HOW TO USE THIS MANUAL

M1001000100295

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

"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 setting up on inspection is correct.

LIMIT

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

REFERENCE VALUE

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

DANGER, WARNING, AND CAUTION

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

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

TIGHTENING TORQUE INDICATION

The tightening torque indicates a median and its tolerance by a unit of N·m (in-lb) or N·m (ft-lb). For fasteners with no assigned torque value, refer to P.00-33.

SPECIAL TOOL NOTE

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

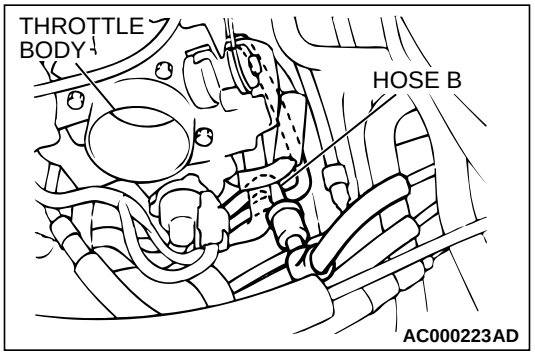
ABBREVIATIONS

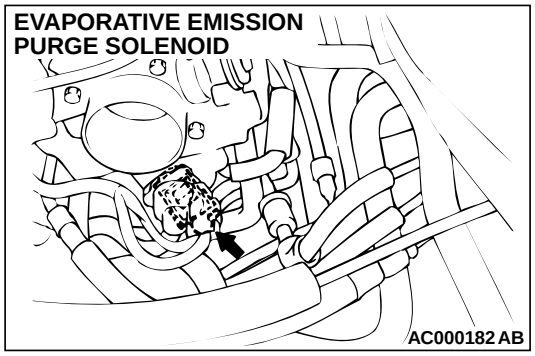
The following abbreviations are used in this manual for classification of model types.

M/T:Indicates manual transaxle, or models equipped with manual transaxle.
A/T: Indicates automatic transaxle, or models equipped with automatic transaxle.
MFI: Indicates multiport fuel injection, or engines equipped with multiport fuel injection.
A/C: Indicates air conditioning.
2.4L Engine: Indicates the 2.4 liter <4G64> engine, or a model equipped with such an engine.
3.0L Engine: Indicates the 3.0 liter <6G72> engine, or a model equipped with such an engine.
PCM: Powertrain control module
ECM: Engine control module
SWS: Simplified Wiring System

STEP 2. Check evaporative emission purge solenoid for leaks.

(1) Remove the battery.
(2) Remove the air intake hose. (Refer to GROUP 15, Air Cleaner P.15-6.)
(3) Disconnect hose B from the evaporative emission purge solenoid side, and connect a hand vacuum pump to the nipple of the evaporative emission purge solenoid.
(4) Apply a pressure on the hand vacuum pump, and confirm that air is maintained.
(5) Disconnect the hand vacuum pump, and connect hose B to the evaporative emission purge solenoid.



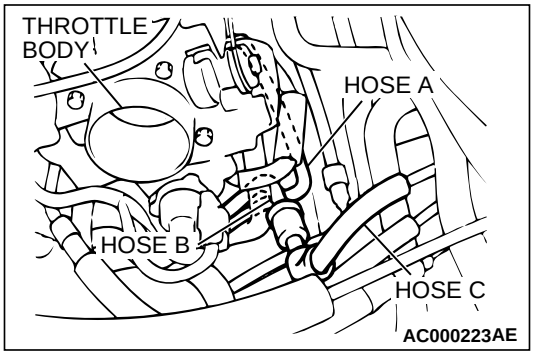


Q: Is the evaporative emission purge solenoid in good condition?

YES : Go to Step 3.
NO : Replace the evaporative emission purge solenoid. Then go to Step 18.

STEP 3. Check for leaks in the evaporator line hose A to hose C.

The leakage test with a hand vacuum pump on each hose from hose A to hose C.

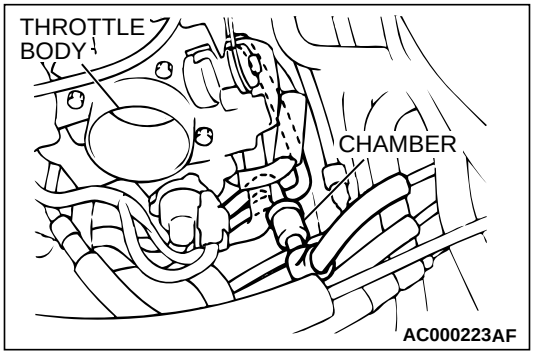


Q: Are the hoses in good condition?

YES : Go to Step 4.
NO : Replace the inferior hose. Then go to Step 18.

STEP 4. Check for leaks in the chamber.

(1) Connect a hand vacuum pump to the nipple.
(2) Plug the other nipple.
(3) Apply vacuum with the hand vacuum pump, and confirm that the applied vacuum does not fluctuate.



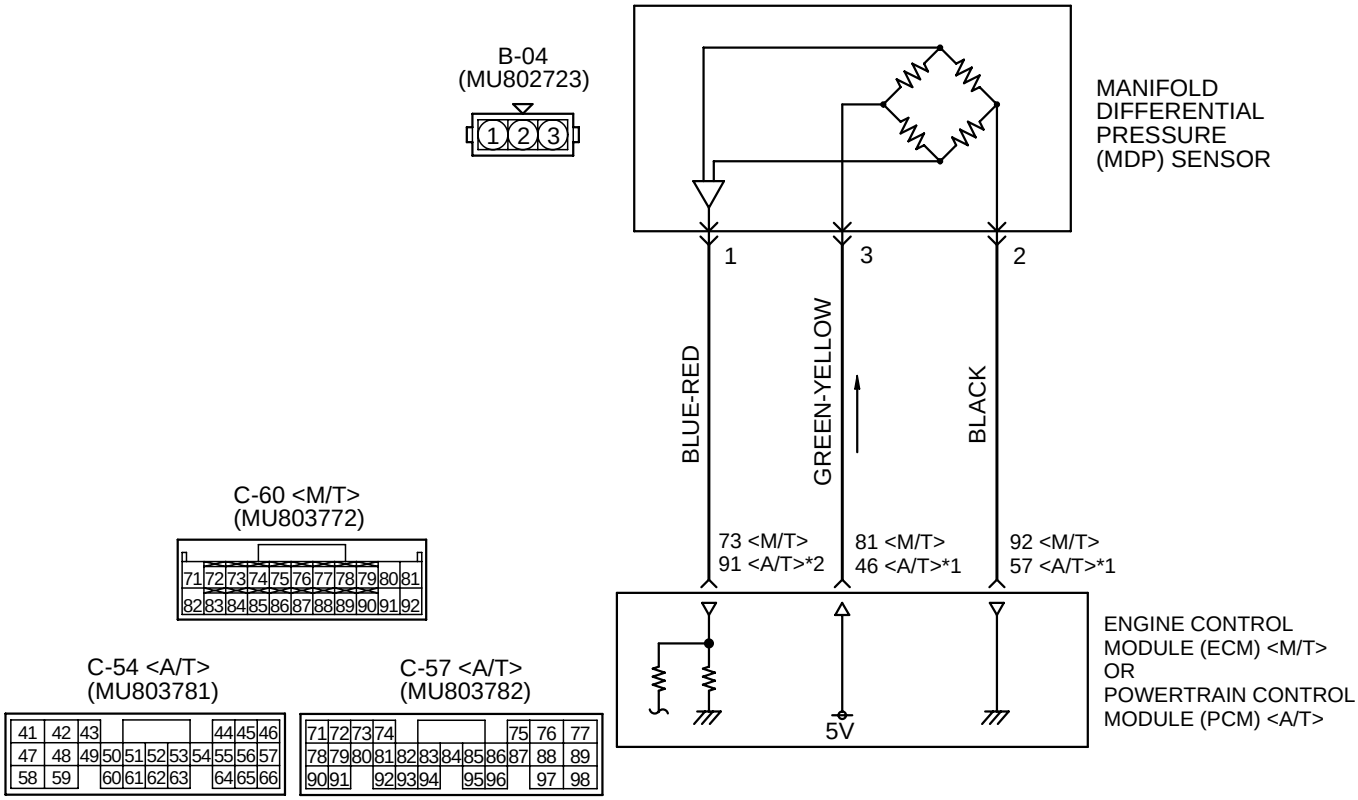
Q: Is the chamber in good condition?

YES : Go to Step 5.
NO : Replace the chamber. Then go to Step 18.

TSB Revision

DTC P1400: Manifold Differential Pressure Sensor Circuit Malfunction

Manifold Differenntial Pressure Sensor Circuit



NOTE
*1:PCM connector C-54 <A/T>
*2:PCM connector C-57 <A/T>

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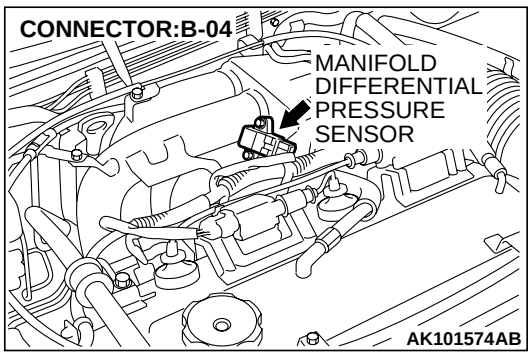

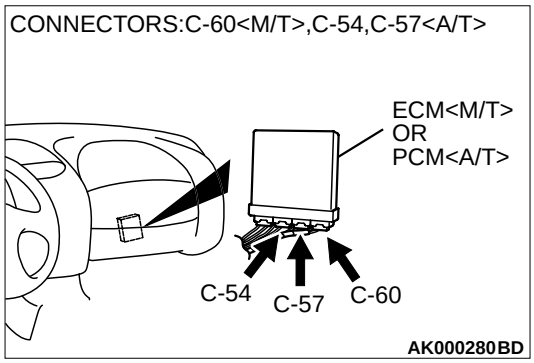

CIRCUIT OPERATION

- A 5-volt voltage is applied on the manifold differential pressure sensor power terminal (terminal 3) from the ECM (terminal 81) <M/T> or PCM (terminal 46) <A/T>. The ground terminal (terminal 2) is grounded with the ECM (terminal 92) <M/T> or PCM (terminal 57) <A/T>.
- A voltage proportional to the pressure in the intake manifold plenum is sent from the manifold differential pressure sensor output terminal (terminal 1) to the ECM (terminal 73) <M/T> or PCM (terminal 91) <A/T>.

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MUT-II SCAN TOOL DISPLAY	ITEM NO.	INSPECTION ITEM	DRIVE CONTENTS	INSPECTION REQUIREMENT		NORMAL CONDITION	INSPECTION PROCEDURE NO.	REFERENCE PAGE
FUEL PUMP	07	Fuel pump	Fuel pump operates and fuel is recirculated	• Engine: cranking • Fuel pump: activated Inspect according to both the above conditions	Pinch the return hose with fingers to feel the pulse of the fuel being recirculated	Pulse is felt	Procedure No. 30	P.13A-515
					Listen near the fuel tank for the sound of fuel pump operation	Sound of operation is heard		
NO. 1 INJECTOR	01	Injectors	Cut fuel to No. 1 injector	Engine: warm, idle (cut the fuel supply to each injector in turn and check cylinders which don't affect idling.)		Idling condition becomes different (becomes unstable)	Code No. P0201, P0202, P0203, P0204	P.13A-216
NO. 2 INJECTOR	02		Cut fuel to No. 2 injector					
NO. 3 INJECTOR	03		Cut fuel to No. 3 injector					
NO. 4 INJECTOR	04		Cut fuel to No. 4 injector					
RADIAT. FAN LO	21	Fan controller	Drive the fan motor	Ignition switch: "ON"		Radiator fan and condenser fan rotate at high speed	Procedure No. 28	P.13A-501

*NOTE: *: Continues for 27 minutes. Can be released by pressing the CLEAR key.*

CHECK AT THE ENGINE CONTROL MODULE (ECU) <M/T> OR POWERTRAIN CONTROL MODULE (PCM) <A/T>

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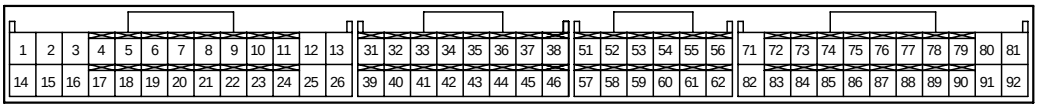
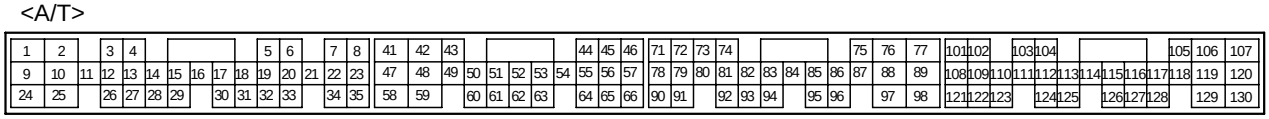
TERMINAL VOLTAGE CHECK CHART

ECM <M/T> or PCM <A/T> Connector Terminal Arrangement

<M/T>



<A/T>



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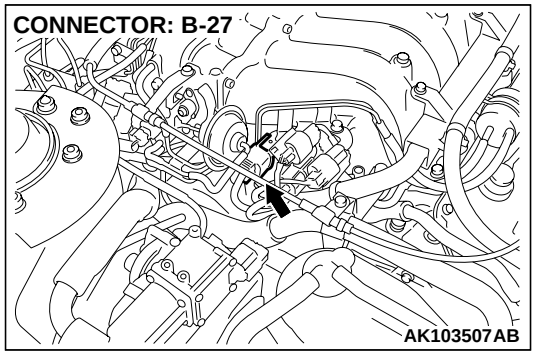
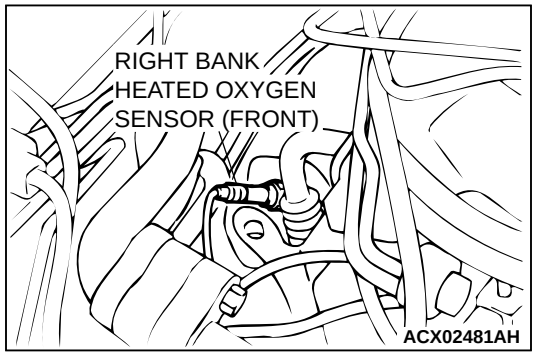


STEP 1. Check connector B-27at the right bank heated oxygen sensor (front) for damage.

Q: Is the connector in good condition?

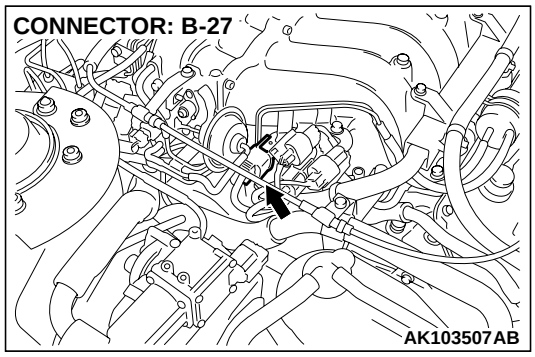
YES : Go to Step 2.

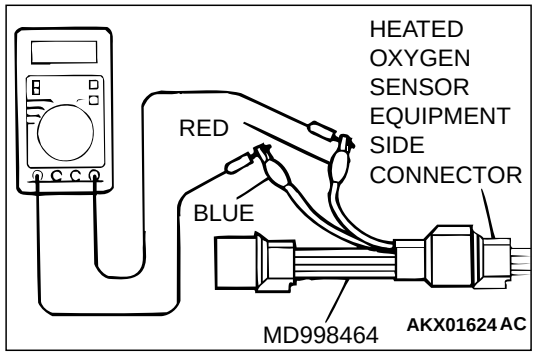
NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Then go to Step 12.



STEP 2. Check the right bank heated oxygen sensor (front).

(1) Disconnect right bank heated oxygen sensor (front) connector B-27 and connect test harness special tool, MD998464, to the connector on the right bank heated oxygen (front) sensor side.





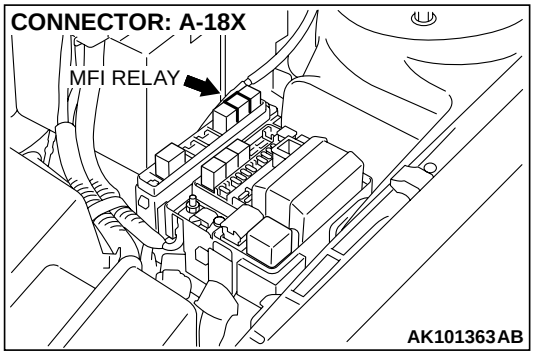
(2) Measure the resistance between heated oxygen sensor connector terminal 1 (red clip) and terminal 3 (blue clip).

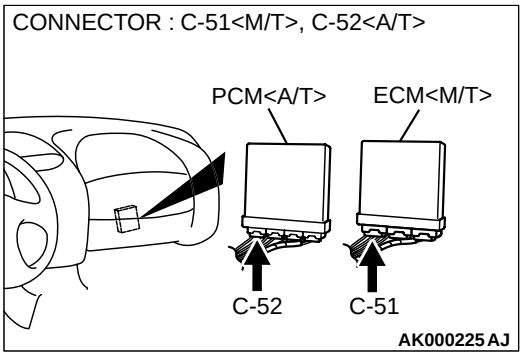
Standard value: 4.5 – 8.0 ohm [at 20°C (68°F)]

Q: Is the resistance normal?

YES : Go to Step 3.

NO : Replace the right bank heated oxygen sensor (front). Then go to Step 12.





CIRCUIT OPERATION

- Power is supplied from the MFI relay (terminal 4) to the left bank heated oxygen sensor (front) heater.
- The ECM (terminal 3) <M/T> or PCM (terminal 3) <A/T> controls continuity to the left bank heated oxygen sensor (front) heater by turning the power transistor in the ECM <M/T> or PCM <A/T> "ON" and "OFF".

TECHNICAL DESCRIPTION

- The ECM <M/T> or PCM <A/T> checks whether the heater current is within a specified range when the heater is energized.

DTC SET CONDITIONS

Check Conditions

- 60 seconds have elapsed from the start of the previous monitoring.
- Engine coolant temperature is higher than 20°C (68°F).
- While the left bank heated oxygen sensor (front) heater is on.
- Battery positive voltage is at between 11 and 16 volts.

Judgment Criteria

- Heater current of the left bank heated oxygen sensor (front) heater has continued to be lower than 0.16 ampere or higher than 7.5 ampere for 4 seconds.

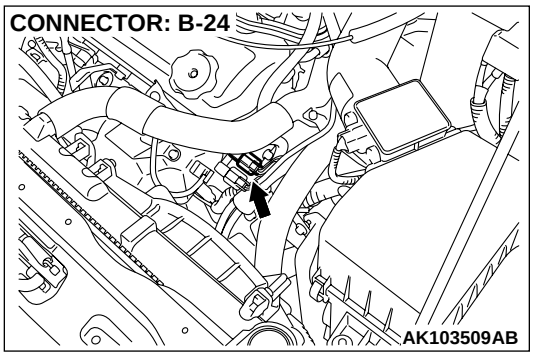
TROUBLESHOOTING HINTS (The most likely causes for this code to be set are:)

- Open or shorted left bank heated oxygen sensor (front) heater circuit.
- Open circuit in left bank heated oxygen sensor (front) heater.
- ECM failed. <M/T>
- PCM failed. <A/T>

DIAGNOSIS

Required Special Tool:

- MB998464: Test Harness Set



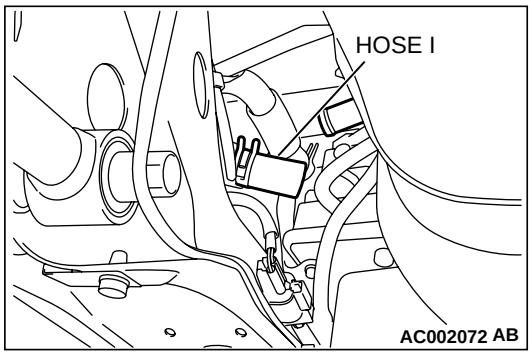
STEP 1. Check connector B-24 at the left bank heated oxygen sensor (front) for damage.

Q: Is the harness connector in good condition?

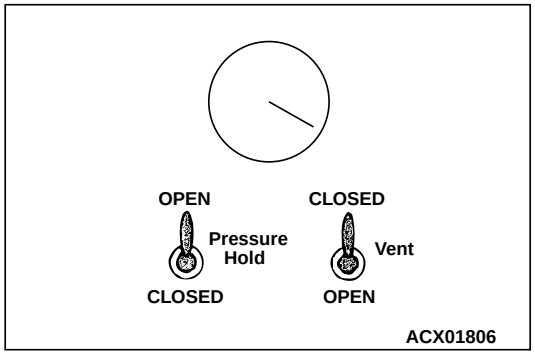
YES : Go to Step 2.

NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Then go to Step 12.

STEP16. Pressure test for clogging in the evaporator line from hose I to hose P.



(1) Disconnect hose I from the evaporative emission canister side, and unplug the hose I.



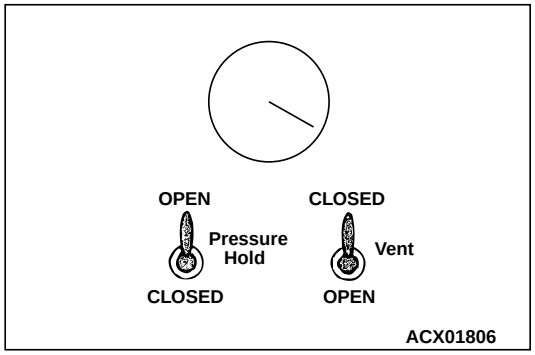
(2) On the EVAP pressure pump, set the pressure/hold valve to OPEN, and set the vent valve to CLOSED. Turn the pump timer to ON. You can reset the timer as required. (These settings are listed under "Leak Test" in the pump instructions.)
(3) Air should pass through hose G.

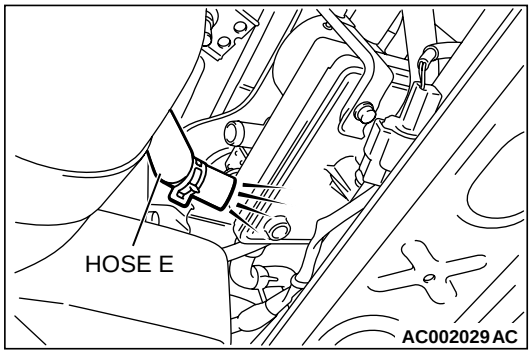
Q: Is air blown from hose I?

YES : Connect the hose I. Then go to Step 17.
NO : Go to Step 21.

STEP17. Pressure test for clogging in the evaporator line from hose F to hose H.

(1) Unplug hose G.
(2) On the EVAP pressure pump, set the pressure/hold valve to OPEN, and set the vent valve to CLOSED. Turn the pump timer to ON. You can reset the timer as required. (These settings are listed under "Leak Test" in the pump instructions.)





(3) Air should pass through hose G.

Q: Is air blown from hose G?

YES : Connect the hose G. Then go to Step 18.
NO : Go to Step 19.

DISASSEMBLY AND ASSEMBLY

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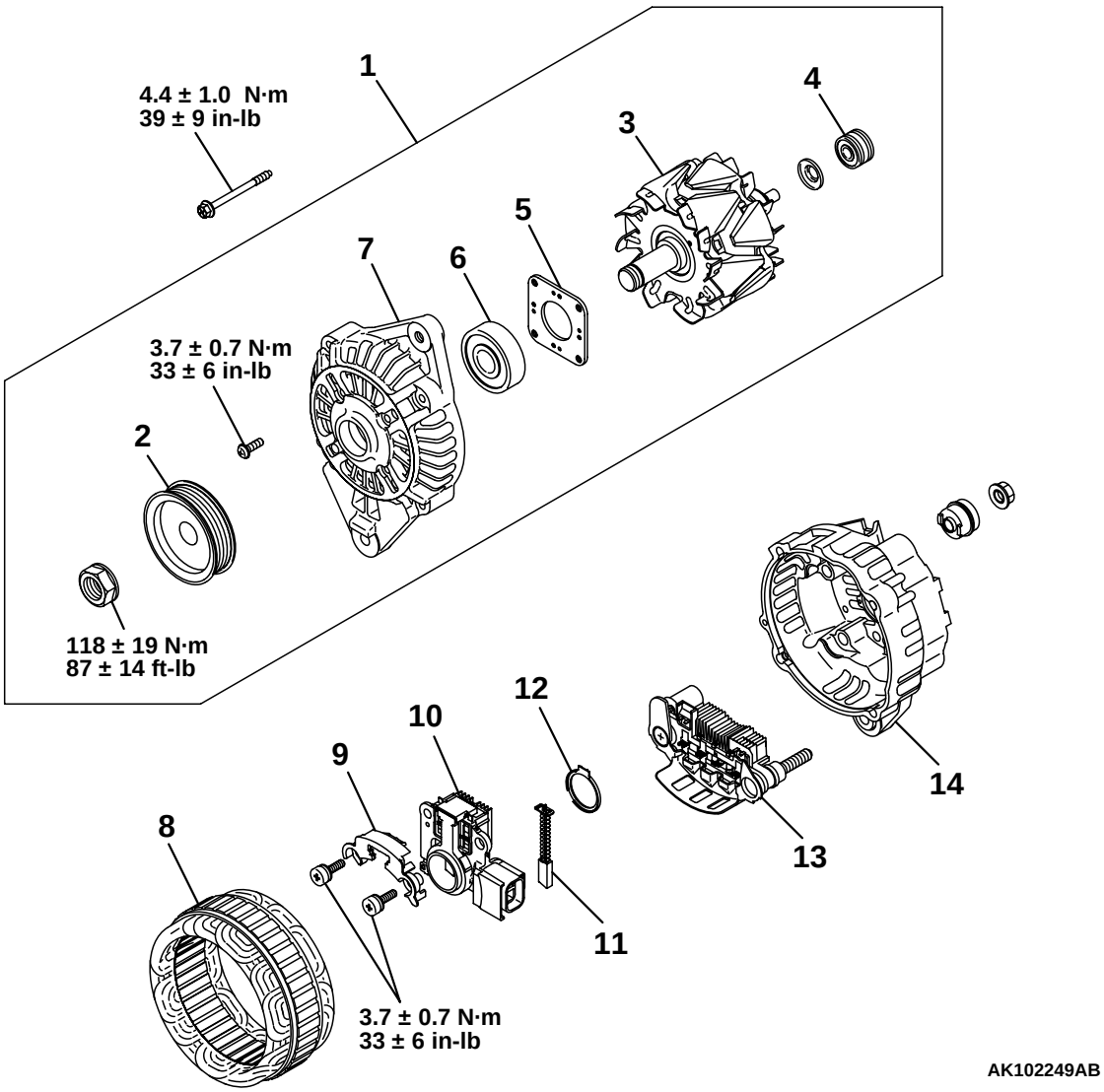
<2.4L ENGINE>



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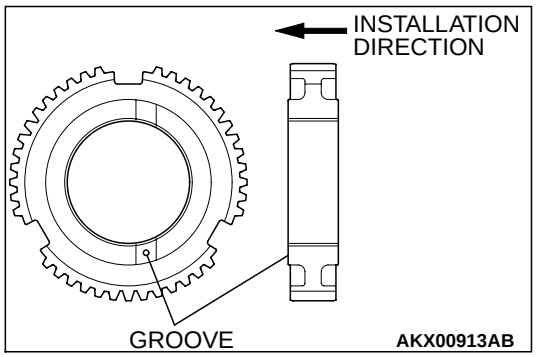
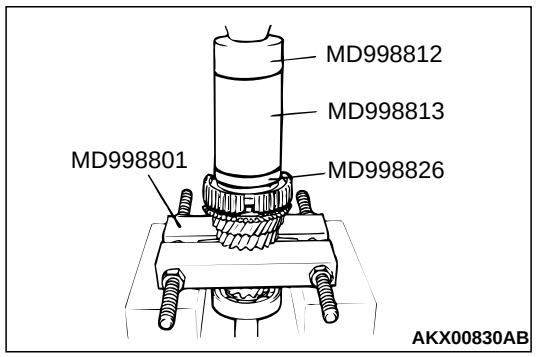
		DISASSEMBLY STEPS
<<A>>		1. FRONT BRACKET ASSEMBLY
<<B>>		2. GENERATOR PULLEY
	>>B<<	3. ROTOR ASSEMBLY
		4. REAR BEARING
		5. BEARING RETAINER
		6. FRONT BEARING
		7. FRONT BRACKET

		DISASSEMBLY STEPS
<<C>>		8. STATOR
		9. PLATE
	>>A<<	10. REGULATOR ASSEMBLY
		11. BRUSH
		12. SLINGER
		13. RECTIFIER
		14. REAR BRACKET



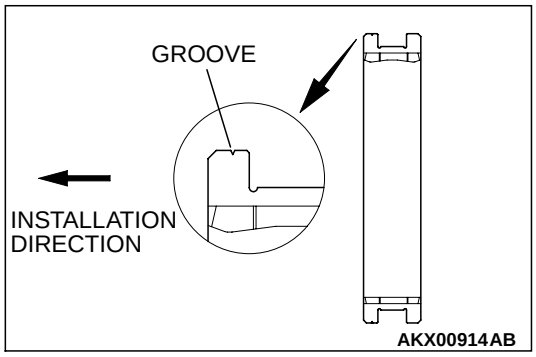
>>F<< 3RD-4TH SPEED SYNCHRONIZER HUB INSTALLATION

1. Using special tool MD998801, support the 2nd speed gear portion of the input shaft, and then set them on the press.
2. Make sure that the synchronizer ring <F5M42> or inner synchronizer ring <F5M51> has been perfectly matched to the 3rd speed gear cone.
3. Check the installation direction of the 3rd-4th speed synchronizer hub, and put it on the input shaft.
4. Using special tools MD998812, MD998813 and MD998825, press install the 3rd-4th speed synchronizer hub with the press.
5. Make sure that the synchronizer ring <F5M42> or outer synchronizer ring <F5M51> can rotate freely.

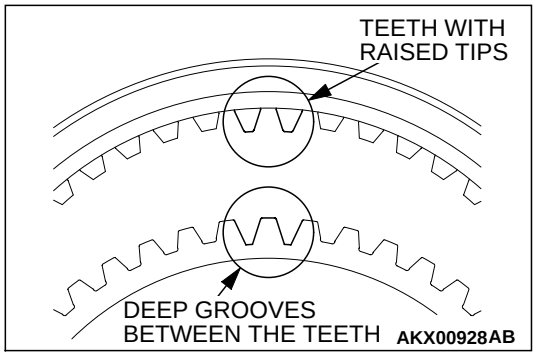


>>G<< SYNCHRONIZER SLEEVE INSTALLATION

1. Check the installation direction of the synchronizer sleeve, and install it onto the 3rd-4th speed synchronizer hub.

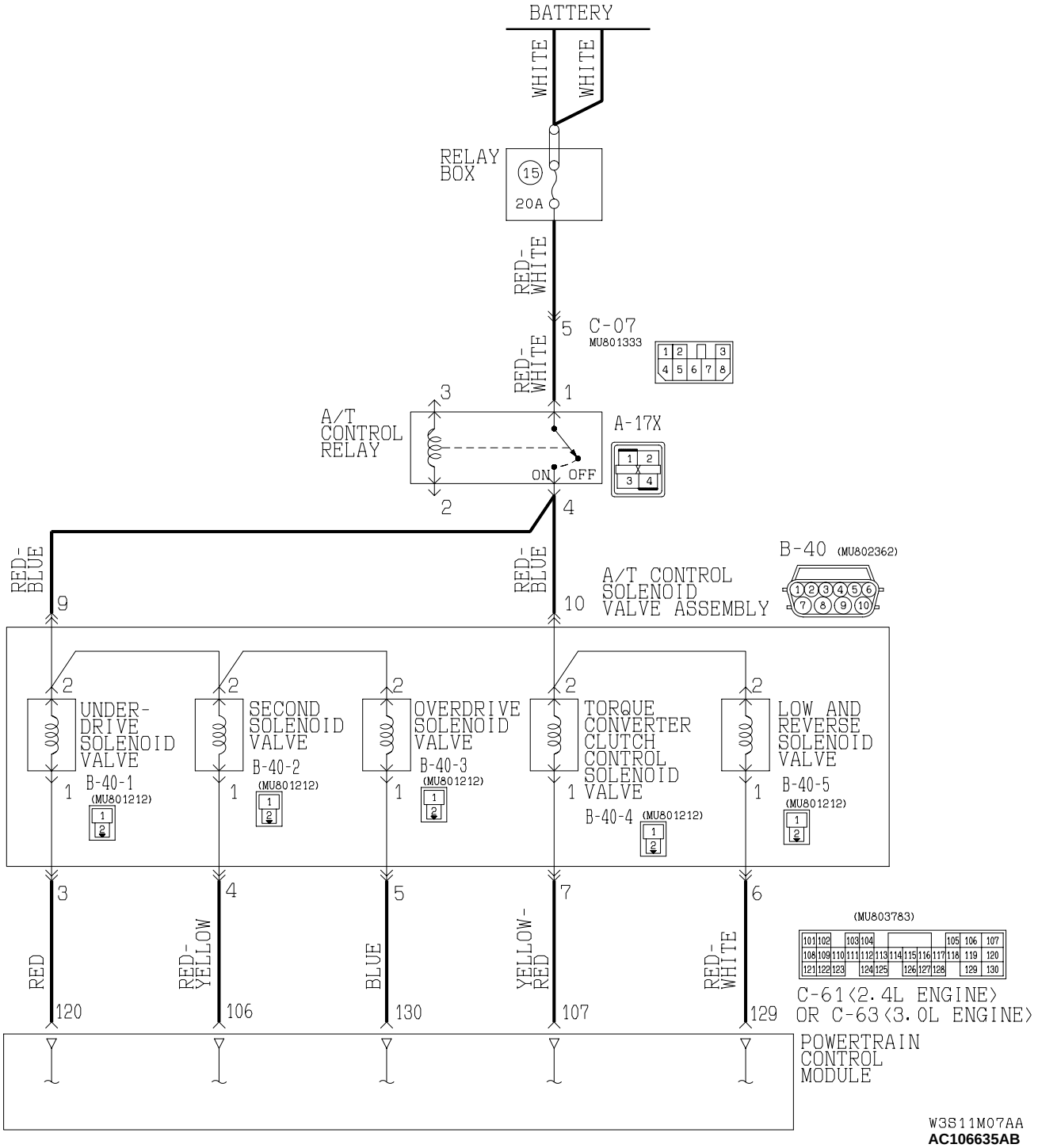


2. Install the synchronizer sleeve so that the areas with teeth that have raised tips (three areas total) are aligned with the areas on the synchronizer hub that have deep grooves between the teeth (three areas total).



DTC 31: Low-Reverse Solenoid Valve System

Solenoid Valve System Circuit



TRANSAXLE

DISASSEMBLY AND ASSEMBLY

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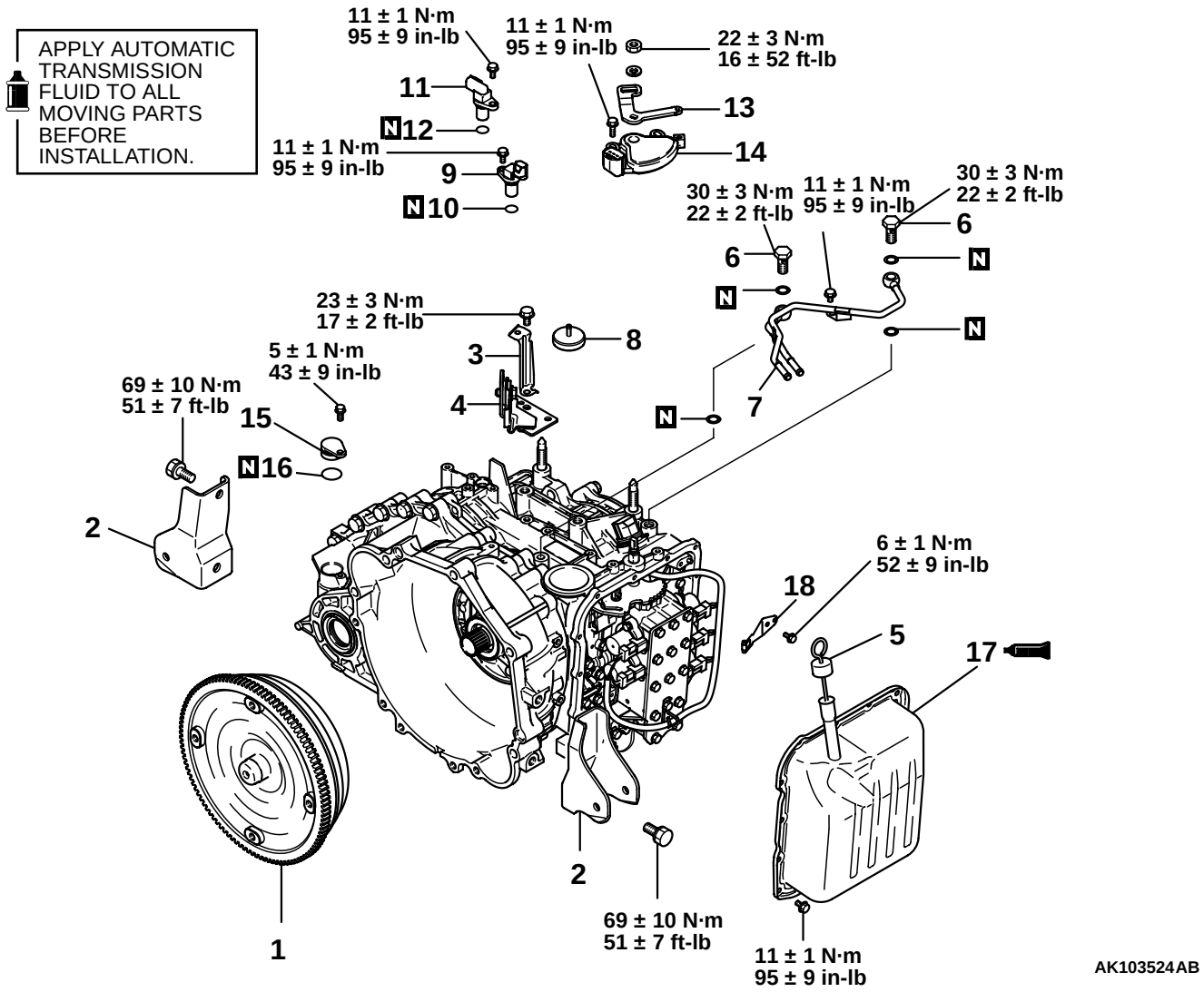
<F4A42>



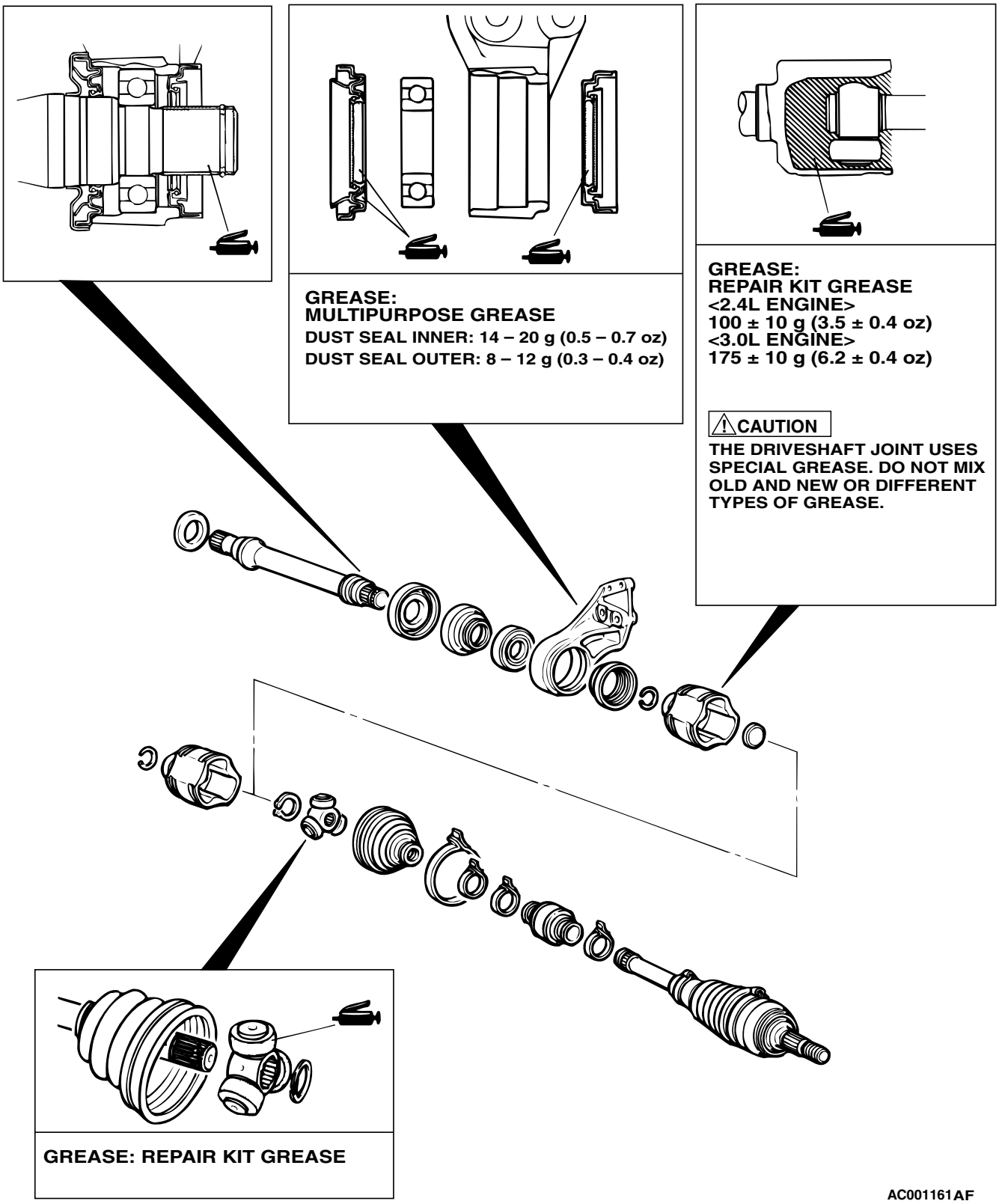
1. TORQUE CONVERTER
2. ROLL STOPPER BRACKET
3. HARNESS BRACKET
4. CONTROL CABLE SUPPORT BRACKET
5. OIL DIPSTICK
6. EYE BOLT
7. OIL COOLER FEED TUBE
8. AIR BREATHER
9. INPUT SHAFT SPEED SENSOR
10. O-RING
11. OUTPUT SHAFT SPEED SENSOR
12. O-RING
13. MANUAL CONTROL LEVER
14. PARK/NEUTRAL POSITION SWITCH
15. SEALING CAP
16. O-RING
17. VALVE BODY COVER
18. MANUAL CONTROL SHAFT DETENT

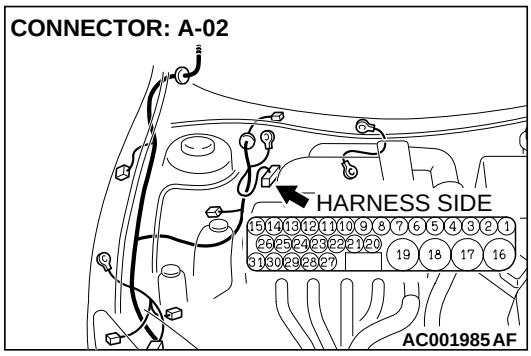
Required Special Tools:

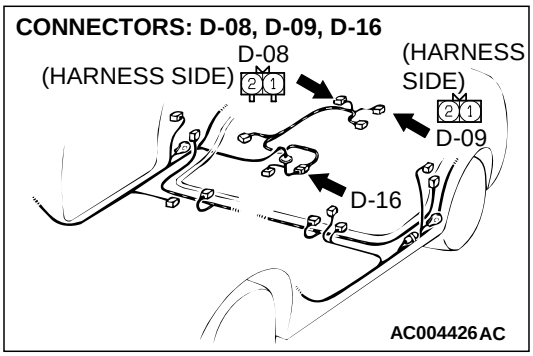
- MB990607: Torque Wrench Socket
- MB990930: Installer Adapter
- MB990931: Installer Adapter
- MB990935: Installer Adapter <F4A42>
- MB990936: Installer Adapter <F4A42>
- MB990938: Handle
- MB991625: Special Socket (41)
- MB991631: Clearance Dummy Plate <F4A42>
- MB991632: Clearance Dummy Plate <F4A51>
- MD998333: Oil Pump Remover
- MD998338: Spring Compressor <F4A51>
- MD998350: Bearing Installer

TSB Revision

LUBRICATION POINTS







Q: Is any of the harness wires between the ABS-ECU connector A-02 (terminals 1, 3, 8, and 9) and the wheel speed sensor connector D-08 <rear: RH> (terminals 1 and 2) or D-09 <rear: LH> (terminals 1 and 2) damaged?

YES : Repair it and then go to Step 8.
NO : Go to Step 5.

STEP 5. Check each wheel speed sensor output voltage.
Refer to P.35B-46.

Output Voltage:
- When measured with a voltmeter: 42 mV or more
- When measured with oscilloscope (maximum voltage): 200 mV or more

Q: Does the voltage meet the specification?

YES : Replace the hydraulic unit (integrated with ABS-ECU) and then go to Step 8.
NO : Go to Step 6.

STEP 6. Check the wheel speed sensors or ABS rotors.
Refer to P.35B-55. If there is a damage in any of the following check items, replace the wheel speed sensor or the ABS rotor.

Check items:
- Wheel speed sensor internal resistance

  Standard value: 1.28 – 1.92 kΩ
- Insulation between the wheel speed sensor body and the connector terminals
- Toothed ABS rotor

Q: Is any of the wheel speed sensors or ABS rotors damaged?

YES : Replace the faulty part and then go to Step 8.
NO : Go to Step 7.

QUARTER WINDOW GLASS AND REGULATOR ASSEMBLY

REMOVAL AND INSTALLATION

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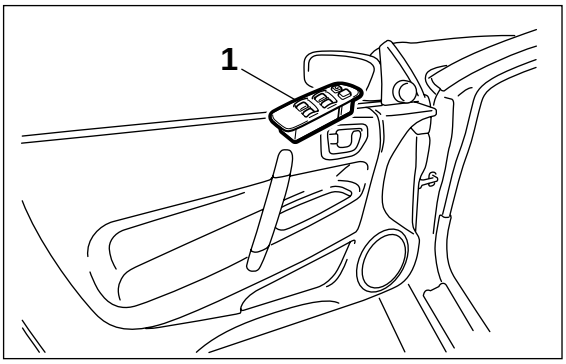
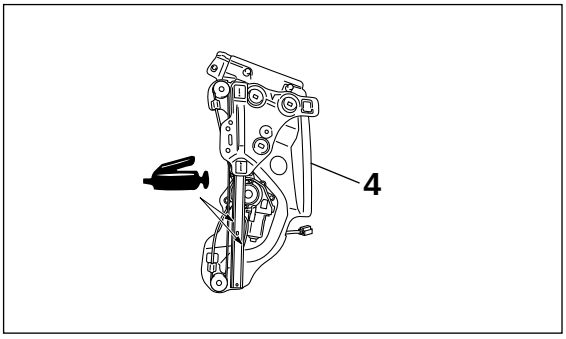
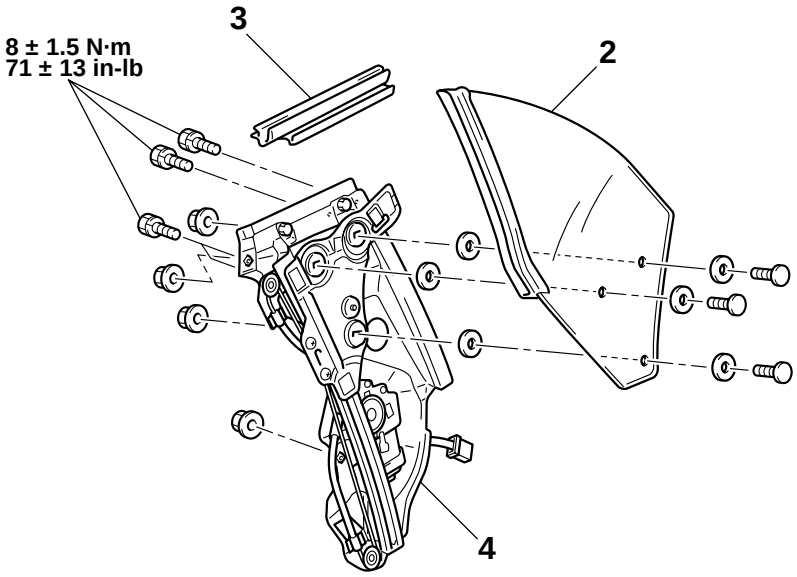
Post-installation Operation
- Quarter Window Glass Adjustment (Refer to P.42-37.)







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POWER WINDOW MAIN SWITCH
SWITCH REMOVAL STEPS
1. POWER WINDOW MAIN SWITCH (REFER TO P.42-53.)

QUARTER WINDOW GLASS
REMOVAL STEPS
- REAR SPEAKER GARNISH (REFER TO GROUP 52A P.52A-9.)
- QUARTER BELT MOLDING (REFER TO GROUP 51 P.51-11.)

<<A>> 2. QUARTER WINDOW GLASS

QUARTER WINDOW REGULATOR ASSEMBLY REMOVAL STEPS

<<A>> 2. QUARTER WINDOW GLASS
- QUARTER TRIM (REFER TO GROUP 52A P.52A-9.)
- REAR SPEAKER (REFER TO GROUP 54AP.54A-218 .)

3. QUARTER WINDOW INNER BELTLINE MOLDING

<<B>> 4. QUARTER WINDOW REGULATOR ASSEMBLY

REMOVAL SERVICE POINTS

<<A>> QUARTER WINDOW GLASS REMOVAL

1. Completely raise the quarter window.
2. Remove the quarter window

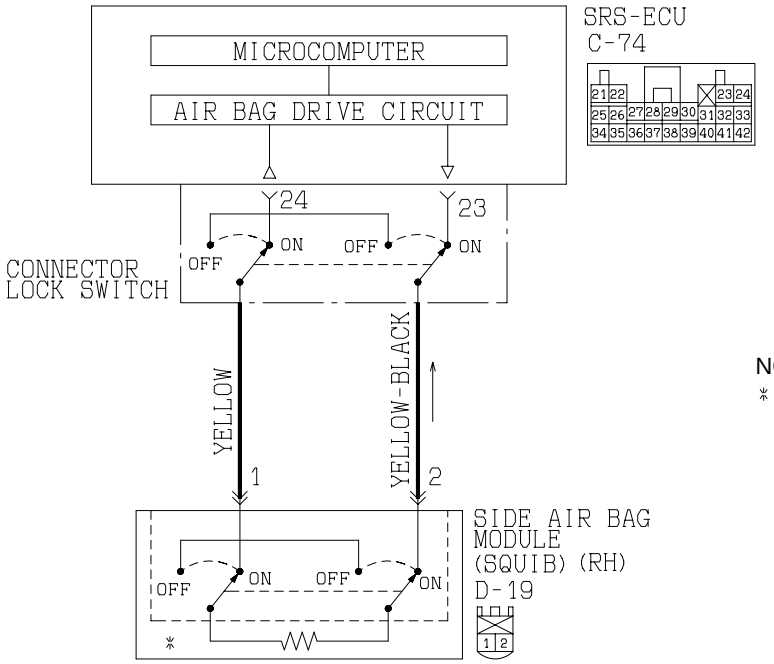
<<B>> QUARTER WINDOW REGULATOR ASSEMBLY REMOVAL

Disconnect regulator motor connector, remove the quarter window regulator assembly.

TSB Revision

DTC 75: Right Hand Side-Airbag Module (Squib) System Fault Power Supply Circuit (Short-Circuit to Power Supply)

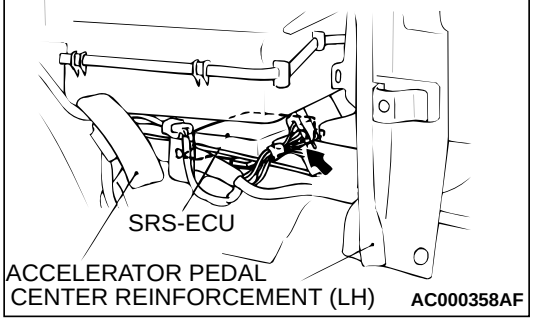
Side Air Bag Module (RH) (Squib) Circuit



NOTE
*: CONNECTOR LOCK SWITCH

W3S15M03AA
AC106624AB

CONNECTOR: C-74



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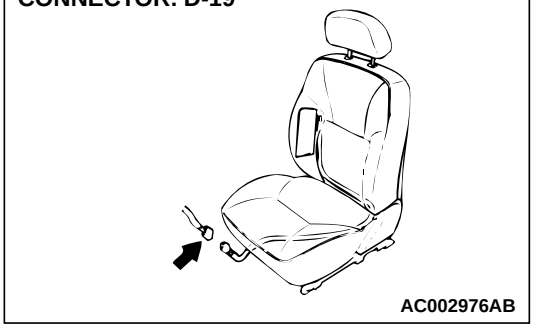
CONNECTOR: D-19



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CIRCUIT OPERATION

- The SRS-ECU judges how severe a collision is by detecting signals from the left and right side impact sensors. If the impact is over a predetermined level, the SRS-ECU outputs an ignition signal. At this time, if the side-airbag safing G-sensor is on, the SRS air bag will inflate.
- The ignition signal is input to the air bag module to inflate the air bag.

DTC SET CONDITIONS

- This DTC is set if there is abnormal resistance between the input terminals of the side-airbag module (RH) (squib).

TROUBLESHOOTING HINTS

- Damaged wiring harnesses or connectors
- Short to the power supply in the side-airbag module (RH) (squib) harness
- Malfunction of the SRS-ECU

TSB Revision