GROUP 00

GENERAL

CONTENTS

Continued on next page

HOW TO USE THIS MANUAL

M1001000102763

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, transaxle type, etc.). A description of these designations is covered in this manual under "VEHICLE IDENTIFICATION."

ON-VEHICLE SERVICE

The "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 are 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 adjustment is correct.

LIMIT

Shows the maximum or minimum value for judging whether or not a part or adjustment 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.00-60.

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 the special tool number that is available in your market.

ABBREVIATIONS

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

NOTE:

- *2.4L Engine: 2.359 cm^3 4B12 engine, or a model equipped with such an engine.*
- *3.0L Engine: 2.998 cm^3 6B31 engine, or a model equipped with such an engine.*
- *A/C: Air conditioning.*
- *A/T: Automatic transaxle, or models equipped with automatic transaxle.*
- *AWD: All wheel drive vehicles.*
- *CVT: Indicates the continuously variable transaxle.*
- *FWD: Front wheel drive vehicles.*
- *Keyless Operation System (KOS): Free-hand Advanced Security Transmitter (F.A.S.T.-key)*
- *LIN: Local interconnect network*
- *MFI: Multiport fuel injection, or engines equipped with multiport fuel injection.*
- *ECM: Indicates the engine control module*
- *TCM: Indicates the transaxle control module*

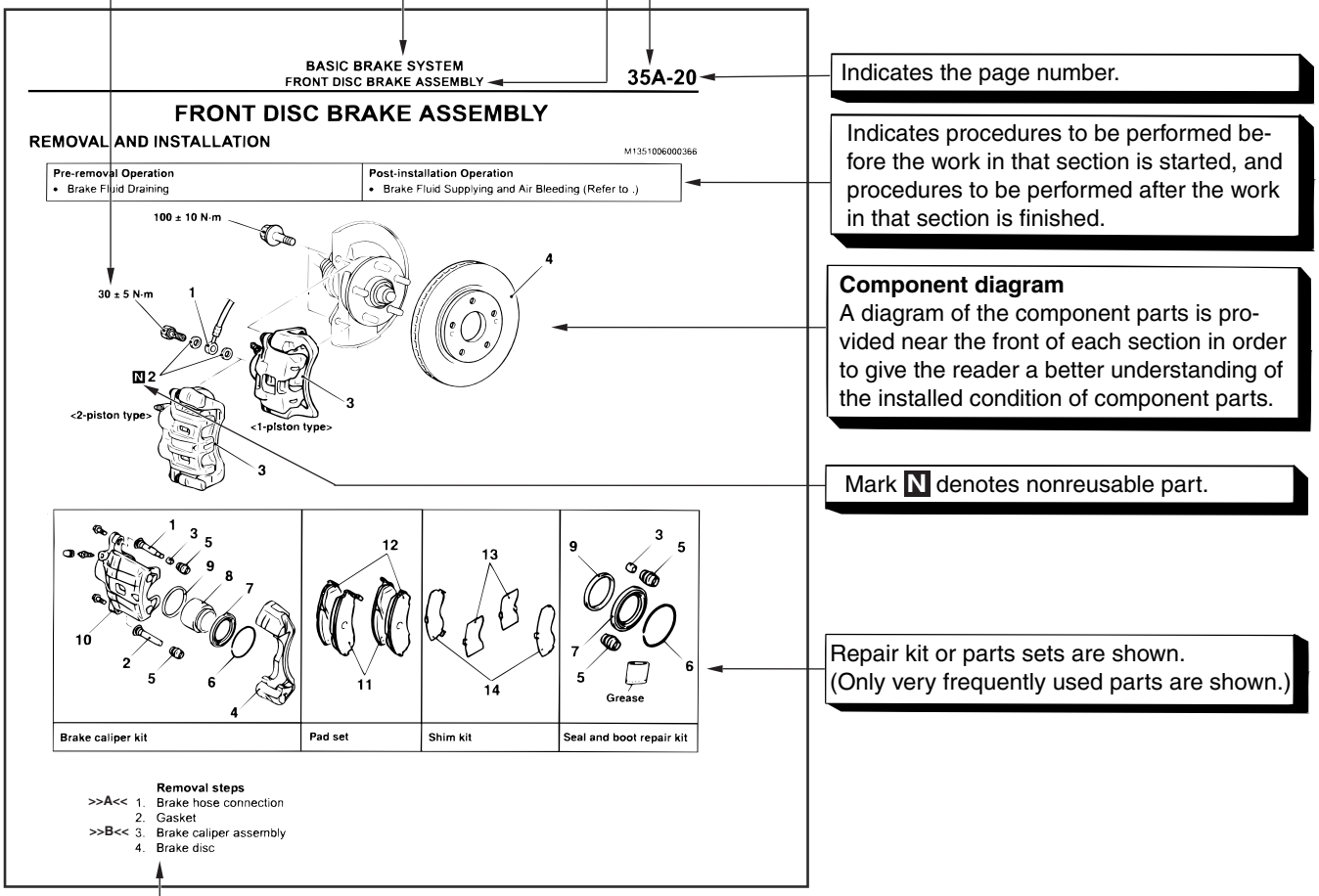
EXPLANATION OF MANUAL CONTENTS

Indicates the section title.

Denotes tightening torque. For bolts and nuts which do not have a tightening torque listed, refer to the "Standard Parts tightening-torque Table"

Indicates the group title.

Indicates the group number.



Indicates the page number.

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.

Mark **N** denotes nonreusable part.

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

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.
- Reassembly steps :
  Specified in case installation is impossible in reverse order of removal steps. Omitted if reassembly is possible in reverse order of disassembly steps.

AC901523

TSB Revision

Classifications of major maintenance / service points

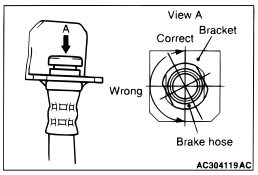
When there are major points relative to maintenance and servicing procedures (such as essential maintenance and service points, maintenance and service standard values, information regarding the use of special tools, etc.). These are arranged together as major maintenance and service points and explained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

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

INSTALLATION SERVICE POINTS

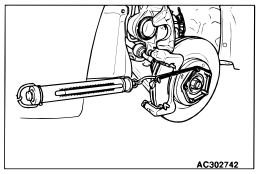
>>A<< BRAKE HOSE INSTALLATION

1. Install the brake hose end on the bracket and another end on the front brake assembly.



2. Twist the brake hose towards the lesser torsion between the brake hose and bracket as shown and secure it to the bracket.

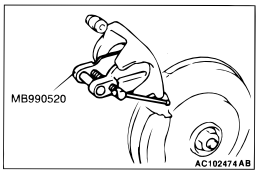
>>B<< BRAKE CALIPER ASSEMBLY INSTALLATION



1. In order to measure the brake drag torque, measure the hub torque with the pads removed by the following procedure.
   (1) Use a spring balance to measure the hub torque in the forward direction.
   (2) Record hub torque with pads removed.

⚠ CAUTION
Do not let any oil, grease or other contamination get onto 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.

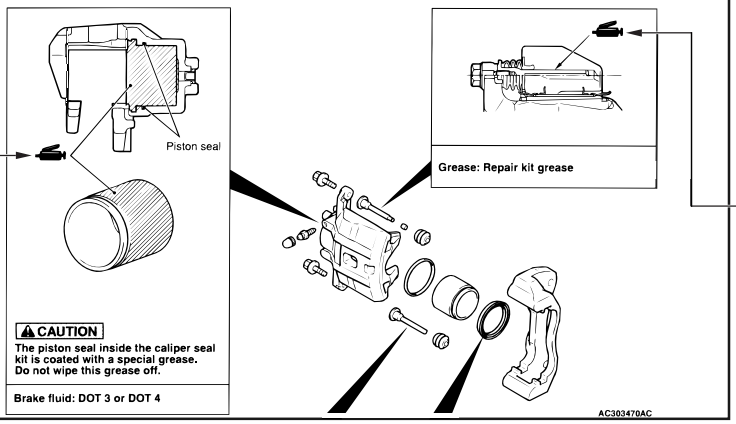


3. Clean the piston and insert into cylinder with special tool disc brake piston expander (MB990520).
4. Install the pad clips and the pads to the caliper support and tighten the pin bolt to the specified torque.

Tightening torque : 38 ± 4 N·m

Operating procedures, cautions, etc. on removal, installation, disassembly and reassembly are described

LUBRICATION POINTS



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.

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
- : Automatic transmission fluid, brake fluid, power steering fluid or air conditioning compressor oil
- : Engine oil or gear oil
- : Adhesive tape or butyl rubber tape

AC509265AO

TSB Revision

TROUBLESHOOTING GUIDELINES

M1001008800287

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 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 find the right diagnosis procedure.
If the confirmed symptoms cannot 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, make 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

TROUBLESHOOTING CONTENTS

M1001013300642

Troubleshooting of electronic control systems for which scan tool MB991958 can be used follows the basic outline described below. Even in systems for which scan tool MB991958 cannot be used, some of these systems still follow this outline.

⚠ ***DANGER***

The SRS-ECU adopts the rollover specification that the curtain airbag and seat belt pre-tensioner operate at the occurrence of rollover. Therefore, do not tilt the vehicle to the right and left with the IG ON or tilt the SRS-ECU to the right and left with the IG ON and the harness installed.

⚠ **CAUTION**

During diagnosis, a diagnostic trouble code associated with other system may be set when the ignition switch is turned "ON" with connector(s) disconnected. On completion, confirm all systems for diagnostic trouble code(s). If diagnostic trouble code(s) are set, erase them all.

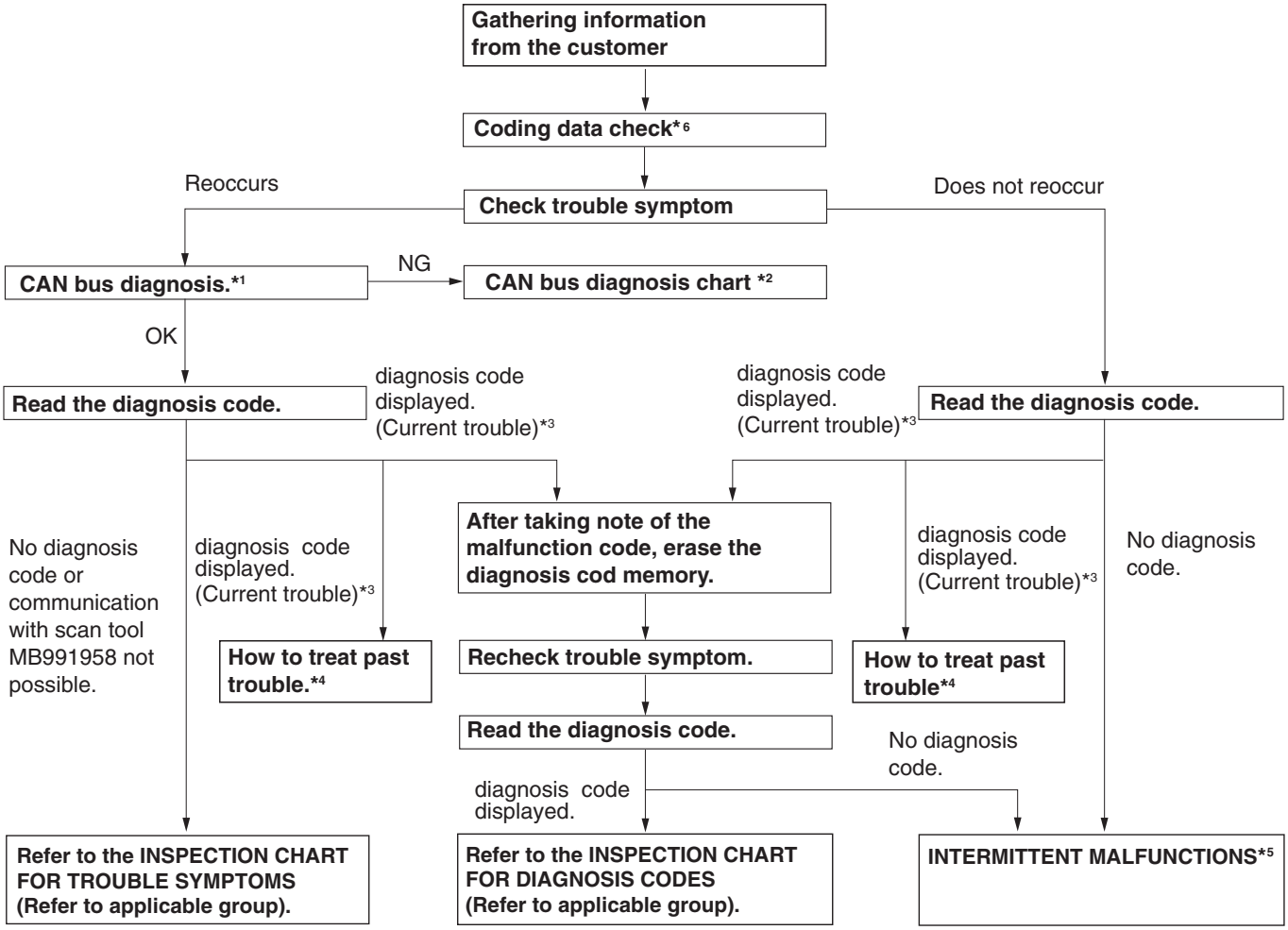
⚠ ***WARNING***

Since the radiator fan rotates during CAN bus line diagnostics, make sure that no one is servicing the engine compartment before diagnosing the CAN bus line. Since the CAN communication stops when diagnosing the CAN bus line, the ETACS-ECU detects the time-out of the engine control module, and activates the radiator fan to prevent overheating as fail-safe.

1. STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

Troubleshooting sections are based on the diagnostic flow as below. If the diagnostic flow is different from that given below, or if additional explanation is required, the details of such differences or additions will also be listed.

Diagnostic method



AC704160

- *1: For how to diagnose CAN bus lines, refer to GROUP 54C P.54C-10.
- *2: For the CAN bus diagnosis chart, refer to GROUP 54C P.54C-17.
- *3: When scan tool MB991958 detects a diagnostic trouble code, its display informs users whether a mechanical problem currently exists or whether it existed before. The message for the former state identifies it as an "Active" and the message for the latter identifies it as a "Stored".
- *4: For how to treat past trouble, refer to P.00-17.
- *5: For how to cope with intermittent malfunctions, refer to P.00-15.
- *6: For coding data, refer to P.00-44.

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

TSB Revision

4. DIAGNOSTIC TROUBLE CODE CHART

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

5. SYMPTOM CHART

If there are symptoms, even though the scan tools show that no DTCs are set, inspection procedures for each symptom will be found by using this chart.

6. DIAGNOSTIC TROUBLE CODE PROCEDURES

Indicates the inspection procedures corresponding to each diagnostic trouble code. (Refer to P.00-10).

7. SYMPTOM PROCEDURES

Indicates the inspection procedures corresponding to each symptom listed in the Symptom Chart. (Refer to P.00-10).

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.

   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. Replace or repair as needed.
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 the "LOCK" (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

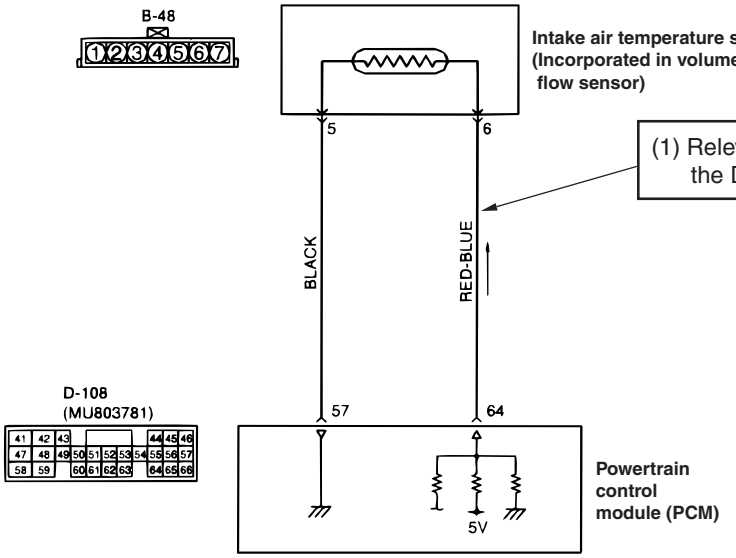
When there are inspection procedures using an oscilloscope, these are listed.

HOW TO USE THE INSPECTION PROCEDURES

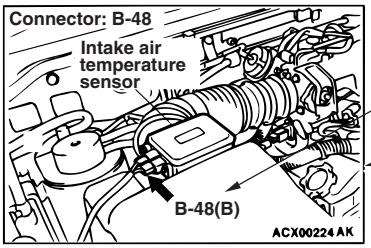
M1001013500550

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.

DTC P0110: Intake Air Temperature Circuit Malfunction



(1) Relevant circuit(s) of the component which the DTC indicates are described.



(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.

AC610770AB

TSB Revision

(5) Explains about technical details.

(6) Describes the conditions for that DTC being set (stored).

(7) Describes possible cause(s)for that DTC.

(8) Start of the diagnosis procedure for that DTC.

(9) Identifies the special tool(s) necessary for diagnosing that DTC.

(10) Provides the inspection procedure for that DTC step by step.

TECHNICAL DESCRIPTION

- The engine coolant temperature sensor converts the engine coolant temperature to a voltage and output it.
- The PCM checks whether this voltage is within a specified range.

DTC SET CONDITIONS

Check Conditions

- Engine coolant temperature was 7°C (45°F) or more immediately before the engine was stopped at the last drive.

TROUBLESHOOTING HINTS (The most likely causes for this code to be set are:)

- Engine coolant temperature sensor failed.
- Open or shorted engine coolant temperature sensor circuit, or loose connector.
- PCM failed.

DIAGNOSIS

Required special tool:

- MB991958: Scan Tool (MUT-III Sub Assembly)
  - MB991824: V.C.I.
  - MB991827: USB Cable
  - MB991910: Main Harness A

STEP 1. Using scan tool MB991958, check data list item 15: Transmission Fluid Temperature Sensor.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958 to the data link connector.
(2) Start the engine.
(3) Set scan tool MB991958 to the data reading mode for item 15, Transmission Fluid Temperature Sensor.
- When the engine is cool: Almost equal to the ambient temperature (atmospheric temperature)

NOTE: Set scan tool MB991958 to data reading mode for item number 13, Intake Air Temperature (IAT) Sensor and note the temperature measurement. When the engine is cool, the temperature should be almost equal to the ambient temperature (atmospheric temperature), and the IAT sensor measurement should be approximately the same as the Transmission Fluid Temperature Sensor.

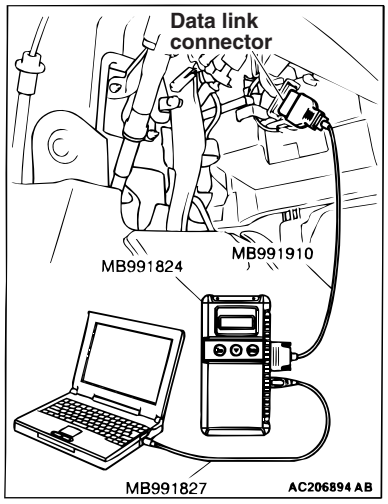
- When the engine is warm: 70 to 80°C (158 to 176°F)

(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the sensor operating properly?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/ Inspection Service Points – How to Cope with Intermittent Malfunction .

NO : Go to Step 2.



AC210616 AD

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.00-17."

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.

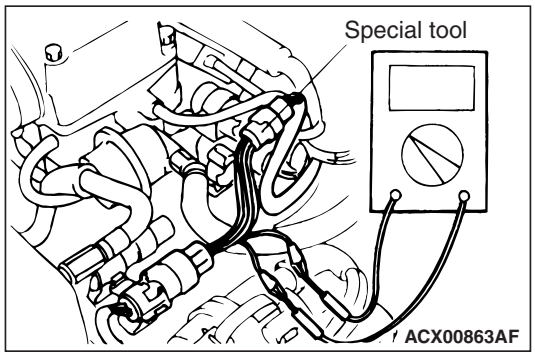
TSB Revision

CONNECTOR MEASUREMENT SERVICE POINTS

M1001013600717

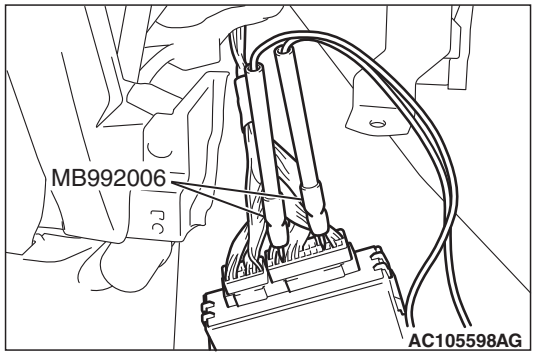
Turn the ignition switch to the "LOCK" (OFF) position when connecting and disconnecting the connectors. Turn the ignition switch to "ON" when measuring, unless there are instructions to the contrary.

IF INSPECTING WITH THE CONNECTOR CONNECTED WATERPROOF CONNECTORS



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

IF INSPECTING WITH THE CONNECTOR CONNECTED ORDINARY (NON-WATERPROOF) CONNECTORS



Required Special Tool:

- MB992006: Extra Fine Probe

Inspect by inserting a test probe from the harness side. If the connector is too small to insert a test probe (e.g. control unit connector), do not insert it forcibly. Use special tool MB992006 (extra fine probe).

IF INSPECTING WITH THE CONNECTOR DISCONNECTED

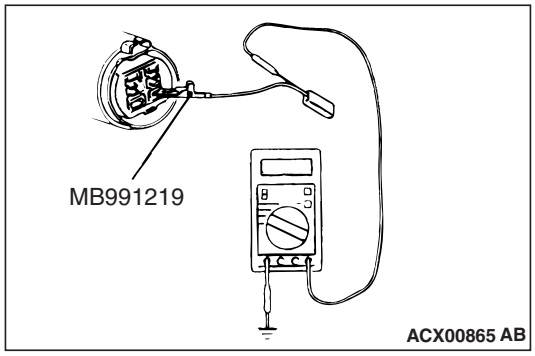
When Inspecting a Female Pin

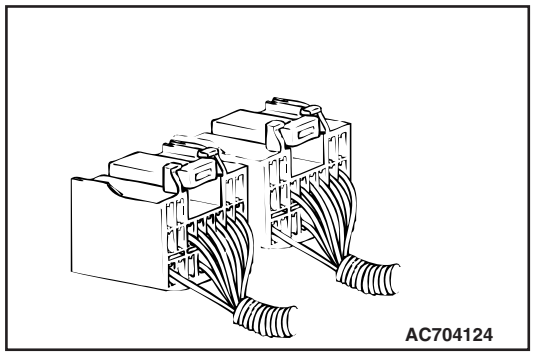
- From front side of the connector

  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*

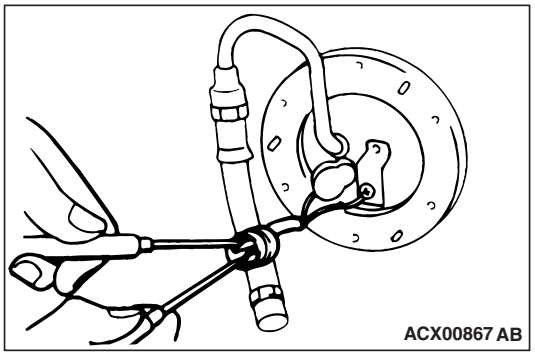
Insert the backprobing tool into the connector from the harness side, and connect the tester to the backprobing tool. If any tool other than the backprobing tool is used, it may cause damage to the harness and other components. Furthermore, measurement should not be carried out by touching the backprobing 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. Doing so may damage the circuits inside the ECU.

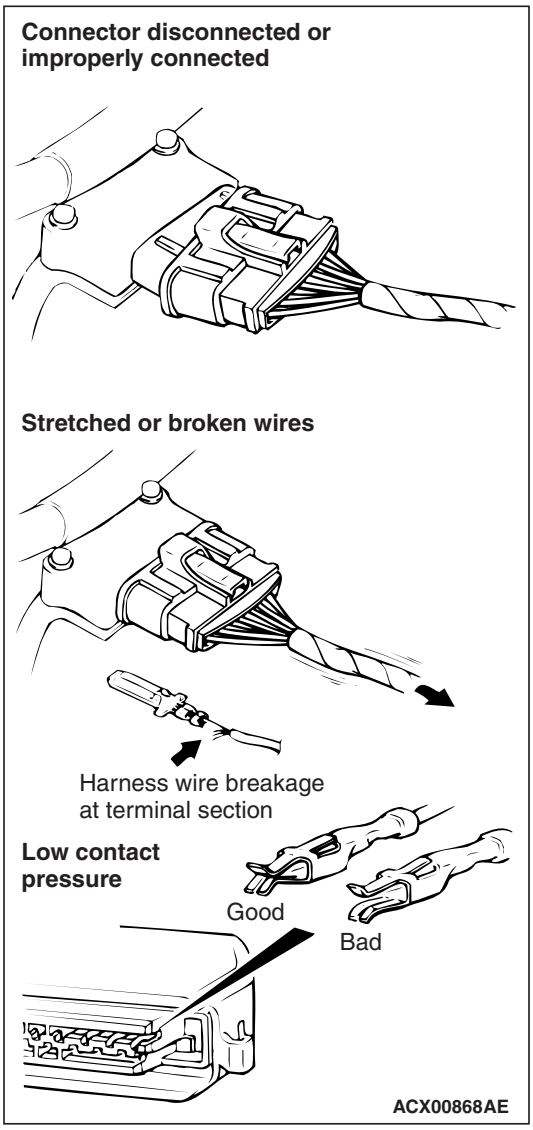
Touch the pin directly with the test probe.



CONNECTOR INSPECTION SERVICE POINTS

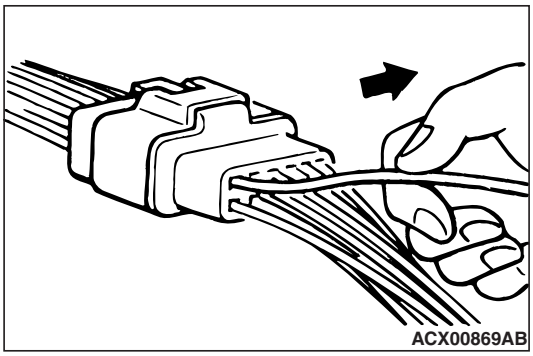
M1001013700510

VISUAL INSPECTION



- Connector is disconnected or improperly connected
- Connector pins are pulled out
- Stretched an 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

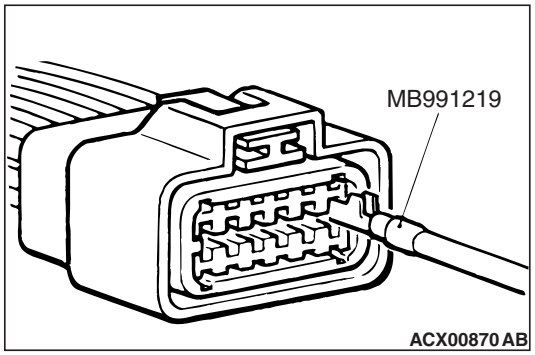
CONNECTOR PIN INSPECTION



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

M1001013900473

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

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

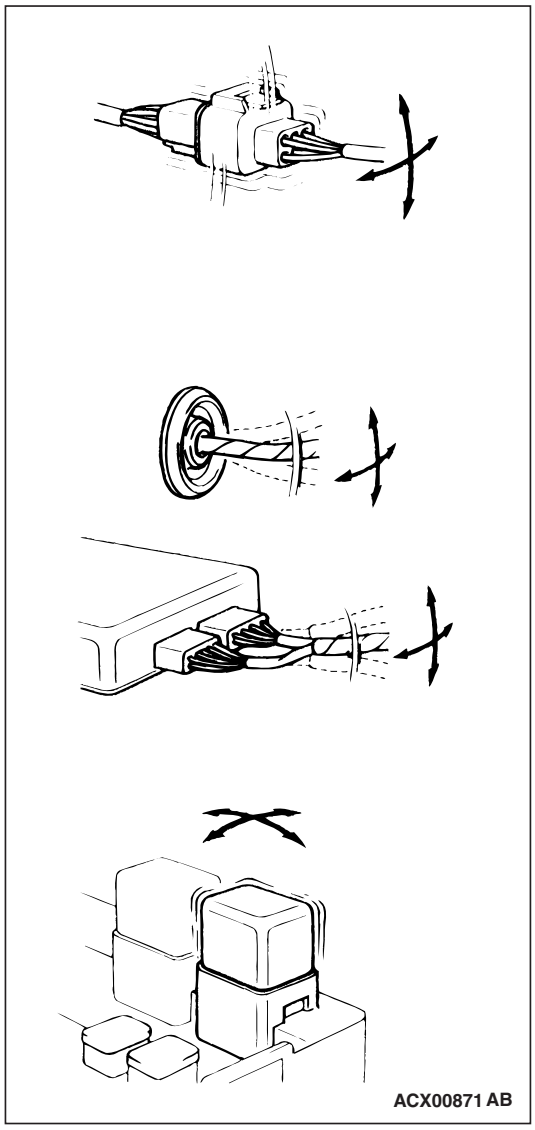
Repair the malfunctioning part and try to duplicate the condition(s) again to verify the intermittent malfunction has been eliminated.

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 00E, Harness Connector Inspection P.00E-2.
- Shake the part or sensor.

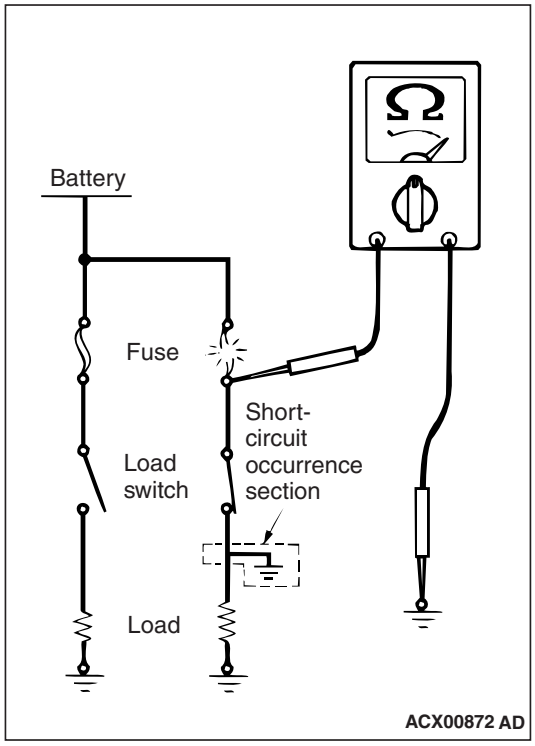

ACX00871 AB

HOW TO TREAT PAST TROUBLE

M1001014100384

Since the trouble may still be present even the status is "Stored", set the vehicle to the diagnostic trouble code detection condition and check that the status changes to "Active". If the status does not change from "Stored", carry out the following procedure.

1. Establish from the customer whether a fuse or connector has been replaced or disconnected.
2. If yes, erase the diagnostic trouble code, and then check that no diagnostic code is reset. If no diagnostic trouble code is reset, the diagnosis is complete.
3. If no, follow the applicable Diagnostic Trouble Code Chart. Then check the wiring harness and connector, and refer to "How to Cope with Intermittent Malfunction P.00-15 ."



INSPECTION SERVICE POINTS FOR A BLOWN FUSE

M1001013800409

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 Ω at this time, there is a short somewhere between these switches and the load. If the resistance is not 0 Ω, 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.)

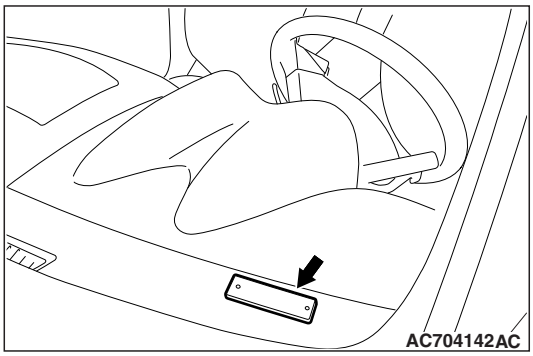
VEHICLE IDENTIFICATION

VEHICLE IDENTIFICATION NUMBER PLATE

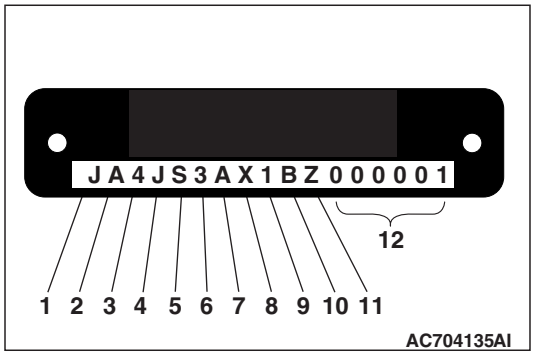
M1001005501699

VEHICLES IDENTIFICATION NUMBER LOCATION

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



CODE CHART



No.	Item	Content	
1	Country	J	Japan
2	Make	A	Mitsubishi Motors Corporation.
3	Vehicle type	4	Multi-purpose vehicle
4	Others	Gross Vehicle Weight Rating/Passenger car Restraint System	
		A	4001-5000 lbs/Curtain Airbags (1st and 2nd Seat) and Seat-Mounted Side Airbags <VEHICLES FOR USA AND CANADA>
		J	5001-6000 lbs/Curtain Airbags (1st and 2nd Seat) and Seat-Mounted Side Airbags <VEHICLES FOR USA AND CANADA>
		L	4001-5000 lbs/Curtain Airbags (1st and 2nd Seat) and Seat-Mounted Side Airbags <VEHICLES FOR MEXICO>
		M	5001-6000 lbs/Curtain Airbags (1st and 2nd Seat) and Seat-Mounted Side Airbags <VEHICLES FOR MEXICO>
5	Line	S	OUTLANDER (FWD)
		T	OUTLANDER (AWD)
6	Price class	2	Low
		3	Medium
		4	High
		5	Premium
7	Body	A	5-door wagon <VEHICLES FOR USA AND CANADA>
		1	5-door wagon <VEHICLES FOR MEXICO>
8	Engine	W	2.4 L (4B12) MIVEC
		X	3.0 L (6B31) MIVEC
9	Check digits*	0, 1, 2, 3, ----------9, X	
10	Model year	B	2011 year
11	Plant	U	Mizushima
		Z	Okazaki
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.*

TSB Revision

VEHICLE IDENTIFICATION NUMBER LIST

VEHICLES FOR USA (FOR FEDERAL EMISSION REGULATION)

Model code		VIN (Except sequence number)	Engine model	Transaxle model	Fuel system
CW5WX	TSHL2M	<Vehicles for Mizushima plant> JA4AS2AW_BU_	4B12 [2,359 cm^3 (143.9 cu in) DOHC MIVEC gasoline engine]	F1CJA (FWD, INVECS-III CVT with sport mode)	MFI
		<Vehicles for Okazaki plant> JA4AS2AW_BZ_			
	THHL2M	<Vehicles for Mizushima plant> JA4AS3AW_BU_			
		<Vehicles for Okazaki plant> JA4AS3AW_BZ_			
	TXHL2M	<Vehicles for Mizushima plant> JA4AS3AW_BU_			
		<Vehicles for Okazaki plant> JA4AS3AW_BZ_			
	TSHZL2M	<Vehicles for Mizushima plant> JA4AT2AW_BU_		W1CJA (AWD, INVECS-III CVT with sport mode)	
		<Vehicles for Okazaki plant> JA4AT2AW_BZ_			
	THHZL2M	<Vehicles for Mizushima plant> JA4AT3AW_BU_			
		<Vehicles for Okazaki plant> JA4AT3AW_BZ_			
	TXHZL2M	<Vehicles for Mizushima plant> JA4JT3AW_BU_			
		<Vehicles for Okazaki plant> JA4JT3AW_BZ_			
CW6WX	LXYL2M	<Vehicles for Mizushima plant> JA4JS4AX_BU_	6B31 [2,998 cm^3 (182.9 cu in) SOHC MIVEC gasoline engine]	F6AJA (FWD, INVECS-II 6A/T with sport mode)	
		<Vehicles for Okazaki plant> JA4JS4AX_BZ_			
	LXYZL2M	<Vehicles for Mizushima plant> JA4JT4AX_BU_		W6AJA (AWD, INVECS-II 6A/T with sport mode)	
		<Vehicles for Okazaki plant> JA4JT4AX_BZ_			
	LUYZL2M	<Vehicles for Mizushima plant> JA4JT5AX_BU_			
		<Vehicles for Okazaki plant> JA4JT5AX_BZ_			

VEHICLES FOR PUERTO RICO

Model code		VIN (Except sequence number)	Engine model	Transaxle model	Fuel system
CW6WX	LSYL2M	<Vehicles for Mizushima plant> JA4JS3AX_BU_	6B31 [2,998 cm^3 (182.9 cu in) SOHC MIVEC gasoline engine]	F6AJA (FWD, INVECS-II 6A/T with sport mode)	MFI
		<Vehicles for Okazaki plant> JA4JS3AX_BZ_			
	LMYL2M	<Vehicles for Mizushima plant> JA4JS3AX_BU_			
		<Vehicles for Okazaki plant> JA4JS3AX_BZ_			
	LXYL2M	<Vehicles for Mizushima> JA4JS4AX_BU_			
		<Vehicles for Okazaki plant> JA4JS4AX_BZ_			
	LSYZL2M	<Vehicles for Mizushima plant> JA4JT3AX_BU_		W6AJA (AWD, INVECS-II 6A/T with sport mode)	
		<Vehicles for Okazaki plant> JA4JT3AX_BZ_			
	LUYZL2M	<Vehicles for Mizushima plant> JA4JT5AX_BZ_			
		<Vehicles for Okazaki plant> JA4JT5AX_BZ_			

VEHICLES FOR GUAM AND SAIPAN

Model code		VIN (Except sequence number)	Engine model	Transaxle model	Fuel system
CW5WX	TSHL2M	<Vehicles for Mizushima plant> JA4AS2AW_BU_	4B12 [2,359 cm^3 (143.9 cu in) DOHC MIVEC gasoline engine]	F1CJA (FWD, INVECS-III CVT with sport mode)	MFI
		<Vehicles for Okazaki plant> JA4AS2AW_BZ_			
	THHL2M	<Vehicles for Mizushima plant> JA4AS3AW_BU_			
		<Vehicles for Okazaki plant> JA4AS3AW_BZ_			
	TXHL2M	<Vehicles for Mizushima plant> JA4AS3AW_BU_			
		<Vehicles for Okazaki> JA4AS3AW_BZ_			
	TSHZL2M	<Vehicles for Mizushima plant> JA4AT2AW_BU_		W1CJA (AWD, INVECS-III CVT with sport mode)	
		<Vehicles for Okazaki plant> JA4AT2AW_BZ_			
	THHZL2M	<Vehicles for Mizushima plant> JA4AT3AW_BU_			
		<Vehicles for Okazaki plant> JA4AT3AW_BZ_			
	TXHZL2M	<Vehicles for Mizushima plant> JA4JT3AW_BU_			
		<Vehicles for Okazaki plant> JA4JT3AW_BZ_			
CW6WX	LSYL2M	<Vehicles for Mizushima plant> JA4JS3AX_BU_	6B31 [2,998 cm^3 (182.9 cu in) SOHC MIVEC gasoline engine]	F6AJA (FWD, INVECS-II 6A/T with sport mode)	
		<Vehicles for Okazaki plant> JA4JS3AX_BZ_			
	LMYL2M	<Vehicles for Mizushima plant> JA4JS3AX_BU_			
		<Vehicles for Okazaki plant> JA4JS3AX_BZ_			
	LXYL2M	<Vehicles for Mizushima plant> JA4JS4AX_BU_			
		<Vehicles for Okazaki plant> JA4JS4AX_BZ_			
	LXYZL2M	<Vehicles for Mizushima> JA4JT4AX_BU_		W6AJA (AWD, INVECS-II 6A/T with sport mode)	
		<Vehicles for Okazaki> JA4JT4AX_BZ_			

VEHICLES FOR CANADA

Model code		VIN (Except sequence number)	Engine model	Transaxle model	Fuel system
CW5WX	TSHL3M	<Vehicles for Mizushima plant> JA4AS2AW_BU_	4B12 [2,359 cm^3 (143.9 cu in) DOHC MIVEC gasoline engine]	F1CJA (FWD, INVECS-III CVT with sport mode)	MFI
		<Vehicles for Okazaki plant> JA4AS2AW_BZ_			
	TSHZL3M	<Vehicles for Mizushima plant> JA4AT2AW_BU_		W1CJA (AWD, INVECS-III CVT with sport mode)	
		<Vehicles for Okazaki plant> JA4AT2AW_BZ_			
CW6WX	LMYZL3M	<Vehicles for Mizushima plant> JA4JT3AX_BU_	6B31 [2,998 cm^3 (182.9 cu in) SOHC MIVEC gasoline engine]	W6AJA (AWD, INVECS-II 6A/T with sport mode)	
		<Vehicles for Okazaki plant> JA4JT3AX_BZ_			
	LUYZL3M	<Vehicles for Mizushima plant> JA4JT5AX_BU_			
		<Vehicles for Okazaki plant> JA4JT5AX_BZ_			

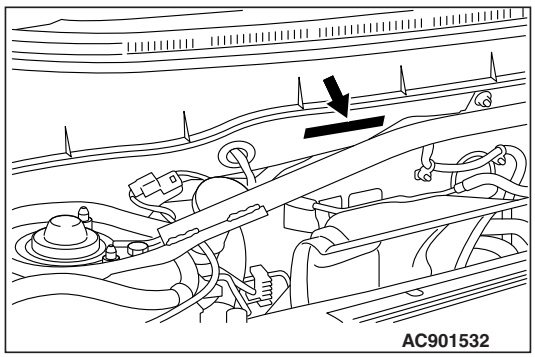
VEHICLES FOR MEXICO

Model code		VIN (Except sequence number)	Engine model	Transaxle model	Fuel system
CW5WX	TSHL2CS	<Vehicles for Mizushima plant> JA4LS21W_BU_	4B12 [2,359 cm^3 (143.9 cu in) DOHC MIVEC gasoline engine]	F1CJA (FWD, INVECS-III CVT with sport mode)	MFI
		<Vehicles for Okazaki plant> JA4LS21W_BZ_			
CW6WX	LXYL2CS	<Vehicles for Mizushima plant> JA4MS41X_BU_	6B31 [2,998 cm^3 (182.9 cu in) SOHC MIVEC gasoline engine]	F6AJA (FWD, INVECS-II 6A/T with sport mode)	
		<Vehicles for Okazaki plant> JA4MS41X_BZ_			

VEHICLE IDENTIFICATION NUMBER (CHASSIS NUMBER)

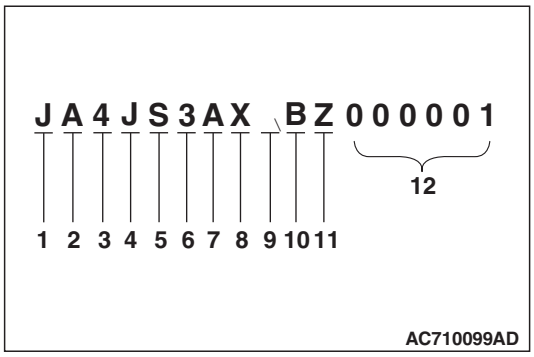
M1001005602138

The vehicle identification number (chassis number) is stamped on the toeboard inside the engine compartment.



TSB Revision

CODE CHART



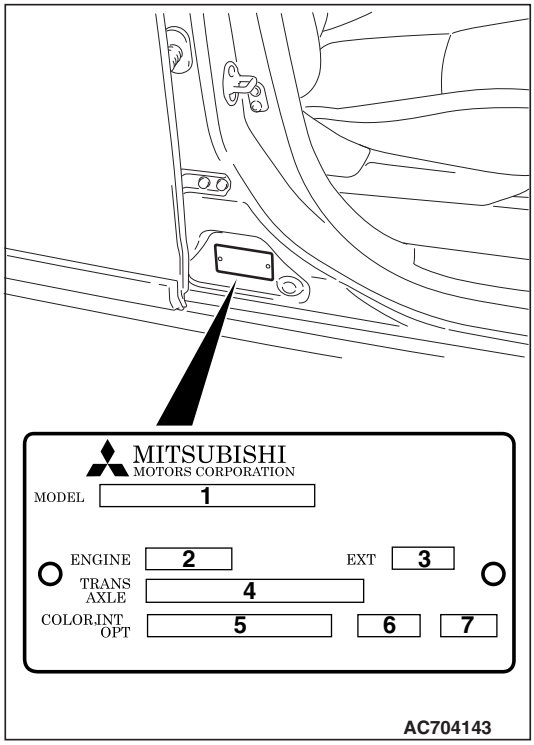
No.	Item	Content	
1	Country	J	Japan
2	Make	A	Mitsubishi Motors Corporation.
3	Vehicle type	4	Multi-purpose vehicle
4	Others	Gross Vehicle Weight Rating/Passenger car Restraint System	
		A	4001-5000 lbs/Curtain Airbags (1st and 2nd Seat) and Seat-Mounted Side Airbags <VEHICLES FOR USA AND CANADA>
		J	5001-6000 lbs/Curtain Airbags (1st and 2nd Seat) and Seat-Mounted Side Airbags <VEHICLES FOR USA AND CANADA>
		L	4001-5000 lbs/Curtain Airbags (1st and 2nd Seat) and Seat-Mounted Side Airbags <VEHICLES FOR MEXICO>
		M	5001-6000 lbs/Curtain Airbags (1st and 2nd Seat) and Seat-Mounted Side Airbags <VEHICLES FOR MEXICO>
5	Line	S	OUTLANDER (FWD)
		T	OUTLANDER (AWD)
6	Price class	2	Low
		3	Medium
		4	High
		5	Premium
7	Body	A	5-door wagon <VEHICLES FOR USA AND CANADA>
		1	5-door wagon <VEHICLES FOR MEXICO>
8	Engine	W	2.4 L (4B12) MIVEC
		X	3.0 L (6B31) MIVEC
9	Check digits*	0, 1, 2, 3, ----------9, X	
10	Model year	B	2011 year
11	Plant	U	Mizushima
		Z	Okazaki
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.*

TSB Revision

VEHICLE IDENTIFICATION CODE PLATE

M1001005400376



The vehicle information code plate is riveted to the face of the passenger's door sill.

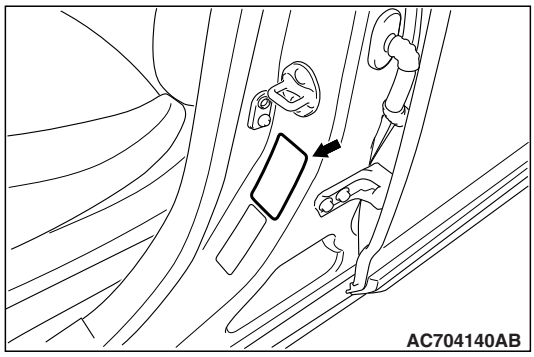
CODE CHART

No.	Item	Example	Content
1	MODEL	CW6WX LSYZL2M	CW6WX: Vehicle model
			LSYZL2M: Model series
2	ENGINE	6B31	Engine model
3	EXT	G44B	Exterior code
4	TRANS AXLE	W6AJA 2352	W6AJA:Transmission model 2352: Rear differential final gear ratio (a decimal point is omitted)
5	COLOR	G44	Body color code
6	INT	11E	Interior code
7	OPT	Z06	Equipment code

For monotone color vehicles, the body color code shall be indicated.

TIRE AND LOADING INFORMATION PLACARD

M1001015800159



The tire and loading information placard is located on the inside sill of the driver's door.

THEFT PROTECTION LABEL

M1001015700970

⚠ CAUTION

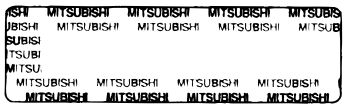
When replacing a part that has the theft protection plate, label or stamp on it, be sure that the part has either A or B shown in the figure. It is illegal if both A and B are attached, or neither A nor B is attached.

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 transaxle, as well as main outer panels: Engine cylinder block, Transaxle housing, Front end upper bar and Front floor crossmember front.

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

Theft protection plate and label

A: For original parts



B: For replacement parts

AC704152AC

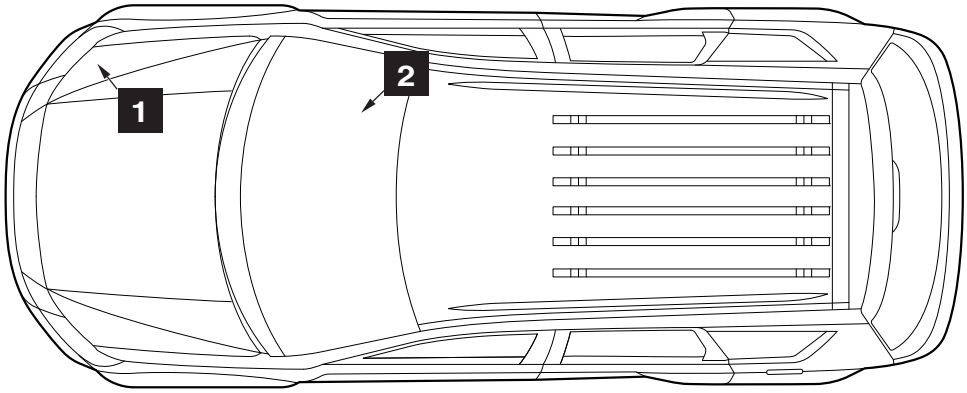
⚠ CAUTION

Cautions regarding panel repairs:

- **When repainting original parts, do so after first masking the theft-protection label. After painting, be sure to peel off the masking tape.**
- **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.**
- **The theft-protection label should not be removed from original parts or replacement parts.**

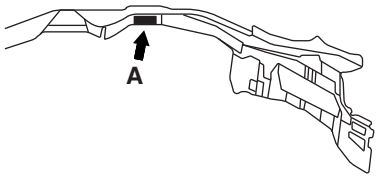
LOCATIONS

Label area (A:Original equipment parts)



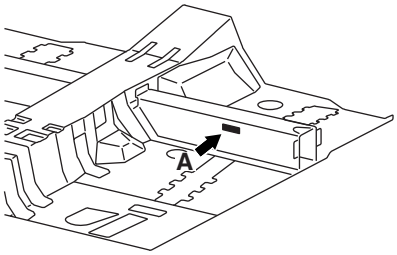
AC710022AC

1 Front end upper bar (engine room)



AC710023AD

2 Front floor crossmember front

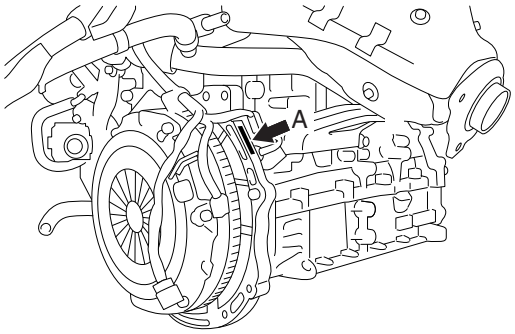


AC710024AD

TSB Revision

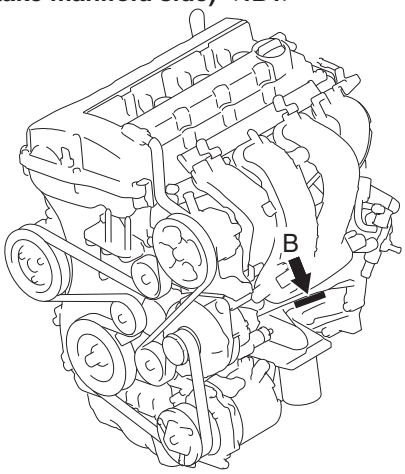
Label area (A: Original equipment parts, B: Replacement parts)

Engine (exhaust manifold side) <4B1>



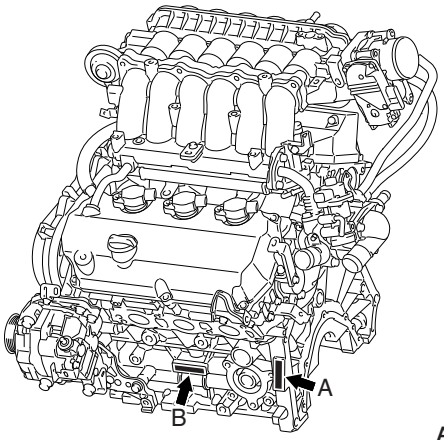
AC609841AD

Engine (intake manifold side) <4B1>



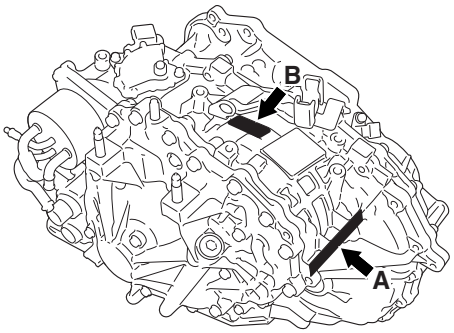
AC612304AD

Engine <6B3>



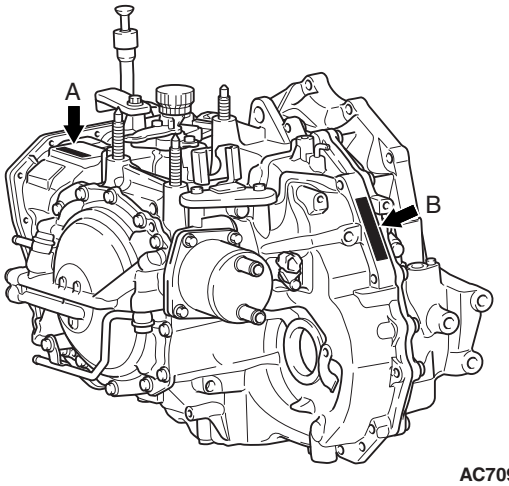
AC704148 AC

Transaxle <CVT>



AC610554AD

Transaxle <6A/T>



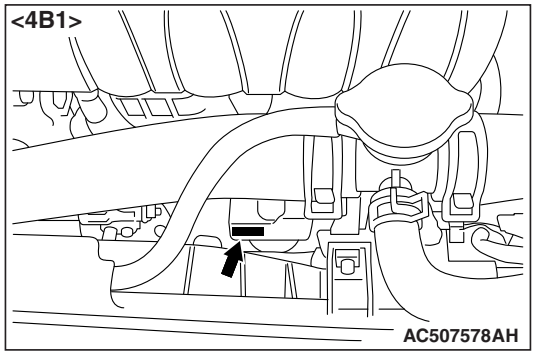
AC709353AC

TSB Revision

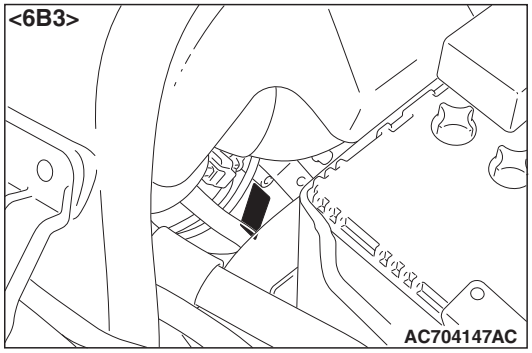
ENGINE MODEL STAMPING

M1001005700366

<4B1>



<6B3>



The engine model is stamped on the cylinder block.
These engine model numbers are as shown as follows.

Engine model	Engine displacement
4B1	2.4L
6B3	3.0L

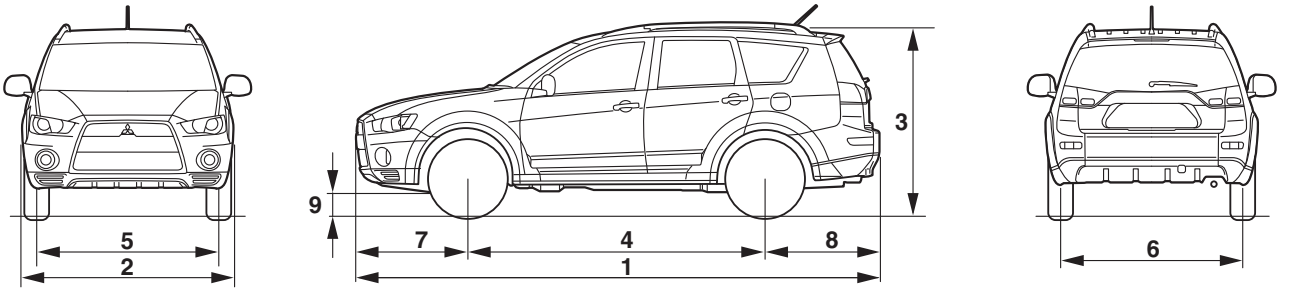
The engine serial number is stamped near the engine model number.

Engine number	AA0201 to YY9999

GENERAL DATA AND SPECIFICATIONS

M1001000906028

VEHICLES FOR USA



AC901145AB

2.4L ENGINE

Item				CW5WX	
				TSHL2M/3M	THHL2M
Vehicle dimension mm (in)	Overall length		1	4,665 (183.7)	4,665 (183.7)
	Overall width		2	1,800 (70.9)	1,800 (70.9)
	Overall height (unladen)	Without roof rail	3	1,680 (66.1)	–
		With roof rail		1,720 (67.7)	1,720 (67.7)
	Wheelbase		4	2,670 (105.1)	2,670 (105.1)
	Tread-front		5	1,540 (60.6)	1,540 (60.6)
	Tread-rear		6	1,540 (60.6)	1,540 (60.6)
	Overhang-front		7	990 (39.0)	990 (39.0)
	Overhang-rear		8	1,005 (39.6)	1,005 (39.6)
	Ground clearance		9	215 (8.5)	215 (8.5)
Vehicle weight kg (lb)	Curb weight			1,535 (3,384)	1,545 (3,406)
	Gross vehicle weight rating			2,070 (4,564)	2,070 (4,564)
	Gross axle weight rating-front			1,090 (2,403)	1,090 (2,403)
	Gross axle weight rating-rear			1,050 (2,315)	1,050 (2,315)
Seating capacity				5	5
Engine	Model No.			4B12	4B12
	Type			DOHC MIVEC	DOHC MIVEC
	Piston displacement cm^3 (cu in)			2,359 (143.9)	2,359 (143.9)
Transaxle	Model No.			F1CJA	F1CJA
	Type			FWD, INVECS-III CVT with sport mode	FWD, INVECS-III CVT with sport mode
Fuel system	Fuel supply system			MFI	MFI

Item				CW5WX	
				TXHL2M	TSHZL2M/3M
Vehicle dimension mm (in)	Overall length		1	4,665 (183.7)	4,665 (183.7)
	Overall width		2	1,800 (70.9)	1,800 (70.9)
	Overall height (unladen)	Without roof rail	3	–	1,680 (66.1)
		With roof rail		1,720 (67.7)	1,720 (67.7)
	Wheelbase		4	2,670 (105.1)	2,670 (105.1)
	Tread-front		5	1,540 (60.6)	1,540 (60.6)
	Tread-rear		6	1,540 (60.6)	1,540 (60.6)
	Overhang-front		7	990 (39.0)	990 (39.0)
	Overhang-rear		8	1,005 (39.6)	1,005 (39.6)
	Ground clearance		9	215 (8.5)	215 (8.5)
Vehicle weight kg (lb)	Curb weight			1,595 (3,516)	1,600 (3,527)
	Gross vehicle weight rating			2,240 (4,939)	2,080 (4,586)
	Gross axle weight rating-front			1,090 (2,403)	1,090 (2,403)
	Gross axle weight rating-rear			1,270 (2,800)	1,050 (2,315)
Seating capacity				7	5
Engine	Model No.			4B12	4B12
	Type			DOHC MIVEC	DOHC MIVEC
	Piston displacement cm^3 (cu in)			2,359 (143.9)	2,359 (143.9)
Transaxle	Model No.			F1CJA	W1CJA
	Type			FWD, INVECS-III CVT with sport mode	AWD, INVECS-III CVT with sport mode
Fuel system	Fuel supply system			MFI	MFI

Item				CW5WX	
				THHZL2M	TXHZL2M
Vehicle dimension mm (in)	Overall length		1	4,665 (183.7)	4,665 (183.7)
	Overall width		2	1,800 (70.9)	1,800 (70.9)
	Overall height (unladen)	Without roof rail	3	–	1,680 (66.1)
		With roof rail		1,720 (67.7)	1,720 (67.7)
	Wheelbase		4	2,670 (105.1)	2,670 (105.1)
	Tread-front		5	1,540 (60.6)	1,540 (60.6)
	Tread-rear		6	1,540 (60.6)	1,540 (60.6)
	Overhang-front		7	990 (39.0)	990 (39.0)
	Overhang-rear		8	1,005 (39.6)	1,005 (39.6)
	Ground clearance		9	215 (8.5)	215 (8.5)
Vehicle weight kg (lb)	Curb weight			1,610 (3,549)	1,660 (3,660)
	Gross vehicle weight rating			2,080 (4,586)	2,290 (5,049)
	Gross axle weight rating-front			1,090 (2,403)	1,090 (2,403)
	Gross axle weight rating-rear			1,050 (2,315)	1,270 (2,800)
Seating capacity				5	7
Engine	Model No.			4B12	4B12
	Type			DOHC MIVEC	DOHC MIVEC
	Piston displacement cm^3 (cu in)			2,359 (143.9)	2,359 (143.9)
Transaxle	Model No.			W1CJA	W1CJA
	Type			AWD, INVECS-III CVT with sport mode	AWD, INVECS-III CVT with sport mode
Fuel system	Fuel supply system			MFI	MFI

3.0L ENGINE

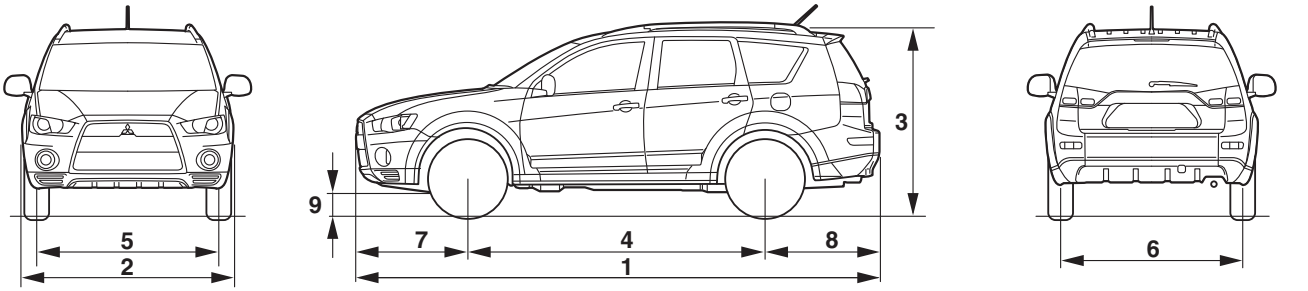
Item				CW6WX	
				LSYL2M	LMYL2M
Vehicle dimension mm (in)	Overall length		1	4,665 (183.7)	4,665 (183.7)
	Overall width		2	1,800 (70.9)	1,800 (70.9)
	Overall height (unladen)	Without roof rail	3	1,680 (66.1)	1,680 (66.1)
		With roof rail		1,720 (67.7)	1,720 (67.7)
	Wheelbase		4	2,670 (105.1)	2,670 (105.1)
	Tread-front		5	1,540 (60.6)	1,540 (60.6)
	Tread-rear		6	1,540 (60.6)	1,540 (60.6)
	Overhang-front		7	990 (39.0)	990 (39.0)
	Overhang-rear		8	1,005 (39.6)	1,005 (39.6)
	Ground clearance		9	215 (8.5)	215 (8.5)
Vehicle weight kg (lb)	Curb weight			1,585 (3,494)	1,635 (3,604)
	Gross vehicle weight rating			2,130 (4,696)	2,300 (5,071)
	Gross axle weight rating-front			1,090 (2,403)	1,090 (2,403)
	Gross axle weight rating-rear			1,050 (2,315)	1,270 (2,800)
Seating capacity				5	7
Engine	Model No.			6B31	6B31
	Type			SOHC MIVEC	SOHC MIVEC
	Piston displacement cm^3 (cu in)			2,998 (182.9)	2,998 (182.9)
Transaxle	Model No.			F6AJA	F6AJA
	Type			FWD, INVECS-II 6A/T with sport mode	FWD, INVECS-II 6A/T with sport mode
Fuel system	Fuel supply system			MFI	MFI

Item				CW6WX	
				LXYL2M	LSYZL2M
Vehicle dimension mm (in)	Overall length		1	4,665 (183.7)	4,665 (183.7)
	Overall width		2	1,800 (70.9)	1,800 (70.9)
	Overall height (unladen)	Without roof rail	3	1,680 (66.1)	1,680 (66.1)
		With roof rail		1,720 (67.7)	1,720 (67.7)
	Wheelbase		4	2,670 (105.1)	2,670 (105.1)
	Tread-front		5	1,540 (60.6)	1,540 (60.6)
	Tread-rear		6	1,540 (60.6)	1,540 (60.6)
	Overhang-front		7	990 (39.0)	990 (39.0)
	Overhang-rear		8	1,005 (39.6)	1,005 (39.6)
	Ground clearance		9	215 (8.5)	215 (8.5)
Vehicle weight kg (lb)	Curb weight			1,645 (3,626)	1,650 (3,637)
	Gross vehicle weight rating			2,300 (5,071)	2,130 (4,696)
	Gross axle weight rating-front			1,090 (2,403)	1,090 (2,403)
	Gross axle weight rating-rear			1,270 (2,800)	1,050 (2,315)
Seating capacity				7	5
Engine	Model No.			6B31	6B31
	Type			SOHC MIVEC	SOHC MIVEC
	Piston displacement cm^3 (cu in)			2,998 (182.9)	2,998 (182.9)
Transaxle	Model No.			F6AJA	W6AJA
	Type			FWD, INVECS-II 6A/T with sport mode	AWD, INVECS-II 6A/T with sport mode
Fuel system	Fuel supply system			MFI	MFI

Item				CW6WX	
				LMYZL3M	LXYZL2M
Vehicle dimension mm (in)	Overall length		1	4,665 (183.7)	4,665 (183.7)
	Overall width		2	1,800 (70.9)	1,800 (70.9)
	Overall height (unladen)	Without roof rail	3	1,680 (66.1)	–
		With roof rail		1,720 (67.7)	1,720 (67.7)
	Wheelbase		4	2,670 (105.1)	2,670 (105.1)
	Tread-front		5	1,540 (60.6)	1,540 (60.6)
	Tread-rear		6	1,540 (60.6)	1,540 (60.6)
	Overhang-front		7	990 (39.0)	990 (39.0)
	Overhang-rear		8	1,005 (39.6)	1,005 (39.6)
	Ground clearance		9	215 (8.5)	215 (8.5)
Vehicle weight kg (lb)	Curb weight			1,700 (3,747)	1,710 (3,770)
	Gross vehicle weight rating			2,350 (5,181)	2,350 (5,181)
	Gross axle weight rating-front			1,090 (2,403)	1,090 (2,403)
	Gross axle weight rating-rear			1,270 (2,800)	1,270 (2,800)
Seating capacity				7	7
Engine	Model No.			6B31	6B31
	Type			SOHC MIVEC	SOHC MIVEC
	Piston displacement cm^3 (cu in)			2,998 (182.9)	2,998 (182.9)
Transaxle	Model No.			W6AJA	W6AJA
	Type			AWD, INVECS-II 6A/T with sport mode	AWD, INVECS-II 6A/T with sport mode
Fuel system	Fuel supply system			MFI	MFI

Item				CW6WX	
				LUYZL2M	LUYZL3M
Vehicle dimension mm (in)	Overall length		1	4,665 (183.7)	4,665 (183.7)
	Overall width		2	1,800 (70.9)	1,800 (70.9)
	Overall height (unladen)	Without roof rail	3	1,680 (66.1)	–
		With roof rail		1,720 (67.7)	1,720 (67.7)
	Wheelbase		4	2,670 (105.1)	2,670 (105.1)
	Tread-front		5	1,540 (60.6)	1,540 (60.6)
	Tread-rear		6	1,540 (60.6)	1,540 (60.6)
	Overhang-front		7	990 (39.0)	990 (39.0)
	Overhang-rear		8	1,005 (39.6)	1,005 (39.6)
	Ground clearance		9	215 (8.5)	215 (8.5)
Vehicle weight kg (lb)	Curb weight			1,715 (3,780)	1,715 (3,780)
	Gross vehicle weight rating			2,350 (5,181)	2,350 (5,181)
	Gross axle weight rating-front			1,090 (2,403)	1,090 (2,403)
	Gross axle weight rating-rear			1,270 (2,800)	1,270 (2,800)
Seating capacity				7	7
Engine	Model No.			6B31	6B31
	Type			SOHC MIVEC	SOHC MIVEC
	Piston displacement cm^3 (cu in)			2,998 (182.9)	2,998 (182.9)
Transaxle	Model No.			W6AJA	W6AJA
	Type			AWD, INVECS-II 6A/T with sport mode	AWD, INVECS-II 6A/T with sport mode
Fuel system	Fuel supply system			MFI	MFI

VEHICLES FOR MEXICO



AC901145AB

2.4L ENGINE

Item				CW5WX
				TSHL2CS
Vehicle dimension mm (in)	Overall length		1	4,665 (183.7)
	Overall width		2	1,800 (70.9)
	Overall height (unladen)	Without roof rail	3	1,680 (66.1)
		With roof rail		1,720 (67.7)
	Wheelbase		4	2,670 (105.1)
	Tread-front		5	1,540 (60.6)
	Tread-rear		6	1,540 (60.6)
	Overhang-front		7	990 (39.0)
	Overhang-rear		8	1,005 (39.6)
	Ground clearance		9	215 (8.5)
Vehicle weight kg (lb)	Curb weight			1,535 (3,384)
	Gross vehicle weight rating			2,070 (4,564)
	Gross axle weight rating-front			1,090 (2,403)
	Gross axle weight rating-rear			1,050 (2,315)
Seating capacity				5
Engine	Model No.			4B12
	Type			DOHC MIVEC
	Piston displacement cm^3 (cu in)			2,359 (143.9)
Transaxle	Model No.			F1CJA
	Type			FWD, INVECS-III CVT with sport mode
Fuel system	Fuel supply system			MFI

3.0L ENGINE

Item				CW6WX
				LXYL2CS
Vehicle dimension mm (in)	Overall length		1	4,665 (183.7)
	Overall width		2	1,800 (70.9)
	Overall height (unladen)	Without roof rail	3	–
		With roof rail		1,720 (67.7)
	Wheelbase		4	2,670 (105.1)
	Tread-front		5	1,540 (60.6)
	Tread-rear		6	1,540 (60.6)
	Overhang-front		7	990 (39.0)
	Overhang-rear		8	1,005 (39.6)
	Ground clearance		9	215 (8.5)
Vehicle weight kg (lb)	Curb weight			1,645 (3,626)
	Gross vehicle weight rating			2,300 (5,071)
	Gross axle weight rating-front			1,090 (2,403)
	Gross axle weight rating-rear			1,270 (2,800)
Seating capacity				7
Engine	Model No.			6B31
	Type			SOHC MIVEC
	Piston displacement cm^3 (cu in)			2,998 (182.9)
Transaxle	Model No.			F6AJA
	Type			FWD, INVECS-II 6A/T with sport mode
Fuel system	Fuel supply system			MFI

PRECAUTIONS BEFORE SERVICE

CAUTIONS FOR WORKING IN ENGINE COMPARTMENT

M1001016800044

⚠ ***WARNING***

Just after the ignition switch is turned to "LOCK" (OFF) position, the adjustments must always be made with the cooling fan stopped. After the ignition switch is turned to "LOCK" (OFF) position, the cooling fun might be driven for a few minutes by the after run fan control. If the adjustments are made with the cooling fun driven, injury or damage may occur.

SUPPLEMENTAL RESTRAINT SYSTEM (SRS)

M1001011601781

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 (Refer to GROUP 52B P.52B-3, Warning/Caution Labels).
   (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). 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 P.52B-461, 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, the side impact sensor, and the seat belt pre-tensioner.
- SRS-ECU, air bag module, clock spring, front impact sensor, the side impact sensor: 93 °C (200 °F) or more
- Seat belt pre-tensioner: 90 °C (194 °F) or more

SCAN TOOL (MULTI USE TESTER { M.U.T.-III } SUB ASSEMBLY)

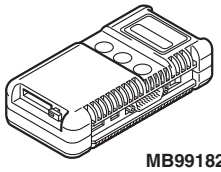
M1001012400389

⚠ CAUTION

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

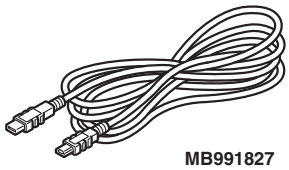
NOTE: M.U.T.-III trigger harness is not necessary when pushing V.C.I. ENTER key.

VEHICLE COMMUNICATION INTERFACE (V.C.I.)



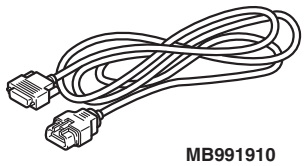
MB991824

M.U.T.-III USB CABLE



MB991827

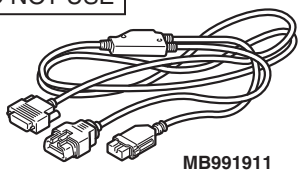
M.U.T.-III MAIN HARNESS A



MB991910

M.U.T.-III MAIN HARNESS B

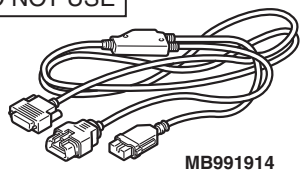
DO NOT USE



MB991911

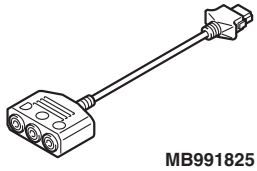
M.U.T.-III MAIN HARNESS C

DO NOT USE



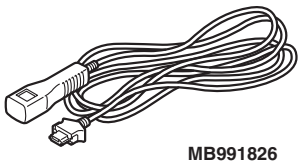
MB991914

M.U.T.-III MEASUREMENT ADAPTER



MB991825

M.U.T.-III TRIGGER HARNESS



MB991826

AC21088AD

HOW TO PERFORM VEHICLE IDENTIFICATION NUMBER (VIN) WRITING

M1001011400610

⚠ CAUTION

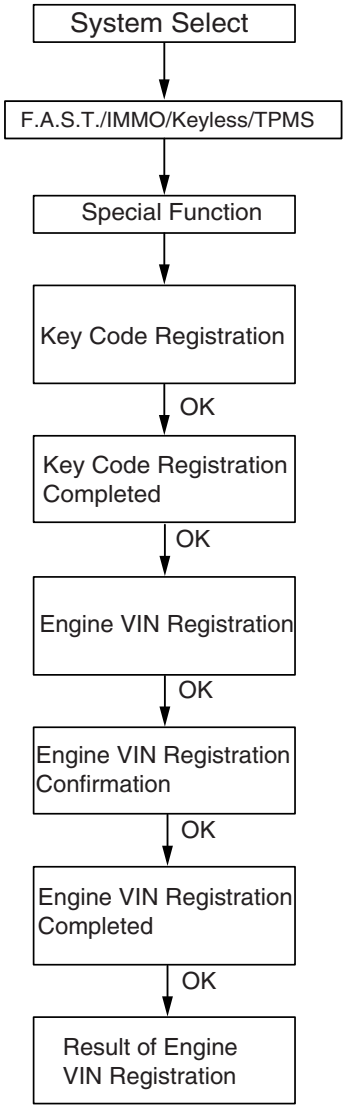
The F.A.S.T-Key (Free-hand Advanced Security Transmitter) is described as the Keyless Operation System (KOS) in this manual. (KOS is indicated as F.A.S.T. in the scan tool display.)

Follow the procedure below to register the VIN of the Wireless Control Module (WCM) and the Keyless Operation System (KOS).

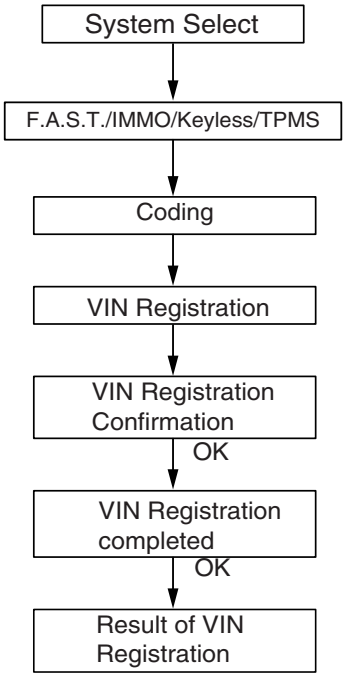
The VIN is stored in the engine control module (ECM), WCM, and the KOS-ECU. If the VIN is improperly erased, the engine warning light or the keyless operation system warning indicator illuminate, and the diagnostic trouble code is displayed. When the ECM, WCM, and the KOS-ECU are replaced, follow the procedure below to write the VIN.

Screen flow of scan tool (M.U.T.- III)

<When ECM is replaced>



<When WCM or KOS-ECU are replaced>



AC700593 AE

WRITING PROCEDURE

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: V.C.I.
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A

⚠ CAUTION

Check that diagnostic trouble code P0603 "EEPROM fail" is not set. When diagnostic trouble code P0603 "EEPROM fail" is set, the ECM cannot store the key code even if the key code is registered. If this diagnostic trouble code is set, troubleshoot the ECM and repair. Then register the key code to the ECM.

⚠ CAUTION

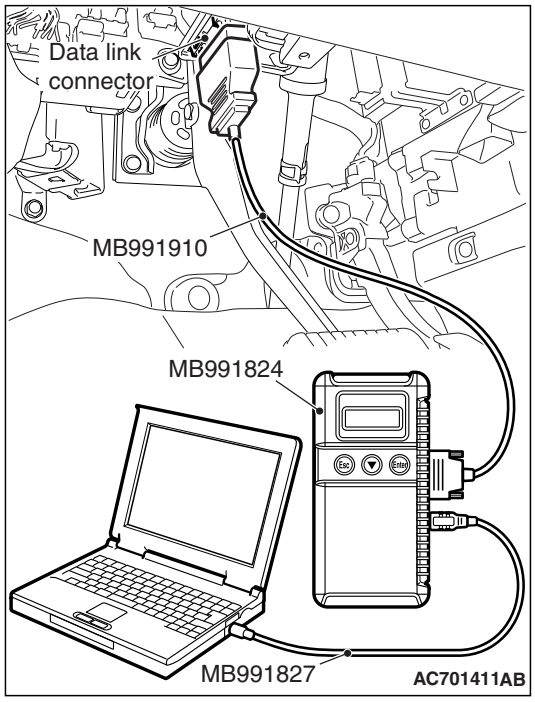
Before connecting or disconnecting the MB991958: Scan Tool, turn the ignition switch to the "LOCK" (OFF) position.

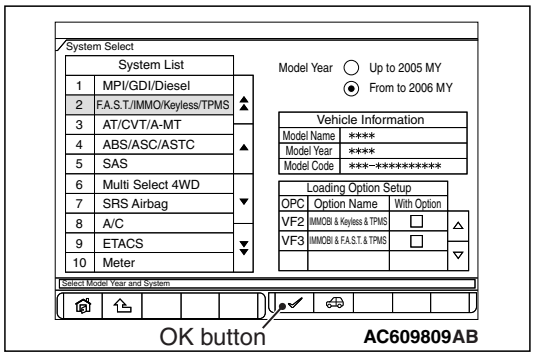
Connect scan tool MB991958 to the 16-pin data link connector as follows.

NOTE: For details on how to use scan tool MB991958, refer to the "M.U.T.-III Owner's Manual."

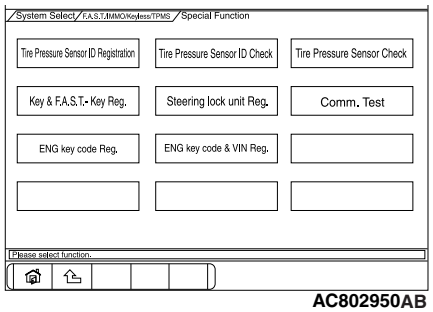
1. Ensure that the ignition switch is at the "LOCK" (OFF) position.
2. Start up the personal computer.
3. Connect special tool MB991827 to special tool MB991824 and the personal computer.
4. Connect special tool MB991910 to the special tool MB991824.
5. Connect special tool MB991910 to the data link connector of the vehicle.
6. Turn the special tool MB991824 power switch to the "ON" position.

   NOTE: When the special tool MB991824 is energized, the special tool MB991824 indicator light will be illuminated in a green color.
7. Start the "M.U.T.-III system" on the personal computer and turn the ignition switch to the "ON" position.
8. Select "F.A.S.T./IMMO/Keyless/TPMS" button from the "System Select" screen. Then, select the applicable option code item and push the OK button.
9. Select "Special Function" on the next screen.



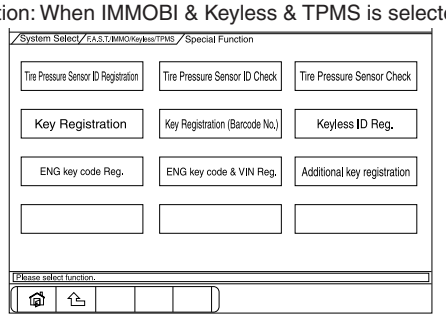


Option: When IMMOBI & F.A.S.T. & TPMS is selected



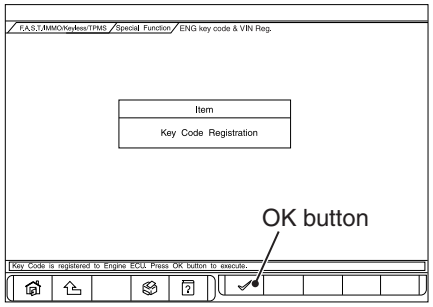
AC802950AB

Option: When IMMOBI & Keyless & TPMS is selected



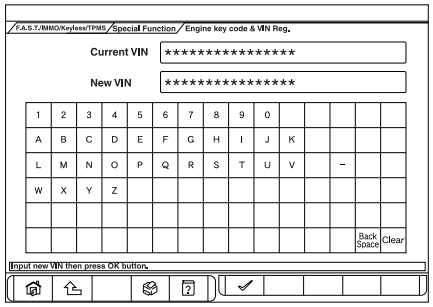
AC802949AB

10. Select "ENG key code & VIN Reg." from the "Special Function" screen.



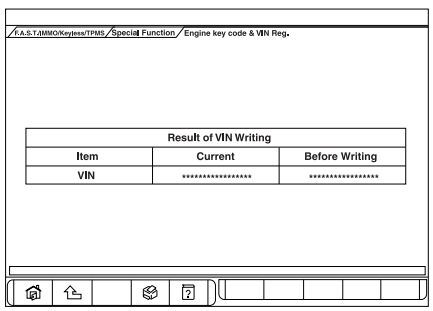
AC709286AB

11. Push the OK button after "ENG key code & VIN Reg." is displayed.
12. Push the OK button after "Completed. Press the OK button and move to VIN writing function." is displayed.



AC709287

13. Enter the VIN of registering vehicle and push the OK button.
14. Push the OK button after "VIN Writing will start. Are you sure?" is displayed.
15. Return to the previous screen and "In Progress" is displayed at the lower-left corner on the screen.
16. Push the OK button after "Completed." is displayed.



AC709285

17. VIN writing result is displayed.
18. Complete the scan tool MB991958.
19. Disconnecting the scan tool MB991958 is the reverse of the connecting sequence, making sure that the ignition switch is at the "LOCK" (OFF).
20. Push the OK button after "Completed." is displayed.
21. Terminate the scan tool MB991958.
22. Turn the ignition switch to the "LOCK" (OFF) position and then disconnect scan tool MB991958.

TSB Revision

VIN WRITING STEPS FOR WCM AND KOS-ECU

⚠ CAUTION

Before the VIN registration to WCM and KOS-ECU, check that the VIN of ECM and vehicle are matched.

⚠ CAUTION

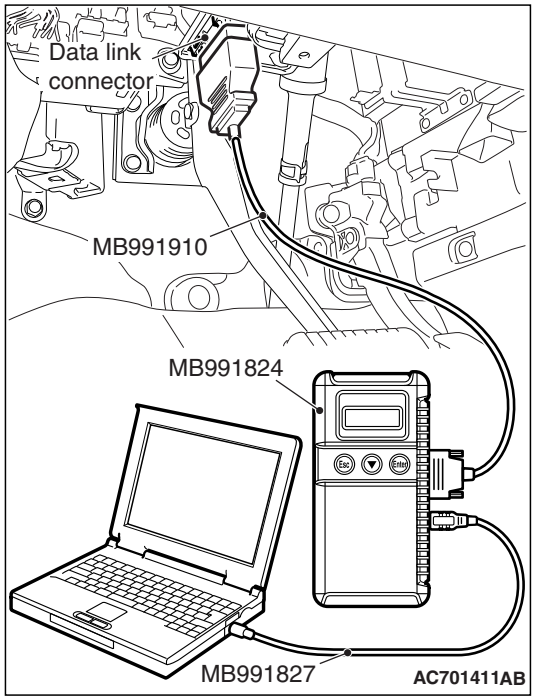
Check that diagnostic trouble code B2416 "ECU internal error" is not set. When diagnostic trouble code B2416 "ECU internal error" is set, the WCM and the KOS-ECU cannot store the VIN even if the VIN is written. If this diagnostic trouble code is set, troubleshoot the WCM or the KOS-ECU and repair. Then write the VIN to the WCM or the KOS-ECU.

⚠ CAUTION

Before connecting or disconnecting the MB991958: Scan Tool, turn the ignition switch to the "LOCK" (OFF) position.

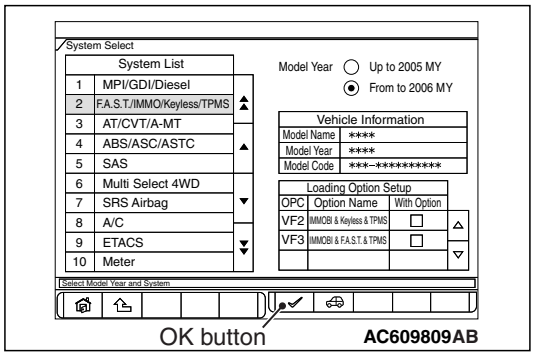
Connect scan tool MB991958 to the 16-pin data link connector as follows.

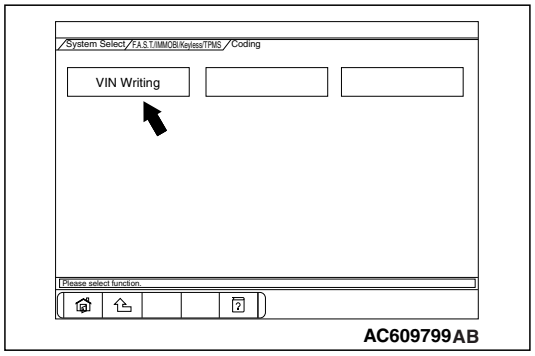
NOTE: For details on how to use scan tool MB991958, refer to the "M.U.T.-III Owner's Manual."



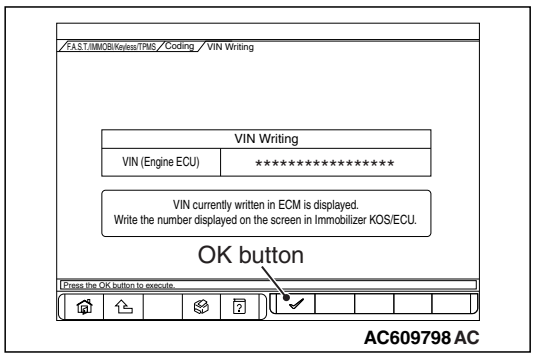
1. Ensure that the ignition switch is at the "LOCK" (OFF) position.
2. Start up the personal computer.
3. Connect special tool MB991827 to special tool MB991824 and the personal computer.
4. Connect special tool MB991910 to the special tool MB991824.
5. Connect special tool MB991910 to the data link connector of the vehicle.
6. Turn the special tool MB991824 power switch to the "ON" position.

   NOTE: When the special tool MB991824 is energized, the special tool MB991824 indicator light will be illuminated in a green color.
7. Start the "M.U.T.-III system" on the personal computer and turn the ignition switch to the "ON" position.
8. Select "F.A.S.T./IMMO/Keyless/TPMS" button from the "System Select" screen. Then, select the applicable option code item and push the OK button.
9. Select "Coding" on the next screen.

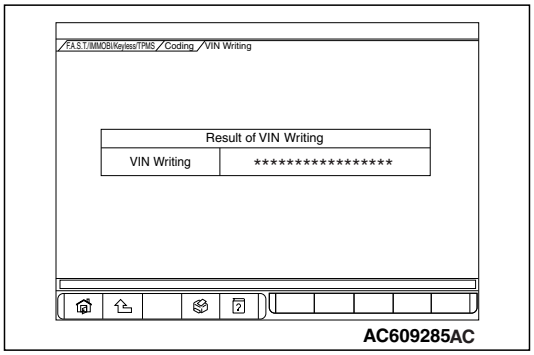




10.Select "VIN Writing" on "Coding" screen.



11.Push the OK button after the VIN written in the engine control module is displayed.
12.Push the OK button after "VIN Writing will start. Are you sure?" is displayed.
13.Push the OK button after "Completed." is displayed.



14.Result of VIN writing is displayed.
15.Resister the other ID code. (Refer to GROUP 42B, Troubleshooting – ID Code Registration Judgment Table P.42B-15 <Vehicles with KOS> or GROUP 42C, Troubleshooting – ID Code Registration Judgment Table P.42C-10 <Vehicles with WCM>.)

CODING LIST

M1001015001468

⚠ CAUTION

With the ETACS functions being customized, if any of the ETACS-ECU variant coding and option coding items are changed, the customized contents are reset. In such case, the functions need to be recustomized.

Before troubleshooting, check that the coding data written into the engine control module and ETACS-ECU are normal. If they are not the same as the initial settings, various functions and systems will not work correctly.

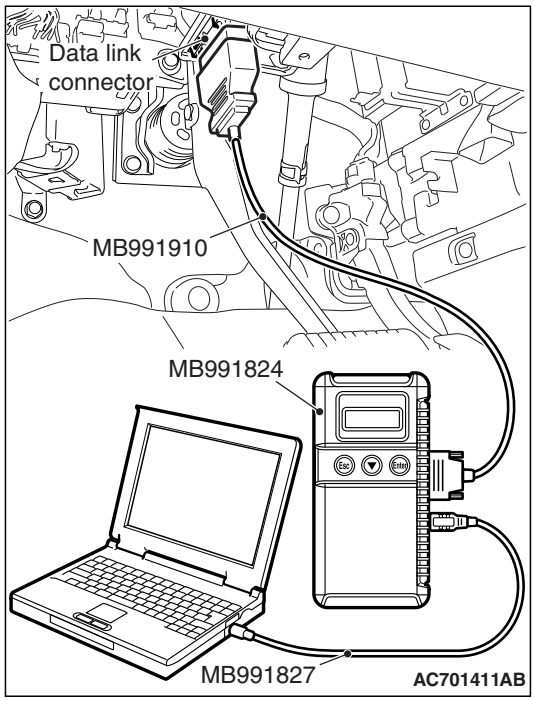
VARIANT CODING

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

The coding data can be checked by operating scan tool MB991958.

NOTE: For details on how to use the scan tool MB991958, refer to the "M.U.T.-III Owner's manual".



⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

1. Ensure that the ignition switch is at the "LOCK" (OFF) position.
2. Start up the personal computer.
3. Connect special tool MB991827 to special tool MB991824 and the personal computer.
4. Connect special tool MB991910 to special tool MB991824.
5. Connect special tool MB991910 to the data link connector.
6. Turn the power switch of special tool MB991824 to the "ON" position.

   NOTE: When special tool MB991824 is energized, special tool MB991824 indicator light will be illuminated in a green color.
7. Start the "M.U.T.-III system" on the personal computer.
8. Turn the ignition switch to the "ON" position.
9. Select "System select" from the start-up screen.
10. Select "From 2006 MY" under "Model Year". Check that "Vehicle Information" contents are correct.
11. On the system list screen, select "MPI/GDI/DIESEL" to check the engine control module data, and "ETACS" to check the ETACS-ECU data.

    NOTE:
    - *If "Loading Option Setup" list is shown, click appropriate box.*
    - *When you select "GasolineENG" system, a selection screen appears asking whether MITSUBISHI. Select a button that the engine belongs to.*
12. Select "Coding."
13. Select "Coding Information & Copy."
14. If the displayed coding information is different from the corresponding initial setting in the list, replace the ECU with a correctly coded one. For replacement of the engine control module, refer to GROUP 13A, engine control module P.13A-887 <2.4L Engine> or GROUP 13B, engine control module P.13B-903 <3.0L Engine>. For replacement of the ETACS-ECU, refer to GROUP 54A, ETACS P.54A-825.

TSB Revision

ENGINE CONTROL MODULE CODING DATA LIST

Item name	Initial value
Final gear ratio	6.466 <CVT>
	3.571 <A/T>
Tire circumference	2155 mm
IMMOBILIZER	Present
ABS	Present or Not present
A.S.C.	Present or Not present
S/W variation	Variation No.1 or Variation No.2

ETACS-ECU CODING DATA LIST

Item name	Initial value
Vehicle line	OUTLANDER
Model year	(Displays the model year)
SST oil cooling fan	Not present
Destination	U.S.
Transmission	CVT <CVT>
	6AT <A/T>
Engine type	2.4L D4 MPI VVT <2.4L Engine>
	3.0L S4 MIVEC <3.0L Engine>
Engine power	Normal
Handle side	LHD
Chassis type for A.S.C.	Type 2
OSS	Not present
Final drive	Front Drive <FWD>
	4WD FF Base <AWD>
Transfer	2WD <FWD>
	ECC <AWD>
IG off delay control	Disabled
Dead lock operation customize	Disabled
After wipe customize	Enabled(def.D)
Tyre circumference	2155mm
Fuel tank	Not used
DRL[*1] type	Dimming DRL w/ P or IndependentDRL/P
Smart entry system	Not present or Type A or Type C
TPMS[*1]	Present

TSB Revision

Item name	Initial value
Keyless entry*2	Present
Airbag auto hazard	Not present
Immobilizer	Type A or Type B
Cruise control	Not present or Present
Corner sensor	Not present
Headlight auto leveling device	Not present
Oil level warning	Not present
Water separate warning	Not present
Speed meter scale	Not used
Idle neutral control	Not present or Present
Theft alarm sensor	Not present or Present
T/M oil cooler	Present(B)
Side air bag	Present
ACC power auto cut	Default enabled
Number of speaker*2	Premium or 6 speakers
Seat material*2	Fabric or Leather
Auto light control*2	No/Chg Ng or Hi RLS/chg Ng
Front differential	Open or ELSD
Rear differential	Undefined <FWD>
	Open <AWD>
Power window type	Type P4
Sunroof type	Not present or Type S4
WCM	Present
OCM	Present
ORC	Present
A/C	Present
AUDIO*2	Not present or Present
AND*2	Not present or Present
Siren answer	Disabled
Theft alarm siren	Not present or Present
CAMERA	Not present
Corner sensor control unit	Not present
Electric Slide door (Left)	Not present
Electric Slide door (Right)	Not present

TSB Revision

Item name	Initial value
ETG	Not present
ESS ECU	Not present
HFM	Not present
Intelligent washer customize	Enabled/DefaultE
Headlight Leveling system type	Type 1/No present
Rear wiper mode	With Lo control
F.A.S.T. door entry type	Switch
Rear wiper by reverse customize	Enabled(d.FR/RR)
ABS	Not present or Present
A.S.C.	Not present or Present
Auto fold mirror	SPD/Not present
SAS	Not present or Present
4WD/AWC	Not present <FWD>
	Present <AWD>
TCM	Present
ACTV_STB	Not used
Door unlock by IG lock customize	Enabled(def.D)
Shift lock	Present
EPS	Not present
ACDAYC	Not present
Coming home light customize	Enabled(def.E)
Welcome light customize	Enable(d.Small)
Indirect light	Not present
Power window Dr	Present
Power window As	Not present
Power window RR	Not present
Power window RL	Not present
ESS by stoplight	Not present
Sunroof	Not present or Present
RLS*2	Not present or Present
IG key illumination	W/ getting off
Turn signal bulb	21W+21W+5W or 21/21/21/21/0.36
Rear wiper	Enable
Fold mirror	Disabled
Headlight	4 beams

TSB Revision

Item name	Initial value
KOS function customize by Disp.	Disabled
Headlight washer	Disabled
Front fog light mode	A spec.
Front fog light*2	Not present or Present
Rear fog light*2	Not present/ChgOK
Room light delay timer /door&H/L	Long
Room light by H/L	Full
Gate/Trunk light	Mode-2 (cargo)
Head light auto cut mode	C-spec
Head light auto cut	Enable
Door lock system	A-spec(NAS)
Auto door lock/ unlock	Disabled
Key reminder unlock	B-spec/Dr and As
Horn type*2	Dual horn
Gate/ trunk opener mode	Present (Type 1)
Cooling fan	Relay control
Security alarm mode	C-spec
Security alarm function	Present/Chg Ng
Pre-alarm	Not present
Multi mode RKE	Disabled
Gate/Trunk	Gate type
Manner switch*2	Not present/ChgNg
Remote engine starter*2	Present/Chg Ok
Panic Alarm	Enable
Front wiper	Speed Sensitive or Rain Sensitive
Comfort flasher type	Present/Chg OK
Dome light center switch	Not present
Wiper washer check bulb*2	Present
AUDIO/S.RADIO type	Undefined or Other
H/L levelling type	Not present
AFS*1/ACL type	Not present
ESS by turn light	Not present
Compressor type	Scroll 90 cc
Temperature type	Celsius or Fahrenheit

TSB Revision

Item name	Initial value
Rear view camera	Not present or Present
Nose view camera	Not present
Side view camera	Not present
Average speed	Available
Vehicle language status	English
Fuel amount	Not used
Fuel consumption scale	L/100km or MPG (US)
Speed gauge tolerance	U.S.
Coolant temp gauge threshold	Normal
Frost warning threshold	U.S.
Distance to empty	Available
Average fuel consumption	Available
Instant fuel consumption	Available
Time travelled	Not available
Distance travelled	Not available
Fuel used	Not available
Trip autoreset IG OFF	Available
Variable speed alarm	Not available
Rest reminder	Available
Instant speed	Not available
Seat belt reminder control type	AABT
Seat belt reminder flashing	Available
Seat belt reminder indicator	D&P independent
Reverse alarm	Not available
Key reminder	Available
Lighting monitor	Available
GCC speed alarm	Not available
Condition buzzer	Not available
Rent-a-car mode IG-OFF always	Available
Rent-a-car mode IG-OFF door open	Available
Service reminder schedule table	NAS 10
GCC speed alarm indicator	Not present
TPMS information	35 psi
Horn chirp by keyless	Present/Chg Ok
Rear S/R unlock output	Not present

TSB Revision

Item name	Initial value
Trailer turn detection	present
Shift Lever	Not present
AFS/ACL/Leveling	Not present
Satellite radio*2	Not present or Present
Auto Stop & Go (AS&G)	Not present
Display opening type	MMC
GSI system	Not present
DRL function*2	Present/Chg Ng or NotPresent/ChgOk
FACU	Not present
S-AWC control display	Not available or Available
Diesel particulate filter	Not present
Language mode	Available
WSS	Not present
Door Unlock Mode Customize*2	Disabled
RLS overwipe type	Type 2
RLS WS type	Type 2 (Green)
Launch gear block alarm	Not present
Theft sensor gain setting	Type 1 or Type 3 or Type 4

NOTE:

- **1: TPMS is an abbreviation of Tire Pressure Monitoring System, DRL of Daytime Running Light and AFS of Adaptive Front lighting System.*
- **2: The setting can be changed by the option coding. Refer to .*

OPTION CODING

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

⚠ CAUTION

If there is any item indicated by the option coding after equipment change, set ETACS-ECU so that the option coding data corresponds with the equipment content. Functions and systems do not work normally if the setting does not correspond with the equipment.

⚠ CAUTION

With the ETACS functions being customized, if any of the ETACS-ECU variant coding and option coding items are changed, the customized contents are reset. In such case, the functions need to be recustomized.

The ETACS-ECU option coding data can be checked or changed by operating scan tool MB991958.

- How to check option coding data
  1. Connect the scan tool MB991958. Refer to P.00-45.
  2. Turn the ignition switch to the "ON" position.
  3. Select "System select" from the start-up screen.
  4. Select "From 2006 MY" under "Model Year". Check that "Vehicle Information" contents are correct.
  5. Select "MP/GDI/DIESEL" or "ETACS" from "System List", and then press "OK" button.

     NOTE: If "Loading Option Setup" list is shown, click appropriate box.
  6. Select "Coding."
  7. Select "Option Coding Information."
  8. Check the displayed option coding information.
- How to change option coding data
  1. Connect the scan tool MB991958. Refer to P.00-45.
  2. Turn the ignition switch to the "ON" position.
  3. Select "System select" from the start-up screen.
  4. Select "From 2006 MY" under "Model Year". Check that "Vehicle Information" contents are correct.
  5. Select "MP/GDI/DIESEL" or "ETACS" from "System List", and then press "OK" button.

     NOTE: If "Loading Option Setup" list is shown, click appropriate box.
  6. Select "Coding."
  7. Select "Option Coding."
  8. Change to correct option coding data.

LIST <ENGINE CONTROL MODULE>

Item name
Cruise Control

LIST <ETACS-ECU>

Item name
Number of speaker
Seat material
AUDIO (CAN)
AND
HFM
Front fog light
Rear fog light
Horn type
Wiper washer check bulb
Compressor type
Satellite Radio
DRL function
Keyless
Door Unlock Mode Customize
Auto light CNTL
Rain Light Sensor
AUDIO/S.RADIO type
Manner switch
Remote engine starter
Front wiper

INITIALIZATION PROCEDURE FOR LEARNING VALUE IN MFI ENGINE

M1001011700848

When the following service is performed, initialize the learning value.

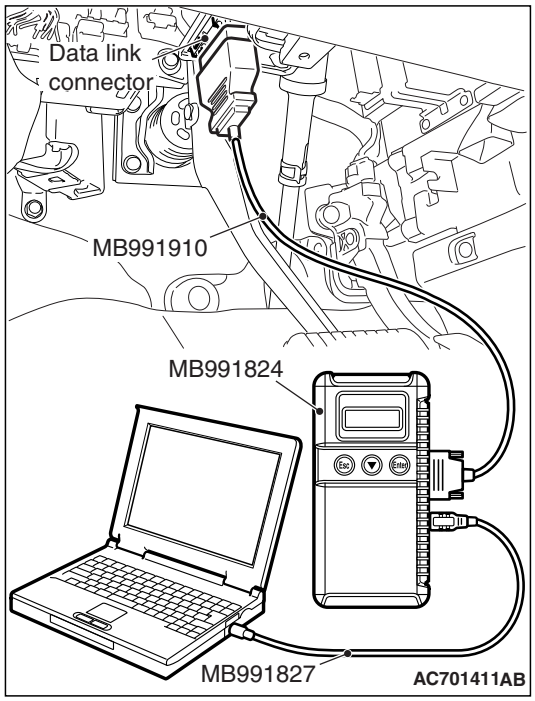
- At replacing engine assembly*
- At replacing throttle body and at cleaning
- At replacing knock sensor

*NOTE: *Initialize CVT-related learning value <2.4L> or A/T-related learning value <3.0L>.*

INITIALIZATION PROCEDURE

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: V.C.I.
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A



⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

1. After the ignition switch is in "LOCK" (OFF) position, connect scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "MFI " from System select Screen of scan tool MB991958.
4. Select "Special Function" from MFI Screen.
5. Select "Learned value reset" from Special Function Screen.
6. Select "All learned value" from Learned value reset Screen
7. Initialize the learning value by pressing the "OK" button.
8. After initializing the learning value, the learning value of MFI engine idling is necessary. (Refer to LEARNING PROCEDURE FOR IDLING IN MFI ENGINE P.00-54).

ENGINE IDLING LEARNING PROCEDURE

M1001011800942

PURPOSE

When the ECM is replaced, or when the learned value is initialized, the idle may not be stabilized. Carry out the learning method by following the procedures below.

LEARNING PROCEDURE

1. Start the engine and warm to reach 80°C (176°F) or more.

   NOTE: When the engine coolant temperature is 80°C (176°F) or more, the warm-up is not needed if the ignition switch is in "ON" position once.
2. Turn the ignition switch to "LOCK" (OFF) position.
3. After 10 seconds or more, start the engine again.
4. For 10 minutes, carry out the idling under the condition shown below and then confirm the engine has the normal idling.
   - Transaxle: P range
   - Operation in ignition-related, fan and attachments: Not to be operated
   - Engine coolant temperature: 80°C (176°F) or more

   NOTE: If the engine stalls while idling, check for a dirty (on the throttle valve) of the throttle body and clean if needed. Then perform the service from Procedure 1 again.

TSB Revision

INITIALIZATION PROCEDURE FOR THROTTLE ACTUATOR CONTROL MOTOR

When the battery cable is disconnected and reconnected, throttle actuator control motor valve (Fully closed position) is eliminated, so that the throttle valve opening angle control would not be performed correctly. When the battery cable is disconnected and reconnected, initialize the throttle actuator control motor using the following procedure.

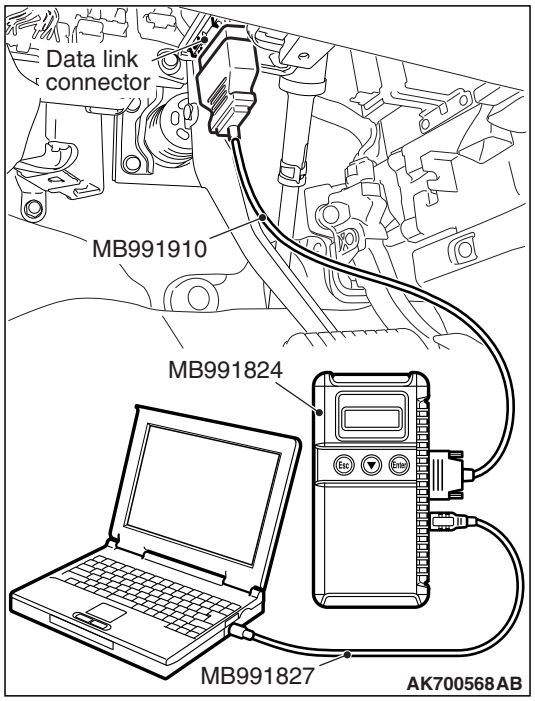
1. Turn the ignition switch to the "ON" position and then, place the ignition switch in "LOCK" (OFF) position.
2. For 10 seconds or more, keep the ignition switch in "LOCK" (OFF) position.

TIMING CHAIN LEARNED VALUE RESET <2.4L ENGINE>

M1001020600054

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: V.C.I.
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A



⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

1. After the ignition switch is in "LOCK" (OFF) position, connect scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "MFI" form System select Screen of scan tool MB991958.
4. Select "Special Function" form MFI Screen.
5. Select "Timing chain maintenance" from Special Function Screen.
6. Select "Learned value reset" form Timing chain maintenance Screen.
7. Press "ON" to reset the learning value.

BATTERY CURRENT SENSOR CALIBRATION <2.4L ENGINE>

M1001018600154

PURPOSE

The ECM carries out the electrical generation control according to the charge level of the battery, based on the battery current sensor signal. To improve the effect of reducing the fuel consumption by the electrical generation control, it is necessary to accurately detect the charge level of the battery. For this, if the following services are performed, carry out the battery current sensor calibration.

- Replacing the battery current sensor
- Replacing the ECM

LEARNING PROCEDURE

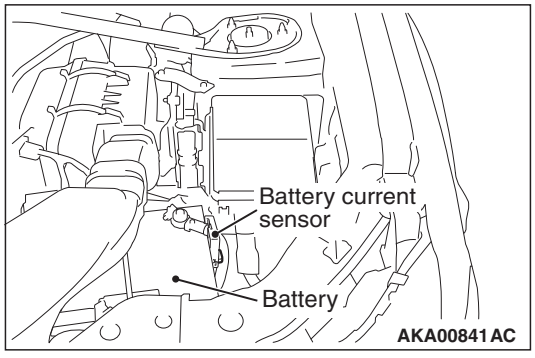
Required Special Tools:

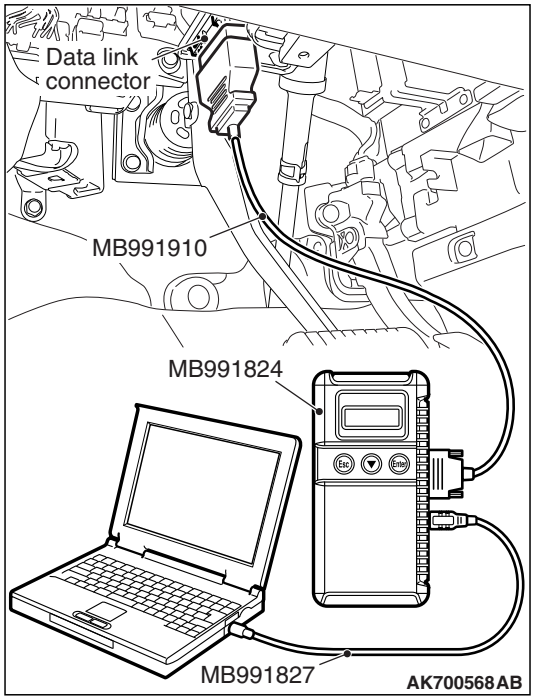
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: V.C.I.
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

1. After the ignition switch is in "LOCK" (OFF) position, disconnect the battery cable from the negative battery terminal.
2. Remove the battery current sensor from the battery cable (Do not disconnect the battery current sensor connector).
3. Connect the battery cable without the battery current sensor to the negative battery terminal.





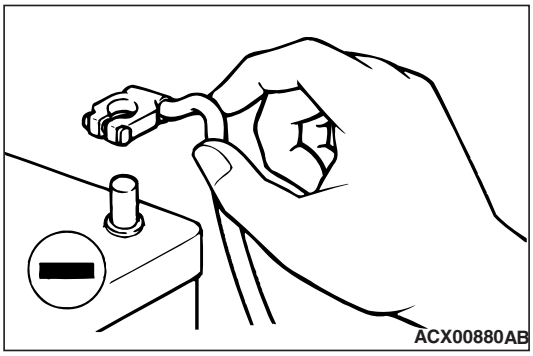
4. Connect scan tool MB991958 to the data link connector (But do not start the engine).
5. Turn the ignition switch to the ON position.
6. Select "MFI" from System select Screen of scan tool MB991958.
7. Select "Special Function" from MFI Screen.
8. Select "Learning" from Special Function Screen.
9. Select "Battery current SNSR.calibration" from Learning Screen.
10. Start the calibration by pressing the "OK" button.
11. Confirm that the scan tool MB991958 data list item No. 119 Battery current sensor calibration is "Completed".
12. After the ignition switch is in "LOCK" (OFF) position, disconnect scan tool MB991958.
13. Install the battery current sensor.

SERVICING ELECTRICAL SYSTEM

M1001011900433

⚠ ***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.**
  - **Engine coolant temperature: 85 – 95°C (185 – 203°F)**
  - **Lights and all accessories: OFF**
  - **Transaxle: "P" position**
  - **Steering wheel: straight-forward position**

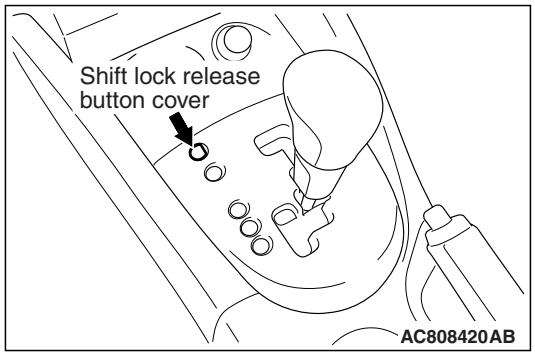
2. When servicing the electrical system, disconnect the negative cable terminal from the battery.

HOW TO SHIFT LOCK FORCED RELEASE

M1001018100171

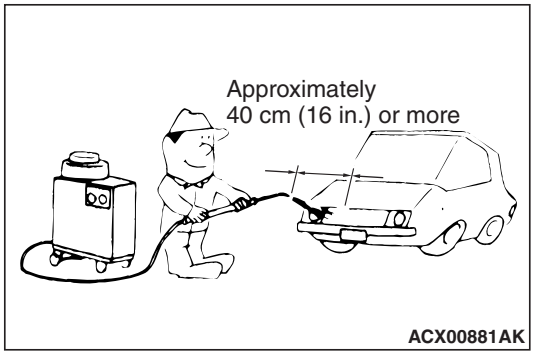
If the shift lever cannot be moved from the P position due to discharged battery or similar reasons, release the shift lock by observing the procedure below.

1. Turn the ignition switch to the position other than the LOCK (OFF) position.
2. Remove the shift lock forced release switch cover shown in the figure. While pressing the shift lock forced release switch with a screwdriver or a similar tool, move the selector lever.



VEHICLE WASHING

M1001012000682



1. 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 in.) from any plastic parts and all opening parts (doors, luggage compartment, etc.).
2. If high-pressure car-washing equipment or steam car-washing equipment is used to wash the vehicle, be sure to observe the following instructions to prevent damages to the plastic parts.
   - Spray nozzle distance: Approximately 40 cm (16 in.) or more
   - Spray pressure: 3,900 kPa or less
   - Spray temperature: 82 °C (180°F) or less
   - Time of intensive spraying to one point: Within 30 seconds

APPLICATION OF ANTI-CORROSION AGENTS AND UNDERCOATS

M1001011000117

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.

FORM–IN–PLACE GASKET (FIPG)

M1001014200154

The engine has several parts to which the form-in-place gasket (FIPG) is used. To sufficiently achieve the aims of this gasket, it is necessary to pay attention to the application amount, procedure, and surface status.
If the application amount is too small, a leakage will occur. If the application amount is excessive, the FIPG will overflow and cause a clogging or narrowing of water and oil paths. Therefore, to eliminate the leak from the joint, it is indispensable that the FIPG be applied with a correct amount and without any gap.
Because the FIPG used for the engine parts becomes hardened by the reaction with the atmospheric moisture, it is normally used for the metal flange section.

⚠ CAUTION

Reapply the FIPG with care to the followings.

1. **Completely remove the old FIPG including the residue in gaps of parts.**
2. **Using Mitsubishi genuine parts cleaner (MZ100387) or equivalent, degrease the FIPG application surface carefully.**
3. **According to the FIPG application procedures, apply it accurately.**

DISASSEMBLY

The parts installed with the FIPG can be disassembled easily without using any special method. However, in some cases, it is necessary to tear the sealant in between the mating surfaces by tapping the parts with a wooden hammer or similar tools. It is acceptable to lightly hit in a smooth, thin gasket scraper into the mating surface, but, in this case, a sufficient caution is required not to damage the mating surface. The oil pan FIPG cutter (Special tool: MD998727) is provided. Thus, use this special tool.

GASKET SURFACE CLEANING

Use a gasket scraper or wire brush to completely remove all the foreign materials adhering to the gasket surface. Check that the FIPG application surface is smooth. There must be no grease or foreign material adhesion to the gasket surface. Do not forget to remove the old FIPG remaining in the mounting hole and tapped hole.

APPLICATION PROCEDURE

Apply the FIPG with a specified diameter and without any gap. Completely enclose around the mounting hole. When the FIPG is not hardened, it can be wiped off. Install the parts immediately after applying the FIPG. At the time of installation, prevent the FIPG from adhering to locations other than it is necessary. After the installation, until a sufficient period of time (one hour or more) elapses, do not contact the oil or water to the application area. Also, do not start the engine. Because the FIPG application procedure may differ depending on the application area, apply the FIPG according to the procedure described in the text.

TIGHTENING TORQUE

M1001001100964

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 ± 0.5 N·m (23 ± 4 in-lb)	5.0 ± 1.0 N·m (44 ± 9 in-lb)	6.0 ± 1.0 N·m (53 ± 9 in-lb)
M6	1.0	5.0 ± 1.0 N·m (44 ± 9 in-lb)	8.5 ± 1.5 N·m (76 ± 13 in-lb)	10 ± 2 N·m (89 ± 17 in-lb)
M8	1.25	11 ± 2 N·m (98 ± 17 in-lb)	20 ± 4 N·m (15 ± 3 ft-lb)	24 ± 4 N·m (18 ± 3 ft-lb)
M10	1.25	23 ± 4 N·m (17 ± 3 ft-lb)	42 ± 8 N·m (31 ± 6 ft-lb)	53 ± 7 N·m (39 ± 5 ft-lb)
M12	1.25	42 ± 8 N·m (31 ± 6 ft-lb)	80 ± 10 N·m (59 ± 7 ft-lb)	93 ± 12 N·m (68 ± 9 ft-lb)
M14	1.5	70 ± 10 N·m (52 ± 7 ft-lb)	130 ± 20 N·m (96 ± 15 ft-lb)	150 ± 20 N·m (111 ± 14 ft-lb)
M16	1.5	105 ± 15 N·m (78 ± 11 ft-lb)	195 ± 25 N·m (144 ± 18 ft-lb)	230 ± 30 N·m (170 ± 22 ft-lb)
M18	1.5	150 ± 20 N·m (111 ± 14 ft-lb)	290 ± 40 N·m (214 ± 29 ft-lb)	335 ± 45 N·m (247 ± 33 ft-lb)
M20	1.5	210 ± 30 N·m (155 ± 22 ft-lb)	400 ± 60 N·m (295 ± 44 ft-lb)	465 ± 65 N·m (343 ± 48 ft-lb)
M22	1.5	290 ± 40 N·m (214 ± 29 ft-lb)	540 ± 80 N·m (398 ± 59 ft-lb)	630 ± 90 N·m (465 ± 66 ft-lb)
M24	1.5	375 ± 55 N·m (277 ± 40 ft-lb)	705 ± 105 N·m (520 ± 77 ft-lb)	820 ± 120 N·m (605 ± 88 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	5.0 ± 1.0 N·m (44 ± 9 in-lb)	10 ± 2 N·m (89 ± 17 in-lb)	12 ± 2 N·m (107 ± 17 in-lb)
M8	1.25	13 ± 2 N·m (111 ± 22 in-lb)	24 ± 4 N·m (18 ± 3 ft-lb)	28 ± 5 N·m (20 ± 4 ft-lb)
M10	1.25	26 ± 5 N·m (19 ± 4 ft-lb)	50 ± 5 N·m (37 ± 4 ft-lb)	58 ± 7 N·m (43 ± 5 ft-lb)
M10	1.5	25 ± 4 N·m (18 ± 3 ft-lb)	46 ± 8 N·m (34 ± 6 ft-lb)	55 ± 5 N·m (41 ± 3 ft-lb)
M12	1.25	47 ± 9 N·m (35 ± 6 ft-lb)	93 ± 12 N·m (68 ± 9 ft-lb)	105 ± 15 N·m (78 ± 11 ft-lb)
M12	1.75	43 ± 8 N·m (32 ± 6 ft-lb)	83 ± 12 N·m (61 ± 9 ft-lb)	98 ± 12 N·m (72 ± 9 ft-lb)

LUBRICATION AND MAINTENANCE

M1001001200530

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." 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 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:
Engine oils displaying ILSAC certification symbol or conforming to the API classification SL, SL/CF.
For further details, refer to "RECOMMENDED LUBRICANTS AND LUBRICANT CAPACITIES TABLE - LUBRICANT SELECTION P.00-63."

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 this car will damage the catalytic converters and heated oxygen sensors, and affect the warranty coverage validity.

This 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.
The 2.4L model is designed to operate on unleaded gasoline having a minimum octane rating of 87 [(MON + RON)/2], or 91 RON.

NOTE:

- *MON: Motor Octane Number*
- *RON: Research Octane Number*

GASOLINE CONTAINING ALCOHOL

Some gasoline 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 gasoline 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 gasoline containing methanol may not be covered by the new vehicle warranty.

GASOLINE CONTAINING METHYL TERTIARY 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

M1001001300872

RECOMMENDED LUBRICANTS

Lubricant	Specifications	Remarks
Engine oil	Engine oils displaying ILSAC certification symbol ("Starburst" symbol) or conforming to the API classification SM.	For further details, refer to "LUBRICANTS SELECTION" section.
Engine coolant	Dia queen super long life coolant premium or equivalent*	*similar high quality ethylene glycol based non-silicate, non-amine, non-nitrate and non-borate coolant with long life hybrid organic acid technology.
Clutch fluid	Conforming to Brake fluid DOT 3 or DOT 4	-
Transaxle oil	DIA QUEEN NEW MULTI GEAR OIL API classification GL-3, SAE 75W-80	-
Transmission (CVT) fluid	DIA QUEEN CVTF-J1	-
Transfer oil	Hypoid gear oil API classification GL-5, SAE 80	-
Rear differential gear oil	Hypoid gear oil API classification GL-5, SAE 80	-
Driveshaft (inside of knuckle bore) grease	Dowcorning/Molykote BR2 Plus	-
Driveshaft (PTJ boot, EBJ boot) grease	Repair kit grease	-
Brakes fluid	Conforming to Brake fluid DOT 3 or DOT 4	-
Door hinges, back door hinges lubricant	Engine oil	-
Wiper motor link rod lgrease	Multipurpose grease SAE J310, NLGI No.1(mineral oil + Li)	-
Air conditioning compressor refrigerant unit oil	SUN PAG 56	-

LUBRICANT CAPACITY TABLE

Description				Specification
Engine oil dm^3 (qt)	Oil pan (excluding oil filter)			4.0 (4.23)
	Oil filter			0.3 (0.32)
Engine coolant dm^3 (qt)	Includes reserve tank			7.5 (7.9)
	Reserve tank			0.65 (0.69)
Fuel tank dm^3 (gal)	FWD			63 (16.6)
	AWD			60 (15.8)
Clutch fluid				As required
Transaxle oil dm^3 (qt)				2.5 (2.6)
Transmission (CVT) fluid dm^3 (qt)				7.1 (7.5)
Transfer oil dm^3 (qt)				0.49 (0.52)
Rear differential gear oil dm^3 (qt)				0.5 (0.53)
Driveshaft (inside of knuckle bore) lgrease g (oz)				As required [1.0 – 1.5 (0.04 – 0.05)]
Driveshaft (PTJ boot, EBJ boot) grease g (oz)	PTJ boot grease	FWD-M/T	LH	210 ± 10 (7.4 ± 0.3)
			RH	185 ± 10 (6.5 ± 0.3)
		FWD-CVT	LH	210 ± 10 (7.4 ± 0.3)
			RH	210 ± 10 (7.4 ± 0.3)
		AWD-CVT	LH	200 ± 10 (7.1 ± 0.3)
			RH	210 ± 10 (7.4 ± 0.3)
	EBJ boot grease			120 ± 10 (4.2 ± 0.3)
Brakes fluid dm^3 (qt)				As required
Wiper motor link rodg rease g (oz)				As required
Air conditioning compressor refrigerant unit oil dm^3 (qt)	Compressor refrigerant unit			70 – 90 (2.4 – 3.0)
	Each connection of refrigerant line			As required

LUBRICANT SELECTION

ENGINE OIL

⚠ CAUTION

Never use nondetergent or straight mineral oil.

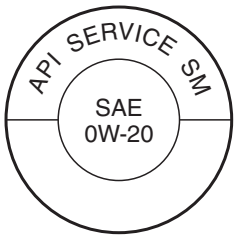
Use only engine oils displaying the ILSAC certification symbol ("Starburst" symbol) on the container.

ILSAC certification symbol ("Starburst" symbol)

AC609011AC

If these oils are not available, an API classification SM can be used.

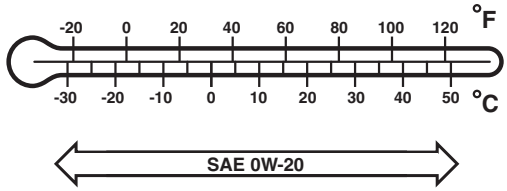
API service symbol



ACA01781AD

OIL VISCOSITY

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



ACA02197

SCHEDULED MAINTENANCE TABLE

M1001001401106

SCHEDULED MAINTENANCE SERVICE FOR EMISSION CONTROL AND PROPER VEHICLE PERFORMANCE

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

No.	Emission control system maintenance	Service intervals	Mileage in thousands	15	30	45	60	75	90	105	120
			Kilometers in thousands	24	48	72	96	120	144	168	192
			Months	12	24	36	48	60	72	84	96
1	Fuel system (tank, pipe line and connection, and fuel tank filler tube cap)	Check for leaks					X				X
2	Fuel hoses	Check condition			X*		X		X		X
3	Air cleaner element	Replace			X		X		X		X
4	Evaporative emission control system (except evaporative emission canister)	Check for leaks and clogging					X				X
5	Spark plugs	Iridium-tipped type	Replace	Every 105,000 miles (168,000 km) or every 84 months							
6	Intake and exhaust valve clearance	Inspect and adjust					X				X
7	Drive belts (for the generator and power steering oil pump)	Check condition			X		X		X		X
8	Exhaust system (connection portion of muffler, muffler pipes and converter heat shields)	Check and service			X*		X		X		X

*NOTE: *: This maintenance is recommended but is not required to maintain the emissions warranty.*

GENERAL MAINTENANCE SERVICE FOR PROPER VEHICLE PERFORMANCE

No.	General maintenance	Service intervals	Kilometers in thousands	24	48	72	96	120	144	168	192
			Mileage in thousands	15	30	45	60	75	90	105	120
			Months	12	24	36	48	60	72	84	96
9	Engine oil	Change		Every 7,500 miles (12,000 km) or every 6 months							
10	Engine oil filter	Replace		Every 7,500 miles (12,000 km) or every 6 months							
11	Manual transaxle oil	Check oil level and condition			X		X		X		X
13	Transfer oil	Check oil level and condition			X		X		X		X
		Change					X				X
14	Engine coolant	Change		First 120,000 miles (192,000 km) or 96 months, thereafter every 90,000 miles (144,000 km) or 72 months							
15	Coolant hoses (radiator hose, heater hose)	Inspect			X		X		X		X
16	Disk brake pads, rotors	Inspect for wear		X	X	X	X	X	X	X	X
17	Rear drum brake linings and rear wheel cylinders (except vehicles with disc brakes)	Inspect for wear and leaks			X		X		X		X
18	Brake hoses	Check for deterioration or leaks		X	X	X	X	X	X	X	X
19	Ball joint and steering linkage seals	Inspect for grease leaks and damage			X		X		X		X
20	Drive shaft boots	Inspect for grease leaks and damage		X	X	X	X	X	X	X	X
21	Suspension system	Inspect for looseness and damage			X		X		X		X
22	Rear axle oil	Check oil level			X		X		X		X
23	Tires	Rotate		Every 7,500 miles (12,000 km)							
24	Air filter	Replace		X	X	X	X	X	X	X	X

SCHEDULED MAINTENANCE UNDER SEVERE USAGE CONDITIONS

Maintenance should be carried out according to the following table:

No.	Maintenance item	Service intervals	Kilometers in thousands	24	48	72	96	120	144	168	192
			Mileage in thousands	15	30	45	60	75	90	105	120
			Months	12	24	36	48	60	72	84	96
3	Air cleaner element	Replace		X	X	X	X	X	X	X	X
9	Engine oil	Change		Every 3,750 miles (6,000 km) or every 3 months							
10	Engine oil filter	Replace		Every 3,750 miles (6,000 km) or every 3 months							
11	Manual transaxle oil	Change			X		X		X		X
12	Transmission fluid/CVT fluid	Check oil level and condition		X	X	X	X	X	X	X	X
		Change			X		X		X		X
13	Transfer oil	Change			X		X		X		X
16	Disk brake pads, rotors	Inspect for wear		Every 7,500 miles (12,000 km) or every 6 months							
17	Rear drum brake linings and rear wheel cylinders (except vehicles with disc brakes)	Inspect for wear and leaks		X	X	X	X	X	X	X	X
21	Suspension system	Inspect for looseness and damage		Every 7,500 miles (12,000 km) or every 6 months							
24	Air filter	Inspect for clogging		Every 3,750 miles (6,000 km) or every 3 months							
		Replace		Every 7,500 miles (12,000 km) or every 6 months							

Severe usage conditions:

1. Driving on dusty, rough, muddy or salt-spread roads
2. Towing or police, taxi or commercial operation
3. Extensive idling and/or low speed operation
4. Repeated short-trip operation at freezing temperatures (engine not thoroughly warmed up)
5. Extended use of brakes while driving
6. Driving in sandy areas
7. More than 50% operation in heavy city traffic during hot weather above 32°C (90°F)

MAINTENANCE SERVICE

1. FUEL SYSTEM (TANK, PIPE LINE AND CONNECTION, AND FUEL TANK FILLER TUBE CAP) (CHECK FOR LEAKS)

M1001001600389

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

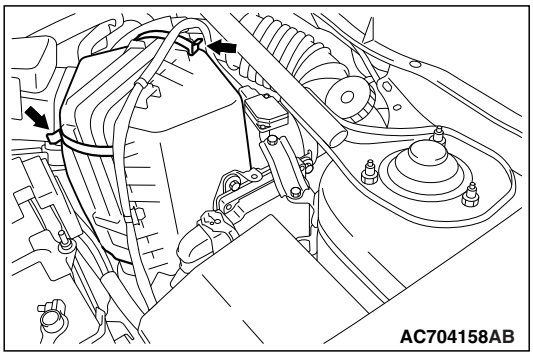
2. FUEL HOSES (CHECK CONDITION)

M1001001700342

1. Inspect the surface of fuel hoses for heat and mechanical damage. Hard and brittle rubber, cracking, tears, cuts, abrasions and excessive swelling indicate deterioration of the rubber.
2. If the fabric casing of the rubber hose is exposed by cracks and abrasions in the fuel system, the hoses should be replaced.

3. AIR CLEANER ELEMENT (REPLACE)

M1001001800435


AC704158AB

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

Replacement of air cleaner element:

1. Unclasp the air cleaner housing.
2. Remove the air cleaner element and install a new one.
3. When clamping the air cleaner housing in place, be sure that the cover is completely closed.

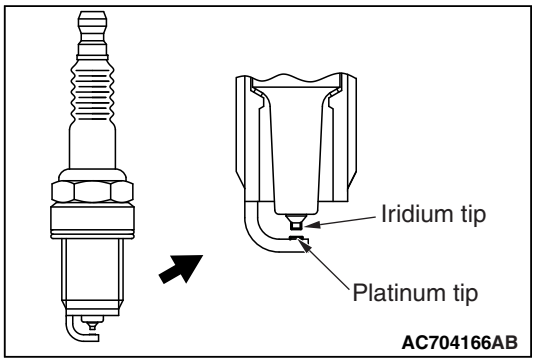
4. EVAPORATIVE EMISSION CONTROL SYSTEM (EXCEPT EVAPORATIVE EMISSION CANISTER) (CHECK FOR LEAKS AND CLOGGING)

M1001001900421

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)

M1001002000506



⚠ CAUTION

Iridium plugs are used. Use care not to damage the iridium 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	2.4L engine	3.0L engine
NGK	FR5EI	ILKR7B-8
DENSO	K16PSR-B8	SXU22HDR8

2. The new plugs should be checked for the proper gap.
   Spark plug gap: 0.7 – 0.8 mm (0.028 – 0.031 inch)
3. Install the spark plugs and tighten to the specified torque.
   Tightening torque:
   25 ± 5 N·m (19 ± 3 ft-lb) <2.4L>
   18 ± 2 N·m (13 ± 1 ft-lb) <3.0L>

6. INTAKE AND EXHAUST VALVE CLEARANCE (INSPECT AND ADJUST)

M1001012900306

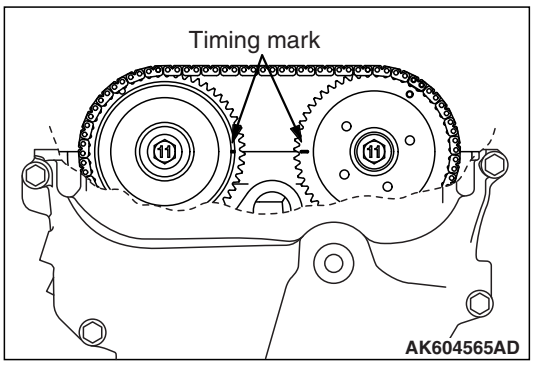
<2.4L ENGINE>

NOTE: Perform the valve clearance check and adjustment at the engine cold state.

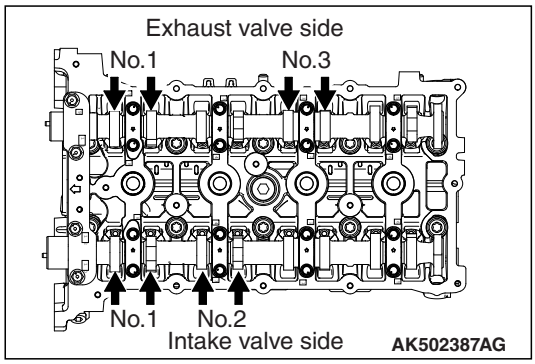
1. Remove all of the ignition coils.
2. Remove the cylinder head cover.

⚠ CAUTION

Turn the crankshaft always clockwise.

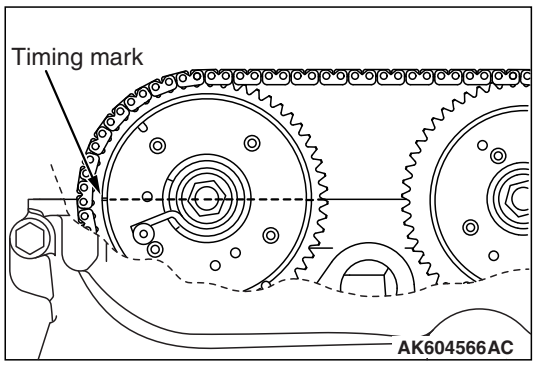


3. Turn the crankshaft clockwise, and align the timing mark on the exhaust camshaft sprocket against the upper face of the cylinder head as shown in Figure. Therefore, No.1 cylinder goes to the compression top dead center.

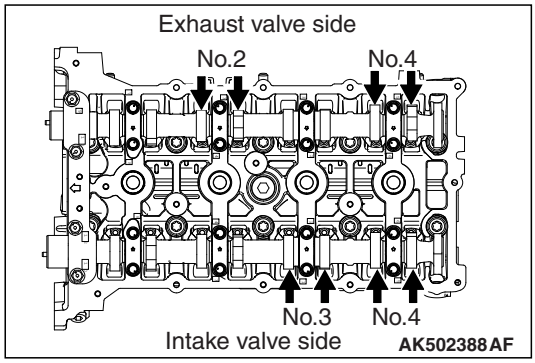


4. Using a thickness gauge, measure the valve clearance with the arrow shown in Figure. If deviated from the standard value, make note for the valve clearance.

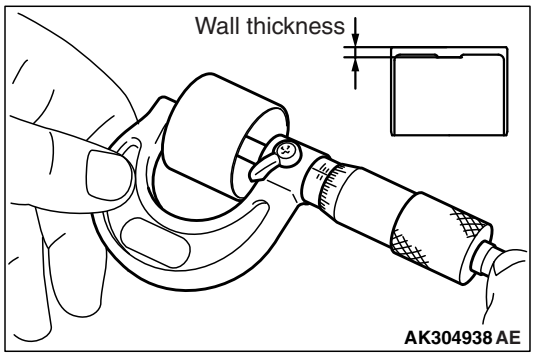
Standard value:
Intake valve 0.20 ± 0.03 mm (0.008 ± 0.0012 inch)
Exhaust valve 0.30 ± 0.03 mm (0.012 ± 0.0012 inch)



5. Turn the crankshaft clockwise 360 degrees, and put the timing mark on the exhaust camshaft sprocket in position shown in Figure. Therefore, No.4 cylinder goes to the compression top dead center.

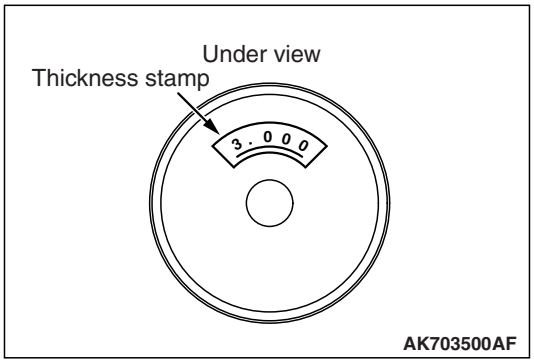


6. Check the valve clearance with the arrow shown in Figure. In the same procedure as 4.
7. If the valve clearance is deviated from the standard value, remove the camshaft and the valve tappet. For the camshaft removal, refer to Camshaft Removal and Installation P.11A-26.



8. Using a micrometer, measure the thickness of the removed valve tappet.
9. Calculate the thickness of the newly installed valve tappet through the following equation.
   A: thickness of newly installed valve tappet
   B: thickness of removed valve tappet
   C: measured valve clearance

Equation
Intake valve: A = B + [C − 0.20 mm (0.008 inch)]
Exhaust valve: A = B + [C − 0.30 mm (0.012 inch)]



NOTE: The valve tappet ranges 3,000 – 3,690 mm (0.1181 – 0.1453 inch) and has 47 types per 0.015 mm (0.0006 inch). The thickness below a decimal point is stamped on the reverse side of the valve tappet.

10. Install the valve tappet selected through the procedure 9, and put the camshaft in position. For the camshaft installation, refer to Camshaft Removal and Installation P.11A-26.
11. After installing the timing chain, measure the valve clearance using the procedure 3 to 6. Confirm the clearance is within the standard value.

⚠ CAUTION

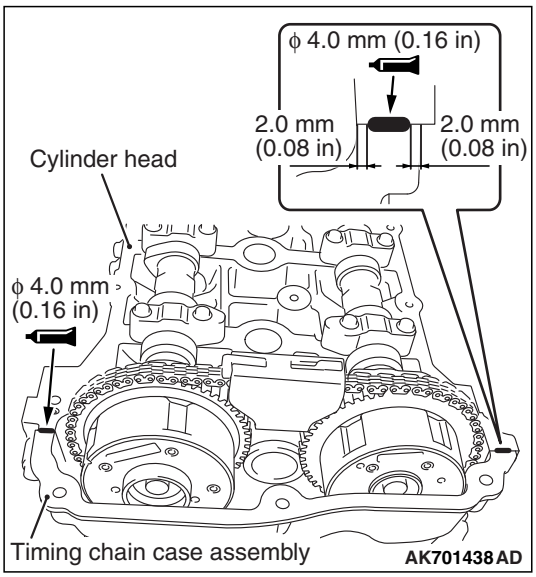
Completely remove all the old liquid gasket, which might be remaining among the components.

12. After completely removing the liquid gasket adhering on the timing chain case, cylinder block and cylinder head, degrease them with white gasoline.

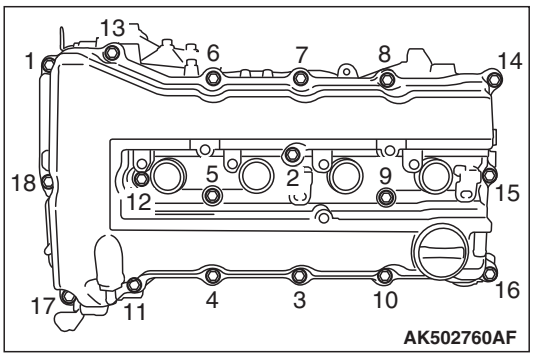
⚠ CAUTION

The cylinder head cover should be installed within 3 minutes of applying liquid gasket.

13. Apply a 4 mm bead of liquid gasket as illustrated.



Specified sealant:
THREE BOND 1217G or equivalent



14. Install the cylinder head cover and tighten the tightening bolts using the following procedures.
    (1) Temporarily tighten to the following torque in order shown in the illustration.

    Tightening torque: 3.0 ± 1.0 N·m (27 ± 9 in-lb)

    (2) Tighten to the specified torque in order shown in the illustration.

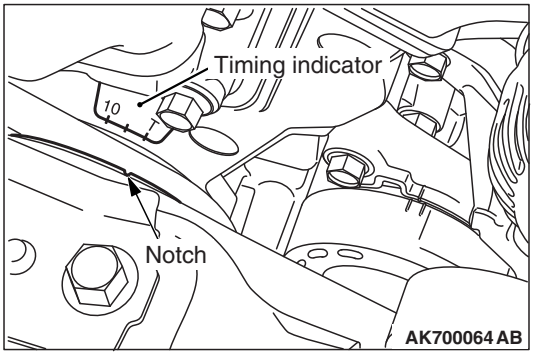
    Specified torque: 5.5 ± 0.5 N·m (49 ± 9 in-lb)

15. Install the ignition coils.

<3.0L ENGINE (INTAKE SIDE ONLY) >

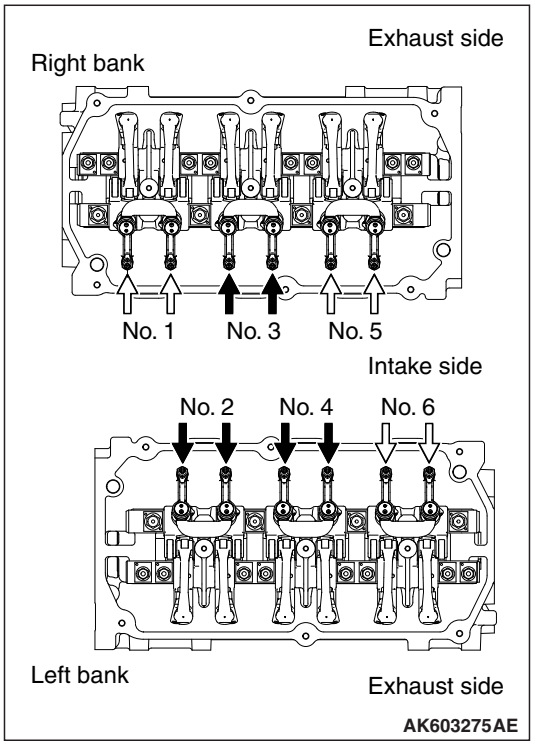
NOTE: Perform the valve clearance check and adjustment at the engine cold state.

1. Remove all of the ignition coils.
2. Remove the rocker cover.
3. Turn the crankshaft clockwise until the notch on the pulley is lined up with the "T" mark on the timing indicator.



4. Valve clearance inspection and adjustment can be performed on rocker arms indicated by white arrow mark when the No. 1 cylinder piston is at the top dead center on the compression stroke, and on rocker arms indicated by black arrow mark when the No. 4 cylinder piston is at the top dead center on the compression stroke.

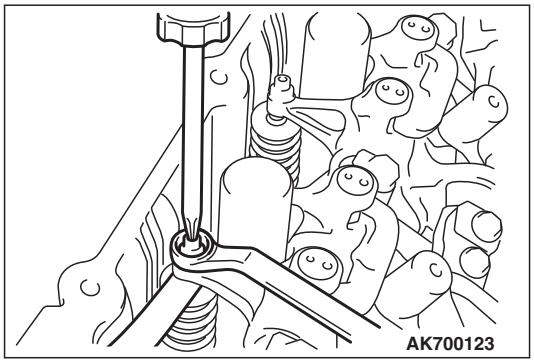
   NOTE: If the rocker arm of No. 6 cylinder at the intake side is moved up and down and the rocker arm is moved, No. 1 cylinder is at top dead center on compression stroke. If the rocker arm of No. 6 cylinder at the intake side is moved up and down and the rocker arm is not moved, No. 4 cylinder is at top dead center on compression stroke.



5. Measure the valve clearance for intake side.
   If the valve clearance is not as specified, loosen the rocker arm lock nut and adjust the clearance using a thickness gauge while turning the adjusting screw.

   Standard value (cold engine): 0.10 mm (0.004 inch)

NOTE: Valve clearance check and adjustment is unnecessary for exhaust side due to auto lash adjuster installed.


AK700123

6. While holding the adjusting screw with a screwdriver to prevent it from turning, tighten the lock nut to the specified torque.
   Tightening torque: 9 ± 1 N·m (80 ± 9 in-lb)
7. Turn the crankshaft 360 degrees to line up the notch on the crankshaft pulley with the "T" mark on the timing indicator.
8. Repeat steps 5 and 6 on other valves for clearance adjustment.
9. Install the rocker cover.
10. Install the ignition coils.

7. TIMING BELT (REPLACE)

M1001002300466

Replace the belt with a new one according to the maintenance schedule P.00-66 to assure proper engine performance.
For removal and installation procedures, refer to GROUP 11C, Engine Mechanical – Timing Belt – Removal and Installation P.11C-55.

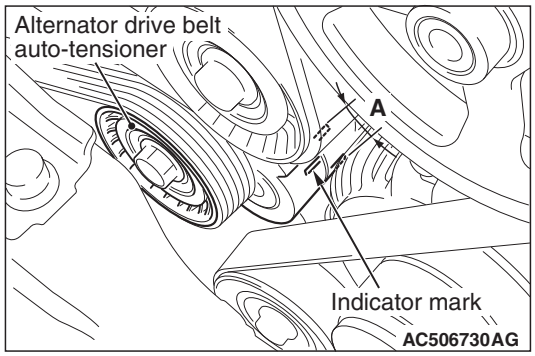
8. DRIVE BELT (FOR GENERATOR, POWER STEERING OIL PUMP) (CHECK CONDITION)

M1001002500631

<2.4L ENGINE>

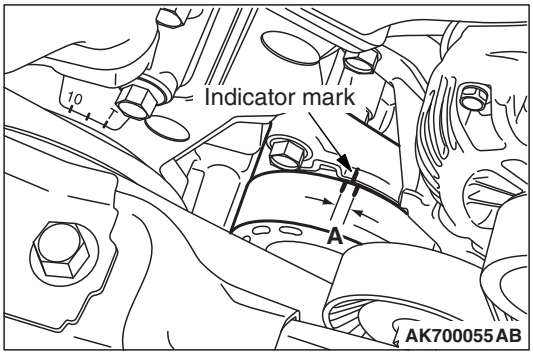
1. Remove the radiator condenser tank mounting bolts.
2. Move the radiator condenser tank to a place where it will not be a hindrance when checking the generator and others belt tension.

⚠ CAUTION
Check the generator and others belt tension after turning the crankshaft clockwise one turn or more.



3. Make sure that the indicator mark on the generator drive belt auto-tensioner is within the area marked with A in the illustration.
4. If the mark is out of the area A, replace the generator and others belt (Refer to P.11A-21).
   NOTE: The generator and others belt tension check is not necessary as the generator drive belt auto-tensioner is adopted.
5. Tighten the radiator condenser tank mounting bolts to the specified torque.
   Tightening torque: 12 ± 2 N·m

<3.0L ENGINE>



⚠ CAUTION
Check the drive belt tension after turning the crankshaft clockwise one turn or more.

1. Make sure that the indicator mark is within the area marked with A in the illustration.
2. If the mark is out of the area, replace the drive belt. (Refer to P.11C-23).

   NOTE: The drive belt tension adjustment is not necessary, as the engine is equipped with an auto-tensioner.

9. EXHAUST SYSTEM (CONNECTIONS PORTION OF MUFFLER, MUFFLER PIPES AND CONVERTER HEAT SHIELDS) (CHECK AND SERVICE AS REQUIRED)

M1001005800471

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

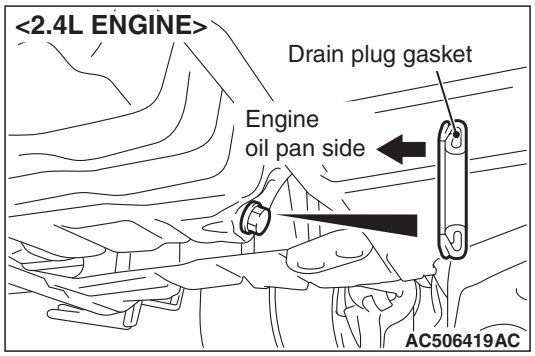
10. ENGINE OIL (CHANGE)

M1001002600809

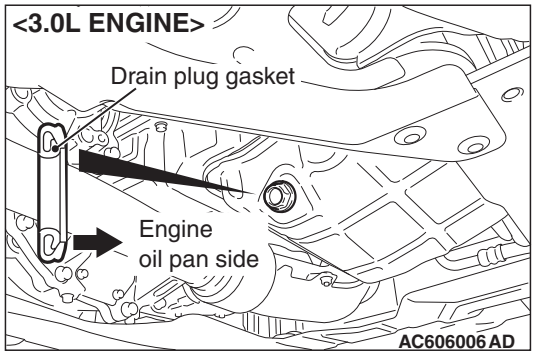
1. Start the engine and allow it to warm up until the temperature of the coolant reaches 80 – 90°C (176 – 194°F).

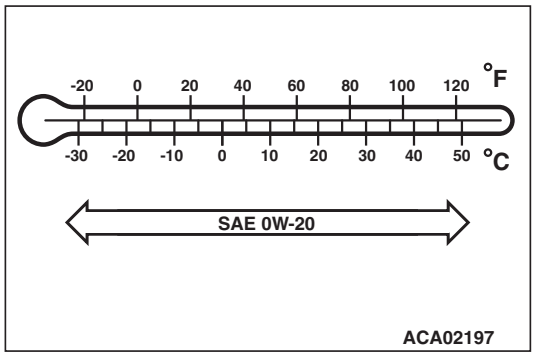
⚠ WARNING
Use care as oil could be hot.

2. Remove the engine oil filler cap.
3. Remove the drain plug to drain oil.

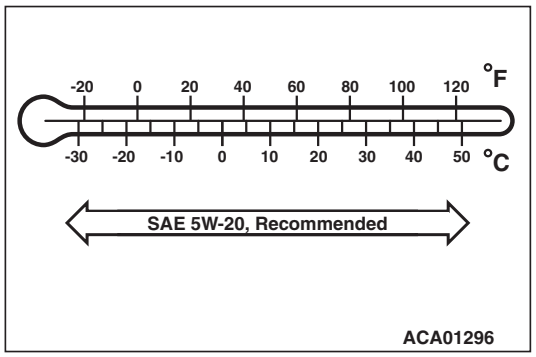


4. Install a new drain plug gasket so that it faces in the direction shown in the illustration, and then tighten the drain plug to the specified torque.
   Tightening torque: 39 ± 5 N·m (29 ± 3 ft-lb)





5. Refill the specified quantity of engine oil <2.4L ENGINE>.
   Specified Engine Oil: Engine oils displaying the ILSAC certification symbol ("Starburst" symbol) or conforming to the API classification SM
   Total quantity (Includes volume inside engine oil filter): 4.6 dm^3 (4.82 quarts)



6. Refill the specified quantity of engine oil <3.0L ENGINE>.
   Specified Engine Oil: Engine oils displaying the ILSAC certification symbol ("Starburst" symbol) or conforming to the API classification SM
   Total quantity (Includes volume inside engine oil filter): 4.3 dm^3 (4.52 quarts)
   NOTE: SAE 5W-20 engine oil is strongly recommended for optimum fuel economy and cold starting.
7. Install the engine oil filler cap.
8. Let the engine run for a few minutes.
9. Stop the engine, and then check the oil level using the oil dipstick after a few minutes.

11. ENGINE OIL FILTER (REPLACE)

M1001002700624

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:

Mitsubishi Oil Filter Part Number: MD332687, MD365876, MD360935 or equivalent

Engine Oil Filter Selection

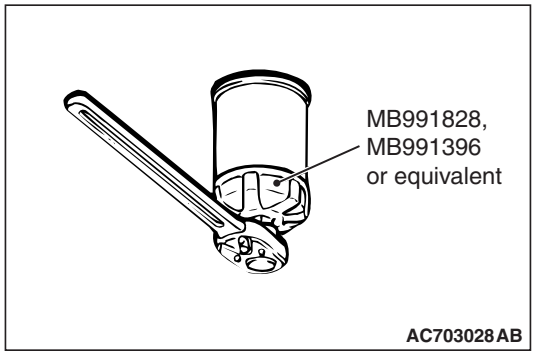
This vehicle is equipped with a full-flow, throw-away oil filter. The same type of filter is recommended as a replacement filter for this vehicle. It is possible, particularly in cold weather, that this vehicle may develop high oil pressure for a short duration. Make sure that any replacement filter used on this vehicle is a high-quality filter. The filter must withstand a pressure of 1,765 kPa (256 psi) [manufacturer's specifications] to avoid filter and ultimately engine damage. The following is a high-quality filter and is strongly recommended for use on this vehicle: Mitsubishi Engine Oil Filter Part number MD332687, MD365876 and MD360935.
Any replacement oil filter should be installed in accordance with the oil filter manufacturer's installation instructions.

Oil Filter Replacement

Start the engine and allow it to warm up until the temperature of the coolant reaches 80 – 90°C (176 – 194°F)

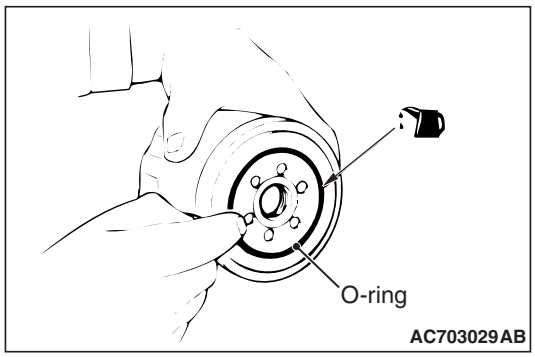
⚠ WARNING
Use care as oil could be hot.

1. Remove the engine oil filler cap.
2. Remove the drain plug to drain oil.
3. Use the respective tool in the following table to remove the engine oil filter.



Number	Special tool
MD332687 or MD365876	Oil filter wrench (MB991828) or equivalent
MD360935	Oil filter wrench (MB991396) or equivalent

4. Clean the filter bracket side mounting surface and ensure the old O-ring has been removed.



5. Apply a small amount of engine oil to the O-ring of the new oil filter.

6. Screw on the oil filter by hand until it touches the surface of the flange and then tighten it with an oil filter wrench.

Number	Special tool	Tightening torque
MD332687 or MD365876	MB991828 or equivalent	Approximately 3/4 turn [16 ± 4 N·m (12 ± 3 ft-lb)]
MD360935	MB991396 or equivalent	Approximately one turn [14 ± 2 N·m (124 ± 18 in-lb)]

7. Install the drain plug and refill engine oil (Refer to P.12-5).
8. Rev the engine a few times, and check to be sure that no engine oil leaks at the oil filter.

12. TRANSMISSION FLUID (CVT FLUID) (CHECK FLUID LEVEL AND CONDITION/CHANGE)

M1001002900628

CHECK FLUID LEVEL AND CONDITION

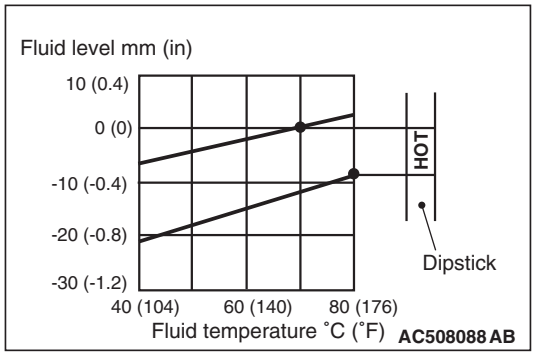
⚠ CAUTION

Replace the transmission fluid whenever the transaxle is replaced with a new one or the vehicle is driven in harsh conditions.

1. Drive the vehicle until the transmission fluid is warmed up to the normal operating temperature 70 – 80°C (158 – 176°F).

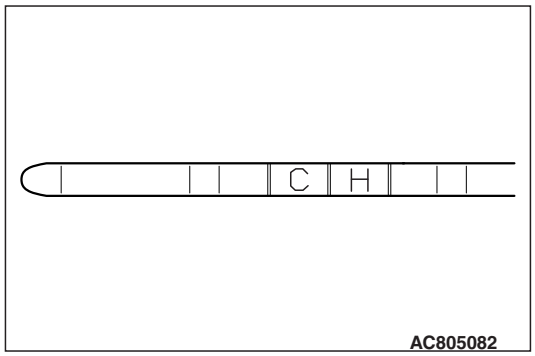
   NOTE: Use scan tool to measure the transmission fluid temperature.

   NOTE: When a certain amount of time is required to warm up the transmission fluid to the normal operating temperature 70 – 80°C (158 – 176°F), check the oil level referring to the characteristics chart.



2. Park the vehicle on a level surface.
3. Move the selector lever to every position to fill the torque converter and the hydraulic circuit with the transmission fluid, and then move the selector lever to P or N range.
4. Wipe clean the area around the oil level gauge, and then remove the oil level gauge to check the condition of the transmission fluid.

   NOTE: If the transmission fluid smells burnt or is excessively deteriorated or dirty, the transmission fluid is contaminated with particles of the metal bushings and friction material. In these cases, the transaxle must be overhauled.



5. Check that the transmission fluid level is within the "H" area on the oil level gauge. If the fluid level is low, add the transmission fluid to the "H" level.

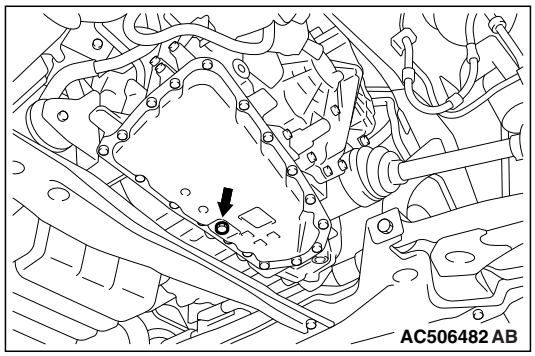
   Transmission fluid: DIA QUEEN CVTF-J1

   NOTE: When the transmission fluid level is low, the oil pump sucks air together with the transmission fluid, and produces air bubbles in the hydraulic circuit. The air bubbles in the hydraulic circuit decreases the hydraulic pressure, causing the delayed gearshift or slippage of the belt, clutch, and brake. When the transmission fluid level is too high, the fluid is stirred by the gear and foams up, and the problems similar to those when the transmission fluid level is low will occur. In either case, air bubbles cause the overheat and oxidation of the transmission fluid, which prevents normal operation of the valve, clutch, and brake. Beside, when the transmission fluid is foamy, it flows out of the transaxle vent hole. This may be taken as the fluid leakage by mistake.
6. Insert the oil level gauge securely.

CHANGE

If you have a transmission fluid (CVT fluid) changer, use this changer to replace the transmission fluid. If you do not have a transmission fluid changer, replace the transmission fluid by the following procedure.

<2.4 L ENGINE>



1. Remove the drain plug on the bottom of the transaxle case to drain the transmission fluid.

   Draining amount: Approximately 5.5 dm^3 (5.81 qt)
2. Install the drain plug with a new gasket to the transaxle case, and tighten it to the specified torque.

   Tightening torque: 34 ± 2 N·m (25 ± 1 ft-lb)

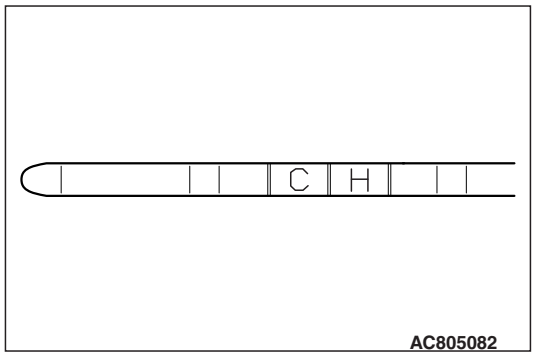
⚠ CAUTION

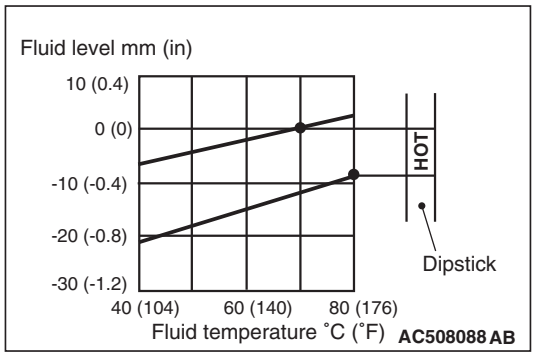
If the transaxle case becomes full before filling 5.5 dm^3 (5.81 qt) of transmission fluid, stop filling the transmission fluid.

3. Fill in the new transmission fluid through the oil filler tube.

   Filling amount: Approximately 5.5 dm^3 (5.81 qt)

   Transmission fluid: DIA QUEEN CVTF-J1
4. Start up the engine and let it idle for 1 to 2 minutes.
5. Move the selector lever to every position, and then move it to the P or N range.
6. Stop the engine and perform the above steps 1 to 5 again.
7. Stop the engine, and discharge a small amount of transmission fluid to check for fouling. If fouling is found, repeat steps 1 to 5 until clean transmission fluid comes out.





8. Drive the vehicle until the transmission fluid is warmed up to the normal operating temperature 70 – 80°C (158 – 176°F), and check the transmission fluid level. It must be within the "H" area on the oil level gauge.

   NOTE: The "C" level is for reference only. Use the "H" level as the criteria.

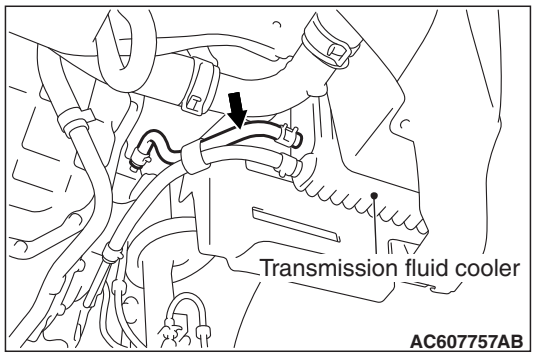
   NOTE: Use scan tool to measure the transmission fluid temperature.

   NOTE:

   When a certain amount of time is required to warm up the transmission fluid to the normal operating temperature 70 – 80°C (158 – 176°F), check the oil level referring to the characteristics chart.
9. Adjust the transmission fluid level to the specified level. Refill the transmission fluid when the fluid level is low, and drain the transmission fluid through the drain plug when the fluid level is high.
10. Securely insert the oil level gauge into the oil filler tube.
11. TCM records the deterioration level of the transmission fluid. After replacing the transmission fluid with new one, use scan tool to reset the deterioration level recorded in TCM.

<3.0 L ENGINE>

If you have a transmission fluid changer, use this changer to replace the transmission fluid. If you do not have a transmission fluid changer, replace the transmission fluid by the following procedure.



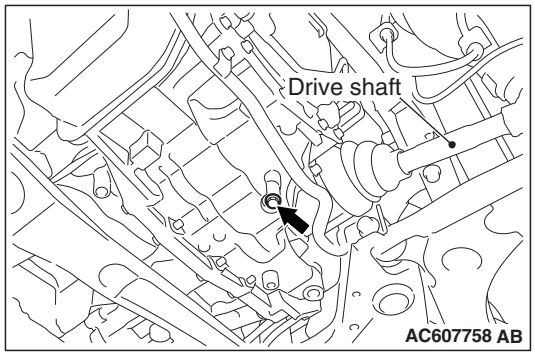
1. Disconnect the hose shown in the illustration which connects the transaxle and the oil cooler (inside the radiator). Place a container under the hose to collect the discharge.

⚠ CAUTION

The engine should be stopped within one minute after it is started. If all the transmission fluid has drained out before then, the engine should be stopped at that point.

2. Start the engine and let the transmission fluid drain out. (Running conditions: "N" range with engine idling)

   Approximately 3.5 dm^3 (3.7 quarts) of transmission fluid should be removed.



3. Remove the drain plug from the bottom of the transaxle case to drain the transmission fluid.

   Approximately 2.0 dm^3 (2.1 quarts) of transmission fluid should be removed.
4. Install the drain plug with a new gasket, and tighten it to the specified torque.

   Tightening torque: 7.4 ± 2.4 N·m (65 ± 21 in-lb)

⚠ CAUTION

Stop pouring if the full volume of transmission fluid cannot be added.

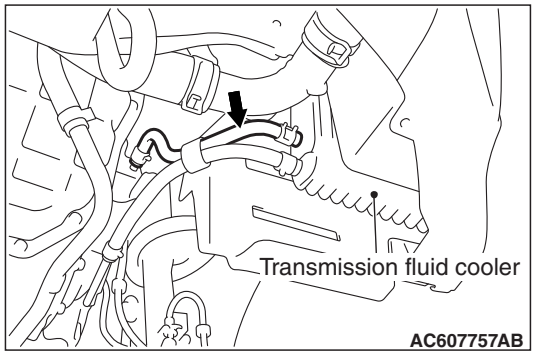
5. Add new transmission fluid (DIA QUEEN ATF- J3) through the oil filter tube.

   Approximately 5.5 dm^3 (5.8 quarts) of transmission fluid should be added.

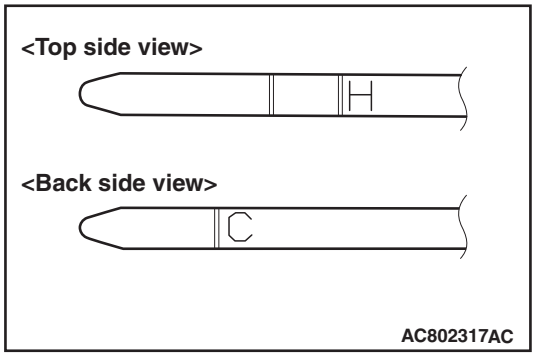
6. Repeat the procedure in Step 2. (to pump out the rest of the contaminated transmission fluid)
7. Add new transmission fluid (DIA QUEEN ATF- J3) through the oil filter tube.

   Approximately 3.5 dm^3 (3.7 quarts) of transmission fluid should be added.

   NOTE: Check for contamination or a burnt odor. If the transmission fluid is still contaminated or burnt, repeat Steps 6 and 7 before proceeding to Step 8.



8. Reconnect the hose which was disconnected in step 1 above, and firmly insert the dipstick.
9. Start the engine and run it at idle for one to two minutes.
10. Move the selector lever through all positions, and then move it to the "N" position.

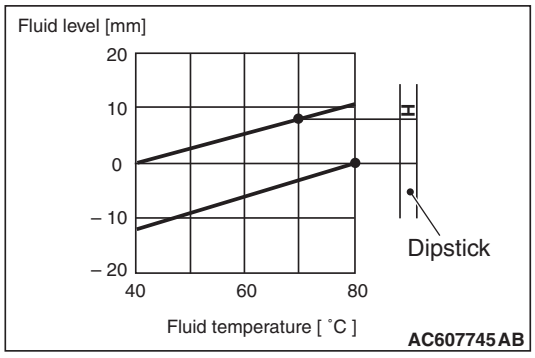


11. Check that the transmission fluid level is at the "C" mark on the dipstick. If the level is less than this, add transmission fluid.
12. Drive the vehicle until the transmission fluid temperature rises to the normal operating temperature [70 – 80°C (158 – 176°F)], and then check the transmission fluid level again. The transmission fluid level must be at the "H" mark.

    NOTE: The transmission fluid temperature is measured with scan tool MB991958 (M.U.T.-III sub assembly).

    NOTE: The "C" level is for reference only; the "H" level should be regarded as the standard level.

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

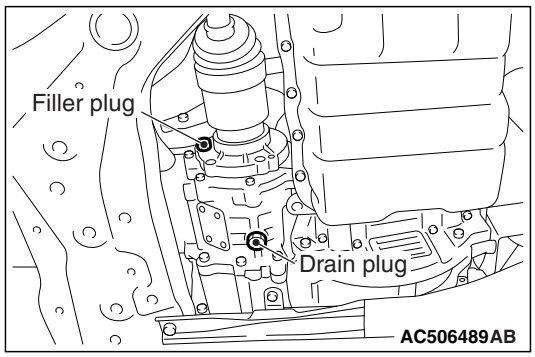


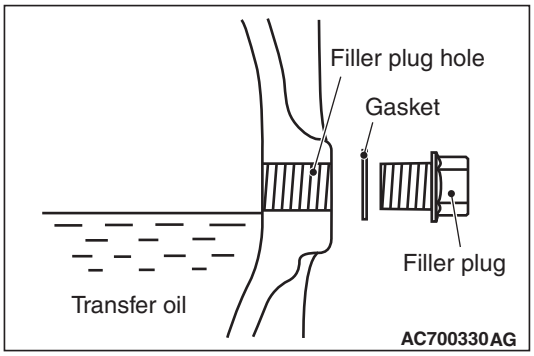
13. When the transmission fluid is less than the specified level, add transmission fluid.

    When the transmission fluid is greater than the specified level, drain the excess fluid through the drain plug to adjust the transmission fluid to the specified level.
14. Firmly insert the dipstick into the oil filler tube.

13. TRANSFER OIL (CHECK OIL LEVEL AND CONDITION/CHANGE)

M1001003000275



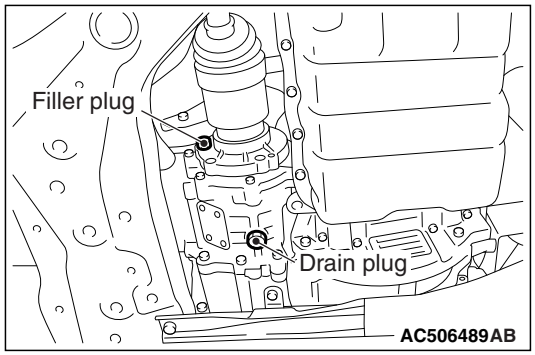


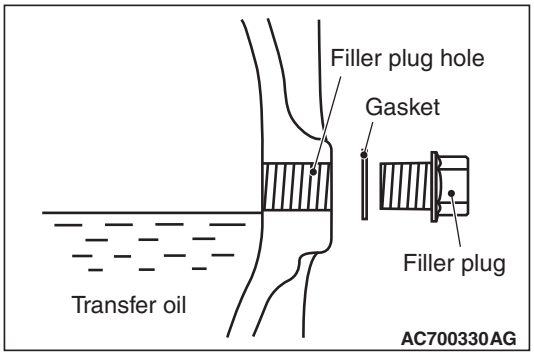
1. Remove the filler plug and gasket.
2. Check that the oil level is just below the lower edge of the filler plug hole.
3. Check that the oil is not excessively foul and has moderate viscosity.
4. Install the filler plug and new gasket, then tighten them to the specified torque.

   Tightening torque: 32 ± 2 N·m (24 ± 1 ft-lb)

CHANGE

<2.4L ENGINE>





1. Remove the drain plug and gasket, and gasket to drain the transfer oil.
2. Install the drain plug and new gasket, and new gasket, then tighten them to the specified torque.

   Tightening torque: 32 ± 2 N·m (24 ± 1 ft-lb)

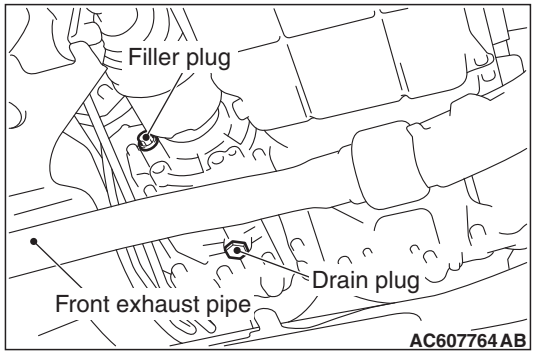
3. Remove the filler plug and gasket, then fill the oil up to the lower edge of the filler plug hole.

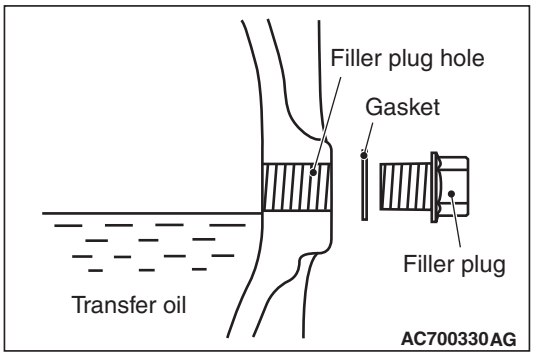
   Brand name: Hypoid gear oil API classification GL-5 SAE 90

   Filling amount: 0.54 dm^3 (0.57 qt)

4. Install the filler plug and new gasket, then tighten them to the specified torque.

   Tightening torque: 32 ± 2 N·m (24 ± 1 ft-lb)





<3.0L ENGINE>

1. Remove the drain plug and gasket, to drain the transfer oil.
2. Install the drain plug and new gasket, and tighten to the specified torque.

   Tightening torque: 32 ± 2 N·m (24 ± 1 ft-lb)
3. Remove the filler plug and gasket and fill the transfer oil up to the lower edge of the filler plug hole.

   Brand name: Hypoid gear oil API classification GL-5 SAE 90

   Filling amount: 0.53 dm^3 (0.56 quarts)
4. Install the filler plug and new gasket and tighten to the specified torque.

   Tightening torque: 32 ± 2 N·m (24 ± 1 ft-lb)

14. ENGINE COOLANT

M1001003100711

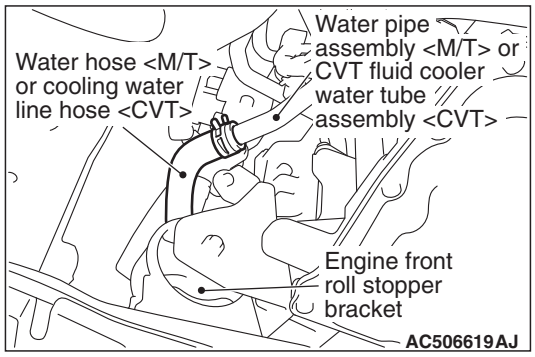
CHANGE

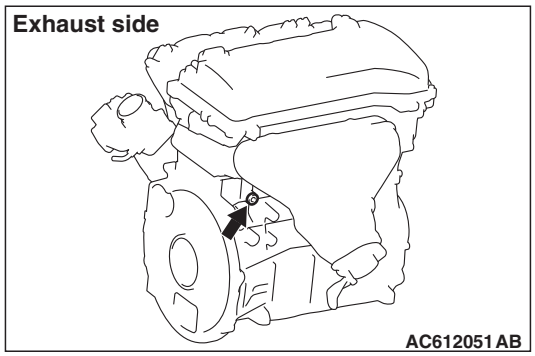
Check the cooling system parts such as the radiator, heater and oil cooler hoses, thermostat and their connections for leakage and damage.

⚠ WARNING

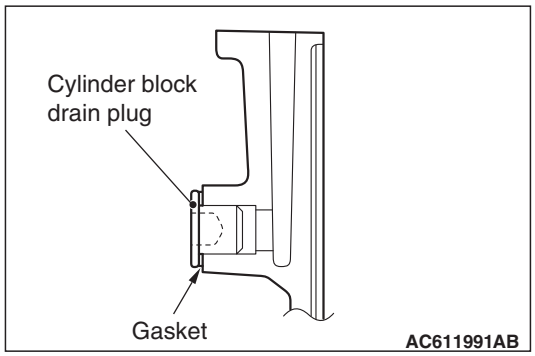
When removing the radiator cap, use care to avoid contact with hot engine coolant or steam. Place a shop towel over the radiator cap and turn the radiator cap counterclockwise a little to let the pressure escape through the vinyl tube. After relieving the steam pressure, remove the radiator cap by slowly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

1. Drain the engine coolant from the radiator, heater core and engine after unplugging the radiator drain plug and removing the radiator cap.
2. Disconnect the water hose <M/T> or cooling water line hose <CVT>, and drain the engine coolant in the water jacket.





3. Drain the water in the water jacket by unplugging the drain plug of the cylinder block.
4. Remove the radiator condenser tank and drain the engine coolant.
5. Connect the water hose <M/T> or cooling water line hose <CVT>.



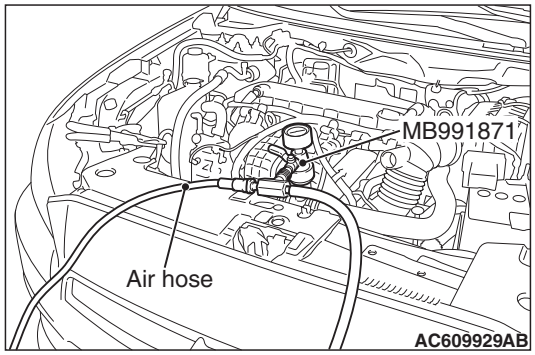
6. Replace the cylinder block drain plug gasket, and tighten the drain plug to the specified torque.

   Tightening torque: 39 ± 3 N·m (29 ± 2 ft-lb)

7. Securely tighten the radiator drain plug.
8. Reinstall the radiator condenser tank.

⚠ 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 corrosion of the aluminum components.



9. Use special tool MB991871 to refill the engine coolant up to the top of the radiator port.

   Recommended antifreeze: DIA QUEEN SUPER LONG LIFE COOLANT PREMIUM or equivalent*

   ***: similar high quality ethylene glycol based non-silicate, non-amine, non-nitrate and non-borate coolant with long life hybrid organic acid technology**

   Quantity: 7.5 dm^3 (7.9 quarts)

   [includes 0.65 dm^3 (0.69 quarts) in the radiator condenser tank]

   NOTE: For how to use special tool MB991871, refer to its manufacturer's instructions.

10. Tighten the radiator cap securely.
11. Remove the radiator condenser tank cap, and add the engine coolant up to the "FULL" line.
12. Turn the A/C switch to OFF position to start the engine and warm up until the radiator fan operates.

    NOTE: This work is to open the thermostat fully.

13. Rev the engine several times and then stop it. Check that there are no engine coolant leaks.
14. Remove the radiator cap with the engine cool, and then refill the engine coolant up to the top of the radiator port.
15. Tighten the radiator cap securely.

⚠ CAUTION

Do not overfill the radiator condenser tank.

16. Remove the radiator condenser tank cap, and add the engine coolant up to the "FULL" line.

15. COOLANT HOSES (RADIATOR HOSE, HEATER HOSE) (INSPECT)

M1001009700186

Inspect the surface of radiator hoses and heater hoses for heat and mechanical damage. Hard and brittle rubber, cracking, tears, cuts, abrasions and excessive swelling indicate deterioration of the rubber.

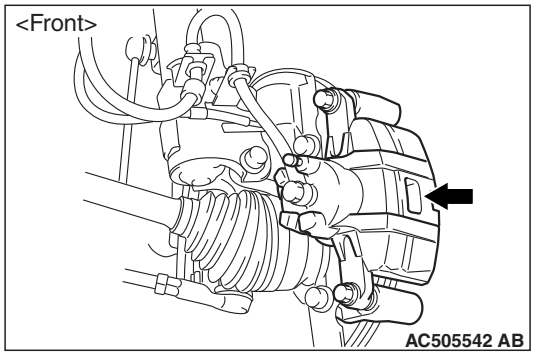
16. DISK BRAKE PADS, ROTORS (INSPECT FOR WEAR)

M1001003200611

BRAKE PAD CHECK

⚠ CAUTION

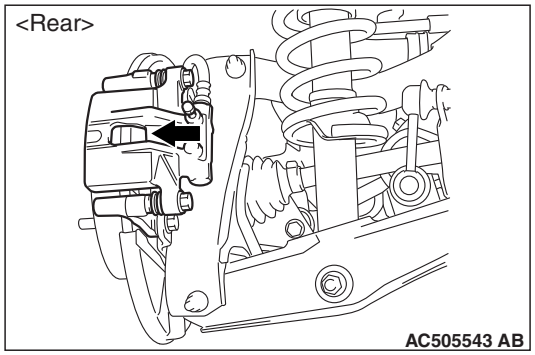
If there is a significant difference in thickness between the brake pads at right and left, check the sliding area and the runout of the brake disk (Refer to P.35A-24).



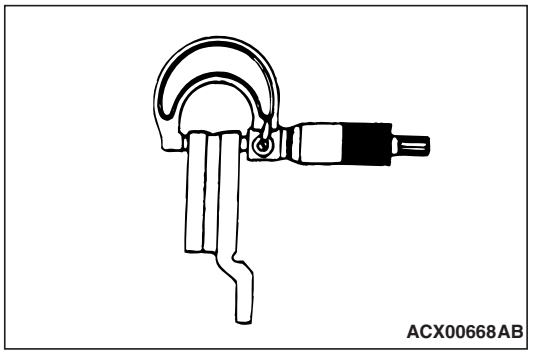
1. Visually check the thickness of brake pad from the inspection hole of the caliper body.

   Standard value: 10.0 mm (0.39 inch)
   Limit: 2.0 mm (0.08 inch)

2. If the brake pad thickness is less than the limit value, replace the brake pad (Refer to P.35A-21).



BRAKE DISK THICKNESS CHECK

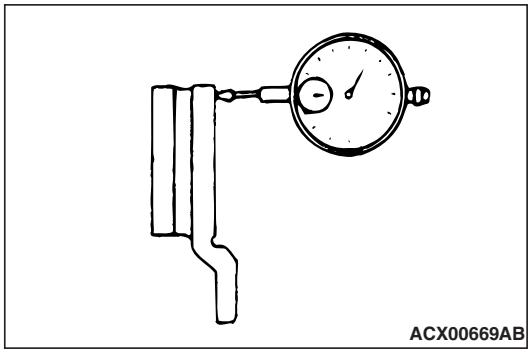


1. Using a micrometer, measure disk thickness at eight positions, approximately 45 degrees apart and 10 mm (0.4 inch) in from the outer edge of the disk.

   Standard value:
   26.0 mm (1.02 inch) <Front>
   10.0 mm (0.39 inch) <Rear>
   Limit:
   24.4 mm (0.96 inch) <Front>
   8.4 mm (0.33 inch) <Rear>

   NOTE: Thickness variation (at least 8 positions) should not be more than 0.015 mm (0.0006 inch).

FRONT BRAKE DISK RUN-OUT CHECK AND CORRECTION


ACX00669AB

Place a dial gauge approximately 5 mm (0.2 inch) from the outer circumference of the brake disk, and measure the run-out of the disk.

Limit:
0.06 mm (0.0024 inch) <Front>
0.08 mm (0.0032 inch) <Rear>

17. BRAKE HOSES (CHECK FOR DETERIORATION OR LEAKS)

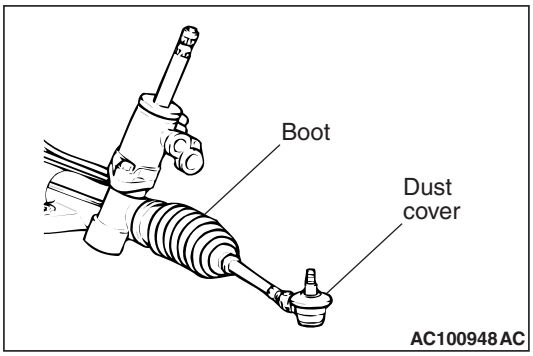
M1001003400499

Inspection of brake hoses should be included in all brake service operations.
The hoses should be checked for:

1. Incorrect 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, twisting or interference with wheel, tire or chassis.

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

M1001003500504

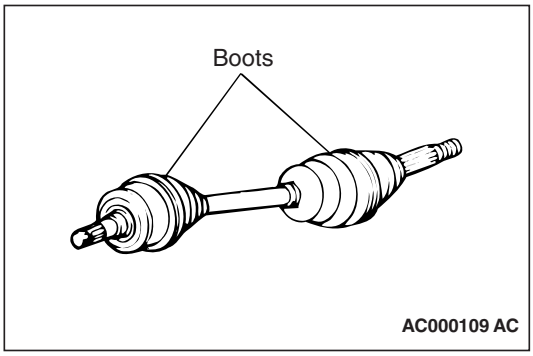


AC100948AC

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

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

M1001003600501



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 grease contamination.
2. Inspect the boots for proper sealing, leakage and damage. Replace them if defective.

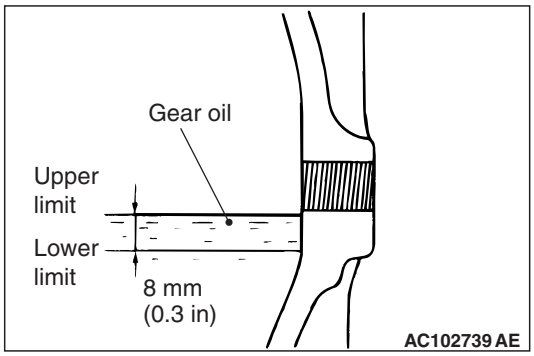
20. SUSPENSION SYSTEM (INSPECT FOR LOOSENESS AND DAMAGE)

M1001009600220

Visually inspect the front/rear suspension components for deterioration and damage. Re-tighten the front/rear suspension components retaining bolts to specified torque.

21. REAR AXLE OIL (CHECK OIL LEVEL)

M1001007500175

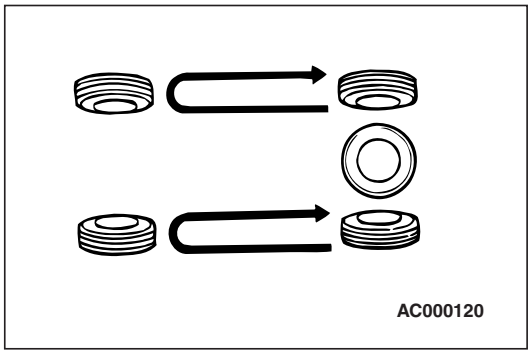


1. Remove the filler plug.
2. Check that gear oil level is not 8 mm (0.3 inch) below the bottom of filler plug hole.
3. Tighten the filler plug to the specified torque.

   Tightening torque: 32 ± 2 N·m (23 ± 2 ft-lb)

22. TIRES (ROTATE)

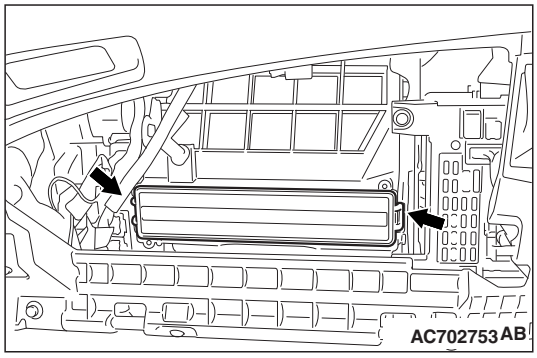
M1001008900530



Rotate tires regularly to equalize tire wear and help extend tire life. Recommended tire rotation is every 12,000 km (7,500 miles).
Timing for the rotation may vary according to vehicle condition, road surface conditions, and individual driver's habits.
When rotating tires, check for uneven wear, damage, and wheel alignment. Abnormal wear is usually caused by incorrect tire pressure, improper wheel alignment, out-of balance wheels, or severe braking.
The first rotation is the most important, to achieve more uniform wear for all tires on the vehicle.

23. AIR FILTER (REPLACE)

M1001009000154



1. Remove the glove box (Refer to GROUP 52A – Instrumental Panel, P.52A-2).
2. Loosen the two lugs as shown to replace the clean air filter.
3. Install the glove box.

MAIN SEALANT AND ADHESIVE TABLE

M1001003800635

Application		3M™/three bond No.	Loctite®/ permatex®No.
ENGINE AND DRIVETRAIN	Between rocker cover, cylinder head and timing chain case. Between cylinder head gasket. Between timing chain case.	ThreeBond 1227D, ThreeBond 1217G (Mitsubishi Genuine Part No.1000A923), LOCTITE 5900	-
	Between oil pan	ThreeBond 1227D, ThreeBond 1217G (Mitsubishi Genuine Part No.1000A923), ThreeBond 1207F (Mitsubishi Genuine Part No.1000A992), LOCTITE 5970, LOCTITE 5900t	Loctite®5971, Loctite®5900, Loctite®5970
	Between engine oil pressure switch	Three bond 1215, Three bond 1212D	-
	Between engine coolant temperature switch	Three bond 1324	Loctite®262
WEATHERSTRIPPING FOR GLASS	Between tempered glass, body flanges, and weatherstrip	3M™ AAD Part No. 08509 Auto Bedding and Glazing Compound or 3M™ AAD Part No. 08633 Windo-weld Resealant	-
WEATHERSTRIPPING FOR GLASS	Between laminated glass and weatherstrip	3M™ AAD Part No. 08633	-

Application		3M™/three bond No.	Loctite®/ permatex®No.
INTERIORS	Adhesive of vinyl chloride cloth	3M™ AAD Part No. 08088 General Trim Adhesive or 3M™ AAD Part No. 08064 Vinyl Trim Adhesive	Permatex® Vinyl Repair Kit No.81786
	Adhesion of door weatherstrip	3M™ AAD Part No. 08001 (yellow) or 3M™ AAD Part No. 08008 (black) Super Weatherstrip Adhesive or 3M™ AAD Part No. 08011 Black Weatherstrip Adhesive	Permatex® Super Black Weatherstrip Adhesive No.82, 81850
	Sealing of various grommets and packing	3M™ AAD Part No. 08509 or 3M™ AAD Part No. 8678	-
	Adhesion of headliners and various interior decorative materials	3M™ AAD Part No. 08088 General Trim Adhesive or 3M™ AAD Part No. 08090 Super Trim Adhesive	Permatex® Spray Adhesive No.82019
BODY SEALANTS	Sealing of sheet metal joints, drip rail, floor, side panels, trunk, front panel, tail gate hinge	3M™ AAD Part No. 08531 Heavy Drip-Check Sealer (gray) or 3M™ AAD Part No. 08302 Ultrapro Autobody Sealant (clear) or 3M™ AAD Part No. 08361 Urethane A/B Sealant (gray or white)	-
	Miscellaneous body sealants (original mounted w/adhesive tape) • Waterproof door film • Fender panel • Splash shield • Mud guard • Rear combination light	3M™ AAD Part No. 08633 Windo-weld Resealant	-
	Fuel Tank and Pad	3M™ AAD Part No. 08088 General Trim Adhesive or 3M™ AAD Part No. 08090 Super Trim Adhesive	Permatex® Spray Adhesive No.82019

Application		3M™/three bond No.	Loctite®/ permatex®No.
CHASSIS SEALANT	Sealant of various flange faces and threaded parts. Packing of fuel gauge unit	3M™ AAD Part No. 08730 High Strength Red Threadlock or 3M™ AAD Part No. 08731 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. 08672 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. 08661 or 3M™ AAD Part No. 08663 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. 08633 Windo-weld Resealant	-
QUICK FIX ADHESIVE	-	3M™ AAD Part No. 08155 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. 08730 High Strength Threadlocker or 3M™ AAD Part No. 08731 Medium Strength Threadlocker	Loctite®271, High-Strength Threadlocker 27100 or 27200
UNDER COATING AGENT	-	3M™ AAD Part No. 08883 Rubberized Undercoating Aerosol or 3M™ AAD Part No. 08864 Body Schutz Undercoating (qt)	Permatex® Heavy-Duty Undercoating 81833