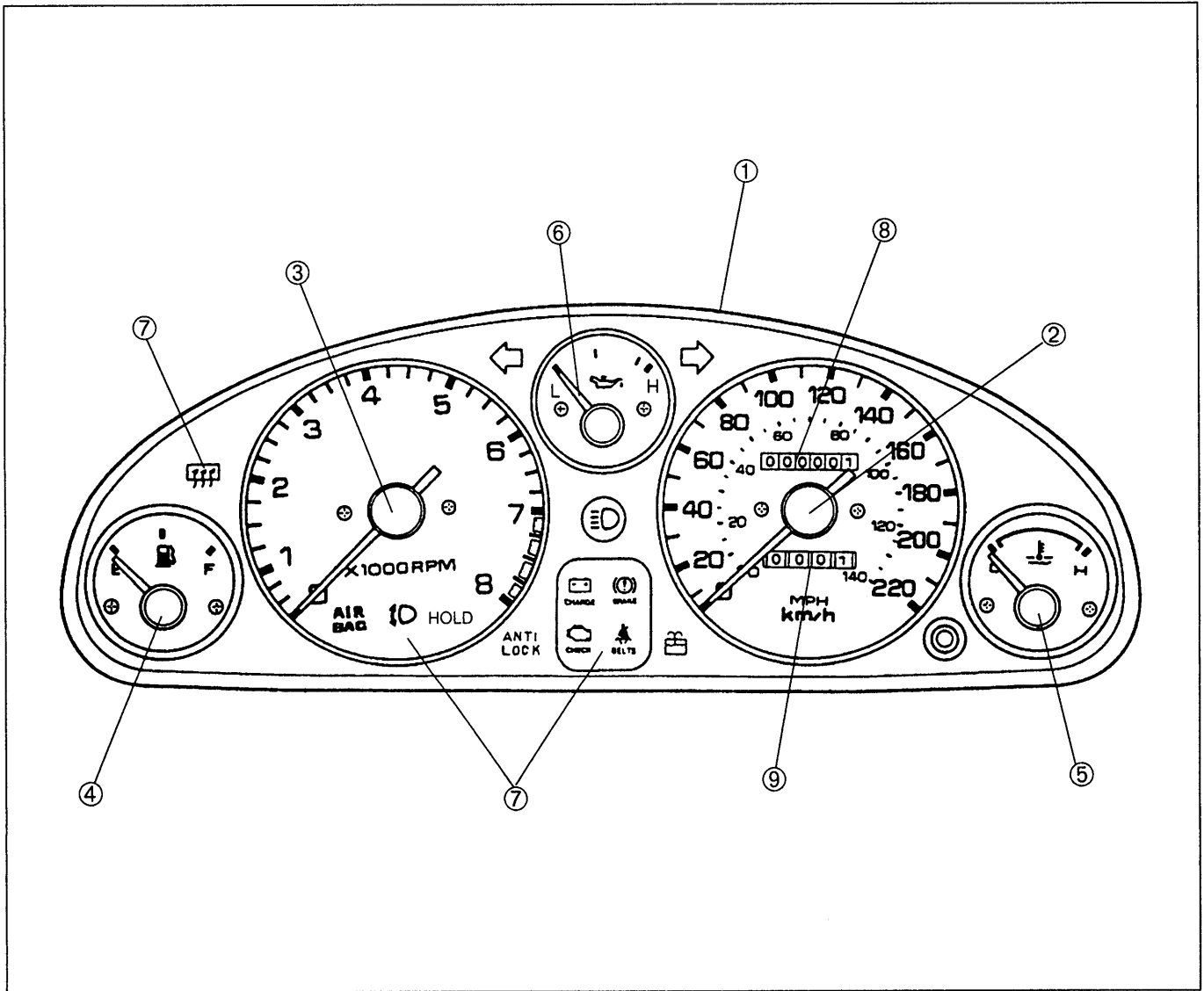
INSTRUMENT CLUSTER

PREPARATION

SST

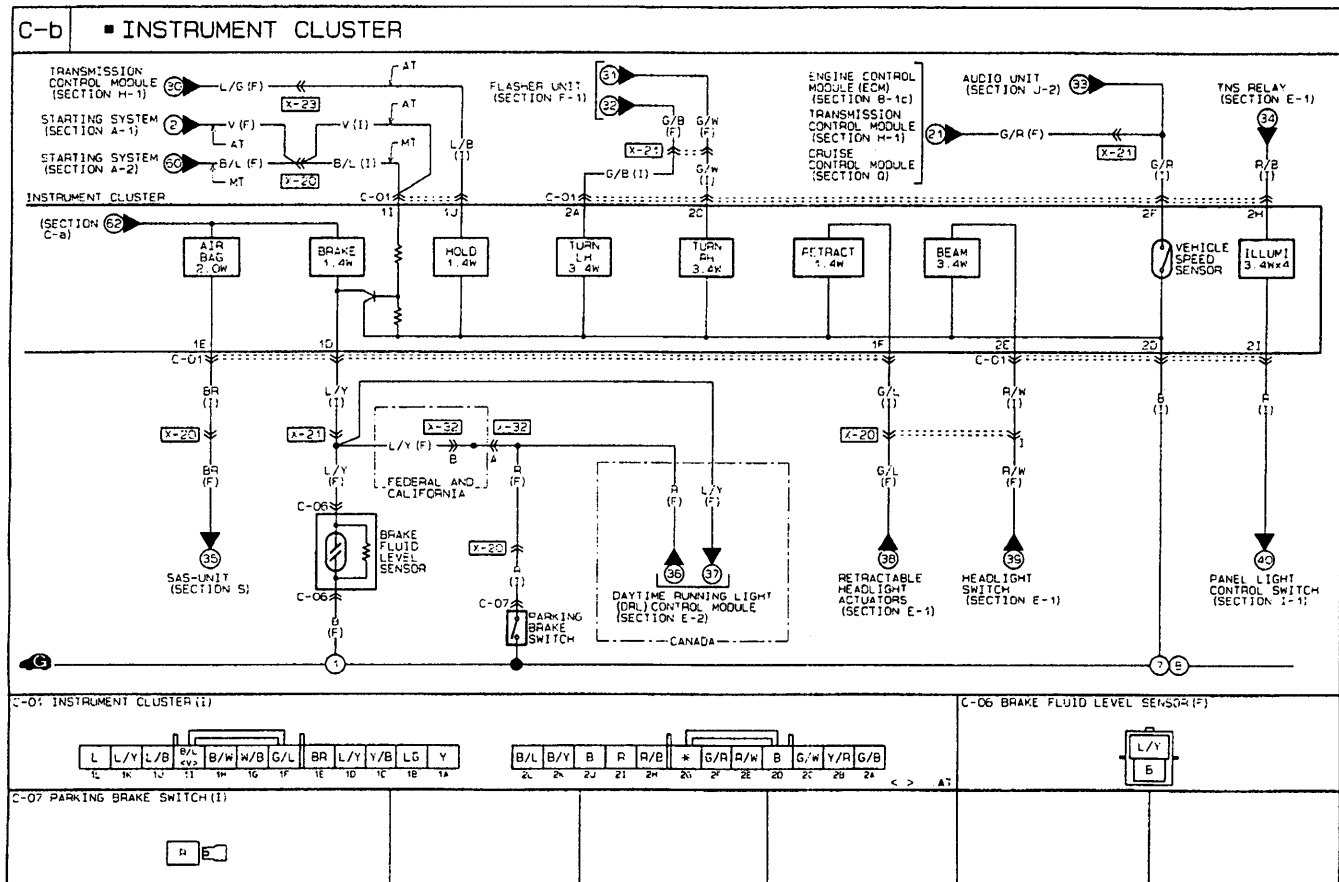
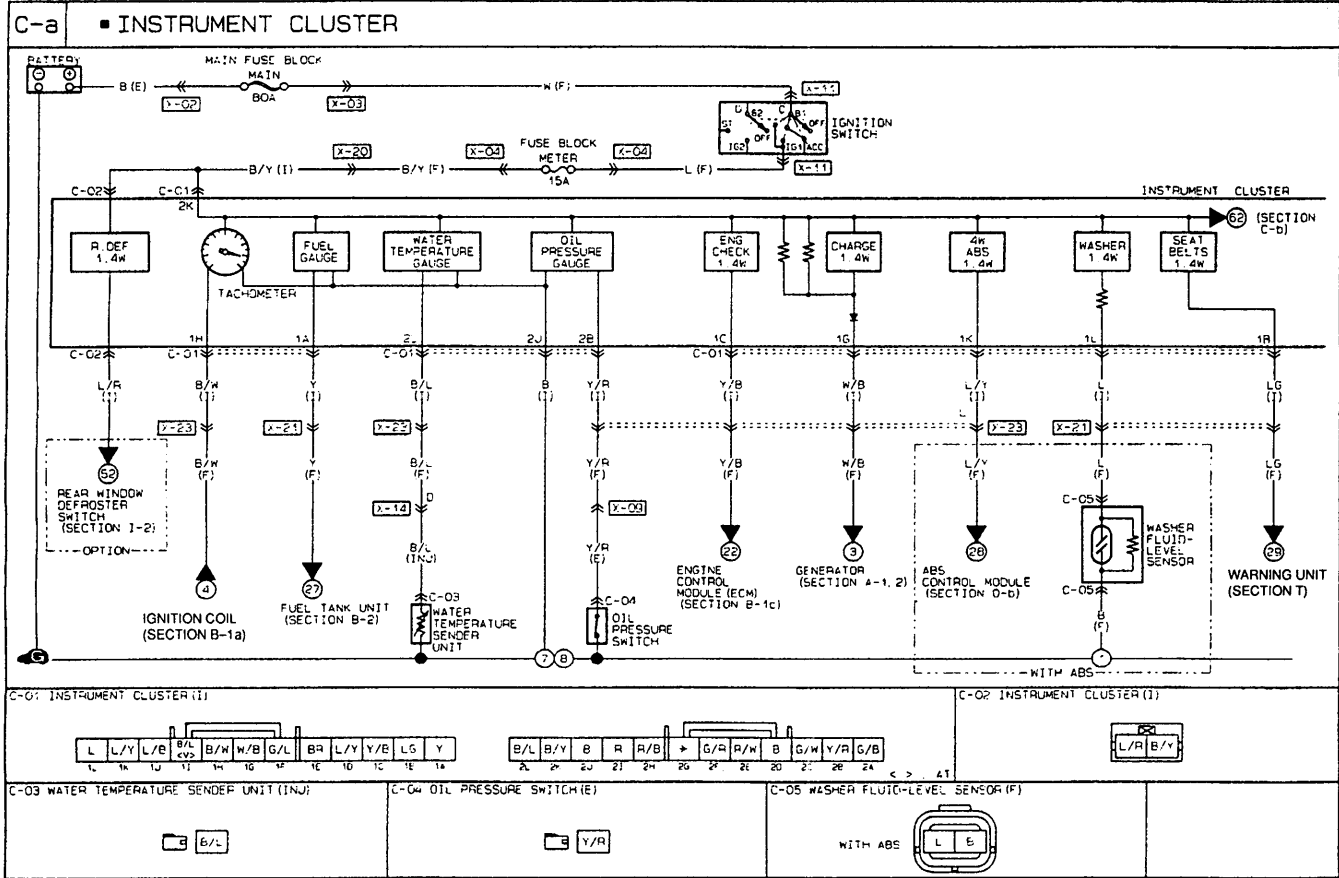
<p>49 0839 285</p> <p>Checker, fuel /thermometer</p>		<p>For inspection of fuel and water temperature gauges</p>
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STRUCTURAL VIEW



- | | |
|---|--|
| <p>1. Instrument cluster
Removal / Installation page T-87
Disassembly / Assembly page T-88</p> <p>2. Speedometer
Inspection page T-89</p> <p>3. Tachometer
Inspection page T-89</p> <p>4. Fuel gauge
Inspection page T-90</p> | <p>5. Water temperature gauge
Inspection page T-89</p> <p>6. Oil pressure gauge
Inspection page T-90</p> <p>7. Warning and indicator lights
Structural view page T-76</p> <p>8. Odometer</p> <p>9. Tripmeter</p> |
|---|--|

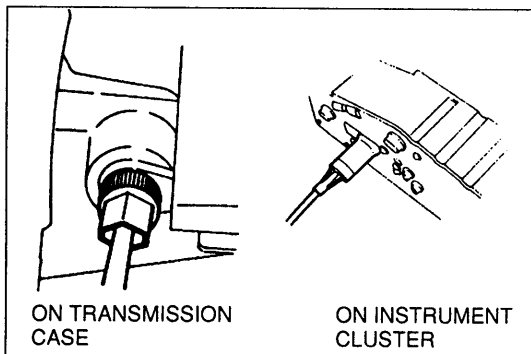
TROUBLESHOOTING Circuit Diagram



Symptom	Speedometer does not operate or indication is incorrect
----------------	---

Possible cause

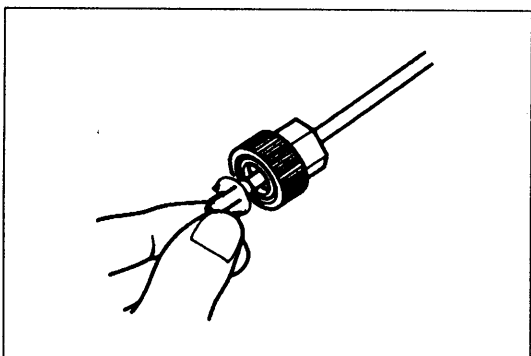
- Damaged speedometer
- Damaged speedometer cable
- Damaged speedometer gear
- Poor connection of speedometer cable



Step 1

Verify that the speedometer cable is connected properly.

Speedometer cable connection	Action
Normal	Go to Step 2
Abnormal	Connect speedometer cable properly



Step 2

1. Disconnect the speedometer cable from the instrument cluster and transmission case.
2. Verify that the cable and gear spin easily when turned by hand.
3. If the cable or gear is stiff, replace the speedometer cable or gear.
4. If the speedometer cable and gear are OK, replace the speedometer.

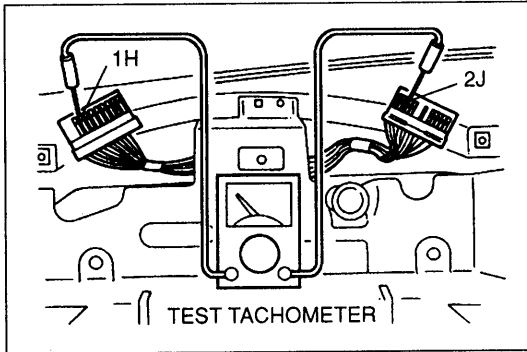
Symptom	Tachometer does not operate
----------------	-----------------------------

Possible cause

- Damaged tachometer
- Damaged ignition coil
- Open or short circuit in wiring harness
- Poor connection of connector

Note

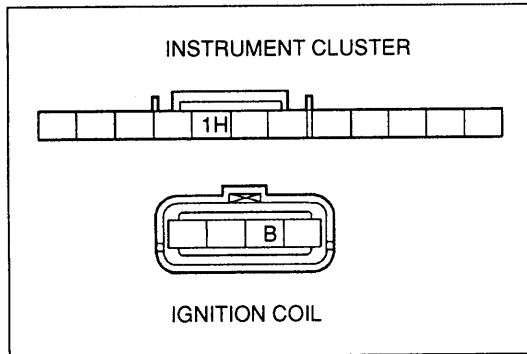
- If the tachometer reading is incorrect, refer to page T-89.



Step 1

1. Remove the instrument cluster. (Refer to page T-87.)
2. Connect a test tachometer between terminals 2J and 1H of the instrument cluster connector.
3. Start the engine.
4. Verify that the test tachometer indicates engine speed.

Tachometer	Action
Indicates rpm	Replace tachometer (Refer to page T-88)
Does not indicate rpm	Go to Step 2



Step 2

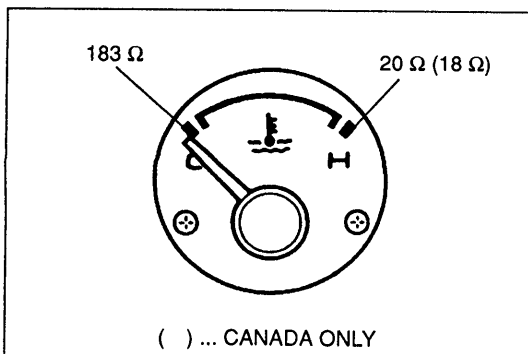
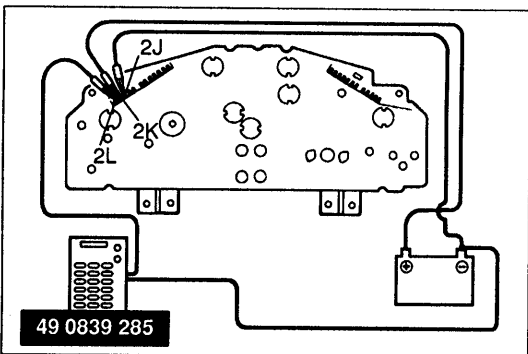
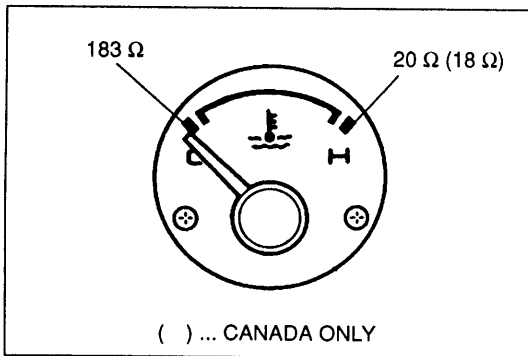
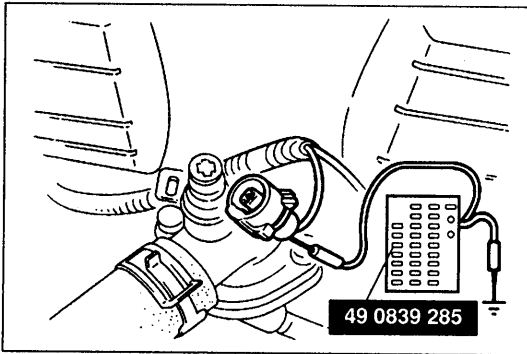
Check for continuity between terminal 1H (B/W) of the instrument cluster connector and terminal B (B/W) of the ignition coil connector.

Continuity	Action
Yes	Inspect ignition coil (Refer to section G)
No	Repair wiring harness (Instrument cluster — Ignition coil)

Symptom	Water temperature gauge does not operate or is incorrect
----------------	--

Possible cause

- Damaged water temperature sender unit
- Damaged instrument cluster
- Open or short circuit in wiring harness
- Poor connection of connector



Step 1

1. Disconnect the water temperature sender unit connector.
2. Connect the red lead of the **SST** to terminal A of the connector and the black lead to ground.
3. Turn the ignition switch to ON.

4. Set the **SST** to the resistance values shown in the figure. To get an accurate reading, wait 2 minutes after setting each value.
5. Verify that the water temperature gauge indicates the correct values. The allowable indication error is twice the width of the needle.

Gauge display	Action
Correct	Replace water temperature sender unit (Refer to page T-91)
Incorrect	Go to Step 2

Step 2

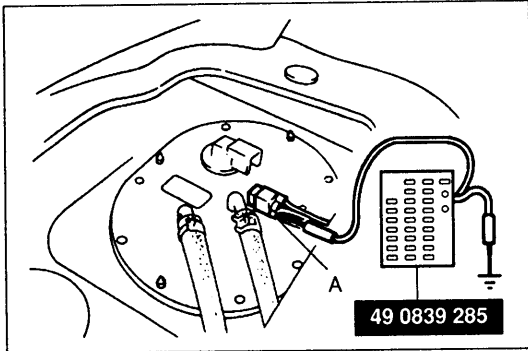
1. Remove the instrument cluster. (Refer to page T-87.)
2. Connect battery positive voltage to terminal 2K and ground to terminal 2J.
3. Connect the red lead of the **SST** to terminal 2L and the black lead to ground.
4. Set the **SST** to the resistance values shown in the figure. To get an accurate reading, wait 2 minutes after setting each value.
5. Verify that the water temperature gauge indicates the correct values. The allowable indication error is twice the width of the needle.

Gauge display	Action
Correct	Repair wiring harness (Instrument cluster — Water temperature sender unit)
Incorrect	Replace water temperature gauge (Refer to page T-88)

Symptom	Fuel gauge does not operate or is incorrect
----------------	---

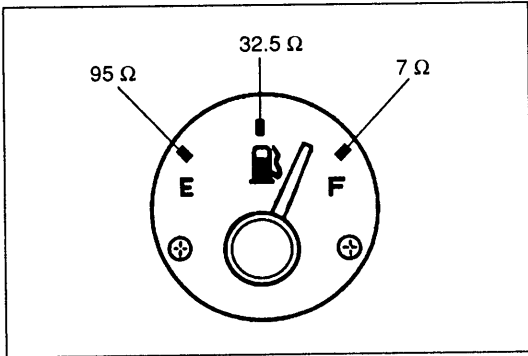
Possible cause

- Damaged fuel gauge sender unit
- Damaged fuel gauge
- Open or short circuit in wiring harness
- Poor connection of connector



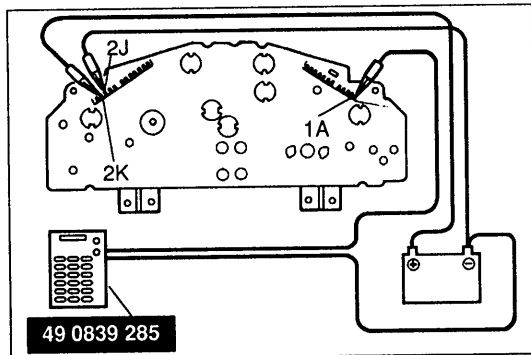
Step 1

1. Disconnect the fuel gauge sender unit connector.
2. Connect the red lead of the **SST** to the terminal A (Y) of the connector and the black lead to ground.
3. Turn the ignition switch to ON.



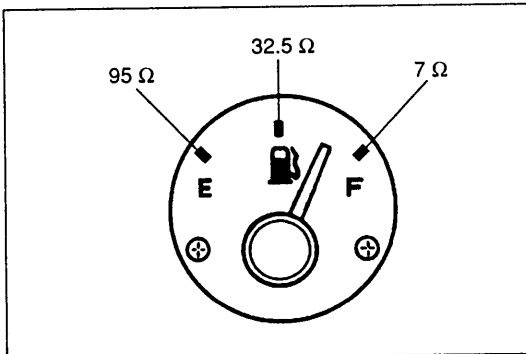
4. Set the **SST** to the resistance values shown in the figure. To get an accurate reading, wait 2 minutes after setting each value.
5. Verify that the gauge indicates the correct values. The allowable indication error is twice the width of the needle.

Gauge display	Action
Correct	Replace fuel gauge sender unit (Refer to section F)
Incorrect	Go to Step 2



Step 2

1. Remove the instrument cluster. (Refer to page T-87.)
2. Connect battery positive voltage to terminal 2K and ground to terminal 2J.
3. Connect the red lead of the **SST** to terminal 1A and the black lead to ground.
4. Set the **SST** to the resistance values shown in the figure. To get an accurate reading, wait 2 minutes after setting each value.
5. Verify that the fuel gauge indicates the correct values. The allowable indication error is twice the width of the needle.

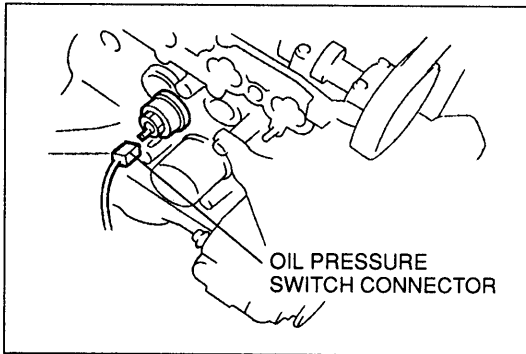


Gauge display	Action
Correct	Repair wiring harness (Instrument cluster — Fuel gauge sender unit)
Incorrect	Replace fuel gauge (Refer to page T-88)

Symptom	Oil pressure gauge does not operate or is incorrect
----------------	---

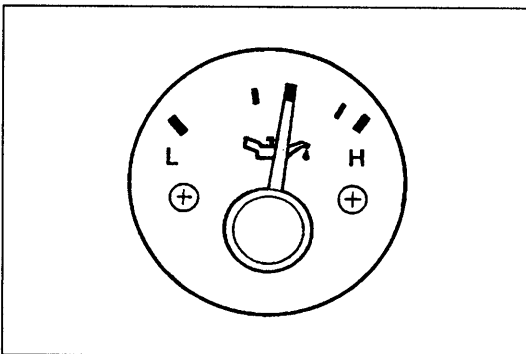
Possible cause

- Damaged oil pressure switch
- Damaged oil pressure gauge
- Open or short circuit in wiring harness
- Poor connection of connector



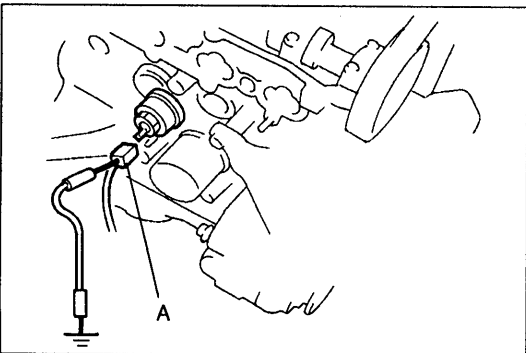
Step 1

1. Disconnect the oil pressure switch connector.
2. Turn the ignition switch to ON.



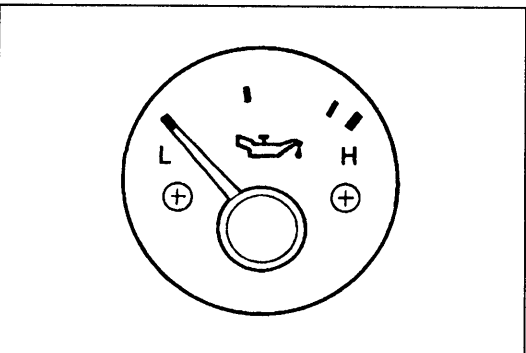
3. Verify that the oil pressure gauge indicates the normal oil pressure as shown in the figure.

Gauge display	Action
Correct	Inspect oil pressure switch (Refer to page T-92)
Incorrect	Turn the ignition switch to LOCK and go to Step 2



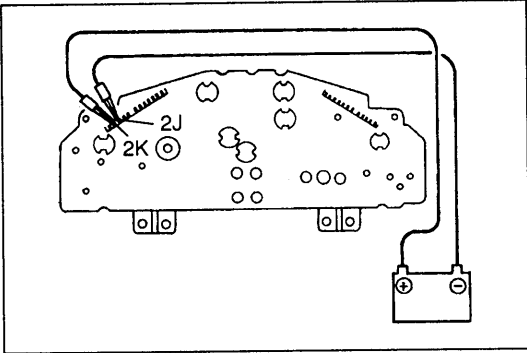
Step 2

1. Ground terminal A (Y/R) of the oil pressure switch connector.
2. Turn the ignition switch to ON.



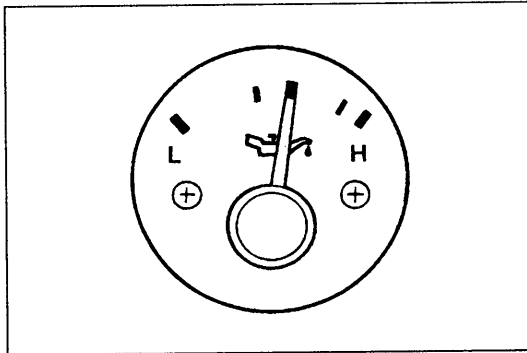
3. Verify that the oil pressure gauge indicates the low oil pressure as shown in the figure.

Gauge display	Action
Correct	Inspect oil pressure switch (Refer to page T-92)
Incorrect	Turn the ignition switch to LOCK and go to Step 3



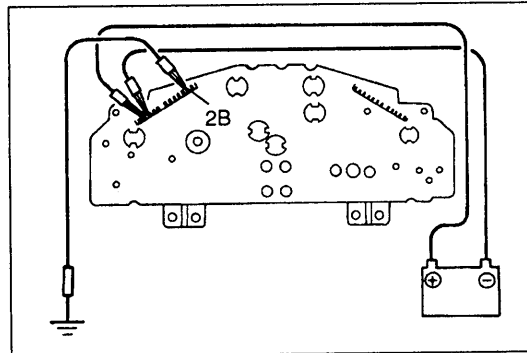
Step 3

1. Remove the instrument cluster. (Refer to page T-87.)
2. Connect battery positive voltage to terminal 2K and ground to terminal 2J.



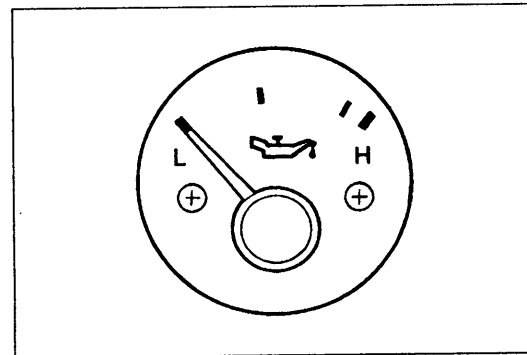
3. Verify that the oil pressure gauge indicates the normal oil pressure as shown in the figure.

Gauge display	Action
Correct	Repair wiring harness (Instrument cluster — Oil pressure switch)
Incorrect	Go to Step 4



Step 4

1. Ground terminal 2B of the instrument cluster.



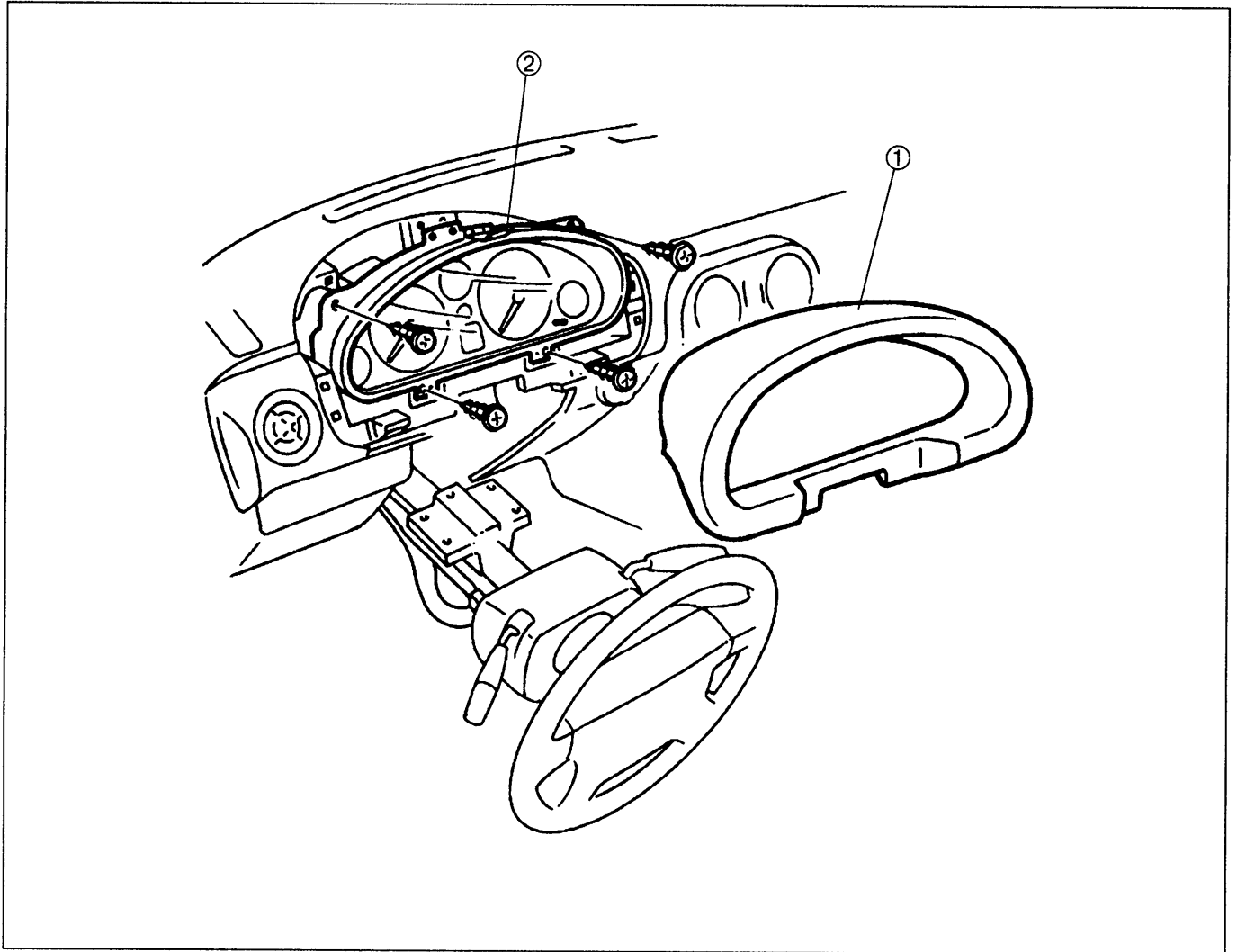
2. Verify that the oil pressure gauge indicates the low oil pressure as shown in the figure.

Gauge display	Action
Correct	Repair wiring harness (Instrument cluster — Oil pressure switch)
Incorrect	Replace oil pressure gauge (Refer to page T-88)

INSTRUMENT CLUSTER

Removal / Installation

1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.

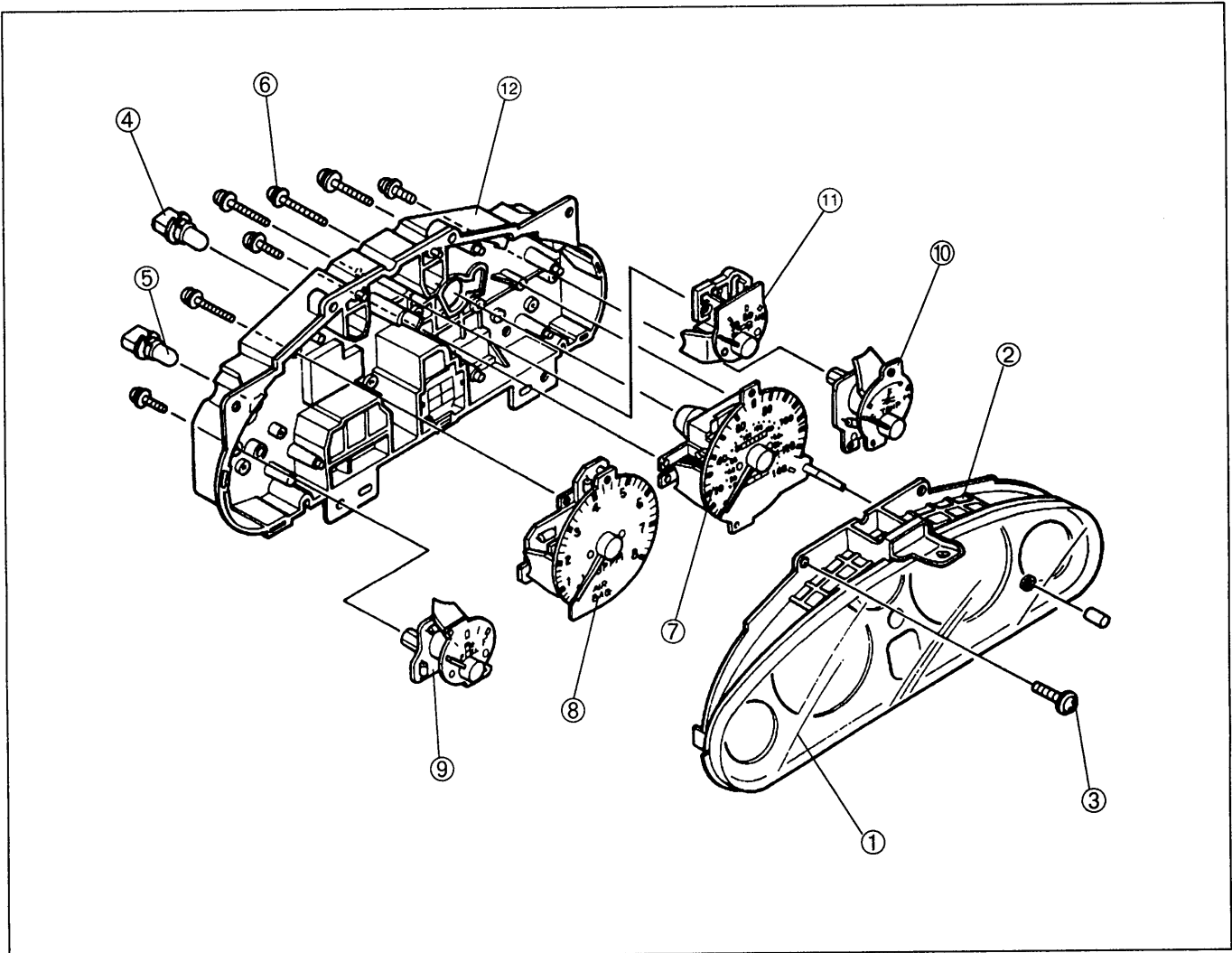


1. Meter hood

2. Instrument cluster
Disassembly / Assembly page T-88

Disassembly / Assembly

1. Disassemble as shown in the figure.
2. Assemble in the reverse order of disassembly.



- | | |
|-----------------|-----------------------------|
| 1. Glass front | 7. Speedometer |
| 2. Window plate | 8. Tachometer |
| 3. Screws | 9. Fuel gauge |
| 4. Socket | 10. Water temperature gauge |
| 5. Bulb | 11. Oil pressure gauge |
| 6. Screws | 12. Case |

Standard indication (km/h)	Allowable range (km/h)
40	40—43
80	80—84
120	120—126

Standard indication (mph)	Allowable range (mph)
30	30—32
50	50—53
80	80—84

SPEEDOMETER

Inspection

Note

- If the tires are rotated by using a chassis roller with the ignition switch at ON, the ABS control module may memorize the action as a malfunction and the ABS warning light may illuminate. (Refer to the troubleshooting notes for the antilock brake system, section P.) If the ignition switch is turned to LOCK and then to ON again, the ABS warning light will not illuminate, because the action will be considered a past malfunction.

Note

- Tire wear and improper inflation will increase speedometer error.

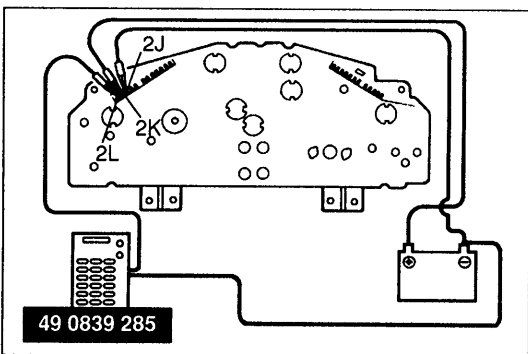
1. Inspect the speedometer and odometer by using a speedometer tester.
2. Check the speedometer for fluctuation and/or abnormal noise.
3. If the speedometer indication is not as specified or the odometer does not operate properly, replace the speedometer.

Standard indication (rpm)	Allowable range (rpm)
2,000	1,970—2,150
3,000	3,000—3,180
4,000	4,000—4,240
5,000	5,000—5,300

TACHOMETER

Inspection

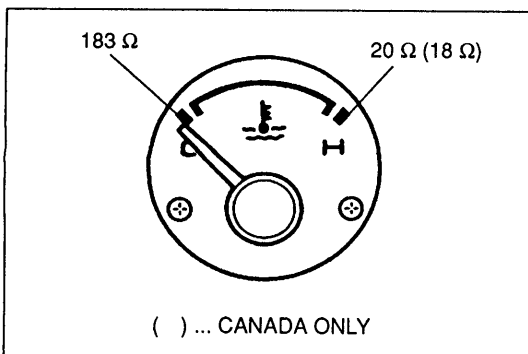
1. Connect a test tachometer to the engine, and start the engine.
2. Check the tachometer indication.
3. If the tachometer indication is not as specified, replace the tachometer.

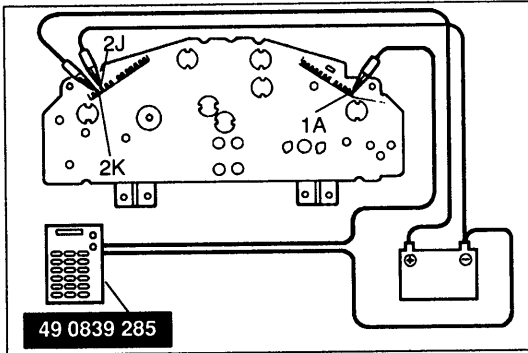


WATER TEMPERATURE GAUGE

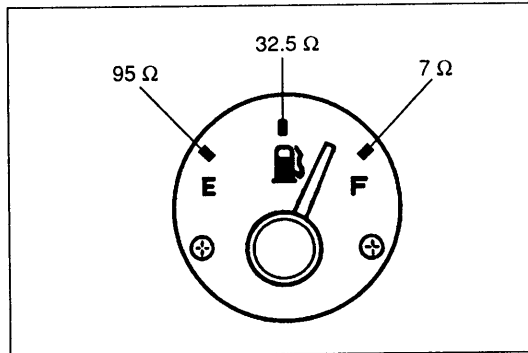
Inspection

1. Remove the instrument cluster. (Refer to page T-87.)
2. Connect battery positive voltage to terminal 2K and ground to terminal 2J of the instrument cluster.
3. Connect the red lead of the **SST** to terminal 2L of the instrument cluster and the black lead to ground.
4. Set the **SST** to the resistance values shown in the figure.
5. Verify that the needle indicates the correct range.
6. If not as specified, replace the water temperature gauge. (Refer to page T-88.)

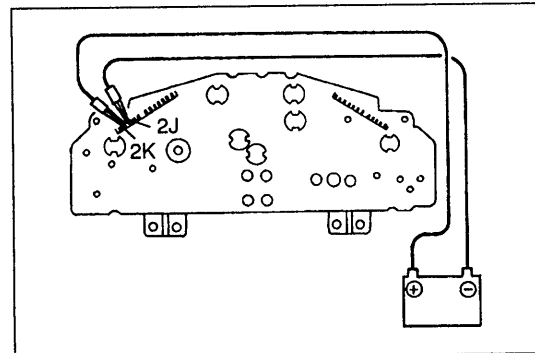


**FUEL GAUGE****Inspection**

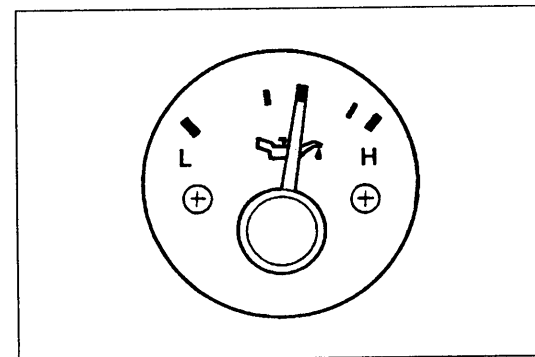
1. Remove the instrument cluster. (Refer to page T-87.)
2. Connect battery positive voltage to terminal 2K and ground to terminal 2J of the instrument cluster.
3. Connect the red lead of the **SST** to terminal 1A of the instrument cluster and the black lead to ground.



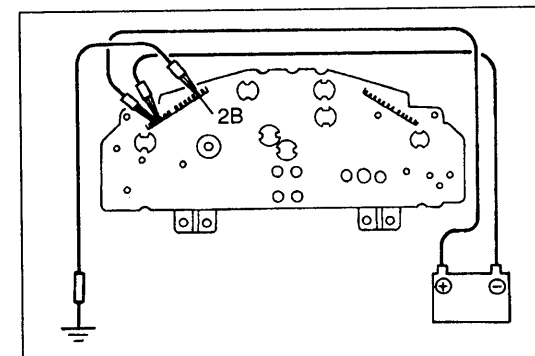
4. Set the **SST** to the resistance values shown in the figure.
5. Verify that the needle indicates the correct range.
6. If not as specified, replace the fuel gauge. (Refer to page T-88.)

**OIL PRESSURE GAUGE****Inspection**

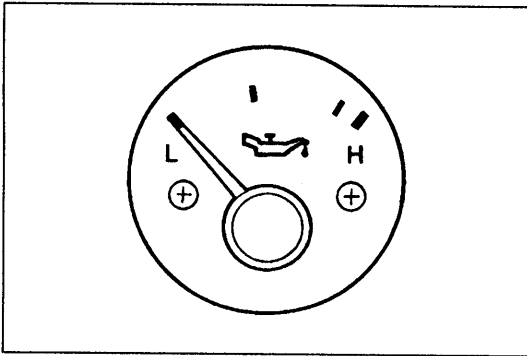
1. Remove the instrument cluster. (Refer to page T-87.)
2. Connect battery positive voltage to terminal 2K and ground to terminal 2J of the instrument cluster.



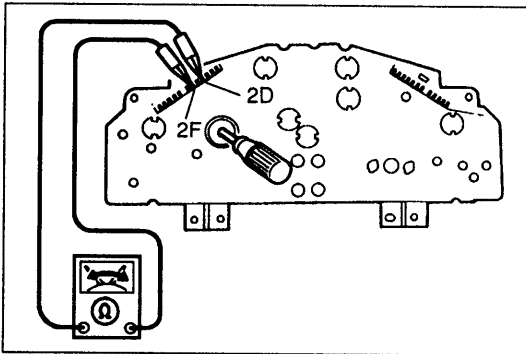
3. Verify that the oil pressure gauge indicates the normal oil pressure as shown in the figure.



4. Ground terminal 2B of the instrument cluster.



5. Verify that the oil pressure gauge indicates the low oil pressure as shown in the figure.
6. If not as specified, replace the oil pressure gauge. (Refer to page T-88.)



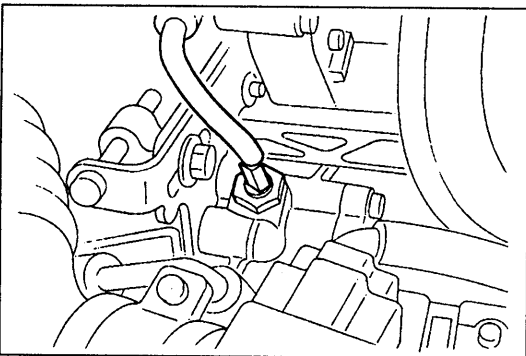
VEHICLE SPEED SENSOR

Inspection

1. Remove the instrument cluster. (Refer to page T-87.)
2. Connect an ohmmeter between terminals 2D and 2F.
3. Verify that the ohmmeter needle pulsates while rotating the speedometer cable shaft.

Pulsation: 4/shaft rotation

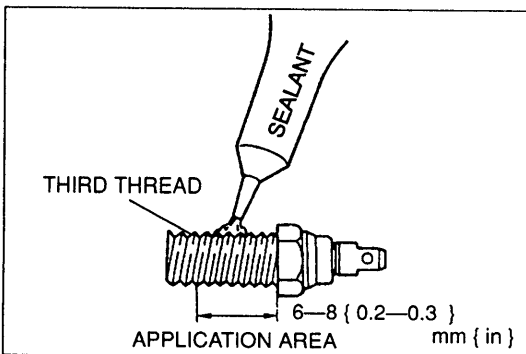
4. If not as specified, replace the instrument cluster. (Refer to page T-87.)



WATER TEMPERATURE SENDER UNIT

Removal / Installation

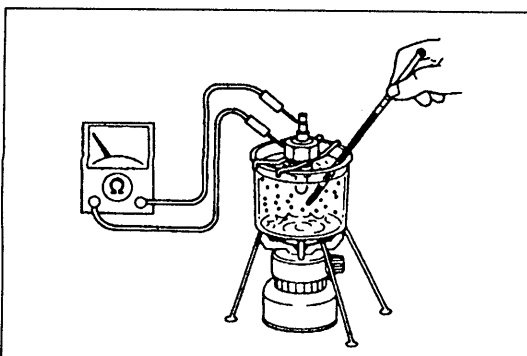
1. Disconnect the water temperature sender unit connector.
2. Remove the water temperature sender unit.



3. Before installing the unit, apply sealant from the third thread to the top thread.
4. Install in the reverse order of removal.

Tightening torque:

6.4—9.3 N·m { 65—95 kgf·cm , 57—82 in·lbf }

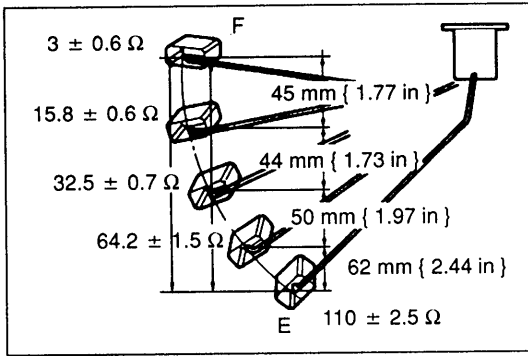


Inspection

1. Remove the water temperature sender unit.
2. Place the sensor in water.
3. Heat the water gradually and measure the resistance of the sensor.

Water temperature	50 °C { 122 °F }
Resistance	189—260 Ω

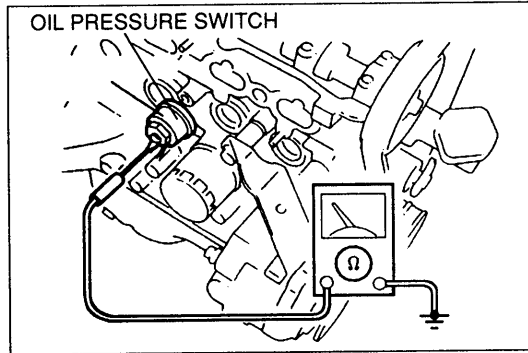
4. If not as specified, replace the water temperature sender unit.



FUEL GAUGE SENDER UNIT

Inspection

1. Remove the fuel tank gauge sender unit.
(Refer to section F.)
2. Disconnect the fuel gauge sender unit connector.
3. Measure the resistance between terminals A and B while slowly moving the unit arm from point F to point E.
4. If not as specified, replace the fuel gauge sender unit.



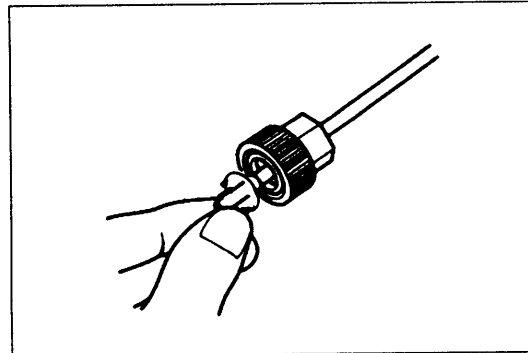
OIL PRESSURE SWITCH

Inspection

1. Disconnect the oil pressure switch connector.
2. Check for continuity between terminal of the oil pressure switch and ground.

Engine condition	Continuity
Stopped	Yes
Running	No

3. If not as specified, replace the oil pressure switch.



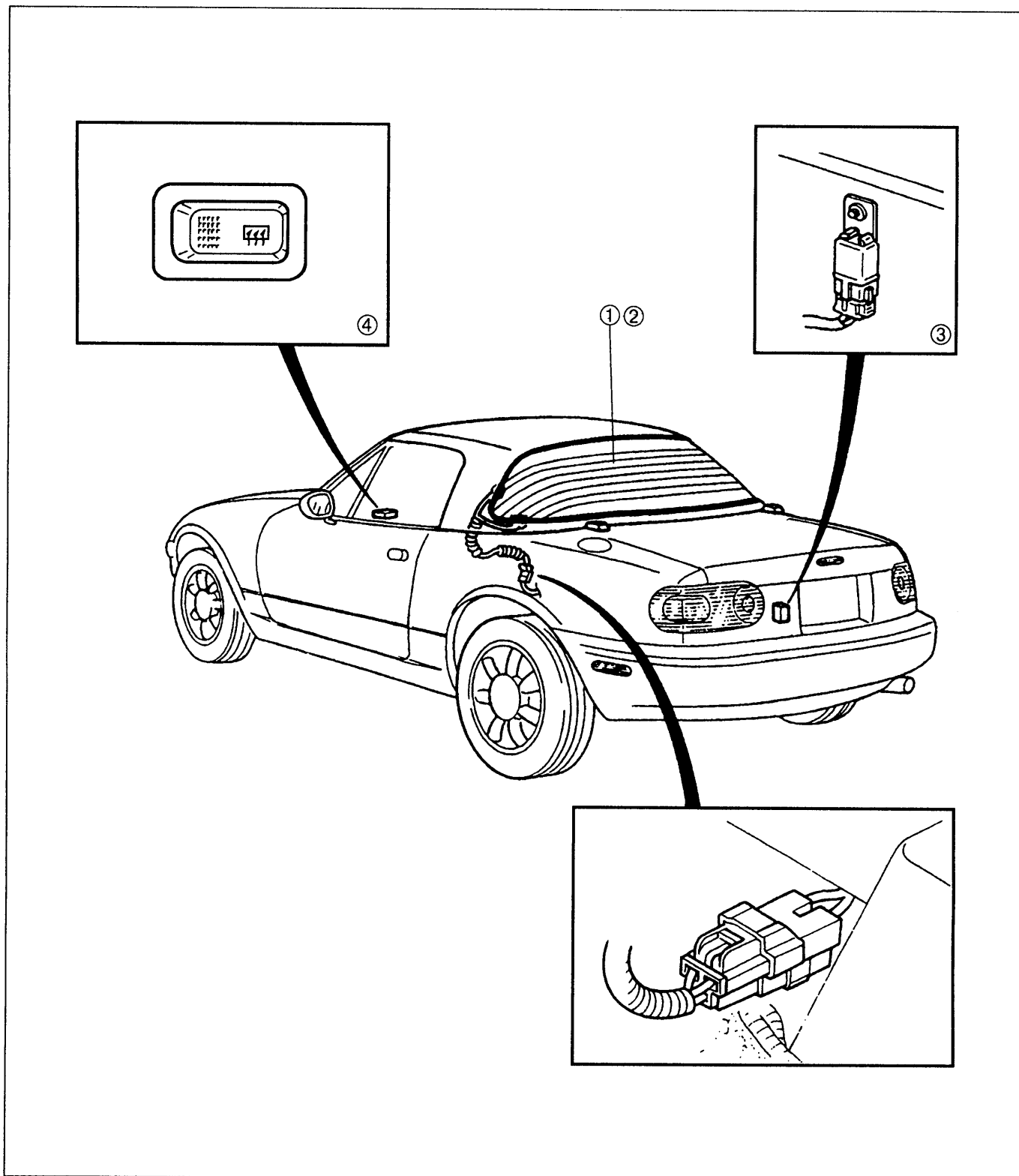
SPEEDOMETER CABLE

Inspection

1. Disconnect the speedometer cable from the instrument cluster and transmission case.
2. Verify that the cable and gear spin easily when turned by hand.
3. If the cable or gear is stiff, replace if necessary.

REAR WINDOW DEFROSTER

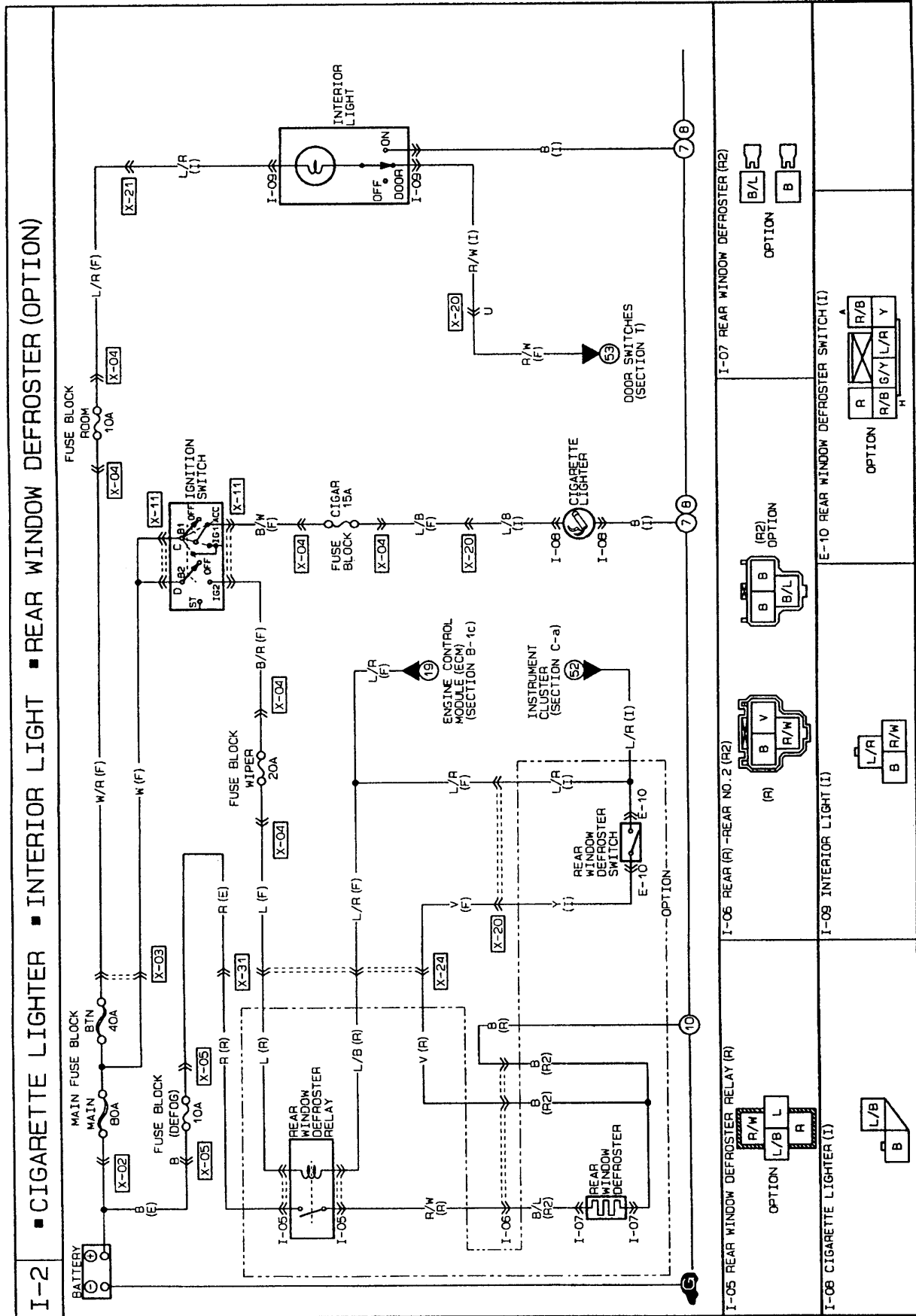
STRUCTURAL VIEW



- 1. Rear window defroster
 Troubleshooting page T-94
- 2. Filament
 Inspection page T-97
 Repair page T-98

- 3. Rear window defroster relay
 Inspection page T-98
- 4. Rear window defroster switch
 Inspection page T-98

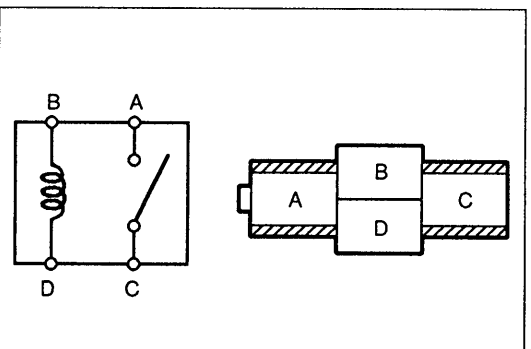
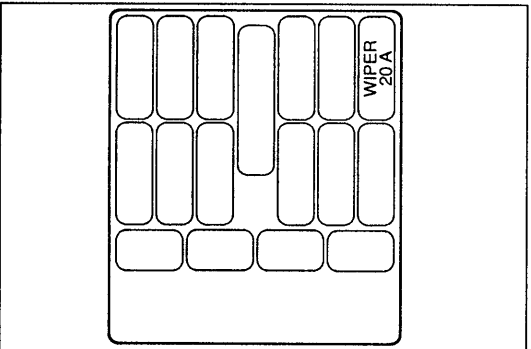
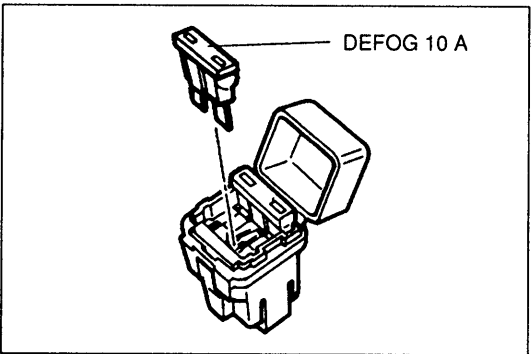
TRUBLESHOOTING
Circuit Diagram



Symptom	Rear window defroster does not operate
----------------	--

Possible cause

- Burnt DEFOG 10 A fuse
- Burnt WIPER 20 A fuse
- Damaged rear window defroster relay
- Damaged rear window defroster switch
- Damaged rear window defroster
- Open or short circuit in wiring harness
- Poor connection of connector



Step 1

Check the DEFOG 10 A fuse in fuse block No.2 and the WIPER 20 A fuse in the fuse block No.1.

Fuse	Action
OK	Go to Step 2
Burnt	Replace fuse after checking and repairing wiring harness

Step 2

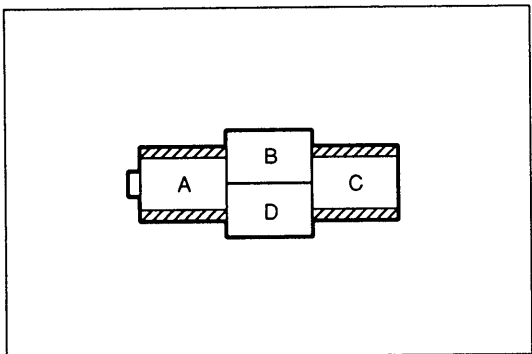
1. Remove the trunk end trim. (Refer to section S.)
2. Remove the rear window defroster relay.
3. Apply battery positive voltage and check for continuity between the relay terminals.

B+: Battery positive voltage

Step	Terminal	B	D	A	C
1		○	○		
2		B+	GND	○	○

○—○: Continuity

4. If correct, install the rear window defroster relay and go to Step 3.
5. If not as specified, replace the rear window defroster relay.

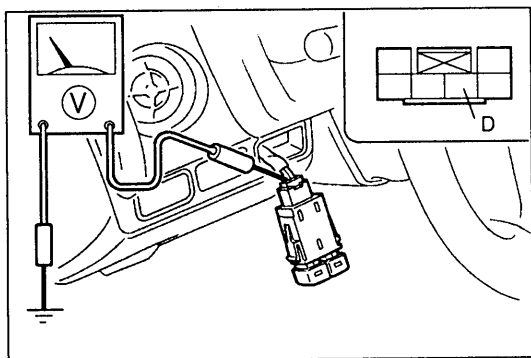


Step 3

1. Turn the ignition switch to ON.
2. Turn the rear window defroster switch on.
3. Measure the voltage at the terminals of the rear window defroster relay connector.

B+: Battery positive voltage

Terminal	Voltage	Action
B (L)	B+	Measure voltage at terminal C
	Other	Repair wiring harness (WIPER 20 A fuse — Rear window defroster relay)
C (R)	B+	Measure voltage at terminal D
	Other	Repair wiring harness (DEFOG 10 A fuse — Rear window defroster relay)
D (L/B)	0 V	Measure voltage at terminal A
	Other	Go to Step 4
A (R/W)	B+	Go to Step 6
	Other	Replace rear window defroster relay

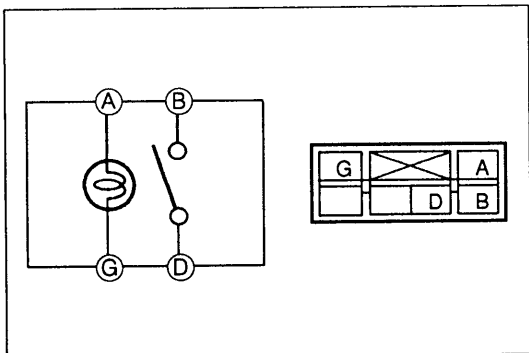


Step 4

1. Turn the rear window defroster switch off.
2. Measure the voltage at terminal D (L/R) of the rear window defroster switch connector.

B+: Battery positive voltage

Voltage	Action
B+	Go to Step 5
Other	Repair wiring harness (Refer window defroster relay — Rear window defroster switch)



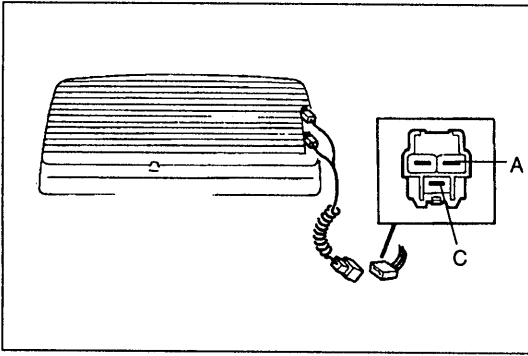
Step 5

1. Remove the rear window defroster switch.
2. Check for continuity between the terminals of the rear window defroster switch.

Terminal	A	G	B	D
Switch position				
OFF	○	⊕	○	
ON	○	⊕	○	○

○—○ : Continuity ○—⊕—○ : Bulb

3. If correct, repair wiring harness (rear window defroster switch — ground).
4. If not as specified, replace the rear window defroster switch.

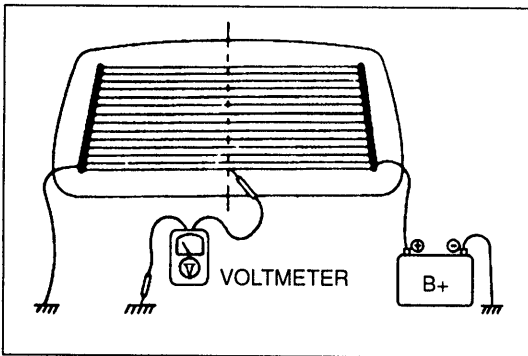


Step 6

1. Turn the rear window defroster switch on.
2. Measure the voltage at the terminals of the rear window defroster connector.

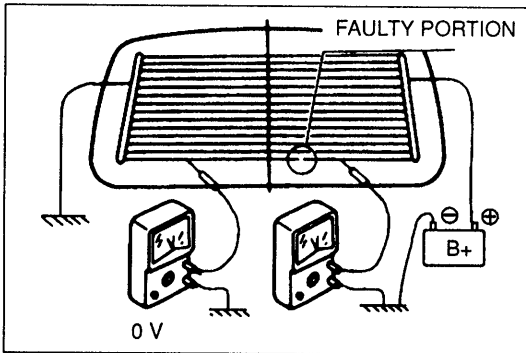
B+: Battery positive voltage

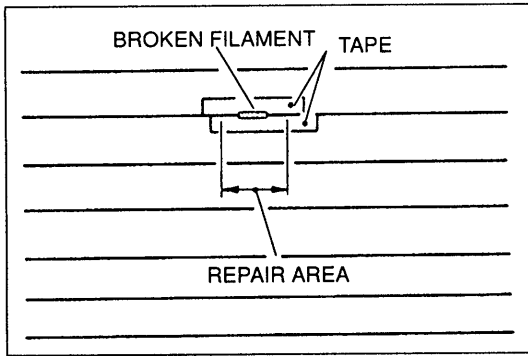
Terminal	Voltage	Action
C (R/W)	B+	Measure voltage at terminal A
	Other	Repair wiring harness (Rear window defroster relay — Rear window defroster)
A (B)	0 V	Repair filament (Refer to page T-98)
	Other	Repair wiring harness (Rear window defroster — GND)



FILAMENT Inspection

1. Turn the ignition switch to ON.
2. Turn the rear window defroster switch on.
3. Connect the (+) terminal of a voltmeter to the center of each filament and the (-) terminal to the body. The standard voltage at the center of each filament is approximately 6 V. If the meter indication is high, there is an open circuit between the center and the ground side of the filament. If the indication is low or zero, the malfunction is between the center and positive side.



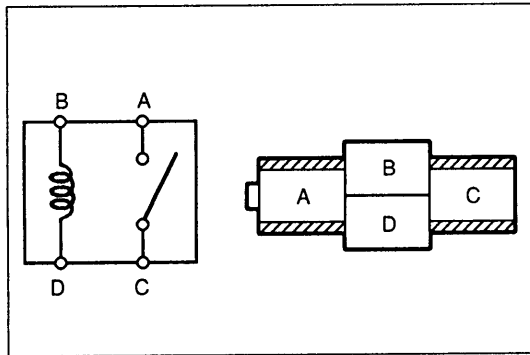


Repair

Caution

- Use only paint thinner or ethyl alcohol for cleaning. Other solvents can damage the surrounding filament.

1. Use paint thinner or ethyl alcohol to clean the damaged section of the filament.
2. Apply tape to both sides of the damaged section of filament.
3. Using a small brush or marking pen, apply silver paint (part no. 2835 77 600) or equivalent to the damaged section.
4. Use a hot-air blower heated to 60 °C { 140 °F } for 30 minutes or let the paint set for 24 hours at 20 °C { 68 °F } to let it dry completely. Do not use the rear window defroster until the paint is dry.



REAR WINDOW DEFROSTER RELAY

Inspection

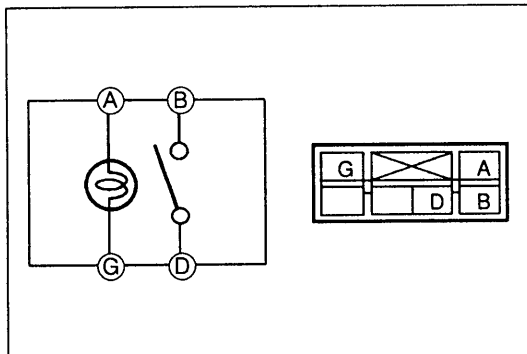
1. Disconnect the rear window defroster relay connector and remove the relay.
2. Apply battery positive voltage and check for continuity between the relay terminals.

B+: Battery positive voltage

Step \ Terminal	B	D	A	C
1	○—○	○—○		
2	B+	GND	○—○	○—○

○—○: Continuity

3. If not as specified, replace the rear window defroster relay.



REAR WINDOW DEFROSTER SWITCH

Inspection

1. Remove the rear window defroster switch.
2. Check for continuity between the terminals of the rear window defroster switch.

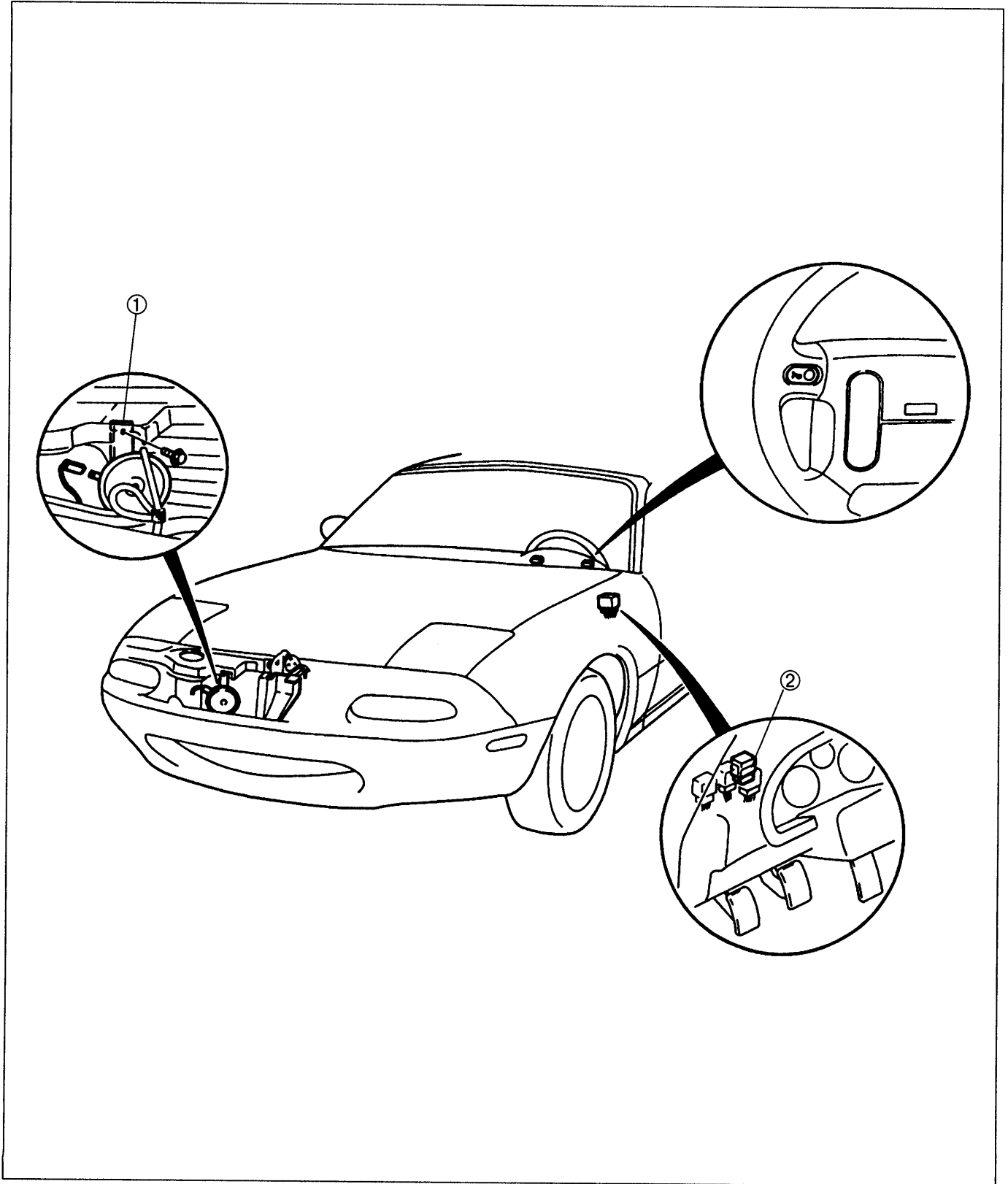
Switch position \ Terminal	A	G	B	D
OFF	○—○	○⊗○		
ON	○—○	○⊗○	○—○	○—○

○—○: Continuity ○⊗○: Bulb

3. If not as specified, replace the rear window defroster switch.

HORN

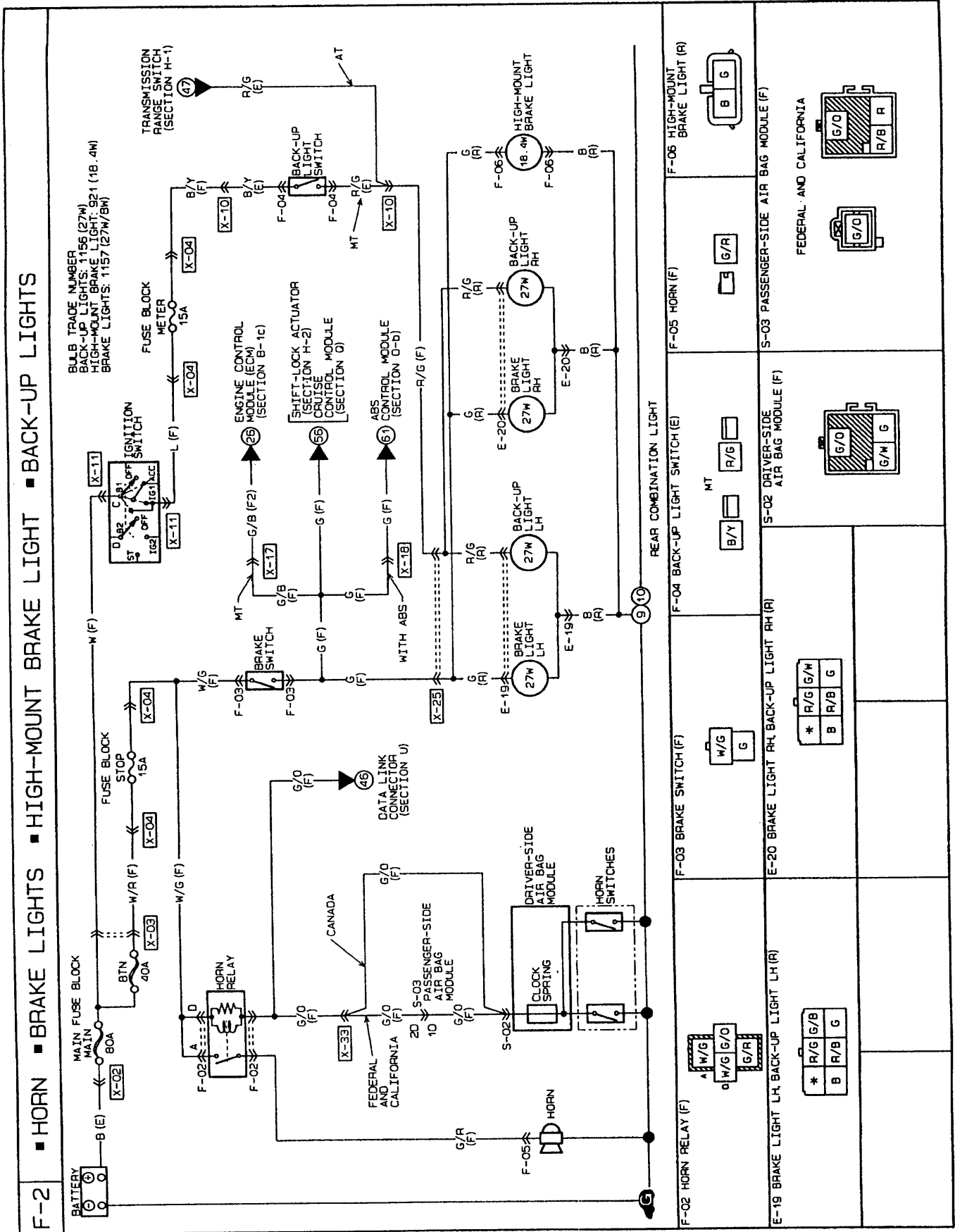
STRUCTURAL VIEW



1. Horn
Removal / Installation page T-104
On-vehicle inspection page T-104

2. Horn relay
Inspection page T-104

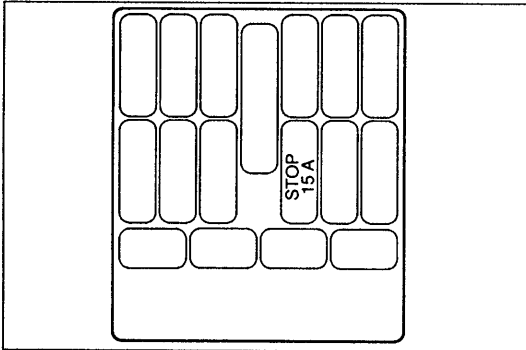
TROUBLESHOOTING
Circuit Diagram



Symptom	Horns do not sound
----------------	--------------------

Possible cause

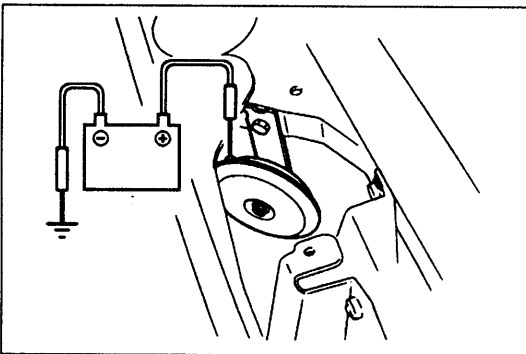
- Burnt STOP 15 A fuse
- Damaged horn relay
- Damaged horn switch
- Open or short circuit in wiring harness
- Poor connection of connector.



Step 1

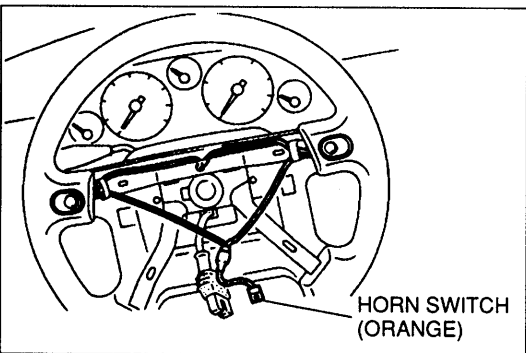
Check the STOP 15 A fuse in fuse block No.1.

Fuse	Action
OK	Go to Step 2
Burnt	Replace fuse after checking and repairing wiring harness



Step 2

1. Disconnect the horn connector.
2. Apply battery positive voltage to the horn and verify that the horn sounds.
3. If the horn sounds, go to Step 3.
4. If the horn does not sound, replace the horn.



Step 3

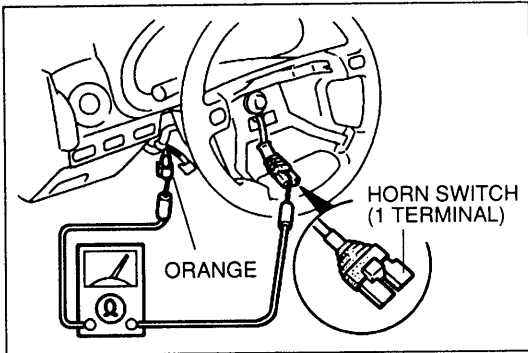
Warning

- Handling the air bag module improperly can accidentally deploy the air bag, which may seriously injure you. Read **SERVICE WARNINGS**, page T-162, before handling the air bag module.

1. Deactivate the audio antitheft system if installed. (Refer to page T-129.)
2. Disconnect the negative battery cable.
3. Remove the air bag module. (Refer to page T-172.)
4. Check for continuity between the terminal of the horn switch and the steering shaft.

Horn switch	Continuity
ON	Yes
OFF	No

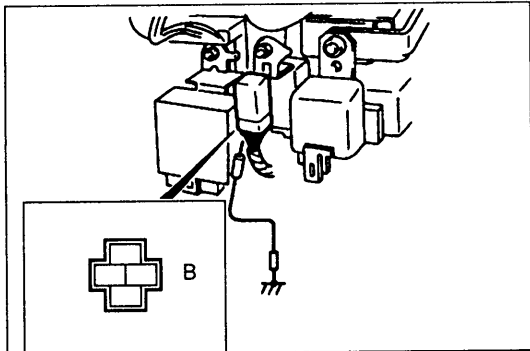
5. If correct, go to Step 4.
6. If not as specified, replace the horn switch and steering wheel as an assembly.



Step 4

1. Disconnect the clock spring connector.
2. Check for continuity between the terminals of the clock spring as shown in the figure.

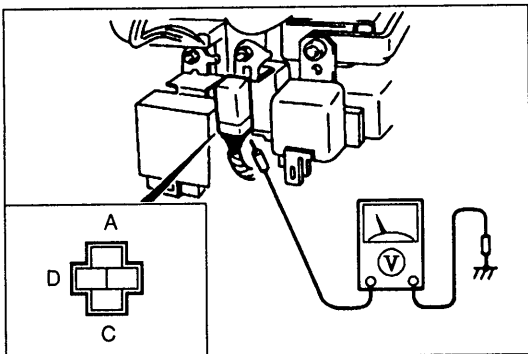
Continuity	Action
Yes	Go to Step 5
No	Replace combination switch



Step 5

Connect the terminal B (G/O) of the horn relay connector to ground.

Horn	Action
Do not sound	Go to Step 6
Sound	Repair wiring harness (Horn relay — Combination switch)



Step 6

Measure the voltage at the following terminals of the horn relay connector.

B+: Battery positive voltage

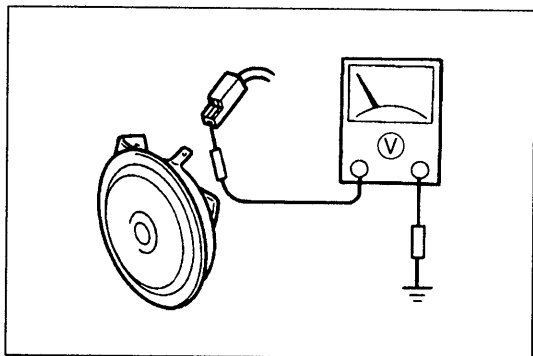
Terminal	Voltage	Action
A (W/G)	B+	Measure voltage at terminal D
	Other	Repair wiring harness (STOP 15 A fuse — Horn relay)
D (W/G)	B+	Measure voltage at terminal C
	Other	Repair wiring harness (STOP 15 A fuse — Horn relay)
C (G/R)	B+	Repair wiring harness (Horn relay — Horn)
	Other	Replace horn relay

Symptom

Only one horn sounds

Possible cause

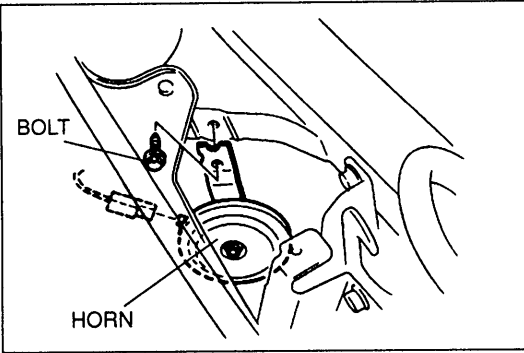
- Damaged horn
- Open or short circuit in wiring harness
- Poor connection of connector

**Remedy**

1. Disconnect the horn connectors.
2. Press the horn switch and measure the voltage at the horn connectors.

B+: Battery positive voltage

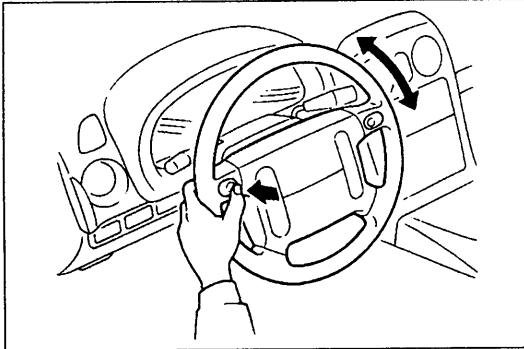
Voltage	Action
B+	Replace horn (Refer to page T-104)
Other	Repair wiring harness (Horn relay — Horn)



HORN

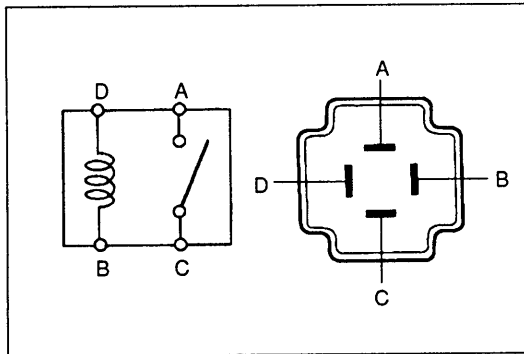
Removal / Installation

1. Disconnect the horn connector.
2. Remove the bolt and the horn.
3. Install in the reverse order of removal.



On-vehicle Inspection

While turning the steering wheel, verify that the horn sounds when the horn switch is pressed.



HORN RELAY

Inspection

1. Remove the horn relay.
2. Apply battery positive voltage and check for continuity between the relay terminals.

B+: Battery positive voltage

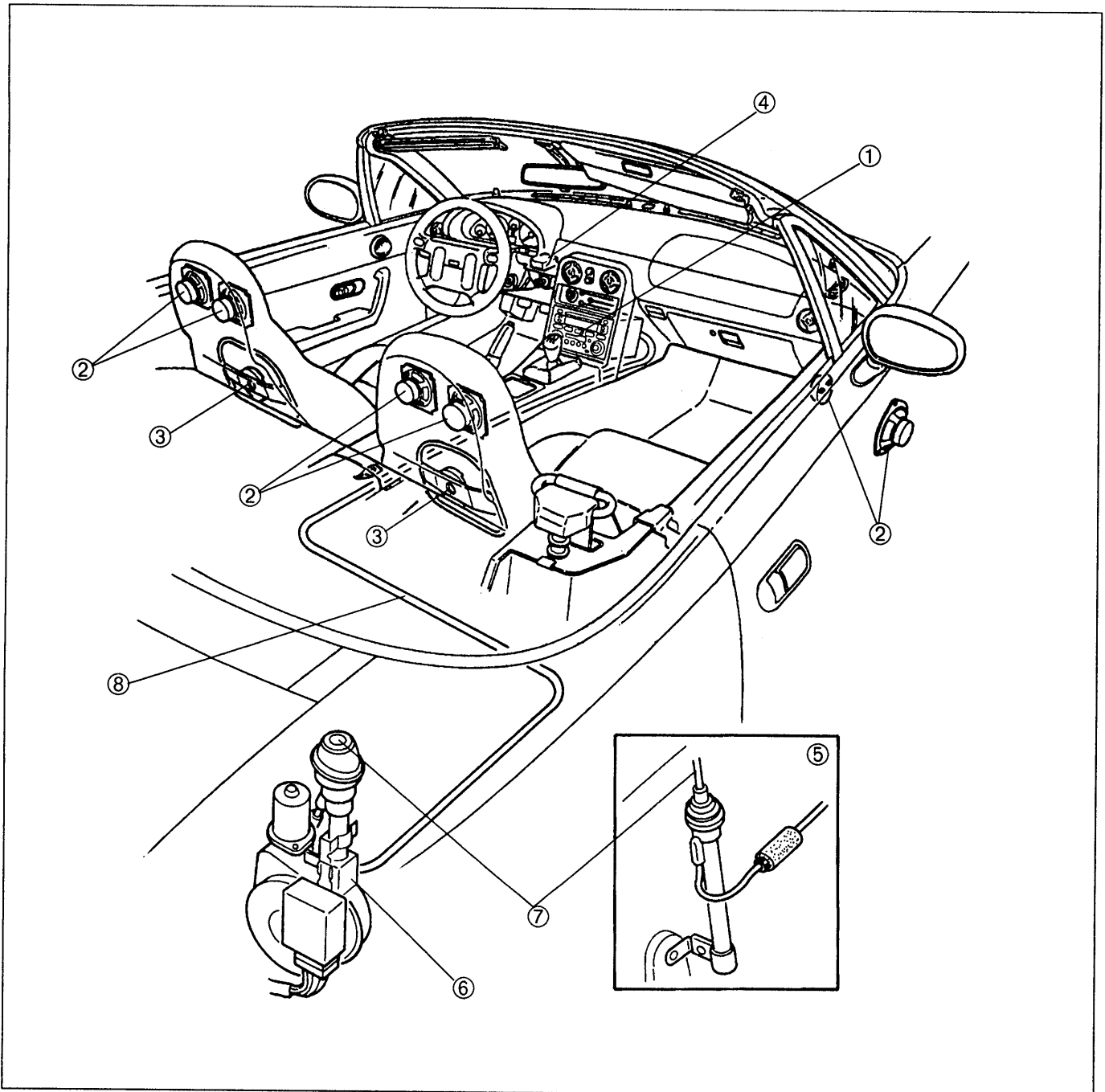
Step \ Terminal	A	C	D	B
1			○—○	○—○
2	○—○	○—○	B+	GND

○—○: Continuity

3. If not as specified, replace the horn relay.

AUDIO

STRUCTURAL VIEW



- | | |
|---|--|
| <p>1. Audio unit
Removal / Installation page T-133</p> <p>2. Speaker
Removal / Installation page T-134
Inspection page T-136</p> <p>3. Bodysonic
Removal / Installation page T-137
Inspection page T-137</p> <p>4. Audio amplifier
Removal / Installation page T-138</p> <p>5. Manual antenna
Removal / Installation page T-139</p> | <p>6. Power antenna
Removal / Installation page T-140
Disassembly / Assembly ... page T-141
Inspection page T-142</p> <p>7. Antenna mast
Removal page T-142
Installation page T-143</p> <p>8. Antenna feeder
Removal / Installation page T-143
Inspection page T-144</p> |
|---|--|

TROUBLESHOOTING

Before troubleshooting, verify that the customer is using the audio system correctly. If not, advise the customer of the proper operating procedures.

Type 1

1. Speaker(s) do not operate (without headrest speakers) page T-112
2. Speaker(s) do not operate (with headrest speakers) page T-114

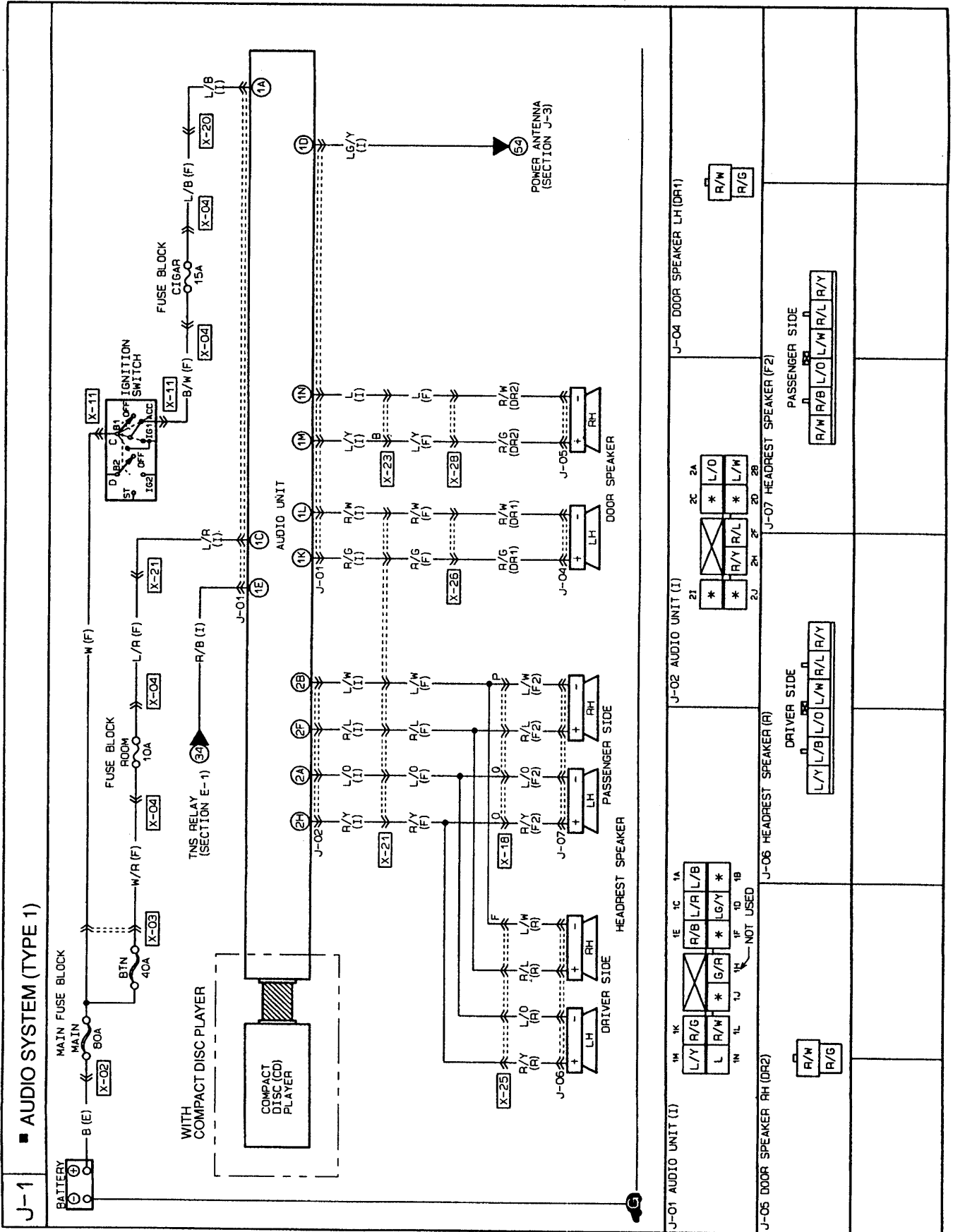
Type 2

1. Some speakers do not operate (with bodysonic) page T-117
2. Bodysonic will not play page T-121

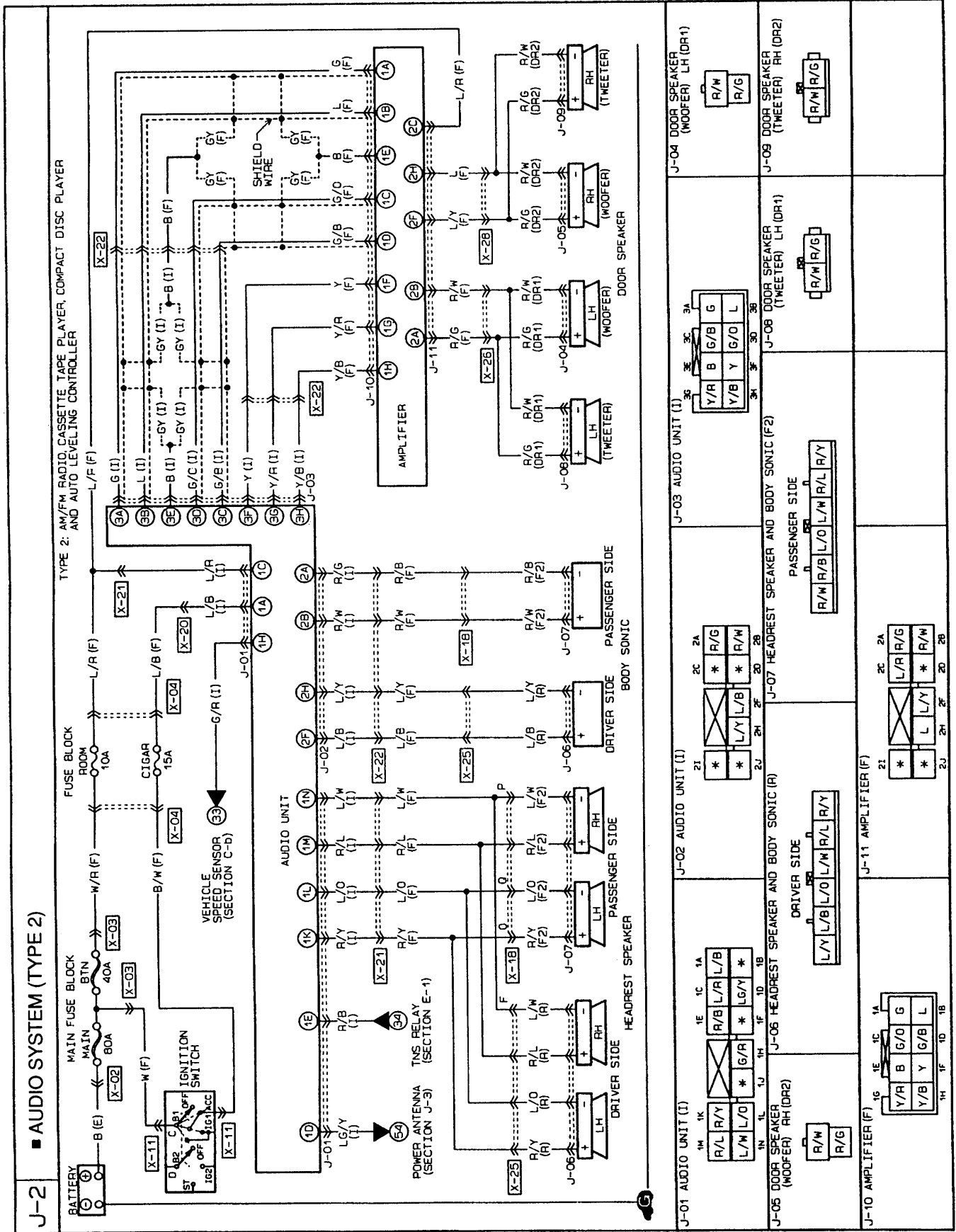
Type 1 and Type 2

1. No sound can be heard page T-110
2. Poor sound quality when radio is played page T-123
3. Cassette tape will not load page T-124
4. Cassette tape will not play page T-126
5. Compact disc will not load page T-127
6. Compact disc skips page T-128

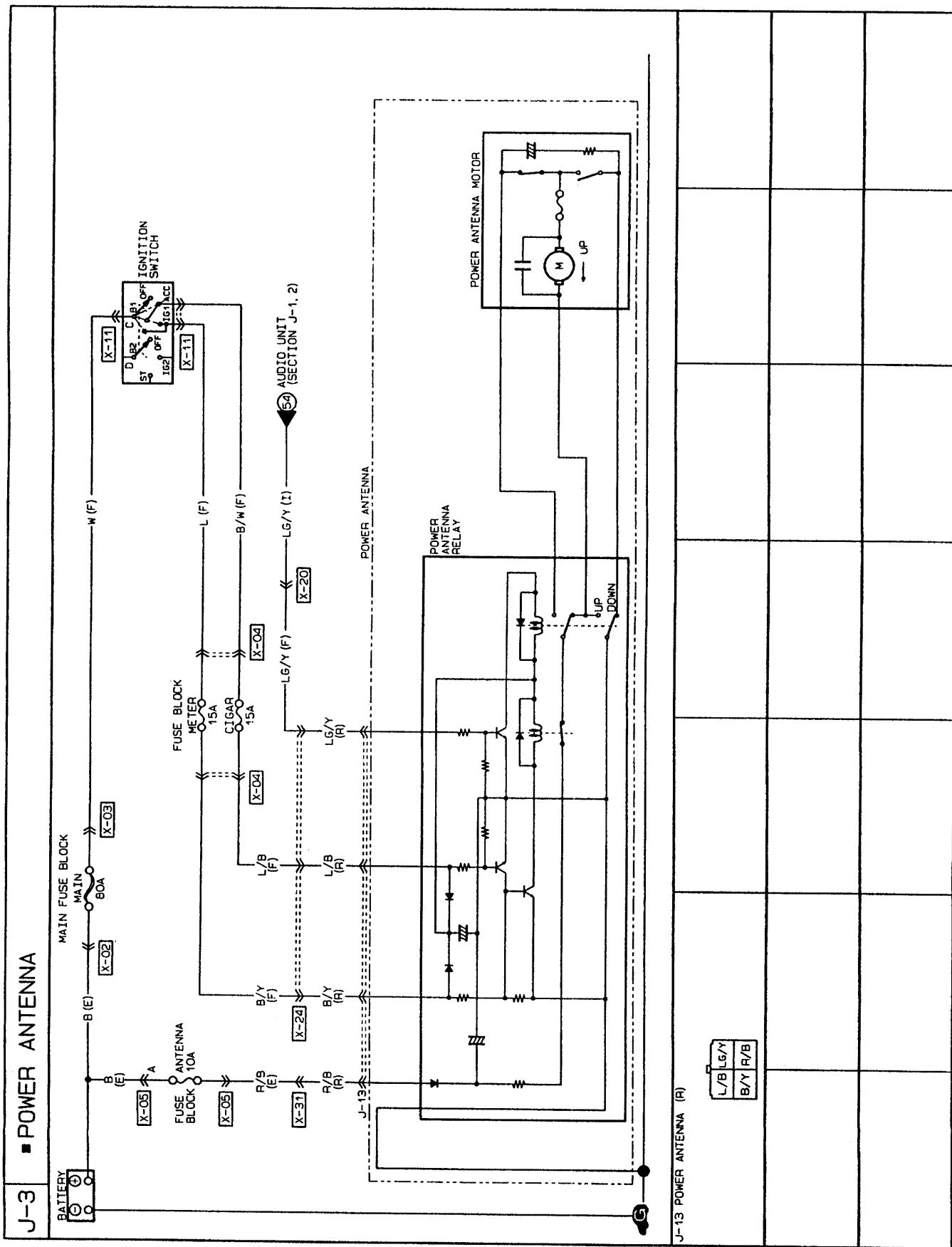
Audio Unit
Circuit diagram
Type 1



Type 2



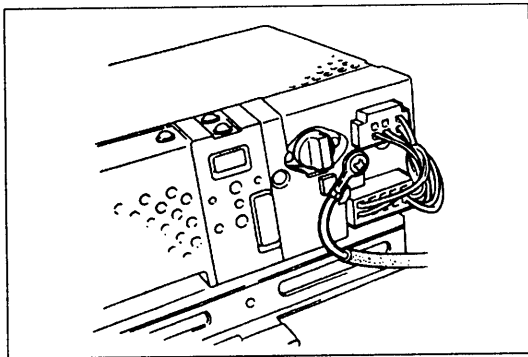
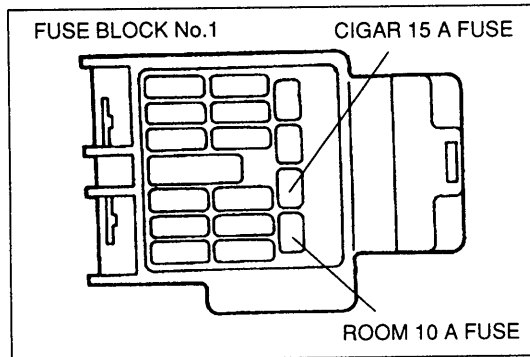
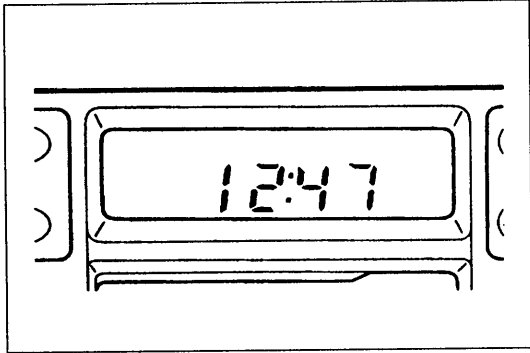
Power Antenna
Circuit diagram



Symptom	No sound can be heard
----------------	-----------------------

Possible cause

- Antitheft system activated
- Damaged audio unit
- Open or short circuit in wiring harness
- Poor connection of connector

**Step 1**

Turn the ignition switch to ACC and note the display.

Display	Action
CODE flashes	Deactivate antitheft system (page T-129)
Err flashes	Replace audio unit
No indication	Go to Step 2

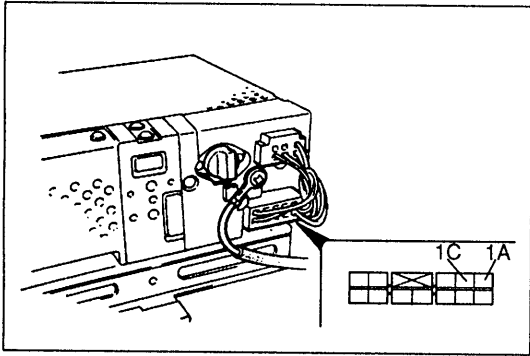
Step 2

Check the CIGAR 15 A fuse and ROOM 10 A fuse in the fuse block No.1.

Fuse	Action
Burnt	Replace fuse after checking and repairing wiring harness
OK	Go to Step 3

Step 3

1. Remove the audio unit. (Refer to page T-133.)
2. Verify that the audio unit connector is properly connected. Reconnect it if necessary.
3. If the connections are OK, go to Step 4.

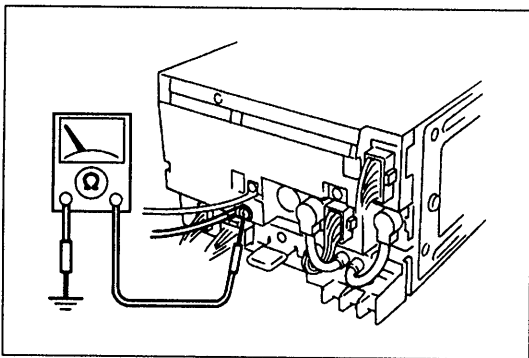


Step 4

1. Turn the ignition switch to ACC.
2. Measure the voltage at terminals 1A (L/B) and 1C (L/R) of the audio unit connector.

B+: Battery positive voltage

Terminal	Voltage	Action
1A	B+	Measure voltage at terminal 1C
	Other	Repair wiring harness (CIGAR 15 A fuse — Audio unit)
1C	B+	Go to Step 5
	Other	Repair wiring harness (ROOM 10 A fuse — Audio unit)



Step 5

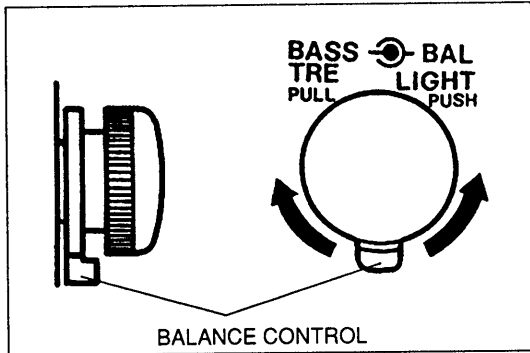
Check for continuity between the audio unit and ground.

Continuity	Action
Yes	Replace audio unit
No	Repair wiring harness (Audio unit — GND)

Symptom	Speaker(s) do not operate (without headrest speakers)
----------------	---

Possible cause

- Damaged speaker
- Damaged audio unit
- Open or short circuit in wiring harness
- Poor connection of connector

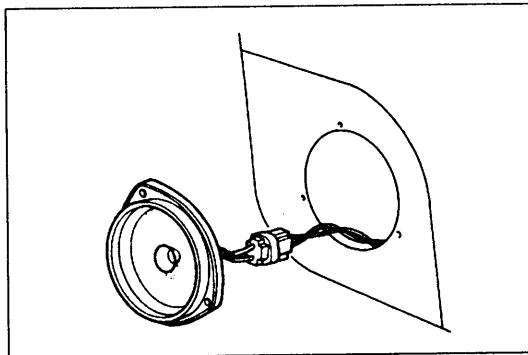


Step 1

- Locate the faulty speaker(s) by using the balance control.
1. Turn the ignition switch to ACC.
 2. Play a prerecorded tape, and set the volume to the center position.
 3. Set the balance control as shown in the table below.
 4. Check the operation of each speaker.

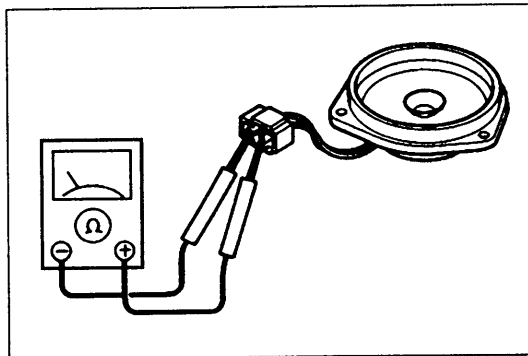
Table 1

Speaker	Balance	Speaker	Condition	Action
Left door	Left	Operates	Left door speaker circuit OK	—
		Does not operate	Left door speaker circuit faulty	Go to Step 2
Right door	Right	Operates	Right door speaker circuit OK	—
		Does not operate	Right door speaker circuit faulty	Go to Step 2



Step 2

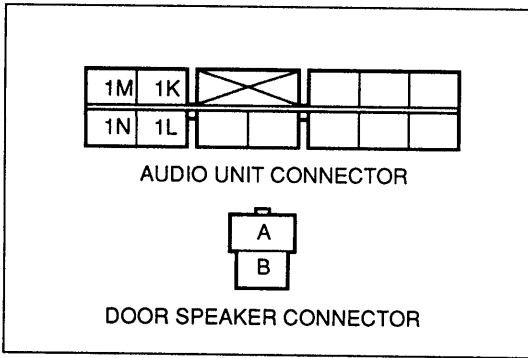
1. Remove the door speaker. (Refer to page T-134.)
2. Verify that the door speaker connector is properly connected. Reconnect it if necessary.
3. If the connection is OK, go to Step 3.



Step 3

1. Disconnect the door speaker connector.
2. Measure the resistance between the terminals of the door speaker.

Resistance	Action
4 Ω	Go to Step 4
Other	Replace door speaker



Step 4

1. Disconnect the audio unit connector.
2. Check for continuity between terminals of the audio unit connector and door speaker connector.

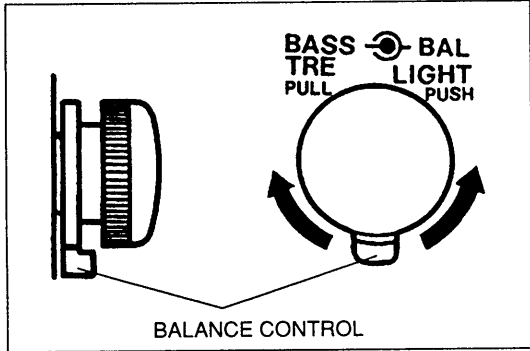
Speaker	Audio unit connector	Door speaker connector	Continuity
Right door	Terminal 1M ↔	Terminal B	Yes
	Terminal 1N ↔	Terminal A	Yes
Left door	Terminal 1K ↔	Terminal B	Yes
	Terminal 1L ↔	Terminal A	Yes

3. If correct, replace the audio unit. (Refer to page T-133.)
4. If not as specified, repair the wiring harness (audio unit — door speaker).

Symptom	Speaker(s) do not operate (with headrest speakers)
----------------	--

Possible cause

- Damaged speaker
- Damaged audio unit
- Open or short circuit in wiring harness
- Poor connection of connector

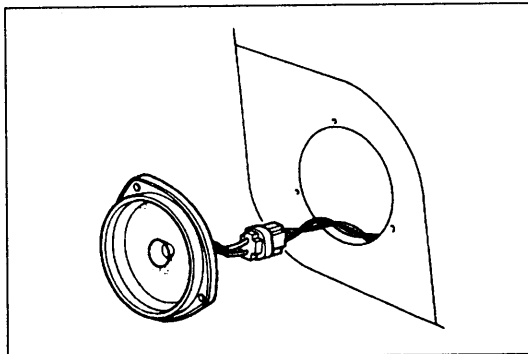


Step 1

Locate the faulty speaker(s) by using the headrest speaker volume, and balance control.

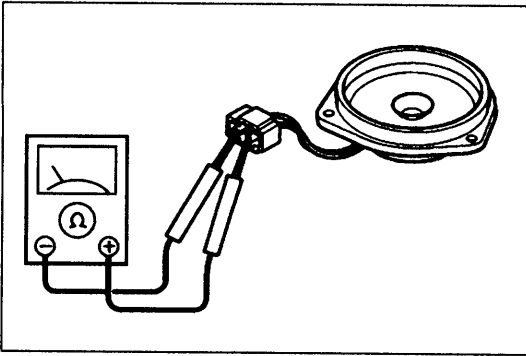
1. Turn the ignition switch to ACC.
2. Play a prerecorded cassette tape, and set the volume to the center position.
3. Set the head speaker volume and balance controls as shown in the table below. Check the operation of each speaker.

Speaker	Balance	Head speaker volume	Speaker	Condition	Action
Left door	Left	Min	Operates	Left door speaker circuit OK	—
			Does not operate	Left door speaker circuit faulty	Go to Step 2
Right door	Right	Min	Operates	Right door speaker circuit OK	—
			Does not operate	Right door speaker circuit faulty	Go to Step 2
Left headrest (driver)	—	Max	Operates	Left headrest speaker circuit (driver) OK	—
			Does not operate	Left headrest speaker circuit (driver) faulty	Go to Step 5
Right headrest (driver)	—	Max	Operates	Right headrest speaker circuit (driver) OK	—
			Does not operate	Right headrest speaker circuit (driver) faulty	Go to Step 5
Left headrest (passenger)	—	Max	Operate	Left headrest speaker circuit (passenger) OK	—
			Does not operate	Left headrest speaker circuit (passenger) faulty	Go to Step 5
Right headrest (passenger)	—	Max	Operates	Right headrest speaker circuit (passenger) OK	—
			Does not operates	Right headrest speaker circuit (passenger) faulty	Go to Step 5



Step 2

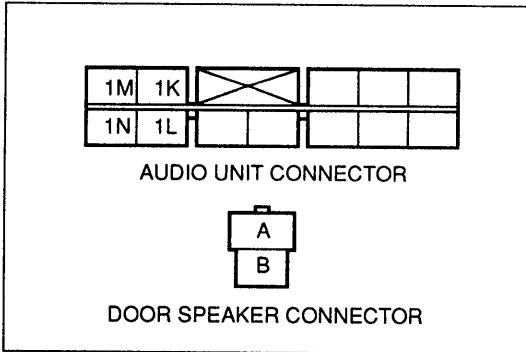
1. Remove the door speaker. (Refer to page T-134.)
2. Verify that the door speaker connector is properly connected. Reconnect it if necessary.
3. If the connection is OK, go to Step 3.



Step 3

1. Disconnect the door speaker connector.
2. Measure the resistance between the terminals of the door speaker.

Resistance	Action
4 Ω	Go to Step 4
Other	Replace door speaker

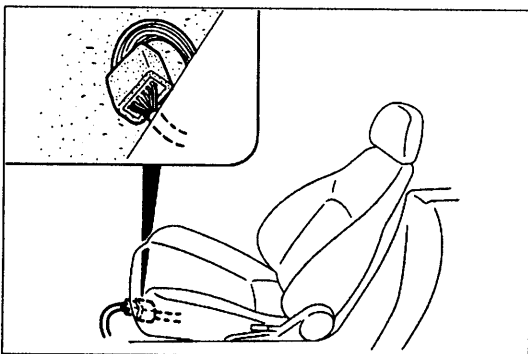


Step 4

1. Disconnect the audio unit connector.
2. Check for continuity between terminals of the audio unit connector and door speaker connector.

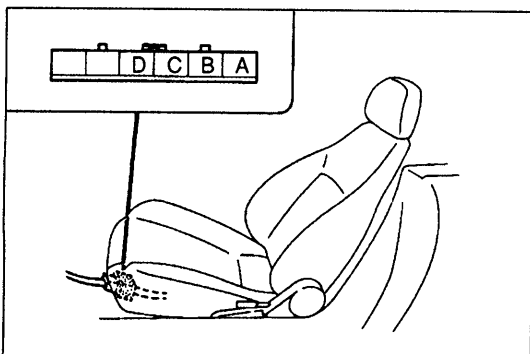
Speaker	Audio unit connector	Door speaker connector	Continuity
Right door	Terminal 1M ↔ Terminal B		Yes
	Terminal 1N ↔ Terminal A		Yes
Left door	Terminal 1K ↔ Terminal B		Yes
	Terminal 1L ↔ Terminal A		Yes

3. If correct, replace the audio unit. (Refer to page T-133.)
4. If not as specified, repair the wiring harness (audio unit — door speaker).



Step 5

1. Verify that the headrest speaker connector is properly connected. Reconnect it if necessary.
2. If the connection is OK, go to Step 6.

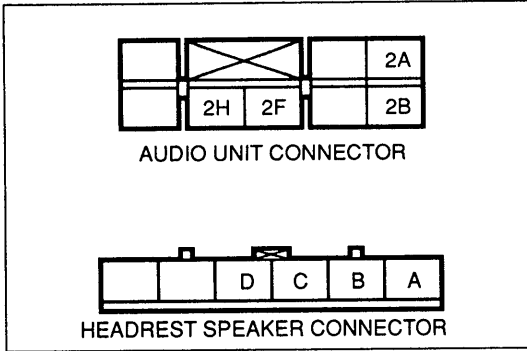


Step 6

1. Disconnect the headrest speaker connector.
2. Measure the resistance between the terminals of the headrest speaker.

Terminal	Resistance
A — D	4 Ω
B — C	

3. If correct go to Step 7.
4. If not as specified, replace the headrest speaker.



Step 7

1. Disconnect the audio unit connector.
2. Check for continuity between terminals of the audio unit connector and headrest speaker connector.

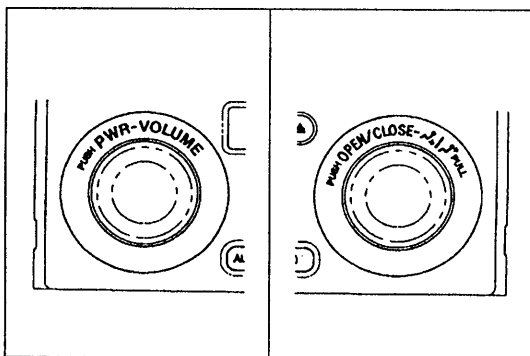
Speaker	Audio unit connector	Headrest speaker connector	Continuity
Right headrest	Terminal 2H ↔ Terminal C		Yes
	Terminal 2B ↔ Terminal D		Yes
Left headrest	Terminal 2F ↔ Terminal B		Yes
	Terminal 2A ↔ Terminal A		Yes

3. If correct, replace the audio unit. (Refer to page T-133.)
4. If not as specified, repair the wiring harness (audio unit — headrest speaker).

Symptom	Some speakers do not operate (with bodysonic)
----------------	---

Possible cause

- Damaged speaker
- Damaged audio unit
- Open or short circuit in wiring harness
- Poor connection of connector



Step 1

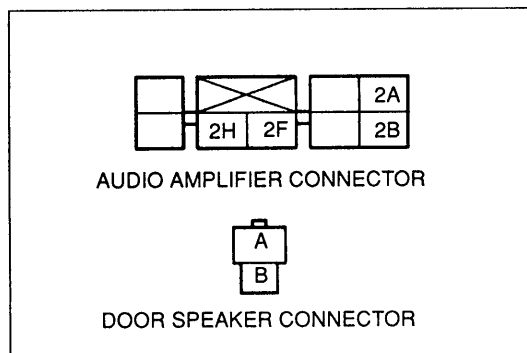
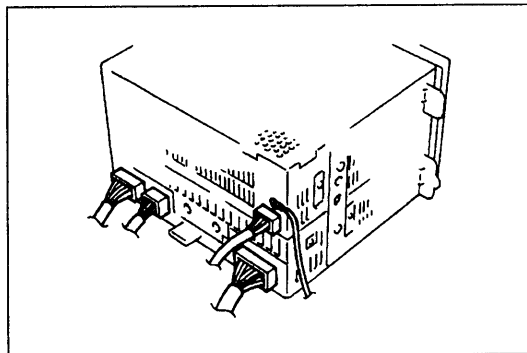
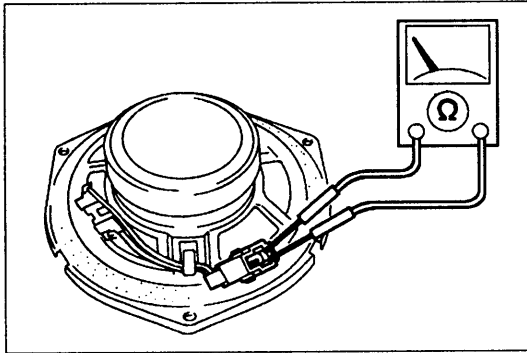
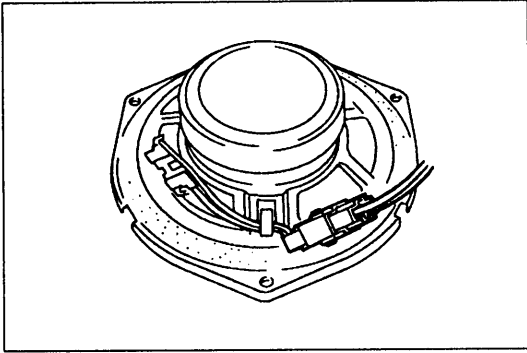
1. Turn the ignition switch to ACC.
2. Turn the audio system power on. Play a prerecorded cassette tape and set the volume at an appropriate level.
3. Verify speaker operation with the balance, treble, bass, and fader knobs in the positions indicated in Table 1.
4. If not as specified in Table 1, refer to Table 2 and continue troubleshooting at the step corresponding to the faulty speaker.

Table 1

Speaker	Balance	Treble	Bass	Fader	Speaker
Left door (woofer)	Right	Right	Right	Right	Operates
Right door (woofer)	Left				Does not operate
Left door (tweeter)	Right				Operates
Right door (tweeter)	Left				Does not operate
Left headrest (driver)	Right			Left	Operates
Right headrest (driver)	Left				Does not operate
Left headrest (passenger)	Right				Operates
Right headrest (passenger)	Left				Does not operate

Table 2

Speaker								Action
Left door (woofer)	Right door (woofer)	Left door (tweeter)	Right door (tweeter)	Left headrest (driver)	Right headrest (driver)	Left headrest (passenger)	Right headrest (passenger)	
x								Go to Step 2
	x							Go to Step 2
		x						Go to Step 2
			x					Go to Step 2
				x				Go to Step 8
					x			Go to Step 8
						x		Go to Step 8
							x	Go to Step 8



Step 2

1. Remove the door speaker. (Refer to page T-134.)
2. Verify that the door speaker connector is properly connected. Reconnect it if necessary.
3. If the connection is OK, go to Step 3.

Step 3

1. Disconnect the door speaker connector.
2. Measure the resistance between the terminals of the door speaker.

Speaker type	Resistance
Woofer	4 Ω
Tweeter	9 Ω

3. If correct, go to Step 4.
4. If not as specified, replace the door speaker.

Step 4

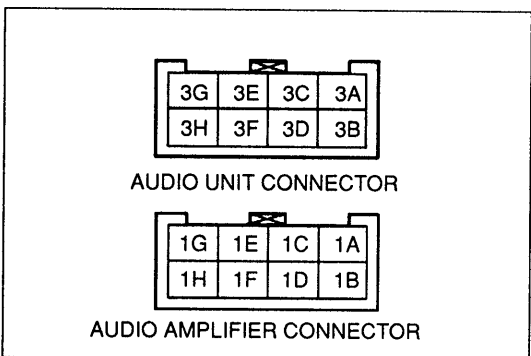
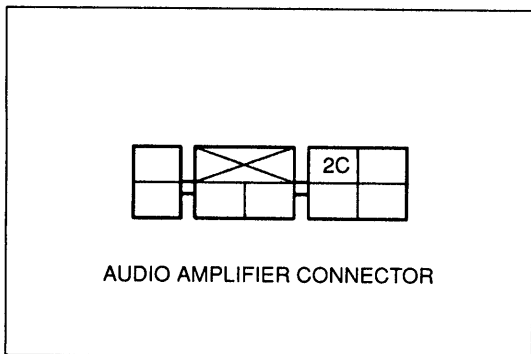
1. Remove the audio unit. (Refer to page T-133.)
2. Verify that the audio unit connector is properly connected. Reconnect it if necessary.
3. If the connections are OK, go to Step 5.

Step 5

1. Disconnect the audio amplifier connector.
2. Check for continuity between terminals of the audio amplifier connector and the door speaker connector.

Speaker	Audio amplifier connector	Door speaker connector	Continuity
Right door (woofer)	Terminal 2H ↔ Terminal A		Yes
	Terminal 2F ↔ Terminal B		Yes
Right door (tweeter)	Terminal 2H ↔ Terminal B		Yes
	Terminal 2F ↔ Terminal A		Yes
Left door (woofer)	Terminal 2A ↔ Terminal B		Yes
	Terminal 2B ↔ Terminal A		Yes
Left door (tweeter)	Terminal 2A ↔ Terminal A		Yes
	Terminal 2B ↔ Terminal B		Yes

3. If correct, go to Step 6.
4. If not as specified, repair the wiring harness (audio amplifier — door speaker).



Step 6

1. Connect the audio amplifier connector.
2. Measure the voltage at terminal 2C (L/R) of the audio amplifier connector.

B+: Battery positive voltage

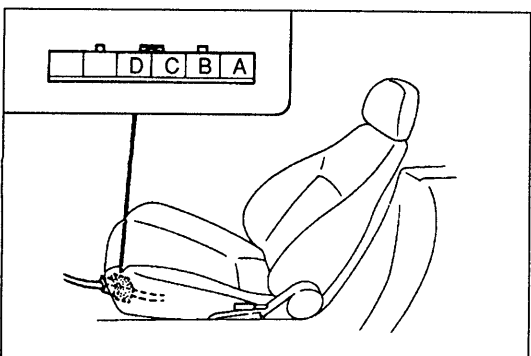
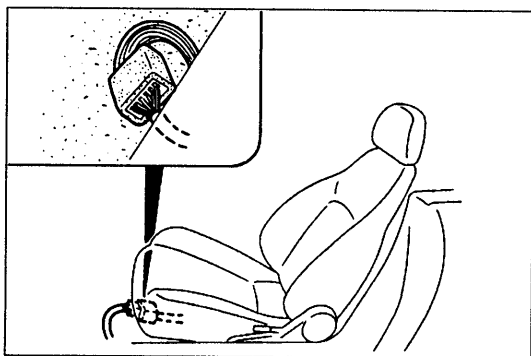
Voltage	Action
B+	Go to Step 7
Other	Repair wiring harness (ROOM 10 A fuse — Audio amplifier)

Step 7

1. Disconnect the audio unit and audio amplifier connector.
2. Check for continuity between terminals of the audio unit connector and audio amplifier connector.

Audio unit connector	Audio amplifier connector	Continuity
Terminal 3A ↔ Terminal 1A		Yes
Terminal 3B ↔ Terminal 1B		Yes
Terminal 3E ↔ Terminal 1E		Yes
Terminal 3C ↔ Terminal 1C		Yes
Terminal 3D ↔ Terminal 1D		Yes
Terminal 3F ↔ Terminal 1F		Yes
Terminal 3G ↔ Terminal 1G		Yes
Terminal 3H ↔ Terminal 1H		Yes

3. If correct, replace the audio amplifier.
4. If not as specified, repair the wiring harness (audio unit — audio amplifier).



Step 8

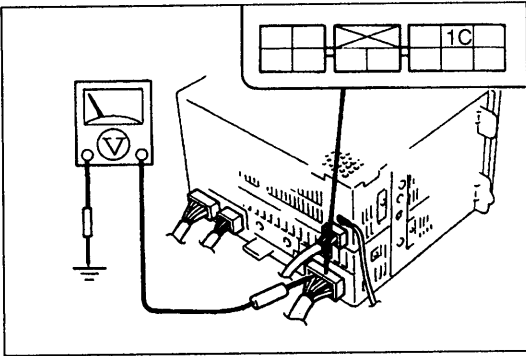
1. Remove the headrest speaker. (Refer to page T-135.)
2. Verify that the headrest speaker connector is properly connected. Reconnect it if necessary.
3. If the connection is OK, go to Step 9.

Step 9

1. Disconnect the headrest speaker connector.
2. Measure the resistance between the terminals of the headrest speaker.

Terminal	Resistance
A — D	8 Ω
B — C	

3. If correct go to Step 10.
4. If not as specified, replace the headrest speaker.

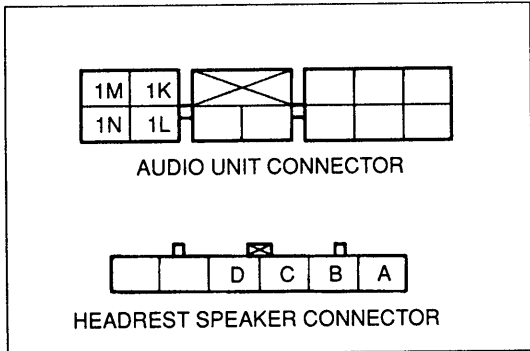


Step 10

1. Turn the ignition switch to ACC.
2. Measure the voltage at terminal 1C (L/B) of the audio unit connector.

B+: Battery positive voltage

Voltage	Action
B+	Go to Step 11
Other	Repair wiring harness (CIGAR 15 A fuse — Audio unit)



Step 11

1. Disconnect the audio unit connector and headrest speaker connector.
2. Check for continuity between terminals of the audio unit connector and the headrest speaker connector.

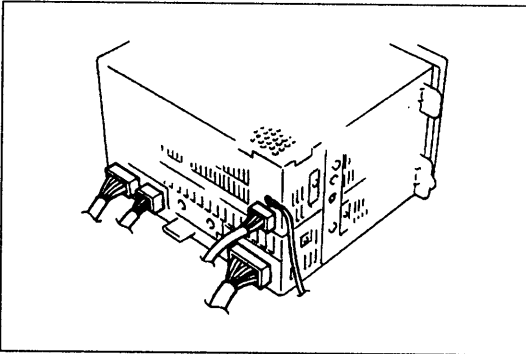
Speaker	Audio unit connector	Headrest Speaker connector	Continuity
Right headrest	Terminal 1M ↔ Terminal B		Yes
	Terminal 1N ↔ Terminal C		Yes
Left headrest	Terminal 1K ↔ Terminal A		Yes
	Terminal 1L ↔ Terminal D		Yes

3. If correct, replace the audio unit (Refer to page T-133.)
4. If not as specified, repair the wiring harness (audio unit — headrest speaker).

Symptom	Bodysonic will not play
----------------	-------------------------

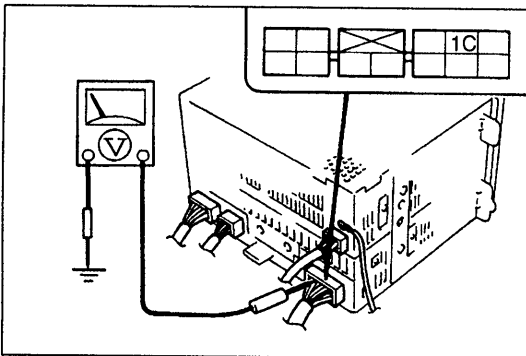
Possible cause

- Damaged bodysonic
- Damaged audio unit
- Open or short circuit in wiring harness
- Poor connection of connector



Step 1

1. Remove the audio unit. (Refer to page T-133.)
2. Verify that the audio unit connector is properly connected. Reconnect it if necessary.
3. If the connections are OK, go to Step 2.

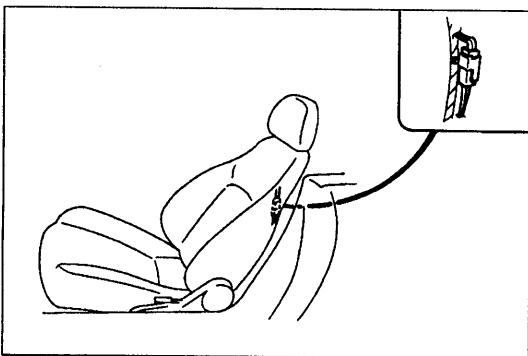


Step 2

1. Turn the ignition switch to ACC.
2. Measure the voltage at terminal 1C (L/B) of the audio unit connector.

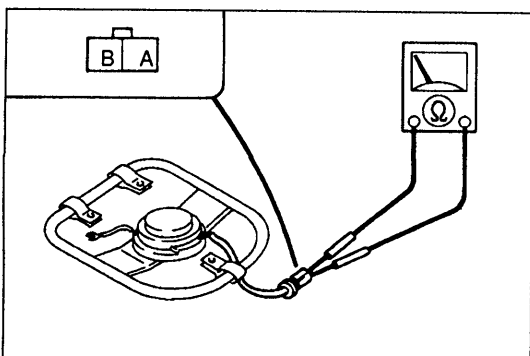
B+: Battery positive voltage

Voltage	Action
B+	Go to Step 3
Other	Repair wiring harness (CIGAR 15 A fuse — Audio unit)



Step 3

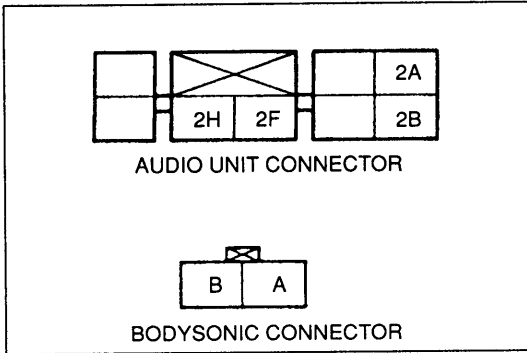
1. Verify that the bodysonic connector is properly connected. Reconnect if necessary.
2. If the connection is OK, go to Step 4.



Step 4

1. Disconnect the bodysonic connector.
2. Measure the resistance between the terminals of the bodysonic connector.

Resistance	Action
8 Ω	Go to Step 5
Other	Replace bodysonic



Step 5

1. Disconnect the audio unit connector.
2. Check for continuity between terminals of the audio unit connector and the bodysonic connector.

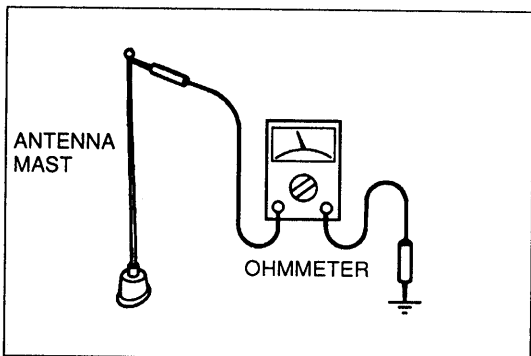
Speaker	Audio unit connector	Bodysonic connector	Continuity
Passenger-side	Terminal 2B ↔ Terminal B Terminal 2A ↔ Terminal A		Yes
Driver-side	Terminal 2H ↔ Terminal B Terminal 2F ↔ Terminal A		Yes

3. If correct, replace the audio unit.
(Refer to page T-133.)
4. If not as specified, repair the wiring harness (audio unit — bodysonic).

Symptom	Poor sound quality when radio is played
----------------	---

Possible cause

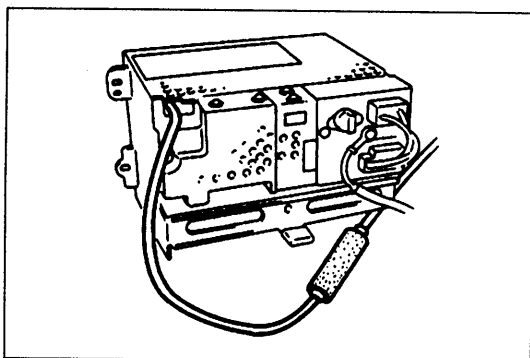
- Damaged antenna mast
- Damaged antenna feeder
- Poor connection of connector.



Step 1

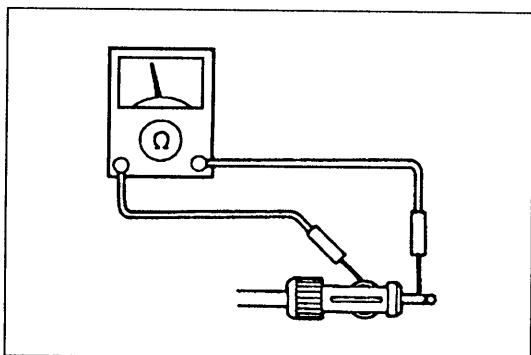
Check for continuity between the antenna mast and ground.

Continuity	Action
No	Go to Step 2
Yes	Replace antenna mast



Step 2

1. Remove the audio unit. (Refer to page T-133.)
2. Verify that the antenna jack is properly connected. Reconnect it if necessary.
3. If the connection is OK, go to Step 3.



Step 3

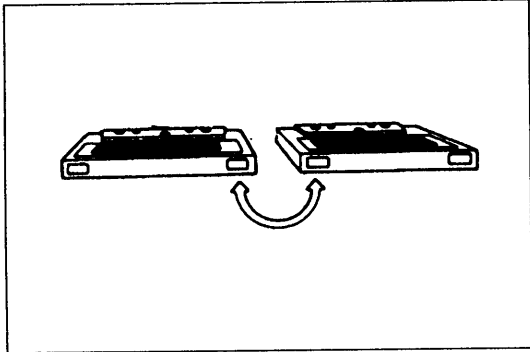
1. Disconnect the antenna jack.
2. Check for continuity between the outer case and the center post of the antenna jack.

Continuity	Action
Yes	Replace antenna feeder
No	Replace audio unit

Symptom	Cassette tape will not load
----------------	-----------------------------

Possible cause

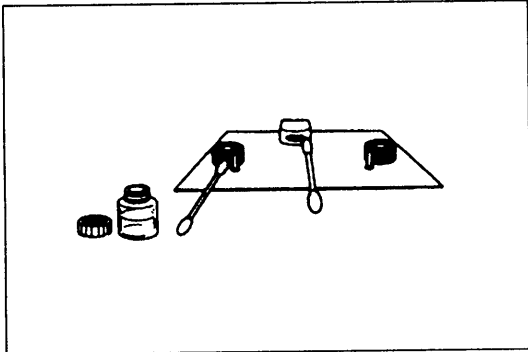
- Damaged cassette tape
- Damaged audio unit
- Dirty heads and pinchroller



Step 1

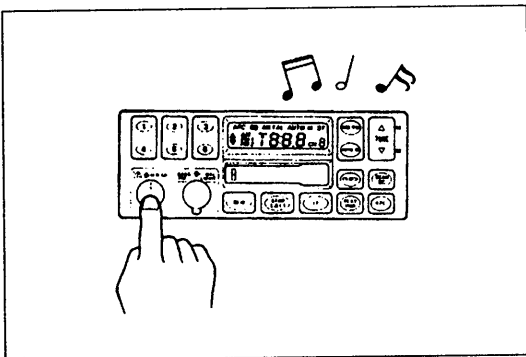
Play a known good cassette tape and check the sound quality.

Sound quality	Action
Poor	Go to Step 2
Normal	Audio unit OK (previous cassette tape defective)



Step 2

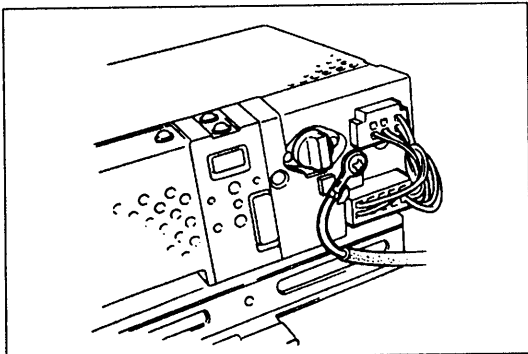
1. Clean the heads and pinchroller by using a cassette tape player cleaning kit (commercially available).
2. Play a good cassette tape and check the sound quality.
3. If sound quality is still poor, go to Step 3.



Step 3

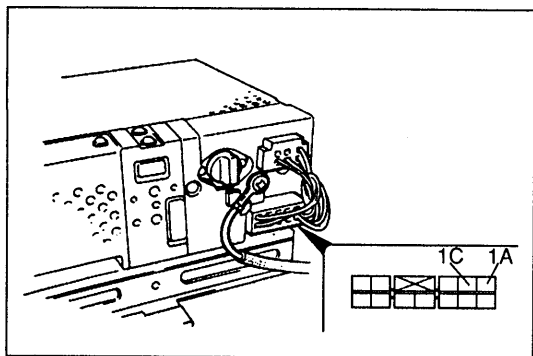
Check the operation of the radio.

Radio	Action
Operates	Replace audio unit (Refer to page T-133)
Does not operate	Go to step 4



Step 4

1. Remove the audio unit. (Refer to page T-133.)
2. Verify that the audio unit connector is properly connected. Reconnect it if necessary.
3. If the connections are OK, go to Step 5.

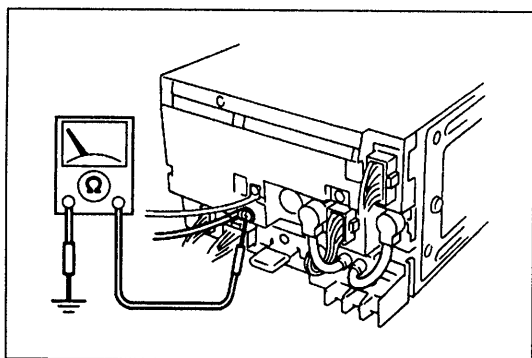


Step 5

1. Turn the ignition switch to ACC.
2. Measure the voltage at terminals 1A (L/B) and 1C (L/R) of the audio unit connector.

B+: Battery positive voltage

Terminal	Voltage	Action
1A	B+	Measure voltage at terminal 1C
	Other	Repair wiring harness (CIGAR 15 A fuse — Audio unit)
1C	B+	Go to Step 6
	Other	Repair wiring harness (ROOM 10 A fuse — Audio unit)



Step 6

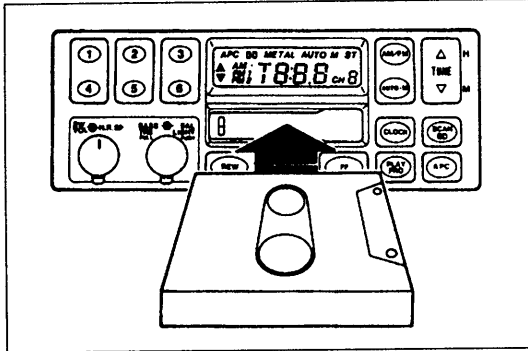
Check for continuity between the audio unit and ground.

Continuity	Action
Yes	Replace audio unit
No	Repair wiring harness (Audio unit — GND)

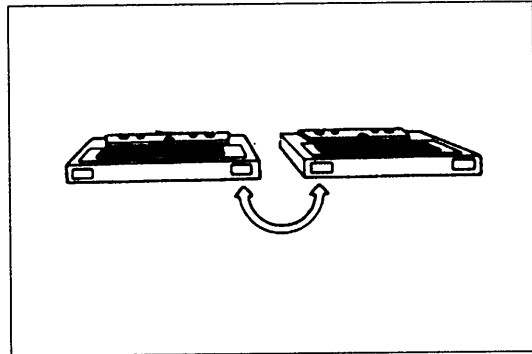
Symptom	Cassette tape will not play
----------------	-----------------------------

Possible cause

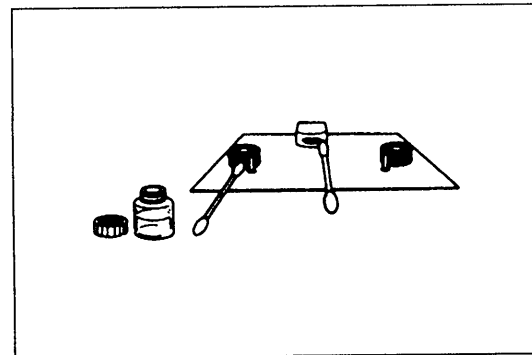
- Damaged cassette tape
- Damaged audio unit
- Dirty heads and pinchroller

**Step 1**

1. Load the cassette tape.
2. If the cassette tape loads, go to Step 2.
3. If the cassette tape will not load, see "Cassette tape will not load." (Refer to page T-124.)

**Step 2**

1. Insert a known good cassette tape.
2. If the cassette tape plays, the previous cassette tape is defective. The system is OK.
3. If the cassette tape does not play, go to Step 3.

**Step 3**

1. Clean the heads and pinchroller by using a cassette tape player cleaning kit (commercially available).
2. Play a good cassette tape and check the sound quality.
3. If the sound quality is still poor, replace the audio unit.

Symptom	Compact disc will not load
----------------	----------------------------

Possible cause

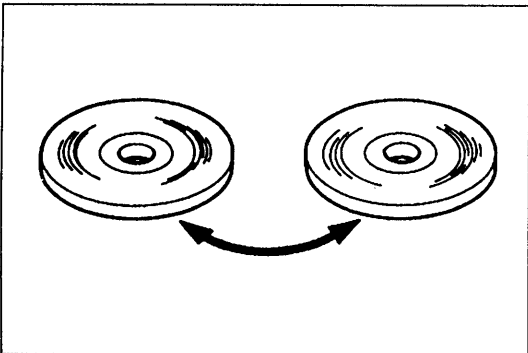
- Damaged compact disc
- Damaged audio unit
- Damaged CD player
- Poor connection of connector



Step 1

Check the operation of the radio.

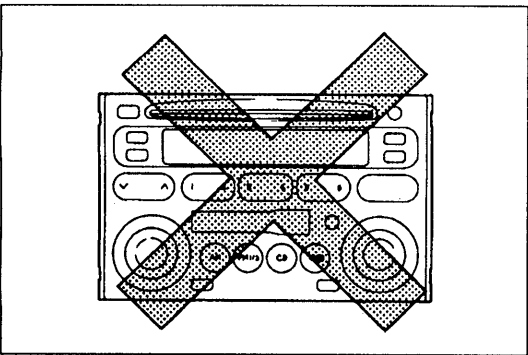
Radio	Action
Operates	Go to Step 2
Does not operate	Replace audio unit



Step 2

Check the operation of a known good compact disc.

CD	Action
Operates	Previous compact disc defective
Does not operate	Go to Step 3



Step 3

1. The optical lens may be fogged. Wait for one hour after the power is turned on.
2. Press the PLAY button.
3. If the system operates, it is normally.
4. If the system still does not operate properly, replace the audio unit.

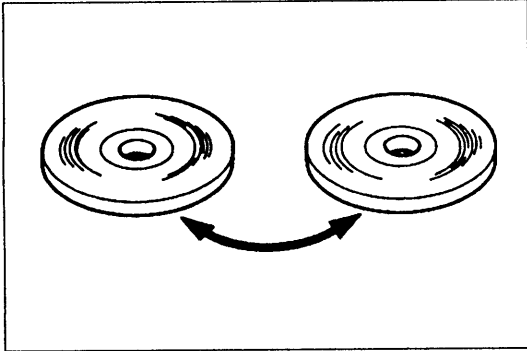
Symptom	Compact disc skips
----------------	--------------------

Possible cause

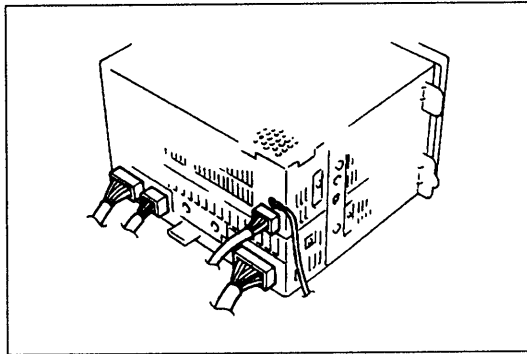
- Faulty compact disc
- Damaged audio unit
- Poor connection of connector

Note

- The CD may skip if there is heavy vibration or strong shocks during driving.

**Step 1**

1. Use a good compact disc and check for compact disc skipping.
2. If the new compact disc does not skip, the old compact disc is damaged.
3. If the new compact disc skips, go to Step 2.

**Step 2**

1. Remove the audio unit. (Refer to page T-133.)
2. Verify that the audio unit connector is properly connected. Reconnect it if necessary.
3. If the connections are OK, replace the audio unit.

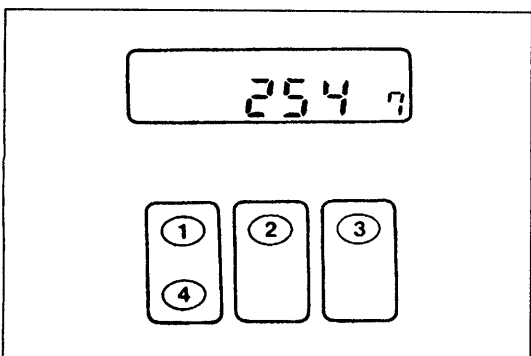
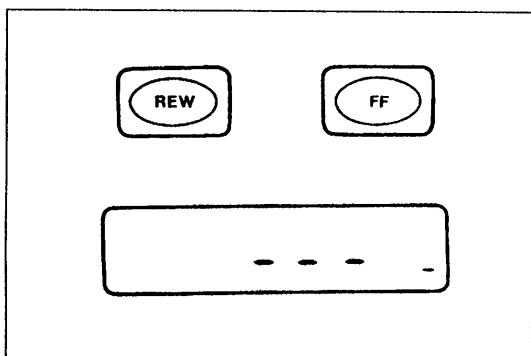
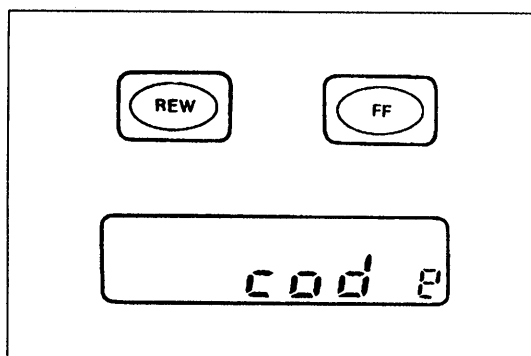
ANTITHEFT SYSTEM**Alarm Conditions**

If the antitheft system protection has been activated, any one of the following conditions will trigger the system:

- Disconnected battery cable
- Discharged battery
- Disconnected audio unit connectors

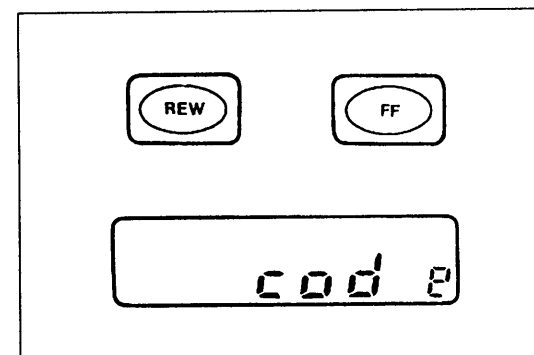
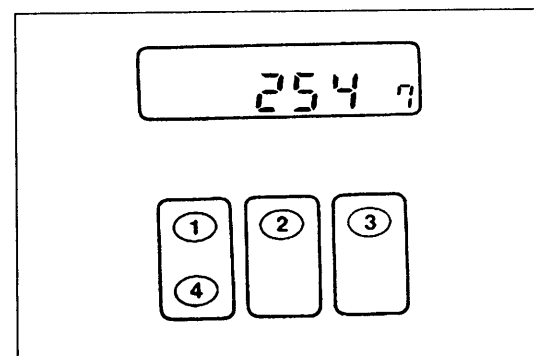
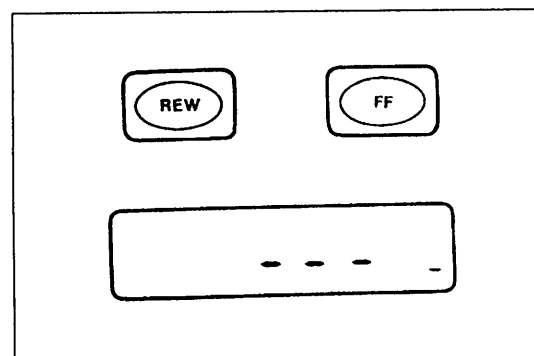
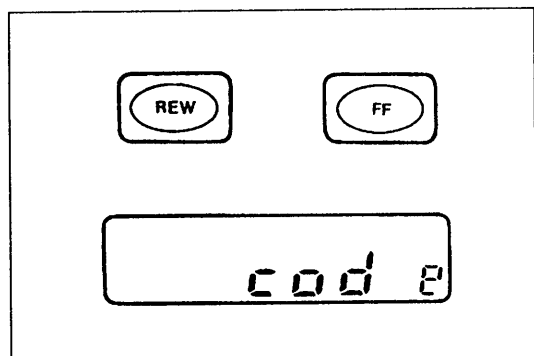
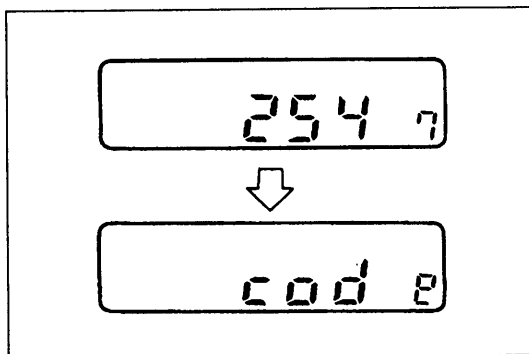
If the system is triggered, the audio unit will then be inoperative when it is reconnected to a power source, and "code" will flash on the display until the preselected code number is input. If the antitheft system is triggered, follow the procedures in "Canceling Antitheft Operation" to reset the unit.

Operation	Reference page
Input code number to activate antitheft system	T-129 Setting the Code Number
Delete previous code number and set new number	T-130 Canceling the Code Number
Resume audio unit operation after antitheft system is triggered	T-132 Canceling Antitheft Operation

**Setting the Code Number**

Complete steps 1—3 within 10 seconds or the setting procedure will be canceled.

1. Turn the ignition switch to ACC and then turn off the audio unit.
2. Press and hold the REW and FF buttons simultaneously for approximately 1.5 seconds until "code" appears on the display.
3. Press the REW and FF buttons again until bars appear on the display.
4. Select a personal code number and record it before inputting it. If the number is input and then forgotten, it cannot be canceled, and if the unit is disconnected again, the audio unit will be inoperative.
5. Use channel buttons 1—4 to input the selected code number. Press button 1 for the first digit, 2 for the second, 3 for the third, and 4 for the last digit. Input the number within 10 seconds. If the display is deleted, repeat the procedure from step 1.



6. With the code number displayed, press and hold the REW and FF buttons for approximately 1.5 seconds until a beep is heard. "Code" will be displayed for approximately 5 seconds. After it disappears, the code number is set.
7. If "Err" (error) appears on the display, repeat the procedure from step 1. If input error is repeated three times, turn the ignition switch to LOCK and repeat the procedure from step 1.

Canceling The Code Number

Complete step 1—3 within 10 seconds or the canceling procedure will be canceled.

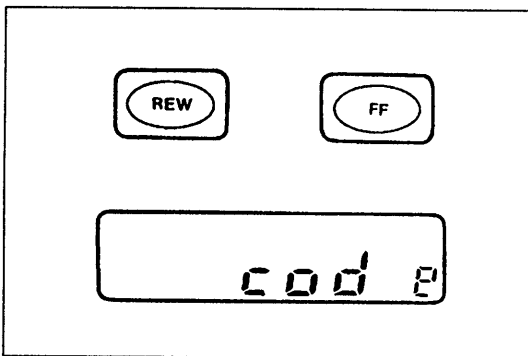
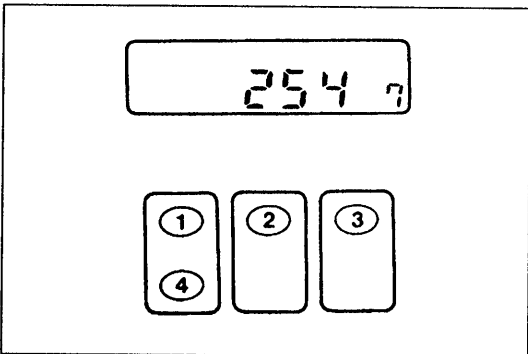
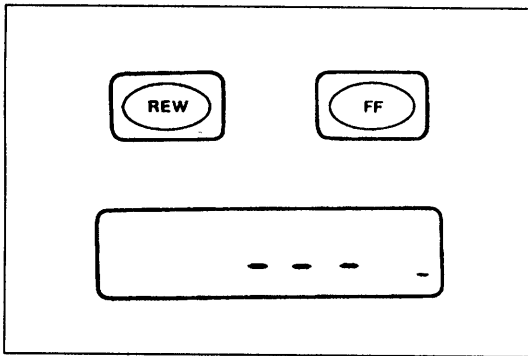
1. Turn the ignition switch to ACC and then turn off the audio unit.
2. Press and hold the REW and FF buttons simultaneously for approximately 1.5 seconds until "code" appears on the display.
3. Press the REW and FF buttons again until bars appear on the display.

4. Use channel buttons 1—4 to input the current code number. Press button 1 for the first digit, 2 for the second, 3 for the third, and 4 for the last digit. Input the number within 10 seconds. If the display is deleted, repeat the procedure from step 1.
5. With the code number displayed, press and hold the REW and FF buttons for approximately 1.5 seconds until a beep is heard. "Code" will be displayed for approximately 5 seconds. After it disappears, the code number is canceled.

Caution

- **Three consecutive errors, including turning the ignition switch to LOCK and disconnecting the audio unit, will activate the antitheft system and render the audio unit completely inoperative. If this occurs, contact Clarion Service Co.**

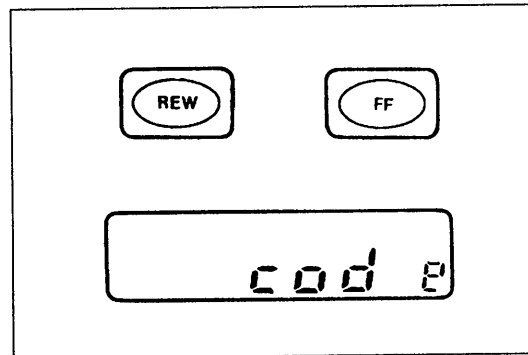
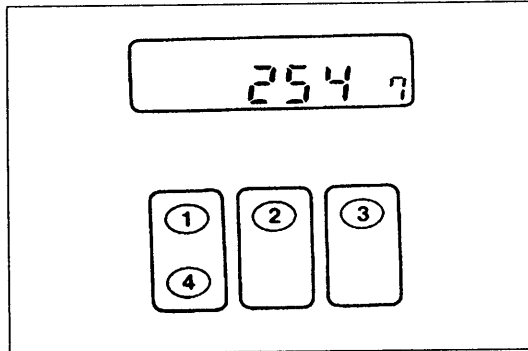
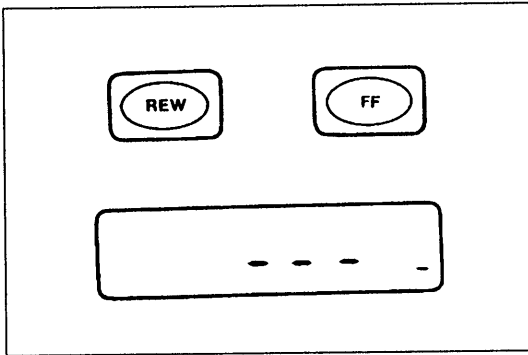
6. If "code" appears on the display, the code number is not canceled. Repeat the procedure from step 3. If "Err" (error) appears on the display, repeat the procedure from step 1.



Resetting the Code Number

Use the following procedure to input a new code number when the previous one has been canceled. Complete steps 1—3 within 10 seconds or the setting procedure will be canceled.

1. Press and hold the REW and FF buttons simultaneously until bars appears on the display.
 2. Select a personal code number and record it before inputting it. If the number is input and then forgotten, it cannot be canceled, and if the unit is disconnected, again, the audio unit will be inoperative.
 3. Use channel buttons 1—4 to input the selected code number. Press button 1 for the first digit, 2 for the second, 3 for the third, and 4 for the last digit. Input the number within 10 seconds. If the display is deleted, repeat the procedure from step 1.
 4. With the code number displayed, press and hold the REW and FF buttons for approximately 1.5 seconds until a beep is heard. "Code" will flash for approximately 15 seconds. After it disappears, the new code number is set.
- Caution**
- Three consecutive errors, including turning the ignition switch to LOCK and disconnecting the audio unit, will activate the antitheft system and render the audio unit completely inoperative. If this occurs, contact Clarion Service Co.
5. If "Err" (error) appears on the display, repeat the procedure from step 1.



Canceling Antitheft Operation

Properly input the selected code number to deactivate the antitheft system and resume normal audio operation.

1. Turn the ignition switch to ACC. ("Code" will flash on the display.)
 2. Press the REW and FF buttons simultaneously for approximately 1.5 seconds until bars appear on the display.
 3. Use channel buttons 1—4 to input the current code number. Press button 1 for the first digit, 2 for the second, 3 for the third, and 4 for the last digit. Input the number within 10 seconds. If the display is deleted, repeat the procedure from step 1.
 4. With the code number displayed, press and hold the REW and FF buttons for approximately 1.5 seconds until a beep is heard. "Code" will be displayed for approximately 5 seconds and then disappear to indicate that the audio unit is operative.
- Caution**
- Three consecutive errors, including turning the ignition switch to LOCK and disconnecting the audio unit, will activate the antitheft system and render the audio unit completely inoperative. If this occurs, contact Clarion Service Co.
5. If "Err" (error) appears on the display, repeat the procedure from step 1.

AUDIO UNIT

Removal / Installation

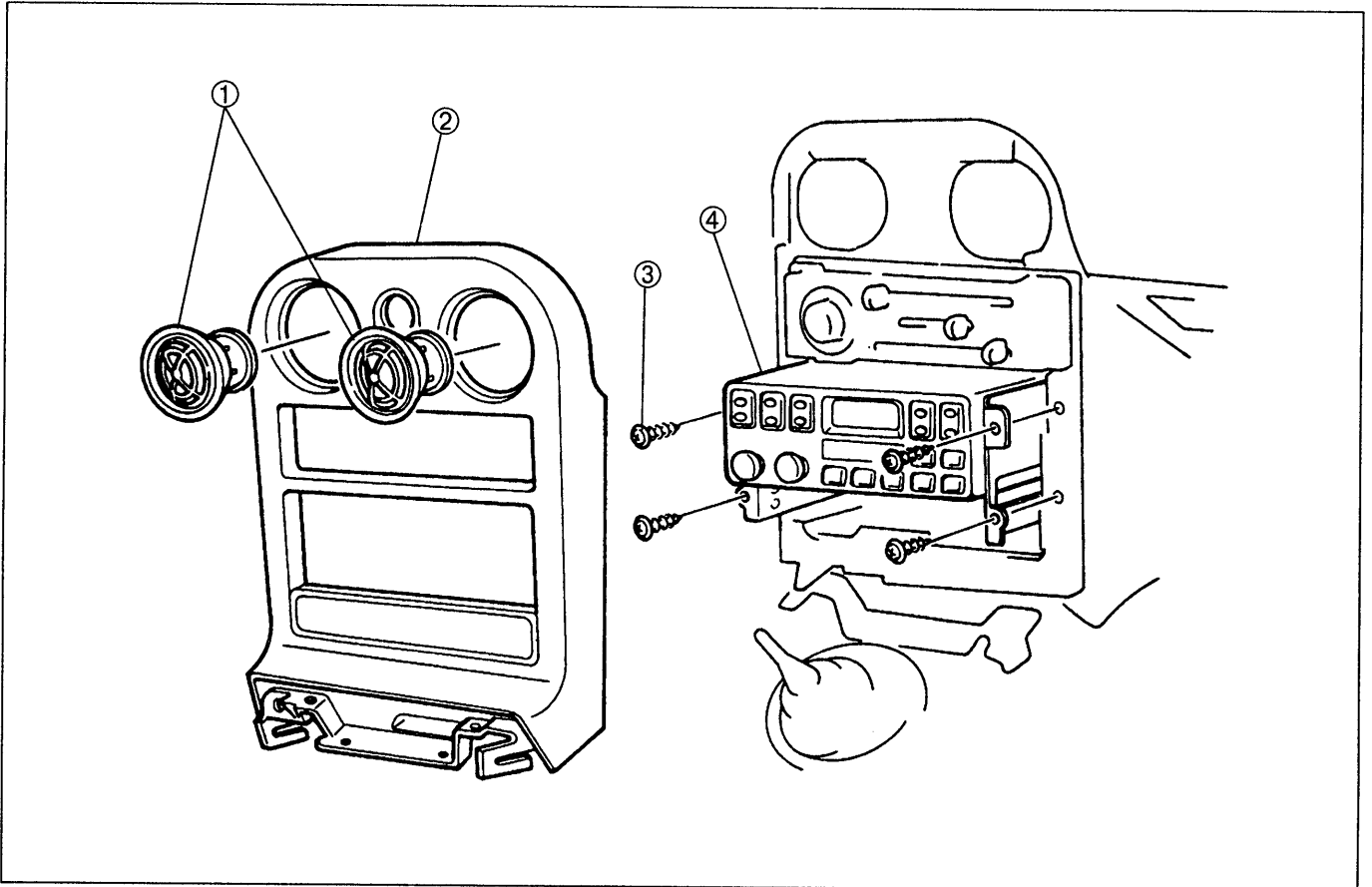
1. Remove the rear console. (Refer to section S.)

Caution

- If the antitheft system has been activated, the audio unit will be inoperative until the preselected code number is input. Select and record a personal code number before removing the audio unit, then cancel the code number after reconnecting it to a power source.

2. Remove in the order shown in the figure.

3. Install in the reverse order of removal.

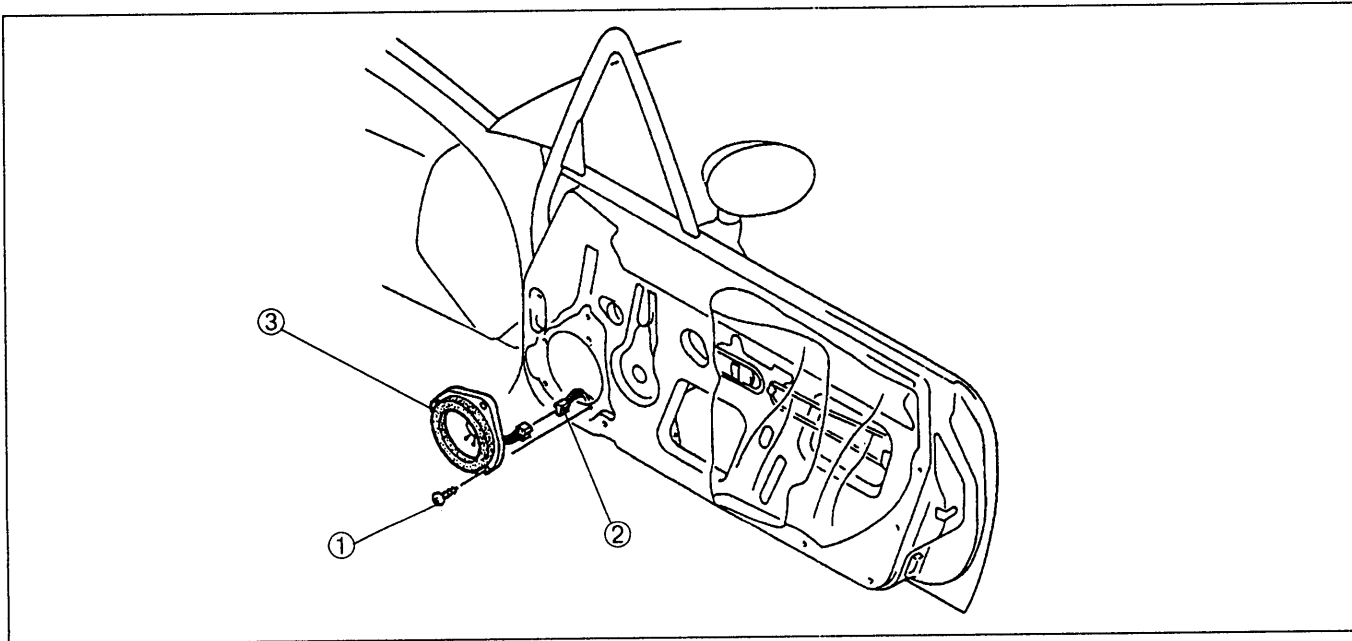


- 1. Center louver
Removal / Installation section S
- 2. Center panel
Removal / Installation section S

- 3. Screws
- 4. Audio unit

SPEAKER**Removal / Installation****Door speaker****Type 1**

1. Remove the door trim. (Refer to section S.)
2. Remove in the order shown in the figure.
3. Install in the reverse order of removal.



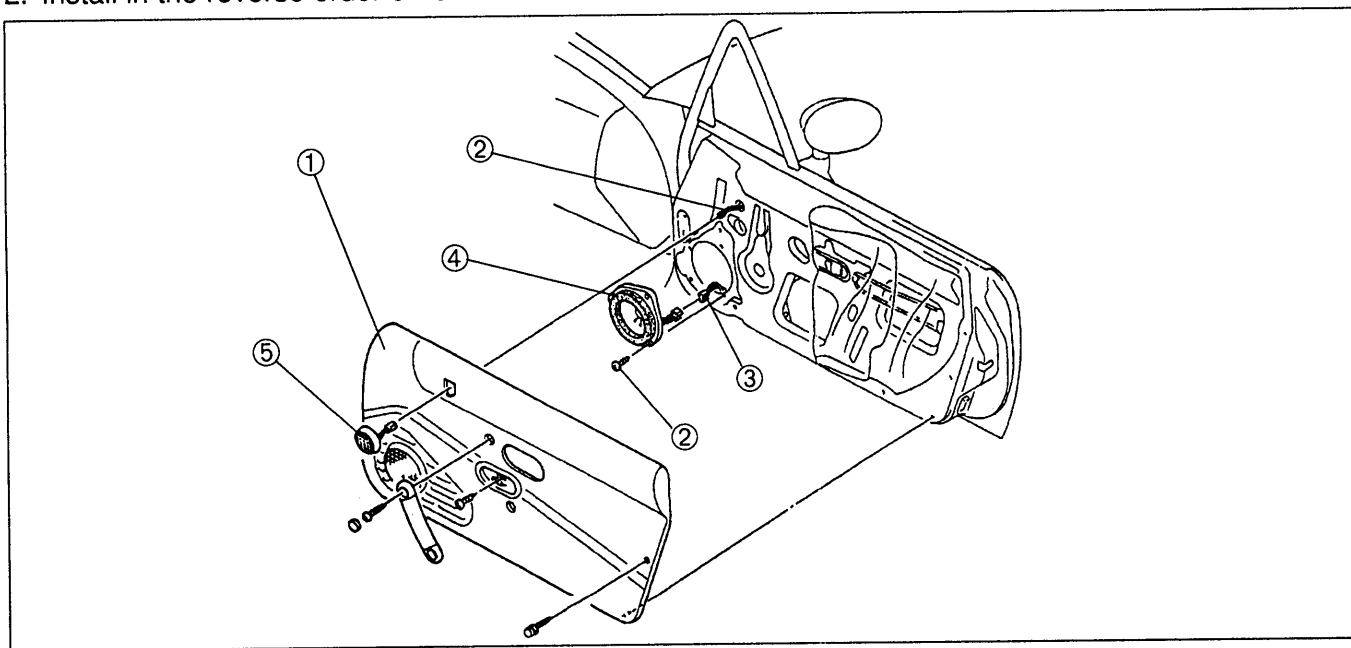
1. Screws

2. Door speaker connector

3. Door speaker

Type 2

1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.



1. Door trim

2. Screws

3. Door speaker connector

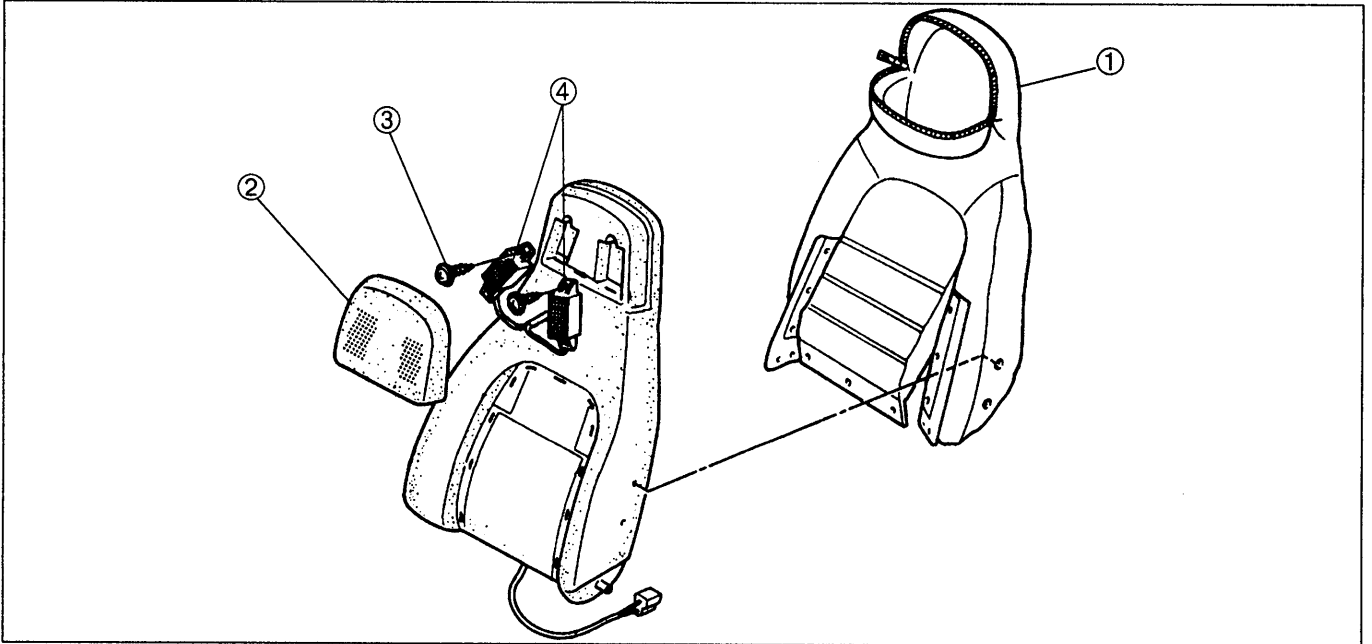
4. Door speaker (woofer)

5. Door speaker (tweeter)

Headrest speaker

Type 1

1. Remove the seat. (Refer to section S.)
2. Remove in the order shown in the figure.
3. Install in the reverse order of removal.

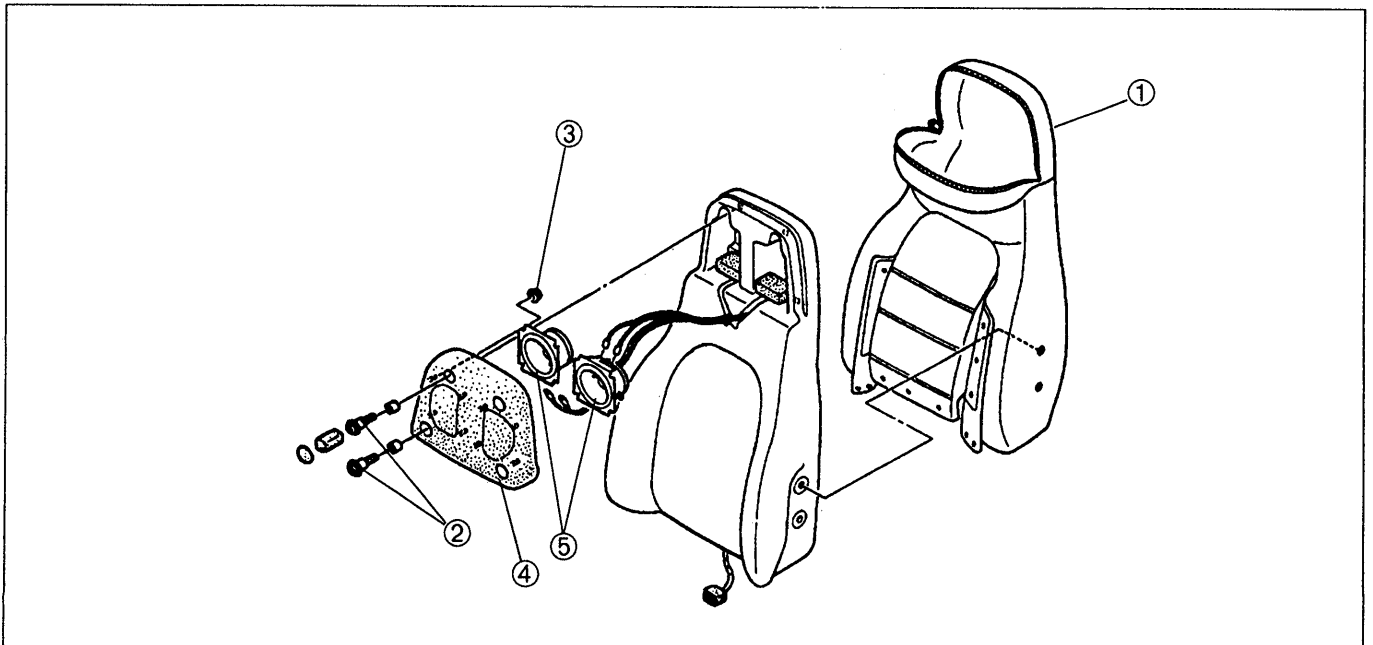


1. Seatback trim
2. Headrest cover

3. Screws
4. Headrest speaker

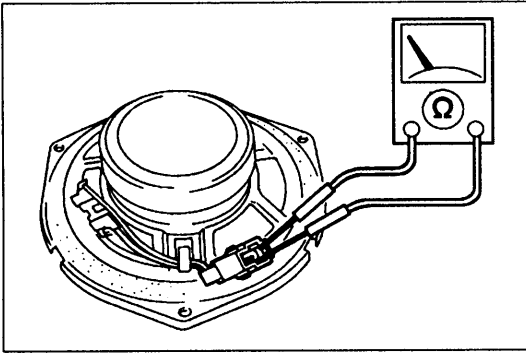
Type 2

1. Remove the seat. (Refer to section S.)
2. Remove in the order shown in the figure.
3. Install in the reverse order of removal.



1. Seatback trim
2. Screws
3. Nuts

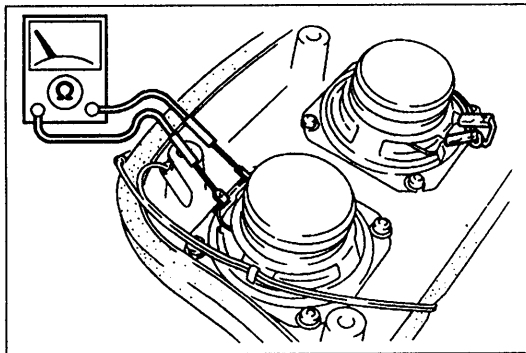
4. Headrest cover
5. Headrest speaker

**Inspection****Door speakers**

1. Remove the door speaker.
2. Disconnect the door speaker connector.
3. Measure the resistance between the terminals of the speaker.

Speaker type	Resistance
Type 1	4 Ω
Type 2 (Tweeter)	9 Ω
Type 2 (Woofers)	4 Ω

4. If not as specified, replace the door speaker.

**Headrest speakers**

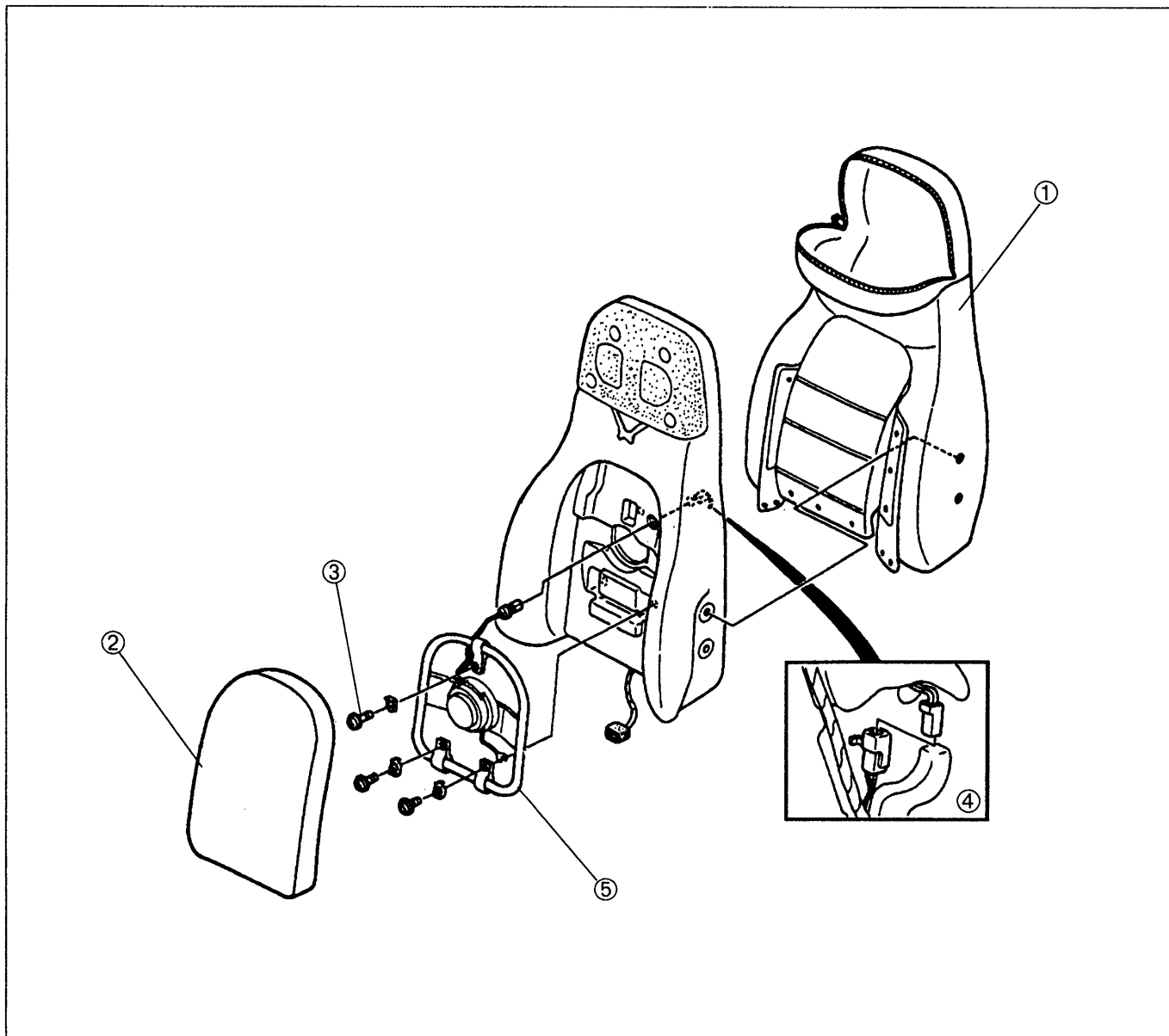
1. Remove the headrest speaker.
2. Disconnect the headrest speaker connector.
3. Measure the resistance between the terminals of the headrest speaker.

Speaker type	Resistance
Type 1	8 Ω
Type 2	4 Ω

4. If not as specified, replace the headrest speaker.

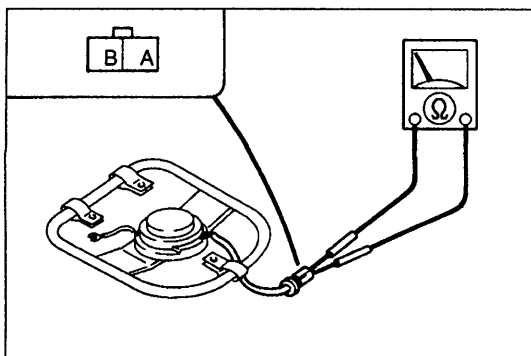
BODYSONIC**Removal / Installation**

1. Remove the seat. (Refer to section S.)
2. Remove in the order shown in the figure.
3. Install in the reverse order of removal.



1. Seatback trim
2. Pad
3. Screws

4. Bodysonic connector
5. Bodysonic

**Inspection**

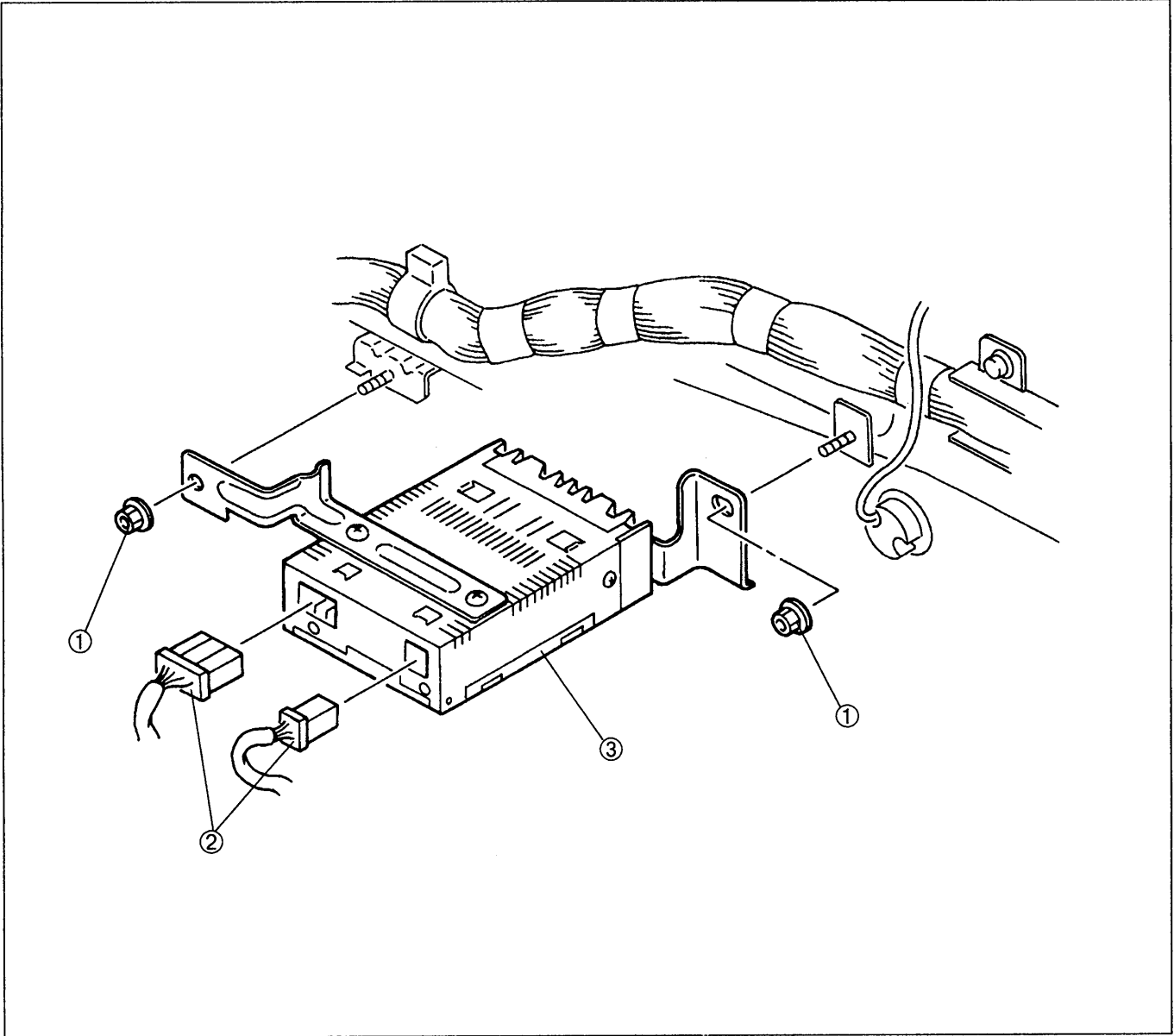
1. Disconnect the bodysonic connector.
2. Measure the resistance between the terminals of the bodysonic.

Resistance: 8 Ω

3. If not specified, replace the bodysonic.

AUDIO AMPLIFIER**Removal / Installation**

1. Remove the lower panel. (Refer to section S.)
2. Remove in the order shown in the figure.
3. Install in the reverse order of removal.

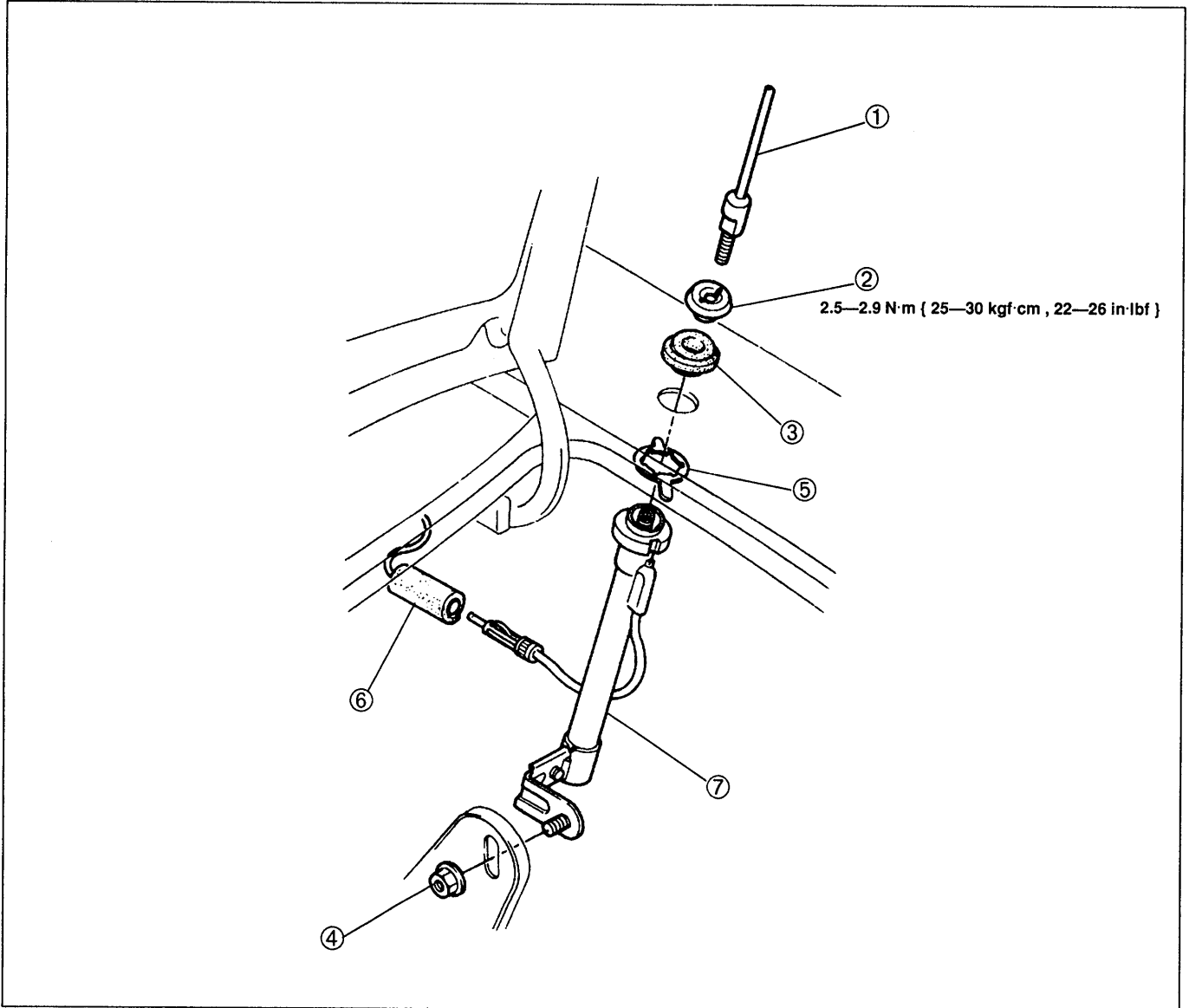


1. Nuts
2. Audio amplifier connector

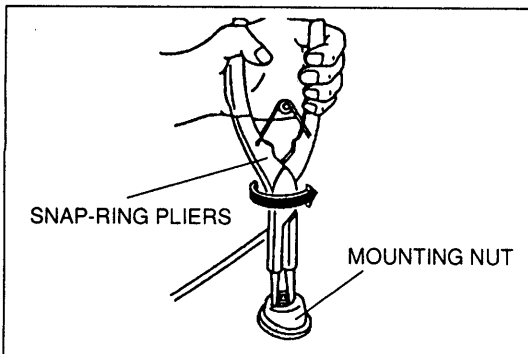
3. Audio amplifier

**MANUAL ANTENNA
Removal / Installation**

1. Remove the trunk side trim. (Refer to section S.)
2. Remove in the order shown in the figure, referring to **Removal note**.
3. Install in the reverse order of removal.



- | | |
|--------------------------|-------------------|
| 1. Antenna mast | 4. Nut |
| 2. Mounting nut | 5. Ground plate |
| Removal note below | 6. Antenna jack |
| 3. Spacer | 7. Manual antenna |



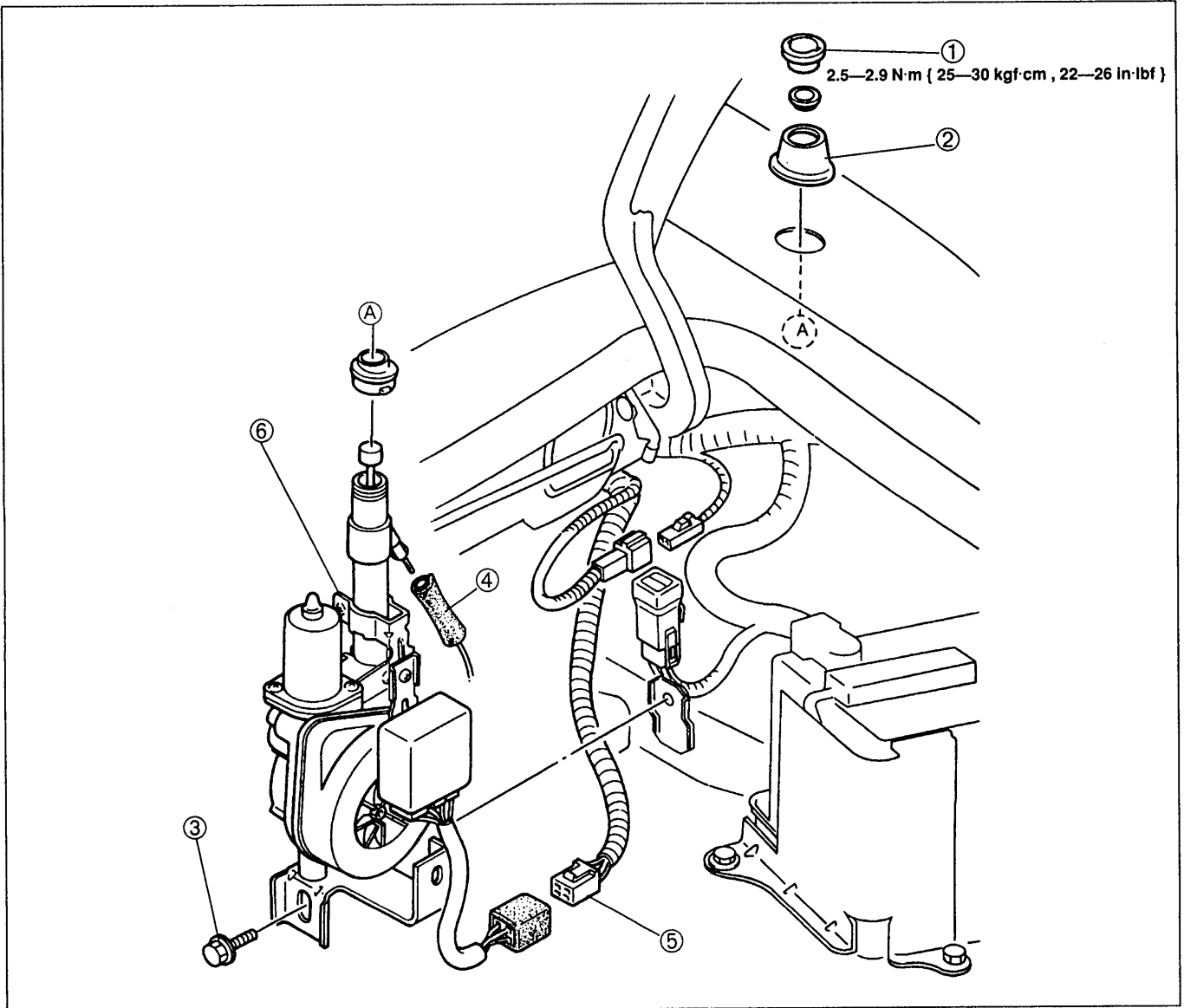
**Removal note
Mounting nut**

Remove the mounting nut by using snap-ring pliers as shown.

POWER ANTENNA

Removal / Installation

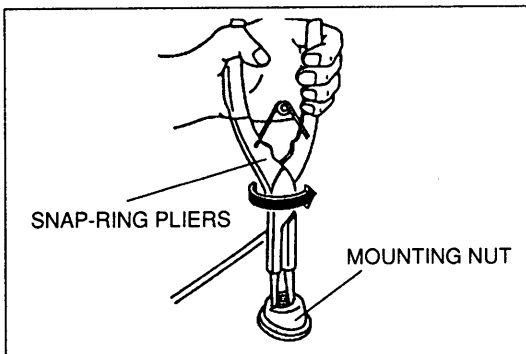
1. Remove the trunk side trim. (Refer to section S.)
2. Remove in the order shown in the figure, referring to **Removal note**.
3. Install in the reverse order of removal.



- | | |
|--------------------------|----------------------------|
| 1. Mounting nut | 4. Antenna jack |
| Removal note below | 5. Power antenna connector |
| 2. Spacer | 6. Power antenna |
| 3. Bolt | |

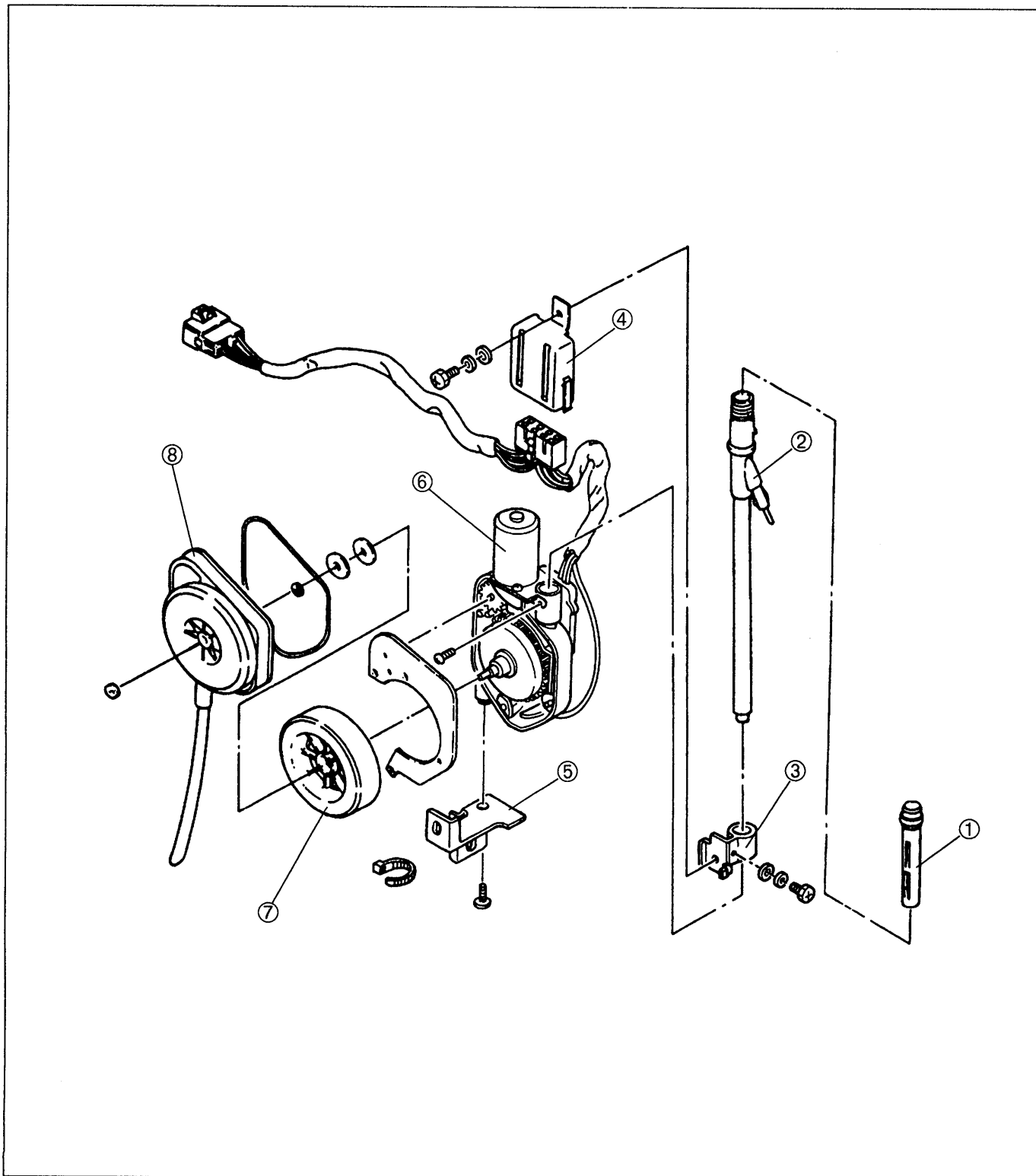
Removal note
Mounting nut

Remove the mounting nut by using snap-ring pliers as shown.



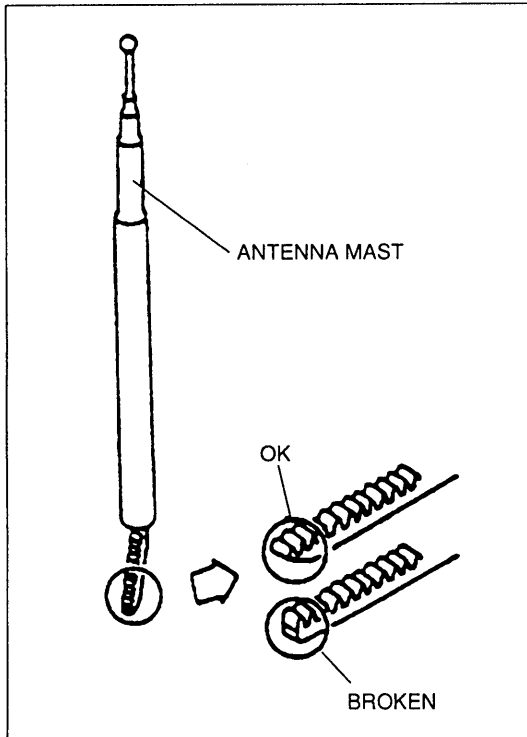
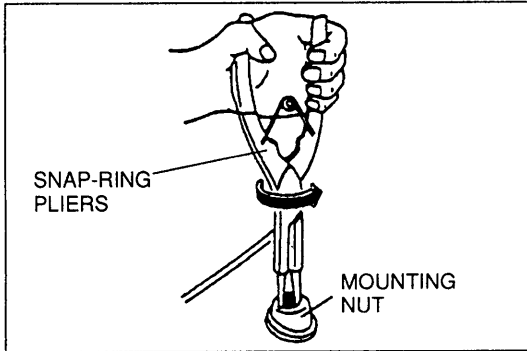
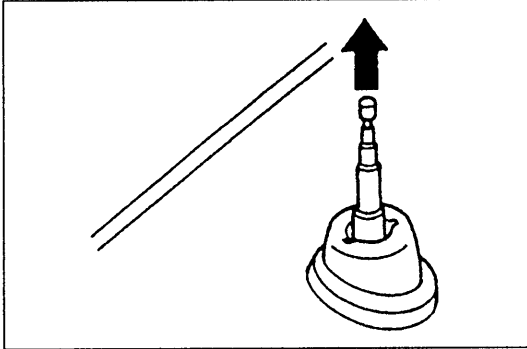
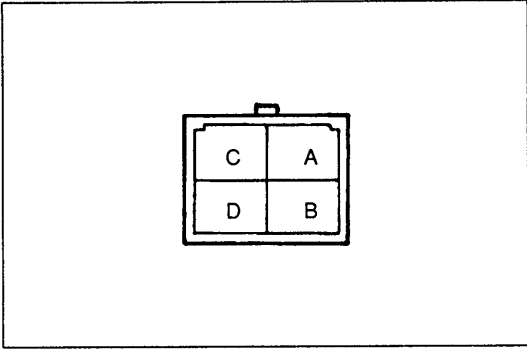
Disassembly / Assembly

1. Remove the antenna mast. (Refer to page T-142.)
2. Remove the power antenna. (Refer to page T-140.)
3. Disassemble in the order shown in the figure.
4. Assemble in the reverse order of disassembly.



1. Rod insulator
2. Mast assembly
3. Relay bracket
4. Antenna relay

5. Bracket
6. Antenna motor
7. Drive mechanism
8. Drive mechanism cover



Inspection

1. Remove the trunk side trim. (Refer to section S.)
2. Disconnect the power antenna connector.
3. Connect the positive battery cable to the terminals of the power antenna connector and the negative battery cable grounded to the body. Verify that the power antenna operates as shown.

B+: Battery positive voltage

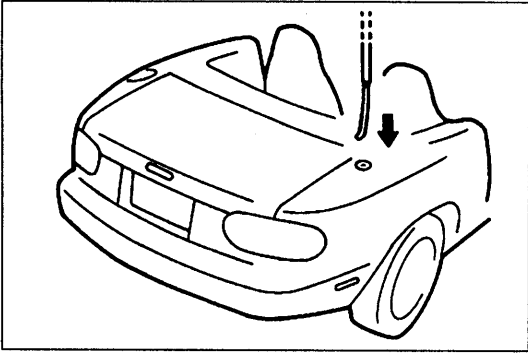
Terminal				Antenna operation
A	B	C	D	
	B+			Down
	B+		B+	
	B+	B+	B+	
B+	B+			Up
B+	B+	B+		
B+	B+	B+	B+	
B+	B+		B+	Stop

4. If not as specified, replace the power antenna.

ANTENNA MAST

Removal

1. Remove the mounting nut by using snap-ring pliers as shown.
2. With the ignition switch at ACC or ON, turn the radio switch on, and pull out the antenna mast. Check the end of the plastic rack for damage. If the rack end is kinked or broken, replace the antenna mast.

**Installation**

1. With the ignition switch at ACC or ON and the radio switch on, feed the rack of the new mast into the motor with the toothed side facing the front of the vehicle.
2. Turn the radio switch off. While the motor is retracting the rack, feed the mast into the motor.
3. Reinstall the mounting nut.

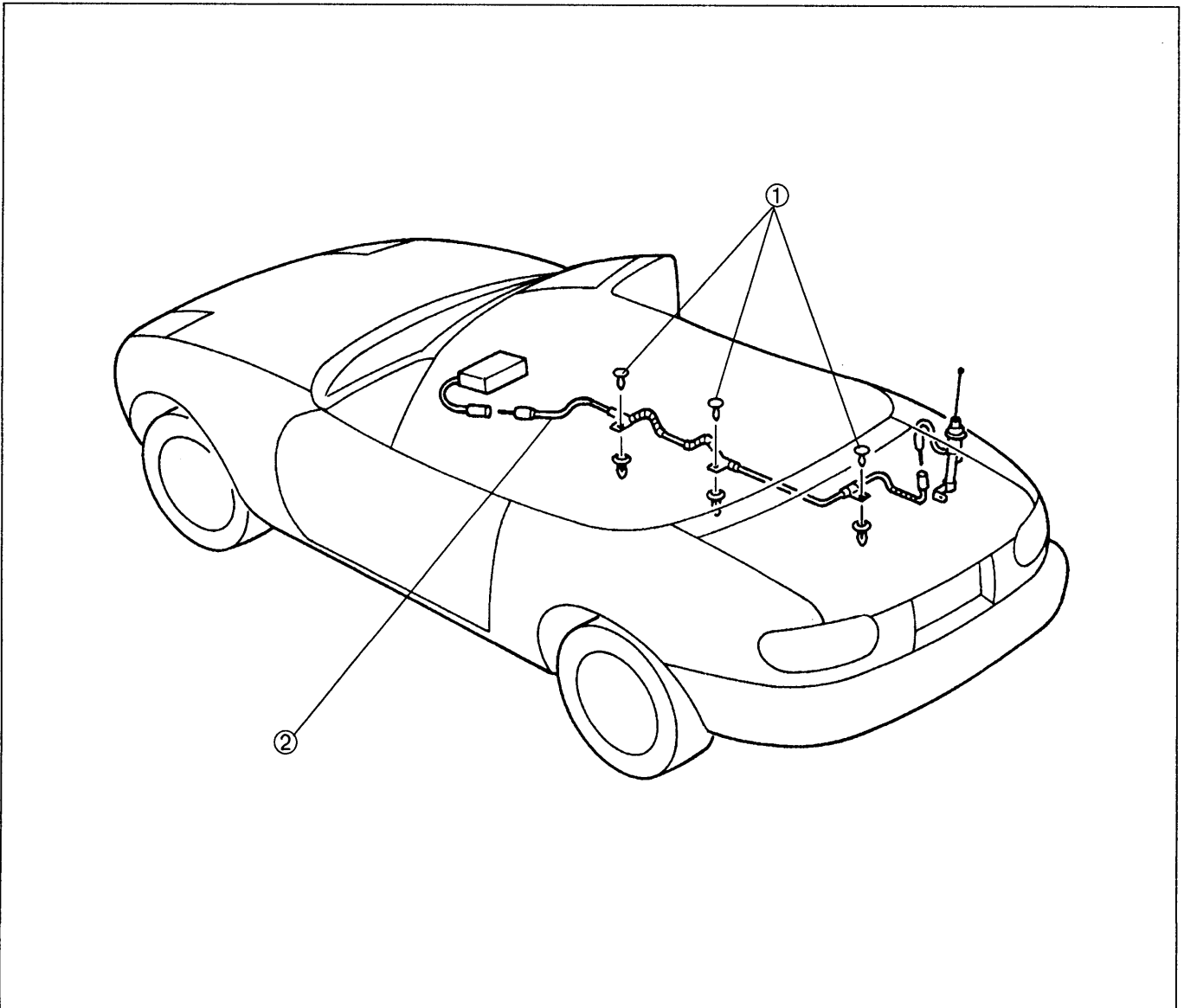
Tightening torque:

2.5—2.9 N·m { 25—30 kgf·cm , 22—26 in·lbf }

4. With the ignition switch at ACC or ON, turn the radio switch on and off a few times and verify that the antenna operates smoothly.

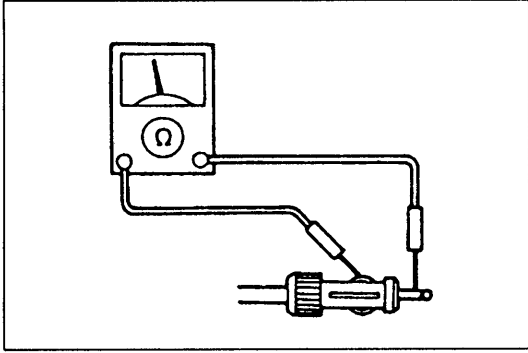
ANTENNA FEEDER**Removal / Installation**

1. Remove the floor covering. (Refer to section S.)
2. Remove in the order shown in the figure.
3. Install in the reverse order of removal.



1. Fastener

2. Antenna feeder

**Inspection**

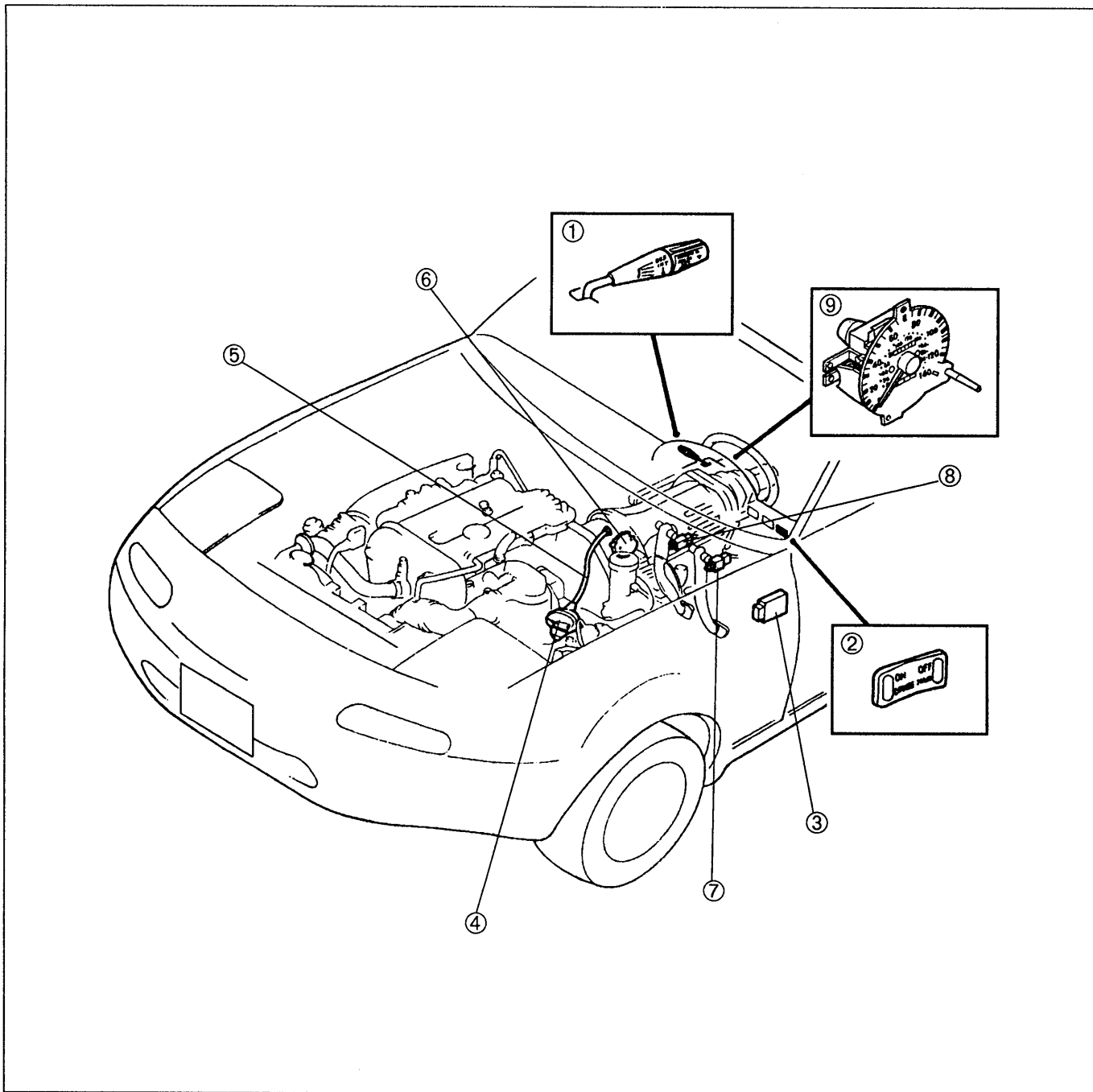
1. Disconnect the antenna jack.
2. Measure the resistance of the antenna by using an ohmmeter.

Resistance: Infinite

3. If not as specified, replace the antenna feeder.

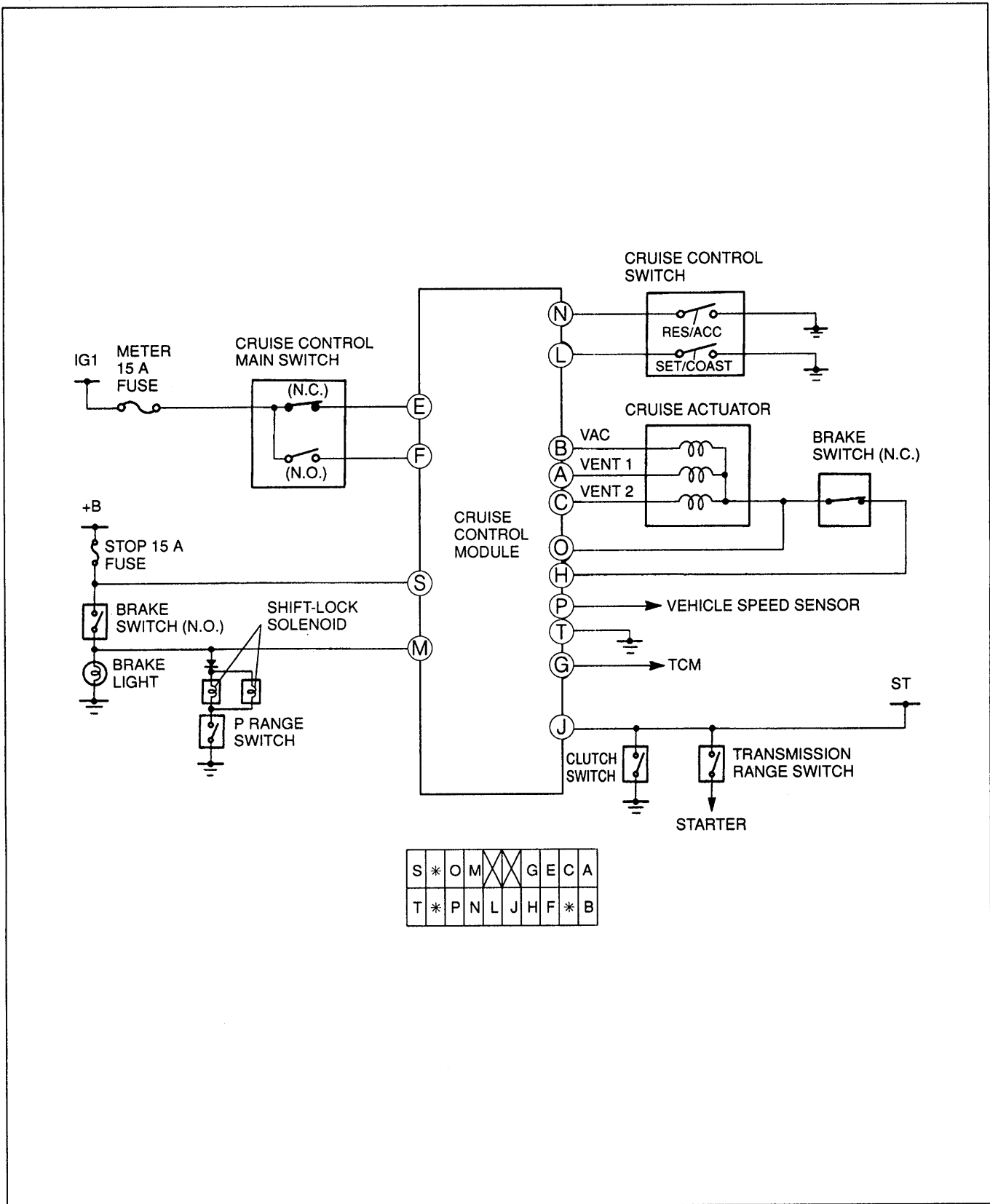
CRUISE CONTROL SYSTEM

STRUCTURAL VIEW



- | | | | |
|-------------------------------|------------|-----------------------------------|------------|
| 1. Cruise control switch | | 5. Actuator cable | |
| Inspection | page T-157 | Removal / Installation | page T-155 |
| 2. Cruise control main switch | | Adjustment | page T-155 |
| Removal / Installation | page T-157 | 6. Transmission range switch (AT) | |
| Inspection | page T-157 | Inspection | page T-156 |
| 3. Cruise control module | | 7. Clutch switch (MT) | |
| Removal / Installation | page T-153 | Inspection | page T-156 |
| Terminal voltage list | page T-153 | 8. Brake switch | |
| 4. Cruise actuator | | Inspection | page T-156 |
| Removal / Installation | page T-154 | 9. Vehicle speed sensor | |
| Inspection | page T-154 | Inspection | page T-156 |

SYSTEM DIAGRAM



Description

The cruise control system consists of the cruise control main switch, brake switch, cruise control switch, cruise actuator, clutch switch (MT) or transmission range switch (AT), cruise control module, and vehicle speed sensor.

Operation

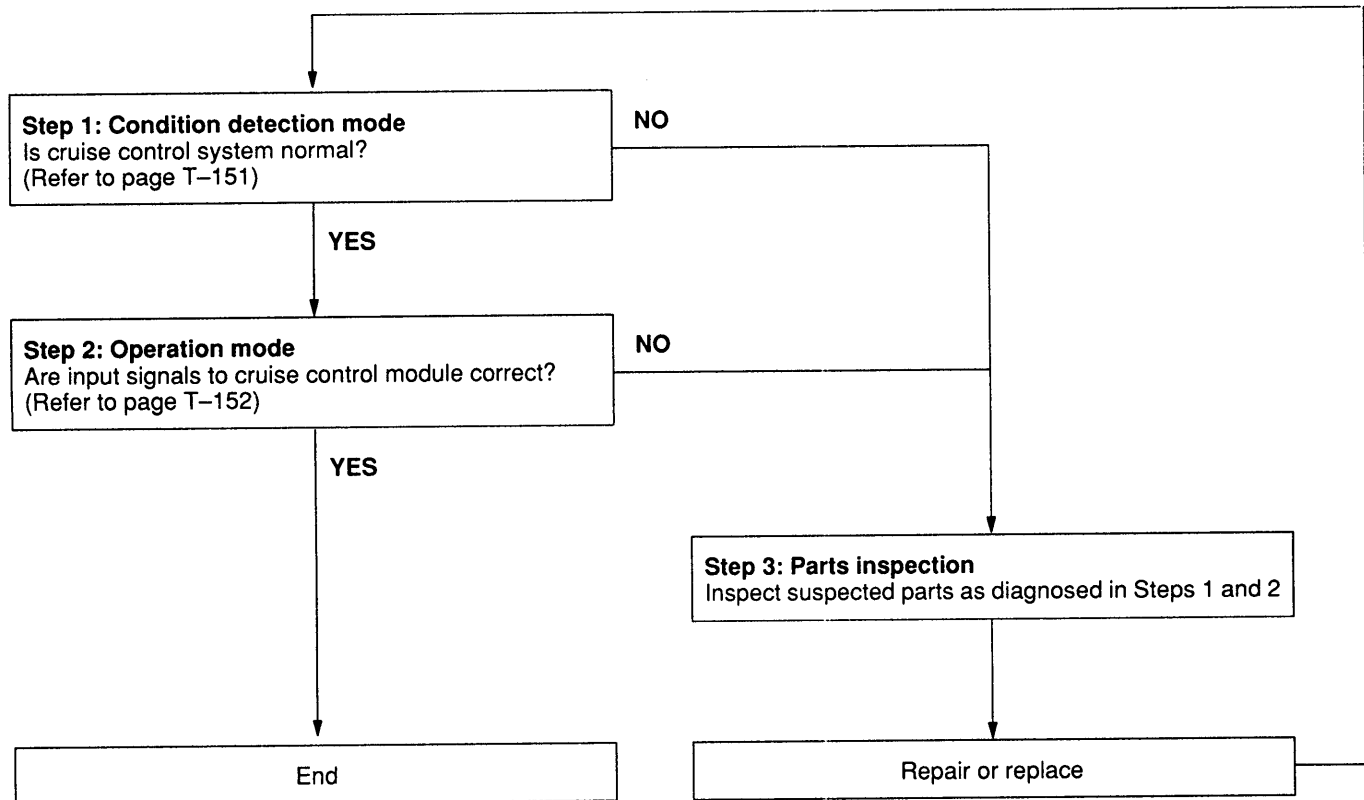
- The cruise control system will maintain a desired vehicle speed under normal driving conditions. The system may be used to cause the vehicle to accelerate, coast, and resume the desired speed when cruise control is temporarily canceled.
- The cruise control module receives input from the brake switch, cruise control main switch, cruise control switch, clutch switch (MT) or transmission range switch (AT), and vehicle speed sensor. The cruise control module sends output signals to the cruise actuator. The cruise actuator operates vacuum valves, which adjust the accelerator linkage to control the vehicle speed based on the input signals.

SYSTEM COMPONENTS AND FUNCTIONS

Component	Function
Vehicle speed sensor	These speed signals are sent to cruise control module.
Cruise control module	<ul style="list-style-type: none"> • Has microcomputer that controls all functions (vehicle speed set, resume, accelerate, and coast (decelerate)). • Contains on-board diagnostic.
Cruise actuator	Operate vacuum valves, which adjust accelerator linkage, and adjusts vehicle speed based on cruise control module signals.
Cruise control main switch	Controls on/off of cruise control system's main power.
SET/COAST switch	SET Sets cruise control speed. COAST Pressing and holding this switch decreases set speed.
RESUME/ACCEL switch	RESUME . . . Returns vehicle to set speed if vehicle speed is 40 km/h { 25 mph } or more when cruise control is temporarily canceled. ACCEL Pressing and holding this switch increases set speed.
Brake switch	Cancels set speed to disengage the cruise control system when brake pedal is pressed.
Clutch switch (MT)	Cancels set speed when clutch pedal is depressed.
Transmission range switch (AT)	Cancels set speed when selector lever is shifted to P or N range.

On-board Diagnostic

- The cruise control module contains an on-board diagnostic to easily detect problems within the system.
- The on-board diagnostic has two modes: condition detection mode, which indicates troubles in the system, and operation mode, which checks for and indicates correct operation of the input signals to the cruise control module.
- The diagnostic outputs code numbers via a test light when the light is connected to the cruise control module connector.

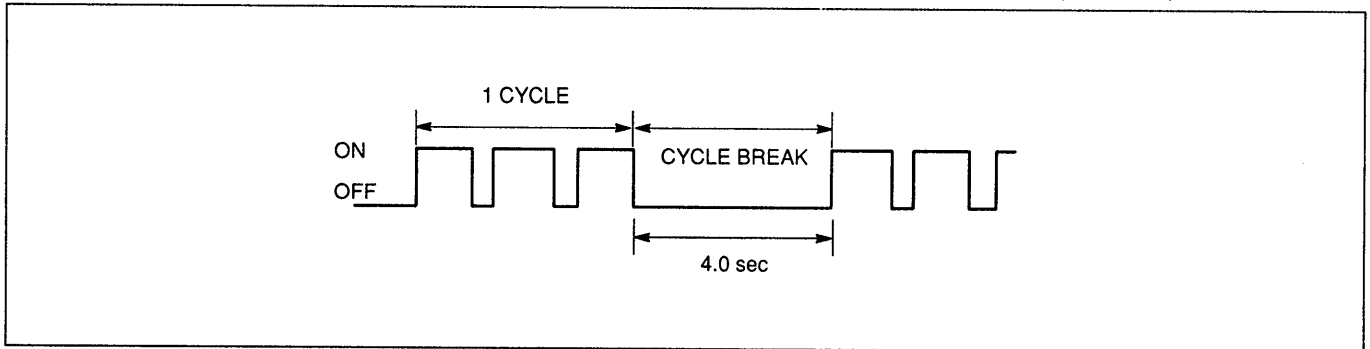
Inspection order

Code cycle principle

Diagnostic trouble codes are determined by the flashing pattern of the test light as shown below.

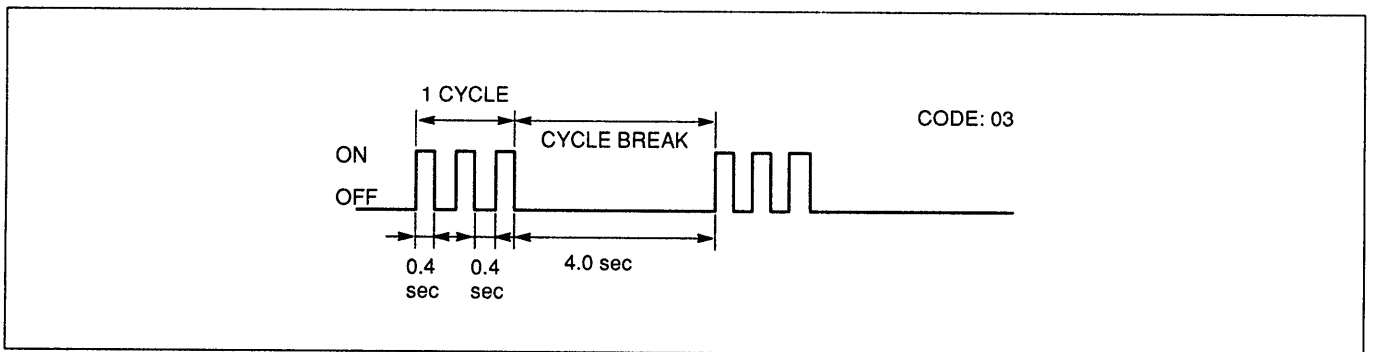
1. Code cycle break

The time between diagnostic trouble code cycles is 4.0 seconds (the time the light is off).



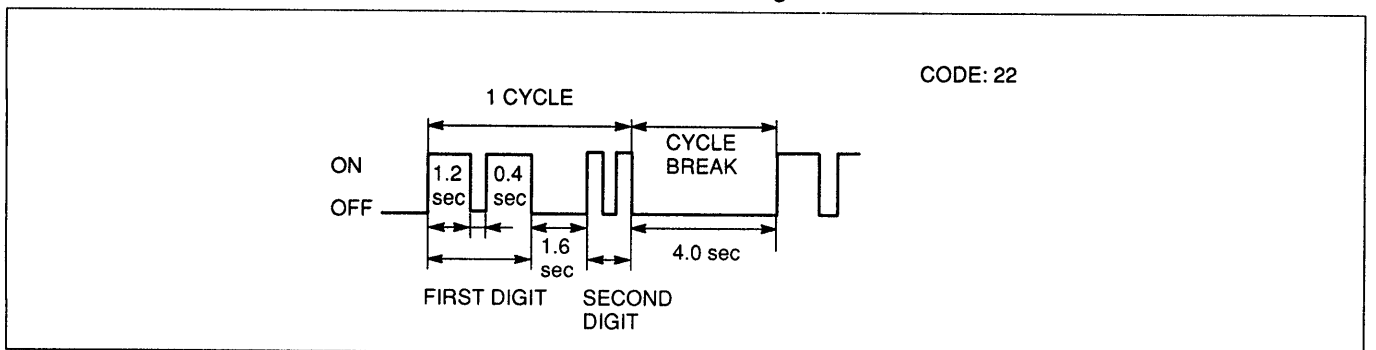
2. Second digit of diagnostic trouble code (ones position)

The digit in the ones position of the diagnostic trouble code represents the number of times the light is on 0.4 second during one cycle.

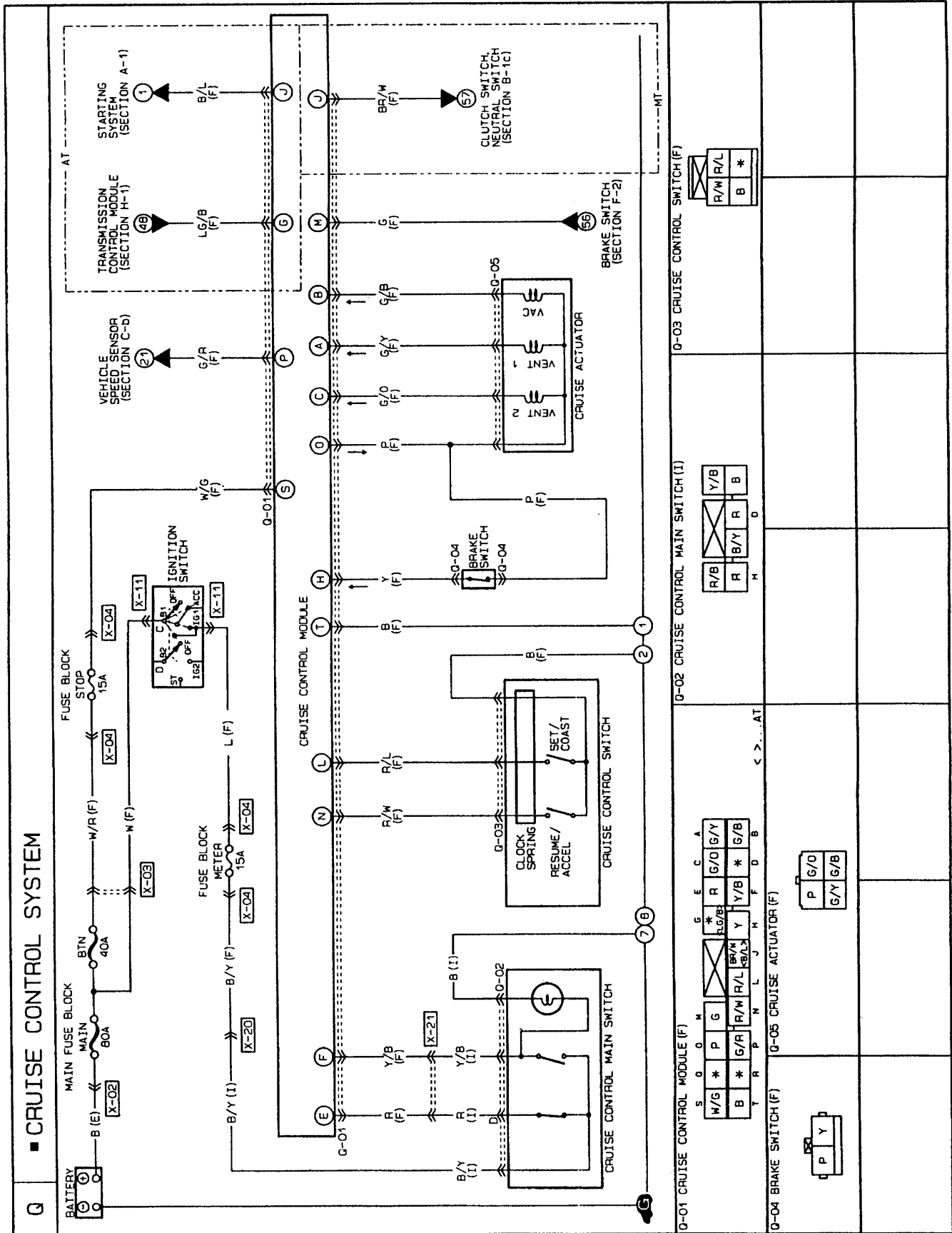


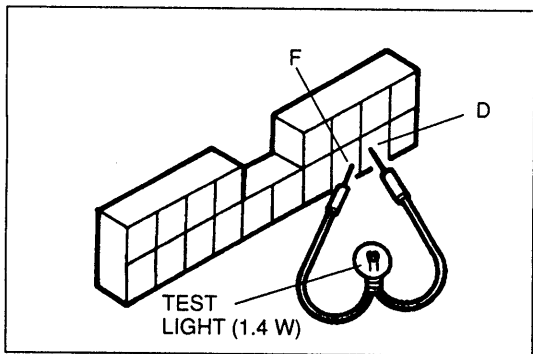
3. First digit of diagnostic trouble code (tens position)

- The digit in the tens position of the diagnostic trouble code represents the number of times the light is on 1.2 seconds during one cycle.
- The light remains off for 1.6 seconds between the long and short flashes.



TROUBLESHOOTING
Circuit Diagram





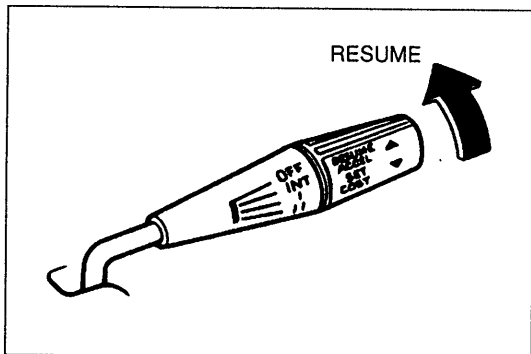
Condition Detection Mode

Preparation

Connect a 1.4 W test light between terminals D and F of the cruise control module connector.

Note

- There is no wire in terminal D of the connector. Push the test light through the connector and touch the corresponding pin on the cruise control module.



Inspection

1. Turn the ignition switch to ON.
2. Turn the cruise control main switch on.
3. Turn and hold the RESUME/ACCEL switch for more than 3 seconds. The test light will illuminate for 3 seconds and go out for 2 seconds.
4. If a problem is present, the test light will flash in one of the patterns shown below. If there is no problem in the system, the test light will not flash.

Cancel

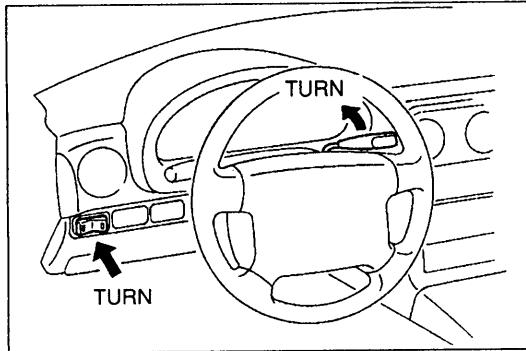
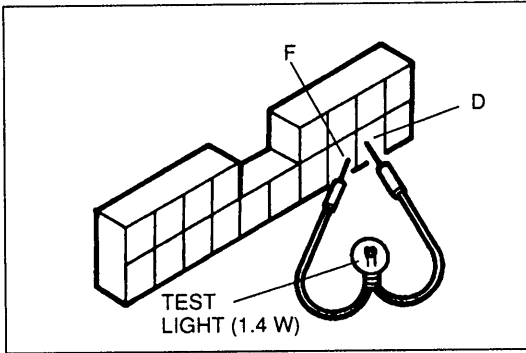
To cancel condition detection mode, do any one of the following:

- Turn the cruise control main switch off.
- Turn the ignition switch to LOCK.
- Drive the vehicle at over 16 km/h { 10 mph }.

Diagnostic trouble code table

If there are two or more problems in the system, the problem with the highest priority will be indicated.

Priority	Test light indication	Code No.	Possible cause	Action
1	ON OFF	01	Defective wiring harness (Cruise actuator — Cruise control module; Brake switch — Cruise control module) Defective cruise actuator or brake switch	Repair wiring harness (Cruise actuator — Cruise control module; Brake switch — Cruise control module) Inspect cruise actuator (Refer to page T-154) Inspect brake switch (Refer to page T-156)
2	ON OFF	05	Burnt STOP 15 A fuse Defective wiring harness (Fuse — Cruise control module)	Replace fuse Repair wiring harness (Fuse — Cruise control module)
3	ON OFF	07	Two switches in the brake switches are ON simultaneously	Inspect brake switch (Refer to page T-156)
4	ON OFF	11	Defective cruise control switch	Inspect cruise control switch (Refer to page T-157)
5	ON OFF	15	Defective cruise control module	Replace cruise control module (Refer to page T-153)



Operation Mode

Preparation

Connect a 1.4 W test light between terminals D and F of the cruise control module connector.

Note

- There is no wire in terminal D of the connector. Push the test light through the connector and touch the corresponding pin on the cruise control module.

Inspection

1. Turn the ignition switch to ON.
2. Shift the transmission to D or R range. (AT)
Shift to any gear except neutral. (MT)
3. Turn and hold the RESUME/ACCEL switch and press the cruise control main switch simultaneously to activate system inspection. The test light will illuminate for 3 seconds and go out for 2 seconds.
4. Operate each switch as described and note the diagnostic trouble code pattern. If the test light does not flash, inspect the corresponding system area.









Cancel

To cancel operation mode, do any one of the following:


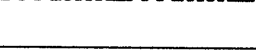

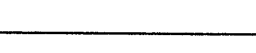
- Turn the cruise control main switch off.
- Turn the ignition switch to LOCK.

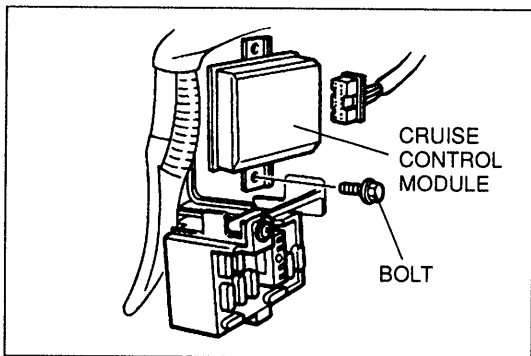
Diagnostic trouble code table

The table below shows the code numbers and flash patterns that will be indicated if the system is operating correctly.

Procedure	Normal		Faulty	
	Test light indication	Code No.	Possible cause	Action
Press SET/COAST switch	ON  OFF 	21	Defective cruise control switch (SET/COAST switch) Defective wiring harness (Cruise control module — SET/COAST switch — GND)	Inspect cruise control switch (Refer to page T-157) Repair wiring harness (Cruise control module — SET/COAST switch — GND)
Press RESUME/ACCEL switch	ON  OFF 	22	Defective cruise control switch (RESUME/ACCEL switch) Defective wiring harness (Cruise control module — RESUME/ACCEL switch — GND)	Inspect cruise control switch (Refer to page T-157) Repair wiring harness (Cruise control module — RESUME/ACCEL switch — GND)
Depress brake pedal	ON  OFF 	31	Defective brake switch Defective wiring harness (Cruise control module — Brake switch — GND)	Inspect brake switch (Refer to page T-156) Repair wiring harness (Cruise control module — Brake switch — GND)
AT	ON  OFF 	35	Defective transmission range switch Defective wiring harness (Cruise control module — Transmission range switch — Starter)	Inspect transmission range switch (Refer to page T-156) Repair wiring harness (Cruise control module — Transmission range switch — Starter)
Shift the selector lever to P or N range				

Cont'd

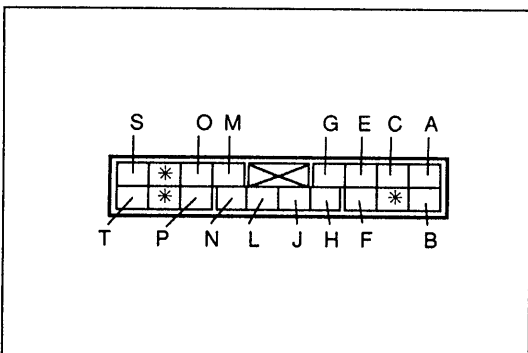
Procedure	Normal		Faulty	
	Test light indication	Code No.	Possible cause	Action
MT Depress clutch pedal or shift lever to neutral position	ON  OFF 	35	Defective clutch switch Defective wiring harness (Cruise control module — Clutch switch — GND)	Inspect clutch switch (Refer to page T-156) Repair wiring harness (Cruise control module — Clutch switch — GND)
Drive vehicle above 40 km/h { 25 mph }	ON  OFF 	37	Defective vehicle speed sensor Defective wiring harness (Cruise control module — Vehicle speed sensor)	Inspect vehicle speed sensor (Refer to page T-156) Repair wiring harness (Cruise control module — Vehicle speed sensor)



CRUISE CONTROL MODULE

Removal / Installation

1. Remove the right front side trim. (Refer to section S.)
2. Disconnect the cruise control module connector.
3. Remove the bolt and the cruise control module.
4. Install in the reverse order of removal.



Terminal Voltage List

1. Measure the voltage at the cruise control module terminals as indicated below.
2. If not as specified, inspect the related parts and wiring harnesses.
3. If the parts and wiring harnesses are OK but the system still does not work properly, replace the cruise control module.

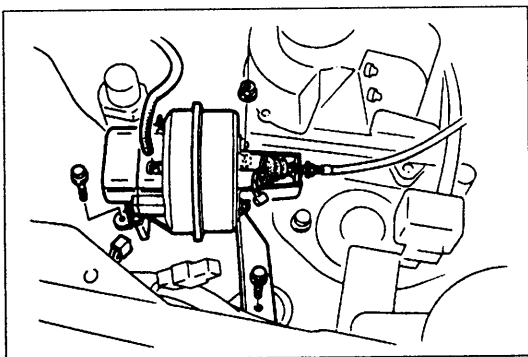
B+: Battery positive voltage

Terminal (Input/Output)	Connection	Test condition	Voltage/Continuity
A (Output)	Cruise actuator (vent 1)	Ignition switch at ON	0 V
		Ignition switch at ON and cruise control main switch on	Approx. 9 V
B (Output)	Cruise actuator (vac)	Ignition switch at ON	0 V
		Ignition switch at ON and cruise control main switch on	Approx. 9 V

Cont'd

B+: Battery positive voltage

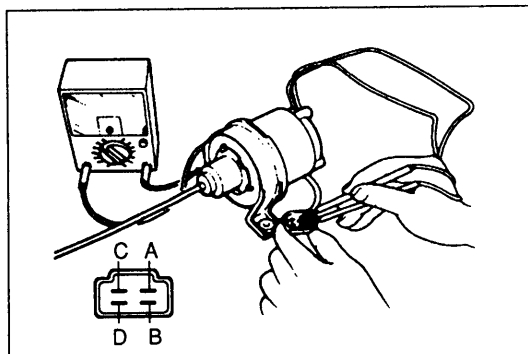
Terminal (Input/Output)		Connection	Test condition		Voltage/Continuity
C (Output)		Cruise actuator (vent 2)	Ignition switch at ON		0 V
			Ignition switch at ON and cruise control main switch on		Approx. 9 V
E (Input)		Cruise control main switch (N.C.)	Ignition switch at ON	Cruise control main switch off	B+
				Cruise control main switch on	0 V
F (Input)		Cruise control main switch (N.O.)	Ignition switch at ON	Cruise control main switch off	0 V
				Cruise control main switch on	B+
G (Input)		TCM	Ignition switch at ON		B+
H (Output)		Brake switch (N.C.)	Ignition switch at ON and cruise control main switch on		Approx. 9 V
			Brake pedal depressed		B+
J (Input)	AT	Transmission range switch	Ignition switch at on	N or P range	0 V
				Other	B+
	MT	Clutch switch	Ignition switch at ON	Clutch pedal depressed or in neutral position	0 V
				Other	B+
L (Input)		Cruise control switch (SET/COAST switch)	Ignition switch at ON and cruise control main switch on; SET/COAST switch on		Approx. 2 V
M (Input)		Brake switch (N.O.)	Brake pedal depressed		B+
			Other		0 V
N (Input)		Cruise control switch (RESUME/ACCEL switch)	Ignition switch at ON and cruise control main switch on; RESUME/ACCEL switch on		Approx. 3 V
O (Output)		Cruise actuator	Ignition switch at ON		0 V
			Ignition switch at ON and cruise control main switch on		Approx. 9 V
P (Input)		Vehicle speed sensor	Rear tires rotating		0—5 V
S (Input)		Battery (STOP 15 A)	Constant		B+
T (Input)		GND	Constant: check for continuity		0 V/Yes



CRUISE ACTUATOR

Removal / Installation

1. Disconnect the actuator cable and vacuum hose from the cruise actuator.
2. Remove the bolt and nuts and the cruise actuator.
3. Install in the reverse order of removal.

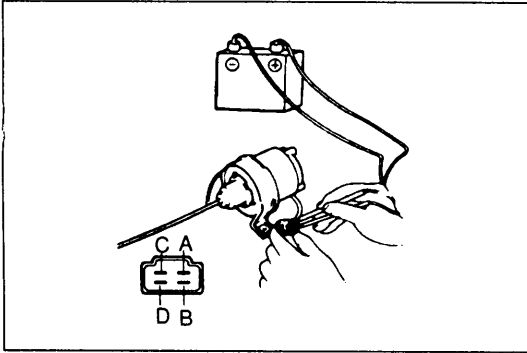


Inspection

1. Disconnect the cruise actuator connector.
2. Measure the cruise actuator resistance.

Terminal	Resistance
C — A	Approx. 25 to 55 Ω
C — B	
C — D	

3. If not as specified, replace the cruise actuator.

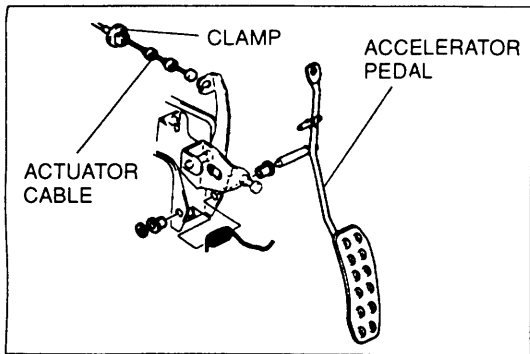


4. Disconnect the actuator cable from the accelerator pedal.
5. Run the engine at idle speed.
6. Apply battery positive voltage to the following terminals, and check the actuator cable operation.

B+: Battery positive voltage

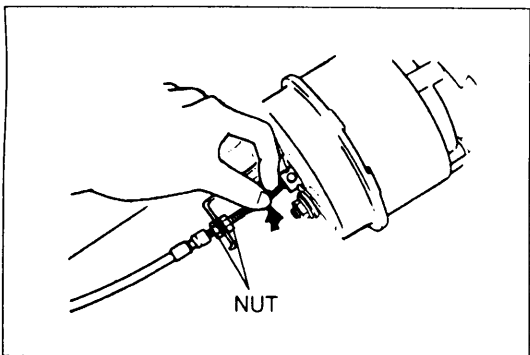
Step	Connection				Actuator cable operation
	A	B	C	D	
1	GND	GND	B+	GND	Pull
2	GND	—	B+	GND	Hold
3	GND	—	B+	—	Extend
4	—	—	—	—	Release

7. If not as specified, replace the cruise actuator.
(Refer to page T-154.)

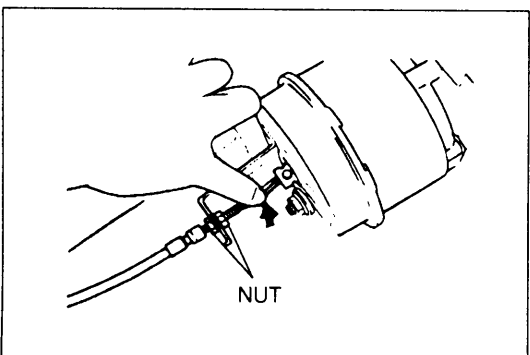


**ACTUATOR CABLE
Removal / Installation**

1. Disconnect the actuator cable from the accelerator pedal.
2. Remove the clamp on the inside of the firewall.



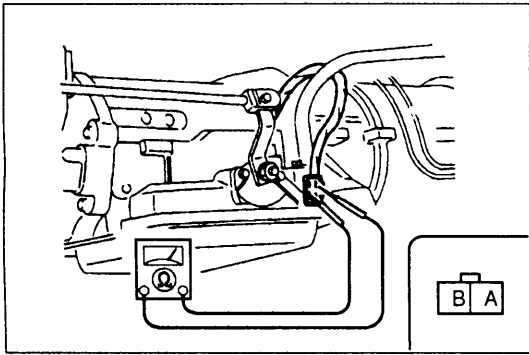
3. Loosen the nut and remove the actuator cable from the cruise actuator.
4. Install in the reverse order of removal.



Adjustment

Adjust the nut so that actuator cable free play is as shown when the actuator cable is pressed lightly.

Cable play: 1.0—3.0 mm { 0.04—0.12 in }



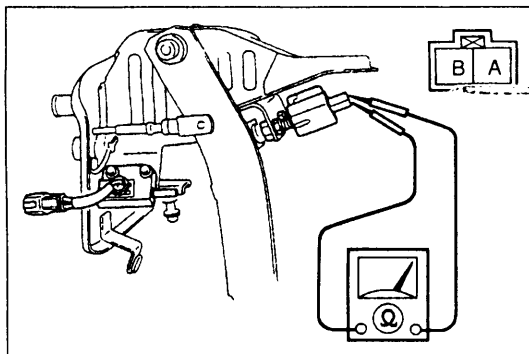
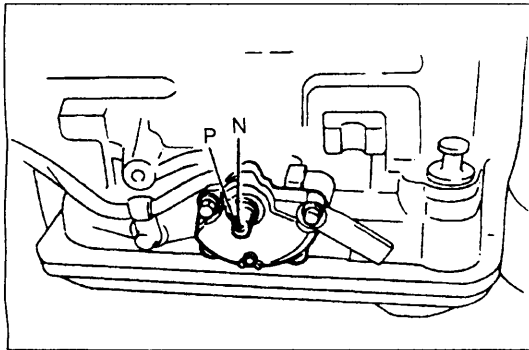
TRANSMISSION RANGE SWITCH (AT)

Inspection

1. Jack up the vehicle and support it with safety stands.
2. Disconnect the control linkage from the manual shaft.
3. Disconnect the transmission range switch connector.
4. Check for continuity between terminals A and B of the transmission range switch.

Position	Continuity
P or N	Yes
Other	No

5. If not as specified, adjust or replace the transmission range switch. (Refer to section K.)



CLUTCH SWITCH (MT)

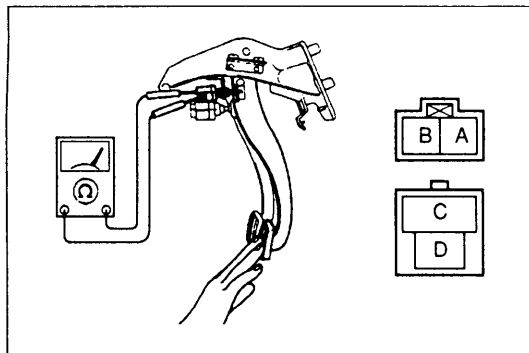
Inspection

1. Disconnect the clutch switch connector.
2. Check for continuity between the switch terminals.

Clutch pedal	Terminal	A	B
Released			
Depressed		○—○	○—○

○—○: Continuity

3. If not as specified, replace the clutch switch. (Refer to section H.)



BRAKE SWITCH

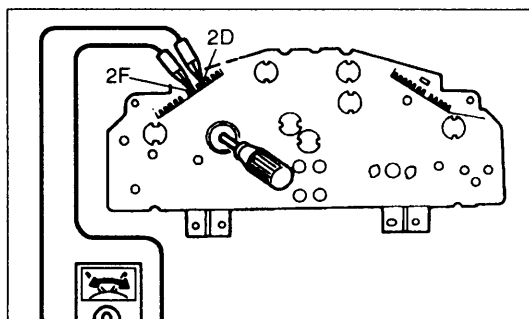
Inspection

1. Disconnect the brake switch connector.
2. Check for continuity between the switch terminals.

Brake pedal	Terminal	A	B	C	D
Released		○—○	○—○		
Depressed				○—○	○—○

○—○: Continuity

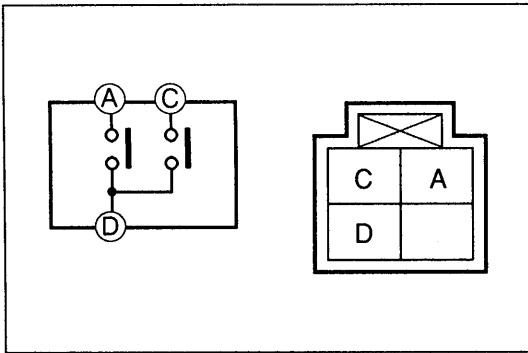
3. If not as specified, replace the brake switch. (Refer to section P.)



VEHICLE SPEED SENSOR

Inspection

1. Remove the instrument cluster. (Refer to page T-87.)
2. Check for continuity between terminals 2D and 2F of the instrument cluster while rotating the vehicle speed sensor shaft by using a flathead screwdriver.
3. If there are not four pulses per vehicle speed sensor shaft rotation, replace the speedometer.



CRUISE CONTROL SWITCH

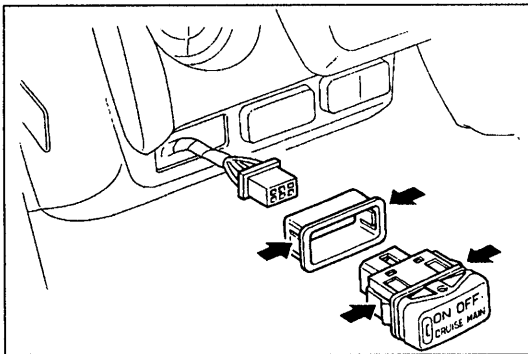
Inspection

1. Remove the lower panel.
2. Disconnect the combination switch connector.
3. Check for continuity between the terminals of the combination switch connector.

Terminal	A	C	D
Switch position			
SET/COAST	○—○		○—○
RESUME/ACCEL		○—○	○—○

○—○: Continuity

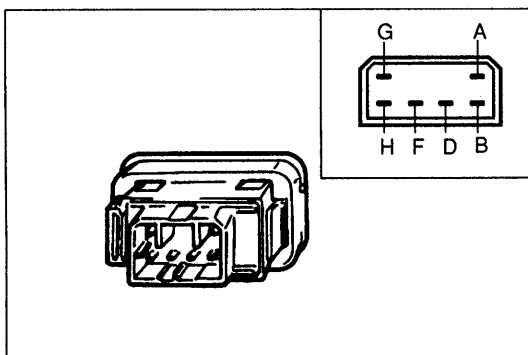
4. If not as specified, replace the combination switch.
(Refer to page T-25.)



CRUISE CONTROL MAIN SWITCH

Removal / Installation

1. Press the stoppers of the switch and remove the cruise control main switch.
2. Install in the reverse order of removal.



Inspection

1. Remove the cruise control main switch.
2. Check for continuity between the switch terminals.

Terminal	A	B	D	F	G	H
Switch position						
Neutral	○—○	○—○	○—○		○—○	○—○
OFF	○—○	○—○			○—○	○—○
ON	○—○	○—○	○—○	○—○	○—○	○—○

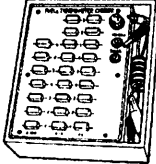

○—○: Continuity, ○—○ : Bulb

3. If not as specified, replace the cruise control main switch.

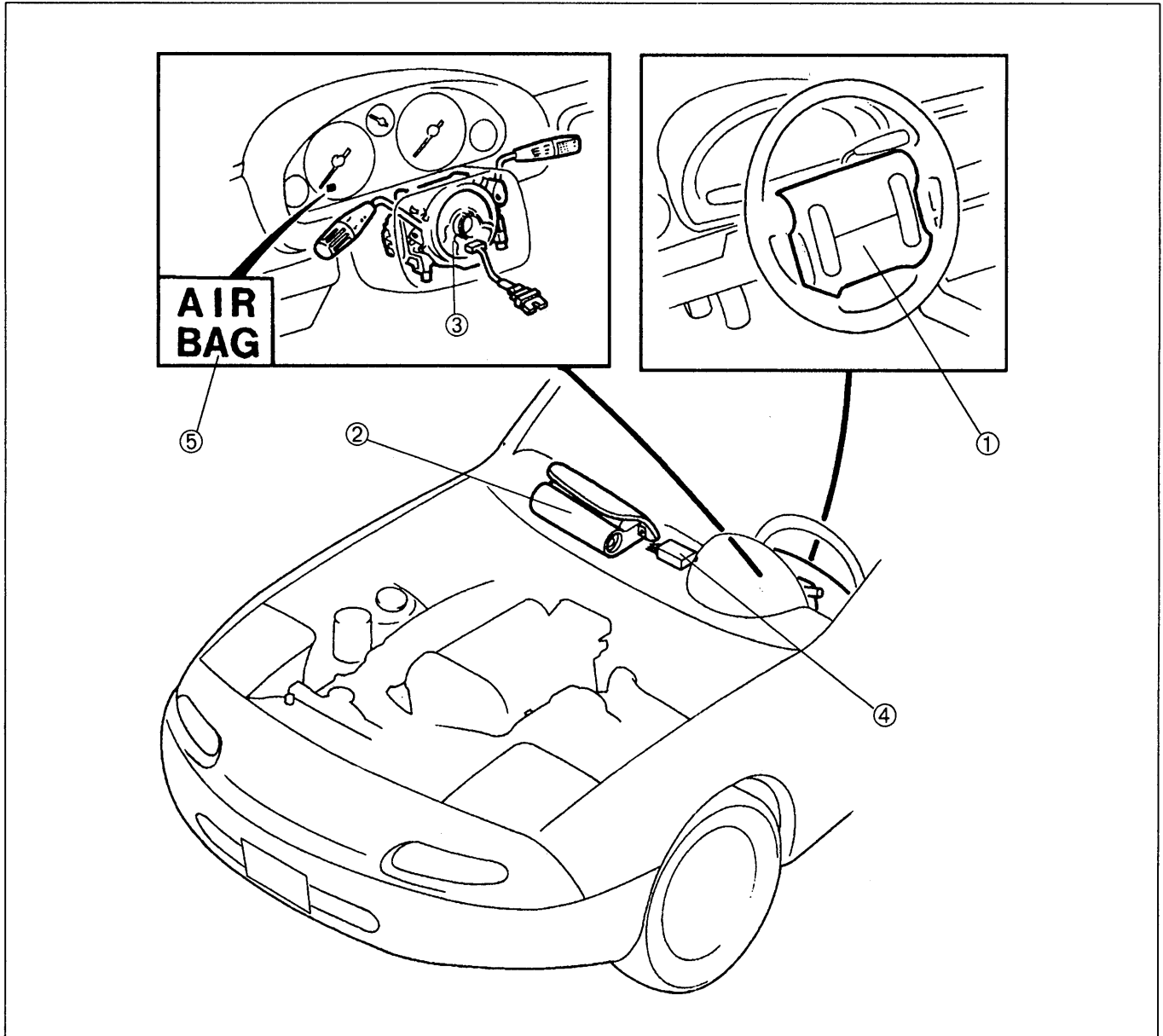
AIR BAG SYSTEM

PREPARATION

SST

<p>49 0839 285</p> <p>Checker, fuel thermometer</p> 	<p>For inspection of air bag system</p>	<p>49 H066 002</p> <p>Deployment tool</p> 	<p>For deployment of air bag module</p>
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STRUCTURAL VIEW

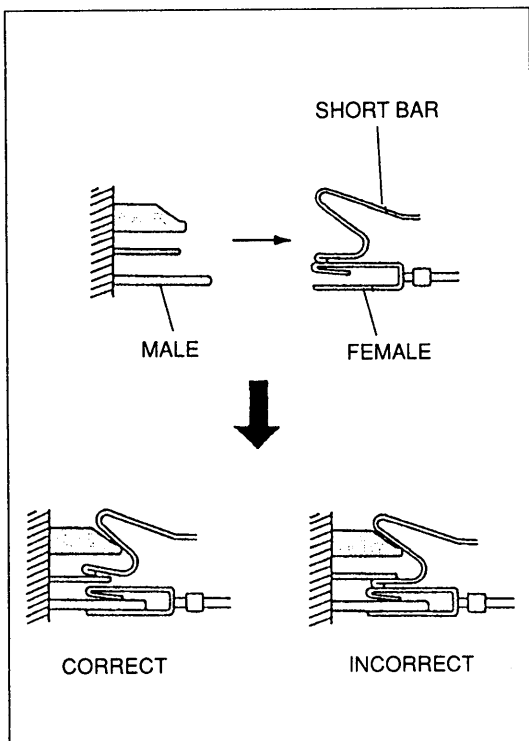
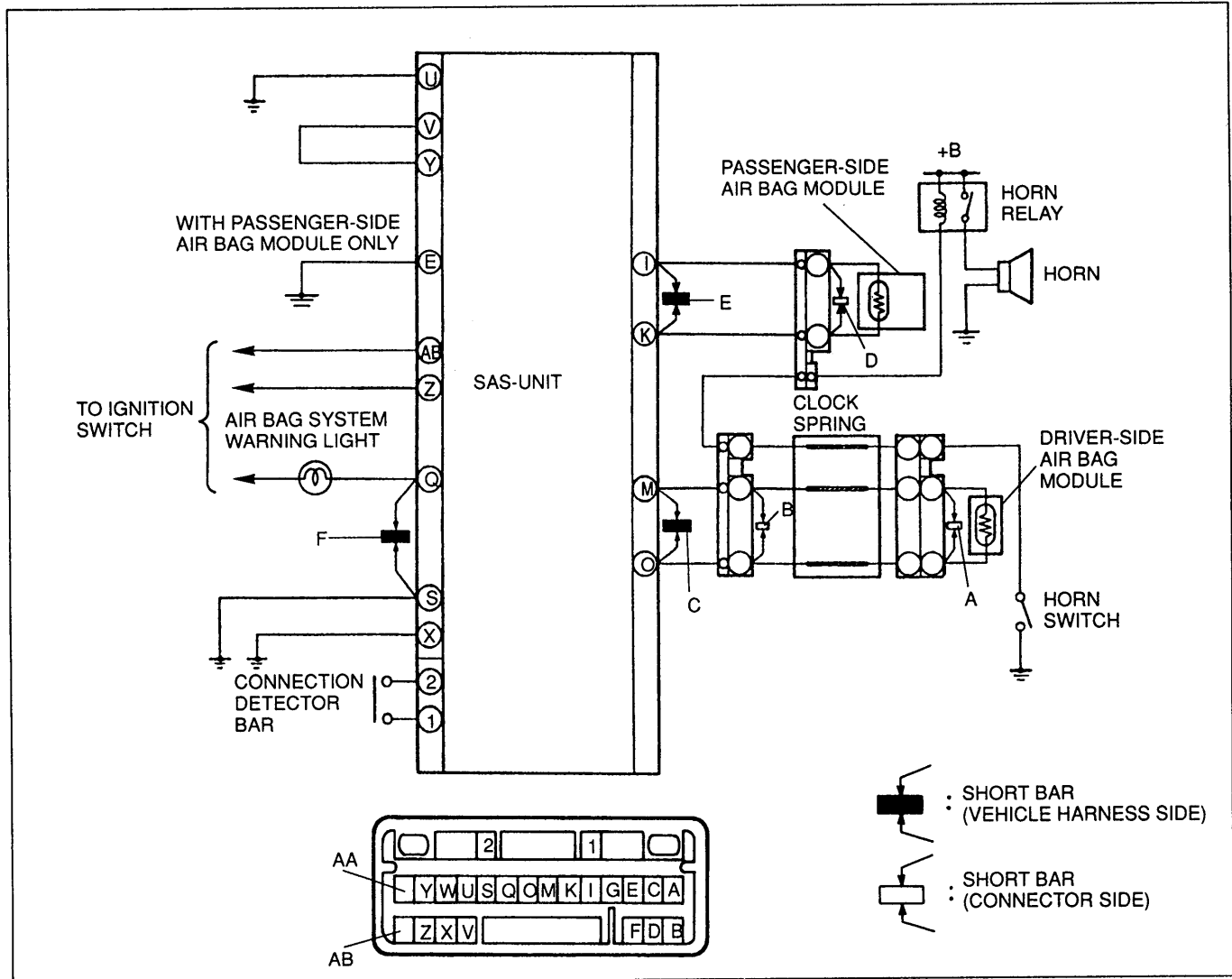


- | | |
|---|---|
| <p>1. Driver-side air bag module
Removal / Installation page T-172
Disposal procedure page T-176</p> | <p>3. Clock spring
Inspection page T- 27</p> |
| <p>2. Passenger-side air bag module
Removal / Installation page T-173
Disposal procedure page T-176</p> | <p>4. SAS-unit
Removal / Installation page T-174</p> <p>5. Air bag system warning light</p> |

COMPONENT DESCRIPTION

Component	Function	Remarks
Air bag system warning light	Illuminates or flashes if malfunction occurs in air bag system.	Located in instrument cluster
Air bag module	Deploys air bag when current flows to integrated igniter.	Location: Driver-side in steering wheel hub Passenger-side . . . above glove compartment
Clock spring	Ensures uninterrupted electrical connection to air bag module while allowing steering wheel to turn.	Part of combination switch
SAS-unit	Controls air bag system via built-in control module. Detects vehicle deceleration during collision via built-in crash sensor.	

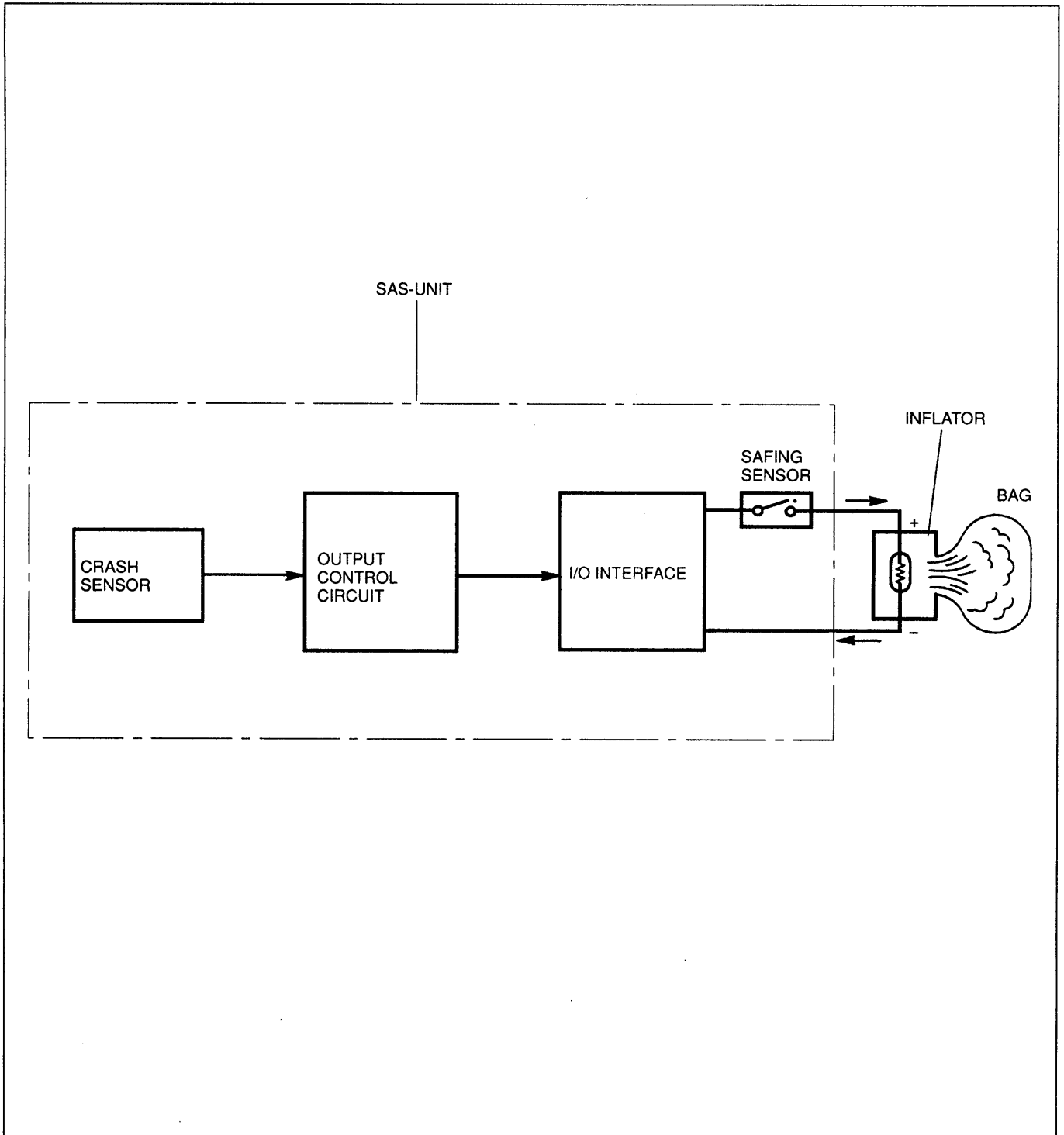
SYSTEM DIAGRAM



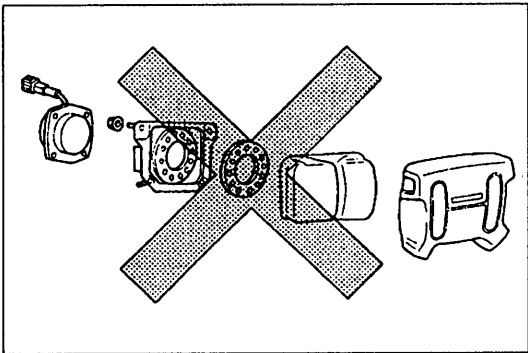
Short Bar

- A short bar is used to short between two terminals when a connector is disconnected.
- Short bars A—E prevent the air bag module from activating when the connector is disconnected.
- Short bar F keeps the air bag system warning light illuminated when the ignition switch is at ON and the SAS-unit connector is disconnected.

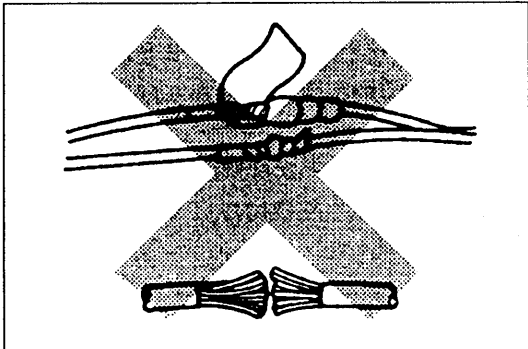
Operation



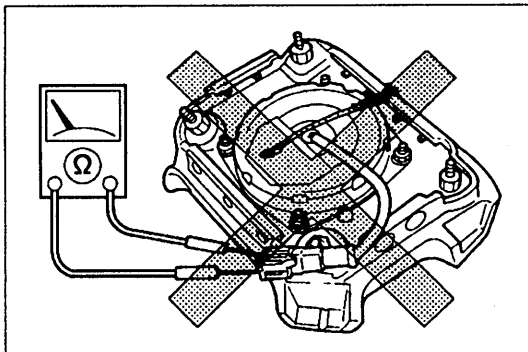
- When the crash sensor in the SAS-unit detects vehicle deceleration, it outputs an electric signal.
- The output control circuit calculates the input electric signal and determines whether or not to send the signal to the I/O (input/output) interface.
- If the calculated value is more than the set value, the output control circuit sends an output signal to the I/O interface to activate the air bag modules.
- When the I/O interface receives the signal from the output control circuit, the I/O interface sends an output signal to the inflator via the safing sensor. (The safing sensor is on with vehicle deceleration.)
- When the inflator receives the signal from the I/O interface, the ignition intensifier ignites, and nitrogen gas is generated.
- The air bag modules deploy the air bags because of the nitrogen gas.

**SERVICE WARNINGS****Component Disassembly**

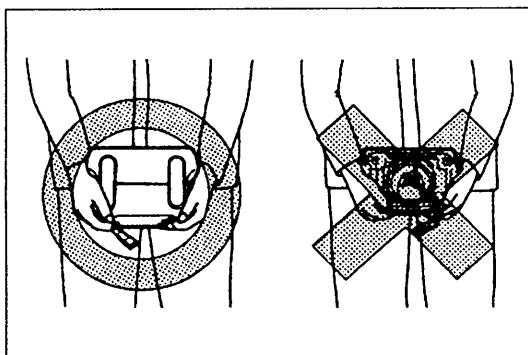
- Disassembling and reassembling the components of the air bag system can render the system inoperative, which may result in serious injury or death in the event of an accident. Do not disassemble any air bag system components.

**Wiring Harness Repair**

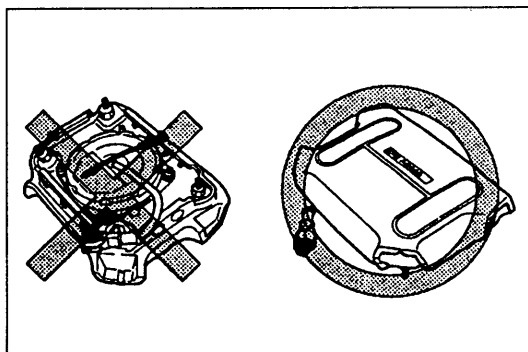
- Incorrectly repairing an air bag system wiring harness can accidentally deploy the air bag, which can cause serious injury. If a problem is found in the system wiring, replace the wiring harness. Do not try to repair it.

**Air Bag Module Inspection**

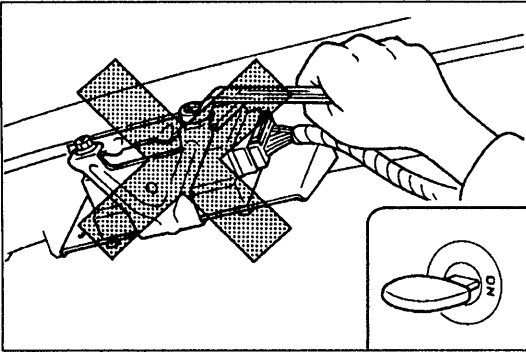
- Inspecting the air bag module with an ohmmeter can deploy the air bag, which can cause serious injury. Do not use an ohmmeter to inspect the air bag module.

**Air Bag Module Handling**

- A live (undeployed) air bag may accidentally deploy when it is handled and cause serious injury. When carrying a live air bag module, point the trim cover away from your body to lessen the chance of injury in case it deploys.

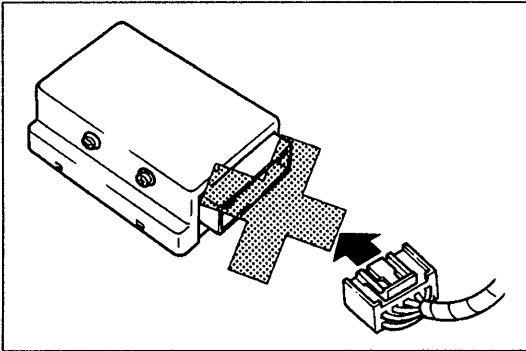


- A live air bag placed face down on a surface is dangerous. If the air bag deploys, the motion of the module can cause serious injury. Always face the trim cover up to reduce the motion of the module in case it accidentally deploys.

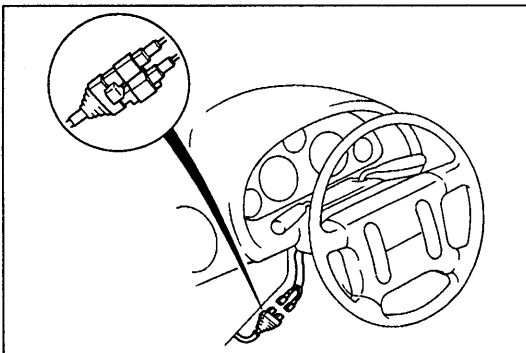


SAS-unit Handling

- Disconnecting the SAS-unit connector or removing the SAS-unit with the ignition switch at ON can cause the air bag to deploy, which may seriously injure you. Before disconnecting the SAS-unit connector or removing the SAS-unit, turn the ignition switch to LOCK.



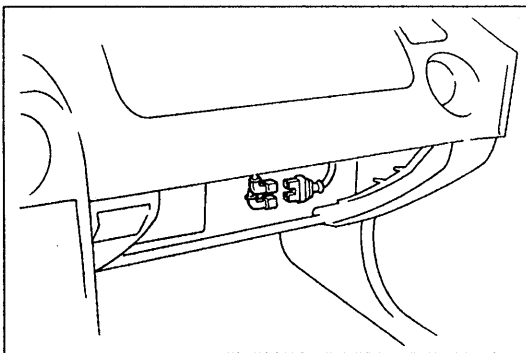
- Connecting the SAS-unit connector before installing the SAS-unit is dangerous. The shock of installation can cause the air bag to deploy, which may seriously injure you. Before connecting the SAS-unit connector, firmly mount the SAS-unit to the vehicle.



GENERAL PROCEDURES

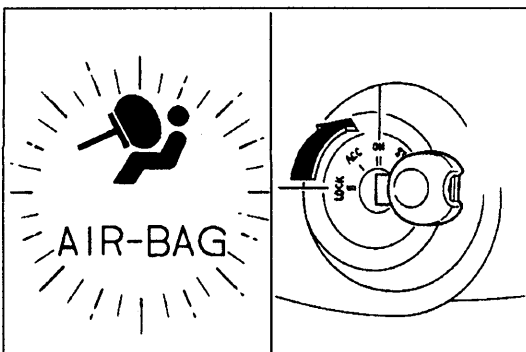
Before Servicing

1. Deactivate the audio antitheft system, if installed. (Refer to page T-129.)
2. Disconnect the negative battery cable.
3. Remove the lower panel.
4. Disconnect the orange and blue clock spring connectors.
5. Remove the glove compartment and undercover. (Refer to section S.)
6. Disconnect the orange and blue passenger-side air bag module connectors.



After Servicing

1. Connect the negative battery cable.
2. Turn the ignition switch to ON.
3. Verify that the air bag system warning light illuminates for 4—8 seconds and then goes off.

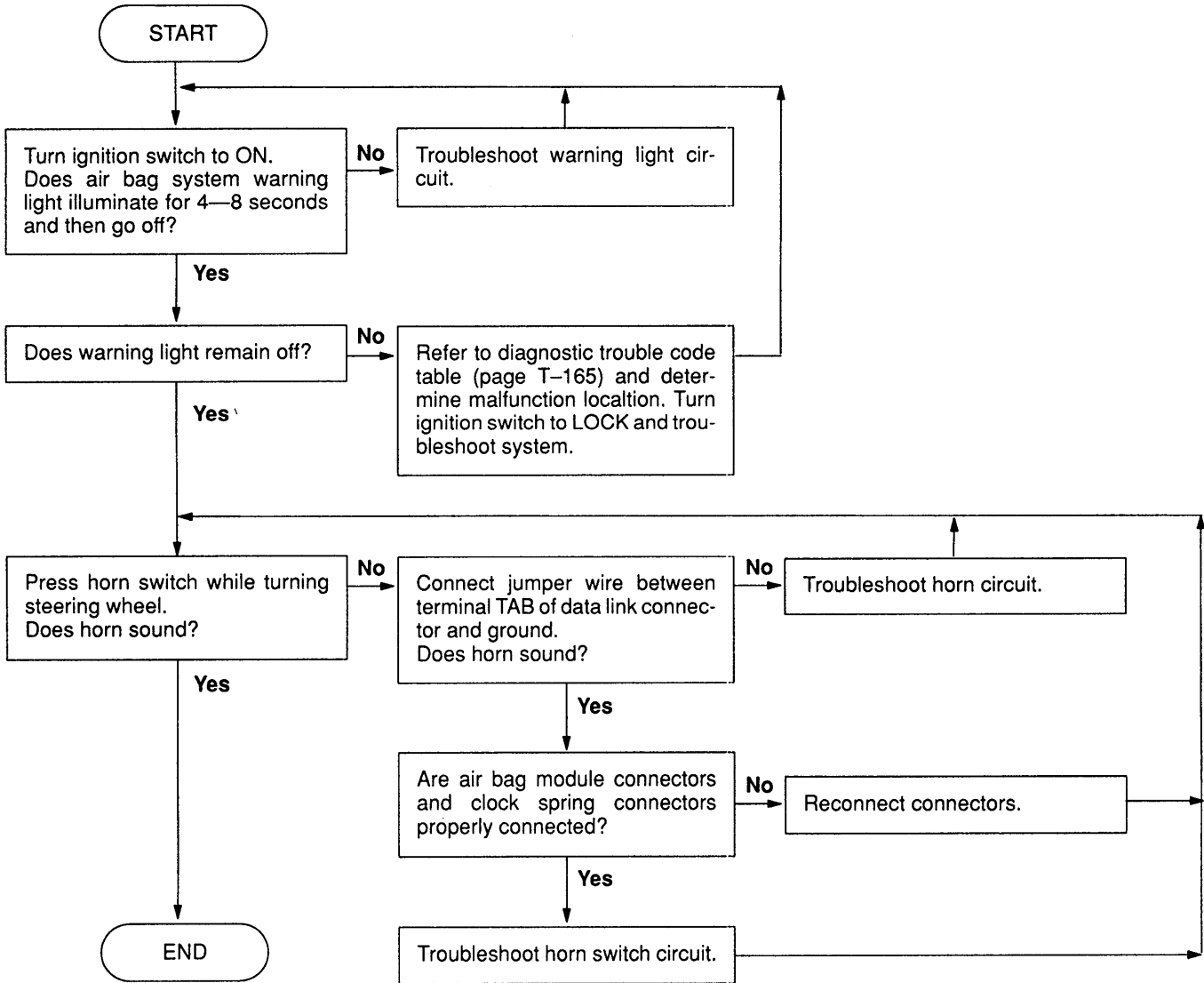


TROUBLESHOOTING

Troubleshooting Procedure




The SAS-unit has an on-board diagnostic function that flashes or illuminates the air bag system warning light to indicate trouble in the air bag system. The trouble can be determined by the warning light illumination or flashing pattern. If the light does not illuminate but the system still has trouble, a warning buzzer will sound 5 cycles of 5 times each.

Flowchart

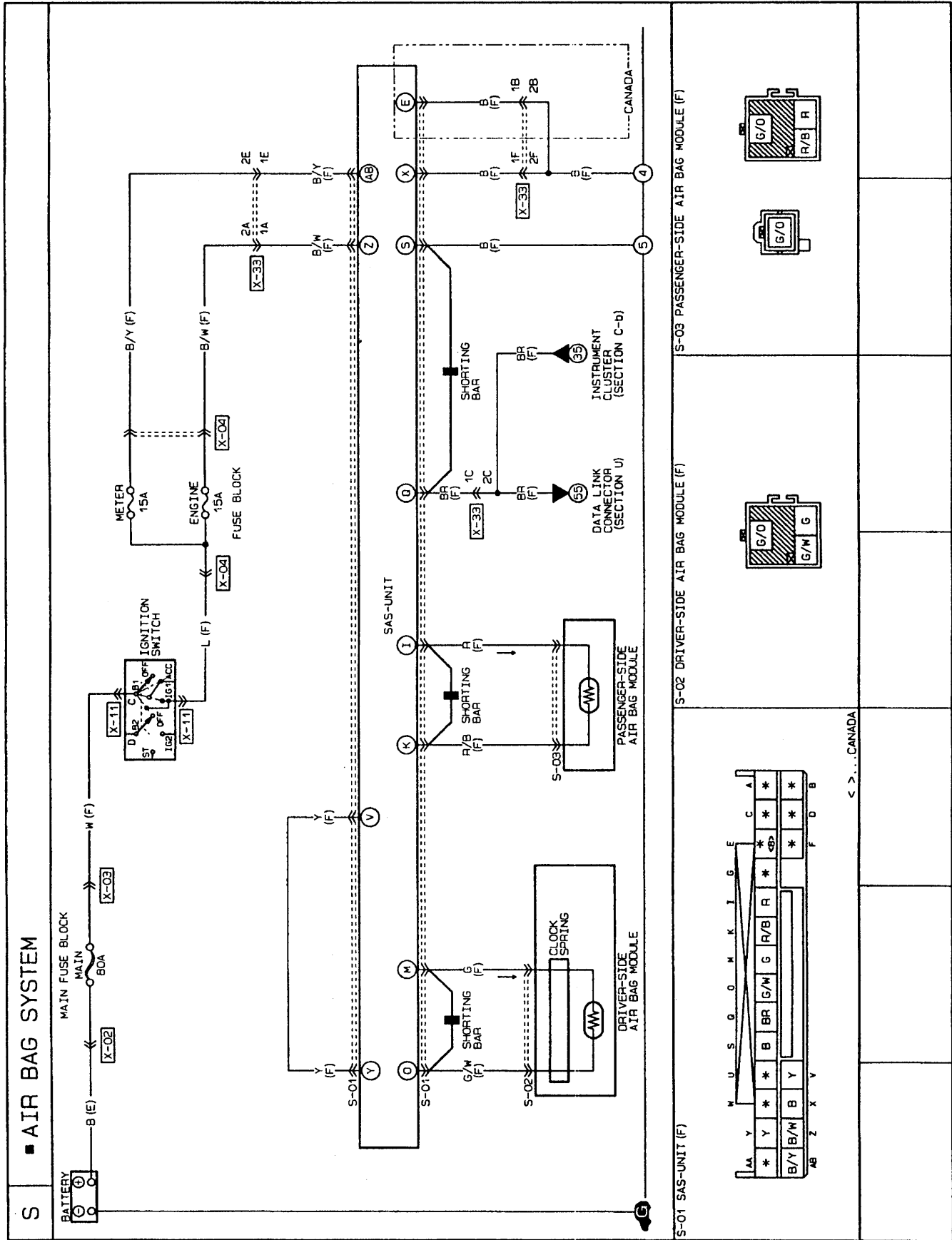


Diagnostic Trouble Code Table

If there are two or more problems in the air bag system, the warning light indicates the problem with the highest priority.

Priority	Code No.	Warning light indication	Possible cause	Inspection area	Refer to page
1	0	Remains on	SAS-unit	SAS-unit connector	T-167
2	3		Power source circuit	<ul style="list-style-type: none"> ENGINE 15 A fuse Wiring harness (ENGINE 15 A, METER 15 A fuse — SAS-unit) 	T-168
3	6		Driver-side air bag module	<ul style="list-style-type: none"> Clock spring Wiring harness (Clock spring — SAS-unit) 	T-169
4	7		Passenger-side air bag module	<ul style="list-style-type: none"> Wiring harness (Passenger-side air bag module — SAS-unit) 	T-171

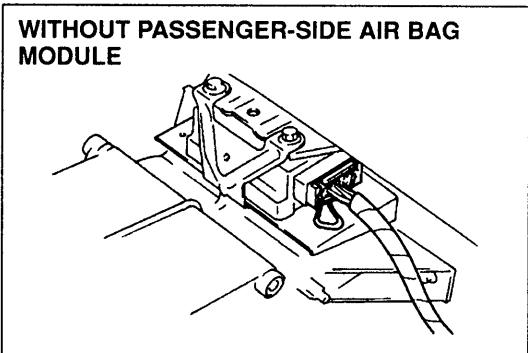
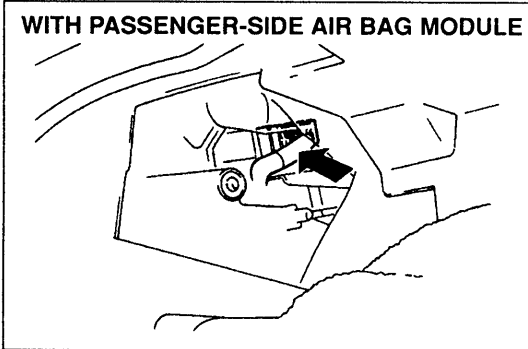
Circuit Diagram



Flowchart No.1	Symptom	Air bag system warning light remains on
-----------------------	----------------	---

Possible cause

- Damaged SAS-unit
- Open or short circuit in wiring harness
- Poor connection of connector



Remedy

Warning

- Handling the SAS-unit improperly can accidentally deploy the air bags, which may seriously injure you. Read **SERVICE WARNINGS**, page T-162, before handling the SAS-unit.

1. Verify that the ignition switch is at LOCK.
2. (With passenger-side air bag module)
Remove the passenger-side air bag module. (Refer to page T-173.)
(Without passenger-side air bag module)
Remove the dashboard. (Refer to section S.)
3. Check the SAS-unit connection.

Connection	Action
OK	Replace SAS-unit (Refer to page T-174)
Poor	Reconnect connector

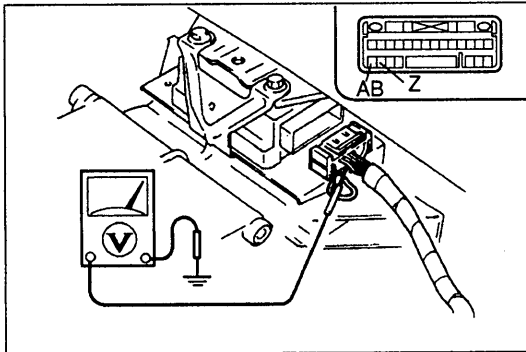
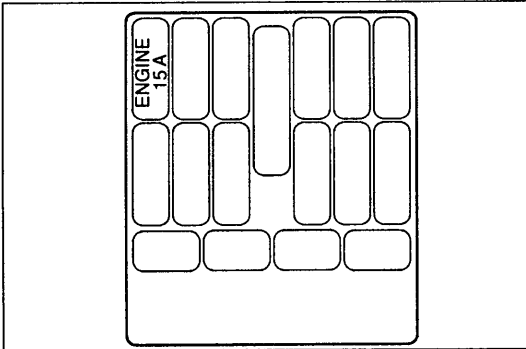
Note

- Retry on-board diagnostic after replacing the SAS-unit. If the air bag system warning light remains on, there may be a short circuit in the wiring harness between the instrument cluster and the SAS-unit.

Flowchart No.2	Symptom	Diagnostic trouble code 3
----------------	---------	---------------------------

Possible cause

- Burnt ENGINE 15 A fuse
- Damaged SAS-unit
- Open or short circuit in wiring harness
- Poor connection of connector



Step 1

Check the ENGINE 15 A fuse in the fuse block No.1.

Fuse	Action
OK	Go to Step 2
Burnt	Replace fuse after checking and repairing wiring harness

Step 2

Warning

- Handling the SAS-unit improperly can accidentally deploy the air bags, which may seriously injure you. Read SERVICE WARNINGS, page T-162, before handling the SAS-unit.

1. Verify that the ignition switch is at LOCK.
2. Remove the dashboard. (Refer to section S.)
3. Disconnect the SAS-unit connector.
4. Turn the ignition switch to ON.
5. Measure the voltage at the terminals of the SAS-unit connector.

B+: Battery positive voltage

Terminal	Voltage	Action
Z (B/W)	B+	Measure voltage at terminal AB
	Other	Repair wiring harness (ENGINE 15 A fuse — SAS-unit)
AB (B/Y)	B+	Replace SAS-unit (Refer to page T-174)
	Other	Repair wiring harness (METER 15 A fuse — SAS-unit)

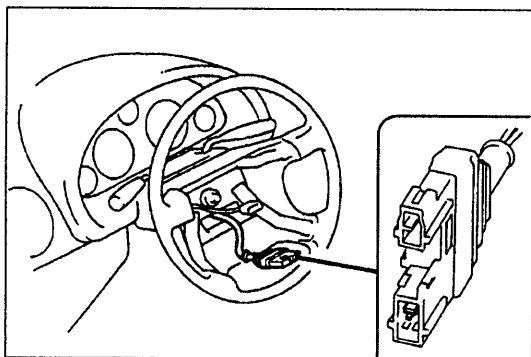
Flowchart No.3	Symptom	Diagnostic trouble code 6
-----------------------	----------------	---------------------------

Possible cause

- Damaged driver-side air bag module
- Damaged clock spring
- Damaged SAS-unit
- Open or short circuit in wiring harness
- Poor connection of connector

Warning

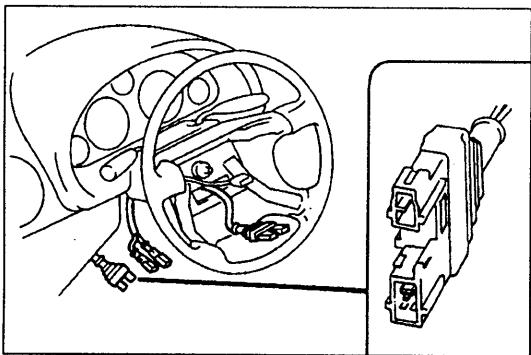
- Handling the air bag module and SAS-unit improperly can accidentally deploy the air bag, which may seriously injure you. Read SERVICE WARNINGS, page T-162, before handling the air bag module and SAS-unit.



Step 1

1. Carry out the "Before Servicing" procedure under GENERAL PROCEDURES, page T-163.
2. Remove the driver-side air bag module. (Refer to page T-172.)
3. Verify that the driver-side air bag module connector pin is not broken.

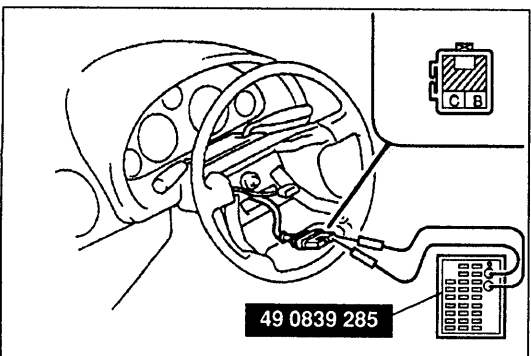
Pin	Action
OK	Go to Step 2
Broken	Replace combination switch (Refer to page T-25)



Step 2

Verify that the clock spring connector pin is not broken.

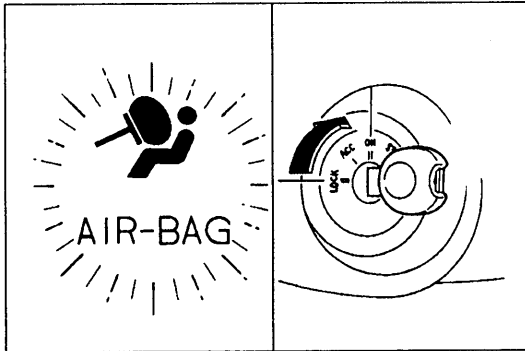
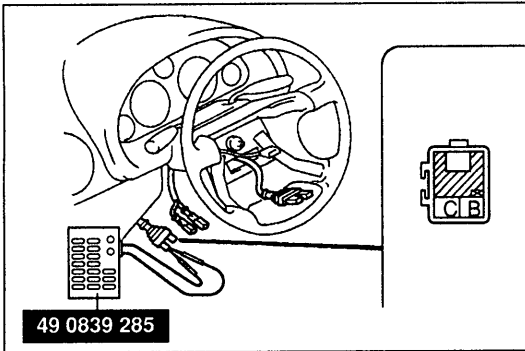
Pin	Action
OK	Go to Step 3
Broken	Repair wiring harness (Clock spring — SAS-unit)



Step 3

1. Connect the lead of the **SST** to between terminals B and C of the driver-side air bag module connector.
2. Set the resistance of the **SST** to 2 ohms.
3. Connect the orange and blue clock spring connectors.
4. Turn the ignition switch to ON and check the diagnostic trouble code.

Diagnostic trouble code	Action
6	Go to Step 4
Other	Replace driver-side air bag module (Refer to page T-172)

**Step 4**

1. Turn the ignition switch to LOCK.
2. Disconnect the orange and blue clock spring connectors.
3. Connect the lead of the **SST** to between terminals B and C of the clock spring connector.
4. Set the resistance of the **SST** to 2 ohms.
5. Turn the ignition switch to ON and check the diagnostic trouble code.

Diagnostic trouble code	Action
6	Go to Step 5
Other	Replace combination switch (Refer to page T-25)

Step 5

1. Turn the ignition switch to LOCK.
2. Replace the SAS-unit. (Refer to page T-174.)
3. Turn the ignition switch to ON and check the diagnostic trouble code.
4. If diagnostic trouble code 6 is still set, repair the wiring harness (clock spring — SAS-unit).

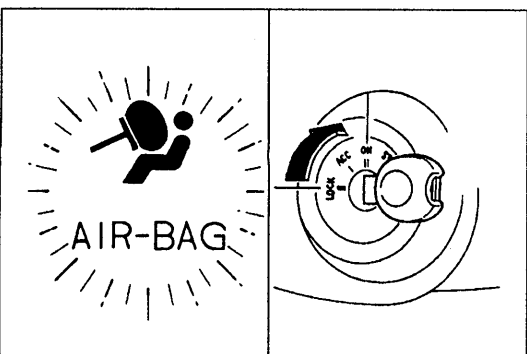
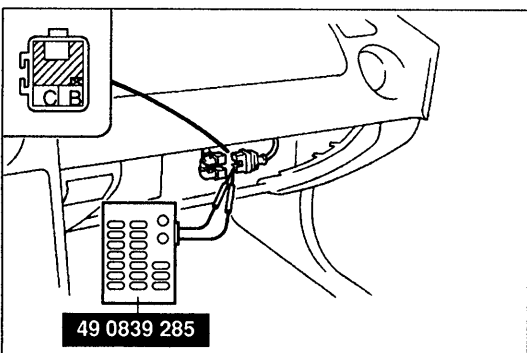
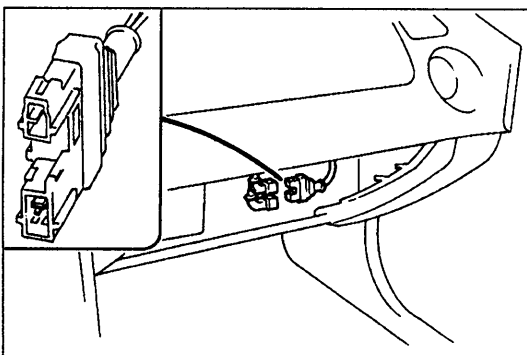
Flowchart No.4	Symptom	Diagnostic trouble code 7
----------------	---------	---------------------------

Possible cause

- Damaged passenger-side air bag module
- Damaged SAS-unit
- Open or short circuit in wiring harness
- Poor connection of connector

Warning

- Handling the air bag module and SAS-unit improperly can accidentally deploy the air bag, which may seriously injure you. Read **SERVICE WARNINGS**, page T-162, before handling the air bag module and SAS-unit.



Step 1

1. Carry out the "Before Servicing" procedure under **GENERAL PROCEDURES**, page T-163.
2. Verify that the passenger-side air bag module connector pin is not broken.

Pin	Action
OK	Go to Step 2
Broken	Repair wiring harness (Passenger-side air bag module — SAS-unit)

Step 2

1. Connect the lead of the **SST** to between terminals B and C of the passenger-side air bag module connector.
2. Set the resistance of the **SST** to 2 ohms.
3. Turn the ignition switch to ON and check the diagnostic trouble code.

Diagnostic trouble code	Action
7	Go to Step 3
Other	Replace passenger-side air bag module (Refer to page T-173)

Step 3

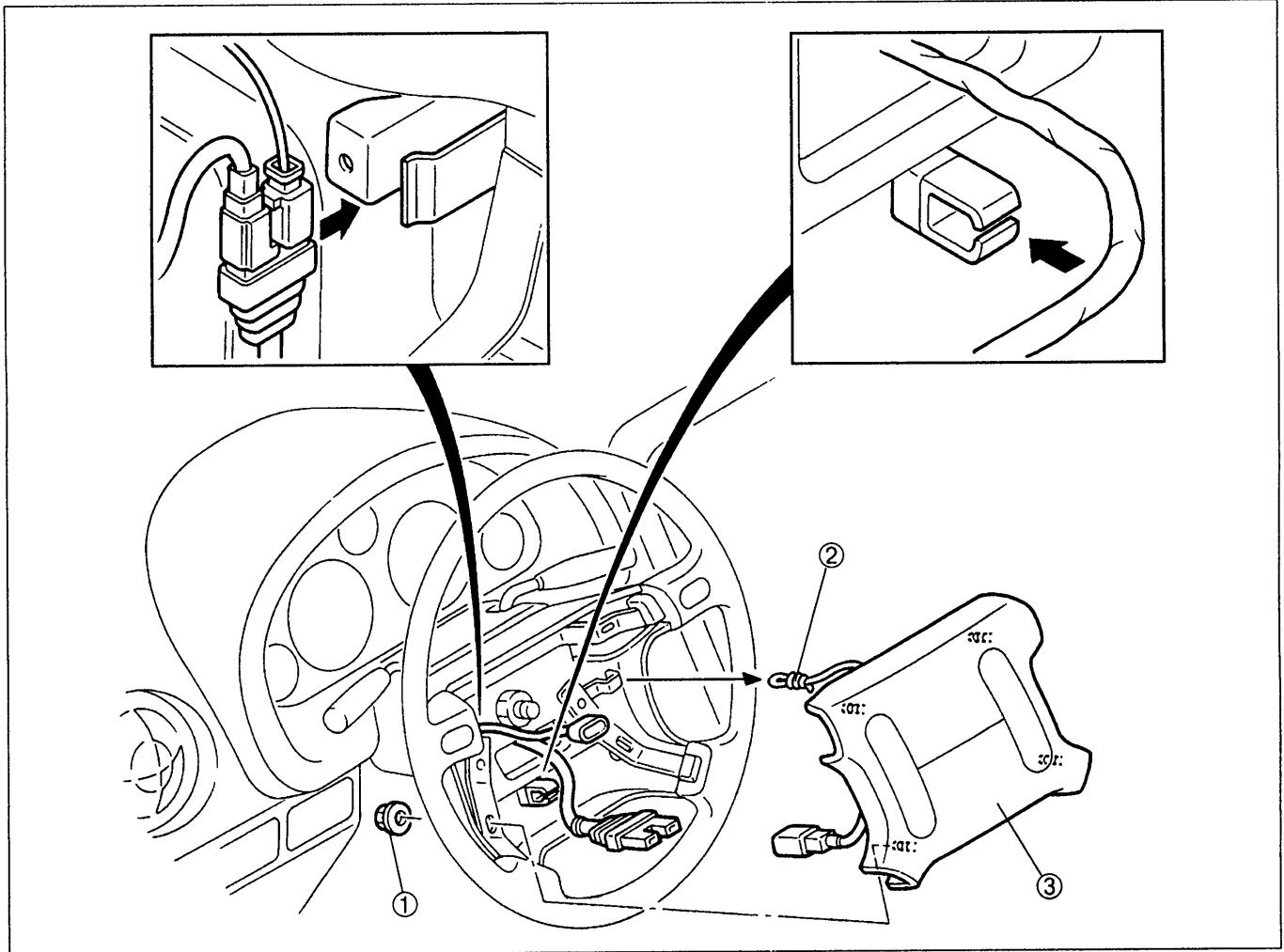
1. Turn the ignition switch to LOCK.
2. Replace the SAS-unit. (Refer to page T-174.)
3. Turn the ignition switch to ON and check the diagnostic trouble code.
4. If diagnostic trouble code 7 is still set, repair the wiring harness (passenger-side air bag module — SAS-unit).

DRIVER-SIDE AIR BAG MODULE Removal / Installation

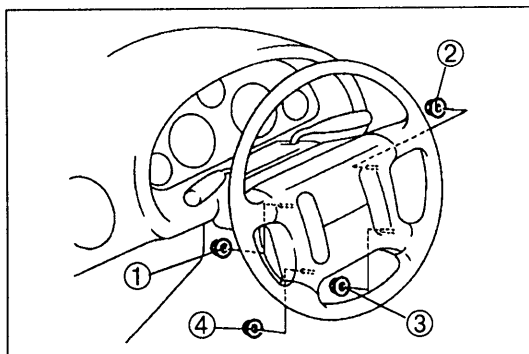
Warning

- Handling the air bag module improperly can accidentally deploy the air bag, which may seriously injure you. Read **SERVICE WARNINGS**, page T-162, before handling the air bag module.

1. Carry out the "Before Servicing" procedure under **GENERAL PROCEDURES**, page T-163.
2. Remove in the order shown in the figure.
3. Install in the reverse order of removal, referring to **Installation note**.
4. Follow the troubleshooting flowchart (page T-164) to verify that the air bag system is operating normally.



- | | |
|-------------------------------|-------------------------------|
| 1. Nuts | 2. Support rope |
| Installation note below | 3. Driver-side air bag module |



Installation note

Nuts

Tighten the nuts in the order shown in the figure.

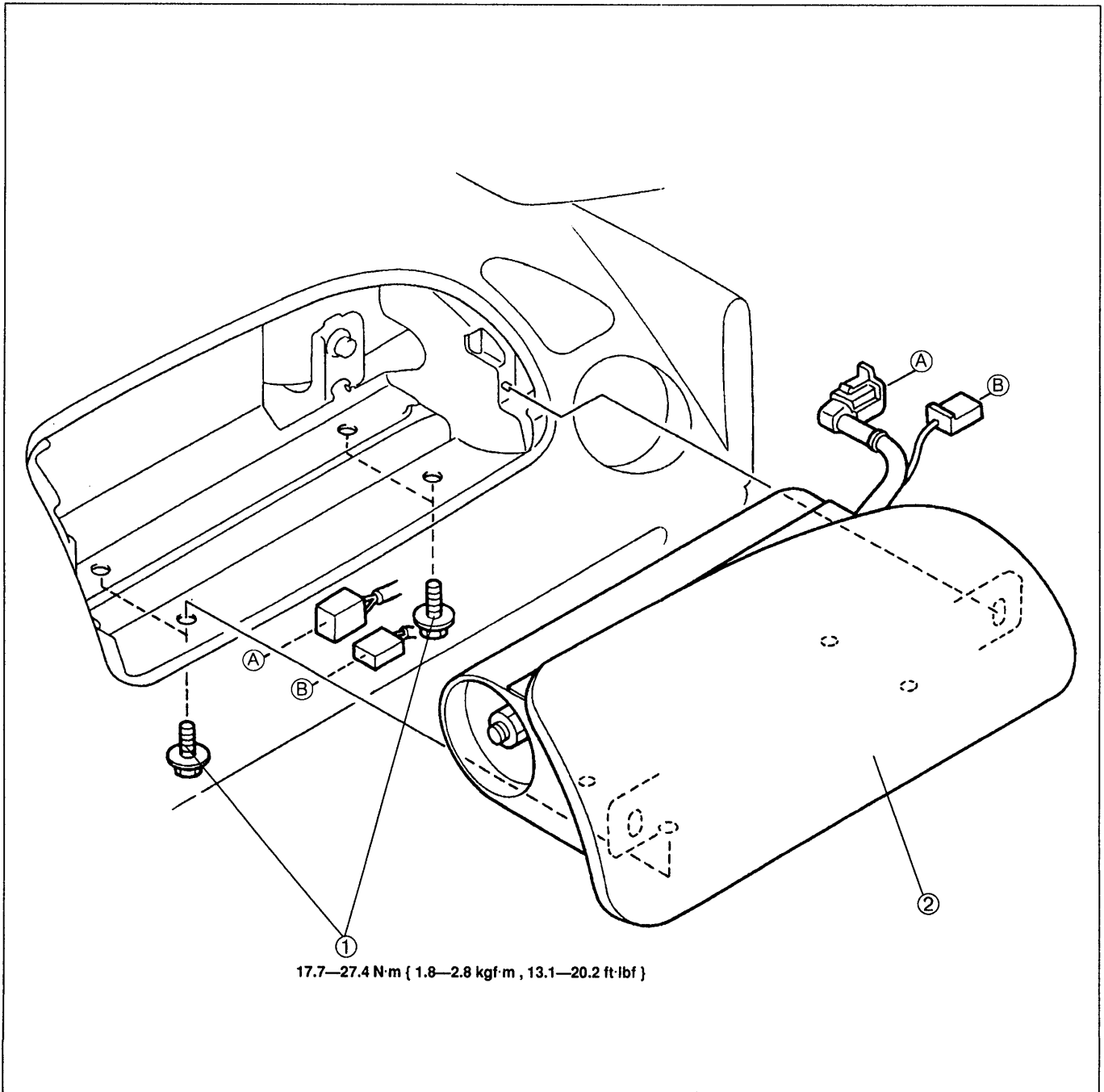
Tightening torque:

4.0—5.8 N·m { 40—60 kgf·cm , 35—52 in·lbf }

PASSENGER-SIDE AIR BAG MODULE**Removal / Installation****Warning**

- Handling the air bag module improperly can accidentally deploy the air bag, which may seriously injure you. Read **SERVICE WARNINGS**, page T-162, before handling the air bag module.

1. Carry out the "Before Servicing" procedure under **GENERAL PROCEDURES**, page T-163.
2. Remove the glove compartment and undercover. (Refer to section S.)
3. Remove in the order shown in the figure.
4. Install in the reverse order of removal.
5. Follow the troubleshooting flowchart (page T-164) to verify that the air bag system is operating normally.



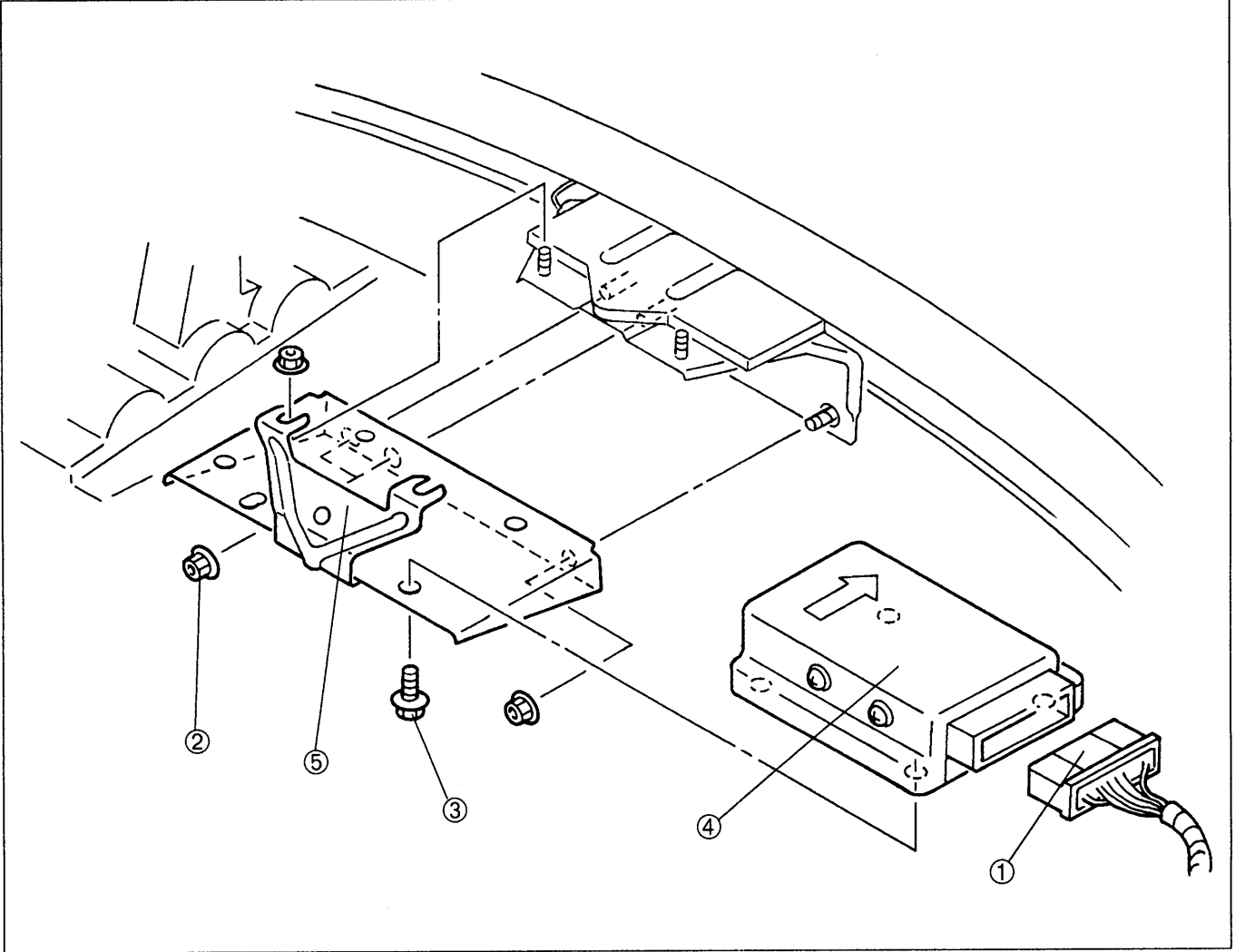
1. Bolts

2. Passenger-side air bag module

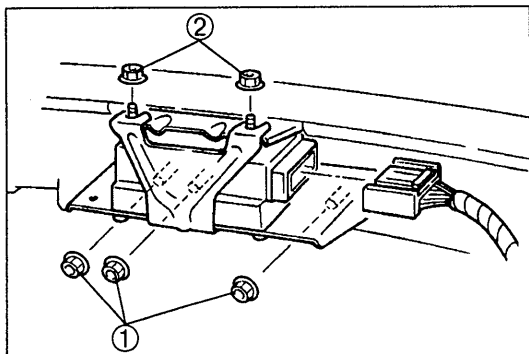
SAS-UNIT

Removal / Installation

1. Carry out the "Before Servicing" procedure under GENERAL PROCEDURES, page T-163.
2. Remove the dashboard. (Refer to section S.)
3. Remove the heater unit. (Refer to section U.)
4. Remove in the order shown in the figure.
5. Install in the reverse order of removal, referring to **Installation note**.
6. Follow the troubleshooting flowchart (page T-164) to verify that the air bag system is operating normally.



- | | |
|-------------------------------|------------------------------------|
| 1. Connector | 4. SAS-unit |
| 2. Nuts | Installation note page T-175 |
| Installation note below | 5. Bracket |
| 3. Bolts | Installation note page T-175 |

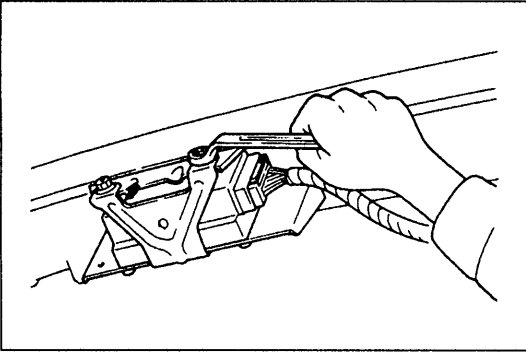


Installation note

Nuts

Tighten the nuts in the order shown in the figure.

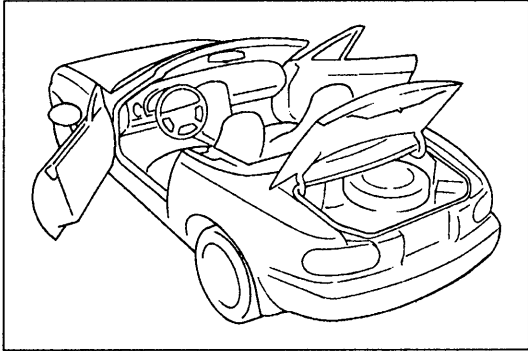
Tightening torque: 6.87—9.80 N·m
{ 70—100 kgf·cm , 60.8—86.7 in·lbf }

**SAS-unit and bracket**

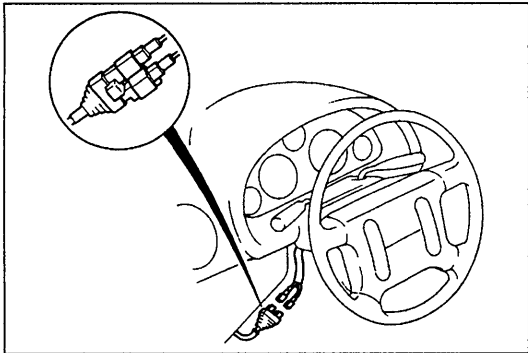
1. If the bracket mounting area is damaged, repair the area to its original shape.
2. Position the SAS-unit and bracket with the arrow on the SAS-unit facing toward the front of vehicle. Install them and tighten the bolts and nuts to the specified torque.

AIR BAG MODULE DISPOSAL PROCEDURE

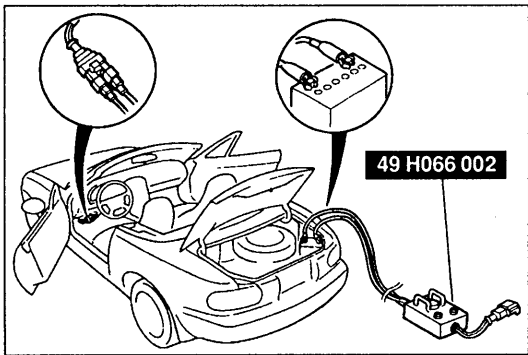
Before scrapping a vehicle with an undeployed air bag module, deploy the air bag. Never dispose of a live air bag module. If the deployment tool **SST** is not available, consult the nearest Mazda representative for assistance.

**Air Bag Deployment**

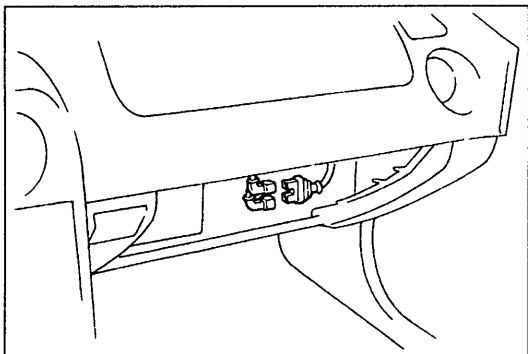
1. Move the vehicle to an open space, away from strong winds, and open all of the vehicle's doors.
2. Deactivate the audio antitheft system, if installed. (Refer to page T-129.)
3. Disconnect the negative battery cable.
4. Follow the appropriate procedure for the driver-side or passenger-side air bag module.

**Driver-side air bag module**

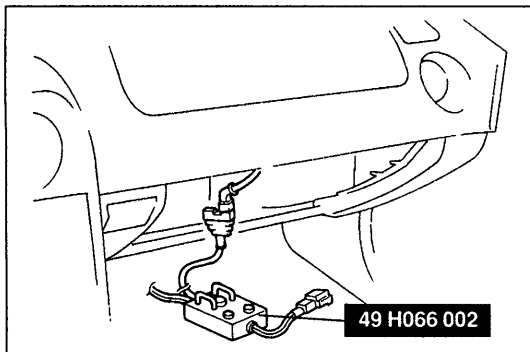
- (1) Make sure the air bag module is firmly mounted to the steering wheel.
- (2) Remove the lower panel.
- (3) Disconnect the orange and blue clock spring connectors.



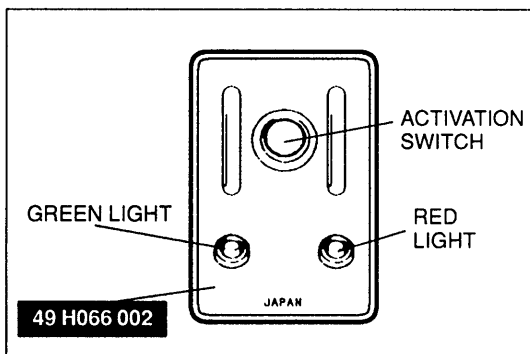
- (4) Inspect the **SST**. (Refer to page T-178.)
- (5) Connect the **SST** to the clock spring connector as shown in the figure.

**Passenger-side air bag module**

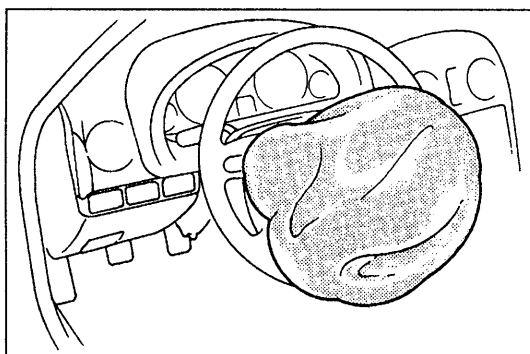
- (1) Remove the glove compartment and undercover. (Refer to section S.)
- (2) Disconnect the orange and blue passenger-side air bag module connector.



- (3) Inspect the **SST** (Refer to page T-178.)
- (4) Connect the **SST** to the passenger-side air bag module.



5. Connect the red clip of the **SST** to the positive battery terminal and the black clip to the negative terminal.
6. Verify that the red light on the **SST** is illuminated.
7. Make sure all persons are standing at least **6 m { 20 ft }** from the vehicle.
8. Press the activation switch on the **SST** to deploy the air bag.



Air Bag Disposal

Warning

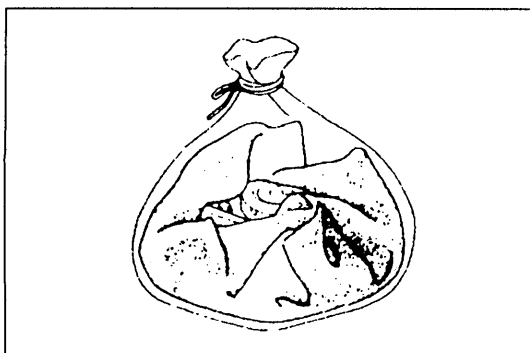
- The air bag is very hot immediately after it deploys. You can be burned. Do not touch the air bag module for at least 15 minutes after deployment.

Warning

- Pouring water on a deployed air bag is dangerous. The water will mix with the residual gases to form a gas that can make breathing difficult if inhaled. Do not pour water on the deployed air bag module.

Warning

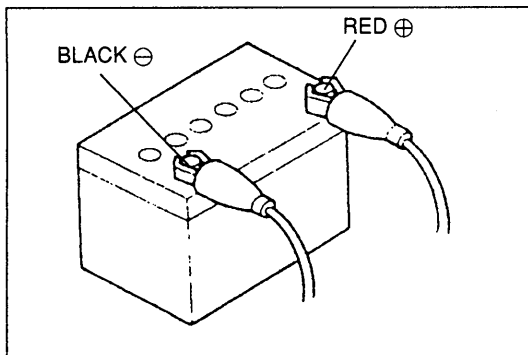
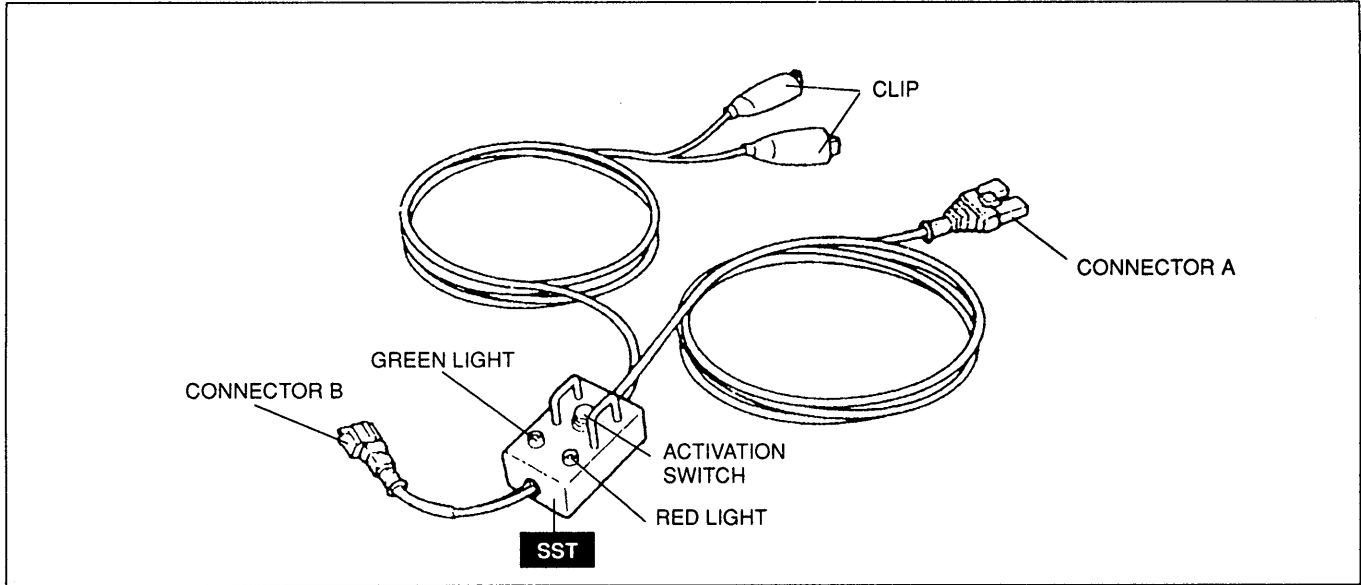
- A deployed air bag module may contain deposits of sodium hydroxide, a caustic by-product of the gas-generated combustion. If this substance gets in your eyes or on your hands, it can cause irritation and itching. When handling a deployed air bag module, wear gloves and safety glasses.



1. Put on gloves and safety glasses.
2. Place the deployed air bag module in a plastic bag, seal it, and then dispose of it.
3. Wash your hands after removing your gloves.

INSPECTION OF SST (DEPLOYMENT TOOL)

- Use the **SST** to deploy a live air bag module before disposing of it.
- Before connecting the **SST** to the clock spring connector or air bag module connector, inspect the operation of the **SST**.

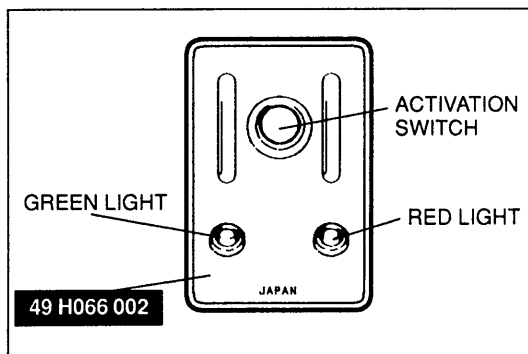
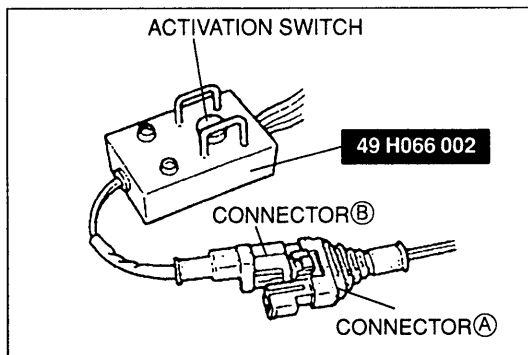


Inspection Procedure

1. Follow the steps below to inspect the operation of the **SST**.

Step	Inspection procedure	Light condition	
		Green	Red
1	Connect red clip to positive battery terminal and black clip to negative battery terminal.	ON	OFF
2	Connect connectors A and B of SST .	OFF	ON
3	Press activation switch.	ON	OFF

2. If not as specified, do not use the **SST** because it may cause the air bag to unexpectedly deploy upon connection to the harnesses.



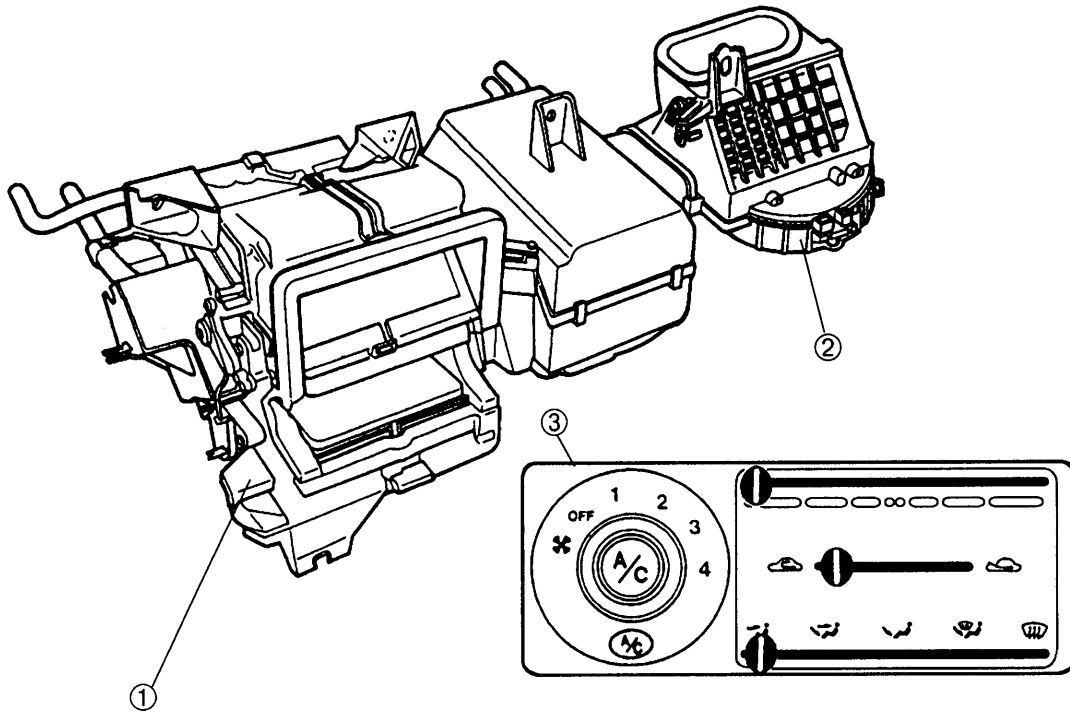
Before beginning any service procedure, refer to section T of this manual for air bag system service warnings and audio antitheft system alarm conditions.

HEATER AND AIR CONDITIONER SYSTEMS

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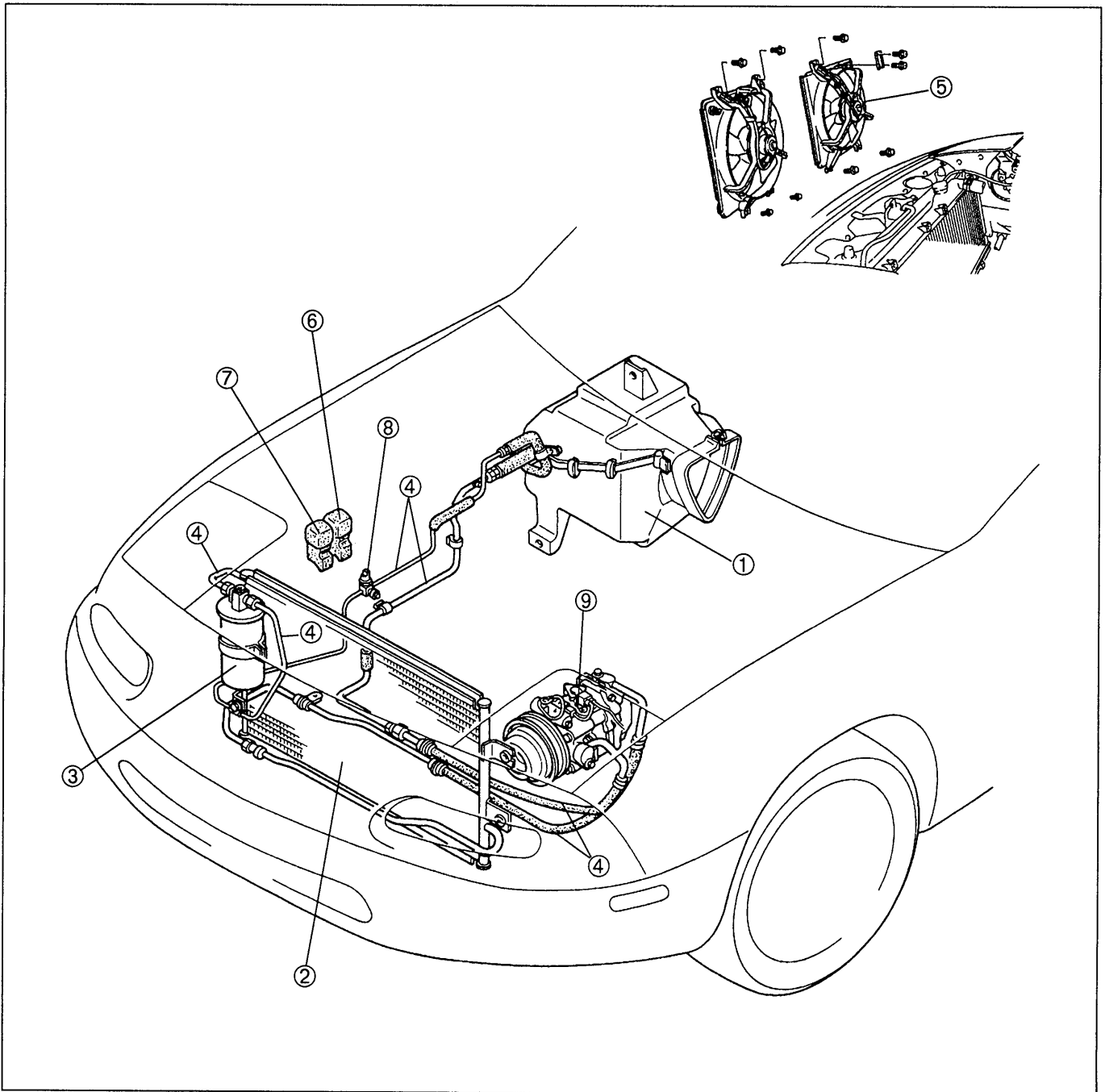
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AIR CONDITIONER



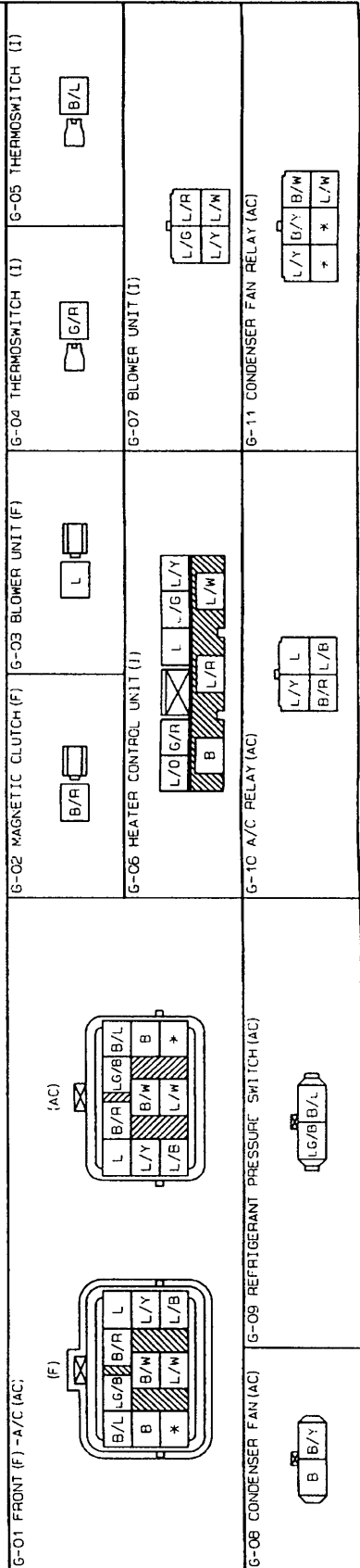
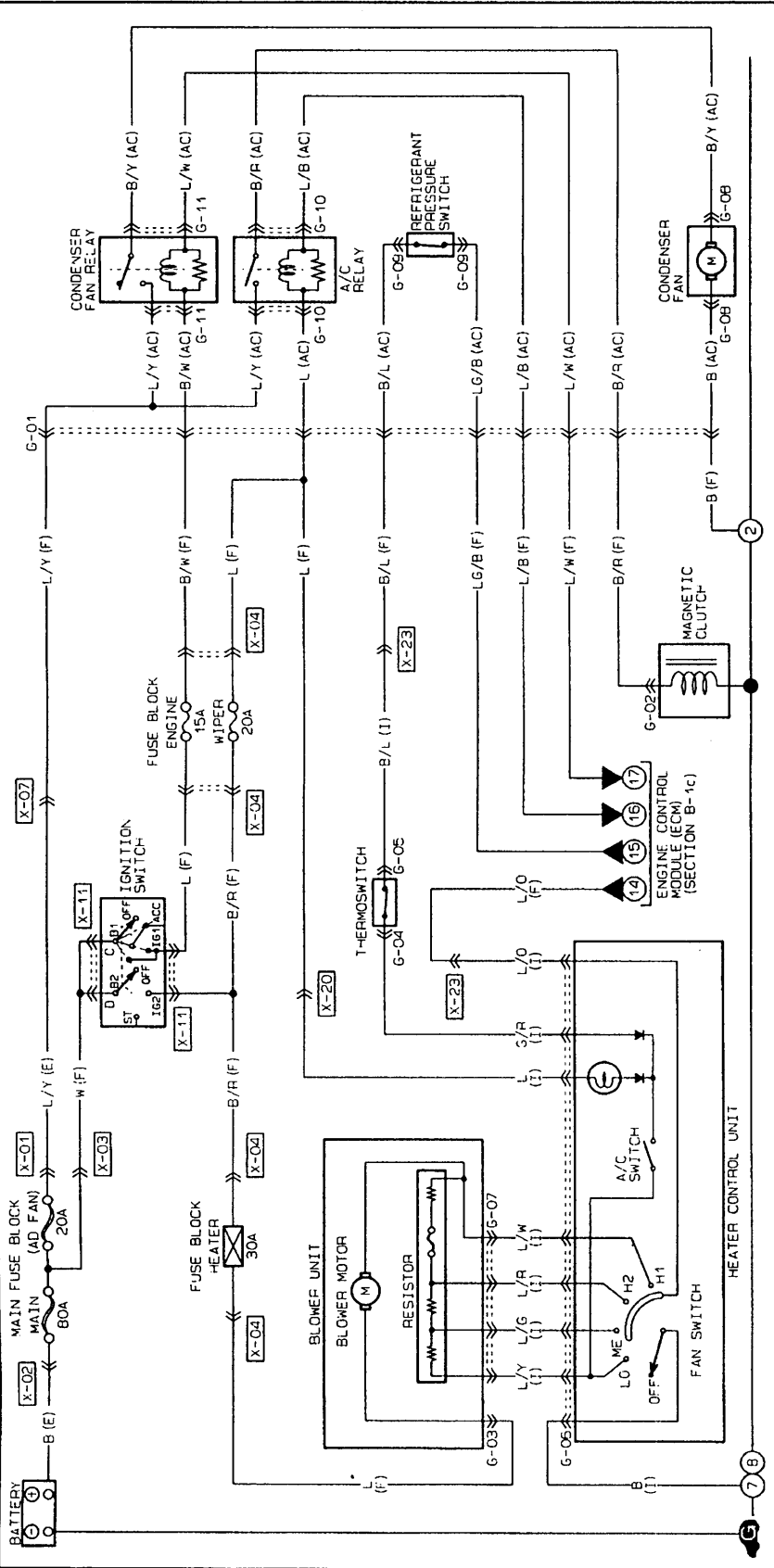
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TROUBLESHOOTING

CIRCUIT DIAGRAM

Z WIRING DIAGRAM

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TROUBLESHOOTING GUIDE

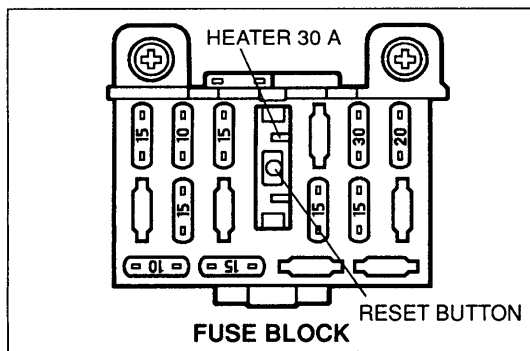
Symptom	Reference page
Blower motor does not operate	Below
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Symptom: Blower motor does not operate

Normal operation of blower motor

Blower motor speed is controlled by the fan switch and a resistor in the blower unit. When the fan switch is in the OFF position, the motor ground circuit is open and the blower motor does not operate. When the switch is in the first (Low) position, current flow from the blower motor is restricted by the three resistors in the resistor, and the blower motor turns at low speed.

Changing the fan switch to the second (Mid), third (High), or fourth (Super-high) position causes the circuit resistance to decrease, and the blower motor speed becomes correspondingly faster.

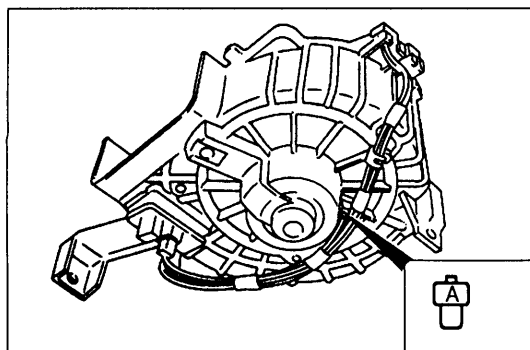


Step 1

1. Check the circuit breaker.

Circuit breaker	Amperage	Location
HEATER	30 A	Fuse block

2. If the reset button is not out, go to Step 2.
3. If the reset button is out, check for a short circuit in the harness. Repair as necessary; then depress the reset button to reset the circuit breaker.

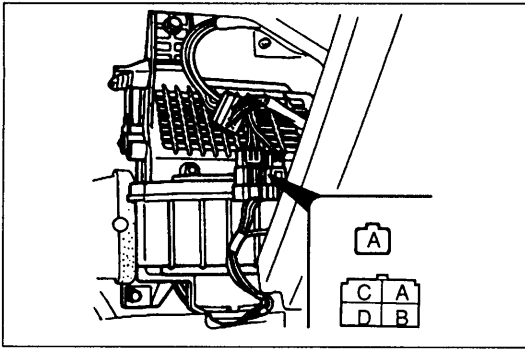


Step 2

1. Turn the ignition switch to ON.
2. Turn the fan switch to the fourth position.
3. Measure the voltage at the A terminal wire of the blower motor connector.

B+: Battery positive voltage

Voltage	Action
B+	Go to Step 3
Other	Repair wiring harness (Circuit breaker — Blower motor)

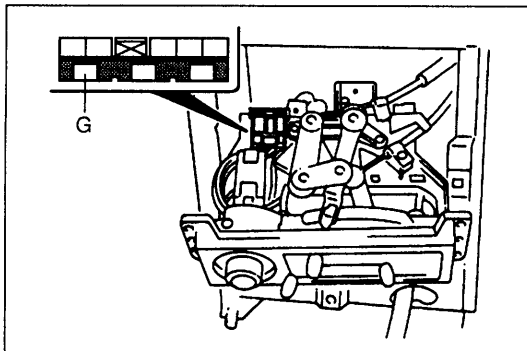


Step 3

1. Verify that the ignition switch is at ON.
2. Turn the fan switch off and verify that the A/C switch is off.
3. Measure the voltage at the terminal wires of the resistor.

B+: Battery positive voltage

Terminal	Voltage	Action
A (1-pin connector)	B+	Check terminal A
	Other	Replace blower motor
A	B+	Check terminal B
	Other	Replace resistor
B	B+	Check terminal C
	Other	Replace resistor
C	B+	Check terminal D
	Other	Replace resistor
D	B+	Go to Step 4
	Other	Replace resistor

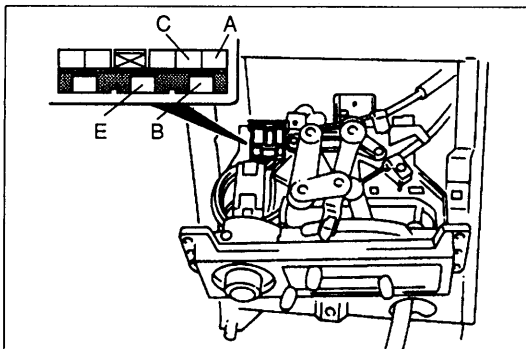


Step 4

1. Turn the ignition switch to ON.
2. Turn the fan switch to the fourth position.
3. Measure the voltage at the G terminal wire of the fan switch connector.

B+: Battery positive voltage

Voltage	Action
B+	Repair wiring harness (Fan switch — GND)
Other	Go to Step 5



Step 5

1. Verify that the ignition switch is at ON.
2. Turn the fan switch off and verify that the A/C switch is off.
3. Measure the voltage at the terminal wires of the fan switch connector.

B+: Battery positive voltage

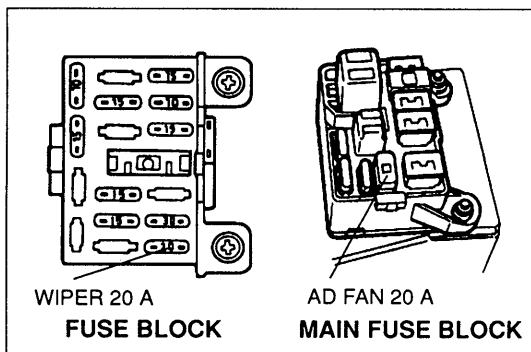
Terminal	Voltage	Action
B	B+	Check terminal E
	Other	Repair wiring harness (Resistor — Fan switch)
E	B+	Check terminal C
	Other	Repair wiring harness (Resistor — Fan switch)
C	B+	Check terminal A
	Other	Repair wiring harness (Resistor — Fan switch)
A	B+	Replace fan switch
	Other	Repair wiring harness (Resistor — Fan switch)

Symptom: Magnetic clutch does not operate

Normal operation of magnetic clutch

The ECM controls the operation of the condenser fan and magnetic clutch, depending on engine load. (Refer to section F.) The magnetic clutch is supplied with battery positive voltage as follows:

1. The A/C and fan switches are turned on.
2. The ECM receives a signal that the A/C and fan switches are on and creates a ground circuit.
3. The A/C relay is magnetized and the contact is closed.
4. Battery positive voltage is applied to the magnetic clutch and the clutch locks.

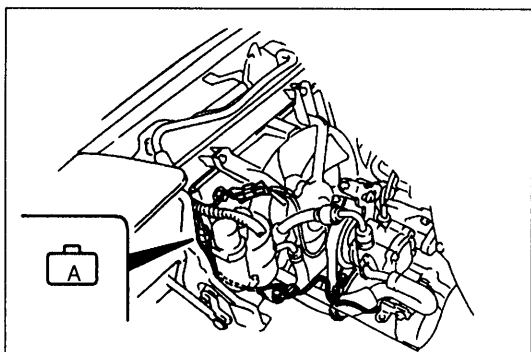


Step 1

1. Check the following fuses.

Fuse	Amperage	Location
WIPER	20 A	In fuse block
AD FAN	20 A	In main fuse block

2. If the fuses are OK, go to Step 2.
3. If a fuse is burned, check for a short circuit in the harness before replacing it.

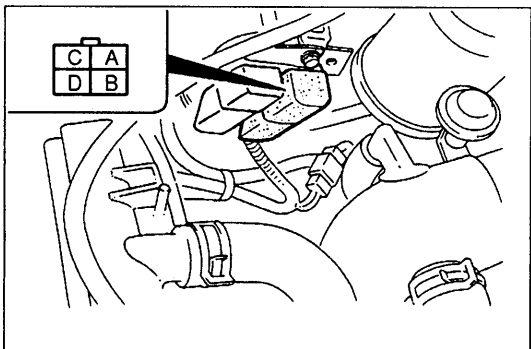


Step 2

1. Run the engine at idle.
2. Turn the A/C and fan switches on.
3. Measure the voltage at the A terminal wire of the magnetic clutch connector.

B+: Battery positive voltage

Voltage	Action
B+	Replace magnetic clutch
Other	Go to Step 3



Step 3

1. Verify that the engine is running.
2. Verify that the fan and A/C switches are on.
3. Measure the voltage at terminals of the A/C relay connector.

B+: Battery positive voltage

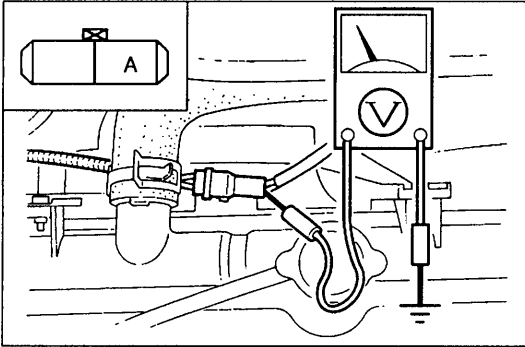
Terminal	Voltage	Action
C	B+	Check terminal A
	Other	Repair wiring harness (AD FAN 20 A fuse — A/C relay)
A	B+	Check terminal D
	Other	Repair wiring harness (WIPER 20 A fuse — A/C relay)
D	B+	Repair wiring harness (A/C relay — Magnetic clutch)
	Other	Check terminal B
B	0	Replace A/C relay
	Other	Check wiring harness (A/C relay — ECM) and ECM (Refer to section F)

Symptom: Condenser fan does not operate

Normal operation of condenser fan

The ECM controls the operation of the condenser fan and magnetic clutch, depending on engine load. (Refer to section F.) The condenser fan is supplied with battery positive voltage as follows:

1. The A/C and fan switches are turned on.
2. The ECM receives a signal that the A/C and fan switches are on and creates a ground circuit.
3. The condenser fan relay is magnetized and the contact is closed.
4. Battery positive voltage is applied to the condenser fan and the fan operates.

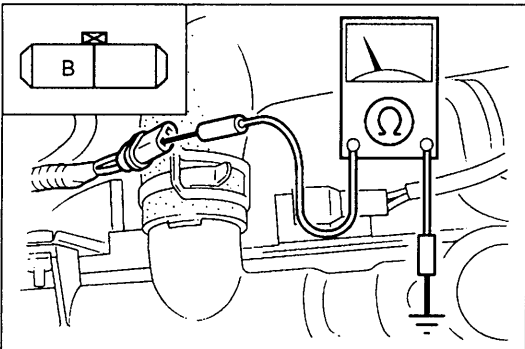


Step 1

1. Run the engine at idle.
2. Turn the A/C and fan switches on.
3. Measure the voltage at terminal A of the condenser fan connector.

B+: Battery positive voltage

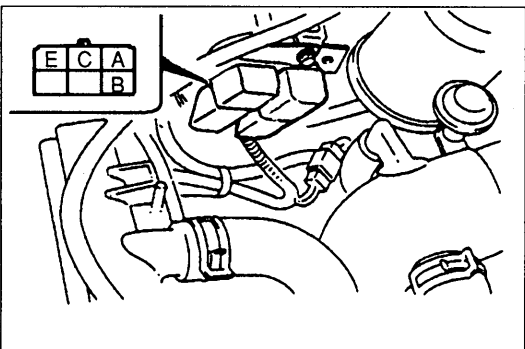
Voltage	Action
B+	Go to Step 2
Other	Go to Step 3



Step 2

1. Turn the ignition switch to LOCK.
2. Disconnect the condenser fan connector.
3. Check for continuity between terminal B of the condenser fan connector and ground.

Continuity	Action
Yes	Replace condenser fan
No	Repair wiring harness (Condenser fan — GND)



Step 3

1. Verify that the ignition, fan and A/C switches are on.
2. Measure the voltage at the terminals of the condenser fan relay.

B+: Battery positive voltage

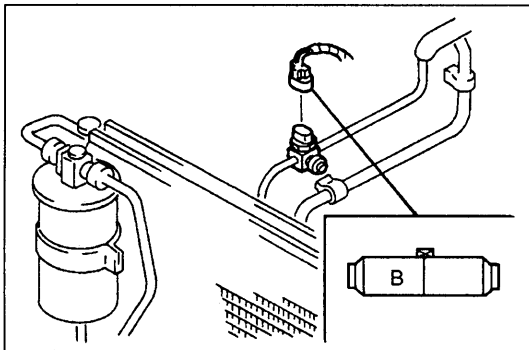
Terminal	Voltage	Action
A	B+	Check terminal E
	Other	Repair wiring harness (ENGINE 15 A fuse — Condenser fan relay)
E	B+	Check terminal C
	Other	Repair wiring harness (AD FAN 20 A fuse — Condenser fan relay)
C	B+	Repair wiring harness (Condenser fan relay — Condenser fan)
	Other	Check terminal B
B	B+	Check wiring harness (Condenser fan relay — ECM) and ECM (Refer to section F)
	Other	Replace condenser fan relay

Symptom: Magnetic clutch and condenser fan do not operate (A/C signal circuit malfunction)

Normal operation

The ECM controls the condenser fan and magnetic clutch depending on the A/C signal. When the A/C and fan switches are on, the A/C signal circuit is grounded. The ECM then closes the A/C and condenser fan relay ground circuits.

If the refrigerant pressure becomes abnormal, the refrigerant pressure switch will open the A/C signal circuit. If the evaporator temperature becomes too low, the thermostitch will open the A/C signal circuit. The ECM then cuts off the above two relays to prevent damage to the refrigerant system.

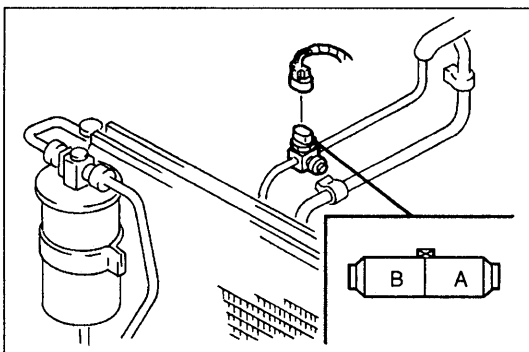


Step 1

1. Disconnect the refrigerant pressure switch connector.
2. Turn the ignition switch to ON.
3. Measure the voltage at terminal B of the refrigerant pressure switch connector.

B+: Battery positive voltage

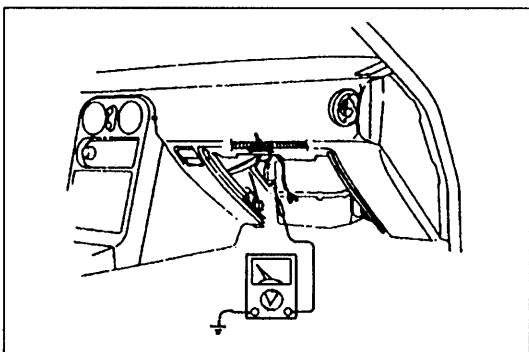
Voltage	Action
B+	Go to Step 2
Other	Repair wiring harness (ECM — Refrigerant pressure switch)



Step 2

1. Turn the ignition switch to LOCK.
2. Verify that the refrigerant pressure is in normal range. (Refer to page U-36.)
3. Check for continuity between terminals of the refrigerant pressure switch.

Continuity	Action
Yes	Reconnect refrigerant pressure switch connector and go to step 3
No	Replace cooler pipe with refrigerant pressure switch (Refer to page U-34)

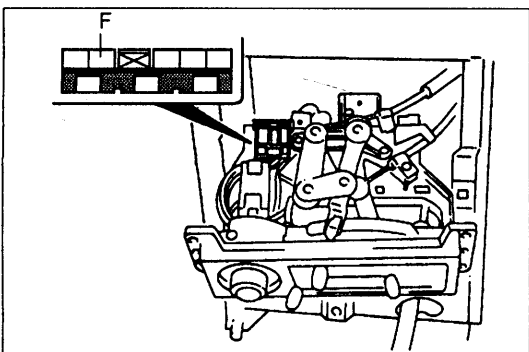


Step 3

1. Turn the ignition switch to ON.
2. Measure the voltage at the terminal wires of the thermostat connector.

B+: Battery positive voltage

Terminal	Voltage	Action
(B/L)	B+	Measure voltage at (G/R) wire
	Other	Repair wiring harness (Refrigerant pressure switch — Thermostitch)
(G/R)	B+	Go to Step 4
	Other	Replace thermostitch (Refer to page U-31)



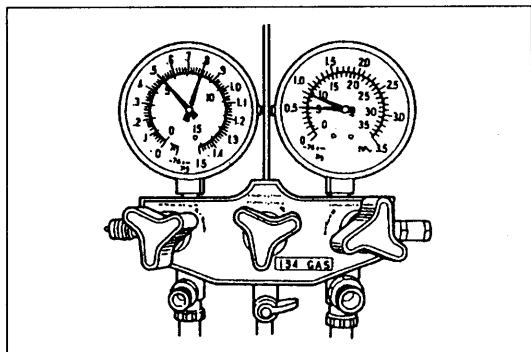
Step 4

1. Turn the fan switch on.
2. Measure the voltage at terminal F of the heater control unit connector while operating the A/C switch

B+: Battery positive voltage

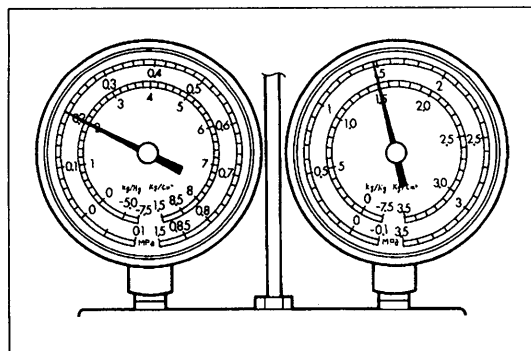
A/C switch	Voltage	Action
Off	B+	Measure voltage with A/C switch on
	Other	Repair wiring harness (Thermostitch — Heater control unit)
On	0 V	Inspect ECM (Refer to section F)
	Other	Replace fan switch (Refer to page U-21)

Symptom: Insufficient cooling
No cooling
Intermittent cooling



Step 1 Checking refrigerant charge

1. Install the manifold gauge set. (Refer to page U-25.)
2. Check the refrigerant pressure reading with the engine stopped.
3. Verify that the high- and low-pressure-side readings of the manifold gauge are at 493—788 kPa { 5.02—8.04 kgf/cm² , 72—114 psi }. If the pressure readings are lower than specified, recharge the refrigerant amount. (Refer to page U-25.) If the pressure readings are within specification but there is insufficient cooling, go to the next step. If the pressure readings are within specification and there are no leaks, the refrigerant amount is OK.
4. Start the engine and run it at a constant 2,000 rpm.
5. Turn the A/C switch on, set the fan switch at 4, and set the air intake mode at recirculate.
6. If the A/C compressor is short-cycling, note the low-pressure-side reading at which the magnetic clutch kicks out.
7. If the pressure is 170 kPa { 1.7 kgf/cm² , 24 psi } or lower, evacuate and recharge the refrigerant system with the proper amount of refrigerant. (Refer to page U-25.) If the pressure is 210 kPa { 2.1 kgf/cm² , 30 psi } or higher, inspect the thermostwitch. (Refer to page U-31.)



Step 2 Checking refrigerant pressure

1. Install the manifold gauge set.
2. Operate the engine at 1,500 rpm.
3. Turn the A/C switch on, set the fan switch at 4, and set the air intake mode at recirculate.
4. Measure the refrigerant pressure.

Normal pressure

Low-pressure side: 0.15—0.24 MPa

{ 1.5—2.5 kgf/cm² , 22—35 psi }

High-pressure side: 1.38—1.56 MPa

{ 14.0—16.0 kgf/cm² , 200—227 psi }

5. If the pressures are not as specified, refer to the chart on the next page and check the system.

Case 1: Insufficient refrigerant**Measured pressure**

Low-pressure side: 0.05—0.09 MPa { 0.5—1.0 kgf/cm², 8—14 psi }

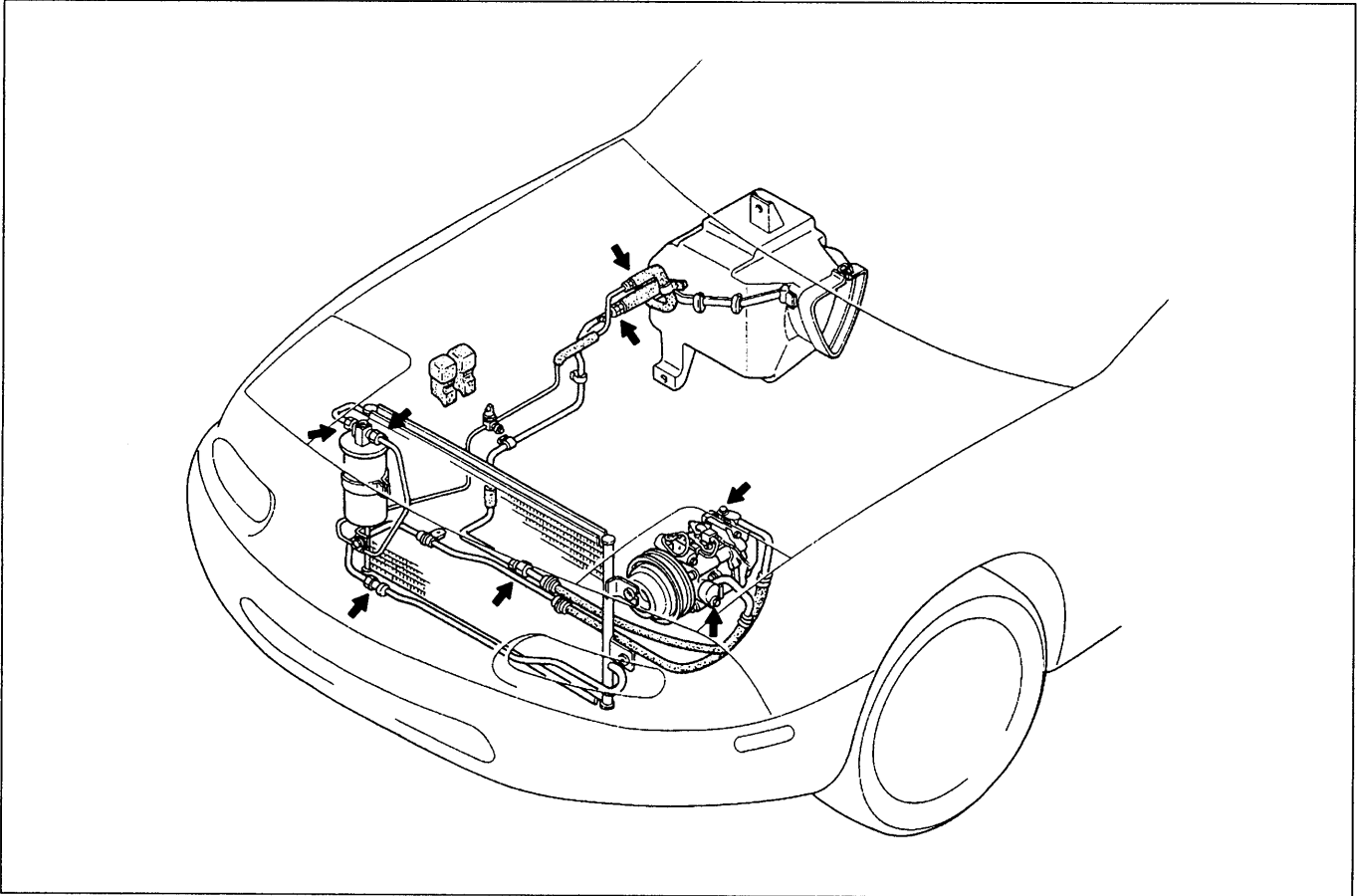
High-pressure side: 0.69—0.98 MPa { 7.0—10.0 kgf/cm², 100—142 psi }

Condition

- Outlet air from vents not cold.
- Bubbles seen in sight glass.

Step 1

1. Check for oil stains on the pipes, hoses and other parts. (Refer to illustration below.)
2. If oil staining is found at the connection of pipes or hoses, replace the O-ring; then evacuate, charge, and test the system.
3. If oil staining is not found, go to Step 2.

**Step 2**

1. Check for leakage from the following connections with a gas leak tester.
 - Inlet and outlet of condenser.
 - Inlet and outlet of receiver/drier.
 - Inlet and outlet of A/C compressor.
 - Inlet and outlet of cooling unit.
2. If leakage is evident, go to Step 3.
3. If leakage cannot be found, evacuate, charge, and test the system. (System is OK, but refrigerant leaked gradually over time.)

Step 3

1. Check tightening torque of the connection where leak was detected.
2. If the connection is loose, tighten the connection to the specified torque; then evacuate, charge, and test system.
3. If the connection is properly tightened, replace the O-ring; then evacuate, charge, and test the system.

Case 2: Excessive refrigerant or insufficient condenser cooling**Measured pressure**

Low-pressure side: 0.25—0.34 MPa { 2.5—3.5 kgf/cm² , 36—49 psi }

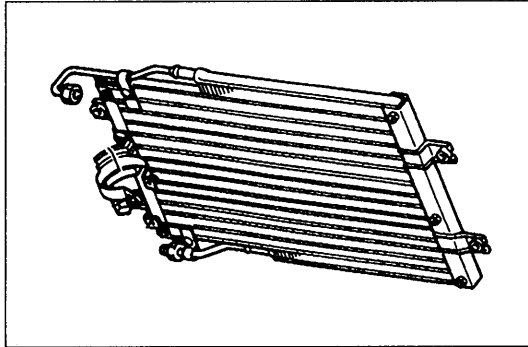
High-pressure side: 1.97—2.45 MPa { 20.0—25.0 kgf/cm² , 285—355 psi }

Condition

Outlet air from vents not cold.

Note

- If the condenser fan does not operate when the air conditioner is operating, see "Condenser fan does not operate"; page U-8, before proceeding.

**Step 1**

1. Make sure the condenser fan operates when the air conditioner is operating. If it does not operate, troubleshoot the condenser fan circuit (page U-8) before proceeding.
2. Check the condenser for bent fins or damage. Repair or replace if necessary.
3. If the condenser is OK, go to Step 2.

Step 2

Verify that the refrigerant pressure is normal.

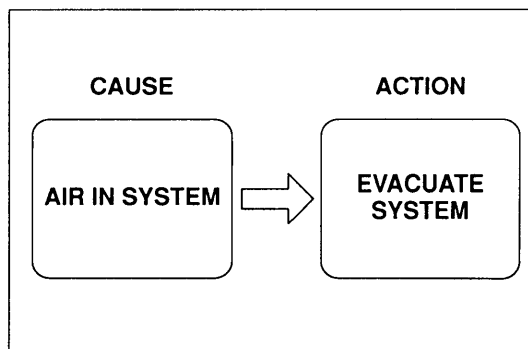
Case 3: Air in system**Measured pressure**

Low-pressure side: 0.25—0.29 MPa { 2.5—3.0 kgf/cm² , 36—42 psi }

High-pressure side: 1.97—2.45 MPa { 20.0—25.0 kgf/cm² , 285—355 psi }

Condition

Insufficient cooling.

**Step 1**

Discharge the refrigerant system.

Step 2

Evacuate the system to remove all air from it.
(Refer to page U-25.)

Step 3

Charge the system with refrigerant.
(Refer to page U-25.)

Step 4

After charging, measure the refrigerant pressure.
(Refer to page U-28.)

Step 5

If low- and high-pressure sides are still too high, replace the receiver/drier.

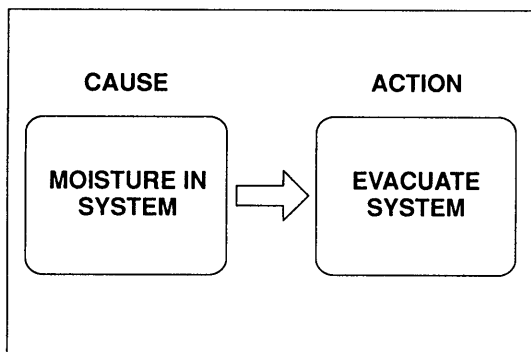
Case 4: Moisture in system**Measured pressure**

Low-pressure side: Vacuum

High-pressure side: 0.69—0.98 MPa { 7.0—10.0 kgf/cm² , 100—142 psi }**Condition**

Insufficient cooling.

(Moisture in refrigerant system freezes in expansion valve and causes temporary blocking.
After time, ice melts and condition returns to normal.)

**Step 1**

Discharge the refrigerant system.

Step 2

Evacuate the system to remove all air and moisture from it. (Refer to page U-25.)

Step 3

Charge the system with refrigerant. (Refer to page U-25.)

Step 4

After charging, measure the refrigerant pressure. (Refer to page U-28.)

Step 5

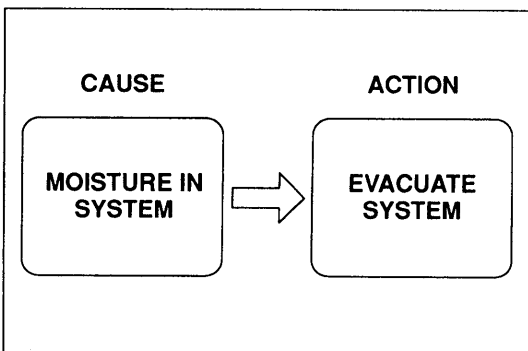
If low- and high-pressure sides are still too low, replace the receiver/drier.

Case 5: No refrigerant circulation**Measured pressure**

Low-pressure side: Vacuum

High-pressure side: 0.50—0.58 MPa { 5.0—6.0 kgf/cm² , 72—85 psi }**Condition**

Refrigerant flow obstructed by moisture or dirt, causing freezing or blockage of expansion valve.

**Step 1**

Turn off the air conditioner for about 10 minutes. Turn on the air conditioner to determine whether the blockage is due to moisture or dirt.

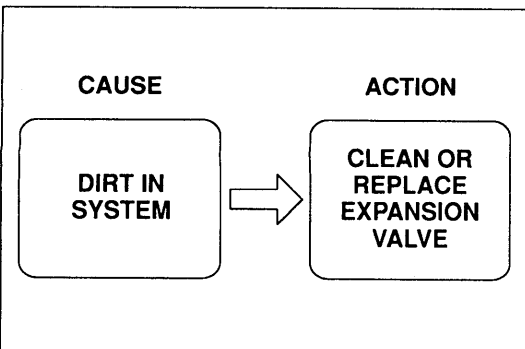
a) If caused by moisture

System will operate normally after being off for 10 minutes. (Ice melts and relieves blockage.)

Refer to "Moisture in system"; page U-13.

b) If caused by dirt

System remains abnormal after being off for 10 minutes. Go to Step 2.

**Step 2**

1. Remove the expansion valve. (Refer to page U-30.)
2. Blow out the dirt with compressed air.
3. If unable to remove the dirt, replace the expansion valve.
4. Evacuate, charge, and test the system.

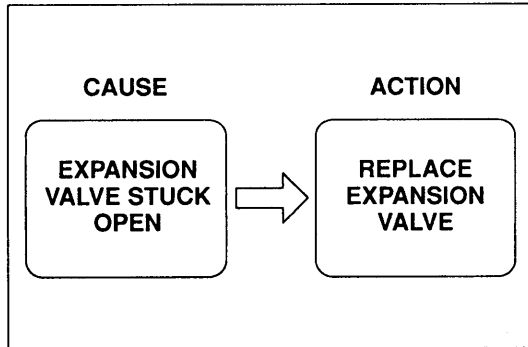
Case 6: Expansion valve stuck open**Measured pressure**

Low-pressure side: 0.30—0.39 MPa { 3.0—4.0 kgf/cm² , 43—56 psi }

High-pressure side: 1.97—2.45 MPa { 20.0—25.0 kgf/cm² , 285—355 psi }

Condition

Insufficient cooling.

**Remedy**

1. Check whether there is frost or heavy dew on the cooler hose (Lo) (between cooling unit and A/C compressor).
2. If neither is found, refer to "Excessive refrigerant or insufficient condenser cooling"; page U-12.
3. If either is found, replace the expansion valve. (Refer to page U-30.)

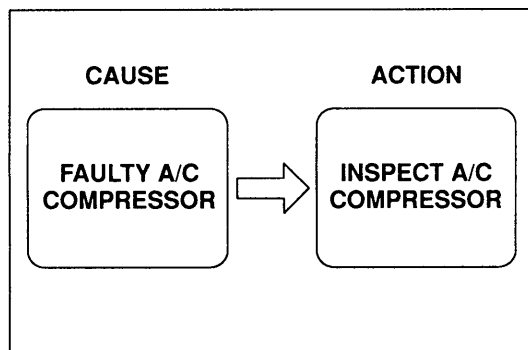
Case 7: Faulty A/C compressor**Measured pressure**

Low-pressure side: 0.4—0.5 MPa { 4.0—6.0 kgf/cm² , 57—85 psi }

High-pressure side: 0.69—0.98 MPa { 7.0—10.0 kgf/cm² , 100—142 psi }

Condition

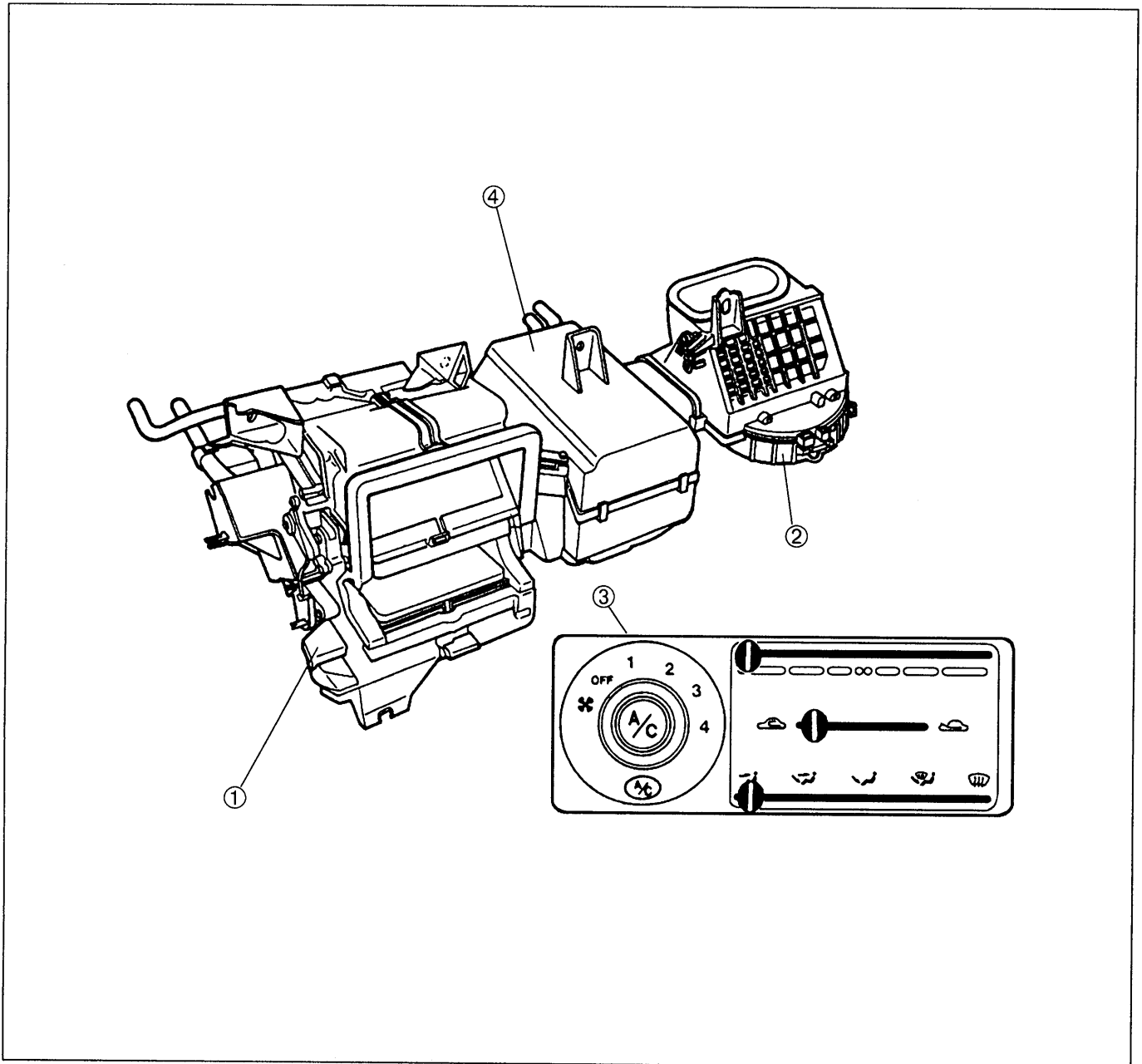
No cooling.

**Remedy**

1. Run the engine at a fast idle.
2. Verify that the magnetic clutch is on when the A/C and fan switches are on.
3. If the magnetic clutch remains off, refer to "Magnetic clutch does not operate"; page U-7.
4. If the magnetic clutch operates normally, inspect the A/C compressor body.

HEATER

STRUCTURAL VIEW



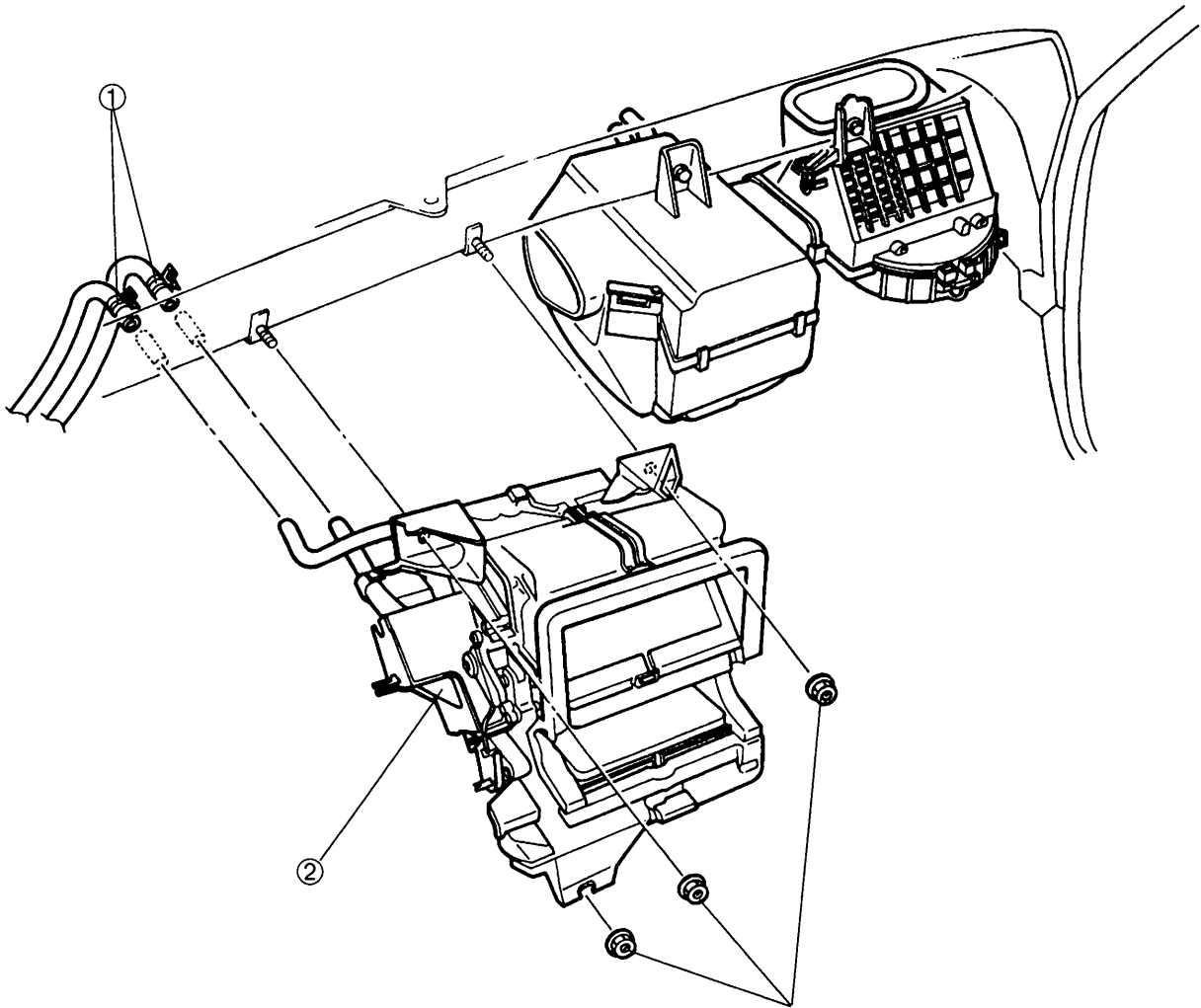
- | | |
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 Disassembly / Assembly page U-19
 Inspection page U-19</p> | <p>4. Cooling unit
 Removal / Installation page U-29
 Disassembly / Assembly page U-30</p> |

Note

- Even in vehicles not equipped with A/C, there is a cooling unit. If it is necessary to remove this unit to service the heater, then be sure to reinstall the cooling unit into its original position after servicing is complete.

HEATER UNIT**Removal / Installation**

1. Remove the dashboard. (Refer to section S.)
2. Unlock the seal plate and slide the seal plate toward the heater unit.
3. Remove the heater unit as shown in the figure.
4. Install in the reverse order of removal.

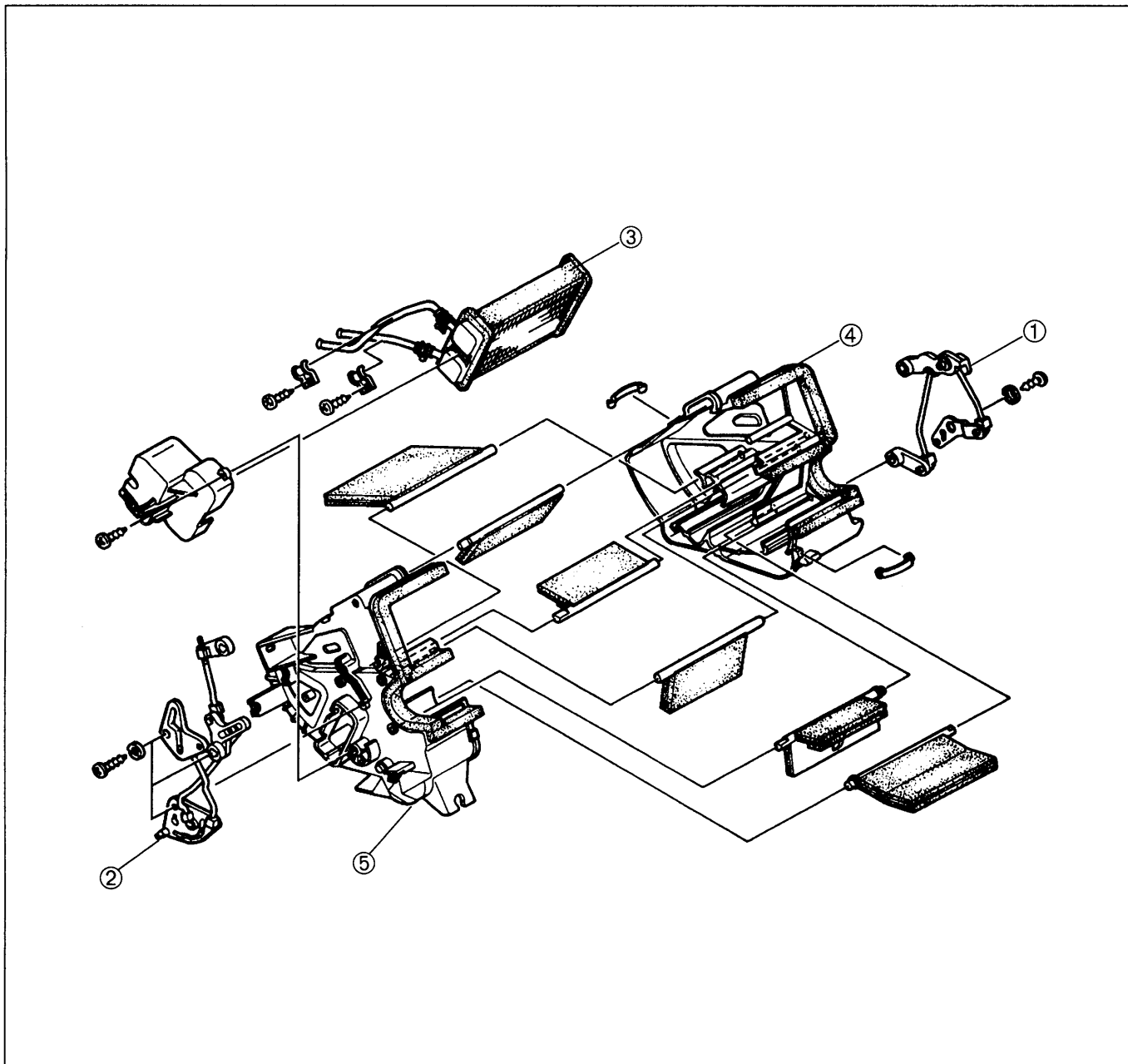


1. Heater hose

2. Heater unit

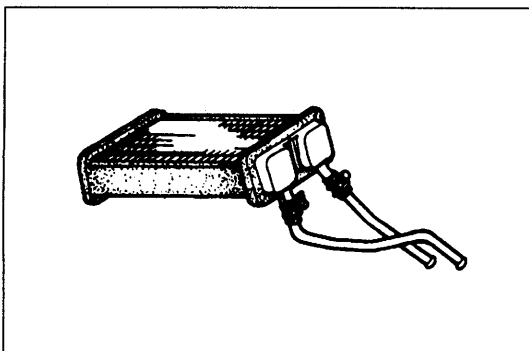
Disassembly / Assembly

Disassemble and assemble as shown in the figure.



- 1. Air mix link
- 2. Airflow mode link
- 3. Heater core

- 4. Case (RH)
- 5. Case (LH)

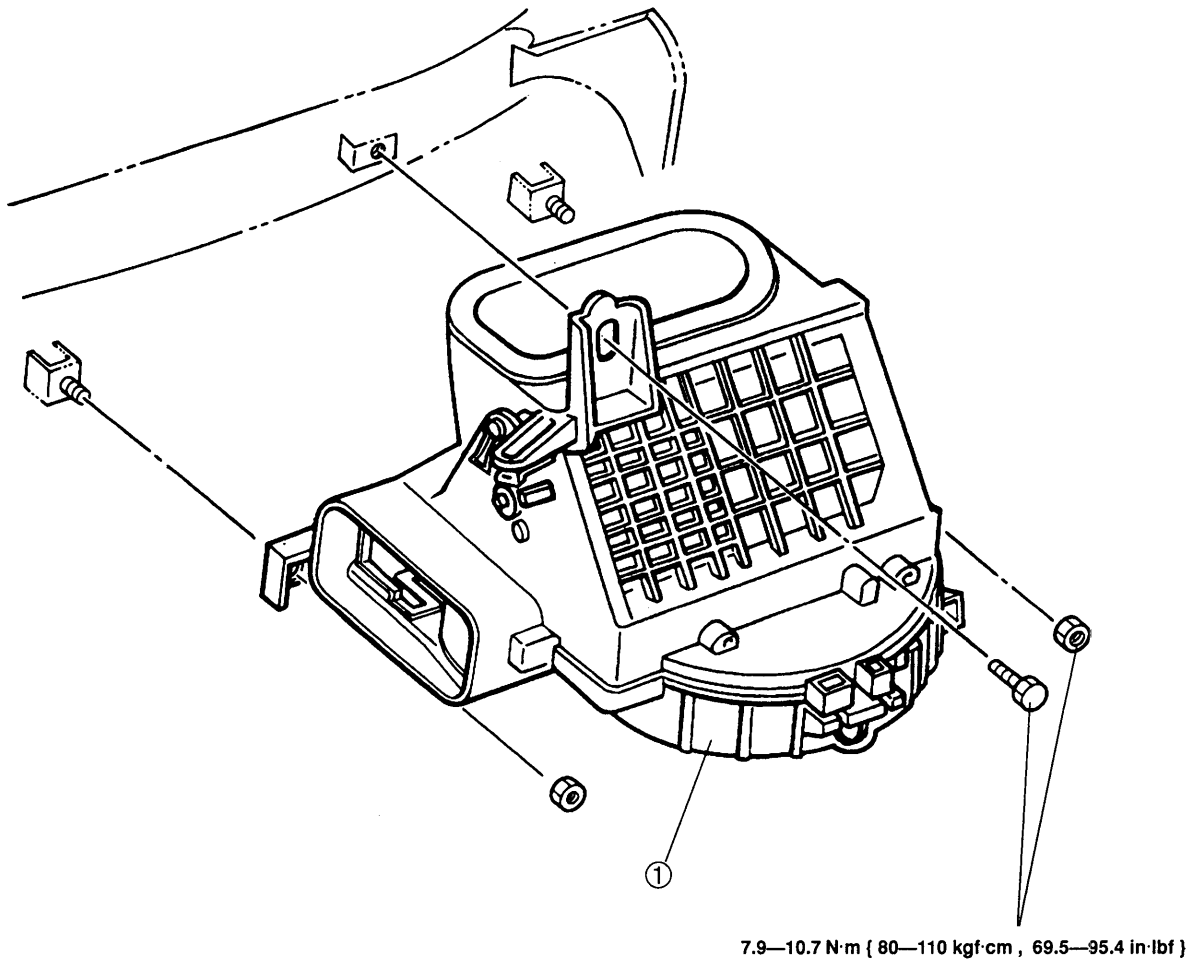


Inspection Heater core

- 1. Check the heater core fins for blockage.
- 2. If the fins are clogged, clean them.
- 3. Check the fittings for cracks or other damage. Replace the heater core if necessary.

BLOWER UNIT**Removal / Installation**

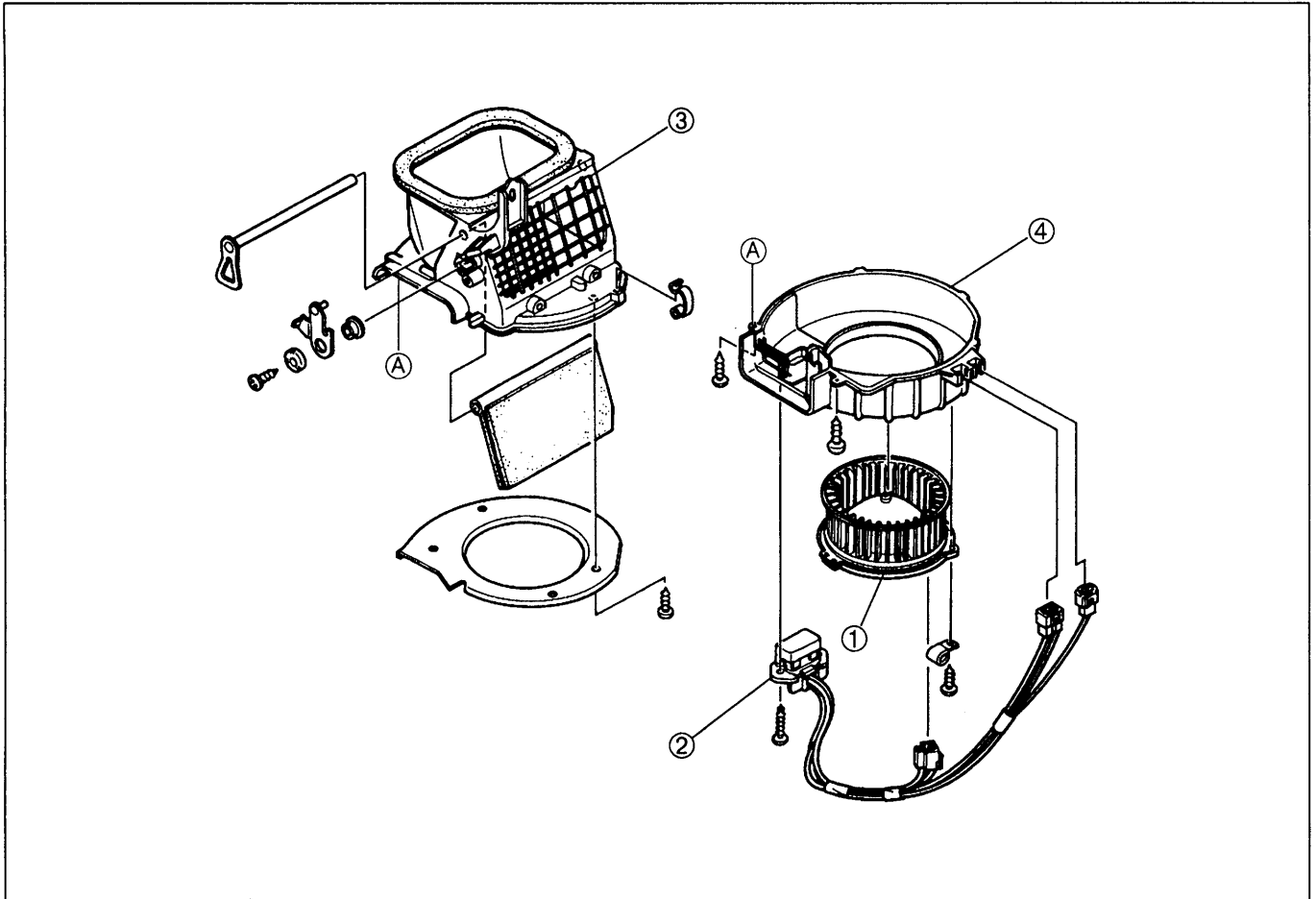
1. Remove the glove compartment. (Refer to section S.)
2. Remove the seal plate.
3. Remove the blower unit as shown in the figure.
4. Install in the reverse order of removal.



1. Blower unit

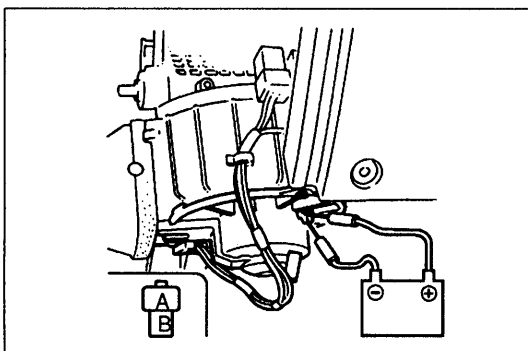
Disassembly / Assembly

Disassemble and assemble as shown in the figure.



- 1. Blower motor
- 2. Resistor

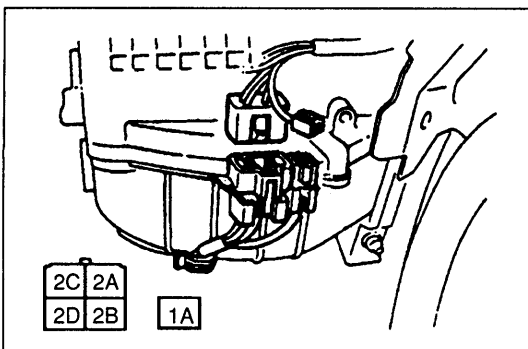
- 3. Case (Upper)
- 4. Case (Lower)



Inspection

Blower motor

1. Verify that the blower motor runs when connecting battery positive voltage to terminal A and ground to terminal B.
2. If the blower motor does not run, replace it.



Resistor

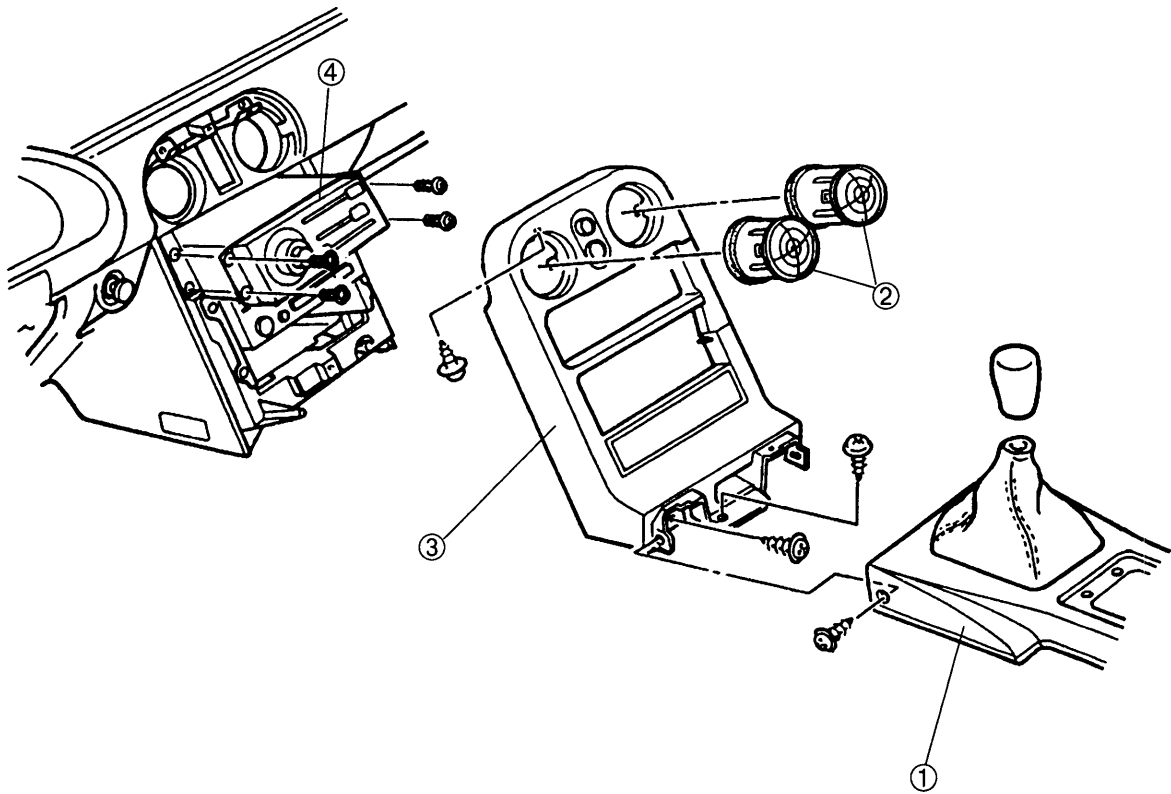
1. Check for continuity between the terminals of the resistor.

Terminals	Continuity
1A — 2A	Yes
1A — 2B	Yes
1A — 2C	Yes
1A — 2D	Yes

2. If not as specified, replace the resistor.

HEATER CONTROL UNIT**Removal / Installation**

1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.

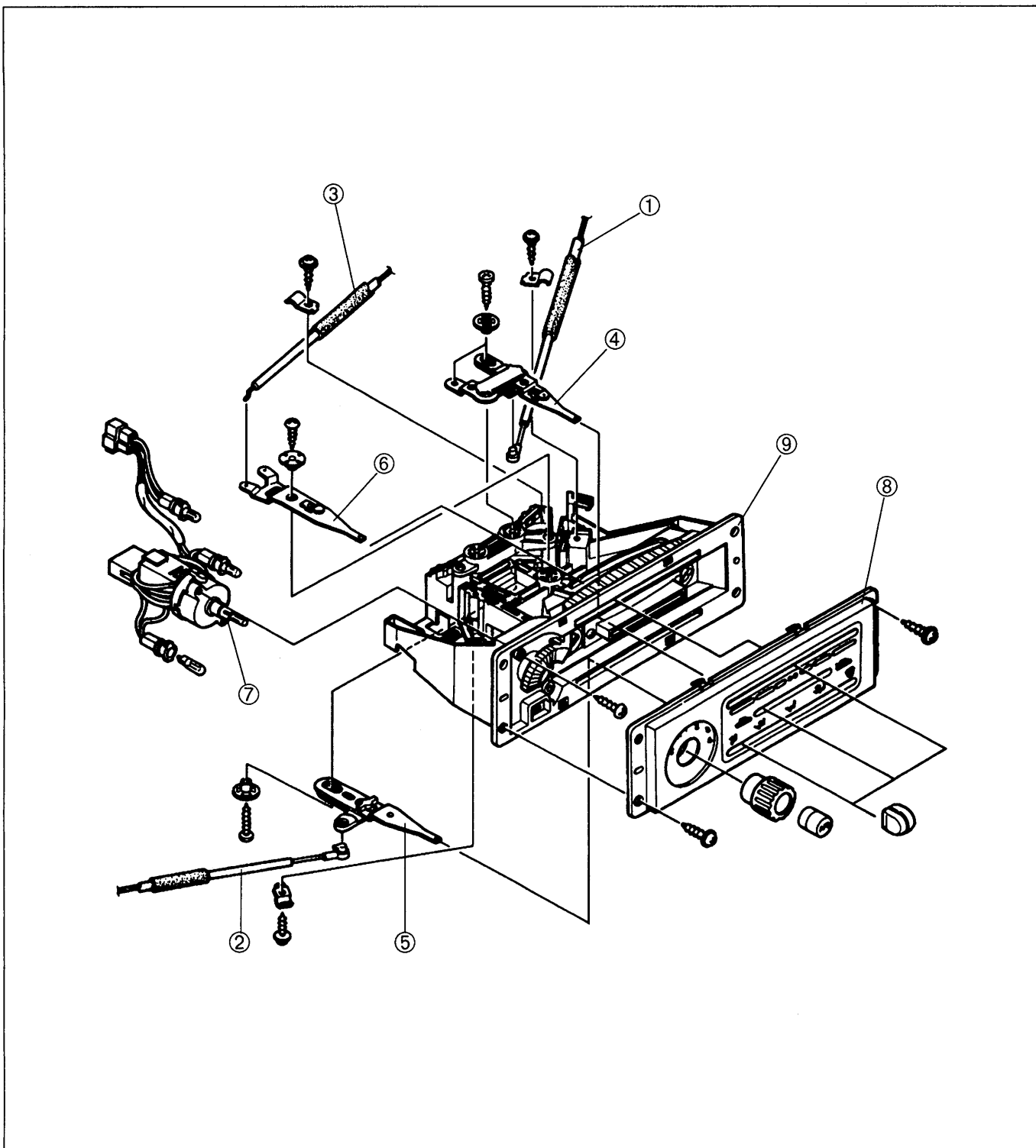


1. Center console
2. Vent outlet

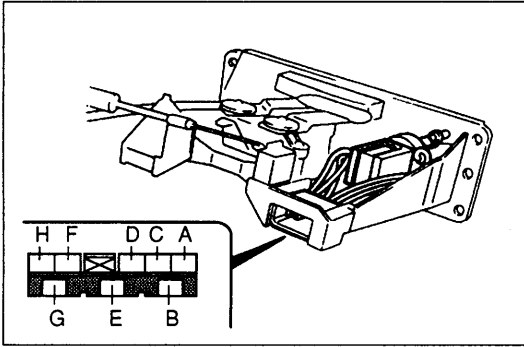
3. Center panel assembly
4. Heater control unit

Disassembly / Assembly

1. Disassemble in the order shown in the figure.
2. Assemble in the reverse order of disassembly.



- | | |
|--|--|
| 1. Air intake wire
Adjustment page U-22 | 5. Mode lever |
| 2. Airflow mode wire
Adjustment page U-22 | 6. Temperature control lever |
| 3. Air mix wire
Adjustment page U-22 | 7. Fan switch and A/C switch
Inspection page U-22 |
| 4. REC/FRESH lever | 8. Panel |
| | 9. Switch body |



Inspection

1. Check for continuity between the terminals of the switch.

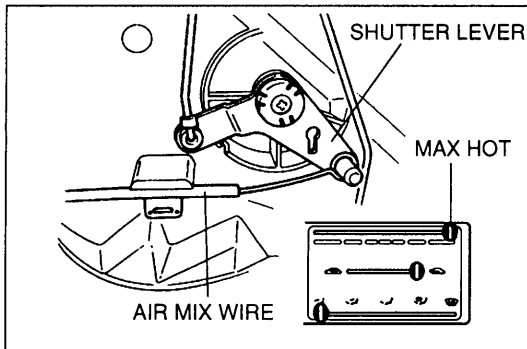
Position		Terminal							
		A	B	C	D	E	F	G	H
Fan switch	OFF								
	First	○						○	
	Second			○				○	○
	Third					○		○	○
	Fourth		○					○	○
A/C switch	OFF								
	ON	○	○	○	○	○	○		

2. If not as specified, replace the switch.

Adjustment

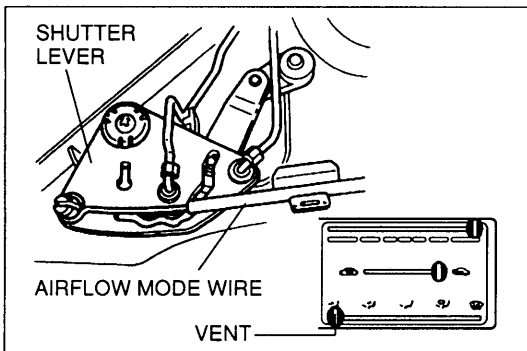
Air mix wire

1. Set the temperature control lever to MAX HOT.
2. Connect and clamp the wire with the shutter lever on the heater unit all the way to the right.
3. Move the temperature control lever to make sure the wire is securely attached and that it moves fully from HOT to COLD.



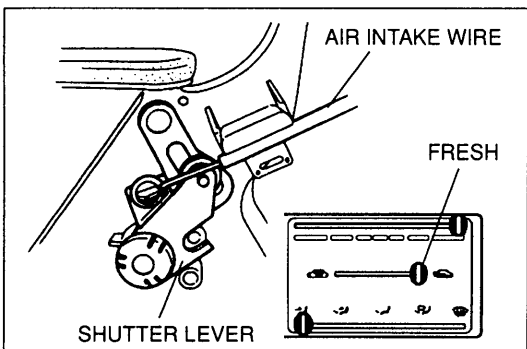
Airflow mode wire

1. Set the mode lever to VENT.
2. Connect and clamp the wire with the shutter lever on the heater unit at its closest point.
3. Move the mode lever to make sure the wire is securely attached and that it moves fully from DEF to VENT.



REC/FRESH wire

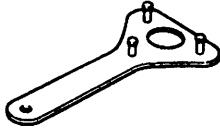

1. Set the REC/FRESH lever to FRESH.
2. Connect and clamp the wire with the shutter lever on the blower unit at its closest point.
3. Move the REC/FRESH lever to make sure the wire is securely attached and that it moves fully from REC to FRESH.



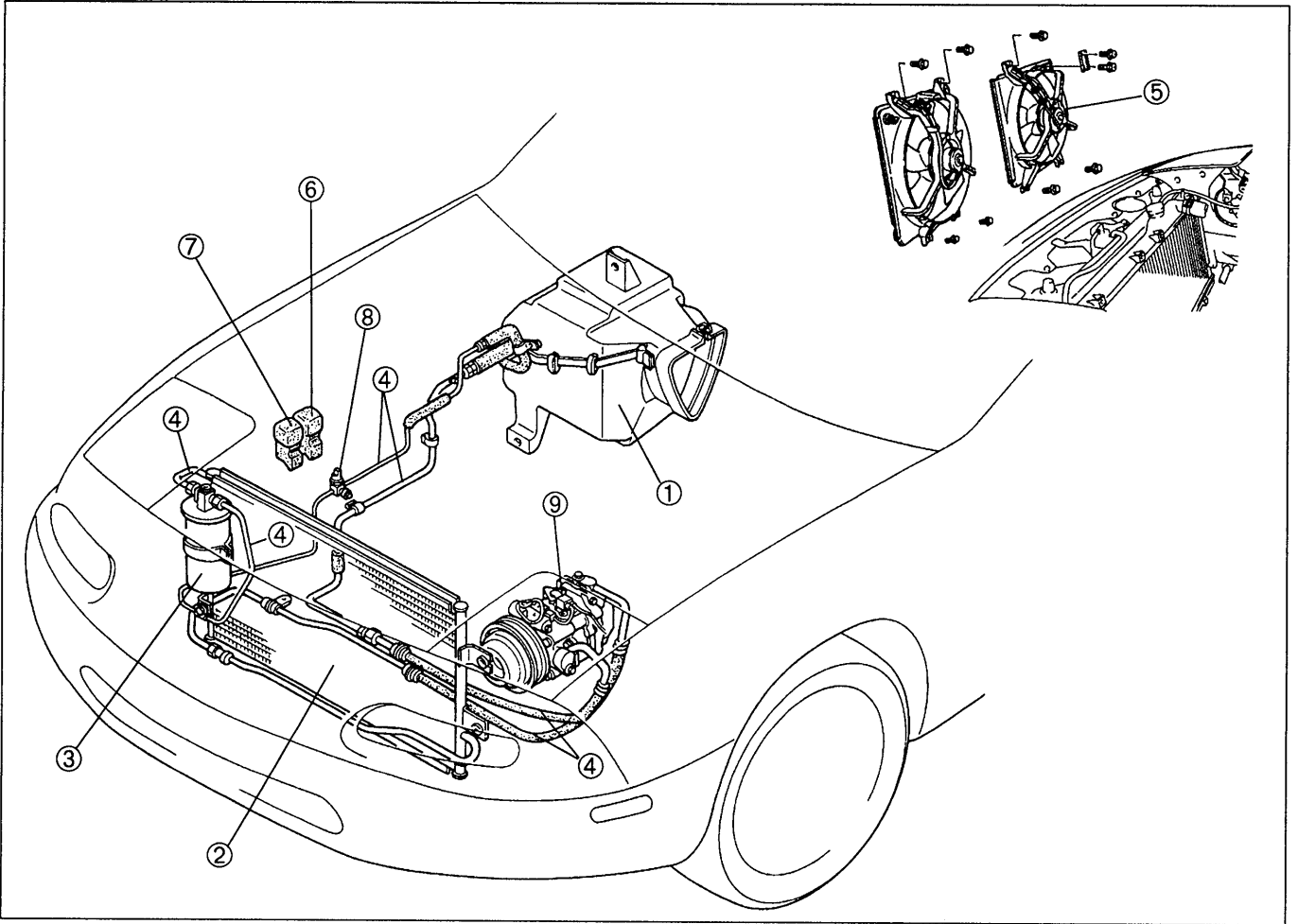
AIR CONDITIONER

PREPARATION

SST

00007-10331		For removal and installation of magnetic clutch	4992-02-020		For removal of pressure plate
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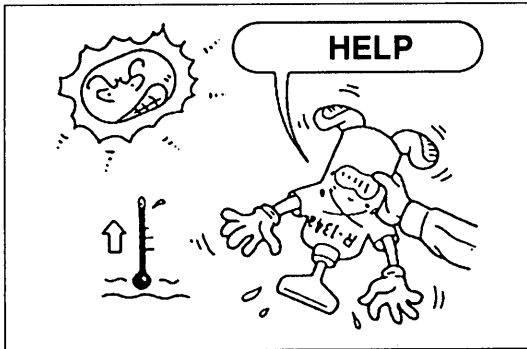
STRUCTURAL VIEW



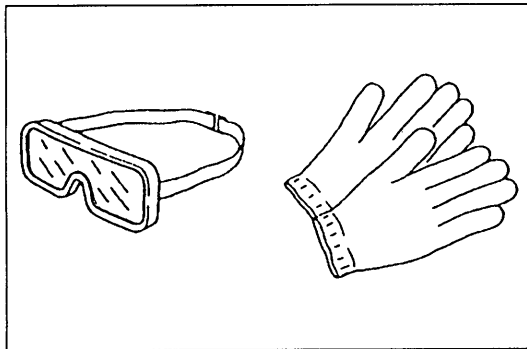
- | | |
|---|--|
| <p>1. Cooling unit
 Removal / Installation page U-29
 Disassembly / Assembly page U-30
 On-vehicle inspection page U-31
 Inspection page U-31</p> | <p>5. Condenser fan
 Removal / Installation page U-35
 Inspection page U-35</p> |
| <p>2. Condenser
 Removal / Installation page U-32
 On-vehicle inspection page U-33</p> | <p>6. A/C relay
 Inspection page U-36</p> |
| <p>3. Receiver/drier
 Removal / Installation page U-32
 On-vehicle inspection page U-33</p> | <p>7. Condenser fan relay
 Inspection page U-36</p> |
| <p>4. Refrigerant lines
 On-vehicle inspection page U-34
 Replacement page U-34</p> | <p>8. Refrigerant pressure switch
 Inspection page U-36</p> <p>9. A/C compressor
 Removal / Installation page U-37
 Disassembly / Assembly page U-38
 Adjustment page U-45
 Inspection page U-46</p> |

SERVICE WARNINGS**Using/Handling Unapproved Refrigerant**

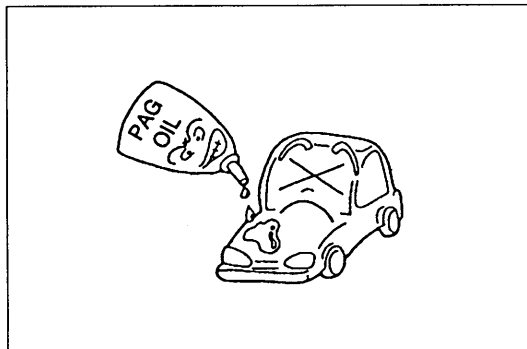
- Using a flammable refrigerant, such as OZ-12, in this vehicle is dangerous. In an accident, the refrigerant may catch fire, resulting in serious injury or death. When servicing this vehicle, use only R-134a.
- Checking for system leaks on a vehicle that has been serviced with flammable refrigerant, such as OZ-12, is dangerous. Conventional leak detectors use an electronically generated arc which can ignite the refrigerant, causing serious injury or death. If a flammable refrigerant has been used to service the system, or if you suspect a flammable refrigerant may have been used, contact the local fire marshall or EPA office for information on handling the refrigerant.

**Storing Refrigerant**

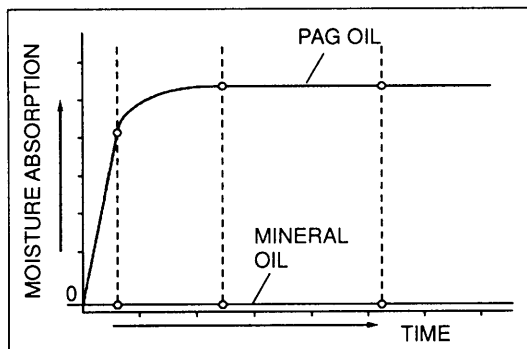
- The refrigerant container is highly pressurized. If it is subjected to high heat, it could explode, scattering metal fragments and liquid refrigerant that can seriously injure you. Store the refrigerant at temperatures below 40 °C { 104 °F }.

**Handling Refrigerant**

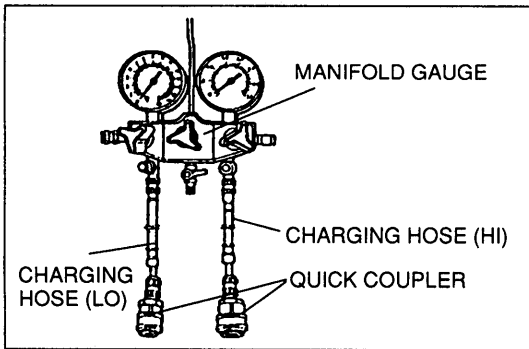
- Handling liquid refrigerant is dangerous. A drop of it on the skin can result in localized frostbite. When handling the refrigerant, wear gloves and safety goggles. If refrigerant splashes into the eyes, immediately wash them with clean water and consult a doctor.

**SERVICE CAUTIONS****Compressor oil (ND-OIL9)**

- Do not spill compressor oil on the vehicle. A drop of compressor oil on the vehicle surface can eat away at the paint. If oil gets on the vehicle, wipe it off immediately.



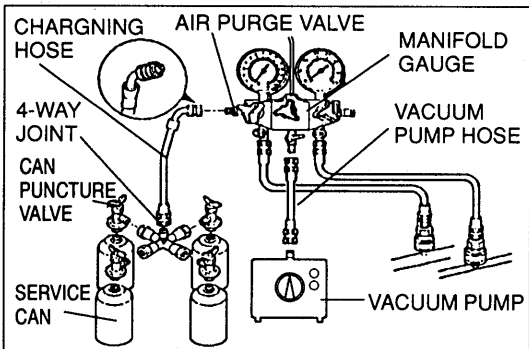
- PAG compressor oil has a higher moisture absorption efficiency than the previously used mineral oil. If moisture mixes with the compressor oil, the refrigerant system could be damaged. Therefore, install caps immediately after using the compressor oil or removing refrigerant system parts to prevent moisture absorption.



REFRIGERANT SYSTEM SERVICE PROCEDURE

Manifold Gauge Set Installation

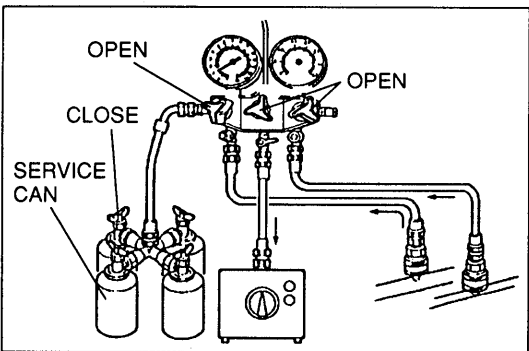
1. Fully close the valves of the manifold gauge.
2. Connect charging hoses to the high and low-pressure side joints of the manifold gauge set.
3. Connect quick couplers to the ends of the charging hoses.
4. Remove the caps from the charging valves of the high and low-pressure-side cooler pipes.
5. Connect the quick couplers to the charging valves of the cooler pipes.



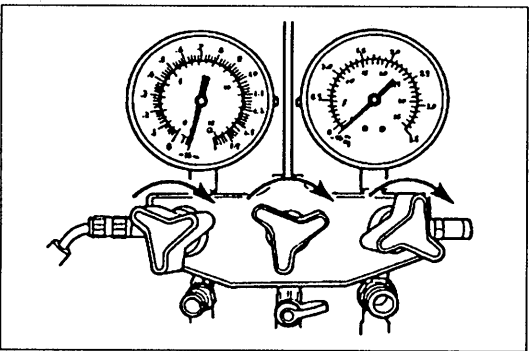
Charging

1. Install the manifold gauge set.
2. Connect the tap pin side of the charging hose to the air purge valve of the gauge set.
3. Connect the vacuum pump hose to the center joint of the gauge set.
4. Connect the vacuum pump hose to the vacuum pump.
5. Connect can puncture valves to 4-way joint.
6. Fully open the can puncture valves and connect service cans to the valves.

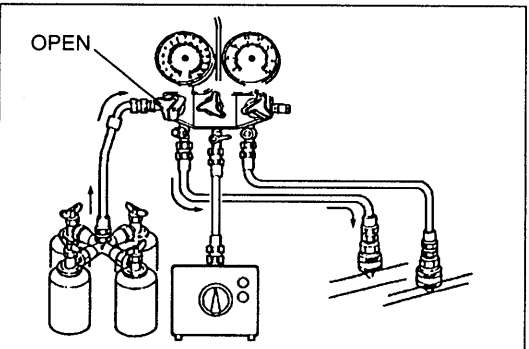
Regular amount of refrigerant: 600 g { 21.2 oz }



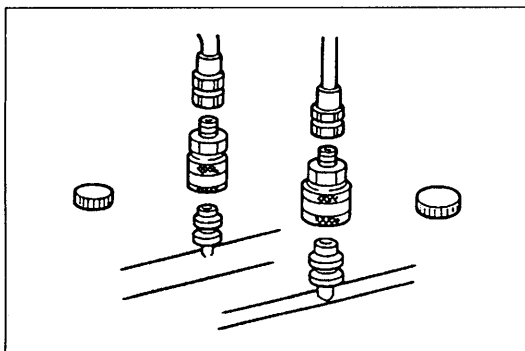
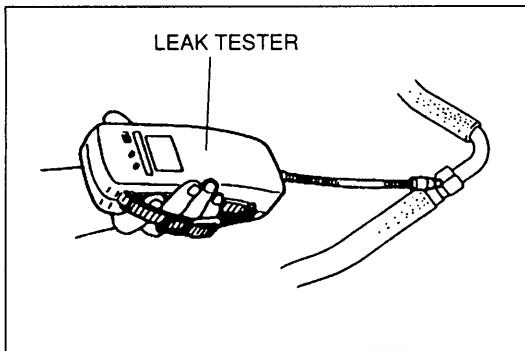
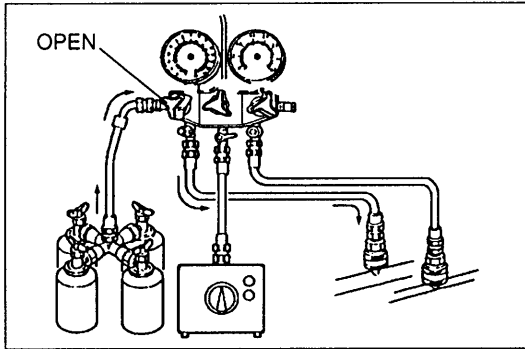
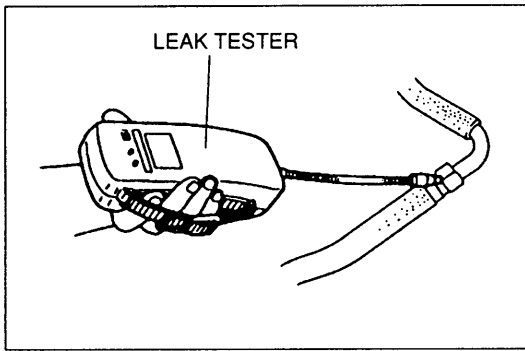
7. Fully close any can puncture valve that is not connected to a service can.
8. Connect the 4-way joint to the charging hose that is connected to the gauge set air purge valve.
9. Open all the valves of the manifold gauge set.
10. Start the vacuum pump and let it operate for 15 minutes.



11. After 15 minutes, verify that the high and low-pressure-side readings of the manifold gauge set are at -101 kPa { -760 mmHg , -29.9 inHg }. Close each valve of the gauge set.
12. Stop the vacuum pump and wait for about 5 minutes.
13. After 5 minutes, check the low-pressure-side reading of the gauge set.
If the reading changed, check for leaks and then repeat from step 9.
If the reading has not changed, go to step 14.



14. Open the service cans by using the can puncture valves.
15. Open the low-pressure side valve of the manifold gauge set and charge with refrigerant until the low-pressure-side reading is at 100 kPa { 1 kgf/cm^2 , 10 psi }.
16. Close the low-pressure side valve of the gauge set.



17. Check for leaks by using a leak tester.
If there are no leaks, go to step 18.
If a leak is found at loose joint, tighten the joint and check for leaks again. If there is still a leak at the same joint, discharge the refrigerant and then repair the joint. Repeat the charging procedure from step 9. If there are no leaks after tightening the joint, go to step 18.

Warning

- **Running the engine with the high-pressure side valve open is dangerous. Pressure within the service cans will increase and the cans could explode, scattering metal fragments and liquid refrigerant that can seriously injure you. Therefore, do not open the high-pressure side valve while the engine is running.**

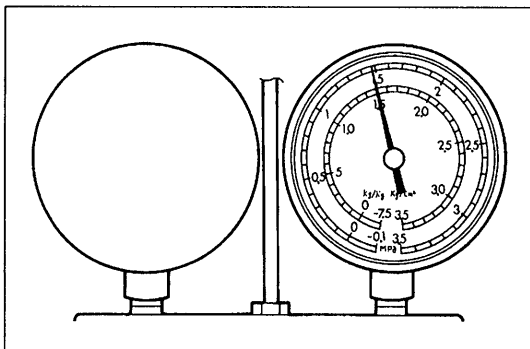
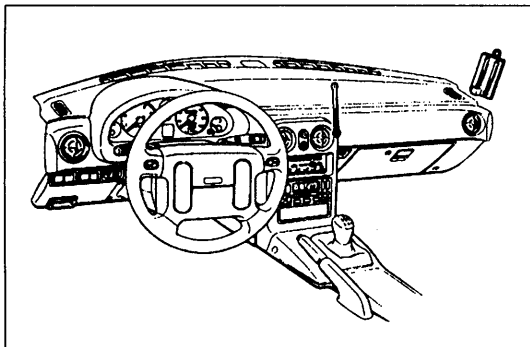
18. Open the low-pressure side valve of the manifold gauge set and charge with the regular amount of refrigerant.

19. Close the low-pressure side valve of the manifold gauge set.

20. Check for leaks by using a leak tester.
If there are no leaks, go to step 21.
If a leak is found at loose joint, tighten the joint and check for leaks again. If there is still a leak at the same joint, discharge the refrigerant and then repair the joint. Repeat the charging procedure from step 9. If there are no leaks after tightening the joint, go to step 21.

21. Disconnect the high and low-pressure side quick couplers from the charging valves that are connected to the high and low-pressure side cooler pipes of the refrigerant system.

22. Install the caps to the charging valves of the cooler pipes.



Performance Test

After finishing repairs, conduct a performance test of the air conditioning system as follows.

1. Install the manifold gauge set. (Refer to page U-25.)
2. Start the engine and keep the engine speed at **1,500 rpm**.
3. Turn the A/C switch on, set the fan switch at 4, and set the air intake mode at recirculate.
4. Open all windows and doors.
5. Place a dry-bulb thermometer in the center ventilator outlet.
6. Place a dry and wet thermometer close to the blower inlet.
7. Wait until the air conditioner outlet temperature stabilizes. If the high-pressure side becomes too high, pour cool water on the condenser. If it is too low, cover the front of the condenser.

Stabilized condition

Blower inlet temperature:

30—35 °C { 86—95 °F }

High-pressure side: 1.38—1.56 MPa

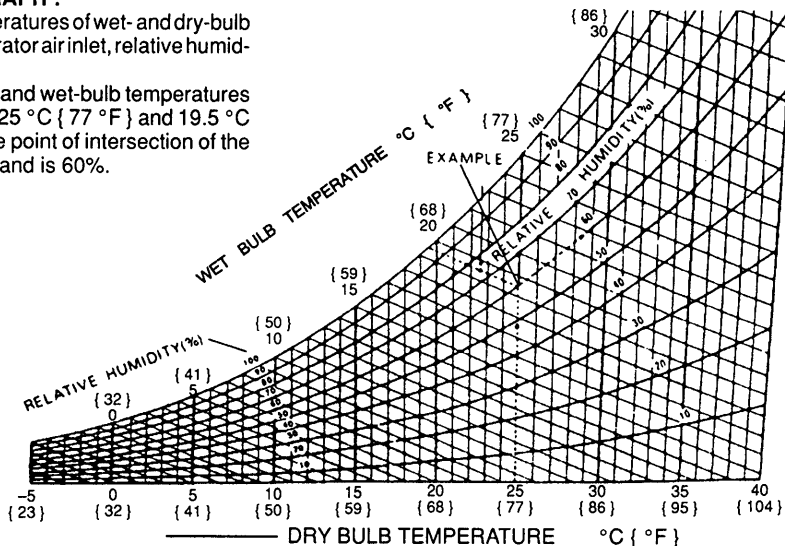
{ 14.0—16.0 kgf/cm² , 200—227 psi }

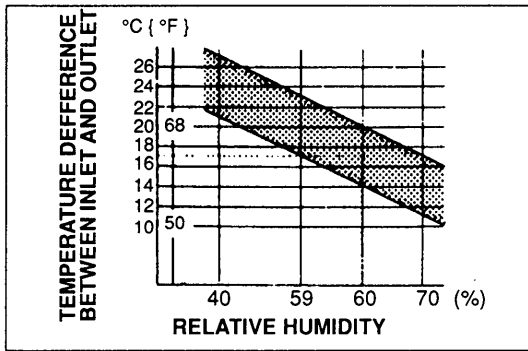
8. After the air conditioner stabilizes, read the dry and wet thermometer at the air inlet.
9. Calculate the relative humidity from the chart below by comparing the wet- and dry-bulb readings.

HOW TO READ THE GRAPH :

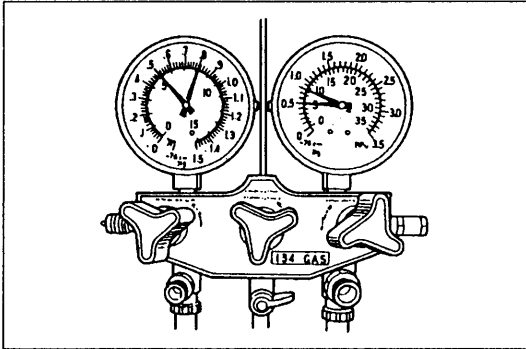
After measuring the temperatures of wet- and dry-bulb thermometer at the evaporator air inlet, relative humidity (%) can be obtained.

Example: Supposing dry- and wet-bulb temperatures at evaporator air inlet are 25 °C { 77 °F } and 19.5 °C { 67.1 °F } respectively the point of intersection of the dotted lines in the graph, and is 60%.



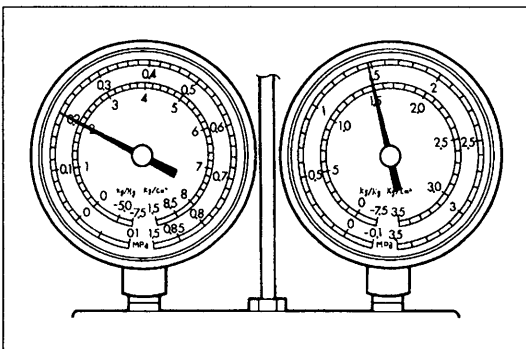


10. Read the dry thermometer at the air outlet, and calculate the difference between the inlet dry bulb and outlet dry bulb temperatures.
11. Verify that the intersection of the relative humidity and temperature difference is in the shaded zone.



Checking Refrigerant Charge

1. Install the manifold gauge set. (Refer to page U-25.)
2. Check the refrigerant pressure reading with the engine stopped.
3. Verify that the high- and low-pressure-side readings of the manifold gauge are at 493—788 kPa { 5.02—8.04 kgf/cm² , 72—114 psi }. If the pressure readings are lower than specified, recharge the refrigerant amount. (Refer to page U-25.) If the pressure readings are within specification but there is insufficient cooling, go to the next step. If the pressure readings are within specification and there are no leaks, the refrigerant amount is OK.
4. Start the engine and run it at a constant 2,000 rpm.
5. Turn the A/C switch on, set the fan switch at 4, and set the air intake mode at recirculate.
6. If the A/C compressor is short-cycling, note the low-pressure-side reading at which the magnetic clutch kicks out.
7. If the pressure is 170 kPa { 1.7 kgf/cm² , 24 psi } or lower, evacuate and recharge the refrigerant system with the proper amount of refrigerant. (Refer to page U-25.) If the pressure is 210 kPa { 2.1 kgf/cm² , 30 psi } or higher, inspect the thermostatic switch. (Refer to page U-31.)



Checking Refrigerant Pressure

1. Install the manifold gauge set. (Refer to page U-25.)
2. Operate the engine at 1,500 rpm.
3. Turn the A/C switch on, set the fan switch at 4, and set the air intake mode at recirculate.
4. Measure the low- and high-pressure sides.

Stabilized condition

Low-pressure side: 0.15—0.24 MPa

{ 1.5—2.5 kgf/cm² , 22—35 psi }

High-pressure side: 1.38—1.56 MPa

{ 14.0—16.0 kgf/cm² , 200—227 psi }

COOLING UNIT

Removal / Installation

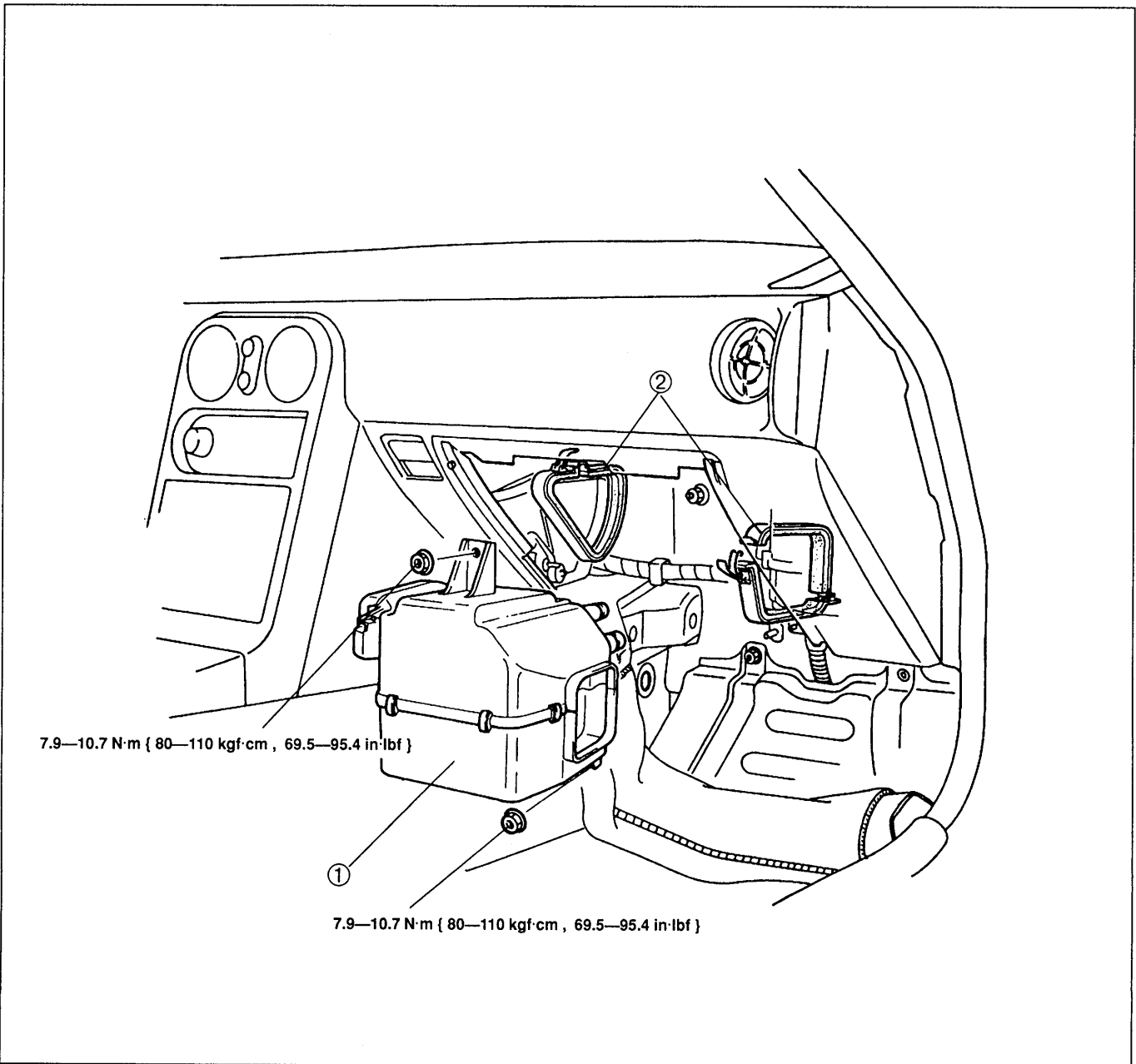
1. Discharge the refrigerant system.
2. Remove the glove compartment. (Refer to section S.)
3. Remove in the order shown in the figure. Immediately plug all open fittings to keep moisture out of the system.
4. Install in the reverse order of removal. Position the unit so that its connections match those of the heater unit and blower unit. Apply clean compressor oil to the O-rings before connecting the fittings; do not apply compressor oil to the fittings.

Tightening torque

Inlet pipe: 10—19 N·m { 1.0—2.0 kgf·m , 8—14 ft·lbf }

Outlet pipe: 20—29 N·m { 2.0—3.0 kgf·m , 15—21 ft·lbf }

5. Charge the refrigerant system. (Refer to page U-25.)

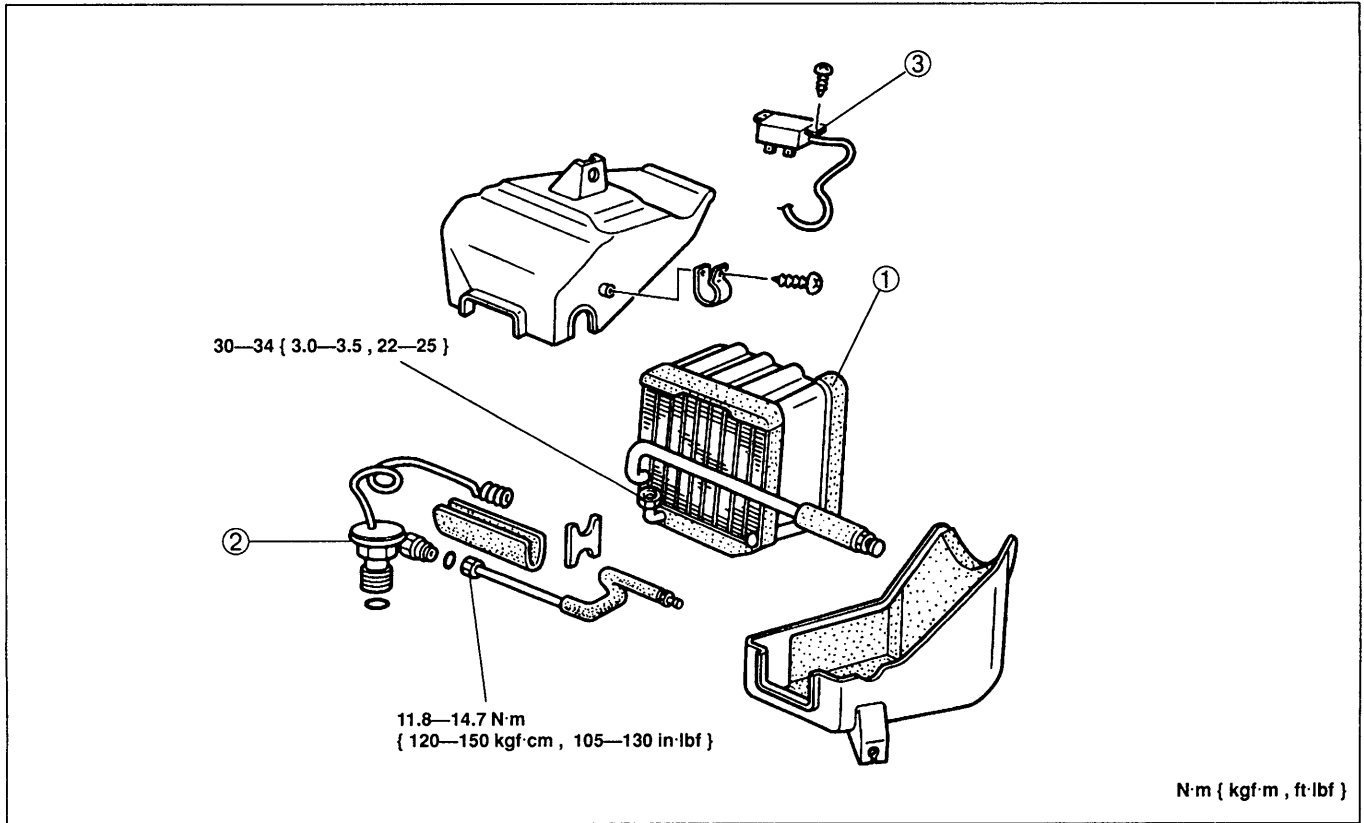


1. Cooling unit

2. Seal plate

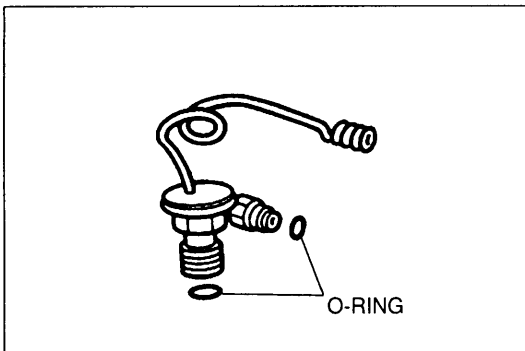
Disassembly / Assembly

1. Disassemble in the order shown in the figure.
2. Assemble in the reverse order of disassembly.



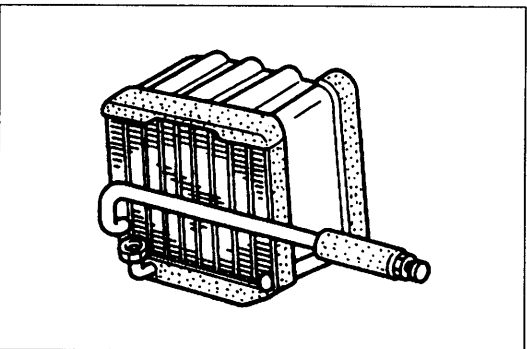
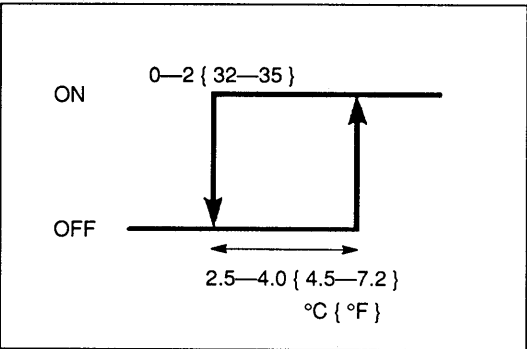
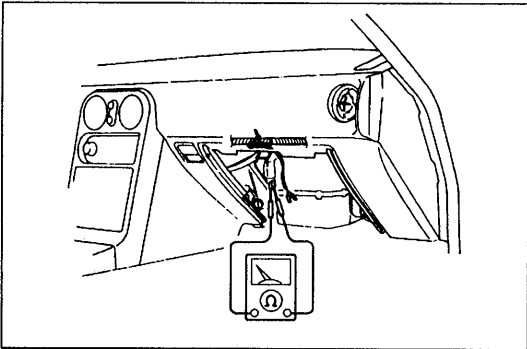
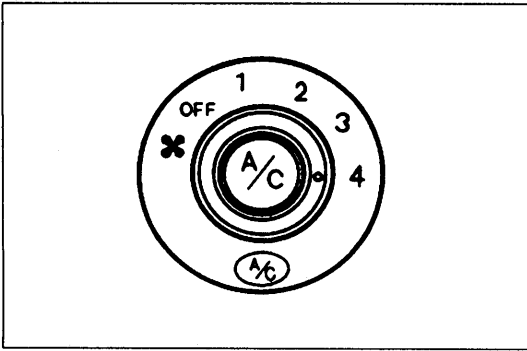
1. Evaporator
Inspection page U-31
2. Expansion valve
Assembly note below

3. Thermostwitch
On-vehicle Inspection page U-31
Inspection page U-31



Assembly note Expansion valve

Apply clean compressor oil to the O-rings before connecting the fittings; do not apply compressor oil to the fittings.



On-vehicle Inspection

Thermostat

1. Remove the glove compartment. (Refer to section S.)
2. Run the engine at idle.
3. Turn the A/C switch off and set the fan switch at 4 to operate the blower fan for a few minutes.

4. After a few minutes, turn the fan switch off and stop the engine.

Note

- The thermostat contacts will be open if the evaporator temperature is below 0—2 °C { 32—35 °F }.

5. Disconnect the thermostat connectors and check for continuity between the switch terminals.
6. If there is no continuity, replace the thermostat.

Inspection

Thermostat

1. Immerse the sensing bulb in a container of ice water.
2. Check the switch operation as specified in the figure.
3. If not as specified, replace the thermostat.

Evaporator

1. Check the evaporator fins for blockage. If the fins are clogged, clean them with compressed air. Do not use water to clean the evaporator.
2. Check the fittings for cracks and other damage. Replace the evaporator if necessary. When installing a new evaporator, add 50 ml { 50 cc , 1.7 fl oz } of compressor oil to the A/C compressor.

CONDENSER AND RECEIVER/DRIER**Removal / Installation**

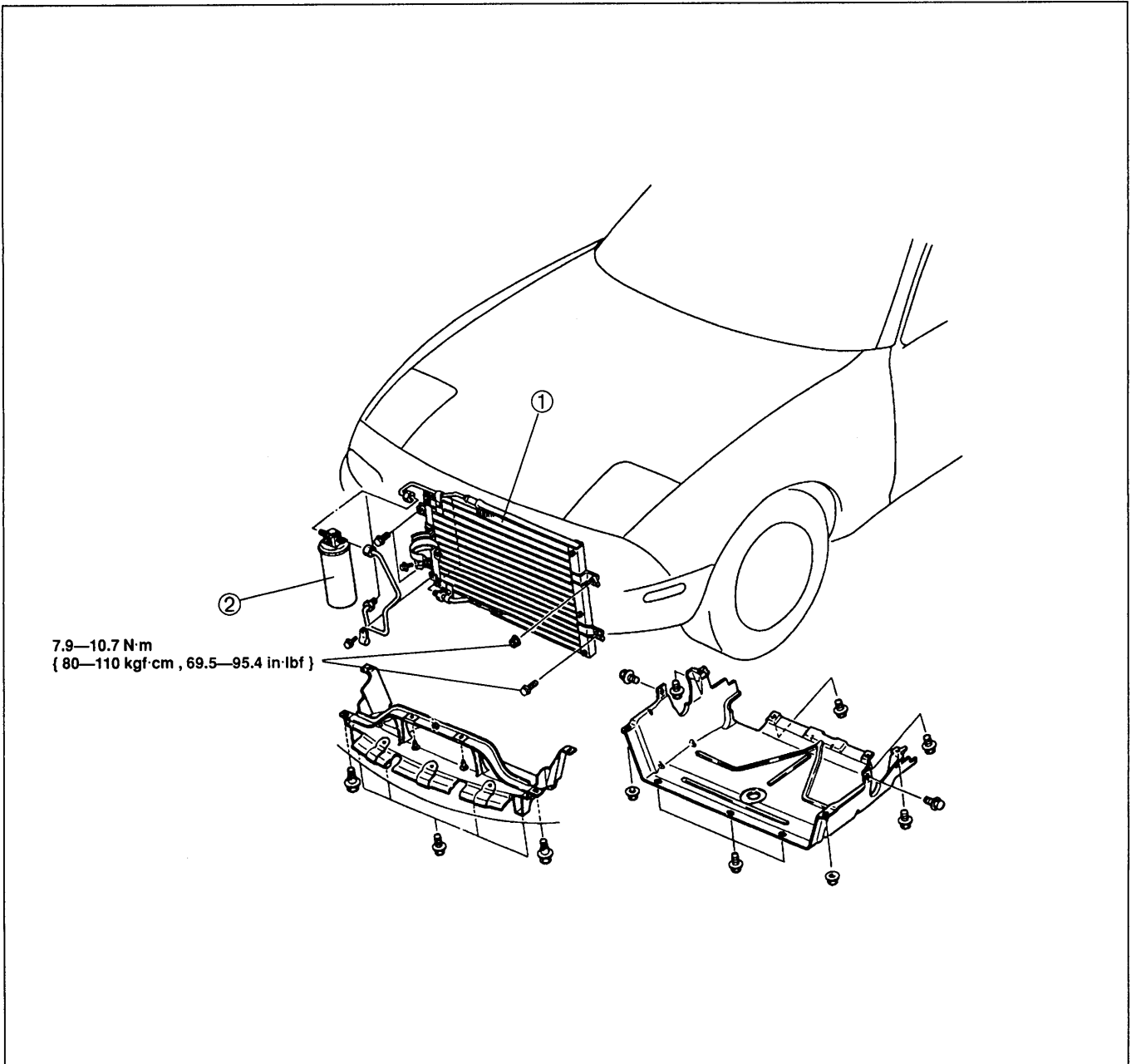
1. Raise the front of the vehicle at least **300 mm { 11.8 in }** and support it on safety stands.
2. Discharge the refrigerant system.
3. Remove the splash shield and air guide.
4. Remove in the order shown in the figure. Immediately plug any open fittings to keep moisture out of the system.
5. Install in the reverse order of removal. Apply clean compressor oil to the O-rings before connecting the fittings; do not apply compressor oil to the fittings.

Tightening torque

Receiver/drier inlet and outlet: 10—19 N·m { 1.0—2.0 kgf·m , 8—14 ft·lbf }

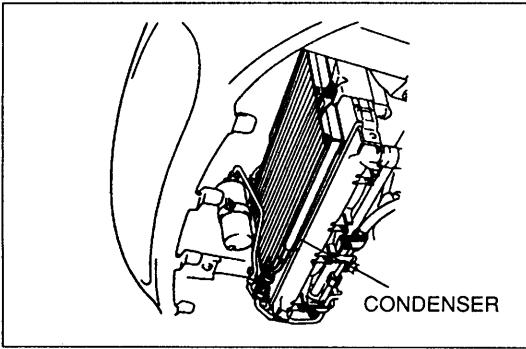
Condenser inlet: 15—24 N·m { 1.5—2.5 kgf·m , 11—18 ft·lbf }

6. Charge the refrigerant system. (Refer to page U-25.)



1. Condenser
On-vehicle Inspection page U-33

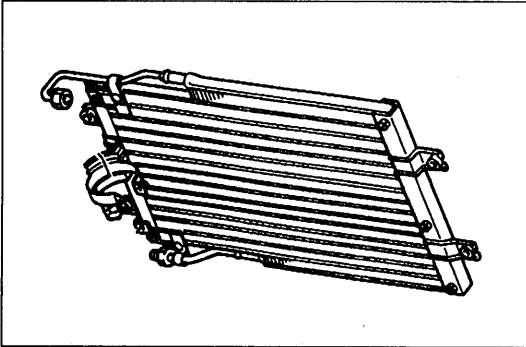
2. Receiver/drier
On-vehicle Inspection page U-33



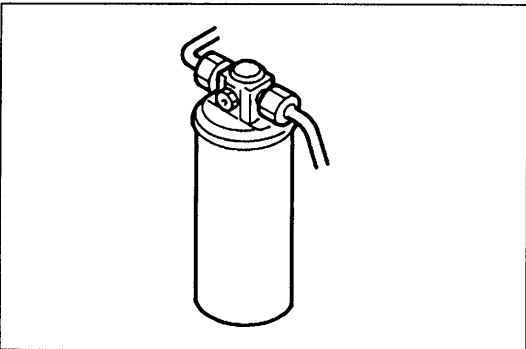
On-vehicle Inspection

Condenser

1. Check for oil stains on the condenser or fittings.
2. If staining is found at a fitting, replace the O-ring at the fitting.
3. Charge the system and check for leaks.
4. If leakage is found at a fitting or the condenser, replace parts as necessary.



5. Check the condenser for the following:
 - (1) Cracks or damage
 - (2) Bent fins
 - (3) Distorted or damaged condenser inlet or outlet
6. Repair or replace as necessary. If the condenser is replaced, add **30 ml { 30 cc , 1.0 fl oz }** of compressor oil to the A/C compressor.



Receiver/drier

1. Check for oil stains on the fittings.
2. If staining is found, replace the O-ring at the fitting.
3. Charge the system and check for leaks.
4. If leakage is found, replace the receiver/drier or piping. When replacing the receiver/drier, add **10 ml { 10 cc , 0.3 fl oz }** of compressor oil to the A/C compressor.

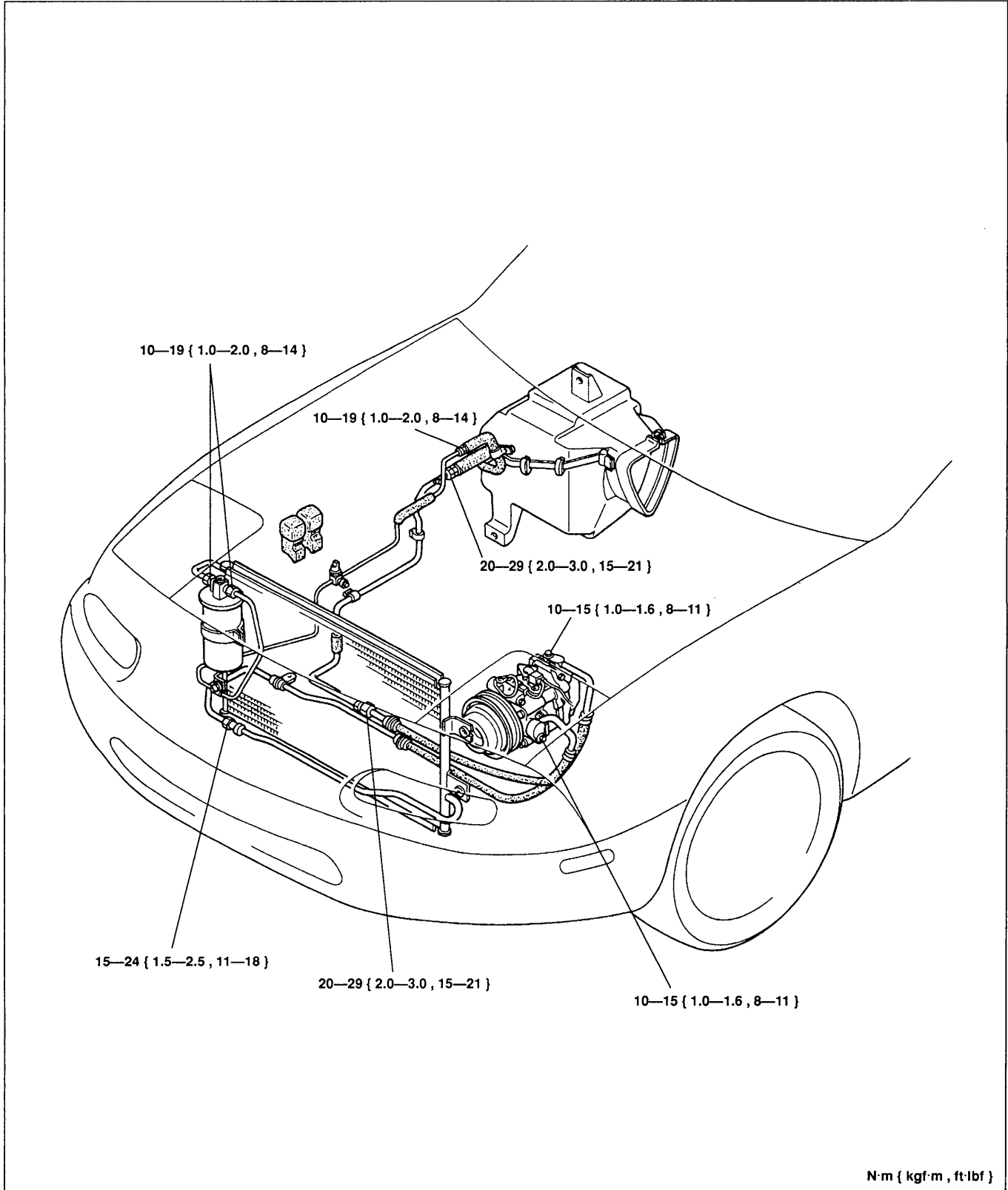
REFRIGERANT LINES

On-vehicle Inspection

Check for leakage at the connections by using a gas leak tester. Repair or replace as necessary.

Replacement

1. Discharge the refrigerant system.
2. Replace the faulty pipe or hose. Immediately plug any open fittings to keep moisture out of the system.
3. Evacuate, charge, and test the refrigerant system. (Refer to page U-25.)

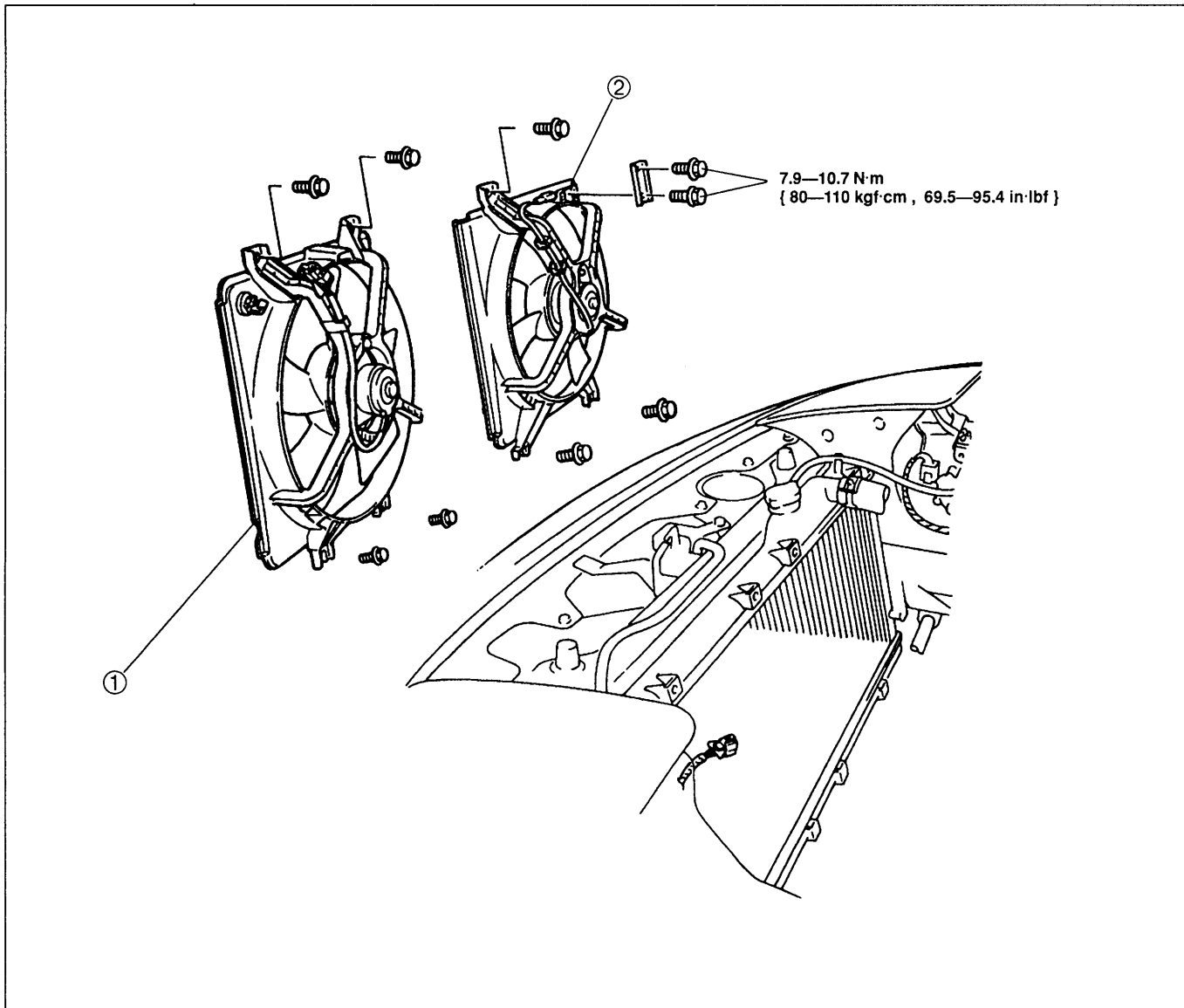


N·m { kgf·m , ft·lbf }

CONDENSER FAN

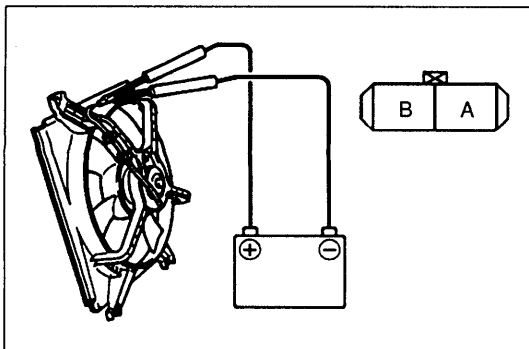
Removal / Installation

1. Disconnect the negative battery cable.
2. Disconnect the coolant fan and condenser fan connector.
3. Remove the bolts.
4. Remove in the order shown in the figure.
5. Install in the reverse order of removal.



1. Coolant fan

2. Condenser fan

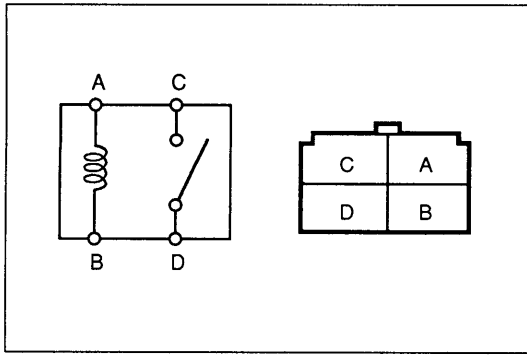


Inspection

1. Disconnect the condenser fan connector.
2. Verify that the condenser fan motor runs when connecting battery positive voltage to terminal A and ground to terminal B.

B+: Battery positive voltage

Connection		Motor operation
B+	GND	
A	B	Yes



A/C RELAY

Inspection

1. Remove the A/C relay.
2. Check for continuity between the relay terminals by using ohmmeter.

○—○: Continuity B+: Battery positive voltage

Step \ Terminals	A	B	C	D
1	○—○	○—○		
2	B+	GND	○—○	○—○

3. If not as specified, replace the relay.

CONDENSER FAN RELAY

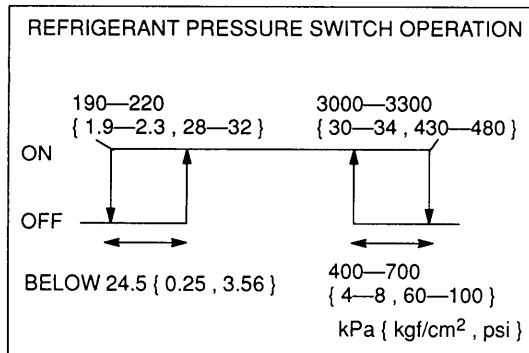
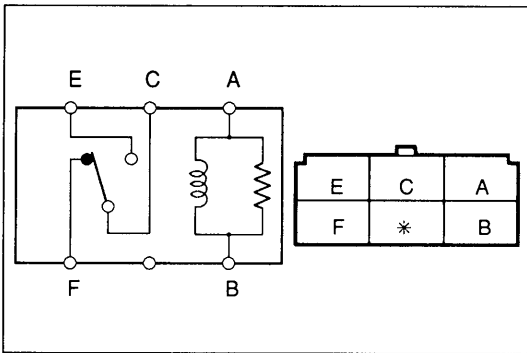
Inspection

1. Remove the condenser fan relay.
2. Check for continuity between the relay terminals by using ohmmeter.

○—○: Continuity B+: Battery positive voltage

Step \ Terminals	A	B	C	E	F
1	○—○	○—○	○—○		○—○
2	B+	GND	○—○	○—○	

3. If not as specified, replace the relay.

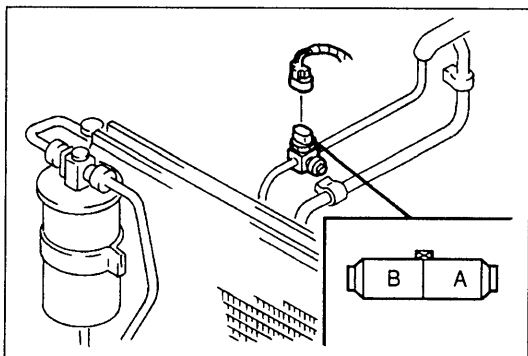


REFRIGERANT PRESSURE SWITCH

Inspection

If problems occur in the refrigerant system that cause abnormally high pressure or abnormally low pressure, the pressure switch will cut power to the magnetic clutch to protect the mechanical components. If the pressure recovers to within normal operating range, the power will be restored. These operating values are shown in the figure.

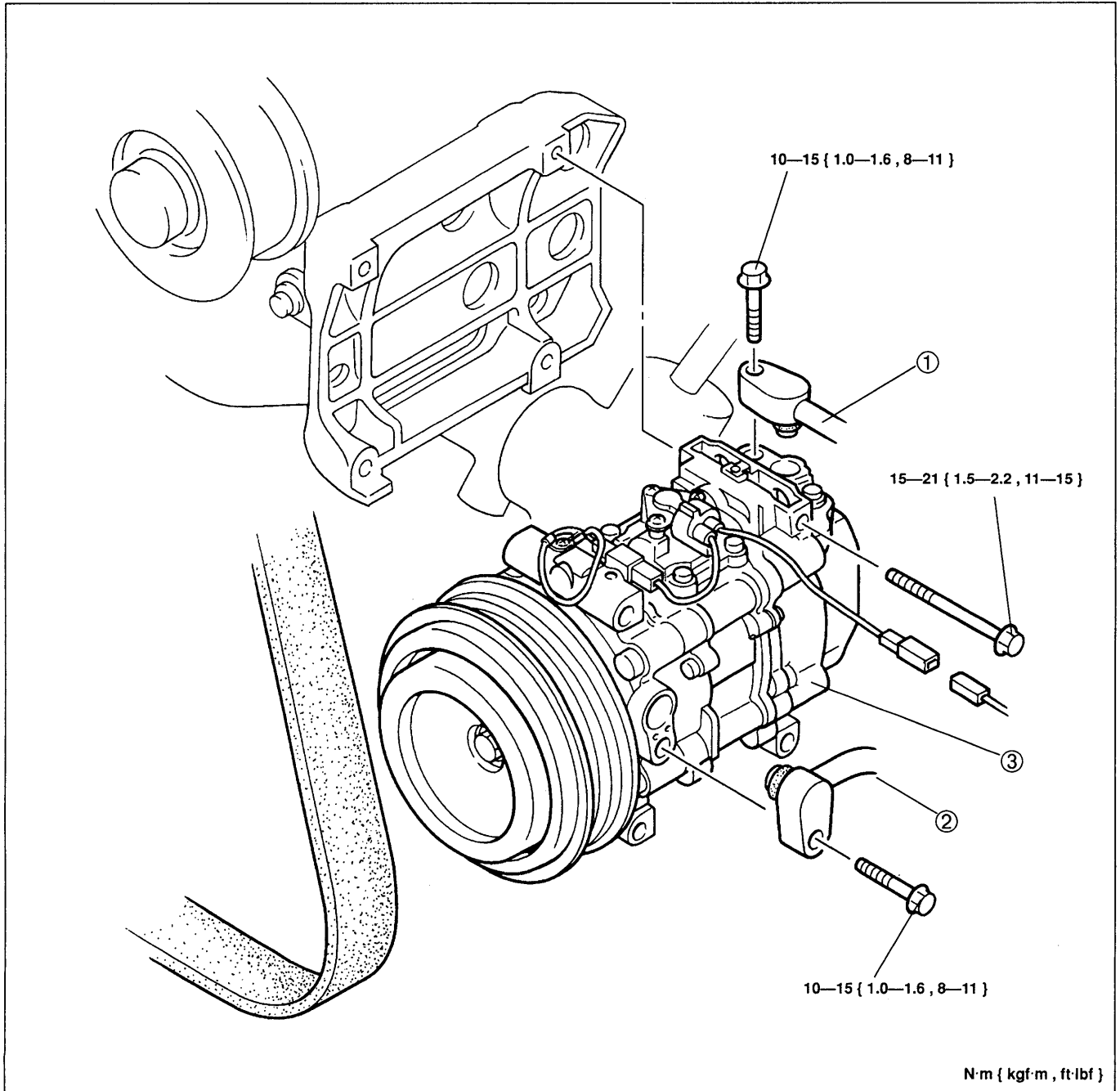
1. Install the manifold gauge set to the charging valves.
2. Verify that the high-pressure side pressure is 260—2,100 kPa { 2.6—22 kgf/cm², 37—310 psi }.
3. Disconnect the refrigerant pressure switch connector and check for continuity between the switch terminals.
4. If there is no continuity, replace the refrigerant pressure switch.



A/C COMPRESSOR

Removal / Installation

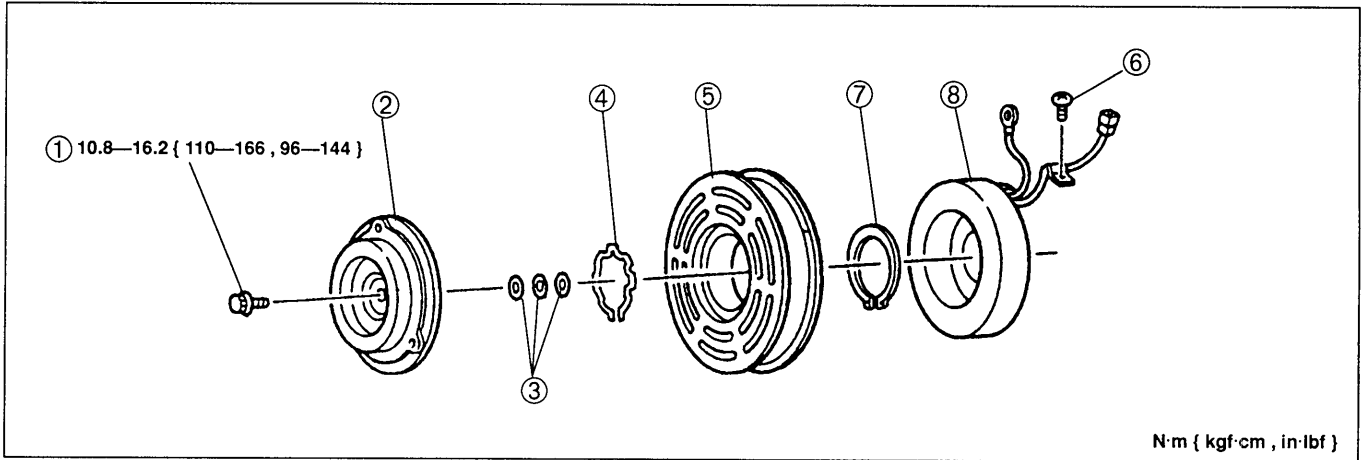
1. Raise the front of the vehicle at least **300 mm { 11.8 in }** and support it on safety stands.
2. Discharge the refrigerant system.
3. Remove the splash shield and air guide.
4. Remove the drive belt. (Refer to section B.)
5. Remove in the order shown in the figure. Immediately plug all open fittings to keep moisture out of the system.
6. Install in the reverse order of removal. Apply clean compressor oil to the O-rings before connecting the fittings.
7. Adjust the belt tension. (Refer to page U-45.)
8. Charge the refrigerant system. (Refer to page U-25.)



1. Cooler hose (Hi)
2. Cooler hose (Lo)

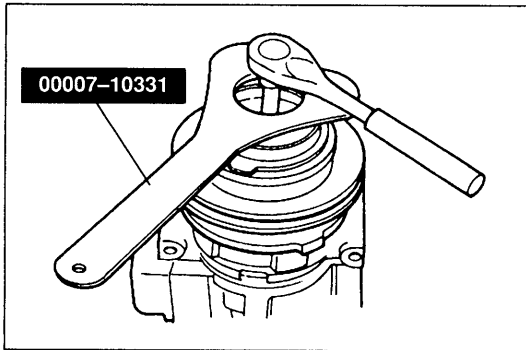
3. A/C compressor
Disassembly / Assembly page U-38

Disassembly / Assembly Magnetic clutch

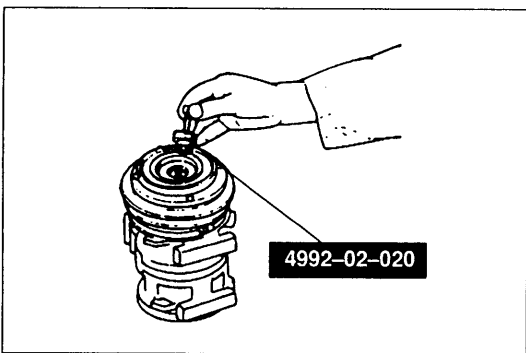


- 1. Bolt
- 2. Pressure plate
Inspection page U-46
- 3. Shim
- 4. Snap ring

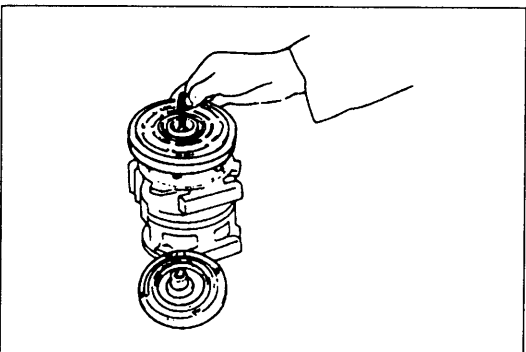
- 5. Rotor pulley
- 6. Screw
- 7. Snap ring
- 8. Stator
Inspection page U-46



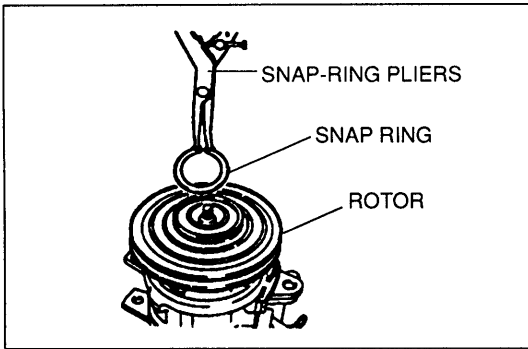
1. Hold the clutch by using the **SST** and remove the shaft bolt.



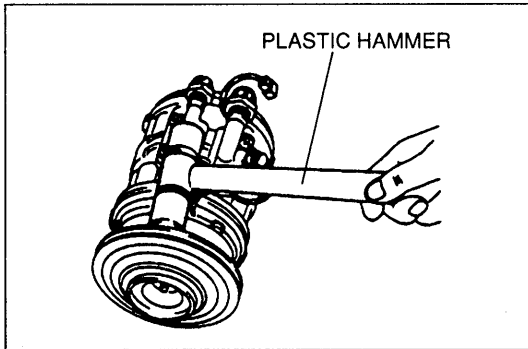
2. Remove the pressure plate by using the **SST**.



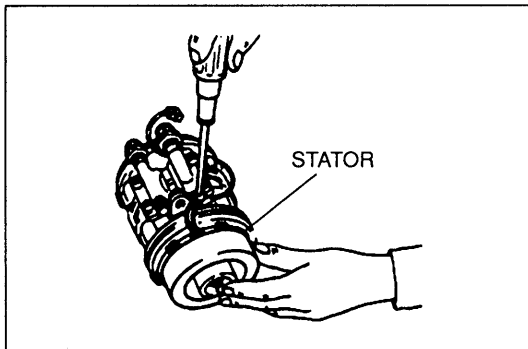
3. Remove the shims.



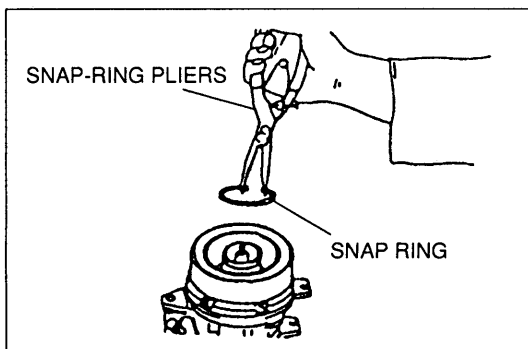
4. Remove the snap ring.



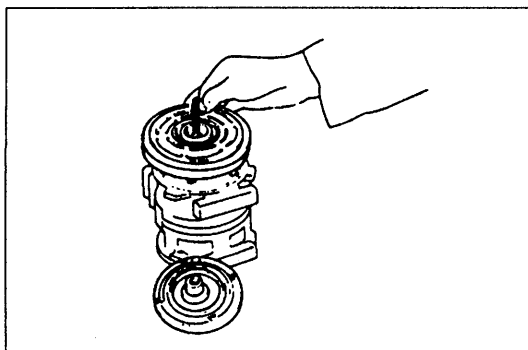
5. Remove the rotor by tapping it by using a plastic hammer.



6. Disconnect the stator wires from the compressor housing.

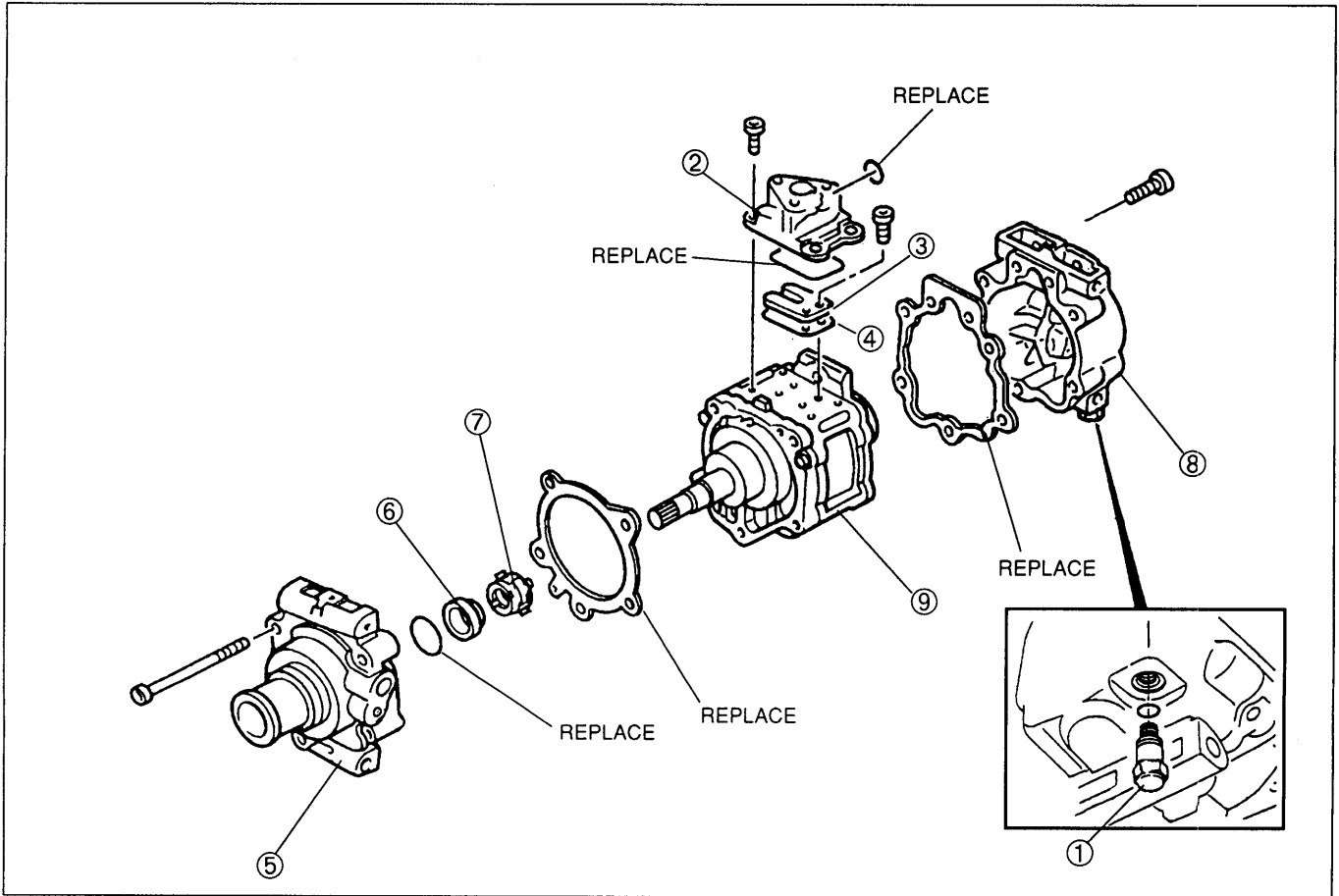


7. Remove the snap ring and the stator.



8. Assemble in the reverse order of disassembly.

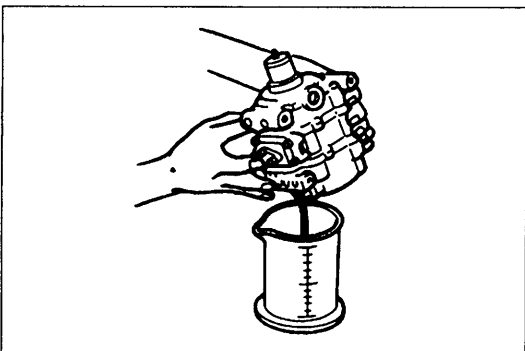
A/C compressor housing



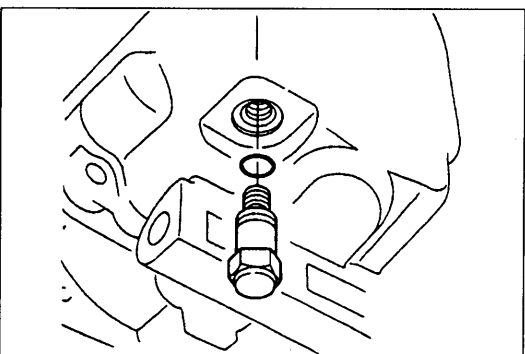
- 1. Pressure relief valve
- 2. Discharge valve body
- 3. Discharge valve plate

- 4. Discharge valve
- 5. Front housing
- 6. Shaft seal plate

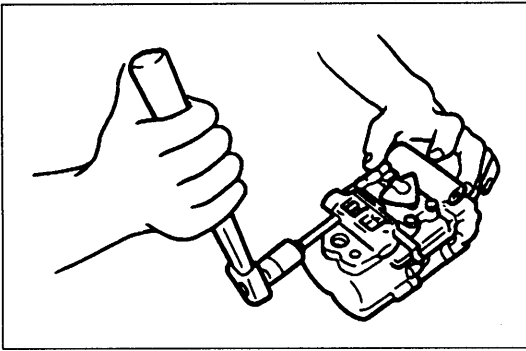
- 7. Shaft seal
- 8. Rear housing
- 9. Compressor body



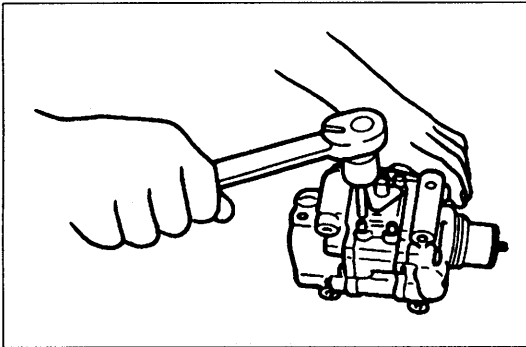
1. Measuring of compressor oil amount
Measure the amount of the compressor oil which is in the A/C compressor.



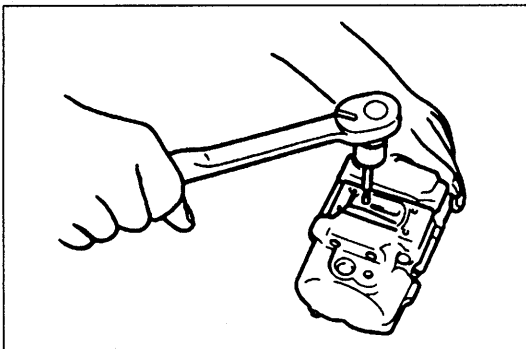
2. Remove the pressure relief valve.



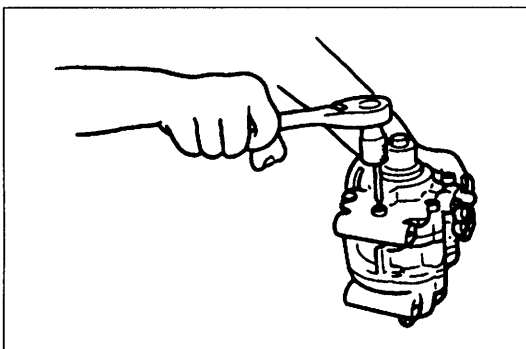
3. Removal of discharge valve body
 (1) Remove the discharge valve body installation through bolts.



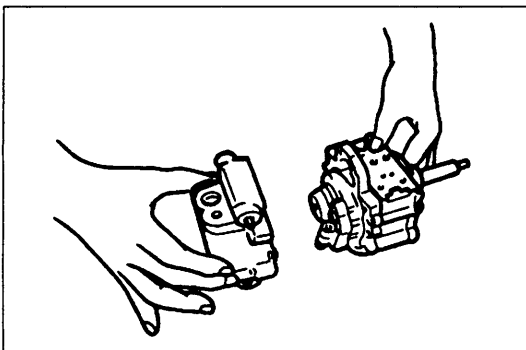
- (2) Remove the discharge valve installation bolts and discharge valve body.



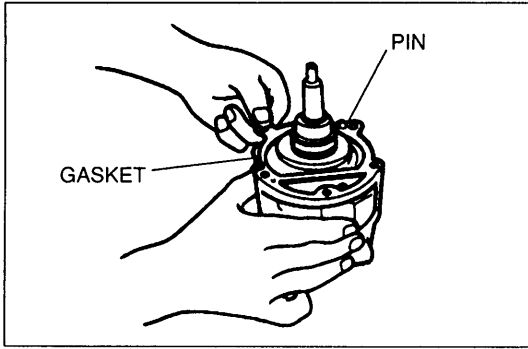
4. Removal of discharge valve
 Remove the bolts, discharge valve plate and discharge valve.



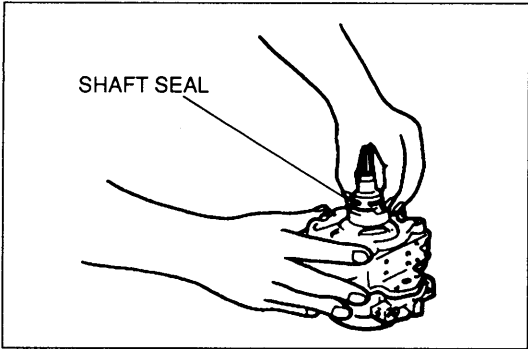
5. Removal of front and rear housings
 (1) Remove the through bolts and front housing.



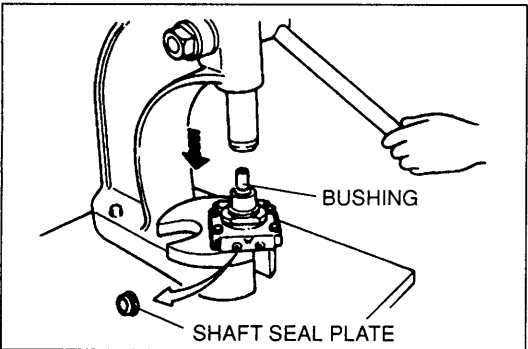
- (2) Remove the rear housing.



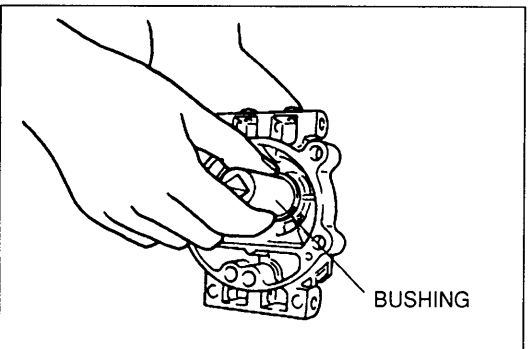
(3) Remove the pin and gaskets.



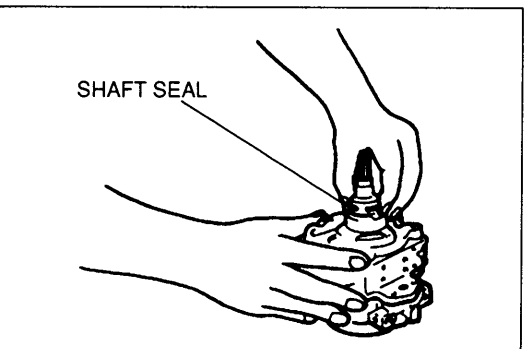
6. Removal of shaft seal
Remove the shaft seal from the shaft. Do not disassemble the compressor body.



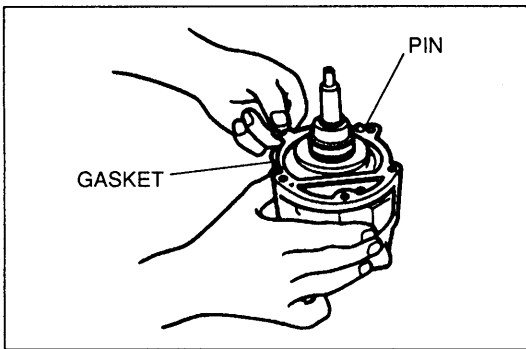
7. Removal of shaft seal plate
Remove the shaft seal plate by using a suitably sized bushing.



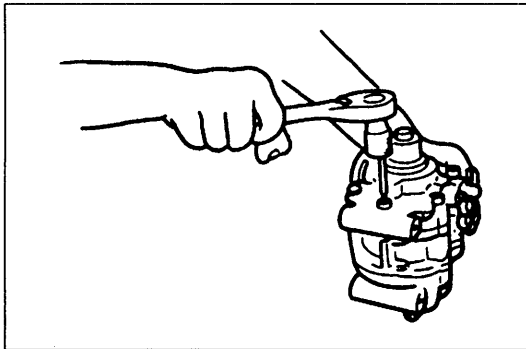
8. Installation of shaft seal plate
Install the shaft seal plate by using a suitably sized bushing.



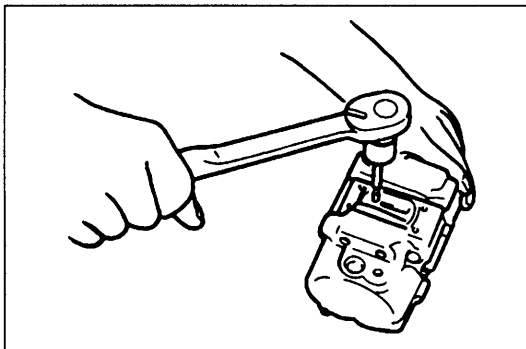
9. Installation of shaft seal
(1) Lubricate the shaft seal with the compressor oil.
(2) Install the shaft seal on the shaft.



10. Installation of front and rear housings
 (1) Install the new gaskets and pin on the compressor body.

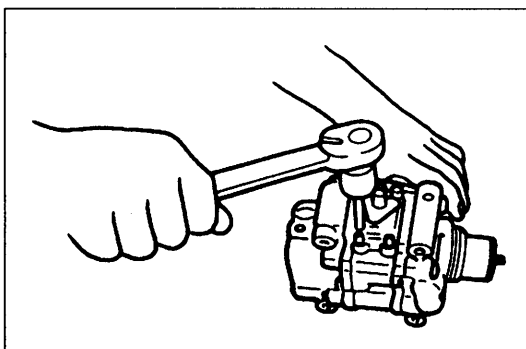


- (2) Install the front and rear housings and tighten the through bolts loosely.

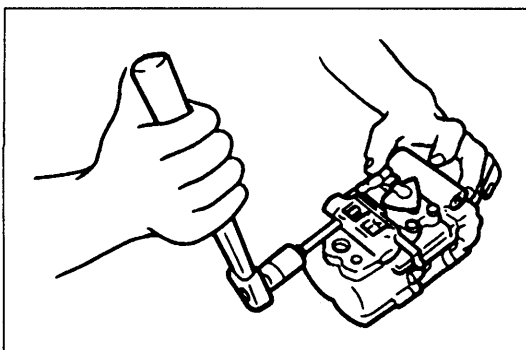


11. Installation of discharge valve
 Install the discharge valve and discharge valve plate and tighten the bolts.

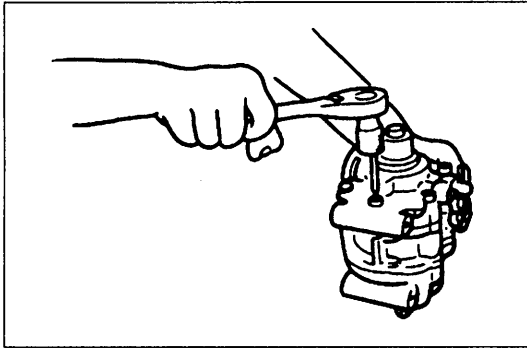
Tightening torque: 4.6 N·m { 47 kgf·cm , 41 in·lbf }



12. Installation of discharge valve body
 (1) Install the discharge valve body and tighten the bolts loosely.

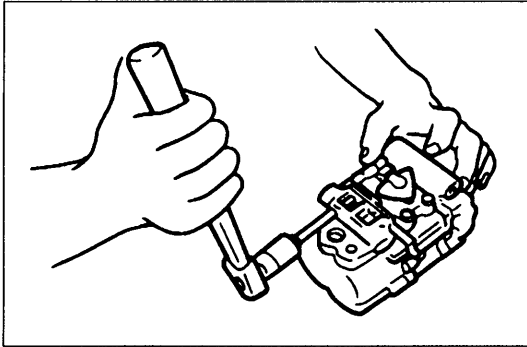


- (2) Tighten the discharge valve installation through bolts loosely.



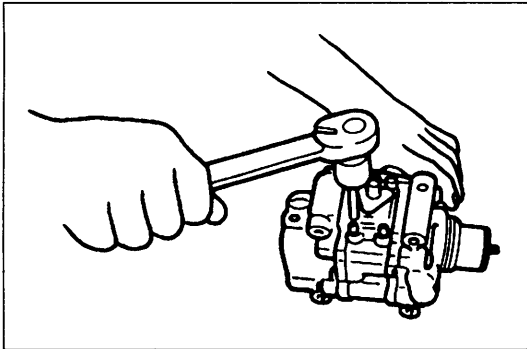
13. Tightening of bolts
 (1) Tighten the through bolts.

Tightening torque: 25 N·m { 2.6 kgf·m , 19 ft·lbf }



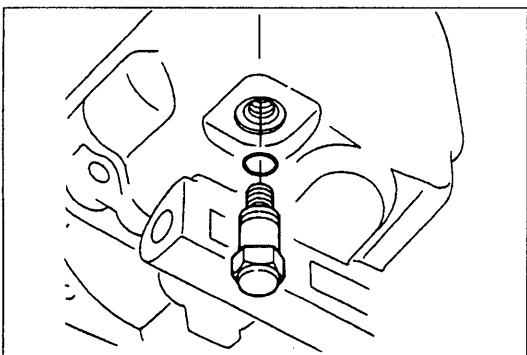
- (2) Tighten the discharge valve body installation through bolts.

**Tightening torque:
 10.8 N·m { 110 kgf·cm , 95.5 in·lbf }**



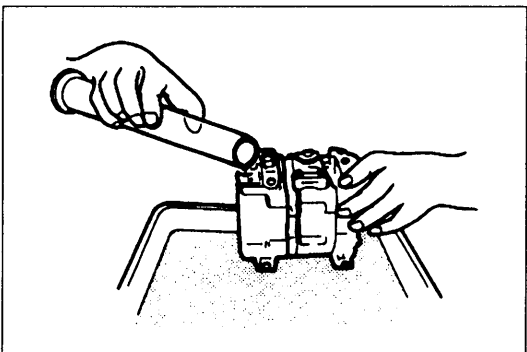
- (3) Tighten the discharge valve body installation bolts.

**Tightening torque:
 10.8 N·m { 110 kgf·cm , 95.5 in·lbf }**



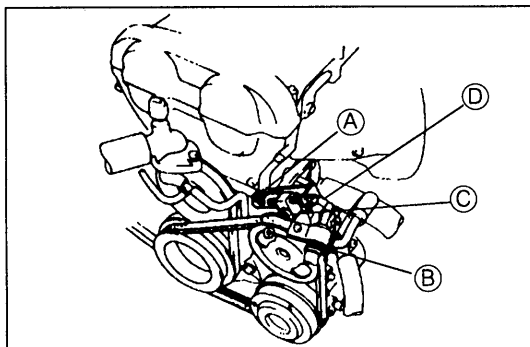
14. Install the pressure relief valve.

**Tightening torque: 11.7—14.6 N·m
 { 119—149 kgf·cm , 104—129 in·lbf }**



15. Pour compressor oil (ND-OIL9)
 Pour compressor oil into the A/C compressor.

**Compressor oil amount:
 Same amount as drained, plus
 20 ml { 20 cc , 0.7 fl oz }**



Adjustment

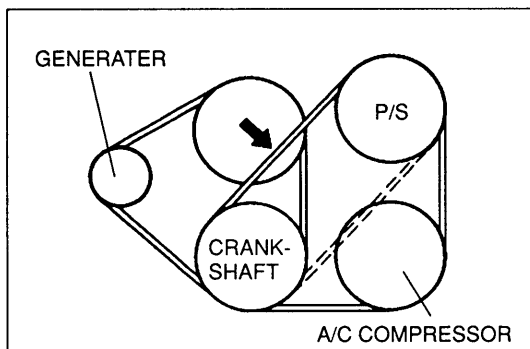
Drive belt

(With P/S)

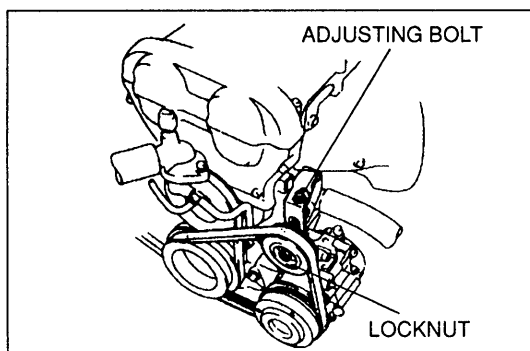
1. Loosen P/S oil pump bolts (A) and (B) and nut (C).
2. Adjust the belt tension and deflection to specification by turning adjusting bolt (D).
3. Tighten bolts (A) and (B) and nut (C).

Tightening torque

- (A): 32—46 N·m { 3.2—4.7 kgf·m , 24—33 ft·lbf }
- (B): 37—53 N·m { 3.7—5.5 kgf·m , 27—39 ft·lbf }
- (C): 19—25 N·m { 1.9—2.6 kgf·m , 14—18 ft·lbf }



	Specification	
	New	Used
Tension	491—588 N { 50.0—60.0 kgf , 110—132 lbf }	422—490 N { 43.0—50.0 kgf , 95—110 lbf }
Deflection when applying moderate pressure 98 N { 10 kgf , 22 lbf }	8.0—9.0 mm { 0.32—0.35 in }	9.0—10.0 mm { 0.36—0.39 in }

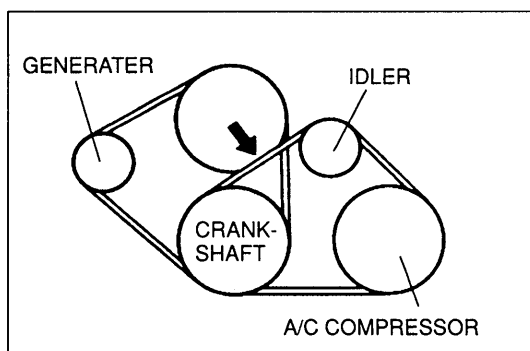


(Without P/S)

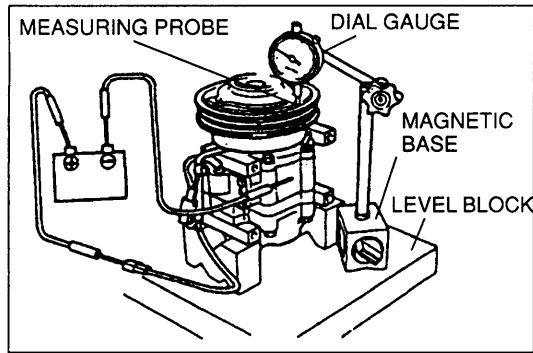
1. Loosen the locknut.
2. Adjust the belt tension and deflection to specification by turning the adjusting bolt.
3. Tighten the locknut.

Tightening torque:

- 38—51 N·m { 3.8—5.3 kgf·m , 28—38 ft·lbf }



	Specification	
	New	Used
Tension	491—588 N { 50.0—60.0 kgf , 110—132 lbf }	422—490 N { 43.0—50.0 kgf , 95—110 lbf }
Deflection when applying moderate pressure 98 N { 10 kgf , 22 lbf }	8.0—9.0 mm { 0.32—0.35 in }	9.0—10.0 mm { 0.36—0.39 in }



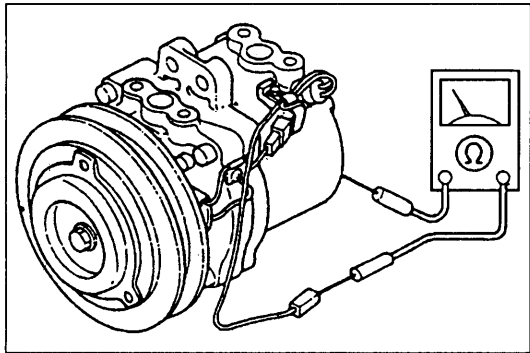
Inspection Pressure plate

1. Measure the clearance between the pressure plate and the rotor pulley.
 - (1) Set the A/C compressor on the level block.
 - (2) Fix a dial gauge on a magnetic base and set the measuring probe on the pressure plate surface.
 - (3) Alternately apply and remove battery positive voltage as shown in the figure. The clearance is the difference in the dial gauge readings.
 - (4) Compare the measured clearance with the specified clearance below.

Clearance: 0.35—0.65 mm { 0.014—0.025 in }

2. If not as specified, install shims to adjust the clearance.

Shim part no.	Thickness
KA10 61 L12	0.1 mm { 0.004 in }
KA10 61 L22	0.3 mm { 0.012 in }
KA10 61 L23	0.5 mm { 0.020 in }



Stator

1. Set the ohmmeter to the $\times 1000 \Omega$ range.
2. Verify that there is continuity between the stator connector and the A/C compressor body.
3. If there is no continuity, replace the stator.

TECHNICAL DATA

MEASUREMENTS	TD- 2
ENGINE	TD- 2
LUBRICATION SYSTEM	TD- 5
COOLING SYSTEM	TD- 5
FUEL AND EMISSION CONTROL SYSTEMS .	TD- 6
ENGINE ELECTRICAL SYSTEM	TD- 7
CLUTCH	TD- 7
MANUAL TRANSMISSION	TD- 8
AUTOMATIC TRANSMISSION	TD- 9
PROPELLER SHAFT	TD-11
FRONT AND REAR AXLES	TD-12
STEERING SYSTEM	TD-12
BRAKING SYSTEM	TD-13
WHEELS AND TIRES	TD-13
SUSPENSION	TD-14
BODY ELECTRICAL SYSTEM	TD-15
HEATER AND AIR CONDITIONING SYSTEM .	TD-15
STANDARD BOLT AND NUT TIGHTENING	
TORQUES	TD-15

A. MEASUREMENTS

Item		Measurements	
Overall length	mm { in }	3,948 { 155.4 }	
Overall width	mm { in }	1,676 { 65.9 }	
Overall height	mm { in }	1,224 { 48.2 }	
Wheelbase	mm { in }	2,266 { 89.2 }	
Tread	Front	mm { in }	1,410 { 55.5 }
	Rear	mm { in }	1,428 { 56.2 }

B. ENGINE

Item		Engine	BP DOHC
Type			Gasoline, 4-cycle
Cylinder arrangement and number			In-line, 4-cylinders
Combustion chamber			Pentroof
Valve system			DOHC, belt-driven 16 valves
Bore × Stroke		mm { in }	83.0 × 85.0 { 3.27 × 3.35 }
Total piston displacement		ml { cc , cu in }	1,840 { 1,840 , 112 }
Compression ratio			9.0
Compression pressure kPa { kgf/cm ² , psi }-rpm	Standard		1,255 { 12.8 , 182 }-300
	Minimum		883 { 9.0 , 128 }-300
	Maximum difference between each cylinder		196 { 2.0 , 28 }
Valve timing	IN	Open (BTDC°)	5
		Close (ABDC°)	48
	EX	Open (BBDC°)	56
		Close (ATDC°)	14
Valve clearance	mm { in }	IN	0 { 0 } : Maintenance-free
		EX	0 { 0 } : Maintenance-free
Cylinder head			
Height		mm { in }	133.8—134.0 { 5.268—5.275 }
Distortion		mm { in }	0.10 { 0.004 } max.
Grinding		mm { in }	0.10 { 0.004 } max.
Cylinder head-to-HLA clearance	mm { in }	Standard	0.025—0.066 { 0.0010—0.0025 }
		Maximum	0.18 { 0.0071 }
Valve and valve guide			
Valve head diameter	mm { in }	IN	32.9—33.1 { 1.296—1.303 }
		EX	27.85—28.15 { 1.097—1.108 }
Valve head margin thickness	mm { in }	IN	0.9 { 0.035 }
		EX	1.0 { 0.039 }
Valve face angle		IN	45°
		EX	45°
Valve length	mm { in }	IN	Standard 101.89 { 4.0114 }
			Minimum 100.39 { 3.9524 }
	EX	Standard	101.99 { 4.0153 }
		Minimum	100.49 { 3.9563 }
Valve stem diameter	mm { in }	IN	5.970—5.985 { 0.2351—0.2356 }
		EX	5.965—5.980 { 0.2349—0.2354 }
Guide inner diameter		mm { in }	6.01—6.03 { 0.2367—0.2374 }
Valve stem-to-guide clearance	mm { in }	IN	0.025—0.060 { 0.0010—0.0023 }
		EX	0.030—0.065 { 0.0012—0.0025 }
		Maximum	0.20 { 0.008 }
Guide projection	mm { in }	IN	18.3—18.9 { 0.721—0.744 }
		EX	18.3—18.9 { 0.721—0.744 }
Valve seat			
Seat angle		IN	45°
		EX	45°

Item		Engine	BP DOHC	
Seat contact width		mm { in }	0.8—1.4 { 0.032—0.055 }	
Seat sinking	mm { in }	Standard	45.0 { 1.772 }	
		Maximum	46.5 { 1.831 }	
Valve spring				
Free length	mm { in }	IN	46.26 { 1.821 }	
		EX	46.26 { 1.821 }	
Minimum length	mm { in }	IN	39.5 { 1.56 } with a set load of 224—253 N { 22.8—25.8 kgf , 50.2—56.7 lbf }	
		EX	39.5 { 1.56 } with a set load of 224—253 N { 22.8—25.8 kgf , 50.2—56.7 lbf }	
Out-of-square	mm { in }	IN	1.62 { 0.0638 } max.	
		EX	1.62 { 0.0638 } max.	
Camshaft				
Cam height	mm { in }	IN	Standard	44.094 { 1.7360 }
			Minimum	43.894 { 1.7281 }
		EX	Standard	44.600 { 1.7559 }
			Minimum	44.400 { 1.7480 }
Journal diameter	mm { in }	Standard (No.1—No.5)	25.940—25.965 { 1.0213—1.0222 }	
Camshaft bearing oil clearance	mm { in }	Standard (No.1—No.5)	0.035—0.081 { 0.0014—0.0031 }	
		Maximum	0.15 { 0.006 }	
Camshaft runout	mm { in }		0.03 { 0.0012 } max.	
Camshaft end play	mm { in }	Standard	0.07—0.19 { 0.0028—0.0074 }	
		Maximum	0.20 { 0.008 }	
Cylinder block				
Height	mm { in }		221.5 { 8.720 }	
Distortion	mm { in }		0.15 { 0.006 } max.	
Grinding	mm { in }		0.20 { 0.008 } max.	
Cylinder bore diameter	mm { in }	Standard size	83.000—83.019 { 3.2678—3.2684 }	
		0.25 { 0.01 } oversize	83.256—83.263 { 3.2778—3.2780 }	
		0.50 { 0.02 } oversize	83.506—83.513 { 3.2877—3.2879 }	
Cylinder bore taper and out-of-round	mm { in }		0.019 { 0.0007 } max.	
Piston				
Piston diameter Measured at 90° to pin bore axis and 16.5 mm { 0.65 in } below oil ring groove	mm { in }	Standard size	82.954—82.974 { 3.2659—3.2666 }	
		0.25 { 0.01 } oversize	83.211—83.217 { 3.2761—3.2762 }	
		0.50 { 0.02 } oversize	83.461—83.467 { 3.2859—3.2861 }	
Piston-to-cylinder clearance	mm { in }	Standard	0.032—0.059 { 0.0013—0.0023 }	
		Maximum	0.15 { 0.006 }	
Piston ring				
Thickness	mm { in }	Top	1.47—1.49 { 0.0579—0.0586 }	
		Second	1.47—1.49 { 0.0579—0.0586 }	
End gap (Measured in cylinder)	mm { in }	Top	0.15—0.30 { 0.006—0.011 }	
		Second	0.15—0.30 { 0.006—0.011 }	
		Oil (rail)	0.20—0.70 { 0.008—0.027 }	
		Maximum	1.0 { 0.039 }	
Ring groove width in piston	mm { in }	Top	1.52—1.535 { 0.0599—0.0604 }	
		Second	1.52—1.54 { 0.0599—0.0606 }	
		Oil	3.02—3.04 { 0.1189—0.1196 }	
Piston ring-to-ring groove clearance	mm { in }	Top	0.03—0.065 { 0.0012—0.0025 }	
		Second	0.03—0.07 { 0.0012—0.0027 }	
		Maximum	0.15 { 0.006 }	

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Item		Engine	BP DOHC	
Piston pin				
Diameter		mm { in }	19.987—19.993 { 0.7869—0.7871 }	
Piston-to-piston pin clearance		mm { in }	-0.005—0.013 { -0.0002—0.0005 }	
Connecting rod bush-to-piston pin clearance		mm { in }	0.010—0.027 { 0.0004—0.0010 }	
Connecting rod and connecting rod bearing				
Length (Center to center)		mm { in }	132.85—132.95 { 5.231—5.234 }	
Bending		mm { in }	0.030 { 0.0012 } max./100 { 3.94 }	
Small end bore (Bush inner diameter)		mm { in }	20.003—20.014 { 0.7876—0.7879 }	
Big end bore		mm { in }	48.000—48.016 { 1.8898—1.8903 }	
Big end width		mm { in }	21.838—21.890 { 0.8598—0.8618 }	
Connecting rod side clearance	mm { in }	Standard	0.110—0.262 { 0.0044—0.0103 }	
		Maximum	0.30 { 0.012 }	
Crankshaft				
Crankshaft runout		mm { in }	0.04 { 0.0016 } max.	
Main journal diameter	mm { in }	Standard size	Standard	49.938—49.956 { 1.9661—1.9667 }
			Minimum	49.904 { 1.9647 }
		0.25 { 0.01 } undersize	Standard	49.704—49.708 { 1.9569—1.9570 }
			Minimum	49.652 { 1.9548 }
		0.50 { 0.02 } undersize	Standard	49.454—49.458 { 1.9470—1.9471 }
			Minimum	49.402 { 1.9450 }
0.75 { 0.03 } undersize	Standard	49.204—49.208 { 1.9372—1.9373 }		
	Minimum	49.152 { 1.9351 }		
Main journal out-of-round		mm { in }	0.05 { 0.0020 } max.	
Crankpin diameter	mm { in }	Standard size	Standard	44.940—44.956 { 1.7693—1.7699 }
			Minimum	44.908 { 1.7680 }
		0.25 { 0.01 } undersize	Standard	44.690—44.706 { 1.7595—1.7600 }
			Minimum	44.658 { 1.7582 }
		0.50 { 0.02 } undersize	Standard	44.440—44.456 { 1.7496—1.7502 }
			Minimum	44.408 { 1.7483 }
0.75 { 0.03 } undersize	Standard	44.190—44.206 { 1.7398—1.7403 }		
	Minimum	44.158 { 1.7385 }		
Crankpin out-of-round		mm { in }	0.05 { 0.0020 } max.	
Main bearing				
Main journal bearing oil clearance	mm { in }	Standard	0.018—0.036 { 0.0008—0.0014 }	
		Maximum	0.10 { 0.004 }	
Available undersize bearing		mm { in }	0.25 { 0.01 }, 0.50 { 0.02 }, 0.75 { 0.03 }	
Crankpin bearing				
Crankpin bearing oil clearance	mm { in }	Standard	0.020—0.044 { 0.0008—0.0017 }	
		Maximum	0.10 { 0.004 }	
Available undersize bearing		mm { in }	0.25 { 0.01 }, 0.50 { 0.02 }, 0.75 { 0.03 }	
Thrust bearing				
Crankshaft end play	mm { in }	Standard	0.080—0.282 { 0.0032—0.0111 }	
		Maximum	0.30 { 0.012 }	
Bearing width	mm { in }	Standard size	2.500—2.550 { 0.0985—0.1003 }	
		0.25 { 0.01 } oversize	2.625—2.675 { 0.1034—0.1053 }	
		0.50 { 0.02 } oversize	2.750—2.800 { 0.1083—0.1102 }	
		0.75 { 0.03 } oversize	2.875—2.925 { 0.1132—0.1151 }	
Timing belt				
Belt deflection		mm { in }/98 N { 10 kgf , 22 lbf }	9.0—11.5 { 0.36—0.45 }	

D. LUBRICATION SYSTEM

Item		Engine	BP DOHC
Lubrication system			Force-fed type
Oil pump			
Type			Trochoid gear
Relief pressure		kPa { kgf/cm ² , psi }	344—441 { 3.5—4.5 , 50—63 }
Oil pressure	kPa { kgf/cm ² , psi }	1,000 rpm	98—196 { 1.0—2.0 , 15—28 }
		3,000 rpm	295—392 { 3.0—4.0 , 43—56 }
Inner rotor tooth tip to outer rotor clearance	mm { in }	Standard	0.02—0.18 { 0.0008—0.0070 }
		Maximum	0.20 { 0.0079 }
Outer rotor to body clearance	mm { in }	Standard	0.09—0.18 { 0.0036—0.0070 }
		Maximum	0.20 { 0.0079 }
Side clearance	mm { in }	Standard	0.03—0.12 { 0.0012—0.0047 }
		Maximum	0.14 { 0.0055 }
Oil filter			
Type			Full-flow, paper element
Relief pressure differential		kPa { kgf/cm ² , psi }	79—117 { 0.8—1.2 , 12—17 }
Engine oil			
Capacity	Total (dry engine)	L { US qt , Imp qt }	4.0 { 4.2 , 3.5 }
	Oil replacement	L { US qt , Imp qt }	3.6 { 3.8 , 3.2 }
	Oil and oil filter replacement	L { US qt , Imp qt }	3.75 { 4.0 , 3.3 }
Engine oil			API Service SG, SH (ECII) ILSAC
Viscosity number	Above -25 °C { -13 °F }		SAE 10W-30
	Below 0 °C { 32 °F }		SAE 5W-30

E. COOLING SYSTEM

Item		Engine	BP DOHC
Cooling system			Water-cooled, forced circulation
Water pump			
Type			Centrifugal, V-ribbed belt driven
Impeller diameter		mm { in }	75 { 2.95 }
Number of impeller blades			6
Water seal type			Unified mechanical seal
Thermostat			
Type			Wax, two-stage
Opening temperature		°C { °F }	Sub: 83.5—86.5 { 183—187 }, Main: 86.5—89.5 { 188—193 }
Full-open temperature		°C { °F }	100 { 212 }
Full-open lift		mm { in }	Sub: 1.5 { 0.06 } min., Main: 8.0 { 0.31 } min.
Radiator			
Type			Corrugated fin
Cap valve opening pressure		kPa { kgf/cm ² , psi }	73.6—102 { 0.75—1.05 , 10.7—14.9 }
Cooling circuit checking pressure		kPa { kgf/cm ² , psi }	103 { 1.05 , 14.9 }
Coolant fan			
Type			Electric
Number of blades			5
Outer diameter		mm { in }	320 { 12.6 }
Capacity		W-V	MT: 70—12, AT: 80—12
Current		A	MT: 5.9 + 10 % max, AT: 6.7 + 10 % max
Coolant			
Capacity		L { US qt , Imp qt }	6.0 { 6.3 , 5.3 }

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Item		Engine	BP DOHC		
Antifreeze solution	Coolant protection		Volume percentage %		Specific gravity at 20 °C { 68 °F }
			Water	Coolant	
	Above -16 °C { 3 °F }		65	35	1.054
	Above -26 °C { -15 °F }		55	45	1.066
	Above -40 °C { -40 °F }		45	55	1.078

F. FUEL AND EMISSION CONTROL SYSTEMS

Item		Specification
Idle speed	rpm	800—900 (850 ± 50) [MT]*, 750—850 (800 ± 50) [AT]*
Ignition timing	BTDC	9°—11° (10° ± 1°)*
Throttle body		
Type		Horizontal draft
Throat diameter	mm { in }	55 { 2.2 }
Fuel pump		
Type		Impeller (in-tank)
Output pressure	kPa { kgf/cm ² , psi }	294—637 { 3.0—6.5 , 43—92 }
Fuel filter		
Type	Low-pressure side	Nylon element
	High-pressure side	Paper element
Pressure regulator		
Type		Diaphragm
Regulating pressure	kPa { kgf/cm ² , psi }	280—289 { 2.85—2.95 , 40.1—41.9 }
Fuel injector		
Type		High-ohmic
Type of drive		Voltage
Resistance	Ω | 20 °C { 68 °F }	13.8
IAC valve		
Solenoid resistance	Ω | 20 °C { 68 °F }	10.7—12.3
Purge solenoid valve		
Solenoid resistance	Ω | 20 °C { 68 °F }	23—27
Camshaft position sensor		
Type		Hall effect
Engine coolant temperature sensor		
Resistance	kΩ	20 °C { 68 °F }
		80 °C { 176 °F }
		2.21—2.69
		0.287—0.349
Air valve		
Opening temperature	°C { °F }	Below 45 { 113 }
Fuel tank		
Capacity	L { US gal , Imp gal }	48 { 12.7 , 10.5 }
Air cleaner housing		
Element type		Oil permeated
Accelerator cable		
Free play	mm { in }	1—3 { 0.039—0.118 }
Fuel		
Specification		Unleaded regular (RON 87 or higher)

*...with system selector (49 B019 9A0) test switch at SELF TEST

G. ENGINE ELECTRICAL SYSTEM

Item		Engine	BP DOHC		
			MT	AT	
Battery	Voltage	V	12, Negative ground		
	Type and capacity	(5-hour rate)	S46A24L(S) (32 Ah) Maintenance-free		
Dark current*1		mA	MAX. 20.0		
Alternator	Type		A.C.		
	Output	V-A	12-65	12-70	
	Regulator type		Transistorized (built-in voltage regulator)		
	Regulated voltage		V 14.3-14.9		
	Brush length	mm { in }	Standard	21.5 { 0.85 }	
			Minimum	8.0 { 0.32 }	
	Drive belt deflection	mm { in }	New	5.5-7.0 { 0.22-0.27 }	
Used			6.0-7.5 { 0.24-0.29 }		
Starter	Type		Direct	Coaxial reduction	
	Output	V-kW	12-0.95	12-1.4	
	Brush length	mm { in }	Standard	17.0 { 0.67 }	17.5 { 0.69 }
			Minimum	11.5 { 0.46 }	12.0 { 0.47 }
Ignition system		Type	Electronic spark advance (ESA)		
		Spark advance control	Engine control module controls spark advance		
Ignition timing*2		BTDC (°CA)/rpm	10/850	10/800	
Ignition coil	Type		Molded (with ignition control module)		
	Primary coil winding	Ω	—		
	Secondary coil winding	kΩ	8.7-12.9 [at 20 °C { 68 °F }]		
Spark plug	Type		NGK : BKR5E-11 BKR6E-11 (Standard) NIPPONDENSO : K16PR-U11 K20PR-U11 (Standard)		
	Plug gap	mm { in }	1.0-1.1 { 0.040-0.043 }		
	Firing order		1-3-4-2		

*1 Dark current is the constant flow of current while the ignition switch is OFF. (i.e. engine control module, audio, etc.)

*2 TEN terminal of data link connector ground.

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H. CLUTCH

Item		Engine	BP DOHC
			Hydraulic
Clutch control			Hydraulic
Clutch pedal			
Type			Suspended
Pedal ratio			6.13
Full stroke	mm { in }		120 { 4.72 }
Height (with carpet)	mm { in }		175-185 { 6.89-7.28 }
Free play	mm { in }		0.6-3.1 { 0.02-0.12 }
Distance to carpet when clutch fully disengaged	mm { in }	Minimum	68 { 2.68 }
Flywheel			
Runout limit	mm { in }		0.2 { 0.008 }

Item		Engine	BP DOHC
Clutch disc			
Type			Single dry plate
Runout limit		mm { in }	0.7 { 0.028 }
Wear limit		mm { in }	0.3 { 0.012 } from rivet head
Outer diameter		mm { in }	215 { 8.46 }
Inner diameter		mm { in }	150 { 5.91 }
Facing thickness	mm { in }	Flywheel side	3.5 { 0.14 }
		Pressure plate side	3.8 { 0.15 }
Clutch cover			
Type			Diaphragm spring
Set load		N { kgf , lbf }	4,310 { 440 , 968 }

J. MANUAL TRANSMISSION

Item		Transmission	M15M-D
Gear ratio	1st		3.136
	2nd		1.888
	3rd		1.330
	4th		1.000
	5th		0.814
	Reverse		3.758
Oil capacity		L { US qt , Imp qt }	2.0 { 2.1 , 1.8 }
Mainshaft	Runout	mm { in } Maximum	0.03 { 0.0012 }
	Clearance between mainshaft and gear (or bush)	mm { in } Wear limit	0.15 { 0.006 }
Reverse idle gear	Clearance between reverse idle gear bushing and shaft	mm { in } Wear limit	0.15 { 0.006 }
Shift fork and rod	Clearance between shift fork and clutch sleeve	mm { in } Wear limit	0.5 { 0.020 }
	Clearance between shift rod gate and control lever	mm { in } Wear limit	0.8 { 0.032 }
Synchronizer ring	Clearance between synchronizer ring and side of gear when fitted	mm { in } Standard	1.5 { 0.059 }
		mm { in } Wear limit	0.8 { 0.032 }
Shift rod spring (5th/Reverse)	Free length	mm { in }	75 { 2.953 }
Detent ball spring (1st/2nd)	Free length	mm { in }	22.5 { 0.886 }
Detent ball spring (3rd/4th)	Free length	mm { in }	22.5 { 0.886 }
Detent ball spring (5th/Reverse)	Free length	mm { in }	17.0 { 0.669 }
Lubricant	Above 10 °C { 50 °F }		API Service GL-4 or GL-5 SAE 80W-90
	All seasons		API Service GL-4 or GL-5 SAE 75W-90

K. AUTOMATIC TRANSMISSION

Item		Transmission	NC4A-EL			
Gear ratio	First		2.458			
	Second		1.458			
	Third		1.000			
	Fourth		0.720			
	Reverse		2.182			
Automatic transmission fluid (ATF)	Type		Dexron®II or M-III			
	Capacity	L { US qt , Imp qt }	7.3 { 7.7 , 6.4 }			
Oil pump	Body clearance	mm { in }	Standard	0.02—0.04 { 0.0008—0.0015 }		
			Maximum	0.08 { 0.0031 }		
	Tip clearance	mm { in }	Standard	0.14—0.21 { 0.0056—0.0082 }		
			Maximum	0.25 { 0.0098 }		
	Side clearance	mm { in }	Standard	0.05—0.20 { 0.0020—0.0078 }		
			Maximum	0.25 { 0.0098 }		
Drum support	Seal ring and groove clearance	mm { in }	Standard	0.04—0.16 { 0.0016—0.0062 }		
			Maximum	0.40 { 0.0157 }		
Direct clutch	Side plate clearance	mm { in }	0.2 { 0.008 }			
	Side plate size	mm { in }	0.4 { 0.016 }, 0.6 { 0.024 }, 0.8 { 0.031 }, 1.0 { 0.039 }, 1.2 { 0.047 }			
	End play	mm { in }	0.5—0.8 { 0.020—0.031 }			
	Bearing race size	mm { in }	0.8 { 0.031 }, 1.0 { 0.039 }, 1.2 { 0.047 }, 1.4 { 0.055 }, 1.6 { 0.063 }, 1.8 { 0.071 }, 2.0 { 0.079 }, 2.2 { 0.087 }			
Forth gear planetary gear unit	Pinion clearance	mm { in }	Standard	0.2—0.7 { 0.008—0.028 }		
			Maximum	0.8 { 0.031 }		
	Total end play	mm { in }	0.25—0.50 { 0.0099—0.0196 }			
Bearing race size	mm { in }	1.2 { 0.047 }, 1.4 { 0.055 }, 1.6 { 0.063 }, 1.8 { 0.071 }, 2.0 { 0.079 }, 2.2 { 0.087 }				
Front clutch	Retaining plate clearance	mm { in }	0.9—1.1 { 0.036—0.043 }			
	Retaining plate size	mm { in }	5.8 { 0.228 }, 6.0 { 0.236 }, 6.2 { 0.244 }, 6.4 { 0.252 }, 6.6 { 0.260 }, 6.8 { 0.268 }, 7.0 { 0.276 }			
	End play	mm { in }	0.5—0.8 { 0.020—0.031 }			
	Bearing race size	mm { in }	0.8 { 0.031 }, 1.0 { 0.039 }, 1.2 { 0.047 }, 1.4 { 0.055 }, 1.6 { 0.063 }, 1.8 { 0.071 }, 2.0 { 0.079 }, 2.2 { 0.087 }			
Rear clutch	Retaining plate clearance	mm { in }	0.8—1.0 { 0.032—0.039 }			
	Retaining plate size	mm { in }	6.2 { 0.244 }, 6.4 { 0.252 }, 6.6 { 0.260 }, 6.8 { 0.268 }, 7.0 { 0.276 }, 7.2 { 0.283 }, 7.6 { 0.299 }			
	Total end play	mm { in }	0.25—0.50 { 0.0099—0.0196 }			
	Bearing race size	mm { in }	1.2 { 0.047 }, 1.4 { 0.055 }, 1.6 { 0.063 }, 1.8 { 0.071 }, 2.0 { 0.079 }, 2.2 { 0.087 }			
Front planetary gear unit	Pinion clearance	mm { in }	Standard	0.2—0.7 { 0.008—0.027 }		
			Maximum	0.8 { 0.031 }		
Rear planetary gear unit	Pinion clearance	mm { in }	Standard	0.2—0.7 { 0.008—0.027 }		
			Maximum	0.8 { 0.031 }		
Low and reverse brake	Retaining plate clearance	mm { in }	0.8—1.05 { 0.031—0.041 }			
	Retaining plate size	mm { in }	11.8 { 0.465 }, 12.0 { 0.472 }, 12.2 { 0.480 }, 12.4 { 0.488 }, 12.6 { 0.496 }, 12.8 { 0.504 }			
Oil distributor	Seal ring to groove clearance	mm { in }	Standard	0.04—0.16 { 0.0016—0.0062 }		
			Maximum	0.40 { 0.0157 }		
Valve spring specification			Outer dia.	Free length	No. of coils	Wire dia.
Control valve	Pressure regulator		mm { in }	mm { in }		mm { in }
	1—2 shift		11.7 { 0.461 }	43.0 { 1.693 }	13.0	1.2 { 0.047 }
	2—3 shift		7.4 { 0.291 }	26.4 { 1.039 }	9.6	0.7 { 0.028 }
	3—4 shift		10.0 { 0.394 }	50.0 { 1.969 }	13.7	1.0 { 0.039 }
			7.5 { 0.295 }	40.2 { 1.583 }	15.0	0.8 { 0.031 }

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Item			Transmission	NC4A-EL		
Valve spring specification			Outer dia. mm { in }	Free length mm { in }	No. of coils	Wire dia. mm { in }
Control valve	Pressure modifier		9.2 { 0.362 }	19.8 { 0.780 }	5.3	0.7 { 0.028 }
	Throttle backup	Small	6.7 { 0.264 }	17.5 { 0.689 }	7.4	0.7 { 0.028 }
		Large	9.0 { 0.354 }	17.5 { 0.689 }	5.2	0.9 { 0.035 }
	N-R reducing		7.4 { 0.291 }	14.5 { 0.571 }	5.0	0.6 { 0.024 }
	Backup control		8.5 { 0.335 }	21.3 { 0.839 }	7.3	0.9 { 0.035 }
	3-2 control		5.5 { 0.217 }	39.5 { 1.555 }	24.4	0.65 { 0.026 }
	Orifice check		5.0 { 0.197 }	15.5 { 0.610 }	12.0	0.23 { 0.009 }
	1-2 reducing		9.4 { 0.370 }	19.5 { 0.768 }	5.0	0.8 { 0.031 }
	1-2 accumulator		11.2 { 0.441 }	62.0 { 2.441 }	21.3	1.2 { 0.047 }
	N-R/2-3 accumulator		8.9 { 0.350 }	82.5 { 3.248 }	29.7	1.1 { 0.043 }
	N-D accumulator		9.3 { 0.366 }	43.4 { 1.709 }	22.0	1.4 { 0.055 }
Throttle relief (ball)		6.5 { 0.256 }	26.8 { 1.055 }	14.0	0.9 { 0.035 }	
Oil pump	TCC control		5.5 { 0.217 }	25.7 { 1.012 }	16.5	0.7 { 0.028 }
Drum support	Fourth gear accumulator		16.0 { 0.630 }	40.4 { 1.591 }	9.8	2.6 { 0.102 }
Band servo	Fourth gear		27.7 { 1.091 }	47.0 { 1.850 }	14.0	3.5 { 0.138 }
	Second gear		28.25 { 1.112 }	38.7 { 1.52 }	5.4	3.5 { 0.138 }
Direct, front, and rear clutches			8.0 { 0.315 }	30.5 { 1.20 }	14.5	1.3 { 0.051 }
Low and reverse brake			—	5.9—6.2 { 0.232—0.244 }	—	—
Parking rod			7.2 { 0.283 }	32.0 { 1.260 }	14.0	0.7 { 0.028 }
Shift point (shift speed)						
Range	Mode	Throttle condition	Shift	Vehicle speed km/h { mph }		
D	NOR- MAL	Wide open throttle	D ₁ →D ₂	58—64 { 36—39 }		
			D ₂ →D ₃	100—108 { 62—66 }		
			D ₃ TCC ON	98—106 { 61—65 }		
			D ₃ →D ₄	152—162 { 95—100 }		
		Half throttle	D ₁ →D ₂	33—46 { 21—28 }		
			D ₂ →D ₃	58—76 { 36—47 }		
			D ₃ →D ₄	82—110 { 51—68 }		
			D ₄ TCC ON	74—100 { 46—62 }		
		Closed throttle position	D ₄ →D ₃	28—34 { 17—21 }		
			D ₃ →D ₁	11—17 { 7—10 }		
		Kickdown (Wide open throttle)	D ₄ →D ₃	140—150 { 87—93 }		
			D ₃ →D ₂	92—100 { 57—62 }		
	D ₂ →D ₁		42—48 { 26—29 }			
	D ₁ →D ₂		58—64 { 36—39 }			
	POWER	Wide open throttle	D ₁ →D ₂	58—64 { 36—39 }		
			D ₂ →D ₃	100—108 { 62—66 }		
			D ₃ TCC ON	98—106 { 61—65 }		
			D ₃ →D ₄	152—162 { 94—100 }		
		Half throttle	D ₁ →D ₂	44—55 { 28—34 }		
			D ₂ →D ₃	90—108 { 56—66 }		
D ₃ TCC ON			98—106 { 61—65 }			
D ₃ →D ₄			140—164 { 87—101 }			
Closed throttle position		D ₄ →D ₃	28—34 { 17—21 }			
		D ₃ →D ₁	11—17 { 7—10 }			
Kickdown (Wide open throttle)		D ₄ →D ₃	140—150 { 87—93 }			
		D ₃ →D ₂	92—100 { 57—62 }			
		D ₂ →D ₁	42—48 { 26—29 }			
		D ₁ →D ₂	58—64 { 36—39 }			

Item			Transmission	NC4A-EL	
Range	Mode	Throttle condition	Shift	Vehicle speed km/h { mph }	
D	HOLD	All positions	D ₁ →D ₂	27—33 { 17—20 }	
			D ₂ →D ₃	35—45 { 22—27 }	
			D ₄ →D ₃	152—158 { 94—97 }	
			D ₃ →D ₁	12—18 { 8—11 }	
			D ₃ TCC ON	95—105 { 59—65 }	
S	POWER	Wide open throttle	S ₁ →S ₂	58—64 { 36—39 }	
			S ₂ →S ₃	100—108 { 62—66 }	
			S ₃ TCC ON	98—105 { 61—65 }	
		Half throttle	S ₁ →S ₂	44—55 { 28—34 }	
			S ₂ →S ₃	90—108 { 56—67 }	
			S ₃ TCC ON	94—106 { 58—66 }	
	HOLD	All positions	Closed throttle position	S ₃ →S ₁	11—17 { 7—10 }
			Kickdown (Wide open throttle)	S ₃ →S ₂	92—100 { 57—62 }
				S ₂ →S ₁	42—48 { 26—29 }
			S ₃ →S ₂	99—105 { 61—65 }	
S ₃ TCC ON	95—105 { 59—65 }				
L	POWER	Wide open throttle	L ₁ →L ₂	56—62 { 35—38 }	
			L ₁ →L ₂	44—55 { 27—34 }	
		Closed throttle position	L ₃ →L ₂	96—104 { 60—64 }	
			L ₂ →L ₁	11—17 { 7—10 }	
		Kickdown (Wide open throttle)	L ₃ →L ₂	99—105 { 61—65 }	
			L ₂ →L ₁	42—48 { 26—29 }	
	HOLD	All positions	L ₂ →L ₁	35—41 { 21—25 }	
			L ₃ TCC ON	95—105 { 59—65 }	
Line pressure	R position kPa { kgf/cm ² , psi }	Idle	775—970 { 7.9—9.9, 113—140 }		
		Stall	1,972—2,167 { 20.1—22.1, 286—314 }		
	D range kPa { kgf/cm ² , psi }	Idle	285—362 { 2.9—3.7, 42—52 }		
		Stall	795—912 { 8.1—9.3, 116—132 }		
	S range kPa { kgf/cm ² , psi }	Idle	785—921 { 8.0—9.4, 114—133 }		
		Stall	795—912 { 8.1—9.3, 116—132 }		
	L range kPa { kgf/cm ² , psi }	Idle	295—392 { 3.0—4.0, 43—56 }		
		Stall	883—1,078 { 9.0—11.0, 128—156 }		
Engine stall speed			rpm	2,100—2,500	
Vacuum dia- phragm	Clearance between body and throttle valve mm { in }		Adjusting rod length mm { in }		
	Below 25.65 { 1.0099 }		29.0 { 1.14 }		
	25.65—26.15 { 1.0099—1.0295 }		29.5 { 1.16 }		
	25.90—26.40 { 1.0197—1.0394 }		29.75 { 1.17 }		
	26.15—26.65 { 1.0295—1.0492 }		30.0 { 1.18 }		
	26.65—27.15 { 1.0492—1.0689 }		30.5 { 1.20 }		
27.15 { 1.0689 } or over		31.0 { 1.22 }			
Time lag	N ↔ D	sec.	0.5—0.6		
	N ↔ R	sec.	0.75—0.85		

L. PROPELLER SHAFT

Item	Specification
Max. run out mm { in }	0.4 { 0.016 }

M. FRONT AND REAR AXLES

Item		Specifications	
Front axle	Type	Double-wishbone	
	Bearing	Angular ball bearing	
	Wheel bearing play mm { in } | Maximum	0.05 { 0.002 }	
Rear axle	Type	Double-wishbone	
	Bearing	Angular ball bearing	
	Wheel bearing play mm { in } | Maximum	0.05 { 0.002 }	
Differential	Type	"TORSEN" LSD | Standard	
	Reduction gear	Hypoid gear	
	Reduction ratio	4.100	
	Differential gear	Worm gear ("TORSEN" LSD) | Straight-bevel gear	
	Ring gear size mm { in }	182.88 { 7.20 }	
	Oil	Grade	API service GL-4, GL-5
		Viscosity	Above -18°C { 0°F } : SAE 90 Below -18°C { 0°F } : SAE 80W
		Capacity L { US qt , Imp qt }	1.00 { 1.06 , 0.88 }
	Drive pinion preload (without oil seal)		Locknut tightening torque: 128—284 N·m { 13—29 kgf·m , 94.1—209.7 ft·lbf } 0.9—1.3 N·m { 9—14 kgf·cm , 7.9—12.1 in·lbf }
	Backlash mm { in }	Side gear and pinion gear	0—0.1 { 0—0.0039 }
		Final gear	0.09—0.11 { 0.0035—0.0043 }
	Length (Pilot section to pilot section) mm { in }		185.428—185.50 { 7.3003—7.3031 }

"TORSEN" is a registered trademark of ZEXEL-GLEASON USA, INC

N. STEERING SYSTEM

Item	Type	Manual steering	Power steering
Steering wheel			
Outer diameter	mm { in }	370 { 14.6 }	
Free play	mm { in }	0—30 { 0—1.18 }	
Wheel effort	N { kgf, lbf }	4.9—29.4 { 0.5—3.0, 1.1—6.6 }	23.5—35.3 { 2.4—3.6, 5.3—8.0 }
Lock-to-lock	turns	3.36	2.8
Steering Shaft			
Shaft type		Collapsible, non-tilt	
Joint type		2-cross joint	
Power steering system			
Power assist type		Engine speed sensing	
Gear type		Rack-and-pinion	
Total gear ratio		17.3	14.4
Rack stroke	mm { in }	121.0 { 4.76 }	
Power steering fluid		ATF Dexron®II or M-III	
Fluid capacity	L { US qt, Imp qt }	—	0.8 { 0.85, 0.70 }
Fluid pressure	kPa { kgf/cm ² , psi }	7,601—8,335 { 77.5—85.0, 1,103—1,208 }	

P. BRAKING SYSTEM

Item		Specifications	
Brake pedal	Height (with carpet) mm { in }	171—181 { 6.73—7.13 }	
	Free play mm { in }	4—7 { 0.16—0.28 }	
	Reserve travel (without carpet, clearance when pedal is depressed at 589 N { 60 kgf , 132 lbf }) mm { in }	95 { 3.74 }	
Master cylinder	Type	Tandem	
	Bore mm { in }	22.22 { 0.875 }	
	Fluid type	FMVSS116, DOT-3	
Front brake (Disc)	Type	Disc	
	Thickness of pad mm { in }	Standard	8.0 { 0.31 }
		Limit	1.0 { 0.04 }
	Thickness of disc plate mm { in }	Standard	20.0 { 0.79 }
		Limit	18.0 { 0.71 }
	Disc plate runout mm { in }	0.1 { 0.004 } max.	
Wheel cylinder bore mm { in }	51.1 { 2.01 }		
Rear brake (Disc)	Type	Disc	
	Thickness of pad mm { in }	Standard	8.0 { 0.31 }
		Limit	1.0 { 0.04 }
	Thickness of disc plate mm { in }	Standard	9.0 { 0.35 }
		Limit	8.0 { 0.31 }
Wheel cylinder bore mm { in }	31.75 { 1.25 }		
Parking brake	Lever notches (Pulled at 196 N { 20 kgf, 44 lbf })	7—9	
Power brake unit	Type	Single diaphragm	
	Diameter mm { in }	214 { 8.0 }	
	Push rod-to-piston clearance mm { in }	When vacuum applied to the unit is approx. 66.7 kPa { 500 mmHg , 19.7 inHg } 0.1—0.4 { 0.004—0.016 }	
	Fluid pressure per treading force kPa { kgf/cm ² , psi }/N { kgf , lbf }	1,079—1,177 { 11—12 , 156—171 }/196 { 20 , 44 } at 0 kPa { 0 mmHg , 0 inHg } min. 5,199—5,494 { 53—56 , 754—796 }/196 { 20 , 44 } at 66.7 kPa { 500 mmHg , 19.7 inHg } min.	
Rear wheel hydraulic control system	Type	PBV	
	Bend portion (Rear brake pressure) kPa { kgf/cm ² , psi }	2,943 { 30 , 427 }	

Q. WHEELS AND TIRES

Item	Type	Standard		Temporary spare
		Size	15×6JJ	14×5 1/2-JJ	14×4T
Wheel	Offset mm { in }	45 { 1.77 }		
	Pitch circle diameter mm { in }	100 { 3.94 }		
	Material	Aluminum alloy		Steel
Tire	Size	195/50R15 81V	185/60R14 82H	T115/70D14
	Air pressure kPa { kgf/cm ² , psi }	177 { 1.8 , 26 }		412 { 4.2 , 60 }
Wheel and tire	Runout limit mm { in }	Radial	2.0 { 0.079 }	
		Lateral	1.5 { 0.059 }	
	Maximum unbalance (at rim edge) g { oz }	10 { 0.35 }		

R. SUSPENSION

Transmission		MT	AT
Item			
Front suspension			
Type	Double-wishbone		
Stabilizer	Type	Torsion bar	
	Diameter mm { in }	19.0 { 0.75 }	
Shock absorbers	Cylindrical double-acting, low-pressure gas charged		
Rear suspension			
Type	Double-wishbone		
Stabilizer	Type	Torsion bar	
	Diameter mm { in }	11.0 { 0.43 }	
Shock absorbers	Cylindrical double-acting, low-pressure gas charged		
Wheel alignment			
Front wheel alignment (Unladen*1)	Total toe-in	mm { in }	$3 \pm 4 \{ 0.12 \pm 0.15 \}$
		degree	$0^{\circ}18' \pm 24''^{*2}$
	Maximum steering angle	Inner	$37^{\circ}23' \pm 2^{\circ}$
		Outer	$32^{\circ}32' \pm 2^{\circ}$
	Camber angle*3	$0^{\circ}24' \pm 1^{\circ}$	
	Caster angle*3	$4^{\circ}26' \pm 1^{\circ}$	
SAI*4	$11^{\circ}20'$		
Rear wheel alignment (Unladen*1)	Total toe-in	mm { in }	$3 \pm 4 \{ 0.12 \pm 0.15 \}$
		degree	$0^{\circ}18' \pm 24''^{*2}$
	Camber angle*3	$-0^{\circ}43' \pm 1^{\circ}$	

*1 • Fuel tank full; radiator coolant and engine oil at specified levels; and spare tire, jack, and tools in designated positions

• Adjust to the median when carrying out wheel alignment

*2 Indicates measurements made by using the 4-wheel alignment tester

*3 Difference between left and right must not exceed 1.5°

*4 SAI: Steering Axis Inclination

T. BODY ELECTRICAL SYSTEM

Item	Wattage (Bulb trade number)
Warning and indicator lights	
High beam indicator light	3.4
Turn indicator light	3.4
Instrument cluster illumination	3.4 × 4
Malfunction indicator lamp	1.4
Brake system warning light	1.4
Generator warning light	1.4
Seat belt warning light	1.4
Air bag system warning light	1.4
Retractor indicator light	1.4
HOLD indicator light	1.4
ABS warning light	1.4
Washer fluid-level warning light	1.4
Rear window defroster indicator light	1.4
Exterior lights	
Headlights	60/40
Front turn lights/parking lights	27/8 (1157 NA)
Front side marker lights	3.8 { 194 }
Licence plate lights	7.5
Rear turn lights	27 { 1156 }
Rear side marker lights	3.8 { 194 }
Brake light/taillights	27/8 { 1157 }
Back-up lights	27 { 1156 }
High-mount brake light	18.4 { 921 }
Interior lights	
5	
Illumination lights	
Ash tray illumination	3.4
Heater control switch illumination	1.4
Hazard warning switch illumination	1.4
Cruise control main switch illumination	1.4

U. HEATER AND AIR CONDITIONING SYSTEM

Item	Specifications
Refrigerant amount g { oz }	600 { 21.2 }
Compressor oil amount ml { cc , fl oz }	130—170 { 130—170 , 4.4—5.7 }
Refrigerant normal pressure MPa { kgf/cm ² , psi }	Low pressure: 0.15—0.24 { 1.5—2.5 , 22—35 } High pressure: 1.38—1.56 { 14—16 , 200—227 }

STANDARD BOLT AND NUT TIGHTENING TORQUES

Diameter mm { in }	Pitch mm { in }	4T			6T			8T		
		N·m	kgf·m	ft·lbf	N·m	kgf·m	ft·lbf	N·m	kgf·m	ft·lbf
6 { 0.236 }	1 { 0.039 }	4.3—6.1	0.43—0.63	3.2—4.5	6.9—9.8	0.7—1.0	5.0—7.2	7.9—11.7	0.8—1.2	5.8—8.6
8 { 0.315 }	1.25 { 0.049 }	10—14	1.0—1.5	7.3—10.8	16—22	1.6—2.3	12—16	18—26	1.8—2.7	13—19
10 { 0.394 }	1.25 { 0.049 }	20—28	2.0—2.9	15—20	32—46	3.2—4.7	24—33	37—53	3.7—5.5	27—39
12 { 0.472 }	1.5 { 0.059 }	35—50	3.5—5.1	26—36	55—80	5.6—8.2	41—59	63—93	6.4—9.5	47—68
14 { 0.551 }	1.5 { 0.059 }	—	—	—	76—102	7.7—10.5	56—75	98—137	10—14	73—101
16 { 0.630 }	1.5 { 0.059 }	—	—	—	118—156	12—16	87—115	157—215	16—22	116—159
18 { 0.709 }	1.5 { 0.059 }	—	—	—	167—225	17—23	123—166	226—304	23—31	167—224
20 { 0.787 }	1.5 { 0.059 }	—	—	—	236—313	24—32	174—231	305—421	31—43	225—311
22 { 0.866 }	1.5 { 0.059 }	—	—	—	314—421	32—43	232—311	422—568	43—58	311—419
24 { 0.945 }	1.5 { 0.059 }	—	—	—	403—549	41—56	297—405	540—725	55—74	398—535

SPECIAL TOOLS

GENERAL INFORMATION	ST- 2
ENGINE	ST- 3
CLUTCH AND MANUAL TRANSMISSION	ST- 4
AUTOMATIC TRANSMISSION	ST- 5
DIFFERENTIAL	ST- 6
FRONT AND REAR AXLES	ST- 7
STEERING SYSTEM	ST- 8
BRAKING SYSTEM	ST-10
FRONT AND REAR SUSPENSIONS	ST-10
CHECKERS AND OTHER EQUIPMENT	ST-11

GENERAL INFORMATION

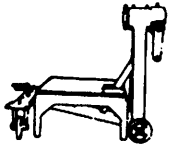
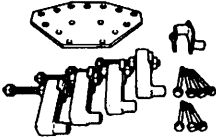

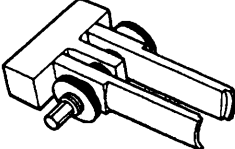

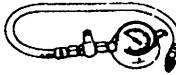
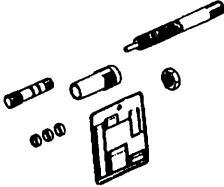
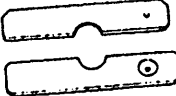
The letters A and B in the priority column indicate the degree of importance of each tool.

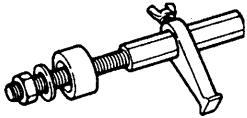
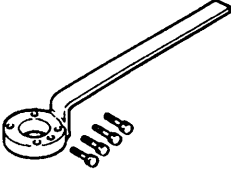
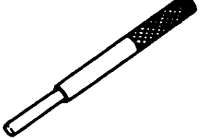
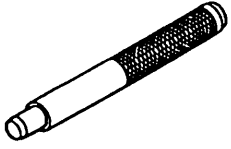
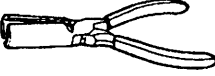
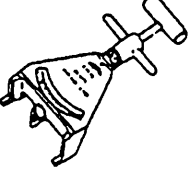

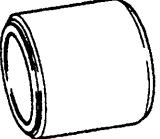
A: Necessary for performing operation. All service shops should have these tools.

B: Selective.

Not as necessary as tools ranked A, but these tools will help to perform repairs more easily and efficiently. When ordering tool sets, check the List in the Parts Catalogue to make sure that some tools in the set are duplicated in other sets you may already have. If they are, instead of ordering the set, order only the tools that are needed.

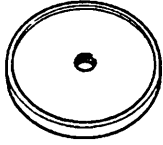
ENGINE

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 0107 680A Engine stand	A	
49 L010 1A0 Hanger set, engine stand	A	
49 0636 100B Arm, valve spring lifter	A	
49 B012 0A2 Pivot	A	
49 9200 145 Adapter set, radiator cap tester	A	
49 0187 280 Oil pressure gauge	A	
49 L012 0A0 Installer set, valve seal & valve guide	A	
49 E301 144 Removing Plate New SST	A	

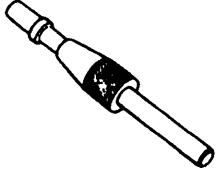

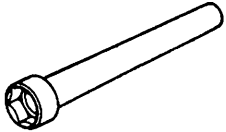
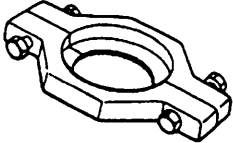

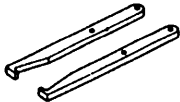
TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 E011 1A0 Brake set, ring gear	A	
49 D011 102 Lock tool, crankshaft	A	
49 B012 005 Remover & installer, valve guide	A	
49 0221 061A Remover & installer, piston pin	B	
49 S120 170 Remover, valve seal	A	
49 9200 020A V-ribbed belt tension gauge	A	
49 G014 001 Wrench, oil filter New SST	A	
49 B014 001 Installer, oil seal New SST	A	


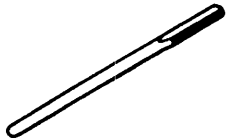
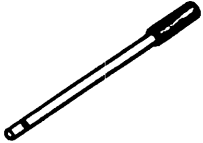

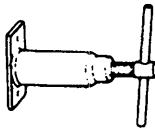

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ENGINE (CONT'D)


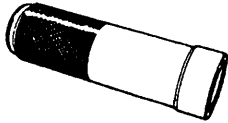
TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 W033 105 Installer, oil seal New SST	A	

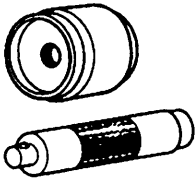

CLUTCH AND MANUAL TRANSMISSION

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 SE01 310A Centering tool, clutch disc	A	
49 0259 440 Holder, mainshaft	A	
49 1243 465A Wrench, mainshaft lock nut	A	
49 0636 145 Puller, fan pulley boss	A	
49 0839 425C Puller set, bearing	A	
49 H017 101 Hook	A	

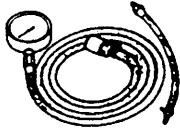


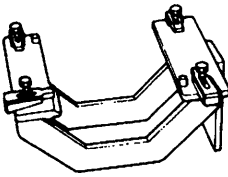

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 0259 770B Wrench, flare nut	A	
49 0187 451A Guide, interlock pin assembly	B	
49 0862 350 Guide, shift fork assembly	B	
49 0500 330 Installer, bearing	A	
49 0305 430 Pusher, main drive shaft	A	
49 0710 520 Puller, bearing	A	

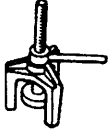

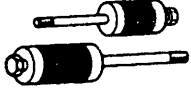

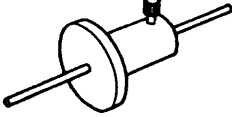
CLUTCH AND MANUAL TRANSMISSION (CONT'D)

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 0180 321A Installer, main drive gear bearing	A	
49 F401 331 Body	A	

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 B025 0A0 Installer, dust seal	A	
49 1285 071 Puller, bearing	A	

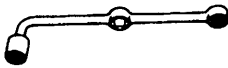
AUTOMATIC TRANSMISSION

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 0378 400B Gauge set, oil pressure	A	
49 B019 901 Gauge, oil pressure	A	
49 H019 002 Adapter	A	
49 U019 0A0A Hanger set, transmission	A	
49 0378 346 Hexhead wrench	A	


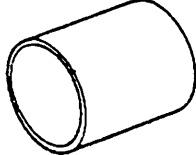
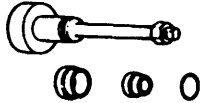
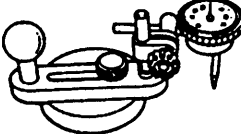
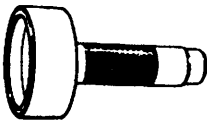
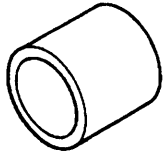
TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 0378 375 Compressor, clutch spring	A	
49 G030 795 Installer, oil seal	A	
49 0378 390 Puller, oil pump	A	
49 S019 0A0 Centering tool set	A	
49 G032 355 Adjust gauge	B	

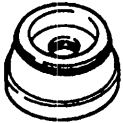
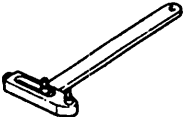

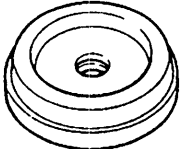
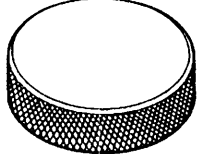
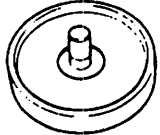
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AUTOMATIC TRANSMISSION (CONT'D)

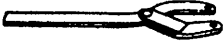
<p>49 0877 435 Special wrench</p>	<p>A</p>	
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DIFFERENTIAL

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
<p>49 M005 561 Hanger, differential carrier</p>	<p>A</p>	
<p>49 H027 001 Collar</p>	<p>A</p>	
<p>49 8531 565 Pinion model</p>	<p>A</p>	
<p>49 0727 570 Gauge body, pinion height</p>	<p>A</p>	
<p>49 B001 795 Installer, oil seal</p>	<p>A</p>	
<p>49 U027 003 Installer, oil seal</p>	<p>A</p>	

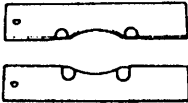
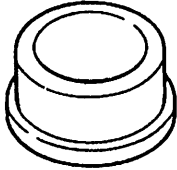

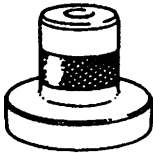
TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
<p>49 F027 005 Attachment $\phi 62$</p>	<p>A</p>	
<p>49 0259 720 Adjustment wrench, side bearing</p>	<p>B</p>	
<p>49 G030 338 Attachment E</p>	<p>A</p>	
<p>49 F027 004 Attachment $\phi 80$</p>	<p>A</p>	
<p>49 0305 555 Gauge block</p>	<p>A</p>	
<p>49 N034 213 Installer, rubber bushing</p>	<p>A</p>	


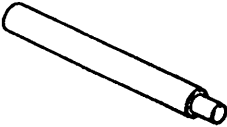
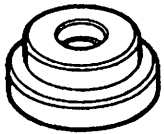
DIFFERENTIAL (CONT'D)

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 S120 710 Holder, coupling flange	A	

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 F401 337A Attachment C	A	

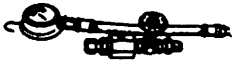





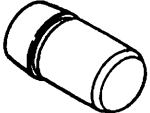
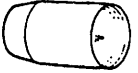
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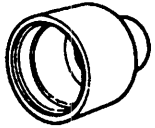
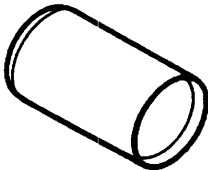
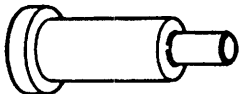

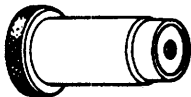
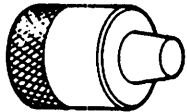
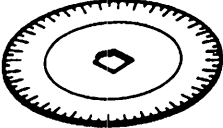
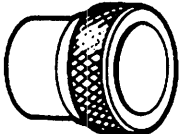
TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 F026 103 Puller, wheel hub	A	
49 F027 009 Attachment $\phi 68$ & $\phi 77$	A	
49 G033 107A Installer, dust cover	A	
49 V001 795 Installer, oil seal	A	

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 F027 007 Attachment $\phi 72$	A	
49 G033 102 Handle	A	
49 G030 727 Attachment A	A	

ST

STEERING SYSTEM

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 1232 670A Gauge set, power steering (P/S)	A	
49 H002 671 Adapter (P/S)	A	
49 B032 302A Adapter (P/S)	A	
49 H032 321A Hexagon wrench	A	
49 N032 303 Remover body, back-up ring & oil seal (P/S)	A	
49 D032 302 Attachment (P/S)	A	
49 N032 302 Guide, oil seal (P/S)	A	
49 N032 304 Protector, oil seal (P/S)	A	

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 1243 785 Installer, dust boot	A	
49 D032 310 Protector, pinion shaft (P/S)	A	
49 B032 305 Holder, power steering pump (P/S)	A	
49 D032 304 Installer, oil seal & bearing (P/S)	A	
49 D032 301 Installer body, oil seal & bearing (P/S)	A	
49 D032 305 Remover, oil seal & bearing (P/S)	A	
49 D032 316 Protractor (P/S)	A	
49 D032 315 Seal ring former & guide (P/S)	A	

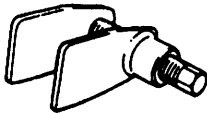
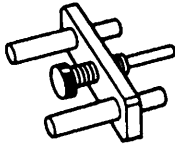
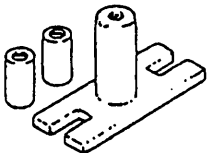
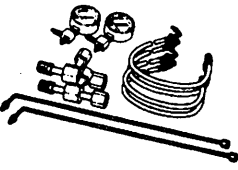
STEERING SYSTEM (CONT'D)

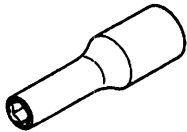
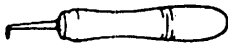
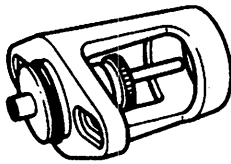
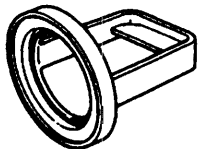
TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 N032 305 Protector, back-up ring & oil seal (P/S)	A	
49 G032 317 Hose (P/S)	A	
49 D032 306 Support block (P/S)	A	
49 F032 303 Handle (P/S)	A	
49 D032 303 Attachment (P/S)	A	
49 0180 510B Attachment, preload measuring	B	

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 G032 319 Adapter (P/S)	A	
49 D032 313 Seal ring former (P/S)	A	
49 N032 301 Protector body, oil seal (P/S)	A	
49 D032 307 Remover, oil seal & bearing (P/S)	A	
49 T028 3A0 Puller set, ball joint New SST	A	
49 H032 301 Wrench	A	

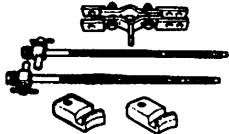
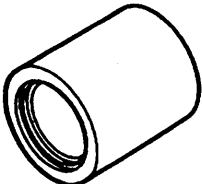
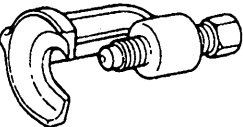
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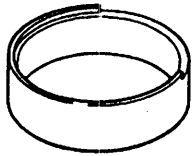
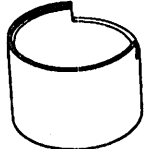

BRAKING SYSTEM

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 0221 600C Expand tool, disc brake	A	
49 F043 001 Adjust gauge	A	
49 B043 003A Lock tool, turning	A	
49 U043 0A0 Gauge set, oil pressure	A	

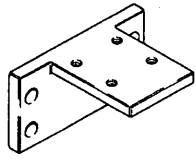
TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 B043 004 Wrench, socket	A	
49 0208 701A Air out tool, boot	A	
49 B043 001 Adjust gauge	A	
49 H026 101A Installer, sensor rotor	A	

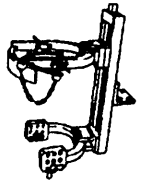
FRONT AND REAR SUSPENSIONS

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 G034 1A0 Compressor, coil spring Ⓐ	A	
49 H028 301 Installer, dust boot	A	
49 0118 850C Puller, ball joint (upper arm)	A	

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 N028 201 Support block	A	
49 B034 201 Support block	A	
49 T034 1A0 Compressor set, coil spring Ⓑ New SST	A	

FRONT AND REAR SUSPENSIONS (CONT'D)


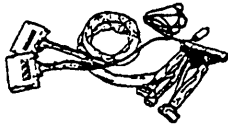
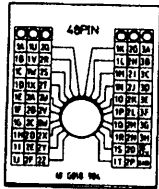
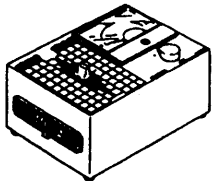

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 T034 105 Attachment © New SST	B	

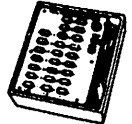
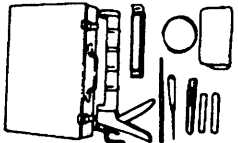
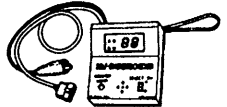
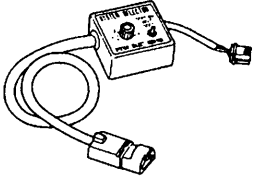
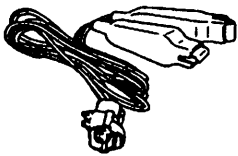
TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 T034 101 Compressor, coil spring Ⓓ New SST	A	

Note

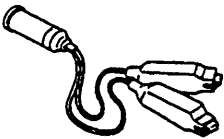
- SST Ⓐ, Ⓑ, Ⓒ and Ⓓ are used in the following combinations.
 - Use Ⓐ only.
 - Use Ⓑ only.
 - Use Ⓒ + Ⓓ + 49 0107 680A Engine stand. Either combination can be used.


CHECKERS AND OTHER EQUIPMENT

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 G050 1A0 Remover, sealant New SST	A	
49 T018 902 Adapter harness New SST	A	
49 G018 906 Sheet (48 pin) New SST	A	
49 9200 162A Engine signal monitor	A	
49 H066 002 Tool, deployment	A	

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 0839 285 Checker, fuel and thermometer	A	
49 0305 870A Tool set, window	A	
49 H018 9A1 Self-diagnosis checker	A	
49 B019 9A0 System selector	A	
49 L018 902 Checker, injector	A	

CHECKERS AND OTHER EQUIPMENT (CONT'D)

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 D088 008 Harness adapter power New SST	A	

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 F066 002 Harness adapter (ABS) New SST	A	

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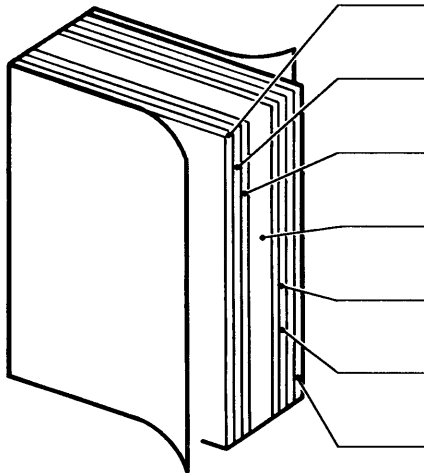
PARTS INDEXZ-81

WIRING COLOR CODE

Color	Code	Color	Code
Blue	L	Orang	O
Black	B	Pink	P
Brown	BR	Red	R
Dark Blue	DL	Purple	PU
Dark Green	DG	Sky Blue	SB
Green	G	Tan	T
Gray	GY	White	W
Light Blue	LB	Yellow	Y
Light Green	LG	Violet	V
Natural	N		

Contents of wiring diagrams

- This document comprises the 7 groups shown below.

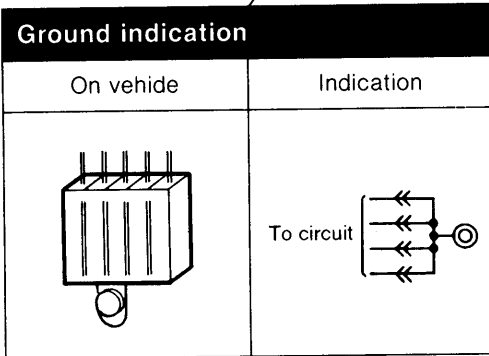
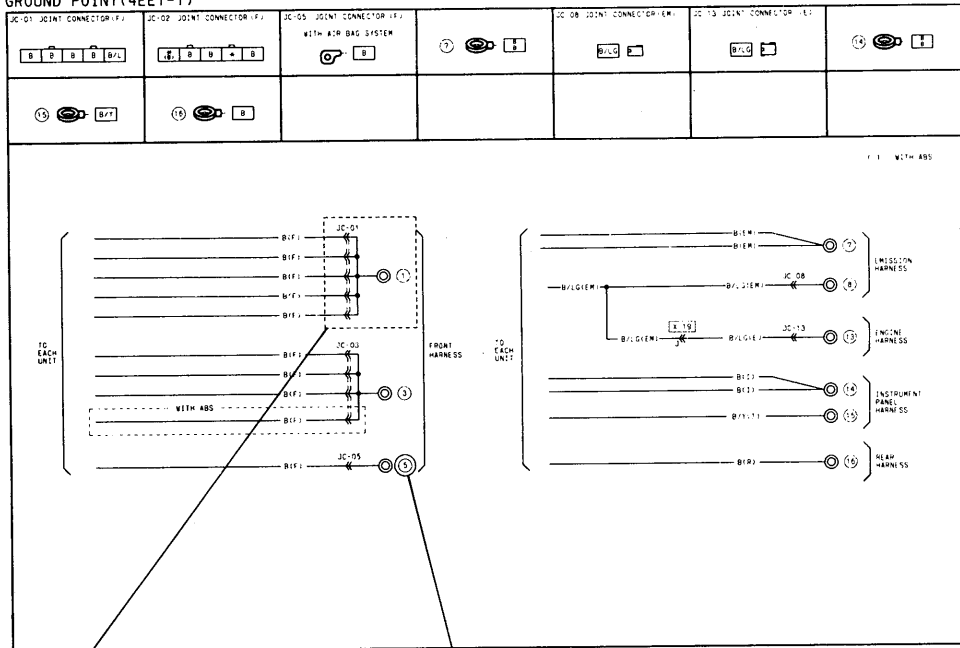


GI	General information of wiring diagrams	A how-to on using and reading wiring diagrams, using test equipment, checking harnesses and connectors, and finding trouble spots
Y	Ground points	Ground routes from and to the battery
W	Electrical wiring schematic	Shows main fuses and other fuses for each system
A-U	System circuit diagram/connector locations	Shows circuit and connector diagrams and component and connector location diagrams
X	Common connectors	Shows connectors common throughout system
JB	Joint box complete wiring system	Shows internal circuits and connectors
PI	Index	Gives page number of circuit diagram for each component

Ground points

- This shows ground points of the harness.

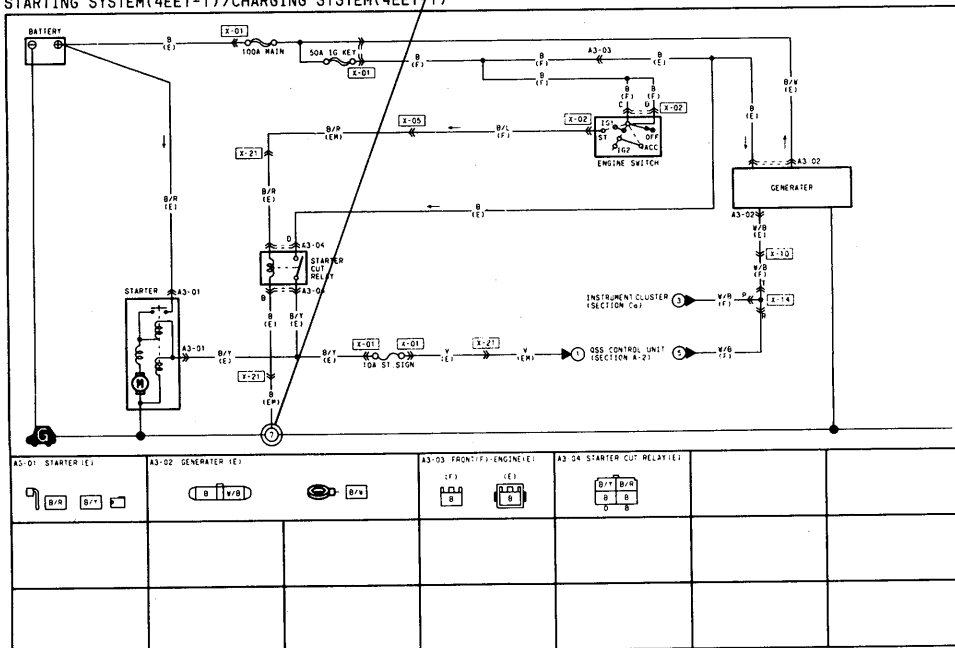
GROUND POINT (4EE1-T)



On circuit diagrams and ground points

The ground connection numbers in system circuit diagrams correspond to those in the ground point diagram.

STARTING SYSTEM(4EE1-T)/CHARGING SYSTEM(4EE1-T)



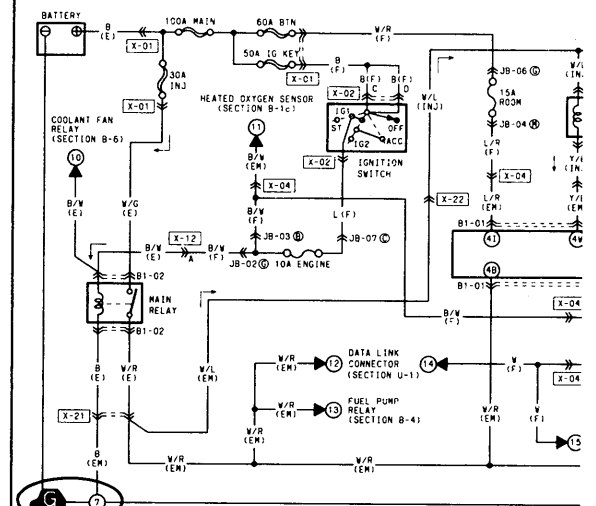
System circuit diagram/connector diagram

- These diagrams show the circuits for each system, from the power supply to the ground. The power supply side is on the upper part of the page, the ground side on the lower part. The diagrams describe circuits with the ignition switch off.

Below is an explanation of the various points in the diagram.

System name

ENGINE CONTROL SYSTEM(B3 CIS)/IGNITION SYSTEM(B3 CI



Connector code

The prefix letter indicates the system in which the connector is used.

- Y : Ground connector
- A : Charging system/starting system connectors
- B : Engine control system connectors
- C : Gauge control system connectors
- D : Wiper system connectors
- E : Lighting system connectors
- F : Signal system connectors
- G : Air-conditioning system connectors
- H : Transmission control system connectors
- I : Interior light system connectors
- J : Audio/radio connectors
- K : Power window/power door lock system connectors
- L : Remote control mirror system connectors
- M : Sliding sunroof system connectors
- N : Power steering/4-wheel steering system connectors
- O : Anti-lock brake system connectors
- P : Power seat/seat heater system connectors
- Q : Auto cruise control system connectors
- R : Auto adjusting suspension system connectors
- S : Passive shoulder belt control/Airbag system connectors
- T : Others
- U : Data link connector
- X : Common connectors
- JB : Joint box connections

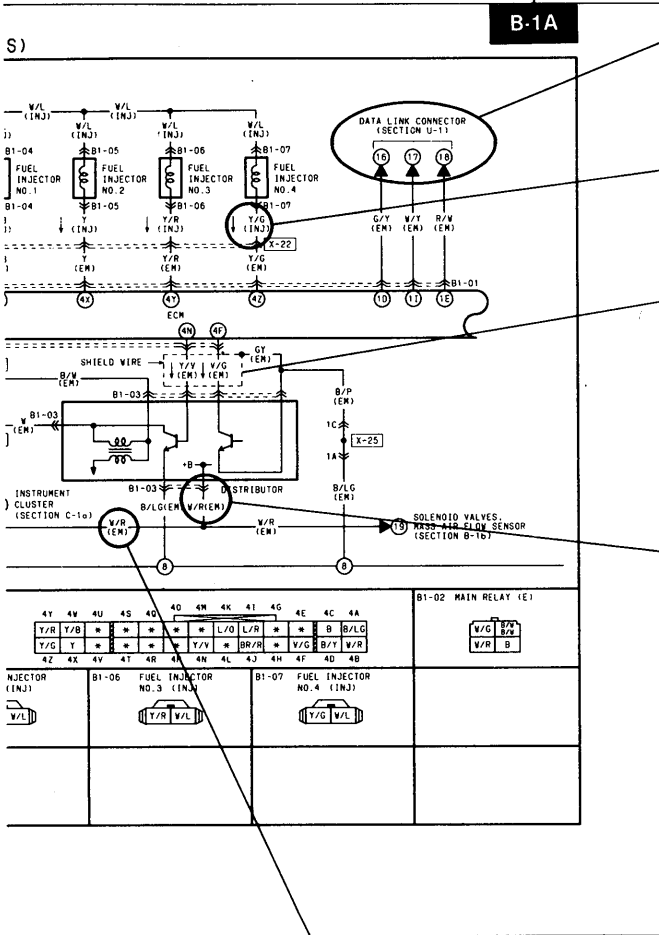
Ground numbers

A harness ground is represented differently than a unit ground.

Types of grounds	Symbol
<p>Harness</p>	
<p>Unit</p>	

System code

The number indicates that the circuit continues to the related system diagram.



Current symbol
Current flows in the direction of the arrow.

Indicates shielded wire.*

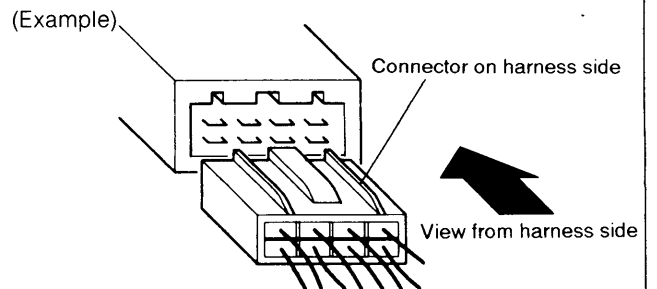
*Shielded wire:
Prevents signal disturbances from electrical interference.
Wire is covered by a metal meshing for grounding.

Connector symbols

• Male and female connectors are represented as follows in the circuit and connector diagrams.

		Circuit diagram symbol	Connector diagram symbol
Male			
Female			

• Like connectors are linked by dashed lines between the connector symbols.
• Connector diagrams show connectors on the harness side. The terminal indicates the view from the harness side.

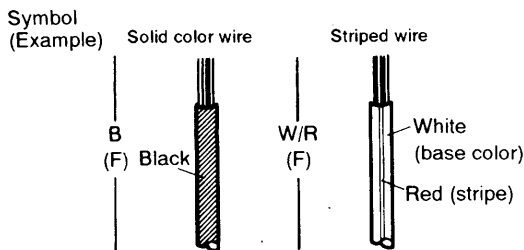


• Colors for connectors except milk-white are given in locations.
• Unused terminals are indicated by *.

Wire color code (harness symbol)

• Two-color wires are indicated by a two-letter symbol. The first indicates the base color of the wire, the second the color of the stripe. For example:

W/R is a white wire with a red strip
BR/Y is a brown wire with a yellow strip



• The harness symbol is in () following the harness symbols (refer to P-7).

Routing diagram

- The routing diagram shows where electrical components are on the system circuit diagram by call out line and connector symbols.

Connector symbol

Shows the system that uses the connector.

(Example)

Connector	Symbol
Joint box	JB-04
Common connectors	X-19
System connectors	I-03

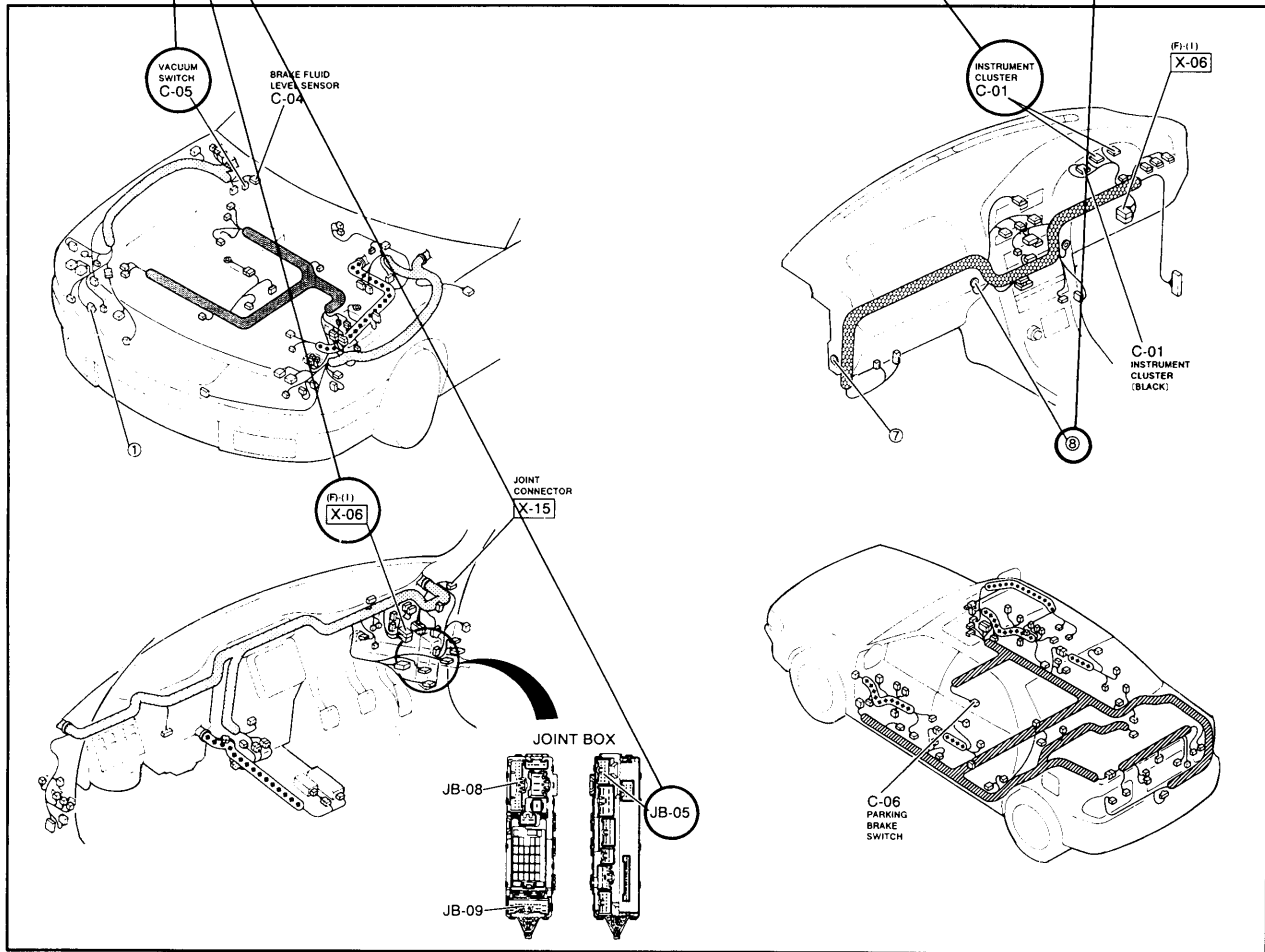
Component name

Shows the names of components in routing diagrams.

Ground symbol

Shows the ground in system diagrams.



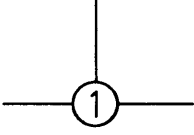

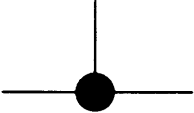






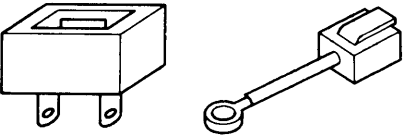

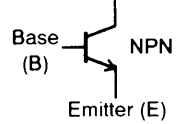
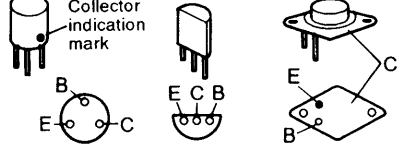
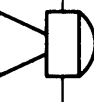
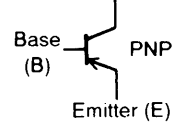



HARNESS SYMBOL (F) (B) (EM) (I) (R) (DR) (IN)

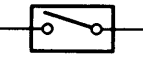

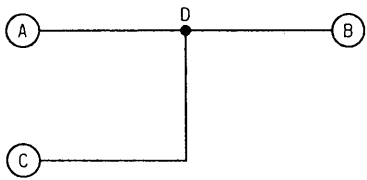
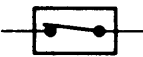

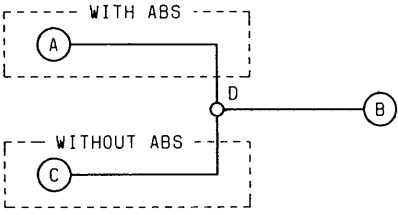
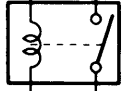
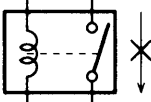
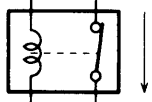
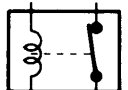
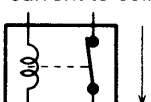
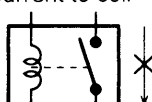


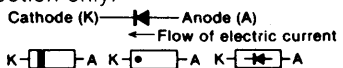
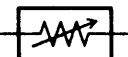

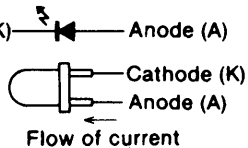
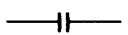

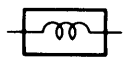


Harness symbols

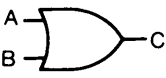
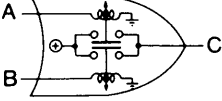

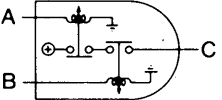
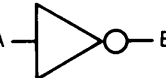
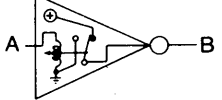
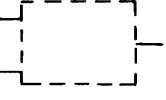
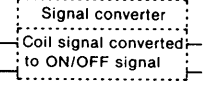
DESCRIPTION OF HARNESS	SYMBOL	DESCRIPTION OF HARNESS	SYMBOL
FRONT HARNESS	(F)	DOOR NO.1 HARNESS	(DR1)
FRONT NO.2 HARNESS	(F2)	DOOR NO. 2 HARNESS	(DR2)
ENGINE HARNESS	(E)	DOOR NO. 3 HARNESS	(DR3)
DASH HARNESS	(D)	DOOR NO.4 HARNESS	(DR4)
REAR HARNESS	(R)	FLOOR HARNESS	(FR)
REAR NO.2 HARNESS	(R2)	INTERIOR LIGHT HARNESS	(IN)
REAR A HARNESS	(RA)	A/C HARNESS	(AC)
INSTRUMENT PANEL HARNESS	(I)		
EMISSION HARNESS	(EM)		
EMISSION NO.2 HARNESS	(EM2)		
EMISSION NO.3 HARNESS	(EM3)		

Symbols

Symbol	Meaning	Symbol	Meaning
<p>Battery</p> 	<ul style="list-style-type: none"> Generates electricity through chemical reaction. Supplies direct current to circuits. 	<p>Light</p> 	<ul style="list-style-type: none"> Emits light and generates heat when current flows through filament.
<p>Ground (1)</p> 	<ul style="list-style-type: none"> Connecting point to vehicle body or other ground wire where current flows from positive to negative terminal of battery. Ground (1) indicates a ground point to body through wire harness. Ground (2) indicates point where component is grounded directly to body. <p>Remarks</p> <ul style="list-style-type: none"> Current will not flow through a circuit if ground is faulty. 	<p>Resistance</p> 	<ul style="list-style-type: none"> A resistor with a constant value. Mainly used to protect electrical components in circuits by maintaining rated voltage.
<p>Ground (2)</p> 		<p>Fuse (1)</p> 	<p>Motor</p>	Converts electrical energy into mechanical energy.
<p>(box)</p> <p>Fuse (2)</p> 	<p>Precautions</p> <ul style="list-style-type: none"> Do not replace with fuses exceeding specified capacity. <p><Blade type> <Tube type></p> 	<p>Pump</p> 	<ul style="list-style-type: none"> Pulls in and discharges gases and liquids.
<p>(Cartridge)</p> <p>Main fuse/ Fusible link</p> 	<p><Cartridge type> <Fusible link></p> 	<p>Cigarette lighter</p> 	<ul style="list-style-type: none"> Electrical coil that generates heat.
<p>Transistor (1)</p> <p>Collector (C)</p> <p>Base (B)</p> <p>NPN</p> <p>Emitter (E)</p> 	<ul style="list-style-type: none"> Electrical switching component. Turns on when voltage is applied to the base (B). <p>Collector indication mark</p> 	<p>Horn</p> 	<ul style="list-style-type: none"> Generates sound when current flows.
<p>Transistor (2)</p> <p>Collector (C)</p> <p>Base (B)</p> <p>PNP</p> <p>Emitter (E)</p> 	<ul style="list-style-type: none"> Reading code. <p>2 S C 828 A</p> <p>Semiconductor Number of terminals</p> <p>Revision mark</p> <p>A: High-frequency PNP B: Low-frequency PNP C: High-frequency NPN D: Low-frequency NPN</p>	<p>Speaker</p> 	<ul style="list-style-type: none"> Generates heat when current flows.
		<p>Speed sensor</p> 	<ul style="list-style-type: none"> Movement of magnet in speedometer turns contact within sensor on and off.
		<p>Ignition switch</p> 	<ul style="list-style-type: none"> Turning ignition key switches circuit to operate various component. <p>(NOTE) Ignition switch is called engine switch on diesel vehicles.</p>

Symbol	Meaning	Symbol	Meaning
<p>Switch (1)</p>  <p>Normally open (NO)</p>	<ul style="list-style-type: none"> Allows or breaks current flow by opening and closing circuits. 	<p>Harness Connection</p>  <p>When circuit C-D is connected to circuit A-B, the connection D is indicated by a black dot.</p>	 <p>For vehicles with ABS, use the A-B circuit.</p>
<p>Switch (2)</p>  <p>Normally closed (NC)</p>	<ul style="list-style-type: none"> Allows or breaks current flow by opening and closing circuits. 	<p>Selection</p>  <p>Diversion point D for the different circuits according to the vehicle's specification is indicated by a white dot.</p>	 <p>For vehicles without ABS, use the C-B circuit.</p>
<p>Relay (1)</p>  <p>Normally open (NO)</p>	<ul style="list-style-type: none"> Current flowing through coil produces electromagnetic force causing contact to open or close. <p style="text-align: center;">No current to coil</p>  <p style="text-align: center;">Current to coil</p> 		
<p>Relay (2)</p>  <p>Normally closed (NC)</p>	<ul style="list-style-type: none"> Current flowing through coil produces electromagnetic force causing contact to close. <p style="text-align: center;">No current to coil</p>  <p style="text-align: center;">Current to coil</p> 		
<p>Sensor (variable)</p> 	<ul style="list-style-type: none"> Resistance changes with other components operation. 	<p>Diode</p> 	<ul style="list-style-type: none"> Known as a semiconductor rectifier, the diode allows current flow in one direction only. <p style="text-align: center;">Cathode (K) Anode (A)</p>  <p style="text-align: center;">K A K A K A</p>
<p>Sensor (thermistor)</p> 	<ul style="list-style-type: none"> Resistance changes with temperature. 	<p>Light-emitting diode (LED)</p> 	<ul style="list-style-type: none"> A diode that lights when current flows. Unlike ordinary bulbs, the diode does not generate heat when lit. <p style="text-align: center;">Cathode (K) Anode (A)</p>  <p style="text-align: center;">Cathode (K) Anode (A)</p> <p style="text-align: center;">Flow of current</p>
<p>Capacitor</p> 	<ul style="list-style-type: none"> Component that temporarily stores electrical charge. 	<p>Reference diode (Zener diode)</p> 	<ul style="list-style-type: none"> Allows current to flow in one direction up to a certain voltage; allows current to flow in the other direction once that voltage is exceeded.
<p>Solenoid</p> 	<ul style="list-style-type: none"> Current flowing through coil generates electromagnetic force to operate plungers. 		

Logic symbols

Types of logic symbols	Operation	Expressing output	Simple relay circuits
<p>OR</p> 	Input to A or B will produce output at C.	Low electrical potential (L) at A and B → no output (L) at C High electrical potential (H) at A or B → output (H) at C	
<p>AND</p> 	Input to A and B will produce output at C.	High electrical potential (H) at A and B → output (H) at C Low electrical potential (L) at A or B → no output (L) at C	
<p>INV</p> 	No input to A will produce an output at B. An input to A will not produce an output at B.	Low electrical potential (L) at A → no ground (H) B High electrical potential (H) at A → grounds (L) B	
<p>PROCESS</p> 	Simplified representation of complex functions within circuit describes main function. 1. Signal detector for engine control unit, cooling unit, and tachometer. 2. Signal converter for turn and hazard flasher unit and igniter unit.		<p>(Examples) igniters</p> 

Abbreviations used in this booklet

3GR	Third Gear
4GR	Fourth Gear
A	Ampere
A/C	Air Conditioning
A/F	Air Fuel
A/R	Auto Reverse
AAS	Auto Adjusting Suspension
ABS	Anti-lock Braking System
ACC	Accessories
ACV	Air Control Valve
ADD	Additional
AIR	Secondary Air Injection
AIS	Air Injection System
ALL	Automatic Load Leveling
AM	Amplitude Modulation
AMP	Amplifier
ANT	Antenna
AP	Accelerator Pedal
AS	Autostop
ASV	Air Supply Valve
AT	Automatic Transmission
ATX	Automatic Transaxle
B+	Battery Positive Voltage
BAC	Bypass Air Control
BARO	Barometric Pressure
CAC	Charge Air Cooler
CARB	Carburetor

CCT	Circuit
CIGAR	Cigarette
CIS	Continuous Fuel Injection System
CKP	Crankshaft Position Sensor
CLS	Closed Loop System
CMP	Camshaft Position Sensor
COMBI	Combination
CON	Conditioner
CONT	Control
CPU	Central Processing Unit
CSD	Cold Start Device
CTP	Closed Throttle Position
DEF	Defroster
DI	Distributor Ignition
DLC	Data Link Connector
DLI	Distributorless Ignition
DOHC	Double-Overhead Camshaft
DTC	Diagnostic Trouble Code(s)
DTM	Diagnostic Test Mode
ECM	Engine Control Module
ECPS	Electronically Controlled Power Steering
ECT	Engine Control Temperature
EGR	Exhaust Gas Recirculation
EI	Electronic Ignition
ELEC	Electric
ELR	Emergency Locking Retractor
ETR	Electronic Tuner

F	Front
F/I	Fuel Injector
FC	Fan Control
FICB	Fast-Idle Cam Breaker
FM	Frequency Modulation
FP	Fuel Pump
FPR	Fuel Pump Relay
GEN	Generator
GND	Ground
H/D	Heater/Defroster
HEAT	Heater
HEI	High-Energy Ignition
HI	High
HO2S	Heated Oxygen Sensor
IAC	Idle Air Control
IAT	Intake Air Temperature
ICM	Ignition Control Module
IG	Ignition
ILLUMI	Illumination
INT	Intermittent
JB	Joint Box
KS	Knock Sensor
LCD	Liquid Crystal Display
LF	Left Front
LH	Left Hand
LO	Low
LR	Left Rear
M	Motor
MAF	Mass Air Flow Sensor
MAP	Manifold Absolute Pressure
MFI	Multiport Fuel Injection
MID	Middle
MIL	Malfunction Indicator Lamp
MIN	Minute
MIX	Mixture
MPX	Multiplex
MT	Manual Transmission
MTR	Mechanical Tuning Radio
MTX	Manual Transaxle
NC	Normally Closed
NO	Normally Open
O2S	Oxygen Sensor
OBD	On-board Diagnostic

OFF	Switch Off
ON	Switch On
P	Power
P/S	Power Steering
PAIR	Pulsed Secondary Air Injection
PCM	Powertrain Control Module
PNP	Park/Neutral Position
PRCV	Pressure Regulator Control Solenoid Valve
PRG	Purge Solenoid Valve
PSP	Power Steering Pressure
PTC	Positive Temperature Coefficient Heater
QSS	Quick-Start System
R	Rear
REC	Recirculation
RF	Right Front
RH	Right Hand
RPM	Engine Speed
RR	Rear Right
SAPV	Secondary Air Pulse Valve
SFI	Sequential Multipoint Fuel Injection
SOL	Solenoid
ST	Start
SW	Switch
TC	Turbocharger
TCM	Transmission (Transaxle) Control Module
TCV	Twin Scroll Turbocharger Solenoid Valve
TEMP	Temperature
TICS	Triple Induction Control System
TP	Throttle Position Sensor
TR	Transmission Range
TR	Transmission (Transaxle) Range
TWS	Total Wiring System
V	Volt
VAF	Volume Air Flow Sensor
VENT	Ventilation
VOL	Volume
VR	Voltage Regulator
VRIS	Variable Resonance Induction System
VSS	Vehicle Speed Sensor
W	Watt(s)
WOT	Wide Open Throttle

Z WIRING DIAGRAM

GROUND POINTS

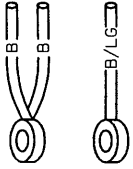
JC-01 JOINT CONNECTOR (F)



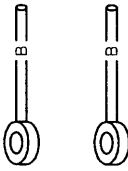
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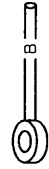
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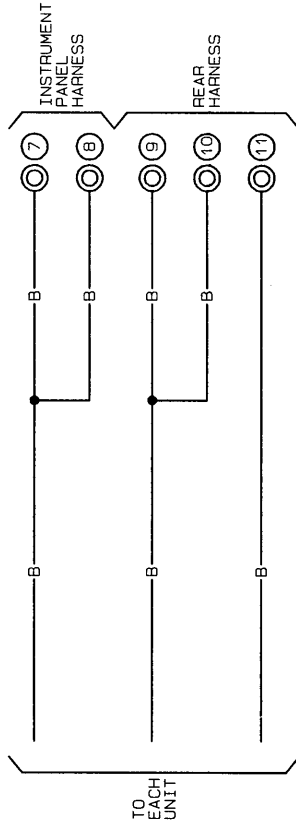
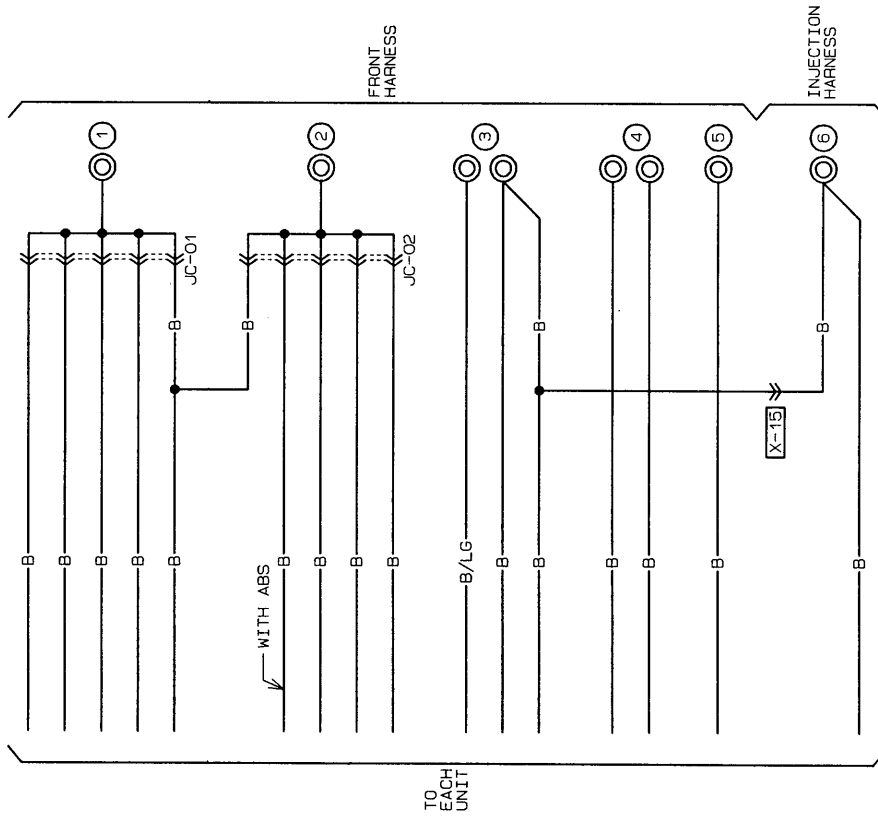
5 7 8 9 10 11



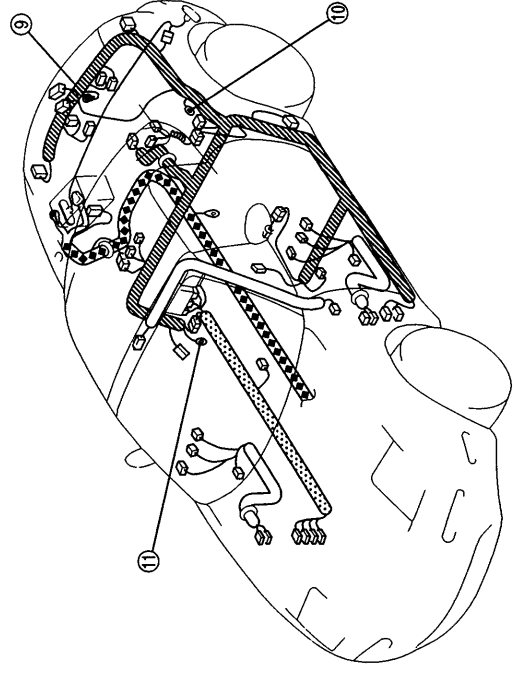
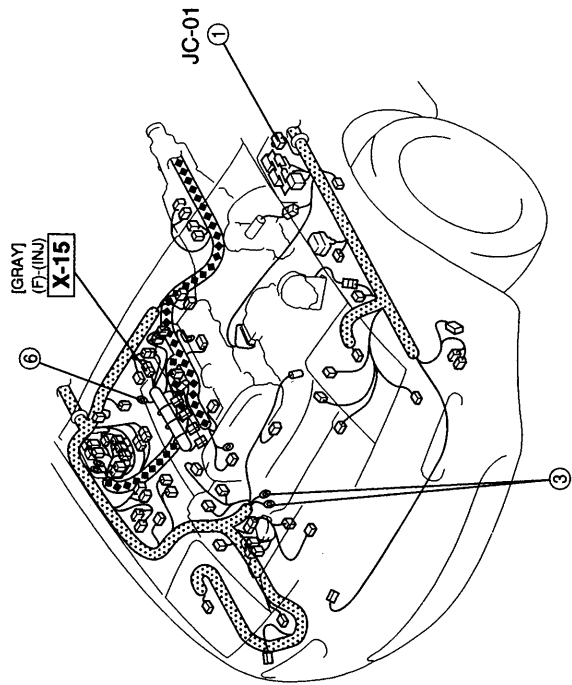
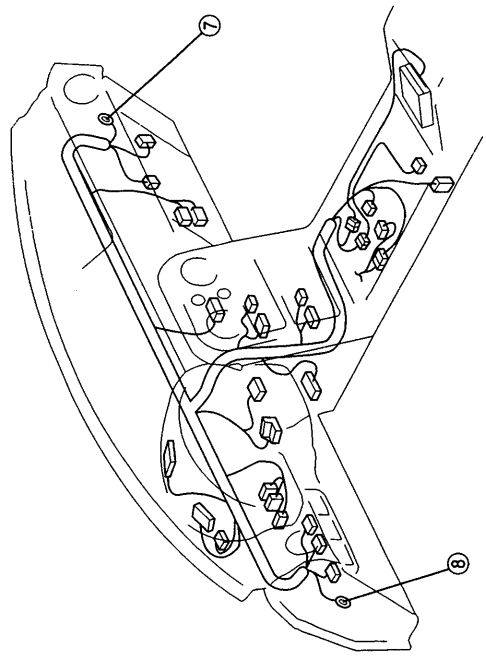
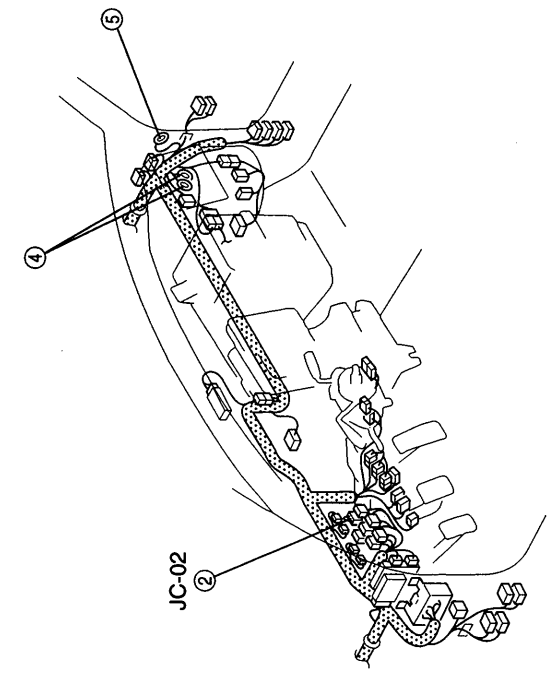
6



[] ... WITH ABS NOTE: Wiring placement within same connector is arbitrary.

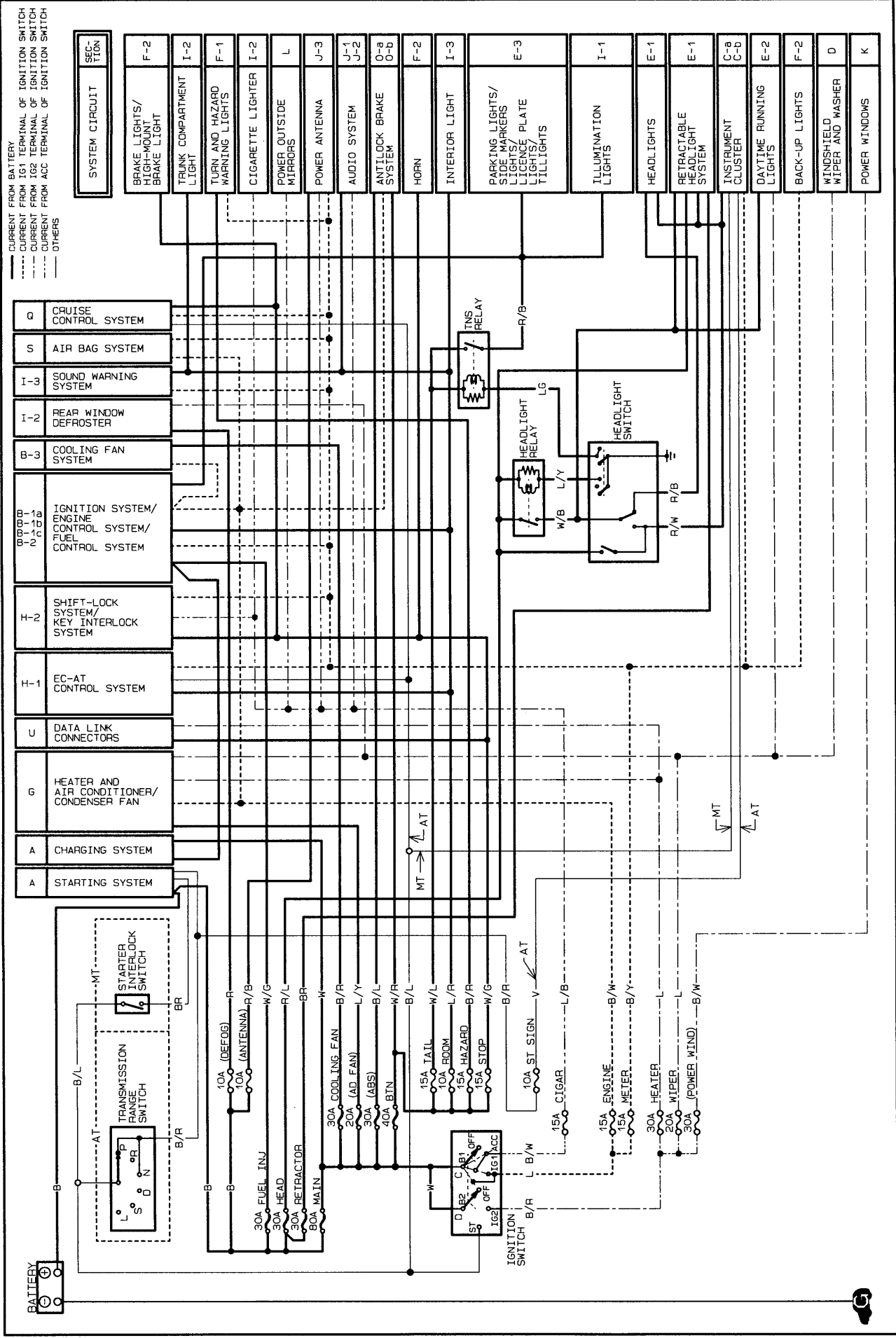


HARNESS SYMBOL : (F) (E) (R)



Z WIRING DIAGRAM

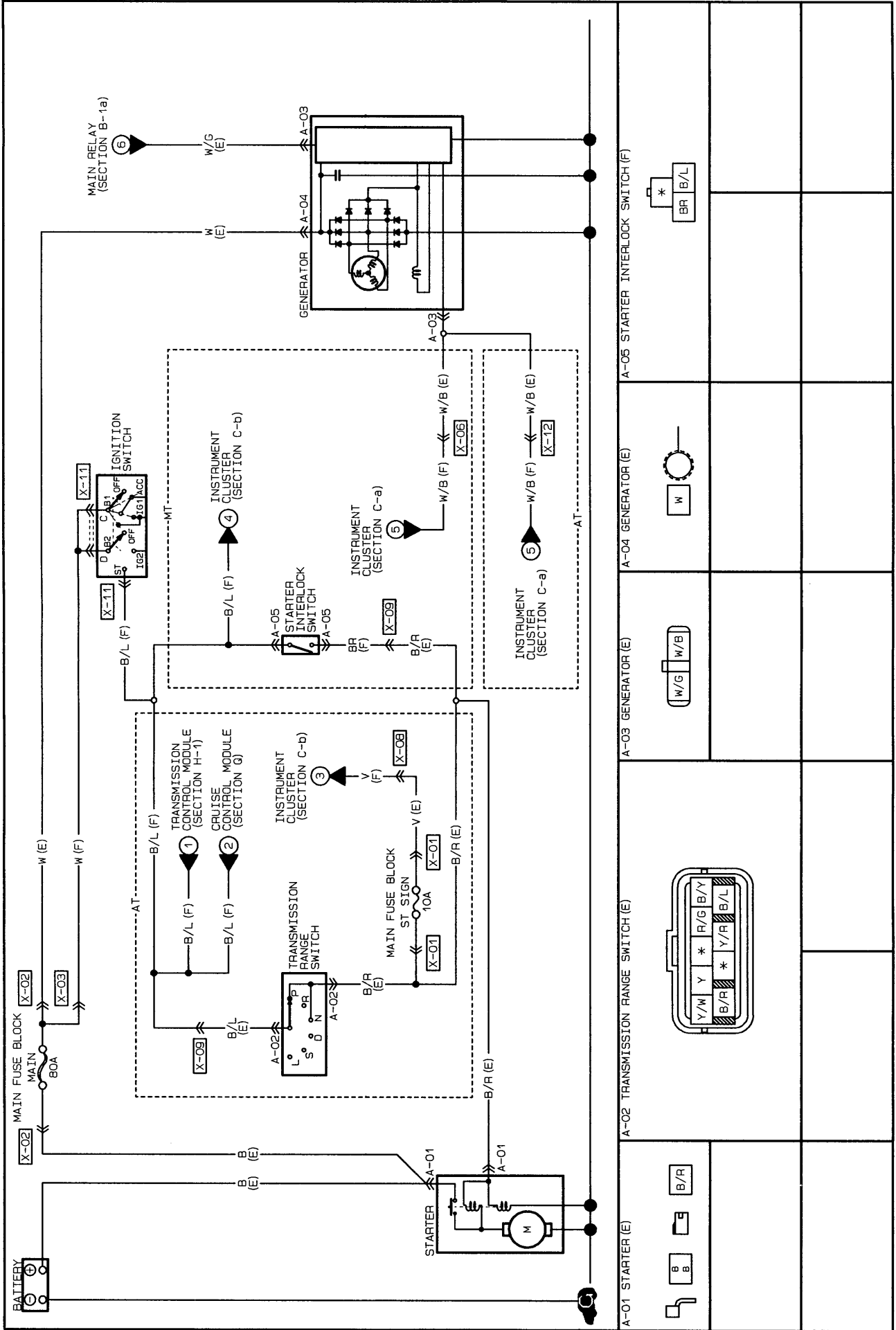
ELECTRICAL WIRING SCHEMATIC



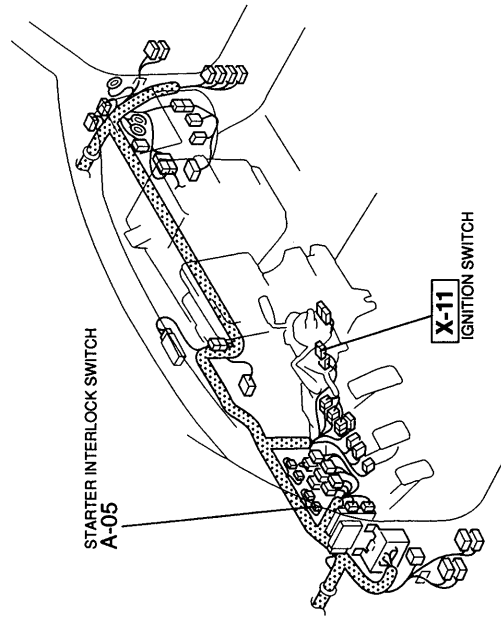
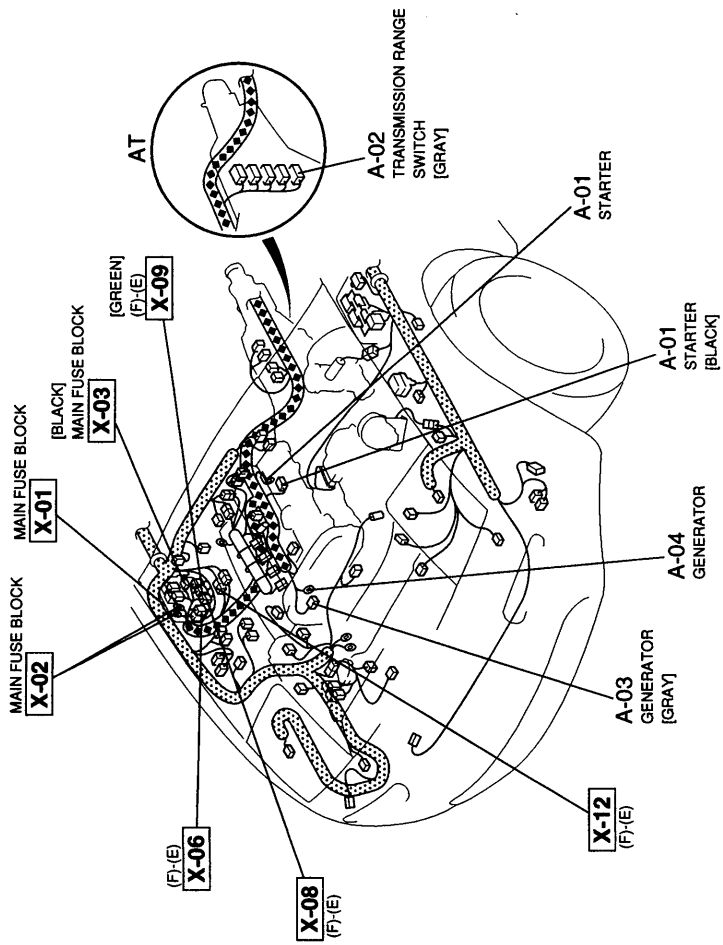


Z WIRING DIAGRAM

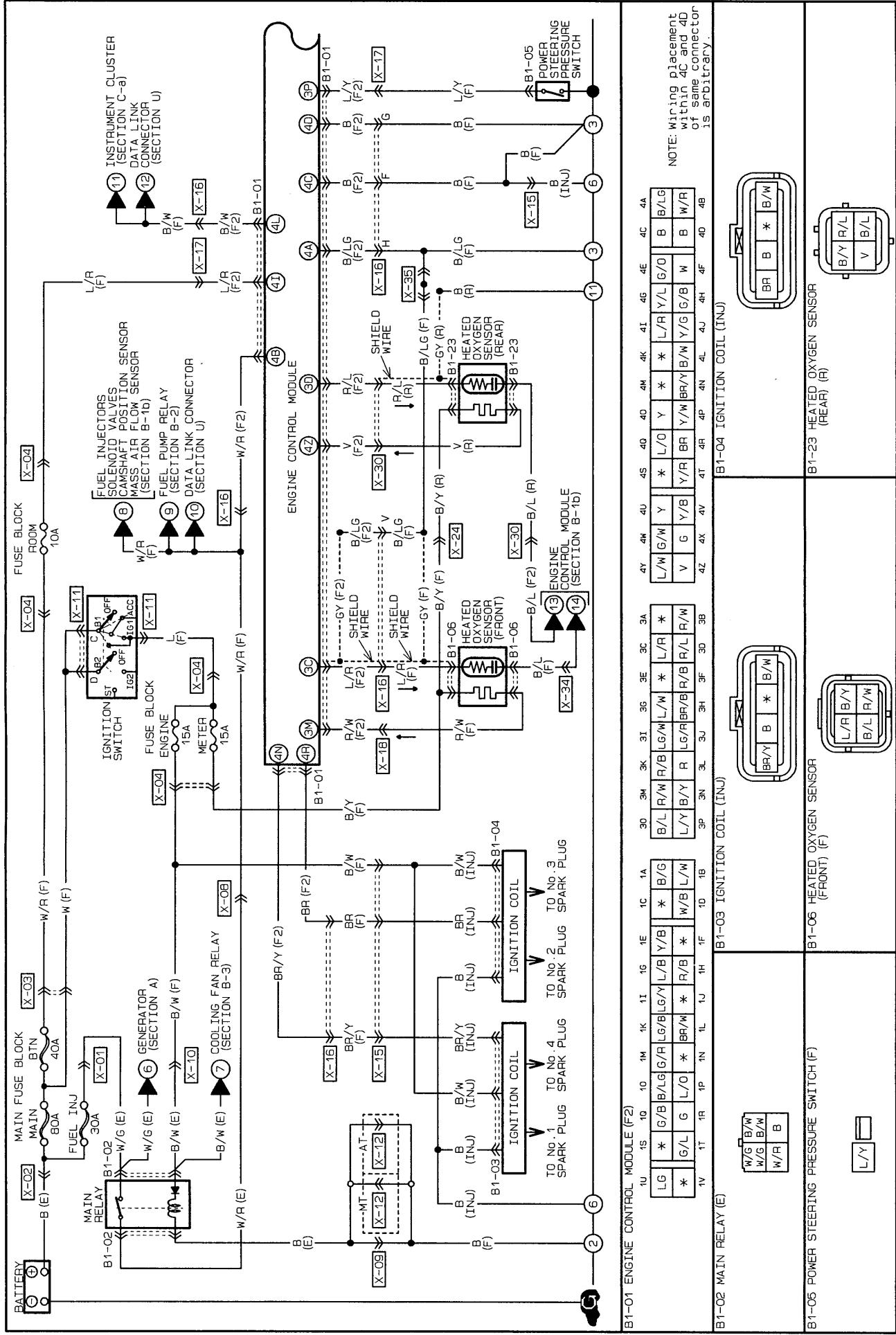
CHARGING SYSTEM/STARTING SYSTEM



HARNES SYMBOL : [diagonal lines] (F) [diamond] (E) [diagonal lines] (R)



IGNITION SYSTEM/ENGINE CONTROL SYSTEM



NOTE: Wiring placement within 4C and 4D of same connector is arbitrary.

1U	1S	10	10	1M	1K	1I	1G	1E	1C	1A	30	3M	3K	3I	3G	3E	3C	3A	4Y	4W	4U	4S	40	40	4M	4K	4I	4E	4C	4A			
LG	*	G/B	B/LG	G/R	LG/B	LG/Y	L/B	Y/B	*	B/G	B/L	R/W	R/B	LG/W	L/W	*	L/R	*	L/R	Y	*	L/O	Y	*	Y	G/W	Y	*	L/O	Y	G/O	B	B/LG
*	G/L	G	L/O	*	BR/W	*	R/B	*	W/B	L/W	L/Y	B/Y	R	LG/R	BR/B	R/B	R/L	R/W	*	Y/R	BR	Y/W	BR/Y	B/W	Y/G	G/B	W	B	W/R				

1V	1T	1R	1P	1N	1L	1U	1H	1F	10	1B	3P	3N	3L	3U	3H	3F	30	3B	4Z	4X	4V	4T	4R	4P	4N	4L	4U	4H	4F	40	4B	

W/G	B/W
W/G	B/W
W/R	B

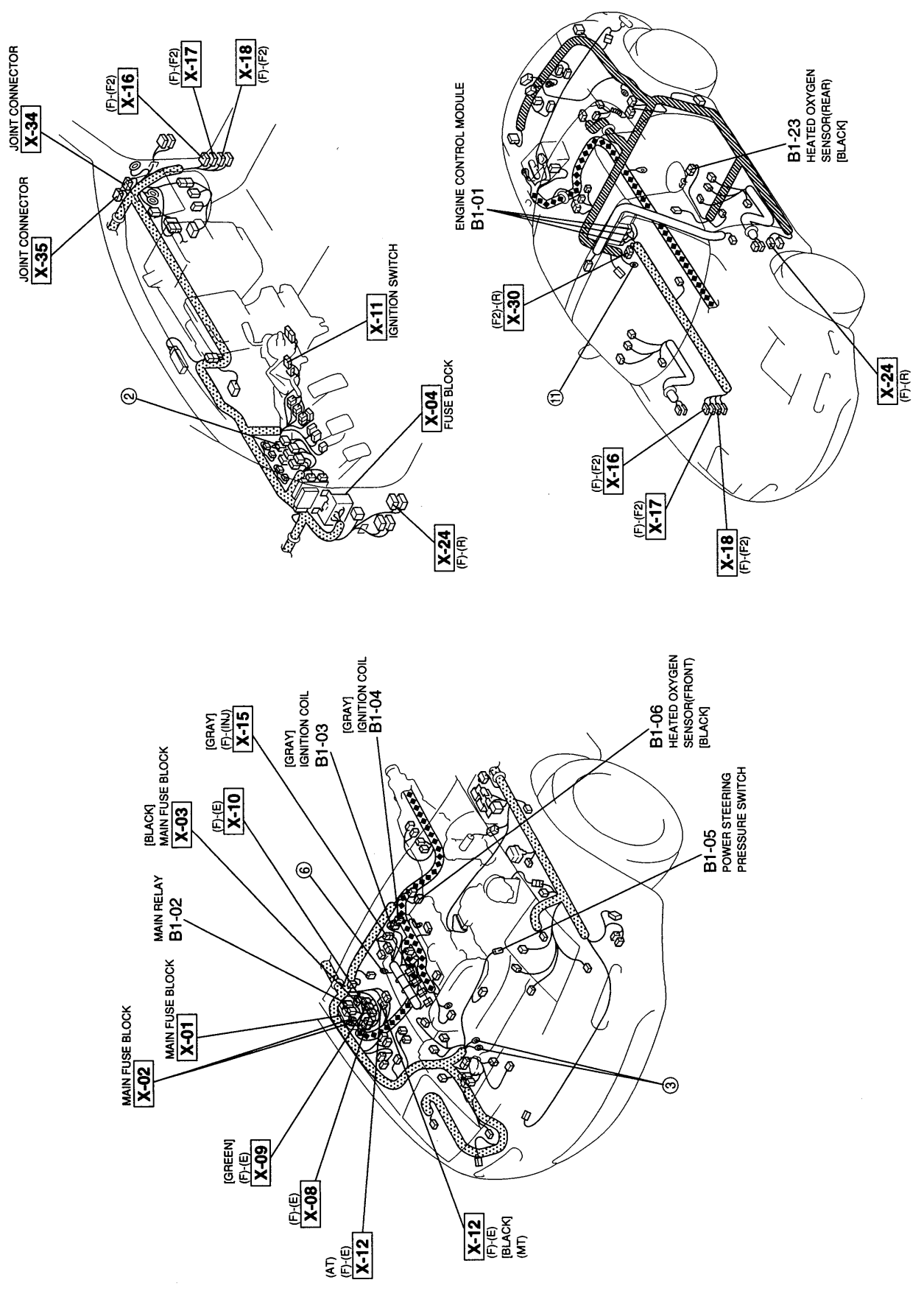
BR/Y	B	*	B/W
------	---	---	-----

L/R	B/Y
B/L	R/W

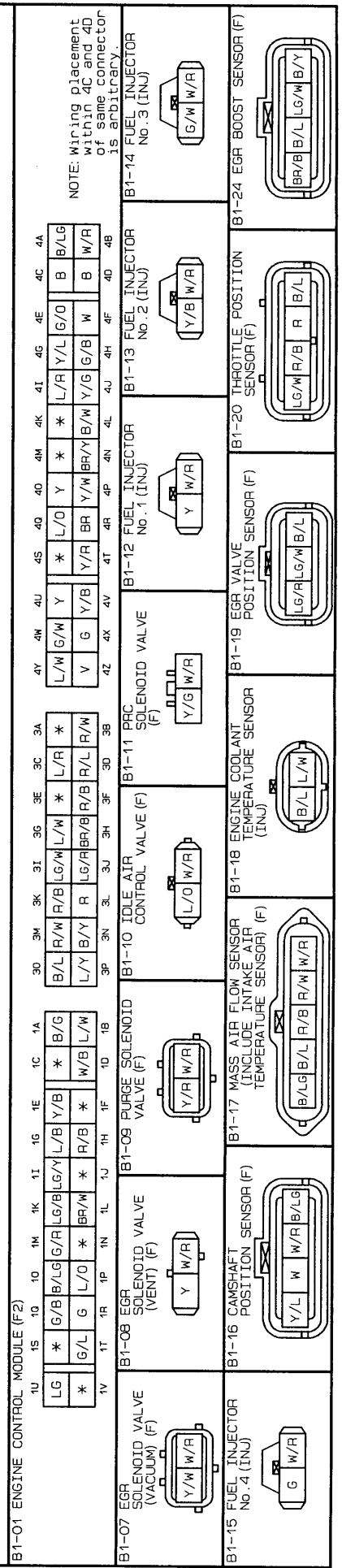
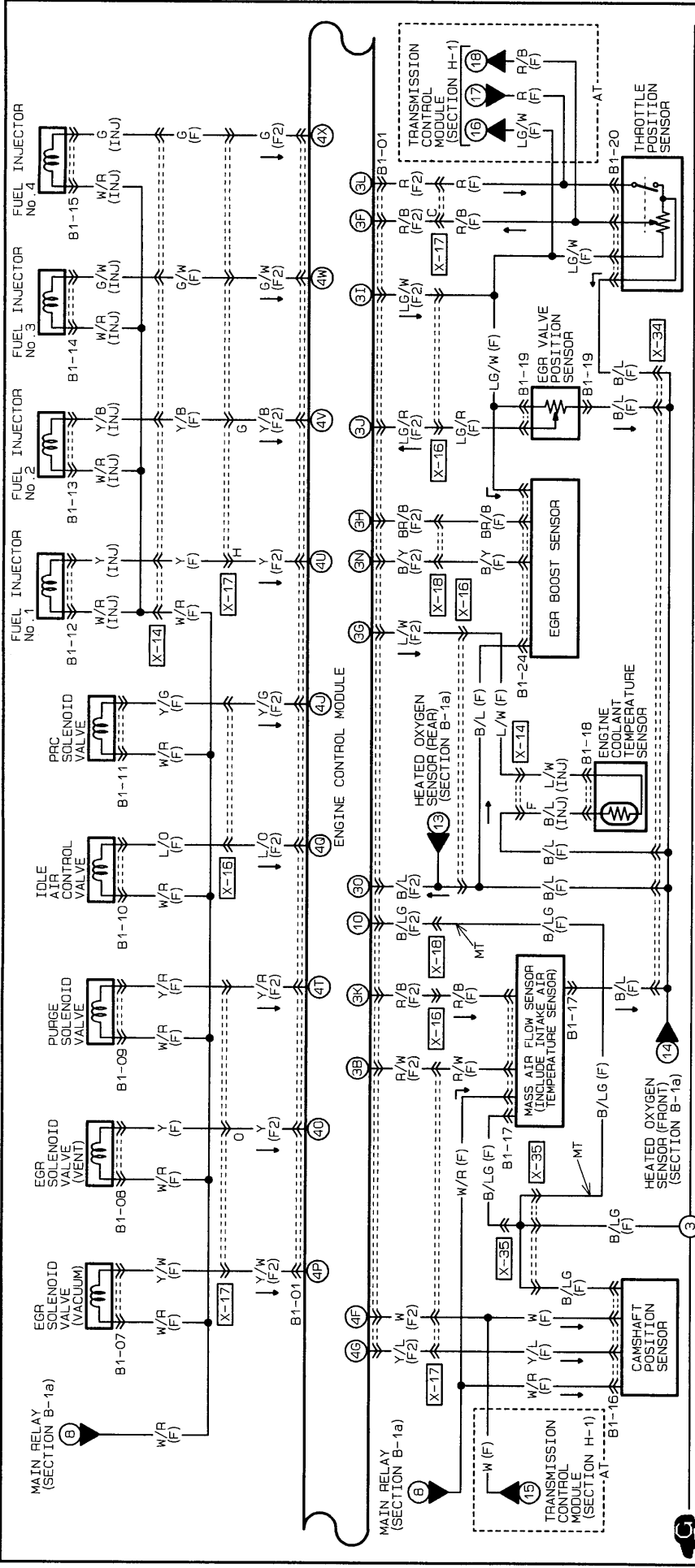
BR	B	*	B/W
----	---	---	-----

B/Y	R/L
V	B/L

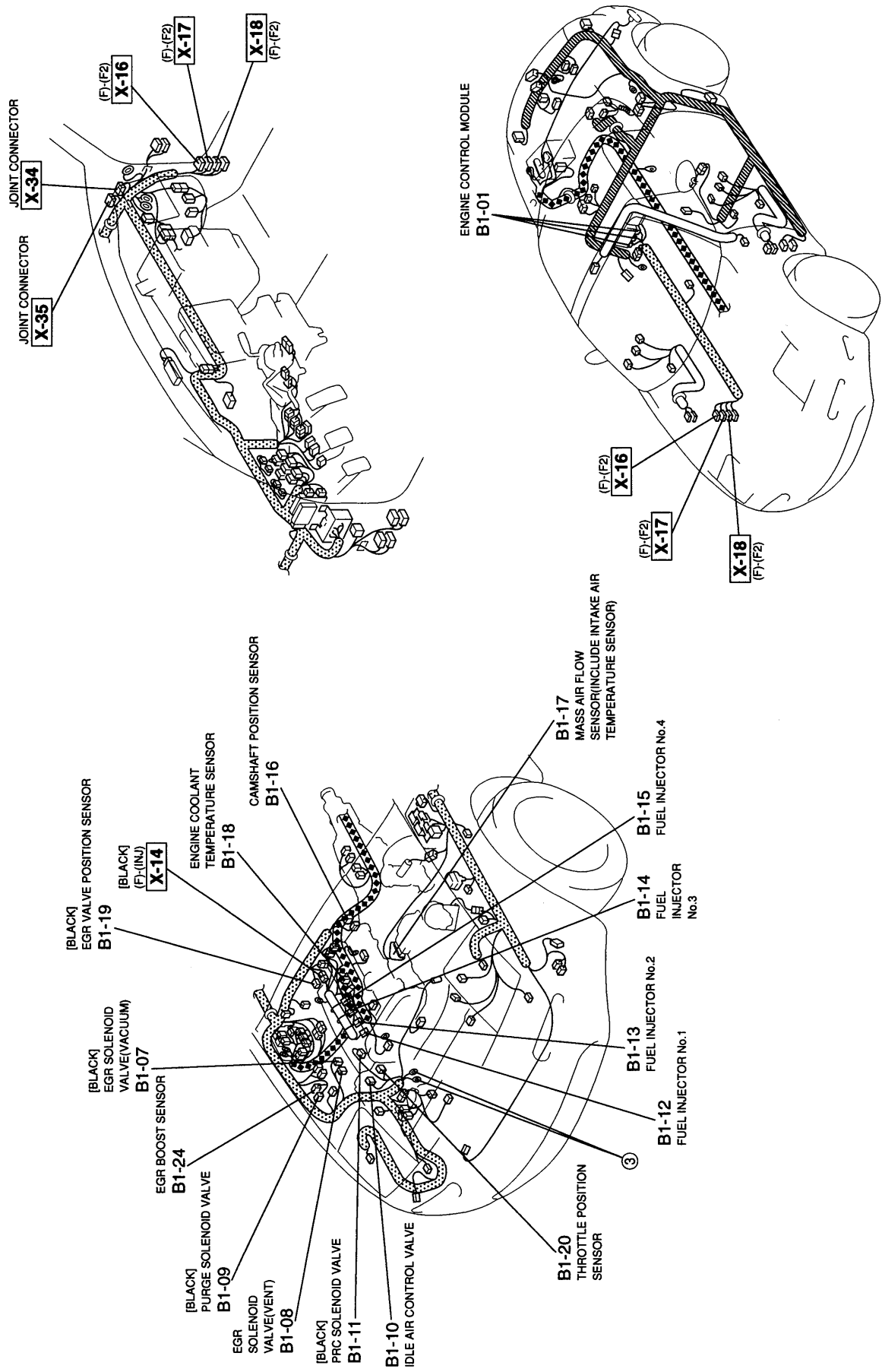
HARNESS SYMBOL : (F) ◆◆ (E) ▨ (R)



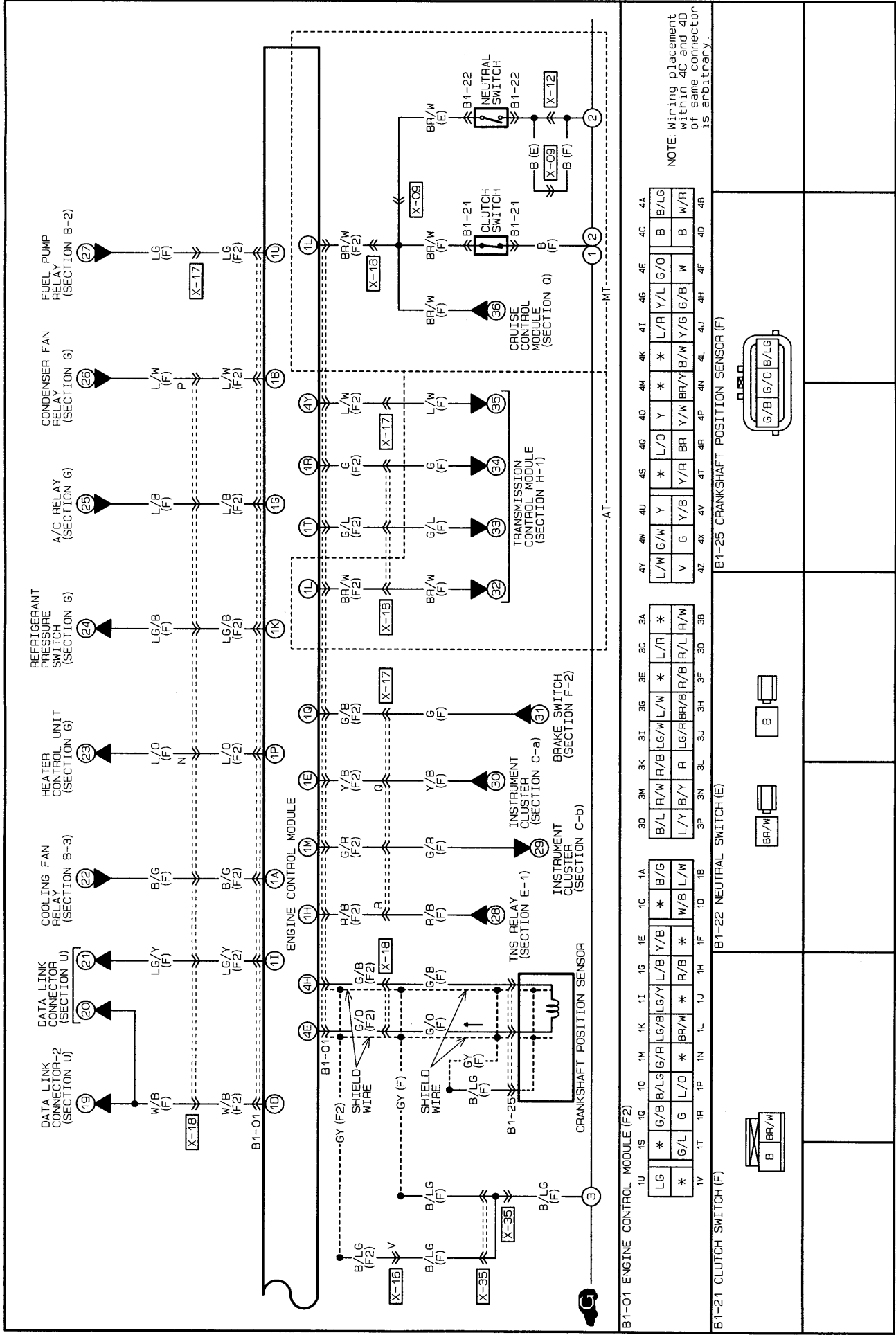
ENGINE CONTROL SYSTEM



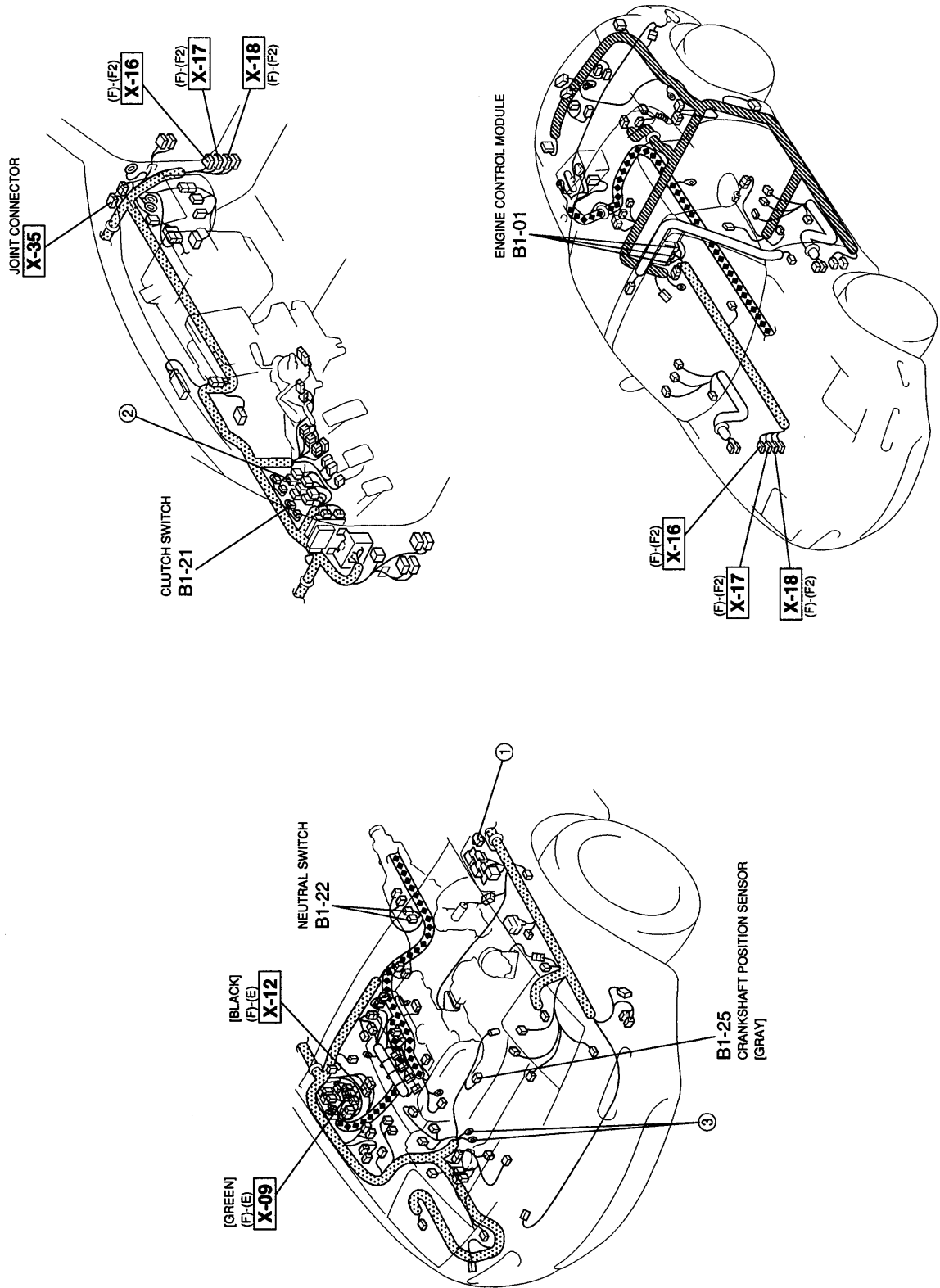
HARNESS SYMBOL :  (F)  (E)  (R)



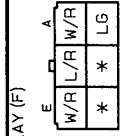
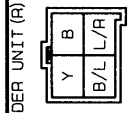
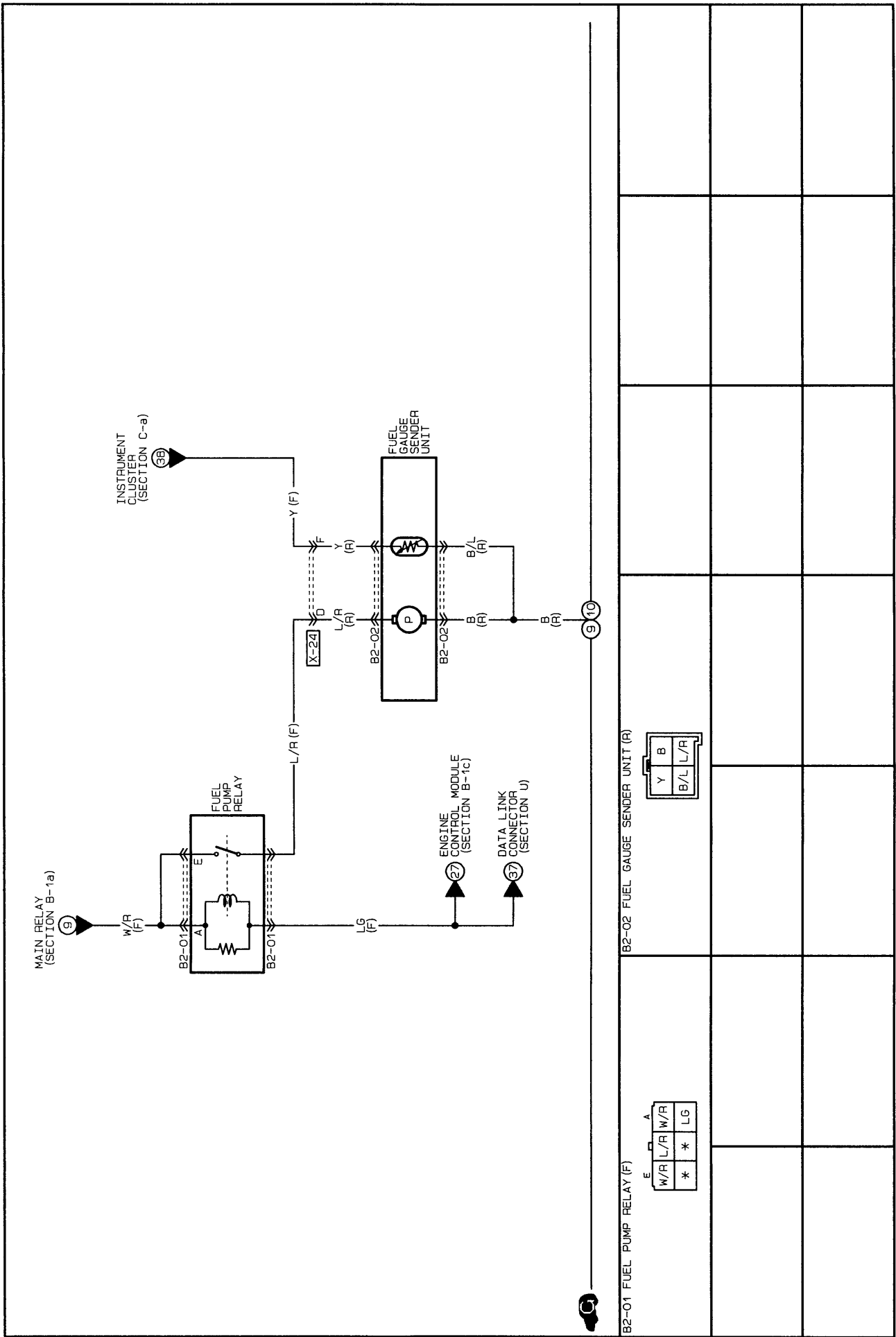
ENGINE CONTROL SYSTEM



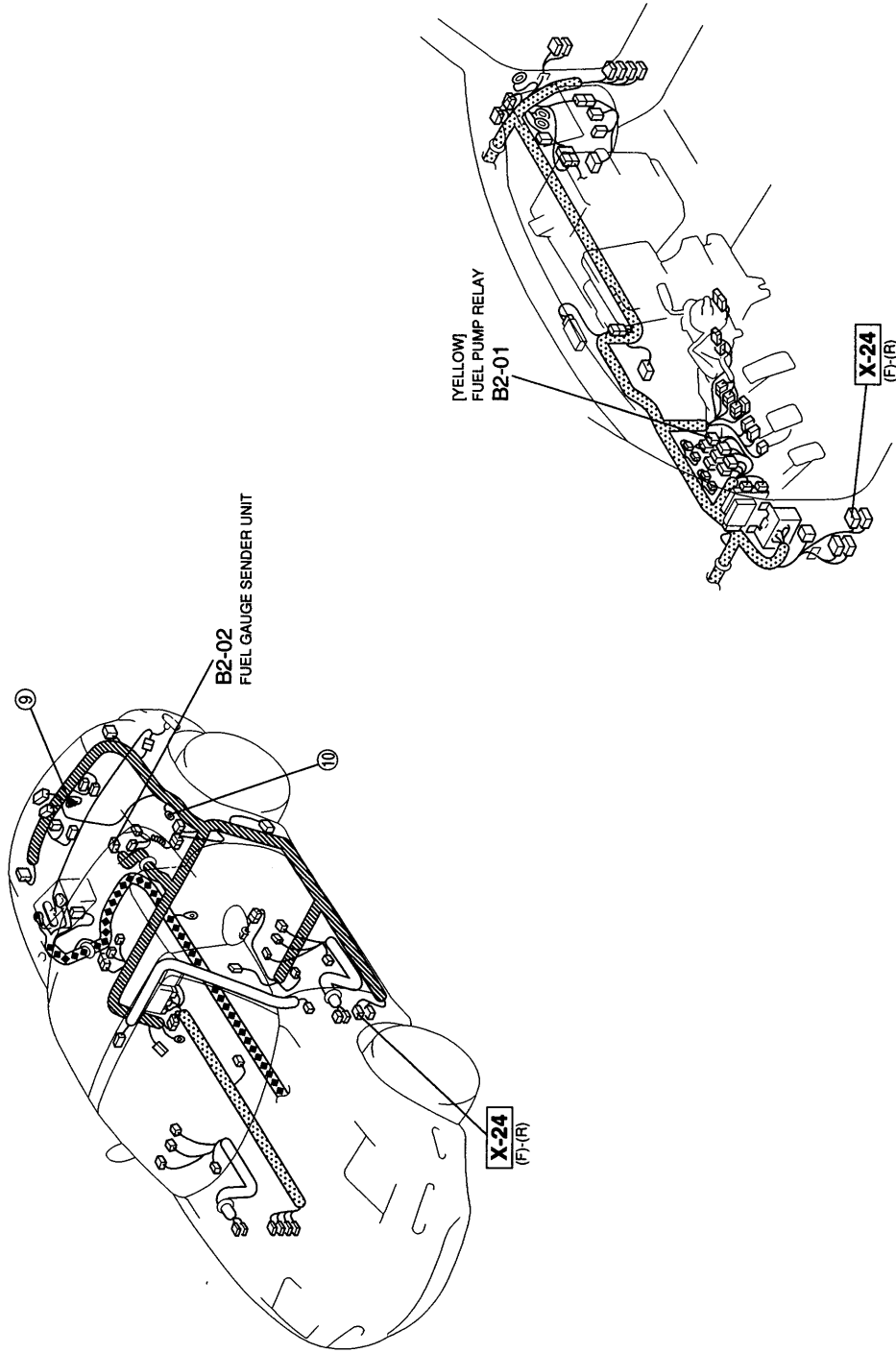
HARNES SYMBOL : [Dotted] (F) [Diagonal lines] (E) [Cross-hatch] (R)



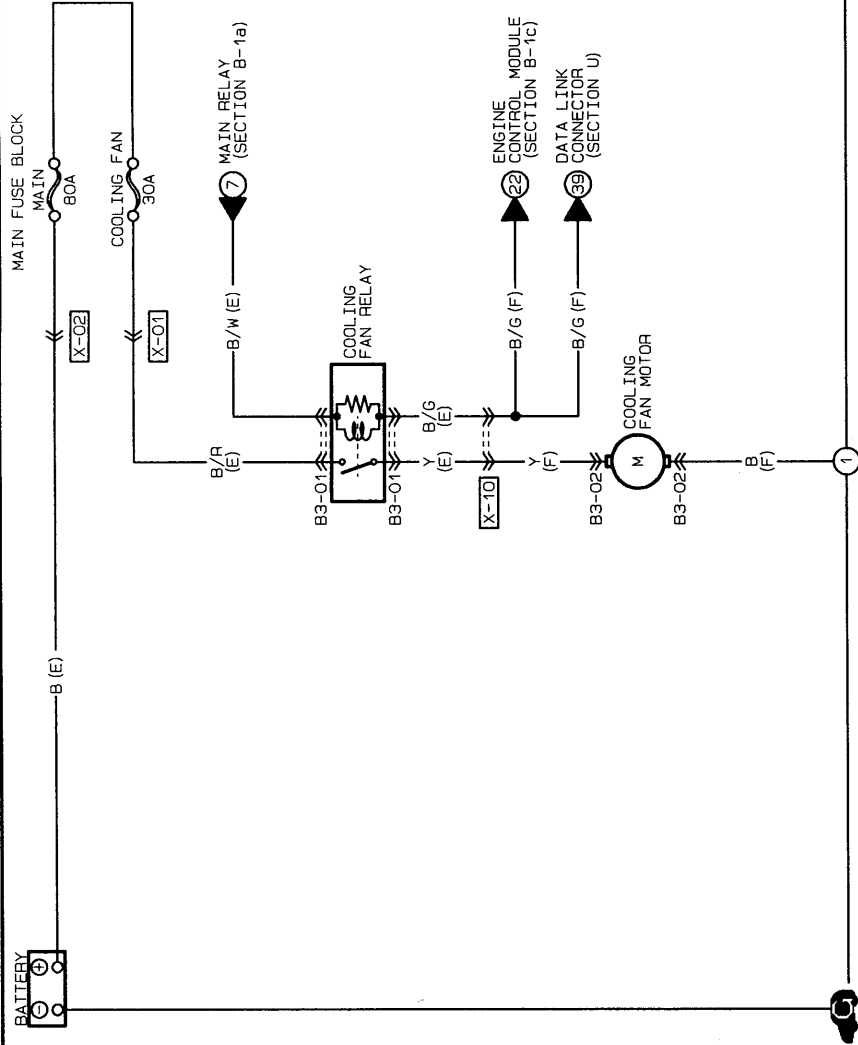
FUEL CONTROL SYSTEM



HARNESS SYMBOL : [diagonal lines] (F) [diamonds] (E) [dotted] (R)

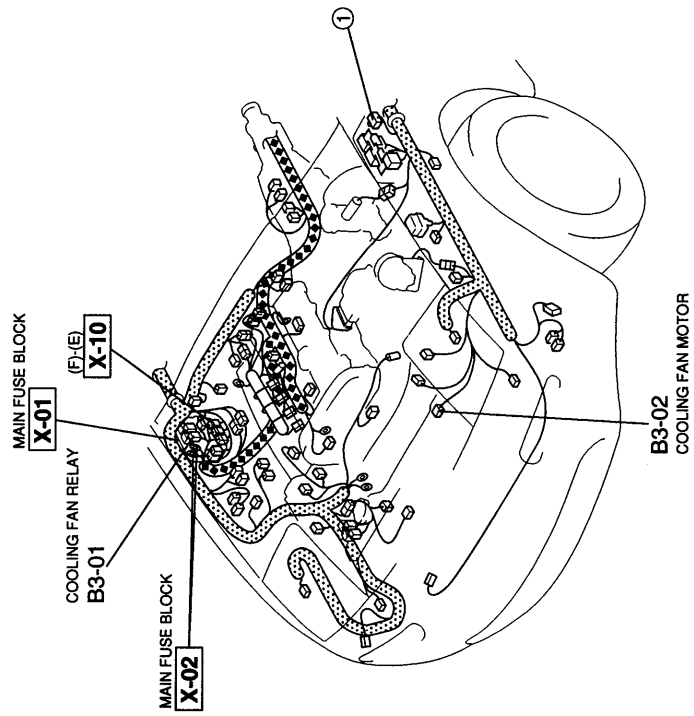


COOLING FAN SYSTEM

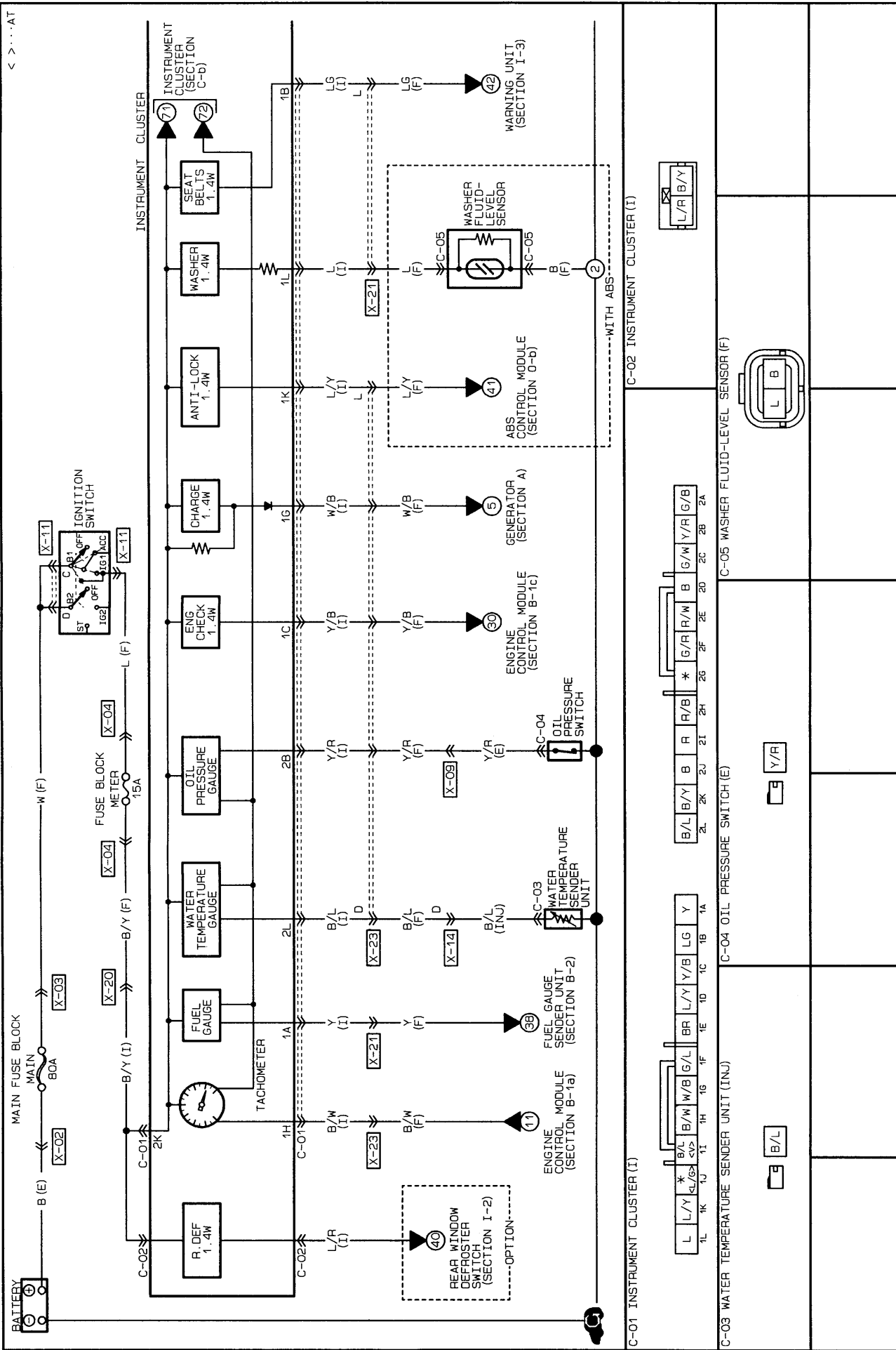


B3-01 COOLING FAN RELAY (E)					
B3-02 COOLING FAN MOTOR (F)					

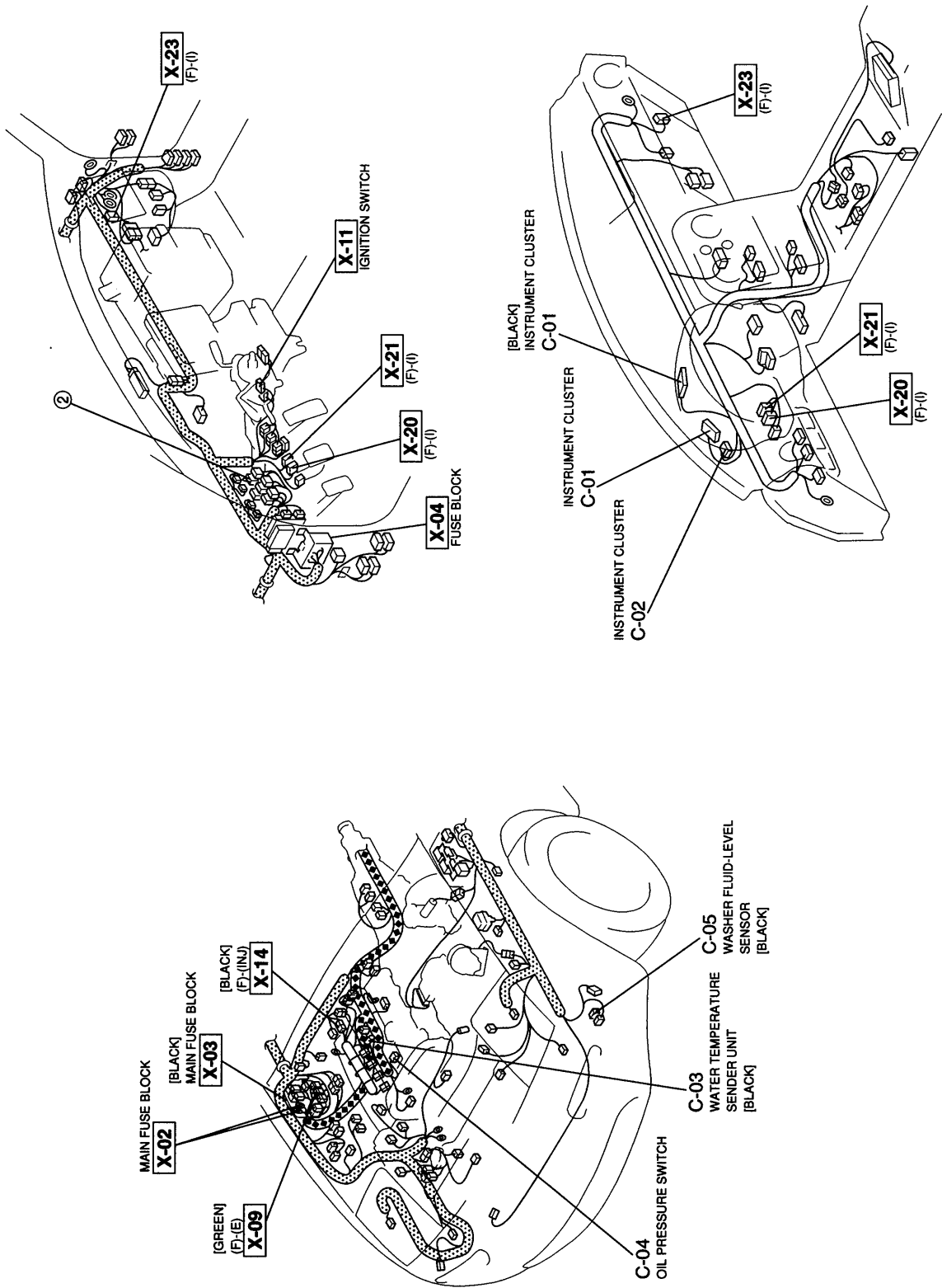
HARNESS SYMBOL :  (F)  (E)  (R)



INSTRUMENT CLUSTER

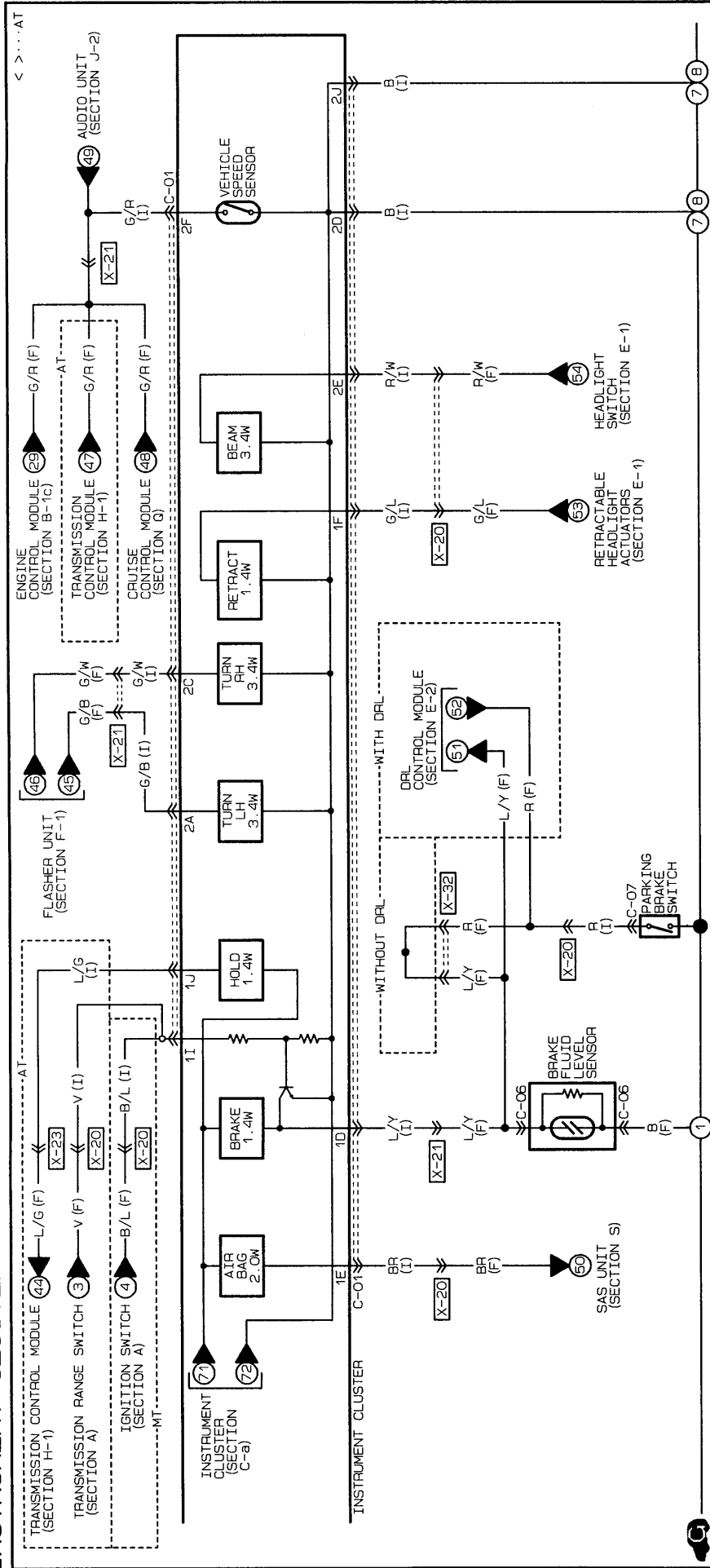


HARNES SYMBOL : [Dotted] (F) [Diamond] (E) [Hatched] (R)



Z WIRING DIAGRAM

INSTRUMENT CLUSTER

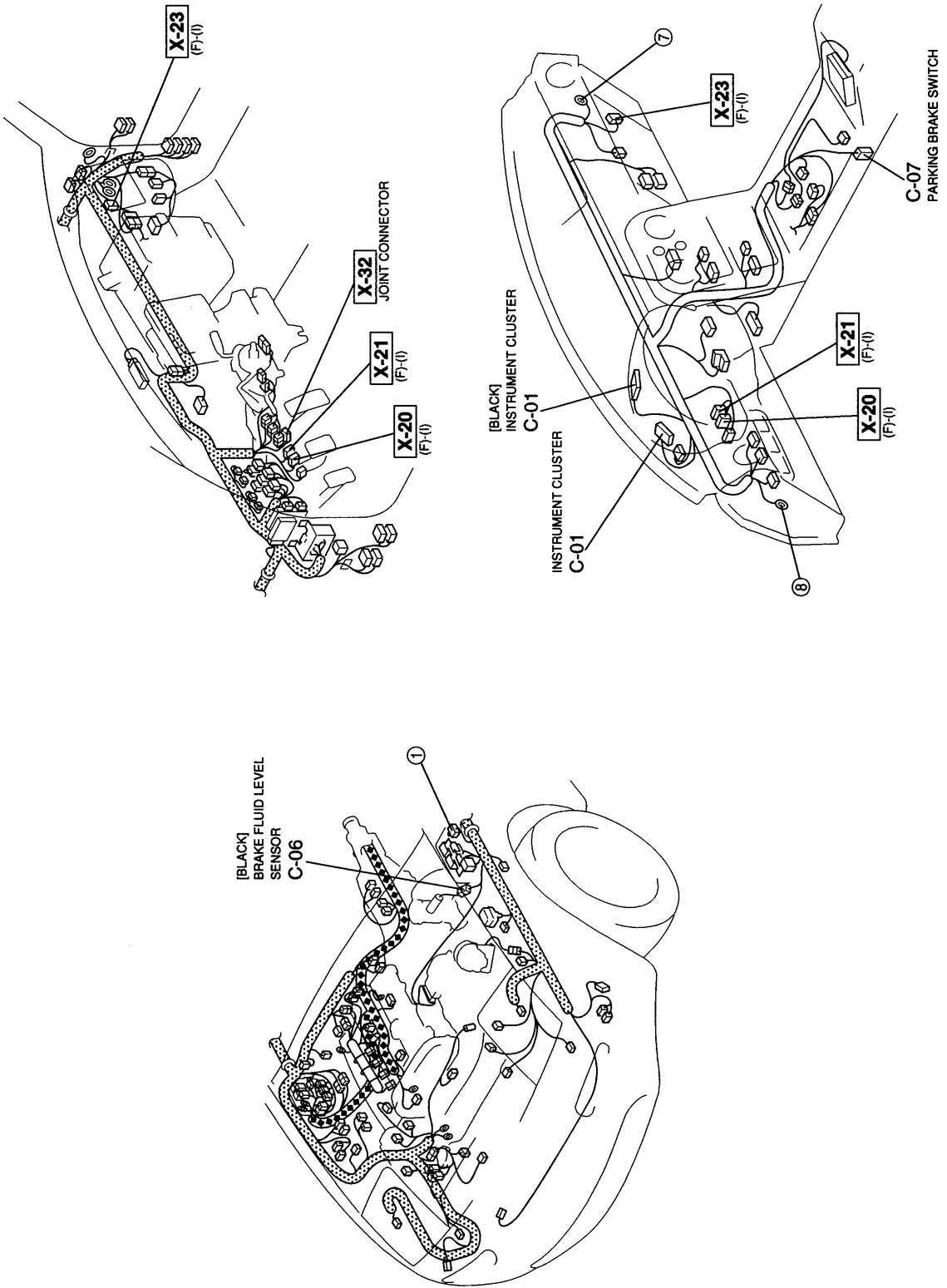


C-06 BRAKE FLUID LEVEL SENSOR (F)

C-01 INSTRUMENT CLUSTER (I)

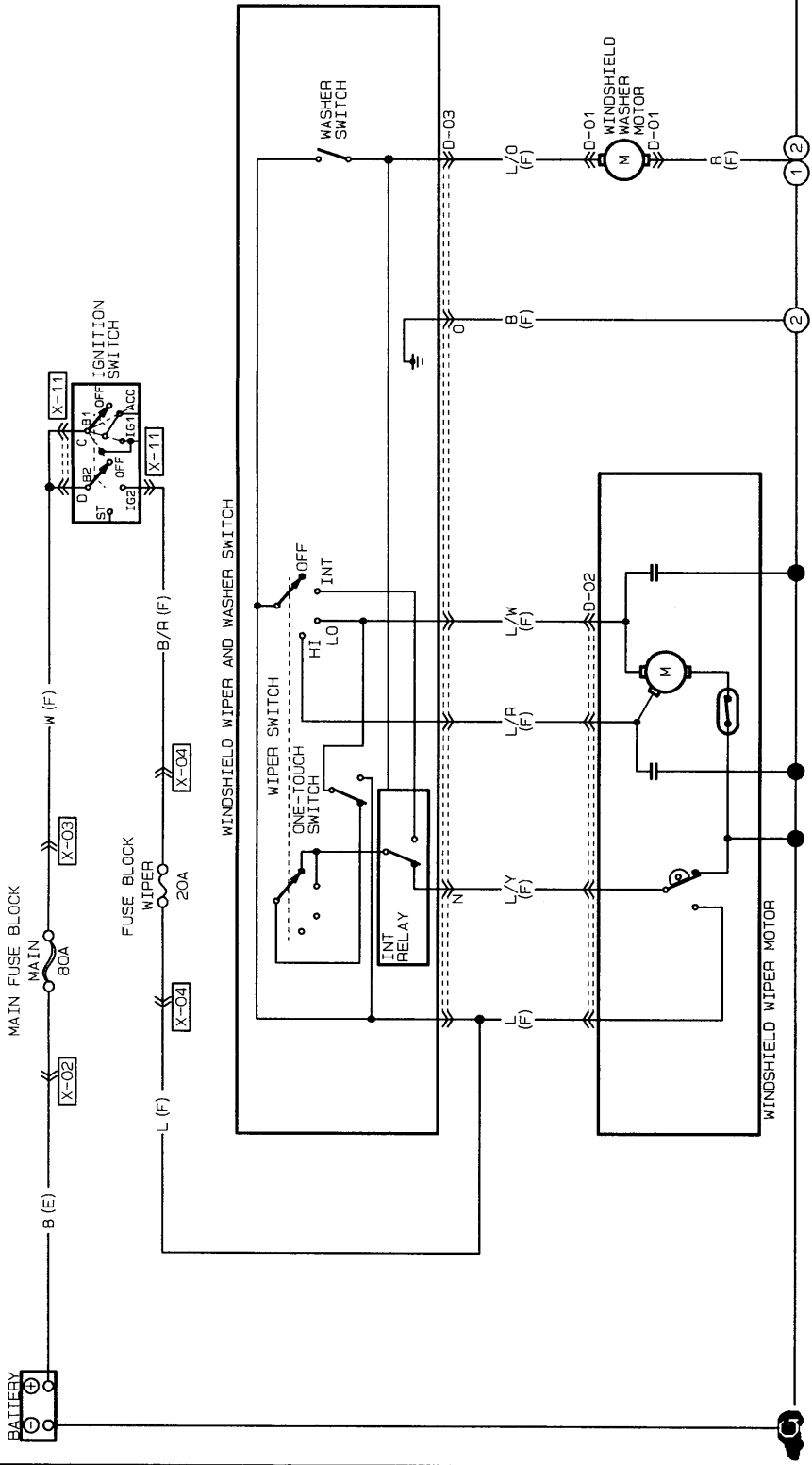
<table border="1"> <tr> <td>L</td><td>L/Y</td><td>* L/G</td><td>B/L</td><td>B/W</td><td>W/B</td><td>G/L</td><td>BR</td><td>L/Y</td><td>Y/B</td><td>LG</td><td>Y</td> </tr> <tr> <td>1L</td><td>1K</td><td>1J</td><td>1I</td><td>1H</td><td>1G</td><td>1F</td><td>1E</td><td>1D</td><td>1C</td><td>1B</td><td>1A</td> </tr> </table>		L	L/Y	* L/G	B/L	B/W	W/B	G/L	BR	L/Y	Y/B	LG	Y	1L	1K	1J	1I	1H	1G	1F	1E	1D	1C	1B	1A	<table border="1"> <tr> <td>B/L</td><td>B/Y</td><td>B</td><td>R</td><td>R/B</td><td>*</td><td>G/R</td><td>R/W</td><td>B</td><td>G/W</td><td>Y/R</td><td>G/B</td> </tr> <tr> <td>2L</td><td>2K</td><td>2J</td><td>2I</td><td>2H</td><td>2G</td><td>2F</td><td>2E</td><td>2D</td><td>2C</td><td>2B</td><td>2A</td> </tr> </table>		B/L	B/Y	B	R	R/B	*	G/R	R/W	B	G/W	Y/R	G/B	2L	2K	2J	2I	2H	2G	2F	2E	2D	2C	2B	2A	<table border="1"> <tr> <td>L/Y</td><td>B</td> </tr> </table>		L/Y	B
L	L/Y	* L/G	B/L	B/W	W/B	G/L	BR	L/Y	Y/B	LG	Y																																												
1L	1K	1J	1I	1H	1G	1F	1E	1D	1C	1B	1A																																												
B/L	B/Y	B	R	R/B	*	G/R	R/W	B	G/W	Y/R	G/B																																												
2L	2K	2J	2I	2H	2G	2F	2E	2D	2C	2B	2A																																												
L/Y	B																																																						
C-07 PARKING BRAKE SWITCH (I)																																																							
<table border="1"> <tr> <td>R</td> </tr> </table>												R																																											
R																																																							

HARNES SYMBOL : [diagonal lines] (F) [diamond] (E) [diagonal lines] (R)



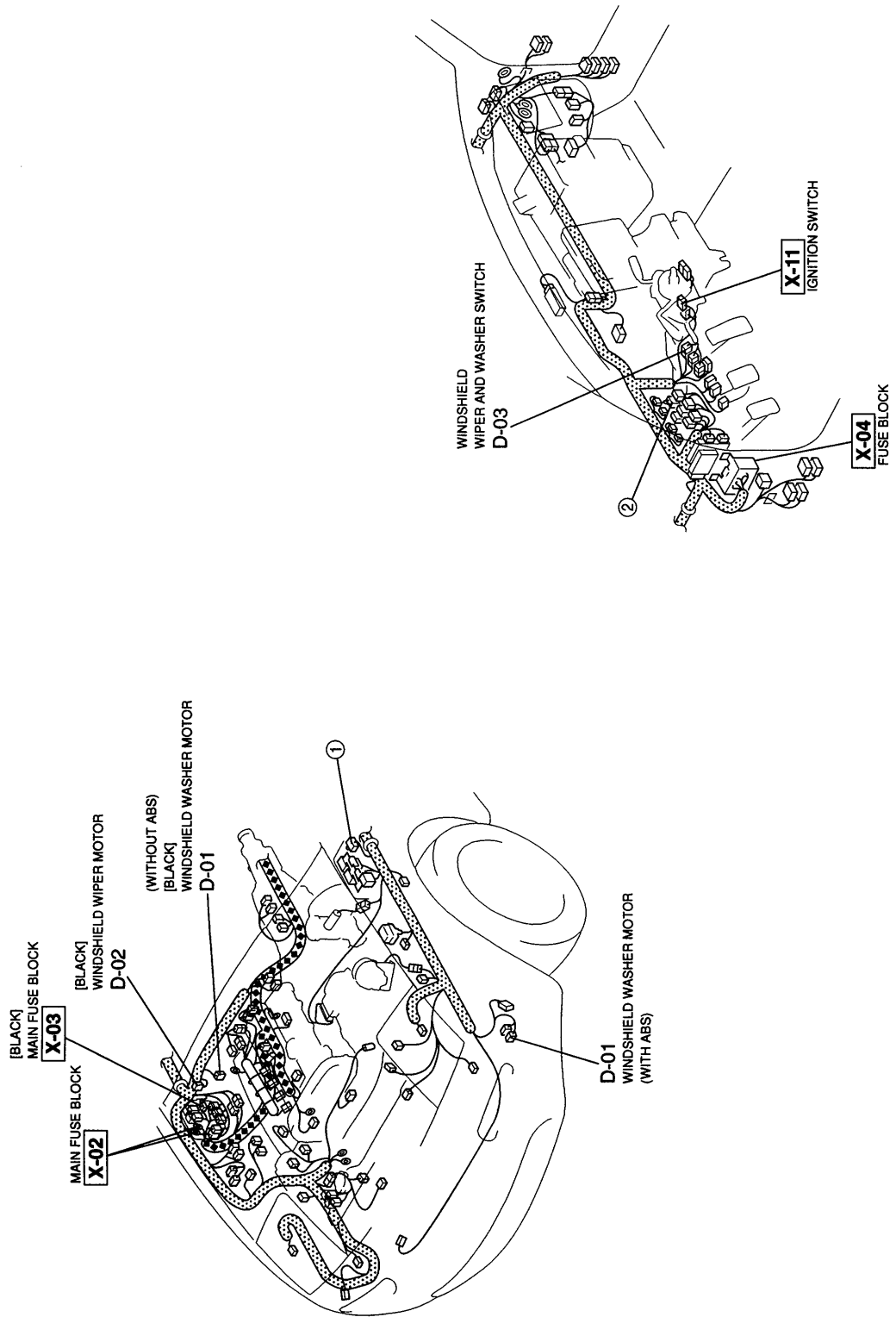
Z WIRING DIAGRAM

WINDSHIELD WIPER AND WASHER

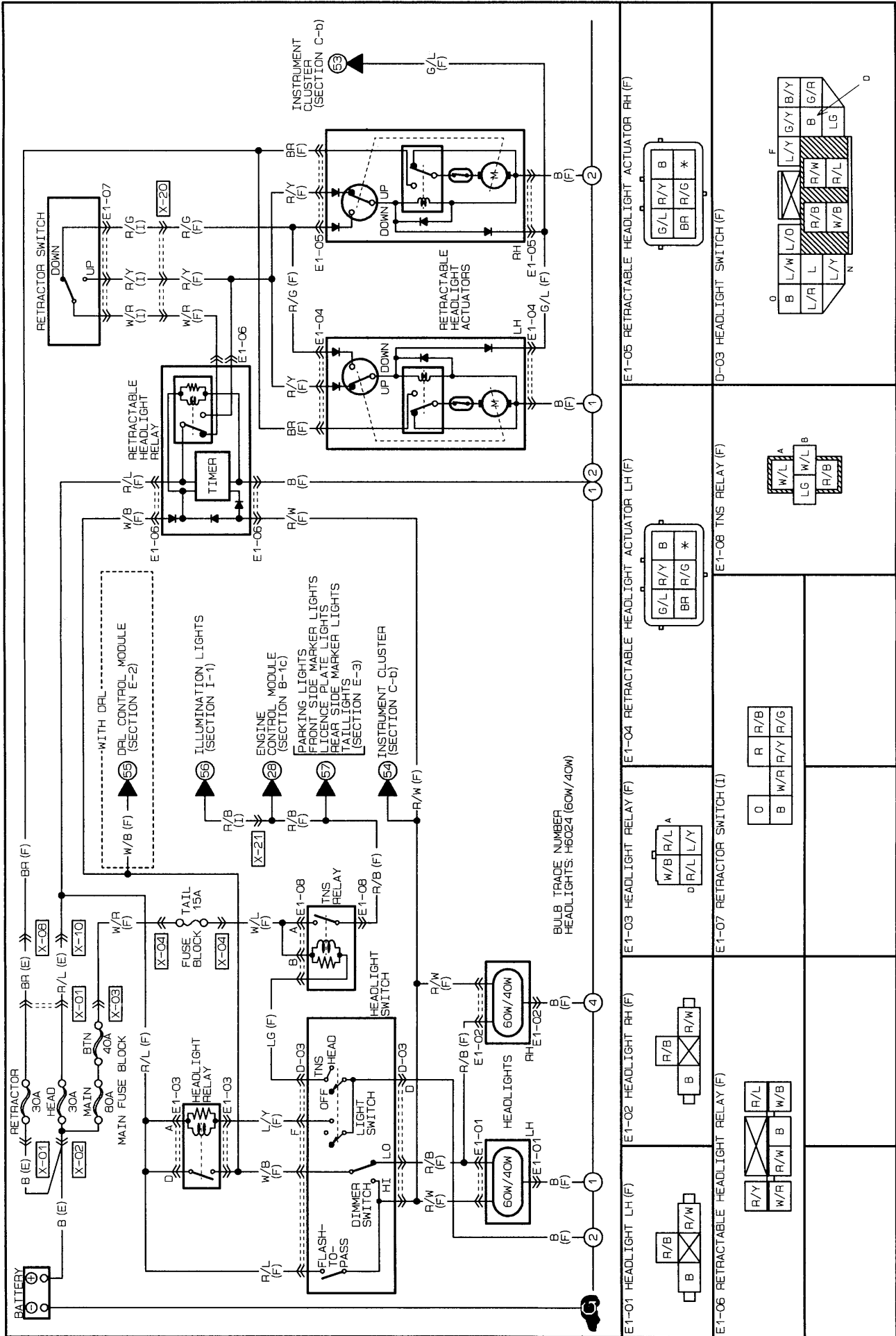


<p>D-01 WINDSHIELD WASHER MOTOR (F)</p> <p>WITHOUT ABS</p> <p>WITH ABS</p>	
<p>D-02 WINDSHIELD WIPER MOTOR (F)</p>	
<p>D-03 WINDSHIELD WIPER AND WASHER SWITCH (F)</p>	

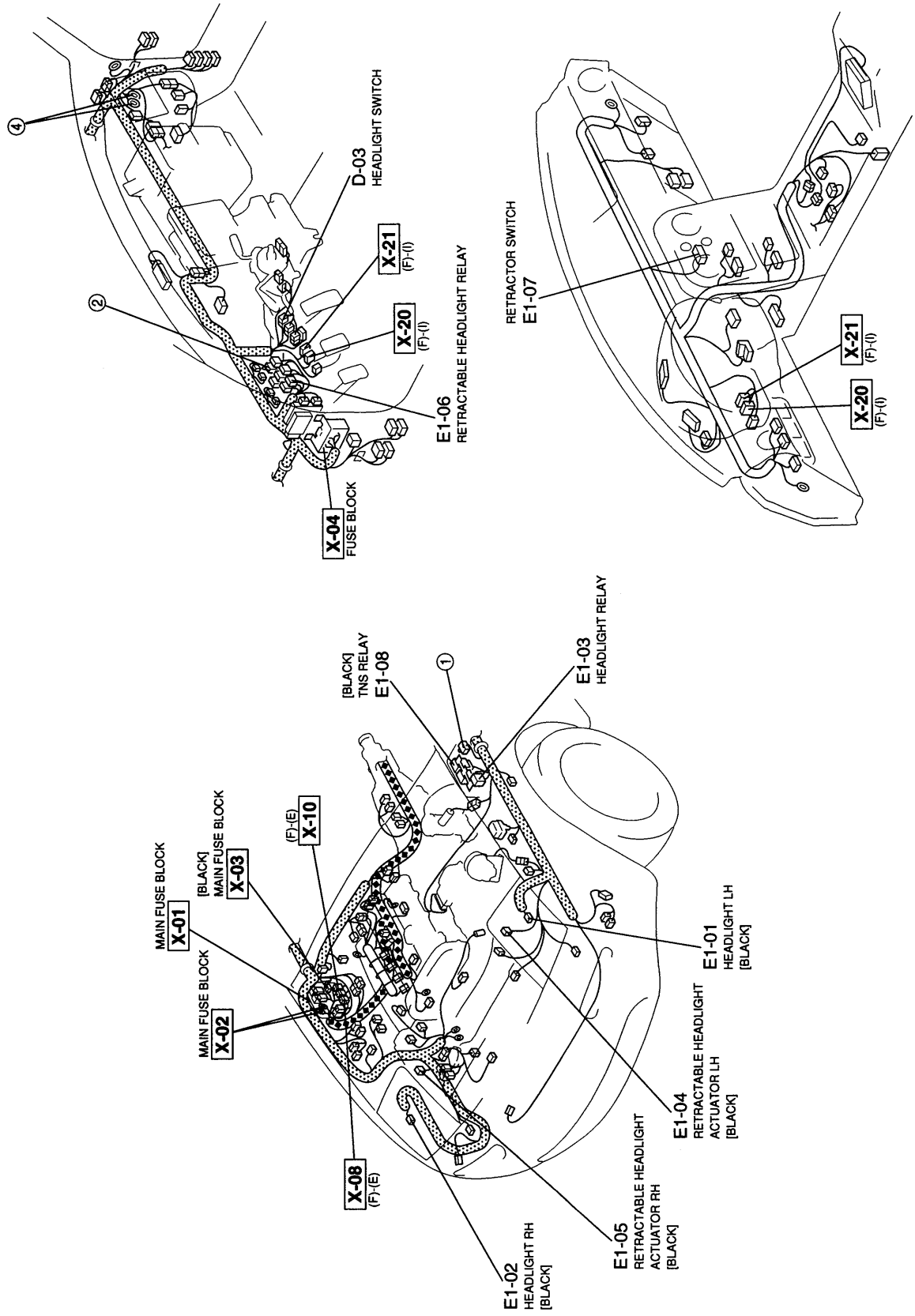
HARNES SYMBOL :  (F)  (E)  (R)



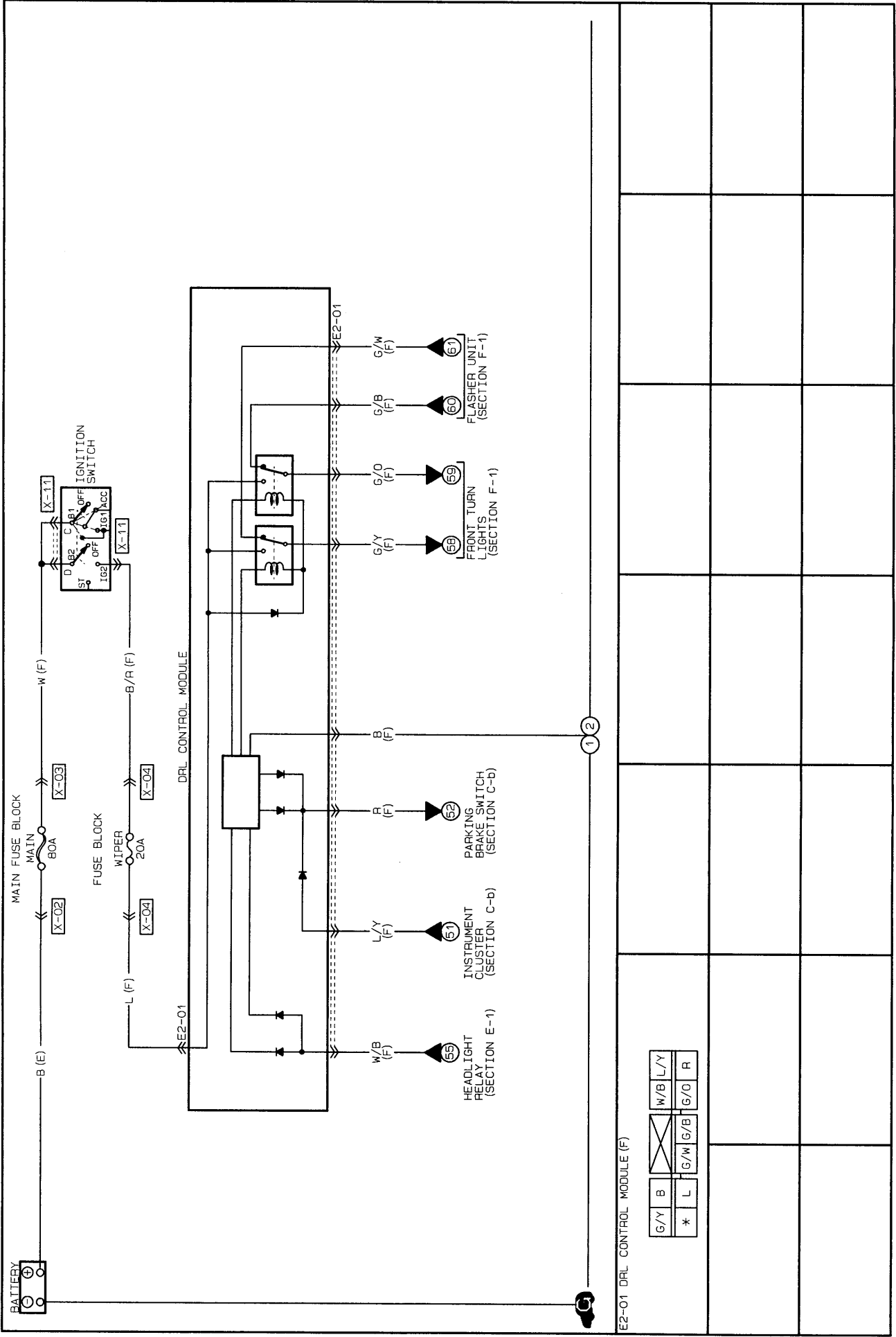
HEADLIGHTS/RETRACTABLE HEADLIGHT SYSTEM



HARNES SYMBOL : [diagonal lines] (F) [diamond] (E) [diagonal lines] (R)



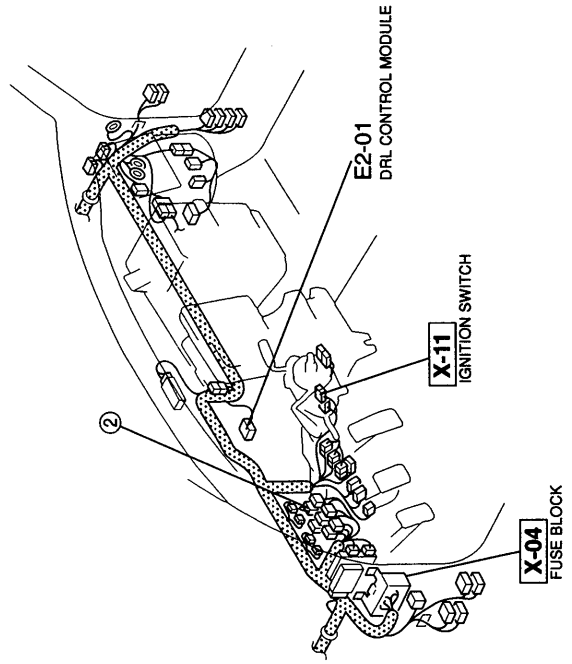
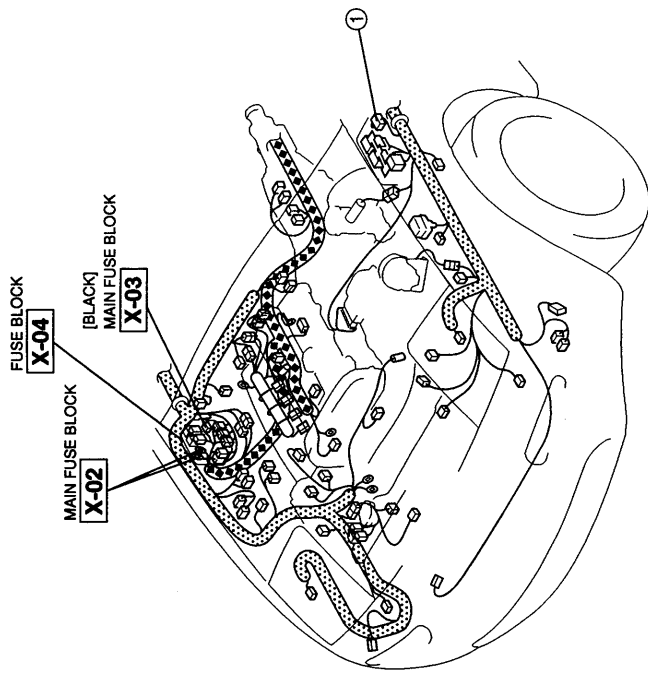
DAYTIME RUNNING LIGHTS



E2-01 DPL CONTROL MODULE (F)

G/Y	B	W/B	L/Y
*	L	G/W	G/O
		G/B	R

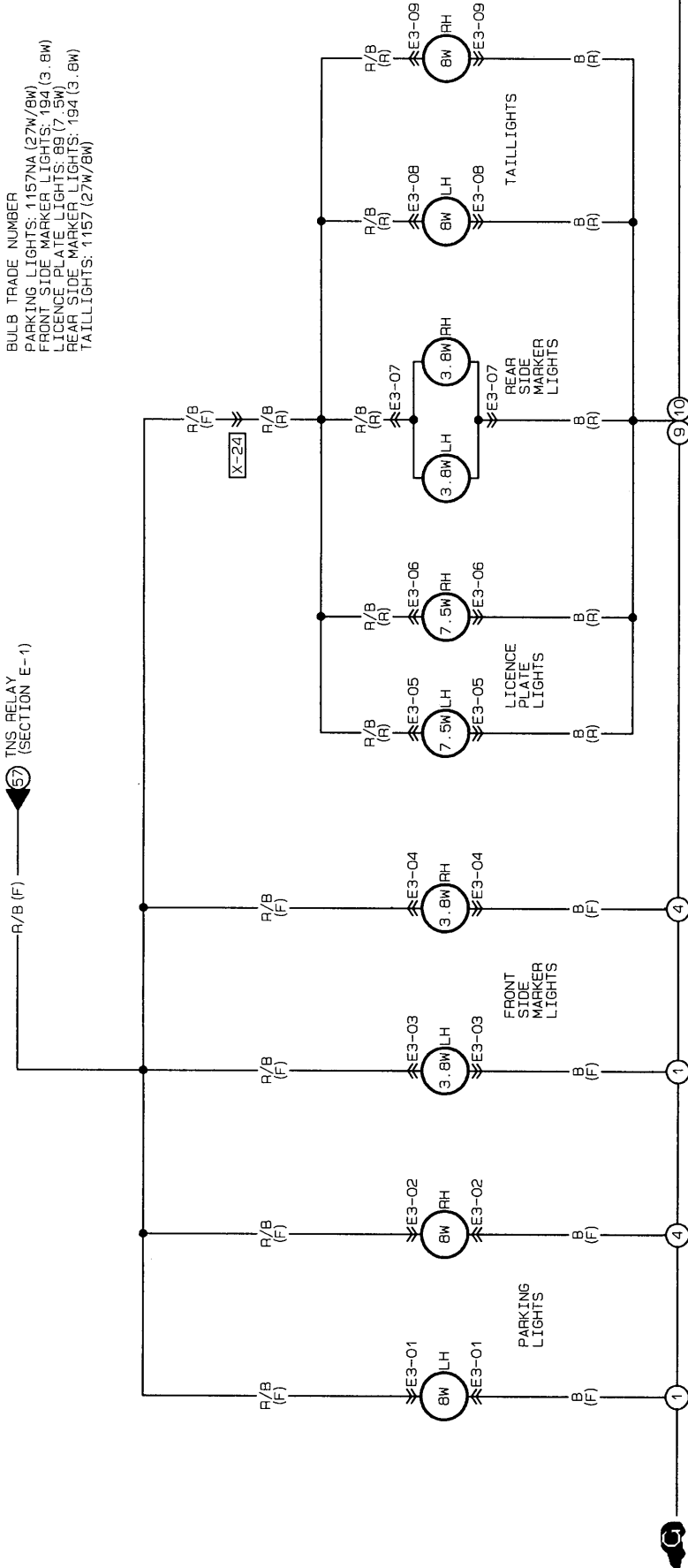
HARNES SYMBOL : [diagonal lines] (F) [diamond] (E) [diagonal lines] (R)



Z WIRING DIAGRAM

PARKING LIGHTS/SIDE MARKER LIGHTS/LICENCE PLATE LIGHTS/TAILLIGHTS

BULB TRADE NUMBER
 PARKING LIGHTS: 1157NA (27W/8W)
 FRONT SIDE MARKER LIGHTS: 194 (3.8W)
 LICENCE PLATE LIGHTS: 89 (7.5W)
 REAR SIDE MARKER LIGHTS: 194 (3.8W)
 TAILLIGHTS: 1157 (27W/8W)

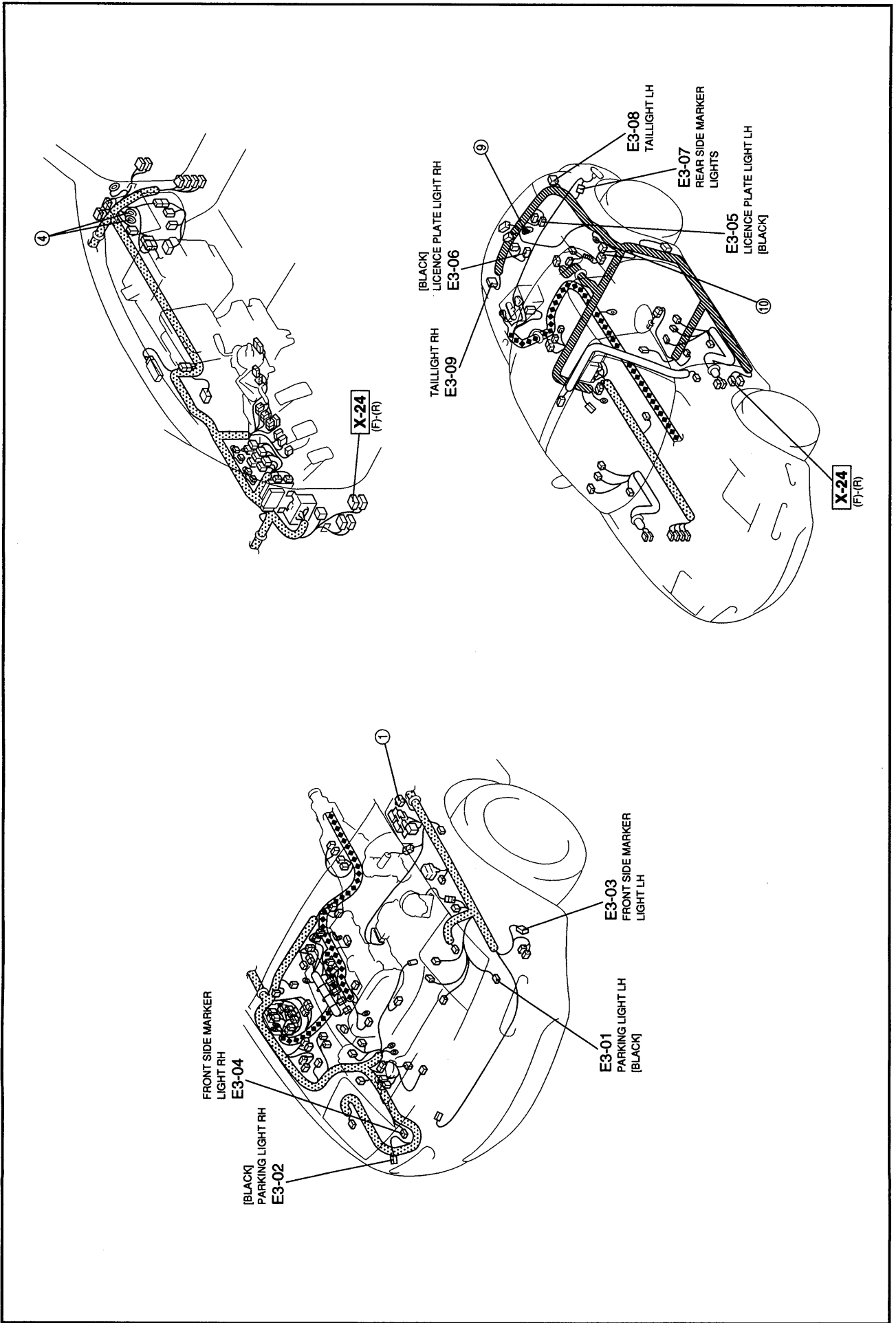


E3-01 PARKING LIGHT LH (F)	E3-02 PARKING LIGHT RH (F)	E3-03 FRONT SIDE MARKER LIGHT LH (F)	E3-04 FRONT SIDE MARKER LIGHT RH (F)
E3-05 LICENCE PLATE LIGHT LH (R)	E3-06 LICENCE PLATE LIGHT RH (R)	E3-07 REAR SIDE MARKER LIGHTS (R)	E3-08 TAILLIGHT LH (R)
E3-09 TAILLIGHT RH (R)	E3-10 FRONT SIDE MARKER LIGHT LH (F)		

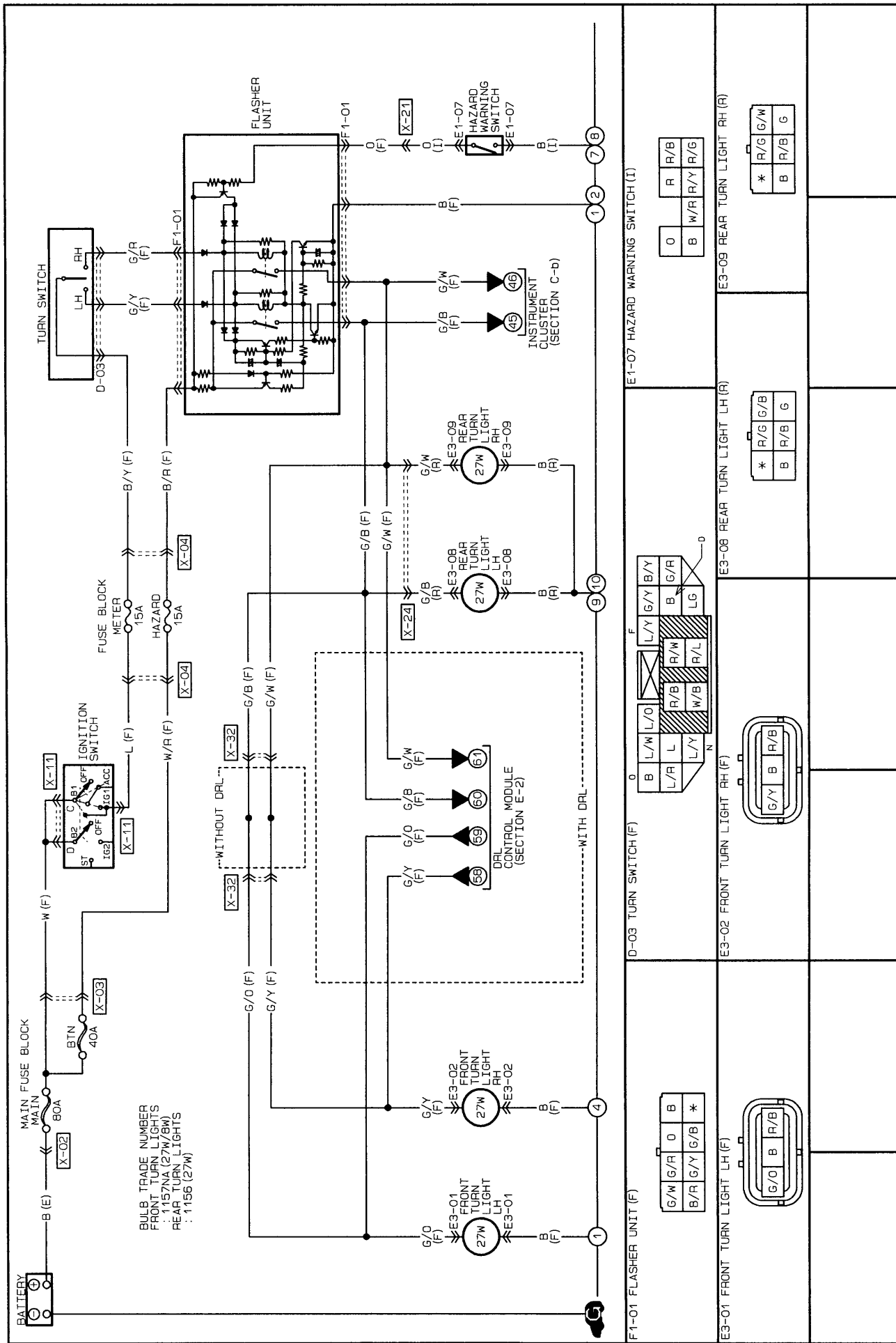
* R/G	G/W
B	G

* R/G	G/B
B	G

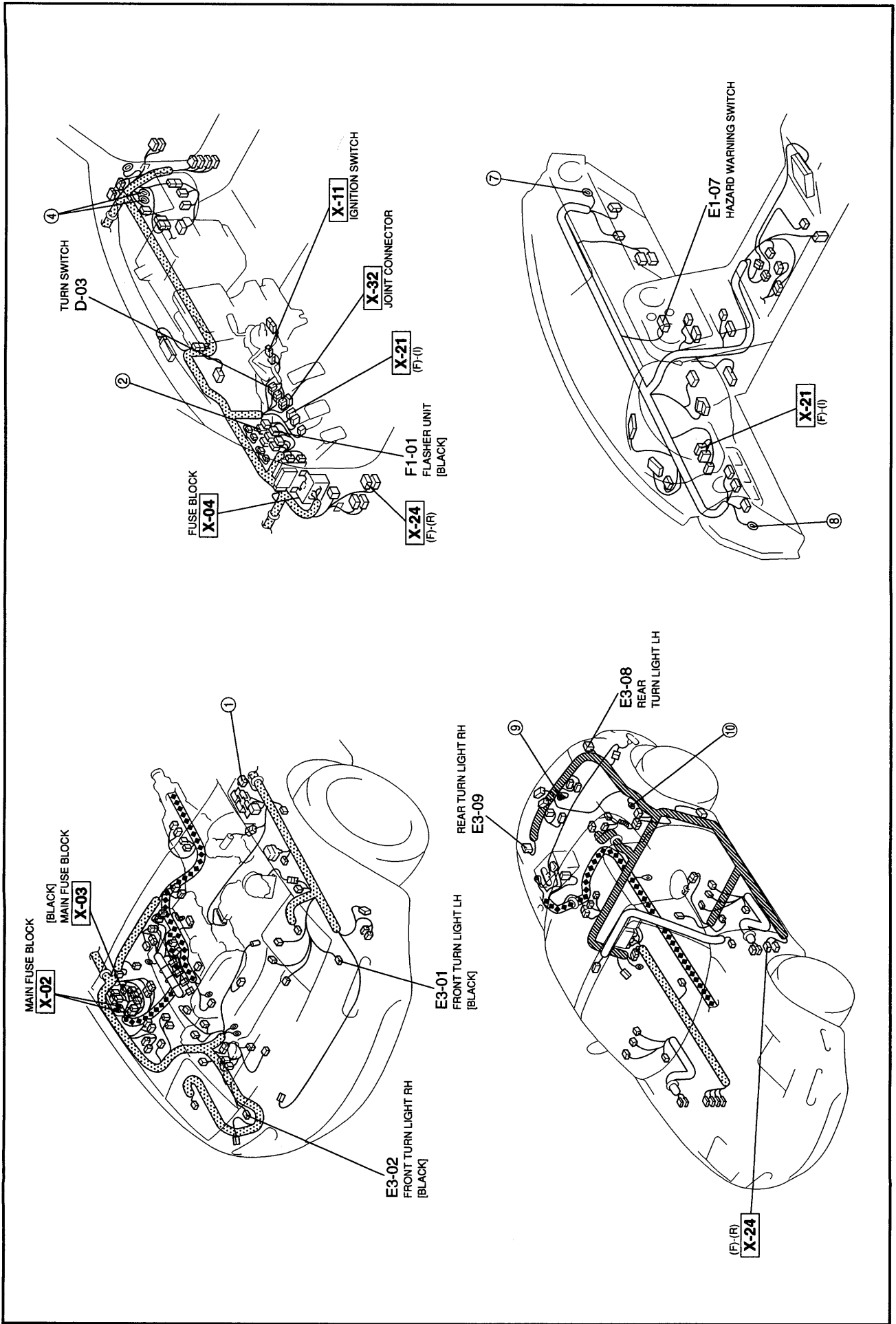
HARNES SYMBOL : [diagonal lines] (F) [diamond] (E) [diagonal lines] (F)



TURN AND HAZARD WARNING LIGHTS

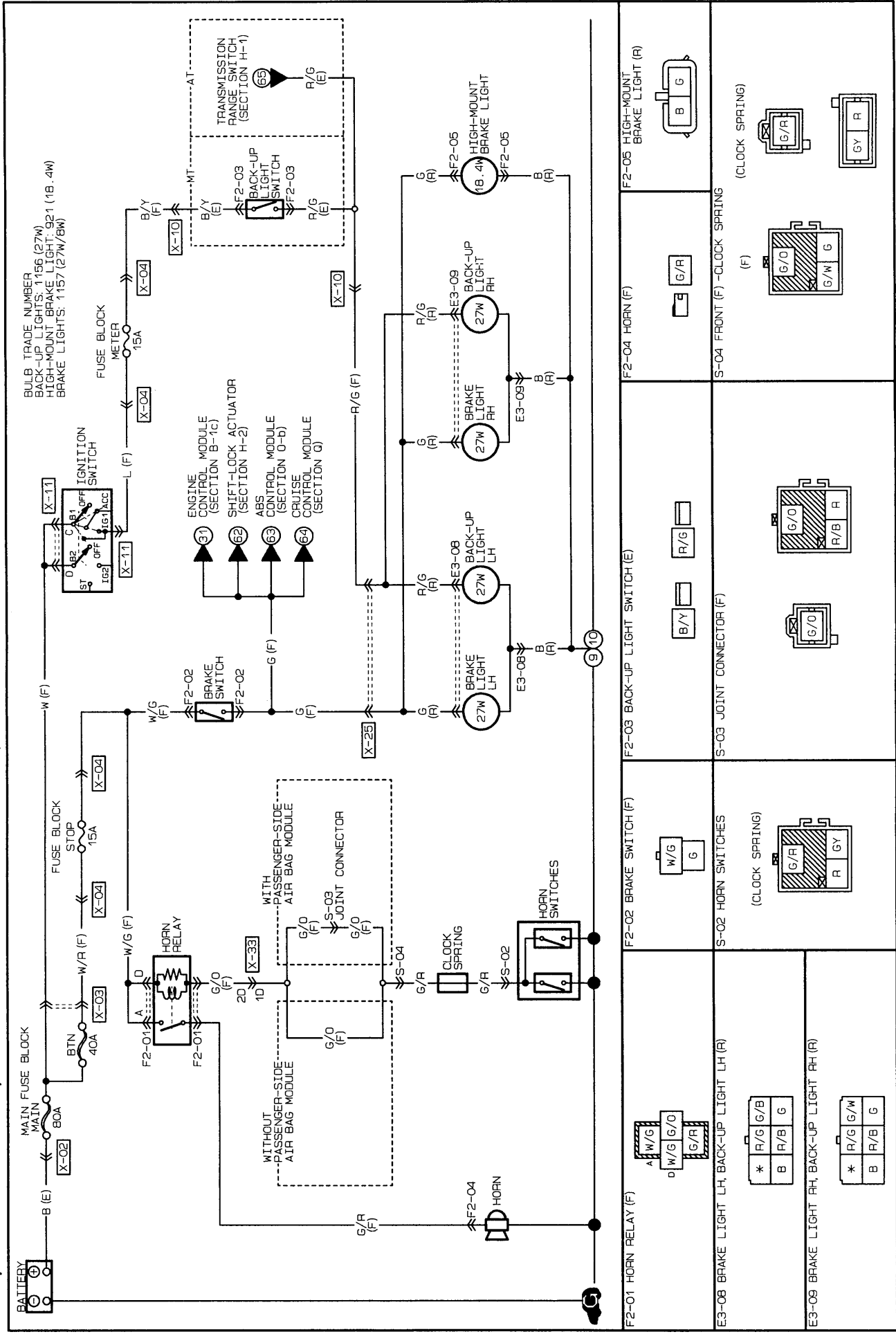


HARNES SYMBOL : (F) (E) (R)

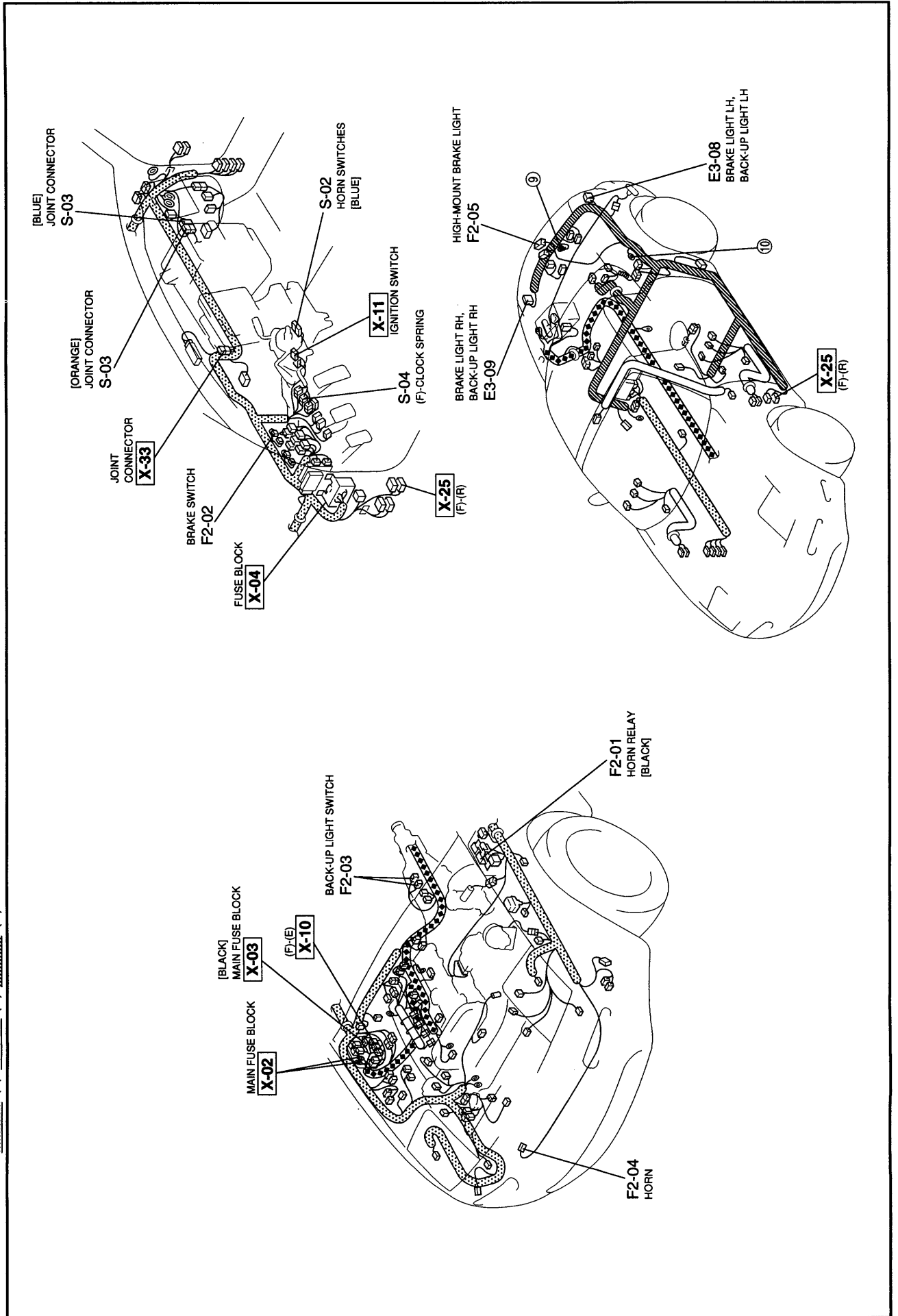


Z WIRING DIAGRAM

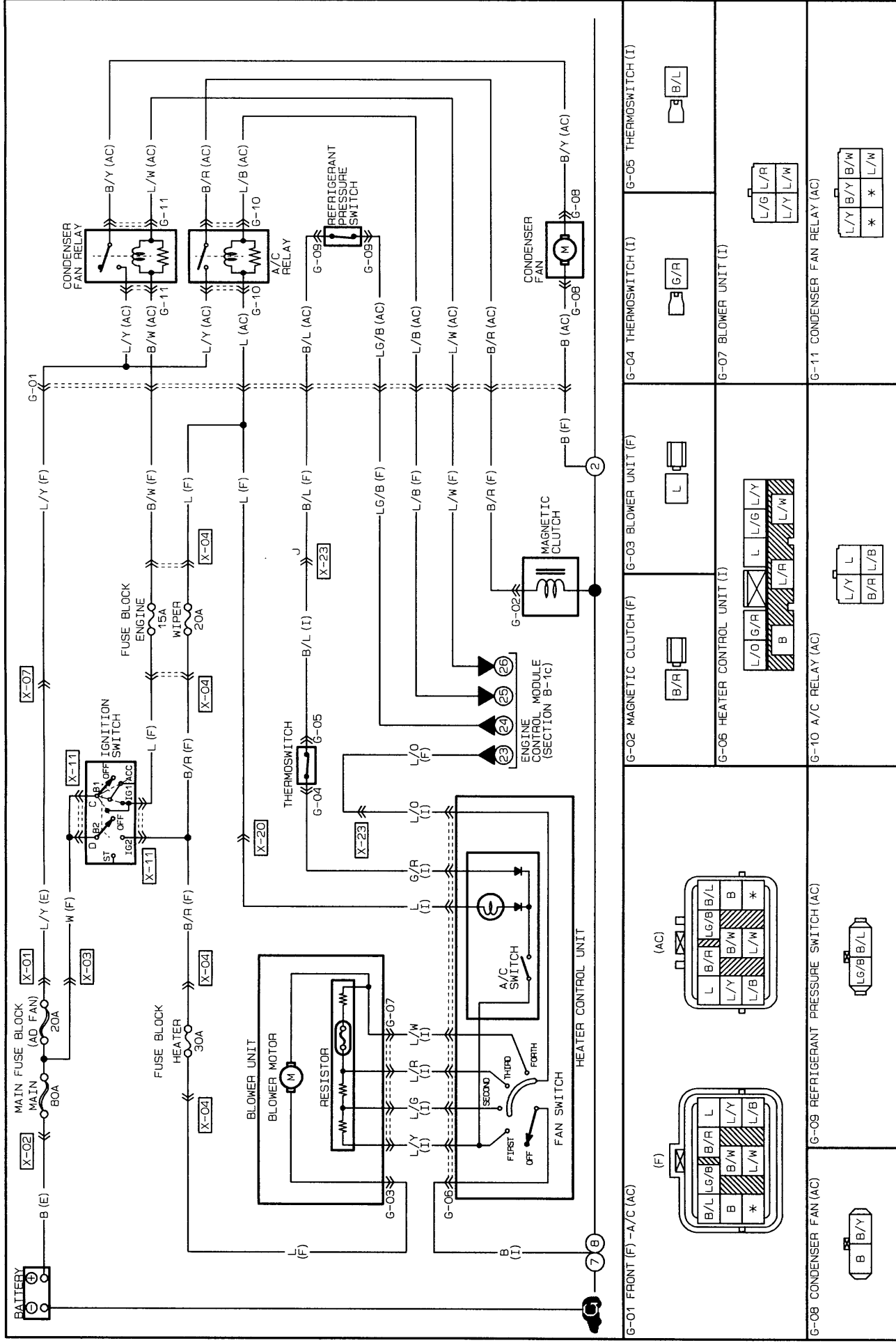
HORN/BRAKE LIGHTS/HIGH-MOUNT BRAKE LIGHT/BACK-UP LIGHTS



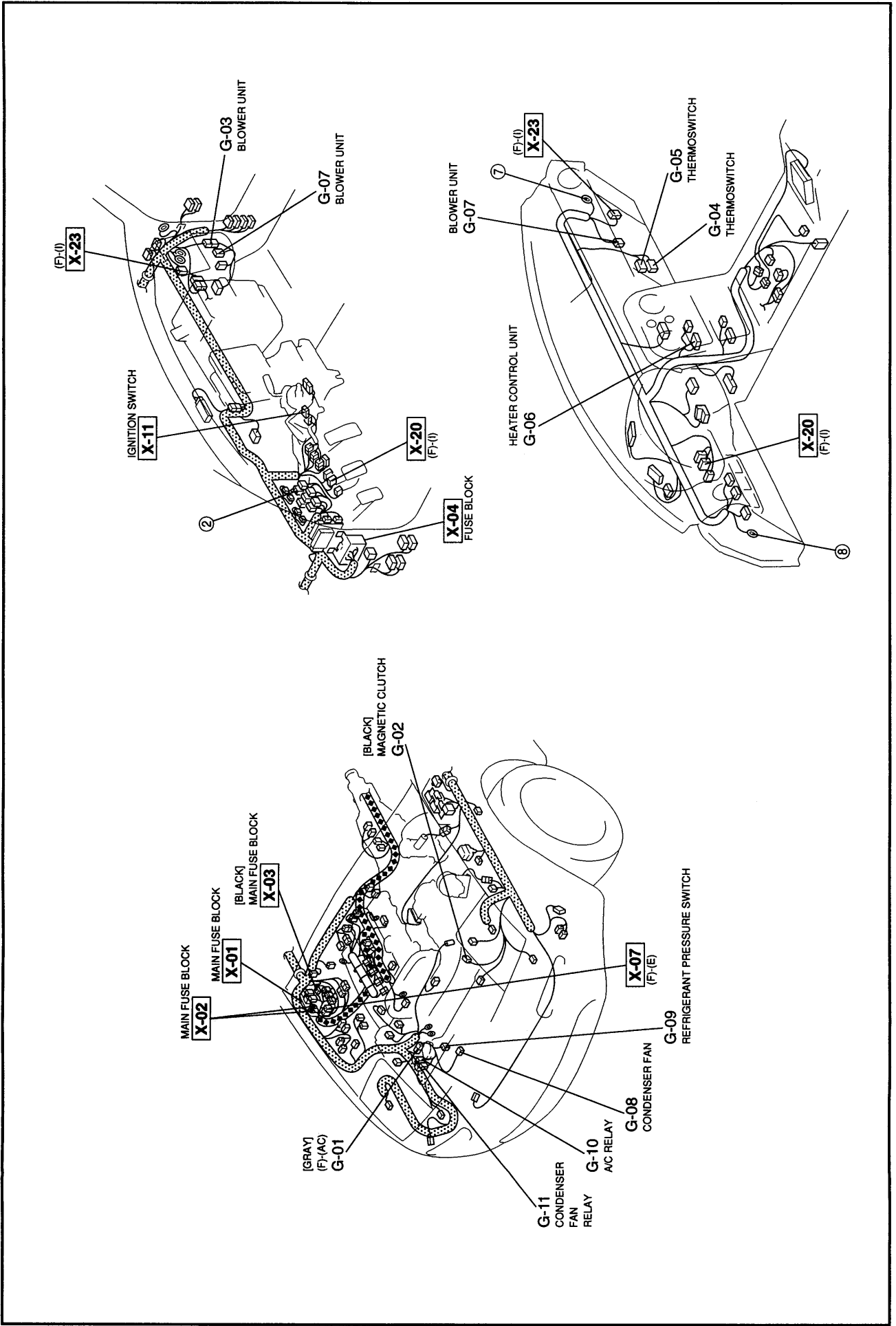
HARNES SYMBOL :  (F)  (E)  (R)



HEATER AND AIR CONDITIONER/CONDENSER FAN

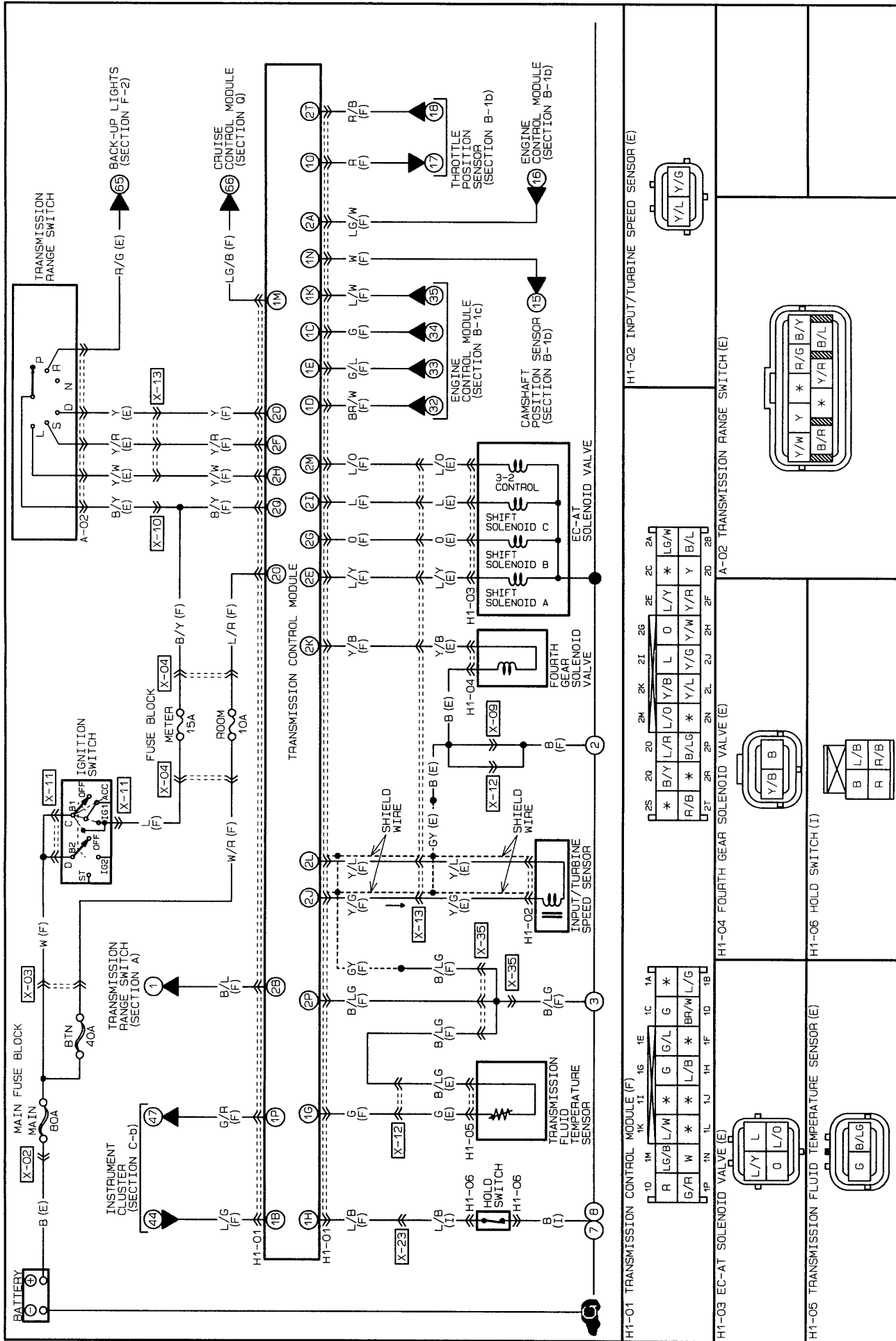


HARNES SYMBOL : [Pattern] (F) [Pattern] (E) [Pattern] (R)

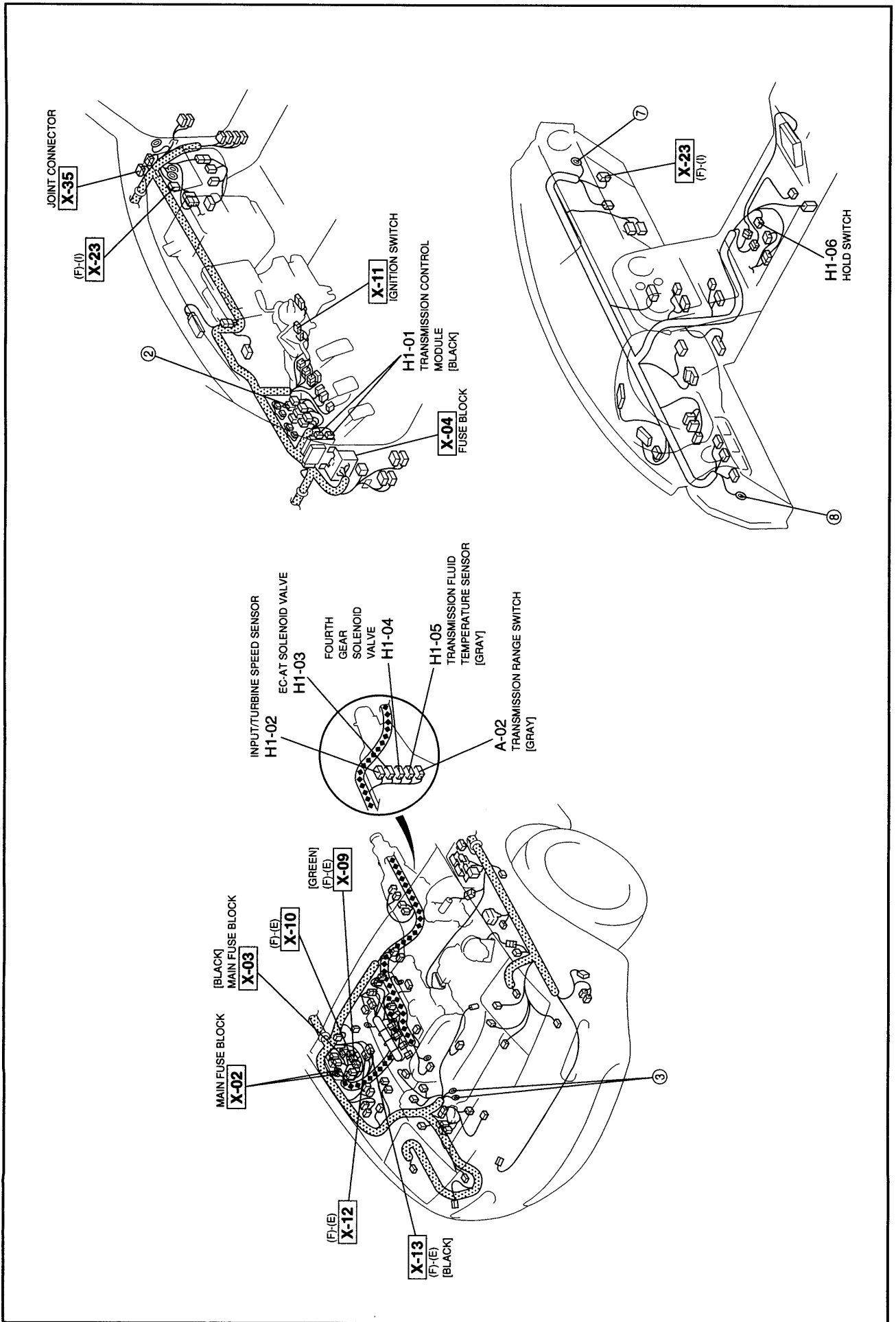


Z WIRING DIAGRAM

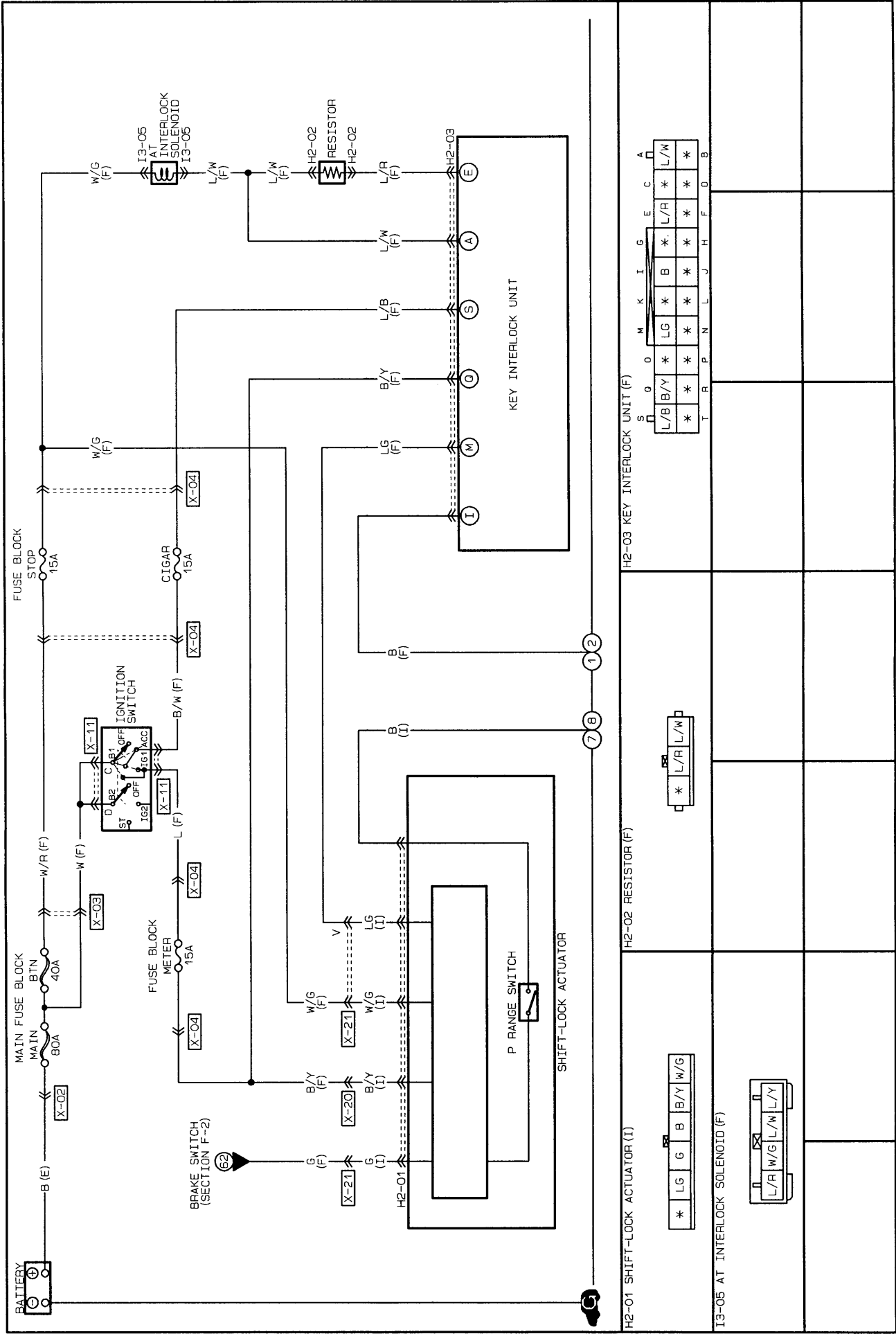
EC-AT CONTROL SYSTEM



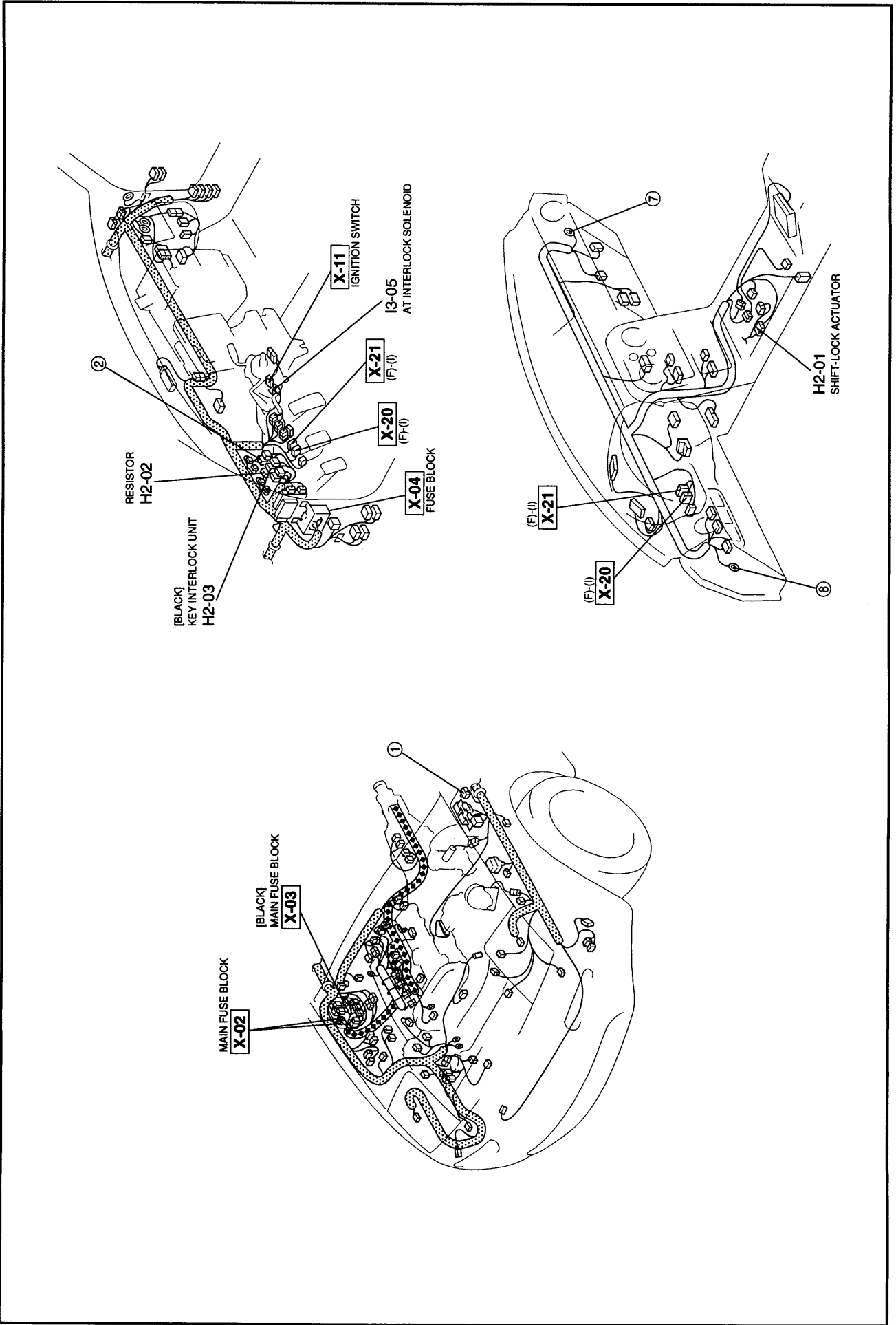
HARNES SYMBOL :  (F)  (E)  (R)



SHIFT-LOCK SYSTEM/KEY INTERLOCK SYSTEM

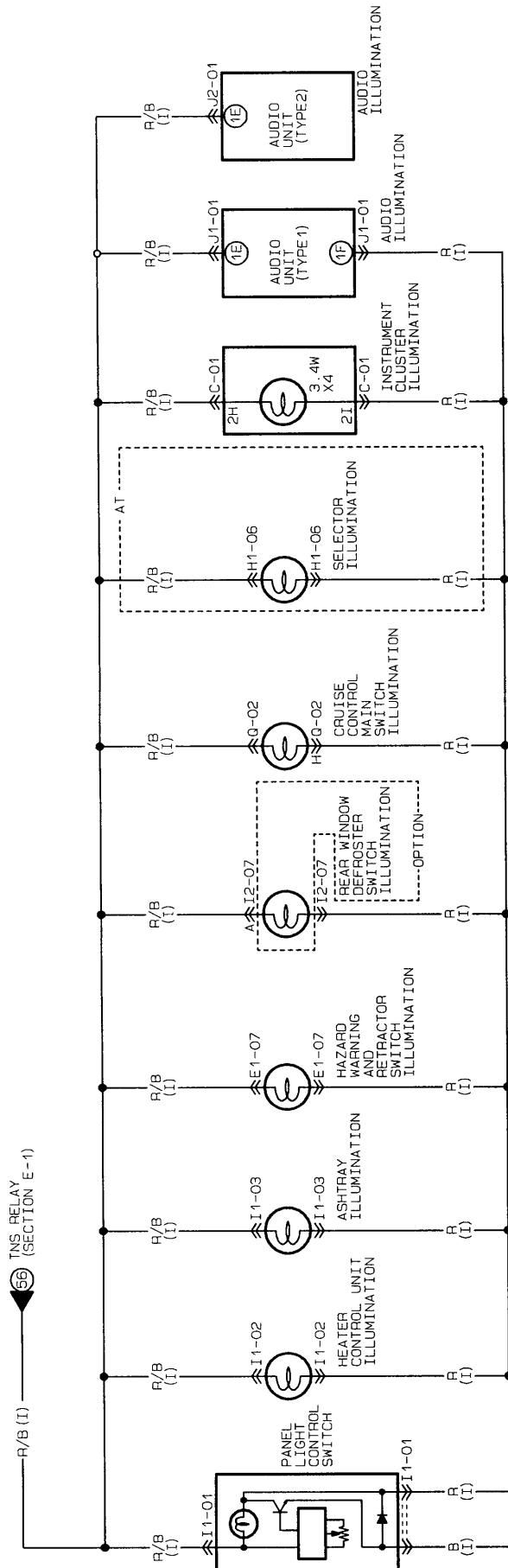


HARNESS SYMBOL :  (F)  (E)  (R)

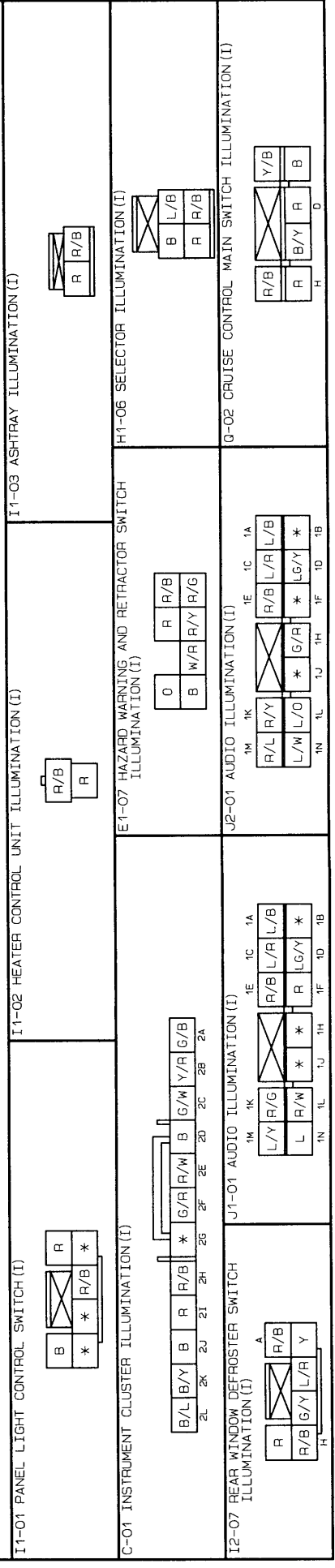


Z WIRING DIAGRAM

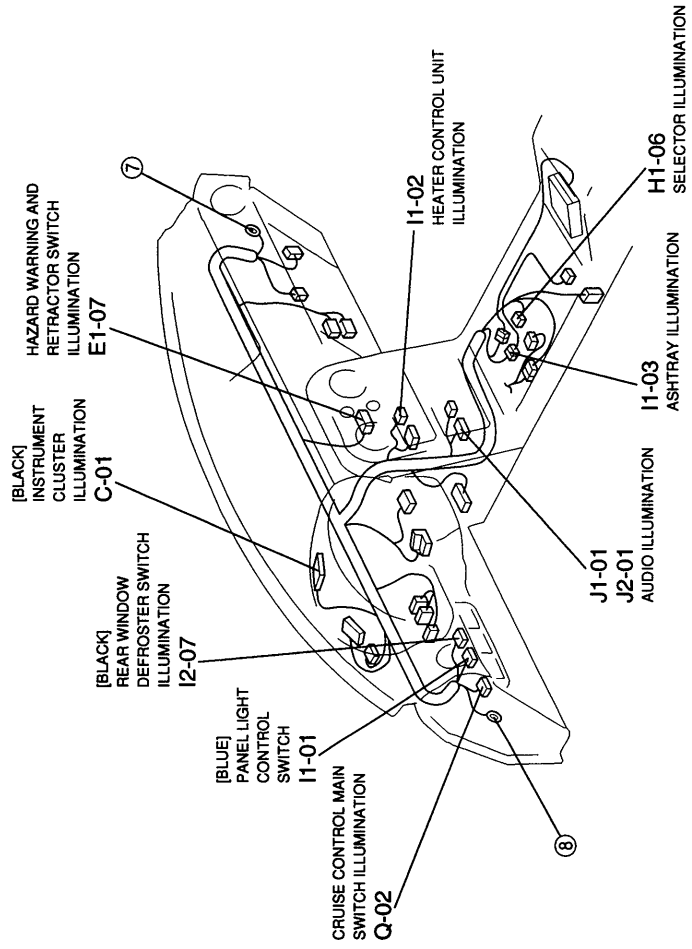
ILLUMINATION LIGHTS



7-8

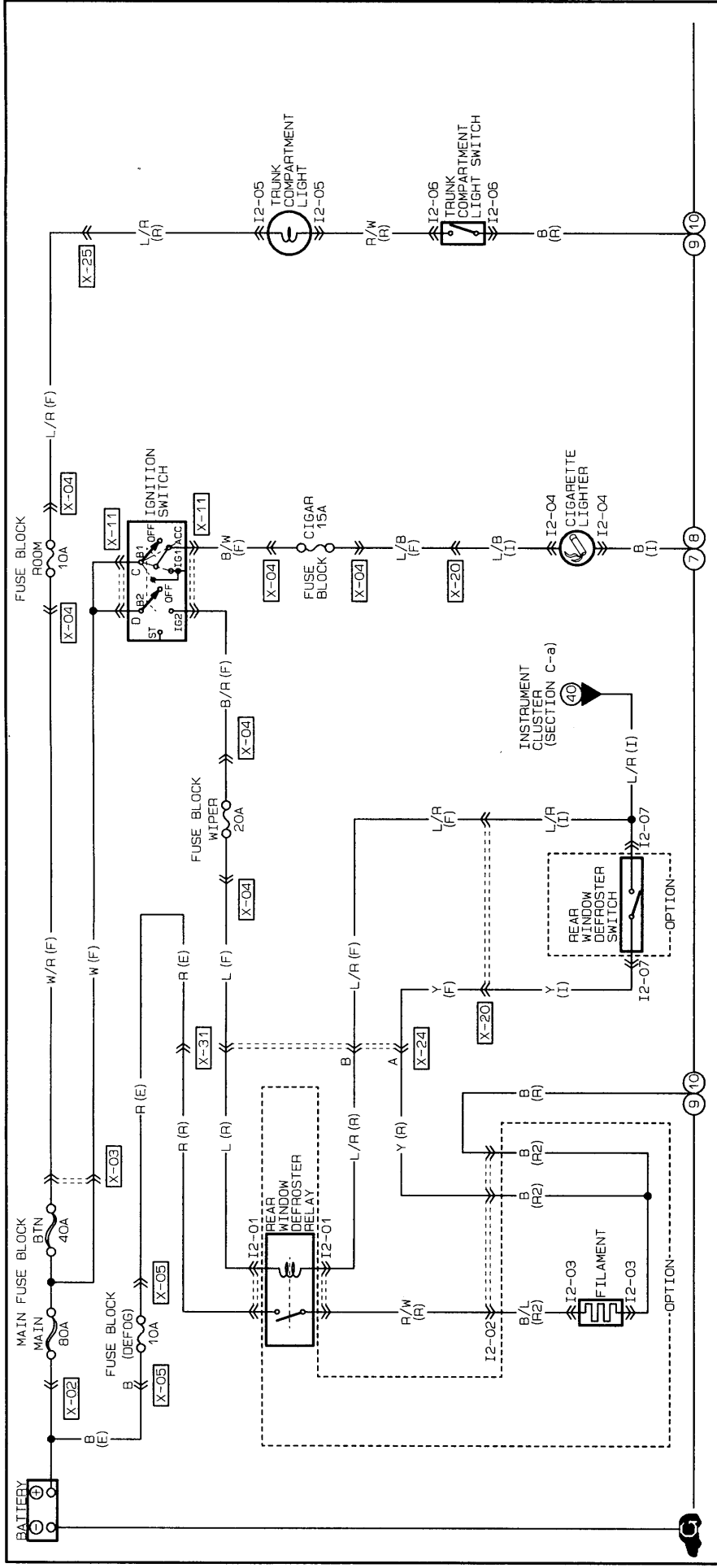


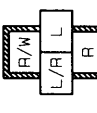
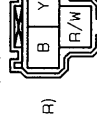

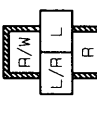
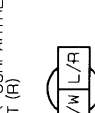
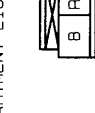

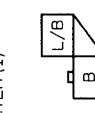
HARNES SYMBOL : [diagonal lines] (F) [diamond] (E) [diagonal lines] (R)



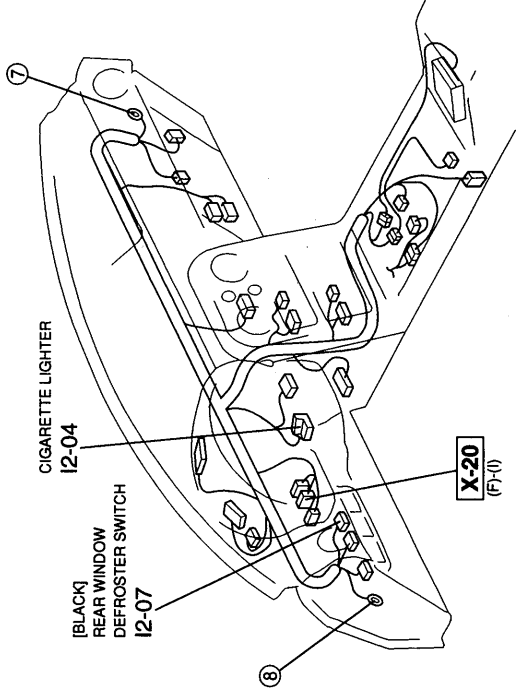
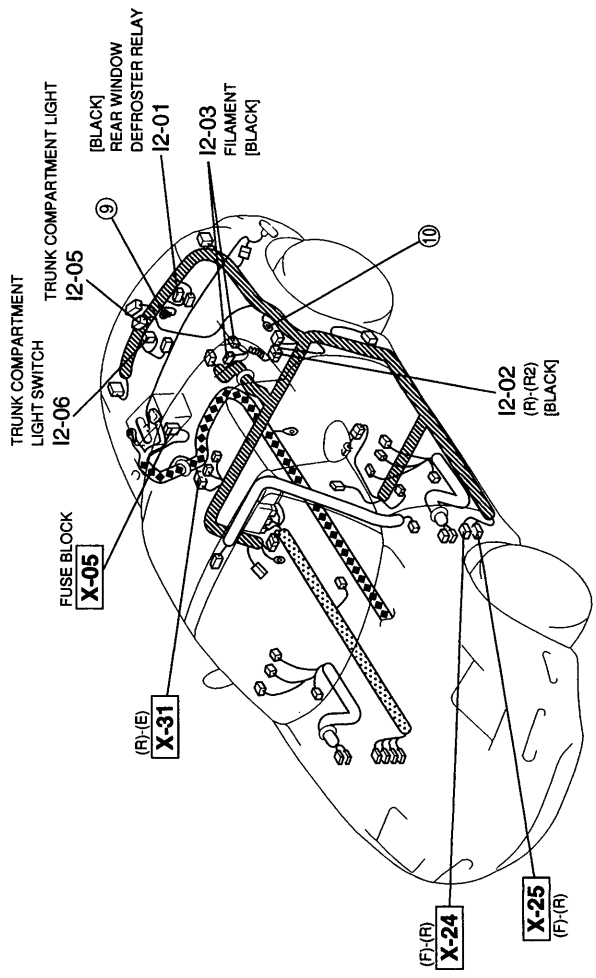
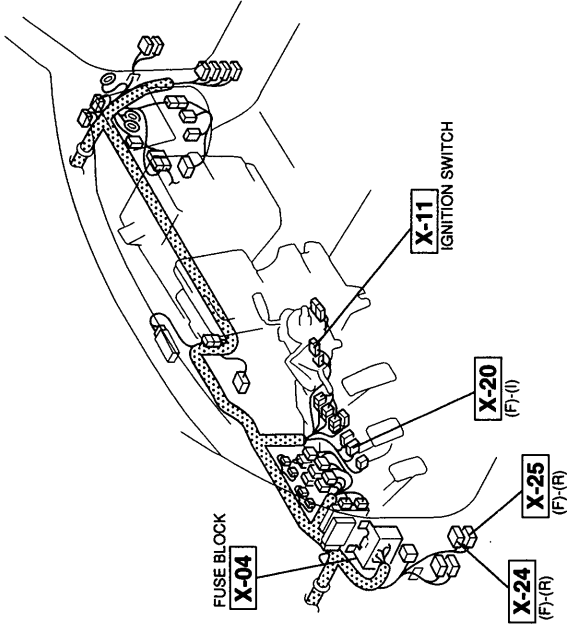
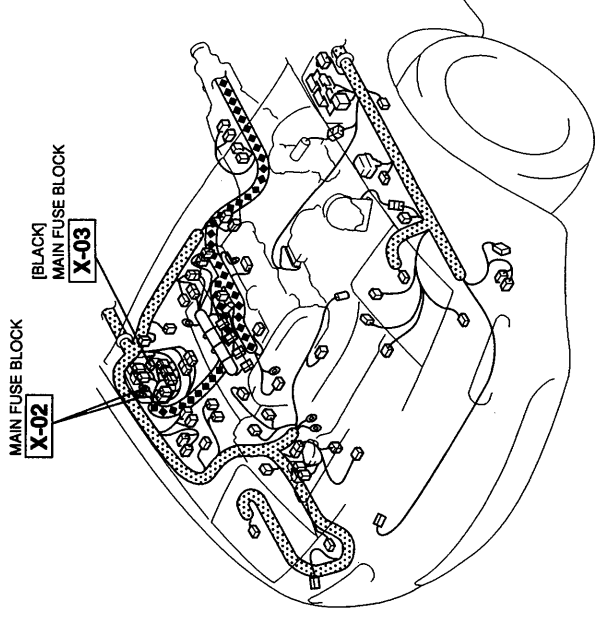
Z WIRING DIAGRAM

CIGARETTE LIGHTER/TRUNK COMPARTMENT LIGHT/REAR WINDOW DEFROSTER

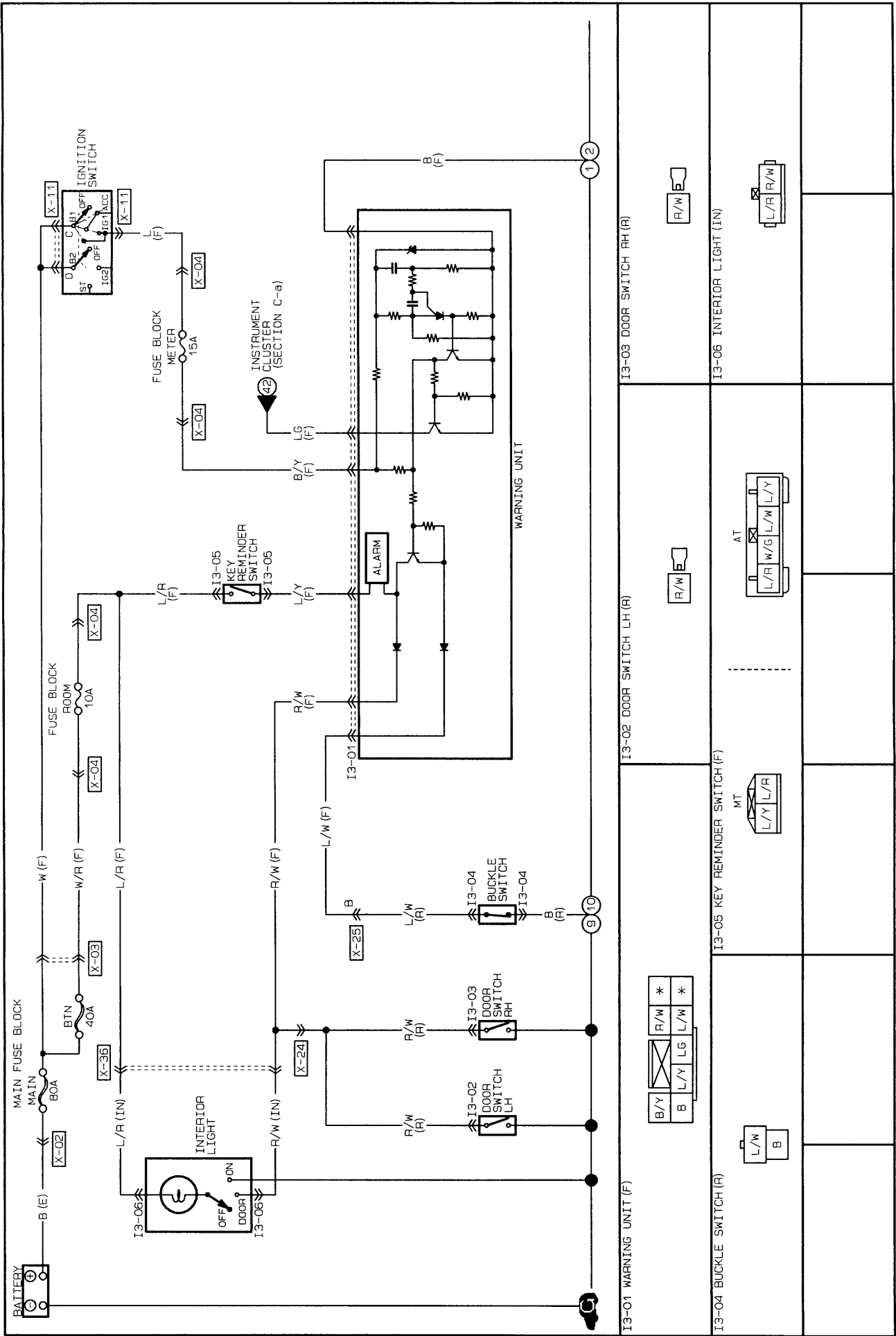


<p>I2-01 REAR WINDOW DEFROSTER RELAY (R)</p> 	<p>I2-02 REAR (R) -REAR No.2 (R2)</p> 	<p>I2-03 FILAMENT (R2)</p> 	<p>I2-04 CIGARETTE LIGHTER (I)</p> 
<p>I2-05 TRUNK COMPARTMENT LIGHT (R)</p> 	<p>I2-06 TRUNK COMPARTMENT LIGHT SWITCH (F)</p> 	<p>I2-07 REAR WINDOW DEFROSTER SWITCH (I)</p> 	<p>I2-08 CIGARETTE LIGHTER (I)</p> 

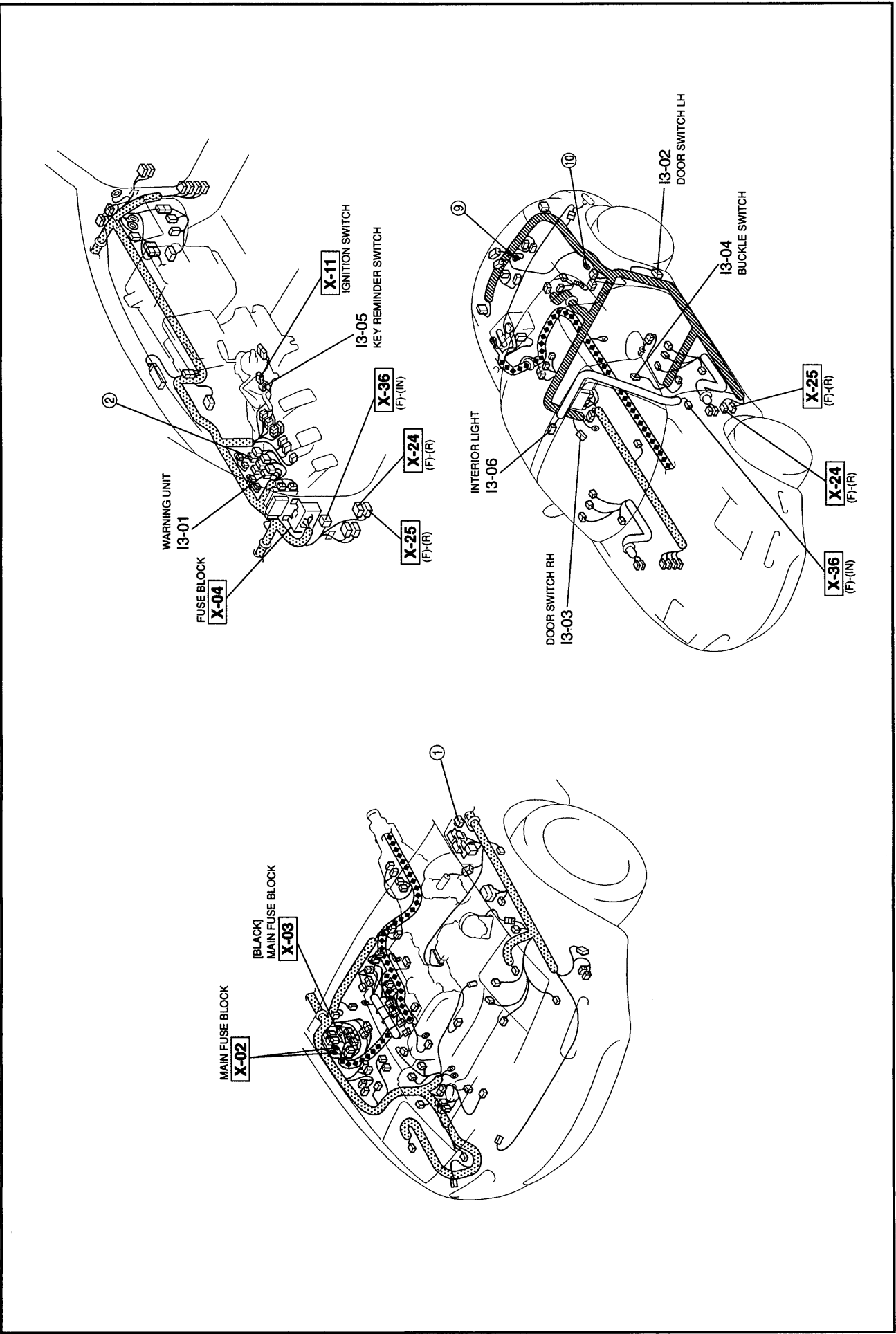
HARNES SYMBOL :  (F)  (E)  (R)



INTERIOR LIGHT/SOUND WARNING SYSTEM

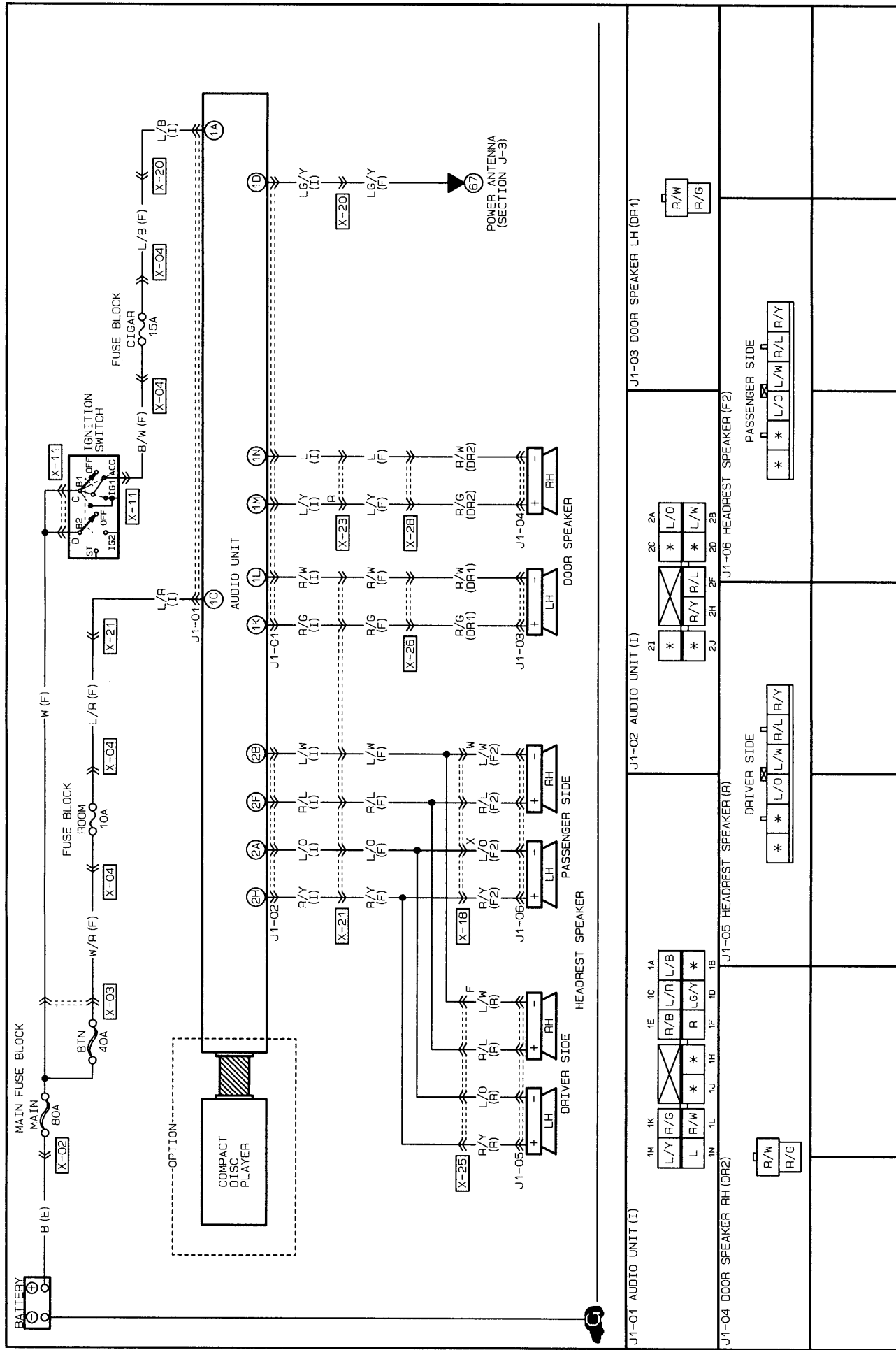


HARNES SYMBOL :  (F)  (E)  (R)

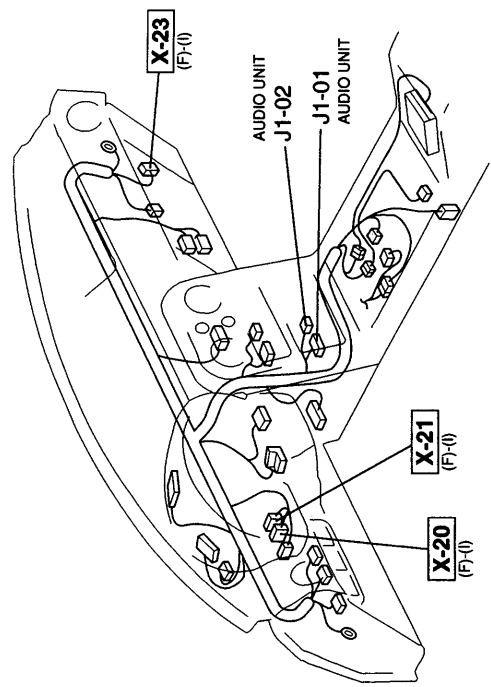
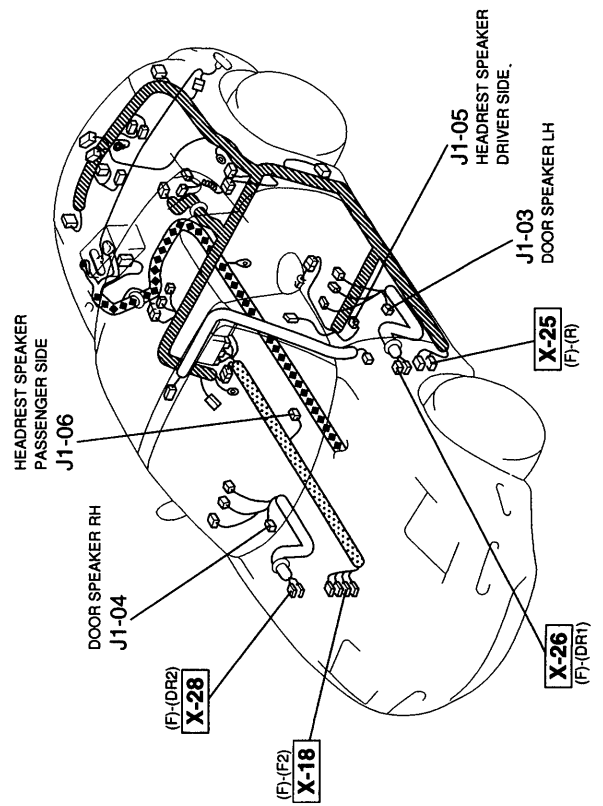
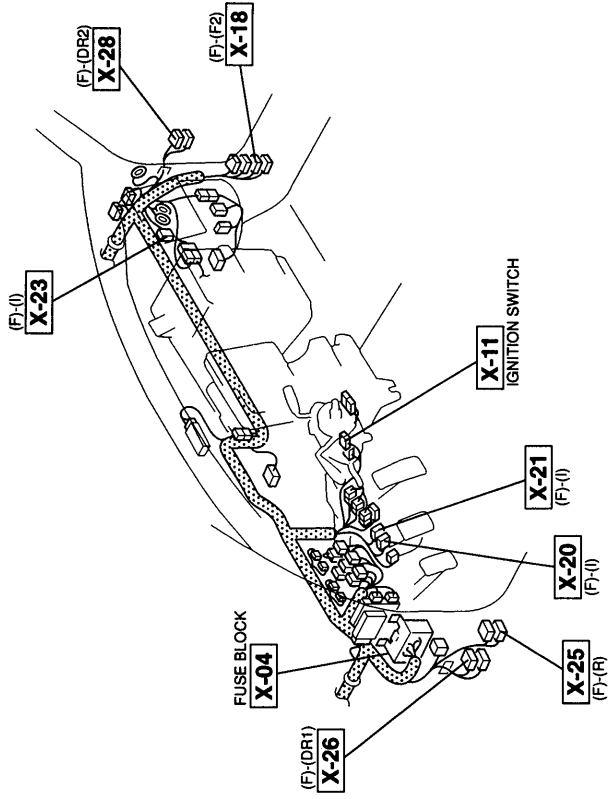
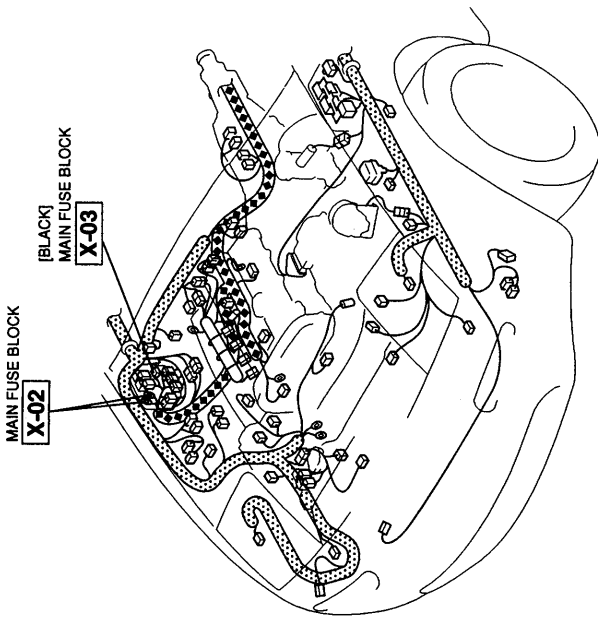


Z WIRING DIAGRAM

AUDIO SYSTEM (TYPE 1)

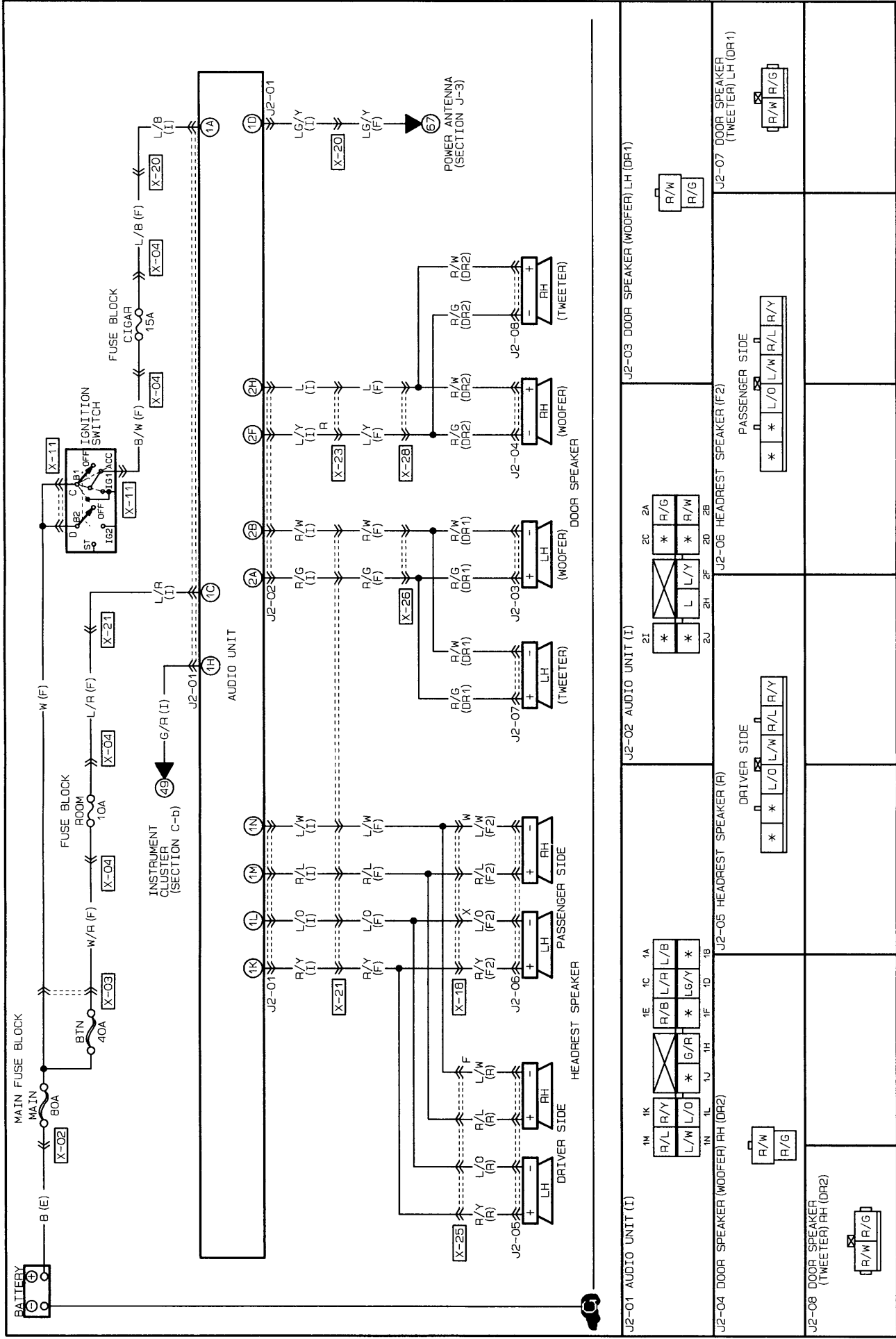


HARNES SYMBOL : (F) (E) (R)

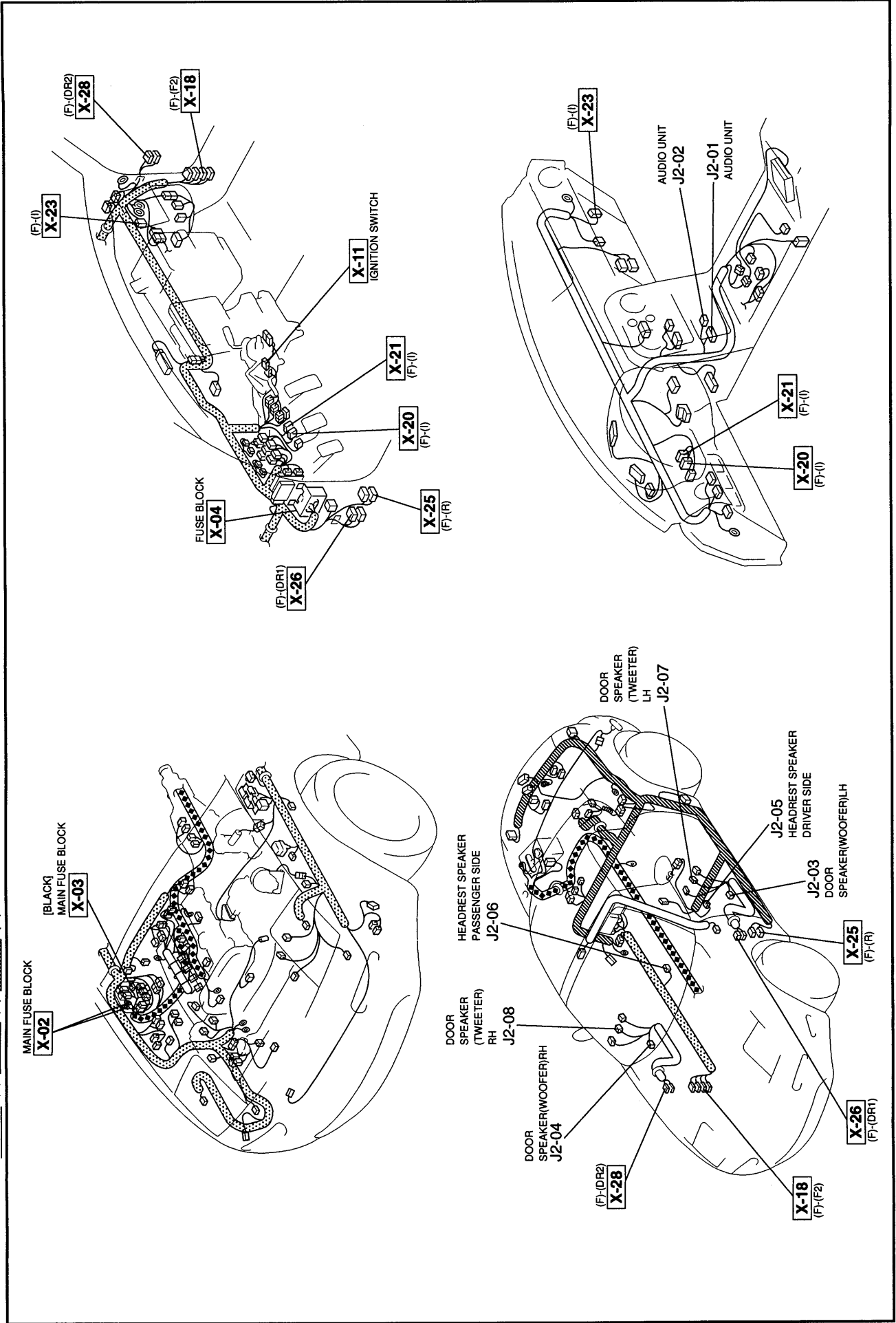


Z WIRING DIAGRAM

AUDIO SYSTEM (TYPE2)

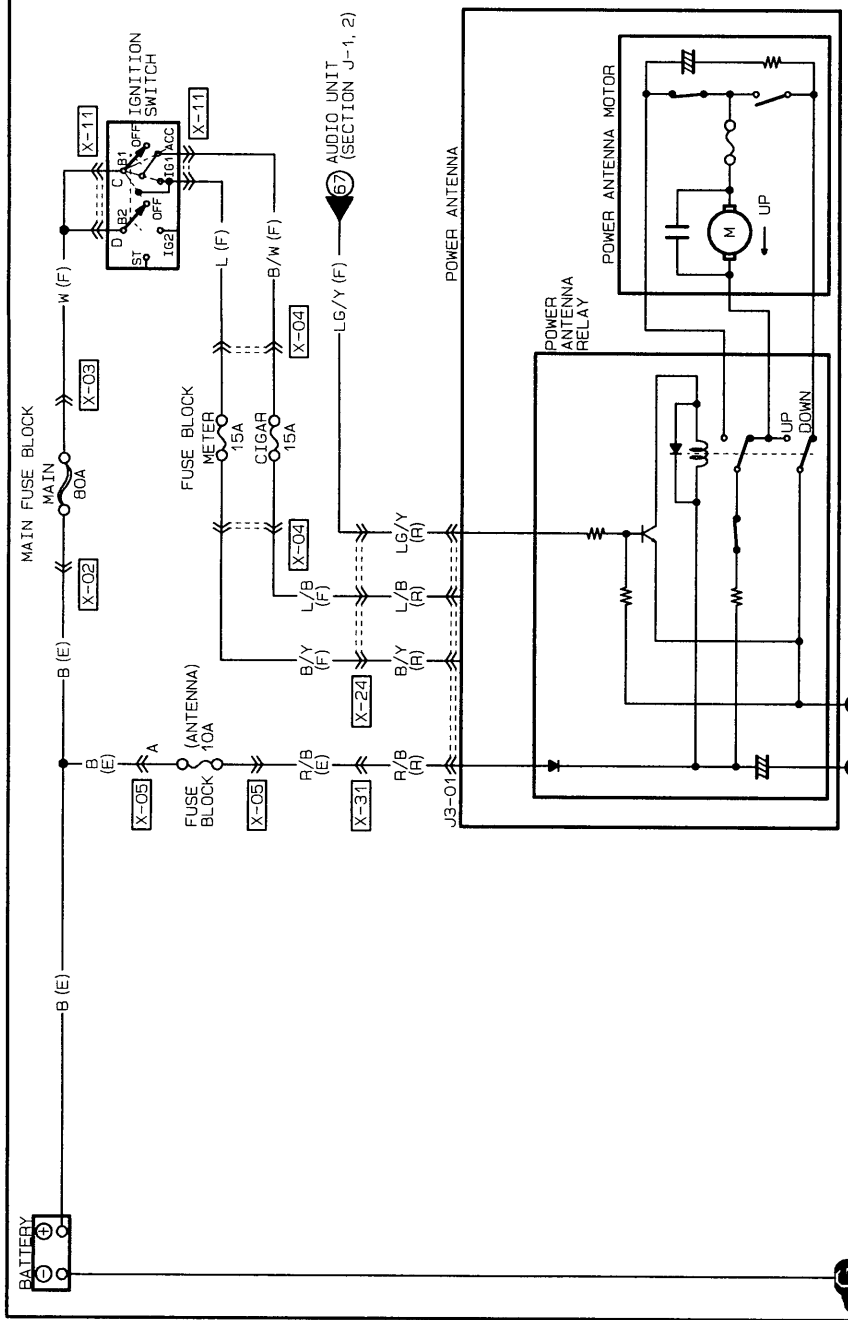


HARNES SYMBOL : (F) (E) (R)



Z WIRING DIAGRAM

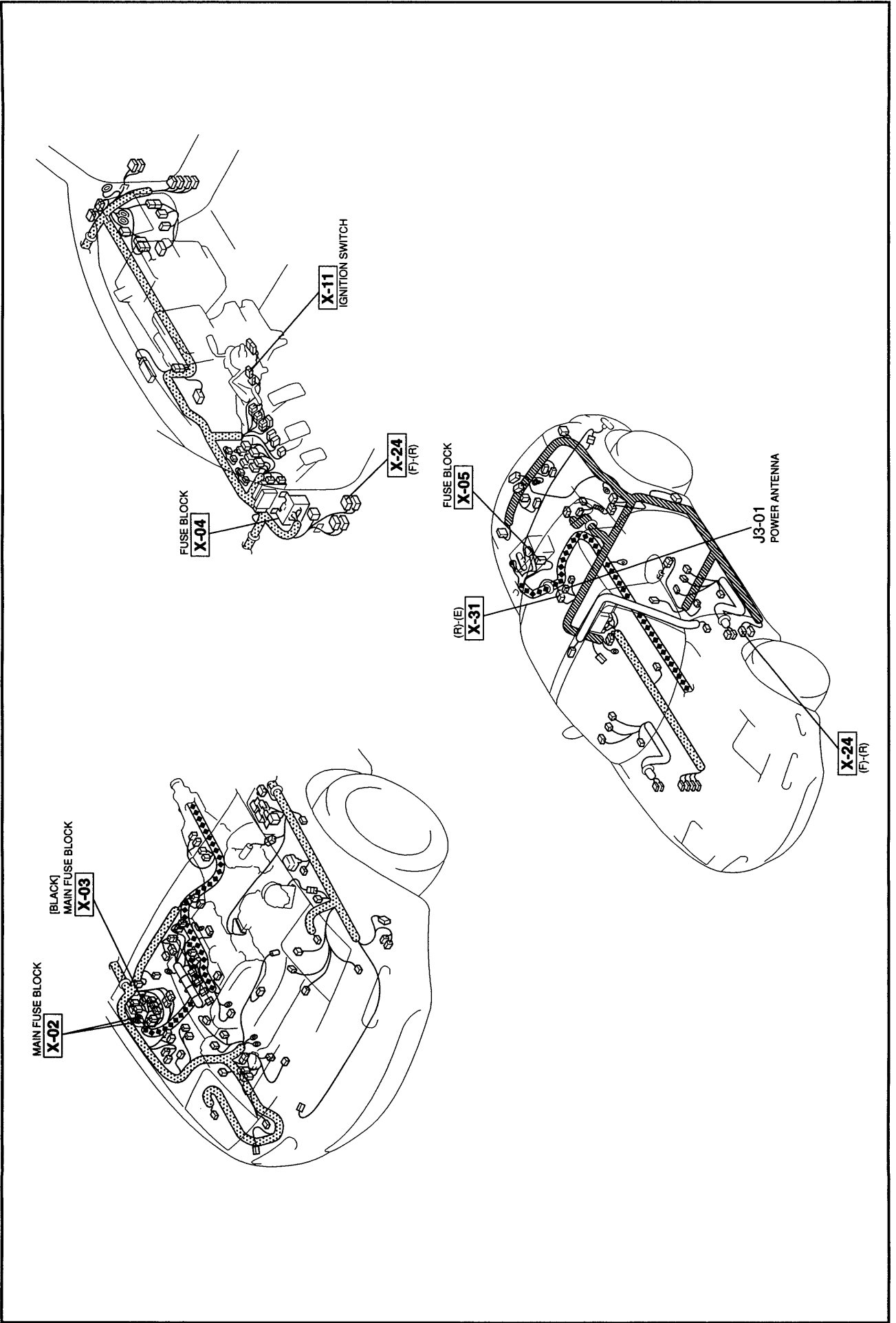
POWER ANTENNA



J3-01 POWER ANTENNA (R)

L/B	Lg/Y
B/Y	R/B

HARNES SYMBOL : [diagonal lines] (F) [diamond] (E) [diagonal lines] (F)



K

Z WIRING DIAGRAM

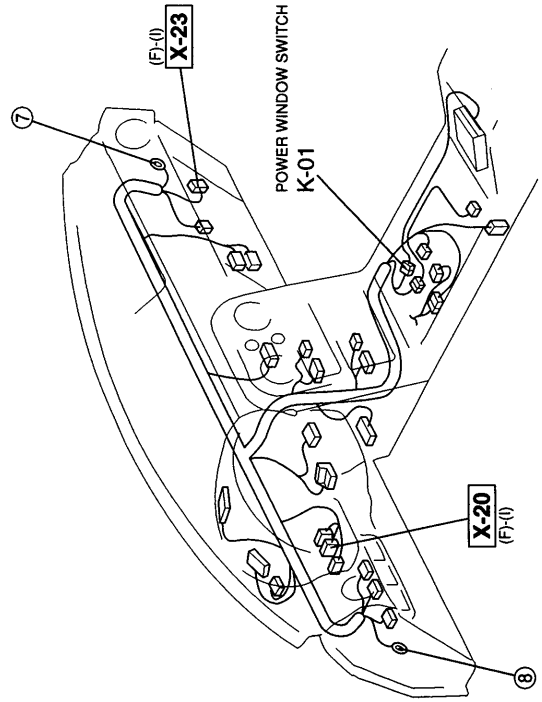
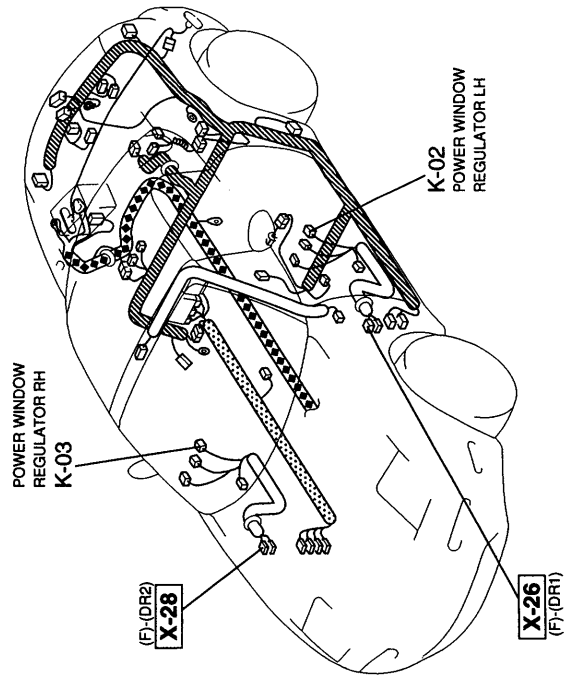
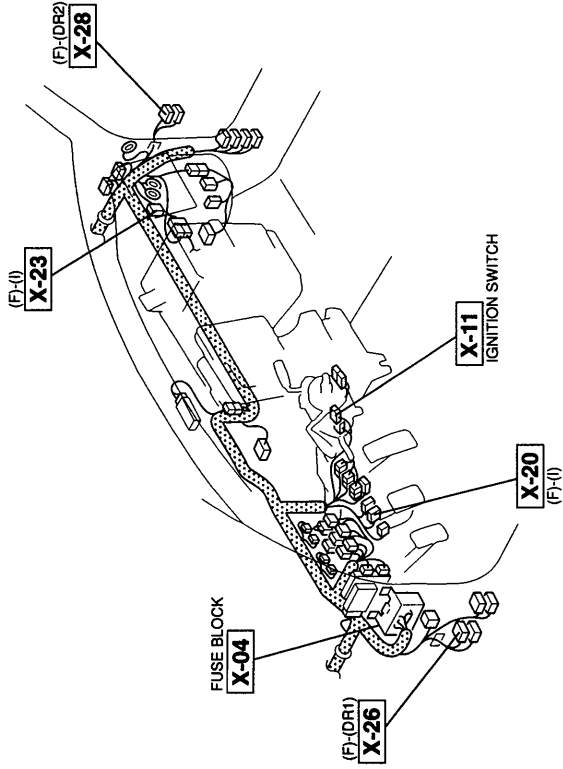
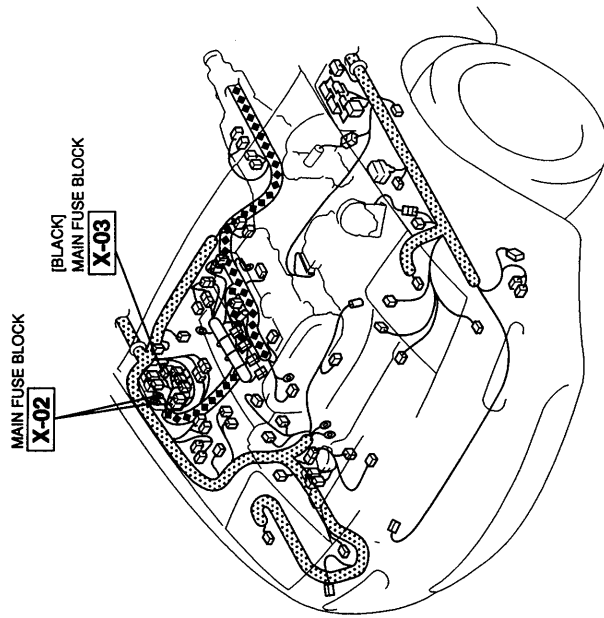
POWER WINDOWS

The diagram illustrates the electrical system for the power windows. It starts with a BATTERY connected to a MAIN FUSE BLOCK (containing fuses X-02 and X-03) and a FUSE BLOCK (POWER WIND) (containing fuses X-04 and X-04). The circuit passes through an IGNITION SWITCH (containing fuses X-11 and X-11) and a POWER WINDOW SWITCH (containing fuses X-20, X-23, and X-28). The switch controls two POWER WINDOW REGULATORS: LH (DR1) and RH (DR2). Each regulator is powered by a solenoid (K-02 and K-03) and a relay (DR1 and DR2). The diagram also shows a terminal block (7) and a ground connection (G).

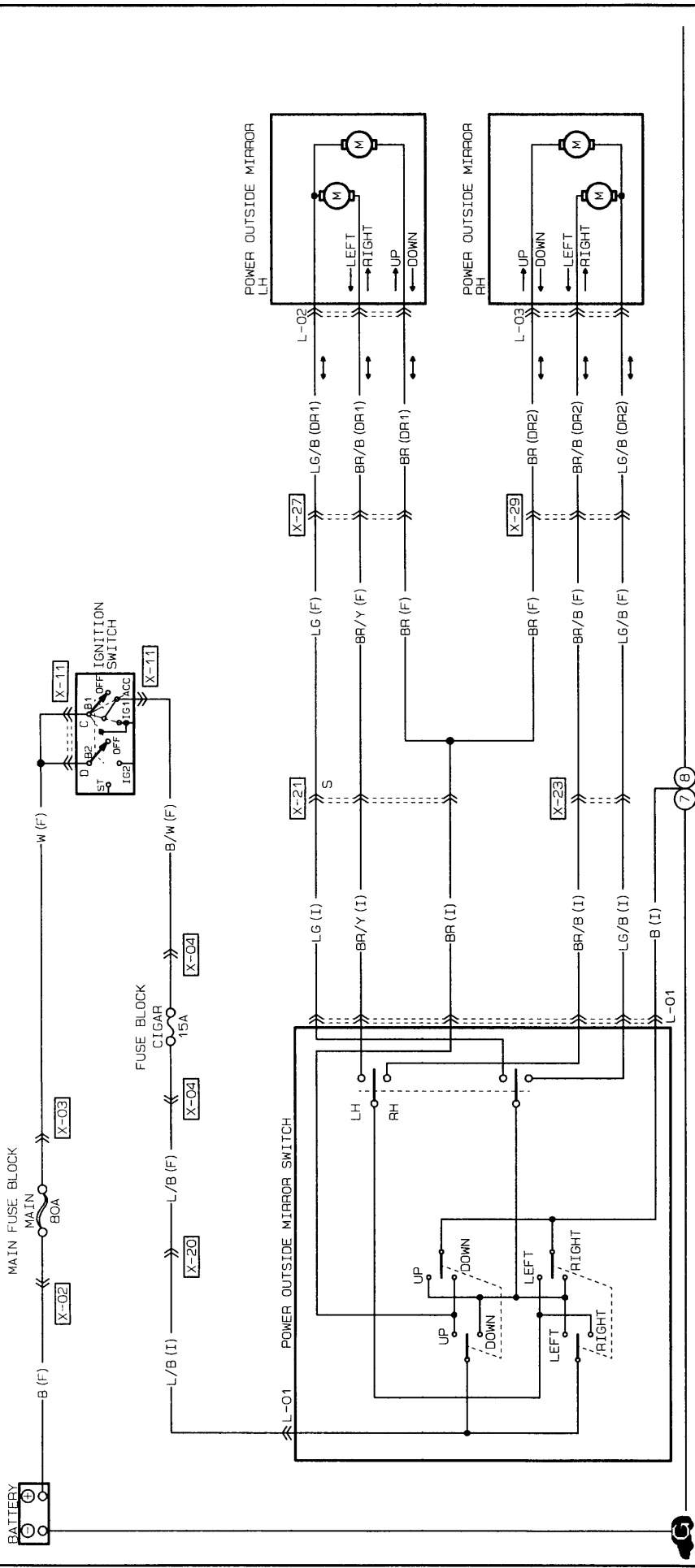
K-01 POWER WINDOW SWITCH (I)	<table border="1"> <tr> <td>R/B</td> <td>G/R</td> <td>B/W</td> </tr> <tr> <td>R/G</td> <td>G</td> <td>B</td> </tr> </table>	R/B	G/R	B/W	R/G	G	B	K-02 POWER WINDOW REGULATOR LH (DR1)	<table border="1"> <tr> <td>G/R</td> <td>G</td> </tr> </table>	G/R	G	
R/B	G/R	B/W										
R/G	G	B										
G/R	G											
		K-03 POWER WINDOW REGULATOR RH (DR2)	<table border="1"> <tr> <td>G/R</td> <td>G</td> </tr> </table>	G/R	G							
G/R	G											

Z-62

HARNES SYMBOL :  (F)  (E)  (R)

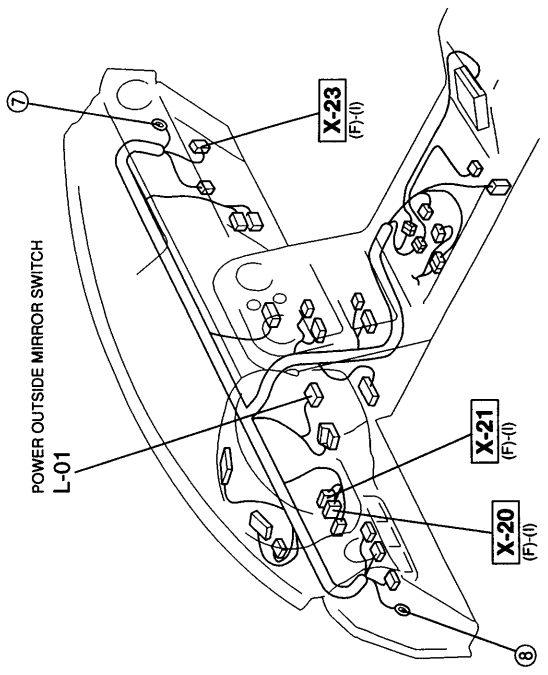
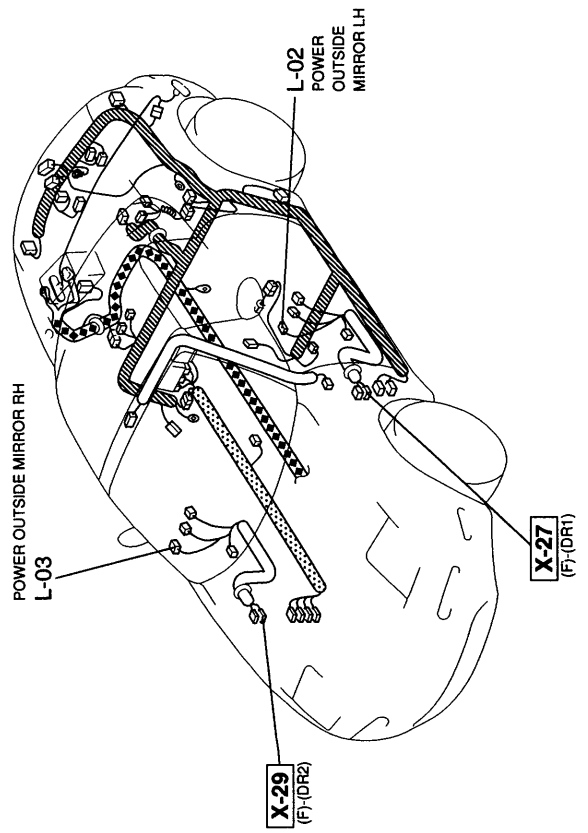
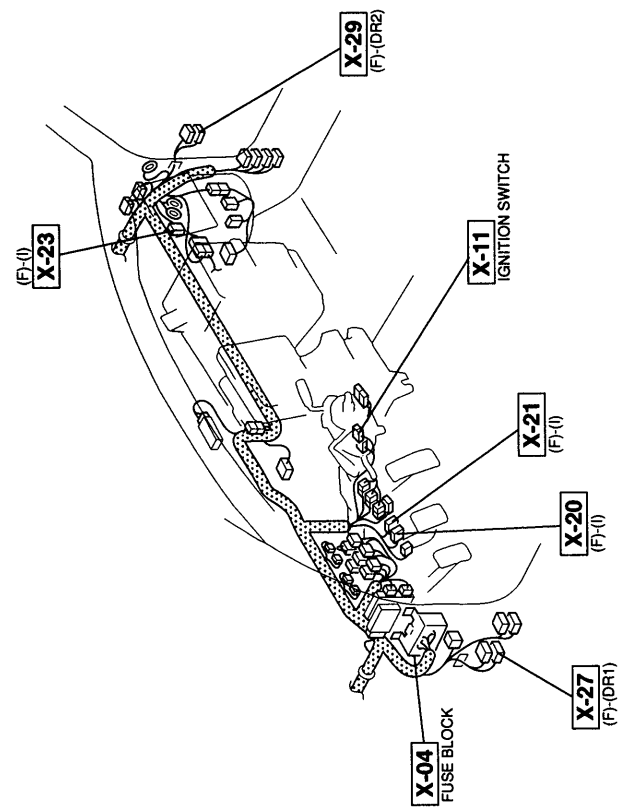
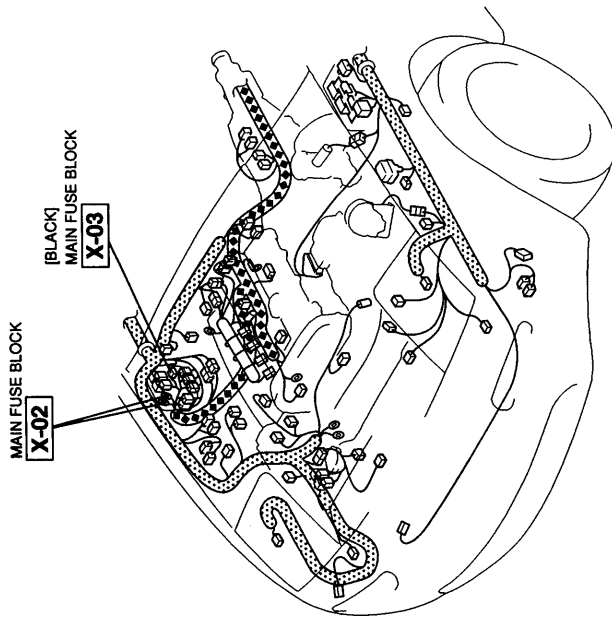


POWER OUTSIDE MIRRORS



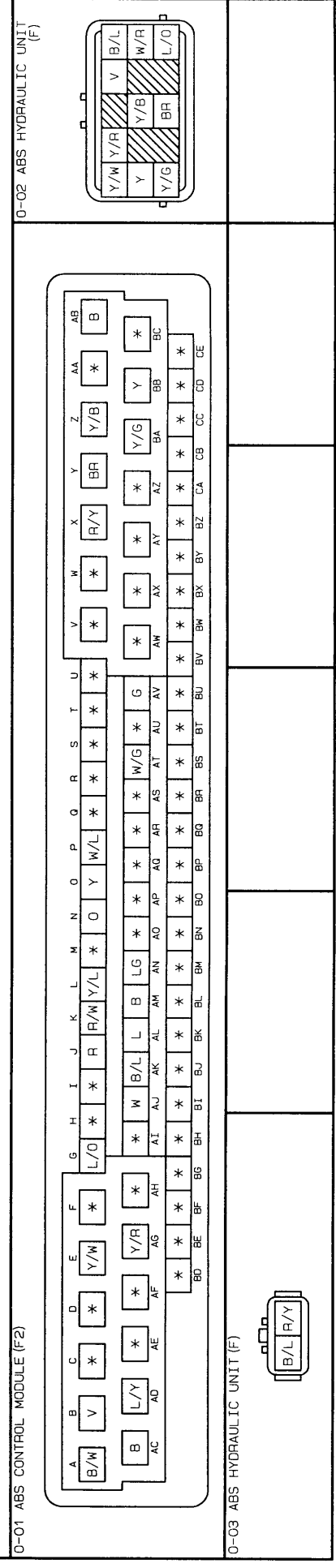
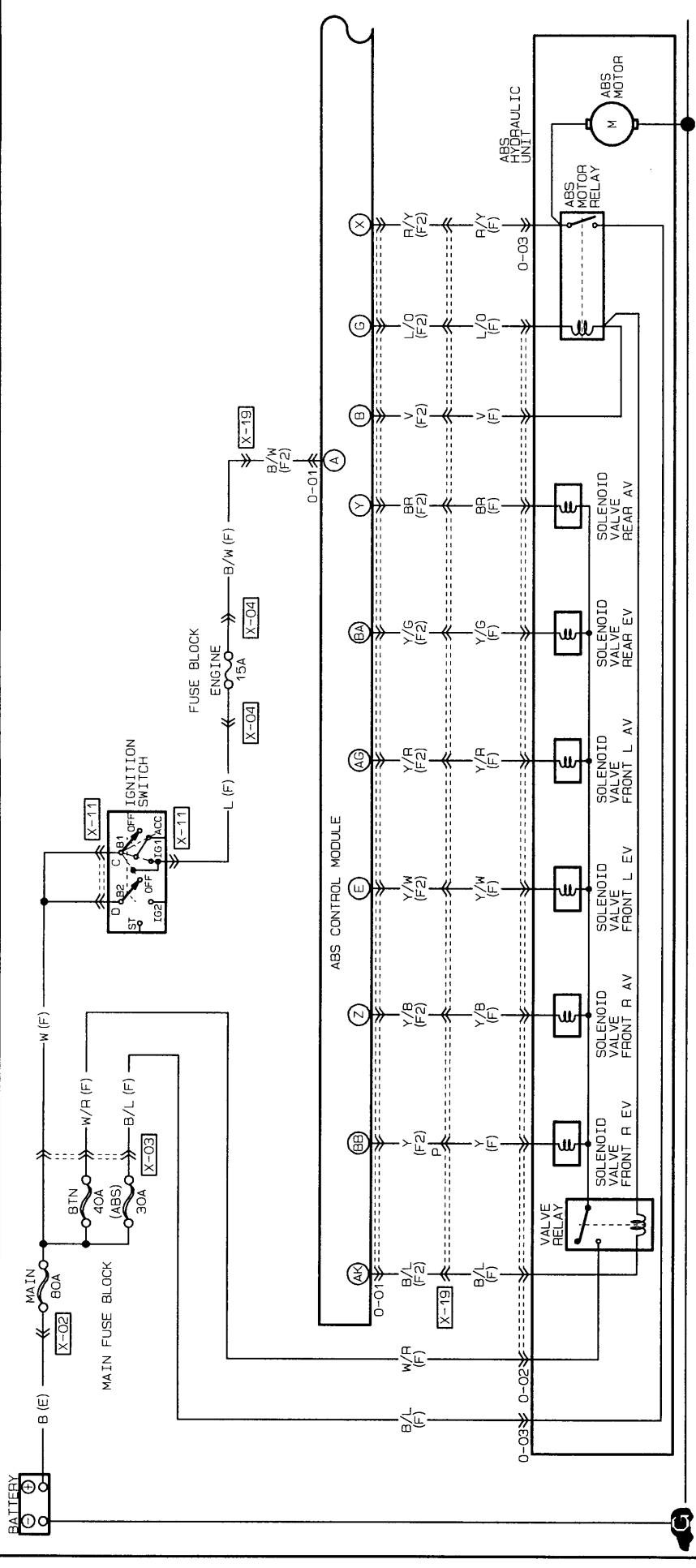
L-01 POWER OUTSIDE MIRROR SWITCH (I)		L-02 POWER OUTSIDE MIRROR LH (DR1)	
L-02 POWER OUTSIDE MIRROR LH (DR1)		L-03 POWER OUTSIDE MIRROR RH (DR2)	

HARNESS SYMBOL :  (F)  (E)  (R)

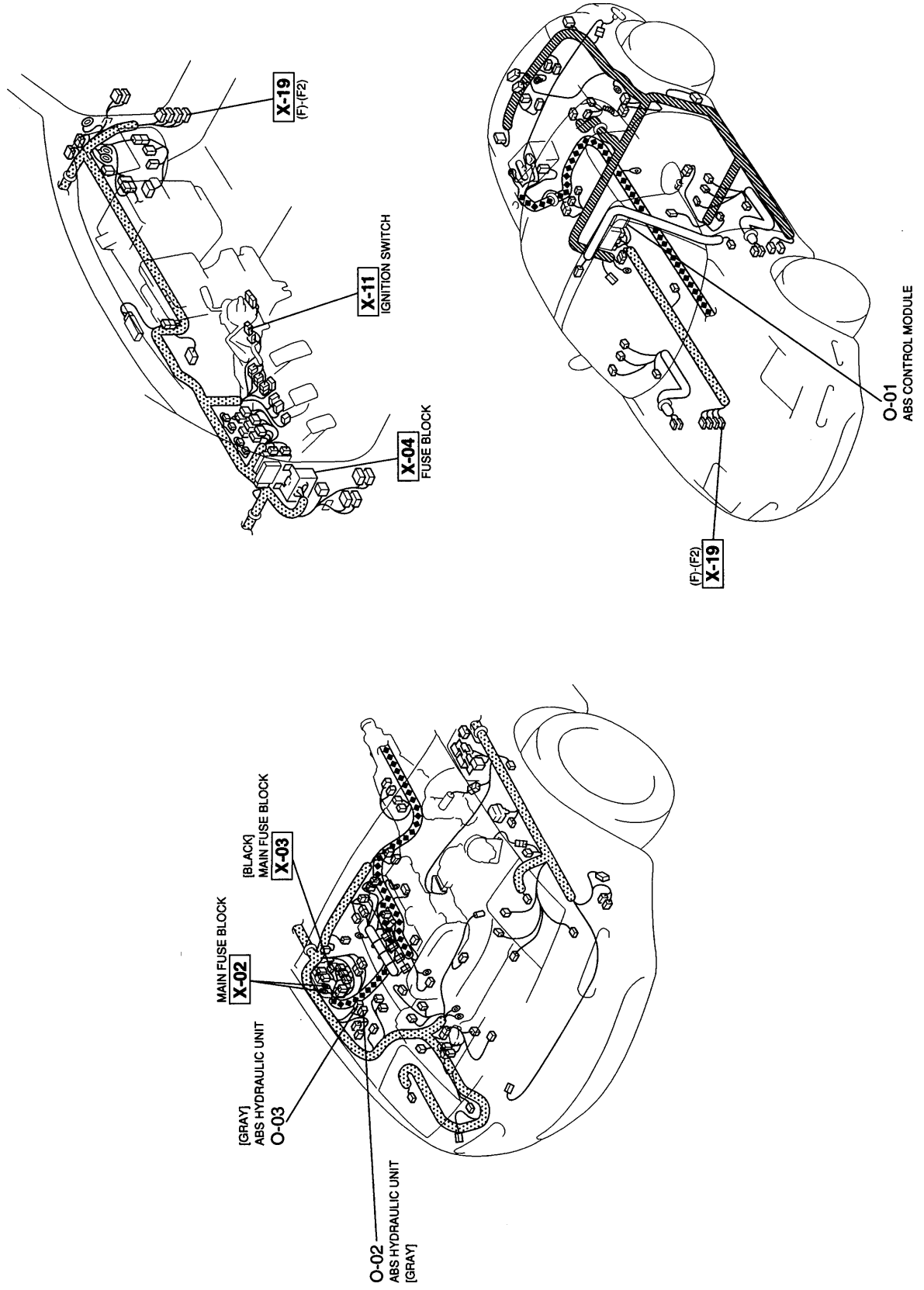


Z WIRING DIAGRAM

ANTILOCK BRAKE SYSTEM

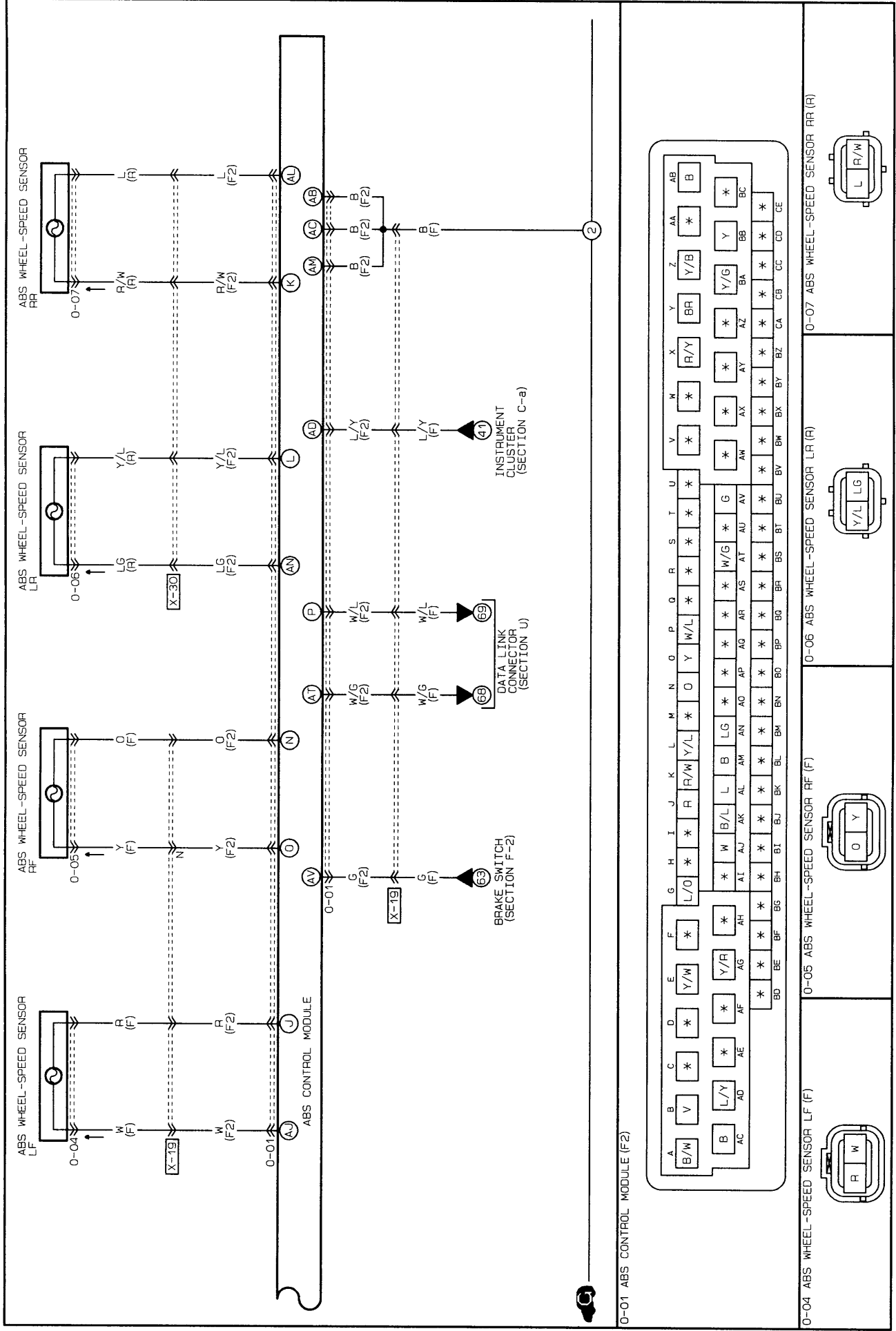


HARNES SYMBOL : [Dotted] (F) [Diamond] (E) [Hatched] (R)

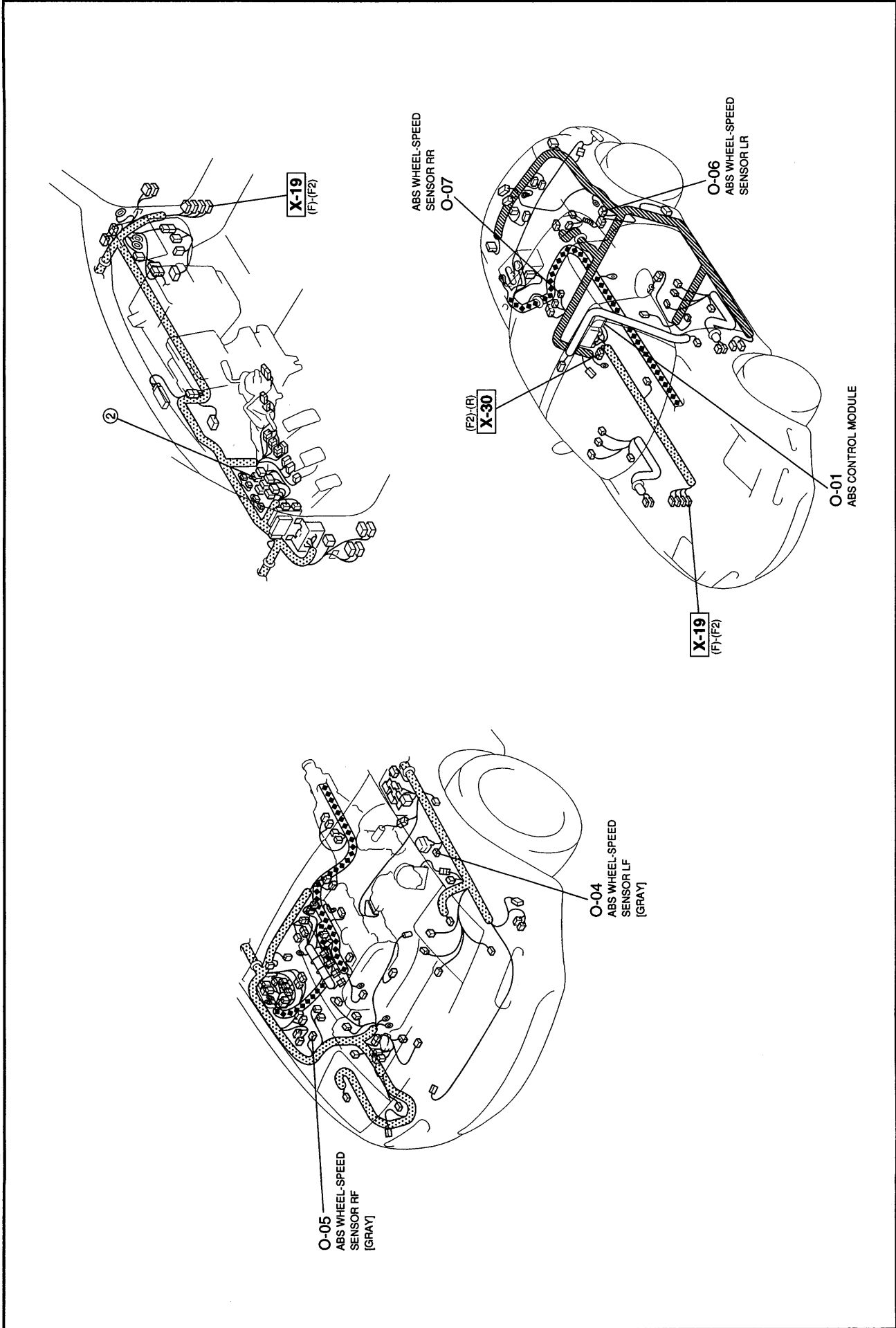


Z WIRING DIAGRAM

ANTILOCK BRAKE SYSTEM

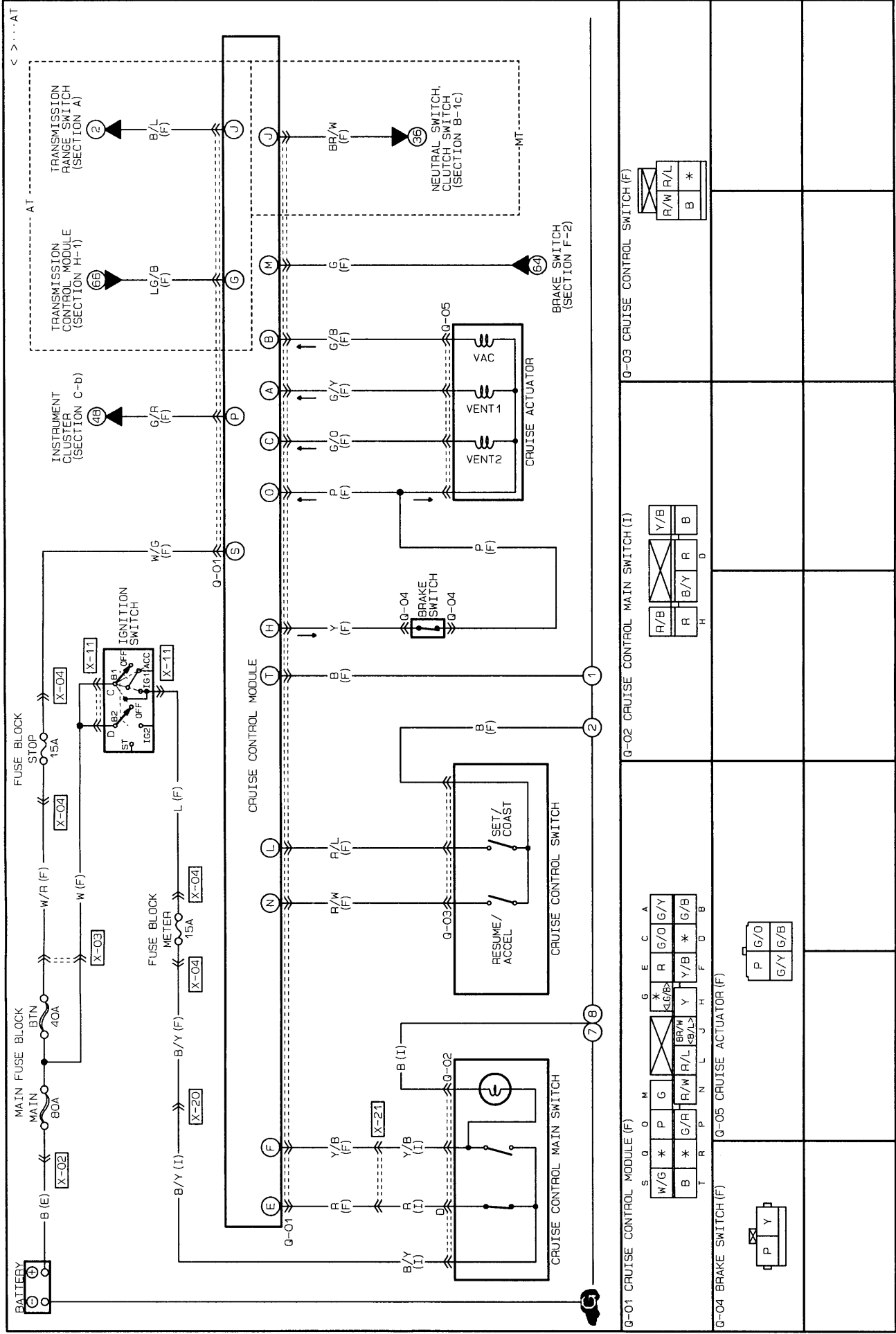


HARNES SYMBOL : [diagonal lines] (F) [diamond] (E) [diagonal lines] (R)

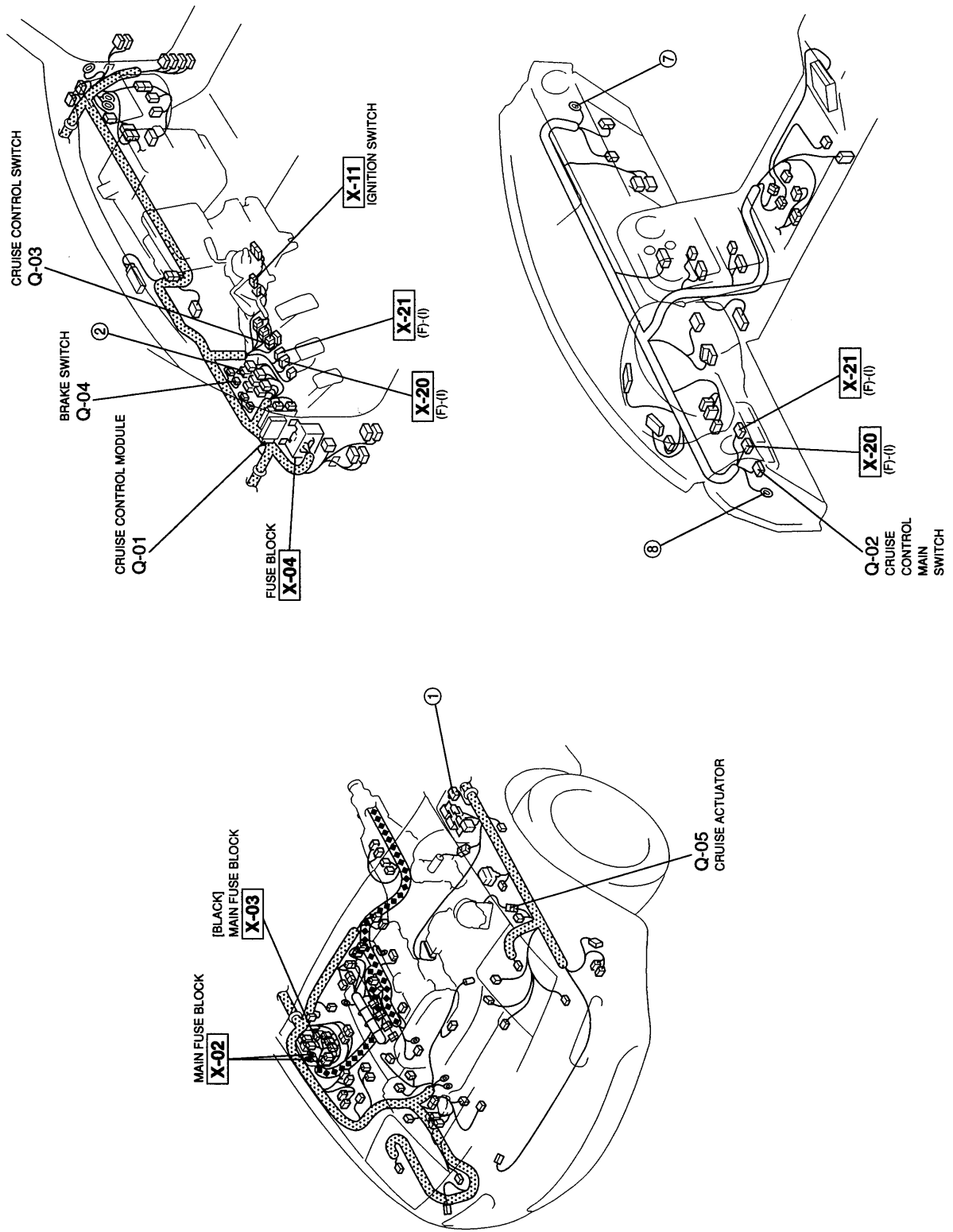


Z WIRING DIAGRAM

CRUISE CONTROL SYSTEM



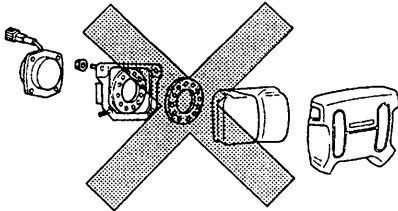
HARNESS SYMBOL :  (F)  (E)  (F)



AIR BAG SYSTEM SERVICE WARNINGS

Component Disassembly

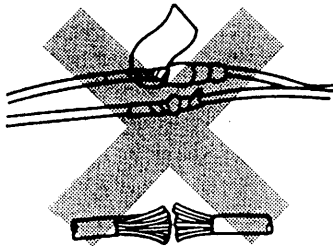
- Disassembling and reassembling the components of the air bag system can render the system inoperative, which may result in serious injury or death in the event of an accident. Do not disassemble any air bag system components.



U5U81001

Wiring Harness Repair

- Incorrectly repairing an air bag system wiring harness can accidentally deploy the air bag, which can cause serious injury. If a problem is found in the system wiring, replace the wiring harness. Do not try to repair it.

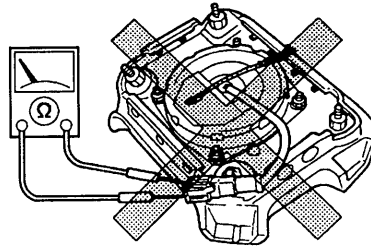


U5U81002

Air Bag Module Inspection

- Inspecting the air bag module by using an ohmmeter can deploy the air bag, which can cause serious injury. Do not use an ohmmeter to inspect the air bag module.

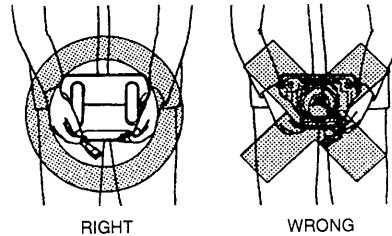
U5U810AA



U5U81003

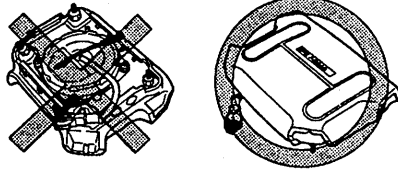
Air Bag Module Handling

- A live (undeployed) air bag may accidentally deploy when it is handled and cause serious injury. When carrying a live air bag module, point the trim cover away from your body to lessen the chance of injury in case it deploys.



U5U81004

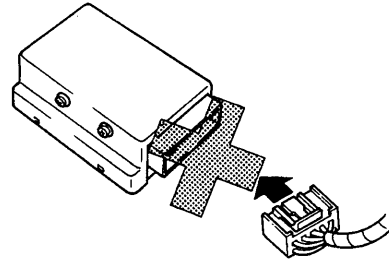
- A live air bag placed face down on a surface is dangerous. If the air bag deploys, the motion of the module can cause serious injury. Always face the trim cover up to reduce the motion of the module in case it accidentally deploys.



WRONG

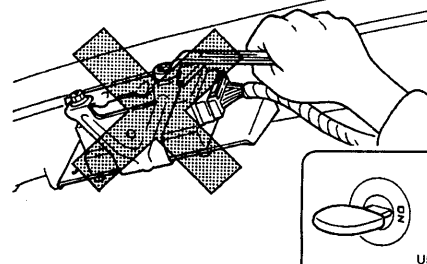
RIGHT

U5U81005



U5U81006

- Disconnecting the SAS unit connector or removing the SAS unit with the ignition switch at ON can cause the air bags to deploy, which may seriously injure you. Before disconnecting the SAS unit connector or removing the SAS unit, perform the general procedures.



U5U81007

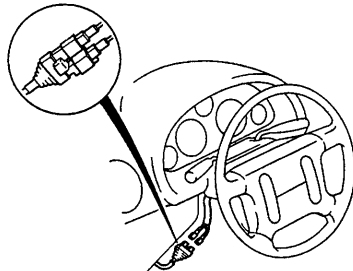
SAS Unit Handling

- Installing a connected SAS unit is dangerous. Movement generated during installation can cause the crash sensor inside the unit to send an electrical signal to the air bag modules. This will deploy the air bags, which may result in serious injury. Therefore, before connecting the SAS unit, firmly mount the unit to the vehicle.

AIR BAG SYSTEM GENERAL PROCEDURE

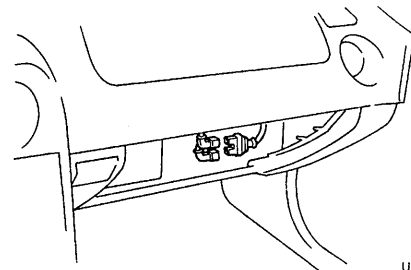
Before Servicing

1. Turn the ignition switch to LOCK.
2. Disconnect the negative battery cable and wait for more than **one minute** to allow the backup power supply to deplete its stored power.
3. Remove the center lower panel.
4. Disconnect the clock spring connector.



U5U81008

5. Remove the glove compartment.
6. Disconnect the passenger-side air bag module connector.



U5U810AB

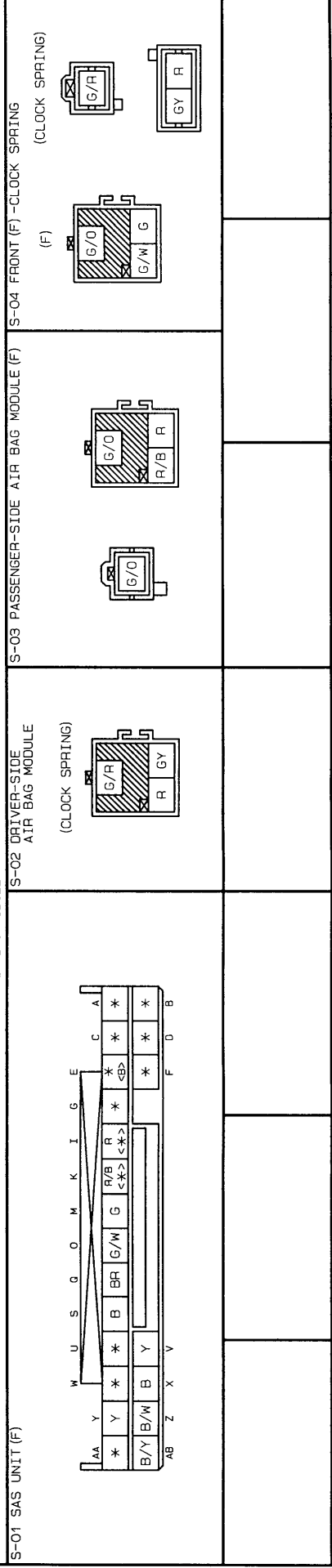
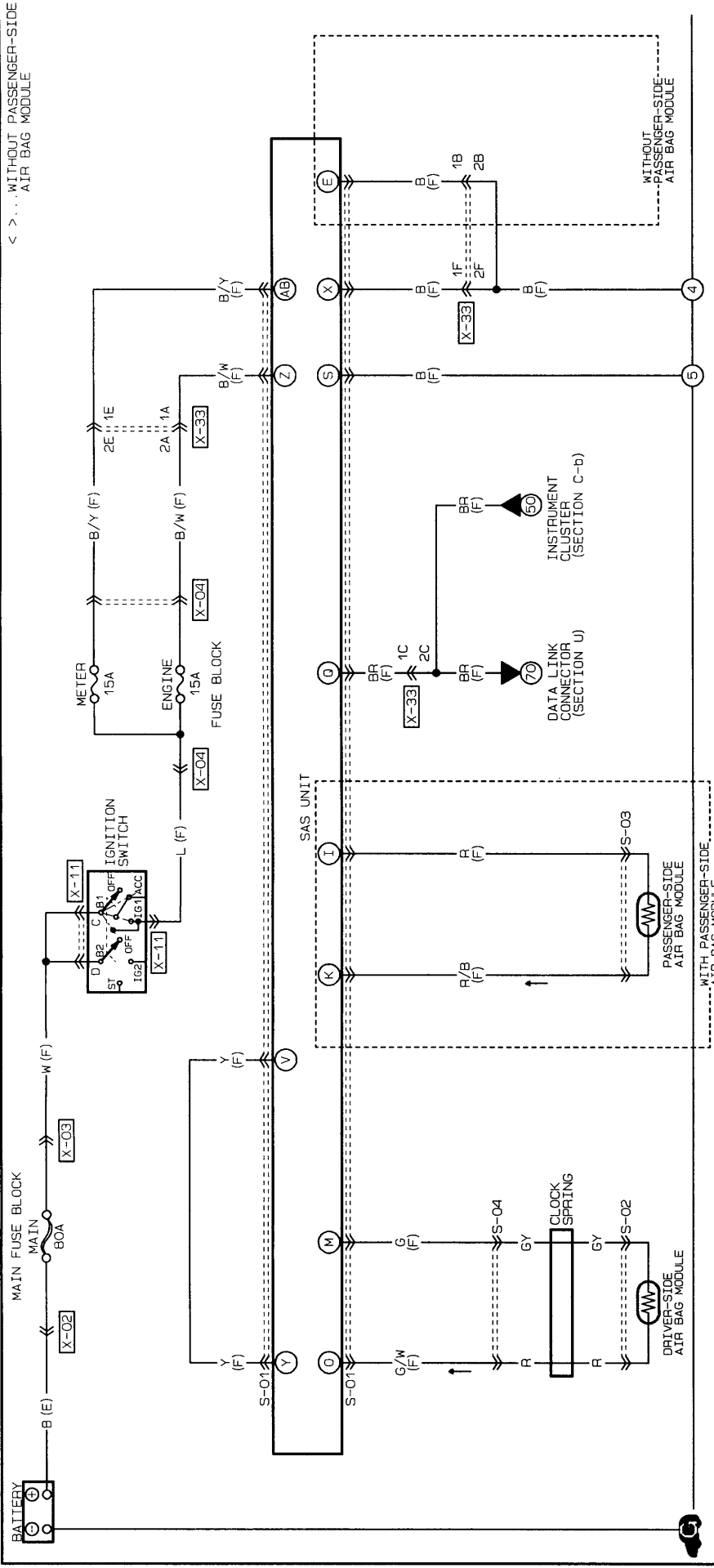
U5U81009

After Servicing

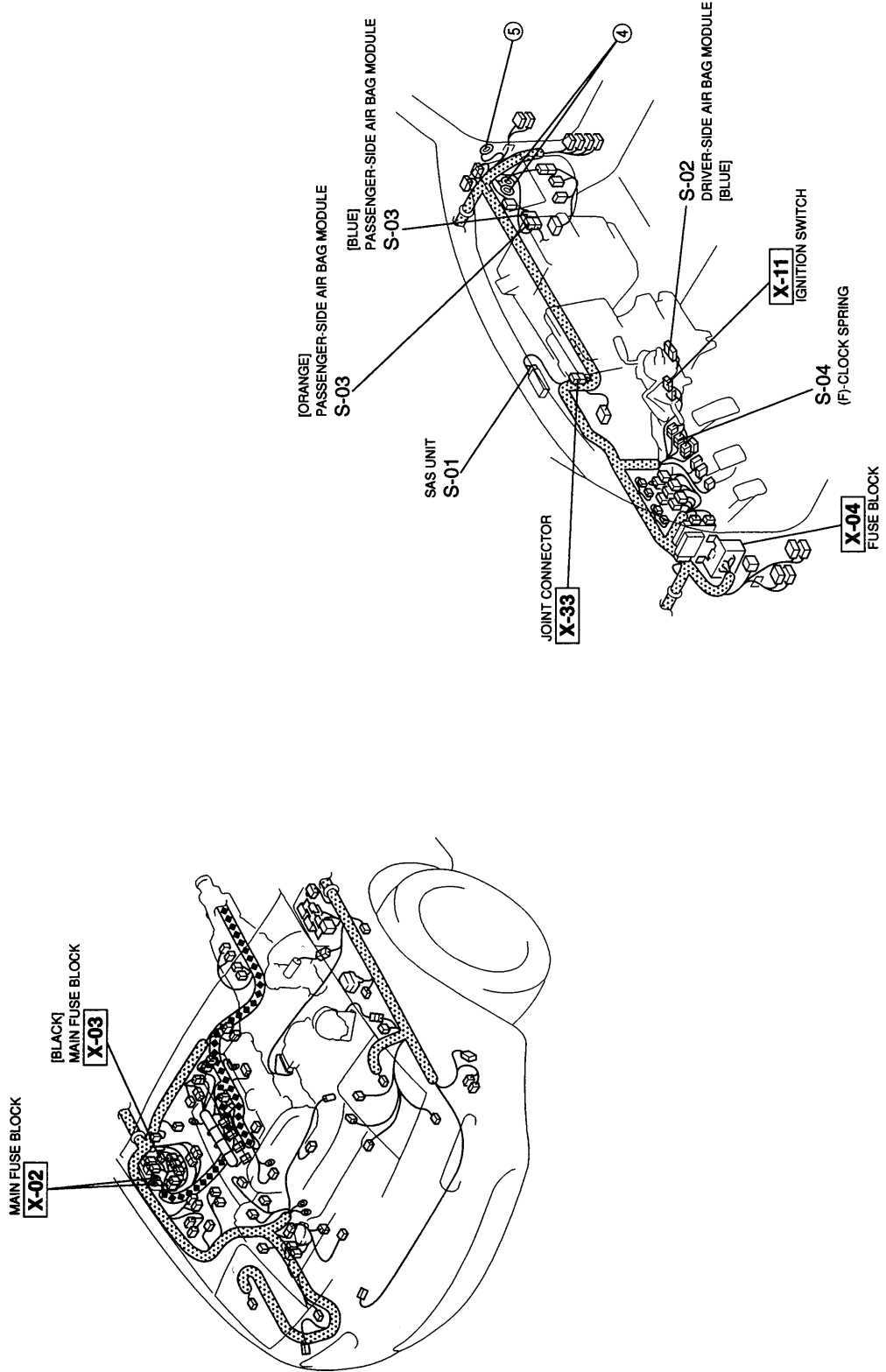
1. Connect the passenger-side air bag module connector.
2. Reinstall the glove compartment.
3. Connect the clock spring connector.
4. Reinstall the center lower panel.
5. Connect the negative battery cable.
6. Turn the ignition switch to ON.

Z WIRING DIAGRAM

AIR BAG SYSTEM

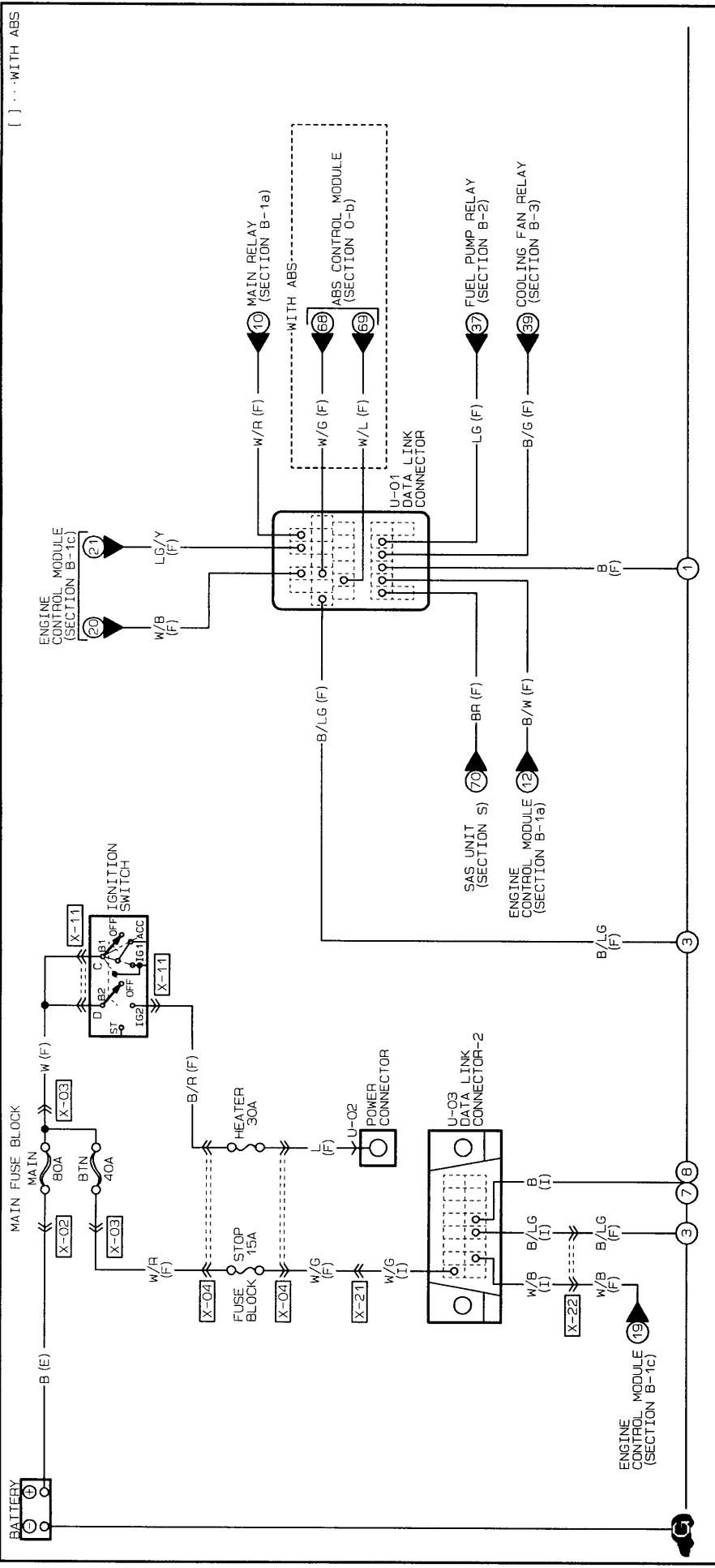


HARNES SYMBOL : [Pattern] (F) [Pattern] (E) [Pattern] (F)



Z WIRING DIAGRAM

DATA LINK CONNECTORS



U-01 DATA LINK CONNECTOR (F)

FEN	KLN	TEN	+B						
SGND	FAT	FBS	FAC	FWS	FSC	BUS+			
TAT	TBS	TAC	TWS	TSC	BUS-				
FAB	IG-	GND	TFA	F/P					
BUSB									

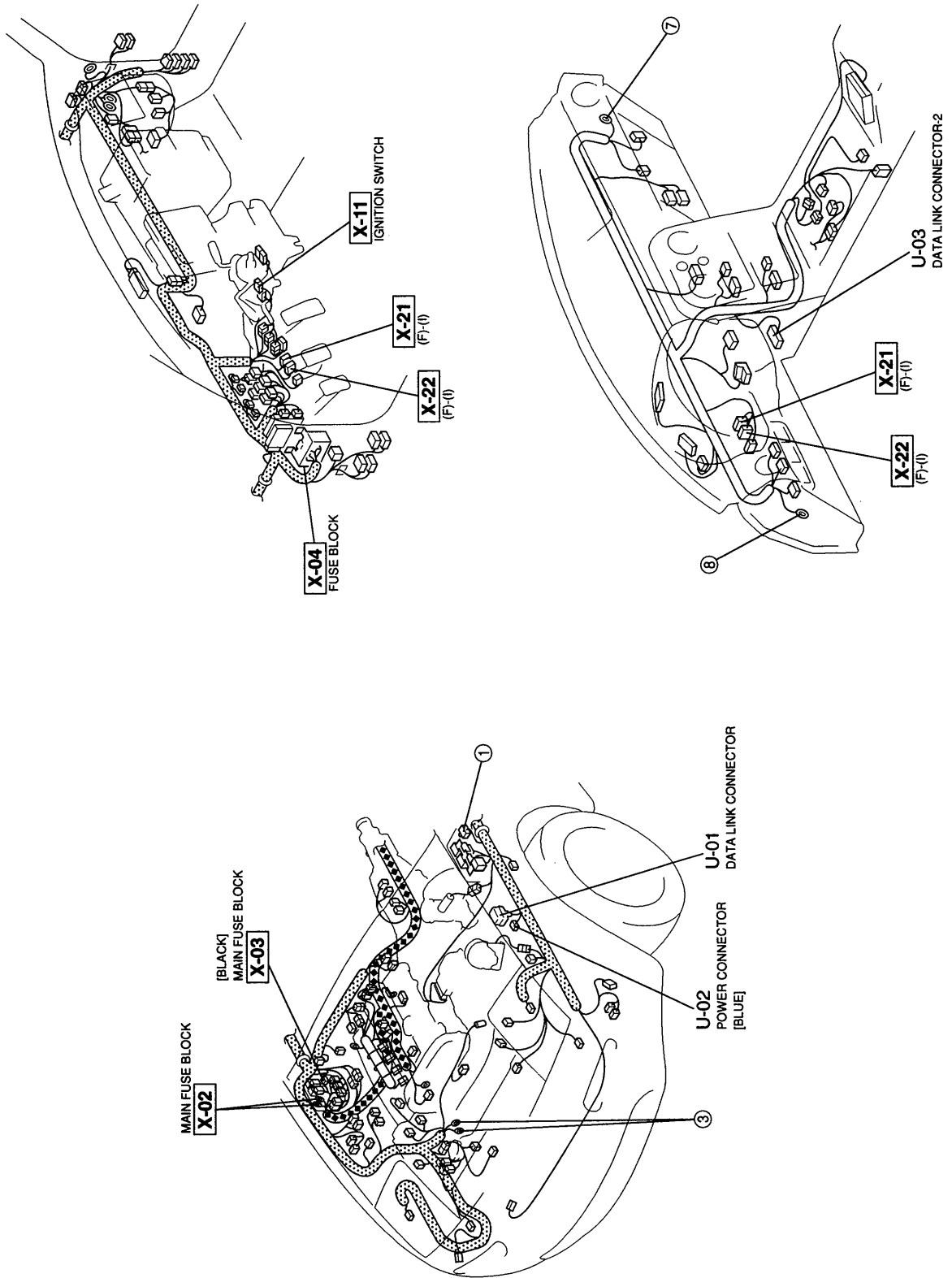
NOTE: This is the connector as seen from the terminal side.

U-02 POWER CONNECTOR (F)

U-03 DATA LINK CONNECTOR-2 (I)

NOTE: This is the connector as seen from the terminal side.

HARNESS SYMBOL : [Dotted] (F) [Diamond] (E) [Hatched] (R)



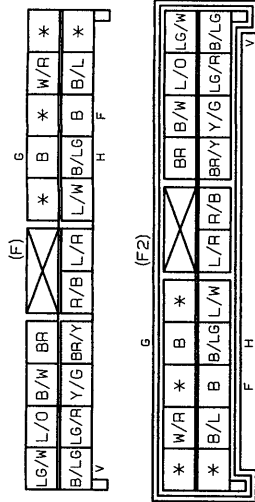
Z WIRING DIAGRAM

COMMON CONNECTOR LIST

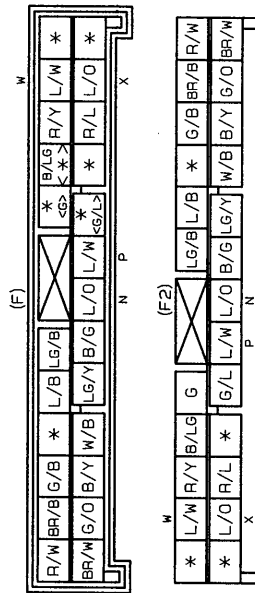
<p>X-01 MAIN FUSE BLOCK (E)</p> <p>1: HEAD 2: FUEL INJ 3: MAIN 4: BTN 5: (ABS) 6: COOLING FAN 7: - 8: (AD FAN) 9: RETRACTOR 10: ST SIGN</p> <p>NOTE: This is the connector as seen from the terminal side.</p>	<p>X-02 MAIN FUSE BLOCK (E)</p> <p>X-03 MAIN FUSE BLOCK (F)</p>	<p>X-04 FUSE BLOCK (F)</p> <p>1: ROOM 2: CIGAR 3: HEATER 4: - 5: - 6: - 7: WIPER 8: - 9: TAIL 10: (POWER WIND) 11: - 12: STOP 13: - 14: - 15: HAZARD 16: - 17: - 18: - 19: METER 20: - 21: - 22: ENGINE</p> <p>NOTE: This is the connector as seen from the terminal side.</p>	<p>X-05 FUSE BLOCK (E)</p> <p>NOTE: This is the connector as seen from the terminal side.</p> <p>1: (DEFOG) 2: (ANTENNA)</p>
<p>X-06 FRONT (F) -ENGINE (E)</p>	<p>X-07 FRONT (F) -ENGINE (E)</p> <p>[] ... WITH ABS</p>	<p>X-08 FRONT (F) -ENGINE (E)</p> <p>NOTE: This is the connector as seen from the terminal side.</p>	<p>X-09 FRONT (F) -ENGINE (E)</p>
<p>X-10 FRONT (F) -ENGINE (E)</p>	<p>X-11 IGNITION SWITCH (F)</p>	<p>X-12 FRONT (F) -ENGINE (E)</p>	<p>X-13 FRONT (F) -ENGINE (E)</p>
<p>X-14 FRONT (F) -INJECTION (INU)</p>	<p>X-15 FRONT (F) -INJECTION (INU)</p>	<p>X-15 FRONT (F) -INJECTION (INU)</p>	<p>X-15 FRONT (F) -INJECTION (INU)</p>

COMMON CONNECTOR LIST

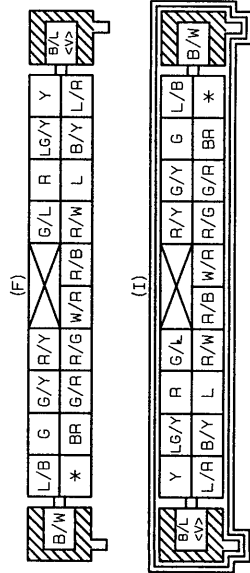
X-16 FRONT (F) -FRONT No.2 (F2)



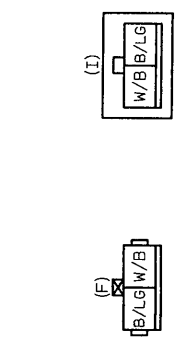
X-18 FRONT (F) -FRONT No.2 (F2)



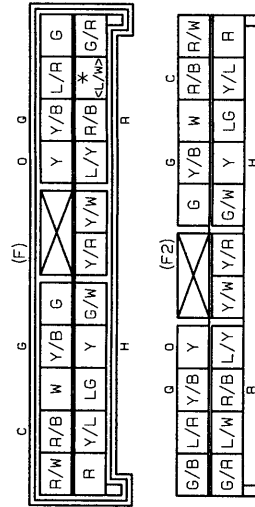
X-20 FRONT (F) -INSTRUMENT PANEL (I)



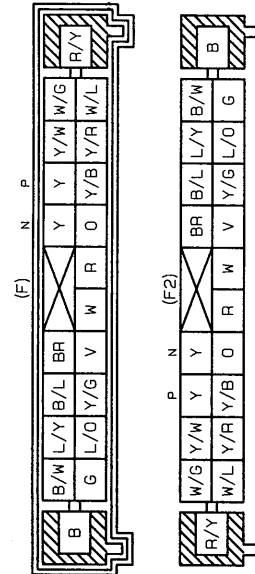
X-22 FRONT (F) -INSTRUMENT PANEL (I)



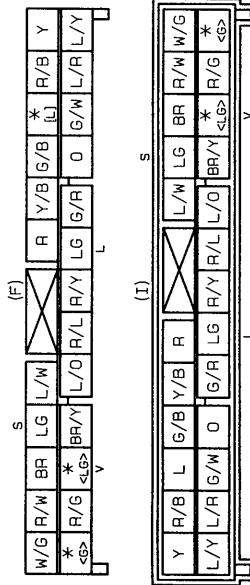
X-17 FRONT (F) -FRONT No.2 (F2)



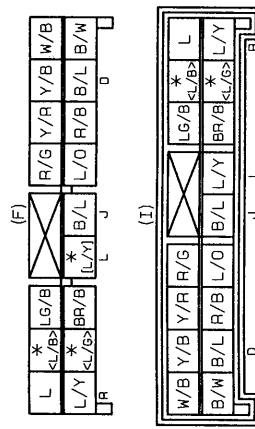
X-19 FRONT (F) -FRONT No.2 (F2)



X-21 FRONT (F) -INSTRUMENT PANEL (I)



X-23 FRONT (F) -INSTRUMENT PANEL (I)



COMMON CONNECTOR LIST

<p>X-24 FRONT (F) - REAR (R)</p>	<p>X-25 FRONT (F) - REAR (R)</p>
<p>X-26 FRONT (F) - DOOR No. 1 (DR1)</p>	<p>X-27 FRONT (F) - DOOR No. 1 (DR1)</p>
<p>X-28 FRONT (F) - DOOR No. 2 (DR2)</p>	<p>X-29 FRONT (F) - DOOR No. 2 (DR2)</p>
<p>X-30 FRONT No. 2 (F2) - REAR (R)</p>	<p>X-31 REAR (R) - ENGINE (E)</p>
<p>X-32 JOINT CONNECTOR (F)</p>	<p>X-33 JOINT CONNECTOR (F)</p>
<p>X-34 JOINT CONNECTOR (F)</p>	<p>X-35 JOINT CONNECTOR (F)</p>

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Mazda MX-5 Body Shop Manual

FOREWORD

This Bodyshop manual was prepared as reference material of the service personnel of authorized Mazda dealers to enable them to correctly carry out the task of rendering services on Mazda vehicles.

In order to ensure that the customers are satisfied with Mazda products, proper servicing must be provided. For this purpose, the service personnel must fully understand the contents of this manual and at the same time, are recommended to keep the manual in a place where reference can readily be made.

The information, photographs, drawings and specifications entered in this manual were the best available at the time of printing this manual. All alterations to this manual occurring as the result of modifications will be notified by the issuance of Service Information or supplementary volumes. It is, therefore, requested that the manual be kept up to date by carefully maintaining a follow-up of these materials.

Mazda Motor Corporation reserves the right to alter the specifications and contents of this manual without any obligation or advance notice.

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**Mazda Motor Corporation
HIROSHIMA, JAPAN**

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GENERAL SERVICE INFORMATION

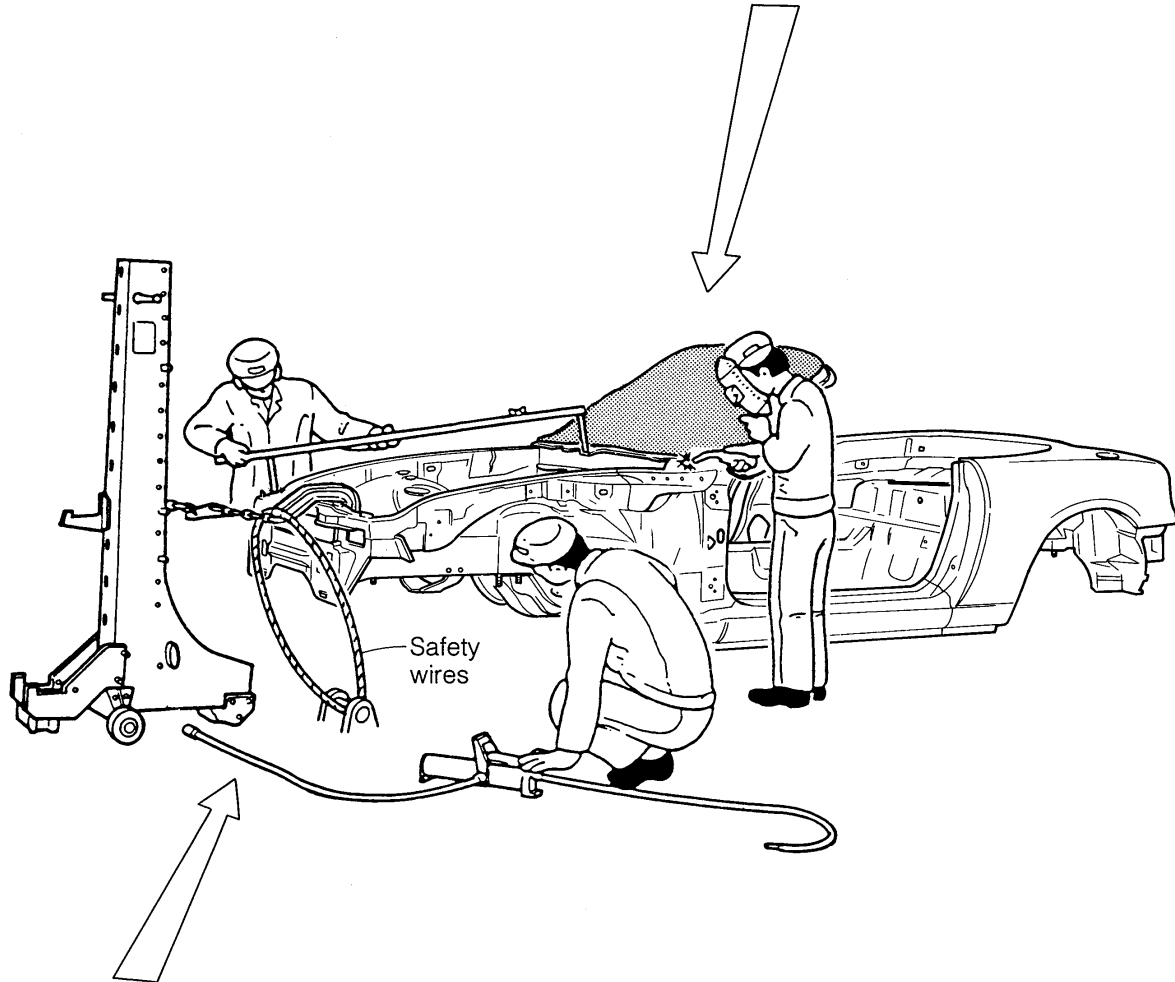
SERVICE PRECAUTIONS

Arrangement of workshop

Arrangement of workshop is important for safe and efficient work.

Vehicle protection

1. Use seat covers and floor covers.
2. Use heat-resistant protective covers to protect glass areas and seats from heat or sparks during welding.
3. Protect items such as moldings, garnishes, ornaments, with tape when welding.



Use of pulling equipment

When using pulling equipment, keep away from the pulling area and use safety wires to prevent accidents.

GENERAL SERVICE INFORMATION

SERVICE PRECAUTIONS

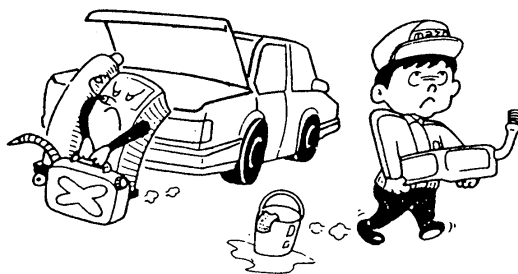
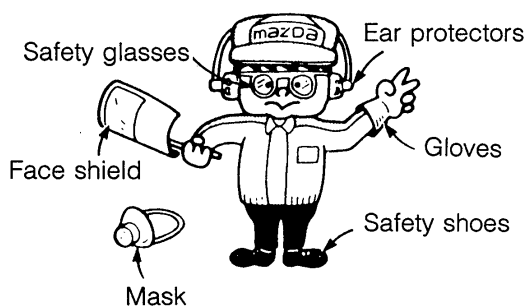
Safety precautions

Protective head covering and safety shoes should always be worn. Depending upon the nature of the work, gloves, safety glasses, ear protectors, face shield, etc., should also be used.

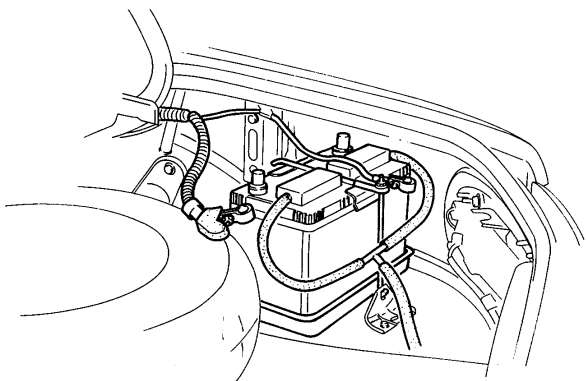
Safety

The fuel tank must be removed if welding is to be done near it or if an open flame is to be brought near it.

The connection piping must be plugged to prevent fuel leakage.



Before removing a wire harness or an electrical component, disconnect the negative battery cable.



GENERAL SERVICE INFORMATION

EFFICIENT REPLACEMENT OF BODY PANELS

REMOVAL

Body measurements

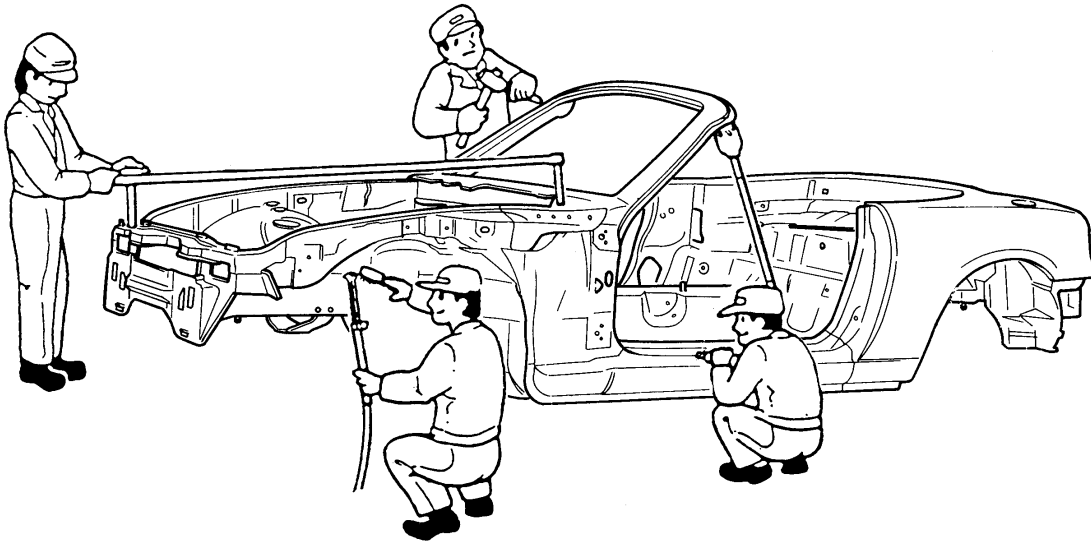
Before removal or rough cutting, first measure the body at and around the damaged area according to the dimensions figure, and if there is deformation, use frame repair equipment to make a rough correction.

Prevention of body deformation

Use a clamp or a jack for removal and reinforce at and around the rough-cutting location to prevent deformation of the body.

Selection of cut-and-join locations

For parts where complete replacement is not feasible, careful cutting and joining operations should be followed. If the location to be cut is a flat area where there is no reinforcement, the cutting location selected should be where the welding distortion will be a minimum.

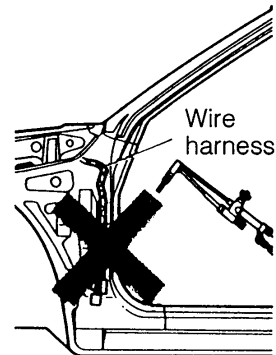


Removal of associated parts

Protect moldings, garnishes, and ornaments, with tape when removing associated parts.

Rough-cutting of damaged panel

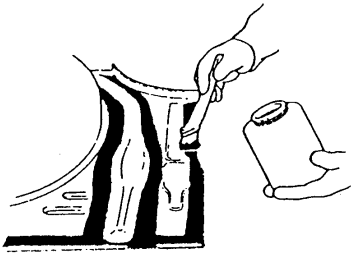
Check that there are no parts (such as pipes, hoses, wire harnesses, etc.) nearby or on the opposite side which could be damaged by heat. For cut-and-join areas, allow for an overlap of 30~50mm (1.18~1.97 in) and then roughly cut the damaged panel.



GENERAL SERVICE INFORMATION

INSTALLATION PREPARATIONS

Application of weld-through primer



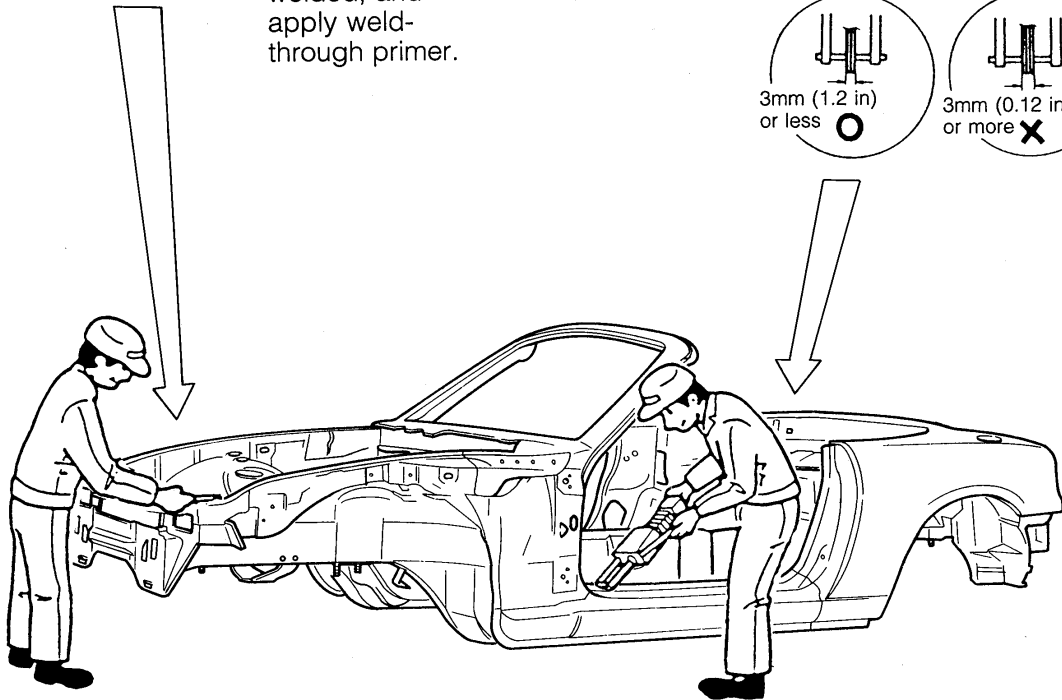
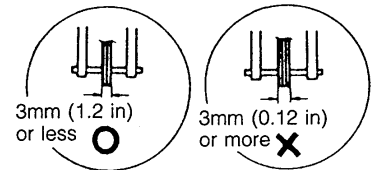
For treatment against corrosion, remove paint, grease, and other material from the portion of the new part and body to be welded, and apply weld-through primer.

Determination of welding method

If the total thickness at the area to be welded is 3mm (0.12 in) or more, use a drill to make holes of about $\varnothing 7$ for plug welding, then use a CO₂ gas shielded-arc welder to make the plug welds.

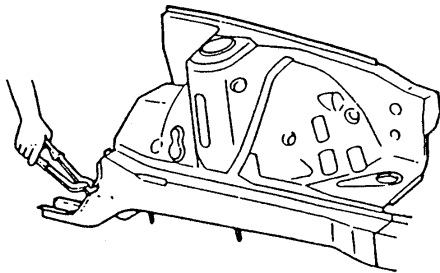
Note

Do not attempt to spot weld sections over 3mm (0.12 in) thick, as the weld strength would be too low.



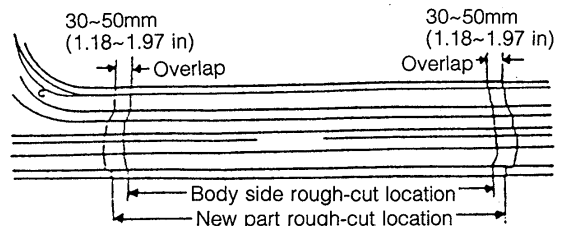
Making holes for plug-welding

For places that cannot be spot welded, make a hole of $\varnothing 5\sim\varnothing 6$ (at the new part of the body side) using a punch or drill.



Rough cutting of new parts

For cut-and-join areas, allow for an overlap of 30~50mm (1.18~1.97 in) and then roughly cut the new part, using a hand saw or air saw as necessary.



GENERAL SERVICE INFORMATION

INSTALLATION

Checking pre-weld measurements and matching

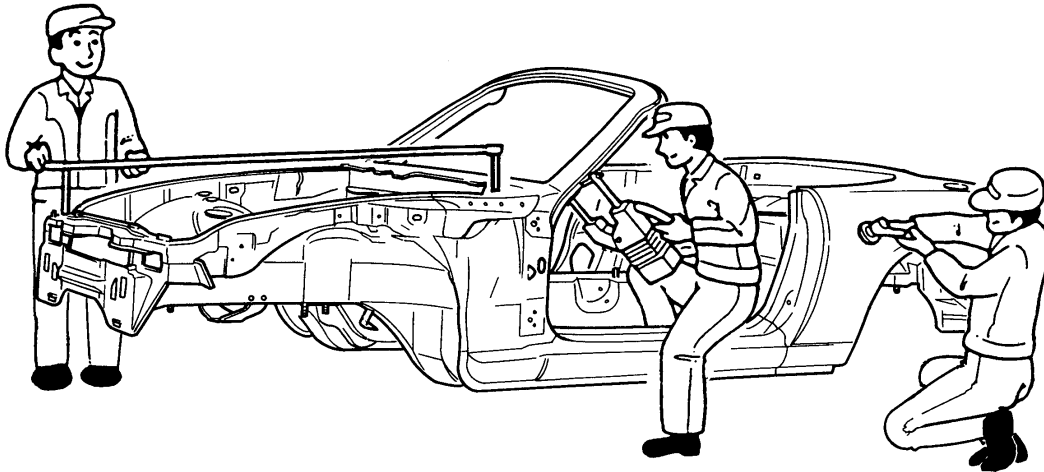
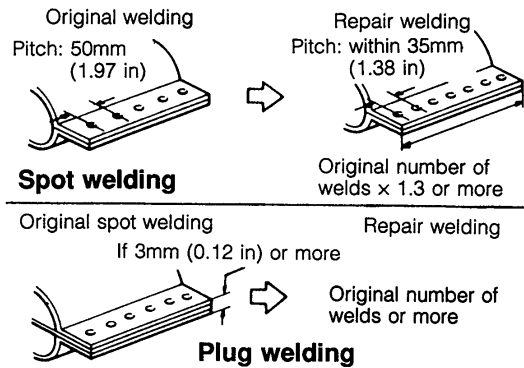
Align to the standard reference dimensions, based upon the body dimensions illustration, so that new parts are installed at the correct position.

Welding notes

Welding should be performed in accordance with the following reference standards.

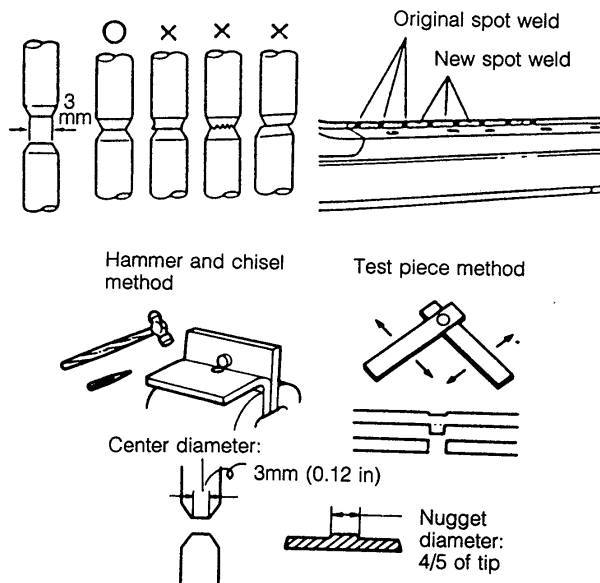
Note

- a) **Plug welding should be performed by the CO₂ gas shielded-arc welding method.**
- b) **Panel connections by brazing should be only at the indicated locations.**



Spot welding notes

- ① Before spot welding, make a trial weld; If satisfactory, proceed with the actual welding.
- ② Before spot welding, check once again that the tip contact surface and facing surfaces to be welded are completely clean.
- ③ Because the weld strength is affected by the shape of the spot welder tip, the tip should always be properly maintained, and, in addition, in order to minimize problems caused by overheating, a certain amount of cooling time should be allowed after each 5 or 6 weld points.
- ④ Spot welds should, as a general rule, be made at points other than the originally welded points.



GENERAL SERVICE INFORMATION

ANTI-CORROSION TREATMENT

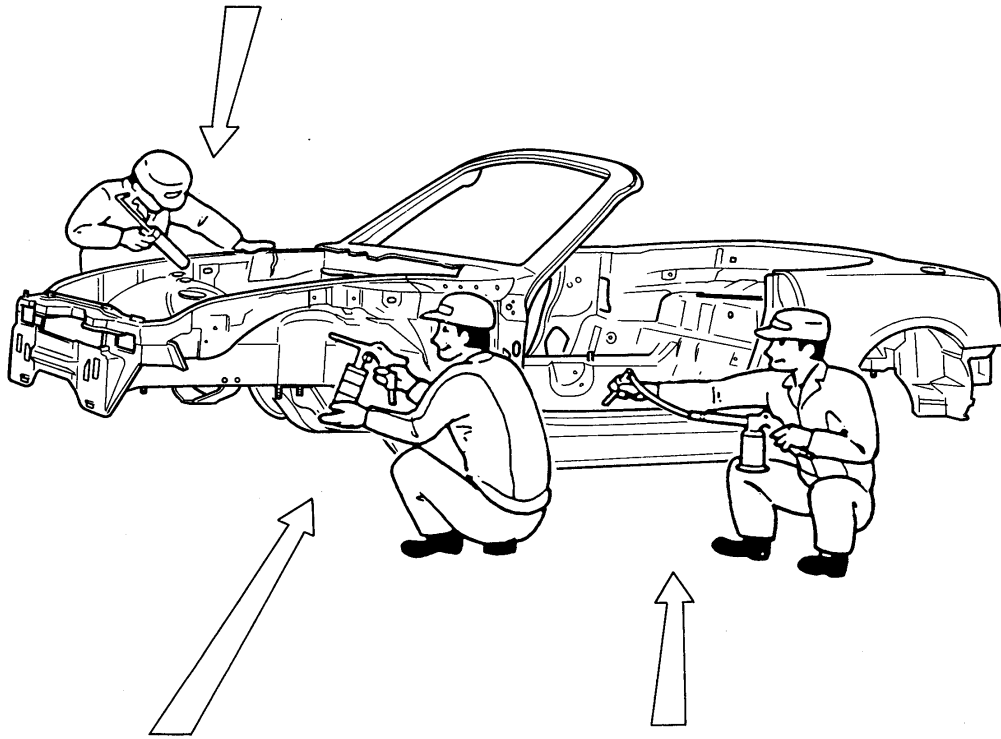
When replacing body panels, always apply body sealer, anti-rust treatment, or undercoating according to the requirements of the market.

Application of surface agent and body sealer

After first applying the coating of surfacing agent, apply body sealer where necessary.

Note

For locations where application of body sealer is difficult after installation, apply it before the installation.



Application of rust inhibitor

Apply rust inhibitor to the back of welded areas, using an installation hole or a gap near that section.

Undercoating

Use antirust treatment for underbody welding spots and wheel housings.

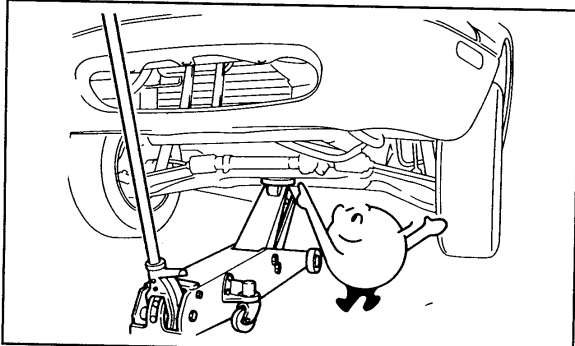
GENERAL SERVICE INFORMATION

JACK AND SAFETY STAND POSITIONS

FRONT

Jack position:

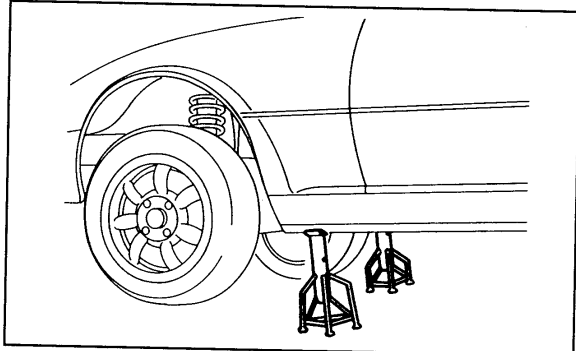
Center of crossmember



9MUGIX-006

Safety stand positions:

Side sills

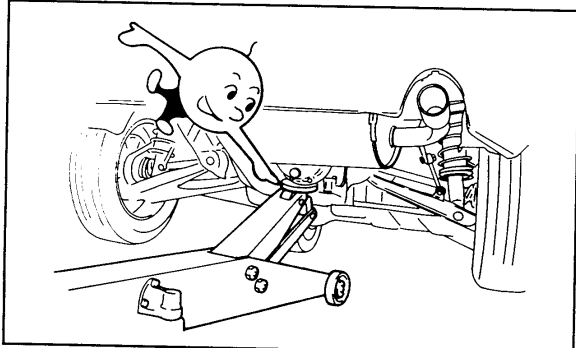


9MUGIX-007

REAR

Jack position:

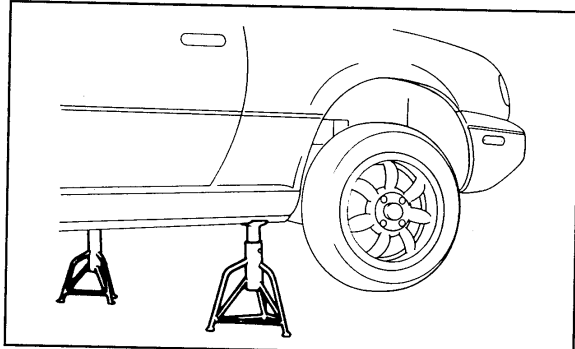
Center of differential



9MUGIX-008

Safety stand positions:

Side sills



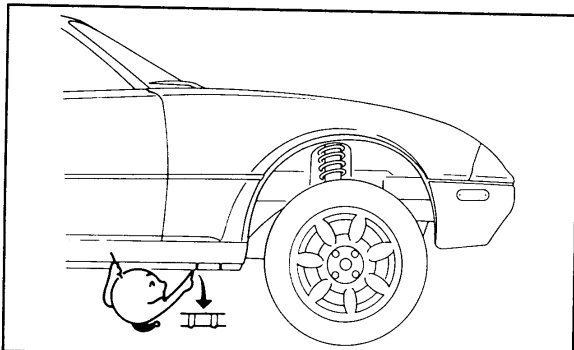
9MUGIX-009

VEHICLE LIFT (2-SUPPORT TYPE) POSITIONS

FRONT

Frame

Side sills

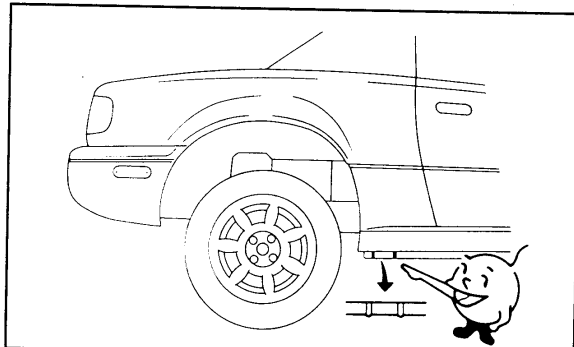


9MUGIX-010

REAR

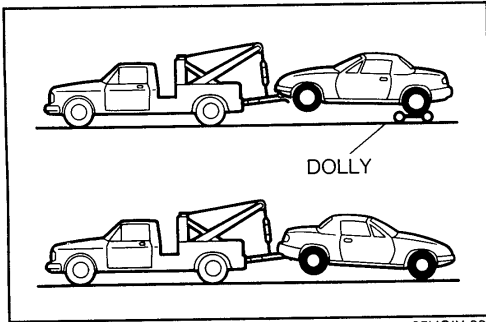
Frame

Side sills

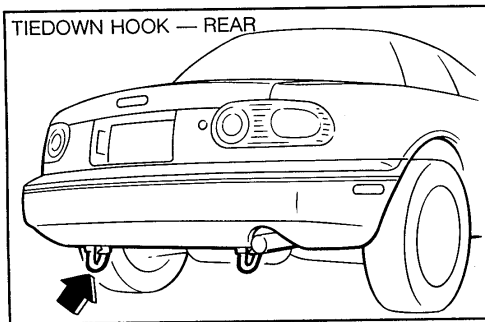
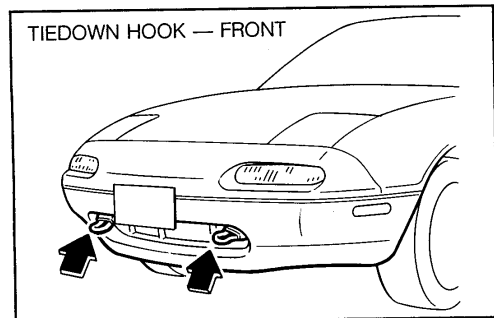


9MUGIX-011

GENERAL SERVICE INFORMATION



05UGIX-002



TOWING

Proper towing equipments are necessary to prevent damage to the vehicle during any towing operation. Laws and regulations applicable to vehicles in tow must always be observed.

Release the parking brake, place the shift lever in neutral, and set the ignition switch in the ACC position. As a rule, towed vehicles should be pulled with the driving wheels off the ground.

WITH MANUAL TRANSMISSION

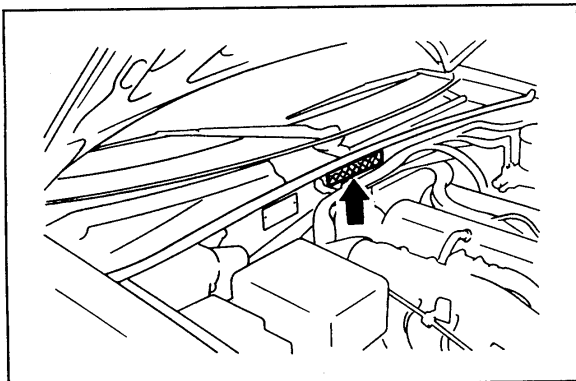
If the transmission, rear axle, and steering system are not damaged, the vehicle may be towed on all four wheels. If any of these components are damaged, use a towing dolly.

CAUTION

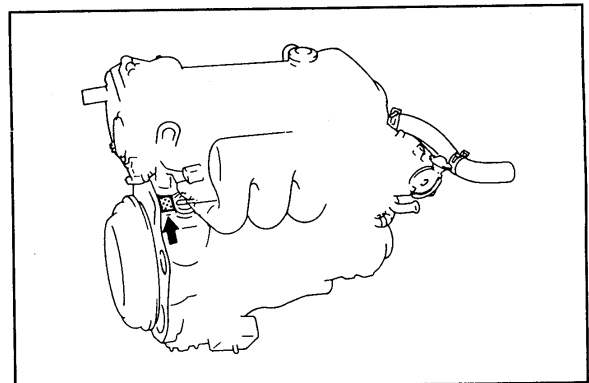
- The power assist for the brakes and steering are inoperable while the engine is off.
- Do not use the tiedown hooks under the front or rear of the vehicle for towing. These hooks are designed **ONLY** for transport tiedown. If the tiedown hooks are used for towing, the front or rear skirt and bumper will be damaged.

IDENTIFICATION NUMBER LOCATIONS

VEHICLE IDENTIFICATION NUMBER (VIN)



ENGINE MODEL AND NUMBER



GENERAL SERVICE INFORMATION

VEHICLE DIMENSIONS

Item		Measurement	
Overall length	mm (in)	3,948 (155.4)	
Overall width	mm (in)	1,676 (65.9)	
Overall height	mm (in)	1,224 (48.2)	
Wheelbase	mm (in)	2,266 (89.2)	
Tread	Front	mm (in)	1,410 (55.5)
	Rear	mm (in)	1,428 (56.2)

WHEEL ALIGNMENT

Front wheel alignment (Unloaded*)	Total toe-in	mm (in)	$3 \pm 3 (0.12 \pm 0.12)$
		degree	$0^{\circ}18' \pm 18'$
	Maximum steering angle	Inner	$37^{\circ}23' \pm 2^{\circ}$
		Outer	$32^{\circ}32' \pm 2^{\circ}$
	Camber angle		$0^{\circ}24' \pm 30'$
	Caster angle		$4^{\circ}49' \pm 45'$
King pin angle		$11^{\circ}20'$	
Rear wheel alignment (Unloaded*)	Total toe-in	mm (in)	$3 \pm 3 (0.12 \pm 0.12)$
		degree	$0^{\circ}18' \pm 18'$
	Camber angle		$-0^{\circ}43' \pm 30'$

* Fuel tank full; radiator coolant and engine oil at specified levels; and spare tire, jack, and tools in designated positions.

DIMENSIONS

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DIMENSIONS

BODY DIMENSIONS

The front suspension is a MacPherson strut style.
Adjustment of the front wheel alignment is limited to camber adjustment.
The front wheel alignment is determined by accuracy of the body itself.
Accurate measurement and dimensional accuracy based upon the body dimensions are required when repairs are made.

EXPLANATION OF BODY DIMENSIONS

PROJECTED DIMENSIONS

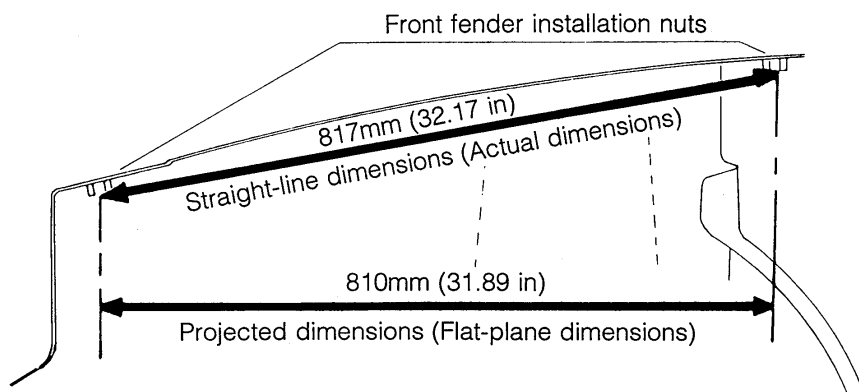
Flat-plane dimensions are those dimensions as measured on a flat surface projected from certain designated standard points of the body.

STRAIGHT-LINE DIMENSIONS (ACTUAL DIMENSIONS)

Actual dimensions are those dimensions actually measured in a straight line between two points.

Note

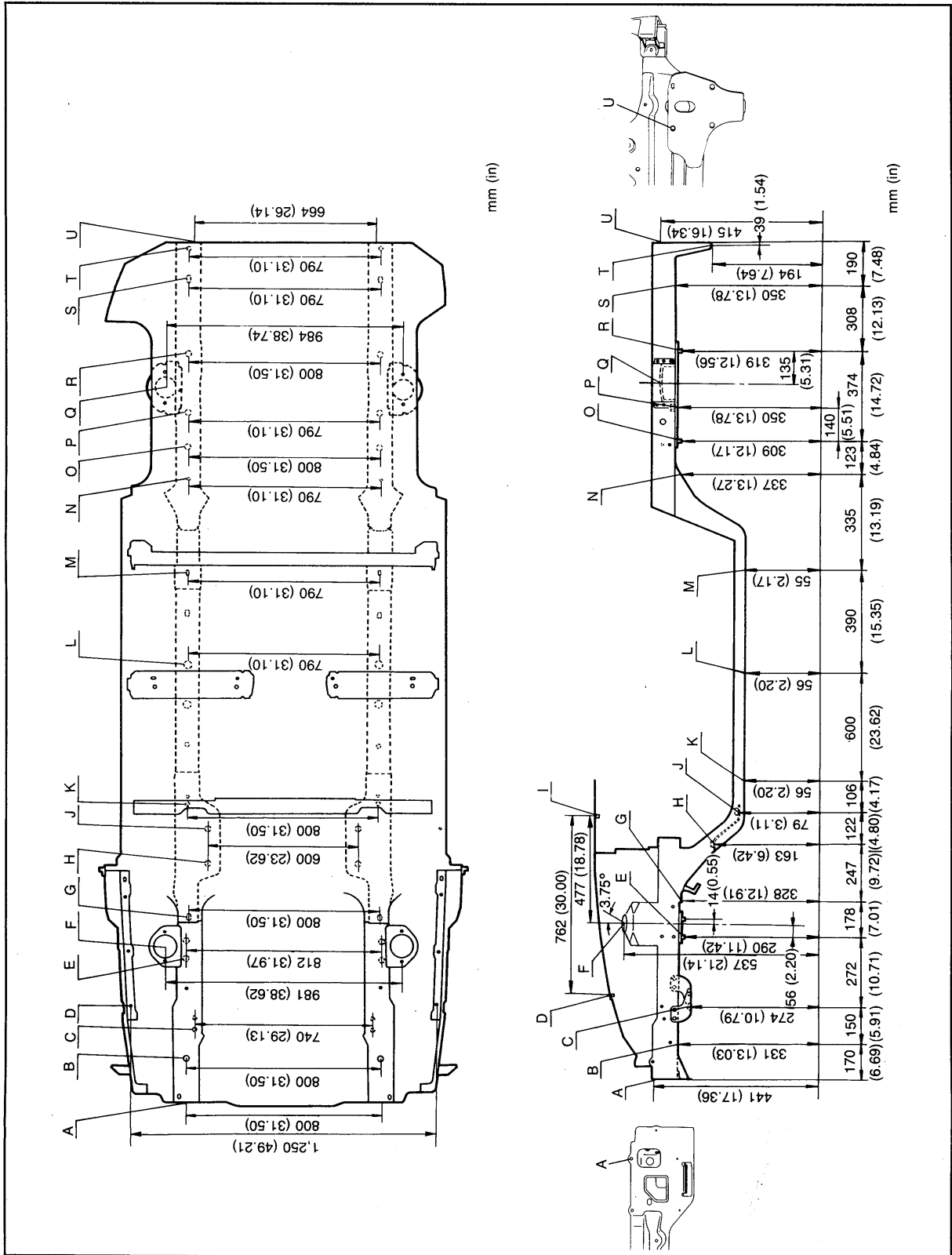
Before the work, adjust the body according to the standard measurements and check the fit with associating parts, then proceed with the work.



DIMENSIONS

PROJECTED DIMENSIONS

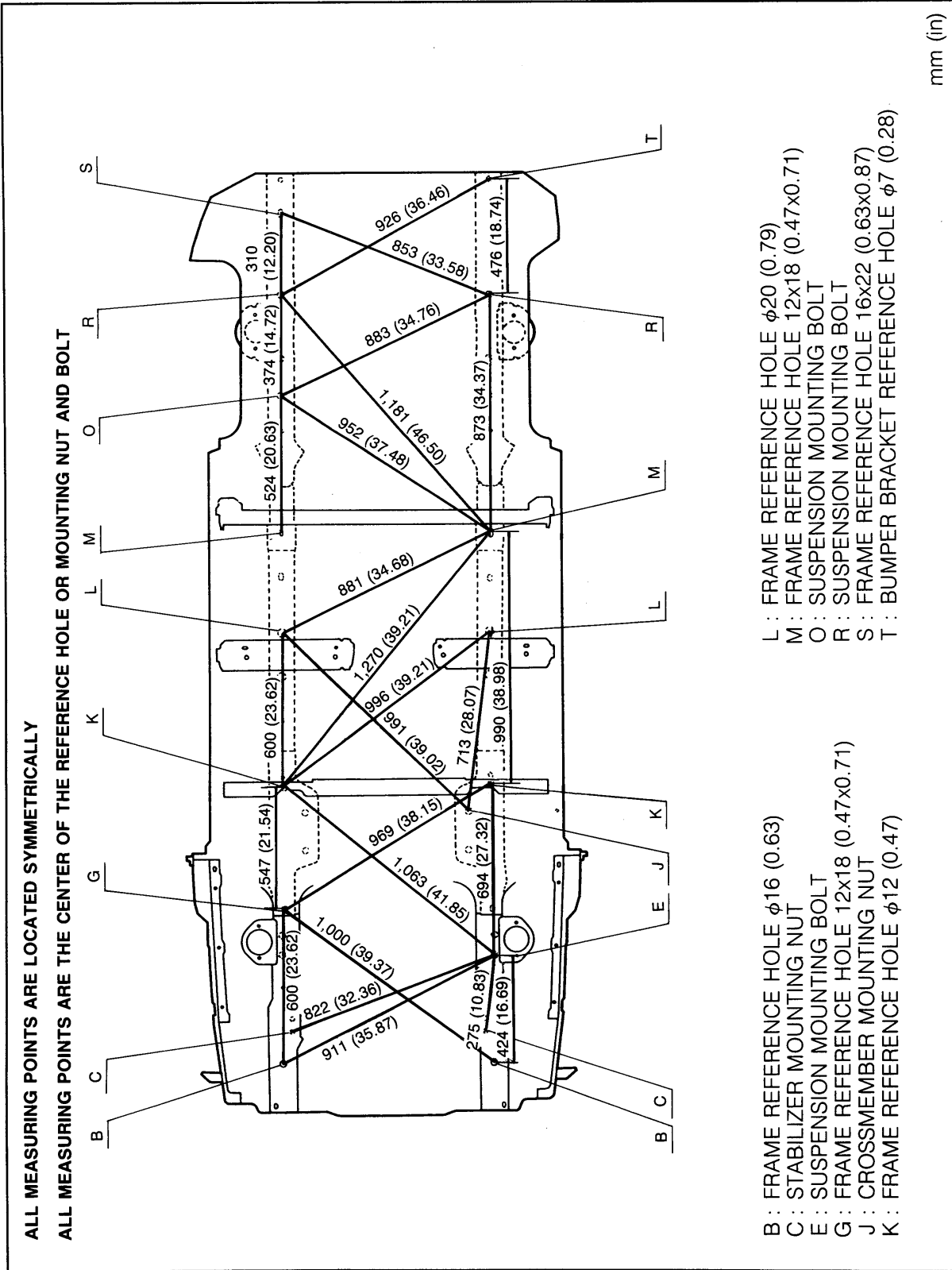
UNDERBODY PROJECTED DIMENSIONS



DIMENSIONS

STRAIGHT-LINE DIMENSIONS

UNDERBODY STRAIGHT-LINE DIMENSIONS



DIMENSIONS

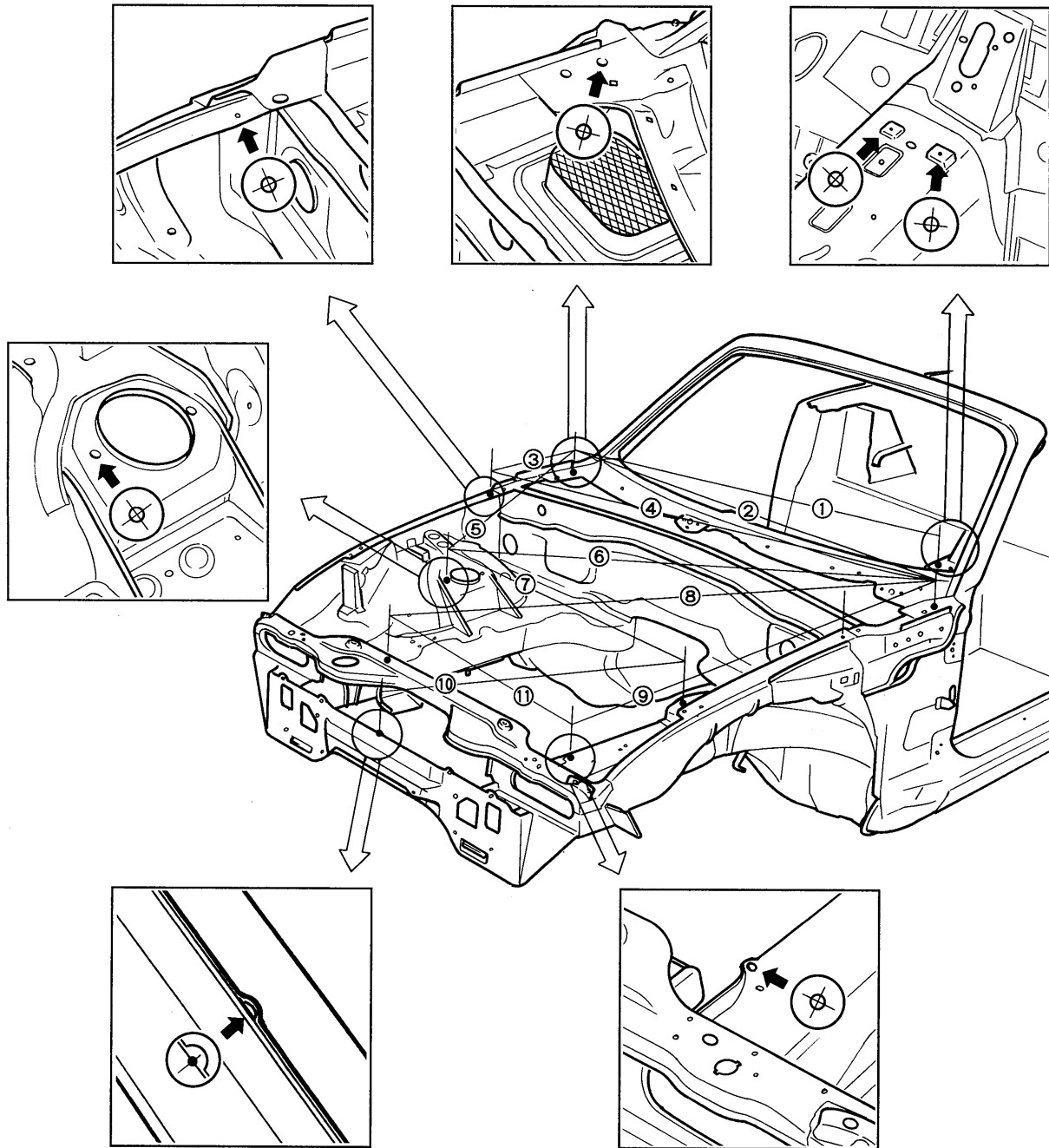
A : BUMPER BRACKET MOUNTING NUT
B : FRAME REFERENCE HOLE ϕ 16 (0.63)
C : STABILIZER MOUNTING NUT
D : FRONT FENDER PANEL MOUNTING NUT
E : SUSPENSION MOUNTING BOLT
F : FRONT MOUNTING BLOCK
G : FRAME REFERENCE HOLE 12x18 (0.47x0.71)
H : CROSSMEMBER MOUNTING NUT
I : FRONT FENDER PANEL MOUNTING NUT
J : CROSSMEMBER MOUNTING NUT
K : FRAME REFERENCE HOLE ϕ 12 (0.47)
L : FRAME REFERENCE HOLE ϕ 20 (0.79)
M : FRAME REFERENCE HOLE 12x18 (0.47x0.71)
N : FRAME REFERENCE HOLE ϕ 12 (0.47)
O : SUSPENSION MOUNTING BOLT
P : SUSPENSION MOUNTING NUT
Q : REAR MOUNTING BLOCK
R : SUSPENSION MOUNTING BOLT
S : FRAME REFERENCE HOLE 16x22 (0.63x0.87)
T : BUMPER BRACKET REFERENCE HOLE ϕ 7 (0.28)
U : BUMPER MOUNTING HOLE 12x14 (0.47x0.55)

mm (in)

05U0SX-158

DIMENSIONS

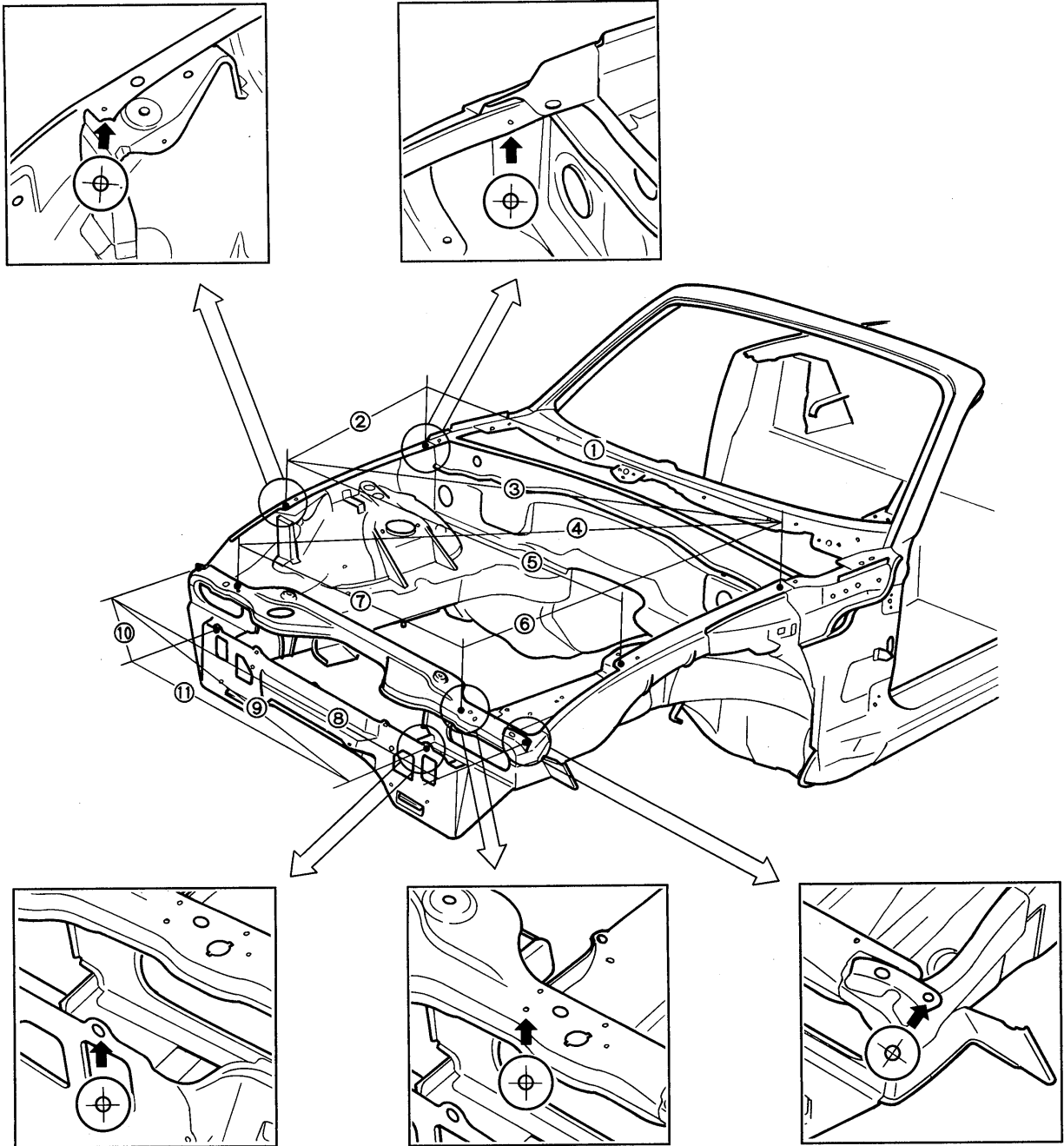
FRONT BODY STRAIGHT-LINE DIMENSIONS



Measured location	①	②	③	④	⑤	⑥
Dimensions mm (in)	1251 (49.25)	1378 (54.25)	331 (13.03)	1379 (54.29)	665 (26.18)	1339 (52.72)
Measured location	⑦	⑧	⑨	⑩	⑪	
Dimensions mm (in)	981 (38.62)	1406 (55.35)	1023 (40.28)	780 (30.71)	676 (26.61)	

DIMENSIONS

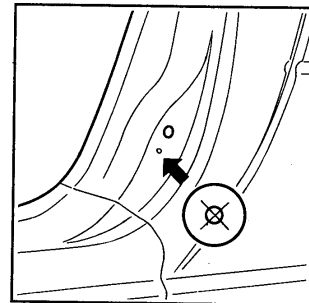
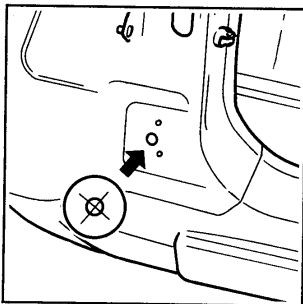
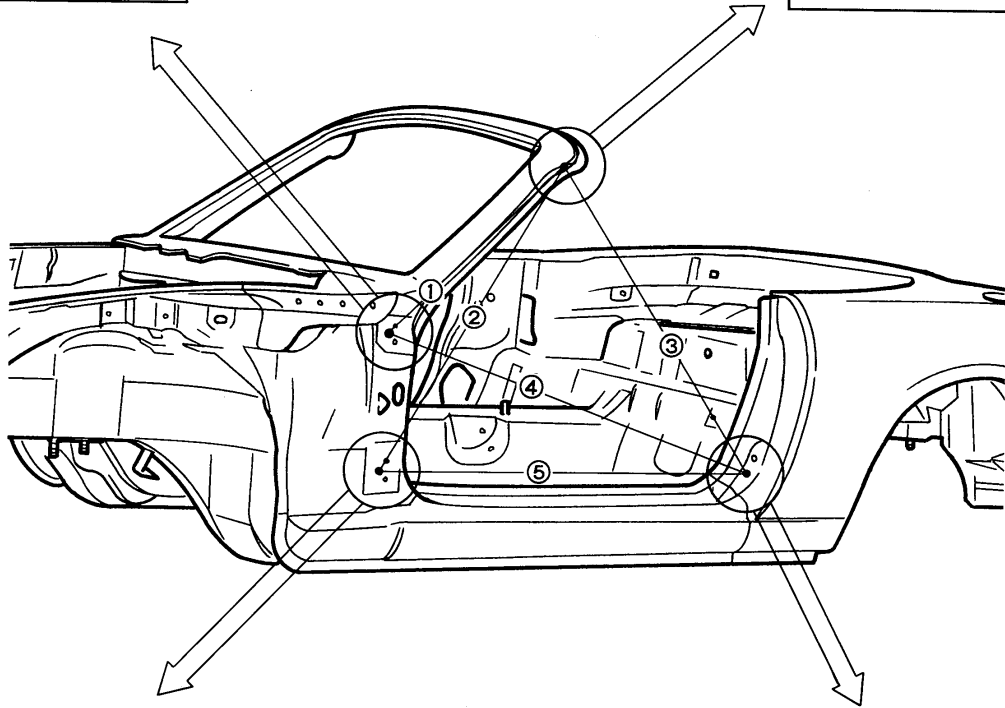
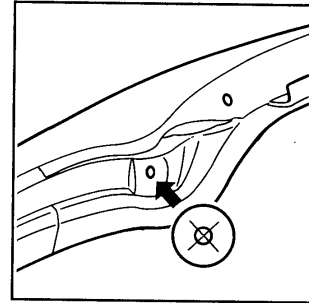
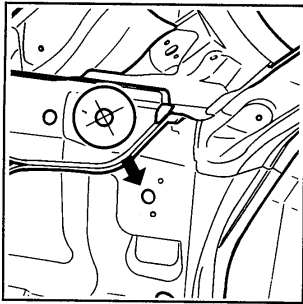
FRONT BODY STRAIGHT-LINE DIMENSIONS



Measured location	①	②	③	④	⑤	⑥
Dimensions mm (in)	1300 (51.18)	517 (20.35)	1376 (54.17)	1350 (53.15)	1250 (49.21)	854 (33.62)
Measured location	⑦	⑧	⑨	⑩	⑪	
Dimensions mm (in)	842 (33.15)	1246 (49.06)	1029 (40.51)	251 (9.88)	800 (31.50)	

DIMENSIONS

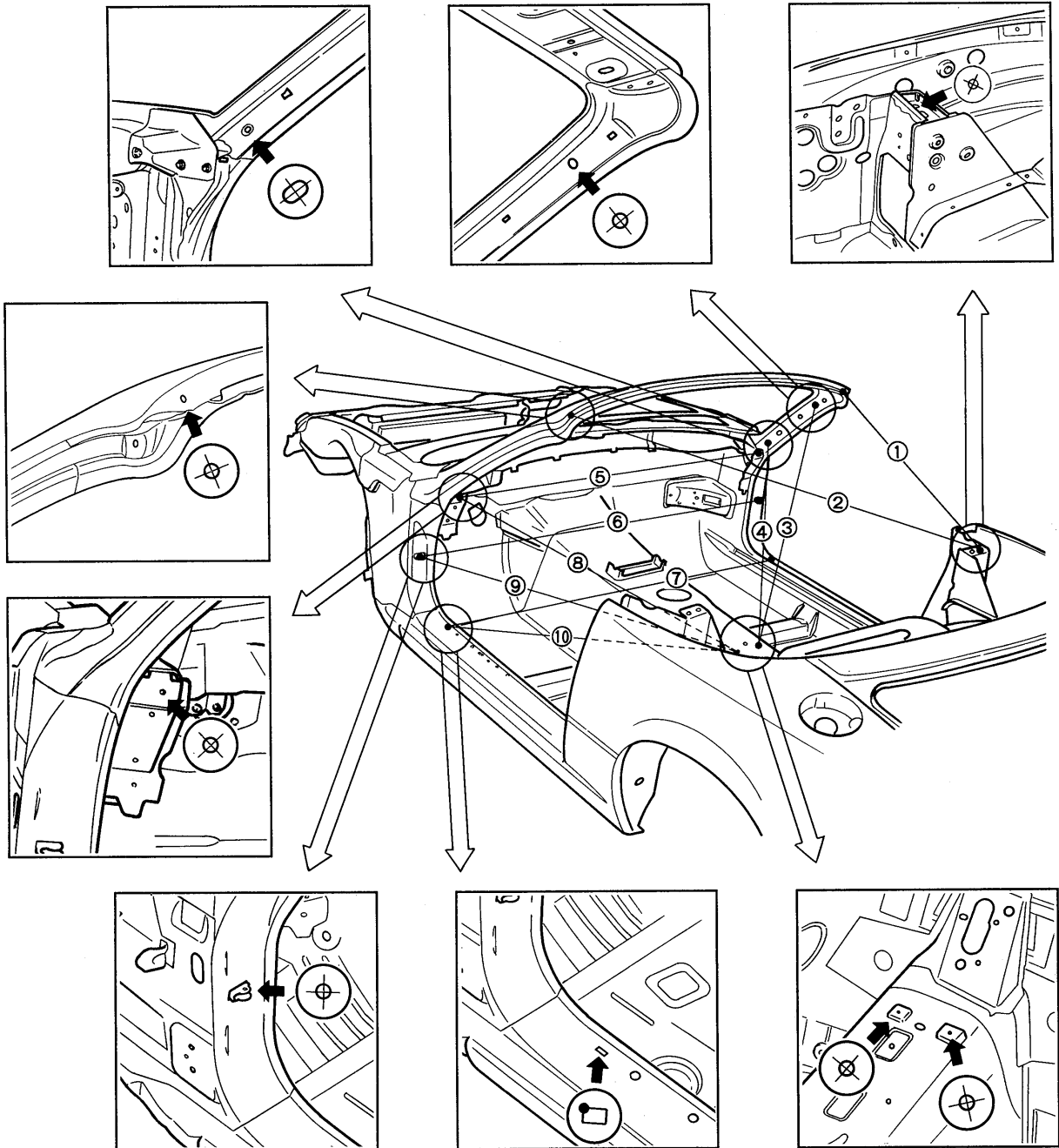
CABIN SIDE FRAME STRAIGHT-LINE DIMENSIONS



Measured location	①	②	③	④	⑤	
Dimensions mm (in)	732 (28.82)	929 (36.57)	847 (33.35)	1071 (42.17)	1034 (40.71)	

DIMENSIONS

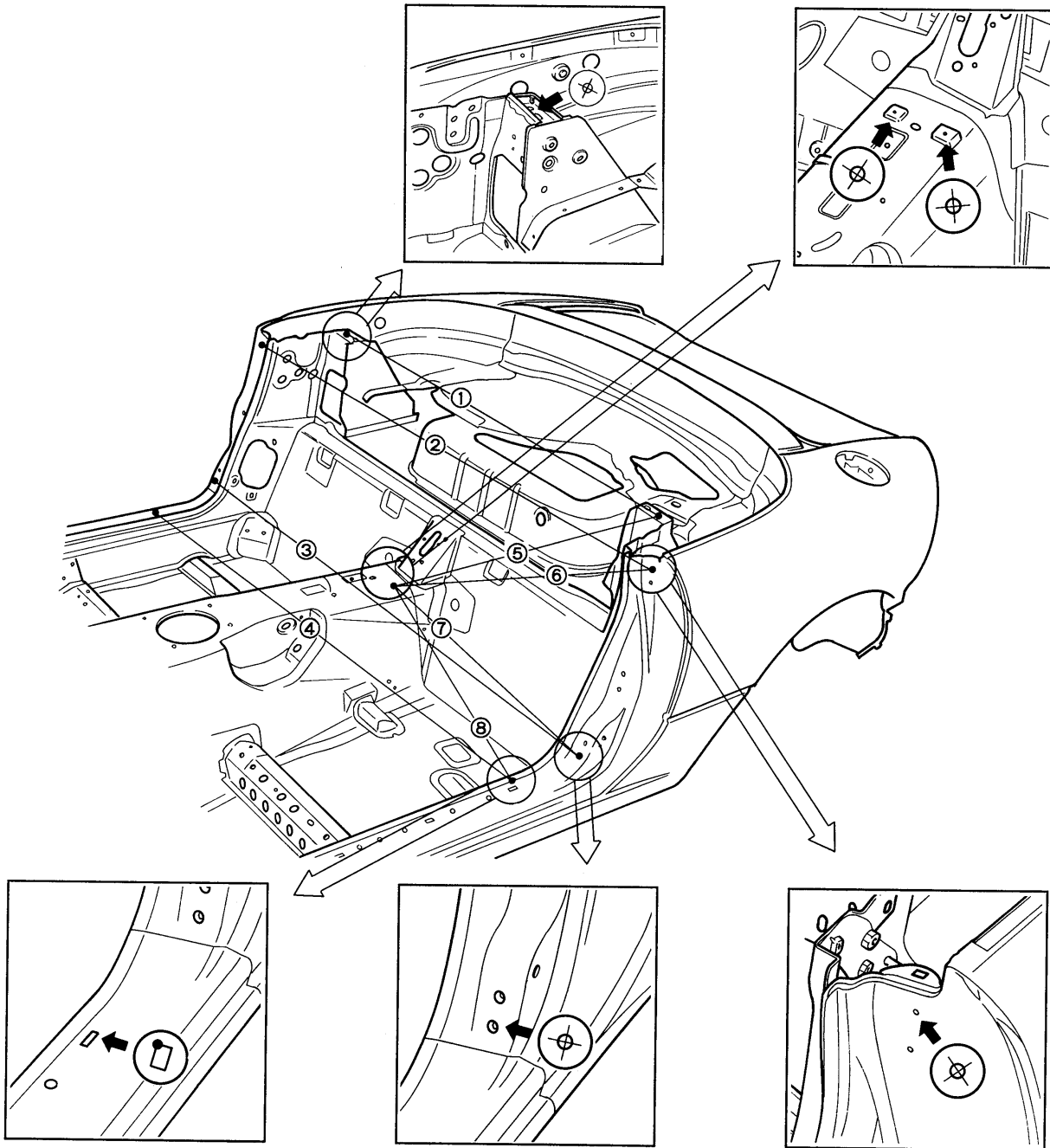
INTERIOR STRAIGHT-LINE DIMENSIONS (FRONT)



Measured location	①	②	③	④	⑤	⑥
Dimensions mm (in)	769 (30.28)	1337 (52.64)	963 (37.91)	1107 (43.58)	1253 (49.33)	1426 (56.14)
Measured location	⑦	⑧	⑨	⑩		
Dimensions mm (in)	1346 (52.99)	1089 (42.87)	1158 (45.59)	1034 (40.71)		

DIMENSIONS

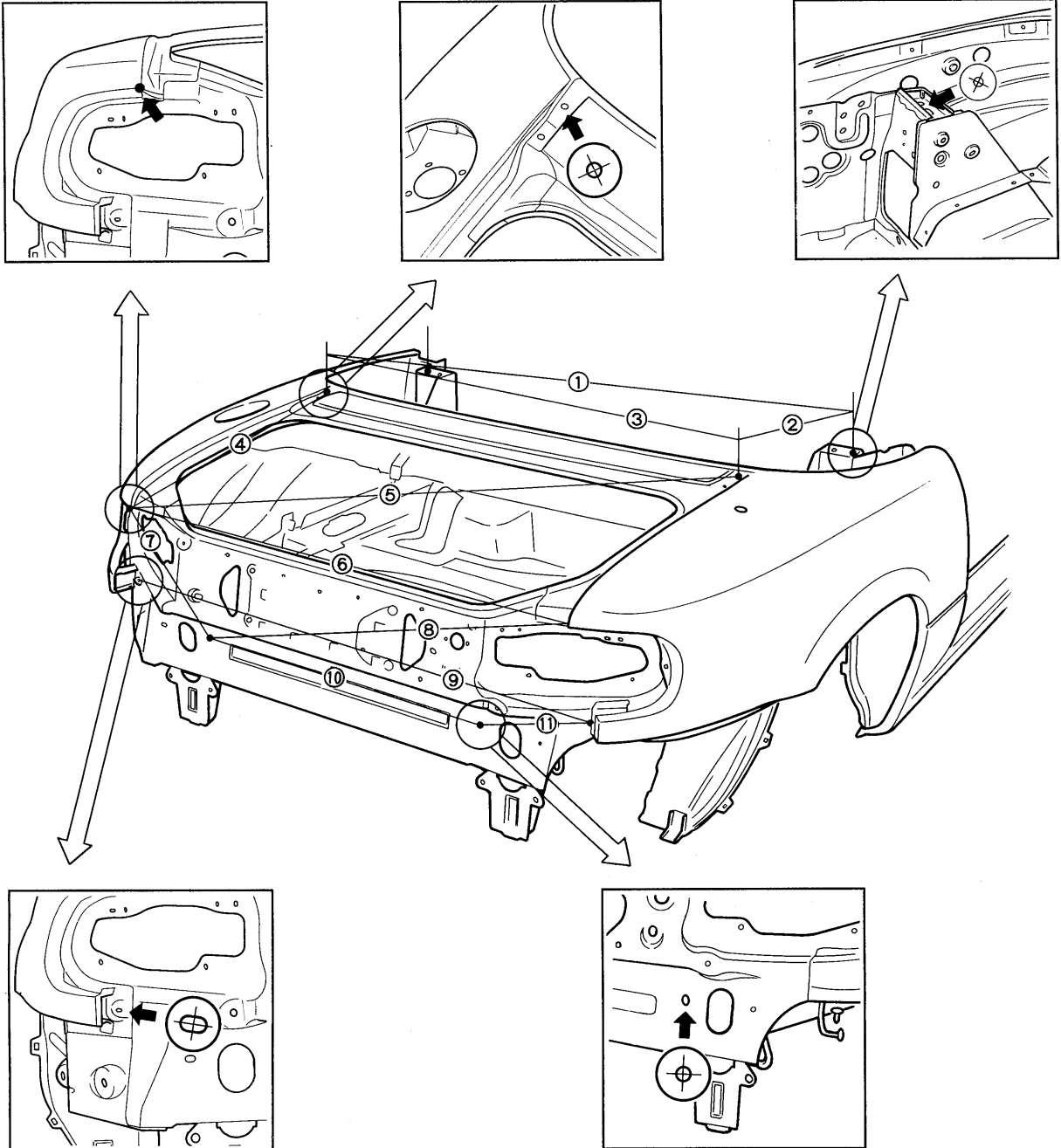
INTERIOR STRAIGHT-LINE DIMENSIONS (REAR)



Measured location	①	②	③	④	⑤	⑥
Dimensions mm (in)	1130 (44.49)	1390 (54.72)	1424 (56.06)	1346 (52.99)	690 (27.17)	752 (29.61)
Measured location	⑦	⑧				
Dimensions mm (in)	680 (26.77)	662 (26.06)				

DIMENSIONS

REAR BODY STRAIGHT-LINE DIMENSIONS



Measured location	①	②	③	④	⑤	⑥
Dimensions mm (in)	1184 (46.61)	472 (18.58)	1044 (41.10)	625 (24.61)	1213 (47.76)	1035 (40.75)
Measured location	⑦	⑧	⑨	⑩	⑪	
Dimensions mm (in)	310 (12.20)	885 (34.84)	1124 (44.25)	664 (26.14)	241 (9.49)	

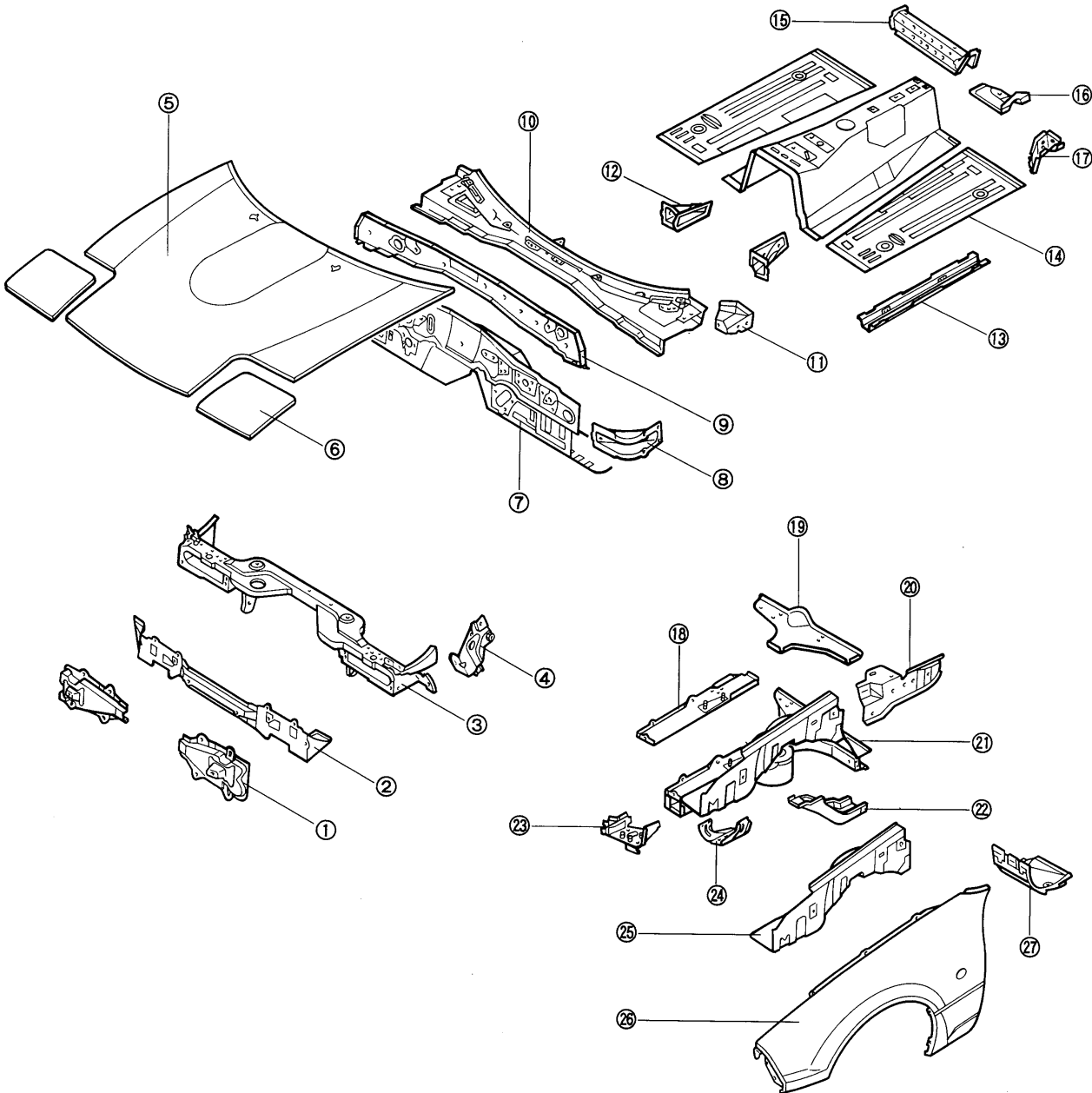


CONSTRUCTION

BODY COMPONENTS	24
RUST-PROOF STEEL	28
HIGH-STRENGTH STEEL	32

CONSTRUCTION

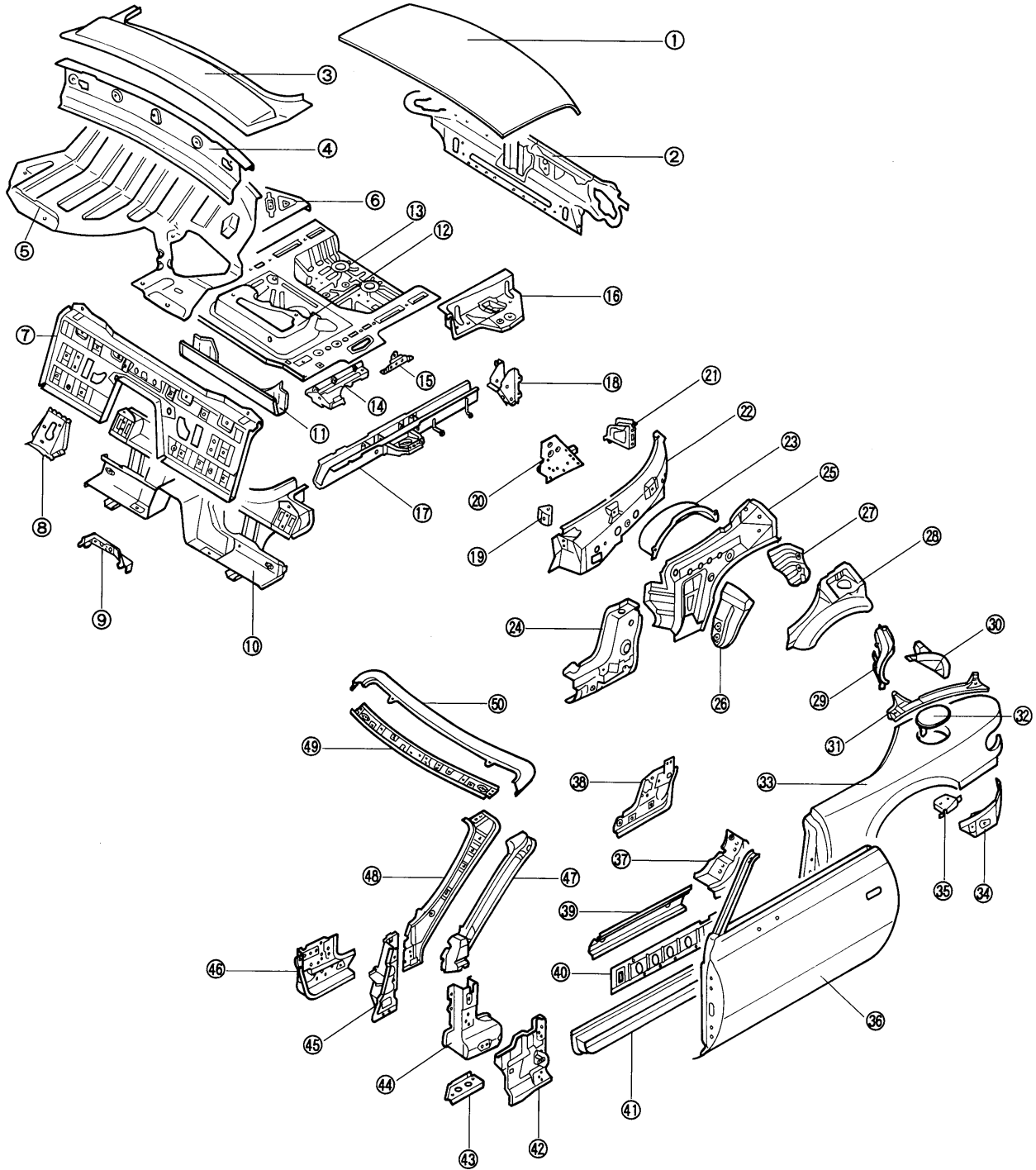
BODY COMPONENTS



CONSTRUCTION

No.	Part Name	No.	Part Name
①	Bumper bracket	⑮	Crossmember No. 2
②	Crossmember No. 1	⑯	Seat bracket
③	Shroud panel assy	⑰	No. 3 gusset
④	Radiator bracket	⑱	Front frame, upper front
⑤	Hood (Bonnet)	⑲	Front frame, upper rear
⑥	Light lid	⑳	Apron reinforcement
⑦	Dash panel assy	㉑	Front wheel apron assy
⑧	Dash side junction	㉒	Front frame, rear
⑨	Cowl panel, front	㉓	Tie-down hook reinforcement
⑩	Dash panel assy	㉔	Stabilizer bracket
⑪	Instrument bracket	㉕	Front wheel apron panel
⑫	Tunnel side junction	㉖	Front fender panel
⑬	Front frame	㉗	Torque box
⑭	Front floor side pan		

CONSTRUCTION



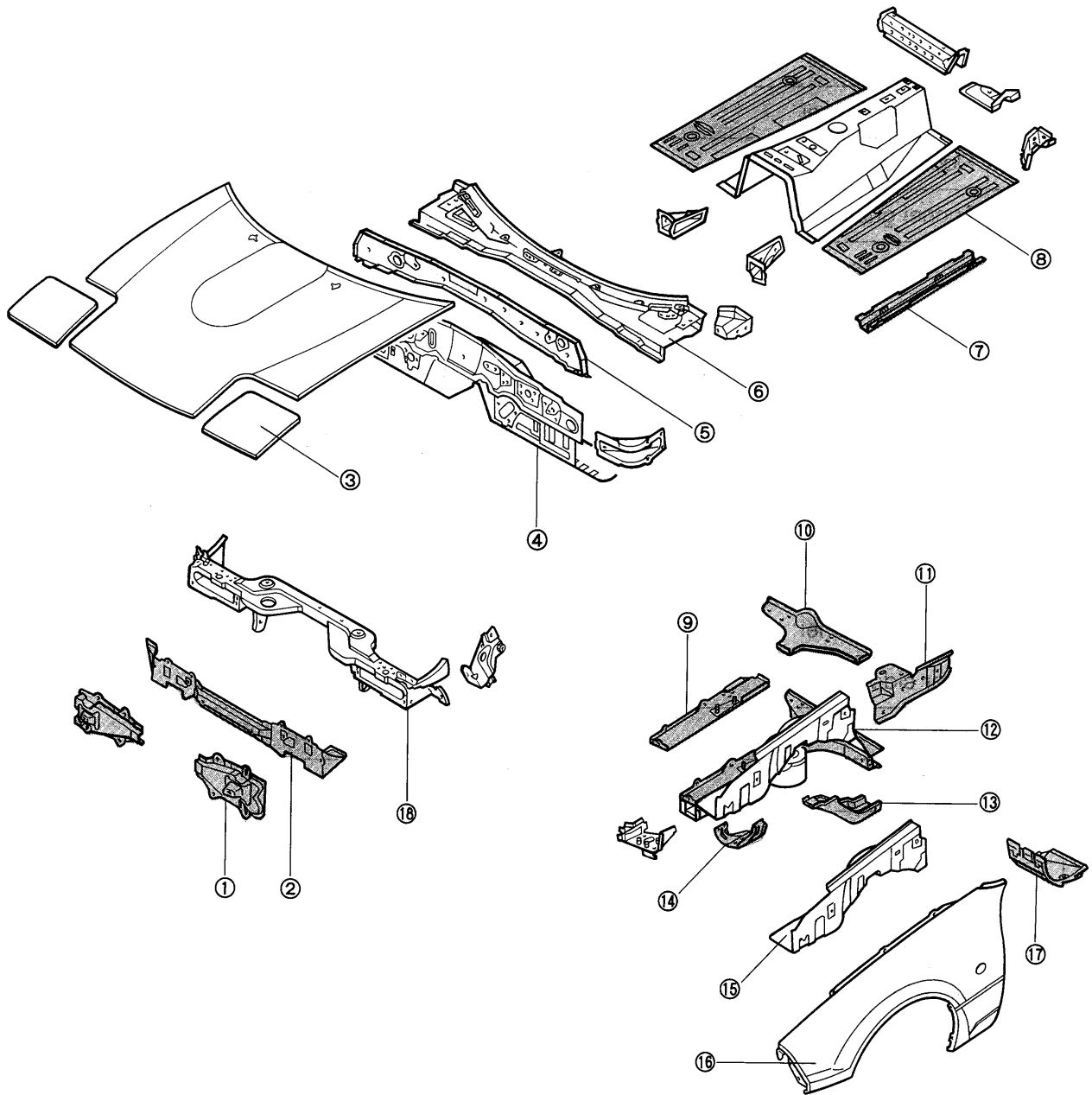
CONSTRUCTION

No.	Part Name	No.	Part Name
①	Trunk lid	②⑥	Seal plate
②	Rear end panel	②⑦	Splash protector
③	Rear deck panel	②⑧	Quarter panel
④	Rear deck member	②⑨	Light housing
⑤	Bulkhead panel	③⑩	Rear fender gusset
⑥	Floor side panel	③①	Rear fender rain rail
⑦	Floor center pan	③②	Fuel filler lid
⑧	Tunnel gusset	③③	Rear fender panel
⑨	Parking bracket	③④	Rear fender, lower
⑩	Crossmember No. 3	③⑤	Trunk board bracket
⑪	Crossmember No. 4	③⑥	Door body
⑫	Tank floor pan assy	③⑦	Striker reinforcement
⑬	Trunk floor assy	③⑧	Side sill, inner C
⑭	Floor side plate	③⑨	Side sill, inner B
⑮	Nut plate	④⑩	Side sill reinforcement
⑯	Floor side panel	④①	Side sill, outer
⑰	Rear side frame	④②	Cowl side panel
⑱	Bumper bracket	④③	Side sill gusset
⑲	Cap bracket	④④	Hinge pillar, outer
⑳	Closing bracket	④⑤	Hinge pillar
㉑	Battery clamp bracket	④⑥	Side sill, inner
㉒	Side panel, inner	④⑦	Front pillar, outer
㉓	Wheel inner house	④⑧	Front pillar, inner
㉔	Corner junction	④⑨	Front header
㉕	Beltline reinforcement	⑤⑩	Front header, upper

CONSTRUCTION



RUST-PROOF STEEL

STRUCTURAL VIEW

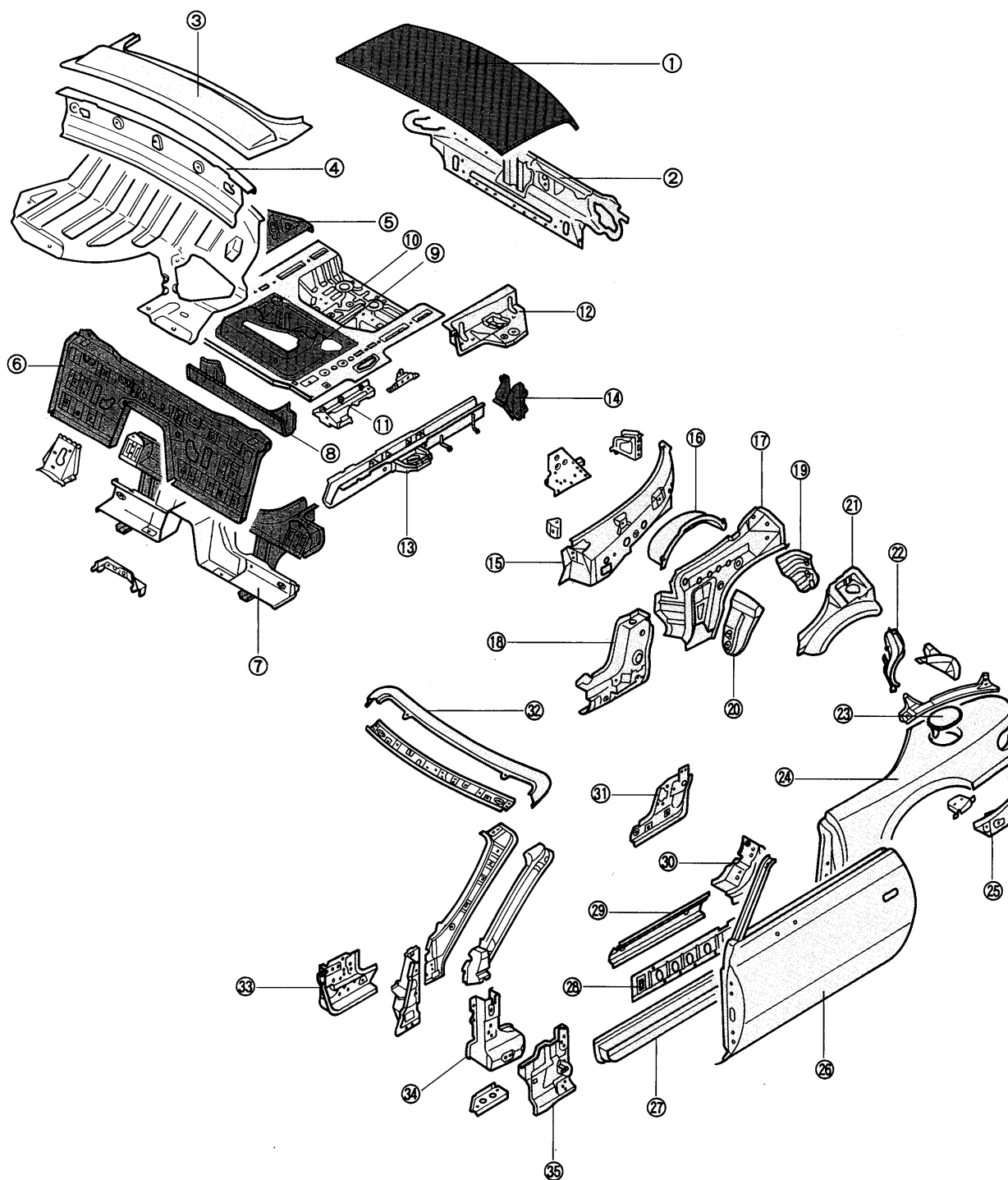


CONSTRUCTION

No.	Part Name	No.	Part Name
①	Bumper bracket	⑩	Front frame, upper rear
②	Crossmember No. 1	⑪	Apron reinforcement
③	Light lid	⑫	Front wheel apron assy
④	Dash panel assy	⑬	Front frame rear
⑤	Cowl panel front	⑭	Stabilizer bracket
⑥	Dash panel assy	⑮	Front wheel apron panel
⑦	Front frame	⑯	Front fender panel
⑧	Front floor side pan	⑰	Torque box
⑨	Front frame, upper front	⑱	Shroud panel assy

-  Both side rust-proof treated steel
 One side rust-proof treated steel (Reverse side only)

CONSTRUCTION



CONSTRUCTION

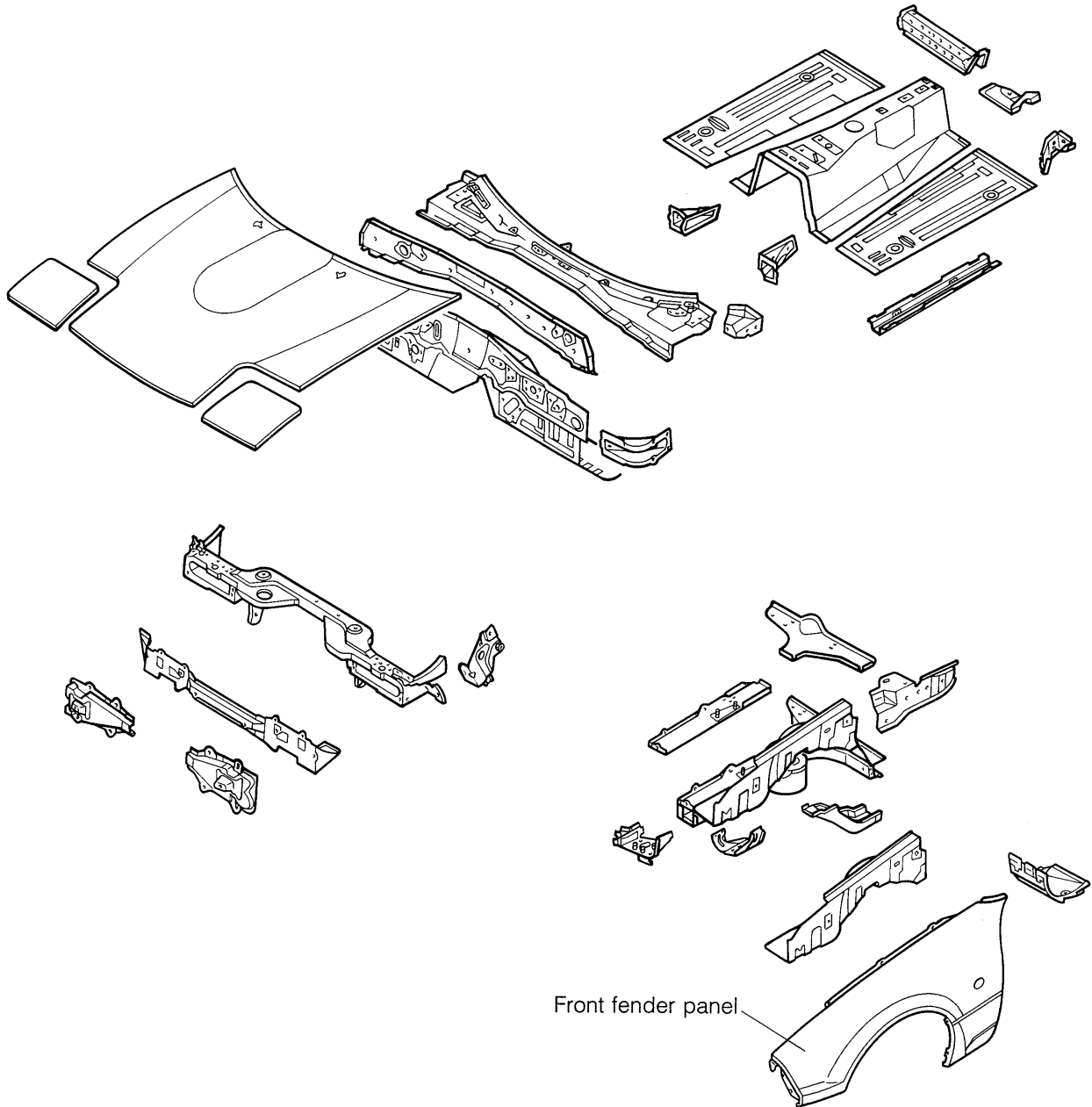
No.	Part Name	No.	Part Name
①	Trunk lid	⑲	Splash protector
②	Rear end panel	⑳	Seal plate
③	Rear deck panel	㉑	Quarter panel
④	Rear deck member	㉒	Light housing
⑤	Floor side panel	㉓	Fuel filler lid
⑥	Floor center pan	㉔	Rear fender panel
⑦	Crossmember No. 3	㉕	Rear fender, lower
⑧	Crossmember No. 4	㉖	Door body
⑨	Tank floor pan assy	㉗	Side sill, outer
⑩	Trunk floor assy	㉘	Side sill reinforcement
⑪	Floor side plate	㉙	Side sill B, inner
⑫	Floor side panel	㉚	Striker reinforcement
⑬	Rear side frame	㉛	Side sill C, inner
⑭	Bumper bracket	㉜	Front header, upper
⑮	Side panel, inner	㉝	Side sill A, inner
⑯	Wheel inner house	㉞	Hinge pillar, outer
⑰	Beltline reinforcement	㉟	Cowl side panel
⑱	Corner junction		


- Both side rust-proof treated steel
 One side rust-proof treated steel (Reverse side only)

CONSTRUCTION

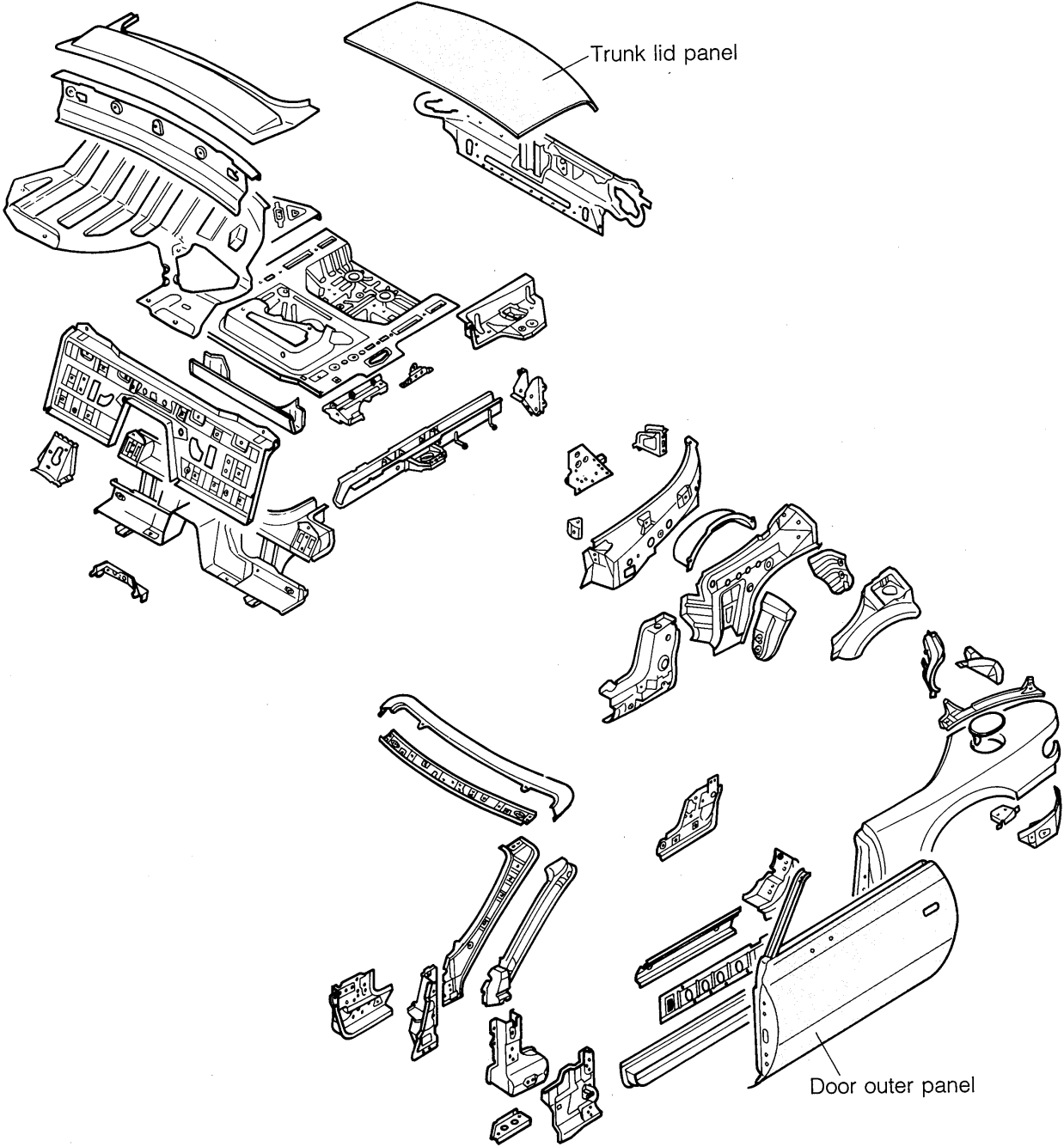
HIGH-STRENGTH STEEL

STRUCTURAL VIEW



 High-strength steel

CONSTRUCTION



PANEL REPLACEMENT

CROSSMEMBER (NO. 1)	36
SHROUD PANEL ASSY	38
WHEEL APRON PANEL	40
WHEEL APRON PANEL ASSY	42
COWL SIDE PANEL	44
SIDE SILL PANEL ASSY	46
FRONT PILLAR, OUTER COWL SIDE PANEL, HINGE PILLAR, INNER COWL SIDE PANEL AND SIDE SILL PANEL	48
REAR FENDER PANEL	52
REAR END PANEL	54
TRUNK FLOOR PAN, FLOOR SIDE PANEL	56

PANEL REPLACEMENT

Welding Symbol

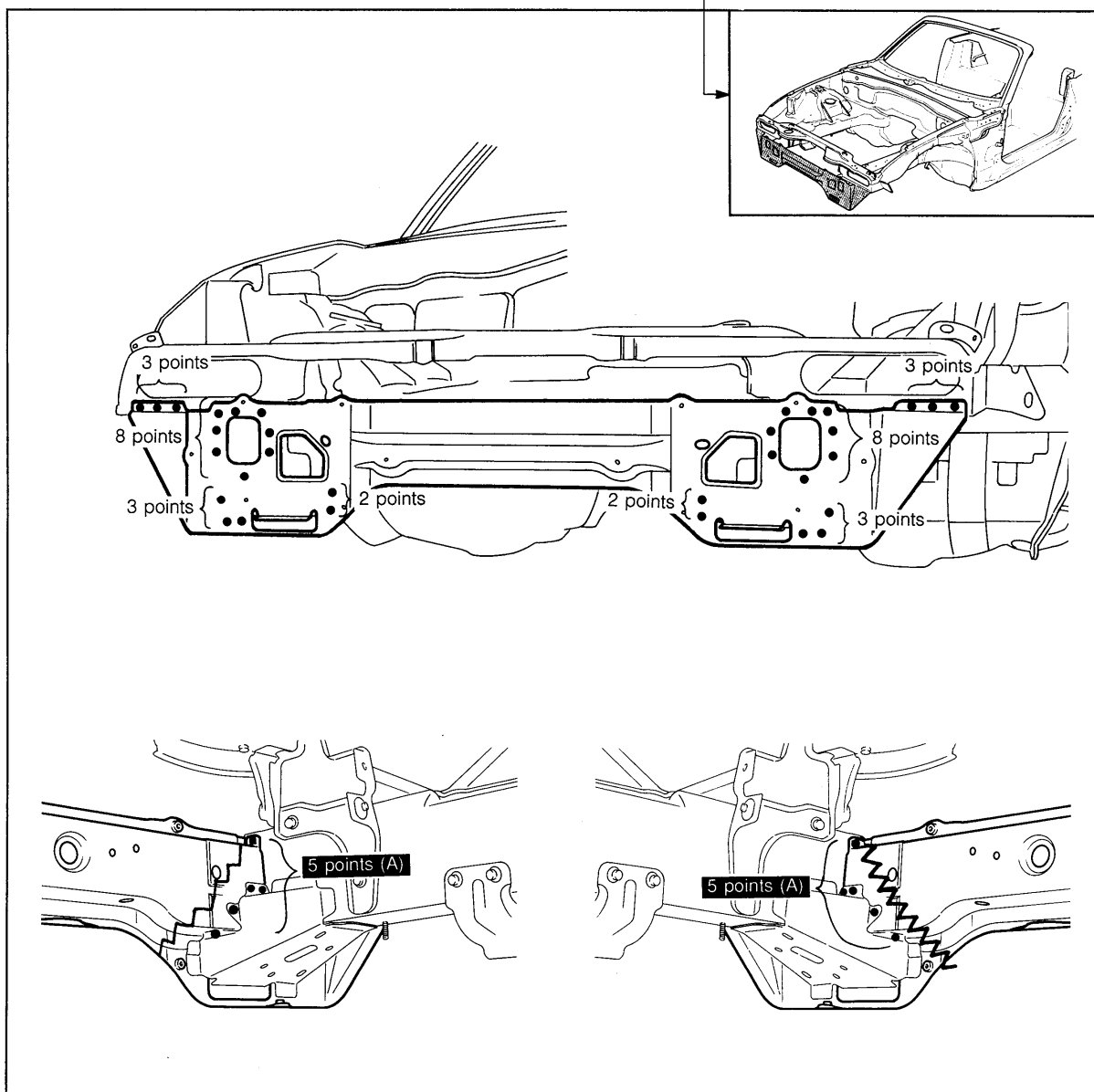
<p>●</p> <p>■</p> <p>+</p> <p>++++</p> <p>⊕</p> <p>⌞</p>	<p>..... Spot welding</p> <p>..... MIG plug welding</p> <p>..... MIG spot welding</p> <p>..... Continuous MIG welding at cut-and-join location</p> <p>..... Braze welding</p> <p>..... Rough cut location</p>
--	---

CROSSMEMBER (NO. 1)

← Name of part to be replaced

→ Location of part to be replaced

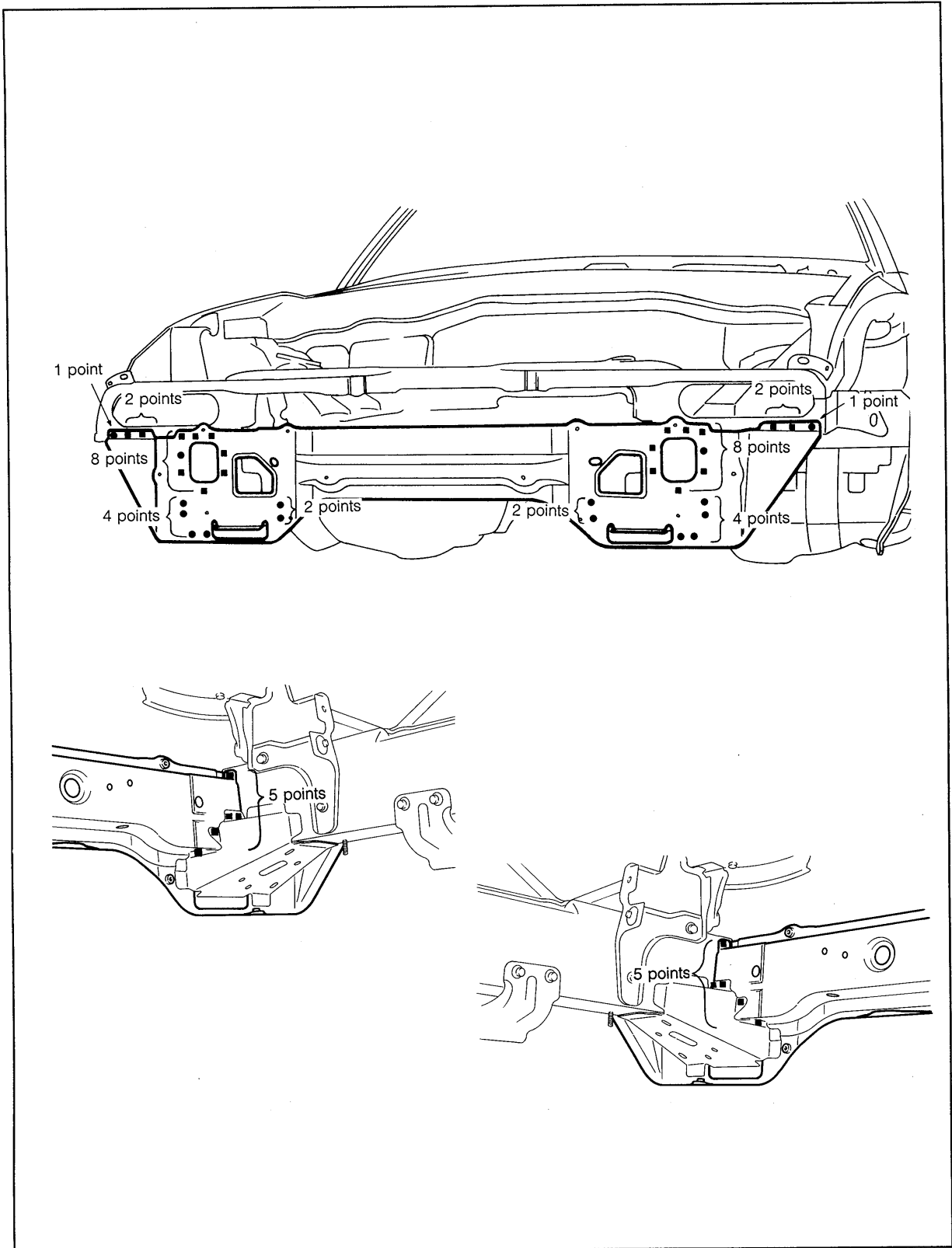
REMOVAL



- To drill away 8 points indicated by (A), first rough-cut as shown in the illustration, and remove the crossmember.
- When drilling other than points (A), do not make open holes.
- Do not damage the front side frame when rough-cutting.

PANEL REPLACEMENT

INSTALLATION

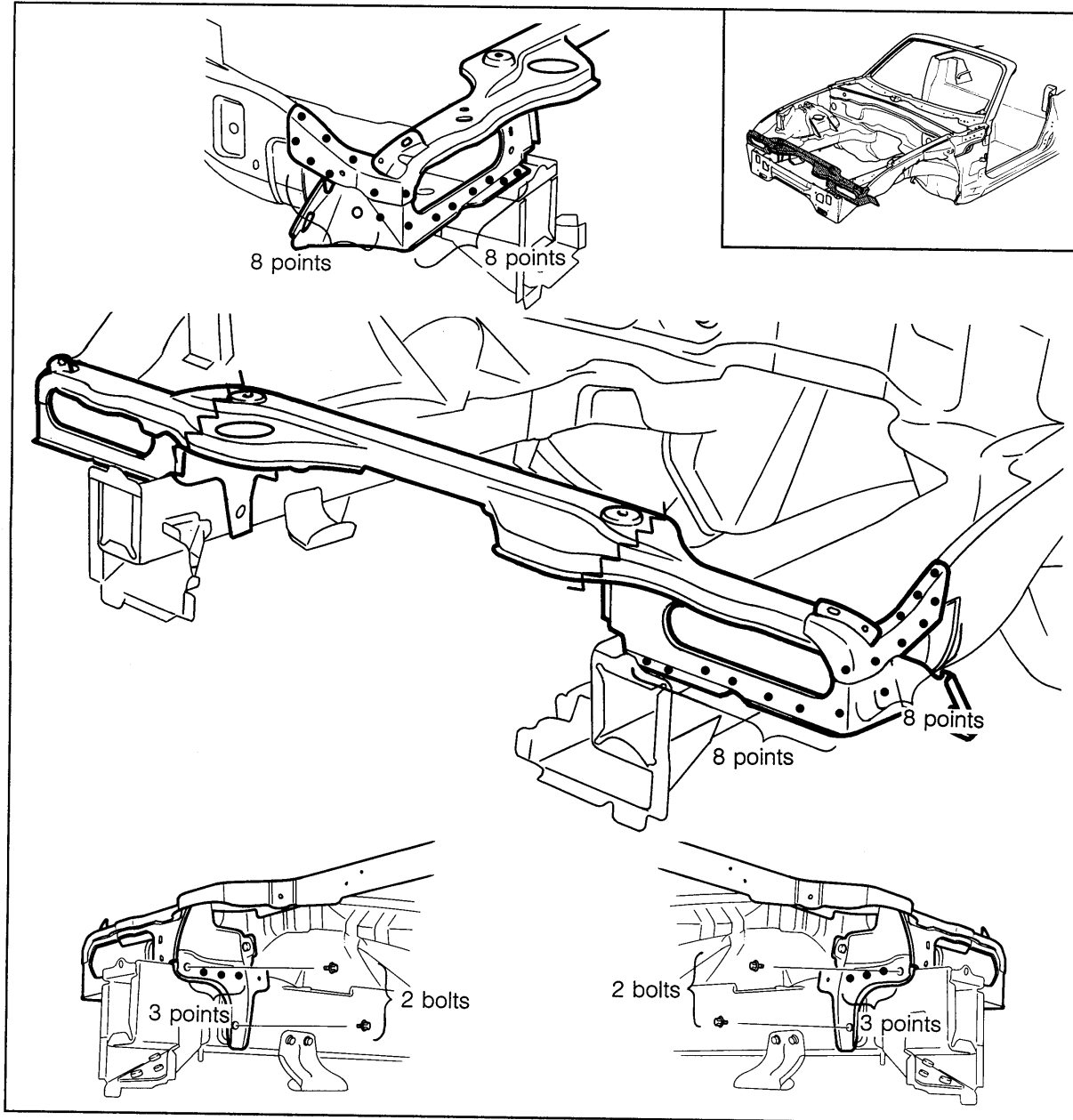


- When installing new parts, measure the dimensions to verify that they are as specified.

PANEL REPLACEMENT

SHROUD PANEL ASSY

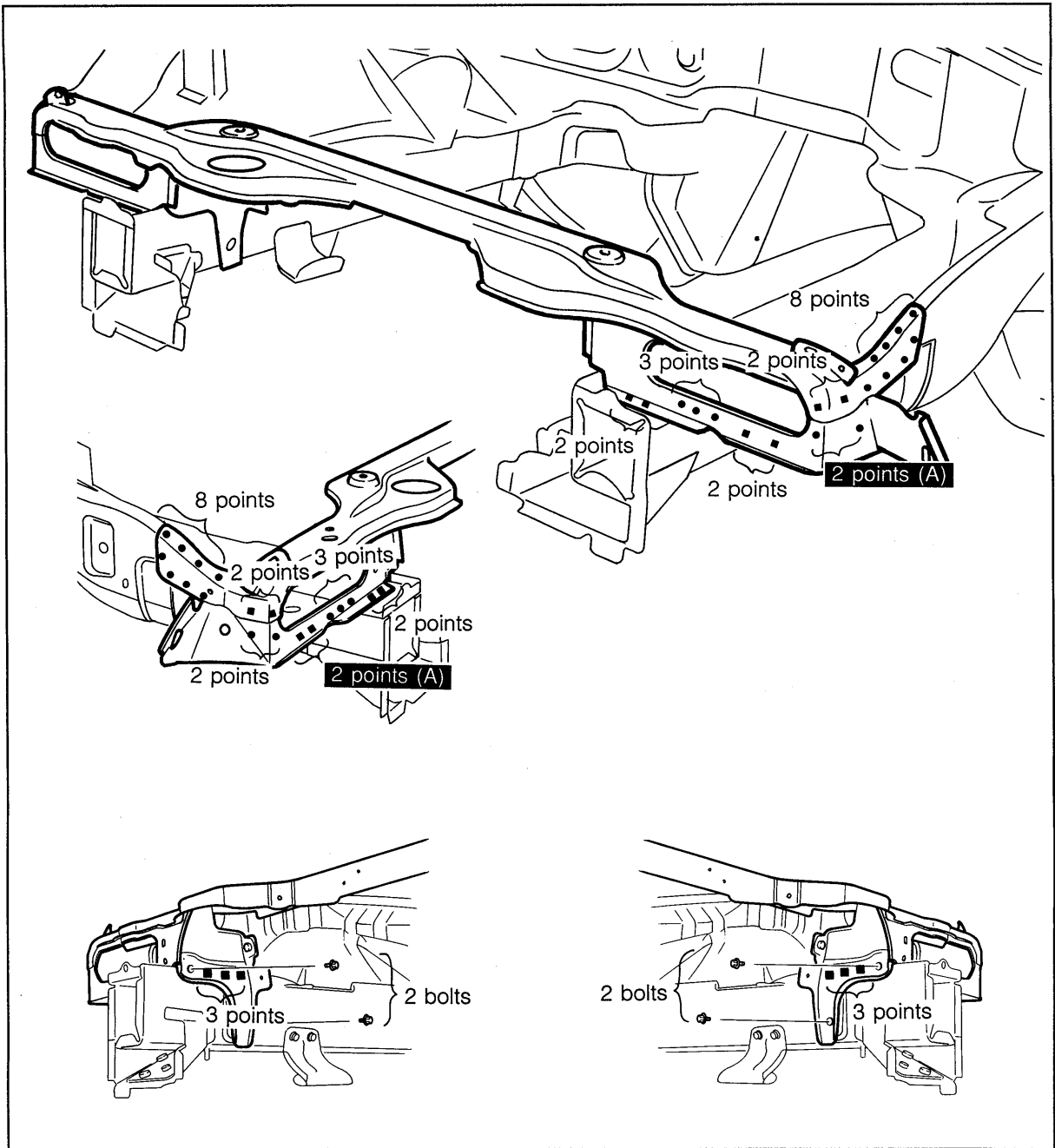
REMOVAL



- Work should be performed after the crossmember No. 1 is removed.
- When drilling away the spot welds, do not make open holes.

PANEL REPLACEMENT

INSTALLATION

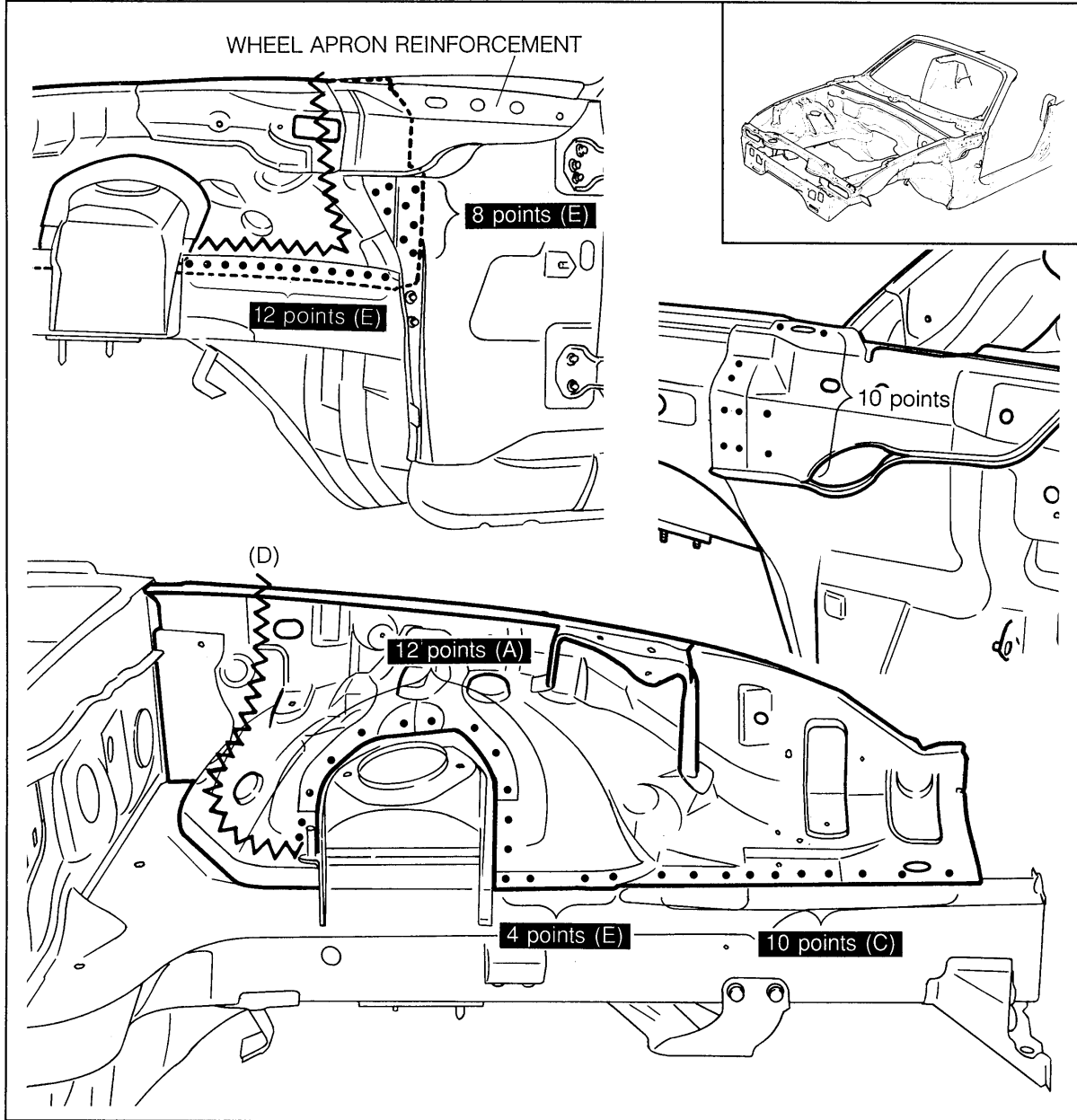


- When installing new parts, measure the dimensions to verify that they are as specified, and check the fit with associating parts.
- Plug welding 4 points indicated by (A) are performed during installation of the crossmember.

PANEL REPLACEMENT

WHEEL APRON PANEL

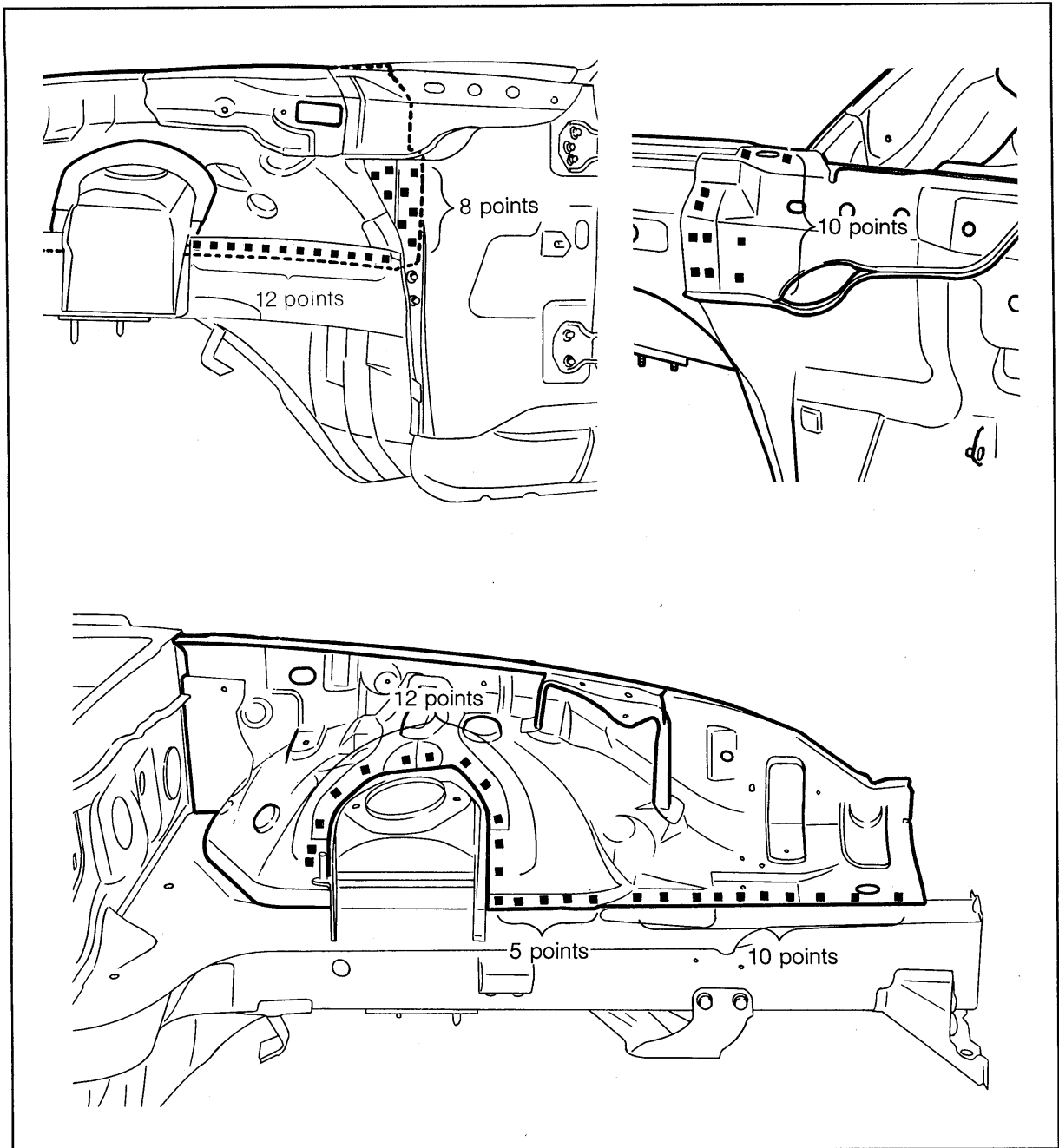
REMOVAL



- Illustrations show only left side of the wheel apron panel.
All points are located symmetrically.
- Do not damage the suspension housing and wheel apron reinforcement when rough-cutting.
- To drill away 22 points indicated by (E), first drill away points (A), (B), and (C), and rough-cut (D).
- Drilling of 12 points indicated by (A) should be performed with caution.
Do not make open holes from the engine compartment side.
- Drilling of 5 points indicated by (B) should be performed from outboard side.

PANEL REPLACEMENT

INSTALLATION

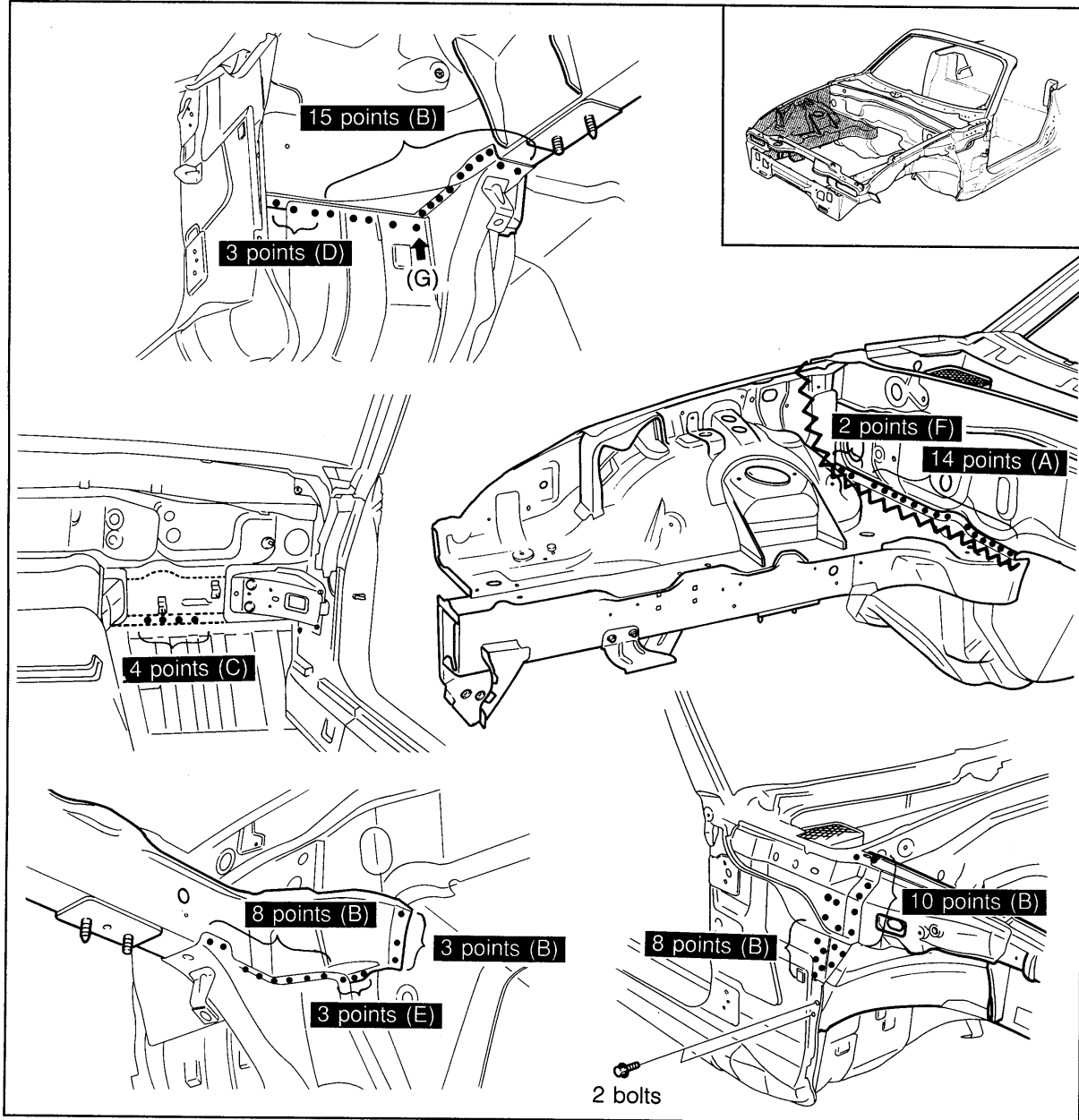


- Make plug welding holes in new parts.
- After temporary installation of new parts, measure the dimensions to verify that they are as specified.
- Check the fit with associating parts (hood, front fender panel, bumper, etc.).

PANEL REPLACEMENT

WHEEL APRON PANEL ASSY

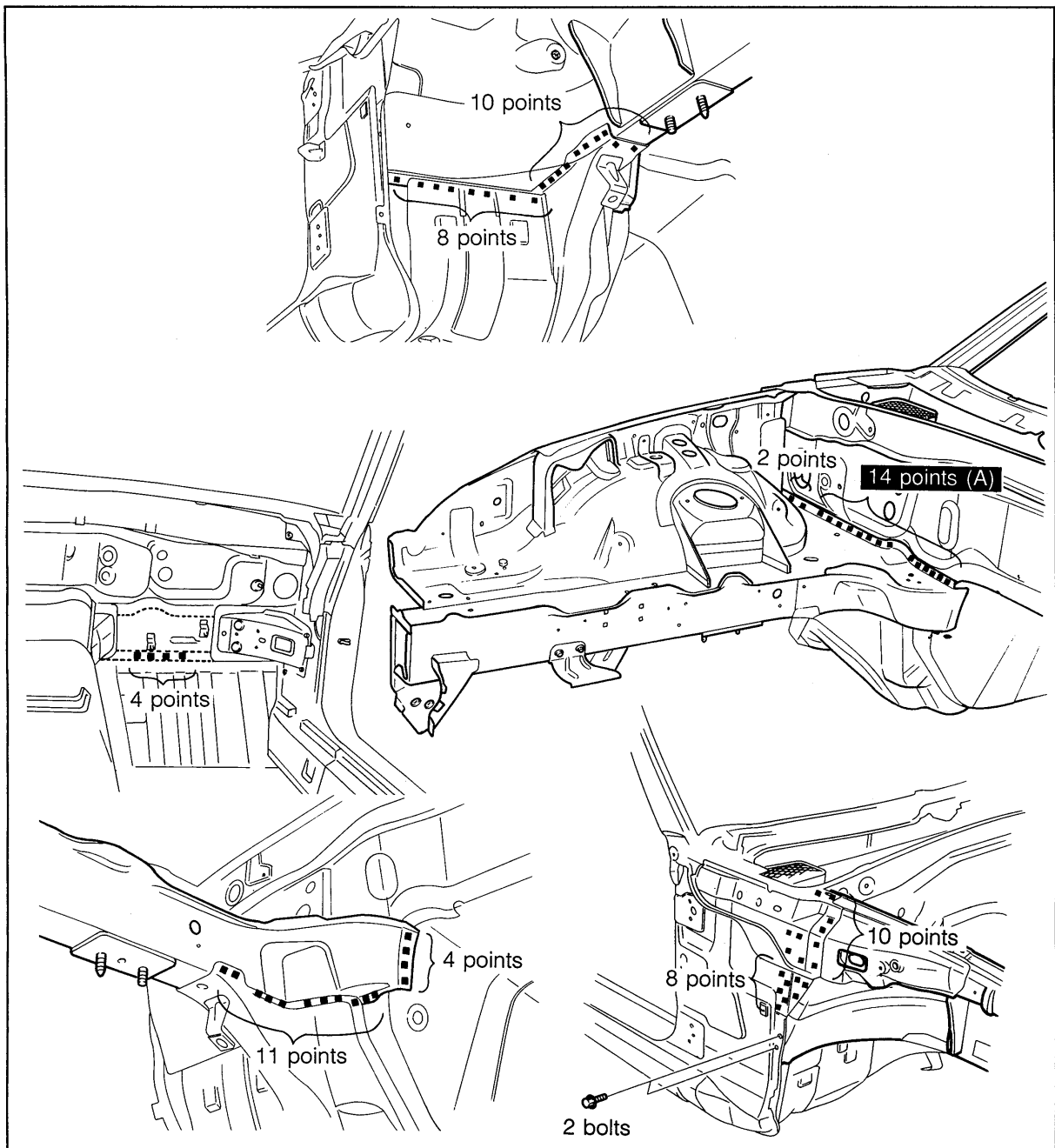
REMOVAL



- Drilling for spot welding indicated by (A) and (F) should be performed after rough-cutting.
- Rough-cutting should be performed after drilling for spot welding indicated by (B) and (C).
- For best results, when drilling points indicated by (D), (E), and (G), do not make open holes.
- When replacing the cowl side panel at the same time, make open holes in drilling points indicated by (E), perform plug welding from the hinge pillar side before installing the cowl side panel.
- Drilling for spot welding indicated by (C) and (G) should be performed from the cabin side.

PANEL REPLACEMENT

INSTALLATION

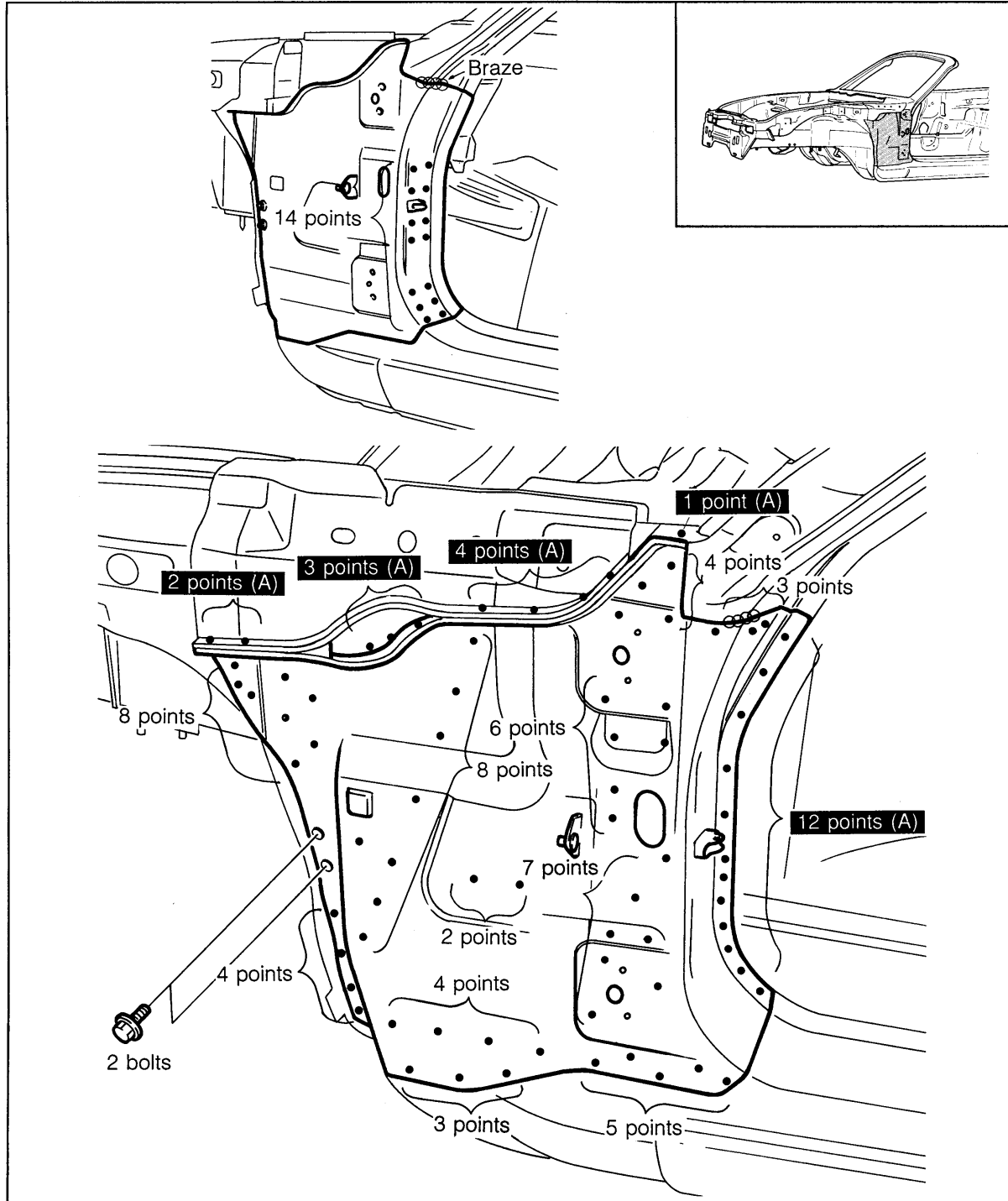


- Make plug welding holes in new parts.
- After temporary installation of new parts, measure the dimensions to verify that they are as specified.
- Check the fit with associating parts (hood, front fender, etc.).
- Plug welding indicated by (A) should be performed from the cabin side.

PANEL REPLACEMENT

COWL SIDE PANEL

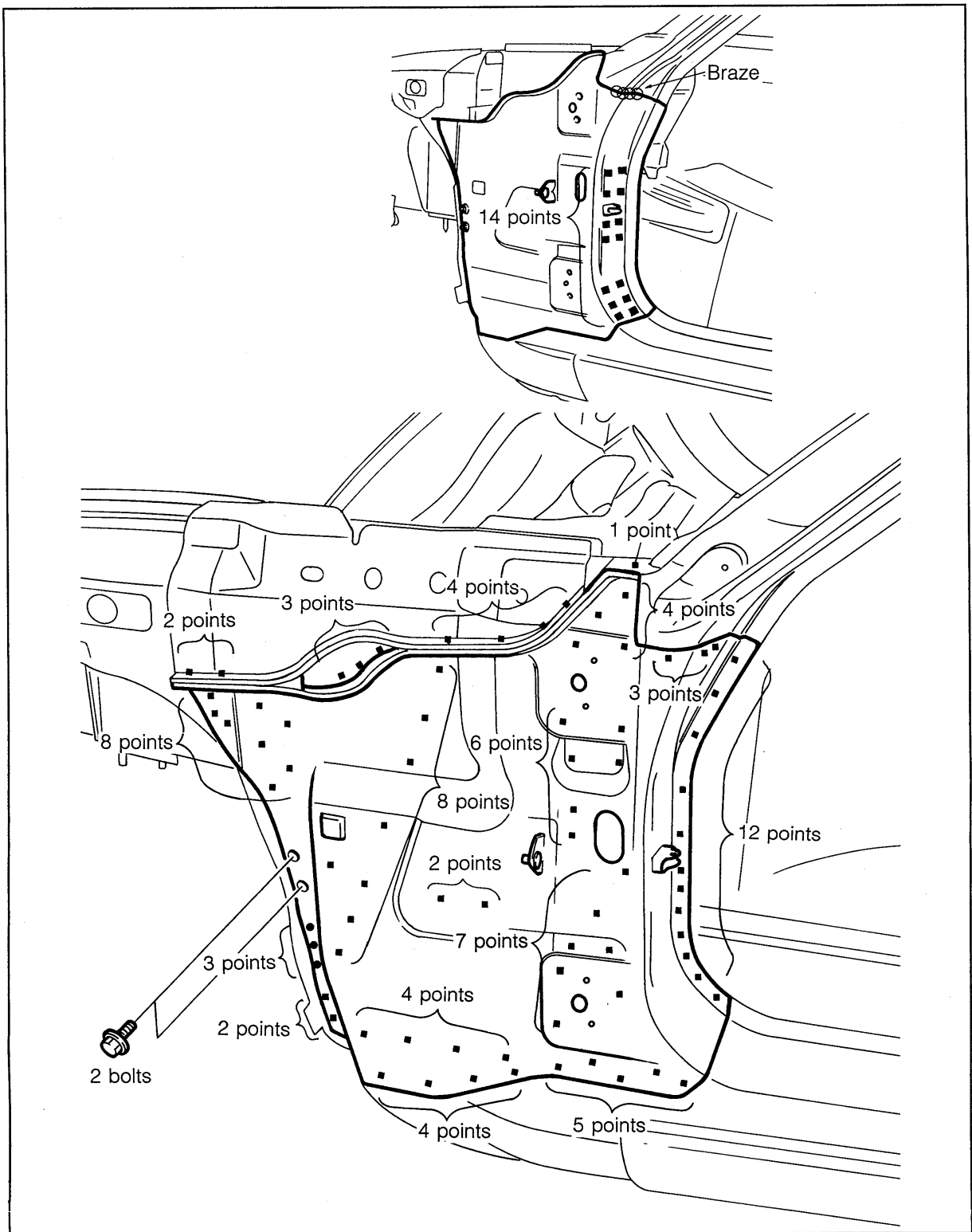
REMOVAL



- When drilling for spot welding, do not make open holes except 22 points indicated by (A).

PANEL REPLACEMENT

INSTALLATION

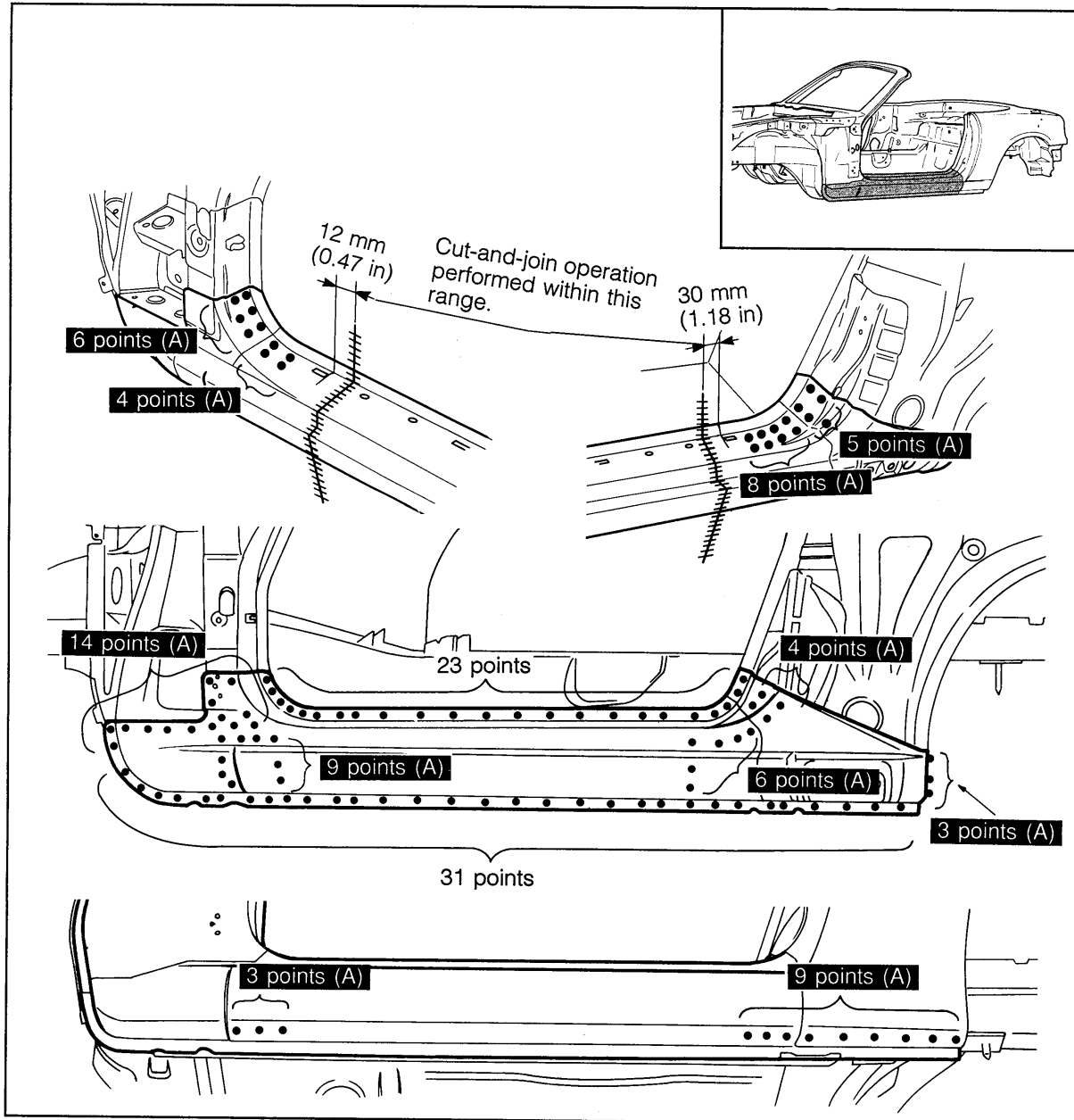


- Plug welds on door hinge side must be smooth.

PANEL REPLACEMENT

SIDE SILL PANEL ASSY

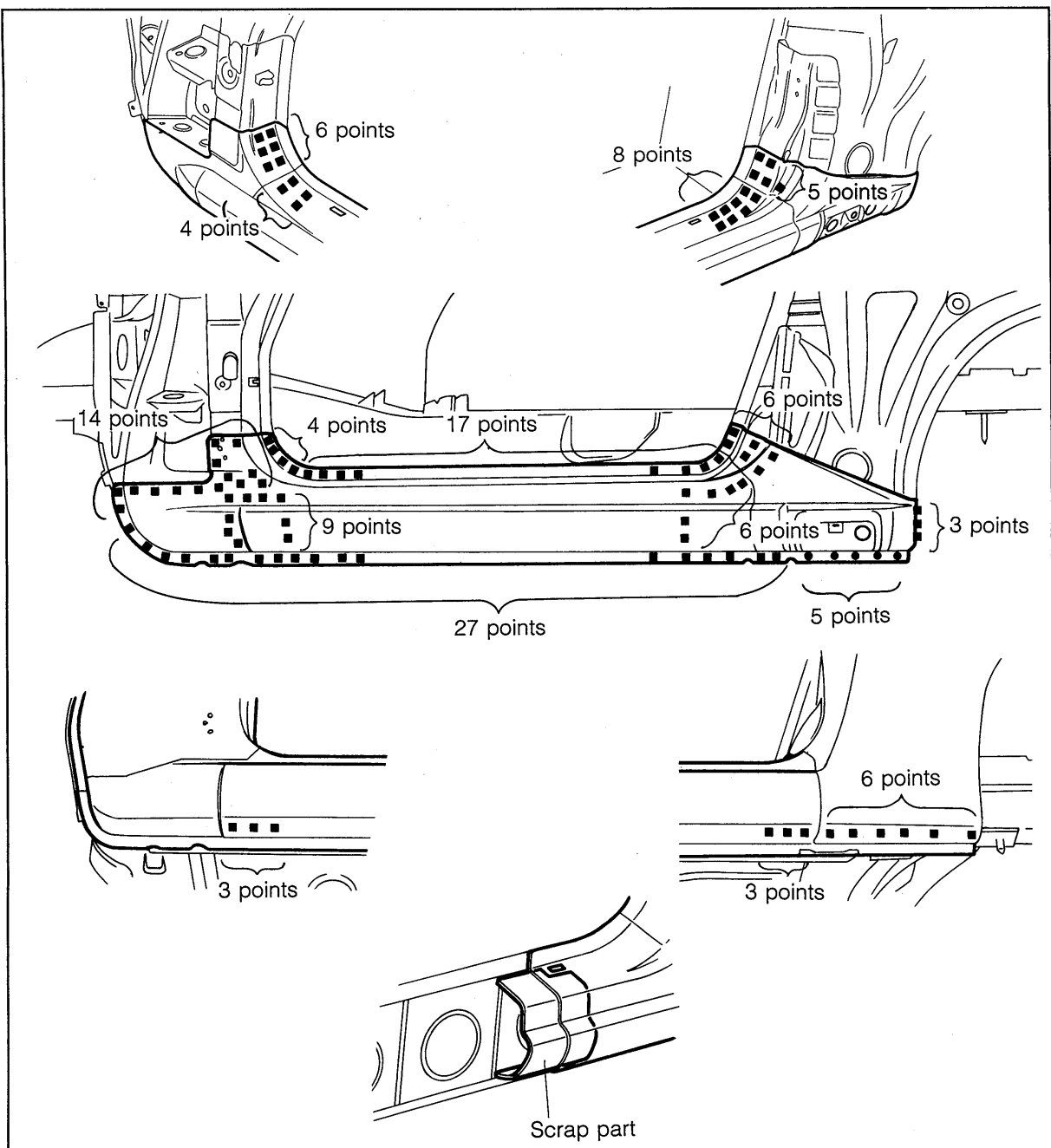
REMOVAL



- Work should be performed after the cowl side panel and the rear fender panel are removed.
- Rough-cut 30~50 mm (1.2~2.0 in) inside the cut-and-join location.
- Do not damage the outer hinge pillar and the side sill reinforcement when rough-cutting.
- Do not make open holes when drilling points (A).

PANEL REPLACEMENT

INSTALLATION

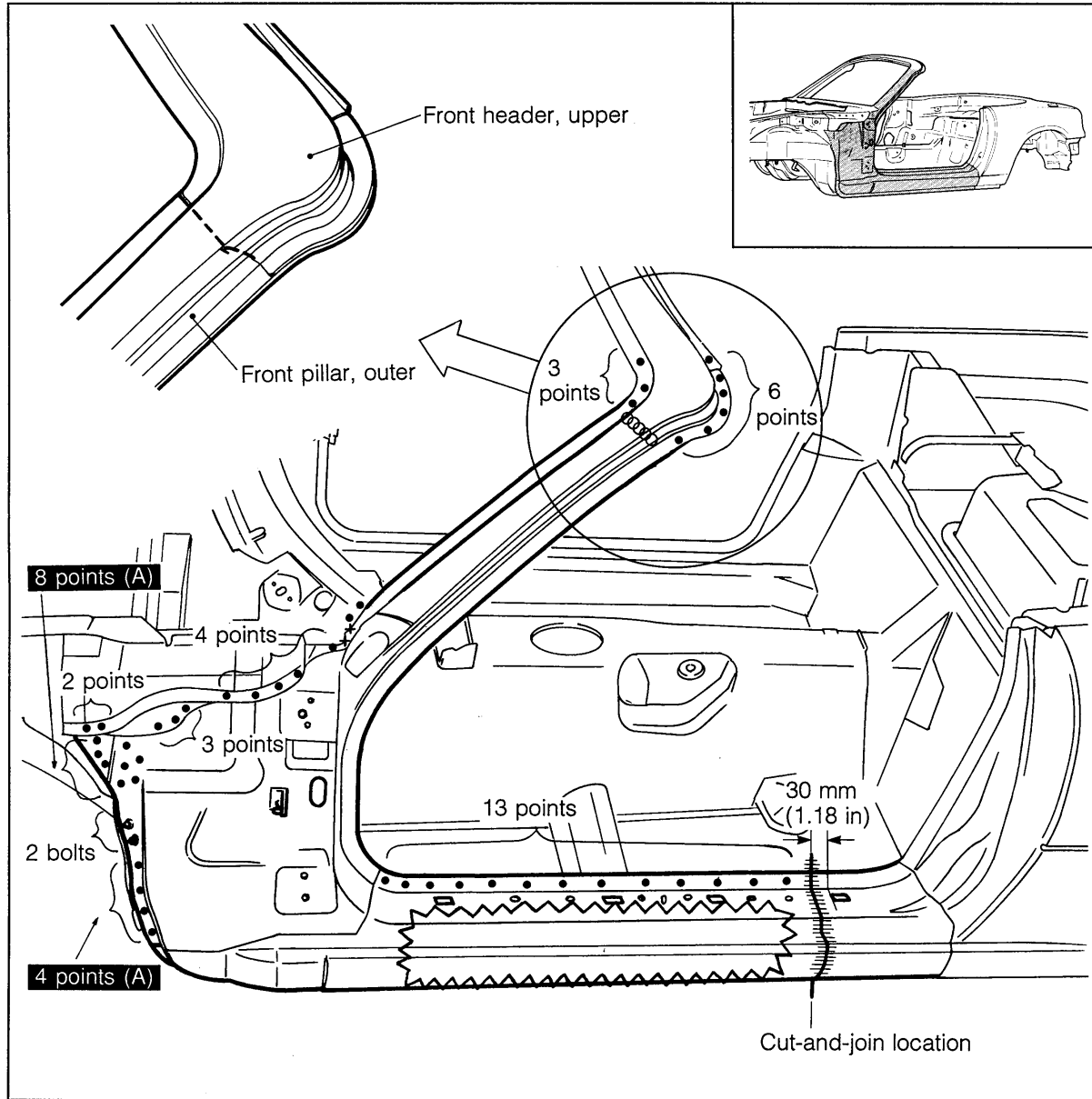


- Cut-and-join of the side sill should not be performed at ● or ■ points.
- When replacing the side sill, install a scrap part under the cut-and-join location to help welding.
- Plug welding of points (A) should be performed during installation of the cowl side panel and the rear fender panel.

PANEL REPLACEMENT

FRONT PILLAR, OUTER COWL SIDE PANEL, HINGE PILLAR, INNER COWL SIDE PANEL AND SIDE SILL PANEL

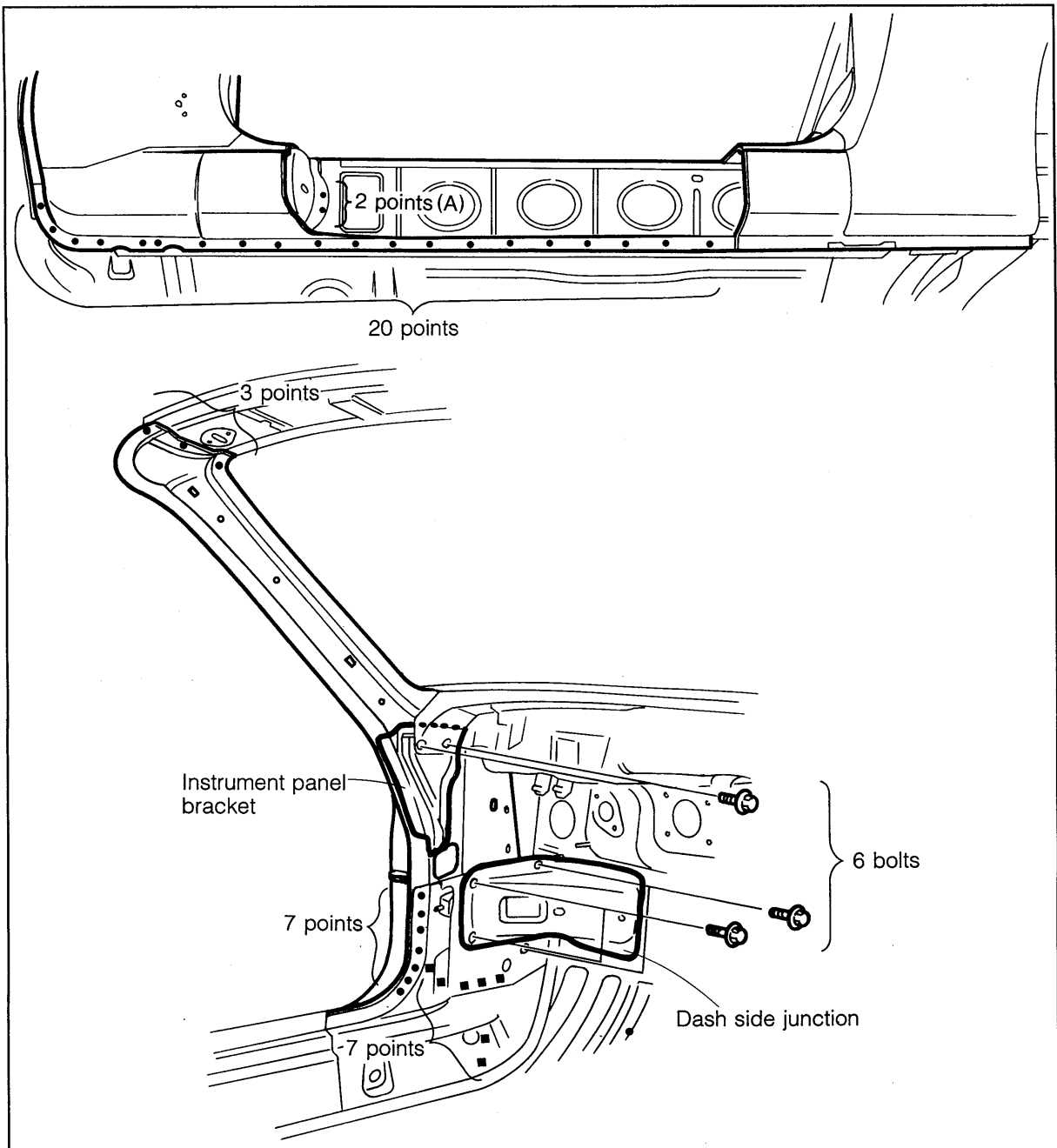
REMOVAL



- The following operations are performed when the inner and outer front pillars, cowl side panel, outer hinge pillar, inner cowl side panel, and outer side sill panel are replaced at the same time.
- Cut away the joint of the outer front pillar and the upper front header (shown by the broken line) with a saw.
- Rough-cut the outer side sill panel and drill away the spot welding of the hinge pillar and the side sill reinforcement. Do not make open holes when drilling.
- Cut away the other welded points shown in the illustration.
- Remove the bolts attached to the instrument panel bracket, the dash side junction, etc.
- Remove the parts to be replaced.

PANEL REPLACEMENT

REMOVAL

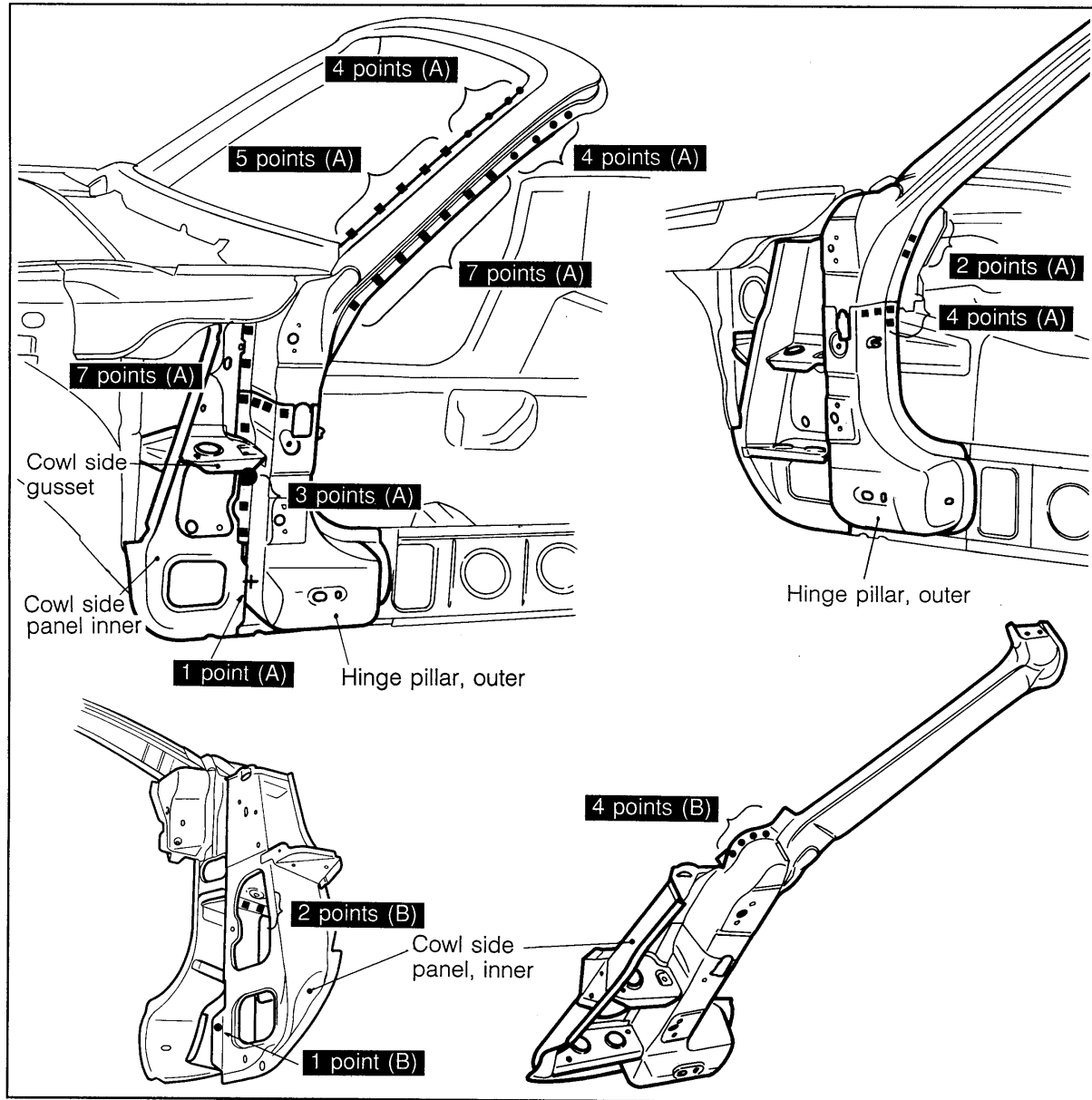


- Do not damage the side sill reinforcement when rough-cutting.
- When drilling 14 points indicated by (A), do not make open holes.
- When drilling away plug welded points, first flatten paddings with a disc grinder.

PANEL REPLACEMENT

FRONT PILLAR, OUTER COWL SIDE PANEL, HINGE PILLAR, INNER COWL SIDE PANEL AND SIDE SILL PANEL

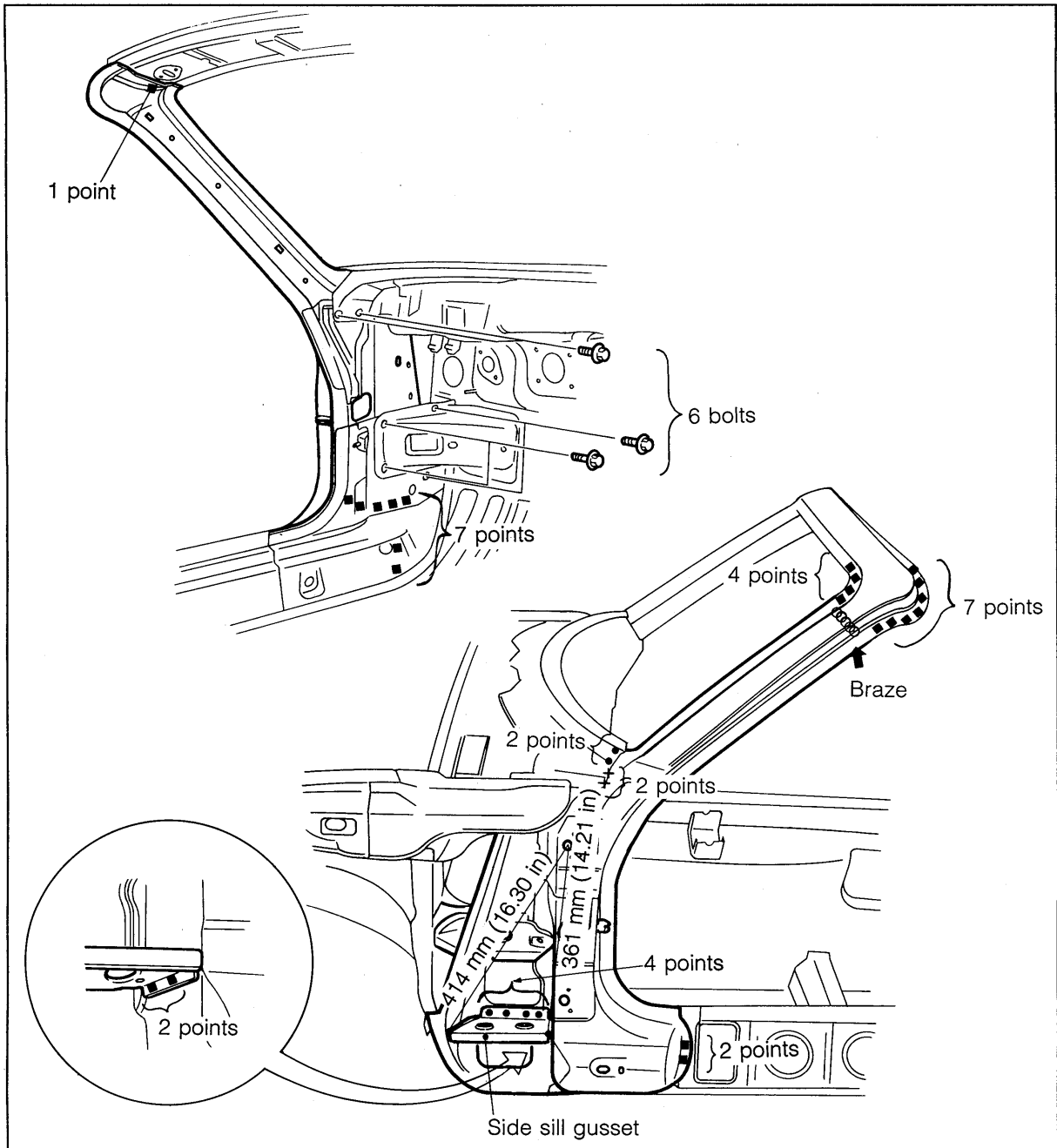
INSTALLATION



- Make plug welding holes in the outer hinge pillar and the cowl side gusset.
- After temporary installation of the inner and outer front pillar, outer hinge pillar, and inner cowl side panel, measure the dimensions to verify that they are as specified. Check the fit with associating parts, then weld the points indicated by (A).
- After welding the points (A), remove the front pillar and the hinge pillar from the body. Then spot weld or plug weld the points indicated by (B).

PANEL REPLACEMENT

INSTALLATION

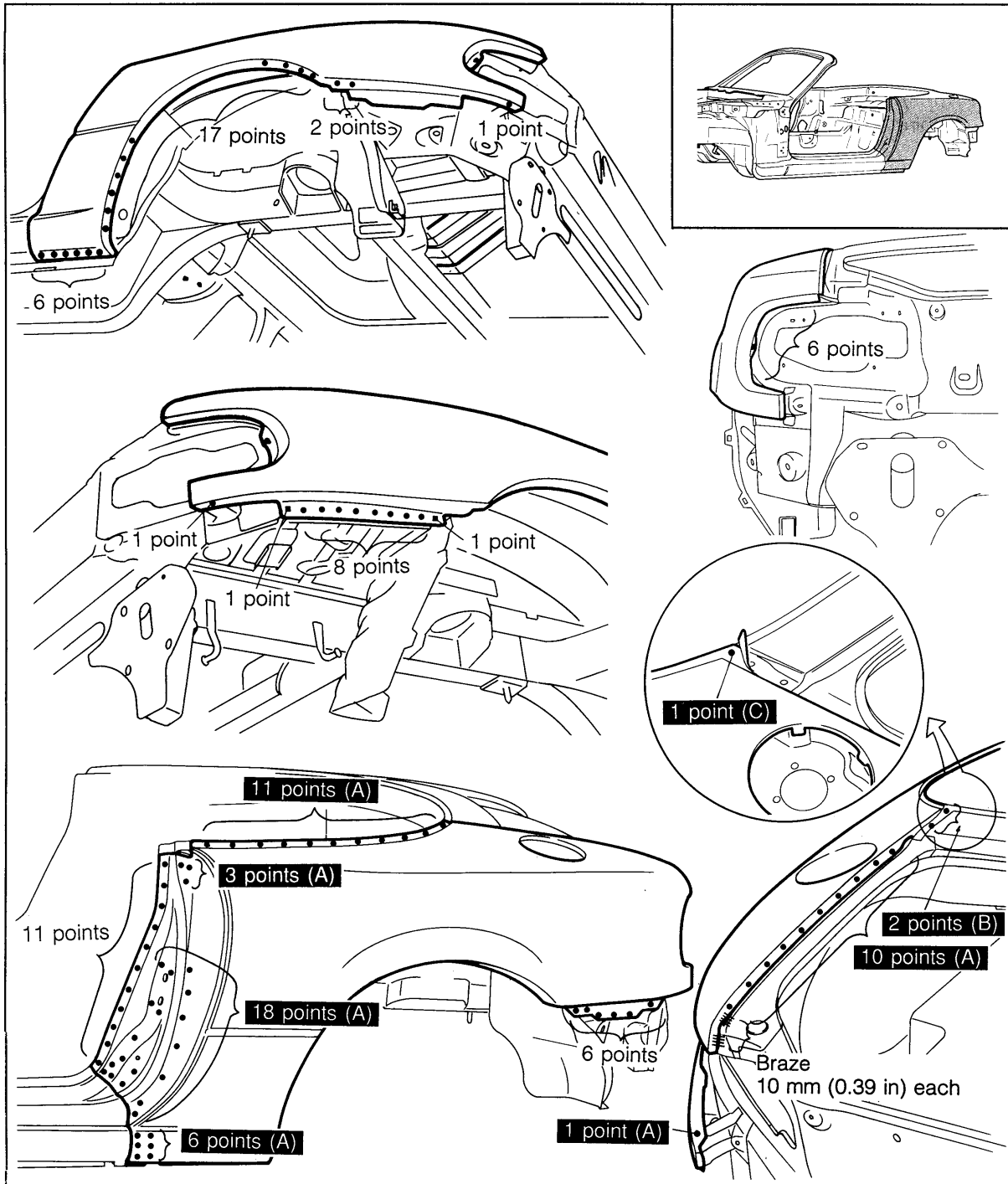


- After installing the side sill gusset as indicated, install the front pillar and the hinge pillar to the body. Check the fit with associating parts, then weld all parts.
- To weld parts, refer to page 49, cowl side panel and page 51, side sill panel assy to assure a good weld.
- To install the cowl side panel and the side sill panel, refer to page 49, 51.

PANEL REPLACEMENT

REAR FENDER PANEL

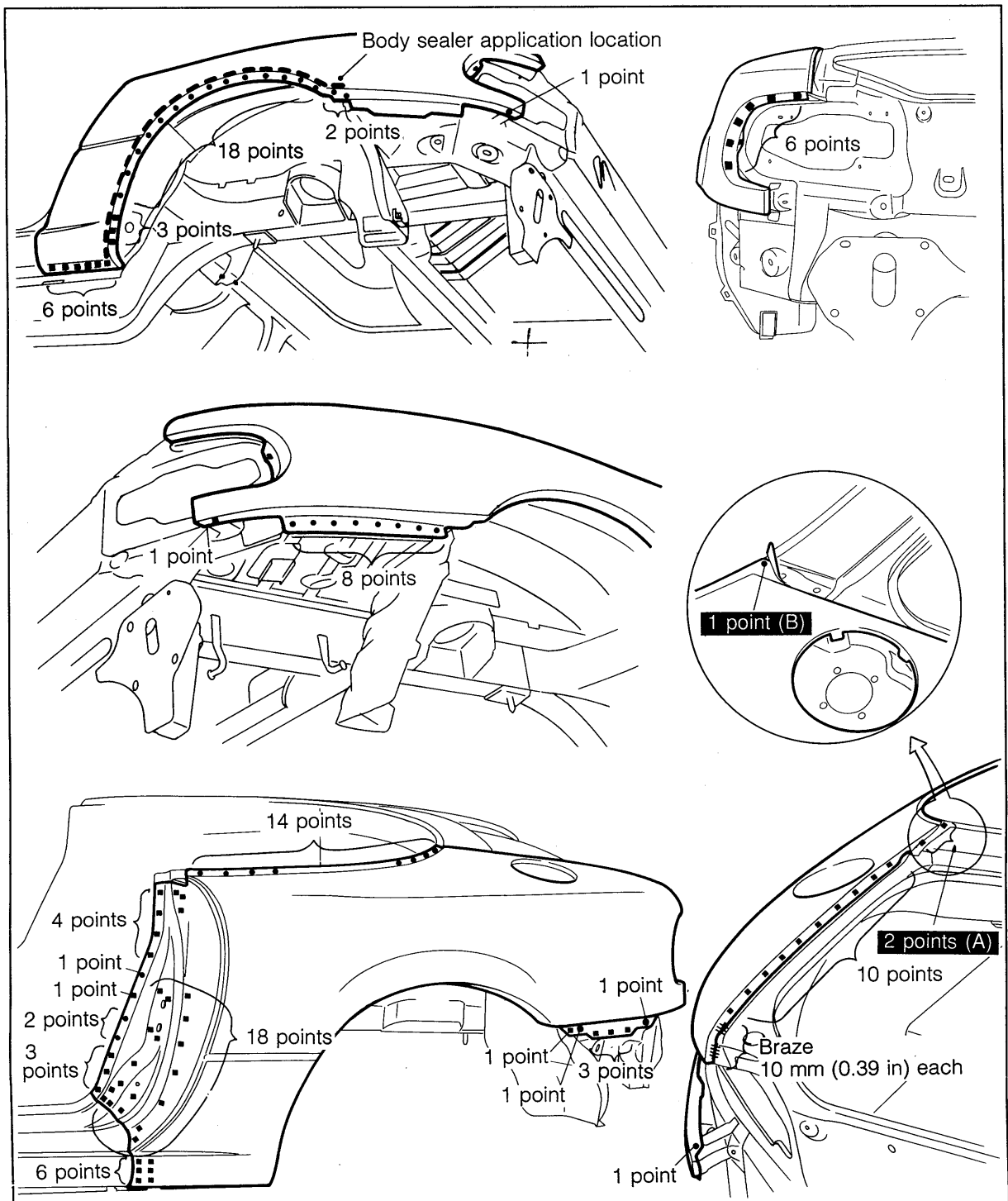
REMOVAL



- When drilling points for spot welding indicated by (A), (B) and (C), do not make open holes.
- To drill away 2 points indicated by (B), first drill points (A) and turn up the flange of the rear deck panel.

PANEL REPLACEMENT

INSTALLATION

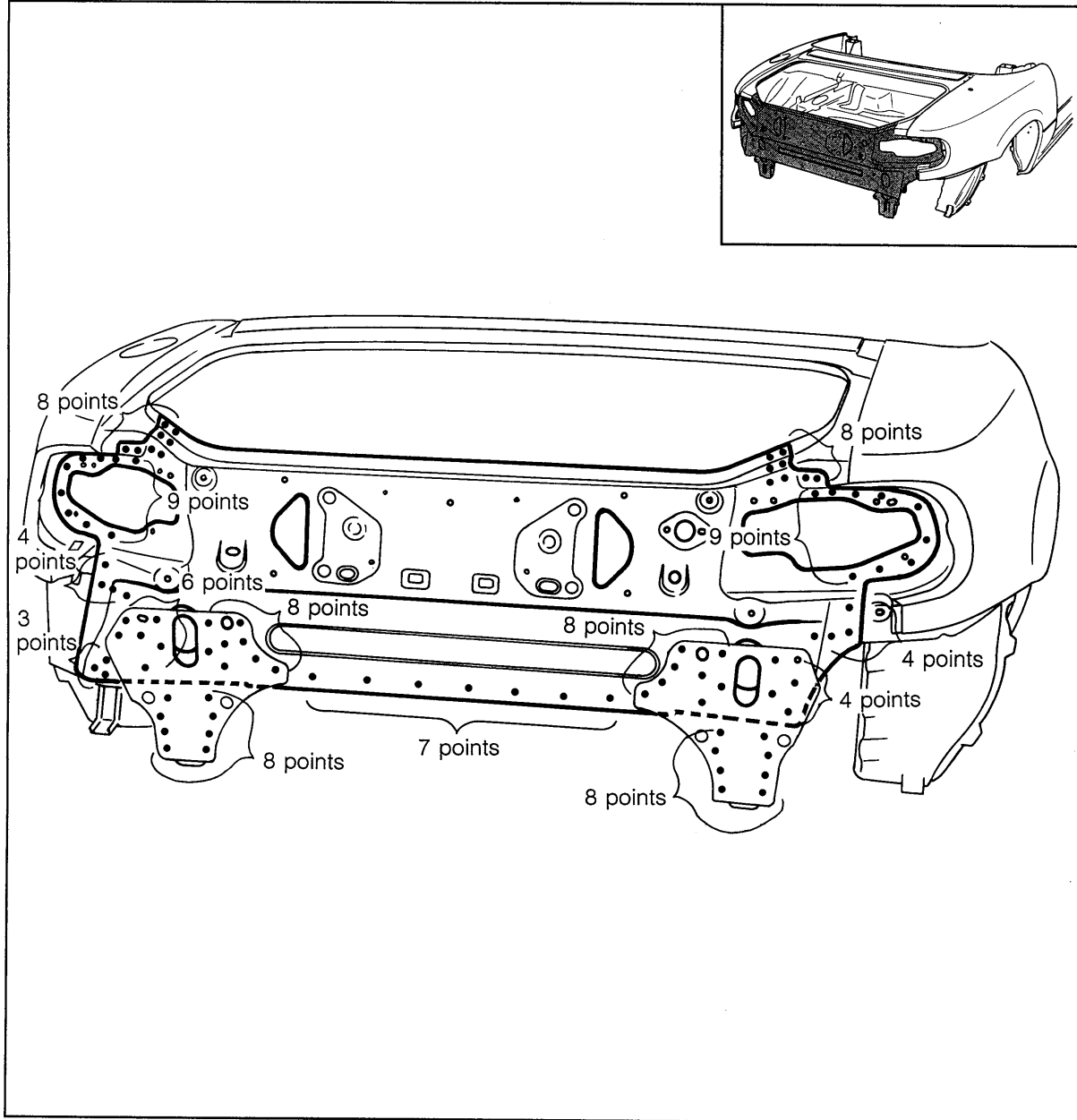


- Apply body sealer before installing new parts as shown in the illustration.
- After temporary installation of new parts, check the fit with associating parts (door, trunk lid, rear combination lights, rear bumper, rear finisher etc.).
- To plug weld 2 points indicated by (A), first spot weld point (B) and turn down the flange of the rear deck panel to the original position.

PANEL REPLACEMENT

REAR END PANEL

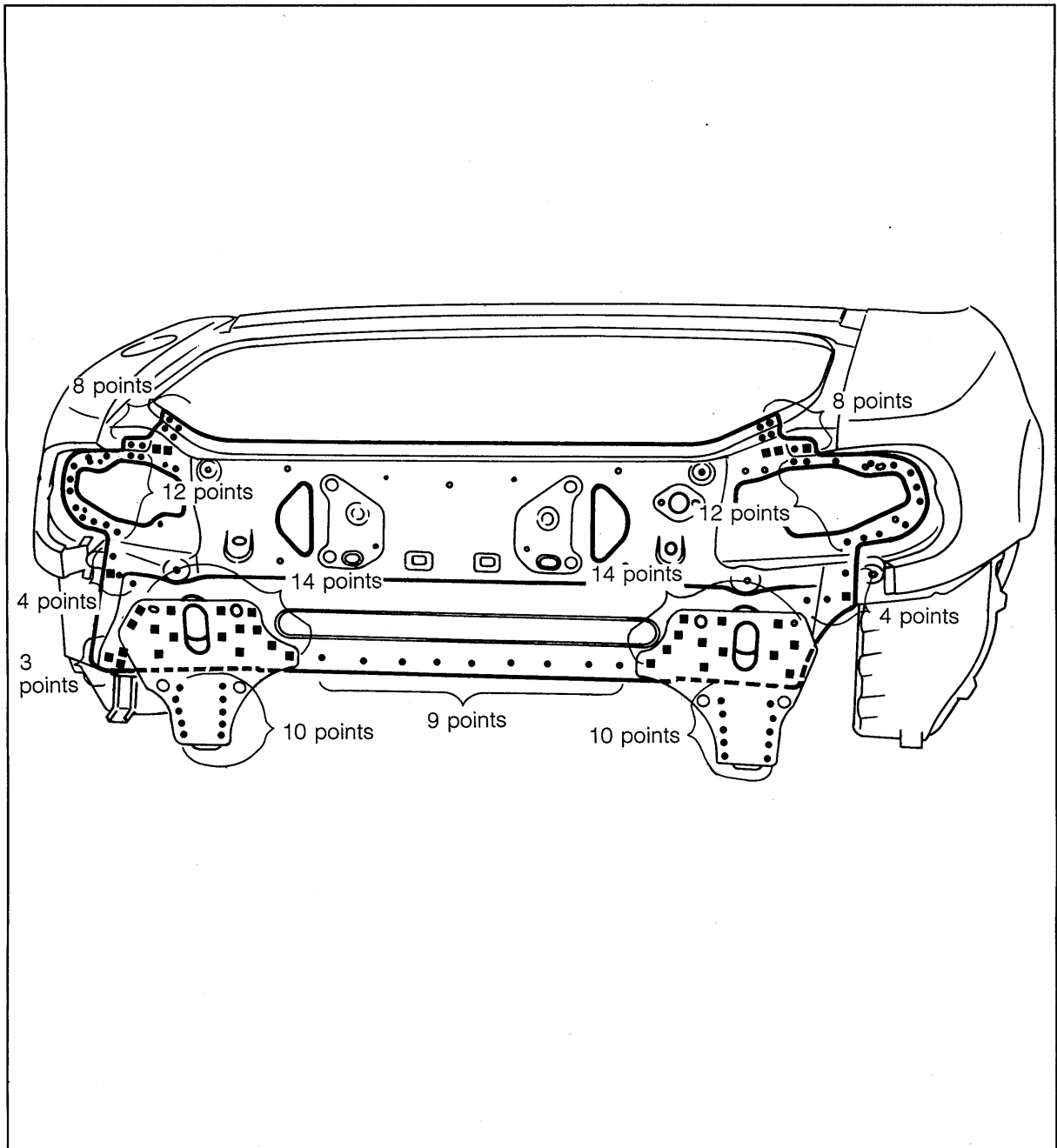
REMOVAL



- For best results, when drilling spot welded points, do not make open holes.

PANEL REPLACEMENT

INSTALLATION

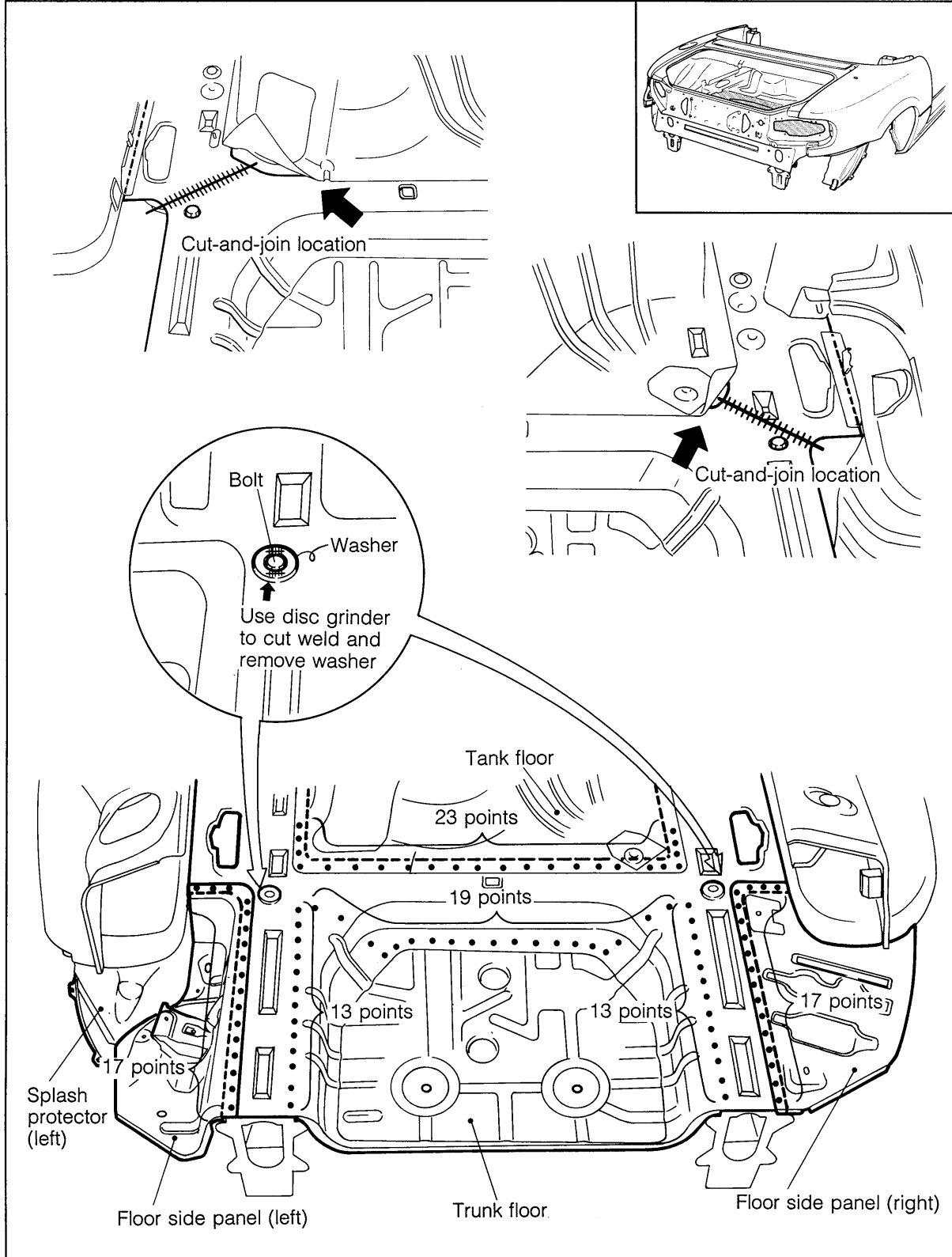


- After temporary installation of new parts, measure the dimensions to verify that they are as specified.
- Check the fit with associating parts (trunk lid, rear combination lights, rear bumper, etc.).
- Spot welds on rear combination light side must be smooth.

PANEL REPLACEMENT

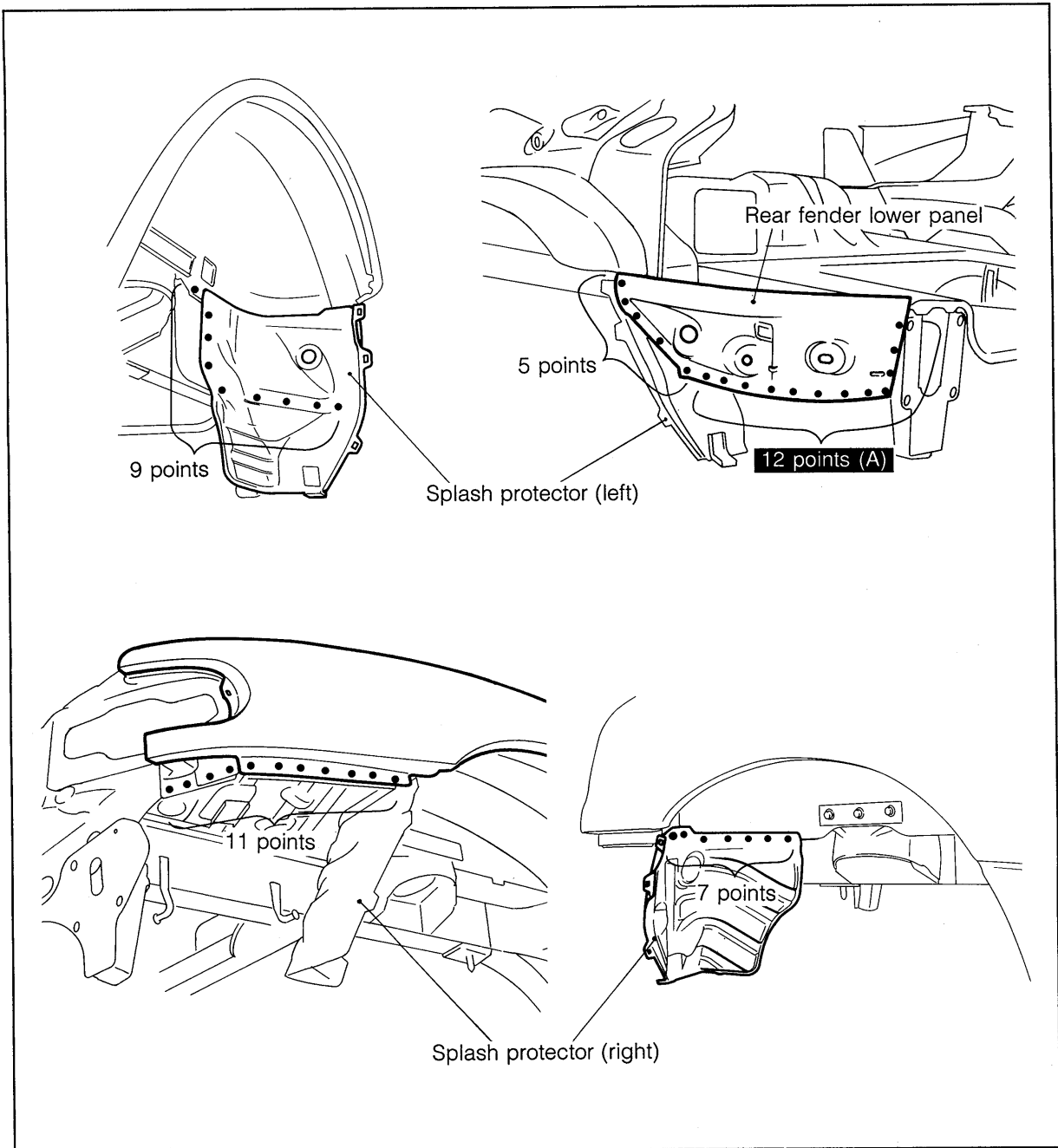
TRUNK FLOOR PAN, FLOOR SIDE PANEL

REMOVAL



PANEL REPLACEMENT

REMOVAL

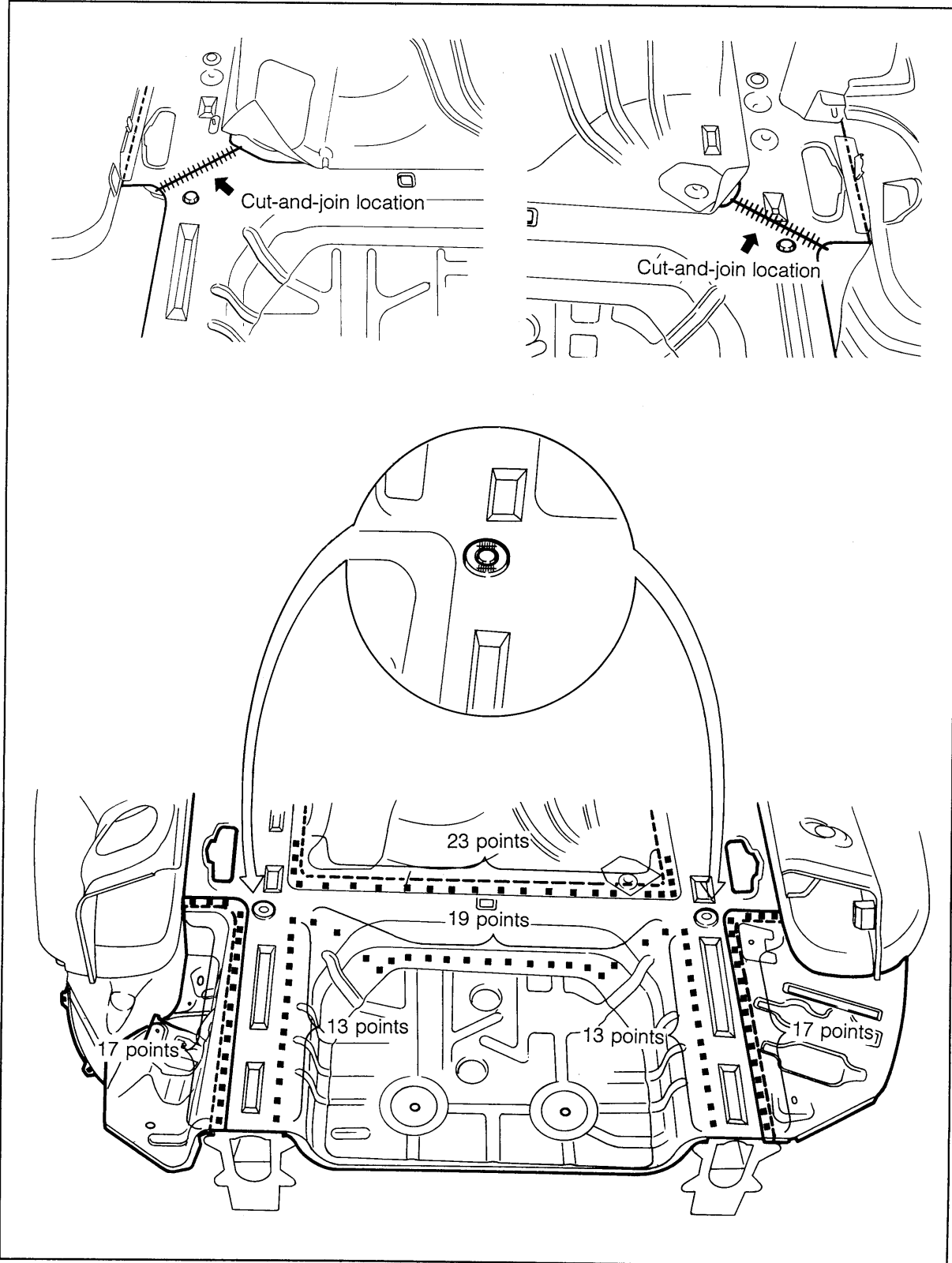


- Work should be performed after the rear end panel and the rear fender panel (left) are removed.
- The trunk floor is replaced by cut-and-join operation indicated on page 60.
- The cut-and-join operation is performed after turning up the tank floor as indicated by arrows in the illustration.
- When drilling points (A) for spot welding, do not make open holes.
- When the rear fender panel (left) is replaced at the same time, the panel can be removed without cutting away the spot welded points indicated by (A).
- Do not damage the rear side frame when rough-cutting.

PANEL REPLACEMENT

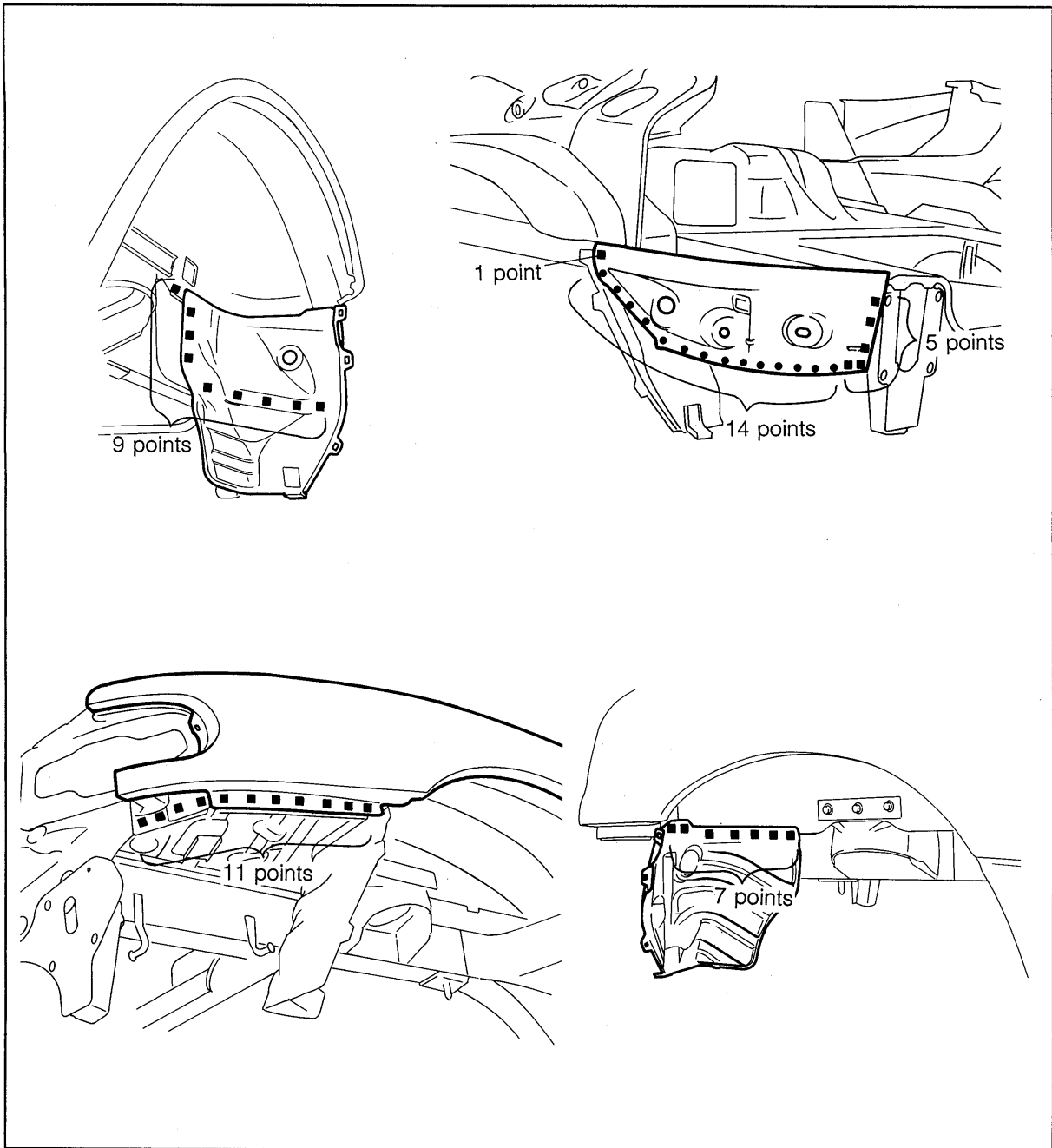
TRUNK FLOOR PAN, FLOOR SIDE PANEL

INSTALLATION



PANEL REPLACEMENT

INSTALLATION



- Before installing new parts, measure the rear side frame dimensions to verify that they are as specified.
- After installing new parts, check the fit with associating parts.
- Turn down the tank floor to the original position after welding the cut-and-join location of the trunk floor and flattening it with a disc grinder.
- Plug-weld the trunk floor, tank floor, and crossmember (No. 4).
- Weld a washer (PART NO. 99952 2240A) at the rear crossmember installing bolt (two points).

SEALING

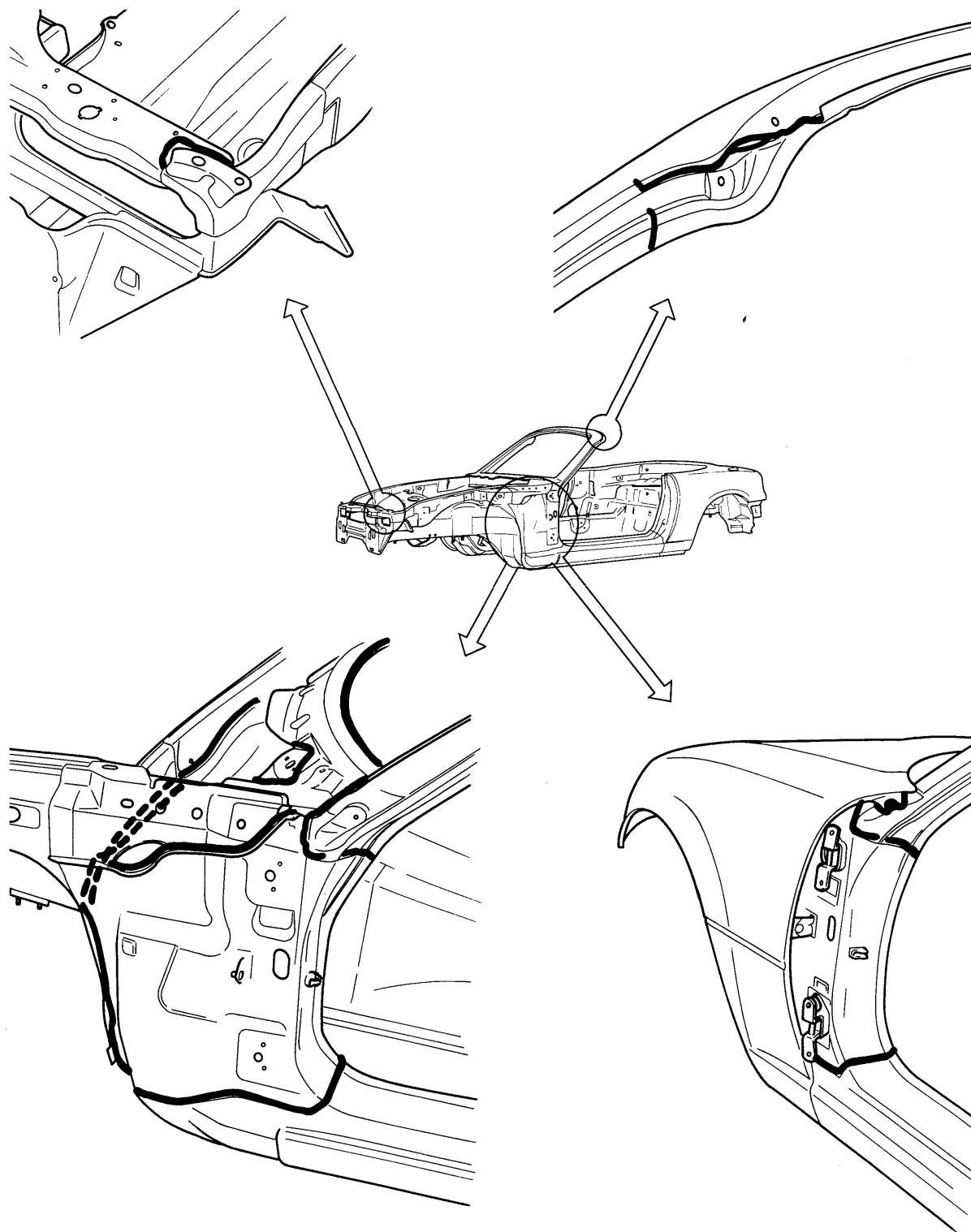
BODY SEALING 62

SEALING

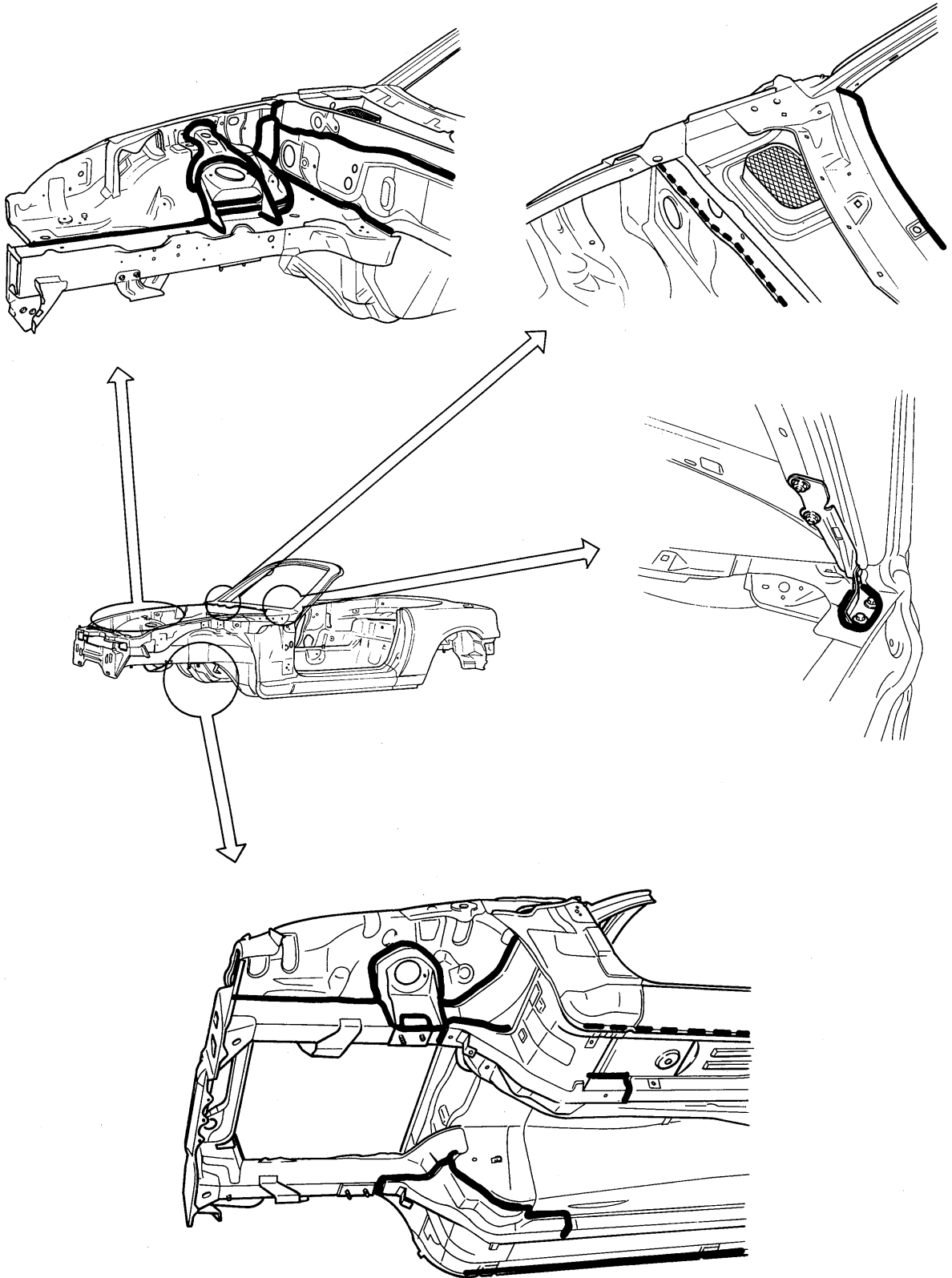
BODY SEALING

Sealant is applied to parts of the body where panels meet or are hemmed to provide waterproofing and rustproofing.

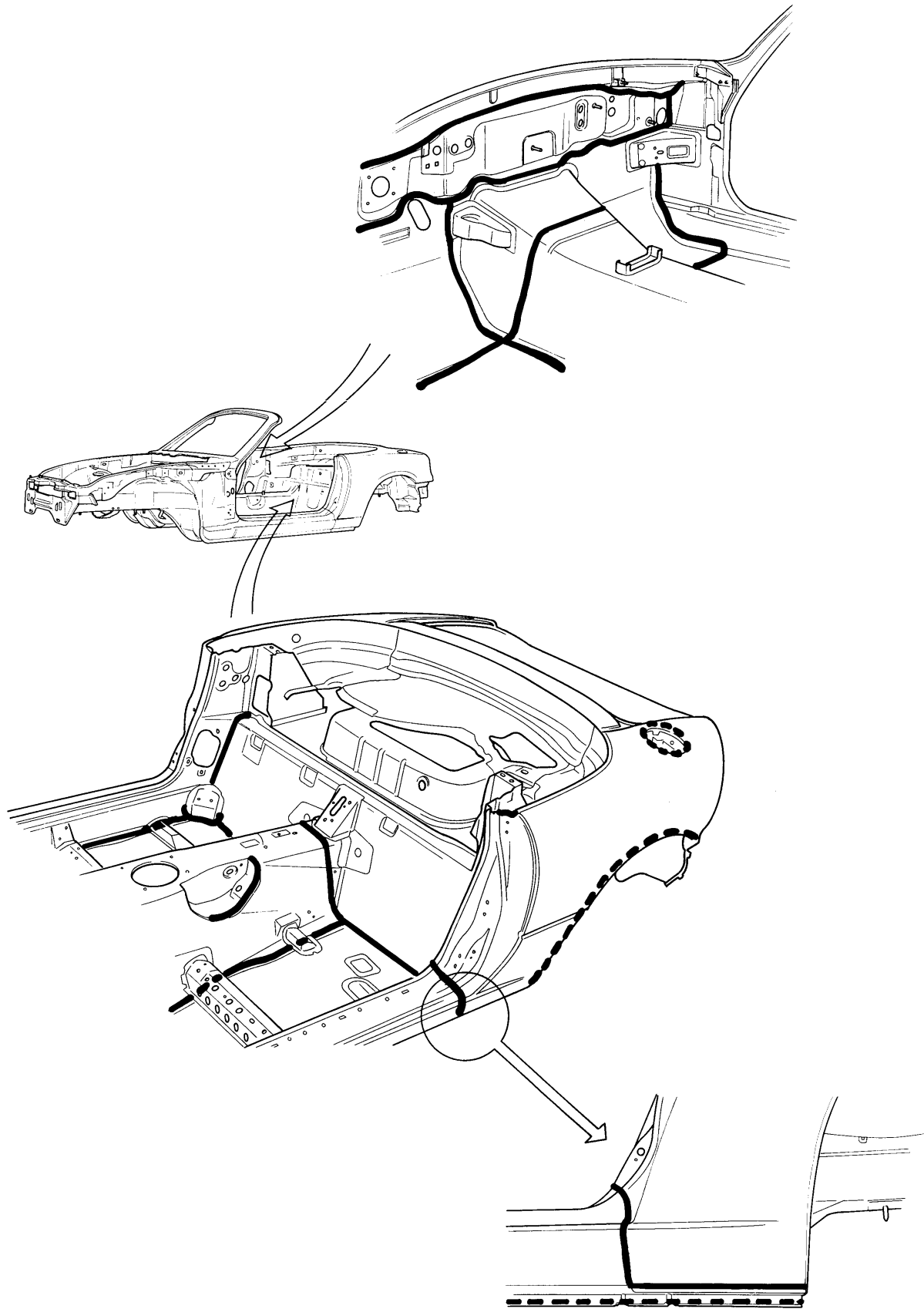
The sealing locations are shown by the heavy lines.



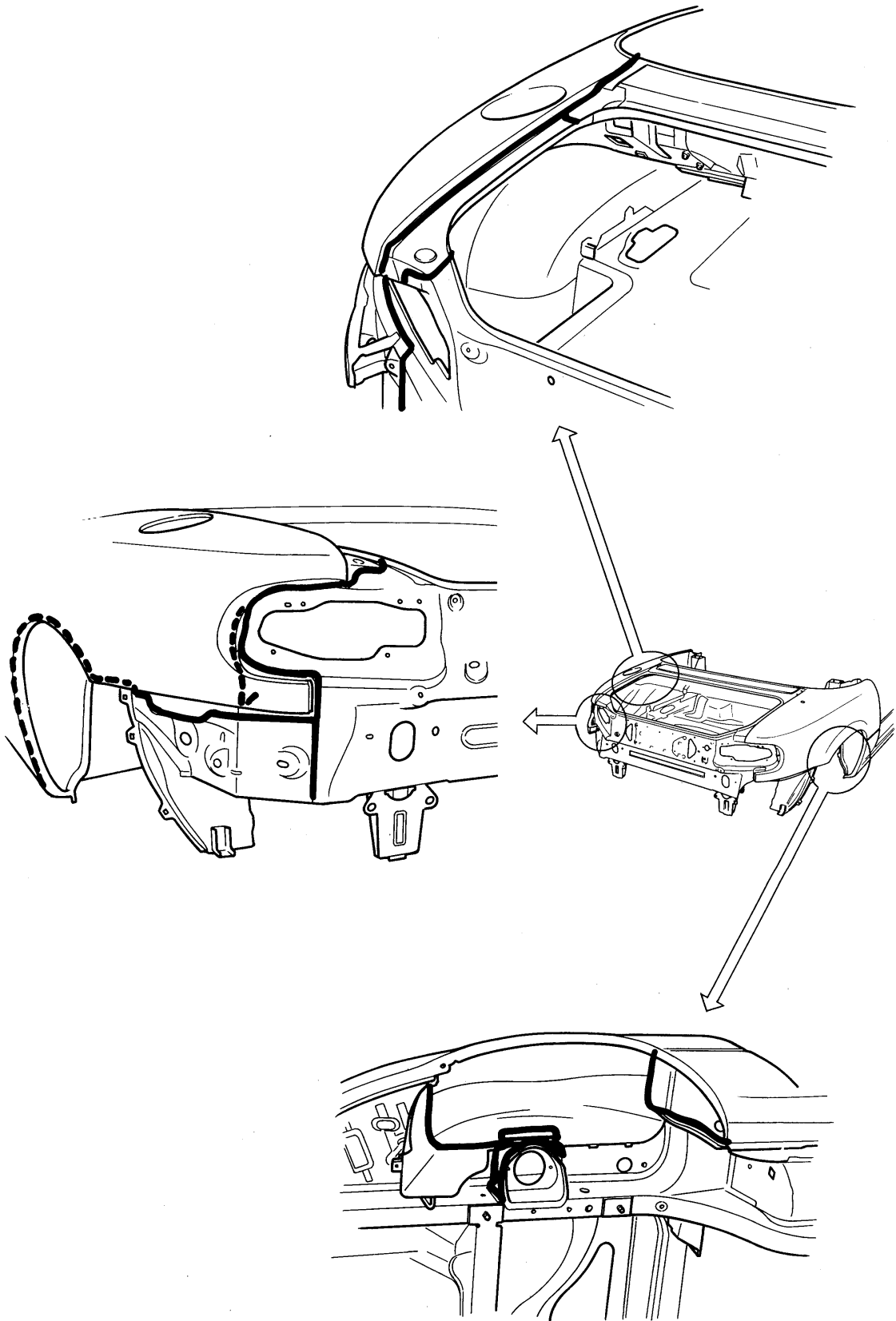
SEALING



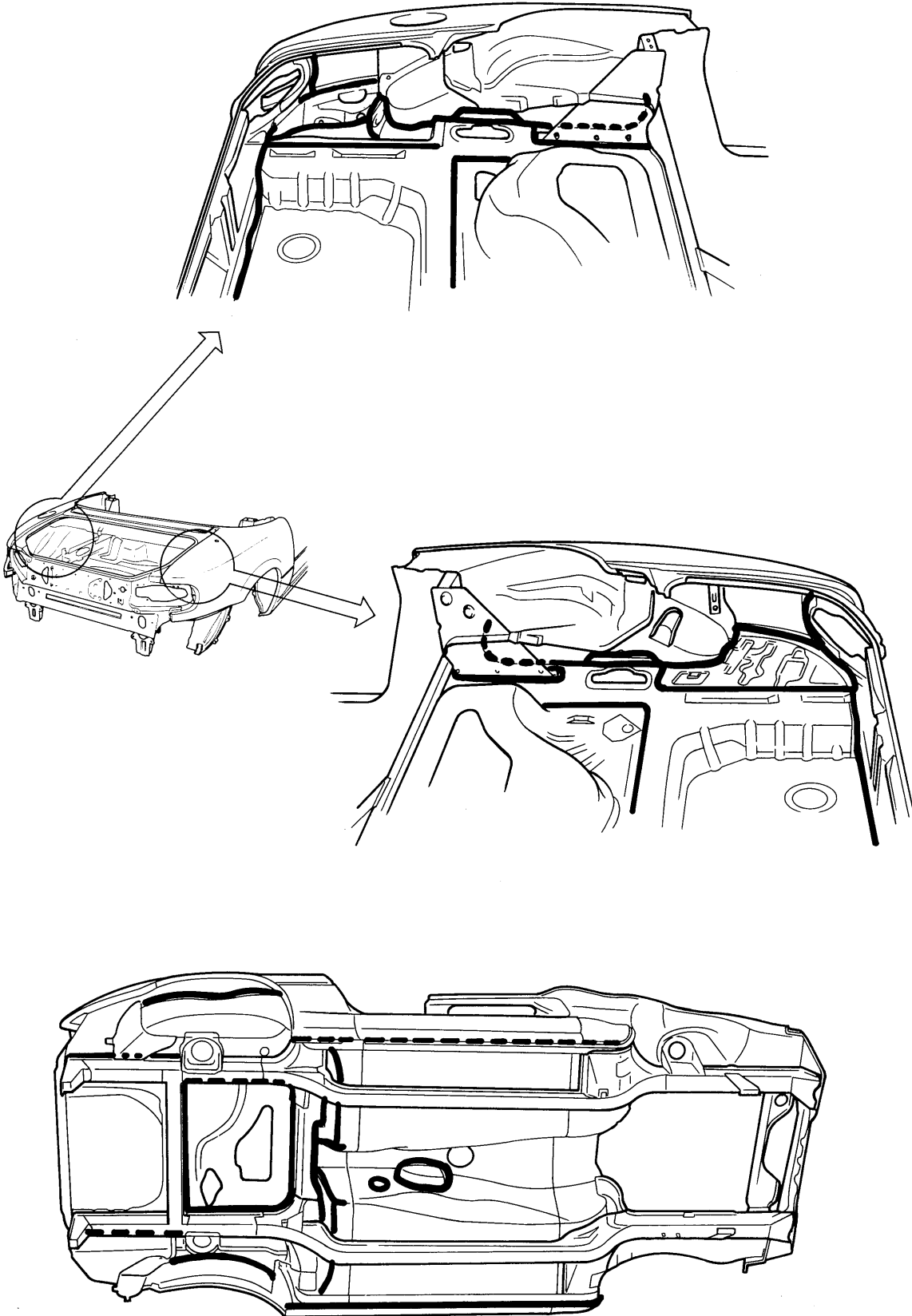
SEALING



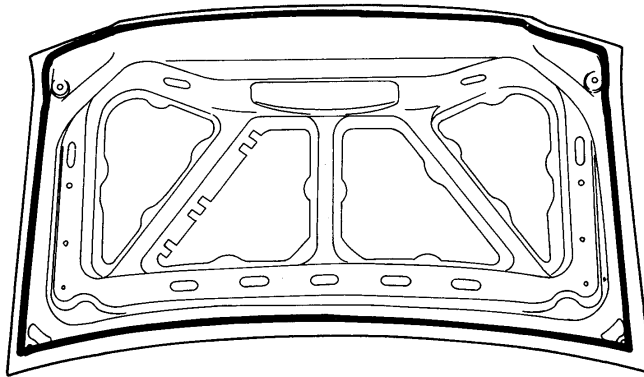
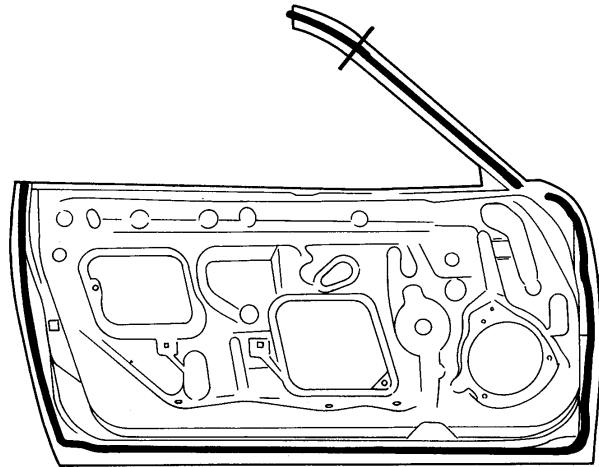
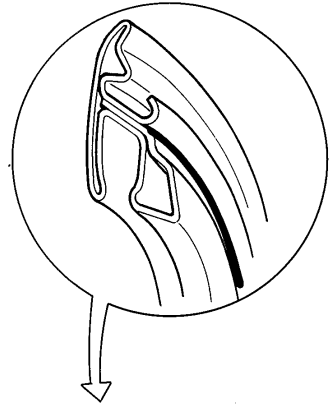
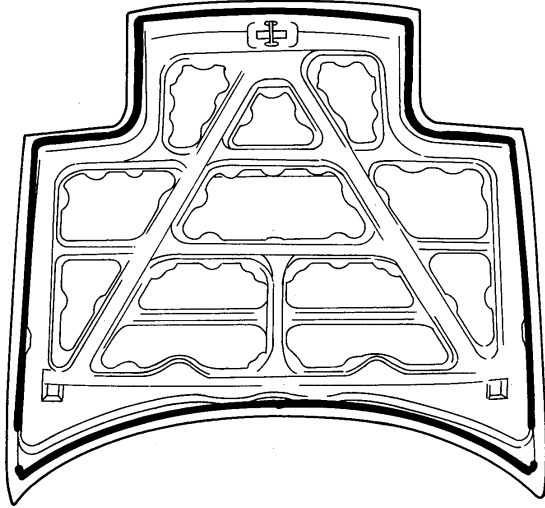
SEALING



SEALING



SEALING



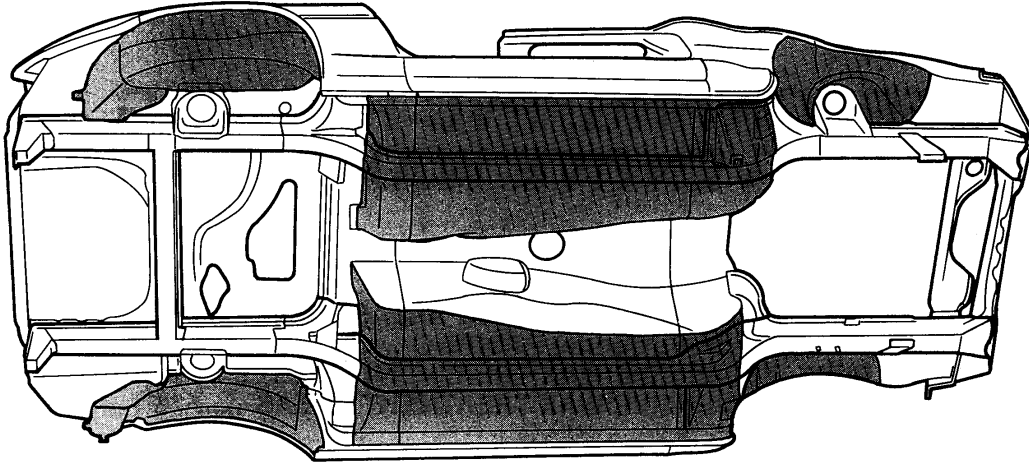
UNDERCOATING, PVC PAINTING AND RUST PREVENTIVE WAX TREATMENT

BODY PANEL UNDERCOATING AREAS	70
PVC (polyvinyl chloride) PAINTING	70
RUST PREVENTIVE WAX TREATMENT	73
RUST PREVENTIVE WAX TREATMENT AREAS	75

UNDERCOATING, PVC PAINTING AND RUST PREVENTIVE WAX TREATMENT

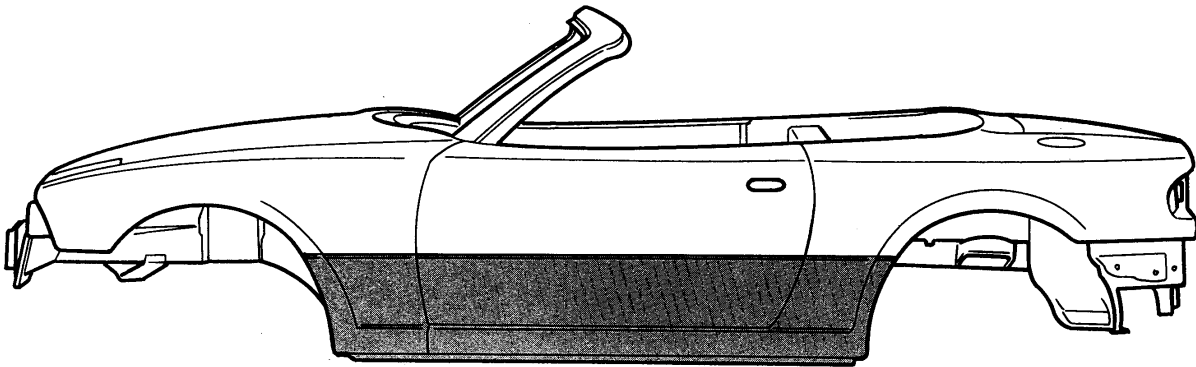
UNDERCOATING

The shaded areas of the underbody are undercoated to prevent noise and rusting.



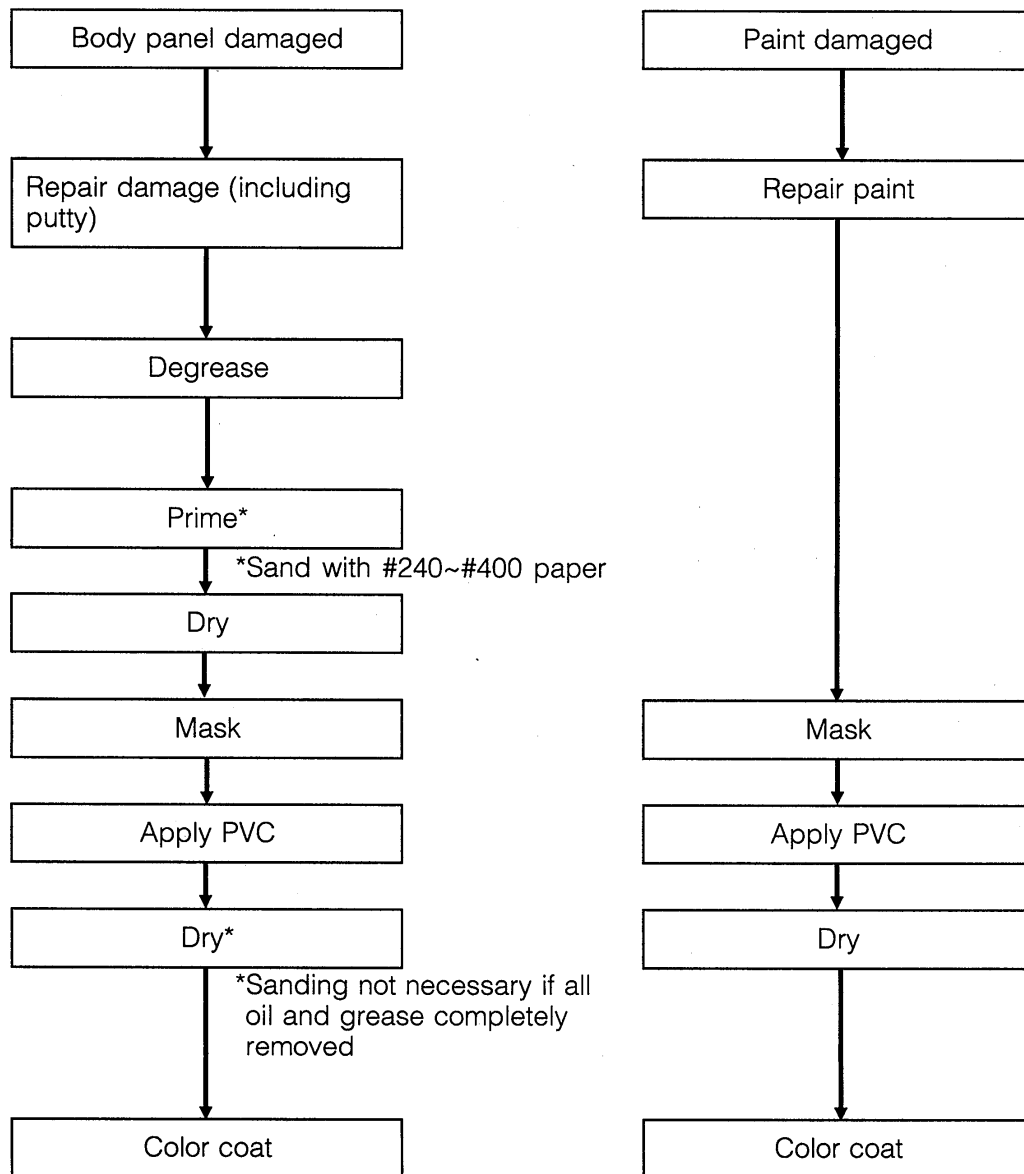
PVC (polyvinyl chloride) PAINTING

The side sills (shaded area) are painted with a special PVC paint to prevent rusting.



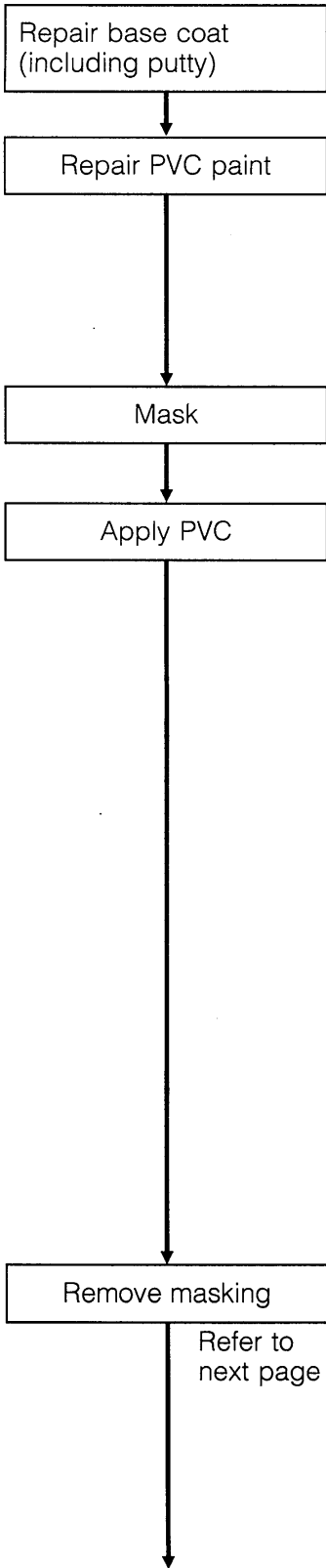
UNDERCOATING, PVC PAINTING AND RUST PREVENTIVE WAX TREATMENT

Procedure for PVC (polyvinyl chloride) Painting



UNDERCOATING, PVC PAINTING AND RUST PREVENTIVE WAX TREATMENT

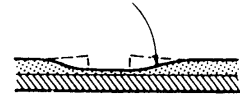
Repair of PVC (polyvinyl chloride) paint surface (repair of deep scratch)



- Done in same way as ordinary body repair.

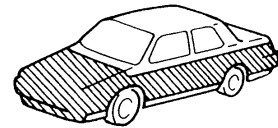
- Thoroughly clean away dirt from the surface. For places where the paint film is scratched, use a knife or similar tool to carefully shave the surface until it is smooth.

Shave until smooth



- Use sandpaper (#120~#130) to roughen to assure good adhesion.

Mask wide area



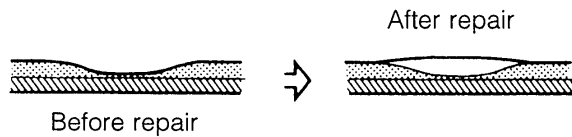
- Use masking over a wide area, because the mist will scatter widely.

- Depending upon the size of the pattern, adjust the distance of the spray gun from the surface and/or the air pressure; apply one or two coatings.

Pattern estimation conditions

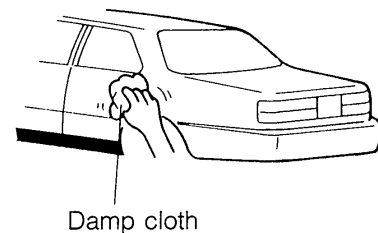
	Large	Small	Smooth finish
Spray distance	10~20 cm (3.9~7.9 in)	20~40 cm (7.9~15.7 in)	20~30 cm (7.9~11.8 in)
Coating	1~2	2~3	1~2
Air pressure	294~392 kPa (3~4 kg/cm ²) (0.4~0.6 psi)	392~588 kPa (4~6 kg/cm ²) (0.6~0.9 psi)	392~490 kPa (4~5 kg/cm ²) (0.6~0.7 psi)

- For partial area painting, spray smoothly, taking care that no uneven surfaces are formed.

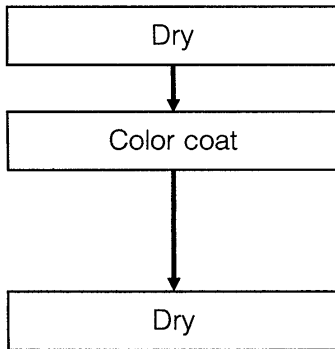


- After finishing with the tools (spray gun, etc.), wash them immediately with water. (Even paint thinner will not be effective if hardening is complete.)

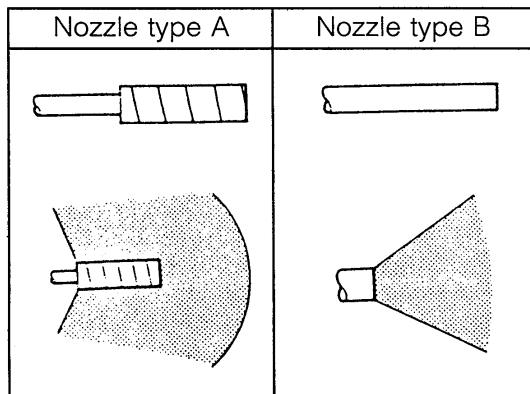
- Remove masking immediately after coating is finished. (If removed after drying, edges might also peel off.)
- Wipe away overspray with a damp cloth before it dries. (If after drying, paint thinner will not be effective.)



UNDERCOATING, PVC PAINTING AND RUST PREVENTIVE WAX TREATMENT



- Air dry a minimum of 4~6 hours [20°C (68°F)].
- Heat dry a minimum of 30~40 minutes [60°C (140°F)].
- Apply coating after PVC paint film is thoroughly dry.
- Sanding is not necessary if all oil and grease were completely removed.
- Conditions such as air pressure, paint viscosity, etc. can be same as for ordinary body coating.
- Done in same way as for ordinary body coating.

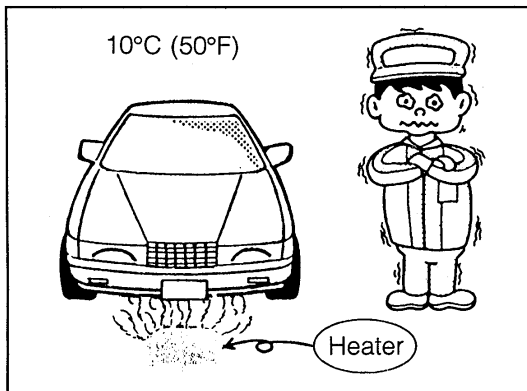


RUST PREVENTIVE WAX TREATMENT

WAX APPLICATION PROCEDURE

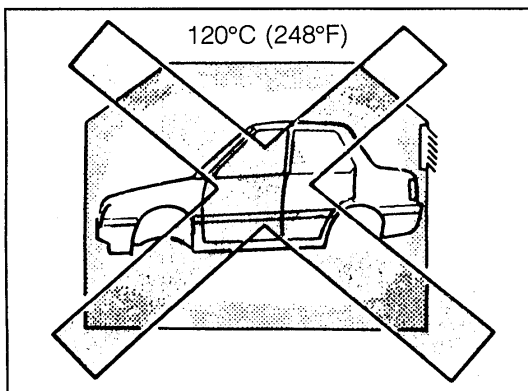
Preparation of equipment

1. Prepare equipment suitable for the wax chosen.
2. Use the correct nozzle, spray pattern, and injection pressure based on instructions provided for the wax.
3. If necessary, clean the nozzle with thinner before beginning work.



Preparation of vehicle (or parts)

1. Scrape mud, etc. off the wax application area.
2. Dry any water collected at the wax application area.
3. The temperature of the vehicle body should be kept at more than 10°C (50°F) during the operation.
4. Close all windows of the vehicle.



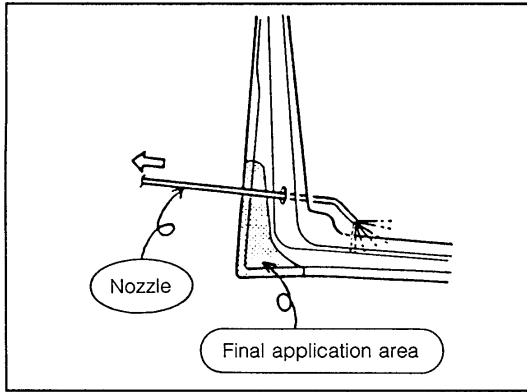
Caution

When repairing a damaged part, complete painting first, then apply the wax.

The reasons are:

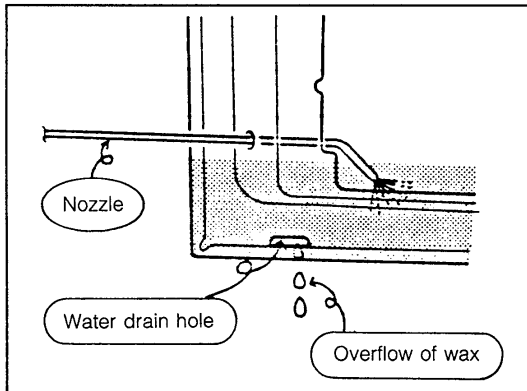
- a) The wax is sometimes dissolved by heat [more than 120°C (248°F)] during the drying process, resulting in deteriorated anticorrosion effects.
- b) If the wax applied before painting is smeared over the paint application surface, poor painting will result because the wax repels the paint.

UNDERCOATING, PVC PAINTING AND RUST PREVENTIVE WAX TREATMENT



Wax application operation

1. Apply wax to areas shown.
(Refer to pages 79-81.)
2. If there is no hole for wax application operation, make a 10mm (0.39 in) hole in the application area.
3. After completing the wax application, apply the wax on the edge of the hole and close the hole with a grommet.
4. During wax application, move the nozzle slowly to apply the wax uniformly and heavily.



Note

To ensure wax application, make sure that the wax flows from a joint or hole.

5. Apply wax to new parts before assembly. Avoid making holes as much as possible.

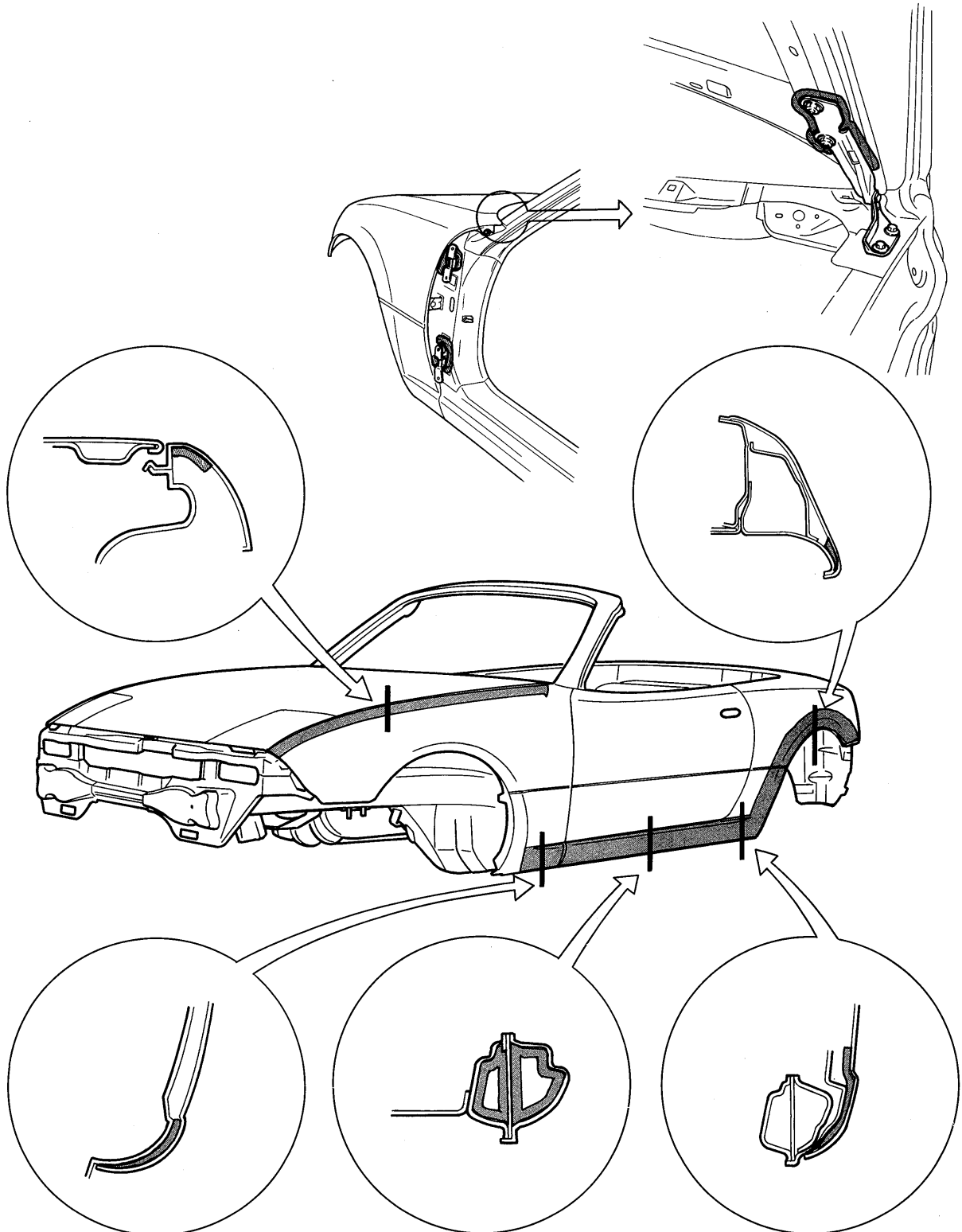
Cleaning

1. Wipe away any excess wax.
2. Let the vehicle stand for one hour after completing the wax application.
3. Verify that drain holes in the doors, fenders, etc. are not clogged.
If there is any clogging, open it completely.

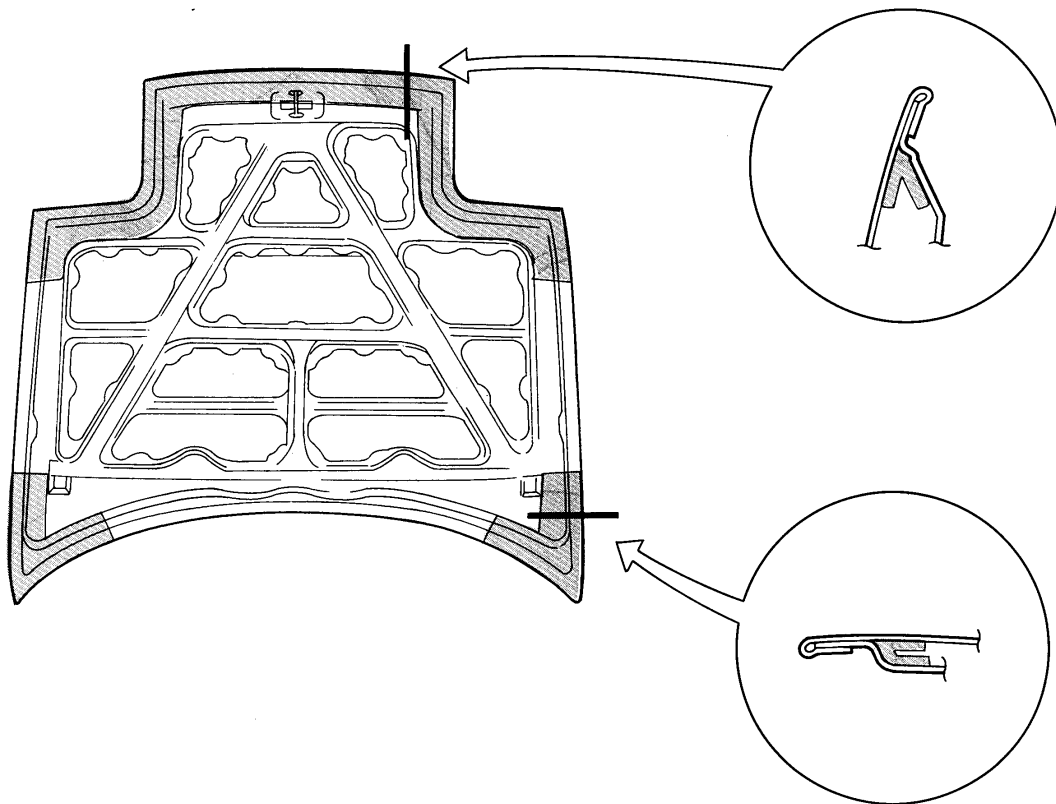
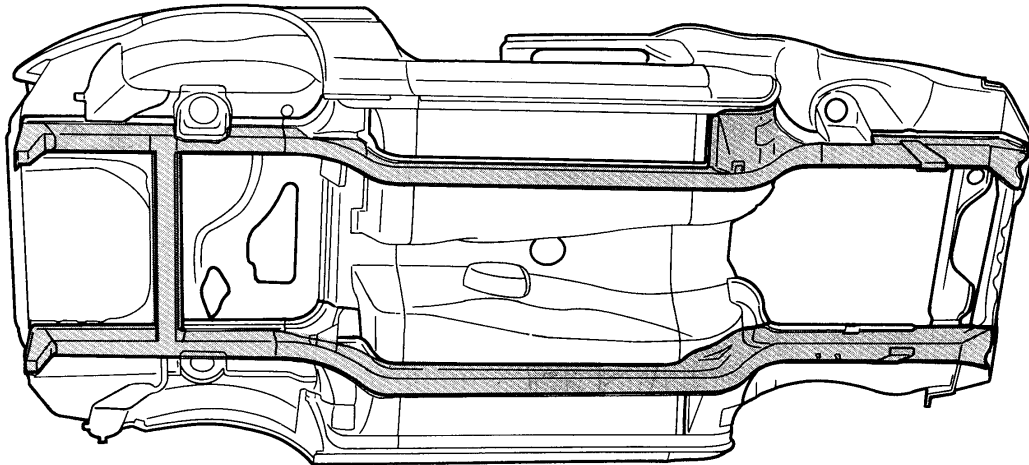
UNDERCOATING, PVC PAINTING AND RUST PREVENTIVE WAX TREATMENT

RUST PREVENTIVE WAX TREATMENT

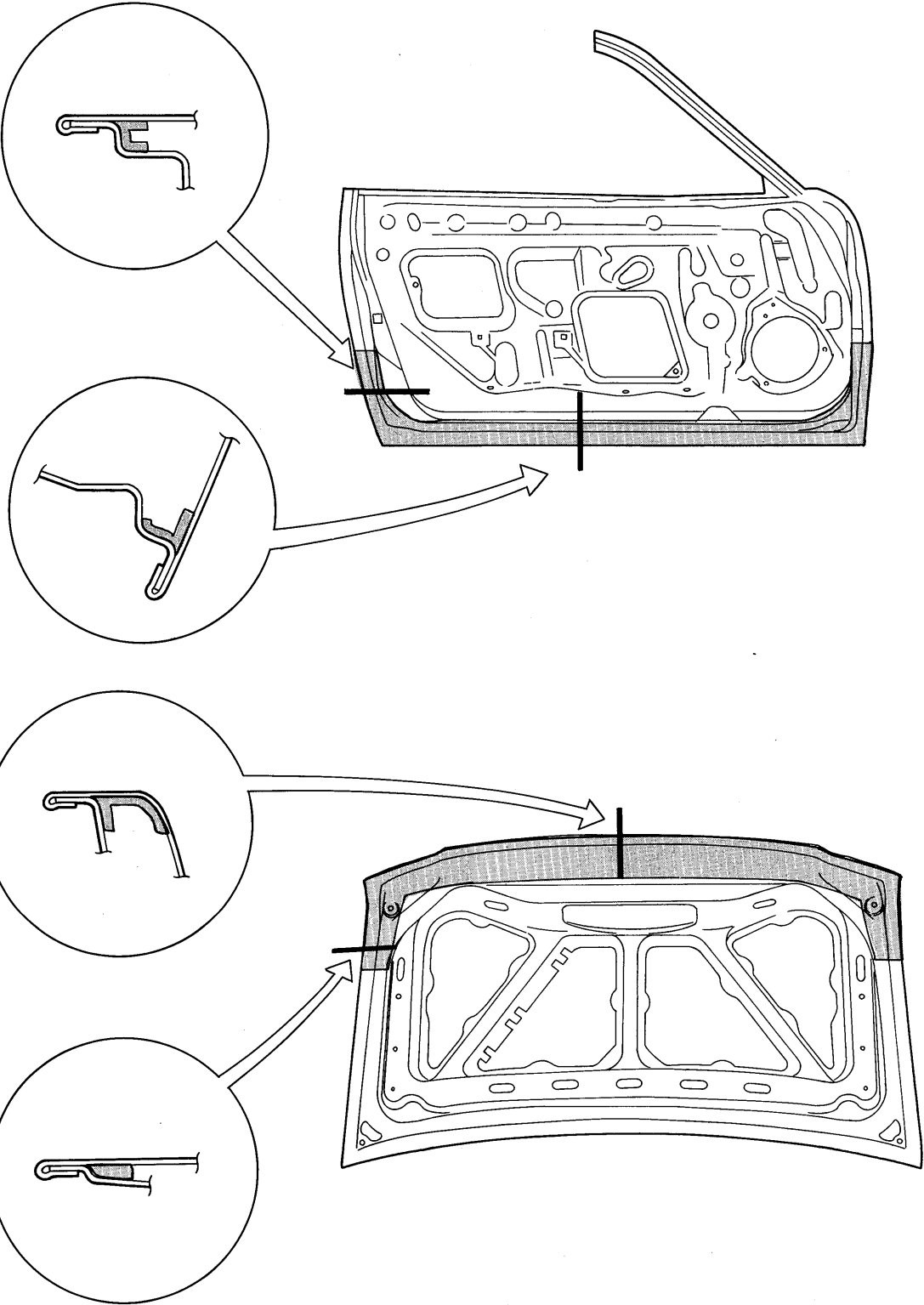
Rust preventive wax treatment is applied to the shaded areas shown in the illustrations to prevent rusting.



UNDERCOATING, PVC PAINTING AND RUST PREVENTIVE WAX TREATMENT



**UNDERCOATING, PVC PAINTING AND
RUST PREVENTIVE WAX TREATMENT**



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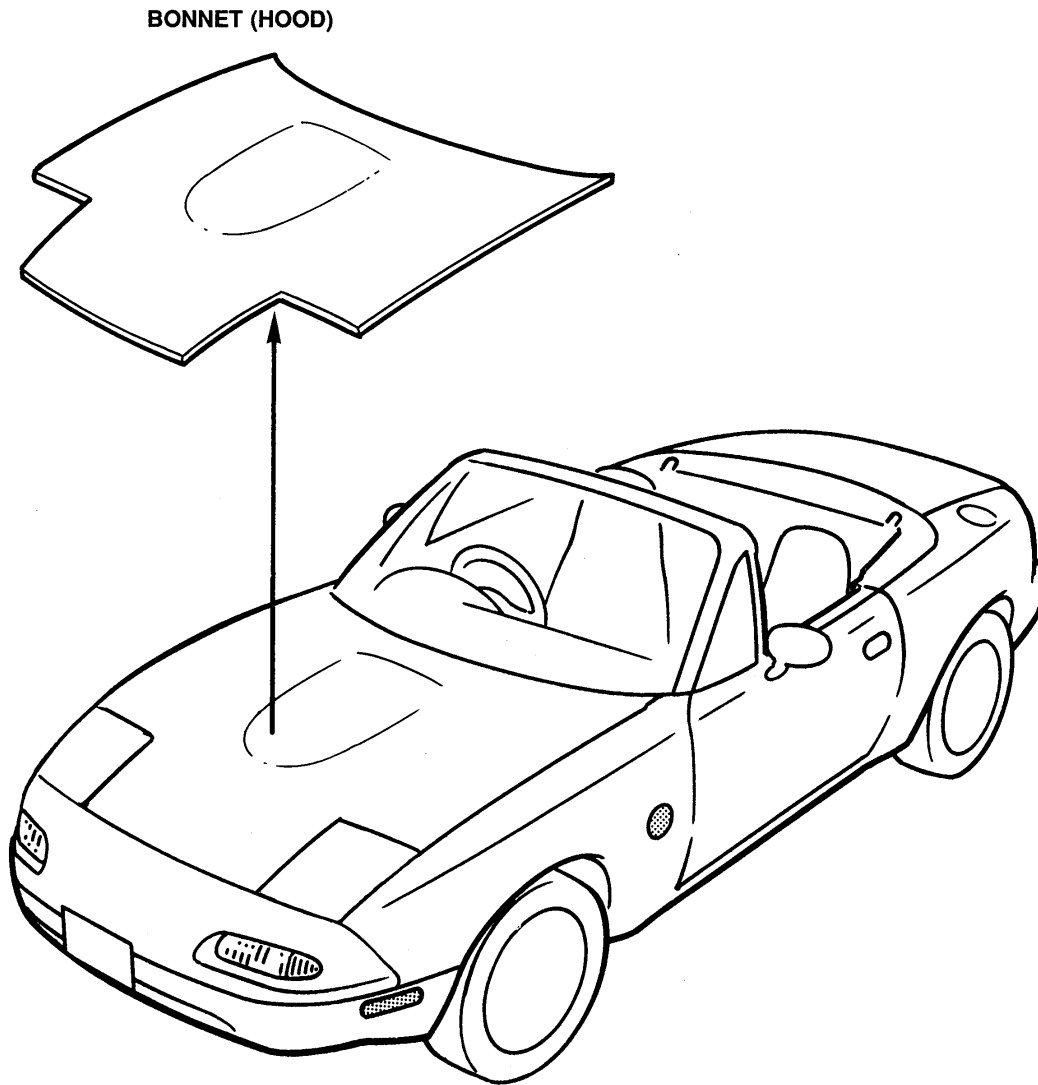
ALUMINUM BODY PARTS

LOCATION OF ALUMINUM BODY PARTS	80
PROCEDURE FOR REPAIRING ALUMINUM PARTS	81



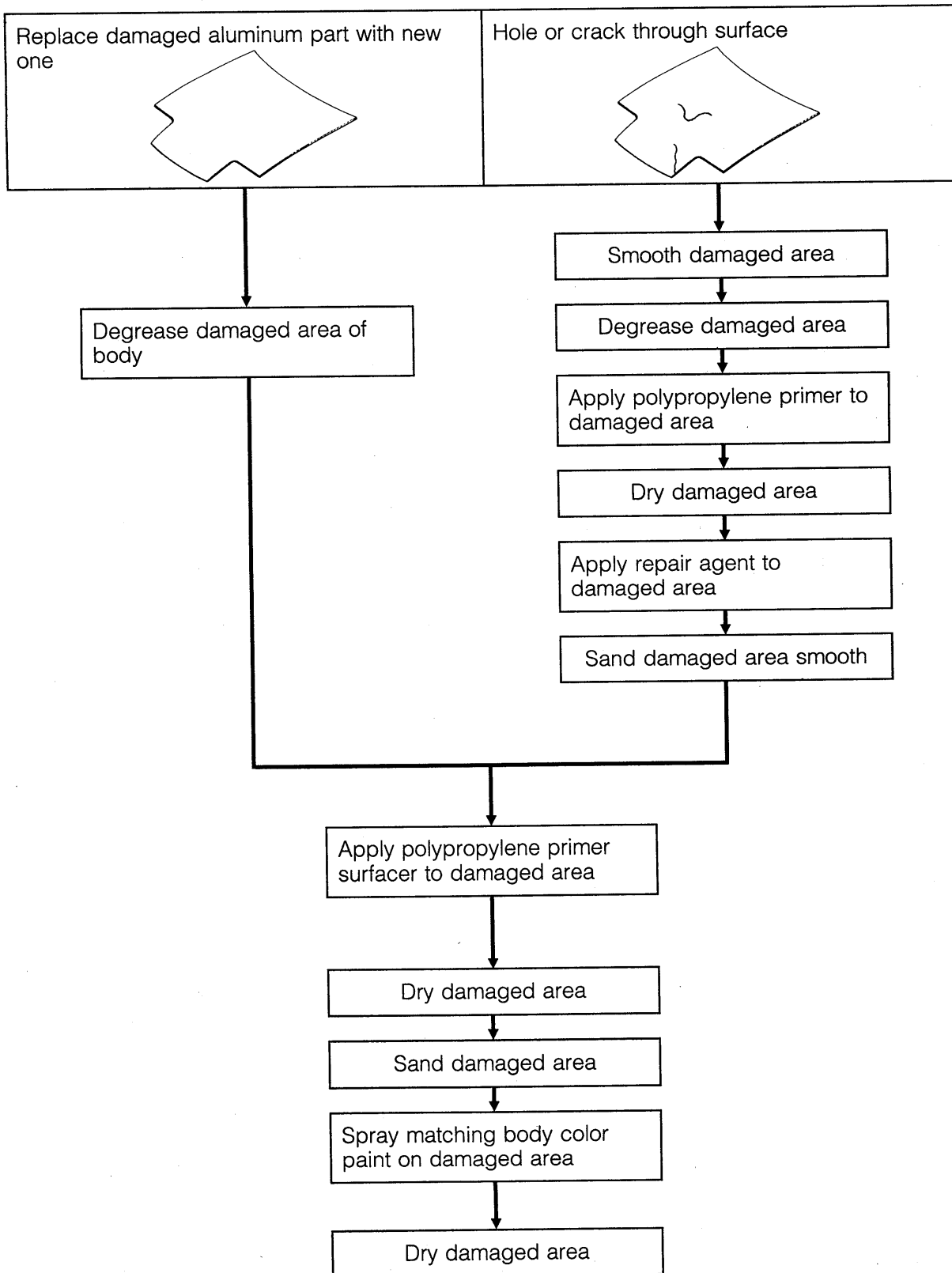
ALUMINUM BODY PARTS

LOCATION OF ALUMINUM BODY PARTS



ALUMINUM BODY PARTS

Procedure for Repairing Aluminum Parts



ALUMINUM BODY PARTS

Although repair of aluminum components is done by the same procedures as repair of steel components, certain points should be noted, as described below.

1. Because aluminum has a greater characteristic of expansion/elongation than steel, a lesser striking force should be used for hammering so that the aluminum component does not become excessively distorted.
2. When heat is used as a method of repair of an aluminum component, the temperature should be kept as low as possible, and the heated area restricted as much as possible. This is to prevent a loss of rigidity due to overheating.
3. When removing old paint from aluminum, a fine-grain sandpaper (#120 — #180) should be used, because aluminum is a relatively soft material.
4. A special aluminum primer must be used before attempting application of putty or paint, because such materials do not adhere well to aluminum.
5. Determine the type of putty to be used (sheet-metal putty or polyethylene putty) according to the condition of the damage.
6. If bare aluminum is exposed as a result of grinding, sanding, etc., apply special primer for aluminum.
7. Such steps as primer surfacer drying, primer surfacer sanding, top-coat application and drying are done in the same way as for steel painting.

PLASTIC BODY PARTS

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REPAIRING URETHANE FASCIA	86
REPAIRING POLYPROPYLENE FASCIA	94



PLASTIC BODY PARTS

HANDLING PRECAUTIONS

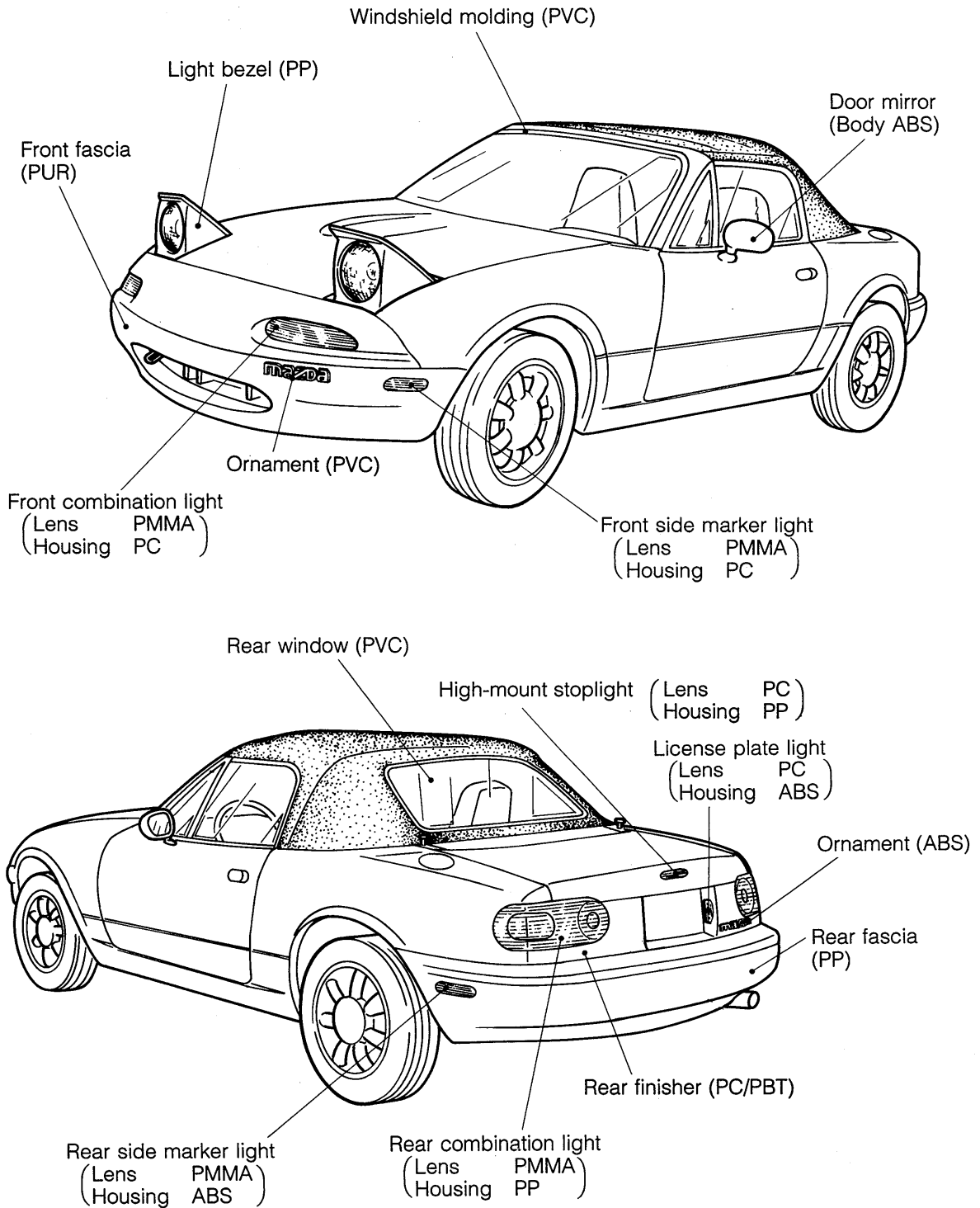
1. The repair procedure for plastic body parts must conform with the type of material.
2. Plastic body parts are identified by the codes in the following chart.
3. When repairing metal body parts adjoining plastic body parts (by brazing, frame cutting, welding, painting, etc.), consideration must given to the property of the plastic.

Code	Material Name	Heat Resistance * Temperature °C (°F)
ABS	Acrylonitrile Butadiene Styrene Copolymer	80 (176)
AS	Styrene Acrylonitrile Copolymer	80 (176)
PP	Polypropylene	70 (158)
PETP	Thermoplastic Elastomer	70 (158)
PVC	Polyvinylchloride	65 (149)
PUR	Polyurethane	80 (176)
PU	Foam Polyurethane	80 (176)
EVA	Ethylene Vinyl Acetate Copolymer	40 (104)
PE	Polyethylene	40 (104)
PA	Polyamide	100 (212)
PC	Polycarbonate	130 (266)
POM	Polyacetal	125 (257)
PMMA	Polymethyl Methacrylic Acrylate	75 (167)
FRP	Fibrous Glass Reinforced Plastics	200 (392)
PBT	Polybutylene Telephthalate	150 (302)
SMC	Sheet Molding Compound	110 (230)

* Temperatures higher than those listed may result in material deformation during repair.

PLASTIC BODY PARTS

LOCATION OF PLASTIC BODY PARTS

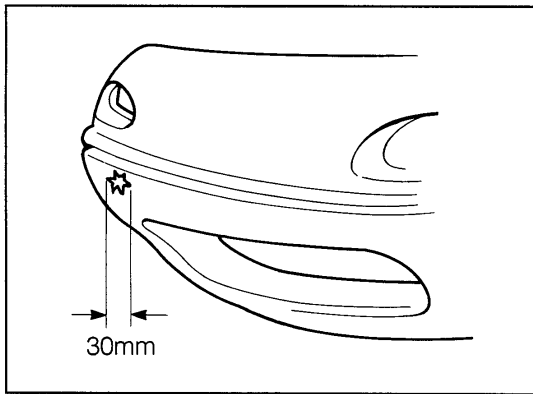


PLASTIC BODY PARTS

REPAIRING URETHANE FASCIA

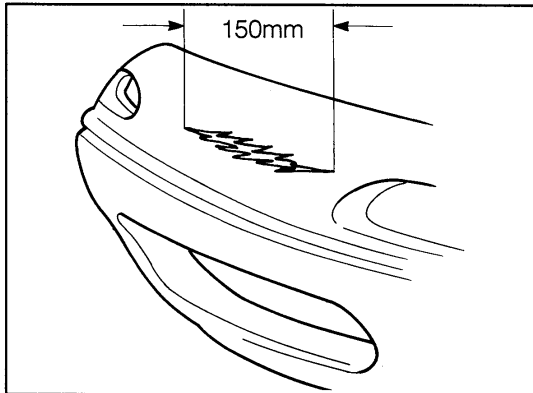
REPAIRABLE RANGE FOR URETHANE FASCIA

Urethane fascia which has been damaged greater than shown below should be replaced with a new one. Though such fascia may be repaired, a quality problem will occur. In addition, this repair is not considered reasonable in terms of workload.

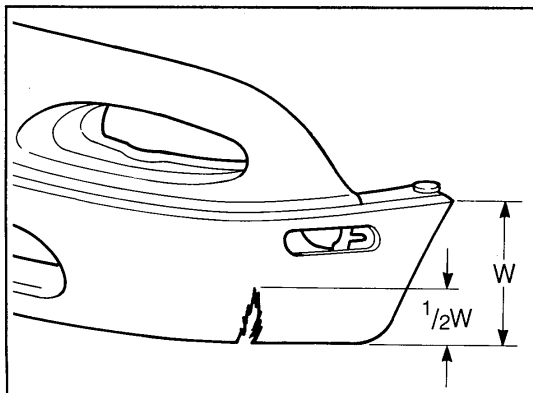


Allowable Repairs

1. Fascia with a hole less than 30mm (1.18 in) in diameter.



2. Fascia with a crack less than 150mm (5.90 in) in length.

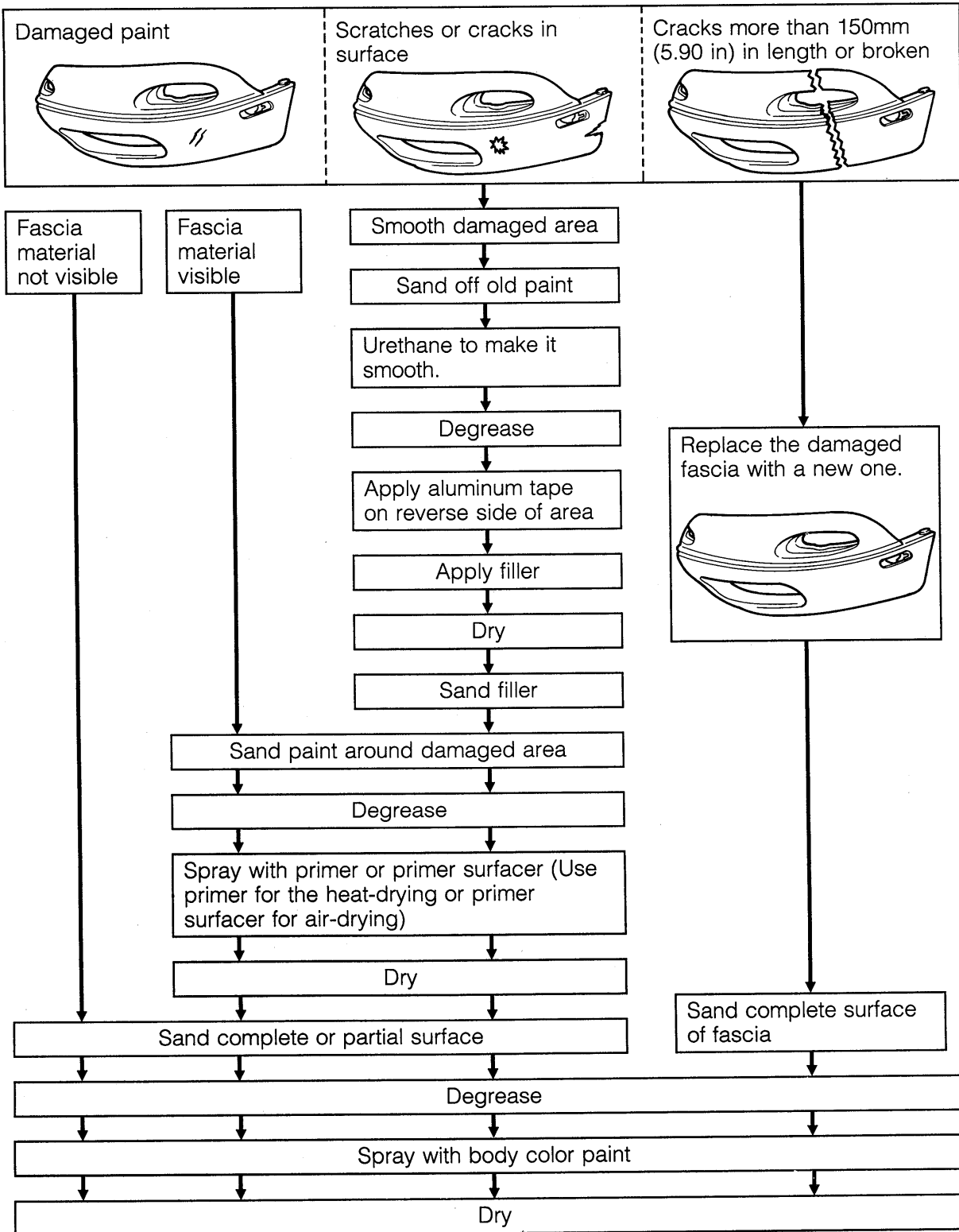


3. Fascia with a crack less than 150mm (5.90 in) in length that is less than half of the width of the fascia.

PLASTIC BODY PARTS

Procedure for Repairing Urethane Fascia

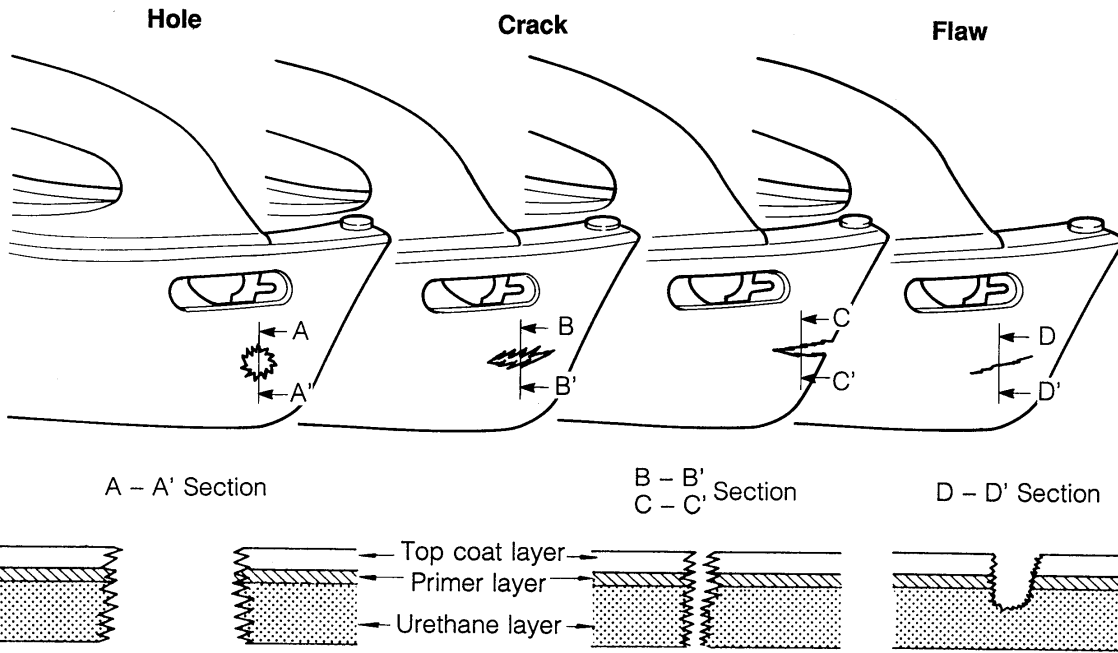
To repair urethane fascia follow the procedures below.



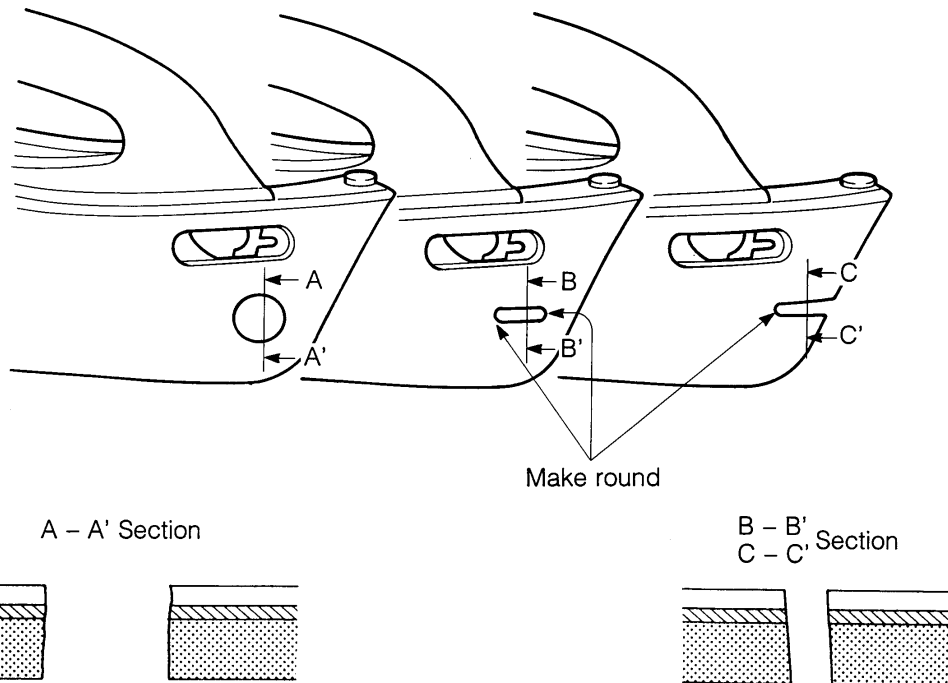
PLASTIC BODY PARTS

Repair of Urethane Fascia

This section describes repair of urethane fascia having flaws that have reached the surface of the urethane and that are too serious to be restored by painting only.

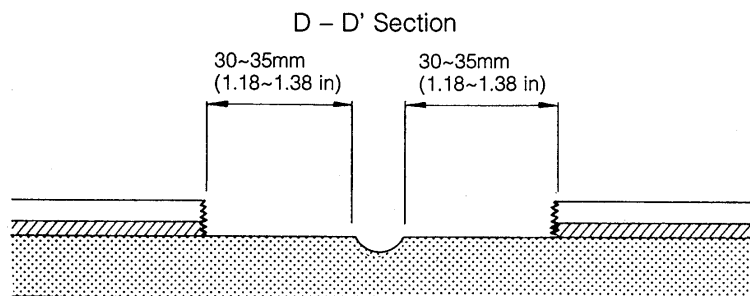
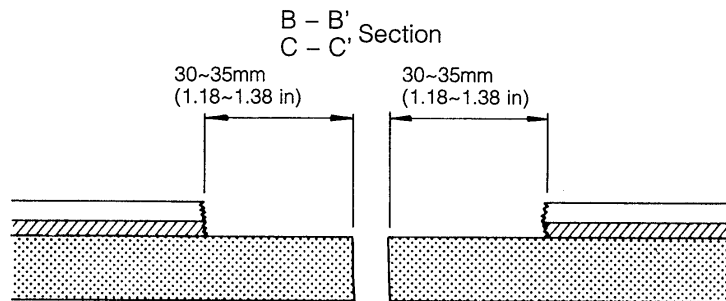
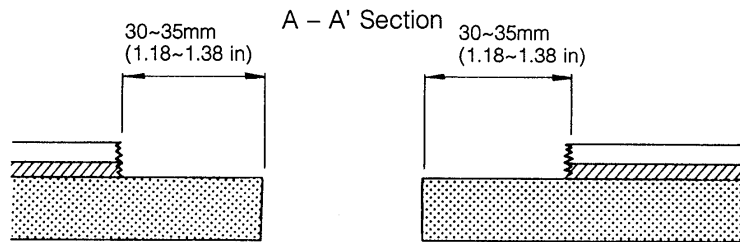
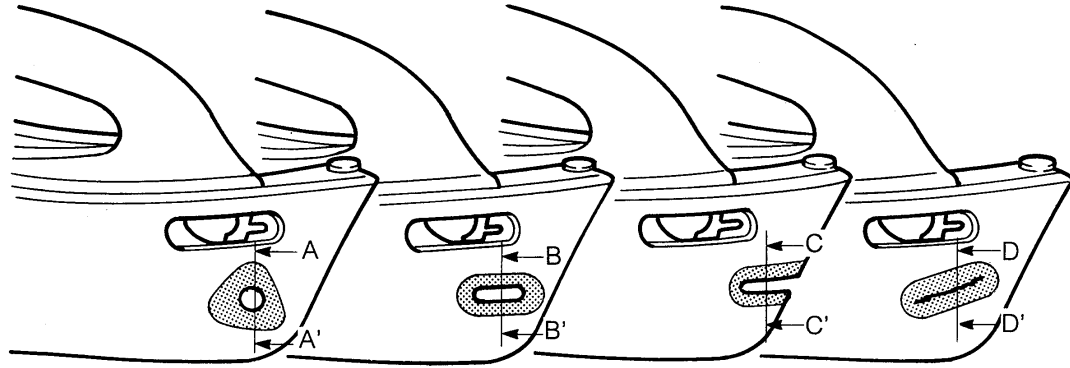


1. Smooth the rough edges around the hole or crack. Open a cracked section with a knife to make it wide enough to fill with filler.



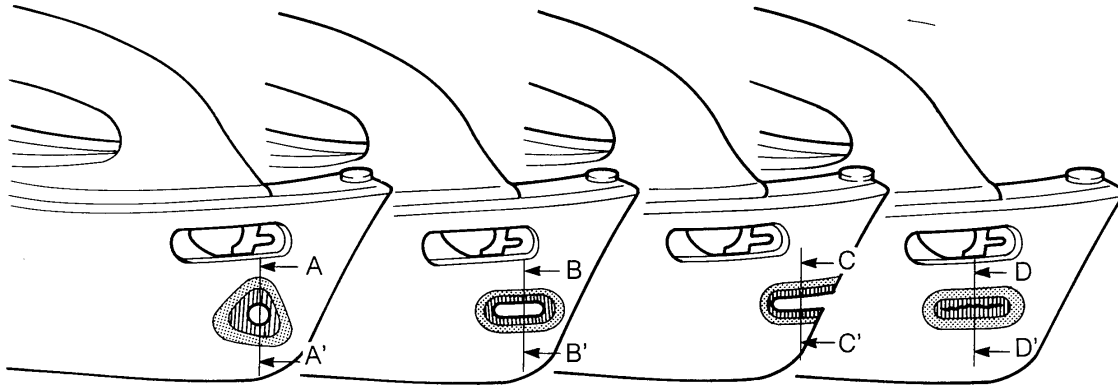
PLASTIC BODY PARTS

2. Sand away the old paint around the damaged area [in the range of 30~35mm (1.18~1.38 in)] with #40~#80 sandpaper.

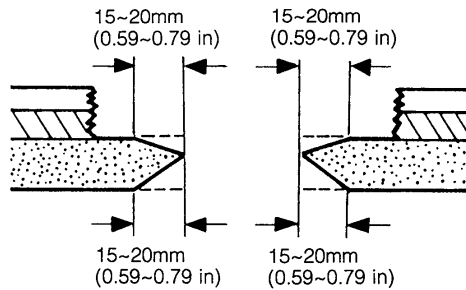


PLASTIC BODY PARTS

3. Sand the urethane around the damaged area with #36~#50 sandpaper to make it taper.



A - A'
B - B' Section
C - C'

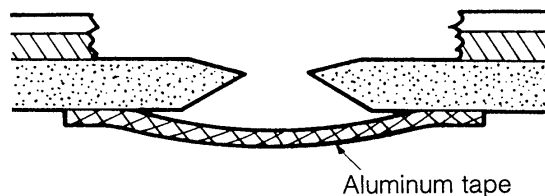


D - D' Section



4. Degrease the repair area (the face and the back) with an appropriate degreasing agent. Cover the hole or crack with aluminum tape on the reverse side of the damaged area.

A - A'
B - B' Section
C - C'

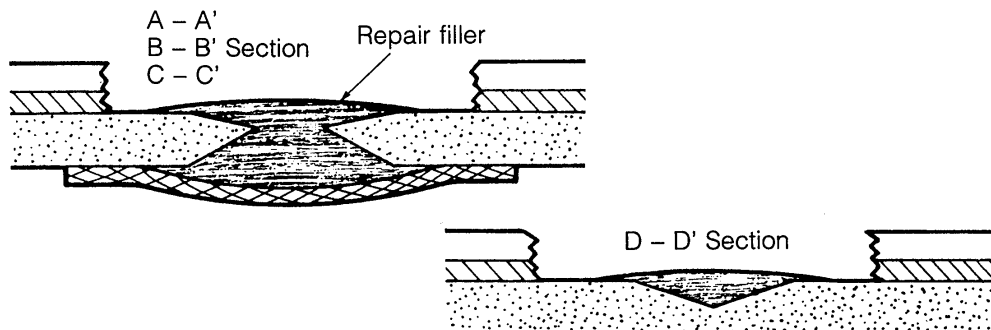


Caution

Do not use thinners or other chemicals as damage to the surface will result.

PLASTIC BODY PARTS

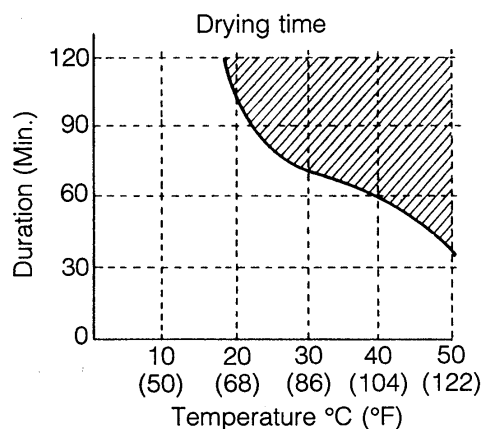
5. Apply repairing filler



The repair filler is a two-part type filler composed of a main agent and a stiffening agent, and has the same flexibility as the urethane when hardened.

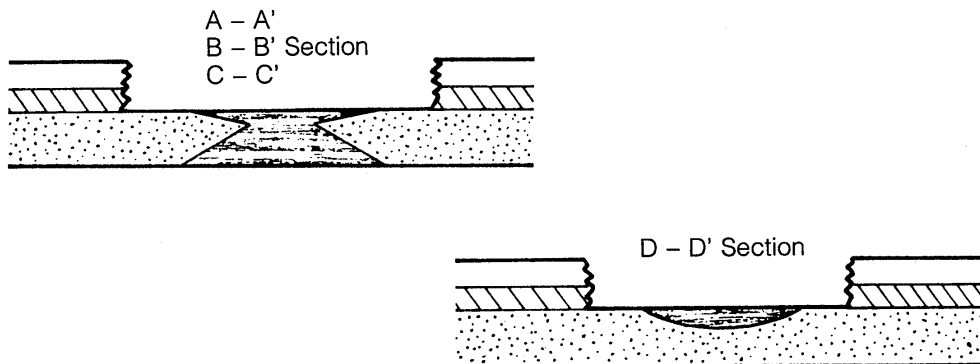
6. Air dry or heat dry.

Dry the applied repair filler completely. The effected part must not exceed 80°C (176°F), or it may be deformed.



In the case of air drying [18°C (65°F)], the part may be sanded after **approx. 2 hrs.**
 In the case of heat drying [50°C (122°F)], the part may be sanded after **approx. 40 min.**

7. After the repair filler has completely dried, and the repaired part with #120, #180 and #240 sandpaper, respectively, to make it smooth.

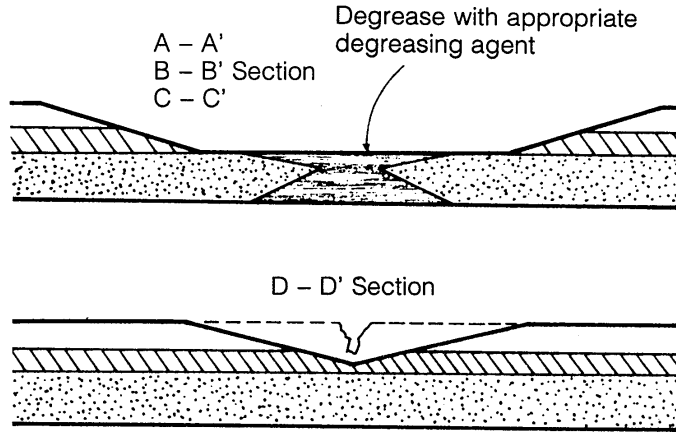


Note

If the repaired part is made concave, apply extra repair filler.

PLASTIC BODY PARTS

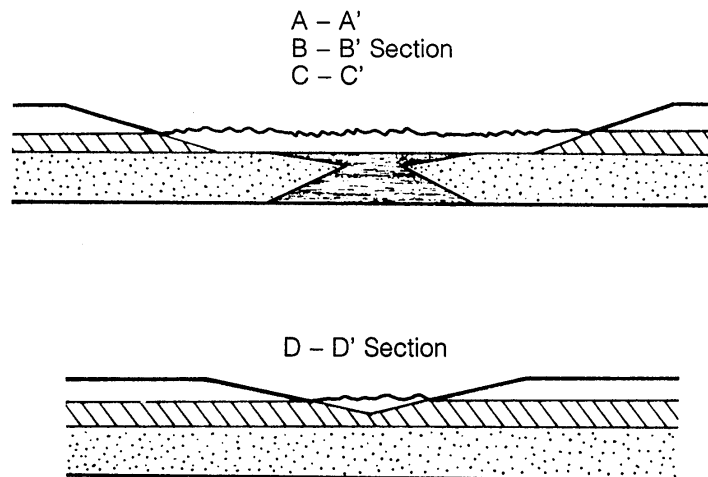
8. Sand the paint around the damaged area with #240 sandpaper to make it smooth.



Caution

Do not use thinners or other chemicals as damage to the surface will result.

9. Spray primer (heat drying) or primer surfacer (air drying) only on the effected area of the part. (Spot spraying)



10. Dry the part.

- 1) Primer (Forced drying)
Uniformly heat the repaired part.

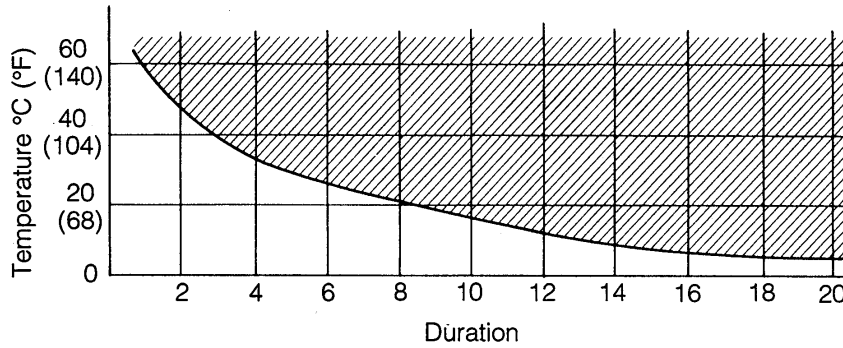
Heating condition:

80°C (176°F) (The temperature of the part) × 20 minutes

PLASTIC BODY PARTS

2) Primer surfacer (Air drying)

The time required for drying the applied part:
Air drying [20° (68°F)]: about 8 hours



11. Sand the area of the repair with #400~#600 sandpaper. If the surface of the urethane becomes visible, touch it up with primer or primer surfacer.
12. Degrease the part and spray on a top coat.

Note

Use paint suitable for urethane only.

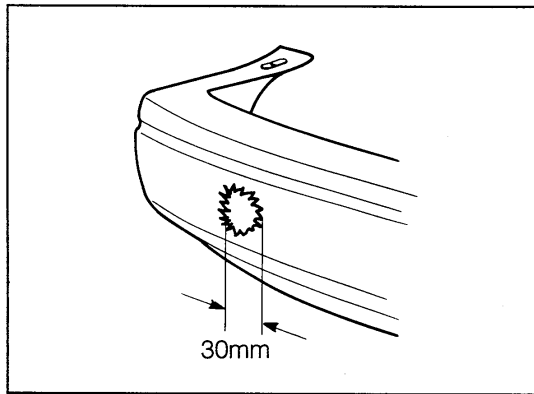
Normal body paint should not be applied to the flexible polyurethane fascia. If it is applied, it will not match the flexibility of the fascia causing the paint to crack or peel.

PLASTIC BODY PARTS

REPAIRING POLYPROPYLENE FASCIA

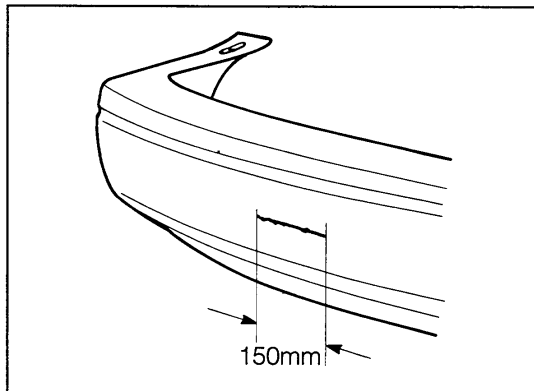
REPAIRABLE RANGE FOR POLYPROPYLENE FASCIA

The three examples of damage shown below are considered repairable. Although a bumper which has been damaged greater than this could also be repaired, it should be replaced with a new one. Any larger repair would detract from the looks and quality of the bumper. In addition, such repair is not considered reasonable in terms of workload.

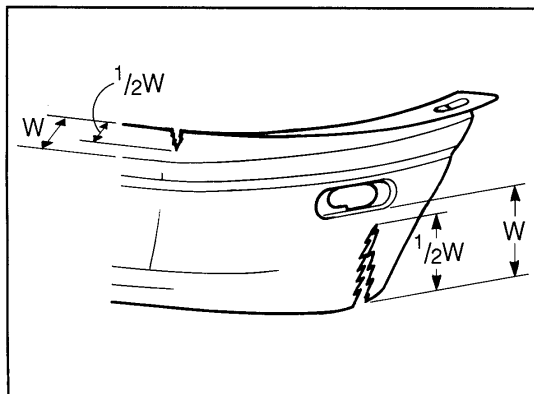


Allowable Repairs

1. A fascia with a hole less than 30mm (1.18 in) in diameter.



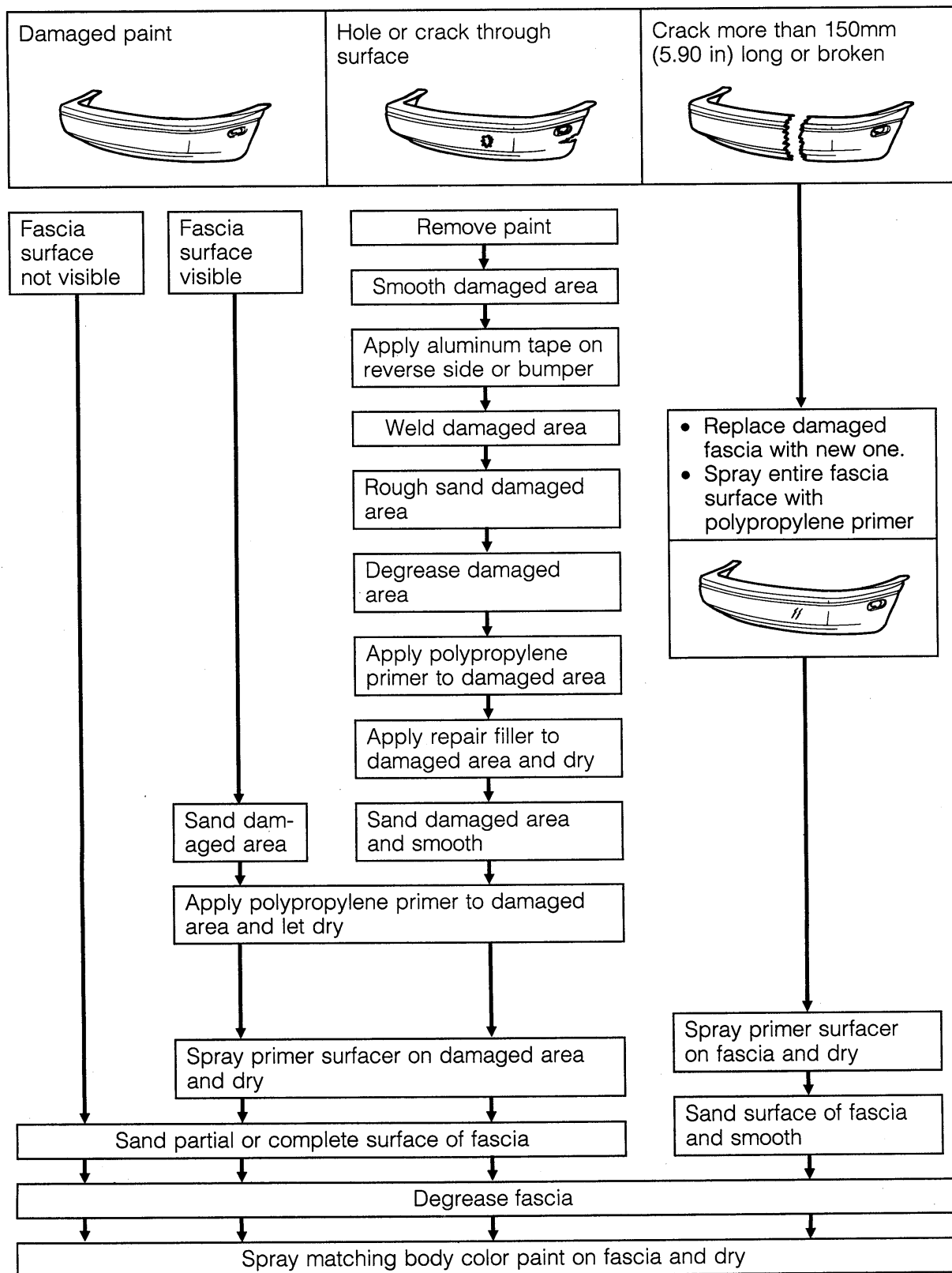
2. A fascia with a crack less than 150mm (5.90 in) in length.



3. A fascia with a crack less than 150mm (5.90 in) in length that is less than half of the width of the bumper.

PLASTIC BODY PARTS

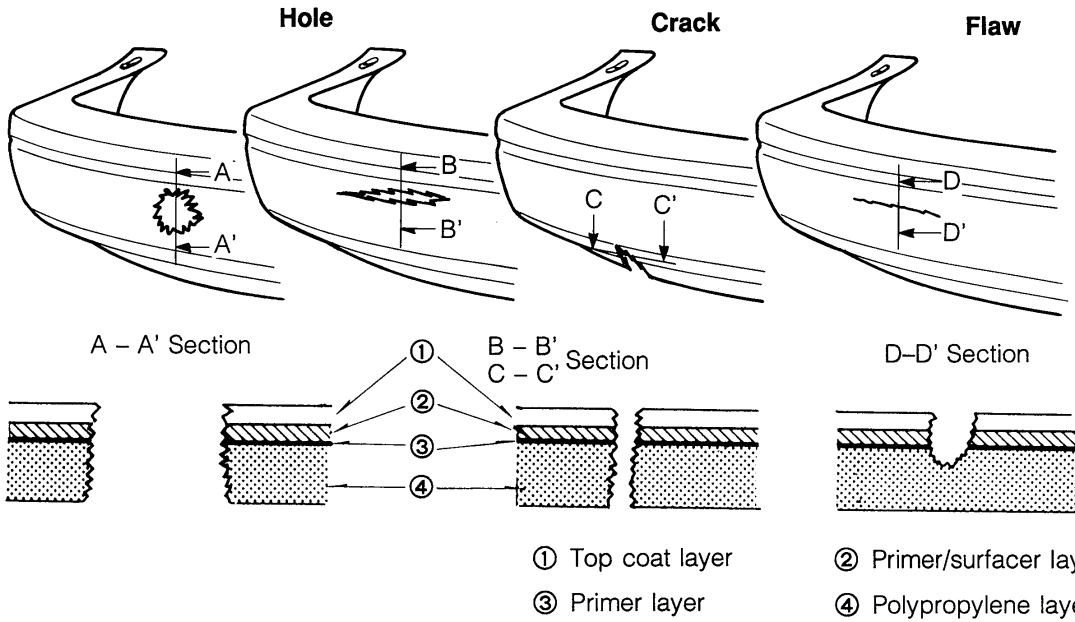
Procedure for Repairing Polypropylene Fascia



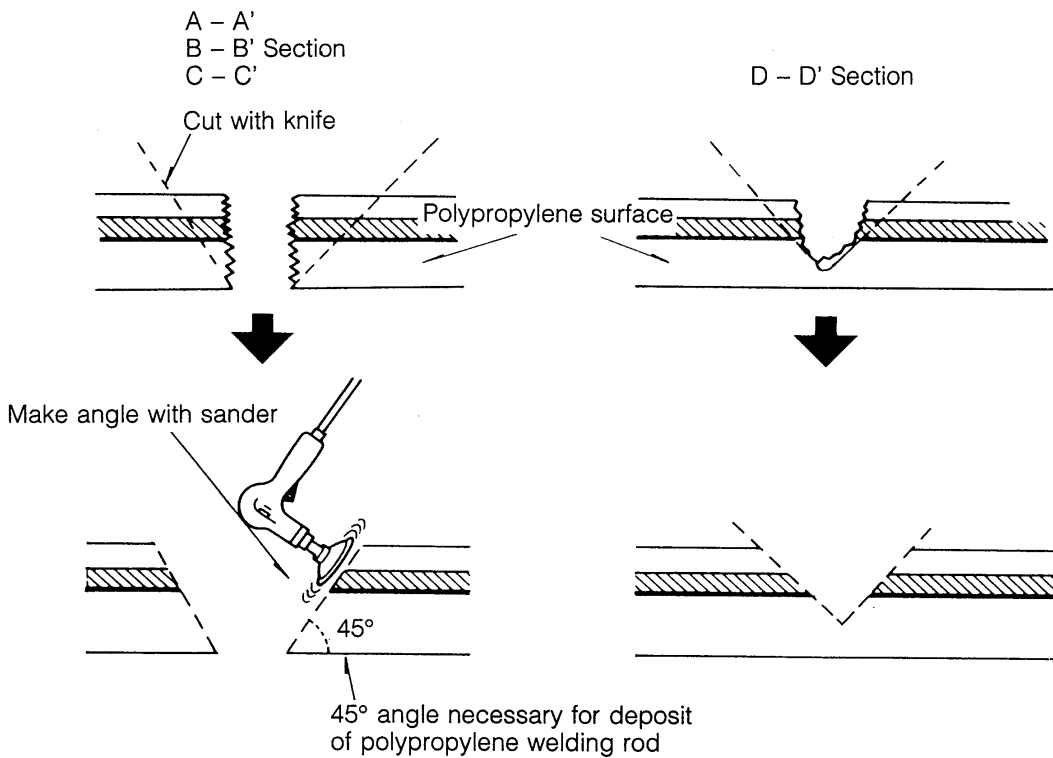
PLASTIC BODY PARTS

Repair of Polypropylene Fascia

Repair of polypropylene fascia having flaws that have reached the surface of the polypropylene and are too serious to be restored by the painting.



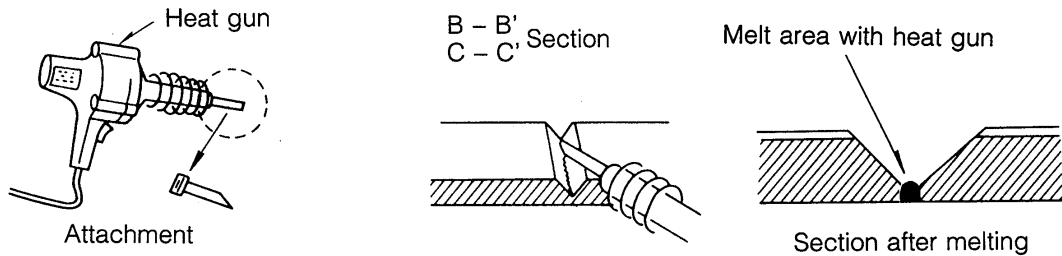
1. Cut the rough edges around the flaw with a knife to make it smooth. Sand the area with a sander to make an angle of about 45°.



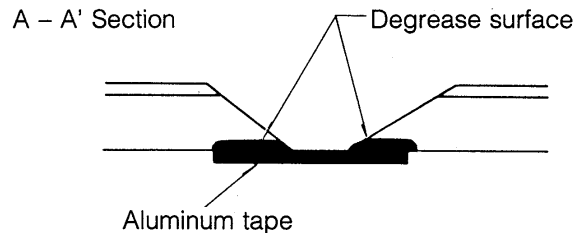
PLASTIC BODY PARTS

2. Weld damaged area

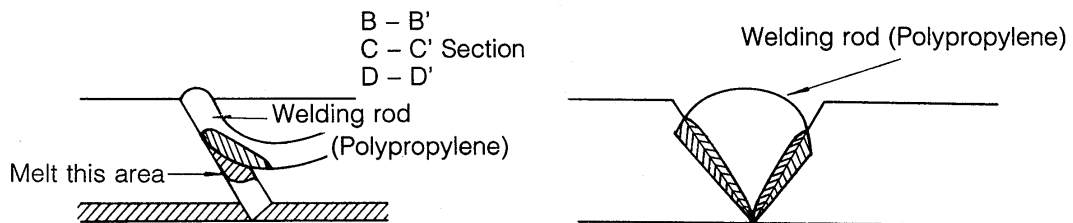
- For repair of a cracked area, melt the crack together a heat gun and a special attachment.



- For repair of a hole, degrease the area and apply aluminum tape on the reverse side of the damaged area.

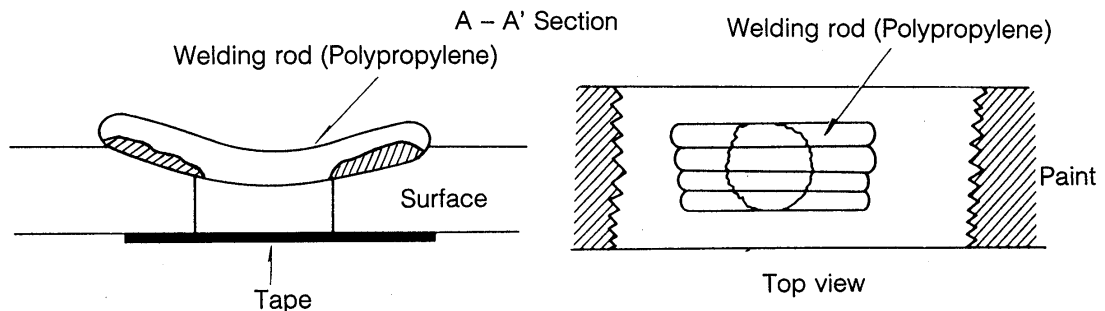


3. Melt the polypropylene welding rod with a heat gun and deposit it in the cracked area.



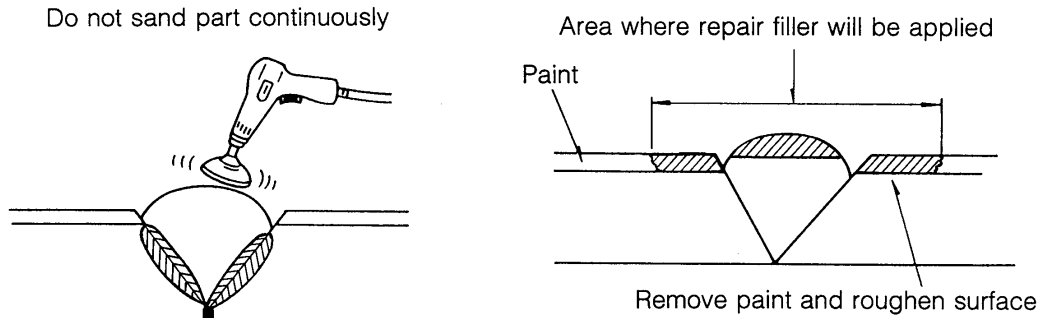
Note

- Heat the shaded area to melt it.
- Take care not to excessively melt the welding rod. If the part is welded with the welding rod melted like jelly, the welding strength will be lowered.
- Hold the heat gun 10~20mm (0.39~0.79 in) away from the part that will be welded.
- Do not move the welding rod until the welded part cools.

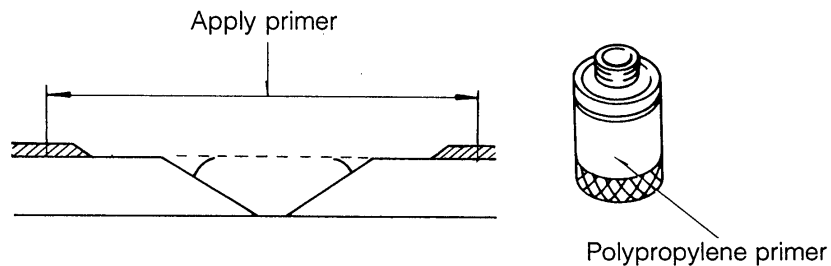


PLASTIC BODY PARTS

4. Sand the surface of the polypropylene little by little since it is easily melted even by the abrasion heat. If melted, remove the melted area. Sand the areas to which repair filler will be applied.



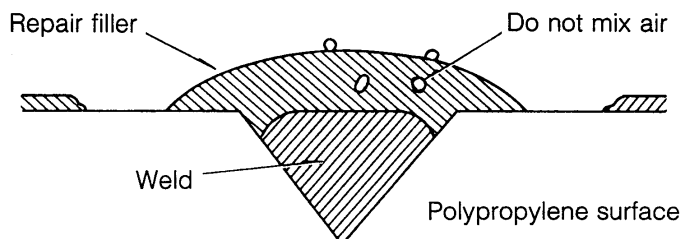
5. Apply polypropylene primer uniformly to an area larger than the repaired area with a brush. It will take about 10 minutes to dry at a 20°C (68°F).



6. Mix the main agent and the stiffening agent in a ratio of one to one. Apply the mixed repair filler to the damaged area.

Note

- a) When mixing the main and stiffening agents, do not allow bubbles to form.
 b) The repair filler hardens fast (about 5 minutes). Proceed with the work immediately after mixing.
 c) Allow about 30 minutes to dry at 20°C (68°F) before sanding.



The repair filler is a two part epoxy adhesive. When the repair filler hardens, it will provide a good finish with the same flexibility as the polypropylene.

The repair filler for a urethane fascia is also a two part adhesive; however, this is different from the repair filler for a polypropylene fascia. Do not use the wrong repair filler.

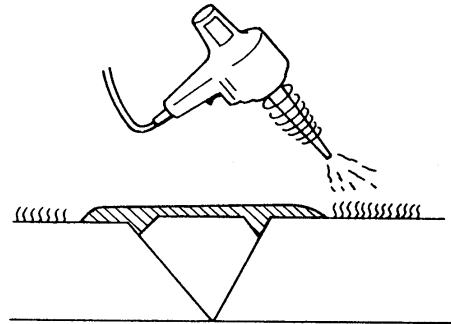
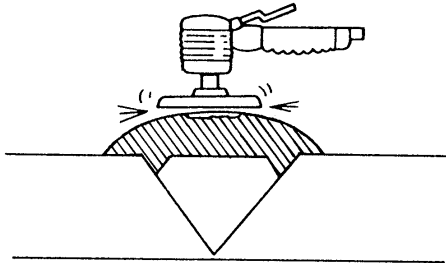
PLASTIC BODY PARTS

7. Sand the area with #180~#240 sandpaper.

Note

a) If excessive force is applied to the area when sanding, the surface will not become smooth.

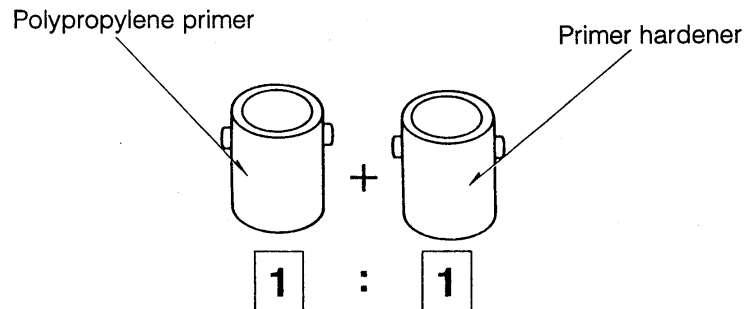
b) If there is fuzz around the repaired area melt it with a heat gun.



8. Degrease the painted surface.

9. Mix the primer and the hardener at a ratio of one to one.

Apply primer to the repaired area and the surface of the fascia with a brush or spray.



Use the primer within 16 hours after it is mixed.

Note

Polypropylene primer will dissolve even after drying if it is wiped with solvent. Use only water to clean.

10. Dry the part.

PLASTIC BODY PARTS

11. Add the softener to the urethane primer surfacer and spray it on the repaired part.

(1) Mixing method

Urethane primer surfacer +
 Softener Mixture A
 Mixture A + hardener Mixture B
 Dilute mixture B with thinner to spray on
 the fascia.

(2) Viscosity

14~16 seconds/viscosimeter 20°C (68°F)

(3) Spray pressure

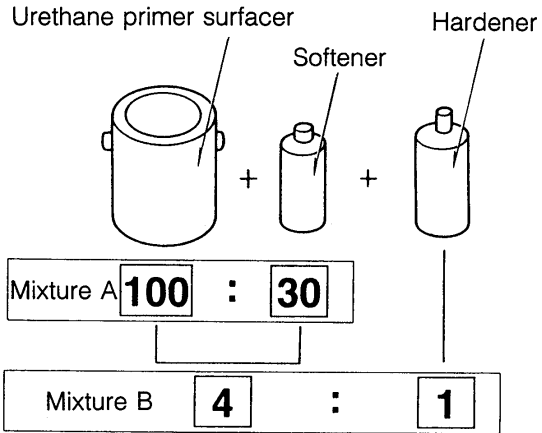
300~400 kPa
 (3~4 kg/cm², 42.99~57.8 psi)

(4) Standard film thickness

30~50μ

(5) Spray method

Spot spray three or four times



Note

Mix the solutions at the specified ratio.

12. Air drying 20°C (68°F) — 8 hours min.

Forced drying 60°C (140°F) — 1 hour

13. Lightly sand the complete surface of the fascia with #400~#600 sandpaper. Do not expose the surface of the polypropylene.

(Wet or dry sanding is acceptable)

14. Wipe the complete surface of the fascia with degreasing agent. Quickly wipe the surface with a clean rag to degrease it.

15. Apply a matching point coat to the fascia.

Note

The primer for repairing urethane fascia adheres poorly to a polypropylene fascia. Therefore, be sure to use only the correct primer.

Other paints for repairing polypropylene fascia are the same as those for urethane. Normal body paint should not be applied to the flexible polypropylene bumper. If it is used, it will not match the flexibility of the fascia, causing the paint film to crack or peel.

16. Air drying 20°C (68°F) — 8 hours min.

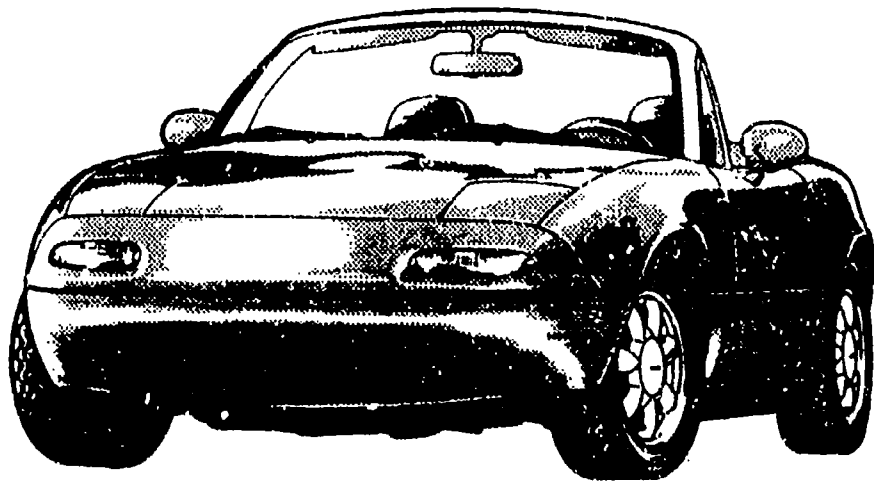
Forced drying 60°C (140°F) — 1 hour

Note

Let the part air dry when possible since forced drying could cause bubbles in the top coat.

Parts Catalog

Mazda MX-5 MIATA
U.S.A.
('95 ▶ '96)



NA35 • 800001-700000
NA3 • 700001-800000

Jul. '97 (FINAL)

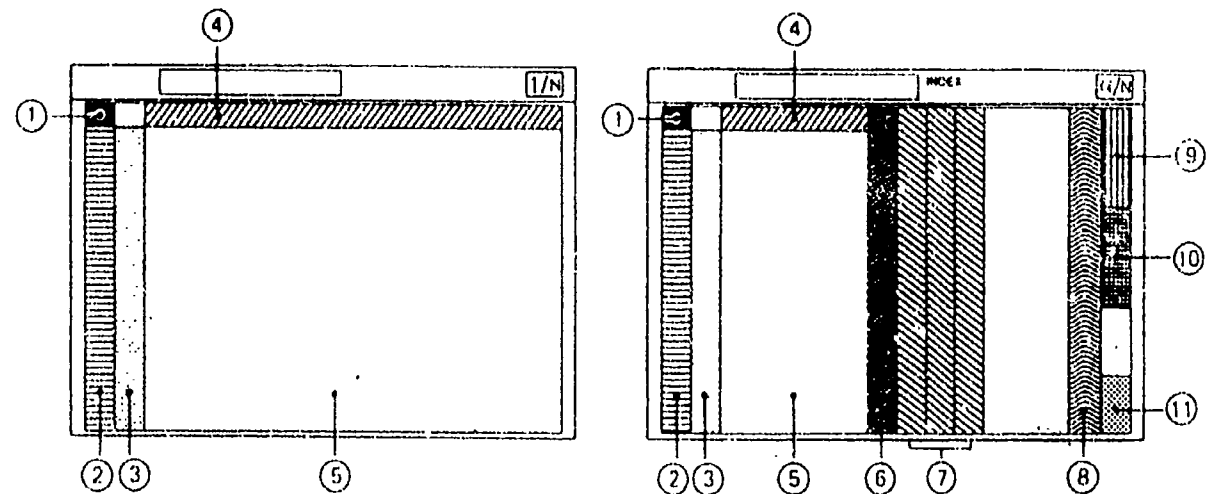
Catalog No. AU-NA05-04

Mazda

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LAYOUT OF CONTENTS / DISPOSITION TYPOGRAPHIQUE DE CONTENU / DISPOSICION DEL CONTENIDO / ANORDNUNG DES INHALTS

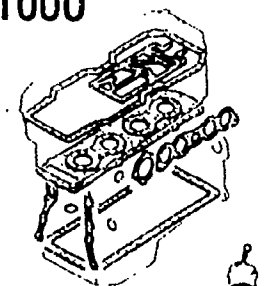
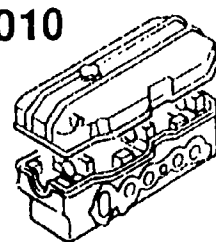
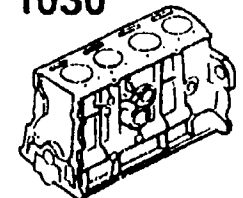
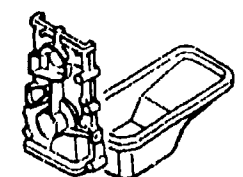
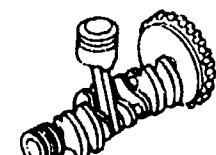
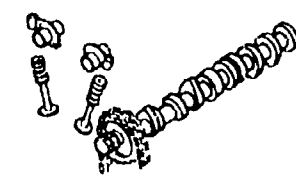
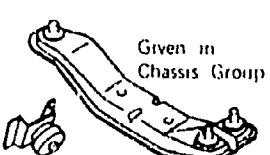
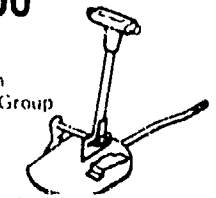
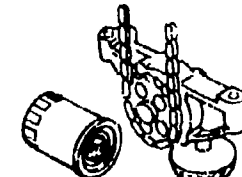
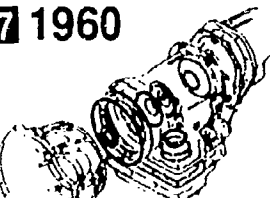
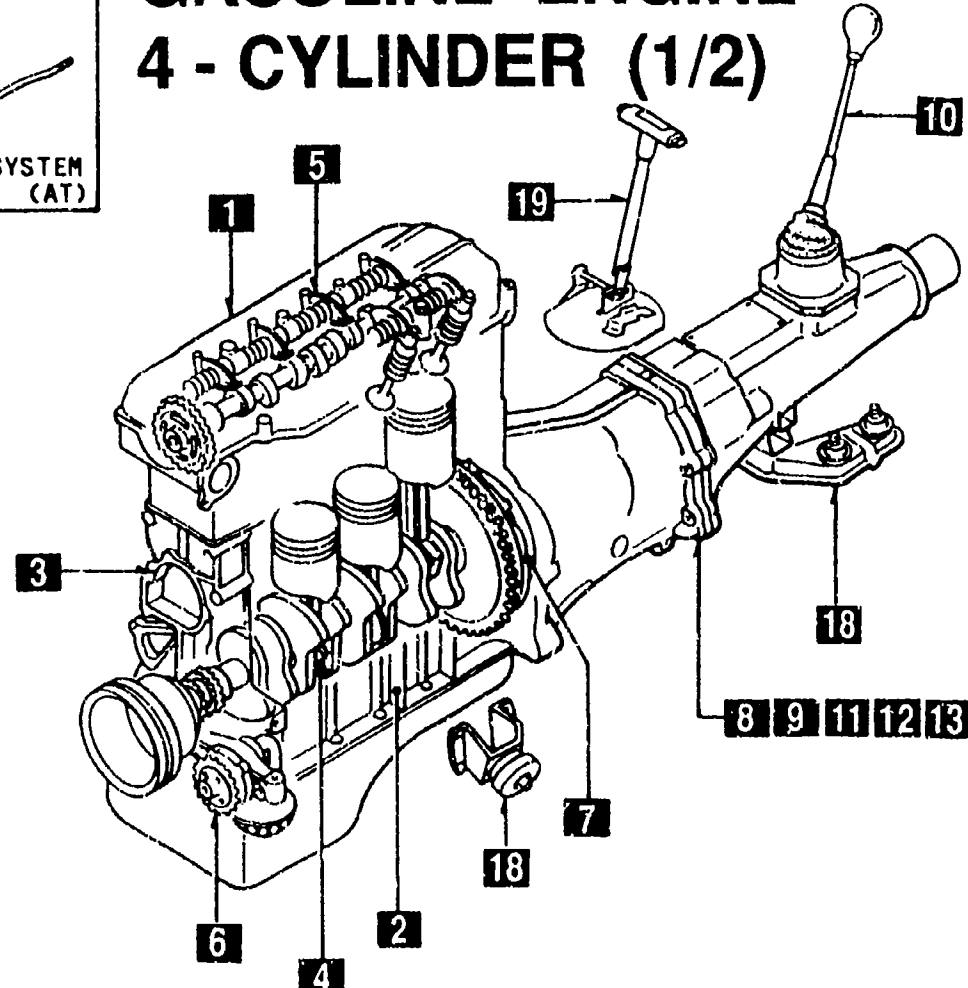
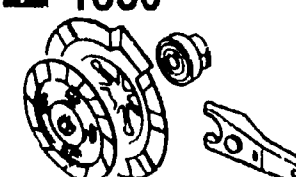
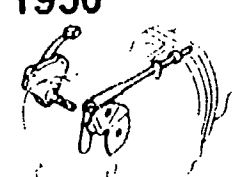
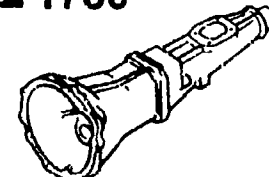
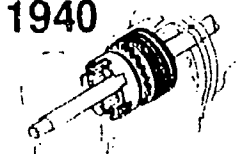
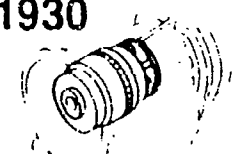

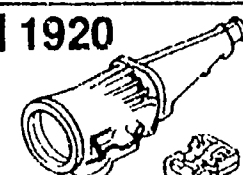
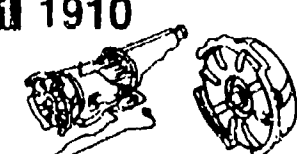
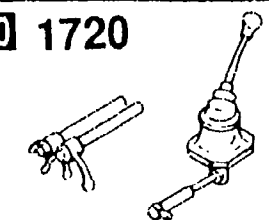
- The following is a typical example of the layout of contents on Mazda microfiche parts catalog.
- Voici un exemple typique de la disposition typographique de contenu dans les microfiches de catalogue des pièces de Mazda.
- El siguiente es un ejemplo típico de la disposición del contenido en una microficha del catálogo de repuestos de Mazda.
- Folgendes ist ein typisches Beispiel der Inhaltsanordnung des Mazda-Mikrofiche-Teilekatalogs.



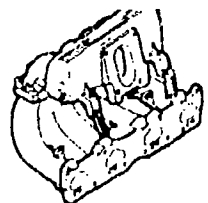
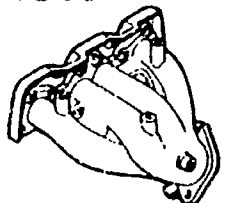
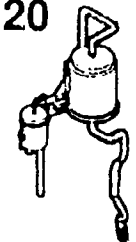
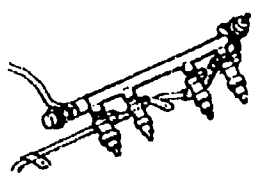
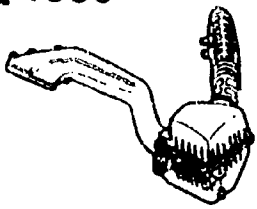
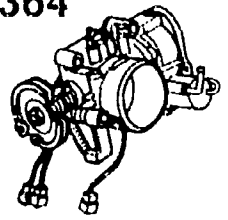
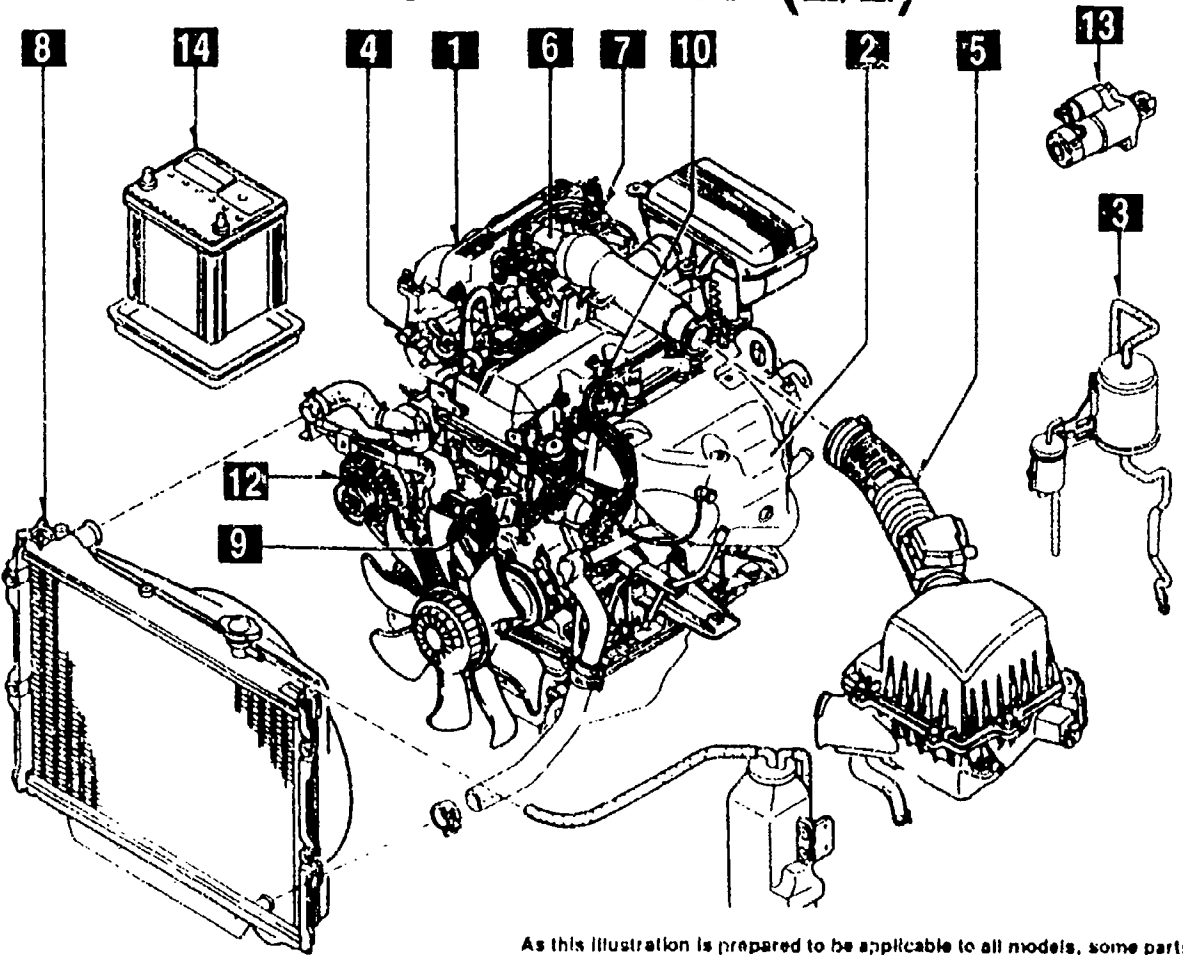
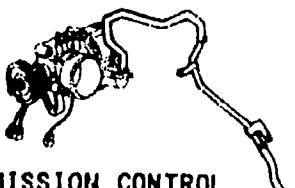
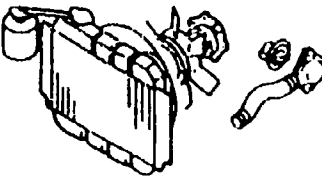
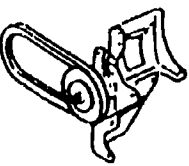
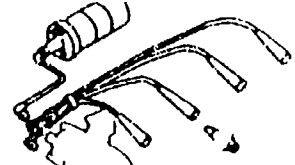
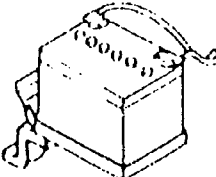
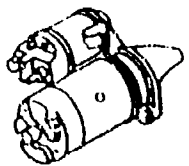
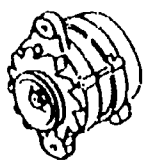
Remark : The items listed under ④ have been deleted from each fiche since Dec. '93

- | | | |
|--|---|--|
| ① • Layout of contents
• Disposition Typographique de Contenu
• Disposición del contenido
• Anordnung des Inhalts | ② • Pictorial Index
• Index par Schémas
• Índice Gráfico
• Illustrierter Index | ③ • Master Section No. Index
• Index des Numéros des Sections Totale
• Índice del Número de la Sección Maestra
• Hauptabschnittsnummer-Index |
| ④ • Section No. Index for the Column
• Index des Numéros des Sections pour les Colonnes
• N° de la Sección para el Índice
• Abschnittsnummer-Index für die Spalte | ⑤ • Illustration & Text
• Illustrations et Textes
• Ilustración y Texto
• Abbildung und Text | ⑥ • Part No. Index
• Index des Numéros des Pièces
• Índice del N° de Pieza
• Teile-Nr.-Index |
| ⑦ • Alphabetical Index
• Index Alphabétique
• Índice Alfabético
• Alphabetischer Index | ⑧ • Model Identification
• Identification des Modèles
• Identificación del Modelo
• Modell-Kennzeichnung | ⑨ • Vehicle Identification System
• Système d'Identification de Véhicule
• Sistema de Identificación de Vehículo
• Fahrzeug-Identifikationssystem |

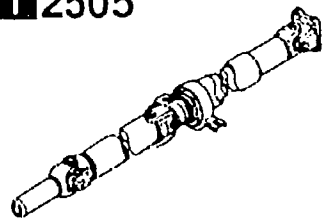
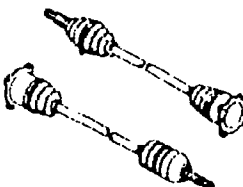
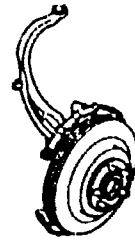

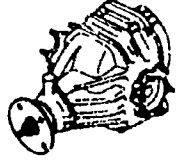

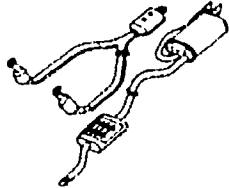
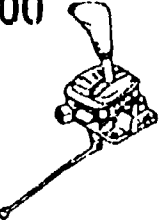
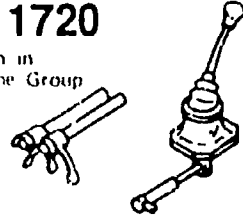
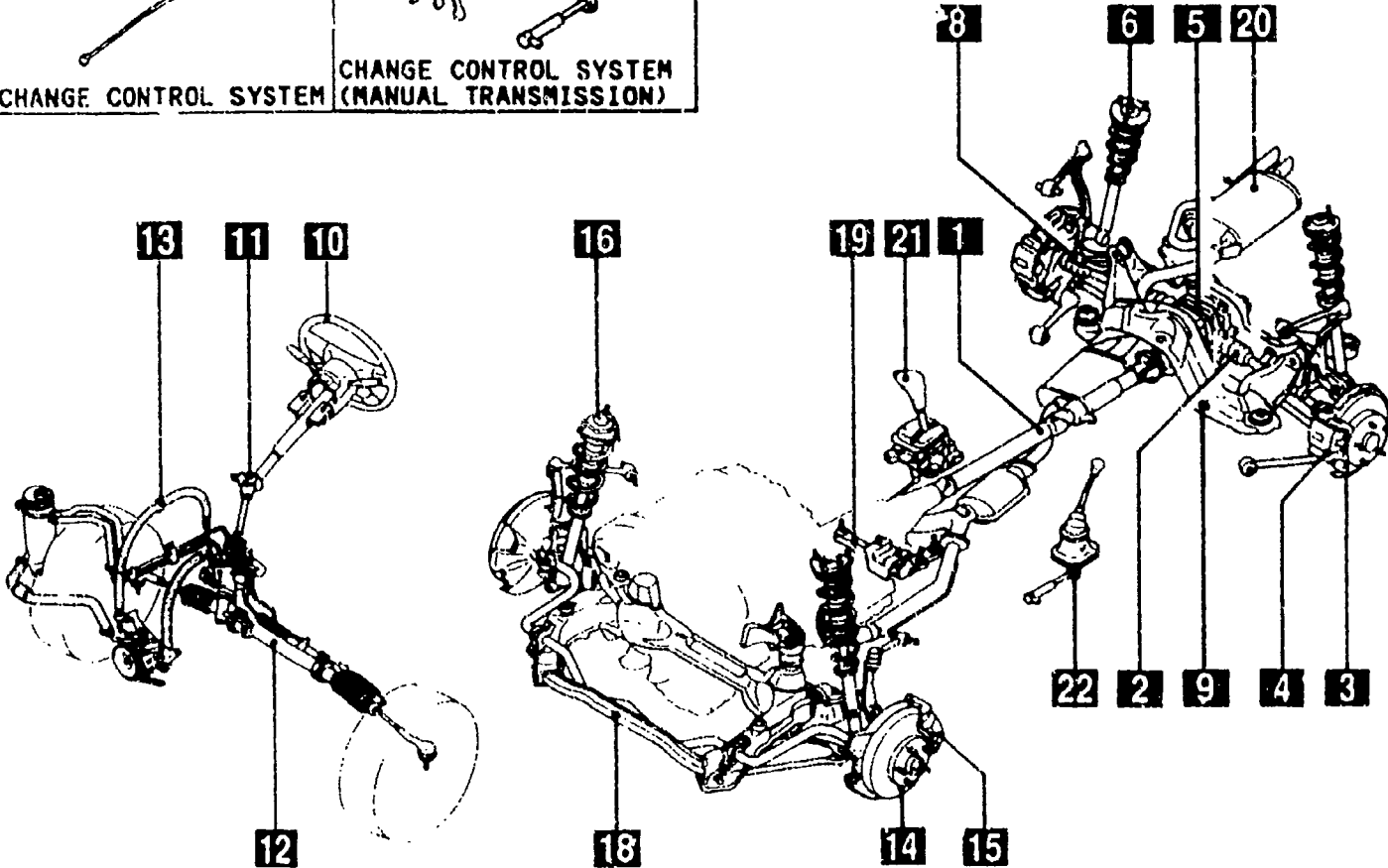
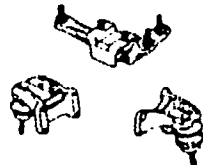
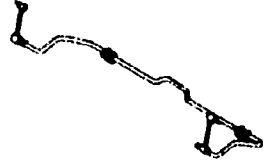
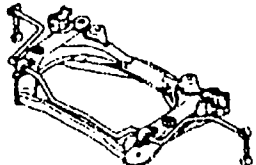
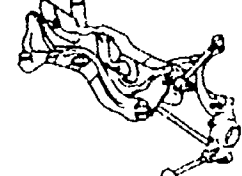

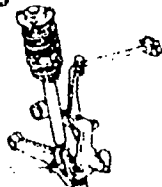


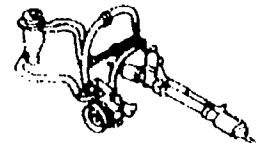


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<p>1000</p>  <p>ENGINE & GASKET SETS</p>	<p>1 1010</p>  <p>CYLINDER HEAD & COVER</p>	<p>2 1030</p>  <p>CYLINDER BLOCK</p>	<p>3 1040</p>  <p>OIL PAN & TIMING COVER</p>	<p>4 1100</p>  <p>PISTON, CRANKSHAFT & FLYWHEEL</p>	<p>5 1200</p>  <p>VALVE SYSTEM</p>
<p>18 3900</p>  <p>ENGINE & T/MISSION MOUNTINGS</p>	<p>19 4600</p> <p style="text-align: center; font-size: small;">Given in Chassis Group</p>  <p>CHANGE CONTROL SYSTEM (AT)</p>				<p>6 1400</p>  <p>OIL PUMP & FILTER</p>
<p>17 1960</p>  <p>GASKET & SEAL KIT (AUTOMATIC)</p>	<p style="font-size: 2em; font-weight: bold; text-align: center;">GASOLINE ENGINE 4 - CYLINDER (1/2)</p> 				<p>7 1600</p>  <p>CLUTCH DISC & COVER (MANUAL)</p>
<p>16 1950</p>  <p>MANUAL LINKAGE SYSTEM (AUTOMATIC)</p>	<p style="font-size: 8px;">As this illustration is prepared to be applicable to all models, some parts are different in specifications from parts listed in this parts Catalog.</p>				<p>8 1700</p>  <p>TRANSMISSION CASE (MANUAL)</p>
<p>15 1940</p>  <p>GOVERNOR, LOW & REVERSE PISTON (AUTOMATIC)</p>	<p>14 1930</p>  <p>CLUTCHES & PLANETARY GEARS (AUTOMATIC)</p>	<p>13 1925</p>  <p>CONTROL VALVE (AUTOMATIC)</p>	<p>12 1920</p>  <p>TRANSMISSION CASE & MAIN CONTROL SYSTEM (AUTOMATIC)</p>	<p>11 1910</p>  <p>TORQUE CONVERTER, OIL PUMP & PIPINGS (AUTOMATIC)</p>	<p>10 1720</p>  <p>CHANGE CONTROL SYSTEM (MANUAL)</p>

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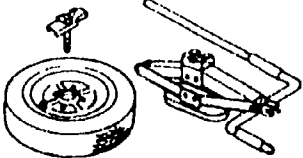

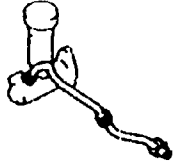

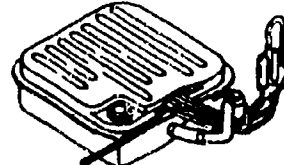
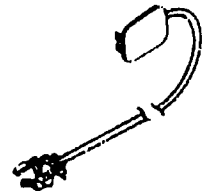
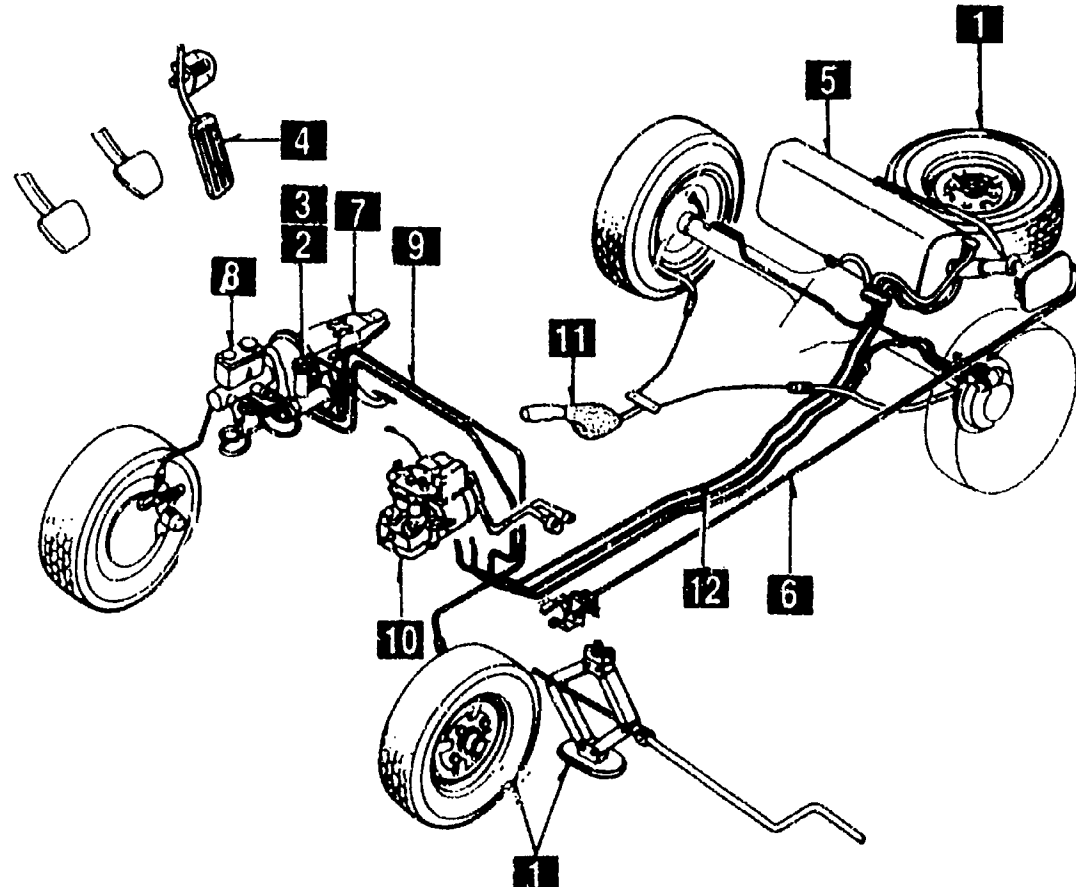
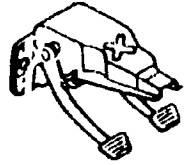
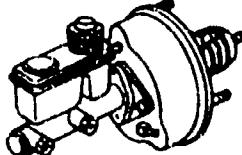
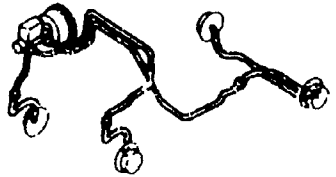
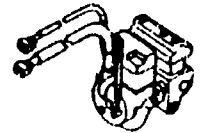


1 1300  INLET MANIFOLD	2 1310  EXHAUST MANIFOLD	3 1320  FUEL SYSTEM	4 1325  FUEL DISTRIBUTOR	5 1330  AIR CLEANER	6 1364  THROTTLE BODY
<h2 style="margin: 0;">GASOLINE ENGINE 4 - CYLINDER (2/2)</h2>  <p style="font-size: small; text-align: center;">As this illustration is prepared to be applicable to all models, some parts are different in specifications from parts listed in this parts Catalog.</p>					
					7 1370  EMISSION CONTROL SYSTEM (INLET SIDE)
					8 1500  COOLING SYSTEM
					9 1580  BRACKET, PULLEY & BELT
					10 1800  ENGINE ELECTRICAL SYSTEM
		14 1850  BATTERY	13 1840  STARTER	12 1830  ALTERNATOR	11

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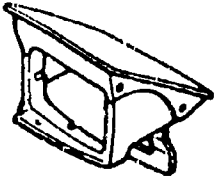
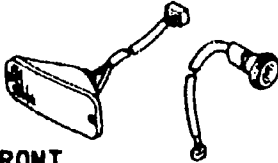
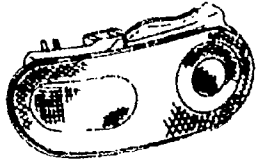
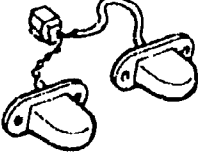
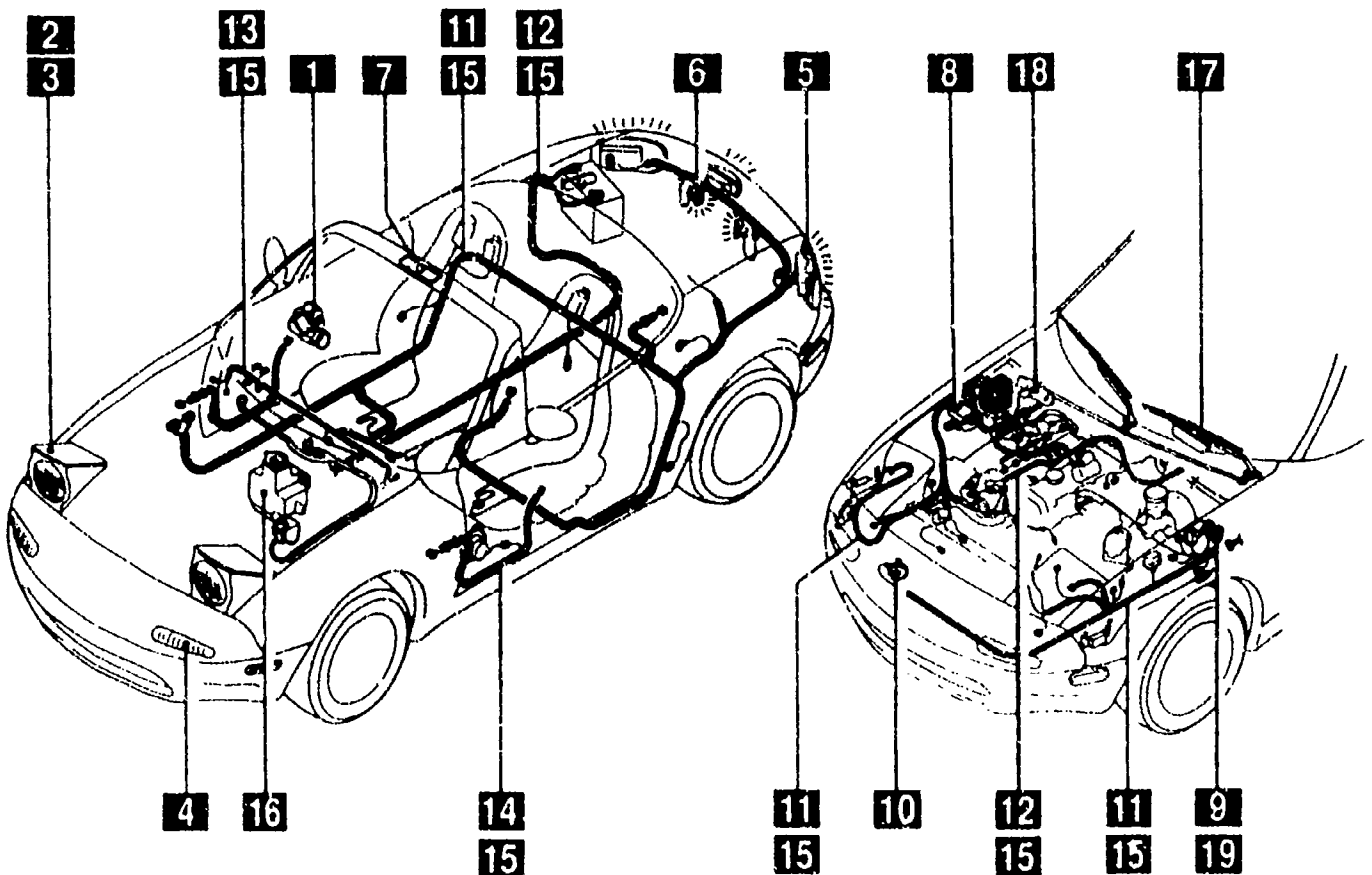
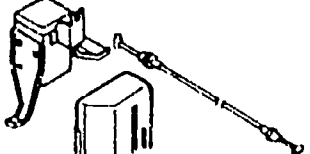



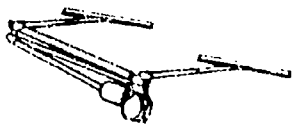
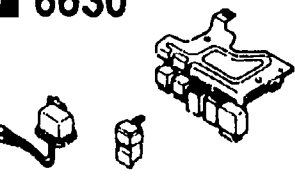
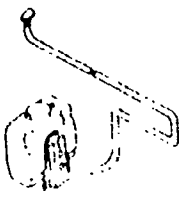




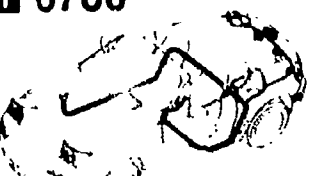
<p>1 2505</p>  <p>REAR PROPELLER SHAFT</p>	<p>2 2550</p>  <p>REAR DRIVE SHAFT</p>	<p>3 2600</p>  <p>REAR AXLE</p>	<p>4 2610</p>  <p>REAR BRAKE MECHANISMS</p>	<p>5 2710</p>  <p>REAR DIFFERENTIALS</p>	<p>6 2800</p>  <p>REAR SUSPENSION MECHANISMS</p>
<p>20 4000</p>  <p>EXHAUST SYSTEM</p>	<p>21 4600</p>  <p>CHANGE CONTROL SYSTEM</p>	<p>22 1720 <small>Given in Engine Group</small></p>  <p>CHANGE CONTROL SYSTEM (MANUAL TRANSMISSION)</p>	<h2 style="margin: 0;">CHASSIS (1/2)</h2> 		<p>7</p>
<p>19 3900</p>  <p>ENGINE & T/MISSION MOUNTINGS</p>				<p>8 2810</p>  <p>REAR STABILIZER</p>	
<p>18 3410</p>  <p>CROSSMEMBER & STABILIZER</p>				<p>9 2830</p>  <p>REAR LOWER ARMS & SUB FRAME</p>	
<p>17</p>				<p>10 3200</p>  <p>STEERING WHEEL</p>	
<p>16 3400</p>  <p>FRONT SUSPENSION MECHANISMS</p>	<p>13 3310</p>  <p>FRONT BRAKE MECHANISMS</p>	<p>14 3300</p>  <p>FRONT AXLE</p>	<p>13 3240</p>  <p>POWER STEERING SYSTEM (FRONT)</p>	<p>12 3220</p>  <p>STEERING GEAR</p>	<p>11 3210</p>  <p>STEERING COLUMN & SHAFTS</p>

As this illustration is prepared to be applicable to all models, some parts are different in specifications from parts listed in this parts Catalog.

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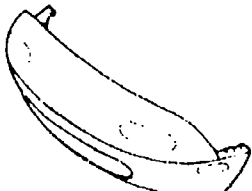
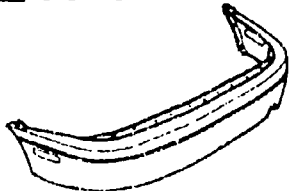
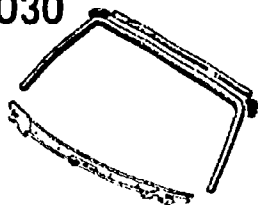

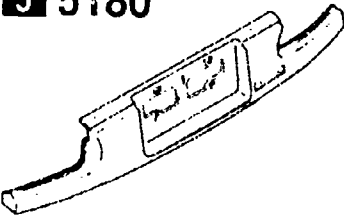
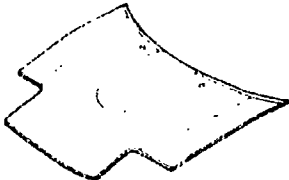
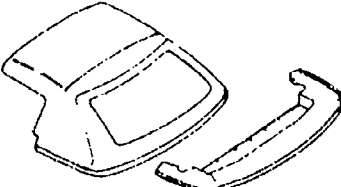
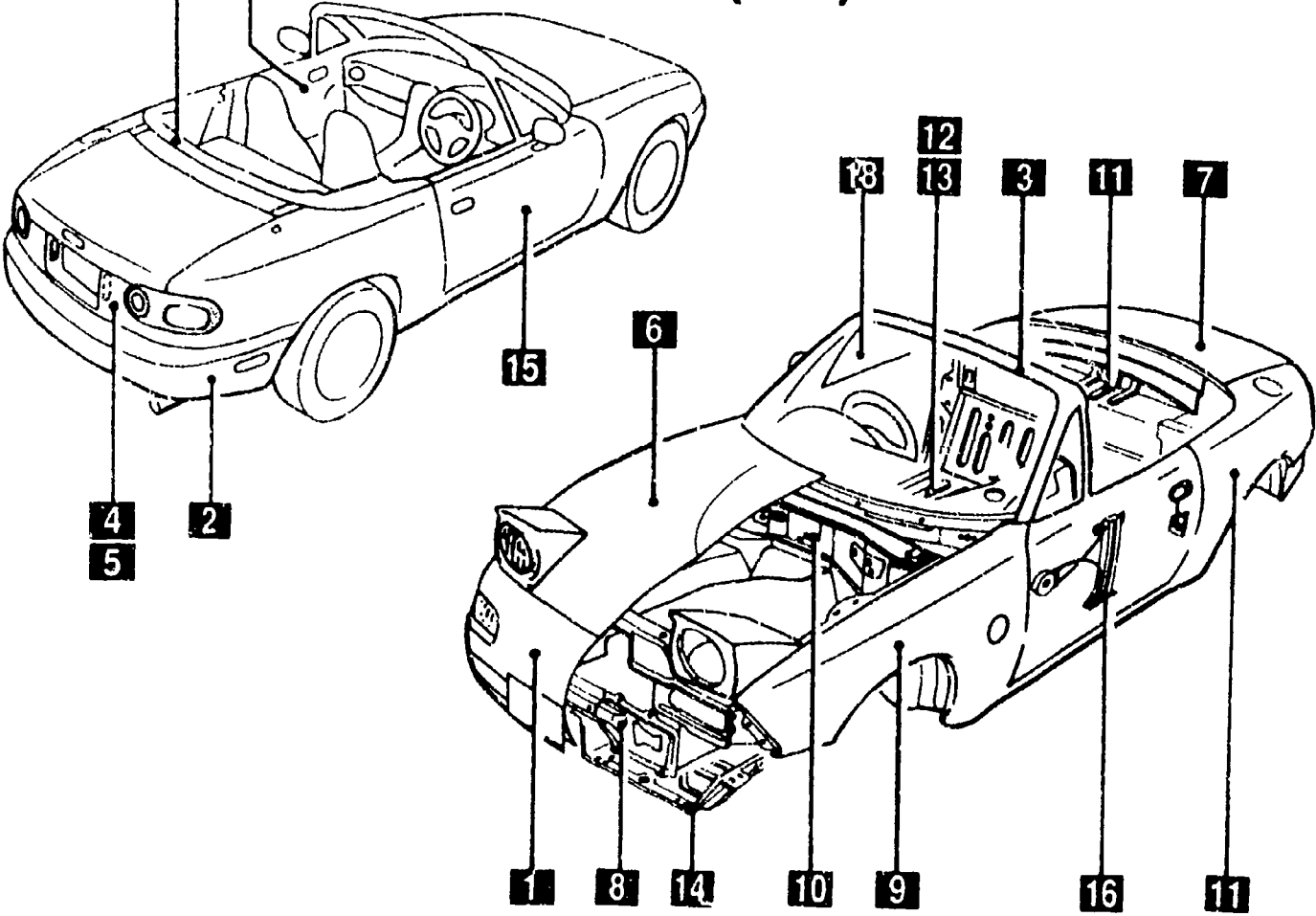
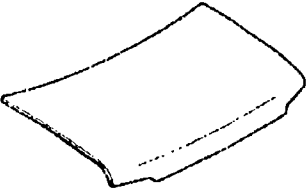
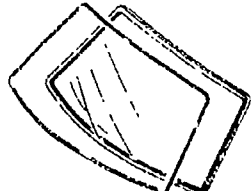
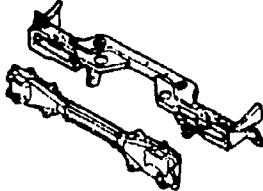
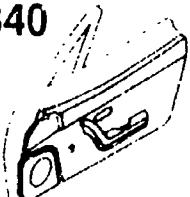
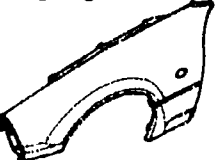

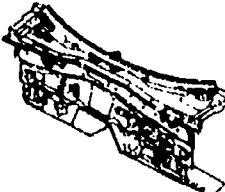
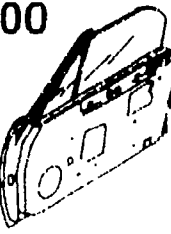
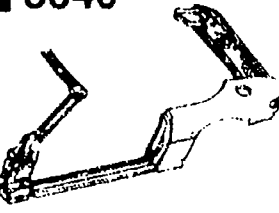
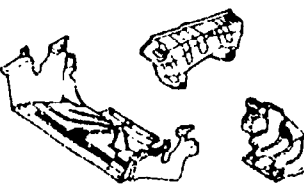
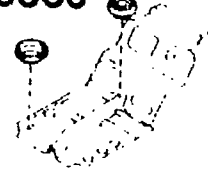
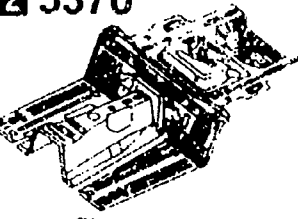
1 3700  TIRES & JACK	2 4140  CLUTCH RELEASE & MASTER CYLINDERS	3 4145  CLUTCH PIPINGS	4 4160  ACCELERATOR CONTROL SYSTEM	5 4200  FUEL TANK	6 4210  FUEL LID OPENER
<h3 style="margin: 0;">CHASSIS (2/2)</h3> 					
<small>As this illustration is prepared to be applicable to all models, some parts are different in specifications from parts listed in this parts Catalog.</small>					
7 4300  CLUTCH & BRAKE PEDALS					
8 4340  BRAKE MASTER CYLINDER & POWER BRAKE					
9 4360  BRAKE PIPINGS					
10 4370  ANTILOCK BRAKE SYSTEM					
12 4500  FUEL PIPINGS					
11 4400  PARKING BRAKE SYSTEM					

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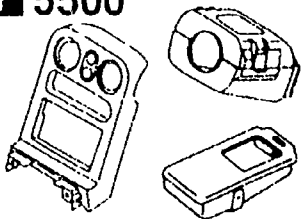
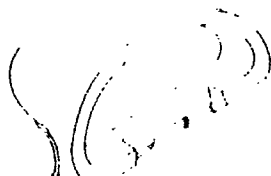
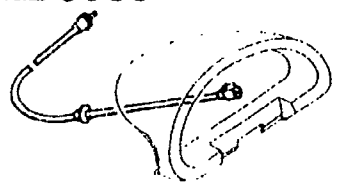
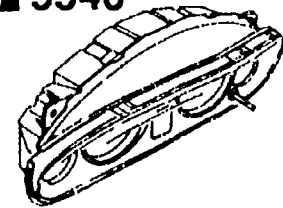
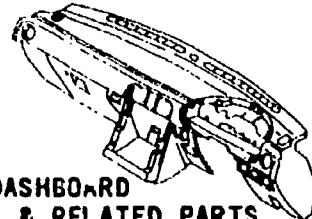
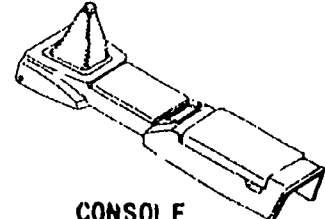
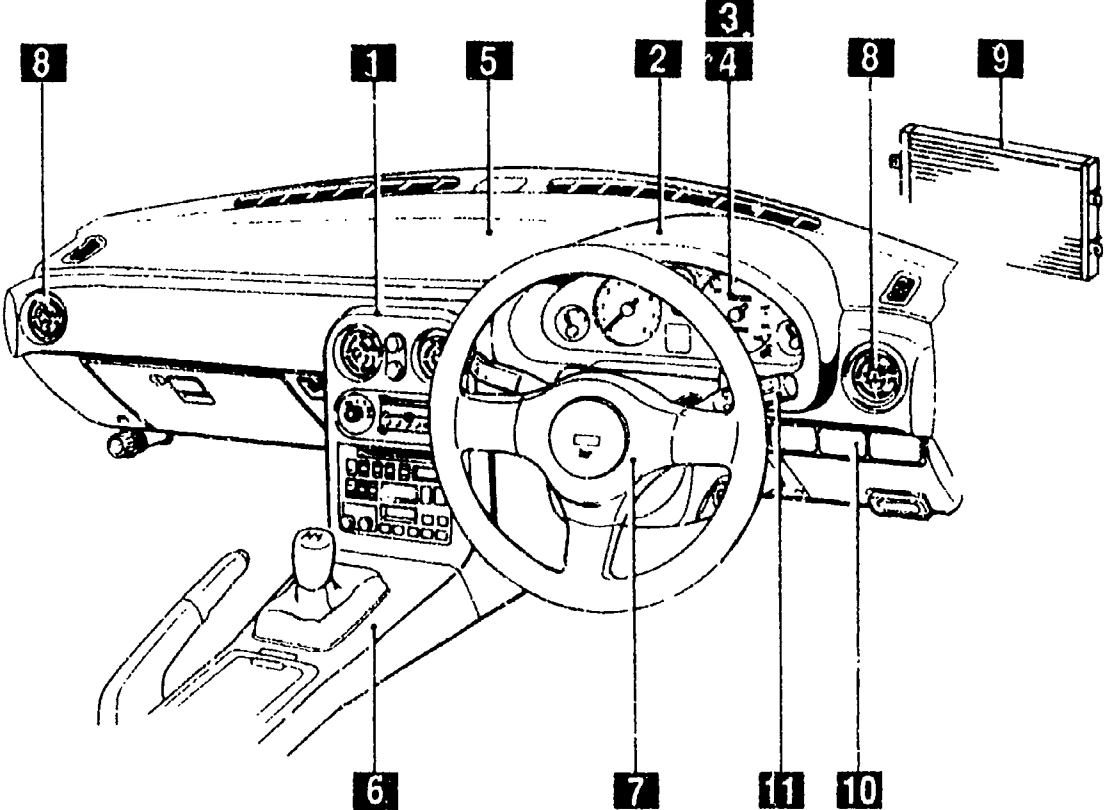
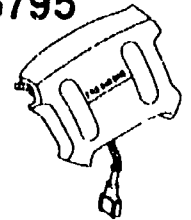
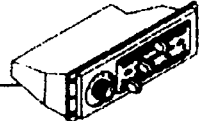
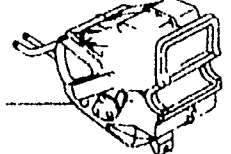

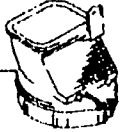
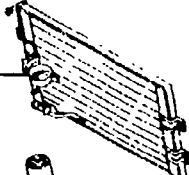


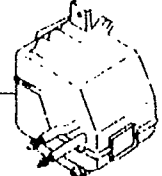
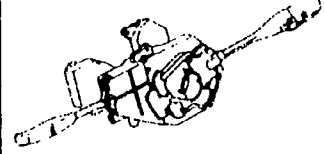
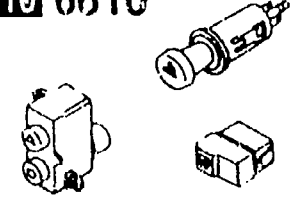
1 0900  KEY SETS	2 5100  HEAD LAMPS	3 5103  HEAD LAMP RETRACTORS	4 5105  FRONT COMBINATION LAMPS	5 5110  REAR COMBINATION LAMPS	6 5120  LICENSE LAMPS
<h2 style="margin: 0;">BODY (1/4)</h2> 					
19 6640  AUTO CRUISE CONTROL SYSTEM					7 5125  INTERIOR LAMPS
18 6740  WIPER MOTOR COMPONENTS (FRONT)					8 6600  SWITCHES & RELAYS (ENGINE)
17 6730  WINDSHIELD WIPERS					9 6630  RELAYS & UNIT (BODY)
16 6720  WINDSHIELD WASHER	15 6704  WIRING HARNESS CLAMPS	14 6703  WIRING HARNESSSES (DOOR, FLOOR/CEILING)	13 6702  WIRING HARNESSSES (DASHBOARD)	12 6701  WIRING HARNESSSES (ENGINE & 1/MISSION)	11 6700  WIRING HARNESSSES (FRONT & REAR)

As this illustration is prepared to be applicable to all models, some parts are different in specifications from parts listed in this parts Catalog.

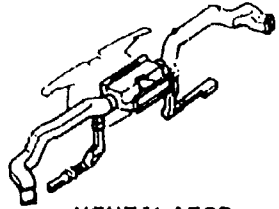

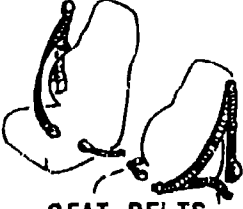
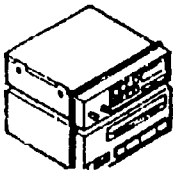
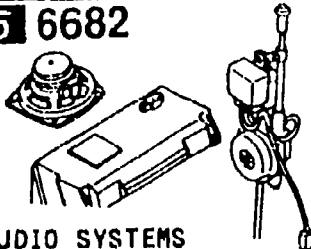
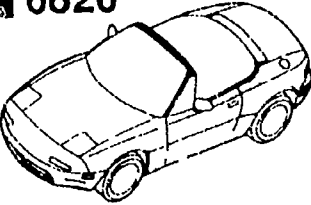
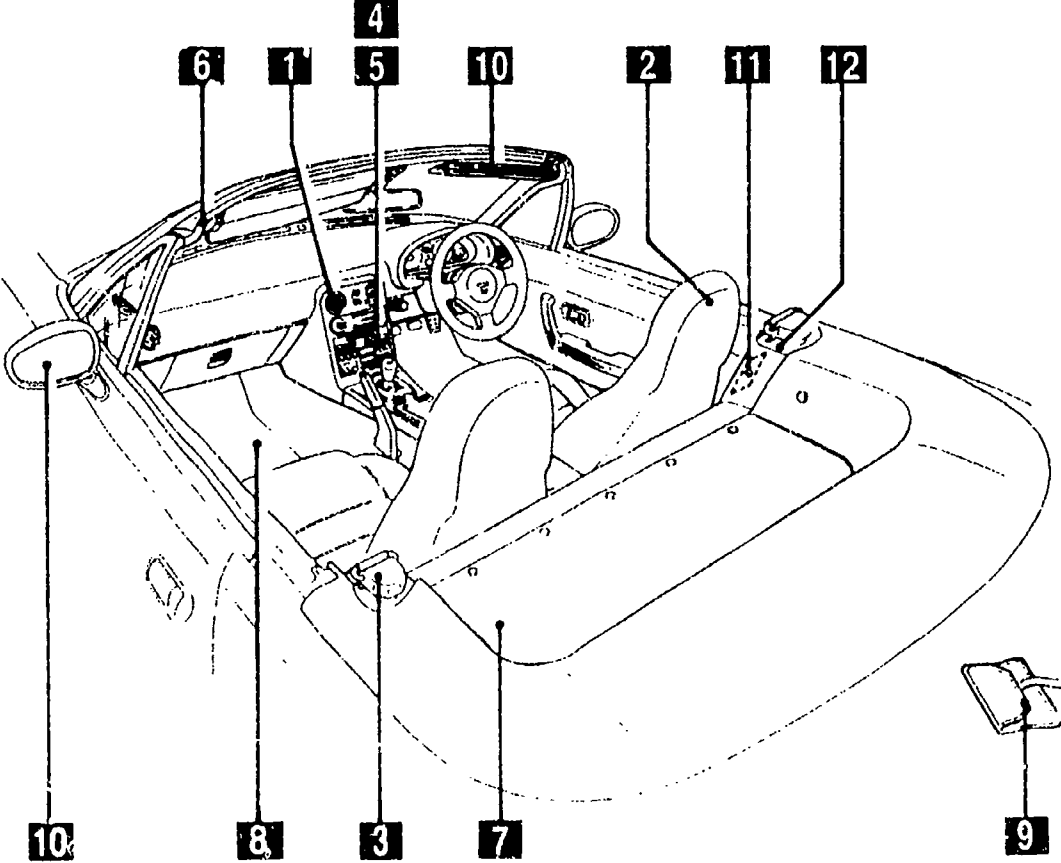
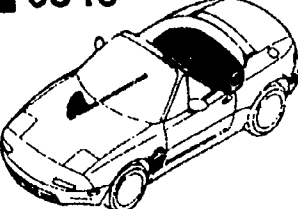
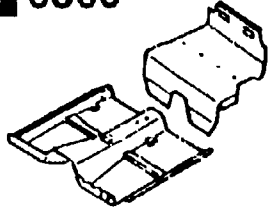

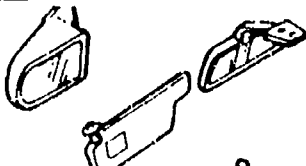


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<p>1 5000</p>  <p>FRONT BUMPER</p>	<p>2 5010</p>  <p>REAR BUMPER</p>	<p>3 5030</p>  <p>WINDOW MOULDING & COWL GRILLES</p>	<p>4 5170</p>  <p>MAZDA Miata Mazda MX-5</p> <p>ORNAMENTS</p>	<p>5 5180</p>  <p>REAR FINISHER</p>	<p>6 5230</p>  <p>BONNET</p>
<p>BODY (2/4)</p>					
<p>19 6330</p>  <p>SUNROOF</p>					<p>7 5260</p>  <p>TRUNK LID</p>
<p>18 6300</p>  <p>WINDOW GLASSES</p>					<p>8 5310</p>  <p>FRONT PANELS</p>
<p>17 5840</p>  <p>FRONT DOOR TRIMS & RELATED PARTS</p>					<p>9 5320</p>  <p>FENDER & WHEEL APRON PANELS</p>
<p>16 5830</p>  <p>FRONT DOOR MECHANISMS</p>					<p>10 5330</p>  <p>DASH & COWL PANELS</p>
<p>15 5800</p>  <p>FRONT DOORS</p>					<p>11 5340</p>  <p>SIDE PANELS</p>
<p>14 5390</p>  <p>FLOOR ATTACHMENTS</p>	<p>13 5380</p>  <p>FLOOR ATTACHMENTS (HOLE COVERS)</p>	<p>12 5370</p>  <p>FLOOR PANELS</p>			

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<p>1 5500</p>  <p>DASHBOARD EQUIPMENTS</p>	<p>2 5520</p>  <p>METER HOOD</p>	<p>3 5530</p>  <p>SPEEDOMETER CABLE</p>	<p>4 5540</p>  <p>METER COMPONENTS</p>	<p>5 5560</p>  <p>DASHBOARD & RELATED PARTS</p>	<p>6 5570</p>  <p>CONSOLE</p>
<h2 style="margin: 0;">BODY (3/4)</h2> 					
<p>7 5795</p>  <p>AIR BAG</p>					
<p>8</p>  <p>6115</p>  <p>6110</p>  <p>6100</p>  <p>6120</p> <p>HEATER</p>					
<p>9</p>  <p>6130</p>  <p>6135</p>  <p>6140</p>  <p>6150</p> <p>AIR CONDITIONER</p>					
<p>11 6611</p>  <p>COMBINATION SWITCH</p>			<p>10 6610</p>  <p>DASHBOARD SWITCHES</p>		

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<p>1 5580</p>  <p>VENTILATOR</p>	<p>2 5700</p>  <p>SEATS</p>	<p>3 5790</p>  <p>SEAT BELTS</p>	<p>4 6680</p>  <p>AUDIO SYSTEMS (RADIO & TAPE DECK)</p>	<p>5 6682</p>  <p>AUDIO SYSTEMS (ANTENNA & SPEAKER)</p>	<p>6 6820</p>  <p>FRONT HEADER TRIM & PILLAR TRIMS</p>	
<p>BODY (4/4)</p>  <p>At this illustration is prepared to be applicable to all models, some parts are different in specifications from parts listed in this parts Catalog.</p>						<p>7 6840</p>  <p>TRIMS & SCUFF PLATES</p>
						<p>8 6860</p>  <p>FLOOR MATS & PADS</p>
						<p>9 6870</p>  <p>SERVICE TOOLS</p>
						<p>10 6900</p>  <p>VISORS, ASSIST HANDLES & MIRRORS</p>
						<p>12 7250</p>  <p>QUARTER WINDOW & TRIMS</p>
						<p>11 6930</p>  <p>CAUTION PLATES & LABELS</p>

SECTION NAME INDEX (ENGINE)

LO.NO	SEC.NO	SECTION NAME	LO.NO	SEC.NO	SECTION NAME	LO.NO	SEC.NO	SECTION NAME
1-C03	1000	ENGINE & GASKET SETS	1-K09	1950	AUTOMATIC TRANSMISSION MANUAL LINKAGE SYSTEM			
1-E03	1010	CYLINDER HEAD & COVER	1-M09	1960	AUTOMATIC TRANSMISSION GASKET & SEAL KIT			
1-H03	1030	CYLINDER BLOCK						
1-J03	1040	OIL PAN & TIMING COVER						
1-L03	1100	PISTON, CRANKSHAFT & FLYWHEEL						
1-C04	1200	VALVE SYSTEM						
1-E04	1300	INLET MANIFOLD						
1-F04	1310	EXHAUST MANIFOLD						
1-G04	1320	FUEL SYSTEM						
1-I04	1325	FUEL DISTRIBUTOR						
1-J04	1330	AIR CLEANER						
1-L04	1364	THROTTLE BODY						
1-M04	1370	EMISSION CONTROL SYSTEM (INLET SIDE)						
1-C05	1400	OIL PUMP & FILTER						
1-E05	1500	COOLING SYSTEM						
1-H05	1580	BRACKET, PULLEY & BELT						
1-C06	1600	CLUTCH DISC & COVER						
1-D06	1700	MANUAL TRANSMISSION CASE						
1-E06	1710	MANUAL TRANSMISSION GEARS						
1-J06	1720	MANUAL TRANSMISSION CHANGE CONTROL SYSTEM						
1-M06	1800	ENGINE ELECTRICAL SYSTEM						
1-C07	1830	ALTERNATOR						
1-E07	1840	STARTER (MT)						
1-G07	1840 A	STARTER (AT)						
1-I07	1850	BATTERY						
1-J07	1910	AUTOMATIC TRANSMISSION TORQUE CONVERTER, OIL PUMP & PIPINGS						
1-M07	1920	AUTOMATIC TRANSMISSION CASE & MAIN CONTROL SYSTEM						
1-F08	1925	AUTOMATIC TRANSMISSION CONTROL VALVE						
1-M08	1930	AUTOMATIC TRANSMISSION CLUTCHES & PLANETARY GEARS						
1-H09	1940	AUTOMATIC TRANSMISSION GOVERNOR, LOW & REVERSE PISTON						

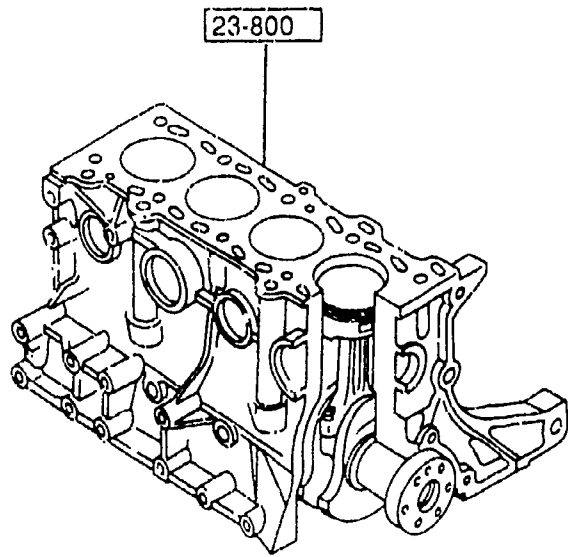
SECTION NAME INDEX (CHASSIS)

LO.NO	SEC.NO	SECTION NAME	LO.NO	SEC.NO	SECTION NAME	LO.NO	SEC.NO	SECTION NAME
1-C11	2505	REAR PROPELLER SHAFT	1-F16	4340	BRAKE MASTER CYLINDER & POWER BRAKE (W/O ANTILOCK BRAKE)			
1-D11	2550	REAR DRIVE SHAFT						
1-F11	2600	REAR AXLE	1-H16	4340 A	BRAKE MASTER CYLINDER & POWER BRAKE (W/ANTILOCK BRAKE)			
1-G11	2610	REAR BRAKE MECHANISMS						
1-J11	2710	REAR DIFFERENTIALS (NORMAL DIFF.)	1-K16	4360	BRAKE PIPINGS (W/O ANTI LOCK BRAKE SYSTEM)			
1-C12	2710 A	REAR DIFFERENTIALS (LIMITED SLIP DIFF.)	1-M16	4360 A	BRAKE PIPINGS (ANTI LOCK BRAKE SYSTEM)			
1-G12	2800	REAR SUSPENSION MECHANISMS	2-C03	4370	ANTILOCK BRAKE SYSTEM			
1-H12	2810	REAR STABILIZER	2-E03	4400	PARKING BRAKE SYSTEM			
1-I12	2830	REAR LOWER ARMS & SUB FRAME	2-G03	4500	FUEL PIPINGS			
1-K12	3200	STEERING WHEEL	2-I03	4600	CHANGE CONTROL SYSTEM (AT)			
1-L12	3210	STEERING COLUMN & SHAFTS						
1-M12	3220	STEERING GEAR (W/O POWER STEERING)						
1-C13	3220 A	STEERING GEAR (W/POWER STEERING)						
1-H13	3240	POWER STEERING SYSTEM						
1-K13	3300	FRONT AXLE (W/O ANTILOCK BRAKE)						
1-L13	3300 A	FRONT AXLE (W/ANTILOCK BRAKE)						
1-M13	3310	FRONT BRAKE MECHANISMS						
1-N13	3400	FRONT SUSPENSION MECHANISMS						
1-E14	3410	CROSSMEMBER & STABILIZER						
1-F14	3700	TIRES & JACK						
1-C15	3900	ENGINE & T/MISSION MOUNTINGS						
1-D15	4000	EXHAUST SYSTEM						
1-F15	4140	MANUAL TRANSMISSION CLUTCH RELEASE & MASTER CYLINDERS						
1-G15	4145	MANUAL TRANSMISSION CLUTCH PIPINGS						
1-H15	4160	ACCELERATOR CONTROL SYSTEM						
1-I15	4200	FUEL TANK						
1-L15	4210	FUEL LID OPENER						
1-M15	4300	MANUAL TRANSMISSION CLUTCH & BRAKE PEDALS						
1-D16	4300A	AUTOMATIC TRANSMISSION BRAKE PEDAL						

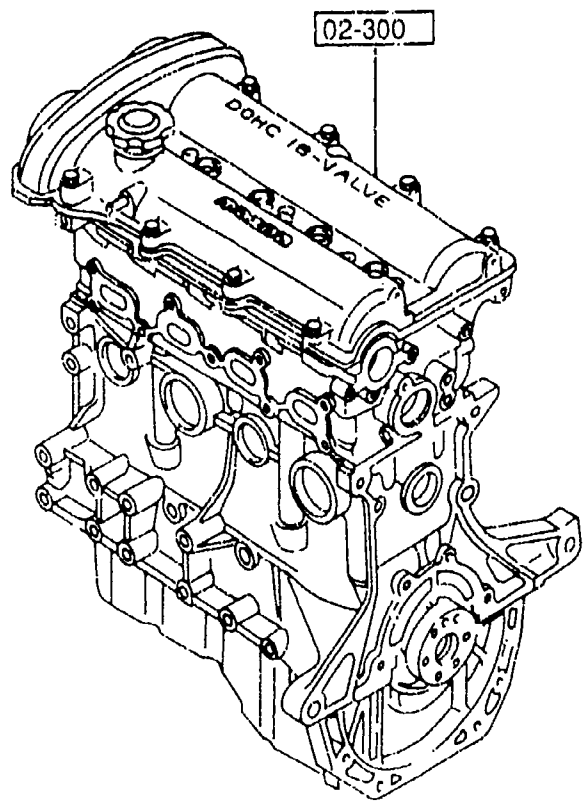
SECTION NAME INDEX (BODY)

LO.NO	SEC.NO	SECTION NAME	LO.NO	SEC.NO	SECTION NAME	LO.NO	SEC.NO	SECTION NAME
2-C05	0900	KEY SETS	2-C14	6100	HEATER	3-D06	6900	SUN VISORS, ASSIST HANDLES & MIRRORS
2-E05	5000	FRONT BUMPER	2-D14	6110	HEATER UNIT COMPONENTS	3-G06	6930	CAUTION PLATES & LABELS
2-H05	5010	REAR BUMPER	2-E14	6115	HEATER CONTROL COMPONENTS	3-I06	7250	QUARTER WINDOW & TRIMS
2-J05	5030	WINDOW MOULDING & COWL GRILLES	2-G14	6120	HEATER BLOWER COMPONENTS			
2-K05	5100	HEAD LAMPS	2-H14	6130	AIR CONDITIONER			
2-L05	5103	HEAD LAMP RETRACTORS	2-L14	6135	AIR CONDITIONING COOLING PIPE O-RING			
2-C06	5105	FRONT COMBINATION LAMPS	2-M14	6140	AIR CONDITIONING COMPRESSOR COMPONENTS			
2-E06	5110	REAR COMBINATION LAMPS	2-C15	6150	AIR CONDITIONING COOLING UNIT			
2-H06	5120	LICENSE LAMPS	2-D15	6300	WINDOW GLASSES			
2-I06	5125	INTERIOR LAMPS	2-E15	6330	SUN ROOF			
2-J06	5170	ORNAMENTS	2-E16	6600	ENGINE SWITCHES & RELAYS			
2-K06	5180	REAR FINISHER	2-J16	6610	DASHBOARD SWITCHES			
2-L06	5230	BONNET	2-L16	6611	COMBINATION SWITCH			
2-N06	5260	TRUNK LID	2-M16	6630	BODY RELAYS & UNIT			
2-D07	5310	FRONT PANELS	3-C03	6635	DOOR SWITCH & HORNS			
2-E07	5320	FENDER & WHEEL APRON PANELS	3-D03	6640	AUTO CRUISE CONTROL SYSTEM			
2-H07	5330	DASH & COWL PANELS	3-E03	6680	AUDIO SYSTEMS (RADIO & TAPE DECK)			
2-I07	5340	SIDE PANELS	3-K03	6682	AUDIO SYSTEMS (ANTENNA & SPEAKER)			
2-N07	5370	FLOOR PANELS	3-N03	6700	FRONT & REAR WIRING HARNESSSES			
2-E08	5380	FLOOR ATTACHMENTS (HOLE COVERS)	3-F04	6701	ENGINE & TRANSMISSION WIRING HARNESSSES			
2-F08	5390	FLOOR ATTACHMENTS	3-G04	6702	DASHBOARD WIRING HARNESSSES			
2-C09	5500	DASHBOARD EQUIPMENTS	3-H04	6703	DOOR, FLOOR & CEILING WIRING HARNESSSES			
2-F09	5520	METER HOOD	3-I04	6704	WIRING HARNESS CLAMPS			
2-G09	5530	SPEEDOMETER CABLE	3-L04	6720	WINDSHIELD WASHER (W/O ANTI LOCK BRAKE)			
2-H09	5540	METER COMPONENTS	3-N04	6720 A	WINDSHIELD WASHER (W/ANTI LOCK BRAKE)			
2-K09	5560	DASHBOARD & RELATED PARTS	3-E05	6730	WINDSHIELD WIPERS			
2-N09	5570	CONSOLE	3-G05	6740	WIPER MOTOR COMPONENTS			
2-E10	5580	VENTILATOR	3-H05	6820	FRONT HEADER TRIM & PILLAR TRIMS			
2-G10	5700	SEATS	3-I05	6840	TRIMS & SCUFF PLATES			
2-I12	5790	SEAT BELTS	3-L05	6860	FLOOR MATS & PADS			
2-J12	5795	AIR BAG	3-D06	6870	SERVICE TOOLS			
2-K12	5800	FRONT DOORS						
2-N12	5830	FRONT DOOR MECHANISMS						
2-F13	5840	FRONT DOOR TRIMS & RELATED PARTS						

FWD



23-800



02-300

10-271S

- 1-SEAL, VALVE..... (8)
- 2-SEAL, VALVE..... (8)
- 3-GASKET, HEAD COVER..... (1)
- 4-GASKET, CYLINDER HEAD..... (1)
- 5-GASKET, OIL PAN..... (1)
- 6-GASKET, OIL PAN..... (1)
- 7-GASKET (L)..... (1)
- 8-GASKET (INN), TIMING BELT (L)..... (1)
- 9-GASKET (O), TIMING BELT (L)..... (1)
- 10-GASKET, T. BELT, COVER-C..... (1)
- 11-RUBBER, SEAL-SEAL PLATE..... (1)
- 12-SEAL, OIL..... (1)
- 13-SEAL, OIL..... (2)
- 14-SEAL, OIL..... (1)
- 15-GASKET, IN. MANIFOLD..... (1)
- 16-GASKET, EX. MANIFOLD..... (1)
- 17-RING, 'O'..... (1)
- 18-GASKET, WATER PUMP..... (1)
- 19-GASKET, W. PUMP INLET..... (1)
- 20-GASKET, THERMOSTAT COVER..... (1)
- 21-RINGS, 'O'..... (1)

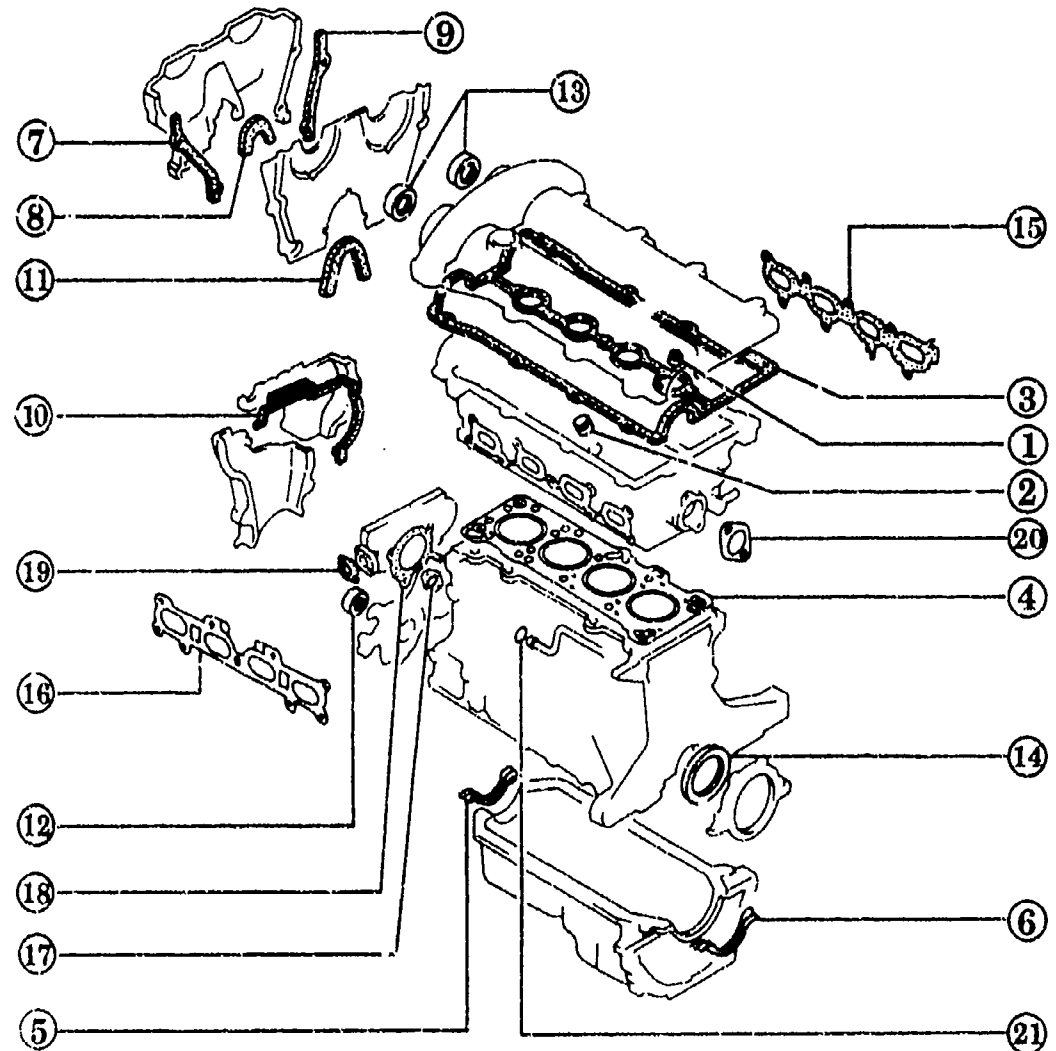
10-235S

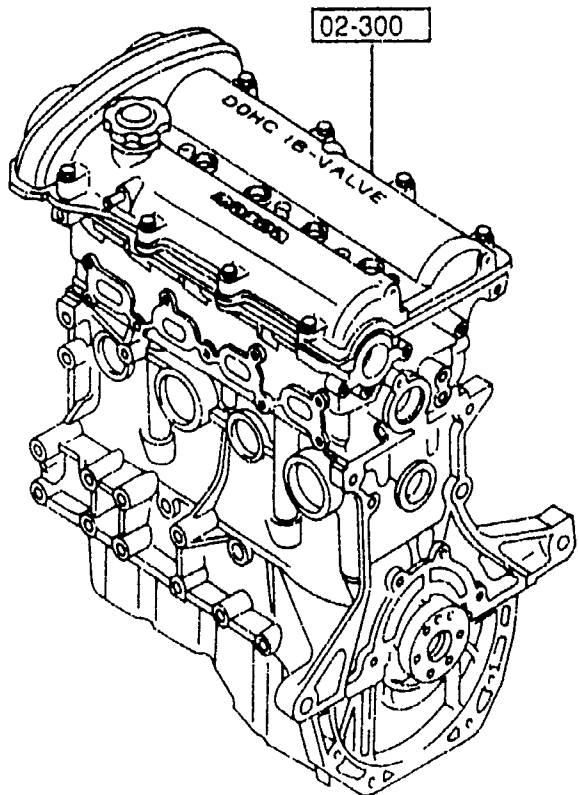
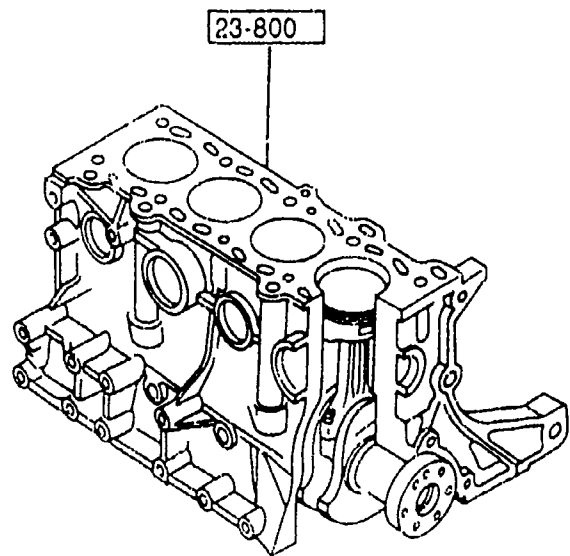
- 1-SEAL, VALVE..... (8)
- 2-SEAL, VALVE..... (8)
- 3-GASKET, HEAD COVER..... (1)
- 4-GASKET, CYLINDER HEAD..... (1)
- 12-SEAL, OIL..... (1)
- 13-SEAL, OIL..... (2)
- 15-GASKET, IN. MANIFOLD..... (1)
- 18-GASKET, EX. MANIFOLD..... (1)
- 20-GASKET, THERMOSTAT COVER..... (1)

02-310S

- 15-GASKET, IN. MANIFOLD..... (1)
- 16-GASKET, EX. MANIFOLD..... (1)
- 19-GASKET, W. PUMP INLET..... (1)
- 20-GASKET, THERMOSTAT COVER..... (1)

FWD

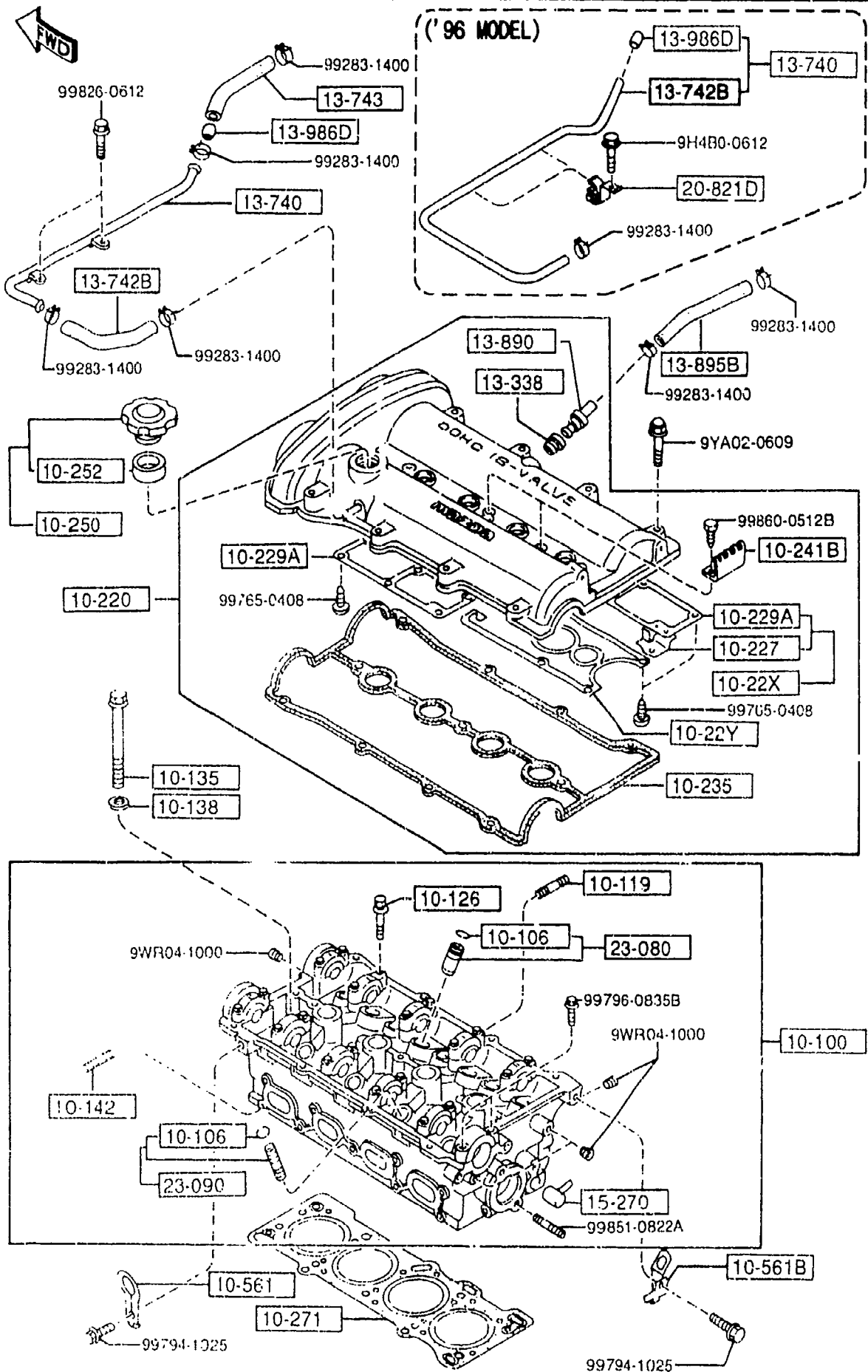




PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
02-300		ENGINE, PARTIAL			
BPE8-02-300	1	('95 MODEL)			
BPS1-02-300	1	('96 MODEL)			
02-310S		GASKET SET, PARTIAL ENGINE			
*8ABA-02-310	1				
10-235S		GASKET SET, CYL. HEAD			
8AN2-10-235A (8AN2-10-235A)	1				..5801
*8AN2-10-235A	1				5801-
10-271S		GASKET SET, ENGINE			
8AN2-10-271	1				-4901
8AN2-10-271A (8AN2-10-271B)	1				4901-5801
8AN2-10-271B	1				5801..
23-800		ENGINE, SHORT			
BPF1-02-200A	1				

4901 NA35* -602618
5801 NA3** -700842

1010 CYLINDER HEAD & COVER



1010 -1 CYLINDER HEAD & COVER

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
10-100	1	HEAD,CYLINDER			
BPL3-10-100A					
10-106	16	CLIP,VALVE GUIDE			
B66U-10-106					
10-119	9	STUD			
FE4J-13-146					
10-126	20	BOLT,CAMSHAFT CAP			-5601
B660-10-126					
KL02-10-126					5601-
10-135	10	BOLT,CYLINDER HEAD			
B660-10-135A					
10-138	10	WASHER,PLAIN CYL. HE AD			
B630-10-138A					
10-142	9	STUD,EX. MANIFOLD			
B661-10-104					
10-22X	1	PLATE,OIL BAFFLE-IN. SIDE			
R61P-10-22X					
10-22Y	1	PLATE,OIL BAFFLE-EX.			
B6S7-10-22Y					
10-220	1	COVER,CYLINDER HEAD			-4804
BPE8-10-210A					
A (BPE8-10-210B)					4804-5801
BPE8-10-210B					
AM (BPE8-10-210C)					5801-
BPE8-10-210C					
10-227	1	PLATE,WAFFLE			
B61P-10-227					
10-229A	2	PLATE,OIL BAFFLE			
B6S7-10-225					

4BU4 NA35* -606526
 5601 NA35* -700001
 5801 NA35* -700842

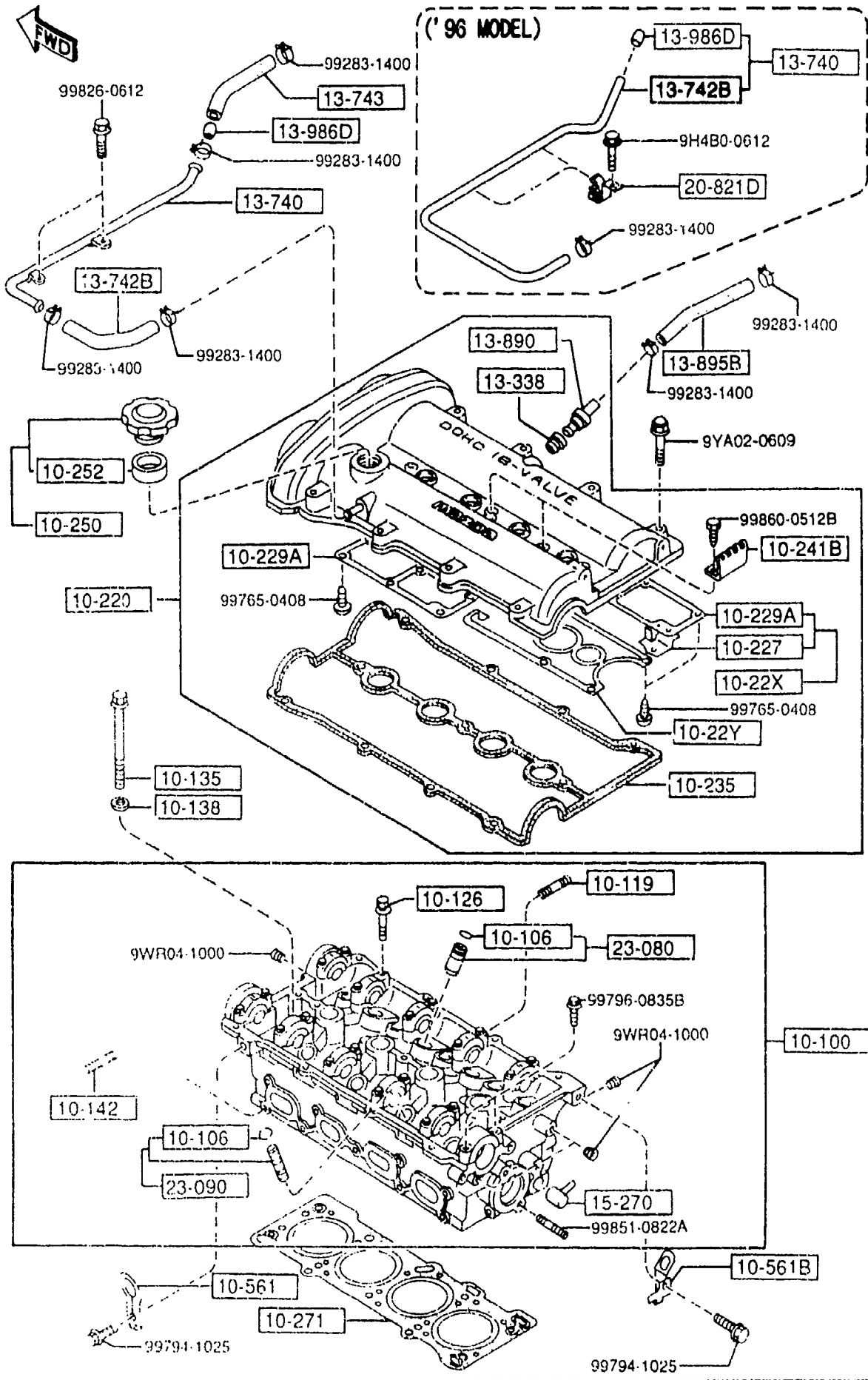
AUNA05

C&T. AUNA05-04

1997-07

1010 CYLINDER HEAD & COVER

1010 -2 CYLINDER HEAD & COVER



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
10-235		GASKET, HEAD COVER			
BP05-10-235B A (BP05-10-235C)	1				-5801
BP05-10-235C	1				5801-
10-241B		PROTECTOR, HT. CORD-S. TANK			
B660-10-241	2				-4804
BPE8-10-241	2				4804-
10-250		CAP, OIL FILLER			
0453-10-250A	1				
10-252		GASKET			
0324-10-252	1				
10-271		GASKET, CYLINDER HEAD NON ASBESTOS			
BP26-10-271	1				
10-561		HANGER, ENGINE			
B660-10-561	1				
10-561B		HANGER, ENGINE-REAR			
BPE8-10-566A	1				
13-338		SEAL, RUBBER			
E301-13-338A	1				
13-740		HOSE, VENT.-PURGE CON T. V.			
BPE8-13-74X	1				('95 MODEL)
BPE8-13-740A	1				('96 MODEL)
13-742B		HOSE, VENTILATION			
*BPE8-13-742	1				('96 MODEL)
B61P-13-742A	1				('95 MODEL)
13-743		HOSE, VENTILATION			
BPE8-13-743	1				('95 MODEL)
13-890		VALVE, P.C.V.			
BP05-13-890	1				

4804 NA3** -606526
5801 NA3** -700842

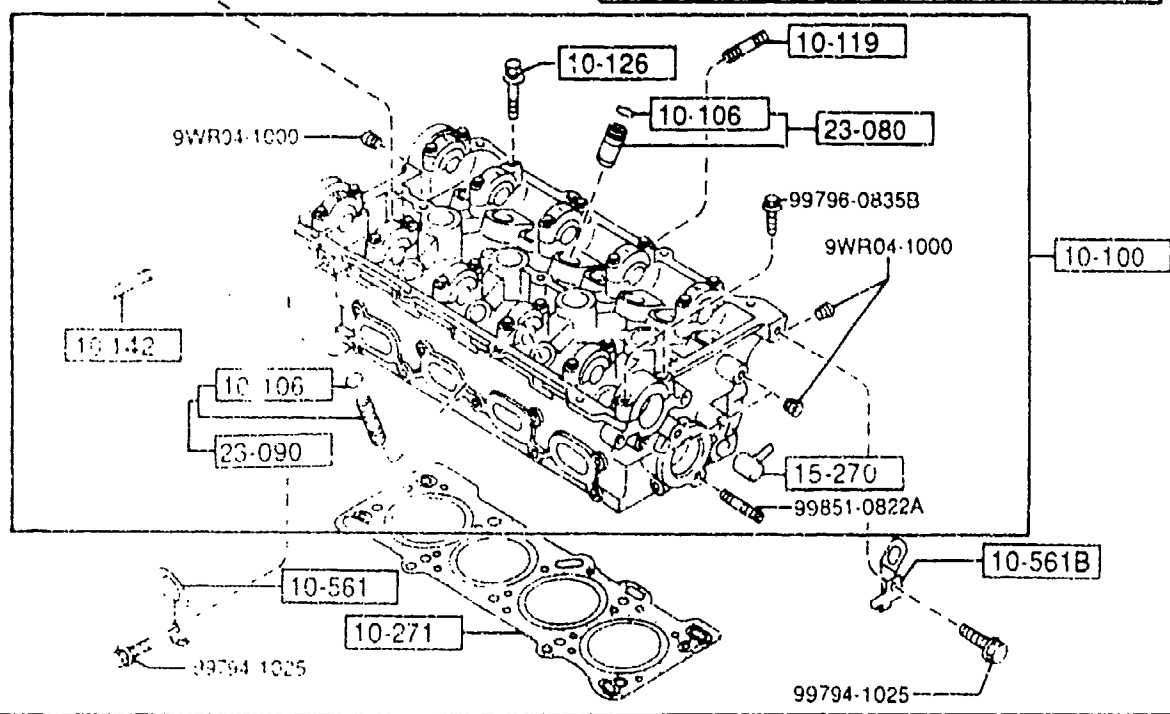
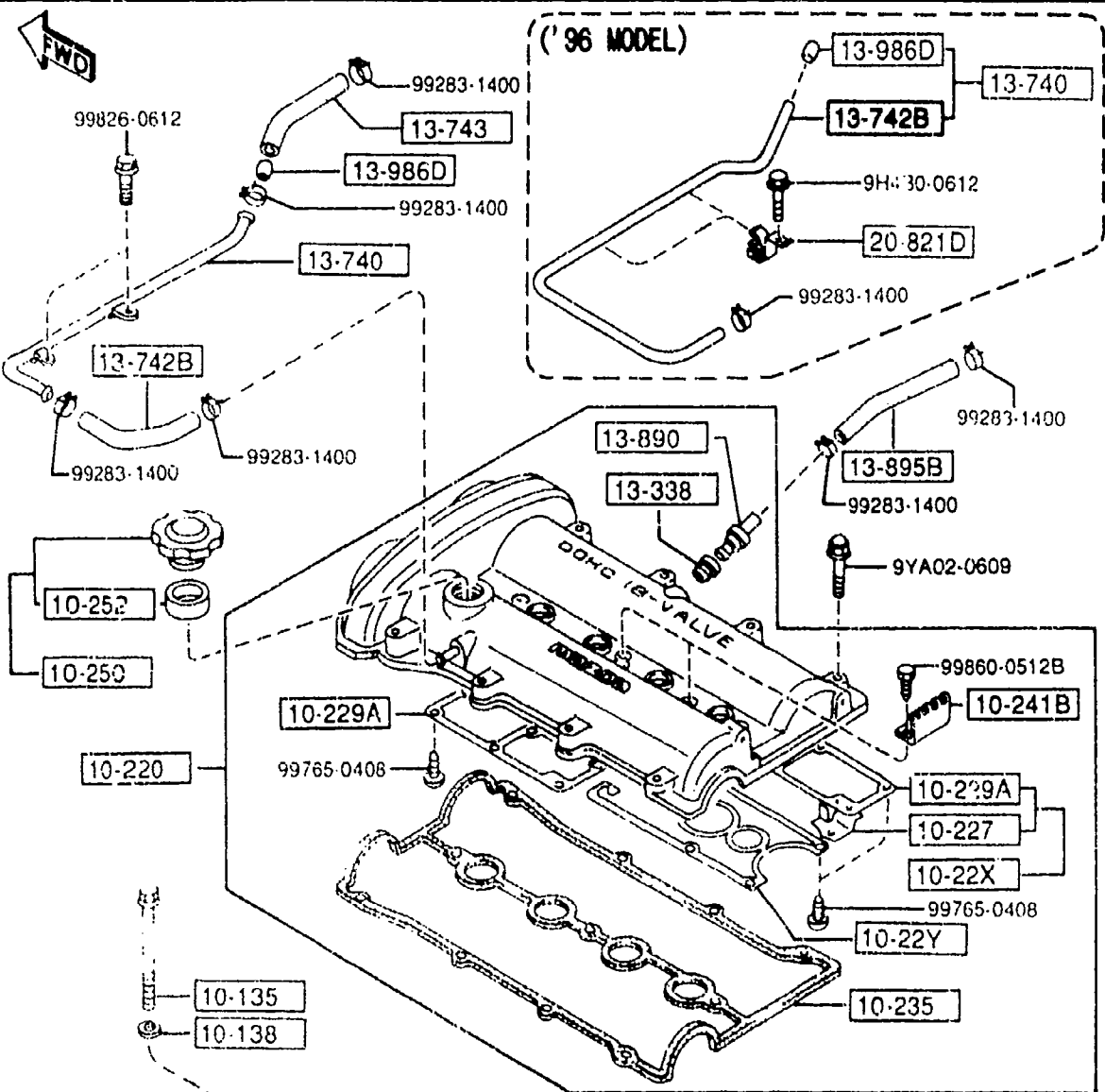
AUNA05

CAT. AUN-05-04

1997-07

1010 CYLINDER HEAD & COVER

1010 -3 * CYLINDER HEAD & COVER



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
13-895B	1	HOSE, P.C.V.			
BPE8-13-895					
13-986D	1	ORIFICE			
B61P-13-986					-5A02
15-270	1	PIPE, WATER BY PASS			
BPE8-15-270					
20-821D	2	CLIP, HOSE			
BPE8-20-820					('96 MODEL)
23-080	8	GUIDE, VALVE			
B6Z1-10-280					
23-090	8	GUIDE, VALVE			
BPY0-10-290					

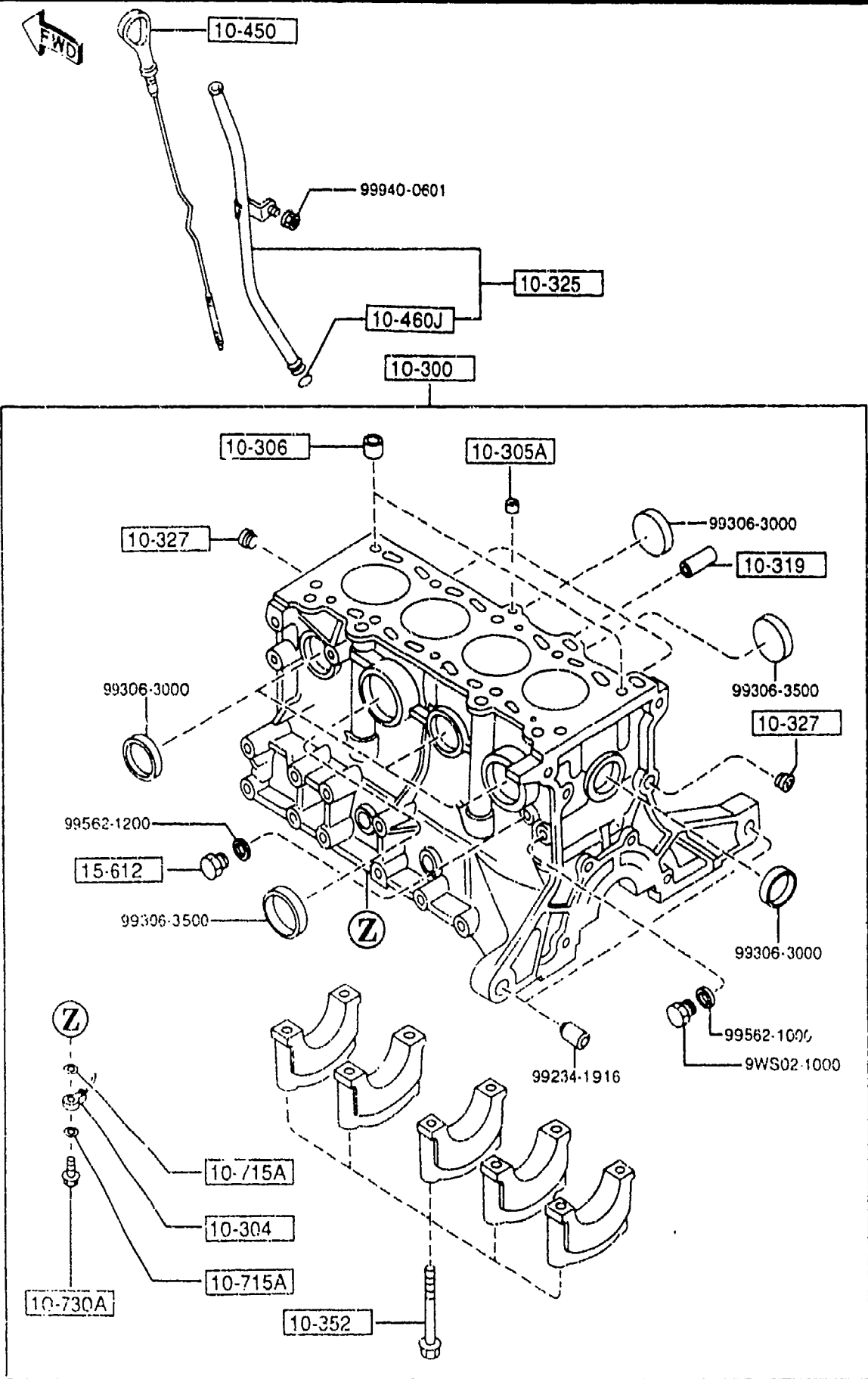
5A02 NA3** -703043

AUNA05

CAT. AUNA05-04

1997-07

1030 CYLINDER BLOCK

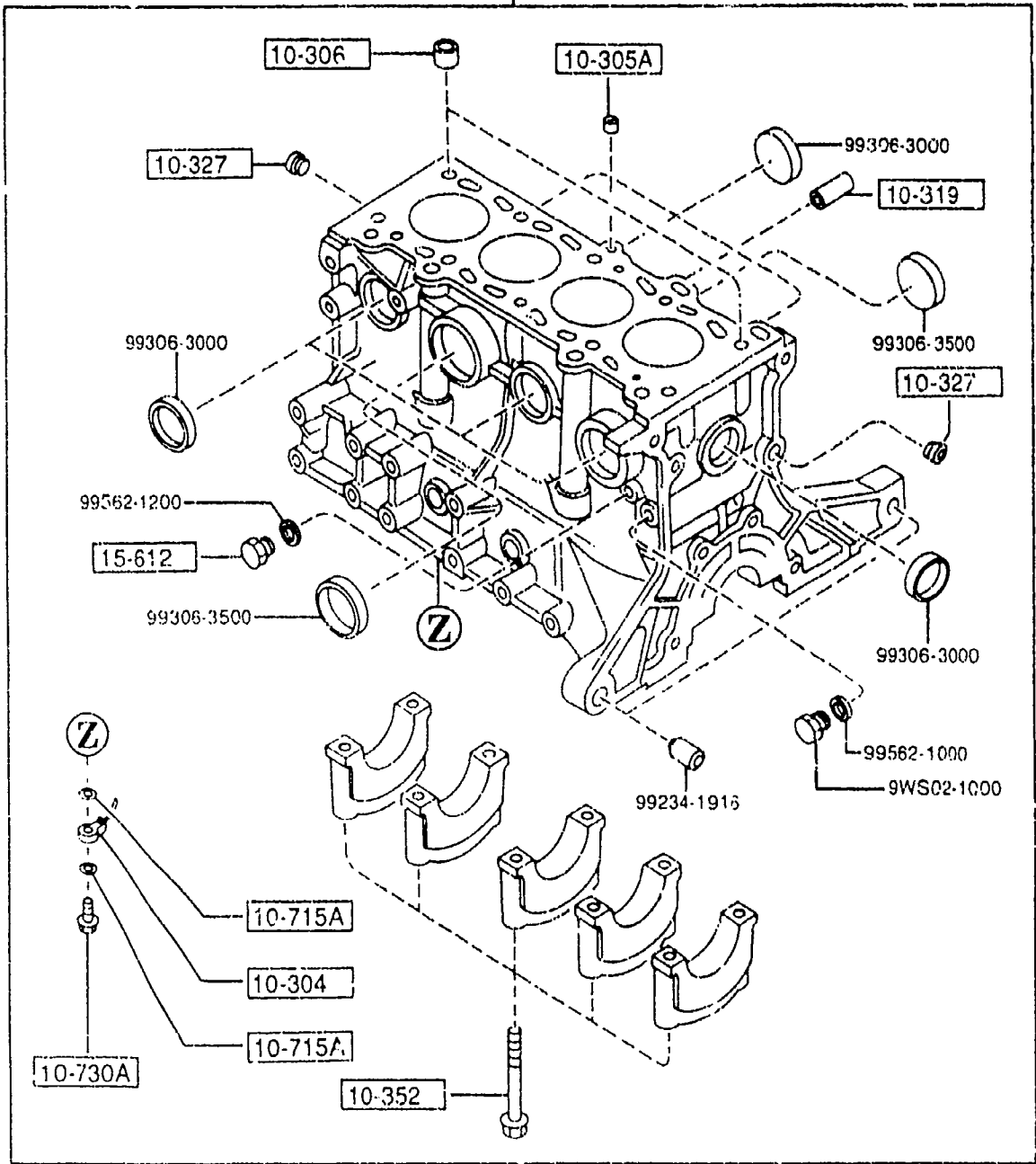
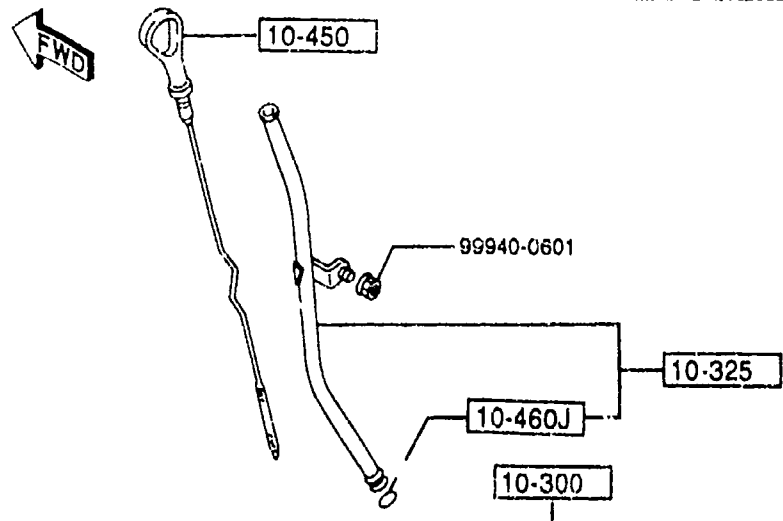


1030 -1 CYLINDER BLOCK

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
10-300		BLOCK, CYLINDER			
BP05-10-300M AN(BP05-10-300N)	1				-5712
BP05-10-300N	1				5712-
10-304		JET, OIL			
BP01-10-580 A (BP01-10-580A)	4				-5501
BP01-10-580A	4				5501-
10-305A		PLUG			
B366-10-305	1				
10-306		PIN, TUBULAR			
B630-10-306	2				
10-319		JOINT			
E586-10-319C	1				
10-325		PIPE, OIL LEVEL GAUGE			
BPE8-10-440	1				
10-327		PLUG, BLIND			
0221-10-327	2				
10-352		BOLT, BEARING CAP			
B630-10-352	10				
10-450		GAUGE, OIL LEVEL			
BPE8-10-450	1				
10-460J		RING, 'O'			
99541-00907	1				
10-715A		GASKET, OIL JET			
SE01-10-715	8				-5501
10-730A		VALVE, OIL JET			
SE01-10-730	4				
15-612		PLUG			

5501 NA35* -620210
5712 NA3** -700295

1030 CYLINDER BLOCK

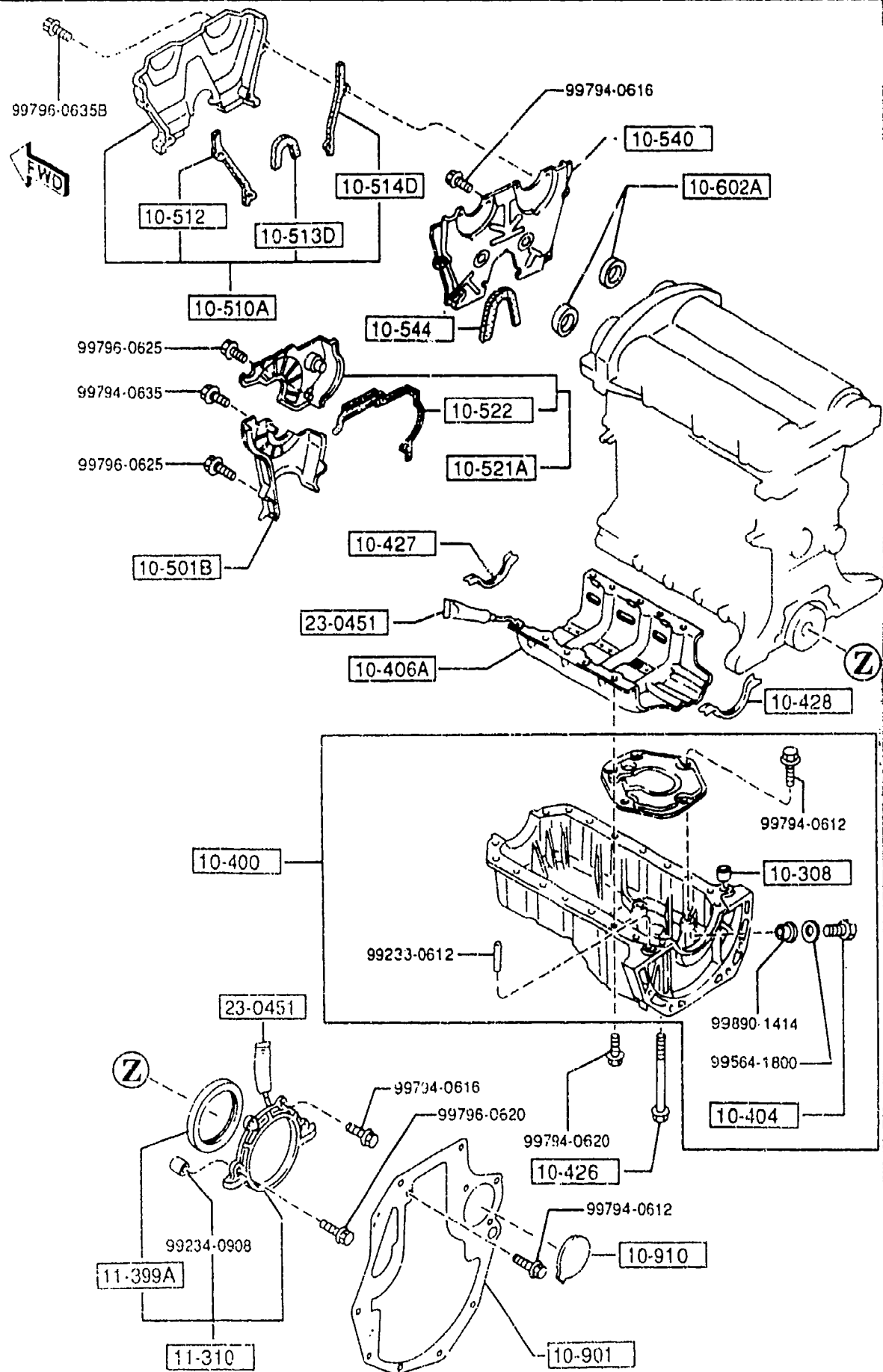


1030 -2 * CYLINDER BLOCK

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D SE01-15-612	1				-5712

5712 NA3** -700295

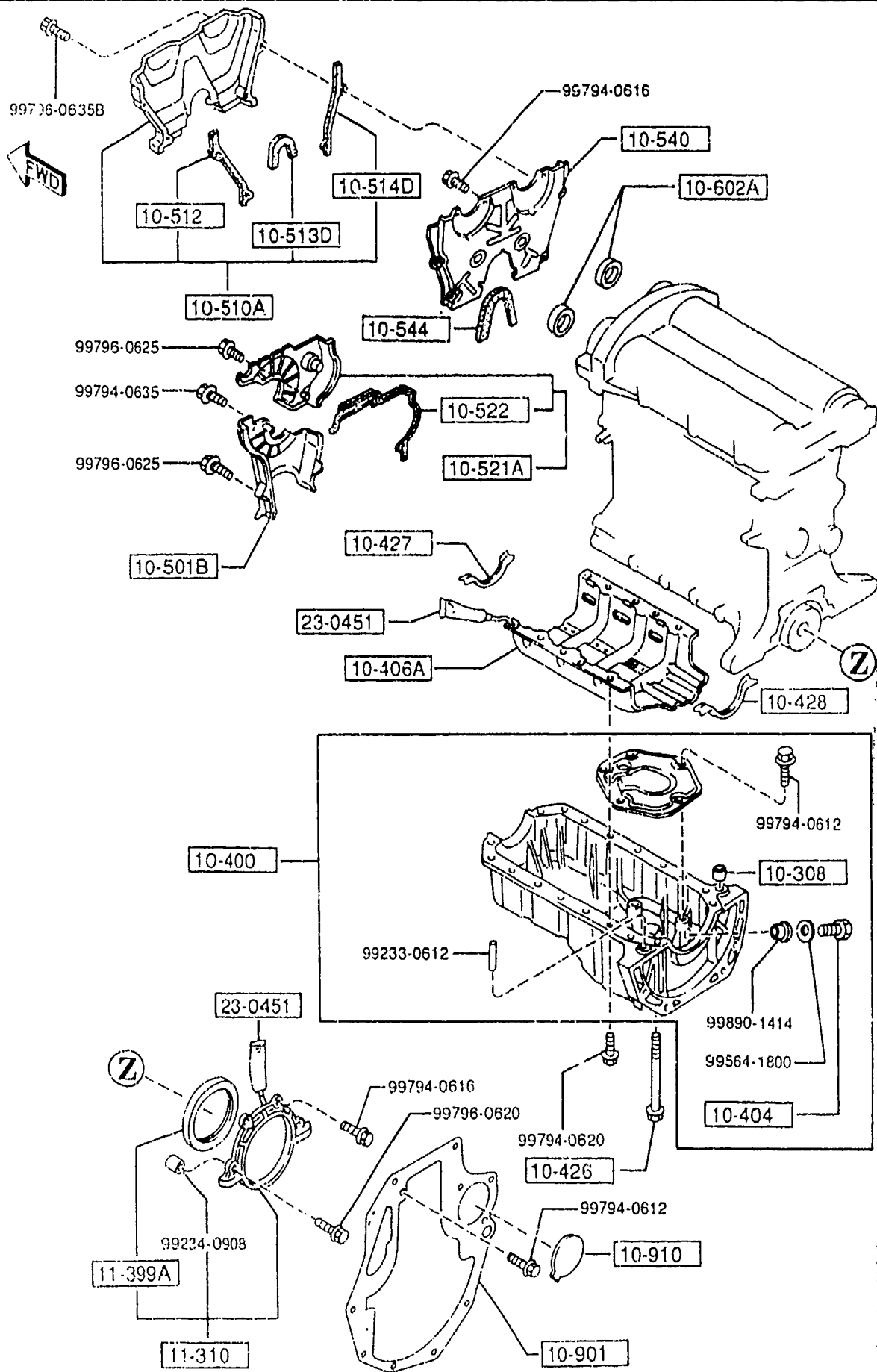
1040 OIL PAN & TIMING COVER



1040 -1 OIL PAN & TIMING COVER

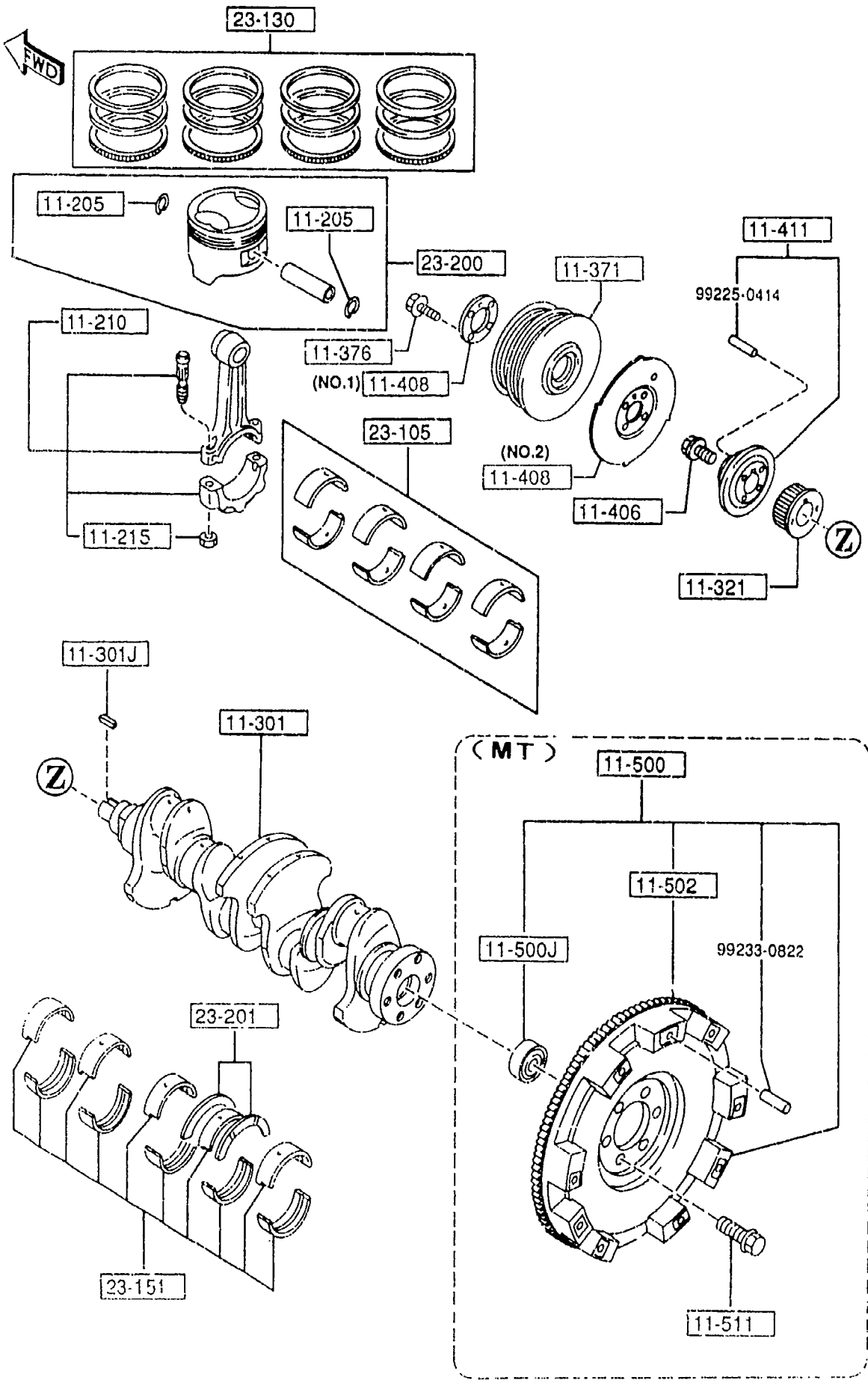
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODIFI./RESTRICTION	FROM-TO
10-308		PIN,TUBULAR			
B6F4-10 308	1				
10-400		PAN,OIL			
BPE8-10-400A	1				
10-404		PLUG,DRAIN			
B6S7-10-404A	1				
10-406A		PLATE,OIL BAFFLE-CYL . BLK			
BPE8-10-40Y	1				
10-426		BOLT			
B6S7-10-465	2				
10-427		GASKET,OIL PAN			
B6F4-10-427	1				
10-428		GASKET,OIL PAN			
B6F4-10-428	1				
10-501B		COVER,TIMING BELT-LW R			
B660-10-501E	1				
10-510A		COVER(UP.),TIMING CH AIN			
B61P-10-510	1				
10-512		GASKET(L)			
B61P-10-512	1	NON ASBESTOS			
10-513D		GASKET(INN),TIMING B ELT(L)			
B61P-10-513	1	NON ASBESTOS			
10-514D		GASKET(C),TIMING BEL T(L)			
B61P-10-514	1	NON ASBESTOS			
10-521A		COVER,TIMING BELT-C.			
B660-10-520B A (B660-10-521B)	1				-4901
4901 NA35* -602618					

1040 OIL PAN & TIMING COVER

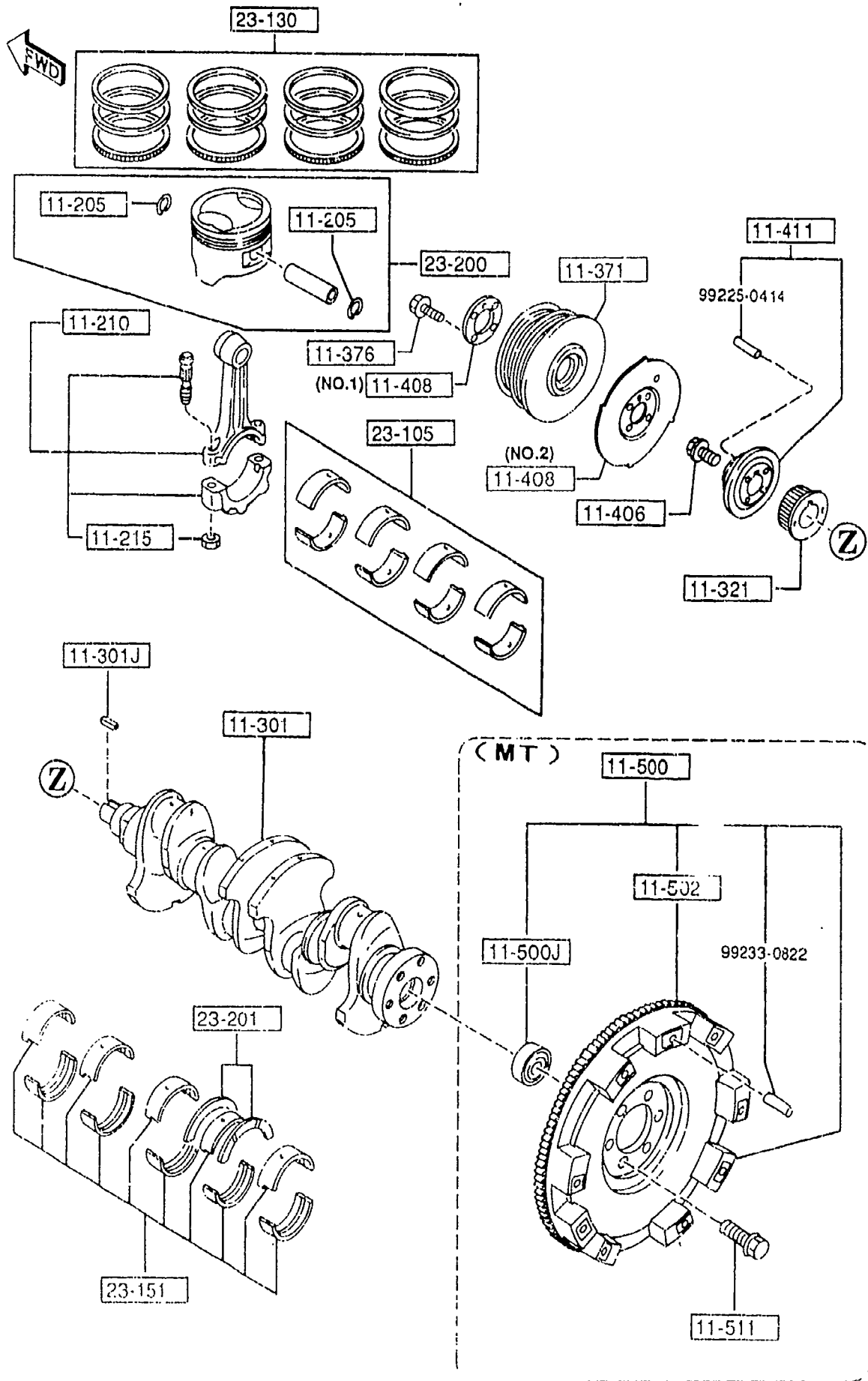


1040 -2 * OIL PAN & TIMING COVER

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
B660-10-521B	1				4901-
+-----+					
| 10-522 |		GASKET, T. BELT COVER-			
+-----+		C.			
B660-10-522	1	NON ASBESTOS			-4901
+-----+					
| 10-540 |		PLATE, SEAL-T. BELT CO			
+-----+		VER U			
B61P-10-540C	1				
+-----+					
| 10-544 |		RUBBER, SEAL-SEAL PLA			
+-----+		TE			
B61P-10-544	1				
+-----+					
| 10-602A |		SEAL, OIL			
+-----+					
FS05-10-602A	2				
+-----+					
| 10-901 |		PLATE, END			
+-----+					
B61P-10-901A	1	(MT)			
B64J-10-901	1	(AT)			
+-----+					
| 10-910 |		COVER, END PLATE			
+-----+					
B64J-10-903	1	(AT)			
+-----+					
| 11-310 |		COVER, REAR			
+-----+					
B366-11-310C	1				
+-----+					
| 11-399A |		SEAL, OIL-CRANKSHAFT			
+-----+					
BP05-11-312	1				
+-----+					
| 23-0451 |		TUBE, SILICON			
+-----+					
B527-77-739	1				
4901 NA35* -602618					

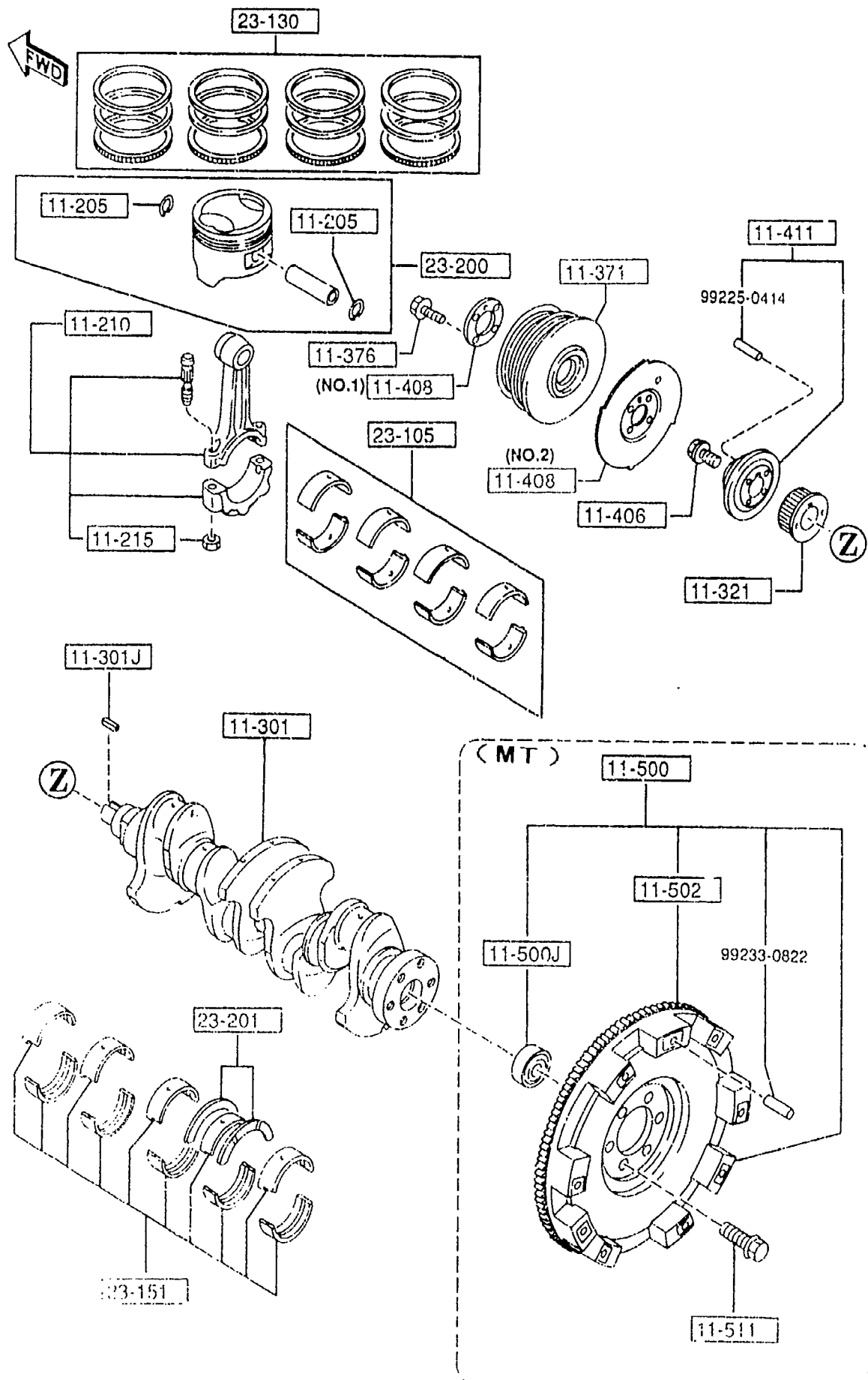


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
11-205		CLIP			
U221-11-205	8				
11-210		ROD,CONNECTING			
B6S7-11-210E	4				
11-215		NUT,CONNECTING ROD			
B6S7-11-215A	8				
11-301		CRANKSHAFT			
BP06-11-300C	1				
11-301J		KEY,WOODRUFF-PULLEY			
B3C7-11-317	1				
11-321		PULLEY,TIMING BELT			
B3C7-11-321	1				
11-371		PULLEY,CRANKSHAFT			
BPD3-11-401A	1				
11-376		BOLT,PULLEY			
JF01-11-405	4				
11-406		BOLT,LOCK-C.SHAFT PULLEY			
B3C7-11-406	1				
11-408		PLATE,CRANKSHAFT PULLEY			
B3C7-11-408	1	(ILLUST. NO.1)			
B6BF-11-408B	1	(ILLUST. NO.2)			
		('96 MODEL)			
11-411		BOSS,PULLEY			
B3C7-11-400	1	('95 MODEL)			
B6BF-11-400A	1	('96 MODEL)			
11-500		WHEEL,FLY			
BPR7-11-500	1	(MT)			
11-500J		BEARING,BALL-FLY WHEEL			
F801-11-303	1	(MT)			

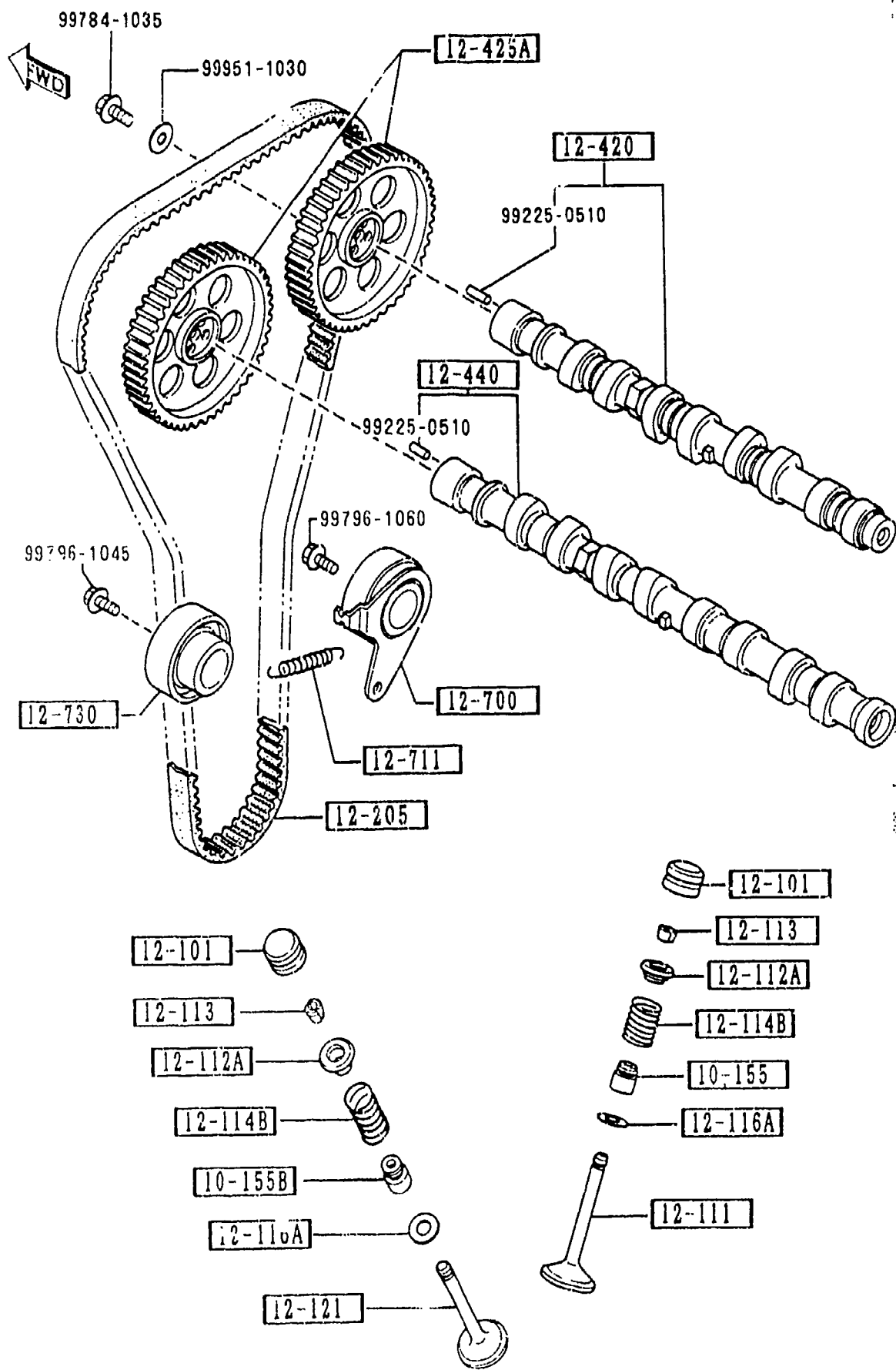


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
11-502	1	GEAR, RING-FLY WHEEL			
B367-11-502	1	YOSHIWA (MT)			4C01-
0110-11-502	1	KANDA (MT)			
11-511	6	BOLT, LOCK-FLYWHEEL			
F201-11-511A	6	(MT)			
23-105	1	METAL SET, CONN. ROD			
B6Y2-11-SEO	1	STD.			-5601
A (B6Y2-11-SEO0A)	1				
B6Y2-11-SFX	1	O.S. 0.50			-5601
A (B6Y2-11-SFXA)	1				
B6Y2-11-SFY	1	O.S. 0.75			-5601
A (B6Y2-11-SFYA)	1				
B6Y2-11-SF0	1	O.S. 0.25			-5601
A (B6Y2-11-SF0A)	1				
B6Y2-11-SEO0A	1	STD.			5601-
B6Y2-11-SFXA	1	O.S. 0.50			5601-
B6Y2-11-SFYA	1	O.S. 0.75			5601-
B6Y2-11-SF0A	1	O.S. 0.25			5601-
23-130	1	RING SET, PISTON			
BPY1-11-SC0	1	STD.			
BPY1-11-SDX	1	O.S. 0.50			
BPY1-11-SD0	1	O.S. 0.25			
23-151	1	METAL SET, MAIN BRG.			
B6Y2-11-SG0	1	STD.			
B6Y1-11-SHX	1	O.S. 0.50			
B6Y1-11-SHY	1	O.S. 0.75			
B6Y1-11-SH0	1	O.S. 0.25			

4C01 NA35* -609691
5601 NA3** -700001

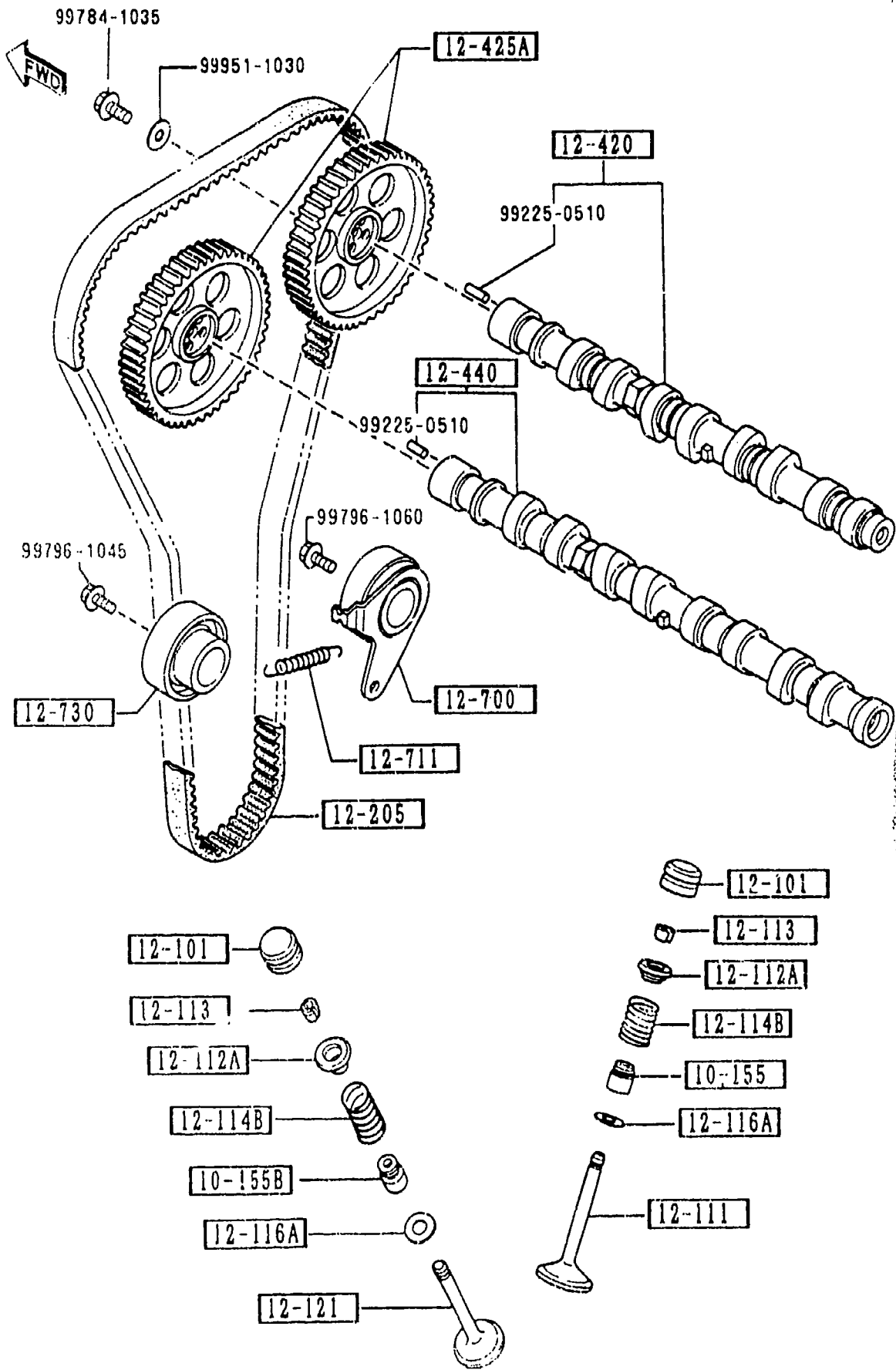


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
23-200		PISTON SET			
BPY1-11-SA0A	4	STD.			
BPY1-11-SBXA	4	O.S. 0.50			
BPY1-11-SB0A	4	O.S. 0.25			
23-201		METAL SET, THRUST			
B6Y1-11-SJ0	1	STD.			
B6Y1-11-SKX	1	O.S. 0.50			
B6Y1-11-SKY	1	O.S. 0.75			
B6Y1-11-SK0	1	O.S. 0.25			



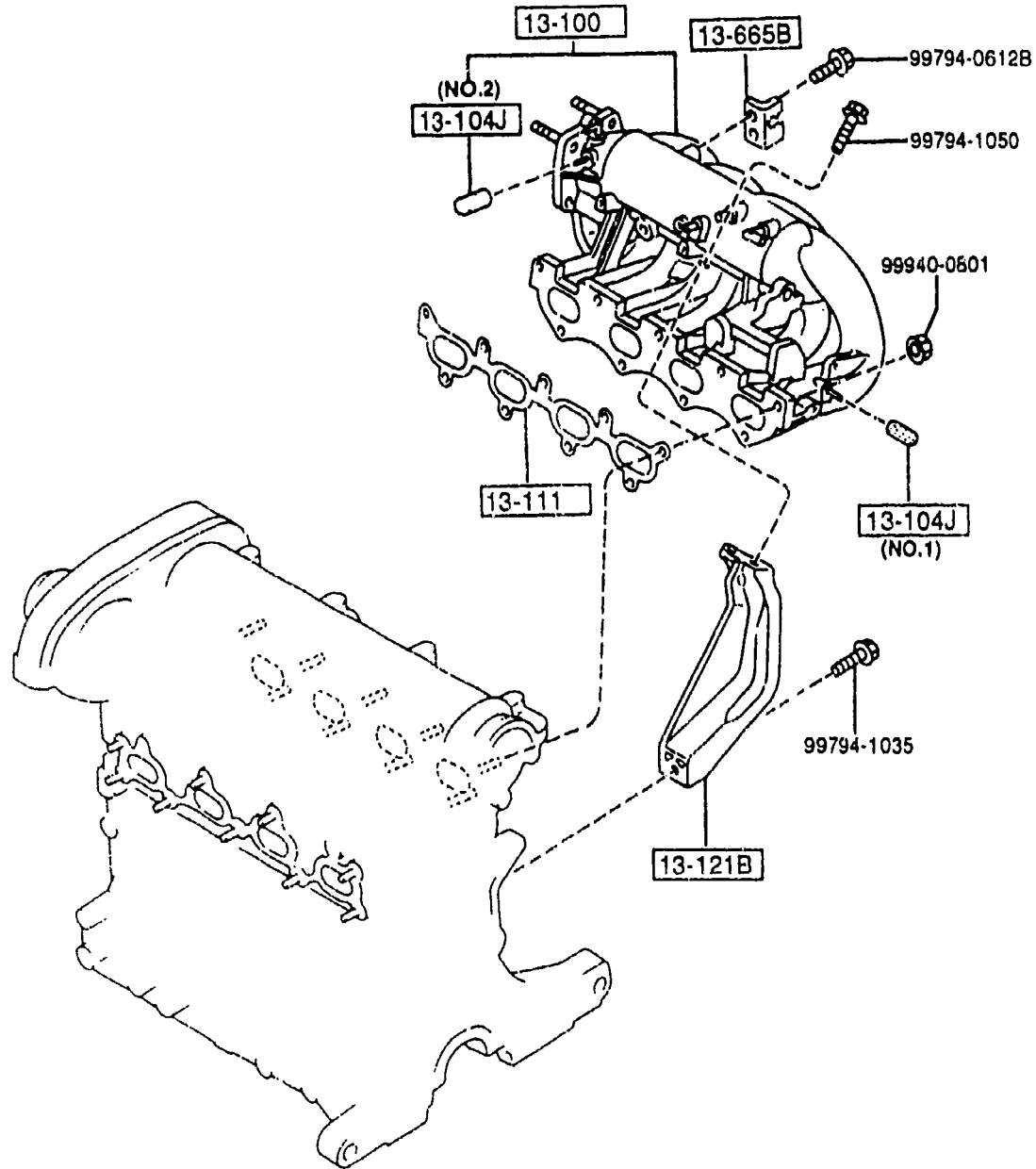
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
10-155		SEAL, VALVE			
KL01-10-155	8	NOK			
10-155B		SEAL, VALVE			
KL02-10-155	8	NOK			
12-101		ADJUSTER, HYDRAULIC L			
KL01-12-101B	16	ASH NITTAN VALVE			
12-111		VALVE, INLET			
BP05-12-111	8	NITTAN VALVE			-5901
BP06-12-111		FUJI VALVE			-5A01
A (BP05-12-111)	8				
BP1B-12-111	8	NITTAN VALVE			5901-
BP06-12-111A	8	FUJI VALVE			5A01-
12-112A		SEAT, VALVE SPG.-UP.			-5606
BP05-12-113	16				5606-
B6BF-12-113	16				
12-113		COTTER, VALVE-IN.			-5606
FE3N-12-114	32				5606-
FS01-12-114	32				
12-114B		SPRING, VALVE			
BP05-12-125	16				
12-116A		SEAT, VALVE SPG.-LWR			
B660-12-123A	16				
12-121		VALVE, EXHAUST			
BP05-12-121A	8				
12-205		BELT, TIMING			
B6S7-12-205C		UNITTA			-5C01
AN(B6S7-12-205D)	1				
B6S7-12-205D		UNITTA			

5606 NA3** -700001
 5901 NA3** -702989
 5A01 NA3** -703035
 5C01 NA3** -706448



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D	1				5C01-
12-420		CAMSHAFT			
BP05-12-420E	1				
12-425A		PULLEY, CAMSHAFT			
B6S7-12-425A	2				
12-440		CAMSHAFT, EXHAUST			
BP06-12-440C	1				
12-700		TENSIONER, TIMING BELT			
B660-12-700E	1				
12-711		SPRING, TENSIONER			
B660-12-711C	1				
12-730		IDLER, TIMING BELT			
B660-12-730C	1				

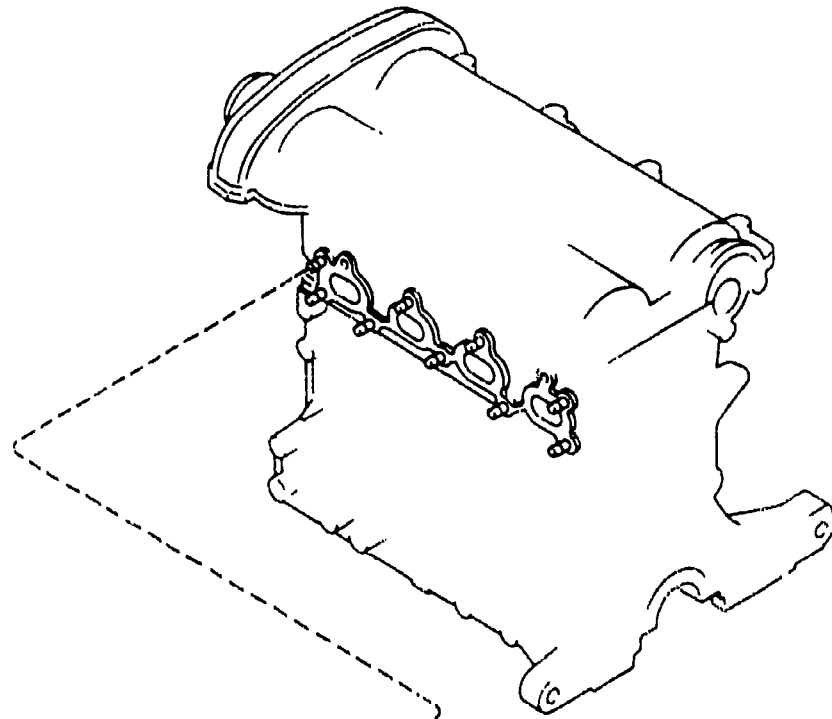
5C01 NA3** -706448



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
13-100		MANIFOLD, INLET			
BPE8-13-100C	1				-5201
BPE8-13-100D	1				5201-
13-104J		CAP, BLIND			
F8L7-13-104	1	(ILLUST. NO.1) (MT)			
1010-13-104	1	(ILLUST. NO.2)			
13-111		GASKET, IN. MANIFOLD			
BP05-13-111	1	NON ASBESTOS			
13-121B		STAY, MANIFOLD			
BPE8-13-121	1				
13-665B		BRACKET, ACCEL WIRE			
BPR5-13-665	1				

5201 NA35* -614193

FWD



9YB10-1002

13-462

13-390D

90794-0612

13-380

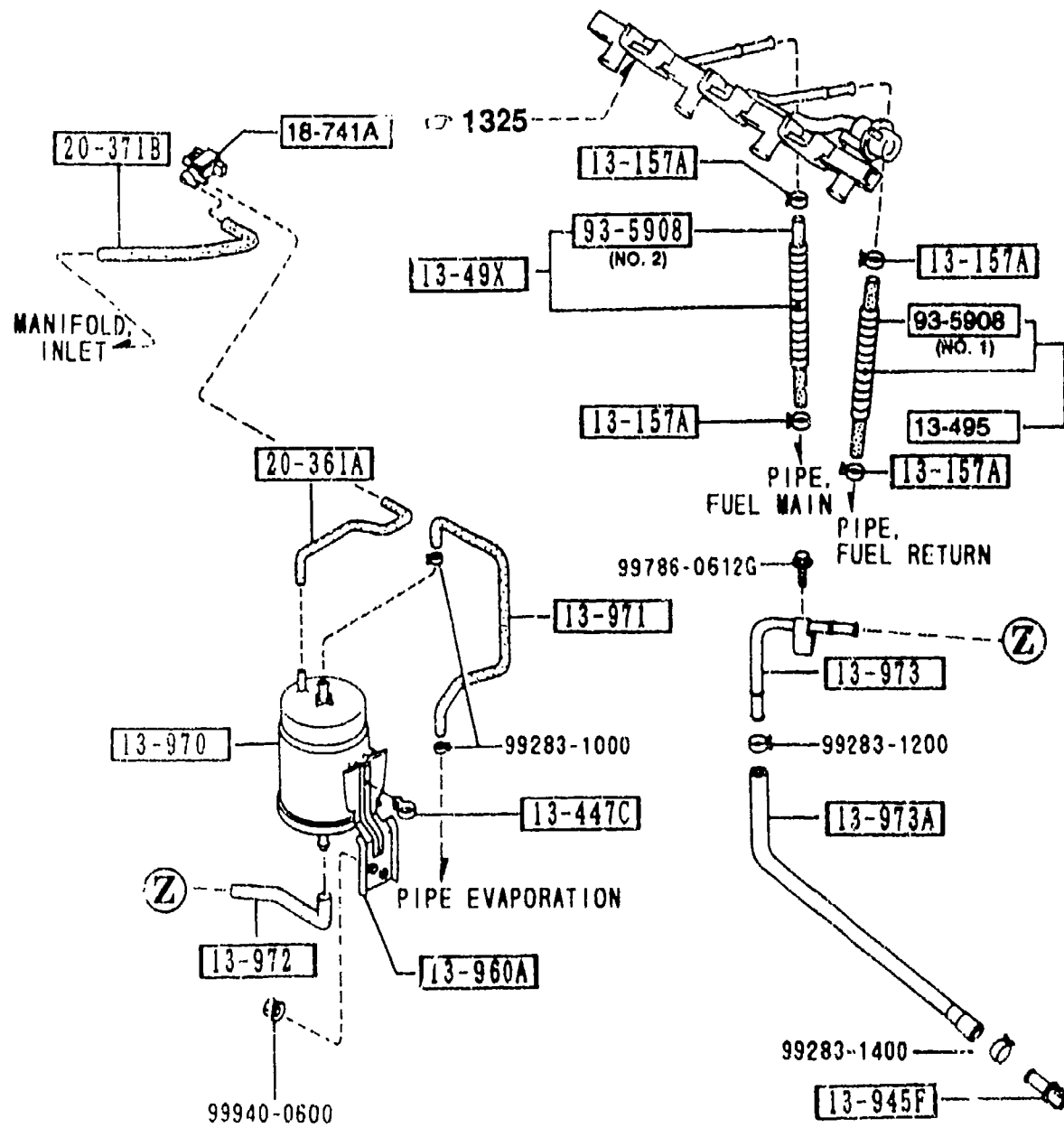
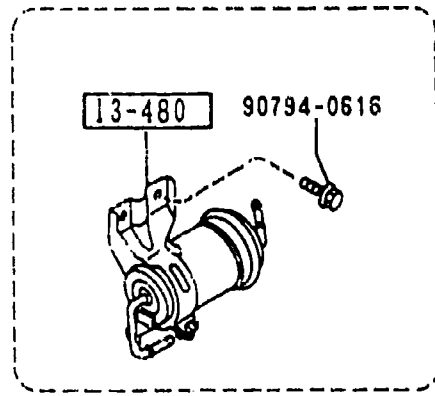
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13-456

90906-0602

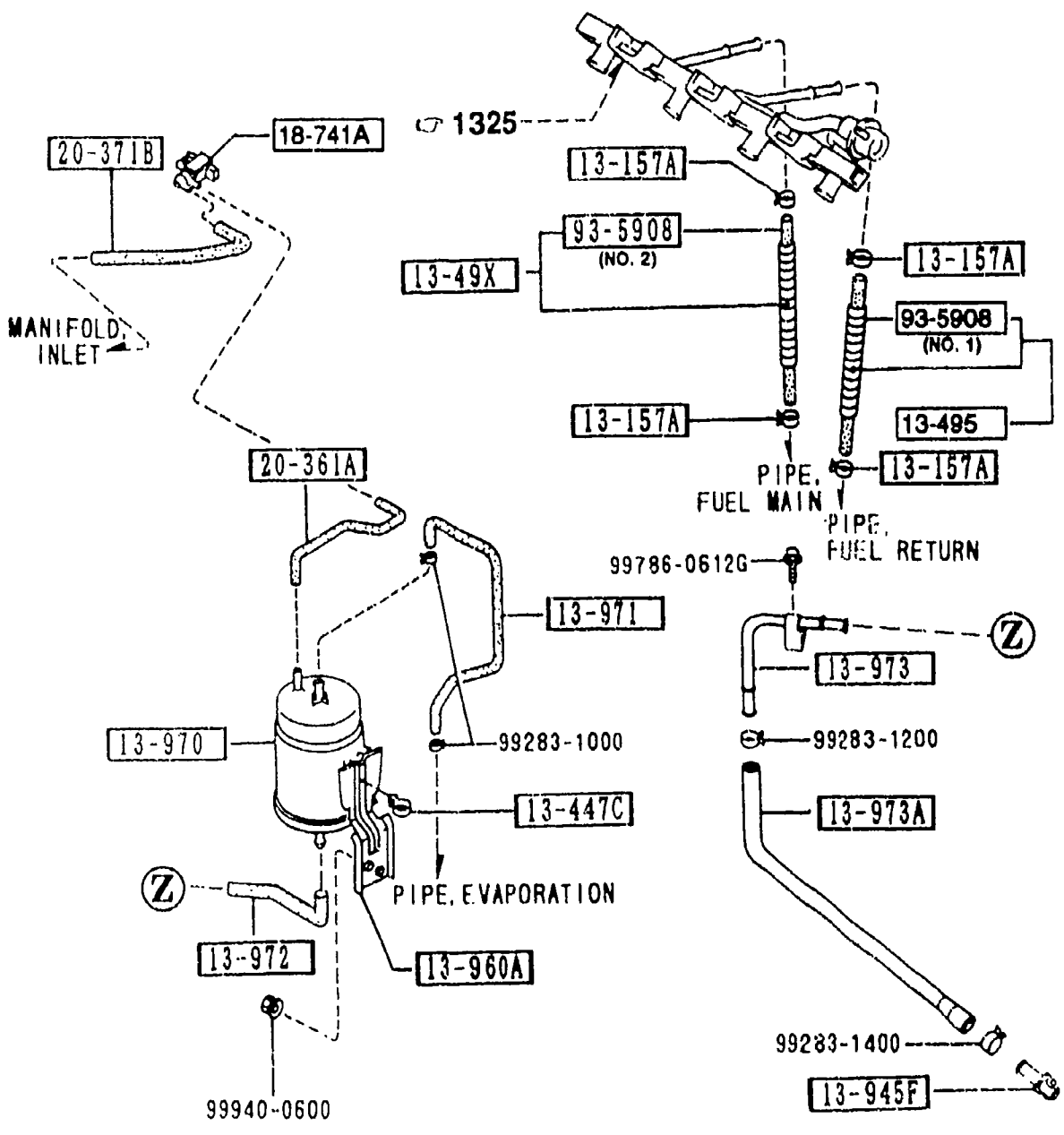
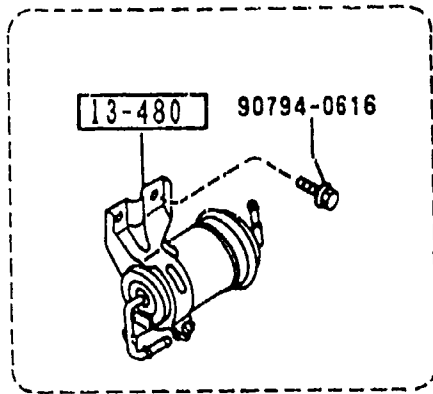
13-450

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
13-380 BPE8-13-380A	1	INSULATOR, HEAT			
13-390D BPE8-13-390	1	INSULATOR, EX. MANIFOLD			
13-450 BPE8-13-450	1	MANIFOLD, EXHAUST			
13-456 2306-13-456	3	STUD			
13-462 BP05-13-460	1	GASKET, EX. MANIFOLD NON ASBESTOS			

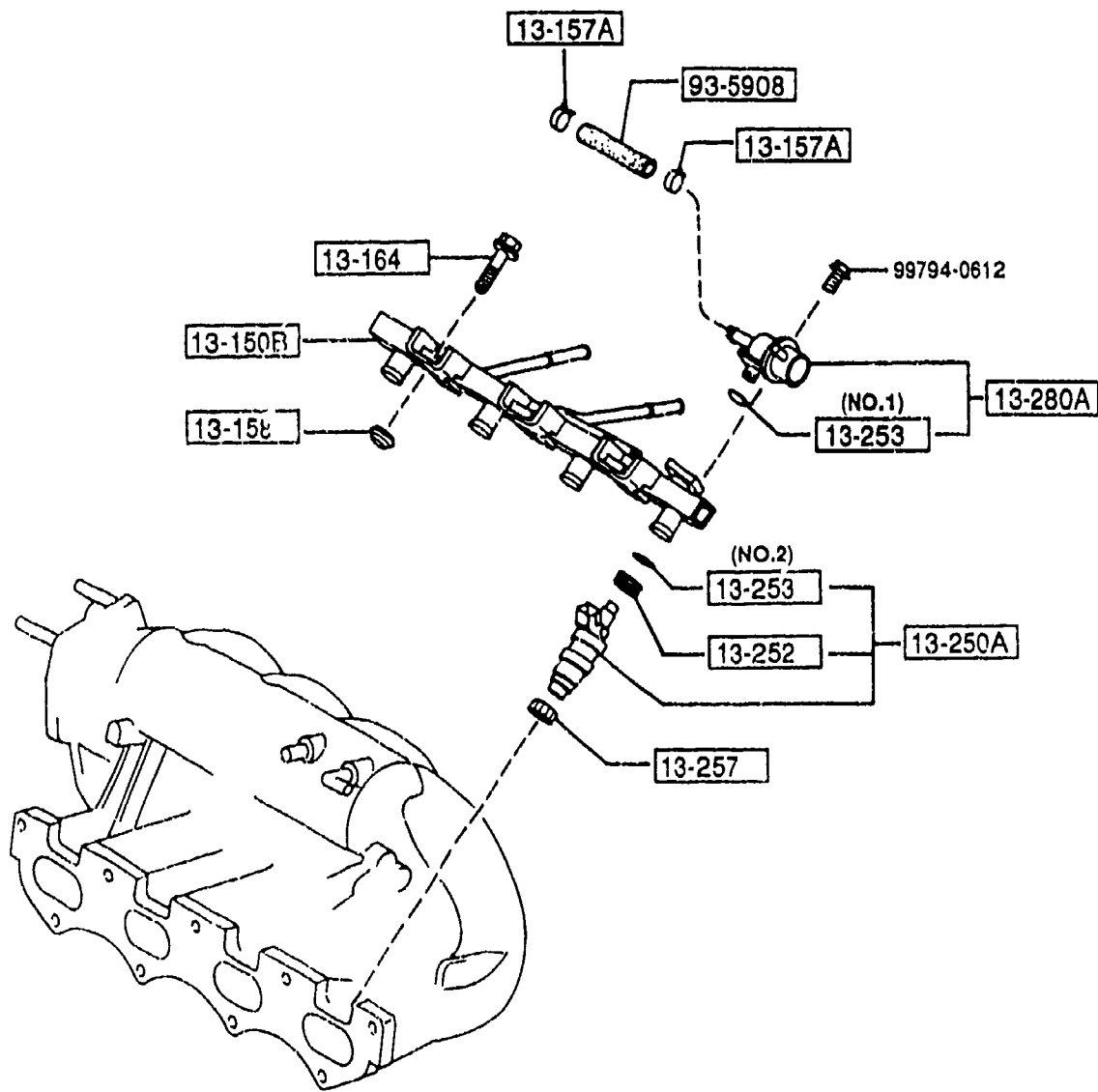


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
13-157A		CLIP			
8574-13-157	4				
13-447C		CLAMP, HOSE			
B61P-13-447	1				
13-480		FILTER, FUEL			
B61P-20-490	1				
13-49X		HOSE, FUEL-EGI			
BPE8-13-49X	1				
13-495		HOSE, FUEL			
BPE8-13-495	1				
13-945F		CONNECTOR			
JE16-13-298	1				
13-960A		BRACKET, CANISTER			
B61P-13-960	1				
13-970		CANISTER			
JE16-13-970A	1				
13-971		HOSE, VENTILATION			
B6CA-13-971	1				
13-972		HOSE, EVAPORATION			
B6CA-13-972	1				
13-973		HOSE, DRAIN			
B61P-13-97YA	1				
13-973A		HOSE, EVAPORATION			
B61P-13-973A	1				
18-741A		VALVE, THREE WAY			
JE16-18-741	1	NIHON OIL SEAL			
20-361A		TUBE, VACUUM			



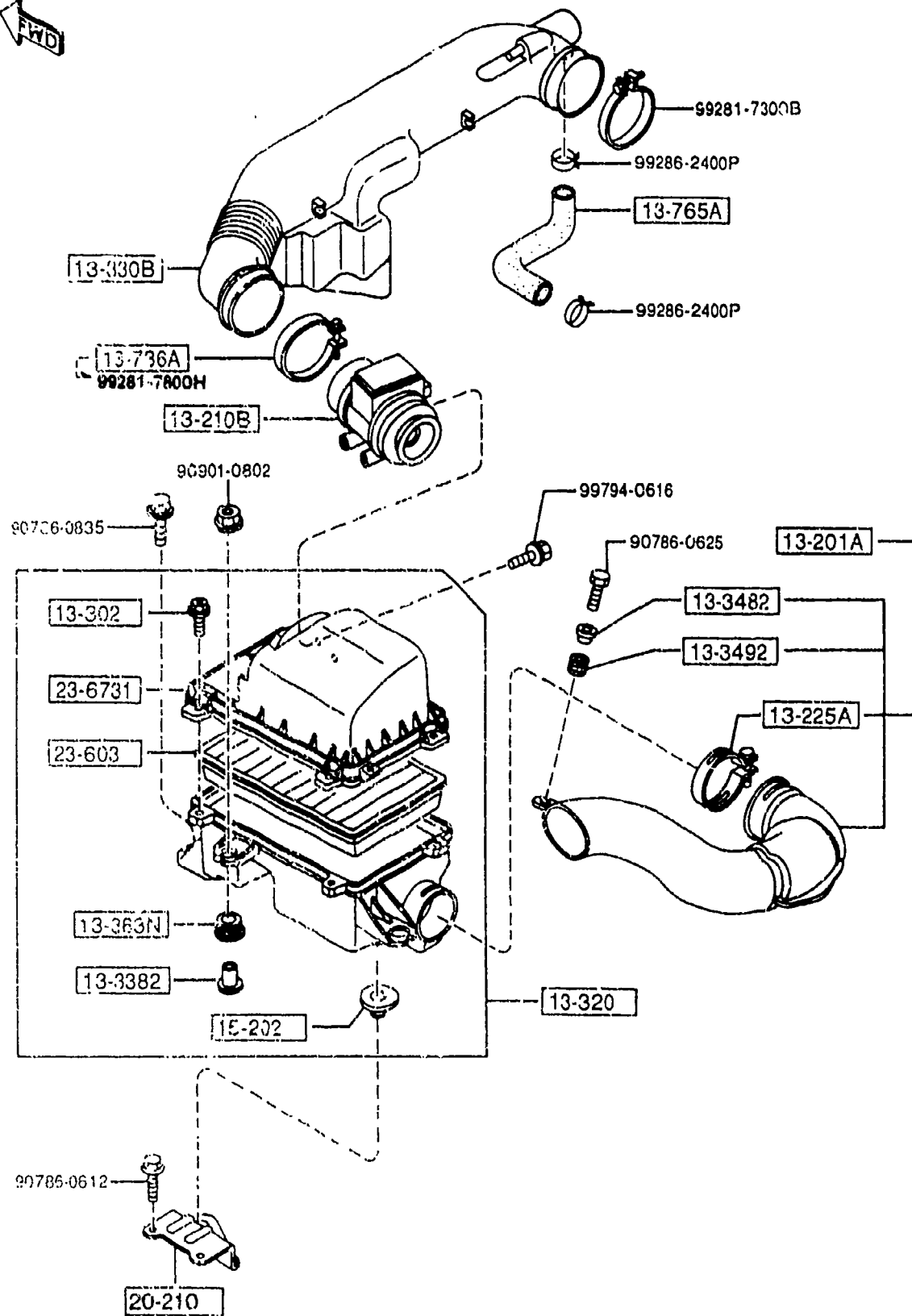


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D B61P-20-361	1				
+-----+ | 20-371B | +-----+		TUBE, VACUUM			
BPE8-20-371	1				
+-----+ | 93-5908 | +-----+		HOSE			
*99359-0830M	1	(ILLUST. NO.1)			
99359-0834	1	(ILLUST. NO.2)			



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
13-150B	1	DISTRIBUTOR, FUEL			
BPE8-13-150					
13-157A	2	CLIP			
8574-13-157					
13-158	3	INSULATOR, FUEL DIST.			
B675-13-158					
13-164	3	BOLT, FUEL DISTRIBUTOR			
F883-13-164					
13-250A	4	INJECTION, FUEL-M.P.E LECT.			
BP06-13-250					
13-252	4	GROMMET			
8574-13-252					
13-253	1 (ILLUST. NO.1)	RING, 'O'			
0601-13-253					
8574-13-253	4 (ILLUST. NO.2)				
13-257	4	INSULATOR, INJECTION			
JE06-13-257					
13-280A	1	PRESSURE RG., FUEL			
KJ01-13-280					
93-5908	1	HOSE			
99359-0809					

1330 AIR CLEANER

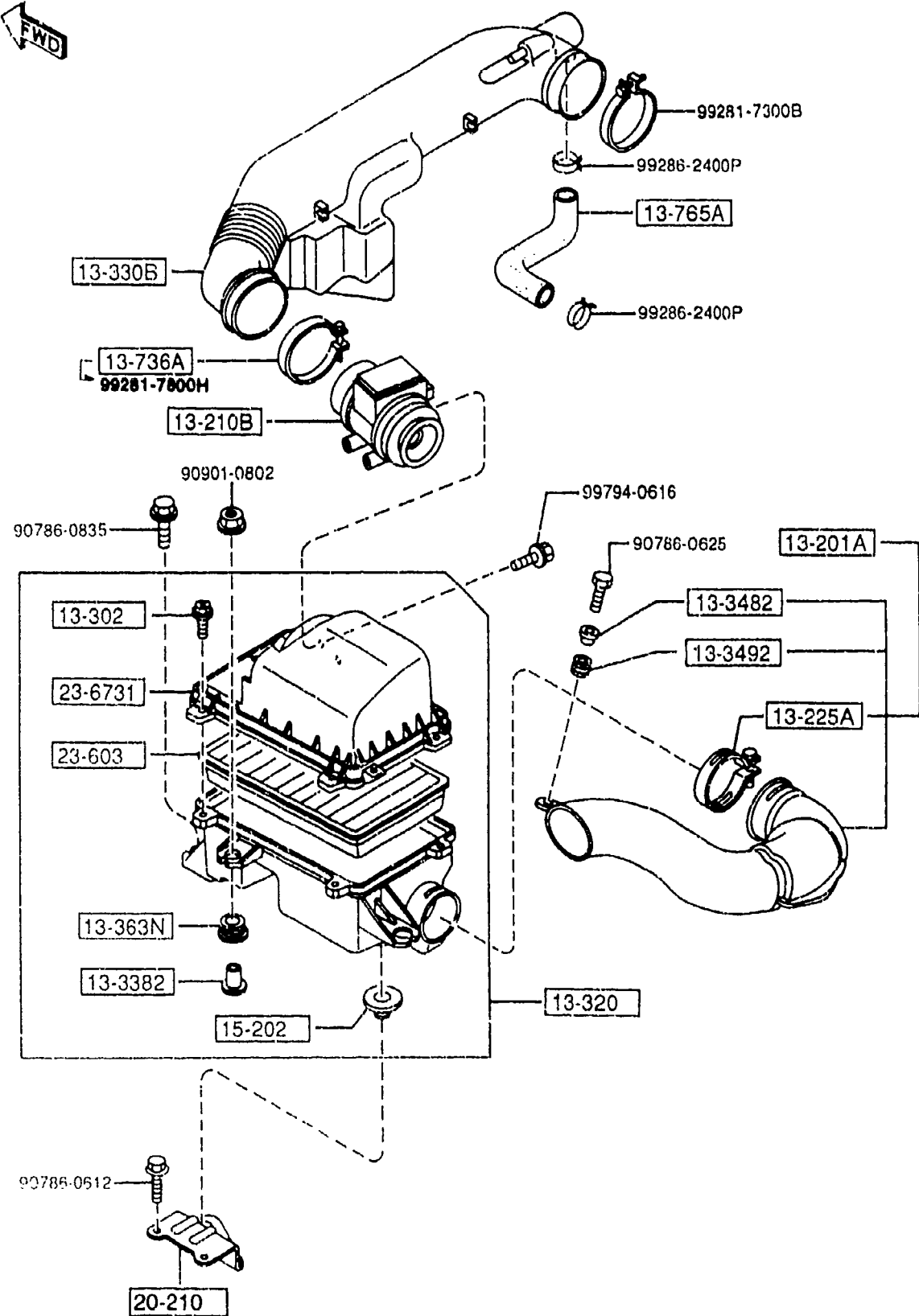


1330 -1 AIR CLEANER

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
13-201A	1	DUCT, FRESH AIR			
BPE8-13-200	1				
13-210B	1	SENSOR, AIR FLOW			
B6BF-13-215	1				
13-225A	1	CLAMP, HOSE			
B61P-13-735	1				
13-302	4	BOLT, AIR CLEANER			
F201-13-302A	4				
13-320	1	CLEANER, AIR			
BPE8-13-320	1				
13-330B	1	PIPE, AIR INTAKE			
BPE8-13-331A A (BPE8-13-331B)	1				-6118
*BPE8-13-331B	1				6118-
13-3382	3	SPACER			
FE51-13-329	3				
13-3482	1	SPACER, AIR INT. PIPE			
SLA1-13-321	1				
13-3492	1	INSULATOR			
S501-13-349	1				
13-363N	3	RUBBER, MOUNTING			
FE51-13-363	3				
13-736A	1	CLAMP, HOSE-A. I. P. /A. CLNR			-5201
KL01-13-735	1				
13-765A	1	HOSE, AIR			
BPE8-13-765A	1				
15-202	1	RUBBER, MOUNT			
B61P-13-Z66	1				

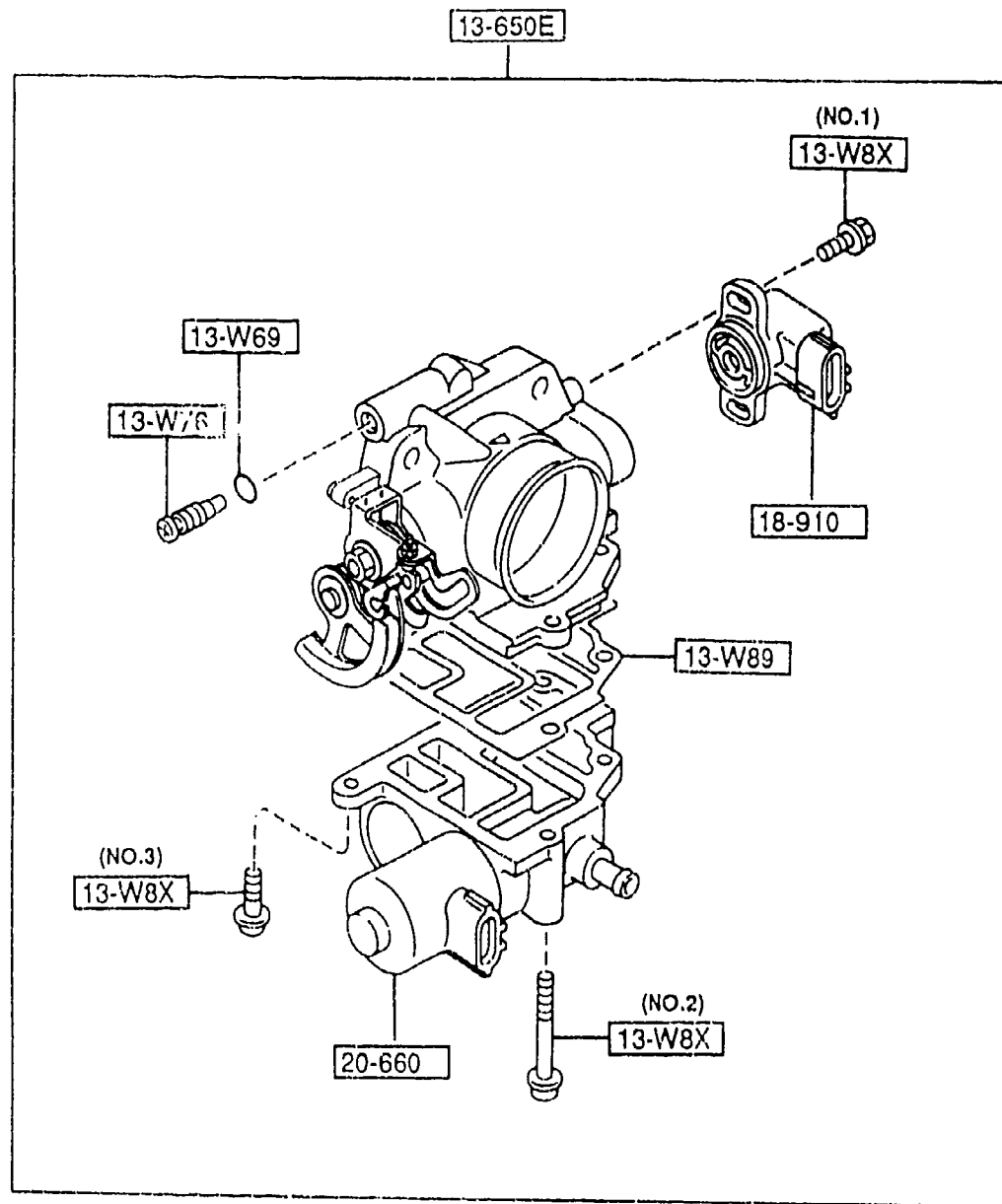
5201 NA35* -614193
6118 NA3** -709942

1330 AIR CLEANER



1330 -2 * AIR CLEANER

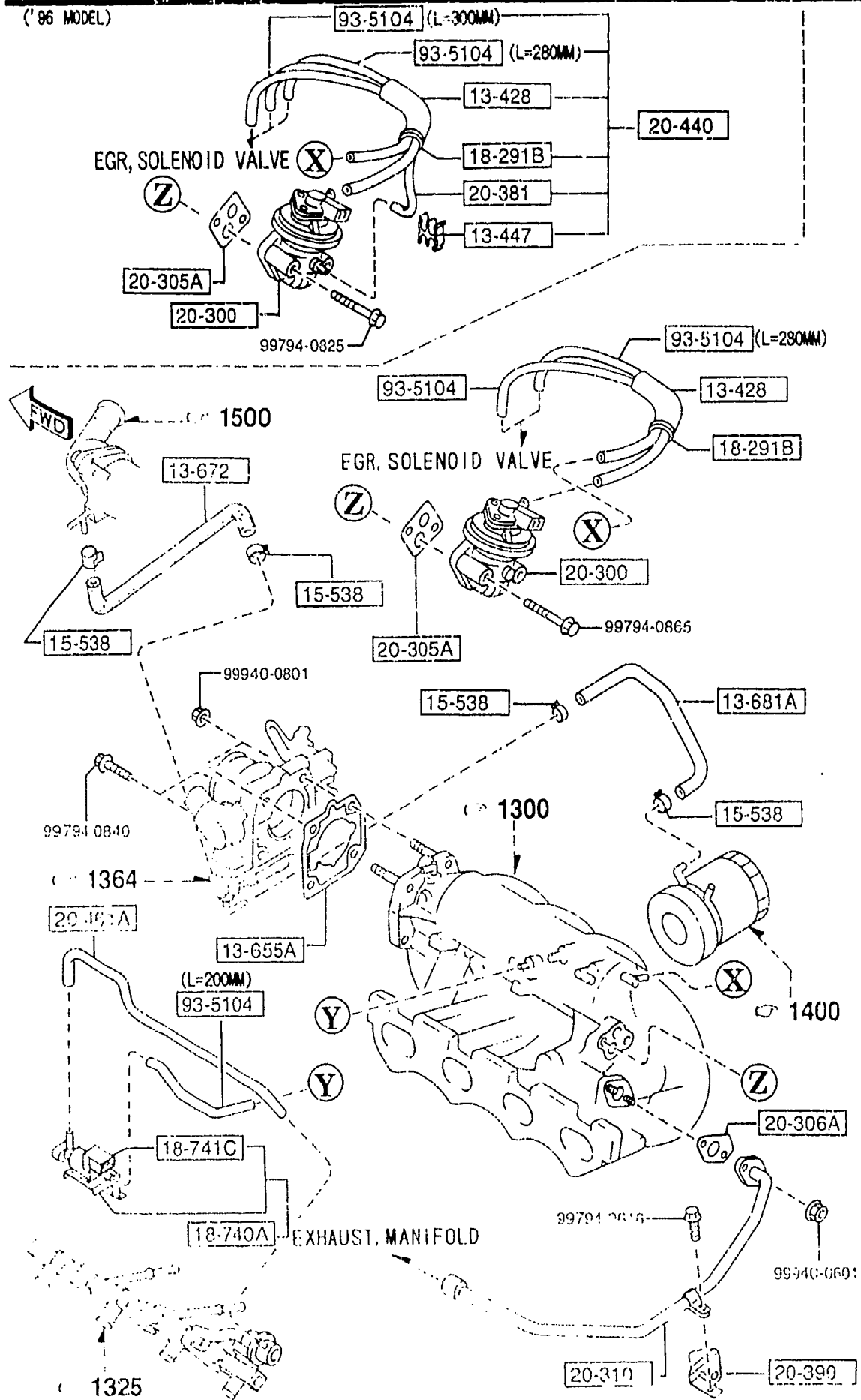
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
20-210		BRACKET, AIR CLEANER			
B61P-20-211	1				
23-603		ELEMENT, AIR CLEANER			
B6S7-13-Z40	1				
23-6731		COVER, AIR CLEANER			
BPE8-13-Z01	1				



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
13-W69		RING, 'O'			
K801-13-W69	1				
13-W76		SCREW, ID. ADJUST-TH. BODY			
K801-13-W76	1				
13-W8X		SCREW & WASHER SET			
B551-13-W8X	2	(ILLUST. NO.1)			
B6BF-13-W8X	2	(ILLUST. NO.2)			
K802-13-W8X	2	(ILLUST. NO.3)			
13-W89		GASKET, THERMO			
B6BF-13-W89	1				
13-650E		BODY, THROTTLE			
BPR5-13-640	1				
18-910		SENSOR, THROTTLE-CARB			
JE50-18-911	1				
20-660		VALVE, IDLE AIR CONTROL			
B6BF-20-660	1				

1370 EMISSION CONTROL SYSTEM (INLET SIDE)

('96 MODEL)



1370 -1 EMISSION CONTROL SYSTEM (INLET SIDE)

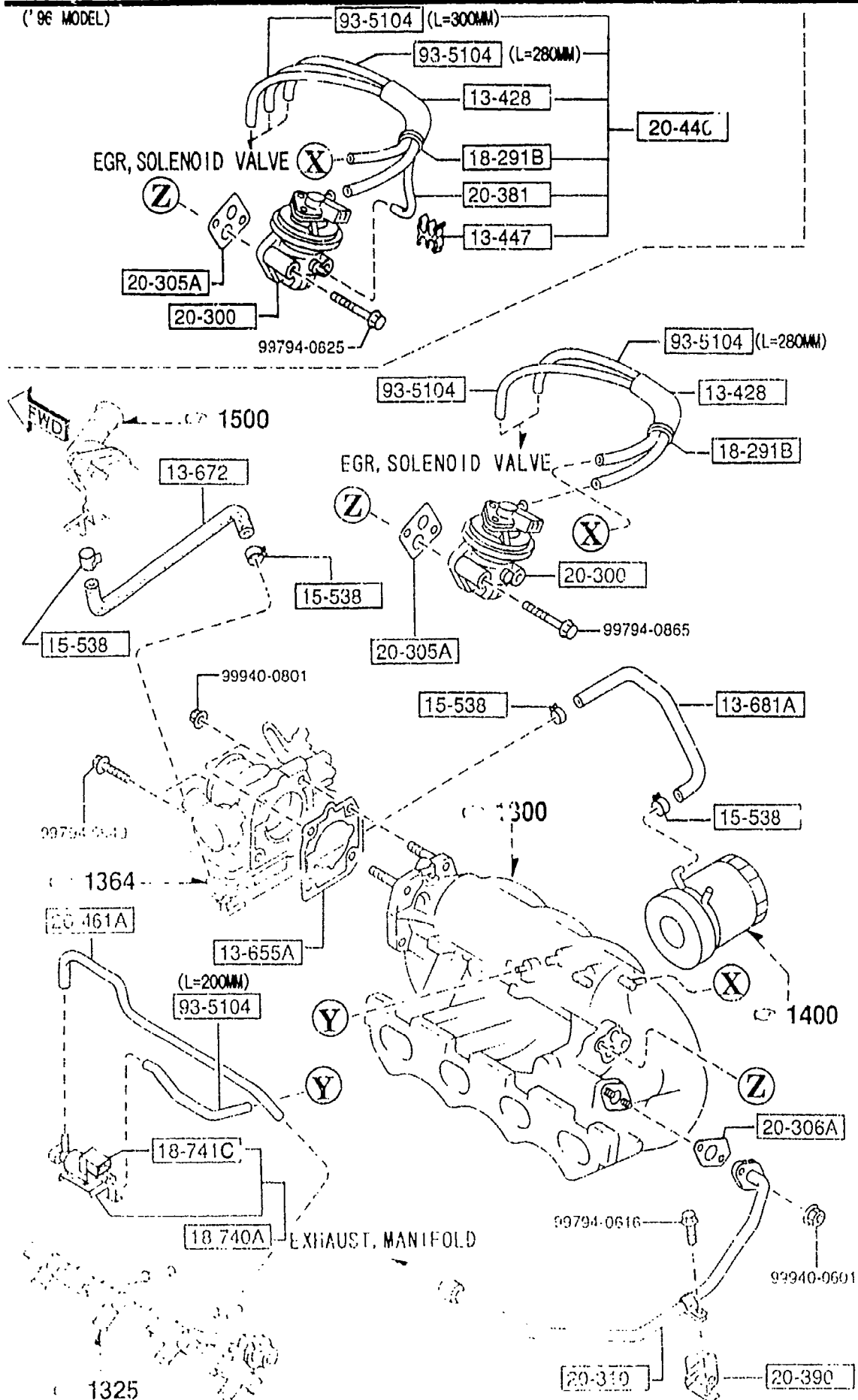
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
13-428		PROTECTOR			
BPS1-13-428A	1	('96 MODEL)			
B367-13-428	1	('95 MODEL)			
13-447		CLIP			
F801-13-447	1	('96 MODEL)			
13-655A		GASKET			
B68F-13-655	1				
13-672		HOSE, WATER			
BPE8-13-682	1				
13-681A		HOSE, WATER			
BPE8-13-601	1				
15-538		CLAMP, WATER HOSE			
JF02-15-538	4				
B6BF-15-538	4				
18-291B		CLAMP, HOSE			
HE21-18-291	1				
18-740A		VALVE, SOLENOID			
B69N-18-740	1				
18-741C		VALVE, SOLENOID			
FS05-18-741	1				
20-300		VALVE, E.G.R.			
Z505-20-300	1				
B6BF-20-300	1				
20-305A		GASKET, E.G.R. VALVE			
JE27-20-305 A (JE27-20-305A)	1				
JE27-20-305A	1				
20-306A		GASKET			
JE06-20-306	1				

5801 NA3** -700842
 5907 NA3** -703015
 5C01 NA3** -706448



1370 EMISSION CONTROL SYSTEM (INLET SIDE)

('96 MODEL)

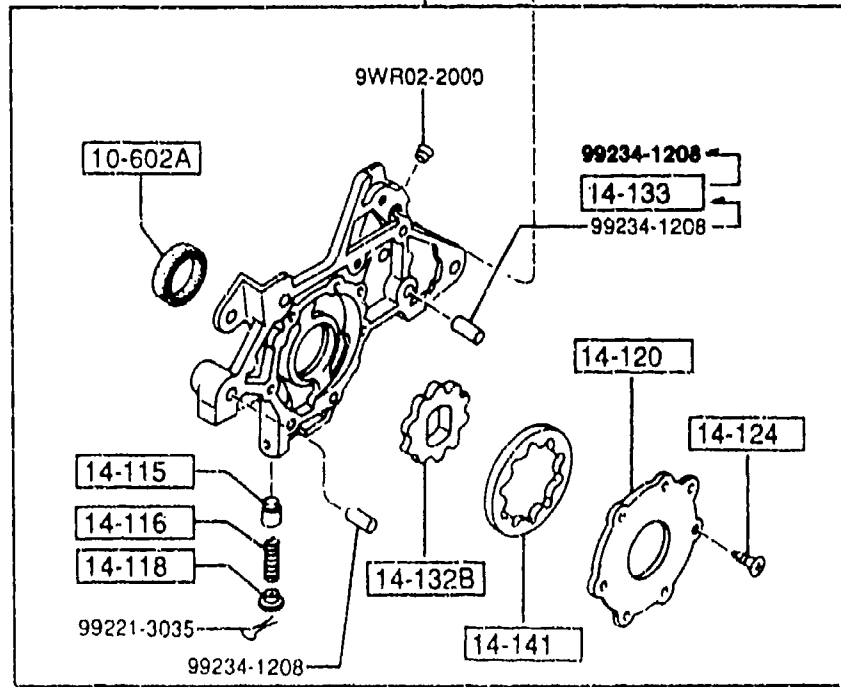
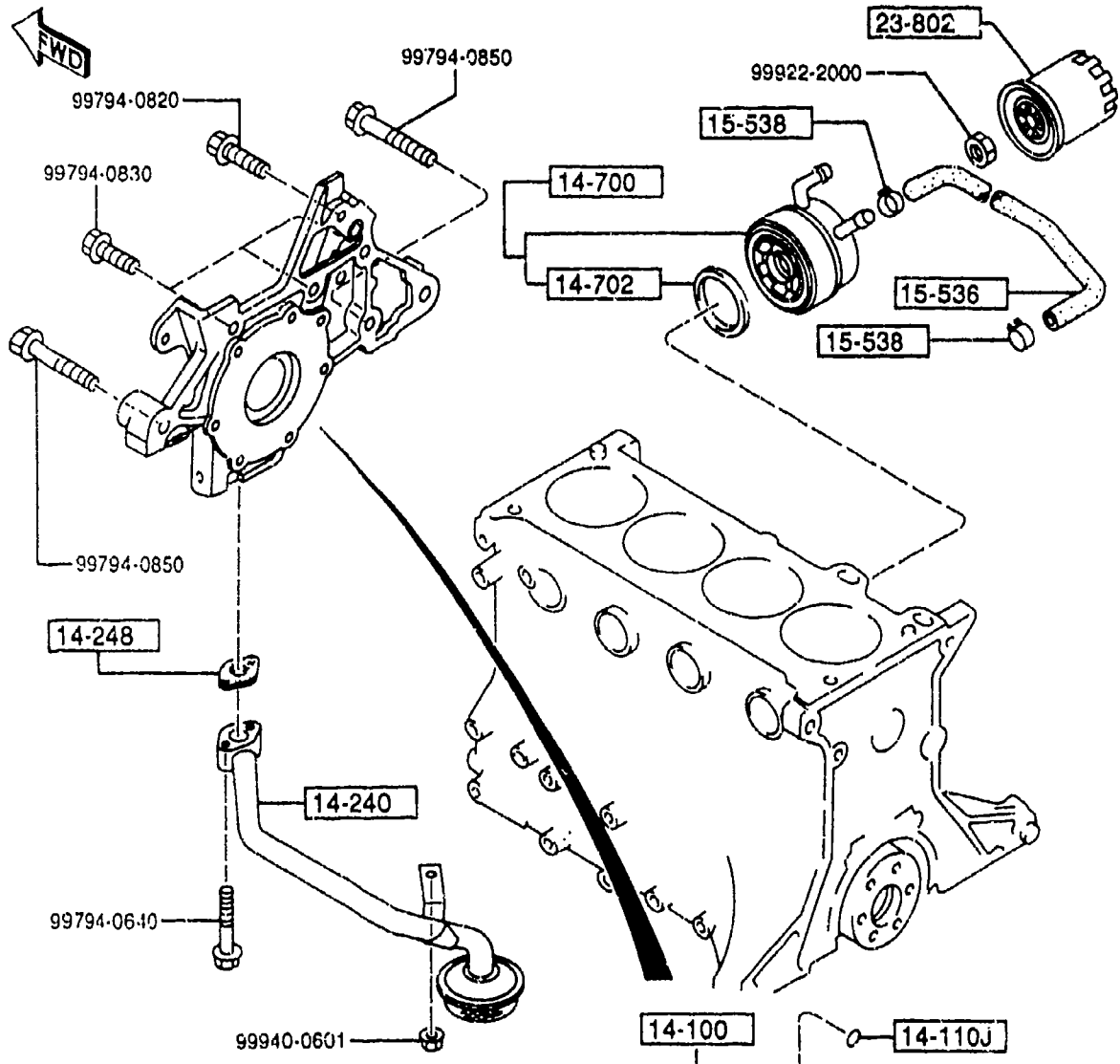


1370 -2* EMISSION CONTROL SYSTEM (INLET SIDE)

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
20-310		PIPE, E.G.R.			
BPE8-20-310	1				
20-381		TUBE, VACUUM			
BPS1-20-381	1				('96 MODEL)
20-390		BRACKET, E.G.R. PIPE			
BPE8-20-390	1				
20-440		TUBE, VACUUM			
*BPS1-20-440A	1				
20-461A		TUBE, VACUUM			
BPE8-20-461	1				
93-5104		HOSE			
99351-04999	1	L=1M CUT IT TO USE			



1400 OIL PUMP & FILTER

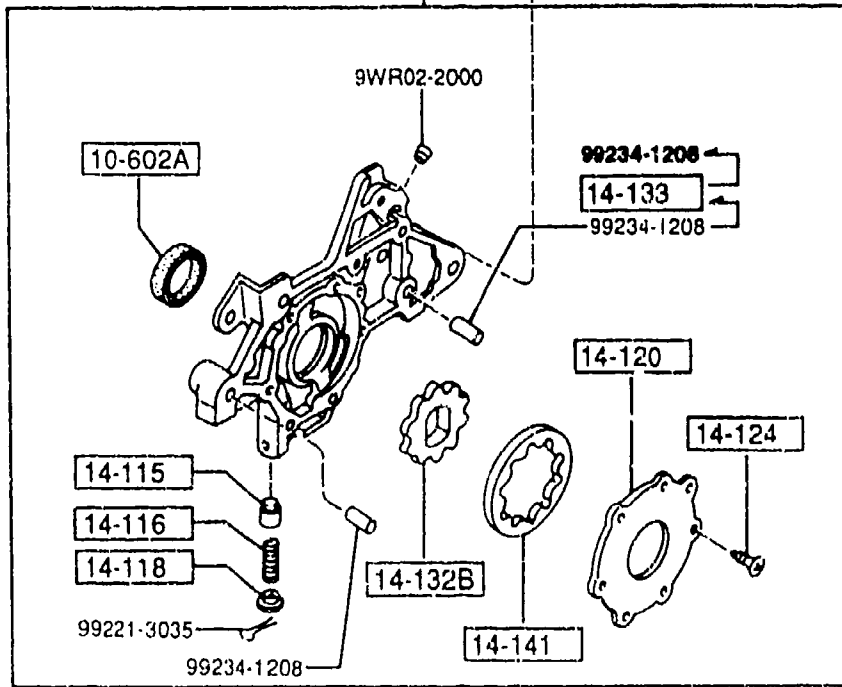
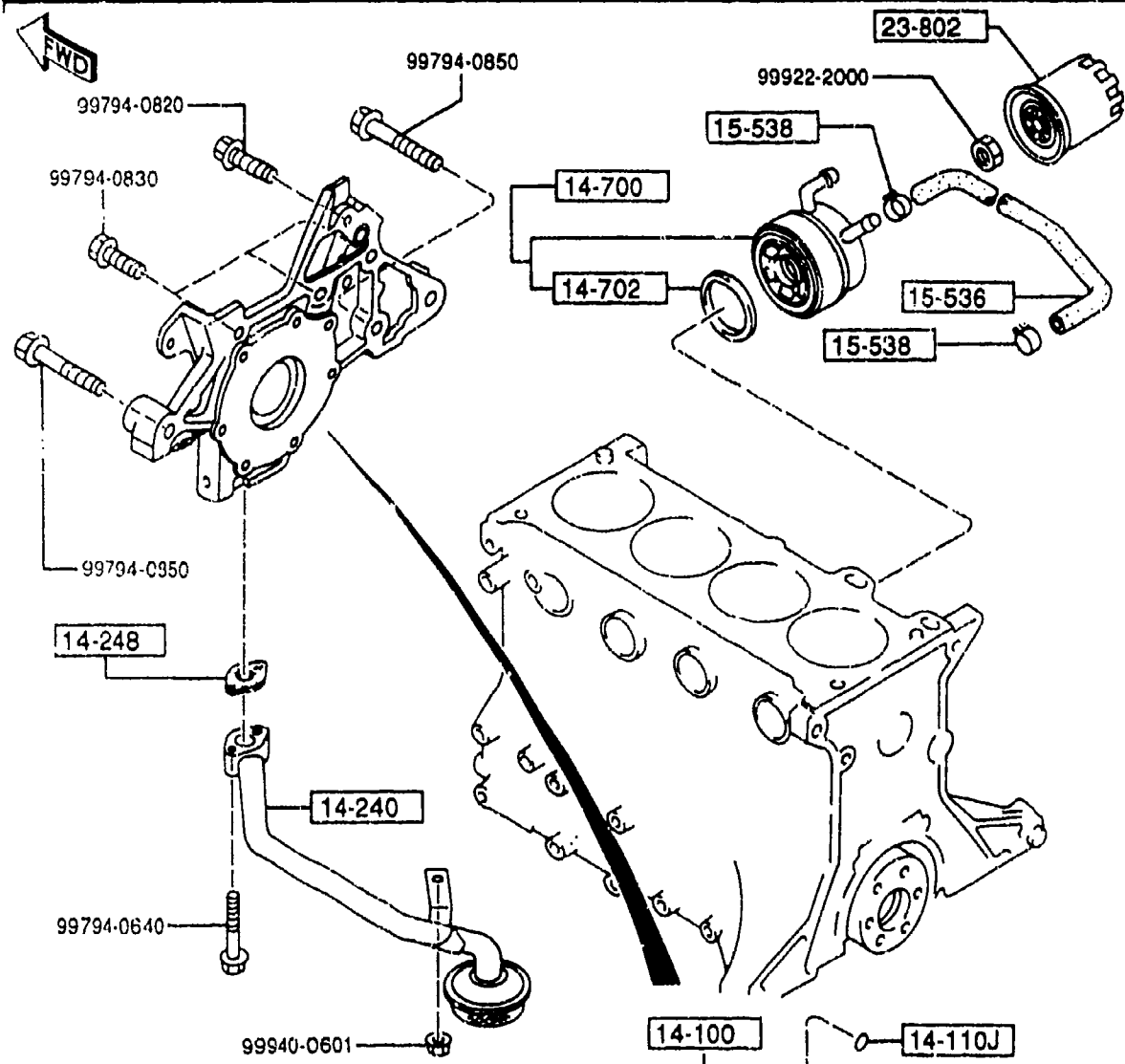


1400 -1 OIL PUMP & FILTER

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
10-602A	1	SEAL, OIL			
B3C7-10-602A	1	NON ASBESTOS			
14-100	1	PUMP, OIL			-6305
B6S8-14-100G A (B6S8-14-100H)	1				6305-
*R6S8-14-100H	1				
14-110J	1	RING, 'O'			
FE1H-14-122A	1				
14-115	1	PLUNGER, CONTROL			-6305
JF01-14-115	1				6305-
*FS01-14-115	1				
14-116	1	SPRING, PRESSURE			
0324-14-116B	1				
14-118	1	SHEET, SPRING			
0222-14-118	1				
14-120	1	COVER, OIL PUMP			
B6BF-14-121	1				
14-124	7	SCREW, OIL PUMP COVER			
FE1H-14-124	7				
14-132B	1	GEAR, INNER			
B6S7-14-132	1				
14-133	2	PIN, GROOVED			6305-6601
*B6S8-14-133	2				
14-141	1	GEAR, OUTER			
B6S7-14-141	1				
14-240	1	STRAINER, OIL			
BPE8-14-240	1				
14-240	1	GASKET, OIL STRAINER			

6305 NA3** -714961
6601 NA3** -719621

1400 OIL PUMP & FILTER

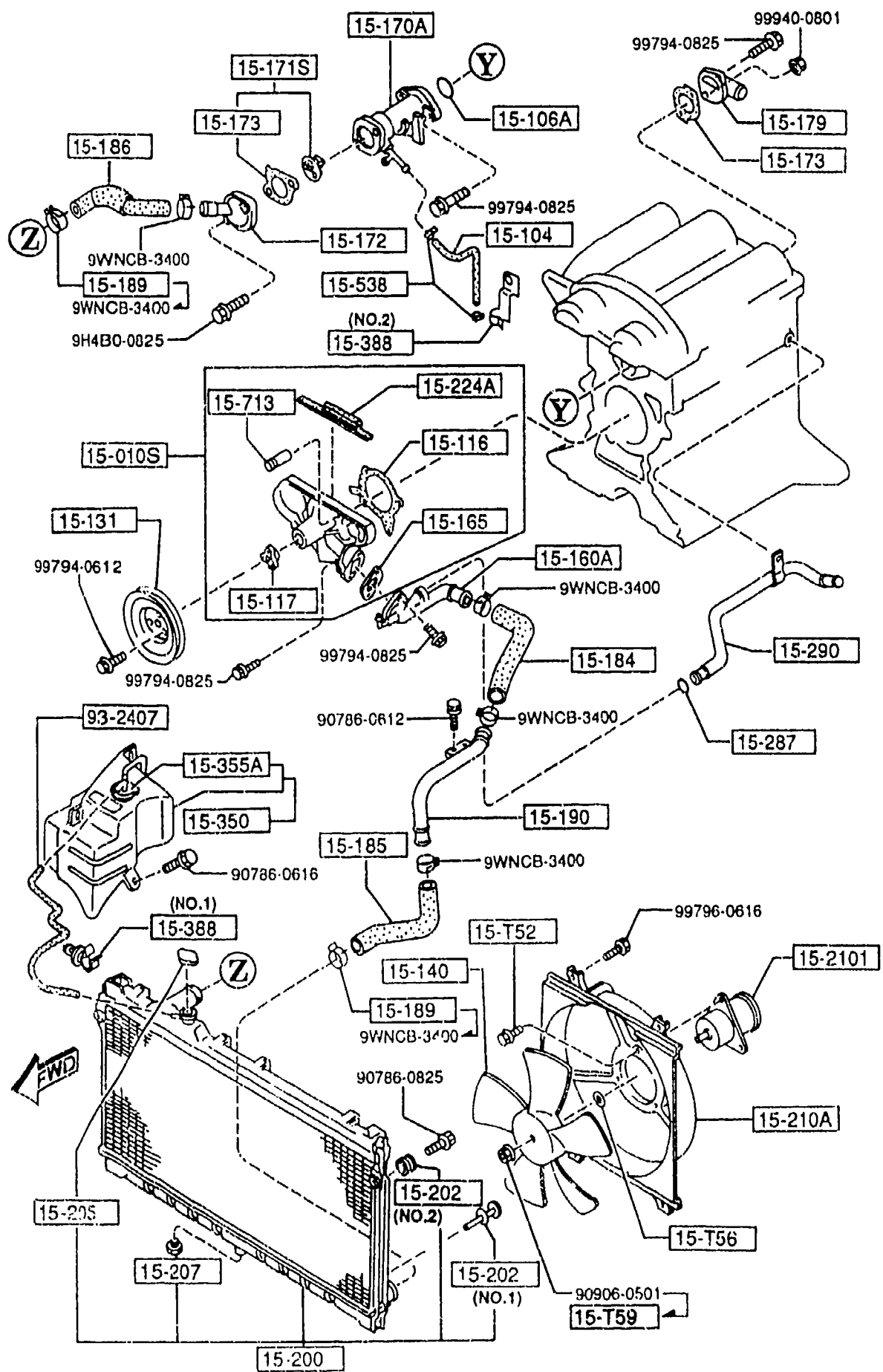


1400 -2 * OIL PUMP & FILTER

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
B6BF-14-248	1				
+-----+					
| 14-700 |		COOLER,OIL			
+-----+					
BPE8-14-700	1				
+-----+					
| 14-702 |		GASKET			
+-----+					
KL01-14-702A	1				
+-----+					
| 15-536 |		HOSE,WATER-OIL COOLE			
+-----+		R IN.			
BPE8-15-536	1				
+-----+					
| 15-538 |		CLAMP,WATER HOSE			
+-----+					
JF02-15-538	2				-5C01
B6BF-15-538	2				5C01-
+-----+					
| 23-802 |		CARTRIDGE,OIL FILTER			
+-----+					
B6Y1-14-302		(MAZDA MARK,T. ROKI)			
AN(B6Y1-14-302A)	1				-5A01
B6Y1-14-302A		(MAZDA MARK T.ROKI)			
	1				5A01-

5A01 NA3** -703035
5C01 NA3** -706448

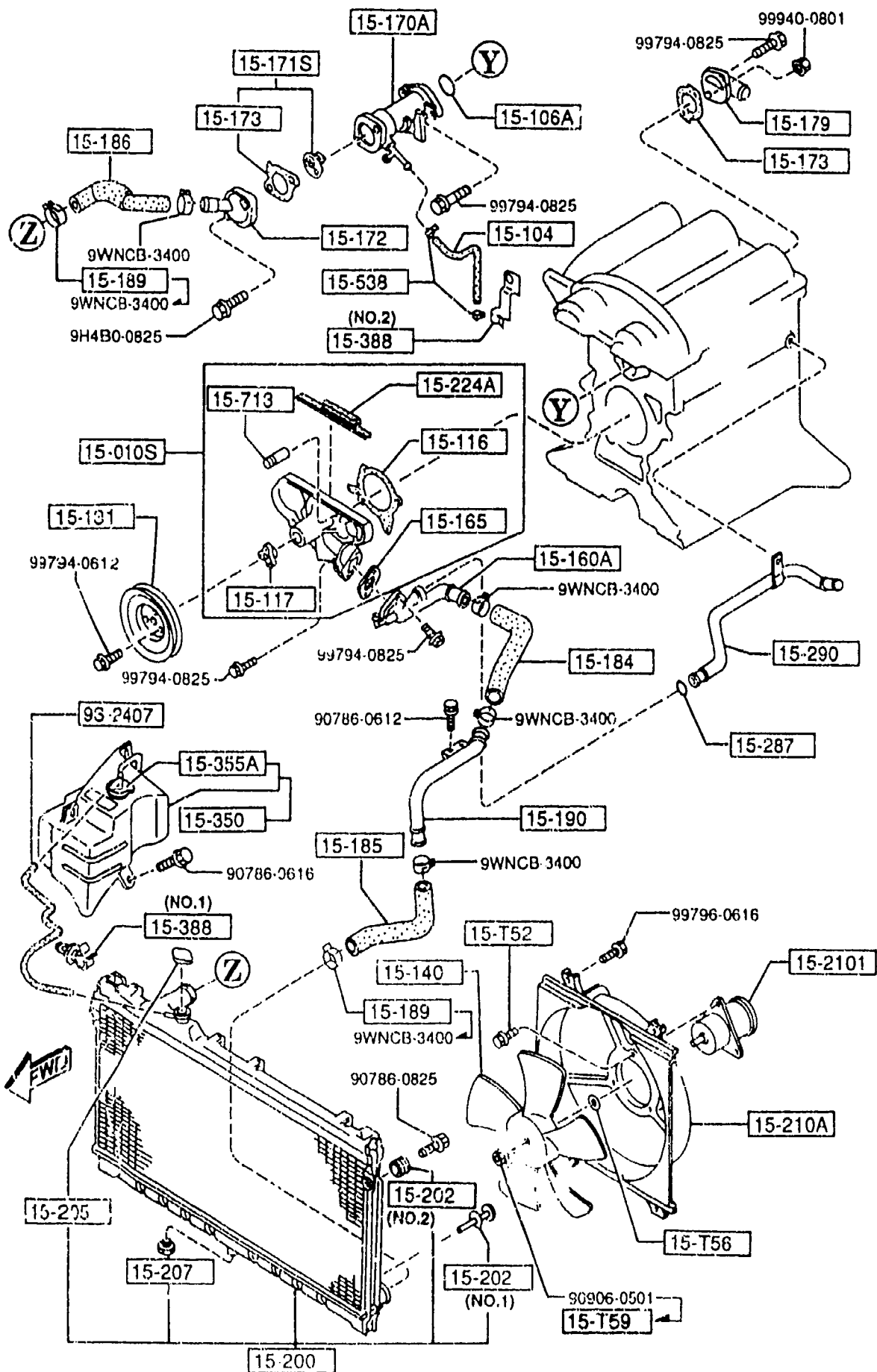
1500 COOLING SYSTEM



1500 -1 COOLING SYSTEM

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
15-T52	3	SCREW, MOTOR-ELECTRIC FAN			
B6S8-15-T52					
15-T56	1	WASHER, MOUNT. - FAN			5508-
B61P-15-T56					
15-T59	1	NUT, COOLING FAN			5C01-
B595-15-T59					
15-010S	1	PUMP SET, WATER			-4917
8ABB-15-010 A (8ABB-15-010A)					
8ABB-15-010A	1				4917-
15-104	1	HOSE, WATER BY-PASS			
B61P-15-261A					
15-106A	1	RING, 'O'-WATER PUMP			
B61P-15-106					
15-116	1	GASKET, WATER PUMP			
B6BF-15-116					
15-117	1	BOSS, W. PUMP PULLEY			
E301-15-117					
15-131	1	PULLEY, WATER PUMP			
B3C7-15-131					
15-140	1 (MT)	FAN, COOLING			
B61P-15-140A					
B64J-15-140	1 (AT)	CALSONIC			
		(AT)			
15-160A	1	INLET, WATER PUMP			
B61P-15-160					
15-165	1	GASKET, W. PUMP INLET			
B621-15-165		NON ASBESTOS			

4917 NA35* -603196
 5508 NA35* -620210
 5C01 NA3** -706448



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
15-170A	1	COVER, THERMO			
BPE8-15-170A	1				
15-171S	1	THERMOSTAT SET			
BAB8-15-171	1				
15-172	1	COVER, THERMOSTAT			
BPE8-15-172	1				
15-173	2	GASKET, THERMOSTAT COVER NON ASBESTOS			
B621-15-173	2				
15-179	1	OUTLET, WATER			
BPE8-15-179	1				
15-184	1	HOSE, WATER			
B61P-15-184	1				
15-185	1	HOSE, WATER			
BPE8-15-185	1				
15-186	1	HOSE, WATER			
BPE8-15-186	1				
15-189	2	CLAMP, HOSE			
B366-15-182	2				
15-190	1	PIPE, WATER			
B61P-15-190	1				
15-200	1 (MT) 1 (AT)	RADIATOR			
BPE8-15-200	1 (MT)				
BPE9-15-200	1 (AT)				
15-202	2 (ILLUST. NO. 1) 2 (ILLUST. NO. 2)	RUBBER, MOUNT			
B61P-15-202	2 (ILLUST. NO. 1)				
N326-15-202	2 (ILLUST. NO. 2)				
15-205		CAP, RADIATOR			
D316-15-205		CALSONIC			

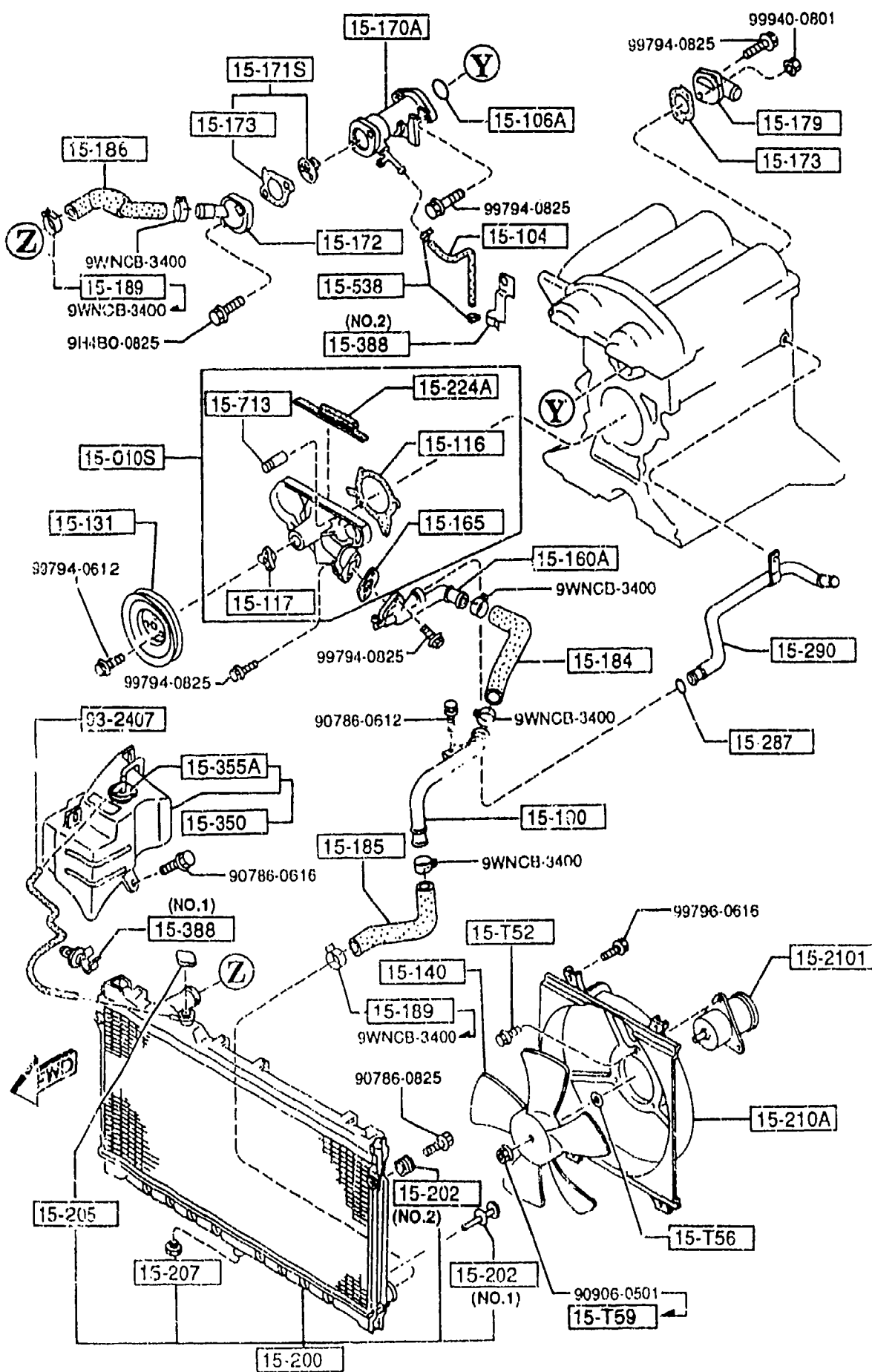
5501 NA35* -620210

-5501



1500 COOLING SYSTEM

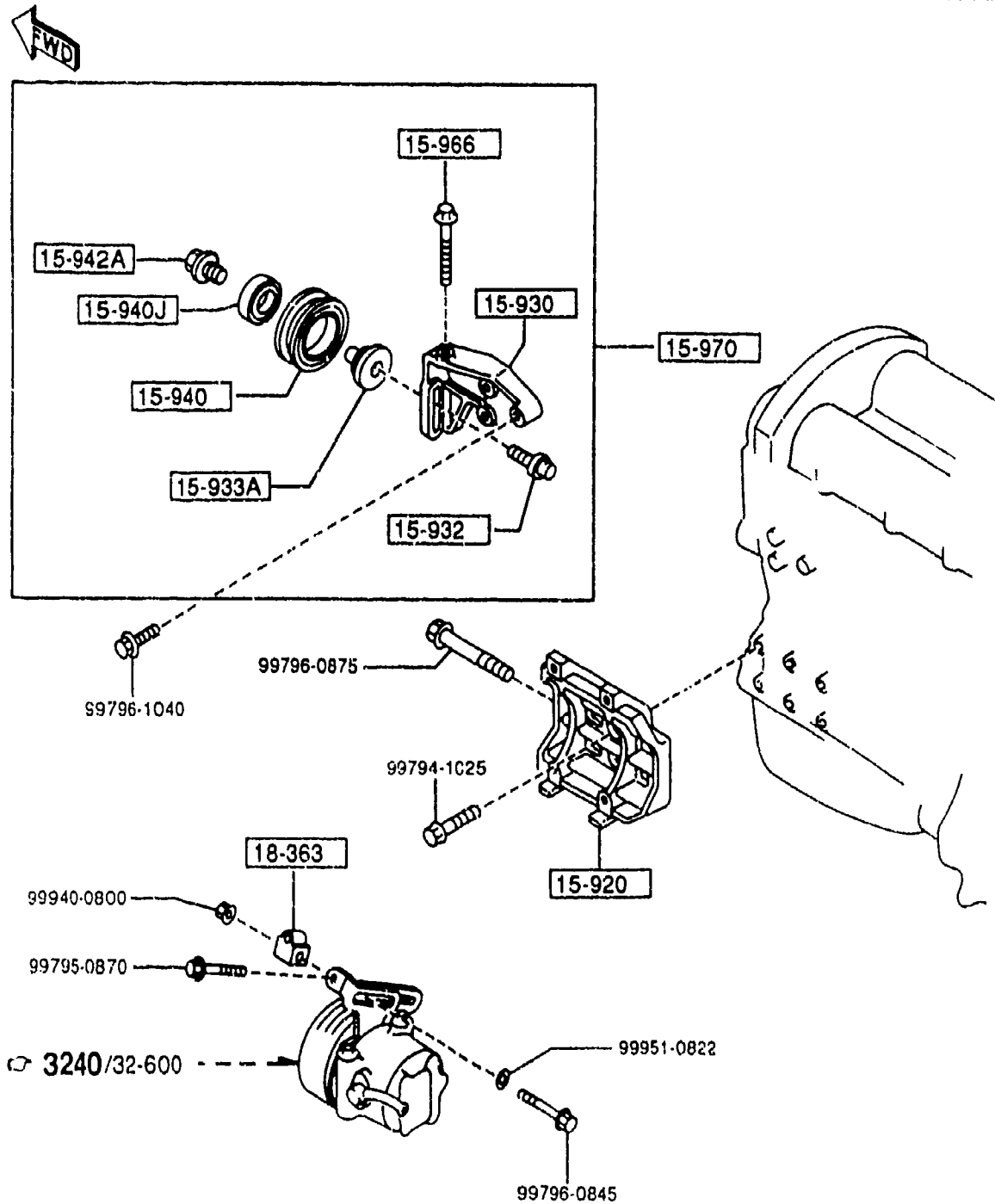
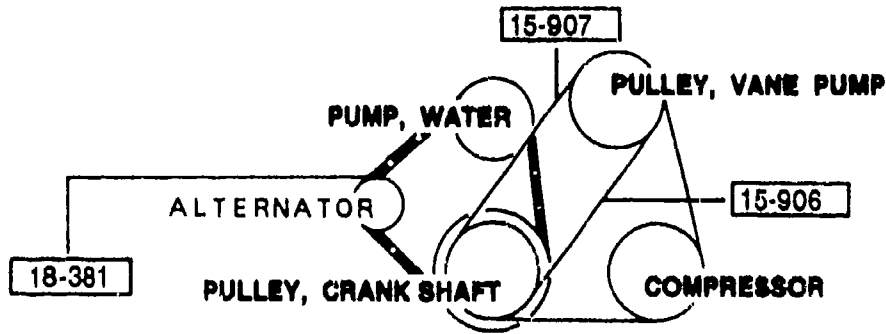
1500 -3 * COOLING SYSTEM



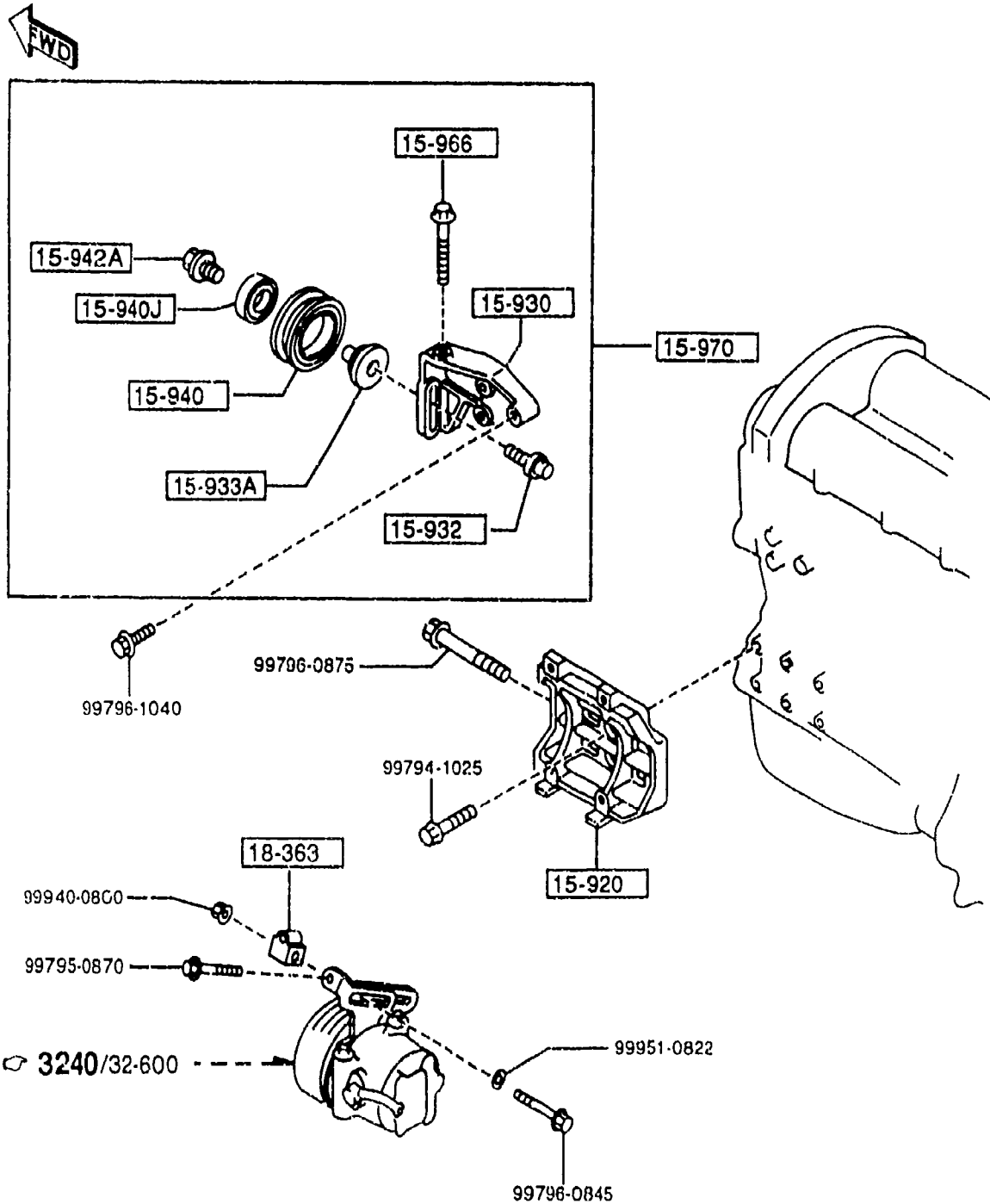
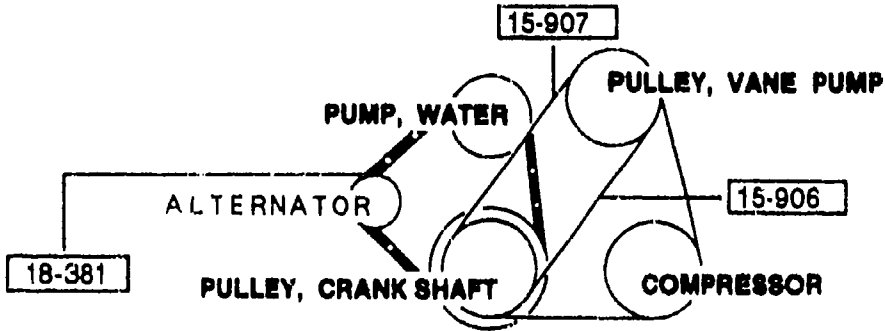
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D	1				
15-207		COCK, DRAIN			
NF01-15-203	1	CALSONIC			
15-210A		COWLING, RADIATOR			
B61P-15-210B	1				
15-2101		FAN DRIVE			
B61P-15-150B	1 (MT)				
B64J-15-150A	1 (AT)				
15-224A		RUBBER, SEAL			
B660-10-543B	1				
15-287		RING, 'O'-WATER BYPASS			
E301-15-287	1				
15-290		PIPE, BYPASS			
BPEB-15-290	1				
15-350		TANK, SUB-RADIATOR			
B61P-15-350D	1				
15-355A		CAP, SUB TANK			
B61P-15-355A	1				
15-388		CLIP, HOSE-SUB T. & WATER H			
F201-15-388A	1 (ILLUST. NO.1)				
B61P-15-547	1 (ILLUST. NO.2)				
15-538		CLAMP, WATER HOSE			
JF02-15-538	2				
B6BF-15-538	2				
15-713		SET PIN, SPRING			
F801-15-713	1				
93-2407		HOSE, WATER			
99324-07610	1				

5C01 NA3** -706448

-5C01
5C01-



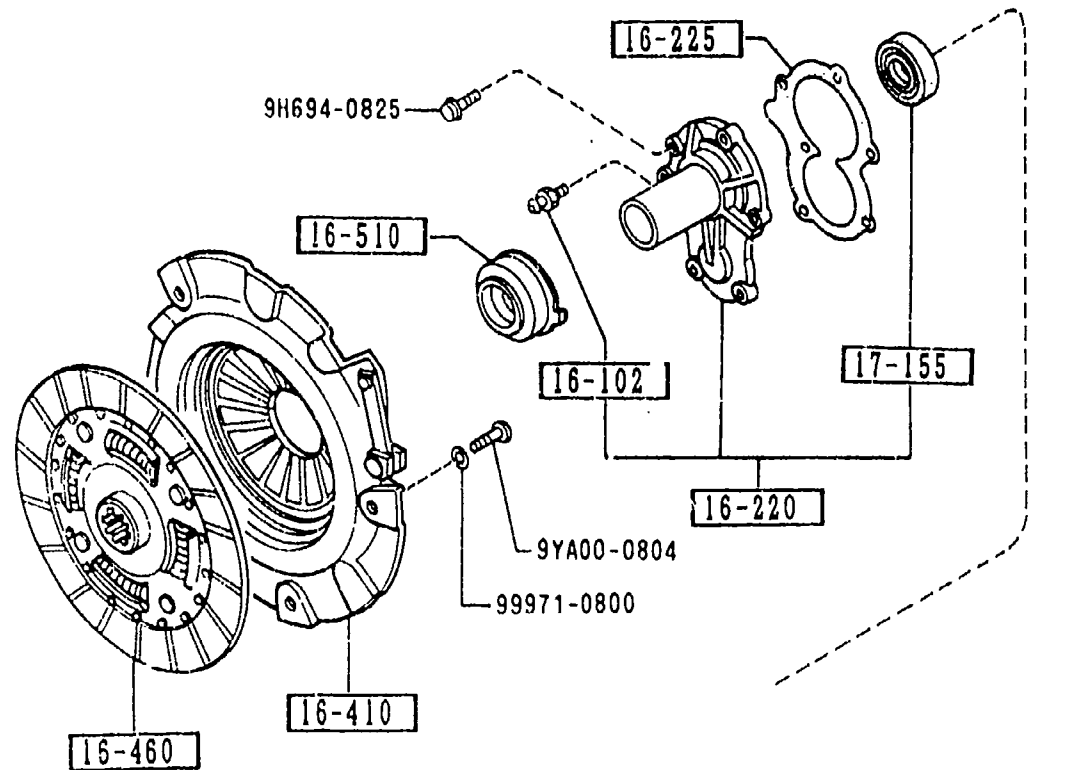
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
15-906		BELT 'V'			
B61P-15-907A	1	4PK-855 MITSUBOSHI (W/O AIR CON.+W/POWER STEERING)			
15-907		BELT 'V'			
B3C7-15-907C	1	4PK L=848MM (W/AIR CON.+W/O POWER STEERING)			
BPF3-15-909	1	(A) 4PK L=940MM BAND			
BPE8-15-908	1	(E) GOODYEAR 4PK848 (W/AIR CON.+W/O POWER STEERING)			4C01-
BPE8-15-909	1	(A) GOODYEAR 4PK940 (W/AIR CON.+W/POWER STEERING)			4C01-
15-920		BRACKET, COMPRESSOR			
BPE8-15-810A	1	(A) (W/AIR CON.)			
15-930		BRACKET, IDLE PULLEY			
BP01-15-951	1	(A) (W/AIR CON.+W/O POWER STEERING)			
15-932		SHAFT, PULLEY			
B631-15-932	1	(A) (W/AIR CON.+W/O POWER STEERING)			
15-933A		COLLAR			
BP01-15-933	1	(A) (W/AIR CON.+W/O POWER STEERING)			
15-940		PULLEY, IDLE			
BP01-15-940	1	(A) (W/AIR CON.+W/O POWER STEERING)			
15-940J		BEARING			
99606-83020	1	(A) (W/AIR CON.+W/O POWER STEERING)			
4C01 NA35* -609691					



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
15-942A	1	COLLAR			
E564-15-942	1	(A) (W/AIR CON.+W/O POWER STEERING)			
15-966	1	BOLT, ADJUST			
E564-15-934	1	(A) (W/AIR CON.+W/O POWER STEERING)			
15-970	1	PULLEY, IDLE			
BP01-15-930	1	(A) (W/AIR CON.+W/O POWER STEERING)			
18-363	1	SPACER, STRAP			
FP02-18-363	1	(W/O AIR CON.+W/POWER STEERING)			
18-381	1	BELT 'V'			
*B596-18-381	1	4PK L=885 GOOD YEAR			
*B6BF-18-381	1	4PK L=885 BANDO			

1600 CLUTCH DISC & COVER

1600 -1 * CLUTCH DISC & COVER



16-460

16-410

16-225

9H694-0825

16-510

16-102

17-155

16-220

9YA00-0804

99971-0800

99796-1260

99796-1275

99940-1201

16-520

16-232A

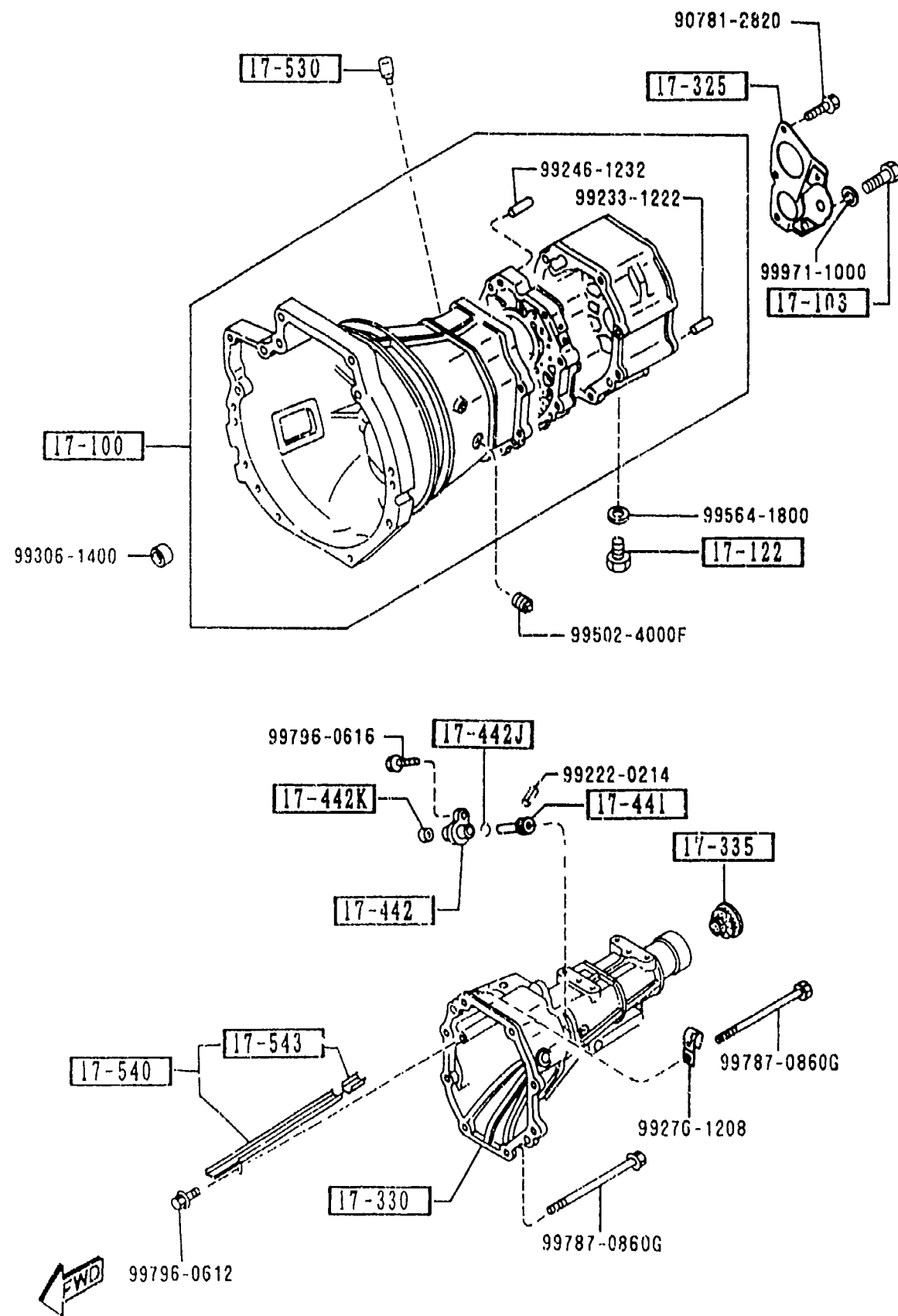
16-214

99796-1275

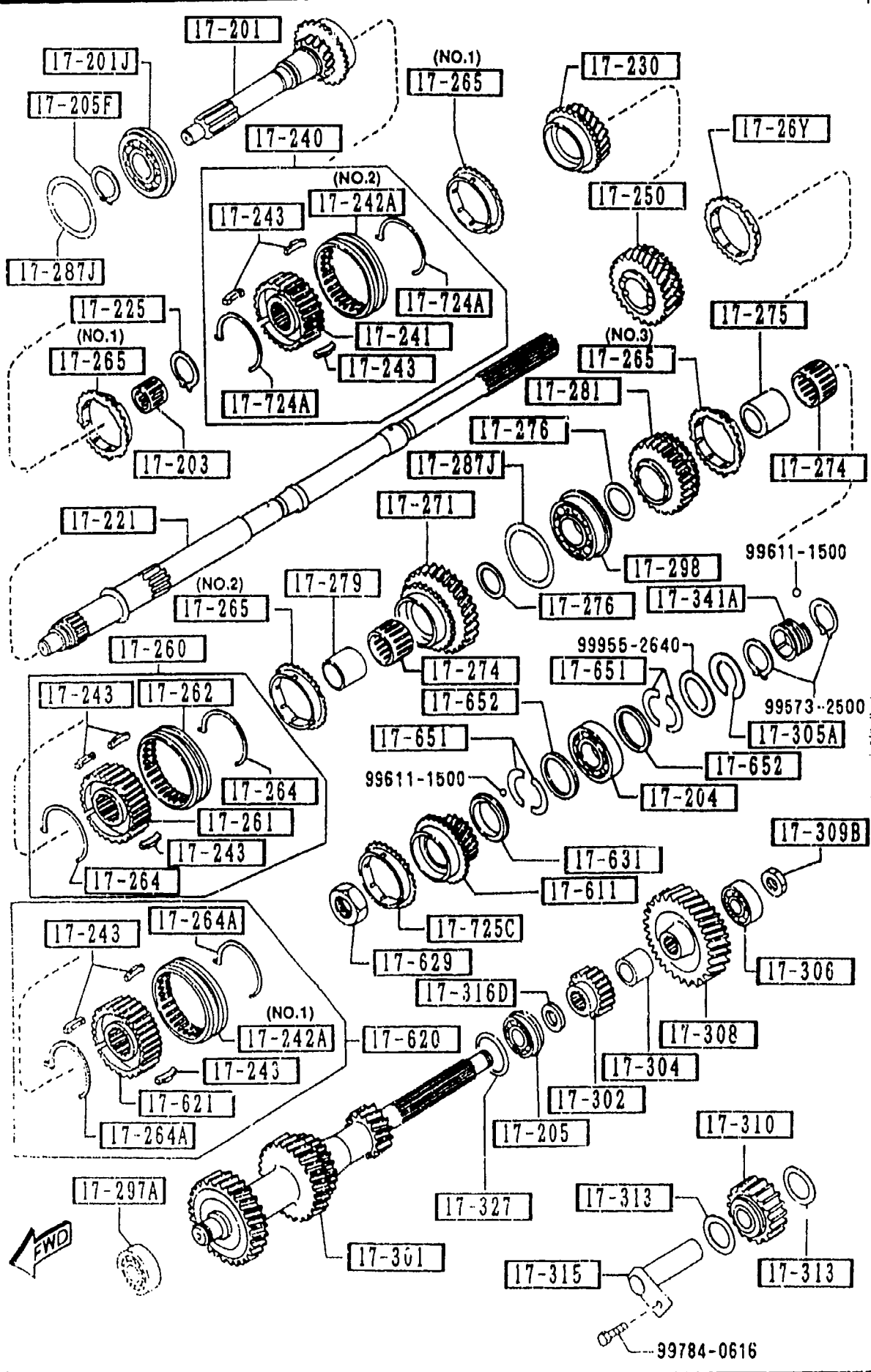


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
16-102		PIN, PIVOT-CLUTCH REL			
0603-16-102B	1	FORK			
16-214		COVER, DUST-CLUTCH FO			
FE51-16-214	1	RK			-5101
A (FE51-16-214A)					
FE51-16-214A	1				5401-
16-220		COVER, FRONT CLUTCH			
B622-16-220	1				-5801
AN(B622-16-220A)					
B622-16-220A	1				5801-
16-225		GASKET, FRONT COVER			
FE50-16-225A	1				
16-232A		SUPPORTER, FORK			
1416-16-232A	1				
16-410		COVER, CLUTCH			
BP07-16-410	1				
16-460		DISC, CLUTCH			
BP07-16-460	1				
16-510		COLLAR, CLUTCH REL.			
B622-16-510	1				
16-520		FORK, CLUTCH RELEASE			
B622-16-520	1				
17-155		SEAL, OIL			
11501-17-103	1				

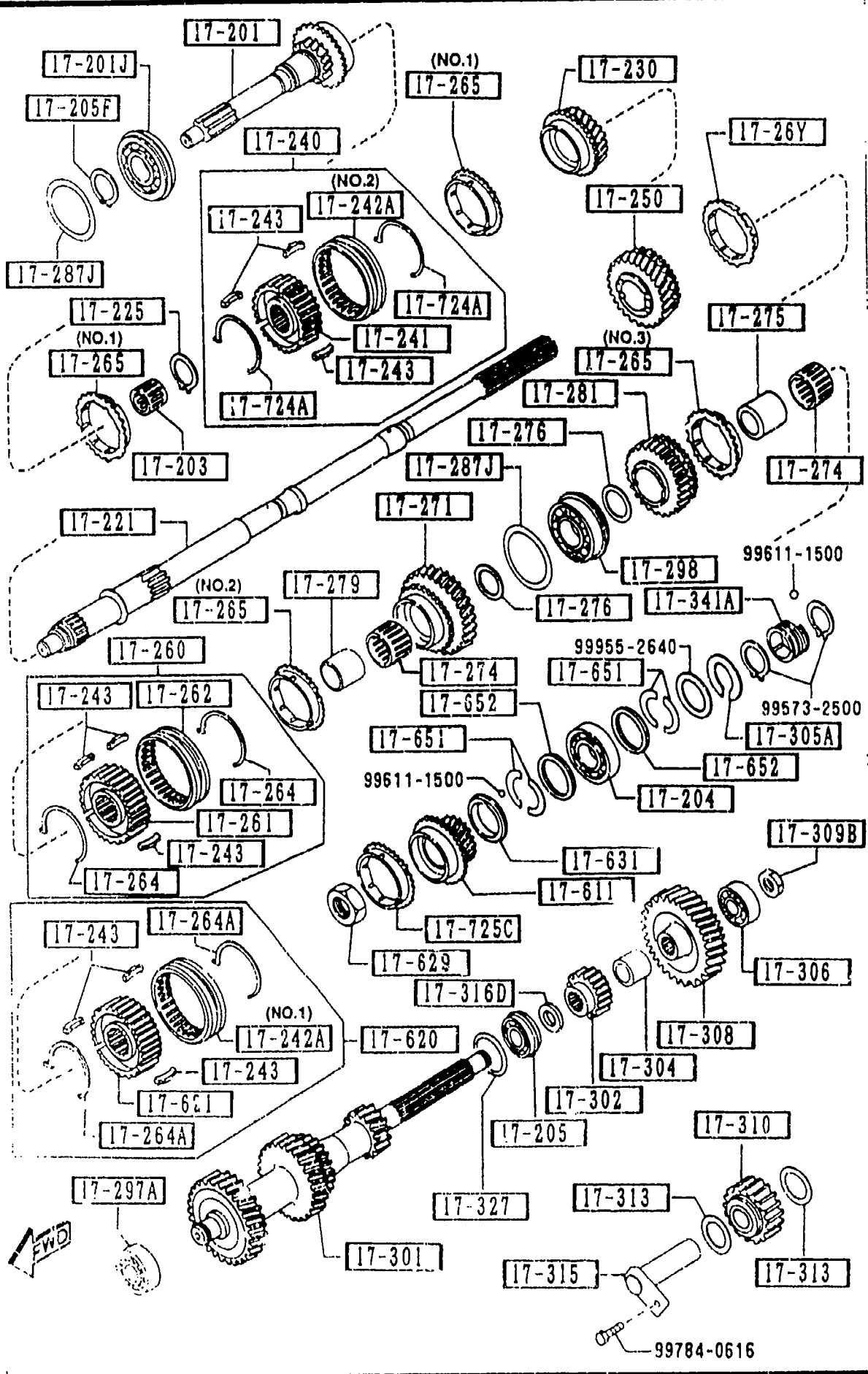
5401 NA35* -619598
5801 NA3** -700842



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
17-100		CASE, T/MISSION			
M526-17-100A	1				
17-103		BOLT			
M501-17-103	2				
17-122		PLUG, MAGNET			
0810-17-121	1				
17-325		COVER, BEARING			
M501-17-370A	1				
17-330		HOUSING, EXTENSION			
M519-17-330	1				
17-335		SEAL, OIL			
M507-17-335A	1				
17-441		GEAR, DRIVEN			
M510-17-441	1	N=22			
17-442		SLEEVE, SPEEDOMETER			
1669-17-442B	1				
17-442J		RING, 'O'			
1011-17-443	1				
17-442K		SEAL, OIL			
99586-08166	1				
17-530		BREATHER, AIR-T/MISSION			
0884-17-530	2	ON			
17-540		PASS, OIL			
M509-17-540	1				
17-543		RUBBER, SEAL			
M501-17-543A	1				

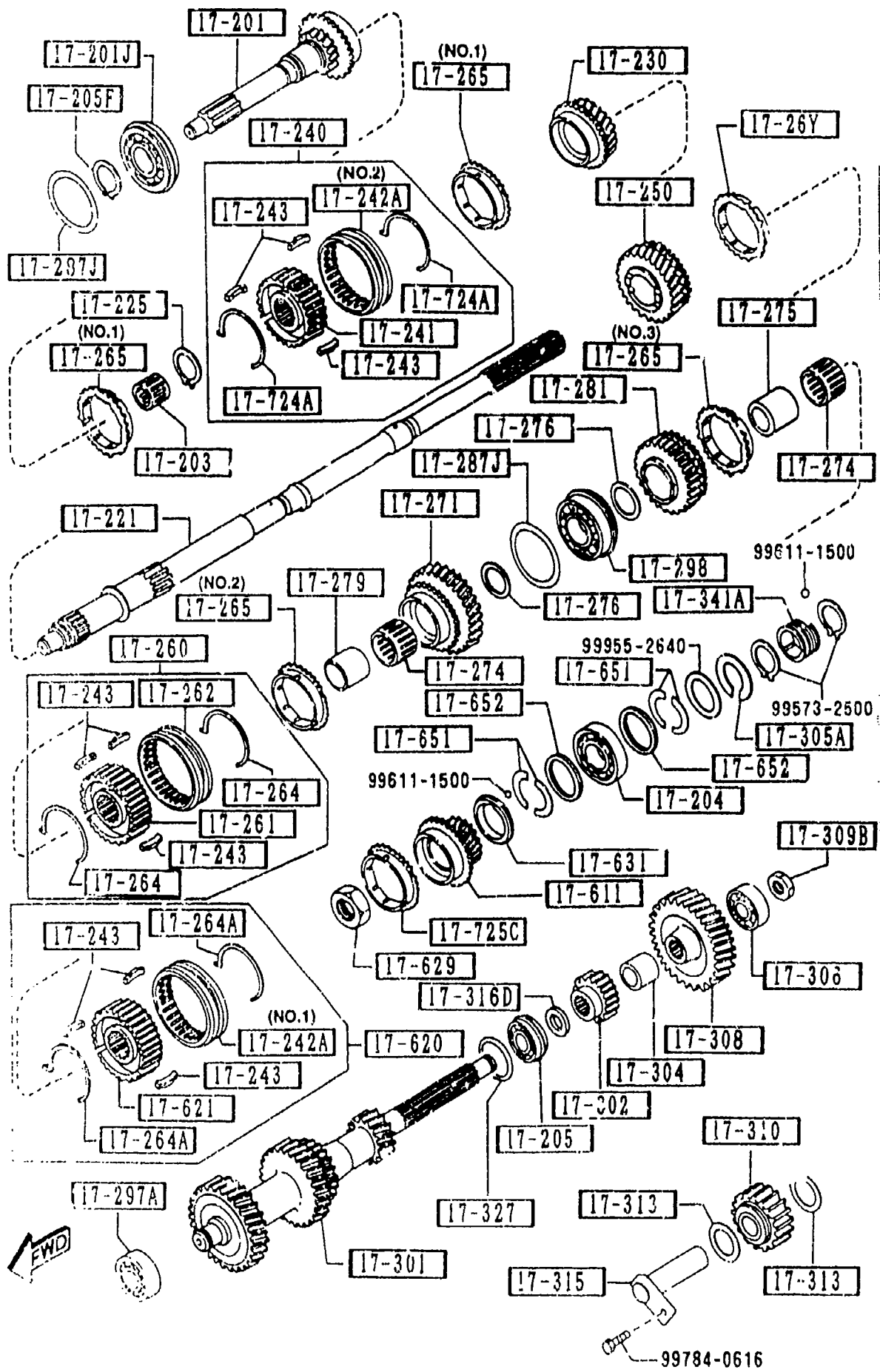


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
17-201	1	GEAR, MAIN DRIVE			
M516-17-201					
17-201J	1	BEARING, BALL-MAIN DRIVE GEAR			
M502-17-295C					
17-203	1	BEARING, NEEDLE			
M501-17-210A					
17-204	1	BEARING, BALL-MAIN SHAFT			-4C01
M503-17-204					4C01-
99606-63053					
17-205	1	BEARING, ROLLER			-5501
R502-17-306A					5501-
M506-17-297					
17-205F	1	RING, RETAINING			
M501-17-205					
17-221	1	SHAFT, MAIN			
M505-17-221B					
17-225	1	RING, SNAP			
0317-17-225					
17-230	1	GEAR, 3RD			
M513-17-231B					
17-240	1	HUB SET, CLUTCH-3RD & 4TH			
M517-17-240					
17-241	1	HUB, CLUTCH			
M501-17-241C					
17-242A	1	SLEEVE, CLUTCH HUB			
F401-17-242A		(ILLUST. NO.1)			
M502-17-242	1	(ILLUST. NO.2)			
17-243	1	KEY, SYNCHRONIZER			
4C01 NA35* -609691					
5501 NA35* -620210					



PART NO	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT. F401-17-243A	9				
17-250		GEAR, 2ND			
M520-17-251A	1				
17-26Y		RING, SYNCHRONIZER			
R504-17-26Y	1				
17-260		HUB SET, CLUTCH-1ST & 2ND			
M517-17-260	1				
17-261		HUB, CLUTCH			
M511-17-261	1				
17-262		SLEEVE, CLUTCH HUB			
M505-17-262	1				
17-264		SPRING, SYNCHRO. KEY			
G401-17-264	2				
17-264A		SPRING, SYNCHRONIZER			
F401-17-264A	2				
17-265		RING, SYNCHRONIZER			
G501-17-265A	2	(ILLUST. NO.1)			
M502-17-265C	1	(ILLUST. NO.2)			
M504-17-265A	1	(ILLUST. NO.3)			
17-271		GEAR, 1ST			
M516-17-271A	1				
17-274		BEARING, NEEDLE			
4069-17-283A	2				
17-275		RACE, INNER			
4069-17-284E	1				
17-276		WASHER, THRUST			
0259-17-274A	2	T=3.0MM			
0259-17-276		T=2.2MM			

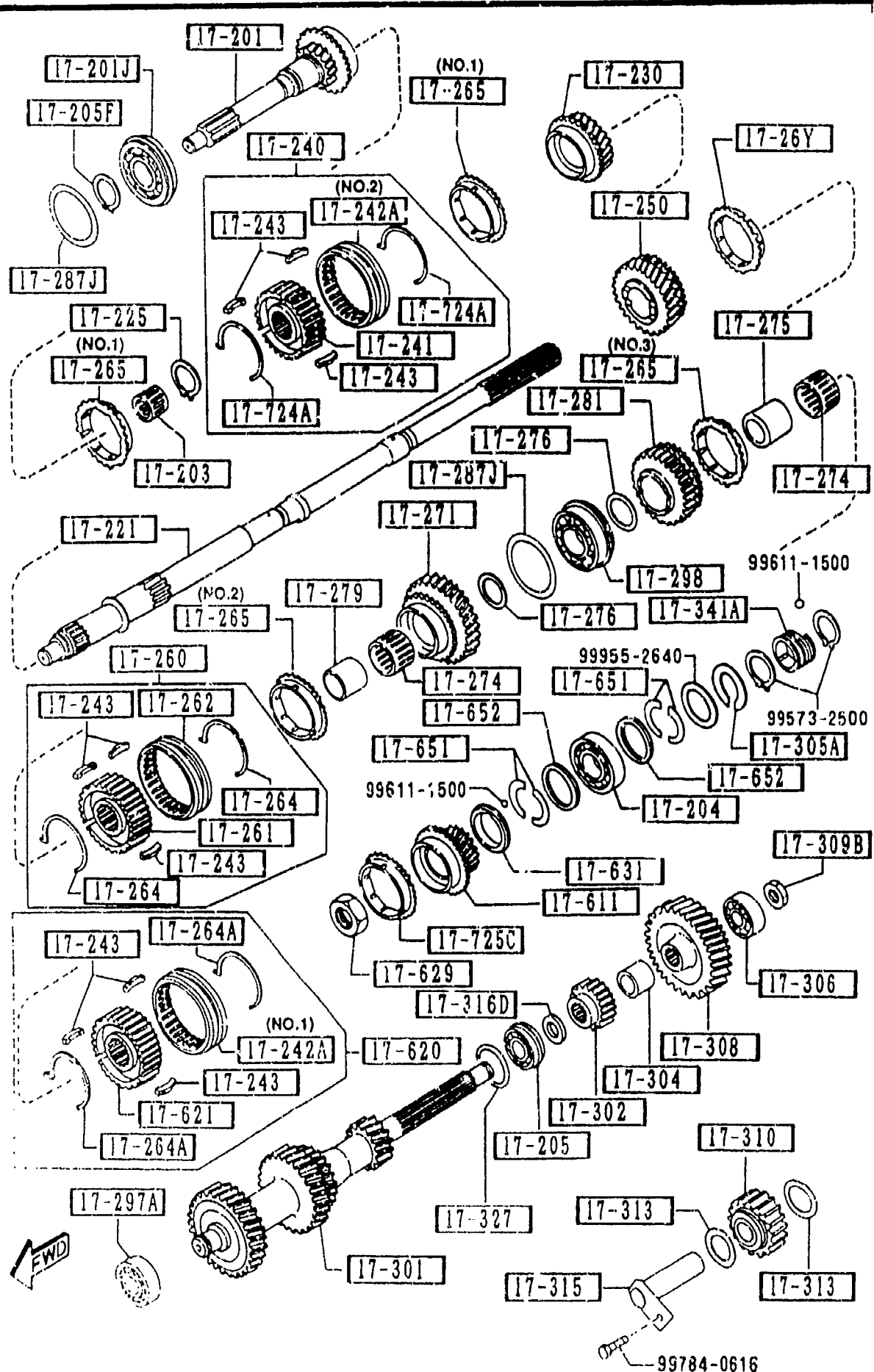




PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D	2				
0259-17-277	2	T=2.7MM			
0259-17-278	2	T=3.2MM			
0259-17-279	2	T=3.7MM			
17-279		SLEEVE, GEAR			
8540-17-275A	1				
17-281		GEAR, REVERSE			
M513-17-281	1				
17-287J		SHIM, ADJUST			
99963-6310	2	T=0.1MM			
99963-6315	1	T=0.15MM			
99963-6330	2	T=0.3MM			
17-297A		BEARING, BALL-COUNTER SHAFT G.			
M502-17-297A	1				
17-298		BEARING			
M502-17-298A	1				
17-301		GEAR, COUNTER SHAFT			
M528-17-301A	1				
17-302		GEAR, COUNTER REVERSE			
M516-17-302	1				
17-304		SPACER			
M504-17-304	1				
17-305A		RING, RETAINING-BALL BEARING			
0839-17-305B	1				
17-306		BEARING, BALL			
M502-17-299B	1				

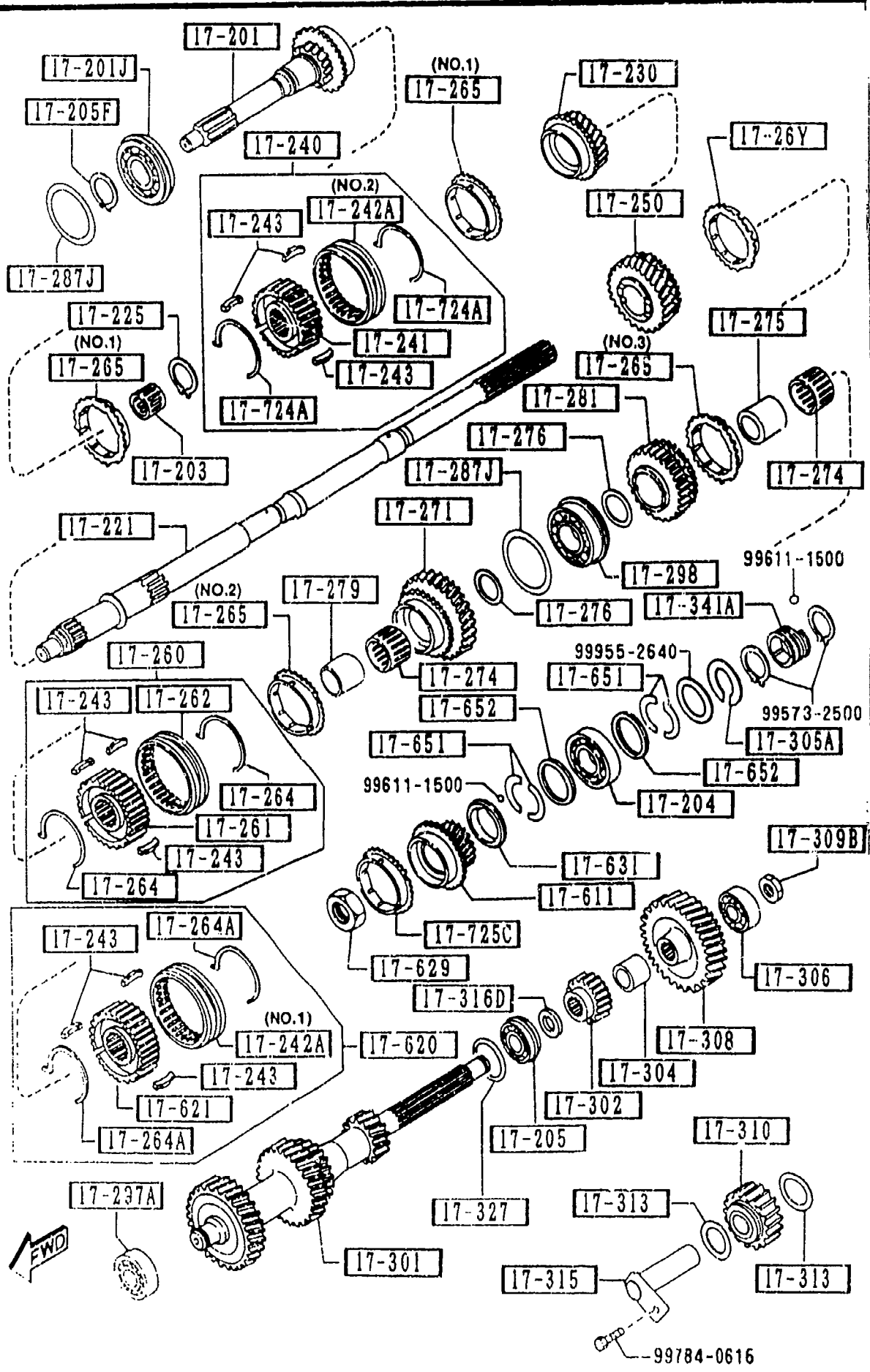
4C01 NA35* -609691

-4C01



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D P502-17-204	1				4C01-
17-308		GEAR,COUNTER			
M510-17-308	1				
17-309B		NUT,LOCK-COUNTER SHAFT BR			
M501-17-309	1				
17-310		GEAR,REVERSE IDLE			
M513-17-310	1				
17-313		WASHER,THRUST-REVERSE IDLE G. T=2.0MM			
M501-17-313	2				
17-315		SHAFT,REV. IDLE GEAR			
M501-17-140	1				
17-316D		SPACER			
R502-17-316	1				-5501
17-327		SHIM,ADJUST-COUNTER SHAFT GEAR T=0.1MM			
0305-17-327	2				
0305-17-328	1	T=0.3MM			
17-341A		GEAR,SPEEDO.DRIVE			
M503-17-341	1				
17-611		GEAR,OVER TOP			
M517-17-611	1				
17-620		HUB SET,CLUTCH-O.T. & REV			
M505-17-620	1				
17-621		HUB,CLUTCH			
M505-17-621	1				
17-629		NUT,LOCK-CLUTCH HUB			
8601-17-629	1				

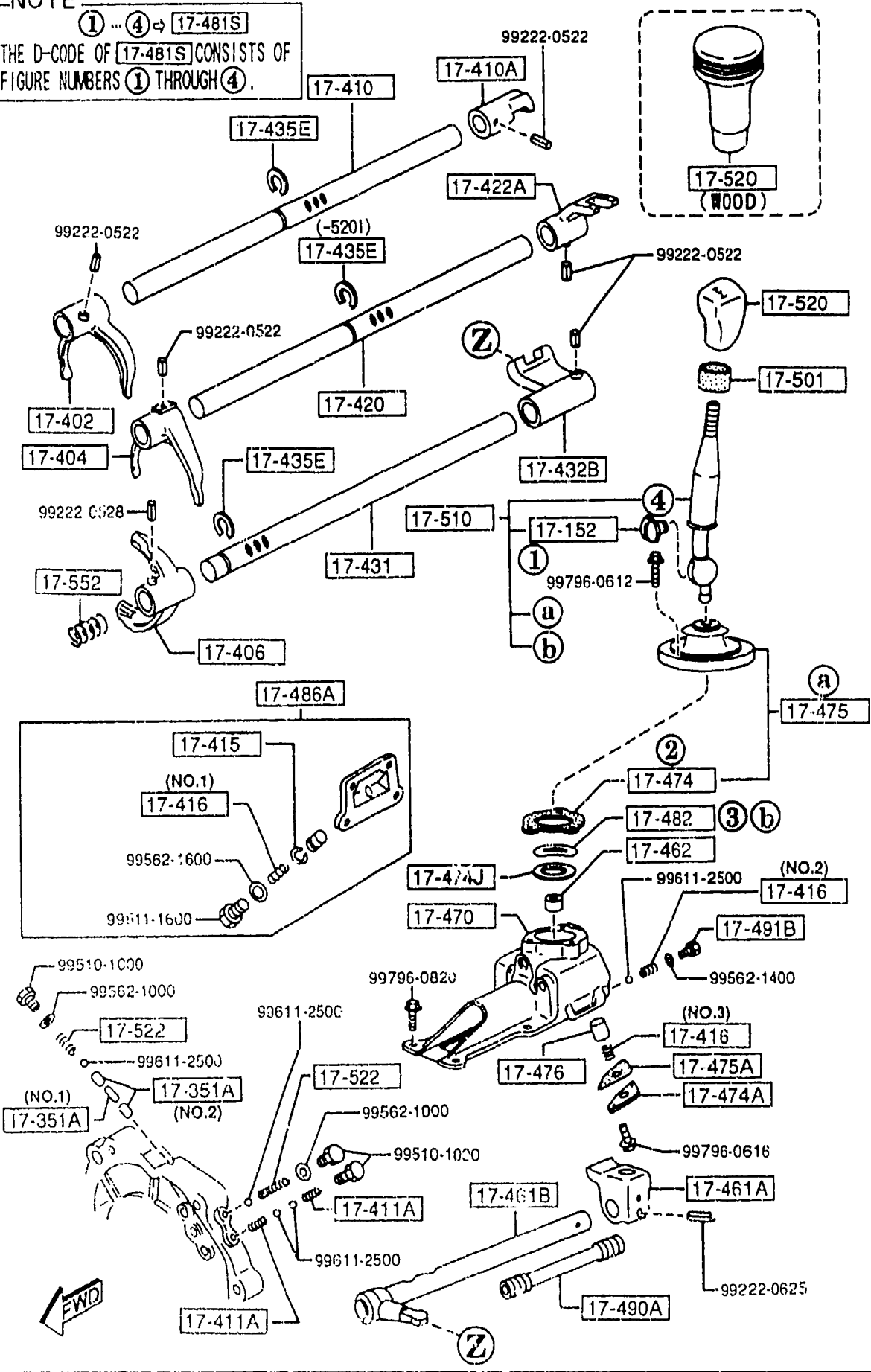
4C01 NA35* -609691
5501 NA35* -620210



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
17-631	1	WASHER, THRUST LOCK-O VER TOP G. T=6.2MM			
0884-17-632B	1				
0884-17-633B	1	T=6.4MM			
0884-17-634B	1	T=6.5MM			
0884-17-635B	1	T=6.6MM			
17-651	4	WASHER, THRUST T=3.0MM			
M501-17-651	4				
M501-17-653	2	T=3.1MM			
M501-17-654	2	T=3.2MM			
M501-17-655	2	T=2.9MM			
17-652	2	RING, THRUST WASHER T=2.0MM			
M501-17-652	2				
17-724A	2	SPRING, SYNCHRO. KEY			
M501-17-724	2				
17-725C	1	RING, SYNCHRONIZER			
V501-17-725	1				

NOTE

① ... ④ → 17-481S
 THE D-CODE OF 17-481S CONSISTS OF
 FIGURE NUMBERS ① THROUGH ④.

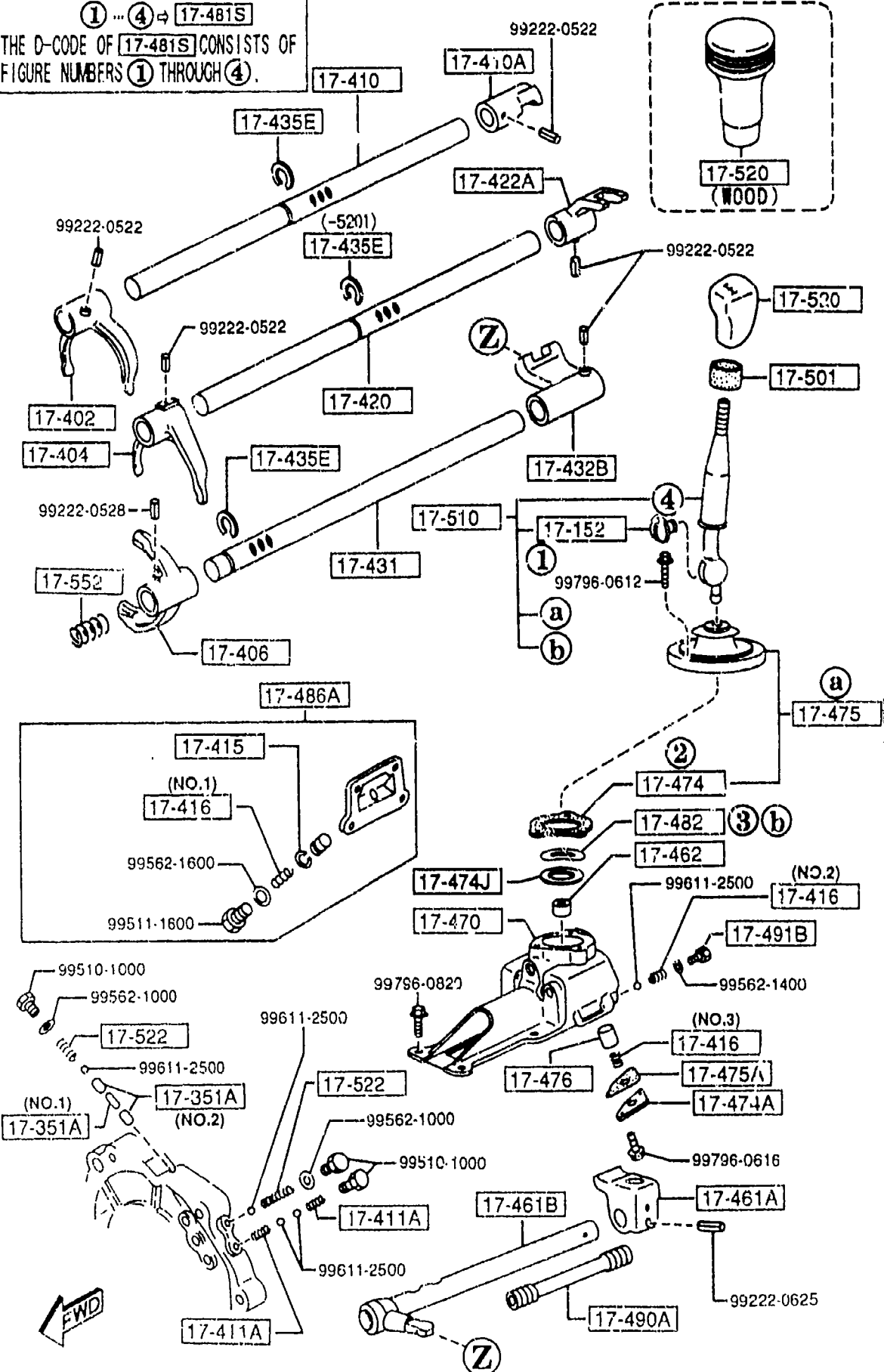


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
17-152		BUSH			
M501-17-515	1				
17-351A		PIN, INTER LOCK			
R501-17-351	1	(ILLUST. NO.1)			
0114-17-351	2	(ILLUST. NO.2)			
17-402		FORK, SHIFT (1ST & 2ND)			
M503-17-402	1				
17-404		FORK, SHIFT (3RD & 4TH)			
M501-17-404B	1				
17-406		FORK, SHIFT			
M504-17-406A	1				
17-410		ROD, SHIFT (1ST&2ND)			
M503-17-411	1				
17-410A		END, S/ROD (1ST&2ND)			
M507-17-412	1				-5201
A (M507-17-412A)					
M507-17-412A	1				5201-
17-411A		SPRING, SHIFT ROD-REVERSE			
0014-17-411	2				
17-415		RING, RETAINING-SHIFT ROD END			
3648-17-415	1				
17-416		SPRING, SHIFT ROD END			
M501-17-416	1	(ILLUST. NO.1)			
M504-17-416	1	(ILLUST. NO.2)			
M505-17-416	1	(ILLUST. NO.3)			
17-420		ROD, SHIFT (3RD&4TH)			
M504-17-421	1				-5201
A (M504-17-421A)					
M504-17-421A	1				5201-
5201 NA35* -614193					



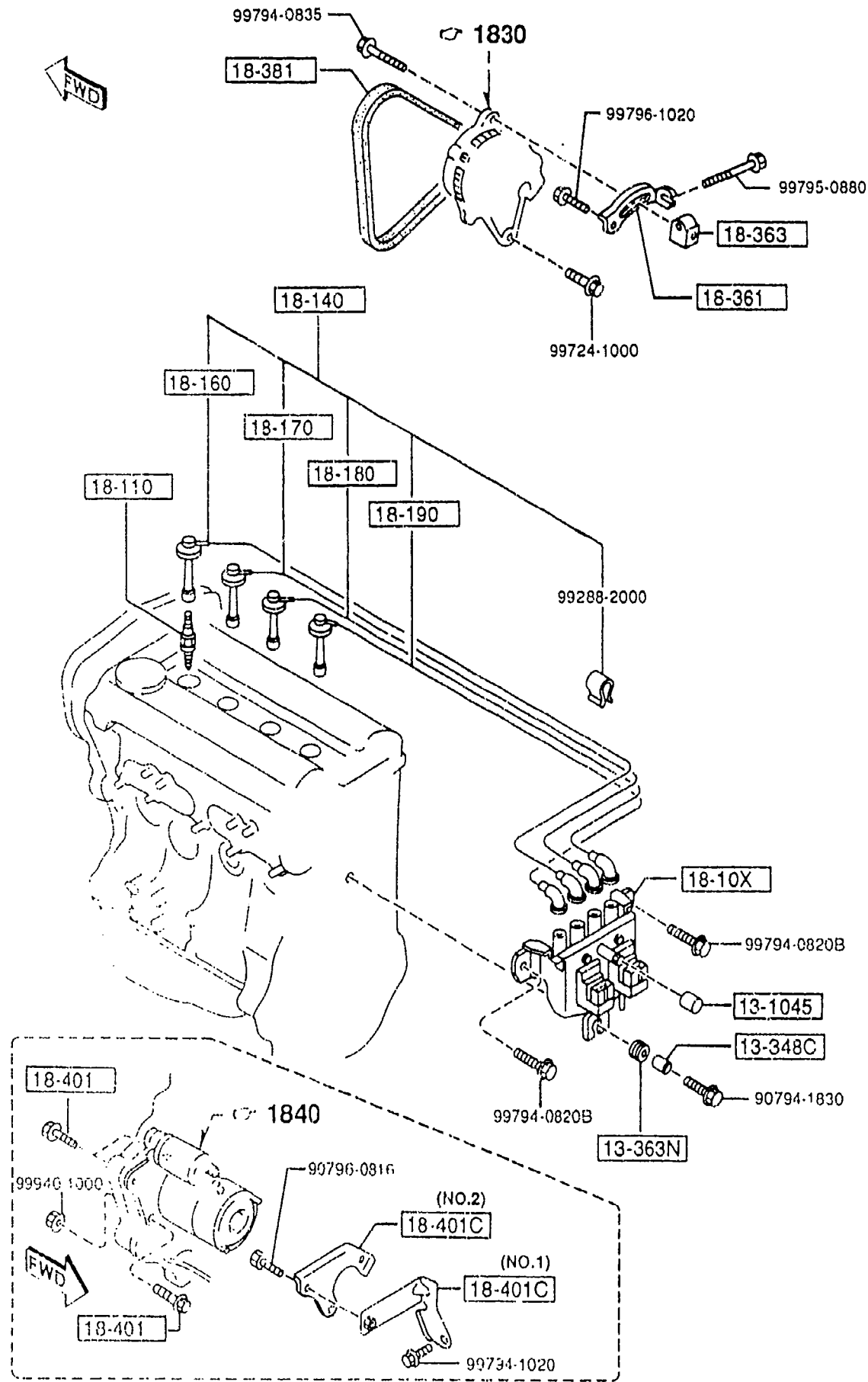
NOTE

① ... ④ → 17-481S
 THE D-CODE OF 17-481S CONSISTS OF
 FIGURE NUMBERS ① THROUGH ④.



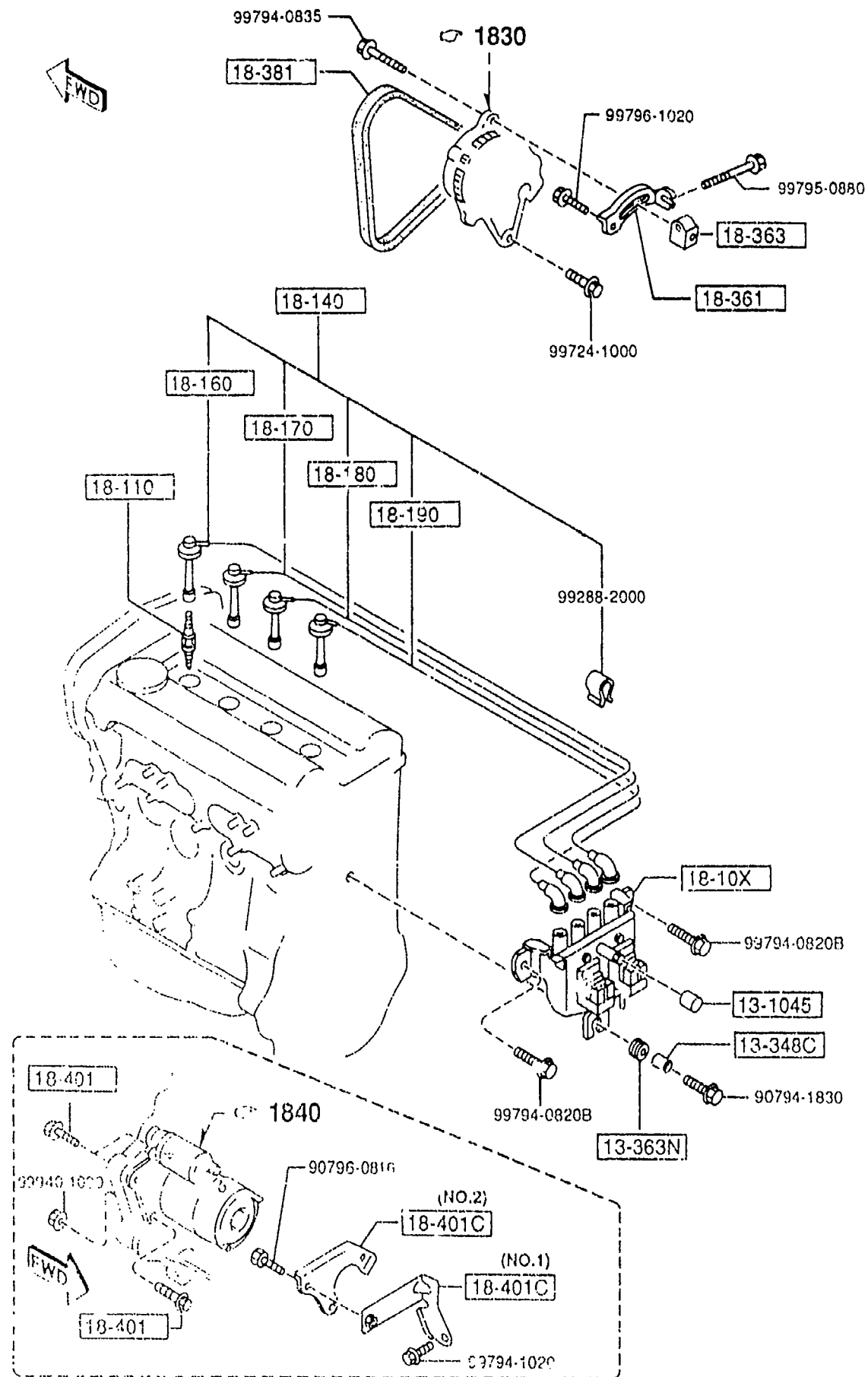
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	PROM-70
17-422A		END, S/ROD(3RD&4TH)			
M507-17-422A	1				-5201
M507-17-422A	1				5201-
17-431		ROD, SHIFT-OVER TOP & REVERSE			
M506-17-431A	1				
17-432B		END, SHIFT ROD(O/TOP& REV.)			
M508-17-432	1				
17-435E		RING, RETAINING			
R502-17-435	3				-5201
R502-17-435	2				5201-
17-461A		END, CONTROL LEVER			
M508-17-461A	1				
17-461B		ROD, CONTRUL			
M516-17-450A	1				
17-462		SHEET, SPRING			
0393-17-462A	1				
17-470		CASE, CHANGE CONTROL			
M510-17-470C	1				
17-474		GASKET, COVER PLATE			
0303-17-474	1				
17-474A		CAP, SPRING			
M501-17-474	1				
17-474J		SHIM, ADJUST			
99963-3330	1	T=0.3MM ('95 MODEL)			
17-475		BOOT, DUST-CHANGE LEVER			
M513-17-480A	1				
17-475A		GASKET, SPRING CAP			

5201 NA35* -614193



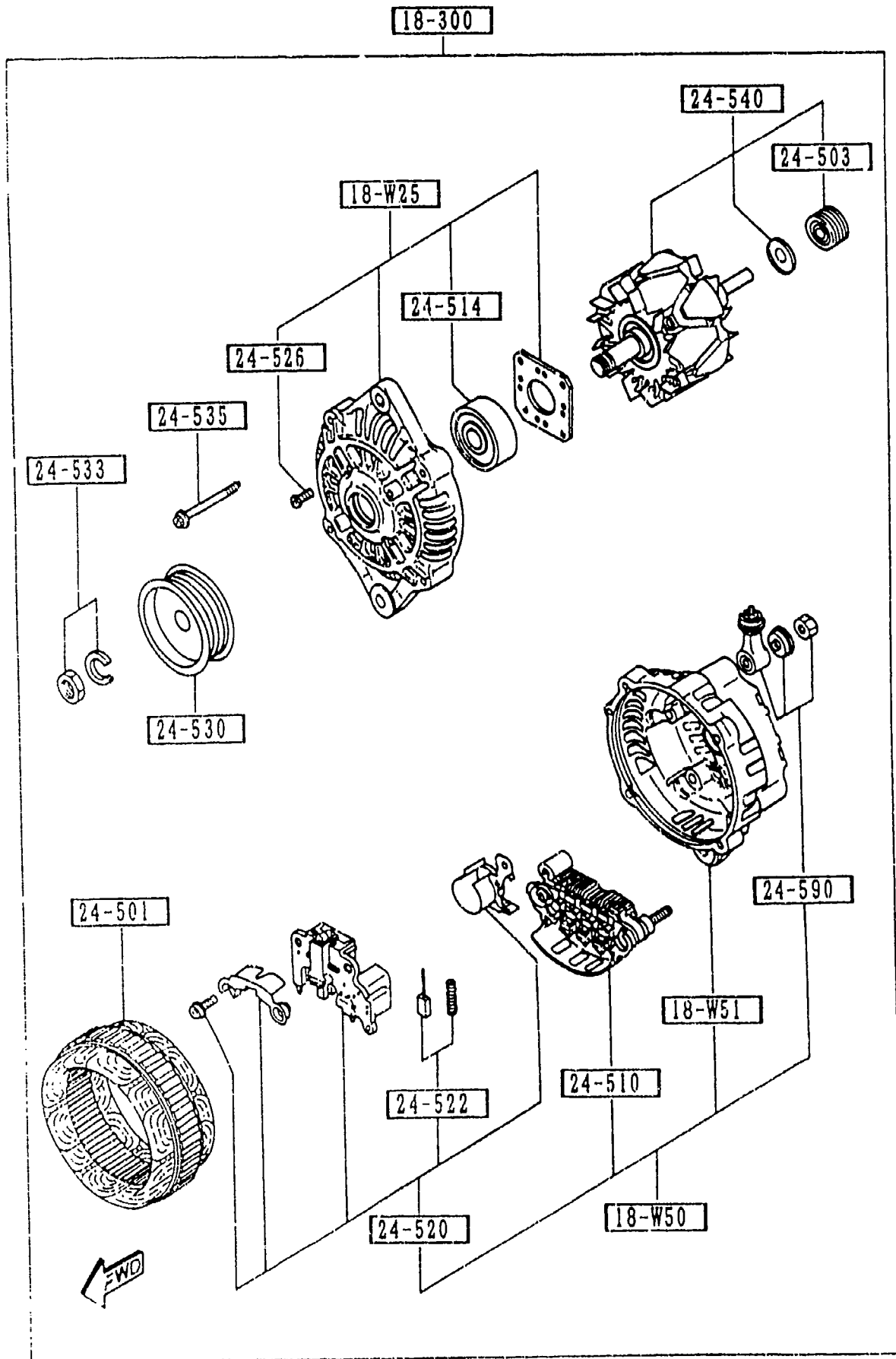
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
JE08-13-104	1	13-1045 CAP, BL'D ND			-5403
B61P-13-348	3	13-348C SPACER			
B61P-13-363A	1	13-363N RUBBER, MOUNTING			
BPE8-18-10XA	1	18-10X COIL & IGNITER			-5403
BPE8-18-10XB	1				5403-
BP01-18-110	4	18-110 PLUG, SPARK BKR5E-11 NGK (STD.)			
BP02-18-110	4	K16PR-U11 ND (STD.)			
BP03-18-110	4	BKR6E-11 NGK (OPTION COLD TYPE)			
BP04-18-110	4	K20PR-U11 ND (OPTION COLD TYPE)			
BPE8-18-140A	1	18-140 CORD SET, HI. TENSION			
BPE8-18-T51	1	18-160 CORD NO.1, HI. TENSION			
BPE8-18-T52	1	18-170 CORD NO.2, HI. TENSION			
BPE8-18-T53	1	18-180 CORD NO.3, HI. TENSION			
BPE8-18-T54A	1	18-190 CORD NO.4, HI. TENSION			
B6BF-18-361C	1	18-361 STRAP, ALTERNATOR			

5403 NA35* -619601

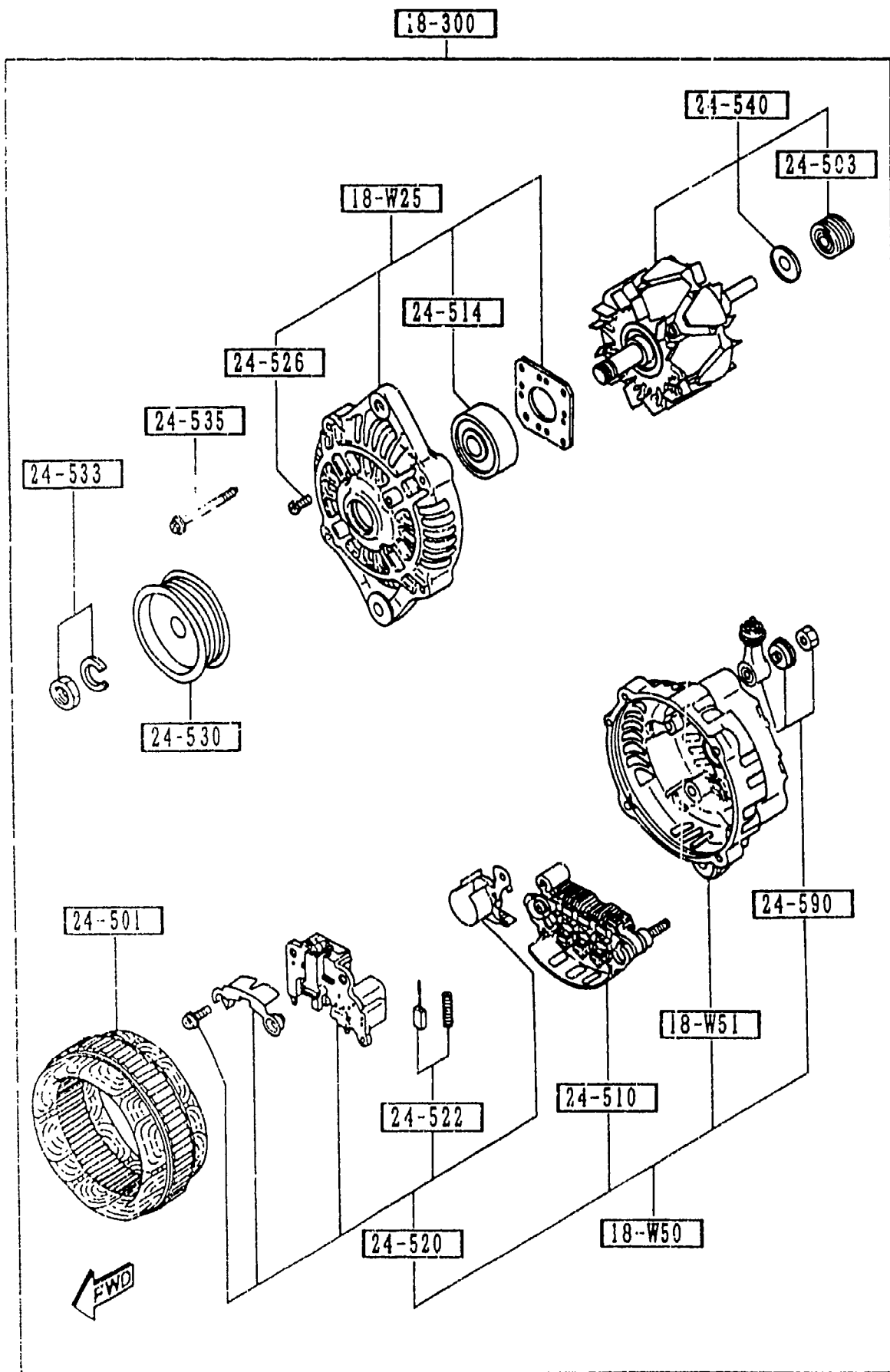


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
18-363		SPACER, STRAP			
FP01-18-363	1				
18-381		BELT 'V'			
B596-18-381	1	4PK L=885 GOOD YEAR			
B6BF-18-381	1	4PK L=885 BANDO			
18-401		BOLT, STARTER			
B6BG-18-401 A (B6BG-18-401A)	3				-5C01
*B6BG-18-401A	3				5C01-
18-401C		BRACKET, STARTER			
BPE8-18-410	1	(ILLUST. NO.1) (MT)			
B650-18-411C	1	(ILLUST. NO.2) (MT)			

5C01 NA3** -706448

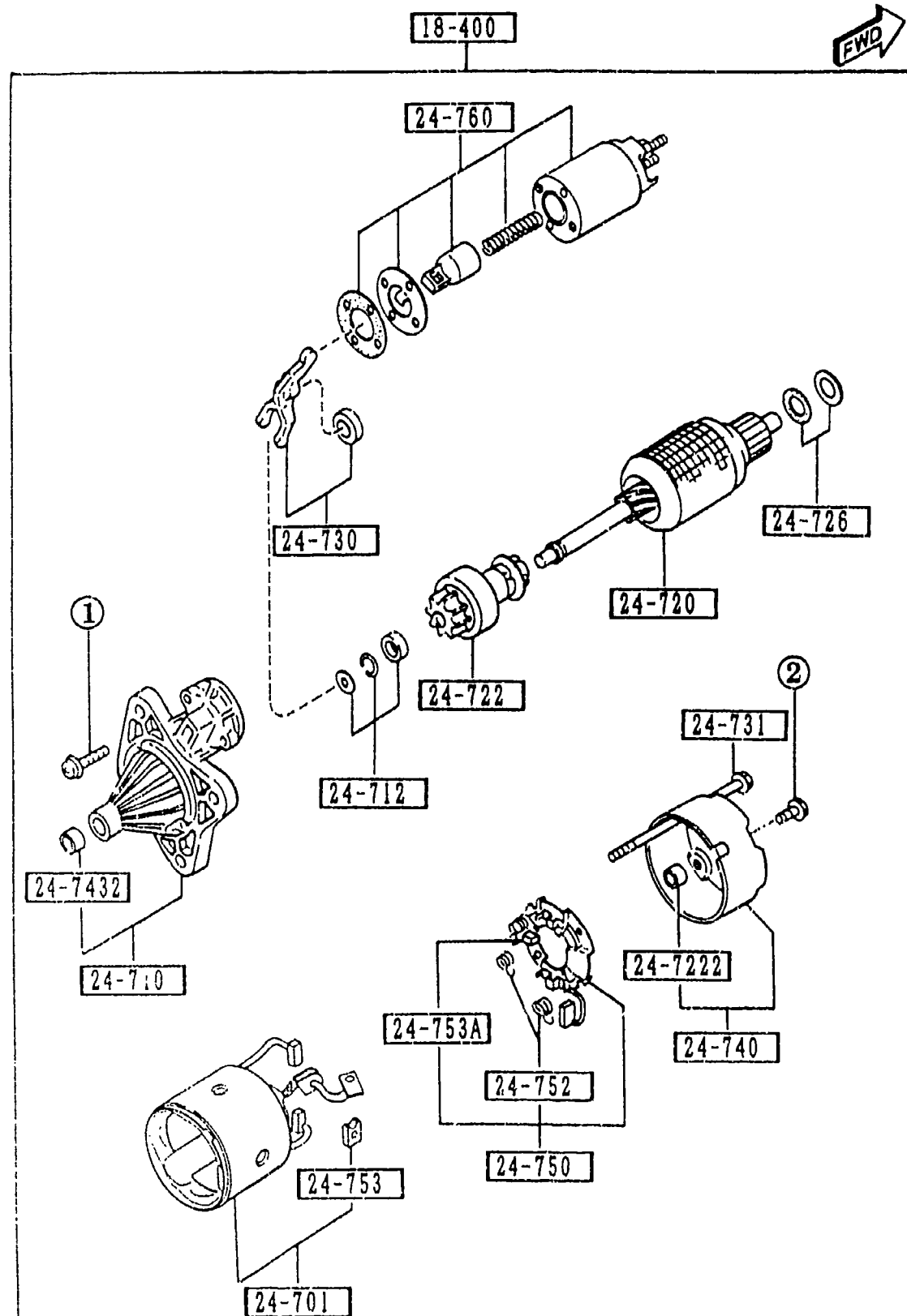


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
18-W25 FS05-18-W25	1	COVER,FRONT-ALTERNATOR			
18-W50 BPE8-18-W50	1	COVER,REAR-ALTERNATOR			
18-W51 FS05-18-W51	1	COVER,REAR-ALTERNATOR (G)			
18-300 BPE8-18-300 BPE9-18-300	1 (MT) 1 (AT)	ALTERNATOR			
24-501 JE15-18-W45	1	STATOR			
24-503 N336-18-W36	1	BEARING,BALL-ALT. REAR			
24-510 BPE8-18-W60	1	RECTIFIER			
24-514 PN16-18-W27	1	BEARING,BALL-ALT. FRONT			
24-520 B64J-18-W70A	1	REGULATOR,VOLTAGE			
24-522 B3C7-18-W77	2	BRUSH			
24-526 RF71-18-W26	1	SCREW SET			
24-530 B3C7-18-W10	1	PULLEY			
24-533 B3C7-18-W05	1	NUT SET			



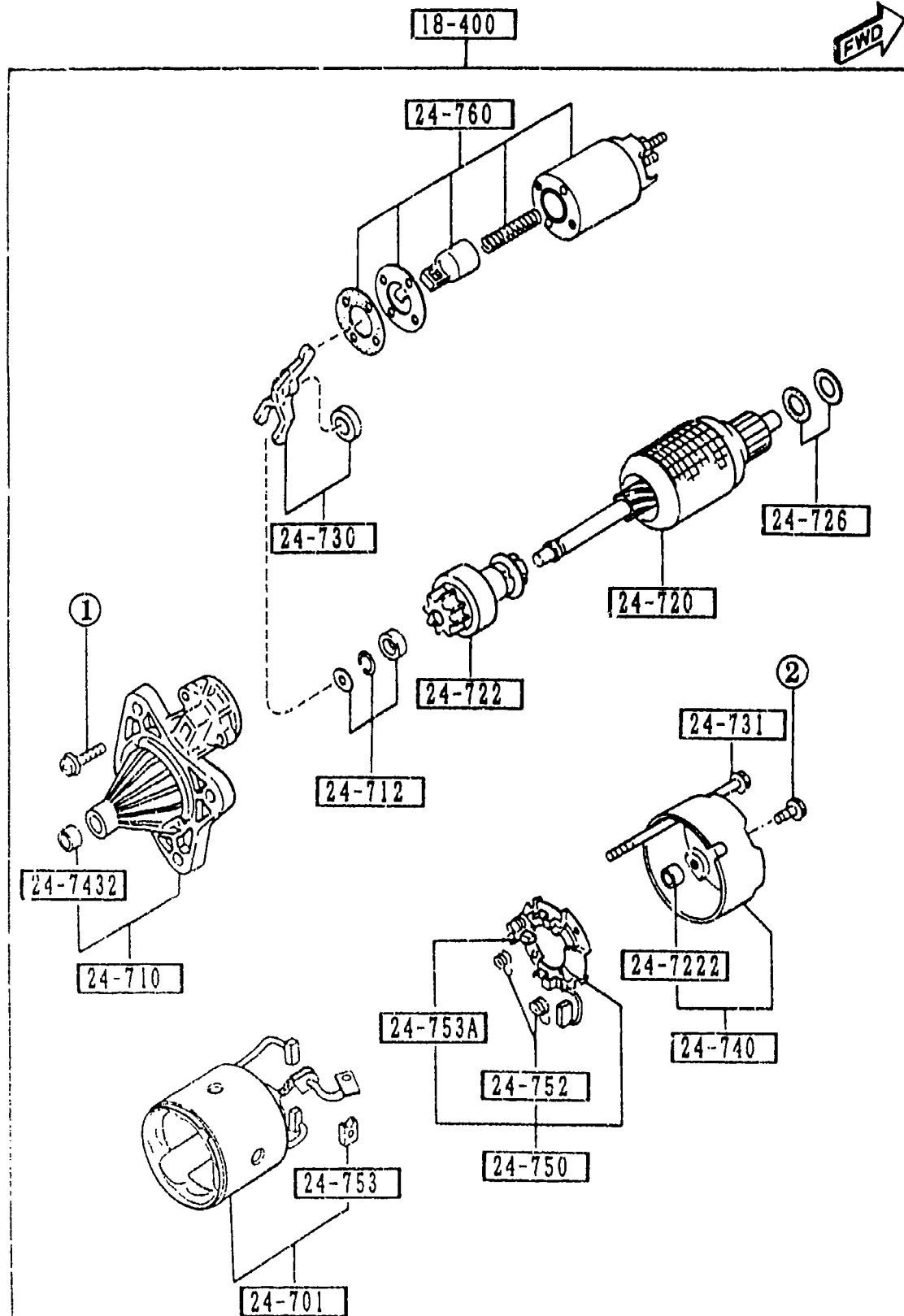
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
24-535		SCREW SET			
RF71-18-W20	1				
24-540		ROTOR			
B366-18-W35D	1 (MT)				
BPD3-18-W35	1 (AT)				-4912
F285-18-W35A	1 (AT)				4912-
24-590		TERMINAL SET			
BPD3-18-W80	1				

4912 NA35* -602970



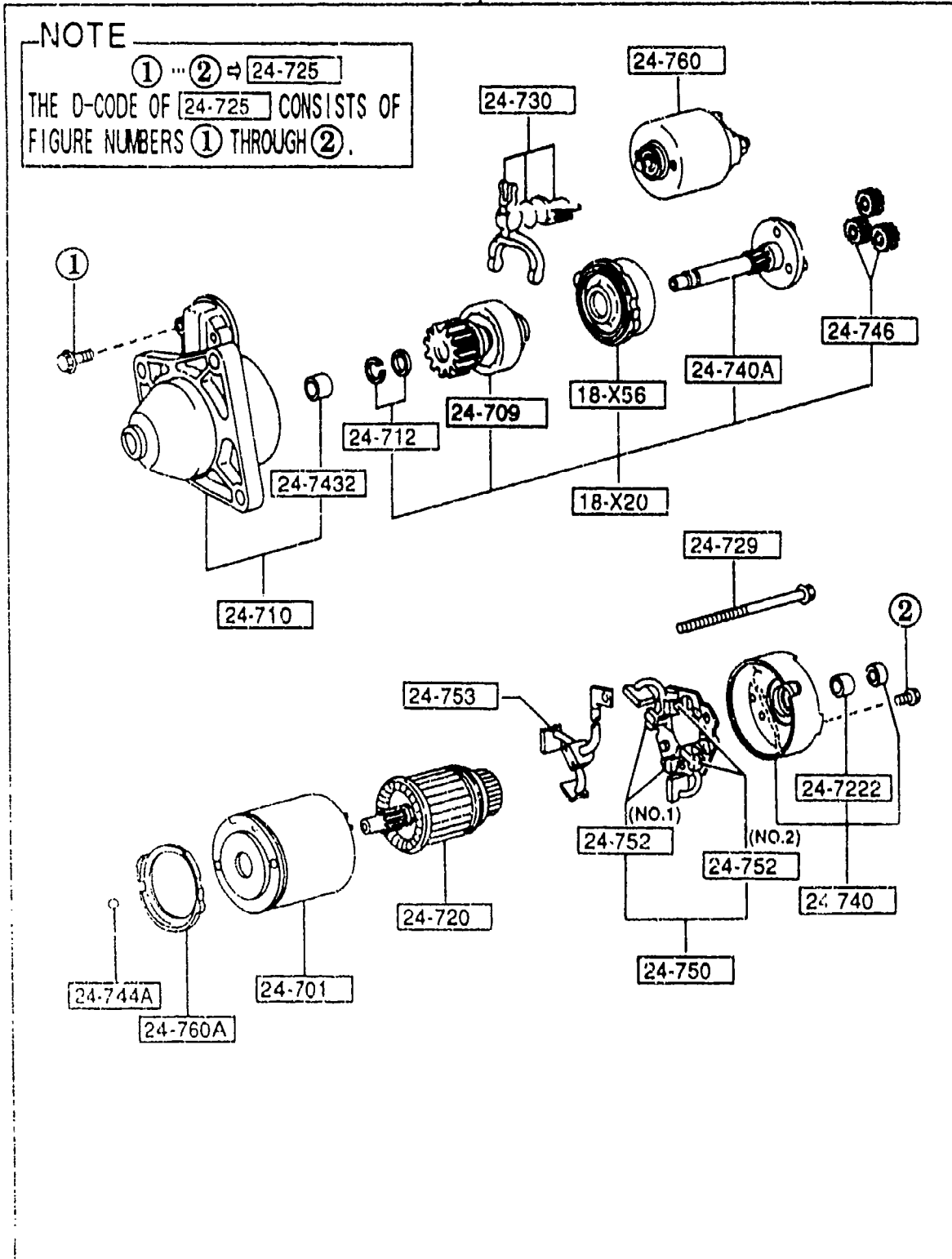
NOTE
 ① ... ② ⇒ 24-725
 THE D-CODE OF 24-725 CONSISTS OF
 FIGURE NUMBERS ① THROUGH ②.

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
18-400		STARTER			
B61R-18-400A	1	NON ASBESTOS			
24-701		YOKE			
B61R-18-X65	1				
24-710		BRACKET, FRONT			
B61R-18-X00	1				
24-712		STOPPER SET			
E356-18-X30	1				
24-720		ARMATURE			
B658-18-X60	1	NON ASBESTOS			
24-722		CLUTCH, OVER RUNNING			
B630-18-X45	1				
24-722		SLEEVE, BEARING-REAR			
E356-18-X81	1				
24-725		SCREW SET			
E356-18-X95	1	MITSUBISHI			
24-726		WASHER SET			
E356-18-X92	1				
24-730		LEVER			
E356-18-X05	1				
24-731		BOLT SET			
B630-18-X90	2				
24-740		BRACKET, REAR			
E356-18-X80	1				
24-7432		SLEEVE, BEARING-FRONT			
F210-18-X01	1				



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
24-750		HOLDER, BRUSH			
B61R-18-X70	1				
24-752		SPRING, BRUSH			
0222-24-752A	4				
24-753		BRUSH, YOKE			
3630-18-X66	2				
24-753A		BRUSH			
B660-18-X66	2				
24-760		SWITCH			
E356-18-X10	1				

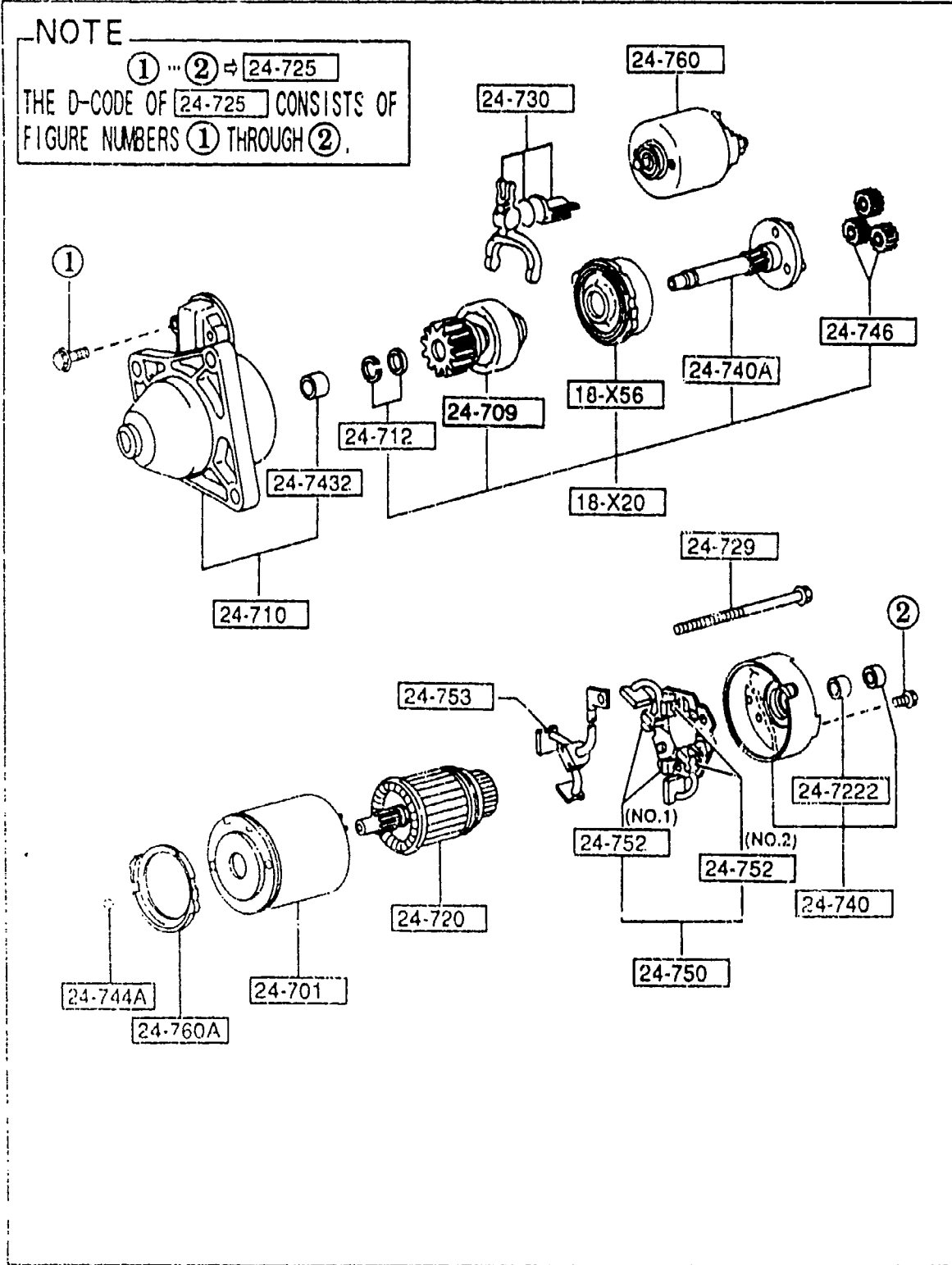
NOTE
 ① ... ② ⇒ 24-725
 THE D-CODE OF 24-725 CONSISTS OF
 FIGURE NUMBERS ① THROUGH ②.



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
18-X20		SHAFT, PINION			
AM15-18-X20	1				
18-X56		GEAR, INTERNAL-STARTER			
F225-18-X56	1				
18-400		STARTER			
BPE9-18-400	1				
24-701		YOKE			
JF01-18-X65	1				
24-709		PINION			
*AM15-18-X25	1				
24-710		BRACKET, FRONT			
BPE9-18-X00	1				
24-712		STOPPER SET			
N326-18-X30	1	MITSUBISHI			
24-720		ARMATURE			
F214-18-X60A AN(AM15-18-X60)	1	NON ASBESTOS			
AM15-18-X60	1				
24-7222		SLEEVE, BEARING-REAR			
N326-18-X62A	1	MITSUBISHI			
24-725		SCREW SET			
E356-18-X95	1	MITSUBISHI			
24-729		BOLT			
N326-18-X91	2				
24-730		LEVER			
N326-18-X05	1				
24-740		BRACKET, REAR			

5C01 NA3** -706448

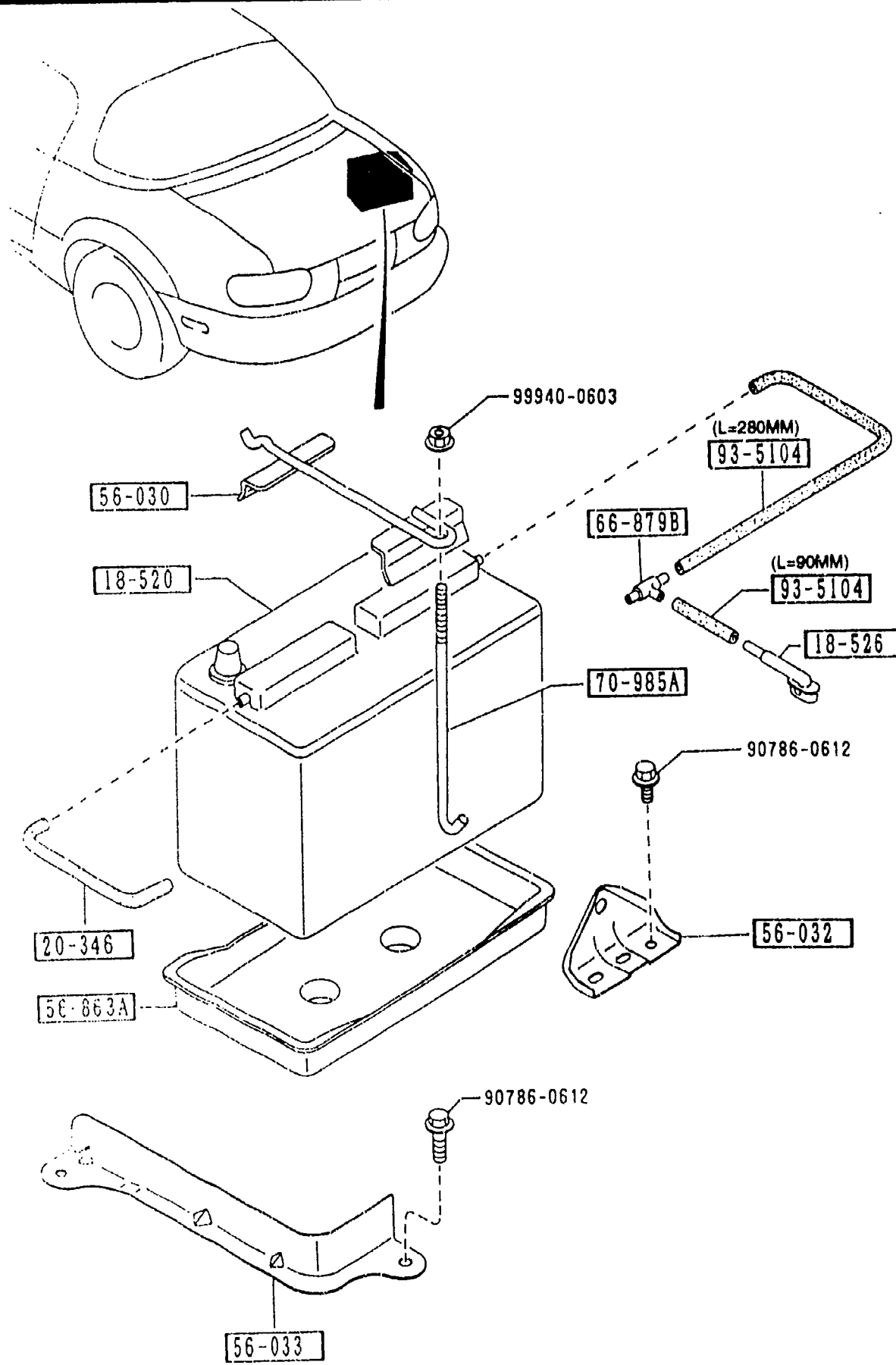
-5C01
5C01-



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D JF01-18-X80A	1				
+-----+ | 24-740A | +-----+		SHAFT			
F214-18-X40	1				
+-----+ | 24-7432 | +-----+		SLEEVE, BEARING-FRONT			
E356-18-X01	1	MITSUBISHI			
+-----+ | 24-744A | +-----+		BALL, STEEL			
N326-18-X93	1	MITSUBISHI			
+-----+ | 24-746 | +-----+		GEAR			
N326-18-X57	3	MITSUBISHI			
+-----+ | 24-750 | +-----+		HOLDER, BRUSH			
F214-18-X70	1				-6301
*F2D4-18-X70	1				6301-
+-----+ | 24-752 | +-----+		SPRING, BRUSH			
N318-18-X71	2 (ILLUST. NO.1)				
N326-18-X71	2 (ILLUST. NO.2)				
+-----+ | 24-753 | +-----+		BRUSH, YOKE			
F214-18-X66	1				-6301
*F2D4-18-X66	2				6301-
+-----+ | 24-760 | +-----+		SWITCH			
E356-18-X10	1				-5C01
BPD4-18-X10	1				5C01-
+-----+ | 24-760A | +-----+		GASKET			
N326-18-X87	1				

5C01 NA3** -706448
 6301 NA3** -714662

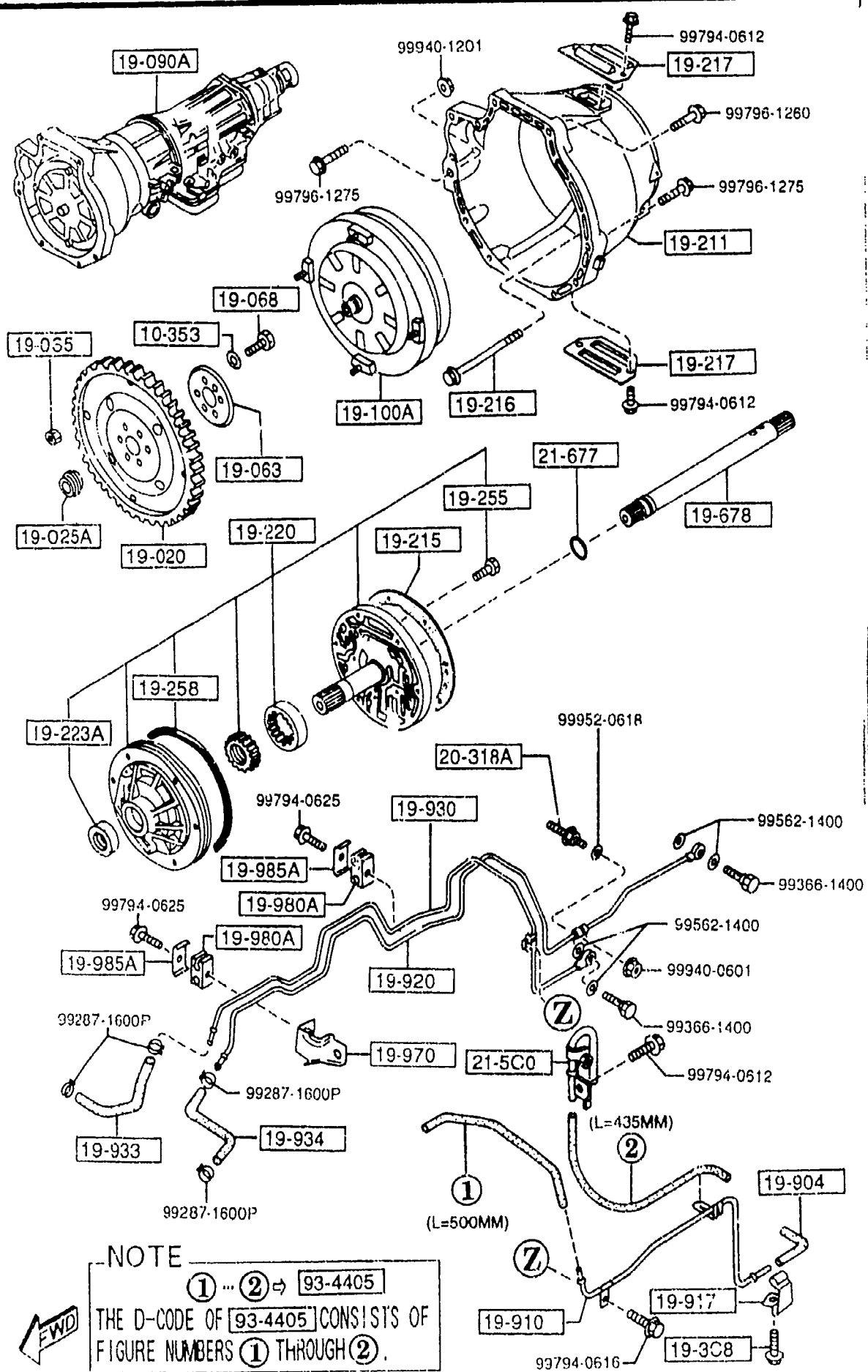
1850 BATTERY



1850 -1 * BATTERY

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
18-520		BATTERY			
B6AC-18-520	1	S46A24L(S) PANASONIC			
18-526		CONNECTOR, TUBE-BATTERY			
B61P-18-526	1				
20-346		TUBE, VACUUM			
B61P-18-524	1				
56-030		CLAMP, BATTERY			
NA01-56-03XA	1				
56-032		BRACKET, BATTERY CLAMP			
NA01-56-032A AN(NA01-56-032B)	1				-4B01
NA01-56-032B	1				4B01-
56-033		BRACKET, STOPPER-BATTERY			
NA01-56-033A AN(NA01-56-033B)	1				-4B01
NA01-56-033B	1				4B01-
56-863A		TRAY, BATTERY			
B095-56-032	1				
66-879B		JOINT			
0813-66-879	1				
70-985A		BOLT, CLAMP			
0259-54-292A	1				
93-5104		HOSE			
99351-04999	1	L=1M CUT IT TO USE			

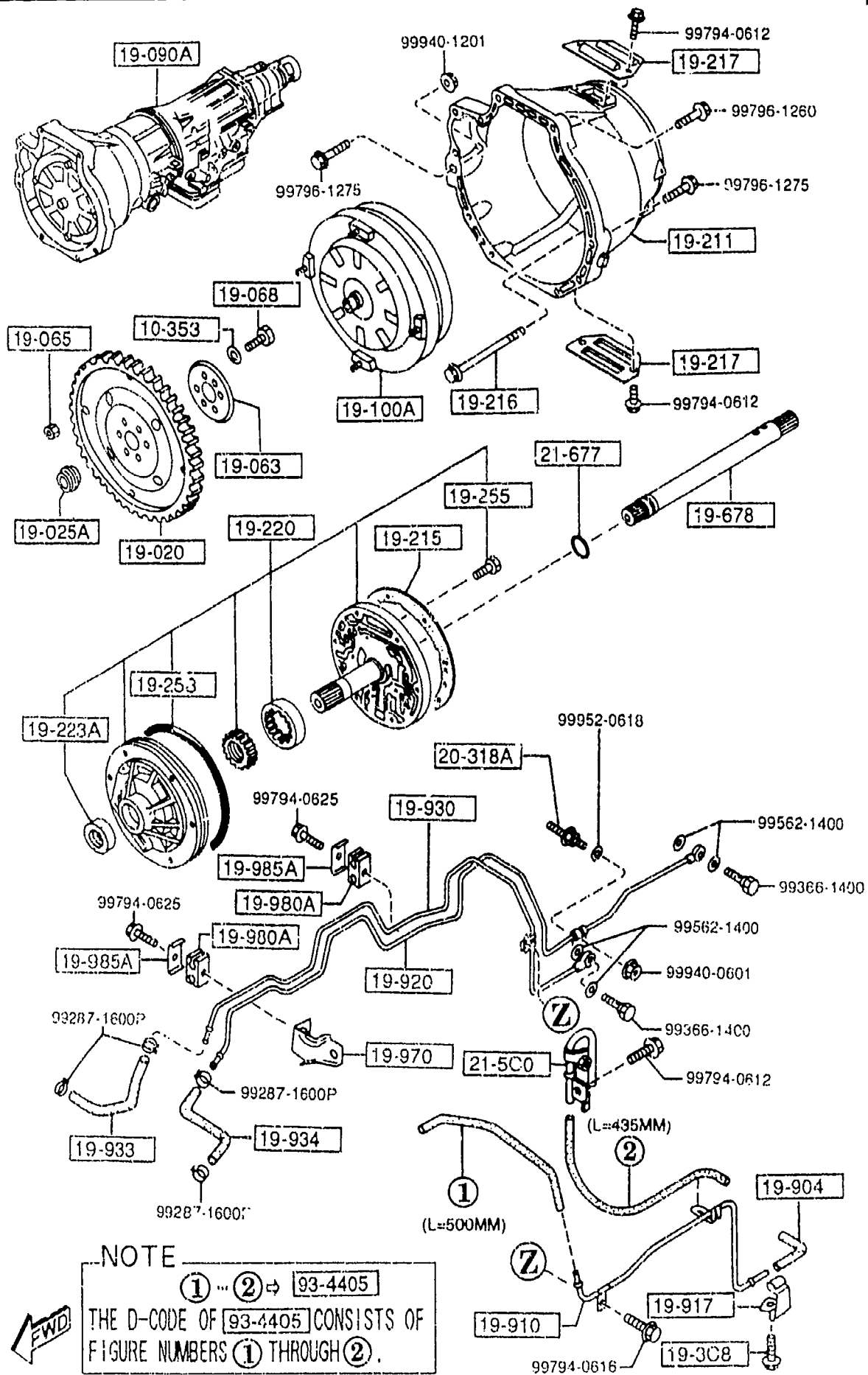
4B01 NA35* -606043



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
10-353		WASHER, PLAIN			
0290-10-353	6				
19-020		PLATE, DRIVE			
BU55-19-020	1				
19-025A		ADAPTER, DRIVE PLATE			
FU60-19-025	1				
19-063		PLATE, BACKING			
FT31-19-063	1				
19-065		NUT			
FU51-19-065	4				
19-068		BOLT, LOCK			
FT31-19-064	6				
19-090A		T/MISSION CPT.			
N451-19-090C	1				
19-100A		CONVERTER, TORQUE			
BU55-19-100	1				
19-211		HOUSING, CONVERTER			
BU55-19-211	1				
19-215		GASKET, OIL PUMP NON ASBESTOS			
BU46-19-215	1				
19-216		BOLT			
BU01-19-216	6				
19-217		COVER, BLIND			
BU55-19-217	2				
19-220		PUMP, OIL			
N451-19-220	1				
19-223A		SEAL, OIL			
19-223A					

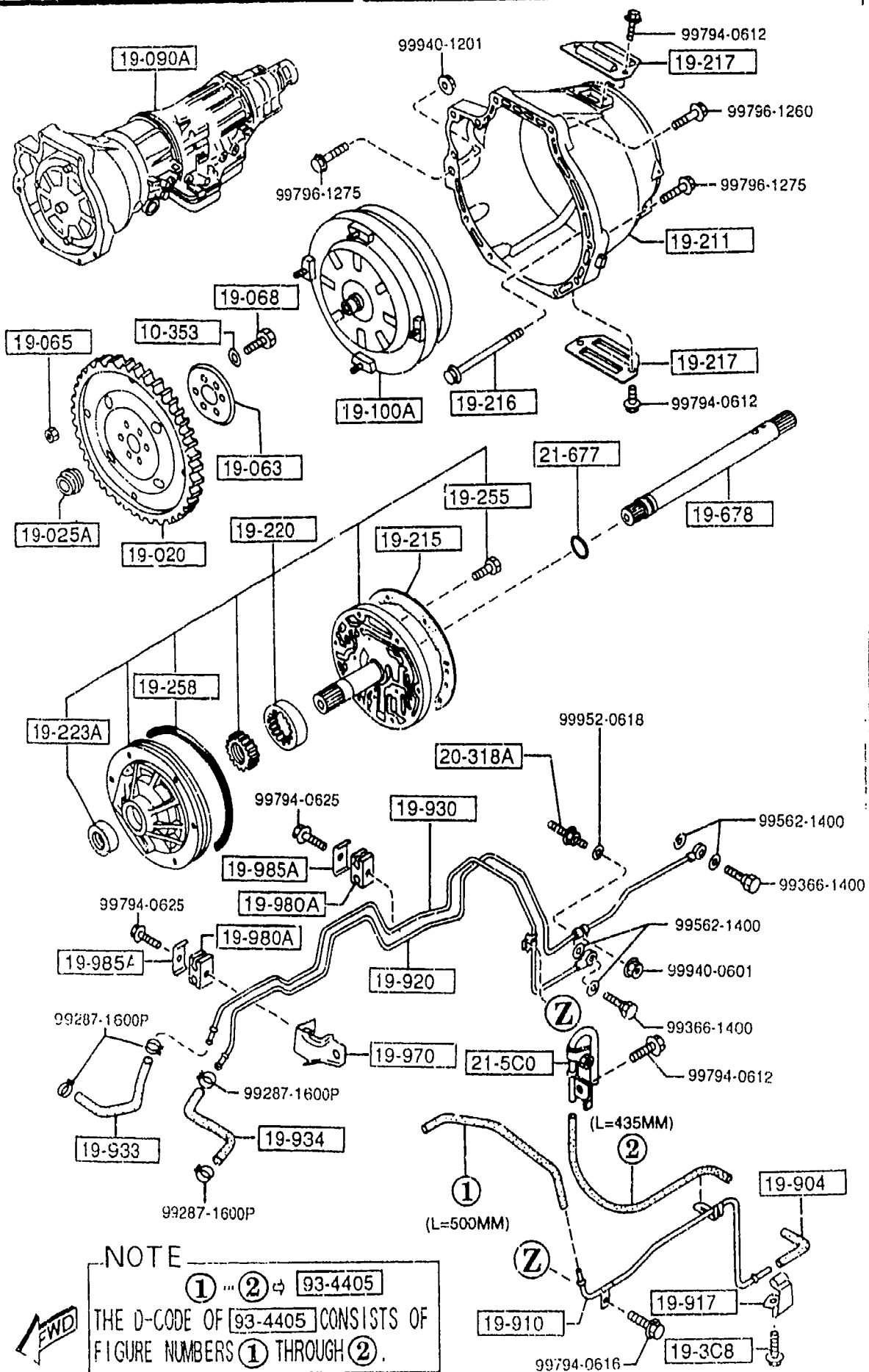
NOTE
 ① ... ② → 93-4405
 THE D-CODE OF 93-4405 CONSISTS OF
 FIGURE NUMBERS ① THROUGH ②.



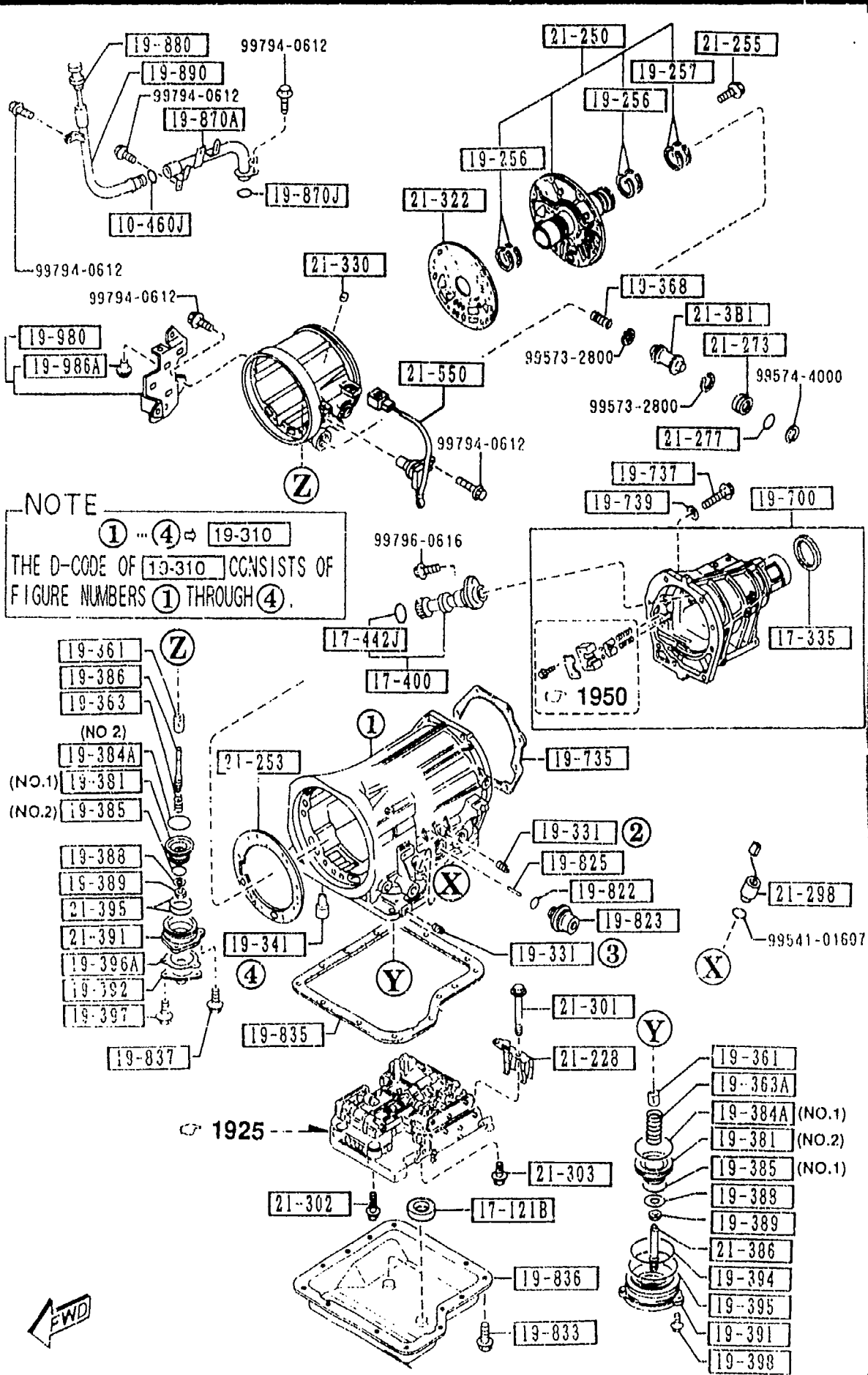


NOTE
 ① ... ② ⇨ 93-4405
 THE D-CODE OF 93-4405 CONSISTS OF
 FIGURE NUMBERS ① THROUGH ②.

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
0338-19-223A	1	NOK			
19-255		BOLT			
0338-19-255	5				
19-258		SEAL,CUT RING			
0338-19-258	1				
19-3C8		BOLT,BAFFLE PLATE			
BU55-19-3C8	1	L=12MM			
19-678		SHAFT,INPUT			
N451-21-678	1				
19-904		HOSE,VACUUM			
0338-19-904A	1				
19-910		PIPE,VACUUM			
BU55-19-910A	1				
19-917		CLIP			
0436-19-917	1				
19-920		PIPE,OIL			
N451-19-920	1				
19-930		PIPE,OIL			
N452-19-930	1				
19-933		HOSE,OIL			
BU55-19-933A	1				
19-934		HOSE,OIL			
BU55-19-934A	1				
19-970		BRACKET			
BU55-19-970A	1				
19-980A		SUPPORT,OIL PIPE			
BU29-19-980	2				

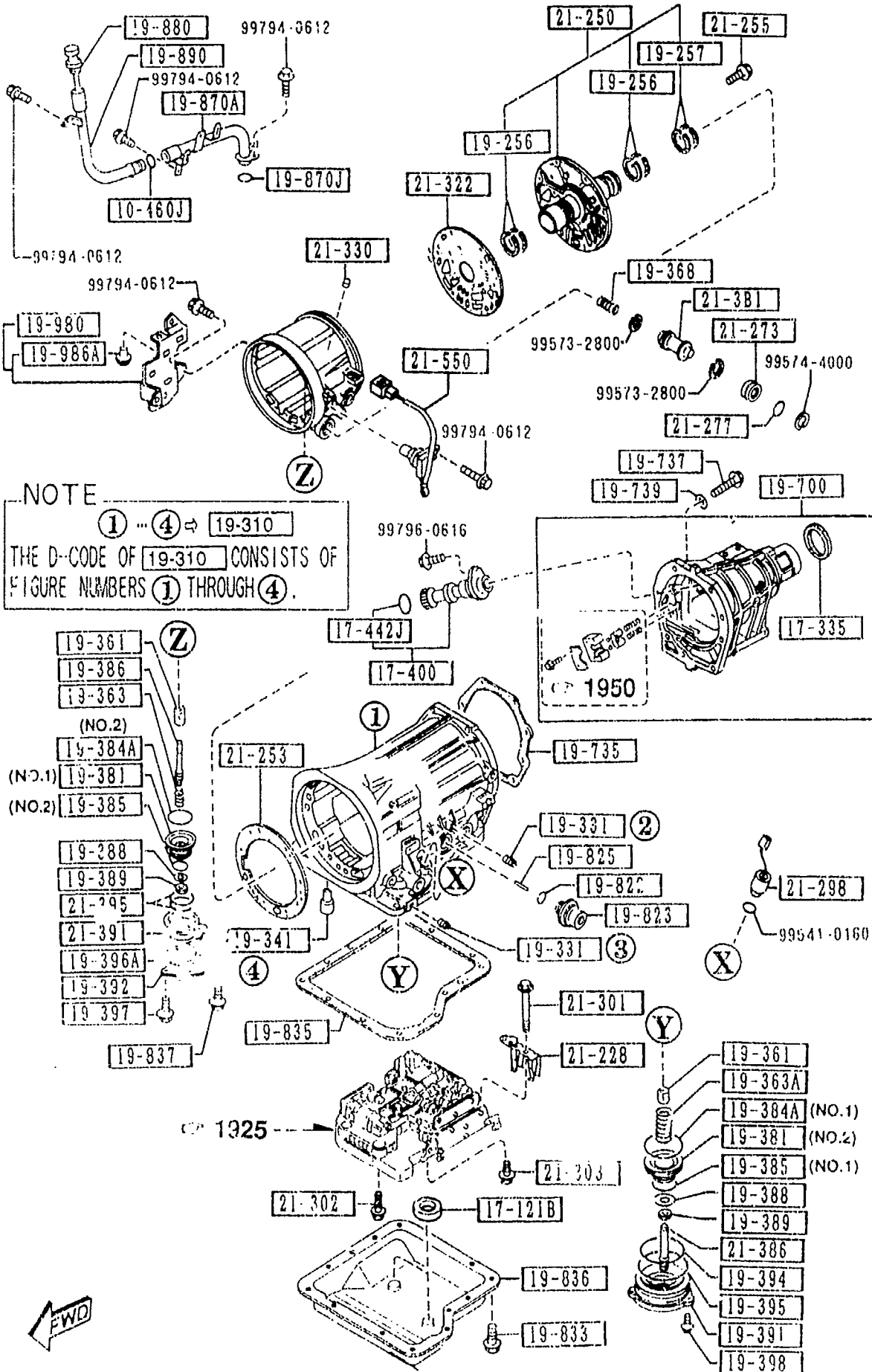


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
19-985A		CLIP,OIL PIPE			
BU29-19-985	2				
20-318A		BOLT			
BU27-19-838	1				
21-5C0		BREATHER			
N451-21-5C0	1				
21-677		RING,'O'			
BU01-21-677	1				
93-4405		HOSE			
99344-05150	1	L=15M CUT IT TO USE			



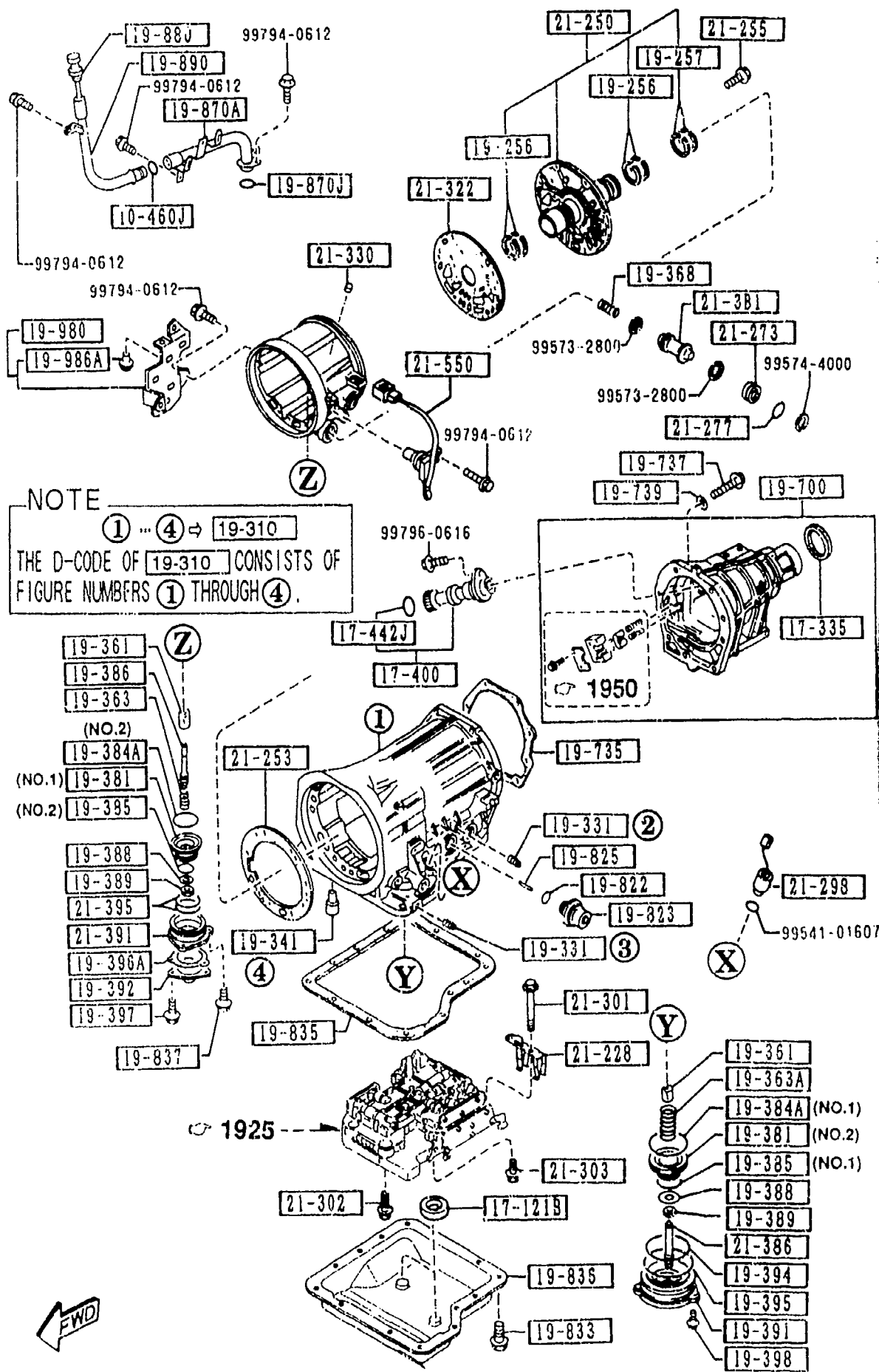
NOTE
 ① ... ④ → 19-310
 THE D-CODE OF 19-310 CONSISTS OF
 FIGURE NUMBERS ① THROUGH ④.

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
10-460J		RING, 'O'			
99541-01201	1				
17-121B		MAGNET			
F401-17-121	2				
17-335		SEAL, OIL			
M507-17-335A	1				
17-400		GEAR SET, DRIVEN-SPEED			
N451-17-400	1				
17-442J		RING, 'O'			
1011-17-443	1				
19-256		RING, SEAL			
BU01-19-256	4				
19-257		RING, SEAL			
BU01-19-257	2				
19-310		CASE, T/MISSION			
N451-19-310	1				
19-331		PLUG, SQUARE HEAD			
0358-19-331A	2				
19-341		BOLT, ANCHOR END			
0338-19-341	1				
19-361		STRUT, BAND			
0338-19-361B	2				
19-363		SPRING, PISTON RETURN			
FT40-19-363	1				
19-363A		SPRING, PISTON RETURN			
BU10-19-363	1				
19-368		SPRING, CUSHION-PISTN. STEM			
BU20-19-368	1				



NOTE
 ① ... ④ ⇔ 19-310
 THE D-CODE OF 19-310 CONSISTS OF
 FIGURE NUMBERS ① THROUGH ④.

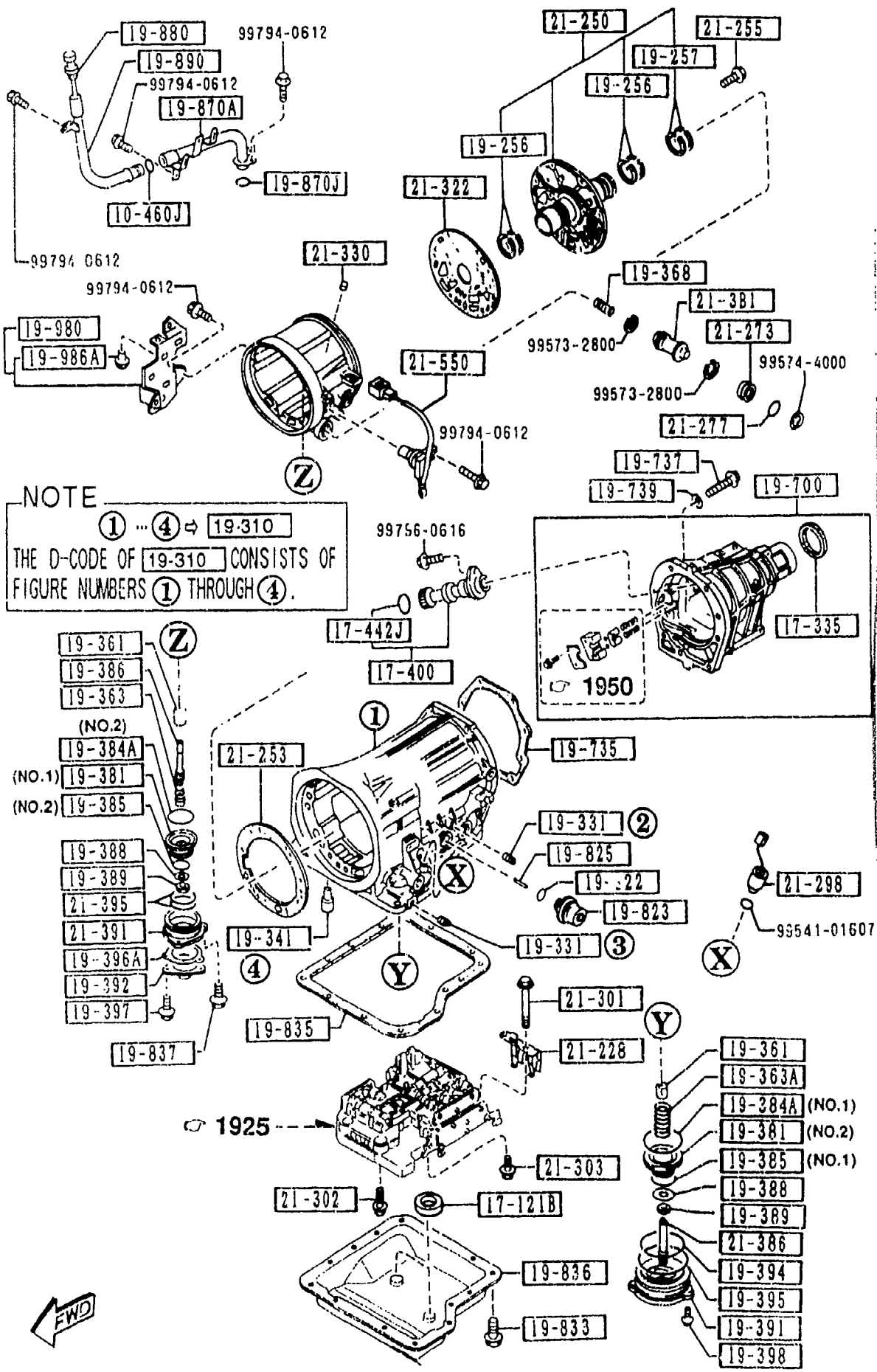
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
19-381		PISTON, BAND SERVO			
BV03-19-381	1	(ILLUST. NO.1)			
N451-19-381	1	(ILLUST. NO.2)			
19-384A		SEAL, PISTON			
BU10-19-384	1	(ILLUST. NO.1)			
BU55-19-384	1	(ILLUST. NO.2)			
19-385		SEAL, PISTON			
8U05-19-385	1	D=49.4MM (ILLUST. NO.1)			
0842-19-385	1	D=36MM (ILLUST. NO.2)			
19-386		STEM, PISTON			
0338-19-386A	1				
19-388		WASHER, PLAIN			
0338-19-388A	2				
19-389		NUT			
0338-19-389	2				
19-391		RETAINER, SERVO			
N451-19-391	1				
19-392		COVER, SERVO			
1758-19-392A	1				
19-394		SEAL, LATHE CUT			
0842-19-394	1				
19-395		RING, 'O'			
0338-19-395	1				
19-396A		GASKET			
BU46-19-396A	1	NON ASBESTOS			
19-397		BOLT			
1758-19-397	3				



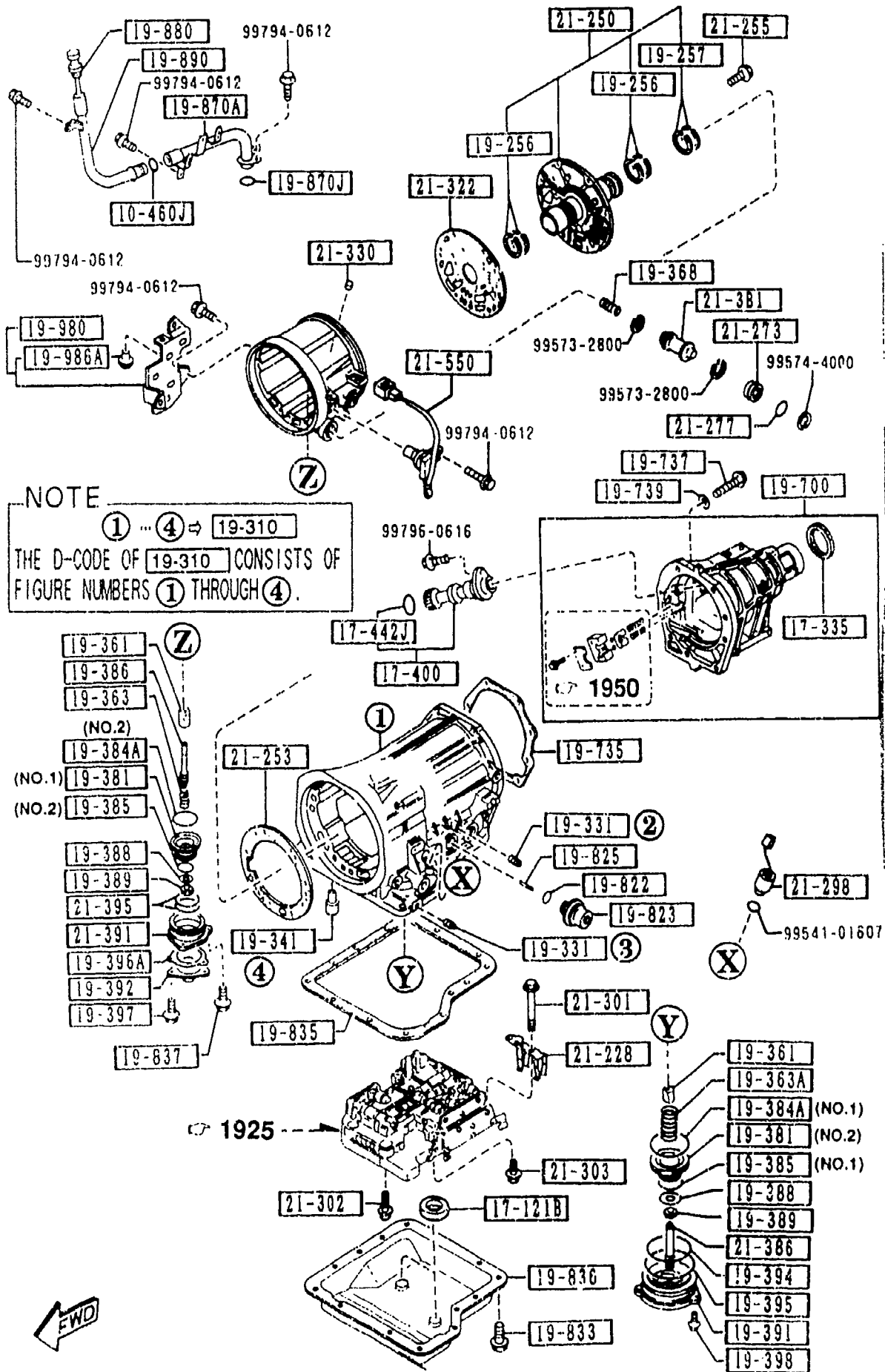
NOTE

① ... ④ ⇒ 19-310
THE D-CODE OF 19-310 CONSISTS OF
FIGURE NUMBERS ① THROUGH ④.

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
19-398		BOLT			
0538-19-398	3				
19-700		HOUSING, EXTENSION			
BUY2-19-7A7	1				
19-735		GASKET, EXTENSION			
3T28-19-735	1	NON ASBESTOS			
19-737		BOLT			
BV12-19-737	8				
19-739		WASHER, PLAIN			
BV40-19-739	8				
19-822		SEAL, 'O' RING			
0338-19-822	1				
19-823		DIAPHRAGM, VACUUM			
3T07-19-823	1				
19-825		ROD, DIAPHRAGM			
BU55-19-825	1	L=29.75MM			
0338-19-825	1	L=30.0MM			
0338-19-826	1	L=31.0MM			
0338-19-827	1	L=30.5MM			
0338-19-828	1	L=29.0MM			
0338-19-829	1	L=29.5MM			
19-833		BOLT, CONTROL VALVE			
BU91-19-833	13	L=15MM			
19-835		GASKET, OIL PAN			
BT28-19-835	1	NON ASBESTOS			

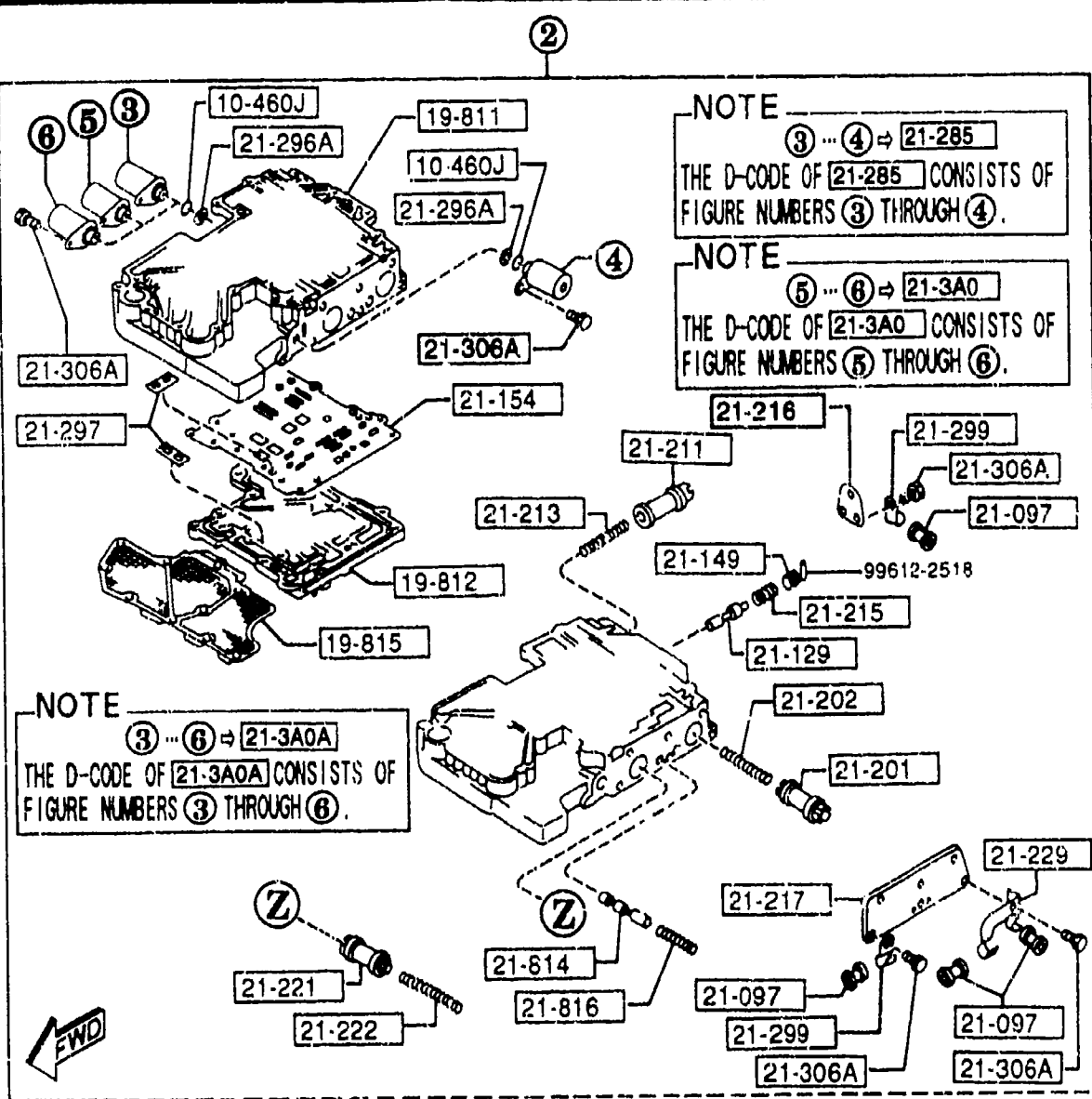
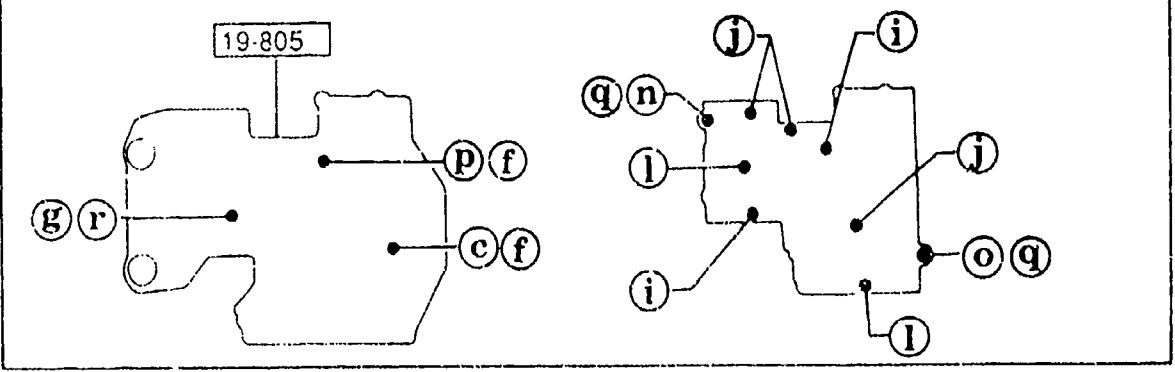
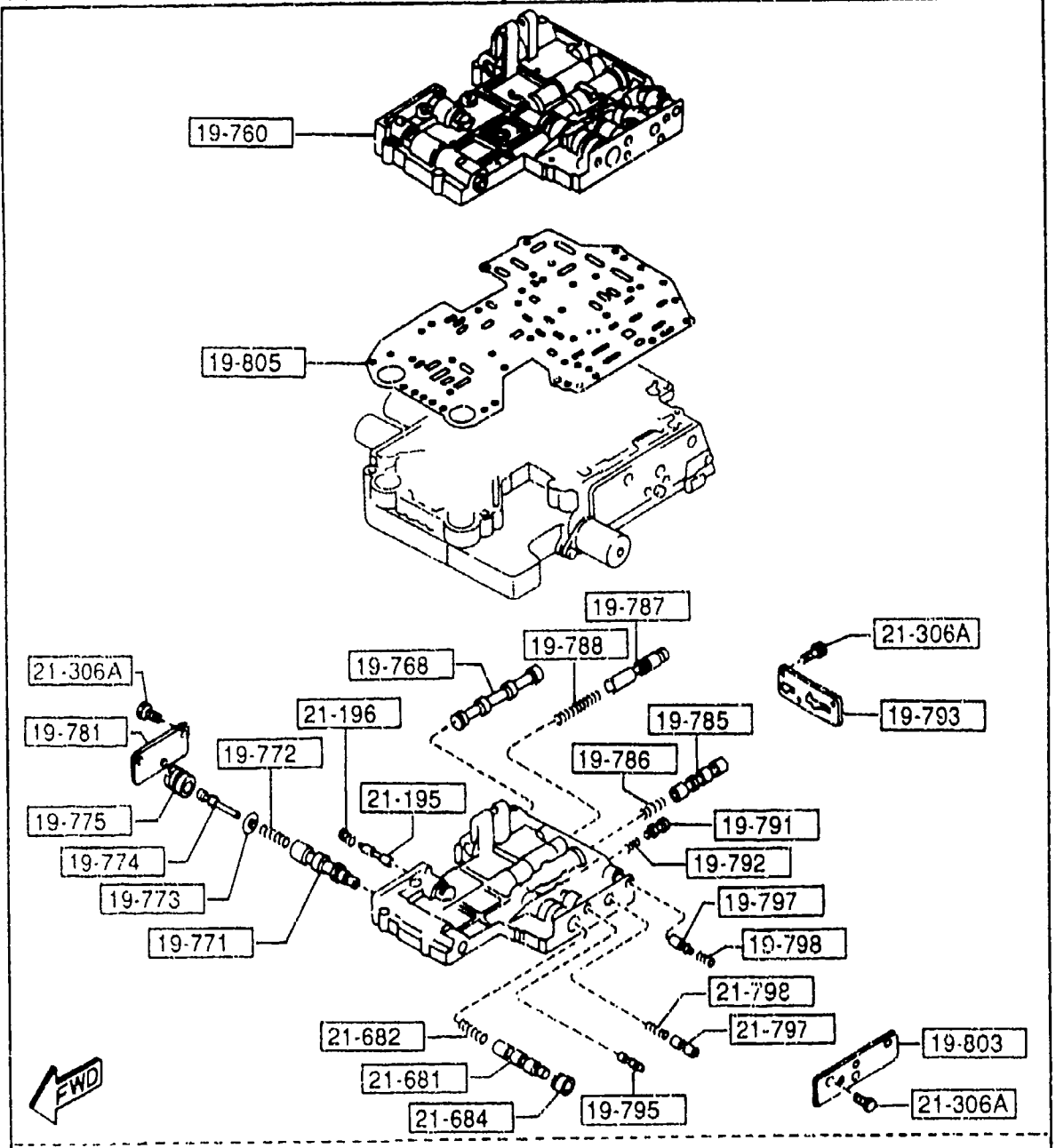


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	M-T-O
19-836		PAN,OIL			
BV02-19-836	1				
19-837		BOLT,OIL PAN			
0338-19-837	3				
19-870A		TUBE,FILLER			
BU55-19-870	1				
19-870J		RING,'O'			
99541-01601	1				
19-880		GAUGE,OIL LEVEL			
BV55-19-880A	1				
19-890		TUBE,OIL FILTER-UPPER			
BU55-19-890	1				
19-980		BRACKET			
BU55-19-980A	1				
19-986A		BUSH,RUBBER			
BV01-19-986	1				
21-228		HOLDER, SOCKET			
BV01-21-228A	1				
21-250		SUPPORT, DRUM			
BV01-21-250A	1				
21-253		GASKET, DRUM SUPPORT			
BU46-21-2F3	1	NON ASBESTOS			
21-255		BOLT			
BU01-21-255	5				
21-273		PLUG, ACCUMULATOR			
BU01-21-273	1				
21-277		RING,'O'			



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
BU01-21-277	1				
21-298		COUPLER, SOLENOID VALVE			
BV09-21-2K0	1				
21-3B1		PISTON, ACCUMULATOR			
N451-21-3B1	1				
21-301		BOLT, CONTROL VALVE			
BV01-21-301	2				
21-302		BOLT, CONTROL VALVE			
BV01-21-302	4				
21-303		BOLT, CONTROL VALVE			
BV01-21-303	1				
21-322		GASKET, O/DRIVE CASE			
BU46-21-3C2	1				
21-330		VALVE, ONE WAY			
BV01-21-330	1				
21-386		STEM, PISTON BAND			
BU01-21-386	1				
21-391		RETAINER, SERVO			
BV02-21-391	1				
21-395		RING, 'O'			
BU01-21-395	2				
21-550		GENERATOR, PULSE			
N451-21-550A	1				

NOTE
 ① ... ② ⇒ 19-750
 THE D-CODE OF 19-750 CONSISTS OF FIGURE NUMBERS ① THROUGH ②.



NOTE
 ③ ... ⑥ ⇒ 21-3A0A
 THE D-CODE OF 21-3A0A CONSISTS OF FIGURE NUMBERS ③ THROUGH ⑥.

NOTE
 ③ ... ④ ⇒ 21-285
 THE D-CODE OF 21-285 CONSISTS OF FIGURE NUMBERS ③ THROUGH ④.

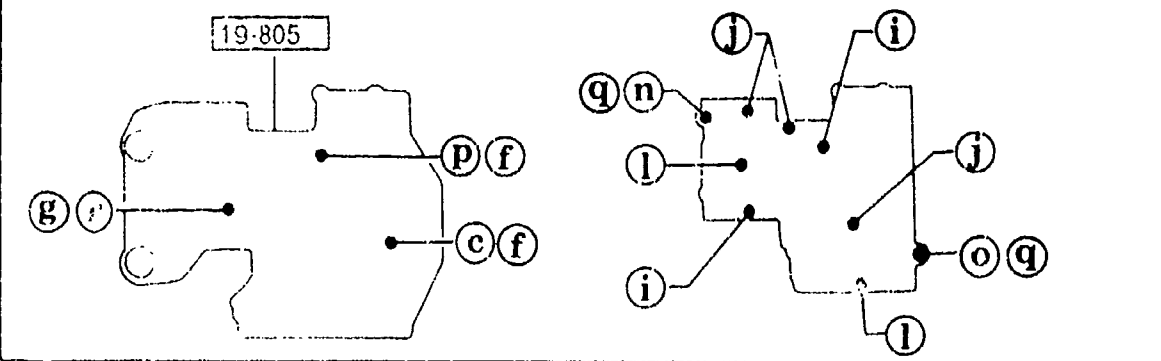
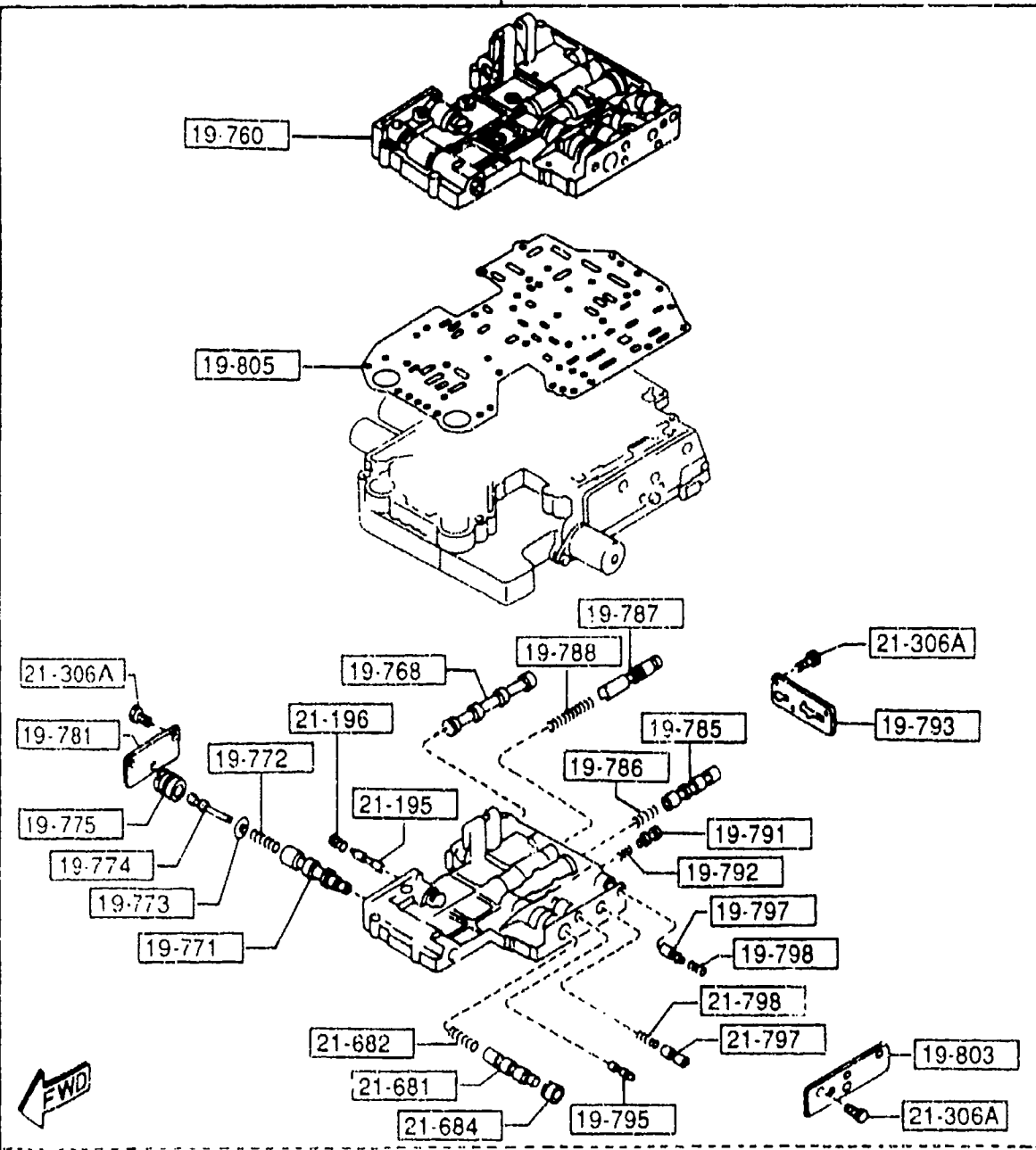
NOTE
 ⑤ ... ⑥ ⇒ 21-3A0
 THE D-CODE OF 21-3A0 CONSISTS OF FIGURE NUMBERS ⑤ THROUGH ⑥.

a	19-8A2	D=1.0MM
b	19-8A3	D=1.1MM
c	19-8A4	D=1.2MM
d	19-8B2	D=1.5MM
e	19-8B4	D=2.2MM
f	19-808	D=4.7MM, L=15.5MM
g	19-814	D=5.6MM, L=26.8MM
h	19-819	
i	21-261	L=30MM
j	21-262	L=35MM
k	21-263	L=25MM
l	21-264	L=40MM
m	21-265	L=12MM
n	21-302	L=59MM
o	21-305	L=82MM
p	21-333	
q	21-446	D=12.5MM, d=6.4MM
r	99611-2000	

(1/2)

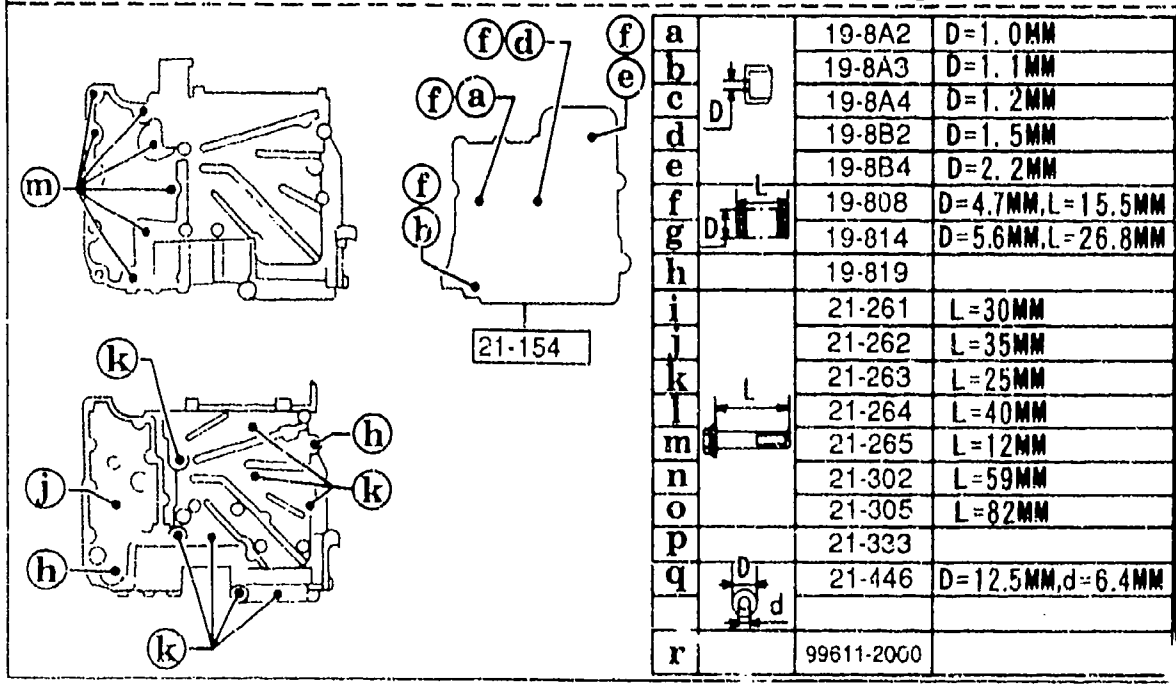
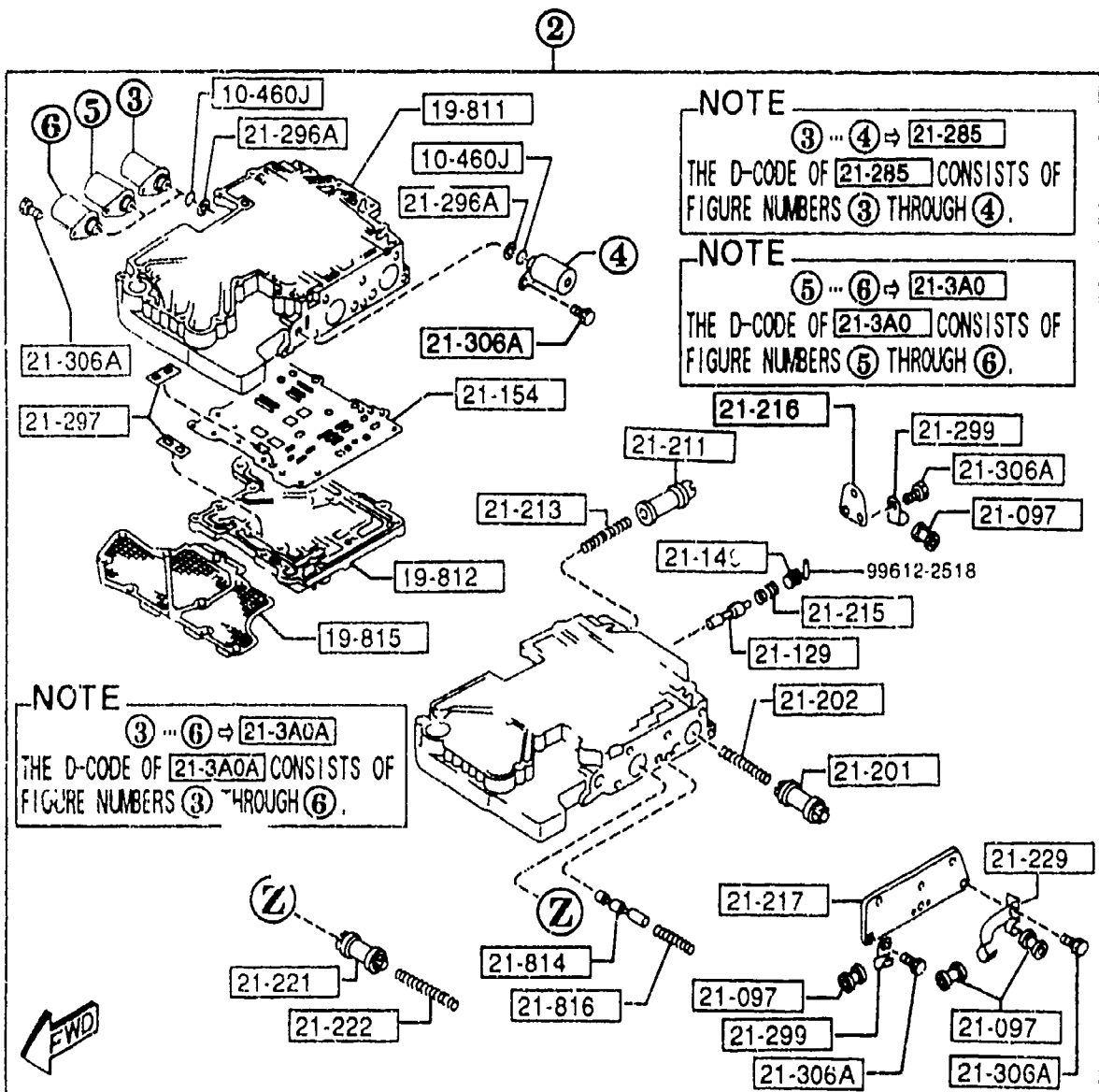
NOTE

① ... ② ⇨ 19-750
 THE D-CODE OF 19-750 CONSISTS OF
 FIGURE NUMBERS ① THROUGH ②.



PART NO.	QTY	MODEL/RE RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
10-460J		RING, 'O'			
99541-00707	4				-6110
19-750		VALVE, CONTROL			
N451-19-750	1				
19-760		BODY, CONTROL VALVE-U			
BV01-19-760F	1				
19-768		VALVE, MANUAL			
BU91-19-768	1				
19-771		VALVE, REGULATOR			
BV01-19-771	1				
19-772		SPRING, REGULATOR			
0338-19-772	1				
19-773		SEAT, REGULATOR SPRIN			
0338-19-773	1	G			
19-774		PLUG, REGULATOR			
N451-19-774	1				
19-775		SLEEVE, REGULATOR PLU			
N451-19-775	1	G			
19-781		PLATE, SIDE 'D'			
1758-19-781	1				
19-785		VALVE, 1-2 SHIFT			
BV01-19-785	1				
19-786		SPRING, 1-2 SHIFT			
BV11-19-527	1				
19-787		VALVE, 2-3 SHIFT			
N451-19-787	1				
19-788		SPRING, 2-3 SHIFT			
N451-19-788	1				

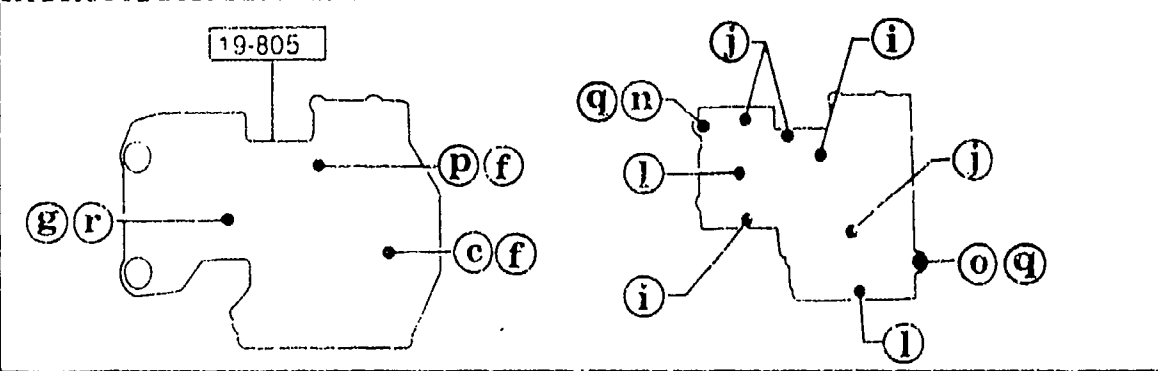
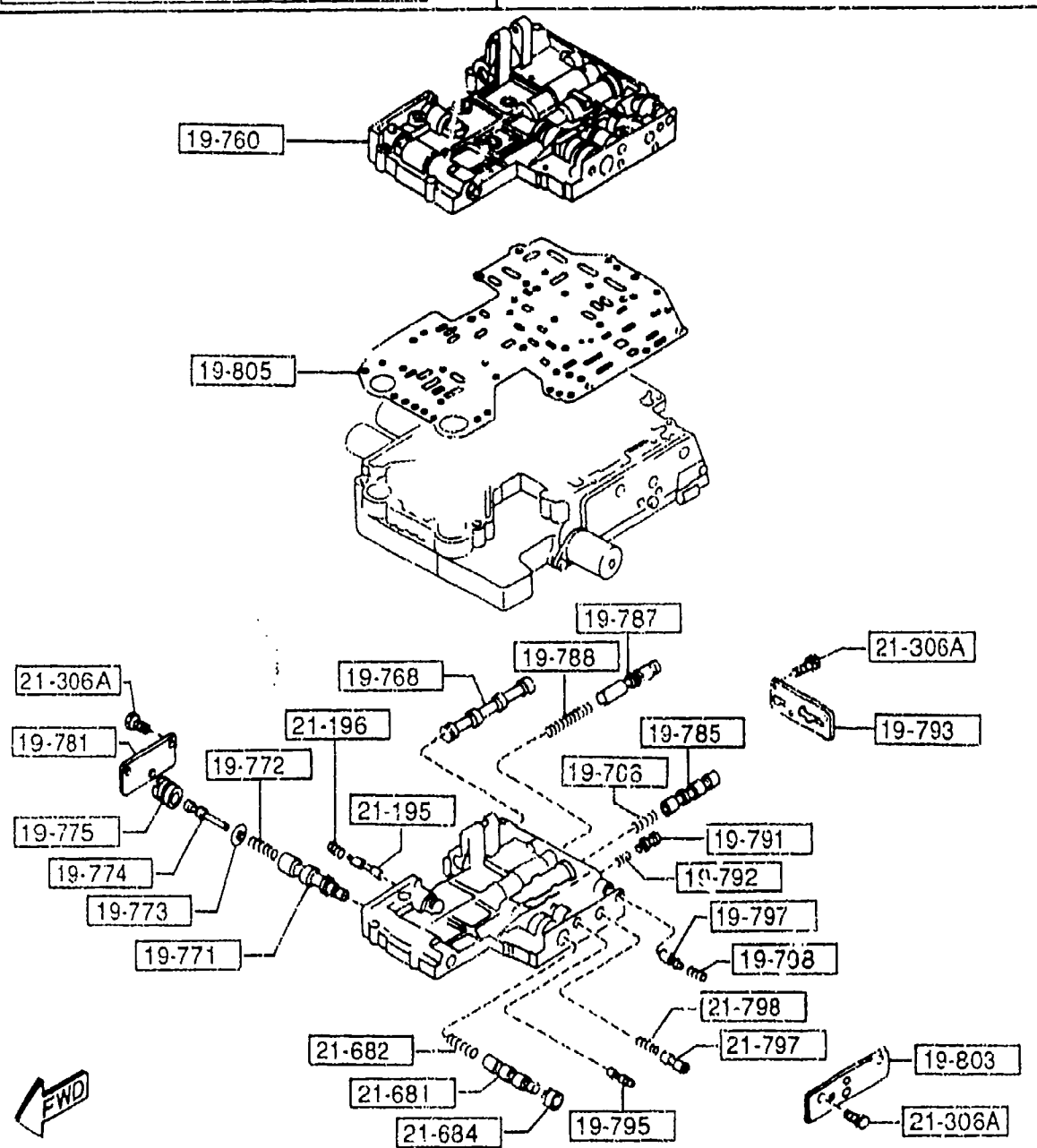
6110 NA3** -709212



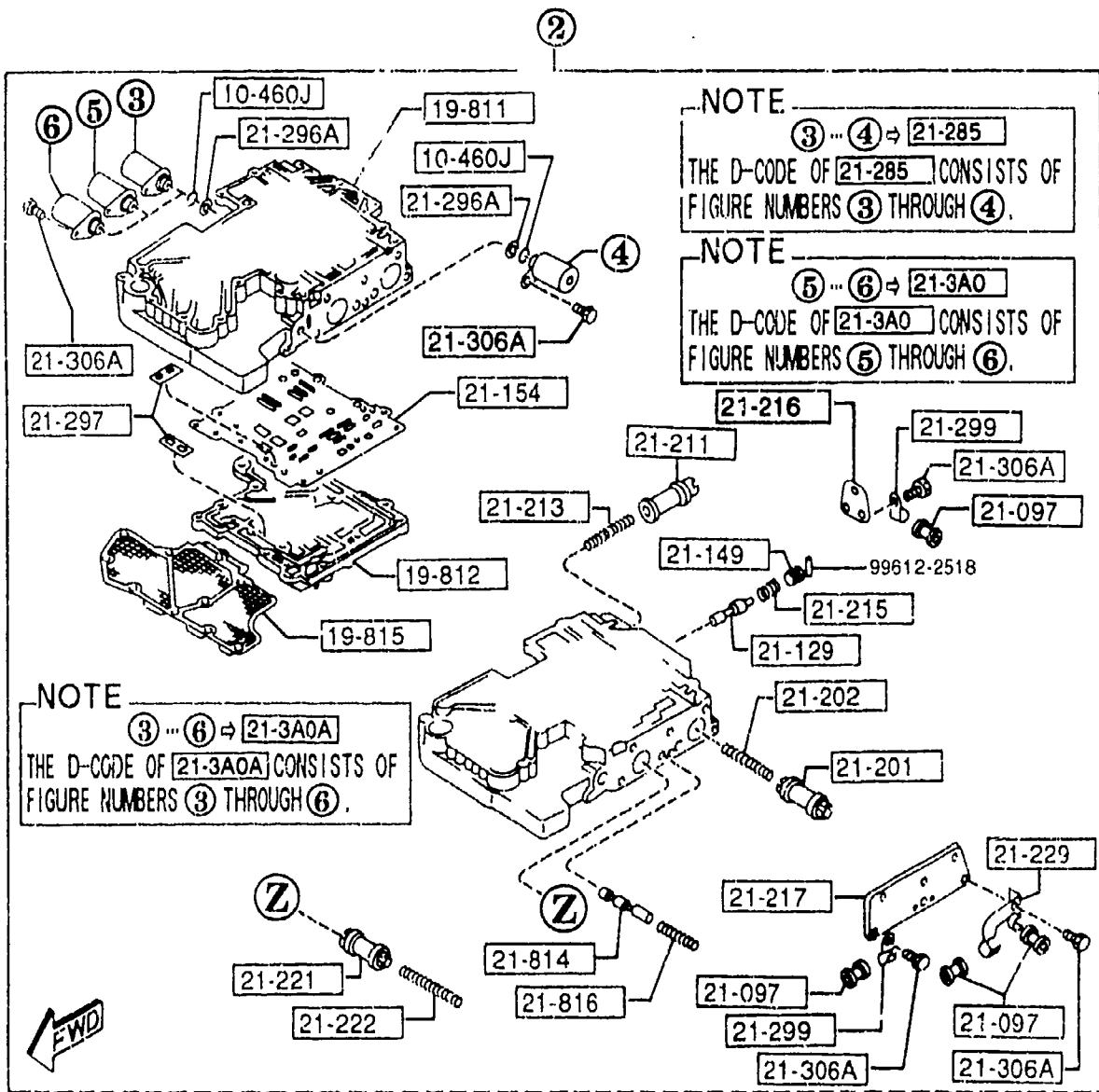
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
19-791		VALVE,MODIFIER			
0338-19-791A	1				
19-792		SPRING,MODIFIER			
BV01-19-792	1				
19-793		PLATE,SIDE 'A'			
BV01-19-793	1				
19-795		VALVE,THROTTLE			
N451-19-795	1				
19-797		VALVE,THROTTLE BACK-UP			
BV01-19-797A	1				
19-798		SPRING,THROTTLE BACK-UP			
N451-19-798	1				
19-8A2		VALVE,ORIFICE CHECK			
BV01-19-8A2	1				
19-8A3		VALVE,ORIFICE CHECK			
BV01-19-8A3	1				
19-8A4		VALVE,ORIFICE CHECK			
BV01-19-8A4	1				
19-8B2		VALVE,ORIFICE CHECK			
BV01-19-8B2	1				
19-8B4		VALVE,ORIFICE CHECK			
BV01-19-8B4	1				
19-803		PLATE,SIDE 'B'			
BV01-19-803	1				
19-805		PLATE,SEPARATOR			
BV17-19-805	1				
19-808		SPRING			
0338-19-808	6				

(1/2)

NOTE
 ① ... ② ⇨ 19-750
 THE D-CODE OF 19-750 CONSISTS OF
 FIGURE NUMBERS ① THROUGH ②.



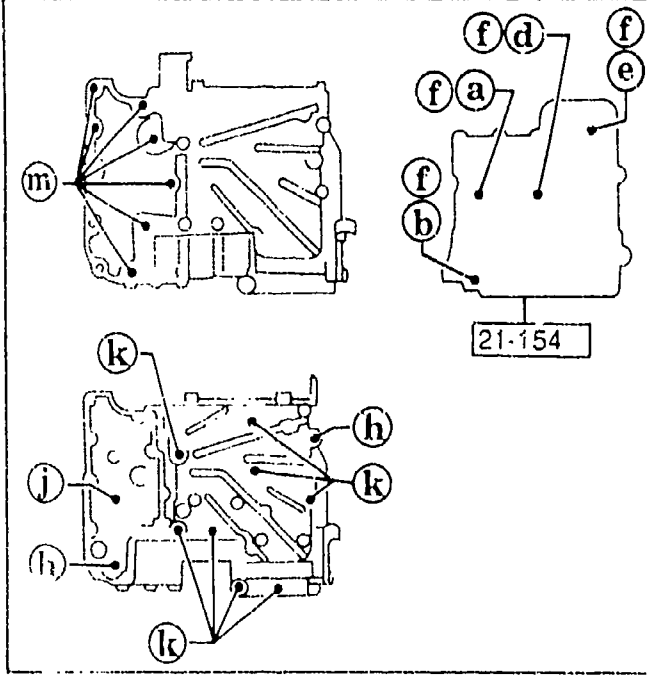
PART NO.	QTY	MODEL/RESTRICT IN	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
19-811		BODY, VALVE LWR			
BV02-19-811C	1				
19-812		COVER, VALVE BODY			
BV01-19-812A	1				
19-814		SPRING			
G338-19-814	1				
19-815		STRAINER, OIL			
BV01-19-815	1				
19-819		NUT			
BV31-19-819	2				
21-097		PROTECTOR			
FU01-21-097	4				
21-129		VALVE, 1-2 REDUCING			
BV01-21-129	1				
21-149		PLUG, STOPPER			
BV01-21-149A	1				
21-154		PLATE, SEPARATOR			
N451-21-154	1				
21-195		VALVE, REDUCING			
BV01-21-195	1				
21-196		SPRING, REDUCING			
BV01-21-196	1				
21-201		PISTON, ACCUM			
N451-21-201	1				
21-202		SPRING, ACCUM N-R			
BV06-21-202	1				
21-211		PISTON, N/D ACCUM			
N451-21-211	1				



NOTE
 ③...④ ⇒ 21-285
 THE D-CODE OF 21-285 CONSISTS OF
 FIGURE NUMBERS ③ THROUGH ④.

NOTE
 ⑤...⑥ ⇒ 21-3A0
 THE D-CODE OF 21-3A0 CONSISTS OF
 FIGURE NUMBERS ⑤ THROUGH ⑥.

NOTE
 ③...⑥ ⇒ 21-3A0A
 THE D-CODE OF 21-3A0A CONSISTS OF
 FIGURE NUMBERS ③ THROUGH ⑥.



a	19-8A2	D=1.0MM
b	19-8A3	D=1.1MM
c	19-8A4	D=1.2MM
d	19-8B2	D=1.5MM
e	19-8B4	D=2.2MM
f	19-808	D=4.7MM,L=15.5MM
g	19-814	D=5.6MM,L=26.8MM
h	19-819	
i	21-261	L=30MM
j	21-262	L=35MM
k	21-263	L=25MM
l	21-264	L=40MM
m	21-265	L=12MM
n	21-302	L=59MM
o	21-305	L=82MM
p	21-333	
q	21-446	D=12.5MM,d=6.4MM
r	99611-2000	

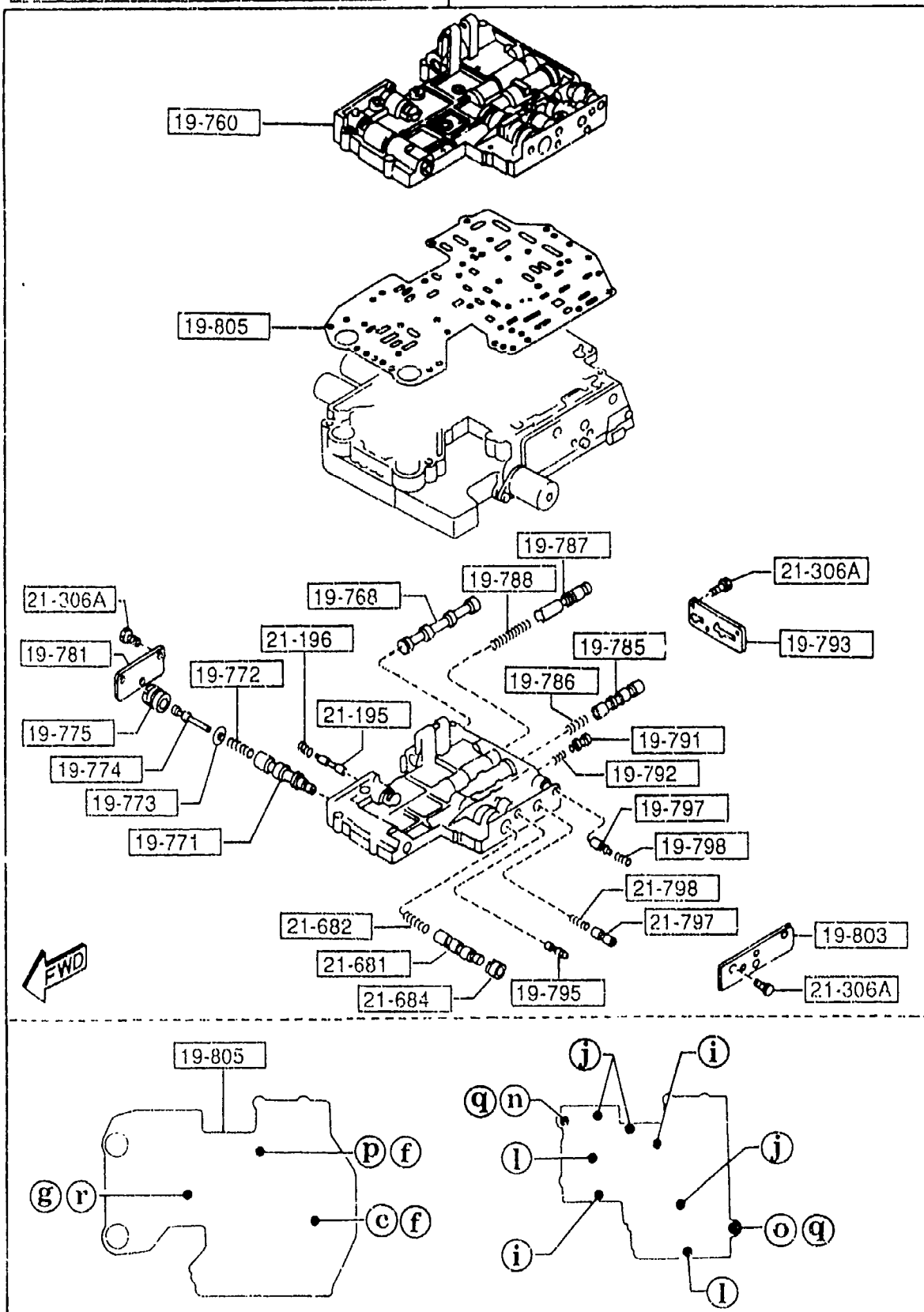
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
21-213		SPRING,N/D ACCUM			
AV01-21-213	1				
21-215		SPRING,BY-PASS			
BV02-21-215	1				
21-216		PLATE'E',SIDE			
BV01-21-216	1				
21-217		PLATE'F',SIDE			
BV01-21-217	1				
21-221		PISTON,1/2 ACCUM			
N451-21-221	1				
21-222		SPRING,ACCUM 1-2			
BV02-21-222B	2				
21-229		CLIP			
BV01-21-229A	1				
21-261		BOLT			
N451-21-261	2				
21-262		BOLT			
N451-21-262	4				
21-263		BOLT			
N451-21-263	8				
21-264		BOLT			
N451-21-264	2				
21-265		BOLT			
FU01-21-265C	7				
21-285		VALVE,SOLENOID			
BV01-21-280A	1				5201-
21-296A		STRAINER,OIL			
BV01-21-296	4				

5201 NA35* -614193

(1/2)

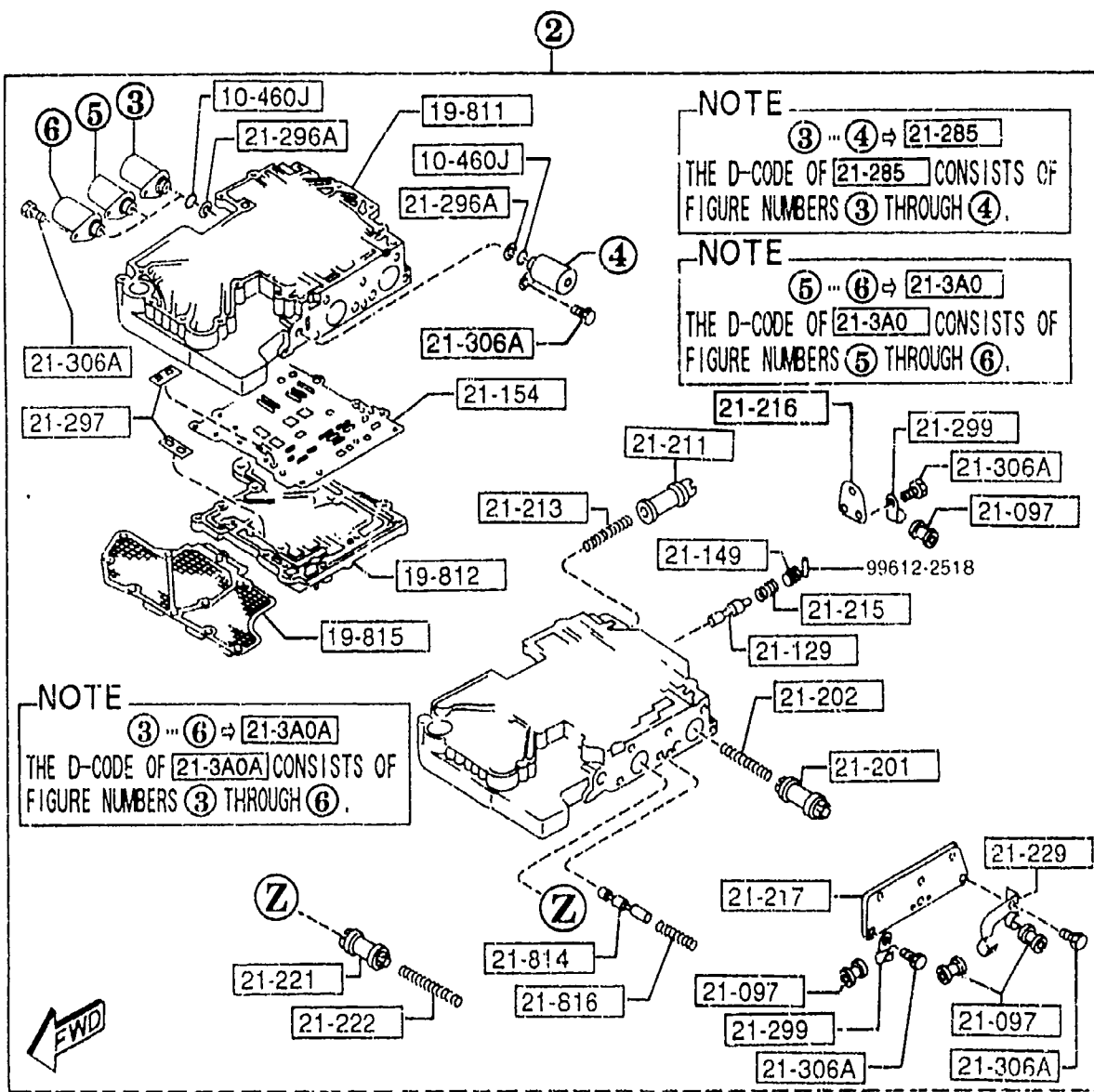
NOTE

① ... ② ⇒ 19-750
 THE D-CODE OF 19-750 CONSISTS OF
 FIGURE NUMBERS ① THROUGH ②.



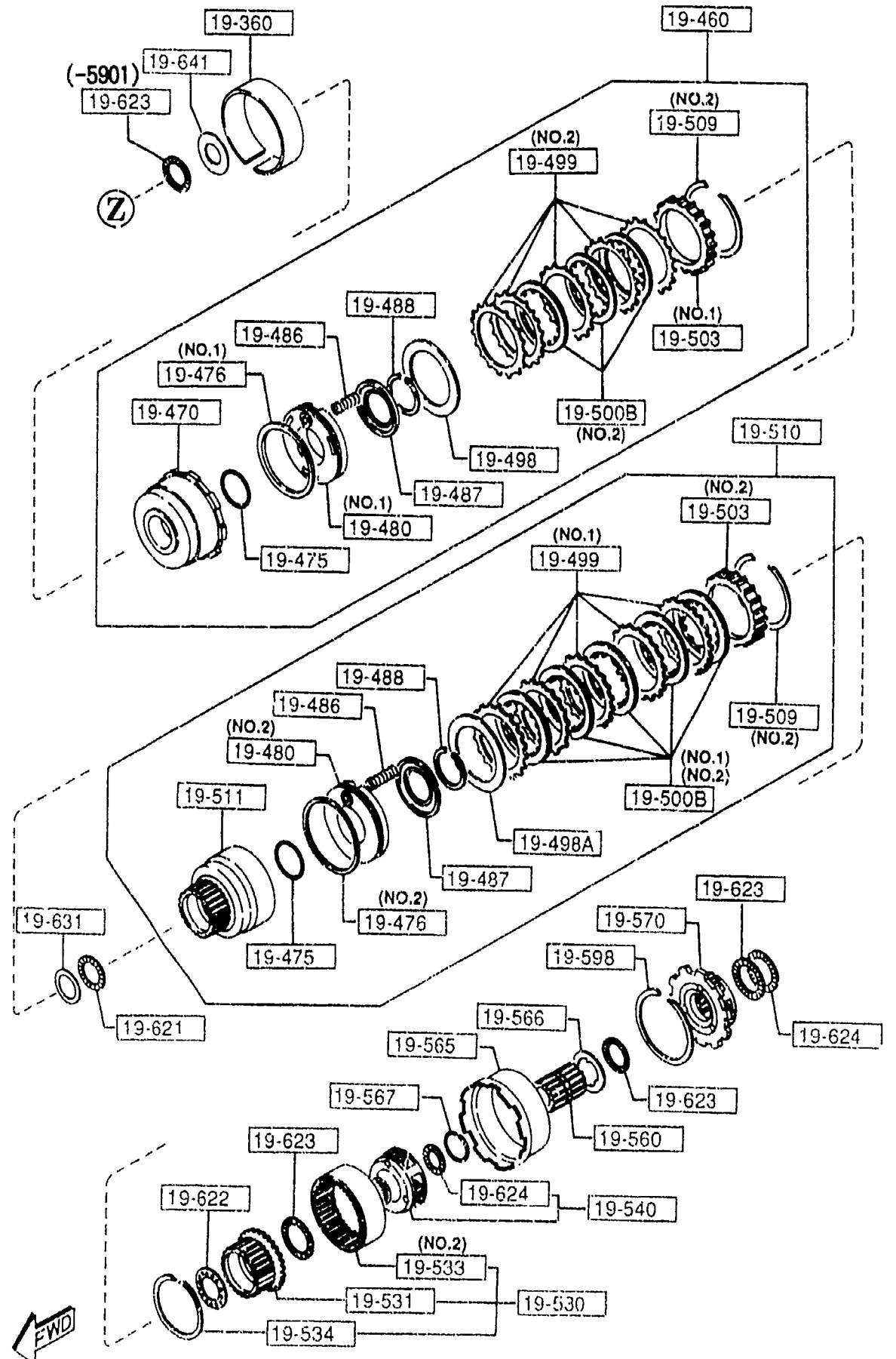
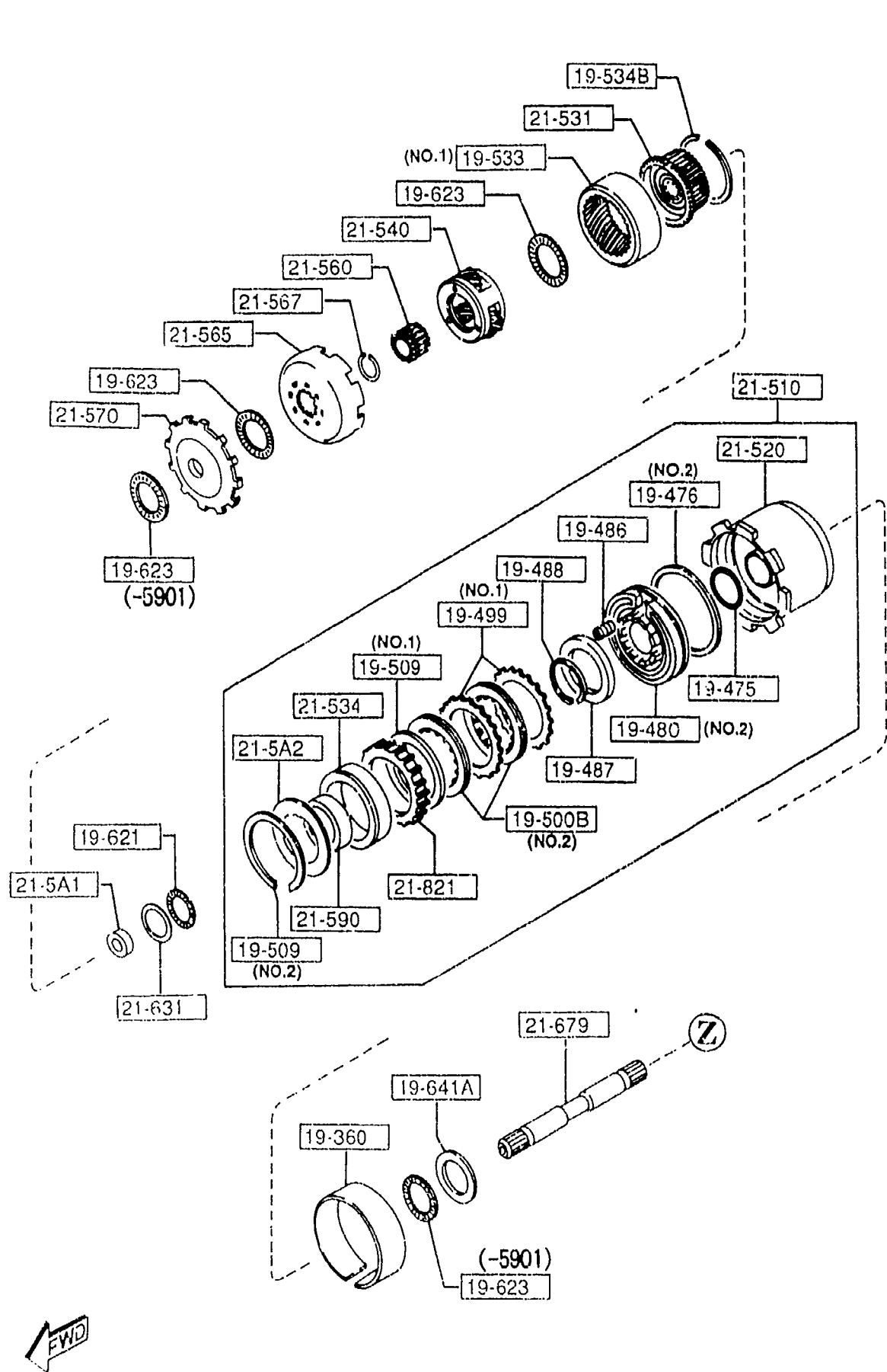
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
21-297		STRAINER, INNER			
BV01-21-297	2				
21-299		CLIP			
BV01-21-299	2				
21-3A0		SOLENOID			5201-
BV02-21-3A0A	1				
21-3A0A		VALVE, SOLENOID NO1			-5201
BV01-21-3A0A	1				
21-302		BOLT, CONTROL VALVE			
BV02-21-302	1				
21-305		BOLT			
BV01-21-305B	1				
21-306A		BOLT			
BV01-21-306	22				
21-333		VALVE, ONE WAY			
BV01-21-333	1				
21-446		WASHER, DISHED			
BV01-21-446	2				
21-681		VALVE, SHIFT 3-4			
BV01-21-681	1				
21-682		SPRING, 3-4 SHIFT			
BV01-21-682	1				
21-684		VALVE, 3-4 SHIFT-COAST			
BV01-21-684	1				
21-797		VALVE, CONTROL BACK UP			
BV01-21-797	1				
21-798		SPRING, BACK UP			
BV01-21-798	1				

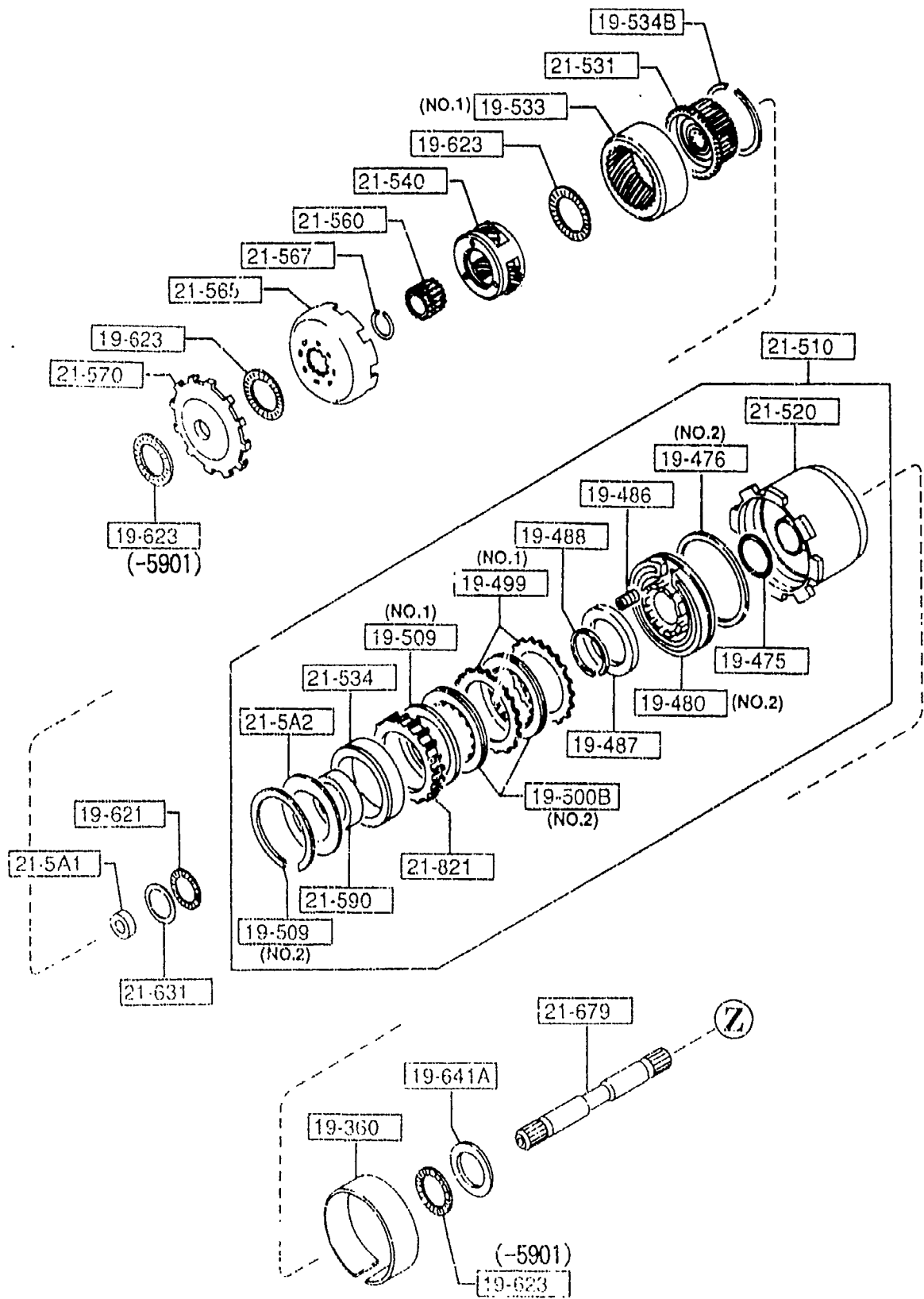
5201 NA35* -614193



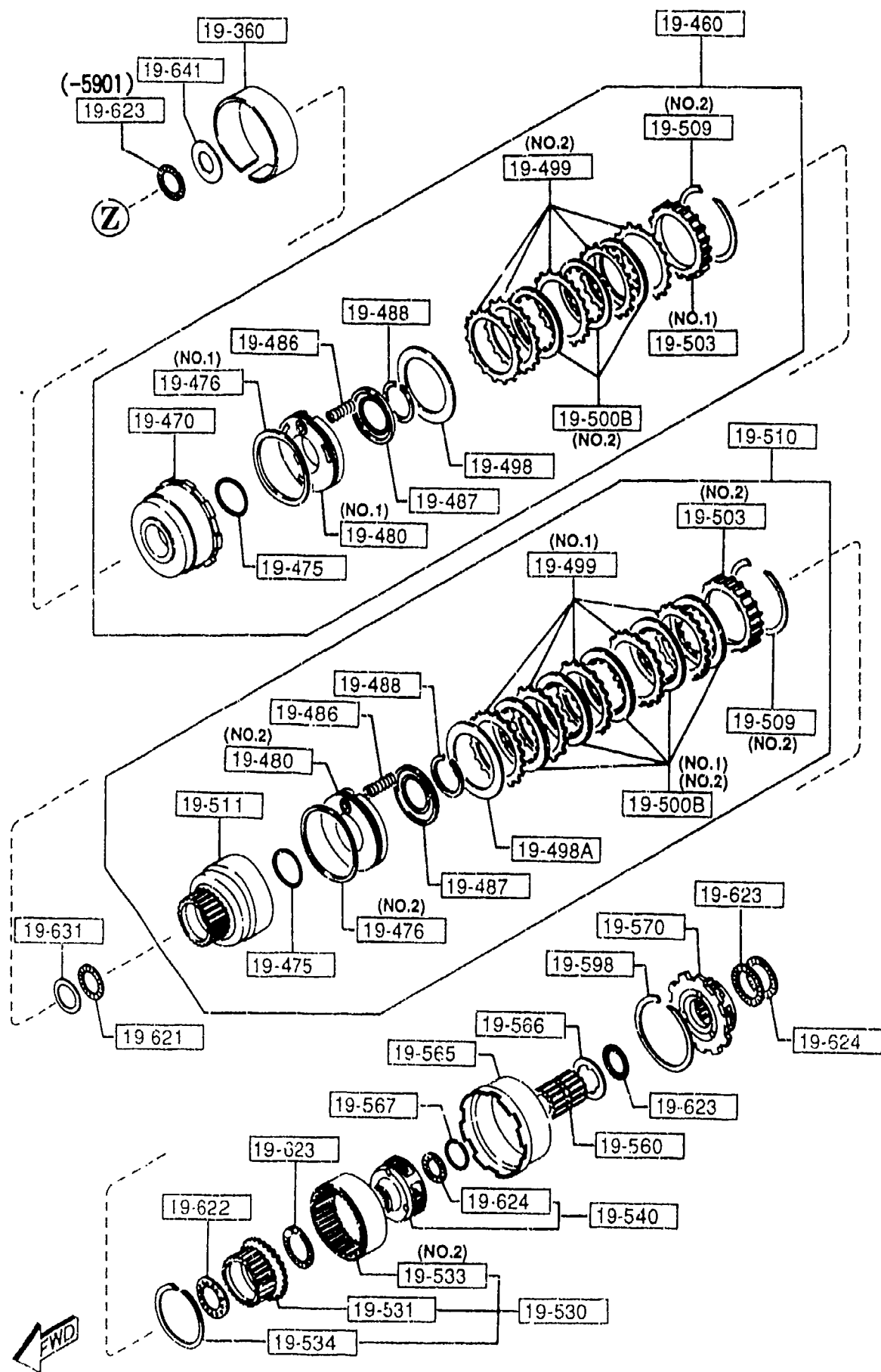
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
21-814	1	SPRING,3-2 TIMING			
BV01-21-814					
21-816	1	SPRING,3-2 TIMING			
BV01-21-816					

a	19-8A2	D=1.0MM
b	19-8A3	D=1.1MM
c	19-8A4	D=1.2MM
d	19-8B2	D=1.5MM
e	19-8B4	D=2.2MM
f	19-808	D=4.7MM,L=15.5MM
g	19-814	D=5.6MM,L=26.8MM
h	19-819	
i	21-261	L=30MM
j	21-262	L=35MM
k	21-263	L=25MM
l	21-264	L=40MM
m	21-265	L=12MM
n	21-302	L=59MM
o	21-305	L=82MM
p	21-333	
q	21-446	D=12.5MM,d=6.4MM
r	99611-2000	

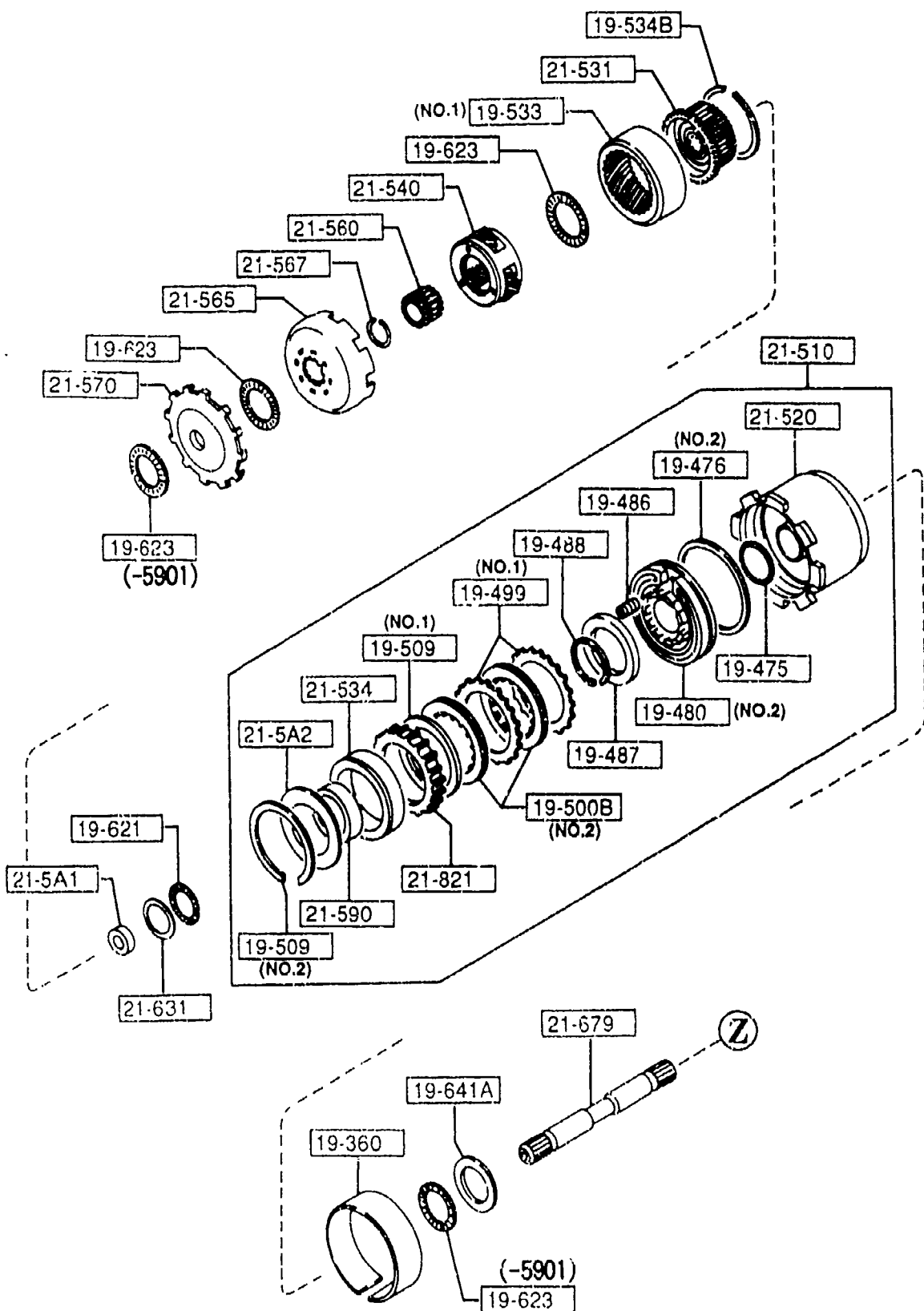




PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
19-360		BAND, BRAKE			
0338-19-360B	2				
19-460		CLUTCH, FRONT			
N451-19-460	1				
19-470		DRUM, CLUTCH			
N451-19-470	1				
19-475		SEAL, 'O'RING			
0338-19-475	3				
19-476		SEAL, LATHE CUT			
BV01-19-476	1 (ILLUST. NO.1)				
0338-19-476	2 (ILLUST. NO.2)				
19-480		PISTON, CLUTCH			
BV01-19-480	1 (ILLUST. NO.1)				
0338-19-480	2 (ILLUST. NO.2)				
19-486		SPRING, PISTON RETURN			
0338-19-486	25				
19-487		RETAINER, SPRING			
0338-19-487	3				
19-488		RING, SNAP			
0338-19-488	3				
19-498		PLATE, DISHED			
0338-19-498	1				
19-498A		PLATE, DISHED			
BU17-19-498	1				
19-499		PLATE, DRIVEN			
FT01-19-499	7 (ILLUST. NO.1)				
0338-19-499	5 (ILLUST. NO.2)				
19-500B		PLATE, DRIVEN			

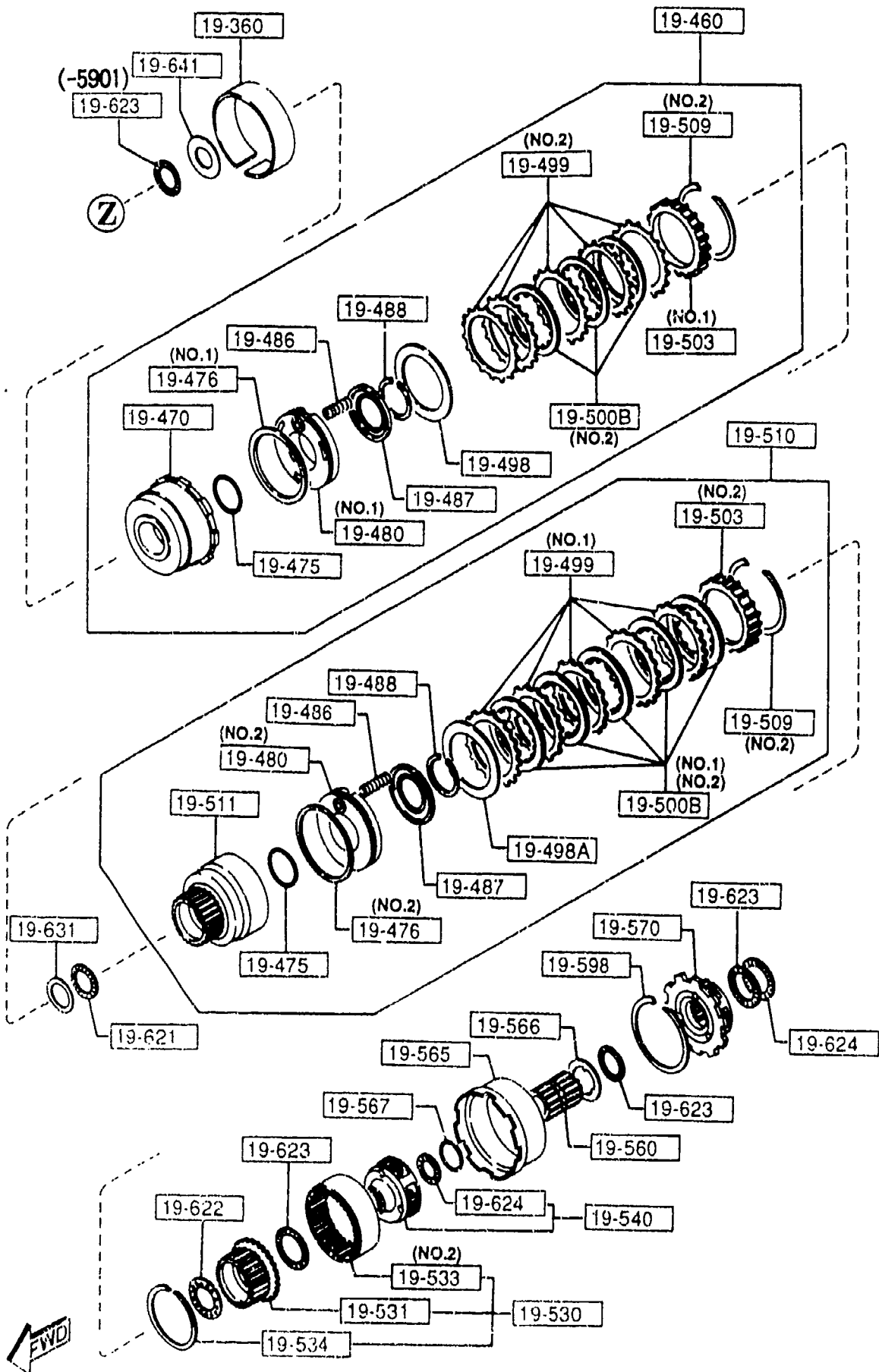


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
BU55-19-5J0	5	SELECTIVE USE (ILLUST. NO.1)			
BU17-19-500A	10	SELECTIVE USE (ILLUST. NO.2)			
19-503		PLATE, RETAINING			
0338-19-503	1	T=10.2MM (ILLUST. NO.2)			
BU17-19-504	1	T=9.4MM (ILLUST. NO.2)			
BU17-19-505	1	T=9.6MM (ILLUST. NO.2)			
N451-19-505	1	T=6.4MM (ILLUST. NO.1)			
BU17-19-506	1	T=9.8MM (ILLUST. NO.2)			
BV02-19-506	1	T=6.6MM (ILLUST. NO.1)			
BU17-19-507	1	T=10MM (ILLUST. NO.2)			
BV02-19-507	1	T=6.8MM (ILLUST. NO.1)			
3959-19-507	1	T=5.8MM (ILLUST. NO.1)			
BU17-19-508	1	T=10.2MM (ILLUST. NO.2)			
BV02-19-508	1	T=7.0MM (ILLUST. NO.1)			
3959-19-508	1	T=6.0MM (ILLUST. NO.1)			
BU17-19-509	1	T=10.4MM (ILLUST. NO.2)			
3959-19-509	1	T=6.2MM (ILLUST. NO.1)			
19-509		RING, SNAP			
BV01-19-509	1	(ILLUST. NO.1)			
0338-19-509	3	T=2.0MM (ILLUST. NO.2)			
19-510		CLUTCH, REAR			
BU17-19-510A	1				
19-511		DRUM, REAR CLUTCH			
1758-19-511A	1				



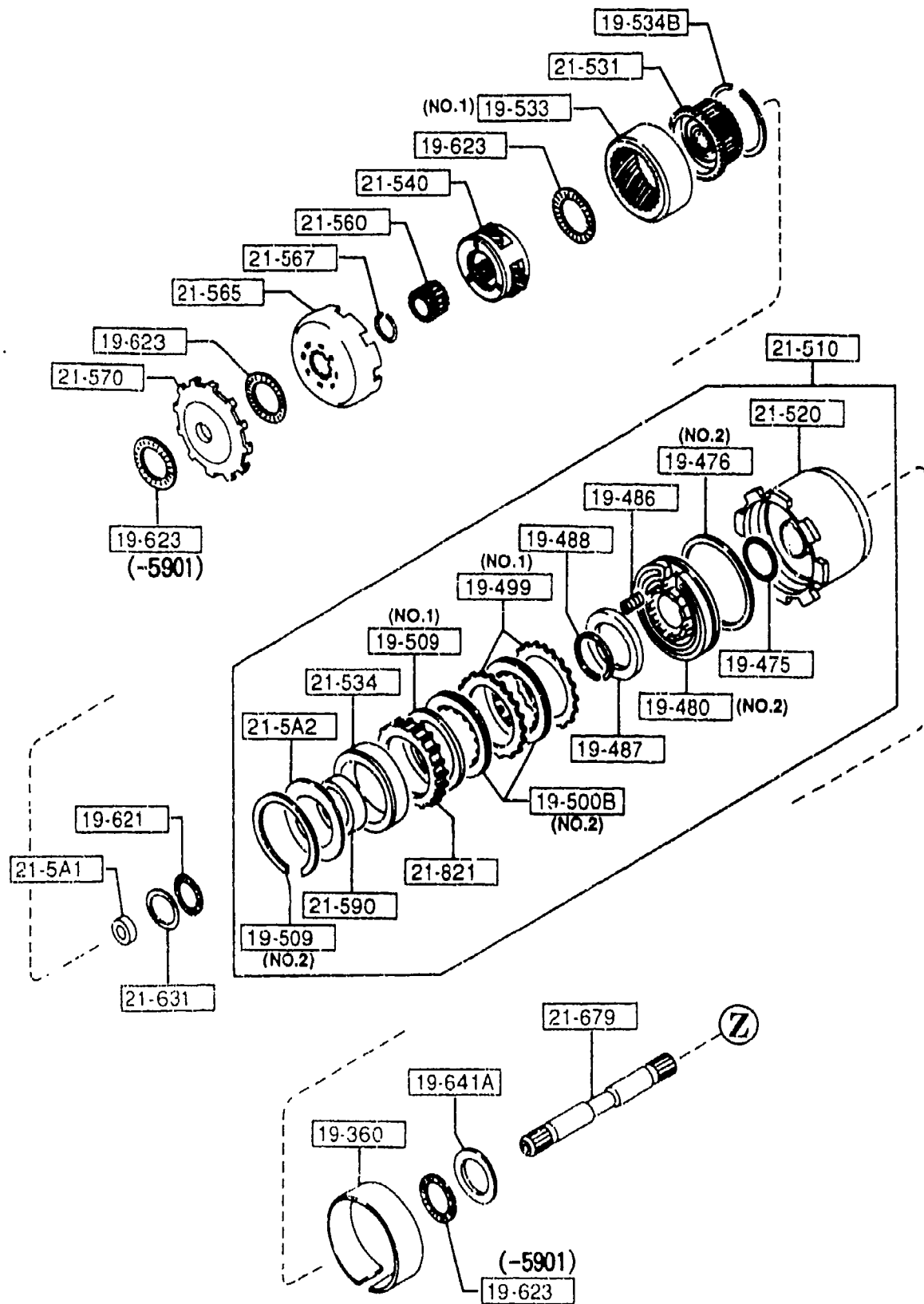
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
19-530		HUB, REAR CLUTCH			
0338-19-530	1				
19-531		HUB, REAR CLUTCH			
0338-19-531	1				
19-533		GEAR, INTERNAL			
BV01-19-533	1	(ILLUST. NO.1)			
0338-19-533A	1	(ILLUST. NO.2)			
19-534		RING, SNAP			
0338-19-534	1				
19-534B		RING, SNAP			
BU03-19-534	1				
19-540		CARRIER, FRONT			
0338-19-540	1				
19-560		GEAR, SUN			
0338-19-560	1				
19-565		SHELL, CONNECTING			
BU27-19-565	1				
19-566		RACE, SHELL BEARING			
0338-19-566	1	('95 MODEL.)			
19-567		RING, SNAP			
0338-19-567	1				
19-570		CARRIER, REAR			
0338-19-570	1				
19-598		RING, SNAP			
0338-19-598	1				
19-621		BEARING, NEEDLE			
0338-19-621	2				

FWD

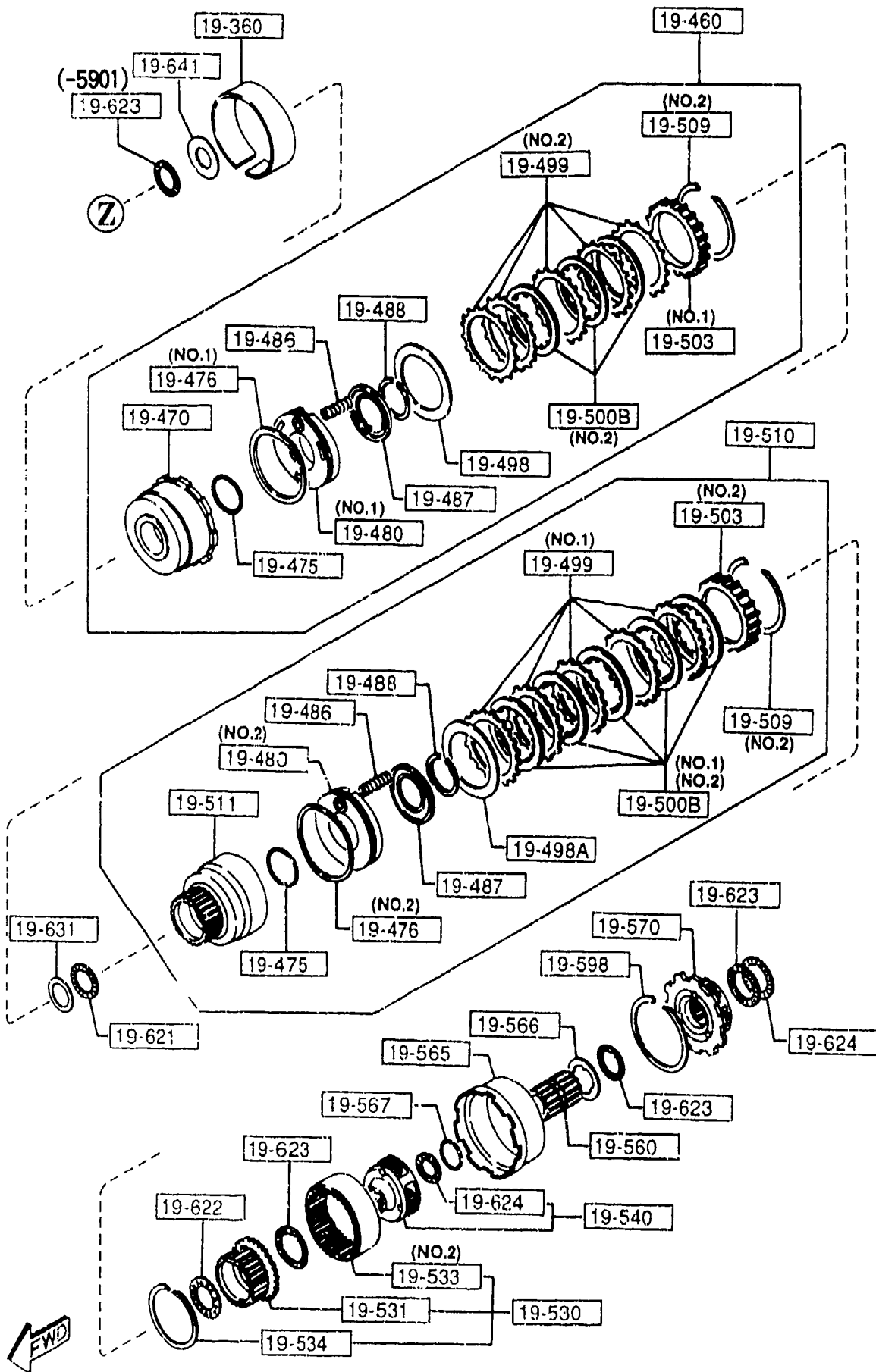


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
19-622	1	BEARING, NEEDLE			
BU91-19-622	1	D=34.7MM			
FT01-19-622	1	D=33.8MM			
19-623	8	BEARING, NEEDLE			
0338-19-623A	5				-5901
19-624	2	BEARING, NEEDLE			5901-
0338-19-624	2				
19-631	1	RACE, BRG. PUMP COVER			
0338-19-631	1	T=1.2MM			
0338-19-632	1	T=1.4MM			
0338-19-633	1	T=1.6MM			
0338-19-634	1	T=1.8MM			
0338-19-635	1	T=2.0MM			
0338-19-636	1	T=2.2MM			
19-641	1	WASHER, FRONT CLUTCH			
BV01-19-6C1	1	T=0.8MM			
BV01-19-6C2	1	T=1MM			
BV01-19-6C3	1	T=1.2MM			
BV01-19-6C4	1	T=1.4MM			
BV01-19-6C5	1	T=1.6MM			
BV01-19-6C6	1	T=1.8MM			
BV01-19-6C7	1	T=2MM			
BV01-19-6C8	1	T=2.2MM			

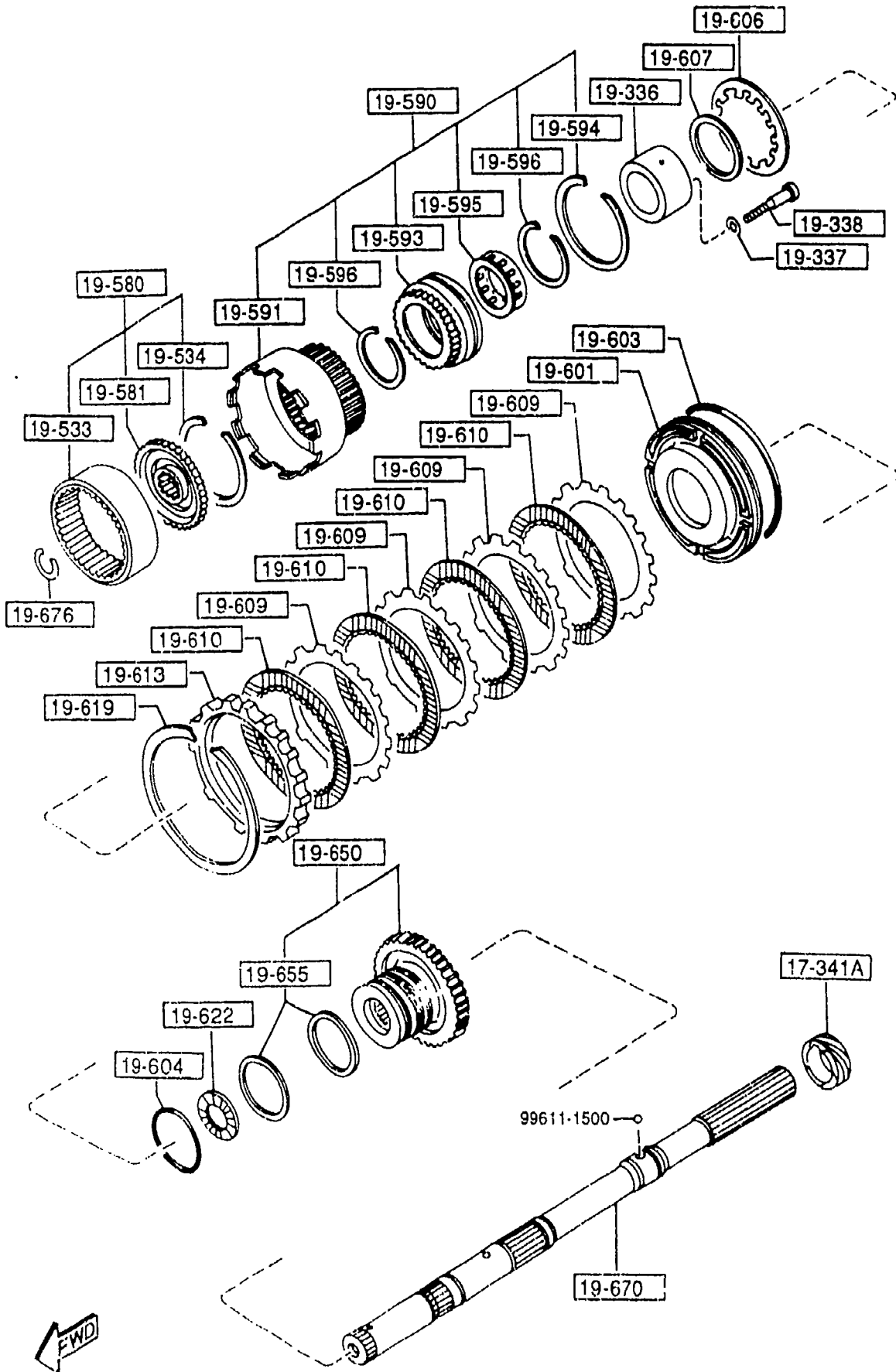
5901 NA3** -702989



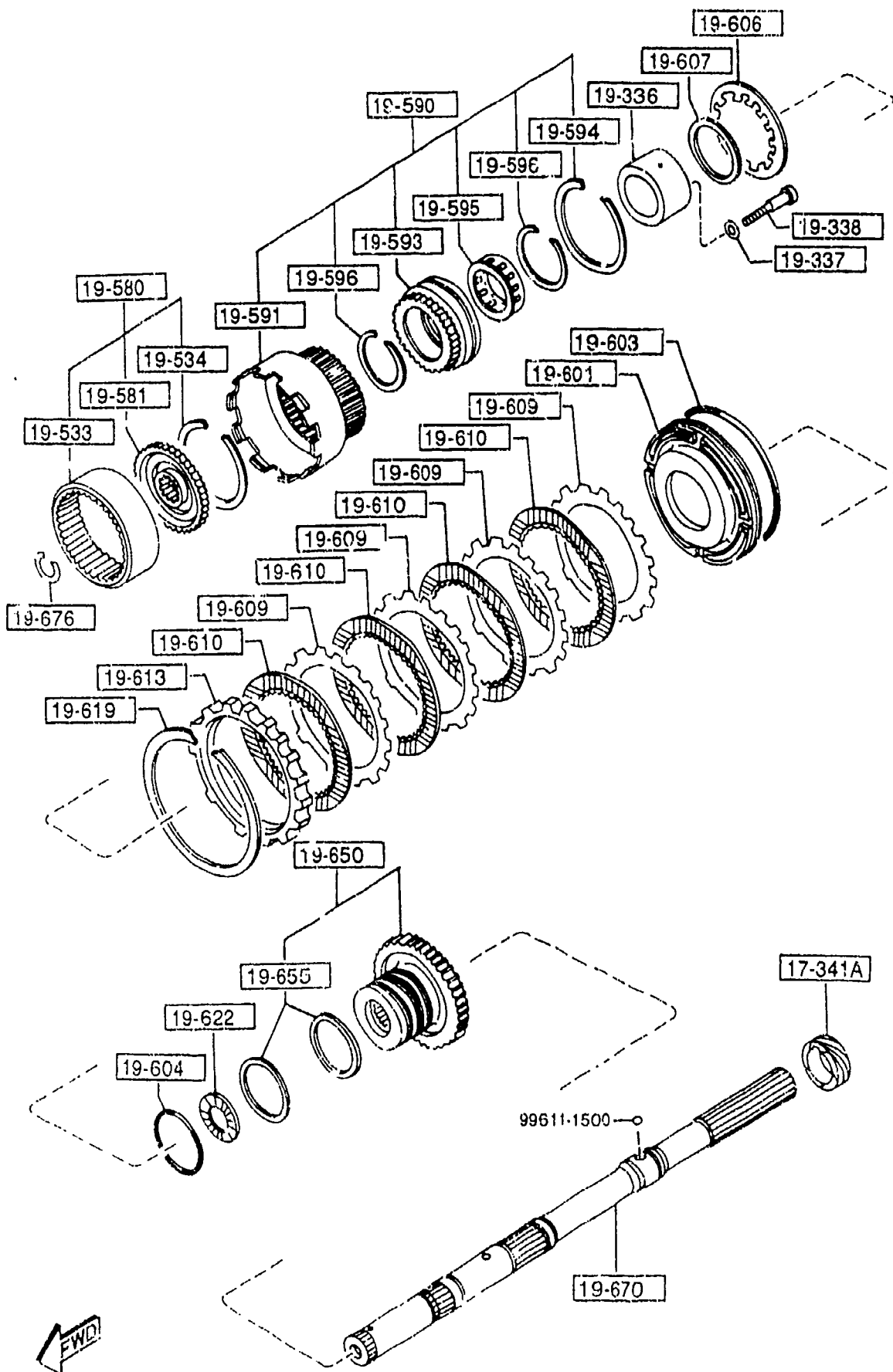
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
19-641A		WASHER			
BV03-19-6C1	1	T=0.8MM			
BV03-19-6C2	1	T=1MM			
BV03-19-6C3	1	T=1.2MM			
BV03-19-6C4	1	T=1.4MM			
BV03-19-6C5	1	T=1.6MM			
BV03-19-6C6	1	T=1.8MM			
BV03-19-6C7	1	T=2MM			
BV03-19-6C8	1	T=2.2MM			
21-5A1	1	SLEEVE, SEAL-O.D.CARRIER			
BV01-21-5A1	1				
21-5A2	1	RACE, SIDE-ONE WAY CLUTCH			
BV01-21-5A2	1	T=0.6MM			
BV01-21-5A3	1	T=0.8MM			
BV01-21-5A4	1	T=1MM			
BV01-21-5A5	1	T=1.2MM			
BV01-21-535	1	T=0.4MM			
21-510	1	CLUTCH, DIRECT			
BV01-21-510B	1				
21-520	1	DRUM, DIRECT			
BV01-21-530C	1				
21-531	1	HUB, O/DRIVE CLUTCH			
BV01-21-536	1				
21-534	1	RACE, OUTER-ONE WAY CLUTCH			
BV01-21-534	1				



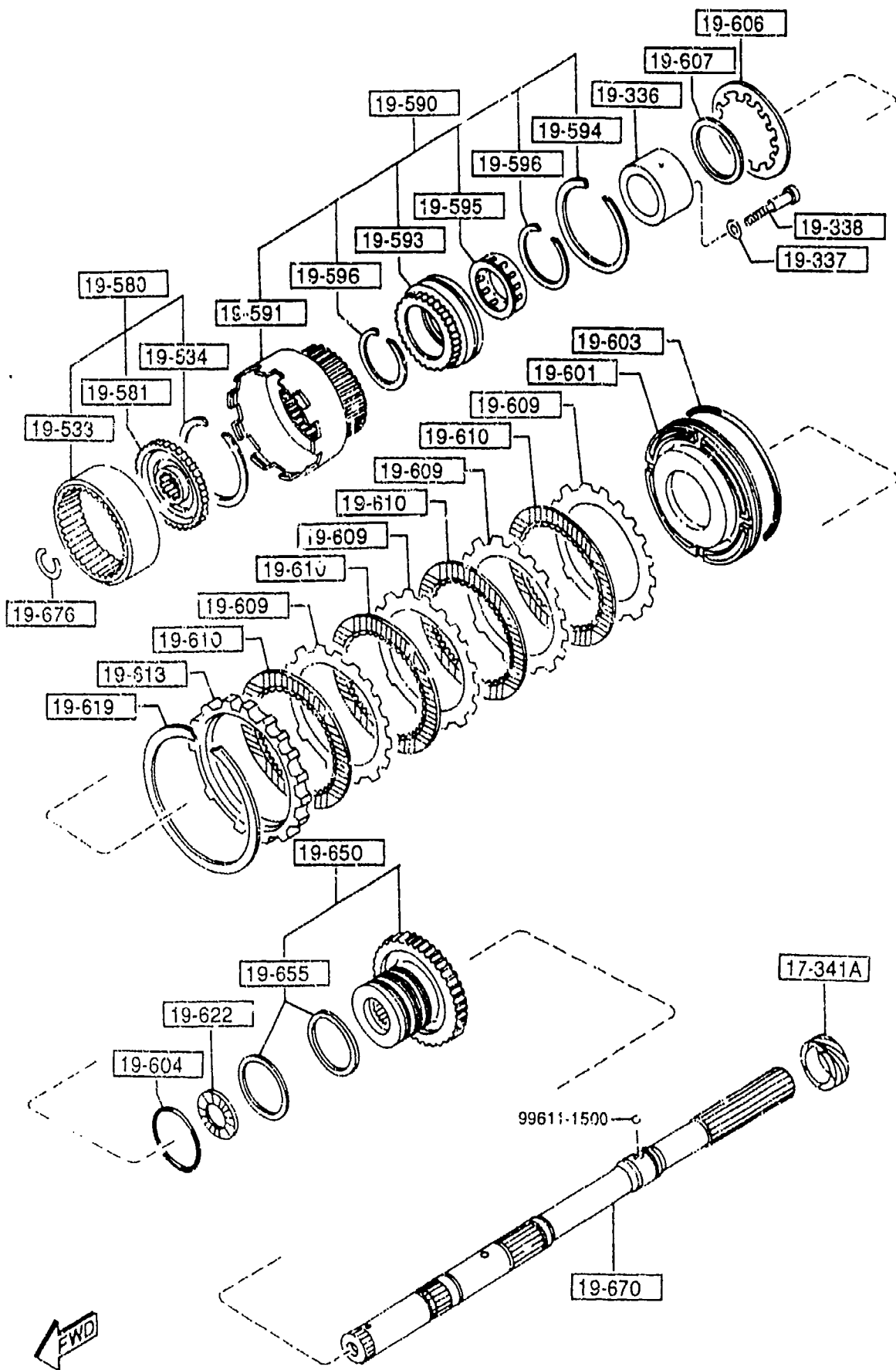
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
21-540		CARRIER, OVER DRIVE			
BV01-21-540B	1				
21-560		GEAR, OVER DRIVE			
BV01-21-560	1				
21-565		CONNECTING, SHELL			
BU03-21-565	1				
21-567		RING, SNAP			
BU03-21-567	1				
21-570		SUPPORT, CENTER			
BV01-21-570A	1				
21-590		CLUTCH, ONE WAY			
BV01-21-533	1				
21-631		RACE, BRG. HUB CLUTCH			
BU01-21-631	1	L=1.2MM			
BU01-21-632	1	L=1.4MM			
BU01-21-633	1	L=1.6MM			
BU01-21-634	1	L=1.8MM			
BU01-21-635	1	L=2.0MM			
BU01-21-636	1	L=2.2MM			
21-679		SHAFT, INTERMEDIATE			
BU01-21-679	1				
21-821		PLATE, RETAINING			
BV01-21-821A	1				



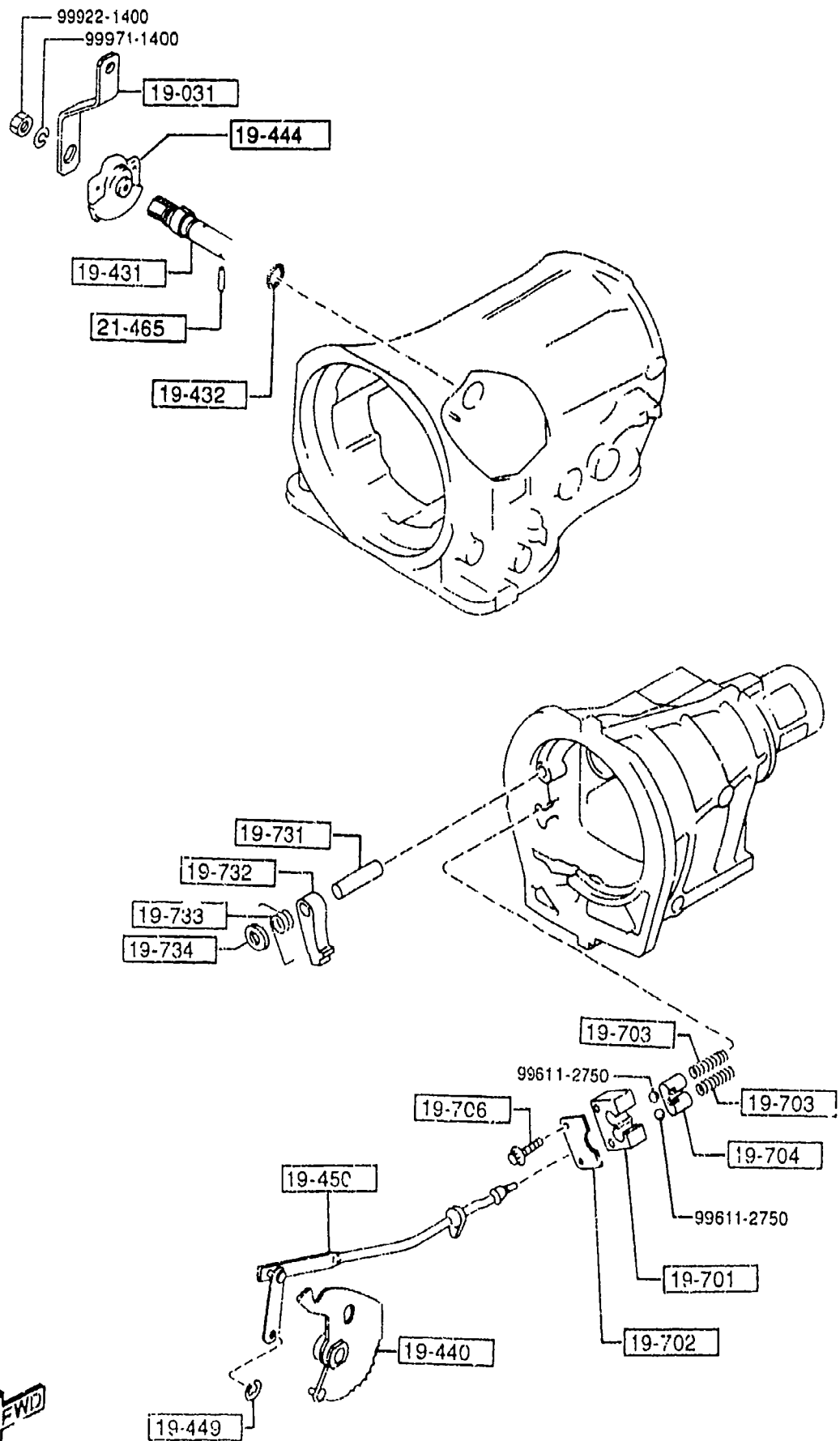
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
1281-17-341	1	17-341A GEAR, SPEEDO.DRIVE			
0338-19-336	1	19-336 RACE, INNER			
0338-19-337	8	19-337 WASHER, PLAIN			
0338-19-338	8	19-338 BOLT			
0338-19-533A	1	19-533 GEAR, INTERNAL			
0338-19-534	1	19-534 RING, SNAP			
0338-19-580	1	19-580 FLANGE			
0338-19-581	1	19-581 FLANGE, DRIVE			
0338-19-590	1	19-590 DRUM, CONNECTING			
0338-19-591	1	19-591 DRUM, CONNECTING			
0338-19-593	1	19-593 RACE, OUTER			
0338-19-594	1	19-594 RING, SNAP			
0338-19-595	1	19-595 CLUTCH, ONE WAY			
0338-19-596	2	19-596 RING, SNAP			



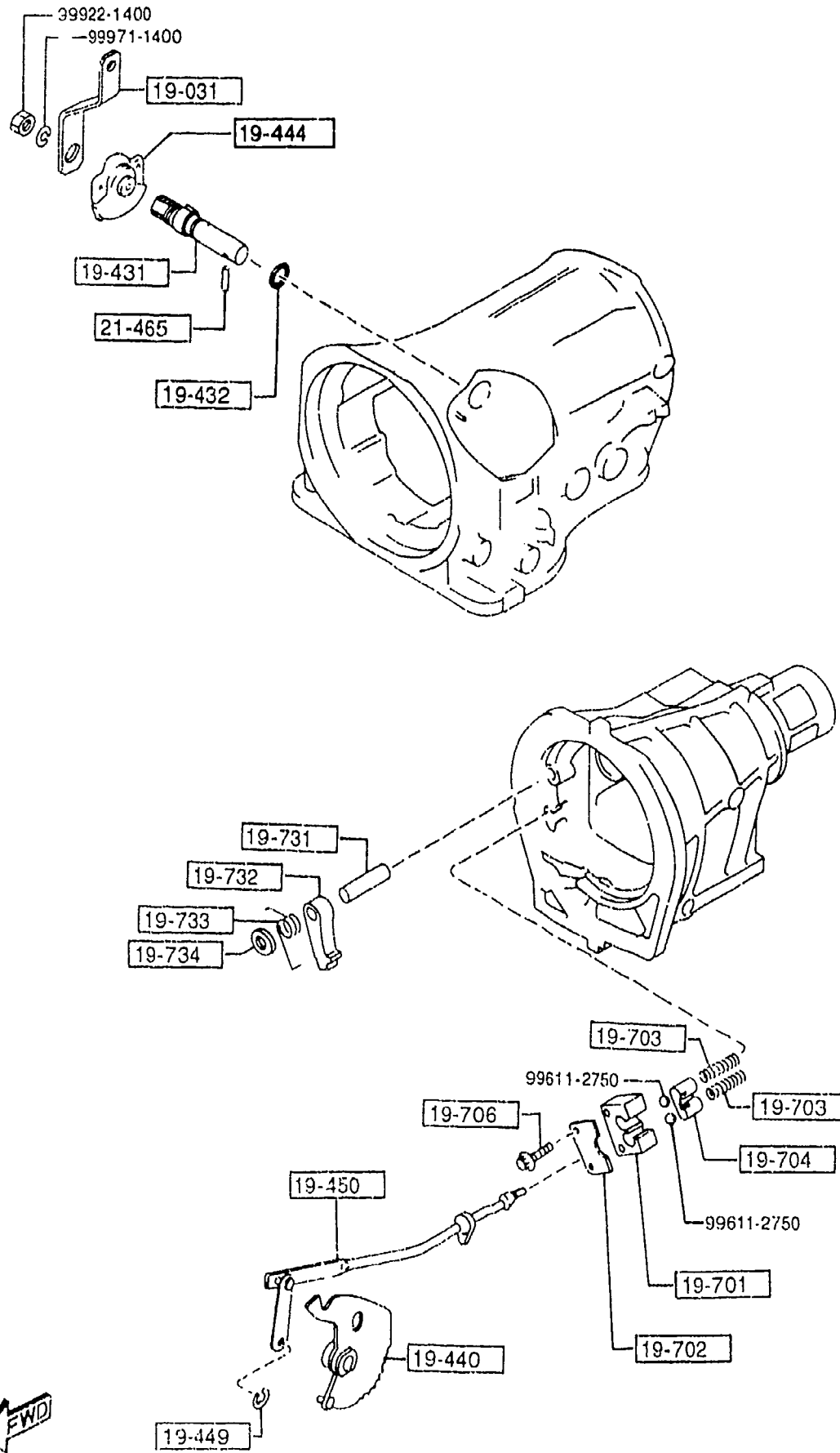
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
19-601		PISTON, LOW & REVERSE			
BT08-19-600	1				
19-603		SEAL, PISTON			
0338-19-603	1				
19-604		SEAL, O'RING			
0338-19-404	1				
19-606		SPRING, PISTON			
0338-19-606	1				
19-607		RING, SNAP			
0338-19-607	1				
19-609		PLATE, DRIVEN			
0338-19-609	4				
19-610		PLATE, DRIVE			
BU17-19-610	4				
19-613		PLATE, RETAINING			
0338-19-613A	1	T=11.8MM			
0338-19-614A	1	T=12MM			
0338-19-615A	1	T=12.2MM			
0338-19-616A	1	T=12.4MM			
0338-19-617A	1	T=12.6MM			
0338-19-618A	1	T=12.8MM			
19-619		RING, SNAP			
0338-19-619	1				
19-622		BEARING, NEEDLE			
BU91-19-622	1	D=34.7MM			
FT01-19-622	1	D=33.8MM			



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
19-650		DISTRIBUTOR, OIL			
BV01-19-650	1				
19-655		RING, SEAL			
BV01-19-655	2				
19-670		SHAFT			
BU55-19-670	1				
19-676		RING			
0338-19-676	1				



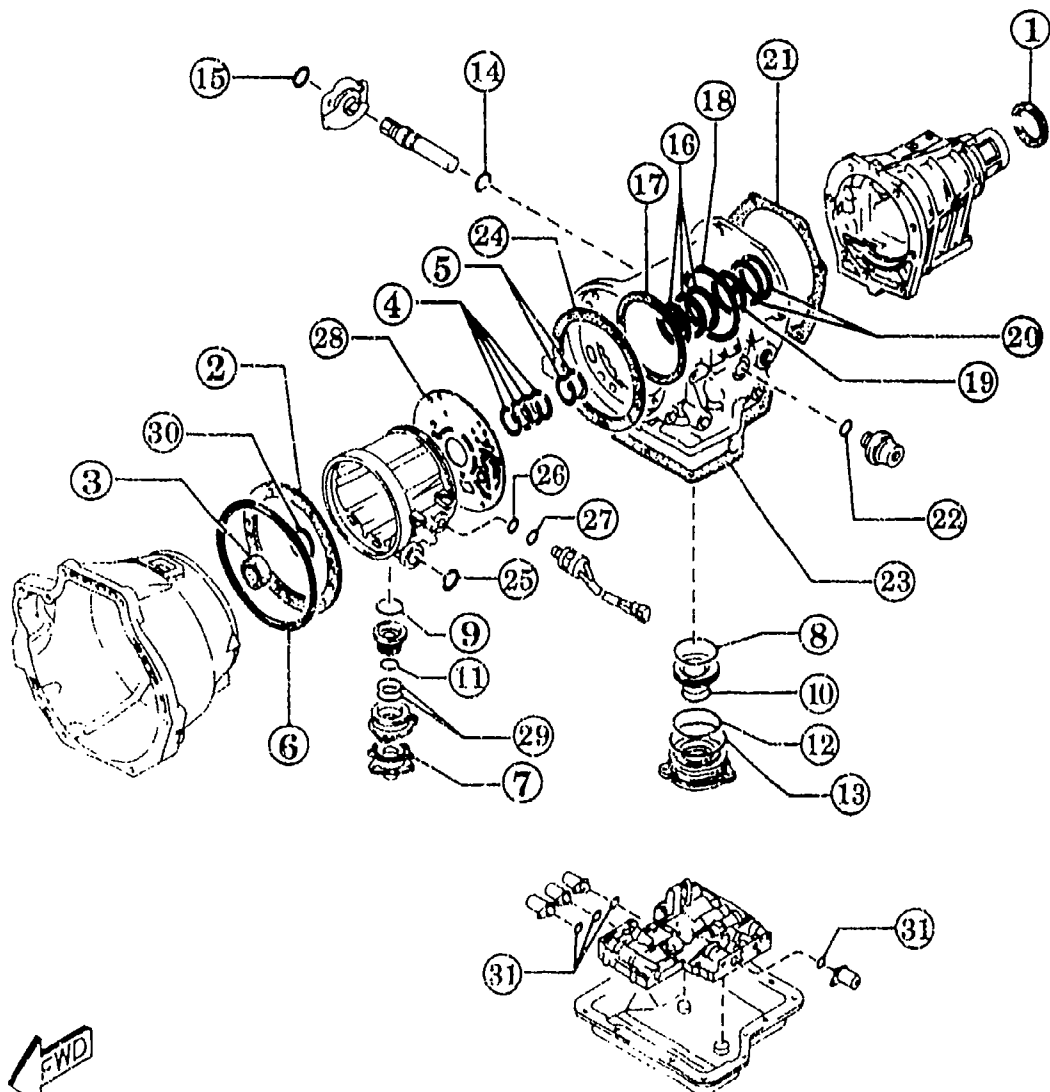
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
19-031		LEVER, SELECT			
BU55-19-031	1				
19-431		SHAFT, MANUAL			
BU67-19-431	1				
19-432		RING, 'O'			
0338-19-432	1				
19-440		PLATE, MANUAL			
BU56-19-440	1				
19-444		SWITCH, INHIBITOR			
N451-19-444	1				
19-449		RING, SNAP			
0338-19-449	1				
19-450		ROD, PARKING			
BU17-19-450	1				
19-701		SUPPORTER, ACTUATOR			
BU17-19-701	1				
19-702		PLATE, RETAINING			
0338-19-702A	1				
19-703		SPRING, BALL PARK			
BU17-19-703	2				
19-704		RETAINER			
BU17-19-704	1				
19-706		BOLT			
0338-19-706	1				
19-731		SHAFT, PARKING PAWL			
0338-19-731	1				
19-732		PAWL, PARKING			
BU17-19-732	1				



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
19-733		SPRING, PAWL RETURN			
0338-19-733C	1				
19-734		SPACER, DOWEL			
0338-19-734A	1				
21-465		PIN, SPRING-PARKING R OD			
BU67-21-465	1				

22-900

- 1-SEAL, OIL..... (1)
- 2-GASKET, OIL PUMP..... (1)
- 3-SEAL, OIL..... (1)
- 4-RING, SEAL..... (4)
- 5-RING, SEAL..... (2)
- 6-SEAL, CUT RING..... (1)
- 7-GASKET..... (1)
- 8-SEAL, PISTON..... (1)
- 9-SEAL, PISTON..... (1)
- 10-SEAL, PISTON..... (1)
- 11-SEAL, PISTON..... (1)
- 12-SEAL, LATHE CUT..... (1)
- 13-RING, "O"..... (1)
- 14-RING, "O"..... (1)
- 15-RING, "O"..... (1)
- 16-SEAL, "O" RING..... (3)
- 17-SEAL, LATHE CUT..... (1)
- 18-SEAL, PISTON..... (1)
- 19-SEAL, "O" RING..... (1)
- 20-RING, SEAL..... (2)
- 21-GASKET, EXTENTION..... (1)
- 22-SEAL, "O" RING..... (1)
- 23-GASKET, OIL PAN..... (1)
- 24-GASKET, DRUM SUPPORT..... (1)
- 25-RING, "O"..... (1)
- 26-RING, "O"..... (1)
- 27-RING, "O"..... (1)
- 28-GASKET, O/DRIVE CASE..... (1)
- 29-RING, "O"..... (2)
- 30-RING, "O"..... (1)
- 31-RING, "O"..... (4)



PART NO.	QTY	MOE. /RESTRICTION	MODEL/RESTRICTION	MODEL /RESTRICTION	FROM-TO
22-900					
N451-22-900	1		GASKET & SEAL KIT		

ENGINE



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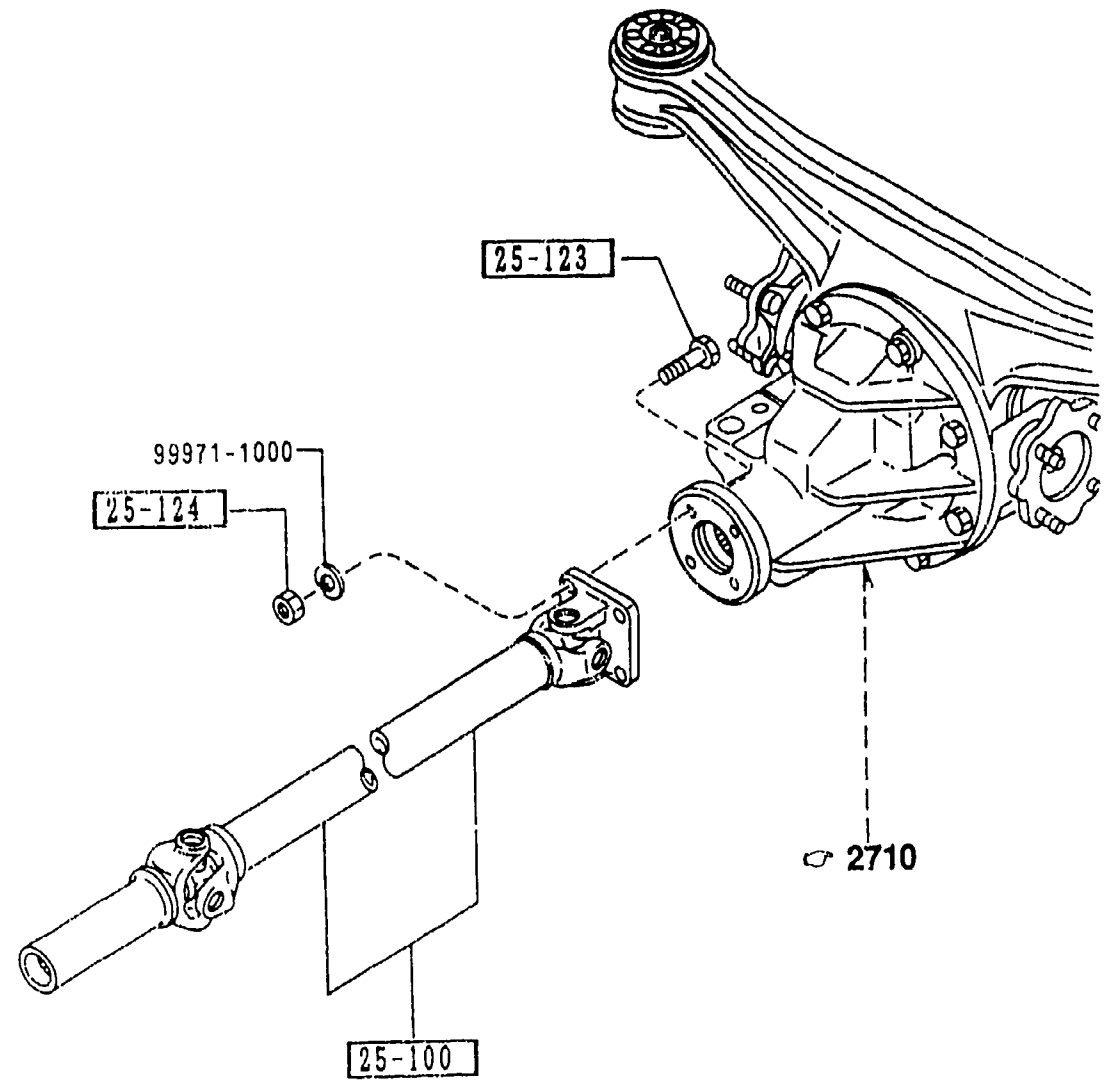
ENGINE



CHASSIS

ENGINE

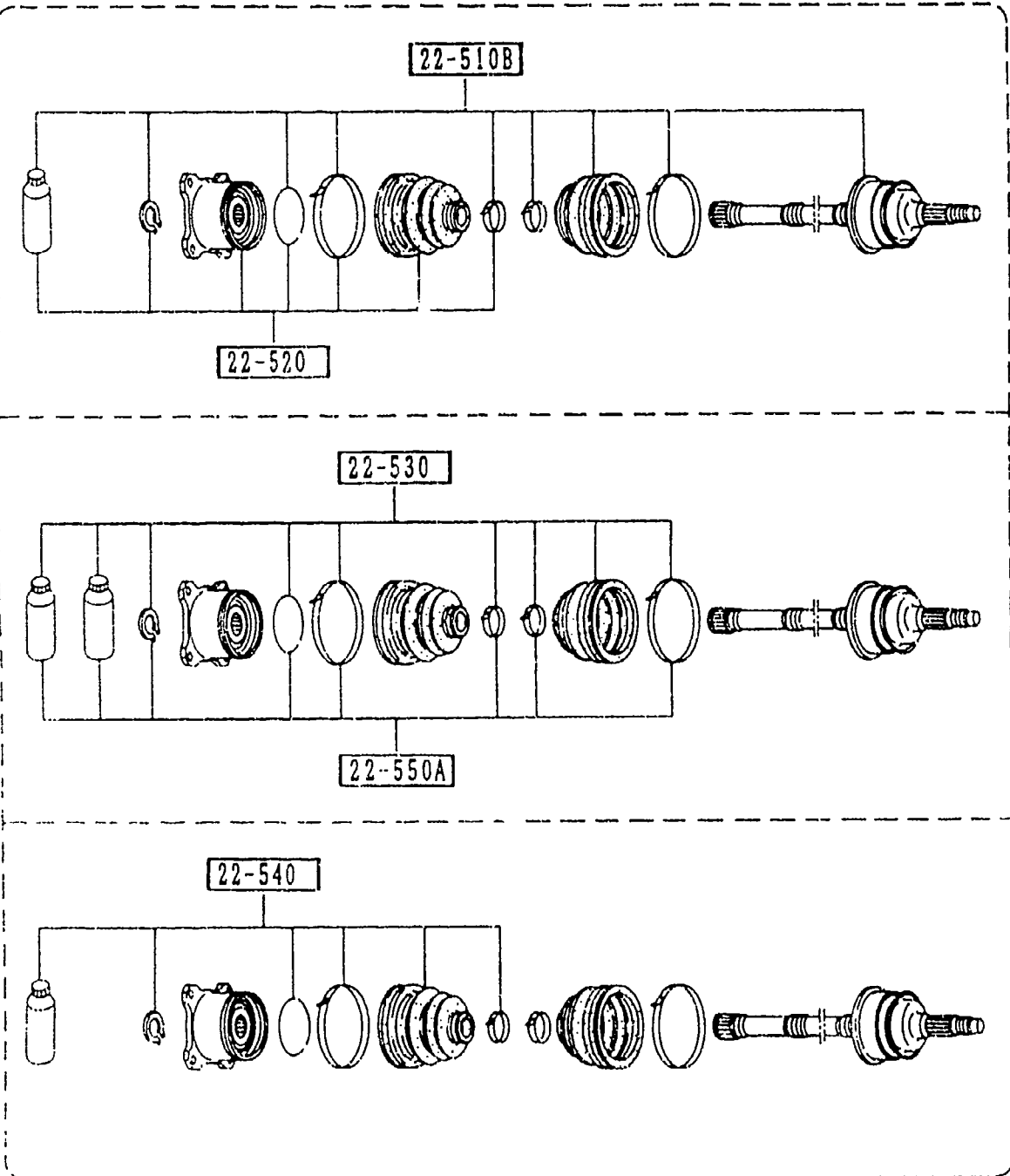
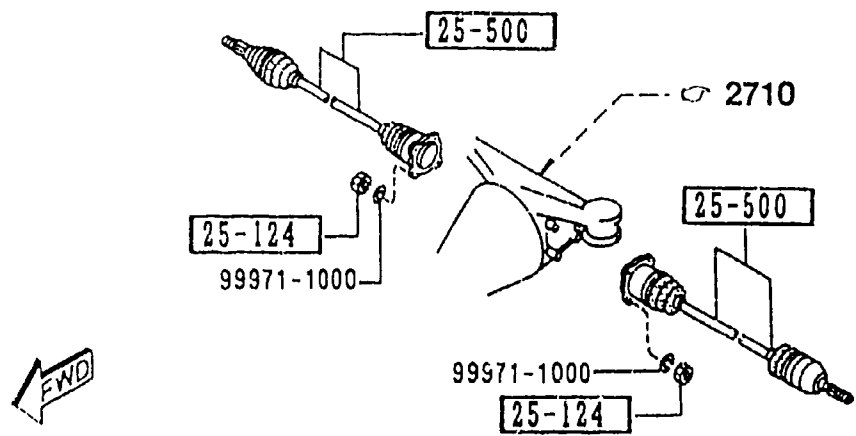
CHASSIS



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
25-100		SHAFT, PROPELLER-FRT			
MF04-25-100	1				
25-123		BOLT			
P011-25-123	4				
25-124		NUT			
1368-25-124	4				

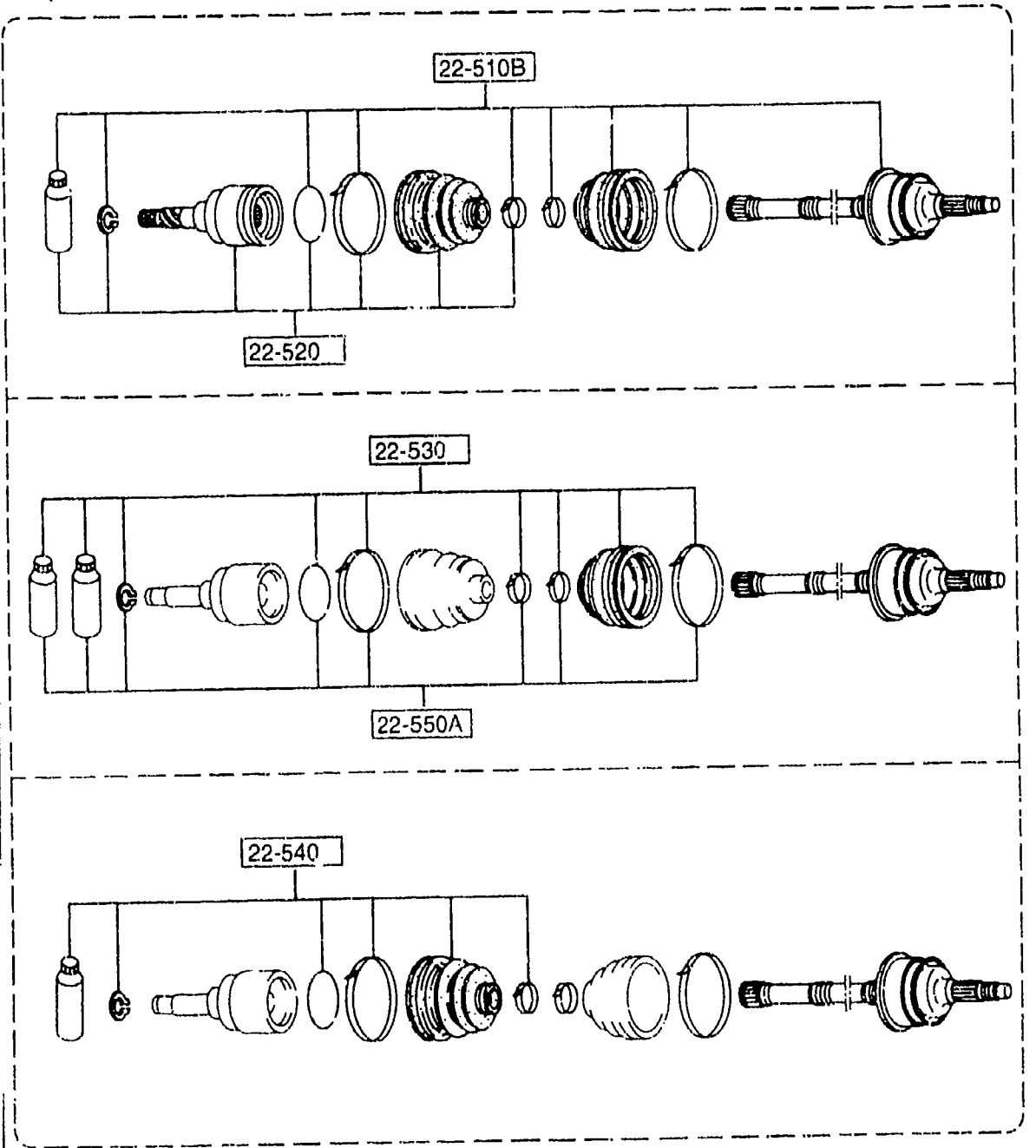
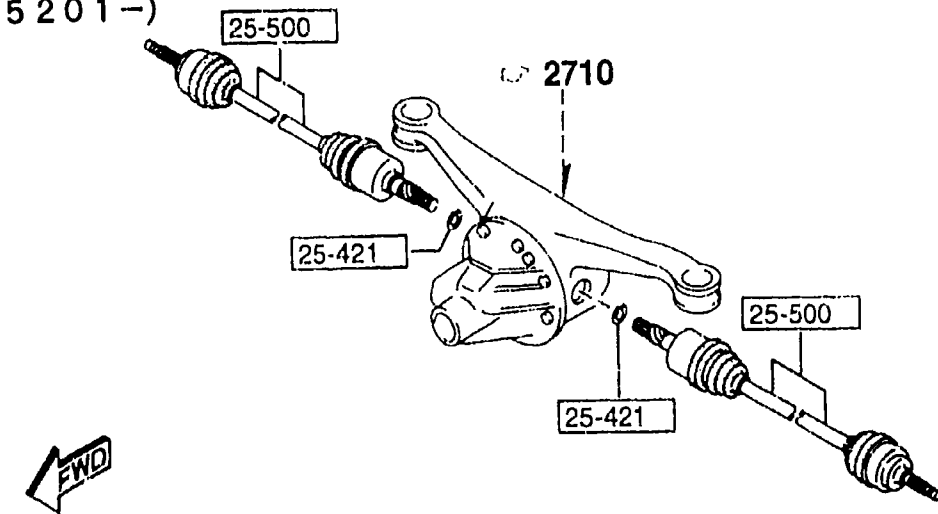


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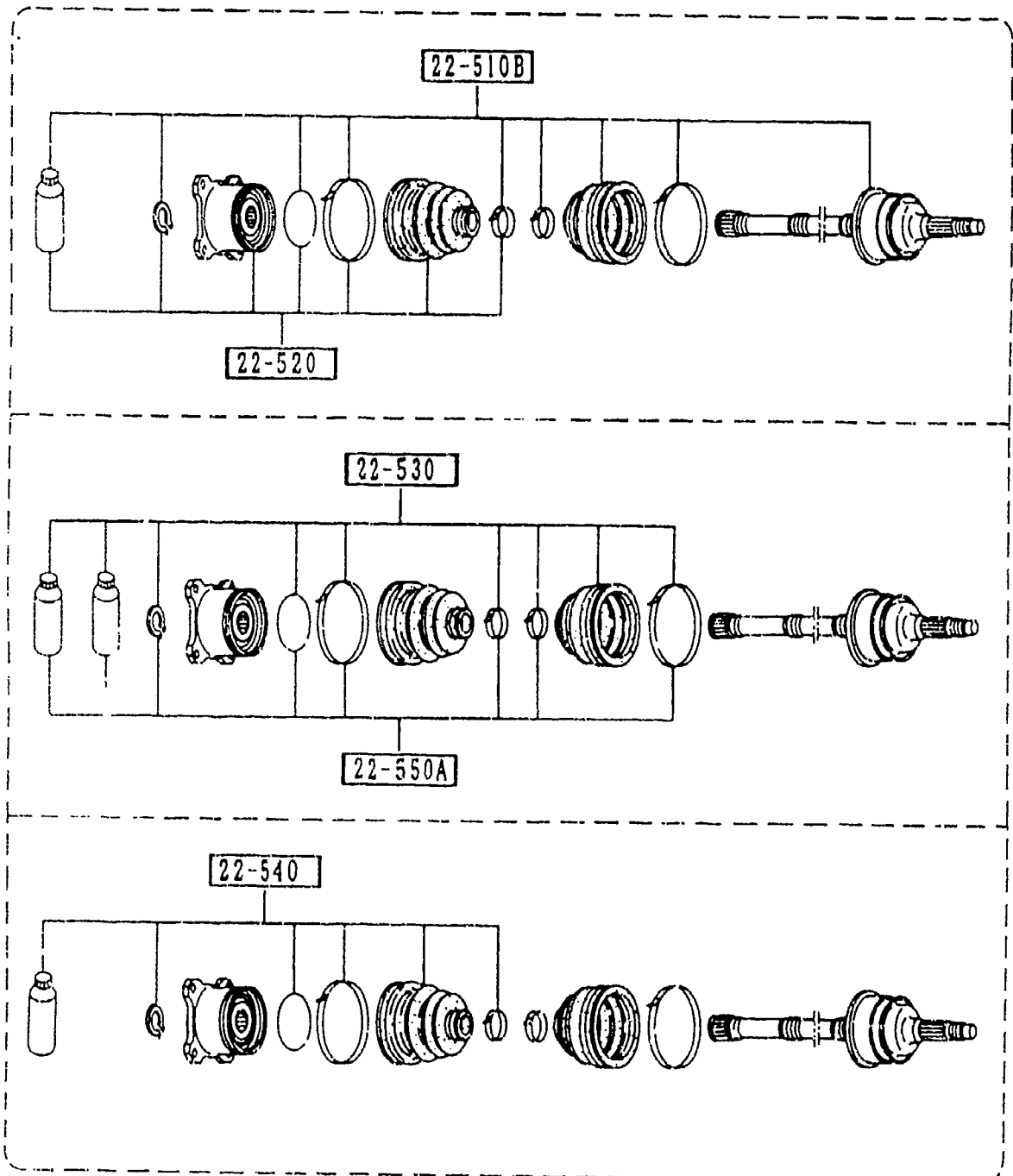
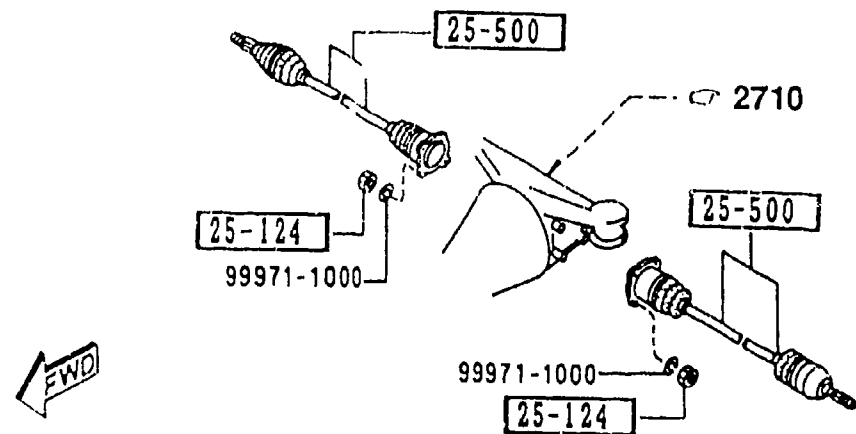
AUNA05

(5201-)

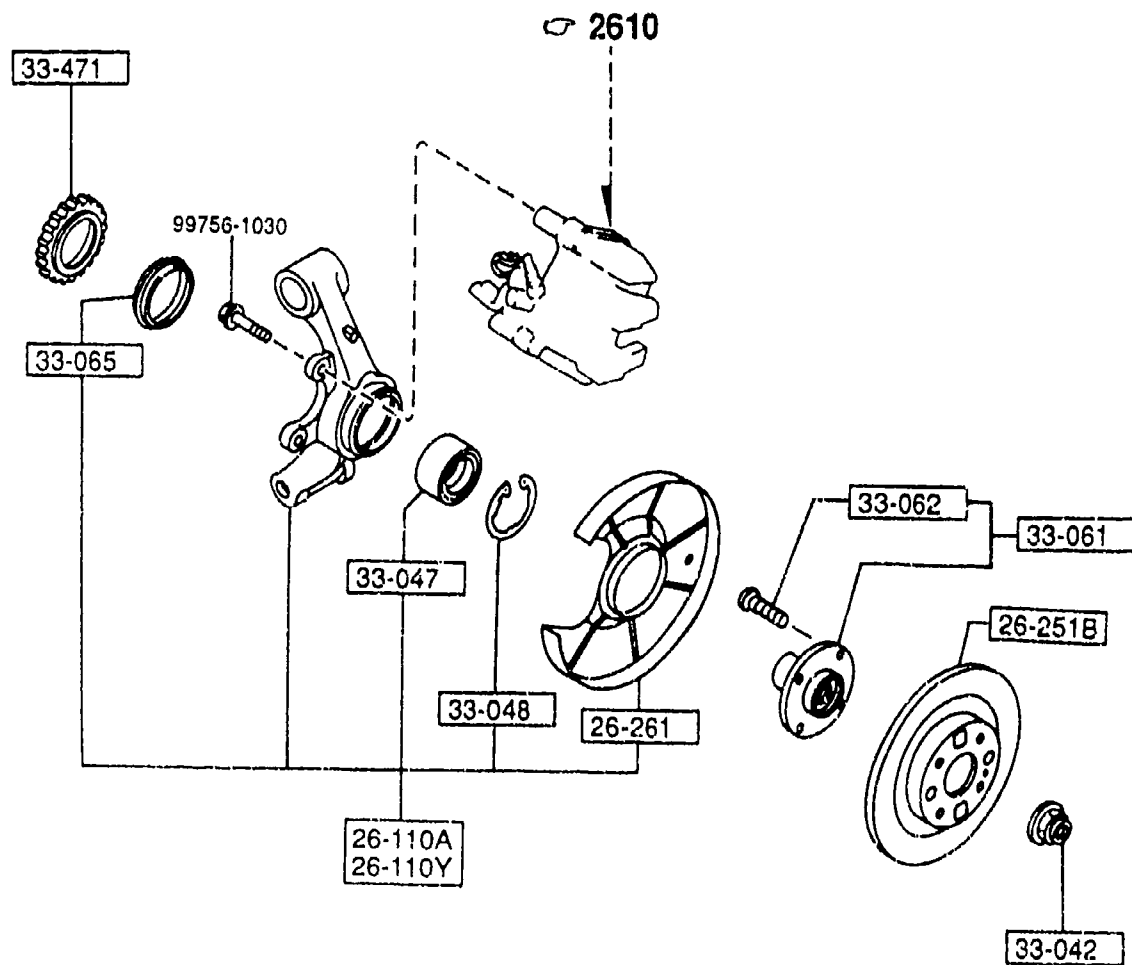


AUNA05

(-5201)



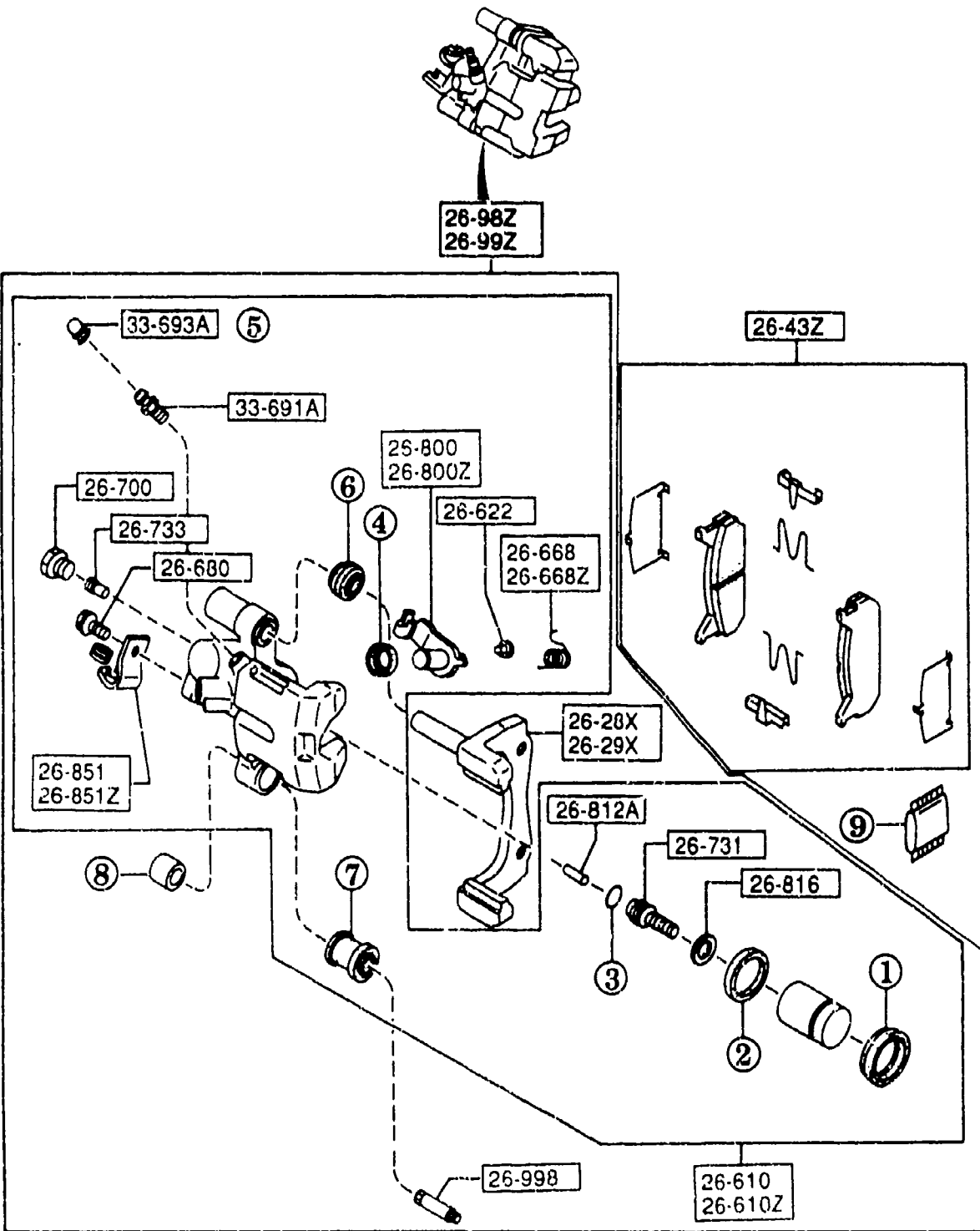
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
22-510B		JOINT SET, OUTER			
MD02-22-510 A (MD02-22-510A)	2	(W/O A. LOCK BRAKE)			-5201
MD03-22-510 A (MD03-22-510A)	2	(W/A. LOCK BRAKE)			-5201
ML02-22-510A	2	(W/O A. LOCK BRAKE)			5201-
MD03-22-510A	2	(W/A. LOCK BRAKE)			5201-
22-520		JOINT SET, INNER			
MD02-22-520 A (MD02-22-520A)	2				-5201
MD02-22-520A	2				5201-
22-530		BOOT SET, OUTER JOINT			
M090-22-530	2				
22-540		BOOT SET, INNER JOINT			
M090-22-540	2				
22-550A		CLIP SET, DRIVE SHAFT			
M090-22-550	2				
25-124		NUT			
1368-25-124	8				-5201
25-421		CLIP			
0003-25-421	2				5201-
25-500		SHAFT, DRIVE			
MD02-25-500	2	(W/O A. LOCK BRAKE)			-5201
MD03-25-500	2	(W/A. LOCK BRAKE)			-5201
MD02-25-500B	2	(W/O A. LOCK BRAKE)			5201-
MD03-25-500B	2	(W/A. LOCK BRAKE)			5201-
5201 NA35* -614193					



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
26-110A		+			
NA75-26-130	1	KNUCKLE(R), REAR (W/C A. LOCK BRAKE)			
NA80-26-130	1	KNUCKLE(R), REAR (W/A. LOCK BRAKE)			
26-110Y		+			
NA75-26-140	1	KNUCKLE(L), REAR (W/O A. LOCK BRAKE)			
NA80-26-140	1	KNUCKLE(L), REAR (W/A. LOCK BRAKE)			
26-251B		+			
BR74-26-251B	2	PLATE, DISC			
26-261		+			
B530-26-261B	2	COVER, DUST			
33-042		+			
D06Y-33-042	2	NUT W/WASHER			
33-047		+			
B455-33-047B A (B455-33-047C)	2	BEARING, WHEEL			-6624
*B455-33-047C	2				6624-
33-048		+			
H260-33-048	2	RING, RETAINING-DISC PLATE			
33-061		+			
B01A-33-060 A (B01A-33-060A)	2	HUB, WHEEL			-4C01
B01A-33-060A	2				4C01-
33-062		+			
B01Y-33-062	8	BOLT, HUB			
33-065		+			
G304-33-065	2	SEAL, OIL-AXLE			
33-471		+			
B603-33-471	2	ROTOR, SENSOR-FRT A.B.S.			

4C01 NA35* -609691
6624 NA3** -719627



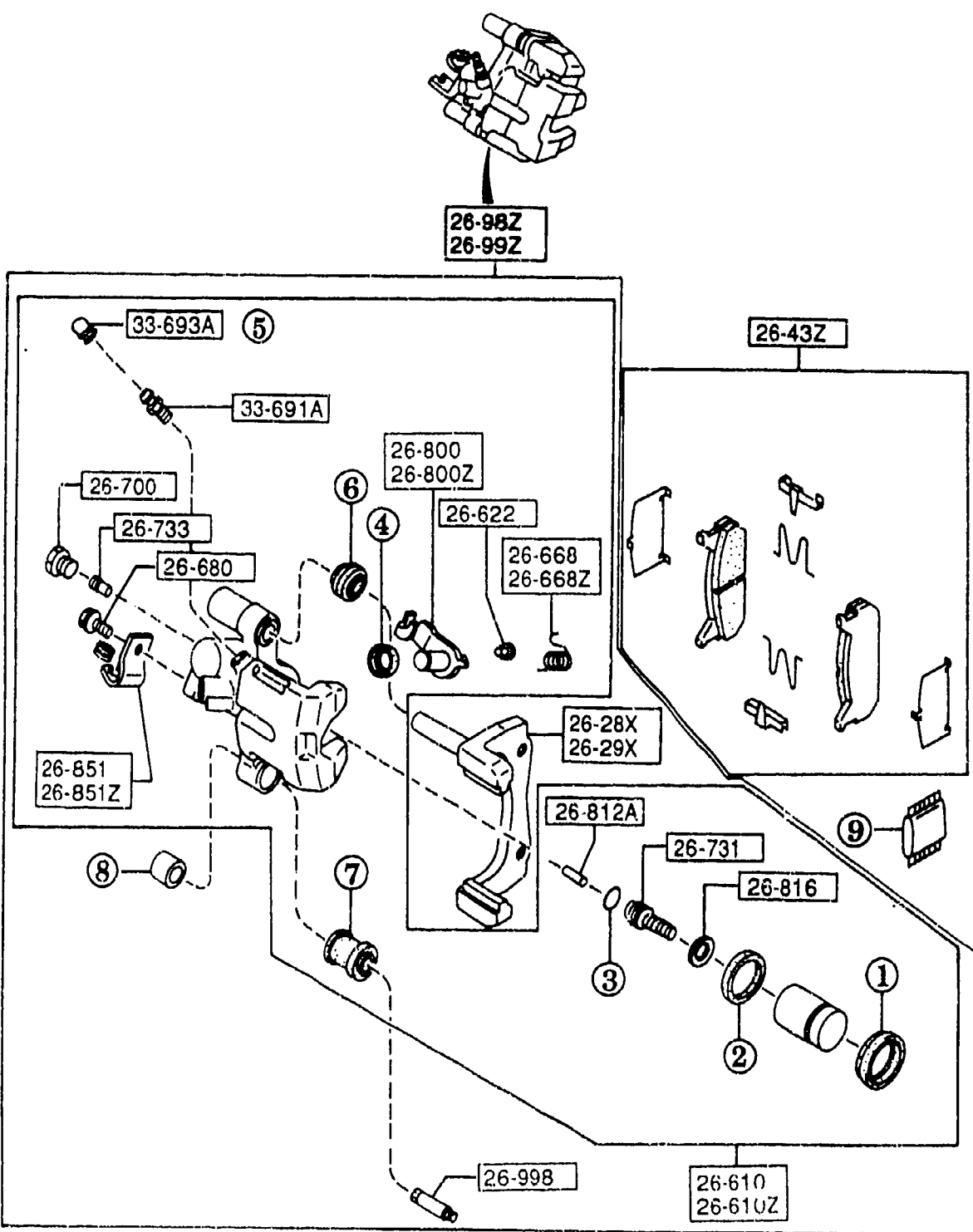


NOTE
 ① ... ⑨ → 26-46Z
 THE D-CODE OF 26-46Z CONSISTS OF
 FIGURE NUMBERS ① THROUGH ⑨.

THOUGH ILLUSTRATIONS OF D-CODE 26-43Z AND 26-46Z ARE FOR LEFT SIDE ONLY.
 QUANTITIES OF THESE D-CODES IN THE TEXT ARE FOR ONE VEHICLE.

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
26-28X NA75-26-28X	1	SUPPORT(R), MOUNTING			
26-29X NA75-26-29X	1	SUPPORT(L), MOUNTING			
26-43Z NA75-26-43Z AN(NAY5-26-43ZA)	1	PAD SET, RR CALIPER			-5C01
*NAY5-26-43ZA	1				5C01-
26-46Z NAY1-26-46ZA	1	SEAL & BOOT SET, CAL. -RR			
26-610 NA75-26-61XA A (NA75-26-61XB)	1	BODY & PISTON(R), CALIPER			-5901
NA75-26-61XB	1				5901-
26-610Z NA75-26-71XA A (NA75-26-71XB)	1	BODY & PISTON(L), CALIPER			-5901
NA75-26-71XB	1				5901-
26-622 BWOH-26-696	2	PIN, STOPPER-RR CALIPER			
26-668 BWOH-26-668	1	SPRING(R), LEVER			
26-668Z BWOH-26-669	1	SPRING(L), LEVER			
26-680 BWOH-26-680	2	BOLT			
26-700 BWOH-26-700	2	PLUG, SCREW			
26-731 GAZE-26-731	2	SPINDLE, ADJUSTER			-5201

5201 NA35* -614193
 5901 NA3** -702989
 5C01 NA3** -706448

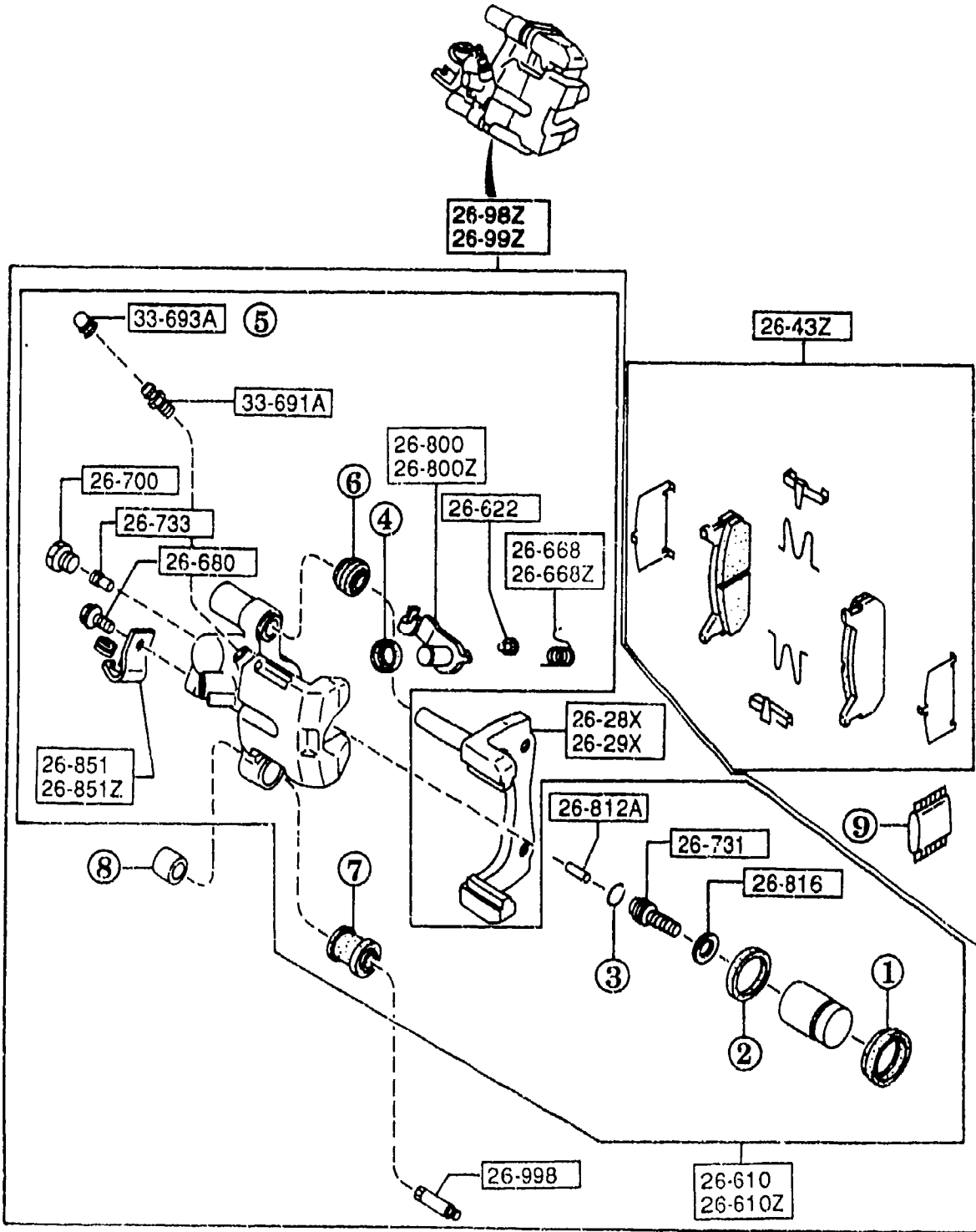


NOTE
 ① ... ⑨ ⇨ 26-46Z
 THE D-CODE OF 26-46Z CONSISTS OF
 FIGURE NUMBERS ① THROUGH ⑨.

THOUGH ILLUSTRATIONS OF D-CODE 26-43Z AND 26-46Z ARE FOR LEFT SIDE ONLY,
 QUANTITIES OF THESE D-CODES IN THE TEXT ARE FOR ONE VEHICLE.

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D NA75-26-731	2				5201-
+-----+ | 26-733 | +-----+		GEAR, ADJUST			
BWOH-26-733	2				
+-----+ | 26-800 | +-----+		LEVER(R), OPERATING			
BR76-26-800 A (BR76-26-800A)	1				-5901
BR76-26-800A	1				5901-
+-----+ | 26-800Z | +-----+		LEVER(L), OPERATING			
BR76-26-810 A (BR76-26-810A)	1				-5901
BR76-26-810A	1				5901-
+-----+ | 26-812A | +-----+		ROD, PUSH-FRT CALIPER			
BWOH-26-812	2				
+-----+ | 26-816 | +-----+		RING, SNAP-RR CALIPER			
GAZE-26-816	2				
+-----+ | 26-851 | +-----+		BRACKET(R), CABLE			
BWOH-26-851	1				
+-----+ | 26-851Z | +-----+		BRACKET(L), CABLE			
BWOH-26-861	1				
+-----+ | 26-98Z | +-----+		CALIPER(R), PADLESS-R R			
*NAZ5-26-98ZA A (NAZ5-26-98ZB)	1				-5901
*NAZ5-26-98ZB	1				5901-
+-----+ | 26-99Z | +-----+		CALIPER(L), PADLESS-R R			
*NAZ5-26-99ZA A (NAZ5-26-99ZB)	1				-5901
*NAZ5-26-99ZB	1				5901-
+-----+ | 26-998 | +-----+		PIN, GUIDE			
BWOH-26-998A	2				
+-----+ | 33-691A | +-----+		SCREW, BLEEDER			
BWOH-26-691	2				

5201 NA35* -614193
 5901 NA3** -702989

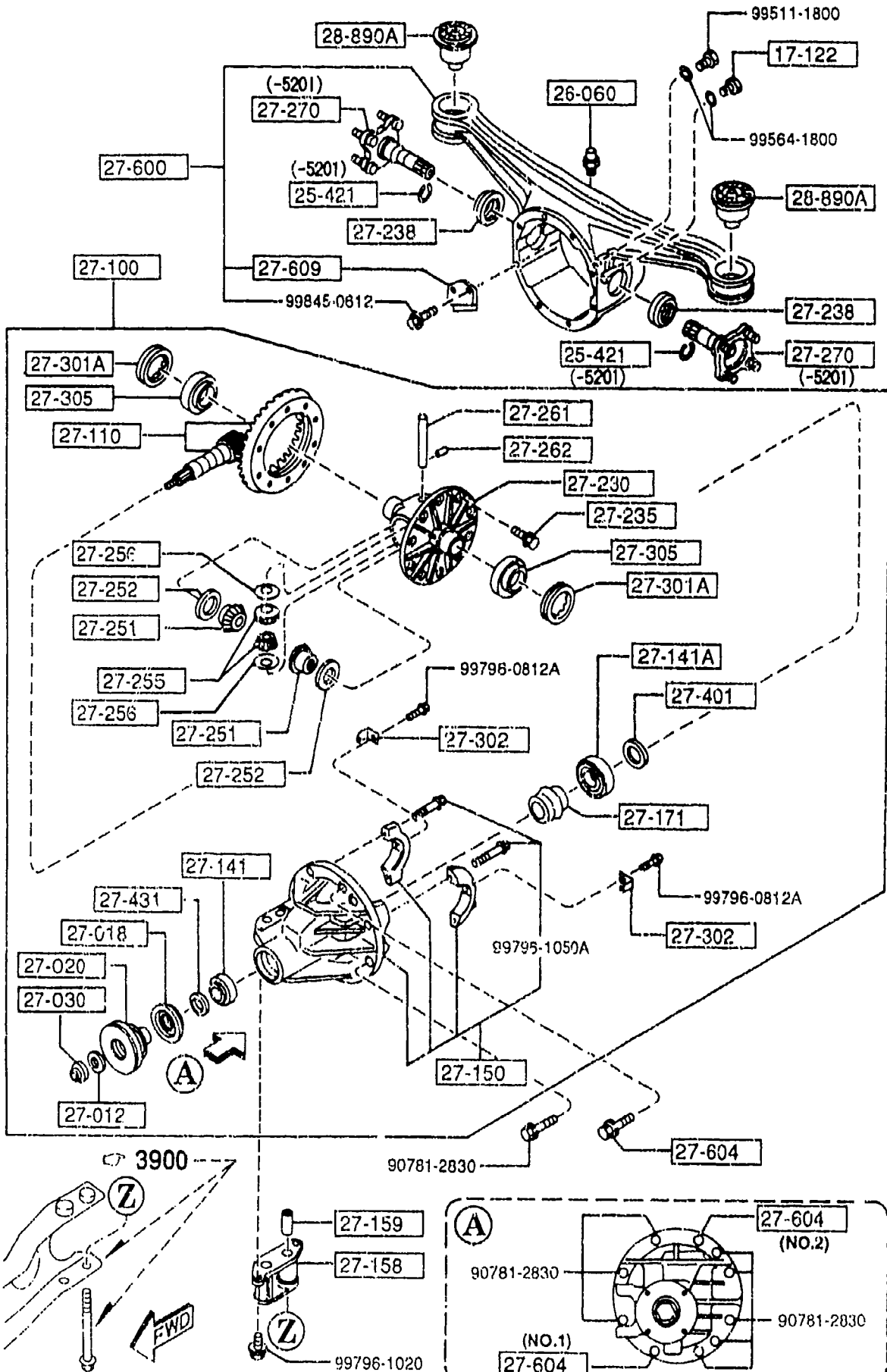


NOTE
 ① ... ⑨ ⇒ 26-46Z
 THE D-CODE OF 26-46Z CONSISTS OF
 FIGURE NUMBERS ① THROUGH ⑨.



THOUGH ILLUSTRATIONS OF D-CODE 26-43Z AND 26-46Z ARE FOR LEFT SIDE ONLY,
 QUANTITIES OF THESE D-CODES IN THE TEXT ARE FOR ONE VEHICLE.

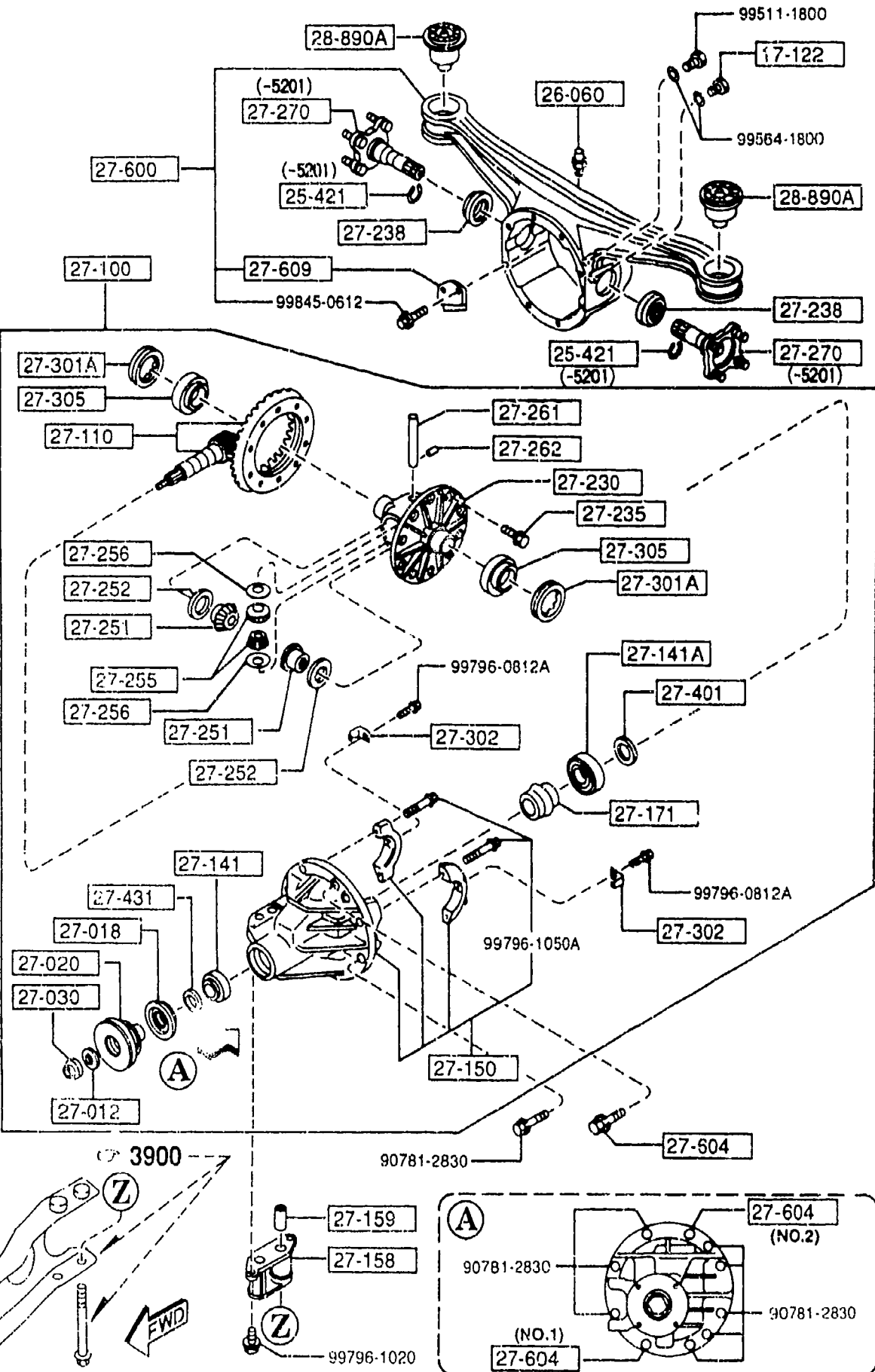
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
+-----+ | 33-693A | +-----+ 0259-33-693	2	CAP, BLEEDER SCREW			



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
17-122		PLUG, MAGNET			
9810-17-121	1				
25-421		CLIP			
6003-25-421	2				-5201
26-060		BREATHER			
0730-26-060	1				
27-012		WASHER			
0223-27-012	1				
27-018		SEAL, OIL			
MA02-27-165	1				-5508
MA02-27-165A	1				5508-
27-020		FLANGE, COMPANION			
MA02-27-120	1 (AT)				-5508
MA03-27-120	1 (MT)				-5508
MA02-27-120A	1 (AT)				5508-
MA03-27-120A	1 (MT)				5508-
27-030		NUT, LOCK			
0223-27-030	1				
27-100		DRIVING & DIFF.			
MA02-27-100	1 (AT)				
MA03-27-100A	1 (MT)				
27-110		GEAR SET, FINAL			
M068-27-110A	1	R=4.100			
27-141		BEARING, PINION			
0755-27-210	1				
27-141A		BEARING, PINION			
M025-27-210	1				
27-150		CARRIER, DIFFERENTIAL			
5201 NA35* -614193 5508 NA35* -620210					

2710 REAR DIFFERENTIALS (NORMAL DIFF.)

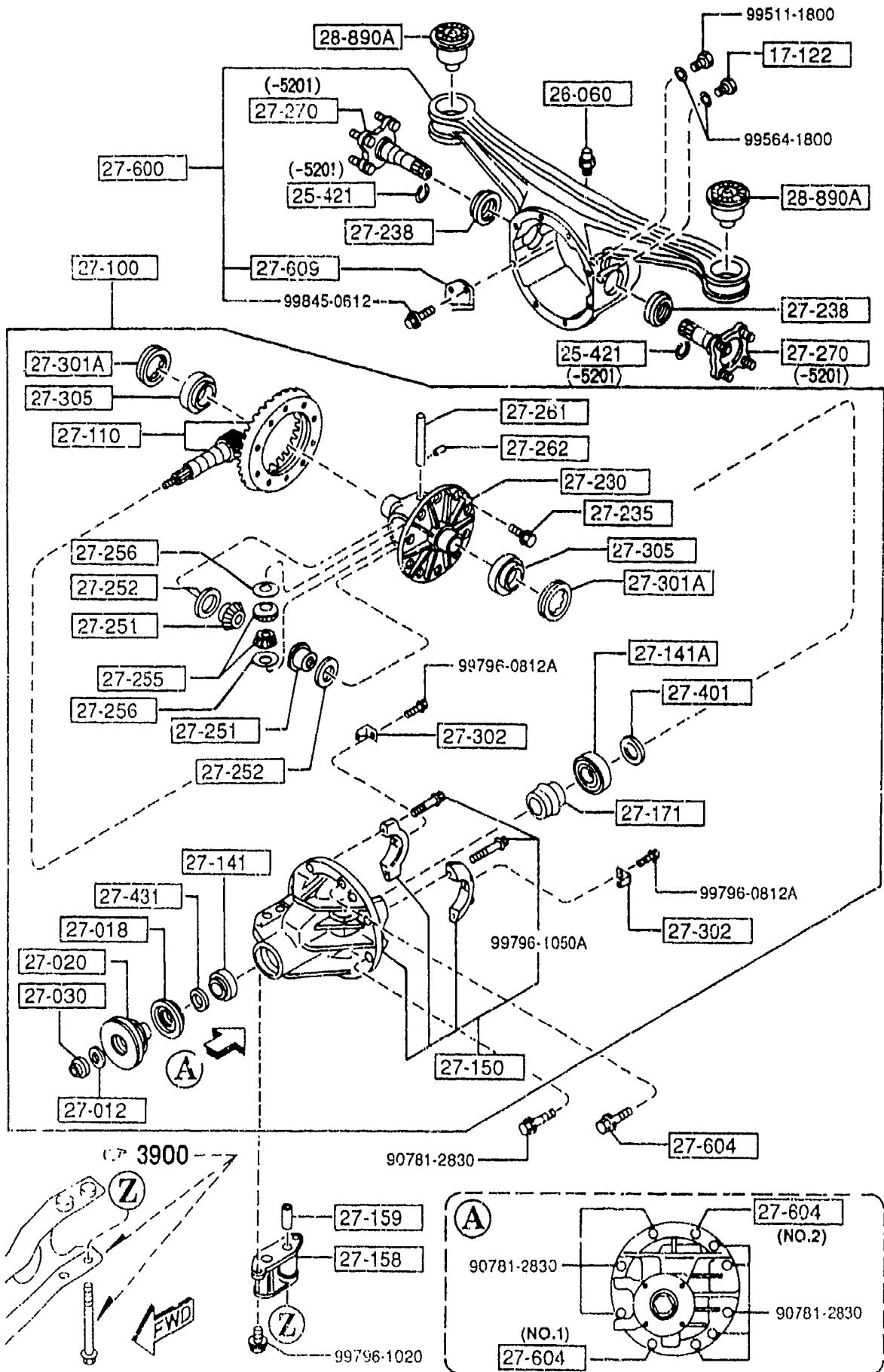
2710 -2 REAR DIFFERENTIALS (NORMAL DIFF.)



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
MA02-27-150	1				-6601
A (MA02-27-150A)					
*MA02-27-150A	1				6601-
-----+ | 27-158 | -----+		SPACE			
T020-27-158A	1				
-----+ | 27-159 | -----+		PIN, TUBULAR			
T020-27-159A	1				-4901
MA02-27-159	1				4901-
-----+ | 27-171 | -----+		PIECE, DISTANCE			
M035-27-171	1				
-----+ | 27-230 | -----+		CASE			
M069-27-231	1				
-----+ | 27-235 | -----+		BOLT, RING GEAR			
8051-27-235	10	D=10.0MM			
8051-27-236	10	D=10.2MM			
-----+ | 27-238 | -----+		SEAL, OIL			
MA02-27-238	2				
-----+ | 27-251 | -----+		GEAR, DIFF. SIDE			
M069-27-251	2				
-----+ | 27-252 | -----+		WASHER			
0290-27-252	2	T=2MM			
0290-27-253	2	T=2.1MM			
0290-27-254	2	T=2.2MM			
0290-27-256	2	T=2.05MM			
0290-27-259	2	T=2.15MM			
-----+ | 27-255 | -----+		PINION, DIFFERENTIAL			
M025-27-255B	2				-6301

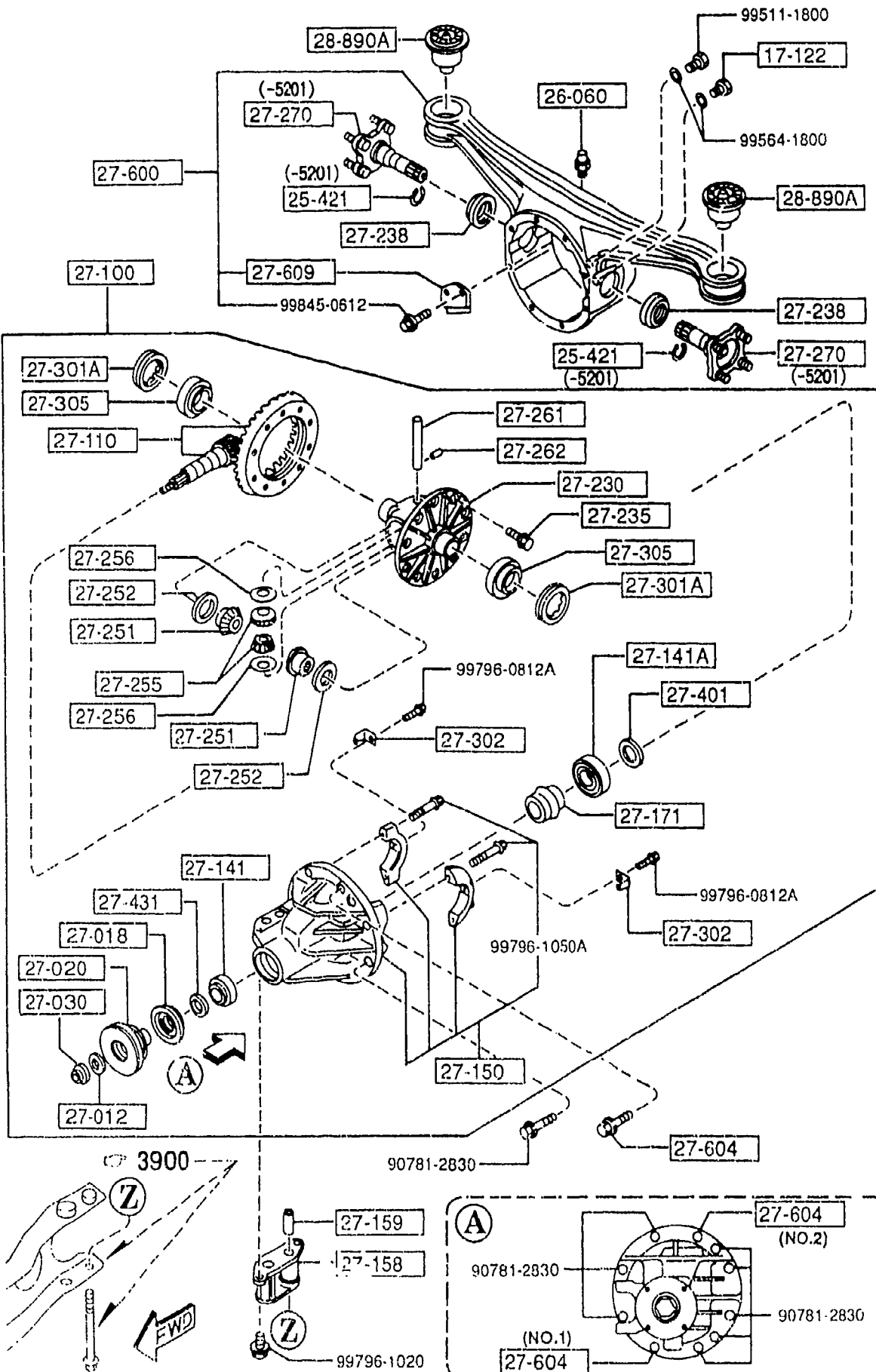
4901 NA35* -602618
 6301 NA3** -714662
 6601 NA3** -719621

2710 REAR DIFFERENTIALS
(NORMAL DIFF.)



2710 -3 REAR DIFFERENTIALS
(NORMAL DIFF.)

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
A (M025-27-255C)					
*M025-27-255C	2				6301-
27-256		WASHER, THRUST			
M025-27-256	2	T=2.0MM			
27-261		SHAFT, DIFF. PINION			
M025-27-261A	1				
27-262		PIN			
0114-27-262	1				
27-270		YOKE, DIFFERENTIAL			
M055-27-270C	2				-5201
27-301A		SCREW, ADJUST			
0290-27-301	2				
27-302		PLATE, LOCK			
0290-27-302	2				
27-305		BEARING			
0221-27-350	2				
27-401		SPACER			
0223-27-401A	1	T=3.08MM			
0223-27-402A	1	T=3.11MM			
0223-27-403A	1	T=3.14MM			
0223-27-404A	1	T=3.17MM			
0223-27-405A	1	T=3.2MM			
0223-27-406A	1	T=3.23MM			
0223-27-407A	1	T=3.26MM			
0223-27-408A	1	T=3.29MM			
0223-27-409A	1	T=3.32MM			
5201 NA35* -614193					
6301 NA3** -714662					

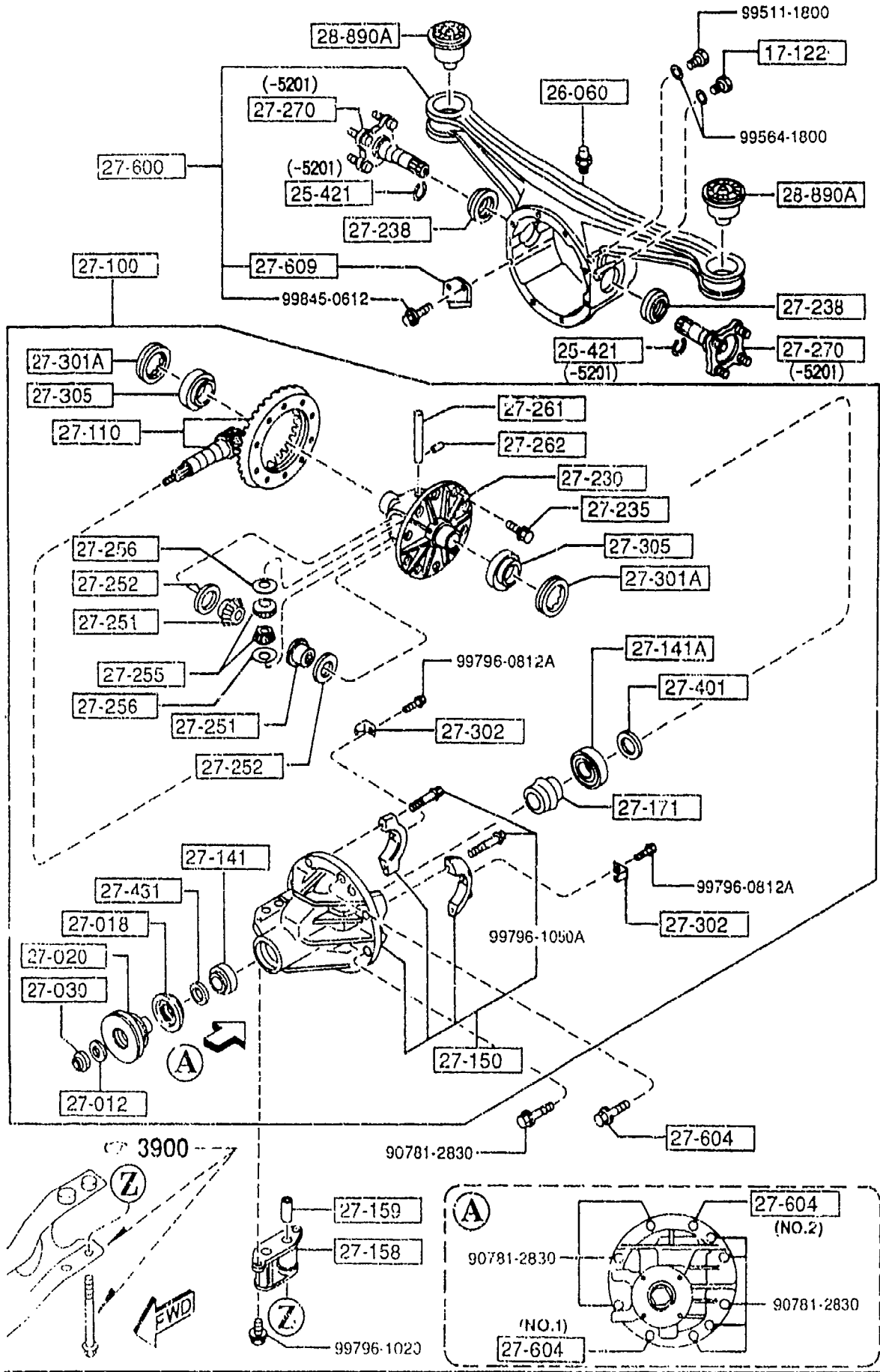


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D	1				
0223-27-411A	1	T=3.35MM			
0223-27-412A	1	T=3.38MM			
0223-27-413A	1	T=3.41MM			
0223-27-414A	1	T=3.44MM			
0223-27-415A	1	T=3.47MM			
0223-27-416	1	T=3.095MM			5301-
0223-27-417	1	T=3.125MM			5301-
0223-27-418	1	T=3.155MM			5301-
0223-27-419	1	T=3.185MM			5301-
0223-27-422	1	T=3.215MM			5301-
0223-27-423	1	T=3.245MM			5301-
0223-27-424	1	T=3.275MM			5301-
0223-27-425	1	T=3.305MM			5301-
0223-27-426	1	T=3.335MM			5301-
0223-27-427	1	T=3.365MM			5301-
0223-27-428	1	T=3.395MM			5301-
0223-27-433	1	T=3.425MM			5301-
0223-27-434	1	T=3.455MM			5301-
27-431	1	SPACER			
PA01-27-431	1				
27-600	1	CASING, DIFFERENTIAL			
MA02-27-600 AN(MA02-27-600A)	1				-5201
MA02-27-600A	1				5201-

5201 NA35* -614193
5301 NA35* -616742

2710 REAR DIFFERENTIALS
(NORMAL DIFF.)

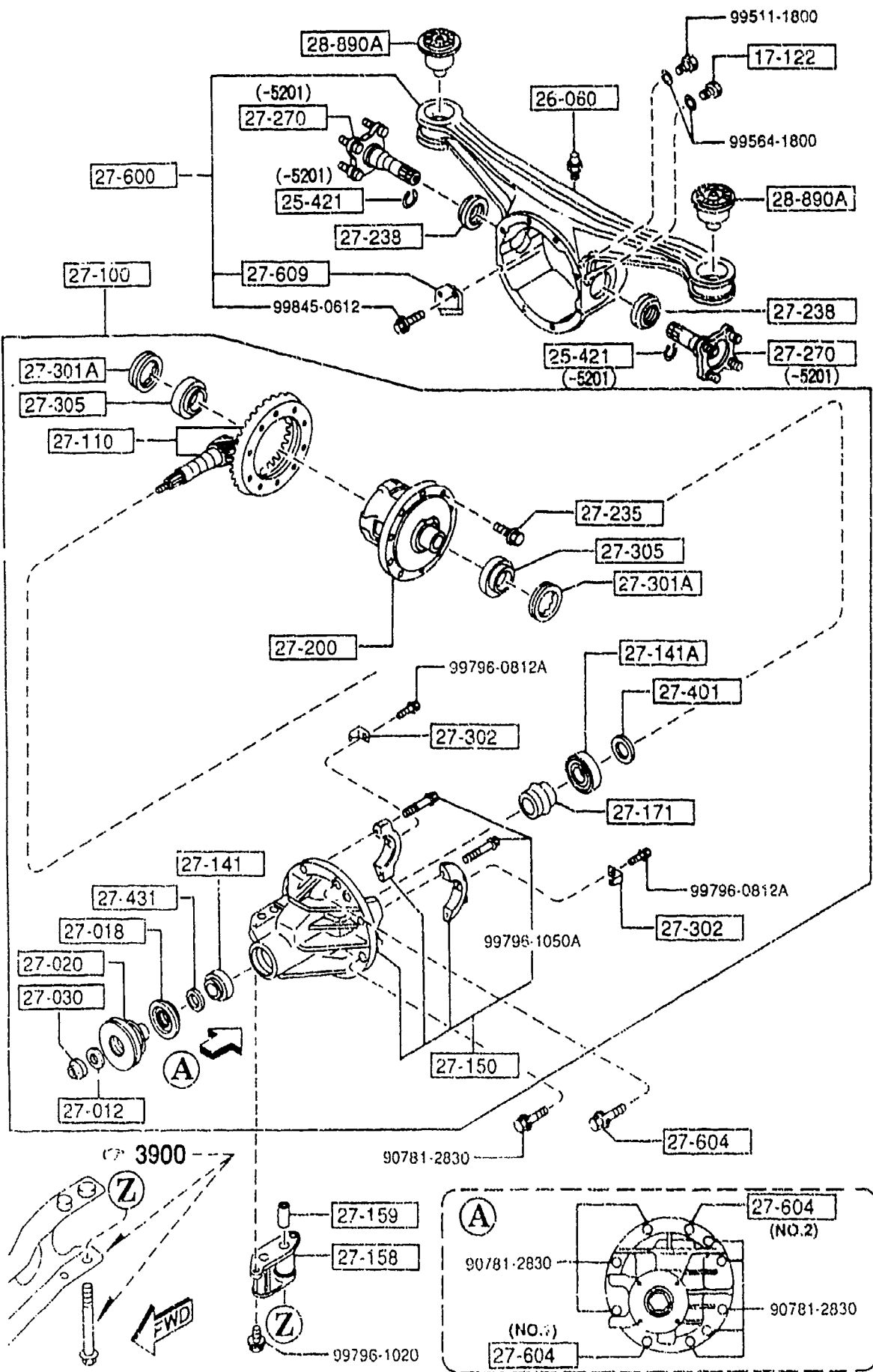
2710 -5 * REAR DIFFERENTIALS
(NORMAL DIFF.)



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
27-604	1	BOLT, CARRIER			
M053-27-604	1	(ILLUST. NO.1)			
M053-27-605	1	(ILLUST. NO.2)			
27-609	1	PLATE, BAFFLE-DIFF CASING			
M0A1-27-609A	1				
28-890A	2	RUBBER, SUB FRAME MTG			
NA01-28-890	2				

2710 A REAR DIFFERENTIALS
(LIMITED SLIP DIFF.)

2710 A-1 REAR DIFFERENTIALS
(LIMITED SLIP DIFF.)

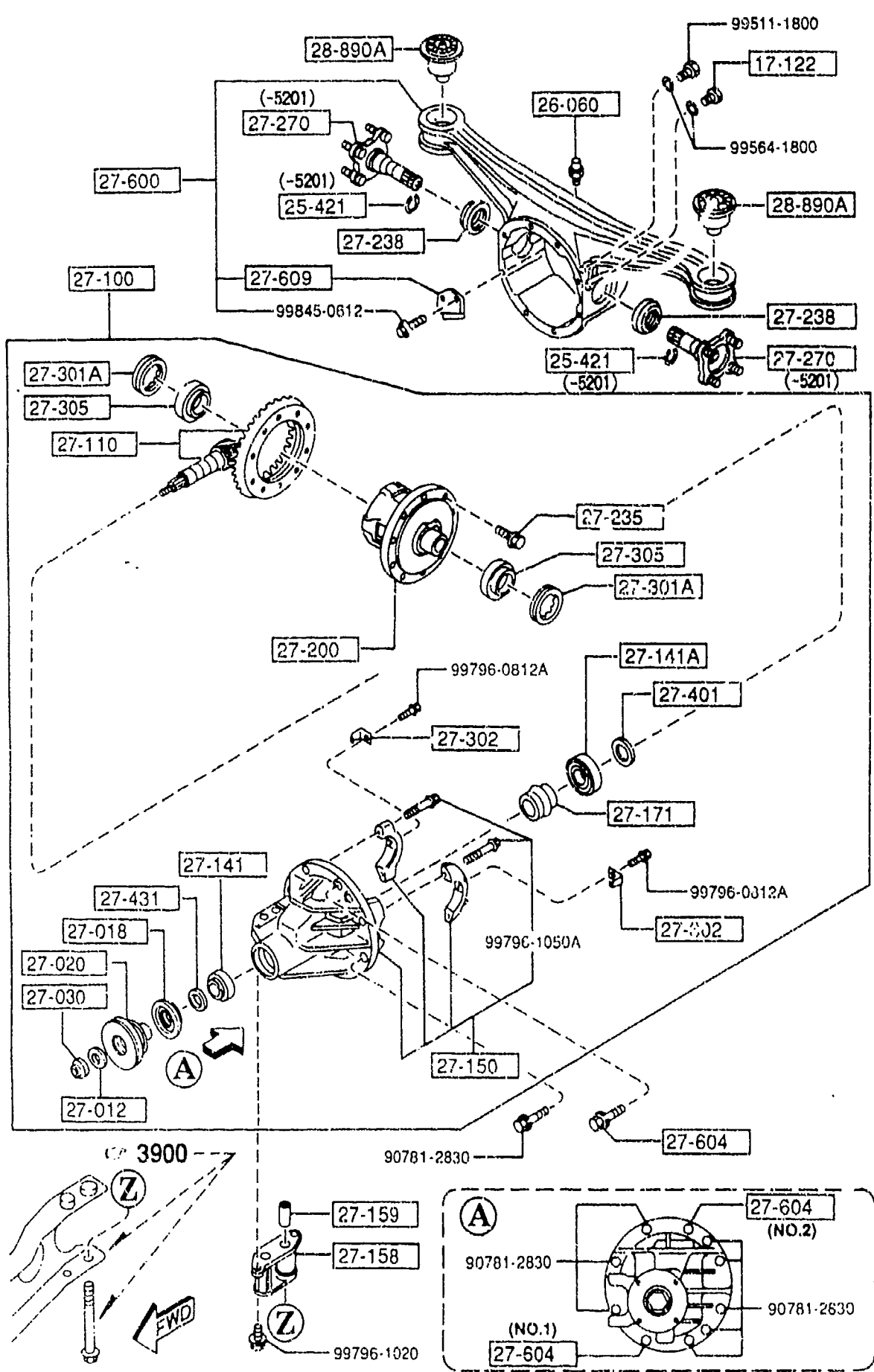


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
17-122	1	PLUG, MAGNET			
0810-17-121	1				
25-421	2	CLIP			-5201
0003-25-421	2				
26-060	1	BREATHER			
0730-26-060	1				
27-012	1	WASHER			
0223-27-012	1				
27-018	1	SEAL, OIL			-5508
MA02-27-165	1				5508-
MA02-27-165A	1				
27-020	1	FLANGE, COMPANION			-5508
MA03-27-120	1				5508-
MA03-27-120A	1				
27-030	1	NUT, LOCK			
0223-27-030	1				
27-100	1	DRIVING & DIFF.			
MM01-27-100A	1	('95 MODEL)			
MM03-27-100	1	('96 MODEL)			
27-110	1	GEAR SET, FINAL			
M068-27-110A	1	R=4.100			
27-141	1	BEARING, PINION			
0755-27-210	1				
27-141A	1	BEARING, PINION			
M025-27-210	1				
27-150	1	CARRIER, DIFFERENTIAL			-6601
MA02-27-150	1				6601-
A (MA02-7-100A)	1				
*MAU2-27-150A	1				

5201 NA35* -614193
5508 NA35* -620210
6601 NA35** -719621

2710 A REAR DIFFERENTIALS
(LIMITED SLIP DIFF.)

2710 A-2 REAR DIFFERENTIALS
(LIMITED SLIP DIFF.)

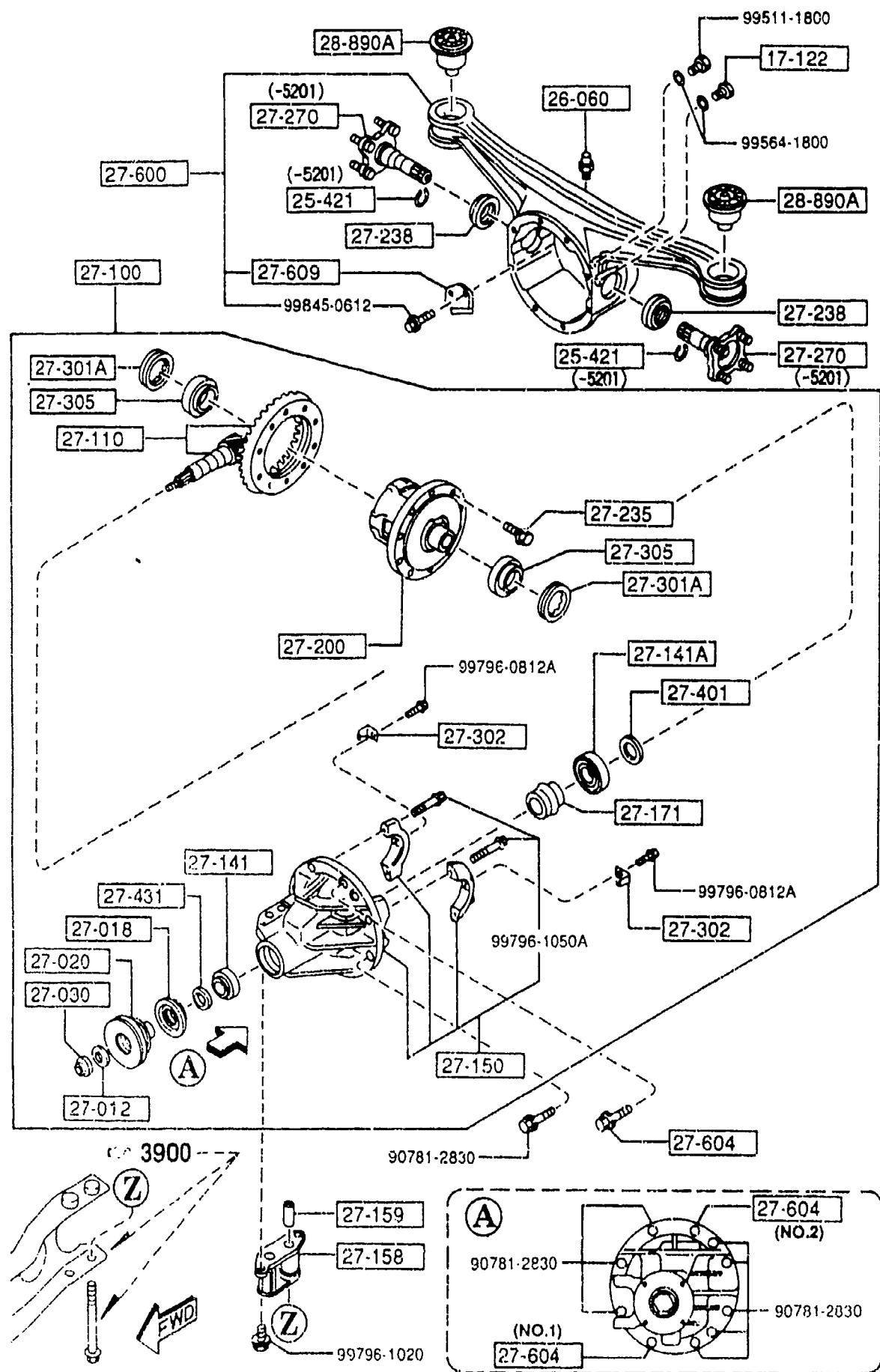


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
27-158		SPACE			
T020-27-158A	1				-4901
27-159		FIN, TUBULAR			
T020-27-159A	1				4901-
MA02-27-159	1				
27-171		PIECE, DISTANCE			
M035-27-171	1				
27-200		DIFFERENTIAL			
MM01-27-200	1	('95 MODEL)			-5731
MM02-27-200	1	('96 MODEL)			
A (MM02-27-200A)					5731-
MM02-27-200A	1	('96 MODEL)			
27-235		BOLT, RING GEAR			
8051-27-235	10	D=10.0MM			
8051-27-236	10	D=10.2MM			
27-238		SEAL, OIL			
MA02-27-238	2				
27-270		YOKE, DIFFERENTIAL			
M055-27-270C	2				-5201
27-301A		SCREW, ADJUST			
0290-27-301	2				
27-302		PLATE, LOCK			
0290-27-302	2				
27-305		BEARING			
0221-27-350	2				
27-401		SPACER			
0223-27-401A	1	T=3.03MM			
0223-27-402A	1	T=3.11MM			

4901 NA35* -602618
5201 NA35* -614193
5731 NA3** -700786

2710 A REAR DIFFERENTIALS
(LIMITED SLIP DIFF.)

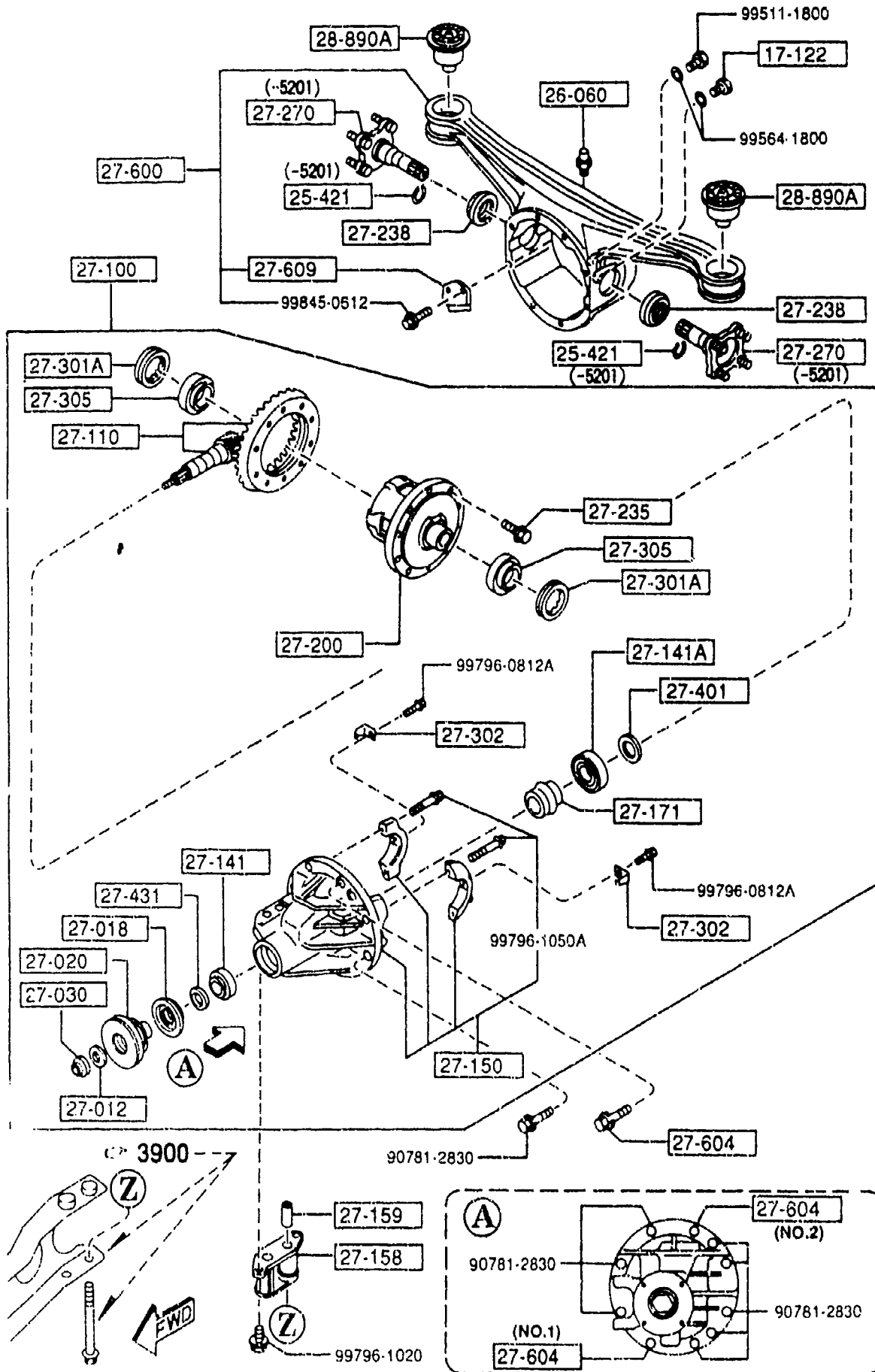
2710 A-3 REAR DIFFERENTIALS
(LIMITED SLIP DIFF.)



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
0223-27-403A	1	T=3.14MM			
0223-27-404A	1	T=3.17MM			
0223-27-405A	1	T=3.2MM			
0223-27-406A	1	T=3.23MM			
0223-27-407A	1	T=3.26MM			
0223-27-408A	1	T=3.29MM			
0223-27-409A	1	T=3.32MM			
0223-27-411A	1	T=3.35MM			
0223-27-412A	1	T=3.38MM			
0223-27-413A	1	T=3.41MM			
0223-27-414A	1	T=3.44MM			
0223-27-415A	1	T=3.47MM			
0223-27-416	1	T=3.095MM			5301-
0223-27-417	1	T=3.125MM			5301-
0223-27-418	1	T=3.155MM			5301-
0223-27-419	1	T=3.185MM			5301-
0223-27-422	1	T=3.215MM			5301-
0223-27-423	1	T=3.245MM			5301-
0223-27-424	1	T=3.275MM			5301-
0223-27-425	1	T=3.305MM			5301-
0223-27-426	1	T=3.335MM			5301-
0223-27-427	1	T=3.365MM			5301-
0223-27-428	1	T=3.395MM			5301-
5301 NA35* -616742					

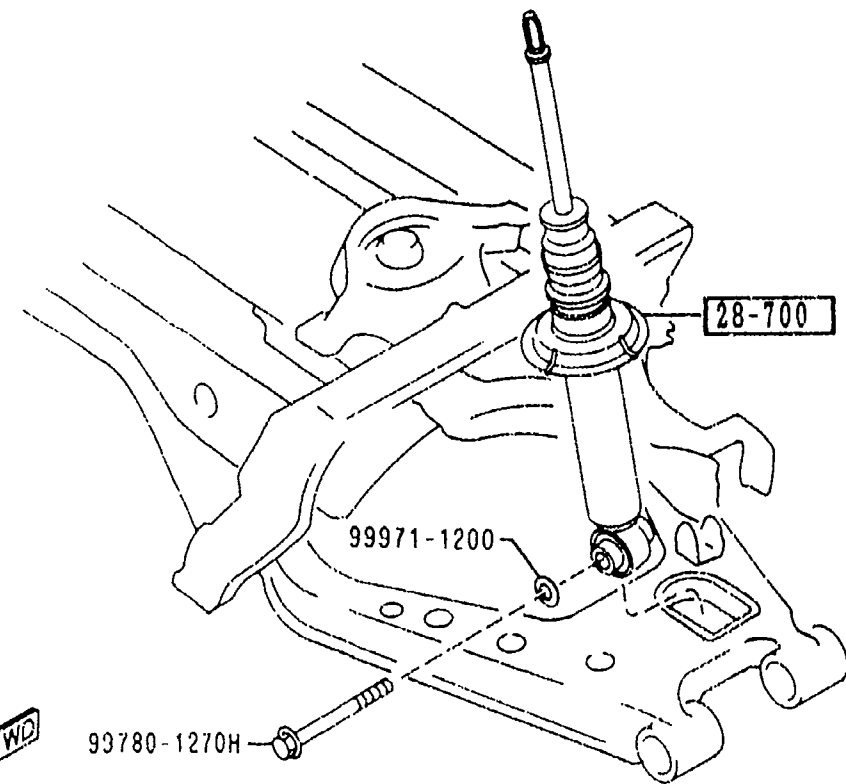
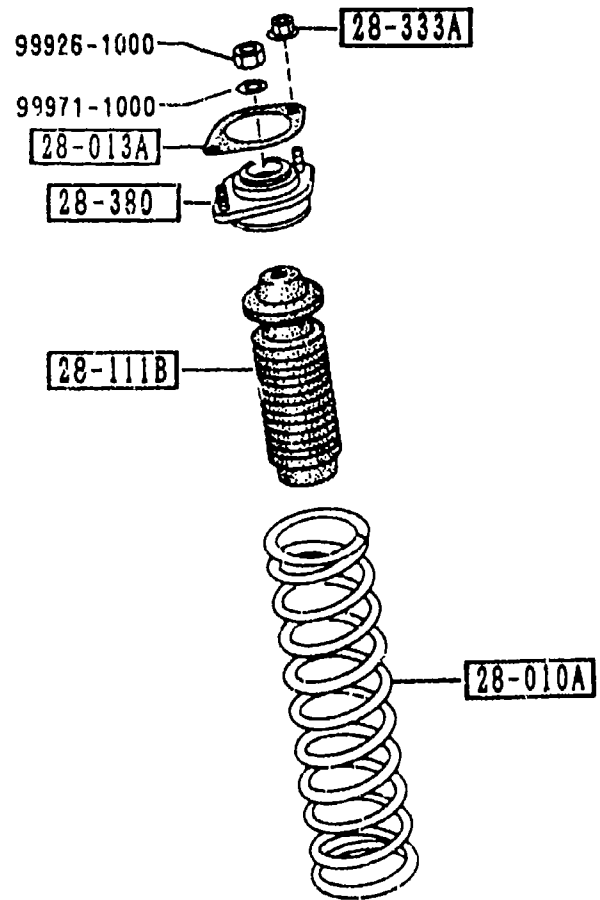
2710 A REAR DIFFERENTIALS
(LIMITED SLIP DIFF.)

2710 A-4 * REAR DIFFERENTIALS
(LIMITED SLIP DIFF.)



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
0223-27-433	1	T=3.425MM			5301-
0223-27-434	1	T=3.455MM			5301-
27-431		SPACER			
PA01-27-431	1				
27-600		CASING, DIFFERENTIAL			
MA02-27-600 AN(MA02-27-600A)	1				-5201
MA02-27-600A	1				5201-
27-604		BOLT, CARRIER			
M053-27-604	1	(ILLUST. NO.1)			
M053-27-605	1	(ILLUST. NO.2)			
27-609		PLATE, BAFFLE-DIFF CASING			
MOA1-27-609A	1				
28-890A		RUBBER, SUB FRAME MTO			
NA01-28-890	2				

5201 NA35* -614193
5301 NA35* -616742

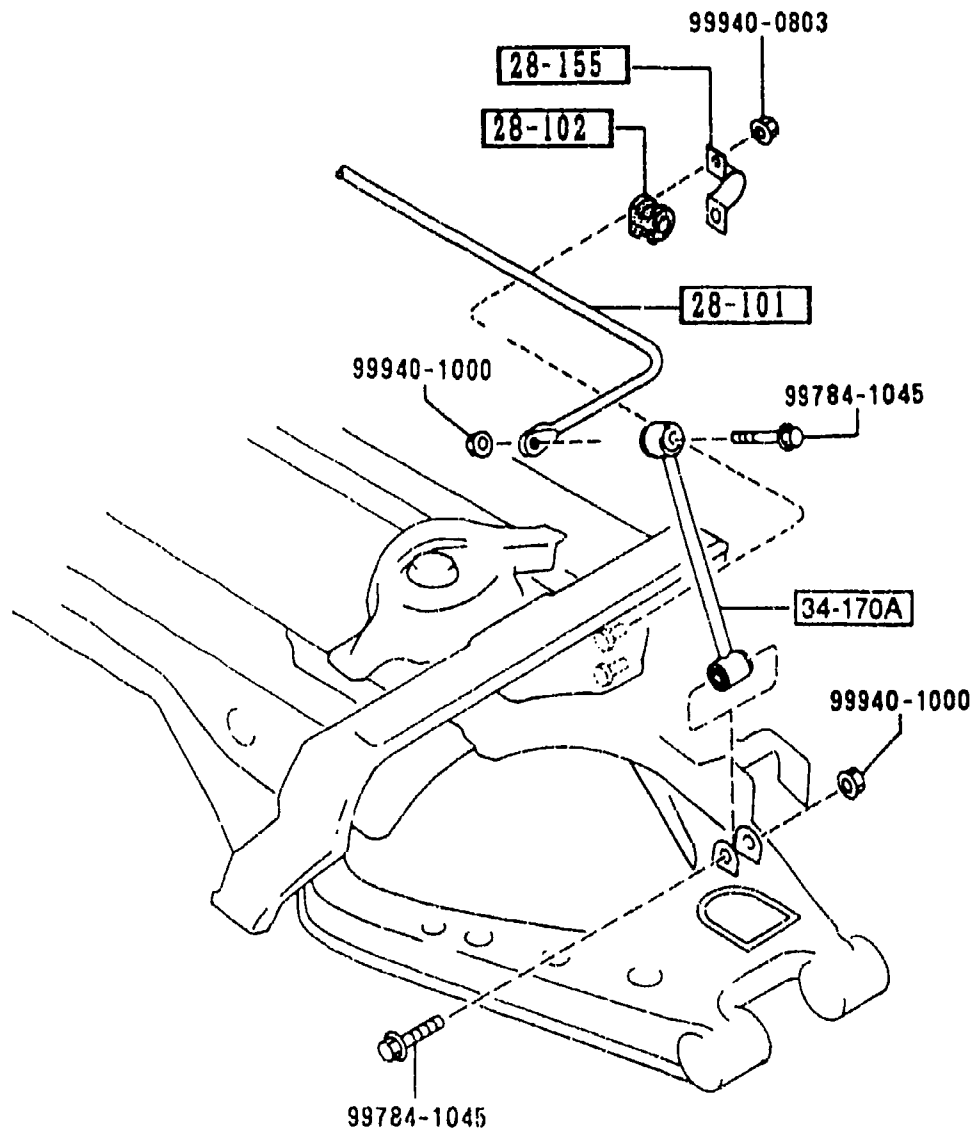


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
↑-----↑ | 28-010A | ↑-----↑		SPRING, COIL-REAR			
NA01-28-011C	2	((EXC. BILSTEIN DAMP.) >>(MT))			
NA03-28-011A	2	((EXC. BILSTEIN DAMP.) >>(AT))			
N021-28-011	2	(BILSTEIN DAMP.)			
↑-----↑ | 28-013A | ↑-----↑		SHEET, RUBBER			
G030-28-013A	2				
↑-----↑ | 28-111B | ↑-----↑		STOPPER, BUMP			
NA01-28-111	2	(EXC. BILSTEIN DAMP.)			
N021-34-111	2	(BILSTEIN DAMP.)			
↑-----↑ | 28-333A | ↑-----↑		NUT, FLANGE			
H001-28-333	4				
↑-----↑ | 28-380 | ↑-----↑		RUBBER, MOUNTING			
NA01-28-380B	2				
↑-----↑ | 28-700 | ↑-----↑		DAMPER, REAR			
N018-28-700B	2	(EXC. BILSTEIN DAMP.)			
N023-28-700A A (N023-28-700B)	2	(BILSTEIN DAMP.)			-5804
N023-28-700B	2	(BILSTEIN DAMP.)			5804-

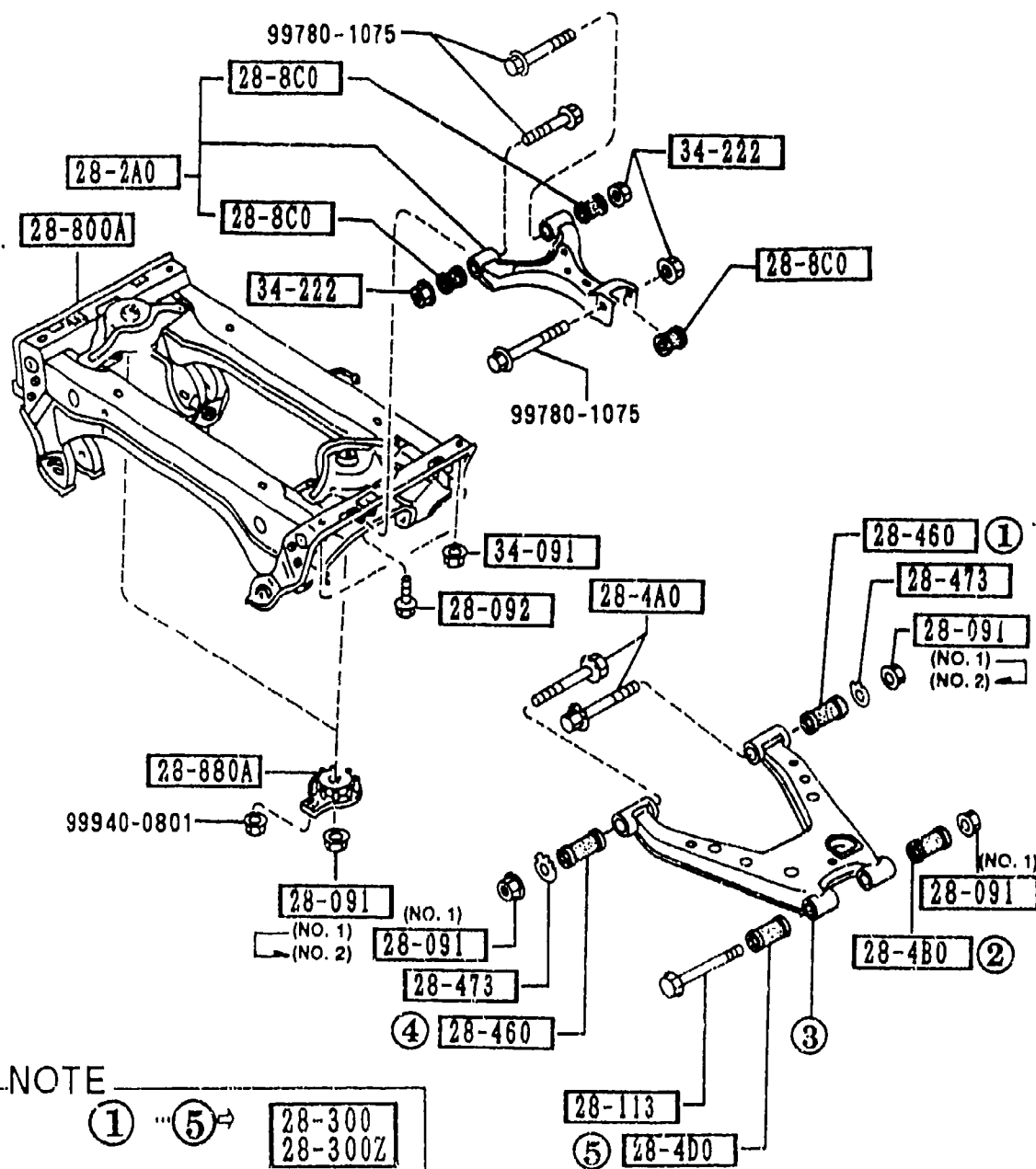
5804 NA3** -701237

2810 REAR STABILIZER

2810 -1 * REAR STABILIZER



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
28-101		STABILIZER,RR			
N023-28-151	1				
28-102		BUSH,STABILIZER-RR			
N023-28-156	2				
28-155		PLATE,STABILIZER-RR			
FB01-28-155	2				
34-170A		LINK,CONTROL-STAB			
NA01-34-170	2				

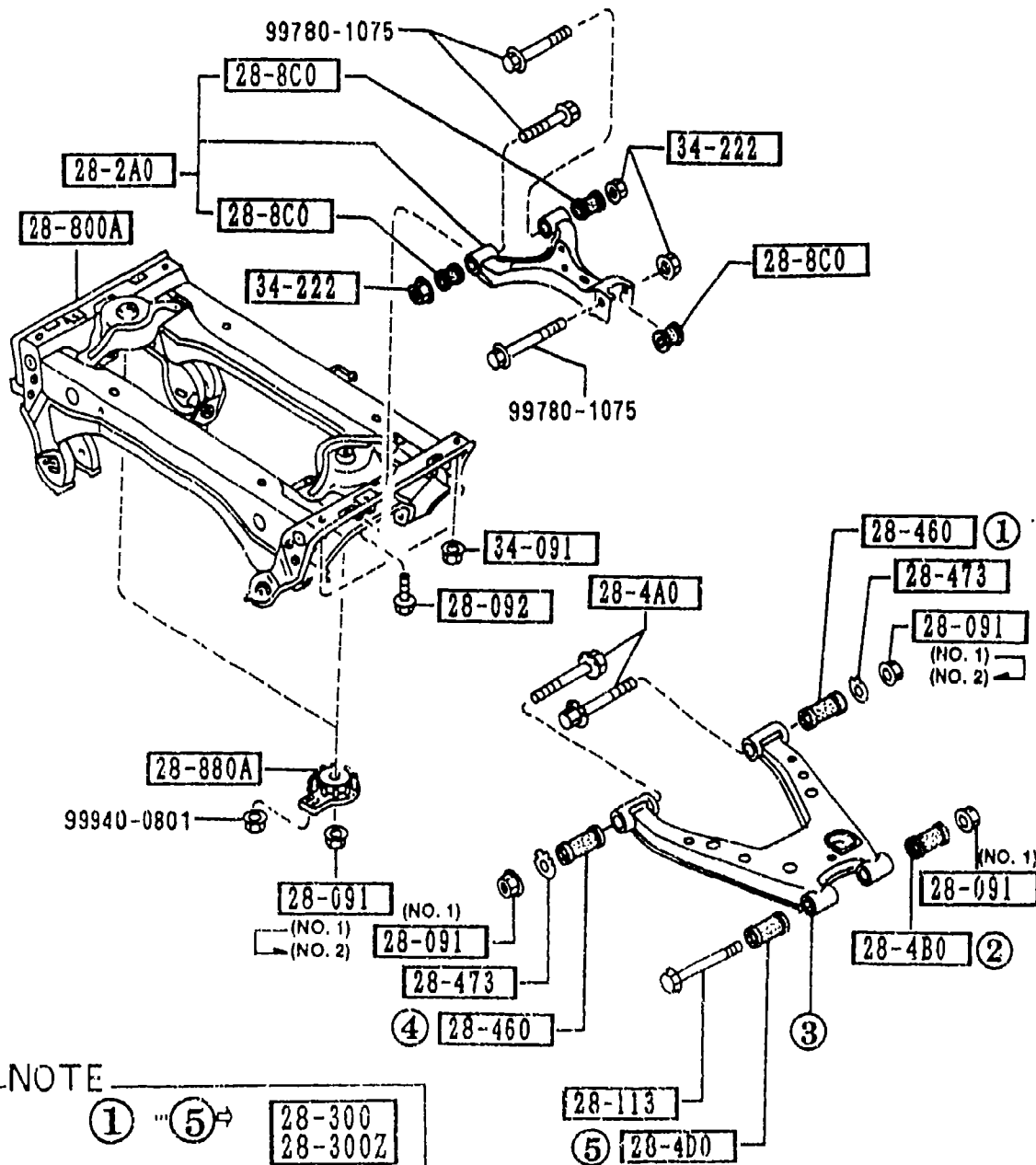


NOTE
 ① ... ⑤ → 28-300
 28-300Z
 THE D-CODE OF 28-300
 28-300Z CONSISTS OF
 FIGURE NUMBERS ① THROUGH ⑤.



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
28-091		NUT			
B037-28-091	8	(ILLUST. NO.1)			-6401
B037-28-091	4	(ILLUST. NO.1)			6401-
B001-39-037B	4	(ILLUST. NO.2)			6401-
28-092		BOLT, CONTROL LINK			
NA01-28-092	2				
28-113		BOLT			
NA01-28-113	2				
28-2A0		ARM, UPPER-REAR			
NA01-28-2A0B	2				
28-300		ARM(R), LOWER-REAR			
NA01-28-300	1				
28-300Z		ARM(L), LOWER-REAR			
NA01-28-350	1				
28-460		BOLT, ADJUST			
28-4A0					
NA01-28-4A0	4				
28-4B0		BUSHING, RUBBER-LOWER ARM			
NA01-28-4B0	2				
28-4D0		BUSHING, RUBBER-LOWER ARM			
NA01-28-4D0	2				
28-460		BUSHING, LOWER ARM			
NA01-28-460	4				
28-473		PLATE, CAM-SUB FRAME			
NA01-28-473	4				
*NA80-28-473	4				-6401
28-8C0		BUSHING, RUBBER			6401-
NA01-28-8C0B	6				
28-800A		MEMBER, CROSS			

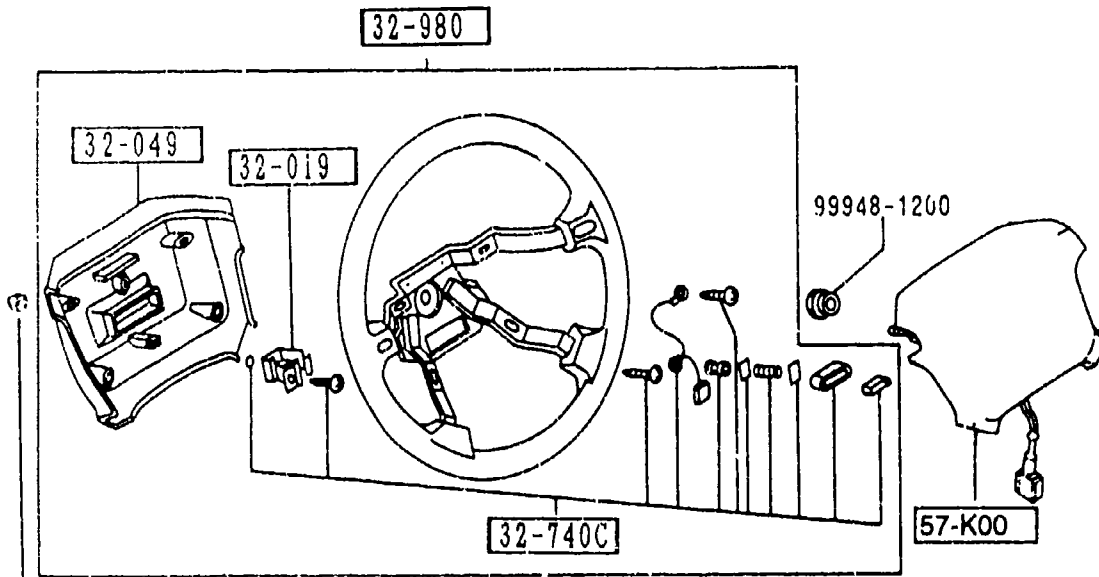
6401 NA3** -717787



NOTE
 ① ... ⑤ → 28-300
 28-300Z
 THE D-CODE OF 28-300
 28-300Z CONSISTS OF
 FIGURE NUMBERS ① THROUGH ⑤



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D NA75-28-800	1				
+-----+ | 28-880A | +-----+		WASHER, STOP			
NA01-28-880B	2				
+-----+ | 34-091 | +-----+		NUT			
FB01-34-091	4				
+-----+ | 34-222 | +-----+		NUT			
8871-34-222	6				

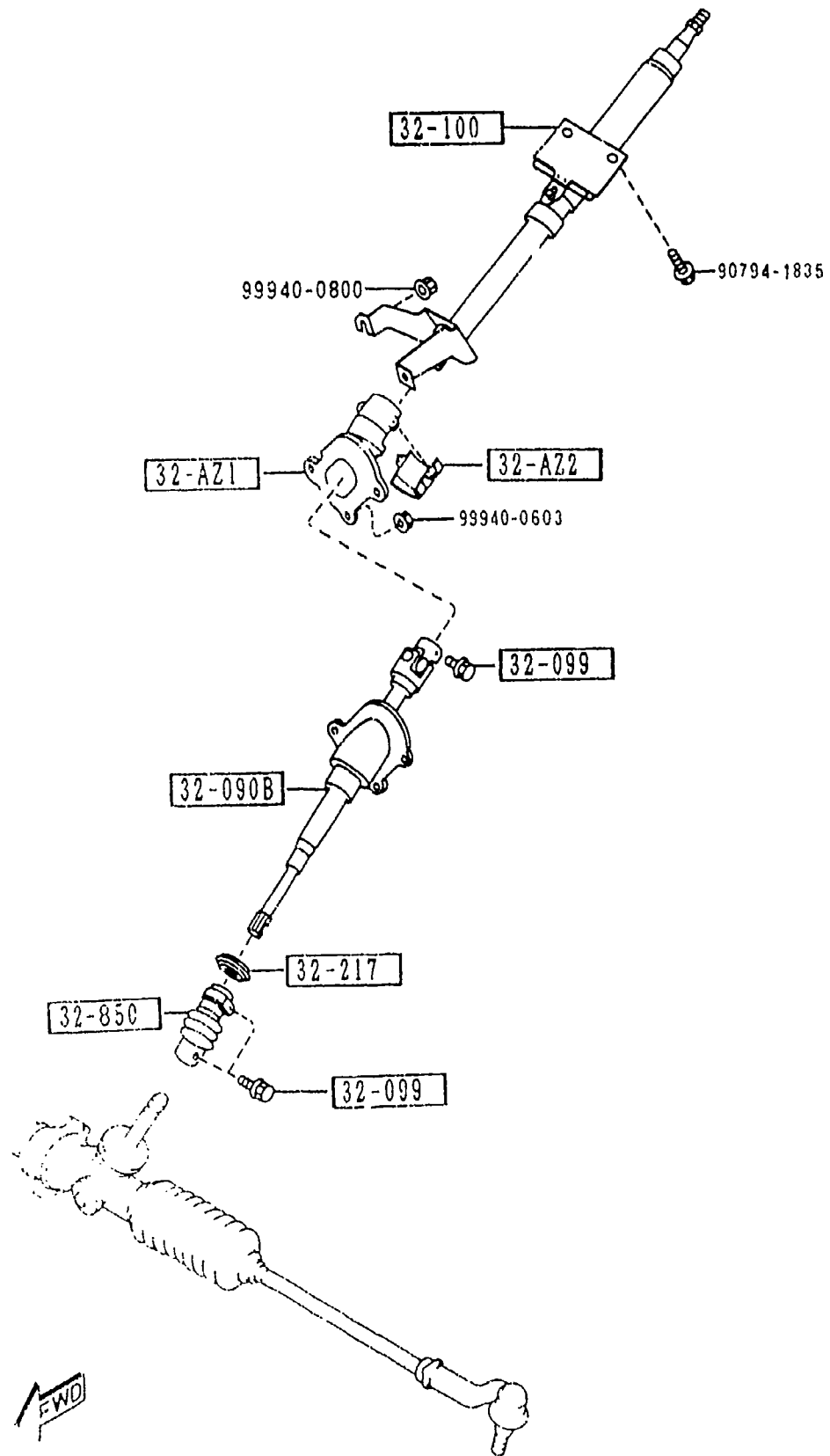


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
32-019		BRACKET, COUPLER			
NA01-32-019	1				
32-049		COVER, WHEEL CORE			
NA01-32-049	1				
32-740C		PARTS SET, ST. WHEEL			
NA01-32-750	1				
32-980		BOSS, STEERING WHEEL			
NA01-32-980C	1	BASE, R-PKG, (URETHANE) ('95 MODEL)			
NA01-32-980D	1	BASE, R-PKG, (URETHANE) ('96 MODEL)			
NA02-32-980C	1	M-25-ED, P.E.GR, L-P KG, PKG-A, PKG-B, PK G-C, PKG-C, PKG-B, (LEATHER) ('95 MODEL)			
NA02-32-980D	1	M-25-ED, P.E.GR, L-P KG, PKG-A, PKG-B, PK G-C, PKG-C, PKG-B, (LEATHER) ('96 MODEL)			
57-K00		MODULE, AIR BAG			
NB11-57-K00	1				
00	INT-	NA3 NA5 BLACK			

99940-0502

3210 STEERING COLUMN & SHAFTS

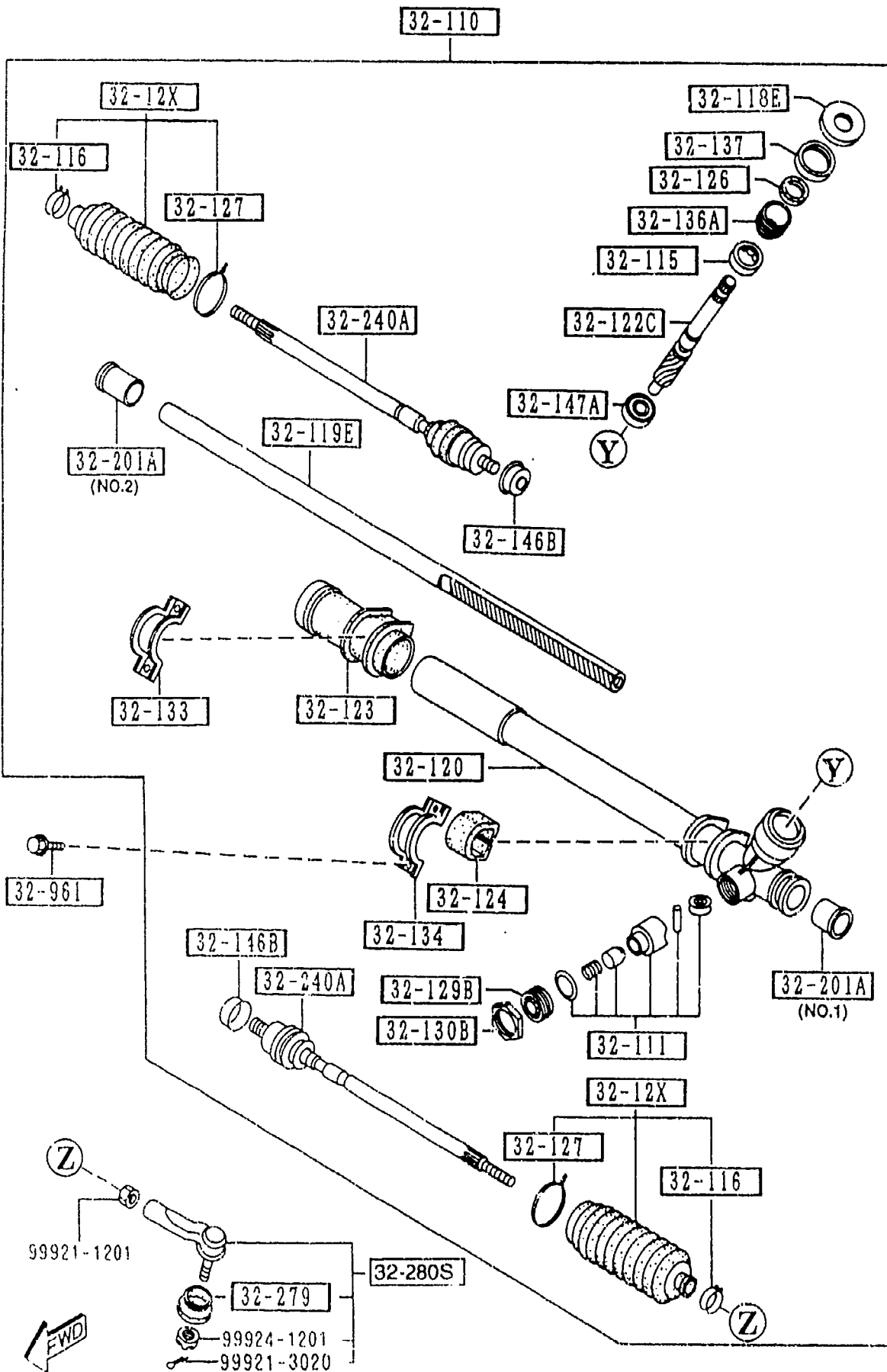
3210 -1 * STEERING COLUMN & SHAFTS



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
32-AZ1		COVER, JOINT-UPPER			
NA75-32-AZ1	1				
32-AZ2		COVER, JOINT-LOWER			
NA01-32-AZ2A	1				
32-090B		SHAFT, INTERMED.			
NA01-32-090C	1	BASE, R-PKG, (W/O POWER STEERING)			
NA02-32-090C	1	M-25-ED, P.E.GR, L-P KG, PKG-A, PKG-B, PK G-C, (W/POWER STEERING)			
32-099		BOLT, SHAFT			
B455-32-099	3				
32-100		SHAFT, ENGY. ABSORBER			
NA75-32-100A	1				
32-217		GROMMET			
NA01-32-217	1				
32-850		JOINT, STEERING			
NA01-32-850A	1				
*NA01-32-850B	1				

-6301
6301-

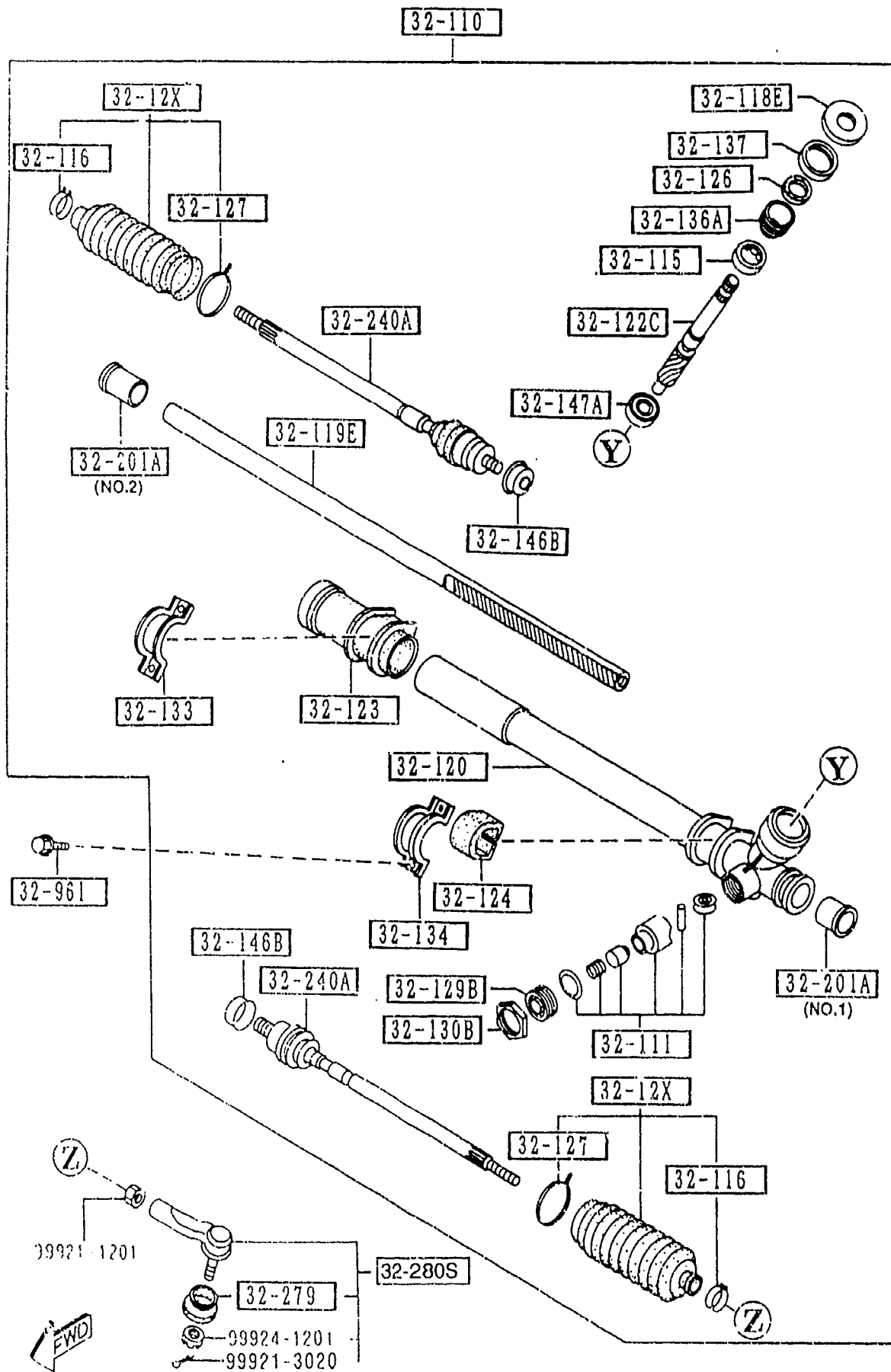
6301 NA3** -714662



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
32-110	1	GEAR, STEERING			
NA01-32-110	1				
32-111	1	YOKE, SUPPORT			
GJ21-32-111	1				
32-115	1	BEARING, ST. GEAR			
G030-32-115	1				
32-116	2	CLIP, SEAL			
BF67-32-116	2				
32-118E	1	COVER, DUST-ST. GEAR			
NA01-32-118	1				
32-119E	1	RACK, STEERING GEAR			
NA01-32-119	1				
32-12X	2	BOOT SET, ST. GEAR			
NA01-32-12X	2				
32-120	1	HOUSING, GEAR			
NA01-32-120	1				
32-122C	1	PINION, STEERING GEAR			
NA01-32-122	1				
32-123	1	RUBBER, MOUNTING			
NA01-32-123	1				
32-124	1	RUBBER, MOUNTING			
NA01-32-124	1				
32-126	1	SEAL, SHAFT			
G030-32-126	1				
32-127	2	CLIP, WIRE			
G030-32-127	2				
32-129B	1	PLUG, PINION			
HE01-32-129	1				

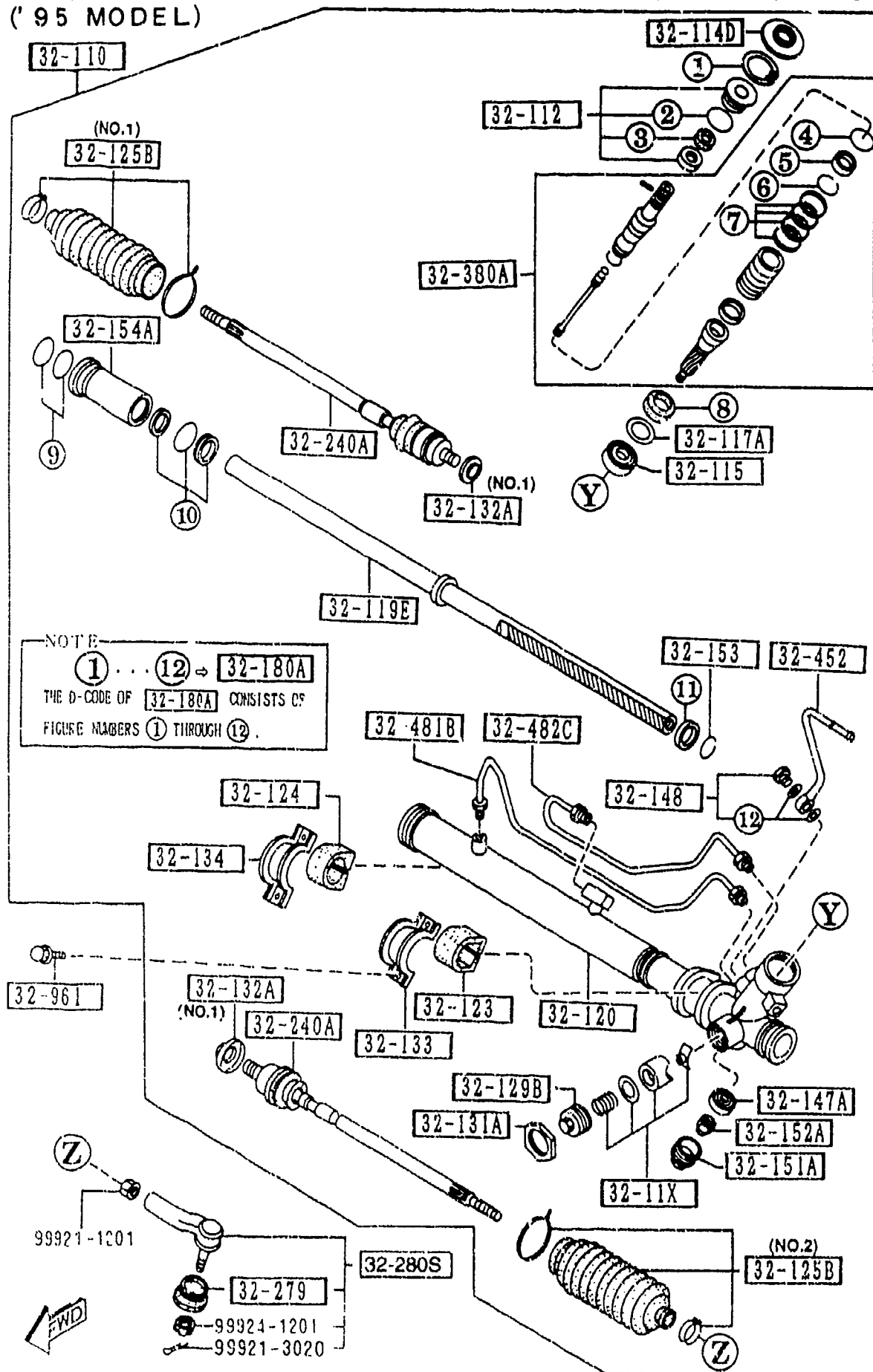
3220 STEERING GEAR
(W/O POWER STEERING)

3220 -2 * STEERING GEAR
(W/O POWER STEERING)



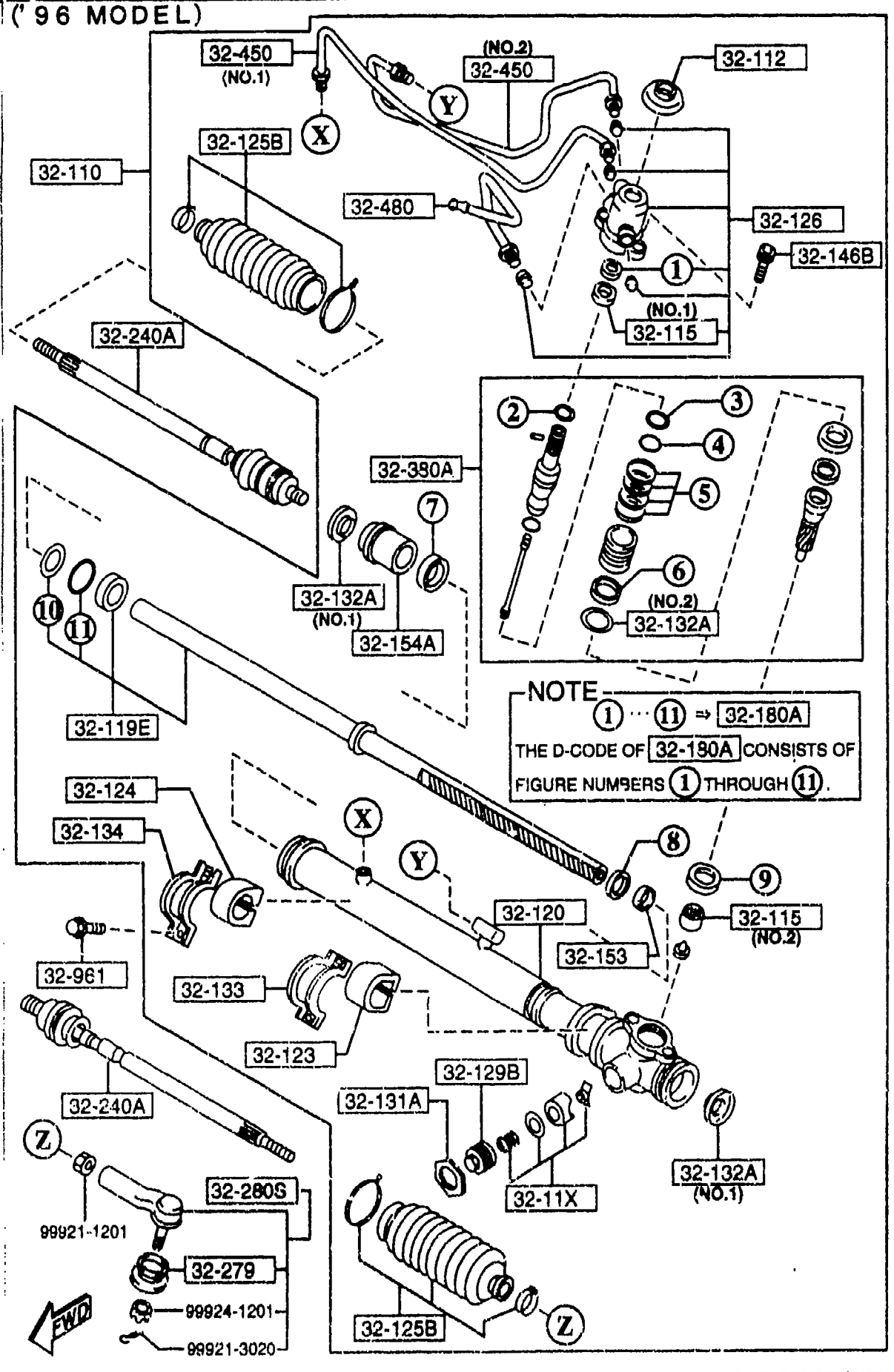
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
32-130B		NUT, LOCK			
S083-32-137	1				
32-133		PLATE, CLAMP			
BC51-32-133	1				
32-134		PLATE, CLAMP			
NA01-32-134	1				
32-136A		COVER, REAR			
G030-32-136	1				
32-137		NUT, LOCK			
S030-32-137	1				
32-146B		WASHER			
HA14-32-146	2				
32-147A		BEARING, PINION			
G030-32-147	1				
32-201A		BUSHING, RACK-ST. GEAR			
HE01-32-201	1	(ILLUST. NO.1)			
HE09-32-201	1	(ILLUST. NO.2)			
32-240A		JOINT, BALL			
NA01-32-240	2				
32-279		SEAL, DUST-BALL JOINT			
B455-32-279	2				
32-280S		JOINT SET, BALL			
BAN1-32-280	2				
32-961		BOLT			
G030-32-961	4				

('95 MODEL)



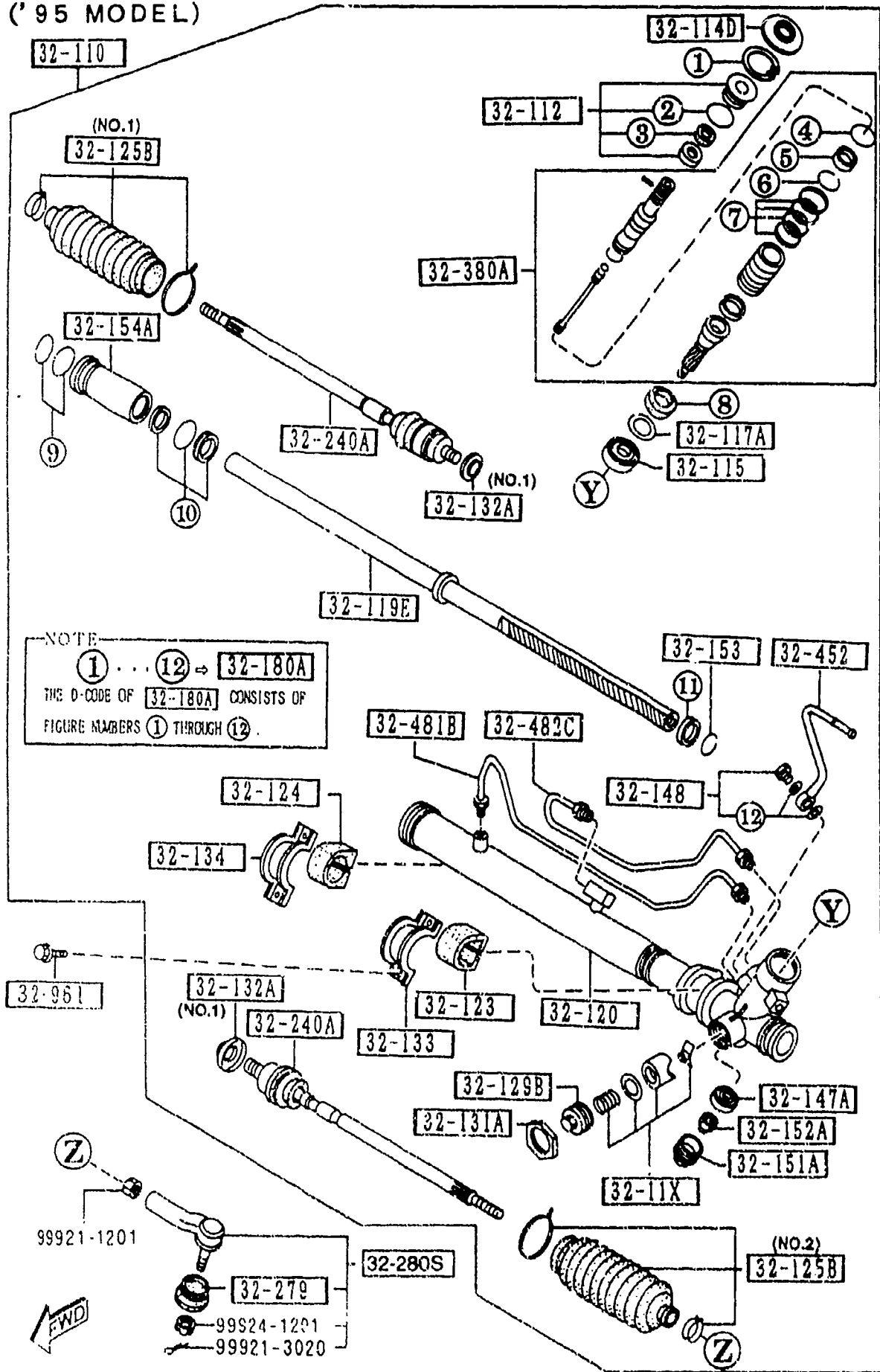
AUNA05

('96 MODEL)



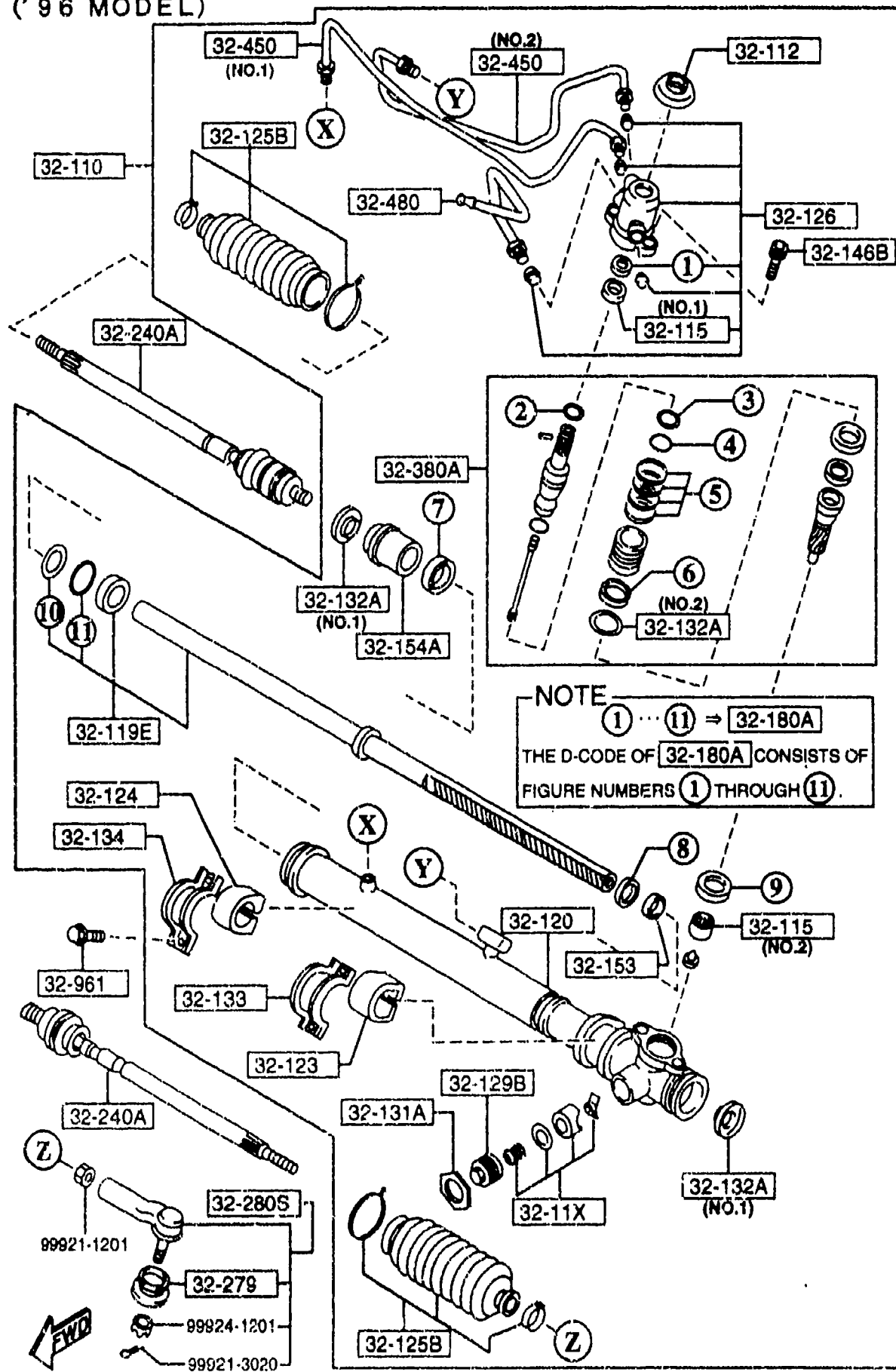
AUNA05

('95 MODEL)



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
32-11X		YOKE SET, SUPPORT-ST. GEAR			
NA02-32-11X	1				
32-110		GEAR, STEERING			
NA02-32-110	1	('95 MODEL)			
NB38-32-110R	1	('96 MODEL)			
32-112		COVER, DUST			
NA02-32-112	1	('95 MODEL)			
NB38-32-112	1	('96 MODEL)			
32-114D		COVER, DUST-ST. GEAR			
NA02-32-114	1	('95 MODEL)			
32-115		BEARING, ST. GEAR			
NA02-32-115	1	('95 MODEL)			
NB38-32-115	1	(ILLUST. NO. 1) ('96 MODEL)			
NB39-32-115	1	(ILLUST. NO. 2) ('96 MODEL)			
32-117A		SPACER, STEERING GEAR			
NA02-32-121	1	('95 MODEL)			
32-119E		RACK, STEERING GEAR			
NA02-32-119	1	('95 MODEL)			
NB38-32-119	1	('96 MODEL)			
32-120		HOUSING, GEAR			
NA02-32-120	1	('95 MODEL)			
NB38-32-120	1	('96 MODEL)			
32-123		RUBBER, MOUNTING			
NA02-32-123	1				
32-124		RUBBER, MOUNTING			
NA02-32-124	1				
32-125B		BOOT, RACK			
NA02-32-125	1	(ILLUST. NO. 1) ('95 MODEL)			

('96 MODEL)



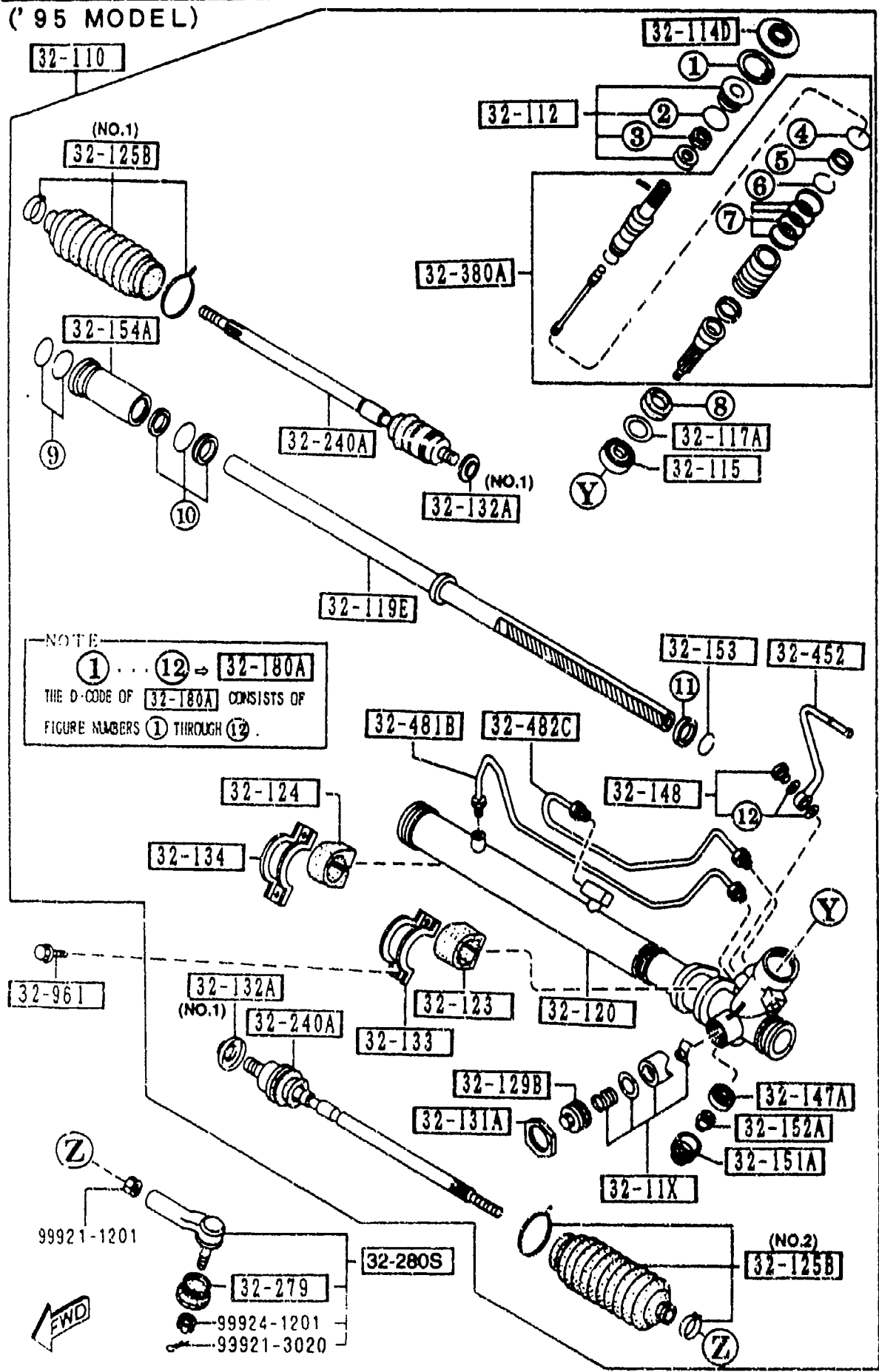
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
NB38-32-125	2	('96 MODEL)			
NA02-32-135	1	(ILLUST. NO.2) ('95 MODEL)			
32-126		SEAL, SHAFT			
NB38-32-126	1	('96 MODEL)			
32-129B		PLUG, PINION			
NA02-32-129	1				
32-131A		NUT, LOCK-RACK			
NA02-32-131	1				
32-132A		WASHER			
NA02-32-126	2	(ILLUST. NO.1)			
NB38-32-132	1	(ILLUST. NO.2) ('96 MODEL)			
32-133		PLATE, CLAMP			
NA02-32-133	1	('95 MODEL)			
NB38-32-133	1	('96 MODEL)			
32-134		PLATE, CLAMP			
D002-32-134	1	('96 MODEL)			
NA02-32-134	1	('95 MODEL)			
32-146B		WASHER			
NB38-32-146	2	('96 MODEL)			
32-147A		BEARING, PINION			
NA02-32-147	1	('95 MODEL)			
32-148		EYE BOLT KIT, ST. GEAR			
D002-32-148	1	('95 MODEL)			
32-151A		PLUG, PINION-ST. GEAR			
NA02-32-151	1	('95 MODEL)			
32-152A		NUT, ADJUST			
NA02-32-152	1	('95 MODEL)			

3220 A STEERING GEAR
(W/ POWER STEERING)

(1/2)

3220 A-3 STEERING GEAR
(W/POWER STEERING)

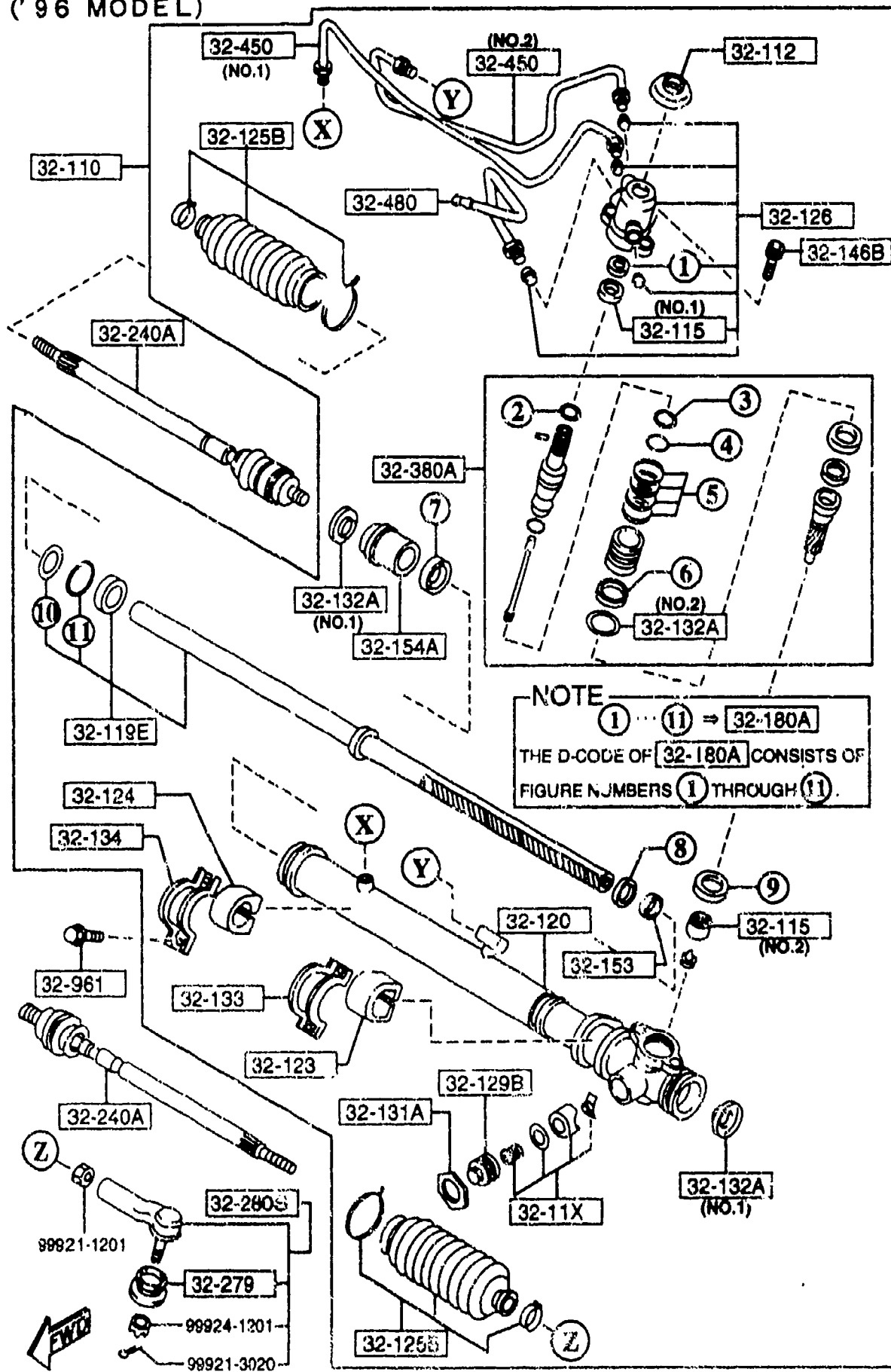
('95 MODEL)



NOTE
① ... ⑫ → 32-180A
THE D-CODE OF 32-180A CONSISTS OF
FIGURE NUMBERS ① THROUGH ⑫.

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
32-153		RING, BACK UP			
NA02-32-153	1				
32-154A		HOLDER, STEERING GEAR			
NA02-32-154	1	('95 MODEL)			
NB38-32-154	1	('96 MODEL)			
32-180A		SEAL KIT, ST. GEAR			
NA02-32-180	1	('95 MODEL)			
NB38-32-180	1	('96 MODEL)			
32-240A		JOINT, BALL			
NA02-32-240	2				
32-279		SEAL, DUST-BALL JOINT			
B455-32-279	2				
32-280S		JOINT SET, BALL			
8AN1-32-280	2				
32-380A		VALVE, ST. GEAR			
NA02-32-380	1	('95 MODEL)			
NB38-32-380	1	('96 MODEL)			
32-450		PIPE, PRESSURE			
NB38-32-450	1	(ILLUST. NO.1) ('96 MODEL)			
NB39-32-450	1	(ILLUST. NO.2) ('96 MODEL)			
32-452		PIPE 'B', ST. GEAR			
NA02-32-452	1	('95 MODEL)			
32-480		PIPE, RETURN			
NB38-32-480A	1	('96 MODEL)			
32-481B		PIPE 'A', CYLINDER			
NA02-32-481	1	('95 MODEL)			
32-482C		PIPE 'B', CYLINDER			
NA02-32-482	1	('95 MODEL)			

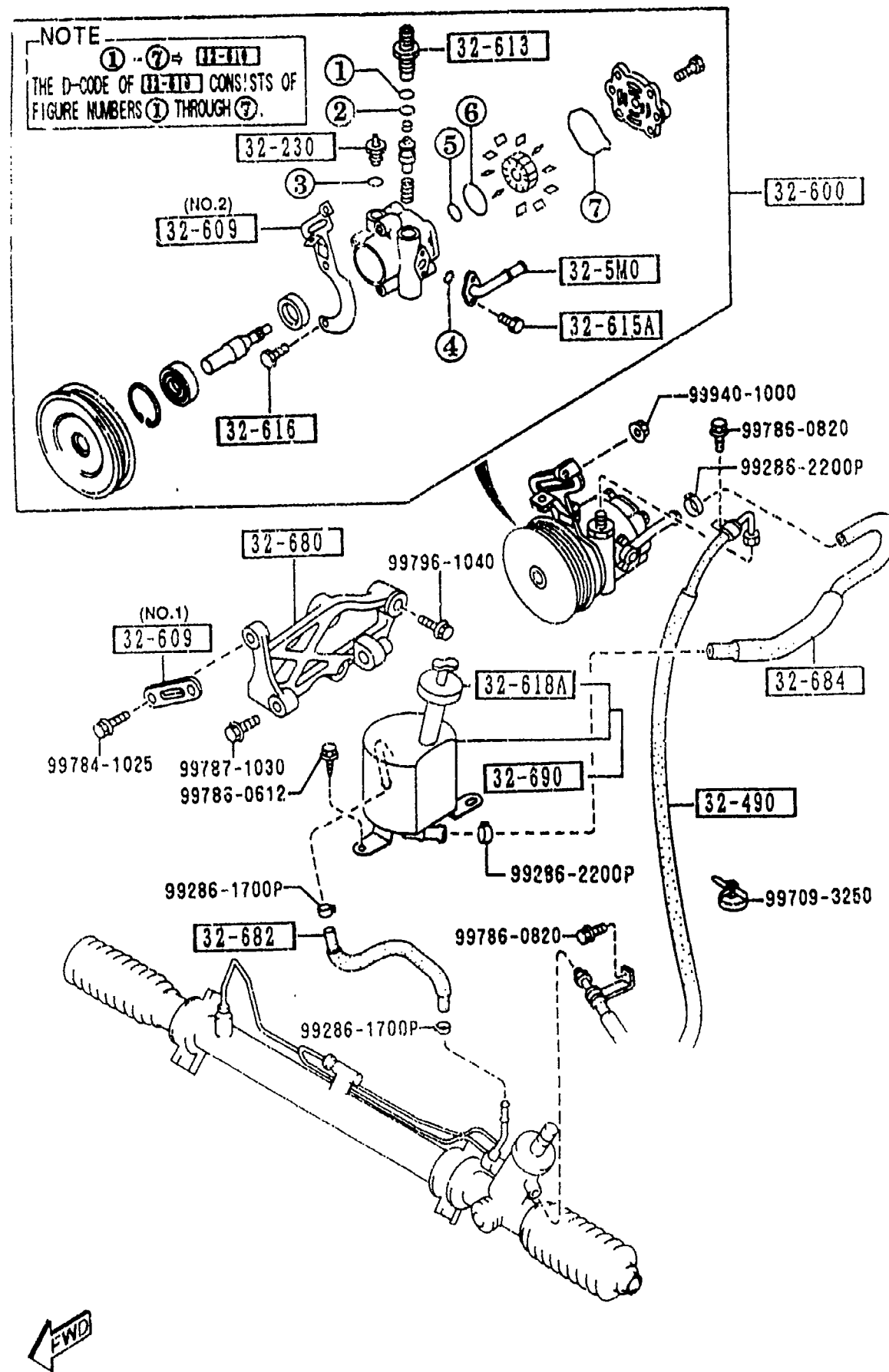
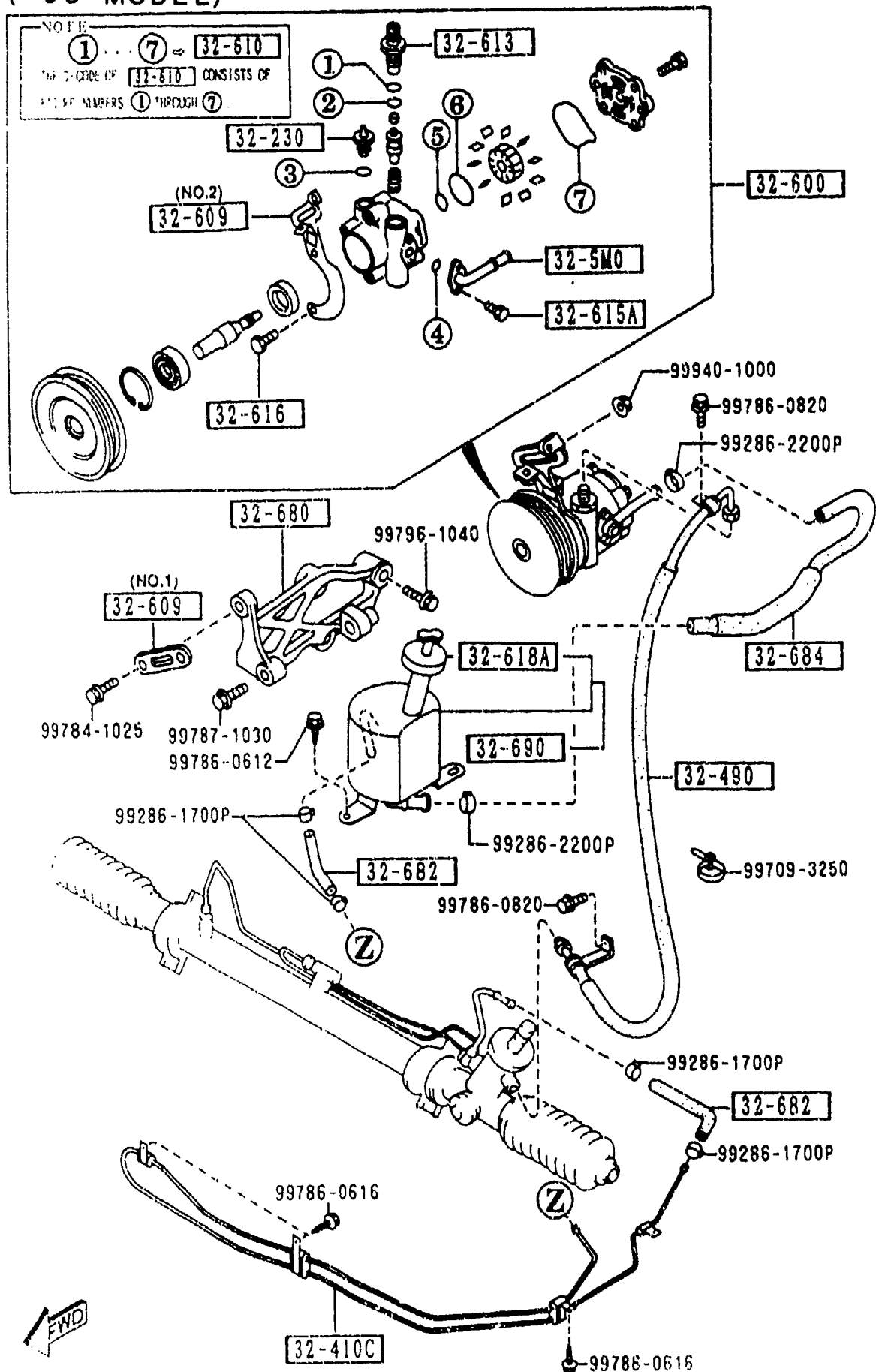
('96 MODEL)



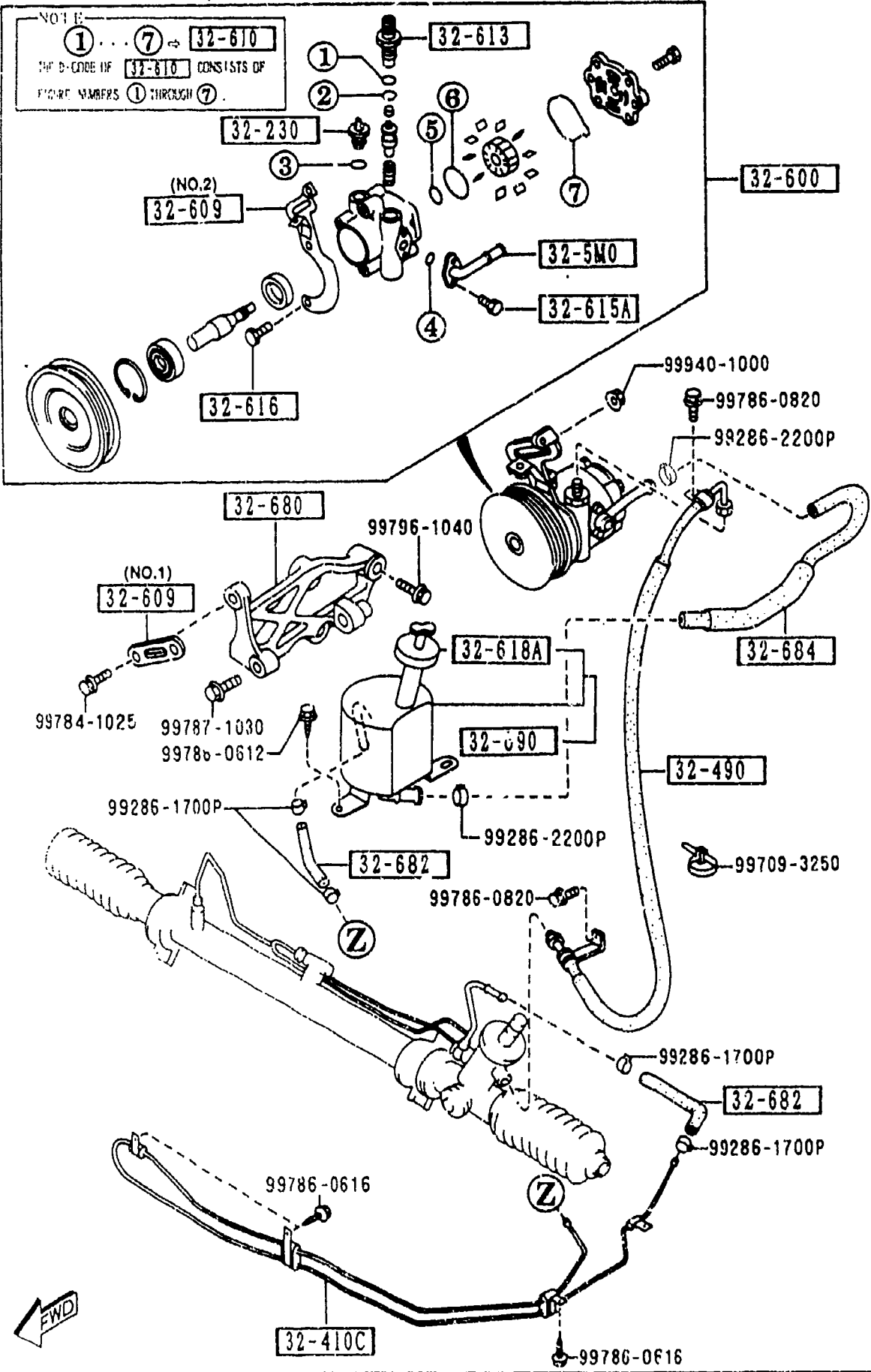
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
32-961		BOLT			
6030-32-961	4				

(95 MODEL)

(96 MODEL)



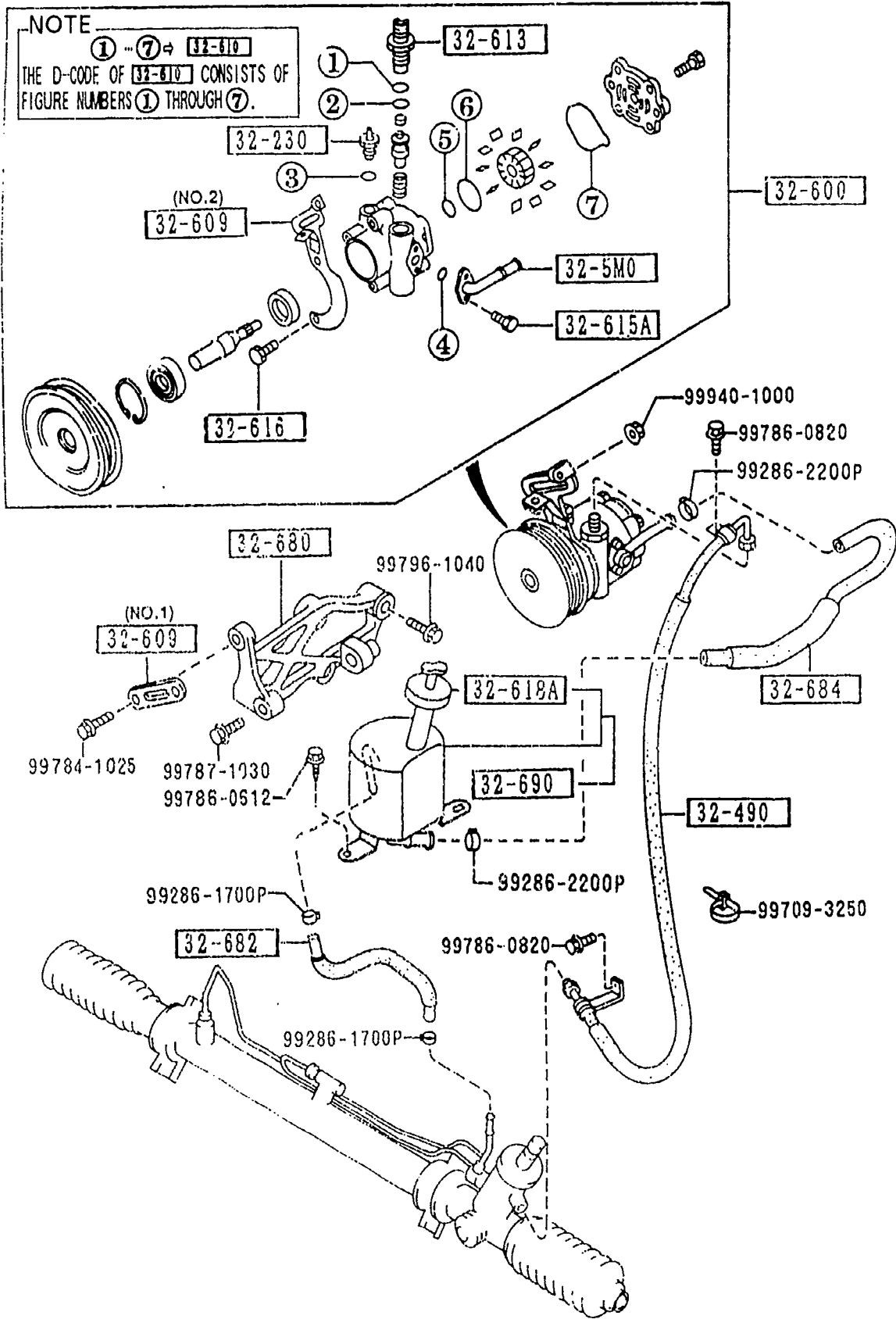
('95 MODEL)



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
32-230		SENSOR, STEERING PRES SURE			-5901
B456-32-230	1				5901-
B456-32-230A	1				
32-410C		PIPE, RETURN			
NA02-32-410A	1	('95 MODEL)			
32-490		HOSE, PRESSURE			
NA02-32-490C	1				
32-5M0		PIPE, SUCTION			
N002-32-5M0	1				-5901
N002-32-5M0A	1				5901-
32-600		PUMP, VANE			
N002-32-600B	1				-5901
AI (N002-32-600D)					
N002-32-600D	1				5901-
32-609		BRACKET, VANE PUMP			
NA02-32-609	1	KUROISHI TEKKO (ILLUST. NO.1)			
N002-32-609	1	NIHON POWER STEERING (ILLUST. NO.2)			
32-610		SEAL KIT, VANE PUMP			
N002-32-610	1				-5901
N002-32-610A	1				5901-
32-613		NIPPLE, VANE PUMP			
N002-32-613	1				
32-615A		BOLT			
B456-32-615	2				
32-616		BOLT, VANE PUMP			
B456-32-616	2				
32-618A		CAP, VANE PUMP TANK			
NA02-32-691	1				

5901 NA3** -702989

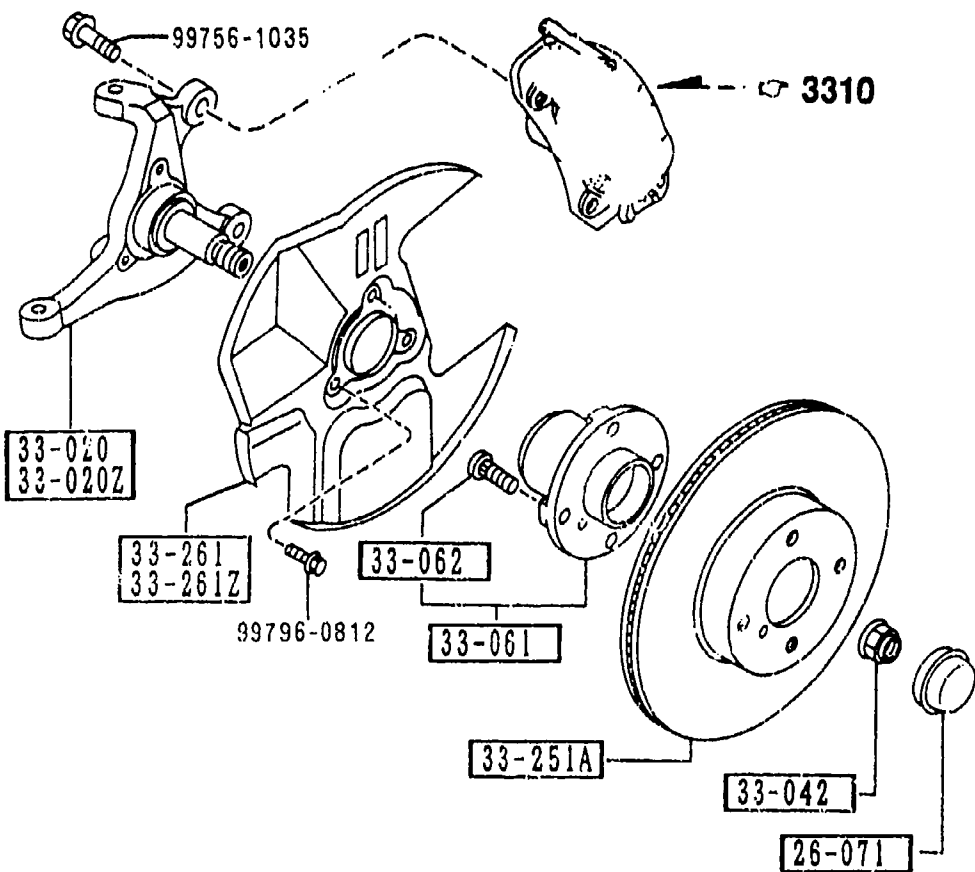
('96 MODEL)



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
32-680		BRACKET, VANE PUMP			
NA02-32-680	1				
32-682		HOSE, RETURN			
NA02-32-682	2	('95 MODEL)			
NB11-32-682	1	('96 MODEL)			
32-684		HOSE, RETURN			
NA02-32-684B	1				
32-690		TANK, VANE PUMP			
NA02-32-690A	1	('95 MODEL)			
NB11-32-690	1	('96 MODEL)			

3300 FRONT AXLE
(W/O ANTILOCK BRAKE)

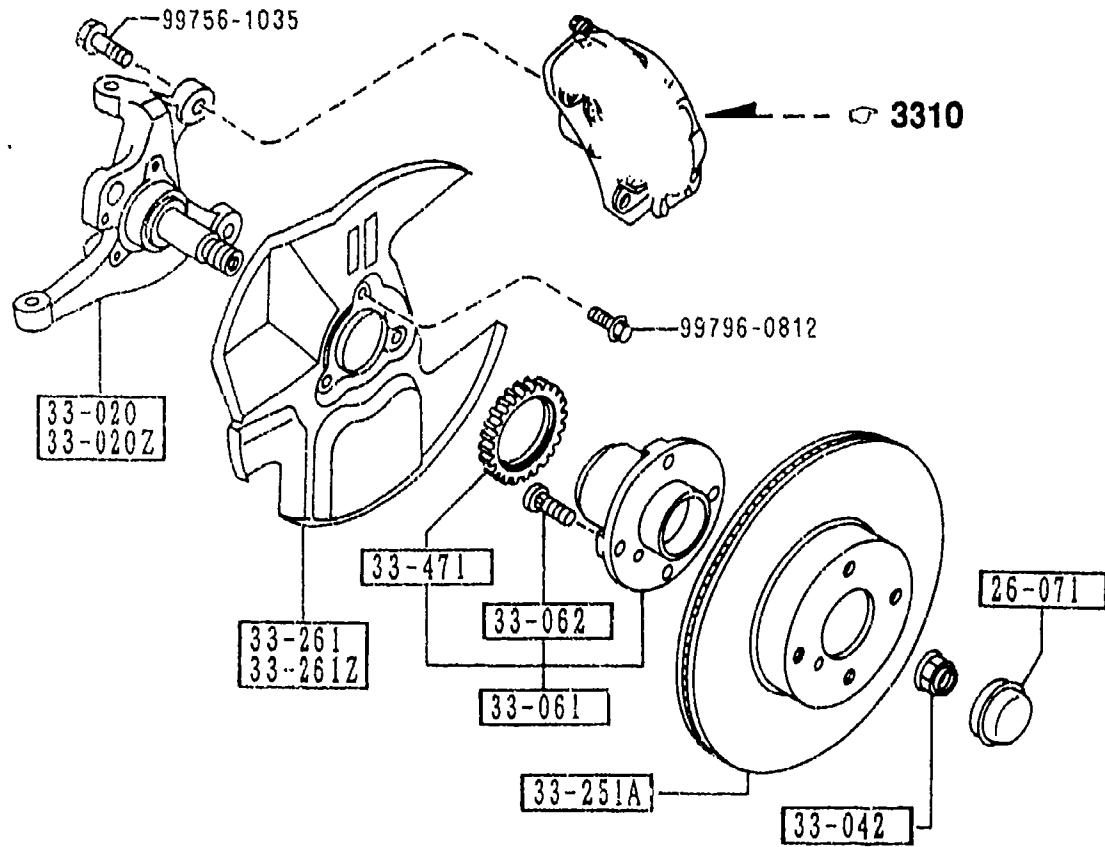
3300 -1 * FRONT AXLE
(W/O ANTILOCK BRAKE)



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
26-071		CAP, HUB			
B455-26-071	2				
33-020		KNUCKLE(R), STEERING			
NA01-33-021B	1				
33-020Z		KNUCKLE(L), STEERING			
NA01-33-031B	1				
33-042		NUT			
D06Y-33-042	2	W/WASHER			
33-061		HUB, WHEEL			
NA01-33-04X	2				
33-062		BOLT, HUB			
B455-33-062	8				
33-251A		PLATE, DISC			
NA75-33-25X	2				
33-261		COVER(R), DUST			
NA75-33-261	1				
33-261Z		COVER(L), DUST			
NA75-33-271	1				

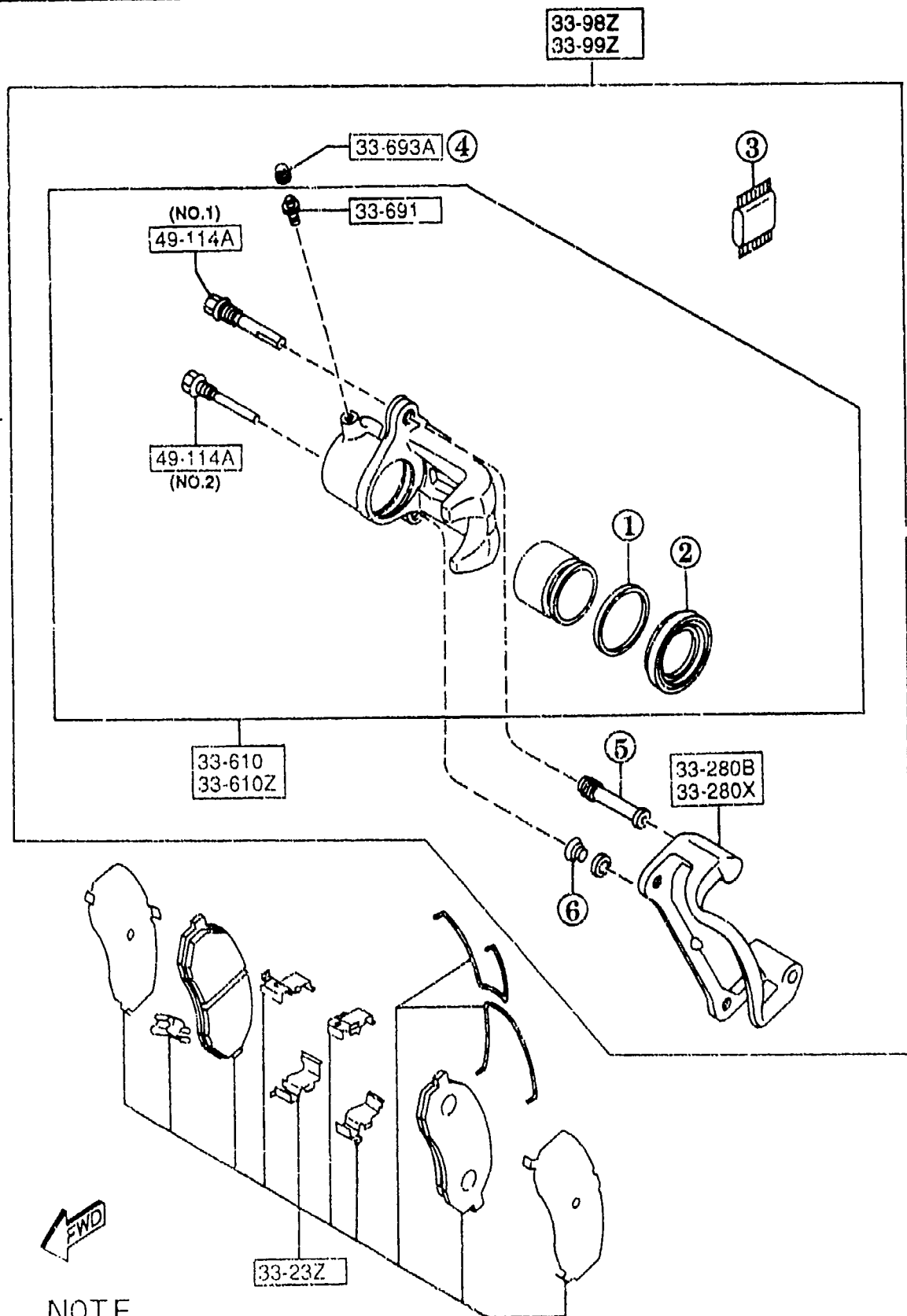
3300 A FRONT AXLE
(W/ANTILOCK BRAKE)

3300 A-1 * FRONT AXLE
(W/ANTILOCK BRAKE)



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
26-071		CAP, HUB			
B455-26-071	2				
33-020		KNUCKLE(R), STEERING			
NA23-33-021B	1				
33-020Z		KNUCKLE(L), STEERING			
NA23-33-031B	1				
33-042		NUT			
D06Y-33-042	2	W/WASHER			
33-061		HUB, WHEEL			
NA23-33-04XA	2				
33-062		BOLT, HUB			
B455-33-062	6				
33-251A		PLATE, DISC			
NA75-33-25X	2				
33-261		COVER(R), DUST			
NA75-33-261	1				
33-261Z		COVER(L), DUST			
NA75-33-271	1				
33-471		ROTOR, SENSOR-FRT A. B .S.			
NA23-33-471B	2				





NOTE
 ①...⑥ ⇒ 33-26Z
 THE D-CODE OF 33-26Z CONSISTS OF
 FIGURE NUMBERS ① THROUGH ⑥.

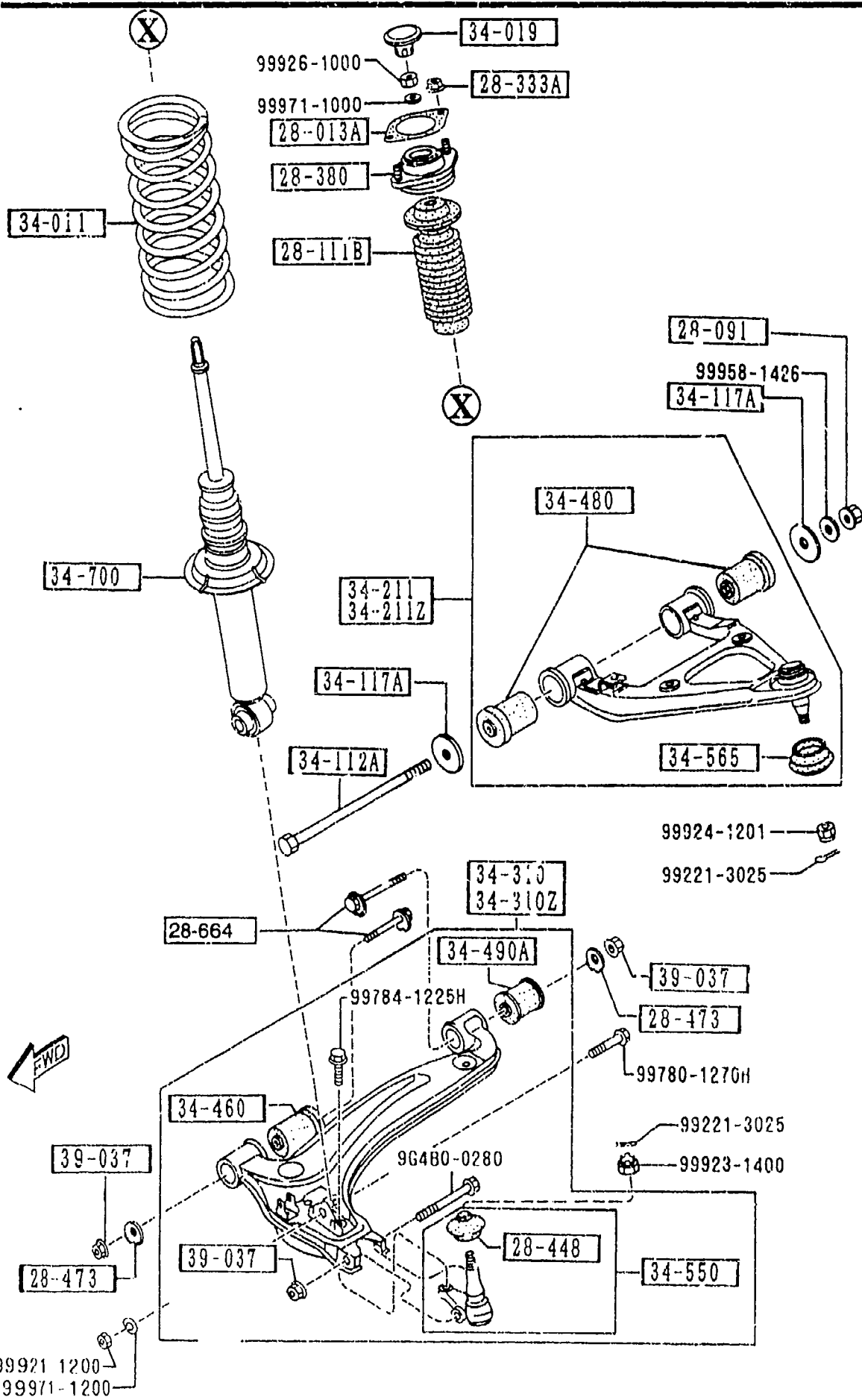
THOUGH ILLUSTRATIONS OF D-CODE 33-23Z
 AND 33-26Z ARE FOR LEFT SIDE ONLY,
 QUANTITIES OF THESE D-CODES IN THE
 TEXT ARE FOR ONE VEHICLE.

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
33-23Z NAY5-33-23Z AN(NAY5-33-23ZA)	1	PAD SET,FRT CALIPER			-5C01
*NAY5-33-23ZA	1				5C01-
33-26Z NAY5-33-26Z	1	SEAL & BOOT SET,CAL. -FRT			
33-280B NA75-33-281	1	SUPPORT(R),MOUNTING			
33-280X NA75-33-291	1	SUPPORT(L),MOUNTING			
33-610 NA75-33-61X	1	BODY & PISTON(R),CAL IPER			
33-610Z NA75-33-71X	1	BODY & PISTON(L),CAL IPER			
33-691 B001-33-691	2	SCREW,BLEEDER			
33-693A 0259-33-693	2	CAP,BLEEDER SCREW			
33-98Z *NAZ5-33-98Z	1	CALIPER(R),PADLESS-F R			
33-99Z *NAZ5-33-99Z	1	CALIPER(L),PADLESS-F R			
49-114A 8173-49-114	2 (ILLUST. NO.1)	PIN,SLIDER			
49-114A 8239-49-114	2 (ILLUST. NO.2)				

5C01 NA3** -706448

3400 FRONT SUSPENSION MECHANISMS

3400 -1 FRONT SUSPENSION MECHANISMS

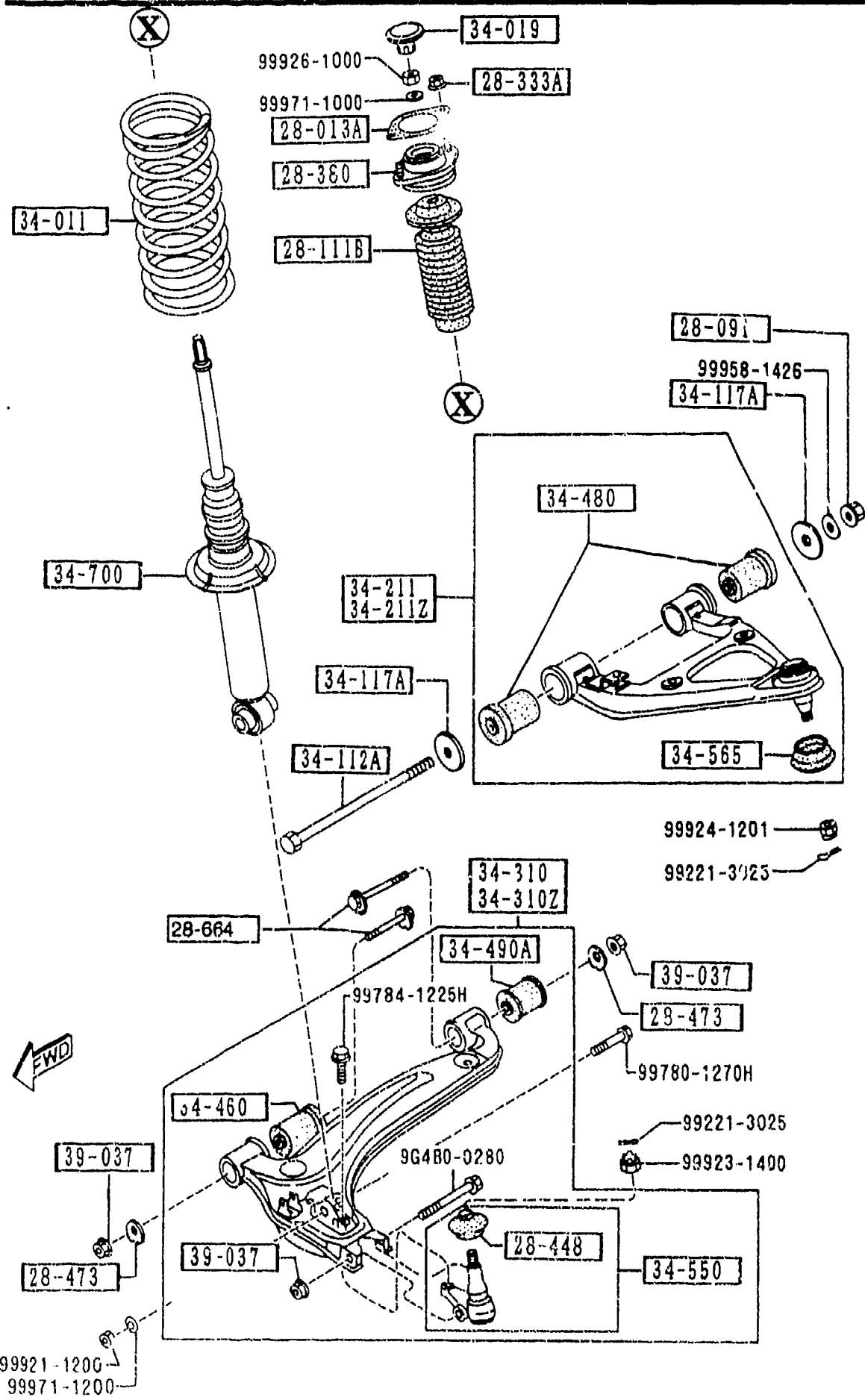


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
28-013A		SHEET, RUBBER			
G030-28-013A	2				
28-091		NUT			
FB01-28-091A	2				
28-111B		STOPPER, BUMP			
N021-34-111	2				
28-333A		NUT, FLANGE			
H001-28-333	4				
28-380		RUBBER, MOUNTING			
NA01-28-380B	2				
28-448		SEAL, DUST-BALL JOINT			
H266-28-448	2				
28-473		PLATE, CAM-SUB FRAME			
NA75-34-473	4				-5815
NA80-28-473	4				5815-
28-664		BOLT, ADJUST			
NA75-34-4A0	4				-4801
NA75-34-4A0A	4				4801-5815
*NA80-28-66Z A (NA80-28-66ZB)	4				5815-6401
*NA80-28-66ZB	1				6401-
34-011		SPRING, COIL-FRONT			
NA03-34-011	2 (MT)				
NA01-34-011	2 (AT)				
34-019		CAP, DAMPER			
NA01-34-019	2				-4801
34-112A		BULT			
NA01-34-112	2				
34-117A		WASHER			

4801 NA35* -606043
 5815 NA3** -705265
 6401 NA3** -717767



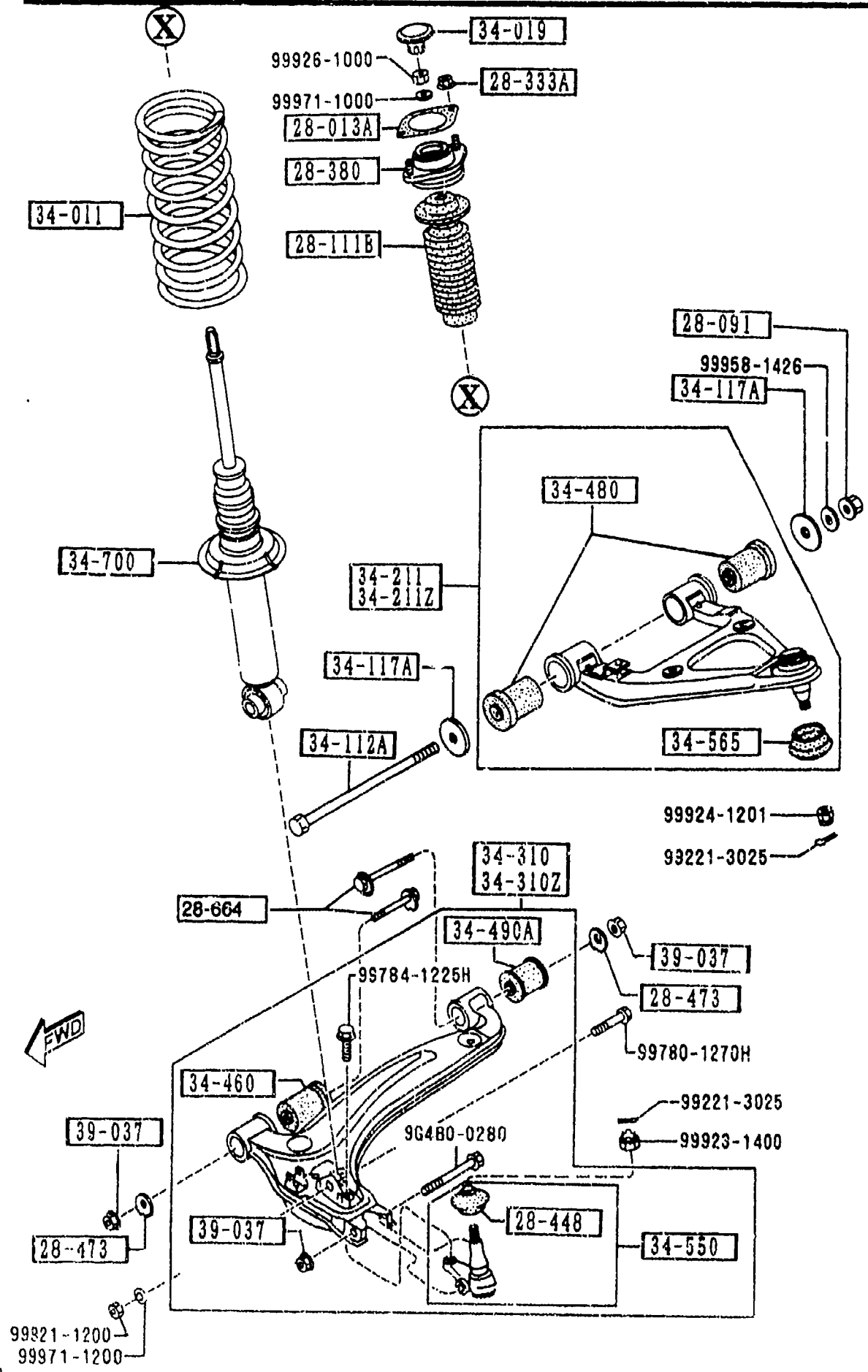
3400 FRONT SUSPENSION MECHANISMS



3400 -2 FRONT SUSPENSION MECHANISMS

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
NA01-34-117A	4				
34-211		ARM(R),UPPER			
NA01-34-200A	1	(W/O A. LOCK BRAKE)			
NA23-34-200	1	(W/A. LOCK BRAKE)			
34-211Z		ARM(L),UPPER			
NA01-34-200A	1	(W/O A. LOCK BRAKE)			
NA23-34-200	1	(W/A. LOCK BRAKE)			
34-310		ARM(R),LOWER			
NA75-34-300A	1	(W/O A. LOCK BRAKE)			-4A01
NA75-34-300A	1	(W/A. LOCK BRAKE)			6A01-
N040-34-300	1	(W/A. LOCK BRAKE)			
34-310Z		ARM(L),LOWER			
NA75-34-350A	1	(W/O A. LOCK BRAKE)			-7A01
NA75-34-350A	1	(W/A. LOCK BRAKE)			6A01-
N040-34-350	1	(W/A. LOCK BRAKE)			
34-460		BUSH,RUBBER-LWR ARM			
NA01-34-460A	2				
34-480		BUSHING,RUBBER-LOWER ARM			
NA01-34-480A	4				
34-490A		BUSHING,RUBBER			
NAC1-34-490	2				
34-550		BALL JOINT,LOWER			
NA01-34-550	2				
34-565		SEAL,DUST			
NA01-34-548	2				
34-700		DAMPER,FRONT			
NA53-34-700R	2	((EXC. BILSTEIN DAMP.)>(W/A. LOCK BRAKE))			
N018-34-700B	2	((EXC. BILSTEIN DAMP.)>(W/O A. LOCK BRAKE))			
4A01 NA35* -603621					

3400 FRONT SUSPENSION MECHANISMS

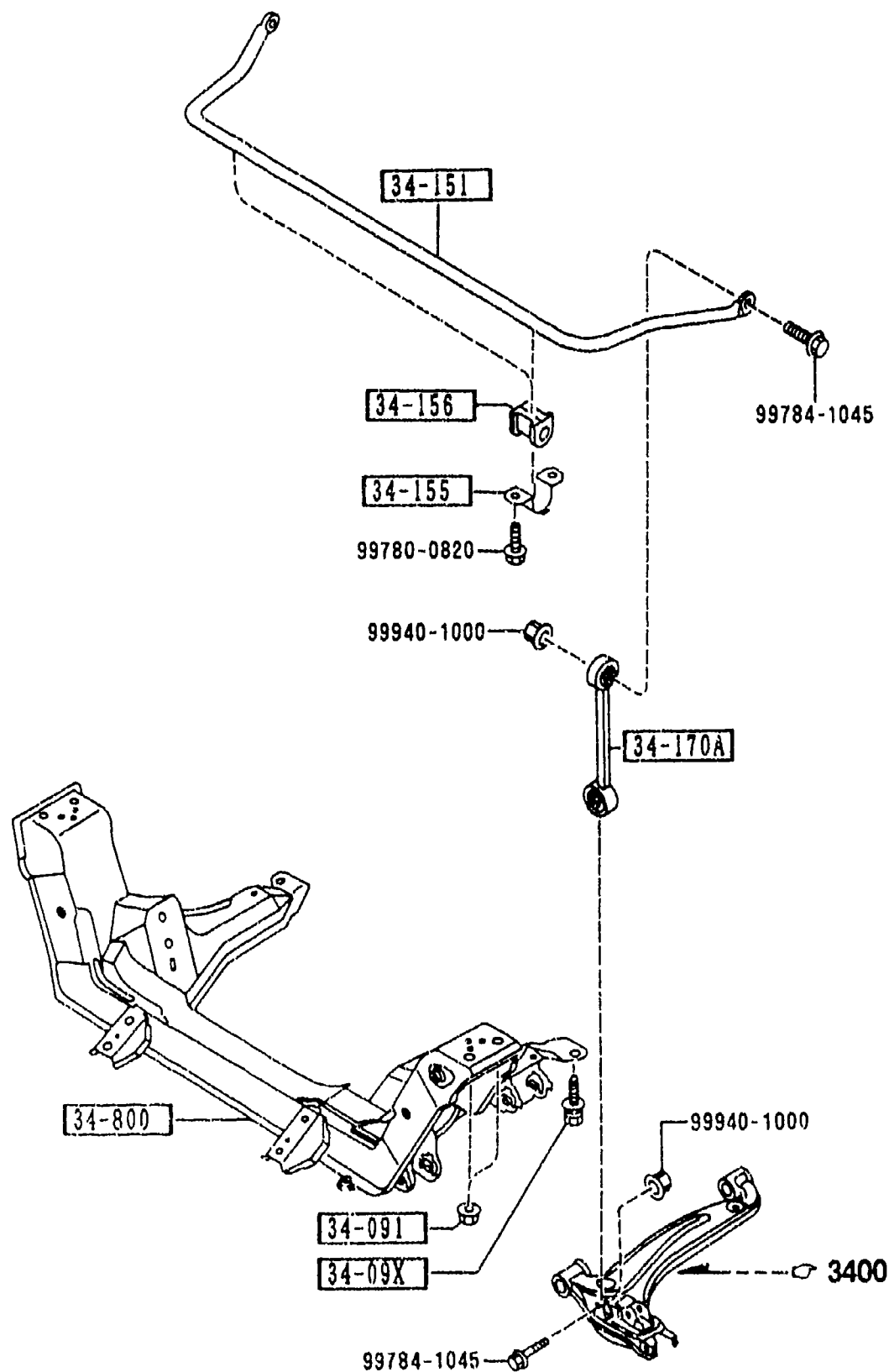


3400 -3 * FRONT SUSPENSION MECHANISMS

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FRGM-TO
CONT'D					
N023-34-700C	2	((BILSTEIN DAMP.))>('95 MODEL)			
N023-34-700D	2	((BILSTEIN DAMP.))>('96 MODEL)			
39-037		NUT			
B037-28-091	6				-4801
R001-39-037B	6				4801-
4801 NA35* -606043					

3410 CROSSMEMBER & STABILIZER

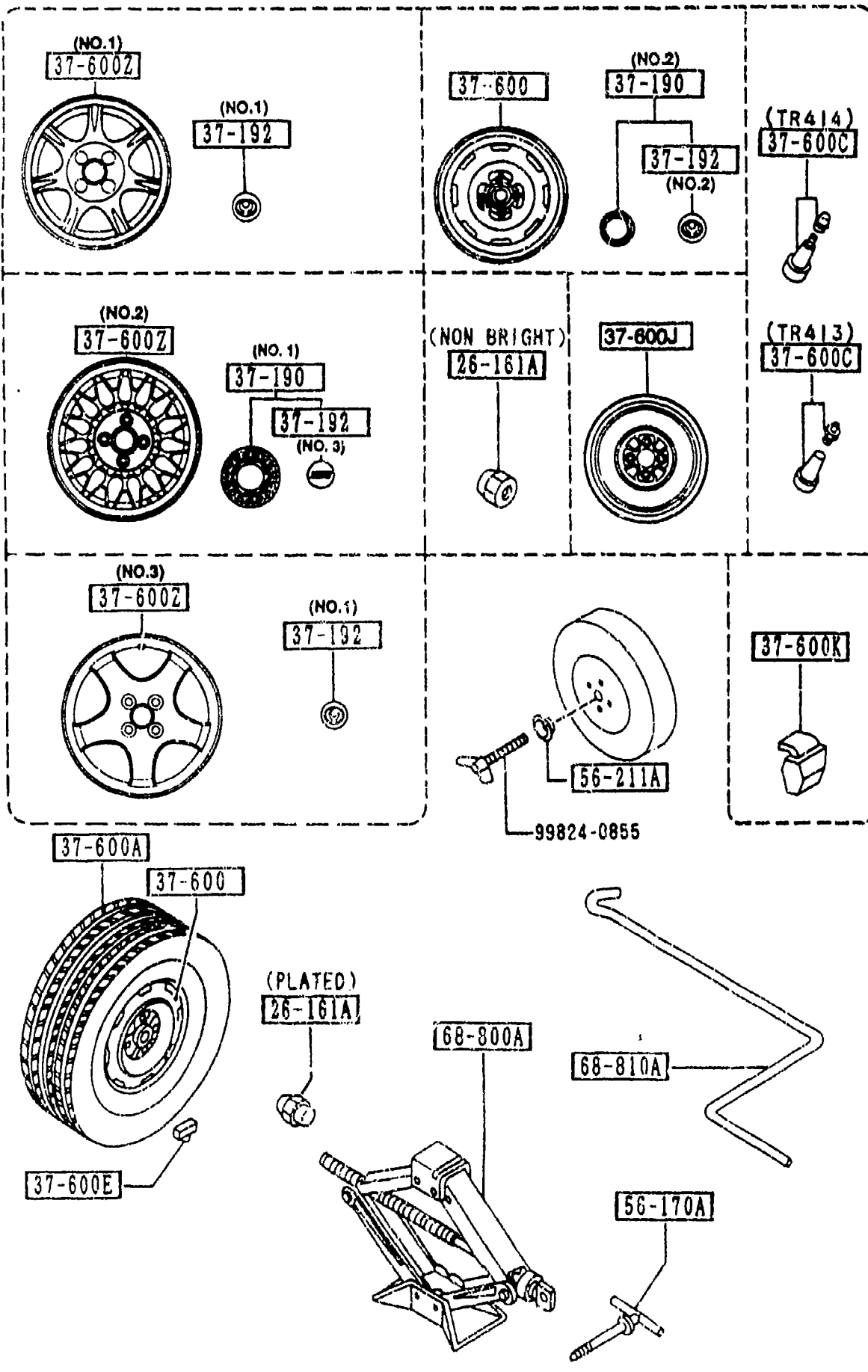
3410 -1 * CROSSMEMBER & STABILIZER



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
34-09X		BOLT			
NA01-34-09XA	4				
34-091		NUT			
801-34-091	4				
34-151		STABILIZER, FRONT			
NA75-34-151	1	(BILSTEIN DAMP.)			
NA80-34-151	1	(EXC. BILSTEIN DAMP.)			
34-155		PLATE, STABILIZER			
FB01-34-155	2				
34-156		BUSH, STABILIZER-FRT			
NA01-34-156A	2	(EXC. BILSTEIN DAMP.)			
NA75-34-156	2	(BILSTEIN DAMP.)			
34-170A		LINK, CONTROL-STAB			
NA01-34-170	2				
34-800		MEMBER, CROSS			
NA01-34-800C A (NA01-34-800D)	1				-5B15
NA01-34-800D	1				5B15-

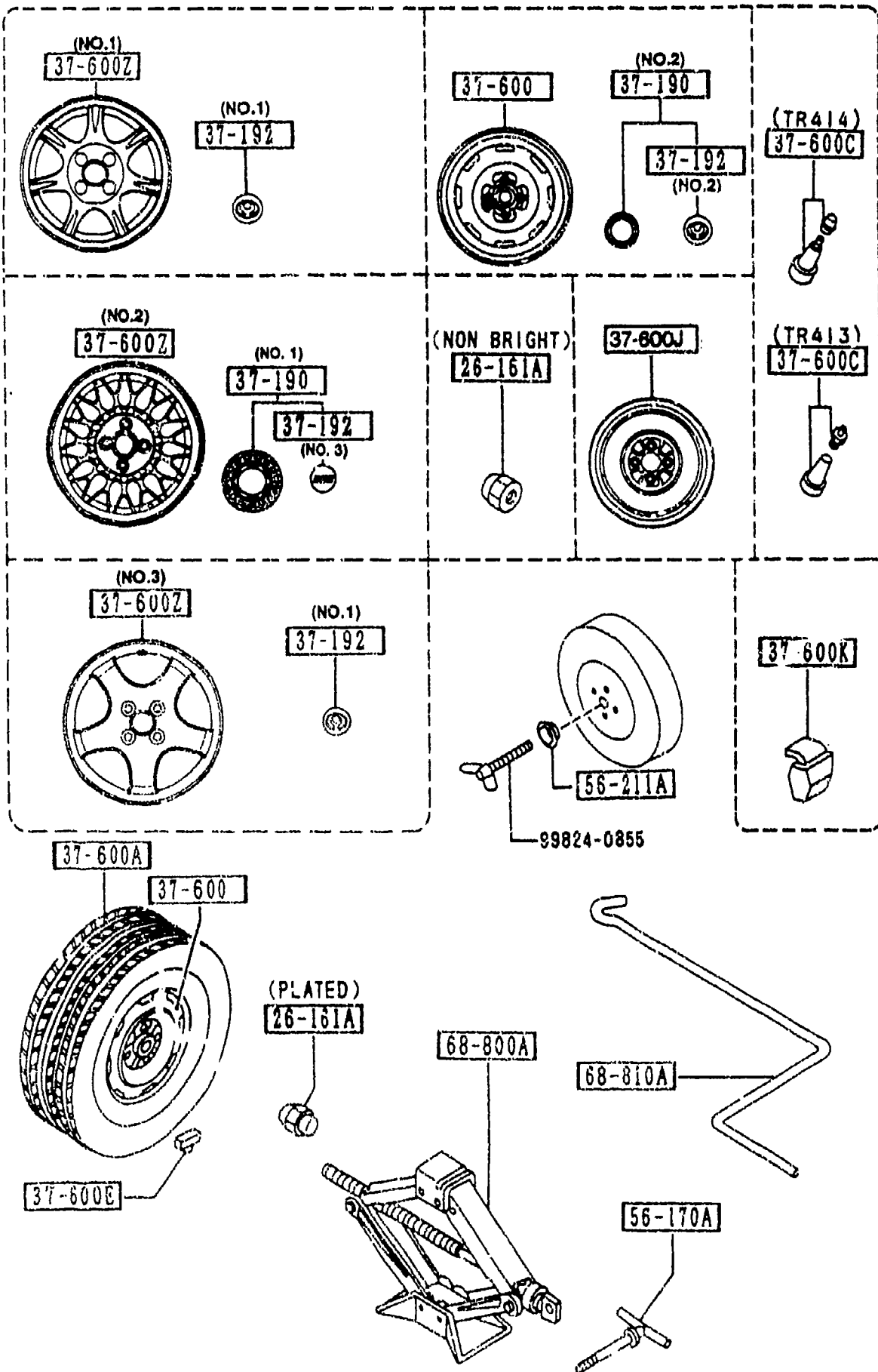
5B15 HA3** -705265

3700 TIRES & JACK



3700 -1 TIRES & JACK

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
26-161A		NUT, HUB			
0603-26-161	16	NON BRIGHT			
B002-37-160	16	PLATED			
37-190		CAP, CENTER			
M011-37-190	4	(ILLUST. NO.1)			
NA53-37-190	4	(ILLUST. NO.2)			
37-192		EMBLEM, CAP-WHEEL			
EA02-37-192	4	(ILLUST. NO.1)			
GA7C-37-192	4	(ILLUST. NO.2)			
M011-37-192	4	(ILLUST. NO.3)			
37-600		WHEEL, DISC-STEEL			
9965B-95540	4	5.5JJX14 P=100/0-45			
37-600A		TIRE			
90620-47614	1	T115/70D14			
90623-06684	4	P185/60R14 DUNLOP			
90624-26684	4	P185/60R14 BS			
90625-56684	4	P185/60R14 YOKOHAMA			
37-600C		VALVE, AIR			
99636-04130	1	TR413			
99636-04140	4	TR414			
37-600E		WEIGHT, DISC WHEEL-ST			
99655-30005	4	EEL 50			
99655-30010	4	100			
99655-30015	4	150			
99655-30020	4	200			

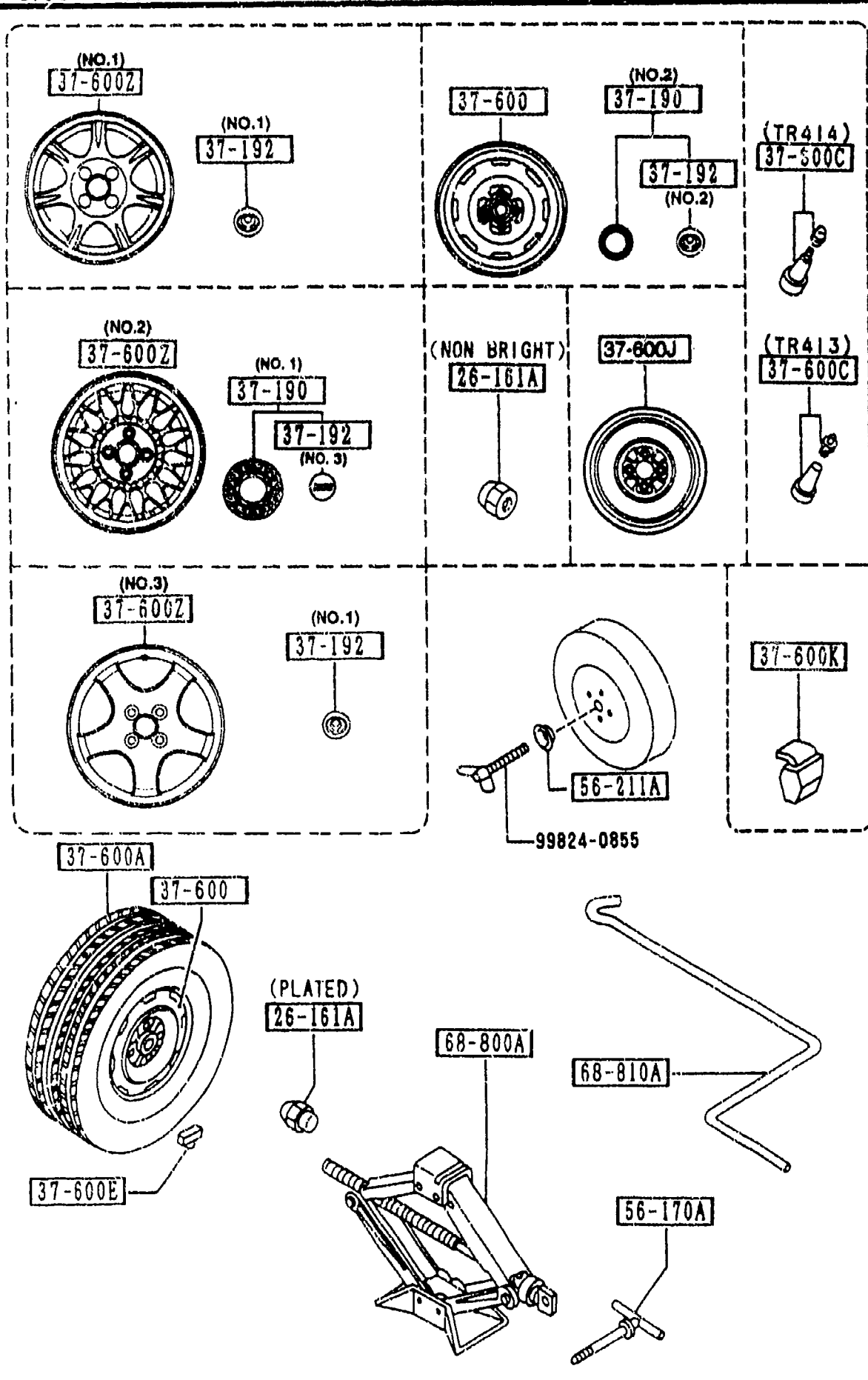


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
99655-30025	4	250			
99655-30030	4	300			
99655-30035	4	350			
99655-30040	4	400			
99655-30045	4	450			
99655-30050	4	500			
99655-30055	4	550			
99655-30060	4	600			
99651-84040	1	WHEEL DISK-TEMPORARY 4TX14 P=100/O=45			-5101
*99652-14040	1	4TX14 P=100/O=45			5101-
99655-90005	4	WEIGHT, DISC WHEEL-AL UMI 50 FOR 1-PIECE WHL			
99655-90010	4	100 FOR 1-PIECE WHL			
99655-90015	4	150 FOR 1-PIECE WHL			
99655-90020	4	200 FOR 1-PIECE WHL			
99655-90025	4	250 FOR 1-PIECE WHL			
99655-90030	4	300 FOR 1-PIECE WHL			
99655-90035	4	350 FOR 1-PIECE WHL			
99655-90040	4	400 FOR 1-PIECE WHL			
99655-90045	4	450 FOR 1-PIECE WHL			
99655-90050	4	500 FOR 1-PIECE WHL			
99655-90055	4	550 FOR 1-PIECE WHL			

5101 NA35* -612163

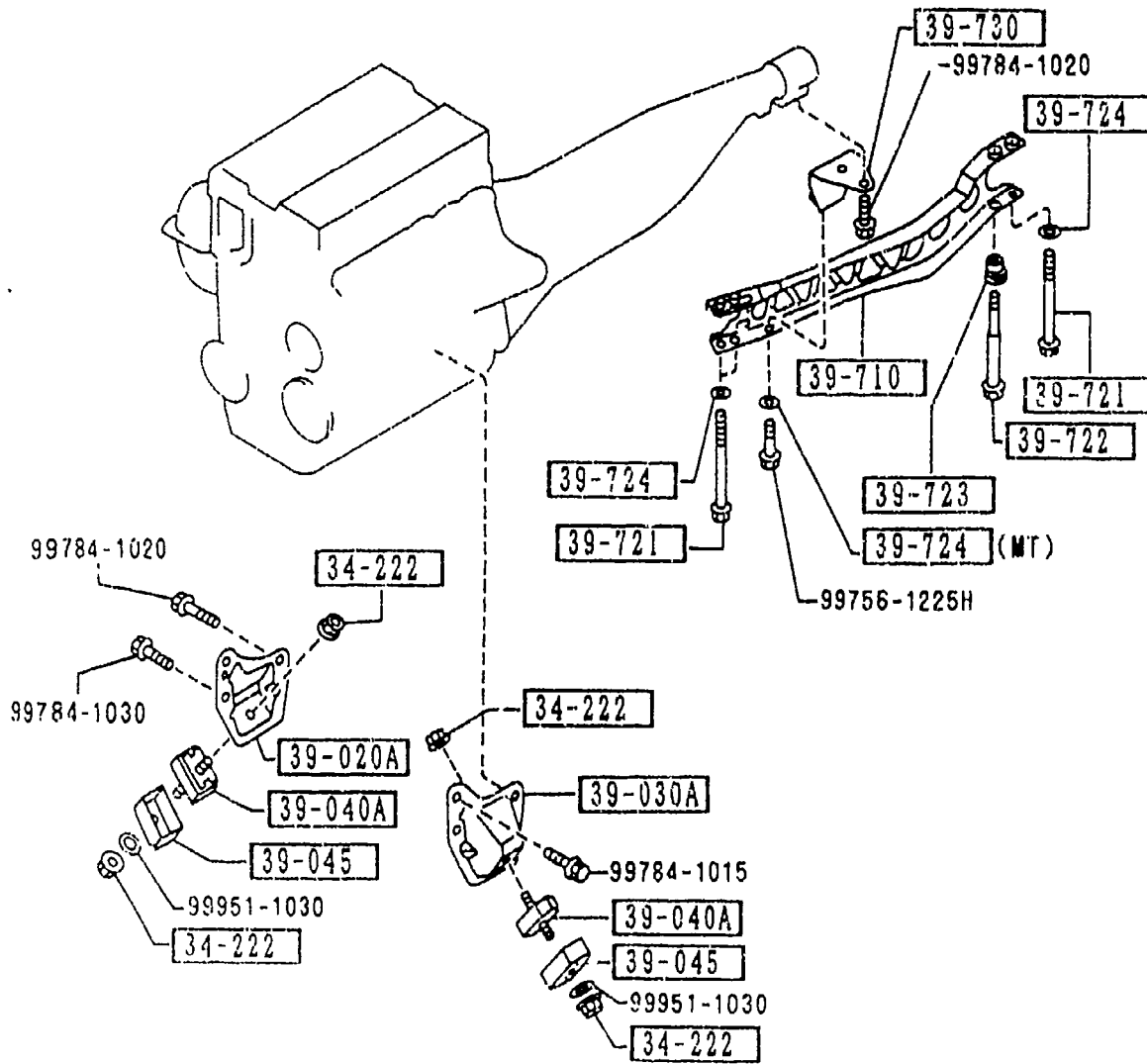
3700 TIRES & JACK

3700 -3 * TIRES & JACK



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D 99655-90060	4	600 FOR 1-PIECE WHL			
+-----+ | 37-600Z | +-----+		WHEEL, DISC-ALUMI.			
99651-36040	4	6JJX14 SILVER (ILLUST. NO.1)			
99651-96040	4	6JJX14 BRIGHT (ILLUST. NO.1)			
9965C-36050	4	6JJX15 BBS (ILLUST. NO.2)			4A01-
9965E-86050	4	6JJX15 (ILLUST. NO.3)			5B15-
+-----+ | 56-170A | +-----+		BOLT, JACK SET			
8001-56-170C	1				
+-----+ | 56-211A | +-----+		PLATE, CLAMP-JACK			
1219-56-211	1				
+-----+ | 68-800A | +-----+		JACK			
B455-37-790A	1				
+-----+ | 68-810A | +-----+		HANDLE, JACK			
GJ21-37-810	1				

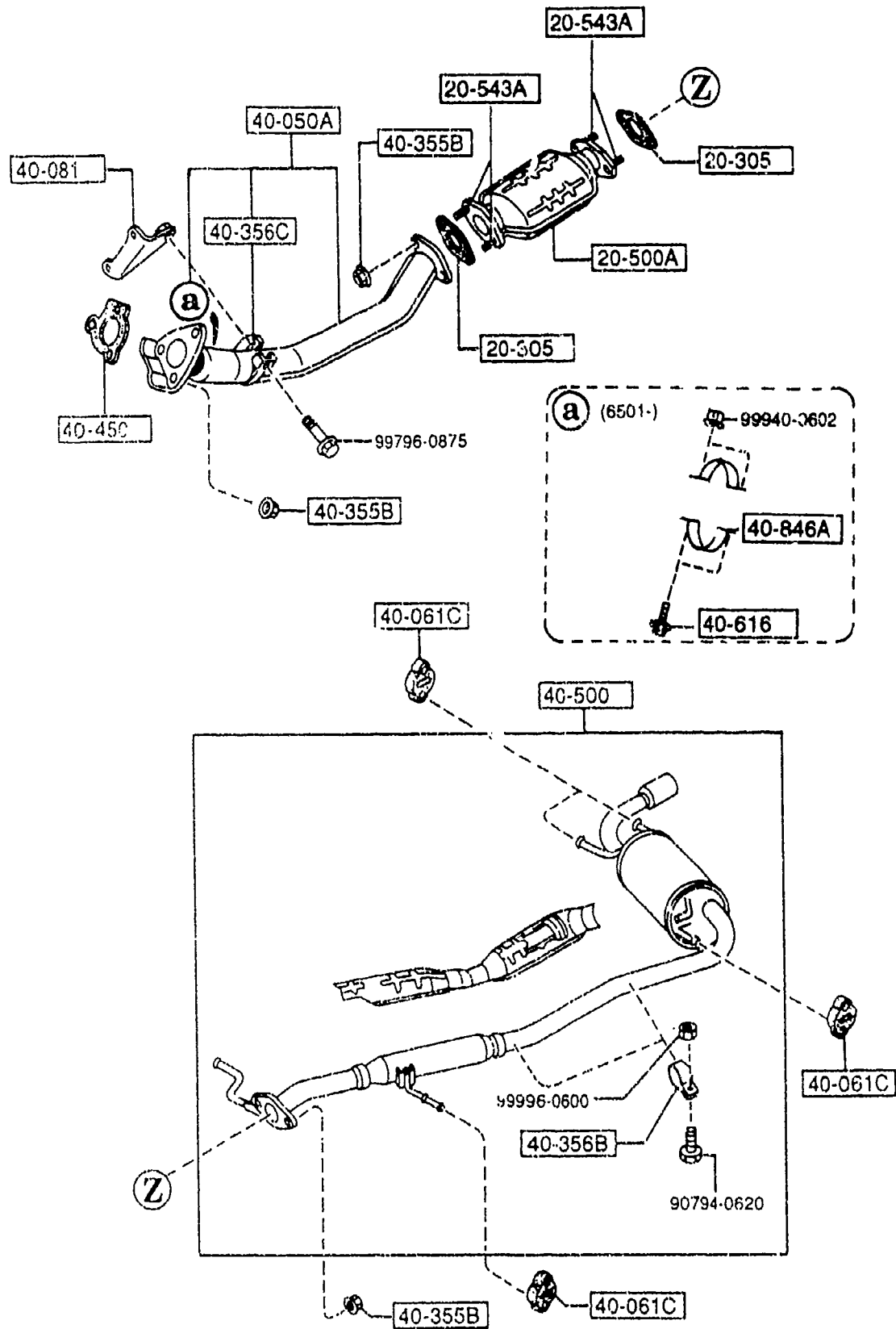
4A01 NA35* -603621
5B15 NA35* -705265



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
34-222		NUT			
8871-34-222	4				
39-020A		BRACKET(R),ENGINE			
NA75-39-021	1				
39-030A		BRACKET(L),ENGINE			
NA75-39-030	1				
39-040A		RUBBER,ENGINE MT.			
NA01-39-040A	2				
39-045		CASING,STOPPER			
NA01-39-041A	2 (MT)				
S231-39-041A	2 (AT)				-5703
NA01-39-041A	2 (AT)				5703-
39-710		FRAME,POWER PLANT			
NA75-39-710A A (NA01-39-710A)	1 (MT)				-4A17
NA81-39-710A	1 (AT)				-4A21
NA01-39-710A	1 (MT)				4A17-
NA03-39-710A	1 (AT)				4A21-
39-721		BOLT,PLANT FRAME			
NA01-39-721	3				
39-722		BOLT,PLANT FRAME			
NA01-39-722	1				
39-723		SPACER,PLANT FRAME			
NA01-39-723	1				
39-724		WASHER,PLAIN-FRAME			
NA01-39-724	3 (AT)				
NA01-39-724	4 (MT)				
39-730		BRACKET,PLANT FRAME			
NA01-39-730A	1 (MT)				

4A17 NA35* -604764
 4A21 NA35* -605228
 5703 NA35** -700001

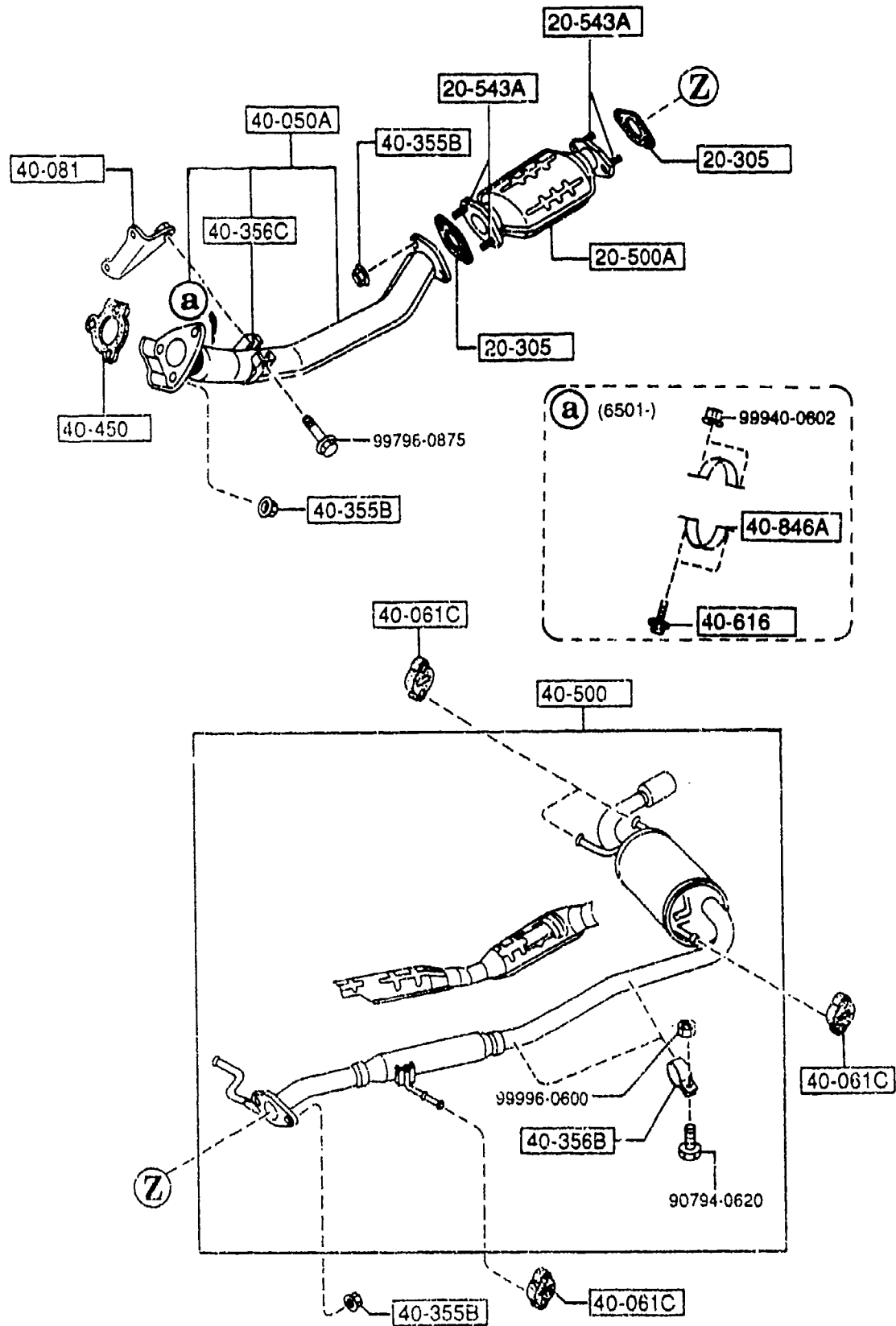
4000 EXHAUST SYSTEM



4000 -1 EXHAUST SYSTEM

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
20-305 B690-40-305	2	GASKET, EXH. PIPE-CONVERTER NON ASBESTOS			
20-500A BPE8-20-600 BPS1-20-600	1 1	CATALYST, THREE WAY ('95 MODEL) ('96 MODEL)			
20-543A *Z502-20-WA4	4	STUD			
40-050A BP56-40-500 A (BP56-40-500A)	1	PIPE, EXHAUST-FRONT			-6501
*BP56-40-500A AN (BP56-40-500B)	1				6501-6601
*BP56-40-500B	1				6601-
40-061C RF03-40-061	4	HANGER, SILENCER			
40-081 B690-40-080A	1	BRACKET, HANGER			
40-355B JE10-40-355	7	NUT			
40-356B B6A5-40-356	2	BAND			
40-356C B690-40-356	1	BAND			
40-450 B690-40-450	1	GASKET, CONVERTER NON ASBESTOS			
40-500 BPA5-40-100 BPA6-40-100 BP55-40-100C AN (BP55-40-100D)	1 1 1 1	SILENCER, MAIN (('96 MODEL) > (MT)) (('96 MODEL) > (AT)) (('95 MODEL) > (MT))			-4901
4901 NA35* -602618 6501 NA3** -718684 6601 NA3** -719621					

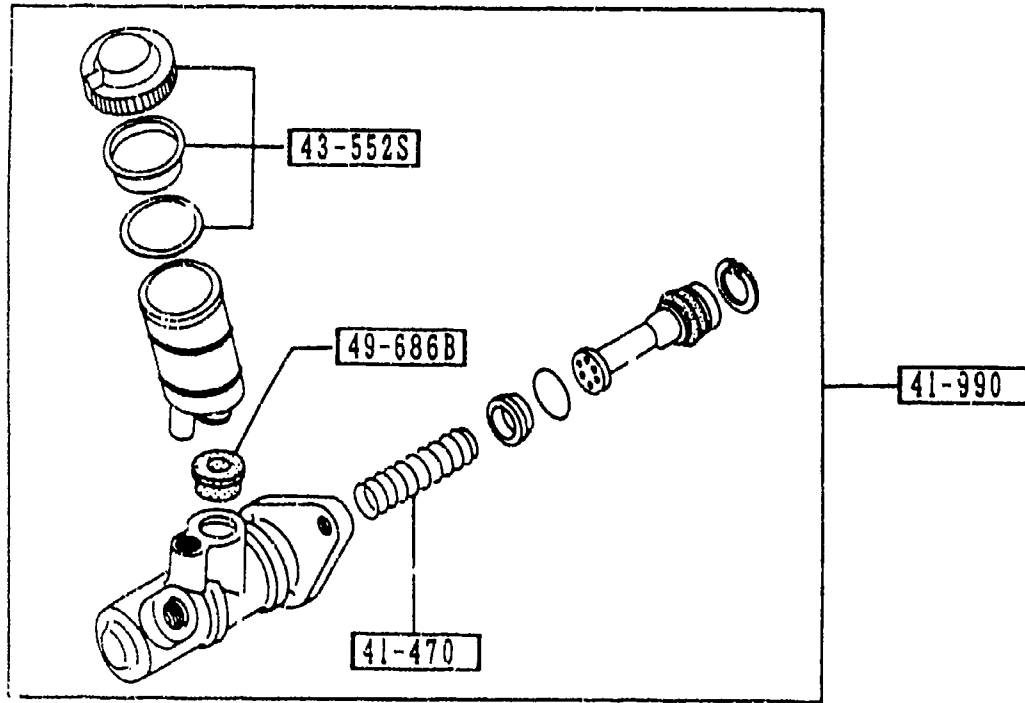
4000 EXHAUST SYSTEM



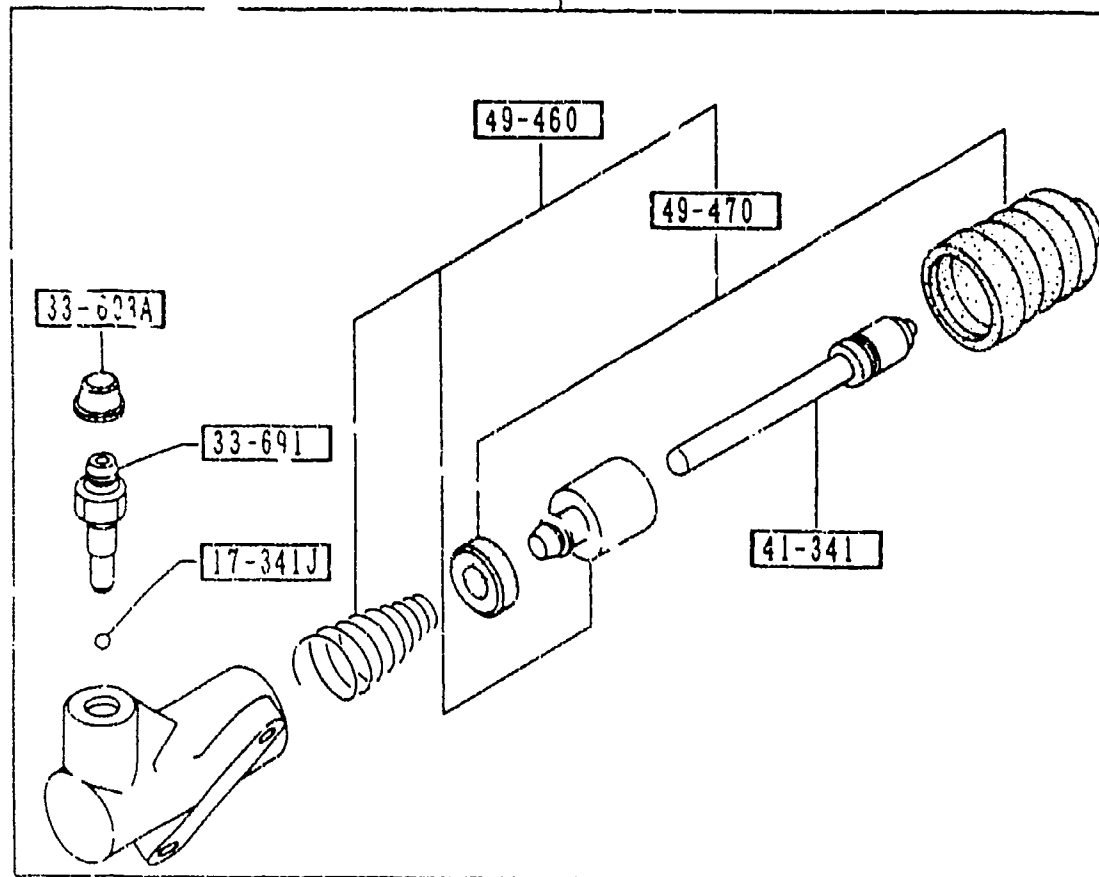
4000 -2 * EXHAUST SYSTEM

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D BP56-40-100C AN(BP56-40-100D)	1	(('95 MODEL))>(AT)			-4901
BP55-40-100D	1	(('95 MODEL))>(MT)			4901-
BP56-40-100D	1	(('95 MODEL))>(AT)			4901-
----- 40-616 -----		BOLT			
*E521-40-616	2				6501-
----- 40-846A -----		BRACKET, PROTECTOR			
*F203-40-802	1				6501-

4901 NA35* -602618
6501 NA3** -718684



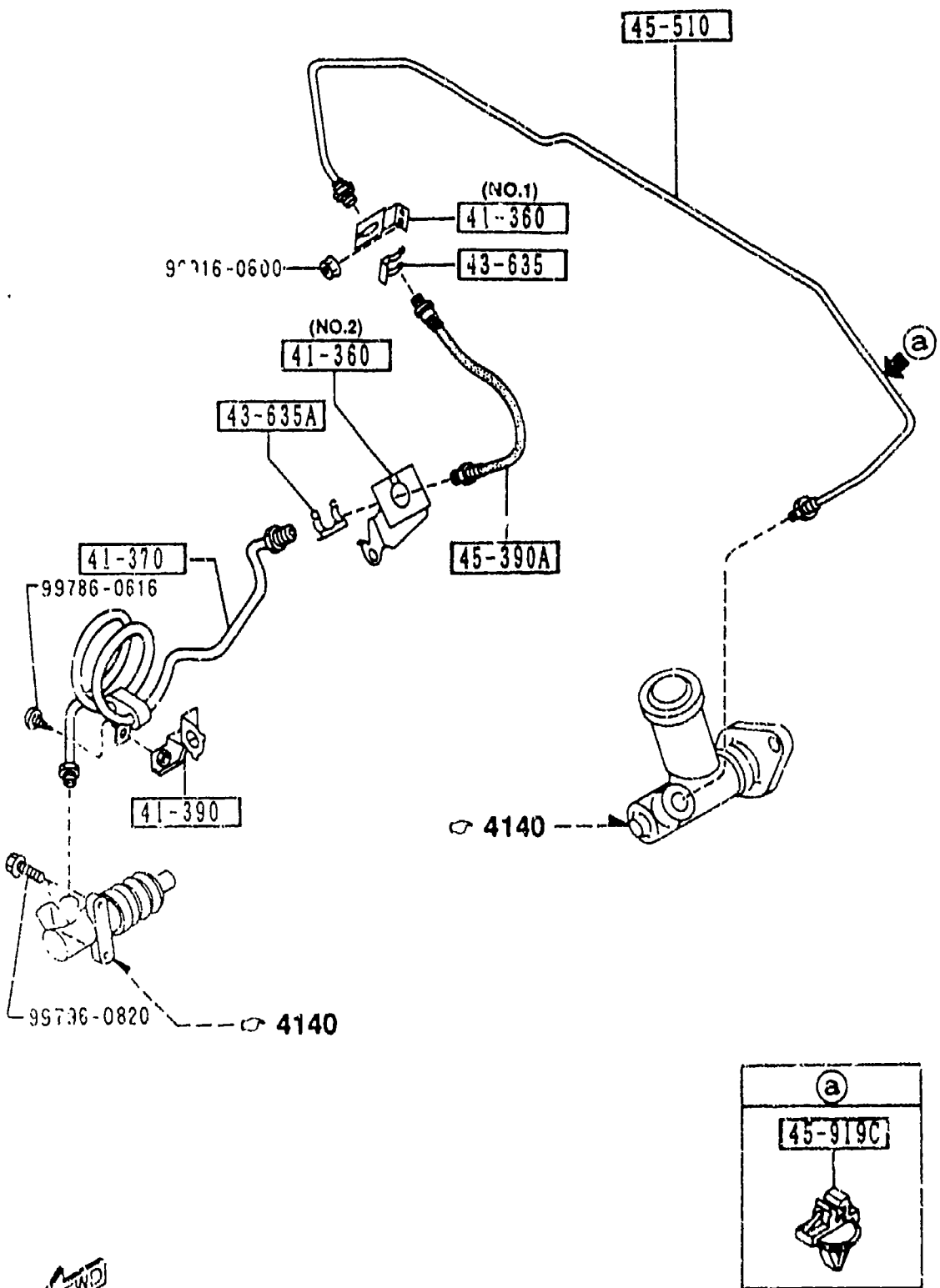
41-920



FWD

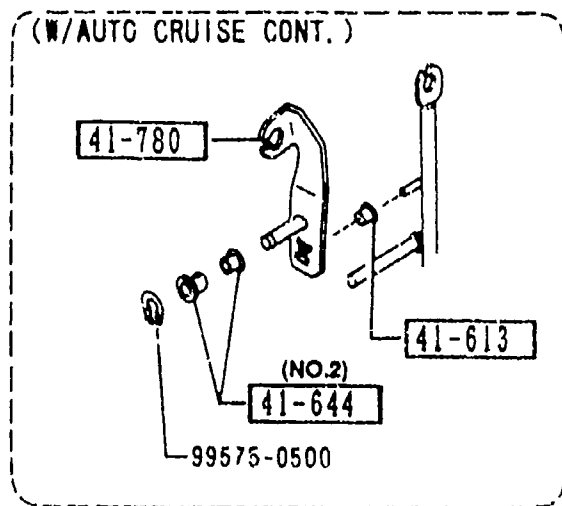
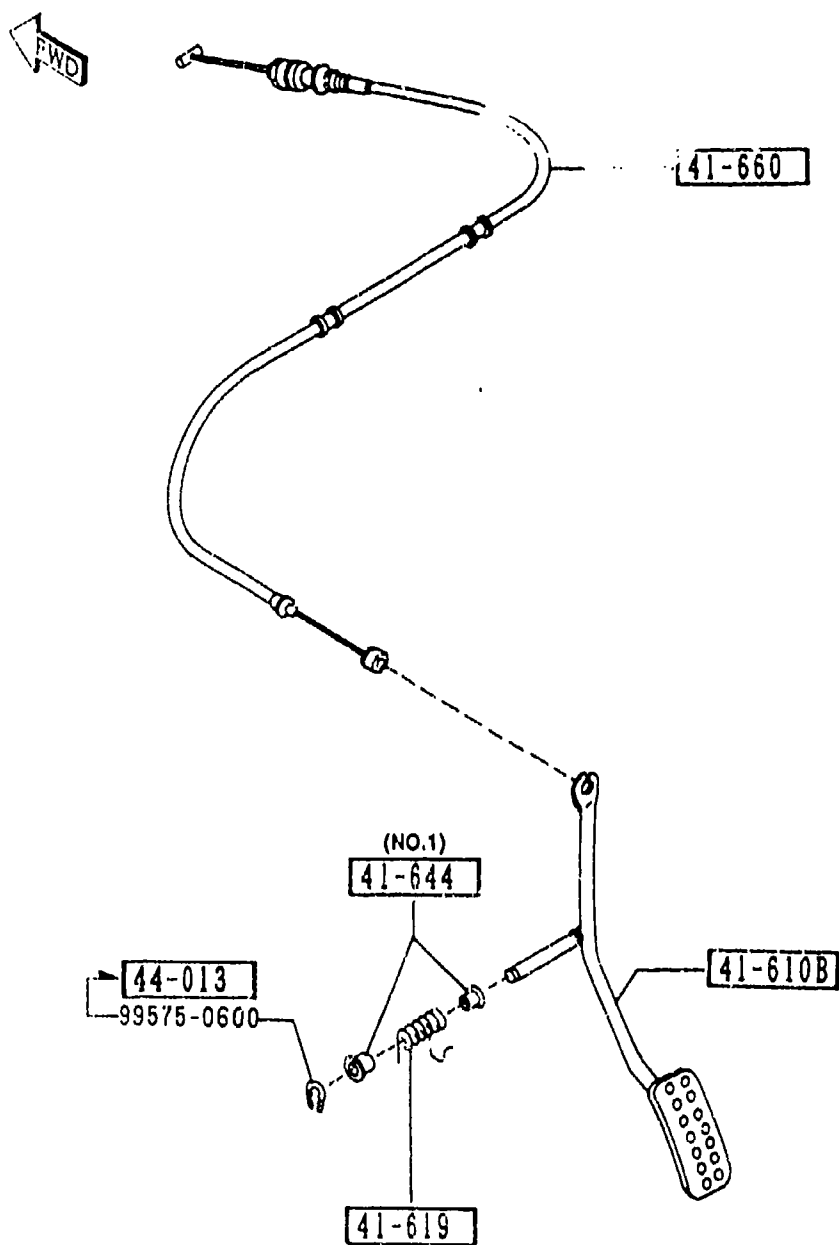
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
17-341J		BALL,STEEL			
99611-1500	1				
33-691		SCREW,BLEEDER			
0259-33-691	1				
33-693A		CAP,BLEEDER SCREW			
0259-33-693	1				
41-341		ROD,PJSH			
H266-41-341	1				
41-470		SPRING			
B312-41-470	1				
41-920		CYL.,CLUTCH RELEASE			
NA01-41-920	1				
41-990		CYL.,CLUTCH MASTER			
NA01-41-400A	1				
43-552S		CAP SET,RESERVE TANK			
B093-49-580	1				
49-460		PARTS KIT,INNER			
H005-49-460	1				
49-470		SEAL KIT			
H005-49-470	1				
49-686B		BUSH,ELBOW JOINT			
0305-49-686B	1				

1-15



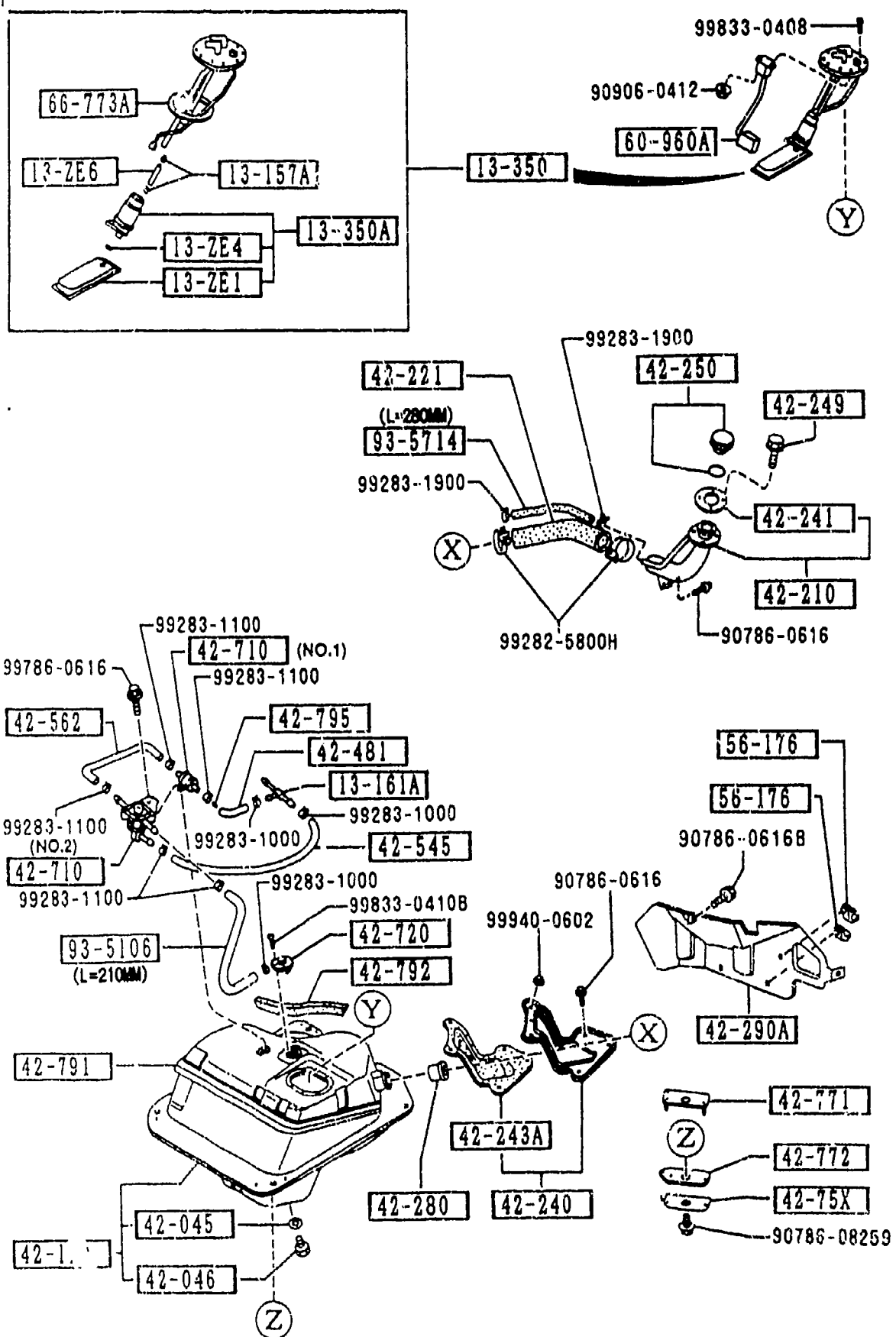
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
41-360		HOLDER, CLUTCH			
NA02-41-370	1	MIDORI (ILLUST. NO.1)			
NA75-41-370	1	(ILLUST. NO.2)			
41-370		PIPE, CLUTCH			
NA75-41-360	1				
41-390		HOLDER, PIPE			
NA01-41-390	1				
43-635		CLIP, FLEXIBLE HOSE			
W023-43-635 A (W023-43-635A)	1				-4927
W023-43-635A	1				4927-
43-635A		CLIP, FLEXIBLE HOSE			
0136-43-635	1				
45-390A		HOSE, CLUTCH FLEXIBLE			
HE01-45-540	1				
45-510		PIPE, CLUTCH			
NA01-45-510C	1	(W/O A. LOCK BRAKE)			
NA20-45-510D	1	(W/A. LOCK BRAKE)			
45-919C		CLIP, PIPE			
G030-45-919A	1				

4927 NA35* -603489



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
41-610B		PEDAL & ARM			
NA01-41-610A	1	BASE, R-PKG, PKG-A, (W/O AUTO CRUISE.CON T.)			-5401
NA02-41-610A	1	M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/AUTO CRUISE.CON T.)			-5401
NA01-41-610B	1	BASE, R-PKG, PKG-A, (W/O AUTO CRUISE.CON T.)			5401-
NA02-41-610B	1	M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/AUTO CRUISE.CON T.)			5401-
41-613		ROLLER			
B104-41-114	1	M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/AUTO CRUISE.CON T.)			
41-619		SPRING, RETURN			
MA01-41-619	1				
41-644		BUSH			
0259-41-644	2	ONDO KOSAKUSHO M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (ILLUST. NO.2) (W/AUTO CRUISE.CON T.)			
B092-41-644	2	OIRES KOGYO (ILLUST. NO.1)			-5401
41-660		CABLE, ACCEL.			
NB15-41-660	1				
41-780		LEVER, ACCELERATOR			
NA01-41-130A	1	M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/AUTO CRUISE.CON T.)			
44-013		WASHER, PARKING LEVER			
H380-44-013	1				5401-
5401 HA35* -619598					

4200 FUEL TANK

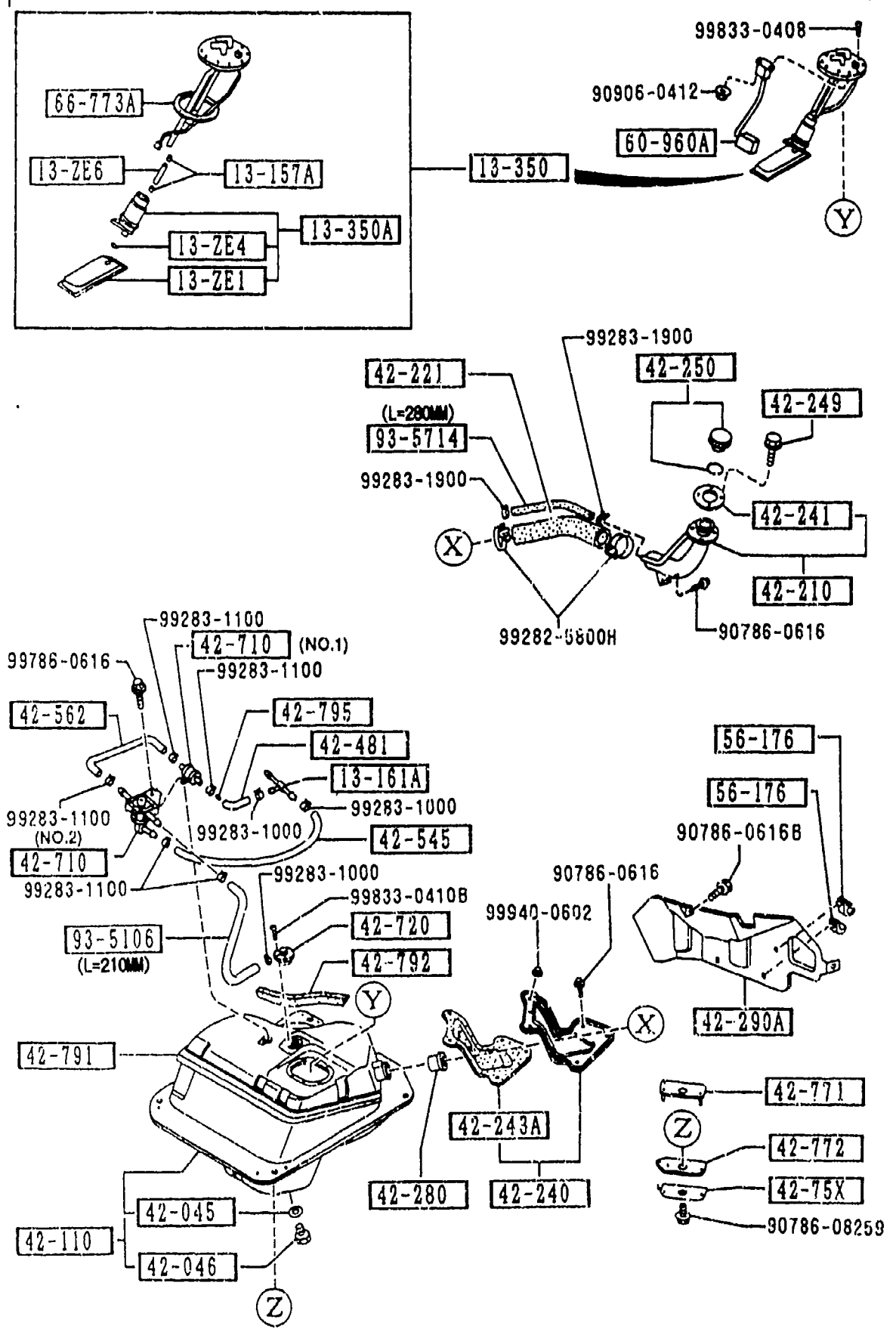


4200 -1 FUEL TANK

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-70
13-ZE1		FILTER, FUEL PUMP			
B61P-13-ZE1	1				
13-ZE4		WASHER, LOCK-PUMP FILTER			
FEH2-13-ZE4	1	NIPPONDENSO (JAPAN)			
13-ZE6		HOSE, FUEL PUMP-IN TANK			
KL19-13-ZE6	1				
13-157A		CLIP			
AZ28-13-157	2				
13-161A		JOINT 'T'			
E580-13-161	1				
13-350		PUMP, FUEL			
BPE8-13-35Z	1				
13-350A		PUMP, FUEL-SUB			
BPE8-13-350	1				
42-045		GASKET, DRAIN PLUG			
U866-42-046	1				
42-046		PLUG, DRAIN			
B596-42-045	1				
42-110		TANK, FUEL			
NA75-42-110	1				
42-210		PIPE, FILLER			
NA01-42-210A	1				
42-221		HOSE, FILLER			
NA01-42-241C	1				
42-240		COVER, DUST			
NA75-42-240	1				
42-241		GASKET, FILLER PIPE			



4200 FUEL TANK



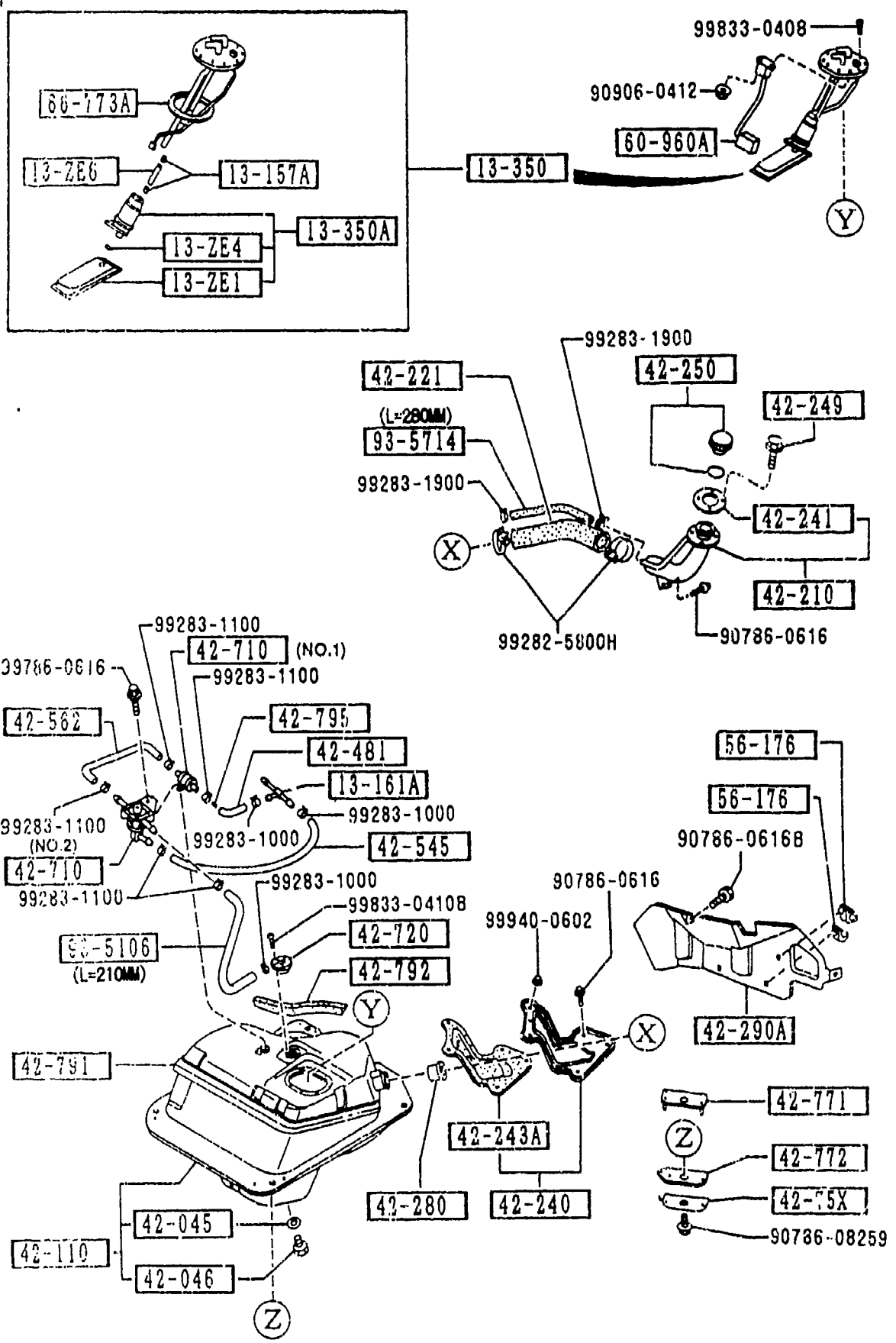
4200 -2 FUEL TANK

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
0866-42-366B	2				
42-243A		GASKET 'A', DUST COVER			
NA01-42-233	1				
42-249		BOLT, FILLER PIPE			
NA01-42-249B	4				
42-250		CAP, FILLER			
NA02-42-250	1	('95 MODEL)			
NB38-42-250	1	('96 MODEL)			
42-280		VALVE, NON RETURN			
H260-42-270	1				
42-290A		PROTECTOR 'A', FILLER PIPE			
NA01-42-291B	1				-5106
NA01-42-291C	1				5106-
42-481		HOSE, FUEL			
NA75-42-561	1				
42-545		HOSE, FUEL			
NA75-42-564	1				
42-562		HOSE NO. 2, BREATHER			
NA03-42-562	1				
42-710		VALVE, CHECK			
GA5R-42-910	1	(ILLUST. NO.1)			
NA75-42-910	1	(ILLUST. NO.2)			
42-720		VALVE, FUEL VAPOR.			
BC1M-42-980	1				-5501
A (BC1M-42-980A)					
BC1M-42-980A	1				5501-
42-75X		REINF., FUEL TANK			
NA01-42-77X	4				

5106 NA35* -612163
5501 NA35* -620210

1-015

4200 FUEL TANK



4200 -3 * FUEL TANK

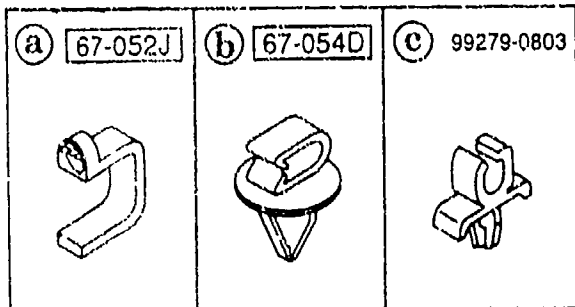
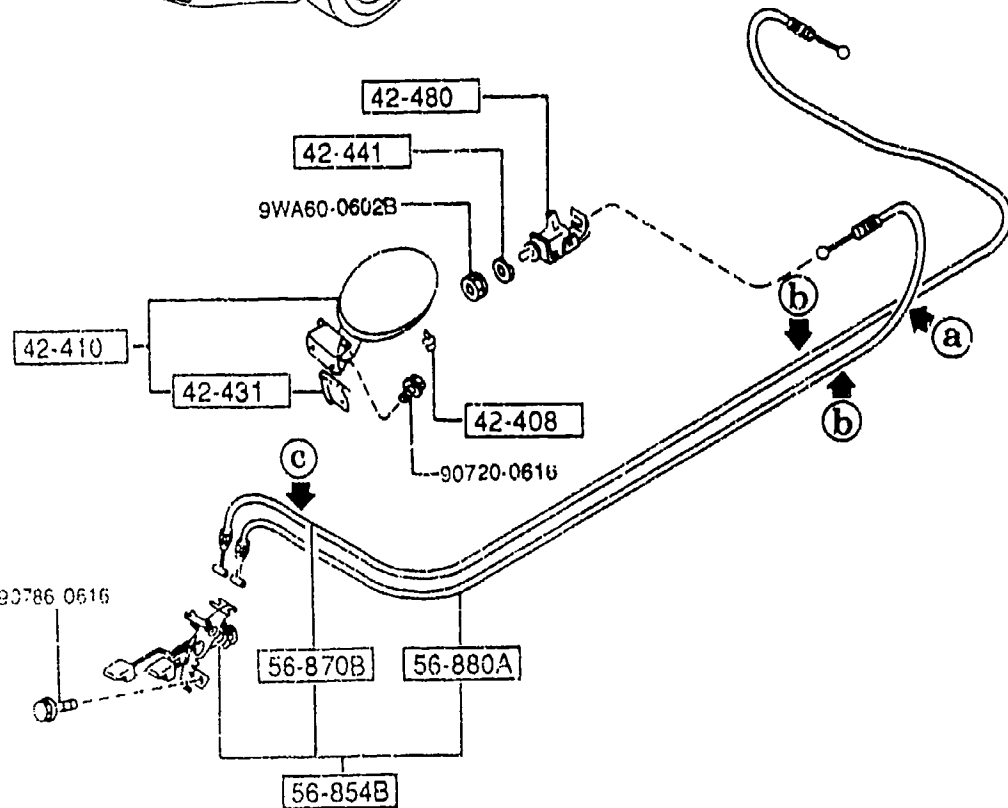
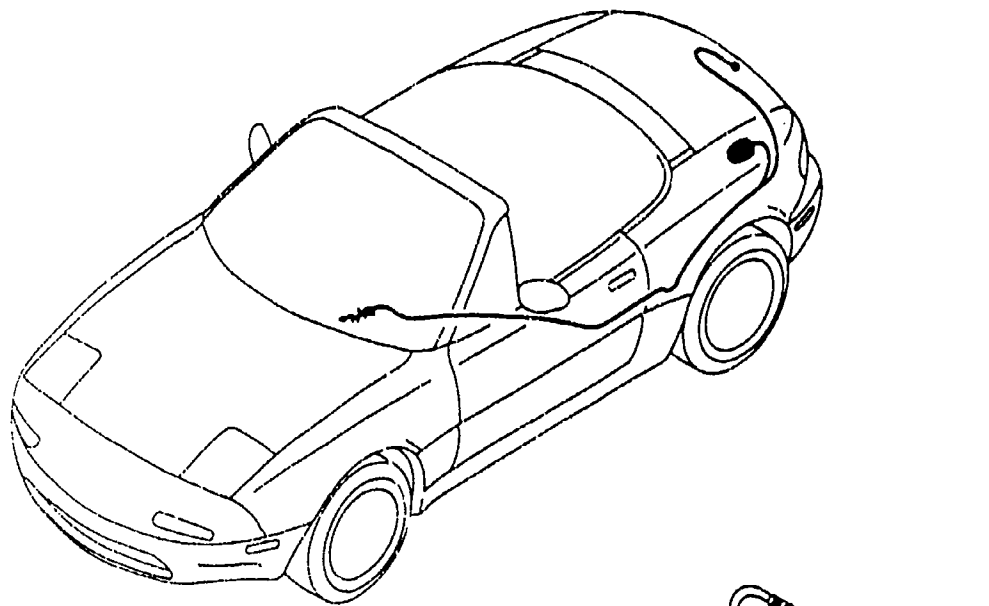
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
42-771		RUBBER(UP), MOUNT-TANK			
NA01-42-771	4				
42-772		RUBBER(LWR), MOUNT-TANK			
NA01-42-772	4				
42-791		PAD, FUEL TANK			
NA01-42-761	1				
42-792		PAD, FUEL TANK			
NA01-42-762	1				
42-795		INSERT			
GN51-42-795	1				
56-176		HOLDER, JACK HANDLE			
G030-56-176	3				
60-960A		GAUGE, FUEL TANK			
NA75-60-960A	1				
66-773A		GASKET			
J004-60-962	1				
93-5106		HOSE			
99351-06999	1	L=1M CUT IT TO USE			
93-5714		HOSE			
99357-14999	1	L=1M CUT IT TO USE			

FWD
AUNA05

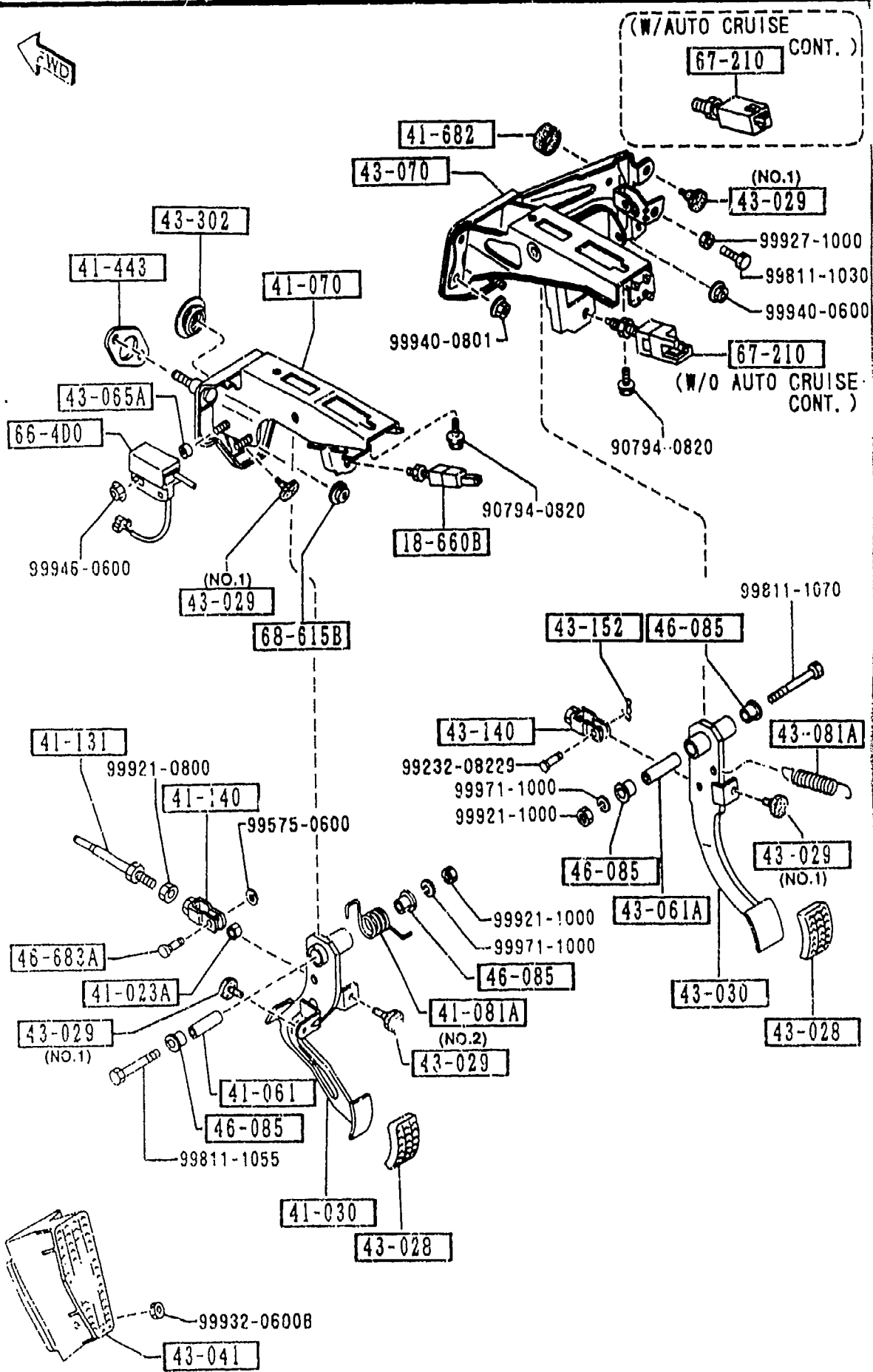
CAT. AUNA05-04

1997-07

1-K15



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
42-408		STOPPER, FILLER LID			
0107-70-491	2				
42-410		LID, FUEL FILLER			
NA01-42-410B	1				
42-431		SPRING LIFT, LID			
H043-42-431D	1				
42-441		WASHER, LID OPENER			
NA01-56-896	1				
42-480		OPENER, FILLER LID			
B095-56-890A	1				
56-854B		OPENER, T/LID & F/LID			
H007-56-850A	1				
56-870B		CABLE, T/LID OPENER			
N007-56-880A	1				
56-880A		CABLE, F/LID OPENER			
NA01-56-890A	1				
67-052J		CLIP			
B001-67-051	1				
67-054D		CLIP			
H260-67-054	2				

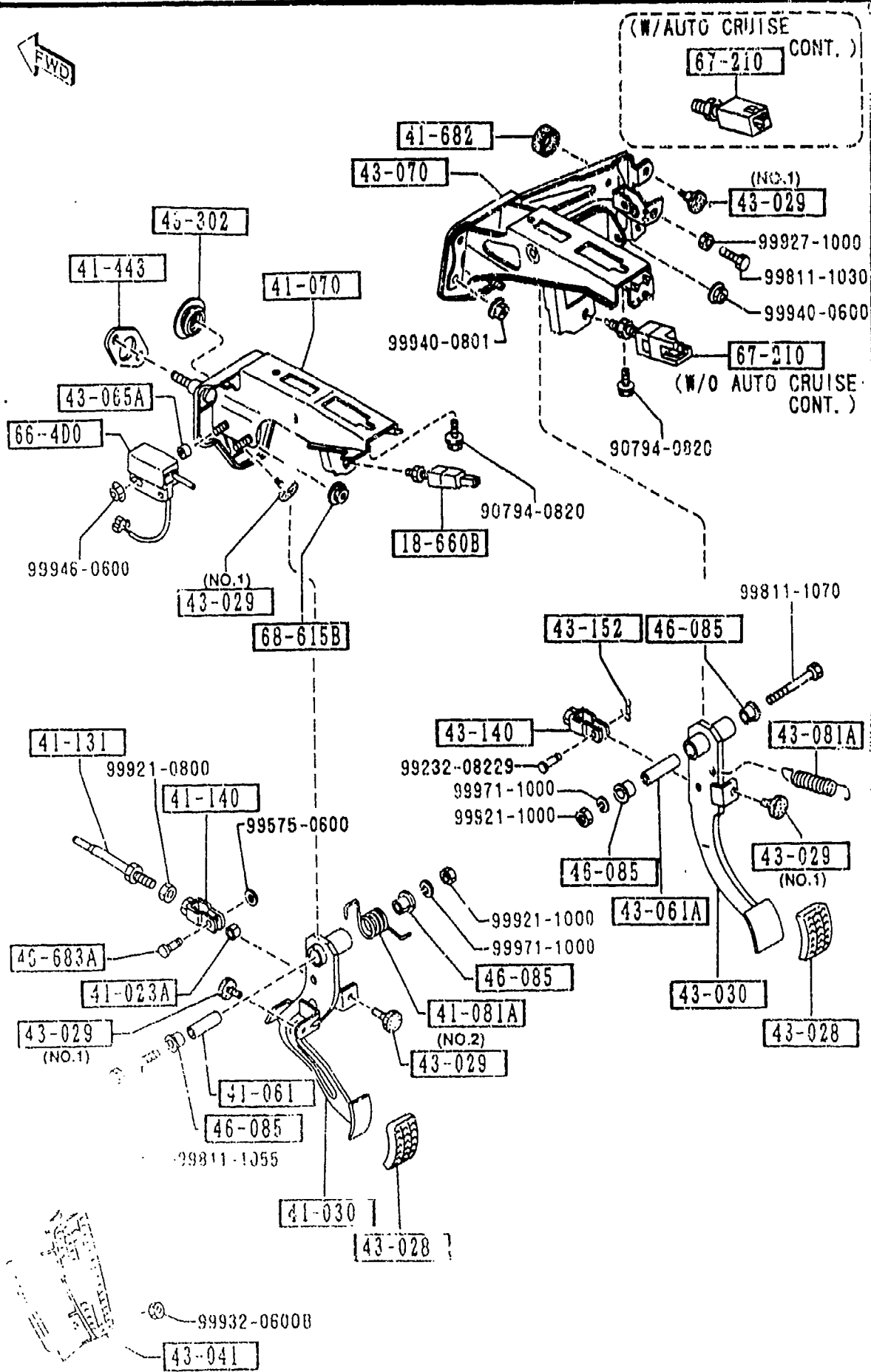


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
18-660B		SWITCH, CLUTCH			
LA01-66-490A	1				
41-023A		BUSH			
0727-41-023	1				
41-030		PEDAL, CLUTCH			
NA01-41-030C A (NA01-41-030D)	1				-5201
NA01-41-030D	1				5201-
41-061		SPACER			
0727-41-061	1				
41-070		BRACKET, MASTER CYL.			
NA01-41-070B	1				
41-081A		SPRING, RETURN			
BR70-41-081	1				
41-131		ROD, PUSH			
0824-41-131	1				
41-140		FORK, CLUTCH			
NA01-41-140B	1				
41-443		GASKET			
NA01-41-443	1				
41-682		RUBBER, STOP			
1456-41-682	1	M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/AUTO CRUISE CONT.)			
43-028		PAD, PEDAL			
B092-43-028	2				
43-029		RUBBER, STOPPER			
B001-43-029	4	KUROISHI TEKKO (ILLUST. NO.1)			
G030-43-029	1	OIRES KOGYO (ILLUST. NO.2)			

5201 NA35* -614193

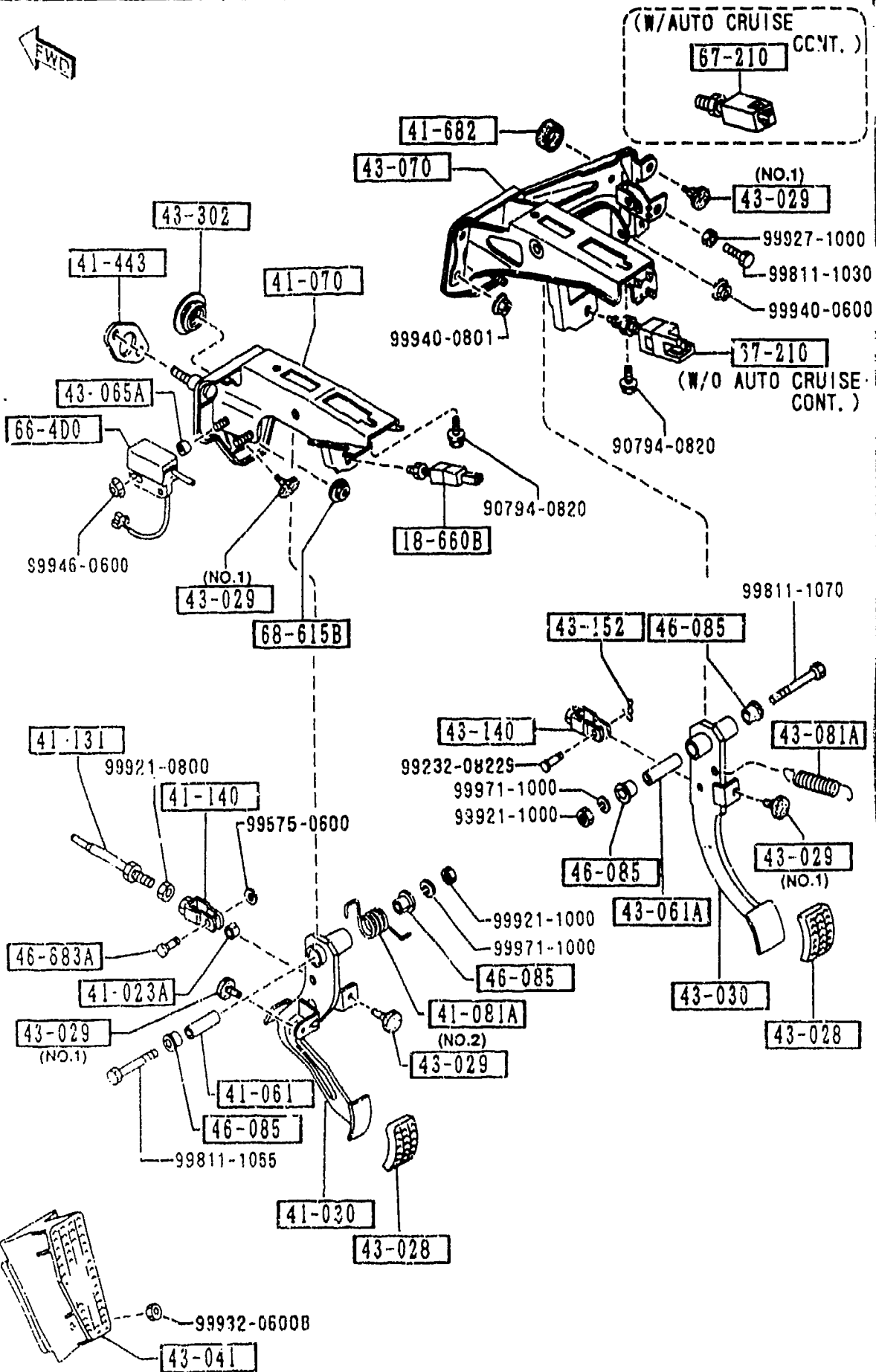
4300 MANUAL TRANSMISSION CLUTCH & BRAKE PEDALS

4300 -2 MANUAL TRANSMISSION CLUTCH & BRAKE PEDALS



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
43-030		PEDAL, BRAKE			-5401
NA01-43-030 AN(NA01-43-030A)	1				5401-5508
NA01-43-030A A (NA01-43-030B)	1				5508-
NA01-43-030B	1				
43-041		REST, FOOT			
NA01-43-041	1				
43-061A		PIPE, PEDAL			
0866-43-062	1				
43-065A		SPACER			
BR70-43-065	1				
43-070		BRACKET, MASTER CYL.			
NA01-43-070A	1	BASE, R-PKG, PKG-A, (W/O AUTO CRUISE.CON T.)			-5401
NA02-43-070A	1	M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/AUTO CRUISE.CON T.)			-5401
NA01-43-070B	1	BASE, R-PKG, PKG-A, (W/O AUTO CRUISE.CON T.)			5401-
NA02-43-070B	1	M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/AUTO CRUISE.CON T.)			5401-
43-081A		SPRING, RETURN-BRAKE			
B092-41-081	1				
43-140		FORK, BRAKE			
1524-43-141	1				
43-152		PIN, SNAP			
D001-43-152	1				
43-302		GROMMET, BRAKE PEDAL			
B180-43-302	1				

5401 NA35* -619598
5508 NA35* -620210

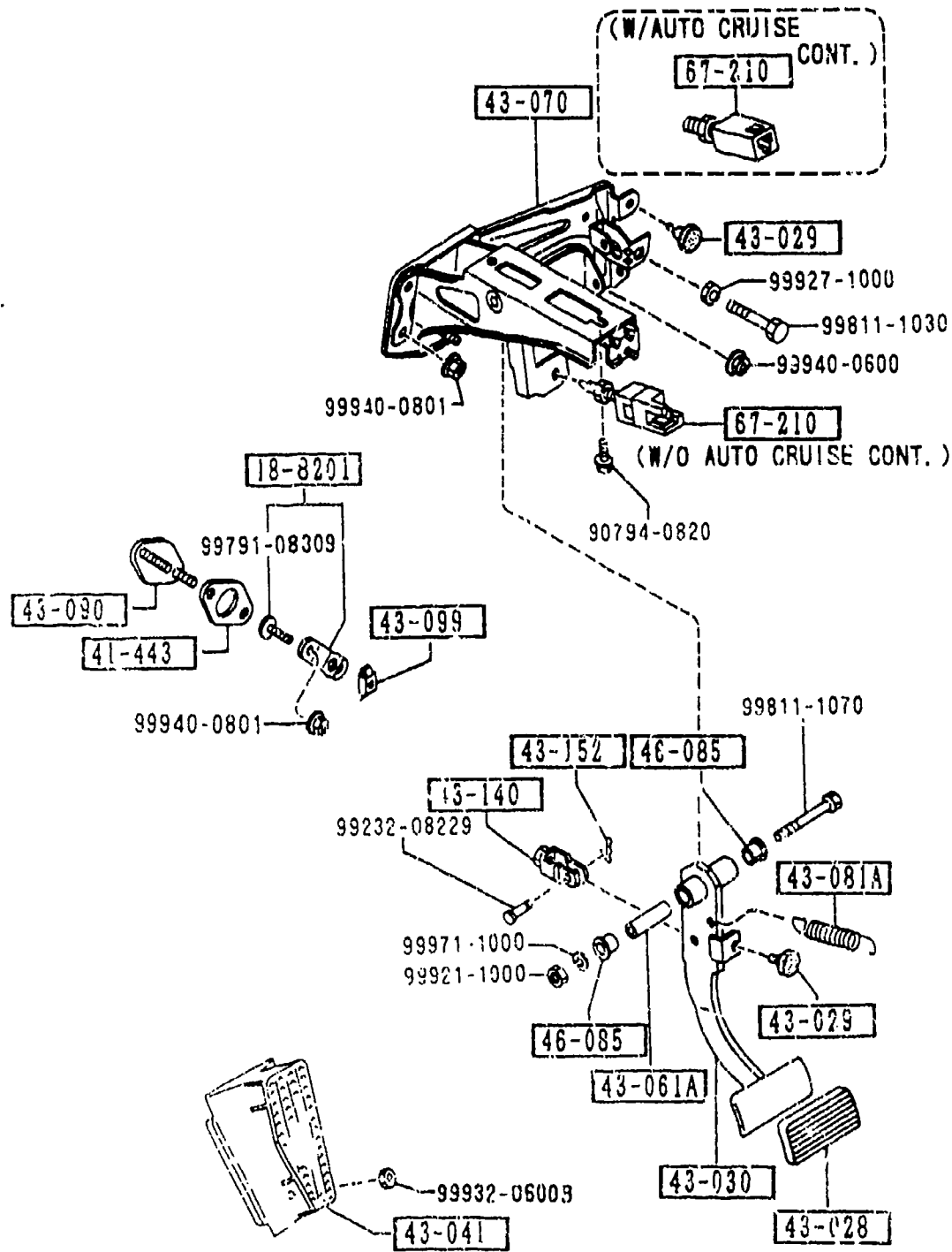


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
46-085		BUSH			
1015-46-085	4				
46-683A		PIN			
0223-46-683	1				
66-400		SWITCH, CLUTCH CUT			
FB01-66-400	1				
67-210		SWITCH, STOP-LAMP			
BR70-66-490A	1	M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/AUTO CRUISE CONT.)			
B001-66-490A	1	BASE, R-PKG, PKG-A, (W/O AUTO CRUISE CONT.)			
68-615B		NUT, FLANGE-CAP			
B100-68-615	1				

4300A AUTOMATIC TRANSMISSION BRAKE PEDAL

4300A -1 AUTOMATIC TRANSMISSION BRAKE PEDAL

FWD



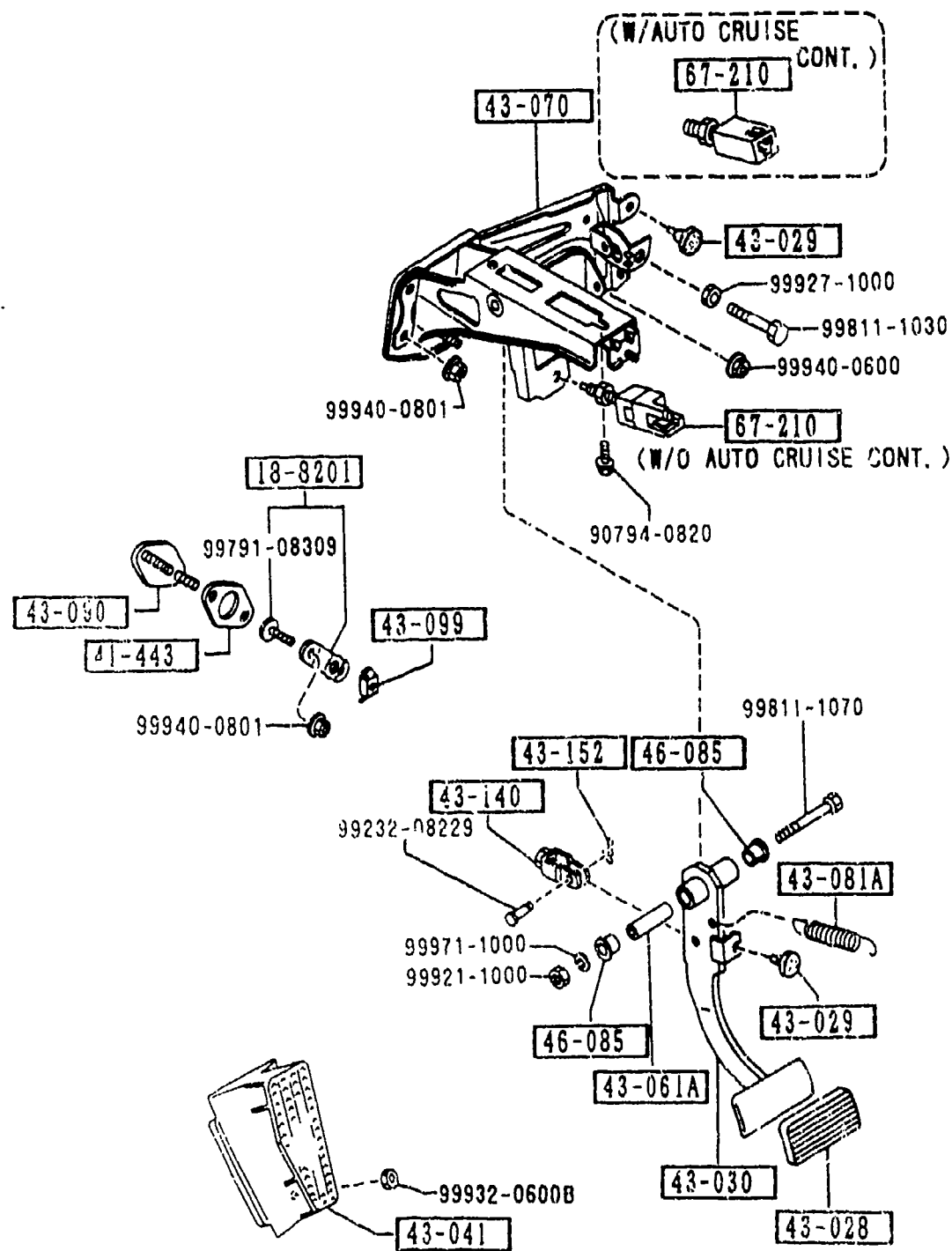
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
18-8201		BRACKET, CONTROL UNIT			
NA75-18-945B	1				
41-443		GASKET			
NA01-41-443	1				
43-028		PAD, PEDAL			
0268-43-028	1				
43-029		RUBBER, STOPPER			
B001-43-029	2	KUROISHI TEKKO			
43-030		PEDAL, BRAKE			
NA03-43-030	1				-5401
AN(NA03-43-030A)					5401-5508
NA03-43-030A	1				5508-
A(NA03-43-030B)					
NA03-43-030B	1				
43-041		REST, FOOT			
NA01-43-041	1				
43-061A		PIPE, PEDAL			
0866-43-062	1				
43-070		BRACKET, MASTER CYL.			
NA01-43-070A	1	BASE, R-PKG, PKG-A, (W/O AUTO CRUISE. CONT.)			-5401
NA02-43-070A	1	M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/AUTO CRUISE. CONT.)			-5401
NA01-43-070B	1	BASE, R-PKG, PKG-A, (W/O AUTO CRUISE. CONT.)			5401-
NA02-43-070B	1	M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/AUTO CRUISE. CONT.)			5401-
43-081A		SPRING, RETURN-BRAKE			
B092-41-081	1				

5401 NA35* -619598
5508 NA35* -620210

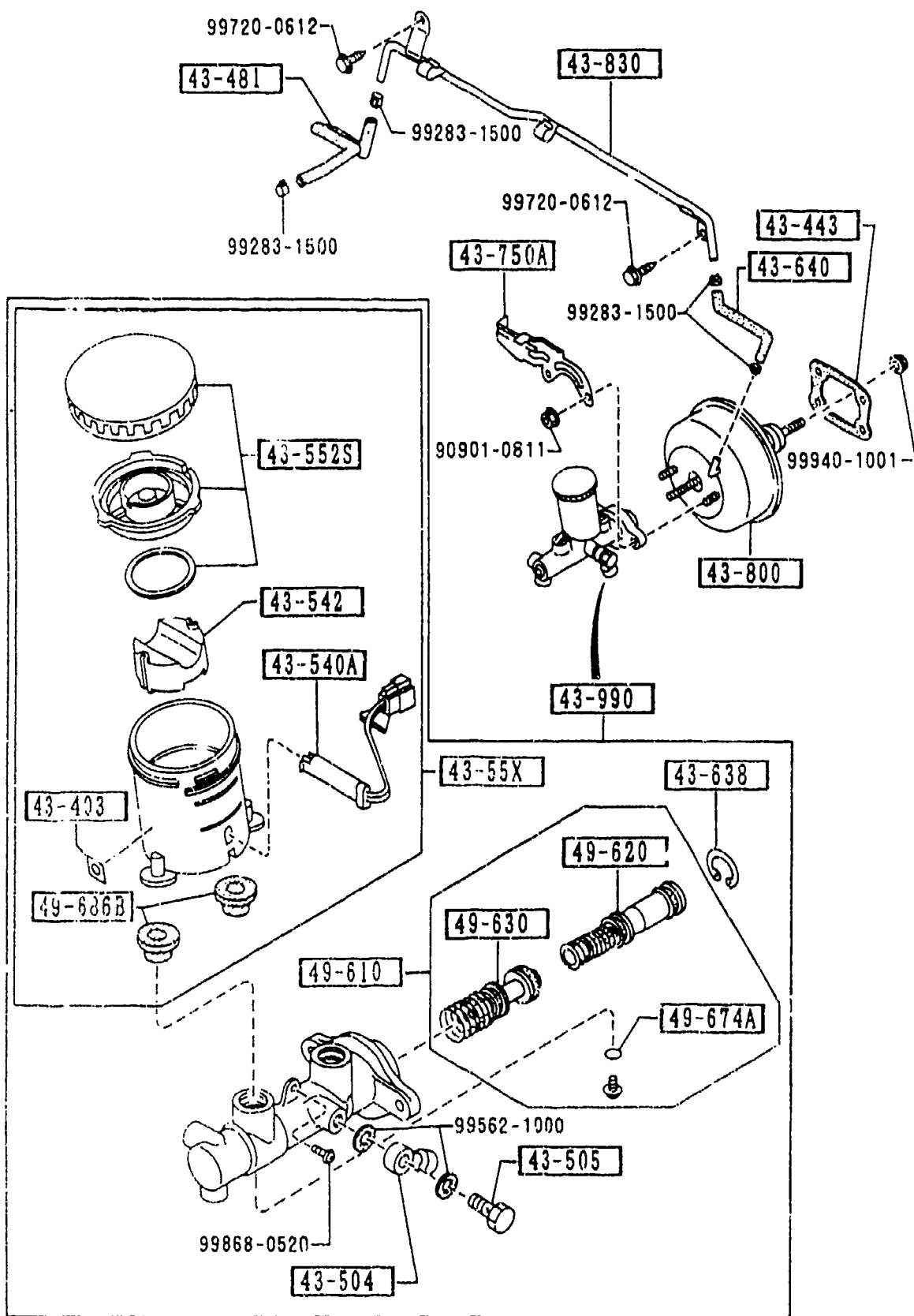
4300A AUTOMATIC TRANSMISSION BRAKE PEDAL

4300A -2 * AUTOMATIC TRANSMISSION BRAKE PEDAL

FWD

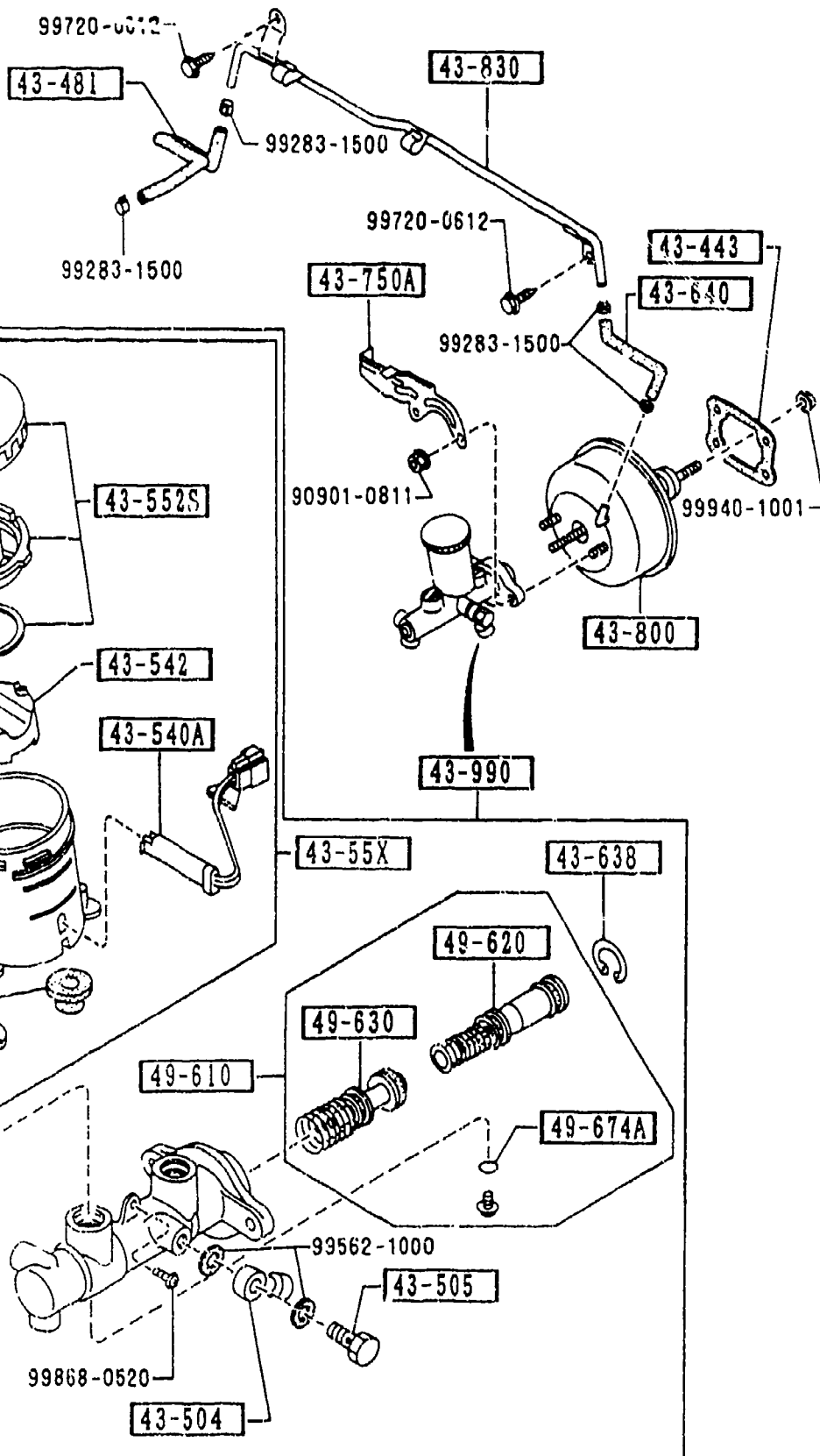


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
43-090		PLATE			
NA03-43-090	1				
43-099		HOLDER, PLATE			
HF23-43-099	1				
43-140		FORK, BRAKE			
1524-43-141	1				
43-152		PIN, SNAP			
D001-43-152	1				
46-085		BUSH			
1015-46-085	2				
67-210		SWITCH, STOP-LAMP			
BR70-66-490A	1	M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/AUTO CRUISE CONT.)			
B001-66-490A	1	BASE, R-PKG, PKG-A, (W/O AUTO CRUISE.COM T.)			



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
43-403		LABEL, ISO			
TA04-43-403A	1				
43-443		GASKET, VAC POWER AS SIST NON ASBESTOS			
H001-43-443	1				
43-481		HOSE, VACUUM			
NA75-43-481	1				
43-504		JOINT, PIPE			
W023-43-504	1				
43-505		BOLT, CONNECTOR			
W023-43-505	1				
43-540A		SENSOR, RESERVE TANK			
GA97-43-540	1				
43-542		FLOAT			
3597-43-542	1				
43-55X		SET, TANK			
B2Y6-43-55X	1				
43-552S		CAP SET, RESERVE TANK			
D001-49-650A	1				
43-638		RING, RETAINING			
GA02-49-638	1				
43-640		HOSE, VACUUM			
NA01-43-640	1				
43-750A		HOLDER, P. B. VALVE			
NA02-43-750A	1				
43-800		VACUUM POWER ASSIST			
NA75-43-800	1				
43-830		PIPE, VACUUM			

4340

**BRAKE MASTER CYLINDER & POWER BRAKE
(W/O ANTILOCK BRAKE)**

**4340 -2 * BRAKE MASTER CYLINDER & POWER BRAKE
(W/O ANTILOCK BRAKE)**

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
NA01-43-830A	1				
+ 43-990		CYL., TANDEM MASTER			
NA01-43-40Z	1				
+ 49-610		PARTS KIT, INN.-BRAKE			
BW0A-43-61Z	1				
+ 49-620		PISTON, PRIMARY			
BW0A-43-62Z	2				
+ 49-630		PISTON, FLOATING			
BW0A-43-63Z	1				
+ 49-674A		RING, 'O'-MASTER CYL.			
99541-00403	1				
+ 49-686B		BUSH, ELBOW JOINT			
F100-49-686	2				

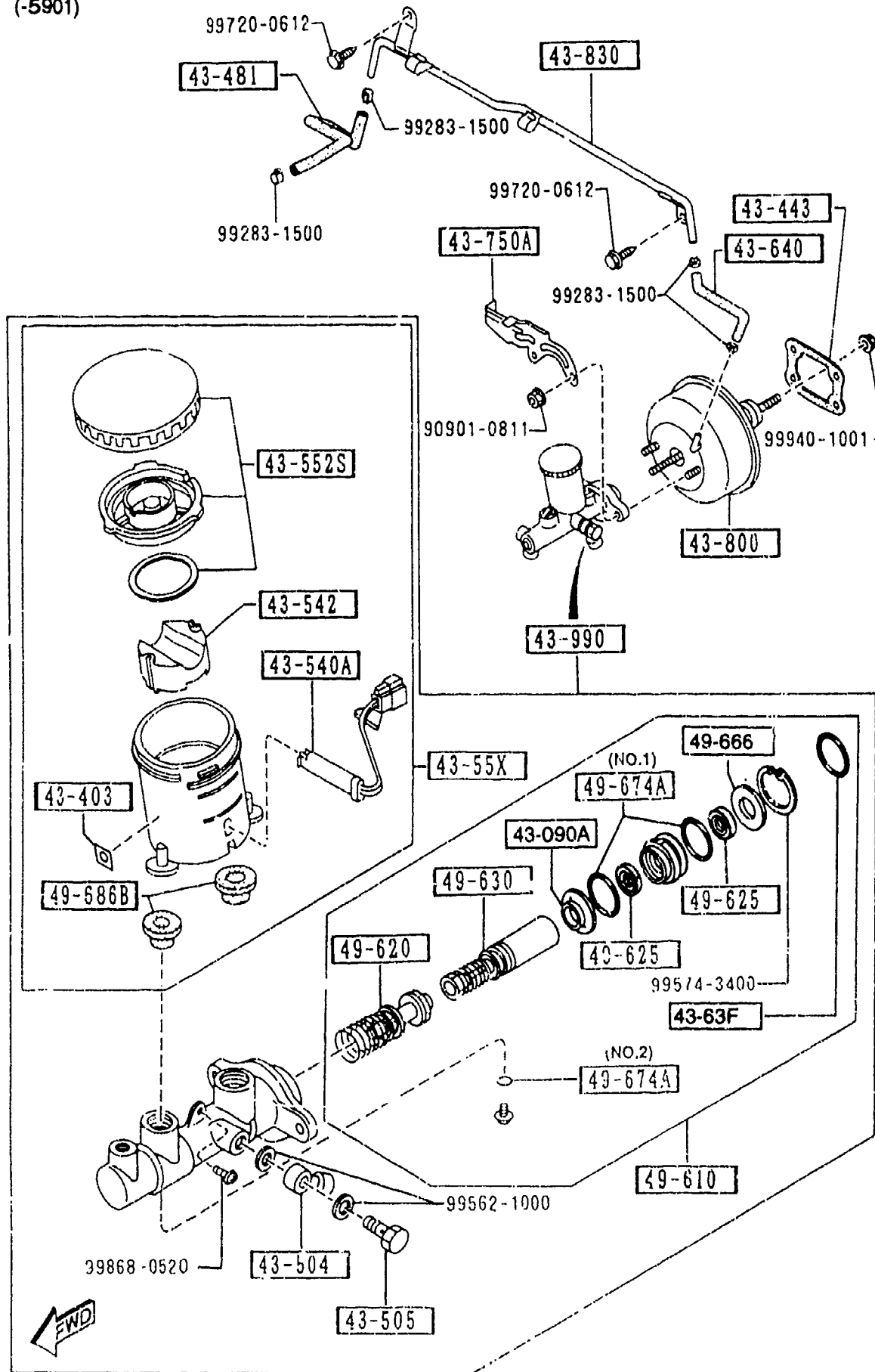
AUNA05

CAT. AUNA05-04

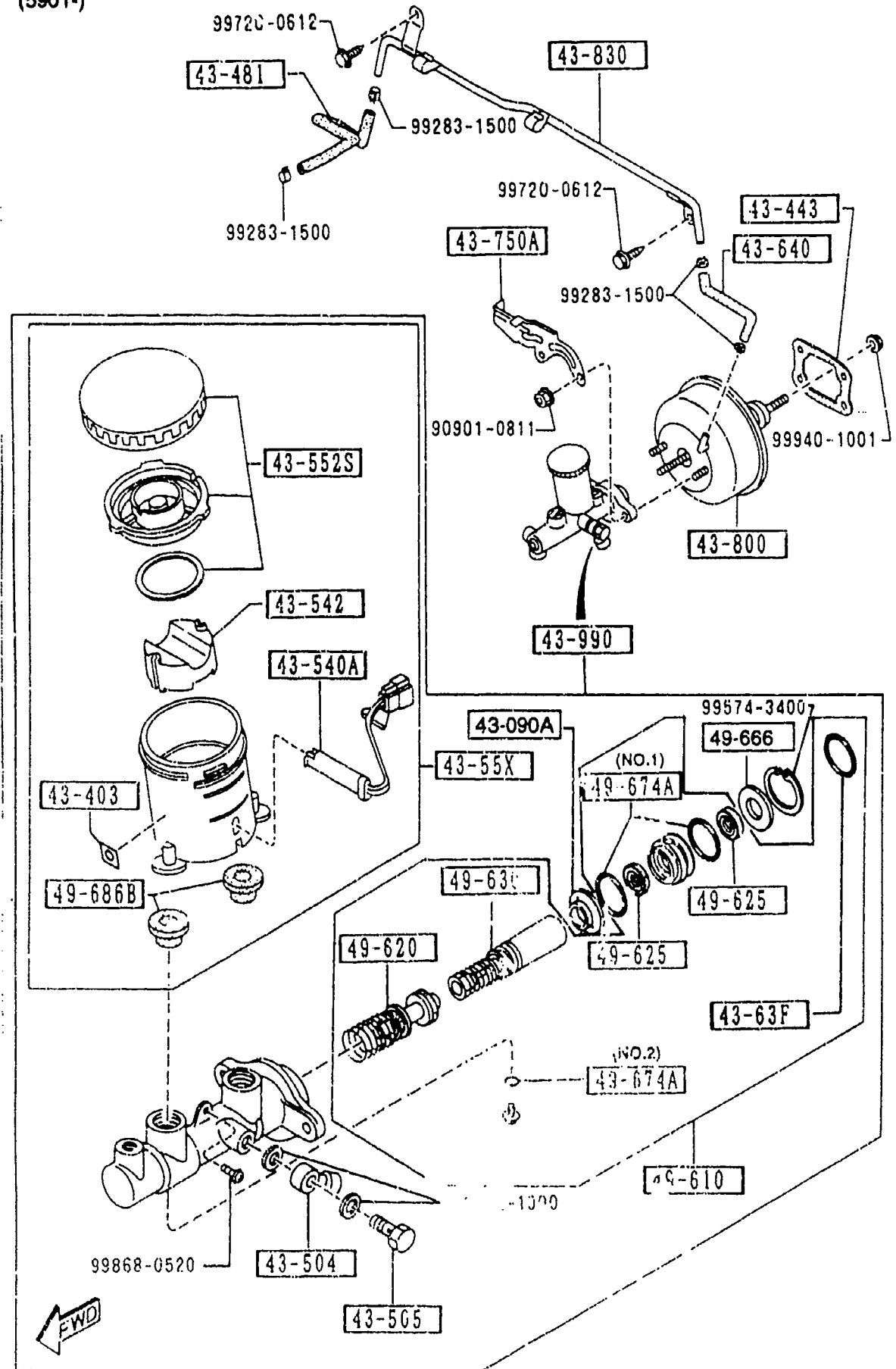
1997-07

1-616

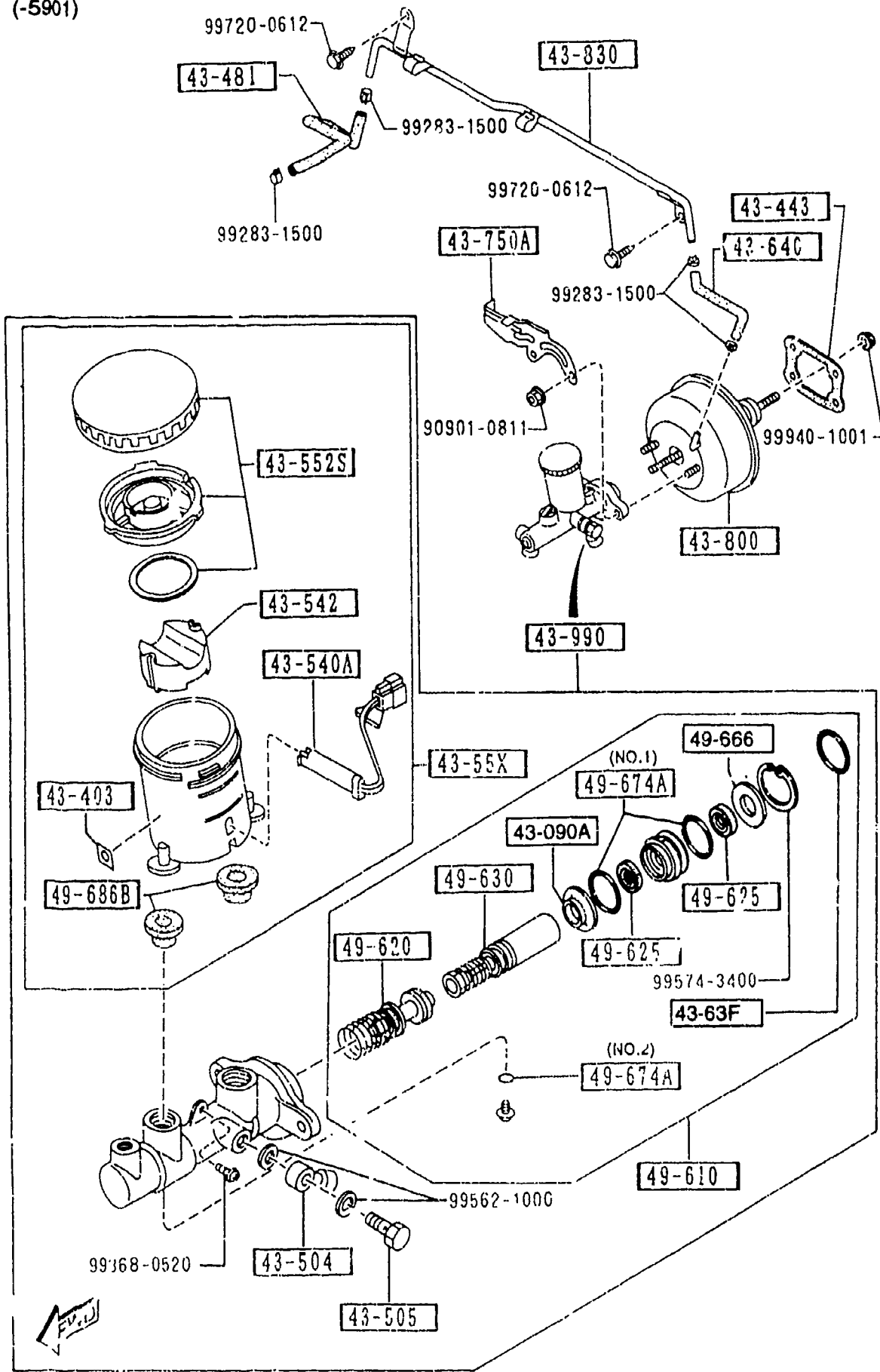
(-5901)



(5901-)



(-5901)



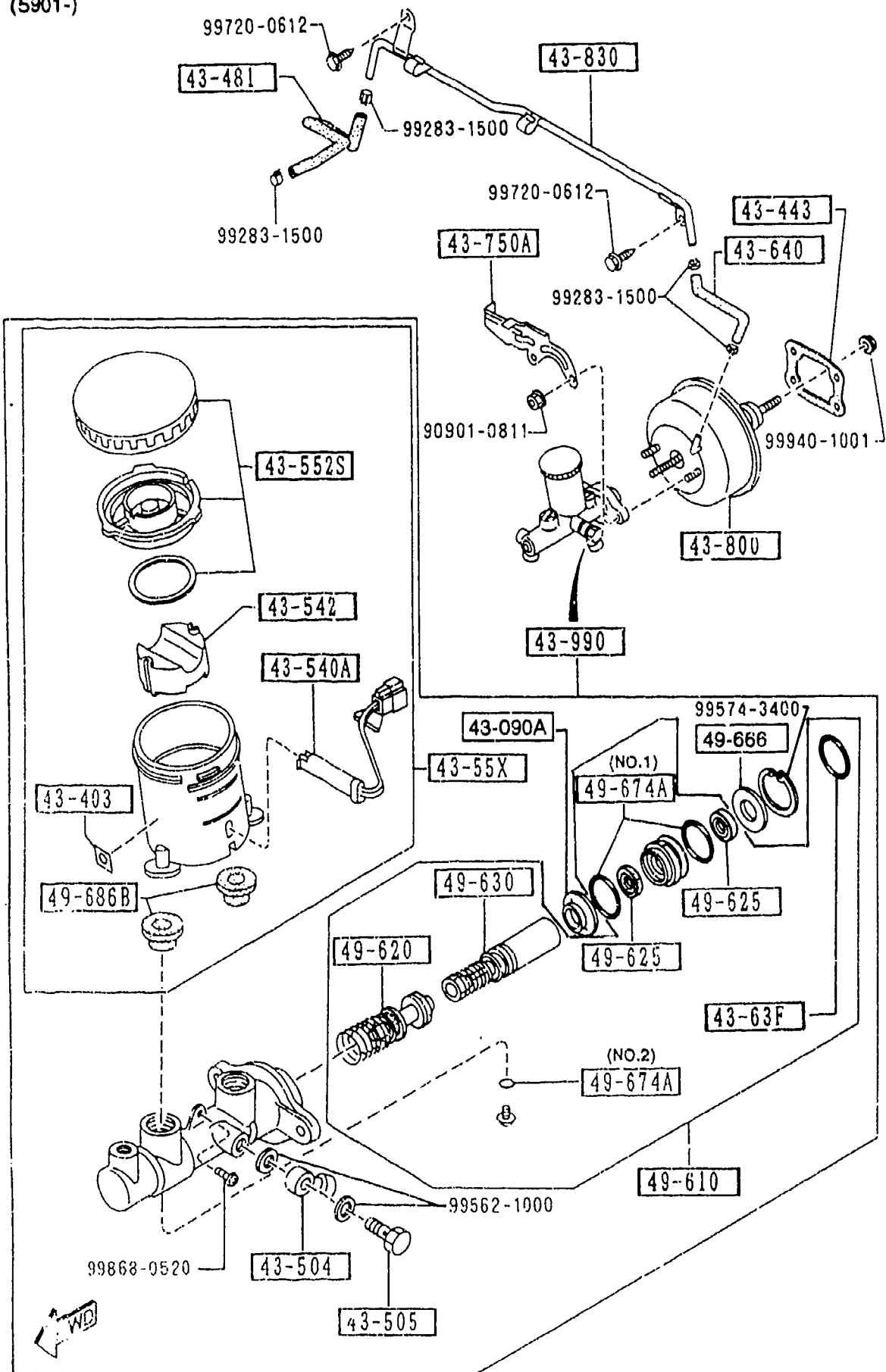
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
43-090A		STOPPER			
B252-49-514	1				
43-403		LABEL, ISO			
TA04-43-403A	1				
43-443		GASKET, VAC POWER ASSIST NON ASBESTOS			
H001-43-443	1				
43-481		HOSE, VACUUM			
NA75-43-481	1				
43-504		JOINT, PTPE			
W023-43-504	1				
43-505		BOLT, CONNECTOR			
W023-43-505	1				
43-540A		SENSOR, RESERVE TANK			
GA97-43-540	1				
43-542		FLOAT			
3577-43-542	1				
43-55X		SET, TANK			
NAY3-43-55X	1				
43-552S		CAP SET, RESERVE TANK			
D001-49-650A	1				
43-63F		RING, 'O'			
B252-49-512	1				
43-640		HOSE, VACUUM			
NA01-43-640	1				
43-750A		HOLDER, P. B. VALVE			
NA02-43-750A	1				
43-800		VACUUM POWER ASSIST			



4340 A BRAKE MASTER CYLINDER & POWER BRAKE
(W/ANTILOCK BRAKE)

(2/2)

(5901-)



4340 A-2 * BRAKE MASTER CYLINDER & POWER BRAKE
(W/ANTILOCK BRAKE)

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
NAB0-43-800	1				
+-----+					
| 43-830 |		PIPE, VACUUM			
+-----+					
NA23-43-830B	1				
+-----+					
| 43-990 |		CYL., TANDEM MASTER			
+-----+					
NA23-43-40Z	1				-6116
A (NA23-43-40ZA)					
*NA23-43-40ZA	1				6116-
+-----+					
| 49-610 |		PARTS KIT, INN.-BRAKE			
+-----+					
NAY3-43-41Z	1				-5901
NAY3-43-41ZA	1				5901-6116
*DIY2-43-41Z	1				6116-
+-----+					
| 49-620 |		PISTON, PRIMARY			
+-----+					
B252-49-620A	1				
+-----+					
| 49-625 |		CUP, SECONDARY			
+-----+					
NA23-43-625	2				
+-----+					
| 49-630 |		PISTON, FLOATING			
+-----+					
NA23-43-63Z	1				
+-----+					
| 49-666 |		WASHER, STOP			
+-----+					
B252-49-666	1				
+-----+					
| 49-674A |		RING, 'O'-MASTER CYL.			
+-----+					
NA23-43-515	2	SHINEI KOGYO (ILLUST. NO.1)			
99541-00603	1	NOK (ILLUST. NO.2)			
+-----+					
49-686B		BUSH, ELBOW JOINT			
+-----+					
F100-49-686	2				

5901 NA3** -702989
6116 NA3** -709695

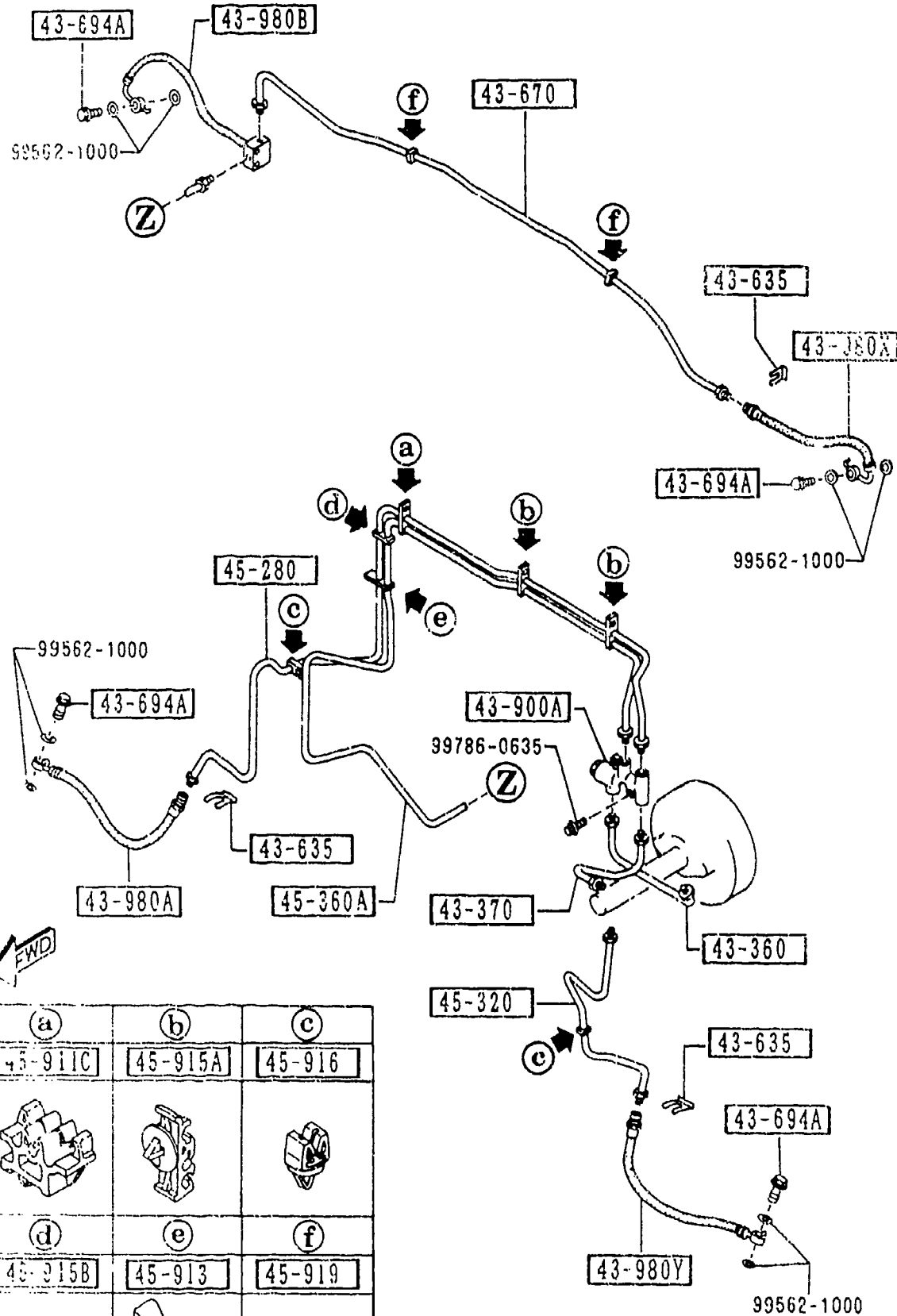
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CAT AUNA05-04

1997-07

1-J16

4360 BRAKE PIPINGS
(W/O ANTI LOCK BRAKE SYSTEM)

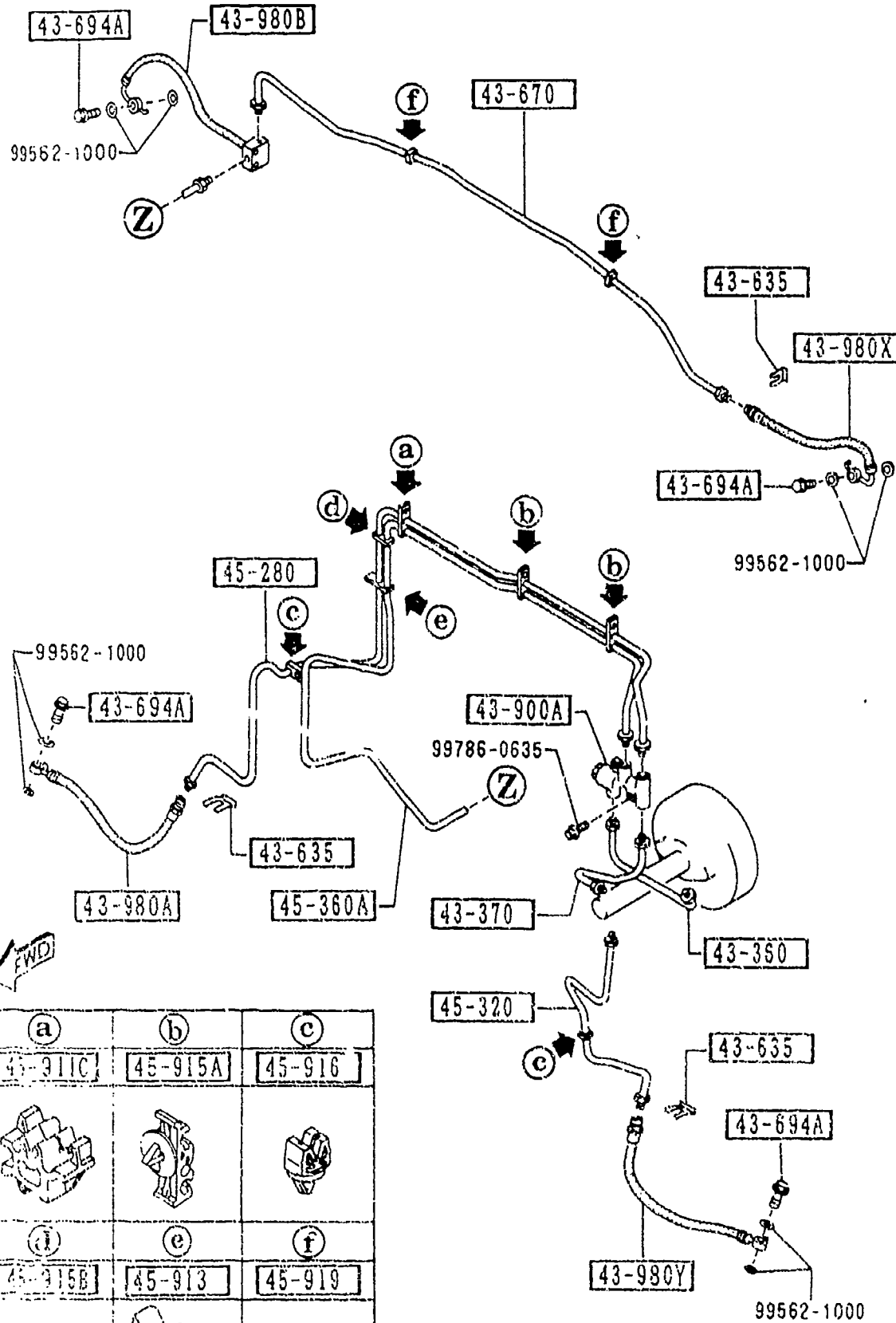


a	b	c
45-911C	45-915A	45-916
d	e	f
45-915B	45-913	45-919

4360 -1 BRAKE PIPINGS
(W/O ANTI LOCK BRAKE SYSTEM)

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
43-360		PIPE, BRAKE			
NA01-43-360A	1				
43-370		PIPE, BRAKE			
NA01-43-370	1				
43-635		CLIP, FLEXIBLE HOSE			
W023-43-635 A (W023-43-635A)	3				-4927
W023-43-635A	3				4927-
43-670		PIPE, BRAKE-REAR			
NA01-43-670A	1				
43-694A		BOLT, CONNECTOR			
B001-43-694A	4				
43-900A		VALVE, P. B.			
H380-43-900	1				
43-980A		HOSE(R), FLEXIBLE-FRT			
NA75-43-810	1				
43-980B		HOSE(R), FLEXIBLE-RR			
NA75-43-980	1				
43-980X		HOSE(L), FLEXIBLE-RR			
NA75-43-990	1				
43-980Y		HOSE(L), FLEXIBLE-FRT			
NA75-43-820	1				
45-280		PIPE(R), BRAKE-FRONT			
NA75-45-280	1				
45-320		PIPE(L), BRAKE-FRONT			
NA01-45-320C	1				-4A03
NA01-45-320D	1				4A03-
45-360A		PIPE, BRAKE-REAR			
NA75-45-360A	1				

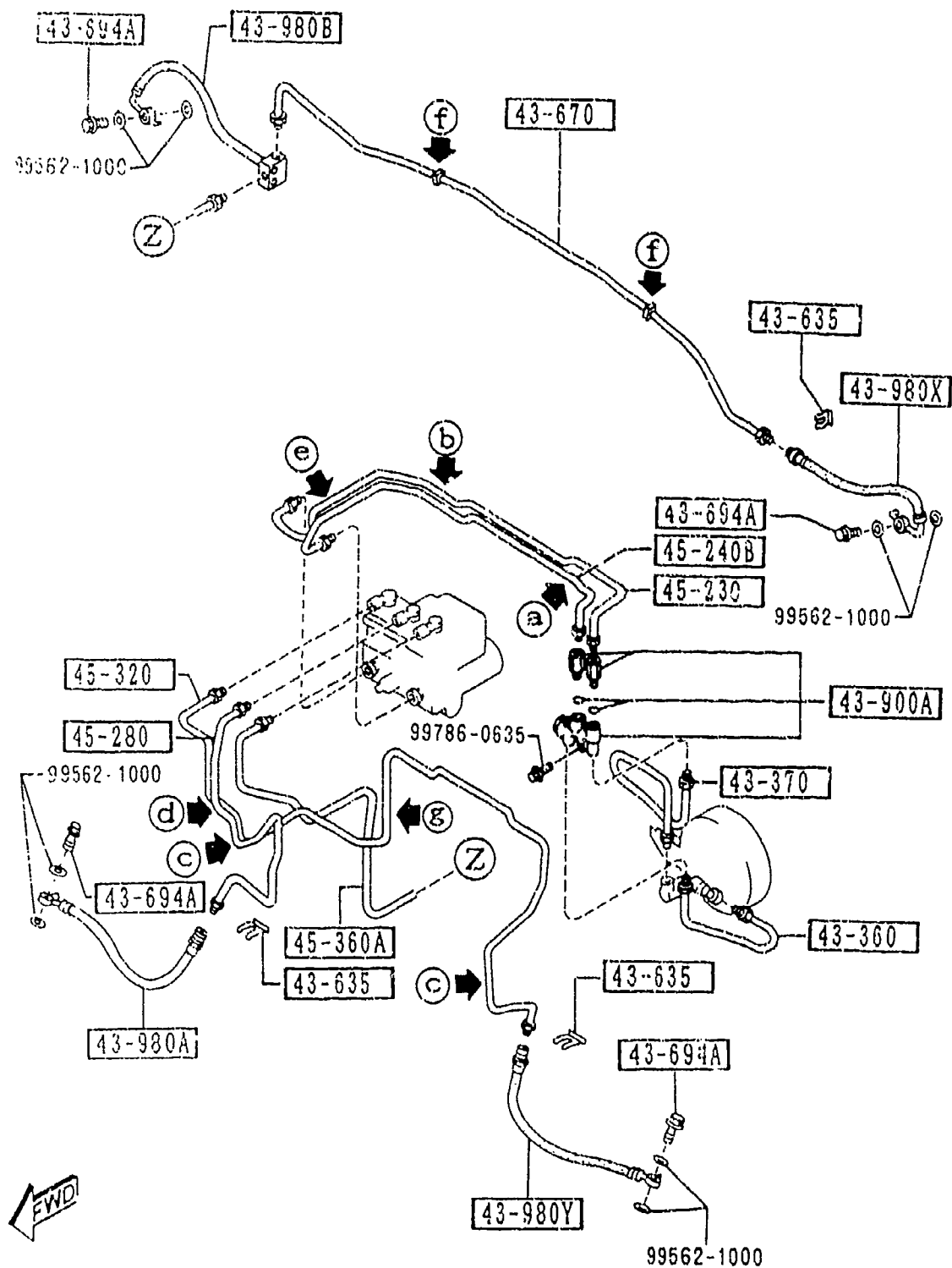
4927 NA35* -603489
4A03 NA35* -603621



(a)	(b)	(c)
45-911C	45-915A	45-916
(d)	(e)	(f)
45-915B	45-913	45-919

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
45-911C		CLIP, PIPE			
NA01-45-911	1				
45-913		HOLDER, PIPE			
NA75-45-913	1				
45-915A		HOLDER, PIPE			
B001-45-915	2				
45-915B		HOLDER, PIPE			
NA01-45-915A	1				
45-916		HOLDER, PIPE			
BC1D-45-916	2				
45-919		CLIP, PIPE			
B001-45-919B	2				

4360 A BRAKE PIPINGS
(ANTI LOCK BRAKE SYSTEM)



a	b	c	d	e	f	g
45-910E	45-920	45-916	43-919A	45-916A	45-919	45-919C

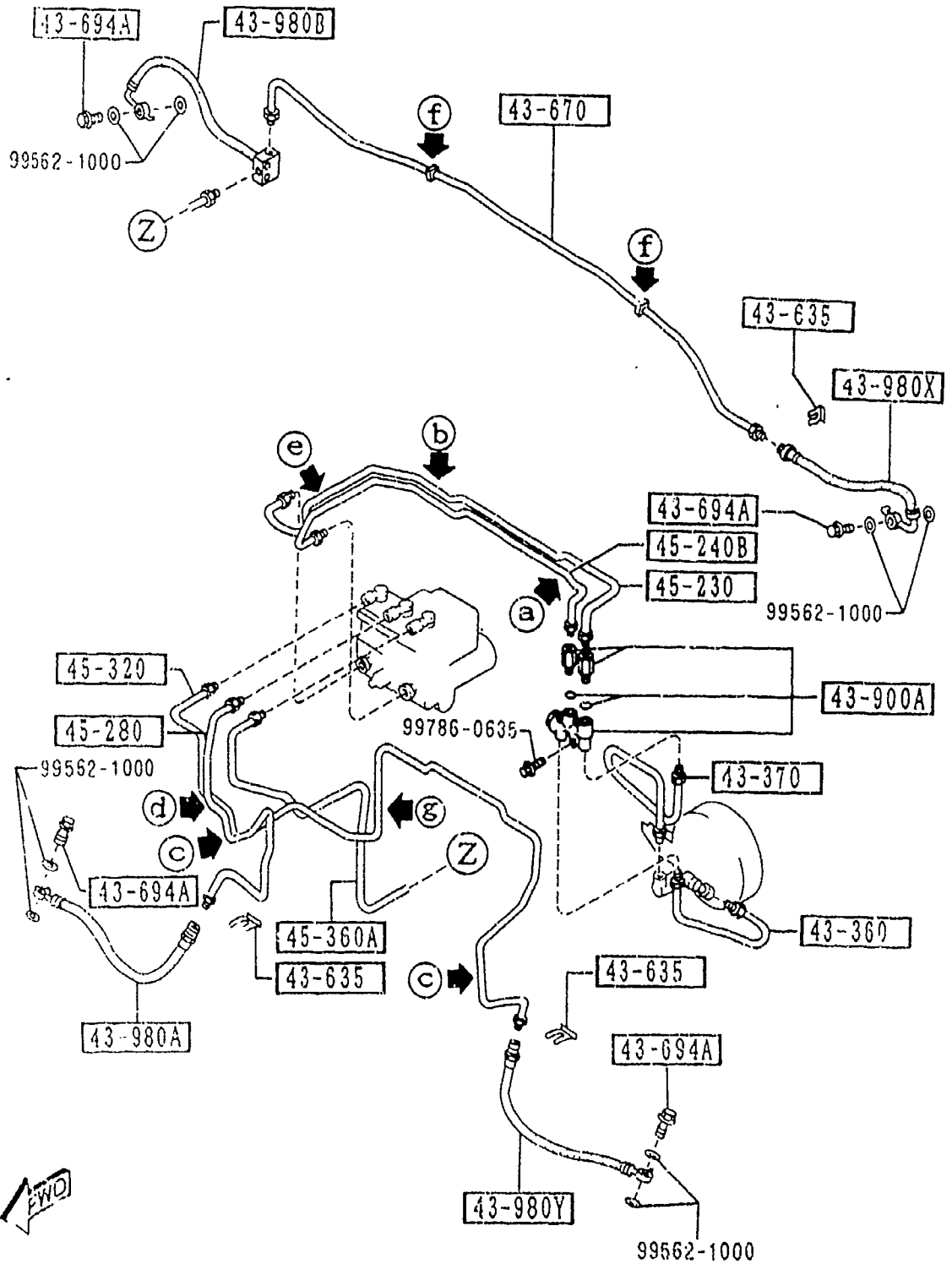
4360 A-1 BRAKE PIPINGS
(ANTI LOCK BRAKE SYSTEM)

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
43-360		PIPE, BRAKE			
NA23-43-360A	1				
43-370		PIPE, BRAKE			
NA23-43-370A	1				
43-635		CLIP, FLEXIBLE HOSE			
W023-43-635	3				-4927
A (W023-43-635A)					
W023-43-635A	3				4927-
43-670		PIPE, BRAKE-REAR			
NA01-43-670A	1				
43-694A		BOLT, CONNECTOR			
B001-43-694A	4				
43-900A		VALVE, P. B.			
F123-43-900	1				
43-919A		HOLDER, BRAKE PIPE			
NA20-45-915	1				
43-980A		HOSE(R), FLEXIBLE-FRT			
NA75-43-810	1				
43-980B		HOSE(R), FLEXIBLE-RR			
NA75-43-980	1				
43-980X		HOSE(L), FLEXIBLE-RR			
NA75-43-990	1				
43-980Y		HOSE(L), FLEXIBLE-FRT			
NA75-43-820	1				
45-230		PIPE NO. 3, MAIN BRAKE			
NB13-45-230A	1				
45-240B		PIPE, BRAKE-FRT			
NR13-45-240A	1				

4927 NA35* -603489

4360 A BRAKE PIPINGS
(ANTI LOCK BRAKE SYSTEM)

4360 A-2 * BRAKE PIPINGS
(ANTI LOCK BRAKE SYSTEM)



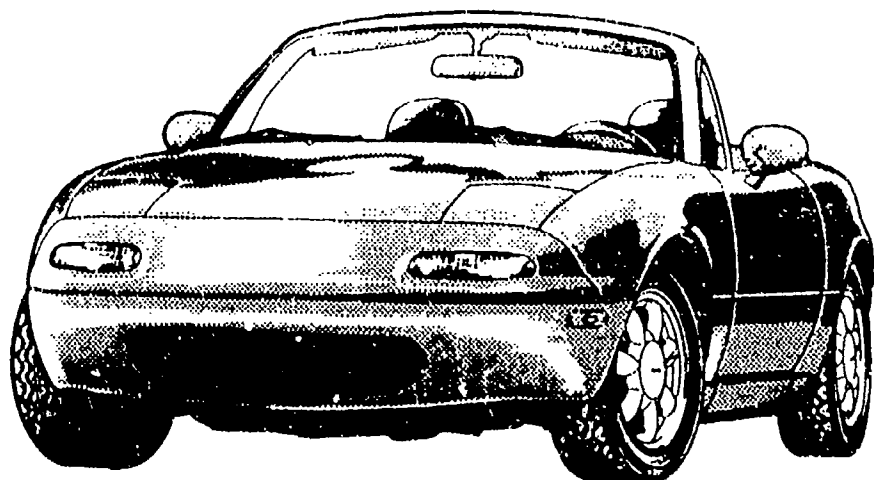
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
45-280		PIPE(R), BRAKE-FRONT			
NB13-45-280	1				
45-320		PIPE(L), BRAKE-FRONT			
NB13-45-320A	1				
45-360A		PIPE, BRAKE-REAR			
NB13-45-360B	1				
45-910E		HOLDER, PIPE			
NA20-45-910A	1				
45-916		HOLDER, PIPE			
BC.D-45-916	2				
45-916A		HOLDER, PIPE			
HR31-45-915	1				
45-919		CLIP, PIPE			
B001-45-919B	2				
45-919C		CLIP, PIPE			
G030-45-919A	1				
45-920		BRACKET			
NA20-45-920B	1				

a	b	c	d	e	f	g
15-910E	45-920	45-916	43-919A	45-916A	45-919	45-919C



Parts Catalog

Mazda MX-5 MIATA
U.S.A.
('95 ▶ '96)



NA35 • -600001-700000
NA3 • -700001-800000

MAZDA

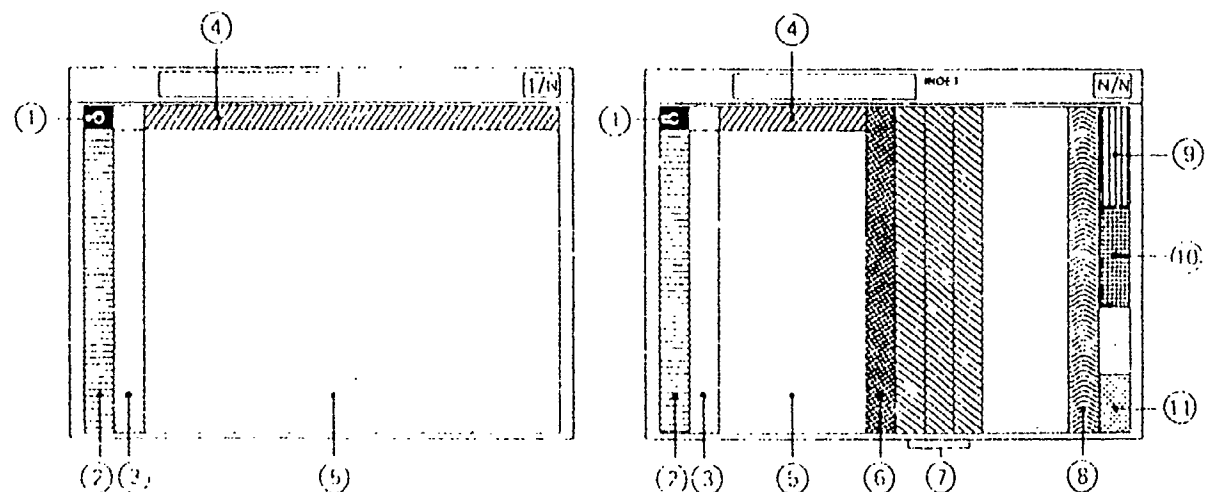
1997 Mazda Motor Corporation

Jul. '97 (FINAL)

Catalog No. AU-NA05-04

LAYOUT OF CONTENTS / DISPOSITION TYPOGRAPHIQUE DE CONTENU / DISPOSICION DEL CONTENIDO / ANORDNUNG DES INHALTS

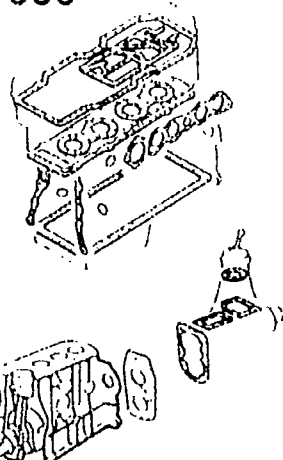
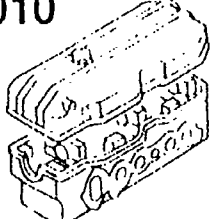
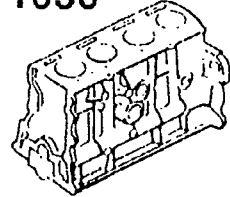
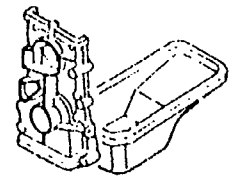
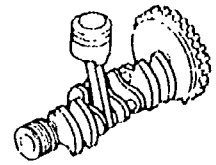
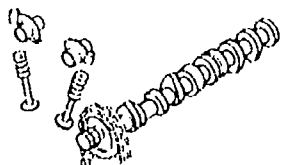
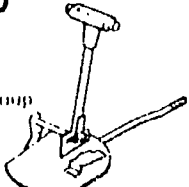
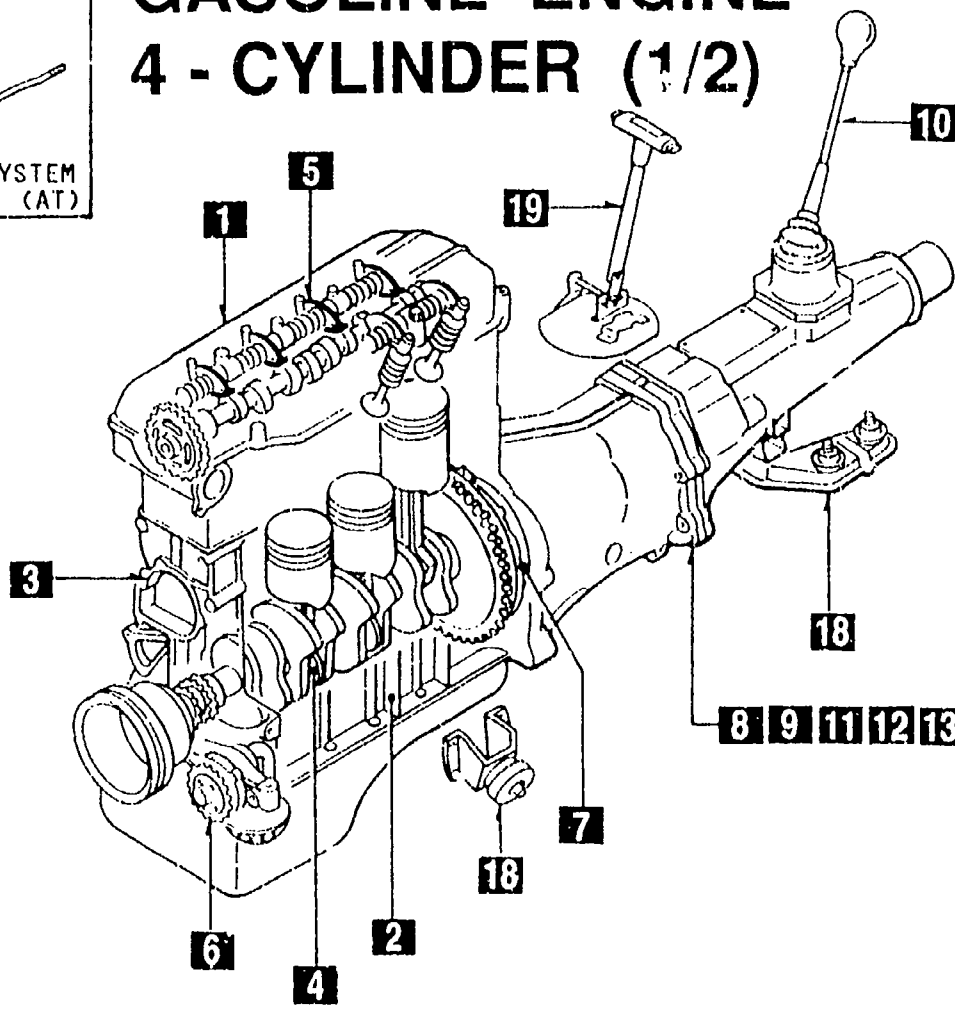
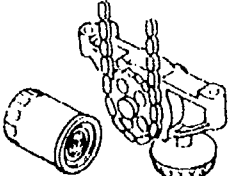
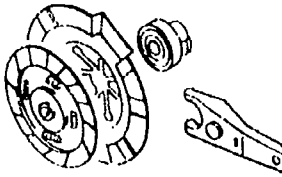
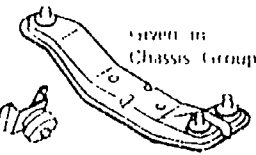
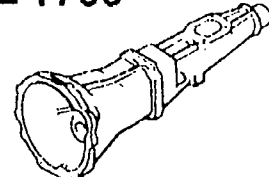
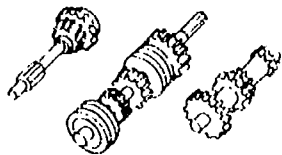

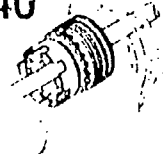


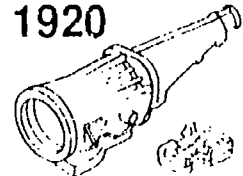



- The following is a typical example of the layout of contents on Mazda microfiche parts catalog.
- Voici un exemple typique de la disposition typographique de contenu dans les microfiches de catalogue des pièces de Mazda.
- El siguiente es un ejemplo típico de la disposición del contenido en una microficha del catálogo de repuestos de Mazda.
- Folgendes ist ein typisches Beispiel der Inhaltsanordnung des Mazda-Mikrofiche-Teilekatalogs.



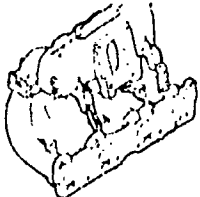
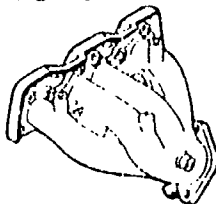

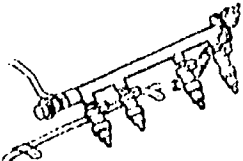
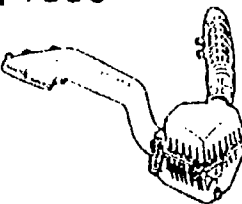
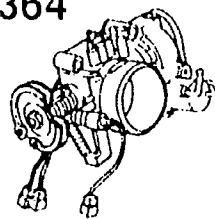
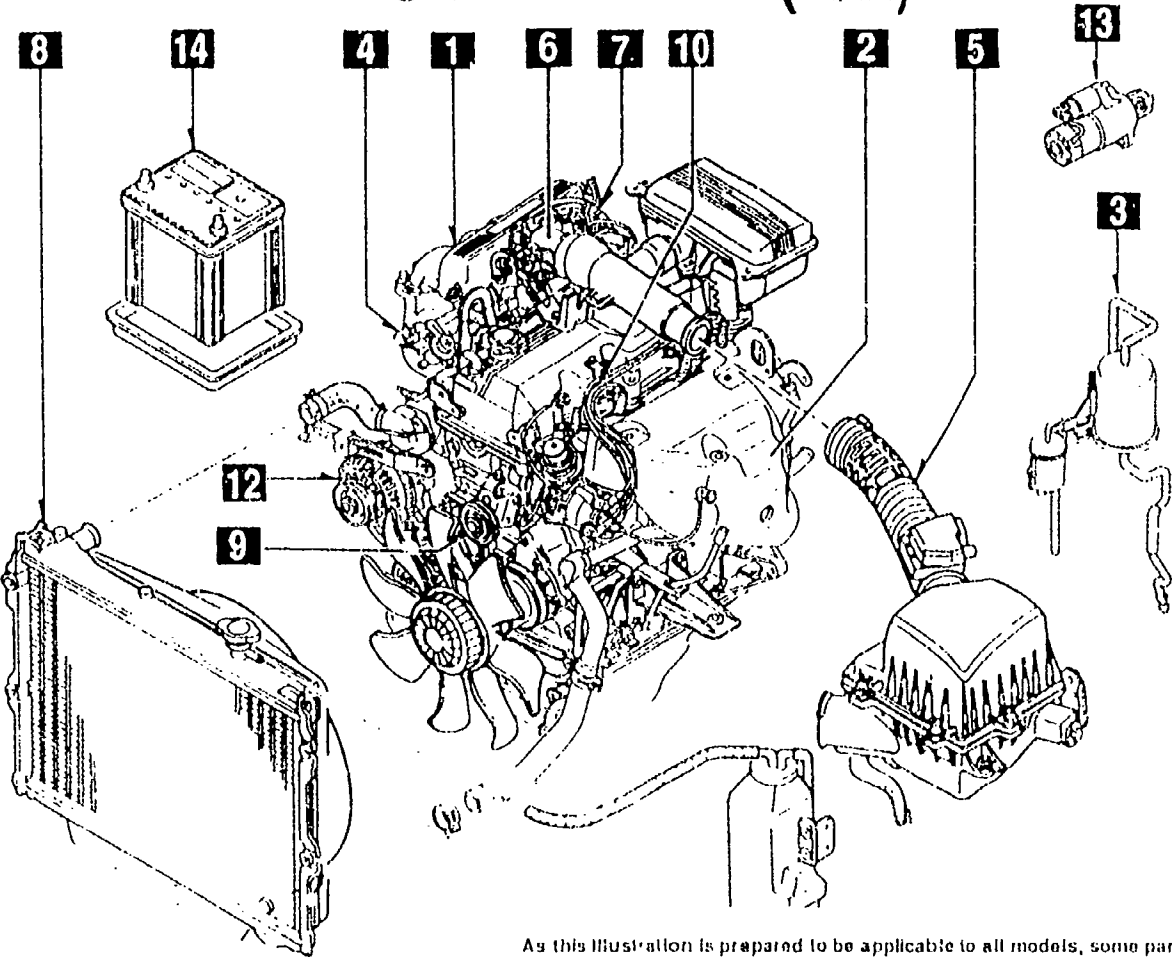

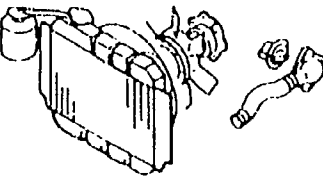
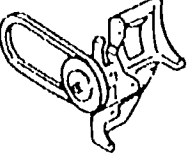
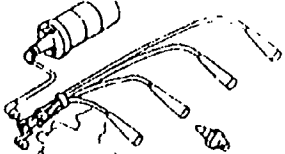
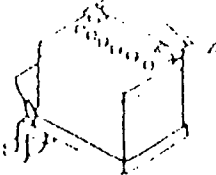
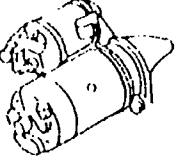
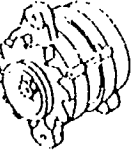
Remark : The items listed under ④ have been deleted from each fiche since Dec. '93

- | | | |
|--|---|--|
| ① • Layout of contents
Disposition Typo-
graphique de Contenu
• Disposición del contenido
• Anordnung des Inhalts | ② • Pictorial Index
• Index par Schémas
• Índice Gráfico
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• Index des Numéros des
Sections Totale
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| ④ • Section No. Index for
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für die Spalte | ⑤ • Illustration & Text
• Illustrations et Textes
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Pièces
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| ⑦ • Alphabetical Index
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• Alphabetischer Index | ⑧ • Model Identification
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• Modell-Kennzeichnung | ⑨ • Vehicle Identification
System
• Système d'Identification de
Véhicule
• Sistema de Identificación de
Vehículo
• Fahrzeug-Identifikations-
system |

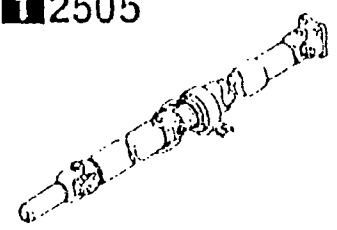
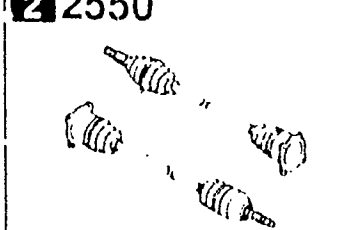
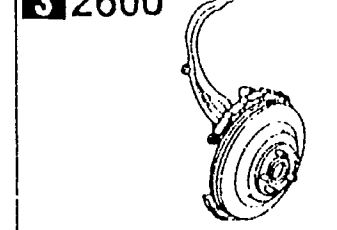

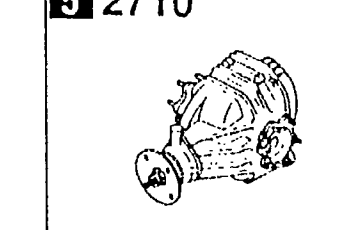


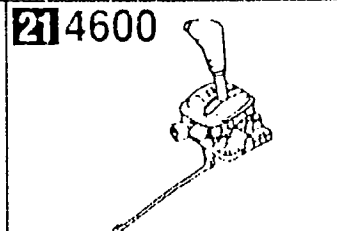
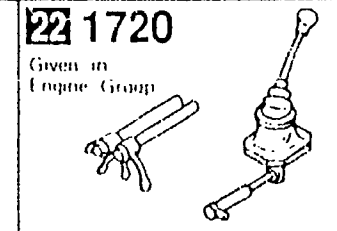
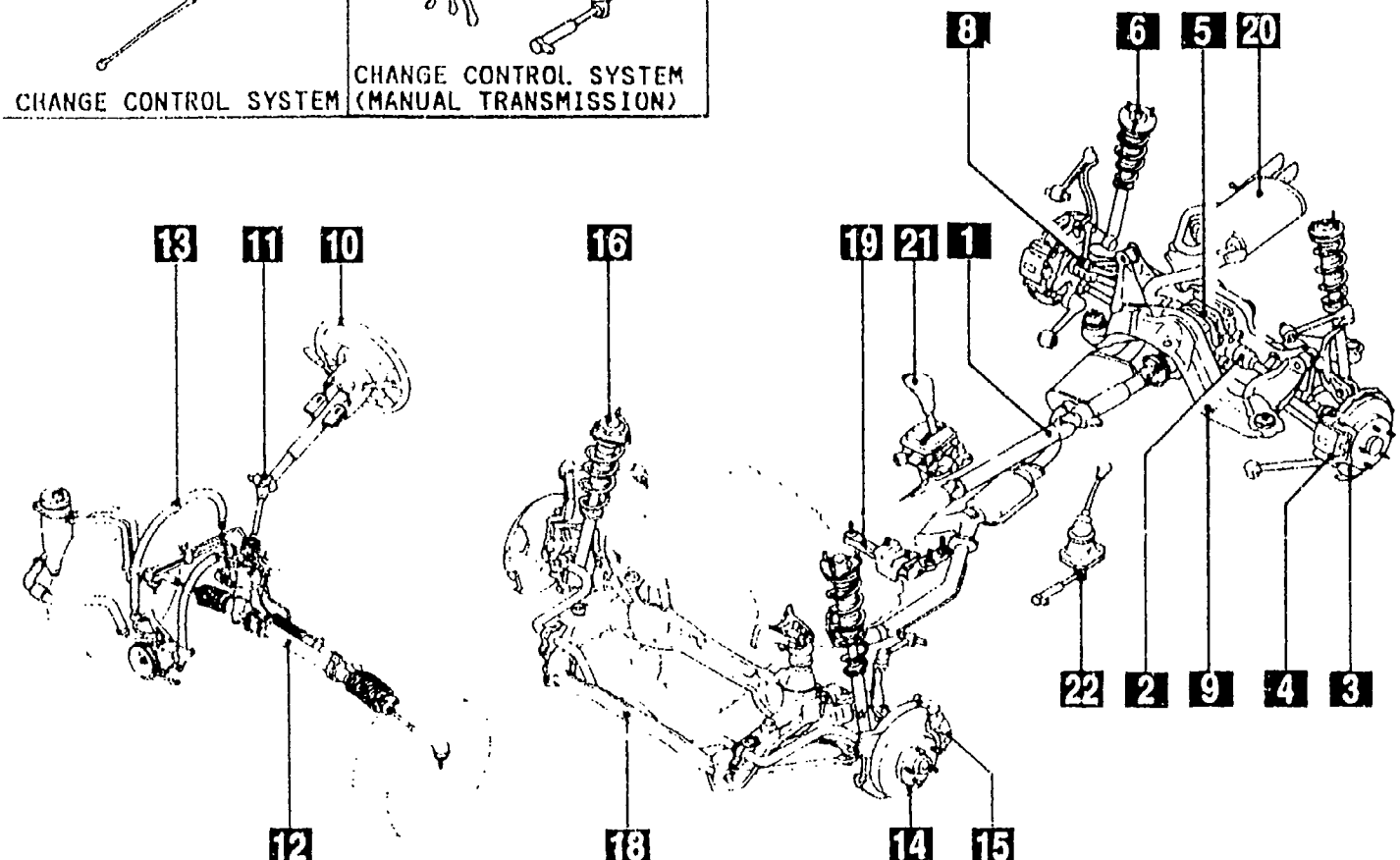
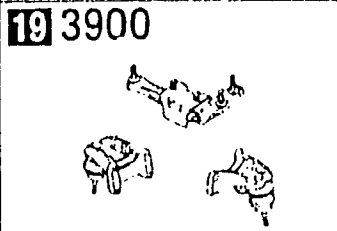
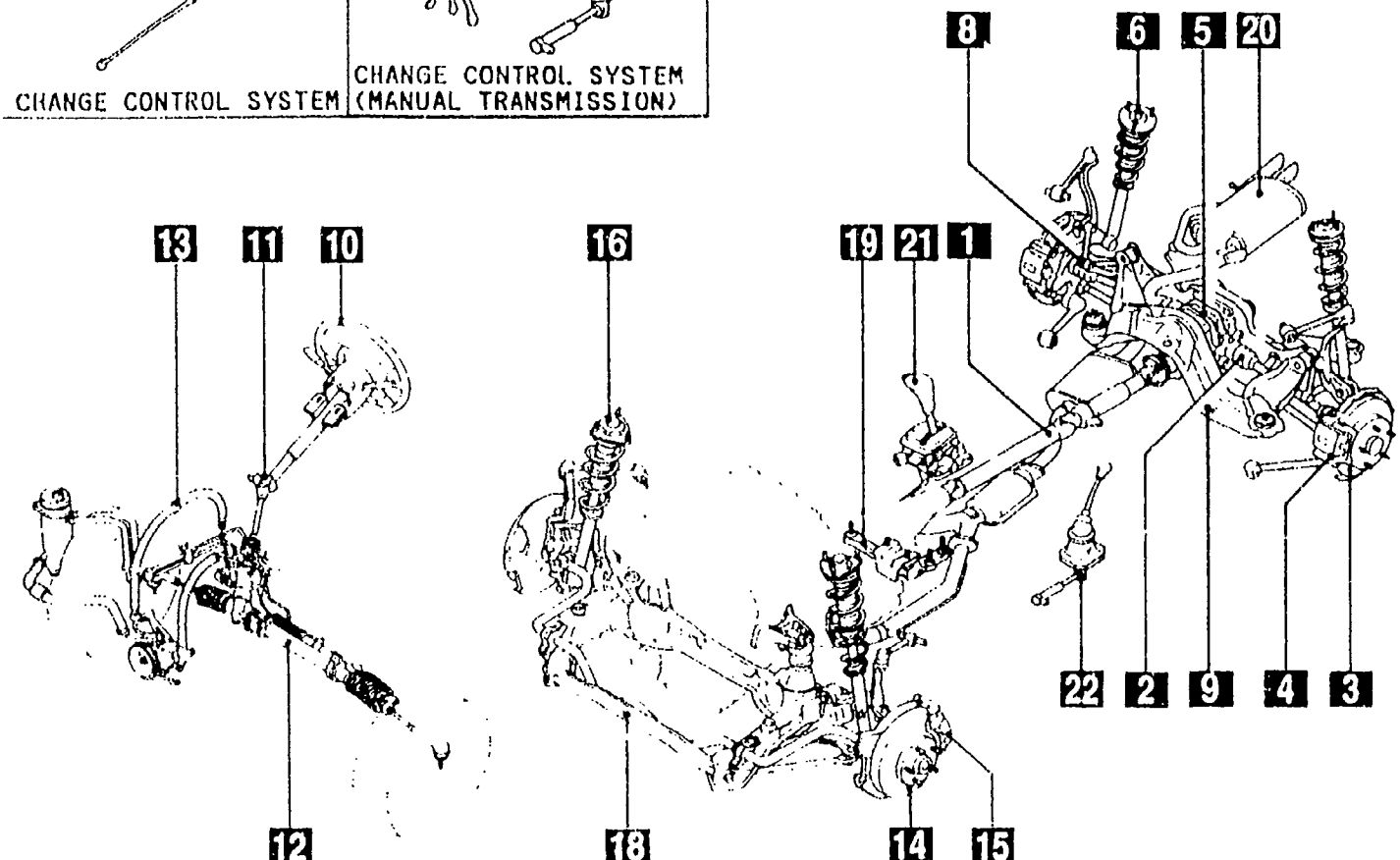
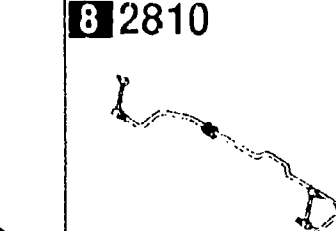

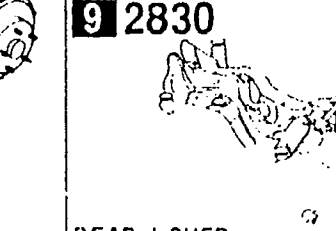
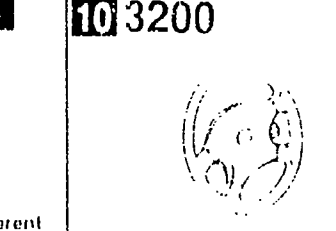

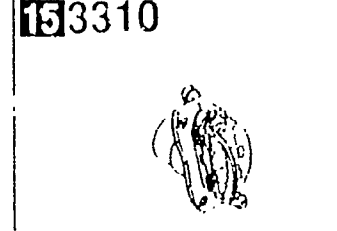

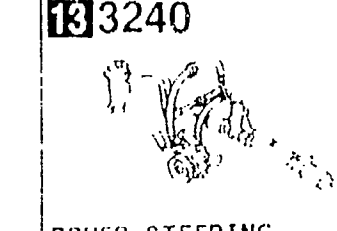
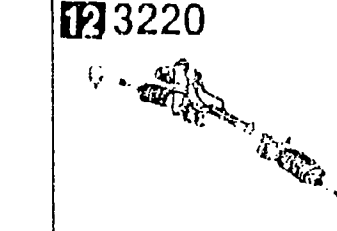
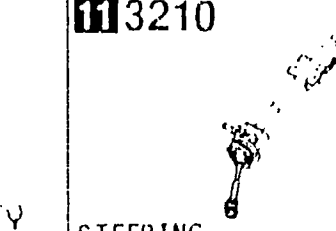
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<p>1000</p>  <p style="text-align: center;">ENGINE & GASKET SETS</p>	<p>1 1010</p>  <p style="text-align: center;">CYLINDER HEAD & COVER</p>	<p>2 1030</p>  <p style="text-align: center;">CYLINDER BLOCK</p>	<p>3 1040</p>  <p style="text-align: center;">OIL PAN & TIMING COVER</p>	<p>4 1100</p>  <p style="text-align: center;">PISTON, CRANKSHAFT & FLYWHEEL</p>	<p>5 1200</p>  <p style="text-align: center;">VALVE SYSTEM</p>			
<p>19 4600</p> <p style="text-align: center;"><small>Given in Chassis Group</small></p>  <p style="text-align: center;">CHANGE CONTROL SYSTEM (AT)</p>	<h2 style="margin: 0;">GASOLINE ENGINE 4 - CYLINDER (1/2)</h2> 			<p>6 1400</p>  <p style="text-align: center;">OIL PUMP & FILTER</p>	<p>7 1600</p>  <p style="text-align: center;">CLUTCH DISC & COVER (MANUAL)</p>			
<p>18 3900</p> <p style="text-align: center;"><small>Given in Chassis Group</small></p>  <p style="text-align: center;">ENGINE & TRANSMISSION MOUNTINGS</p>	<p style="font-size: small;">As this illustration is prepared to be applicable to all models, some parts are different in specification: in parts listed in this parts Catalog.</p>			<p>8 1700</p>  <p style="text-align: center;">TRANSMISSION CASE (MANUAL)</p>	<p>9 1710</p>  <p style="text-align: center;">TRANSMISSION GEARS (MANUAL)</p>			
<p>17 1960</p>  <p style="text-align: center;">GASKET & SEAL KIT (AUTOMATIC)</p>				<p>15 1940</p>  <p style="text-align: center;">GOVERNOR, LOW & REVERSE PISTON (AUTOMATIC)</p>	<p>14 1930</p>  <p style="text-align: center;">CLUTCHES & PLANETARY GEARS (AUTOMATIC)</p>	<p>13 1925</p>  <p style="text-align: center;">CONTROL VALVE (AUTOMATIC)</p>	<p>12 1920</p>  <p style="text-align: center;">TRANSMISSION CASE & MAIN CONTROL SYSTEM (AUTOMATIC)</p>	<p>11 1910</p>  <p style="text-align: center;">TORQUE CONVERTER, OIL PUMP & PIPINGS (AUTOMATIC)</p>
<p>16 1950</p>  <p style="text-align: center;">MANUAL LINKAGE SYSTEM (AUTOMATIC)</p>				<p>10 1720</p>  <p style="text-align: center;">CHANGE CONTROL SYSTEM (MANUAL)</p>				

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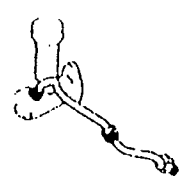
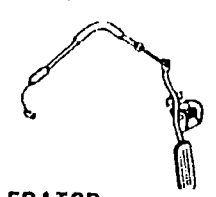
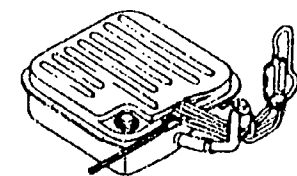
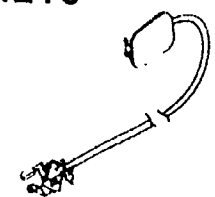
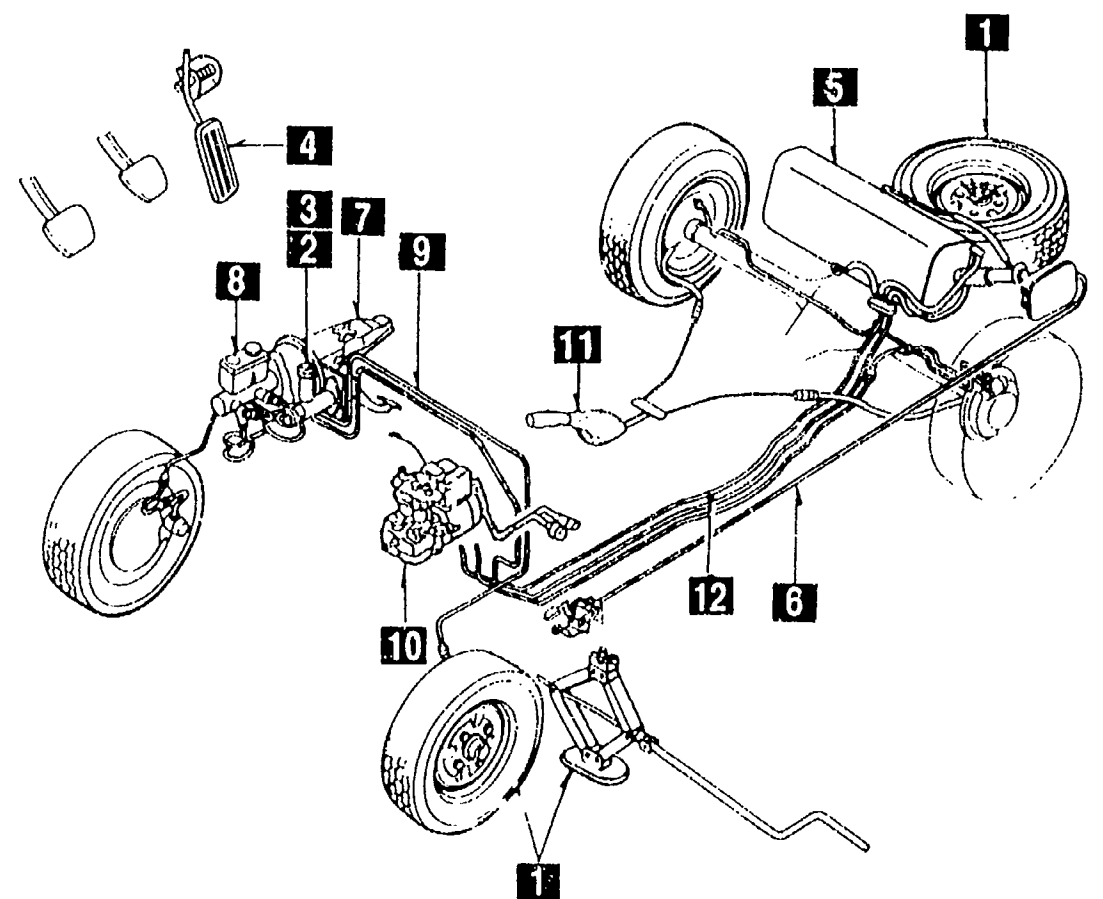

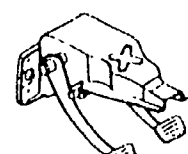
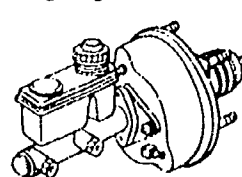
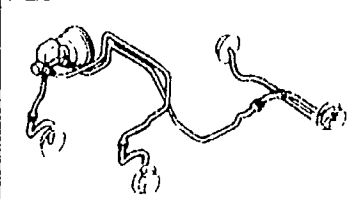
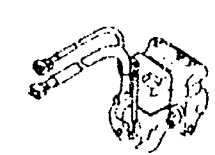

1 1300  INLET MANIFOLD	2 1310  EXHAUST MANIFOLD	3 1320  FUEL SYSTEM	4 1325  FUEL DISTRIBUTOR	5 1330  AIR CLEANER	6 1364  THROTTLE BODY
<h2 style="margin: 0;">GASOLINE ENGINE 4 - CYLINDER (2/2)</h2>					
					
<small>As this illustration is prepared to be applicable to all models, some parts are different in specifications from parts listed in this parts Catalog.</small>					
7 1370  EMISSION CONTROL SYSTEM (INLET SIDE)					
8 1500  COOLING SYSTEM					
9 1580  BRACKET, PULLEY & BELT					
10 1800  ENGINE ELECTRICAL SYSTEM					
11					
14 1850  BATTERY					
13 1840  STARTER					
12 1830  ALTERNATOR					

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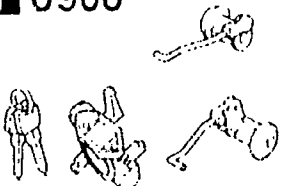

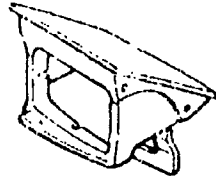
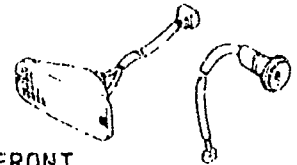

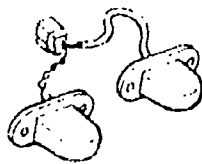
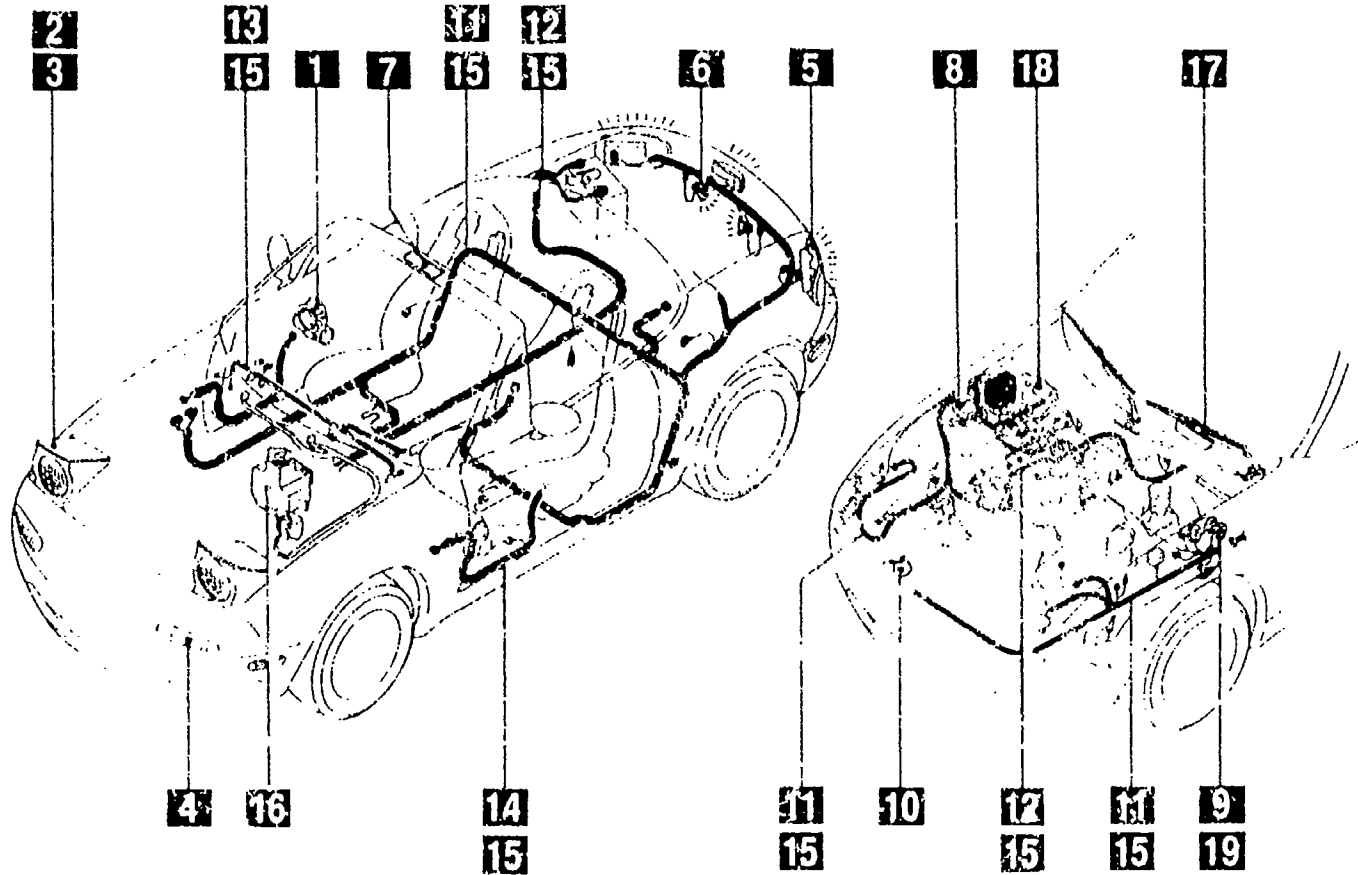
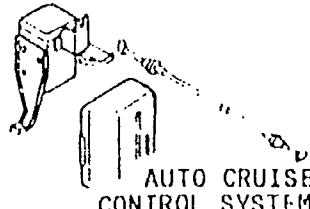
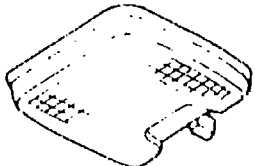


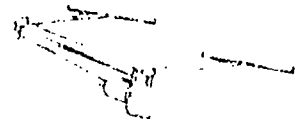


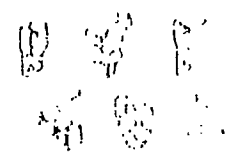
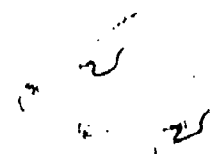
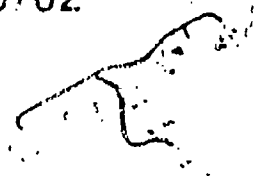
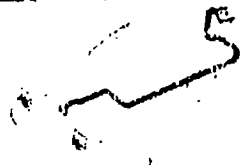
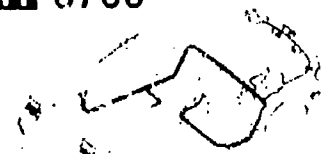
<p>1 2505</p>  <p>REAR PROPELLER SHAFT</p>	<p>2 2550</p>  <p>REAR DRIVE SHAFT</p>	<p>3 2600</p>  <p>REAR AXLE</p>	<p>4 2610</p>  <p>REAR BRAKE MECHANISMS</p>	<p>5 2710</p>  <p>REAR DIFFERENTIALS</p>	<p>6 2800</p>  <p>REAR SUSPENSION MECHANISMS</p>	
<p>20 4000</p>  <p>EXHAUST SYSTEM</p>	<p>21 4600</p>  <p>CHANGE CONTROL SYSTEM</p>	<p>22 1720 <small>Given in Engine Group</small></p>  <p>CHANGE CONTROL SYSTEM (MANUAL TRANSMISSION)</p>	<h2 style="margin: 0;">CHASSIS (1/2)</h2> 			<p>7</p>
<p>19 3900</p>  <p>ENGINE & T/MISSION MOUNTINGS</p>				<p>8 2810</p>  <p>REAR STABILIZER</p>		
<p>18 3410</p>  <p>CROSSMEMBER & STABILIZER</p>				<p>9 2830</p>  <p>REAR LOWER ARMS & SUB FRAME</p>		
<p>17</p>				<p>10 3200</p>  <p>STEERING WHEEL</p>		
<p>16 3400</p>  <p>FRONT SUSPENSION MECHANISMS</p>	<p>15 3310</p>  <p>FRONT BRAKE MECHANISMS</p>	<p>14 3300</p>  <p>FRONT AXLE</p>	<p>13 3240</p>  <p>POWER STEERING SYSTEM (FRONT)</p>	<p>12 3220</p>  <p>STEERING GEAR</p>	<p>11 3210</p>  <p>STEERING COLUMN & SHAFTS</p>	

As this illustration is prepared to be applicable to all models, some parts are different in specifications from parts listed in this parts Catalog.

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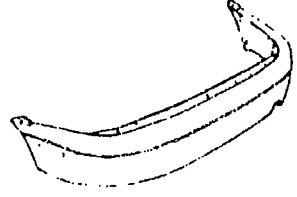
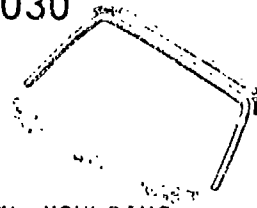

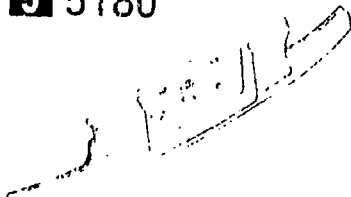
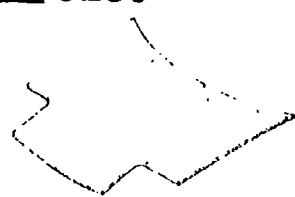
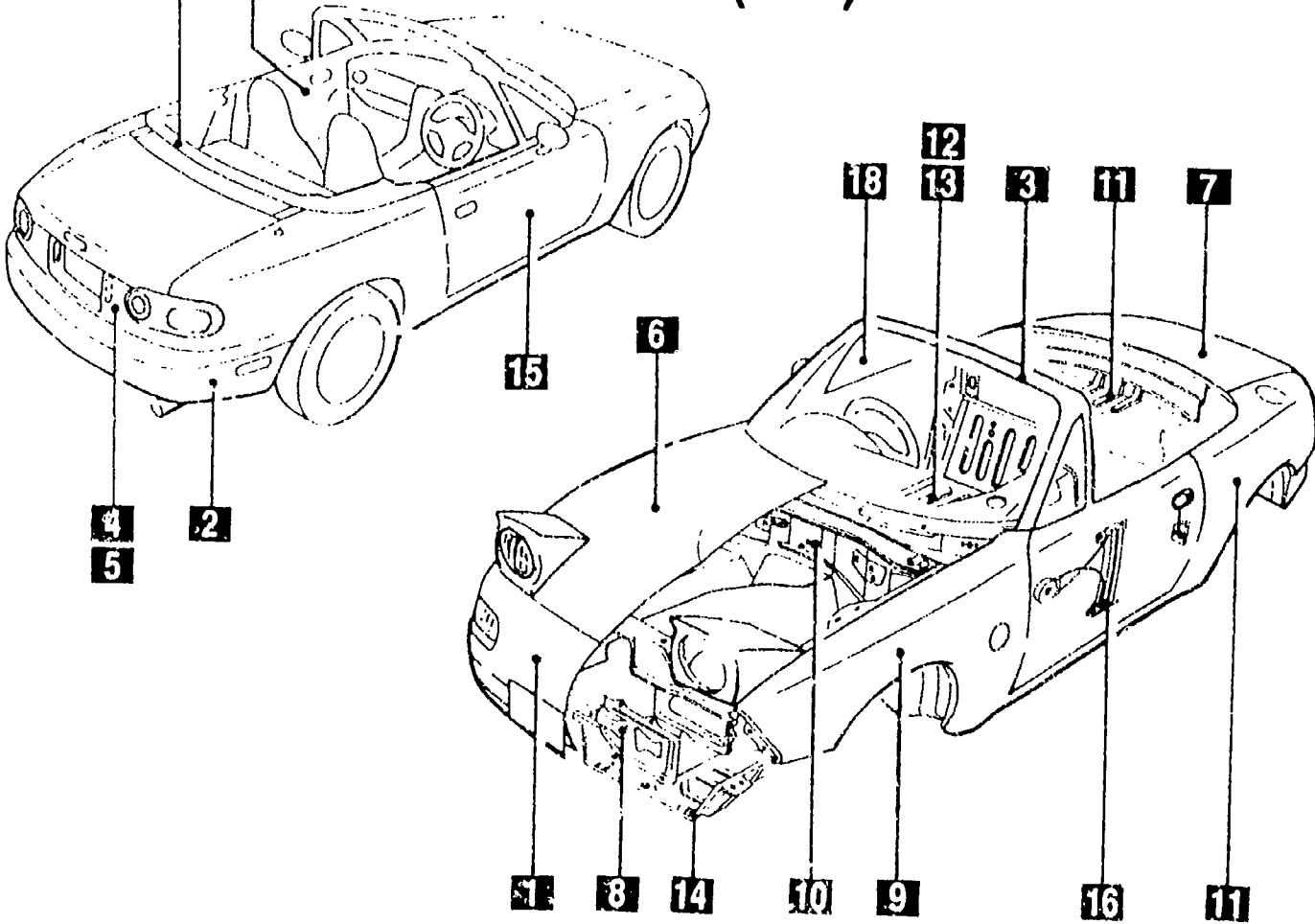

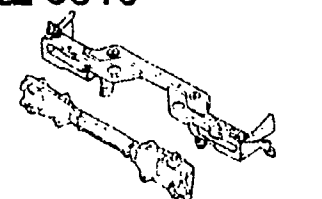

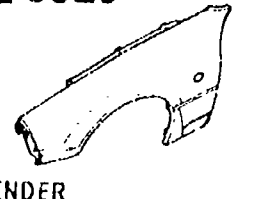
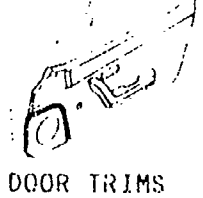
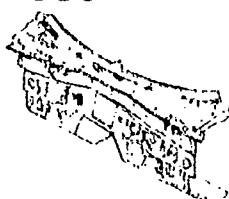
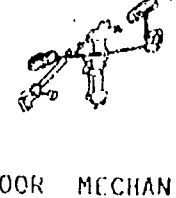
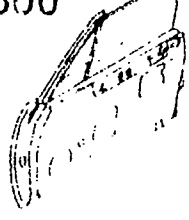




1 3700  TIRES & JACK	2 4140  CLUTCH RELEASE & MASTER CYLINDERS	3 4145  CLUTCH PIPINGS	4 4160  ACCELERATOR CONTROL SYSTEM	5 4200  FUEL TANK	6 4210  FUEL LID OPENER
<h3 style="margin: 0;">CHASSIS (2/2)</h3> 					
As this illustration is prepared to be applicable to all models, some parts are different in specifications from parts listed in this parts Catalog.					
				12 4500  FUEL PIPINGS	7 4300  CLUTCH & BRAKE PEDALS
					8 4340  BRAKE MASTER CYLINDER & POWER BRAKE
					9 4360  BRAKE PIPINGS
					10 4370  ANTILOCK BRAKE SYSTEM
					11 4400  PARKING BRAKE SYSTEM

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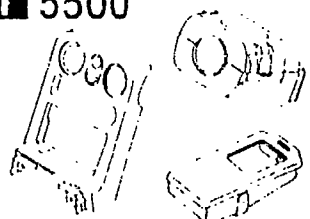
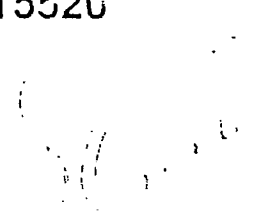
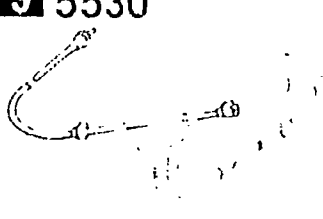
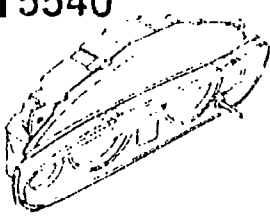
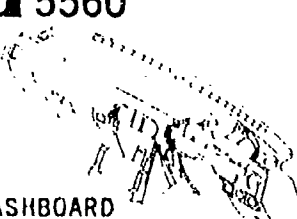
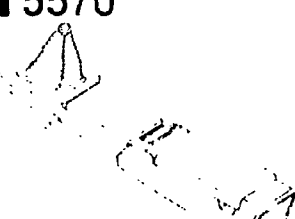
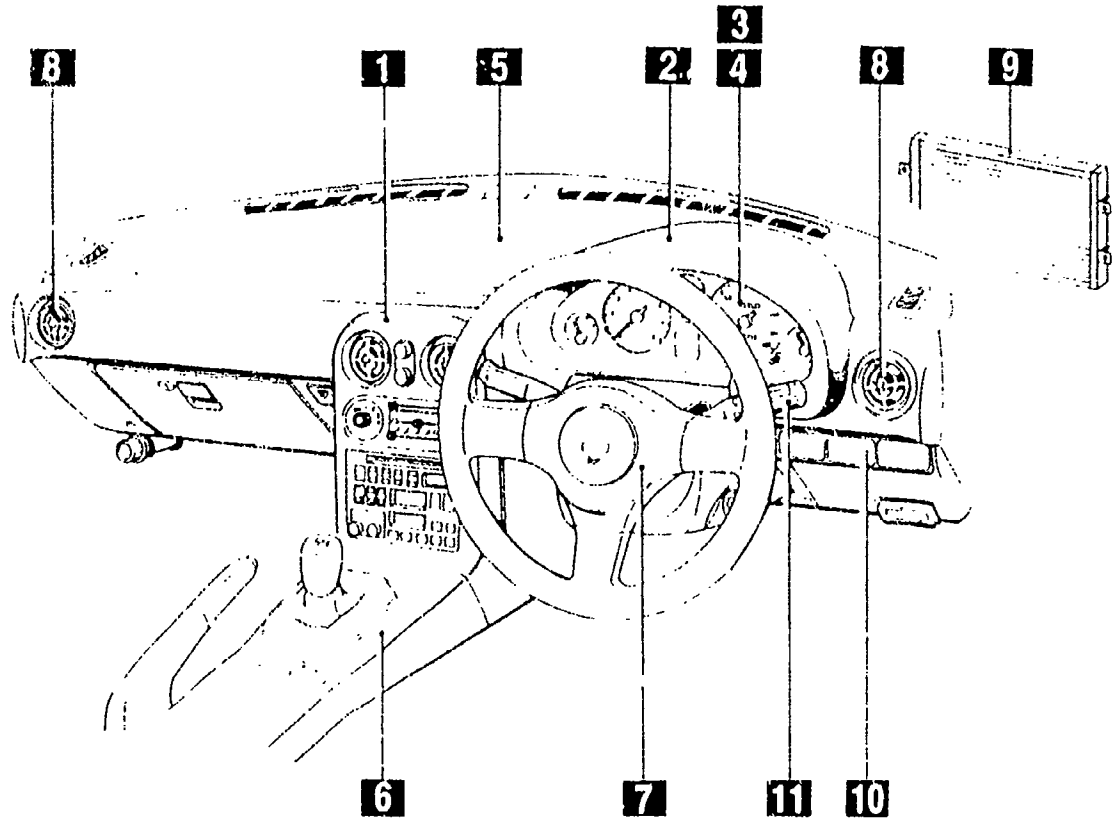
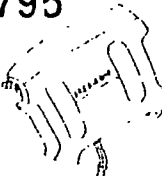
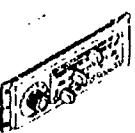



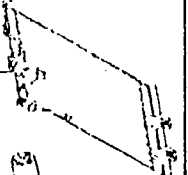

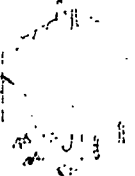
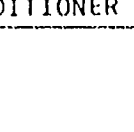
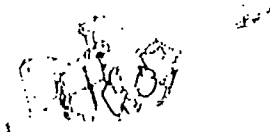
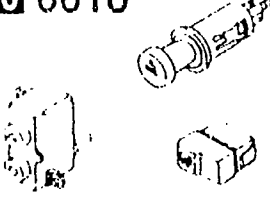
<p>1 0900</p>  <p>KEY SETS</p>	<p>2 5100</p>  <p>HEAD LAMPS</p>	<p>3 5103</p>  <p>HEAD LAMP RETRACTORS</p>	<p>4 5105</p>  <p>FRONT COMBINATION LAMPS</p>	<p>5 5110</p>  <p>REAR COMBINATION LAMPS</p>	<p>6 5120</p>  <p>LICENSE LAMPS</p>
<h2 style="margin: 0;">BODY (1/4)</h2> 					
<p>19 6640</p>  <p>AUTO CRUISE CONTROL SYSTEM</p>					<p>7 5125</p>  <p>INTERIOR LAMPS</p>
<p>18 6740</p>  <p>WIPER MOTOR COMPONENTS (FRONT)</p>					<p>8 6600</p>  <p>SWITCHES & RELAYS (ENGINE)</p>
<p>17 6730</p>  <p>WINDSHIELD WIPERS</p>					<p>9 6630</p>  <p>RELAYS & UNIT (BODY)</p>
<p>16 6720</p>  <p>WINDSHIELD WASHER</p>	<p>15 6704</p>  <p>WIRING HARNESS CLAMPS</p>	<p>14 6703</p>  <p>WIRING HARNESSSES (DOOR, FLOOR/CEILING)</p>	<p>13 6702</p>  <p>WIRING HARNESSSES (DASHBOARD)</p>	<p>12 6701</p>  <p>WIRING HARNESSSES (ENGINE & T/MISSION)</p>	<p>11 6700</p>  <p>WIRING HARNESSSES (FRONT & REAR)</p>

As this illustration is prepared to be applicable to all models, some parts are different in specifications from parts listed in this parts Catalog.

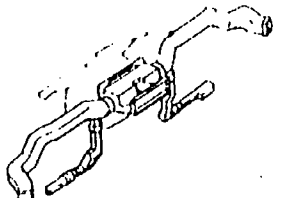

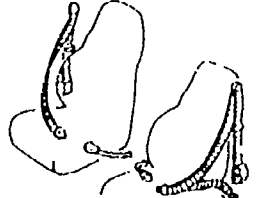
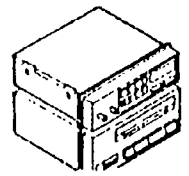
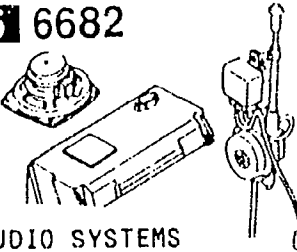
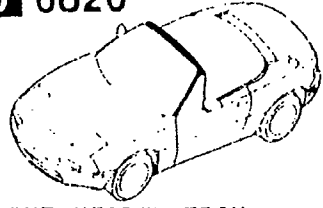
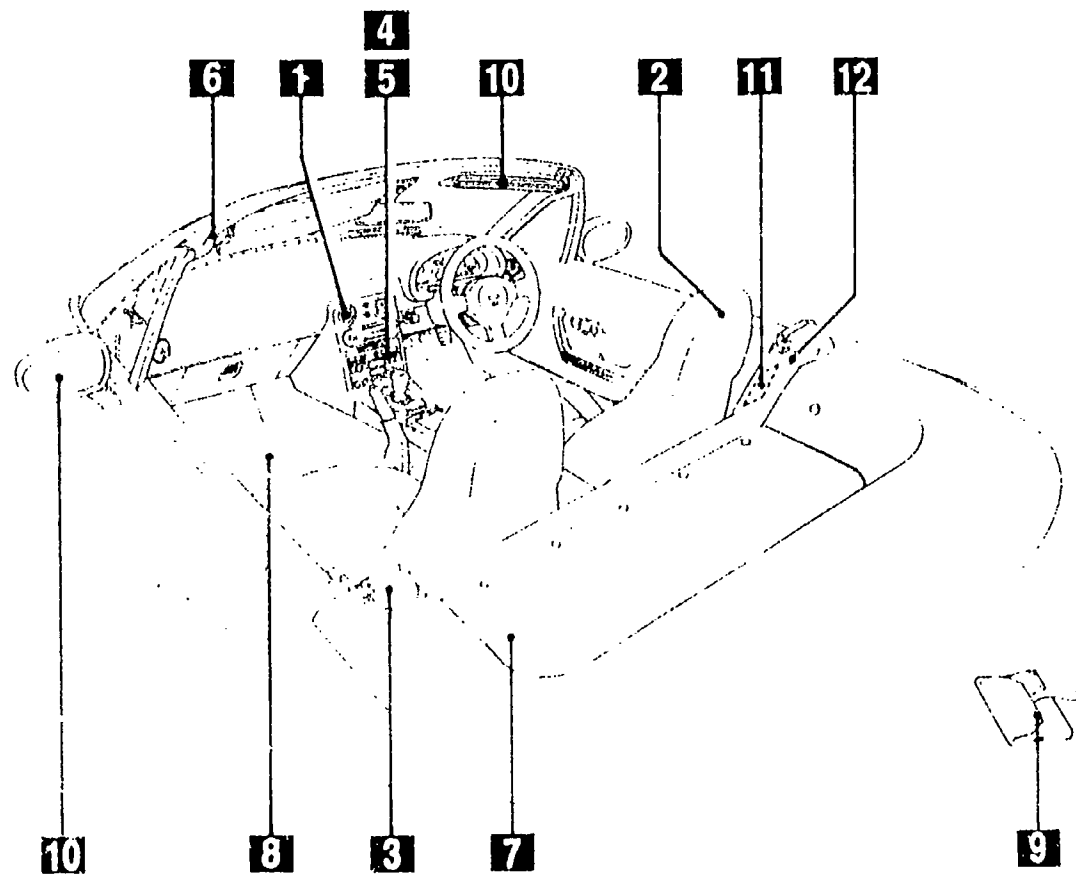
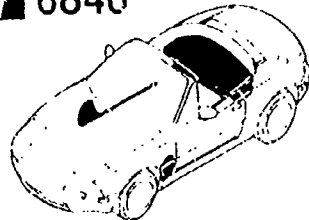
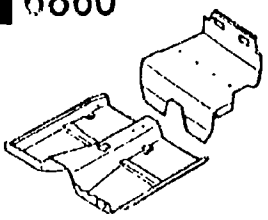

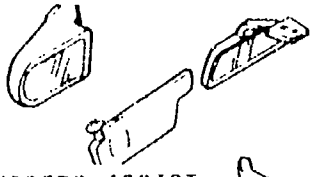
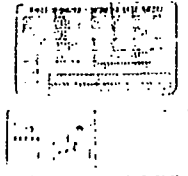
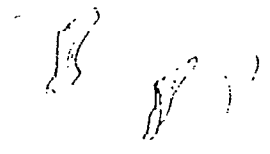
PICTORIAL INDEX

<p>1 5000</p>  <p>FRONT BUMPER</p>	<p>2 5010</p>  <p>REAR BUMPER</p>	<p>3 5030</p>  <p>WINDOW MOULDING & COWL GRILLES</p>	<p>4 5170</p>  <p>ORNAMENTS</p>	<p>5 5180</p>  <p>REAR FINISHED</p>	<p>6 5230</p>  <p>BONNET</p>
<p>BODY (2/4)</p> 					
<p>19 6330</p>  <p>SUNROOF</p>					<p>7 5260</p>  <p>TRUNK LID</p>
<p>18 6300</p>  <p>WINDOW GLASSES</p>					<p>8 5310</p>  <p>FRONT PANELS</p>
<p>17 5840</p>  <p>FRONT DOOR TRIMS & RELATED PARTS</p>					<p>9 5320</p>  <p>FENDER & WHEEL APRON PANELS</p>
<p>16 5830</p>  <p>FRONT DOOR MECHANISMS</p>	<p>15 5800</p>  <p>FRONT DOOR</p>	<p>14 5390</p>  <p>FLOOR ATTACHMENTS</p>	<p>13 5380</p>  <p>FLOOR ATTACHMENTS (HOLE COVERS)</p>	<p>12 5370</p>  <p>FLOOR PANELS</p>	<p>11 5340</p>  <p>SIDE PANELS</p>

PICTORIAL INDEX

<p>1 5500</p>  <p>DASHBOARD EQUIPMENTS</p>	<p>2 5520</p>  <p>METER HOOD</p>	<p>3 5530</p>  <p>SPEEDOMETER CABLE</p>	<p>4 5540</p>  <p>METER COMPONENTS</p>	<p>5 5560</p>  <p>DASHBOARD & RELATED PARTS</p>	<p>6 5570</p>  <p>CONSOLE</p>
<h2 style="margin: 0;">BODY (3/4)</h2> 					
<p>7 5795</p>  <p>AIR BAG</p>					
<p>8</p> <p>6115</p>  <p>6110</p>  <p>6100</p>  <p>6120</p>  <p>HEATER</p>					
<p>9</p> <p>6130</p>  <p>6135</p>  <p>6140</p>  <p>6150</p>  <p>AIR CONDITIONER</p>					
<p>11 6611</p>  <p>COMBINATION SWITCH</p>					
<p>10 6610</p>  <p>DASHBOARD SWITCHES</p>					

PICTORIAL INDEX

<p>1 5580</p>  <p>VENTILATOR</p>	<p>2 5700</p>  <p>SEATS</p>	<p>3 5790</p>  <p>SEAT BELTS</p>	<p>4 6680</p>  <p>AUDIO SYSTEMS (RADIO & TAPE DECK)</p>	<p>5 6682</p>  <p>AUDIO SYSTEMS (ANTENNA & SPEAKER)</p>	<p>6 6820</p>  <p>FRONT HEADER TRIM & PILLAR TRIMS</p>
<p>BODY (4/4)</p>  <p>As this illustration is prepared to be applicable to all models, some parts are different in specifications from parts listed in this parts Catalog.</p>					
<p>7 6840</p>  <p>TRIMS & SCUFF PLATES</p> <p>8 6860</p>  <p>FLOOR MATS & PADS</p> <p>9 6870</p>  <p>SERVICE TOOLS</p> <p>10 6900</p>  <p>VISORS, ASSIST HANDLES & MIRRORS</p> <p>11 6930</p>  <p>CAUTION PLATES & LABELS</p> <p>12 7250</p>  <p>QUARTER WINDOW & TRIMS</p>					

SECTION NAME INDEX (ENGINE)

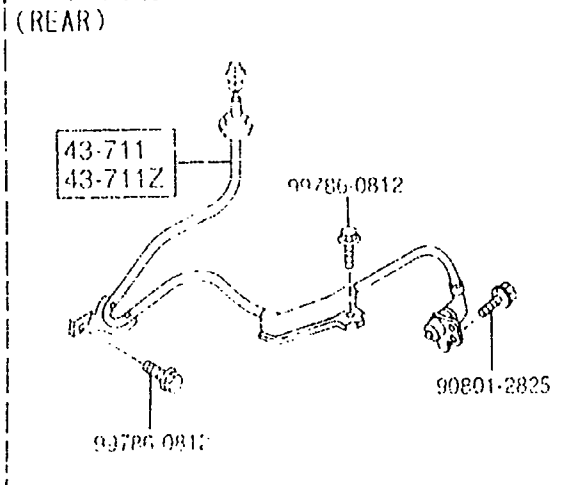
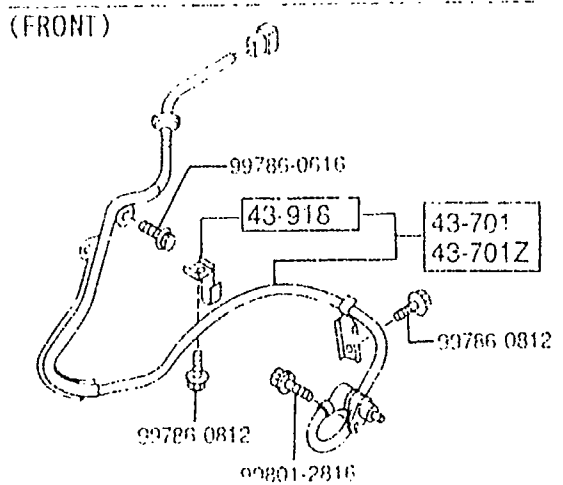
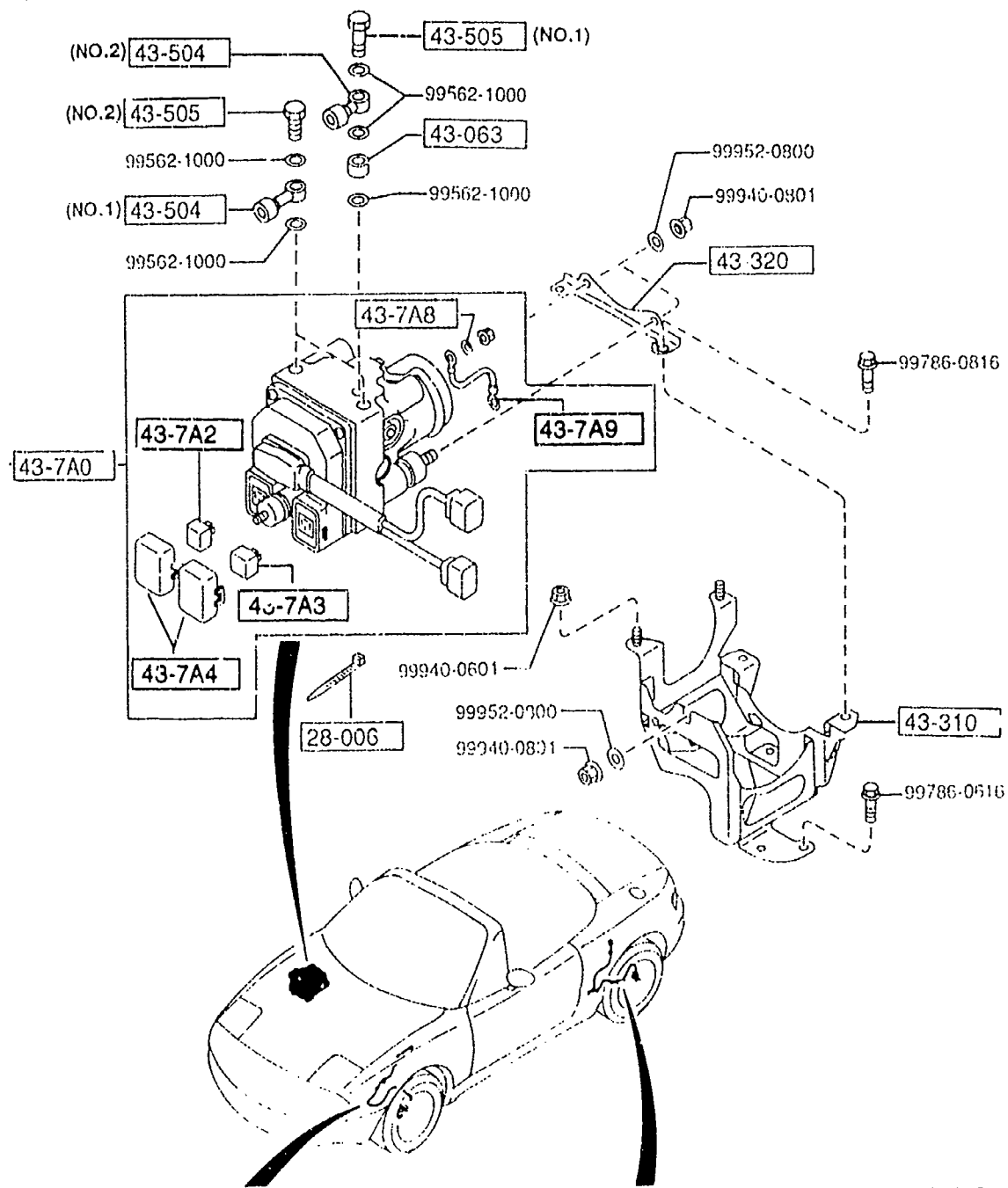
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1-C03	1000	ENGINE & GASKET SETS	1-K09	1950	AUTOMATIC TRANSMISSION MANUAL LINKAGE SYSTEM			
1-E03	1010	CYLINDER HEAD & COVER	1-M09	1960	AUTOMATIC TRANSMISSION GASKET & SEAL KIT			
1-H03	1030	CYLINDER BLOCK						
1-J03	1040	OIL PAN & TIMING COVER						
1-L03	1100	PISTON, CRANKSHAFT & FLYWHEEL						
1-C04	1200	VALVE SYSTEM						
1-E04	1300	INLET MANIFOLD						
1-F04	1310	EXHAUST MANIFOLD						
1-G04	1320	FUEL SYSTEM						
1-I04	1325	FUEL DISTRIBUTOR						
1-J04	1330	AIR CLEANER						
1-L04	1364	THROTTLE BODY						
1-M04	1370	EMISSION CONTROL SYSTEM (INLET SIDE)						
1-C05	1400	OIL PUMP & FILTER						
1-E05	1500	COOLING SYSTEM						
1-H05	1580	BRACKET, PULLEY & BELT						
1-C06	1600	CLUTCH DISC & COVER						
1-D06	1700	MANUAL TRANSMISSION CASE						
1-E06	1710	MANUAL TRANSMISSION GEARS						
1-J06	1720	MANUAL TRANSMISSION CHANGE CONTROL SYSTEM						
1-M06	1800	ENGINE ELECTRICAL SYSTEM						
1-C07	1830	ALTERNATOR						
1-E07	1840	STARTER (MT)						
1-G07	1840 A	STARTER (AT)						
1-I07	1850	BATTERY						
1-J07	1910	AUTOMATIC TRANSMISSION TORQUE CONVERTER, OIL PUMP & PIPINGS						
1-M07	1920	AUTOMATIC TRANSMISSION CASE & MAIN CONTROL SYSTEM						
1-F08	1925	AUTOMATIC TRANSMISSION CONTROL VALVE						
1-M08	1930	AUTOMATIC TRANSMISSION CLUTCHES & PLANETARY GEARS						
1-H09	1940	AUTOMATIC TRANSMISSION GOVERNOR, LOW & REVERSE PISTON						

SECTION NAME INDEX (CHASSIS)

LO.NO	SEC.NO	SECTION NAME	LO.NO	SEC.NO	SECTION NAME	LO.NO	SEC.NO	SECTION NAME
1-C11	2505	REAR PROPELLER SHAFT	1-F16	4340	BRAKE MASTER CYLINDER & POWER BRAKE (W/O ANTILOCK BRAKE)			
1-D11	2550	REAR DRIVE SHAFT						
1-F11	2600	REAR AXLE	1-H16	4340 A	BRAKE MASTER CYLINDER & POWER BRAKE (W/ANTILOCK BRAKE)			
1-G11	2610	REAR BRAKE MECHANISMS						
1-J11	2710	REAR DIFFERENTIALS (NORMAL DIFF.)	1-K16	4360	BRAKE PIPINGS (W/O ANTI LOCK BRAKE SYSTEM)			
1-C12	2710 A	REAR DIFFERENTIALS (LIMITED SLIP DIFF.)	1-M16	4360 A	BRAKE PIPINGS (ANTI LOCK BRAKE SYSTEM)			
1-G12	2800	REAR SUSPENSION MECHANISMS	2-C03	4370	ANTILOCK BRAKE SYSTEM			
1-H12	2810	REAR STABILIZER	2-E03	4400	PARKING BRAKE SYSTEM			
1-I12	2830	REAR LOWER ARMS & SUB FRAME	2-G03	4500	FUEL PIPINGS			
1-K12	3200	STEERING WHEEL	2-I03	4600	CHANGE CONTROL SYSTEM (AT)			
1-L12	3210	STEERING COLUMN & SHAFTS						
1-M12	3220	STEERING GEAR (W/O POWER STEERING)						
1-C13	3220 A	STEERING GEAR (W/POWER STEERING)						
1-H13	3240	POWER STEERING SYSTEM						
1-K13	3300	FRONT AXLE (W/O ANTILOCK BRAKE)						
1-L13	3300 A	FRONT AXLE (W/ANTILOCK BRAKE)						
1-M13	3310	FRONT BRAKE MECHANISMS						
1-N13	3400	FRONT SUSPENSION MECHANISMS						
1-E14	3410	CROSSMEMBER & STABILIZER						
1-F14	3700	TIRES & JACK						
1-C15	3900	ENGINE & T/MISSION MOUNTINGS						
1-D15	4000	EXHAUST SYSTEM						
1-F15	4140	MANUAL TRANSMISSION CLUTCH RELEASE & MASTER CYLINDERS						
1-G15	4145	MANUAL TRANSMISSION CLUTCH PIPINGS						
1-H15	4160	ACCELERATOR CONTROL SYSTEM						
1-I15	4200	FUEL TANK						
1-L15	4210	FUEL LID OPENER						
1-M15	4300	MANUAL TRANSMISSION CLUTCH & BRAKE PEDALS						
1-D16	4300A	AUTOMATIC TRANSMISSION BRAKE PEDAL						

SECTION NAME INDEX (BODY)

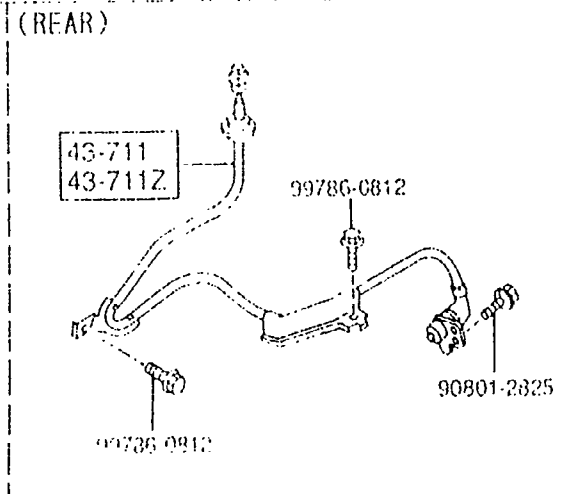
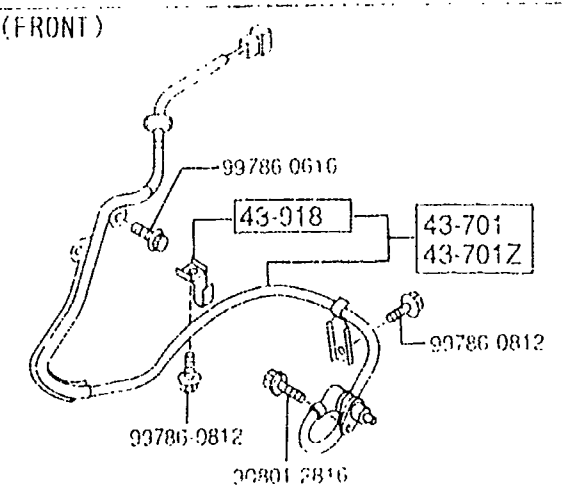
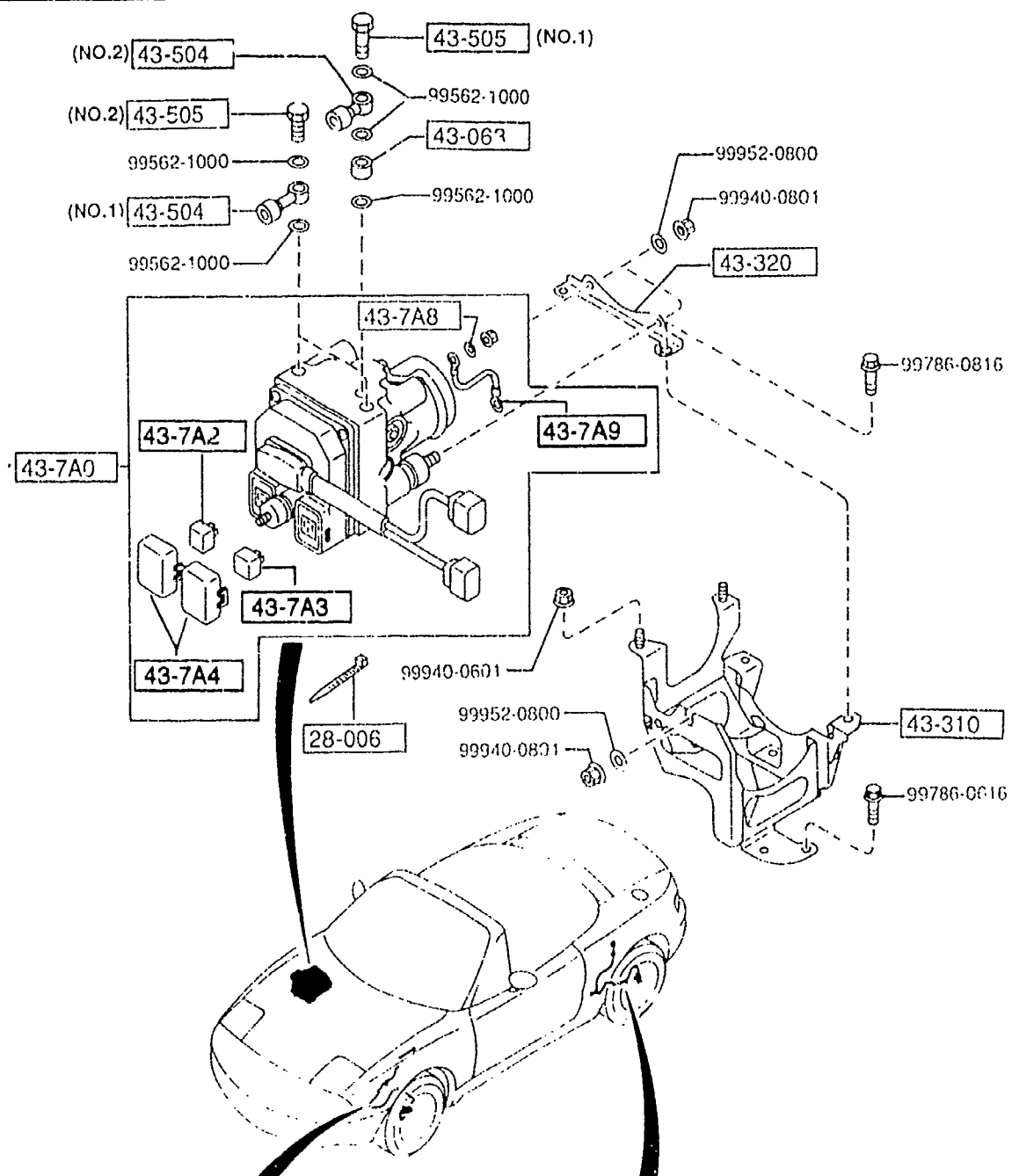
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2-C05	0900	KEY SETS	2-C14	6100	HEATER	3-D06	6900	SUN VISORS, ASSIST HANDLES & MIRRORS
2-E05	5000	FRONT BUMPER	2-D14	6110	HEATER UNIT COMPONENTS	3-G06	6930	CAUTION PLATES & LABELS
2-H05	5010	REAR BUMPER	2-E14	6115	HEATER CONTROL COMPONENTS	3-I06	7250	QUARTER WINDOW & TRIMS
2-J05	5030	WINDOW MOULDING & COWL GRILLES	2-G14	6120	HEATER BLOWER COMPONENTS			
2-K05	5100	HEAD LAMPS	2-H14	6130	AIR CONDITIONER			
2-L05	5103	HEAD LAMP RETRACTORS	2-L14	6135	AIR CONDITIONING COOLING PIPE O-RING			
2-C06	5105	FRONT COMBINATION LAMPS	2-M14	6140	AIR CONDITIONING COMPRESSOR COMPONENTS			
2-E06	5110	REAR COMBINATION LAMPS	2-C15	6150	AIR CONDITIONING COOLING UNIT			
2-H06	5120	LICENSE LAMPS	2-D15	6300	WINDOW GLASSES			
2-I06	5125	INTERIOR LAMPS	2-E15	6330	SUN ROOF			
2-J06	5170	ORNAMENTS	2-E16	6600	ENGINE SWITCHES & RELAYS			
2-K06	5180	REAR FINISHER	2-J16	6610	DASHBOARD SWITCHES			
2-L06	5230	BONNET	2-L16	6611	COMBINATION SWITCH			
2-N06	5260	TRUNK LID	2-M16	6630	BODY RELAYS & UNIT			
2-D07	5310	FRONT PANELS	3-C03	6635	DOOR SWITCH & HORNS			
2-E07	5320	FENDER & WHEEL APRON PANELS	3-D03	6640	AUTO CRUISE CONTROL SYSTEM			
2-H07	5330	DASH & COWL PANELS	3-E03	6680	AUDIO SYSTEMS (RADIO & TAPE DECK)			
2-I07	5340	SIDE PANELS	3-K03	6682	AUDIO SYSTEMS (ANTENNA & SPEAKER)			
2-N07	5370	FLOOR PANELS	3-N03	6700	FRONT & REAR WIRING HARNESSSES			
2-E08	5380	FLOOR ATTACHMENTS (HOLE COVERS)	3-F04	6701	ENGINE & TRANSMISSION WIRING HARNESSSES			
2-F08	5390	FLOOR ATTACHMENTS	3-G04	6702	DASHBOARD WIRING HARNESSSES			
2-C09	5500	DASHBOARD EQUIPMENTS	3-H04	6703	DOOR, FLOOR & CEILING WIRING HARNESSSES			
2-F09	5520	METER HOOD	3-I04	6704	WIRING HARNESS CLAMPS			
2-G09	5530	SPEEDOMETER CABLE	3-L04	6720	WINDSHIELD WASHER (W/O ANTI LOCK BRAKE)			
2-H09	5540	METER COMPONENTS	3-N04	6720 A	WINDSHIELD WASHER (W/ANTI LOCK BRAKE)			
2-K09	5560	DASHBOARD & RELATED PARTS	3-E05	6730	WINDSHIELD WIPERS			
2-N09	5570	CONSOLE	3-G05	6740	WIPER MOTOR COMPONENTS			
2-E10	5580	VENTILATOR	3-H05	6820	FRONT HEADER TRIM & PILLAR TRIMS			
2-G10	5700	SEATS	3-I05	6840	TRIMS & SCUFF PLATES			
2-I12	5790	SEAT BELTS	3-L05	6860	FLOOR MATS & PADS			
2-J12	5795	AIR BAG	3-C06	6870	SERVICE TOOLS			
2-K12	5800	FRONT DOORS						
2-N12	5830	FRONT DOOR MECHANISMS						
2-F13	5840	FRONT DOOR TRIMS & RELATED PARTS						



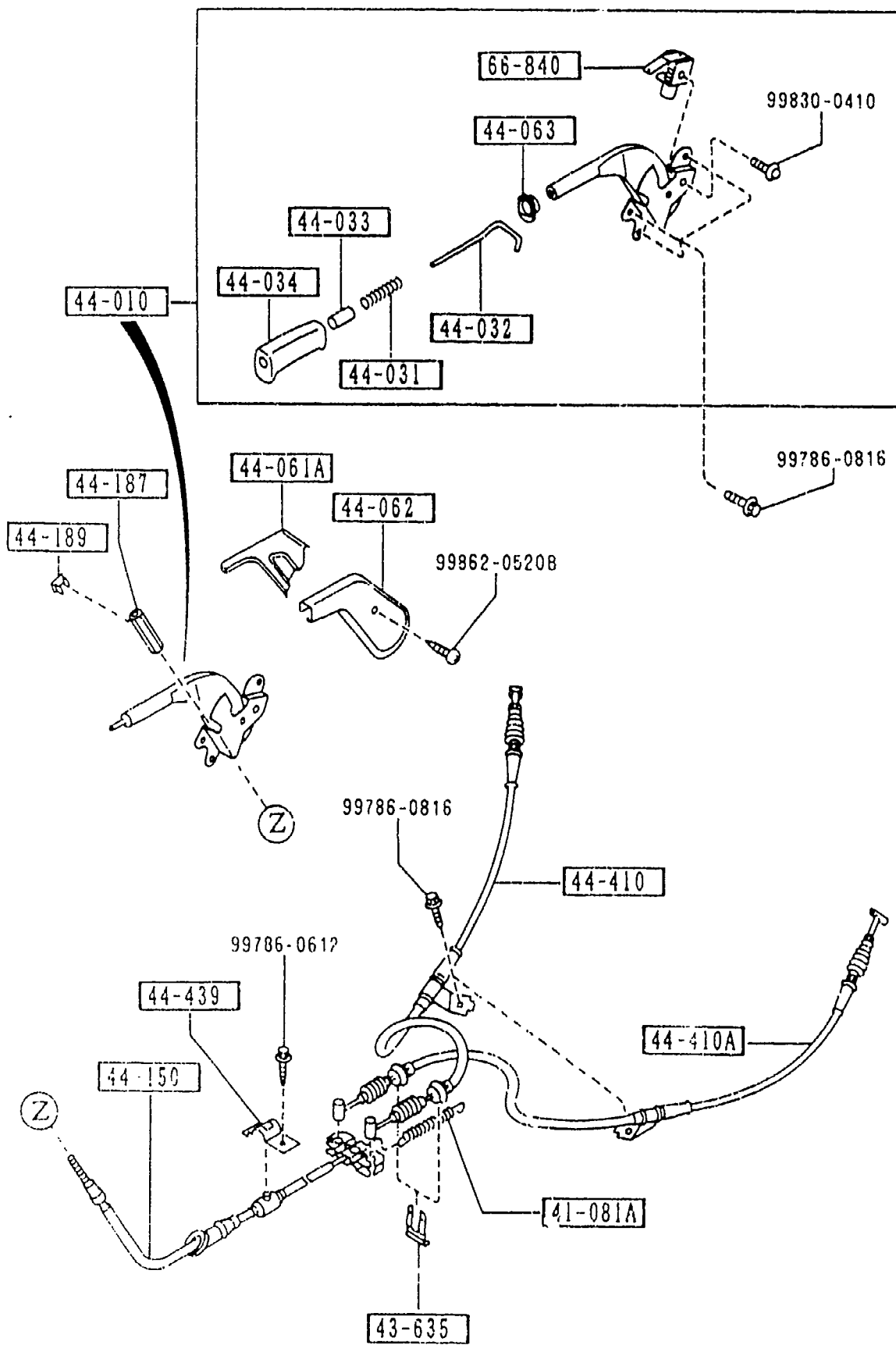
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
28-006		BAND, DUST BOOT-DAMP R			-4B01
H720-28-006	1				
43-063		SPACER			
HG83-43-506	1				
43-310		BRACKET NO 1, A.B.S.			
NB13-43-310A	1				
43-320		BRACKET NO 2, A.B.S.			
NB13-43-321A	1				
43-504		JOINT, PIPE			
EA03-43-504B	2	(ILLUST. NO.1)			
W023-43-504	1	(ILLUST. NO.2)			
43-505		BOLT, CONNECTOR			
HG83-43-505	1	(ILLUST. NO.1)			
W023-43-505	2	(ILLUST. NO.2)			
43-7A0		UNIT, HYDRAULIC-ABS			-4C05
NB13-43-7A0A	1	A (NB13-43-7A0B)			4C05-
NB13-43-7A0B	1				
43-7A2		RELAY, MOTOR-HYD. UNI T			-6401
*HGB2-43-7A2	1				6401-
43-7A3		RELAY, VALVE-HYD. UNI T			
NA23-43-7A4	1				
*NA23-43-7A3	1				
43-7A4		COVER 'L', HYDRAULIC U NIT			
*HG82-43-7A4	2				
43-7A8		WASHER, HYD. UNIT			
NA23-43-7A8	1				
43-7A9		WIRE, EARTH-HYD. UNIT			
*H415-43-7A9	1				

4B01 NA35* -606043
 4C05 NA35* -610026
 6401 NA35** -717797

4370 ANTILOCK BRAKE SYSTEM



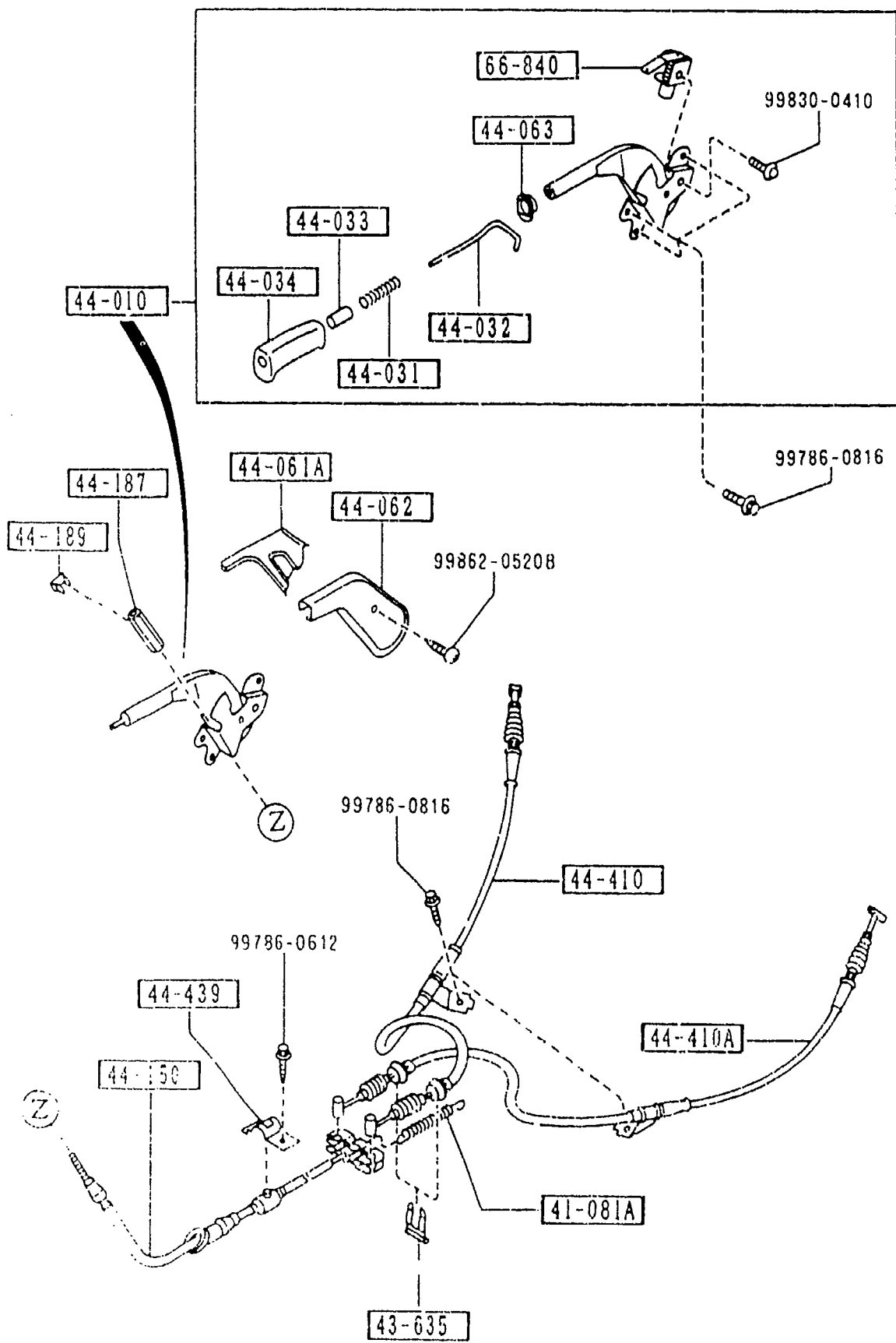
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
43-701		SENSOR(R), FRT-A. B. S.			
NA23-43-70XE	1				
43-701Z		SENSOR(L), FRT-A. B. S.			
NA23-43-73XE	1				
43-711		SENSOR(R), RR-A. B. S.			
NA23-43-71YB	1				
43-711Z		SENSOR(L), RR-A. B. S.			
NA23-43-72YB	1				
43-918		CLIP, SENSOR HARNESS			
NA23-43-705	2				



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
41-081A		SPRING, RETURN			
0750-41-308	1				
43-635		CLIP, FLEXIBLE HOSE			
W023-43-635	2				-4927
A (W023-43-635A)					
W023-43-635A	2				4927-
44-010		LEVER, PARKING BRAKE			
NA01-44-010	1	(URETHANE)			
N001-44-010A	1	(WOOD)			
44-031		SPRING, PARKING REVER			
G030-44-031	1				
44-032		ROD, RELEASE			
NA01-44-032	1				
44-033		BUTTON, RELEASE			
FB01-44-033	1				
44-034		CAP, PARK BRAKE LEVER			
FB01-44-034	1	(URETHANE)			
N001-44-034B	1	(WOOD)			
44-061A		COVER			
FB01-44-061B	1				
44-062		COVER			
FB01-44-062A	1				
44-063		SPACER			
FC01-44-063A	1	(URETHANE)			
N001-44-063	1	(WOOD)			
44-150		CABLE, PARKING-FRT			
NA01-44-150C	1				
44-187		SCREW, ADJUST			
0866-44-187A	1				

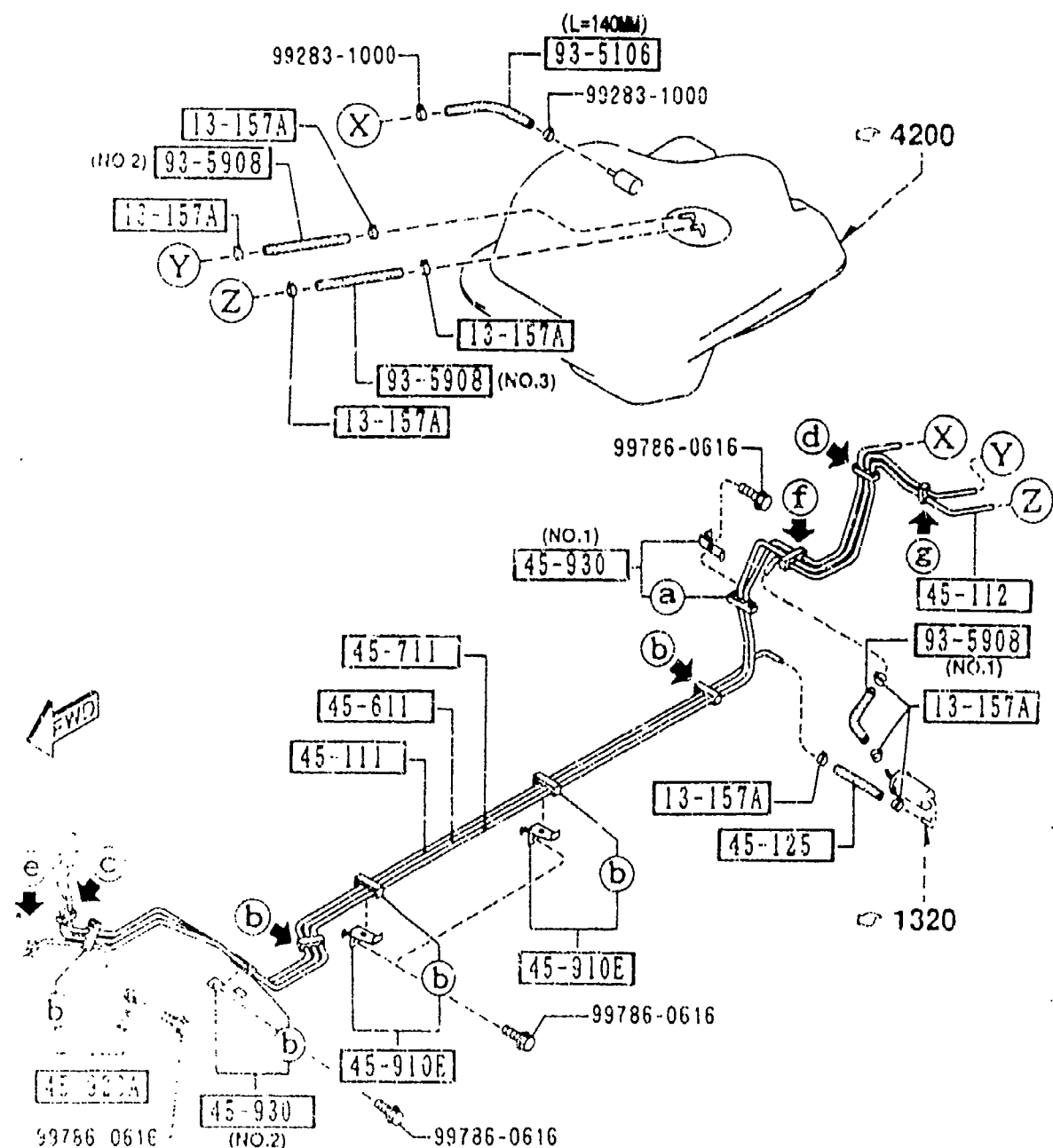
4927 NA35* -603489

FWD



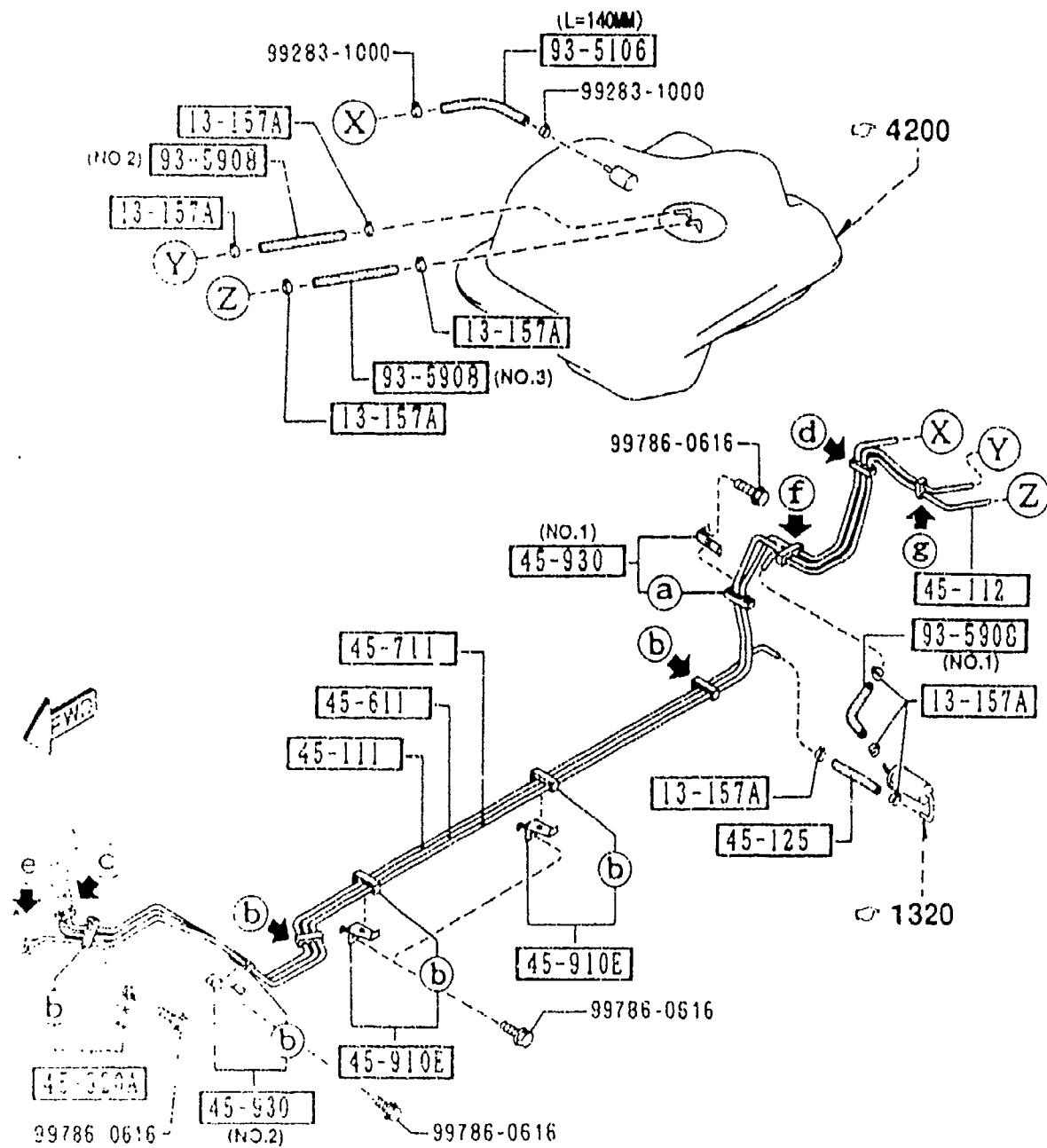
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
44-189	1	CLIP			
0866-44-189	1				
44-410	1	CABLE(R), R.-PARK.			
NA75-44-410	1				
44-410A	1	CABLE(L), R.-PARK.			
NA75-44-420	1				
44-439	1	CLIP, CABLE			
1011-44-439	1				
66-840	1	SWITCH, PARKING LAMP			
GJ21-66-450A	1				

FWD



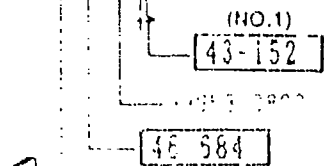
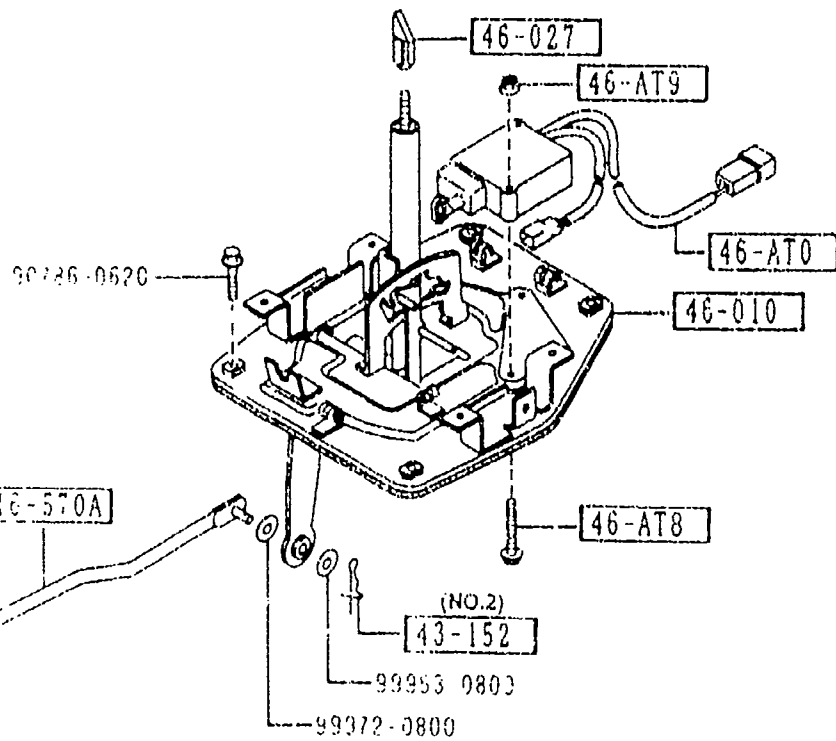
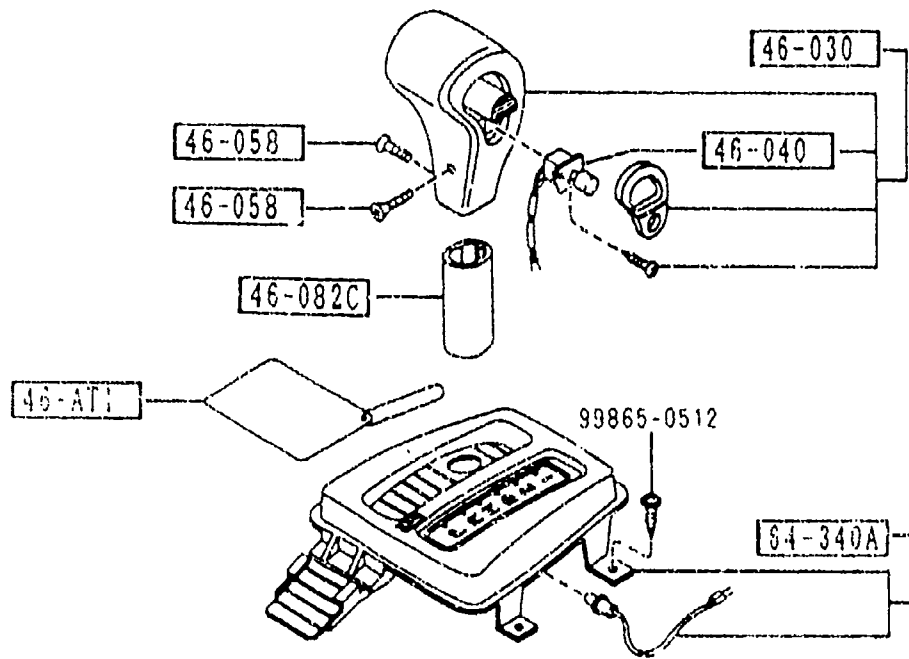
a	b	c	d	e	f	g
45-912D	45-912D	45-913	45-913A	45-914	45-915	45-921
(NO.1)	(NO.2)					

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
8574-13-157	8	CLIP			
NA01-45-111	1	PIPE, FUEL-MAIN			
NA75-45-112A	1	PIPE, FUEL-MAIN			
99359-0815	1	HOSE, FUEL			
NA75-45-611A	1	PIPE, FUEL-RETURN			
NA75-45-711A	1	PIPE, EVAPORATION			
H266-45-910A	2	HOLDER, PIPE			
H260-45-912	1	HOLDER 'A'			(ILLUST. NO.1)
H266-45-912	6	HOLDER 'A'			(ILLUST. NO.2)
NA01-45-912	1	HOLDER, PIPE			
NA01-45-913	1	CLIP, PIPE			
FELT-45-914	1	HOLDER, PIPE			NIFUKO
NA01-45-914	1	CLIP, PIPE			
H266-45-920A	1	HOLDER 'B', PIPE			



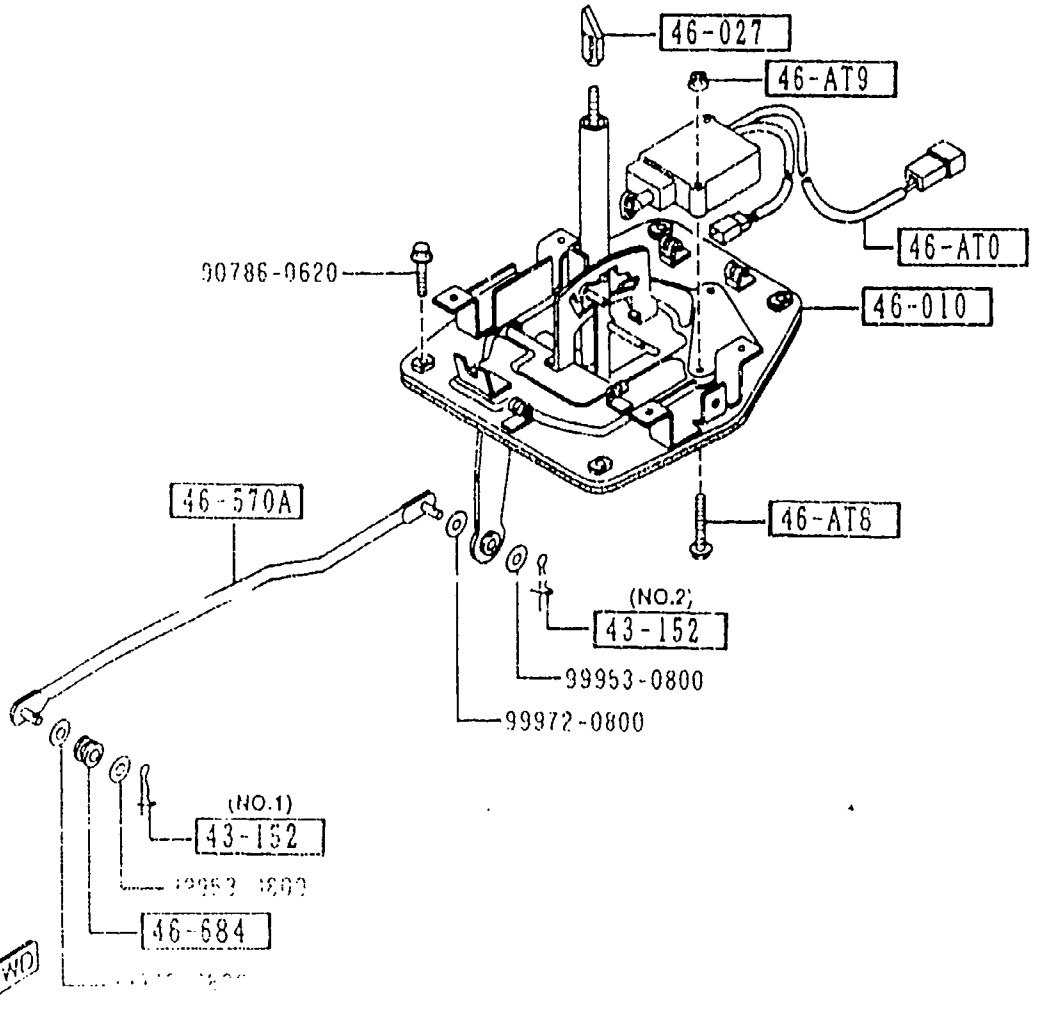
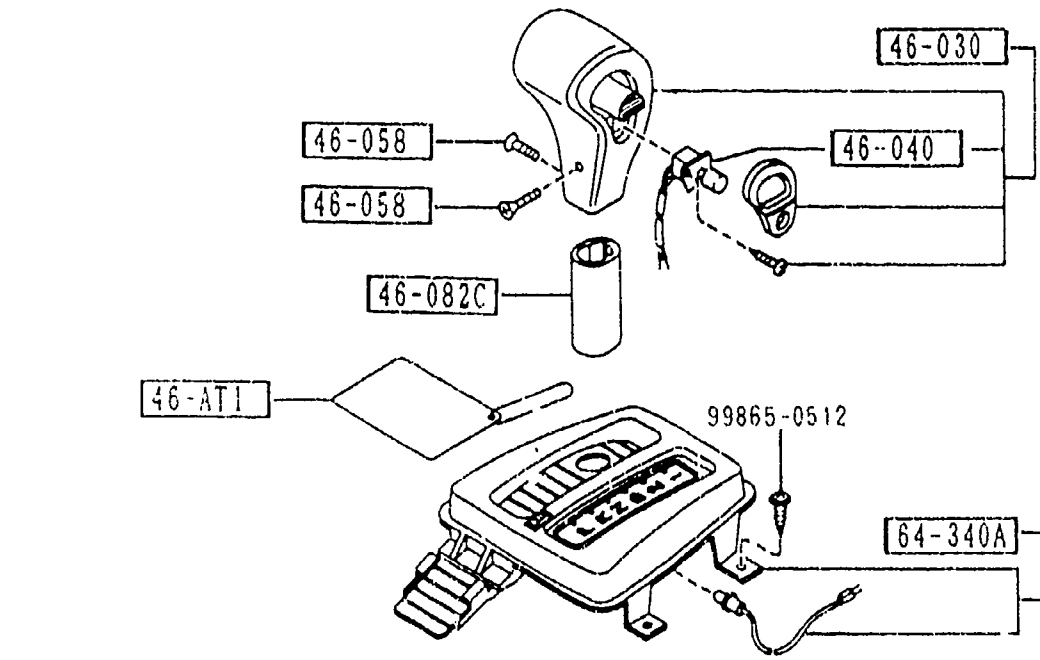
a	b	c	d	e	f	g
45-912D (NO.1)	45-912D (NO.2)	45-913	45-913A	45-914	45-915	45-921

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
45-921		CLIP, PIPE			
B210-45-917	1				
45-930		HOLDER 'C', PIPE			
H260-45-930	1	(ILLUST. NO.1)			
H266-45-930A	1	(ILLUST. NO.2)			
93-5106		HOSE			
99351-06999	1	L=1M CUT IT TO USE			
93-5908		HOSE			
99359-0816	1	(ILLUST. NO.1)			
99359-0817	1	(ILLUST. NO.2)			
99359-0818	1	(ILLUST. NO.3)			



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	ROW-TO
43-152		PIN, SNAP			
D001-43-152	1	(ILLUST. NO.1)			
FB02-43-152A	1	(ILLUST. NO.2)			
46-AT0		ACTUATOR, SHIFT LOCK			
NA81-46-AT0B	1				
46-AT1		TAG, CAUTION-CHANGE			
FD02-46-AT1	1				-4A01
46-AT8		SCREW			
H338-46-AT8	2				
46-AT9		NUT			
H338-46-AT9	2				-5401
46-010		LEVER, SELECT			
NA81-46-100	1				
46-027		CAM, CHANGE LEVER			
H338-46-027	1				
46-030		KNOB, CHANGE LEVER			
NA81-46-030A A (NA81-46-030B)	1				-5703
NA81-46-030B	1				5703-
46-040		SWITCH, OVER DRIVE CONTROL			
NA81-46-040	1				
46-058		SCREW, CHANGE LEVER KNOB			
FB02-46-058C	2				
46-082C		COVER, SELECT LEVER			
NA03-46-088	1				
46-570A		ROD, SELECTOR-REAR			
NA03-46-570	2				
46-684		BUSH			
1015-46-684A	1				

4A01 NA35* -603621
 5401 NA35* -619598
 5703 NA35** -700001



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
+-----+ 64-340A +-----+ NA01-64-350A	1	INDICATOR			

CHASSIS

BODY

CHASSIS

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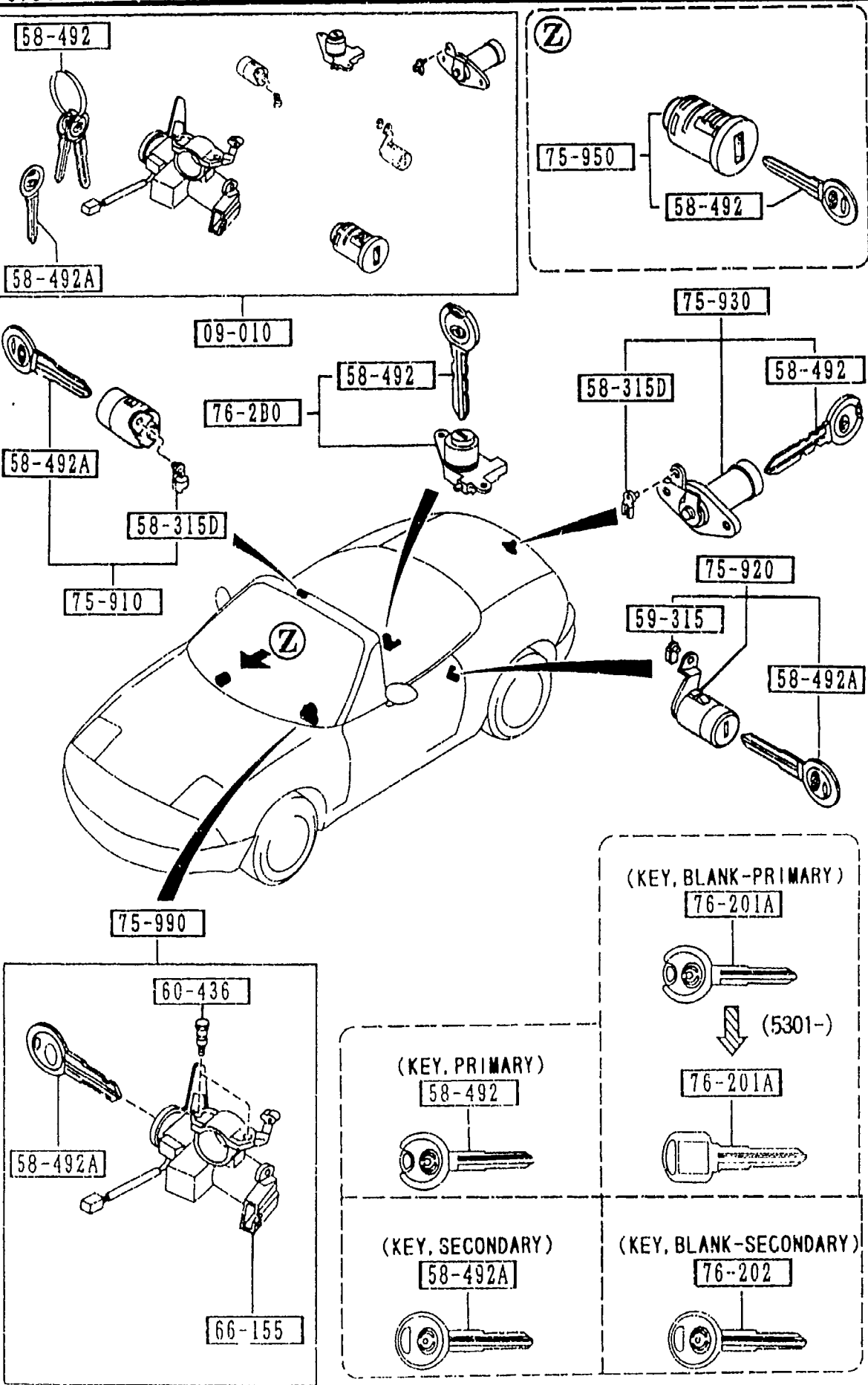
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BODY

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BODY

0900 KEY SETS

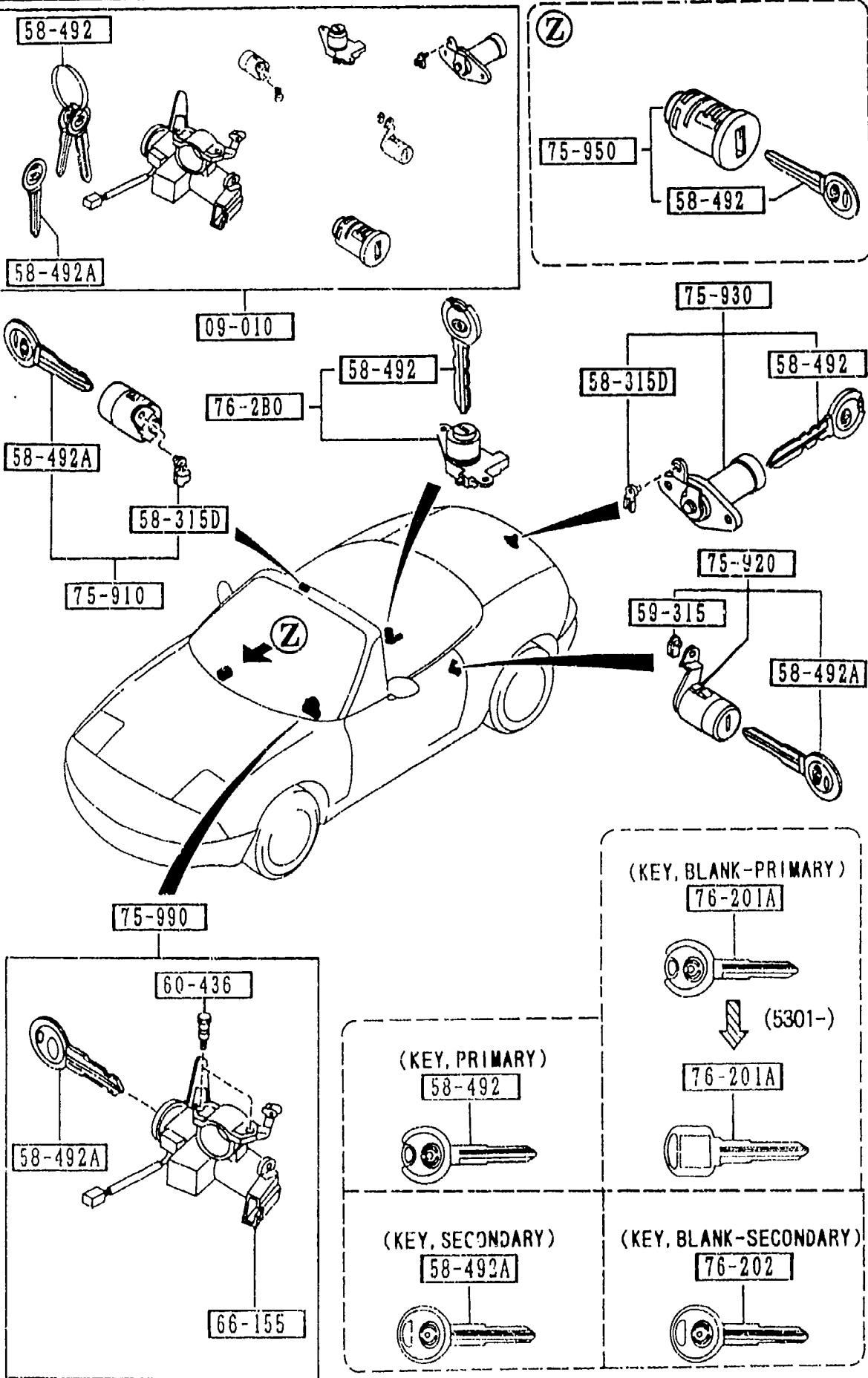


0900 -1 KEY SETS

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
09-010		KEY SET			
NA75-09-010E	1	(MT)			-5401
00	INT-	NA3 NA4 NA5 NA7 BLACK			-5401
NA82-09-010C	1	(AT)			
00	INT-	NA3 NA4 NA5 NA7 BLACK			5401-
NA75-09-010F	1	(MT)			
00	INT-	NA3 NA4 NA5 NA7 NA8 BLACK			5401-
NA82-09-010D	1	(AT)			
00	INT-	NA3 NA4 NA5 NA7 NA8 BLACK			
58-315D		CLIP (R)			
G030-58-315	2				
58-492		KEY, PRIMARY			
FD01-58-492	2	KEY NO. IS REQUIRED			
58-492A		KEY, SECONDARY			
FD01-58-493	1	KEY NO. IS REQUIRED			
59-315		CLIP			
G030-59-315	1				
60-436		BOLT, SET			
H043-66-154	1				
66-155		SWITCH, IGNITION			-5401
D001-66-151 A (D001-66-151A)	1				5401-
D001-66-151A	1				
75-910		KEY SUB SET(R), DOOR			-5301
NA14-76-210F	1				
N001-76-210D	1				5301-
75-920		KEY SUB SET(L), DOOR			
NA14-76-220F	1				-5301

5301 NA35* -616742
5401 NA35* -619598

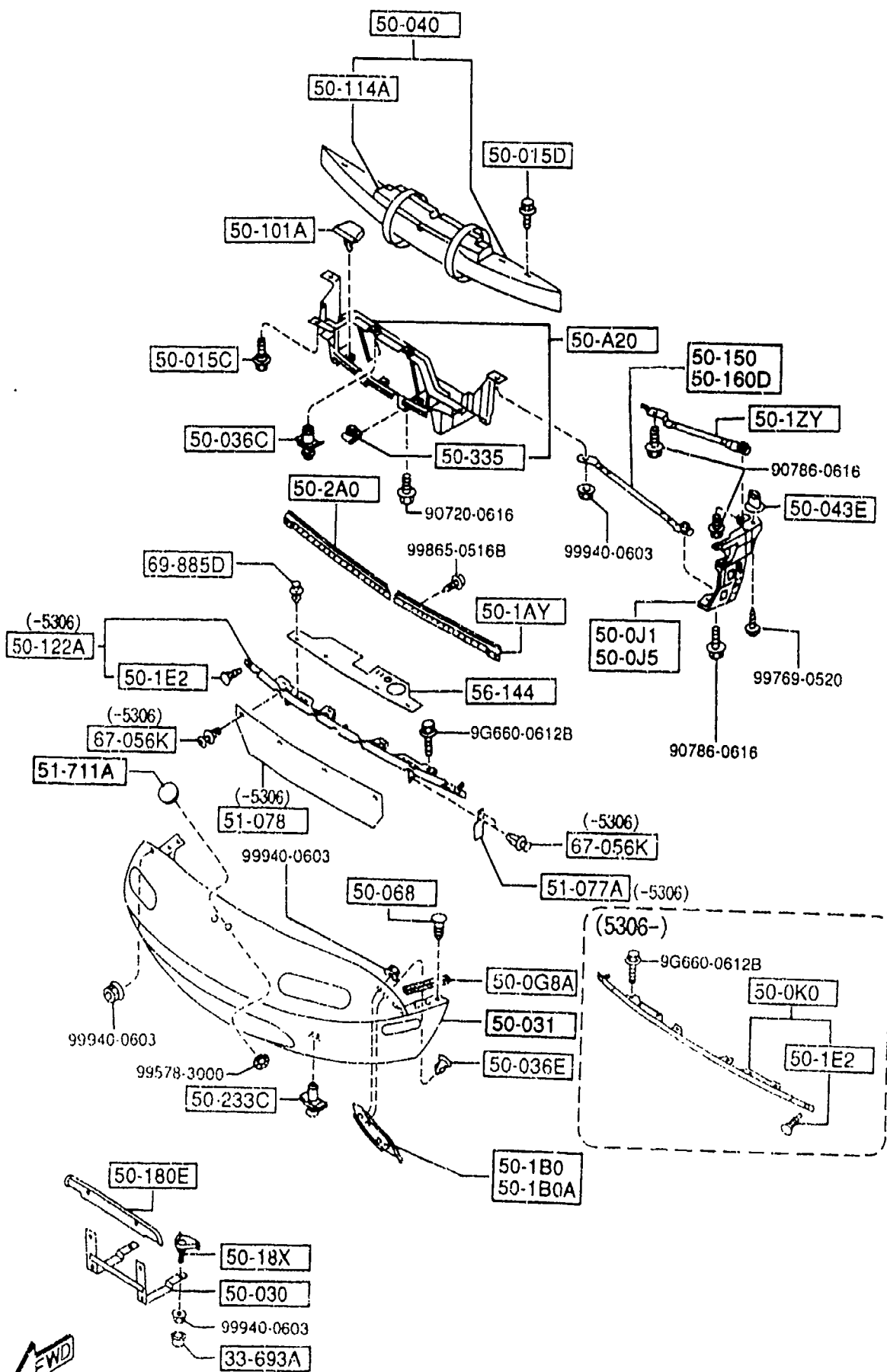
0900 KEY SETS



0900 -2 * KEY SETS

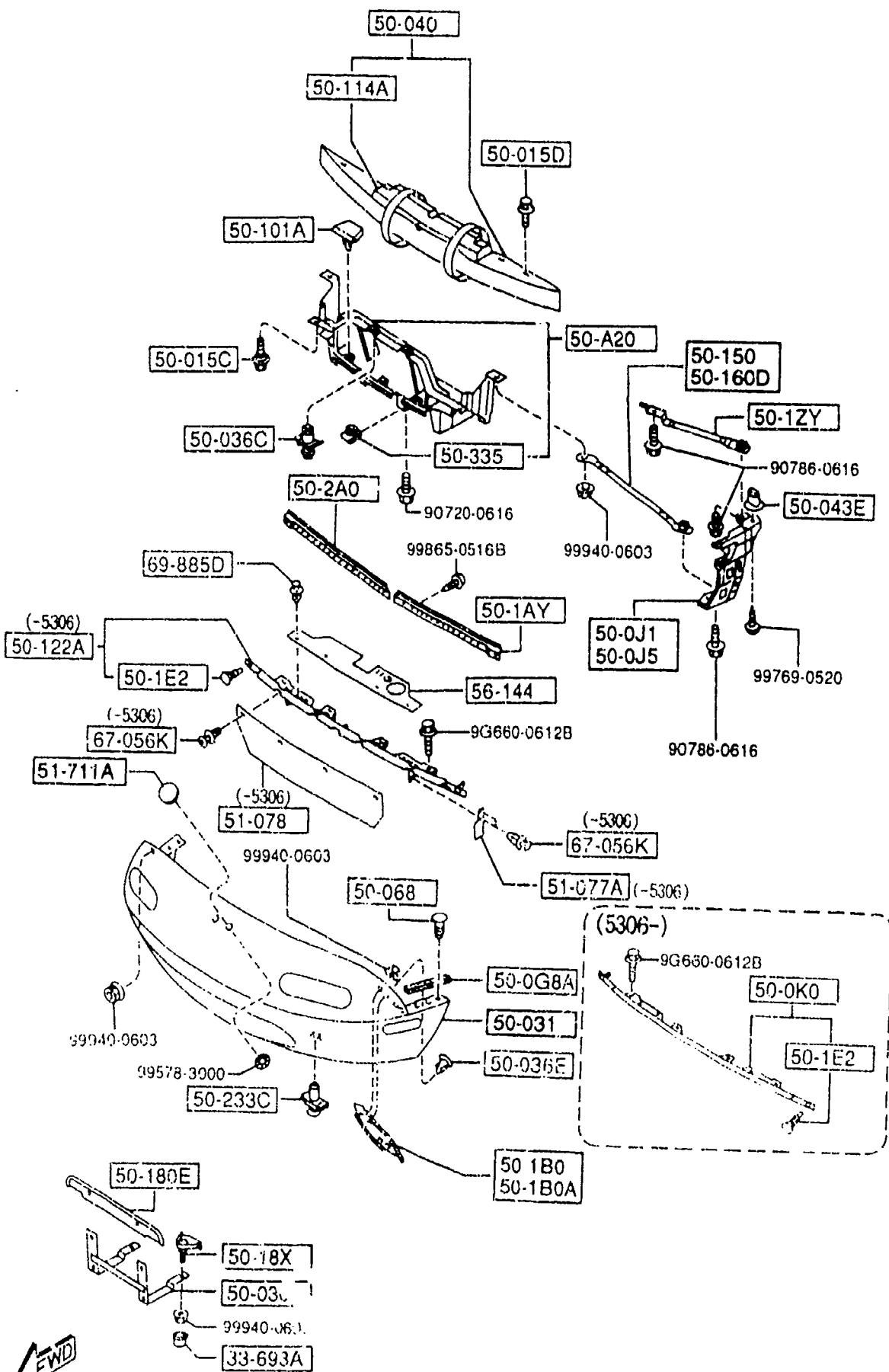
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D N001-76-220D	1				5301-
+-----+ | 75-930 | +-----+		KEY SUB SET,TRUNK			
NA01-76-230C A (NA01-76-230D)	1				-5301
NA01-76-230D	1				5301-
+-----+ | 75-950 | +-----+		KEY SUB SET,GLOVE			
NA75-76-250	1				-5301
EA70-76-250B	1				5301-
+-----+ | 75-990 | +-----+		KEY SUB SET,ST.LOCK			
NA75-76-290 A (NA75-76-290B)	1 (MT)				-5301
NA81-76-290 A (NA81-76-290B)	1 (AT)				-5301
NA75-76-290B	1 (MT)				5301-
NA81-76-290B	1 (AT)				5301-
+-----+ | 76-2B0 | +-----+		KEY SUB SET,CONSOLE			
NA01-76-2B0C	1				-5301
NA01-76-2B0D	1				5301-
+-----+ | 76-201A | +-----+		KEY, BLANK-PRIMARY			
FD01-76-201	1				-5301
BOYA-76-201	1				5301-
+-----+ | 76-202 | +-----+		KEY, BLANK-SECONDARY			
FD01-76-202	1				-5301

5301 NA35* -616742



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
33-693A		CAP, BLEEDER SCREW			
0259-33-693	2				
50-A20		GUIDE, AIR			
NA01-50-A20A	1	(W/O A. LOCK BRAKE)			
NA23-50-A20	1	(W/A. LOCK BRAKE)			
50-0G8A		SEAL, RUBBER-FRONT BUMPER			
NA01-50-0G9	2				
50-0J1		RETAINER(R), FRONT BUMPER			
NA01-50-0J1	1				
50-0J5		RETAINER(L), FRONT BUMPER			
NA01-50-0J5	1				
50-0K0		RETAINER, FASCIA			
NA01-50-0K0B	1				5306-
50-015C		BOLT			
FB01-50-132	2				
50-015D		BOLT			
NA01-50-0Z2	8				
50-030		HOLDER, NO. PLATE			
NA01-50-180A	1				
50-031		BUMPER, FRONT			
NAY1-50-030	1	PAINT TO MATCH			
50-036C		FASTENER			
BF67-50-033	2				
50-036E		CLIP			
KA01-50-102	6				
50-040		REINFORCEMENT, BUMPER			
NA01-50-070	1	(W/O DAY RUNNING LAMP)			

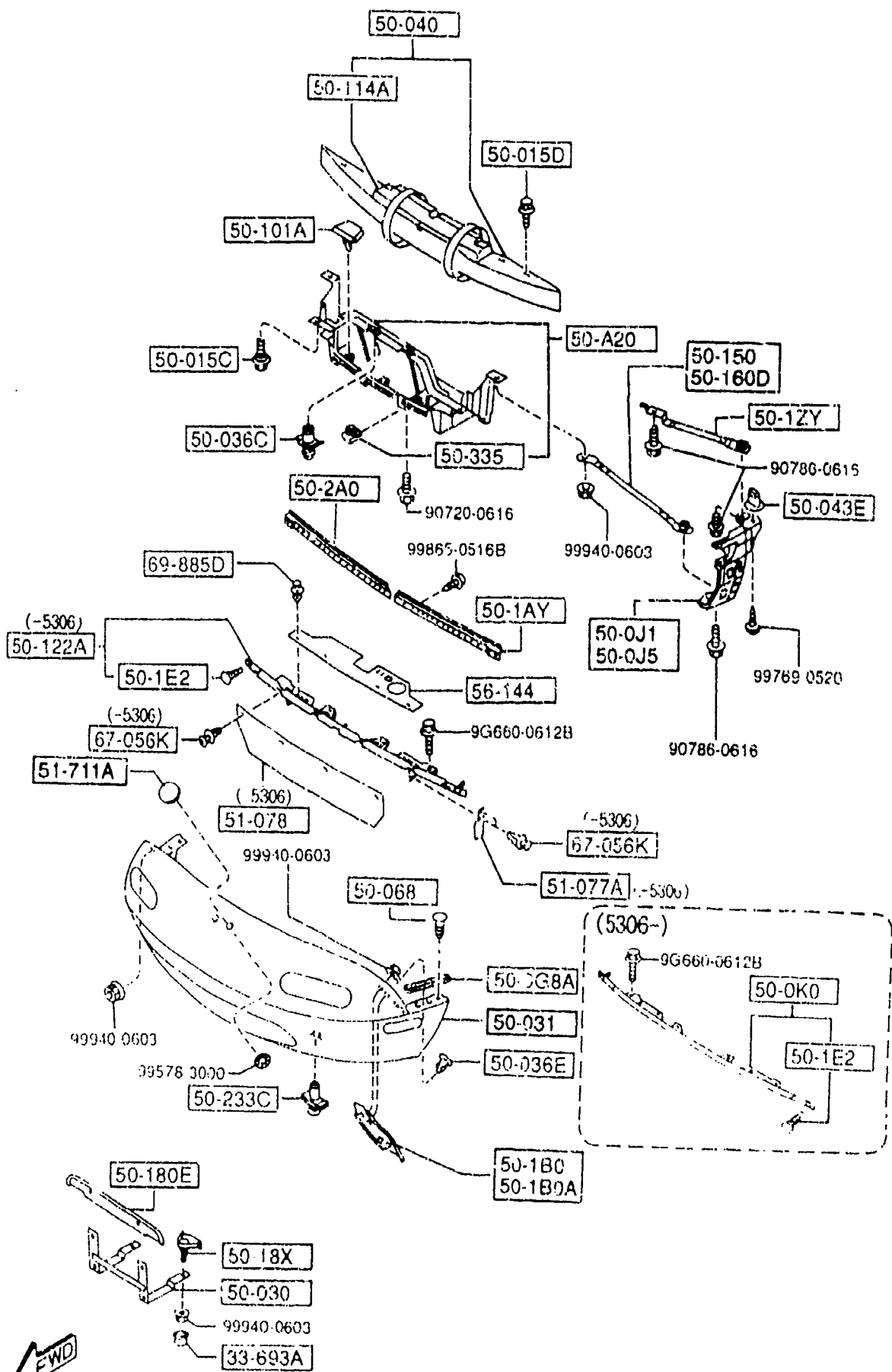
5306 NA35* -617256



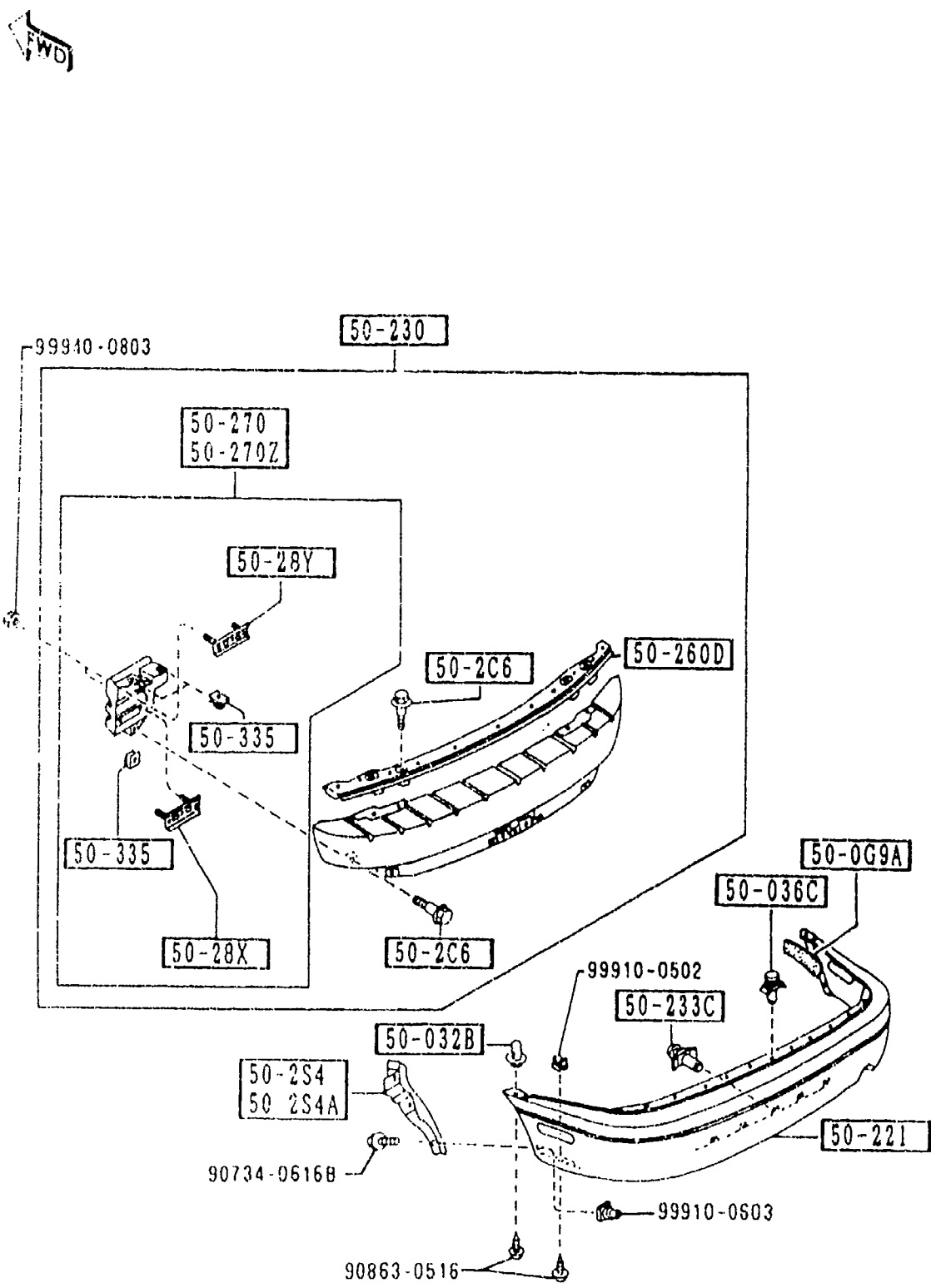
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
50-043E		SLIDE 'A', BUMPER			
B092-50-032	2				
50-068		CLIP			
NA01-50-068	6				
50-1AY		PLATE, SET NO. 1			
NA01-50-1AYC	1				
50-1B0		PLATE NO. 2(R), SET-F. BUMPER			
NA01-50-1B0	1				
50-1B0A		PLATE NO. 2(L), SET-F. BUMPER			
NA01-50-1C0	1				
50-1E2		BOLT			
NA01-50-1E2	2				
50-1ZY		BRACKET, FENDER			
NA01-50-1ZYB	2				
50-101A		COVER, GRILLE			
NAG1-50-101A	3				
50-114A		SPACER, E. A. FOAM			
NA01-50-114	1				
50-122A		RETAINER, FRT. BUMPER			
NA75-50-0K0	1				
50-150		BRACKET(R), FRT BUMPER-LWR			
NA01-50-160	1	(W/O A. LOCK BRAKE)			
50-160D		BRACKET(L), F. BUMPER SIDE			
NA01-50-160	1				
50-18X		BRACKET, LICENCE PLATE			
NA01-50-18X	2				
50-180E		PROTECTOR, NO. PLATE			
FB01-50-144	1				

5306 NA35* -617256

-5306

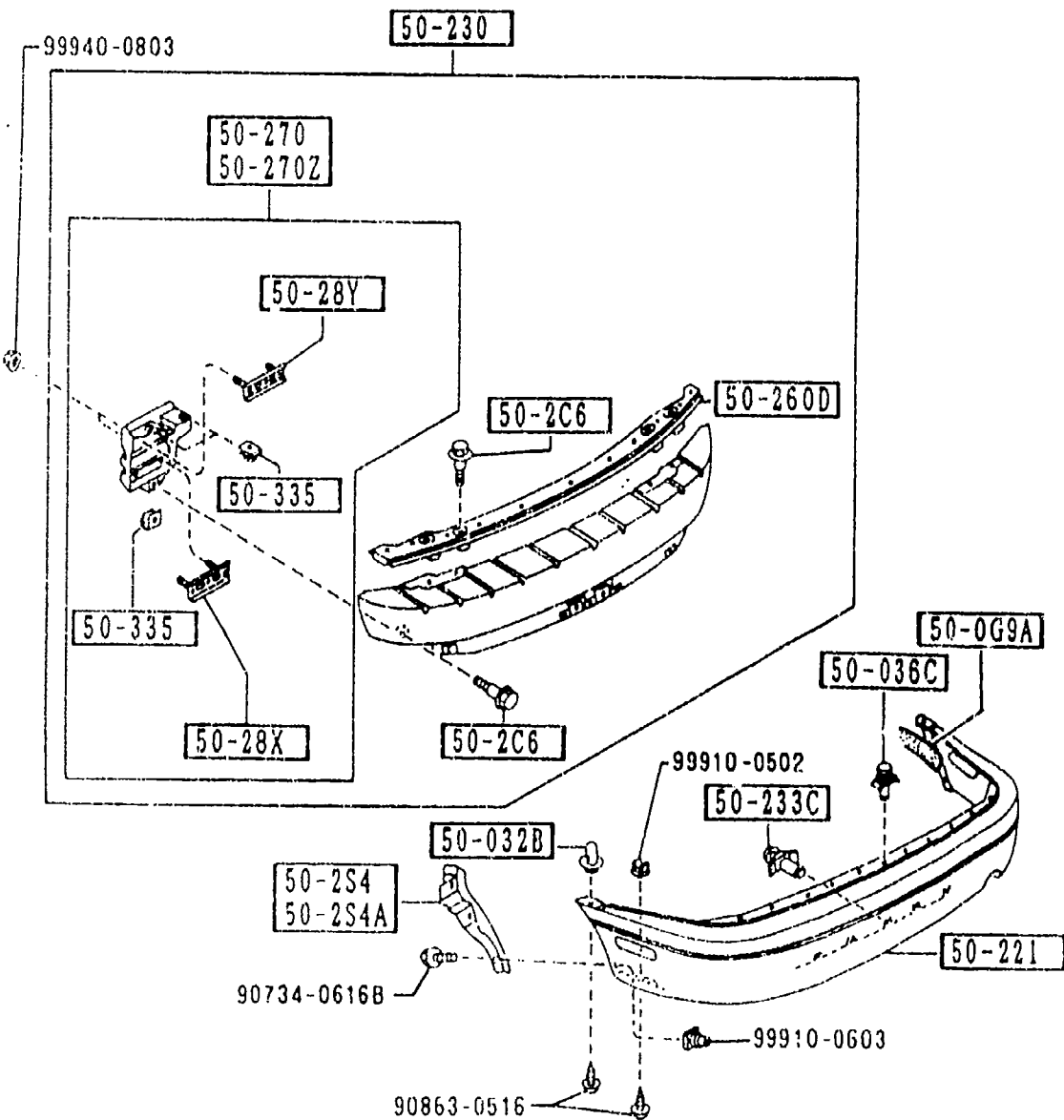


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
50-2A0	1	SET PLATE NO.1(R),RR BUMPER			
NA01-50-2A0B					
50-233C	2	FASTENER, REAR BUMPER			
BF82-50-233					
50-335	4	NUT, CLIP			
FB01-50-133C					
51-077A	2	SEAL, SIDE			-5306
NA75-50-0K8					
51-078	1	SEAL, LOWER			-5306
NA75-50-0K6A					
51-711A	1	ORNAMENT, FRONT			
BB1H-51-731					
56-144	1	SEAL, BUMPER			
NA75-50-0K7A					
67-056K	8	RIVET			-5306
UB39-50-795					
69-885D	4	FASTENER			
NA01-56-145					
5306 NA35* -617256					

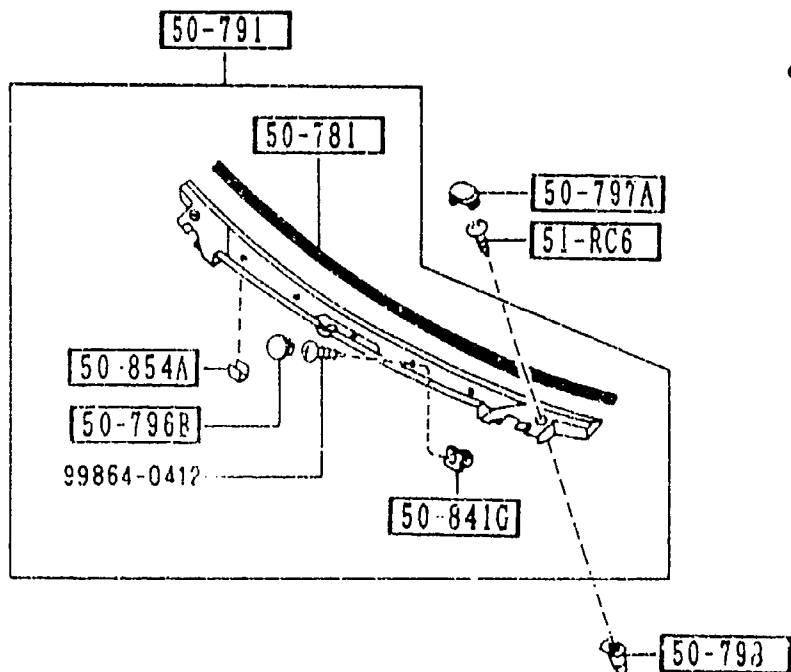
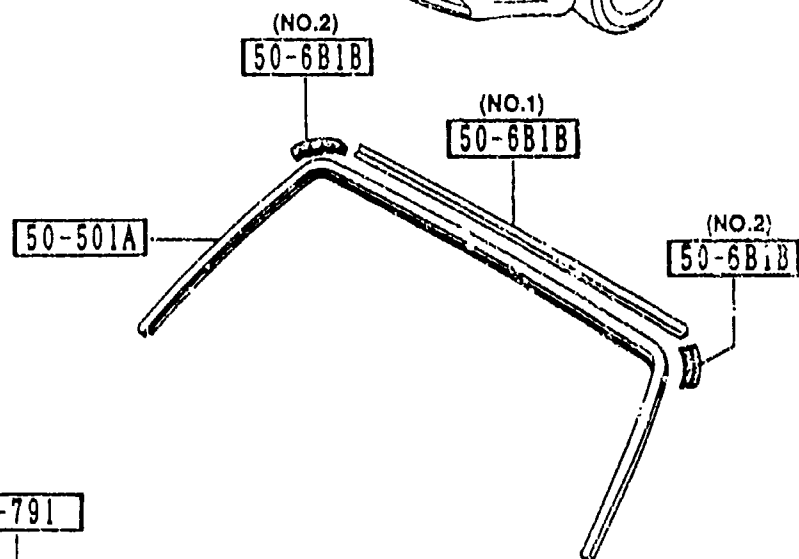
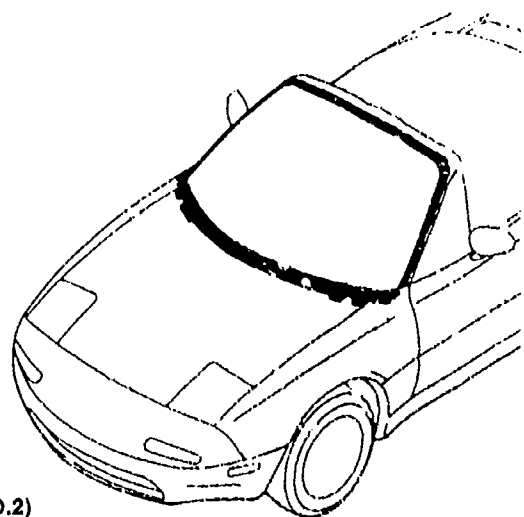


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
50-0G9A		SEAL, RUBBER-REAR BUMPER			
NA01-50-0G9	2				
50-032B		SLIDE 'UP.', BUMPER			
GJ21-50-032	2				
50-036C		FASTENER			
BF67-50-033	11				-4A03
BF67-50-033	7				4A03-
50-2C6		BOLT			
NA01-50-2C6	6				
50-2S4		SHIELD(R), SPLASH-R. BUMPER			
NA01-50-2S4	1				
50-2S4A		SHIELD(L), SPLASH-R. BUMPER			
NA01-50-2S5	1				
50-221		BUMPER, REAR			
NAY1-50-220A	1	PAINT TO MATCH			
50-230		REINFORCEMENT, BUMPER			
NA01-50-260	1	(W/O DAY RUNNING LAMP)			
50-233C		FASTENER, REAR BUMPER			
BF82-50-233	5				
50-260D		RETAINER, R. BUMPER			
NA01-50-2J0	1				
50-270		STAY(R), RR. BUMPER			
NA01-50-280A	1				
50-270Z		STAY(L), RR. BUMPER			
NA01-50-290A	1				
50-28X		PLATE SET			
NA01-50-28XC	2				

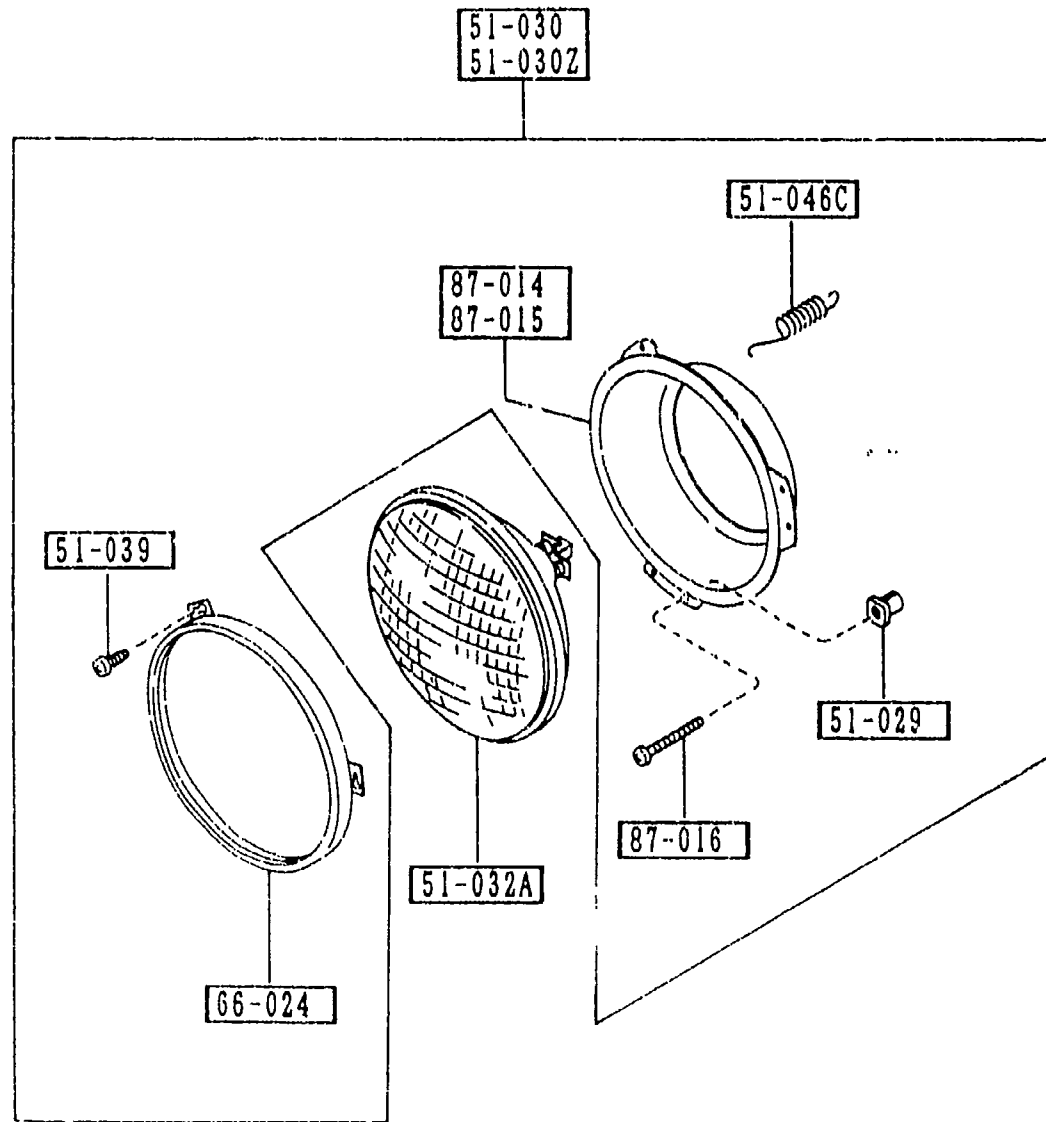
4A03 NA35* -603621



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
50-28Y		PLATE SET			
NA01-50-28YC	2				
50-335		NUT, CLIP			
NA01-50-133	6				

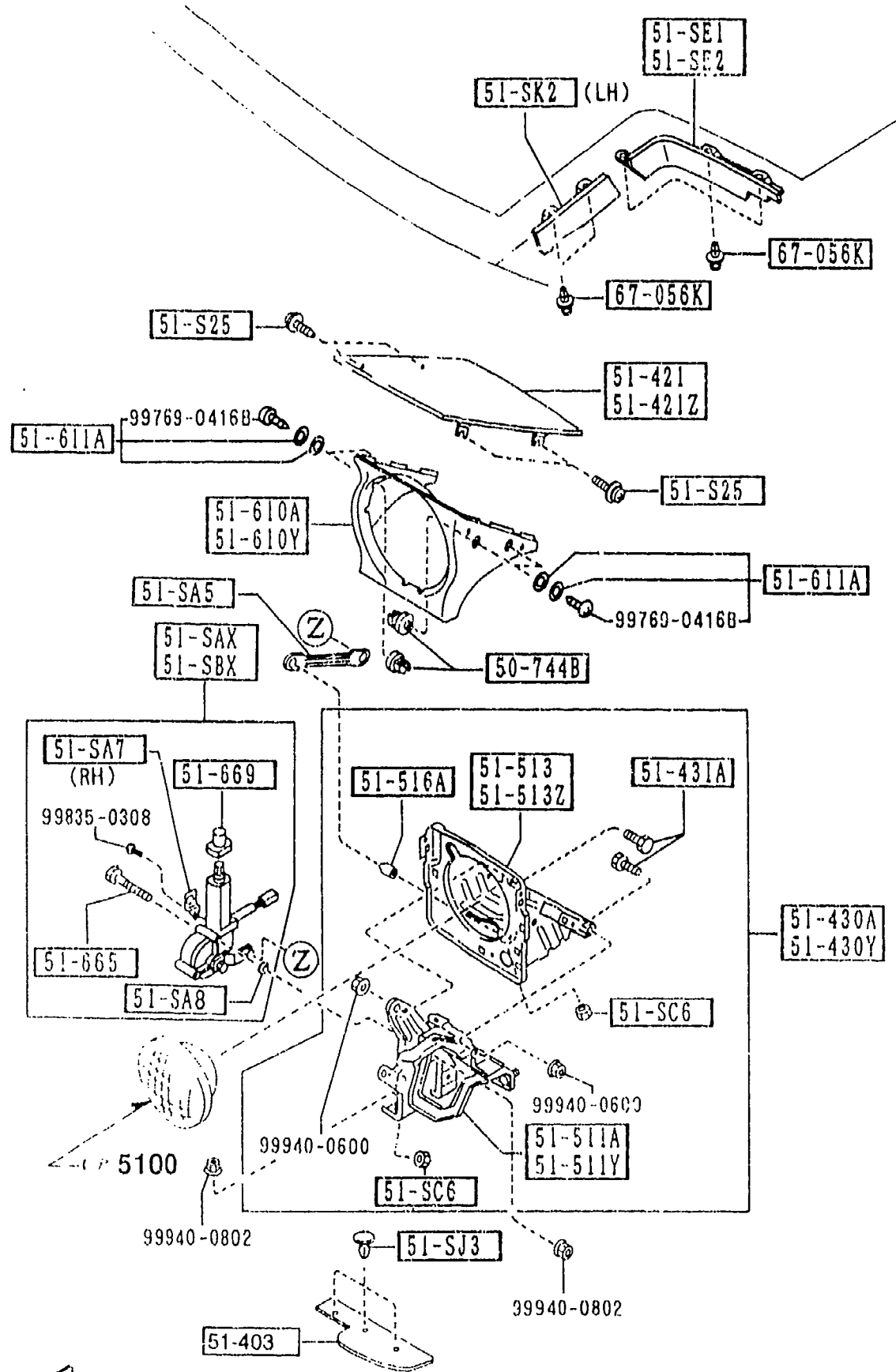


PART NO	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
50-501A		MOULD(UP), FRT. WINDOW			
NA01-50-601	1				
50-6B1B		PROTR. MOULD-FRT WIND OW			
NA01-50-6B1	1	(ILLUST. NO. 1)			
NA01-50-6B2	2	(ILLUST. NO. 2)			
50-781		PROTECTOR, COWL GRILL E			
NA01-50-792A	1				
50-791		GRILLE, COWL			
NA01-50-790E	1				
50-796A		CAP			
B455-50-796A	5				
50-797A		CAP			
NA01-50-797A	2				
50-798		SCREW, GRUMMET			
NA01-50-798	2				
50-841G		GRUMMET, SCREW			
NA01-51-799	5				
50-854A		PROTECTOR			
NA01-50-794	4	('93 MODEL)			
51-RC6		SCREW, SIDE GAPMISH			
1.272-51-RC6	2				

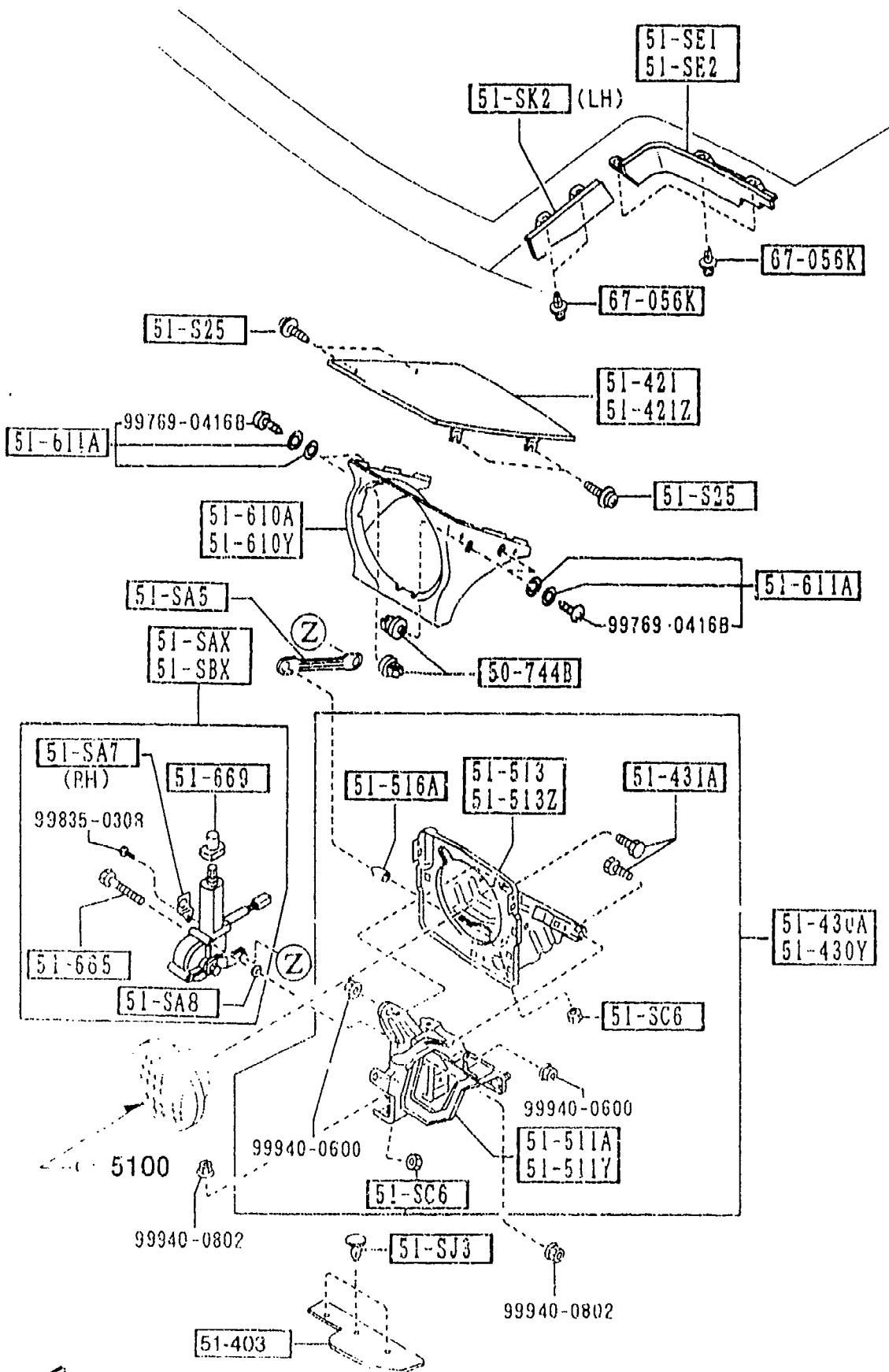


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
51-029		GROMMET, SCREW			
0483-66-061A	4				
51-030		LAMP SET(R), HEAD			
BBN1-51-030	1				
51-030Z		LAMP SET(L), HEAD			
BBN1-51-040	1				
51-032A		UNIT, HEAD LAMP			
NA02-51-031	2				
51-039		SCREW			
B481-51-0E3	6				
51-046C		SPRING			
NA01-51-046	2				
66-024		RING, RETAINING			
NA01-51-033A	2				
87-014		RING(R) MOUNTING			
NA01-51-032	1				
87-015		RING(L) MOUNTING			
NA01-51-034	1				
87-016		SCREW, ADJUST			
NA01-51-037	4				

FWD



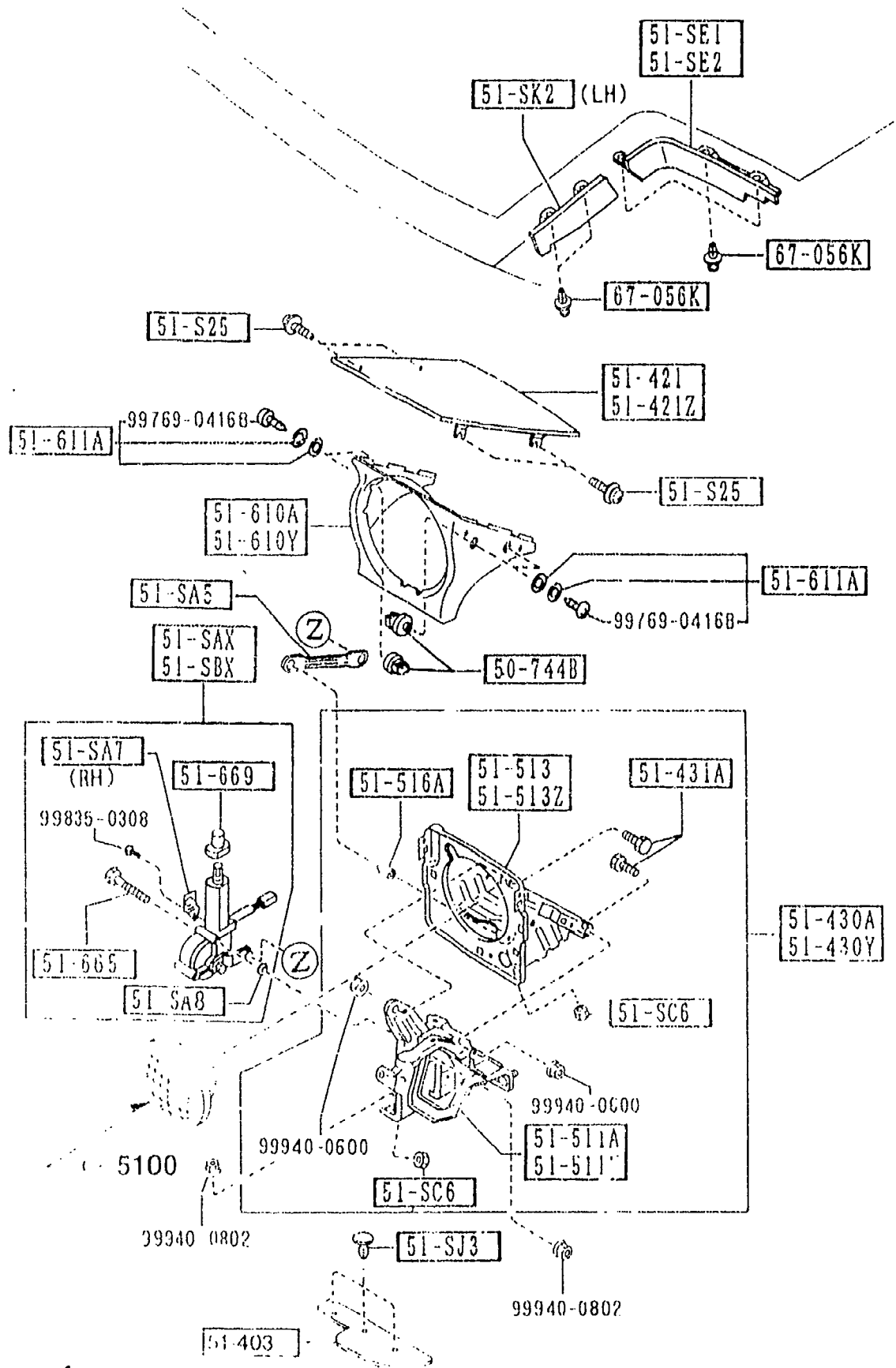
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
50-744B		GROMMET, SCREW			
B481-50-744	8				
51-SAX		MOTOR(R), RETRACTABLE HEAD			
NA01-51-SAX	1				
51-SA5		ROD, RETRACTABLE			
NA01-51-SA5	2				
51-SA7		BRACKET, CLIP			
NA01-51-SA7	1				
51-SAB		WASHER			
NA01-51-SAB	6				
51-SBX		MOTOR(L), RETRACTABLE HEAD			
NA01-51-SBX	1				
51-SC6		NUT, STOPPER-LAMP HINGE			
KA01-51-SC6	4				
51-SE1		PROTECTOR(R), RETRA H/L			
NA01-51-SE1	1				
51-SE2		PROTECTOR(L), RETRA. H/L			
NA01-51-SE2	1				
51-SJ3		CLIP			
NA01-51-SJ3	6				
51-SK2		PROTECTOR(L), RETRA. SIDE			
NA01-51-SK2	1				
51-S25		BOLT, LAMP LTD			
BS34-51-S25A	8				
51-403		PROTECTOR			
NA01-51-SJ2	2				-5508
AN(NA01-51-SJ2A)					
NA01-51-SJ2A	2				5508-
5508 NA35* -620210					



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-10
51-421		LID(R),LAMP			
NA01-51-SH1B	1				
51-421Z		LID(L),LAMP			
NA01-51-SH2B	1				
51-430A		HINGE(R),LID-LAMP			
NA01-51-SC6J	1				
51-430Y		HINGE(L),LID-LAMP			
NA01-51-SD0B	1				
51-431A		BOLT,HINGE			
KA01-51-SD7	4				
51-511A		BRACKET(R),HINGE-LAMP LID			
NA01-51-SC1A	1				
51-511Y		BRACKET(L),HINGE-LAMP LID			
NA01-51-SD1A	1				
51-513		HOUSING(R),LAMP-LID HINGE			
NA01-51-SC5B	1				
51-513Z		HOUSING(L),LAMP-LID HINGE			
NA01-51-SD5B	1				
51-516A		CAP,HINGE-H.L.RETRACT TABLE			
KA01-51-SD6	2				
51-610A		BEZEL(R),HEAD LAMP			
NA01-50-741	1				
51-610Y		BEZEL(L),HEAD LAMP			
NA01-50-751	1				
51-611A		SCREW,HEAD LAMP BEZEL			
B481-50-75X	8				
51-665		BOLT,MOTOR RETRACT H/LAMP			
FB01-51-665	6				

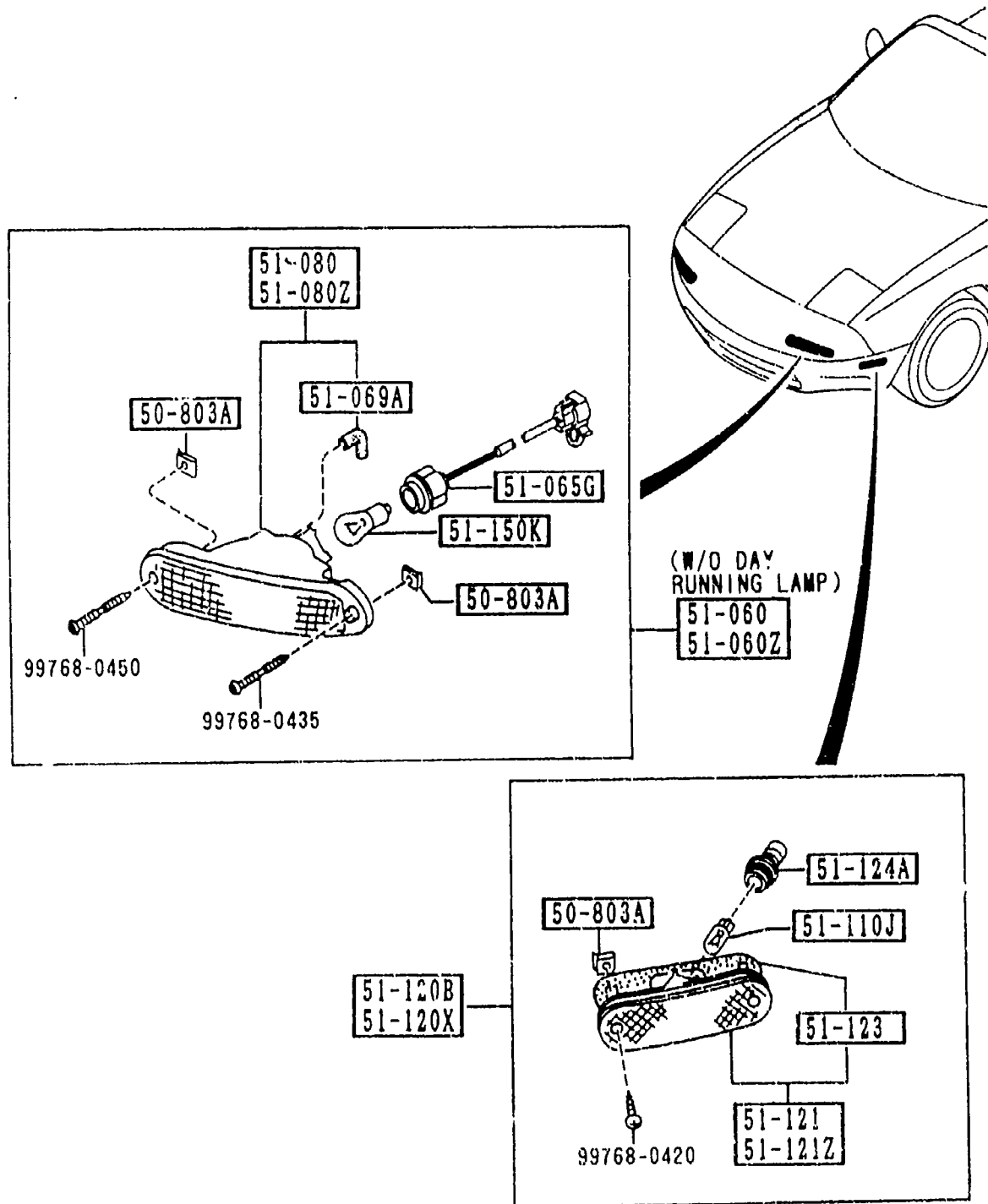
EWG

2-M-5



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
51-669	2	BODY, MOTOR-RETRACT H/L			
NA01-51-669					
67-056K	8	RIVET			
UB39-50-795					

2-N 5

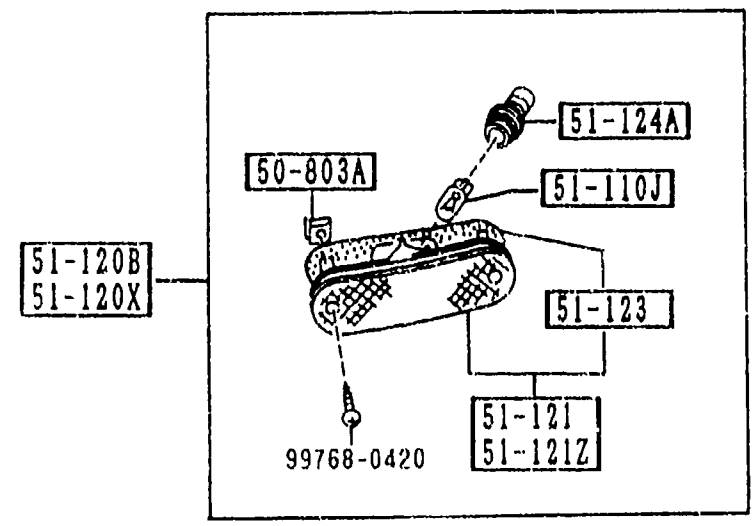
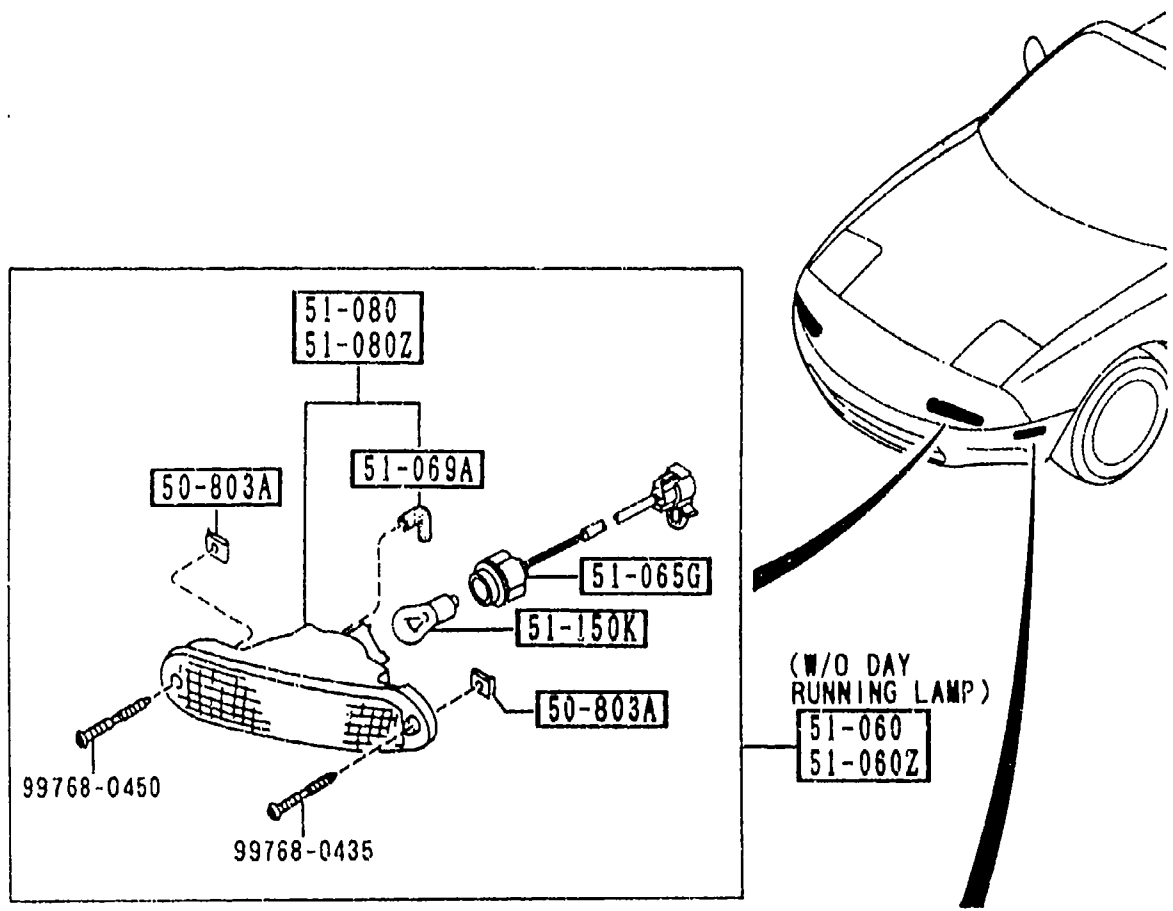


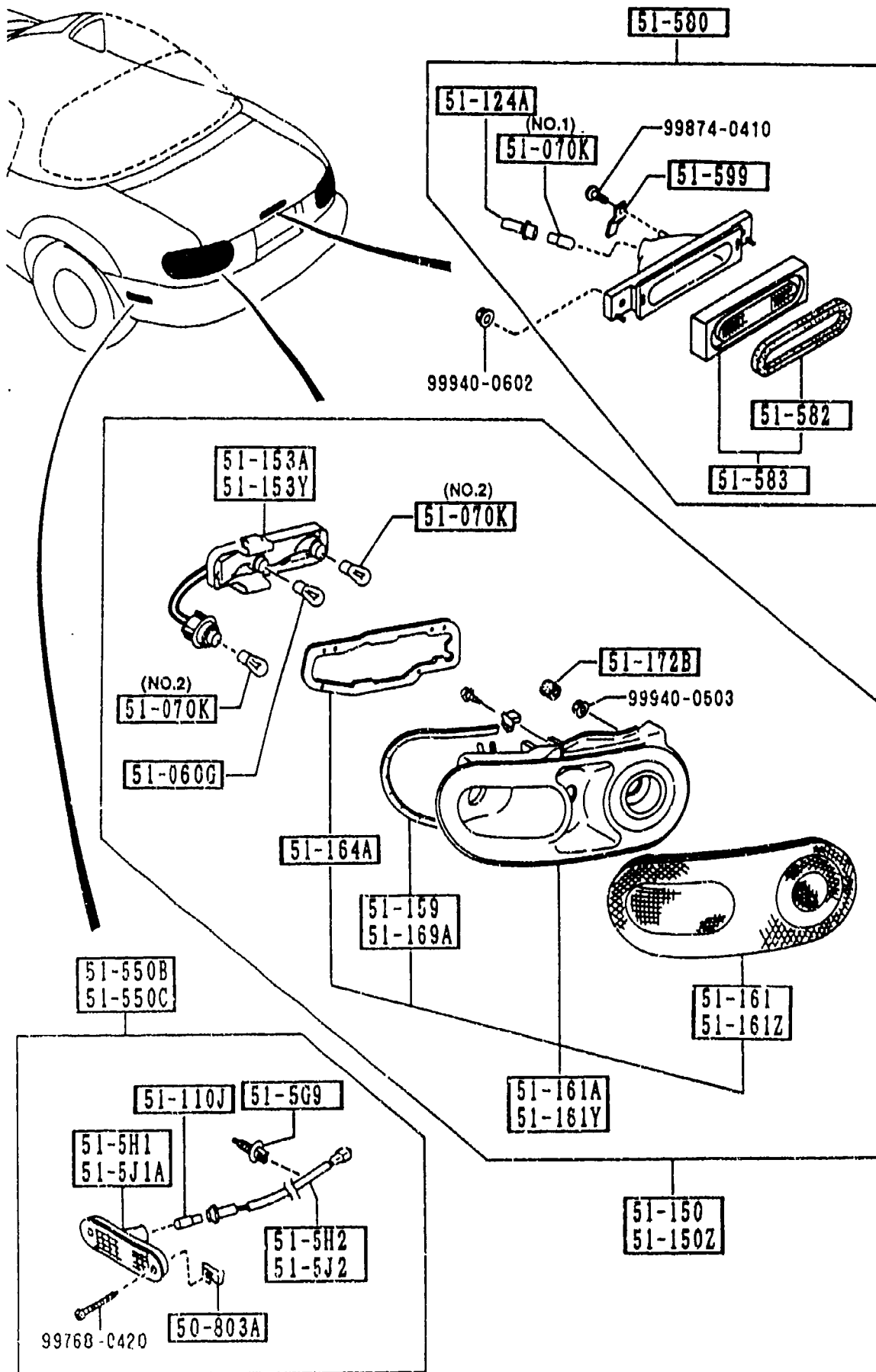
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
50-803A		NUT, SIDE PROTECTOR			
G158-50-803	8				
51-060		LAMP SET(R), FRT COMB			
8BN1-51-060	1	(W/O DAY RUNNING LAMP)			
51-060Z		LAMP SLT(L), FRT COMB			
8BN1-51-070	1	(W/O DAY RUNNING LAMP)			
51-065G		SOCKET, F. COMB. LAMP			
NA01-51-064	2	(W/O DAY RUNNING LAMP)			
51-069A		TUBE, HEAD LAMP			
NA01-51-069	2				
51-080		LENS & HOUSING(R)			
NA01-51-06XA	1				
51-080Z		LENS & HOUSING(L)			
NA01-51-07XA	1				
51-110J		BULB			
99701-6038	2	12V 3.8W			
51-120B		LAMP SET(R), SIDE TURN			
8BN1-51-120	1				
51-120X		LAMP SET(L), SIDE TURN			
8BN1-51-130	1				
51-121		LENS & BODY(R)			
NA01-51-5EXA	1				
51-121Z		LENS & BGDY(L)			
NA01-51-5FXA	1				
51-123		GASKET, SIDE TURN			
NA01-51-5D3A	2				

5105 -2 * FRONT COMBINATION LAMPS

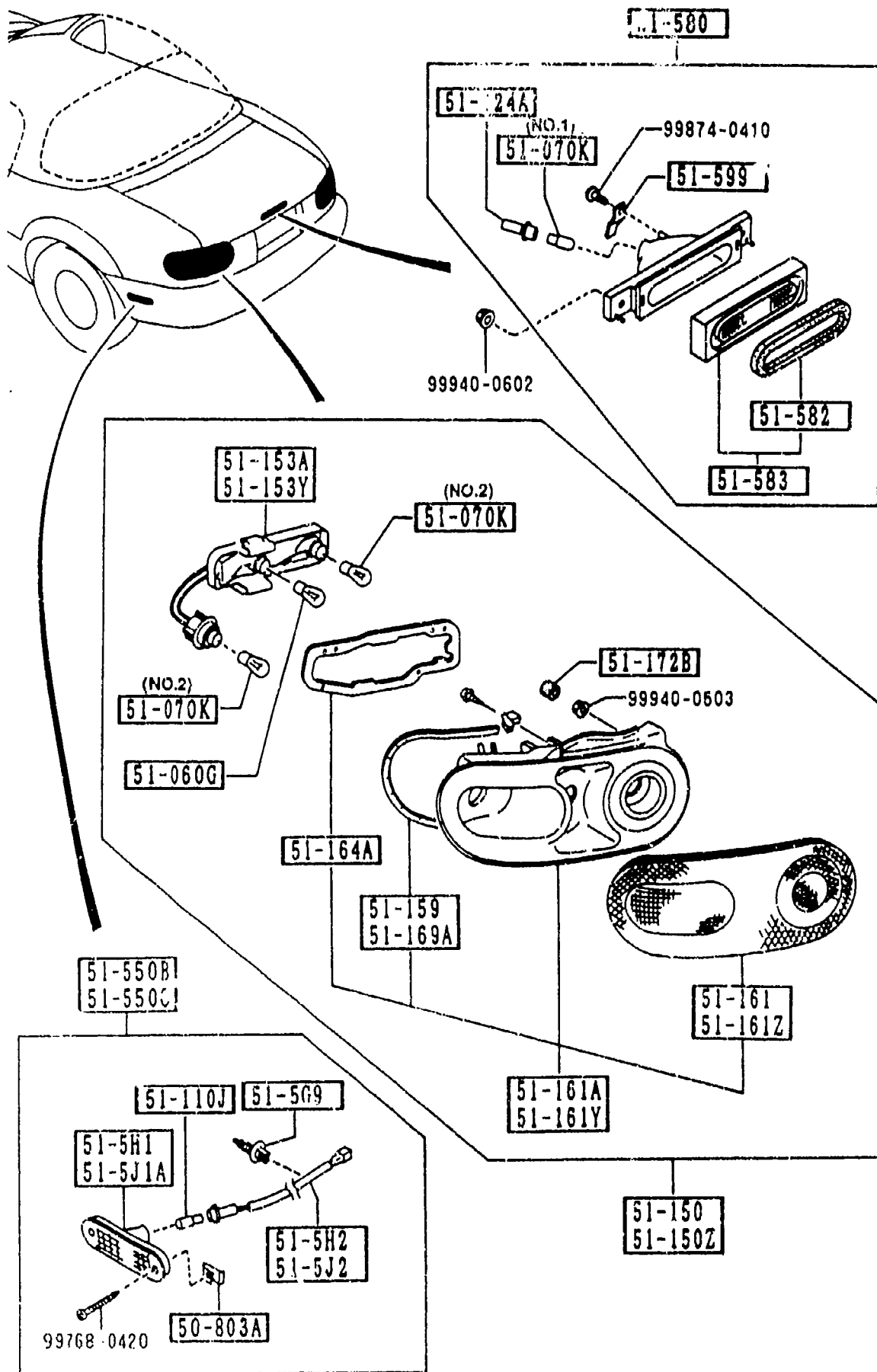
5105 FRONT COMBINATION LAMPS

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
51-124A		SOCKET, SIDE TURN			
NA01-51-5E2	2				
51-150K		BULB			
99701-4278V	2	A12V 27/8W			

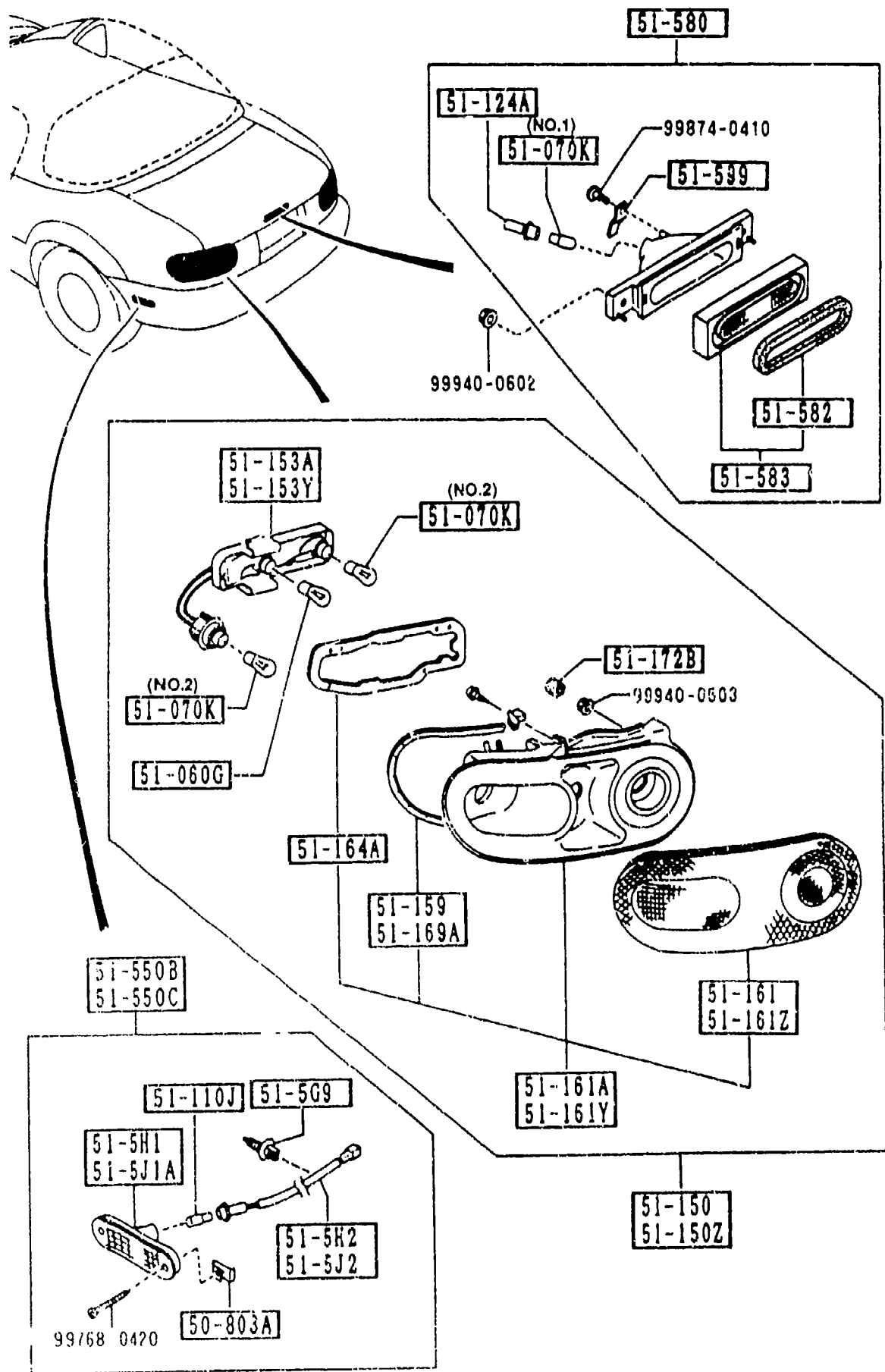




PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
50-803A		NUT, SIDE PROTECTOR			
G158-50-803	4				
51-060G		BULB			
99701-4278	2	12V 27W/8W			
51-070K		BULB			
99700-7180	1	A12V 18.4W (ILLUST. NO.1)			
99701-3270	4	12V 27W (ILLUST. NO.2)			
51-110J		BULB			
99701-6038	2	12V 3.8W			
51-124A		SOCKET, SIDE TURN			
BJ38-51-584	1				
51-150		LAMP SET(R), RR. COMB.			
8BN1-51-150	1				
51-150Z		LAMP SET(L), RR. COMB.			
8BN1-51-160	1				
51-153A		SOCKET(R), RR COMB.			
N001-51-155A	1				
51-153Y		SOCKET(L), RR. COMB.			
N001-51-165A	1				
51-159		PROTECTOR(R), 'A'			
NA01-51-159	1				
51-161		LENS(R), RR. COMB.			
NA01-51-15XC	1				
51-161A		LENS & BODY(R), RR CO MB.			
NA01-51-170B	1				
51-161Y		LENS & BODY(L), RR CO MB.			

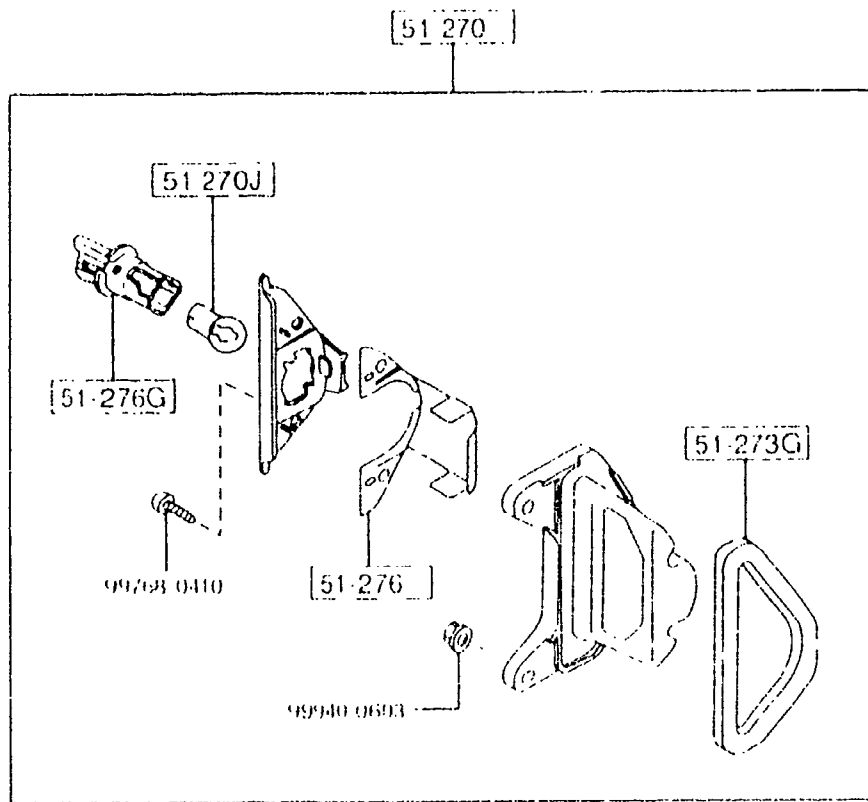


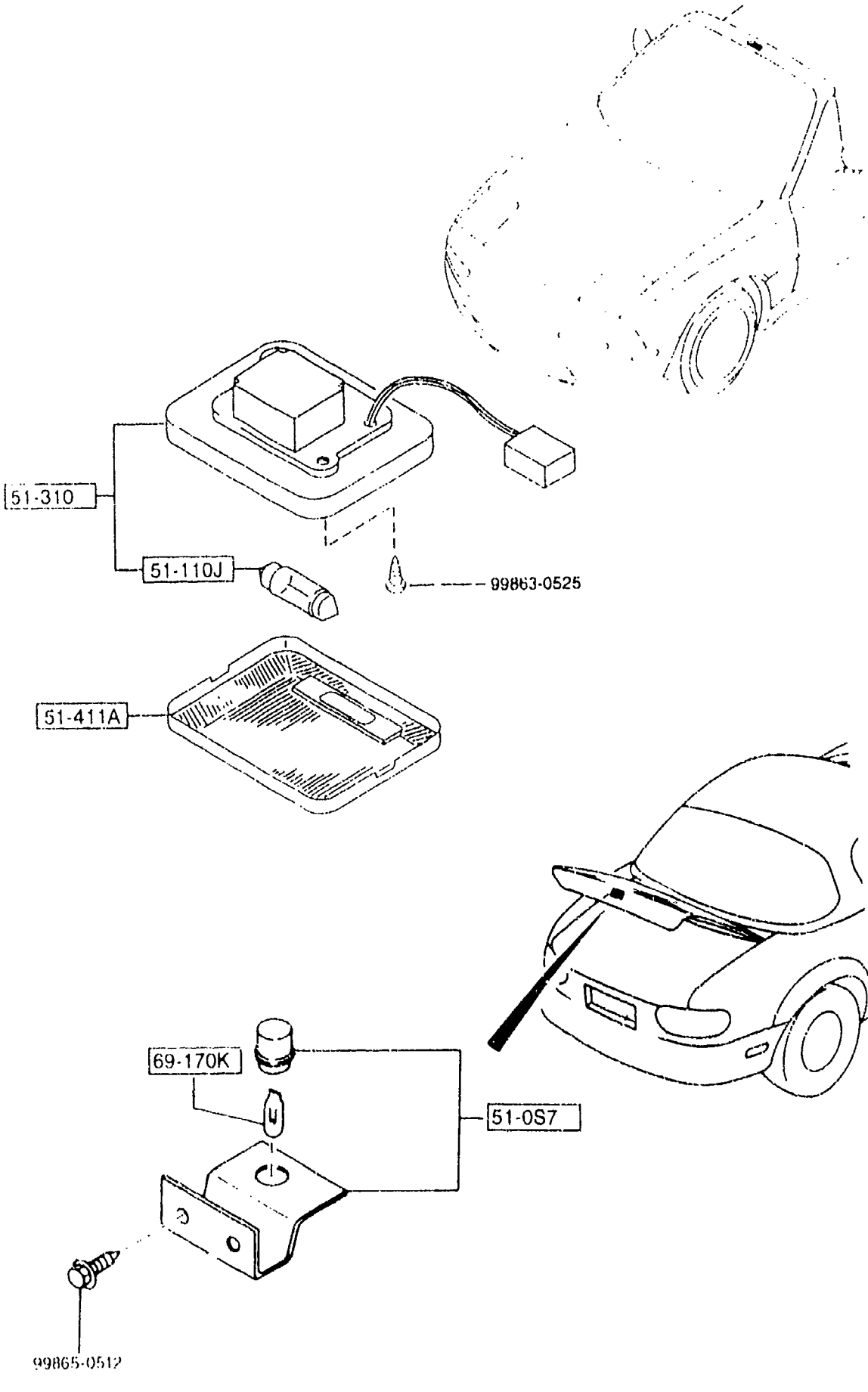
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
NA01-51-180B	1				
+-----+					
| 51-161Z |		LENS(L),RR.COMB.			
+-----+					
NA01-51-16XC	1				
+-----+					
| 51-164A |		GASKET,RR.COMB.			
+-----+					
NA01-51-158	2				
+-----+					
| 51-169A |		PROTECTOR(L),'A'			
+-----+					
NA01-51-169	1				
+-----+					
| 51-172B |		CAP			
+-----+					
G030-51-172	1				
+-----+					
| 51-5G9 |		CLIP			
+-----+					
NA01-51-5G9	8				
+-----+					
| 51-5H1 |		LENS & BODY(R),RR SI			
+-----+		DE TURN			
NA01-51-5H1C	1				
+-----+					
| 51-5H2 |		SOCKET(R),RR SIDE TU			
+-----+		RN			
NA01-51-5H2A	1				
+-----+					
| 51-5J1A |		LENS & BODY(L),RR SI			
+-----+		DE TURN			
NA01-51-5J1C	1				
+-----+					
| 51-5J2 |		SOCKET(L),RR SIDE TU			
+-----+		RN			
NA01-51-5J2A	1				
+-----+					
| 51-550B |		LAMP SET(R),SIDE TUR			
+-----+		N-RR			
8BN1-51-550	1				
+-----+					
| 51-550C |		LAMP SET(L),SIDE TUR			
+-----+		N-RR			
8BN1-51-560	1				
+-----+					
| 51-580 |		LAMP,STOP-HI.MOUNT.			
+-----+					
NA01-51-580B	1				
+-----+					
| 51-582 |		GASKET,STOP LAMP-HI.			
+-----+		MOUNT			
NA01-51-592B	1				



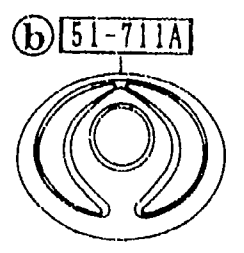
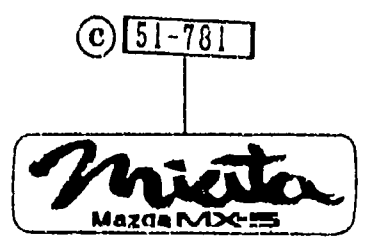
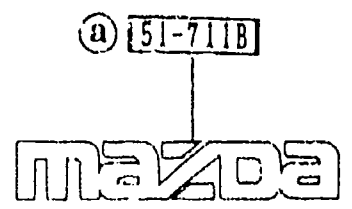
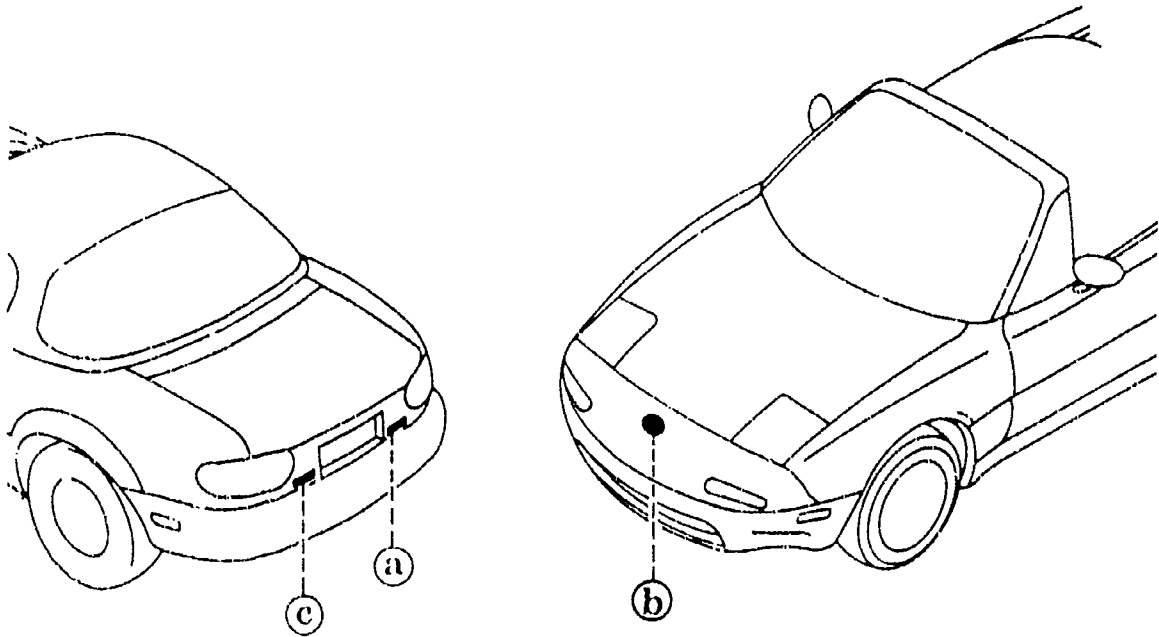
PART NO	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
51-583		LENS, STOP LAMP-HI. MO			
NA01-51-58XA	1	UNT			
51-599		FASTENER, STOP LAMP-H			
NA01-51-599	1	I.			-4A03
4A03 NA35* -603621					

PART NO	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
↑-----↑ | 51-270 | ↑-----↑		LAMP, LICENSE			
8BF1-51-270	2				
↑-----↑ | 51-270J | ↑-----↑		BULB			
99701-2070	2	12V 7.5W			
↑-----↑ | 51-273G | ↑-----↑		GASKET, LICENSE LAMP			
FB67-51-273	2				
↑-----↑ | 51-276 | ↑-----↑		SHADE, LAMP-LICENSE			
FB67-51-276	2				
↑-----↑ | 51-276G | ↑-----↑		SOCKET, LICENSE LAMP			
FB67-51-272	2				

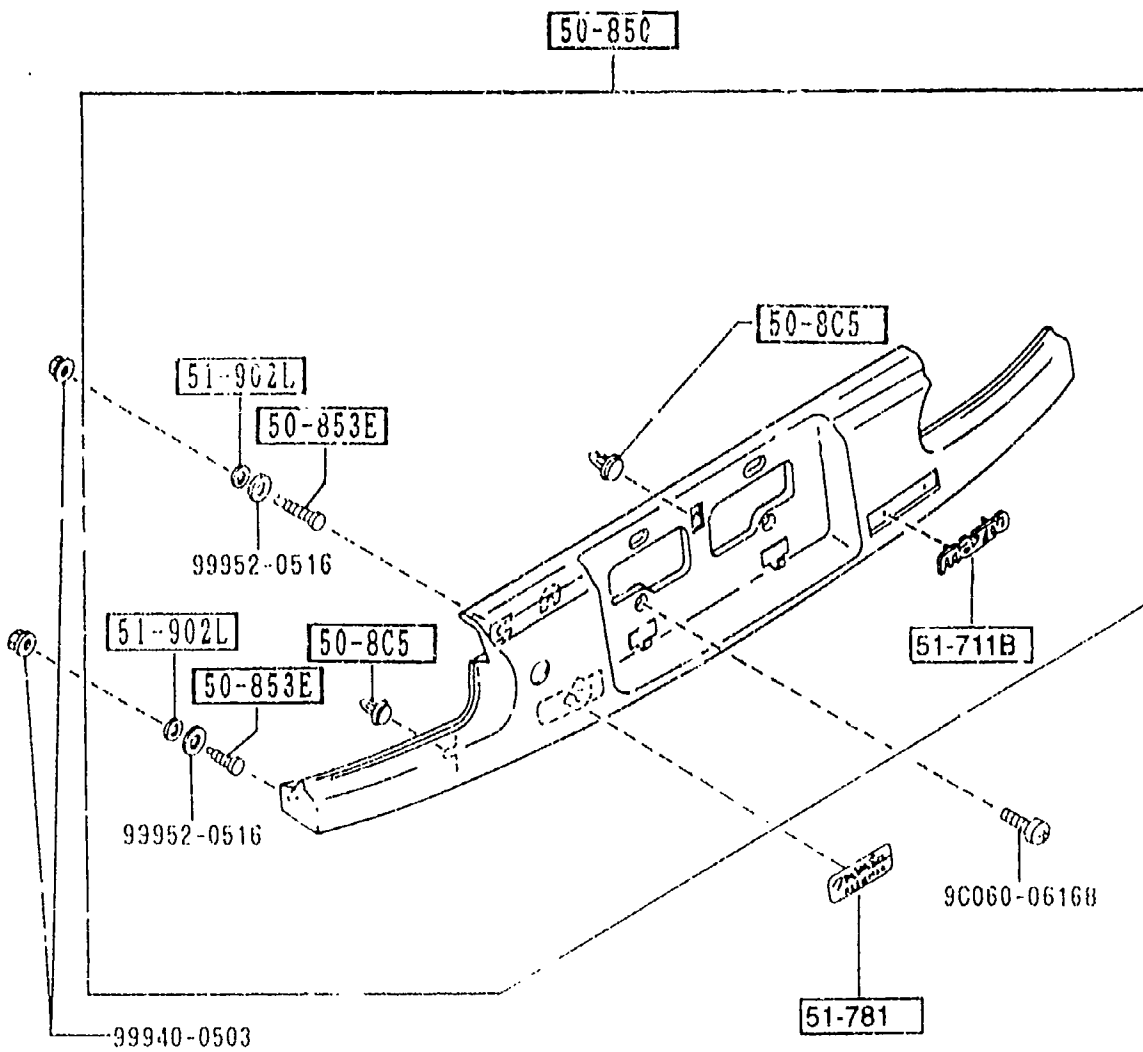




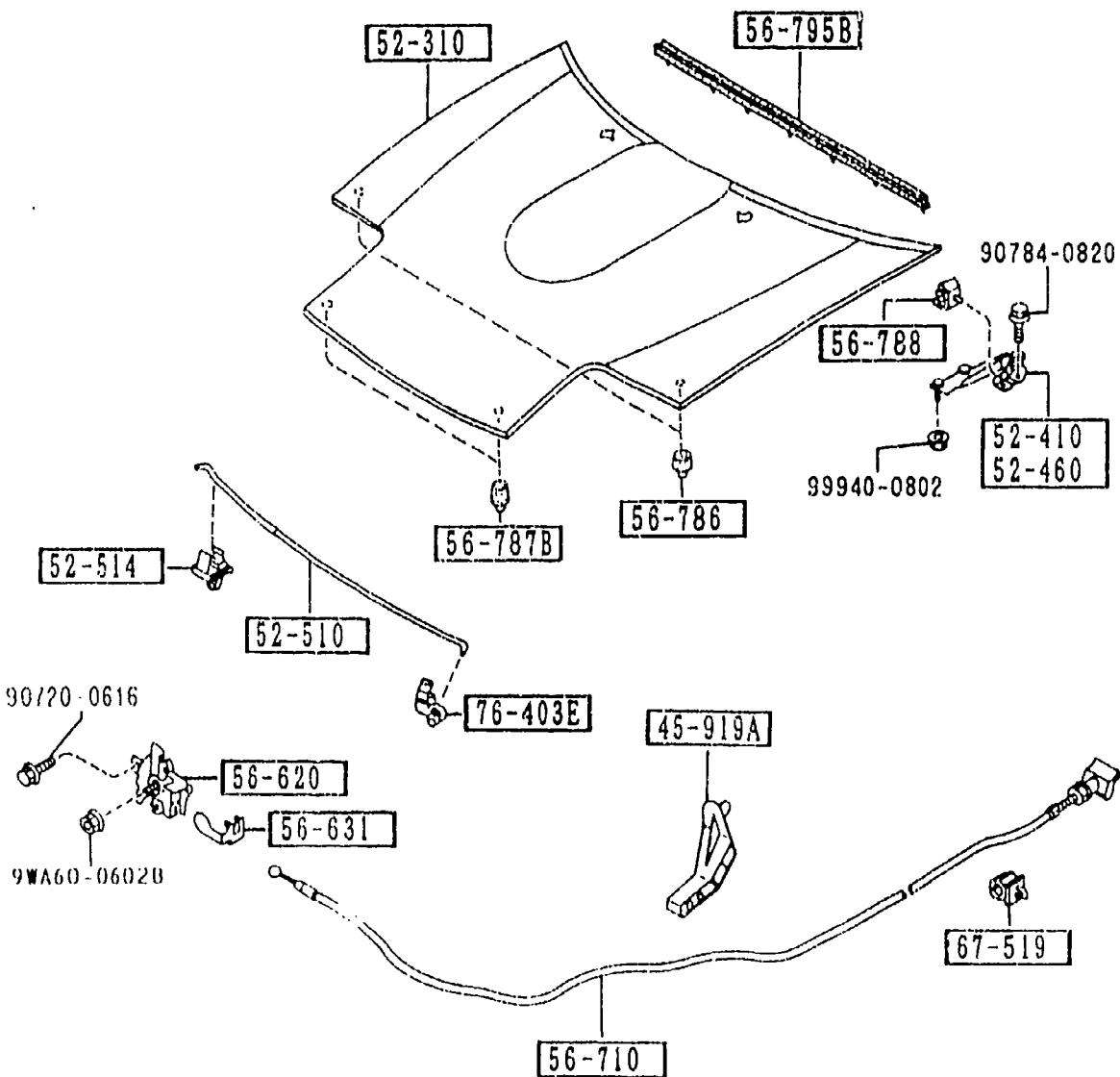
PART NO	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
51-0S7		BRACKET,LAMP			
*NB38-51-445A	1	('96 MODEL)			
51-110J		BULB			
99700-5080	1	12V/8W ('96 MODEL)			
51-310		LAMP,INTERIOR			
NB38-51-310A	1	('96 MODEL)			
51-411A		LENS,ROOM LAMP			
NB38-51-311	1	('96 MODEL)			
69-170K		BULB,INTERIOR MIRROR			
*NB38-68-4G3	1	('96 MODEL)			



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
51-711A		ORNAMENT, FRONT			
BB1H-51-731	1				
51-711B		ORNAMENT, MAKER NAME-REAR			
NA01-51-711	1				
51-781		ORNAMENT, REAR			
NA01-51-721A	1				



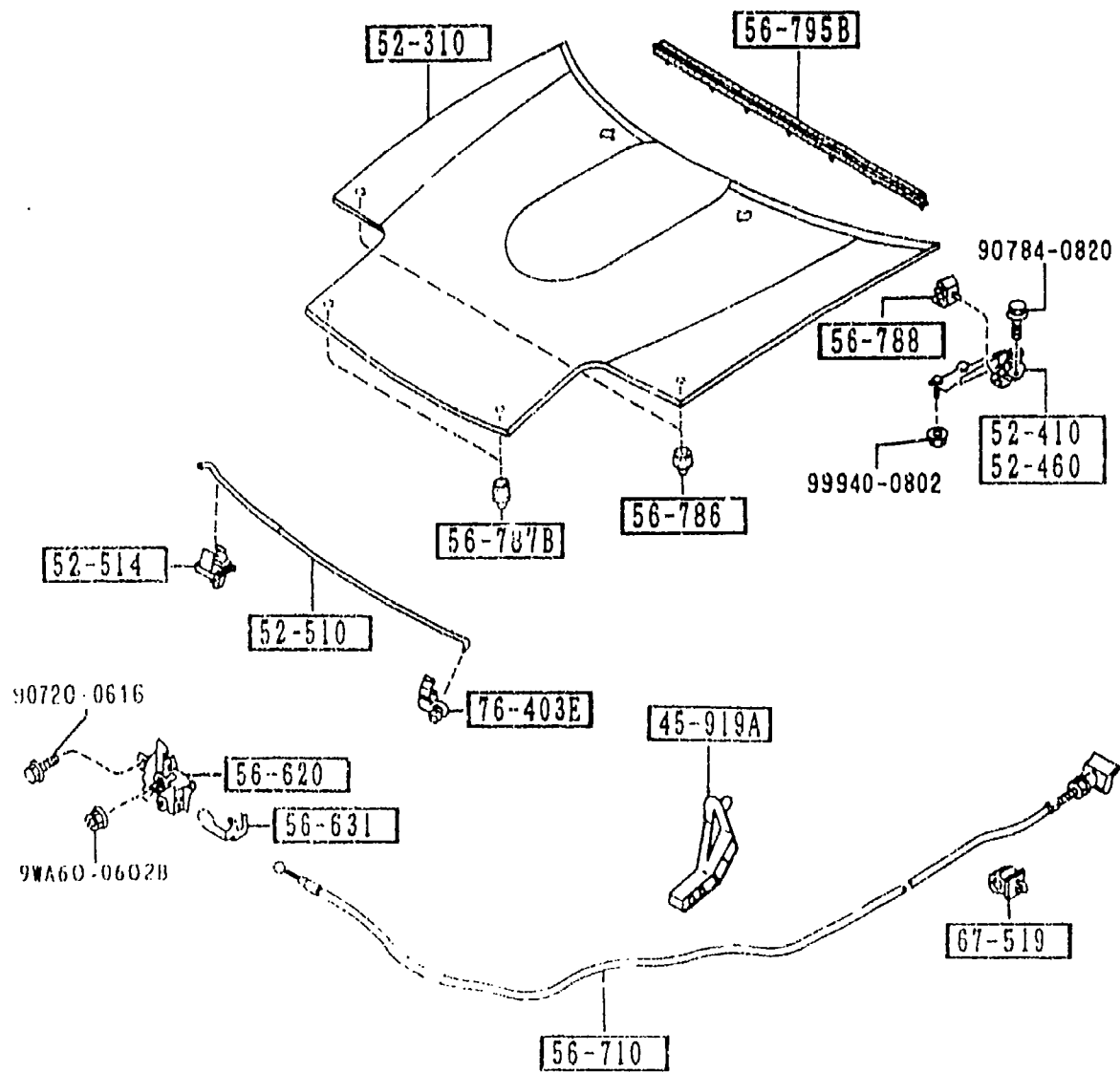
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
50-8C5		CLIP			
B467-50-8C5	3				
50-850		FINISHER, REAR			
NA01-50-8P0	1				
* A5	EXT-	A5 SATELLITE BLUE MC			
HU	EXT-	HU NEO GREEN			
M8	EXT-	M8 MONTEGO BLUE M			
PT	EXT-	PT CHAST WHITE			
PZ	EXT-	PZ BRILLIANT BLACK			
SU	EXT-	SU CLASSIC RED			
18	EXT-	18Q ARTVIN RED MC			
6W	EXT-	6W LAGUNA BLUE M.			
50-853E		BOLT, GARNISH-RR			
LA01-50-853	4				
51-711B		ORNAMENT, MAKER NAME-REAR			
NA01-51-711	1				
51-781		ORNAMENT, REAR			
NA01-51-721A	1				
51-902L		GASKET			
G030-51-914	4				



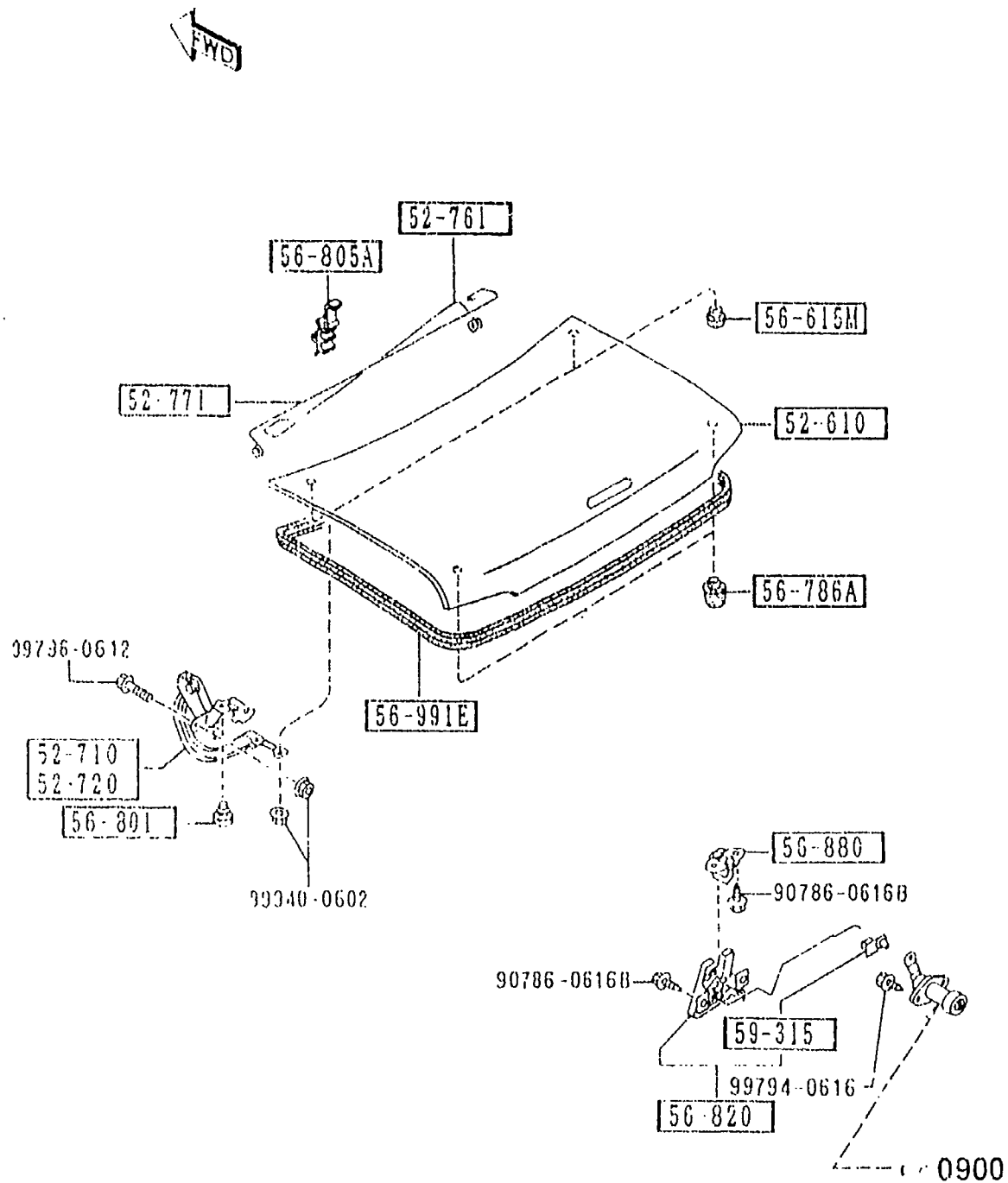
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
45-919A		HOLDER, PIPE			
H115-45-916A	1				
52-310		BONNET			
NAY1-52-310B	1				
52-410		HINGE(R), BONNET			
NA01-52-410A	1				
52-460		HINGE(L), BONNET			
NA01-52-420A	1				
52-510		STAY, BONNET			
NA75-56-650A	1				
52-514		HOLDER, ROD			
G030-56-693A	1				
56-620		LOCK, BONNET			
NA01-56-620A A (NA01-56-620B)	1				
NA01-56-620B	1				4A03-
56-631		FASTENER, BONNET RELEASE			
LA01-56-631	1				
56-710		WIRE, RELEASE-BONNET			
NA01-56-720D	1				
56-786		RUBBER(C), CUSHION-BONNET			
NA01-56-787	2				
56-787B		RUBBER, CUSHION-BONNET FRT			
FB01-56-787B	2				
56-788		RUBBER, CUSHION-BONNET RR			
NA01-56-78X	2				
56-795B		WEATHERSTRIP, BONNET-REAR			
NA01-56-760	1				

4A03 NA35A -603621

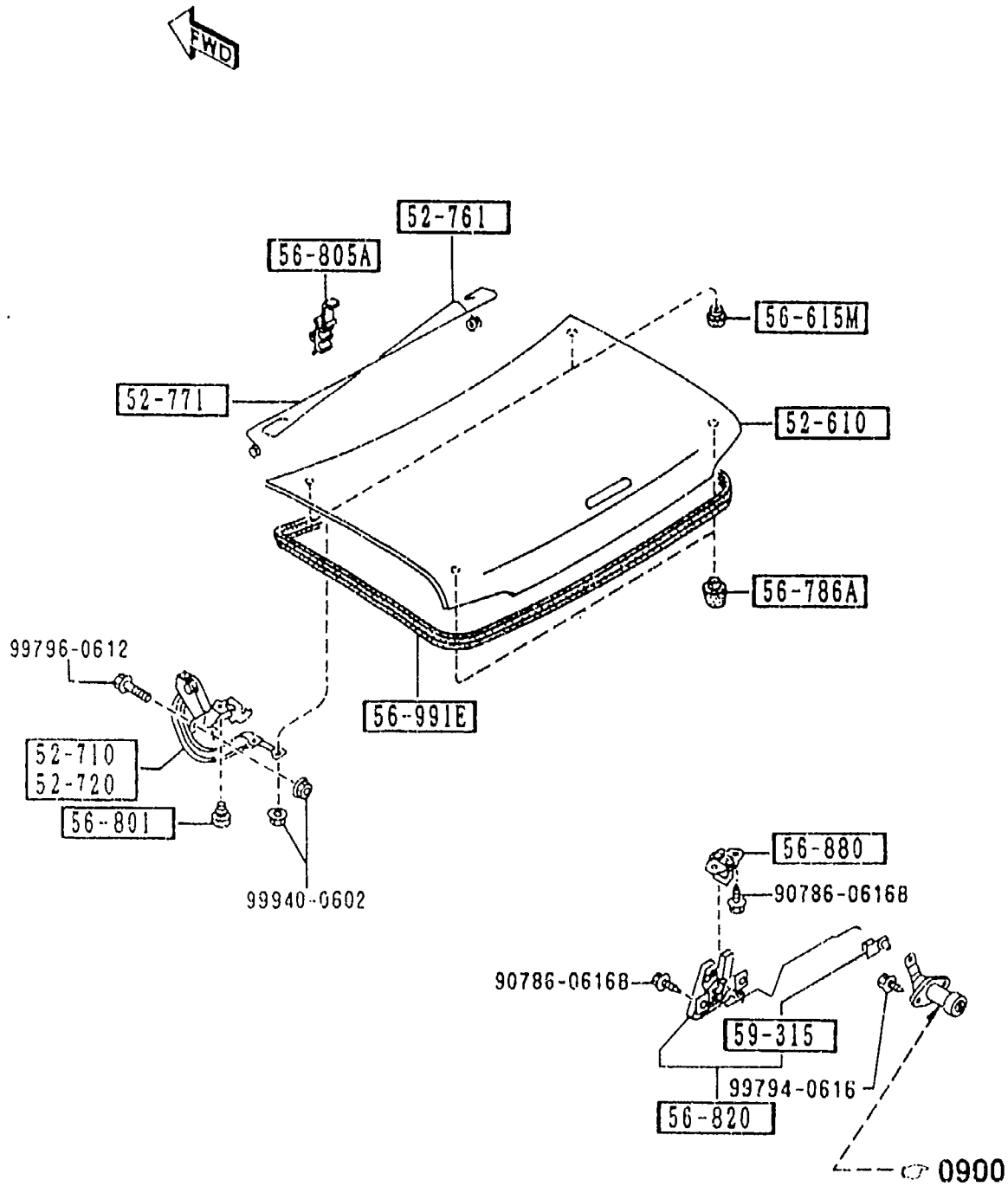
FWD



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
67-519		CLIP, PIPE			
G030-67-519	1				
76-403E		HOLDER, ROD			
B092-52-518	1				



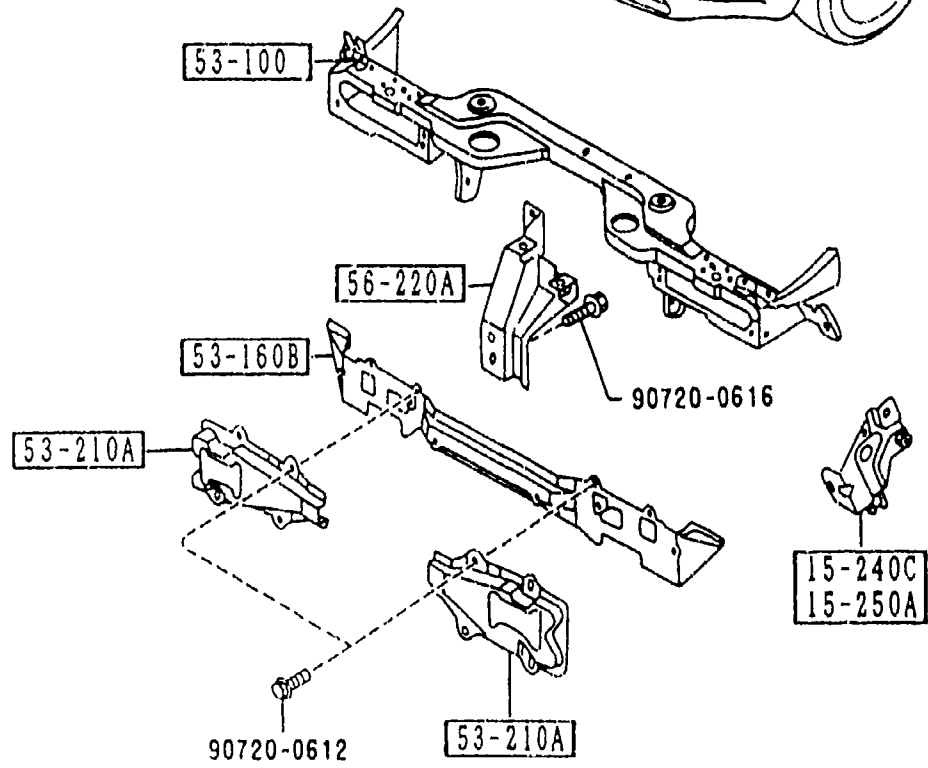
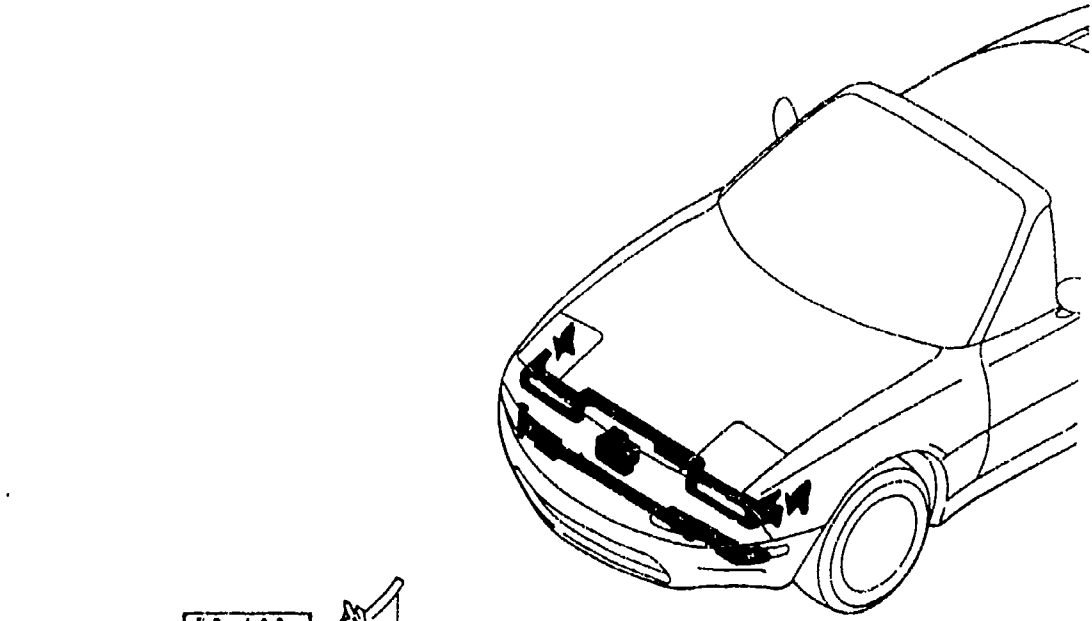
PART NO	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
52-610		LID, TRUNK			
NAY1-52-610B A (NAY1-52-610C)	1				-5420
NAY1-52-610C	1				5420-
52-710		HINGE(R), TRUNK LID			
NA01-52-710A AN(NA01-52-710B)	1				-6201
*NA01-52-710B	1				6201-
52-720		HINGE(L), TRUNK LID			
NA01-52-720A AN(NA01-52-720B)	1				-6201
*NA01-52-720B	1				6201-
52-761		SPRING(R), BALANCE			
NA01-52-791A	1				
52-771		SPRING(L), BALANCE			
NA01-52-792A	1				
56-615M		PLUG, DRAIN			
NA01-56-051	2				
56-786A		RUBBER, CUSHION			
B481-56-786	2				
56-801		CUSHION, LID HINGE			
NA01-56-802	2				
56-805A		HOLDER, BALANCE SPRING			
NA01-56-805	1				
56-820		LOCK, LID			
NB38-56-820	1	(*96 MODEL)			
N007-56-820	1	(*95 MODEL)			
56-880		STRIKER, LID			
NA01-56-840	1				
56-991E		WEATHERSTRIP, LID			
5420 NA35* -620023					
6201 NA3** -711421					



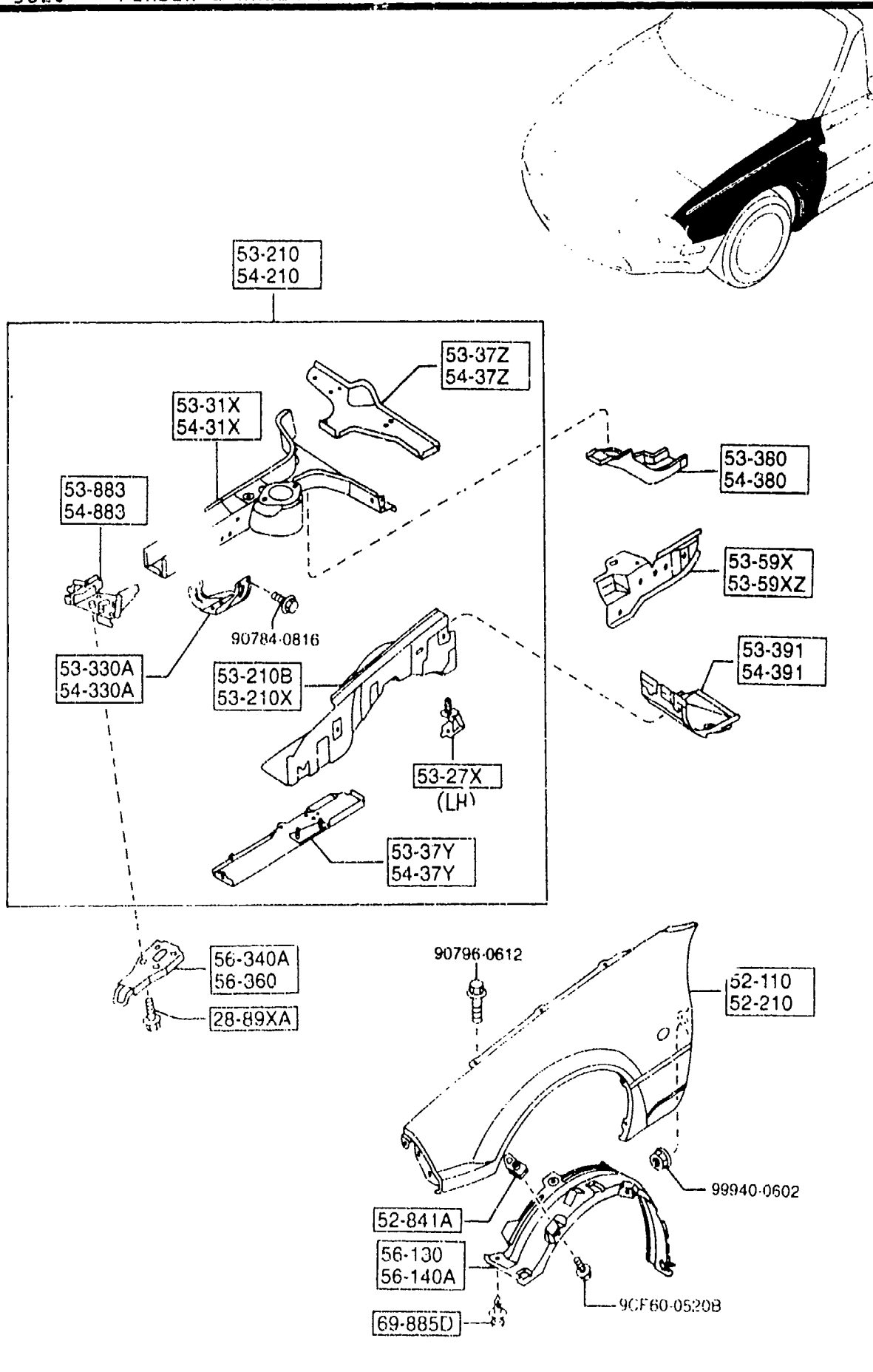
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D NA01-56-951	1				
+-----+ | 59-315 |		CLIP			
+-----+ G030-59-315	1				

5310 FRONT PANELS

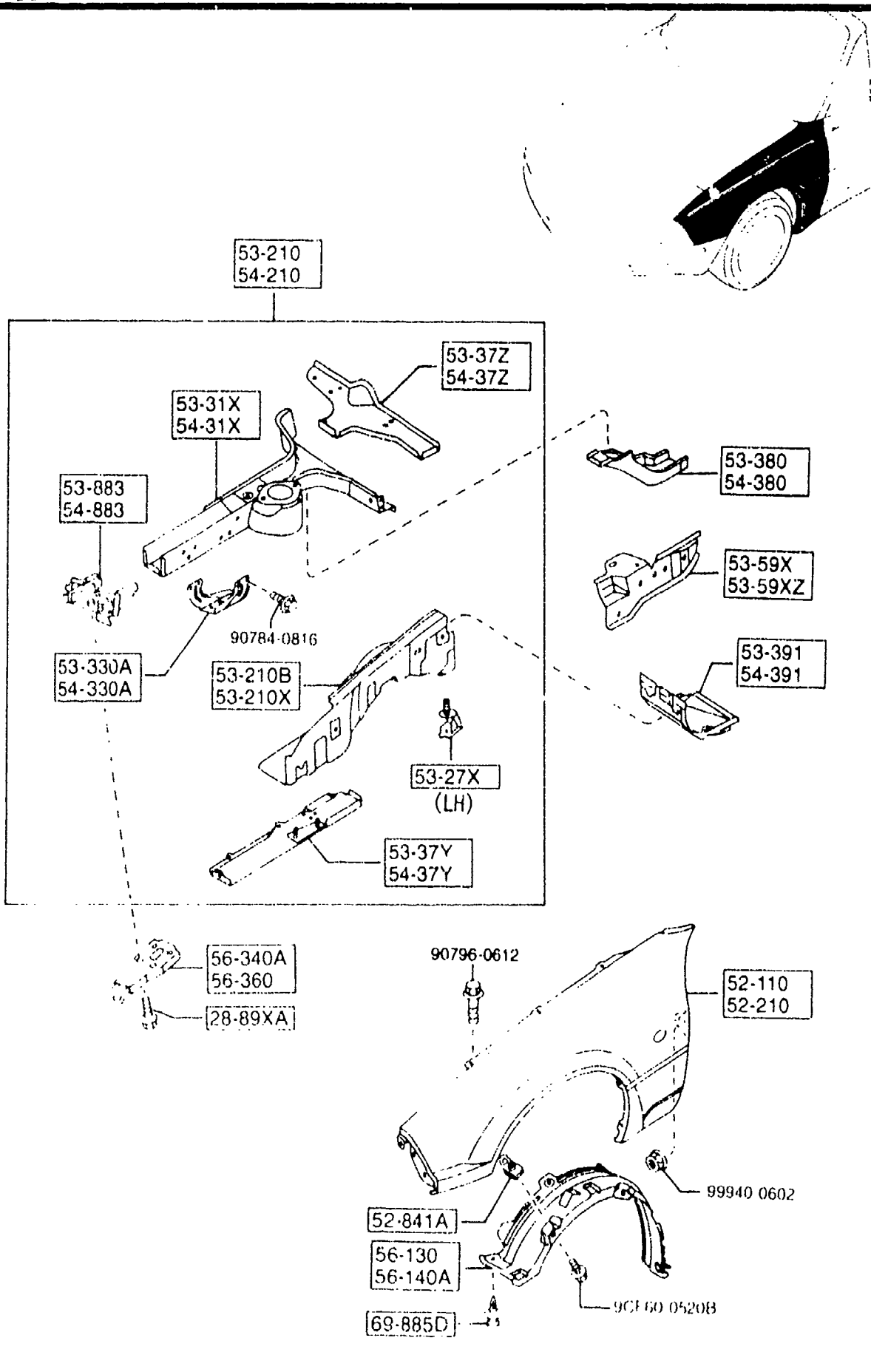
5310 -1 * FRONT PANELS



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
15-240C B61P-15-240A	1	BRACKET(R), RADIATOR			
15-250A B61P-15-250A	1	BRACKET(L), RADIATOR			
53-100 NA75-53-100	1	PANEL, RAD. SHROUD			
53-160B NA01-53-16XC	1	MEMBER, CROSS			
53-210A NA01-54-180	2	BRACKET, BUMPER			
56-220A NA01-56-221B	1	STAY, LOCK-BONNET			

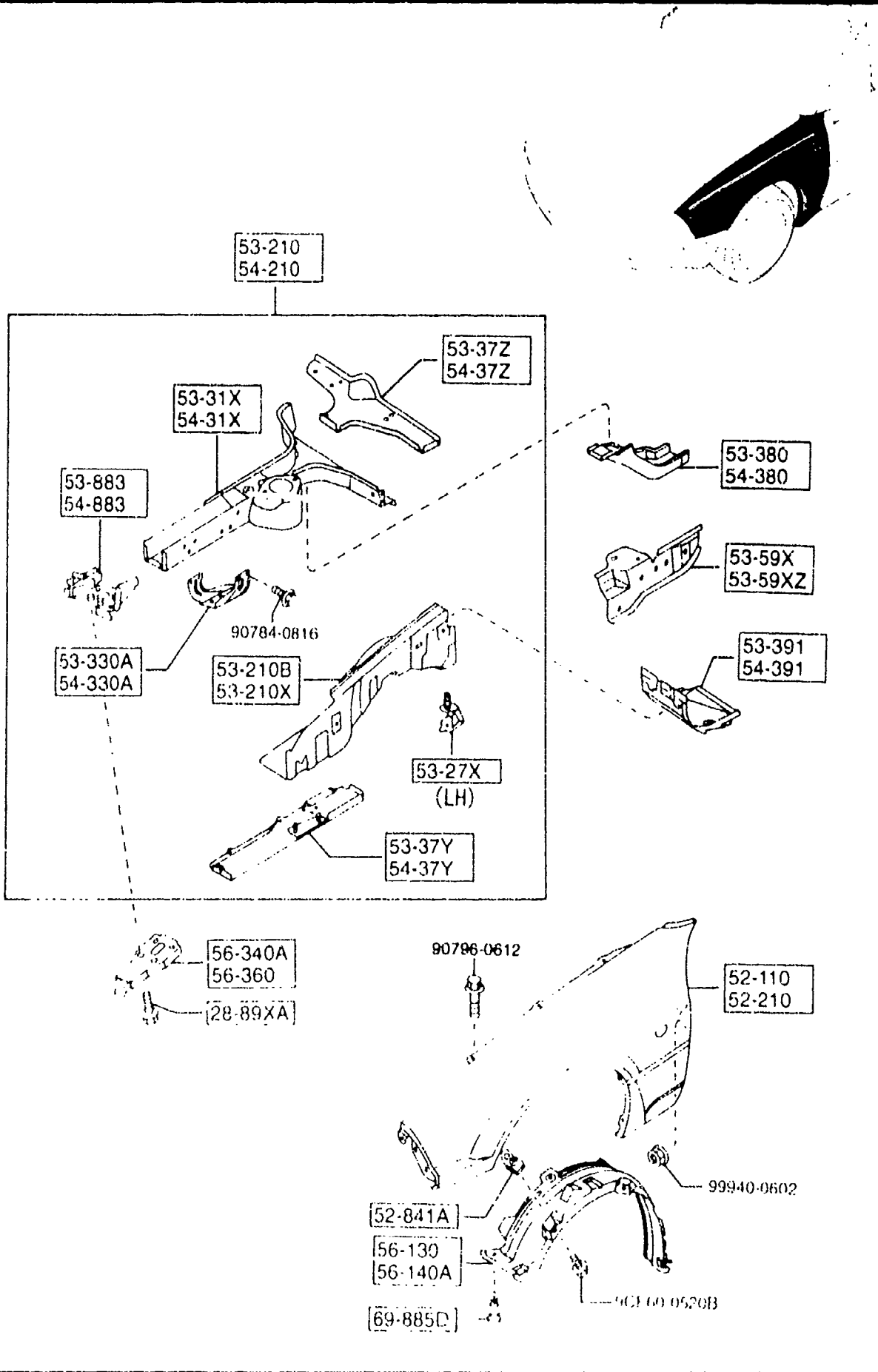


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
28-89XA		BOLT,CROSS MEMBER			
GJ21-28-89X	6				
52-110		PANEL(R),FENDER-FRT.			
NAY1-52-110	1				
52-210		PANEL(L),FENDER-FRT.			
NAY1-52-210	1				
52-841A		NUT,CLIP			
LA01-56-135	10				
53-210		PANEL(R),APRUN & FRAME			
NAY2-53-200	1				
53-210B		PANEL(R),WHEEL APRON			
NA01-53-210E	1				
53-210X		PANEL(L),WHEEL APRON			
NA01-54-210F	1				
53-27X		BRKT,AIR CLNR-WHL APRON			
NA01-54-36X	1				
53-31X		FRAME(R),FRONT			-4824
NA75-53-31X	1				4824-
NA75-53-31XA	1				
53-330A		BRACKET(R),STABILIZER			
NA01-53-330	1				
53-37Y		FRAME(UP.,R),FRONT-FRT			
NA01-53-37Y	1				
53-37Z		FRAME(UP.R),FRONT-REAR			-4A05
NA01-53-37ZA AN(NA01-53-37ZB)	1				4A05-
NA01-53-37ZB	1				
53-380		REINFORCEMENT(R)			
NA01-53-380	1				
4824 NA35* -601431					
4A05 NA35* -603893					

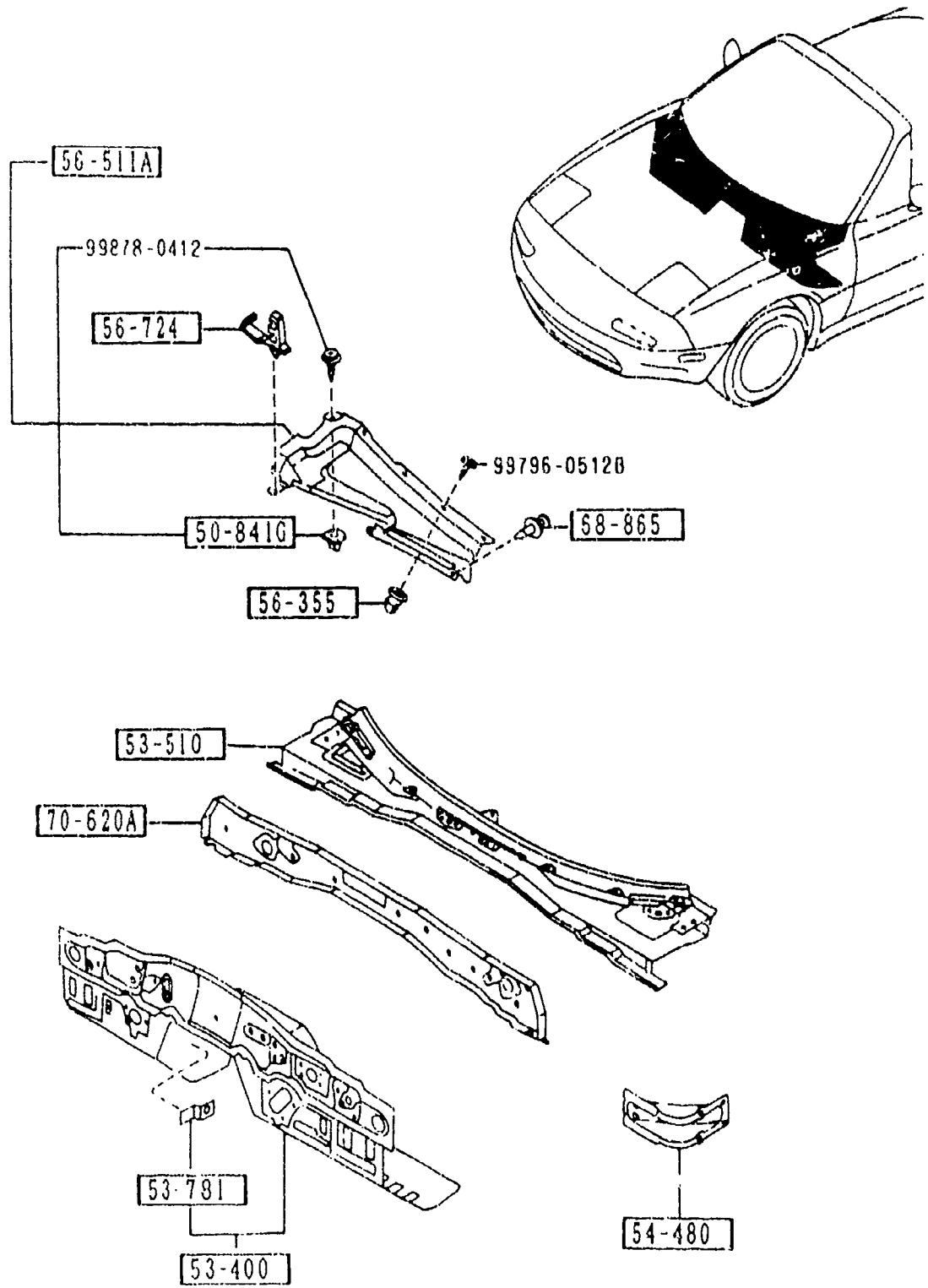


PART NO	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
53-391		BOX(R),TORQUE			
NA01-53-391	1				
53-59X		REINF.(R),WHEEL APRON			
NA01-53-591	1				
53-59XZ		REINF.(L),WHEEL APRON			
NA01-54-590	1				
53-883		REINF.(R),TIE DOWN HOOK			
NA01-53-32XB	1				
54-210		PANEL(L),APRON & FRAME			
NAY2-54-200	1				
54-31X		FRAME(L),FRONT			
NA75-54-31X	1				
NA75-54-31XA	1				-4824
54-330A		BRACKET(L),STABILIZER			4824-
NA01-54-330	1				
54-37Y		FRAME(UP.,L),FRONT-FRT			
NA01-54-37Y	1				
54-37Z		FRAME(UP.L),FRONT-REAR			
NA01-54-37ZA AN(NA01-54-37ZB)	1				-4A05
NA01-54-37ZB	1				4A05-
54-380		FRAME(L),FRONT-REAR			
NA01-54-380B	1				
54-391		BOX(L),TORQUE			
NA01-54-391	1				
54-883		REINF.(L),TIE DOWN HOOK			
NA01-54-32XC	1				
56-130		GUARD(R),MUD			
NA01-56-131A	1				

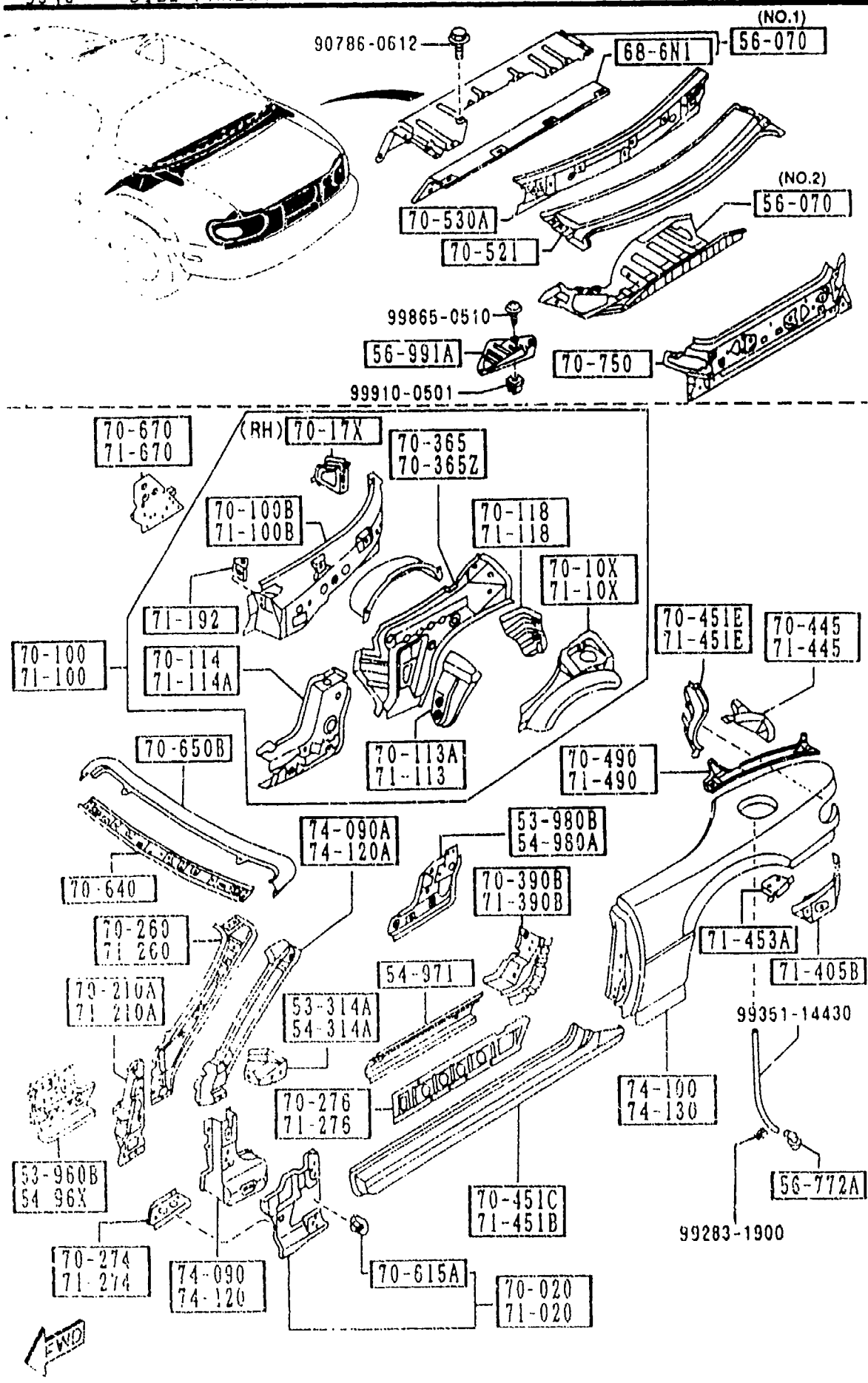
4824 NA35* -601431
4A05 NA35* -603893



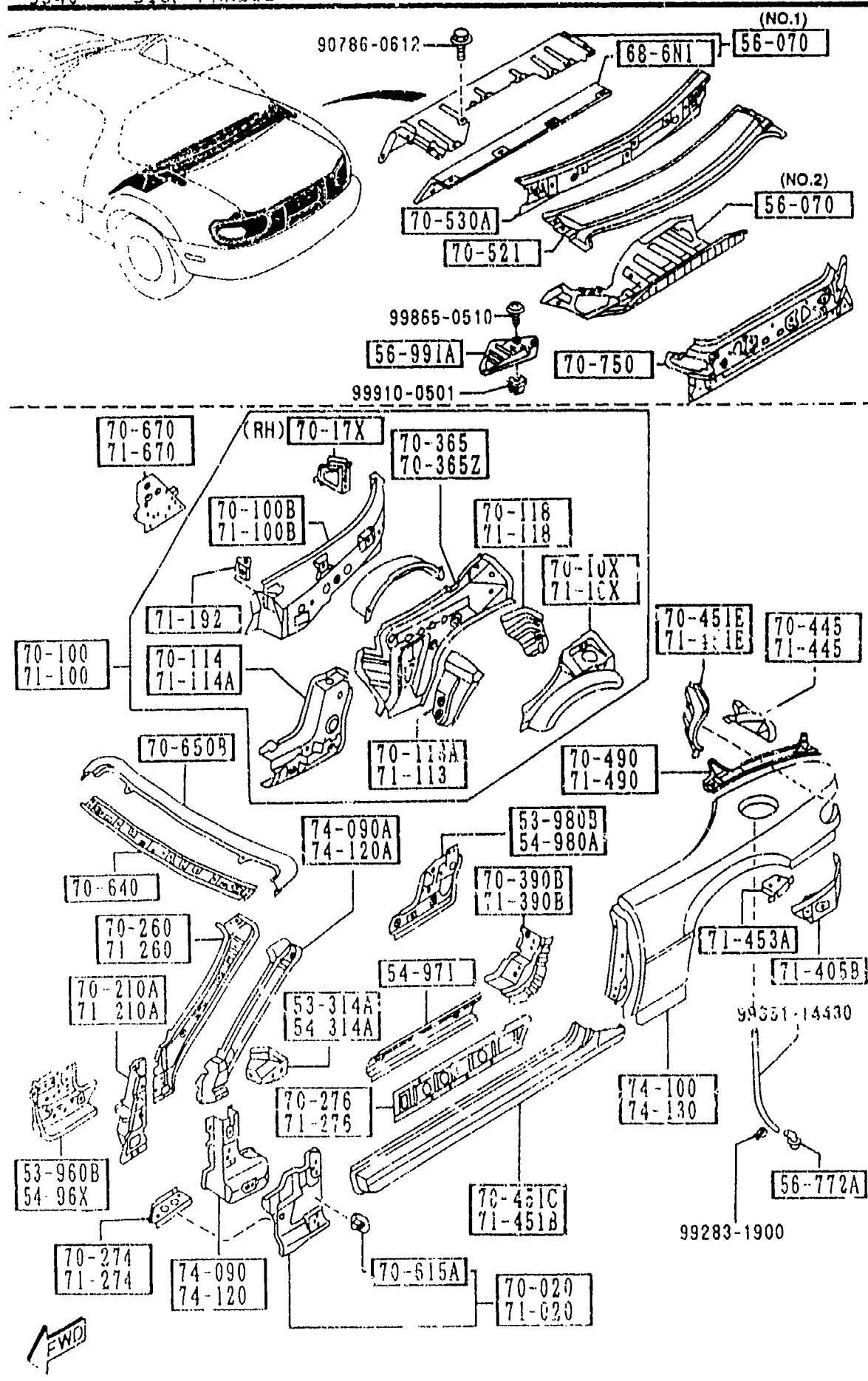
PART NO	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
56-140A		GUARD(L),MUD			
NA01-56-141C	1				
56-340A		HOOK(R),TIE DOWN-FRONT			
NA01-56-34XC	1				
56-360		HOOK(L),TIE DOWN-FRONT			
NA01-56-34YC	1				
69-885D		FASTENER			
NA01-56-145	10				



PART NO	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
50-841G		GROMMET, SCREW			
F044-51-912	1				
53-400		PANEL, DASH-LOWER			
NA01-54-400G	1				
53-510		PANEL, DASH-UPPER			
NA75-53-510A	1				
53-781		BRACKET, GRILLE-C			
0305-53-781A	1				
54-480		JUNCTION, DASH SIDE-S .SILL			
NA01-54-480	2				
56-355		GROMMET, SCREW-BAFFLE			
G211-56-355A	4				
56-511A		COVER, BAFFLE-COWL PA NEL			
NA01-56-35X	1				
56-724		CLIP 'B', WIRE-BONNET			
H260-56-724	1				
68-865		FASTENER			
B040-68-865A	2				
		INT- NA3 NA4 NA5 NA6 NA7 NA8 BLACK			
70-620A		PANEL, COWL-FRONT			
NA01-70-62YB	1				

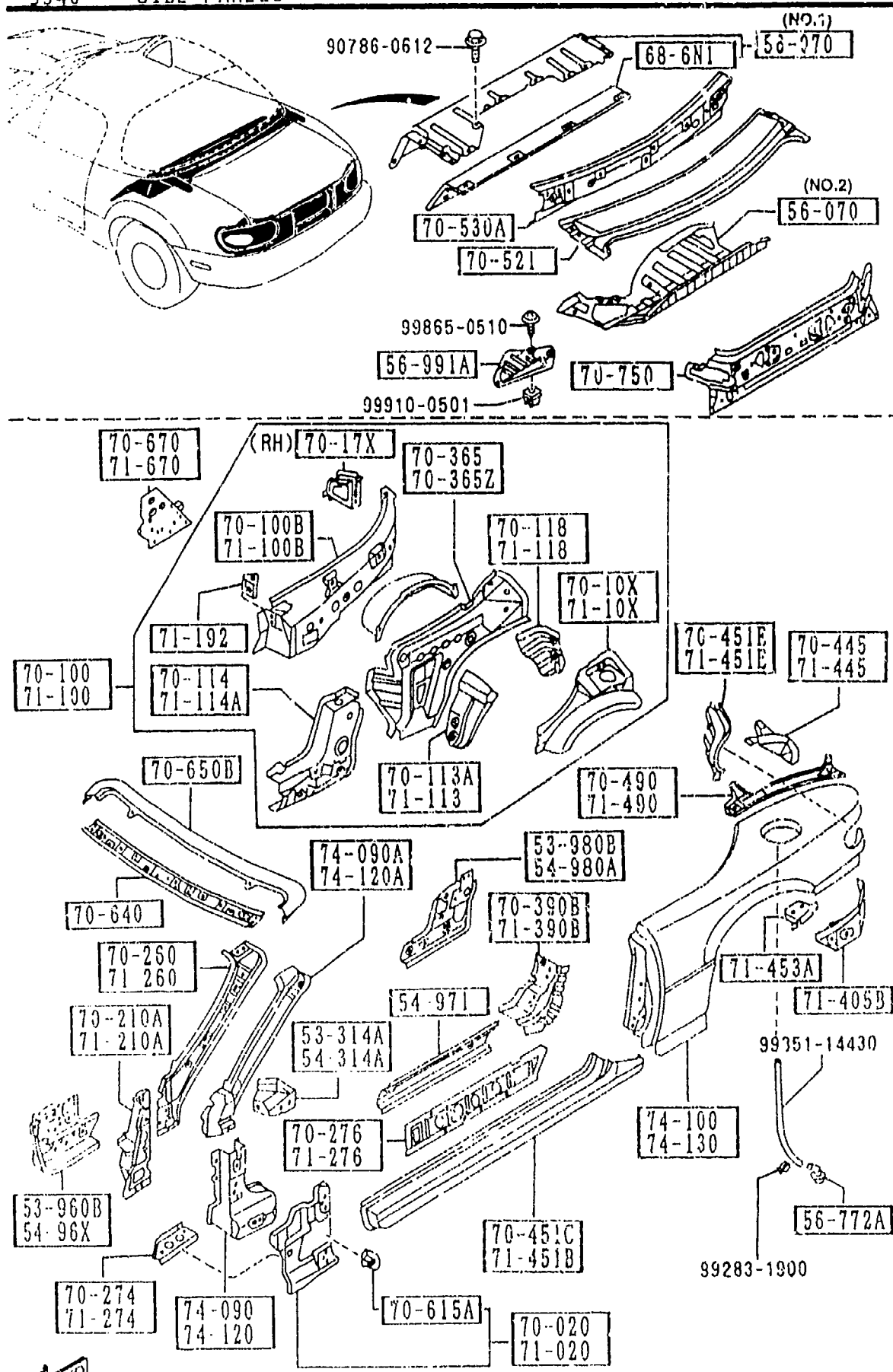


PART NO	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
53-314A		BRACKET(R), INST.			
NA01-70-071A	1				
53-960B		SILL(FRT.R), SIDE-INNER			
NA01-53-960C	1				
53-980B		SILL(RR.R), SIDE-INNER			
NA01-53-980C	1				
54-314A		BRACKET(L), INST.			
NA01-71-071A	1				
54-96X		SILL(FRT.L), SIDE-INNER			
NA01-54-96XB	1				
54-971		SILL(C), SIDE-INNER			
NA01-54-971A	2				
54-980A		SILL(RR.L), SIDE-INNER			
NA01-54-980C	1				
56-070		PANEL, BULK HEAD			
NA01-56-39YA	1	(ILLUST. NO.1)			
NA01-70-51Y	1	(ILLUST. NO.2)			
56-772A		PIPE, DRAIN-RR FENDER			
NA01-56-772	1				
56-991A		COVER, SERVICE HOLE			
NA01-56-971	1				
68-6N1		INSULATOR, BALK HEAD PANEL			
NA01-68-6N1	1				
70-020		PANEL(R), COWL SIDE			
NA01-70-020B	1				
70-10X		PANEL(R), QUARTER			
NA01-70-111C	1				



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
70-100		PANEL(R), QUARTER			
NA75-70-100	1				
70-100B		PANEL(R), INSIDE			
NA01-70-19XB	1				
70-113A		PLATE(R), SEAL			
NA01-70-11Z	1				
70-114		PLATE(R), END			
NA01-70-12XA	1				
70-118		PROTECTOR(R), SPLASH			
NA01-70-15X	1				
70-17X		BRKT, BATT. CLAMP-QTR PANEL			
NA01-70-17XA	1				
70-210A		PILLAR(R), HINGE			
NA01-70-230	1				
70-260		PILLAR(R), FRT.-INNER			
NA01-70-240B	1				
70-274		GUSSET(R), SIDE SILL OUTER			
NA01-70-274	1				
70-276		REINF.(R), SIDE SILL			
NA01-70-275	1				
70-365		REINF.(R), BELT LINE-C.PIL			
NA01-70-116A AN(NA01-70-116B)	1				-4829
NA01-70-116B	1				4829-
70-365Z		REINF.(L), BELT LINE-C.PIL			
NA01-71-116C AN(NA01-71-116D)	1				-4829
NA01-71-116D	1				4829-
70-390B		REINF.(R), STRIKER			
4829 NA35* -602053					

2-07

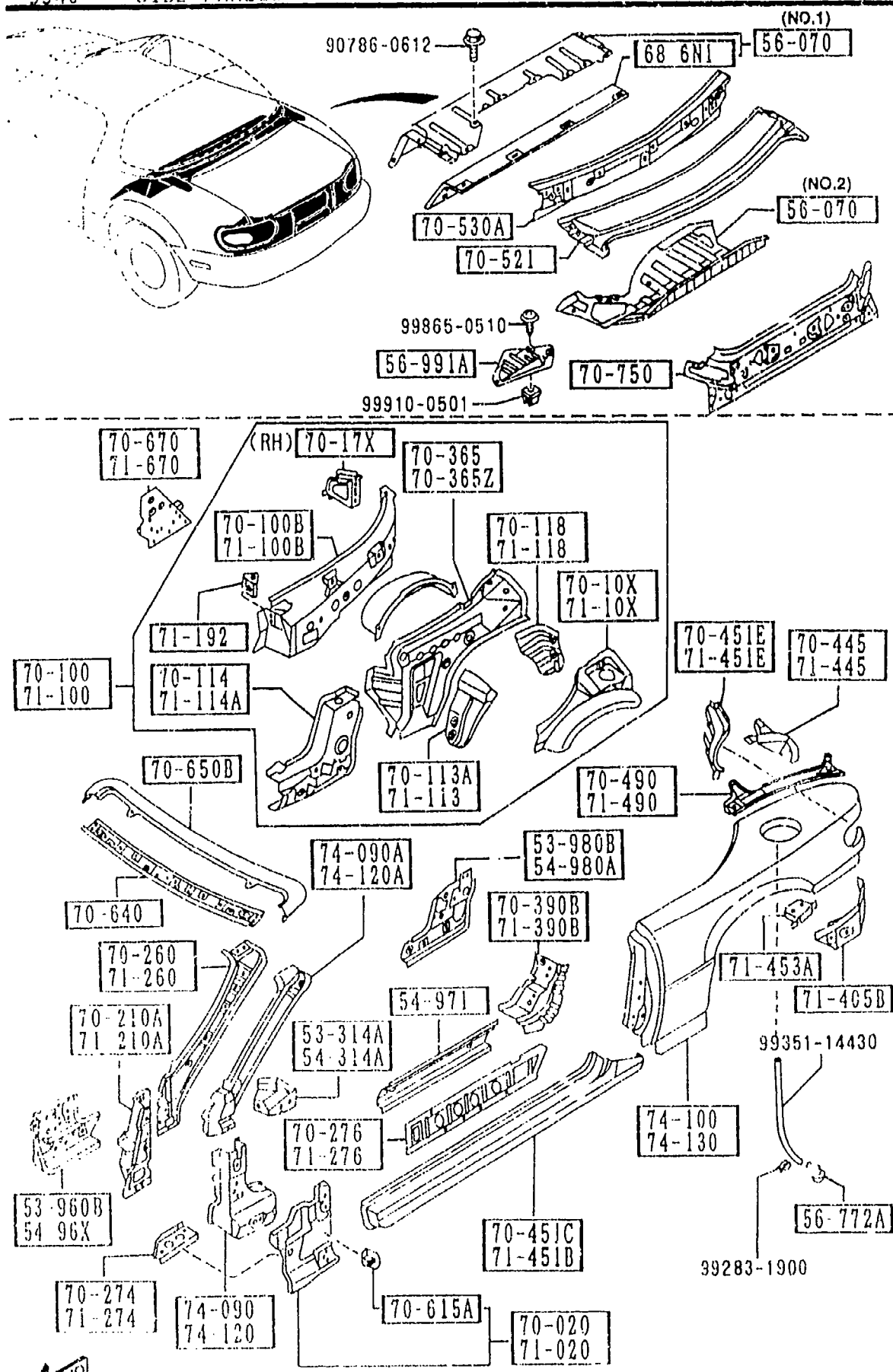


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
NA01-70-460	1				
70-445		GUSSET(R), REAR FENDER-RR			
NA01-70-445	1				
70-451C		SILL(R), SIDE OUT.			
NA01-70-270B	1				
70-451E		HOUSING(R), LAMP-RR FENDER			
NA01-70-J30	1				
70-490		RAIL(R), RAIN-REAR			
NA01-70-440A	1				
70-521		PANEL, REAR DECK			
NA01-70-521A	1				
70-530A		MEMBER, REAR DECK			
NA01-70-530A AN(NA01-70-530B)	1				
NA01-70-530B	1				
70-615A		BRACKET, FENDER			
B092-70-070A	2				
70-640		HEADER, FRONT			
NA01-70-640	1	('95 MODEL)			
NB38-70-640	1	('96 MODEL)			
70-650B		HEADER, FRONT UPPER			
NA01-70-650	1				
70-670		PLATE(R), CLOSING-QTR PANEL			
NA01-70-670	1				
70-750		PANEL, REAR END			
NA01-70-750G	1				
71-020		PANEL(L), COWL SIDE			
NA01-71-020B	1				
4A01 NA35* -603621					

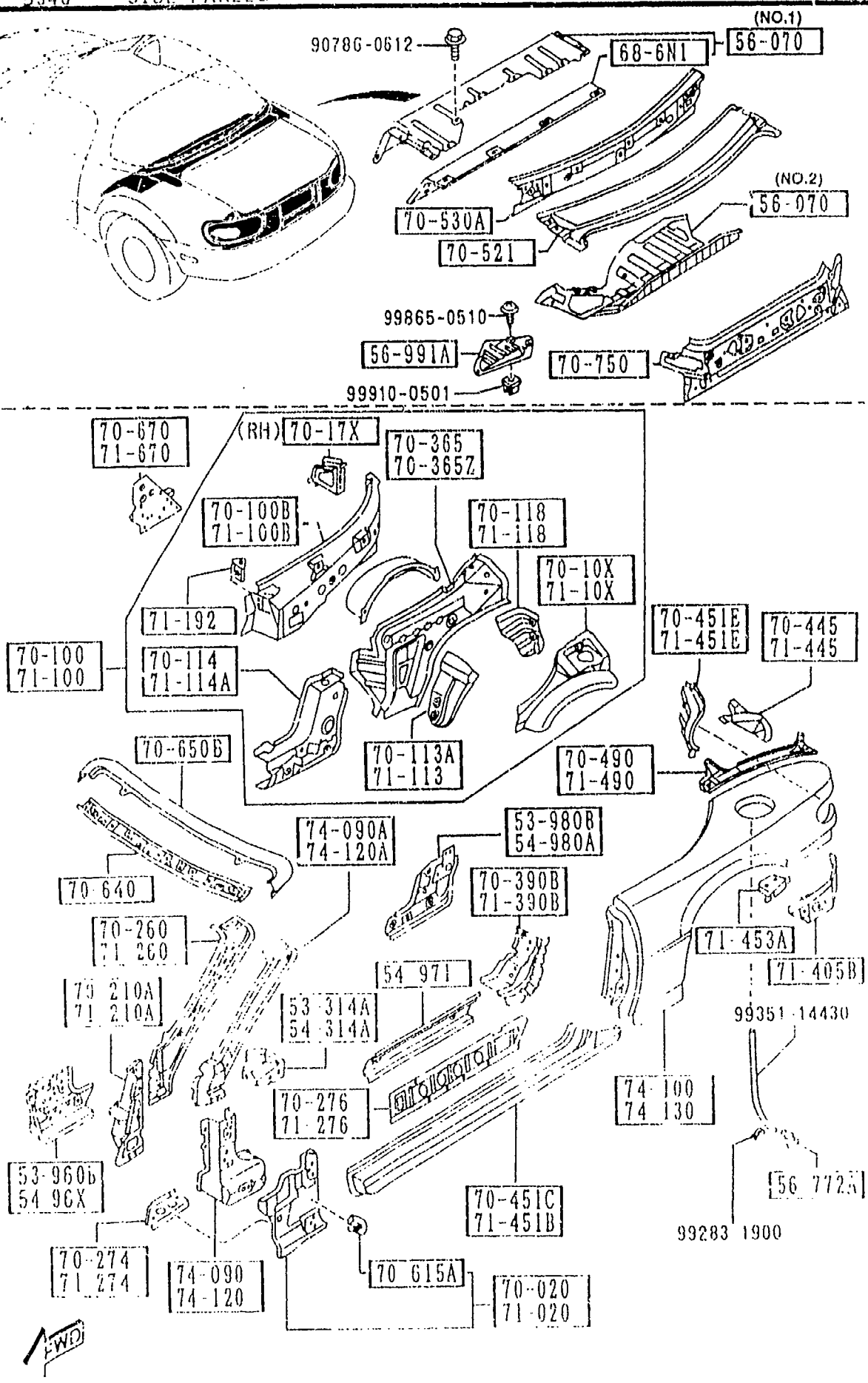
-4A01

4A01-

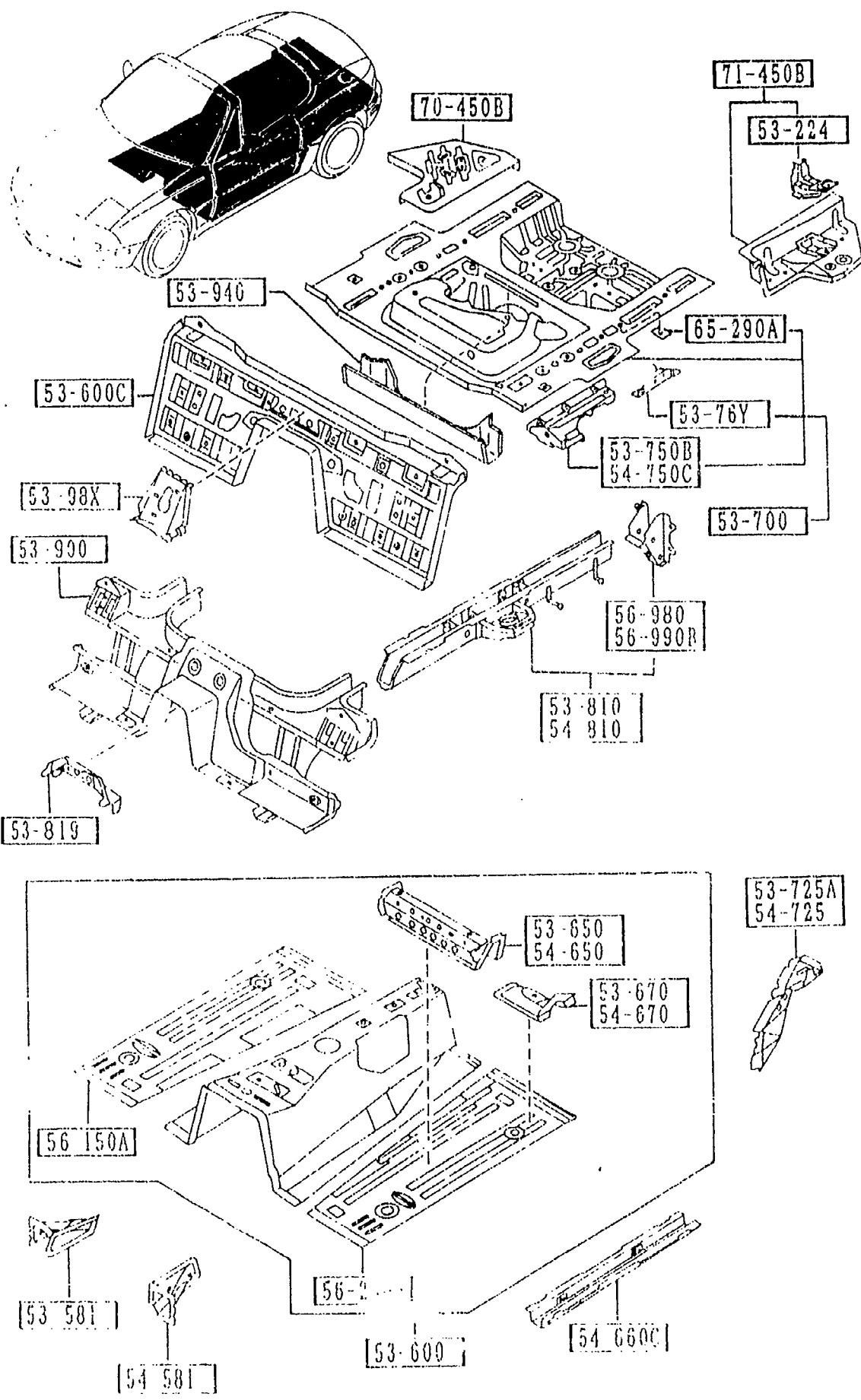
2-K-7



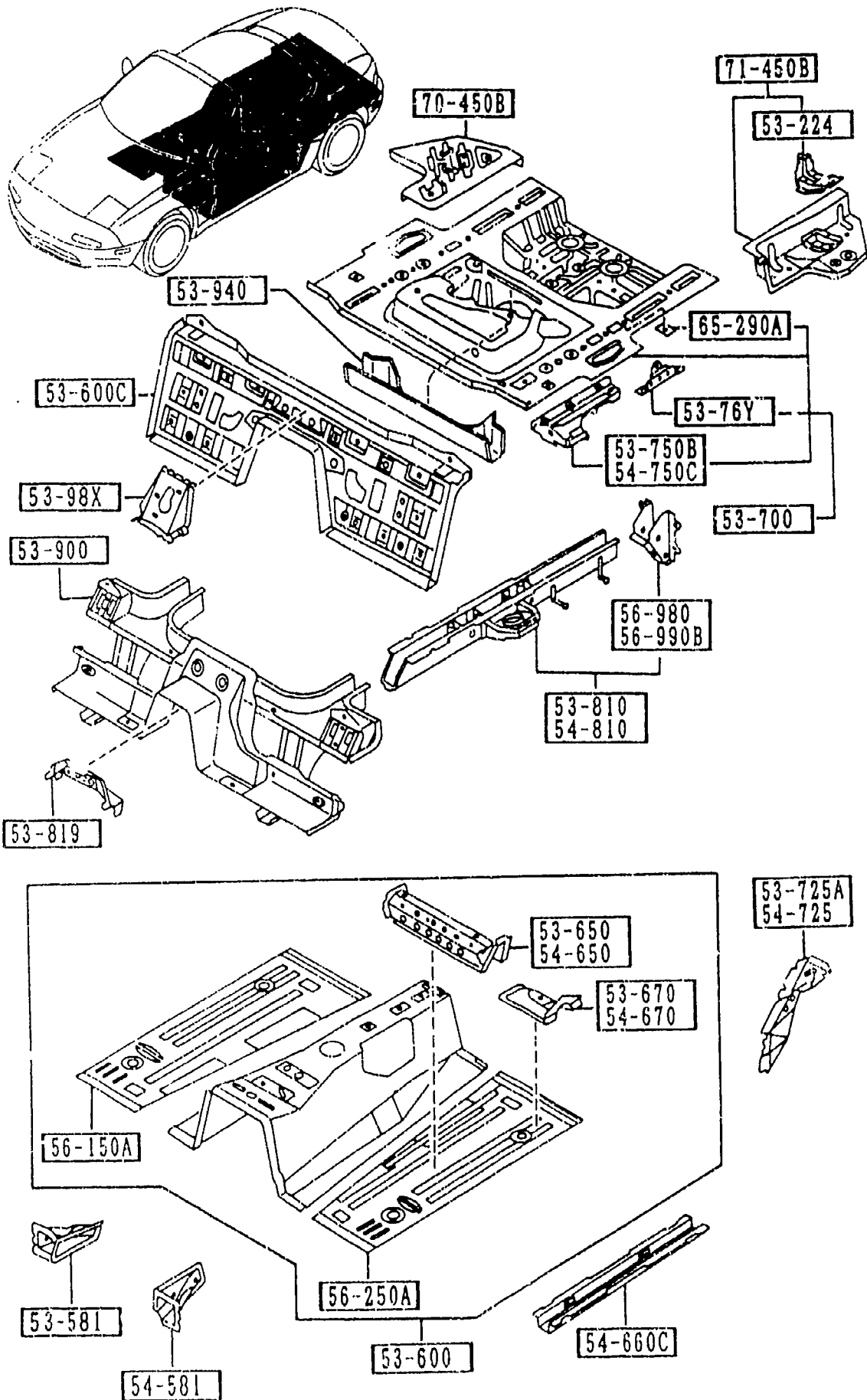
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
71-10X		PANEL(L), QUARTER			
NA01-71-11XB	1				
71-100		PANEL(L), QUARTER			
NA75-71-100	1				
71-100B		PANEL(L), INSIDE			
NA01-71-19XB	1				
71-113		PLATE(L), SEAL			
NA01-71-11Z	1				
71-114A		JUNCTION(L), CORNER-Q/PANE			
NA01-71-12XA	1				
71-118		PROTECTOR(L), SPLASH			
NA01-71-15XA	1				
71-192		BRKT, CAP-QUARTER PANEL			
NA01-71-192	2				
71-210A		PILLAR(L), HINGE			
NA01-71-230	1				
71-260		PILLAR(L), FRT.-INNER			
NA01-71-240B	1				-5301
A (NA01-71-240C)					
NA01-71-240C	1				5301-
71-274		GUSSET(L), SIDE SILL OUTER			
NA01-71-274	1				
71-276		REINF.(L), SIDE SILL			
NA01-71-275	1				
71-390B		REINF.(L), STRIKER			
NA01-71-460	1				
71-405B		PANEL(L), PR FENDER-LOWER			
NA01-71-421	1				
5301 NA35* -616742					



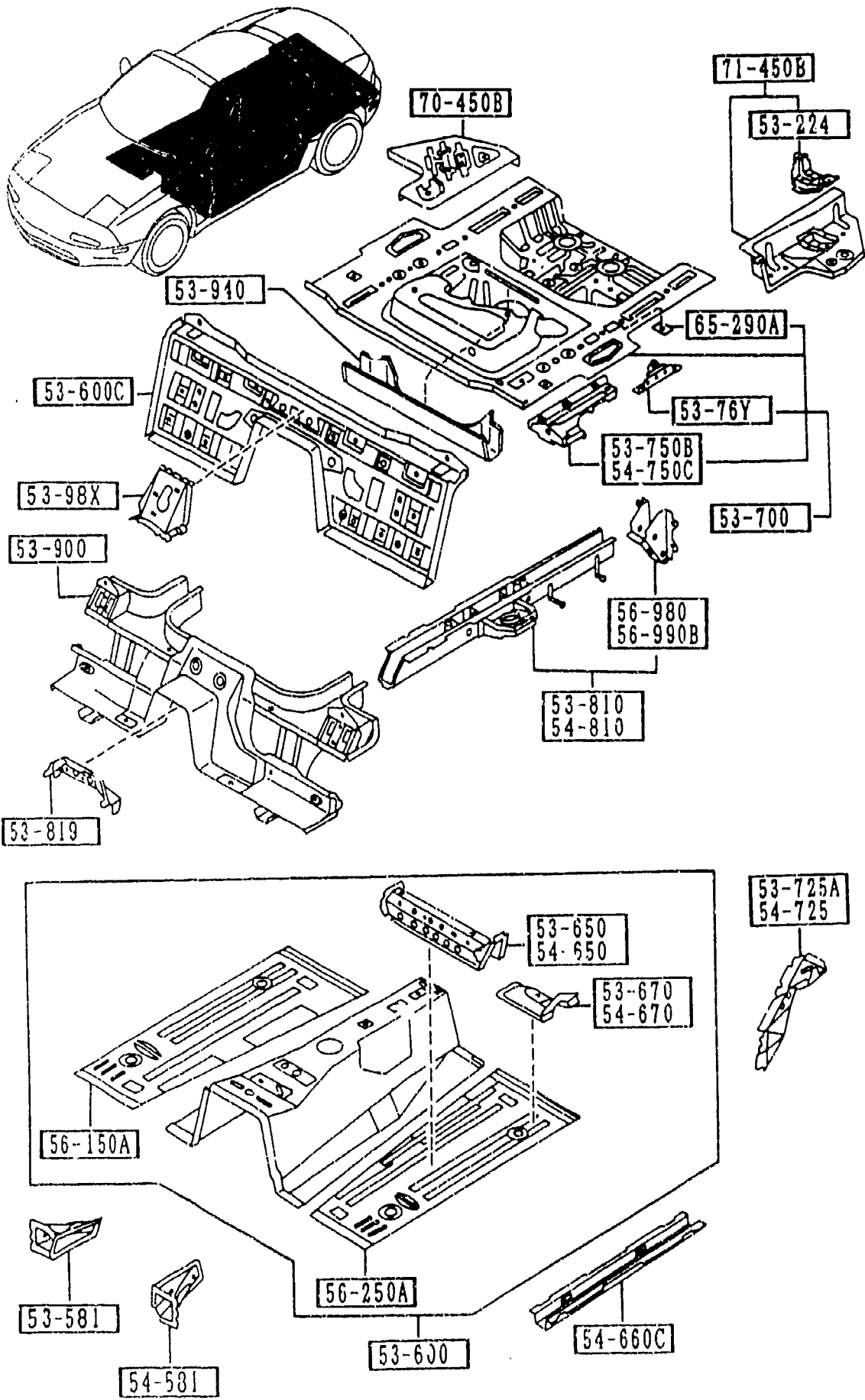
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
71-445		GUSSET(L), REAR FENDER-RR			
NA01-71-445	1				
71-451B		SILL(L), SIDE OUT.			
NA01-71-270B	1				
71-451E		HOUSING(L), LAMP-RR FENDER			
NA01-71-J30	1				
71-453A		BRKT(L), TRK. BOARD-FENDER			
NA01-71-453	1				
71-490		RAIL(L), RAIN-REAR			
NA01-71-440A	1				
71-670		PLATE(L), CLOSING-QTR PANEL			
NA01-71-670B	1				
74-090		PILLAR(R), HINGE-OUT.			
NA01-70-280B	1				
74-090A		PILLAR(R), FRONT-OUT.			
NA01-70-210	1				
74-100		PANEL(R), FENDER-REAR			
NAY1-70-400B	1				
74-120		PILLAR(L), HINGE-OUT.			
NA01-71-280B	1				
74-120A		PILLAR(L), FRONT-OUT.			
NA01-71-210	1				
74-139		PANEL(L), FENDER-REAR			
NAY1-71-400B	1				



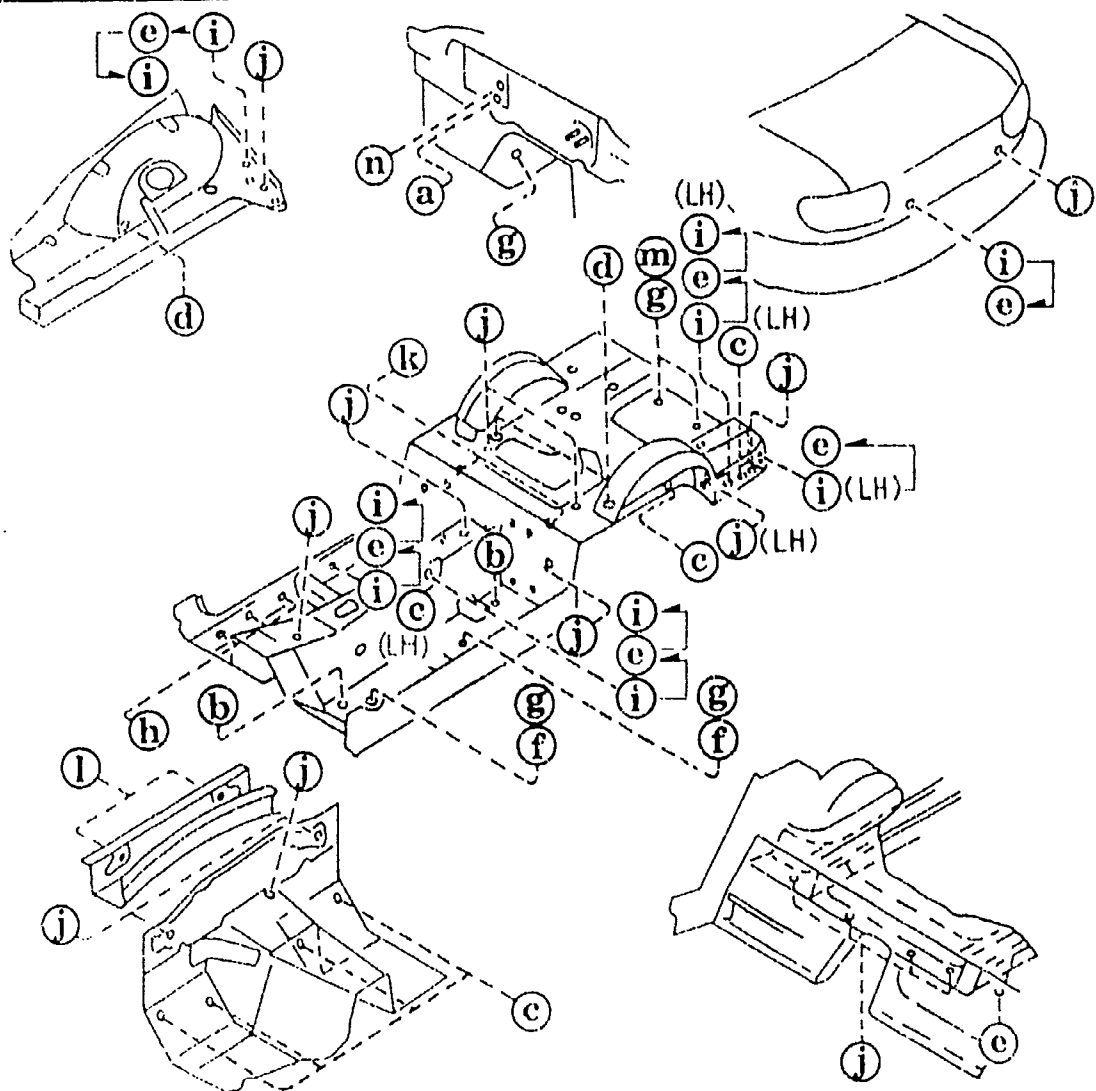
PART NO	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
53-224		BRACKET, JACK			
B455-53-750C	1				
53-581		JUNCTION(R), FRT. FLOOR			
NA01-53-482	1				
53-600		PAN, FLOOR-FRONT			
NA01-53-600A	1	('95 MODEL)			
NB38-53-600	1	('96 MODEL)			
53-600C		PAN, FLOOR-CENTER			
NA75-53-720	1				
53-650		MEMBER NO.2(R), CROSS FLOOR			
NA01-53-650	1				4805
AN(NA01-53-650A)					
NA01-53-650A	1				4805-
53-670		BRKT(R), SEAT-F. FLOOR PAN			
NA01-53-670A	1				
53-700		PAN, FLOOR-REAR			
NA01-53-710B	1				
53-725A		GUSSET NO.3(R), C FLOOR PAN			
NA01-53-725A	1				
53-750B		PLATE(R), SIDE-REAR FLOOR			
NA01-53-750	1				
53-76Y		PLATE, NO.1 TRUNK FLOOR PAN			
NA01-53-760	2				
53-810		FRAME(R), REAR SIDE			
NA01-53-810F	1				
53-819		BRACKET, PARKING CABL. E-FLOOR			
NA01-53-819	1				
53-900		MEMBER NO.3, CROSS			
NA75-53-900	1				
4805 NA35X -600258					



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
53-940		MEMBER NO.4,CROSS			
NA01-53-931	1				
53-98X		GUSSET,FRONT FLOOR P AN			
NA01-53-880A	1				
54-581		JUNCTION(L),FRT. FLO OR			
NA01-54-482	1				
54-650		MEMBER NO.2(L),CROSS -FLOOR			-4805
NA01-54-650 AN(NA01-54-650A)	1				
NA01-54-650A	1				4805-
54-660C		FRAME,FRONT-FRT FLOO R PAN			
NA01-54-660B	2				
54-670		BRKT(L),SEAT-F.FLOOR PAN			
NA01-54-670A	1				
54-725		GUSSET NO.3(L),C.FLO OR PAN			
NA01-54-725A	1				
54-750C		PLATE(L),SIDE-REAR F LOOR			
NA01-54-750	1				
54-810		FRAME(L),REAR SIDE			
NA01-54-810F	1				
56-150A		PAN(R),FLOOR			-4912
NA01-53-602 AN(NA01-53-602A)	1				
NA01-53-602A	1				4912-
56-250A		PAN(L),FLOOR			-4912
NA01-54-610 AN(NA01-54-610A)	1				
NA01-54-610A	1				4912-
56-980		BRKT(R),BUMPER-RR SK IRT			
NA01-53-830C	1				
4805 NA35* -600258					
4912 NA35* -602970					



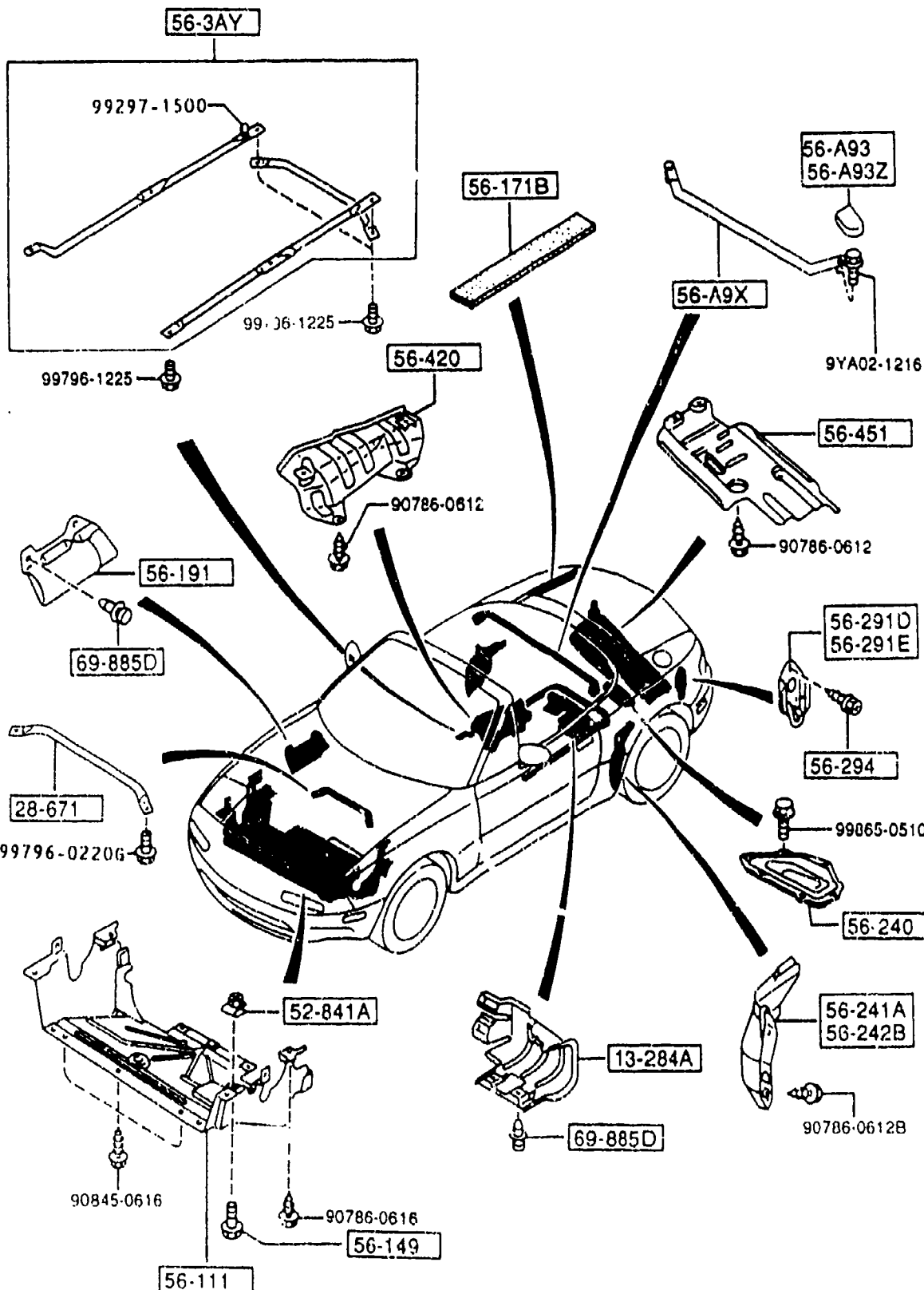
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
56-990B		BRKT(L), BUMPER-RR SK IRT			
NA01-54-830C	1				
65-290A		BRACKET			
1353-65-190	1				
70-450B		PANEL(R), FLOOR SIDE			
NA01-53-740C	1				
71-450B		PANEL(L), FLOOR SIDE			
NA01-54-740A	1				



- | | |
|--|---------------------------------|
| (a) 53-134B
(HOLE ϕ 26) | (h) 56-241B
(HOLE ϕ 29) |
| (b) 56-051
(NO.1) | (i) 56-241J |
| (c) 56-052
(NO.1)
(HOLE ϕ 20.5) | (j) 56-242
(HOLE ϕ 22) |
| (d) 56-052
(NO.2)
(HOLE ϕ 20.5) | (k) 56-615F
(HOLE ϕ 40) |
| (e) 56-051
(NO.2) | (l) 56-615M
(HOLE ϕ 15) |
| (f) 56-061A
(HOLE ϕ 65) | (m) 56-971
(HOLE ϕ 100) |
| (g) 56-241
(HOLE ϕ 20) | (n) 61-031
(HOLE ϕ 36) |

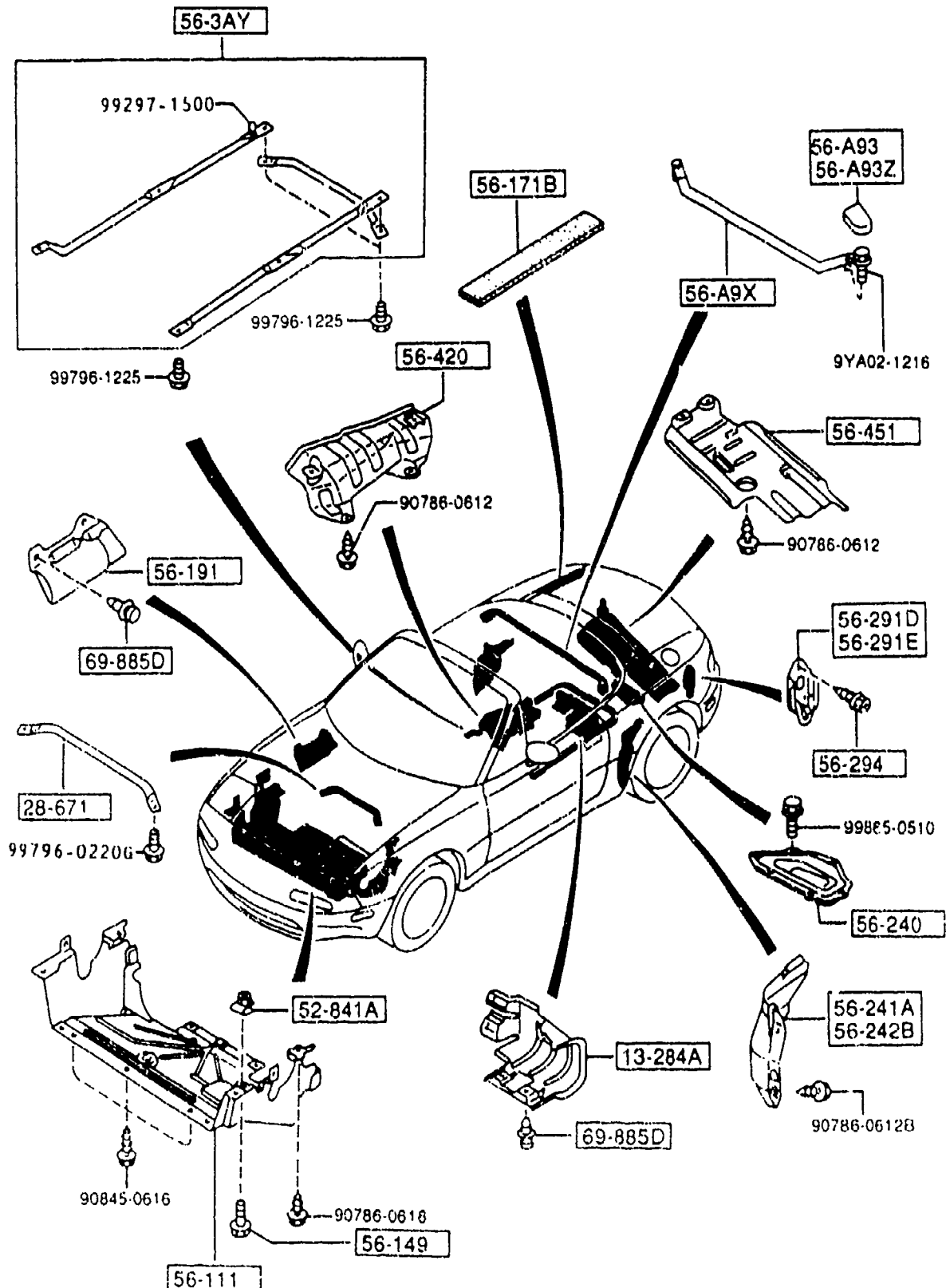
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM - TO
53-134B		RUBBER, DUST SEAL			
0187-53-134	1				
56-051		COVER, HOLE			
1011-56-051	4	(ILLUST. NO.1)			4C05-5106
BC1D-56-052	9	(ILLUST. NO.2)			5106-
BC1D-56-052	3	(ILLUST. NO.2)			
56-052		PLUG, DRAIN			
B092-56-052	8	D=12MM (ILLUST. NO.1)			
FB01-56-056	4	(ILLUST. NO.2) (W/O A. LOCK BRAKE)			
56-061A		COVER, HOLE			
8545-56-052	4				
56-241		PLUG, DRAIN			
0118-56-241	7				
56-241B		PLUG			
B001-56-051	6				
56-241J		PLUG, DRAIN			
8477-56-241	9				-4C05
8477-56-241	6				4C05-
56-242		PLUG, DRAIN			
0118-56-242B	17				
56-615F		PLUG, DRAIN			
0208-56-615	2				
56-615M		PLUG, DRAIN			
NA01-56-051	2				
56-971		COVER, HOLE			
8545-56-053	2				
61-031		PLUG, HOLE			
1708-61-031	1				
4C05 NA35* -610026					
5106 NA35* -612163					

5390 FLOOR ATTACHMENT

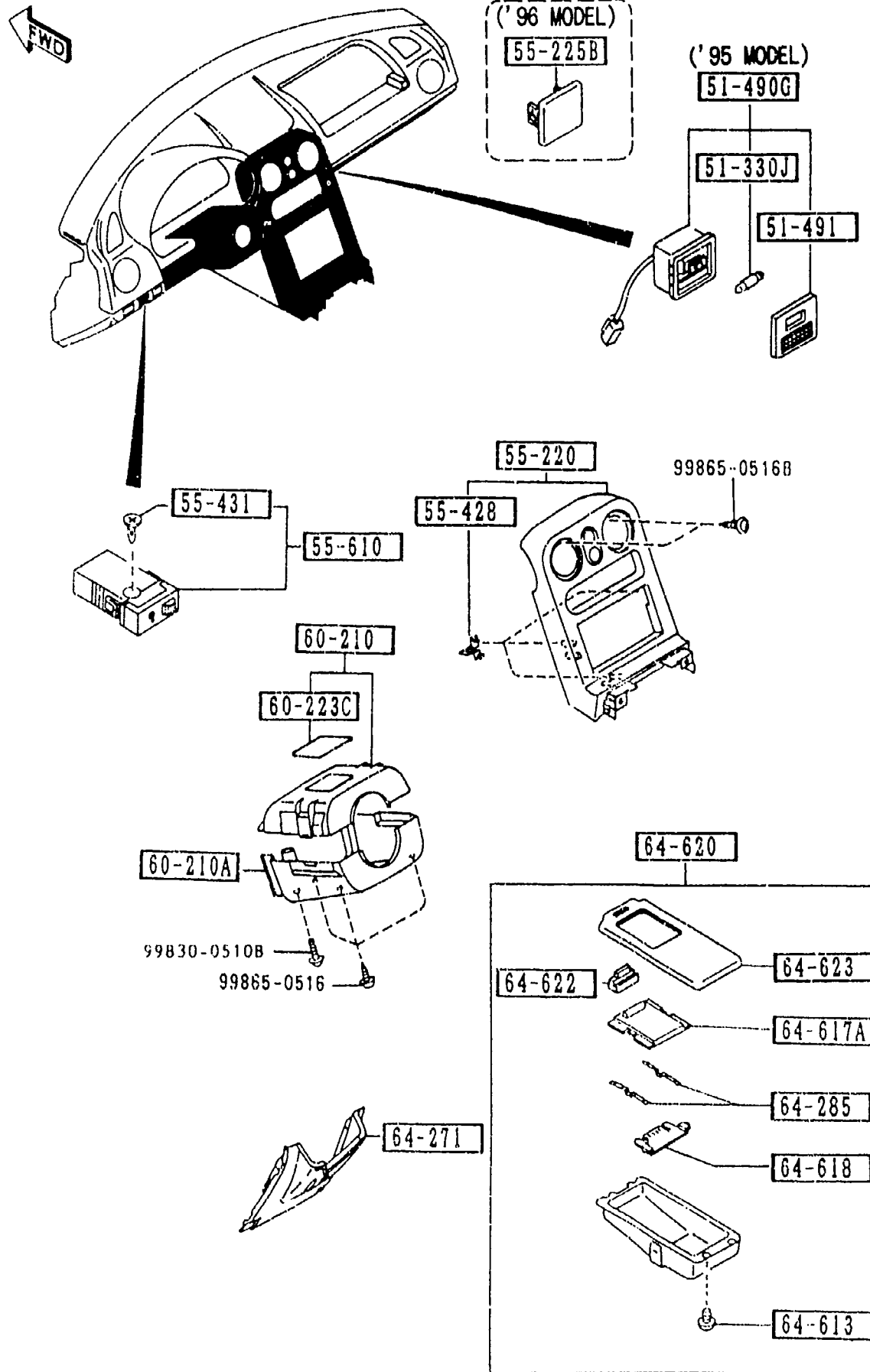


5390 -1 FLOOR ATTACHMENTS

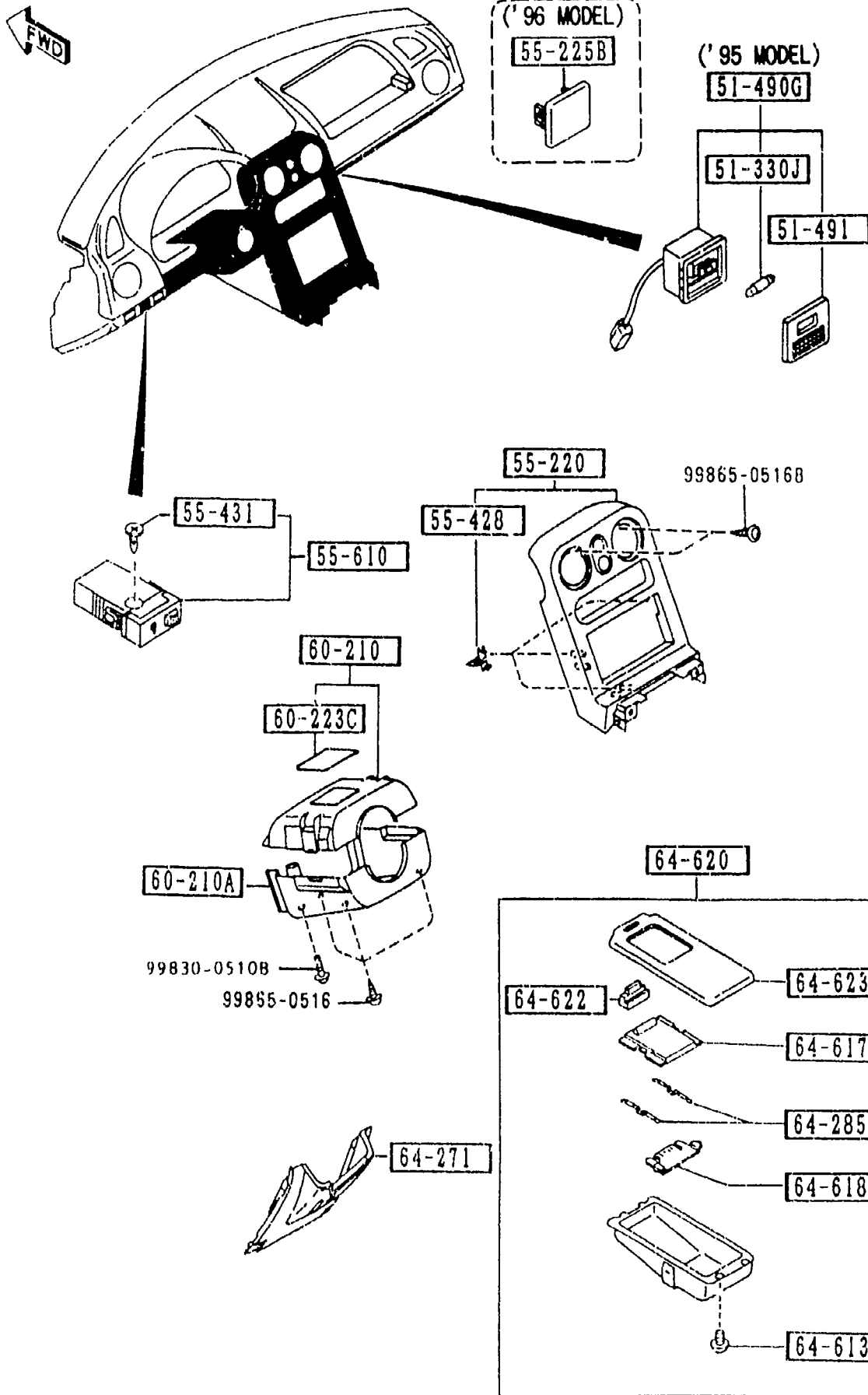
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
13-284A		COVER, FUEL FILTER			
NA75-56-241	1				
28-671		ROD, PERFORMANCE			
NA75-56-891	1				
52-841A		NUT, CLIP			
B455-56-135	1				
56-A9X		BAR, BRACE			
NA75-56-A9XB	1				
56-A93		COVER(R), BRACE BAR			
NA75-56-A93	1				
56-A93Z		COVER(L), BRACE BAR			
NA75-56-A94	1				
56-111		COVER, UNDER			
NA01-56-111D	1				
56-149		SCREW, TAPPING-MUD GUARD			
B455-56-149	1				
56-171B		PROTECTOR(R), RR FENDER			
NA01-56-171A	1				
56-191		SHIELD, SPLASH			
NA01-56-112	1				
56-240		COVER			
NA75-56-06X	1				
56-241A		SHIELD(R), SPLASH-REAR			
NA01-56-311A	1				
56-242B		SHIELD(L), SPLASH-REAR			
NA01-56-321A	1				
56-291D		HOOK(R), TIE DOWN			
NA01-56-29XC	1				



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
56-291E		HOOK(L),TIE DOWN			
NA01-56-291C	1				
56-294		SCREW,TIE DOWN HOOK			
NA01-56-294	4				
56-3AY		REINF.(L),FLOOR			
NA75-56-3AY	1	('95 MODEL) (('96 MODEL)>(L.S. D IFF))			
56-420		INSULATOR,FRONT			
NA75-56-411 A (NA75-56-411A)	1				-6513
*NA75-56-411A	1				6513-
56-451		INSULATOR			
NA01-56-451	1				
69-885D		FASTENER			
NA01-56-145	7				
6513 NA3** -718765					

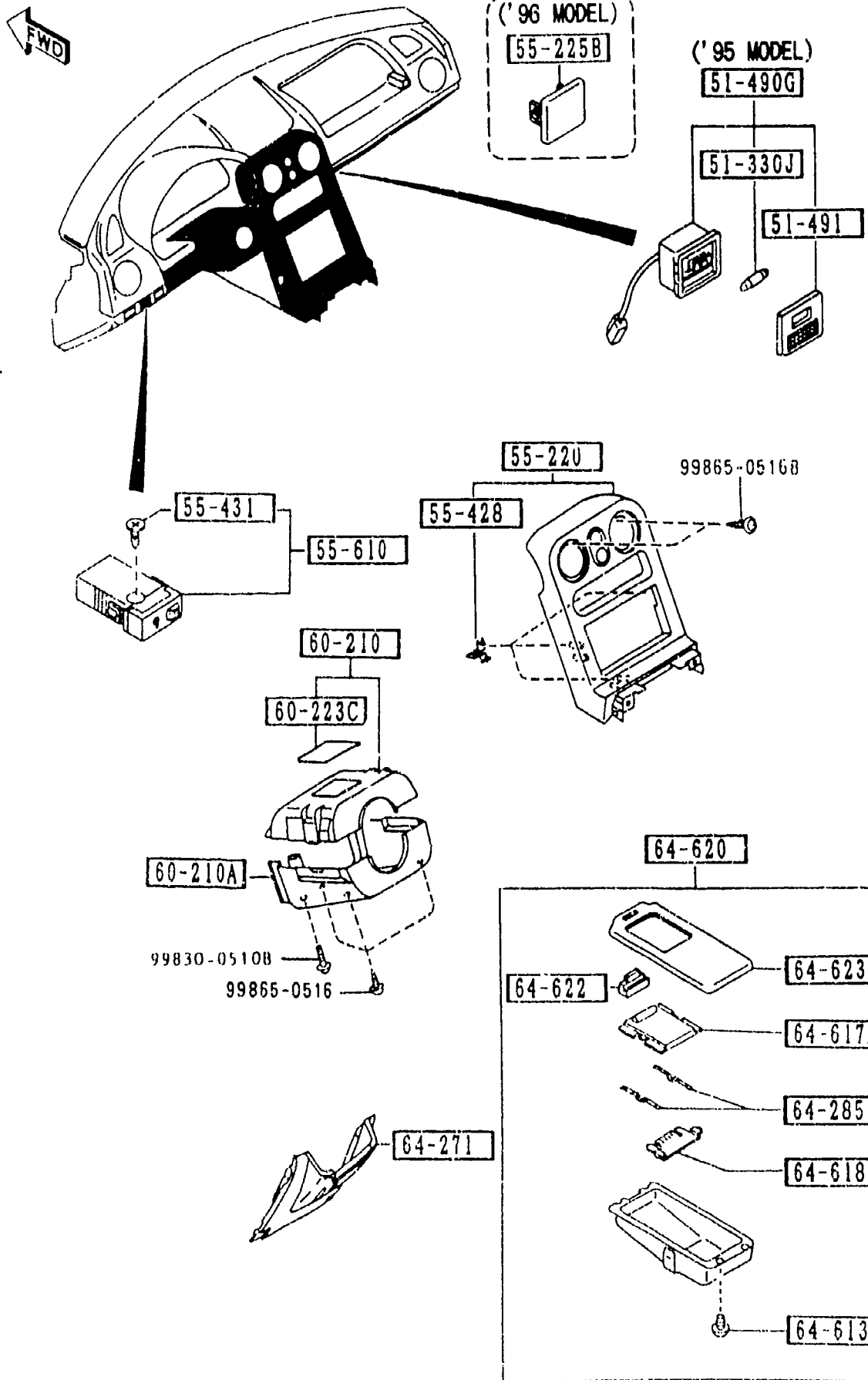


PART NO	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
51-330J		BULB			
99701-5050	1	12V 5W ('95 MODEL)			
51-490G		LAMP, PERSONAL			
NA01-51-490B	1	('95 MODEL)			
00	INT-	NA3 NA4 NA5 NA6 NA7 BLACK			
51-491		LENS, PERSONAL LAMP			
H197-51-491A	1	('95 MODEL)			
55-220		PANEL, CENTER			
NA75-55-210A	1	('95 MODEL) (ML-'96 MODEL)			
00	INT-	NA3 NA4 NA5 NA6 NA7 NAB BLACK			
NA75-55-210A	1	(W/C.D.) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
00	INT-	NA3 NA4 NA5 NA6 NA7 NAB BLACK			
NB38-55-210A	1	(W/O C.D.) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
00	INT-	NA3 NA4 NA5 NA6 NA7 NAB BLACK			
55-225B		COVER, HOLE			
NB38-55-225A	1	('96 MODEL)			
00	INT-	NA3 NA7 NAB BLACK			
88	INT-	NA4 NA5 TAN			
55-428		SPRING, METER HOOD			
GJ21-55-428	3				
55-431		BULB, RESISTOR			
BR70-55-431	1				
55-610		RESISTOR, PANEL LIGHT			
BR70-55-490	1				
60-210		COVER, COLUMN-UPPER			

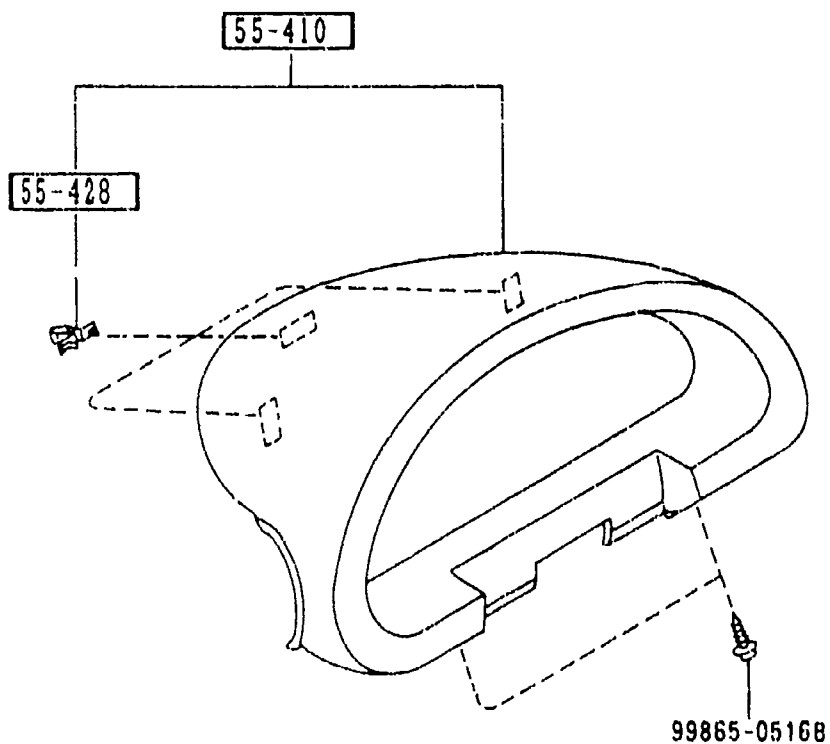


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
NA01-60-220	1				
00	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			
60-210A		COVER, COLUMN-LOWER			
NA01-60-230A	1				
00	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			
60-223C		CAP, COLUMN COVER			
NA01-60-223	1				
00	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			
64-271		PANEL, CENTER-LOWER			
NA75-64-270B	1				-4B01
00	INT-	NA3 BLACK			
88	INT-	NA4 NA5 TAN			
NA75-64-270C	1				4B01-
00	INT-	NA3 NA7 NA8 BLACK			
88	INT-	NA4 NA5 TAN			
64-285		SPRING, ASHTRAY			
NA01-64-612	2				
64-613		SCREW, ASHTRAY			
NA01-64-613	4				
64-617A		LID, ASHTRAY			
NA01-64-617	1				
00	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			
64-618		PLATE, ASHTRAY			
NA01-64-618	1				
64-620		TRAY, ASH			
NA01-64-610B	1				
00	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			

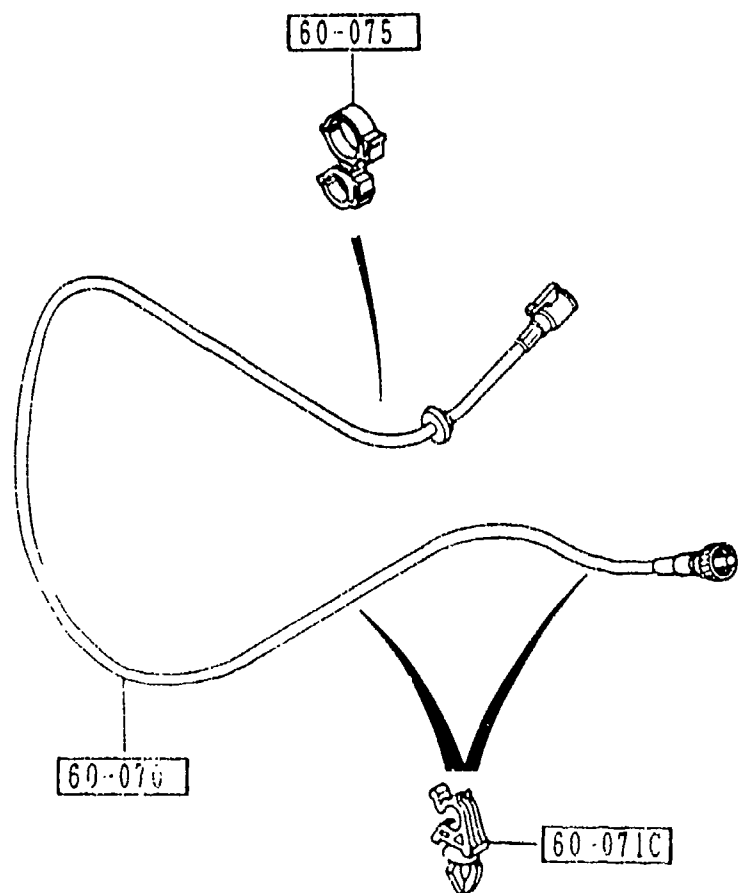
4B01 NA35* -606043



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
64-622		LIGHT, PLATE-ASHTRAY			
NA01-64-622	1				
64-623		CASE 'OUT', ASHTRAY			
NA01-64-623	1				
00	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			

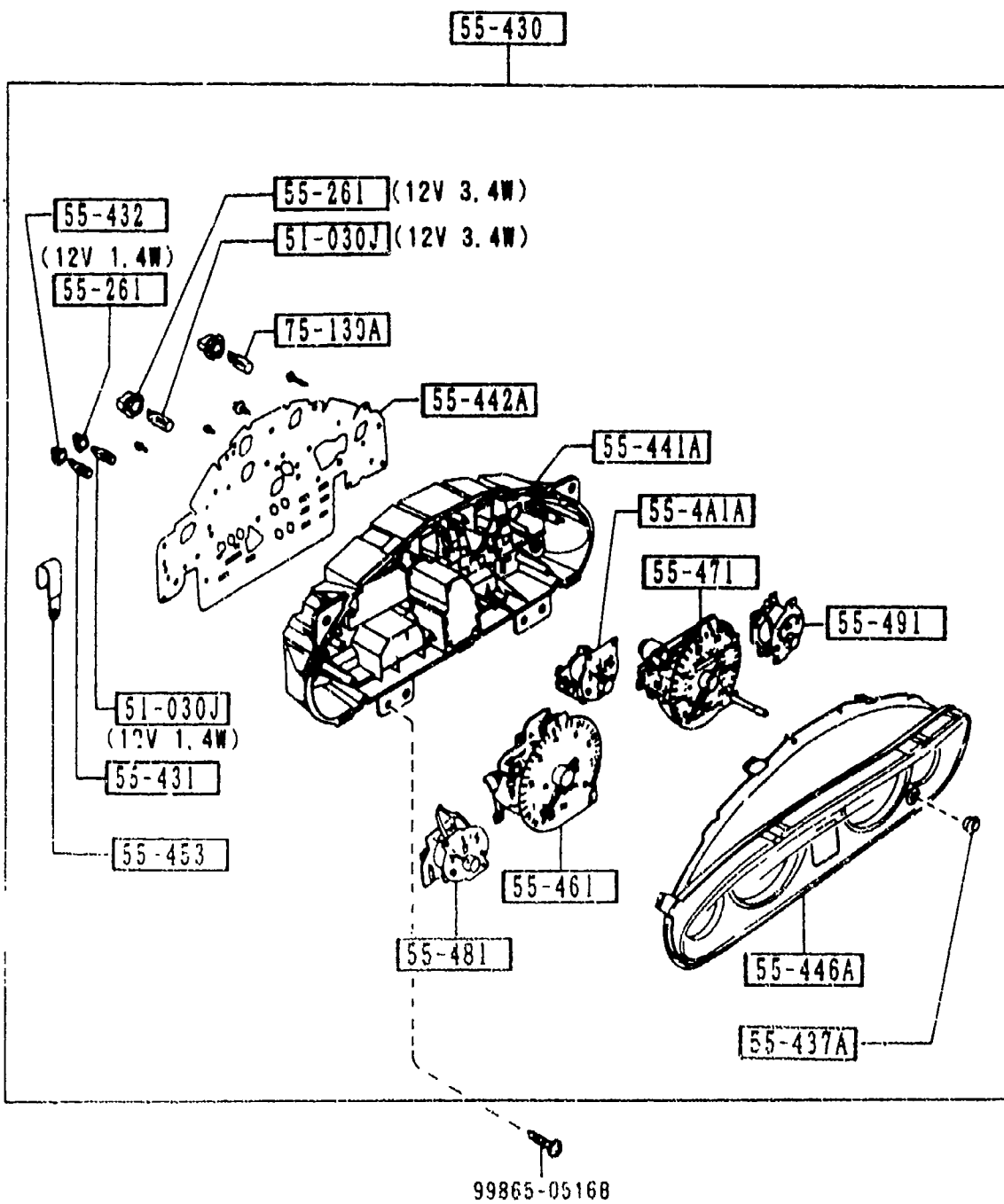


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
55-410		HOOD, METER			
NA75-55-420B	1	BASE, R-PKG, PKG-B, R.E.GR, PKG-A, (INSTRUMENT PANEL-BLACK)			
00	INT-	NA3 NA4 NA5 NA7 NA8 BLACK			
NA79-55-420B	1	L-PKG, PKG-C, M-25-ED, (INSTRUMENT PANEL-TAN)			
00	INT-	NA4 NA5 BLACK			
55-428		SPRING, METER HOOD			
GJ21-55-428	3				



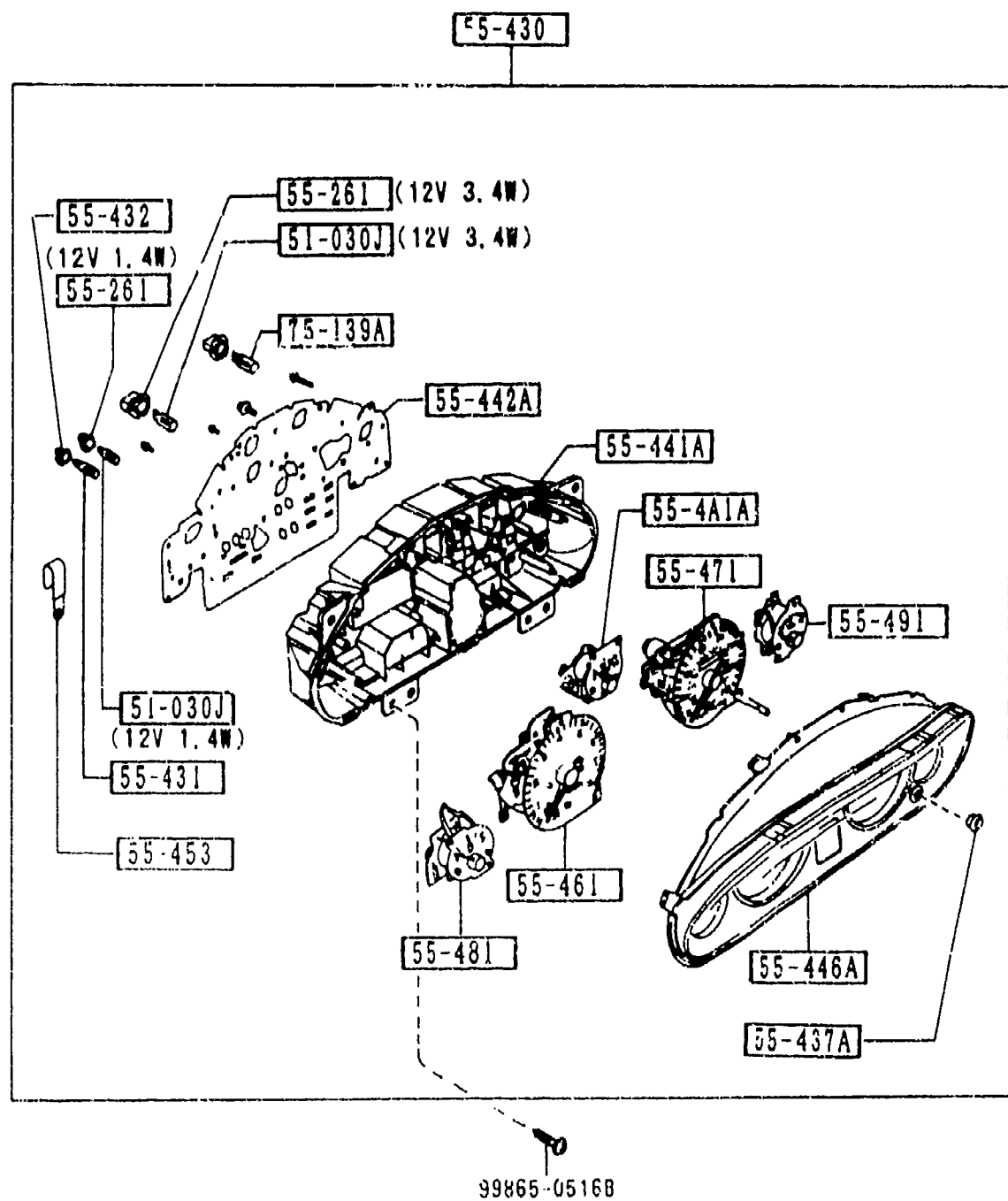
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
60-070		CABLE, SPEEDMETER			
NA01-60-070B	1	(MT)			
NA03-60-070A	1	(AT)			
60-071C		CLIP			
NA03-60-071	2				
60-075		CLIP 'A', SPEEDOMETER CABLE			
NA01-60-075	1				

FWD



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
51-030J		BULB			
3625-75-139	8	12V 1.4W (TYPE 'A' DESIGN)			
99701-6030	3	12V 3.4W			
3625-75-139	8	12V 1.4W (TYPE 'B' DESIGN)			-5B15
3625-75-139	9	12V 1.4W (TYPE 'B' DESIGN)			5B15-
55-261		SOCKET			
1316-55-261	3	12V 3.4W			
8548-55-261	8	12V 1.4W (TYPE 'A' DESIGN)			
8548-55-261	8	12V 1.4W (TYPE 'B' DESIGN)			-5B15
8548-55-261	9	12V 1.4W (TYPE 'B' DESIGN)			5B15-
55-4A1A		METER, OIL PRESSURE			
NA75-55-4A1	1	(TYPE 'A' DESIGN)			
NA75-55-4A1	1	(TYPE 'B' DESIGN)			-5B15
NB39-55-4A1	1	(TYPE 'B' DESIGN)			5B15-
55-430		METER SET			
NA75-55-430C	1	BASE, (CHROMIUM-PLATED) ('95 MODEL)			
NB13-55-430B	1	M-25-ED, (BLACK) ('95 MODEL)			
NB13-55-430B	1	('96 MODEL)			-5B15
NB13-55-430B	1	(TYPE 'A' DESIGN) ('96 MODEL)			5B15-
NB39-55-430	1	(TYPE 'B' DESIGN) ('96 MODEL)			5B15-
55-431		BULB, RESISTOR			
NA01-55-431	1	(TYPE 'A' DESIGN)			
NA01-55-431	1	(TYPE 'B' DESIGN)			-5B15
55-432		SOCKET, METER SET			
NA01-55-432	1	(TYPE 'A' DESIGN)			

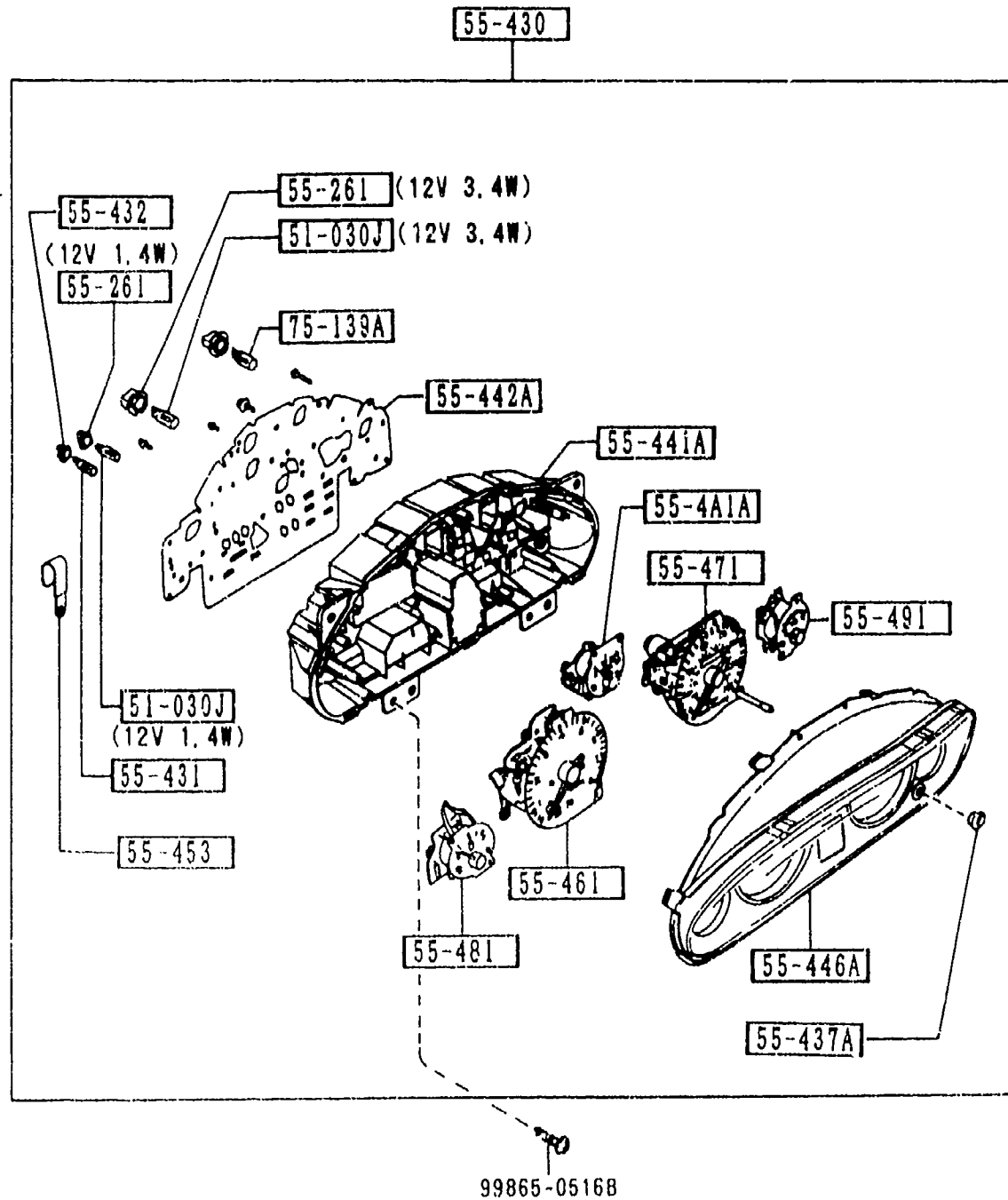
5B15 NA3** -705265



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
NA01-55-432	1	(TYPE 'B' DESIGN)			-5B15
55-437A		GROMMET, KNOB-METER SET			
NA01-55-437	1				
55-441A		CASE, METER			
NA01-55-441D	1				
55-442A		PLATE, PRINT			
NA75-55-442	1				
55-446A		PLATE, WINDOW			
NA01-55-446B	1	BASE, (CHROMIUM-PLATED) ('95 MODEL)			
NB13-55-446	1	('96 MODEL)			
NB13-55-446	1	M-25-ED, (BLACK) ('95 MODEL)			
55-453		CLAMP			
NA07-55-467	1				
55-461		TACHOMETER			
NA75-55-461	1	(TYPE 'A' DESIGN)			
NA75-55-461	1	(TYPE 'B' DESIGN)			-5B15
NB39-55-461	1	(TYPE 'B' DESIGN)			5B15-
55-471		SPEEDOMETER			
NA01-55-471B	1	(TYPE 'A' DESIGN)			
NA01-55-471B	1	(TYPE 'B' DESIGN)			-5B15
NB39-55-471	1	(TYPE 'D' DESIGN)			5B15-
55-481		METER, FUEL			
NA01-55-481	1	(TYPE 'A' DESIGN)			
NA01-55-481	1	(TYPE 'B' DESIGN)			-5B15
NB39-55-481	1	(TYPE 'B' DESIGN)			5B15-
55-491		METER, TEMP			
NA75-55-491	1	(TYPE 'A' DESIGN)			
NA75-55-491	1	(TYPE 'B' DESIGN)			-5B15

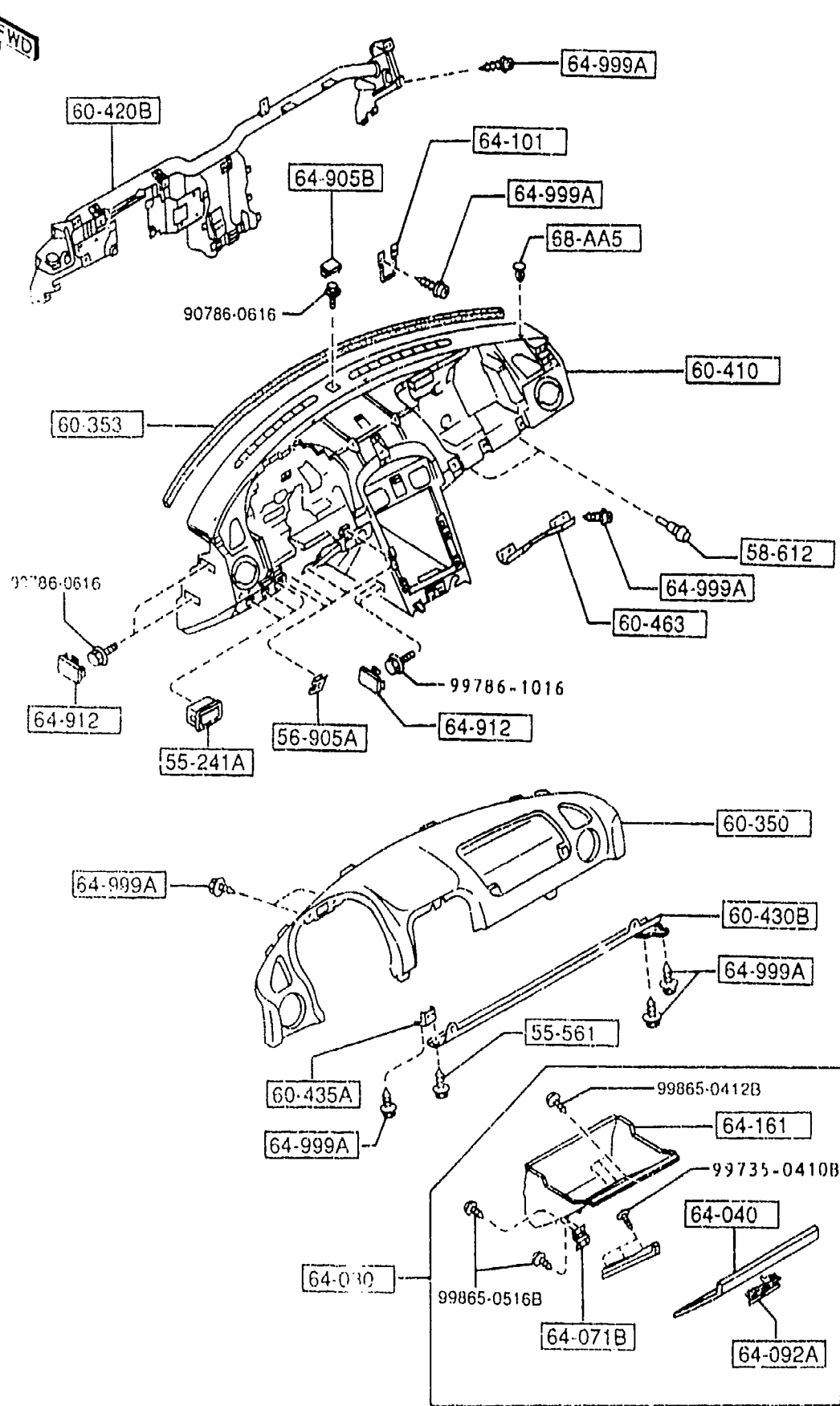
5B15 NA3** -705265

FWD

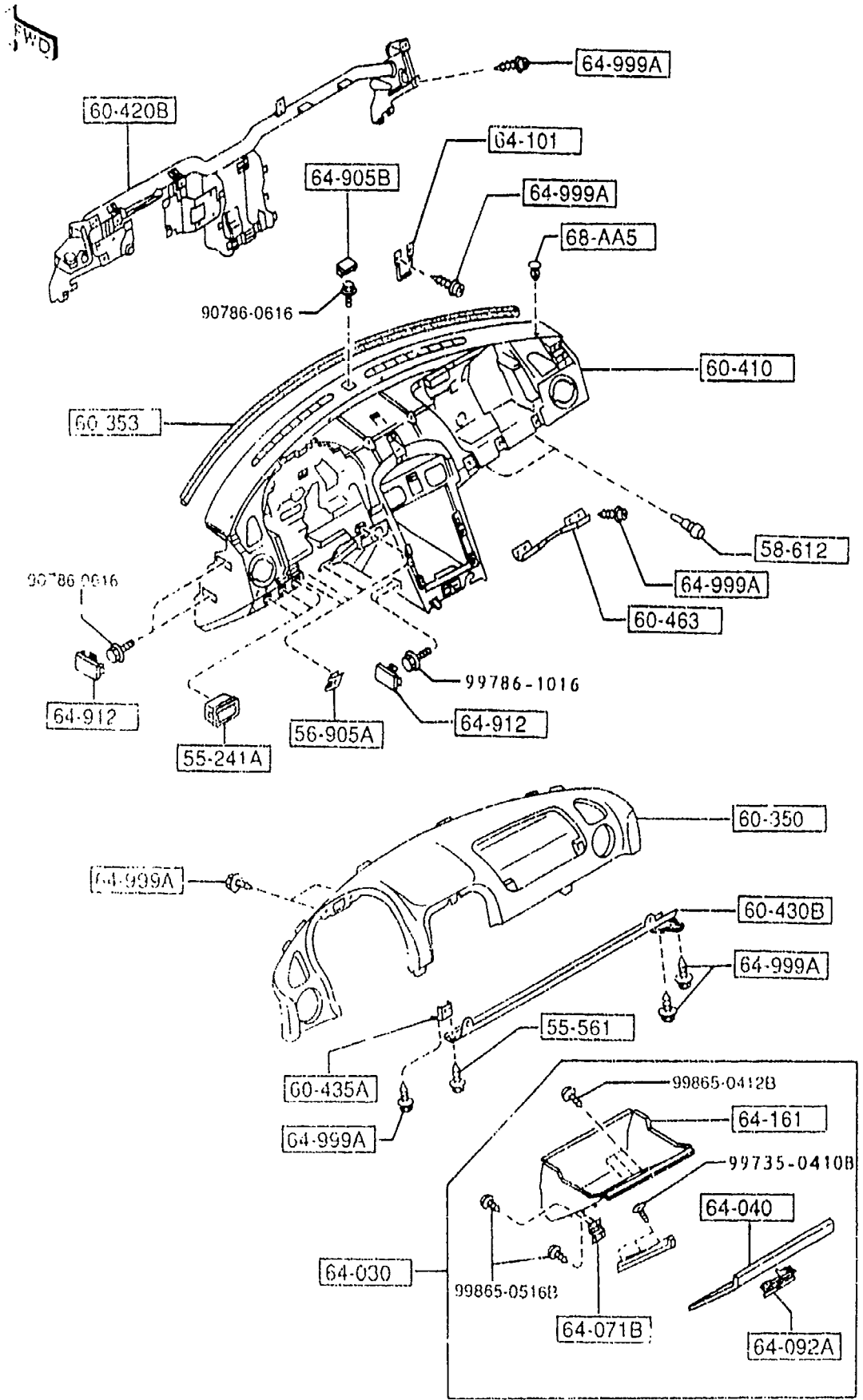


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D NB39-55-491	1	(TYPE 'B' DESIGN)			5815-
+-----+ | 75-139A | +-----+		BULB			
B491-55-431	4				

5815 NA3** -705265

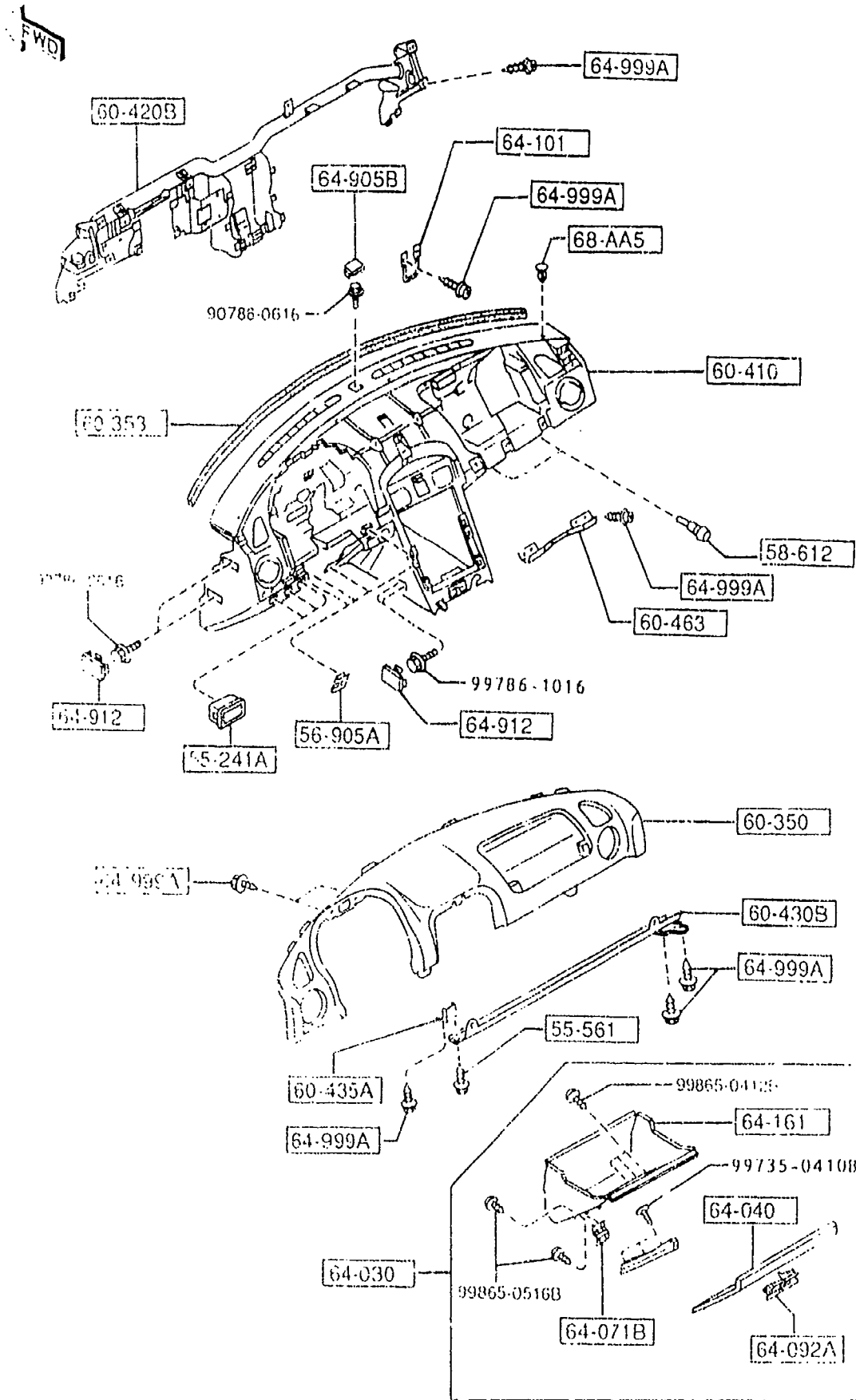


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
55-241A		BOX, INSTRUMENT PANEL			
NA01-55-241A	3				
00	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			
55-561		BOLT, INST. PANEL			
B455-55-561	1				
56-905A		NUT, SPRING			
B092-60-408	4				
58-612		CUSHION, RUBBER			
B092-64-046	2				
60-350		PAD, CRASH			
NA75-60-350B	1				
00	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			
60-353		RUBBER, URETHNE			
NA75-60-353	1				
60-410		FRAME, INST. PANEL			
NA75-60-401D	1				-4922
00	INT-	NA3 BLACK			
88	INT-	NA5 NA4 BLACK/TAN			4922-5508
NA75-60-401E	1				
00	INT-	NA3 NA7 BLACK			
88	INT-	NA4 NA5 BLACK/TAN			5508-
NA75-60-401G	1				
00	INT-	NA3 NA7 NA8 BLACK			
88	INT-	NA4 NA5 BLACK/TAN			
60-420B		MEMBER, CRASH PAD			
NA75-60-420B	1	(195 MODEL) (ML-'96 MODEL)			
NB38-60-420	1	(GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
60-430B		MEMBER(R), INST. PANEL			
4922 NA35*	-603332				
5508 NA35*	-620210				

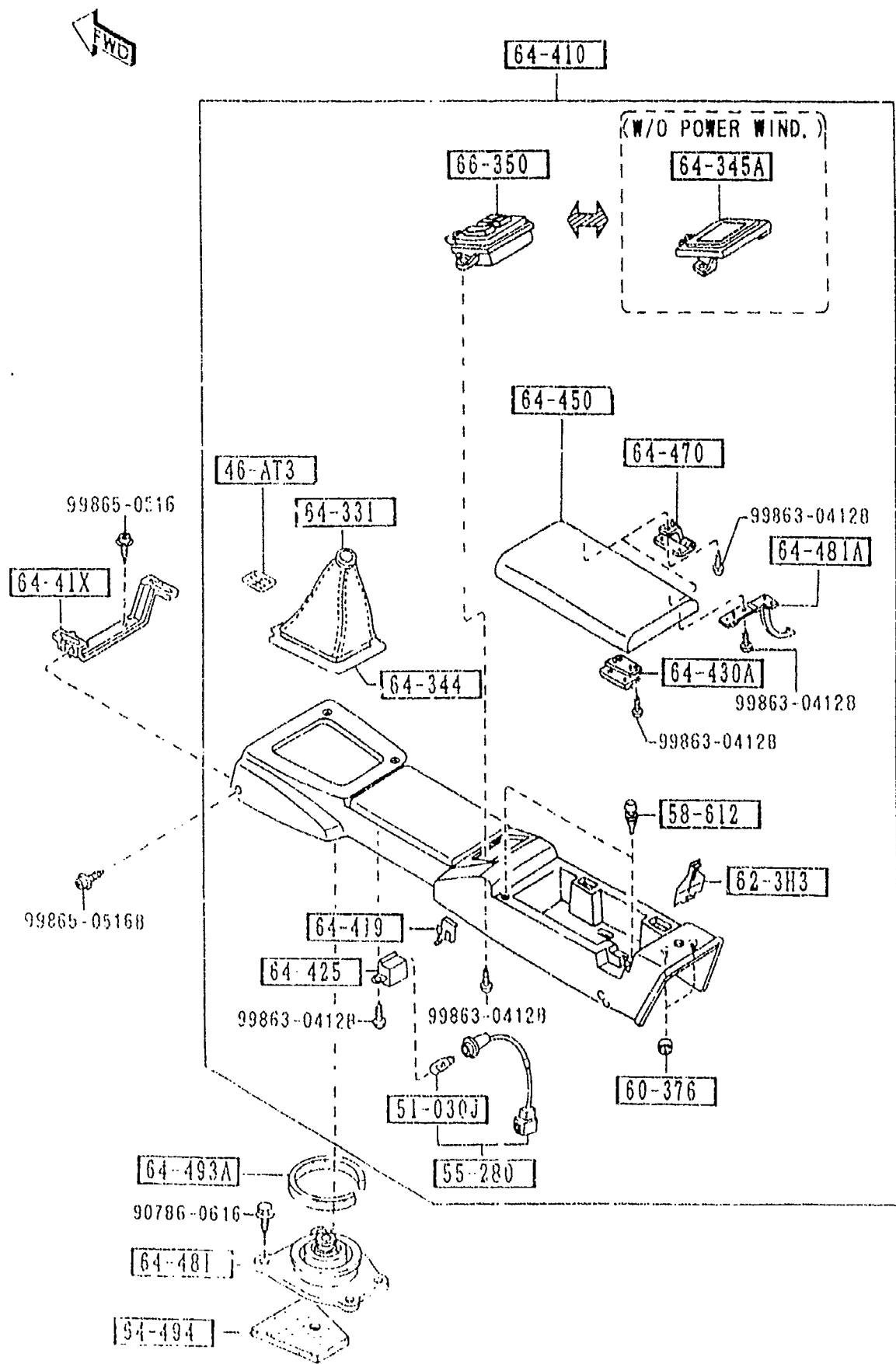


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FPOM-TO
CONT'D					
NA75-60-430	1				-4922
NA01-60-430E	1				4922-
+-----+ 60-435A +-----+		BRACKET, MEMBER			
NA01-60-435	1				
+-----+ 60-463 +-----+		BRACKET, CRASH PAD			
NA01-60-463	1				
+-----+ 64-030 +-----+		BOX, GLOVE			
NA75-64-030C	1				-4901
00	INT-	NA3 BLACK			
88	INT-	NA4 NA5 TAN			
NA75-64-030D	1				4901-4A01
00	INT-	NA3 BLACK			
88	INT-	NA4 NA5 TAN			
NA75-64-030F	1				4A01-
00	INT-	NA3 NA7 NA8 BLACK			
88	INT-	NA4 NA5 TAN			
+-----+ 64-040 +-----+		LID, GLOVE BOX-OUTER			
NA75-64-041C	1				
00	INT-	NA3 NA7 NA8 BLACK			
88	INT-	NA4 NA5 TAN			
+-----+ 64-071B +-----+		HINGE(R), GLOVE LID			
NA75-64-03XA	2				
+-----+ 64-092A +-----+		LOCK, GLOVE LID			
BC5E-64-090B	1				4A01-
00	INT-	NA3 NA7 NA8 BLACK			
67	INT-	NA4 NA5 TAN			
+-----+ 64-101 +-----+		STRIKER			
BC1D-64-101	1				
+-----+ 64-161 +-----+		BOX, GLOVE			
NA75-64-161C	1				

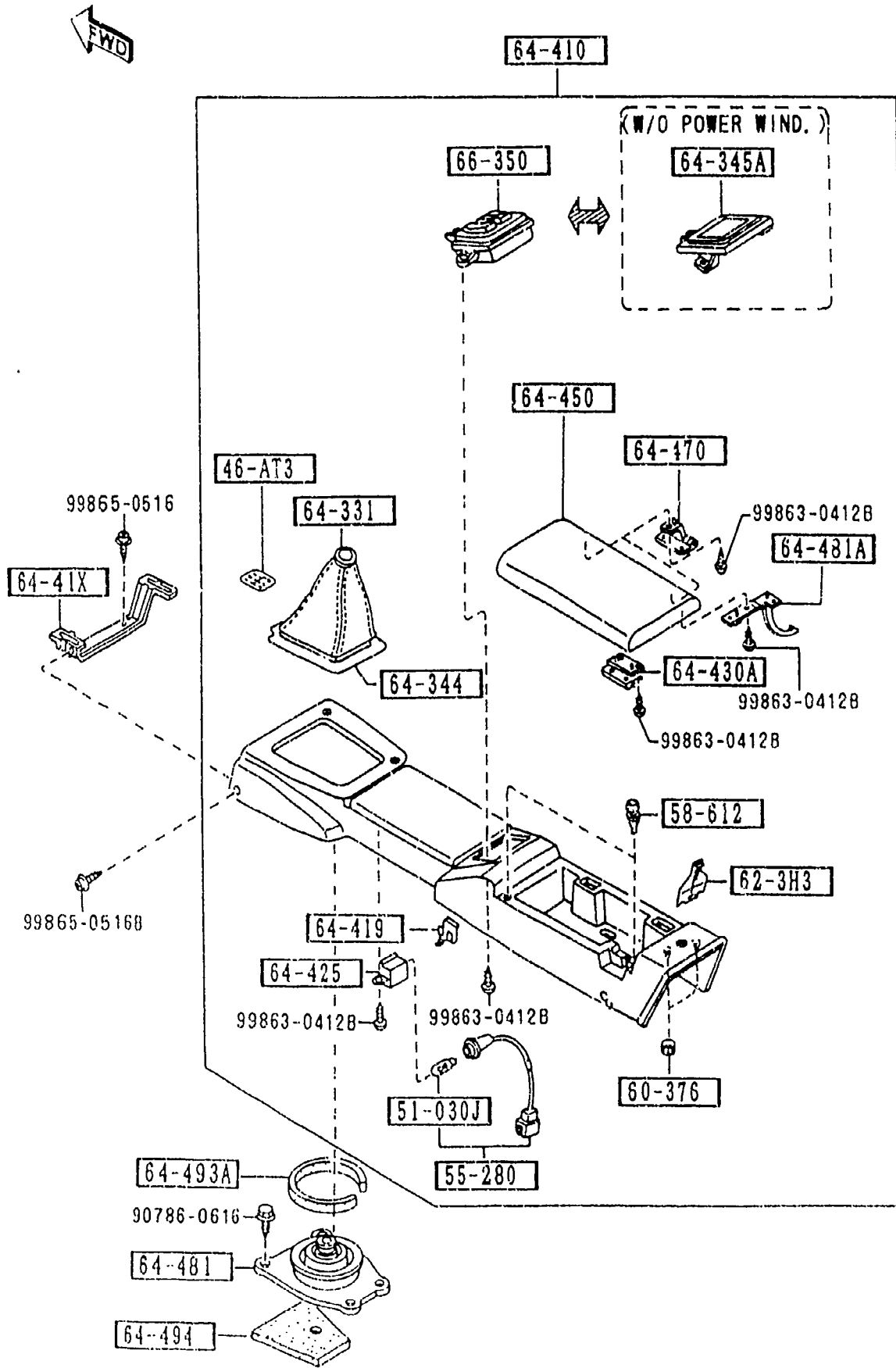
4901 NA35* -602618
 4922 NA35* -603332
 4A01 NA35* -603621



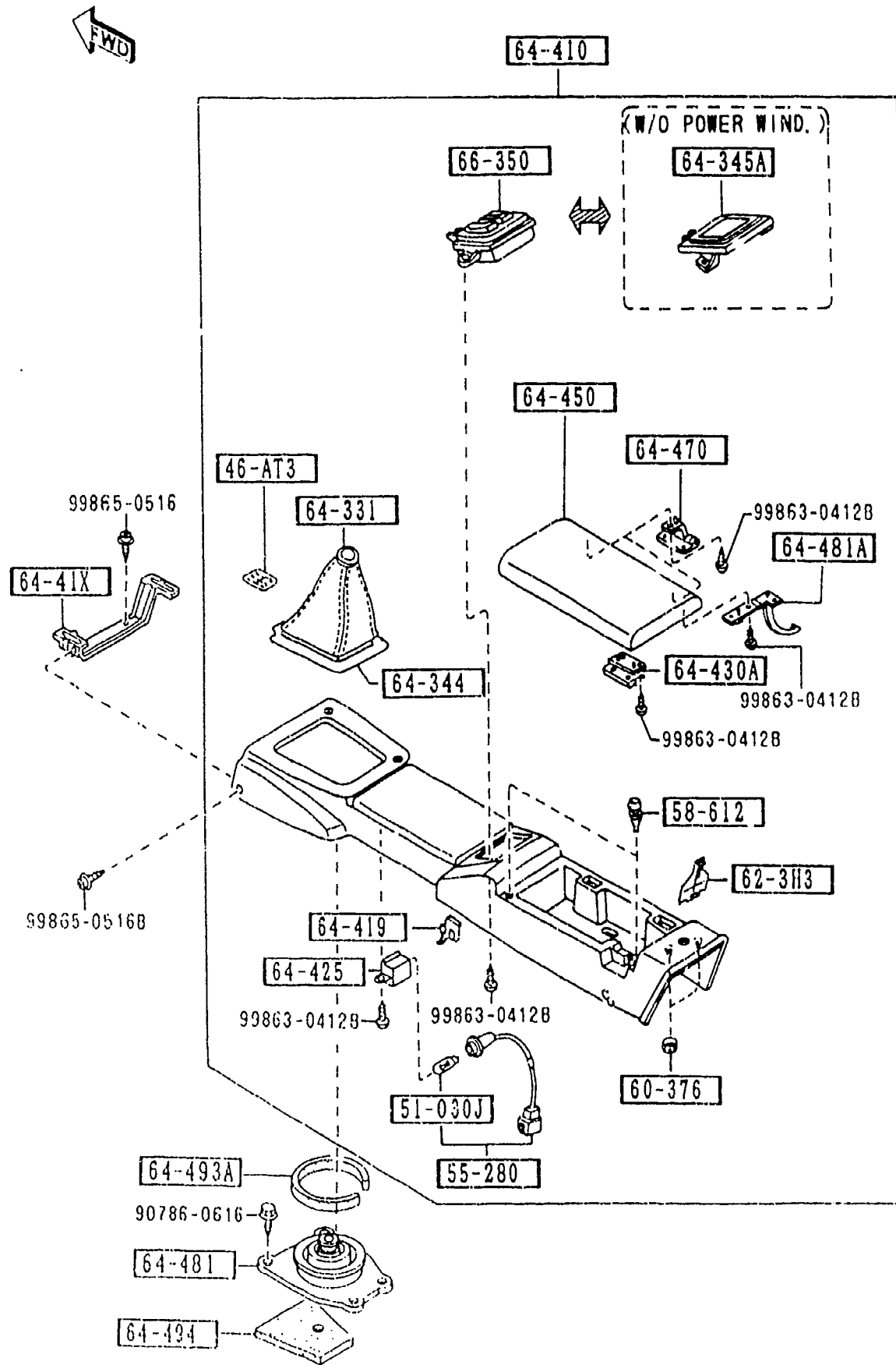
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
CONT'D 00	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			
+-----+ | 64-905B | +-----+		COVER,HOLE-(C)			
NA01-64-905	1				
00	INT-	NA3 NA5 NA4 NA7 NA8 BLACK			
+-----+ | 64-912 | +-----+		COVER,SIDE			
NA01-64-912	6				
00	INT-	NA3 NA7 BLACK			
88	INT-	NA4 NA5 TAN			
+-----+ | 64-999A | +-----+		SCREW,TAPPING			
W201-64-999	33				
+-----+ | 68-AA5 | +-----+		FASTENER,DOOR TRIM			
W201-68-AA5A	4				
00	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			



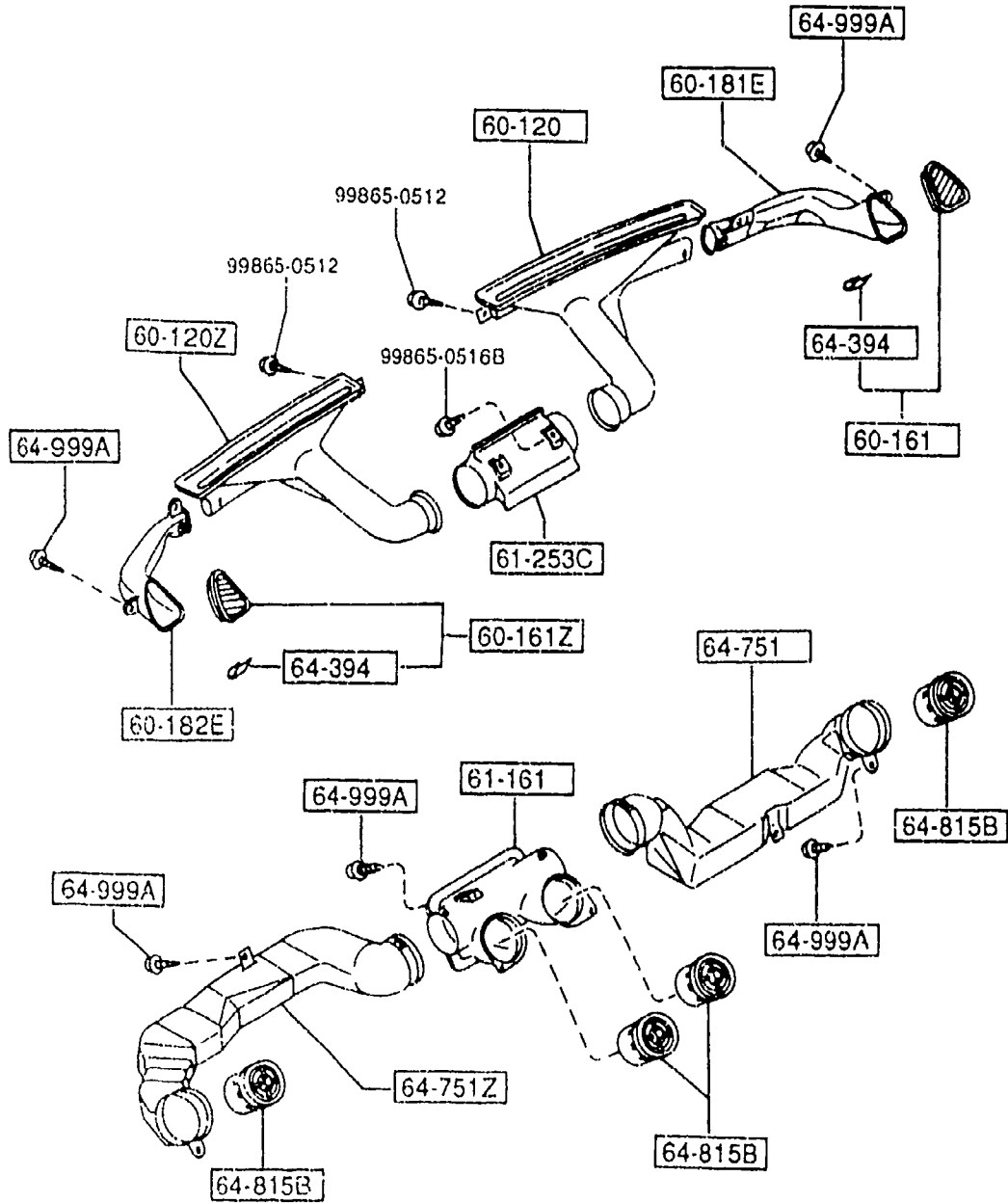
PART NO	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
46-AT3		LABEL, CHANGE			
NU02-46-AT3	1	(WOOD) (MT)			
51-030J		BULB			
3625-75-139	1	12V 1.4W			
55-280		BULB & SOCKET			
NA01-55-280	1	(MT)			
NA06-55-280	1	(URETHANE) (AT)			
58-612		CUSHION, RUBBER			
B092-64-046	2				
60-376		NUT, TOP-CRASH PAD			
R092-60-376	2				
62-3H3		COVER, LEVER-OPENER			
NA01-64-424	1				
64-331		BOOT, CHANGE			
NA01-64-331	1	(MT)			
00	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			
64-344		PLATE, BACK-BOOTS RING			
NA01-64-344B	1	(MT)			
64-345A		BOX, COIN-CONSOLE			
NA01-64-437	1	BASE, R-PKG, PKG-A, (W/O POWER WIND.)			
JU	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			
64-41X		BRACKET, REAR CONSOLE			
NA01-64-416	1				
64-410		CONSOLE, REAR			
NA01-64-410D	1	BASE, R-PKG, PKG-A, (W/O POWER WIND, W/O CHANGE LABEL) (MT)			



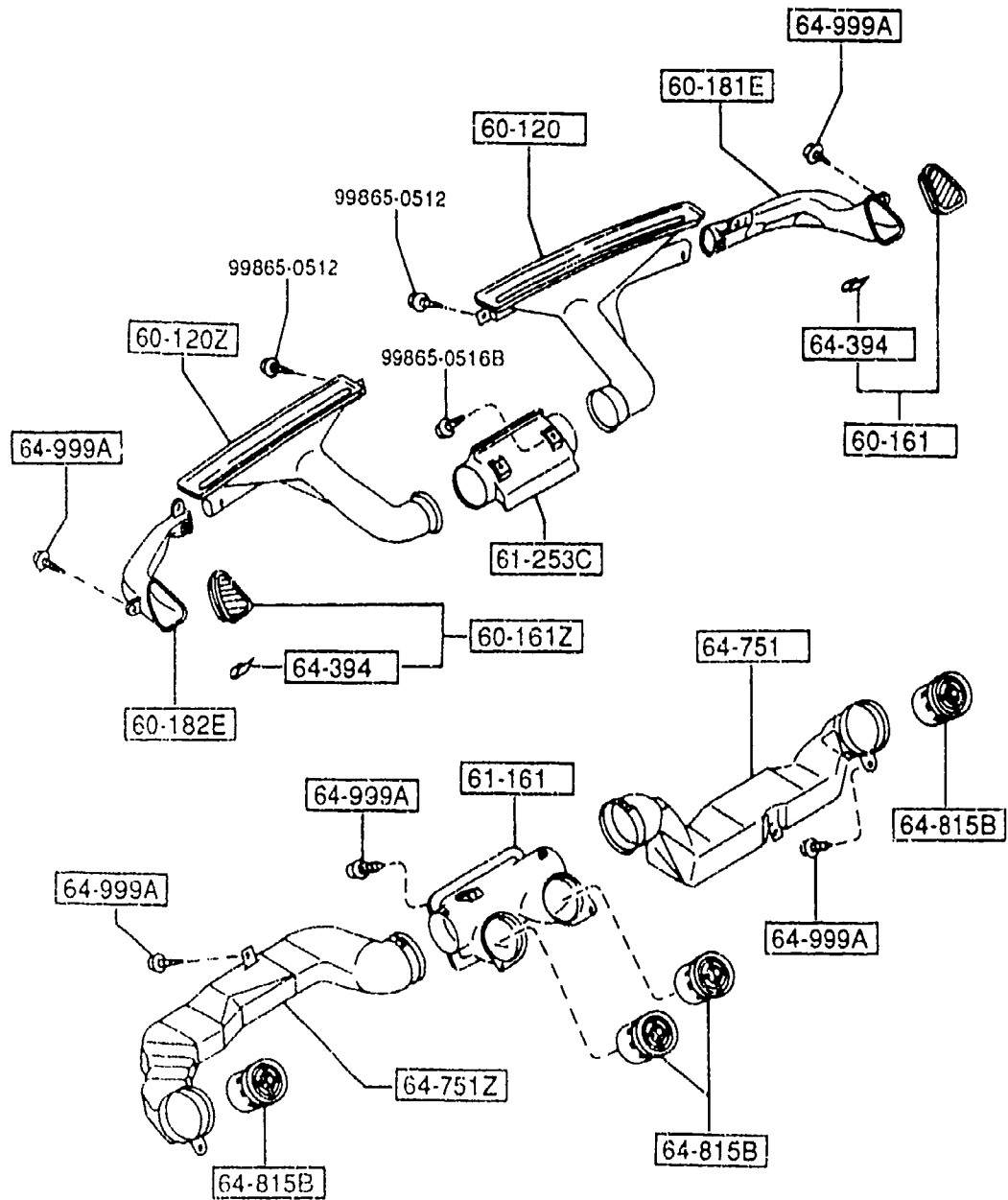
PART NO.	QTY	MODFL./RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
00	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			
NA02-64-410D	1	P.E.GR, L-PKG, PKG-B (W/POWER WIND,W/O CH ANGE LABEL) (MT)			
00	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			
NA03-64-410C	1	BASE, R-PKG, PKG-A, (W/O POWER WIND.) (AT)			
00	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			
NA06-64-410D	1	M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/POWER WIND.) (AT)			
00	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			
NA07-64-410B	1	(W/O POWER WIND,W/CH ANGE LABEL) (MT)			
00	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			
NA08-64-410B	1	OPT, (W/POWER WIND,W/CHAN GE LABEL) (MT)			
00	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			
H260-64-419	1	CLIP,HARNESS-HAND BR AKE			
NA01-64-414	1	CASE,LAMP			
FB01-64-430	1	LOCK,CONSOLE-REAR			
NA01-64-450A	1	LID,CONSOLE			
00	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			






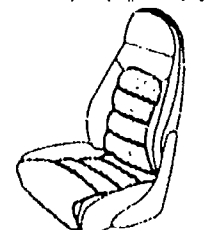
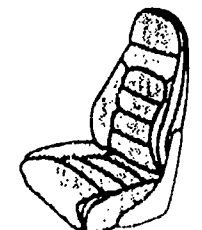
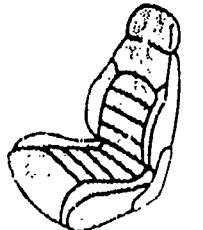
FART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
64-470		HINGE			
NA01-64-45XA	2				
00	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			
64-481		INSULATOR NO.1,CHAN GE			
NA01-64-481B	1	(MT)			
64-481A		STOPPER, CONSOLE LID			
NA01-64-452	1				
00	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			
64-493A		PACK, SILENT			
H001-64-493	1	(MT)			
64-494		PAD, CHANGE BOOT			
FB01-64-495	1	(MT)			
66-350		SWITCH, POWER WINDOW			
NA01-66-350A	1	M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/POWER WIND.) (MT)			
00	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			
NA03-66-350	1	M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/POWER WIND.) (AT)			
00	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			




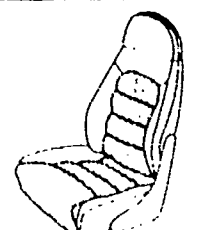
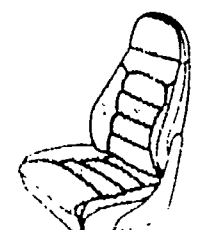
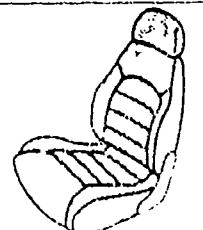


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
60-120		NOZZLE(R),DEFROSTER			
NA75-60-121B	1				
60-120Z		NOZZLE(L),DEFROSTER			
NA01-60-141	1				
60-161		GRILLE(R),DEMISTER			
NA75-60-160A	1				
00	INT-	NA3 NA5 NA4 NA7 NA8 BLACK			
60-161Z		GRILLE(L),DEMISTER			
NA75-60-170A	1				
00	INT-	NA3 NA5 NA4 NA7 NA8 BLACK			
60-181E		DUCT(R),SIDE DEMI.			
NA75-60-183	1				
60-182E		DUCT(L),SIDE DEMI.			
NA75-60-193	1				
61-161		DUCT,CENTER			
NA75-61-161A	1				
61-253C		HOSE(C),DEFROSTER			
NA01-61-253	1				
64-394		SPRING			
GA2A-64-394	2				
64-751		DUCT(R)			
NA75-64-741	1				
64-751Z		DUCT(L)			
NA75-64-841	1				
64-815B		LOUVER,VENTILATOR			
N001-64-81X	4				
00	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			

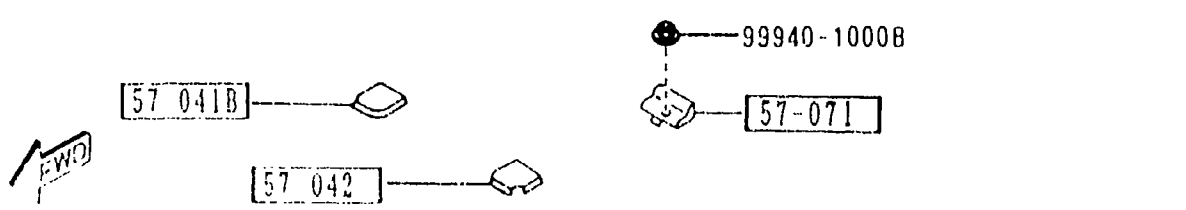
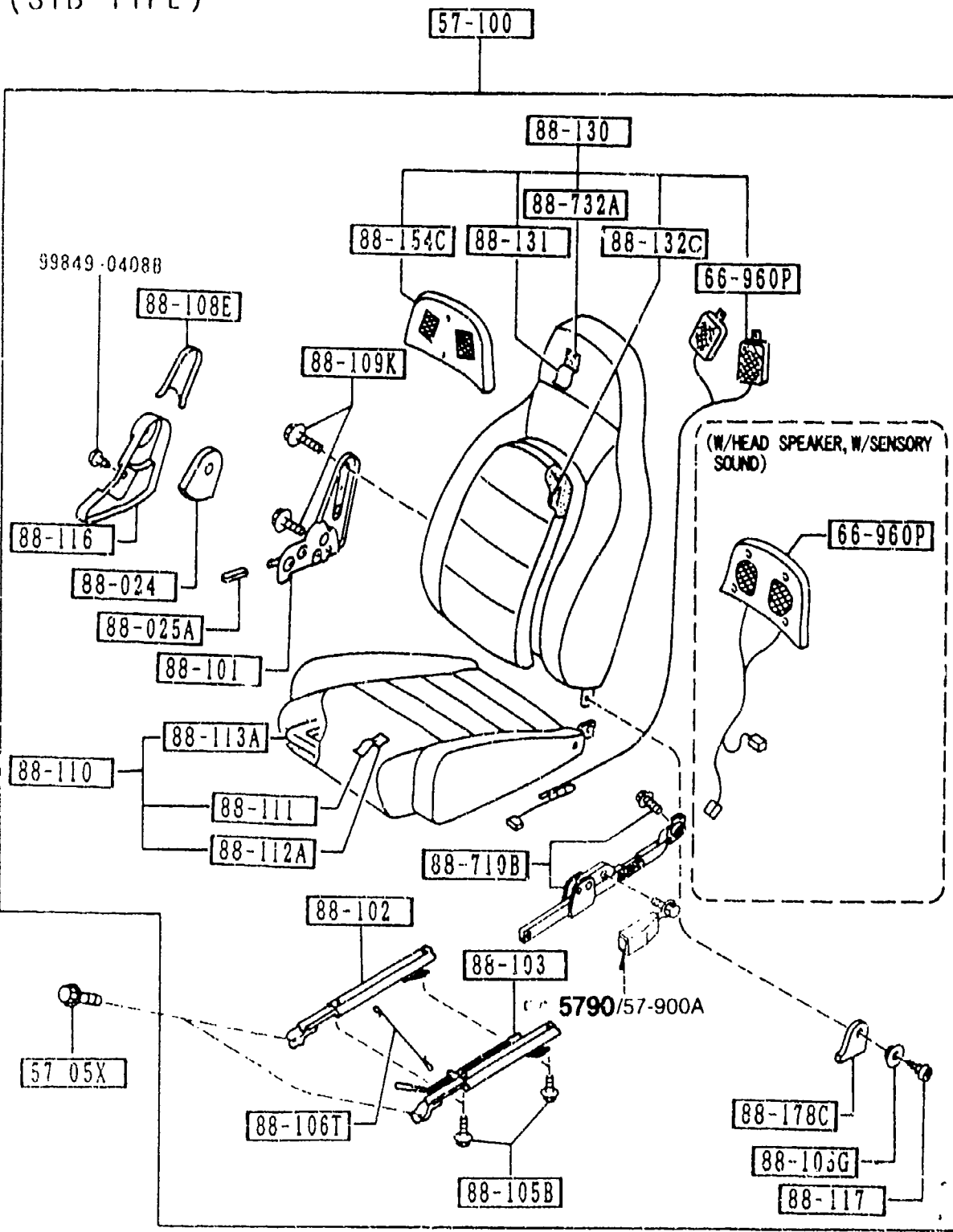


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
+-----+ | 64-999A | +-----+ W201-64-999	10	SCREW, TAPPING			

' 95 MODEL			
SEAT TYPES	STA	STB	STC
GRADE	BASE, P. E. GR.	L-PKG, L-PKG-OPT.	M-25-ED
SPECIFICATIONS	R-PKG, PKG-A, PKG-B	PKG-C, PKG-C-OPT.	
SEAT TRIM	CLOTH	LEATHER	LEATHER
			
			

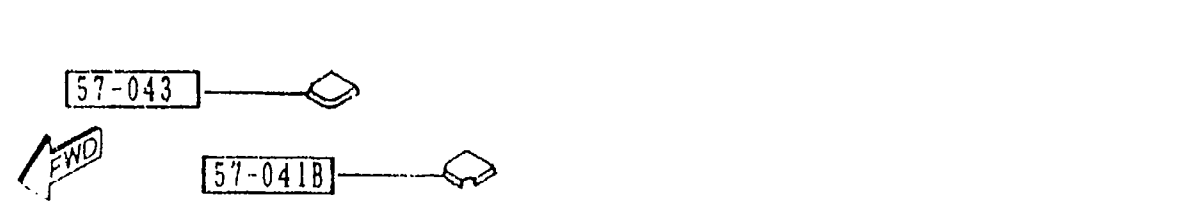
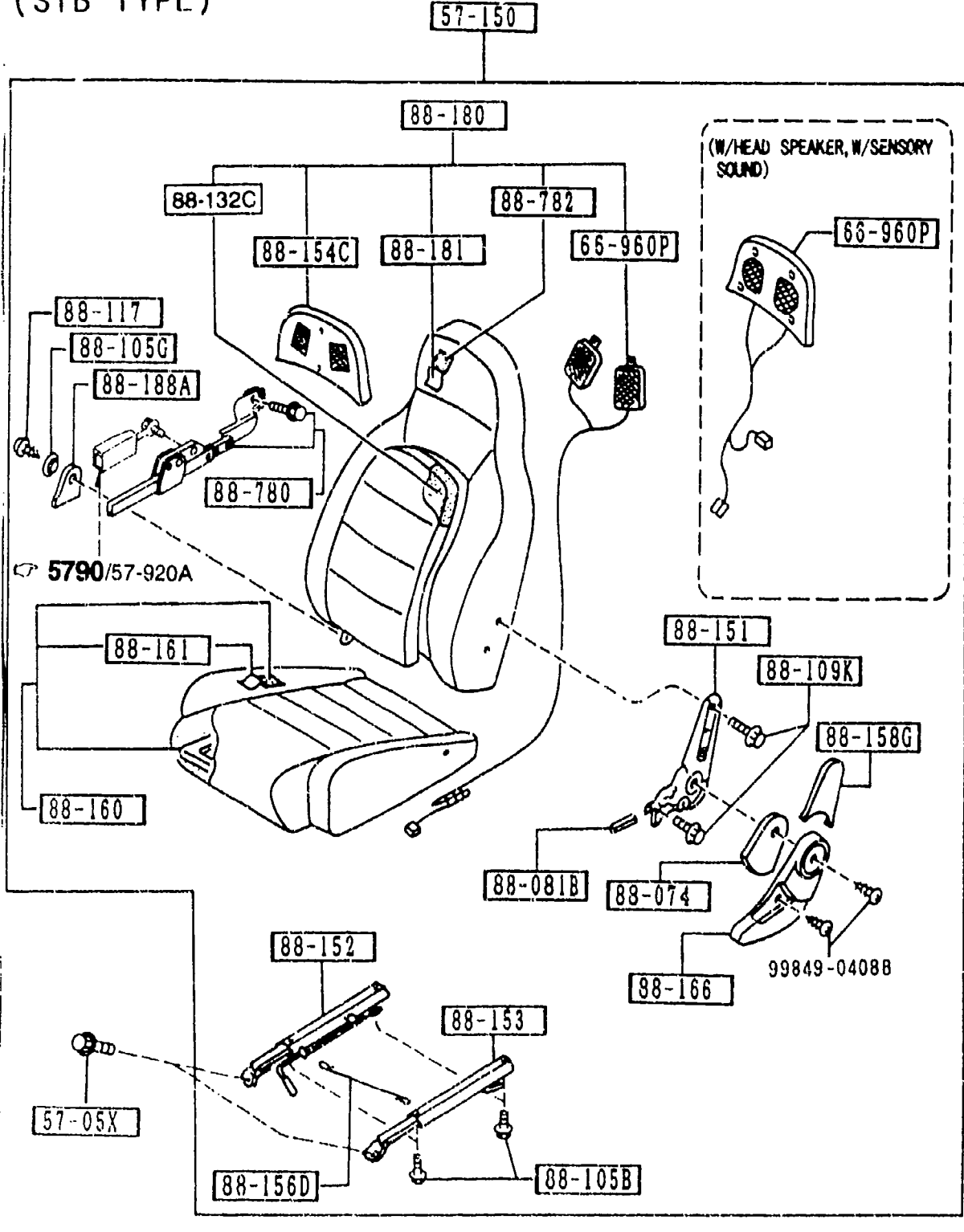
' 96 MODEL			
SEAT TYPES	STA	STB	STC
GRADE	P. E. GR, P. E. GR-OPT.	L-PKG, L-PKG-OPT.	
SPECIFICATIONS	PKG-A, PKG-B	PKG-C, PKG-OPT.	
SEAT TRIM	CLOTH	LEATHER	LEATHER
			
			

(STA TYPE)
(STB TYPE)

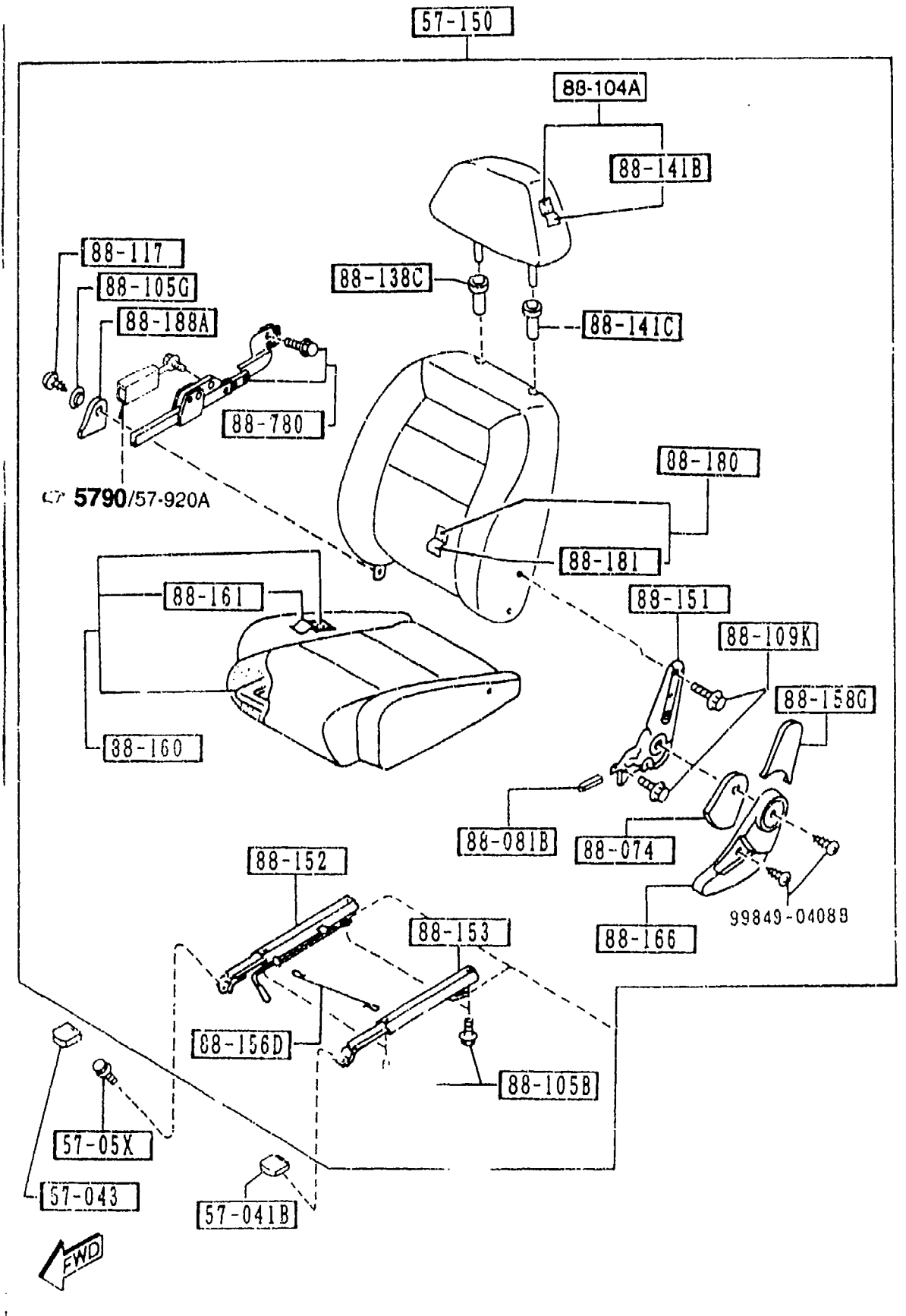
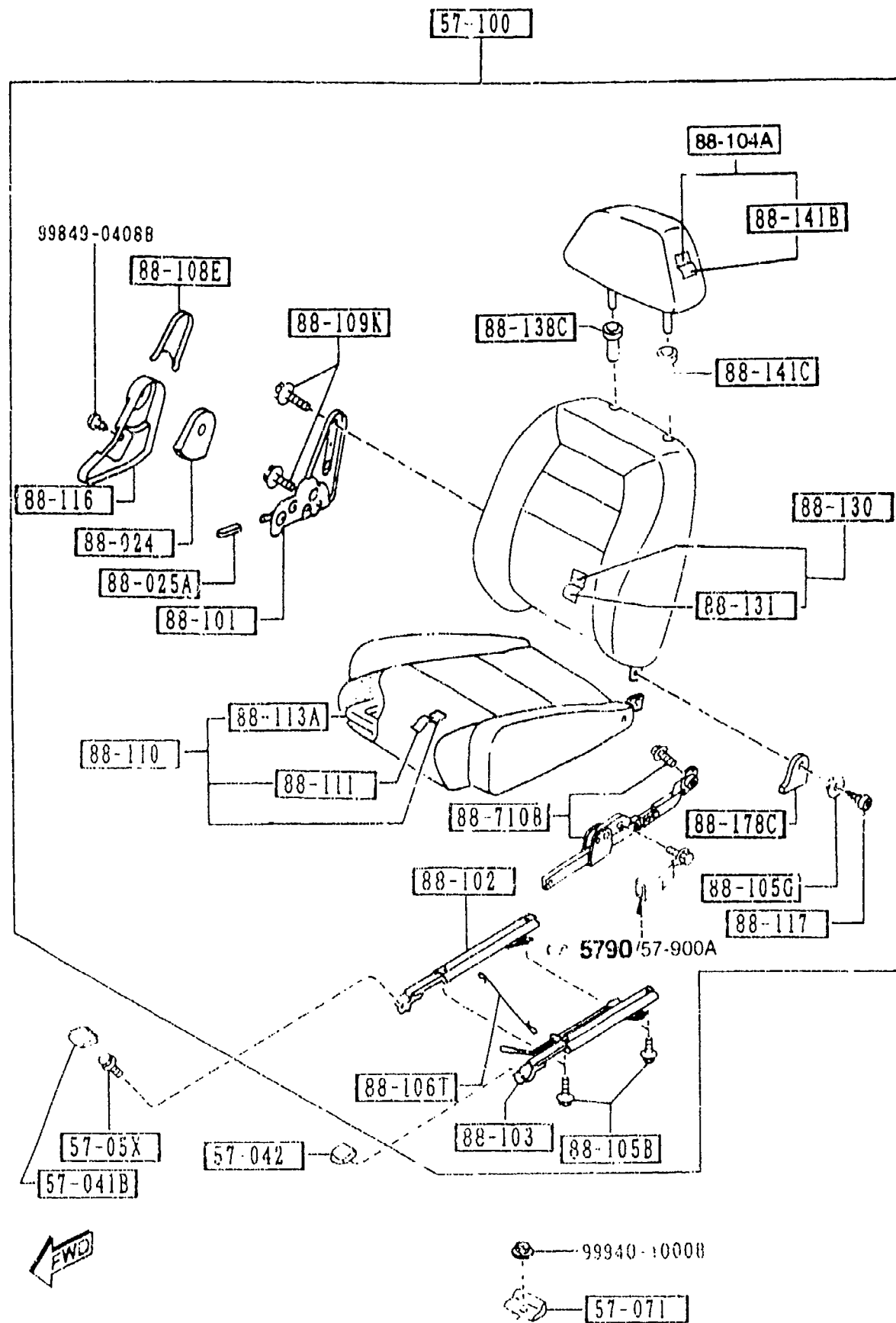


AUNA05

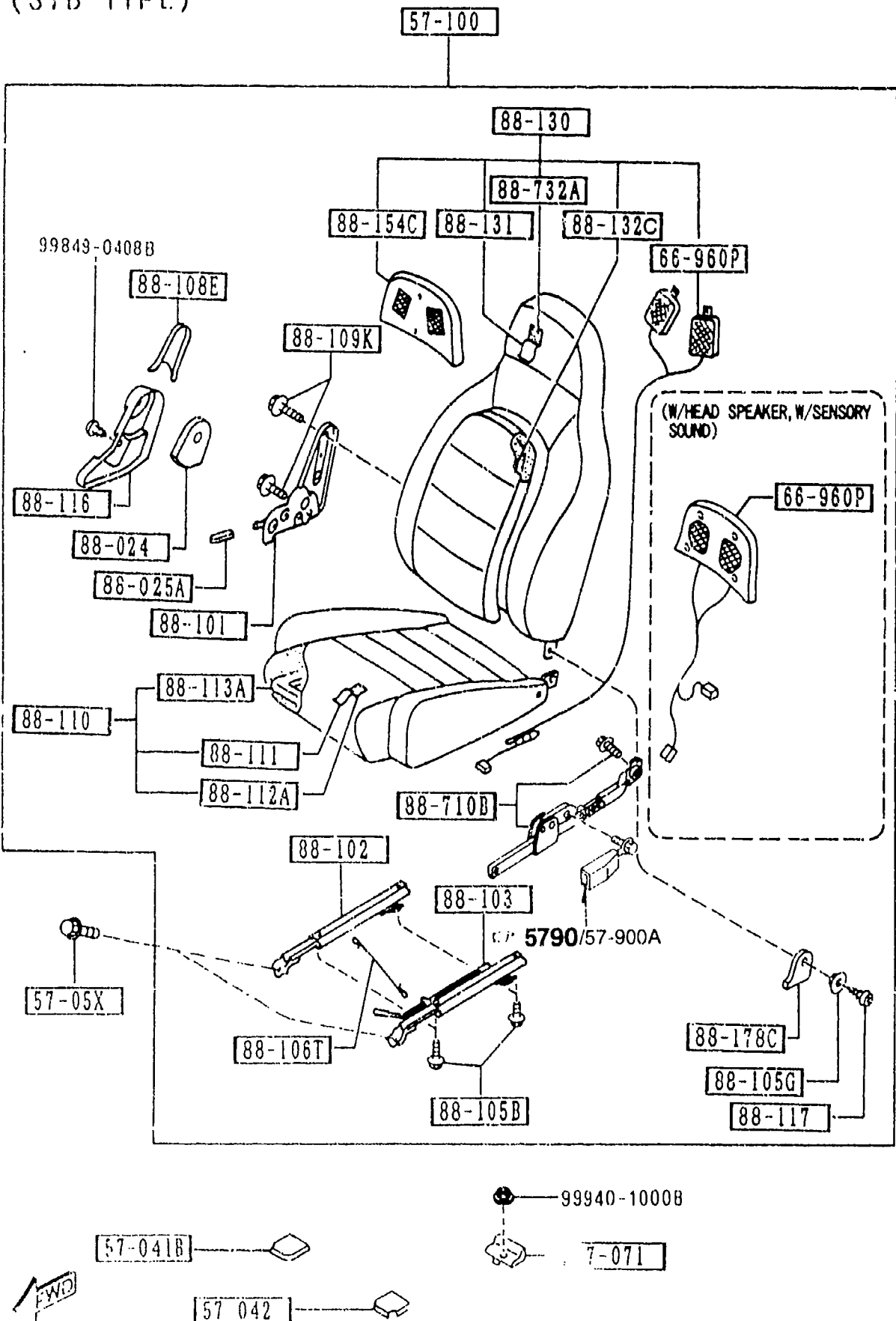
(STA TYPE)
(STB TYPE)



AUNA05



(STA TYPE)
(STB TYPE)

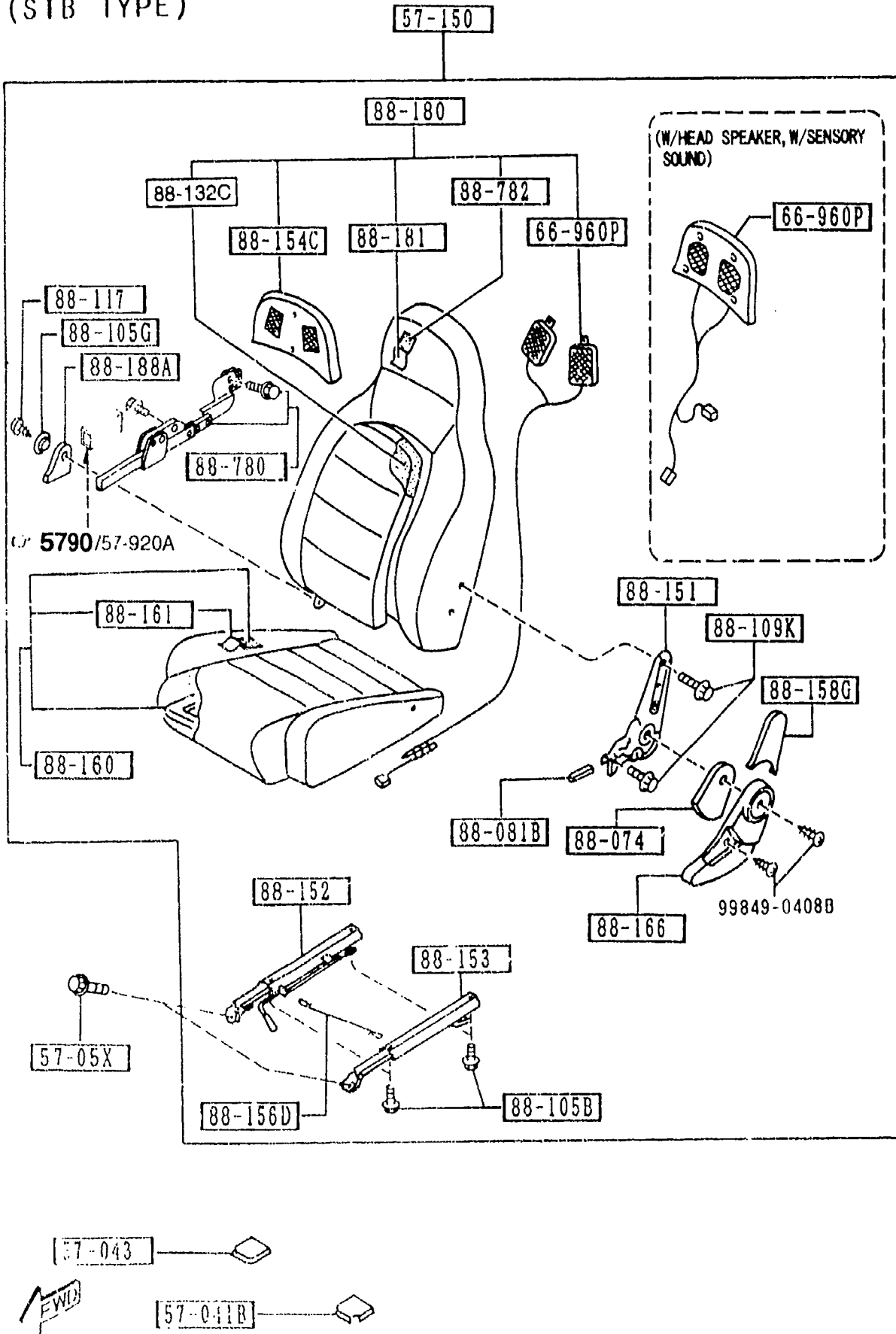


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
57-041B		COVER NO.1,ADJ-FRT			
J001-57-041	2	L-PKG, PKG-C, M-25-E D, (STB TYPE,W/HEAD SPEAKER) (STC TYPE,W/O HEAD S PEAKER) ('95 MODEL)			
57-042		COVER NO.2,ADJ-FRT			
N005-57-042	1	L-PKG, PKG-C, M-25-E D, (STB TYPE,W/HEAD SPEAKER) (STC TYPE,W/O HEAD S PEAKER) ('95 MODEL)			-4801
57-043		COVER NO.3,ADJ-FRT			
N005-57-043	1	L-PKG, PKG-C, M-25-E D, (STB TYPE,W/HEAD SPEAKER) (STC TYPE,W/O HEAD S PEAKER) ('95 MODEL)			-4801
57-05X		BOLT, LINK			
B455-57-05XA A (B455-57-05XB)	8				-6401
*B455-57-05XB	8				6401 -
57-071		BRACKET,SEAT LOCK-RR			
NA75-57-071	1				
57-100		SEAT(R),FRONT			
NBY1-57-100	1	P.E.GR, (STA TYPE,W/HEAD SPEAKER,W/O SENSORY SOUND) (ML-'96 MODEL)			
57-100		SEAT(R),FRONT			
NBY2-57-100	1	P.E.GR-OPT, (STA TYPE,W/HEAD SPEAKER, W/SENSORY SOUND)			
57-100		SEAT(R),FRONT			
NBY2-57-100	1	P.E.GR-OPT, (STA TYPE,W/HEAD SPEAKER, W/SENSORY SOUND)			

4801 NA35* -606043
6401 NA3** -717787

2-110

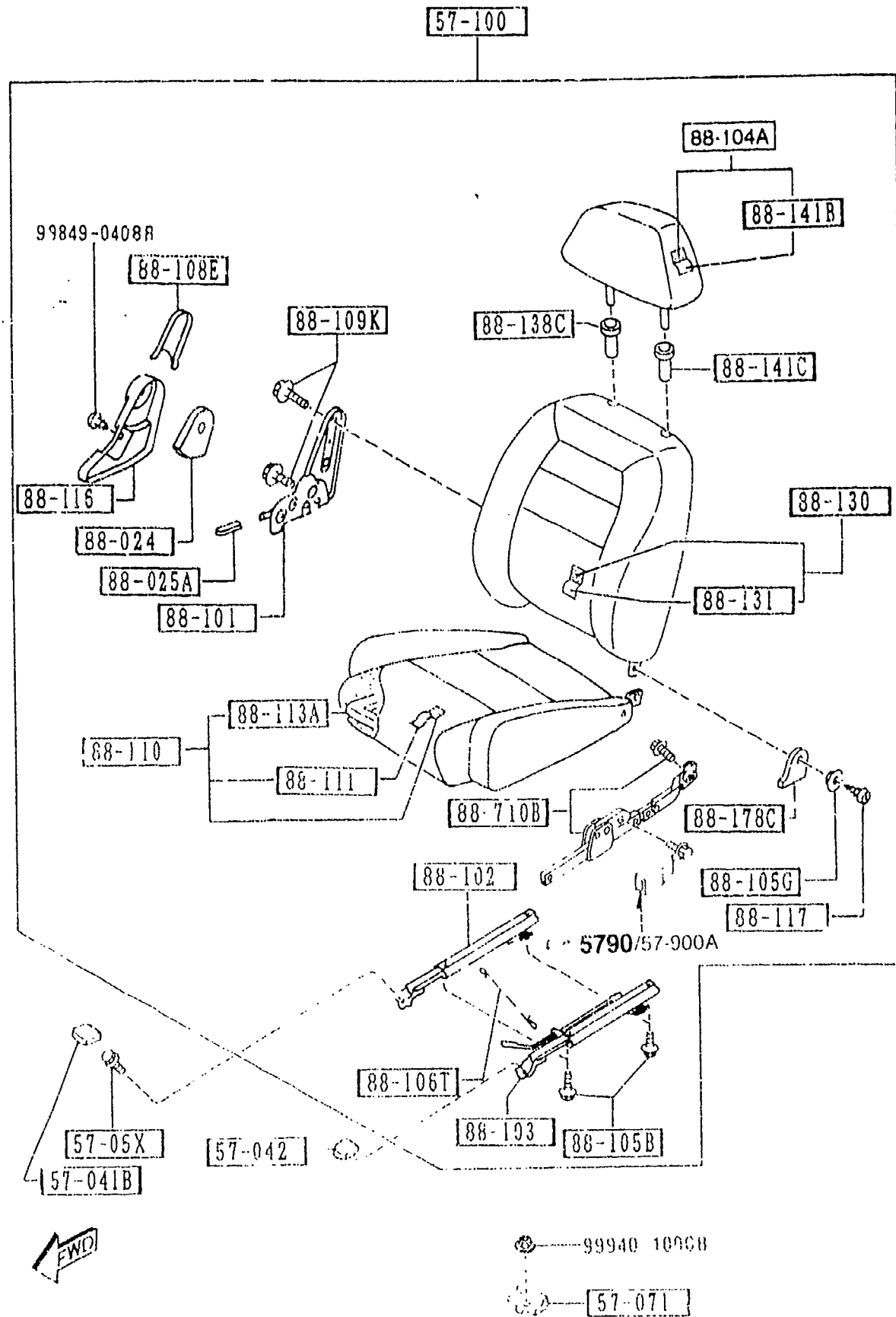
(STA TYPE)
(STB TYPE)



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
00	INT-	NA3 BLACK			
NBY3-57-100	1	L-PKG, (STB TYPE, W/HEAD SPEAKER, W/O SENSORY SOUND) (ML-'96 MODEL)			
88	INT-	NA5 TAN			
NBY4-57-100	1	L-PKG-OPT, (STB TYPE, W/HEAD SPEAKER, W/SENSORY SOUND) (ML-'96 MODEL)			
88	INT-	NA5 TAN			
NB40-57-100	1	(STA TYPE, W/O HEAD SPEAKER, W/O SENSORY SOUND) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
00	INT-	NA3 BLACK			
NB41-57-100	1	PKG-A, PKG-B, (STA TYPE, W/HEAD SPEAKER, W/O SENSORY SOUND) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
00	INT-	NA3 BLACK			
NB42-57-100	1	PKG-A-OPT, PKG-B-OPT, (STA TYPE, W/HEAD SPEAKER, W/SENSORY SOUND) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
00	INT-	NA3 BLACK			
NB43-57-100	1	PKG-C, (STB TYPE, W/HEAD SPEAKER, W/O SENSORY SOUND) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
88	INT-	NA4 NA5 TAN			
NB44-57-100	1	PKG-C-OPT, (STB TYPE, W/HEAD SPEAKER, W/SENSORY SOUND) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
88	INT-	NA4 NA5 TAN			
NA75-57-100C	1	BASE, R-PKG, (STA TYPE, W/O HEAD S			-4901

4901 NA35* -602618

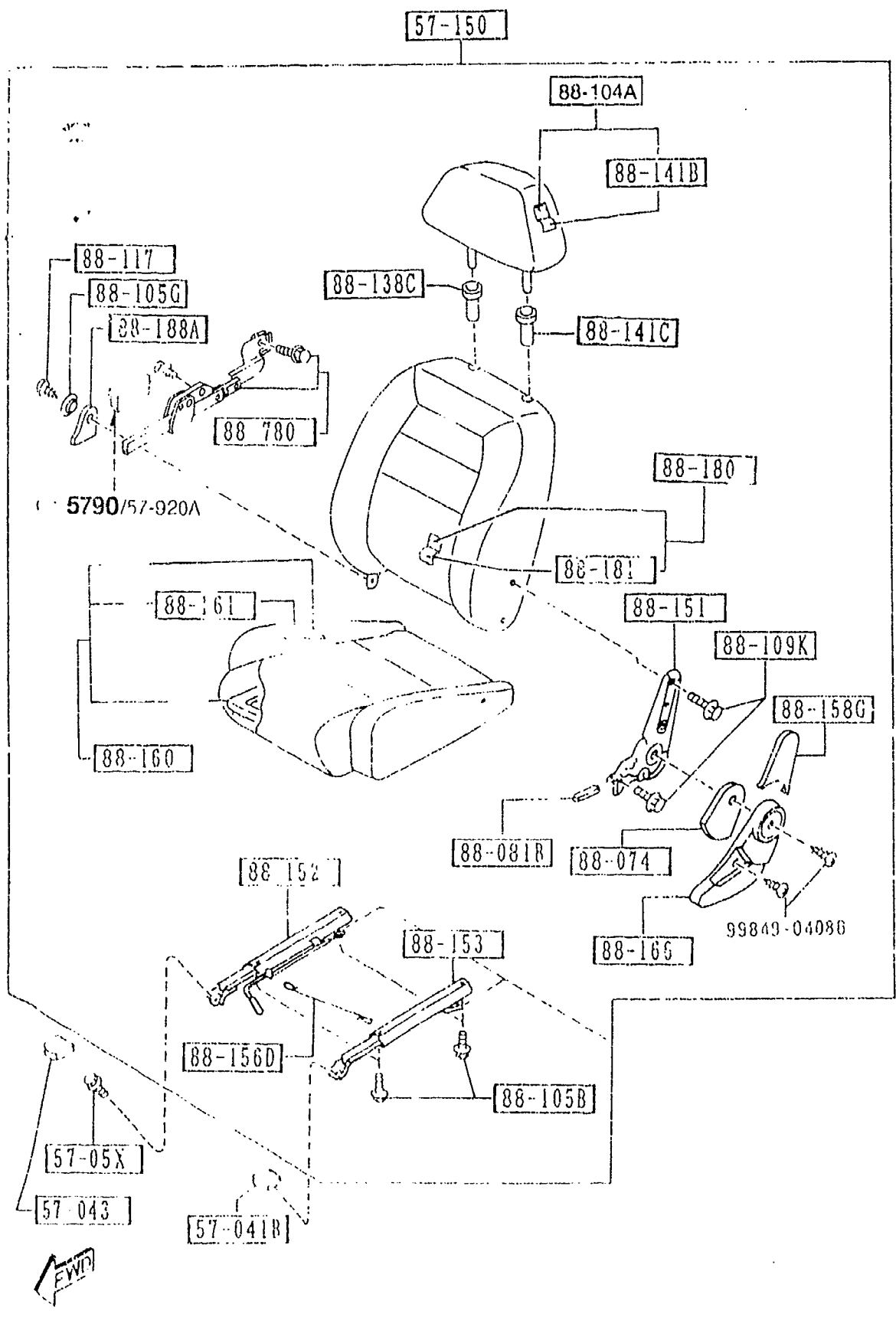
2-K10



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
00	INT-	NA3 BLACK PEAKER) (195 MODEL)			
NA79-57-100C	1	P.E.GR, PKG-A, PKG-B (STA TYPE, W/HEAD SPEAKER, W/O SENSORY SOUND) (195 MODEL)			-4901
00	INT-	NA3 BLACK OPT, (STA TYPE, W/HEAD SPEAKER, W/SENSORY SOUND) (195 MODEL)			-4901
NA80-57-100C	1				
00	INT-	NA3 BLACK L-PKG, PKG-C, (STB TYPE, W/HEAD SPEAKER, W/O SENSORY SOUND) (195 MODEL)			-4801
NA81-57-100D	1				
88	INT-	NA4 NA5 TAN L-PKG-OPT, PKG-C-OPT (STB TYPE, W/HEAD SPEAKER, W/SENSORY SOUND) (195 MODEL)			-4801
NA82-57-100D	1				
88	INT-	NA4 NA5 TAN M-25-ED, (STC TYPE, W/O HEAD SPEAKER) (195 MODEL)			-4801
NB11-57-100	1				
88	INT-	NA5 TAN BASE, R-PKG, (STA TYPE, W/O HEAD SPEAKER) (195 MODEL)			4901-4801
NA75-57-100D	1				
00	INT-	NA3 BLACK P.E.GR, PKG-A, PKG-B (STA TYPE, W/HEAD SPEAKER, W/O SENSORY SOUND) (195 MODEL)			4901-4801
NA79-57-100D	1				
00	INT-	NA3 BLACK OPT, (STA TYPE, W/HEAD SPEAKER, W/SENSORY SOUND) (195 MODEL)			4901-4801
NA80-57-100D	1				

4901 NA35* -602618
4801 NA35* -606043

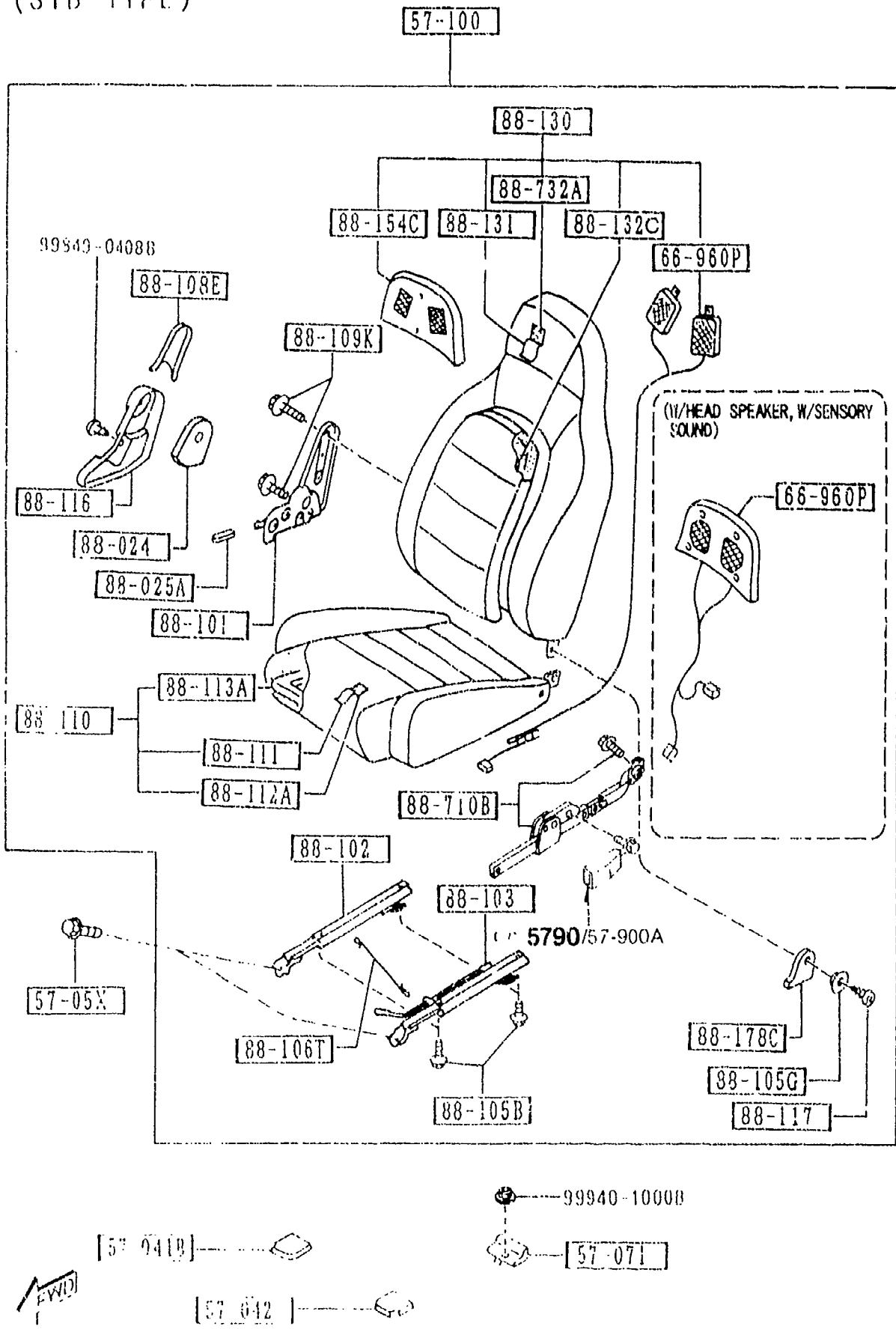
(SIC TYPE)



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
00	INT-	NA3 BLACK			
NA75-57-100E	1	BASE, R-PKG, (STA TYPE, W/O HEAD S PEAKER) ('95 MODEL)			4B01-
00	INT-	NA3 BLACK			
NA79-57-100E	1	P.E. GR, PKG-A, PKG-B (STA TYPE, W/HEAD SPE AKER, W/O SENSORY SO UND) ('95 MODEL)			4B01-
00	INT-	NA3 BLACK			
NA80-57-100E	1	OPT, (STA TYPE, W/HEAD SPE AKER, W/SENSORY SOUN D) ('95 MODEL)			4B01-
00	INT-	NA3 BLACK			
ND11-57-100B	1	M-25-ED, (STC TYPE, W/O HEAD S PEAKER) ('95 MODEL)			4B01-
88	INT-	NA5 TAN			
NA81-57-100E	1	L-PKG, PKG-C, (STB TYPE, W/HEAD SPE AKER, W/O SENSORY SO UND) ('95 MODEL)			4B01-5508
88	INT-	NA4 NA5 TAN			
NA82-57-100E	1	L-PKG-OPT, PKG-C-OPT (STB TYPE, W/HEAD SPE AKER, W/SENSORY SOUN D) ('95 MODEL)			4B01-5508
88	INT-	NA4 NA5 TAN			
NA81-57-100F	1	L-PKG, PKG-C, (STB TYPE, W/HEAD SPE AKER, W/O SENSORY SO UND) ('95 MODEL)			5508-
88	INT-	NA4 NA5 TAN			
NA82-57-100F	1	L-PKG-OPT, PKG-C-OPT (STB TYPE, W/HEAD SPE AKER, W/SENSORY SOUN D) ('95 MODEL)			5508-
88	INT-	NA4 NA5 TAN			
NB47-57-100	1	M.EDI,			5B15-
4B01	NA35*	-606043			
5508	NA35*	-620210			
5B15	NA3**	-705265			

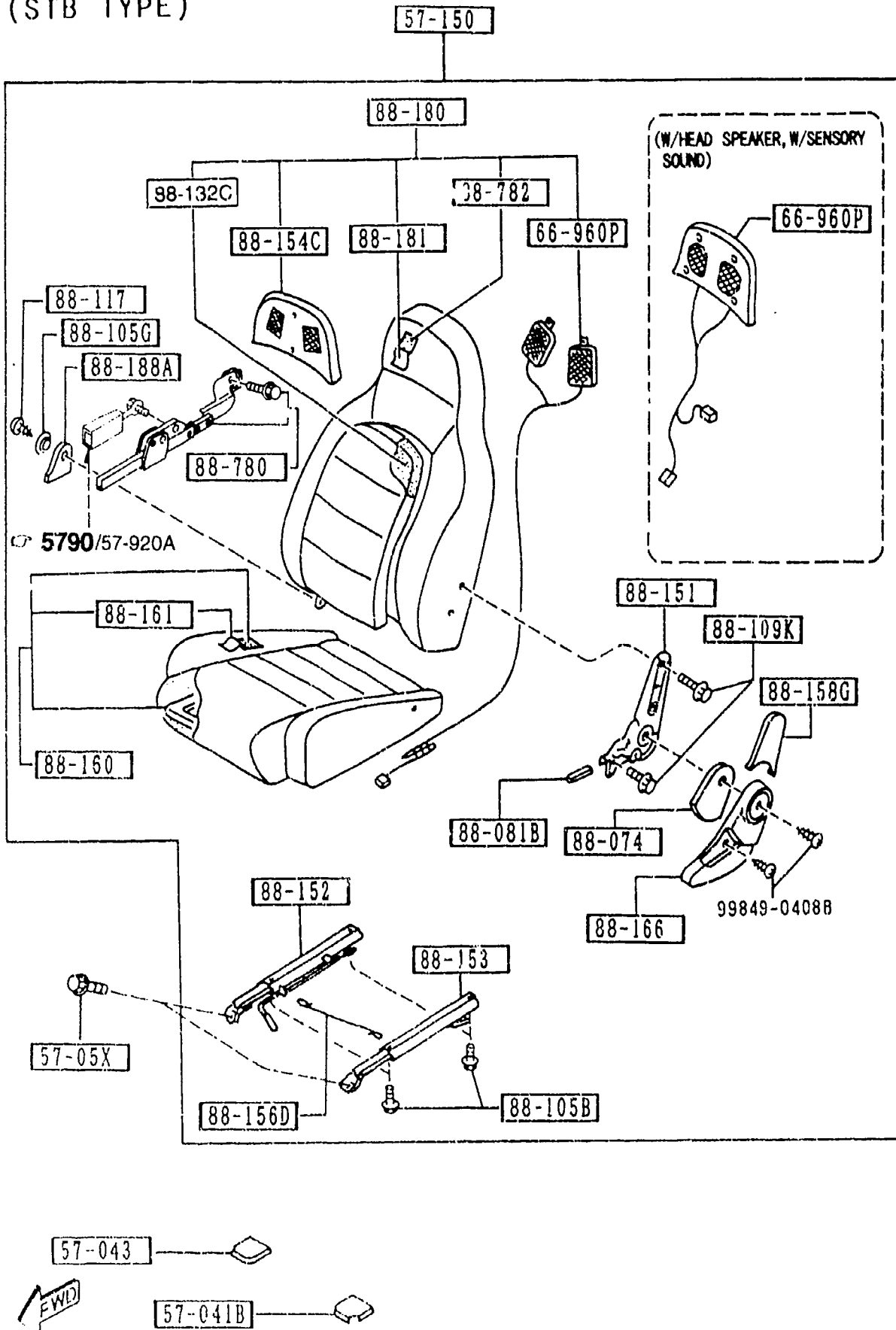
2-M10

(STA TYPE)
(STB TYPE)

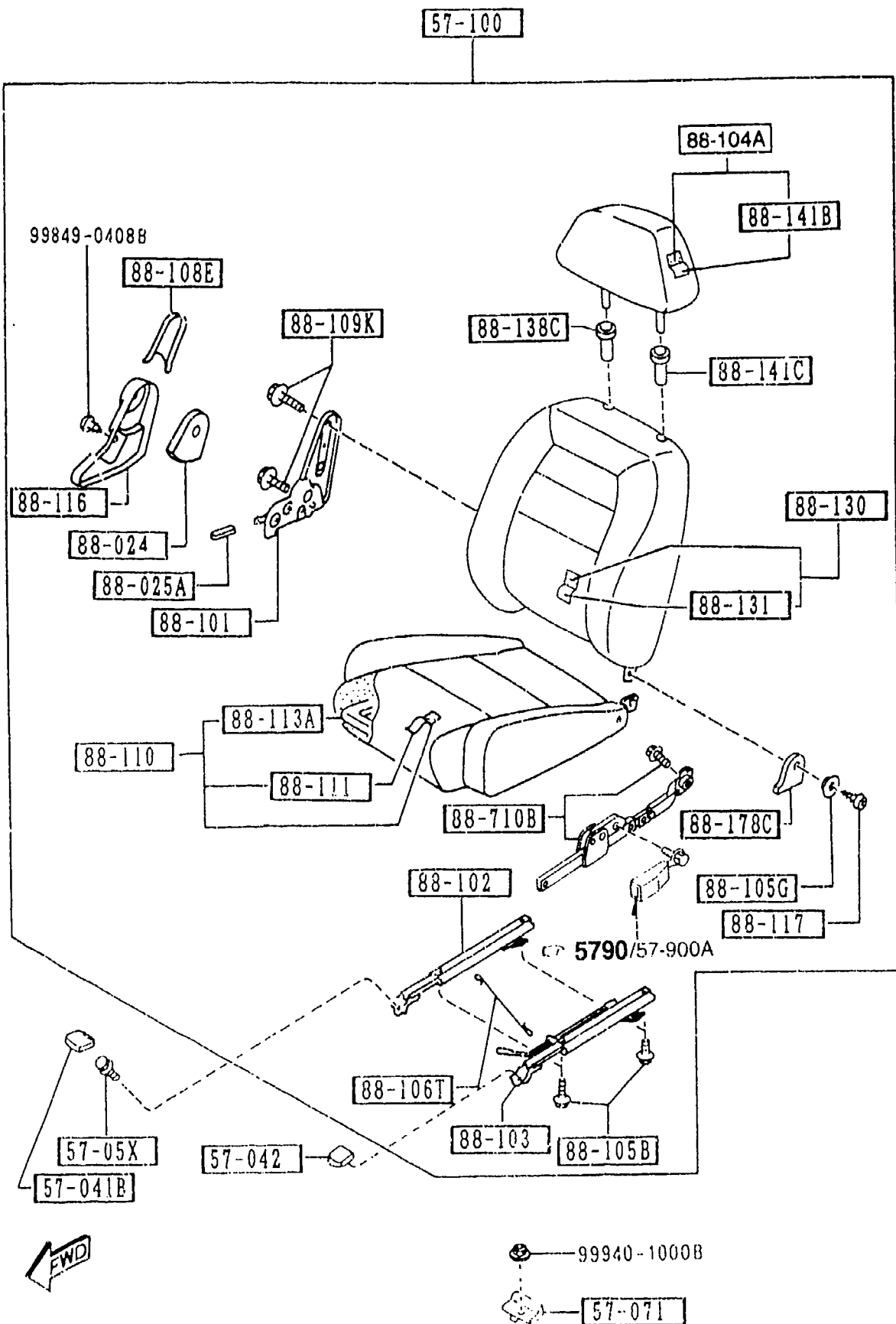


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D		(STC TYPE) (196 MODEL)			
88	INT-	NA5 TAN			
57-150		SEAT(L), FRONT			
NBY1-57-150	1	P.E.GR, (STA TYPE, W/HEAD SPEAKER, W/O SENSORY SOUND) (ML-'96 MODEL)			
00	INT-	NA3 BLACK			
NBY2-57-150	1	P.E.GR-OPT, (STA TYPE, W/HEAD SPEAKER, W/SENSORY SOUND) (ML-'96 MODEL)			
00	INT-	NA3 BLACK			
NBY3-57-150	1	L-PKG, (STB TYPE, W/HEAD SPEAKER, W/O SENSORY SOUND) (ML-'96 MODEL)			
88	INT-	NA5 TAN			
NBY4-57-150	1	L-PKG-OPT, (STB TYPE, W/HEAD SPEAKER, W/SENSORY SOUND) (ML-'96 MODEL)			
88	INT-	NA5 TAN			
NB40-57-150	1	(STA TYPE, W/O HEAD SPEAKER, W/O SENSORY SOUND) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
00	INT-	NA3 BLACK			
NB41-57-150	1	PKG-A, PKG-B, (STA TYPE, W/HEAD SPEAKER, W/O SENSORY SOUND) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
00	INT-	NA3 BLACK			
NB42-57-150	1	PKG-A-OPT, PKG-B-OPT, (STA TYPE, W/HEAD SPEAKER, W/SENSORY SOUND) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
00	INT-	NA3 BLACK			
NB43-57-150	1	PKG-C,			

(STA TYPE)
(STB TYPE)

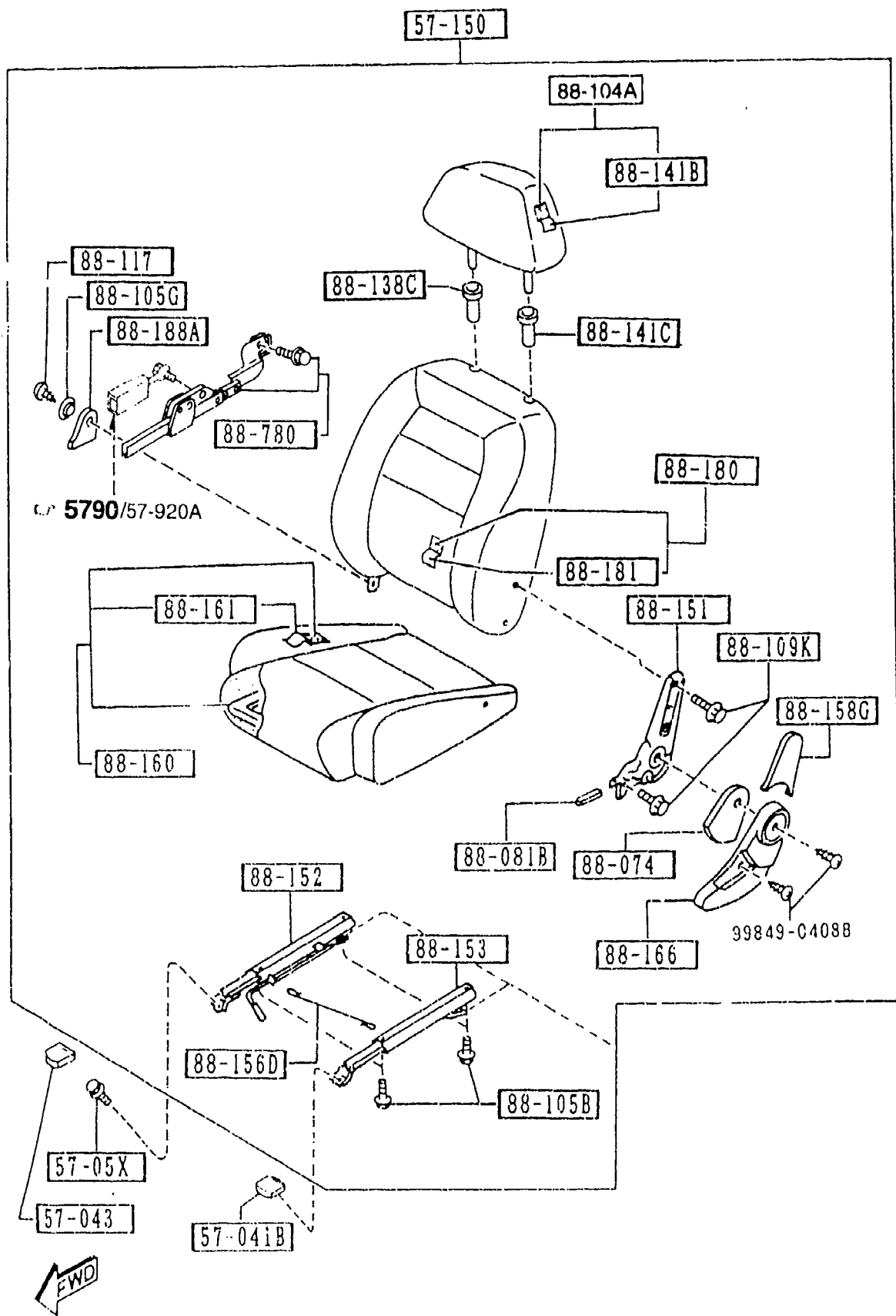


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D		(STB TYPE, W/HEAD SPEAKER, W/O SENSORY SOUND) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
88	INT-	NA4 NA5 TAN			
NB44-57-150	1	PKG-C-OPT, (STB TYPE, W/HEAD SPEAKER, W/SENSORY SOUND) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
88	INT-	NA4 NA5 TAN			
NA75-57-150C	1	BASE, R-PKG, (STA TYPE, W/O HEAD SPEAKER) (195 MODEL)			-4901
00	INT-	NA3 BLACK			
NA79-57-150C	1	P.E.GR, PKG-A, PKG-B (STA TYPE, W/HEAD SPEAKER, W/O SENSORY SOUND) (195 MODEL)			-4901
00	INT-	NA3 BLACK			
NA80-57-150C	1	OPT, (STA TYPE, W/HEAD SPEAKER, W/SENSORY SOUND) (195 MODEL)			-4901
00	INT-	NA3 BLACK			
NAB1-57-150D	1	L-PKG, PKG-C, (STB TYPE, W/HEAD SPEAKER, W/O SENSORY SOUND) (195 MODEL)			-4B01
88	INT-	NA4 NA5 TAN			
NAB2-57-150D	1	L-PKG-OPT, PKG-C-OPT (STB TYPE, W/HEAD SPEAKER, W/SENSORY SOUND) (195 MODEL)			-4B01
88	INT-	NA4 NA5 TAN			
NB11-57-150	1	M-25-ED, (STC TYPE, W/O HEAD SPEAKER) (195 MODEL)			-4B01
88	INT-	NA5 TAN			
NA75-57-150D	1	BASE, R-PKG, (STA TYPE, W/O HEAD SPEAKER)			4901-4B01
4901 NA35* -602618					
4B01 NA35* -606043					



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
00	INT-	NA3 BLACK			
NA79-57-150D	1	P.E.GR, PKG-A, PKG-B (STA TYPE, W/HEAD SPEAKER, W/O SENSORY SOUND) ('95 MODEL)			4901-4801
00	INT-	NA3 BLACK			
NA80-57-150D	1	OPT, (STA TYPE, W/HEAD SPEAKER, W/SENSORY SOUND) ('95 MODEL)			4901-4801
00	INT-	NA3 BLACK			
NA75-57-150E	1	BASE, R-PKG, (STA TYPE, W/O HEAD SPEAKER) ('95 MODEL)			4801-
00	INT-	NA3 BLACK			
NA79-57-150E	1	P.E.GR, PKG-A, PKG-B (STA TYPE, W/HEAD SPEAKER, W/O SENSORY SOUND) ('95 MODEL)			4801-
00	INT-	NA3 BLACK			
NA80-57-150E	1	OPT, (STA TYPE, W/HEAD SPEAKER, W/SENSORY SOUND) ('95 MODEL)			4801-
00	INT-	NA3 BLACK			
NB11-57-150B	1	M-25-ED, (STC TYPE, W/O HEAD SPEAKER) ('95 MODEL)			4801-
88	INT-	NA5 TAN			
NA81-57-150E	1	L-PKG, PKG-C, (STB TYPE, W/HEAD SPEAKER, W/O SENSORY SOUND) ('95 MODEL)			4801-5508
88	INT-	NA4 NA5 TAN			
NA82-57-150E	1	L-PKG-OPT, PKG-C-OPT (STB TYPE, W/HEAD SPEAKER, W/SENSORY SOUND) ('95 MODEL)			4801-5508
86	INT-	NA4 NA5 TAN			

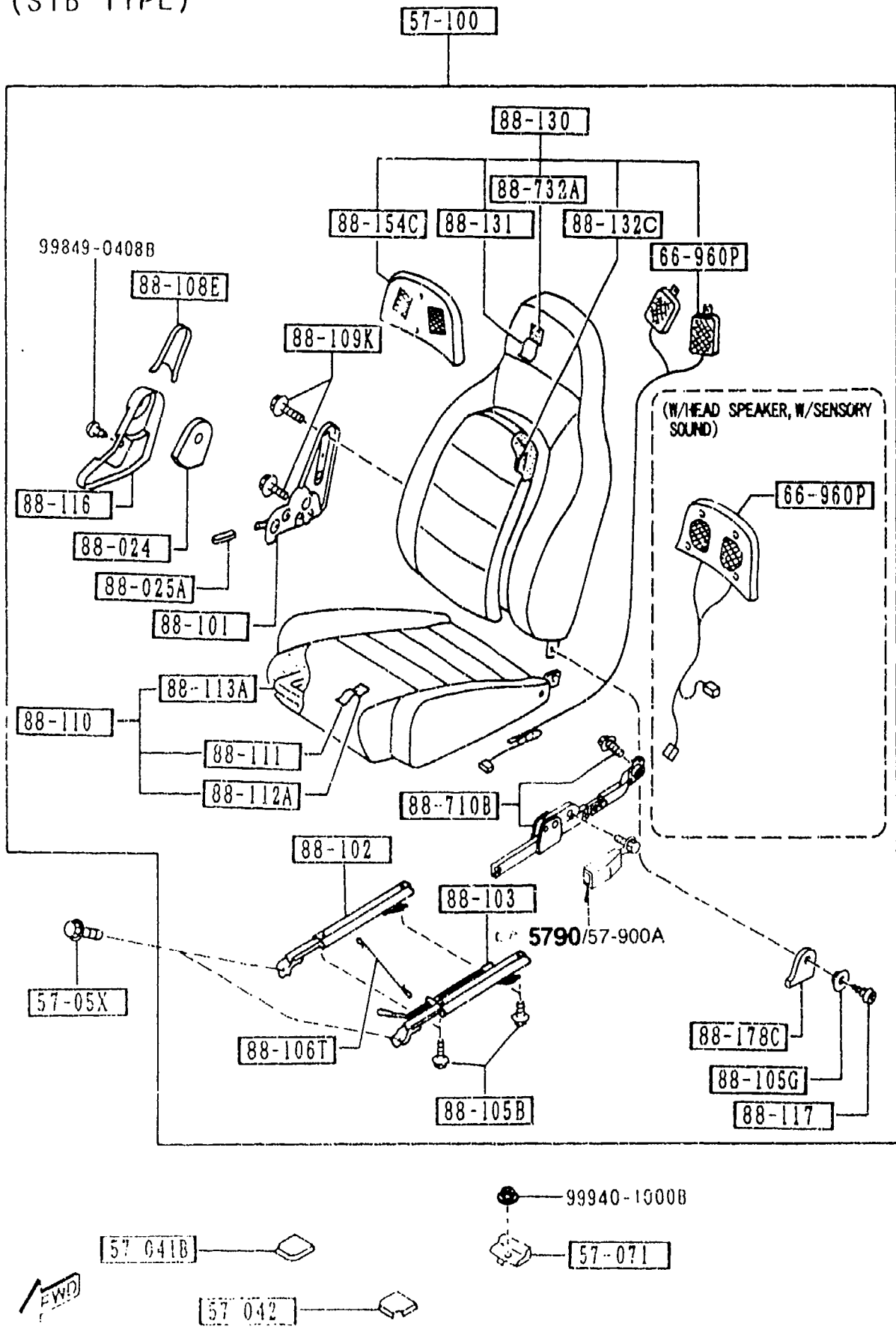
4901 NA35* -602618
 4801 NA35* -606043
 5508 NA35* -620210



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D NA81-57-150F	1	L-PKG, PKG-C, (STB TYPE, W/HEAD SPEAKER, W/O SENSORY SOUND) ('95 MODEL)			5508-
88 NA82-57-150F	1	INT- NA4 NA5 TAN L-PKG-OPT, PKG-C-OPT (STB TYPE, W/HEAD SPEAKER, W/SENSORY SOUND) ('95 MODEL)			5508-
88 NB47-57-150	1	INT- NA4 NA5 TAN M.EDI, (STC TYPE) ('96 MODEL)			5B15-
88 NA04-66-960B	2	INT- NA5 TAN SPEAKER, PILLOW-SEAT L-PKG, P.E.GR, L-PKG, PKG-C, PKG-A, PKG-B, (W/HEAD SPK, W/O SENSORY SOUND) ('95 MODEL) (ML- '96 MODEL)			
NB11-66-960	2	(W/HEAD SPEAKER, W/SENSORY SOUND) ('96 MODEL)			
NB38-66-960	2	(W/HEAD SPK, W/O SENSORY SOUND) (GUAM- '96 MODEL) (SAIPAN- '96 MODEL)			
N020-66-960A	2	L-PKG-OPT, P.E.GR-OPT, (W/HEAD SPEAKER, W/SENSORY SOUND) ('95 MODEL) (ML- '96 MODEL)			
NA01-88-033	1	PROTR(R), SEAT BELT			
NA01-88-034	1	KNOB(R), KNUCKLE			
00	INT-	NA3 NA7 NA8 BLACK			
88	INT-	NA4 NA5 TAN			
NA01-88-083	1	PROTR(L), SEAT BELT			

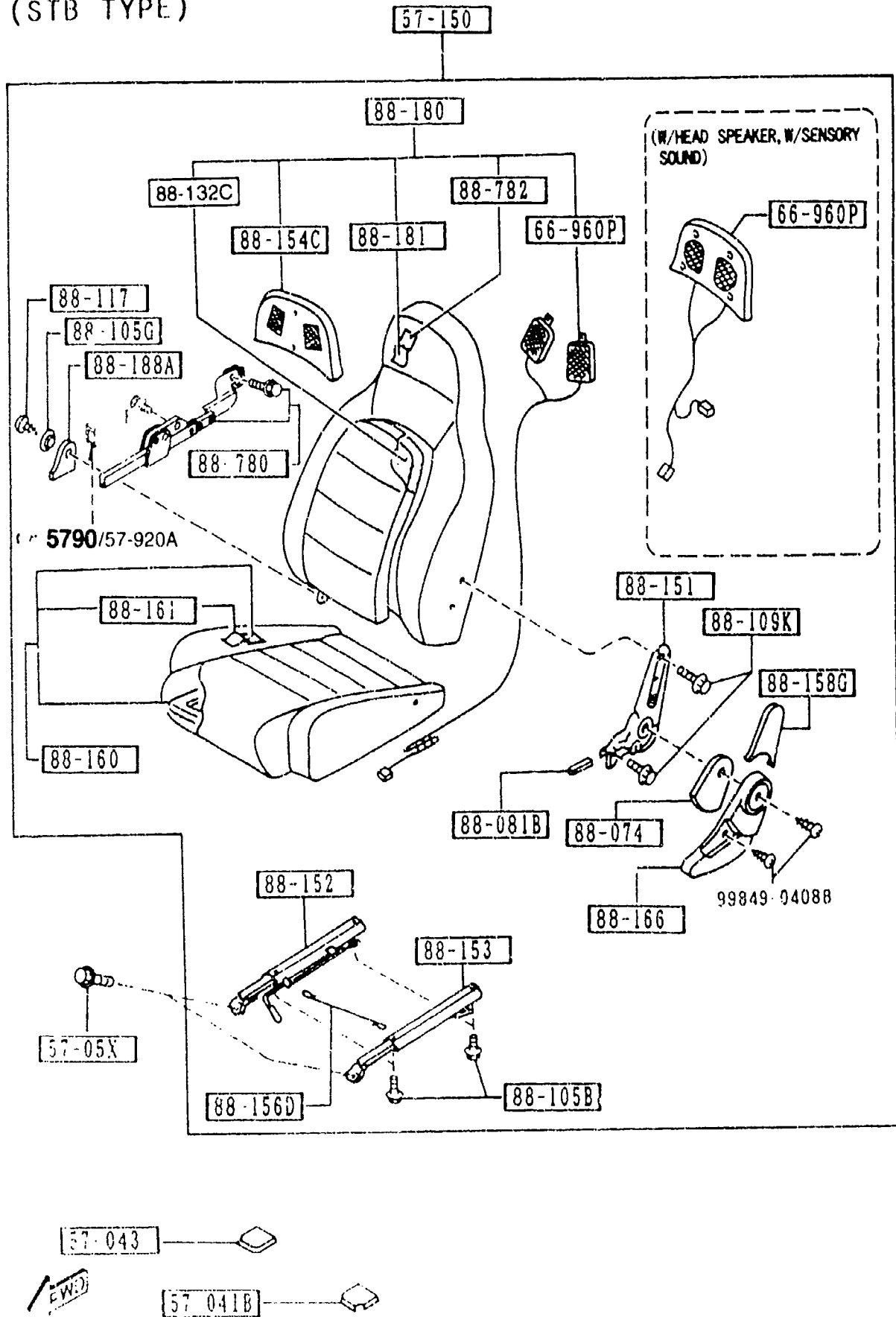
5508 NA35* -620210
5B15 NA3** -705265

(STA TYPE)
(STB TYPE)



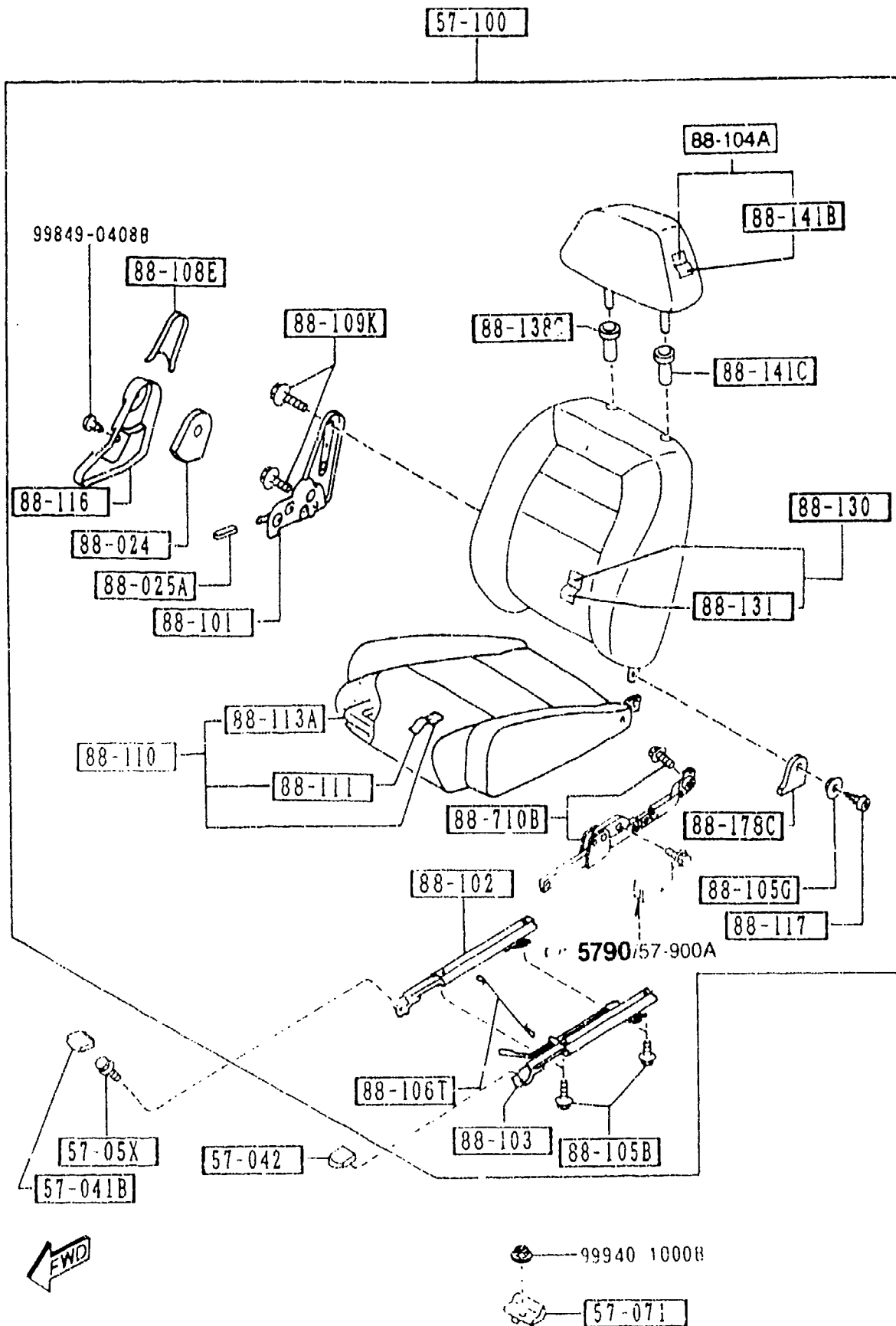
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
88-081B		KNOB(L), KNUCKLE			
NA01-88-084	1				
00	INT-	NA3 NA7 NA8 BLACK			
88	INT-	NA4 NA5 TAN			
88-101		KNUCKLE(R), RECLINING			
NA01-88-101A	1				
88-102		ADJUSTER, NO.1			
NA01-88-102A	1				
88-103		ADJUSTER, NO.2			
NA75-88-103	1				
88-104A		RESTRAINT, HEAD			
NB11-88-140	2	M-25-ED, (STC TYPE, W/O HEAD S PEAKER) (195 MODEL)			
88	INT-	NA5 TAN			
88-105B		BOLT, LINK			
H260-88-105	8				
88-105G		BUSH, HINGE			
H260-88-108	2				
02	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			
88-106T		WIRE, CONNECT			
NA01-88-106	1				
88-108E		COVER(R), SEAT BACK			
NA01-88-036	1				
00	INT-	NA3 NA7 NA8 BLACK			
88	INT-	NA4 NA5 TAN			
88-109K		SCREW, KNUCKLE			
H260-88-109	8				
88-110		CUSHION(R), FRT SEAT			

(STA TYPE)
(STB TYPE)



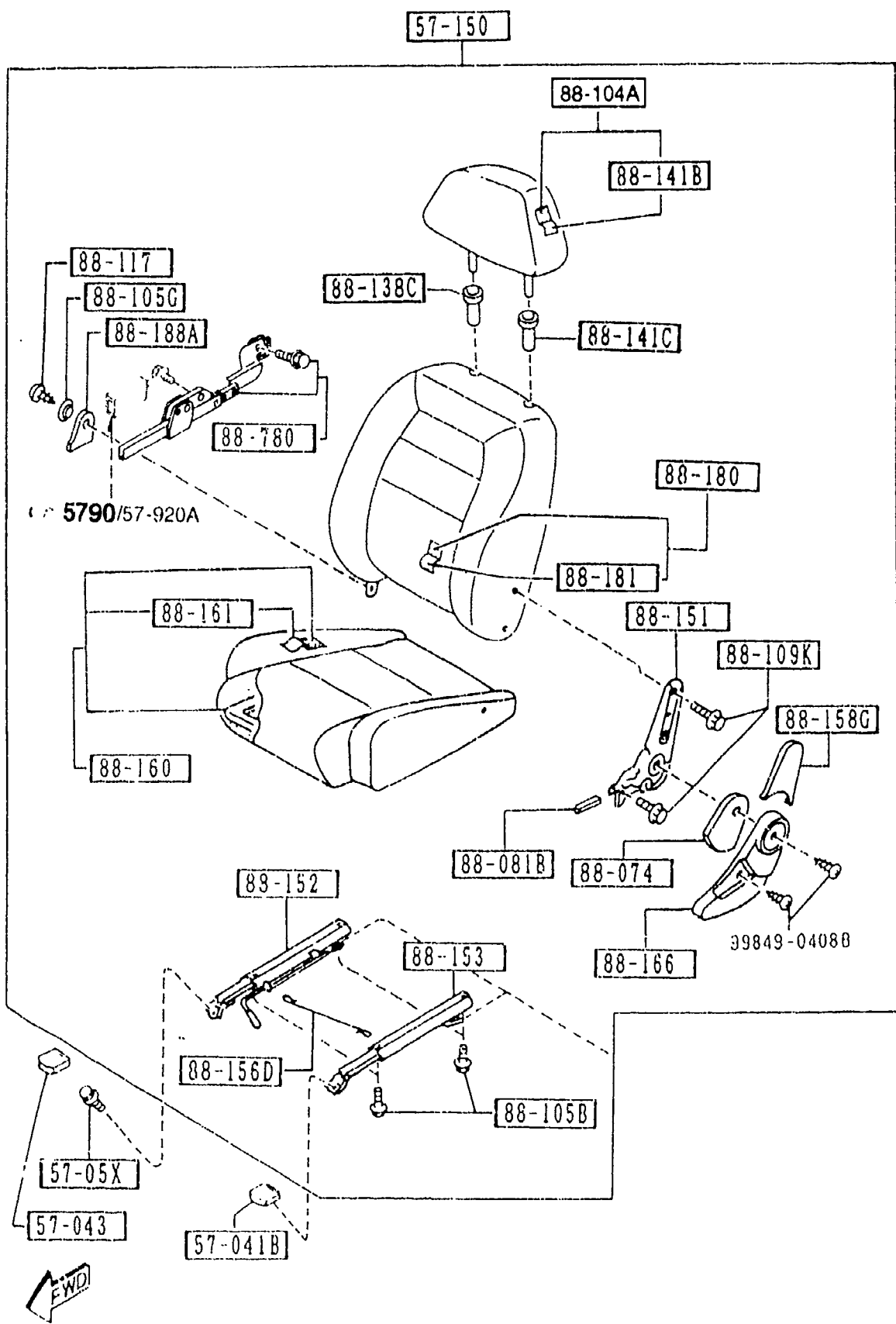
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
N041-88-110	1	BASE, P.E.GR, PKG-A, PKG-B, R-PKG, (STA TYPE) ('96 MODEL)			
00	INT-	NA3 BLACK			
N043-88-110	1	L-PKG, PKG-C, M.EDI, (STB TYPE) (STC TYPE) ('96 MODEL)			
88	INT-	NA4 NA5 TAN			
NA75-88-110	1	BASE, P.E.GR, PKG-A, PKG-B, R-PKG, (STA TYPE) ('95 MODEL)			-4B01
00	INT-	NA3 BLACK			
NA81-88-110	1	L-PKG, PKG-C, (STB TYPE, W/HEAD SPEAKER) ('95 MODEL)			-4B01
88	INT-	NA4 NA5 TAN			
NB11-88-110	1	M-25-ED, (STC TYPE, W/O HEAD SPEAKER) ('95 MODEL)			-4B01
88	INT-	NA5 TAN			
NA75-88-110A	1	BASE, P.E.GR, PKG-A, PKG-B, R-PKG, (STA TYPE) ('95 MODEL)			4B01-
00	INT-	NA3 BLACK			
NB11-88-110B	1	M-25-ED, (STC TYPE, W/O HEAD SPEAKER) ('95 MODEL)			4B01-
88	INT-	NA5 TAN			
NA81-88-110A	1	L-PKG, PKG-C, (STB TYPE, W/HEAD SPEAKER) ('95 MODEL)			4B01-5508
88	INT-	NA4 NA5 TAN			
NA81-88-110B	1	L-PKG, PKG-C, (STB TYPE, W/HEAD SPEAKER) ('95 MODEL)			5508-
88	INT-	NA4 NA5 TAN			
88-111		TRIM(R), SEAT CUSHION			
N041-88-111	1	BASE, P.E.GR, PKG-A, PKG-B, R-PKG,			

4B01 NA35* -606743
5508 NA35* -620210



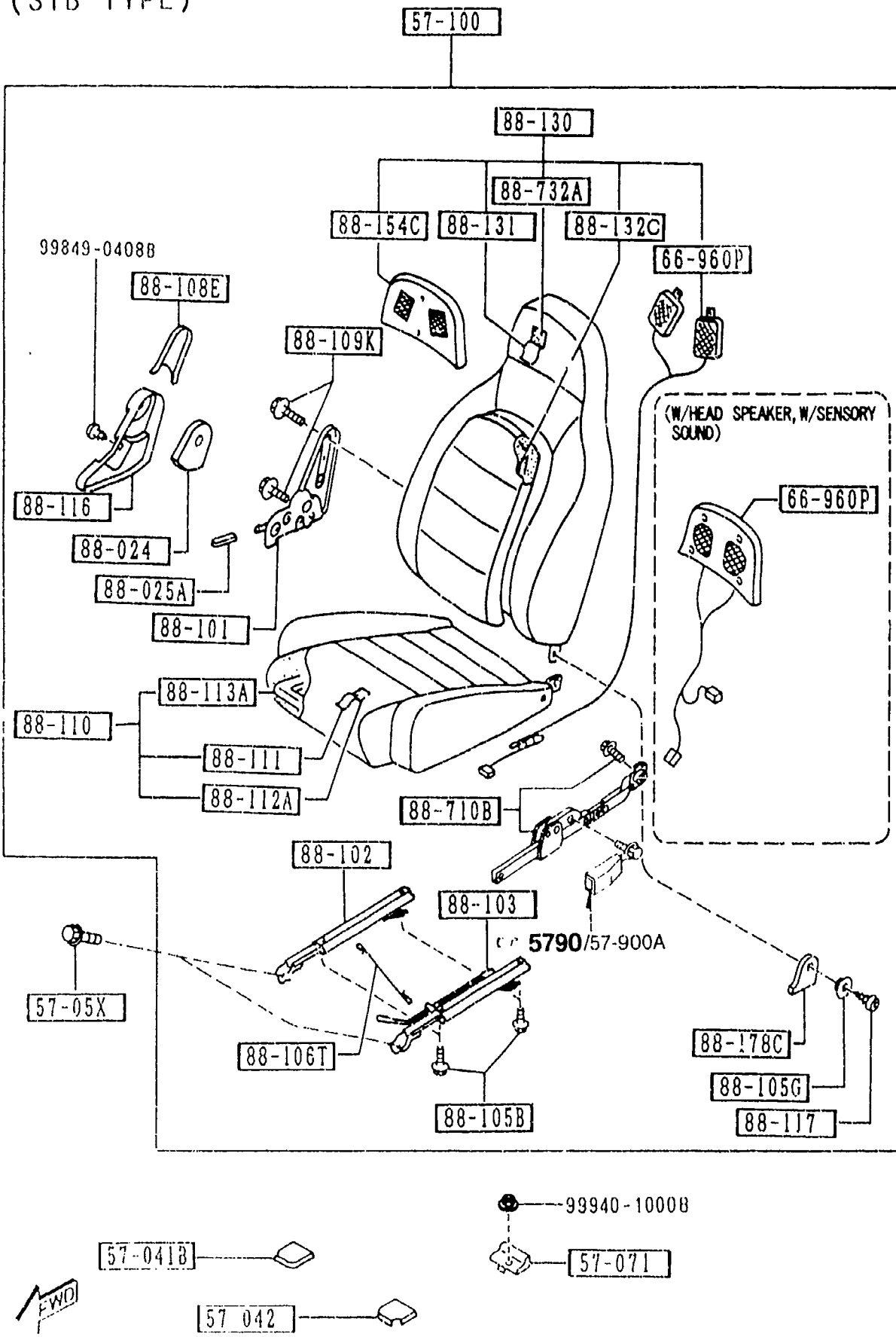
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D		(STA TYPE) (196 MODEL)			
00	INT-	NA3 BLACK			
N043-88-111	1	L-PKG, PKG-C, M.EDI, (STB TYPE) (STC TYPE) (196 MODEL)			
88	INT-	NA4 NA5 TAN			
NA75-88-111	1	BASE, P.E.GR, PKG-A, PKG-B, R-PKG, (STA TYPE) (195 MODEL)			-4B01
00	INT-	NA3 BLACK			
NA81-88-111	1	L-PKG, PKG-C, (STB TYPE,W/HEAD SPE AKER) (195 MODEL)			-4B01
88	INT-	NA4 NA5 TAN			
NB11-88-111	1	M-25-ED, (STC TYPE,W/O HEAD S PEAKER) (195 MODEL)			-4B01
88	INT-	NA5 TAN			
NA75-88-111A	1	BASE, P.E.GR, PKG-A, PKG-B, R-PKG, (STA TYPE) (195 MODEL)			4B01-
00	INT-	NA3 BLACK			
NB11-88-111B	1	M-25-ED, (STC TYPE,W/O HEAD S PEAKER) (195 MODEL)			4B01-
88	INT-	NA5 TAN			
NA81-88-111A	1	L-PKG, PKG-C, (STB TYPE,W/HEAD SPE AKER) (195 MODEL)			4B01-5508
88	INT-	NA4 NA5 TAN			
NA81-88-111B	1	L-PKG, PKG-C, (STB TYPE,W/HEAD SPE AKER) (195 MODEL)			5508-
88	INT-	NA4 NA5 TAN			
88-112A		PAD(R), CUSHION-FRT			
NA75-88-112	1	BASE, P.E.GR, PKG-A, PKG-B, R-PKG, (STA TYPE) (195 MODEL)			
4B01 NA35*		-606043			
5508 NA35*		-620210			

(STC TYPE)



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
NA81-88-112	1	L-PKG, PKG-C, (STB TYPE, W/HEAD SPEAKER) ('95 MODEL)			
88-113A		FRAME(R), CUSHION-FRT			
NA75-88-113	1				
88-116		COVER(R), KNUCKLE			
NA01-88-031	1				
00	INT-	NA3 NA7 NA8 BLACK			
88	INT-	NA4 NA5 TAN			
88-117		SCREW, KNUCKLE			
H260-88-107	2				
88-130		BACK(R), FRONT SEAT			
NA75-88-130	1	BASE, R-PKG, (STA TYPE, W/O HEAD SPEAKER) ('95 MODEL)			
00	INT-	NA3 BLACK			
NA79-88-130	1	P.E.GR, PKG-A, PKG-B (STA TYPE, W/HEAD SPEAKER, W/O SENSORY SOUND) ('95 MODEL)			
00	INT-	NA3 BLACK			
NA80-88-130	1	OPT, (STA TYPE, W/HEAD SPEAKER, W/SENSORY SOUND) ('95 MODEL)			
00	INT-	NA3 BLACK			
NA81-88-130	1	L-PKG, PKG-C, (STB TYPE, W/HEAD SPEAKER, W/O SENSORY SOUND) ('95 MODEL)			
88	INT-	NA4 NA5 TAN			
NA82-88-130	1	L-PKG-OPT, PKG-C-OPT (STB TYPE, W/HEAD SPEAKER, W/SENSORY SOUND) ('95 MODEL)			
88	INT-	NA4 NA5 TAN			

(STA TYPE)
(STB TYPE)



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TG
CONT'D NBY1-88-130	1	P.E.GR, (STA TYPE, W/HEAD SPEAKER, W/O SENSORY SOUND) (ML-'96 MODEL)			
00	INT-	NA3 BLACK			
NBY2-88-130	1	P.E.GR-OPT, (STA TYPE, W/HEAD SPEAKER, W/SENSORY SOUND) (ML-'96 MODEL)			
00	INT-	NA3 BLACK			
NBY3-88-130	1	L-PKG, (STB TYPE, W/HEAD SPEAKER, W/O SENSORY SOUND) (ML-'96 MODEL)			
88	INT-	NA5 TAN			
NBY4-88-130	1	L-PKG-OPT, (STB TYPE, W/HEAD SPEAKER, W/SENSORY SOUND) (ML-'96 MODEL)			
88	INT-	NA5 TAN			
NB11-88-130	1	M-25-ED, (STC TYPE, W/O HEAD SPEAKER) ('95 MODEL)			
88	INT-	NA5 TAN			
NB40-88-130	1	(STA TYPE, W/O HEAD SPEAKER, W/O SENSORY SOUND) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
00	INT-	NA3 BLACK			
NB41-88-130	1	PKG-A, PKG-B, (STA TYPE, W/HEAD SPEAKER, W/O SENSORY SOUND) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
00	INT-	NA3 BLACK			
NB42-88-130	1	PKG-A-OPT, PKG-B-OPT (STA TYPE, W/HEAD SPEAKER, W/SENSORY SOUND) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
00	INT-	NA3 BLACK			
NB43-88-130	1	PKG-C, (STB TYPE, W/HEAD SPEAKER, W/O SENSORY SOUND)			

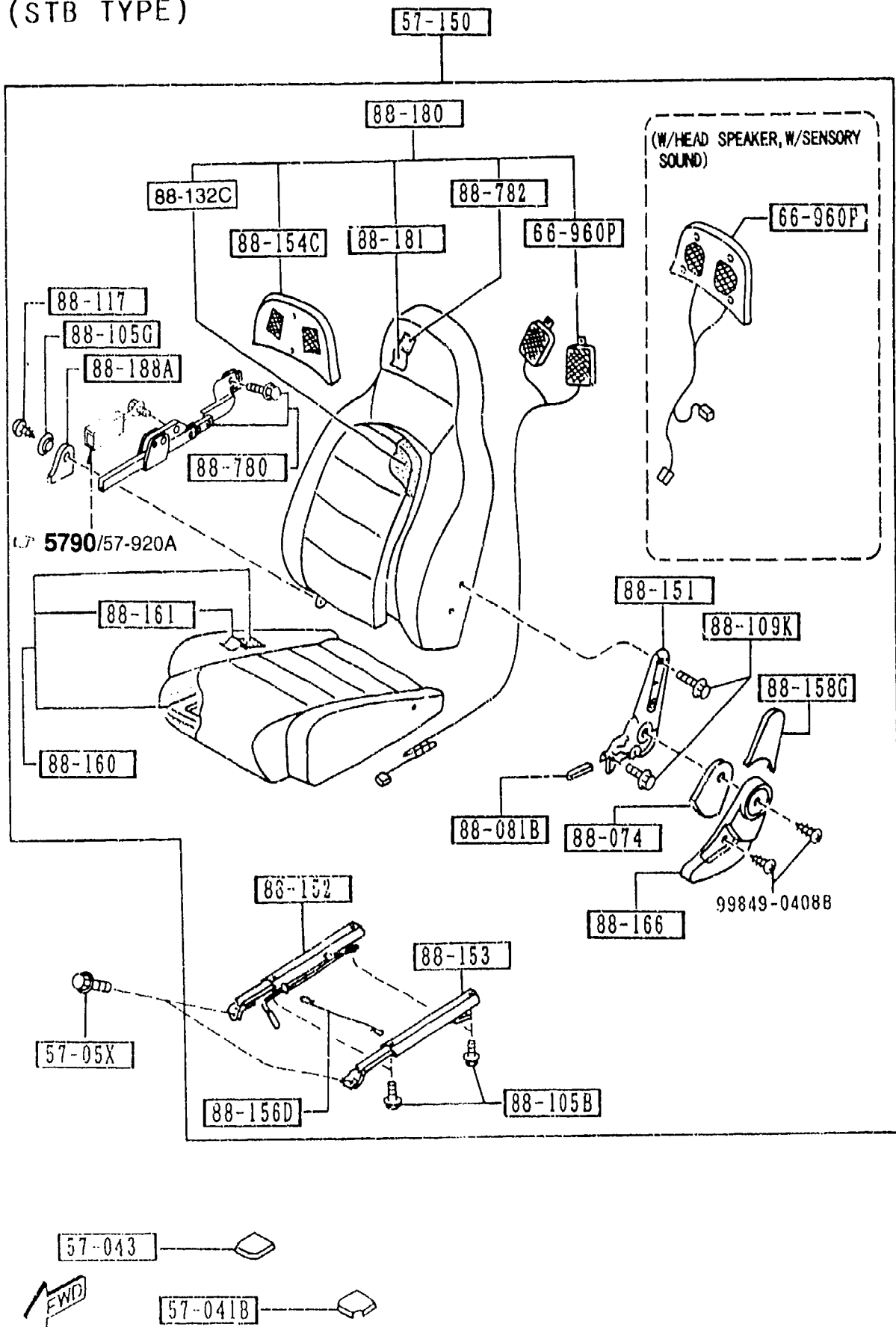
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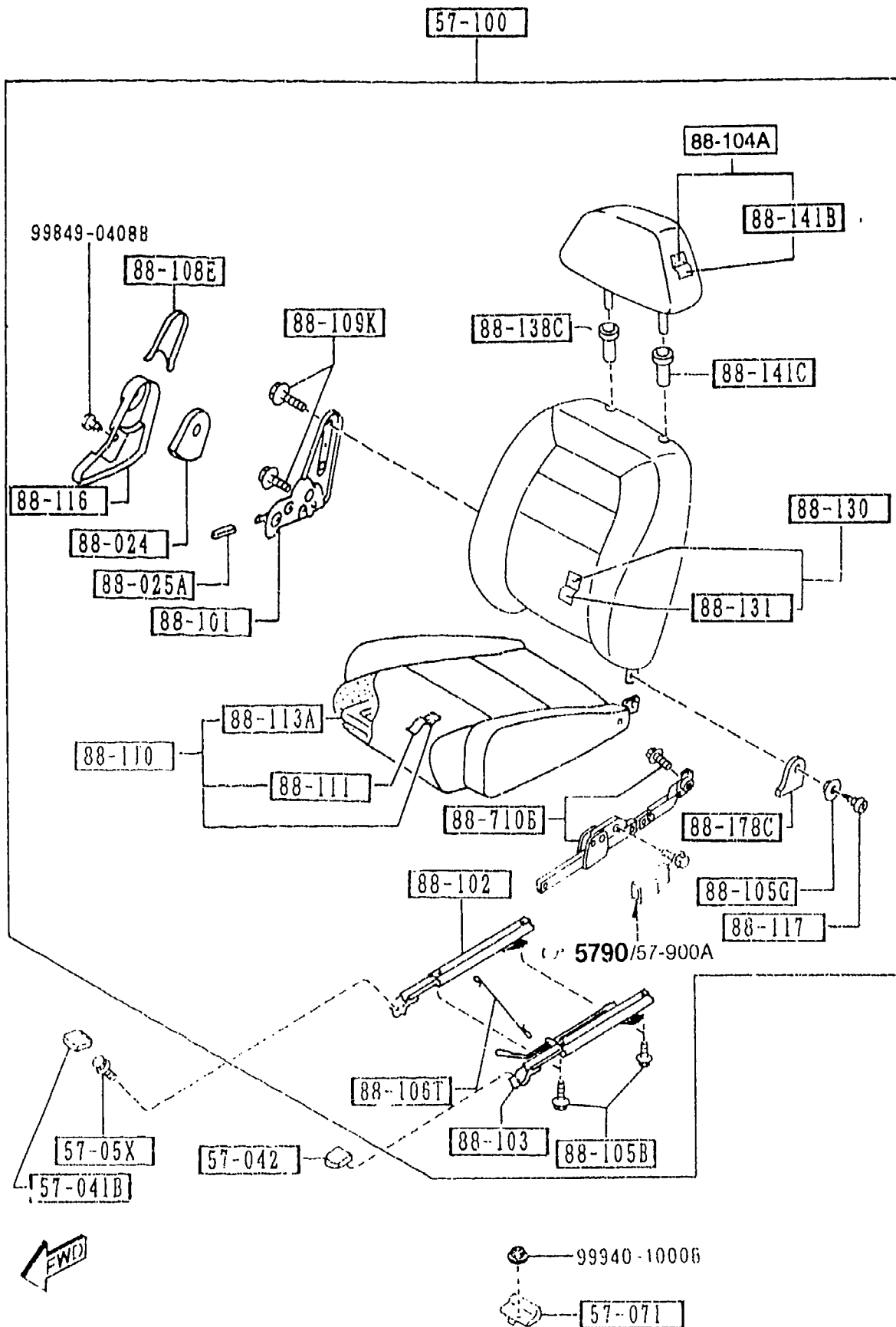
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(STA TYPE)
(STB TYPE)



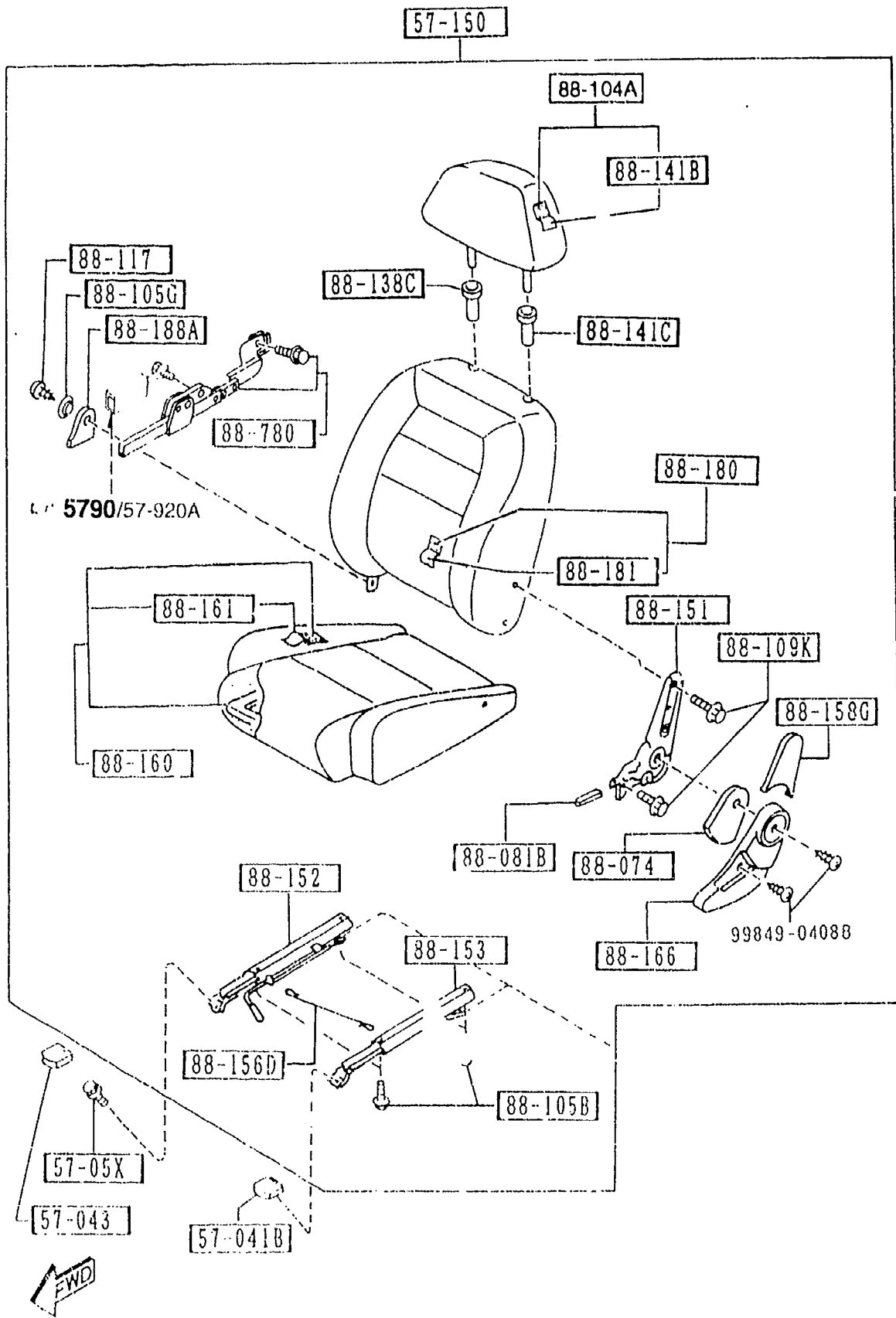
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D		AKER, W/O SENSORY SOUND) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
88	INT-	NA4 NA5 TAN			
NB44-88-130	1	PKG-C-OPT, (STB TYPE, W/HEAD SPEAKER, W/SENSORY SOUND) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
88	INT-	NA4 NA5 TAN			
NB47-88-130	1	M. EDI, (STC TYPE) ('96 MODEL)			5B15-
88	INT-	NA4 NA5 TAN			
88-131		TRIM(R), SEAT BACK			
NA75-88-131	1	BASE, R-PKG, P.E.GR, PKG-A, PKG-B, (STA TYPE, W/O SENSORY SOUND) ('95 MODEL)			
00	INT-	NA3 BLACK			
NA80-88-131	1	OPT, (STA TYPE, W/HEAD SPEAKER, W/SENSORY SOUND) ('95 MODEL)			
00	INT-	NA3 BLACK			
NA81-88-131	1	L-PKG, PKG-C, (STB TYPE, W/HEAD SPEAKER, W/O SENSORY SOUND) ('95 MODEL)			
83	INT-	NA4 NA5 TAN			
NA82-88-131	1	L-PKG-OPT, PKG-C-OPT (STB TYPE, W/HEAD SPEAKER, W/SENSORY SOUND) ('95 MODEL)			
88	INT-	NA4 NA5 TAN			
NBY2-88-131	1	P.E.GR-OPT, (STA TYPE, W/HEAD SPEAKER, W/SENSORY SOUND) (ML-'96 MODEL)			
00	INT-	NA3 BLACK			
NBY4-88-131	1	L-PKG-OPT, (STB TYPE, W/HEAD SPEAKER, W/SENSORY SOUND)			

5B15 NA3** -705265



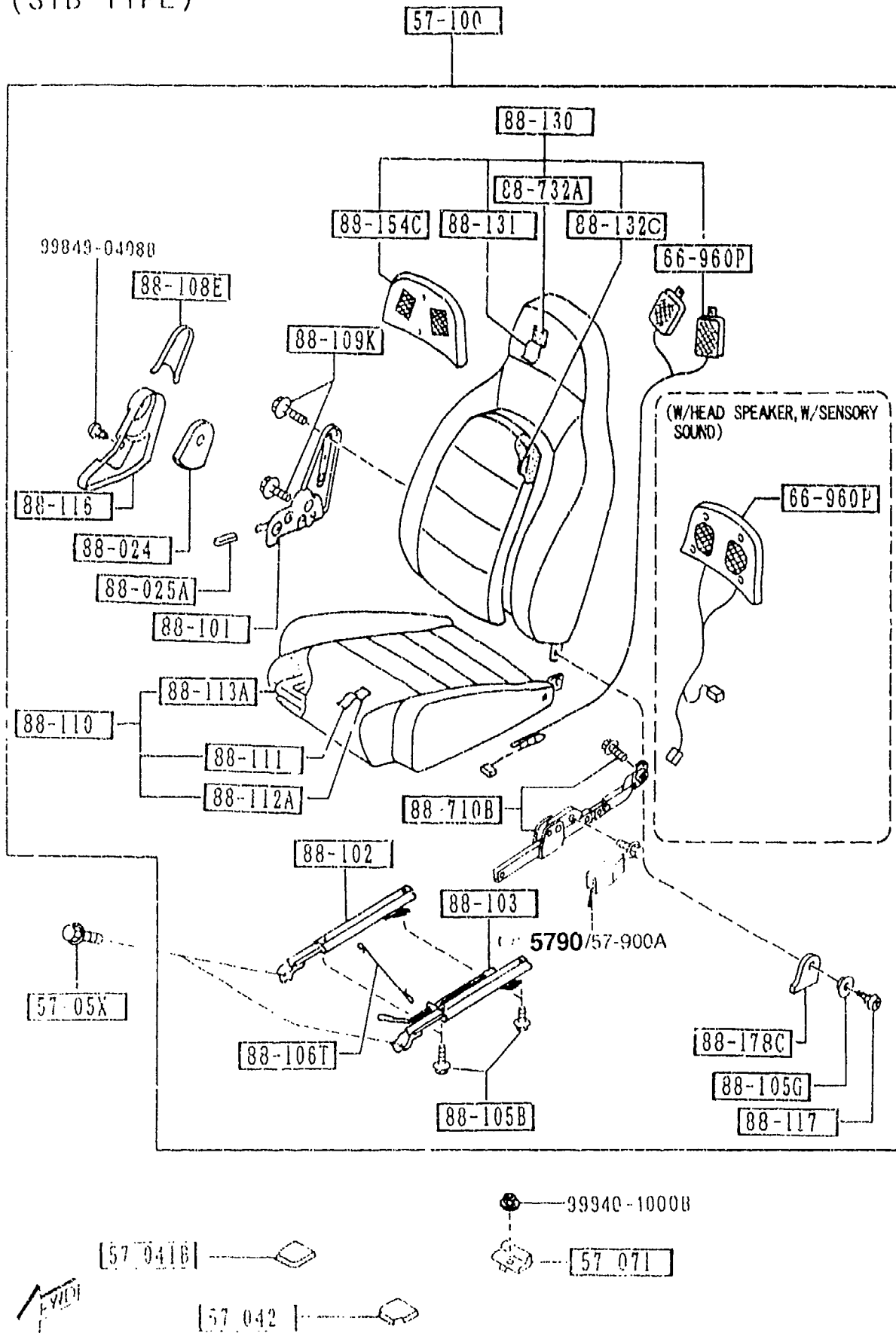
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
		AKER, W/SENSORY SOUND) (ML-'96 MODEL)			
88	INT-	NA3 TAN			
NB11-88-131	1	M-25-ED, (STC TYPE, W/O HEAD SPEAKER) ('95 MODEL)			
88	INT-	NA5 TAN			
NB40-88-131	1	PKG-A, PKG-D, P.E.GR (STA TYPE, W/O HEAD SPEAKER, W/O SENSORY SOUND) (STA TYPE, W/HEAD SPEAKER, W/O SENSORY SOUND) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
00	INT-	NA3 BLACK			
NB42-88-131	1	PKG-A-OPT, PKG-B-OPT (STA TYPE, W/HEAD SPEAKER, W/SENSORY SOUND) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
00	INT-	NA3 BLACK			
NB43-88-131	1	PKG-C, L-PKG, (STB TYPE, W/HEAD SPEAKER, W/O SENSORY SOUND) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
88	INT-	NA4 NA5 TAN			
NB44-88-131	1	PKG-C-OPT, (STB TYPE, W/HEAD SPEAKER, W/SENSORY SOUND) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
88	INT-	NA4 NA5 TAN			
NB47-88-131	1	M.EDI, (STC TYPE) ('96 MODEL)			5B15-
88	INT-	NA4 NA5 TAN			
		88-132C	PAD, SEAT BACK-FRT		
NA01-88-132A	2	BASE, R-PKG, P.E.GR, PKG-A, PKG-B, (STA TYPE, W/O SENSORY SOUND) ('95 MODEL)			

5B15 NA3** -705265



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
NA01-88-132A	2	(W/O SENSORY SOUND) ('96 MODEL)			
+-----+ | 88-138C | +-----+		GUIDE, POLE-NO. 2			
J001-88-148A	2	M-25-ED, (STC TYPE, W/O HEAD S PEAKER) ('95 MODEL)			
02	INT-	NA3 NA7 BLACK			
88	INT-	NA5 NA4 TAN			
+-----+ | 88-141B | +-----+		TRIM, HEAD REST-FRT			
N811-88-141	2	M-25-ED, (STC TYPE, W/O HEAD S PEAKER) ('95 MODEL)			
88	INT-	NA5 TAN			
+-----+ | 88-141C | +-----+		GUIDE, POLE-NO. 1			
J001-88-147A	2	M-25-ED, (STC TYPE, W/O HEAD S PEAKER) ('95 MODEL)			
02	INT-	NA3 NA7 BLACK			
88	INT-	NA5 NA4 TAN			
+-----+ | 88-151 | +-----+		KNUCKLE(L), RECLINING			
NA01-88-151A	1				
+-----+ | 88-152 | +-----+		ADJUSTER NO. 3			
NA01-88-152A	1				
+-----+ | 88-153 | +-----+		ADJUSTER NO. 4			
NA01-88-153A	1				
+-----+ | 88-154C | +-----+		COVER, HEAD REST			
NA01-88-137	2	(W/HEAD SPEAKER) ('95 MODEL)			
NA01-88-137	2	(W/O SENSORY SOUND) ('96 MODEL)			
+-----+ 88-156D +-----+		WIRE, CONNECT			
NA01-83-156	1				
+-----+ 88-156G +-----+		COVER(L), SEAT BACK			

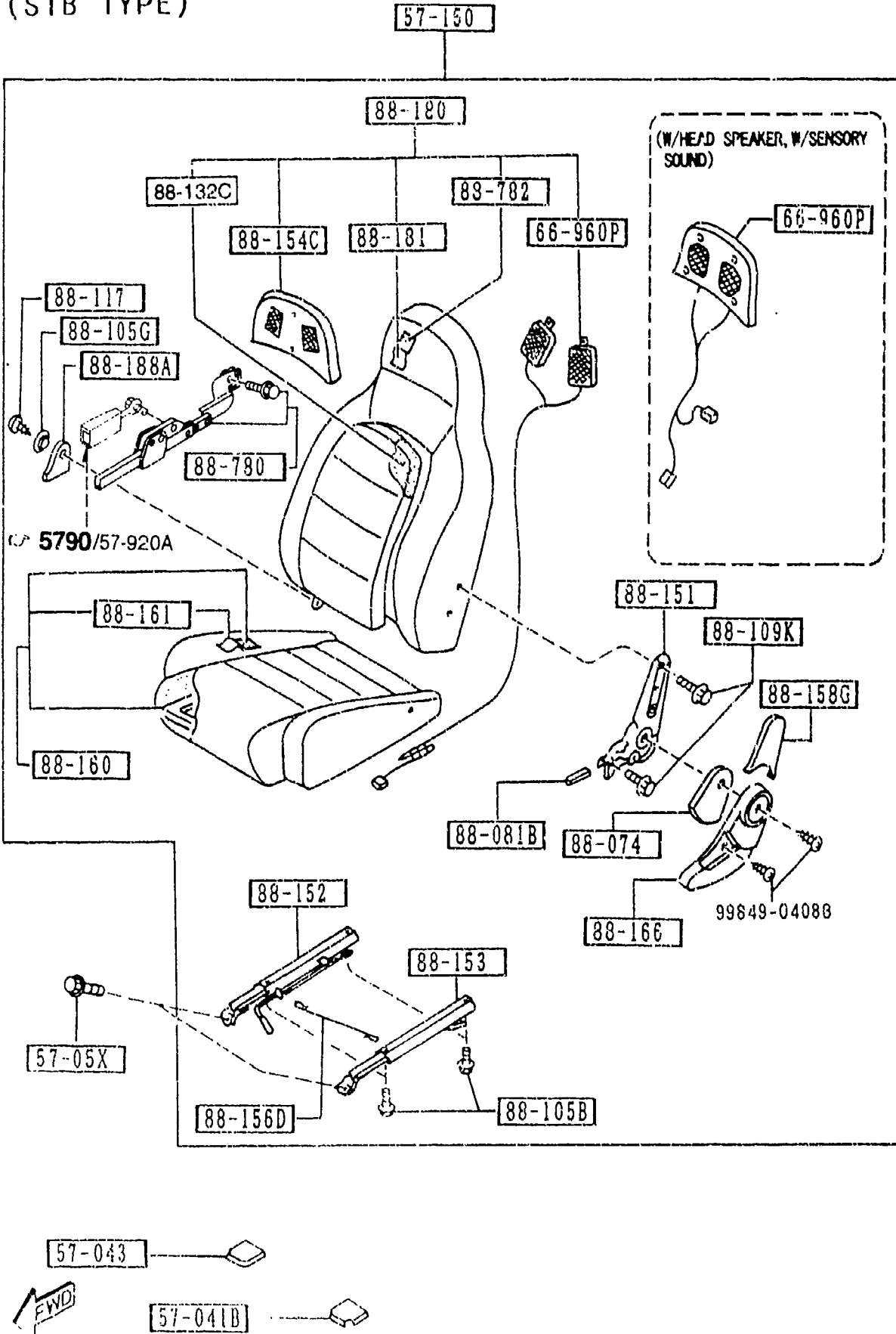
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(STB TYPE)



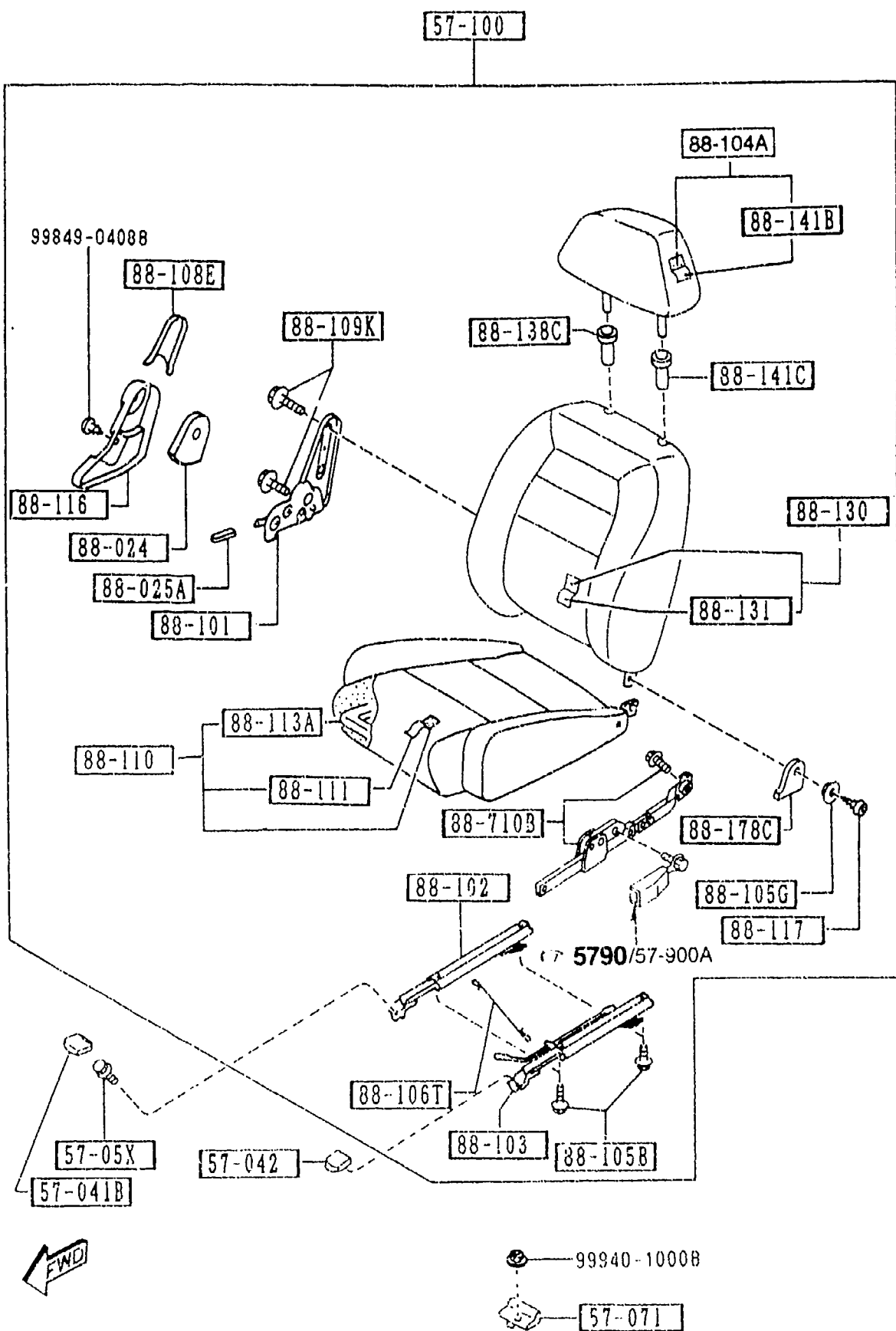
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D NA01-88-086	1				
00	INT-	NA3 NA7 NA8 BLACK			
88	INT-	NA4 NA5 TAN			
88-160		CUSHION(L), FRT SEAT			
N041-88-160	1	BASE, P.E.GR, PKG-A, PKG-B, R-PKG, (STA TYPE) (196 MODEL)			
00	INT-	NA3 BLACK			
N043-88-160	1	L-PKG, PKG-C, M.EDI, (STB TYPE) (STC TYPE) (196 MODEL)			
88	INT-	NA4 NA5 TAN			
NA75-88-160	1	BASE, P.E.GR, PKG-A, PKG-B, R-PKG, (STA TYPE) (195 MODEL)			4801
00	INT-	NA3 BLACK			
NA81-88-160	1	L-PKG, PKG-C, (STB TYPE, W/HEAD SPE AKER) (195 MODEL)			4801
88	INT-	NA4 NA5 TAN			
NB11-88-160	1	M-25-ED, (STC TYPE, W/O HEAD S PEAKER) (195 MODEL)			4801
88	INT-	NA5 TAN			
NA75-88-160A	1	BASE, P.E.GR, PKG-A, PKG-B, R-PKG, (STA TYPE) (195 MODEL)			4801-
00	INT-	NA3 BLACK			
NB11-88-160B	1	M-25-ED, (STC TYPE, W/O HEAD S PEAKER) (195 MODEL)			4801-
88	INT-	NA5 TAN			
NA81-88-160A	1	L-PKG, PKG-C, (STB TYPE, W/HEAD SPE AKER) (195 MODEL)			4801-5508
88	INT-	NA4 NA5 TAN			
NA81-88-160B	1	L-PKG, PKG-C, (STB TYPE, W/HEAD SPE AKER)			5508-

4801 NA35* -606043
5508 NA35* -620210

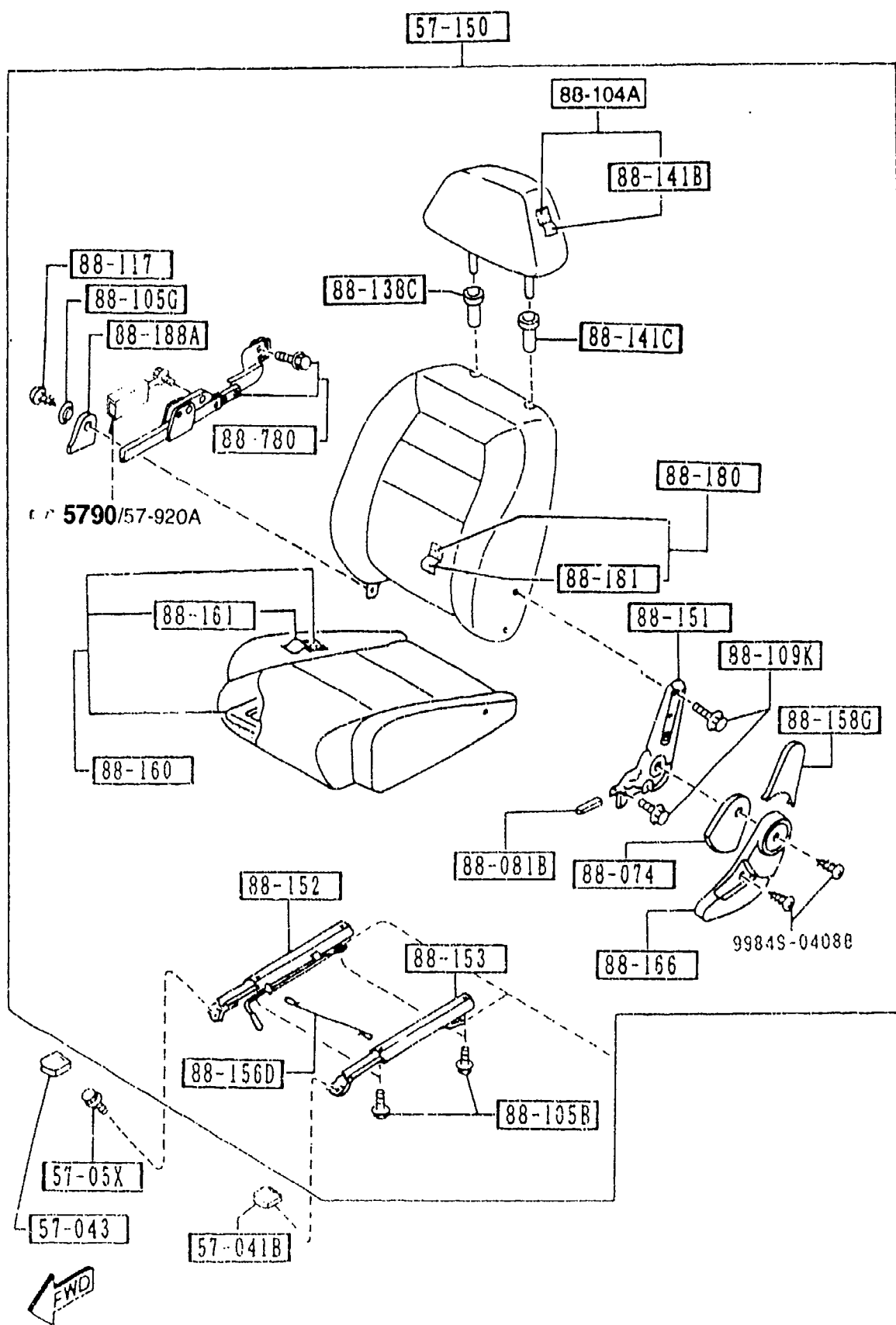
(STA TYPE)
(STB TYPE)



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D		('95 MODEL)			
88	INT-	NA4 NA5 TAN			
88-161		TRIM(L), SEAT CUSHION			
N041-88-161	1	BASE, P.E.GR, PKG-A, PKG-B, R-PKG, (STA TYPE) ('96 MODEL)			
00	INT-	NA3 BLACK			
N043-88-161	1	L-PKG, PKG-C, M.EDI, (STB TYPE) (STC TYPE) ('96 MODEL)			
88	INT-	NA4 NA5 TAN			
NA75-88-161	1	BASE, P.E.GR, PKG-A, PKG-B, R-PKG, (STA TYPE) ('95 MODEL)			-4801
00	INT-	NA3 BLACK			
NA81-88-161	1	L-PKG, PKG-C, (STB TYPE, W/HEAD SPEAKER) ('95 MODEL)			-4801
88	INT-	NA4 NA5 TAN			
NB11-88-161	1	M-25-ED, (STC TYPE, W/O HEAD SPEAKER) ('95 MODEL)			-4801
88	INT-	NA5 TAN			
NA75-88-161A	1	BASE, P.E.GR, PKG-A, PKG-B, R-PKG, (STA TYPE) ('95 MODEL)			4801-
00	INT-	NA3 BLACK			
NB11-88-161B	1	M-25-ED, (STC TYPE, W/O HEAD SPEAKER) ('95 MODEL)			4801-
88	INT-	NA5 TAN			
NA81-88-161A	1	L-PKG, PKG-C, (STB TYPE, W/HEAD SPEAKER) ('95 MODEL)			4801-5508
88	INT-	NA4 NA5 TAN			
NA81-88-161B	1	L-PKG, PKG-C, (STB TYPE, W/HEAD SPEAKER) ('95 MODEL)			5508-
4801 NA35*		-606043			
5508 NA35*		-620210			

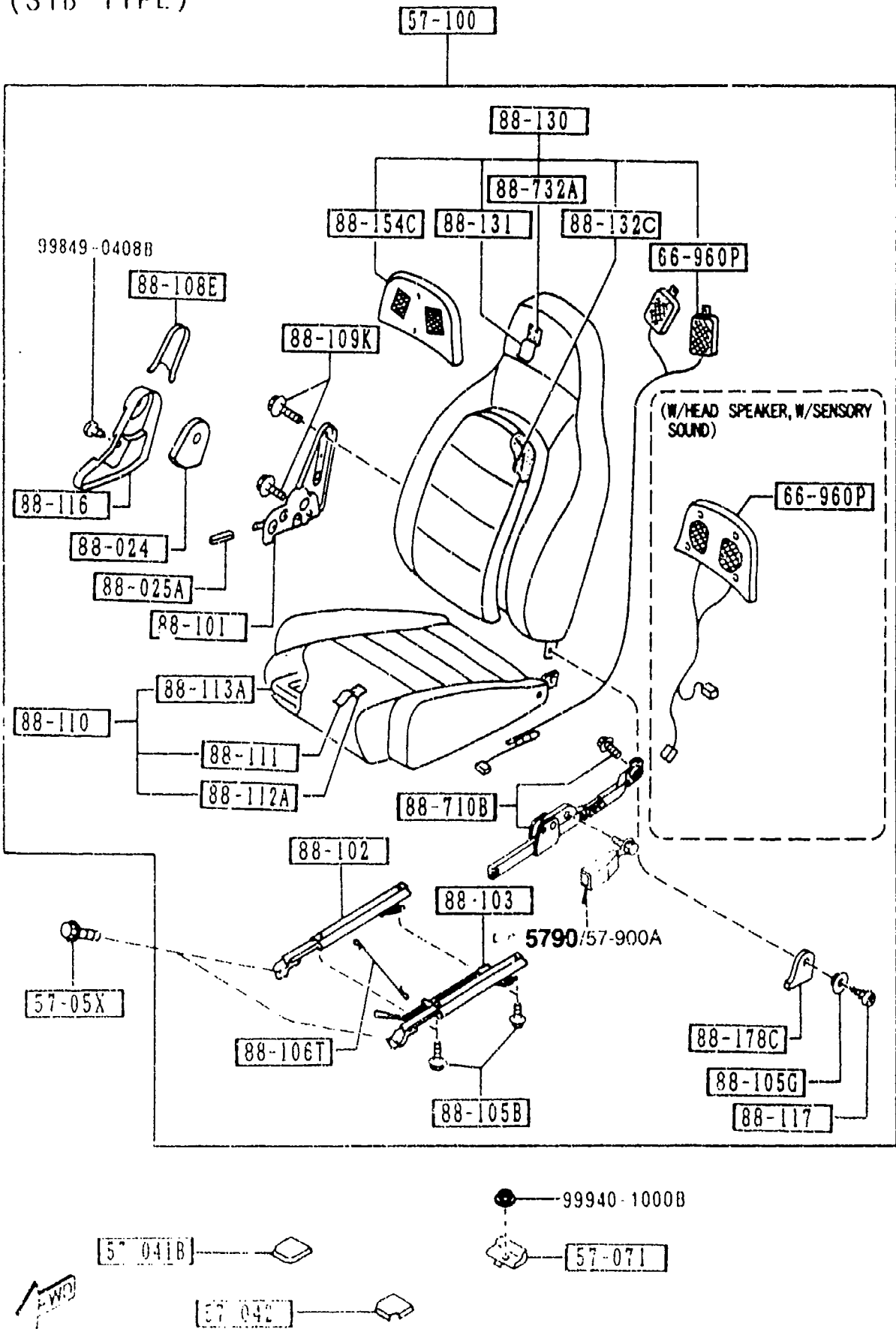


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D 88	INT-	NA4 NA5 TAN			
+-----+ 88-166 +-----+		COVER(L), KNUCKLE			
NA01-88-081	1				
00	INT-	NA3 NA7 NA8 BLACK			
88	INT-	NA4 NA5 TAN			
+-----+ 88-178C +-----+		COVER(R), HINGE			
NA01-88-035	1				
00	INT-	NA3 NA7 NA8 BLACK			
88	INT-	NA4 NA5 TAN			
+-----+ 88-180 +-----+		BACK(L), FRONT SEAT			
NA75-88-180	1	BASE, R-PKG, (STA TYPE, W/O HEAD S PEAKER) ('95 MODEL)			
00	INT-	NA3 BLACK			
NA79-88-180	1	P.E.GR, PKG-A, PKG-B (STA TYPE, W/HEAD SPE AKER, W/O SENSORY SO UND) ('95 MODEL)			
00	INT-	NA3 BLACK			
NA80-88-180	1	OPT, (STA TYPE, W/HEAD SPE AKER, W/SENSORY SOUN D) ('95 MODEL)			
00	INT-	NA3 BLACK			
NA81-88-180	1	L-PKG, PKG-C, (STB TYPE, W/HEAD SPE AKER, W/O SENSORY SO UND) ('95 MODEL)			
88	INT-	NA4 NA5 TAN			
NA82-88-180	1	L-PKG-OPT, PKG-C-OPT (STB TYPE, W/HEAD SPE AKER, W/SENSORY SOUN D) ('95 MODEL)			
88	INT-	NA4 NA5 TAN			
NBY1-88-180	1	P.E.GR, (STA TYPE, W/HEAD SPE AKER, W/O SENSORY SOU ND)			



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D		(ML-'96 MODEL)			
00	INT-	NA3 BLACK			
NBY2-88-180	1	P.E. GR-OPT, (STA TYPE, W/HEAD SPEAKER, W/SENSORY SOUND) (ML-'96 MODEL)			
00	INT-	NA3 BLACK			
NBY3-88-180	1	L-PKG, (STB TYPE, W/HEAD SPEAKER, W/O SENSORY SOUND) (ML-'96 MODEL)			
88	INT-	NA5 TAN			
NBY4-88-180	1	L-PKG-OPT, (STB TYPE, W/HEAD SPEAKER, W/SENSORY SOUND) (ML-'96 MODEL)			
88	INT-	NA5 TAN			
NB11-88-180	1	M-25-ED, (STC TYPE, W/O HEAD SPEAKER) (95 MODEL)			
88	INT-	NA5 TAN			
NB40-88-180	1	(STA TYPE, W/O HEAD SPEAKER, W/O SENSORY SOUND) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
00	INT-	NA3 BLACK			
NB41-88-180	1	PKG-A, PKG-B, (STA TYPE, W/HEAD SPEAKER, W/O SENSORY SOUND) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
00	INT-	NA3 BLACK			
NB42-88-180	1	PKG-A-OPT, PKG-B-OPT, (STA TYPE, W/HEAD SPEAKER, W/SENSORY SOUND) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
00	INT-	NA3 BLACK			
NB43-88-180	1	PKG-C, (STB TYPE, W/HEAD SPEAKER, W/O SENSORY SOUND) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			

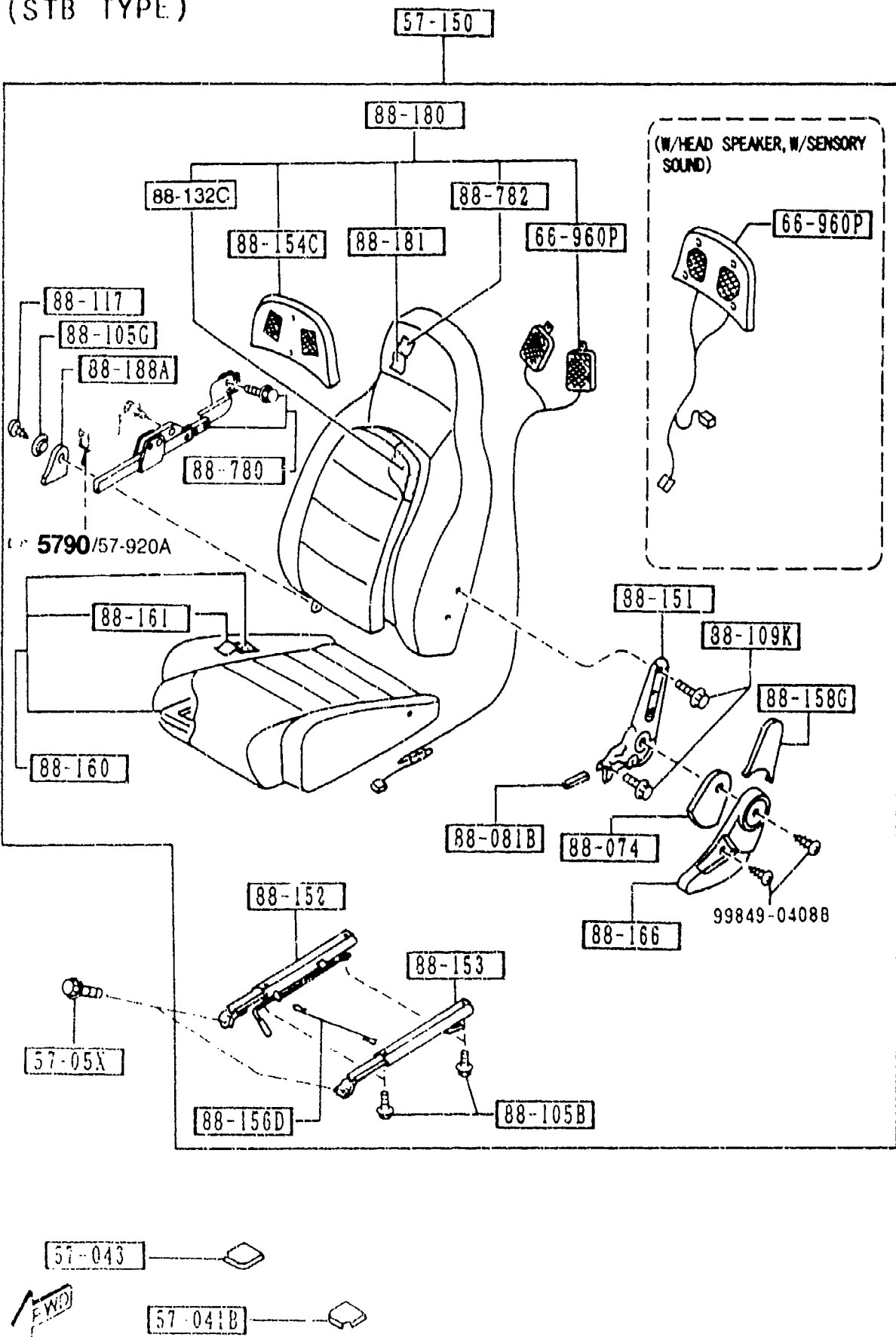
(STA TYPE)
(STB TYPE)



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
88	INT-	NA4 NA5 TAN			
NB44-88-180	1	PKG-C-OPT, (STB TYPE, W/HEAD SPEAKER, W/SENSORY SOUND) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
88	INT-	NA4 NA5 TAN			
NB47-88-180	1	M.EDI, (STC TYPE) ('96 MODEL)			5B15-
88	INT-	NA4 NA5 TAN			
		88-181	TRIM(L), SEAT BACK		
NA75-88-181	1	RASE, R-PKG, P.E.GR, PKG-A, PKG-B, (STA TYPE, W/O SENSOR Y SOUND) ('95 MODEL)			
00	INT-	NA3 BLACK			
NAB0-88-181	1	OPT, (STA TYPE, W/HEAD SPEAKER, W/SENSORY SOUND) ('95 MODEL)			
00	INT-	NA3 BLACK			
NAB1-88-181	1	L-PKG, PKG-C, (STB TYPE, W/HEAD SPEAKER, W/O SENSOR SOUND) ('95 MODEL)			
88	INT-	NA4 NA5 TAN			
NAB2-88-181	1	L-PKG-OPT, PKG-C-OPT (STB TYPE, W/HEAD SPEAKER, W/SENSORY SOUND) ('95 MODEL)			
88	INT-	NA4 NA5 TAN			
NBY2-88-181	1	P.E.GR-OPT, (STA TYPE, W/HEAD SPEAKER, W/SENSORY SOUND) (ML-'96 MODEL)			
00	INT-	NA3 BLACK			
NBY4-88-181	1	L-PKG-OPT, (STB TYPE, W/HEAD SPEAKER, W/SENSORY SOUND) (ML-'96 MODEL)			

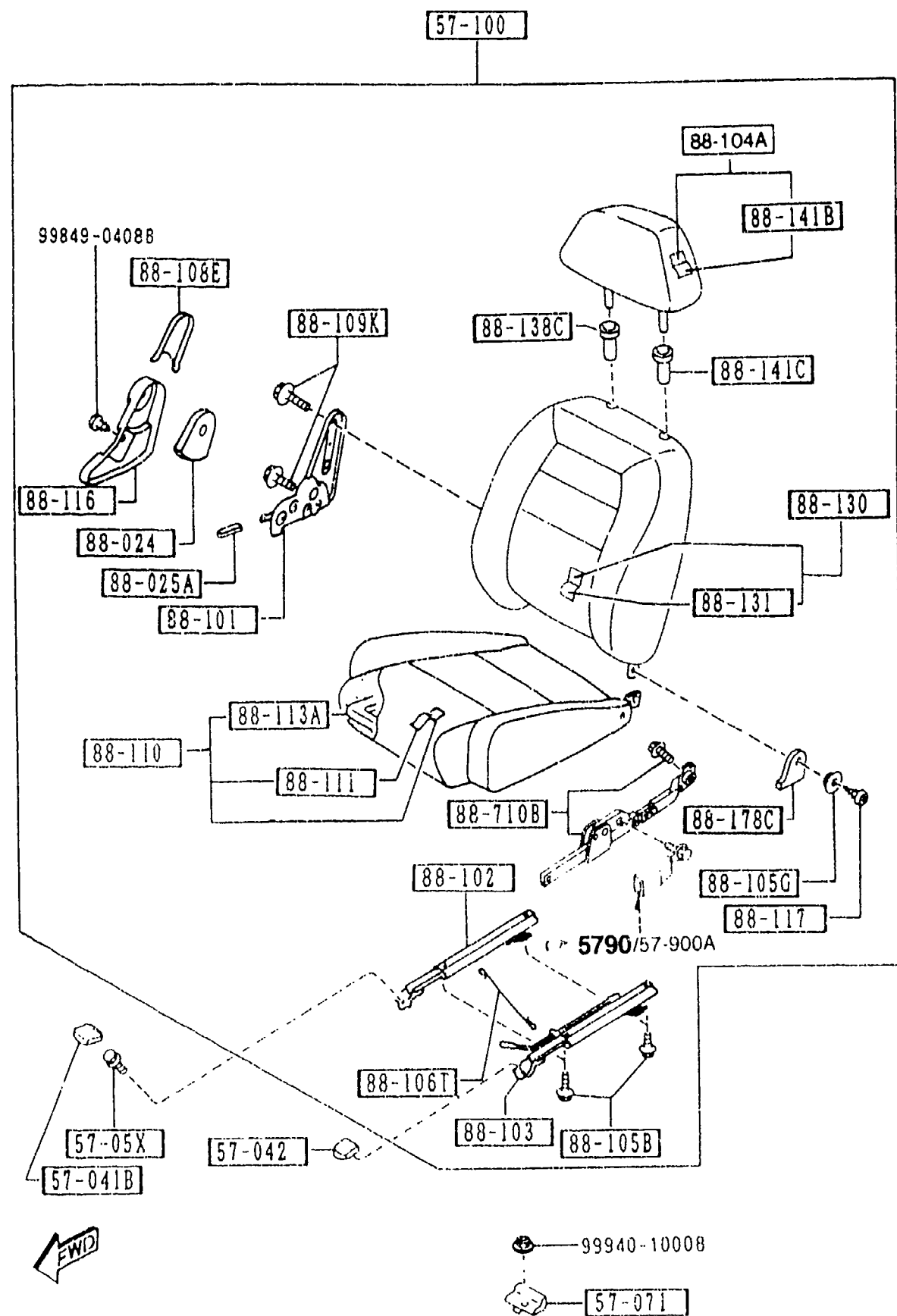
5B15 NA3** -705265

(STA TYPE)
(STB TYPE)

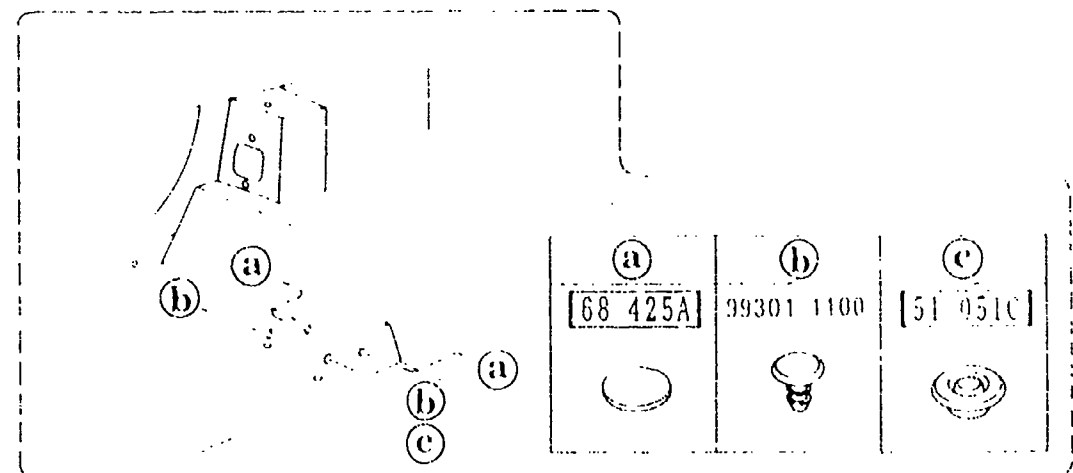
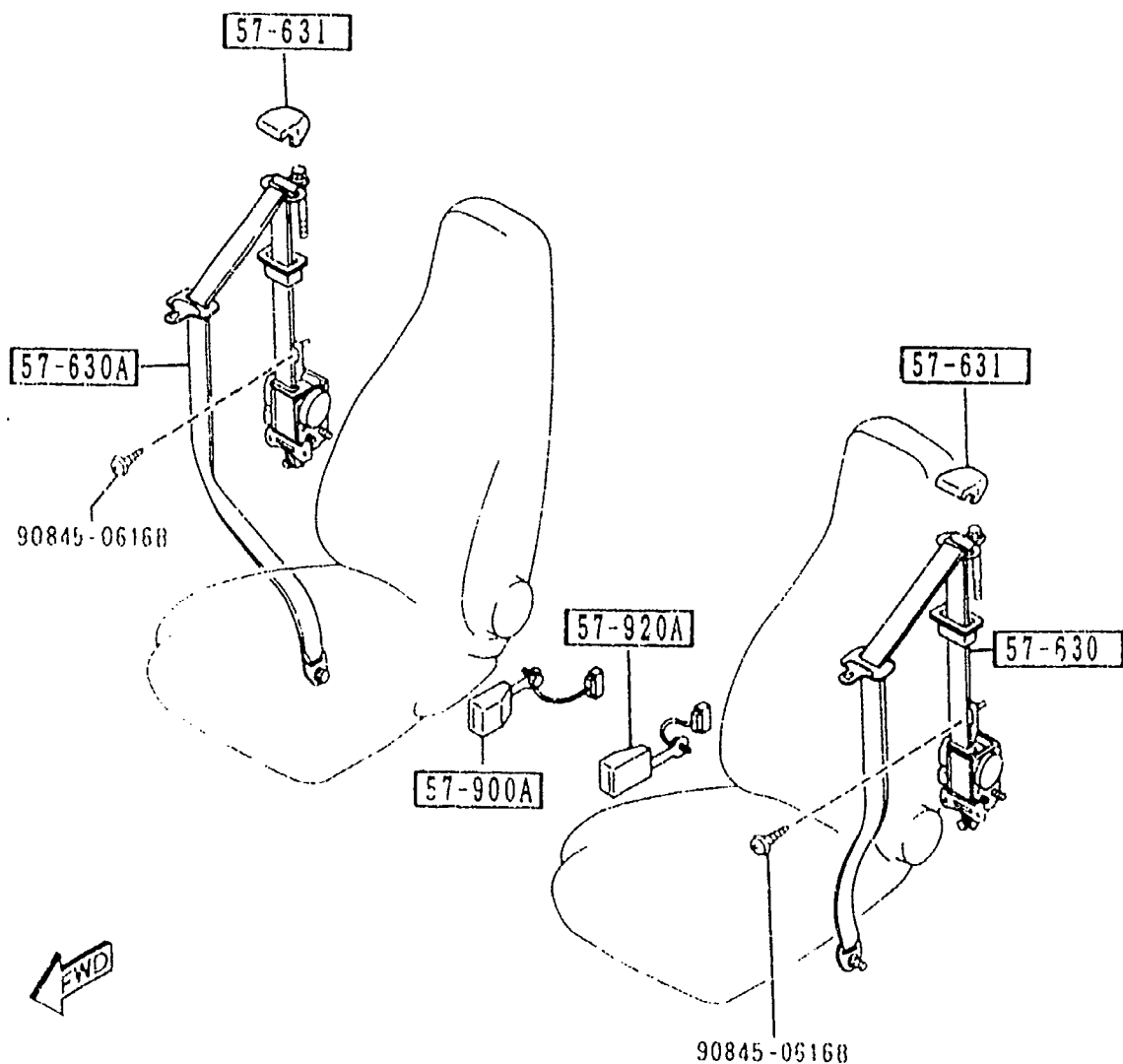


PART NO	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
88	INT-	NA5 TAN			
NB11-88-181	1	M-25-ED, (STC TYPE, W/O HEAD S PEAKER) ('95 MODEL)			
88	INT-	NA5 TAN			
NB40-88-181	1	PKG-A, PKG-B, P.E.GR (STA TYPE, W/O HEAD S PEAKER, W/O SENSORY S OUND) (STA TYPE, W/HEAD SPE AKER, W/O SENSORY SOU ND) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
00	INT-	NA3 BLACK			
NB42-88-181	1	PKG-A-OPT, PKG-B-OPT (STA TYPE, W/HEAD SPE AKER, W/SENSORY SOUN D) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
00	INT-	NA3 BLACK			
NB43-88-181	1	PKG-C, L-PKG, (STB TYPE, W/HEAD SPE AKER, W/O SENSORY SOU ND) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
88	INT-	NA4 NA5 TAN			
NB44-88-181	1	PKG-C-OPT, (STB TYPE, W/HEAD SPE AKER, W/SENSORY SOUN D) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
88	INT-	NA4 NA5 TAN			
NB47-88-181	1	M.EDI, (STC TYPE) ('96 MODEL)			5B15-
88	INT-	NA4 NA5 TAN			
		COVER(L), HINGE			
NA01-88-035	1				
00	INT-	NA3 NA7 NA8 BLACK			
88	INT-	NA4 NA5 TAN			
		ANCHOR UNIT(R), BELT			

5B15 NA3** -705265

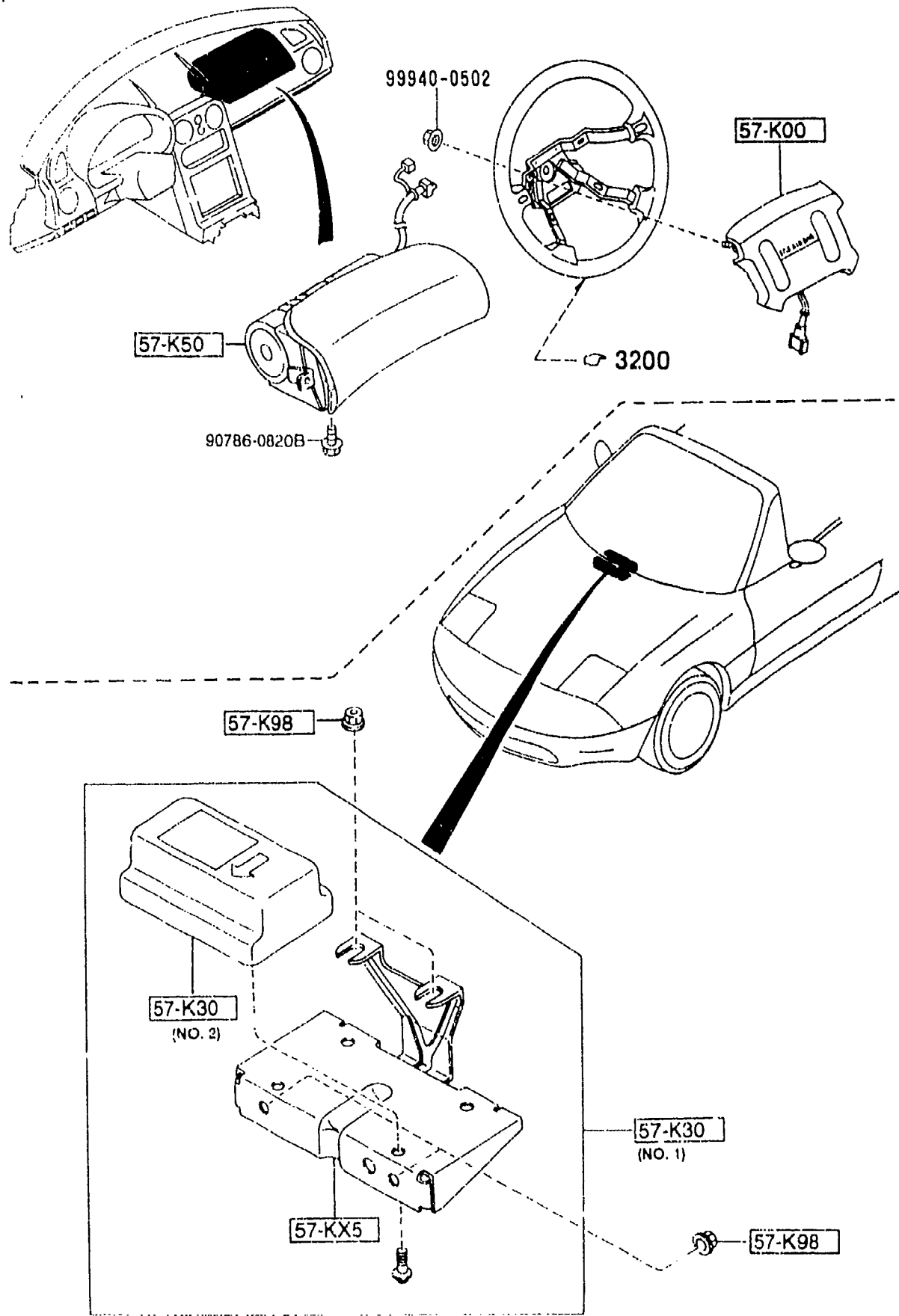


PART NO	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D NA75-88-710	1				
+-----+ | 88-732A | +-----+		PAD'B'(R),BACK-FRT			
NA01-88-732A	1	(W/HEAD SPEAK'R) ('95 MODEL)			
NA01-88-732A	1	(W/O SENSORY SOUND) ('96 MODEL)			
+-----+ | 88-780 | +-----+		ANCHOR UNIT(L),BELT			
NA75-88-760	1				
+-----+ | 88-782 | +-----+		PAD'B'(L),BACK-FRT			
NA01-88-782A	1	(W/HEAD SPEAKER) ('95 MODEL)			
NA01-88-782A	1	(W/O SENSORY SOUND) ('96 MODEL)			



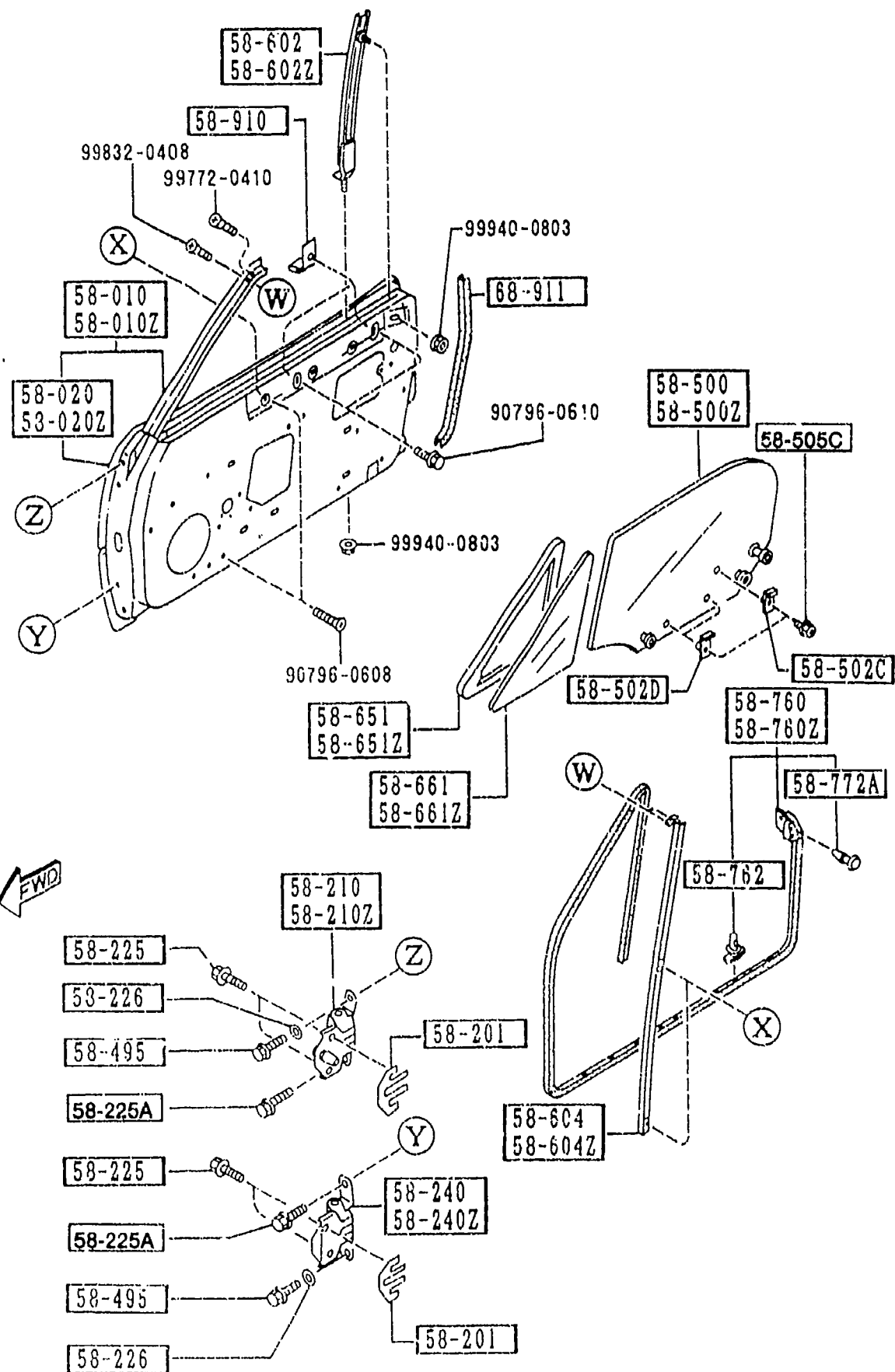
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
51-051C		PLUG,HOLE			
BR70-51-264	1	('96 MODEL)			
57-630		BELT'B',FRT SEAT			
NA76-57-630D	1	('95 MODEL)			
00	INT-	NA3 BLACK			
88	INT-	NA4 NA5 TAN/BLACK			
NB38-57-630	1	('96 MODEL)			-6601
00	INT-	NA3 BLACK			
88	INT-	NA4 NA5 TAN/BLACK			
*NB38-57-630A	1	('96 MODEL)			6601-
* 00	INT-	NA3 BLACK			
* 88	INT-	NA4 NA5 TAN/BLACK			
57-630A		BELT'B'(R),FRT SEAT			
NA75-57-630F	1				-6601
00	INT-	NA3 BLACK			
88	INT-	NA4 NA5 TAN			
*NA75-57-630G	1				6601-
* 00	INT-	NA3 BLACK			
* 88	INT-	NA4 NA5 TAN			
57-631		COVER,ANCHOR			
N026-57-631	2				
00	INT-	NA3 NA4 NA5 NA6 NA7 NAB BLACK			
57-900A		BELT'A'(R),FRT SEAT			
NA75-57-620	1				
00	INT-	NA3 NA4 NA5 NA7 NAB BLACK			
57-920A		BELT'A'(L),FRT SEAT			
NA75-57-680A	1				
00	INT-	NA3 NA4 NA5 NA7 NAB BLACK			
68-425A		COVER,HOLE			
LA01-57-425A	2				

6601 NA3** -719621

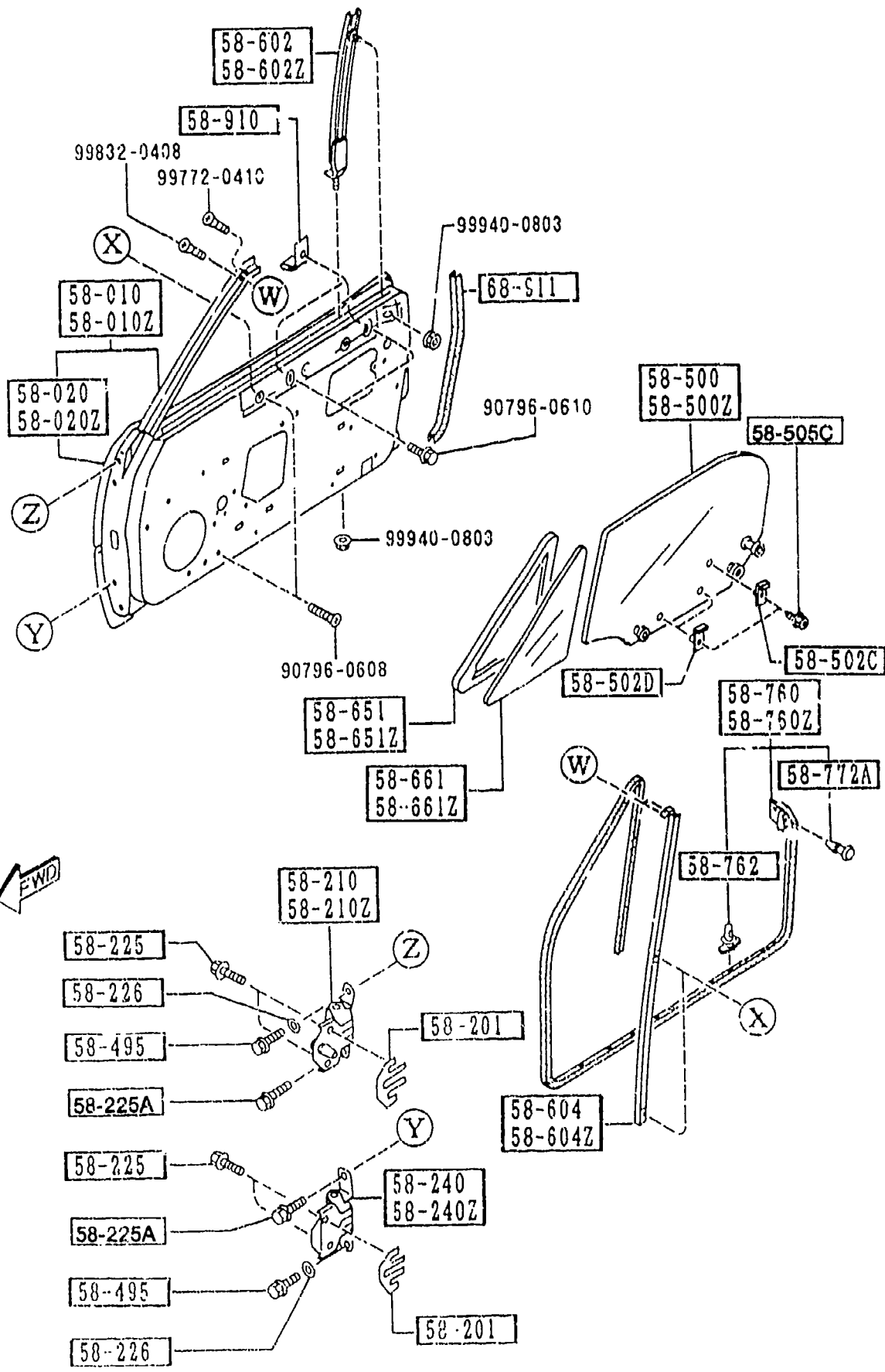


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
57-KX5		BRKT, AIR BAG MODULE			
N034-57-KX0A	1				
57-K00		MODULE, AIR BAG			
NB11-57-K00	1				
00	INT-	NA3 NA4 NA5 NA6 NA7 NAB BLACK			
57-K30		UNIT, SAS			
N034-57-K3XA AN(N034-57-K3XB)	1	(ILLUST. NO.1)			-5320
N034-57-K30 AN(N034-57-K30A)	1	(ILLUST. NO.2)			-5320
N034-57-K3XB AN(N034-57-K3XC)	1	(ILLUST. NO.1)			5320-5C01
N034-57-K30A AN(N034-57-K30B)	1	(ILLUST. NO.2)			5320-5C01
N034-57-K3XC	1	(ILLUST. NO.1)			5C01-
N034-57-K30B	1	(ILLUST. NO.2)			5C01-
57-K50		MODULE, AIR BAG PASSE NGER			
NB11-57-K7X	1				
00	INT-	NA3 NA4 NA5 NA6 NA7 NAB BLACK			
57-K98		NUT			
FC66-57-K98	4				

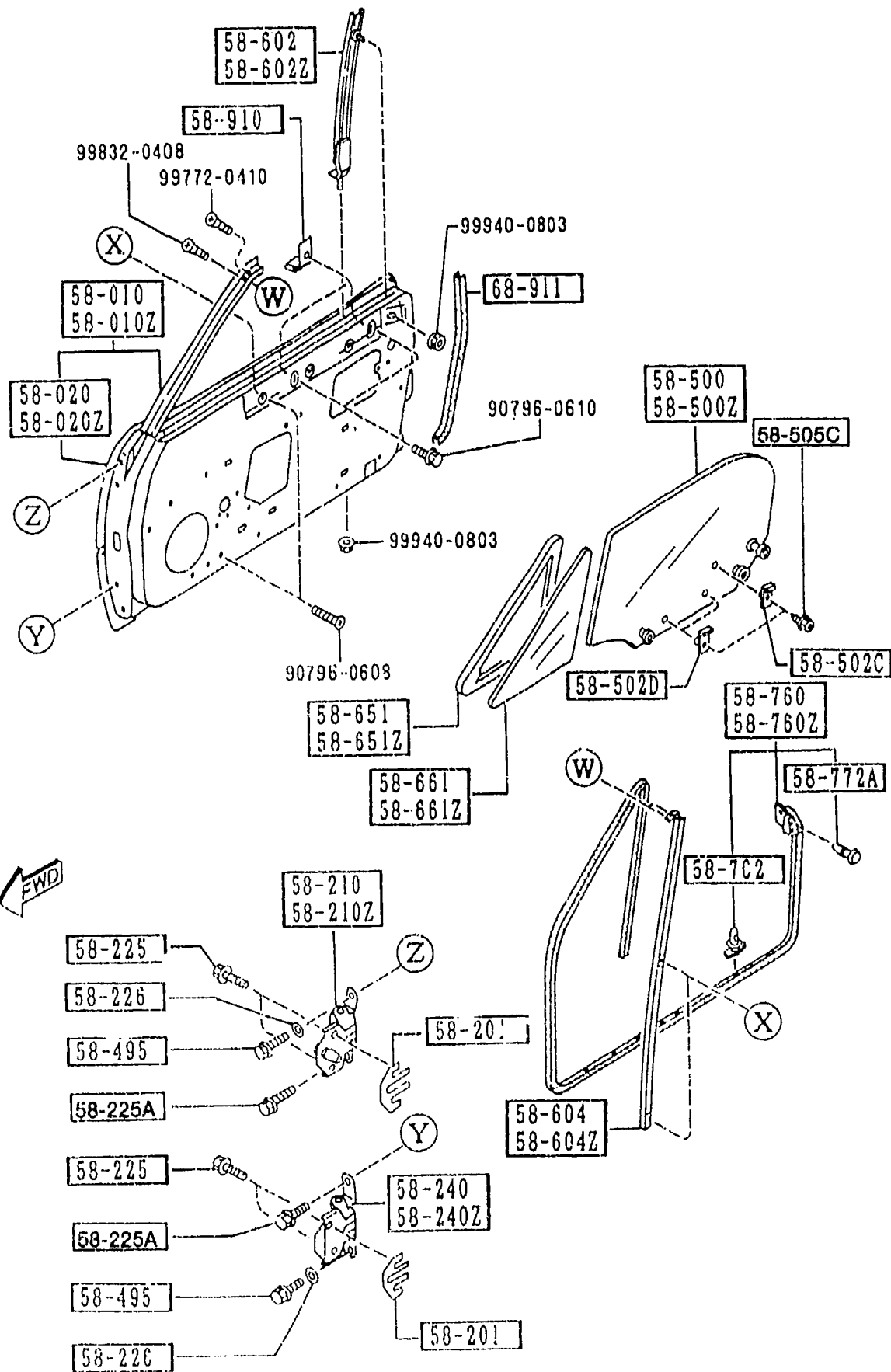
5320 NA35* -618511
5C01 NA3** -706448



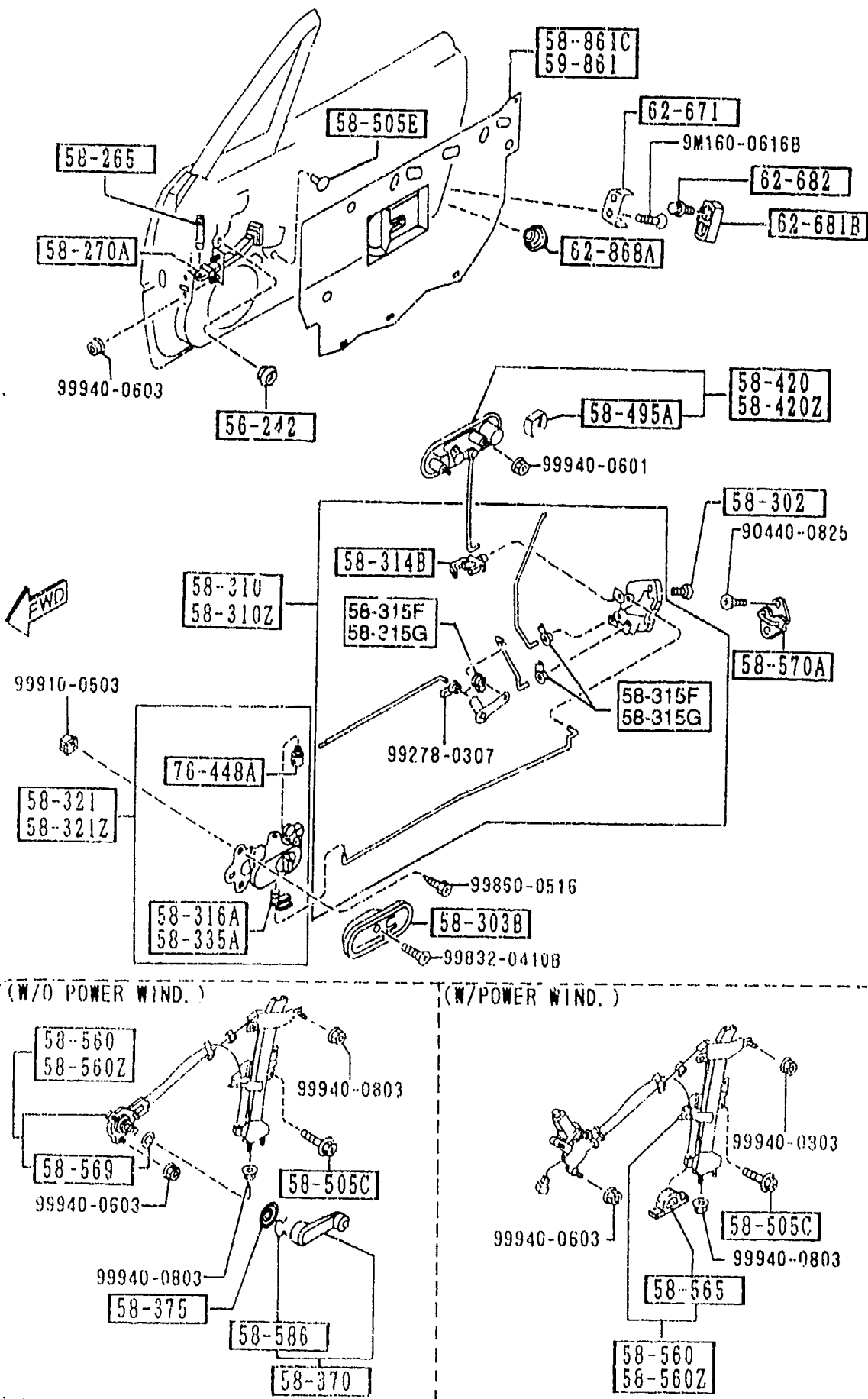
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
58-010		BODY(R),FRONT DOOR			-6718
NAY3-58-02X	1				6718-
*NAY4-58-02X	1				
58-010Z		BODY(L),FRONT DOOR			-6718
NAY3-59-02X	1				6718-
*NAY4-59-02X	1				
58-020		PANEL(R),OUT.-FRT DOOR			
NA52-58-030A	1				
58-020Z		PANEL(L),OUT.-FRT DOOR			
NA52-59-030A	1				
58-201		SHIM,HINGE-DOOR			
R092-58-201A	4				
58-210		HINGE(R),DOOR-UPPER			
FB01-58-210	1				
58-210Z		HINGE(L),DOOR-UPPER			
FB01-59-210	1				
58-225		BOLT,SETTING-HINGE LOWER			
B455-58-225	8				
58-225A		BOLT,SETTING			
*S085-58-225	4				
58-226		WASHER,SETTING			
GJ21-58-226	4				
58-240		HINGE(R),DOOR-LOWER			
R156-58-240	1				
58-240Z		HINGE(L),DOOR-LOWER			
B156-59-240	1				
58-495		BOLT,SET			
BA54-58-225	4				



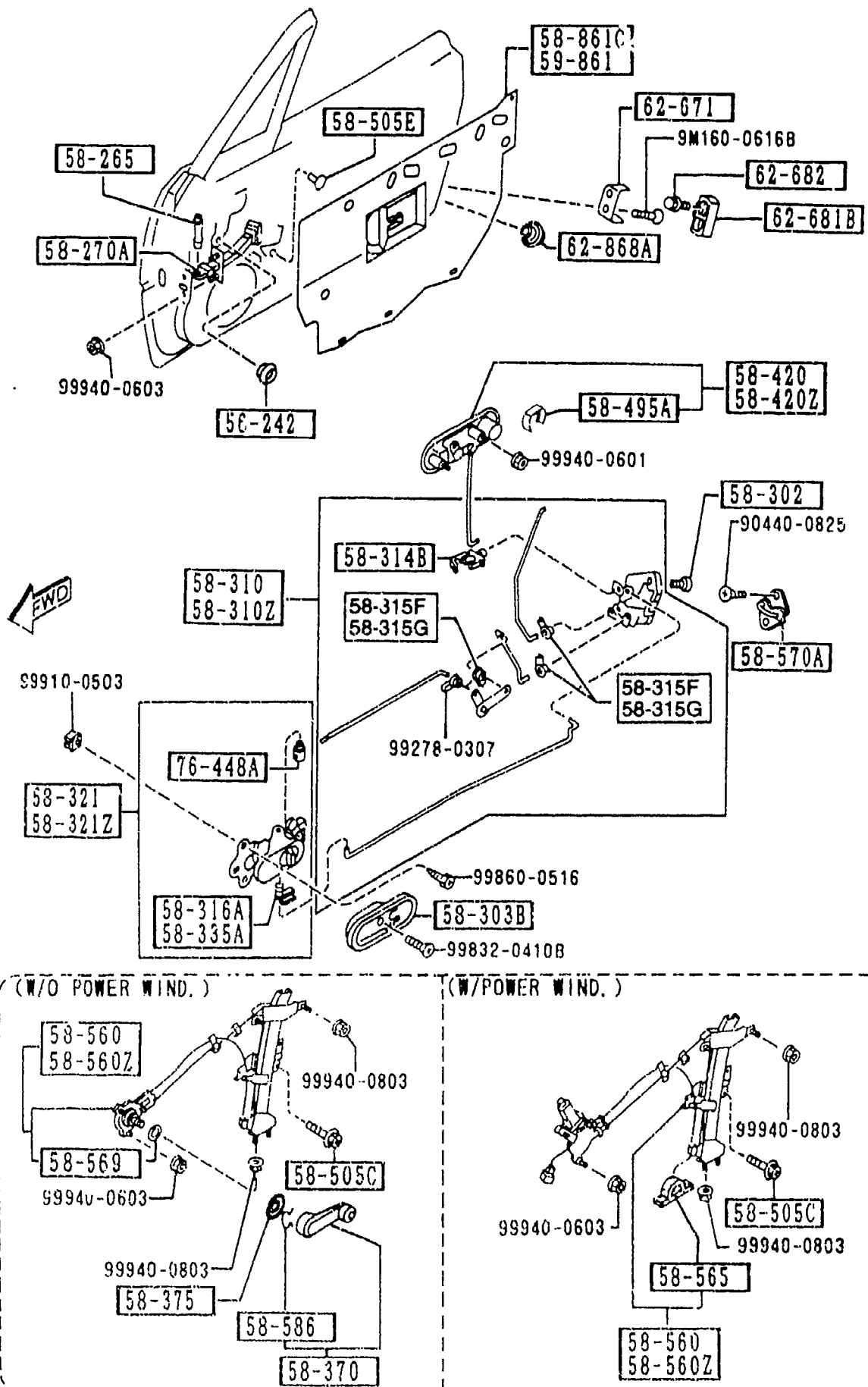
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FORM-TO
58-500		GLASS(R), DOOR-FRT			
NA01-58-510	1	('95 MODEL)			-6201
NA01-58-510	1	('96 MODEL)			6201-
NB39-58-510	1	('96 MODEL)			
58-506Z		GLASS(L), DOOR-FRT			
NA01-59-510	1	('95 MODEL)			-6201
NA01-59-510	1	('96 MODEL)			6201-
NB39-59-510	1	('96 MODEL)			
58-502C		GROMMET, SCREW			
B235-58-502	2				
58-502D		GROMMET, SCREW-DOOR & GLASS			
UB39-58-502A	4				
58-505C		SCREW, WINDOW REGULATOR			
B092-58-505	6				
58-602		GUIDE'B'(R), GLASS			
NA01-58-603D	1				
58-602Z		GUIDE'B'(L), GLASS			
NA01-59-603D	1				
58-604		CHANNEL(R), DIVISION-DOOR			
NA01-58-604B	1				
58-604Z		CHANNEL(L), DIVISION-DOOR			
NA01-59-604B	1				
58-651		WEATHERSTRIP(R)			
NA01-58-651A	1				
58-651Z		WEATHERSTRIP(L)			
NA01-59-651A	1				
58-661		GLASS(R), VENTILATOR			
NA01-58-661	1	('95 MODEL)			-6201
NA01-58-661	1	('96 MODEL)			
6201 NA3** -711421					



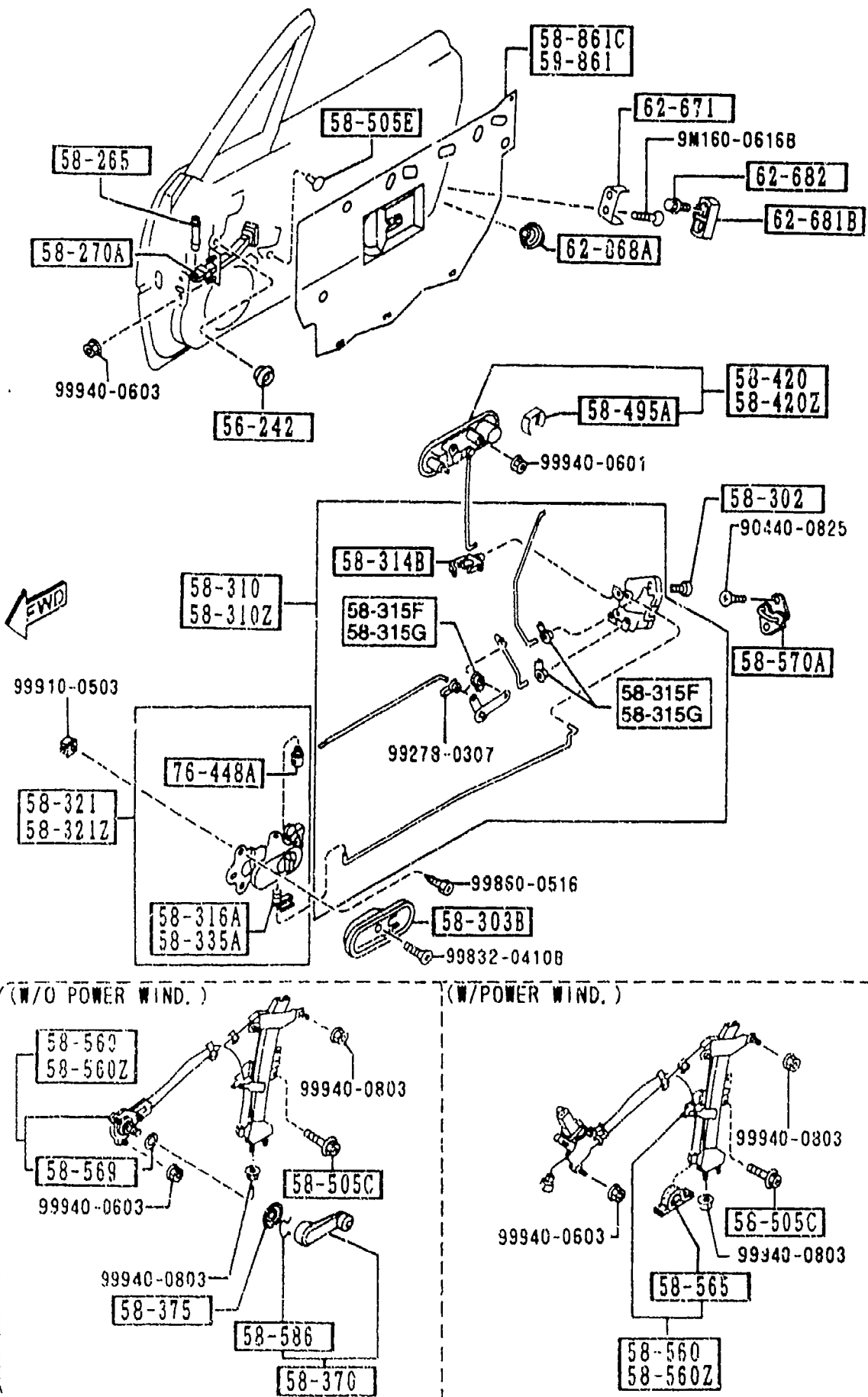
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
NB39-58-661	1	('96 MODEL)			6201-
58-661Z		GLASS(L), VENTILATOR			
NA01-59-661	1	('95 MODEL)			-6201
NA01-59-661	1	('96 MODEL)			6201-
NB39-59-661	1	('96 MODEL)			
58-760		WEATHERSTRIP(R), DOOR			-6118
NA01-58-760E AN(NA01-58-760F)	1				6118-6501
*NA01-58-760F AN(NA01-58-760G)	1				6501-
*NA01-58-760G	1				
58-760Z		WEATHERSTRIP(L), DOOR			-6118
NA01-59-760E AN(NA01-59-760F)	1				6118-6501
*NA01-59-760F AN(NA01-59-760G)	1				6501-
*NA01-59-760G	1				
58-762		FASTENER			
G031-58-762	42				
58-772A		FASTENER			
1011-58-772	4				
58-910		STOPPER, GLASS			
H272-58-911	4				
68-911		WELT, SEAMING			
NA01-68-911	2				
00	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			
6118	NA3**	-709942			
6201	NA3**	-711421			
6501	NA3**	-718684			



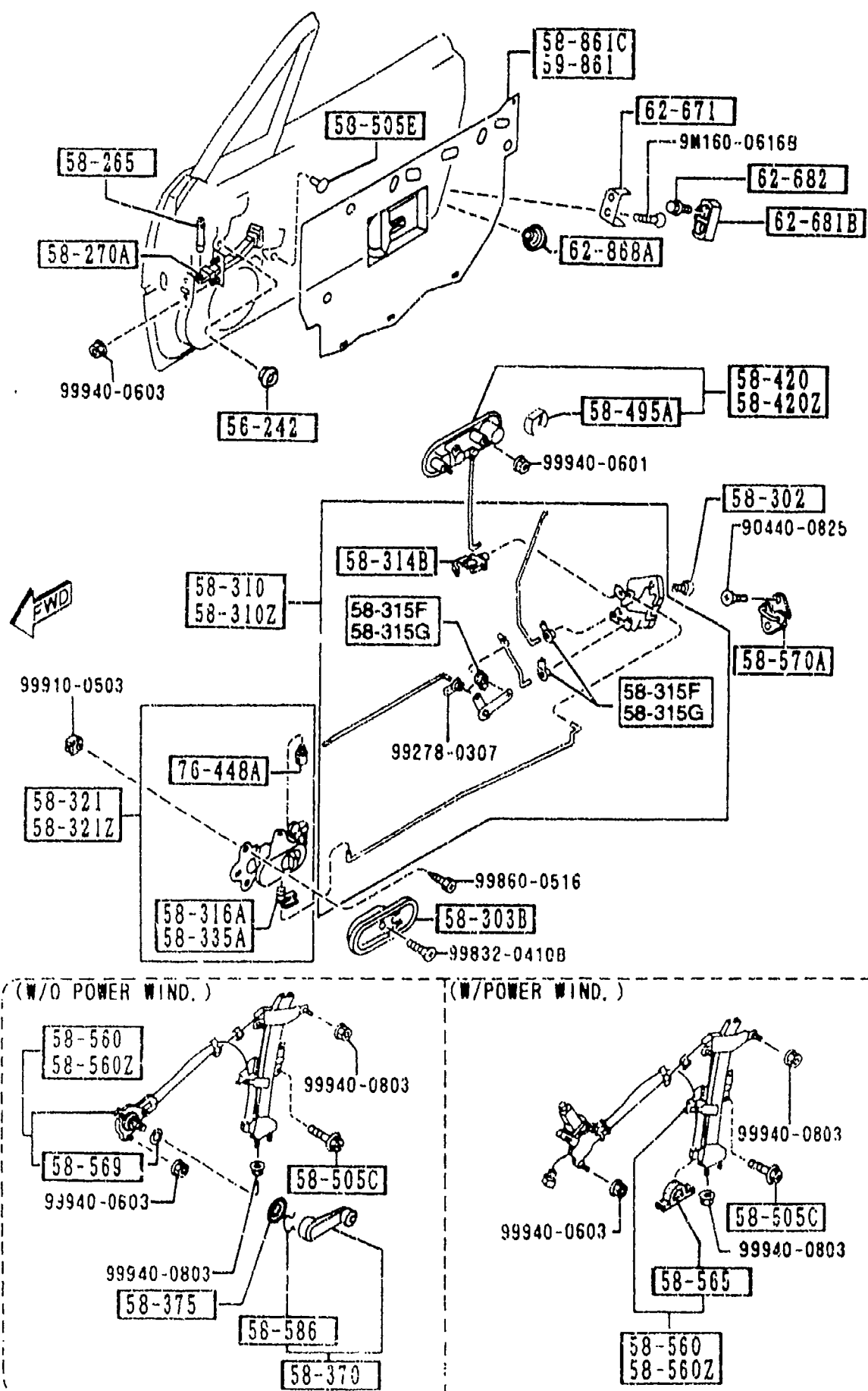
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
56-242		PLUG, DRAIN			
0118-56-242B	2				
58-265		PIN, CHECKER			
BC1D-58-265	2				
58-270A		CHECKER, DOOR			
NA01-58-270A AN(NA01-58-270B)	2				-5401
NA01-58-270B	2				5401-
58-302		SCREW, TAPPING-DOOR LOCK			
HG30-58-302A	6				
58-303B		COVER, INNER HANDLE			
NA01-58-303	2				
00	INT-	NA3 NA4 NA5 NA6 NA7 NAB BLACK			
58-310		LOCK(R), DOOR			
NA01-58-310B	1				
58-310Z		LOCK(L), DOOR			
NA01-59-310B	1				
58-314B		JOINT			
H043-72-411	2				
58-315F		CLIP(R), LOCK			
G030-59-315	3				
58-315G		CLIP(L), LOCK			
G030-58-315	3				
58-316A		CLIP			
B001-50-335	1				
58-321		HANDLE(R), INNER			
NA01-58-330C	1				
00	INT-	NA3 NA4 NA5 NA6 NA7 NAB BLACK			
5401 NA35* -619598					



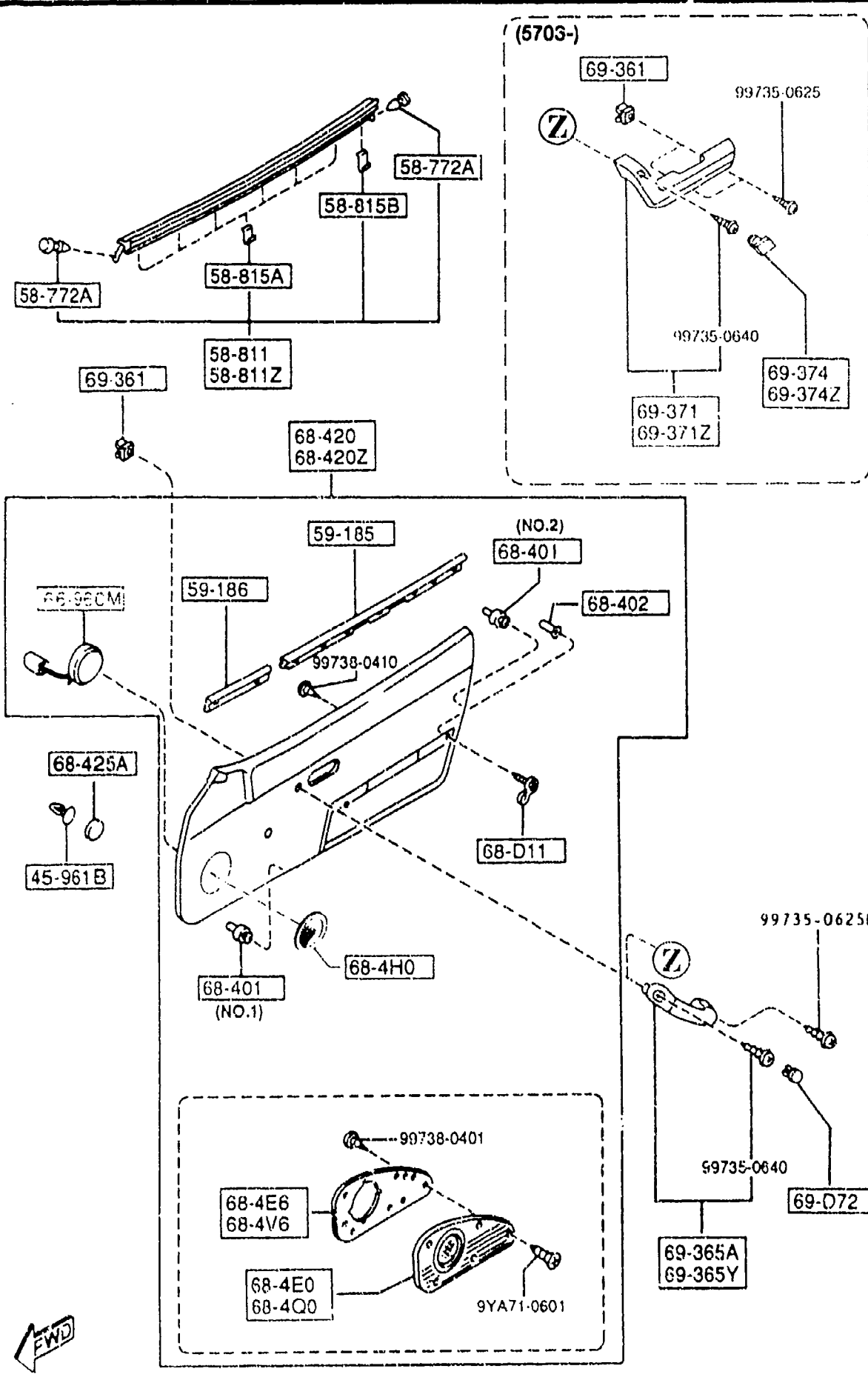
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
58-321Z		HANDLE(L), INNER			
NA01-59-330C	1				
00	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			
58-335A		CLIP			
FB01-58-335	1				
58-370		HANDLE, REGULATOR			
5084-58-580A	2	BASE, R-PKG, PKG-A, (W/O POWER WIND.)			
00	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			
58-375		ESCUTCHEON			
B001-58-582A	2	BASE, R-PKG, PKG-A, (W/O POWER WIND.)			
00	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			
58-420		HANDLE(R), OUT.			
NA01-58-410D	1				
58-420Z		HANDLE(L), OUT.			
NA01-59-410D	1				
58-495A		RETAINER, LOCK CYL.			
G211-58-495	2				
58-505C		SCREW, WINDOW REGULAT UR			
B092-58-505	6				
58-505E		CAP			
B092-58-355	2	BASE, R-PKG, PKG-A, (W/O POWER WIND.)			
58-560		REGULATOR(R), WINDOW			
NA01-58-560F AN(NA01-58-560G)	1	BASE, R-PKG, PKG-A, (W/O POWER WIND.)			-4901
NA02-58-560H AN(NA02-58-560J)	1	M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/POWER WIND.)			-4901
NA01-58-560G A(NA01-58-560H)	1	BASE, R-PKG, PKG-A, (W/O POWER WIND.)			4901-4801
4901 NA35*		-602618			
4801 NA35*		-606043			



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
NA02-58-560J A (NA02-58-560K)	1	M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/POWER WIND.)			4901-4B01
NA01-58-560H	1	BASE, R-PKG, PKG-A, (W/O POWER WIND.)			4B01-
NA02-58-560K	1	M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/POWER WIND.)			4B01-
-----+ 58-560Z -----+		REGULATOR(L), WINDOW			
NA01-59-560F AN(NA01-59-560G)	1	BASE, R-PKG, PKG-A, (W/O POWER WIND.)			-4901
NA02-59-560H AN(NA02-59-560J)	1	M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/POWER WIND.)			-4901
NA01-59-560G A (NA01-59-560H)	1	BASE, R-PKG, PKG-A, (W/O POWER WIND.)			4901-4B01
NA02-59-560J A (NA02-59-560K)	1	M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/POWER WIND.)			4901-4B01
NA01-59-560H	1	BASE, R-PKG, PKG-A, (W/O POWER WIND.)			4B01-
NA02-59-560K	1	M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/POWER WIND.)			4B01-
-----+ 58-565 -----+		RUBBER, STOPPER			
HG30-58-565	2	M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/POWER WIND.)			
-----+ 58-569 -----+		GASKET, WINDOW REGULA TOR			
B092-58-569	2	BASE, R-PKG, PKG-A, (W/O POWER WIND.)			
-----+ 58-570A -----+		STRIKER			
B001-58-361A	2				
-----+ 58-586 -----+		RING, SNAP			
B001-58-585	2	BASE, R-PKG, PKG-A, (W/O POWER WIND.)			
-----+ 58-861C -----+		SCREEN(R), FRONT DOOR			
NA01-58-861A	1	BASE, R-PKG, PKG-A, (W/O POWER WIND.)			
NA02-58-861A	1	M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/POWER WIND.)			
4901 NA35*	-602618				
4B01 NA35*	-606043				

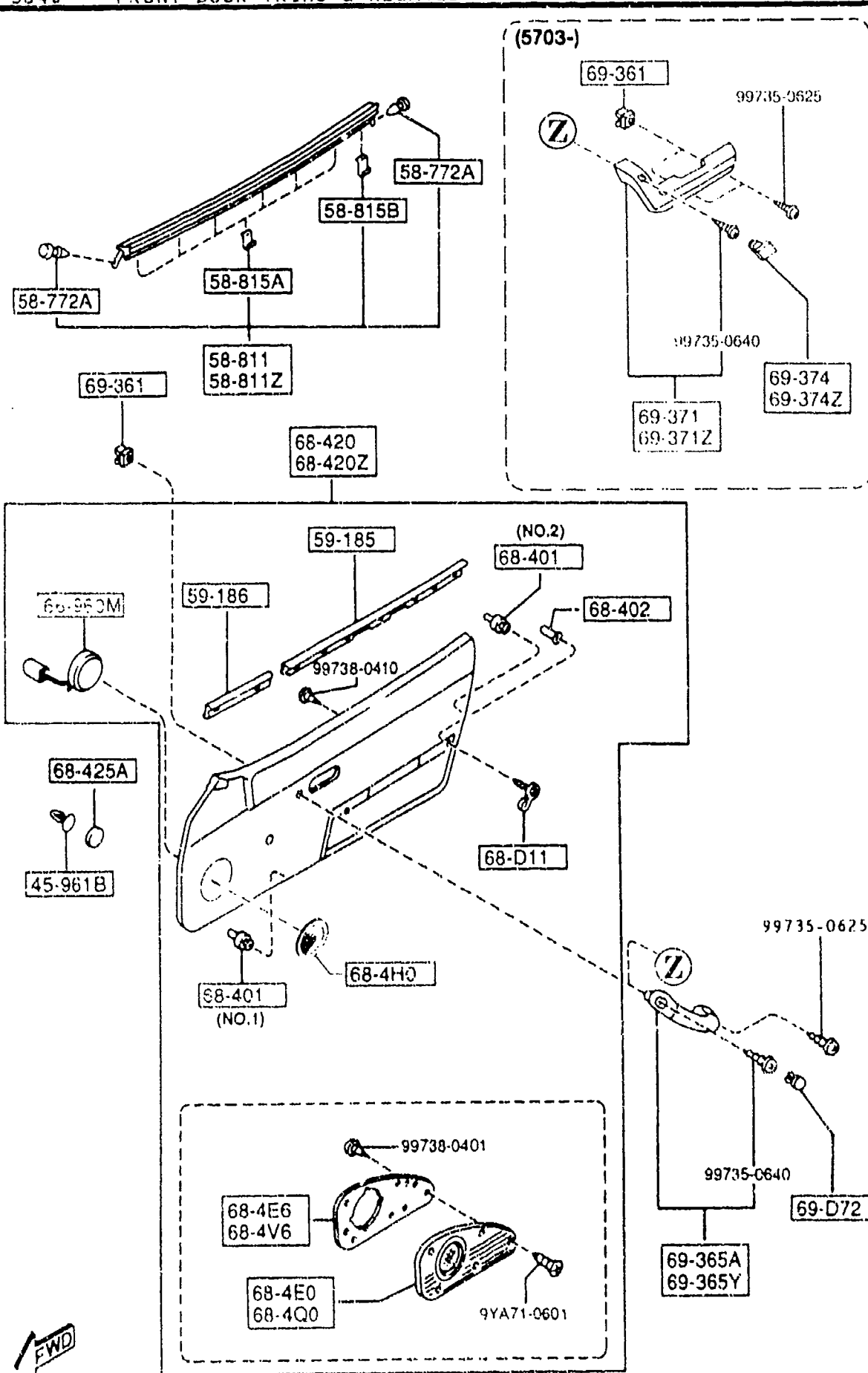


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
59-861		SCREEN(L),FRONT DOOR			
NA01-59-861A	1	BASE, R-PKG, PKG-A, (W/O POWER WIND.)			
NA02-59-861A	1	M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/POWER WIND.)			
62-671		DOVETAIL,LIFT GATE			
S084-62-671	2				
62-681B		WEDGE,DOOR-FRONT			
NA01-62-681	2				
62-682		SCREW,WEDGE-LIFT GATE			
8216-62-682	4				
62-868A		COVER,HOLE-LIFT GATE			
B499-62-868	2				-4901
76-448A		CLIP			
G030-76-448	2				
4901 NA35* -602618					

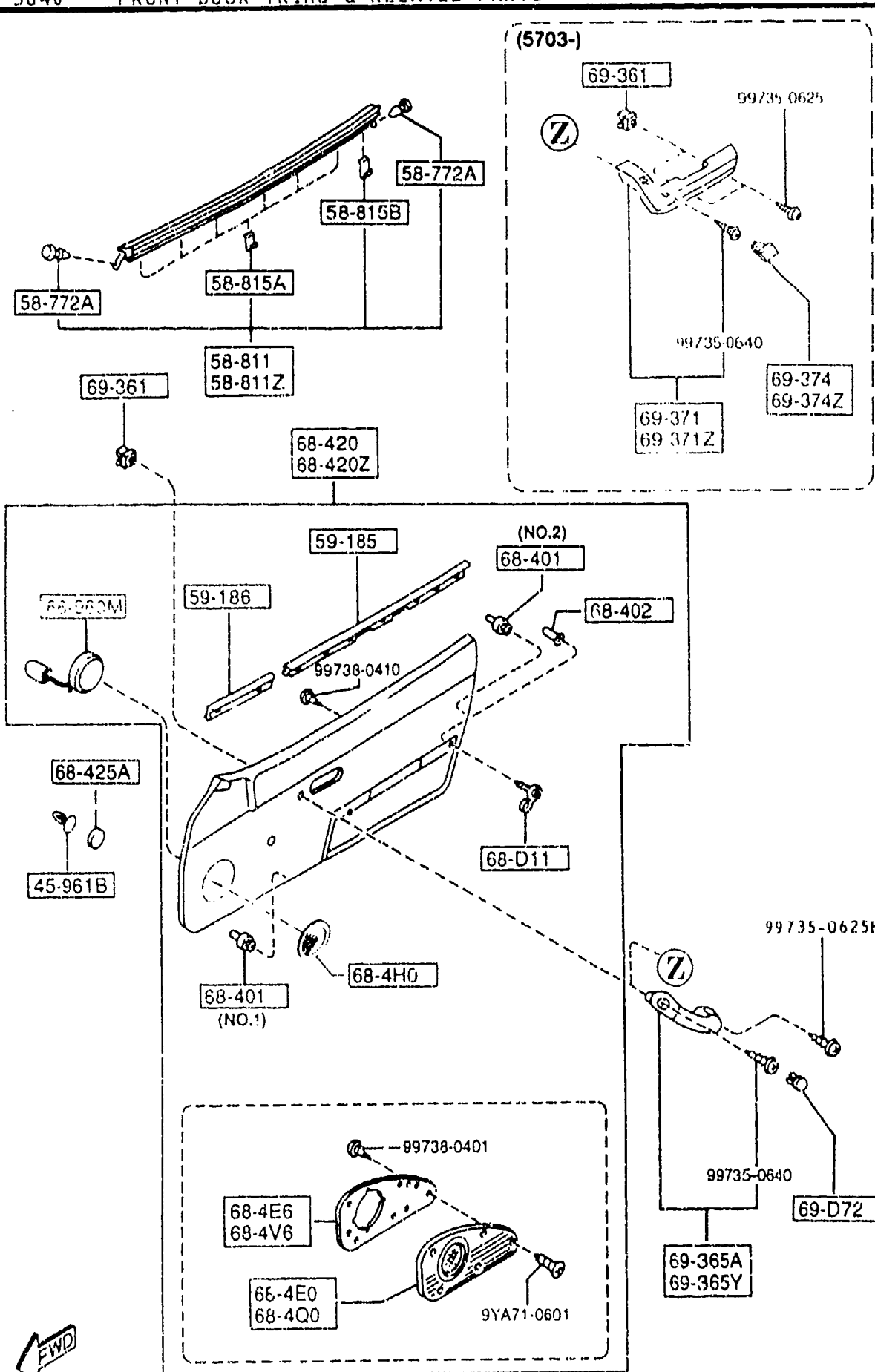


PART NO	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
45-961B		CAP			
H002-45-961	2	(TDA-PLASTIC KICKPLATE)			4817
H002-45-961	4	OPT, (TDB-STAINLESS KICKPLATE)			-4817
H002-45-961	6	OPT, (TDB-STAINLESS KICKPLATE)			4817-5703
H002-45-961	4	(TDA-PLASTIC KICKPLATE)			4817-5703
H002-45-961	4				5703-
58-772A		FASTENER			
1011-58-772	4				
58-811		WEATHERSTRIP(R), OUT.			
NA01-58-810D	1				
58-811Z		WEATHERSTRIP(L), OUT.			
NA01-59-810D	1				
58-815A		CLIP, WEATHERSTRIP-OUTER			
NA01-58-815	12				
58-815B		CLIP 'A', WEATHERSTRIP-OUT			
B157-58-815	2				
59-185		WEATHERSTRIP NO.1			
NA01-58-821	2				
59-186		WEATHERSTRIP NO.2			
NA02-58-821	2				
66-960M		SPEAKER, LOUD-DOOR			
N026-66-960	2	M-25-ED, (W/TWEETER SPEAKER)			-5703
N035-66-960	2	L-PKG-OPT, (W/SENSORY SOUND)			-5703
NB42-66-960	2	(W/TWEETER SPEAKER)			5703-
68-D11		CAP, SCREW			
B501-68-D11R	2				-5703

4817 NA3** -500407
5703 NA3** -700001

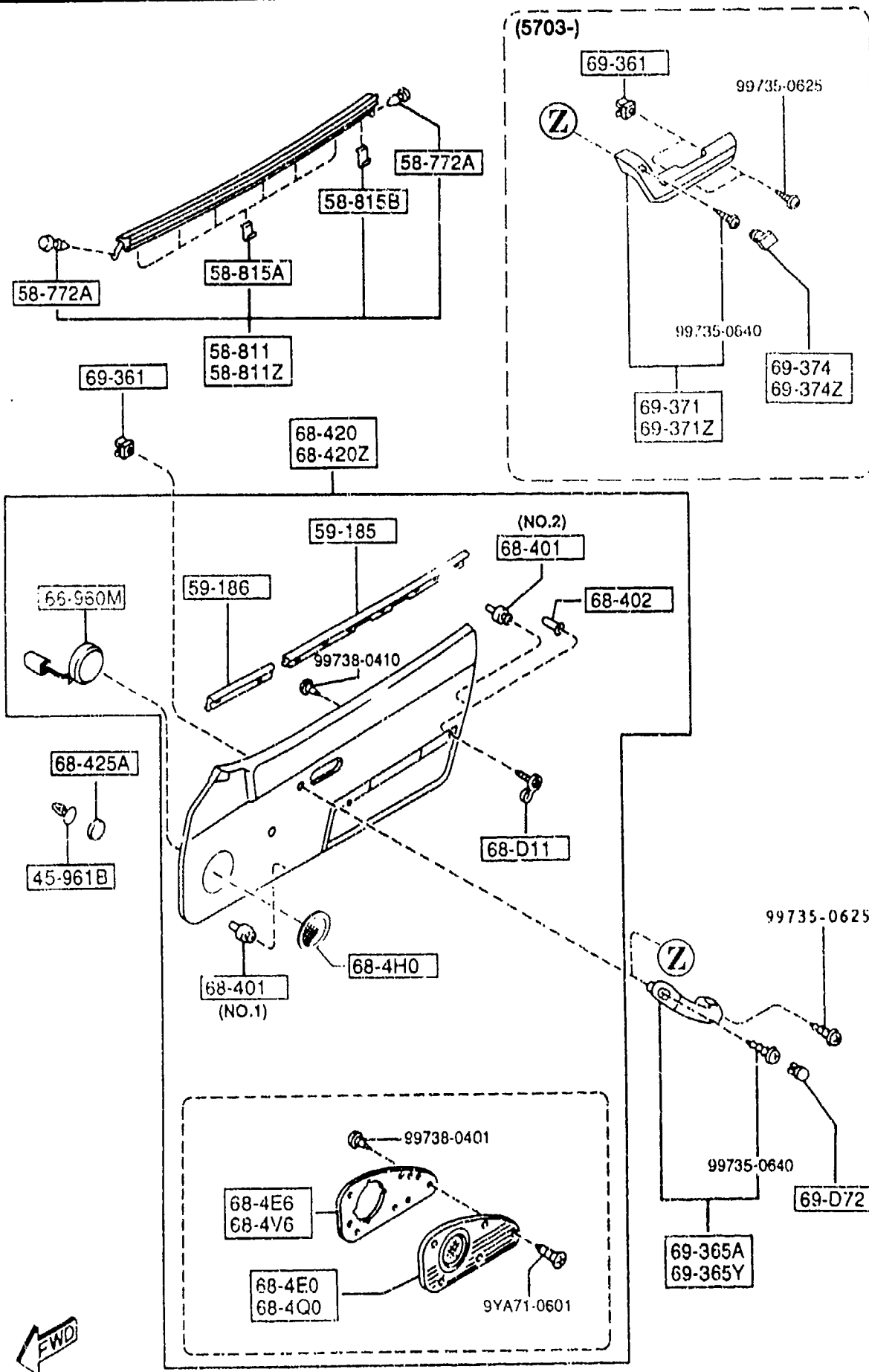


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
00	INT-	NA3 BLACK			
67	INT-	NA4 NA5 TAN			
		+-----+ | 68-4E0 | +-----+			
N020-68-4E1A	1	OPT, (TDB-STAINLESS KICKP LATE)			-5703
		+-----+ | 68-4E6 | +-----+			
N020-68-4E6	1	OPT, (TDB-STAINLESS KICKP LATE)			-5703
		+-----+ | 68-4H0 | +-----+			
B501-68-4H3	2	GRILLE,SPEAKER-FRT (TDA-PLASTIC KICKPLA TE)			-5703
02	INT-	NA3 NA4 NA5 BLACK			
BR72-68-3S0A	2	(W/POWER WIND.+W/C.D .)			5703-
60	INT-	NA3 NA5 DARK GRAY/OFF-BLACK			
A004-68-5H0	2	(W/POWER WIND.+W/O C .D.)			5703-
00	INT-	NA3 NA5 BLACK			
A004-68-5H0	2	BASE, R-PKG, PKG-A. (W/O POWER WIND.)			5703-
00	INT-	NA3 NA5 BLACK			
		+-----+ | 68-400 | +-----+			
N020-68-4V1A	1	OPT, (TDB-STAINLESS KICKP LATE)			-5703
		+-----+ | 68-4V6 | +-----+			
N020-68-4V6	1	OPT, (TDB-STAINLESS KICKP LATE)			-5703
		+-----+ | 68-401 | +-----+			
B100-68-401	14	FASTENER,DOOR TRIM (ILLUST. NO.1)			
W201-68-401	10	OPT, (ILLUST. NO.2) (TDB-STAINLESS KICKP LATE)			-5703
W201-68-401	12	(ILLUST. NO.2)			-5703
5703 NA3** -700001					



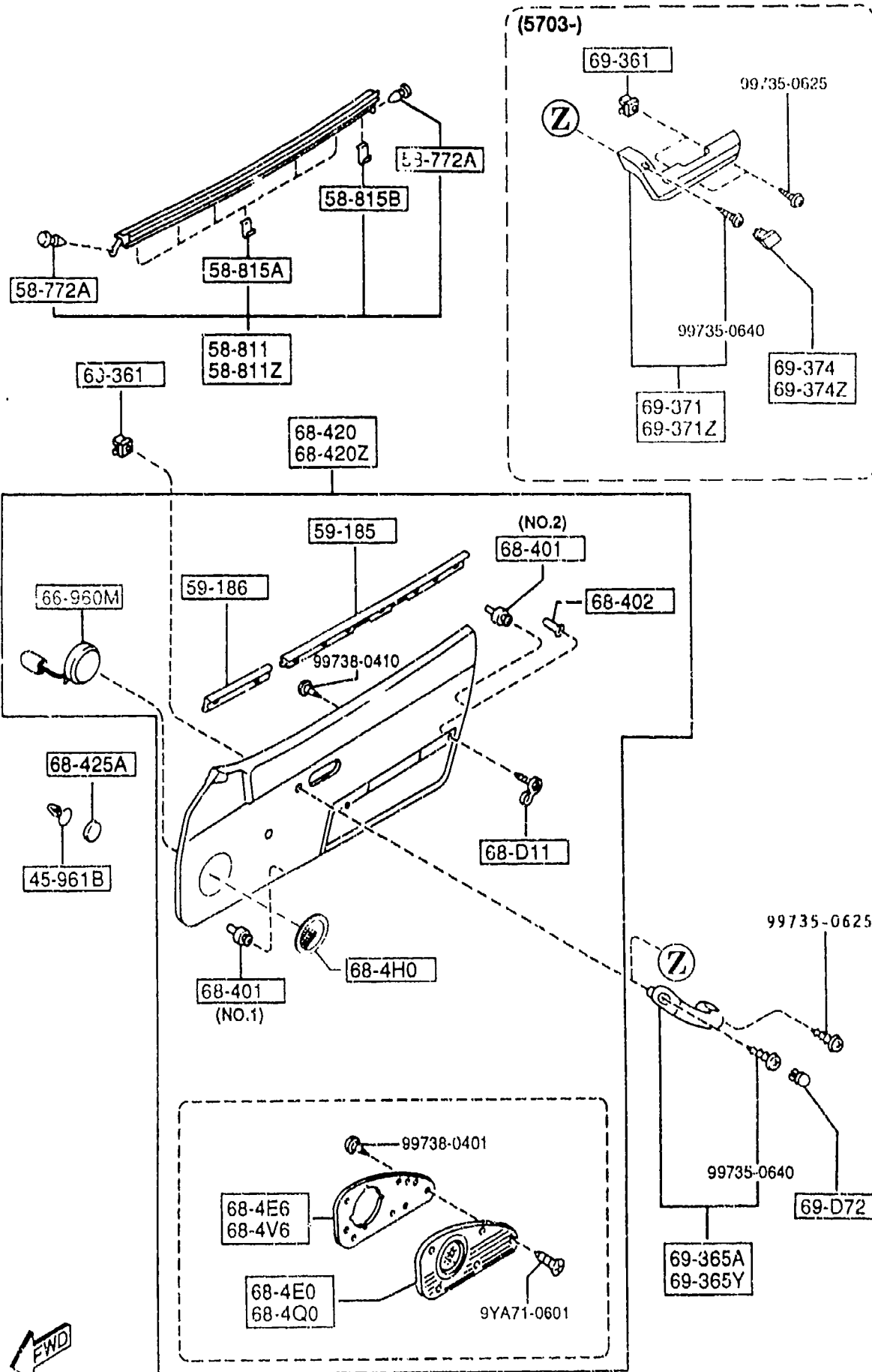
PART NO	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D		(TDA-PLASTIC KICKPLATE)			
W201-68-401	12	(ILLUST. NO.2)			5703-
68-402		GROMMET, SCREW			-5703
B110-68-429	2				
68-420		TRIM(R), DOOR			-5106
N026-68-420C	1	(TDB TYPE, W/POWER WIND, W/O TWEETER SPK, W/O SENSORY SOUND)			-5106
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
N028-68-420C	1	BASE, R-PKG, PKG-A, (TDA TYPE, W/O POWER WIND, W/O TWEETER SPK, W/O SENSORY SOUND)			-5106
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
N030-68-420C	1	P.E.GR, L-PKG, PKG-B, PKG-C, (TDA TYPE, W/POWER WIND, W/O TWEETER SPK, W/O SENSORY SOUND)			-5106
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
N032-68-420A	1	(TDA TYPE, W/O POWER WIND, W/ TWEETER SPK, W/O SENSORY SOUND)			-5106
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
N033-68-420A	1	M-25-ED, (TDA TYPE, W/POWER WIND, W/ TWEETER SPK, W/O SENSORY SOUND)			-5106
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
N034-68-420A	1	(TDB TYPE, W/POWER WIND, W/ TWEETER SPK, W/O SENSORY SOUND)			-5106
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
N035-68-420A	1	(TDB TYPE, W/POWER WIND, W/O TWEETER SPK, W/O SENSORY SOUND)			-5106
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			

5106 NA3* -612163
5703 NA3** -700001



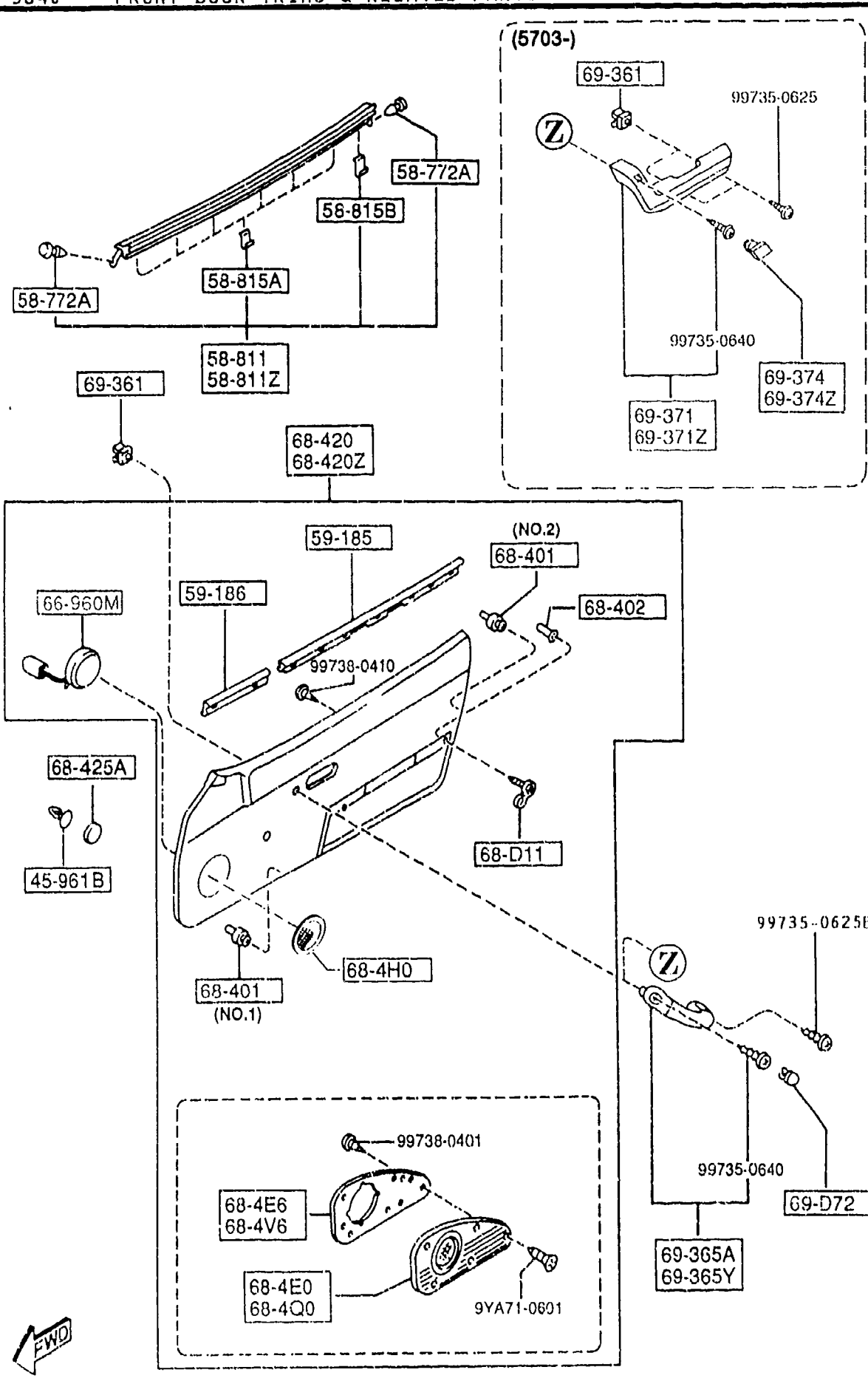
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
N036-68-420A	1	(TDA TYPE, W/O POWER WIND, W/O TWEETER SPK, W/SENSORY SOUND)			-5106
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
N037-68-420A	1	L-PKG-OPT PKG-B-OPT, PKG-C-OPT, (TDA TYPE, W/POWER WIND, W/O TWEETER SPK, W/SENSORY SOUND)			-5106
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
N026-68-420D	1	(TDB TYPE, W/POWER WIND, W/O TWEETER SPK, W/O SENSORY SOUND)			5106-5703
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
N028-68-420D	1	BASE, R-PKG, PKG-A, (TDA TYPE, W/O POWER WIND, W/O TWEETER SPK, W/O SENSORY SOUND)			5106-5703
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
N030-68-420D	1	P.E.GR, L-PKG, PKG-B, PKG-C, (TDA TYPE, W/POWER WIND, W/O TWEETER SPK, W/O SENSORY SOUND)			5106-5703
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
N032-68-420B	1	(TDA TYPE, W/O POWER WIND, W/ TWEETER SPK, W/O SENSORY SOUND)			5106-5703
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
N033-68-420B	1	M-25-ED, (TDA TYPE, W/POWER WIND, W/ TWEETER SPK, W/O SENSORY SOUND)			5106-5703
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
N034-68-420B	1	(TDB TYPE, W/POWER WI			5106-5703

5106 NA35* -612163
5703 NA3** -700001



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
		ND,W/ TWEETER SPK,W/O SENSORY SOUND)			
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
N035-68-420B	1	(TDB TYPE,W/POWER WIND,W/O TWEETER SPK,W/SENSORY SOUND)			5106-5703
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
N036-68-420B	1	(TDA TYPE,W/O POWER WIND,W/O TWEETER SPK,W/SENSORY SOUND)			5106-5703
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
N037-68-420B	1	L-PKG-OPT PKG-R-OPT, PKG-C-OPT, (TDA TYPE,W/POWER WIND,W/O TWEETER SPK,W/SENSORY SOUND)			5106-5703
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
NB38-68-420A	1	BASE, R-PKG, PKG-A, (W/O POWER WIND,W/O TWEETER SPK)			5703-
00	INT-	NA3 NA7 BLACK			
NB39-68-420A	1	P.E.GR, L-PKG, PKG-B, PKG-C, (W/POWER WIND,W/O TWEETER SPK.)			5703-
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
NB44-68-420A	1	OPT, (W/O POWER WIND,W/TWEETER SPK.)			5703-
00	INT-	NA3 NA7 BLACK			
NB56-68-420	1	OPT, (W/POWER WIND,W/TWEETER SPK.)			5703-
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
		TRIM(L), DOOR			
N026-68-450C	1	(TDB TYPE,W/POWER WIND,W/O TWEETER SPK,W/O SENSORY SOUND)			-5106

5106 NA35* -612163
5703 NA3** -700001

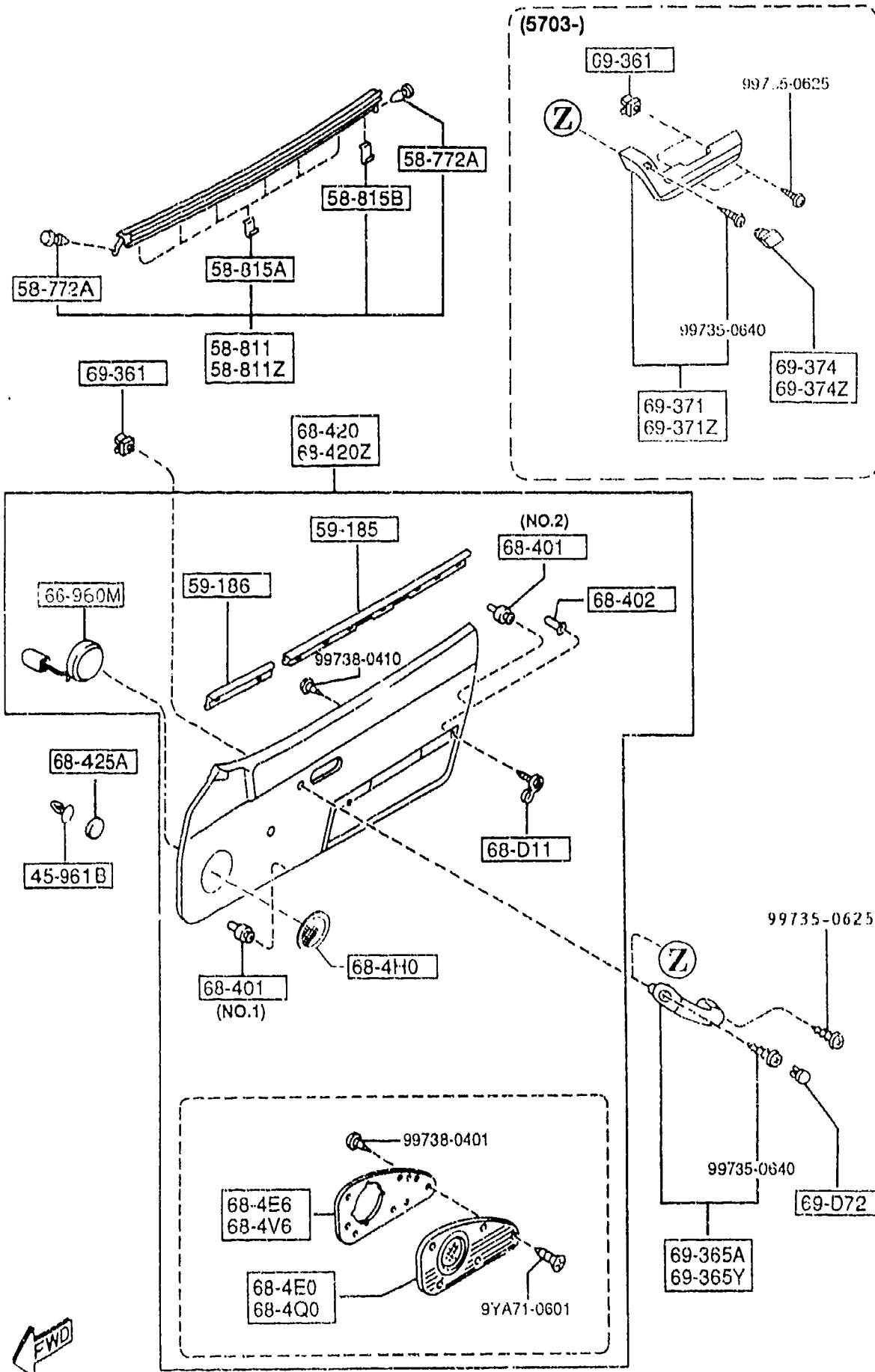


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
N028-68-450C	1	BASE, R-PKG, PKG-A, (TDA TYPE, W/O POWER WIND, W/O TWEETER SPK, W/O SENSORY SOUND)			-5106
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
N030-68-450C	1	F.E.GR, L-PKG, PKG-B, PKG-C, (TDA TYPE, W/POWER WIND, W/O TWEETER SPK, W/O SENSORY SOUND)			-5106
00	INT-	NA3 BLACK			
90	INT-	NA5 BLACK/TAN			
N032-68-450A	1	(TDA TYPE, W/O POWER WIND, W/ TWEETER SPK, W/O SENSORY SOUND)			-5106
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
N033-68-450A	1	M-25-ED, (TDA TYPE, W/POWER WIND, W/ TWEETER SPK, W/O SENSORY SOUND)			-5106
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
N034-68-450A	1	(TDB TYPE, W/POWER WIND, W/ TWEETER SPK, W/O SENSORY SOUND)			-5106
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
N035-68-450A	1	(TDB TYPE, W/POWER WIND, W/O TWEETER SPK, W/ SENSORY SOUND)			-5106
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
N036-68-450A	1	(TDA TYPE, W/O POWER WIND, W/O TWEETER SPK, W/ SENSORY SOUND)			-5106
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
N037-68-450A	1	L-PKG-OPT PKG-B-OPT, PKG-C-OPT, (TDA TYPE, W/POWER WIND, W/O TWEETER SPK, W/O SENSORY SOUND)			-5106

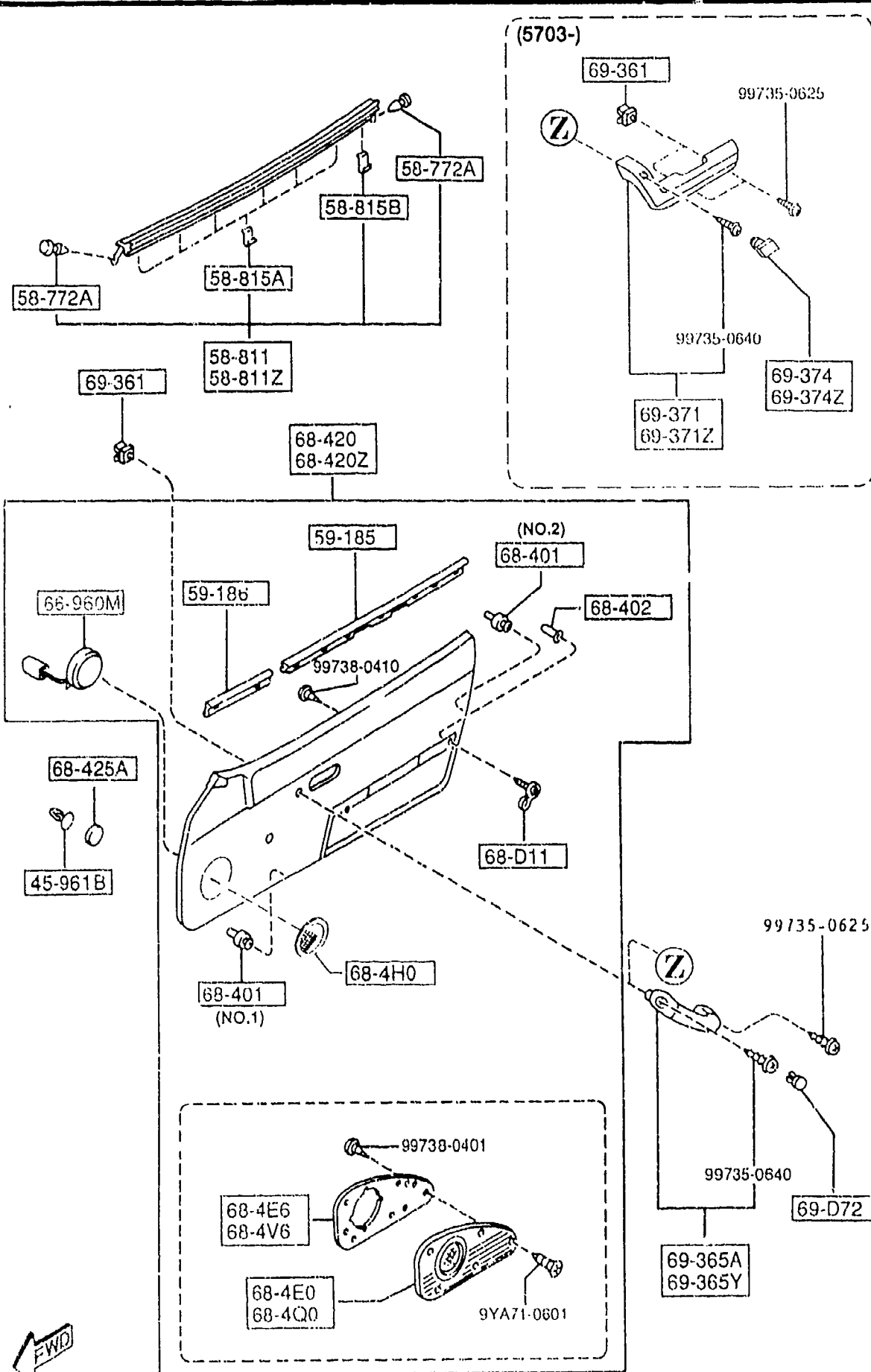
5106 NA35* -612163

5840 FRONT DOOR TRIMS & RELATED PARTS

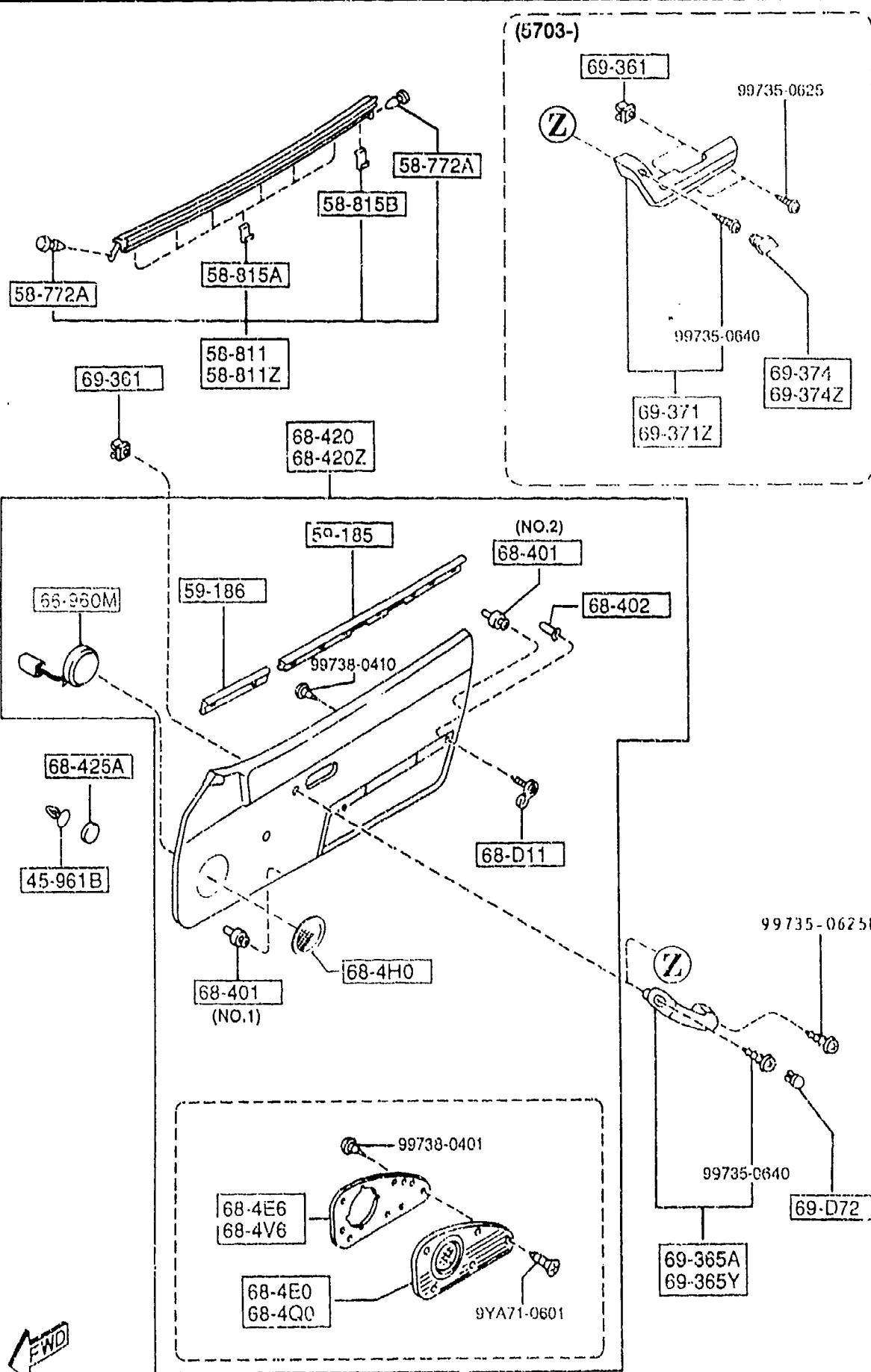
5840 -7 FRONT DOOR TRIMS & RELATED PARTS



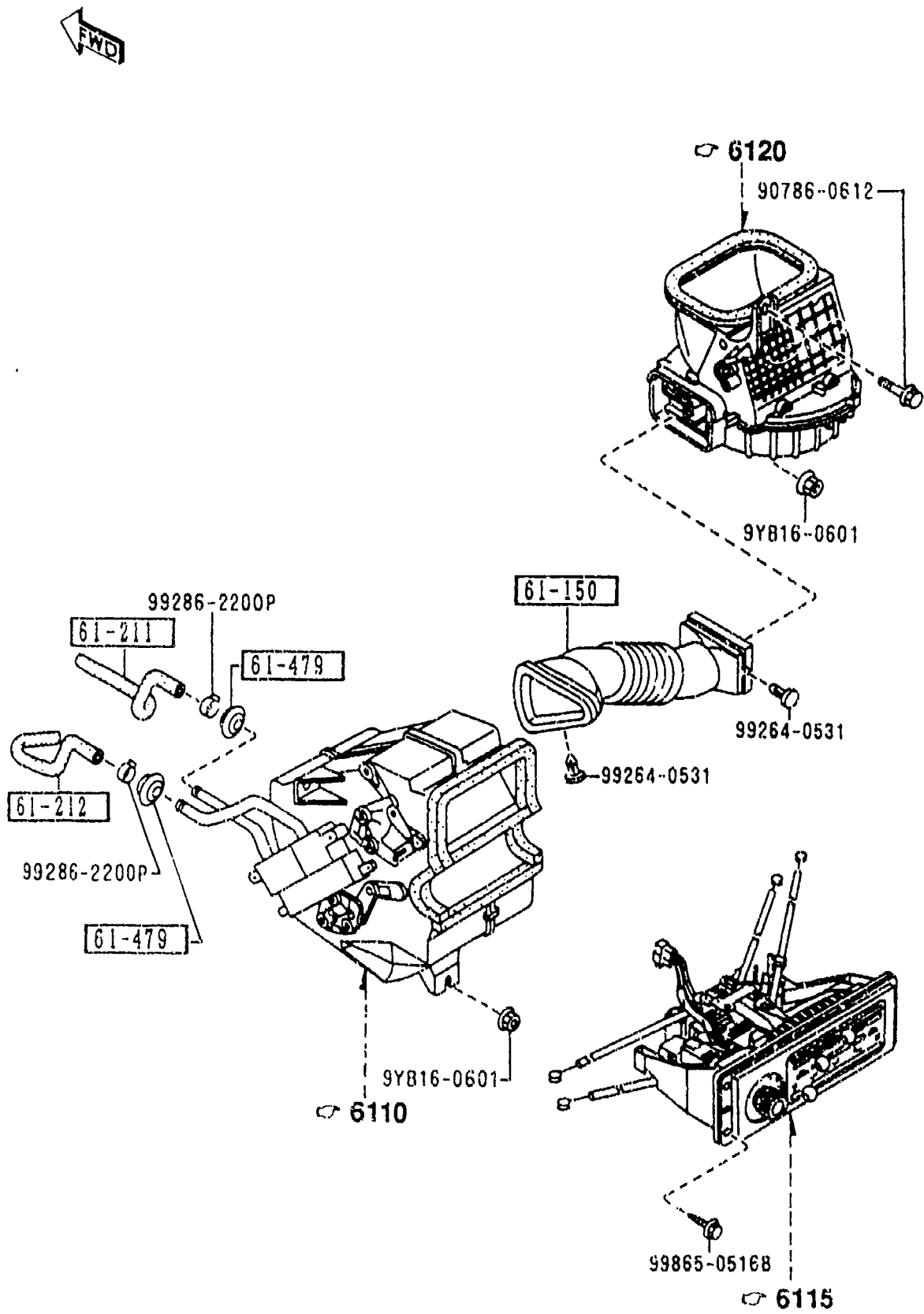
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
00	INT-	NA3 BLACK	ND,W/O TWEETER SPK,W /SENSORY SOUND)		
80	INT-	NA5 BLACK/TAN			
N026-68-450D	1	(TDB TYPE,W/POWER WI ND,W/O TWEETER SPK,W /O SENSORY SOUND)			5106-5703
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
N028-68-450D	1	BASE, R-PKG, PKG-A, (TDA TYPE,W/O POWER WIND,W/O TWEETER SPK ,W/O SENSORY SOUND)			5106-5703
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
N030-68-450D	1	P.E.GR, L-PKG, PKG-B , PKG-C, (TDA TYPE,W/POWER WI ND,W/O TWEETER SPK,W /O SENSORY SOUND)			5106-5703
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
N032-68-450B	1	(TDA TYPE,W/O POWER WIND,W/ TWEETER SPK, W/O SENSORY SOUND)			5106-5703
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
N033-68-450B	1	M-25-ED, (TDA TYPE,W/POWER WI ND,W/ TWEETER SPK,W /O SENSORY SOUND)			5106-5703
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
N034-68-450B	1	(TDB TYPE,W/POWER WI ND,W/ TWEETER SPK,W /O SENSORY SOUND)			5106-5703
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
N035-68-450B	1	(TDB TYPE,W/POWER WI ND,W/O TWEETER SPK,W /SENSORY SOUND)			5106-5703
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
N036-68-450B	1	(TDA TYPE,W/O POWER			5106-5703
		5106 NA35* -612163			
		5703 NA3** -700001			



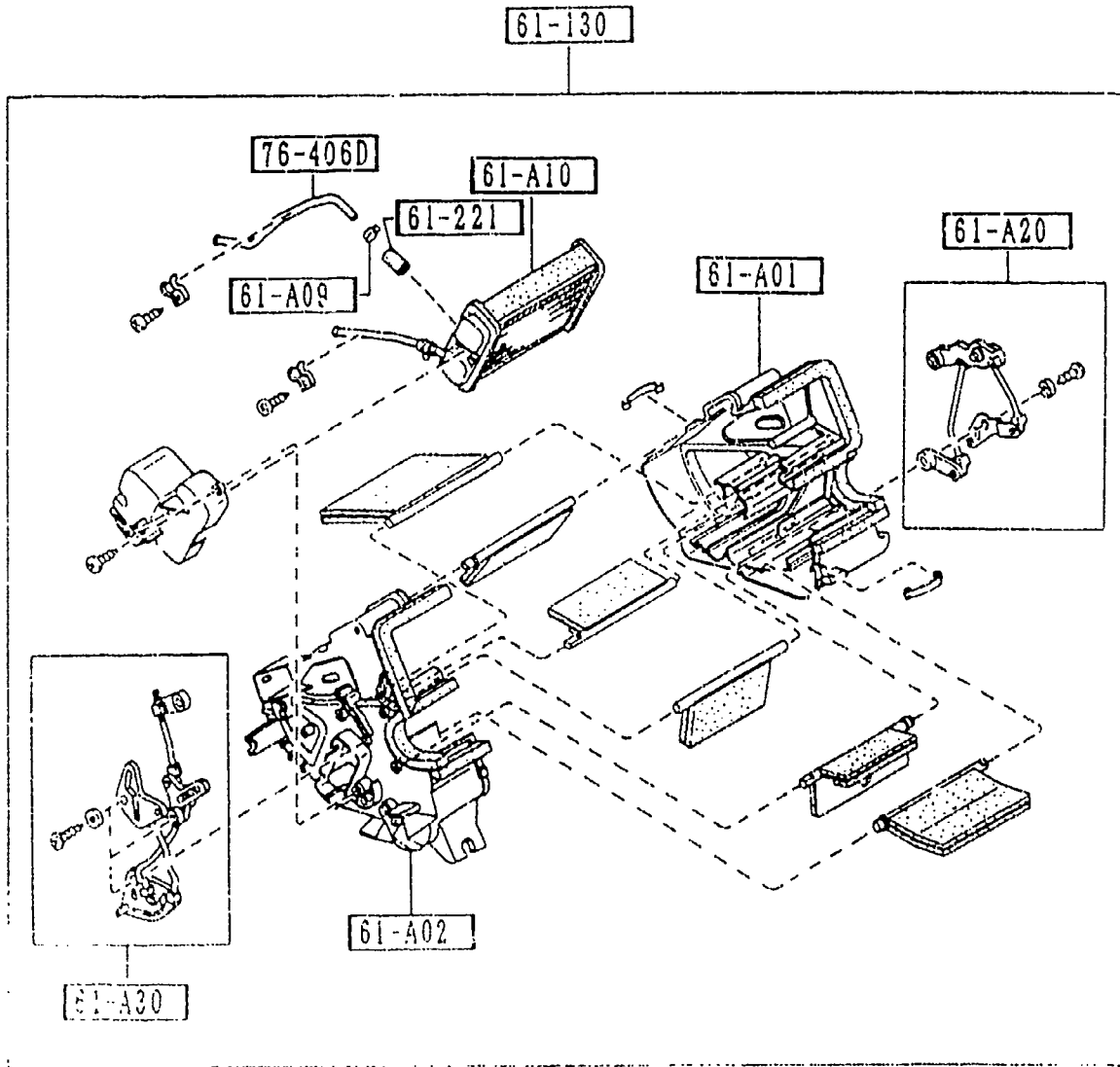
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
		WIND,W/O TWEETER SPK ,W/SENSORY SOUND)			
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
N037-68-450B	1	L-PKG-OPT PKG-B-OPT, PKG-C-OPT, (TDA TYPE,W/POWER WIND,W/O TWEETER SPK,W /SENSORY SOUND)			5106-5703
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
ND38-68-450A	1	BASE, R-PKG, PKG-A, (W/O POWER WIND,W/O TWEETER SPK)			5703-
00	INT-	NA3 NA7 BLACK			
NB39-68-450A	1	P.E.GR, L-PKG, PKG-B , PKG-C, (W/POWER WIND,W/O TW EETER SPK.)			5703-
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
NB44-68-450A	1	OPT, (W/O POWER WIND,W/TW EETER SPK.)			5703-
00	INT-	NA3 NA7 BLACK			
NB56-68-450	1	OPT, (W/POWER WJND,W/TWEE TER SPK.)			5703-
00	INT-	NA3 BLACK			
80	INT-	NA5 BLACK/TAN			
		68-425A	COVER,HOLE		
G043-62-864A	2	(TDA-PLASTIC KICKPLA TE)			-4817
G043-62-864A	4	OPT, (TDB-STAINLESS KICKP LATE)			-4817
G043-62-864A	6	OPT, (TDB-STAINLESS KICKP LATE)			4817-5703
G043-62-864A	4	(TDA-PLASTIC KICKPLA TE)			4817-5703
LA01-57-425A	2				5703-
		69-D72	CAP,ASSIST GRIP		
4817	NA35*	-600407			
5106	NA35*	-612163			
5703	NA3**	-700001			



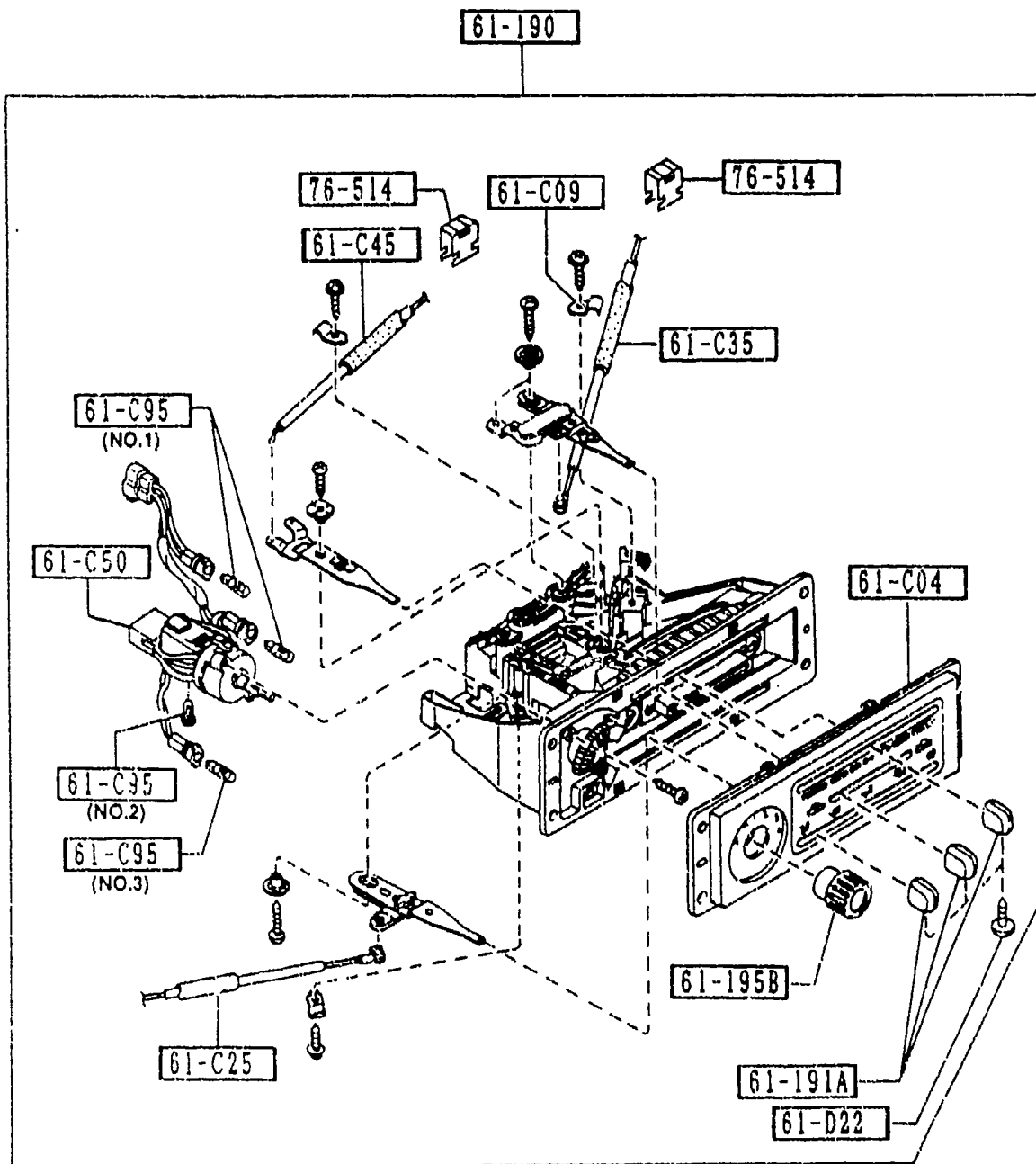
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
N026-69-D72	2				-5703
00	INT-	NA3 NA4 NA5 NA6 NA7 BLACK			
69-361		GROMMET, SCREW			
B316-69-361	4				-5703
B316-69-361	6				5703-
69-365A		GRIP(R), ASSIST			
N026-69-D70	1				-5703
00	INT-	NA3 NA4 NA5 NA6 NA7 BLACK			
69-365Y		GRIP(L), ASSIST			
N026-69-D90	1				-5703
00	INT-	NA3 NA4 NA5 NA6 NA7 BLACK			
69-371		REST(R), ARM			
BF70-69-370C	1				5703-
00	INT-	NA3 NA7 NA8 BLACK			
88	INT-	NA4 NA5 TAN			
69-371Z		REST(L), ARM			
BF70-69-390C	1				5703-
00	INT-	NA3 NA7 NA8 BLACK			
88	INT-	NA4 NA5 TAN			
69-374		CAP(R), PULL HANDLE			
BF70-69-372	1				5703-
00	INT-	NA3 NA7 NA8 BLACK			
88	INT-	NA4 NA5 TAN			
69-374Z		CAP(L), PULL HANDLE			
BF70-69-392	1				5703-
00	INT-	NA3 NA7 NA8 BLACK			
88	INT-	NA4 NA5 TAN			
5703 NA3**	-700001				



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
61-150		DUCT, AIR			
NA01-61-150A	1				
61-211		HOSE NO.1, WATER			
NA75-61-211	1				
61-212		HOSE NO.2, WATER			
NA75-61-212	1				
61-479		GROMMET			
8871-61-219A	2				



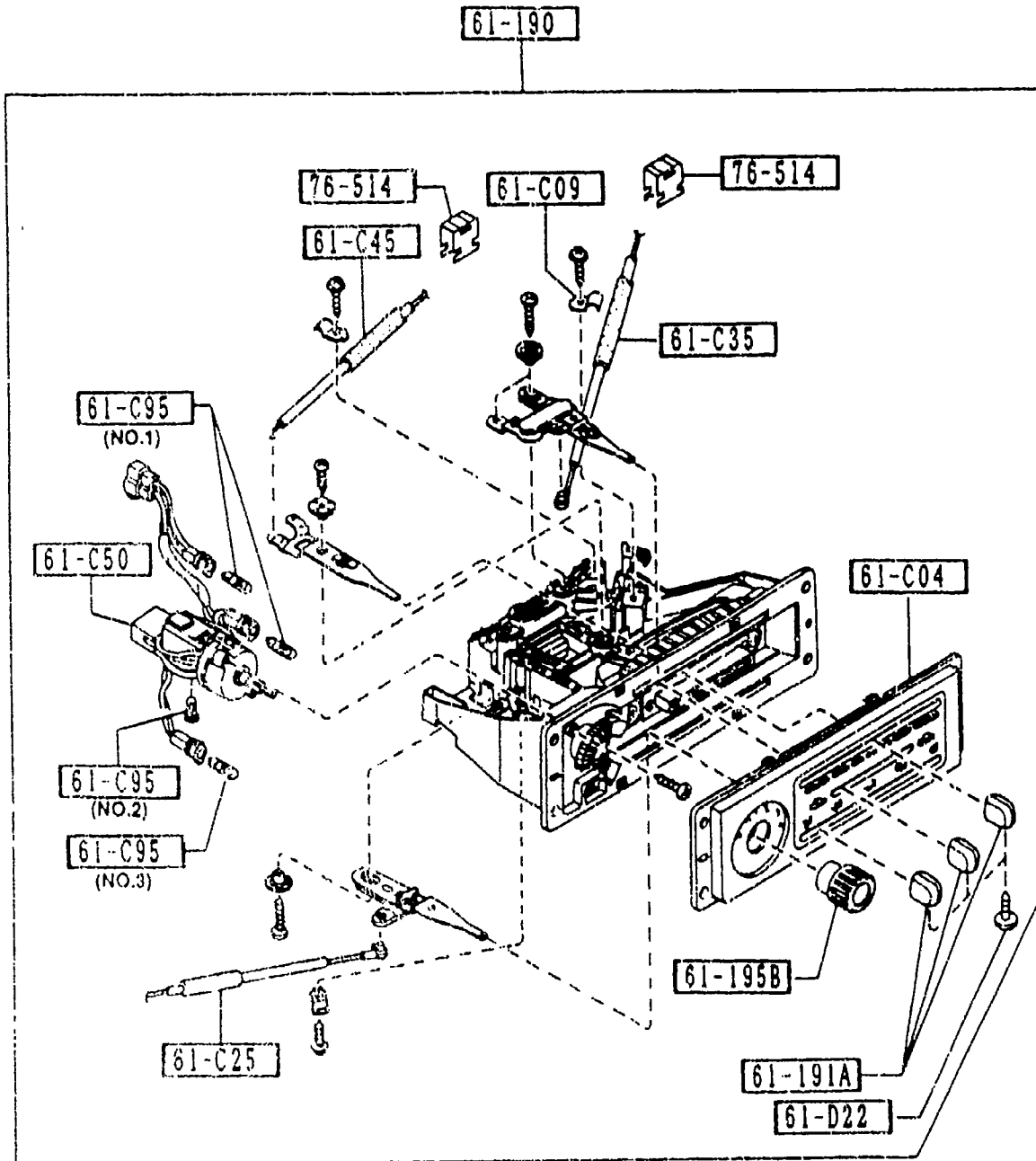
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
61-A01		CASE 'A', HEATER UNIT			
NA01-61-A01	1				
61-A02		CASE 'B', HEATER UNIT			
NA01-61-A02	1				
61-A09		CLIP			
NA01-61-A09	1				
61-A10		CORE, HEATER UNIT			
NA75-61-A10	1				
61-A20		LINK SET, TEMP			
NA01-61-A20	1				
61-A30		LINK SET, MODE			
NA01-61-A30	1				
61-130		HEATER UNIT			
NA75-61-130	1				
61-221		HOSE, WATER			
NA01-61-A21	1				
76-406D		PIPE, HEATER UNIT			
NA75-61-A15	1				



PART NO.	QTY	MODEL/RFSTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
61-C04		PANEL, PLATE-MODE CONTROL			
NA01-61-C04A	1				
61-C09		CLIP, HEATER CONTROL			
H260-61-C09	1				
61-C25		WIRE, TEMP. CONTROL			
NA01-61-C25	1				
61-C35		WIRE, MODE CONTROL			
NA01-61-C35	1				
61-C45		WIRE, RECYCLE & FRESH			
NA75-61-C45	1				
61-C50		SWITCH, FAN-HEATER CONTROL			
NA01-61-C50	1				-6401
*NA01-61-C50A	1				6401-
61-C95		BULB, MODE CONTROL			
NA01-61-C95	2	(ILLUST. NO.1)			
NA02-61-C95	1	(ILLUST. NO.2)			
NA03-61-C95	1	(ILLUST. NO.3)			-6401
*NA03-61-C95A	1	(ILLUST. NO.3)			6401-
61-D22		SCREW, RR HEATER UNIT			
NA01-61-D22	3				
61-190		CONTROL, HEATER			
NA75-61-190B AN(NA75-61-190C)	1				-6401
*NA75-61-190C	1				6401-
61-191A		KNOB NO.1			
NA01-61-191	3				
61-195B		KNOB, FAN SWITCH			
NA01-61-195	1				
76-514		CLIP			

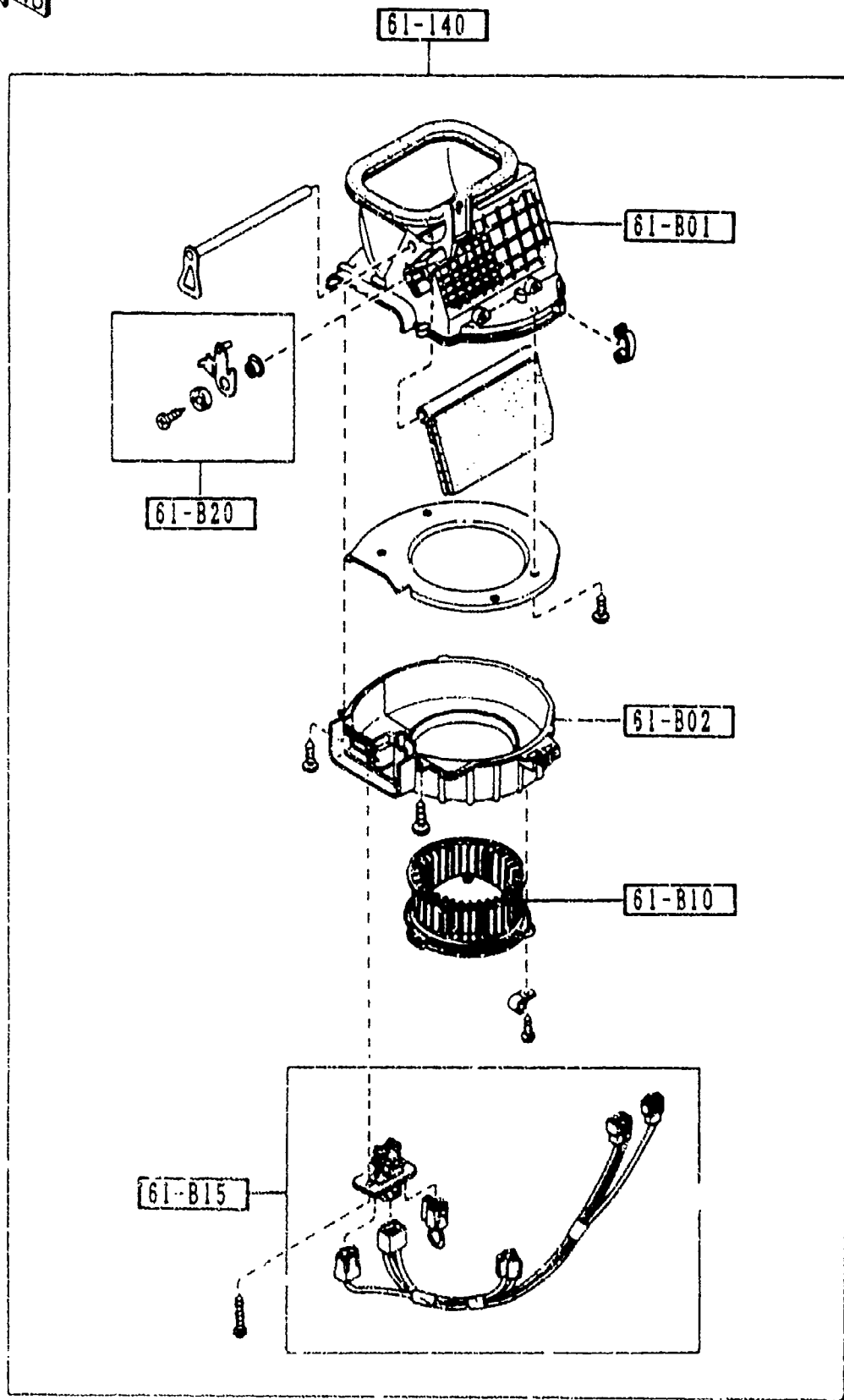
6401 NA3** -717787

FWD

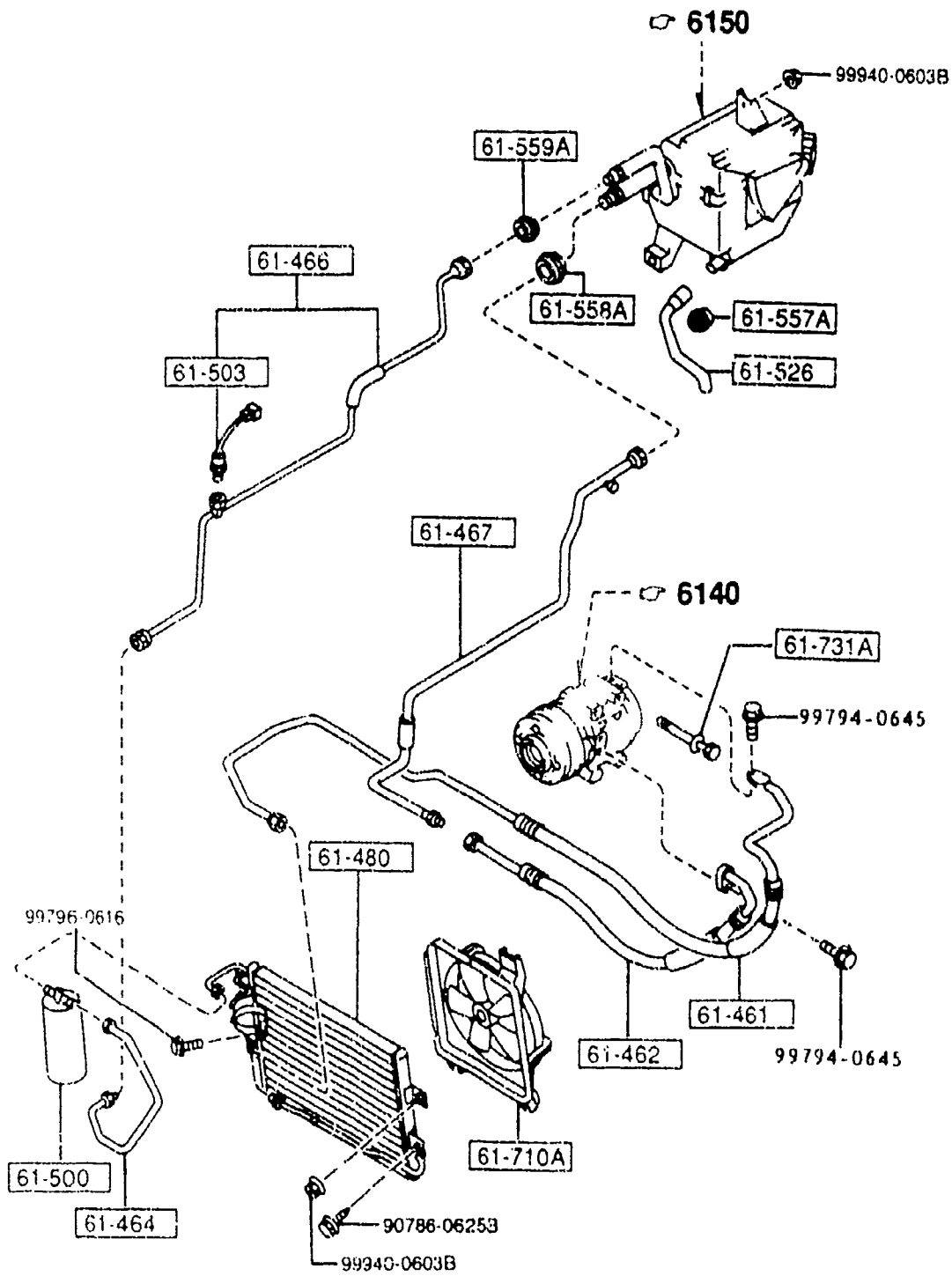


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D 8001-76-526	2				

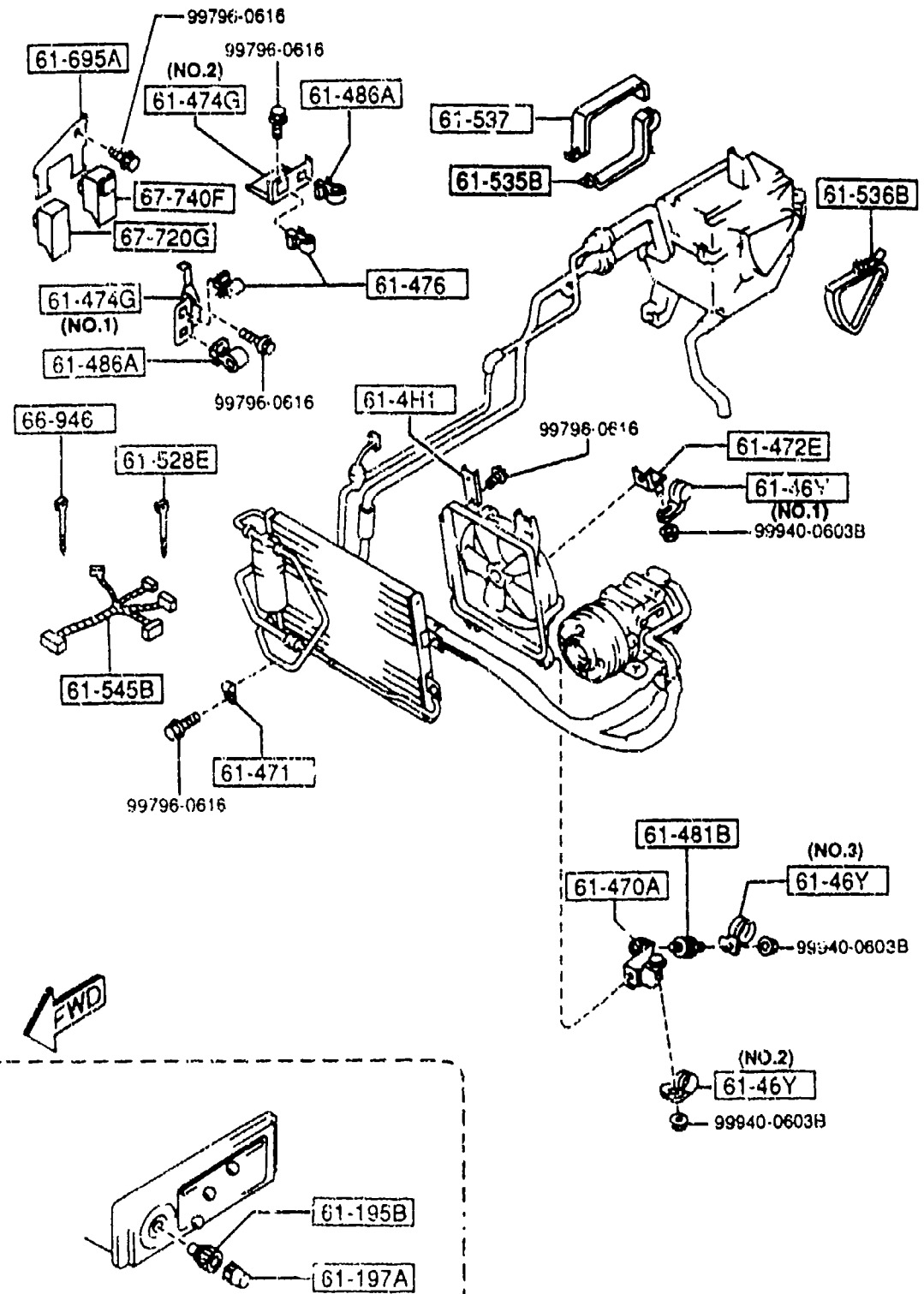
FWD



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
61-B01 NA75-61-B01	1	CASE 'A', BLOWER UNIT			
61-B02 NA01-61-B02	1	CASE 'B', BLOWER UNIT			
61-B10 NA01-61-B10	1	MOTOR, FAN-BLOWER UNIT			
61-B15 NA01-61-B15	1	RESISTOR, BLOWER UNIT			
61-B20 NA01-61-B20	1	LINK, RECYCLE & FRESH			
61-140 NA75-61-140	1	BLOWER UNIT			



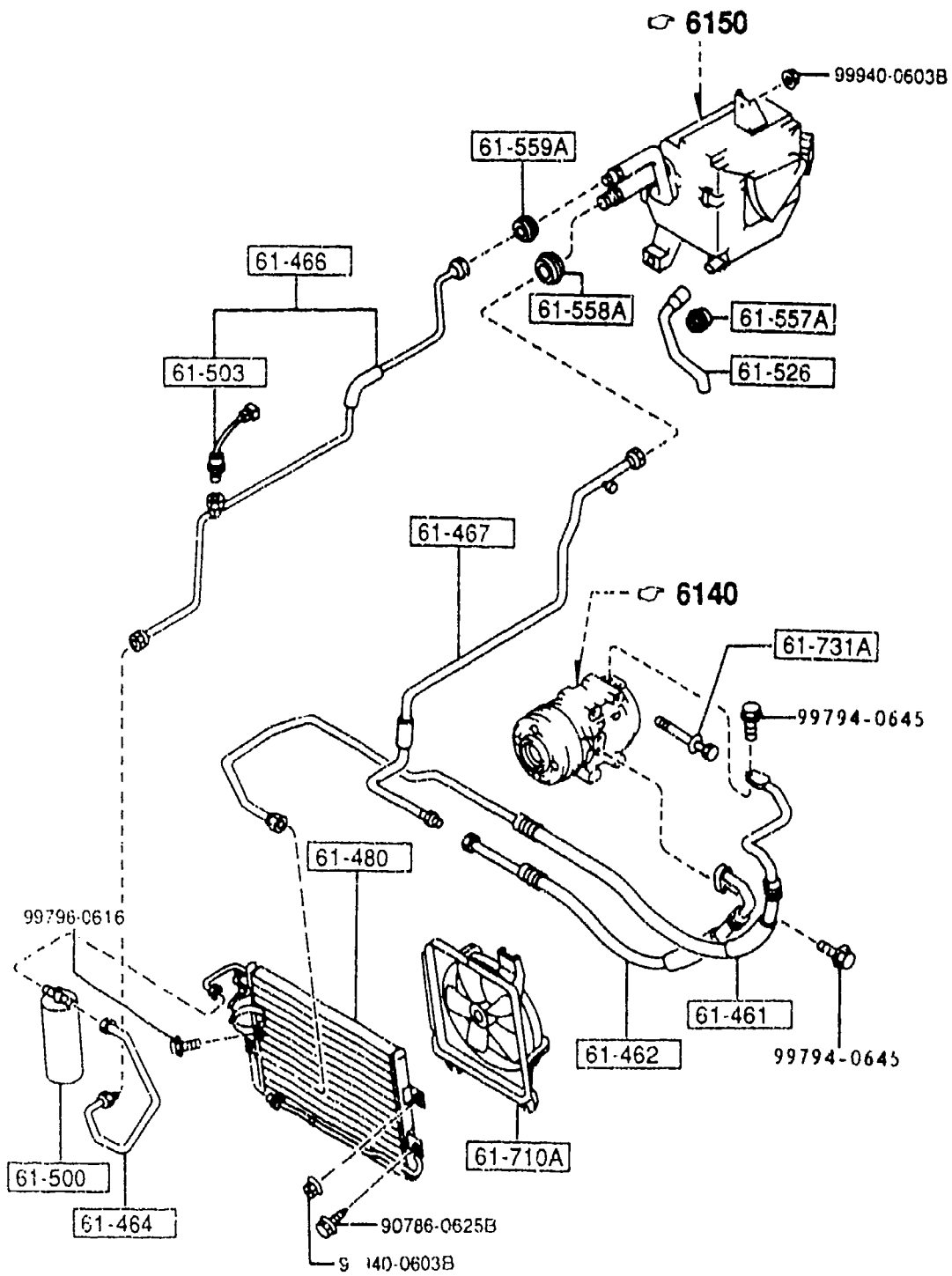
AUNA05



AUNA05

6130 AIR CONDITIONER
(PIPE & CONDENSER)

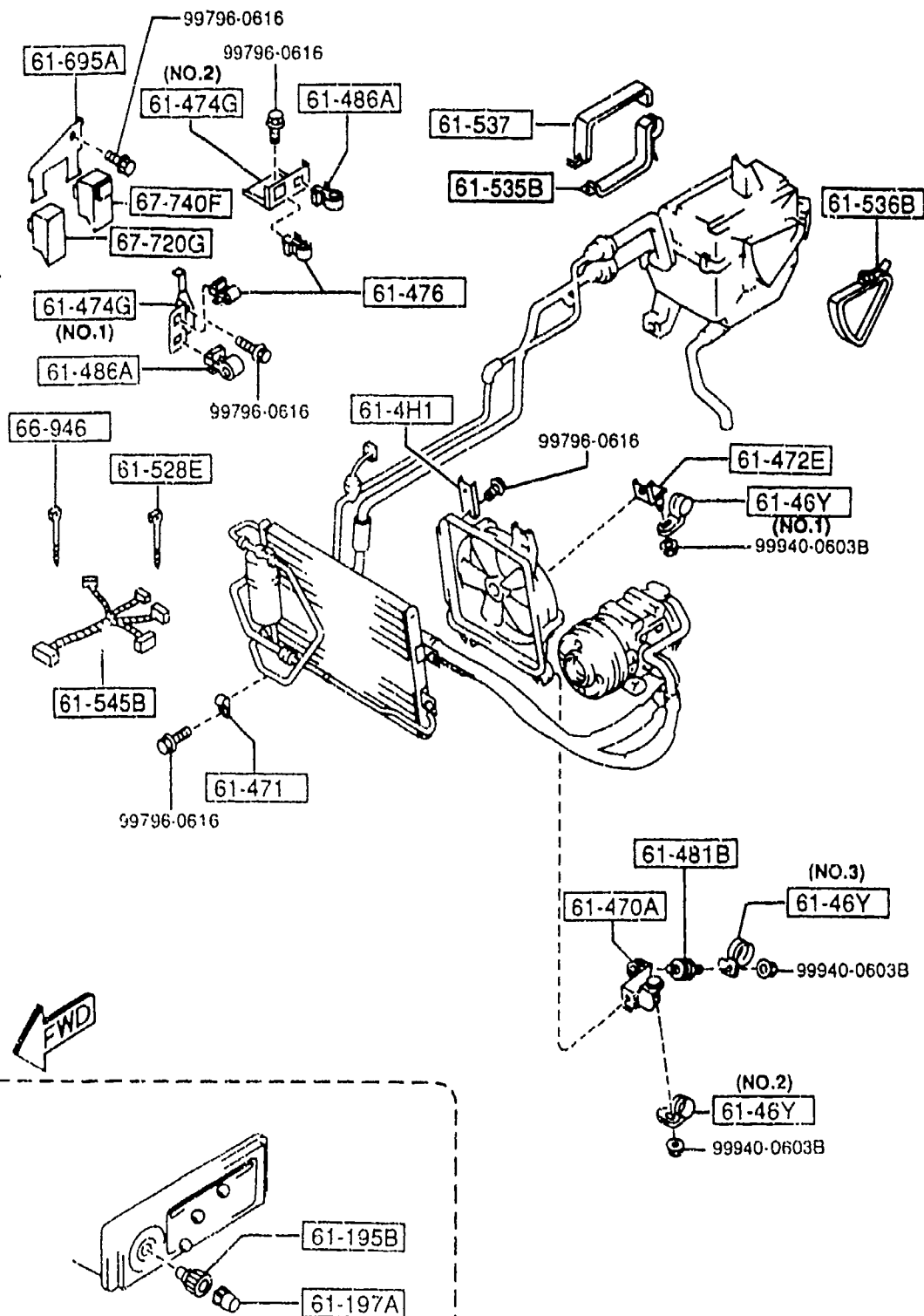
(1/2)



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
61-195B		KNOB,FAN SWITCH			
NA01-61-193	1				
61-197A		KNOB,AIR CON.			
NA01-61-197	1				
61-4H1		BRACKET,HOSE			
NA01-61-4H1	1	(A)			
61-46Y		CLIP,PIPE			
BR71-61-46Y	1	(A) (ILLUST. NO.1)			
BR76-61-46Y	1	(A) (ILLUST. NO.2)			
NA01-61-46YC	1	(A) (ILLUST. NO.3)			
61-461		HOSE,FLEXIBLE-HIGH			
NA75-61-461	1	(A)			
61-462		HOSE,FLEXIBLE-LOW			
NA75-61-462	1	(A)			
61-464		PIPE NO.2,COOLER			
NA75-61-467	1	(A)			
61-466		PIPE NO.4,COOLER			
NA75-61-46XA	1	(A)			
61-467		PIPE NO.5,COOLER			
NA75-61-468	1	(A)			
61-470A		BRACKET,HOSE			
NA02-61-471A	1	(A)			
61-471		CLIP,PIPE			
BF67-61-471	1	(A)			



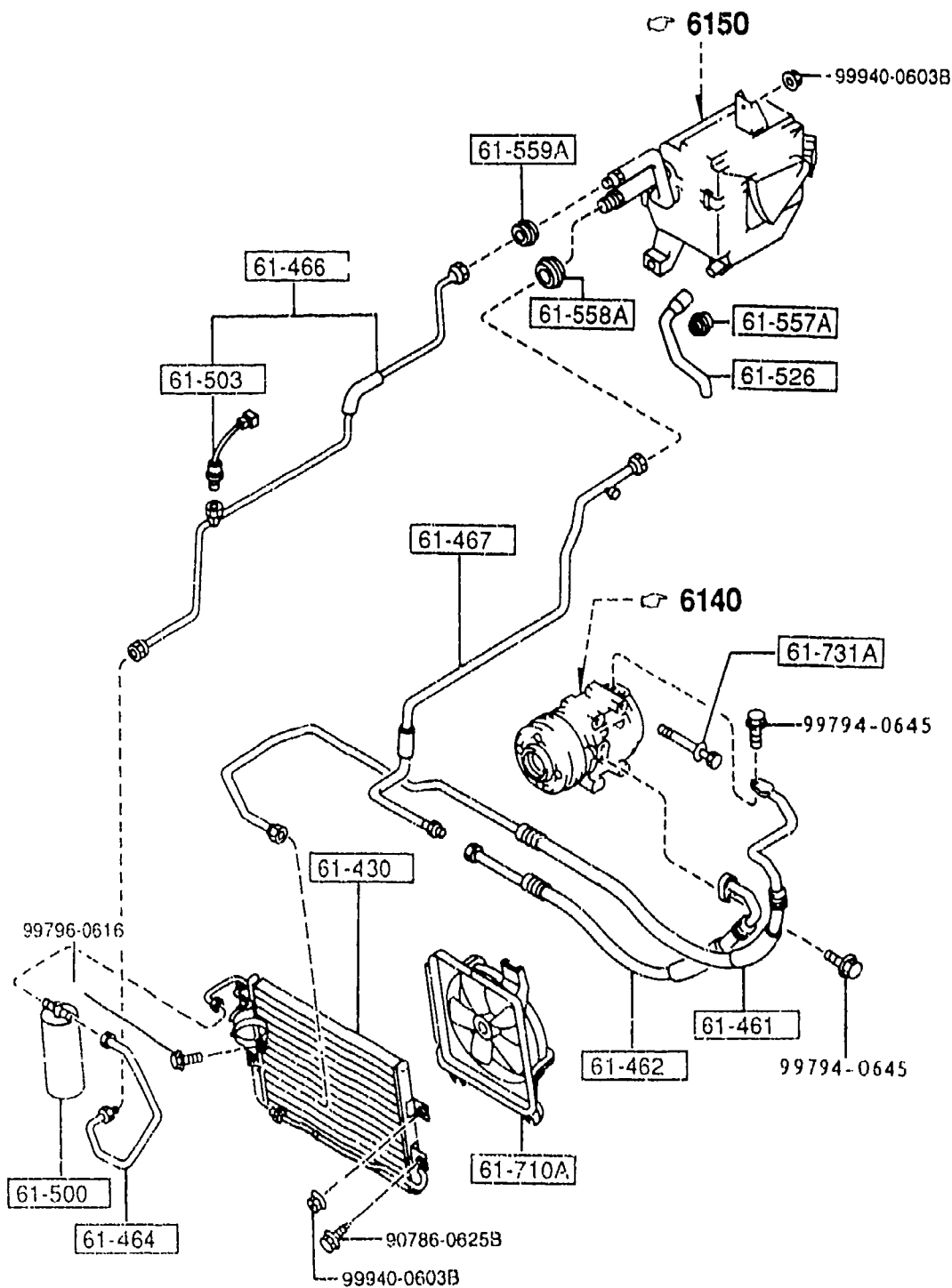
(BRACKET & CLIP)



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
61-472E	1	BRACKET, CLAMP (A)			
NA01-61-472					
61-474G	1	BRACKET, PIPE (A)			
NA01-61-474		(ILLUST. NO.1)			
NA02-61-474A	1	(A)			
		(ILLUST. NO.2)			
61-476	2	CLIP (A)			
NA02-61-476					
61-480	1	CONDENSER (A)			
NA75-61-480					
61-481B	1	RUBBER, INSULATOR (A)			
FC20-61-481					
61-486A	2	CLIP			
UB39-61-486A					
61-500	1	TANK, LIQUID (A)			
NA75-61-500					
61-503	1	SW., PRESSURE-LIQUID TANK (G)			
GB6H-61-503					
61-526	1	HOSE, DRAIN (A)			
NA01-61-526					
61-528E	1	BAND (G)			
NA01-61-435					
61-535B	1	PLATE NO.1, SEAL (A)			
NA01-61-52YA					

6130 AIR CONDITIONER
(PIPE & CONDENSER)

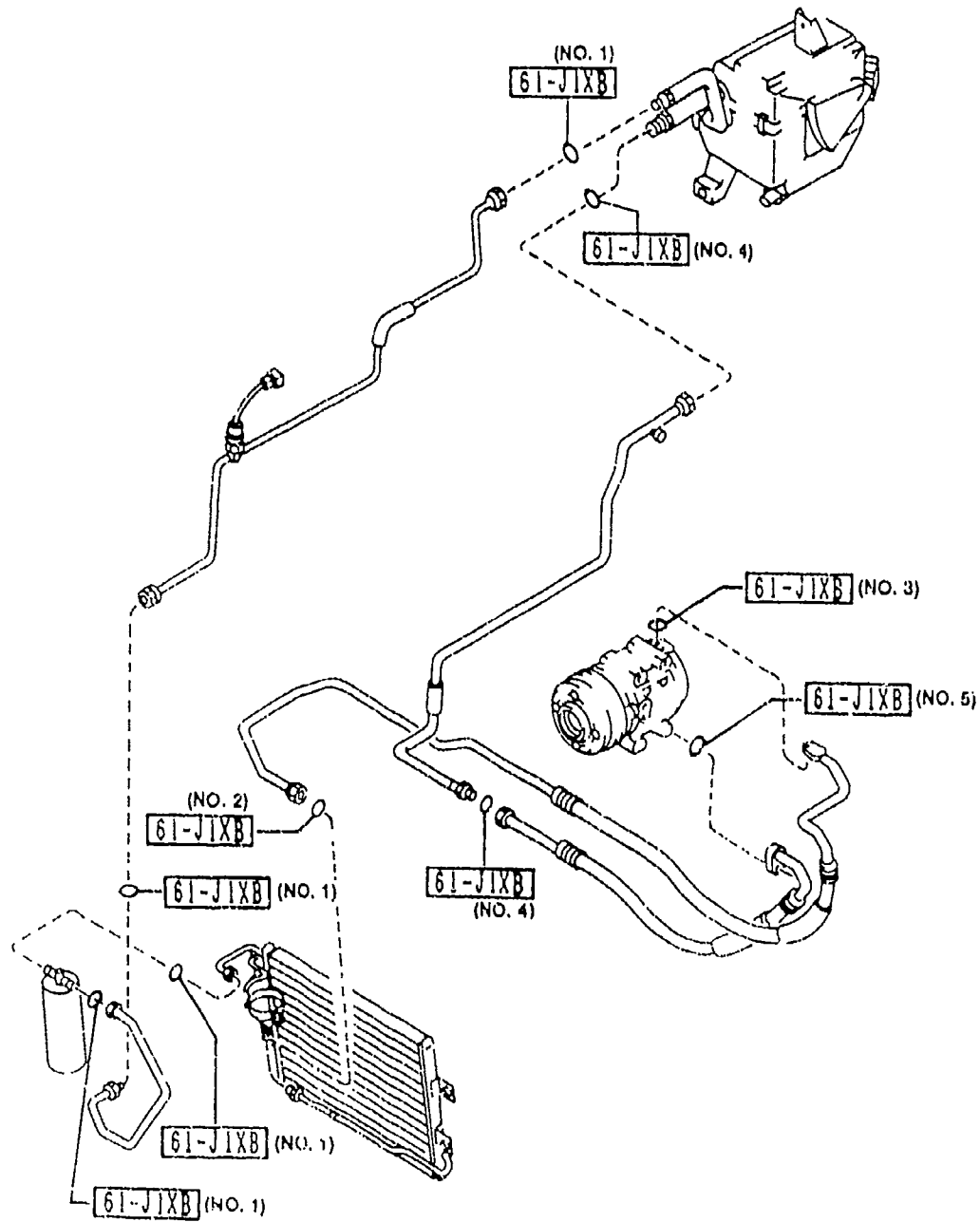
(1/2)



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
61-536B NA01-61-52Z	1	PLATE NO.2, SEAL (A)			
61-537 NA01-61-529	1	PLATE NO.3, SEAL (A)			
61-545B NA75-61-545A	1	HARNES, WIRE (A)			
61-557A FB04-61-557	1	GROMMET (A)			
61-558A BF67-61-558	1	GROMMET (A)			
61-559A BF67-61-559	1	GROMMET (A)			
61-695A NA75-61-695	1	BRACKET, RELAY (A)			
61-710A NA01-61-710	1	FAN, CONDENSER (A)			
61-731A B111-61-731	4	BOLT, AIR CON.			
66-946 NA02-61-435	1	BAND (A)			
67-720G EE12-67-720	1	RELAY, TRANSFER			
67-740F H450-67-740	1	CONTROL, COOLANT FAN 30A			

FWD

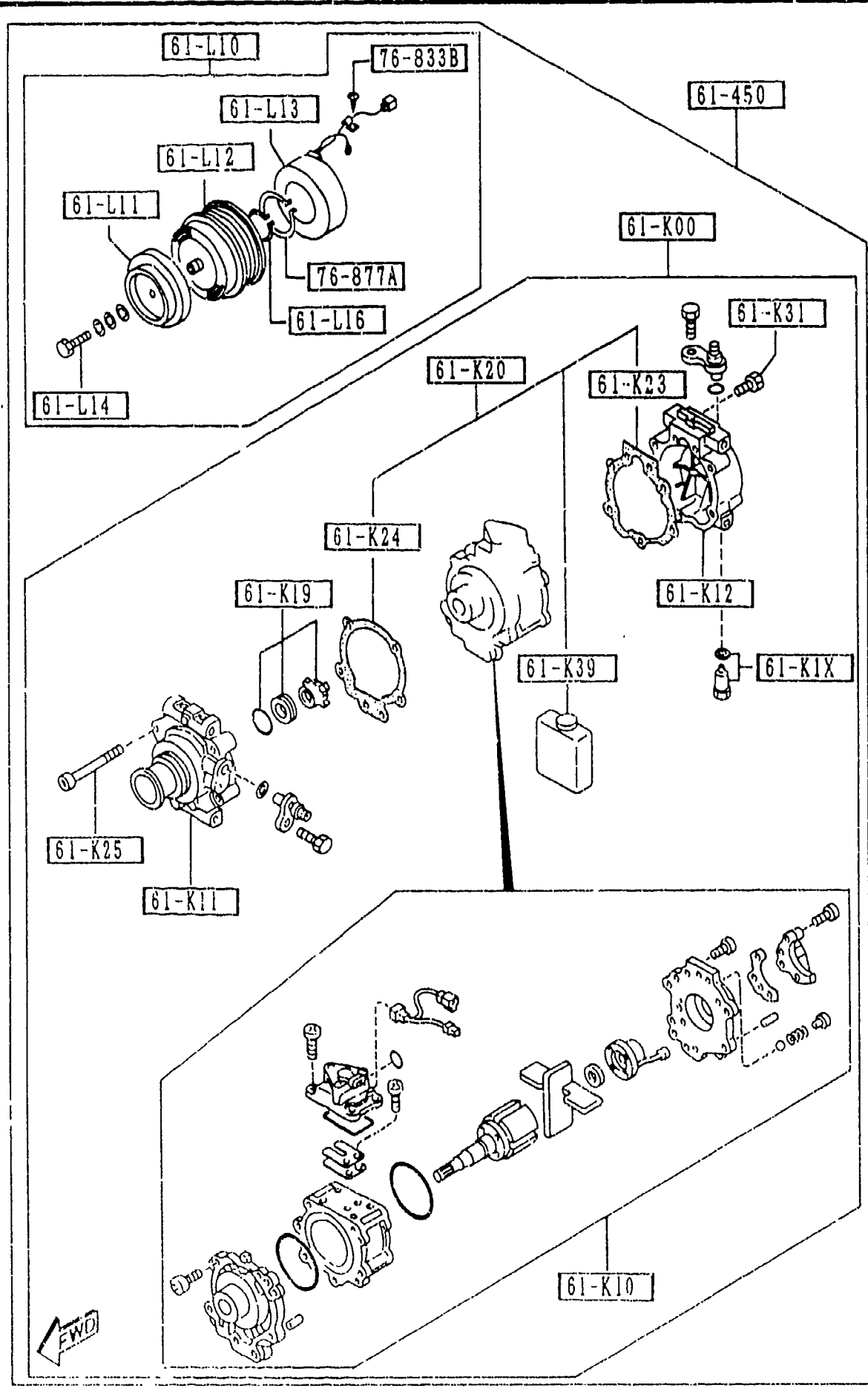
2-K14



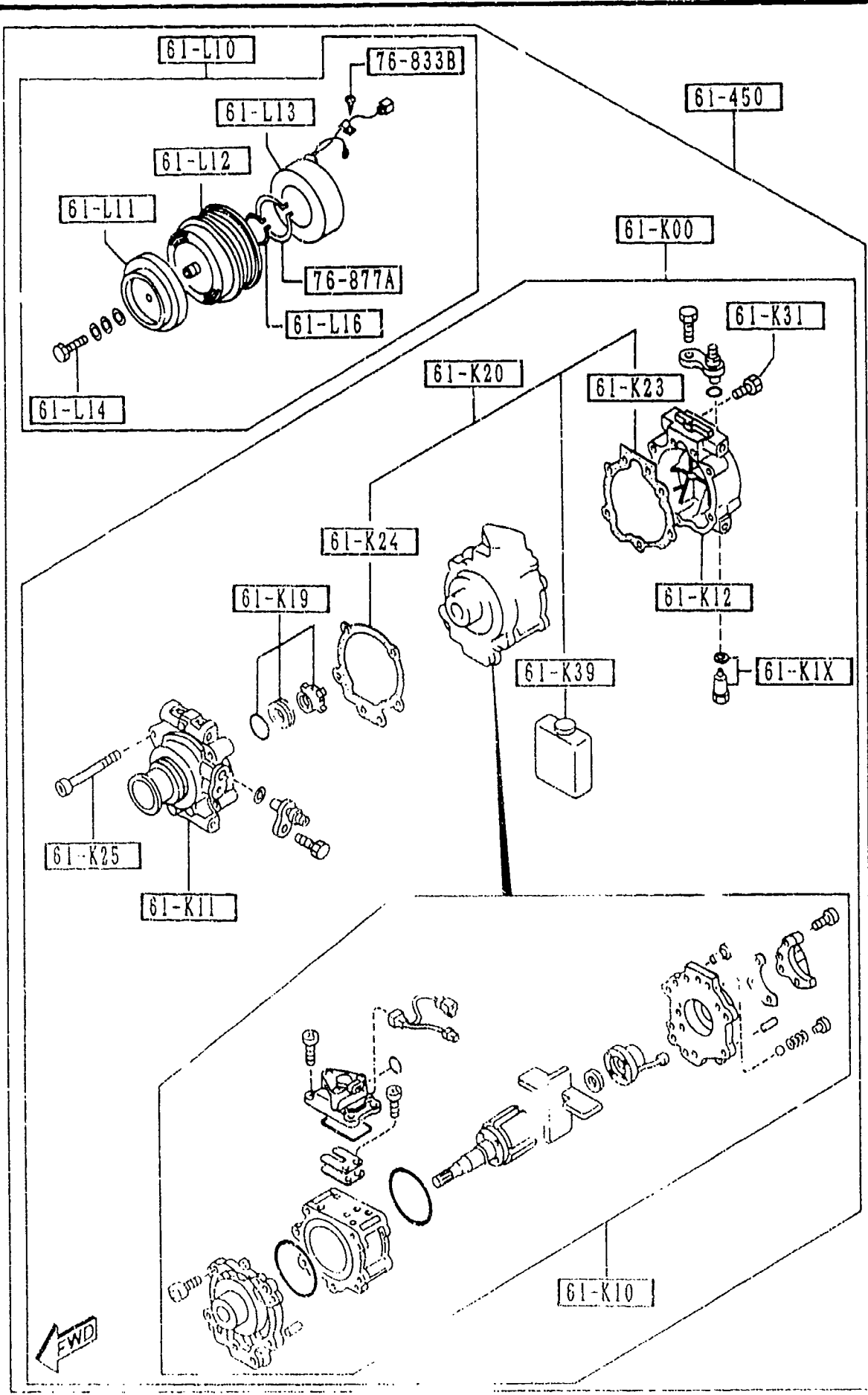
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
61-J1XB		RING, 'O'-NO.3			
LB51-61-J1X	1	(A) (ILLUST. NO.1)			
LB54-61-J1X	1	(A) (ILLUST. NO.2)			
LB55-61-J1X	1	(A) (ILLUST. NO.3)			
LB56-61-J1X	1	(A) (ILLUST. NO.4)			
LB57-61-J1X	1	(A) (ILLUST. NO.5)			



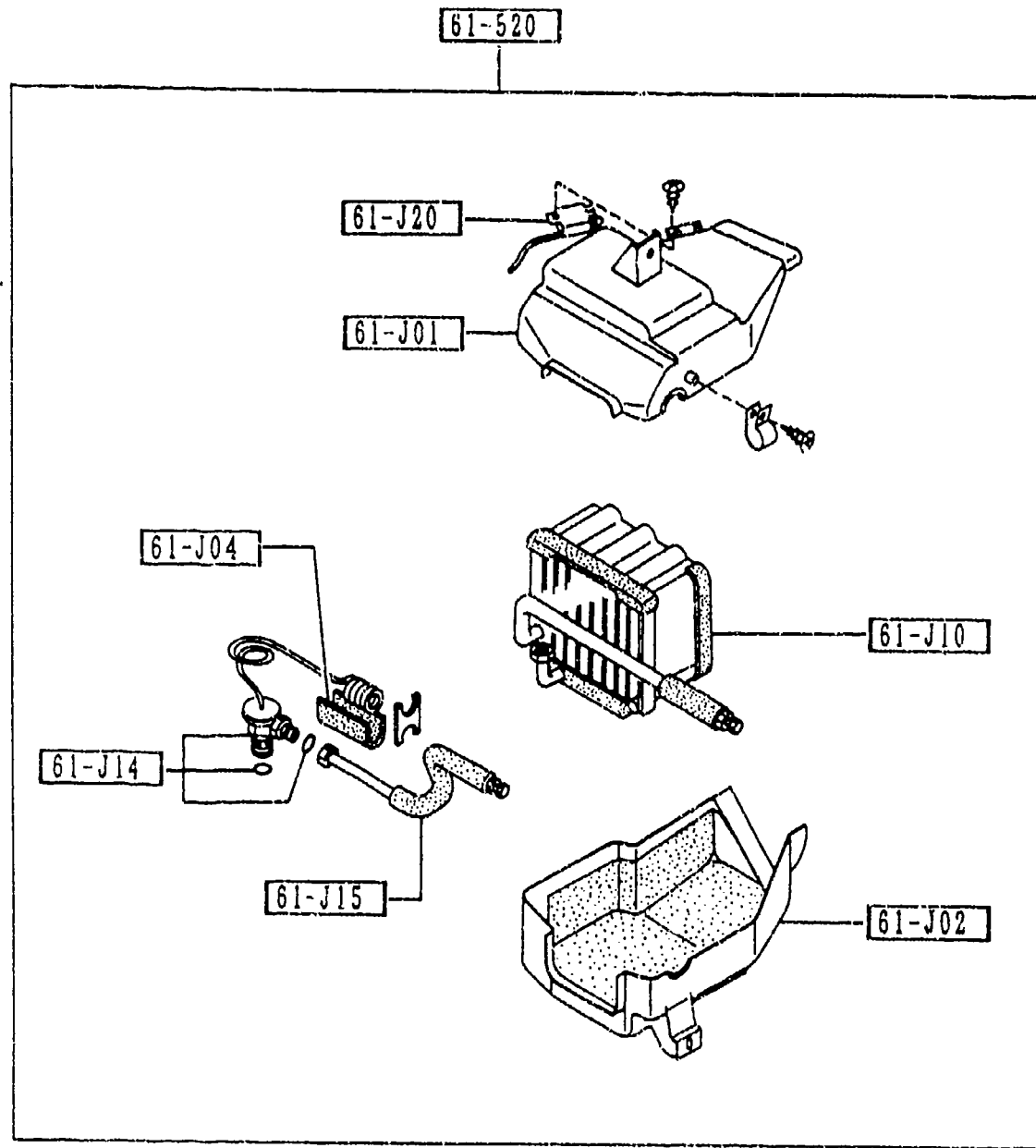
(Note)
The p/no (NO. 1) ~ (NO. 5) with D-code 61-J1XB consist 10 pcs of O Rings.



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
61-K00	1	COMPRESSOR, AIR CON.			
NA75-61-K00		(A)			
61-K1X	1	VALVE, RELIEF			
NA75-61-K1X		(A)			
61-K10	1	SHAFT, CYL.-COMPRESSOR			
NA75-61-K10		(A)			
61-K11	1	HEAD, CYL.-COMPRESSOR			
NA75-61-K11		(A)			
61-K12	1	HEAD, CYL.-COMPRESSOR			
NA75-61-K12		(A)			
61-K19	1	SEAL, SHAFT-COMPR.			
NA75-61-K19		(A)			
61-K20	1	GASKET KIT, COMPRESSOR			
NA75-61-K2X		(A)			
61-K23	1	FLUG, COMPRESSOR			
NA75-61-K23		(A)			
61-K24	1	GASKET, COMPRESSOR			
NA02-61-K24		(A)			
61-K25	5	BOLT, COMPRESSOR-AIR CON			
F065-61-K25					
61-K31	2	BOLT, COMPRESSOR			
F065-61-K31					
61-K39	1	GIL, COMPRESSOR			
NA75-61-K39		(A)			

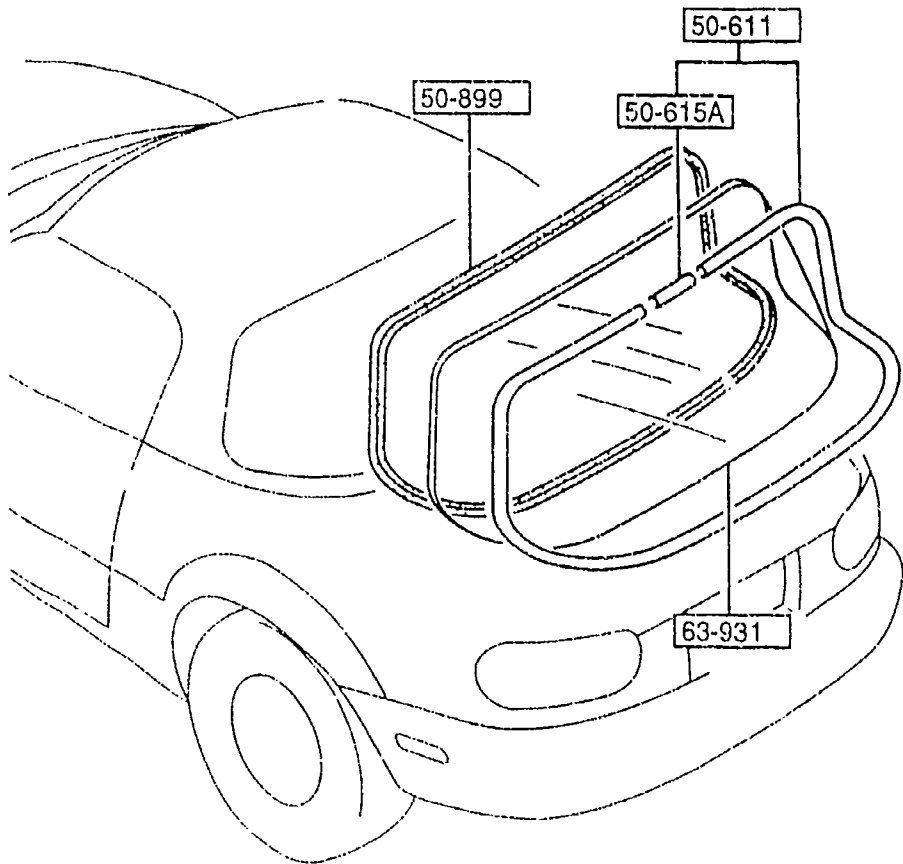
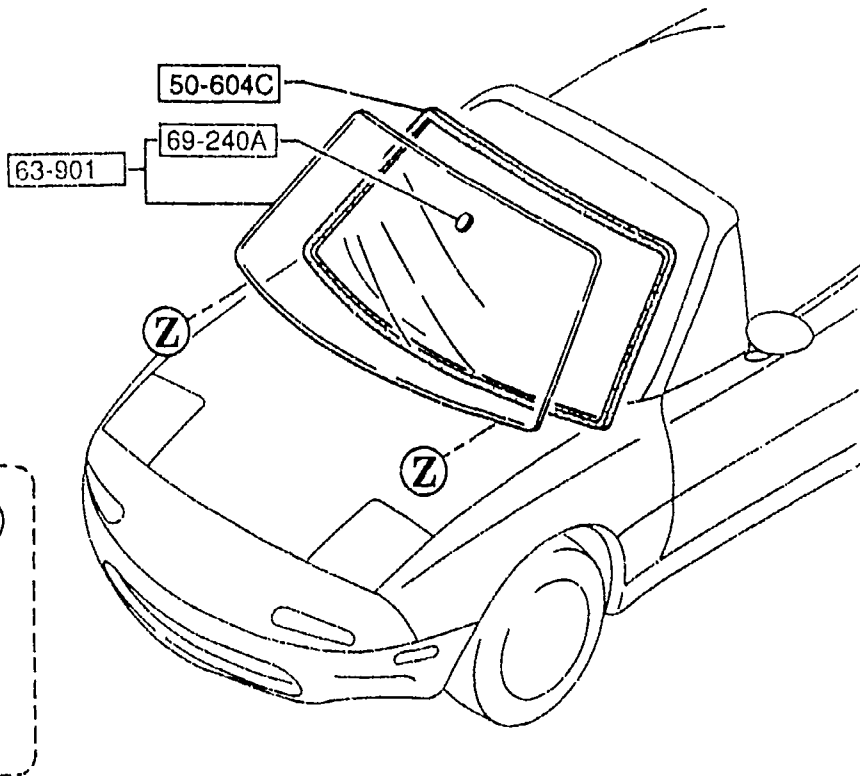


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
61-L10	1	CLUTCH, MAGNET			
NA75-61-L10		(A)			
61-L11	1	ARMATURE, MAGNETIC CLUTCH			
NA75-61-L11		(A)			
61-L12	1	PULLEY, MAGNET CLUTCH			
NA75-61-L12		(A)			
61-L13	1	COIL, FIELD-MAGNET CLUTCH			
NA75-61-L13		(A)			
61-L14	1	BOLT, MAGNET CLUTCH			
F065-61-L14					
61-L16	1	RING, SNAP-MAGNET CLUTCH			
F065-61-L16					
61-450	1	COMPRESSOR			
NA75-61-450		(A)			
76-833B	1	WASHER			
B001-76-734					
76-877A	1	RING, SNAP			
B001-76-725					



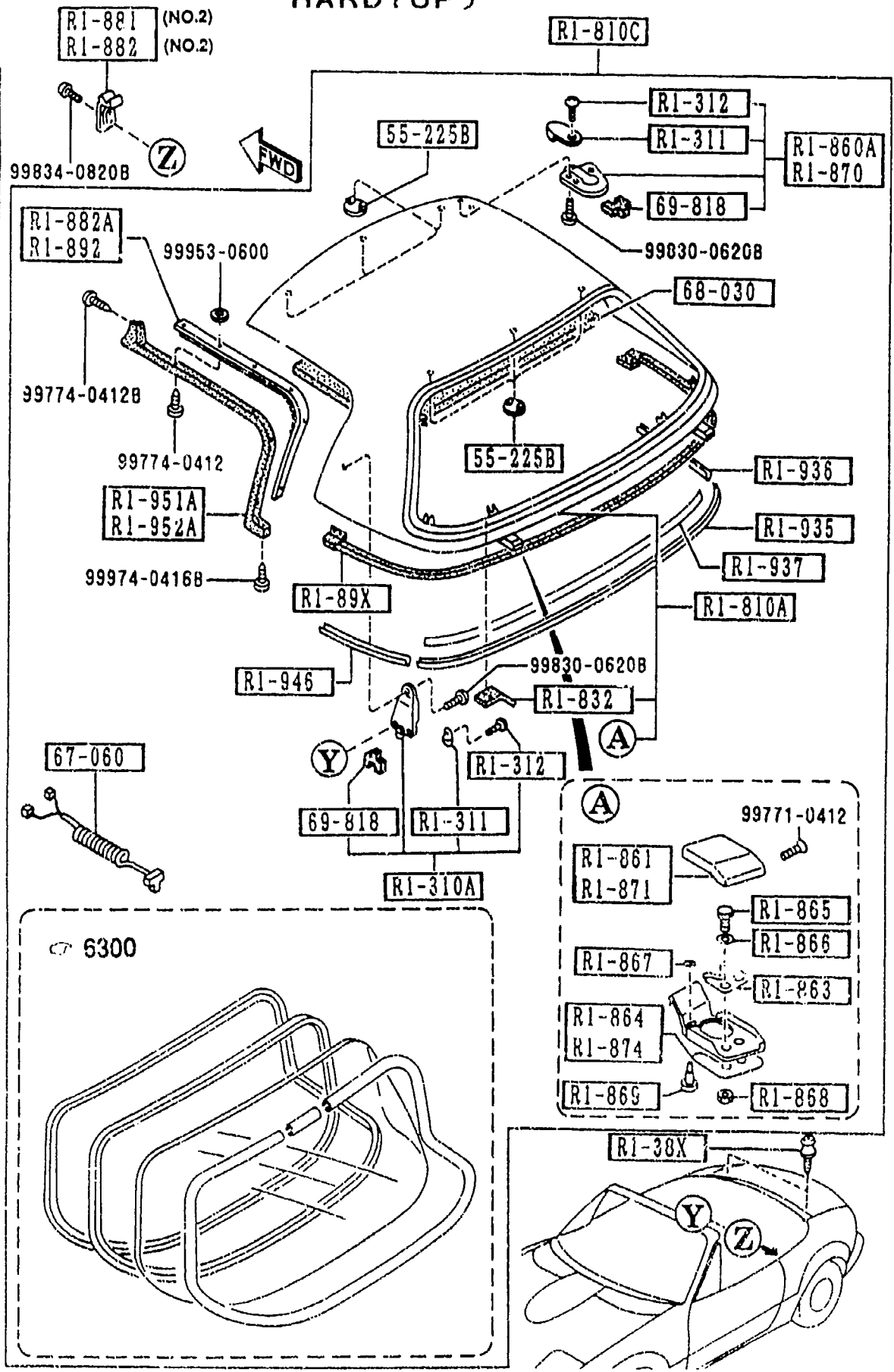
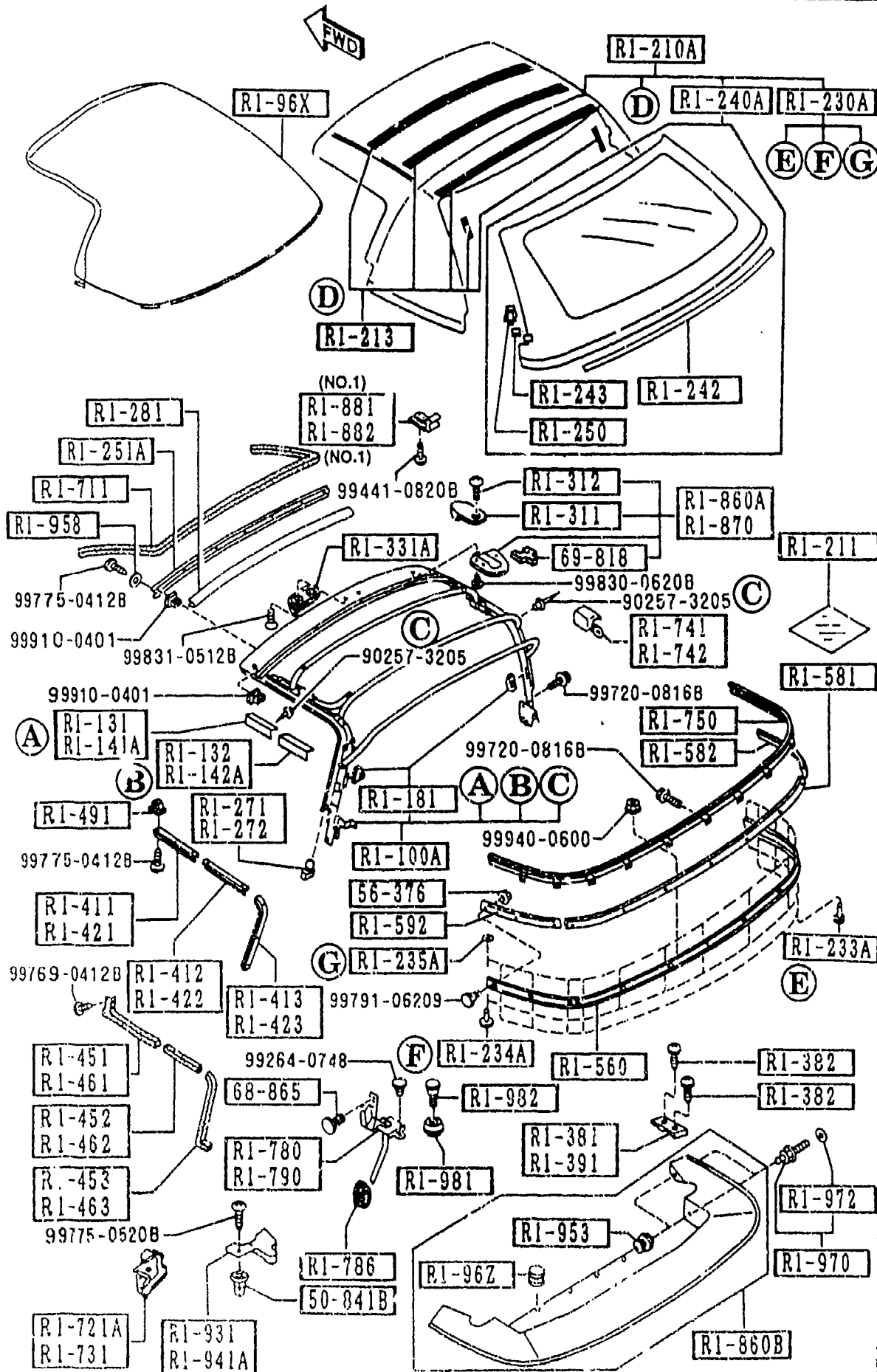
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
61-J01 NA01-61-J01A	1	CASE 'A', COOLING UNIT (A)			
61-J02 NA01-61-J02A	1	CASE 'B', COOLING UNIT (A)			
61-J04 NA01-61-J04	1	SEAL, COOLING UNIT (A)			
61-J10 NA01-61-J10A	1	EVAPORATOR (A)			
61-J14 NA75-61-J14	1	VALVE, EXPANSION (A)			
61-J15 NA01-61-J15	1	PIPE, COOLING UNIT (A)			
61-J20 NA01-61-J20	1	THERMOSTAT, COOLING UNIT (A)			
61-520 NA75-61-520B	1	UNIT, COOLING (A)			





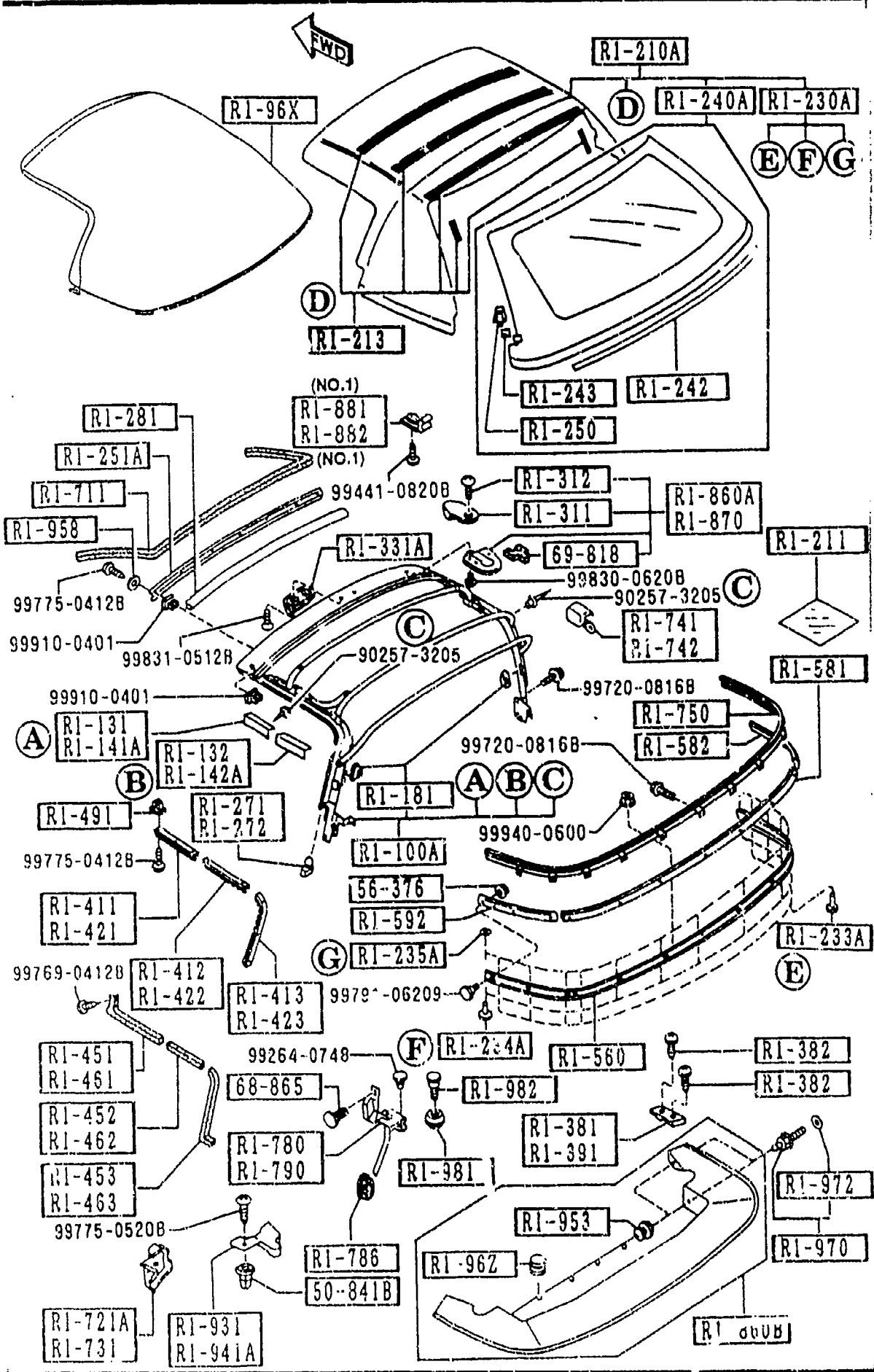
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
50-604C		DAM			
*NA01-50-894A	1				
50-611		MOULD,RR.WINDOW			
NAY1-63-930	1	OPT, (W/DETACHABLE HARD T OP)			
50-615A		JOINT,BACK WINDOW MO ULD			
NA01-63-934	1	OPT, (W/DETACHABLE HARD T OP)			
50-891A		SPACER,WINDOW			
EA01-50-891A	2	WHITE			
50-899		DAM,REAR-WIND.			
NA01-63-895	1	OPT, (W/DETACHABLE HARD T OP)			
63-901		GLASS,WINDSHIELD			
NA01-63-901	1	('95 MODEL)			-6201
NB38-63-900A	1	('96 MODEL)			6201-
NB30-63-900	1	('96 MODEL)			
63-931		GLASS,BACK WINDOW			
N007-63-931	1	OPT, (W/DETACHABLE HARD T OP) ('95 MODEL)			
N007-63-931	1	OPT, (W/DETACHABLE HARD T OP) ('96 MODEL)			-6201
NB40-63-931	1	OPT, (W/DETACHABLE HARD T OP) ('96 MODEL)			6201-
69-240A		BASE,INTERIOR MIRROR			
BC1C-69-240	1	('96 MODEL)			
6201 NA3** -711421					

(W/DETACHABLE HARDTOP)



AUNA05

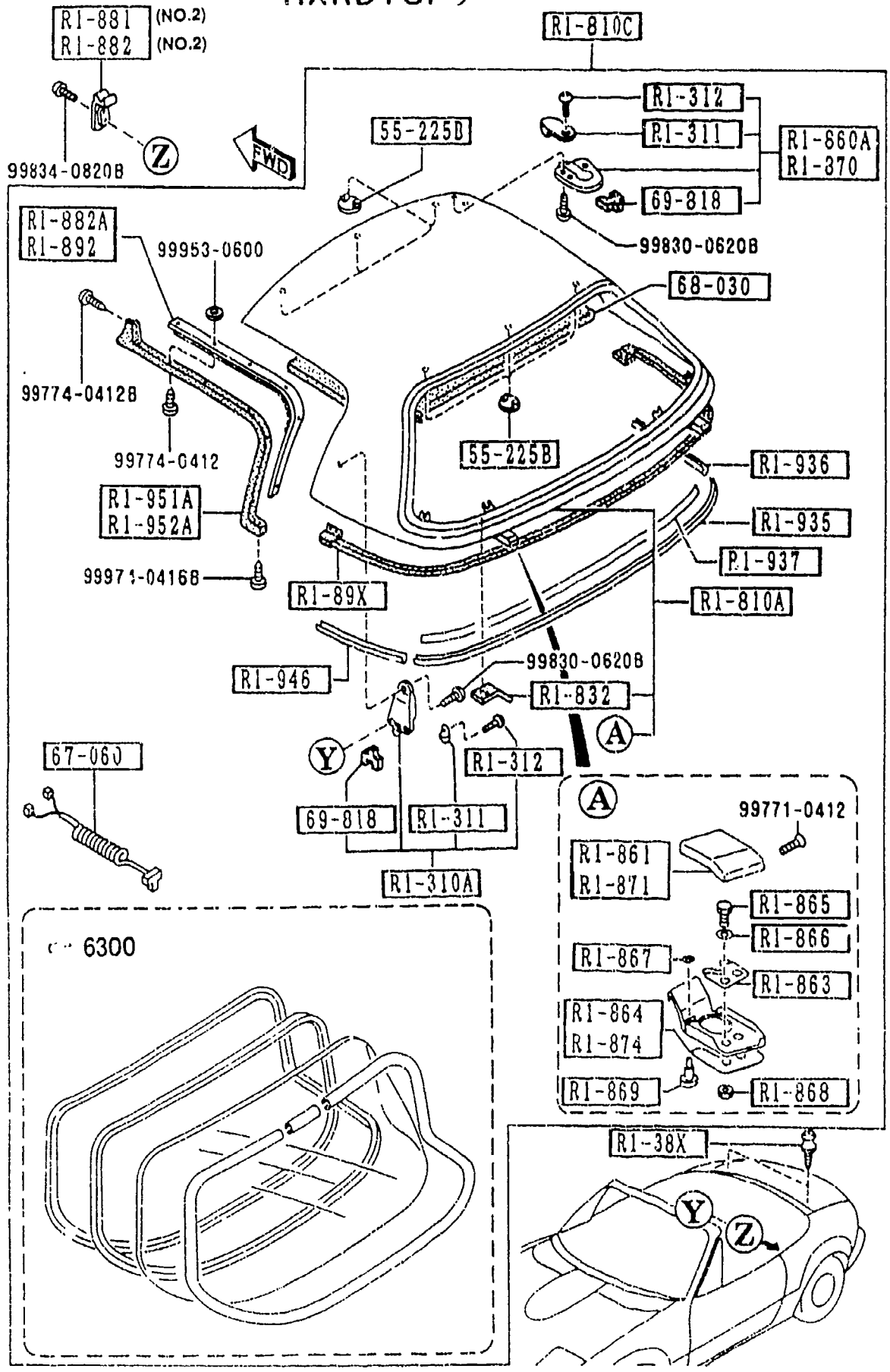
AUNA05



PART NO.	QTY	MODEL/RFSTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
RI-100A	1	LINK, SOFT TOP			
NA01-RI-100E	1				
RI-131	1	PROTECTOR 'A' (R), LINK			
NA01-RI-131	1				
RI-132	1	PROTECTOR 'B' (R), LINK			
NA01-RI-132	1				
RI-141A	1	PROTECTOR 'A' (L), LINK			
NA01-RI-141	1				
RI-142A	1	PROTECTOR 'B' (L), LINK			
NA01-RI-142	1				
RI-181	2	STOPPER, LINK-HOOD			
NA01-RI-181	2				
RI-210A	1	FABRIC, TOP-SOFT TOP			
NA01-RI-210J	1	BASE, R-PKG, P.E.GR, PKG-A, PKG-B, (BLACK)			-5A02
AN(NA01-RI-210K)					
NA02-RI-210C	1	L-PKG, PKG-C, M-25-E D, (TAN)			-5A02
AN(NA02-RI-210D)					
NA01-RI-210K	1	BASE, R-PKG, P.E.GR, PKG-A, PKG-B, (BLACK)			5A02-6501
AN(NA01-RI-210L)					
NA02-RI-210D	1	L-PKG, PKG-C, M-25-E D, (TAN)			5A02-6501
AN(NA02-RI-210E)					
*NA01-RI-210L	1	BASE, R-PKG, P.E.GR, PKG-A, PKG-B, (BLACK)			6501-
*NA02-RI-210E	1	L-PKG, PKG-C, (TAN)			6501-
RI-211	1	CLOTH, REPAIR-TOP			
NAV1-RI-211	1	BASE, R-PKG, P.E.GR, PKG-A, PKG-B, (BLACK)			
NAV2-RI-211	1	L-PKG, PKG-C, M-25-E D, (TAN)			
NOY5-RI-211	1	(BLUE)			4B01-

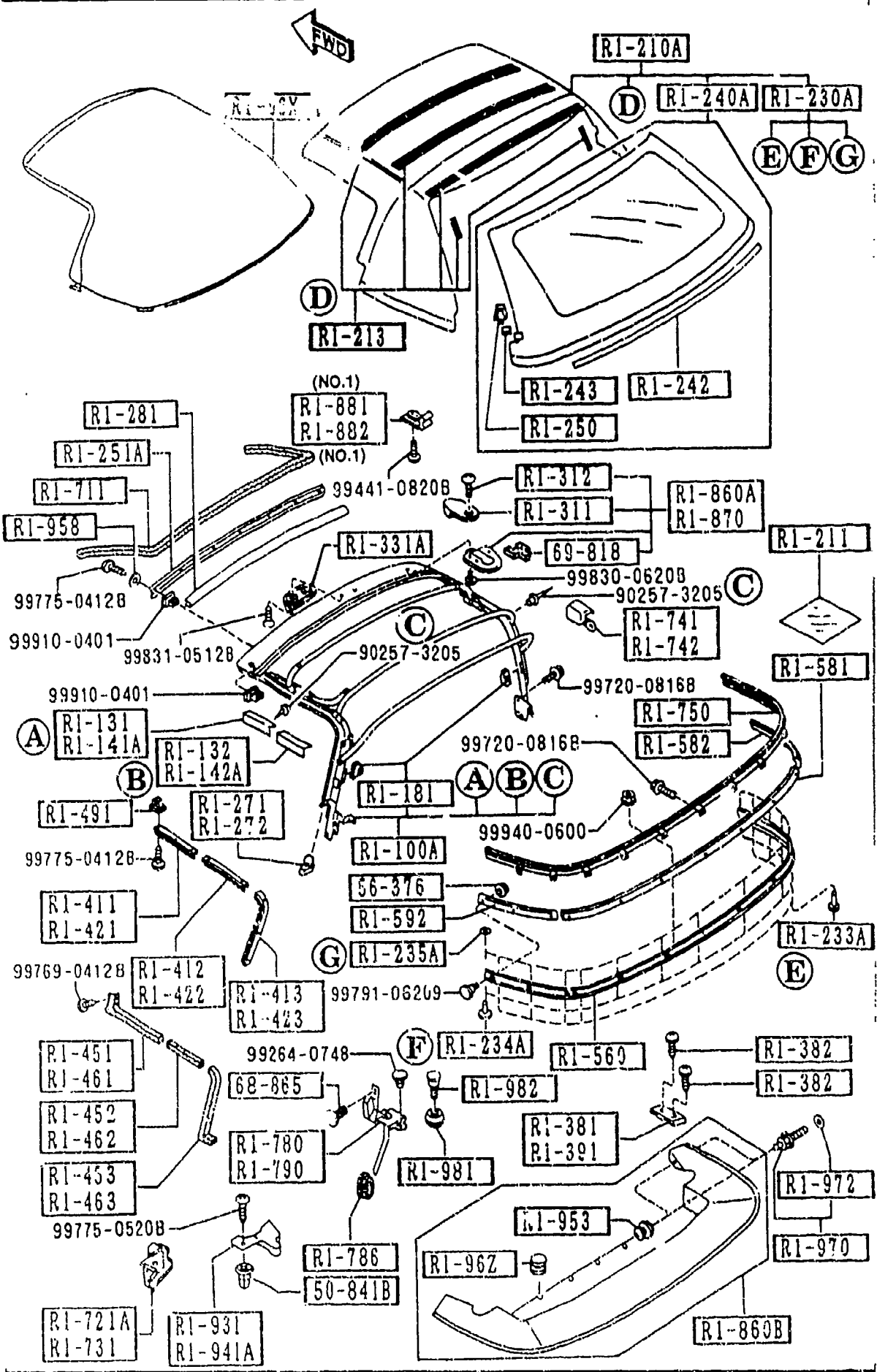
4B01 NA35* -606043
 5A02 NA35* -703043
 6501 NA35* -718686

(W/DETACHABLE HARDTOP)



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D NOY4-R1-211	1	(DARK GREEN)			5C01-
+-----+ | R1-213 | +-----+		CLOTH'C',TOP			
NA02-R1-213	1	L-PKG, PKG-C, M-25-E D, (TAN)			
+-----+ | R1-230A | +-----+		FASTENER SET,TOP CLO TH			
NA01-R1-230	1				
+-----+ | R1-233A | +-----+		FASTENER,RAIN RAIL-S IDE			
NA01-R1-233	8				
+-----+ | R1-234A | +-----+		FASTENER,RAIN RAIL-R EAR			
NA01-R1-234	7				
+-----+ | R1-235A | +-----+		WASHER,FASTENER-RAIN RAIL			
NA01-R1-235	15				
+-----+ | R1-240A | +-----+		WINDOW,BACK-D. TOP			
NAY1-R1-240F AN(NAY1-R-240G)	1	BASE, R-PKG, P.E.GR, PKG-A, PKG-B, (BLACK)			-5A02
NAY2-R1-240C AN(NAY2-R1-240D)	1	L-PKG, PKG-C, M-25-E D, (TAN)			-5A02
NOY5-R1-240 AN(NOY5-R1-240A)	1	(BLUE)			4B01-5A02
NAY1-R1-240G	1	BASE, R-PKG, P.E.GR, PKG-A, PKG-B, (BLACK)			5A02-
NAY2-R1-240D	1	L-PKG, PKG-C, M-25-E D, (TAN)			5A02-
NOY5-R1-240A	1	(BLUE)			5A02-
NOY4-R1-240	1	(DARK GREEN)			5C01-
+-----+ | R1-242 | +-----+		TAPE,SEAL-RAIN RAIL			
NAY1-R1-242	1				
+-----+ | R1-243 | +-----+		STOPPER,ZIPPER-BACK WINDOW			
NAY1-R1-243	2				
+-----+ | R1-250 | +-----+		HEAD,ZIPPER-BACK WIN DOW			

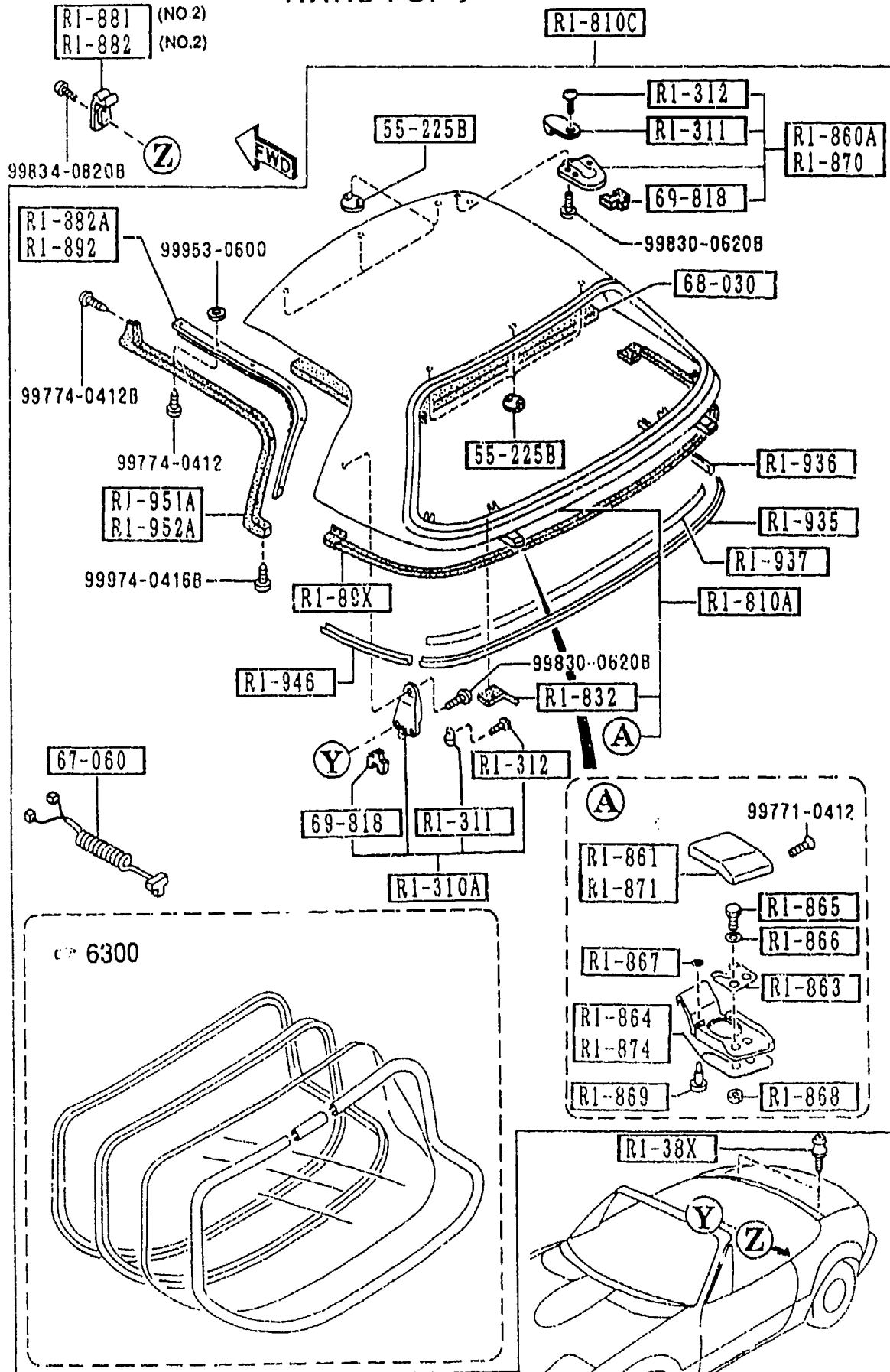
4B01 NA35* -606043
5A02 NA35* -703043
5C01 NA35* -706448



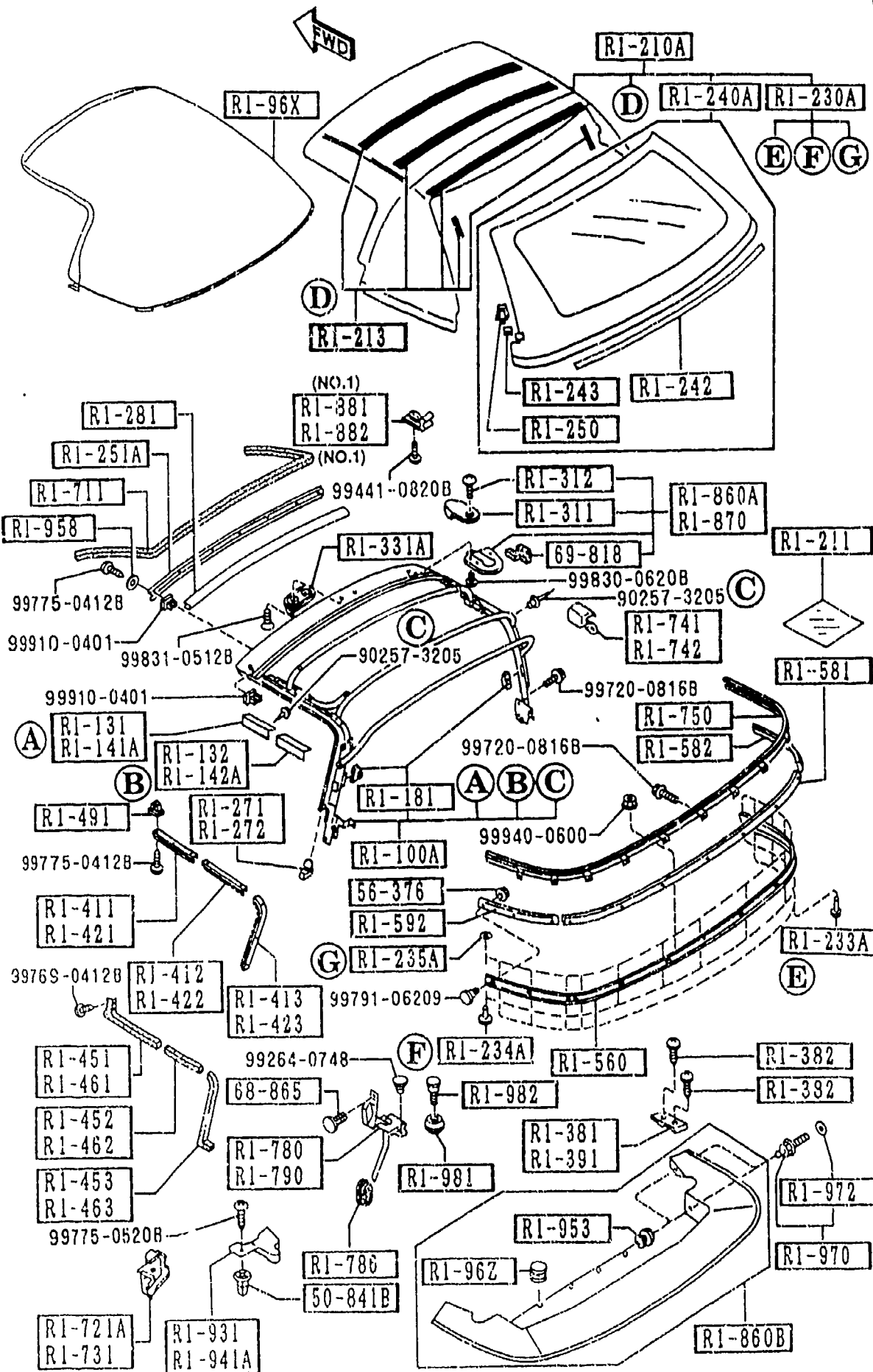
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D NA01-R1-250B	1				
+-----+ | RI-251A | +-----+		PLATE(FRT),SET-ROOF PANEL			
NA01-R1-291	1				
+-----+ | RI-271 | +-----+		CLIP(R),FORM PLATE			
NA01-R1-271	1				
+-----+ | RI-272 | +-----+		CLIP(L),FORM PLATE			
NA01-R1-272	1				
+-----+ | RI-281 | +-----+		WELT,SEAMING-SOFT TO P			
NA01-R1-281	1				
+-----+ | RI-310A | +-----+		LOCK,DETACHABLE TOP			
NA02-R1-310C	2	OPT, (W/DETACHABLE HARD T OP)			-6401
*NA02-R1-310E	2	OPT, (W/DETACHABLE HARD T OP)			6401-
+-----+ | RI-311 | +-----+		CAP, TOP LOCK			
NA01-R1-311	2	(W/O DETACHABLE HARD TOP)			
NA01-R1-311	6	OPT, (W/DETACHABLE HARD T OP)			
+-----+ | RI-312 | +-----+		SCREW, TOP LOCK			
NA01-R1-312	2	(W/O DETACHABLE HARD TOP)			
NA01-R1-312	6	OPT, (W/DETACHABLE HARD T OP)			
+-----+ | RI-331A | +-----+		HANDLE,SOFT TOP			
NA01-R1-331	1				
+-----+ | RI-38X | +-----+		HOOK,SOFT TOP-REAR D ECK			
NA01-R1-38XB	2				
+-----+ | RI-381 | +-----+		PLATE(R),HOOK-REAR D ECK			
NA01-R1-381B	1				
6401 NA3** -717787					



(W/DETACHABLE HARDTOP)



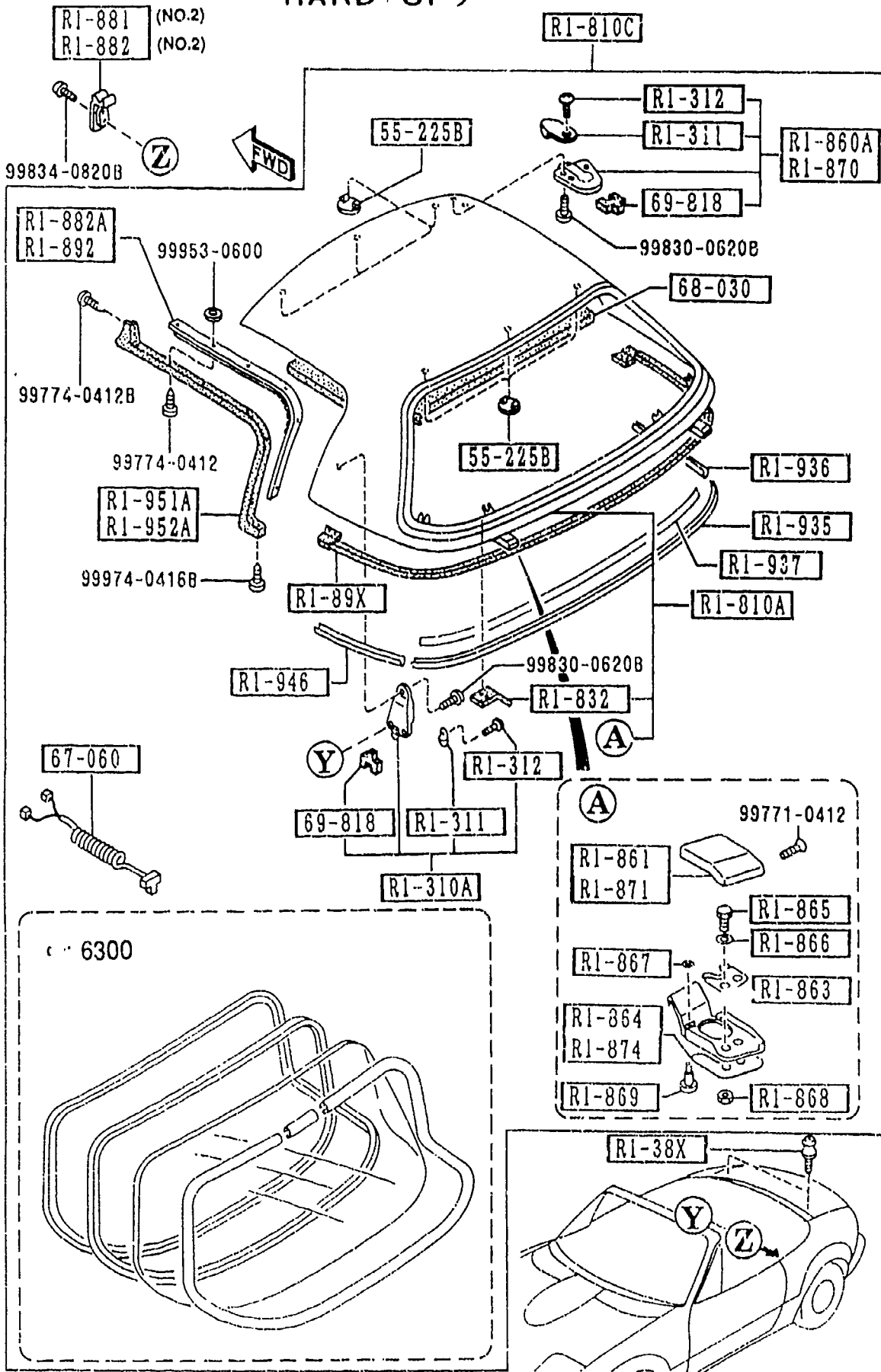
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
RI-382		SCREW, HOOK-REAR DECK			
NA01-RI-382A	2				
RI-391		PLATE(L), HOOK-REAR DECK			
NA01-RI-391B	1				
RI-411		RETAINER'A'(R), WTHST P			
NA01-RI-461	1				
RI-412		RETAINER'B'(R), WTHST P			
NA01-RI-462	1				
RI-413		RETAINER'C'(R), WTHST P			
NA01-RI-463	1				
RI-421		RETAINER'A'(L), WTHST P			
NA01-RI-471	1				
RI-422		RETAINER'B'(L), WTHST P			
NA01-RI-472	1				
RI-423		RETAINER'C'(L), WTHST P			
NA01-RI-473	1				
RI-451		WTHSTP NO.1(R), LINK			
NA01-RI-411B	1				
RI-452		WTHSTP NO.2(R), LINK			
NA01-RI-412D	1				
RI-453		WTHSTP NO.3(R), LINK			
NA01-RI-413B	1				
RI-461		WTHSTP NO.1(L), LINK			
NA01-RI-421B	1				
RI-462		WTHSTP NO.2(L), LINK			
NA01-RI-422B	1				
RI-463		WTHSTP NO.3(L), LINK			
NA01-RI-423B	1				



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
RI-491	16	GROMMET, SCREW-RETAINER			
NA01-RI-491					
RI-560	1	RAIL, RAIN-SOFT TOP REAR			
NA01-RI-560C					
RI-581	1	PLATE(C), SET-TOP FABRIC			
NA01-RI-581B					
RI-582	1	PLATE(R), SET-TOP FABRIC			
NA01-RI-582A					
RI-592	1	PLATE(L), SET-TOP FABRIC			
NA01-RI-592A					
RI-711	1	WTHSTP, FRONT HEADER			
NA01-RI-711B					
RI-721A	1	WTHSTP(R), CAB SIDE			
NA01-RI-721B					
RI-731	1	WTHSTP(L), CAB SIDE			
NA01-RI-731B					
RI-741	1	PROTR(R), MOULD-BELT LINE			
NA01-RI-741B					
RI-742	1	PROTR(L), MOULD-BELT LINE			
NA01-RI-742B					
NA01-RI-742C					
*NA01-RI-742C					
RI-750	1	MOULD, BELTLINE-REAR			
NA01-RI-750E					
RI-780	1	COVER(R), DRAIN-SOFT TOP			
NA01-RI-780C					
RI-786	2	GROMMET, DRAIN HOSE-TOP			
NA01-RI-786A					
5C01 NA3** -70644B					
					-5C01
					5C01-

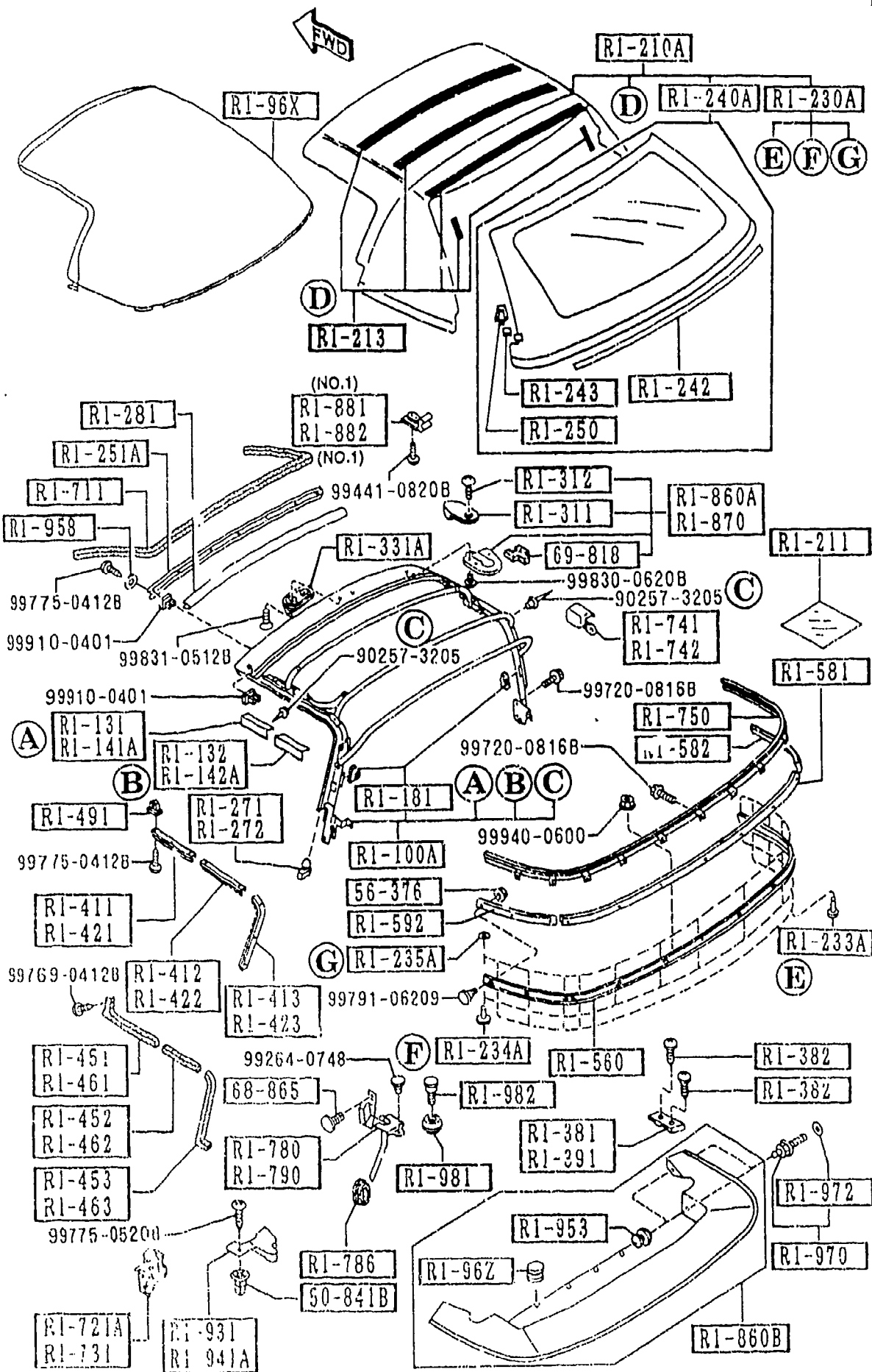
2-15

(W/DETACHABLE HARDTOP)



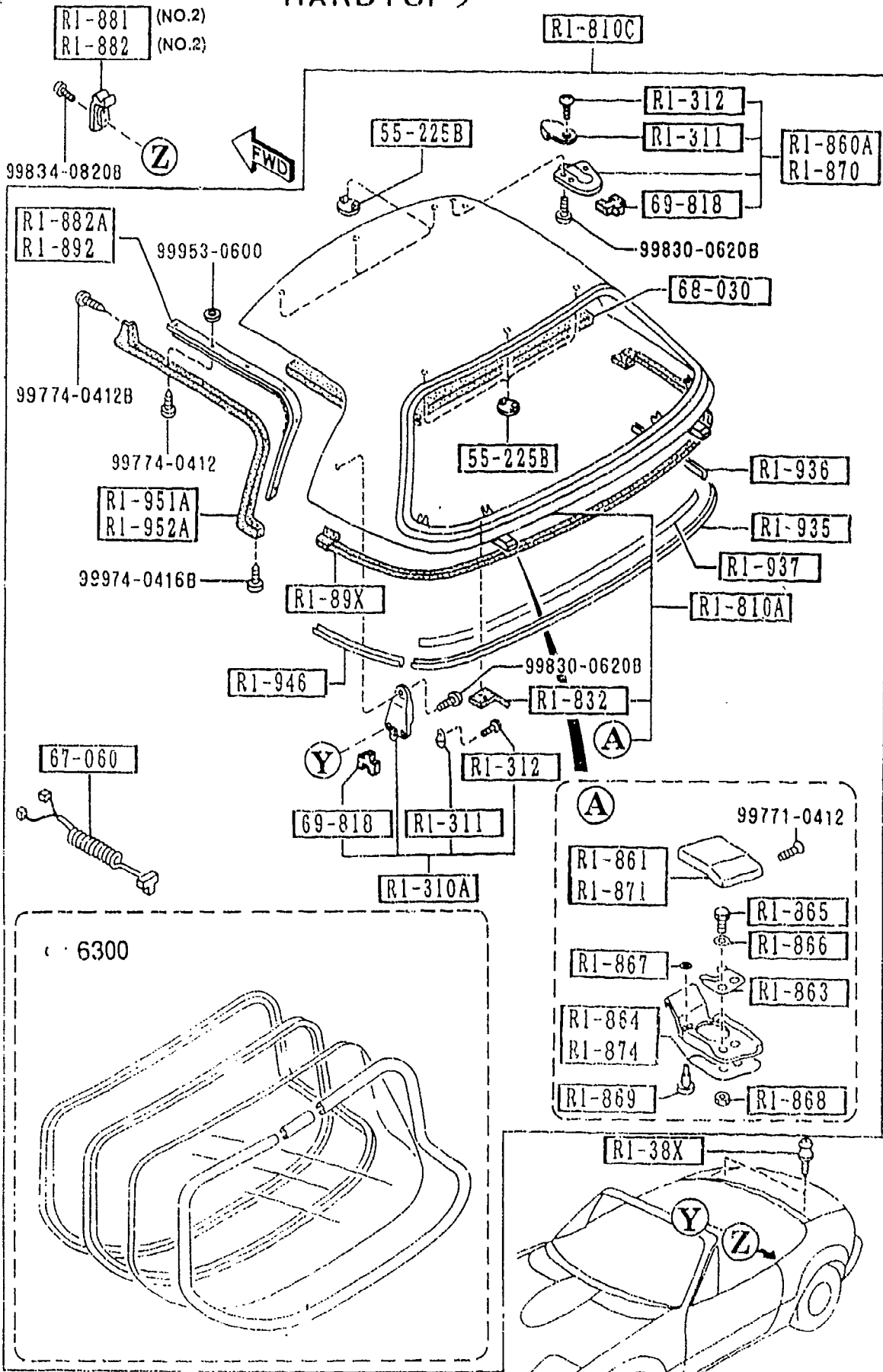
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
RI-790	1	COVER(L), DRAIN-SOFT TOP			
NA01-RI-790C	1				
RI-810A	1	PANEL, ROOF			
NA06-RI-82X	1	OPT, (W/DETACHABLE HARD TOP)			
HU	EXT-	HU NEO GREEN			
M8	EXT-	M8 MONTEGO BLUE M			
PT	EXT-	PT CHAST WHITE			
PZ	EXT-	PZ BRILLIANT BLACK			
SU	EXT-	SU CLASSIC RED			
6W	EXT-	6W LAGUNA BLUE M.			
RI-810C	1	ROOF, DETACHABLE TOP			
N007-RI-810A	1	OPT, (W/DETACHABLE HARD TOP)			-6201
HU	EXT-	HU NEO GREEN			
M8	EXT-	M8 MONTEGO BLUE M			
PT	EXT-	PT CHAST WHITE			
PZ	EXT-	PZ BRILLIANT BLACK			
SU	EXT-	SU CLASSIC RED			
6W	EXT-	6W LAGUNA BLUE M.			
NB40-RI-810	1	OPT, (W/DETACHABLE HARD TOP)			6201-
A5	EXT-	A5 SATELLITE BLUE MC			
HU	EXT-	HU NEO GREEN			
M8	EXT-	M8 MONTEGO BLUE M			
PT	EXT-	PT CHAST WHITE			
PZ	EXT-	PZ BRILLIANT BLACK			
SU	EXT-	SU CLASSIC RED			
RI-832	2	PLATE, CUSHION-D. TOP			
NA01-RI-832A	2	OPT, (W/DETACHABLE HARD TOP)			
RI-860A	1	LOCK(R), TOP			

6201 NA3** -711421

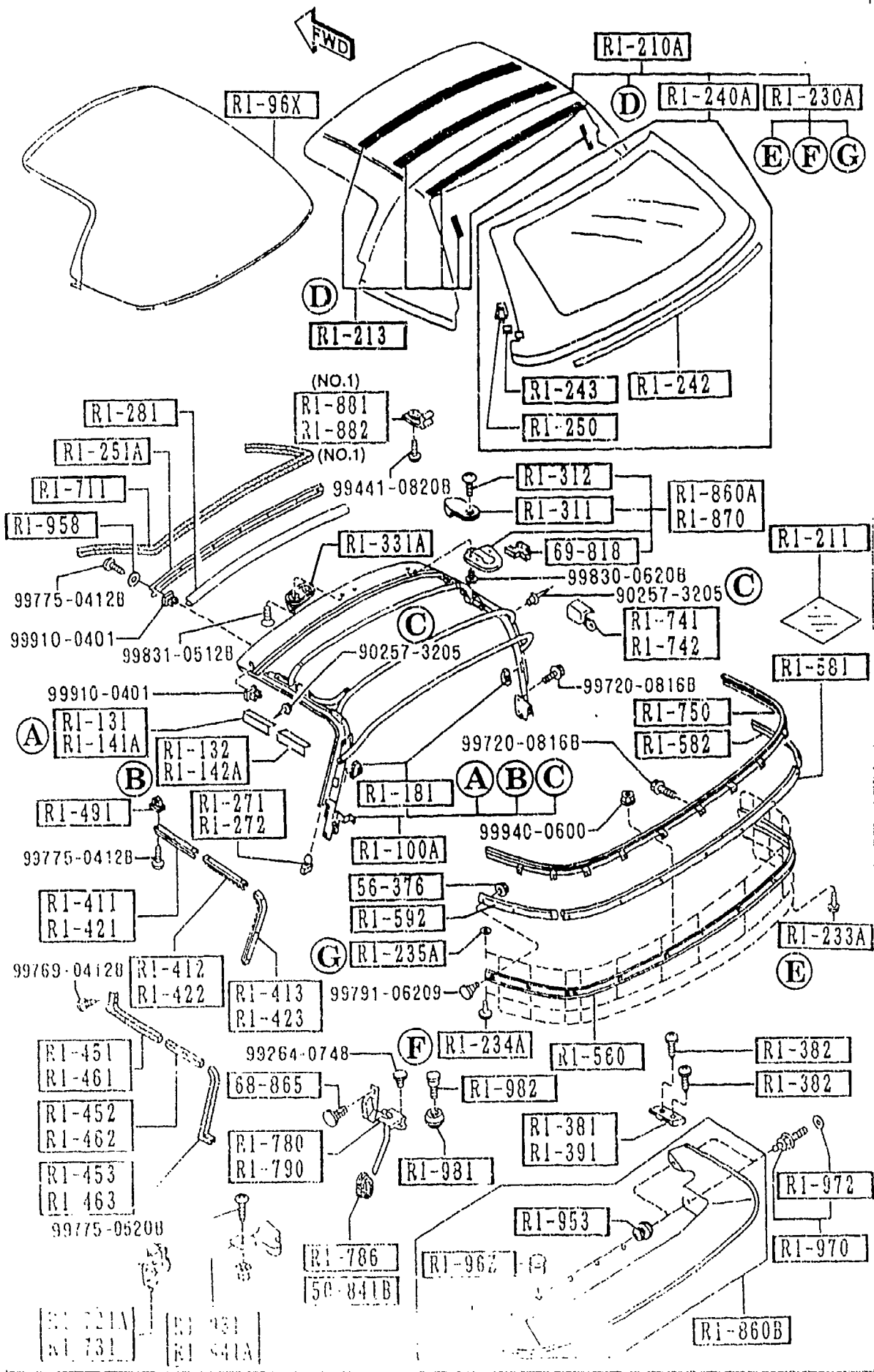


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
NA01-R1-310C	1	(W/O DETACHABLE HARD TOP)			-6401
NA01-R1-310C	2	OPT, (W/DETACHABLE HARD TOP)			-6401
*NA01-R1-310E	1	(W/O DETACHABLE HARD TOP)			6401
NA01-R1-310E	2	OPT, (W/DETACHABLE HARD TOP)			6401
NA01-R1-960E	1	BOOT, TOP			-5801
66	INT-	NA3 NA7 NAB BLACK			
88	INT-	NA4 NA5 TAN			
NA01-R1-960F	1				5801-
66	INT-	NA3 NA7 NAB BLACK			
88	INT-	NA4 NA5 TAN			
NA01-R1-861	1	OPT, (W/DETACHABLE HARD TOP)	COVER(R), DECK LOCK		
NA01-R1-863	2	OPT, (W/DETACHABLE HARD TOP)	PLATE, DECK LOCK		
NA01-R1-864	1	OPT, (W/DETACHABLE HARD TOP)	SHEET(R), DECK LOCK		
NA01-R1-865	4	OPT, (W/DETACHABLE HARD TOP)	BOLT, DECK LOCK		
NA01-R1-866	4	OPT, (W/DETACHABLE HARD TOP)	WASHER 'A', DECK LOCK		
NA01-R1-867	2	OPT,	WASHER 'B', DECK LOCK		
5801 NA3**		-704237			
6401 NA3**		-717707			

(W/DETACHABLE HARDTOP)



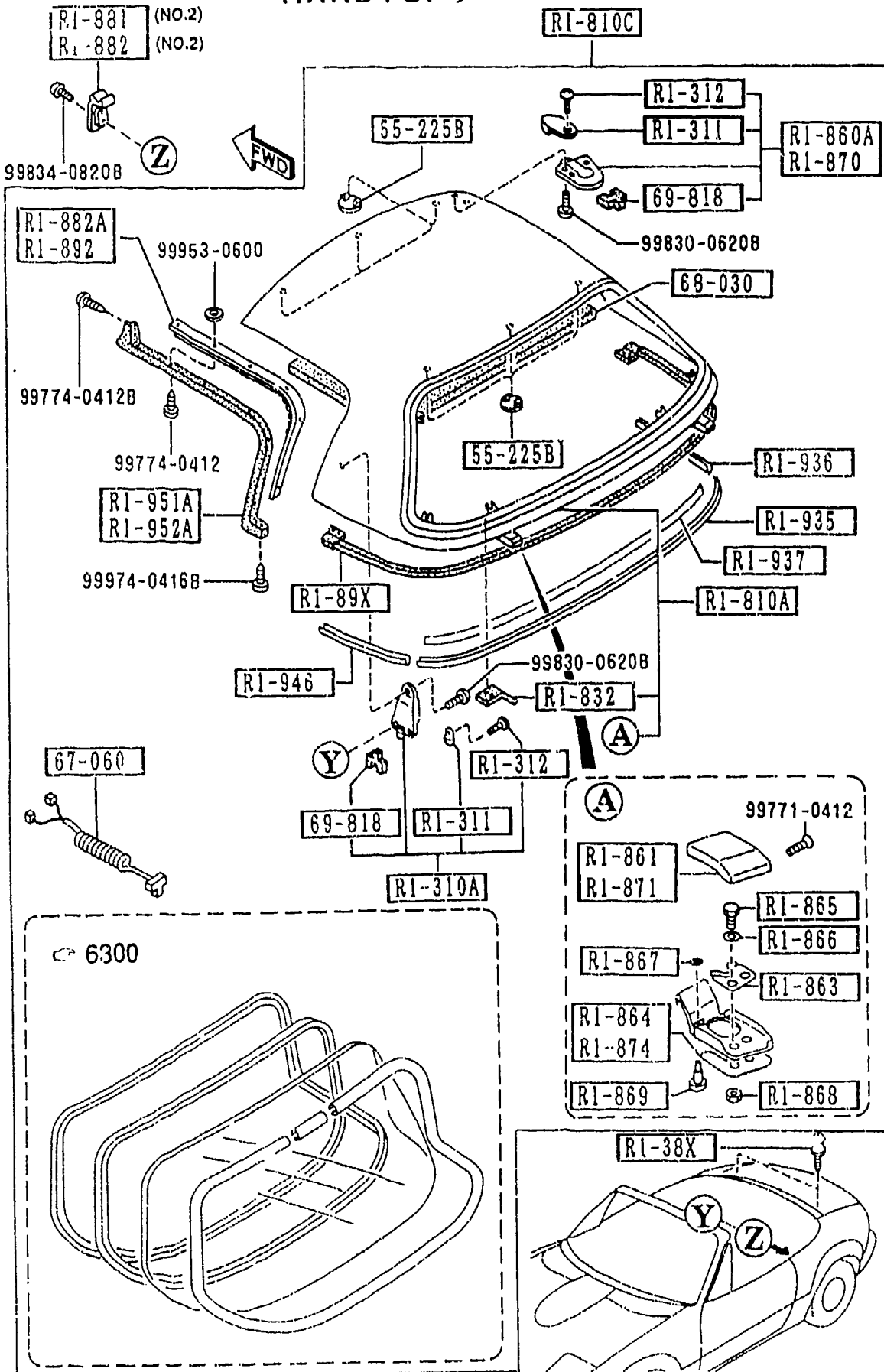
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-10
CONT'D		(W/DETACHABLE HARD TOP)			
NA01-R1-868	4	NUT, DECK LOCK OPT, (W/DETACHABLE HARD TOP)			
NA01-R1-869	2	PIN, DECK LOCK OPT, (W/DETACHABLE HARD TOP)			
NA01-R1-320C	1	LOCK(L), TOP (W/O DETACHABLE HARD TOP)			-6401
NA01-R1-320C	2	OPT, (W/DETACHABLE HARD TOP)			-6401
*NA01-R1-320E	1	(W/O DETACHABLE HARD TOP)			6401-
NA01-R1-320E	2	OPT, (W/DETACHABLE HARD TOP)			6401-
NA01-R1-871	1	COVER(L), DECK LOCK OPT, (W/DETACHABLE HARD TOP)			
NA01-R1-874	1	SHEET(L), DECK LOCK OPT, (W/DETACHABLE HARD TOP)			
NA01-R1-361B	1	STRIKER(R), LOCK-TOP (ILLUST. NO.1)			-6401
NA02-R1-361B	1	OPT, (ILLUST. NO.2) (W/DETACHABLE HARD TOP)			-6401
*NA01-R1-361D	1	(ILLUST. NO.1)			6401-
*NA02-R1-361D	1	OPT, (ILLUST. NO.2) (W/DETACHABLE HARD TOP)			6401-
		STRIKER(L), LOCK-TOP			
6401 NA3** -717787					



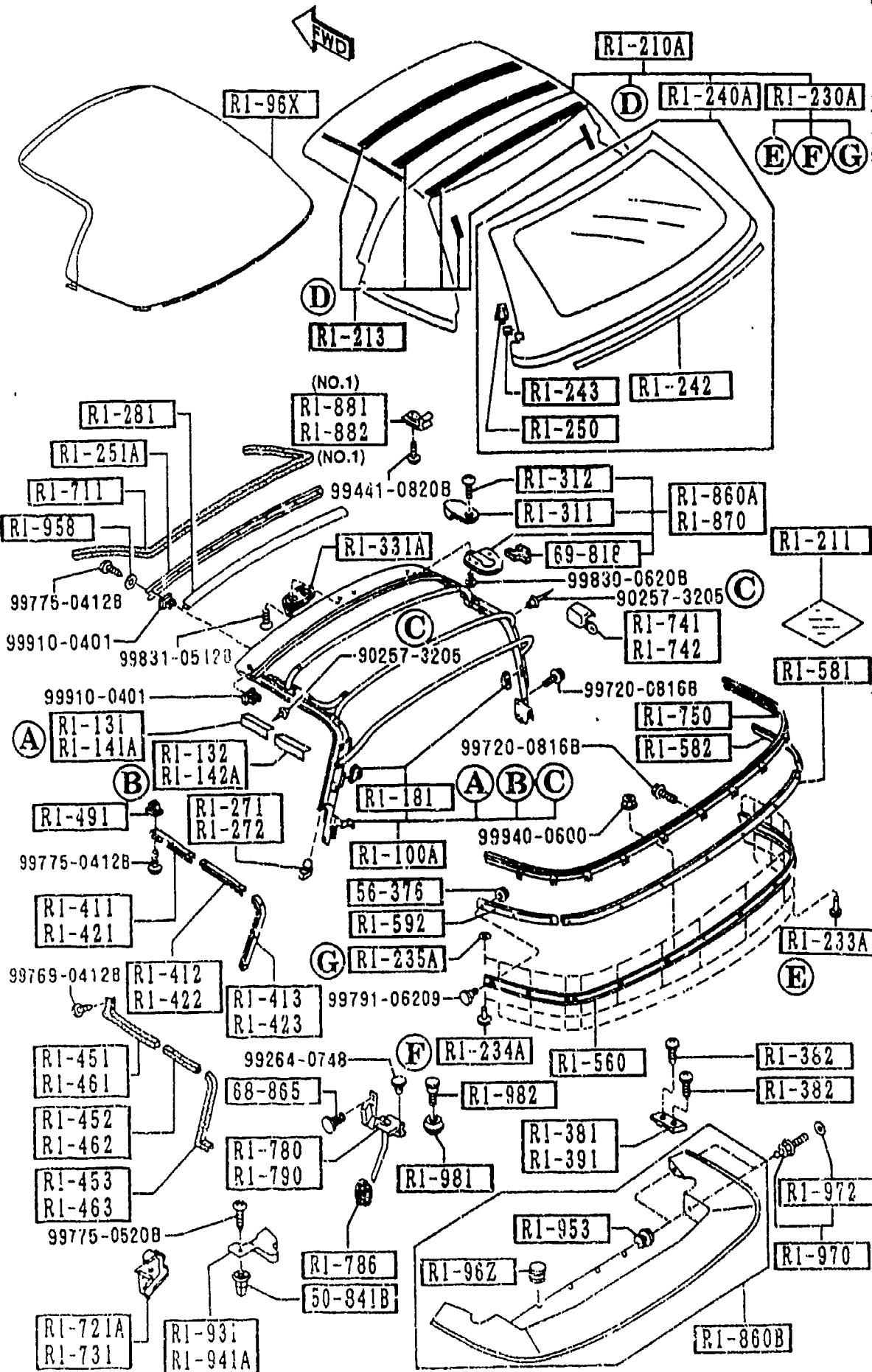
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D NA01-R1-371B	1	(ILLUST. NO.1)			-6401
NA02-R1-371B	1	OPT, (ILLUST. NO.2) (W/DETACHABLE HARD T OP)			-6401
*NA01-R1-371D	1	(ILLUST. NO.1)			6401-
*NA02-R1-371D	1	OPT, (ILLUST. NO.2) (W/DETACHABLE HARD T OP)			6401-
+-----+ | R1-882A | +-----+		RETAINER(R),WTHSTP-D .TOP			
NA01-R1-882	1	OPT, (W/DETACHABLE HARD T OP)			
+-----+ | R1-89X | +-----+		WEATHERSTRIP,D.TOP-R EAR			
NA01-R1-89XA	1	OPT, (W/DETACHABLE HARD T OP)			
+-----+ | R1-892 | +-----+		RETAINER(L),WTHSTP-D .TOP			
NA01-R1-892	1	OPT, (W/DETACHABLE HARD T OP)			
+-----+ | R1-931 | +-----+		COVER(R),BELT LINE			
NA01-R1-931A	1				
+-----+ | R1-935 | +-----+		PROTECTOR(C),EDGE-D. .TOP			
NA01-R1-935B	1	OPT, (W/DETACHABLE HARD T OP)			
+-----+ | R1-936 | +-----+		PROTECTOR(R),EDGE-D. .TOP			
NA01-R1-936A	1	OPT, (W/DETACHABLE HARD T OP)			
+-----+ | R1-937 | +-----+		TAPE,EDGE PROTECTOR- CTR			
NA01-R1-937	1				
+-----+ | R1-941A | +-----+		COVER(L),BELT LINE			
NA01-R1-941A	1				
+-----+ | R1-946 | +-----+		PROTECTOR(L),EDGE-D. .TOP			
NA01-R1-946A	1	OPT,			
		6401 NA3** -71787			

2-N15

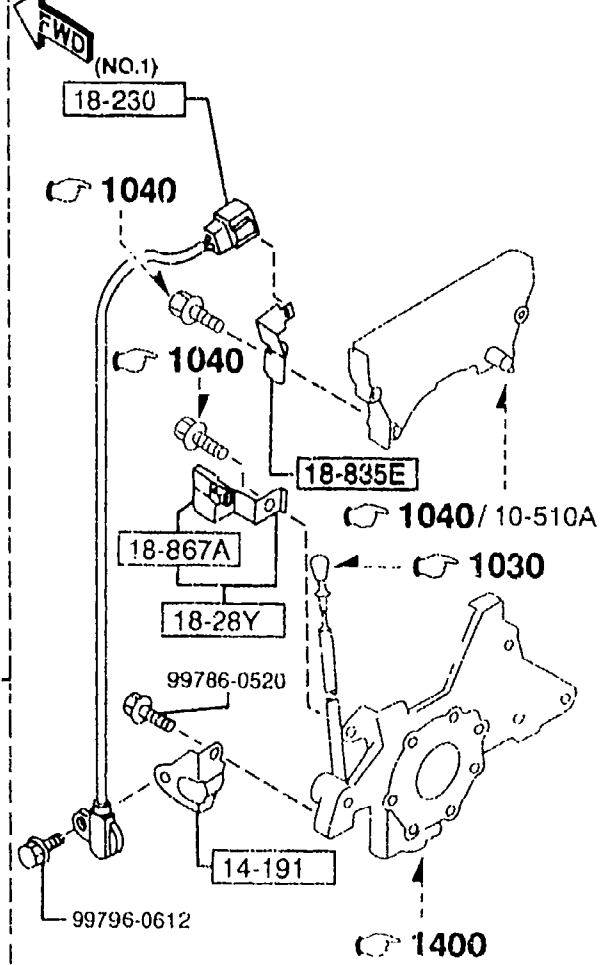
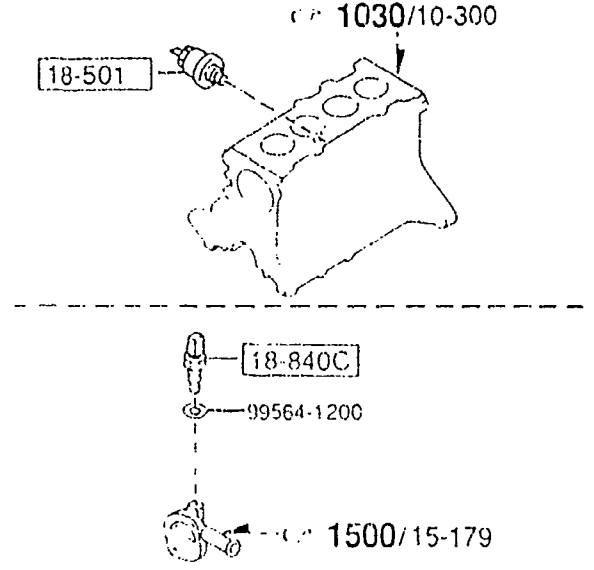
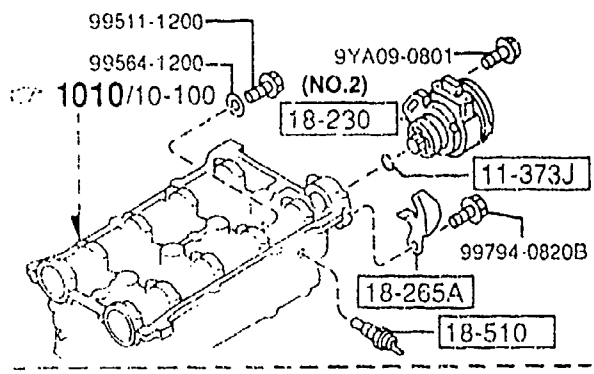
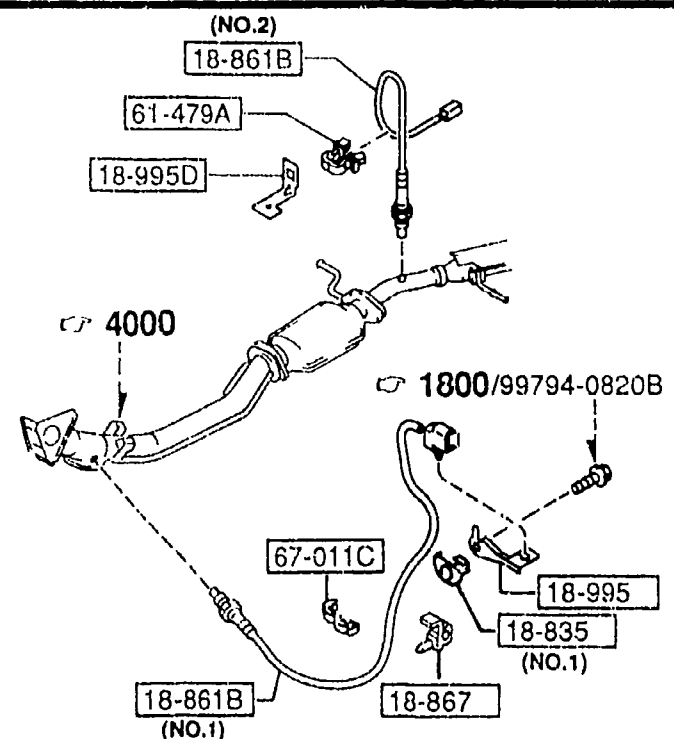
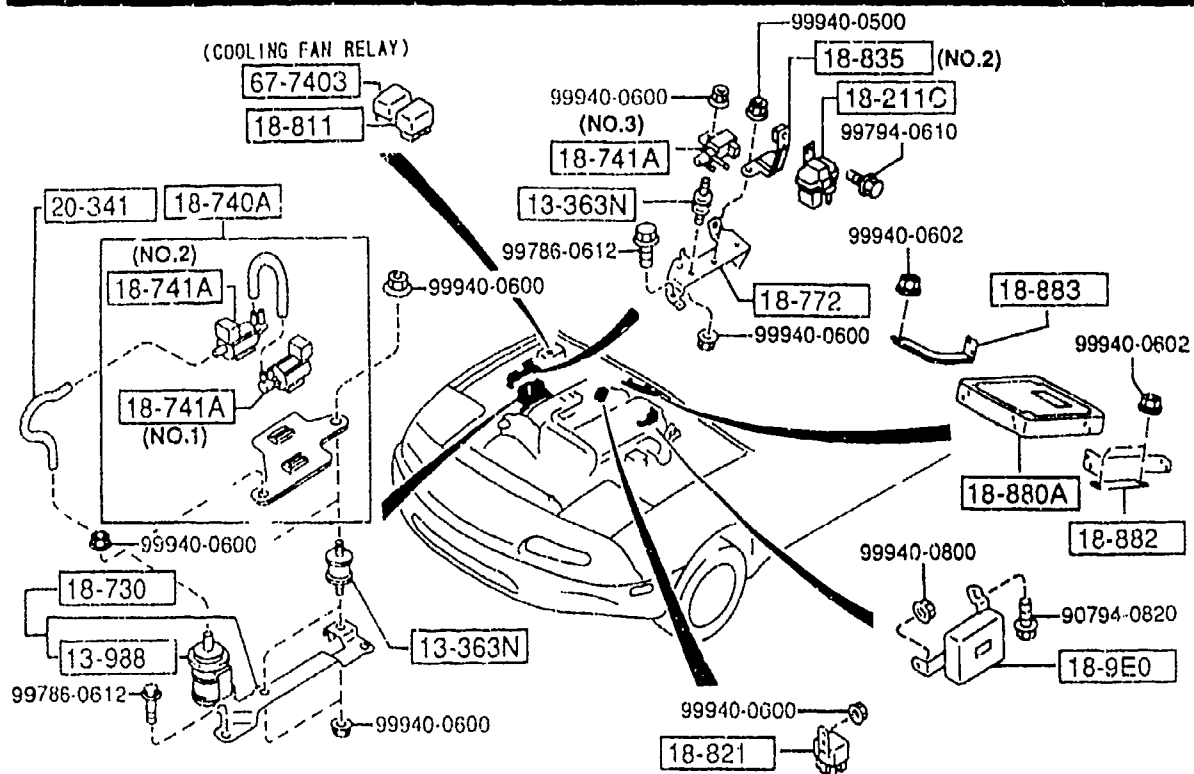
(W/DETACHABLE HARDTOP)



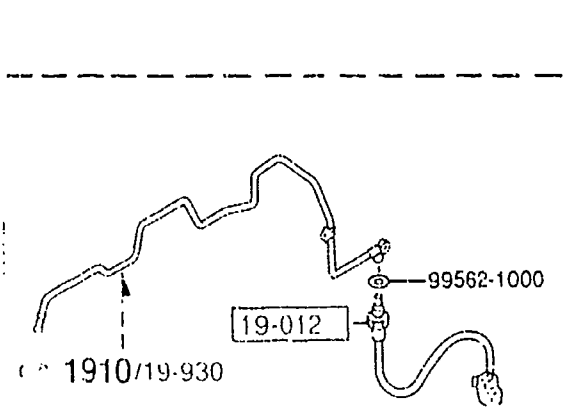
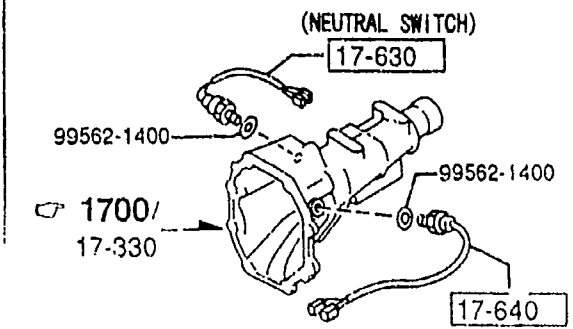
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D		(W/DETACHABLE HARD TOP)			
RI-951A	1	WTHSTP(R), ROOF PANEL			
NA01-RI-881B	1	OPT, (W/DETACHABLE HARD TOP)			
RI-952A	1	WTHSTP(L), ROOF PANEL			
NA01-RI-891B	1	OPT, (W/DETACHABLE HARD TOP)			
RI-953	4	HOOK, HOOD-REAR CORNER			
B235-RI-953	4				
RI-958	7	WASHER, HOOK 'A' & 'B'			
B235-RI-958A	7				
RI-96X	1	COVER, TOP FABRIC			
NA01-RI-96XC	1	(W/O DETACHABLE HARD TOP)			5801-
AN(NA01-RI-96XD)	1	(W/O DETACHABLE HARD TOP)			5801-
*NA01-RI-96XD	1	(W/O DETACHABLE HARD TOP)			
RI-96Z	7	HOOK, TOP BOOT			
NA01-RI-96Z	7				
00	INT-	NA3 NA7 NA8 BLACK			
75	INT-	NA4 NA5 NA6 SILVER			
RI-970	4	HOOK, REAR DECK			
NA01-RI-970A	4				
RI-972	4	WASHER, HOOK 'A'			
NA01-RI-926	4				
RI-981	2	STOPPER, SOFT TOP			
NA01-RI-981A	2				
RI-982	2	BOLT, STOPPER-SOFT TOP			
NA01-RI-982A	2				6201-
AN(NA01-RI-982B)	2				
*NA01-RI-982B	2				6201-
5801 NA3**	-704237				
6201 NA3**	-711421				



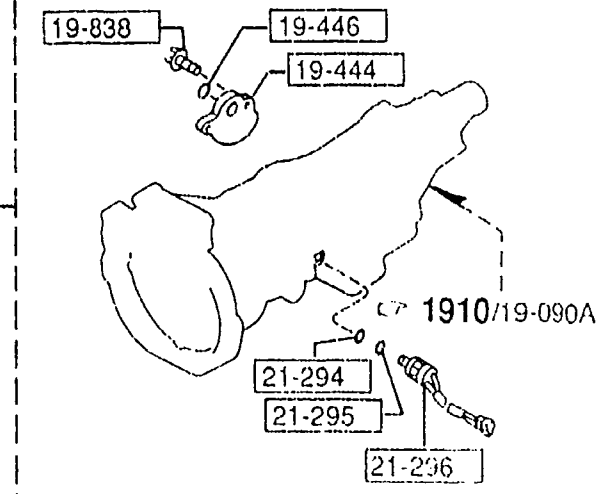
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
50-841B		GROMMET, SCREW			
H260-50-841	2				
55-225B		COVER, HOLE			
GR30-55-225	6	OPT, (W/DETACHABLE HARD T OP)			
00	INT-	NA3 NA4 NA5 NA6 NA7 NAB BLACK			
56-376		NUT, SELF LOCK			
B001-56-376	13				
67-060		HARNES NO. 2, REAR			
N007-67-060A	1	OPT, (W/DETACHABLE HARD T OP)			
68-030		CEILING, TOP			
N007-68-031	1	OPT, (W/DETACHABLE HARD T OP)			
00	INT-	NA3 NA4 NA5 NA6 NA7 NAB BLACK			
68-865		FASTENER			
G032-68-865A	2				
00	INT-	NA3 NA4 NA5 NA6 NA7 NAB BLACK			
69-818		PAD			
NA01-R1-313	2	(W/O DETACHABLE HARD TCP)			
NA01-R1-313	6	OPT, (W/DETACHABLE HARD T OP)			

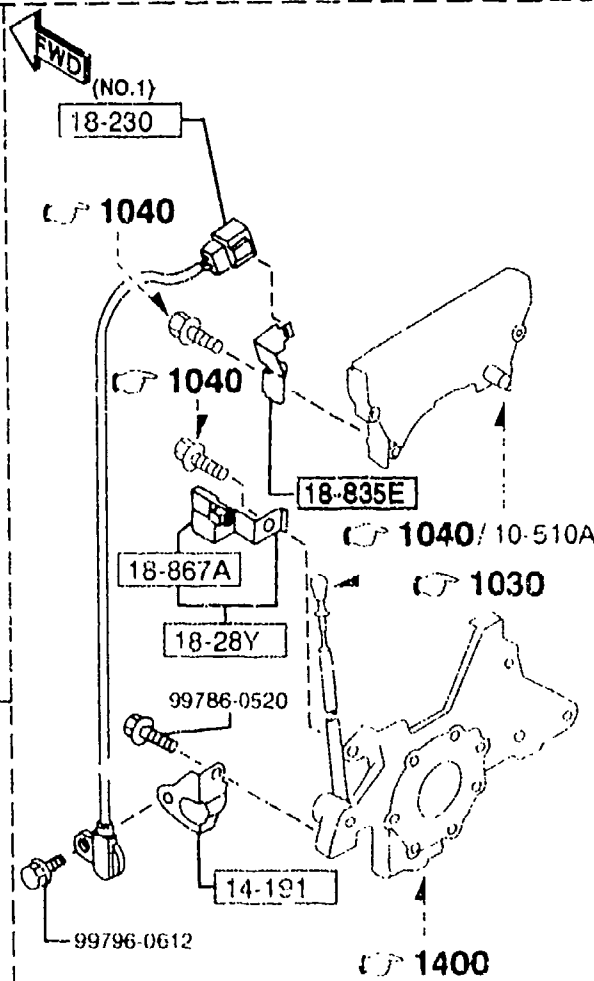
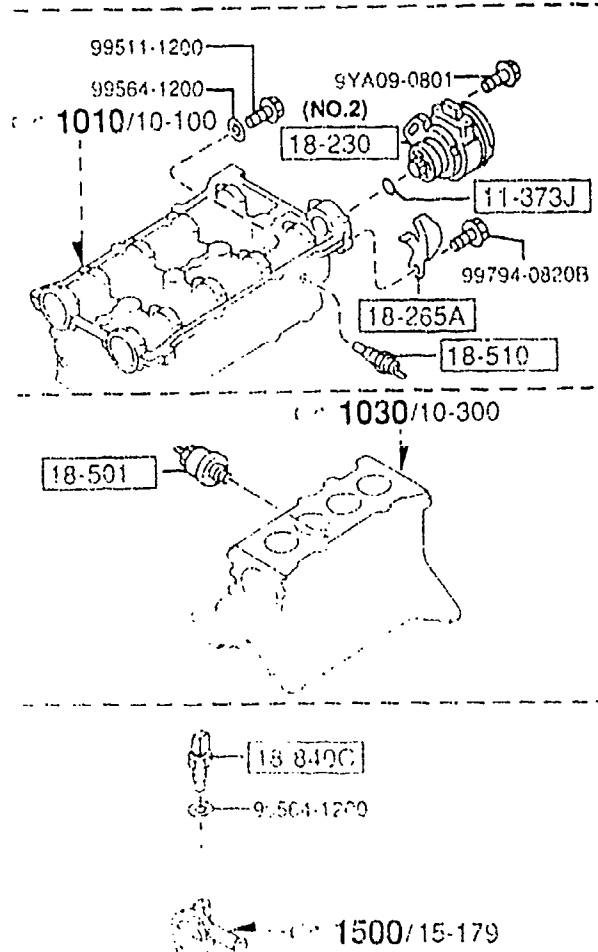
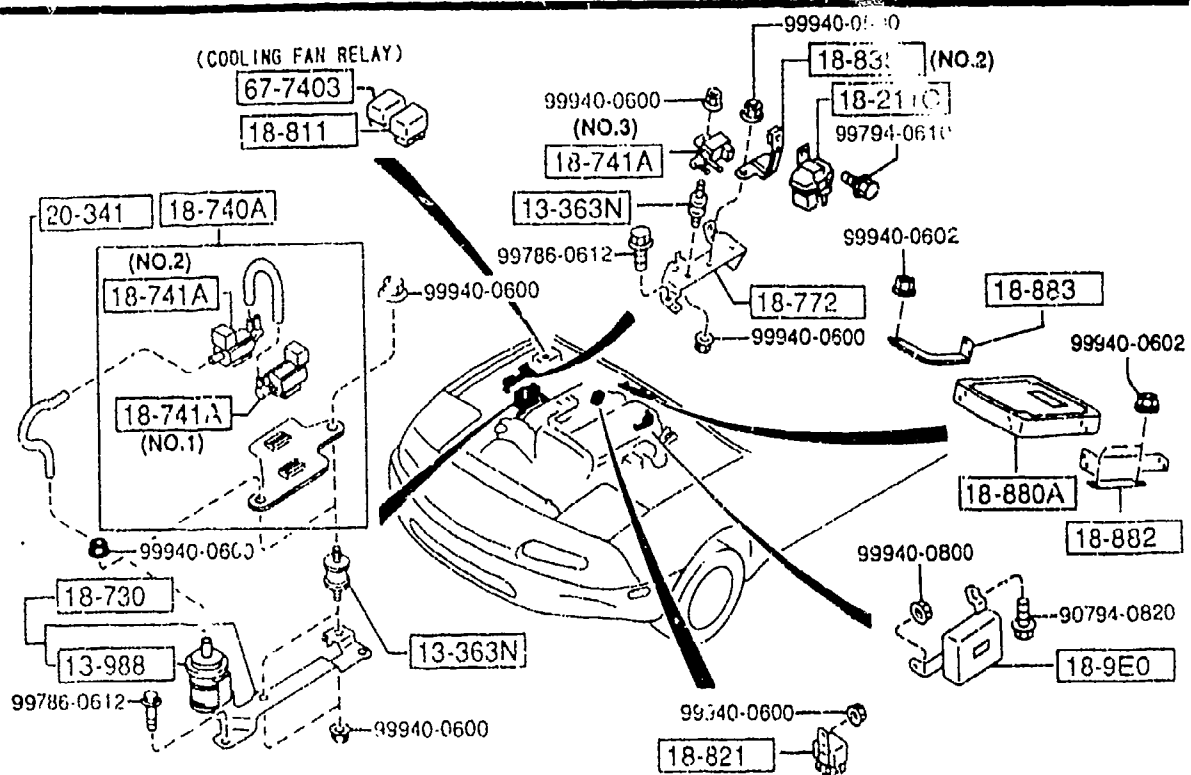


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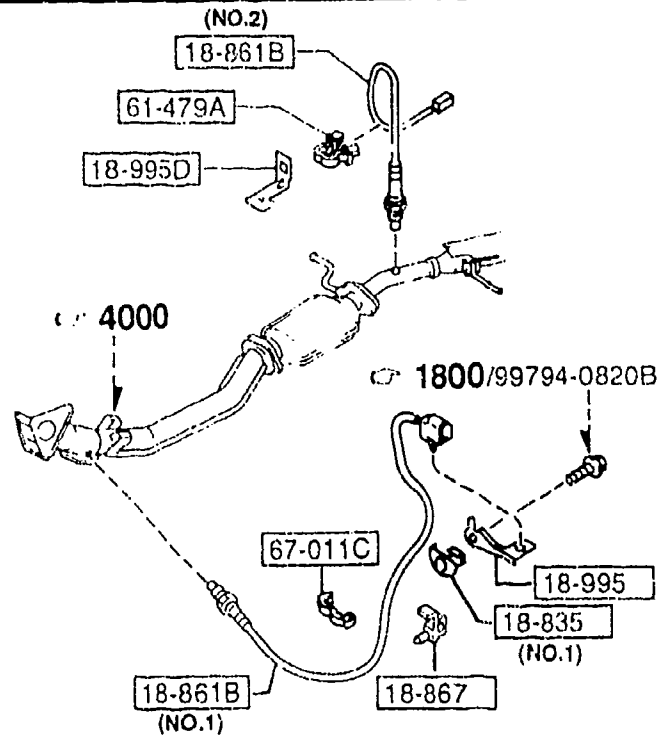
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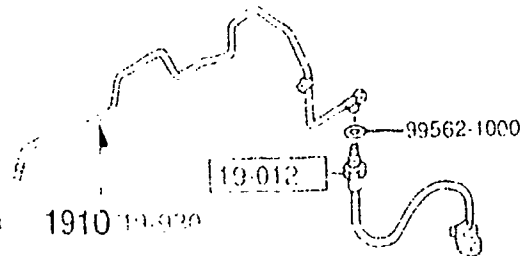
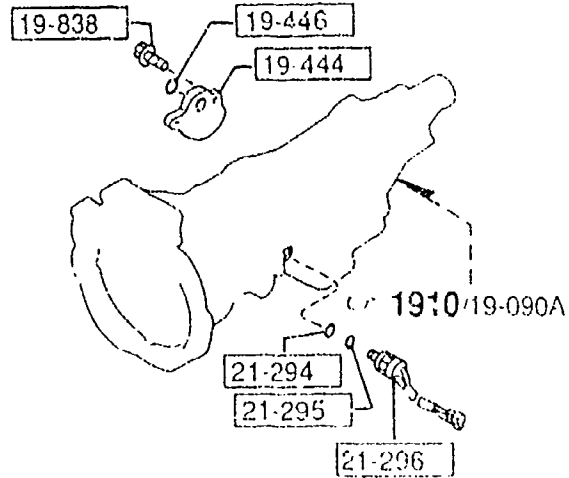
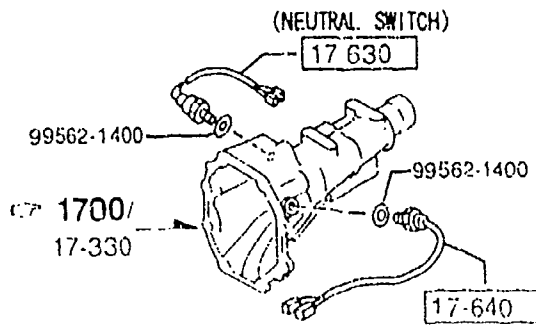
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
11-373J		RING, 'O'			
99541-03801	1				
13-363N		RUBBER, MOUNTING			
0222-13-363	3				
13-988		FILTER, AIR			
RFG1-13-988A	1				-5901
14-191		BRACKET, OIL PUMP			
B6BF-14-190	1	('96 MODEL)			
17-630		SWITCH			
8118-17-640B	1	(NEUTRAL SWITCH) (MT)			
17-640		SWITCH, BACK UP LAMP			
M506-17-640A	1	(MT)			
18-211C		SENSOR, M.A.P.			
BPS1-18-211	1	('96 MODEL)			
18-230		SENSOR, CRANKSHAFT POSI.			
BPS1-18-221	1	(ILLUST. NO.1) ('96 MODEL)			
BPE8-18-230	1	(ILLUST. NO.2)			
18-265A		BRACKET, COUPLER-KNOCK SENSOR			
BPE8-18-281A	1				
18-28Y		BRACKET, CONDENSER			
B6BF-18-28Y	1	('96 MODEL)			
18-501		SWITCH, OIL PRESSURE			
B367-18-501	1				
18-510		UNIT, HEAT GAUGE			
B541-18-51X	1	PANASONIC			
KL01-18-51X	1	NIHON THERMOSTAT			

5901 NA3** -702989



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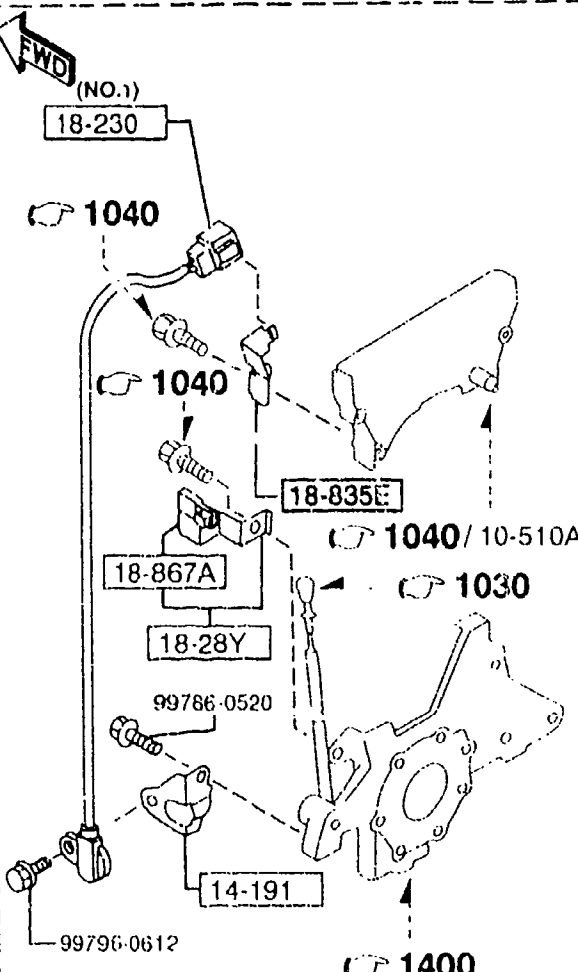
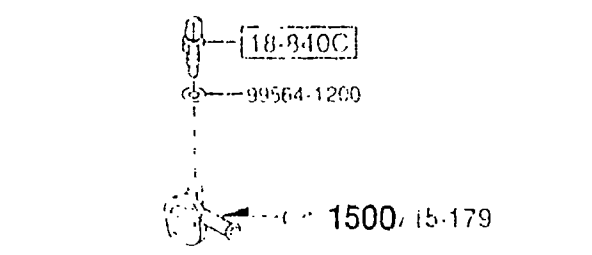
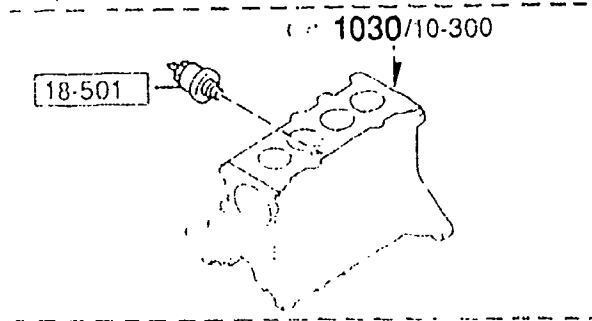
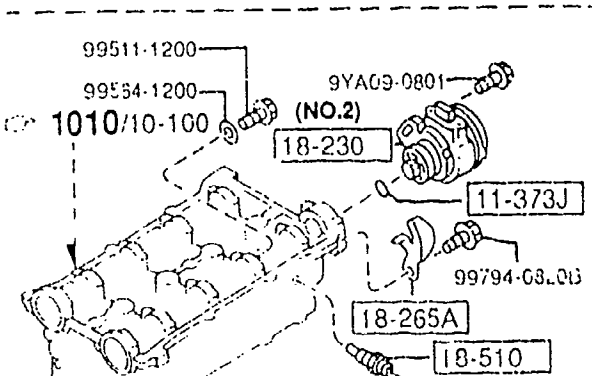
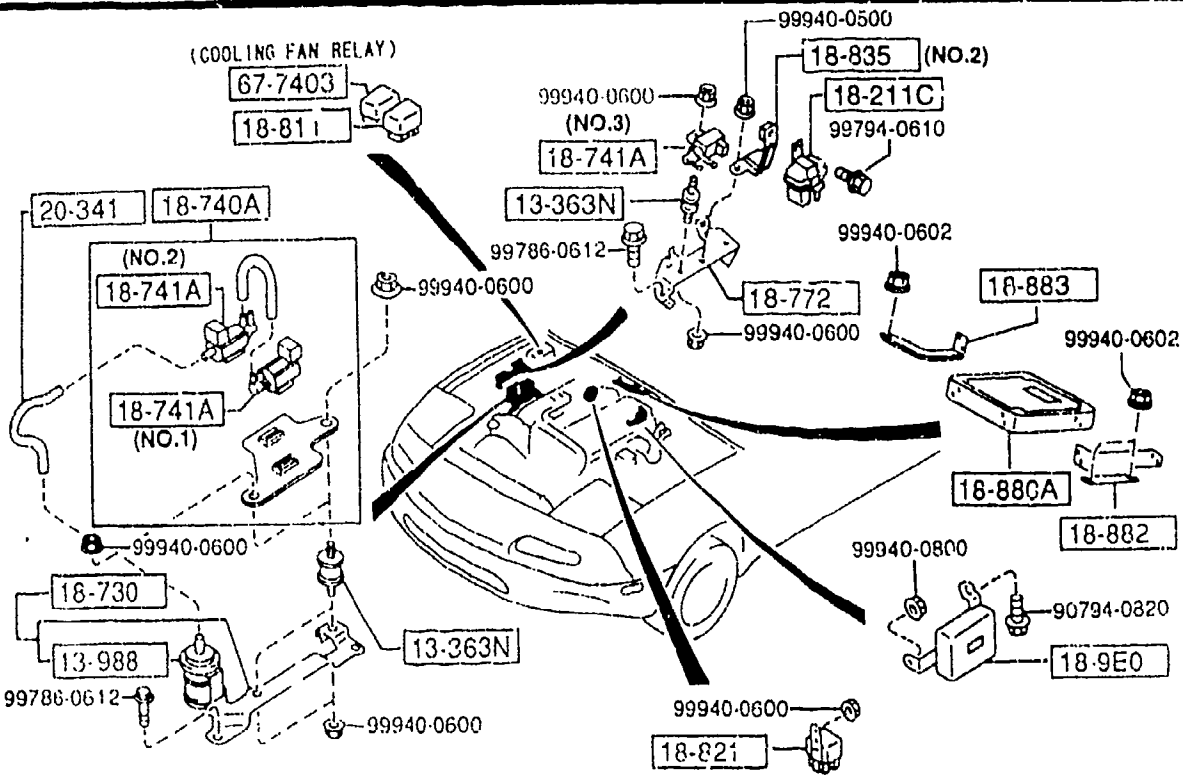
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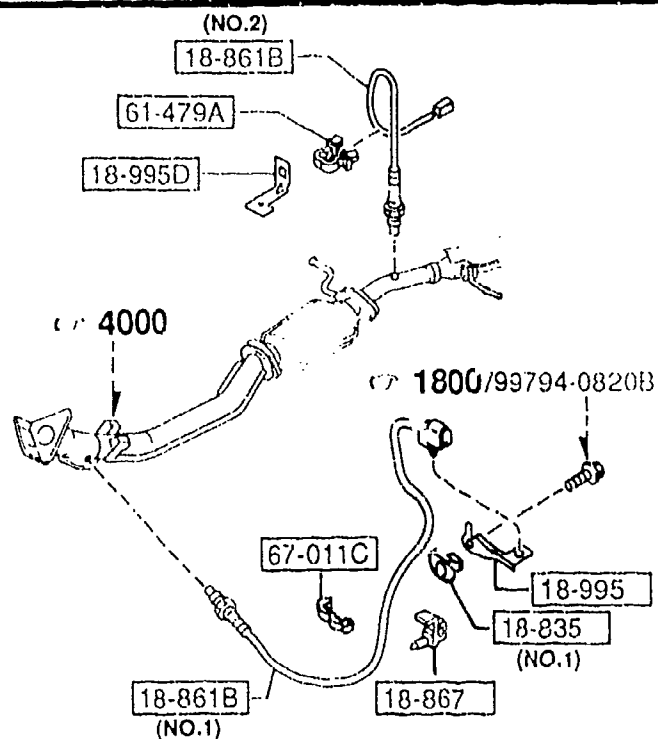
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
18-730		FILTER, AIR			
BPE8-18-730	1				-5901
BPE8-18-730A	1				5901-
18-740A		VALVE, SOLENOID			
BPE8-18-74X A (BPE8-18-74XA)	1				-5901
BPE8-18-74XA	1				5901-
18-741A		VALVE, THREE WAY			
F2L3-18-741	1	(ILLUST. NO.1)			
F2L4-18-741	1	(ILLUST. NO.2)			
JE16-18-741	1	NIHON OIL SEAL (ILLUST. NO.3)			
18-772		BRACKET, IGNITER			
BPE8-18-2F0	1	('95 MODEL)			
B61P-18-2F0B	1	('96 MODEL)			
18-811		RELAY, MAIN			
B658-18-811	1				-6701
B5B4-18-811	1				6701-
18-821		RELAY, FUEL PUMP			
B577-18-821A	1				
18-835		BRACKET, WIRE CLIP-CX YGEN			
BPS1-18-835A	1	(ILLUST. NO.2) ('96 MODEL)			
BPE8-18-830B	1	(ILLUST. NO.1)			
18-835E		BRACKET, BOOST SENSOR			
BPS2-18-835	1	('96 MODEL)			
18-840C		SENSOR, TEMP. -ENG. COO LANT			
B593-18-840A	1	DENSO			
18-861B		SENSOR, OXYGEN			
BPS1-18-862B	1	(ILLUST. NO.2) ('96 MODEL)			

5901 NA3** -702989
6701 NA3** -719627

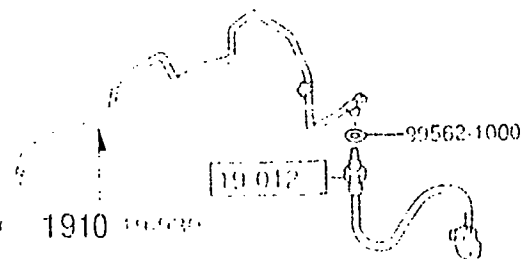
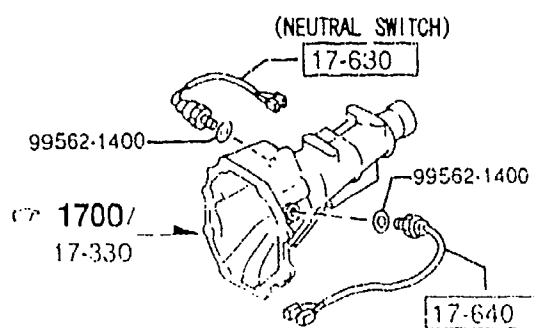




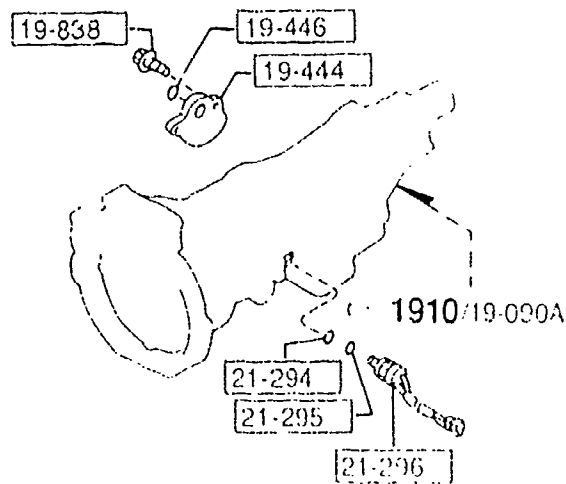
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
BPE8-18-861A	1	(ILLUST. NO.1)			
18-867		CLIP			
BPE8-18-867A	1				
18-867A		CLIP,WIRE			
B366-18-867A	1	('96 MODEL)			
18-880A		MODULE,POWERTRAIN CO			
BPL9-18-881	1	('95 MODEL)			-5130
A (BPL9-18-881B)					
BPS1-18-881A	1	('96 MODEL)			-5B29
A (BPS1-18-881B)					
BPL9-18-881B	1	('95 MODEL)			5130-
BPS1-18-881B	1	('96 MODEL)			5B29-
18-882		BRACKET,CONTRCL UNIT			
BPE8-18-882	1				
18-885		BRACKET,CONTROL UNIT			
BPE8-18-883A	1	('95 MODEL)			
BPS1-18-883	1	('96 MODEL)			
18-9E0		MODULE,PWT.CONT.-A/T			
BPE9-18-9E1A	1	(('95 MODEL))>(AT)			
BPS2-18-9E1	1	(('96 MODEL))>(AT)			
18-995		CLIP			
BPE8-18-998B	1				
18-995D		BRACKET,COUFLER-02 S			
3PS1-18-998B	1	ENSOR			
19-012		SENSOR,OIL TEMP			
N451-19-012A	1	(AT)			
19-444		SWITCH INHIBITOR			
N451-19-444	1	(AT)			
19-446		RING			
0338-19-446	1	(AT)			
5130 NA35*	-613967				
5B29 NA3**	-706256				



(MT)



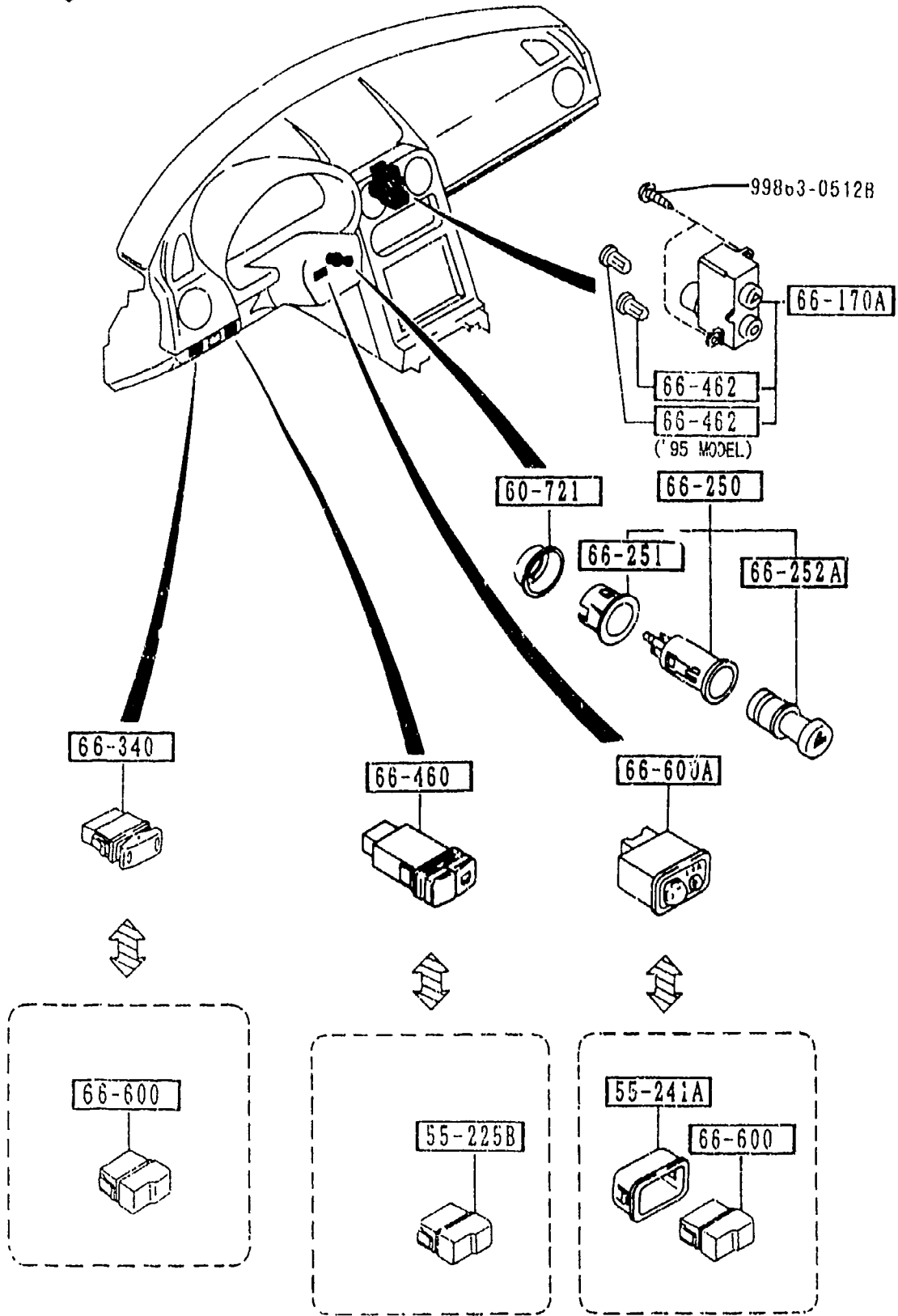
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PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTIO	MODEL/RESTRICTION	FROM-TO
19-838		BOLT-HEX,HD WASHER			
1758-19-838A	2	(AT)			
20-341		HOSE,VACUUM			
BPE8-20-341	1				-5901
21-294		RING,'O'			
BU01-21-294	1	(AT)			
21-295		RING,'O'			
BU01-21-295	1	(AT)			
21-296		SOLENOID,LOCK UP CON TROL			
N451-21-3A5	1	(AT)			
61-479A		CLIP			
UB39-61-479A	1	('96 MODEL)			
67-011C		CLIP			
E356-18-141	1				
67-7403		RELAY,N.O.			
LA10-67-740	1	10A (COOLING FAN RELAY)			

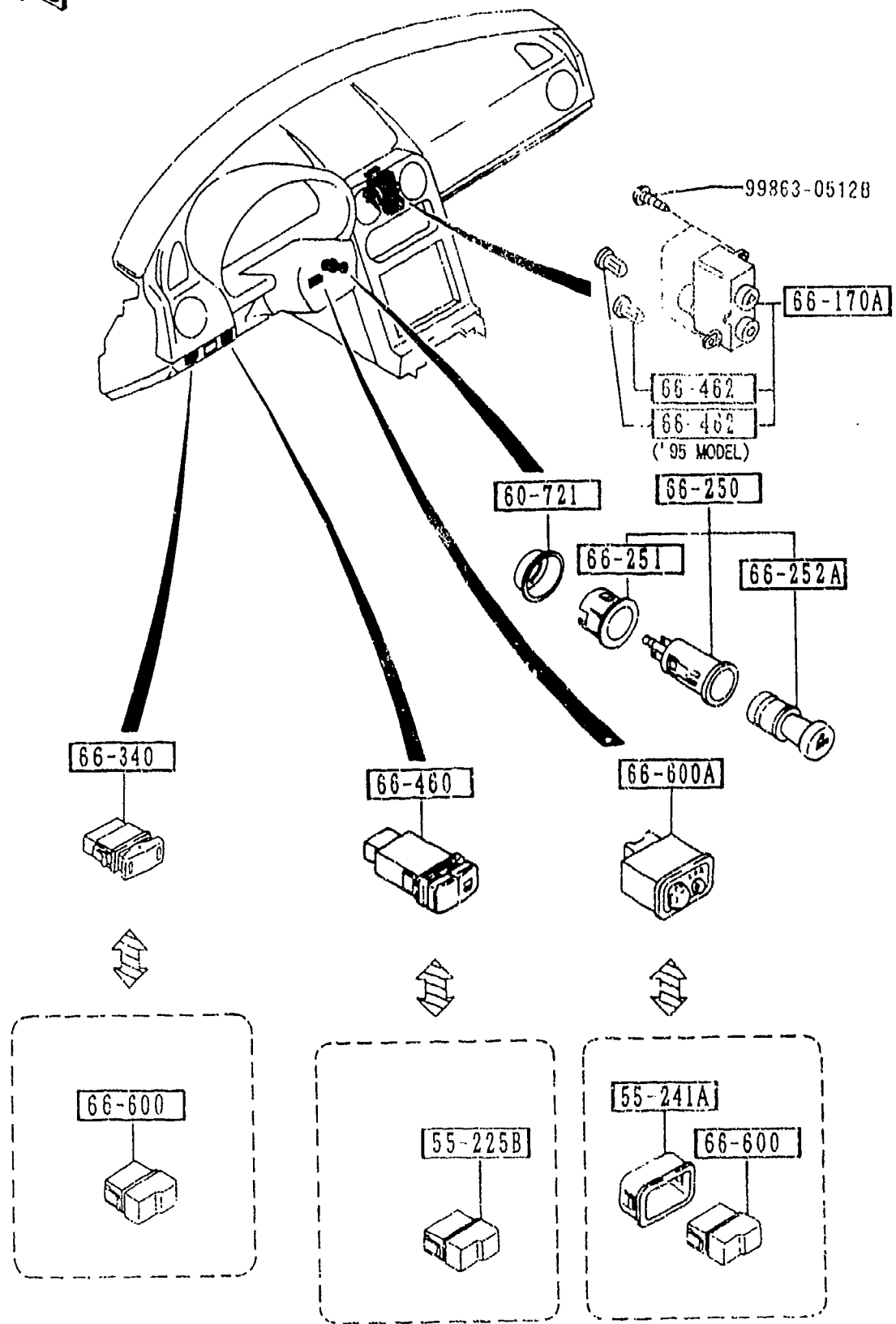
5901 NA3** -702989



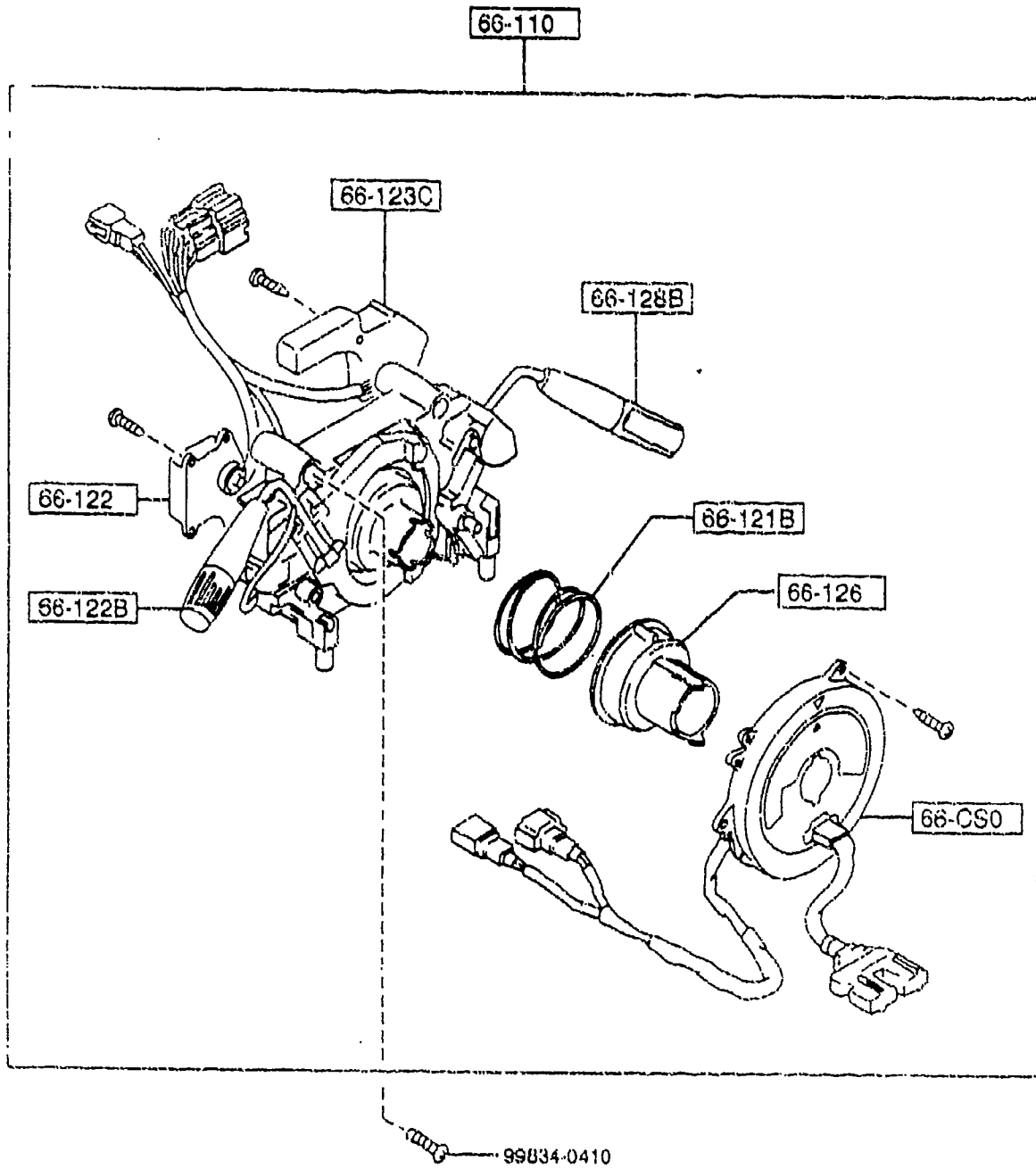


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
55-225D		COVER, HOLE			
B481-55-225	1	(W/O DETACHABLE HARD TOP)			-4A03
N034-55-225	1	(W/O DETACHABLE HARD TOP)			4A03-
55-241A		BOX, INSTRUMENT PANEL			
NA01-55-241A	1	BASE, R-PKG, (MANUAL) (MANUAL TYPE DR MIRROR)			
60-721		PROTECTOR			
B092-66-241A	1	('95 MODEL)			-5508
66-170A		SWITCH(R), CLUSTER			
NA01-66-170	1	('95 MODEL)			
N041-66-170A	1	('96 MODEL)			
66-250		LIGHTER, CIGAR			
B150-66-250	1				
66-251		RING, ILLUMINATION			
B001-66-251	1				
66-252A		PLUG, CIGAR LIGHTER			
B001-66-252	1				
66-340		SWITCH, MAIN			
NA01-66-340A	1	M-25-ED, P.E.GR, L-PKG, PKG-B, PKG-C, (W/AUTO CRUISE.CONT.)			
66-460		SWITCH, RR. DEF.			
NA75-66-460	1	OPT, (W/DETACHABLE HARD TOP)			
66-462		BULB'B', SWITCH-RR DEF. FOGER			
NA01-66-462	1	('96 MODEL)			
NA01-66-462	2	('95 MODEL)			
66-600		COVER, HOLE			

4A03 NA35* -603621
5508 NA35* -620210



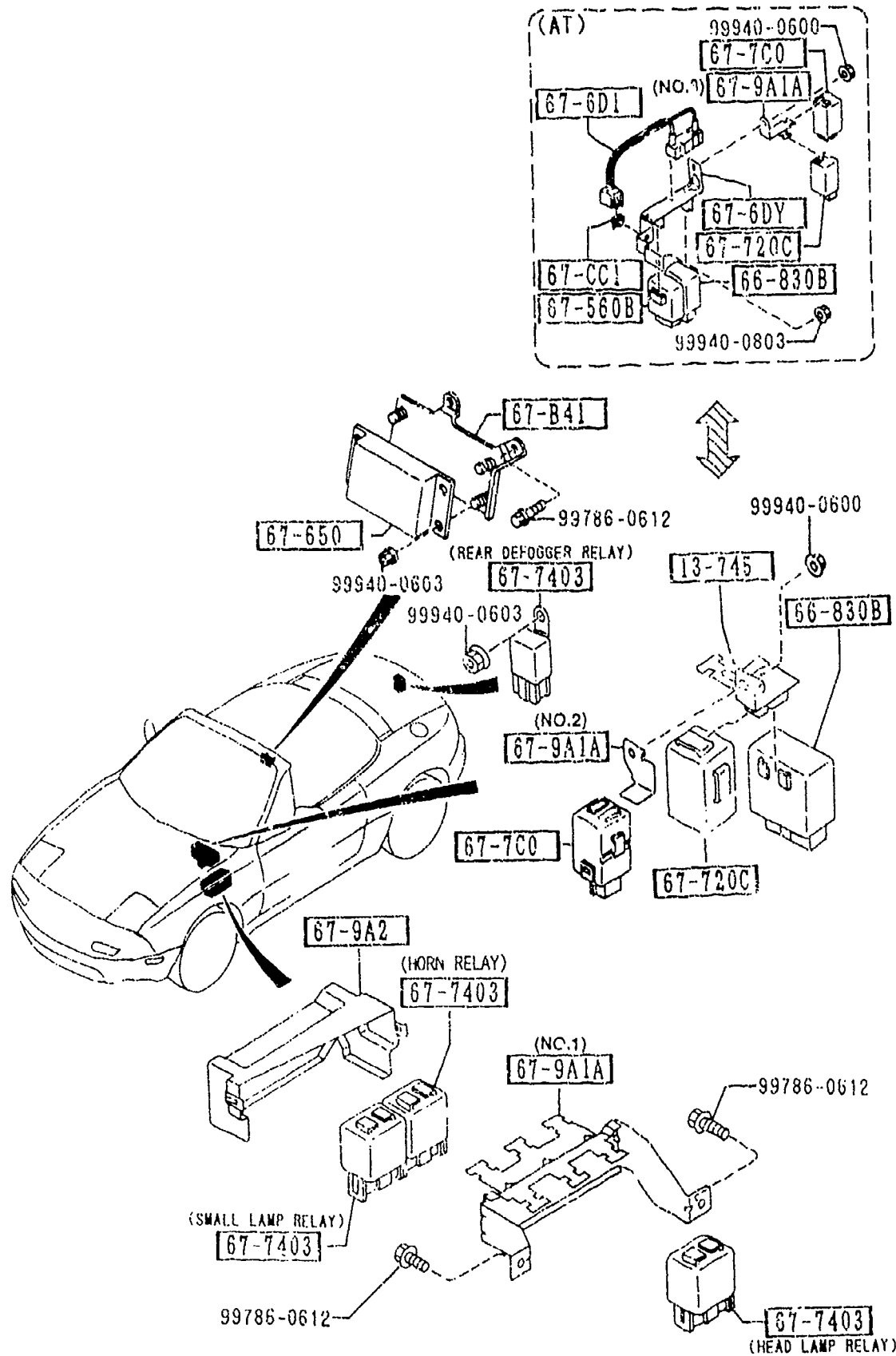
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	RESTRICTION	FROM-TO
CONT'D B481-55-225	2				
+-----+ | 66-600A | +-----+		SWITCH, RMT. MIRROR			
NA52-66-600A	1	M-25-ED, P.E.GR, L-P KG, PKG-A, PKG-B, PK G-C. (ELECT.) (ELECT. TYPE DR MIRR OR)			



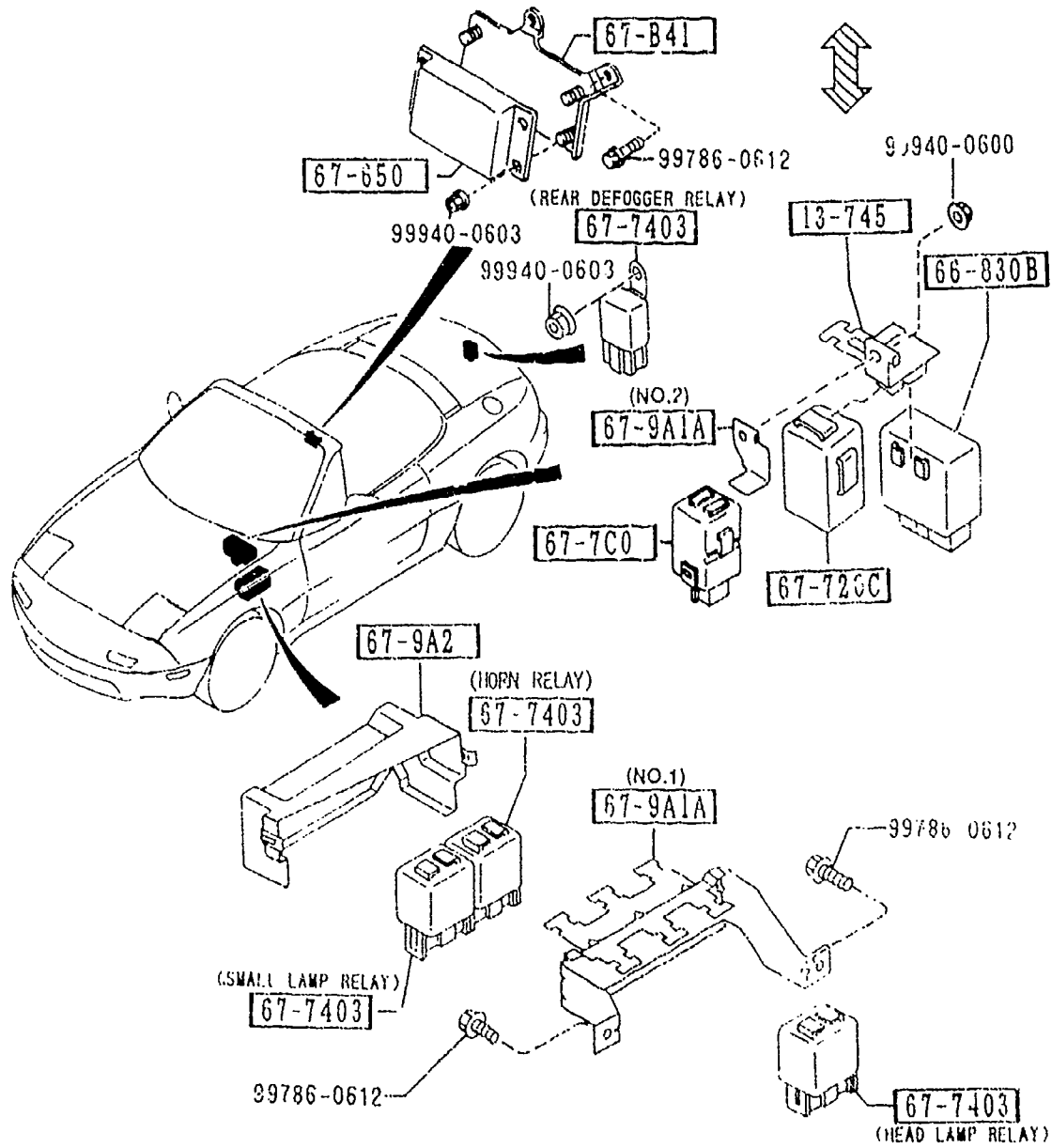
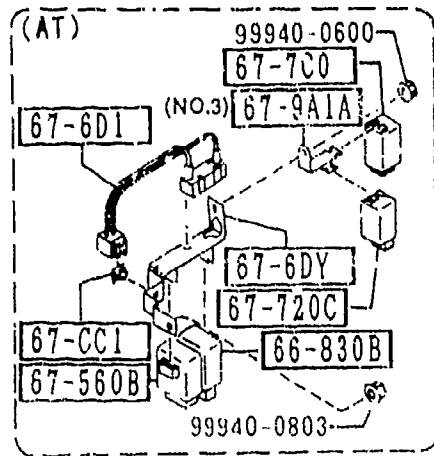
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
66-CS0		SPRING,CLOCK			
*NB17-66-CS0	1				
66-110		SWITCH,COMBINATION			
NA01-66-120B	1	BASE, R-PKG, PKG-A, (W/O AUTO CRUISE.CON T.)			-4C01
NA02-66-120B	1	M-25-ED, P.E.GR, (P KG, PKG-B, PKG-C, (W/AUTO CRUISE.CON T.)			-4C01
NB17-66-120	1	BASE R-PKG, PKG-A, (W/O AUTO CRUISE.CON T.)			4C01-
NB18-66-120	1	M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/AUTO CRUISE.CON T.)			4C01-
66-121B		SPRING,CANCEL CAM			
*H384-66-121	1				
66-122		SWITCH,DIMMER			
*NA02-66-136	1				
66-122B		SWITCH,LIGHT & TURN			
*NA02-66-122	1				
66-123C		UNIT,WIPER-COMB. SWI TCH			
*NA07-66-135	1				
66-126		CAM,CANCEL-COMB. SW.			
*N 02-66-126	1				
66-128B		LEVER,WIPER-COMB. SW ITCH			
*NA01-66-128	1	BASE, R-PKG, PKG-A, (W/O AUTO CRUISE.CON T.)			
*NA02-66-128	1	M-25-ED, P.E.GR, i-P KG, PKG-B, PKG-C, (W/AUTO CRUISE.CON T.)			

4C01 NA35* -609691





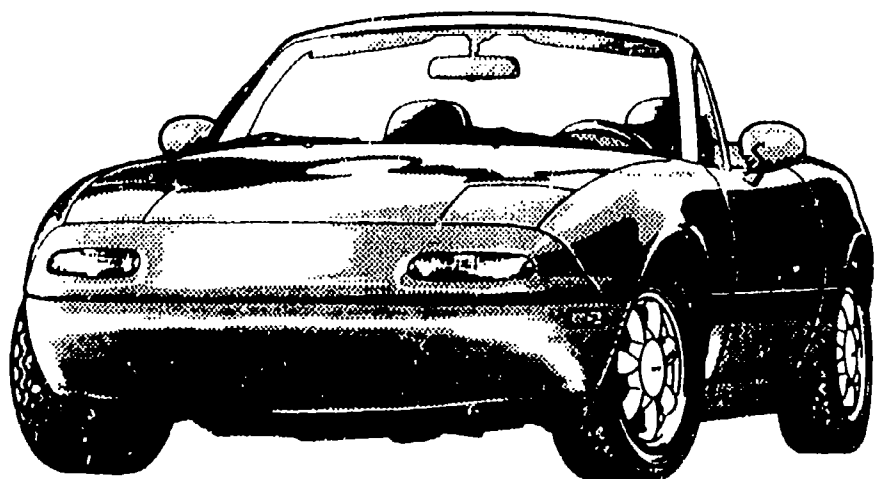
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13-745		BRACKET, RELAY			
NA02-67-9A1	1	(MT)			
66-830B		UNIT, FLASHER			
HE01-66-830	1				
67-B41		BRACKET, DASHBOARD HARNESS			
NB13-67-B4X	1	(W/A. LOCK BRAKE)			
67-CC1		CLIP, HARNESS			
LA01-67-C11	1	(AT)			
67-560B		UNIT, CENTRAL PROCESSING			
NA56-67-560	1	(AT)			
67-6DY		BRACKET, RELAY-INTERLOCK			
NA56-67-6DYA	1	(AT)			
67-6D1		RESISTOR, INTERLOCK			
M020-67-6D1	1	(AT)			
67-650		BOX, CONTROL-A. B. S.			
N036-67-650	1	(W/A. LOCK BRAKE)			
67-7C0		RELAY, RETRACTOR-COWL PANEL			
B481-67-7C0B	1				
67-720C		TIMER & BUZZER			
NA02-67-720A	1				
67-7403		RELAY, N.O.			
H300-67-740	1	30A (HEAD LAMP RELAY)			
LA10-67-740	2	10A (HORN RELAY) (SMALL LAMP RELAY)			
LA40-67-740	1	OPT, (REAR DEFUGGER RELAY) (W. DETACHABLE HARD TOP)			
67-9A1A		BRACKET, RELAY			



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
NA01-67-9A1	1	(ILLUST. NO.1)			
NA17-67-9A1	1	(ILLUST. NO.2) (MT)			
NAB1-67-9A1	1	(ILLUST. NO.3) (AT)			
		+			
		| 67-9A2 |	COVER, RELAY		
		+			
NA02-67-9A2	1				

Parts Catalog

Mazda MX-5 MIATA
U.S.A.
('95 ▶ '96)



NA35 • 600001-700000
NA3 • • 700001-800000

mazda

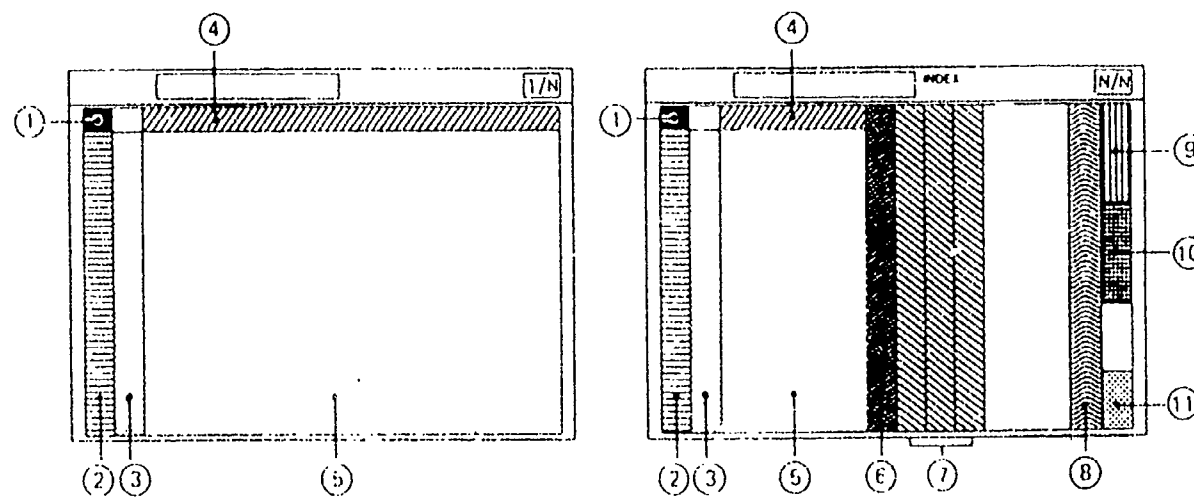
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Jul. '97 (FINAL)

Catalog No. AU-NA05-04

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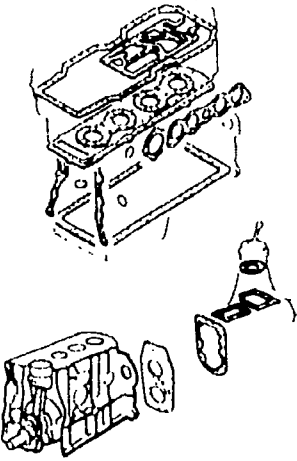
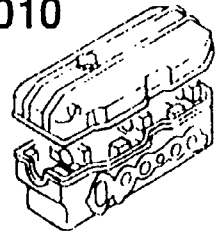
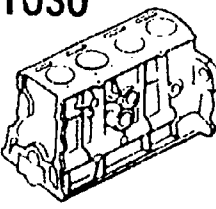
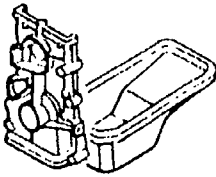
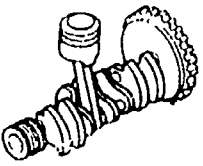
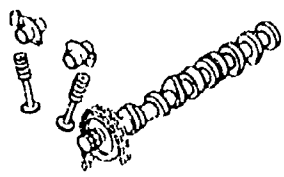
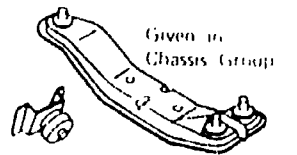
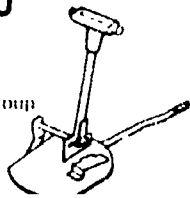
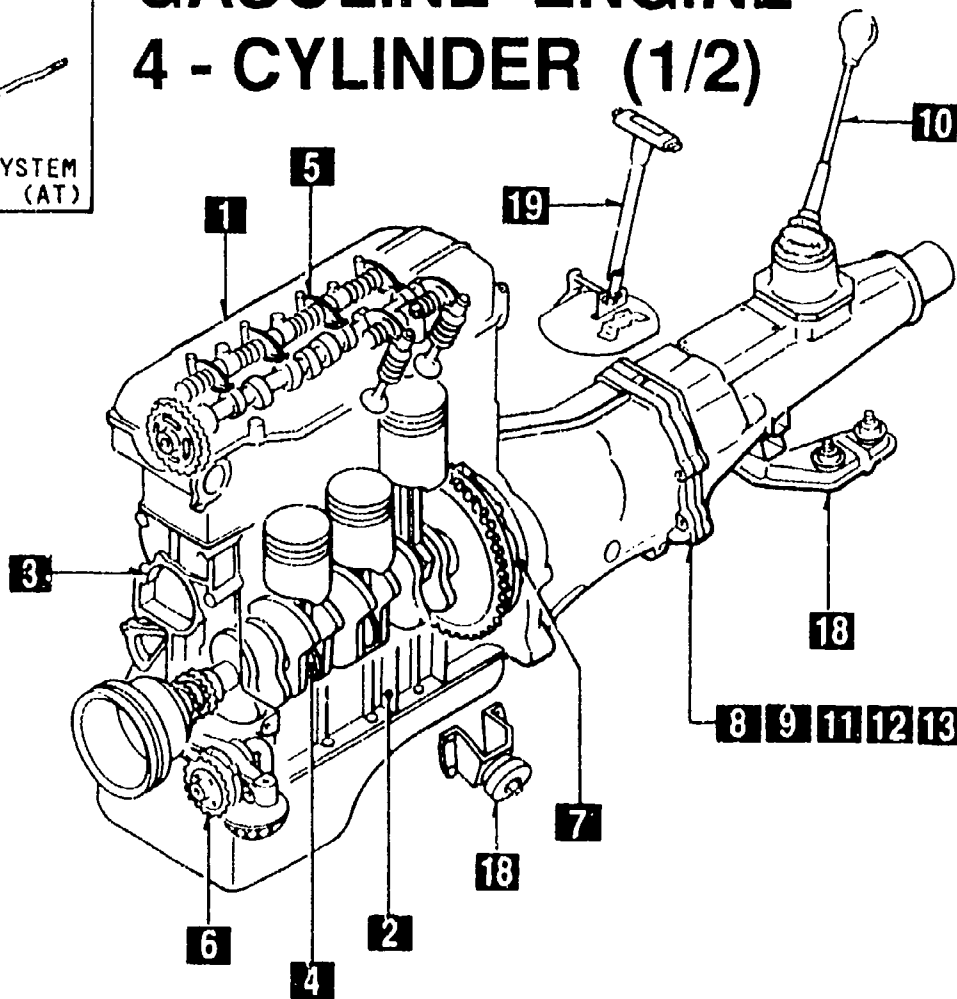
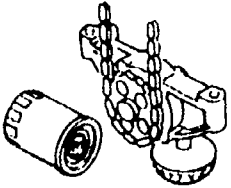

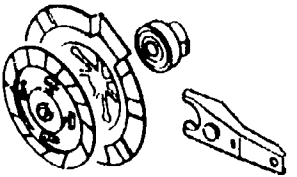
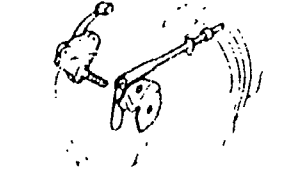
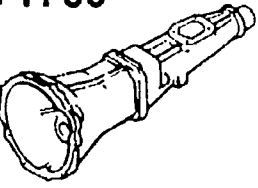
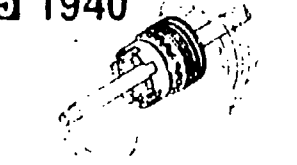


- The following is a typical example of the layout of contents on Mazda microfiche parts catalog.
- Voici un exemple typique de la disposition typographique de contenu dans les microfiches de catalogue des pièces de Mazda.
- El siguiente es un ejemplo típico de la disposición del contenido en una microficha del catálogo de repuestos de Mazda.
- Folgendes ist ein typisches Beispiel der Inhaltsanordnung des Mazda-Mikrofiche-Teilekatalogs.



Remark : The items listed under ④ have been deleted from each fiche since Dec. '93

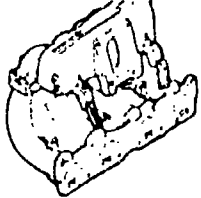
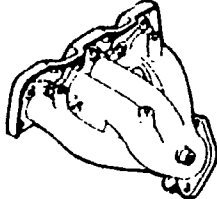
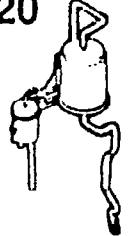
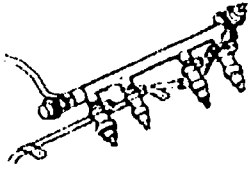
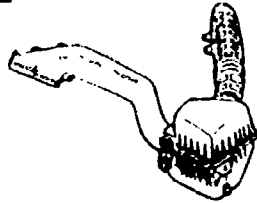
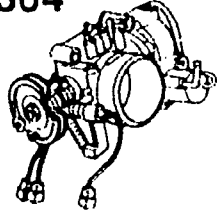
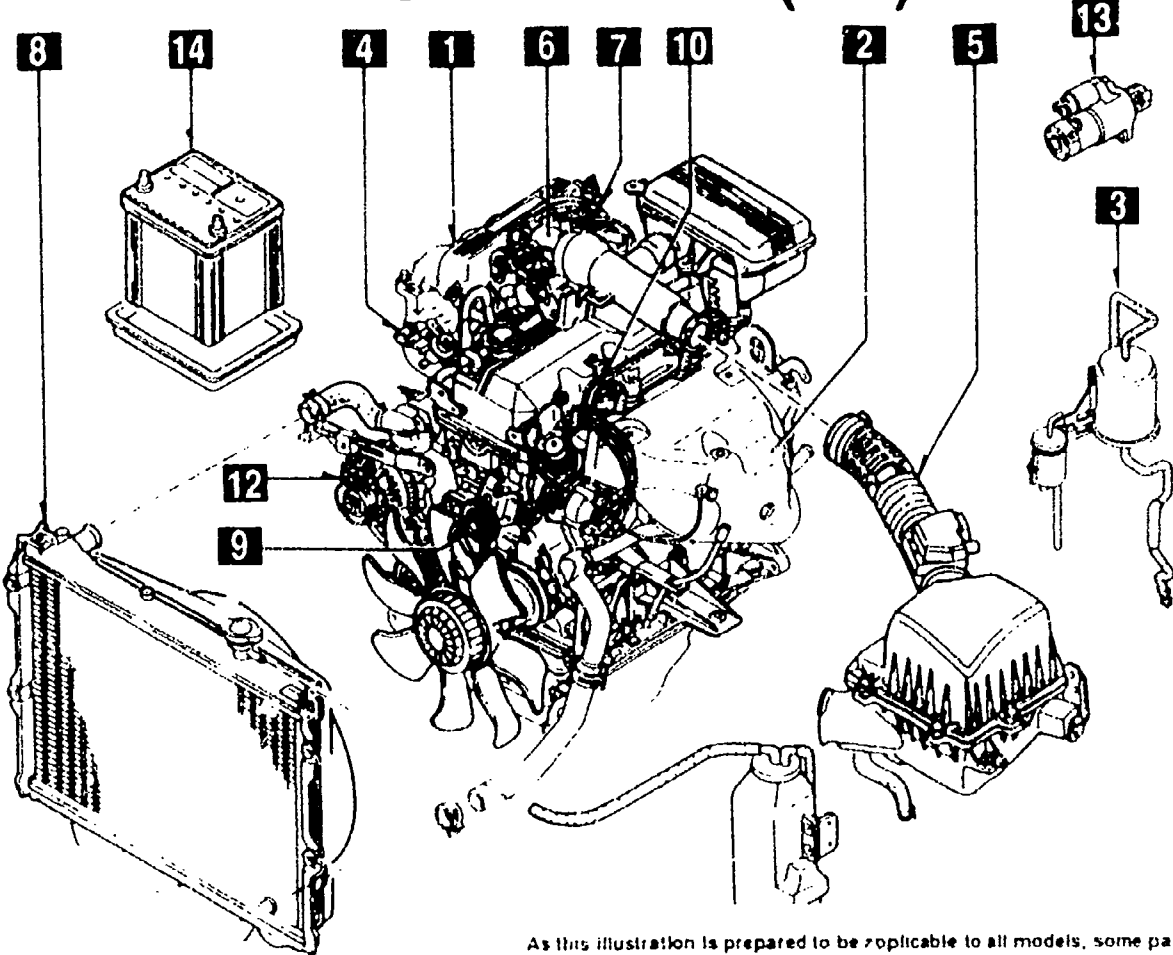

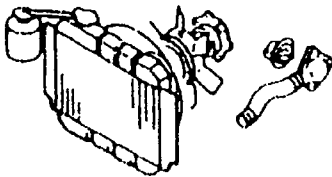
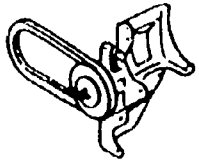
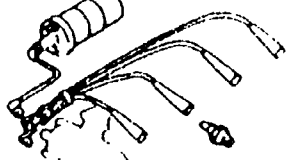

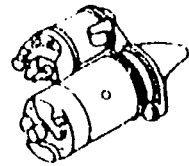
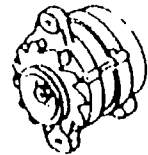
- | | | |
|--|---|---|
| ① • Layout of contents
• Disposition Typographique de Contenu
• Disposición del contenido
• Anordnung des Inhalts | ② • Pictorial Index
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• Système d'Identification de Véhicule
• Sistema de Identificación de Vehículo
• Fahrzeug-Identifikations-system |

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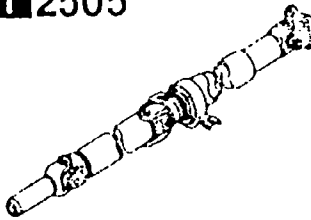
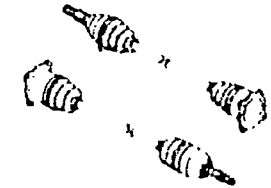


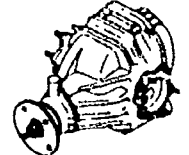
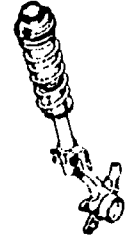
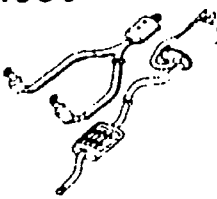
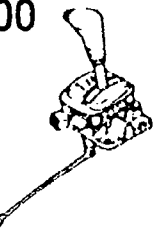
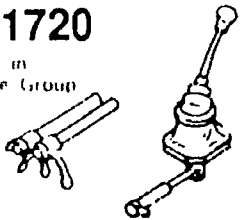
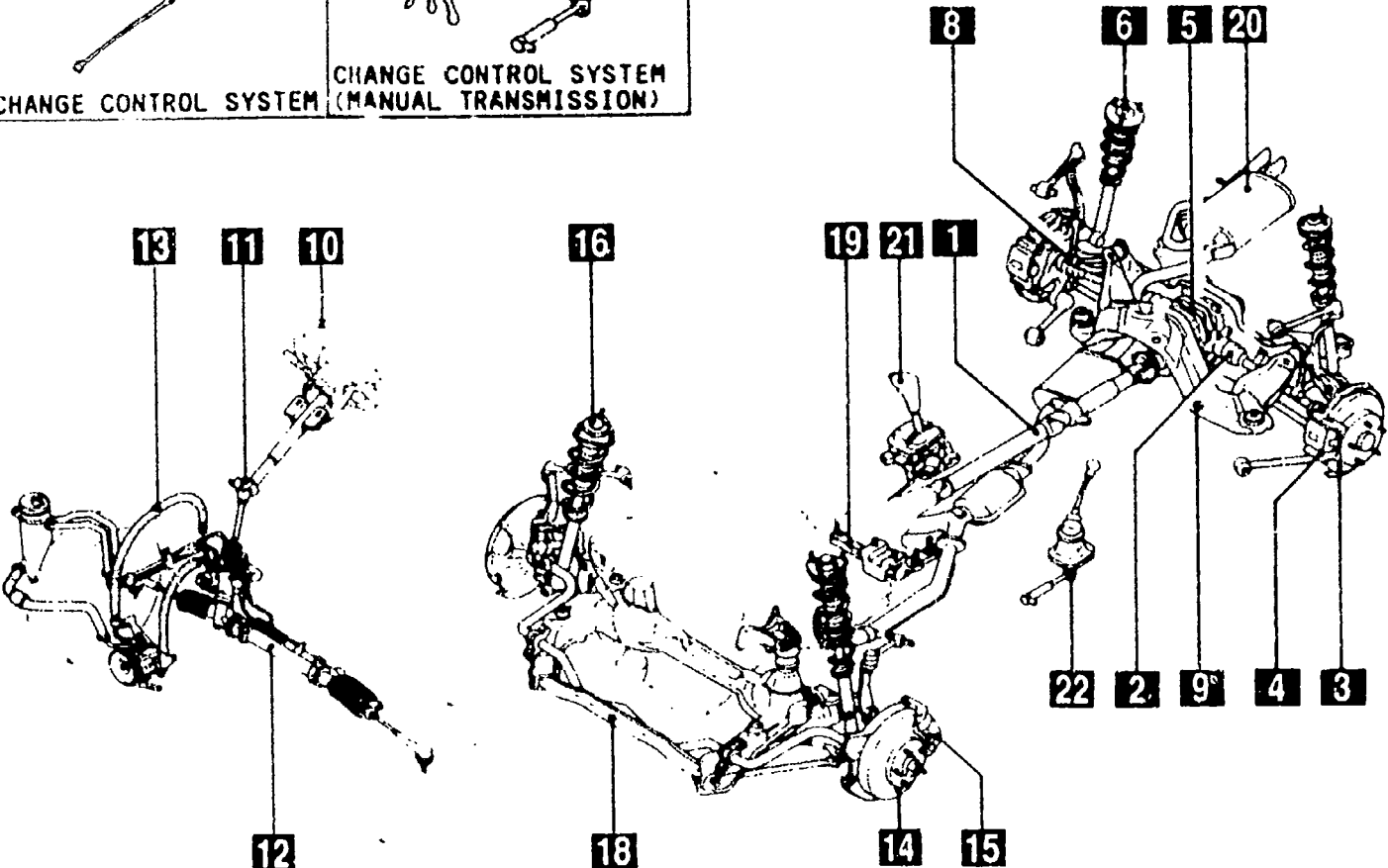
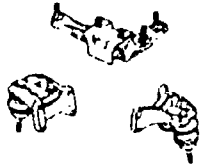
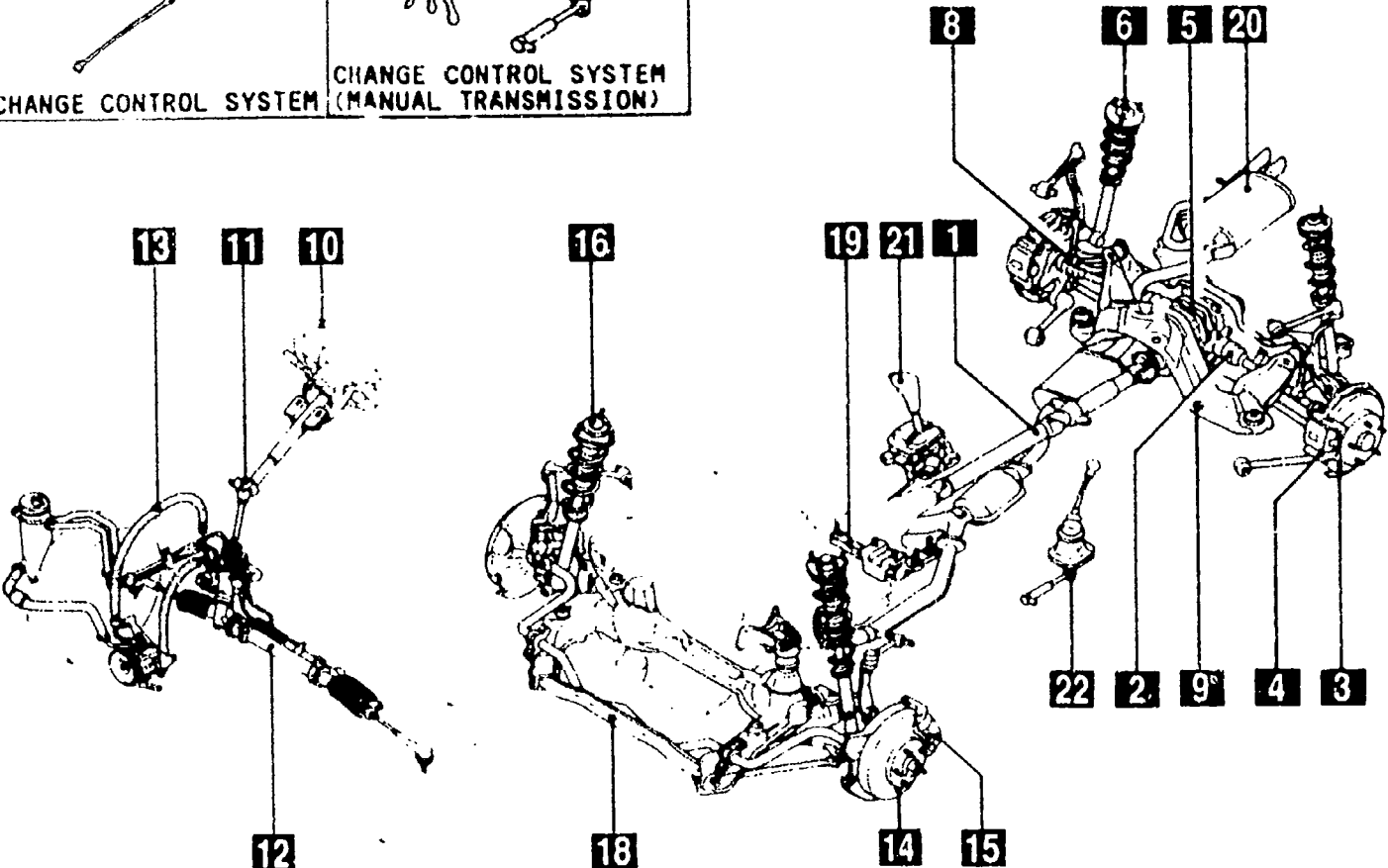



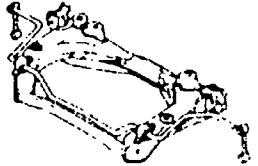








<p>1000</p>  <p>ENGINE & GASKET SETS</p>	<p>1 1010</p>  <p>CYLINDER HEAD & COVER</p>	<p>2 1030</p>  <p>CYLINDER BLOCK</p>	<p>3 1040</p>  <p>OIL PAN & TIMING COVER</p>	<p>4 1100</p>  <p>PISTON, CRANKSHAFT & FLYWHEEL</p>	<p>5 1200</p>  <p>VALVE SYSTEM</p>
<p>18 3900</p>  <p>ENGINE & T/MISSION MOUNTINGS</p>	<p>19 4600</p> <p>Given in Chassis Group</p>  <p>CHANGE CONTROL SYSTEM (AT)</p>	<p style="text-align: center;">GASOLINE ENGINE 4 - CYLINDER (1/2)</p> 			<p>6 1400</p>  <p>OIL PUMP & FILTER</p>
<p>17 1960</p>  <p>GASKET & SEAL KIT (AUTOMATIC)</p>					<p>7 1600</p>  <p>CLUTCH DISC & COVER (MANUAL)</p>
<p>16 1950</p>  <p>MANUAL LINKAGE SYSTEM (AUTOMATIC)</p>					<p>8 1700</p>  <p>TRANSMISSION CASE (MANUAL)</p>
<p>15 1940</p>  <p>GOVERNOR, LOW & REVERSE PISTON (AUTOMATIC)</p>	<p>14 1930</p>  <p>CLUTCHES & PLANETARY GEARS (AUTOMATIC)</p>				<p>13 1925</p>  <p>CONTROL VALVE (AUTOMATIC)</p>	12 1920 TRANSMISSION CASE & MAIN CONTROL SYSTEM (AUTOMATIC)	11 1910 TORQUE CONVERTER, OIL PUMP & PIPINGS (AUTOMATIC)	10 1720 CHANGE CONTROL SYSTEM (MANUAL)

As this illustration is prepared to be applicable to all models, some parts are different in specifications from parts listed in this parts Catalog.

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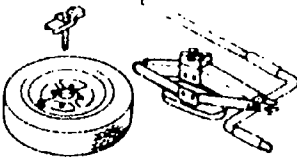

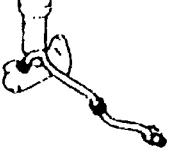

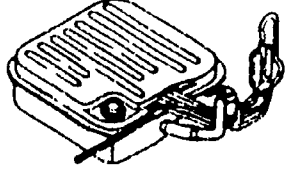
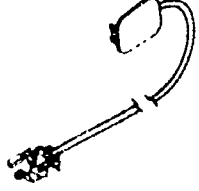
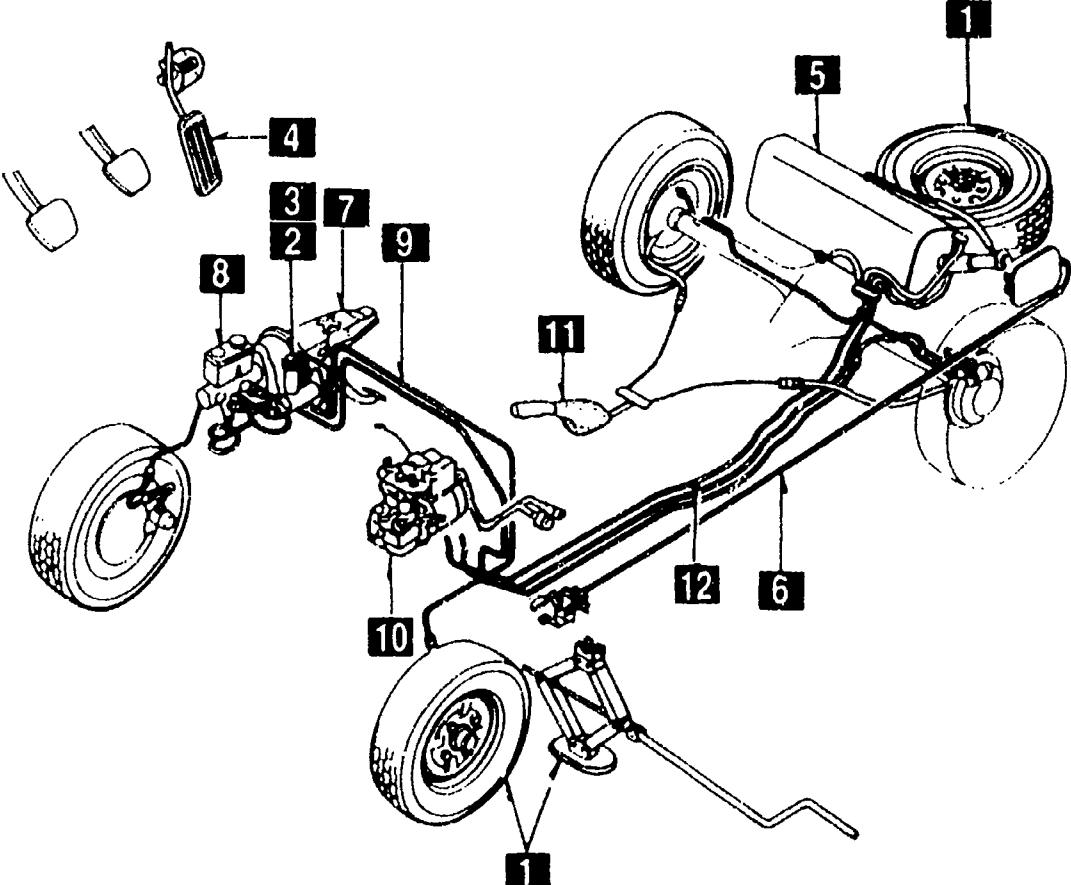
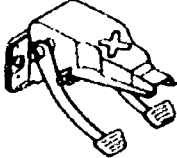
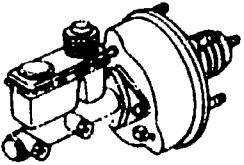
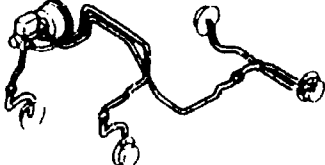
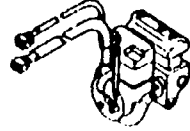


<p>1 1300</p>  <p>INLET MANIFOLD</p>	<p>2 1310</p>  <p>EXHAUST MANIFOLD</p>	<p>3 1320</p>  <p>FUEL SYSTEM</p>	<p>4 1325</p>  <p>FUEL DISTRIBUTOR</p>	<p>5 1330</p>  <p>AIR CLEANER</p>	<p>6 1364</p>  <p>THROTTLE BODY</p>	
<p>GASOLINE ENGINE 4 - CYLINDER (2/2)</p>  <p>As this illustration is prepared to be reproducible to all models, some parts are different in specifications from parts listed in this parts Catalog</p>						<p>7 1370</p>  <p>EMISSION CONTROL SYSTEM (INLET SIDE)</p>
						<p>8 1500</p>  <p>COOLING SYSTEM</p>
						<p>9 1580</p>  <p>BRACKET, PULLEY & BELT</p>
						<p>10 1800</p>  <p>ENGINE ELECTRICAL SYSTEM</p>
						<p>11</p>
						<p>14 1850</p>  <p>BATTERY</p>
						<p>13 1840</p>  <p>STARTER</p>
						<p>12 1830</p>  <p>ALTERNATOR</p>

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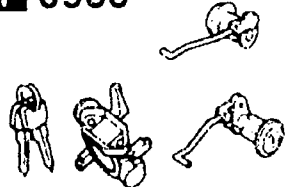

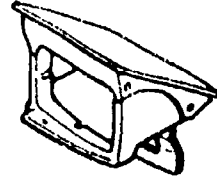


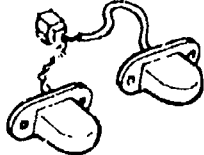
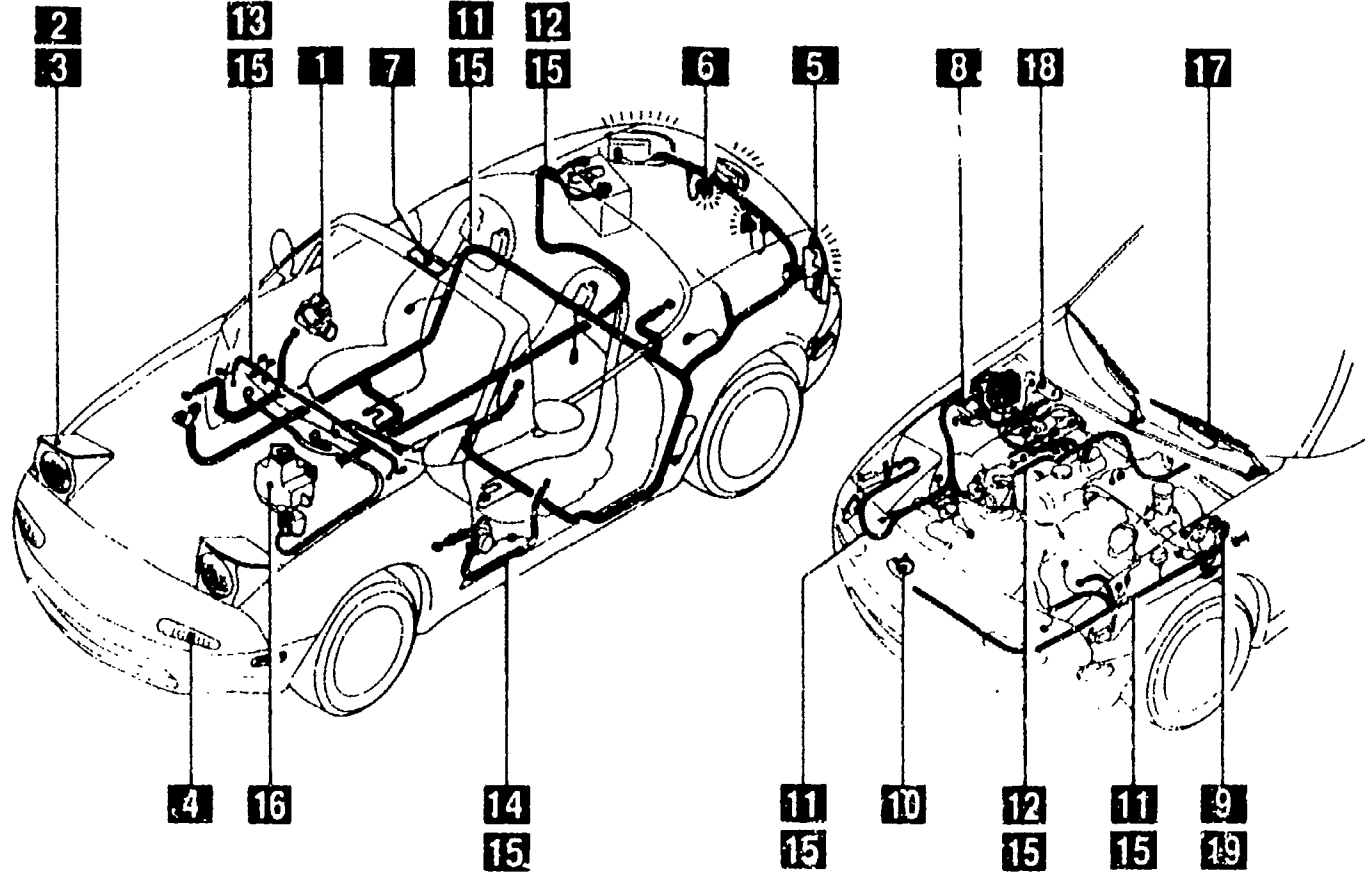
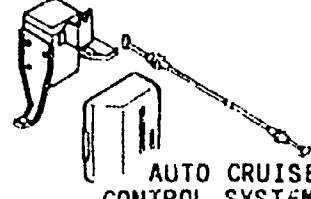




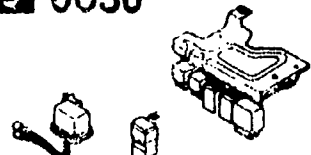



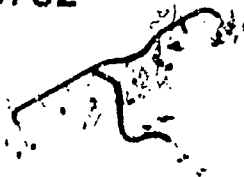

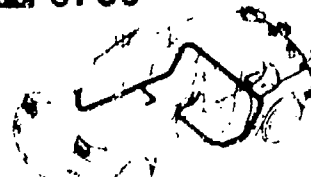
<p>1 2505</p>  <p>REAR PROPELLER SHAFT</p>	<p>2 2550</p>  <p>REAR DRIVE SHAFT</p>	<p>3 2600</p>  <p>REAR AXLE</p>	<p>4 2610</p>  <p>REAR BRAKE MECHANISMS</p>	<p>5 2710</p>  <p>REAR DIFFERENTIALS</p>	<p>6 2800</p>  <p>REAR SUSPENSION MECHANISMS</p>	
<p>20 4000</p>  <p>EXHAUST SYSTEM</p>	<p>21 4600</p>  <p>CHANGE CONTROL SYSTEM</p>	<p>22 1720 <small>Given in Engine Group</small></p>  <p>CHANGE CONTROL SYSTEM (MANUAL TRANSMISSION)</p>	<h2 style="margin: 0;">CHASSIS (1/2)</h2> 		<p>7</p>	
<p>19 3900</p>  <p>ENGINE & T/MISSION MOUNTINGS</p>			<p>8 2810</p>  <p>REAR STABILIZER</p>	<p>9 2830</p>  <p>REAR LOWER ARMS & SUB FRAME</p>	<p>10 3200</p>  <p>STEERING WHEEL</p>	
<p>18 3410</p>  <p>CROSSMEMBER & STABILIZER</p>			<p>17</p>	<p>11 3310</p>  <p>FRONT BRAKE MECHANISMS</p>	<p>12 3220</p>  <p>STEERING GEAR</p>	<p>11 3210</p>  <p>STEERING COLUMN & SHAFTS</p>
<p>16 3400</p>  <p>FRONT SUSPENSION MECHANISMS</p>			<p>14 3300</p>  <p>FRONT AXLE</p>	<p>13 3240</p>  <p>POWER STEERING SYSTEM (FRONT)</p>	<p>12 3220</p>  <p>STEERING GEAR</p>	<p>11 3210</p>  <p>STEERING COLUMN & SHAFTS</p>

As this illustration is prepared to be applicable to all models, some parts are different in specifications from parts listed in this parts Catalog.

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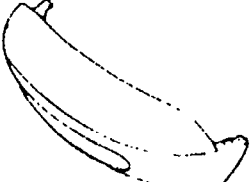
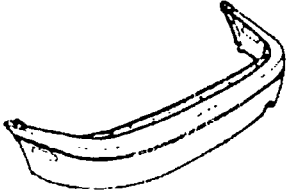
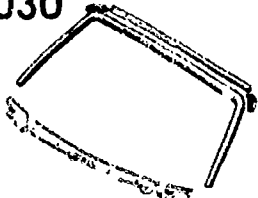

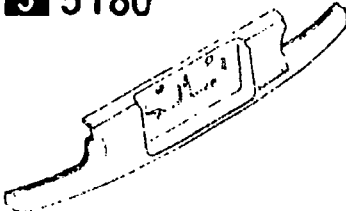


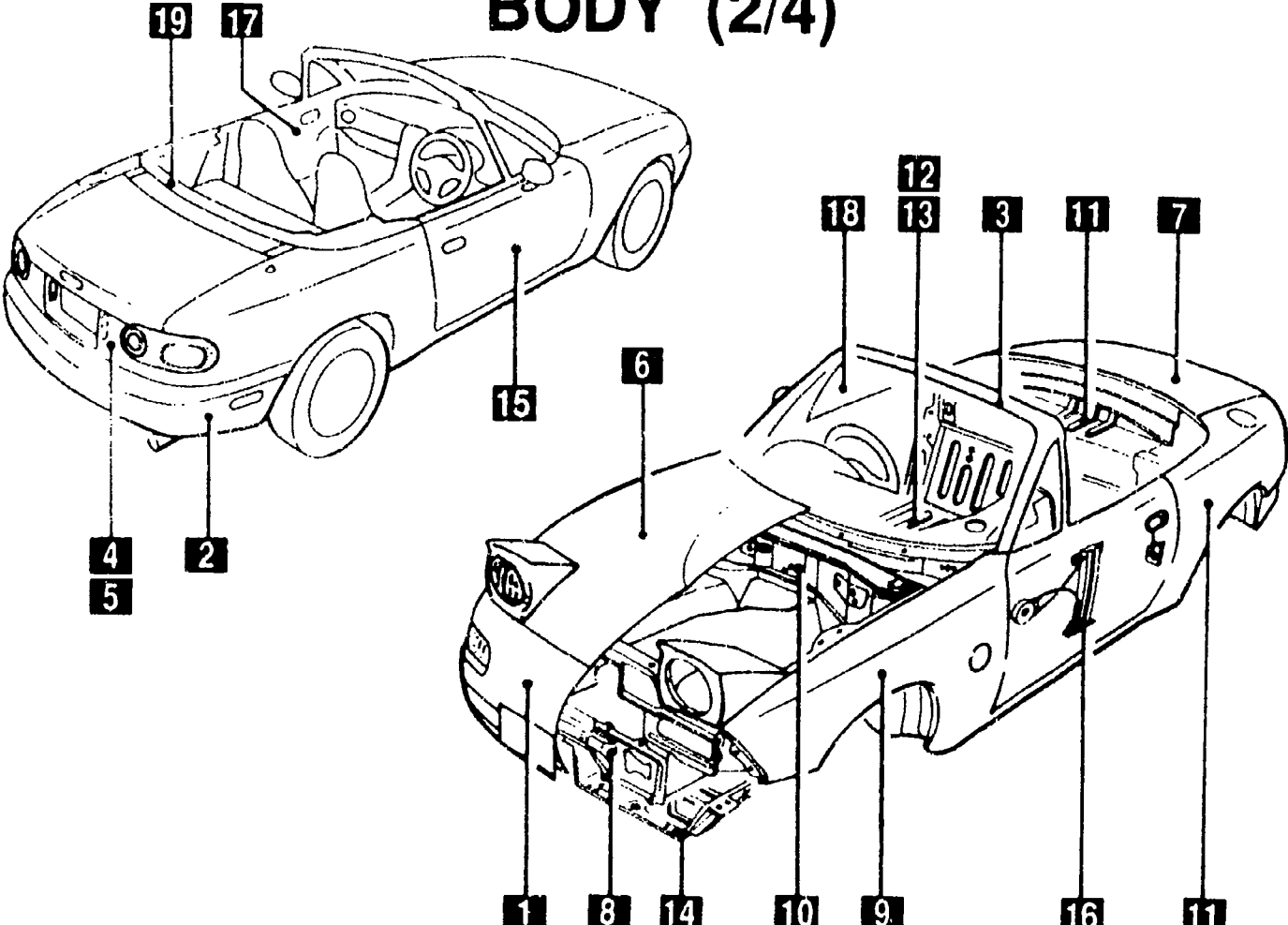
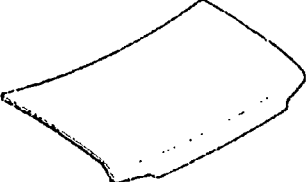
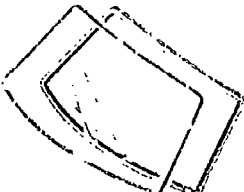
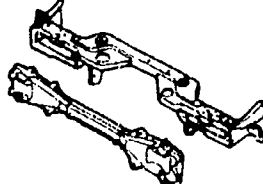
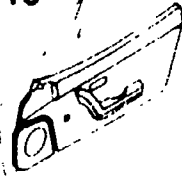
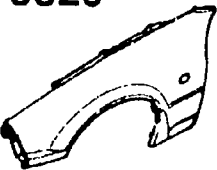

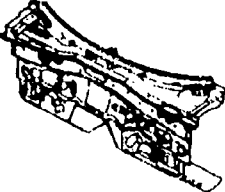
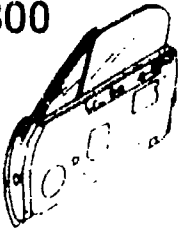

1 3700  TIRES & JACK	2 4140  CLUTCH RELEASE & MASTER CYLINDERS	3 4145  CLUTCH PIPINGS	4 4160  ACCELERATOR CONTROL SYSTEM	5 4200  FUEL TANK	6 4210  FUEL LID OPENER
<h2 style="margin: 0;">CHASSIS (2/2)</h2> 					
As this illustration is prepared to be applicable to all models, some parts are different in specifications from parts listed in this parts Catalog.					
					7 4300  CLUTCH & BRAKE PEDALS
					8 4340  BRAKE MASTER CYLINDER & POWER BRAKE
					9 4360  BRAKE PIPINGS
					10 4370  ANTILOCK BRAKE SYSTEM
				12 4500  FUEL PIPINGS	11 4400  PARKING BRAKE SYSTEM

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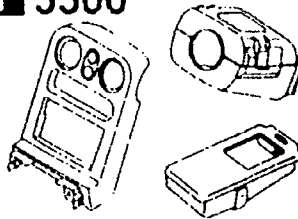
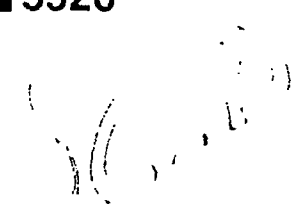
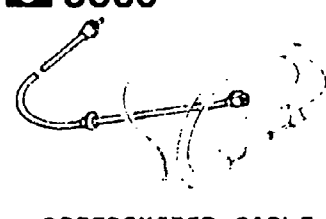
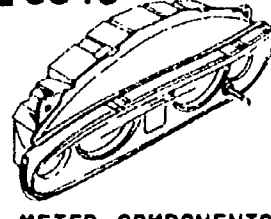
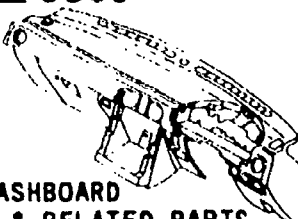
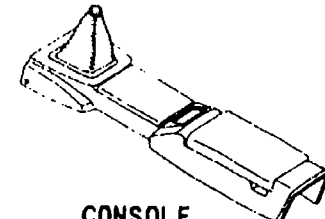
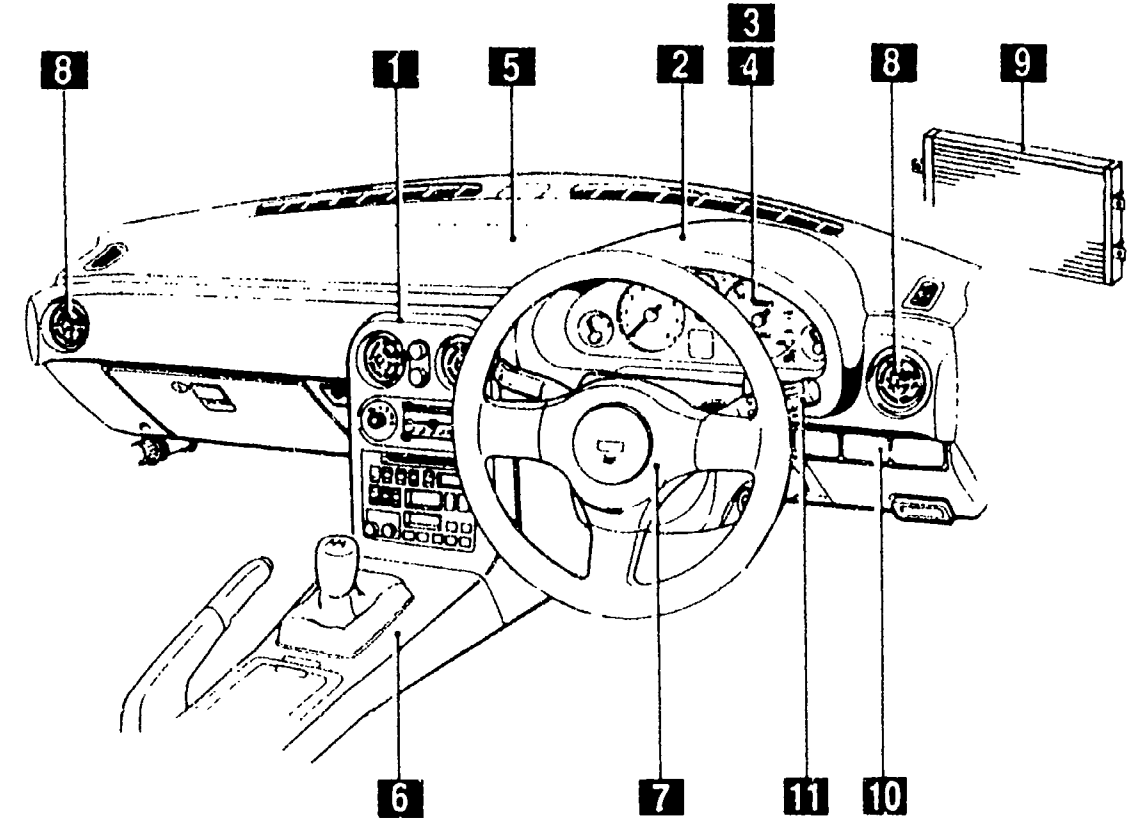
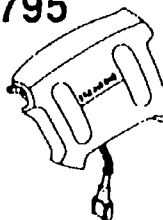
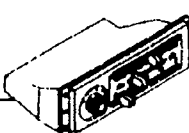
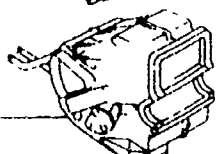


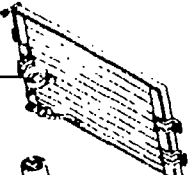

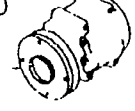
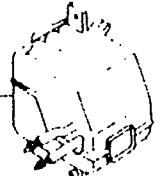

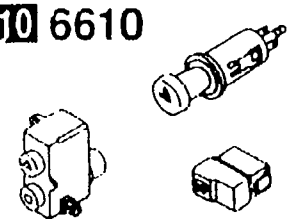
<p>1 0900</p>  <p>KEY SETS</p>	<p>2 5100</p>  <p>HEAD LAMPS</p>	<p>3 5103</p>  <p>HEAD LAMP RETRACTORS</p>	<p>4 5105</p>  <p>FRONT COMBINATION LAMPS</p>	<p>5 5110</p>  <p>REAR COMBINATION LAMPS</p>	<p>6 5120</p>  <p>LICENSE LAMPS</p>
<p>BODY (1/4)</p> 					
<p>19 6640</p>  <p>AUTO CRUISE CONTROL SYSTEM</p>					<p>7 5125</p>  <p>INTERIOR LAMPS</p>
<p>18 6740</p>  <p>WIPER MOTOR COMPONENTS (FRONT)</p>					<p>8 6600</p>  <p>SWITCHES & RELAYS (ENGINE)</p>
<p>17 6730</p>  <p>WINDSHIELD WIPERS</p>					<p>9 6630</p>  <p>RELAYS & UNIT (BODY)</p>
<p>16 6720</p>  <p>WINDSHIELD WASHER</p>	<p>15 6704</p>  <p>WIRING HARNESS CLAMPS</p>	<p>14 6703</p>  <p>WIRING HARNESSSES (DOOR, FLOOR/CEILING)</p>	<p>13 6702</p>  <p>WIRING HARNESSSES (DASHBOARD)</p>	<p>12 6701</p>  <p>WIRING HARNESSSES (ENGINE & T/MISSION)</p>	<p>11 6700</p>  <p>WIRING HARNESSSES (FRONT & REAR)</p>

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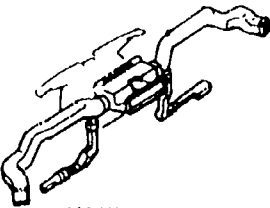

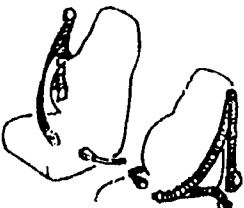
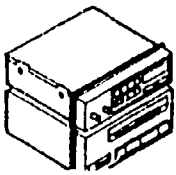
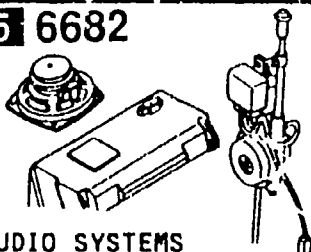
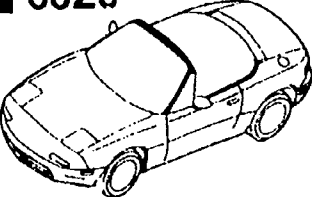
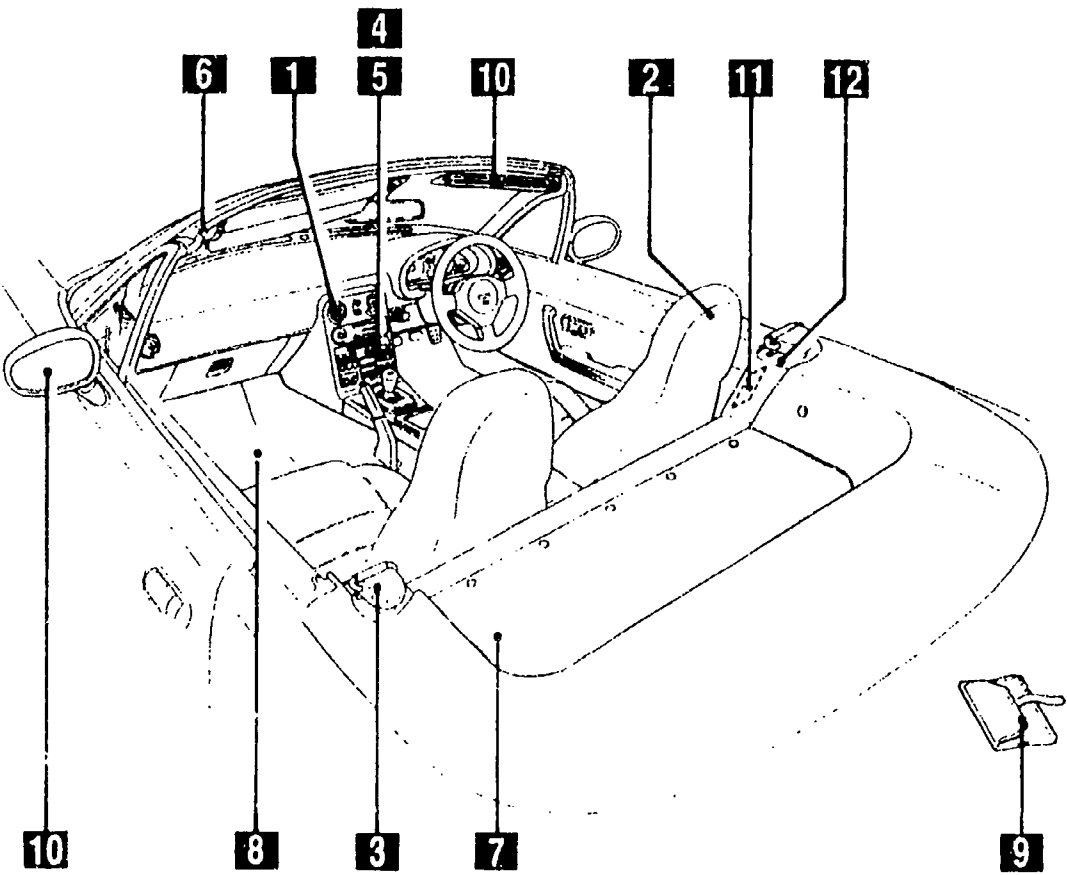

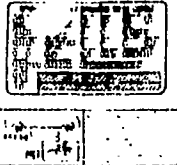

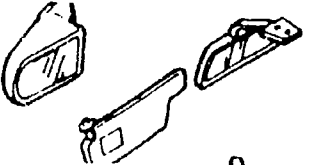
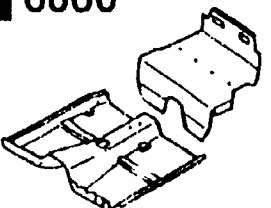
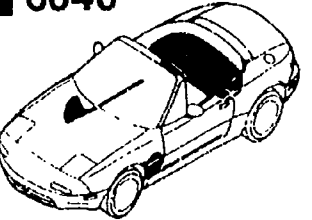
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<p>1 5000</p>  <p>FRONT BUMPER</p>	<p>2 5010</p>  <p>REAR BUMPER</p>	<p>3 5030</p>  <p>WINDOW MOULDING & COWL GRILLES</p>	<p>4 5170</p>  <p>ORNAMENTS</p>	<p>5 5180</p>  <p>REAR FINISHER</p>	<p>6 5230</p>  <p>BONNET</p>
<p>BODY (2/4)</p>					
<p>19 6330</p>  <p>SUNROOF</p>					<p>7 5260</p>  <p>TRUNK LID</p>
<p>18 6300</p>  <p>WINDOW GLASSES</p>					<p>8 5310</p>  <p>FRONT PANELS</p>
<p>17 5840</p>  <p>FRONT DOOR TRIMS & RELATED PARTS</p>					<p>9 5320</p>  <p>FENDER & WHEEL APRON PANELS</p>
<p>16 5830</p>  <p>FRONT DOOR MECHANISMS</p>					<p>10 5330</p>  <p>DASH & COWL PANELS</p>
<p>15 5800</p>  <p>FRONT DOORS</p>					<p>14 5390</p>  <p>FLOOR ATTACHMENTS</p>

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<p>1 5500</p>  <p>DASHBOARD EQUIPMENTS</p>	<p>2 5520</p>  <p>METER HOOD</p>	<p>3 5530</p>  <p>SPEEDOMETER CABLE</p>	<p>4 5540</p>  <p>METER COMPONENTS</p>	<p>5 5560</p>  <p>DASHBOARD & RELATED PARTS</p>	<p>6 5570</p>  <p>CONSOLE</p>
<h2 style="margin: 0;">BODY (3/4)</h2> 					
<p>7 5795</p>  <p>AIR BAG</p>					
<p>8</p> <p>6115 </p> <p>6110 </p> <p>6100 </p> <p>6120 </p> <p>HEATER</p>					
<p>9</p> <p>6130 </p> <p>6135 </p> <p>6140 </p> <p>6150 </p> <p>AIR CONDITIONER</p>					
<p>11 6611</p>  <p>COMBINATION SWITCH</p>			<p>10 6610</p>  <p>DASHBOARD SWITCHES</p>		

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1 5580  VENTILATOR	2 5700  SEATS	3 5790  SEAT BELTS	4 6680  AUDIO SYSTEMS (RADIO & TAPE DECK)	5 6682  AUDIO SYSTEMS (ANTENNA & SPEAKER)	6 6820  FRONT HEADER TRIM & PILLAR TRIMS
<h2 style="margin: 0;">BODY (4/4)</h2> 					
As this illustration is prepared to be applicable to all models, some parts are different in specifications from parts listed in this parts Catalog.					
				12 7250  QUARTER WINDOW & TRIMS	11 6930  CAUTION PLATES & LABELS
				9 6870  SERVICE TOOLS	10 6900  VISORS, ASSIST HANDLES & MIRRORS
				8 6860  FLOOR MATS & PADS	7 6840  TRIMS & SCUFF PLATES

SECTION NAME INDEX (ENGINE)

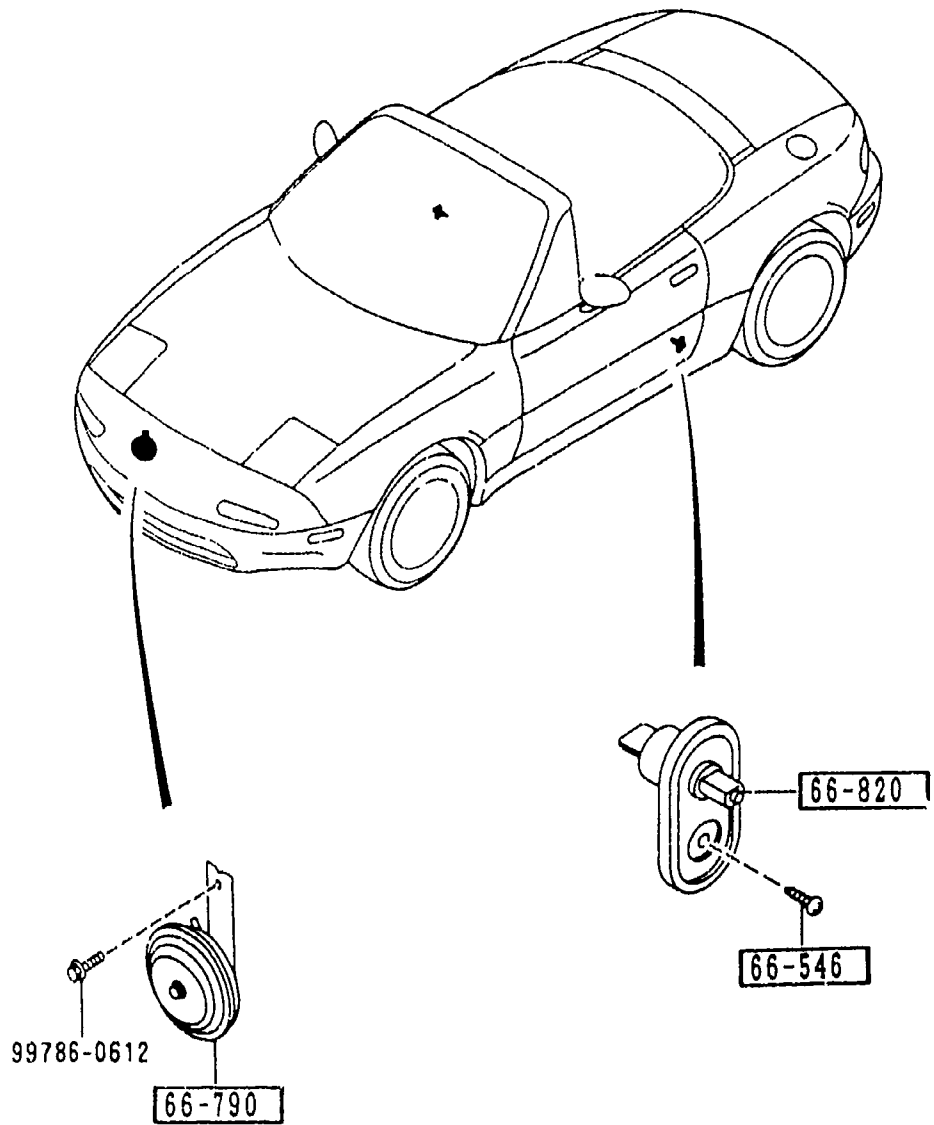
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1-C03	1000	ENGINE & GASKET SETS	1-K09	1950	AUTOMATIC TRANSMISSION MANUAL LINKAGE SYSTEM			
1-E03	1010	CYLINDER HEAD & COVER	1-M09	1960	AUTOMATIC TRANSMISSION GASKET & SEAL KIT			
1-H03	1030	CYLINDER BLOCK						
1-J03	1040	OIL PAN & TIMING COVER						
1-L03	1100	PISTON, CRANKSHAFT & FLYWHEEL						
1-C04	1200	VALVE SYSTEM						
1-E04	1300	INLET MANIFOLD						
1-F04	1310	EXHAUST MANIFOLD						
1-G04	1320	FUEL SYSTEM						
1-I04	1325	FUEL DISTRIBUTOR						
1-J04	1330	AIR CLEANER						
1-L04	1364	THROTTLE BODY						
1-M04	1370	EMISSION CONTROL SYSTEM (INLET SIDE)						
1-C05	1400	OIL PUMP & FILTER						
1-E05	1500	COOLING SYSTEM						
1-H05	1580	BRACKET, PULLEY & BELT						
1-C06	1600	CLUTCH DISC & COVER						
1-D06	1700	MANUAL TRANSMISSION CASE						
1-E06	1710	MANUAL TRANSMISSION GEARS						
1-J06	1720	MANUAL TRANSMISSION CHANGE CONTROL SYSTEM						
1-M06	1800	ENGINE ELECTRICAL SYSTEM						
1-C07	1830	ALTERNATOR						
1-E07	1840	STARTER (MT)						
1-G07	1840 A	STARTER (AT)						
1-I07	1850	BATTERY						
1-J07	1910	AUTOMATIC TRANSMISSION TORQUE CONVERTER, OIL PUMP & PIPINGS						
1-M07	1920	AUTOMATIC TRANSMISSION CASE & MAIN CONTROL SYSTEM						
1-F08	1925	AUTOMATIC TRANSMISSION CONTROL VALVE						
1-M08	1930	AUTOMATIC TRANSMISSION CLUTCHES & PLANETARY GEARS						
1-H09	1940	AUTOMATIC TRANSMISSION GOVERNOR, LOW & REVERSE PISTON						

SECTION NAME INDEX (CHASSIS)

LD.NO	SEC.NO	SECTION NAME	LD.NO	SEC.NO	SECTION NAME	LD.NO	SEC.NO	SECTION NAME
1-C11	2505	REAR PROPELLER SHAFT	1-F16	4340	BRAKE MASTER CYLINDER & POWER BRAKE (W/O ANTILOCK BRAKE)			
1-D11	2550	REAR DRIVE SHAFT						
1-F11	2600	REAR AXLE	1-H16	4340 A	BRAKE MASTER CYLINDER & POWER BRAKE (W/ANTILOCK BRAKE)			
1-G11	2610	REAR BRAKE MECHANISMS						
1-J11	2710	REAR DIFFERENTIALS (NORMAL DIFF.)	1-K16	4360	BRAKE PIPINGS (W/O ANTI LOCK BRAKE SYSTEM)			
1-C12	2710 A	REAR DIFFERENTIALS (LIMITED SLIP DIFF.)	1-M16	4360 A	BRAKE PIPINGS (ANTI LOCK BRAKE SYSTEM)			
1-G12	2800	REAR SUSPENSION MECHANISMS	2-C03	4370	ANTILOCK BRAKE SYSTEM			
1-H12	2810	REAR STABILIZER	2-E03	4400	PARKING BRAKE SYSTEM			
1-I12	2830	REAR LOWER ARMS & SUB FRAME	2-G03	4500	FUEL PIPINGS			
1-K12	3200	STEERING WHEEL	2-I03	4600	CHANGE CONTROL SYSTEM (AT)			
1-L12	3210	STEERING COLUMN & SHAFTS						
1-M12	3220	STEERING GEAR (W/O POWER STEERING)						
1-C13	3220 A	STEERING GEAR (W/POWER STEERING)						
1-H13	3240	POWER STEERING SYSTEM						
1-K13	3300	FRONT AXLE (W/O ANTILOCK BRAKE)						
1-L13	3300 A	FRONT AXLE (W/ANTILOCK BRAKE)						
1-M13	3310	FRONT BRAKE MECHANISMS						
1-N13	3400	FRONT SUSPENSION MECHANISMS						
1-E14	3410	CROSSMEMBER & STABILIZER						
1-F14	3700	TIRES & JACK						
1-C15	3900	ENGINE & T/MISSION MOUNTINGS						
1-D15	4000	EXHAUST SYSTEM						
1-F15	4140	MANUAL TRANSMISSION CLUTCH RELEASE & MASTER CYLINDERS						
1-G15	4145	MANUAL TRANSMISSION CLUTCH PIPINGS						
1-H15	4160	ACCELERATOR CONTROL SYSTEM						
1-I15	4200	FUEL TANK						
1-L15	4210	FUEL LID OPENER						
1-M15	4300	MANUAL TRANSMISSION CLUTCH & BRAKE PEDALS						
1-D16	4300A	AUTOMATIC TRANSMISSION BRAKE PEDAL						

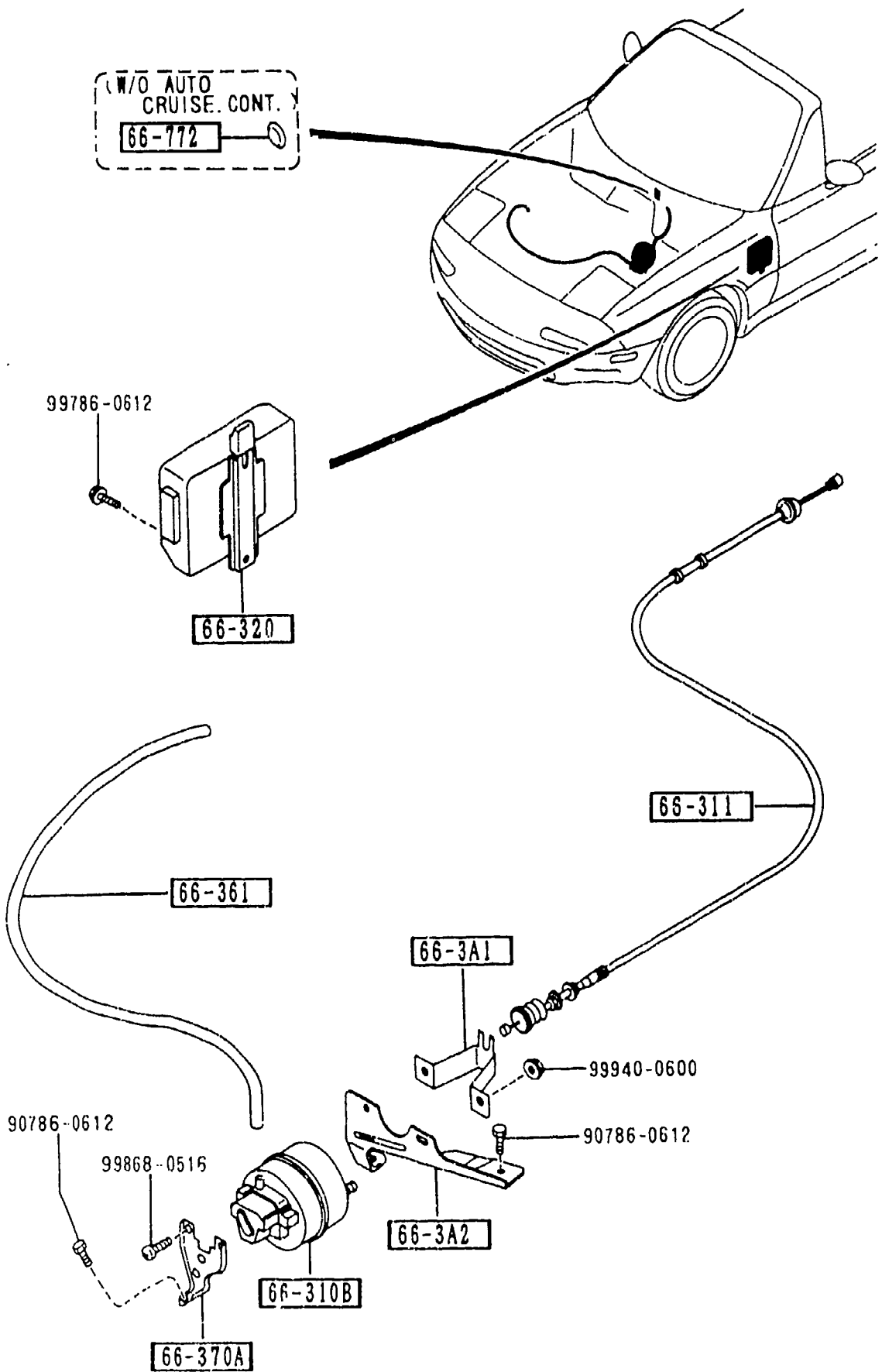
SECTION NAME INDEX (BODY)

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2-C05	0900	KEY SETS	2-C14	6100	HEATER	3-D06	6900	SUN VISORS, ASSIST HANDLES & MIRRORS
2-E05	5000	FRONT BUMPER	2-D14	6110	HEATER UNIT COMPONENTS	3-G06	6930	CAUTION PLATES & LABELS
2-H05	5010	REAR BUMPER	2-E14	6115	HEATER CONTROL COMPONENTS	3-I06	7250	QUARTER WINDOW & TRIMS
2-J05	5030	WINDOW MOULDING & COWL GRILLES	2-G14	6120	HEATER BLOWER COMPONENTS			
2-K05	5100	HEAD LAMPS	2-H14	6130	AIR CONDITIONER			
2-L05	5103	HEAD LAMP RETRACTORS	2-L14	6135	AIR CONDITIONING COOLING PIPE O-RING			
2-C06	5105	FRONT COMBINATION LAMPS	2-M14	6140	AIR CONDITIONING COMPRESSOR COMPONENTS			
2-E06	5110	REAR COMBINATION LAMPS	2-C15	6150	AIR CONDITIONING COOLING UNIT			
2-H06	5120	LICENSE LAMPS	2-D15	6300	WINDOW GLASSES			
2-106	5125	INTERIOR LAMPS	2-E15	6330	SUN ROOF			
2 J06	5170	ORNAMENTS	2-E16	6600	ENGINE SWITCHES & RELAYS			
2-K06	5180	REAR FINISHER	2-J16	6610	DASHBOARD SWITCHES			
2-106	5230	BONNET	2-L16	6611	COMBINATION SWITCH			
2-N06	5260	TRUNK LID	2-M16	6630	BODY RELAYS & UNIT			
2-D07	5310	FRONT PANELS	3-C03	6635	DOOR SWITCH & HORNS			
2-F07	5320	FENDER & WHEEL APRON PANELS	3-D03	6640	AUTO CRUISE CONTROL SYSTEM			
2-H07	5330	DASH & COWL PANELS	3-E03	6680	AUDIO SYSTEMS (RADIO & TAPE DECK)			
2-107	5340	SIDE PANELS	3-K03	6682	AUDIO SYSTEMS (ANTENNA & SPEAKER)			
2-N07	5370	FLOOR PANELS	3-N03	6700	FRONT & REAR WIRING HARNESSSES			
2 E08	5380	FLOOR ATTACHMENTS (HOLE COVERS)	3-F04	6701	ENGINE & TRANSMISSION WIRING HARNESSSES			
2-F08	5390	FLOOR ATTACHMENTS	3-G04	6702	DASHBOARD WIRING HARNESSSES			
2-C09	5500	DASHBOARD EQUIPMENTS	3-H04	6703	DOOR, FLOOR & CEILING WIRING HARNESSSES			
2-f09	5520	METER HOOD	3-I04	6704	WIRING HARNESS CLAMPS			
2 G09	5530	SPEEDOMETER CABLE	3-L04	6720	WINDSHIELD WASHER (W/O ANTI LOCK BRAKE)			
2-H09	5540	METER COMPONENTS	3-N04	6720 A	WINDSHIELD WASHER (W/ANTI LOCK BRAKE)			
2 K09	5560	DASHBOARD & RELATED PARTS	3-E05	6730	WINDSHIELD WIPERS			
2-N09	5570	CONSOLF	3-G05	6740	WIPER MOTOR COMPONENTS			
2-E10	5580	VENTILATOR	3-H05	6820	FRONT HEADER TRIM & PILLAR TRIMS			
2-G10	5700	SEATS	3-I05	6840	TRIMS & SCUFF PLATES			
2-112	5790	SEAT BELTS	3-L05	6860	FLOOR MATS & PADS			
2-J12	5795	AIR BAG	3-C06	6870	SERVICE TOOLS			
2-K12	5800	FRONT DOORS						
2-N12	5830	FRONT DOOR MECHANISMS						
2-F13	5840	FRONT DOOR TRIMS & RELATED PARTS						



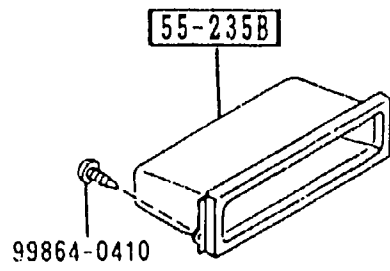
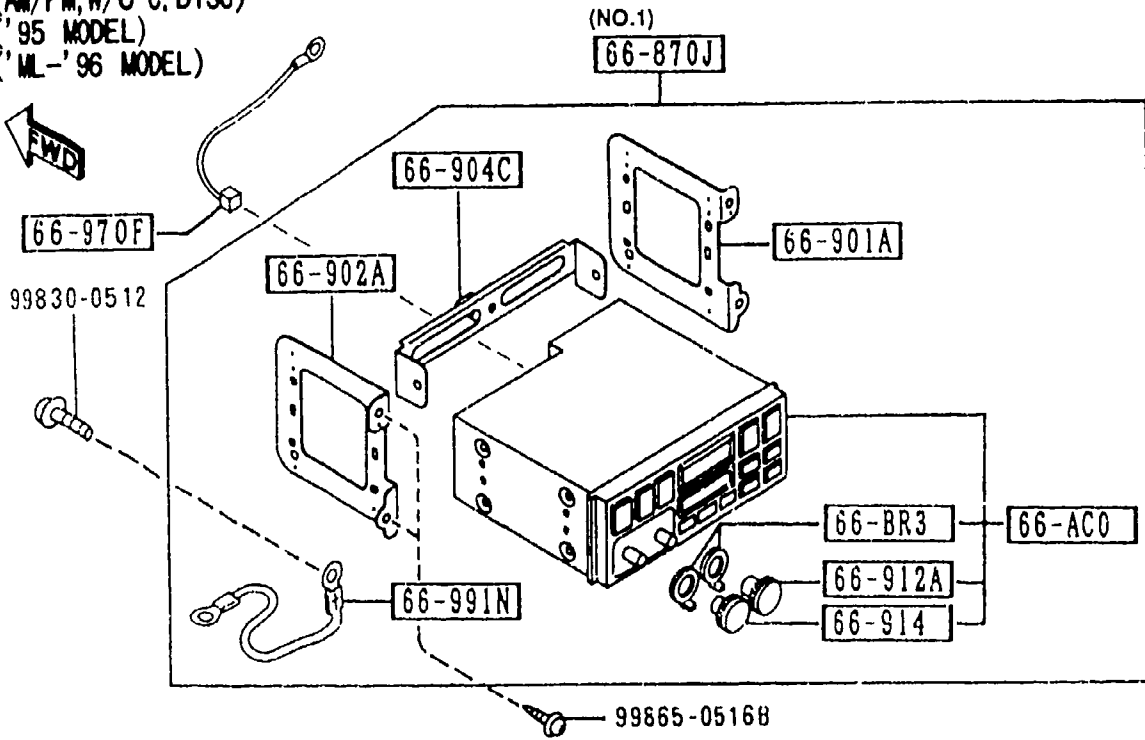
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
66-546 LA01-66-546	2	SCREW, DOOR SWITCH			
66-790 SA59-66-790 A (SA59-66-790A)	1	HORN, LOW TONE			-5106
SA59-66-790A	1				5106-
66-820 B455-66-540	2	SWITCH, DOOR			

5106 NA35* -612163

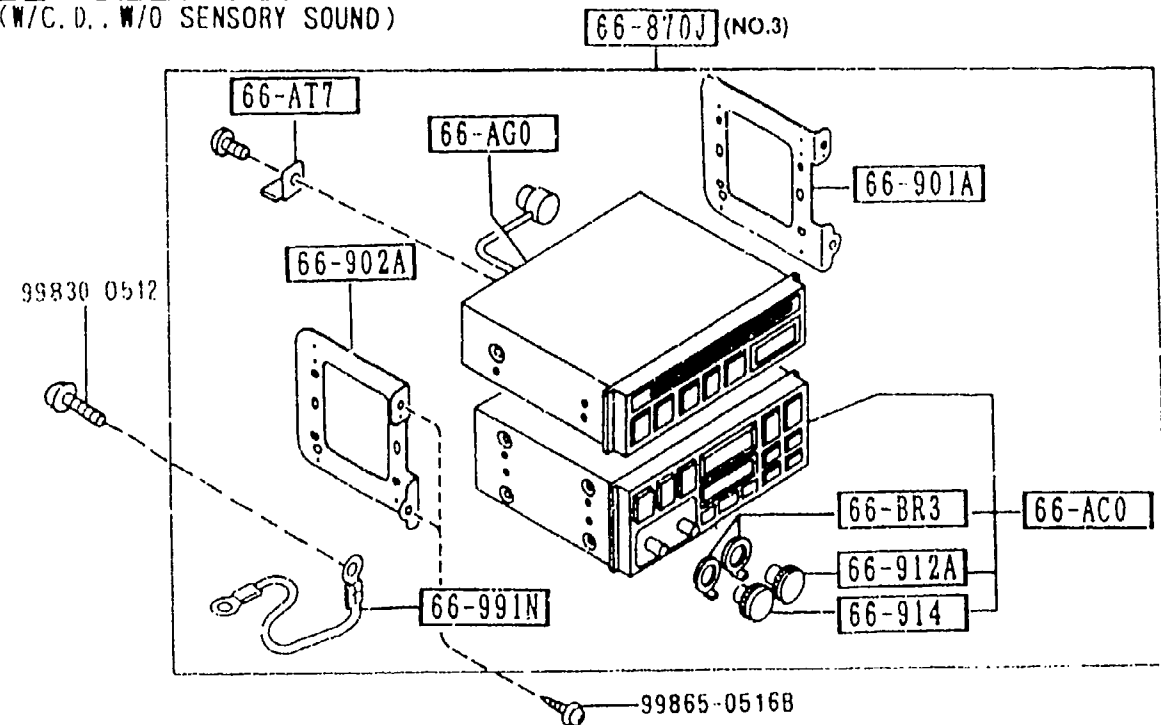


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
66-3A1 LA01-66-3A1	1	BRACKET,ACTUATOR-A.C.C. M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/AUTO CRUISE.CONT.)			
66-3A2 NA01-66-3A2A	1	BRACKET,ACTUATOR-FRONT M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/AUTO CRUISE.CONT.)			
66-310B LA01-66-310A	1	ACTUATOR,A.C.C. M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/AUTO CRUISE.CONT.)			
66-311 NA01-66-311A	1	WIRE,A.C.C. M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/AUTO CRUISE.CONT.)			
66-320 NA01-66-320	1	BOX,A.C.C. M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/AUTO CRUISE.CONT.)			
66-361 NA75-66-361	1	PIPE,AUTO CRUISE CONTROL M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/AUTO CRUISE.CONT.)			
66-370A NA01-66-3A3A	1	BRACKET,ACTUATOR M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/AUTO CRUISE.CONT.)			
66-772 B092-41-661	1	GROMMET BASE, R-PKG, PKG-A, (W/O AUTO CRUISE.CONT.)			

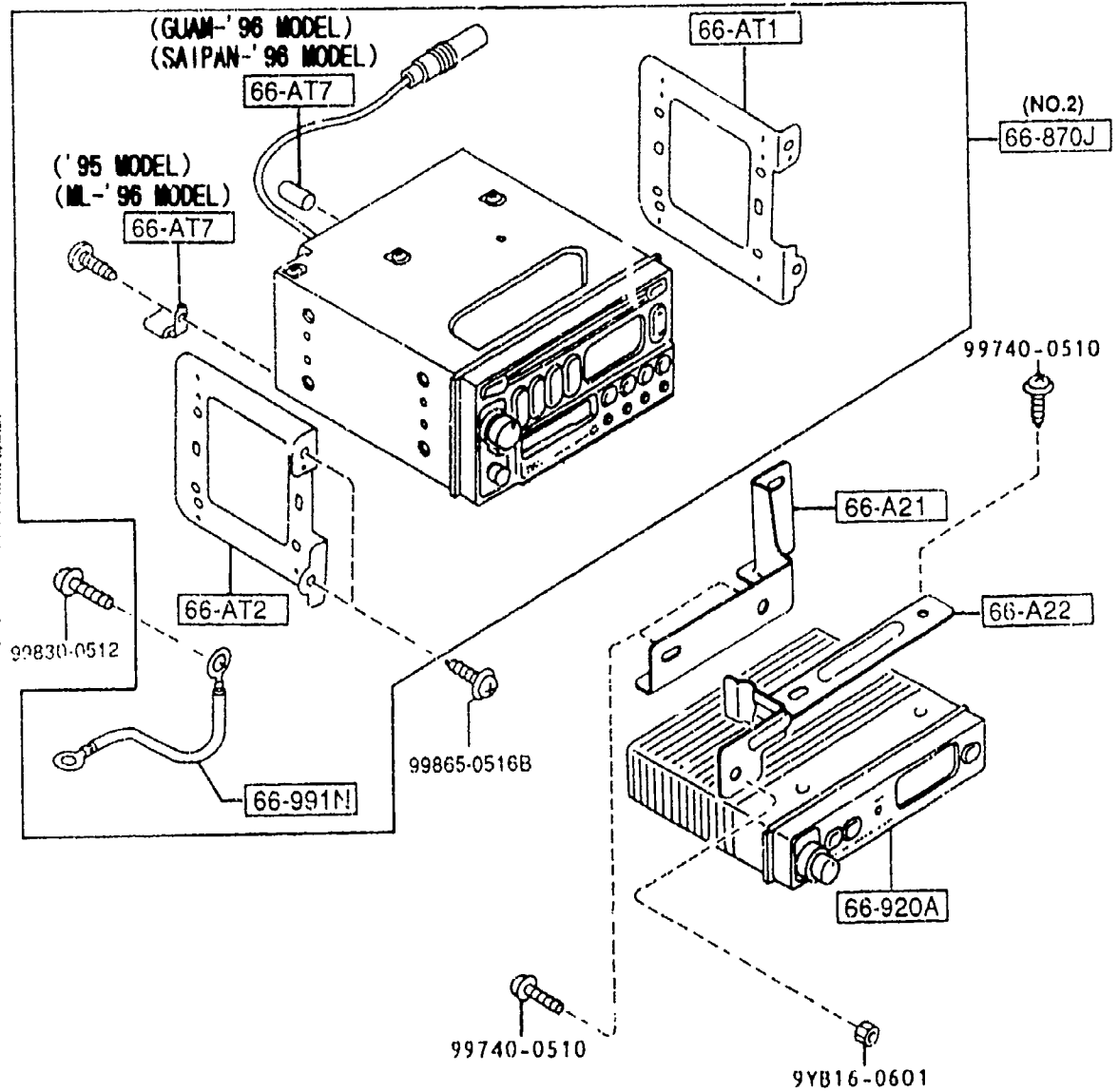
(AM/FM, W/O C. DISC)
('95 MODEL)
('ML-'96 MODEL)



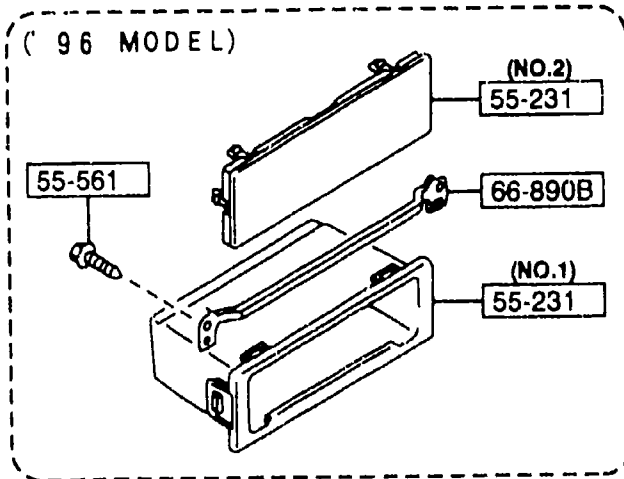
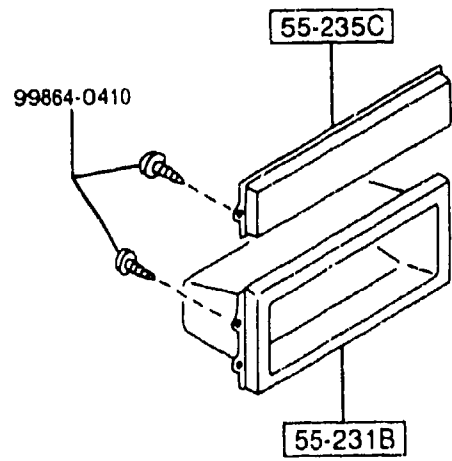
(W/C. D., W/O SENSORY SOUND)



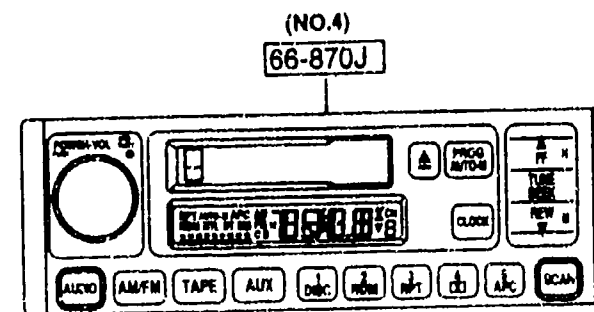
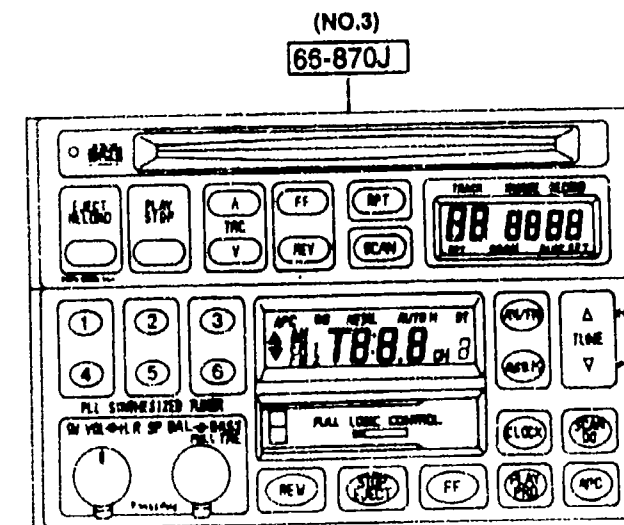
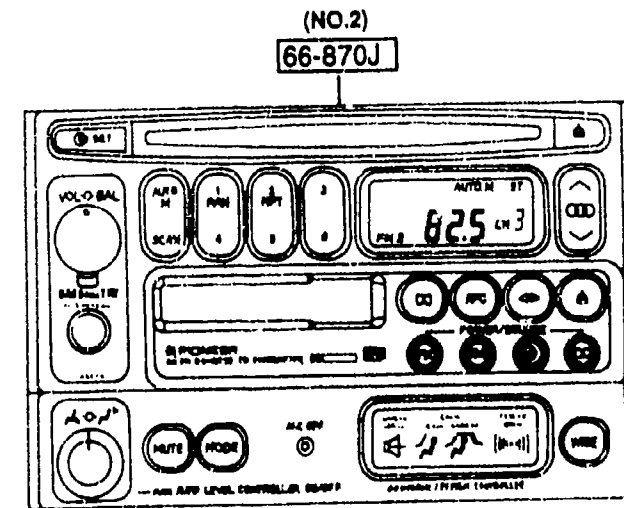
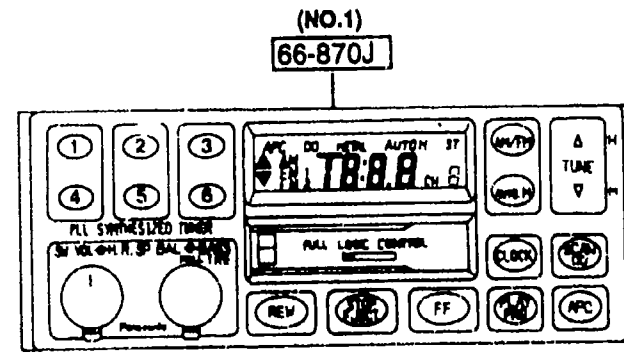
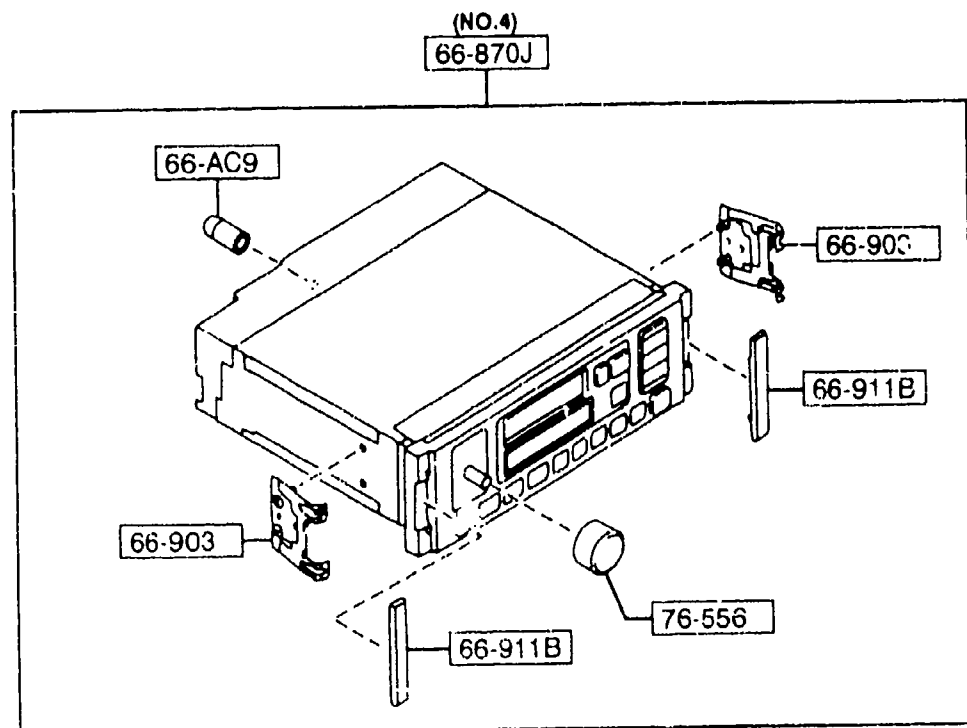
(W/SENSORY SOUND)



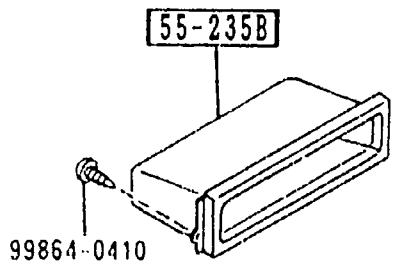
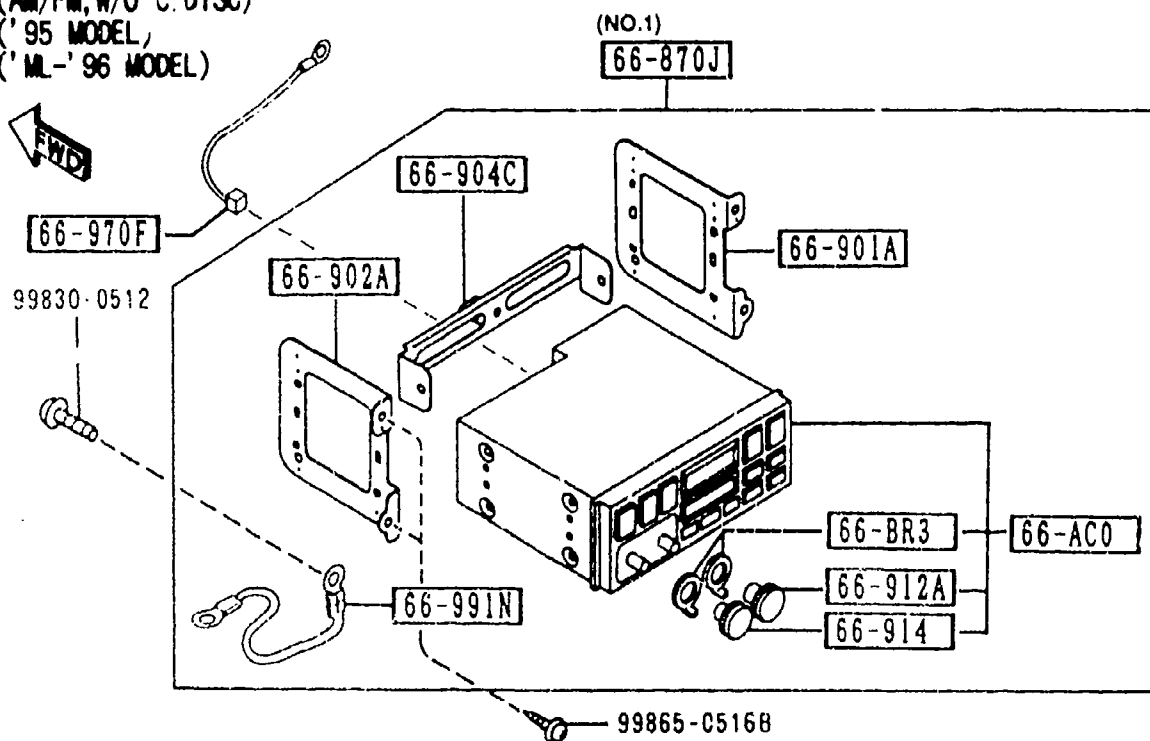
(W/O AUDIO)



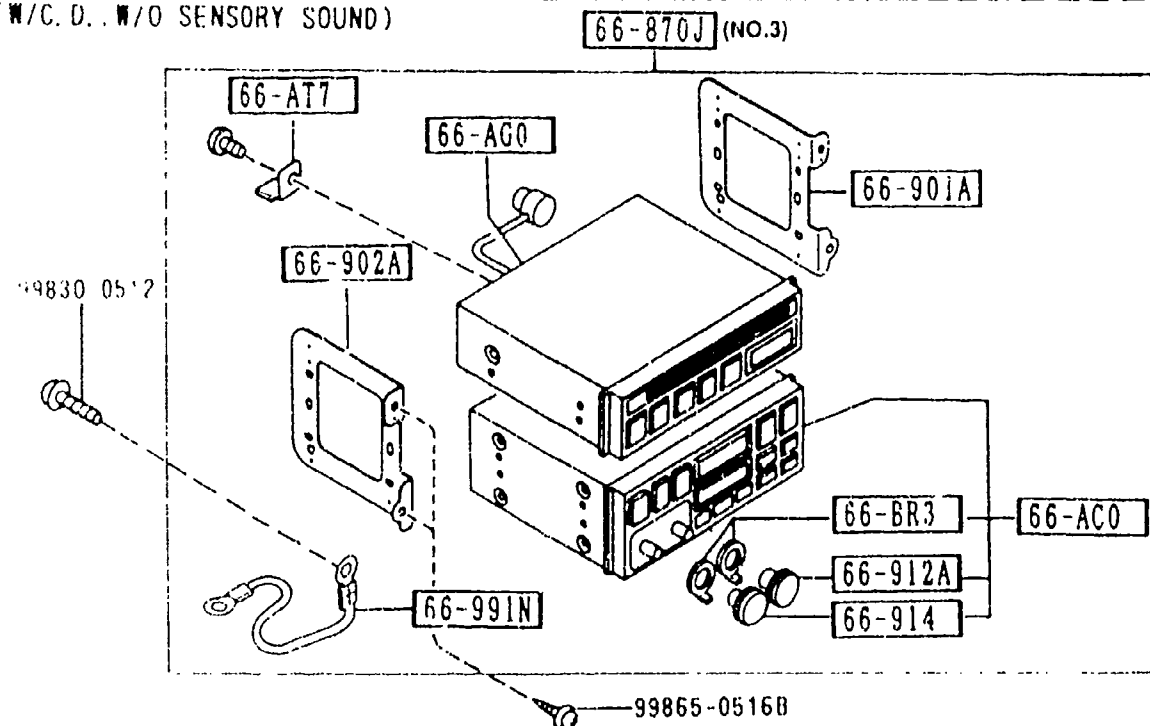
(AM/FM, W/O C. DISC)
 (GUAM-'96 MODEL)
 (SAIPAN-'96 MODEL)



(AM/FM, W/O C. DISC)
('95 MODEL)
('ML-'96 MODEL)



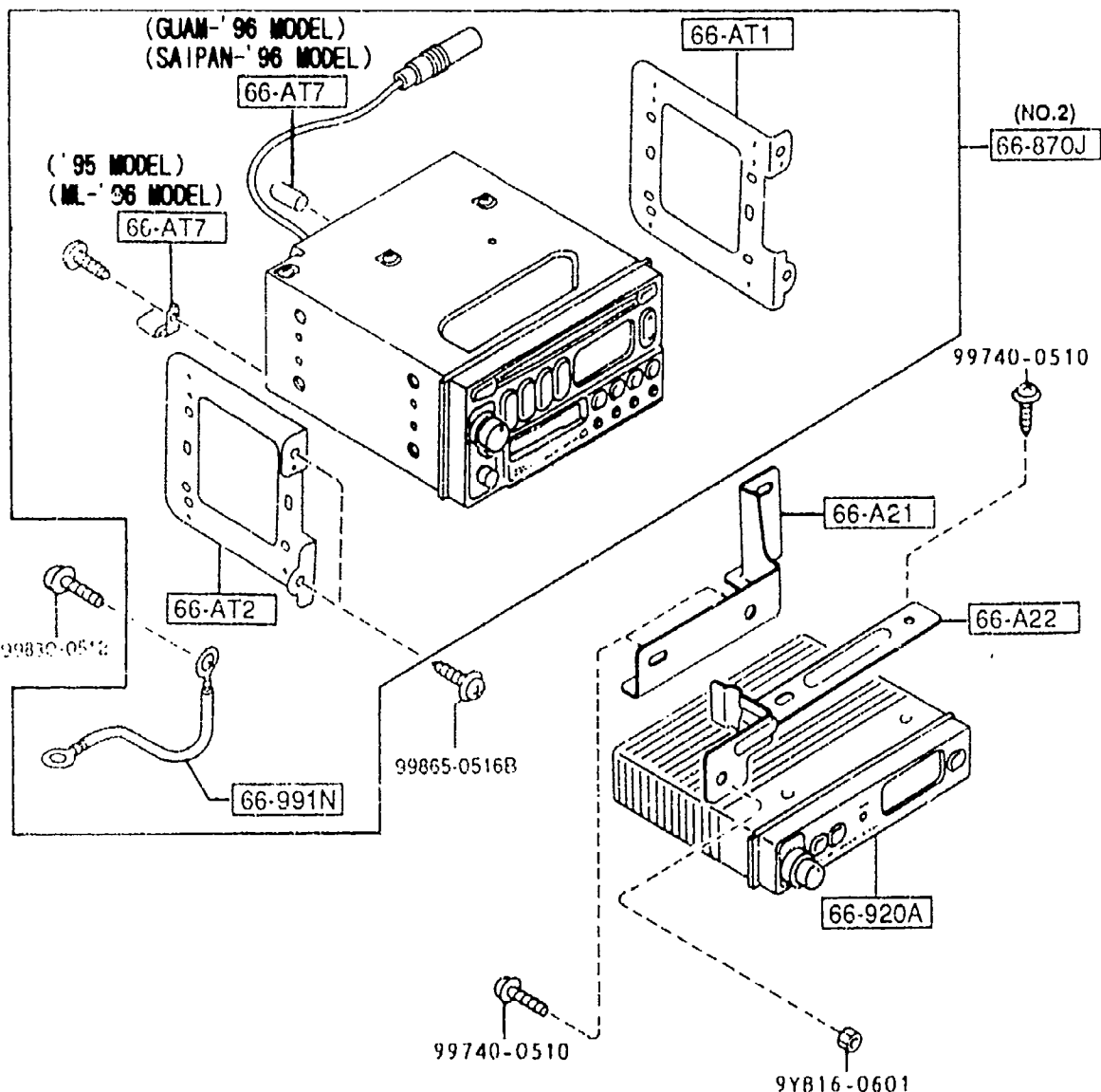
(W/C. D., W/O SENSORY SOUND)



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
55-231		ORNAMENT, STEREO			
B02A-66-9M0A	1	(ILLUST. NO.1) (W/O C.D.) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			5B01-
B03A-66-9M0	1	(ILLUST. NO.2) (W/O AUDIO) ('96 MODEL)			
B02A-66-9M0A	1	(ILLUST. NO.1) (W/O C.D.) (ML-'96 MODEL)			5B01-
55-231B		ORNAMENT, STEREO			
FC02-55-235A	1	(W/O AUDIO) ('95 MODEL)			
55-235B		ORNAMENT, STEREO-UPPER			
LA03-55-235A	1	(AM/FM, W/O C. DISC) ('95 MODEL) (ML-'96 MODEL)			-5B01
55-235C		ORNAMENT, STEREO-LOWER			
LA02-55-235	1	(W/O AUDIO) ('95 MODEL)			
55-561		BOLT, INST. PANEL			
B455-55-561	2	(AM/FM, W/O C. DISC) (W/O AUDIO) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			5B01-
B455-55-561	2	(AM/FM, W/O C. DISC) (W/O AUDIO) (ML-'96 MODEL)			5B01-
66-AC0		TUNER & DECK, COMB.			
NA01-66-AC0A	1	(W/O SENSORY SOUND) ('95 MODEL) (ML-'96 MODEL)			-5B01
66-AC9		RUBBER, REAR-ET/ED COMB.			
LBB4-66-AC9	1	PANASONIC (AM/FM, W/O C. DISC) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
LBB4-66-AC9	1	PANASONIC (AM/FM, W/O C. DISC) (ML-'96 MODEL)			5B01-
66-AG0		PLAYER, COMPACT DISC			

5B01 NA3** -704237

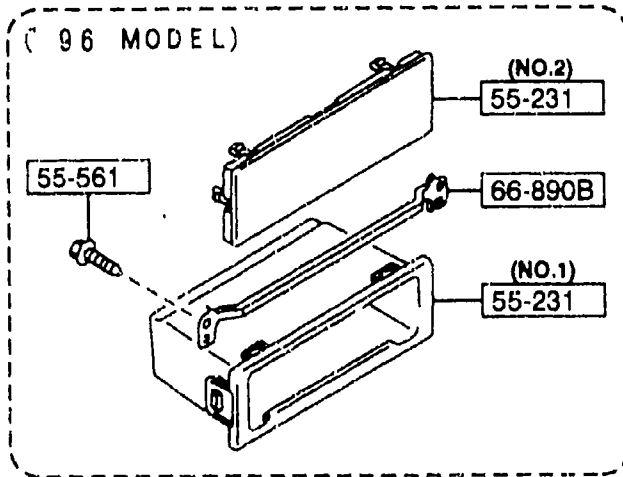
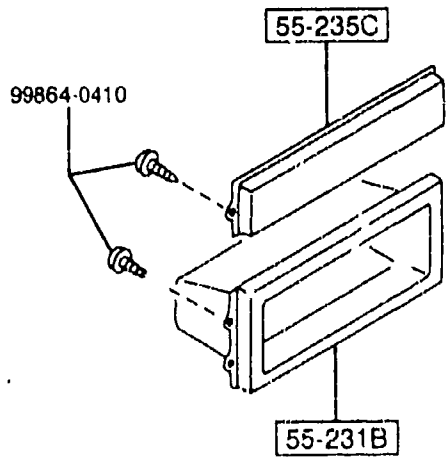
(W/SENSORY SOUND)



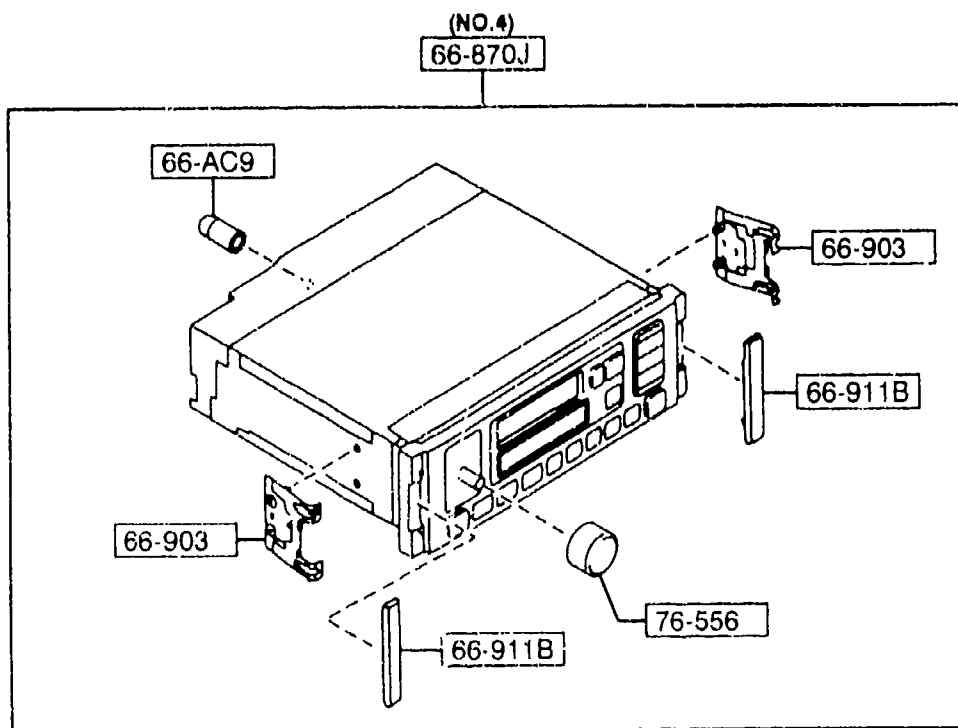
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D NA01-66-AG0	1	(W/C.D., W/O SENSORY SOUND) ('95 MODEL)			
-----+ | 66-AT1 | -----+		BRACKET(R), FRONT-AUD IO			
N034-66-AS1	1	(W/SENSORY SOUND)			
-----+ | 66-AT2 | -----+		BRACKET(L), FRONT-AUD IO			
N034-66-AS2	1	(W/SENSORY SOUND)			
-----+ | 66-AT7 | -----+		BRACKET(RR), AUDIO			
NB41-66-AS3	1	(W/SENSORY SOUND) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
N019-66-AT7	1	(W/C.D., W/O SENSORY SOUND) ('95 MODEL)			
N034-66-AS3	1	(W/SENSORY SOUND) ('95 MODEL) (ML-'96 MODEL)			-5B01
NB41-66-AS3	1	(W/SENSORY SOUND) (ML-'96 MODEL)			5B01-
-----+ | 66-A21 | -----+		BRACKET, AMP			
NB11-66-9B1	1	(W/SENSORY SOUND) ('95 MODEL) (ML-'96 MODEL)			-5B01
-----+ | 66-A22 | -----+		BRACKET, AMP			
NB11-66-9B2	1	(W/SENSORY SOUND) ('95 MODEL) (ML-'96 MODEL)			-5B01
-----+ | 66-BR3 | -----+		KNOB, BALANCE-TUNER			
NA01-66-BR3	2	(W/O SENSORY SOUND) ('95 MODEL) (ML-'96 MODEL)			-5B01
-----+ | 66-870J | -----+		AUDIO SET			
NB40-66-9C0	1	(ILLUST. NO.4) (AM/FM, W/O C. DISC) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
NB41-66-9C0	1	(ILLUST. NO.2) (W/SENSORY SOUND) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
NA54-66-9W0	1	(ILLUST. NO.3) (W/C.D., W/O SENSORY SOUND)			

5B01 NA3** -704237

(W/O AUDIO)

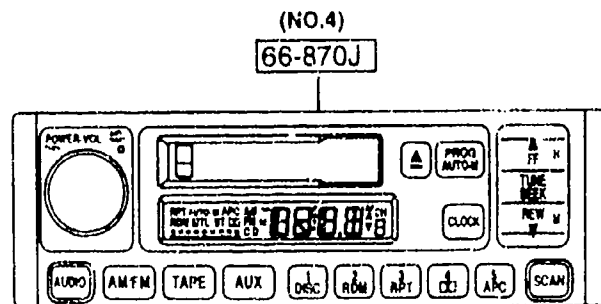
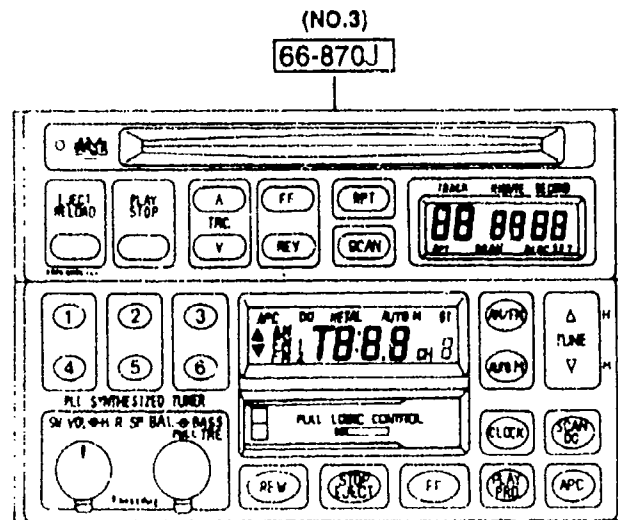
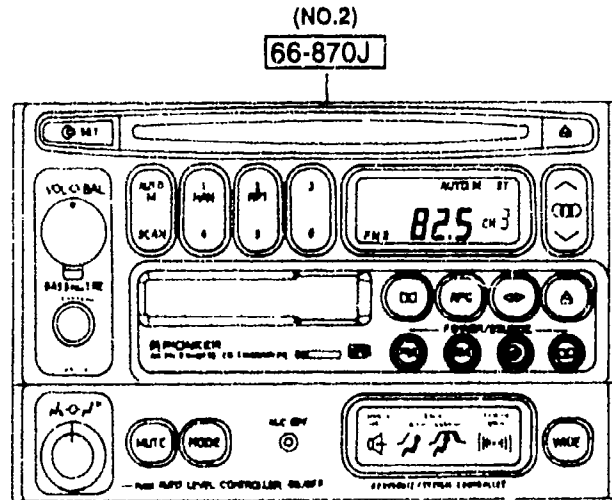
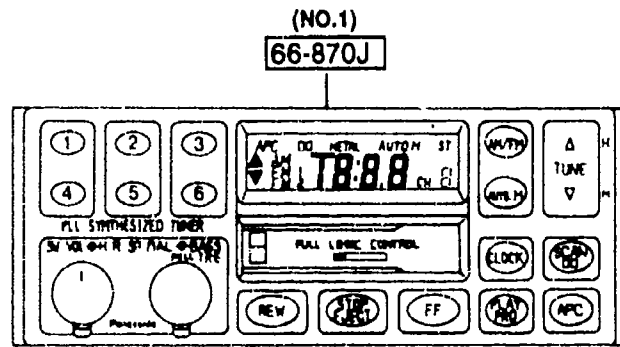


(AM/FM, W/O C. DISC)
(GUAM-'96 MODEL)
(SAIPAN-'96 MODEL)

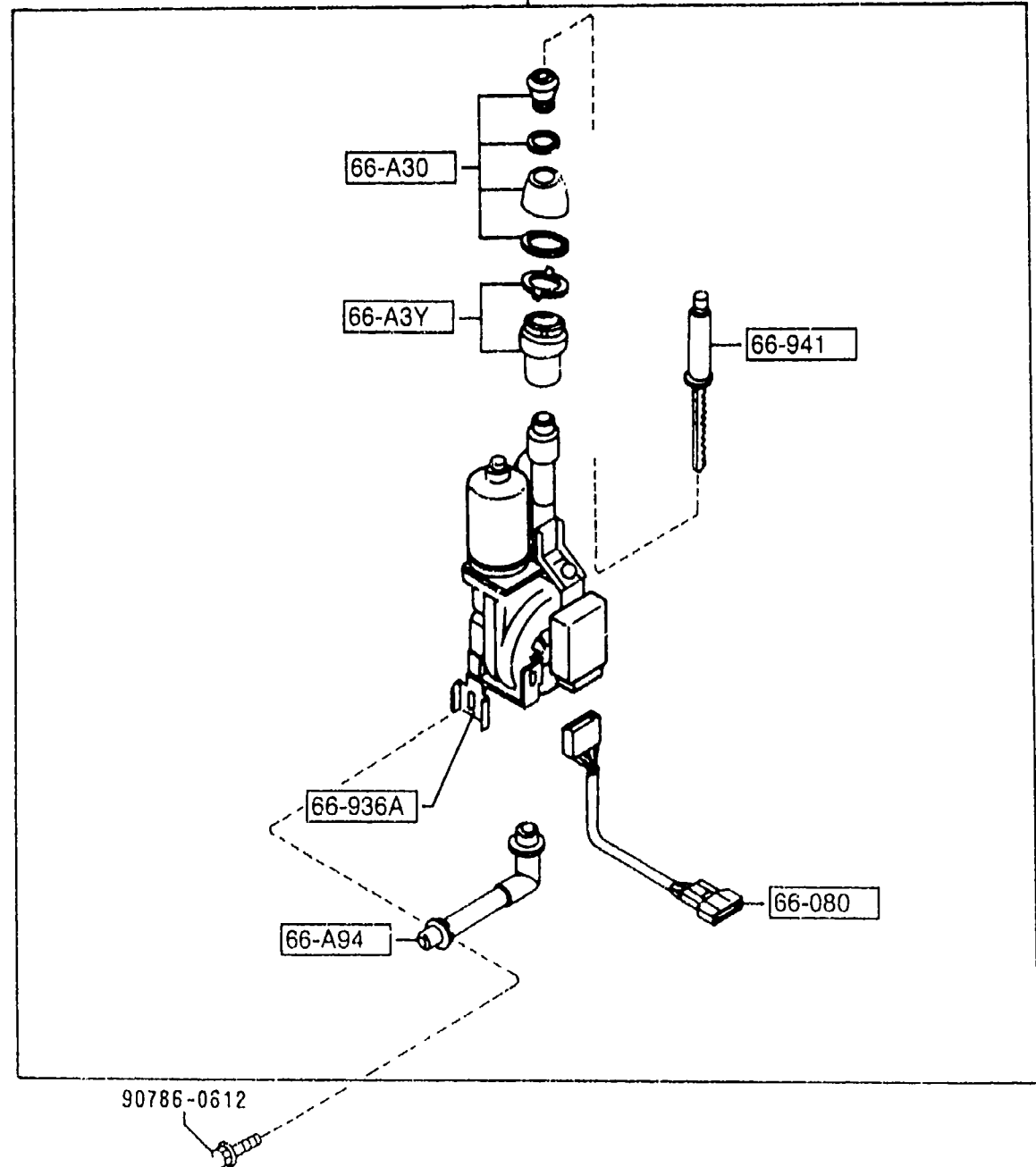
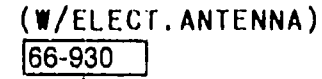
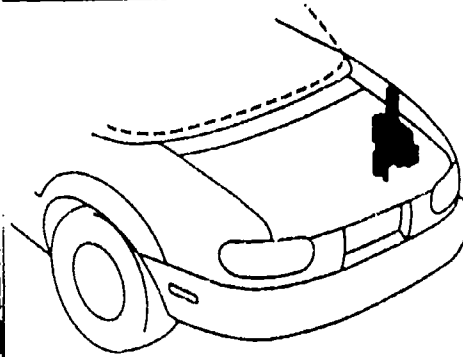
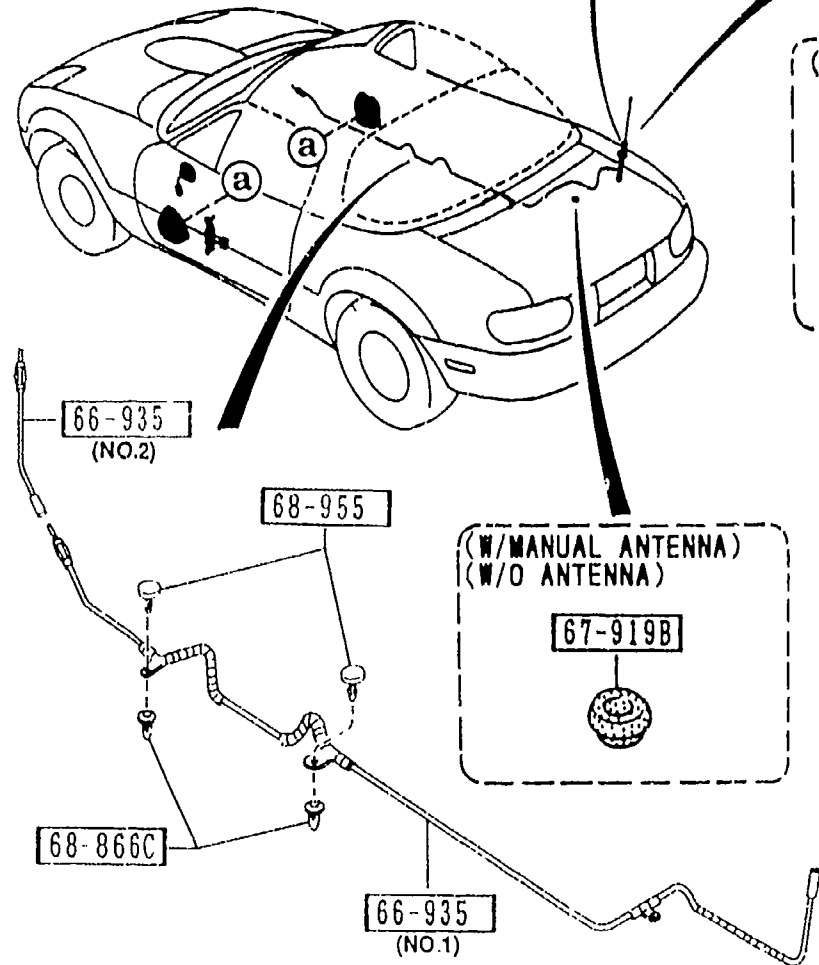
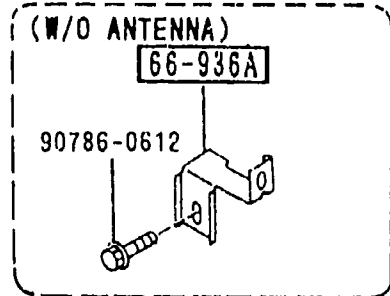
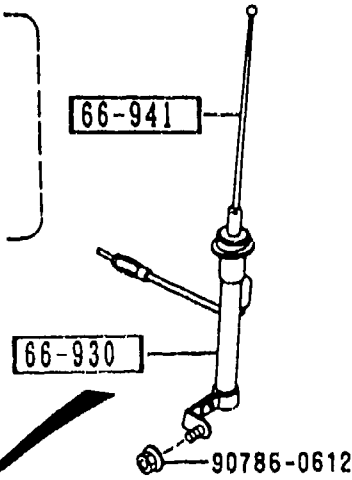
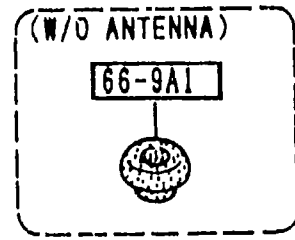
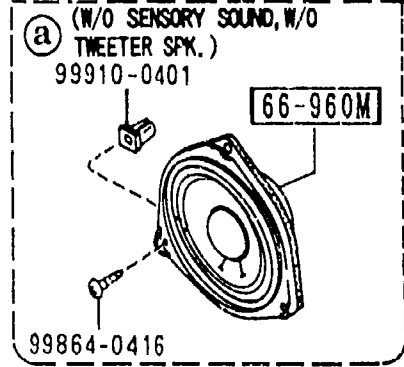
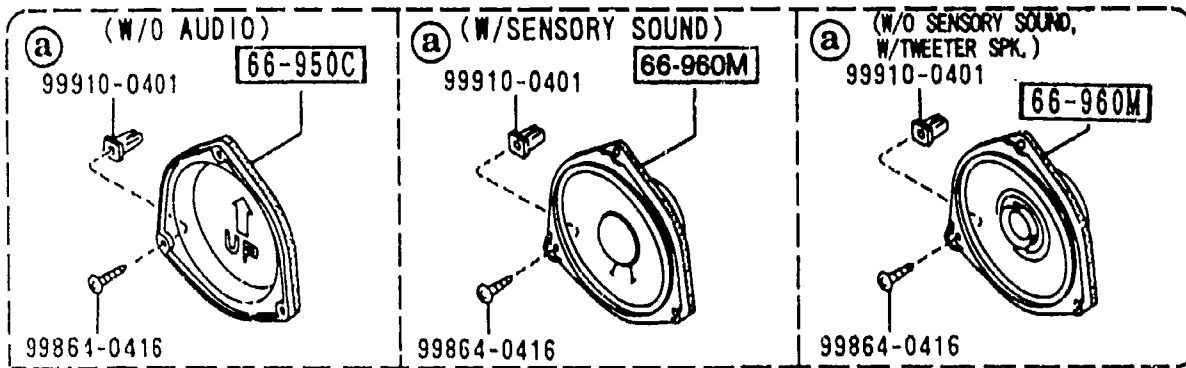


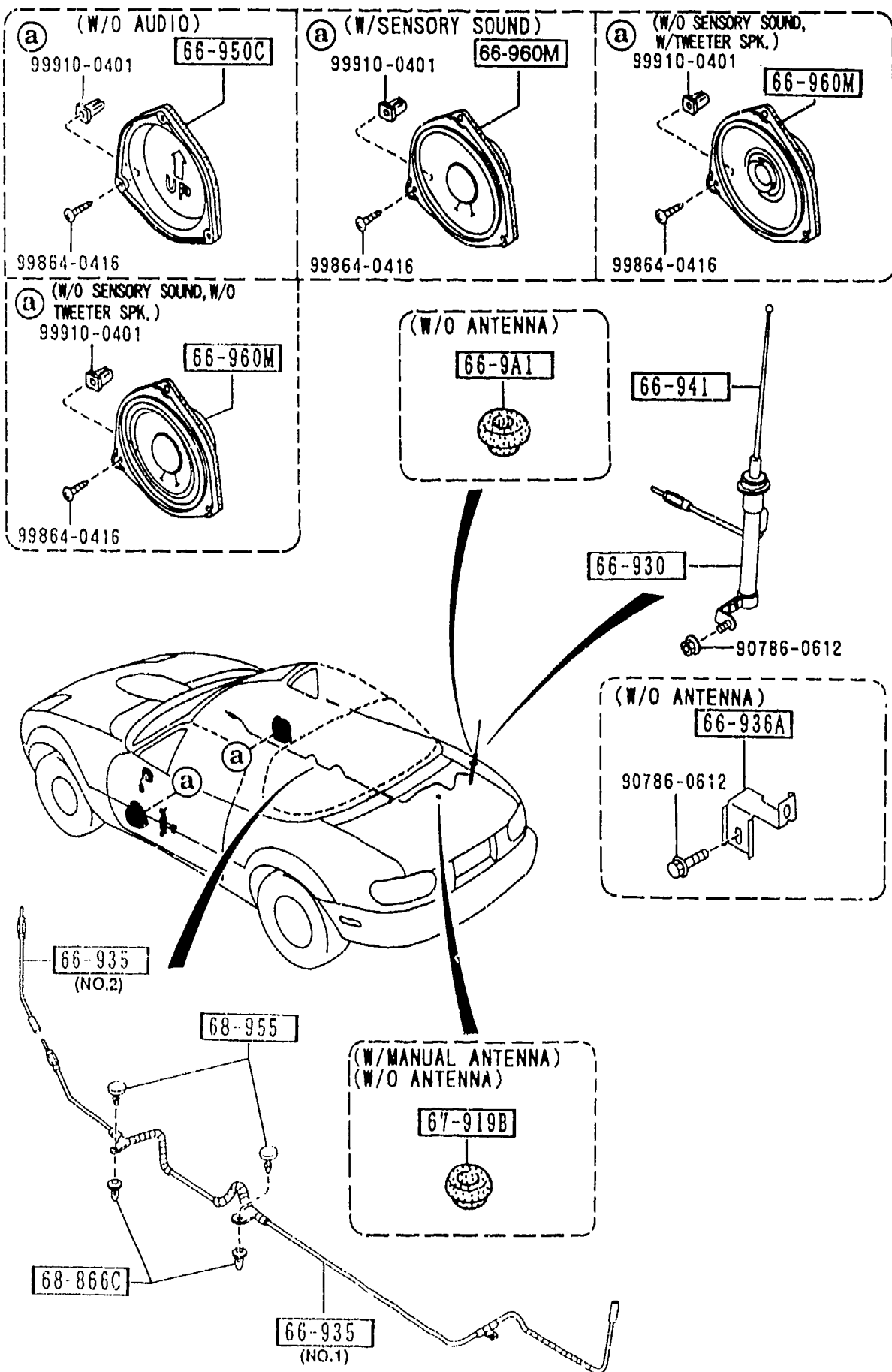
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM TO
CONT'D					
NA53-66-9C0	1	SOUND) ('95 MODEL) (ILLUST. NO.1) (AM/FM, W/O C. DISC) ('95 MODEL) (ML-'96 MODEL)			-5B01
NB11-66-9C0	1	(ILLUST. NO.2) (W/SENSORY SOUND) ('95 MODEL) (ML-'96 MODEL)			-5B01
NB40-66-9C0	1	(ILLUST. NO.4) (AM/FM, W/O C. DISC) (ML-'96 MODEL)			5B01-
NB41-66-9C0	1	(ILLUST. NO.2) (AM/FM, W/C. D, W/HEAD SPEAKER, W/SENSORY S OUND) (ML-'96 MODEL)			5B01-
		-----+ | 66-890B | +-----+	BRACKET		
NB38-66-9B1	1	(W/O C. D.) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			5B01-
NB38-66-9B1	1	(W/O C. D.) (ML-'96 MODEL)			5B01-
		-----+ | 66-901A | +-----+	BRACKET(R), TUNER		
NA01-66-AT1	1	(W/O SENSORY SOUND) (ML-'96 MODEL)			
		-----+ | 66-902A | +-----+	BRACKET(L), TUNER		
NA01-66-AT2	1	(W/O SENSORY SOUND) (ML-'96 MODEL)			
		-----+ | 66-903 | +-----+	BRACKET, TUNER		
FD04-66-AW1	2	PANASONIC (AM/FM, W/O C. DISC) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
FD04-66-AW1	2	PANASONIC (AM/FM, W/O C. DISC) (ML-'96 MODEL)			5B01-
		-----+ | 66-904C | +-----+	BRACKET, LOW		
NO19-66-AT6	1	(AM/FM, W/O C. DISC) (ML-'96 MODEL)			
		-----+ | 66-911B | +-----+	COVER, HOLE		
NB40-66-BC4	2	PANASONIC (AM/FM, W/O C. DISC)			

5B01 NA3** -704237

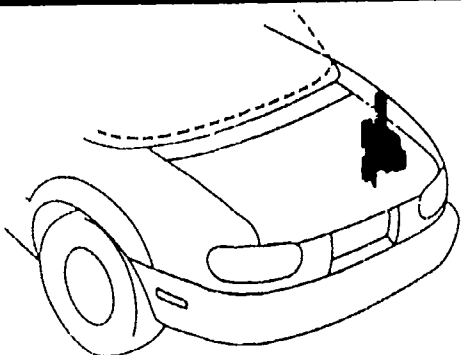


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D		(GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			
NB40-66-BC4	2	PANASONIC (AM/FM, W/O C. DISC) (ML-'96 MODEL)			5B01-
66-912A		KNOB, TONE-TUNER			
NA01-66-BR2	1	(W/O SENSORY SOUND) (ML-'96 MODEL)			
66-914		KNOB, VOLUME-TUNER			
NA01-66-BR1	1	(W/O SENSORY SOUND) (ML-'96 MODEL)			
66-920A		AMP., MAIN			
N034-66-920	1	(W/SENSORY SOUND) ('95 MODEL) (ML-'96 MODEL)			-5B01
66-970F		CORD, EARTH			
NB38-66-997	1	(W/O SENSORY SOUND) (ML-'96 MODEL)			
66-991N		CORD, EARTH			
N018-66-997	1	(W/SENSORY SOUND)			
NA01-66-997	1	(W/O SENSORY SOUND) ('95 MODEL) (ML-'96 MODEL)			-5B01
76-556		KNOB, VOLUME			
NB40-66-BC1	1	(AM/FM, W/O C. DISC) (GUAM-'96 MODEL) (SAIPAN-'96 MODEL)			5B01-
NB40-66-BC1	1	(AM/FM, W/O C. DISC) (ML-'96 MODEL)			5B01-
5B01 NA3** -704237					





PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
66-A3Y		PLATE, EARTH-MOTOR AN TENNA			
N007-66-A3Z	1	M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/ELECT. ANTENNA)			
66-A30		NUT, MOUNTING-ANTENNA			
N007-66-A9Y	1	M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/ELECT. ANTENNA)			
66-A94		PIPE, DRAIN-ANTENNA			
N007-66-A90	1	M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/ELECT. ANTENNA)			
66-080		CORD			
N007-66-D10	1	M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/ELECT. ANTENNA)			
66-9A1		COVER, HOLE-ANTENNA			
FB01-66-9A1A	1	(W/O ANTENNA)			
66-930		ANTENNA, RADIO			
NA01-66-A3XA	1	BASE, R-PKG, PKG-A, (W/MANUAL ANTENNA) ('95 MODEL)			
N007-66-930A	1	M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/ELECT. ANTENNA)			
N034-66-930	1	BASE, R-PKG, PKG-A, (W/MANUAL ANTENNA) ('96 MODEL)			
66-935		FEEDER-ANTENNA			
NA01-66-940C	1	(ILLUST. NO.1)			
NB40-66-940	1	(ILLUST. NO.2) (AM/FM, W/O C.DISC) ('96 MODEL)			
66-936A		BRKT, MOTOR-ANTENNA			
N007-66-A9X	1	M-25-ED, P.E.GR, L-P KG, PKG-B, PKG-C, (W/ELECT. ANTENNA) (W/O ANTENNA)			
66-941		POLE, ANTENNA			
N007-66-A3X	1	M-25-ED, P.E.GR, L-P			



(W/ELECT. ANTENNA)

66-930

66-A30

66-A3Y

66-941

66-936A

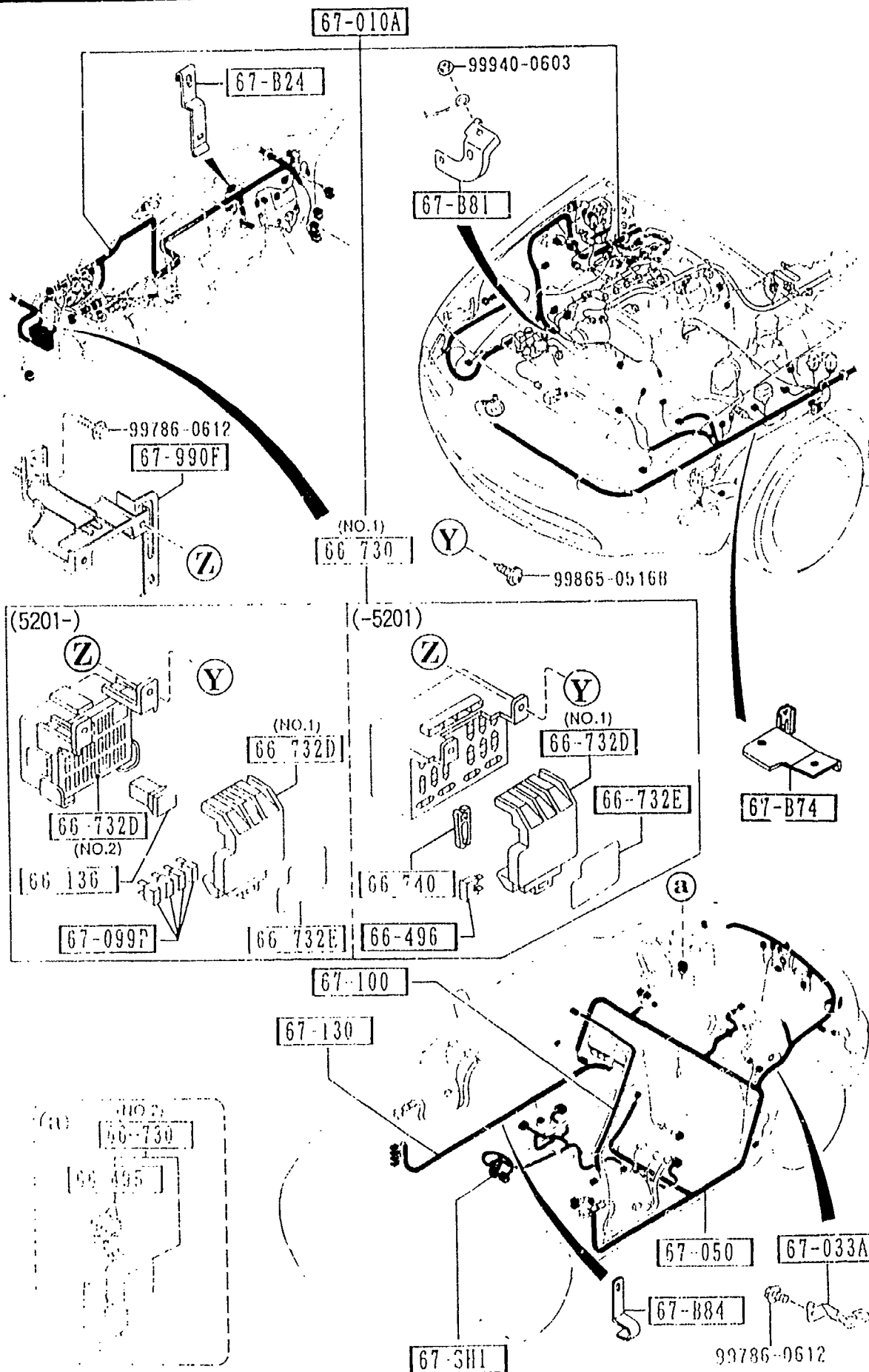
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66-080

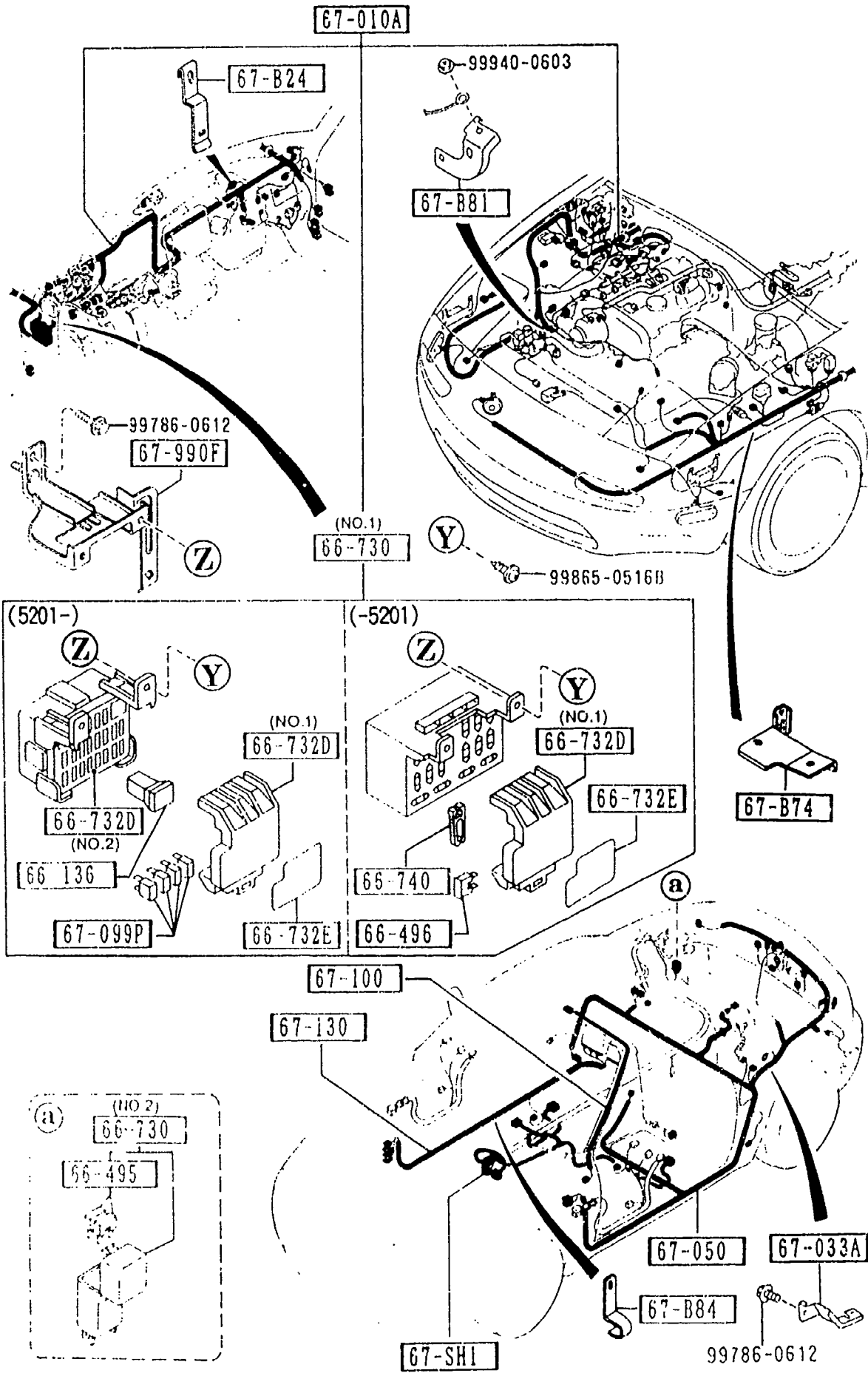
90786-0612

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D		KG, PKG-B, PKG-C, (W/ELECT. ANTENNA)			
N001-66-A30	1	BASE, R-PKG, PKG-A, (W/MANUAL ANTENNA) ('95 MODEL)			
KA03-66-930A	1	BASE, R-PKG, PKG-A, (W/MANUAL ANTENNA) ('96 MODEL)			
66-950C		BRACKET, LOUD SPEAKER			
NA01-66-9B0A	2	(W/O AUDIO)			
66-960M		SPEAKER, LOUD-DOOR			
N027-66-960	2	(W/O SENSORY SOUND, W /TWEETER SPK.)			
N034-66-960	2	(W/SENSORY SOUND)			
B01F-66-960 A (B02H-66-960)	2	(W/O SENSORY SOUND, W /O TWEETER SPK.)			-4C06
B02H-66-960	2	(W/O SENSORY SOUND, W /O TWEETER SPK.)			4C06-5401
B02J-66-960	2	(W/O SENSORY SOUND, W /O TWEETER SPK.)			5401-5C01
*B02T-66-960	2	(W/O SENSORY SOUND, W /O TWEETER SPK.)			5C01-
67-919B		GROMMET			
N007-67-011	1	BASE, R-PKG, PKG-A, (W/MANUAL ANTENNA) (W/O ANTENNA)			
68-866C		FASTENER, SEAL			
B235-68-865A	2				
63-955		FASTENER, LIFT GATE T RIM			
GJ37-68-955	2				
00	INT-	NA3 NA4 NA5 NA6 NA7 NAB BLACK			

4C06 NA35* -610177
5401 NA35* -619598
5C01 NA35** -706448

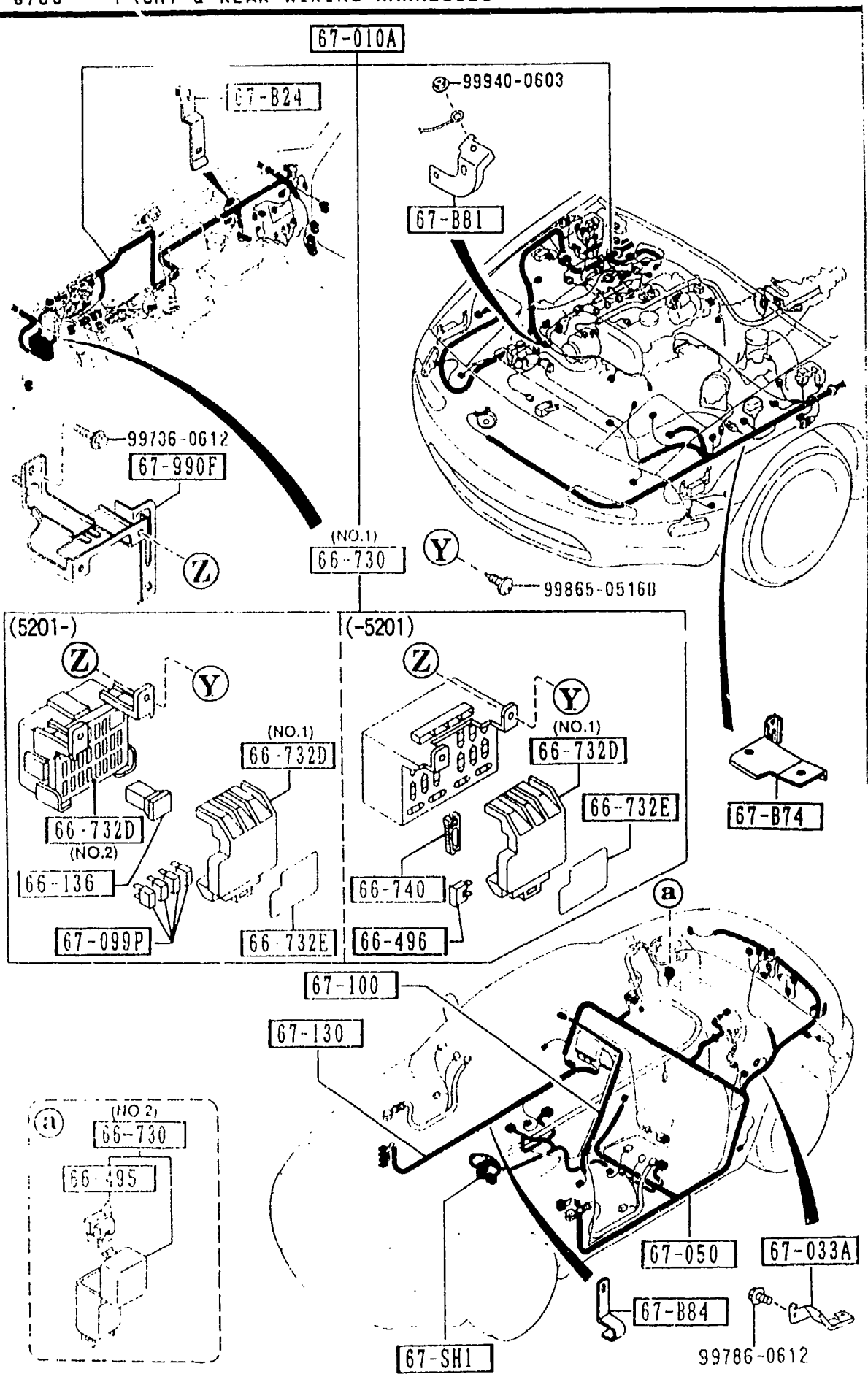


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
66-136		FUSE (30A)			5201-
T001-67-S93	1				
66-495		FUSE (10A)			
99705 1110	2				
66-496		FUSE (15A)			-5201
99705-1115	1				
66-730		BLOCK FUSE			-5201
N008-66-730	1	(ILLUST. NO.2)			
NA75-66-730	1	(ILLUST. NO.1)			5201-
NB11-66-730	1	(ILLUST. NO.1)			
66-732D		COVER,FUSE BLOCK			
NA01-66-731A	1	FURUKAWA (ILLUST. NO.1)			5201-
NB11-66-731	1	(ILLUST. NO.2)			
66-732E		LABEL,CAUTION-FUSE COVER			-5201
NA75-66-732	1				5201-
NB11-66-732	1				
66-740		HOLDER,FUSE			-5201
H001-66-739	1				
67-B24		BRACKET			
NA75-67-B11A	1	(W/AIR BAG-DRIV.&PASS.SIDE)			
67-B74		BRACKET,HARNESS			
N018-67-BW0	1				
67-B81		BRACKET,HARNESS-ENGINE			
NA75-67-B81	1				
67-B84		BRACKET			
NA75-67-B12	1				
67-SH1		CORD,SHORT			
NBY1-67-SH0	1	(ML-'96 MODEL)			
5201 NA35* -614193					



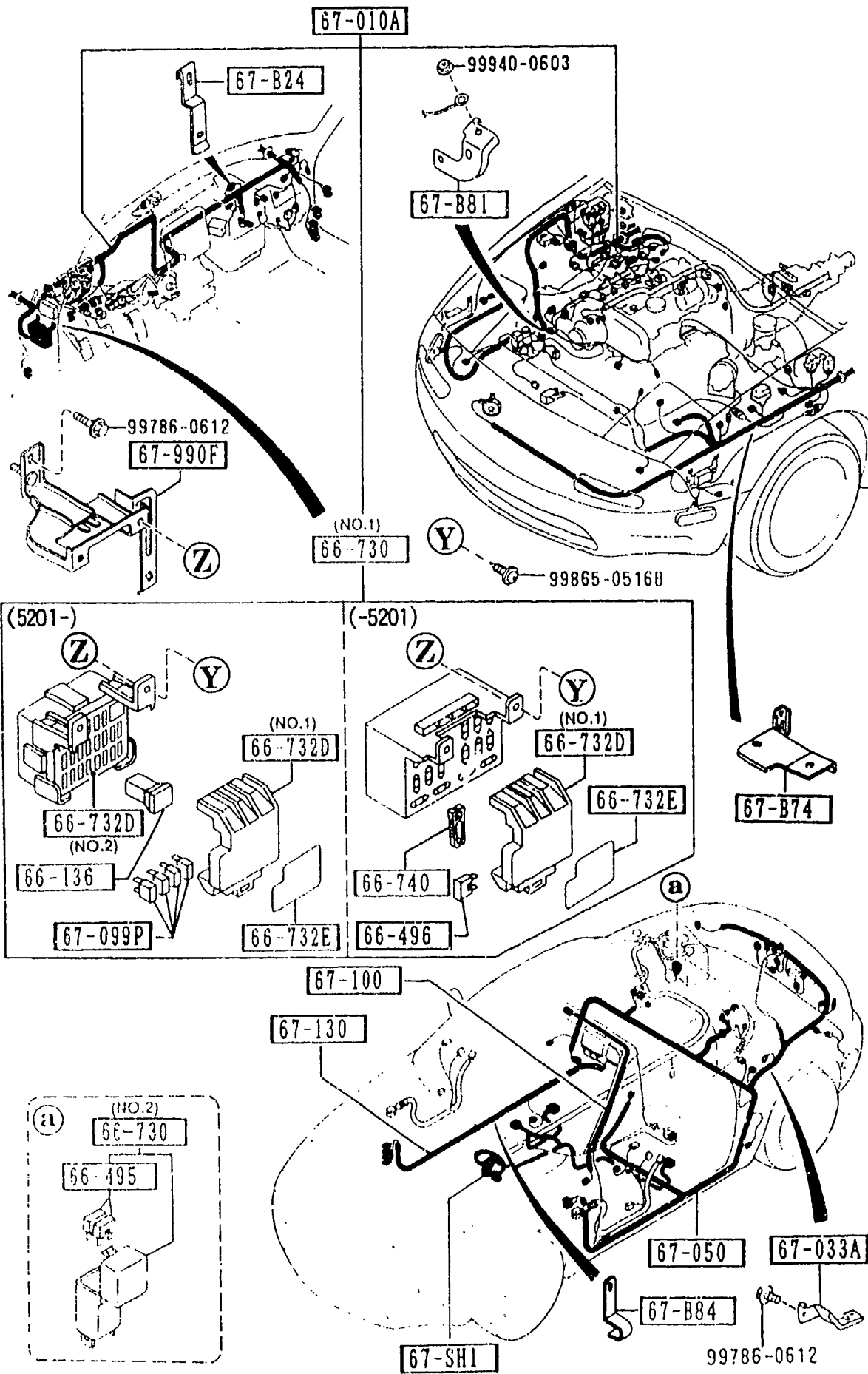
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TG
67-010A		HARNESS, FRONT			
NB11-67-010B	1	(W/SENSORY SOUND) (('95 MODEL)) > (MT) > (W / O A. LOCK BRAKE)			-5201
NB13-67-010B	1	(('95 MODEL)) > (MT) > (W / A. LOCK BRAKE)			-5201
NB14-67-010B	1	(W/SENSORY SOUND) (('95 MODEL)) > (AT) > (W / O A. LOCK BRAKE)			-5201
NB15-67-010B	1	(('95 MODEL)) > (AT) > (W / A. LOCK BRAKE)			-5201
NB31-67-010B	1	(W/O SENSORY SOUND) (('95 MODEL)) > (MT) > (W / O A. LOCK BRAKE)			-5201
NB32-67-010B	1	(W/O SENSORY SOUND) (('95 MODEL)) > (AT) > (W / O A. LOCK BRAKE)			-5201
NB38-67-010B A (NB38-67-010C)	1	(('96 MODEL)) > (MT) > (W / O A. LOCK BRAKE)			-5B01
NB40-67-010B A (NB40-67-010C)	1	(('96 MODEL)) > (MT) > (W / A. LOCK BRAKE)			-5B01
NB42-67-010B A (NB42-67-010C)	1	(('96 MODEL)) > (AT) > (W / O A. LOCK BRAKE)			-5B01
NB43-67-010B A (NB43-67-010C)	1	(('96 MODEL)) > (AT) > (W / A. LOCK BRAKE)			-5B01
NB11-67-010D	1	(W/SENSORY SOUND) (('95 MODEL)) > (MT) > (W / O A. LOCK BRAKE)			5201-
NB13-67-010D	1	(('95 MODEL)) > (MT) > (W / A. LOCK BRAKE)			5201-
NB14-67-010D	1	(W/SENSORY SOUND) (('95 MODEL)) > (AT) > (W / O A. LOCK BRAKE)			5201-
NB15-67-010D	1	(('95 MODEL)) > (AT) > (W / A. LOCK BRAKE)			5201-
NB31-67-010D	1	(W/O SENSORY SOUND) (('95 MODEL)) > (MT) > (W / O A. LOCK BRAKE)			5201-
NB32-67-010D	1	(W/O SENSORY SOUND) (('95 MODEL)) > (AT) > (W / O A. LOCK BRAKE)			5201-
*NB38-67-010C A (NB38-67-010D)	1	(('96 MODEL)) > (MT) > (W / O A. LOCK BRAKE)			5B01-6201
*NB40-67-010C A (NB40-67-010D)	1	(('96 MODEL)) > (MT) > (W / A. LOCK BRAKE)			5B01-6201
*NB42-67-010C A (NB42-67-010D)	1	(('96 MODEL)) > (AT) > (W / O A. LOCK BRAKE)			5B01-6201
*NB43-67-010C	1	(('96 MODEL)) > (AT) > (W			5B01-6201

5201 NA35* -614193
 5B01 NA35** -704237
 6201 NA35** -711421



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
A (NB43-67-010D)		/A. LOCK BRAKE)			
*NB38-67-010D	1	(('96 MODEL)>(MT)>(W/O A. LOCK BRAKE)			6201-
*NB40-67-010D	1	(('96 MODEL)>(MT)>(W/O A. LOCK BRAKE)			6201-
*NB42-67-010D	1	(('96 MODEL)>(AT)>(W/O A. LOCK BRAKE)			6201-
*NB43-67-010D	1	(('96 MODEL)>(AT)>(W/O A. LOCK BRAKE)			6201-
67-033A		BRACKET, WIRING			
N007-67-B10A	1				
67-050		HARNESS, REAR			
NB11-67-050B	1	(('95 MODEL)>(W/O A. LOCK BRAKE)			
NB13-67-050B	1	(('95 MODEL)>(W/A. LOCK BRAKE)			
NB38-67-050B A (NB38-67-050C)	1	(('96 MODEL)>(W/O A. LOCK BRAKE)			-6201
NB40-67-050B A (NB40-67-050C)	1	(('96 MODEL)>(W/A. LOCK BRAKE)			-6201
*NB38-67-050C	1	(('96 MODEL)>(W/O A. LOCK BRAKE)			6201-
*NB40-67-050C	1	(('96 MODEL)>(W/A. LOCK BRAKE)			6201-
67-099P		FUSE			
99705-1210	1	10A			5201-
99705-1215	6	15A			5201-
99705-1220	1	20A			5201-
99705-1230	1	30A			5201-
67-100		HARNESS, ROOM LAMP			
NB38-67-100C A (NB38-67-100D)	1	('96 MODEL)			-5801
NB38-67-100D A (NB38-67-100E)	1	('96 MODEL)			5801-6201
*NB38-67-100E A (NB38-67-100G)	1	('96 MODEL)			6201-6701
*NB38-67-100G	1	('96 MODEL)			6701-
5201 NA35*		-614193			
5801 NA3**		-700842			
6201 NA3**		-711421			
6701 NA3**		-719627			

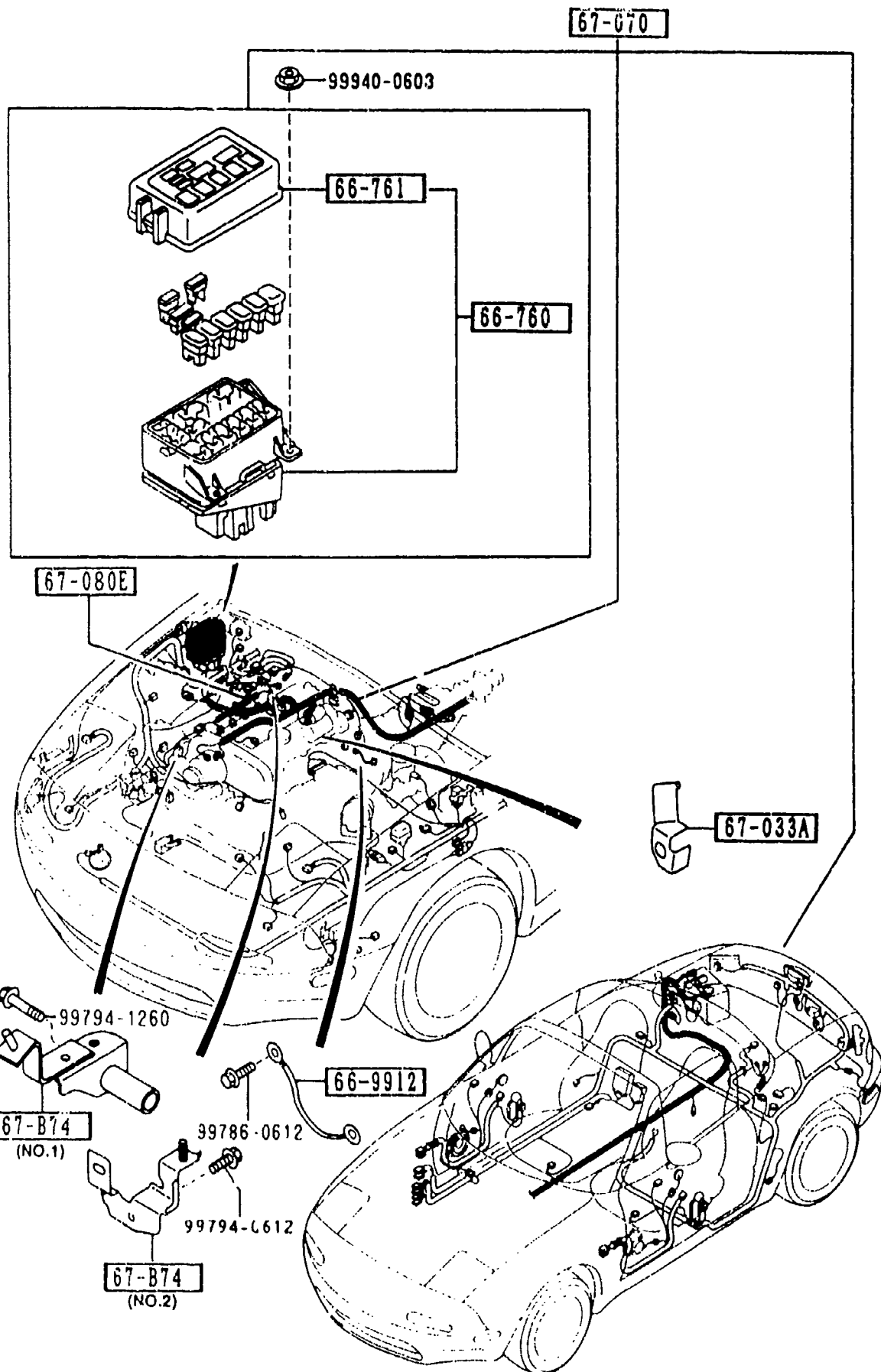
6700 FRONT & REAR WIRING HARNESSSES



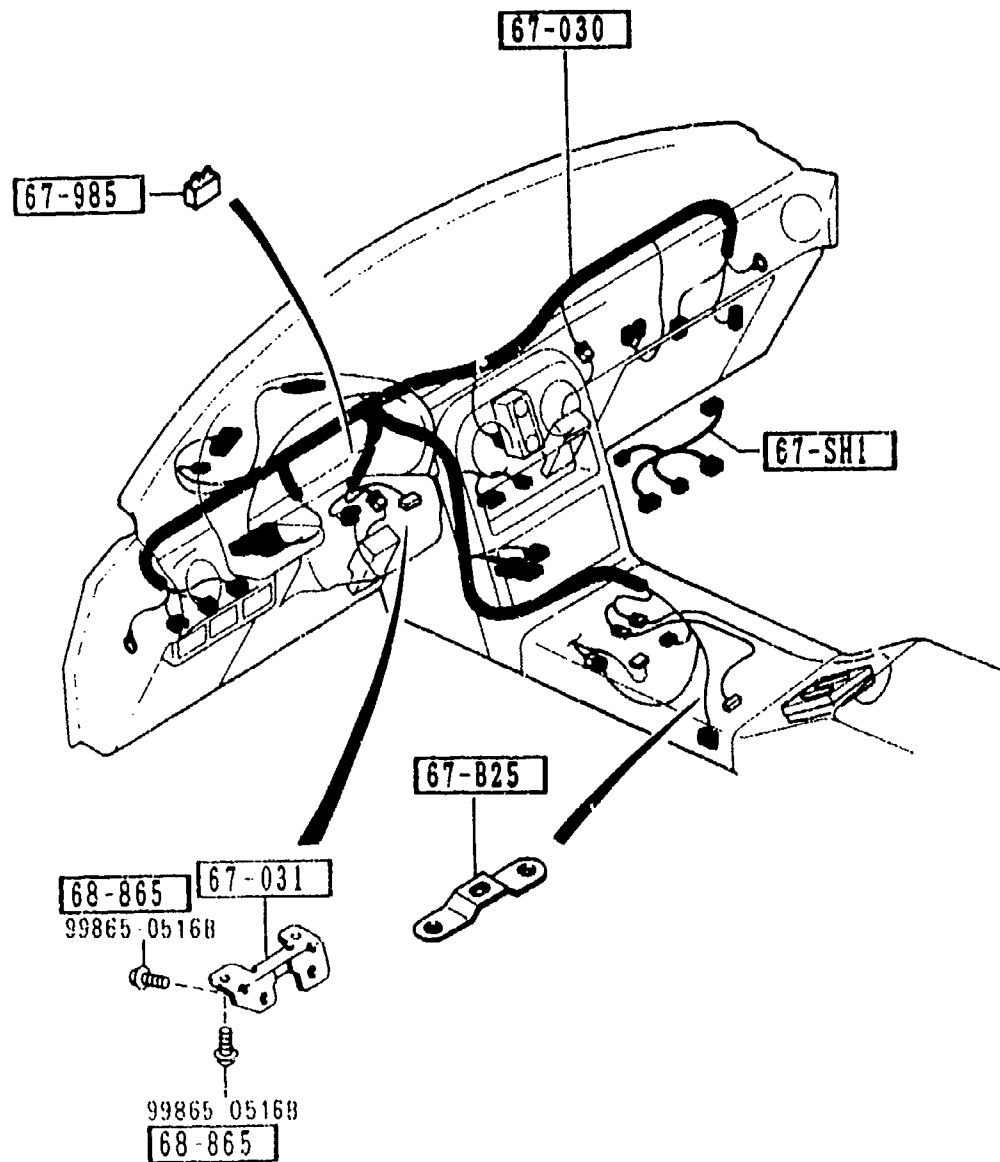
6700 -4 * FRONT & REAR WIRING HARNESSSES

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
67-130		HARNESS 'NO. 2', FRONT			
NB11-67-110Z	1	(('95 MODEL)) >> (W/O A. LOCK BRAKE)			-5201
NB13-67-110B	1	(('95 MODEL)) >> (W/A. L OCK BRAKE)			-5201
NB38-67-110B A (NB38-67-110C)	1	(('96 MODEL)) >> (W/O A. LOCK BRAKE)			-6201
NB40-67-110B A (NB40-67-110C)	1	(('96 MODEL)) >> (W/A. L OCK BRAKE)			-6201
NB11-67-110C	1	(('95 MODEL)) >> (W/O A. LOCK BRAKE)			5201-
NB13-67-110C	1	(('95 MODEL)) >> (W/A. L OCK BRAKE)			5201-
*NB38-67-110C	1	(('96 MODEL)) >> (W/O A. LOCK BRAKE)			6201-
*NB40-67-110C	1	(('96 MODEL)) >> (W/A. L OCK BRAKE)			6201-
67-990F		BRACKET, HARNESS			
NA01-67-BJO AN (NA01-67-BJOA)	1				-5801
NA01-67-BJOA	1				5801-

5201 NA35* -614193
 5801 NA3** -700842
 6201 NA3** -711421



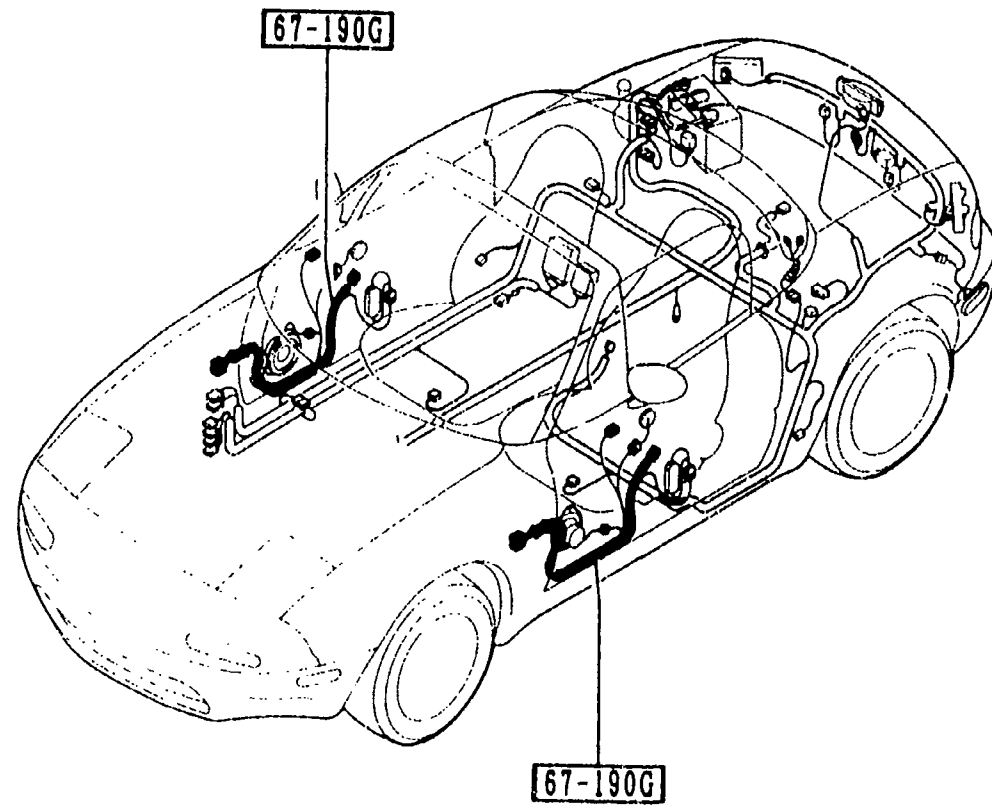
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
66-760		BLOCK, MAIN FUSE			
NB11-66-760	1				
66-761		COVER, MAIN FUSE BLOC K			
NB11-66-762	1				
66-9912		WIRE, EARTH			
NA75-67-EW1B	1				
67-B74		BRACKET, HARNESS			
NA80-67-B80	1	(ILLUST. NO.1)			
NO27-67-B80	1	(ILLUST. NO.2)			
67-033A		BRACKET, WIRING			
NA01-67-D10B	1				
67-070		HARNESS, ENGINE			
NB11-67-070B	1	((MT))>(W/O A. LOCK B RAKE)			
NB12-67-070B	1	((MT))>(W/A. LOCK BRA KE)			
NB13-67-070B	1	((AT))>(W/O A. LOCK B RAKE)			
NB14-67-070B	1	((AT))>(W/A. LOCK BRA KE)			
67-080E		WIRING, INJECTOR			
NB11-67-080A	1				-5201
NB38-67-080 A (NB38-67-080A)	1				5201-6401
*NB38-67-080A	1				6401-
5201 NA35* -614193					
6401 NA3** -717787					



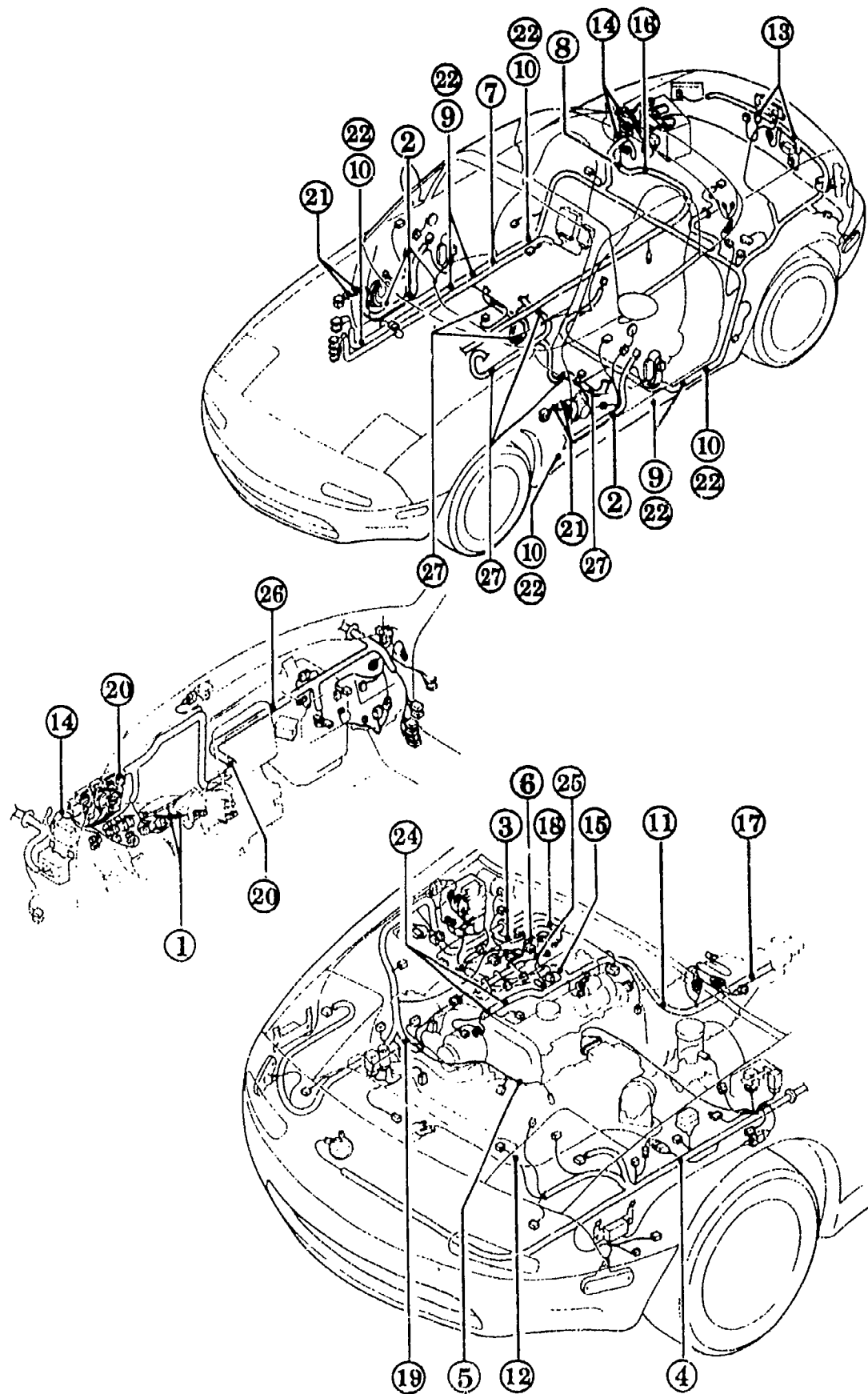
PART NO	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
67-B25		BRACKET, HARNESS			
NA01-67-B31	1	(MT)			
67-SH1		CORD, SHORT			
NBY3-67-SH0	1	(ML-'96 MODEL)			
67-030		HARNESS, INSTRUMENT			
NB11-67-030B	1	(W/SENSORY SOUND) (('95 MODEL))>(MT)			
NB12-67-030B	1	(W/O SENSORY SOUND) (('95 MODEL))>(MT)			
NB14-67-030B	1	(W/SENSORY SOUND) (('95 MODEL))>(AT)			
NB15-67-030B	1	(W/O SENSORY SOUND) (('95 MODEL))>(AT)			
NB38-67-030B	1	(W/SENSORY SOUND) (('96 MODEL))>(MT)			
NB39-67-030B	1	(W/O SENSORY SOUND) (('96 MODEL))>(MT)			
NB42-67-030B	1	(W/SENSORY SOUND) (('96 MODEL))>(AT)			
NB43-67-030B	1	(W/O SENSORY SOUND) (('96 MODEL))>(AT)			
67-031		BRACKET			
NB38-60-1A1B	1	('96 MODEL)			
67-985		CONNECTOR, SHORT			
NA80-67-SC0	1	(W/O DAY RUNNING LAMP)			
68-865		FASTENER			
BC1D-68-865	2	('96 MODEL)			

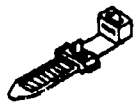


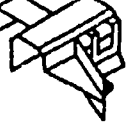












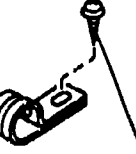









6703 DOOR, FLOOR & CEILING WIRING HARNESSSES

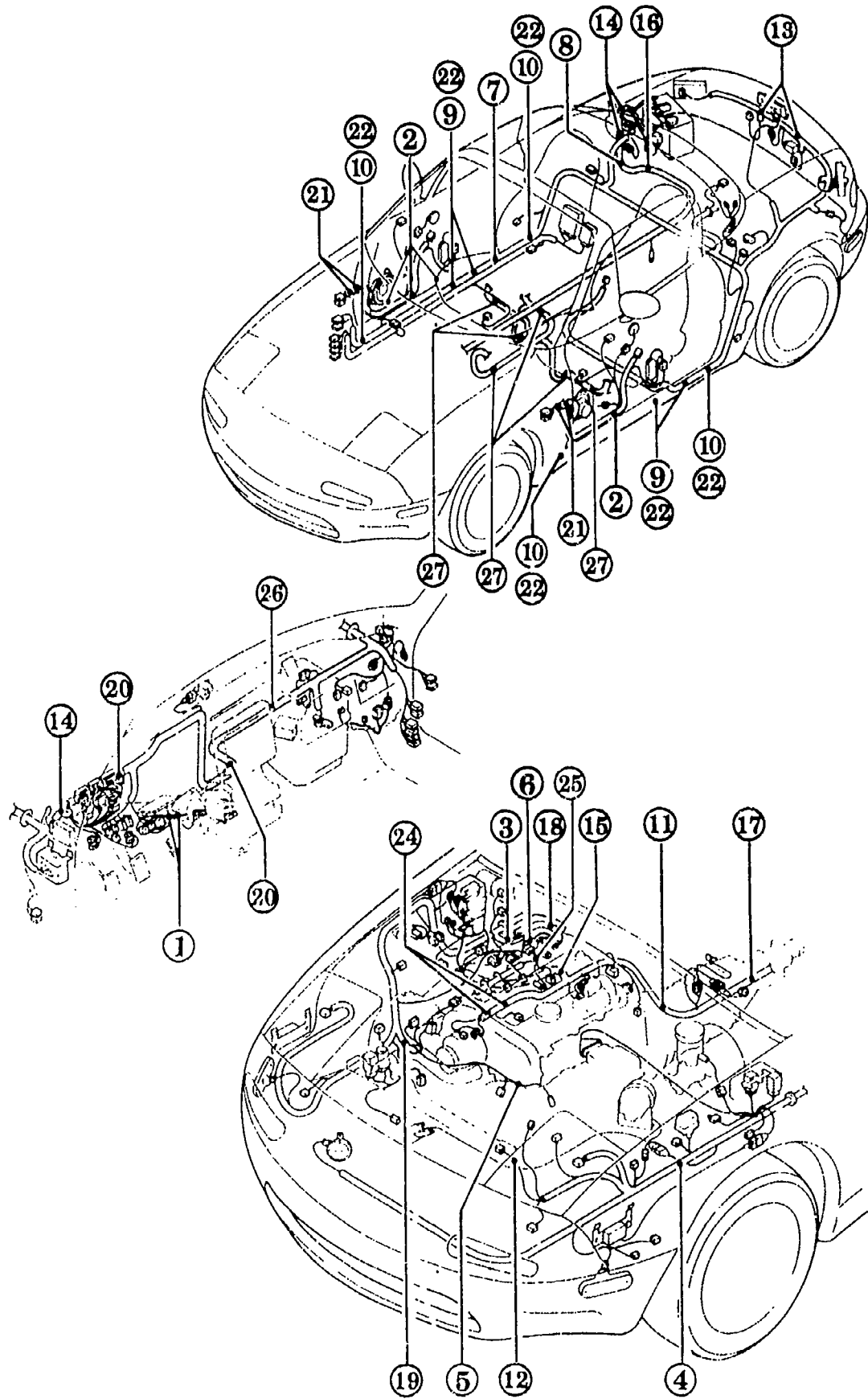
6703 -1 * DOOR, FLOOR & CEILING WIRING HARNESSSES





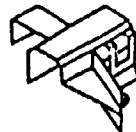



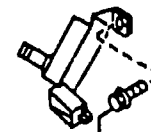





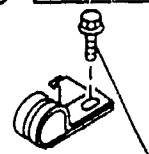










PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
67-190G		HARNESS, DOOR			
NA01-67-190A	2	BASE, R-PKG, (W/MANUAL DR MIRROR, W/O TWEETER SPK., W/ O POWER WIND.)			
NA02-67-190A	2	(W/MANUAL DR MIRROR, W/O TWEETER SPK., W/ POWER WIND.)			
NA53-67-190B AN(NA53-67-190C)	2	M-25-ED, P.E.GR, L-P KG, PKG-C, (W/ELECT. DR MIRROR, W /O TWEETER SPK.)			-4B14
NB11-67-190A AN(NB11-67-190B)	2	(W/MANUAL DR MIRROR, W/TWEETER SPK.)			-4B14
NB12-67-190A AN(NB12-67-190B)	2	L-PKG-OPT, M-25-ED, PKG-B-OPT, PKG-C-OPT (W/ELECT. DR MIRROR, W /TWEETER SPK.)			-4B14
NA53-67-190C	2	M-25-ED, P.E.GR, L-P KG, PKG-C, (W/ELECT. DR MIRROR, W /O TWEETER SPK.)			4B14-
*NB11-67-190B	2	(W/MANUAL DR MIRROR, W/TWEETER SPK.)			4B14-
*NB12-67-190B	2	L-PKG-OPT, M-25-ED, PKG-B-OPT, PKG-C-OPT (W/ELECT. DR MIRROR, W /TWEETER SPK.)			4B14-
4B14 NA35* -607525					



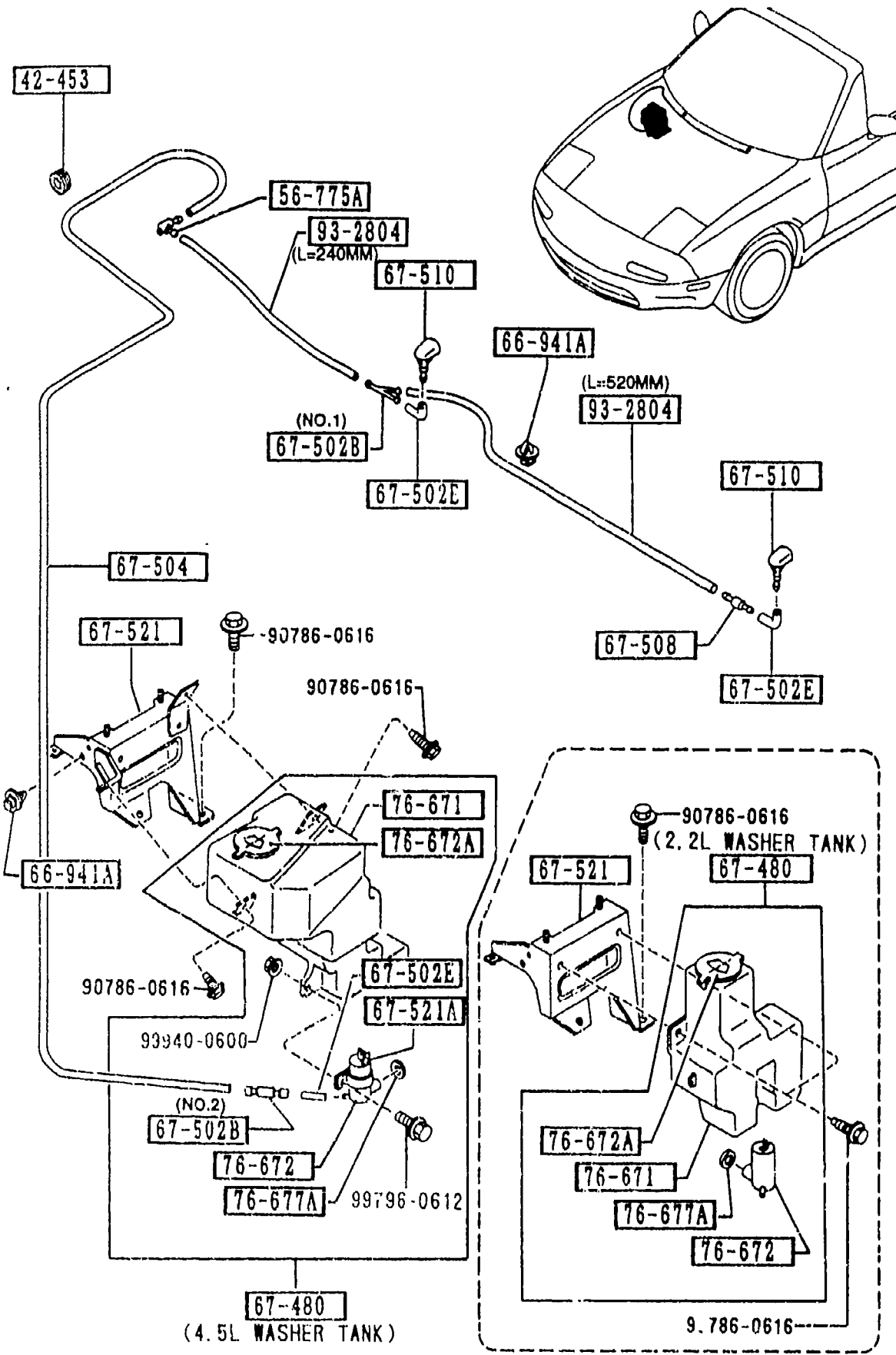
① 14-726 	② 45-961B 	③ 67-CS1 99786-0612 	④ 67-CT2 	⑤ 67-011C 
⑥ 20-451 	⑦ 67-013D 	⑧ 67-014F 99786-0620 	⑨ 67-022 	⑩ 67-026 
⑪ 67-048A 99786-0612 	⑫ 67-051E 	⑬ 67-051J 	⑭ 67-052H 	⑮ 67-062B 99786-0612 
⑯ 67-072H 99786-0620 	⑰ 67-073 99796-0812 	⑱ 67-073B 99940-0603 	⑲ 67-074 99786-0612 	⑳ 67-076 
㉑ 67-191 	㉒ 68-865 		㉔ 34-C10 	㉕ 66-941A 
㉖ 67-059C 	㉗ 67-061K 			



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
14-726		BAND			
N304-14-726	2				
20-451		CLIP			
B612-20-468	1				4A03-
34-C10		BAND, PIPE			
B214-34-C10	2				
45-961B		CAP			
H002-45-961	4				
66-941A		CLIP			
FB01-66-945	1	('95 MODEL)			-4A03
67-CS1		CLIP, HARNESS			
H001-67-CS1C	1				
67-CT2		CLIP, HARNESS			
NA01-67-CH5	1				
67-011C		CLIP			
E356-18-141	1	BASE, R-PKG, (W/O POWER STEERING)			
67-013D		PROTECTOR, HARNESS			
NA75-67-P54	1				
67-014F		PROTECTOR, HARNESS			
NA01-67-P71	1				
67-022		CLIP, HARNESS			
NA01-67-CW5A	4				
67-026		CLIP, HARNESS			
NA02-67-CW5A	4				
67-048A		CLIP, HARNESS			
NA01-67-CS1	1				
4A03 NA35* -603621					

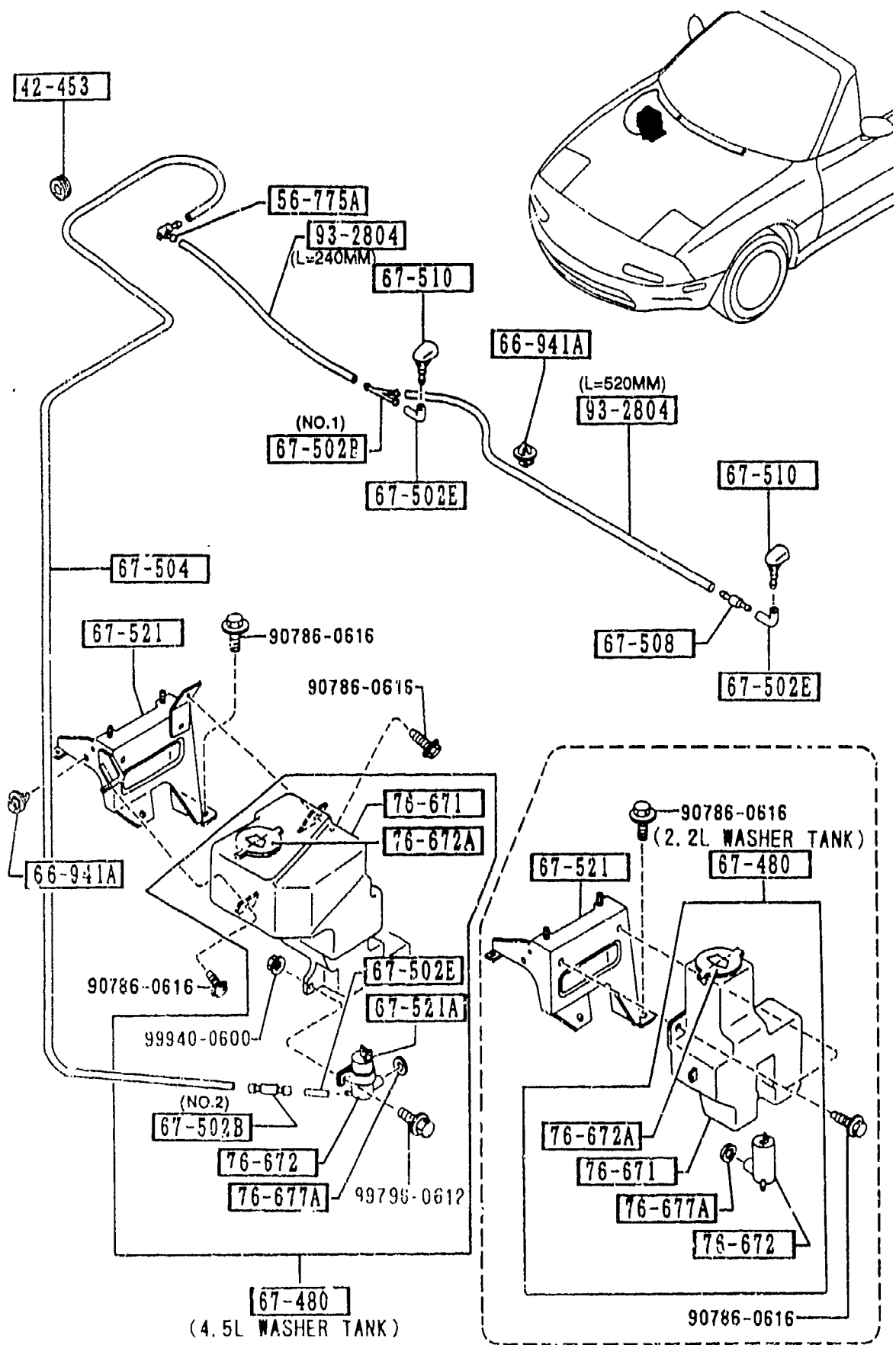
① 14-72E 	② 45-961B 	③ 67-CS1  99786-0612	④ 67-CT2 	⑤ 67-011C 
⑥ 20-451 	⑦ 67-013D 	⑧ 67-014F  99786-0620	⑨ 67-022 	⑩ 67-026 
⑪ 67-048A  99786-0612	⑫ 67-051E 	⑬ 67-051J 	⑭ 67-052H 	⑮ 67-062B  99786-0612
⑯ 67-072H  99786-0620	⑰ 67-073  99796-0812	⑱ 67-073B  99940-0603	⑲ 67-074  99786-0612	⑳ 67-076 
㉑ 67-191 	㉒ 68-865 		㉔ 34-C10 	㉕ 66-941A 
㉖ 67-059C 	㉗ 67-061K 			

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
67-051E UB42-67-051	1	CLIP			
67-051J G031-67-053A	2	CLIP			
67-052H G030-67-018A	3	CLIP			
67-059C G001-67-059	1	PAD, PROTECTOR (ML-'96 MODEL)			
67-061K G001-67-061	7	PAD, PROTECTOR (ML-'96 MODEL)			
67-062B NA02-67-CS1A	1	CLIP, HARNESS			
67-072H NA01-67-CS6	1	CLIP, ENGINE HARNESS			
67-073 UB73-67-073A	1	CLIP			
67-073B H261-67-073	1	CLIP			
67-074 NA01-67-CS5	1	CLIP, HARNESS			
67-076 NA01-67-CH8	2	CLIP, ENGINE HARNESS			
67-191 B300-67-HD1	4	GROMMET			
68-865 B003-68-865	8	FASTENER			
00	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
42-453		PROTECTOR,CABLE			
B048-42-453	1				
56-775A		CLIP,WASHER HOSE			
LA01-67-505B	1				
66-941A		CLIP			
G308-66-941	4				
67-480		TANK,WASHER-FRONT			
NA01-67-480A	1	(2.2L WASHER TANK)			
NA04-67-480B	1	(4.5L WASHER TANK)			
67-502B		JOINT,HOSE			
H001-67-502	1	(ILLUST. NO.1)			
4116-67-502	1	(ILLUST. NO.2) (4.5L WASHER TANK)			
67-502E		JOINT,ELBOW-W.TANK			
S084-67-502	2	(2.2L WASHER TANK)			
S084-67-502	3	(4.5L WASHER TANK)			
67-504		HOSE 'C', WASHER			
NA01-67-501A	1				
67-508		VALVE,CHECK			
FA54-67-508	1				
DB05-67-502	1				
67-510		NOZZLE,WASHER-F.WIND			
NA01-67-510	2				
67-521		BRACKET,WASHER TANK			
NA01-67-520	1	(2.2L WASHER TANK)			
NA04-67-520	1	(4.5L WASHER TANK)			
67-521A		BRACKET			
S095-67-521	1	(4.5L WASHER TANK)			
76-671		TANK,WASHER			
4901 NA35* -602618					

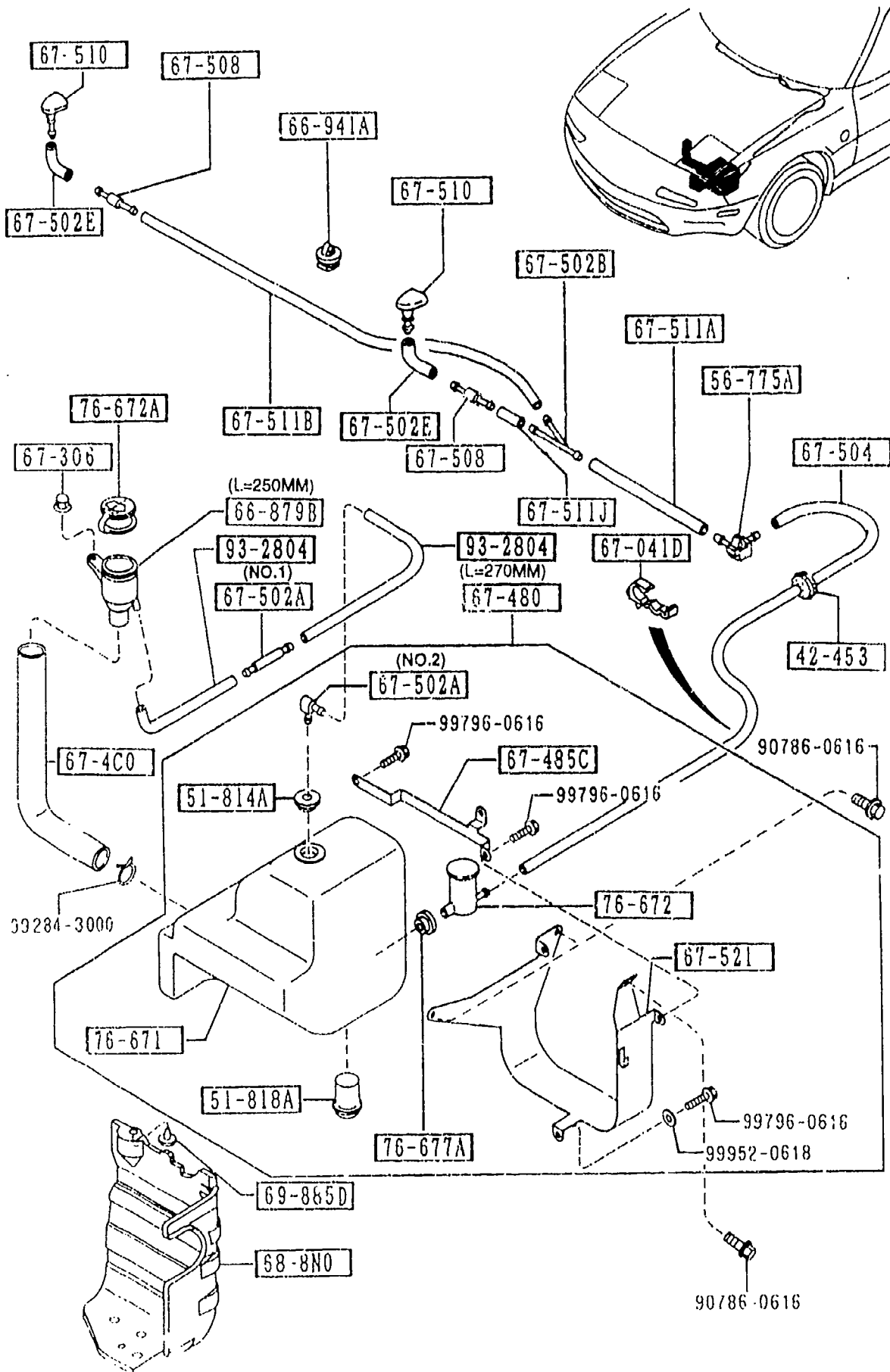
-4901
4901-



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
NA01-67-481	1	(2.2L WASHER TANK)			
NA04-67-481	1	(4.5L WASHER TANK)			
76-672		PUMP, WASHER			
S084-76-672	1				
76-672A		CAP, TANK			
UB39-51-815	1				
76-677A		GROMMET, WASHER TANK			
S084-76-677	1				
93-2804		PIPE, VINYL			
99328-04010	1	L=10M CUT IT TO USE			

6720 A WINDSHIELD WASHER
(W/ANTI LOCK BRAKE)

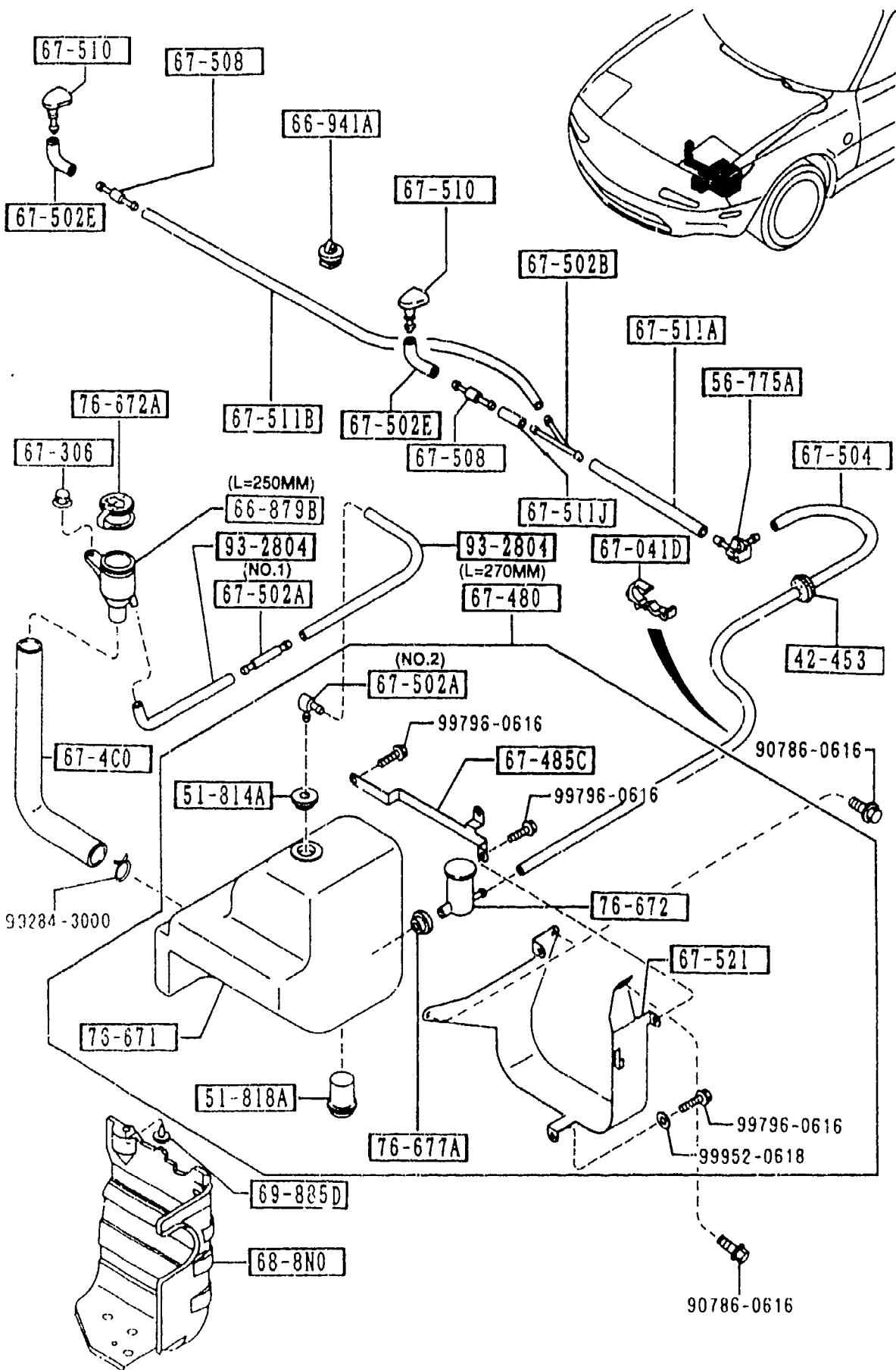
6720 A-1 WINDSHIELD WASHER
(W/ANTI LOCK BRAKE)



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
42-453		PROTECTOR, CABLE			
B048-42-453	1				
51-814A		GROMMET, WASHER TANK			
B002-51-814	1				
51-818A		SWITCH, LEVEL - WASHER TANK			
NA17-67-488	1				
56-775A		CLIP, WASHER HOSE			
LA01-67-505B	1				
66-879B		JOINT			
NA17-67-4C2	1				
66-941A		CLIP			
GB08-66-941	3				
67-041D		CLIP, HARNESS			
B092-67-041	1				
67-306		NUT, WIPER LINK			
GJ21-67-306	1				
67-4C0		PIPE, FILLER-F. WASHER TANK			
NA17-67-4C1	1				
67-480		TANK, WASHER-FRONT			
NA17-67-4TOA	1				
67-485C		BRKT 'A', WASHER TANK-FRT			
NA18-67-521	1				
67-502A		JOINT, HOSE			
NA17-67-502	1	(ILLUST. NO.1)			
S013-67-502	1	(ILLUST. NO.2)			
67-502B		JOINT, HOSE			
H001-67-502	1				

6720 A WINDSHIELD WASHER
(W/ANTI LOCK BRAKE)

6720 A-2 WINDSHIELD WASHER
(W/ANTI LOCK BRAKE)

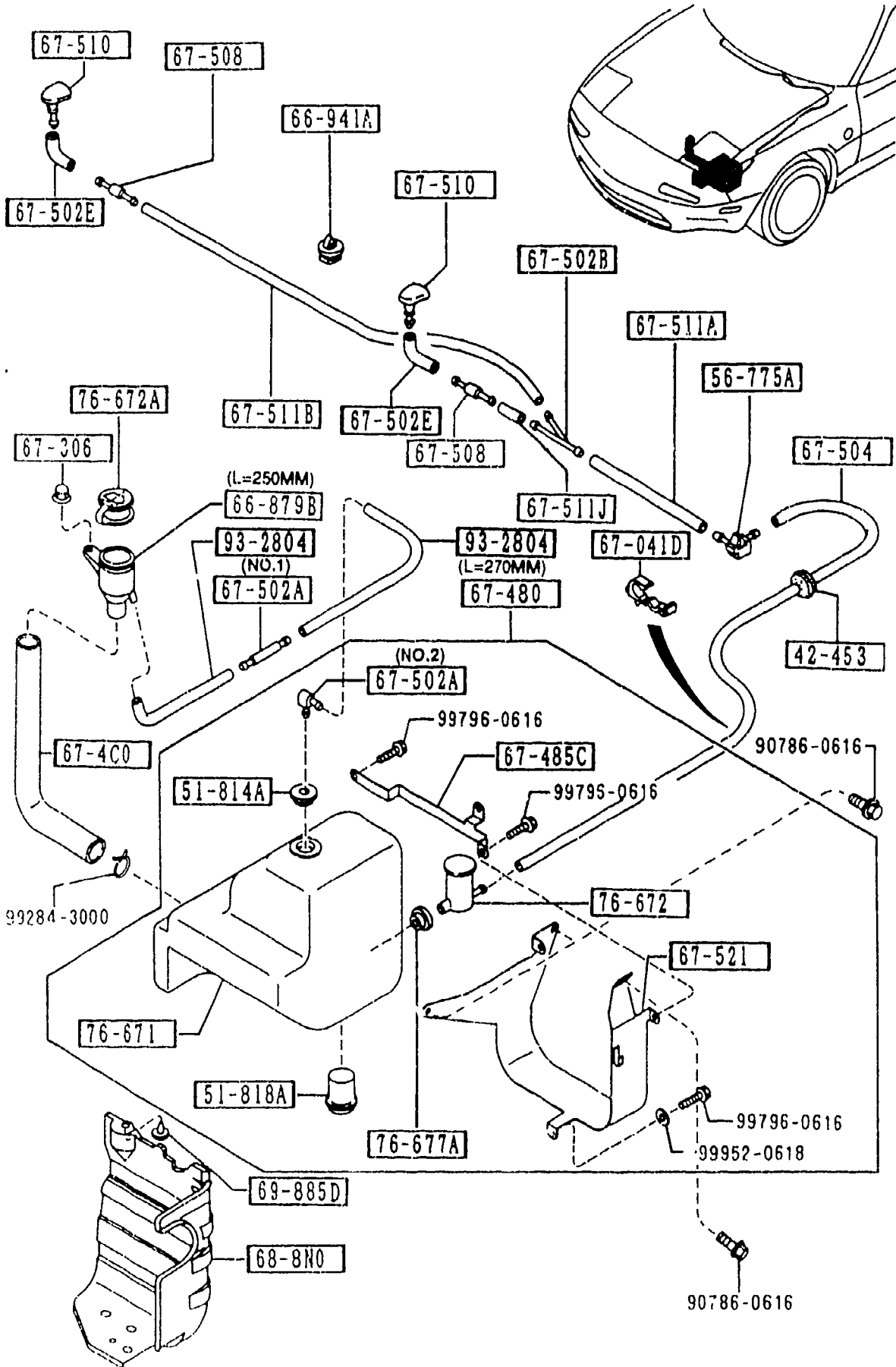


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
67-502E		JOINT, ELBOW-W. TANK			
S084-67-502	2				
67-504		HOSE 'C', WASHER			
NA17-67-501	1				
67-508		VALVE, CHECK			
FA54-67-506	2				-4901
DB05-67-502	2				4901-
67-510		NOZZLE, WASHER-F. WIND			
NA01-67-510	2				
67-511A		PIPE, SCREEN WASHER			
NA18-67-501	1				
67-511B		PIPE, SCREEN WASHER			
NA19-67-501	1				
67-511J		PIPE, SCREEN WASHER			
NA15-67-501	1				
67-521		BRACKET, WASHER TANK			
NA17-67-521	1				
68-8N0		COVER, WASHER TANK			
NA20-56-181A	1				
69-885D		FASTENER			
NA01-56-145	3				
76-671		TANK, WASHER			
NA17-67-4T1	1				
76-672		PUMP, WASHER			
LA01-67-482	1				-6401
*LB83-67-482	1				6401-
76-672A		CAP, TANK			
GJ21-67-483	1				

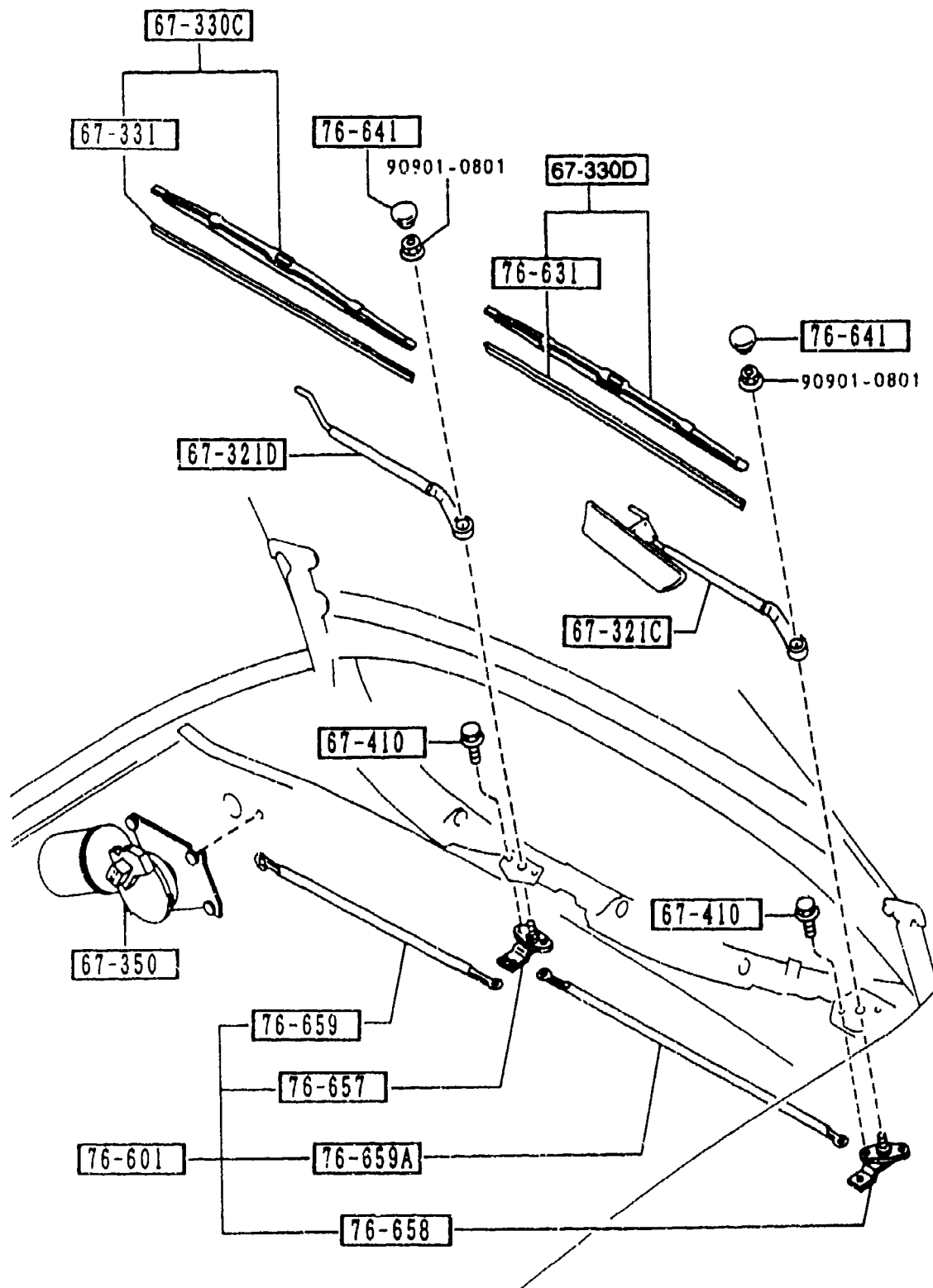
4901 NA35* -602618
6401 NA3** -717787

6720 A WINDSHIELD WASHER
(W/ANTI LOCK BRAKE)

6720 A-3 * WINDSHIELD WASHER
(W/ANTI LOCK BRAKE)

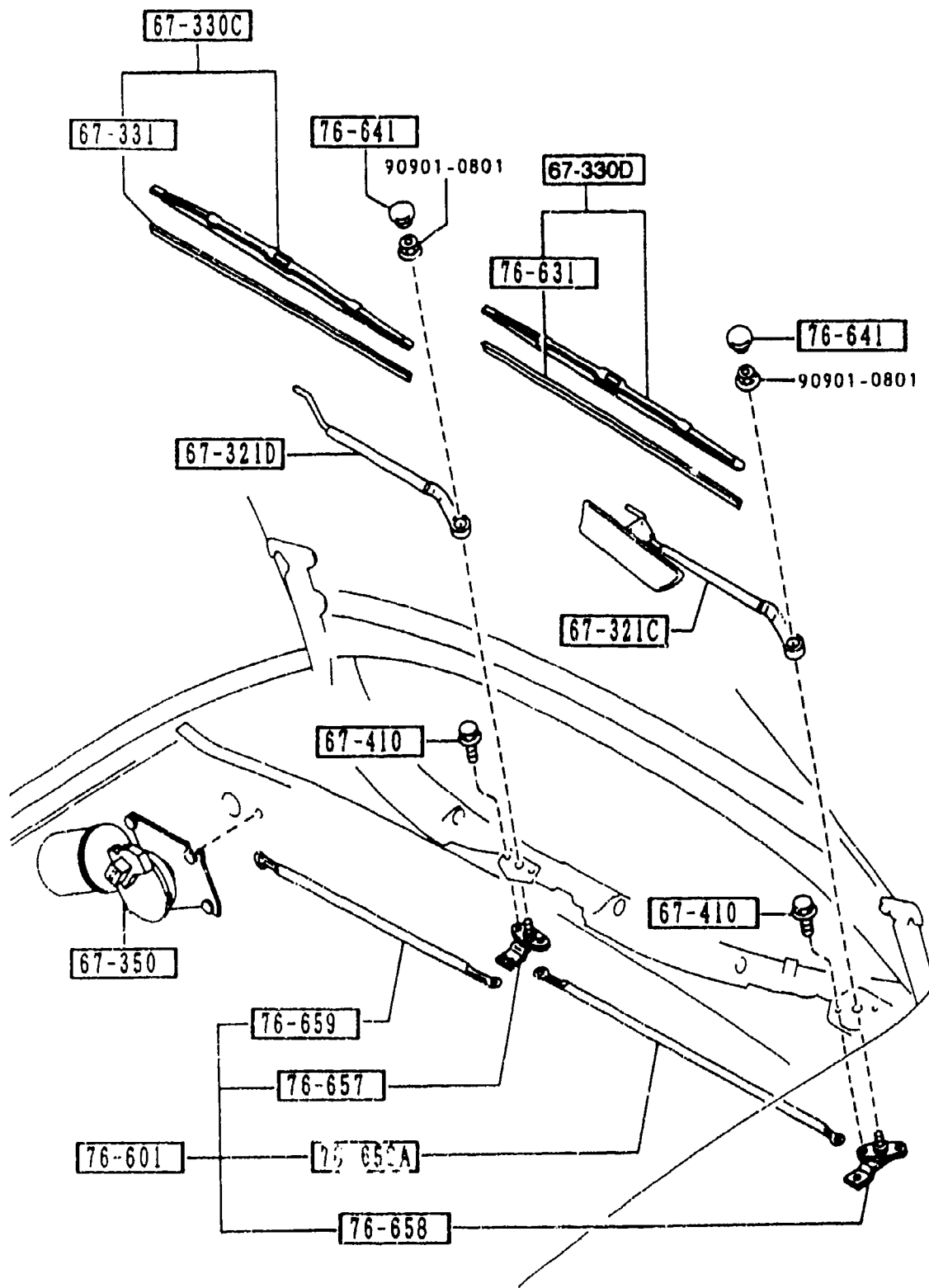


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
76-677A		GROMMET, WASHER TANK			
5081-76-677	1				
93-2804		PIPE, VINYL			
99328-04010	1	L=10M CUT IT TO USE			



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
67-321C	1	ARM, WIPER-DRIVER SIDE			
NA01-67-321	1				
67-321D	1	ARM, WIPER-PASS. SIDE			
NA02-67-321	1				
67-330C	1	BLADE(R), WIPER-FRONT			-5201
NA02-67-330A A (BR72-67-330B)	1				5201-
BR72-67-330B	1				
67-330D	1	BLADE(L), WIPER-FRONT			-5201
BM90-67-330B A (BM95-67-330B)	1				5201-
BM95-67-330B	1				
67-331	1	RUBBER, BLADE-FRONT			-5201
NA02-67-331	1				5201-
B461-67-331A	1				
67-350	1	MOTOR, WIPER			
NA01-67-340B	1	(EXC. COLD SPEC)			
NA04-67-340A	1	(COLD SPEC)			
67-410	4	BOLT			
B455-67-369	4				
76-601	1	LINK, WIPER			
NA01-67-360A	1				
76-631	1	RUBBER, BLADE-FRONT			-5201
D041-67-331	1				5201-
D040-67-331A	1				
76-641	2	COVER, WIPER ARM-FRONT			
LA01-67-395A	2				
76-657	1	SHAFT, DR NO. 1			
NA01-67-363	1				

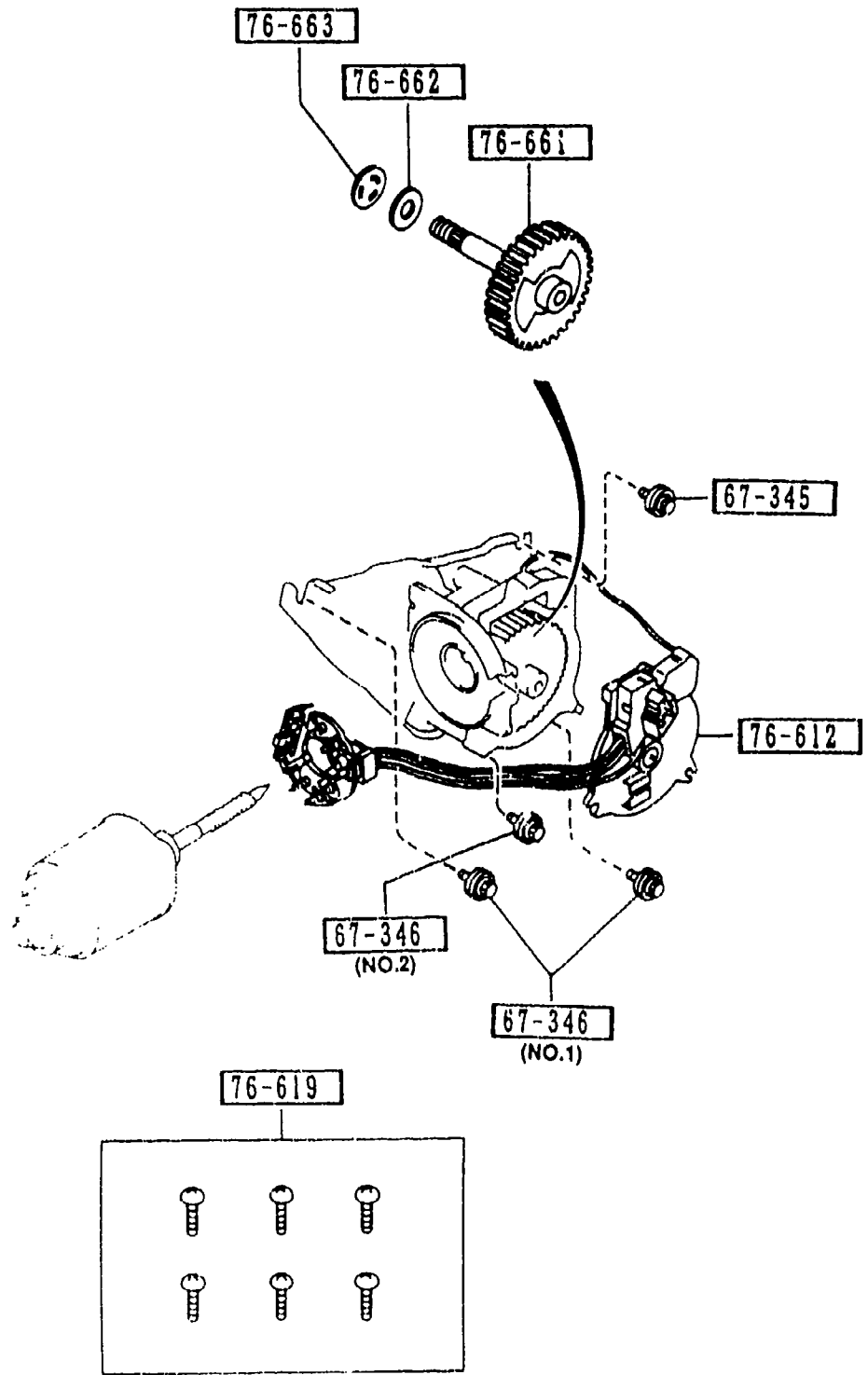
5201 NA35* -614193



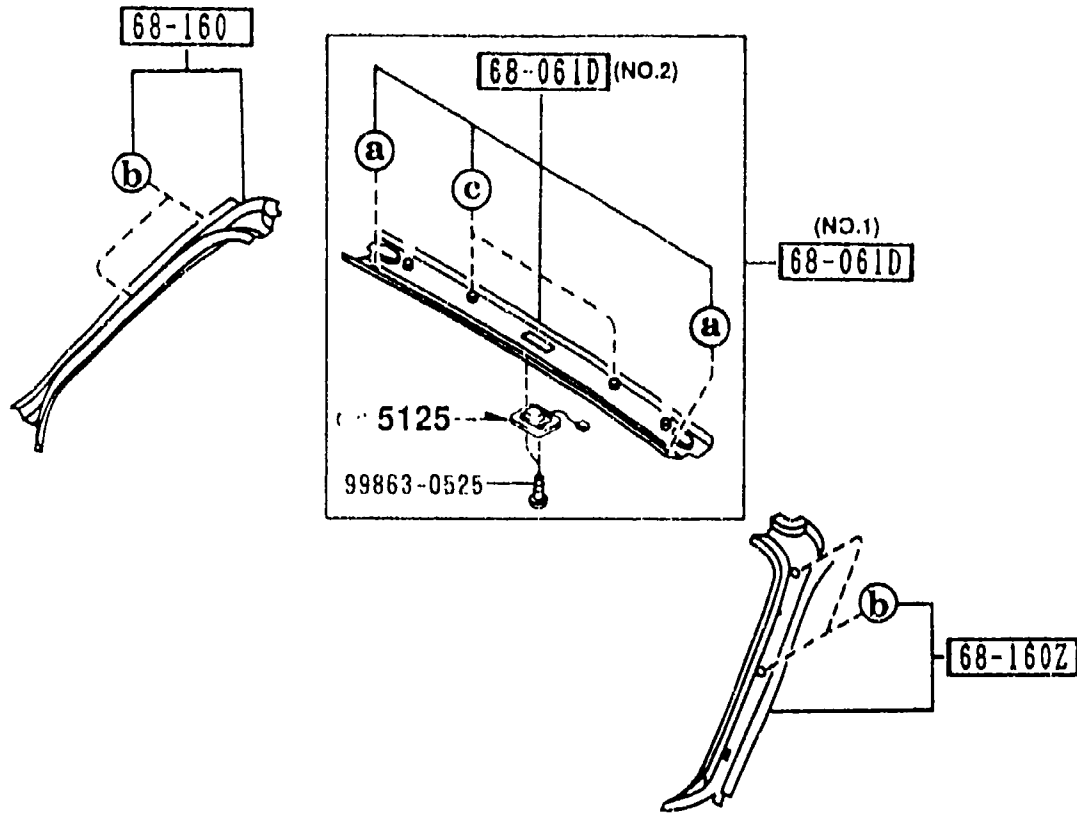
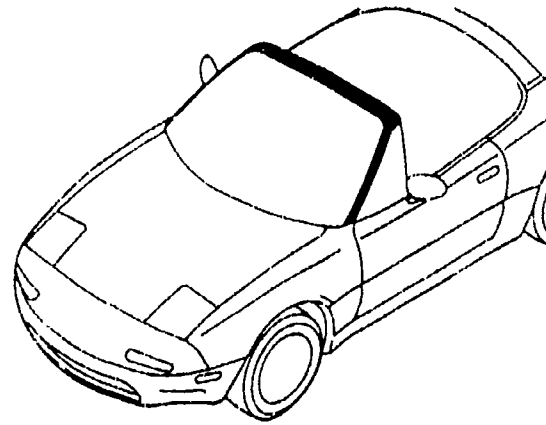
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
76-658		SHAFT, DRIVE NO. 2			
NA01-67-364	1				
76-659		ARM NO. 1, LINK			
NA01-67-361	1				
76-659A		ARM NO. 2, LINK			
NA01-67-362	1				



COMPONENTS OF NA01-67-340B
NA04-67-340A



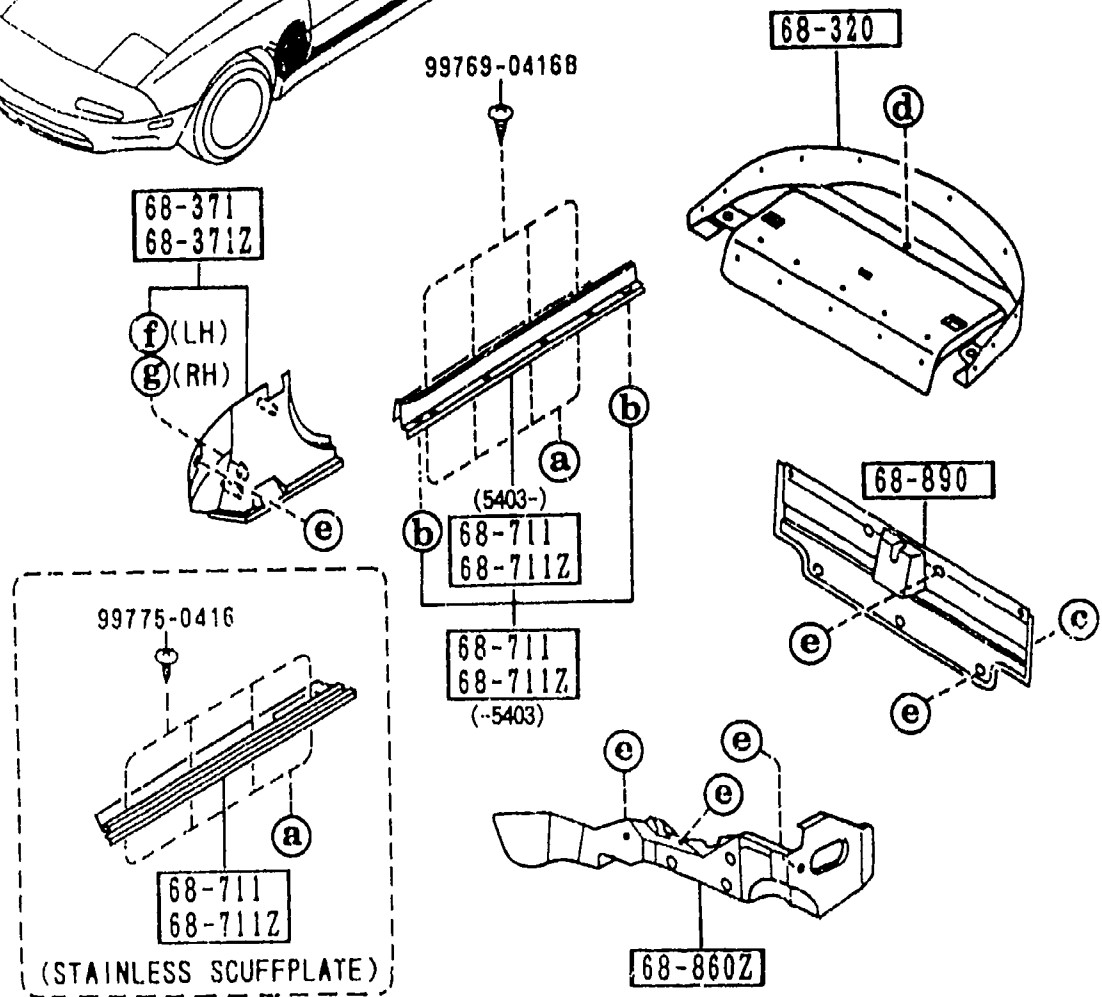
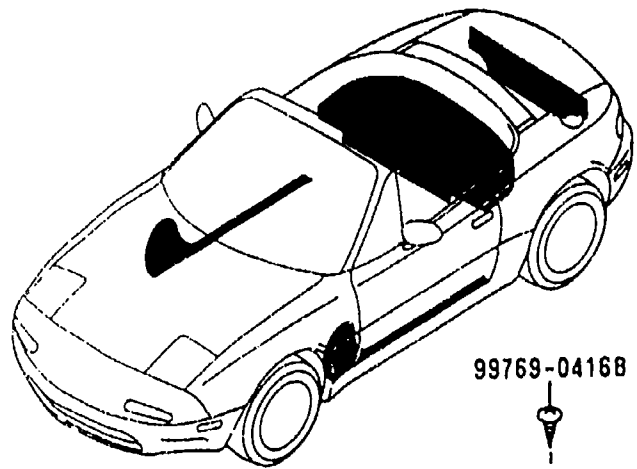
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
67-345	1	SCREW, EARTH SET-MOTOR BRK			
NA01-67-345					
67-346	2	SCREW, BRACKET-WIPER MOTOR			
NA01-67-346		(ILLUST. NO.1)			
NA23-67-346	1	(ILLUST. NO.2)			
76-612	1	PLATE, HOLDER-BRUSH			
NA23-67-351		(EXC. COLD SPEC)			
NA26-67-351	1	(COLD SPEC)			
76-619	1	PARTS SET			
H043-76-619A					
76-661	1	GEAR, SHAFT			
NA23-67-354					
76-662	1	WASHER			
B094-76-662					
76-663	1	WASHER, TOOTHED			
B094-76-663					



a	b	c
68-AD2	68-865S	68-865U

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
68-AD2		CLIP			
B455-68-AD2	2				
68-061D		TRIM, FRONT HEADER			
NA01-68-090A	1	(ILLUST. NO.2)			-5301
00	INT-	NA3 NA4 NA5 NA6 NA7 BLACK			
NB38-68-092A	1	(ILLUST. NO.1) ('96 MODEL)			-6418
00	INT-	NA3 NA4 NA5 NA6 NA7 NAB BLACK			
NA01-68-090B	1	(ILLUST. NO.2)			5301-5420
00	INT-	NA3 NA4 NA5 NA6 NA7 BLACK			
NA01-68-090C	1	(ILLUST. NO.2)			5420-6418
00	INT-	NA3 NA4 NA5 NA6 NA7 NAB BLACK			
*NA01-68-090D	1	(ILLUST. NO.2)			6418-
* 00	INT-	NA3 NA4 NA5 NA6 NA7 NAB BLACK			
68-160		TRIM(R), 'A'PILLAR			
NA01-68-160	1				
00	INT-	NA3 NA4 NA5 NA6 NA7 NAB BLACK			
68-160Z		TRIM(L), 'A'PILLAR			
NA01-68-170	1				
00	INT-	NA3 NA4 NA5 NA6 NA7 NAB BLACK			
68-865S		CLIP, TRIM			
GJ12-68-865	4				
68-865U		CLIP, TRIM			
GJ21-68-865	2				

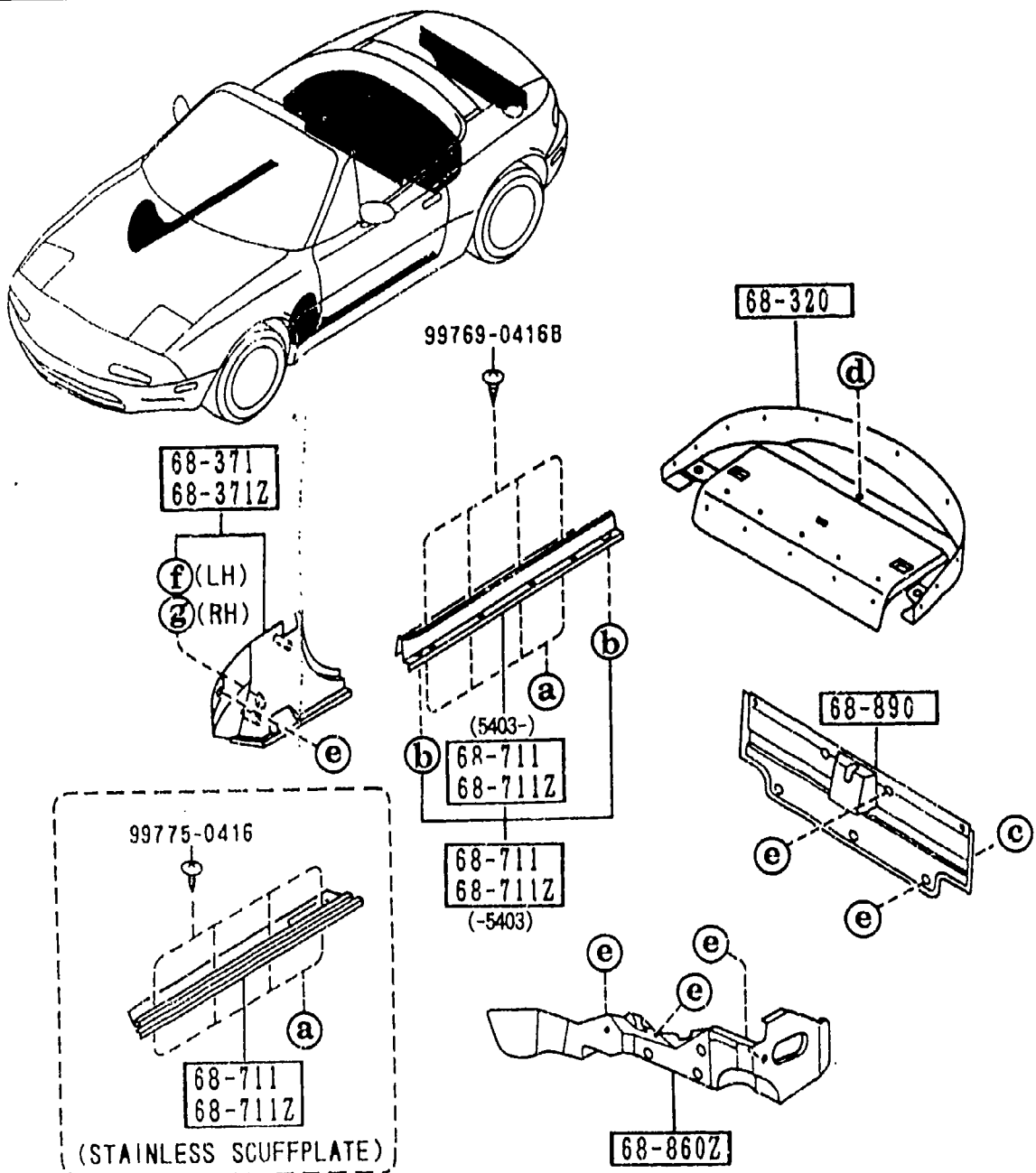
5301 NA35* -616742
 5420 NA35* -620023
 6418 NA35** -718226



a	b	c	d	e
68-402B	68-712B	68-86Y	68-865	68-865Q
f	g			
68-865S	68-865U			

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
68-320		TRAY, REAR PACKAGE			
NA01-68-3F1C	1	(UNWOVEN CLOTH) (*95 MODEL)			
00	INT-	NA3 BLACK			
88	INT-	NA4 NA5 TAN			
NB13-68-3F1	1	M-25-ED, (CUT PAIL CARPET) (*95 MODEL)			
33	INT-	NA5 TAN			
NB38-68-3F1	1	(*96 MODEL)			
02	INT-	NA3 NA7 BLACK			
88	INT-	NA4 NA5 TAN			
68-371		TRIM(R), FRONT SIDE			
NA75-68-370	1				
00	INT-	NA3 NA7 NA8 BLACK			
88	INT-	NA4 NA5 TAN			
68-371Z		TRIM(L), FRONT SIDE			
NA01-68-390	1				
00	INT-	NA3 NA7 NA8 BLACK			
88	INT-	NA4 NA5 TAN			
68-402B		GROMMET, SCREW			
FA54-68-719B	8				
68-711		PLATE(R), FRONT SCUFF			
NA01-68-710	1	(PLASTIC)			-5403
00	INT-	NA3 NA4 NA5 NA6 NA7 BLACK			
NA02-68-710 A (NA02-68-710A)	1	OPT, (STAINLESS)			-5901
NA01-68-711	1	(PLASTIC)			5403-
00	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			5901-
NA02-68-710A	1	OPT, (STAINLESS)			
68-711Z		PLATE(L), FRONT SCUFF			
NA01-68-720	1	(PLASTIC)			-5403

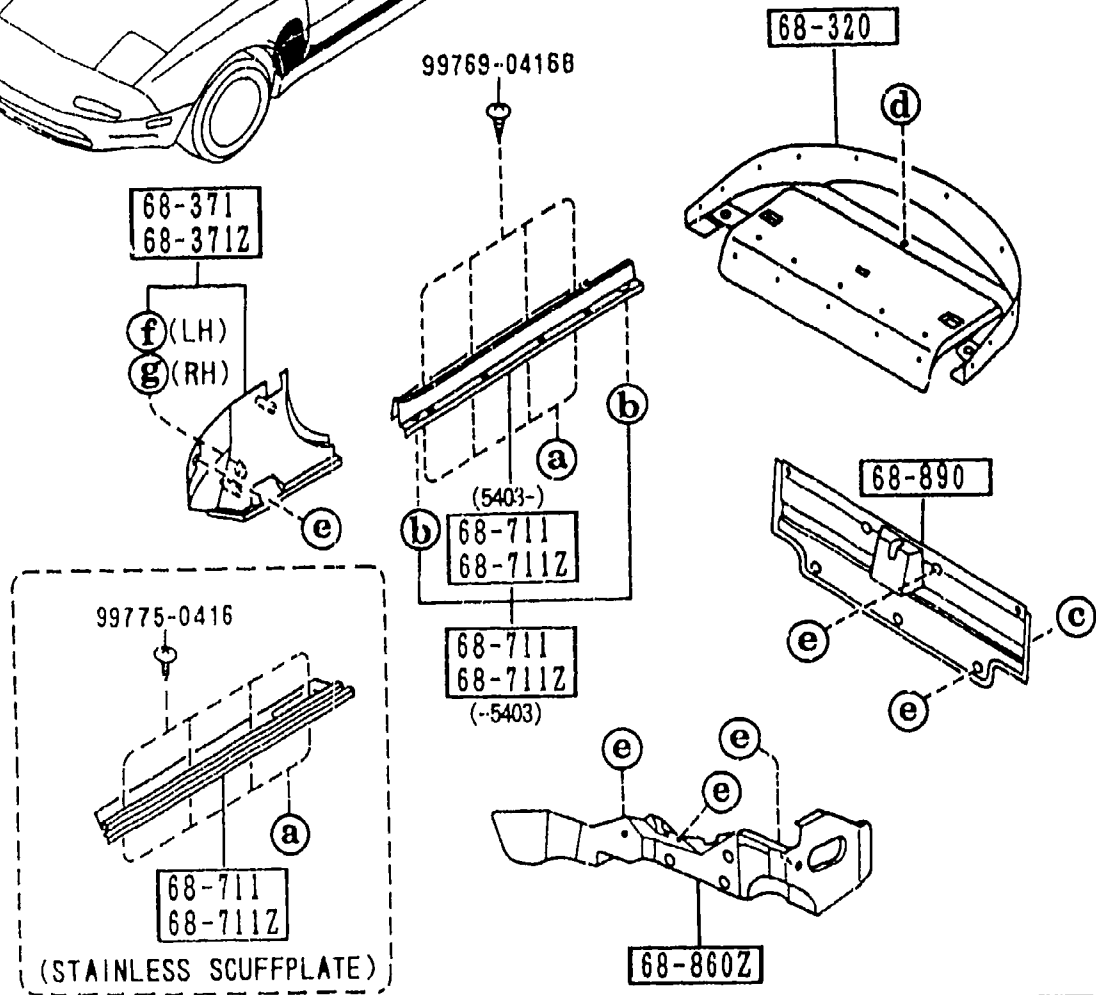
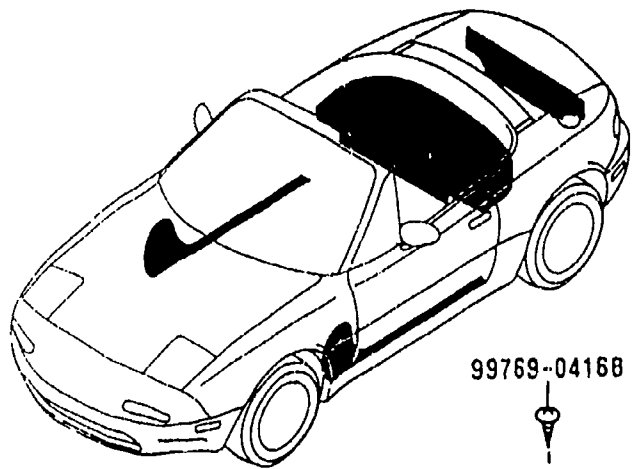
5403 NA35* -619601
5901 NA3** -702989



a	b	c	d	e
68-402B	68-712B	68-86Y	68-865	68-865Q
f	g			
68-865S	68-865U			

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D 00	INT-	NA3 NA4 NA5 NA6 NA7 BLACK			
NA02-68-720 A (NA02-68-720A)	1	OPT, (STAINLESS)			-5901
NA01-68-721	1	(PLASTIC)			5403-
00	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			5901-6101
NA02-68-720A AN(NA02-68-720B)	1	OPT, (STAINLESS)			6101-
*NA02-68-720B	1	OPT, (STAINLESS)			
68-712B		CLIP			
B235-68-712	4				-4801
68-86Y		CAP,SEAL-TRUNK END T RIM			
KA01-68-86YA	3				
68-860Z		TRIM(L),TRUNK SIDE			
N026-68-871	1				-5106
00	INT-	NA3 NA4 NA5 BLACK			
N026-68-871A	1				5106-
04	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			
68-865		FASTENER			
G032-68-865A	18				
00	INT-	NA3 BLACK			
67	INT-	NA5 TAN			
68-865Q		FASTENER			
GJ21-68-885B	12				
00	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			
88	INT-	NA4 NA5 TAN			
68-865S		CLIP,TRIM			
GJ12-68-865	1				
68-865U		CLIP,TRIM			
GJ21-68-865	1				







4801 NA35* -606043
 5106 NA35* -612163
 5403 NA35* -619601
 5901 NA3** -702989
 6101 NA3** -708969

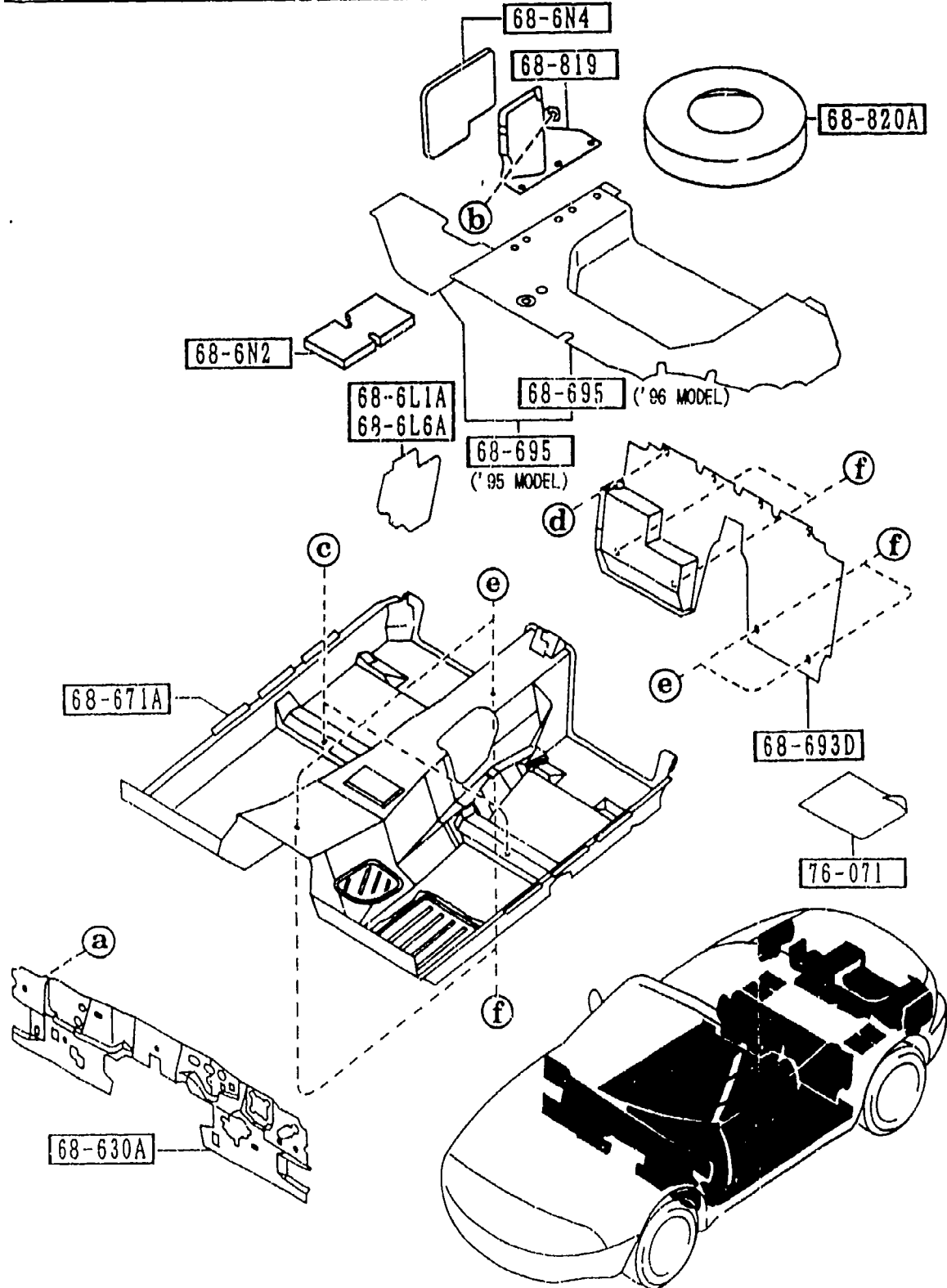


a	b	c	d	e
68-402B	68-712B	68-86Y	68-865	68-865Q
f	g			
68-865S	68-865U			

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
68-890		TRIM, TRUNK END			
NA01-68-891	1				-5106
00	INT-	NA3 NA4 NA5 BLACK			
NA01-68-891A	1				5106-
04	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			
5106 NA35* -612163					

6860 FLOOR MATS & PADS

a	b	c	d	e	f
68-615B	68-615B	69-885C	68-865	68-865D	68-866C
					
(NO.1)	(NO.2)				



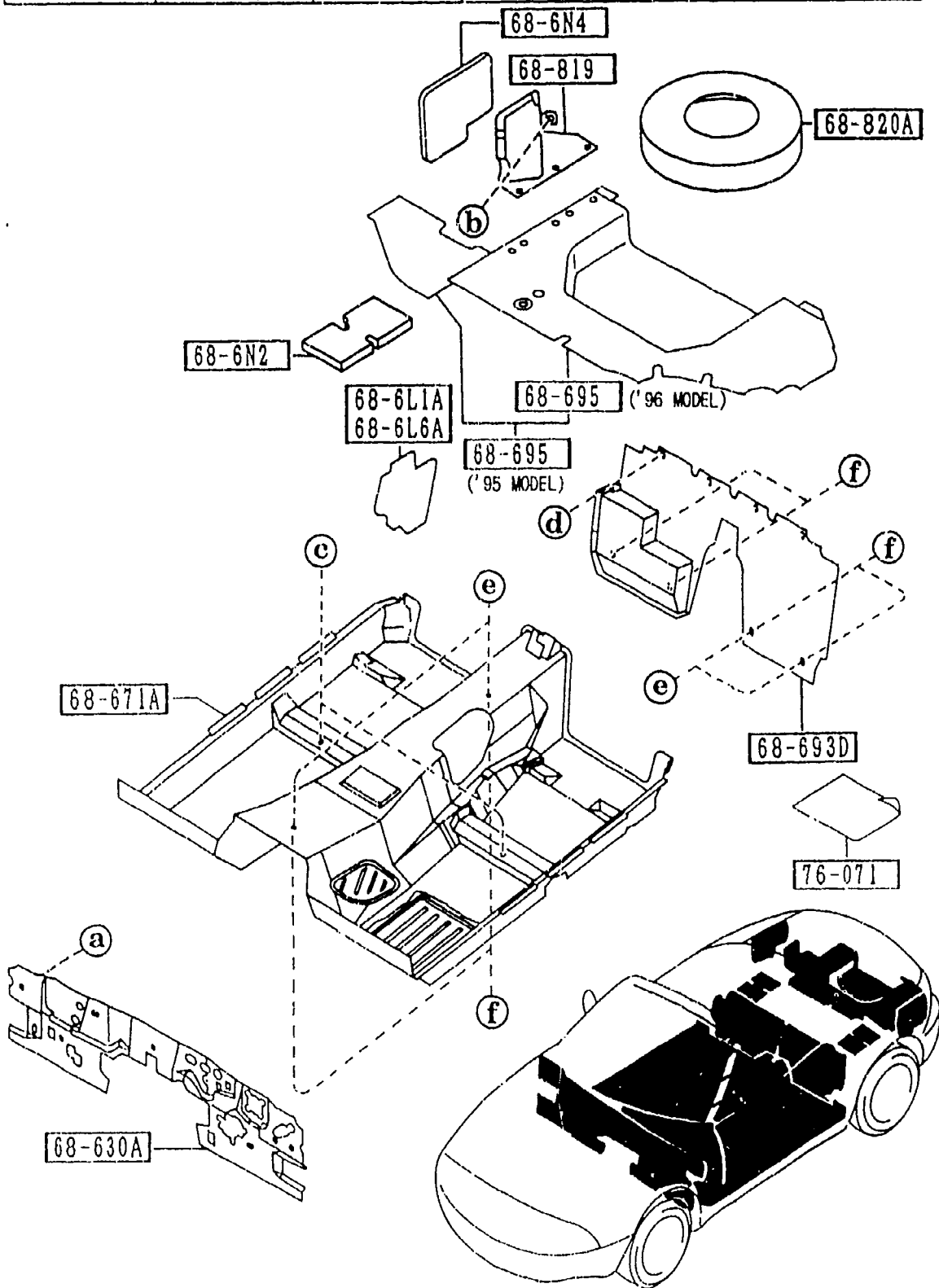
6860 -1 FLOOR MATS & PADS

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
68-6L1A		COVER(R), HOLE			
NA01-68-6L1	1				
68-6L6A		COVER(L), HOLE			
NA01-68-6L6	1				
68-6N2		INSULATOR, RR FLOOR			
NA01-68-6N2	2				
68-6N4		PAD, RR FENDER			
NA01-68-6N4	1				
68-615B		NUT, FLANGE-CAP			
B100-68-615	5	(ILLUST. NO.1)			
NA01-68-615	1	(ILLUST. NO.2)			
68-630A		INSULATOR, DASHBOARD			
NA01-68-631D	1				
68-671A		MAT, FLOOR			
NA75-68-670	1	BASE, P.E.GR, PKG-A, PKG-B, R-PKG, (UNWOVEN CLOTH, USA MAKE) ('95 MODEL)			
00	INT-	NA3 BLACK			
NA76-68-670A	1	L-PKG, PKG-C, (UNWOVEN CLOTH, JAPAN MAKE) ('95 MODEL)			
88	INT-	NA4 NA5 TAN			
NB13-68-670	1	M-25-ED, (CUT PAIL CARPET) ('95 MODEL)			
33	INT-	NA5 TAN			
NB58-68-670	1	('96 MODEL)			-6601
02	INT-	NA3 BLACK			
88	INT-	NA4 NA5 TAN			
*NB38-68-670A	1	('96 MODEL)			6601-
*02	INT-	NA3 BLACK			
*88	INT-	NA4 NA5 TAN			

6601 NA3** -719621

6860 FLOOR MATS & PADS

(a)	(b)	(c)	(d)	(e)	(f)
68-615B	68-615B	69-885C	68-865	68-865D	68-866C
(NO.1)	(NO.2)				



6860 -2 FLOOR MATS & PADS

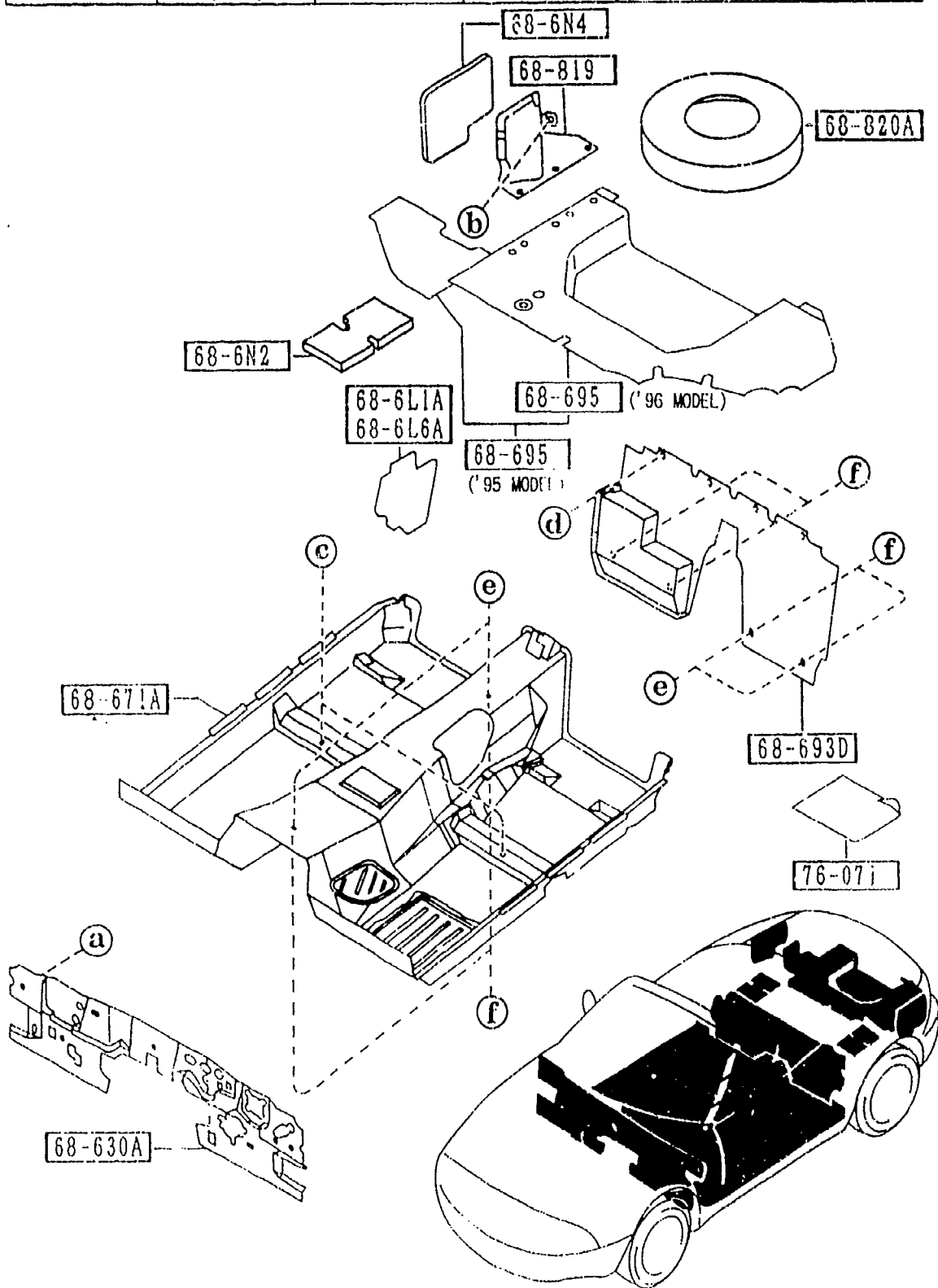
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
+-----+ 68-693D +-----+					
NA75-68-693	1	MAT, REAR END BASE, I.E.GR, PKG-A, PKG-B, R-PKG, (UNWOVEN CLOTH, USA MAKE) ('95 MODEL)			
00	INT-	NA3 BLACK			
NA76-68-693A	1	L-PKG, PKG-C, (UNWOVEN CLOTH, JAPAN MAKE) ('95 MODEL)			
88	INT-	NA4 NA5 TAN			
NR13-68-693	1	M-25-ED, (CUT PAIL CARPET) ('95 MODEL)			
33	INT-	NA5 TAN			
NB38-68-693	1	('96 MODEL)			
02	INT-	NA3 BLACK			
88	INT-	NA4 NA5 TAN			
+-----+ 68-695 +-----+					
NA01-68-811A	1	MAT, TRUNK ROOM ('96 MODEL)			
04	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			-5106
N026-68-811A	1	('95 MODEL)			
00	INT-	NA3 NA4 NA5 BLACK			5106-
N026-68-811B	1	('95 MODEL)			
04	INT-	NA3 NA4 NA5 NA6 NA7 BLACK			
+-----+ 68-819 +-----+					
NA01-68-819B	1	COVER, BATTERY			-5106
00	INT-	NA3 NA4 NA5 BLACK			
NA01-68-819C	1				5106-
04	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			
+-----+ 68-820A +-----+					
NA01-68-8P9A	1	COVER, SPARE TIRE			
+-----+ 68-865 +-----+					
G032-68-865A	4	FASTENER			

5106 NA35* -612163



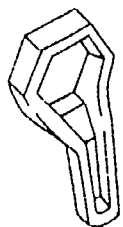
6860 FLOOR MATS & PADS

(a)	(b)	(c)	(d)	(e)	(f)
68-615B 	68-615R 	69-885C 	68-865 	68-865D 	68-866C
(NO.1)	(NO.2)				



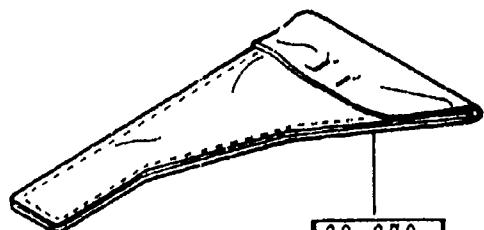
6860 -3 * FLOOR MATS & PADS

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTEICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
00	INT-	NA3 BLACK			
67	INT-	NA5 TAN			
		+-----+ | 68-865D | +-----+			
S083-68-865A	4	FASTENER			
00	INT-	NA3 NA7 NA8 BLACK			
88	INT-	NA4 NA5 TAN			
		+-----+ | 68-866C | +-----+			
B235-68-865A	4	FASTENER, SEAL			
		L-PKG, PKG-C, (UNWOVEN CLOTH, JAPAN MAKE) ('95 MODEL)			
B235-68-865A	6	M-25-ED, BASE, P.E.G R, PKG-A, PKG-B, R-P KG, (CUT PAIL CARPET) (UNWOVEN CLOTH, USA M AKE) ('95 MODEL)			
B235-68-865A	4	('96 MODEL)			
		+-----+ | 69-885C | +-----+			
UB54-68-885	2	FASTENER			
00	INT-	NA3 NA4 NA5 NA6 NA7 NA8 BLACK			
		+-----+ | 76-071 | +-----+			
0208-76-071	1	SILENCER, FLOOR 30CMX30CM			



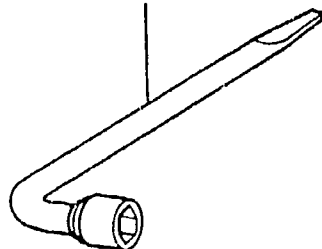
68-071

68-660A

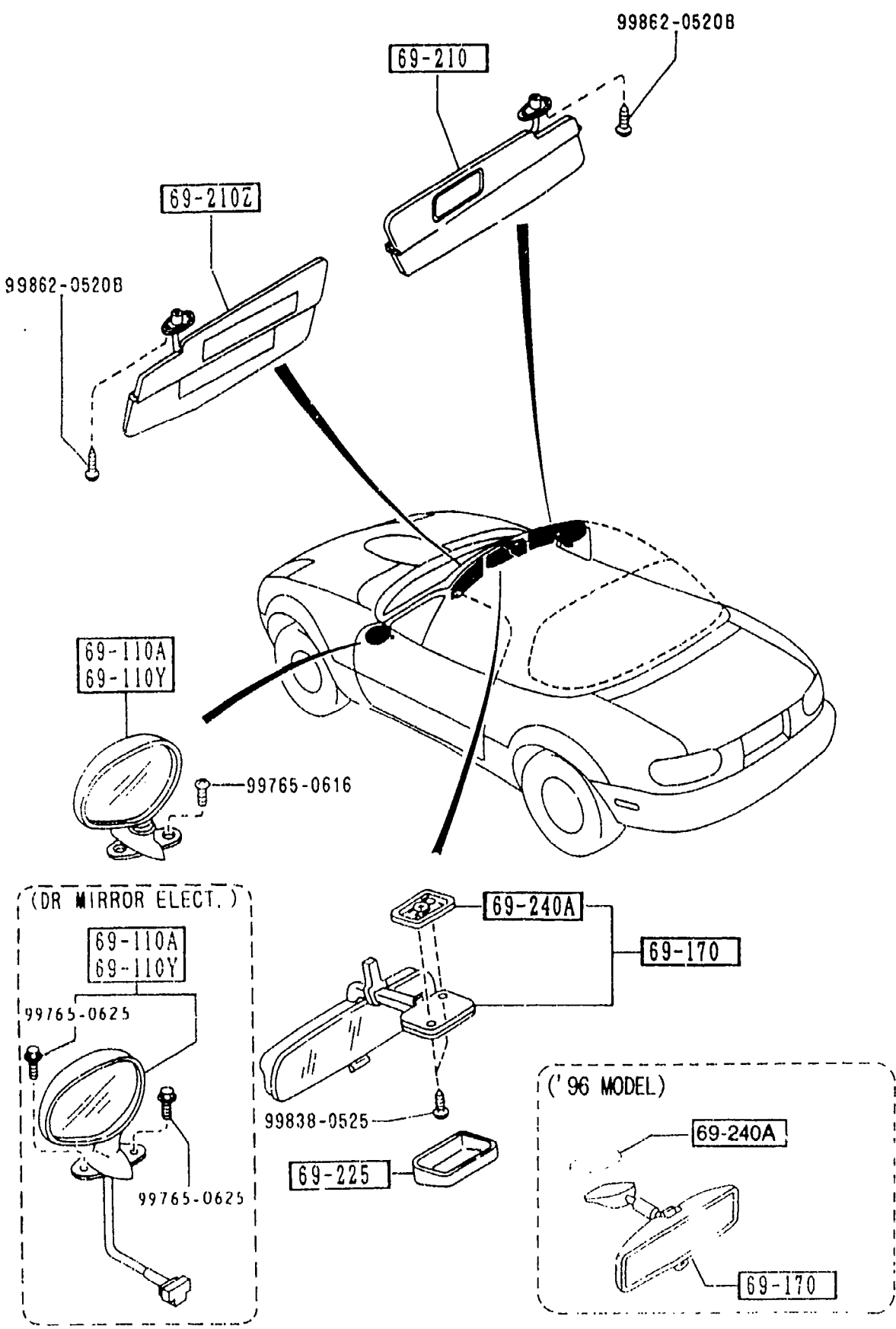


68-670

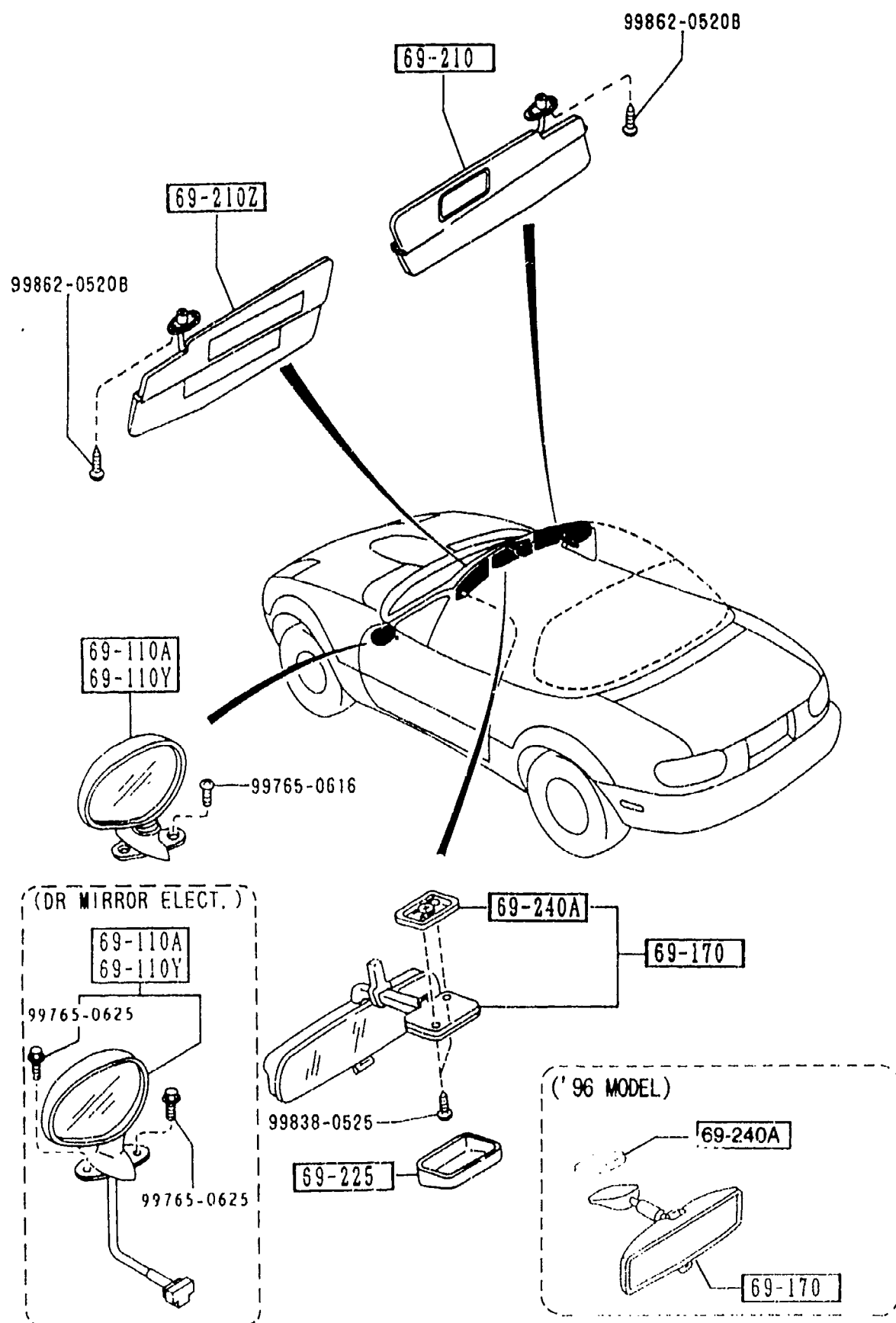
68-070



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
68-070		WRENCH,HUB NUT			
NA01-68-070	1				
68-071		WRENCH,WHEEL CAP			
F057-68-071	1				
68-660A		TOOL SET			
NA01-69-650	1				
68-670		BAG,TOOL			
NA01-69-670	1				

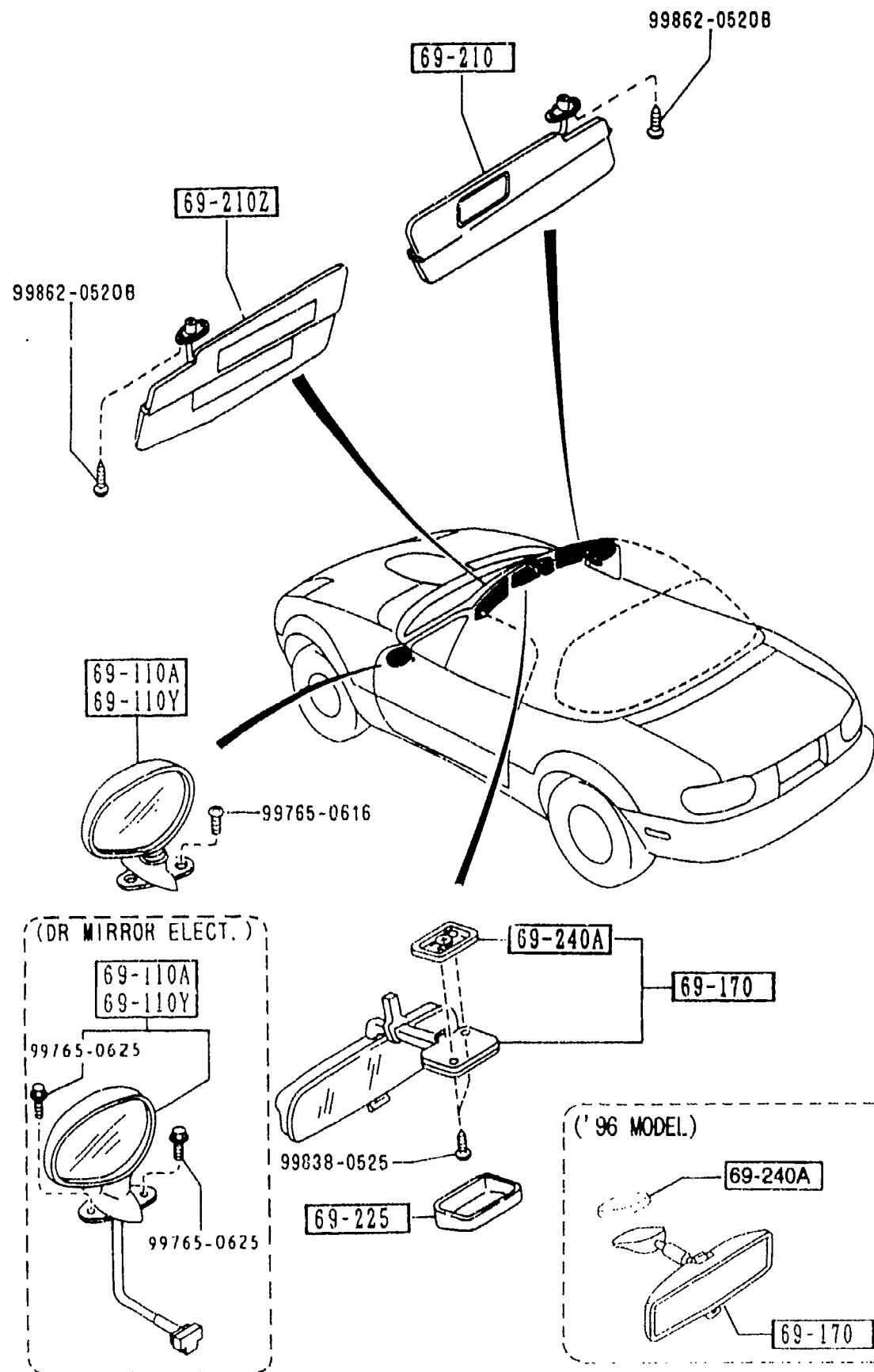


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
69-110A		MIRROR(R), DOOR			
NA52-69-120C	1	M-25-ED, P.E.GR, L-P KG, PKG-A, PKG-B, PK G-C, (ELECT.)			
* A5	EXT-	A5 SATELLITE BLUE MC			
HU	EXT-	HU NEO GREEN			
M8	EXT-	M8 MONTEGO BLUE M			
PT	EXT-	PT CHAST WHITE			
PZ	EXT-	PZ BRILLIANT BLACK			
SU	EXT-	SU CLASSIC RED			
18	EXT-	A1Q ARTVIN RED MC			
6W	EXT-	6W LAGUNA BLUE M			
NA05-69-120B	1	BASE, R-PKG, (MANUAL)			-5201
HU	EXT-	HU NEO GREEN			
PT	EXT-	PT CHAST WHITE			
PZ	EXT-	PZ BRILLIANT BLACK			
SU	EXT-	SU CLASSIC RED			
6W	EXT-	6W LAGUNA BLUE M.			
NA05-69-120C	1	BASE, R-PKG, (MANUAL)			5201-
* A5	EXT-	A5 SATELLITE BLUE MC			
HU	EXT-	HU NEO GREEN			
M8	EXT-	M8 MONTEGO BLUE M			
PT	EXT-	PT CHAST WHITE			
PZ	EXT-	PZ BRILLIANT BLACK			
SU	EXT-	SU CLASSIC RED			
18	EXT-	A1Q ARTVIN RED MC			
6W	EXT-	6W LAGUNA BLUE M.			
69-110Y		MIRROR(L), DOOR			
NA52-69-180C	1	M-25-ED, P.E.GR, L-P KG, PKG-A, PKG-B, PK G-C, (ELECT.)			
* A5	EXT-	A5 SATELLITE BLUE MC			
HU	EXT-	HU NEO GREEN			
M8	EXT-	M8 MONTEGO BLUE M			
5201 NA35* -614193					

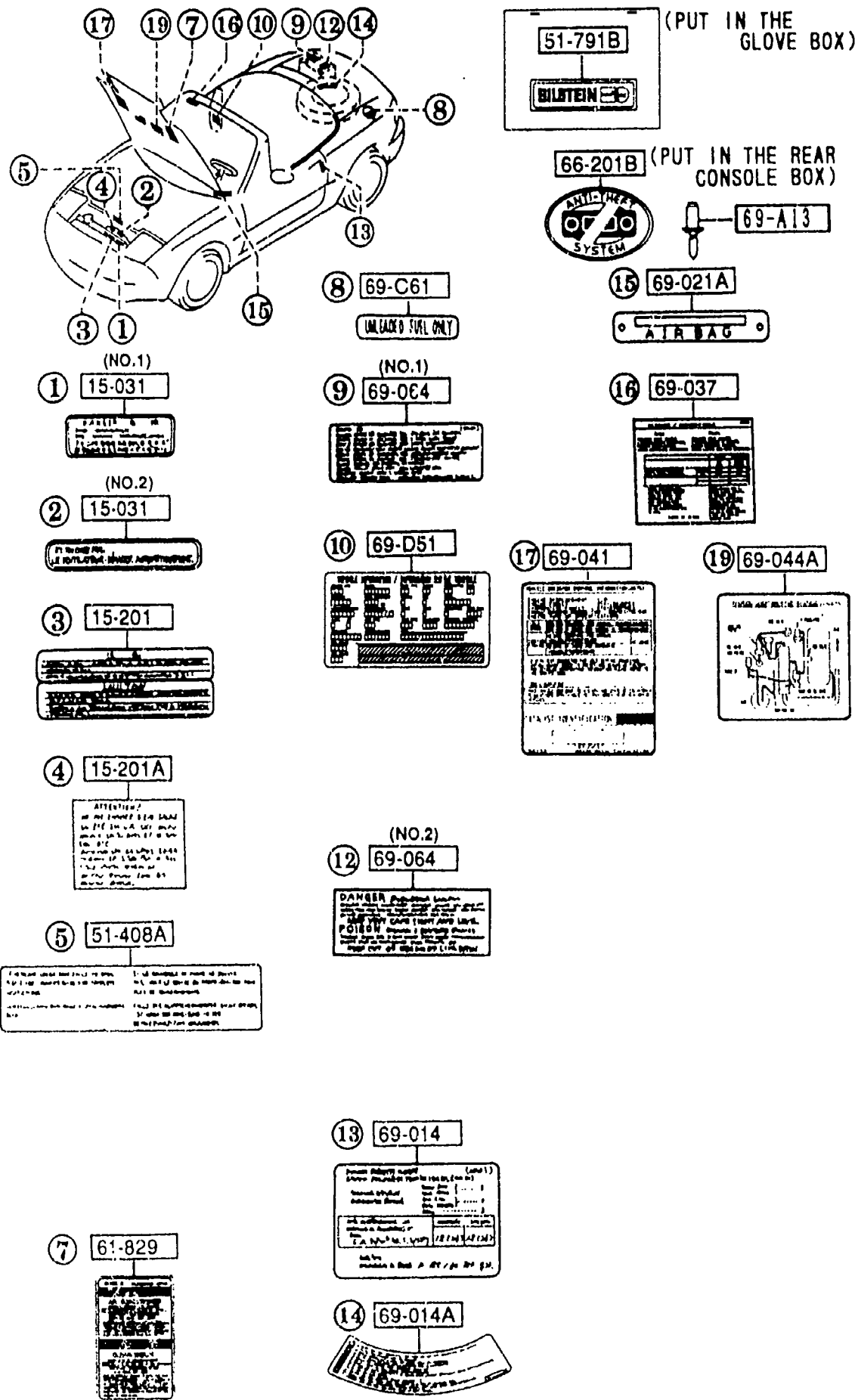


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
PT	EXT-	PT CHAST WHITE			
PZ	EXT-	PZ BRILLIANT BLACK			
SU	EXT-	SU CLASSIC RED			
18	EXT-	A1Q ARTVIN RED MC			
6W	EXT-	6W LAGUNA BLUE M.			
NA05-69-180B	1	BASE, R-PKG, (MANUAL)			-5201
HU	EXT-	HU NEO GREEN			
PT	EXT-	PT CHAST WHITE			
PZ	EXT-	PZ BRILLIANT BLACK			
SU	EXT-	SU CLASSIC RED			
6W	EXT-	6W LAGUNA BLUE M.			
NA05-69-180C	1	BASE, R-PKG, (MANUAL)			5201-
* A5	EXT-	A5 SATELLITE BLUE MC			
HU	EXT-	HU NEO GREEN			
M8	EXT-	M8 MONTEGO BLUE M			
PT	EXT-	PT CHAST WHITE			
PZ	EXT-	PZ BRILLIANT BLACK			
SU	EXT-	SU CLASSIC RED			
18	EXT-	A1Q ARTVIN RED MC			
6W	EXT-	6W LAGUNA BLUE M.			
		69-170	MIRROR, INTERIOR		
HG82-69-220A	1		('96 MODEL)		
NA01-69-220A	1		('95 MODEL)		
		69-210	SUN VISOR(R)		
NB12-69-270A	1		(W/AIR BAG-DRIV.&PAS S. SIDE)		
02	INT-	NA3 NA4 NA5 NA7 NA8 BLACK			
		69-210Z	SUN VISOR(L)		
NB11-69-320A	1		('95 MODEL)		
02	INT-	NA3 NA4 NA5 NA7 BLACK			
NB11-69-320B	1		('96 MODEL)		

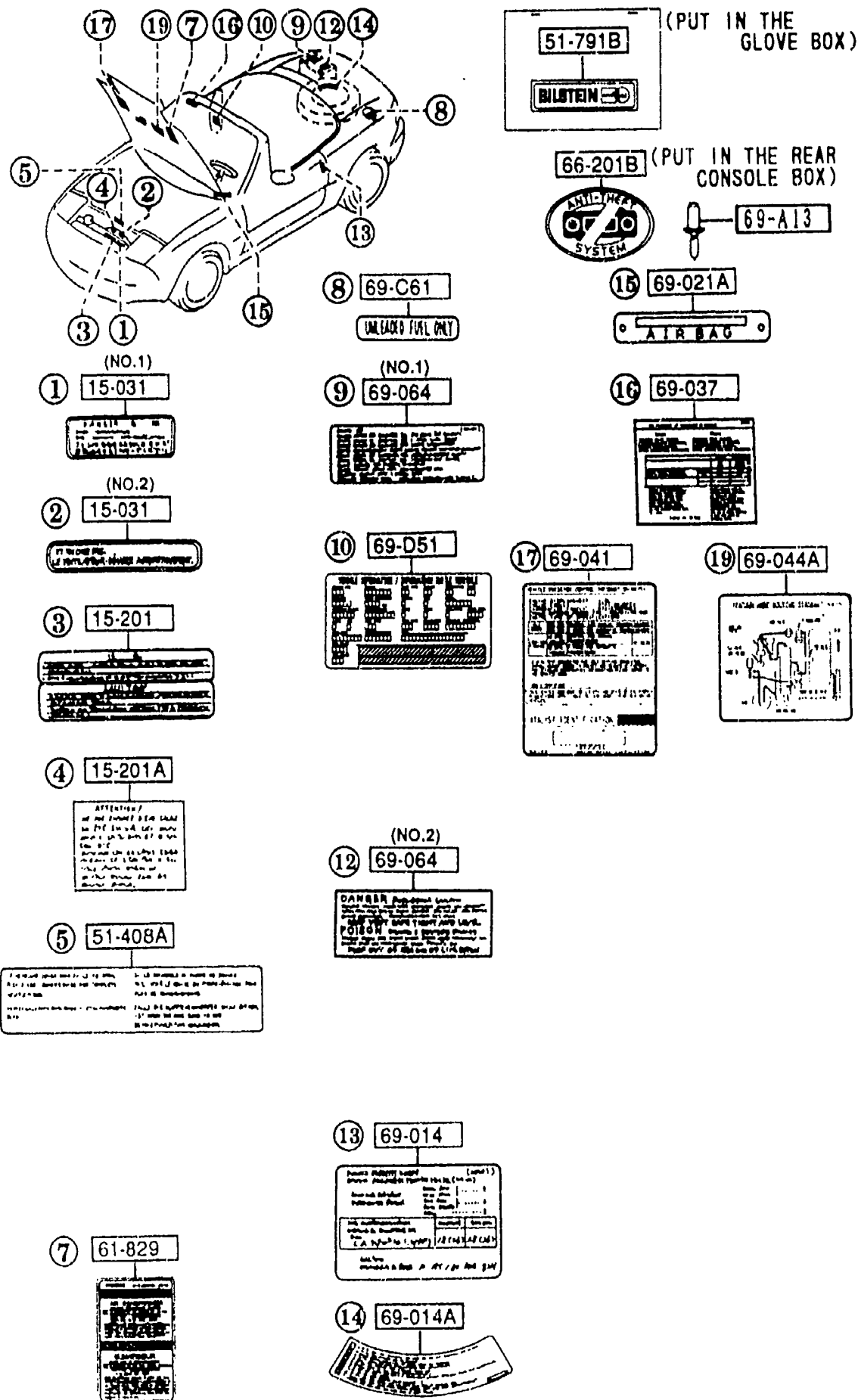
5201 NA35* -614193



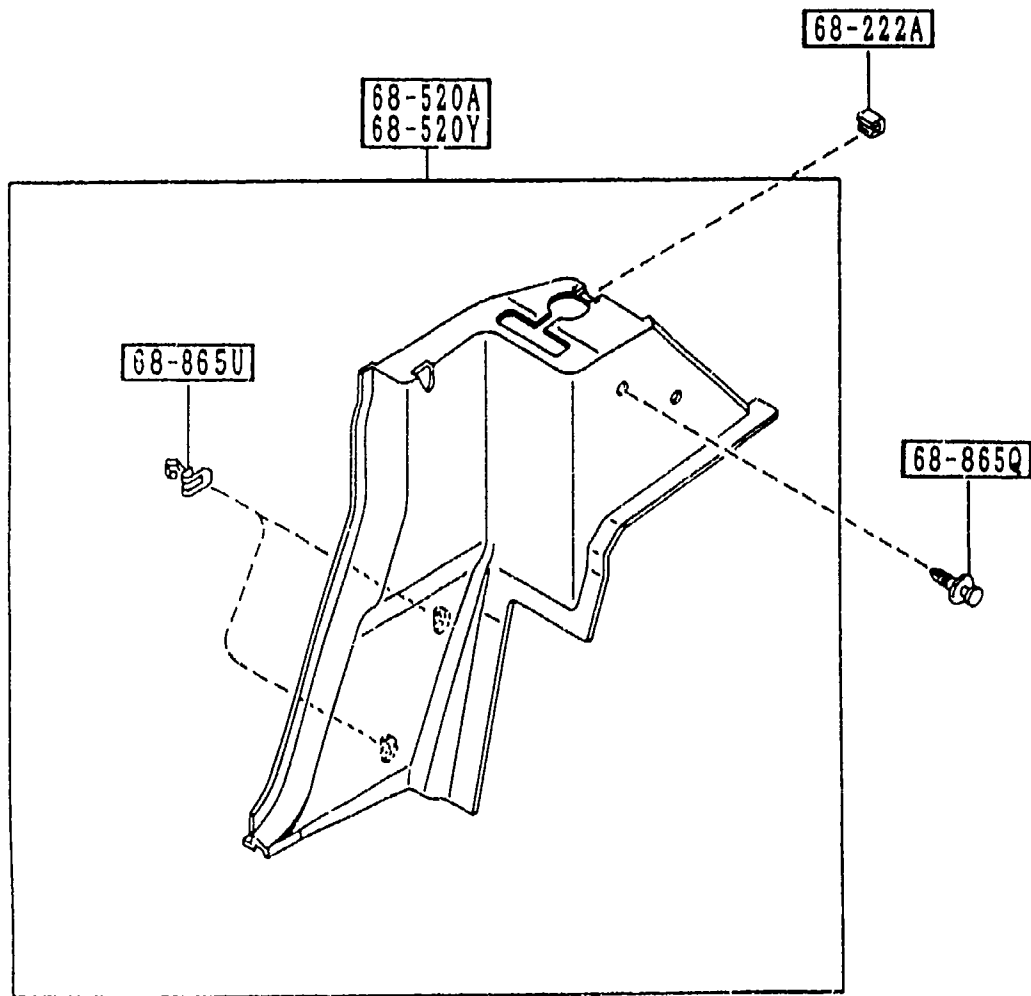
PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D					
02	INT-	NA3 NA4 NA5 NA7 NA8 BLACK			
		-----+ | 69-225 | +-----+			
GJ21-69-225	1	COVER, INTERIOR MIRROR ('95 MODEL)			
00	INT-	NA3 NA4 NA5 NA6 NA7 BLACK			
		-----+ | 69-240A | +-----+			
BC1C-69-240	1	BASE, INTERIOR MIRROR ('96 MODEL)			
NA01-69-240	1	('95 MODEL)			



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
15-031	1	LABEL, CAUTION			
B660-15-031	1	ENGLISH (ILLUST. NO.1)			
E508-15-031	1	FRENCH (ILLUST. NO.2)			
15-201	1	PLATE, CAUTION			
0488-15-201	1				
15-201A	1	LABEL, CAUTION-RADIATOR			
8791-15-201	1	OR			
51-408A	1	LABEL, CAUTION-RETRACTABLE			
NA04-51-S02	1				
51-791B	1	LABEL, BILSTEIN			
N021-51-790	1	(BILSTEIN DAMP.)			
61-829	1	LABEL, CAUTION			
FD16-61-439B	1	(A)			
66-201B	1	LABEL, ANTI THEFT-AUDITO			
NA01-66-201	1				
69-A13	2	RIVET, BAND-MODEL PLATE			
GJ21-69-A13	2				
69-C61	1	LABEL, UNLEADED FUEL			
UB40-69-C61	1				
69-D51	1	LABEL, VEHICLE INFORMATION			
B001-69-D51	1	VIN NO. IS REQUIRED			
69-014	1	LABEL, TIRE			
NA01-69-014	1				
A (NA01-69-014A)	1				
NA01-69-014A	1				
69-014A	1	LABEL, TEMPORARY TIRE			
BF68-69-073	1	ENGLISH			
4A01 NA35* -603621					



PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D BF69-69-073B	1	FRENCH			
69-021A		PLATE, CAUTION			
NA01-69-068A	1				
69-037		LABEL, FUEL ECONOMY			
NB38-69-042	1	(W/FUEL CONSUMPTION LABEL) ('96 MODEL)			
69-041		LABEL, EMISSION			
NB11-69-036	1	ENGLISH ('95 MODEL)			
NB38-69-036	1	('96 MODEL)			
69-044A		LABEL, VAC. DIAPHRAGM			
NA75-69-044	1	('95 MODEL)			
NB38-69-044	1	('96 MODEL)			
69-064		LABEL, BATTERY			
FA03-69-C72A	1	(ILLUST. NO.1)			
FA01-69-064A	1	(ILLUST. NO.2)			

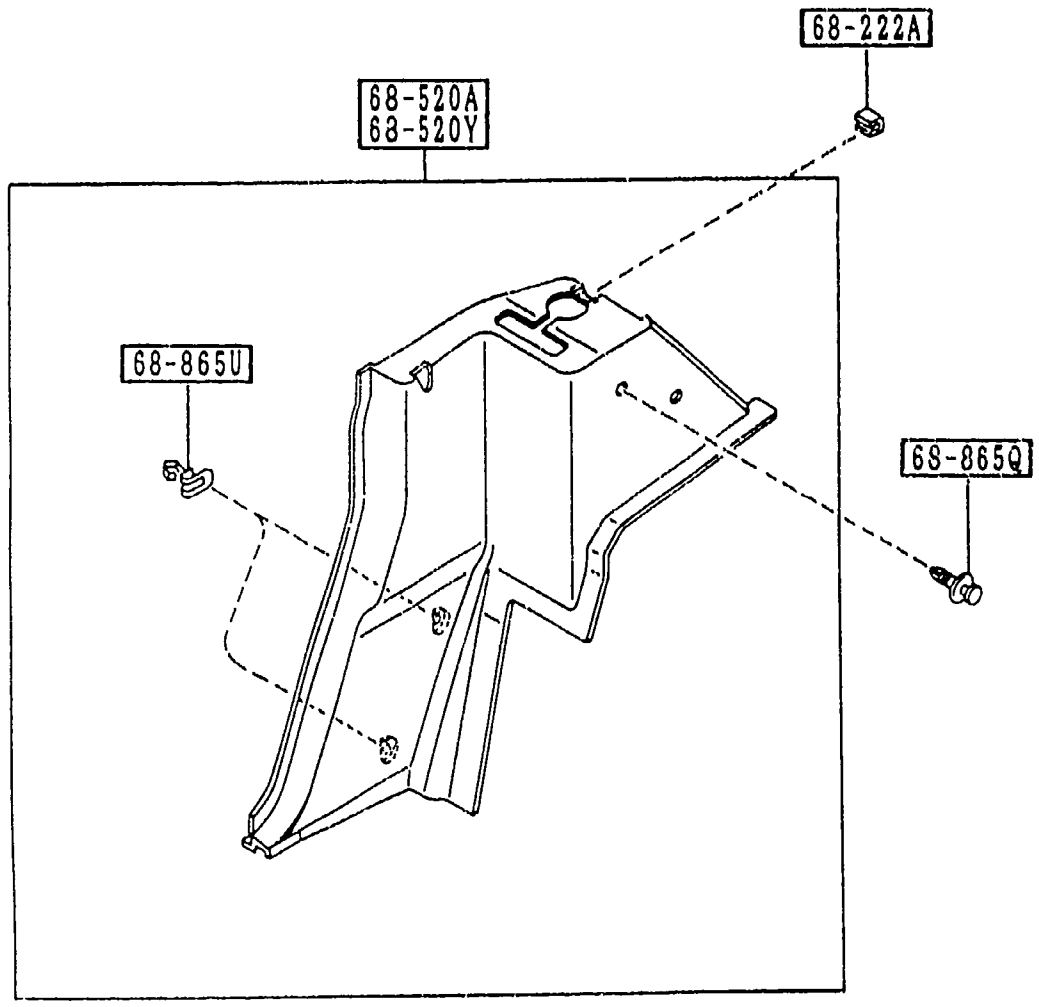


PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
68-222A		COVER, HOLE			
NA01-68-222A	2				
00	INT-	NA3 NA6 NA7 NA8 BLACK			
88	INT-	NA4 NA5 TAN			
68-520A		TRIM(R), QUARTER			
NA75-68-520	1	(W/O DETACHABLE HARD TOP)			
00	INT-	NA3 NA6 NA7 NA8 BLACK			
88	INT-	NA4 NA5 TAN			
NA76-68-520	1	OPT, (W/DETACHABLE HARD T OP)			
00	INT-	NA3 NA6 NA7 NA8 BLACK			
88	INT-	NA4 NA5 TAN			
68-520Y		TRIM(L), QUARTER			
NA75-68-550	1	(W/O DETACHABLE HARD TOP)			
00	INT-	NA3 NA6 NA7 NA8 BLACK			
88	INT-	NA4 NA5 TAN			
NA76-68-550	1	OPT, (W/DETACHABLE HARD T OP)			
00	INT-	NA3 NA6 NA7 NA8 BLACK			
88	INT-	NA4 NA5 TAN			
68-865Q		FASTENER			
GJ21-68-885B	2				-4B01
00	INT-	NA3 NA4 NA6 NA7 NA5 NA8 BLACK			
88	INT-	NA4 NA5 TAN			
B499-68-AC3	2				4B01-
00	INT-	NA3 BLACK			
69	INT-	NA5 TAN			
68-865U		CLIP, TRIM			

4B01 NA35* -606043

FWD

PART NO.	QTY	MODEL/RESTRICTION	MODEL/RESTRICTION	MODEL/RESTRICTION	FROM-TO
CONT'D GJ21-68-865	4				



FWD

3-J 6

PART NUMBER INDEX

This index is listed in the following sequence.

GENERAL PARTS

EXAMPLE

- ① Model/Type
Third, in the sequence of model/types (1st-4th digits)
- ② Group
First, in the sequence of group (5th & 6th digits)
- ③ Part
Second, in the sequence of part (7th-9th digits)

INDEX DES NOMBRES DE PIÈCES

Cet index a été composé selon la séquence suivante.

PIÈCES GÉNÉRALES

EXEMPLE

- ① Modèle/type
Troisièmement, séquence du modèle/type (1er à 4ème chiffres)
- ② Groupe
Premièrement, séquence du groupe (5ème et 6ème chiffres)
- ③ Pièce
Deuxièmement, séquence de la pièce (7ème à 9ème chiffres)

NUMERO INDICE DE PIEZA

Este indice se ordena en la siguiente secuencia.

PIEZAS GÉNÉRALES

EJEMPLO

- ① Tipo de modelo
Tercero, en la secuencia de tipo de modelo (entre las cifras 1ro-4to lugar)
- ② Grupo
Primero, en la secuencia de grupo (las cifras en 5to y 6to lugar)
- ③ Pieza
Segundo, en la secuencia de pieza (entre las cifras 7mo-9no lugar)

TEILENUMMERN

Die Teilenummern setzen sich wie folgt zusammen

ALLGEMEINE TEILE

BEISPIEL

- ① Modell/Typ
Angabe des Modells bzw. Type (1. bis 4. Ziffer)
- ② Baugruppe
Angabe der Baugruppe (5. und 6. Ziffer)
- ③ Teil
Angabe des Teils (7. bis 9. Ziffer)

① ② ③
┌───┬───┬───┐
B A 0 1 6 0 3 5 0

STANDARD PARTS

Standard Parts are listed in numerical sequence after General Parts.
(Note: Those parts which do not have D-Code are not listed in the index.)

PIÈCES STANDARD

Les pièces standard sont énumérées selon une séquence numérique, après les pièces générales.
(Remarque: Les pièces qui ne possèdent pas de code D ne sont pas mentionnés dans cet index.)

PIEZAS NORMALES

Las piezas normales se numeran secuencialmente después de las Piezas generales.
(Nota: Las piezas que no tienen un código D no están en el índice.)

STANDARDTEILE

Die Standardteile sind nach den allgemeinen Teilen mit fortlaufender Numerierung aufgeführt.
(Hinweis: Teile ohne D-Code sind nicht aufgeführt.)

***** * R1-000 *	NA01-R1-592A 2-J15 NA01-R1-711B 2-J15 NA01-R1-721B 2-J15 NA01-R1-731B 2-J15 NA01-R1-741B 2-J15 NA01-R1-742B 2-J15 NA01-R1-742C 2-J15 NA01-R1-750E 2-J15 NA01-R1-780C 2-J15 NA01-R1-786A 2-J15 NA01-R1-790C 2-K15 NB40-R1-810 A5 2-K15 NB40-R1-810 BU 2-K15 NB40-R1-810 MB 2-K15 NB40-R1-810 PT 2-K15 NB40-R1-810 PZ 2-K15 NB40-R1-810 SU 2-K15 N007-R1-810AHU 2-K15 N007-R1-810AMB 2-K15 N007-R1-810APT 2-K15	***** * 09-000 *	B3C7-10-602A 1-C5 FS05-10-602A 1-K3 SE01-10-715 1-H3 SE01-10-730 1-H3 B61P-10-901A 1-K3 B64J-10-901 1-K3 B64J-10-903 1-K3	***** * 11-000 *	B660-12-711C 1-D4 B660-12-730C 1-D4	***** * 13-000 *	BPE8-13-742 1-F3 B61P-13-742A 1-F3 BPE8-13-743 1-F3 BPE8-13-765A 1-J4 BPO5-13-890 1-F3 BPE8-13-895 1-G3 B61P-13-960 1-G4 B61P-13-97YA 1-O4 JE16-13-970A 1-G4 B6CA-13-971 1-G4 B6CA-13-972 1-G4 B61P-13-973A 1-G4 B61P-13-986 1-G3 RFG1-13-988A 2-F16	***** * 14-000 *	D316-15-205 1-F5 B61P-15-210B 1-G5 B61P-15-240A 2-D7 B61P-15-250A 2-D7 B61P-15-261A 1-E5 BPE8-15-270 1-G3 E301-15-287 1-G5 BPE8-15-290 1-G5 B61P-15-350D 1-G5 B61P-15-355A 1-G5 F201-15-388A 1-G5 BPE8-15-536 1-D5 B6BF-15-538 1-D5 1-G5 1-M4 1-D5 1-G5 1-M4 1-G5 1-H3	***** * 16-000 *	NA01-R1-100E 2-F15 NA01-R1-131 2-F15 NA01-R1-132 2-F15 NA01-R1-141 2-F15 NA01-R1-142 2-F15 NA01-R1-181 2-F15 NA01-R1-210J 2-F15 NA01-R1-210K 2-F15 NA01-R1-210L 2-F15 NA02-R1-210C 2-F15 NA02-R1-210E 2-F15 NA02-R1-210E 2-F15 NAY1-R1-211 2-F15	NC07-R1-810APZ 2-K15 N007-R1-810ASU 2-K15 N007-R1-810A6W 2-K15 NA06-R1-82X HU 2-K15 NA06-R1-82X MB 2-K15 NA06-R1-82X PT 2-K15 NA06-R1-82X PZ 2-K15 NA06-R1-82X SU 2-K15 NA06-R1-82X 6W 2-K15 NA01-R1-830A 2-K15 NA01-R1-861 2-L15 NA01-R1-863 2-L15 NA01-R1-864 2-L15 NA01-R1-865 2-L15 NA01-R1-866 2-L15 NA01-R1-867 2-L15 NA01-R1-868 2-M15 NA01-R1-869 2-M15 NA01-R1-871 2-M15 NA01-R1-874 2-M15	B660-10-106 1-E3 B660-10-126 1-E3 KL02-10-126 1-E3 B660-10-135A 1-E3 B630-10-138A 1-E3 KL01-10-155 1-C4 KL02-10-155 1-C4 BPE8-10-210A 1-E3 BPE8-10-210B 1-E3 BPE8-10-210C 1-E3 B61P-10-22X 1-E3 B6S7-10-22Y 1-E3 B6S7-10-225 1-E3 B61P-10-227 1-E3 BP05-10-235B 1-F3 BP05-10-235C 1-F3 BAN2-10-235 1-D3 BAN2-10-235A 1-D3 BPE8-10-241 1-F3 B660-10-241 1-F3	B6Y2-11-SE0 1-M3 B6Y2-11-SE0A 1-M3 B6Y2-11-SFX 1-M3 B6Y2-11-SFXA 1-M3 B6Y2-11-SFY 1-M3 B6Y2-11-SFYA 1-M3 B6Y2-11-SFO 1-M3 B6Y2-11-SFOA 1-M3 B6Y2-11-SGO 1-M3 B6Y1-11-SHX 1-M3 B6Y1-11-SHY 1-M3 B6Y1-11-SHO 1-M3 B6Y1-11-SJO 1-M3 B6Y1-11-SKX 1-M3 B6Y1-11-SKY 1-M3 B6Y1-11-SKO 1-M3 0221-11-205 1-L3 B6S7-11-210E 1-L3 B6S7-11-215A 1-L3 BP06-11-300C 1-L3	B61P-13-Z66 1-J4 BPE8-13-100C 1-E4 BPE8-13-100D 1-E4 F8L7-13-104 1-E4 JE08-13-104 1-M6 1010-13-104 1-E4 BP05-13-111 1-E4 BPE8-13-121 1-E4 FE4J-13-146 1-E3 BPE8-13-150 1-I4 AZ28-13-157 1-I15 8574-13-157 1-G4 1-I4 2-G3 1-I4 1-I15 1-I4 1-I4 BPE8-13-200 1-J4 B6BF-13-215 1-J4 BP06-13-250 1-I4	B675-13-158 1-I4 E580-13-161 1-I15 F8B3-13-164 1-I4 BPE8-13-200 1-J4 B6BF-13-215 1-J4 BP06-13-250 1-I4	8574-13-252 1-I4 G601-13-253 1-I4 8574-13-253 1-I4 JE06-13-257 1-I4 KJ01-13-280 1-I4 JE16-13-298 1-G4 F201-13-302A 1-J4 BPE8-13-320 1-J4 SLA1-13-321 1-J4 FE51-13-329 1-J4 BPE8-13-331A 1-J4 BPE8-13-331B 1-J4 E301-13-338A 1-F3 B61P-13-348 1-M6 S501-13-349 1-J4 BPE8-13-352 1-I15 BPE8-13-350 1-I15 B61P-13-363A 1-M6 FE51-13-363 1-J4 0222-13-363 2-F16	B6S8-14-100G 1-C5 B6S8-14-100H 1-C5 FS01-14-115 1-C5 JF01-14-115 1-C5 0324-14-116B 1-C5 0222-14-118 1-C5 B6BF-14-121 1-C5 FE1H-14-122A 1-C5 FE1H-14-124 1-C5 B6S7-14-132 1-C5 B6S8-14-133 1-C5 B6S7-14-141 1-C5 B6BF-14-190 2-F16 BPE8-14-240 1-C5 B6BF-14-248 1-C5 B6Y1-14-302 1-D5 B6Y1-14-302A 1-D5 BPE8-14-700 1-D5 KL01-14-702A 1-D5 N304-14-726 3-J4	***** * 15-000 *	***** * 17-000 *	NA01-R1-281 2-H15 NA01-R1-291 2-H15 NA01-R1-310C 2-K15 NA01-R1-310E 2-L15 NA02-R1-310C 2-H15 NA02-R1-310E 2-H15 NA01-R1-311 2-H15 NA01-R1-312 2-H15 NA01-R1-313 2-D16 NA01-R1-320C 2-M15 NA01-R1-320E 2-M15 NA01-R1-331 2-H15 NA01-R1-361B 2-M15 NA01-R1-361D 2-M15 NA02-R1-361B 2-M15 NA02-R1-361D 2-M15 NA01-R1-371B 2-M15 NA01-R1-371D 2-N15 NA02-R1-371B 2-N15 NA02-R1-371D 2-N15	NA01-R1-881B 2-C16 NA01-R1-882 2-N15 NA01-R1-89XA 2-N15 NA01-R1-891B 2-C16 NA01-R1-892 2-N15 NA01-R1-926 2-C16 NA01-R1-931A 2-N15 NA01-R1-935B 2-N15 NA01-R1-936A 2-N15 NAY1-R1-937 2-N15 NA01-R1-941A 2-N15 NA01-R1-946A 2-N15 B235-R1-953 2-C16 B235-R1-958A 2-C16 NA01-R1-96XC 2-C16 NA01-R1-96XD 2-C16 NA01-R1-96Z 00 2-C16 NA01-R1-96Z 75 2-C16 NA01-R1-960E66 2-L15 NA01-R1-960E68 2-L15	0453-10-250A 1-F3 0324-10-252 1-F3 BP26-10-271 1-F3 BAN2-10-271 1-D3 BAN2-10-271A 1-D3 BAN2-10-271B 1-D3 B6Z1-10-280 1-G3 BPY0-10-290 1-G3 BP05-10-300M 1-H3 BP05-10-300N 1-H3 B366-10-305 1-H3 B630-10-306 1-H3 B6F4-10-308 1-H3 E5B6-10-319C 1-H3 0221-10-327 1-H3 B630-10-352 1-H3 0290-10-353 1-J7 BPE8-10-40Y 1-J3 BPE8-10-400A 1-J3 B6S7-10-404A 1-J3	F801-11-303 1-L3 B366-11-310C 1-K3 BP05-11-312 1-K3 B3C7-11-317 1-L3 B3C7-11-321 1-L3 B3C7-11-400 1-L3 B6BF-11-400A 1-L3 BP05-11-401A 1-L3 JF01-11-405 1-L3 B3C7-11-406 1-L3 B3C7-11-408 1-L3 B6BF-11-408B 1-L3 BPR7-11-500 1-L3 B367-11-502 1-M3 0110-11-502 1-M3 F201-11-511A 1-M3	***** * 12-000 *	BPE8-13-380A 1-F4 BPE8-13-390 1-F4 BPS1-13-428A 1-M4 B367-13-428 1-M4 B61P-13-447 1-G4 F801-13-447 1-M4 BPE8-13-450 1-F4 2306-13-456 1-F4 BP05-13-460 1-F4 BPE8-13-49X 1-G4 BPE8-13-495 1-G4 BPR5-13-640 1-L4 B6BF-13-655 1-M4 3PR5-13-665 1-E4 BPE8-13-681 1-M4 BPE8-13-682 1-M4 B61P-13-735 1-J4 KL01-13-735 1-J4 BPE8-13-74X 1-F3 BPE8-13-740A 1-F3	B64J-15-150A 1-G5 B61P-15-160 1-E5 B621-15-165 1-E5 BPE8-15-170A 1-F5 BABB-15-171 1-F5 BPE8-15-172 1-F5 B621-15-173 1-F5 BPE8-15-179 1-F5 B366-15-182 1-F5 B61P-15-184 1-F5 BPE8-15-185 1-F5 BPE8-15-186 1-F5 B61P-15-190 1-F5 BPE8-15-200 1-F5 BPE9-15-200 1-F5 0488-15-201 3-G6 B791-15-201 3-G6 B61P-15-202 1-F5 N326-15-202 1-F5 NF01-15-203 1-G5	***** * 16-000 *	***** * 17-000 *	0603-16-102B 1-C6 FE51-16-214 1-C6 FE51-16-214A 1-C6 B622-16-220 1-C6 B622-16-220A 1-C6 FE50-16-225A 1-C6 1416-16-232A 1-C6 BP07-16-410 1-C6 BP07-16-460 1-C6 B622-16-510 1-C6 B622-16-520 1-C6	***** * 18-000 *	M526-17-100A 1-D6 H501-17-103 1-C6	M501-17-103 1-D6 F401-17-121 1-M7 0810-17-121 1-C12 1-D6 1-J11 M501-17-140 1-H6 M516-17-201 1-E6 M503-17-204 1-E6 P502-17-204 1-H6 M501-17-205 1-E6 M501-17-210A 1-E6 M505-17-221B 1-E6 0317-17-215 1-E6 M513-17-231B 1-E6 M517-17-240 1-E6 M501-17-241C 1-E6 F401-17-242A 1-E6 M502-17-242 1-E6 F401-17-243A 1-E6 M520-17-251A 1-F6
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***** * 52-000 * *****	NA75-54-31XA 2-F7 NA01-54-32XC 2-F7 NA01-54-330 2-F7 NA01-54-36X 2-E7 NA01-54-37Y 2-F7 NA01-54-37ZA 2-F7 NA01-54-37ZB 2-F7 NA01-54-380B 2-F7 NA01-54-391 2-F7 NA01-54-400G 2-H7 NA01-54-480 2-H7 NA01-54-482 2-C8 NA01-54-590 2-F7 NA01-54-610 2-C8 NA01-54-610A 2-C8 NA01-54-650 2-C8 NA01-54-650A 2-C8 NA01-54-660B 2-C8 NA01-54-670A 2-C8 NA01-54-725A 2-C8	***** * 56-000 * *****	NA75-56-A9XB 2-F8 NA75-56-A93 2-F8 NA75-56-A94 2-F8 NA75-56-B91 2-F8 NA01-56-03XA 1-I7 B095-56-032 1-I7 NA01-56-032A 1-I7 NA01-56-032B 1-I7 NA01-56-033A 1-I7 NA01-56-033B 1-I7 B001-56-051 2-E8 NA01-56-051 2-E8	NA75-56-820 2-N6 N007-56-820 2-N6 NA01-56-840 2-N6 N007-56-850A 1-L15 N007-56-880A 1-L15 B095-56-890A 1-L15 NA01-56-890A 1-L15 NA01-56-896 1-L15 NA01-56-951 2-N6 NA01-56-971 2-I7	***** * 57-000 * *****	N034-57-KX0A 2-J12 NB11-57-K00 00 1-K12	NB11-57-150 88 2-C11 NB11-57-150B88 2-D11 NB40-57-150 00 2-N10 NB41-57-150 00 2-N10 NB42-57-150 00 2-N10 NB43-57-150 88 2-C11 NB44-57-150 88 2-C11 NB47-57-150 88 2-E11 LA01-57-425A 2-I12	NA01-58-760G 2-M12 G031-58-762 2-M12 1011-58-772 2-F13	B092-60-408 2-K9 NA75-60-420B 2-K9 NB38-60-420 2-K9 NA01-60-430E 2-L9 NA75-60-430 2-K9 NA01-60-435 2-L9 NA01-60-463 2-L9 NA75-60-960A 1-K15 J004-60-962 1-K15	***** * 61-000 * *****	***** * 59-000 * *****	NA01-61-A01 2-D14 NA01-61-A02 2-D14 NA01-61-A09 2-D14 NA75-61-A10 2-D14	NA75-57-620 00 2-I12 NA75-57-630F00 2-I12 NA75-57-630F88 2-I12 NA75-57-630G00 2-I12 NA75-57-630G88 2-I12 NA76-57-630D00 2-I12 NA76-57-630D88 2-I12 NB38-57-630 00 2-I12 NB38-57-630 88 2-I12 NB38-57-630A00 2-I12	NA01-58-810D 2-F13 B157-58-815 2-F13 NA01-58-815 2-F13 NA01-58-821 2-F13 NA02-58-821 2-F13 NA01-58-861A 2-D13 NA02-58-861A 2-D13 H272-58-911 2-M12	***** * 58-000 * *****	NB38-57-630A88 2-I12 N026-57-631 00 2-I12 NA75-57-680A00 2-I12	NA01-59-330C00 2-C13 B001-59-335 2-N12 NA01-59-410D 2-C13 NA01-59-510 2-L12 NB39-59-510 2-L12 NA01-59-560F 2-D13 NA01-59-560G 2-D13 NA01-59-560H 2-D13 NA02-59-560J 2-D13 NA02-59-560K 2-D13 NA01-59-603D 2-L12	NA01-59-604B 2-L12 NA01-59-651A 2-L12 NA01-59-661 2-M12 NB39-59-661 2-M12 NA01-59-760E 2-M12 NA01-59-760F 2-M12 NA01-59-760G 2-M12 NA01-59-810D 2-F13 NA01-59-861A 2-E13 NA02-59-861A 2-E13	NA01-61-A15 2-D14 NA01-61-A20 2-D14 NA01-61-A21 2-D14 NA01-61-A30 2-D14 NA75-61-B01 2-G14 NA01-61-B02 2-G14 NA01-61-B10 2-G14 NA01-61-B15 2-G14 NA01-61-B20 2-G14 NA01-61-C04A 2-E14 H260-61-C09 2-E14 NA01-61-C25 2-E14 NA01-61-C35 2-E14 NA75-61-C45 2-E14 NA01-61-C50 2-E14 NA01-61-C50A 2-E14 NA01-61-C95 2-E14 NA02-61-C95 2-E14 NA03-61-C95 2-E14 NA03-61-C95A 2-E14	***** * 60-000 * *****	NA01-60-070B 2-G9 NA03-60-070A 2-G9 NA03-60-071 2-G9	NA01-61-D22 2-E14 NA01-61-J01A 2-C15 NA01-61-J02A 2-C15 NA01-61-J04 2-C15 LB51-61-J1X 2-L14 LB54-61-J1X 2-L14 LB55-61-J1X 2-L14 LB56-61-J1X 2-L14 LB57-61-J1X 2-L14 NA01-61-J10A 2-C15 NA75-61-J14 2-C15 NA01-61-J15 2-C15 NA01-61-J20 2-C15 NA75-61-K00 2-M14 NA75-61-K1X 2-M14 NA75-61-K10 2-M14 NA75-61-K11 2-M14 NA75-61-K12 2-M14 NA75-61-K19 2-M14 NA75-61-K2X 2-M14	NA01-53-380 2-E7 NA01-53-391 2-F7 NA01-53-482 2-N7 NA75-53-510A 2-H7 NA01-53-591 2-F7 NA01-53-600A 2-N7 NB38-53-600 2-N7 NA01-53-602 2-C8 NA01-53-602A 2-C8 NA01-53-650 2-N7 NA01-53-650A 2-N7 NA01-53-670A 2-N7 NA01-53-710B 2-N7 NA75-53-720 2-N7 NA01-53-725A 2-N7 NA01-53-740C 2-DB B455-53-750C 2-N7 NA01-53-750 2-N7 NA01-53-760 2-N7 0305-53-781A 2-H7	NA01-54-740A 2-DB NA01-54-750 2-C8 NA01-54-810F 2-C8 NA01-54-830C 2-DB NA01-54-96XB 2-I7 NA01-54-971A 2-I7 NA01-54-980C 2-I7	***** * 55-000 * *****	NA75-55-210A00 2-C9 NB38-55-210A00 2-C9 B481-55-225 2-J16 G030-55-225 00 2-D16 NB38-55-225A00 2-C9 NB38-55-225A88 2-C9	B455-56-149 2-F8 B001-56-170C 1-H14 NA01-56-171A 2-F8	G030-56-176 1-K15 NA20-56-181A 3-C5 1219-56-211 1-H14 NA01-56-221B 2-D7 NA75-56-241 2-F8 0118-56-241 2-E8 8477-56-241 2-E8 0118-56-242B 2-E8	NA01-56-29XC 2-F8 NA01-56-290C 2-G8 NA01-56-294 2-G8 NA75-56-3AY 2-DB NA01-56-311A 2-F8 NA01-56-321A 2-F8 NA01-56-34XC 2-G7 NA01-56-34YC 2-G7 NA01-56-35X 2-H7 G211-56-355A 2-H7 B001-56-376 2-D16	NA80-57-100C00 2-L10 NA80-57-100D00 2-M10 NA80-57-100E00 2-M10 NA81-57-100D88 2-L10 NA81-57-100E88 2-M10 NA81-57-100F88 2-M10 NA82-57-100D88 2-L10 NA82-57-100E88 2-M10 NA82-57-100F88 2-M10 NB11-57-100 00 2-J10 NB12-57-100 00 2-K10 NB13-57-100 88 2-K10 NB14-57-100 00 2-K10 NB15-57-100 00 2-K10 NB16-57-100 00 2-K10 NB17-57-100 00 2-K10 NB18-57-100 00 2-K10 NB19-57-100 00 2-K10 NB20-57-100 00 2-K10 NB21-57-100 00 2-K10 NB22-57-100 00 2-K10 NB23-57-100 00 2-K10 NB24-57-100 00 2-K10 NB25-57-100 88 2-K10	BC1D-58-265 2-N12 NA01-58-270A 2-N12 NA01-58-270B 2-N12 HG30-58-302A 2-N12 NA01-58-303 00 2-N12 NA01-58-310B 2-N12 G030-58-315 2-C5	NA01-58-330C00 2-N12 F801-58-335 2-C13 B092-58-355 2-C13 B001-58-361A 2-D13 NA01-58-410D 2-C13 FD01-58-492 2-C5 FD01-58-493 2-C5 G211-58-495 2-C13 B235-58-502 2-L12 UB39-58-502A 2-L12 B092-58-505 2-C13	NA01-60-070B 2-G9 NA03-60-070A 2-G9 NA03-60-071 2-G9	NA01-58-510 2-L12 NB39-58-510 2-L12 NA01-58-560F 2-C13 NA01-58-560G 2-C13 NA01-58-560H 2-D13 NA02-58-560H 2-C13 NA02-58-560J 2-D13 NA02-58-560K 2-D13 HG30-58-565 2-D13 B092-58-569 2-D13 S084-58-580A00 2-C13 B001-58-582A00 2-C13 B001-58-585 2-D13 NA01-58-603D 2-L12 NA01-58-604B 2-L12 NA01-58-651A 2-L12 NA01-58-661 2-L12 NB39-58-661 2-M12 NA01-58-760E 2-M12 NA01-58-760F 2-M12	NA01-60-075 2-G9 NB38-60-1A1B 3-G4 NA75-60-121B 2-E10 NA01-60-141 2-E10 NA75-60-160A00 2-E10 NA75-60-170A00 2-E10 NA75-60-183 2-E10 NA75-60-193 2-E10 NA01-60-220 00 2-D9 NA01-60-223 00 2-D9 NA01-60-230A00 2-D9 NA75-60-350B00 2-K9 NA75-60-353 2-K9 B092-60-376 2-N9 NA75-60-401D00 2-K9 NA75-60-401D88 2-K9 NA75-60-401E00 2-K9 NA75-60-401E88 2-K9 NA75-60-401G00 2-K9 NA75-60-401G88 2-K9	NA75-61-K23 2-M14 NA02-61-K24 2-M14 F065-61-K25 2-M14 F065-61-K31 2-M14 NA75-61-K39 2-M14 NA75-61-L10 2-N14 NA75-61-L11 2-N14 NA75-61-L12 2-N14 NA75-61-L13 2-N14 F065-61-L14 2-N14 F065-61-L16 2-N14 1708-61-031 2-E8 NA75-61-130 2-D14 NA75-61-140 2-G14 NA01-61-150A 2-C14 NA75-61-161A 2-F10 NA75-61-190B 2-E14 NA75-61-190C 2-E14 NA01-61-191 2-E14 NA01-61-193 2-I14
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99701-4278Y	2-D6
99701-5050	2-C9
99701-6030	2-H9
99701-6038	2-C6
	2-E6
99705-1115	3-N3
99705-1210	3-D4
99705-1215	3-D4
99705-1220	3-D4
99705-1230	3-D4
99963-3330	1-K6
99963-6310	1-G6
99963-6315	1-G6
99963-6330	1-G6

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 * STANDARD PARTS *
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99359-0830M	1-H4
99541-00707	1-G8
99611-1500	1-F15

3-J 7

***** * * A * * *****	BEARING, PINION----- 1-N12 BEARING, ROLLER----- 1-E6 BEARING, ST. GEAR----- 1-D13 1-M12 BEARING, WHEEL----- 1-F11 BELT, TIMING----- 1-C4 BELT 'A' (L), FRT SEAT----- 2-I12 BELT 'A' (R), FRT SEAT----- 2-I12 BELT 'B' (R), FRT SEAT----- 2-I12 BELT 'B', FRT SEAT----- 2-I12 BELT 'V'----- 1-H5 1-I5 1-N6 BEZEL (L), HEAD LAMP----- 2-M5 BEZEL (R), HEAD LAMP----- 2-M5 BLADE (L), WIPER-FRONT----- 3-E5 BLADE (R), WIPER-FRONT----- 3-E5 BLOCK, CYLINDER----- 1-H3 BLOCK, FUSE----- 3-N3 BLOCK, MAIN FUSE----- 3-F4 BLOWER UNIT----- 2-G14 BODY & PISTON (L), CALIPER----- 1-G11 1-M13 BODY & PISTON (R), CALIPER----- 1-G11 1-M13 BODY (L), FRONT DOOR----- 2-K12 BODY (R), FRONT DOOR----- 2-K12 BODY, CONTROL VALVE-UP----- 1-G8 BODY, THROTTLE----- 1-L4 BODY, VALVE LWR----- 1-I8 BOLT----- 1-C8 1-C11 1-D6 1-D8 1-E14 1-E15 1-G7 1-G11 1-G13 1-H9 1-I12 1-I13 1-I13 1-J3 1-J7 1-J8 1-K7 1-K8 1-K9 1-L7 1-N7 1-N12 1-N13 2-E5 2-E5 3-E5 BOLT SET----- 1-E7 BOLT-HEX, HD WASHER----- 2-I16 BOLT, ADJUST----- 1-I5 1-I12 1-N13 BOLT, AIR CLEANER----- 1-J4 BOLT, AIR CON.----- 2-K14 BOLT, ANCHOR END----- 1-M7 BOLT, BAFFLE PLATE----- 1-K7 BOLT, BEARING CAP----- 1-H3 BOLT, CAMSHAFT CAP----- 1-E3 BOLT, CARRIER----- 1-F12 1-N11 BOLT, CLAMP----- 1-I7 BOLT, COMPRESSOR----- 2-M14 BOLT, COMPRESSOR-AJR CON.----- 2-M14 BOLT, CONNECTOR----- 1-F16 1-I16 1-K16 1-M16 2-C3 BOLT, CONTROL LINK----- 1-I12 BOLT, CONTROL VALVE----- 1-C8 1-E8 1-K8 BOLT, CROSS MEMBER----- 2-E7 BOLT, CYLINDER HEAD----- 1-E3 BOLT, DECK LOCK----- 2-L15	BOLT, FILLER PIPE----- 1-J15 BOLT, FUEL DISTRIBUTOR----- 1-I4 BOLT, GARNISH-RR----- 2-K6 BOLT, HINGE----- 2-M5 BOLT, HUB----- 1-F11 7-K13 1-L13 BOLT, INST. PANEL----- 2-K9 3-G3 BOLT, JACK SET----- 1-H14 BOLT, LAMP LID----- 2-L5 BOLT, LINK----- 2-F11 2-J10 BOLT, LOCK----- 1-J7 BOLT, LOCK-C.SHAFT PULLEY----- 1-L3 BOLT, LOCK-FLYWHEEL----- 1-M3 BOLT, MAGNET CLUTCH----- 2-M14 BOLT, MOTOR-RETRACT H/LAMP----- 2-M5 BOLT, OIL PAN----- 1-D8 BOLT, PLANT FRAME----- 1-C15 BOLT, PULLEY----- 1-L3 1-D12 BOLT, RING GEAR----- 1-K11 BOLT, SET----- 2-C5 2-K12 BOLT, SETTING----- 2-K12 BOLT, SETTING-HINGE LOWER----- 2-K12 BOLT, SHAFT----- 1-L12 BOLT, STARTER----- 1-N6 BOLT, STOPPER-SOFT TOP----- 2-C16 BOLT, VANE PUMP----- 1-I13 2-L6 BOOT SET, INNER JOINT----- 1-E11 BOOT SET, OUTER JOINT----- 1-E11 BOOT SET, ST. GEAR----- 1-M12 BOOT, CHANGE----- 2-N9 BOOT, DUST-CHANGE LEVER----- 1-K6 BOOT, MOTOR-RETRACT H/L----- 2-N5 BOOT, RACK----- 1-D13 1-E13 2-L15 BOOT, TOP----- 1-L3 BOSS, PULLEY----- 1-K12 BOSS, STEERING WHEEL----- 1-E5 BOSS, W. PUMP PULLEY----- 2-F7 BOX (L), TORQUE----- 2-F7 BOX (R), TORQUE----- 2-F7 BOX, A. C. C.----- 3-D3 BOX, COIN-CONSOLE----- 2-N9 BOX, CONTROL-A. B. S.----- 2-M16 BOX, GLOVE----- 2-M9 2-M9 BOX, INSTRUMENT PANEL----- 2-K9 BRACKET----- 1-D8 1-K7 1-N16 2-D8 3-G4 3-I3 3-L4 3-N3 BRACKET NO 1, A. B. S.----- 2-C3 BRACKET NO 2, A. B. S.----- 2-C3 BRACKET (L), CABLE----- 1-H11 BRACKET (L), ENGINE----- 1-C15 BRACKET (L), F. BUMPER SIDE----- 2-F5 BRACKET (L), FRONT-AUDIO----- 3-H3 BRACKET (L), HINGE-LAMP LID----- 2-M5 BRACKET (L), INST.----- 2-I7 BRACKET (L), RADIATOR----- 2-D7 BRACKET (L), STABILIZER----- 2-F7 BRACKET (L), TUNER----- 3-I3 BRACKET (R), CABLE----- 1-H11 BRACKET (R), ENGINE----- 1-C15 BRACKET (R), FRONT-AUDIO----- 3-H3 BRACKET (R), FRT BUMPER-LWR----- 2-F5 BRACKET (R), HINGE-LAMP LID----- 2-M5 BRACKET (R), INST.----- 2-I7 BRACKET (R), RADIATOR----- 2-D7 BRACKET (R), STABILIZER----- 2-E7 BRACKET (R), TUNER----- 3-I3 BRACKET (RR), AUDIO----- 3-H3 BRACKET, ACCEL WIRE----- 1-E4 BRACKET, ACTUATOR----- 3-D3 BRACKET, ACTUATOR-A. C. C.----- 3-D3	BRACKET, ACTUATOR-FRONT----- 3-D3 BRACKET, AIR CLEANER----- 1-K4 BRACKET, AMP----- 3-H3 BRACKET, BATTERY CLAMP----- 1-I7 BRACKET, BOOST SENSOR----- 2-G16 BRACKET, BUMPER----- 2-D7 BRACKET, CANISTER----- 1-G4 BRACKET, CLAMP----- 2-J14 BRACKET, CLIP----- 2-L5 BRACKET, COMPRESSOR----- 1-H5 BRACKET, CONDENSER----- 2-F16 BRACKET, CONTROL UNIT----- 1-D16 2-H16 BRACKET, COUPLER----- 1-K12 BRACKET, COUPLER-KNOCK SEN----- 2-F16 BRACKET, COUPLER-O2 SENSOR----- 2-H16 BRACKET, CRASH PAD----- 2-L9 BRACKET, DASHBOARD HARNESS----- 2-M16 BRACKET, E. G. R. PIPE----- 1-N4 BRACKET, FENDER----- 2-F5 2-K7 BRACKET, FRONT----- 1-E7 1-G7 BRACKET, GRILLE-C----- 2-H7 BRACKET, HANGER----- 1-D15 BRACKET, HARNESS----- 3-F4 3-G4 3-N3 BRACKET, HARNESS-ENGINE----- 3-N3 BRACKET, HOSE----- 2-I14 BRACKET, IDLE PULLEY----- 1-H5 BRACKET, IGNITER----- 2-G16 BRACKET, JACK----- 2-N7 BRACKET, LAMP----- 2-I6 BRACKET, LICENCE PLATE----- 2-F5 BRACKET, LOUD SPEAKER----- 3-M3 BRACKET, LOW----- 3-I3 BRACKET, MASTER CYL.----- 1-D16 1-M15 1-N15 BRACKET, MEMBER----- 2-L9 BRACKET, OIL PUMP----- 2-F16 BRACKET, PARKING CABLE-FLO----- 2-N7 BRACKET, PIPE----- 2-J14 BRACKET, PLANT FRAME----- 1-C15 BRACKET, PROTECTOR----- 1-E15 BRACKET, REAR----- 1-E7 BRACKET, REAR CONSOLE----- 2-N9 BRACKET, RELAY----- 2-K14 2-M16 2-N16 BRACKET, RELAY-INTERLOCK----- 2-M16 BRACKET, SEAT LOCK-RR----- 2-J10 BRACKET, STARTER----- 1-N6 BRACKET, STOPPER-BATTERY----- 1-I7 BRACKET, TUNER----- 3-I3 BRACKET, VANE PUMP----- 1-I13 1-J13 BRACKET, WASHER TANK----- 3-C5 3-L4 BRACKET, WIRE CLIP-OXYGEN----- 2-G16 BRACKET, WIRING----- 3-D4 3-F4 BREATHING----- 1-C12 1-J11 1-L7 BREATHING, AIR-T/MISSION----- 1-D6 BRKT (L), BUMPER-RR SKIRT----- 2-D8 BRKT (L), SEAT-F. FLOOR PAN----- 2-C8 BRKT (L), TRK. BOARD-FENDER----- 2-M7 BRKT (R), BUMPER-RR SKIRT----- 2-C8 BRKT (R), SEAT-F. FLOOR PAN----- 2-N7 BRKT, AIR BAG MODULE----- 2-J12 BRKT, AIR CLNR-FL APKON----- 2-E7 BRKT, BATT. CLAMP-QTR PANEL----- 2-J7 BRKT, BATT. QUARTER PANEL----- 2-L7 BRKT, MOTOR-ANTENNA----- 3-L3 BRKT 'A', WASHER TANK-FRT----- 3-N4 BRUSH----- 1-C7 1-F7 BRUSH, YOKE----- 1-F7 1-H7	BULB----- 2-C6 2-C9 2-D6 2-E6 2-H6 2-H9 2-I6 2-J6 2-J9 2-N9 BULB & SOCKET----- 2-N9 BULB, INTERIOR MIRROR----- 1-I6 BULB, MODE CONTROL----- 1-E14 BULB, RESISTOR----- 1-C9 BULB 'B', SWITCH-RR DEFOGER----- 2-H9 BUMPER, FRONT----- 2-E5 BUMPER, REAR----- 2-H5 BUSH----- 1-C16 1-E16 1-H15 1-J6 1-M15 2-I3 BUSH SET, CHANGE LEVER----- 1-L6 BUSH, ELBOW JOINT----- 1-F15 1-G16 1-J16 BUSH, HINGE----- 2-F11 BUSH, RUBBER----- 1-D8 BUSH, RUBBER-LWR ARM----- 1-C14 BUSH, STABILIZER-FRT----- 1-E14 BUSH, STABILIZER-RR----- 1-H12 BUSHING, LOWER ARM----- 1-I12 BUSHING, RACK-ST. GEAR----- 1-N12 BUSHING, RUBBER----- 1-C14 1-I12 BUSHING, RUBBER-LOWER ARM----- 1-C14 1-I12 BUTTON, RELEASE----- 2-E3 ***** * * C * * *****
***** * * B * * *****	BACK (L), FRONT SEAT----- 2-D12 2-E12 2-F12 BACK (R), FRONT SEAT----- 2-I11 2-J11 2-K11 BAG, TOOL----- 3-C6 BALL JOINT, LOWER----- 1-C14 BALL, STEEL----- 1-F15 1-H7 BAND----- 1-D15 2-J14 2-K14 3-J4 BAND, BRAKE----- 1-N8 BAND, DUST BOOT-DAMPER----- 2-C3 BAND, PIPE----- 3-J4 BAR, BRACE----- 2-F8 BASE, INTERIOR MIRROR----- 2-D15 3-F6 BATTERY----- 1-I7 BEARING----- 1-D12 1-G6 1-H5 1-L11 BEARING, BALL----- 1-G6 1-H6 BEARING, BALL-ALT. FRONT----- 1-C7 BEARING, BALL-ALT. REAR----- 1-C7 BEARING, BALL-COUNTER SHAF----- 1-G6 BEARING, BALL-FLY WHEEL----- 1-I13 BEARING, BALL-MAIN DRIVE G----- 1-E6 BEARING, BALL-MAIN SHAFT----- 1-E6 1-D9 1-E6 1-E9 1-F6 1-I9 BEARING, PINION----- 1-C12 1-E13 1-J11	BRACKET, ACTUATOR-A. C. C.----- 3-D3	CABLE (L), R.-PARK----- 2-F3 CABLE (R), R.-PARK----- 2-F3 CABLE, ACCEL----- 1-H15 CABLE, F/LID OPENER----- 1-L15 CABLE, PARKING-FRT----- 2-E3 CABLE, SPEEDMETER----- 2-G9 CABLE, T/LID OPENER----- 1-L15 CALIPER (L), PADLESS-FR----- 1-M13 CALIPER (L), PADLESS-RR----- 1-H11 CALIPER (R), PADLESS-FR----- 1-M13 CALIPER (R), PADLESS-RR----- 1-H11 CAM, CANCEL-COMB. SW.----- 2-L16 CAM, CHANGE LEVER----- 2-I3 CAMSHAFT----- 1-D4 CAMSHAFT, EXHAUST----- 1-D4 CANISTER----- 1-G4 CAP----- 2-C13 2-F6 2-F13 2-J5 3-J4 CAP SET, RESERVE TANK----- 1-F15 1-F16 1-I16 CAP (L), PULL HANDLE----- 2-N13 CAP (R), PULL HANDLE----- 2-N13 CAP, ASSIST GRIP----- 2-N13 CAP, BLEEDER SCREW----- 1-F15 1-I11 1-M13 2-E5 CAP, BLIND----- 1-E4 1-M6 CAP, CENTER----- 1-F14 CAP, CO-UMN COVER----- 2-D9 CAP, DAMPER----- 1-N13 CAP, FILLER----- 1-J15 CAP, HINGE-H. L. RETRACTABLE----- 2-M5	

GASKET, CONVERTER----- 1-D15
 GASKET, COVER PLATE----- 1-K6
 GASKET, CYLINDER HEAD----- 1-F3
 GASKET, DRAIN PLUG----- 1-I15
 GASKET, DRUM SUPPORT----- 1-D8
 GASKET, E. G. R. VALVE----- 1-M4
 GASKET, EX. MANIFOLD----- 1-F4
 GASKET, EXH. PIPE-CONVERTER 1-D15
 GASKET, EXTENSION----- 1-C8
 GASKET, FILLER PIPE----- 1-I15
 GASKET, FRONT COVER----- 1-C6
 GASKET, HEAD COVER----- 1-F3
 GASKET, IN. MANIFOLD----- 1-E4
 GASKET, LICENSE LAMP----- 2-H6
 GASKET, O/DRIVE CASE----- 1-E8
 GASKET, OIL JET----- 1-H3
 GASKET, OIL PAN----- 1-C8
 GASKET, OIL PUMP----- 1-J3
 GASKET, OIL STRAINER----- 1-J7
 GASKET, RR COMB----- 1-C5
 GASKET, SIDE TURN----- 2-F6
 GASKET, SPRING CAP----- 2-C6
 GASKET, STOP LAMP-HI. MOUNT 1-K6
 GASKET, T. BELT COVER-C.--- 2-F6
 GASKET, THERMO----- 1-K3
 GASKET, THERMOSTAT COVER--- 1-L4
 GASKET, THERMOSTAT COVER--- 1-F5
 GASKET, VAC. POWER ASSYST- 1-I16
 GASKET, W. PUMP INLET----- 1-E5
 GASKET, WATER PUMP----- 1-E5
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MODEL IDENTIFICATION

This parts catalog has been compiled to cover the following models.

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Model No.	Specifications of vehicles																							VIN (Chassis No.)						
	Basic spec.	Eng ine	CC	DOHC	T: mission		Speed		Damper		Brake	Diff.		Antilock brake system		Production period		Model year		U.S.A.					Guam & Saipan					
					Manual T/mission	Automatic T/mission	4 speed	5 speed	Bilstein damper	EXC bilstein damper	4 Disc	Normal diff.	Limited slip diff.	W/O antilock brake system	Antilock brake system	From	To	1995	1996	Production for U.S.A.	BASE	P.E.G.	LEATHER PKG.		R PKG.	M-EDITION	Production for Guam & Saipan	PKG.A	PKG.B	PKG.C
NB11	US	GE	18	DH	MT		5S		EB	4DS	ND		W/O AL		Aug '94	Jul '95	→	Yes		BS				Yes	PA			NA3** - 300001~700000		
NB12	US	GE	18	DH	MT		5S		EB	4DS		LS	W/O AL		Aug '94	Jul '95	→	Yes		PE	LP		Yes	PA	PB	PC	NA3** - 600001~700000			
NB13	US	GE	18	DH	MT		5S		EB	4DS		LS		AL	Aug '94	Jul '95	→	Yes		PE	LP	ME	Yes		PB	PC	NA3** - 600001~700000			
NB14	US	GE	18	DH		AT	4S		EB	4DS	ND		W/O AL		Aug '94	Jul '95	→	Yes	BS	PE			Yes	PA			NA3** - 600001~700000			
NB15	US	GE	18	DH		AT	4S		EB	4DS	ND			AL	Sep '94	Jul '95	→	Yes			LP	ME	Yes		PB	PC	NA3** - 600001~700000			
NB37	US	GE	18	DH	MT		5S	BD		4DS		LS	W/O AL		Jul '95	Jan '98	→	Yes				RP		No			NA3** - 700001~800000			
NB38	US	GE	18	DH	MT		5S		EB	4DS	ND		W/O AL		Jul '95	Jul '98	→	Yes	BS				Yes	PA			NA3** - 700001~800000			
NB39	US	GE	18	DH	MT		5S		EB	4DS		LS	W/O AL		Jul '95	Jul '98	→	Yes		PE	LP		Yes		PB		NA3** - 700001~800000			
NB40	US	GE	18	DH	MT		5S		EB	4DS		LS		AL	Jul '95	Jul '98	→	Yes		PE	LP	ME	Yes		PB		NA3** - 700001~800000			
NB41	US	GE	18	DH	MT		5S	BD		4DS		LS	W/O AL		Jul '95	Jul '96	→	Yes				RP		No			NA3** - 700001~800000			
NB42	US	GE	18	DH		AT	4S		EB	4DS	ND		W/O AL		Jul '95	Jul '96	→	Yes	BS	PE			Yes	P/			NA3** - 700001~800000			
NB43	US	GE	18	DH		AT	4S		EB	4DS	ND			AL	Jul '95	Jul '96	→	Yes			LP	ME	Yes			PC	NA3** - 700001~800000			

AUNA05

BODY PAINTS AND INTERIOR COLORS

THIS LIST SHOWS COMBINATION OF BODY PAINT AND INTERIOR COLOR. USING THIS LIST YOU WILL BE ABLE TO FIND OUT NECESSARY COLOR CODE OF PART YOU NEED IN THE TEXT.

BODY PAINT		INTERIOR COLOR CODE			
NAME	CODE				
Artvin red mica II	A1Q		NA 5		
Satellite blue mica	A5				NA 5
Classic red	SU	NA 3	NA 5	NA 3	NA 5
Laguna blue metallic	6W	NA 3	NA 5		
Chaste white	PT	NA 3	NA 5	NA 3	NA 5
Brilliant black	PZ	NA 3	NA 5	NA 3	NA 5
Neo green	HJ	NA 3	NA 5	NA 3	NA 5
Montego blue mica	M8	NA 3	NA 5	NA 3	NA 5
Applied models		1995 model		1996 model	

NOTE:
COLORS OF INTERIOR CODES
ARE AS FOLLOWS.

NA 3	Black
NA 5	Tan

ALJNA05

COMPLETE ASSEMBLY PARTS NUMBERS

T/mission

Specifications of vehicles	Parts number
T/mission	
Manual T/mission	M50Z - 03 - 000
Automatic T/mission	N451 - 19 - 090C

Cabin

(11)

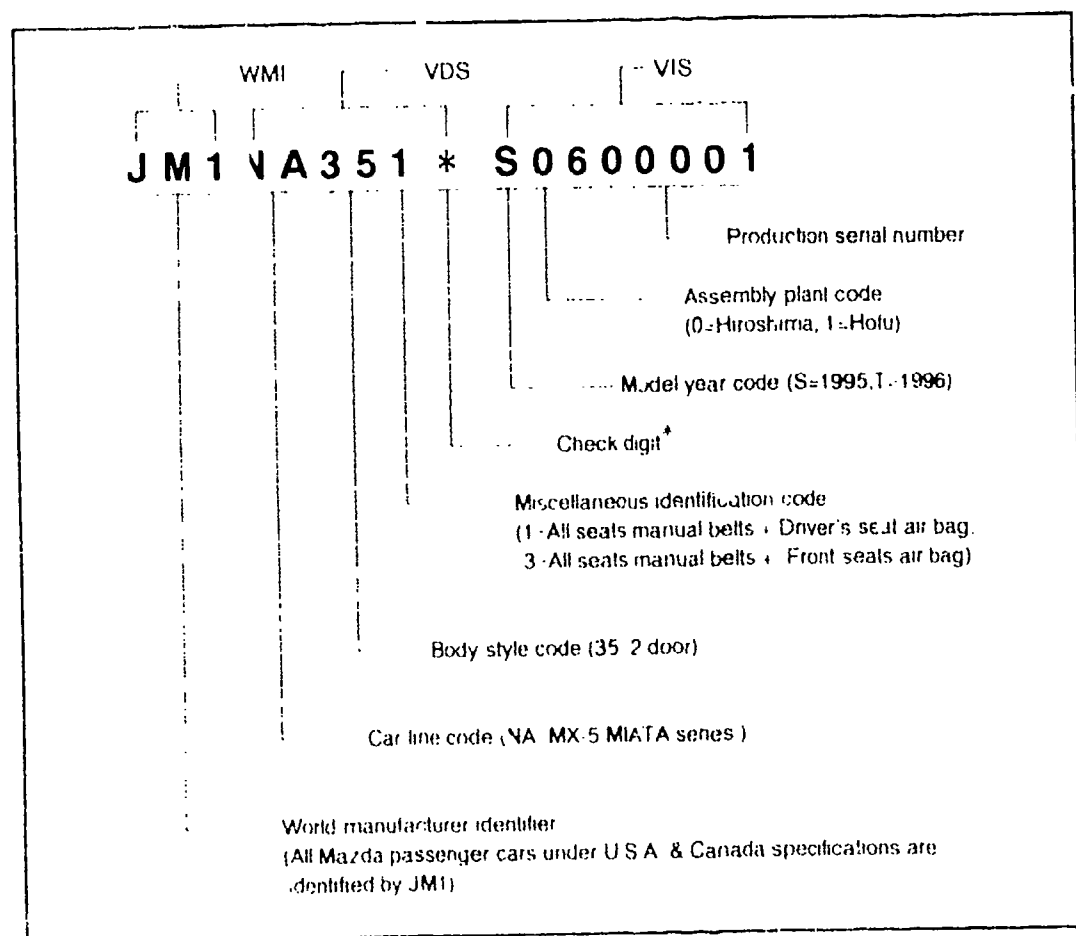
Specifications of vehicles		Parts number
Model year	Damper	
1995	Bilstein damper	NA75 - 07 - 000
	EXC. bilstein damper	NB11 - 07 - 000
1996	※	NB38 - 07 - 000

The ※ mark in the above chart does not affect on part number selection.
 Complete assemblies are available and manufactured in accordance with current production specifications only.
 No engine complete No. is described on models the Partial engine is established.
 (For Partial engine, see section 1000.)

AUNA05

VEHICLE IDENTIFICATION SYSTEM FOR MX-5 MIATA SERIES (1995 ~ 1996)

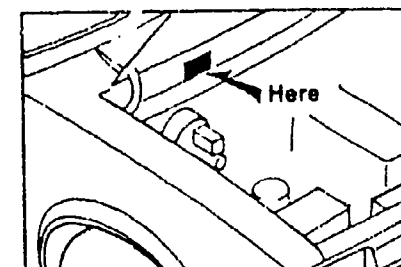
VIN (Vehicle Identification Number) for MX-5 MIATA series (1995 & 1996 Year Model) consists of WMI(- World Manufacturer Identifier), VDS(- Vehicle Description Section) and VIS(- Vehicle Identification Section) VDS consisting of six alphanumeric characters denotes the "MODEL SERIES" VIS consisting of eight alphanumeric characters denotes the serial unit number of vehicle and is sequentially numbered within each VDS



* Check digit is included as a VIN security feature to permit law enforcement verification of the authenticity of a suspected illegal VIN plate. This single digit number is determined based upon a complex mathematical formula which is applied to each vehicle's VIN number.

LOCATION OF VIN PLATE

The plate is attached to the top ledge of the dash panel under the bonnet (engine hood), refer to the illustration shown right.



Note

If the VIN(Chassis) reference number in the PCM(Parts Catalog Microfiche) appeared as

NA35 * - 600001 (1995 model)
NA3 ** - 700001 (1996 model)

the vehicle's VIN would be e.g. JM1NA351 * S0600001
JM1NA351 * T0700001

ABBREVIATIONS

The following abbreviations are used throughout Mazda Microfiche parts catalog: in the illustration, tax, section number index, alphabetical index.

English(1/3)

Abbreviation	Definition	Abbreviation	Definition	Abbreviation	Definition
1ST	First	B.S.V.	Bleed Solenoid Valve	D. GRV	Dark Gray
2ND	Second	BTHR	Breather	DIAPH	Diaphragm
2D	2-Door	BUMP.	Bumper	DIFF.	Differential
2-SEAT	2-Seater	BURGL.	Burglar	DISC/B	Disc Brake
3D.	3 Door	BY.A.C.V.	Bypass Air Control Valve	DIST	Distributor
JRD	Third			DMPR	Dumper
3-SP	3-Speed	C		DOHC	Double Overhead Camshaft
4D	4-Door	C. or (C)	Center	D.P.	Dual Proportioning
4-SP or 4-SPD	4-Speed	CALIF.	California	DRUM/B	Drum Brake
4/5-SP	4-Speed/5-Speed	C/AREA	Cock Area	DTIRE or D.TIRE	Double Tire (=Dual Tire)
4TH	Fourth	CAN.	Canada	D.T. TOP	Detachable Top
5D.	5-Door	CARB.	Carburettor	DUMP.	Dump Truck
5-LINK	5-Link Suspension	CAT	Catalyst	DX.	Deluxe
5-SP or 5 SPD	5-Speed	C.DISC	Compact Disc	D. YLW	Dark Yellow
10TH-ANNIV	10th-Anniversary	CE	Conventional Engine (=Reciprocating Gasoline Engine)	E	
A		C.E.D	Consolidated Emission Directive	ECON.	Economy
.A	.Ampere	C.G.R.	Constant Gear Ratio	E.C.P.S. SYS	Electric Control Power Steering System
A.A.S. or A.A.SUSP	Automatic Adjusting Suspension	COI	Coach	EGL	Electric Gasoline Injection
ABS	Absorber	CHG	Change	E.G.R.	Exhaust Gas Recirculation
A.B.S.	Anti lock Brake System	CHMBR	Chamber	ELECT.	Electric
A.B.S.V.	Air Bleed Solenoid Valve	CHK	Check	EM.	Emission Controls
A.C	Air Conditioner	CLG.	Cooling	ENEGY or ENQY	Energy
A.C.C.	Automatic Cruise Controls	CLNR	Cleaner	ENG.	Engine
ACCEL	Accelerator	C/LTR	Cigarette Lighter	EQLZR	Equalizer
ACTR	Actuator	CLU	Clutch	EQUIP.	Equipment
A.C.V.	Air Control Valve	.CM	.Centimeter (s)	EX.	Exhaust
ADJ	Adjuster or Adjustable or Adjusting	C.MEMBER	Crossmember	EXC.	Except
ADJ SUSP	Adjustable Suspension	CNTNR	Container	EXC. 10TH-ANNIV.	EXC. 10th-Anniversary
AIR P	Air Pipe	COMB.	Combination	EXT.	Extension
AIR CON.	Air Conditioner	COMP	Companion	EXTRACT.	Extractor
ALTN	Alternator	COMPR	Compressor	F	
ALUMI	Aluminum	COMPS.	Compensator	F.	Front-
AMP.	Amplifier	CONDNR	Condenser	.F	.Foot (foot)
ANALOG	Analogous	CONN.	Connector or Connecting	FED	Federal
ANNIV	10th Anniversary	CONS.	Console	FENIS	Finisher
ANT	Antenna	CONT	Control	F.I.P	Fuel Injection Pump
ARG	Argent	CONV	Conventional	FLEX	Flexible
A.S. ABSORBER	Adjust Shock Absorber	CONVR	Converter	F MIXER	Fuel Injection Mixer
ASH.	Ashtray	COVR	Cover	FIX	Fixing
ASSY	Assembly	CPE.	Coupe	F/LID	Filler Lid
AT	Automatic Transmission	CPT	Complete Assembly	F L DECK	Full Logic Deck
ATT	Attachment	CPU	Computer	FOLD.	Folding
AUS	Austria	C.P.UNIT	Central Processing Unit	FRA	France
AUST	Australian	CRK	Crank	FRT	Front
AUTO.	Automatic	CRUST	Cruster	F/SHIFT	Floor Shift
B		C/SHIFT	Column Shift	FULL CON	Fully Controlled
BAL	Balance	CTR	Center	.G	Gram(s)
BAT	Battery	CUSH.	Cushion	GARN	Garnish
B.COLOR	Body Color	CYL.	Cylinder	GAS.	Gasoline
B.DOOR	Back Door	D		GASOH	Gasoline
BDY	Body	D or DR	Door	GEN	General
BELT	Beltline	D-	Diameter-	G HATCH	Glass Hatch
BLK	Black	DBL CAB	(-Crew Cab)	GLD. M	Gold Metallic
BLU	Blue			GLS	Glass
BLU/GRY	Bluish Gray	D BLUE	Dark Blue	GOV.	Governor
BLU. M	Blue Metallic	D BRN	Dark Brown	GRN	Green
BLVA	Poliva	DE	Diesel Engine	GRY	Gray
BRG	Beating	DEF.	Defroster		
BRK	Bracket	DEFG	Defogger		
BRN	Brown	DES	Design		
BRT	Britain (Great Britain)	DEMIST	Demister		

English(2/3)

Abbreviation	Definition	Abbreviation	Definition	Abbreviation	Definition
GRY/GRN	Green/Gray	L.C.DISPLAY	Liquid Crystal Display	O.T.	Over Top
H		L/EGI	Low Electric Gasoline Injection	OUT.	Outer
H	Head	L/EM	Low Emission Controls	P	
HARN.	Harness	L.H.D.	Left Hand Drive	.P	Panel
H.A.C.	High Altitude Compensator	LH. SIDE	Left Hand Side	(P)	Primary
H.A.COMPENSATOR	High Altitude Compensator	LOCKIT	Lockout	PARK or PARKG	Parking
HB	Hatchback Release	L. NOSE	Long Nose	PASS.	Passenger
H.B. RE	Hatchback Release	L/NVGT. CPU	Less Navigation computer	P.B.	Proportioning Brake
HC-A/T	Hydro Control Automatic Transmission	LO.	Low	P.C.V.	Positive Crankcase Ventilation
H/DUTY	Heavy Duty	L.S. VALVE	Load Sensing Valve	PHILPPNS	Philippines
HEA. or HEAT.	Heater	L/PARTITION	Less Partition	PHIL.	Philat
HI.	High -	L. G.	L.P. Gas (=Liquefied Petroleum Gas)	PV.	Pivot
HI.ALT.	High Altitude	U.S.D. or L.S. DIFF	Less Slip Differential	PKG.	Package
HI.L.C.	Head Injury Criteria	.L.T.	.Liter(s) Tank	PNEUMA.	Pneumatic
HIGHT	High-Tension	L/TAILGATE	Less Tailgate	PNT	Point
HL or H.L. or H/LAMP	Head Lamp	LVR	Lover	POSIT.	Positive
H. KONG	Hong Kong	LWR	Lower	POW. WINDOW	Power Window
HNGR	Hanger	LRG	Large	P.P.	Polypropylene (Plastics)
HP	.Horsepower(s)	LX-P	LX with Performance Package	PRACT	Practical
H.P.R	High Penetration Resisted	M		PRESS	Pressure
HSG	Housing	M	.Meter(s)	PROTR	Protection
HT, H/T or H/TOP	Hardtop	MA. CYL.	Master Cylinder	PROTR	Protection
HWI	Hawaii	MAINT	Maintain or Maintenance	PORTGL	Portugal
I		MAP	Manifold Absolute Pressure	P.S.	Power Steering
ID.	Inner Diameter	MAP	Manifold Absolute Pressure	P.SOUND	Premium Sound
IG or IGN.	Ignition	M.A. SUSP	Multi-Adjustable Suspension	PSTN	Piston
I.	Island	M EAST	Middle East	PTC	Positive Temperature Coefficient
ILLUMI.	Illumination	M/F	Maintenance Free	P.T.O	Power Take Off
IMMOBI.	Immobilizer	MIR	Mirror	PU	Pickup
IM.	Inlet	MI	Mainland	P.W or P' WINDOW	Power Window
IND	Indicator	MLD or MLDG	Moulding	PWRGT LIFTR	Power Gate Lift
INHIB.	Inhibitor	MM	Millimeter(s)	PWT	Powertrain
INJ	Injection	M.P.	Multipoint	Q	
INN.	Inner	M.PX	Multiplex	QTR.	Quarter
INS.	Insulation	MRN	Maroon	QTY	Quantity
INSP	Inspection	MT. & MTC	Mounting	R	
INST	Instrument	MT	Manual Transmission	R	Final Gear Ratio
INT	Interior	N		. R or (R)	Right
INT. COOLER	Inter-cooler	N-	Number of Teeth	RAD.	Radiator
INTER	Intermediate	NARR	Narrow	RE	Rotary Engine
INTMT. or INTERMIT.	Intermittent	NIC	Normal Close	RECIPRO	Reciprocating Engine (=Conventional Engine)
I.R.S. or I.R. SUSP	Independent Rear Suspension	N.O	Normal Open	REFRIGER	Refrigerator Van
I.S.C.	Idle Speed Control	NO	Number	REG. or REGU	Regular
IVRY	Ivory	NON-SP.	Non Special Equipment	REG. GAS	Regular Gasoline
K		NON TILT	Non Tilting	REGUL	Regulator
.KG	.Kilogram(s)	NOR	Normal	REL.	Release
.KM	.Kilometer(s)	NOZ	Nozzle	REM CON	Remote Controlled
.KW	Kilowatt(s)	N.S.W	New South Wales (Aust.)	RET.	Return
L		NVGT. CPU	Navigation Computer	RETAIN	Retaining
L or (L)	Left	NZ.	New Zealand	RETRACT	Retractable
L.	Length -	O		REV	Reverse
.L	. Liter(s)	OD	Outer Diameter	RHD	Right Hand Drive
.L.T	.Liter(s) Tank	O	Over	RICO	Pneumatic
L.	Less. (=Without.)	O FLTR	Oil Filter	R.H. SIDE	Right Hand Side
L/A A. SUSP	Less Automatic Adjusting Suspension	O.H	Over Head	REINF	Reinforcement
L/A C	Less Air Conditioner	OHC	Overhead Camshaft	R or RR	Rear
L/BODY	Long Body	OIL CONSUMP	Oil Consumption	S	
L/BOX	Long Box	OP	Optional	S	Side
L/CPMI	Luggage Compartment	ORD. BY	Order By	(S)	Secondary
		O.S	Oversize	SAFE	Safety

Abbreviation	Definition	Abbreviation	Definition	Abbreviation	Definition
S. AFRICA	South Africa	TURB.	Turbocharge		
SAUDI	Saudi Arabia	TWN	Twin		
S/BODY	Short Body	U			
S/BOX	Short Box	U.K.	The United Kingdom		
SDN	Sedan	U. LONG	Ultra Long		
S/DUTY	Standard Duty	UND	Under		
SELECT.	Selective Use	UP	Upper		
SEN	Sensor	URETANE	Urethane Rubber		
SERV.	Service	U.S.	Undersize		
S.FORK	Shift Fork	V			
SG., SQN or SIG.	Signal	..V	..Volt(s)		
SHIFT	Shift	..V.	Valve		
SHRD	Shroud	VAC.	Vacuum		
SHTR	Shutter	V.CHAMBER	Vacuum Chamber		
SILV. M or SILVER M.	Silver Metallic	Vent.	Ventilator or Ventilation		
SING	Singapore	V.G.R.	Variable Gear Ratio		
SILEN	Silencer	VNL	Vinyl		
SLDG	Sliding	W			
SLN	Saloon	..W	..Watt(s)		
SML.	Small	W. or WIND	Window		
S. NOSE	Short Nose	W-	Width-		
SOL.	Solenoid	W/..	With.. or Use with		
SP.	Speed	W/O LS VALVE	W/O Load Sensing Valve		
SPEC.	Specification	W/O OIL CONSUMP.	W/O Oil Consumption		
SPEEDO.	Speedometer	W/O P.T.O.	W/O Power Take-Off		
SPG.	Spring	WARN	Warning		
SPK.	Speaker (=Loud-speaker)	WAS.	Washer		
SPLR	Spoiler	W/AUTO BELT	With Automatic Shoulder Belt		
ST.	Steering	W/CHASSIS	Windshield Chassis		
STAB	Stabilizer	WA1	Water		
STD.	Standard	WGN	Wagon		
S/TIRE or S. TIRE	Single Tire	WHL	Wheel		
STYL	Styled	WHT	White		
SUB-TRNS	Sub-transmission	WIND	Window		
SUN SHLD	Sun Shield	WIP	Wiper		
SURGT	Surge Tank	W/O AUTO BELT	Without Automatic Shoulder Belt		
SUP GAS	Super Gasoline	W/O	Without		
SUSP	Suspension	WOOF	Wooler		
S V	Solenoid Valve	W. PUMP	Water Pump		
SW	Switch	WSHLD or WNDSHLD	Windshield		
S WASHER	Screen Washer (Windshield Washer)	WSTR or WTHSTP	Weatherstrip		
SWD	Sweden	W/1	With Tube (1-in)		
SYNC	Synchronizer	Y			
T		YLW	Yellow		
T	Ton(s)	YLW/GRN	Yellowish Green		
T-	Thickness-	YLW/WHT	Yellowish White		
TACH. & TACHOM	Tachometer	Z			
T ADJUST	Time Adjusting	Z.TEMP	Zone Temperature		
TACHOM TACHOM	Tachometer				
T BELT	Timing Belt				
T/CEILING	Top Ceiling				
TEMP	Temperature				
T/E	Transfer				
TH	Throttle				
THAI	Thailand				
THERM	Thermostat				
THROT	Throttle				
T/L	Tubeless				
T/MISSION	Transmission				
TR' CLMT	Truck Climates				
TR	Truck				
TRC GLIDE	Torque Glide				
T TOBAGO	Trinidad and Tobago				