

GROUP 00

GENERAL <BODY AND CHASSIS>

CONTENTS

HOW TO USE THIS MANUAL.....	00-3	MAINTENANCE SERVICE.....	00-41
TROUBLESHOOTING GUIDELINES	00-6	FUEL SYSTEM (TANK, PIPE LINES, CONNECTIONS AND FUEL TANK FILTER TUBE CAP) (CHECK FOR LEAKS)	00-41
HOW TO USE TROUBLESHOOTING/ INSPECTION SERVICE POINTS....	00-6	FUEL HOSES (CHECK CONDITION).....	00-41
VEHICLE IDENTIFICATION	00-15	AIR CLEANER ELEMENT (REPLACE)....	00-42
PRECAUTIONS BEFORE SERVICE.	00-21	EVAPORATIVE EMISSION CONTROL SYSTEM (CHECK FOR LEAKS AND CLOGGING)-EXCEPT EVAPORATIVE EMISSION CANISTER	00-42
TREATMENT BEFORE/AFTER DRIVING THROUGH WATER.....	00-24	SPARK PLUGS(REPLACE)	00-42
TOWING AND HOISTING	00-27	IGNITION CABLES(REPLACE)	00-43
GENERAL DATA AND SPECIFICATIONS	00-30	TIMING BELT(REPLACE).....	00-43
TIGHTENING TORQUE.....	00-34	DRIVE BELT (FOR WATER PUMP AND GENERATOR) (CHECK CONDITION)	00-43
LUBRICATION AND MAINTENANCE	00-35	ENGINE OIL (CHANGE).....	00-47
RECOMMENDED LUBRICANTS AND LUBRICANT CAPACITIES TABLE..	00-36	ENGINE OIL FILTER (CHANGE)	00-47
SCHEDULED MAINTENANCE TABLE	00-39	AUTOMATIC TRANSMISSION FLUID (CHECK FLUID LEVEL)	00-48
		TRANSFER OIL LEVEL CHECK.....	00-49
		ENGINE COOLANT (CHANGE)	00-50
		DISC BRAKE PADS (INSPECT FOR WEAR)	00-52
		REAR DRUM BRAKE LININGS AND REAR WHEEL CYLINDERS (INSPECT FOR WEAR AND LEAKS).....	00-52
		BRAKE HOSES (CHECK FOR DETERIORATION OR LEAKS)	00-53

Continued on next page

BALL JOINT AND STEERING LINKAGE SEALS (INSPECT FOR GREASE LEAKS AND DAMAGE)	00-53	(LUBRICATE WITH GREASE)	00-55
DRIVE SHAFT BOOTS (INSPECT FOR GREASE LEAKS AND DAMAGE)	00-53	EXHAUST SYSTEM (CONNECTION PORTION OF MUFFLER, PIPINGS AND CONVERTER HEAT SHIELDS) (CHECK AND SERVICE AS REQUIRED)	00-55
BALL JOINT WITH GREASE FITTING (LUBRICATE WITH GREASE)	00-54	SRS MAINTENANCE (SRS COMPONENT CHECK-DAMAGE, FUNCTION, CONNECTION TO WIRING HARNESS, ETC)	00-56
REAR AXLE OIL (LIMITED SLIP DIFFERENTIAL) (CHANGE)	00-54	TIRES (ROTATE THE TIRES)	00-60
FRONT AXLE AND REAR AXLE (CONVENTIONAL DIFFERENTIAL) (INSPECT OIL LEVEL)	00-55	MAIN SEALANT AND ADHESIVE TABLE.	00-61
PROPELLER SHAFT JOINTS			

HOW TO USE THIS MANUAL

M1001000100358

MAINTENANCE, REPAIR AND SERVICING EXPLANATIONS

This manual provides explanations, etc. concerning procedures for the inspection, maintenance, repair and servicing of the subject model. Unless otherwise specified, each service procedure covers all models. Procedures covering specific models are identified by the model codes, or similar designation (engine type, transmission type, etc.). A description of these designations is covered in this manual under "VEHICLE IDENTIFICATION."

ON-VEHICLE SERVICE

"ON-VEHICLE SERVICE" section has procedures for performing inspections and adjustments of particularly important components. These procedures are done with regard to maintenance and servicing, but other inspections (looseness, play, cracking, damage, etc.) must also be performed.

SERVICE PROCEDURES

The service steps are arranged in numerical order. Attention to be paid in performing vehicle service is described in detail in SERVICE POINTS.

DEFINITION OF TERMS

STANDARD VALUE

Indicates the value used as the standard for judging whether or not a part or setting up on inspection is correct.

LIMIT

Shows the maximum or minimum value for judging whether or not a part or setting up on inspection is acceptable.

REFERENCE VALUE

Indicates the adjustment value prior to starting the work (presented in order to facilitate assembly and adjustment procedures, and so they can be completed in a shorter time).

DANGER, WARNING, AND CAUTION

DANGER, WARNING, and CAUTION call special attention to a necessary action or to an action that must be avoided. The differences among DANGER, WARNING, and CAUTION are as follows:

- If a DANGER is not followed, the result is severe bodily harm or even death.
- If a WARNING is not followed, the result could be bodily injury.
- If a CAUTION is not followed, the result could be damage to the vehicle, vehicle components or service equipment.

TIGHTENING TORQUE INDICATION

The tightening torque indicates a median and its tolerance by a unit of N·m(in-lb) or N·m (ft-lb). For fasteners with no assigned torque value, refer to [P.00-34](#).

1. The tolerance of the basic value is within $\pm 10\%$.
2. Special bolts or the like are in use.
3. Special tightening methods are used.

SPECIAL TOOL NOTE

Only MMC special tool part numbers are called out in the repair sections of this manual. Please refer to the special tool cross reference chart located at the beginning of each group for a cross reference from the MMC special tool number to the special tool number that is available in your market.

ABBREVIATIONS

The following abbreviations are used in this manual for classification of model types.

A/T:Indicates automatic transmission, or models equipped with automatic transmission.

MFI:Indicates multiport fuel injection, or engines equipped with multiport fuel injection.

A/C:Indicates air conditioning.

3.0L Engine:Indicates the 3.0 liter <6G72> engine, or a model equipped with such an engine.

3.5L Engine:Indicates the 3.5 liter <6G74> engine, or a model equipped with such an engine.

EXPLANATION OF MANUAL CONTENTS

Indicates procedures to be performed before the work in that section is started, and procedures to be performed after the work in that section is finished.

Component diagram

A diagram of the component parts is provided near the front of each section in order to give the reader a better understanding of the installed condition of component parts.

Maintenance and servicing procedures

The numbers provided within the diagram indicate the sequence for maintenance and servicing procedures.

- Removal steps :

The part designation number corresponds to the number in the illustration to indicate removal steps.

- Disassembly steps :

The part designation number corresponds to the number in the illustration to indicate disassembly steps.

- Installation steps :

Specified in case installation is impossible in reverse order of removal steps. Omitted if installation is possible in reverse order of removal steps.

- Assembly steps :

Specified in case assembly is impossible in reverse order of disassembly steps. Omitted if assembly is possible in reverse order of disassembly steps.

Classifications of major maintenance / service points

When there are major points relative to maintenance and servicing procedures (such as essential maintenance and service points, maintenance and service standard values, information regarding the use of special tools, etc.). These are arranged together as major maintenance and service points and explained in detail.

<<A>> : Indicates that there are essential points for removal or disassembly.

>>A<< : Indicates that there are essential points for installation or assembly.

Symbols for lubrication, sealants and adhesives

Symbols are used to show the locations for lubrication and for application of sealants and adhesives. These symbols are included in the diagram of component parts or on the page following the component parts page. The symbols do not always have accompanying text to support that symbol.



: Grease
(Multi-purpose grease unless there is a brand or type specified)



: Sealant or adhesive



: Brake fluid or automatic transmission fluid



: Engine oil, gear oil or air conditioning compressor oil



: Adhesive tape or butyl rubber tape

Indicates the group title.

Indicates the section title.

Indicates the group number.

Indicates the page number.

BASIC BRAKE SYSTEM
FRONT DISC BRAKE ASSEMBLY

35A-81

FRONT DISC BRAKE ASSEMBLY

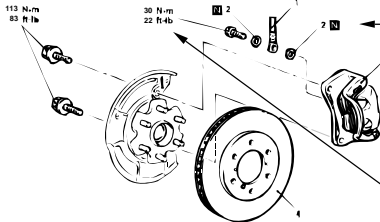
REMOVAL AND INSTALLATION

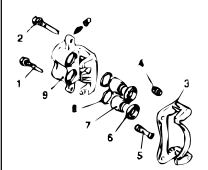
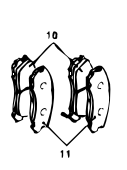
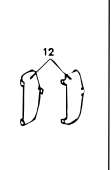
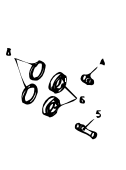
Pre-removal Operation

- Brake Fluid Draining

Post-installation Operation

- Brake Fluid Supplying and Air Bleeding (Refer to .)



			
BRAKE CALIPER KIT	PAD SET	SHIM KIT	SEAL AND BOOT KIT

REMOVAL STEPS

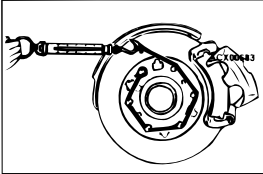
- 1. BRAKE HOSE CONNECTION
- 2. GASKET

REMOVAL STEPS (Cont.)

- 3. DISC BRAKE ASSEMBLY
- 4. BRAKE DISC

Required Special Tool:

- MB990520: Disc Brake Piston Expander



INSTALLATION SERVICE POINT

>>A<< DISC BRAKE ASSEMBLY INSTALLATION

- 1. To check the brake drag force after mounting the pad, measure the hub torque in the advancing direction using a spring balance with the pad is removed.

CAUTION
Do not allow any oil, grease or other contamination to contact the friction surfaces of the pads and brake discs.
2. After re-installing the caliper support to the knuckle, install the pad clips and the pads to the caliper support.

Mark **N** denotes non-reusable part.

Denotes tightening torque. If there is no indication of tightening torque, refer to tightening torque

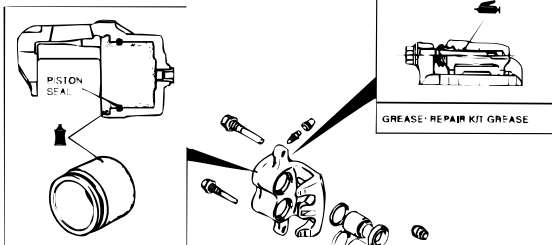
Repair kit or parts sets are shown. (Only very frequently used parts are shown.)

Operating procedures, cautions, etc. Removal, installation, disassembly and assembly are described.

The title of the page (following the page on which the diagram of component parts is presented) indicating the locations of lubrication and sealing procedures.

Indicates (by symbols) where lubrication is necessary.

LUBRICATION AND SEALING POINTS



GREASE REPAIR KIT GREASE

TROUBLESHOOTING GUIDELINES

M1001008800254

VERIFY THE COMPLAINT

- Make sure the customer's complaint and the service writer's work order description are understood before starting work.
- Make sure the correct operation of the system is understood. Read the service manual description to verify any aspect of normal system operation.
- Operate the system to see the symptoms. Look for other symptoms that were not reported by the customer, or on the work order, that may be related to the problem.

DETERMINE POSSIBLE CAUSES

Compare the confirmed symptoms to the diagnostic symptom indexes to get to the right diagnosis procedure.

If the confirmed symptoms can not be found on any symptom index, determine other possible causes.

- Analyze the system diagrams and list all possible causes for the problem symptoms.
- Rank all these possible causes in order of probability, based on how much of the system they cover, how likely they are to be the cause, and how easy they will be to check. Be sure to take experience into account. Consider the causes of similar problems seen in the past. The list of causes should be ranked in order from general to specific, from most-likely to least-likely, and from easy-to-check to hard-to-check.

FIND THE PROBLEM

After the symptoms have been confirmed, and probable causes have been identified, the next step is to make step-by-step checks of the suspected system components, junctions, and links in logical order. Use the diagnostic procedures in the service manual whenever possible. Follow these procedures carefully to avoid missing an important step in the diagnosis sequence. It might be the skipped step that leads to the solution of the problem.

If the service manual doesn't have step-by-step procedures to help diagnose the problem, come up with a series of checks based on the ranked list of probable causes. Troubleshooting checks should be made in the order that the list of causes was ranked:

- general to specific
- most-likely to least-likely
- easy-to-check to hard-to-check

REPAIR THE PROBLEM

When the step-by-step troubleshooting checks find a fault, perform the proper repairs. Make sure to fix the root cause of the problem, not just the symptom. Just fixing the symptom, without fixing the root cause, will cause the symptom to eventually return.

VERIFY THE REPAIR

After repairs are made, recheck the operation of the system to confirm that the problem is eliminated. Be sure to check the system thoroughly. Sometimes new problems are revealed after repairs have been made.

HOW TO USE TROUBLESHOOTING/INSPECTION SERVICE POINTS

M1001000200300

Troubleshooting of electronic control systems for which the scan tool can be used follows the basic outline described below. Even in systems for which the scan tool cannot be used, part of these systems still follows this outline.

TROUBLESHOOTING CONTENTS

1. STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

Troubleshooting strategy is shown in each group.

2. SYSTEM OPERATION AND SYMPTOM VERIFICATION TESTS

If verification of the symptom(s) is difficult, procedures for checking operation and verifying symptoms are shown.

3. DIAGNOSTIC FUNCTION

The following trouble code diagnosis are shown.

- How to read diagnostic trouble codes
- How to erase diagnostic trouble codes
- Input inspection service points

4. DIAGNOSTIC TROUBLE CODE CHART

If the scan tool displays a diagnostic trouble code, retrieve an applicable inspection procedure according to this chart.

5. SYMPTOM CHART

If there are symptoms, even though the results of inspection using the scan tool show that all diagnostic trouble codes are normal, inspection procedures for each symptom will be found by using this chart.

6. DTC PROCEDURES

Indicates the inspection procedures corresponding to each diagnostic trouble codes. (Refer to P.00-7.)

7. SYMPTOM PROCEDURES

Indicates the inspection procedures corresponding to each symptoms classified in the Symptom Chart. (Refer to P.00-7)

8. SERVICE DATA REFERENCE TABLE

Inspection items and normal judgment values have been provided in this chart as reference information.

9. CHECK AT ECU TERMINALS

Terminal numbers for the ECU connectors, inspection items, and standard values have been provided in this chart as reference information.

Terminal Voltage Checks

1. Connect a needle-nosed wire probe to a voltmeter probe.

CAUTION

Short-circuiting the positive (+) probe between a connector terminal and ground could damage the vehicle wiring, the sensor, the ECU, or all three. Use care to prevent this!

2. Insert the needle-nosed wire probe into each of the ECU connector terminals from the wire side, and measure the voltage while referring to the check chart.

HOW TO USE THE INSPECTION PROCEDURES

The causes of many of the problems occurring in electric circuitry are generally the connectors, components, the ECU, and the harnesses between connectors, in that order. These inspection procedures follow this order. They first try to discover a problem with a connector or a defective component.

NOTE: Measure voltage with the ECU connectors connected.

You may find it convenient to pull out the ECU to make it easier to reach the connector terminals. Checks don't have to be carried out in the order given in the chart.

3. If voltage readings differ from normal condition values, check related sensors, actuators, and wiring, then replace or repair.
4. After repair or replacement, recheck with the voltmeter to confirm that the repair has corrected the problem.

Terminal Resistance and Continuity Checks

1. Turn the ignition switch to "OFF" position.
2. Disconnect the ECU connector.

CAUTION

If resistance and continuity checks are performed on the wrong terminals, damage to the vehicle wiring, sensors, ECU, and/or ohmmeter may occur. Use care to prevent this!

3. Measure the resistance and check for continuity between the terminals of the ECU harness-side connector while referring to the check chart.

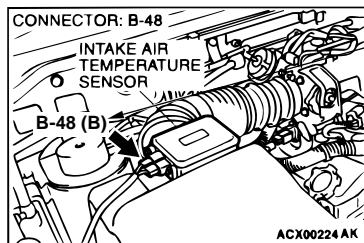
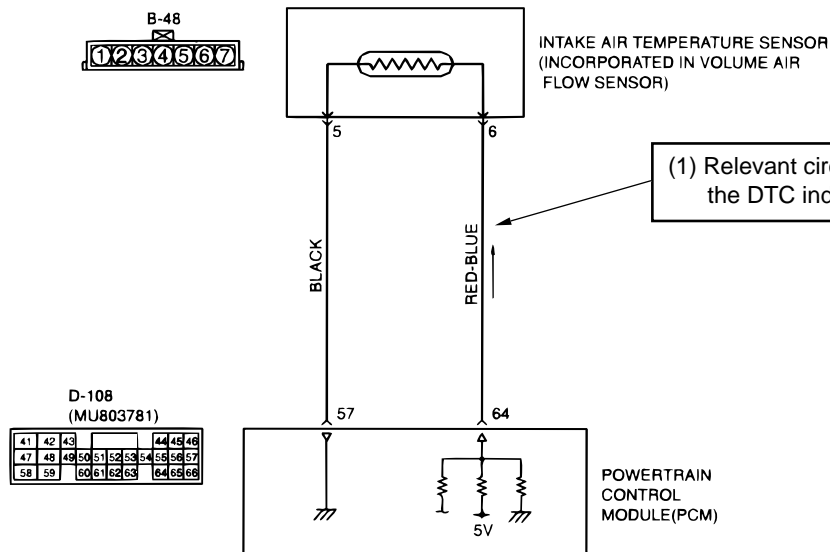
NOTE: Checks don't have to be carried out in the order given in the chart.

4. If the ohmmeter shows any deviation from the Normal Condition value, check the corresponding sensor, actuator and related electrical wiring, then repair or replace.
5. After repair or replacement, recheck with the ohmmeter to confirm that the repair has corrected the problem.

10. INSPECTION PROCEDURES USING AN OSCILLOSCOPE

When there are inspection procedures using an oscilloscope, these are listed here.

DTC P0110: Intake Air Temperature Circuit Malfunction



(2) For connector color, refer to GROUP 80A, How to read configuration diagrams.

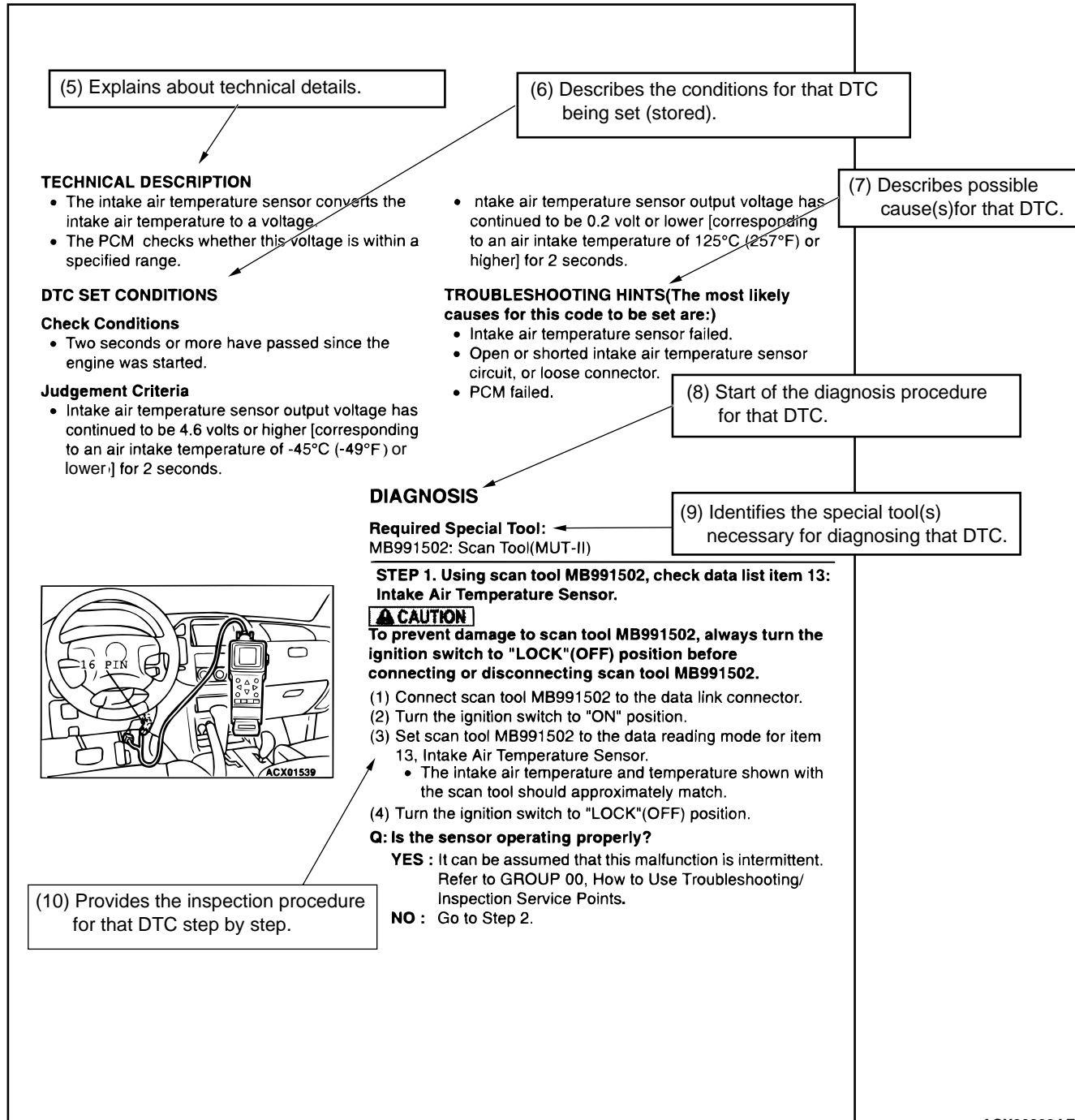
(3) Shows the location of the connector(s) from the circuit(s) above.

(4) Explains about the operation principle of the component or its relevant parts in that circuit.

CIRCUIT OPERATION

- Approximately 5 volts are applied to the intake air temperature sensor output terminal (terminal 6) from the PCM (terminal 64) via the resistor in the PCM. The ground terminal (terminal 5) is grounded with or PCM (terminal 57).
- The intake air temperature sensor is a negative temperature coefficient type of resistor. When the intake air temperature rises, the resistance decreases.
- The intake air temperature sensor output voltage increases when the resistance increases and decreases when the resistance decreases.

ACX00861AF



ACX00862AF

HARNESS INSPECTION

Check for an open or short circuit in the harness between the terminals which were faulty according to the connector measurements. Carry out this inspection while referring to GROUP 00E, Harness Connector Inspection P.00E-2. Here, "Check harness between power supply and terminal xx" also includes checking for blown fuse. For inspection service points when there is a blown fuse, refer to "Inspection Service Points for a Blown Fuse P.00-15."

MEASURES TO TAKE AFTER REPLACING THE ECU

If the trouble symptoms have not disappeared even after replacing the ECU, repeat the inspection procedure from the beginning.

CONNECTOR MEASUREMENT SERVICE POINTS

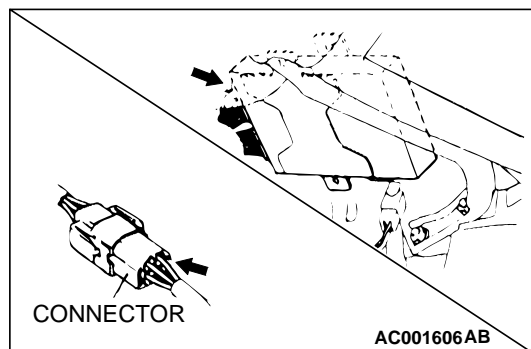
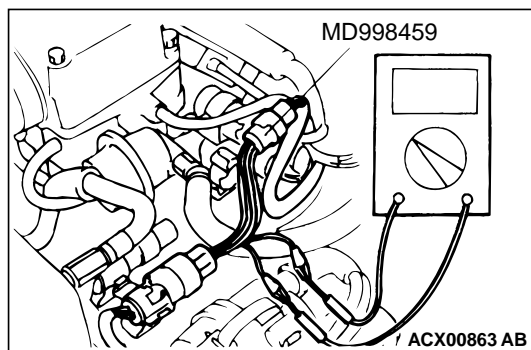
Turn the ignition switch to "OFF" when connecting and disconnecting the connectors. Turn the ignition switch to "ON" when measuring if there are no instructions to the contrary.

IF INSPECTING WITH THE CONNECTOR CONNECTED**Required Special Tool:**

MD998459: Test Harness

Waterproof Connectors

Be sure to use special tool, MD998459. Never insert a test probe from the harness side, as this will reduce the waterproof performance and result in corrosion.

**Ordinary (non-waterproof) Connectors**

Check by inserting the multi-meter test probe from the harness side. Note that if the connector (control unit, etc.) is too small to permit insertion of the test probe, it should not be forced; use the backprobing tool for this purpose.

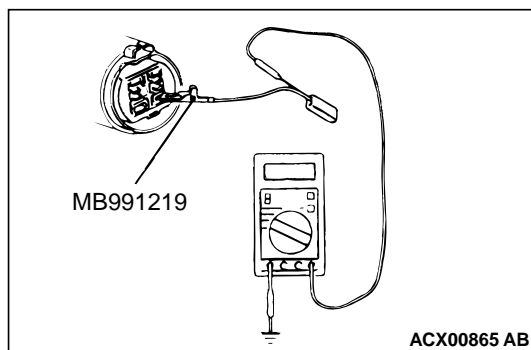
IF INSPECTING WITH THE CONNECTOR DISCONNECTED**<When Inspecting a Female Pin>**

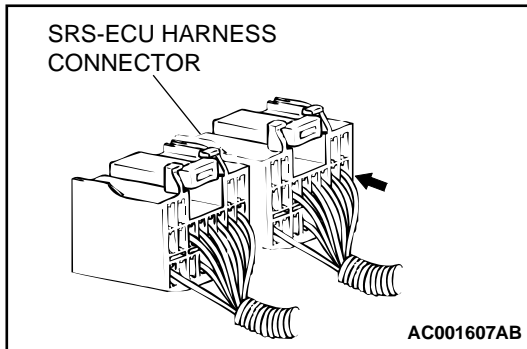
- From front side of the connector

Required Special Tool:

MB991219: Inspection Harness (Included in MB991223, Harness Set)

The inspection harness for connector pin contact pressure should be used. The test probe should never be forcibly inserted, as it may cause a defective contact.





- From back side of the connector (SRS-ECU harness side connector)
Since the SRS-ECU harness connector is plated to improve conductivity, observe the warning below when checking this connector.

⚠ WARNING

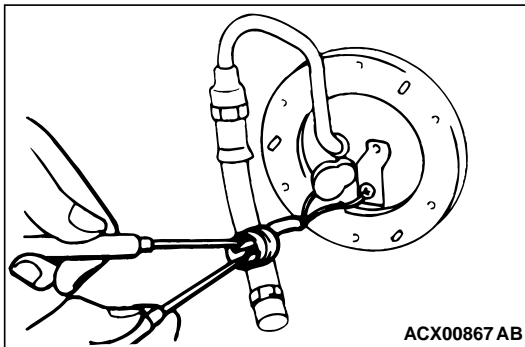
Insert the backprobing tool into the connector from the harness side, and connect the tester to the backprobing tool. If any tool other than the backprobing tool is used, it may cause damage to the harness and other components. Furthermore, measurement should not be carried out by touching the backprobing tool directly against the terminals from the front of the connector. The terminals are plated to increase their conductivity, so that if they are touched directly by the backprobing tool, the plating may break, which will decrease reliability.

<When Inspecting a Male Pin>

⚠ CAUTION

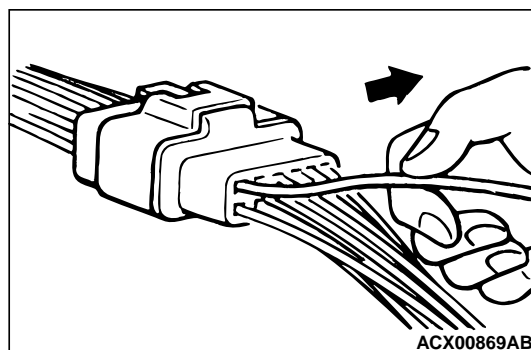
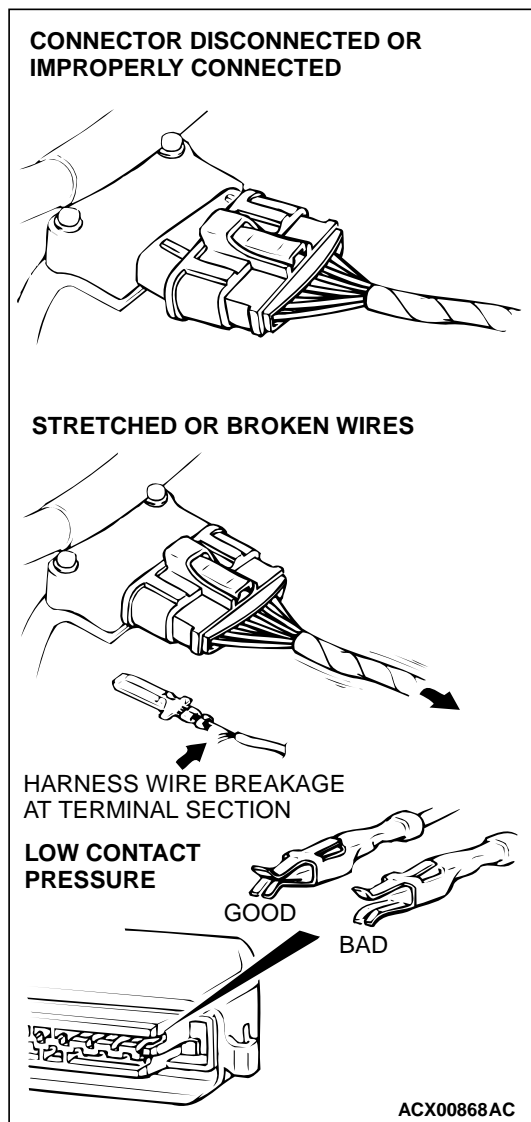
At this time, be careful not to short the connector pins with the test probes. To do so may damage the circuits inside the ECU.

Touch the pin directly with the test bar.



CONNECTOR INSPECTION SERVICE POINTS**VISUAL INSPECTION**

- Connector is disconnected or improperly connected
- Connector pins are pulled out
- Stretched or broken wires at terminal section
- Low contact pressure between male and female terminals
- Low connection pressure due to rusted terminals or foreign matter lodged in terminals

**CONNECTOR PIN INSPECTION**

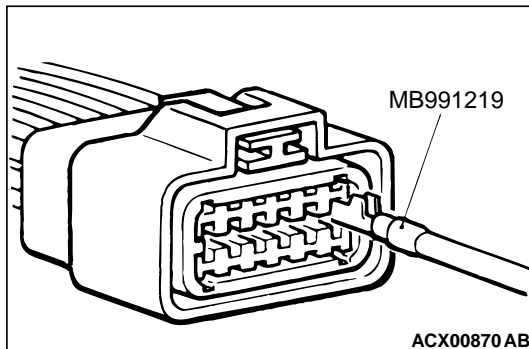
If the connector pin stopper is damaged, the terminal connections (male and female pins) will not be perfect even when the connector body is connected, because the pins may pull out of the back side of the connector. Therefore, gently pull the wires one by one to make sure that no pins pull out of the connector.

CONNECTOR ENGAGEMENT INSPECTION

Required Special Tool:

MB991219: Inspection Harness (contained in MB991223 Test Harness)

Use special tool, MB991219 to inspect the engagement of the male pins and female pins. [Pin drawing force: 1 N (0.2 pound) or more]



HOW TO COPE WITH INTERMITTENT MALFUNCTIONS

Most intermittent malfunctions occur under certain conditions. If those conditions can be identified, the cause will be easier to find.

TO COPE WITH INTERMITTENT MALFUNCTION;

1. Ask the customer about the malfunction

Ask what it feels like, what it sounds like, etc. Then ask about driving conditions, weather, frequency of occurrence, and so on.

2. Determine the conditions from the customer's responses

Typically, almost all intermittent malfunctions occur from conditions like vibration, temperature and/or moisture change, poor connections. From the customer's responses, it should be reasoned which condition is most likely.

3. Use simulation test

In the cases of vibration or poor connections, use the simulation tests below to attempt to duplicate the customer's complaint. Determine the most likely circuit(s) and perform the simulation tests on the connectors and parts of that circuit(s). Be sure to use the inspection procedures provided for diagnostic trouble codes and trouble symptoms.

For temperature and/or moisture condition related intermittent malfunctions, try to change the conditions of the suspected circuit components, then use the simulation tests below.

4. Verify the intermittent malfunction is eliminated

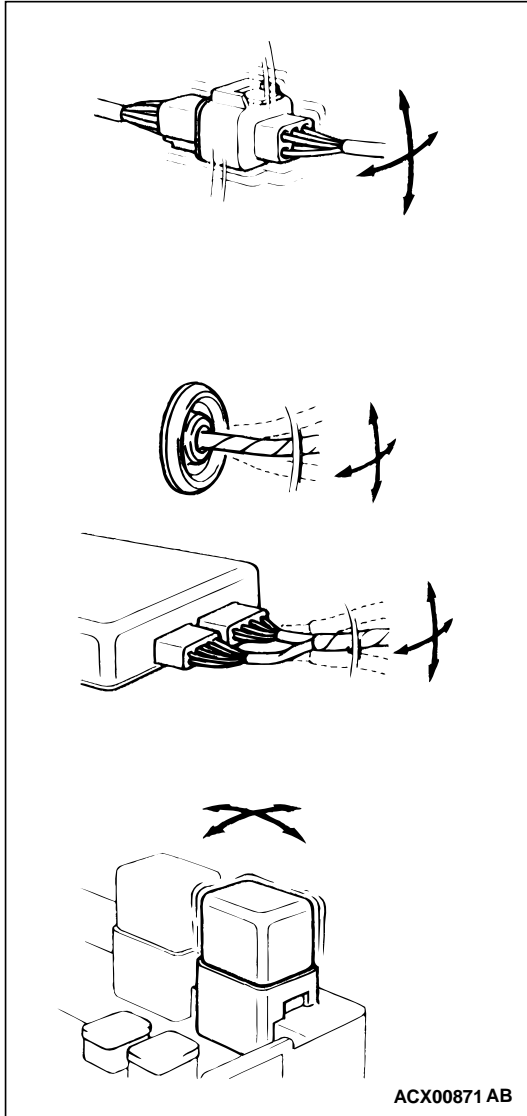
Repair the malfunctioning part and try to duplicate the condition(s) again to verify the intermittent malfunction has been eliminated.

SIMULATION TESTS

NOTE: In case of difficulty in finding the cause of the intermittent malfunction, the data recorder function in the scan tool is effective.

For these simulation tests, shake, then gently bend, pull, and twist the wiring of each of these examples to duplicate the intermittent malfunction.

- Shake the connector up-and-down, and right-and-left.
- Shake the wiring harness up-and-down, and right-and-left. Especially, check the splice points of wiring harnesses carefully. Refer to GROUP 80B, SPLICE LOCATION [P.80B-2](#).
- Vibrate the part or sensor.

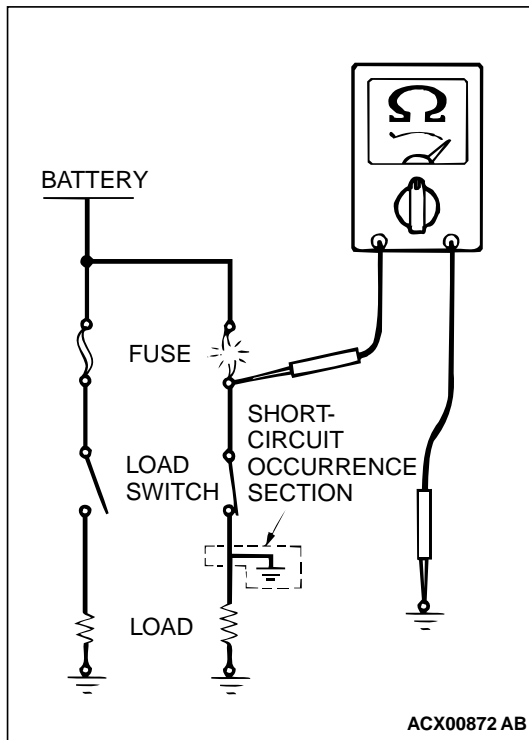


INSPECTION SERVICE POINTS FOR A BLOWN FUSE

Remove the blown fuse and measure the resistance between the load side of the blown fuse and the ground. Close the switches of all circuits which are connected to this fuse. If the resistance is almost $0\ \Omega$ at this time, there is a short somewhere between these switches and the load. If the resistance is not $0\ \Omega$, there is no short at the present time, but a momentary short has probably caused the fuse to blow.

The main causes of a short circuit are the following.

- Harness being clamped by the vehicle body
- Damage to the outer casing of the harness due to wear or heat
- Water getting into the connector or circuitry
- Human error (mistakenly shorting a circuit, etc.)

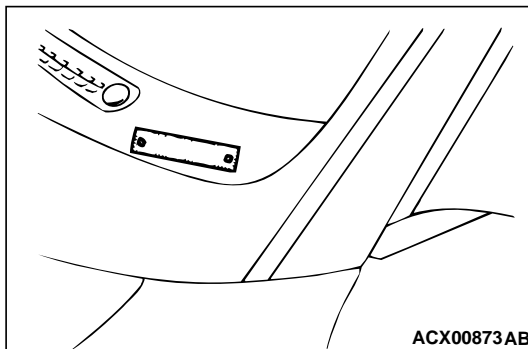


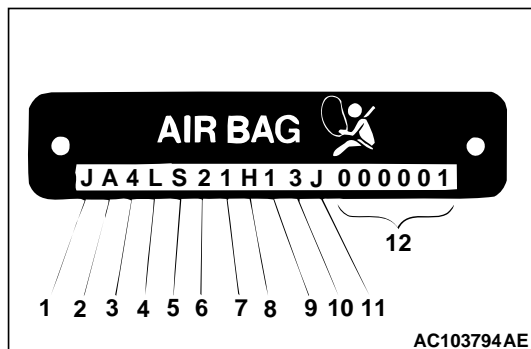
VEHICLE IDENTIFICATION

M1001000400360

VEHICLE IDENTIFICATION NUMBER LOCATION

The vehicle identification number (VIN) is located on a plate attached to the left top side of the instrument panel.





VEHICLE IDENTIFICATION CODE CHART PLATE

All vehicle identification numbers contain 17 digits. The vehicle number is a code which tells country, make, vehicle type, etc.

NO.	ITEM	CONTENTS
1	Country	J: Japan
2	Make	A: Mitsubishi
3	Vehicle type	4: Multi-purpose vehicle
4	Others	GROSS VEHICLE WEIGHT RATING/BRAKE SYSTEM L: 4001-5000 lbs/HYDRAULIC M: 5001-6000 lbs/HYDRAULIC
5	Line	S: MONTERO SPORT RWD T: MONTERO SPORT 4WD
6	Price class	2: Low 3: Medium 4: High
7	Body	1: 5-Door wagon
8	Engine	H: 3.0L R: 3.5L
9	Check digits*	0, 1, 2, 3, -----9, X
10	Model year	3: 2003 year
11	Plant	J: Nagoya-3
12	Serial number	000001 to 999999

NOTE: *: Check digit means a single number, or letter X, used to verify the accuracy of transcription of vehicle identification number.

VEHICLE IDENTIFICATION NUMBER LIST

VEHICLES FOR USA

VIN (EXCEPT SEQUENCE NUMBER)	BRAND	ENGINE DISPLACEMENT	MODEL CODE
JA4LS21H_3J_	MITSUBISHI MONTERO SPORT	3.0L	K86WRHEL2M
			K86WGRHEL2M
JA4LS31R_3J_		3.5L	K89WGRXEL2M
JA4LS41R_3J_			K89WGRPEL2M
JA4MT21H_3J_		3.0L	K96WRHEL2M
JA4MT21H_3J_			K96WGRHEL2M
JA4MT31R_3J_		3.5L	K99WGRXEL2M
JA4MT41R_3J_			K99WGRPEL2M

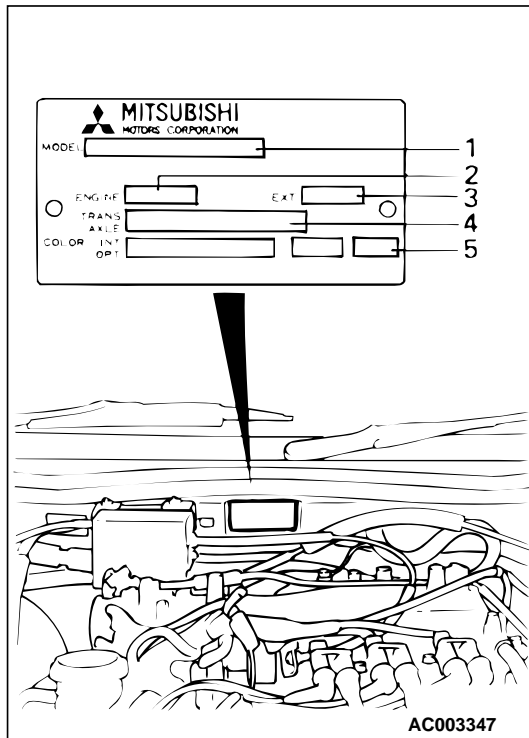
VEHICLES FOR CANADA

VIN (EXCEPT SEQUENCE NUMBER)	BRAND	ENGINE DISPLACEMENT	MODEL CODE
JA4MT21H_3J_	MITSUBISHI MONTERO SPORT	3.0L	K96WRHEL3M
			K96WGRHEL3M
JA4MT31R_3J_		3.5L	K99WGRXEL3M

VEHICLES INFORMATION CODE PLATE

The vehicle information code plate is riveted onto the cowl top outer panel in the engine compartment.

The plate shows model code, engine model, transmission model and body color code.



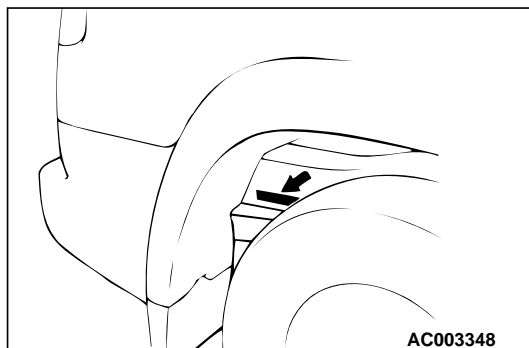
NO.	ITEM	CONTENTS	
1	MODEL	K96WG RHEL2M	K96WG: Vehicle model
			RHEL2M: Model series
2	ENGINE	6G72	Engine model
3	EXT	CA6A	Exterior code
4	TRANS AXLE	V4A51 4272	V4A51: Transmission model
			4272: Rear differential reduction
5	COLOR , INT OPT	R25 87V 03V	R25: Body color code
			87V: Interior code
			03V: Equipment code

For monotone color vehicles, the body color code shall be indicated. For two-tone vehicles, each color code only shall be indicated in series.

CHASSIS NUMBER

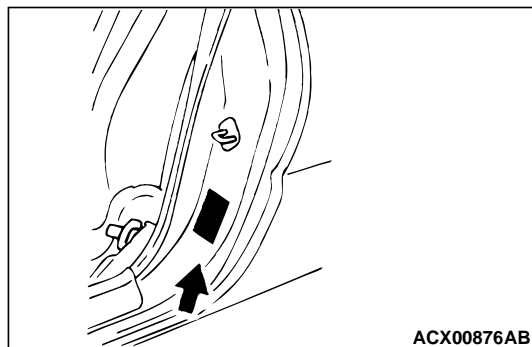
STAMPING LOCATION

The chassis number is stamped on the side of the frame near the right rear wheel.



CHASSIS NUMBER CODE CHART

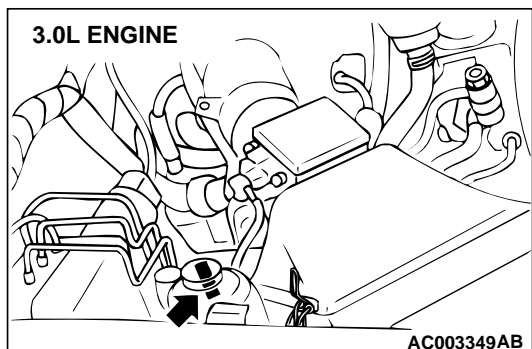
CHASSIS NUMBER CODE	CONTENTS	
K8601P000001	K860: Vehicle line	K860, K960; MONTERO SPORT (3.0L Engine)
		K890, K990; MONTERO SPORT (3.5L Engine)
	1P000001: Refer to 10th thru 17th digits of Vehicle Identification Number (vin) plate	



VEHICLE SAFETY CERTIFICATION LABEL

The vehicle safety certification label is attached to the face of the left door sill.

This label indicates the month and year of manufacture, Gross Vehicle Weight Rating (GVWR), front and rear Gross Vehicle Weight Rating (GAWR), and Vehicle Identification Number (VIN).



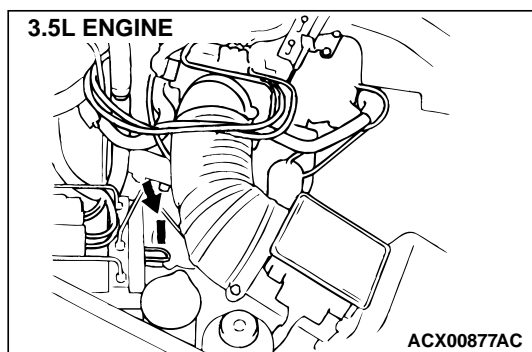
ENGINE MODEL STAMPING

The engine model is stamped on the cylinder block.

These engine model numbers are as shown as follows.

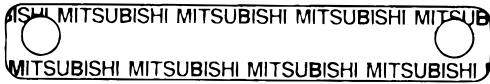
ENGINE MODEL	ENGINE DISPLACEMENT
6G72	3.0L
6G74	3.5L

The engine serial number is stamped near the engine model number.

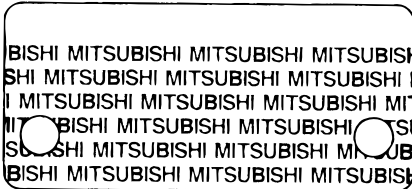


THEFT PROTECTION PLATE (VIN PLATE)

FOR ENGINE



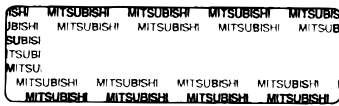
FOR TRANSMISSION



THEFT PROTECTION LABEL

FOR MAIN OUTER PANELS

[FOR ORIGINAL PARTS]



[FOR REPLACEMENT PARTS]



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THEFT PROTECTION

In order to protect against theft, a Vehicle Identification Number (VIN) is attached as a plate or label to the following major parts of the engine and transmission, as well as main outer panels: Engine cylinder block, Transmission housing, Fender, Doors, Liftgate, Quarter panel, Hook, Bumpers.

In addition, a theft-protection label is attached to replacement parts for the body outer panel main components, and the same data are stamped into replacement parts for the engine and the transmission.

⚠ CAUTION

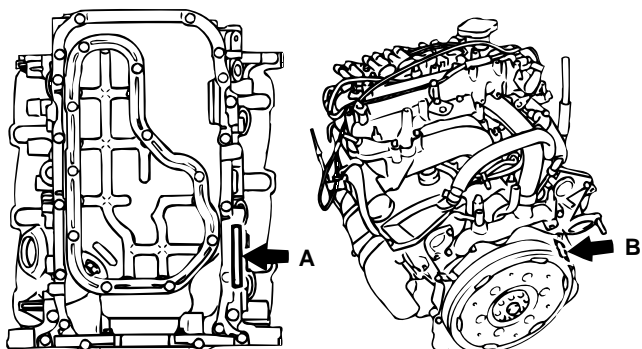
Cautions regarding panel repairs:

1. When repainting original parts, do so after first masking the theft-protection label. After painting, be sure to peel off the masking tape.
2. The theft-protection label for replacement parts is covered by masking tape, so such parts can be painted as is. The masking tape should be removed after painting is finished.
3. The theft-protection label should not be removed from original parts or replacement parts.

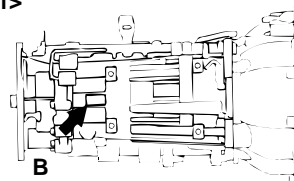
LOCATIONS

LABEL AREA (A: FOR ORIGINAL EQUIPMENT PARTS, B: FOR REPLACEMENT PARTS)

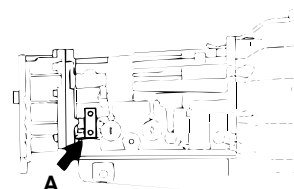
ENGINE



ENGINE UNDERSEIDE

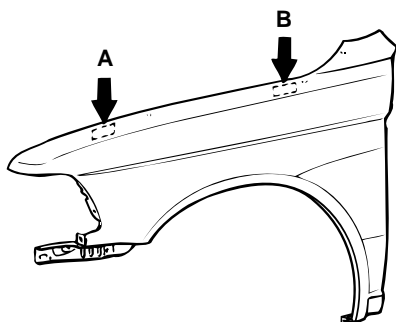
AUTOMATIC TRANSMISSION
<R4A51, V4A51>

UPPER SIDE

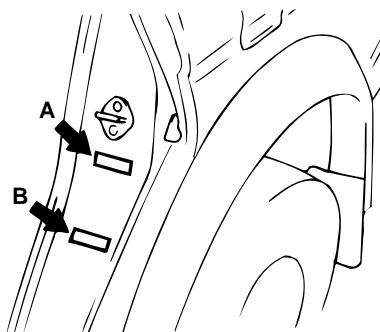


RIGHT SIDE

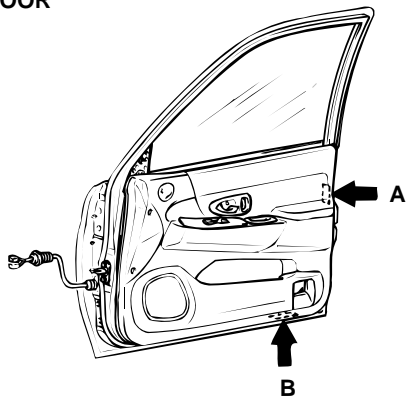
FENDER

THE ILLUSTRATION INDICATES LEFT OUTER SIDE.
RIGHT SIDE IS SYMMETRICALLY OPPOSITE.

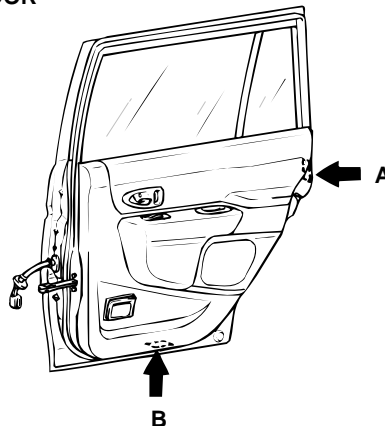
QUARTER PANEL

THE ILLUSTRATION INDICATES LEFT OUTER SIDE.
RIGHT SIDE IS SYMMETRICALLY OPPOSITE.

FRONT DOOR

THE ILLUSTRATION INDICATES RIGHT OUTER SIDE.
LEFT SIDE IS SYMMETRICALLY OPPOSITE.

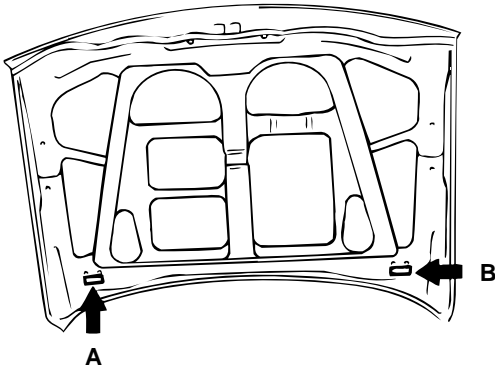
REAR DOOR

THE ILLUSTRATION INDICATES RIGHT OUTER SIDE.
LEFT SIDE IS SYMMETRICALLY OPPOSITE.

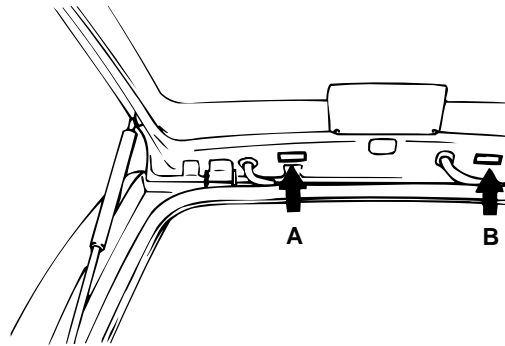
AC103838AB

LABEL AREA (A: FOR ORIGINAL EQUIPMENT PARTS, B: FOR REPLACEMENT PARTS)

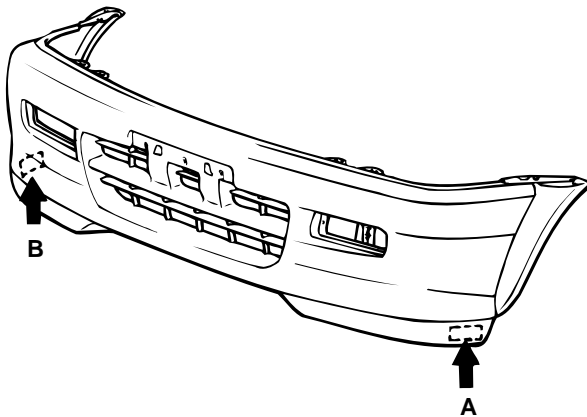
HOOD



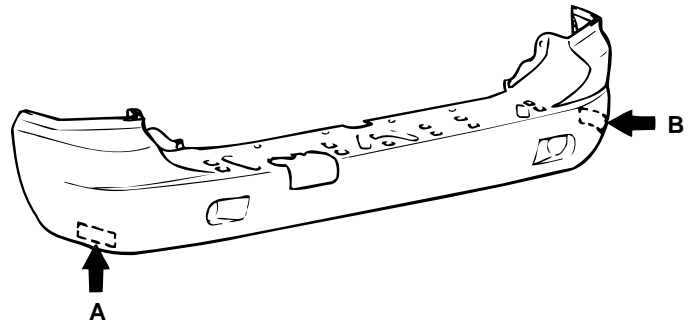
LIFTGATE



FRONT BUMPER



REAR BUMPER



AC003351AC

PRECAUTIONS BEFORE SERVICE

M1001000500260

SUPPLEMENTAL RESTRAINT SYSTEM (SRS)

1. Items to review when servicing SRS
 - (1) Be sure to read GROUP 52B, Supplemental Restraint System (SRS). For safe operation, please follow the directions and heed all warnings.

- (2) Wait at least 60 seconds after disconnecting the battery cable before doing any further work. The SRS system is designed to retain enough voltage to deploy the air bag even after the battery has been disconnected. Serious injury may result from unintended air bag deployment if work is done on the SRS system immediately after the battery cable is disconnected.

- (3) Warning labels must be heeded when servicing or handling SRS components. Warning labels can be found in the following locations.

- Hood
- Front impact sensor, side impact sensor
- Sun visor
- Glove box
- SRS-ECU
- Steering wheel
- Air bag module, side airbag modules
- Clock spring
- Frame
- Seat belt pre-tensioner

- (4) Always use the designated special tools and test equipment.

- (5) Store components removed from the SRS in a clean and dry place. The air bag module should be stored on a flat surface and placed so that the pad surface is facing upward.

- (6) Never attempt to disassemble or repair the SRS components (SRS-ECU, air bag module and clock spring, seat belt pre-tensioner). If there is a defect, replace the defective part.

- (7) Whenever you finish servicing the SRS, check the SRS warning light operation to make sure that the system functions properly.

- (8) Be sure to deploy the air bag before disposing of the air bag module or disposing of a vehicle equipped with an air bag. (Refer to GROUP 52B, Air Bag Module Disposal Procedures.)

2. Observe the following when carrying out operations on places where SRS components are installed, including operations not directly related to the SRS air bag.

- (1) When removing or installing parts, do not allow any impact or shock to occur to the SRS components.

- (2) If heat damage may occur during paint work, remove the SRS-ECU, the air bag module, clock spring, the front impact sensor, and the seat belt pre-tensioner.

- SRS-ECU, air bag module, clock spring, front impact sensor: 93 °C (200 °F) or more
- Seat belt pre-tensioner: 90 °C (194 °F) or more

SERVICING ELECTRICAL SYSTEM

WARNING

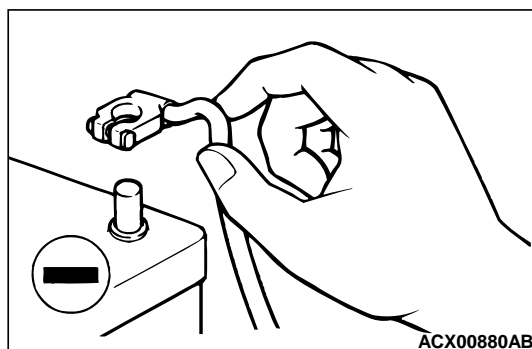
Battery posts, terminals and related accessories contain lead and lead compounds. WASH HANDS AFTER HANDLING.

1. Note the following before proceeding with working on the electrical system.

Never perform unauthorized modifications to any electrical device or wiring. Such modifications might lead to a vehicle malfunction, over-capacity or short-circuit that could result in a fire in the vehicle.

CAUTION

- Before connecting or disconnecting the negative battery cable, be sure to turn the ignition switch to the "LOCK" (OFF) position and turn off the lights. (If this is not done, there is the possibility of semiconductor parts being damaged.)
- After completion of the work (and the negative battery terminals is connected), warm up the engine and allow it to idle for approximately 10 minutes under the conditions described below in order to stabilize engine control conditions, and then check to be sure that the idle is satisfactory.



2. When servicing the electrical system, disconnect the negative cable terminal from the battery.

Engine coolant temperature: 85 – 95°C (185 – 203°F)

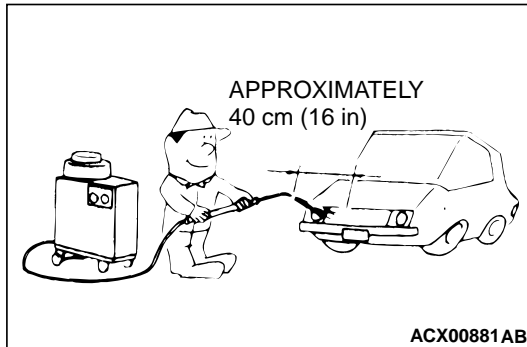
Lights and all accessories: OFF

Transmission: N or P position

Steering wheel: straight-forward position

VEHICLE WASHING

If high-pressure car-washing equipment or steam car-washing equipment is used to wash the vehicle, be sure to maintain the spray nozzle at a distance of at least approximately 40cm (16 inches) from any plastic parts and all opening parts (doors, luggage compartment, etc.).



APPLYING ANTI-CORROSION AGENT OR OTHER UNDERCOAT AGENTS

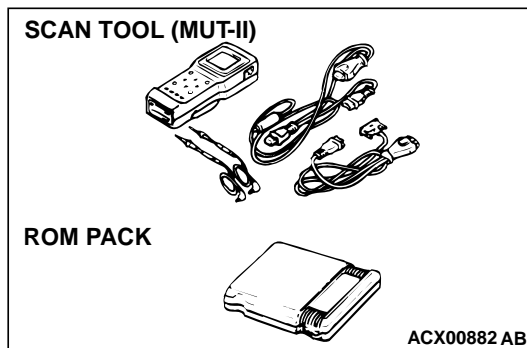
Be careful not to apply oil or grease to the heated oxygen sensor. If applied, the sensor may malfunction. Protect the heated oxygen sensor with a cover before applying anti-corrosion agent, etc.

SCAN TOOL (MUT-II)

CAUTION

Turn the ignition switch to "LOCK" (OFF) position before disconnecting or connecting the scan tool.

To operate the scan tool, refer to "MUT-II/MUT-II+Reference Manual Operating Instructions."



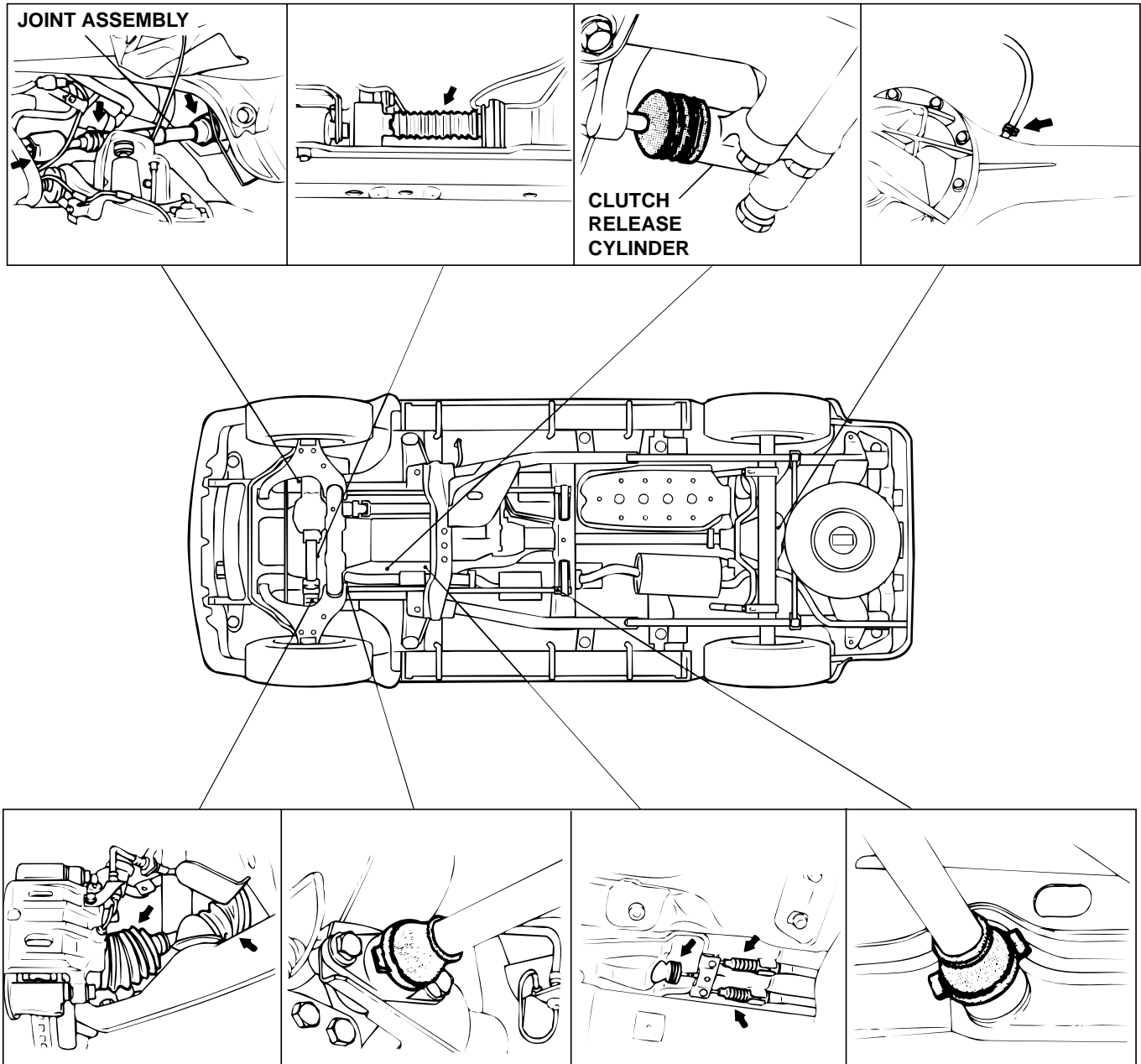
TREATMENT BEFORE/AFTER DRIVING THROUGH WATER

M1001000600104

INSPECTION AND SERVICE BEFORE FORDING A STREAM

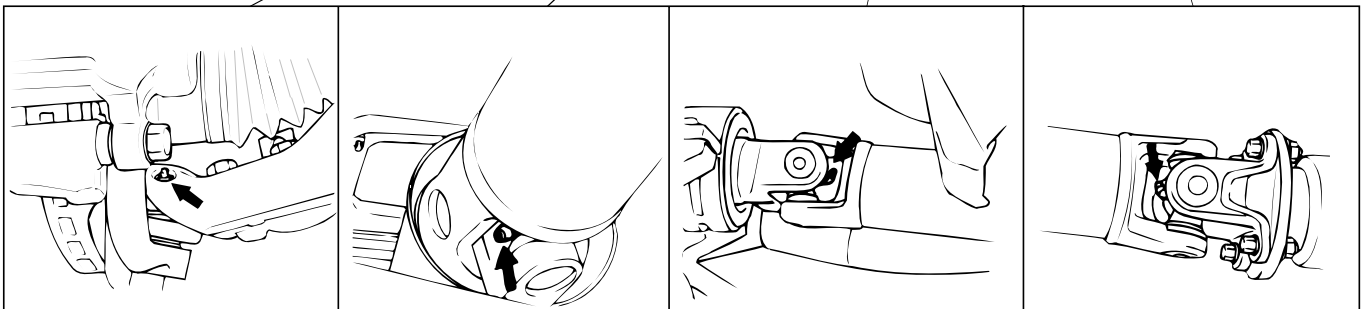
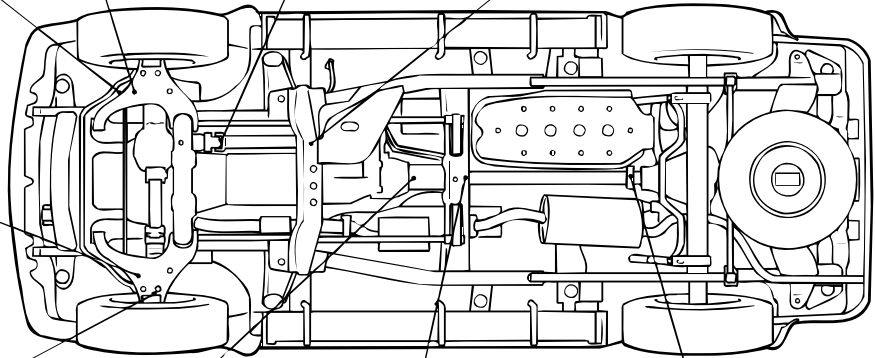
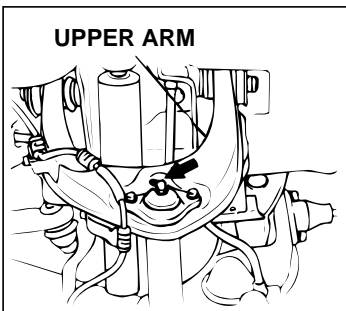
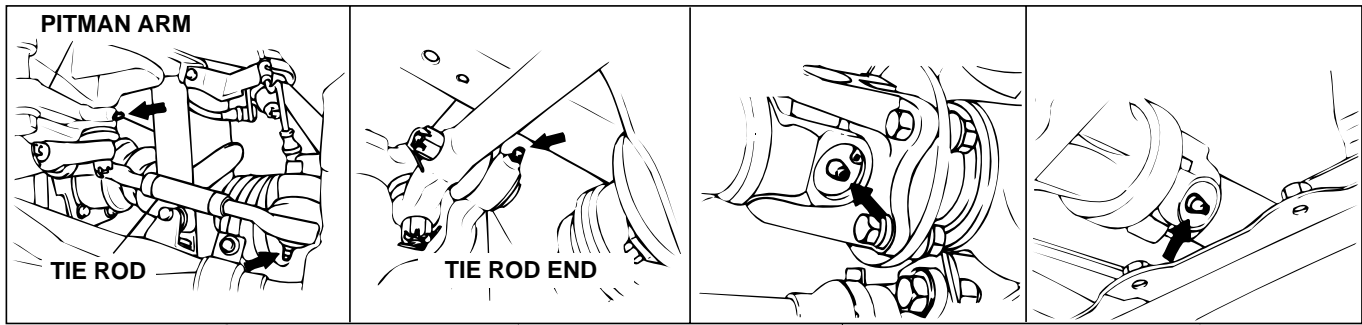
Vehicles which are driven through water, or which may possibly be driven through water, should be subjected to the following inspections and maintenance procedures in advance.

- Seal the speedometer cable with a water-resistant grease or tape.
- Inspect the dust boot and breather hose for cracks or damage, and replace them if cracks or damage are found.



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- Apply grease to the lubricating points of the front suspension, steering linkage and propeller shaft.

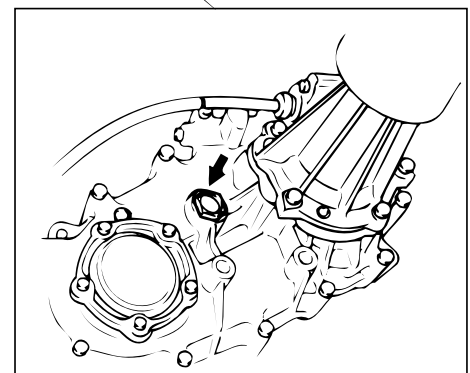
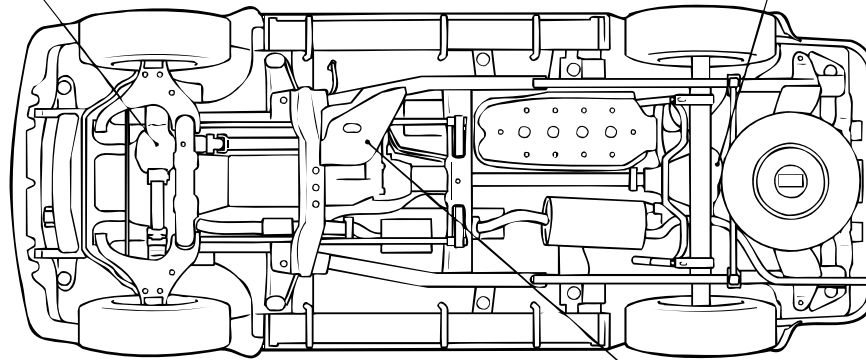
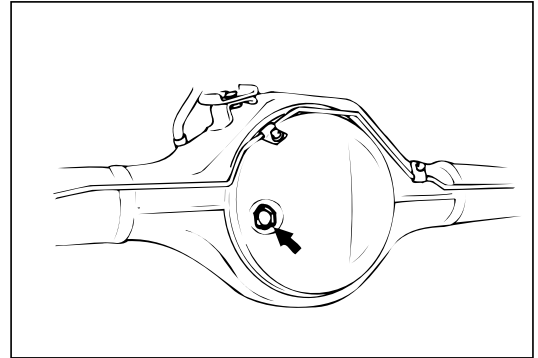
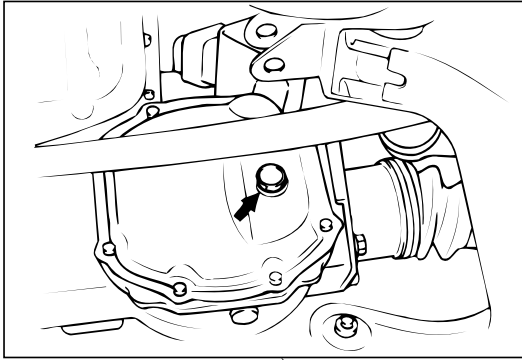


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**INSPECTION AND SERVICE AFTER
FORDING A STREAM**

After fording a stream, check the following points. If abnormal condition is evident, clean, replace or lubricate.

- Check for water, mud, sand, etc. in the rear brake drum, starter motor, brake pipe and fuel pipe.
- Check for water in the fluid or oil inside the front differential, rear differential, transmission and transfer.
- Apply grease to the lubricating points of the front suspension, steering linkage and propeller shaft.
- Check all boots and breather hoses for cracks and damage.



AC003354

TOWING AND HOISTING

M1001000800250

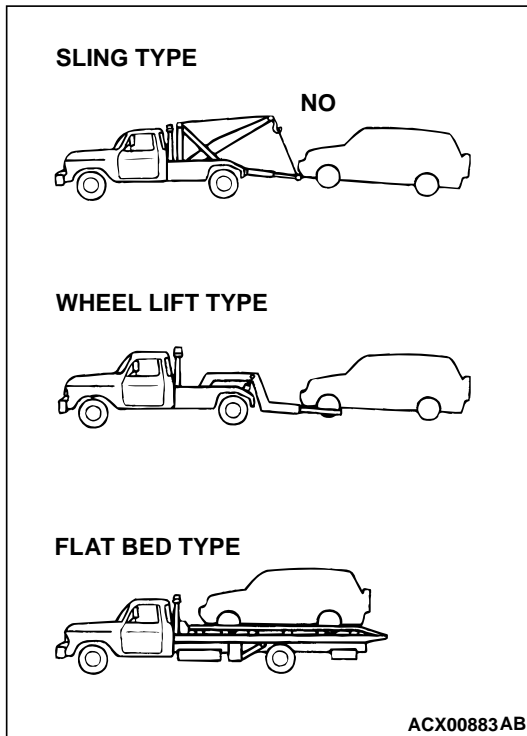
WRECKER TOWING RECOMMENDATION

FRONT TOWING PICKUP

CAUTION

- Do not tow this vehicle with a wrecker using sling-type equipment other wise the bumper may become deformed. If this vehicle is towed, use wheel lift or flat bed equipment.
- Make sure that the transmission remains in the "N" position.
- For the four-wheel-drive vehicle, move the transfer shift lever to "2H" position.

The vehicle may be towed on its rear wheels for extended distances provided the parking brake is released. It is recommended that vehicles be towed using the front pickup whenever possible.

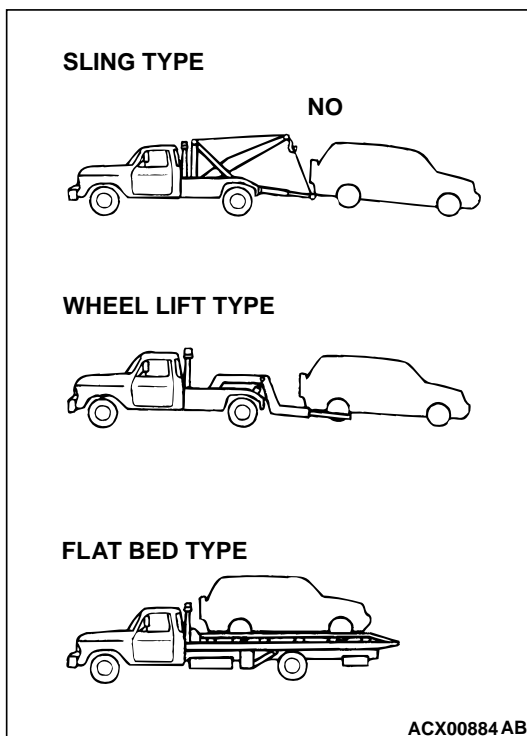


REAR TOWING PICKUP

CAUTION

- This vehicle cannot be towed by a wrecker using sling-type equipment other wise the lower arm may become deformed. If this vehicle is towed, use a wheel lift or flat bed equipment.
- Do not use the steering column lock to secure the front wheels for towing.
- For the four-wheel-drive vehicle, move the transfer shift lever to "2H" position.
- If these requirements cannot be met, the front wheels must be placed on a tow dolly.

Automatic transmission vehicle may be towed on the front wheels at speeds not to exceed 50 km/h (30 mph) for distances not to exceed 30 km (18 miles).

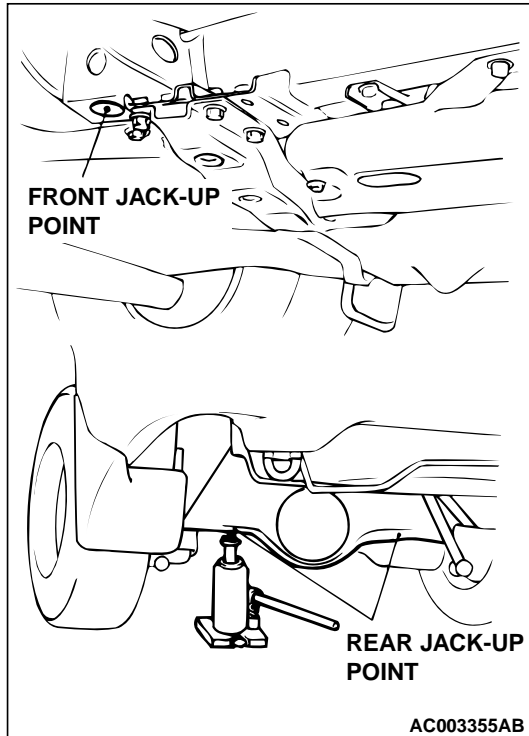


TOWING WHEN KEYS ARE NOT AVAILABLE

When a locked vehicle must be towed and keys are not available, the vehicle may be lifted and towed from the front, provided the parking brake is released. If not released, the rear wheels should be placed on a tow dolly.

HOISTING**EMERGENCY JACKING**

Place a jack under one of the jacking points shown in the illustration.

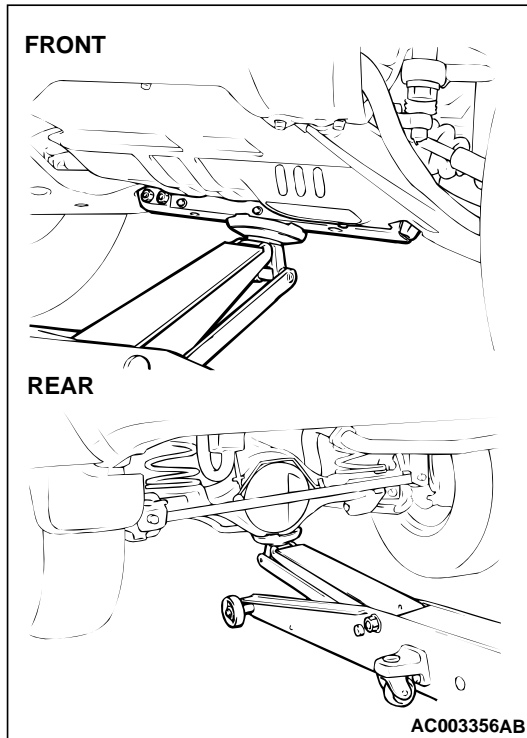


FLOOR JACK

CAUTION

- A floor jack must never be used on any part of the underbody.
- Do not attempt to raise one entire side of the vehicle by placing a jack midway between front and rear wheels. This practice may result in permanent damage to the body.

A regular floor jack may be used under the front crossmember or rear frame.



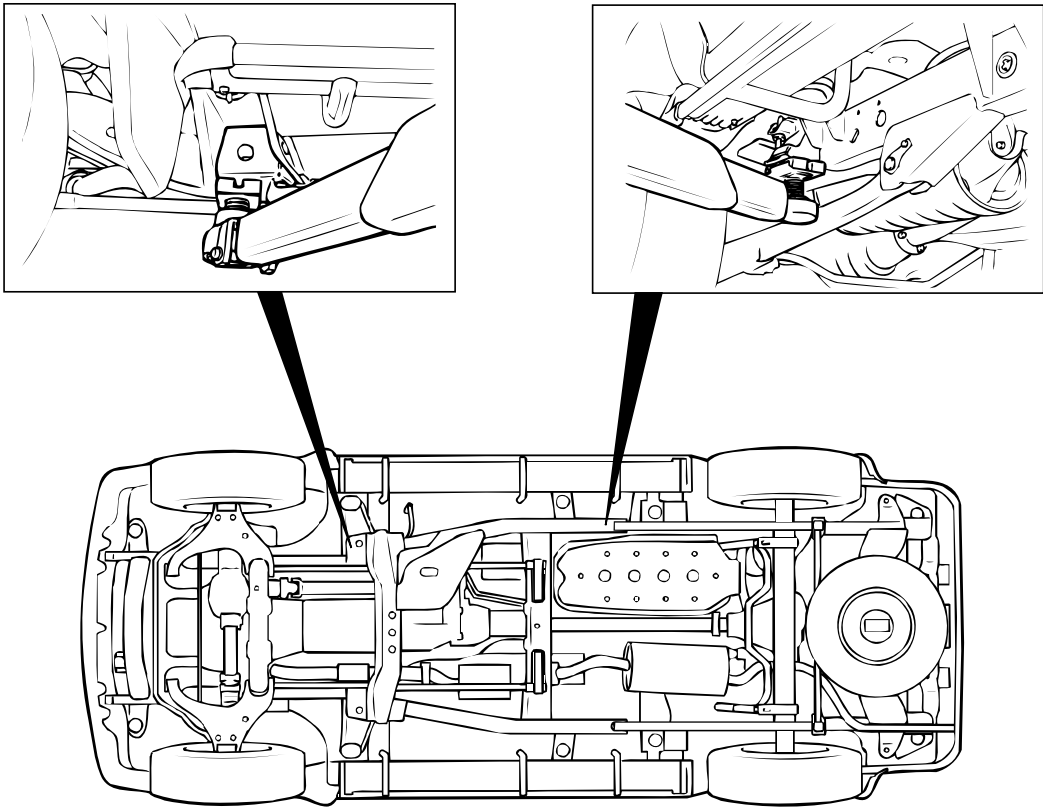
POST TYPE

CAUTION

When service procedures require removal of the rear suspension, the fuel tank or the spare tire, place additional weight on the rear end of the vehicle or anchor the vehicle to a hoist to prevent center of gravity changes.

Special care should be taken when raising the vehicle on a frame contact type hoist. The hoist must be equipped with the proper adapters in order to support the vehicle at the proper locations shown in the illustration.

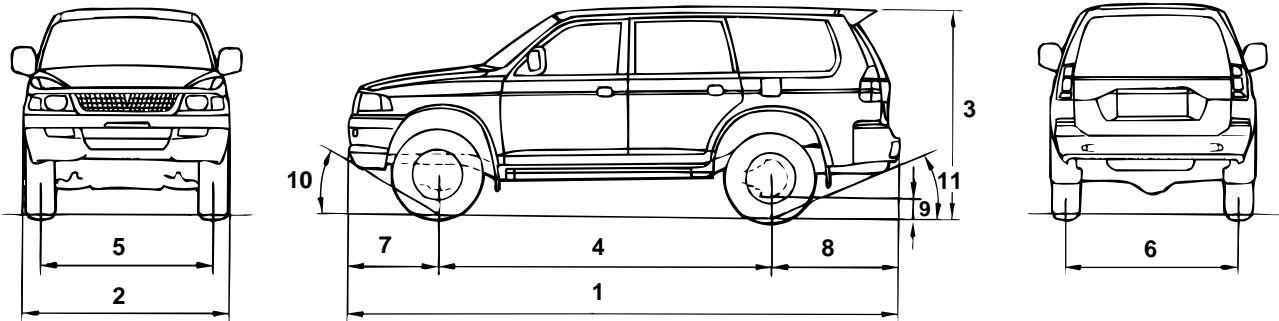
Conventional hydraulic hoists may be used after determining that the adapter plates will make firm contact with the side frame.



AC003357

GENERAL DATA AND SPECIFICATIONS

M1001000900268



AC003358AB

GENERAL SPECIFICATIONS

VEHICLES FOR USA

<RWD>

ITEM			K86W RHEL2M	K86WG RHEL2M	K89WG RXEL2M	K89WG RPEL2M
Vehicle dimension mm (in)	Overall length	1	4,600 (181.1)	4,600 (181.1)	4,600 (181.1)	4,600 (181.1)
	Overall width	2	1,695 (66.7)	1,775 (69.9)	1,775 (69.9)	1,775 (69.9)
	Overall height (unladen)	3	1,720 (67.7)	1,735 (68.3)	1,735 (68.3)	1,735 (68.3)
	Wheelbase	4	2,725 (107.3)	2,725 (107.3)	2,725 (107.3)	2,725 (107.3)
	Tread – front	5	1,420 (55.9)	1,465 (57.7)	1,465 (57.7)	1,465 (57.7)
	Tread – rear	6	1,435 (56.5)	1,480 (58.3)	1,480 (58.3)	1,480 (58.3)
	Overhang – front	7	820 (32.3)	820 (32.3)	820 (32.3)	820 (32.3)
	Overhang – rear	8	1,055 (41.5)	1,055 (41.5)	1,055 (41.5)	1,055 (41.5)
	Minimum running ground clearance	9	205 (8.1)	220 (8.7)	220 (8.7)	220 (8.7)
	Angle of approach degrees	10	29°	32°	32°	32°
	Angle of departure degrees	11	24°	27°	27°	27°
Vehicle weight kg (lb)	Curb weight		1,750 (3,855)	1,795 (3,955)	1,805 (3,980)	1,850 (4,075)
	Gross vehicle weight rating		2,270 (5,000)	2,270 (5,000)	2,270 (5,000)	2,270 (5,000)
	Gross axle weight rating – front		1,200 (2,645)	1,200 (2,645)	1,200 (2,645)	1,200 (2,645)
	Gross axle weight rating – rear		1,496 (3,295)	1,600 (3,525)	1,600 (3,525)	1,600 (3,525)
Seating capacity			5	5	5	5
Engine	Model No.		6G72	6G72	6G74	6G74
	Piston displacement		3.0L	3.0L	3.5L	3.5L
Transmission	Model No.		R4A51	R4A51	R4A51	R4A51
	Type		4-speed automatic	4-speed automatic	4-speed automatic	4-speed automatic
Fuel system	Fuel supply system		Electronic-controlled multiport fuel injection			

<4WD>

ITEM			K96W RHEL2M	K96WG RHEL2M	K99WG RXEL2M	K99WG RPEL2M
Vehicle dimension mm (in)	Overall length	1	4,600 (181.1)	4,600 (181.1)	4,600 (181.1)	4,600 (181.1)
	Overall width	2	1,695 (66.7)	1,775 (69.9)	1,775 (69.9)	1,775 (69.9)
	Overall height (unladen)	3	1,720 (67.7)	1,735 (68.3)	1,735 (68.3)	1,735 (68.3)
	Wheelbase	4	2,725 (107.3)	2,725 (107.3)	2,725 (107.3)	2,725 (107.3)
	Tread – front	5	1,420 (55.9)	1,465 (57.7)	1,465 (57.7)	1,465 (57.7)
	Tread – rear	6	1,435 (56.5)	1,480 (58.3)	1,480 (58.3)	1,480 (58.3)
	Overhang – front	7	820 (32.3)	820 (32.3)	820 (32.3)	820 (32.3)
	Overhang – rear	8	1,055 (41.5)	1,055 (41.5)	1,055 (41.5)	1,055 (41.5)
	Minimum running ground clearance	9	205 (8.1)	220 (8.7)	220 (8.7)	220 (8.7)
	Angle of approach degrees	10	29°	32°	32°	32°
	Angle of departure degrees	11	24°	27°	27°	27°
Vehicle weight kg (lb)	Curb weight		1,875 (4,135)	1,920 (4,230)	1,930 (4,255)	1,975 (4,350)
	Gross vehicle weight rating		2,430 (5,350)	2,430 (5,350)	2,430 (5,350)	2,430 (5,350)
	Gross axle weight rating – front		1,200 (2,645)	1,200 (2,645)	1,200 (2,645)	1,200 (2,645)
	Gross axle weight rating – rear		1,496 (3,295)	1,600(3,525)	1,600(3,525)	1,600(3,525)
Seating capacity			5	5	5	5
Engine	Model No.		6G72	6G72	6G74	6G74
	Piston displacement		3.0L	3.0L	3.5L	3.5L
Transmission	Model No.		V4A51	V4A51	V4A51	V4A51
	Type		4-speed automatic	4-speed automatic	4-speed automatic	4-speed automatic
Fuel system	Fuel supply system		Electronic-controlled multiport fuel injection			

VEHICLES FOR CANADA

ITEM			K96W RHEL3M	K96WG RHEL3M	K99WG RXEL3M
Vehicle dimension mm (in)	Overall length	1	4,600 (181.1)	4,600 (181.1)	4,600 (181.1)
	Overall width	2	1,695 (66.7)	1,775 (69.9)	1,775 (69.9)
	Overall height (unladen)	3	1,720 (67.7)	1,735 (68.3)	1,735 (68.3)
	Wheelbase	4	2,725 (107.3)	2,725 (107.3)	2,725 (107.3)
	Tread – front	5	1,420 (55.9)	1,465 (57.7)	1,465 (57.7)
	Tread – rear	6	1,435 (56.5)	1,480 (58.3)	1,480 (58.3)
	Overhang – front	7	820 (32.3)	820 (32.3)	820 (32.3)
	Overhang – rear	8	1,055 (41.5)	1,055 (41.5)	1,055 (41.5)
	Minimum running ground clearance	9	205 (8.1)	220 (8.7)	220 (8.7)
	Angle of approach degrees	10	29°	32°	32°
	Angle of departure degrees	11	24°	27°	27°
Vehicle weight kg (lb)	Curb weight		1,875 (4,135)	1,920 (4,230)	1,930 (4,255)
	Gross vehicle weight rating		2,430 (5,350)	2,430 (5,350)	2,430 (5,350)
	Gross axle weight rating – front		1,200 (2,645)	1,200 (2,645)	1,200 (2,645)
	Gross axle weight rating – rear		1,496 (3,295)	1,600(3,525)	1,600(3,525)
Seating capacity			5	5	5
Engine	Model No.		6G72	6G72	6G74
	Piston displacement		3.0L	3.0L	3.5L
Transmission	Model No.		V4A51	V4A51	V4A51
	Type		4-speed automatic	4-speed automatic	4-speed automatic
Fuel system	Fuel supply system		Electronic-controlled multiport fuel injection		

TIGHTENING TORQUE

M1001001100265

Each torque value in the table is a standard value for tightening under the following conditions.

1. Bolts, nuts and washers are all made of steel and plated with zinc.
2. The threads and bearing surface of bolts and nuts are all in dry condition.

The values in the table are not applicable:

1. If toothed washers are inserted.
2. If plastic parts are fastened.
3. If bolts are tightened to plastic or die-cast inserted nuts.
4. If self-tapping screws or self-locking nuts are used

Standard bolt and nut tightening torque

THREAD SIZE		STANDARD TIGHTENING TORQUE		
NOMINAL BOLT DIAMETER (mm)	PITCH (mm)	HEAD MARK "4"	HEAD MARK "7"	HEAD MARK "8"
M5	0.8	2.5 N·m (22 in-lb)	4.9 N·m (43 in-lb)	5.9 N·m (52 in-lb)
M6	1.0	4.9 N·m (43 in-lb)	8.8 N·m (78 in-lb)	9.8 N·m (87 in-lb)
M8	1.25	12 N·m (106 in-lb)	22 N·m (16 ft-lb)	25 N·m (18 ft-lb)
M10	1.25	24 N·m (18 ft-lb)	44 N·m (33 ft-lb)	52 N·m (38 ft-lb)
M12	1.25	41 N·m (30 ft-lb)	81 N·m (60 ft-lb)	96 N·m (71 ft-lb)
M14	1.5	72 N·m (53 ft-lb)	137 N·m (101 ft-lb)	157 N·m (116 ft-lb)
M16	1.5	111 N·m (82 ft-lb)	206 N·m (152 ft-lb)	235 N·m (173 ft-lb)
M18	1.5	167 N·m (123 ft-lb)	304 N·m (224 ft-lb)	343 N·m (253 ft-lb)
M20	1.5	226 N·m (167 ft-lb)	412 N·m (304 ft-lb)	481 N·m (355 ft-lb)
M22	1.5	304 N·m (224 ft-lb)	559 N·m (412 ft-lb)	647 N·m (477 ft-lb)
M24	1.5	392 N·m (289 ft-lb)	735 N·m (542 ft-lb)	853 N·m (629 ft-lb)

Flange bolt and nut tightening torque

THREAD SIZE		STANDARD TIGHTENING TORQUE		
NOMINAL BOLT DIAMETER (mm)	PITCH (mm)	HEAD MARK "4"	HEAD MARK "7"	HEAD MARK "8"
M6	1.0	4.9 N·m (43 in-lb)	9.8 N·m (87 in-lb)	12 N·m (106 in-lb)
M8	1.25	13 N·m (115 in-lb)	24 N·m (18 ft-lb)	28 N·m (21 ft-lb)
M10	1.25	26 N·m (19 ft-lb)	49 N·m (36 ft-lb)	57 N·m (42 ft-lb)
M10	1.5	24 N·m (18 ft-lb)	44 N·m (33 ft-lb)	54 N·m (40 ft-lb)
M12	1.25	46 N·m (34 ft-lb)	93 N·m (69 ft-lb)	103 N·m (76 ft-lb)
M12	1.75	42 N·m (31 ft-lb)	81 N·m (60 ft-lb)	96 N·m (71 ft-lb)

LUBRICATION AND MAINTENANCE

M1001001200251

Maintenance and lubrication service recommendations have been compiled to provide maximum protection for the vehicle owner's investment against all reasonable types of driving conditions. Since these conditions vary with the individual vehicle owner's driving habits, the area in which the vehicle is operated and the type of driving to which the vehicle is subjected, it is necessary to prescribe lubrication and maintenance service on a time frequency as well as mileage interval basis.

Oils, lubricants and greases are classified and graded according to standards recommended by the Society of Automotive Engineers (SAE), the American Petroleum Institute (API) and the National Lubricating Grease Institute (NLGI).

MAINTENANCE SCHEDULES

Information for service maintenance is provided in the "SCHEDULED MAINTENANCE TABLE." Three schedules are provided; one for "Required Maintenance" and one for "General Maintenance" and one for "Severe Usage Service."

The item numbers in "SCHEDULED MAINTENANCE TABLE" correspond to the section numbers in "MAINTENANCE SERVICE."

SEVERE SERVICE

Vehicles operating under severe service conditions will require more frequent service.

Component service information is included in for vehicles operating under one or more of the following conditions:

1. Trailer towing or police, taxi or commercial type operation.
2. Operation of Vehicle
 - (1) Short-trip operation at freezing temperature (engine not thoroughly warmed up)
 - (2) More than 50% operation in heavy city traffic during hot weather above 32°C(90°F)
 - (3) Extensive idling
 - (4) Driving in sandy areas
 - (5) Driving in salty areas
 - (6) Driving in dusty conditions
 - (7) Driving off-road

ENGINE OIL

CAUTION

Test results submitted to EPA have shown that laboratory animals develop skin cancer after prolonged contact with used engine oil. Accordingly, the potential exists for humans to develop a number of skin disorders, including cancer, from such exposure to used engine oil. Therefore, when changing engine oil, be careful not to touch it as much as possible. Protective clothing and gloves, that cannot be penetrated by oil, should be worn. The skin should be thoroughly washed with soap and water, or use waterless hand cleaner, to remove any used engine oil. Do not use gasoline, thinners, or solvents.

Either of the following engine oils should be used:

1. Engine oil displaying ILSAC certification mark.
2. Engine oil conforming to the API classification SJ EC or SJ/CD EC.

For further details, refer to "LUBRICANTS SELECTION."

LUBRICANTS AND GREASES

Semi-solid lubricants bear the NLGI designation and are further classified as grades 0, 1, 2, 3, etc.

Whenever "Chassis Lubricant" is specified, Multipurpose Grease, NLGI grade Number 2, should be used.

FUEL USAGE STATEMENT

CAUTION

Using leaded gasoline in your car will damage the catalytic converters and heated oxygen sensors, and affect the warranty coverage validity.

Your vehicle must use unleaded gasoline only.

This vehicle has a fuel filler tube which is especially designed to accept only the smaller-diameter unleaded gasoline dispensing nozzle.

Your car is designed to operate on unleaded gasoline having a minimum octane rating of 87 [(MON + RON)/2], or 91 RON.

MON: Motor Octane Number

RON: Research Octane Number

GASOLINES CONTAINING ALCOHOL

Some gasolines sold at service stations contain alcohol although they may not be so identified.

Using fuels containing alcohol is not recommended unless the nature of the blend can be determined as being satisfactory.

Gasohol: A mixture of 10% ethanol (grain alcohol) and 90% unleaded gasoline may be used in your vehicle. If driveability problems are experienced as a result of using gasohol, it is recommended that the vehicle be operated on gasoline.

Methanol: **Do not use gasolines containing methanol (wood alcohol).** Using this type of alcohol can result in vehicle performance deterioration and damage critical parts in the fuel system components. Fuel system damage and performance problems resulting from the use of gasolines containing methanol may not be covered by the new vehicle warranty.

GASOLINES CONTAINING METHYLTERTIARY BUTYL ETHER (MTBE)

Unleaded gasoline containing 15% or less MTBE may be used in your vehicle. (Fuel containing MTBE over 15% in volume may cause reduced engine performance and produce vapor lock or hard starting.)

MATERIALS ADDED TO FUEL

Indiscriminate use of fuel system cleaning agents should be avoided. Many of these materials intended for gum and varnish removal may contain highly active solvents or similar ingredients that can be harmful to gasket and diaphragm materials used in fuel system component parts.

RECOMMENDED LUBRICANTS AND LUBRICANT CAPACITIES TABLE

M1001001300258

RECOMMENDED LUBRICANTS

PART		SPECIFICATION	REMARK
Engine oil		Engine oil displaying ILSAC certification mark ("Starburst" symbol) or conforming to API classification SJ EC or SJ/CD EC	For further details, refer to "LUBRICANTS SELECTION" section.
Automatic transmission		DIAMOND ATF SP III	—
Transfer		API classification GL-4	SAE grade number: SAE 75W-90 or 75W/85W
Front axle		Hypoid gear oil API classification GL-5 or higher	For further details, refer to "LUBRICANTS SELECTION" section.
Rear axle	Conventional differential	API classification GL-5 or higher	For further details, refer to "LUBRICANTS SELECTION" section.
	Limited slip differential	—	MAZDA Genuine Gear Oil Part No.8149630 EX or equivalent
Power steering		GENUINE MAZDA POWER STEERING FLUID	—
Brakes		Conforming to DOT 3 or DOT 4	
Engine coolant		MAZDA genuine coolant or an equivalent	—
Door hinges, back door hinges		Engine oil	—

LUBRICANT CAPACITY TABLE

DESCRIPTION			SPECIFICATION
Engine oil dm ³ (qt)	Oil pan (excluding oil filter)	3.0L engine	4.2 (4.4)
		3.5 L engine	4.3 (4.5)
Engine oil dm ³ (qt)	Oil filter		0.3 (0.32)
Engine coolant dm ³ (qt)		Without rear heater	9.0 (9.5)
		With rear heater	10.0 (10.6)
Automatic transmission dm ³ (qt)			9.3 (9.8)
Transfer dm ³ (qt)			2.5 (2.6)
Differential	Front axle <4WD> dm ³ (qt)		0.9 (0.95)
	Rear axle dm ³ (qt)	3.0L engine	2.6 (2.8)
		3.5L engine	3.2 (3.4)
Power steering dm ³ (qt)			1.0 (1.1)
Fuel tank dm ³ (gal)			74 (19.5)

LUBRICANT SELECTION

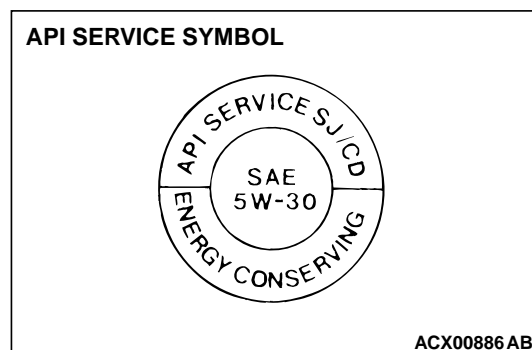
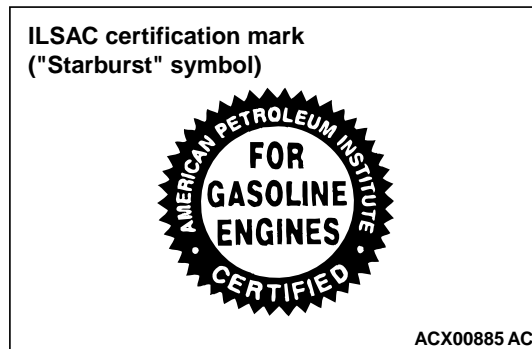
ENGINE OIL



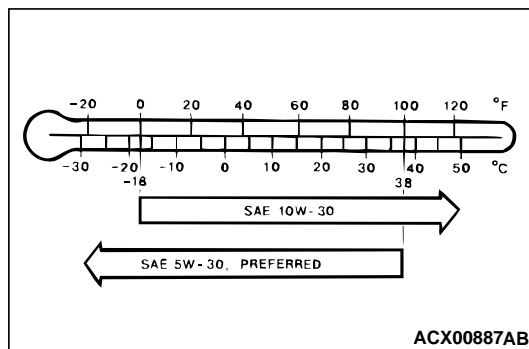
Never use nondetergent or straight mineral oil.

Oil Identification Symbol

Use only engine oils displaying the ILSAC certification mark ("Starburst" symbol) on the container.



If these oils are not available, an API classification SJ EC or SJ/CD EC can be used.

**Oil Viscosity**

The SAE grade number indicates the viscosity of the oil. A proper SAE grade number should be selected according to ambient temperature.

FRONT AXLE/REAR AXLE

LUBRICANT	API CLASSIFICATION GL-5 OR HIGHER
Expected temperature range	Viscosity range
Above -23°C (-10°F)	SAE 90, SAE 85W-90 or SAE 80W-90
From -34°C to -23°C (-30°F to -10°F)	SAE 80W or SAE 80W-90
Below -34°C (-30°F)	SAE 75W

SELECTION OF COOLANT**COOLANT**

Relationship between Coolant Concentration and Specific Gravity

CAUTION

- If the concentration of the coolant is below 30%, the anti-corrosion property will be adversely affected. In addition, if the concentration is above 60%, both the anti-freeze and engine cooling properties will decrease, affecting the engine adversely. For these reasons, be sure to maintain the concentration level within the specified range.
- Do not use a mixture of different brands of anti-freeze.

COOLANT TEMPERATURE $^{\circ}\text{C}$ ($^{\circ}\text{F}$) AND SPECIFIC GRAVITY					FREEZING TEMPERATURE	SAFE OPERATING TEMPERATURE	COOLANT CONCENTRATION (SPECIFIC VOLUME)
10 (50)	20 (68)	30 (86)	40 (104)	50 (122)	$^{\circ}\text{C}$ ($^{\circ}\text{F}$)	$^{\circ}\text{C}$ ($^{\circ}\text{F}$)	%
1.054	1.050	1.046	1.042	1.036	-16 (3.2)	-11 (12.2)	30
1.063	1.058	1.054	1.049	1.044	-20 (-4)	-15 (5)	35
1.071	1.067	1.062	1.057	1.052	-25 (-13)	-20 (-4)	40
1.079	1.074	1.069	1.064	1.058	-30 (-22)	-25 (-13)	45
1.087	1.082	1.076	1.070	1.064	-36 (-32.8)	-31 (-23.8)	50
1.095	1.090	1.084	1.077	1.070	-42 (-44)	-37 (-35)	55
1.103	1.098	1.092	1.084	1.076	-50 (-58)	-45 (-49)	60

Example

The safe operating temperature is -15°C (5°F) when the specific gravity is 1.058 at the coolant temperature of 20°C (68°F)

SCHEDULED MAINTENANCE TABLE

M1001001400266

SCHEDULED MAINTENANCE SERVICE FOR EMISSION CONTROL AND PROPER VEHICLE PERFORMANCE

Inspection and service should be performed any time a malfunction is observed or suspected.

NO.	EMISSION CONTROL SYSTEM MAINTENANCE	SERVICE INTERVALS	KILOMETERS IN THOUSANDS	24	48	72	96	120	144	168
			MILEAGE IN THOUSANDS	15	30	45	60	75	90	105
1	Fuel system (tank, pipe line and connection, and fuel tank filler tube cap)	Check for leaks every 5 years or					X			
2	Fuel hoses	Check condition every 2 years or			X		X		X	
3	Air cleaner element	Replace at			X		X		X	
4	Evaporative emission control system (except evaporative emission canister)	Check for leaks and clogging every 5 years or					X			
5	Spark plugs	Replace at	Except Iridium - tipped type		X		X		X	
			Iridium - tipped type							X
6	Ignition cables	Replace every 5 years or					X			

GENERAL MAINTENANCE SERVICE FOR PROPER VEHICLE PERFORMANCE

NO.	GENERAL MAINTENANCE	SERVICE INTERVALS	KILOMETERS IN THOUSANDS	24	48	72	96	120	144	168
			MILEAGE IN THOUSANDS	15	30	45	60	75	90	105
7	Timing belt	Replace at					X ^{*1}		At 160,000 km ^{*2} (100,000 miles)	
8	Drive belt (for generator, water pump, power steering pump)	Check condition at			X		X		X	
9	Engine oil	Change oil every 12 months or		Every 12,000 km (7,500 miles)						
10	Engine oil filter	Replace every 12 months or ^{*3}		X	X	X	X	X	X	X
11	A/T fluid	Check fluid level every 12 months or		X	X	X	X	X	X	X
12	Transfer oil	Check oil level			X		X		X	

NO.	GENERAL MAINTENANCE		SERVICE INTERVALS	KILOMETERS IN THOUSANDS	24	48	72	96	120	144	168
				MILEAGE IN THOUSANDS	15	30	45	60	75	90	105
13	Engine coolant		Change coolant at first 4 years					X			
			Change coolant after that every 2 years or					Every 48,000 km (30,000 miles)		X	
14	Disc brake pads		Inspect for wear every 12 months or		X	X	X	X	X	X	X
15	Rear drum brake linings and rear wheel cylinders		Inspect for wear and leaks every 2 years or			X		X		X	
16	Brake hoses		Check for deterioration or leaks every 12 months or		X	X	X	X	X	X	X
17	Ball joint and steering linkage seals		Inspect for grease leaks and damage every 2 years or			X		X		X	
18	Drive shaft boots		Inspect for grease leaks and damage every 12 months or		X	X	X	X	X	X	X
19	Ball joints with grease nipple		Lubricate with grease every 2 years or			X		X		X	
20	Front axle and rear axle	With LSD	Change			X		X		X	
		Without LSD	Check oil level			X		X		X	
21	Propeller shaft joints with grease nipple		Lubricate with grease every 2 years or			X		X		X	
22	Exhaust system connection portion of muffler, piping and converter heat shields		Check and service as required every 2 years or			X		X		X	
23	SRS air bag		Inspect the SRS system at	10 years							
24	Tires		Rotate every 12 months or	Every 12,000 km (7,500 miles)							

NOTE:

*1: For California, Massachusetts and Connecticut, this maintenance is recommended but not required

*2: Not required if belt was previously changed

*3: If the mileage is less than 12,000 km (7,500 miles) each year, the oil filter should be replaced at every oil change

SCHEDULED MAINTENANCE UNDER SEVERE USAGE CONDITIONS

Maintenance should be carried out according to the following table:

NO.	MAINTENANCE ITEM	SERVICE TO BE PERFORMED	KILOMETERS IN THOUSANDS	24	48	72	96	120	144	168	SEVERE USAGE CONDITIONS
			MILEAGE IN THOUSANDS	15	30	45	60	75	90	105	
3	Air cleaner element	Replace at		X	X	X	X	X	X	X	A and E
5	Spark plugs	Replace at		X	X	X	X	X	X	X	B and D
9	Engine oil	Change every 3 months or		Every 4,800 km (3,000 miles)							A, B, C, D and G
10	Engine oil filter	Replace every 6 months or		Every 9,600 km (6,000 miles)							A, B, C, D and G
11	A/T fluid	Change fluid at			X		X		X		B, G and H
12	Transfer oil	Change oil at			X		X		X		B, G and H
14	Disc brake pads	Inspect for wear every 6 months or		Every 9,600 km (6,000 miles)							A and F
15	Rear drum brake linings and rear wheel cylinders	Inspect for wear and leaks every 12 months or		Every 24,000 km (15,000 miles)							A and F
24	Tires	Rotate every 6 months or		Every 9,600 km (6,000 miles)							B, C, E, G and H

Severe usage conditions

A – Driving in dusty conditions

B – Trailer towing, or police, taxi, or commercial type operation

C – Extensive idling, driving in stop and go traffic

D – Short-trip operation at freezing temperatures (engine not thoroughly warmed up)

E – Driving in sandy areas

F – Driving in salty areas

G – More than 50% operation in heavy city traffic or at sustained high speeds during hot weather above 32°C (90°F)

H – Driving off-road

MAINTENANCE SERVICE

1. FUEL SYSTEM (TANK, FUEL LINES, CONNECTIONS AND FUEL TANK FILTER TUBE CAP) (Check for leaks)

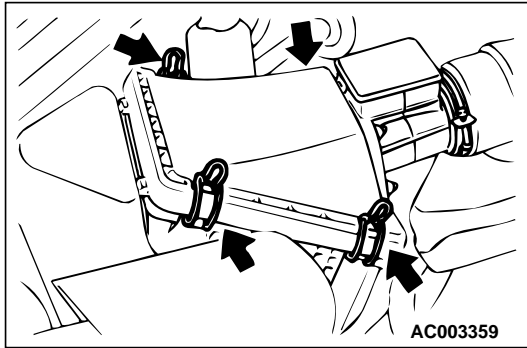
M1001001600259

Check for damage or leakage in the fuel lines and connections.

2. FUEL HOSES(CHECK CONDITION)

M1001001700245

Make sure that the hoses do not come in contact with any heat source or moving component which might cause heat damage or mechanical wear.



3. AIR CLEANER ELEMENT(REPLACE)

M1001001800253

The air cleaner element will become dirty during use, reducing its effectiveness. Replace it with a new one.

REPLACEMENT OF AIR CLEANER ELEMENT

1. Loosen the clamp coupling the air intake hose and the air cleaner cover, and separate the air intake hose.
2. Disconnect the volume air flow sensor connector.
3. Disconnect the air cleaner cover clips.
4. Remove the air cleaner cover and replace the air cleaner element with a new one.
5. Clamp the clips and coupling, and then connect the volume air flow sensor connector.

4. EVAPORATIVE EMISSION CONTROL SYSTEM (Check for leaks and clogging) – Except evaporative emission canister

M1001001900249

If the fuel-vapor vent line is clogged or damaged, fuel vapor will escape into the atmosphere causing excessive emissions. Disconnect the line at both ends, and blow it clean with compressed air. Remove the fuel tank filler tube cap from the filler tube and check to see if there is evidence that the seal makes improper contact to the filler tube.

5. SPARK PLUGS (Replace)

M1001002000227

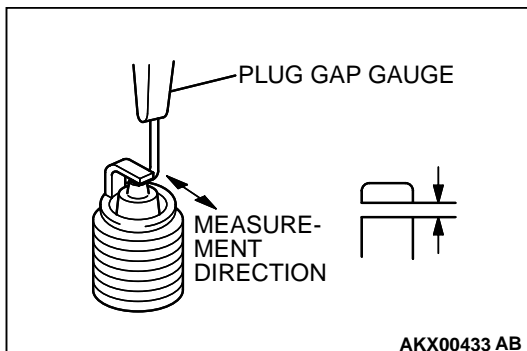
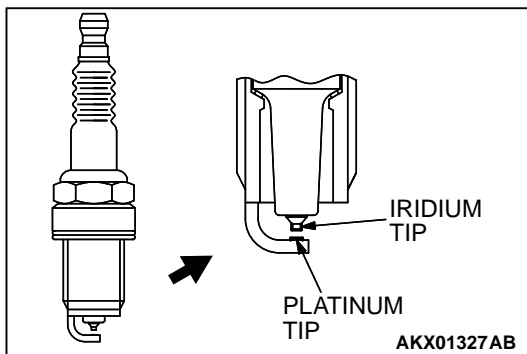
⚠ CAUTION

Iridium plugs are used. Use care not to damage the iridium and platinum tips of the plugs. Do not adjust the spark plug gap.

1. Spark plugs must spark properly to assure proper engine performance and reduce exhaust emission level. Therefore, they should be replaced periodically with new ones.

Spark plug type

MAKER	IDENTIFICATION NO.
DENSO	SK16PR-A11



2. The new plugs should be checked for the proper gap.

Spark plug gap: 1.0 – 1.1 mm (0.039 – 0.043 inch)

3. Install the spark plugs and tighten to 25 N·m (18 ft-lb).

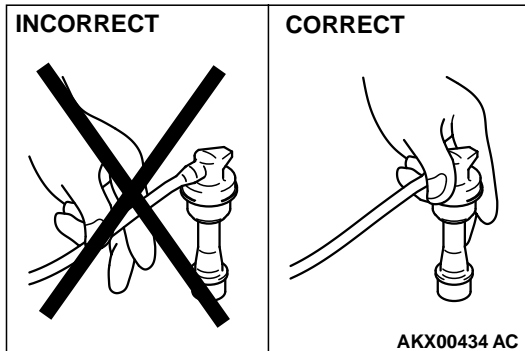
6. IGNITION CABLES (Replace)

M1001002100150

⚠ CAUTION

When disconnecting an ignition cable, be sure to hold the cable boot. If the cable is disconnected by pulling on the cable, an open circuit might result.

The ignition cables should be replaced periodically with new ones. After replacing, make sure that the ignition cables are routed properly and fully seated.



M1001002300239

7. TIMING BELT (REPLACE)

Replace the belt with a new one according to the maintenance schedule on to assure proper engine performance.

For removal and installation procedures, refer to GROUP 11A, Timing Belt [P.11A-30](#).

Refer to GROUP 11C, Timing belt [P.11C-30](#).

8. DRIVE BELT (FOR GENERATOR, WATER PUMP, POWER STEERING OIL PUMP) (CHECK CONDITION)

M1001002500266

Water Pump and Generator Drive Belt Tension Check and Adjustment

<When using scan tool (MUT-II)>

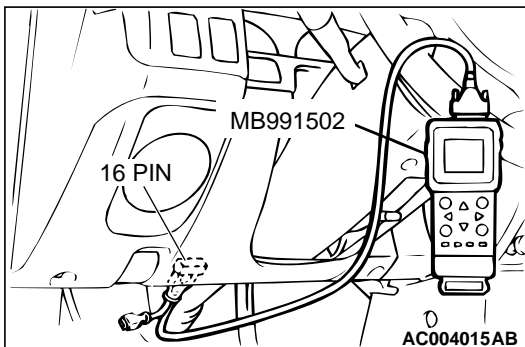
Required Special Tools:

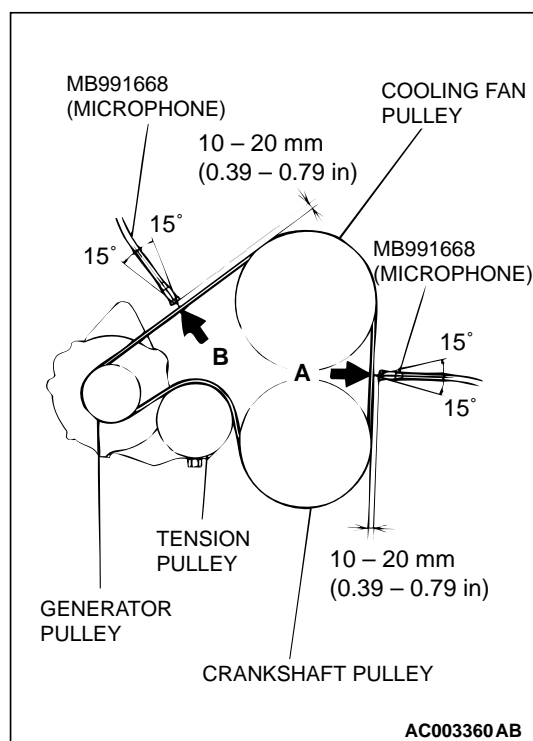
- MB991502: Scan Tool (MUT-II)
- MB991668: Belt Tension Meter Set

⚠ CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502.

1. Connect special tool MB991668 to scan tool MB991502.
2. Connect scan tool MB991502 to the data link connector.
3. Turn the ignition switch to the "ON" position and select scan tool MB991502 "Belt Tension Measurement" from the menu screen.





4. As shown in the illustration, keep the microphone (MB991668) 10 to 20 mm (0.39 – 0.79 inch) away from the back side of the belt perpendicularly (within an inclination of ± 15 degrees).
5. With your finger tip lightly tap the center of the belt between the pulleys in the location shown by the arrow in the illustration to check whether the belt vibration frequency is within the standard.

Standard value:

ITEM	SPECIFICATION	
Vibration frequency Hz	A	197 – 241
	B	133 – 164

⚠ CAUTION

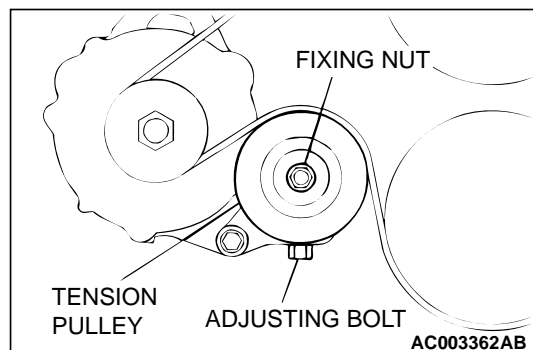
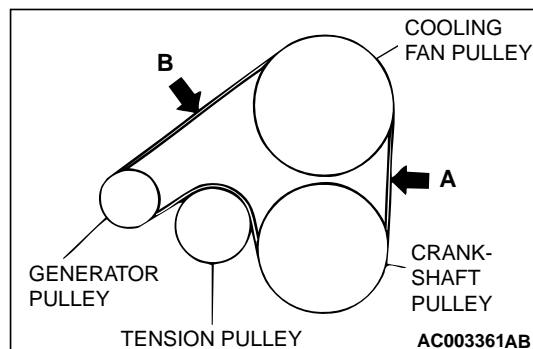
- Measure when the belt surface temperature is close to room temperature.
- Make sure that water or oil, etc., does not get on the microphone.
- If a strong wind blows or noise is made close to the microphone during measure, the meter will show a value that differs from the actual value.
- If the measurement is taken with the microphone touching the belt, the meter will show a value that differs from the actual value.
- Do not measure while the engine is running.

<When not using scan tool (MUT-II)>

1. Use a belt tension gauge to check that the belt tension is at the standard value at a point half-way between the two pulleys (indicated by an arrow in the illustration). In addition, press this section with a force of 98 N (22 lb) and check that the amount of the belt deflection is at the standard value.

Standard value:

ITEM	SPECIFICATION	
Tension (lb)	392 – 588 (88 – 132)	
Deflection <Reference value> mm (in)	A	6.5 – 8.9 (0.26 – 0.35)
	B	9.3 – 12.5 (0.37 – 0.49)



2. If the tension or deflection is not within the standard value, adjust by the following procedure.
 - (1) Loosen the tension pulley fixing nut.
 - (2) Tighten provisionally the tension pulley fixing nut to 15 N·m (11 ft·lb), and turn the adjusting bolt to adjust the belt tension or deflection to the standard value.

Standard value:

ITEM		DURING ADJUSTMENT	DURING REPLACEMENT
Vibration frequency Hz	A	209 – 231	279 – 311
	B	142 – 157	189 – 211
Tension N (lb)		441 – 539 (99 – 121)	784 – 980 (176 – 220)
Deflection <reference value> mm (in)	A	7.0 – 8.4 (0.28 – 0.33)	4.0 – 5.2 (0.16 – 0.20)
	B	10.1 – 1.7 (0.40 – 0.46)	6.0 – 7.4 (0.24 – 0.29)

(3) Tighten the tension pulley fixing nut.

Tightening torque: 49 N·m (36 ft-lb)

Power Steering Oil Pump Drive Belt

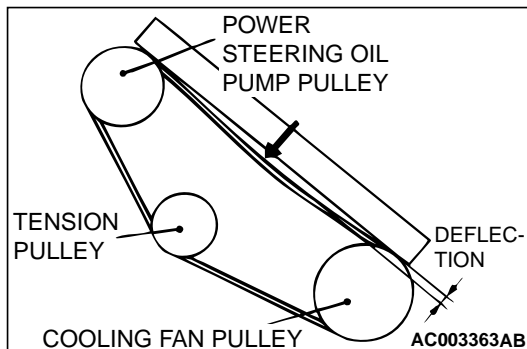
<When using scan tool (MUT-II)>

With your finger tip lightly tap the enter of the belt between the pulley in the location shown by the arrow in the illustration and then measure the belt vibration frequency.

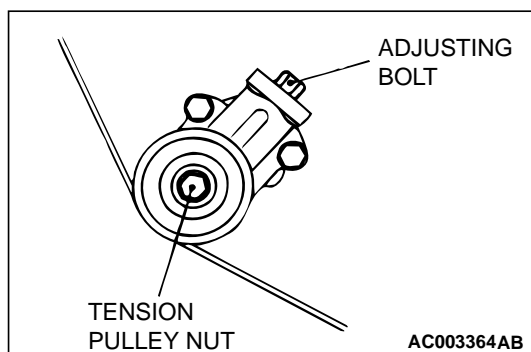
NOTE: Refer to P.00-43 for information regarding the vibration frequency measurement method using the scan tool (MUT-II).

<When not using scan tool (MUT-II)>

1. Use a belt tension gauge to check that the belt tension is at the standard value at a point half-way between the two pulleys (indicated by an arrow in the illustration). In addition, press this section with a force of 98 N (22 lb) and check that the amount of belt deflection is at the standard value.



ITEM		WHEN CHECKED	DURING ADJUSTMENT	DURING REPLACEMENT
Vibration frequency Hz	3.0L engine	103 – 132	111 – 125	132 – 156
	3.5L engine	97 – 125	105 – 118	125 – 148
Tension N (lb)		294 – 490 (66 – 110)	343 – 441 (77 – 99)	490 – 86 (110 – 154)
Deflection (reference value) mm (in)	3.0L engine	13.6 – 17.7 (0.54 – 0.69)	14.6 – 16.6 (0.58 – 0.65)	10.6 – 13.6 (0.42 – 0.53)
	3.5L engine	14.3 – 18.6 (0.57 – 0.73)	15.3 – 17.4 (0.61 – 0.68)	11.1 – 14.3 (0.44 – 0.56)



2. If the tension or deflection is not within the standard value, adjust by the following procedure.

- (1) Loosen the tension pulley nut.
- (2) Adjust the amount of belt deflection using the adjusting bolt.
- (3) Tighten the tension pulley nut.

Tightening torque: 49 N·m (36 ft-lb)

⚠ CAUTION

Turn the crankshaft once or more clockwise.

- (4) Check the belt deflection amount and tension, and readjust if necessary.

Air Conditioning Compressor Drive Belt

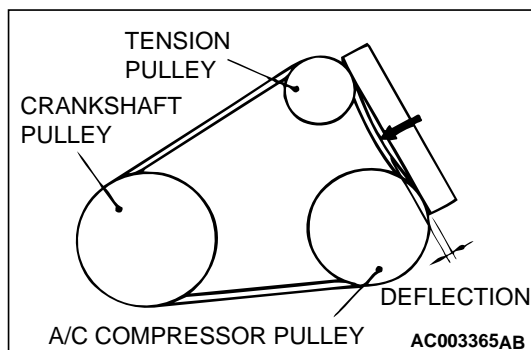
<When using scan tool (MUT-II)>

With your finger tip lightly tap the center of the belt between the pulleys in the location shown by the arrow in the illustration and then measure the belt vibration frequency.

NOTE: Refer to for information regarding the vibration frequency measurement method using the scan tool (MUT-II).

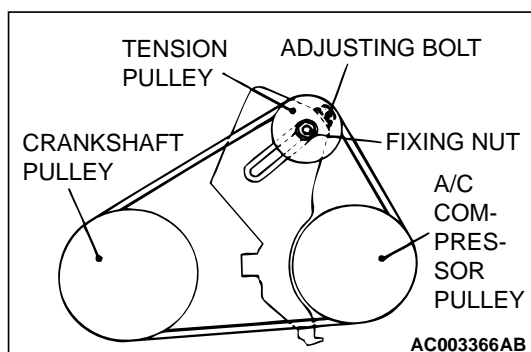
<When not using scan tool (MUT-II)>

1. Use a belt tension gauge to check that the belt tension is at the standard value at a point half-way between the two pulleys (indicated by an arrow in the illustration). In addition, press this section with a force of 98 N (22 lb) and check that the amount of belt deflection is at the standard value.



Standard value:

ITEM	WHEN CHECKED	DURING ADJUSTMENT	DURING REPLACEMENT
Vibration frequency Hz	207 – 232	207 – 232	243 – 264
Tension N (lb)	392 – 490 (88 – 110)	392 – 490 (88 – 110)	593 – 637 (121 – 143)
Deflection (reference value) mm (in)	5.6 – 6.4 (0.22 – 0.25)	5.6 – 6.4 (0.22 – 0.25)	4.3 – 5.1 (0.17 – 0.20)



2. If the tension or deflection is not within the standard value, adjust by the following procedure.

- (1) Loosen the tension pulley fixing nut.
- (2) Adjust the amount of belt deflection using the adjusting bolt.
- (3) Tighten the fixing nut.

⚠ CAUTION

Turn the crankshaft once or more clockwise before checking.

- (4) Check the belt deflection amount and tension, and readjust if necessary.

M1001002600252

9. ENGINE OIL(CHANGE)

Use the specified oil. (Refer to [P.00-36](#))

1. After warming up the engine, remove the oil filler cap.

⚠ WARNING

Use care as oil could be hot.

2. Remove the drain plug to allow the engine oil to drain.
3. Replace the drain plug gasket with a new one, and then tighten the drain plug to the specified torque.

NOTE: Install the drain plug gasket so it faces in the direction shown in the illustration.

Tightening torque: 39 N·m (29 ft-lb)

4. Pour new engine oil in through the oil filler.

Engine oil capacity:

<3.0L Engine> 4.2 dm³ (4.4 quarts)

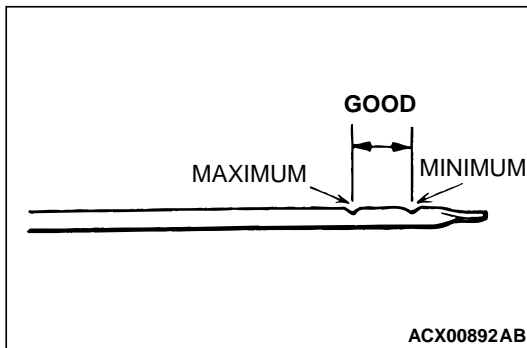
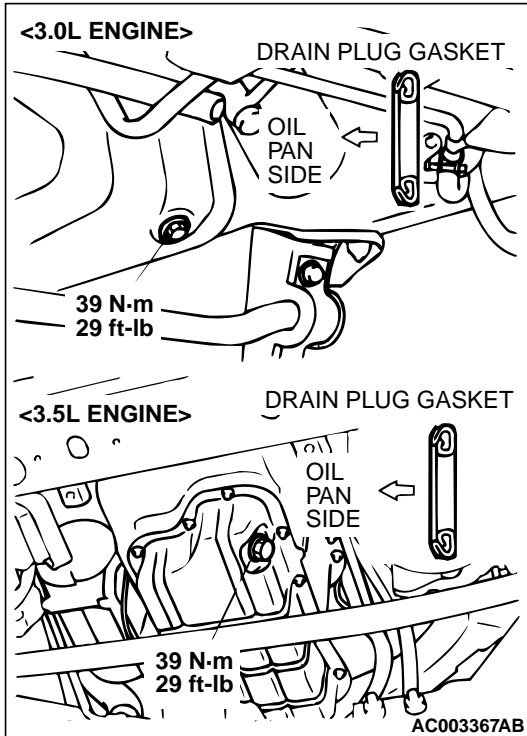
[add 0.3 dm³ (0.32 quart) if replacing the oil filter]

<3.5L Engine> 4.3 dm³ (4.5 quarts)

[add 0.3 dm³ (0.32 quart) if replacing the oil filter]

5. Start the engine and run it at idle for a few minutes.

6. Stop the engine and check to ensure that the engine oil level is within the level range indicated on the dip stick.



10. ENGINE OIL FILTER (REPLACE)

M1001002700248

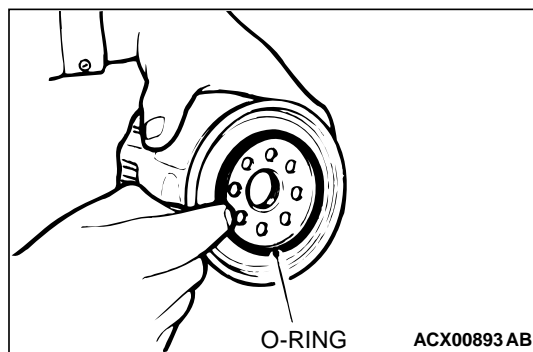
The quality of replacement filters varies considerably. Only high quality filters should be used to assure most efficient service. Genuine oil filters require that the filter is capable of withstanding a pressure of 1,765 kPa (256 psi) are high quality filters and are recommended as follows:

Oil Filter Part Number:

Mitsubishi Genuine Parts:

<6G72> MD136790 or equivalent

<6G74> MD352626 or equivalent



ENGINE OIL FILTER SELECTION

This vehicle is equipped with a full-flow, throw-away oil filter. The same type of filter is recommended as a replacement filter for this vehicle. It is possible, particularly in cold weather, that this vehicle may develop high oil pressure for a short duration. Make sure that any replacement filter used on this vehicle is a high-quality filter. The filter can withstand a pressure of 1,765 kPa (256 psi) [manufacturer's specifications] to avoid the filter and engine damage. The following is a high-quality filter and is strongly recommended for use on this vehicle: Mitsubishi Engine Oil Filter Part number MD136790.

Any replacement oil filter should be installed in accordance with the oil filter manufacturer's installation instructions.

1. Remove the under cover.
2. Drain the engine oil by removing the oil drain plug.
3. Use an oil filter wrench to remove the engine oil filter.
4. Clean the contacting surface of the filter bracket.
5. Lubricate the O-ring of the new oil filter with a small amount of new engine oil.

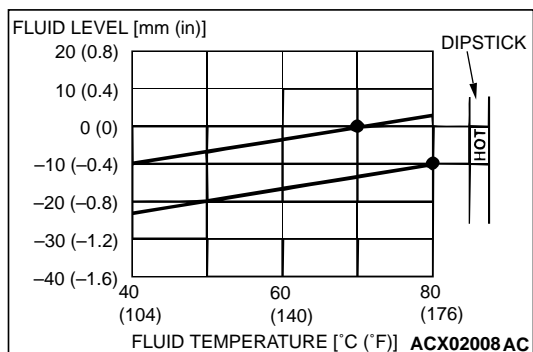
11. AUTOMATIC TRANSMISSION FLUID (CHECK THE FLUID LEVEL)

M1001002900231

1. Drive the vehicle until the fluid temperature rises to the normal temperature [70 – 80°C (158 – 176°F)].

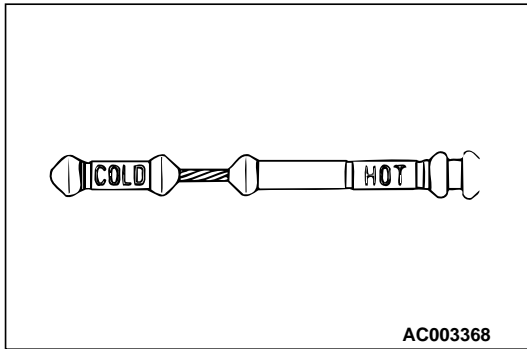
NOTE: The A/T fluid temperature is measured with scan tool (MUT-II).

NOTE: If it takes some amount of time until the A/T fluid reaches its normal operating temperature [70 – 80 °C (158 – 176 °F)], check the A/T fluid level by referring to the left diagram.



2. Park the vehicle on a level surface.
3. Move the selector lever through all positions to fill the torque converter and the hydraulic circuits with fluid, and then move the selector lever to the "N" position.
4. After wiping off any dirt around the dipstick, remove the dipstick and check the condition of the fluid.

NOTE: If the fluid smells as if it is burnt, it means that the fluid has been contaminated by fine particles from the bushings and friction materials. A transmission overhaul and flashing the cooler line flushing may be necessary.



5. Check that the fluid level is at the "HOT" mark on the dipstick. If the fluid level is lower than this, pour in more DIAMOND ATF SP-III or equivalent until the level reaches the "HOT" mark.

NOTE: If the fluid level is too low, the oil pump will draw in air along with the fluid, which will cause bubbles to form. If the A/T fluid level is too high, rotating components inside the transmission will churn the fluid and air into a foamy liquid. Both conditions (level too low or too high) will cause the hydraulic pressure to drop, which will result in late shifting and slipping of the clutches and brakes.

In either case, air bubbles can interfere with normal valve, clutch, and brake operation. Foaming can cause fluid to escape from the transmission vent, in which case it may be mistaken for a leak.

6. Securely insert the dipstick.

NOTE: The fluid and filter should always be replaced when:

- When troubleshooting the transmission
- When overhauling the transmission
- When the oil is noticeably dirty or burnt (vehicle was driven under severe conditions)

Further more, the oil filters are special filters which are only to be used for the automatic transmission.

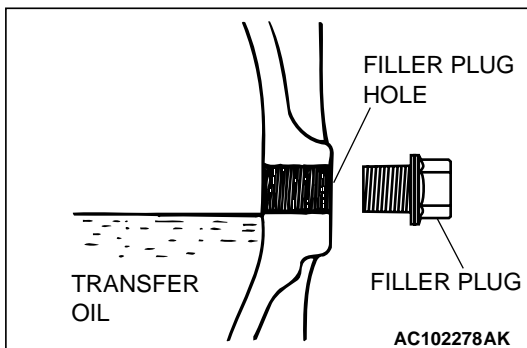
12. TRANSFER OIL (CHECK OIL LEVEL) <V4A51>

M1001006300060

TRANSFER OIL CHECK

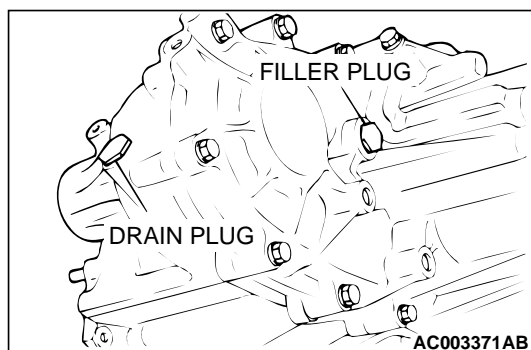
1. Remove the filler plug.
2. Check that the oil level is up to the lower edge of the filler plug hole.
3. Check that the oil is not noticeably dirty, and that it has a suitable viscosity.
4. Tighten the filler plug to the specified torque.

Tightening torque: 29 – 34 N·m (21 – 25 ft-lb)



TRANSFER OIL REPLACEMENT

1. Remove the filler plug.



2. Remove the drain plug and drain oil.
3. Tighten the drain plug to the specified torque.
Tightening torque: 29 – 34 N·m (21 – 25 ft-lb)
4. Add the oil until the level comes to the lower portion of the filler plug hole.
Specified oil:
Hypoid gear oil SAE 75W-90 or 75W/85W conforming to API classification GL-4
Quantity: 2.5 dm³ (2.6 quarts)
5. Tighten the filler plug to the specified torque.
Tightening torque: 29 – 34 N·m (21 – 25 ft-lb)

13. ENGINE COOLANT (CHANGE)

M1001003100250

Required Special Tools:

- MB991871: LLC changer

Check the cooling system parts such as the radiator, heater and oil cooler hoses, thermostat and the connections for leakage and damage.

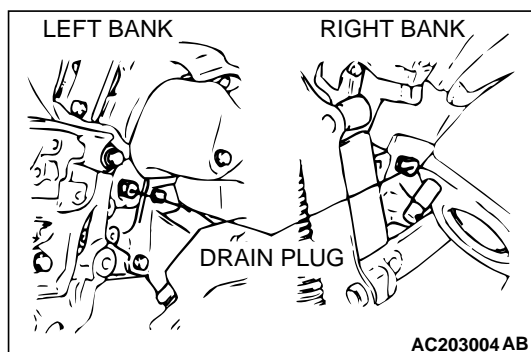
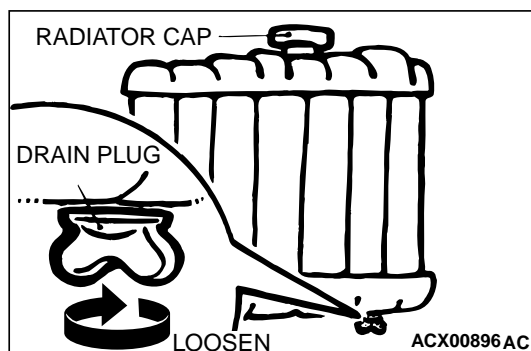
CHANGING COOLANT

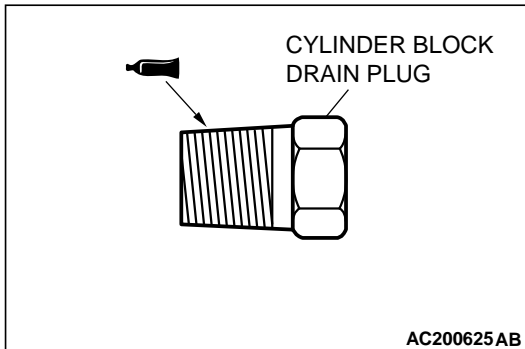
1. Set the temperature control knob to the "HOT" position.

⚠ CAUTION

When removing the radiator cap, use care to avoid contact with hot coolant or steam. Place a shop towel over the cap and turn the cap counterclockwise a little to let the pressure escape through the vinyl tube. After relieving the steam pressure, remove the cap by slowly turning it counterclockwise.

2. Remove the radiator cap, radiator drain plug and cylinder block drain plug to drain the coolant.
3. Remove the reserve tank and drain the coolant.
4. After completely draining the coolant, reinstall the drain plugs and flush the engine and radiator using a radiator cleaning fluid.
5. After the flushing is completed, completely drain the cleaning fluid.

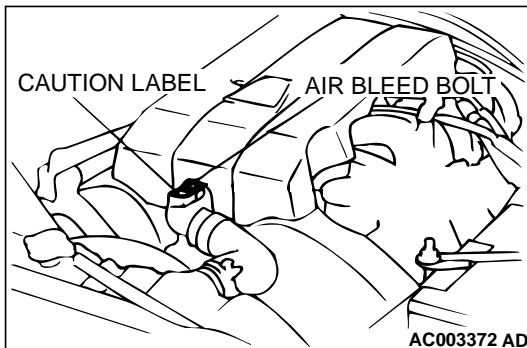




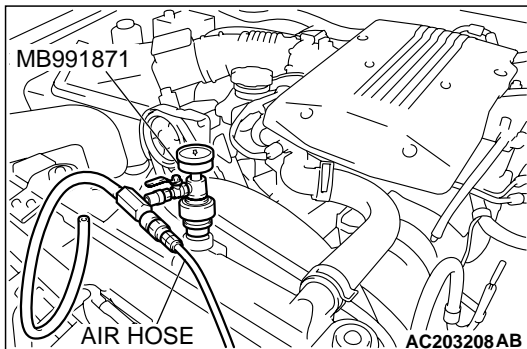
6. Apply the designated sealant to the screw area of the cylinder block drain plug, and then tighten at the standard torque.

Specified sealant: 3M™ Nut Locking Part number 4171 or equivalent

Tightening torque: 39 N·m (29 ft-lb)



7. Loosen the air bleed bolt.



⚠ CAUTION

Do not use alcohol or methanol anti-freeze or any engine coolants mixed with alcohol or methanol anti-freeze. The use of an improper anti-freeze can cause the corrosion of the aluminum components.

8. By referring to the section on coolant, select an appropriate concentration for safe operating temperature within the range of 30 to 60%. Use special tool MB991871 to refill the coolant. A convenient mixture is a 50% water and 50% antifreeze solution [freezing point: -31°C (-32.8°F)].

Recommended antifreeze:

MITSUBISHI GENUINE Part number MD970389 or equivalent

Quantity:

Without rear heater 9.0 cm^3 (9.5 quart)

With rear heater 10.0 cm^3 (10.6 quart)

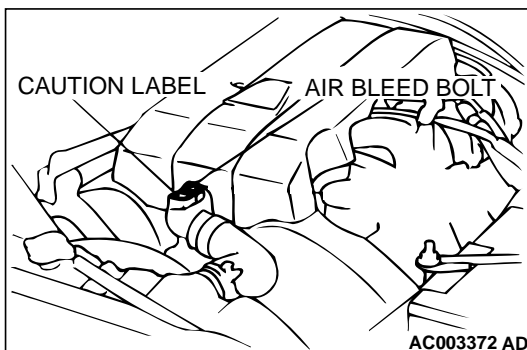
NOTE: For the usage of special tool MB991871, refer to the instructions enclosed with the special tool.

9. Pour in coolant until it overflows from the air bleed bolt hole, and then tighten the air bleed bolt.

Tightening torque:

<3.0L> 17 – 20 N·m (12 – 14 ft-lb)

<3.5L> 12 – 15 N·m (106 – 133 in-lb)



10. Reinstall the radiator cap.

11. Start the engine and let it warm up until the thermostat opens.

12. After repeatedly revving the engine up to 3,000 r/min several times, then stop the engine.

13. Remove the radiator cap after the engine has become cold, and pour in coolant up to the brim. Reinstall the cap.

⚠ CAUTION

Do not overfill the tank.

14. Add coolant to the reserve tank between the "FULL" and "LOW" mark if necessary.

14. DISC BRAKE PADS (INSPECT FOR WEAR)

M1001003200224

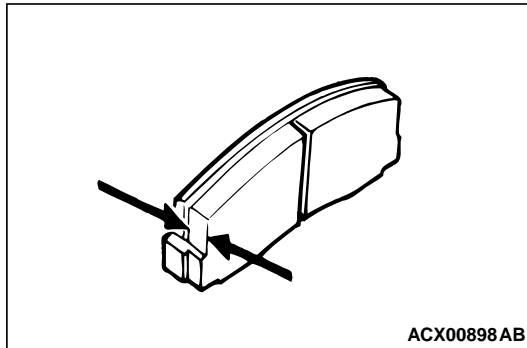
Check for fluid contamination and wear. Replace the complete set of pads if defective.

Thickness of lining

Minimum limit 2.0 mm (0.08 inch)

⚠ CAUTION

The pads for the right and left wheels should be replaced at the same time. Never split or intermix brake pad sets. All four pads must be replaced as a complete set.

**15. REAR DRUM BRAKE LININGS AND REAR WHEEL CYLINDERS (INSPECT FOR WEAR AND LEAKS)**

M1001003300209

Remove the brake drum and check the thickness of brake shoe lining for wear. Check the automatic brake adjusting system by hand to see if it operates smoothly.

Also see if the gears are in proper mesh with each other. To assure smooth operation apply a very thin coat of multipurpose grease to the friction surface of the adjuster and link shaft.

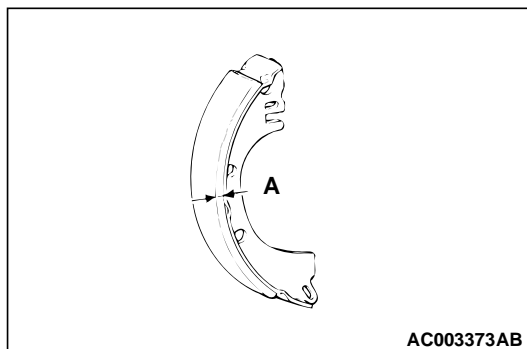
⚠ CAUTION

Never split or intermix brake shoe sets. All four shoes must be replaced as a complete set.

1. Inspect the wheel cylinder boot for evidence of a brake fluid leak. Visually check the boot for cuts, tears or heat cracks. (a slight amount of fluid on the boot may not be a leak, but may be preservative fluid used at assembly.) Checking the Brake Shoes for Wear

Thickness of lining (A)

Minimum limit: 1.0 mm (0.04 inch)



16. BRAKE HOSES (CHECK FOR DETERIORATION OR LEAKS)

M1001003400239

Inspection of brake hoses and tubing should be included in all brake service operations.

The hoses should be checked for:

1. Correct length, severe surface cracking, pulling, scuffing or worn spots. (If the fabric casing of the hoses is exposed by cracks or abrasion in the rubber hose cover, the hoses should be replaced. Eventual deterioration of the hose and possible bursting failure may occur.)
2. Incorrect installation, casing twisting or interference with wheel, tire or chassis.

17. BALL JOINT AND STEERING LINKAGE SEALS (INSPECT FOR GREASE LEAKS AND DAMAGE)

M1001003500225

1. These components, which are permanently lubricated at the factory, do not require periodic lubrication. Damaged seals and boots should be replaced to prevent leakage or contamination of the grease.
2. Inspect the dust cover and boots for proper sealing, leakage and damage, and replace them if defective.

18. DRIVE SHAFT BOOTS (INSPECT FOR GREASE LEAKS AND DAMAGE)

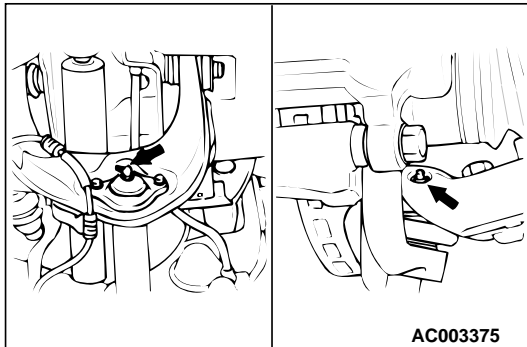
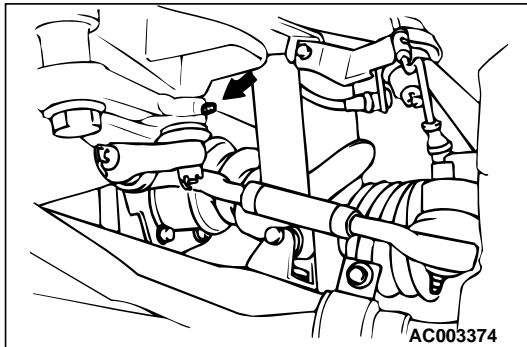
M1001003600222

1. These components, which are permanently lubricated at the factory, do not require periodic lubrication. Damaged seals and boots should be replaced to prevent leakage or contamination of the grease.
2. Inspect the dust cover and boots for proper sealing, leakage and damage, and replace them if defective.

**19. BALL JOINT WITH GREASE NIPPLE
(LUBRICATE WITH GREASE)**

M1001007000062

Fill with multipurpose grease at the grease nipple till the grease come out of the dust seal of the pitman arm, tie rod, lower arm and upper arm.

**20. FRONT AXLE AND REAR AXLE
Limited Slip Differential (Change)**

M1001007200099

Before changing the rear axle oil, check that there is no oil leakage from the rear axle housing.

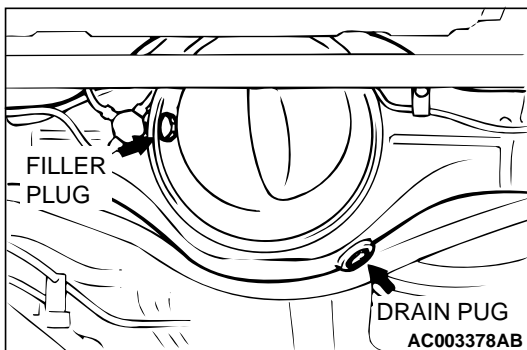
Remove the drain plug and drain out the oil.

Replace the oil plug, and then pour new oil in through the filler hole.

Oil capacity:

<3.0L> 2.6 dm³ (2.8 quarts)

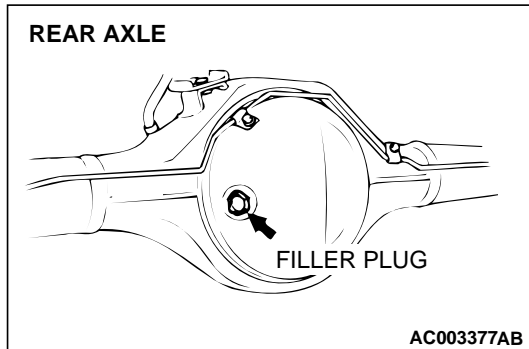
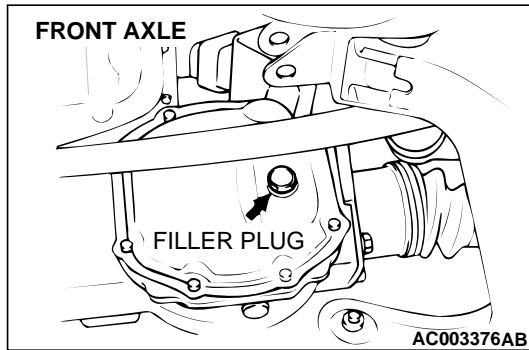
<3.5L> 3.2 dm³ (3.4 quarts)



Conventional Differential (Inspect Oil Level)

M1001007100092

Remove the filler plug and inspect the oil level at the bottom of the filler hole. If the oil level is slightly below the filler hole, the condition is satisfactory.

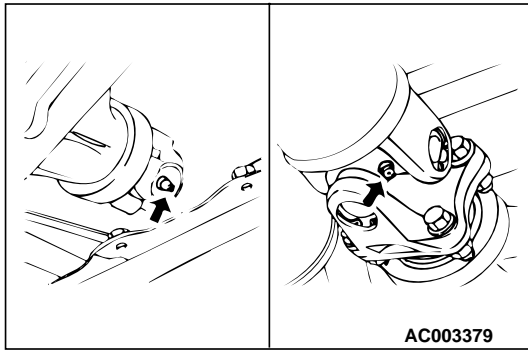


21. PROPELLER SHAFT JOINTS WITH GREASE NIPPLE (LUBRICATE WITH GREASE)

M1001007300096

Lubricate the propeller shaft joints with grease nipple.

The propeller shaft joints should be repacked with multipurpose grease.



22. EXHAUST SYSTEM (CONNECTION PORTION OF MUFFLER, PIPINGS AND CONVERTER HEAT SHIELDS) (CHECK AND SERVICE AS REQUIRED)

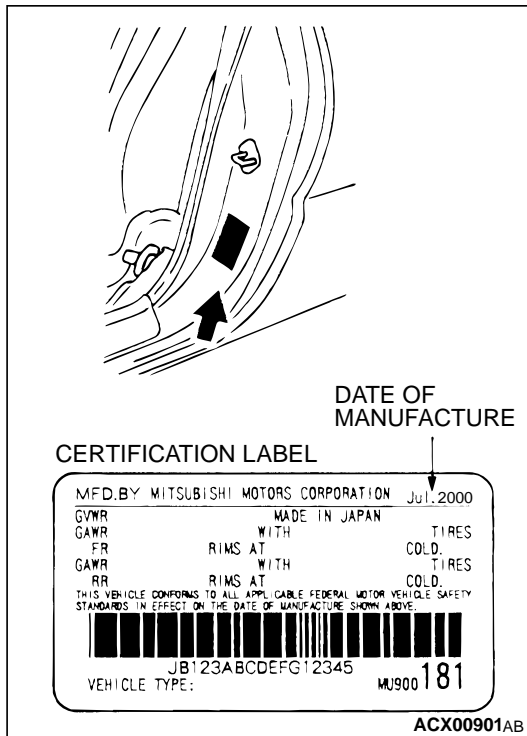
M1001005800211

1. Check for holes and gas leaks due to damage, corrosion, etc.
2. Check the joints and connections for looseness and gas leaks.
3. Check the hanger rubber and brackets for damage.

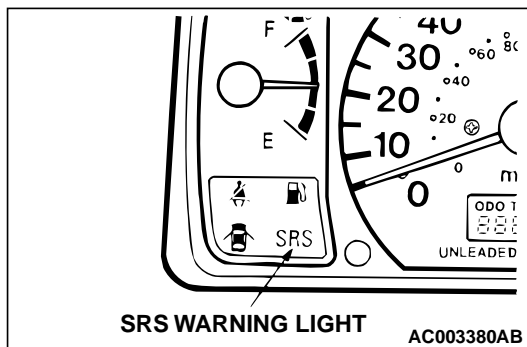
23. SRS MAINTENANCE (SRS component check: damage, function, connection to wiring harness, etc.)

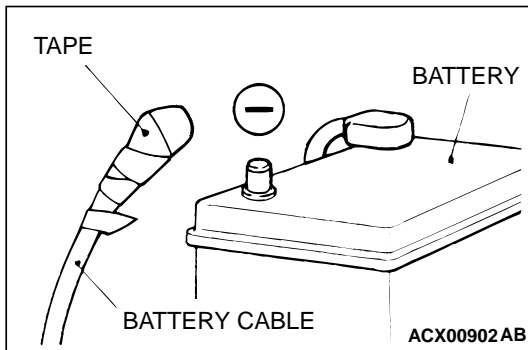
M1001003700230

The SRS must be inspected by an authorized dealer 10 years after the car manufacture date shown on the certification label located on the left center sill.

**SRS WARNING LIGHT CHECK**

Turn the ignition key to the "ON" position. Does the "SRS" warning light illuminate for about 7 seconds, and then remain off for at least 5 seconds after turning OFF? If yes, the SRS system is functioning properly. If no, refer to GROUP 52B, Diagnosis [P.52B-20](#).





SRS COMPONENT VISUAL CHECK

⚠ DANGER

Wait at least 60 seconds after disconnecting the battery cable before doing any further work. The SRS system is designed to retain enough voltage to deploy the air bag for a short time even after the battery has been disconnected, so serious injury may result from unintended air bag deployment if work is done on the SRS system immediately after the battery cable is disconnected.

⚠ WARNING

Battery posts, terminals and related accessories contain lead and lead compounds. WASH HANDS AFTER HANDLING.

1. Turn the ignition switch to the "LOCK" (OFF) position, disconnect the negative battery cable and tape the terminal.
2. Remove the floor console assembly. (Refer to GROUP 52A, Floor Console [P.52A-35](#).)
3. Disconnect a connector from the SRS-ECU.

FRONT IMPACT SENSORS

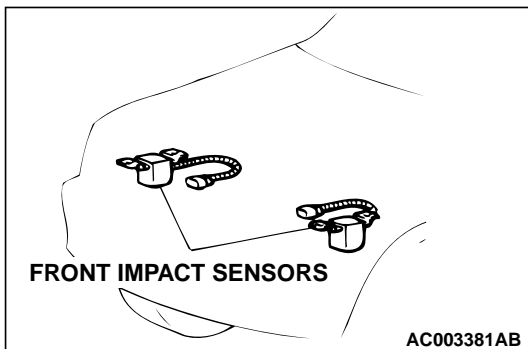
1. Check that the arrows on the sensors face toward the front of the vehicle.

⚠ WARNING

The SRS may not activate if a front impact sensor is not installed properly, which could result in serious injury or death to the vehicle's driver and passenger.

2. Check the radiator support panel and front impact sensor for deformation or rust.
3. Check the front impact sensor wiring harness for binds, connector for damage, and check the terminals for deformation.

Replace sensor and/or wiring harness if they fail the visual check. (Refer to GROUP 52B, SRS Service Precautions [P.52B-15](#) and GROUP 52B, Front Impact Sensor [P.52B-67](#).)



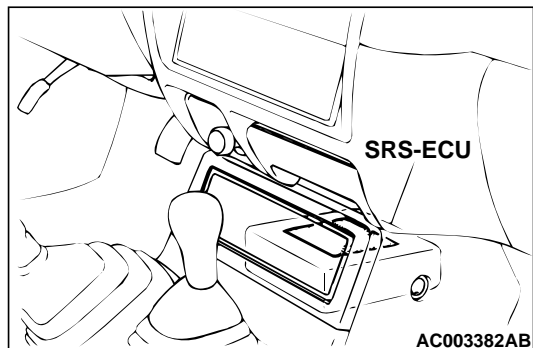
SRS AIR BAG CONTROL UNIT (SRS-ECU)

⚠ WARNING

The SRS may not activate if the SRS-ECU (with built-in safing G-sensor and analog G-sensor) is not installed properly, which could result in serious injury or death to the vehicle's driver and passenger.

1. Check the SRS-ECU case and brackets for dents, cracks, deformation or rust.
2. Check the connector for damage, and check the terminals for deformation or rust.

Replace the SRS-ECU if it fails the visual check. (Refer to GROUP 52B, SRS Air bag Control Unit [P.52B-70](#).)

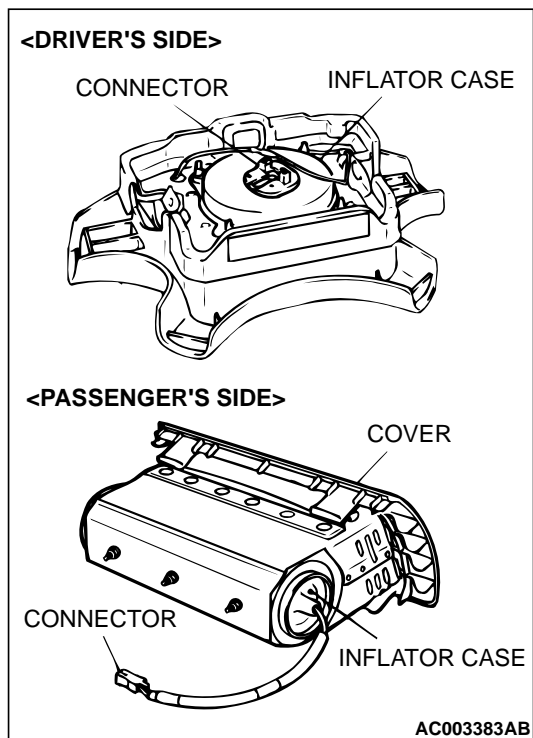


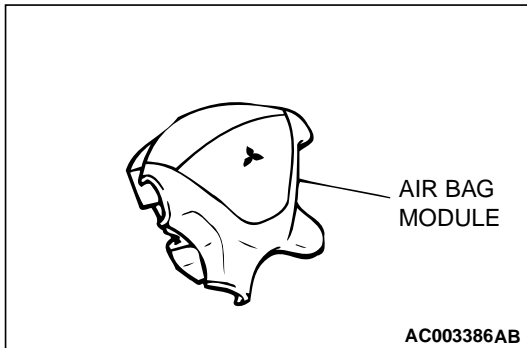
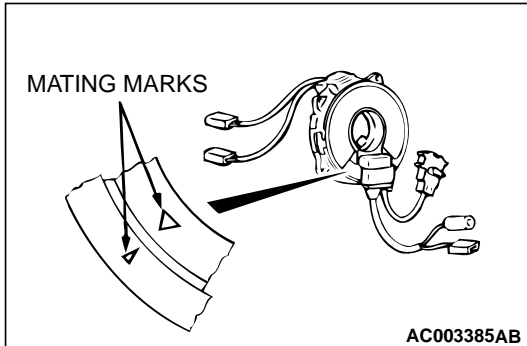
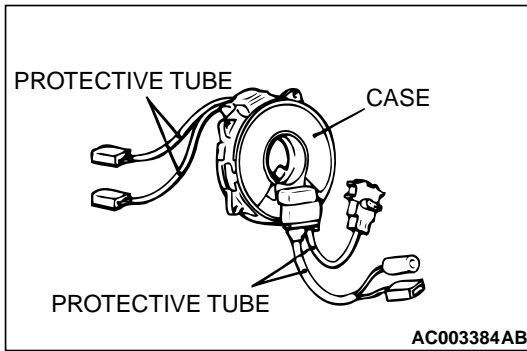
AIR BAG MODULE, STEERING WHEEL AND CLOCK SPRING

⚠ WARNING

The removed air bag module should be stored in a clean, dry place with the pad cover face up.

1. Remove the air bag module, steering wheel and clock spring.
(Refer to GROUP 52B, Air Bag Module and Clock Spring [P.52B-72](#).)
2. Check the pad cover for dents, cracks or deformation.
3. Check the connector for damage and deformed terminals, and check the harness for binds.
4. Check the air bag inflator case for dents, cracks or deformation.
5. Check the harness (built into the steering wheel) and connectors for damage, and check the terminals for deformation.





6. Check the clock spring connectors and protective tube for damage, and terminals for deformities.
7. Visually check the case for damage.

⚠ WARNING

If the clock spring's mating mark is not properly aligned, the steering wheel may not completely rotate during a turn, or the flat cable within the clock spring may be severed, obstructing normal operation of the SRS and possibly leading to serious injury to the vehicle's driver and passenger.

8. Align the mating marks of the clock spring, and after turning the front wheels to the straight-ahead position, install the clock spring to the column switch.

Mating marks alignment

After turning the clock spring fully clockwise, turn it approximately 3 4/5 turns counterclockwise until the mating marks are aligned.

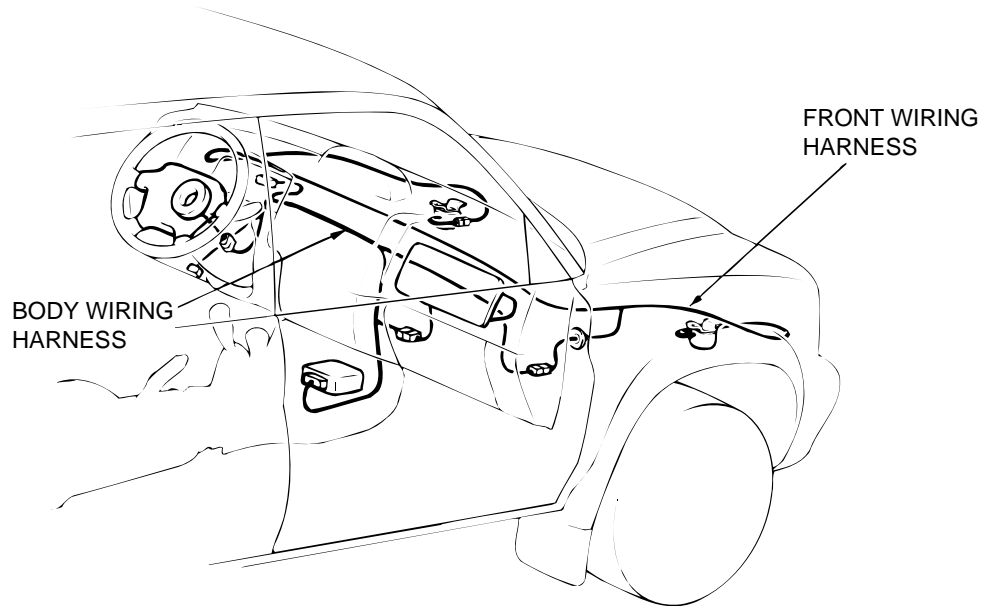
9. Install the steering column covers, steering wheel and air bag module.
10. Check the steering wheel for noise, binds or difficult operation.

⚠ DANGER

The SRS may not activate if any of the above components are not installed properly, which could result in serious injury or death to the vehicle's driver and passenger.

11. Check the steering wheel for excessive free play.
REPLACE ANY VISUALLY INSPECTED PART IF IT FAILS THAT INSPECTION. (Refer to GROUP 52B, Air Bag Module and Clock Spring [P.52B-72.](#))

WIRING HARNESS



AC003387AB

1. Check the connector for poor connection.

⚠ DANGER

The SRS system may not operate if SRS harnesses or connectors are damaged or improperly connected, which could result in serious injury or death to the vehicle's driver and passenger.

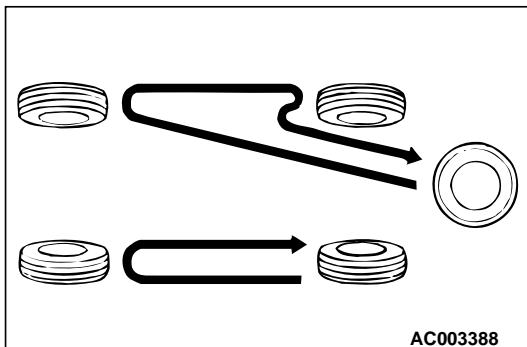
2. Check the harness for binds, the connectors for damage, and the terminals for deformation.

REPLACE ANY CONNECTORS OR HARNESS THAT FAILS THE VISUAL INSPECTION. (Refer to GROUP 52B, SRS Service Precautions [P.52B-15.](#))

24. TIRES (ROTATE)

M1001008900228

Rotate the tires to equalize the wear and help extend tire life. When rotating tires, check for uneven wear and damage.



MAIN SEALANT AND ADHESIVE TABLE

M1001003800248

APPLICATION		3M™ NO.	LOCTITE®/ PERMATEX® NO.
ENGINE AND DRIVETRAIN	Between rocker cover and camshaft bearing cap. Between rocker cover, semicircular packing and cylinder head. Between oil pressure switch and engine.	3M™ AAD Part No. 8660 Ultrapro High Temp. Silicone Gasket or 3M™ AAD Part No. 8679 Black/8678 Black Press-In-Place Silicone gasket strips	Permatex® Ultra Black 598, No.82180
	Between engine coolant temperature switch, engine coolant temperature sensor, thermo valve, thermo switch, joint, engine coolant temperature gauge unit (large-size) and engine	3M™ AAD Part No. 8731 Medium Strength Blue Threadlocker	Loctite®242 Blue Service Tool Removable 24200
	Between oil pan and engine block	3M™ AAD Part No. 8672, 3M™ AAD Part No. 8704 or 3M™ AAD Part No. 8679/ 3M™ AAD Part No. 8678 or	Permatex® Ultra Gray 599, No.82194
WEATHER- STRIPPING FOR GLASS	Between tempered glass, body flanges, and weatherstrip	3M™ AAD Part No. 8509 Auto Bedding and Glazing Compound or 3M™ AAD Part No. 8633 Windo-weld Resealant	—
WEATHER- STRIPPING FOR GLASS	Between laminated glass and weatherstrip	3M™ AAD Part No. 8633	—
INTERIORS	Adhesive of vinyl chloride cloth	3M™ AAD Part No. 8088 General Trim Adhesive or 3M™ AAD Part No. 8064 Vinyl Trim Adhesive	Permatex® Vinyl Repair Kit No.81786
	Adhesion of door weatherstrip	3M™ AAD Part No. 8001 (yellow) or 3M™ AAD Part No. 8008 (black) Super Weatherstrip Adhesive or 3M™ AAD Part No. 8011 Black Weatherstrip Adhesive	Permatex® Super Black Weatherstrip Adhesive No.82, 81850
	Sealing of various grommets and packing	3M™ AAD Part No. 8509 or 3M™ AAD Part No. 8678	—
	Adhesion of headliners and various interior decorative materials	3M™ AAD Part No. 8088 General Trim Adhesive or 3M™ AAD Part No. 8090 Super Trim Adhesive	Permatex® Spray Adhesive No.82019

APPLICATION		3M™ NO.	LOCTITE®/ PERMATEX® NO.
BODY SEALANTS	Sealing of sheet metal joints, drip rail, floor, side panels, trunk, front panel, tail gate hinge	3M™ AAD Part No. 8531 Heavy Drip-Check Sealer (gray) or 3M™ AAD Part No. 8302 Ultrapro Autobody Sealant (clear) or 3M™ AAD Part No. 8361 Urethane A/B Sealant (gray or white)	—
	Miscellaneous body sealants (originally mounted w/ adhesive tape) <ul style="list-style-type: none"> • Waterproof door film • Fender panel • Splash shield • Mud guard • Rear combination lamp 	3M™ AAD Part No. 8633 Windo-weld Resealant	—
	Fuel Tank and Pad	3M™ AAD Part No. 8088 General Trim Adhesive or 3M™ AAD Part No. 8090 Super Trim Adhesive	Permatex® Spray Adhesive No.82019
CHASSIS SEALANT	Sealant of various flange faces and threaded parts. Packing of fuel gauge unit	3M™ AAD Part No. 8730 High Strength Red Threadlock or 3M™ AAD Part No. 8731 Medium Strength Blue Threadlocker	Loctite® 272 High Strength and High Temperature 27200
	Sealing of various threaded parts, dust covers. Differential carrier packing, dust covers and ball joint and linkage. Packing and shims of steering box, sealing of rack support cover and top cover of steering box housing, seal of junction face of knuckle arm flange	3M™ AAD Part No. 8672 Ultrapro High Temp. Silicone Gasket or 3M™ AAD Part No. 8679 (black) or 3M™ AAD Part No. 8678 (black) Press-In-Place Silicone gasket strips 3M™ AAD Part No. 8661 or 3M™ AAD Part No. 8663 Super Silicone sealant	Permatex® The Right Stuff No.25223
	Seal of brake shoe hold down pin and wheel cylinder of drum brakes	3M™ AAD Part No. 8633 Windo-weld Resealant	—

APPLICATION		3M™ NO.	LOCTITE®/ PERMATEX® NO.
QUICK FIX ADHESIVE	—	3M™ AAD Part No. 8155 Quick Fix Adhesive	Loctite® Quicktite Super Glue 21309
ANAEROBIC STRONG SEALING AGENT	Fixing of various threads, bolts, screws. Fixing of differential drive gear bolt, Connecting of tilt steering bolt. Fan, pulley, gear Sealing of small gaps and flange faces	3M™ AAD Part No. 8730 High Strength Threadlocker or 3M™ AAD Part No. 8731 Medium Strength Threadlocker	Loctite® 271, High- Strength Threadlocker 27100 or 27200
UNDERCOATING AGENT	—	3M™ AAD Part No. 8883 Rubberized Undercoating Aerosol or 3M™ AAD Part No. 8864 Body Schutz Undercoating (qt)	Permatex® Heavy-Duty Undercoating 81833

NOTES