

GROUP 52B

SUPPLEMENTAL RESTRAINT SYSTEM (SRS)

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⚠ WARNING

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

⚠ WARNING

- *Carefully read and observe the information in the SRS SERVICE PRECAUTIONS prior to any service.*
- *For information concerning diagnosis or maintenance, always observe the procedures in the SRS Diagnosis or the SRS Maintenance sections, respectively.*
- *If any SRS components are removed or replaced in connection with any service procedures, be sure to follow the procedures in the INDIVIDUAL COMPONENT SERVICE section for the compartments involved.*
- *If you have any questions about the SRS, please contact the MMSA Tech Line.*

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GENERAL DESCRIPTION

M1524000100235

INTRODUCTION

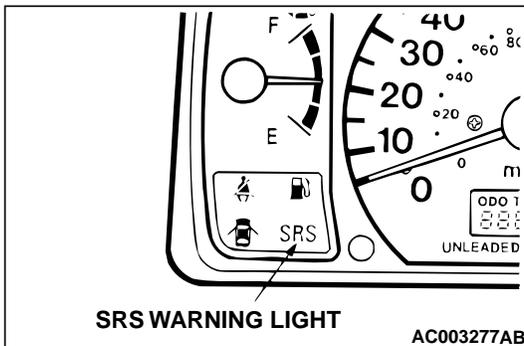
⚠ WARNING

Extreme care must be used when servicing the SRS to avoid injury to the service personnel (by inadvertent deployment of the air bags) or the driver (by rendering the SRS inoperative).

The Supplemental Restraint System (SRS) and seat belt with pre-tensioner is designed to supplement the driver's and front passenger's seat belts to help reduce the risk or severity of injury to the driver and front passenger by activating and deploying both front air bags in certain frontal collisions.

The SRS consist of four air bag modules, SRS air bag control unit (SRS-ECU), front impact sensors, SRS warning light, and clock spring. Air bags are located in the center of the steering wheel, above the glove box. Each air bag is made up of a folded air bag and an inflator unit. The control unit under the

floor console monitors the system and has a safing G-sensor and an analog G-sensor. The front impact sensors are installed in the fender shield panel. The warning light on the instrument panel indicates the operational status of the SRS. The clock spring is installed in the steering column. The seat belt pre-tensioner is built into the driver's front seat belt retractor. Only authorized service personnel should do work on or around the SRS components. Those service personnel should read this manual carefully before starting any such work.



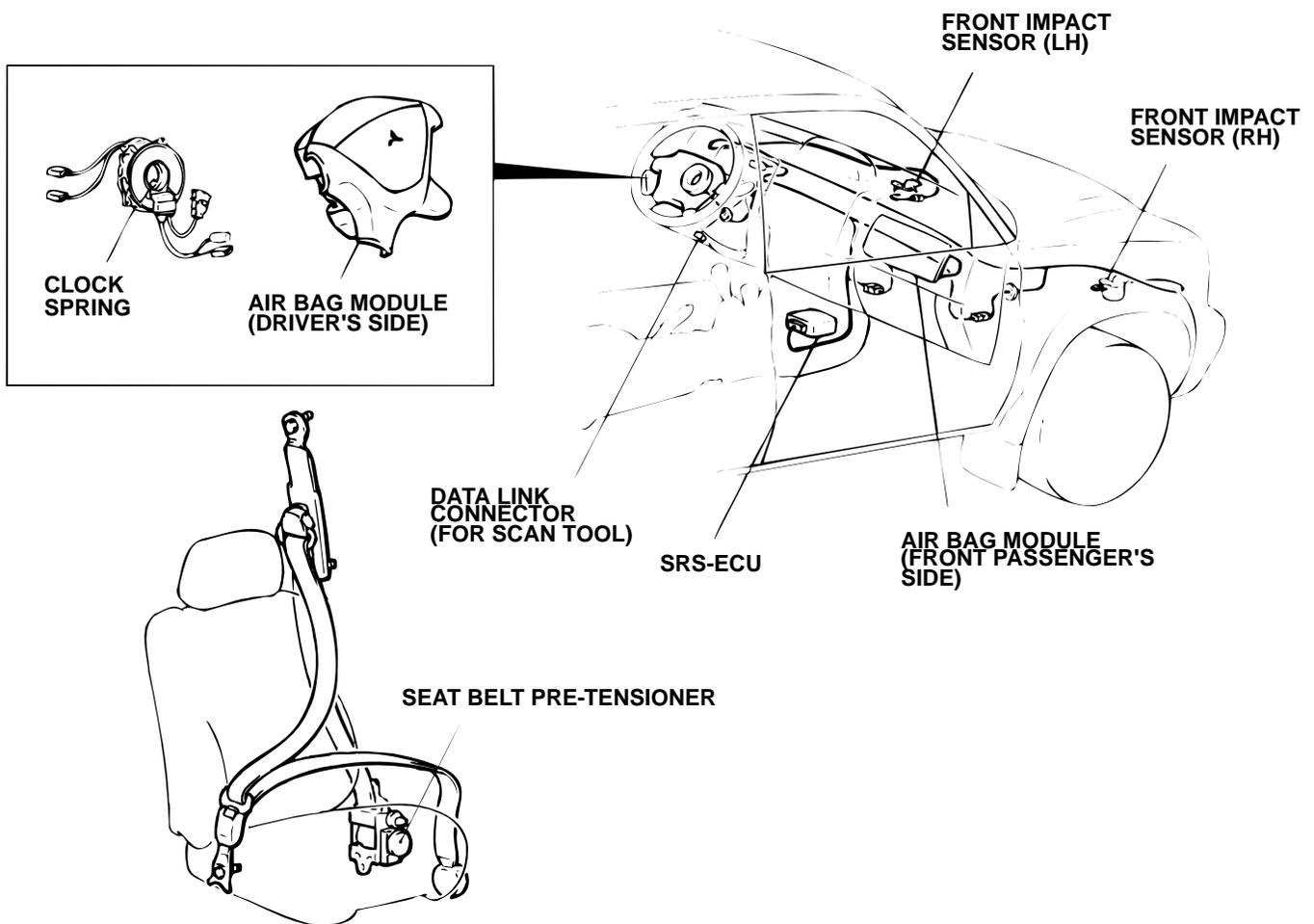
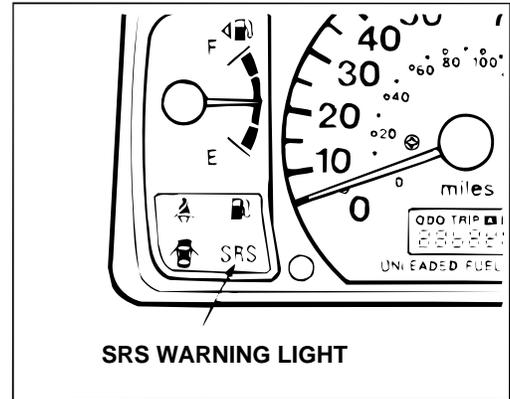
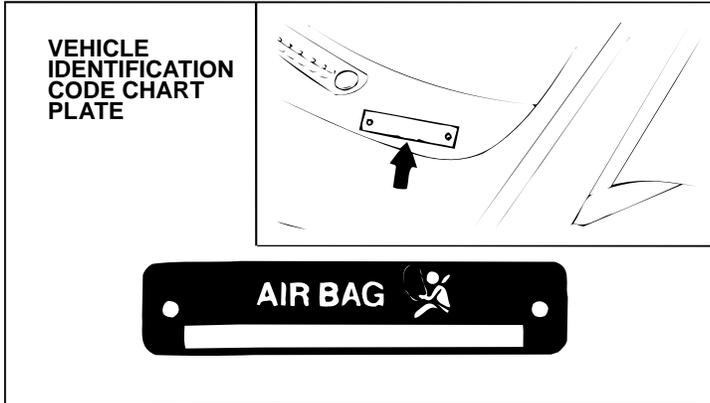
ON-BOARD DIAGNOSTIC/SRS WARNING LIGHT FUNCTION

The diagnosis unit monitors the SRS system and stores data concerning any detected faults in the system. When the ignition key is in "ON" or "START" position, the SRS warning light should illuminate for about 7 seconds and then turn "OFF." That indicates that the SRS system is in operational order. If the SRS warning light does any of the following, immediate inspection by an authorized dealer is needed.

1. The SRS warning light does not illuminate as described above.
2. The SRS warning light stays on for more than 7 seconds.
3. The SRS warning light illuminates while driving.

If a vehicle's SRS warning light is in any of these three conditions when brought in for inspection, the SRS system must be inspected, diagnosed and serviced in accordance with this manual.

CONSTRUCTION DIAGRAM



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NOTE: This construction diagram shows the general view of the SRS components.

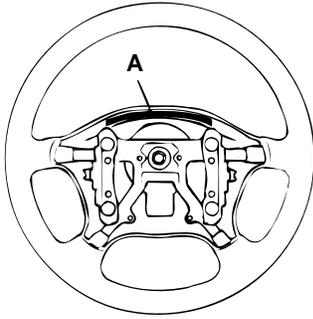
For details, refer to "Schematic" (P.52B-8), "Configuration Diagrams" (P.52B-11) and "Circuit Diagram" (P.52B-12).

WARNING/CAUTION LABELS

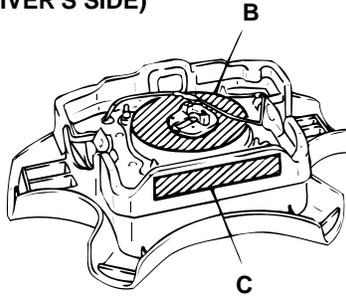
A number of caution labels related to the SRS are found in the vehicle, as shown in the following illustration. Follow label instructions when servicing SRS.

The label J is not to be removed except by owner. If the other labels are dirty or damaged, replace label.

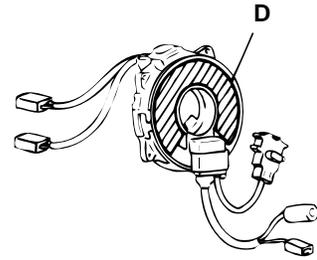
STEERING WHEEL



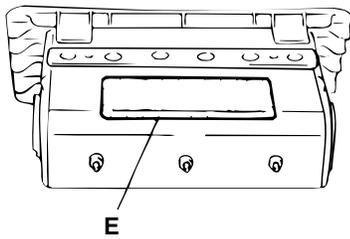
**AIR BAG MODULE
(DRIVER'S SIDE)**



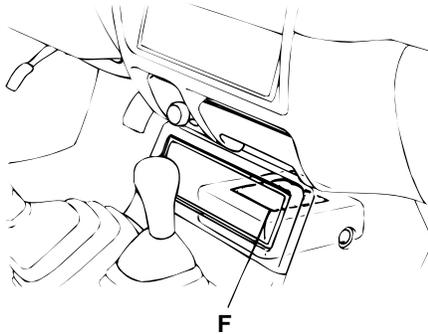
CLOCK SPRING



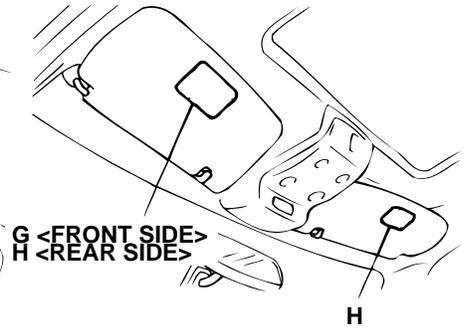
**AIR BAG MODULE
(FRONT PASSENGER'S SIDE)**



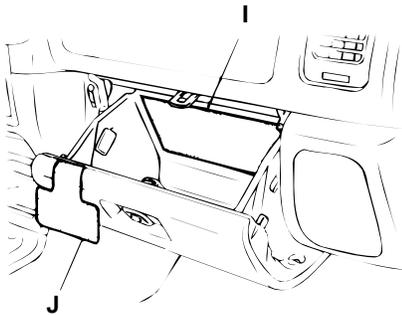
SRS-ECU



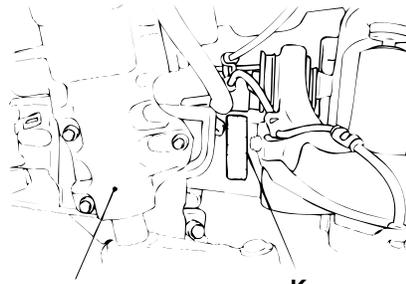
SUN VISOR



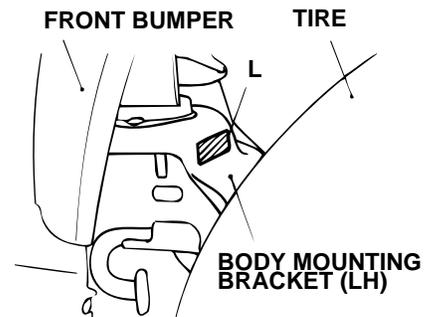
GLOVE BOX



FRAME*

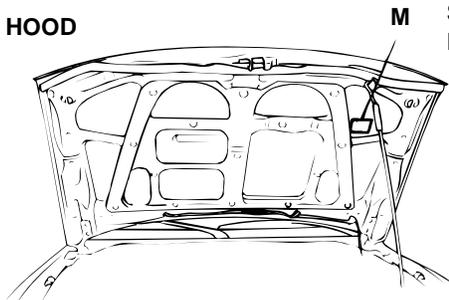


FRAME*

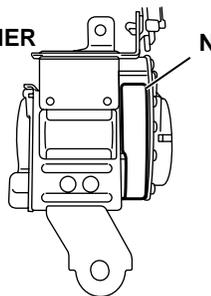


**STEERING GEAR
BOX**

HOOD



**SEAT BELT
PRE-TENSIONER**



NOTE
*: The frame label is affixed to either of these positions.

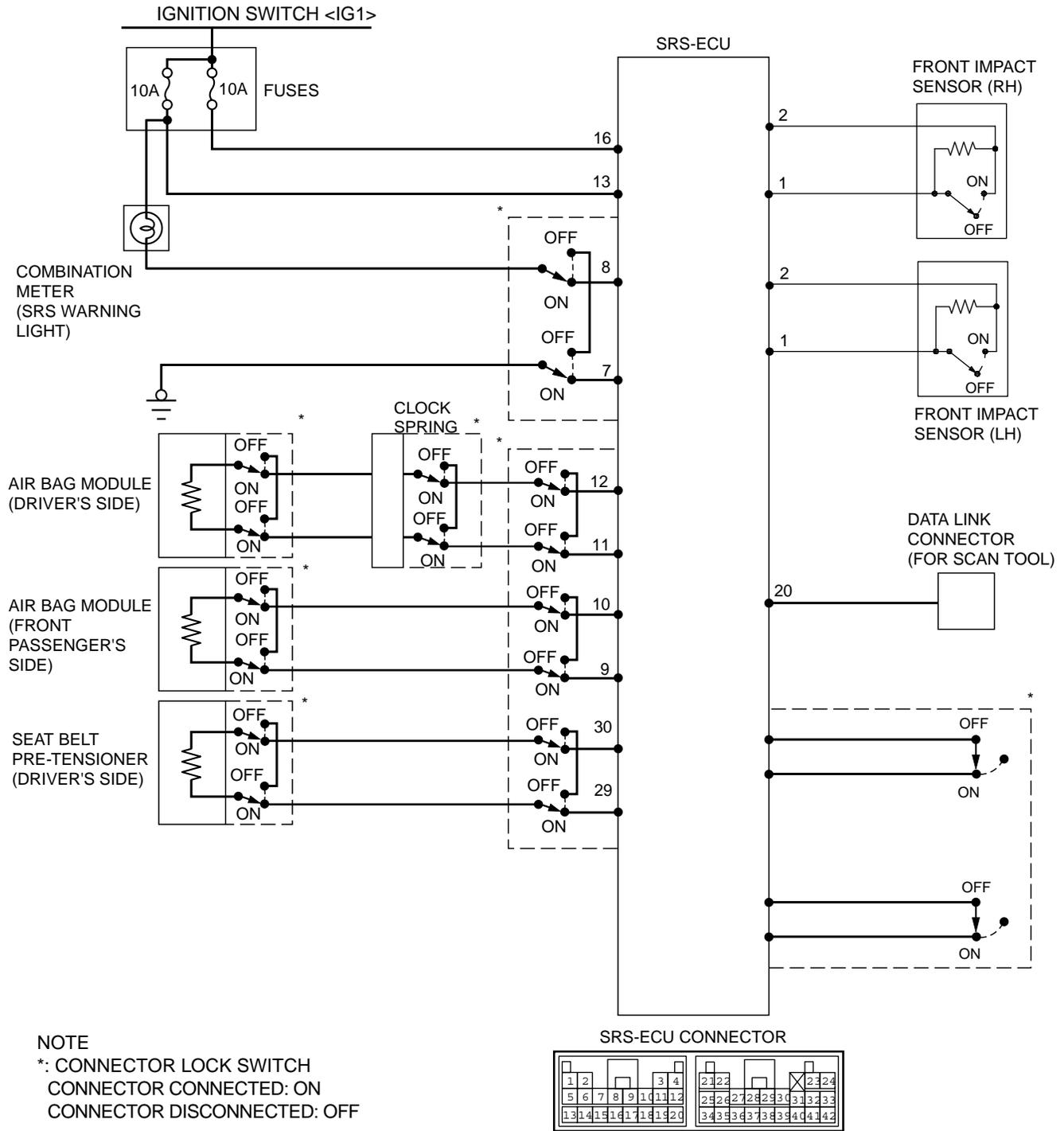
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LABEL CONTENTS		LABEL CONTENTS	
A.	<p>CAUTION: SRS BEFORE REPLACING STEERING WHEEL, READ SERVICE MANUAL. CENTER FRONT WHEELS, AND ALIGN SRS CLOCK SPRING NEUTRAL MARKS. FAILURE TO DO SO MAY RENDER SRS SYSTEM INOPERATIVE, RISKING SERIOUS DRIVER INJURY.</p>	G.	 AIR BAG WARNING FLIP VISOR OVER <small>V0037A A</small>
B.	<p>WARNING: SRS THIS AIR BAG MODULE CANNOT BE REPAIRED. DO NOT DISASSEMBLE OR TAMPER. DO NOT PERFORM DIAGNOSIS. DO NOT TOUCH WITH ELECTRICAL TEST EQUIPMENT OR PROBES. REFER TO SERVICE MANUAL FOR FURTHER INSTRUCTIONS, AND FOR SPECIAL HANDLING, STORAGE, AND DISPOSAL PROCEDURES. TAMPERING OR MISHANDLING CAN RESULT IN INJURY.</p>	H.	 WARNING DEATH or SERIOUS INJURY can occur <ul style="list-style-type: none"> • Children 12 and under can be killed by the air bag. • The BACK SEAT is the SAFEST place for children. • NEVER put a rear-facing child seat in the front. • Sit as far back as possible from the air bag. • ALWAYS use SEAT BELTS and CHILD RESTRAINTS. <small>V0037A A</small>
C.	<p>DANGER POISONOUS FLAMMABLE MATERIAL TO PREVENT PERSONAL INJURY, DO NOT DISMANTLE, INCINERATE, OR BRING INTO CONTACT WITH ELECTRICITY STORE BELOW 200 °F (93 °C).</p>		
D.	<p>CAUTION: SRS CLOCK SPRING THIS IS NOT A REPAIRABLE PART. DO NOT DISASSEMBLE OR TAMPER. IF DEFECTIVE, REPLACE ENTIRE UNIT PER SERVICE MANUAL INSTRUCTIONS. TO RE-CENTER: ROTATE CLOCKWISE UNTIL TIGHT. THEN ROTATE IN OPPOSITE DIRECTION APPROXIMATELY 3 4/5 TURNS AND ALIGN ARROWS ><.</p>		
E.	<p>WARNING FLAMMABLE/EXPLOSIVE SRS AIR BAG MODULE TO AVOID SERIOUS INJURY:</p> <ul style="list-style-type: none"> • DO NOT REPAIR, DISASSEMBLE OR TAMPER. • AVOID CONTACT WITH FLAME OR ELECTRICITY. • DO NO DIAGNOSIS/USE NO TEST EQUIPMENT OR PROBES. • STORE BELOW 200°F (93°C). • BEFORE DOING ANY WORK INVOLVING MODULE, READ SERVICE MANUAL FOR IMPORTANT FURTHER DATA. 		
F.	<p>CAUTION: DO NOT DISASSEMBLE OR DROP. IF DEFECTIVE REFER TO SERVICE MANUAL.</p>		

LABEL CONTENTS	
I.	<p>AIR BAG SYSTEM INFORMATION</p> <p>THIS VEHICLE HAS AN AIR BAG SYSTEM WHICH WILL SUPPLEMENT THE SEAT BELT IN CERTAIN FRONTAL COLLISIONS, THE AIR BAG IS NOT A SUBSTITUTE FOR THE SEAT BELT IN ANY TYPE OF COLLISION, THE DRIVER AND ALL OTHER OCCUPANTS SHOULD WEAR SEAT BELTS AT ALL TIMES.</p> <p>WARNING!</p> <p>IF THE "SRS" WARNING LIGHT DOES NOT ILLUMINATE FOR SEVERAL SECONDS WHEN THE IGNITION KEY IS TURNED TO "ON" OR THE ENGINE IS STARTED, OR IF THE WARNING LIGHT STAYS ON WHILE DRIVING, TAKE THE VEHICLE TO YOUR NEAREST AUTHORIZED DEALER IMMEDIATELY. ALSO, IF THE VEHICLES' FRONT END IS DAMAGED OR IF THE AIR BAG HAS DEPLOYED, TAKE THE VEHICLE FOR SERVICE IMMEDIATELY.</p> <p>THE AIR BAG SYSTEM MUST BE INSPECTED BY AN AUTHORIZED DEALER TEN YEARS AFTER THE VEHICLE MANUFACTURE DATE SHOWN ON THE CERTIFICATION LABEL LOCATED ON THE LEFT FRONT DOOR-LATCH POST OR DOOR FRAME.</p> <p>REAR THE "SRS" SECTION OF YOUR OWNER'S MANUAL BEFORE DRIVING FOR IMPORTANT INFORMATION ABOUT OPERATION AND SERVICE OF THE AIR BAG SYSTEM.</p> <p>WHEN YOU ARE GOING TO DISCARD YOUR GAS GENERATOR OR VEHICLE, PLEASE SEE YOUR DEALER.</p>
J.	<p>WARNING</p> <p>Children Can Be KILLED or INJURED by Passenger Air Bag. The back seat is the safest place for children 12 and under. Make sure all children use seat belts or child seat. Not to be removed except by owner.</p>

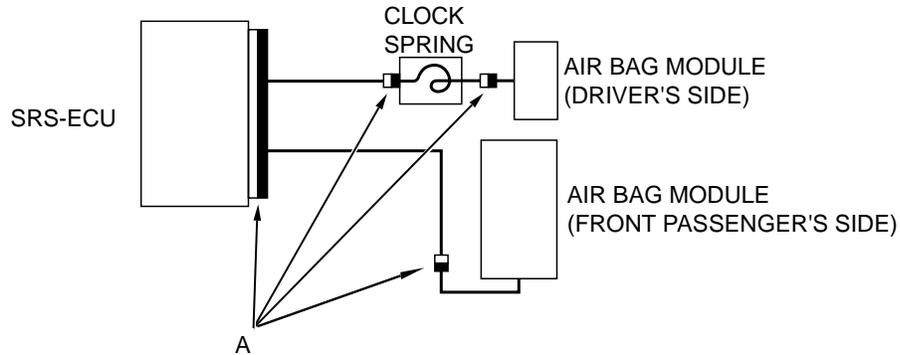
LABEL CONTENTS	
K, L.	<p>CAUTION: SRS BEFORE REMOVAL OF STEERING GEAR BOX, READ SERVICE MANUAL, CENTER FRONT WHEELS AND REMOVE IGNITION KEY.</p> <p>FAILURE TO DO SO MAY DAMAGE SRS CLOCK SPRING AND RENDER SRS SYSTEM INOPERATIVE, RISKING SERIOUS DRIVER INJURY.</p>
M.	<p>WARNING</p> <p>THIS VEHICLE HAS AN AIR BAG SYSTEM. REFER TO SERVICE MANUAL BEFORE SERVICING OR DISASSEMBLING UNDERHOOD COMPONENTS. READ "SRS" SECTION OF MANUAL FOR IMPORTANT INSTRUCTIONS. IMPROPER SERVICE PROCEDURES CAN RESULT IN THE AIR BAG FIRING OR BECOMING INOPERATIVE, LEADING TO INJURY.</p>
N.	<ul style="list-style-type: none"> • DO NOT IMPACT. DISMANTLE OR INSTALL IT INTO ANOTHER VEHICLE. • SERVICE OR DISPOSE OF IT AS DIRECTED IN THE REPAIR MANUAL.

SCHEMATIC



SRS air bag special connector

To enhance the system reliability, a connector lock switch is integrated in the SRS-ECU connector, the air bag module connectors and the clock spring connector (black connector "A" shown in the illustration below).



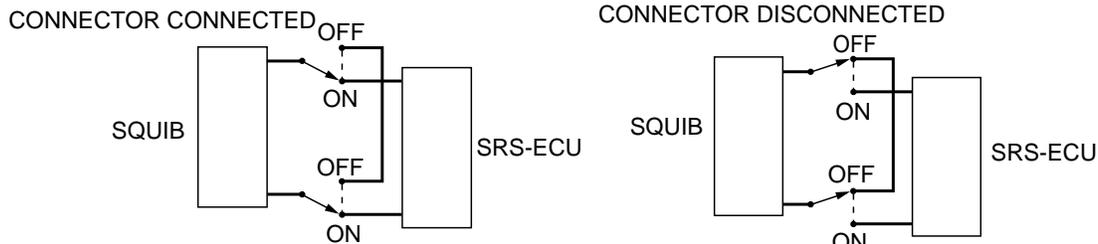
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SQUIB CIRCUIT CONNECTOR LOCK SWITCH

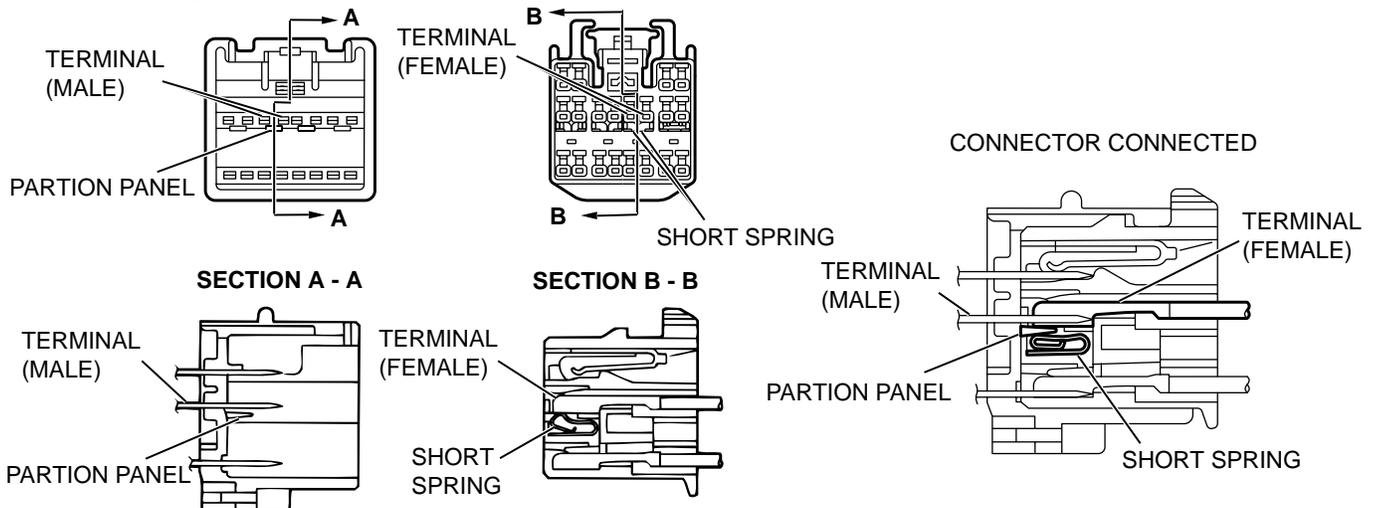
The switch is a mechanism that shorts the power supply terminal to the ground terminal automatically in the air bag squib circuit when the connector is disconnected. A "short" spring is integrated inside the connector. This spring prevents static electricity from flowing to the squib by shorting the power supply terminal to the ground terminal (i.e. there is no potential difference between the two terminals).

⚠ CAUTION

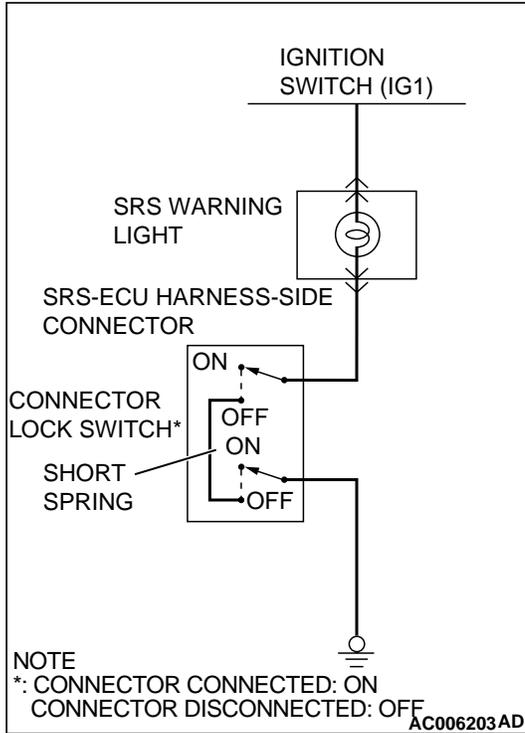
When the connector is disconnected, there will be short circuit between the terminals. This is not a fault.



<CONNECTOR SHORTING PREVENTION MECHANISM (E.G. SRS-ECU CONNECTOR)>
ECU-SIDE CONNECTOR WIRING HARNESS-SIDE CONNECTOR



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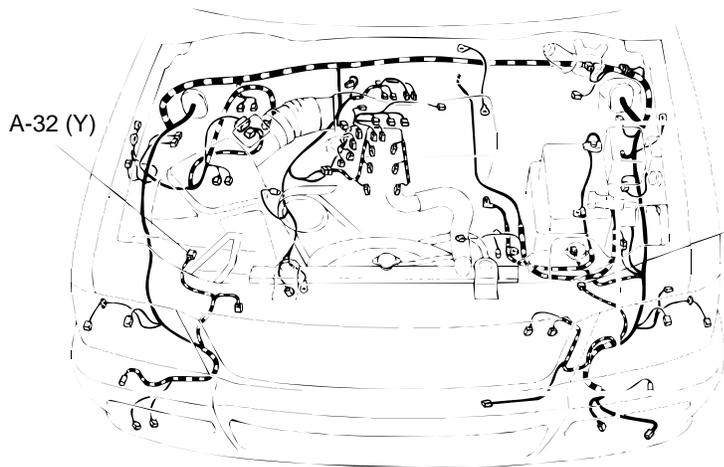


WARNING LIGHT CIRCUIT CONNECTOR LOCK SWITCH

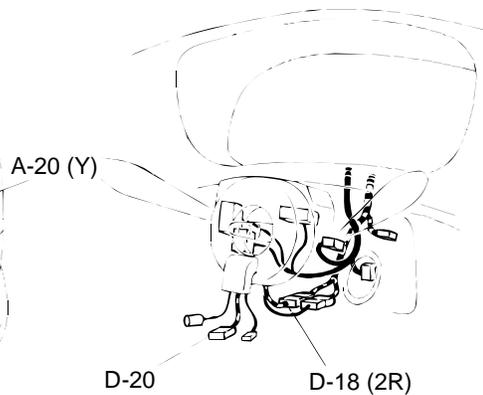
The switch is a mechanism that shorts the power supply terminal to the ground terminal automatically in the warning light circuit when the connector is disconnected. Its structure is similar to the squib circuit connector shorting mechanism.

CONFIGURATION DIAGRAMS

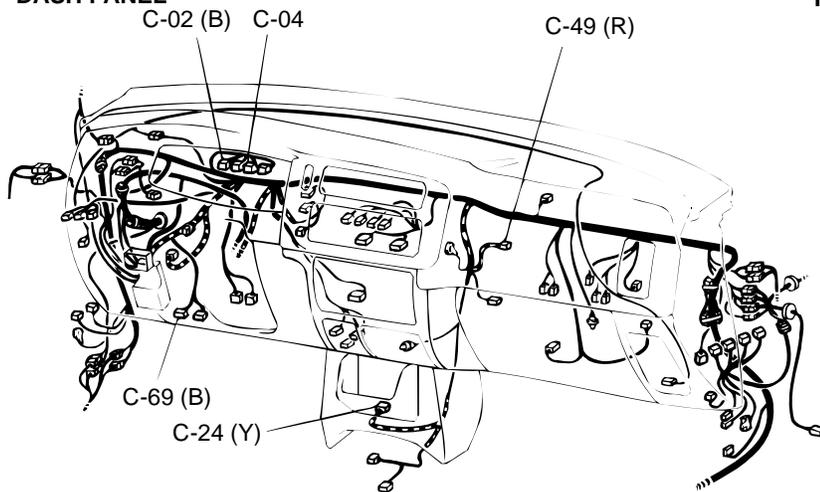
ENGINE COMPARTMENT



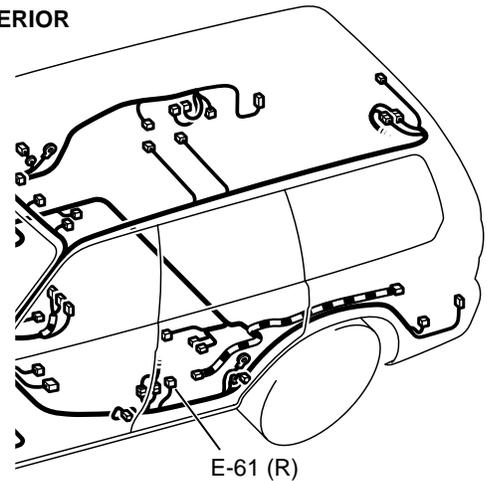
STEERING COLUMN



DASH PANEL



INTERIOR



AC003281AC

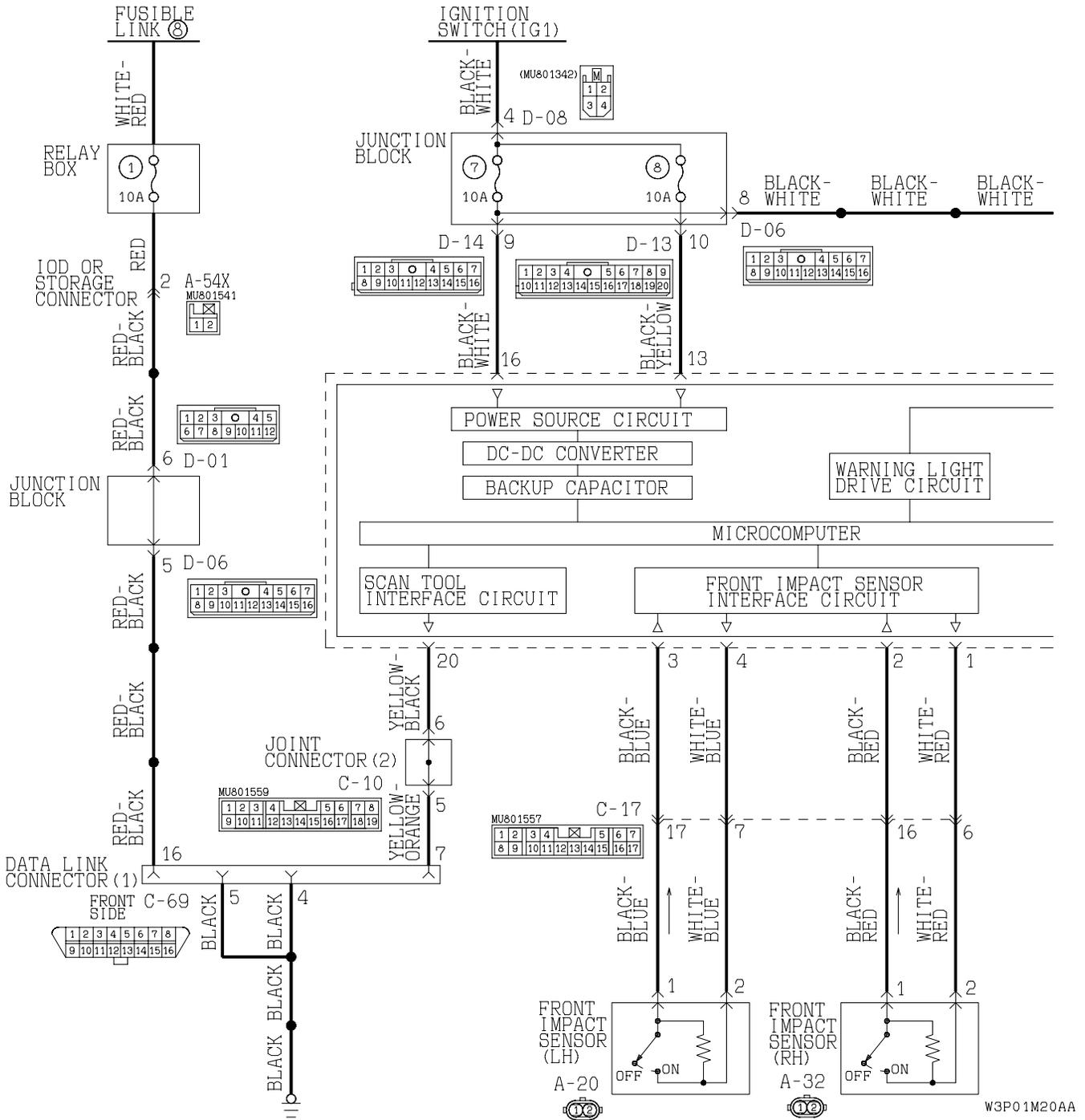
- A-20 FRONT IMPACT SENSOR (LH)
- A-32 FRONT IMPACT SENSOR (RH)
- C-02 COMBINATION METER (FOR SRS WARNING LIGHT)
- C-04 COMBINATION METER (FOR SRS WARNING LIGHT)
- C-24 SRS-ECU

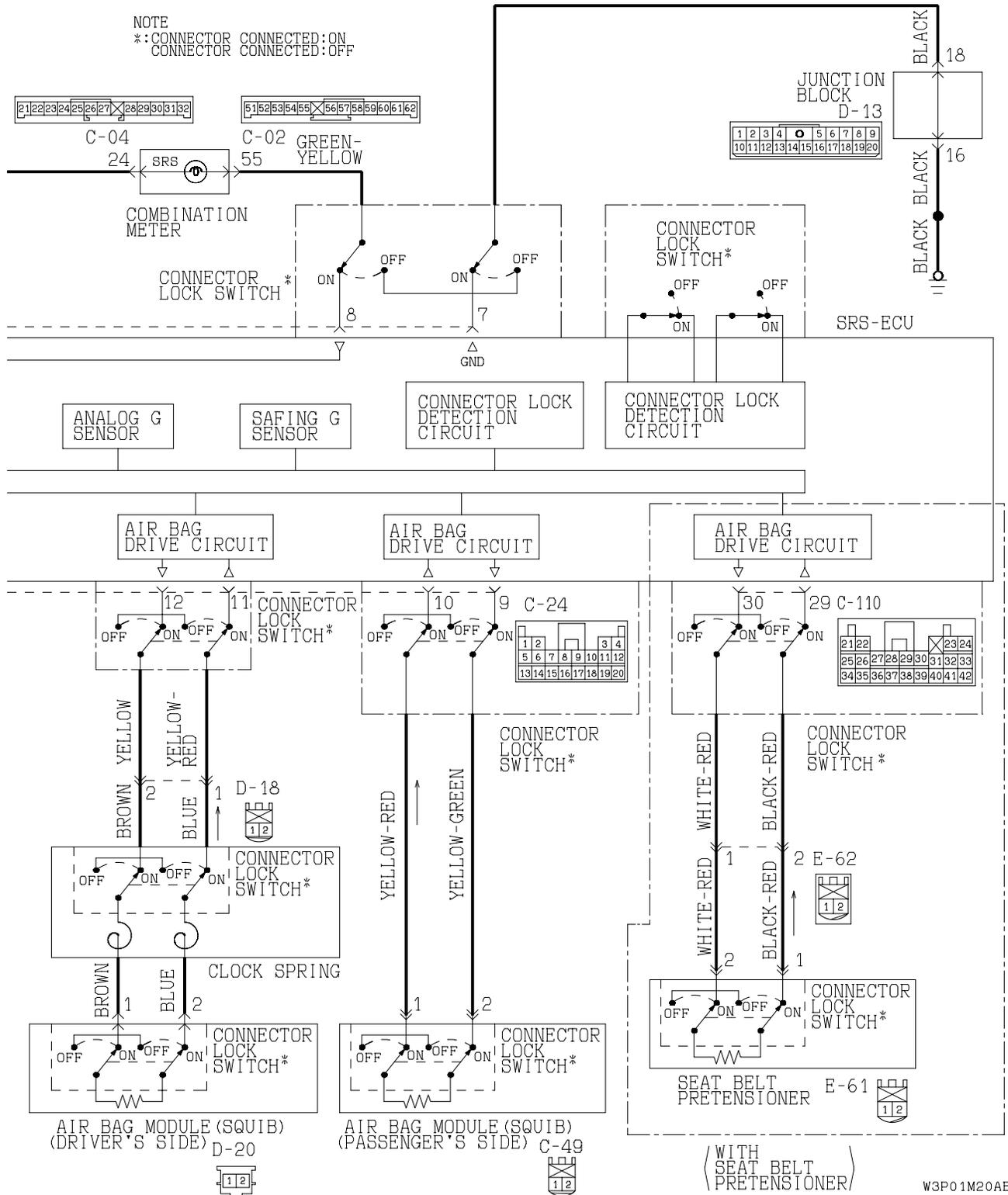
- C-49 AIR BAG MODULE (FRONT PASSENGER'S SIDE)
- C-69 DATA LINK CONNECTOR (FOR SCAN TOOL)
- D-18 CLOCK SPRING
- D-20 AIR BAG MODULE (DRIVER'S SIDE)
- E-61 SEAT BELT PRE-TENSIONER

CIRCUIT DIAGRAM

⚠ WARNING

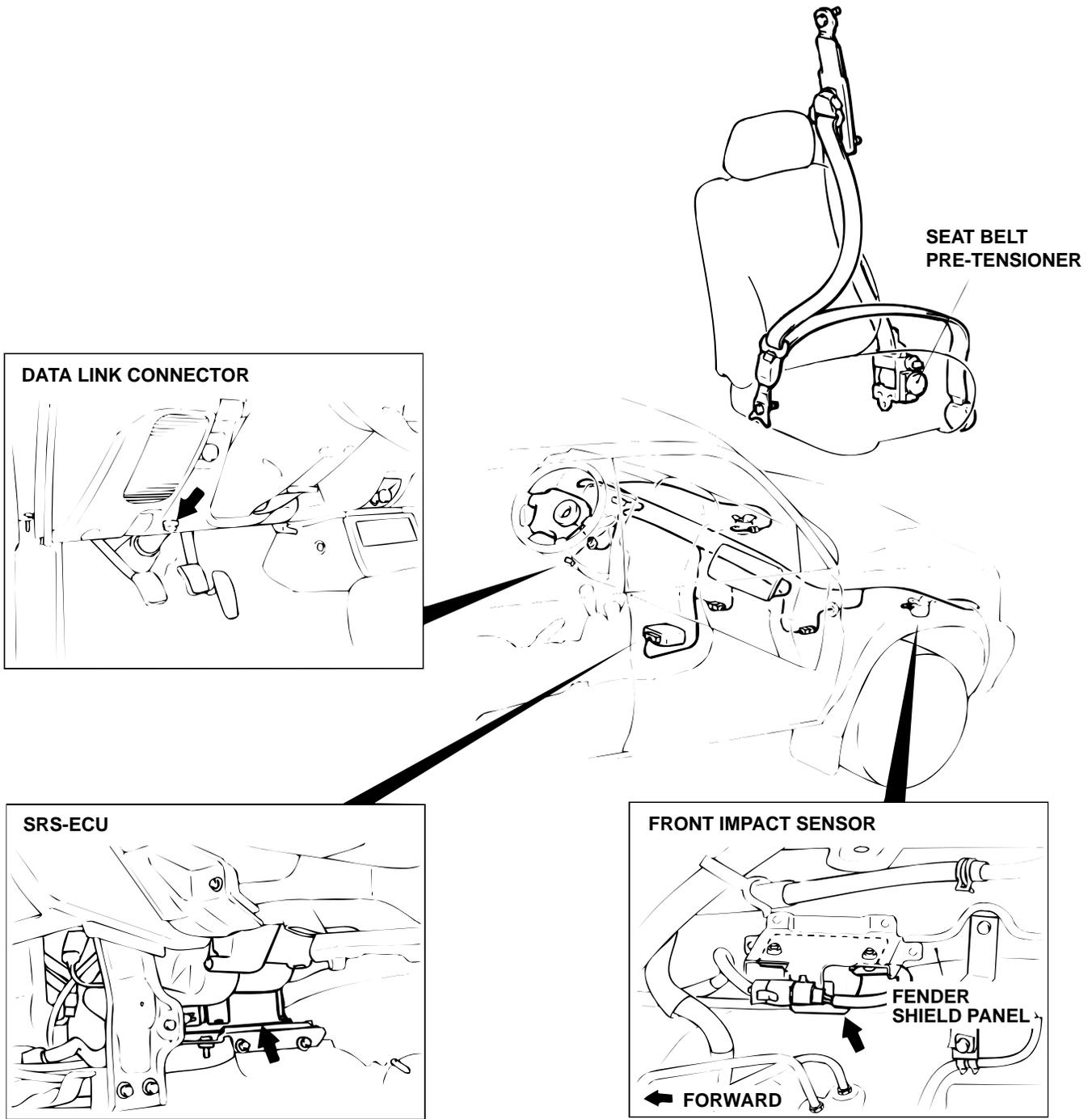
- Do not repair, splice, or modify the SRS wiring (except for specific repairs to the front wiring harness and the body wiring harness shown on P.52B-15): replace the wiring if necessary, after reading and following all precautions and procedures in this manual.
- Do not use an analog ohmmeter to check the SRS wiring or components; use only the special tools (refer to P.52B-61) and a digital multi-meter (refer to P.52B-63).





TSB Revision

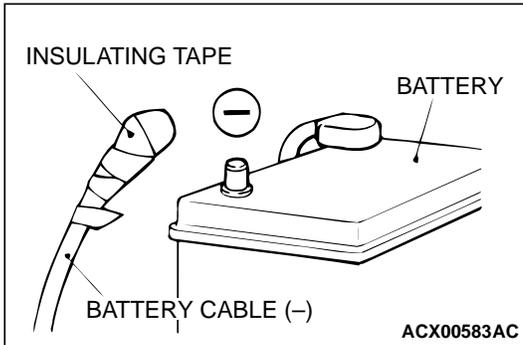
COMPONENT LOCATION



AC003282 AB

SRS SERVICE PRECAUTIONS

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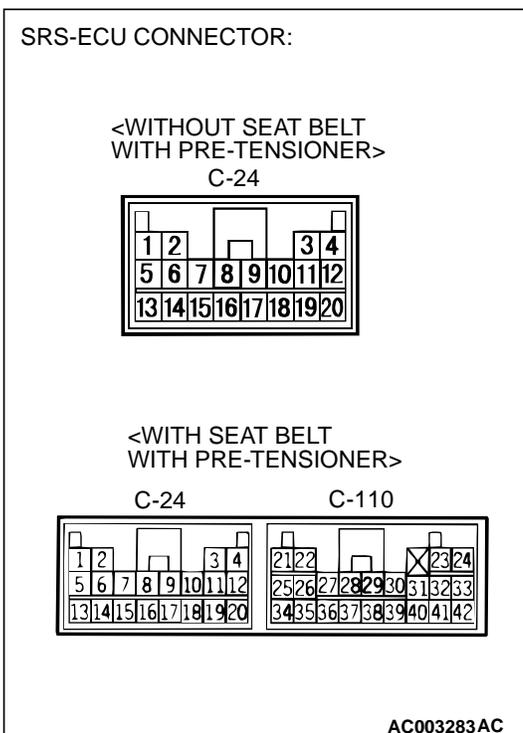


⚠ DANGER

- In order to avoid injury to yourself or others from accidental deployment of the air bag during servicing, read and carefully follow all the precautions and procedures described in this manual.
- After disconnecting the battery cable, wait 60 seconds or more before proceeding with the following work. The SRS system is designed to retain enough voltage to deploy the air bag for a short time even after the battery has been disconnected, so serious injury may result from unintended air bag deployment if work is done on the SRS system immediately after the battery cables are disconnected.

⚠ WARNING

- Battery posts, terminals and related accessories contain lead and lead compounds. WASH HANDS AFTER HANDLING.
- Do not use any electrical test equipment on or near the SRS components, except those specified on [P.52B-61](#) and [P.52B-63](#).
- Never Attempt to Repair the Following Components: air bag module, front Impact Sensor, SRS-ECU, clock spring, seat belt with pre-tensioner. If any of these components are diagnosed as faulty, they should only be replaced in accordance with the **INDIVIDUAL COMPONENT SERVICE** procedures in this manual, starting on [P.52B-66](#).
- Do not attempt to repair the wiring harness connectors of the SRS. If any of the connectors are diagnosed as faulty, replace the wiring harness. If the wires are diagnosed as faulty, replace or repair the wiring harness according to the following table.



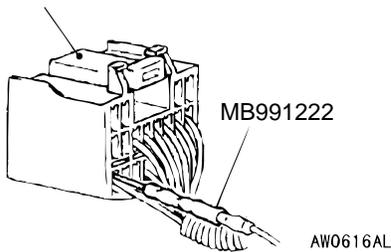
SRS-ECU TERMINAL NO.	DESTINATION OF HARNESS	CORRECTIVE ACTION
1, 2	Body wiring harness → Front wiring harness → Front impact sensor (RH)	Sensor cable* installation procedures (Refer to P.52B-91.)
3, 4	Body wiring harness → Front wiring harness → Front impact sensor (LH)	Sensor cable* installation procedures (Refer to P.52B-91.)
5, 6	–	–
7	Body wiring harness → Ground	Repair or replace the body wiring harness.
8	Body wiring harness → SRS warning light	Repair or replace each wiring harness.
9	Body wiring harness → Air bag module (Front passenger's side)	Repair or replace each wiring harness.
10		
11	Body wiring harness → Clock spring → Air bag module (Driver's side)	Repair or replace each wiring harness replace the clock spring.
12		
13	Body wiring harness → Junction block (Fuse No. 8)	Repair or replace each wiring harness.
14, 15	–	–
16	Body wiring harness → Junction block (Fuse No. 7)	Repair or replace each wiring harness.
17 to 19	–	–
20	Body wiring harness → Data link connector	Repair or replace each wiring harness.
21 to 28	–	–
29, 30	Body wiring harness → Floor wiring harness → Driver's side seat belt pretensioner	Repair or replace each wiring harness.
31 to 42	–	–

NOTE: *: The sensor cable is available as service part.

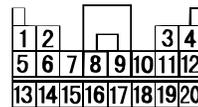
⚠ WARNING

Inspection of the SRS-ECU harness connector should be carried out by the following procedure. Insert the special tool MB991222 (narrow probe in the harness set) into connector from harness side (rear side), and connect the tester to this probe. If any tool other than the special tool MB991222 is used, it may cause damage to the harness and other components. Furthermore, measurement should not be carried out by touching the probe 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 probe, the plating may break, which will decrease reliability.

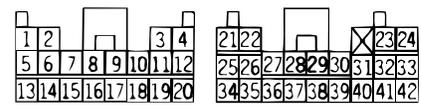
SRS-ECU HARNESS CONNECTOR



SRS-ECU HARNESS CONNECTOR:
HARNESS SIDE



<WITHOUT SEAT BELT
WITH PRE-TENSIONER>



<WITH SEAT BELT
WITH PRE-TENSIONER>

AC003284AC

⚠ WARNING

- If heat damage may occur during paint work, remove the SRS-ECU, the air bag module, clock spring, the front impact sensor, the seat belt pre-tensioner.
 - SRS-ECU, air bag module, clock spring, front impact sensor: 93° C (200° F) or more
 - Seat belt with pre-tensioner: 90° C (194° F) or more
- After servicing the SRS system, check the warning light operation to make sure that the system functions properly. (Refer to P.52B-53.)
- Make certain that the ignition switch is "OFF" (LOCK) position when the scan tool is connected or disconnected.
- If you have any questions about the SRS system, please contact the MMSA Tech Line.

SRS AIR BAG DIAGNOSIS

INTRODUCTION TO SRS DIAGNOSIS

M1524005000244

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

The SRS warning light in the combination meter alerts a malfunction of the SRS system.

If the following symptoms occur even when the vehicle has not collided, there may be a malfunction.

- The SRS warning light does not go off within approximately 7 seconds after the ignition switch has been turned "ON."
- The SRS warning light does not illuminate when the ignition switch is turned "ON."

Refer to the Post-collision Diagnosis when inspecting and servicing the vehicle that has been in a collision (Refer to P.52B-63).

TROUBLESHOOTING STRATEGY

M1524003100256

Use these steps to plan your diagnostic strategy. If you follow them carefully, you will be sure that you have exhausted most of the possible ways to find a SRS fault.

1. Gather information about the problem from the customer.
2. Verify that the condition described by the customer exists.
3. Check the vehicle for any Diagnostic Trouble Code (DTC).
4. If you cannot verify the condition but there are no DTC's, the malfunction is intermittent. Refer to GROUP 00, How to use Troubleshooting/Inspection Service Point – How to Cope With Intermittent Malfunctions [P.00-6](#).
5. If there is a DTC, record the number of the code, then erase the code from vehicle memory using scan tool MB991502.
6. Recreate the DTC set conditions to see if the same DTC will set again.
 - If the same DTC sets again, follow the DTC Chart and find the fault.
 - If you cannot get the same DTC to set again, the malfunction is intermittent. Refer to GROUP 00, How to use Troubleshooting/Inspection Service Point – How to Cope With Intermittent Malfunctions [P.00-6](#).

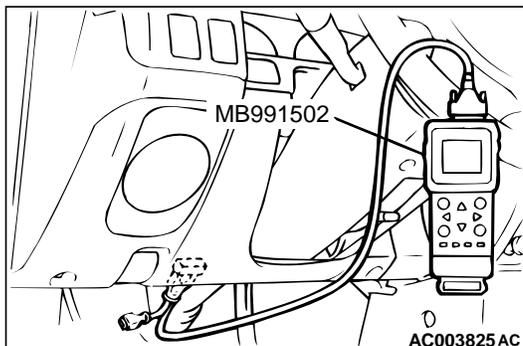
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SRS DIAGNOSIS TROUBLE CODE**Required Special Tool:**

MB991502: Scan Tool (MUT-II)

⚠ CAUTION

To prevent damage to scan tool MB991502, make sure the ignition switch is "OFF" before connecting or disconnecting scan tool MB991502.

**RETRIEVING DTC'S**

Connect scan tool MB991502 to the data link connector, and then check DTC's.

ERASING DTC'S

Connect scan tool MB991502 to the data link connector, and then erase DTC's.

M1524003300302

INSPECTION CHART FOR DTC'S

Inspect according to the inspection chart that is appropriate for the DTC.

DTC	ON-BOARD DIAGNOSTIC ITEM	REFERENCE PAGE
11	Front impact sensor system circuit short	P.52B-21
12	Front impact sensor system either circuit open r no power supply	P.52B-21
13	Front impact sensor system detects either both are open or no power supply	P.52B-21
14	Analog G-sensor system in the SRS-ECU	P.52B-27
15	Safing G-sensor short circuit	P.52B-27
16	Safing G-sensor open circuit	P.52B-27
21	Driver's side air bag module (squib) system fault 1	P.52B-29
22	Driver's side air bag module (squib) system fault 2	P.52B-29
24	Passenger (front) side air bag module (squib) system fault 1	P.52B-33
25	Passenger (front) side air bag module (squib) system fault 2	P.52B-33
26	Driver's side seat belt pre-tensioner (squib) system fault 1	P.52B-36
27	Driver's side seat belt pre-tensioner (squib) system fault 2	P.52B-36
31	SRS-ECU capacitor circuit voltage too high	P.52B-27
32	SRS-ECU capacitor circuit voltage too low	P.52B-27
34*	Connector lock system detects connector unlocked	P.52B-40
35	SRS-ECU air bag condition monitor detects deployed air bag	P.52B-41
41*	IG ₁ power circuit system (fuse No.7 circuit)	P.52B-42
42*	IG ₁ power circuit system (fuse No.8 circuit)	P.52B-42
43	SRS warning light driver circuit system fault 1	Light does not illuminate
		Light does not switch off
44*	SRS warning light driver circuit system fault 2	P.52B-47
45	SRS-ECU non-volatile memory (EEPROM) and A/D converter system	P.52B-27
51	Driver's side air bag module (squib ignition driver circuit) system detected short circuit	P.52B-27
52	Driver's side air bag module (squib ignition driver circuit) system detected open circuit	P.52B-27
54	Passenger (front) side air bag module (squib ignition drive circuit) system detected short circuit	P.52B-27
55	Passenger (front) side air bag module (squib ignition drive circuit) system detected open circuit	P.52B-27
56	Driver's side seat belt pre-tensioner (squib ignition driver circuit) system detected short circuit	P.52B-27
57	Driver's side seat belt pre-tensioner (squib ignition driver circuit) system detected open circuit	P.52B-27
61	Driver's side air bag module (squib) system fault for power supply circuit	P.52B-29
62	Driver's side air bag module (squib) system fault for ground circuit	P.52B-29

DTC	ON-BOARD DIAGNOSTIC ITEM	REFERENCE PAGE
64	Passenger (front) side air bag module (squib) system fault for power supply circuit	P.52B-33
65	Passenger (front) side air bag module (squib) system fault for ground circuit	P.52B-33
66	Driver side seat belt pre-tensioner (squib) system fault for power supply circuit	P.52B-36
67	Driver side seat belt pre-tensioner (squib) system fault for ground circuit	P.52B-36

NOTE:

- *1: If the vehicle condition returns to normal, the DTC will be automatically erased, and the SRS warning light will return to normal.
- If the vehicle has a discharged battery, it will store the DTC's 41 or 42. When these DTC's are read, check the battery condition.

SYMPTOM CHART

M1524003400280

SYMPTOM	INSPECTION PROCEDURE NO.	REFERENCE PAGE
Communication with scan tool MB991502 is not possible with all system.	1	P.52B-53
Communication with scan tool MB991502 is not possible with SRS system only.	2	P.52B-54
When the ignition key is turned to "ON" (engine stopped), the SRS warning light does not illuminate.	Refer to DTC No.43.	P.52B-47
After the ignition switch is turned to "ON," the SRS warning light does not go off within approximately 7 seconds.	Refer to DTC No.43.	P.52B-47

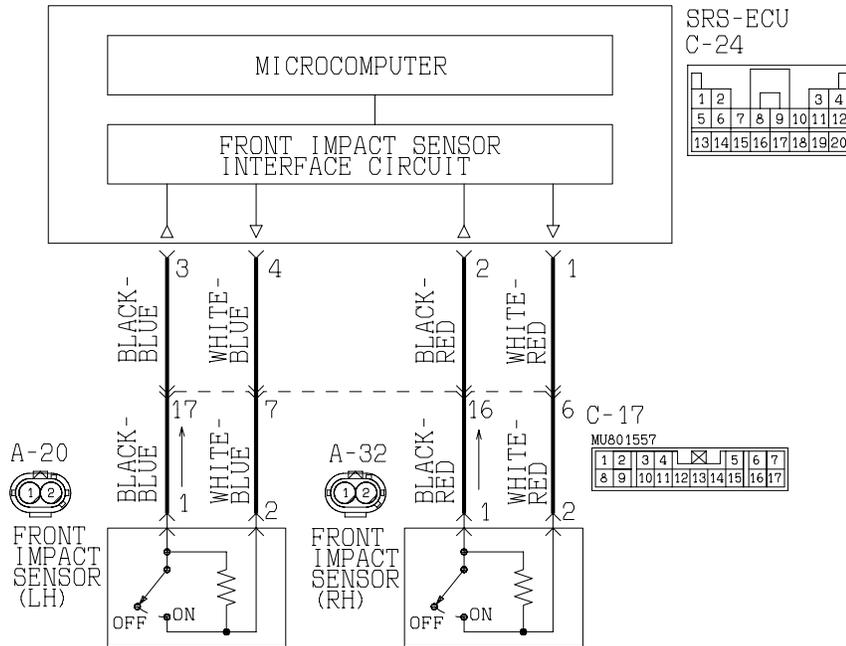
DIAGNOSTIC TROUBLE CODE PROCEDURES

DTC 11: Front Impact Sensor System Circuit Short

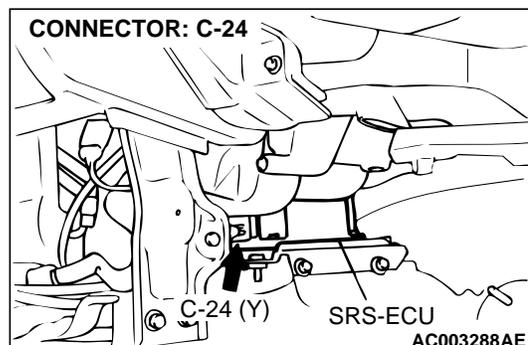
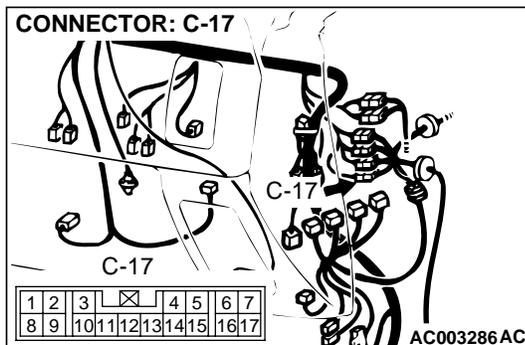
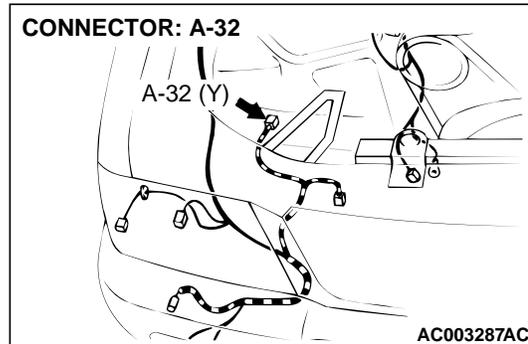
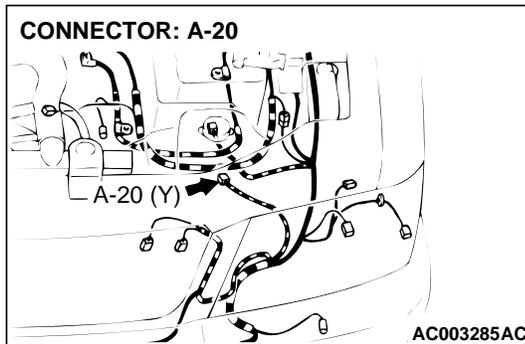
DTC 12: Front Impact Sensor System Either Circuit Open or on Power Supply

DTC 13: Front Impact Sensor System Detects Either both are Open or no Power Supply

Front Impact Sensor Circuit



AC202214AB
W1P11M01AA



CIRCUIT OPERATION

- When the left and right front impact sensors detect a collision, the switches inside the sensors turn ON.
- The SRS-ECU judges how severe a collision is by detecting signals from the front impact sensors and the analog G-sensor. If the impact is over a predetermined level, the SRS-ECU outputs an ignition signal. At this time, if the safing G-sensor is on, the SRS air bag will inflate.

DTC SET CONDITIONS

These DTC's are set if there is abnormal resistance between the input terminals of the front impact sensors.

The most likely causes for these codes to be set are shown in the table below:

DTC	SYMPTOM
11	<ul style="list-style-type: none"> • Short circuit in front impact sensor or harness • Short circuit in front impact sensor harness leading to the vehicle body ground • Short circuit in front impact sensor harness leading to the power supply
12	<ul style="list-style-type: none"> • Open circuit in either left or right front impact sensor or harness • Short circuit in front impact sensor harness leading to the power supply
13	<ul style="list-style-type: none"> • Open circuit in both left and right front impact sensor or harness • Short circuit in front impact sensor harness leading to the power supply

TROUBLESHOOTING HINTS

- Malfunction of the front impact sensor
- Damaged wiring harnesses or connectors
- Malfunction of the SRS-ECU

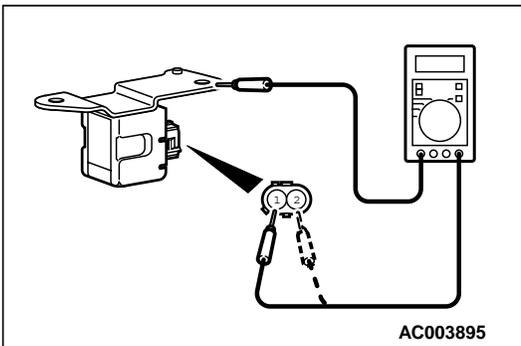
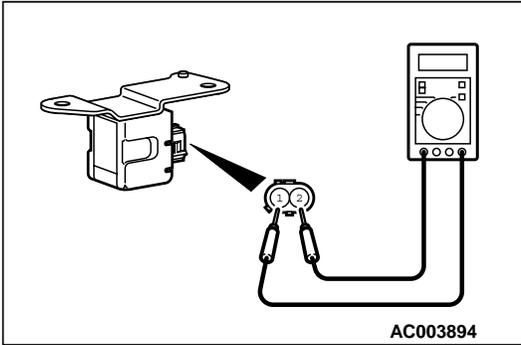
DIAGNOSIS

Required Special Tools:
MB991222: Probe

STEP 1. Check the front impact sensor.

- (1) Measure the resistance between terminals and check whether it is within the standard value.

Standard value: $820 \pm 82 \Omega$



- (2) Check for continuity between the terminal and bracket.
- There should be no continuity.

Q: Does the resistance meet the value above, and is there continuity?

YES : Go to Step 2.

NO : Replace the front impact sensor. Refer to [P.52B-67](#). Then go to Step 6.

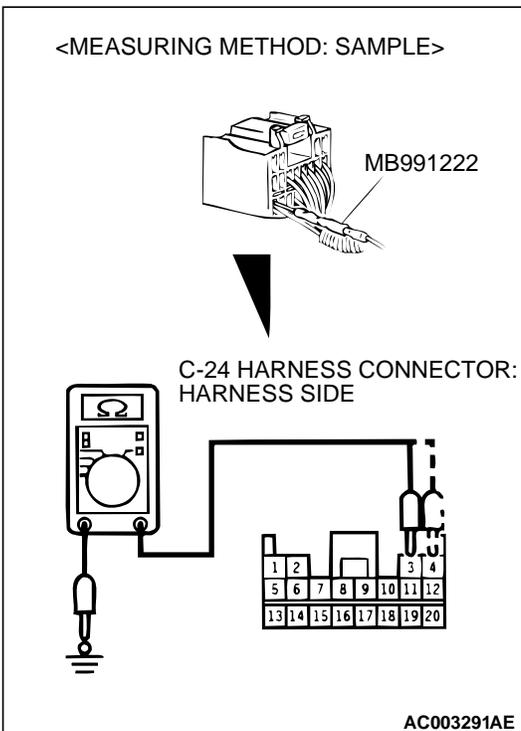
STEP 2. Check the front impact sensor (LH) line at SRS-ECU connector C-24.

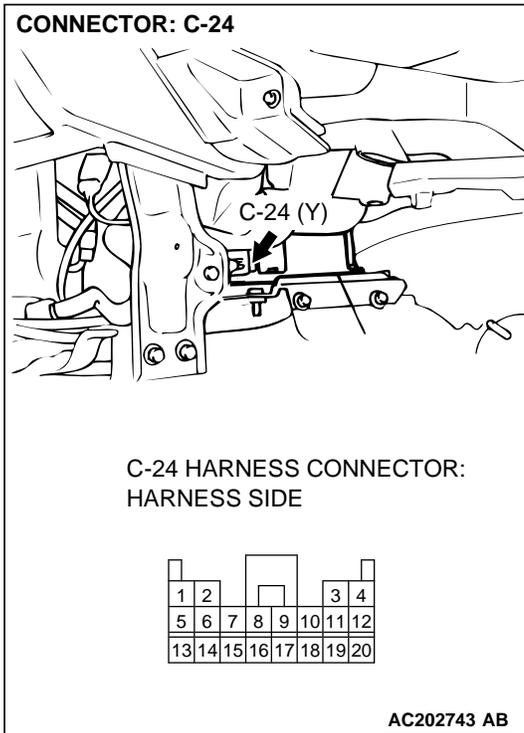
- (1) Disconnect SRS-ECU connector C-24 and measure at the harness side (rear side).
- (2) Measure the resistance between terminal 3 and terminal 4.
- Resistance should measure $820 \pm 82 \Omega$

Q: Does the resistance meet the value above?

YES : Go to Step 4.

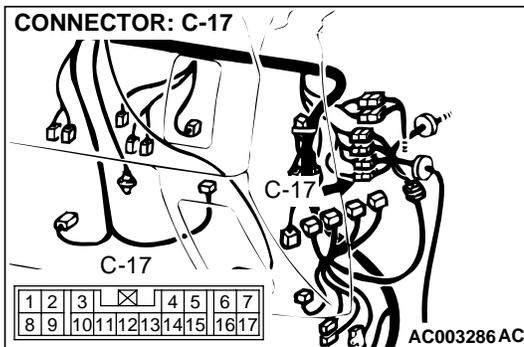
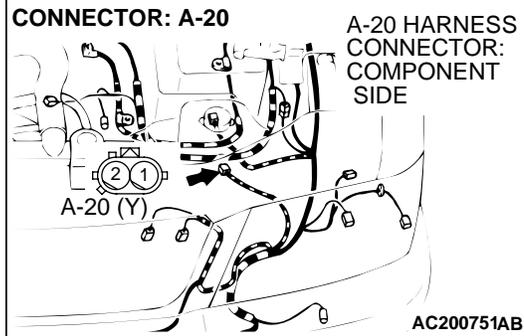
NO : Go to Step 3.

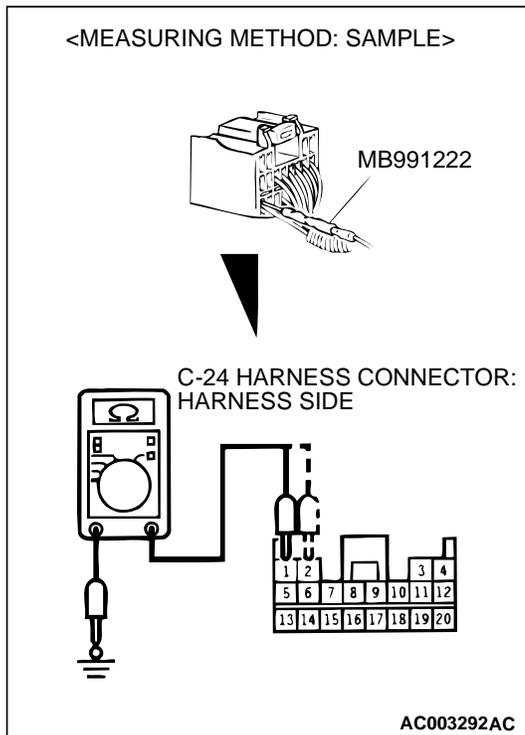




STEP 3. Check the harness wires between SRS-ECU connector C-24 (terminal No.3 and 4) and front impact sensor (LH) connector A-20 (terminal No.1 and 2).
NOTE: After inspecting intermediate connector C-17, inspect the wiring harness.
If the intermediate connector C-17 is damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.
Then go to Step 6.

Q: Are harness wires between SRS-ECU connector C-24 (terminal No.3 and 4) and front impact sensor (LH) connector A-20 (terminal No.1 and 2) in good condition?
YES : Go to Step 6.
NO : Repair them or install the sensor cable. Refer to P.52B-91. Then go to Step 6.





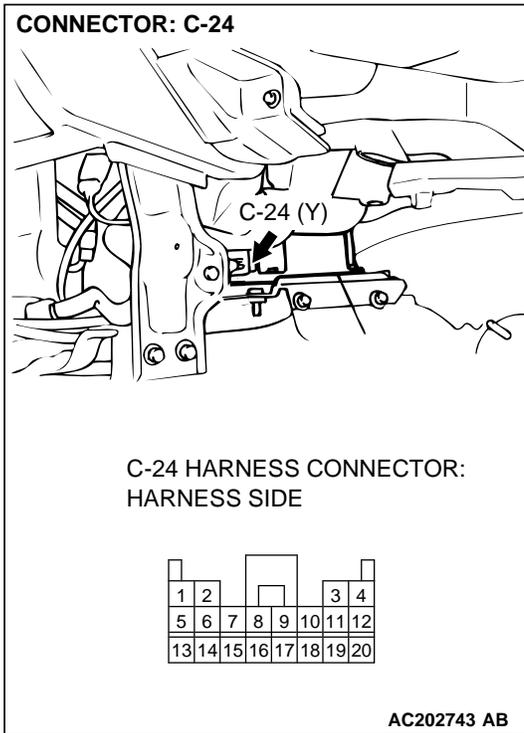
STEP 4. Check the front impact sensor (RH) line at SRS-ECU connector C-24.

- (1) Disconnect SRS-ECU connector C-24 and measure at the harness side (rear side).
- (2) Resistance between terminal 1 and terminal 2.
 - Resistance should measure $820 \pm 82 \Omega$

Q: Does the resistance meet the value above?

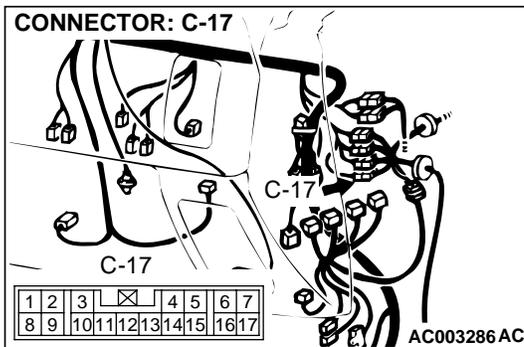
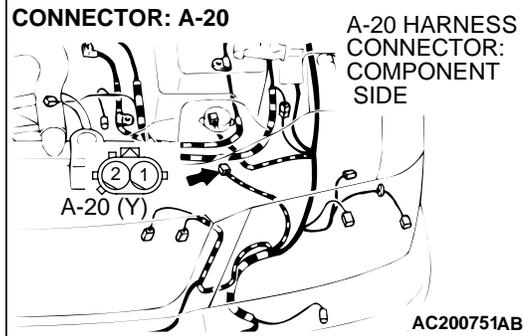
YES : Replace the SRS-ECU. Refer to [P.52B-70](#). Then go to Step 6.

NO : Go to Step 5.



STEP 5. Check the harness wires between SRS-ECU connector C-24 (terminal No. 1 and 2) and front impact sensor (RH) connector A-32 (terminal No.1 and 2).
NOTE: After inspecting intermediate connector C-17, inspect the wiring harness.
If intermediate connector C-17 is damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Then go to Step 6.

Q: Are harness wires between SRS-ECU connector C-24 (terminal No. 1 and 2) and front impact sensor (RH) connector A-32 (terminal No.1 and 2) in good condition?
YES : Go to Step 6.
NO : Repair them or install the sensor cable. Refer to P.52B-91. Then go to Step 6.



STEP 6. Check SRS diagnostic trouble code.

Q: Is any of DTC 11, 12 or 13 set?

YES : Replace the SRS-ECU. Refer to [P.52B-70](#).

NO : The procedure is complete. (If no malfunctions are found in all steps, an intermittent malfunction is suspected. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-6](#).)

DTC 14: Analog G-sensor System in the SRS-ECU

DTC 15: Safing G-Sensor Short Circuit

DTC 16: Safing G-Sensor Open Circuit

DTC 31: SRS-ECU Capacitor Circuit Voltage too High

DTC 32: SRS-ECU Capacitor Circuit Voltage too Low

DTC 45: SRS-ECU Non-Volatile Memory (EEPROM) and A/D Converter System

DTC 51: Driver's Side Air Bag Module (Squib Ignition Drive Circuit) System Detected Short Circuit

DTC 52: Driver's Side Air Bag Module (Squib Ignition Drive Circuit) System Detected Open Circuit

DTC 54: Passenger (Front) Side Air Bag Module (Squib Ignition Drive Circuit) System Detected Short Circuit

DTC 55: Passenger (Front) Side Air Bag Module (Squib Ignition Drive Circuit) System Detected Open Circuit

DTC 56: Driver Side Seat Belt Pre-tensioner (Squib Ignition Drive Circuit) System Detected Short Circuit

DTC 57: Driver Side Seat Belt Pre-tensioner (Squib Ignition Drive Circuit) System Detected Open Circuit

DTC SET CONDITIONS

These DTC's are set when a fault is detected in the SRS-ECU.

The most likely causes for the code to be set are shown in the table below:

DTC	DEFECTIVE PART	SYMPTOMS
14	Analog G-sensor	<ul style="list-style-type: none"> • When the analog G-sensor is not operating • When the characteristics of the analog G-sensor are abnormal • When the output from the analog G-sensor is abnormal
15	Safing G-sensor	• Short circuit in the safing G-sensor
16		• Open circuit in the safing G-sensor
31	Capacitor	• Voltage at the capacitor terminal is higher than the specified value for 5 seconds or more
32		• Voltage at the capacitor terminal is lower than the specified value for 5 seconds or more (This is not detected if DTC's No.41 or 42 indicating battery voltage drop has been output.)
45	Non-volatile memory (EEPROM) and A/D converter	• When the non-volatile memory (EEPROM) and A/D converter system are abnormal

DTC	DEFECTIVE PART	SYMPTOMS
51	Driver's side air bag module (squib ignition drive circuit)	• Short circuit in the squib ignition drive circuit
52		• Open circuit in the squib ignition drive circuit
54	Front passenger's side air bag module (squib ignition drive circuit)	• Short circuit in the squib ignition drive circuit
55		• Open circuit in the squib ignition drive circuit
56	Driver side seat belt pre-tensioner (squib ignition drive circuit)	• Short circuit in the squib ignition drive circuit
57		• Open circuit in the squib ignition drive circuit

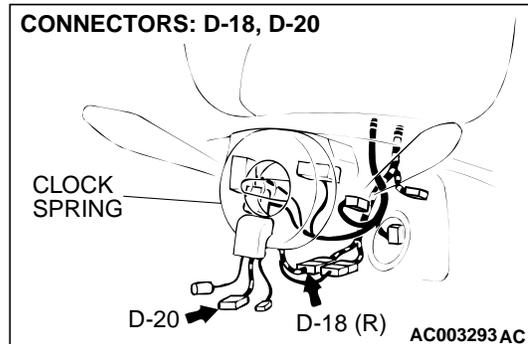
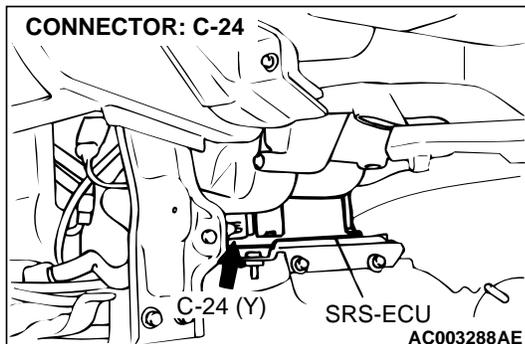
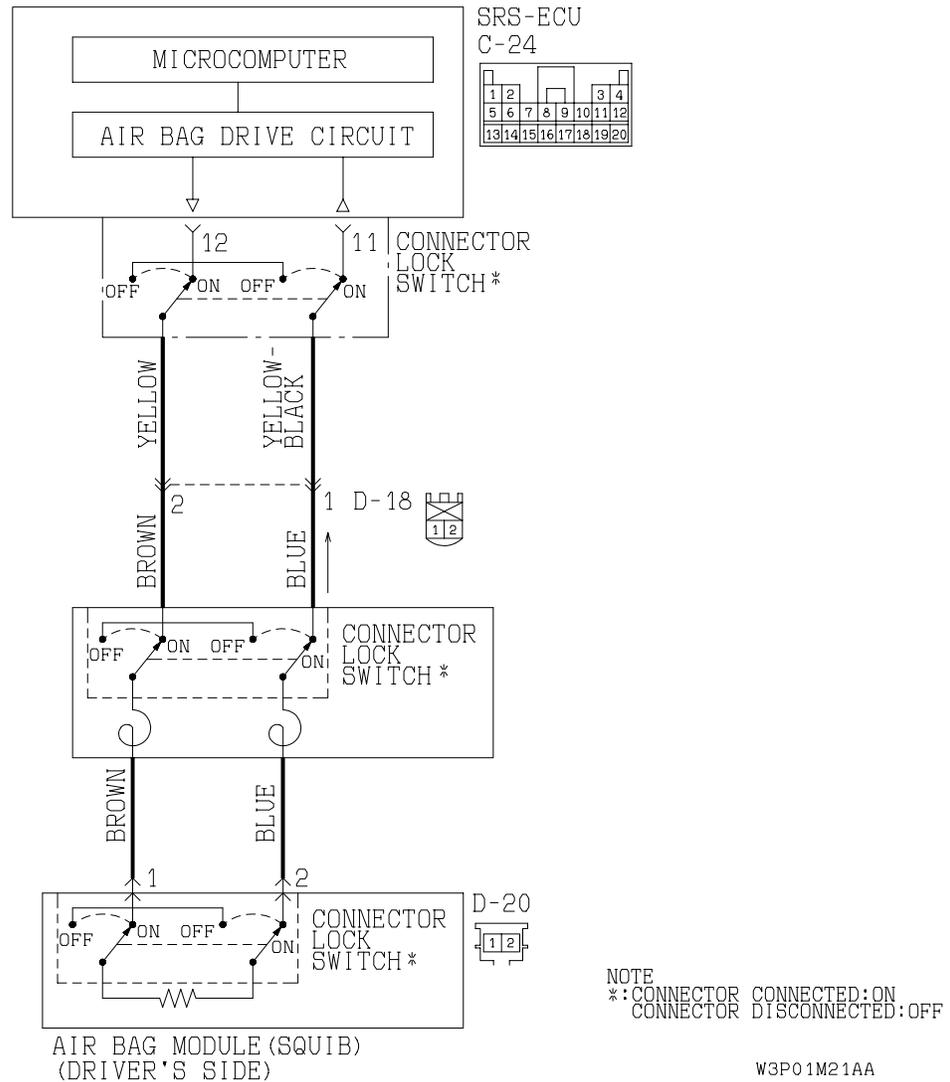
TROUBLESHOOTING HINTS

Malfunction of the SRS-ECU

DIAGNOSISReplace the SRS-ECU. Refer to [P.52B-70](#).**Q: Is any of DTC's set?****YES** : There is no action to be taken.**NO** : The procedure is complete.

- DTC 21 : Driver's Side Air Bag Module (Squib) System Fault 1**
- DTC 22: Driver's Side Air Bag Module (Squib) System Fault 2**
- DTC 61: Driver's Side Air Bag Module (Squib) System Fault for Power Supply Circuit**
- DTC 62: Driver's Side Air Bag Module (Squib) System Fault for Ground circuit**

Driver's Side Air Bag Module Squib Circuit



CIRCUIT OPERATION

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

- The ignition signal is input to the air bag module via the clock spring to inflate the air bag.

DTC SET CONDITION

- These DTC's are set if there is abnormal resistance between the input terminals of the driver's side air bag module (squib).
- The most likely causes for this code to be set are shown in the table below:

DTC	SYMPTOM
21	<ul style="list-style-type: none"> Short circuit in driver's side air bag module (squib) or harness Short circuit in clock spring
22	<ul style="list-style-type: none"> Open circuit in driver's side air bag module (squib) or harness Open circuit in clock spring Disconnection of driver's side air bag module (squib) connector Half-open circuit caused by improper clock spring neutral position Malfunction of connector contact
61	<ul style="list-style-type: none"> Short circuit in driver's side air bag module (squib) harness leading to the power supply
62	<ul style="list-style-type: none"> Short circuit in driver's side air bag module (squib) harness leading to the ground

NOTE: *: The squib circuit connectors integrate a "short" bar (which prevents the air bag from deploying unintentionally due to static electricity by shorting the positive wire to the ground wire in the squib circuit when the connectors are disconnected) (Refer to P.52B-17.) Therefore, if the connector (C-24, and D-18 and D-20) are damaged or improperly engaged, the short bar may not be released when the connector is connected.

TROUBLESHOOTING HINTS

- Improper engaged connector or defective short bar*
- Malfunction of the clock spring
- Half-open circuit caused by improper clock spring neutral position
- Damaged wiring harnesses or connectors
- Malfunction of the driver's side air bag module (squib)
- Malfunction of the SRS-ECU

DIAGNOSIS**Required Special Tools:**

- MB991502: Scan Tool (MUT-II)
- MB991865: Dummy resistor
- MB991866: Resister harness

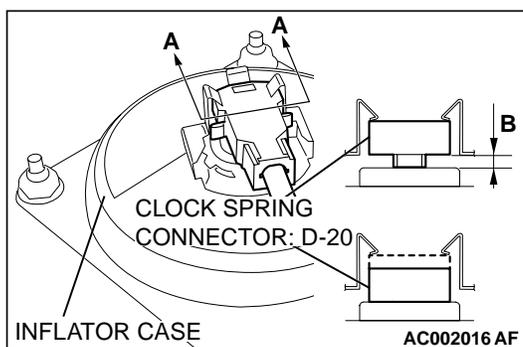
STEP 1. Check the clock spring connector D-20.

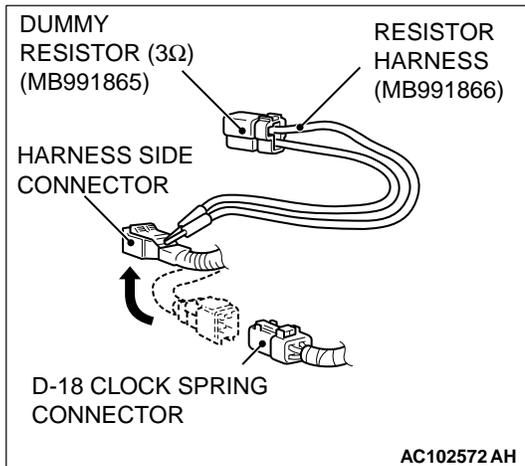
Remove the air bag module mounting equipment and check clock spring connector D-20. At this time, check that there is no gap at place B shown in the illustration.

Q: Is the connector correctly connected?

YES : Go to Step 2.

NO : Insert the connector to the place, where there remains no gap at place B shown in the illustration. Then go to Step 5.





STEP 2. Check the clock spring line using the scan tool, MB991865 dummy resistor and MB991866 resistor harness.

- (1) Release the clock spring connector (2-pin) D-18.
- (2) Connect the dummy resistor (MB991865) to the resistor harness (MB991866).

CAUTION

Do not directly insert a probe or other devices at the front of the connector to avoid a possible decrease in the contact pressure.

- (3) Insert the resistor harness (MB991866) behind the harness side connector D-18.
- (4) Connect the negative (-) battery terminal.
- (5) Erase the diagnostic trouble code memory. Then check the diagnostic trouble code again.

Q: Is any of DTC 21, 22, 61 or 62 set?

YES : Go to Step 4.

NO : Go to Step 3.

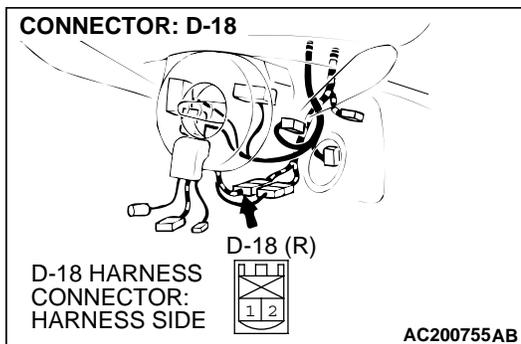
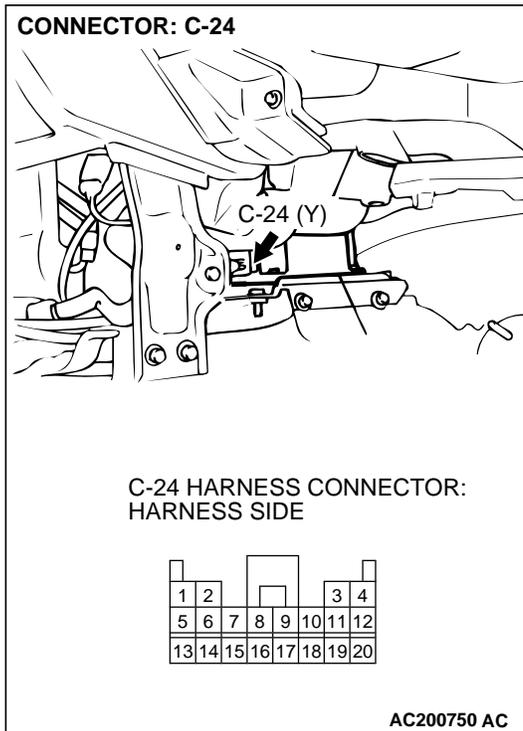
STEP 3. Check the clock spring.

- (1) Check the connectors and protective tube for damaged, and the terminal for deformation.
- (2) Visually check the case for damaged.

Q: Is any malfunction found on the clock spring?

YES : Replace the clock spring (Refer to [P.52B-72.](#)) Then go to Step 5.

NO : Replace the driver's side air bag module. (Refer to [P.52B-72.](#)) Then go to Step 5.



STEP 4. Check the harness wires between SRS-ECU connector C-24 (terminal No.11, 12) and clock spring connector D-18 (terminal No.1 and 2).

Q: Are the harness wires between SRS-ECU connector C-24 (terminal No.11 and 12) clock spring connector D-18 (terminal No.1 and 2) in good condition?

YES : Go to Step 5.

NO : Repair or replace the harness wires between SRS-ECU connector C-24 and clock spring connector D-18. Then go to Step 5.

STEP 5. Check SRS diagnostic trouble code.

Q: Is any of DTC 21, 22, 61 or 62 set?

YES : Return to Step 1.

NO : The procedure is complete. (If no malfunctions are found in all steps, an intermittent malfunction is suspected. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-6.](#))

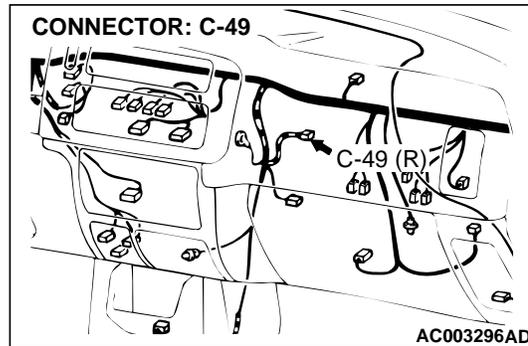
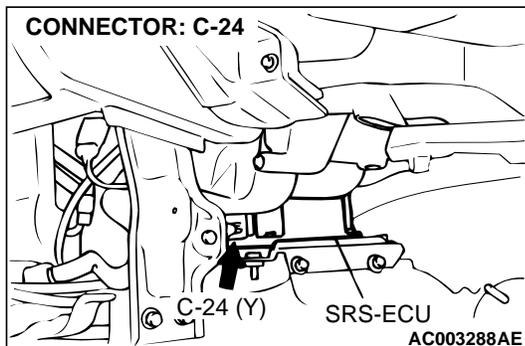
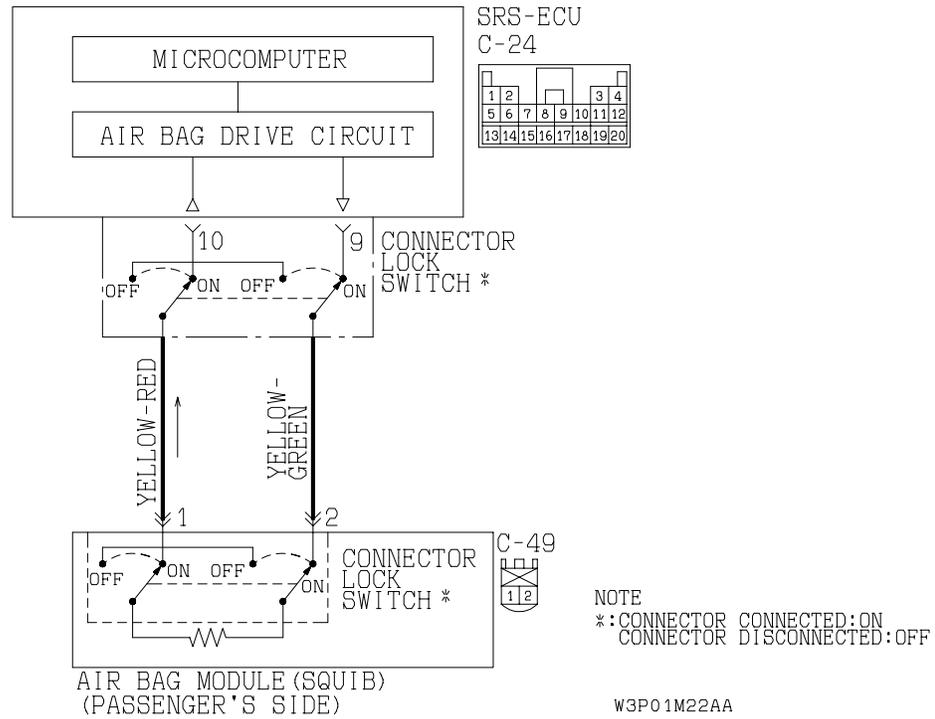
DTC 24: Passenger (Front) Side Air Bag Module (Squib) System Fault 1

DTC 25: Passenger (Front) Side Air Bag Module (Squib) System Fault 2

DTC 64: Passenger (Front) Side Air Bag Module (Squib) System Fault for Power Supply Circuit

DTC 65: Passenger (Front) Side Air Bag Module (Squib) System Fault for Ground Circuit

Passenger's Side Air Bag Module Squib Circuit



CIRCUIT OPERATION

- The SRS-ECU judges how severe a collision is by detecting signals from the left and right front impact sensors and the analog G-sensor. If the impact is over a predetermined level, the SRS-ECU outputs an ignition signal. At this time, if the 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

- These DTC's are set if there is abnormal resistance between the input terminals of the front passenger's side air bag module (squib). The most likely causes for this code to be set are shown in the table below:

DTC	SYMPTOM
24	<ul style="list-style-type: none"> • Short circuit in front passenger's side air bag module (squib) or harness
25	<ul style="list-style-type: none"> • Open circuit in front passenger's side air bag module (squib) or harness • Malfunction of connector contact
64	<ul style="list-style-type: none"> • Short circuit in front passenger's side air bag module (squib) harness leading to the power supply
65	<ul style="list-style-type: none"> • Short circuit in front passenger's side air bag module (squib) harness leading to the ground

TROUBLESHOOTING HINTS

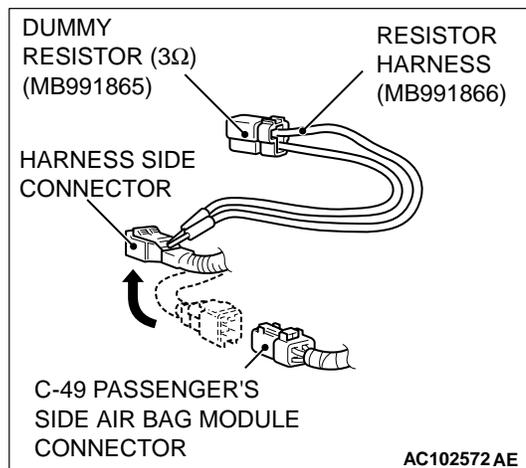
- Improper engaged connector or defective short bar*
- Damaged wiring harnesses or connectors

- Malfunction of the front passenger's side air bag module (squib)
- Malfunction of the SRS-ECU

NOTE: *: The squib circuit connectors integrate a "short" bar (which prevents the air bag from deploying unintentionally due to static electricity by shorting the positive wire to the ground wire in the squib circuit when the connectors are disconnected) (Refer to P.52B-17.) Therefore, if the connector is damaged or improperly engaged, the short bar may not be released when the connector is connected.

DIAGNOSIS**Required Special Tools:**

- MB991502: Scan Tool (MUT-II)
- MB991865: Dummy resistor
- MB991866: Resistor harness

**STEP 1. Check the passenger's side air bag module.**

(1) Connect the dummy resistor (MB991865) to the resistor harness (MB991866).

CAUTION

Do not directly insert a probe or other devices at the front of the connector to avoid a possible decrease in the contact pressure.

- (2) Disconnect the passenger's side air bag module connector C-49 and insert the resistor harness (MB991866) behind the harness side connector.
- (3) Connect the negative (-) terminal of the battery.
- (4) Check the diagnostic trouble code again after erasing the memory.

Q: Is DTC 24, 25, 64 or 65 set?

YES : Go to Step 2.

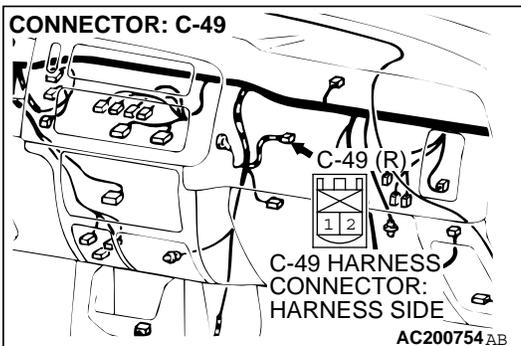
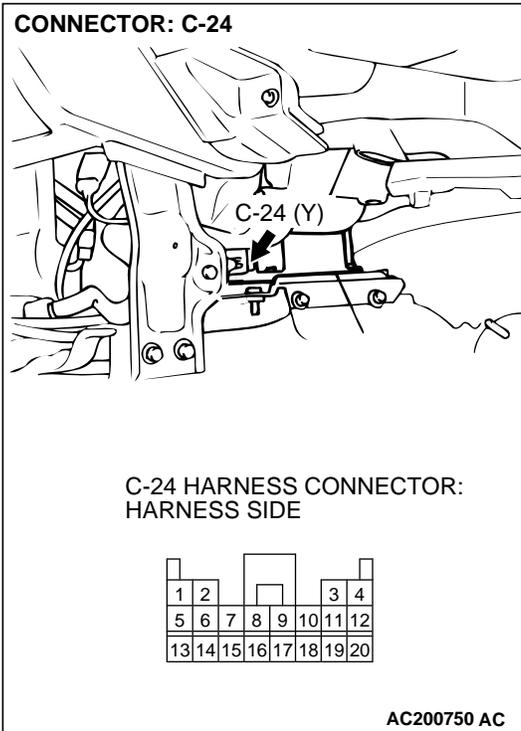
NO : Replace the passenger's side air bag module. (Refer to P.52B-72.) Then go to Step 3.

STEP 2. Check harness wires between SRS-ECU connector C-24 (terminal No.9 and 10) and front passenger's side air bag module connector C-49 (terminal No.1 and 2).

Q: Are the harness wires between SRS-ECU connector C-24 (terminal No.9 and 10) and passenger's side air bag module connector C-49 (terminal No.1 and 2) in good condition?

YES : Go to Step 3.

NO : Repair. Then go to Step 3.



STEP 3. Check SRS diagnostic trouble code.

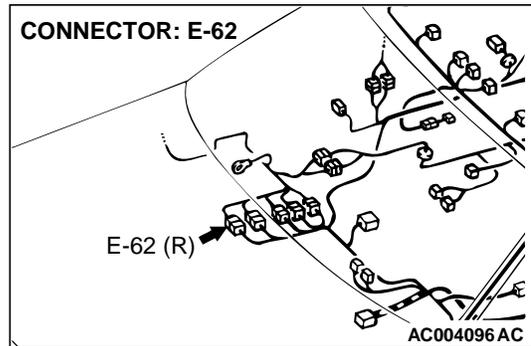
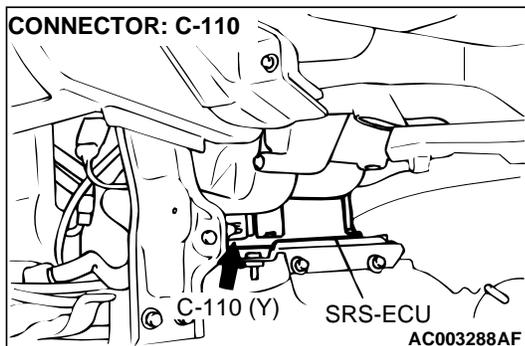
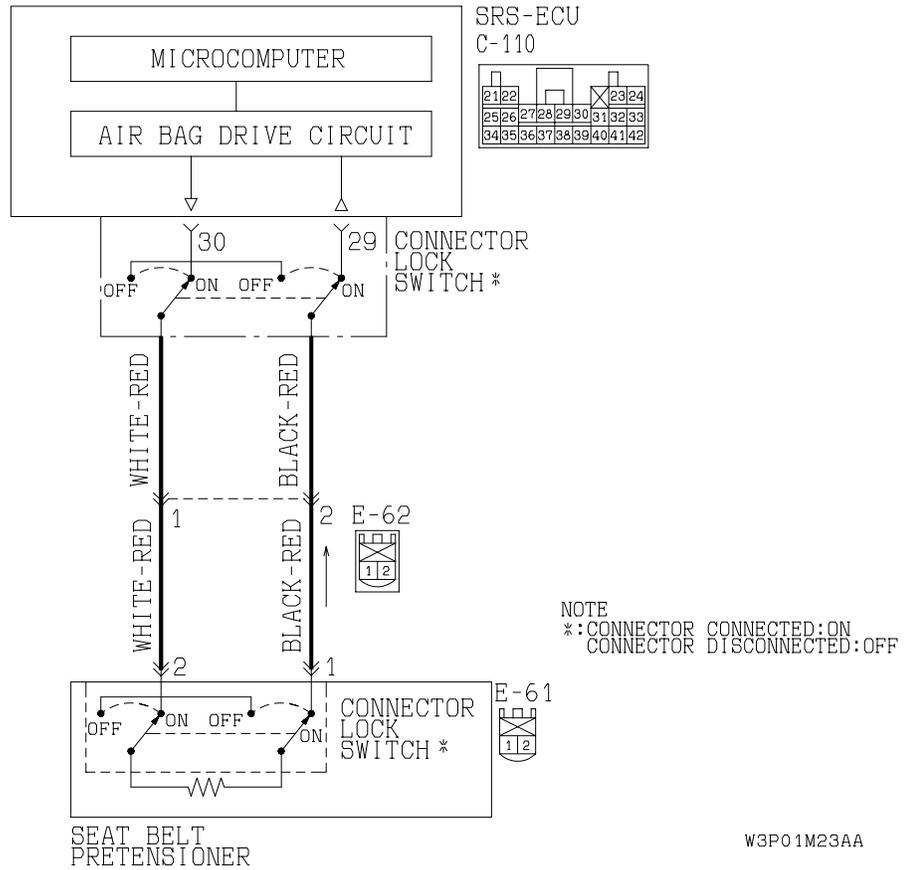
Q: Is any of DTC 24, 25, 64 or 65 set?

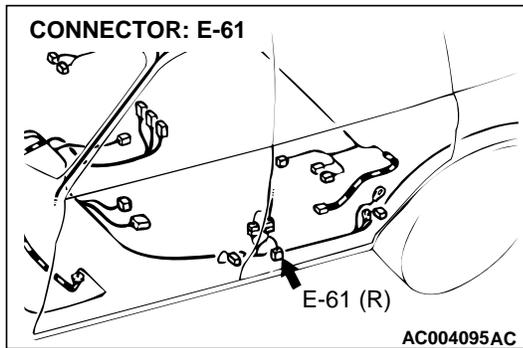
YES : Replace the SRS-ECU. Refer to [P.52B-72](#).

NO : The procedure is complete. (If no malfunctions are found in all steps, an intermittent malfunction is suspected. Refer to GROUP 00, How to Use Trouble shooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-6](#).)

- DTC 26: Driver's Side Seat Belt Pre-Tensioner (Squib) System Fault 1
 DTC 27: Driver's Side Seat Belt Pre-Tensioner (Squib) System Fault 2
 DTC 66: Driver's Side Seat Belt Pre-Tensioner (Squib) System Fault for Power Supply Circuit
 DTC 67: Driver's Side Seat Belt Pre-Tensioner (Squib) System Fault for Ground Circuit

Driver's Side Seat Belt Pretensioner Squib Circuit





CIRCUIT OPERATION

- If an analog G-sensor and saving G-sensor inside the SRS-ECU sense a predetermined collision energy simultaneously during a frontal collision, the SRS-ECU sends igniting signal to the pre-tensioner, causing the pre-tensioner to operate.

DTC SET CONDITIONS

- These DTC's are set if there is abnormal resistance between the input terminals of the driver's side seat belt pre-tensioner (squib). The most likely causes for this code to be set are shown in the table below:

DTC	SYMPTOM
26	<ul style="list-style-type: none"> • Short circuit in driver's side seat belt pre-tensioner (squib) or harness
27	<ul style="list-style-type: none"> • Open circuit in driver's side seat belt pre-tensioner (squib) or harness • Malfunction of connector contact
66	<ul style="list-style-type: none"> • Short circuit in driver's side seat belt pre-tensioner (squib) harness leading to the power supply
67	<ul style="list-style-type: none"> • Short circuit in driver's side seat belt pre-tensioner (squib) harness leading to the ground

*NOTE: *: The squib circuit connectors integrate a "short" bar (which prevents the air bag from deploying unintentionally due to static electricity by shorting the positive wire to the ground wire in the squib circuit when the connectors are disconnected) (Refer to P.52B-17.) Therefore, if the connector is damaged or improperly engaged, the short bar may not be released when the connector is connected.*

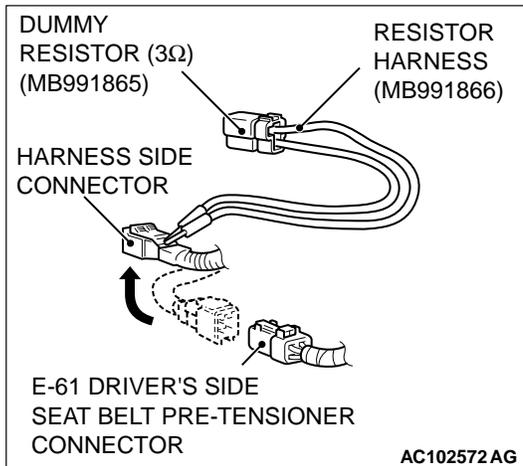
TROUBLESHOOTING HITS

- Improper engaged connector or defective short bar*
- Damaged wiring harnesses or connectors
- Malfunction of the driver's side seat belt pre-tensioner (squib)
- Malfunction of the SRS-ECU

DIAGNOSIS

Required Special Tools:

- MB991502: Scan Tool (MUT-II)
- MB991865: Dummy resister
- MB991866: Resister harness

**STEP 1. Check the driver's side seat belt pre-tensioner.**

(1) Connect the dummy resistor (MB991865) to the resistor harness (MB991866).

CAUTION

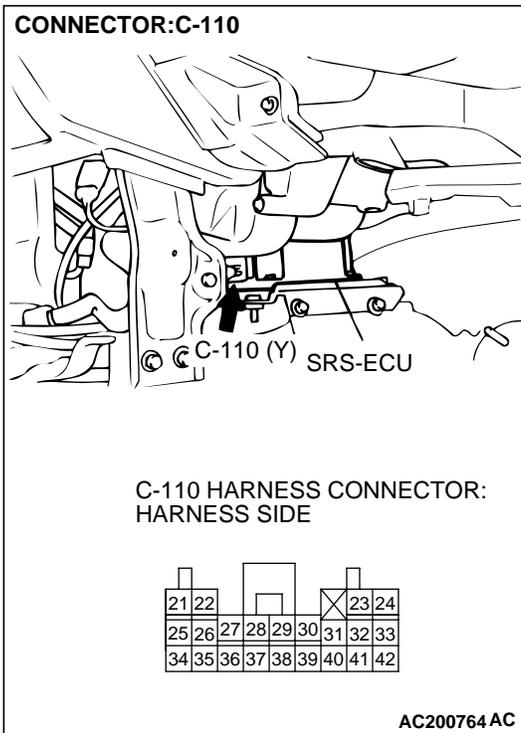
Do not directly insert a probe or other devices at the front of the connector to avoid a possible decrease in the contact pressure.

- (2) Disconnect the passenger's side air bag module connector E-61 and insert the resistor harness (MB991866) behind the harness side connector.
- (3) Connect the negative (-) terminal of the battery.
- (4) Check the diagnostic trouble code again after erasing the memory.

Q: Is any of DTC 26, 27, 66 or 67 set?

YES : Go to Step 2.

NO : Replace the driver's side seat belt pre-tensioner. Refer to [P.52B-80](#). Then go to Step 3.



STEP 2. Check harness wires between SRS-ECU connector C-110 (terminal No.29 and 30) and driver's side seat belt pre-tensioner connector E-61(terminal No.1 and 2).

NOTE: After inspecting intermediate connector E-62, inspect the wiring harness.

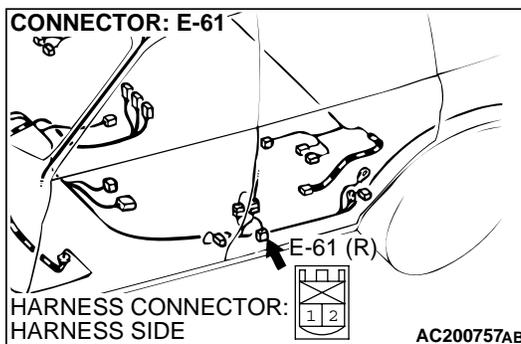
If the intermediate connector E-62 is damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Go to Step 3.

Q: Are harness wires between SRS-ECU connector C-110 (terminal No.29 and 130) and driver's side seat belt pre-tensioner connector E-61 (terminal No.1 and 2) in good condition?

YES : Go to Step 3.

NO : Repair or replace the harness wire. Then go to Step 3.



STEP 3. Check SRS diagnostic trouble code.

Q: Is any of DTC 26, 27, 66 or 67 set?

YES : Replace the SRS-ECU. Refer to P.52B-70.

NO : The procedure is complete. (If no malfunctions are found in all steps, an intermittent malfunction is suspected. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction P.00-6.)

DTC 34: Connector Lock System Detects Connector Unlocked**DTC SET CONDITIONS**

This DTC is set if a poor connection at the SRS-ECU is detected.

However, if the vehicle condition returns to normal, DTC 34 will be automatically erased, and the SRS warning light will go out.

TROUBLESHOOTING HINTS

- Damaged connectors
- Malfunction of the SRS-ECU

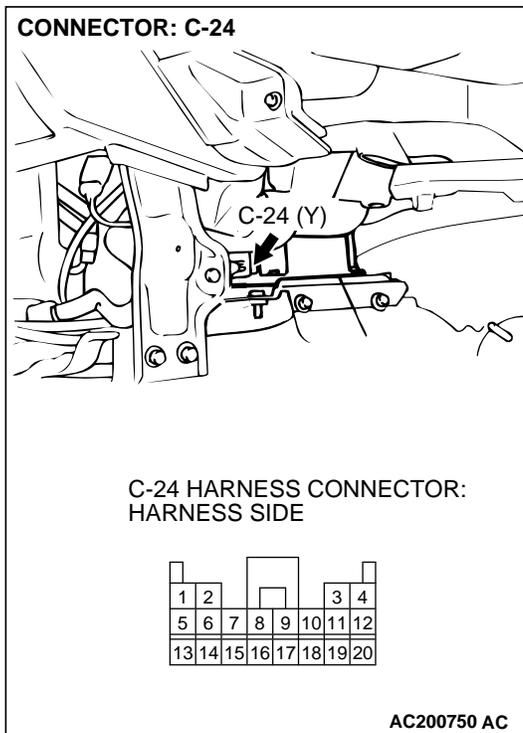
DIAGNOSIS

STEP 1. Check SRS-ECU connector C-24 for damage. If SRS-ECU connector C-24 for loose, corroded or damaged terminals, or terminals pushed back in the connector, repair or replace them.

Q: Are SRS-ECU connector C-24 in good condition?

YES : Replace the SRS-ECU. Refer to [P.52B-70](#). Then go to Step 2.

NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Then go to Step 2.



STEP 2. Check SRS diagnostic trouble code.

Q: Is DTC 34 set?

YES : There is no action to be taken.

NO : The procedure is complete. (If no malfunctions are found in all steps, an intermittent malfunctions suspected. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-6](#).)

DTC 35: SRS-ECU Air Bag Condition Monitor Detects Deployed Air Bag

DTC SET CONDITIONS

This DTC is set after the air bag has deployed. If this code is output before the air bag has deployed, the cause is probably a malfunction inside the SRS-ECU.

TROUBLESHOOTING HINTS

- Malfunction of the SRS-ECU

DIAGNOSIS

Replace the SRS-ECU. Refer to [P.52B-70](#).

Q: Is DTC 35 set?

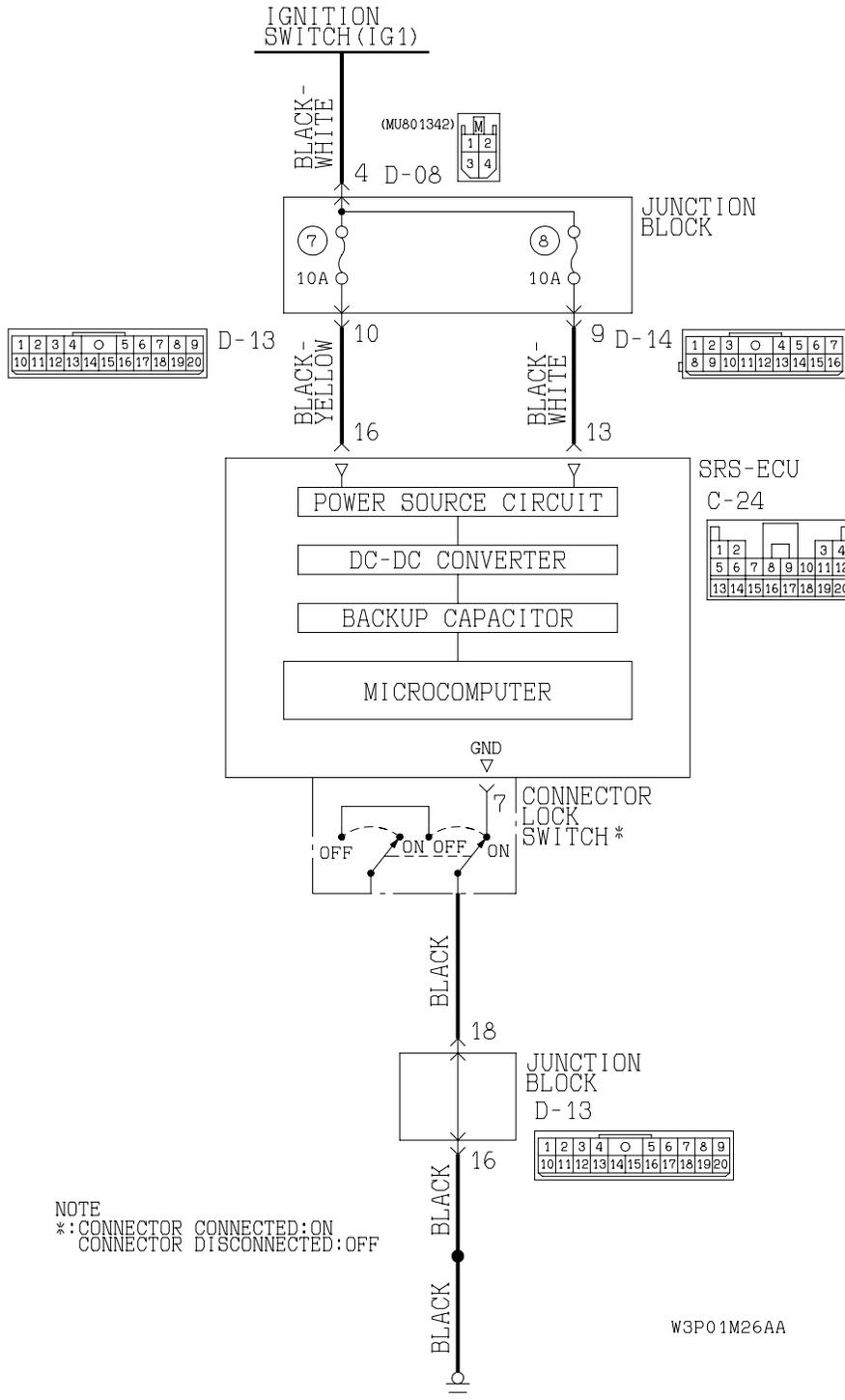
YES : There is no action to be taken.

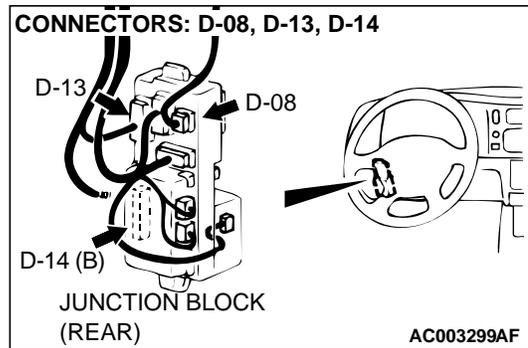
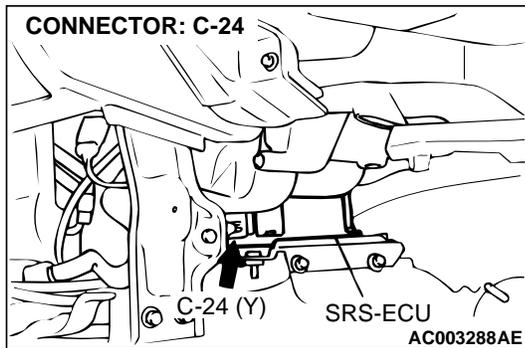
NO : The procedure is complete.

DTC 41: IG₁ Power Circuit System (Fuse No. 7 Circuit)

DTC 42: IG₁ Power Circuit System (Fuse No. 8 Circuit)

SRS-ECU Power Supply (IG1) Circuit





CIRCUIT OPERATION

- The SRS-ECU is powered from the ignition switch (IG₁).
- The SRS-ECU power is supplied from two circuits. Even if one circuit is shut off, the air bag can inflate.
- The SRS-ECU judges how severe a collision is by detecting signals from the left and right front impact sensors and the analog G-sensor. If the impact is over a predetermined level, the SRS-ECU outputs an ignition signal. At this time, if the safing G-sensor is on, the SRS air bag will inflate.

DTC SET CONDITIONS

These DTC's are set if the voltage between the IG₁ terminals and ground is lower than a predetermined value for a continuous period of 5 seconds or more. However, if the vehicle condition returns to normal, DTC's 41 or 42 will be automatically erased, and the SRS warning light will switch off.

TROUBLESHOOTING HINTS

- Damaged wiring harnesses or connectors
- Malfunction of the SRS-ECU

DIAGNOSIS

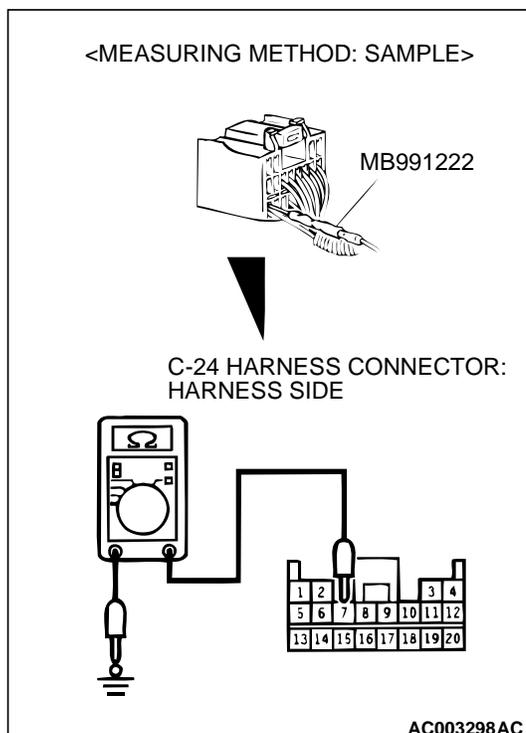
Required Special Tool:
MB991222: Probe

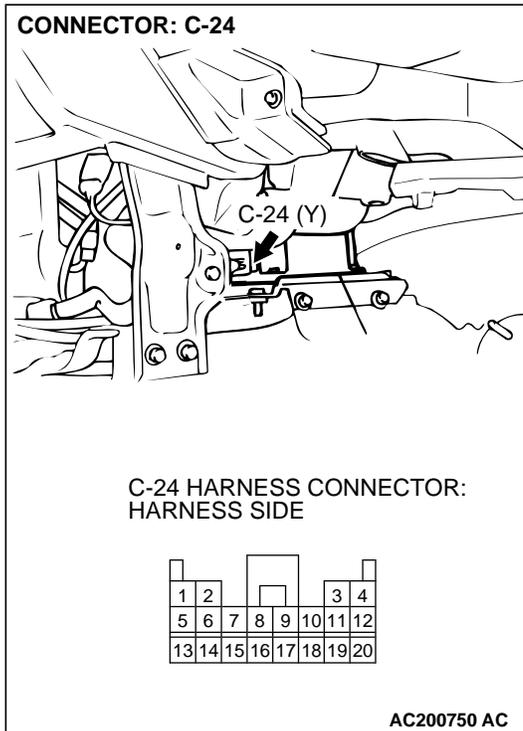
STEP 1. Check the ground line at SRS-ECU connector C-24.

- (1) Disconnect SRS-ECU connector C-24 and measure at the harness side (rear side).
- (2) Measure the resistance between terminal 7 and ground.
 - There should measure less than 2 ohms.Ω

Q: Is the resistance 2 ohms?

- YES :** Go to Step 3.
NO : Go to Step 2.





STEP 2. Check the harness wires between SRS-ECU connector C-24 (terminal No.7) and ground.

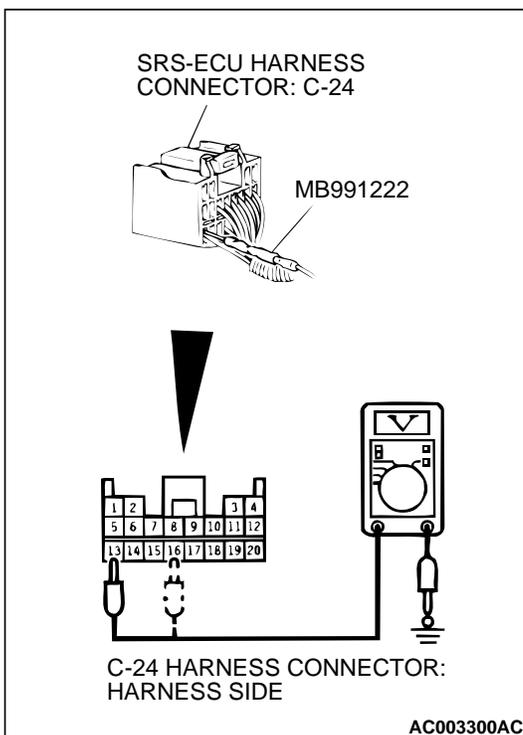
NOTE: After inspecting intermediate connectors D-13, inspect the wiring harness.

If intermediate connector D-13 is damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Go to Step 5.

Q: Are harness wires between the SRS-ECU connector C-24 (terminal No.7) and the ground in good condition?

YES : Go to Step 5.

NO : Repair them. Then go to Step 5.



STEP 3. Measure the ignition switch (IG₁) line voltage at SRS-ECU connector C-24.

(1) Disconnect SRS-ECU connector C-24 and measure at the harness side (rear side).

(2) Turn the ignition switch "ON."

(3) Measure the voltage between terminal 13 (for DTC 42) or 16 (for DTC 41) and the ground.

- Voltage should measure 9 volts or more

Q: Is the voltage 9 volts or more?

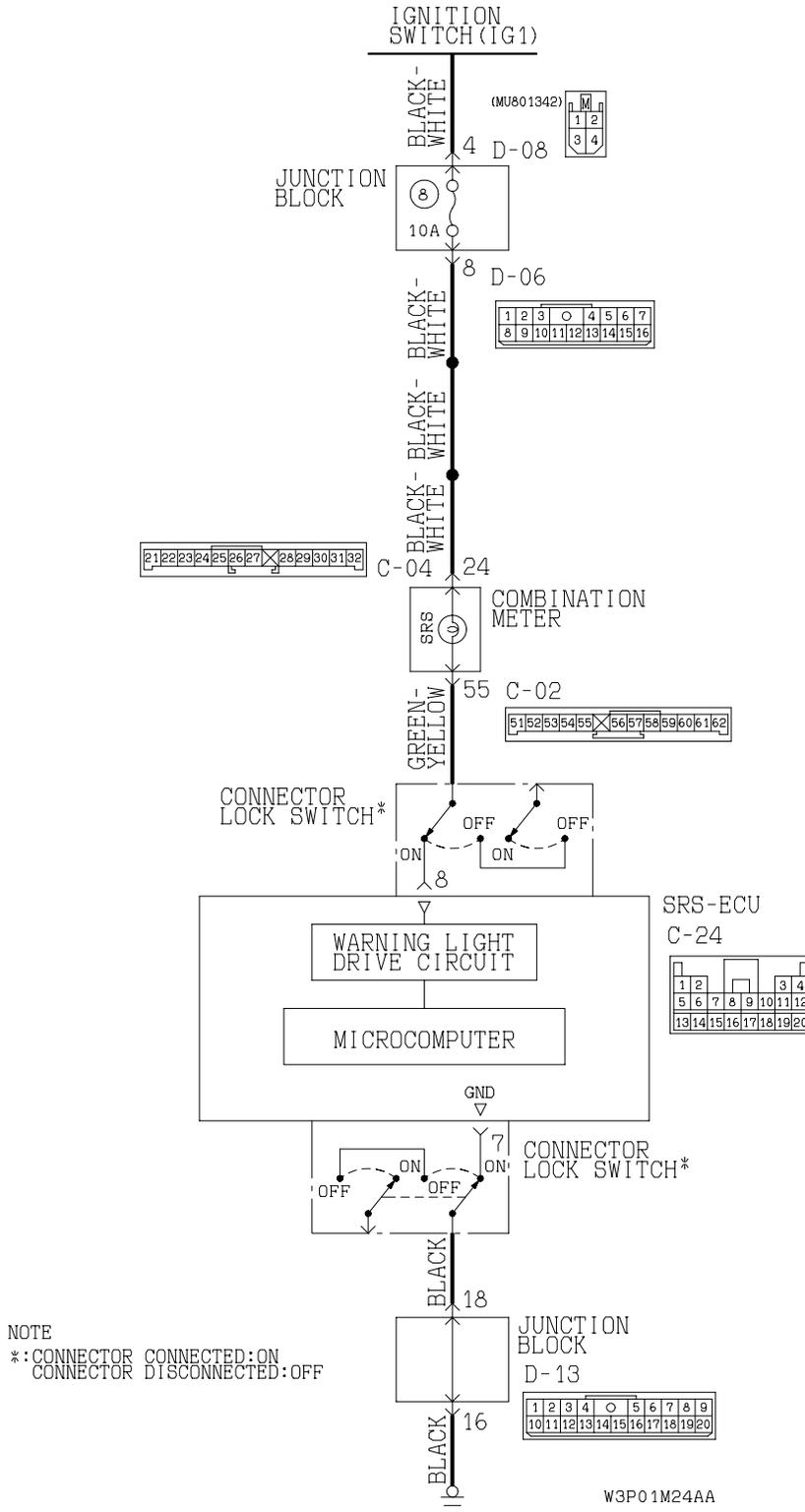
YES : Replace the SRS-ECU. Refer to P.52B-70. Then go to Step 5.

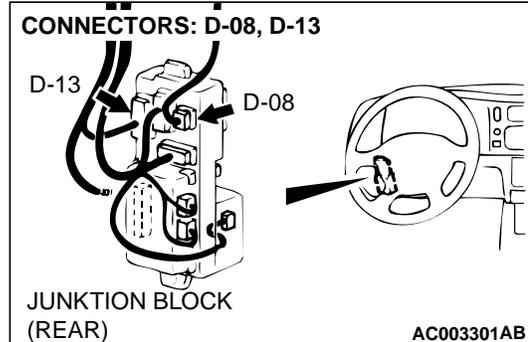
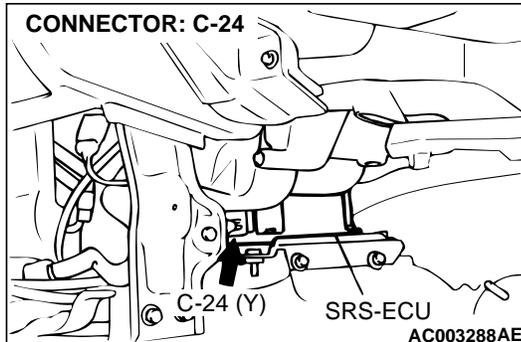
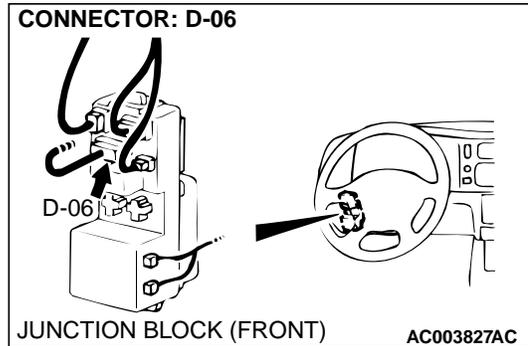
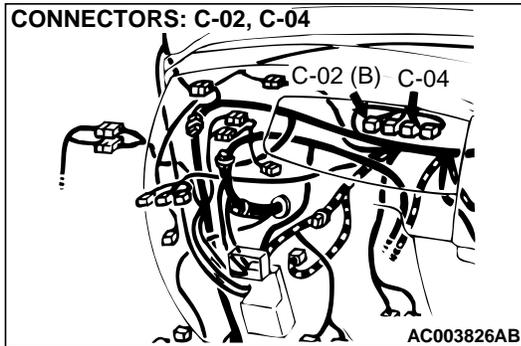
NO : Go to Step 4.

STEP 5. Check SRS diagnostic trouble code.**Q: Is any of DTC 41 or 42 set?****YES :** There is no action to be taken.**NO :** This procedure is complete. (If no malfunctions are found in all steps, an intermittent malfunction is suspected. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-6.](#))

DTC 43: SRS Warning Light Drive Circuit System Fault 1 (Light does not illuminate.)/SRS Warning Light Drive Circuit System Fault 1 (Light does not Switch off.)
DTC 44: SRS Warning Light Drive Circuit System Fault 2

SRS Warning Light Drive Circuit





CIRCUIT OPERATION

- Power for the SRS warning light is supplied from the ignition switch (IG₁) circuit.
- The SRS warning light illuminates when the ignition switch is turned "ON," and goes out after approximately 7 seconds if there is not a malfunction in the SRS system.
- The SRS-ECU judges how severe a collision is by detecting signals from the left and right front impact sensors and the analog G-sensor. If the impact is over a predetermined level, the SRS-ECU outputs an ignition signal. At this time, if the safing G-sensor is on, the SRS air bag will inflate.

DTC SET CONDITIONS

- This DTC is set when an open circuit is detected for a continuous period of 5 seconds while the SRS-ECU is monitoring the SRS warning light and the light is OFF. (transistor OFF.) However, if the vehicle condition returns to normal, DTC 43 will be automatically erased, and the SRS warning light will go out.

- This DTC is set when a short to ground occurs in the harness between the SRS warning light and SRS-ECU while the SRS-ECU is monitoring the light and the light is ON.
- This DTC is set under one of the following cases while the SRS-ECU is monitoring the warning light drive circuit:
 - When a short circuit occurs in the warning light drive circuit.
 - When a malfunction is detected in the output transistor inside the SRS-ECU.

However, if the vehicle returns to normal condition, DTC 44 will be automatically erased, and the SRS warning light will go out.

TROUBLESHOOTING HINTS

- Damaged wiring harnesses of connectors
- Blown bulb (for DTC 43)
- Malfunction of the SRS-ECU
- Malfunction of the combination meter (for DTC 43)

DIAGNOSIS

Required Special Tool:

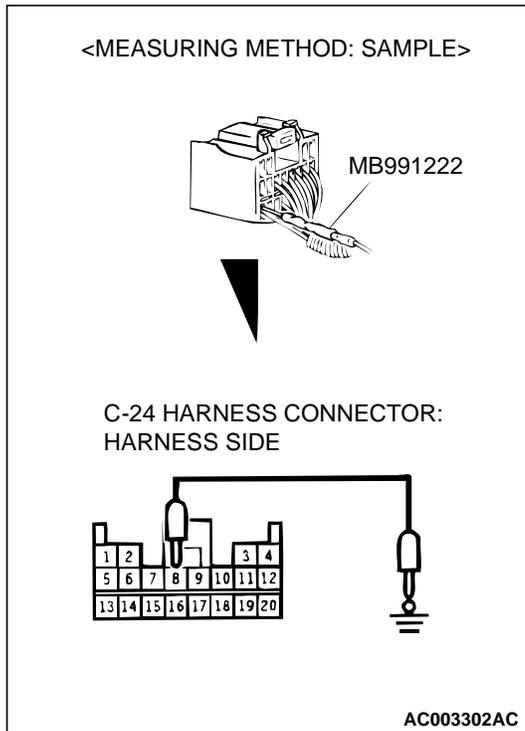
MB991222: Probe

STEP 1. Check the SRS warning light line at SRS-ECU connector C-24.

- (1) Disconnect SRS-ECU connector C-24 and measure at the harness side (rear side).
- (2) Turn the ignition switch "ON."
- (3) Connect terminal 8 to ground.
 - The SRS warning light should illuminate.

Q: Does the SRS warning light illuminate?

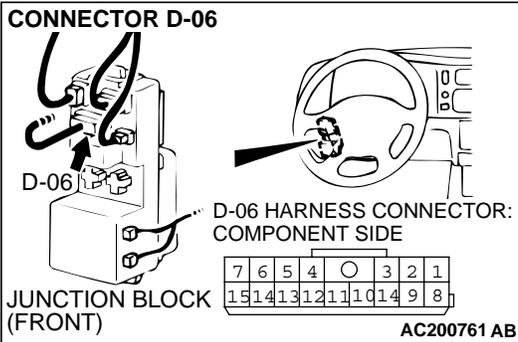
- YES** : Replace the SRS-ECU. Refer to [P.52B-70](#). Then go to Step 6.
- NO** : Go to Step 2.



STEP 2. Check the SRS warning light bulb.

Q: Has the SRS warning light bulb blown?

- YES** : Replace the SRS warning light bulb. Then go to Step 6.
- NO** : Go to Step 3.

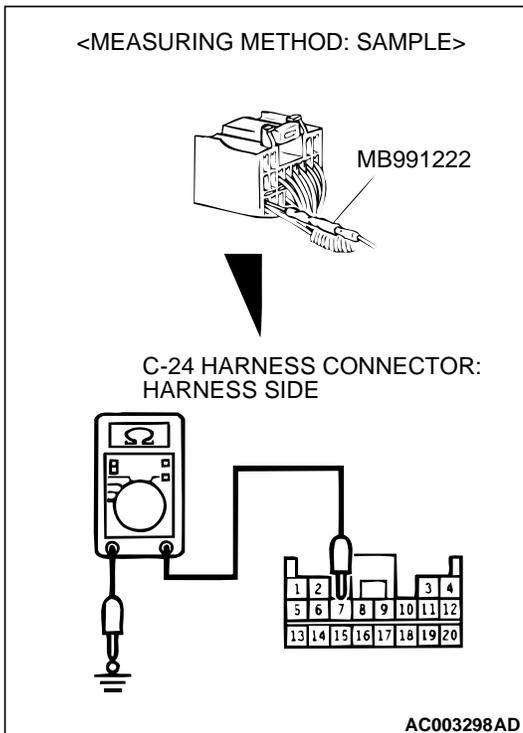
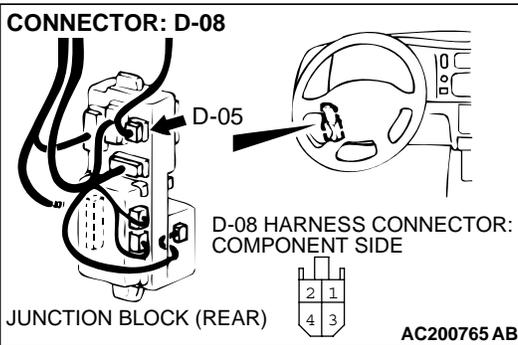


*NOTE: After inspecting intermediate connectors C-02, C-04, D-06, D-08 inspect the wiring harness.
If intermediate connectors C-02, C-04, D-06, D-08 are damaged, repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.
Then go to Step 6.*

Q: Are the harness wires between ignition switch (IG₁) and SRS-ECU connector C-24 (terminal No.8) in good condition?

YES : Go to Step 4.

NO : Repair or replace the harness wire. Then go to Step 6.



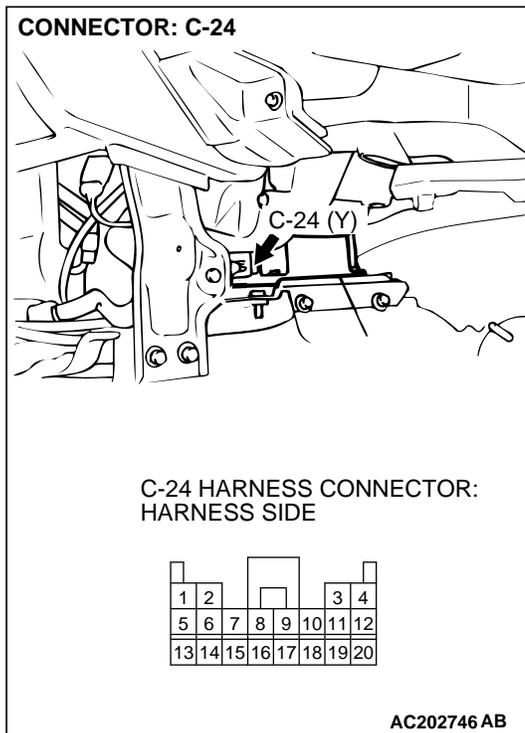
STEP 4. Check the ground line at SRS-ECU connector C-24.

- (1) Disconnect SRS-ECU connector C-24 and measure at the harness side (rear side).
- (2) Measure the resistance between terminal 7 and ground.
 - There should measure resistance less than 2 ohms.

Q: Is the resistance 2 ohms?

YES : Go to Step 6.

NO : Go to Step 5.



STEP 5. Check the harness wires between SRS-ECU connector C-24 (terminal No.7) and ground.

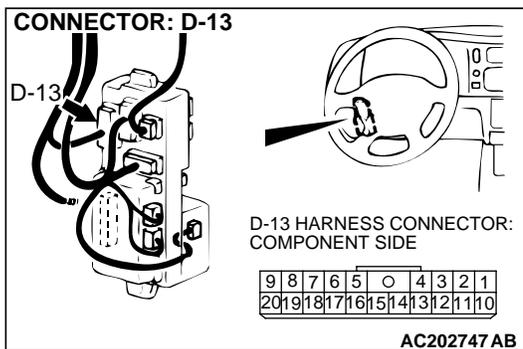
NOTE: After inspecting the intermediate connector D-13, inspect the wiring harness.

If intermediate connector D-13 is damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Then go to Step 6.

Q: Are the harness wires between SRS-ECU connector C-24 (terminal No.7) and ground in good condition?

YES : Go to Step 6.

NO : Repair or replace the harness wire. Then go to Step 6.



STEP 6. Check SRS diagnostic trouble code.

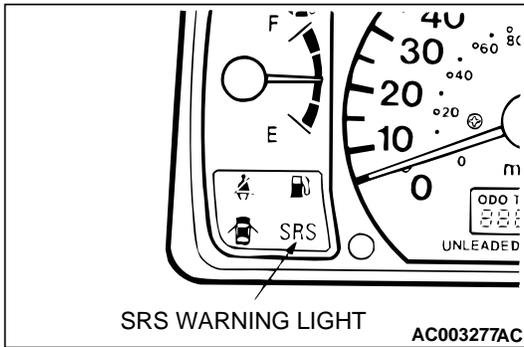
Q: Is any of DTC 43 or 44 set?

YES : There is no action to be taken.

NO : The procedure is complete. (If no malfunctions are found in all steps, an intermittent malfunction is suspected. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-6](#).)

SRS WARNING LIGHT CHECK

M1524004300208



1. Check that the SRS warning light illuminates when the ignition switch is in the "ON" position.
2. Check that it illuminates for approximately 7 seconds and then goes out.
3. If not, check for DTC.

SYMPTOM PROCEDURES

INSPECTION PROCEDURE 1: Communication with Scan Tool MB991502 is not Possible with all System.

TECHNICAL DESCRIPTION (COMMENT)

The cause is probably a power supply system (including ground circuit) of the diagnostic line.

TROUBLESHOOTING HINTS

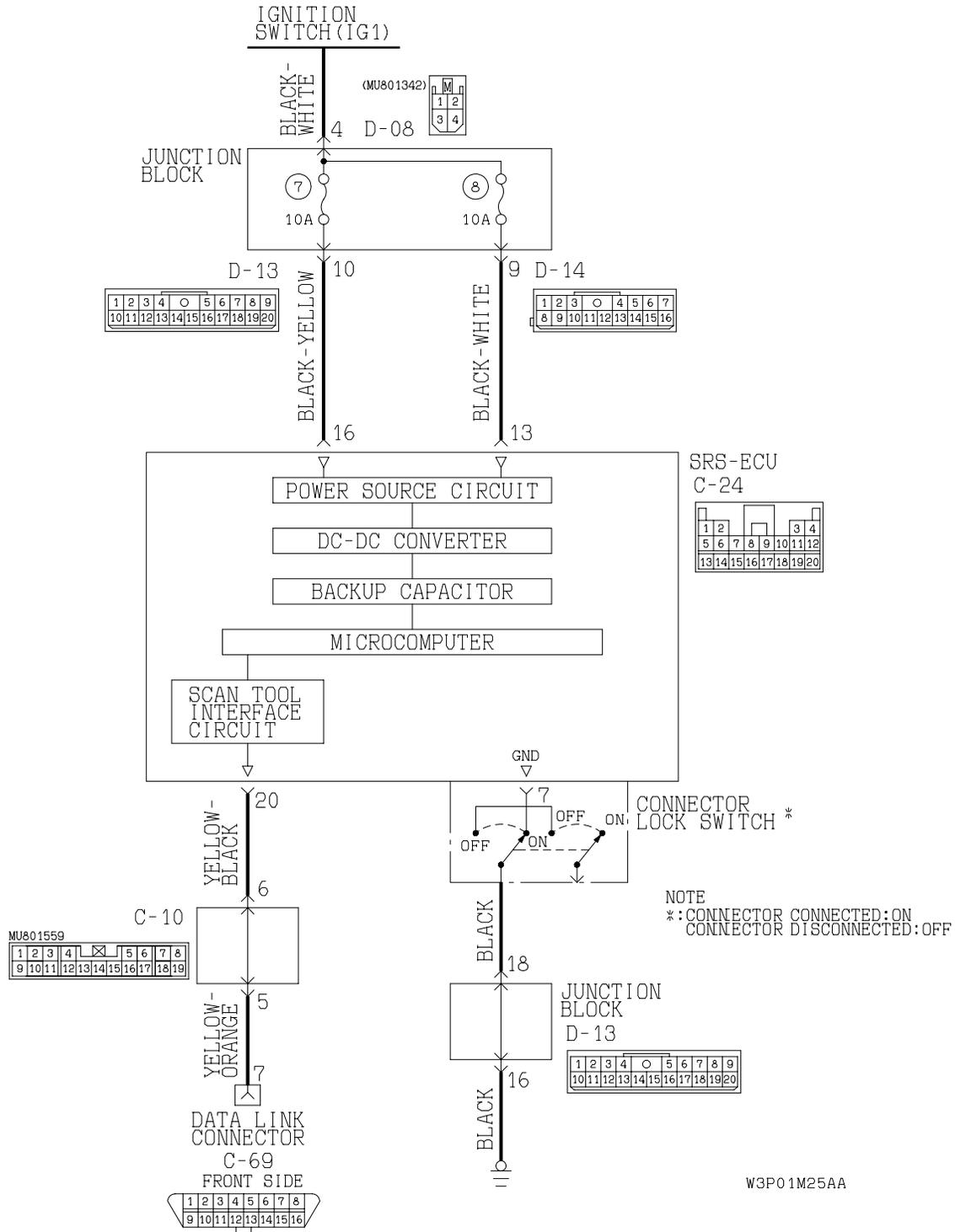
- Damaged wiring harnesses or connectors.

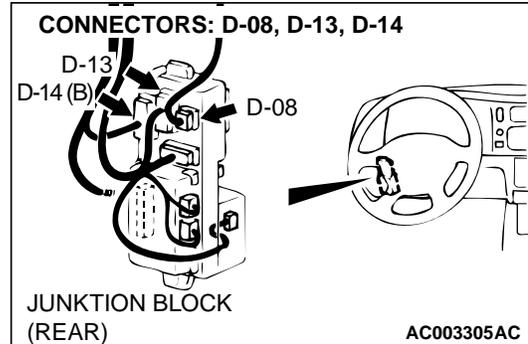
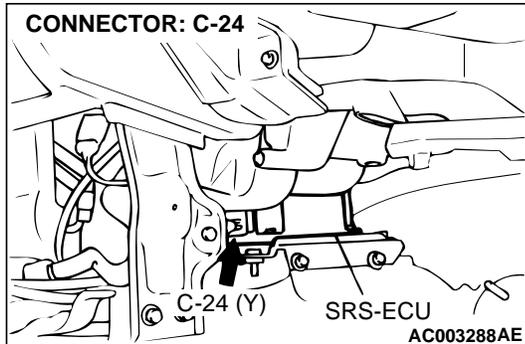
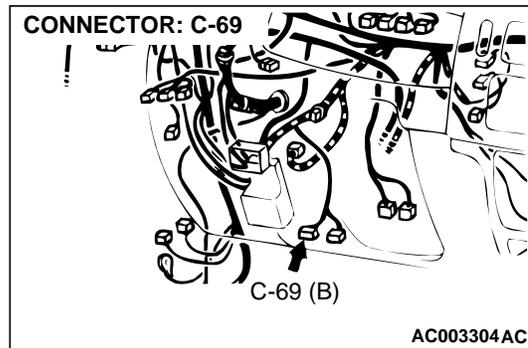
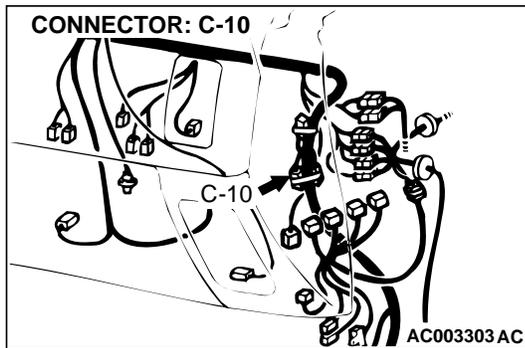
DIAGNOSIS

Refer to GROUP 13A, Symptom procedure [P.13Ad-2](#).

INSPECTION PROCEDURE 2: Communication with Scan Tool MB991502 is not Possible with the SRS System Only.

Scan tool Communication Circuit





CIRCUIT OPERATION

- The SRS-ECU is powered from the ignition switch (IG₁).
- The SRS-ECU power is supplied from two circuits. Even if one circuit is shut off, the air bag can inflate.
- The SRS system diagnosis can be done by connecting scan tool MB991502 to the data link connector.
- The SRS-ECU judges how severe a collision is by detecting signals from the left and right front impact sensors and the analog G-sensor. If the impact is over a predetermined level, the SRS-ECU outputs an ignition signal. At this time, if the safing G-sensor is on, the SRS air bag will inflate.

TECHNICAL DESCRIPTION (COMMENT)

If communication is not possible with the SRS only, the cause is probably an open circuit in the on-board diagnostic output circuit of the SRS or in the power circuit (including ground circuit).

TROUBLESHOOTING HINTS

- Damaged wiring harnesses or connectors
- Malfunction of the SRS-ECU

DIAGNOSIS**Required Special Tool:**

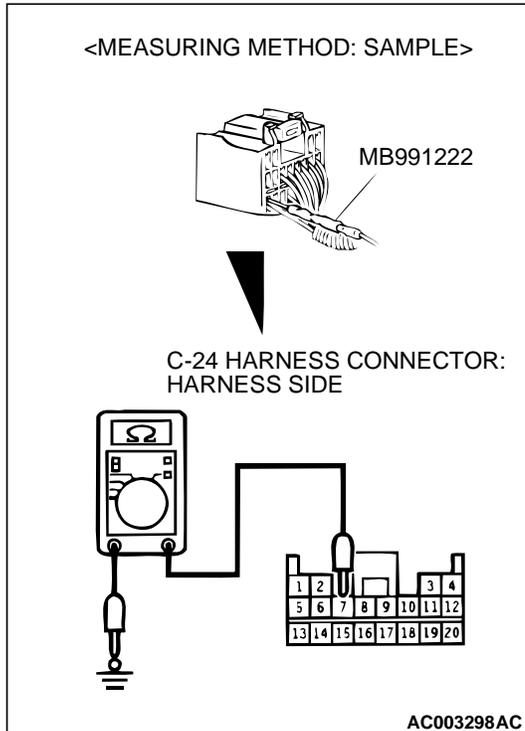
MB991222: Probe

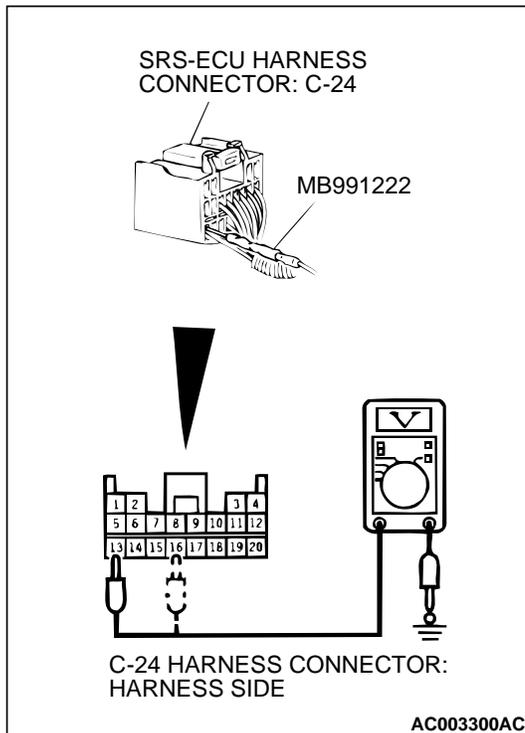
STEP 1. Check the ground line at the SRS-ECU connector C-24.

(1) Disconnect SRS-ECU connector C-24 and measure at the harness side (rear side).

(2) Measure the resistance between terminal 7 and ground.

- Measure the resistance 2 ohms.

Q: Is the resistance 2 ohms?**YES** : Go to Step 3.**NO** : Go to Step 2.



STEP 3. Measure the ignition switch (IG₁) line voltage at the SRS-ECU connector C-24.

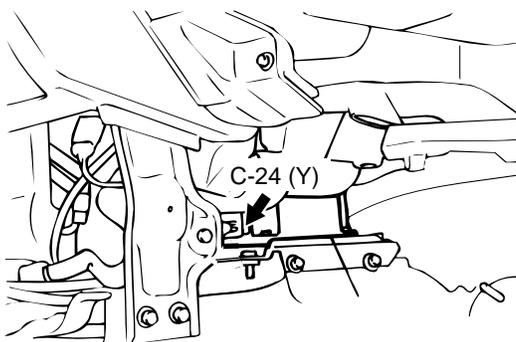
- (1) Disconnect SRS-ECU connector C-24 and measure at the harness side (rear side).
- (2) Turn the ignition switch "ON."
- (3) Measure the voltage between terminal 13 or 16 and ground.
 - Voltage should measure 9 volts or more

Q: Is the voltage between terminal 13 or 16 and the ground 9 V or more?

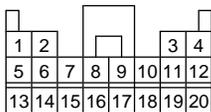
YES : Go to Step 5.

NO : Go to Step 4.

CONNECTOR: C-24



C-24 HARNESS CONNECTOR:
HARNESS SIDE



AC200750 AC

STEP 4. Check the harness wires between ignition switch (IG₁) and SRS-ECU connector C-24 (terminal No.13 and 16).

NOTE: After inspecting intermediate connectors D-08, D-13, D-14, inspect the wiring harness.

If intermediate connectors D-08, D-13, D-14 are damaged, repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

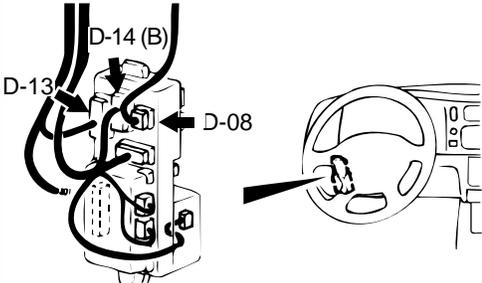
Then go to Step 6.

Q: Are the harness wires between ignition switch (IG1) and SRS-ECU connector C-24 (terminal No.13 and 16) in good condition?

YES : Go to Step 6.

NO : Repair or replace the harness wire. Then go to Step 6.

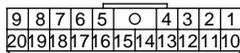
CONNECTORS: D-08, D-13, D-14



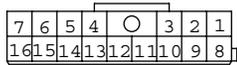
D-08 HARNESS CONNECTOR:
COMPONENT SIDE



D-13 HARNESS CONNECTOR:
COMPONENT SIDE



D-14 HARNESS CONNECTOR:
COMPONENT SIDE



AC200759 AB

STEP 6. Retest the system.

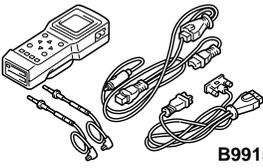
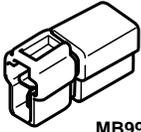
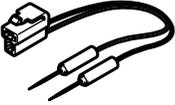
Q: Does the scan tool communicate normally with the SRS system?

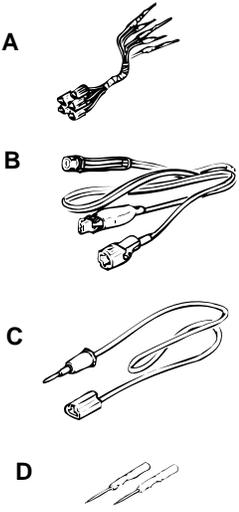
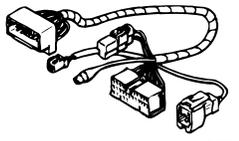
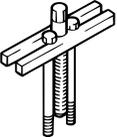
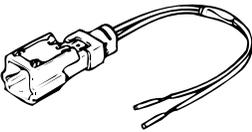
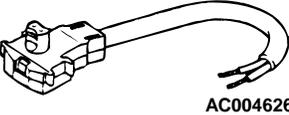
YES : The procedure is complete. (If no malfunctions are found in all steps, an intermittent malfunction is suspected. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-6.](#))

NO : There is no action to be taken.

SPECIAL TOOLS

M1524000700226

TOOL	TOOL NUMBER AND NAME	SUPERSESION	APPLICATION
 <p align="center">B991502</p>	MB991502 Scan tool (MUT-II)	MB991496-OD	<ul style="list-style-type: none"> • Reading diagnostic trouble codes • Erasing diagnostic trouble codes • Reading vehicle data for a specific period • Reading erase times (Refer to MUT-II operating instructions)
 <p align="center">MB991865</p>	MB991865 Dummy resistor		SRS air bag circuit check
 <p align="center">MB991866</p>	MB991866 Resistor harness		

TOOL	TOOL NUMBER AND NAME	SUPERSESION	APPLICATION
 <p>A B C D</p> <p>MB991223AC</p>	<p>MB991223 A: MB991219 B: MB991220 C: MB991221 D: MB991222</p> <p>Harness set A: Test harness B: LED harness C: LED harness adapter D: Probe</p>	-	Checking the continuity and measuring the voltage at the SRS-ECU harness connector
 <p>MB991613</p>	<p>MB991613 SRS check harness</p>	MB991613	Clock spring check
 <p>AC004625</p>	<p>MR990803 Steering wheel puller</p>	General service tool	Removal of steering wheel
 <p>MB686560</p>	<p>MB686560 SRS air bag adapter harness A</p>	General service tool	<ul style="list-style-type: none"> • Deployment of air bag module and seat belt pre-tensioner inside the vehicle • Deployment of air bag module and seat belt pre-tensioner outside the vehicle
 <p>AC004626</p>	<p>MR203491 or MB628919 SRS air bag adapter harness B</p>	General service tool	Deployment of air bag module (driver's side) outside the vehicle

TEST EQUIPMENT

M152400800201

TOOL	NAME	USE
 AC000019AB	Digital multi-meter Use a multi-meter for which the maximum test current is 2 mA or less at the minimum range of resistance measurement	Checking the SRS electrical circuitry with SRS check harness

SRS MAINTENANCE

M1524003900199

The SRS must be inspected by an authorized dealer up to 10 years after the date of vehicle registration. (Refer to GROUP 00, Maintenance Service [P.00-56](#).)

POST-COLLISION DIAGNOSIS

M1524001100227

To inspect and service the SRS after a collision (whether or not the air bags have deployed), perform the following steps.

SRS-ECU MEMORY CHECK

Required Special Tool:

- MB991502: Scan tool (MUT-II)

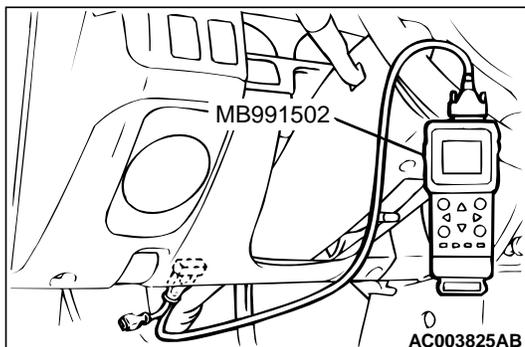
⚠ CAUTION

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

1. Connect scan tool MB991502 to the data link connector (16-pin).

NOTE: If the battery power supply has been disconnected or disrupted by the collision, scan tool MB991502 cannot communicate with the SRS-ECU. Check the battery then check and, if necessary, repair the front wiring harness and the instrument panel wiring harness before proceeding.

2. Read (and write down) all displayed DTC. (Refer to [P.52B-18](#).)
3. Read the data list (fault duration and how many times memories are erased) using scan tool MB991502.



DATA LIST

DTC	SERVICE DATA ITEM	APPLICABILITY
92	Number indicating how often the memory is cleared	Maximum time to be stored: 250
93	How long a problem has lasted (How long it takes from the occurrence of the problem till the first air bag squib igniting signal.)	Maximum time to be stored: 9,999 minutes (approximately 7 days)
94	How long a problem has lasted (how long it takes from the first air bag squib igniting signal till now.)	

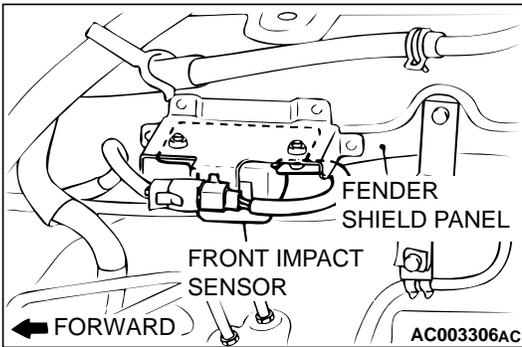
4. Erase DTC's and after waiting 5 seconds or more read (and write down) all displayed DTC's. (Refer to [P.52B-18.](#))

REPAIR PROCEDUR**WHEN AIR BAGS DEPLOYS IN A COLLISION.**

1. Replace the following parts with new ones.
 - Front impact sensors (Refer to [P.52B-67.](#))
 - SRS-ECU (Refer to [P.52B-70.](#))
 - Air bag module (Refer to [P.52B-72.](#))
 - Seat belt pre-tensioner (Refer to [P.52B-80.](#))
2. Check the following parts and replace if there are any malfunctions.
 - Clock spring (Refer to [P.52B-72.](#))
 - Steering wheel, steering column and intermediate joint
 - (1) Check the wiring harness (built into the steering wheel) and connectors for damage, and terminals for deformation.
 - (2) Install the air bag module to check fit or alignment with the steering wheel.
 - (3) Check the steering wheel for noise, binds or difficult operation and excessive free play.
3. Check the wiring harnesses for binding, the connectors for damage, poor connections, and the terminals for deformation. (Refer to [P.52B-15.](#))

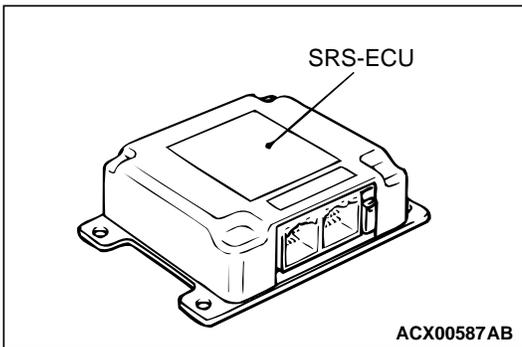
WHEN AIR BAG DOES NOT DEPLOY IN LOW-SPEED COLLISION.

Check the SRS components. If the SRS components are showing any visible damage such as dents, cracks, or deformation, replace them with new ones. Concerning parts removed for inspection, replacement with new parts and cautionary points for working, refer to the appropriate INDIVIDUAL COMPONENT SERVICE, [P.52B-66.](#)



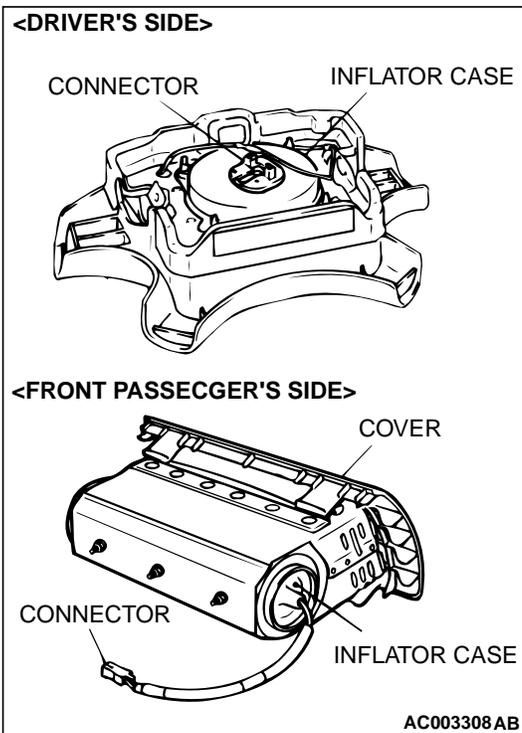
Front impact sensors

1. Check the fender shield panel for deformation or rust.
2. Check the front impact sensor for dents, cracks, deformation or rust.
3. Check the sensor harnesses for binding, the connectors for damage, and the terminals for deformation.



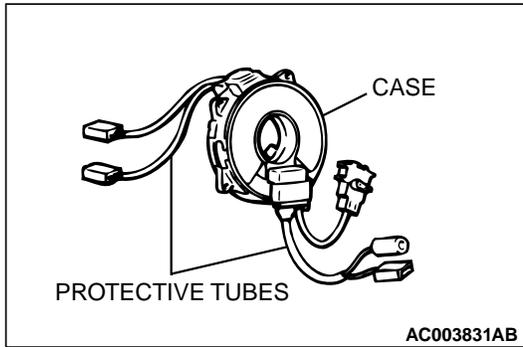
SRS-ECU

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



Air bag modules

1. Check the pad cover for dents, cracks or deformation.
2. Check the connector for damage, terminals for deformities, and the harness for binding.
3. Check the air bag inflator case for dents, cracks or deformities.
4. Install the air bag module (driver's side) to the steering wheel to check fit or alignment with the steering wheel.
5. Install the air bag module (front passenger's side) to the instrument panel and crossmember to check fit or alignment.
6. Install the air bag module cover (front passenger's side) to the instrument panel to check fit or alignment.

**Clock spring**

1. Check the clock spring connectors and protective tubes for damage, and the terminals for deformation.
2. Visually check the case for damage.

Steering wheel, steering column and intermediate joint

1. Check the wiring harness (built into the steering wheel) and the connectors for damage, and the terminals for deformation.
2. Install the air bag module to check fit or alignment with the steering wheel.
3. Check the steering wheel for noise, binding or difficult operation and excessive free play.

Harness connector (front wiring harness, body wiring harness)

Check the harnesses for binding, the connectors for damage, poor connection, and the terminals for deformation. (Refer to [P.52B-15.](#))

Seat belt with pre-tensioner

1. Check the seat belt for damage or deformation.
2. Check the seat belt pre-tensioner for cracks or deformation.
3. Check that the unit is installed correctly to the vehicle body.

INDIVIDUAL COMPONENT SERVICE

M1524002900215

⚠ WARNING

- ***If heat damage may occur during paint work, remove the SRS-ECU, the air bag module, the clock spring, the front impact sensor, the seat belt pre-tensioner. Recheck the SRS system operability after reinstalling them. (Refer to GROUP 00, Maintenance Service-SRS Maintenance [P.00-56.](#))***
 - ***SRS-ECU, air bag module, clock spring, front impact sensor: 93° C (200° F) or more***
 - ***Seat belt with pre-tensioner: 90° C (194° F) or more***
- ***If the SRS components are removed for the purpose of check, sheet metal repair, painting, etc., they should be stored in a clean, dry place until they are reinstalled.***

If the SRS components are to be removed or replaced as a result of maintenance, diagnosis, etc., follow the appropriate procedure in this section. (Front Impact Sensor: refer to [P.52B-67](#), SRS Air Bag Control Unit: refer to [P.52B-70](#), Air Bag Modules and Clock Spring: refer to [P.52B-72](#), Seat Belts with Pre-tensioner: refer to [P.52B-80.](#))

FRONT IMPACT SENSORS

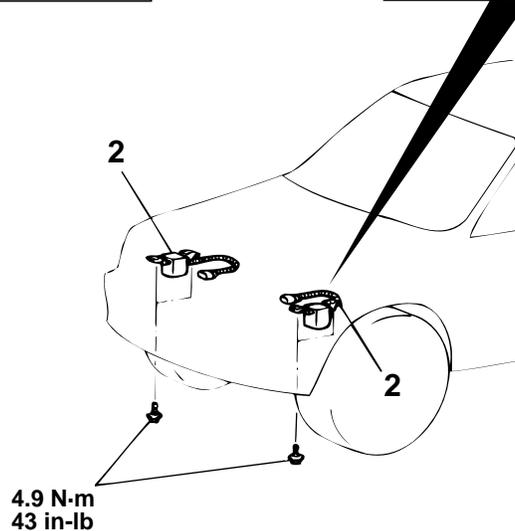
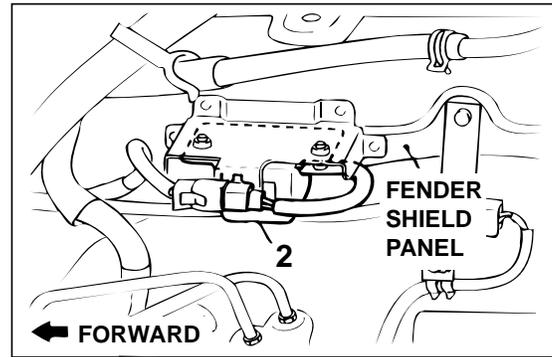
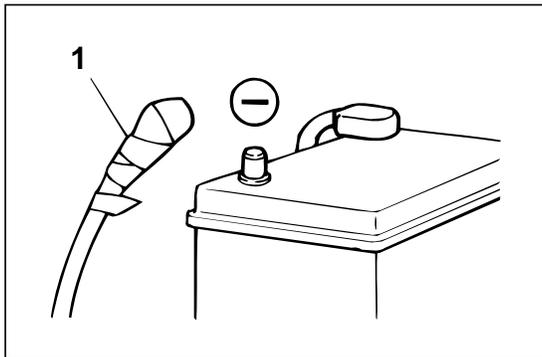
⚠ WARNING

- **Never attempt to disassemble or repair the SRS-ECU. If faulty, replace it.**
- **Do not drop or subject the SRS-ECU to impact or vibration. If denting, cracking, deformation, or rust are discovered in the SRS-ECU, replace it with a new SRS-ECU. Discard the old one.**
- **After deployment of an air bag, replace the SRS-ECU with a new one.**
- **Never use an ohmmeter on or near the SRS-ECU, and use only the special test equipment described on P.52B-63.**

REMOVAL AND INSTALLATION

Pre-removal Operation

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



AC003309AB

<<A>>

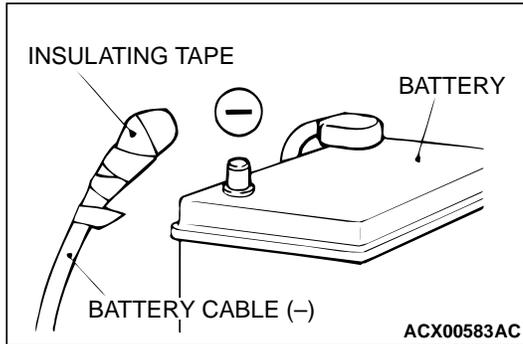
REMOVAL STEPS

1. NEGATIVE (-) BATTERY CABLE CONNECTION
2. FRONT IMPACT SENSOR

>>A<<

INSTALLATION STEPS

- PRE-INSTALLATION INSPECTION
- >>B<< 2. FRONT IMPACT SENSOR
- 1. NEGATIVE (-) BATTERY CABLE CONNECTION
- >>C<< • POST-INSTALLATION INSPECTION



REMOVAL SERVICE POINT

<<A>> NEGATIVE (-) BATTERY CABLE DISCONNECTION

⚠ DANGER

Wait at least 60 seconds after disconnecting the battery cable before doing any further work. (Refer to P.52B-15.)

⚠ WARNING

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

Disconnect the negative (-) battery cable from the battery and tape the terminal to prevent accidental connection and deployment.

INSTALLATION SERVICE POINTS

>>A<< PRE-INSTALLATION INSPECTION

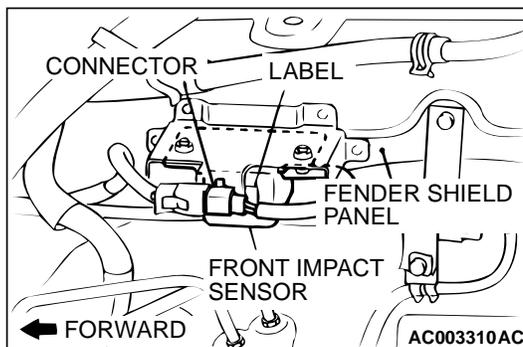
To mount the new front impact sensor, visually check it and measure the resistance between the terminals, Refer to "INSPECTION" (P.52B-69.)

>>B<< FRONT IMPACT SENSOR INSTALLATION

⚠ WARNING

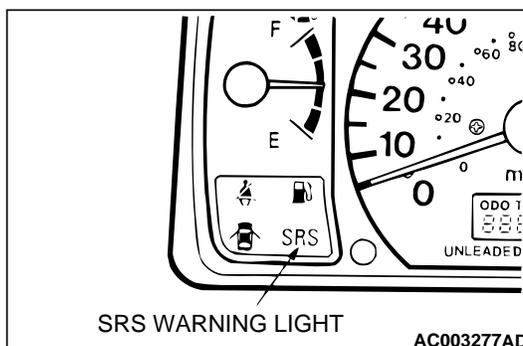
The SRS may not activate properly if a front impact sensor is not installed properly, which could result in serious injury or death to the vehicle's driver.

1. Securely connect the connector.
2. Position the front impact sensor facing toward the front of the vehicle as shown by the arrow on the label, and install it securely.



>>C<< POST-INSTALLATION INSPECTION

1. Reconnect the negative (-) battery cable.
2. Turn the ignition key to the "ON" position.
3. Does the "SRS" warning light illuminate for approximately 7 seconds, and then remain off for at least 5 seconds after turning "OFF?"
4. If yes, the SRS system is functioning properly. If no, consult P.52B-20.



INSPECTION

FRONT IMPACT SENSOR CHECK

⚠ WARNING

If a dent, crack, deformation or rust is detected, replace with a new sensor.

1. Check the front impact sensor for dents, cracks, deformation or rust.

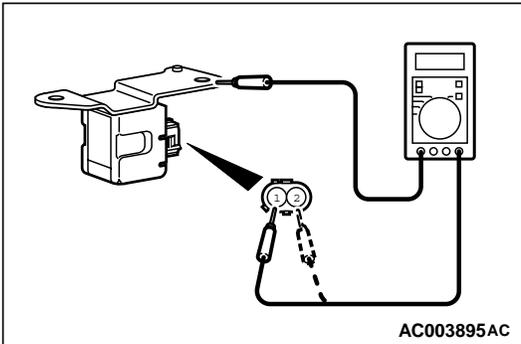
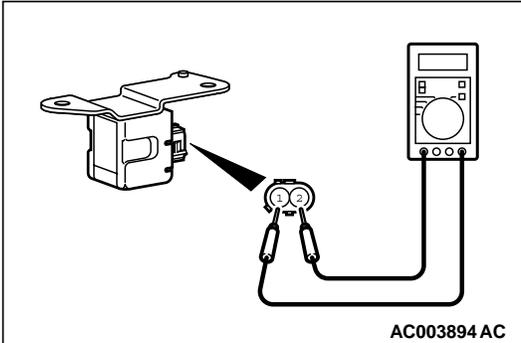
⚠ WARNING

Always replace the sensor with a new one of the resistance is not within the standard value.

2. Measure the resistance between the terminals and check whether it is within the standard value.

Standard value: $820 \pm 82 \Omega$

3. Check the fender shield panel for deformation or rust.
4. Check for continuity between the terminal and bracket. If there is a continuity, the insulation is damaged, Replace the sensor with a new one.



SRS CONTROL UNIT (SRS-ECU)

M1524002100208

REMOVAL AND INSTALLATION**⚠ WARNING**

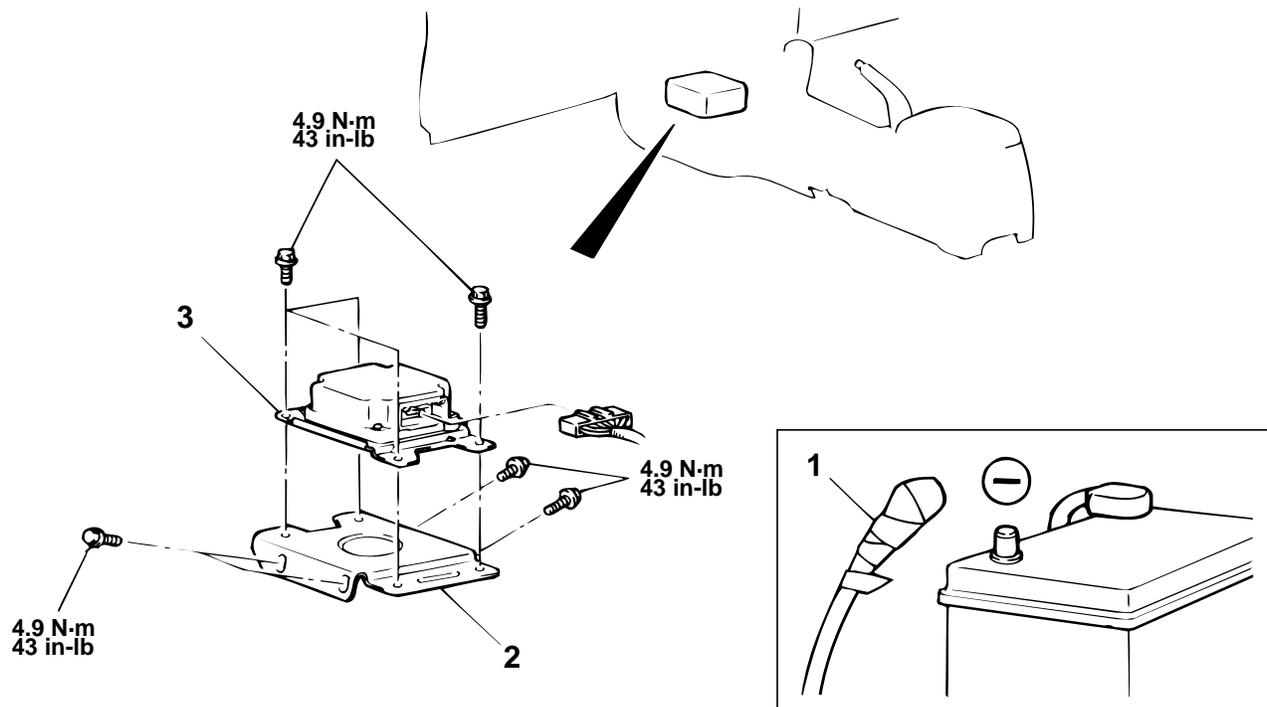
- *Never attempt to disassemble or repair the SRS-ECU. If faulty, replace it.*
- *Do not drop or subject the SRS-ECU to impact or vibration. If denting, cracking, deformation, or rust are discovered in the SRS-ECU, replace it with a new SRS-ECU.*
- *After deployment of an air bag, replace the SRS-ECU with a new one.*
- *Never use an ohmmeter on or near the SRS-ECU, and use only the special test equipment described on [P.52B-61](#) and [P.52B-63](#).*

Pre-removal Operation

- Turn the ignition key to the "OFF" (OFF) position.
- Floor Console Removal (Refer to GROUP 52A, Floor Console [P.52A-35](#).)

Post-installation Operation

- Floor Console Installation (Refer to GROUP 52A, Floor Console [P.52A-35](#).)



AC003311AB

<<A>>

REMOVAL STEPS

1. NEGATIVE (-) BATTERY CABLE CONNECTION
2. SRS-ECU BRACKET
3. SRS-ECU

>>A<<

INSTALLATION STEPS

3. SRS-ECU
 2. SRS-ECU BRACKET
 1. NEGATIVE (-) BATTERY CABLE CONNECTION
- >>B<<
- POST-INSTALLATION INSPECTION

REMOVAL SERVICE POINT

<<A>> NEGATIVE (-) BATTERY CABLE DISCONNECTION

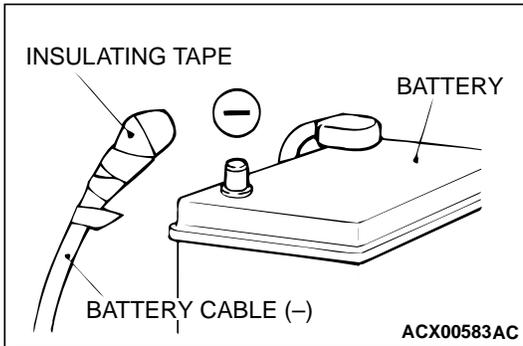
⚠ DANGER

Wait at least 60 seconds after disconnecting the battery cable before doing any further work. (Refer to P.52B-15.)

⚠ WARNING

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

Disconnect the negative (-) battery cable from the battery and tape the terminal to prevent accidental connection and deployment.



INSTALLATION SERVICE POINTS

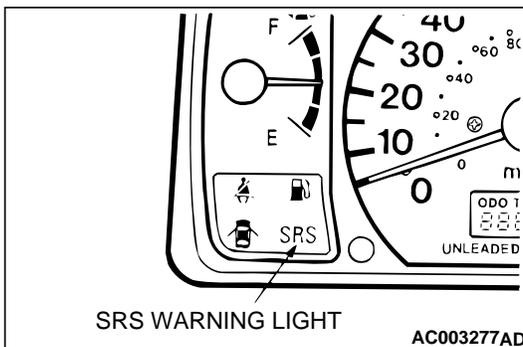
>>A<< SRS-ECU INSPECTION

⚠ WARNING

The SRS may not active if the SRS-ECU is not installed properly, which could result in serious injury or death to the vehicle's driver or front passenger.

>>B<< POST-INSTALLATION INSPECTION

1. Reconnect the negative (-) battery cable.
2. Turn the ignition key to the "ON" position.
3. Does the "SRS" warning light illuminate for approximately 7 seconds, and then remain off for at least 5 seconds after turning "OFF?"
4. If yes, the SRS system is functioning properly. If no, consult P.52B-20.



INSPECTION

M1524002200197

⚠ WARNING

If a dent, crack, deformation or rust is discovered, replace the SRS-ECU with a new one.

- Check the SRS-ECU and brackets for dents, cracks or deformation.
- Check the SRS-ECU connector for damage, and the terminals for deformation.

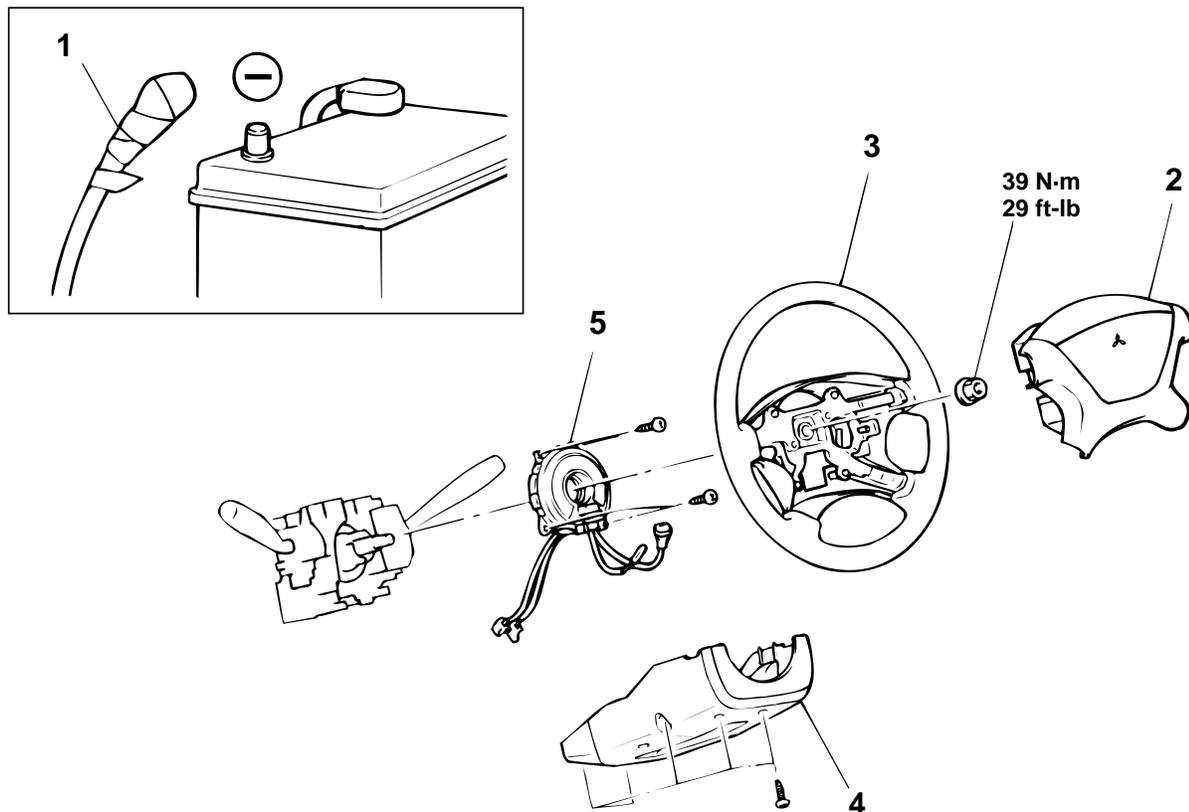
NOTE: Refer to P.52B-18 for inspection of SRS-ECU for other than physical damage.

AIR BAG MODULE(S) AND CLOCK SPRING**REMOVAL AND INSTALLATION**

M1524002400221

⚠ WARNING

- **Never attempt to disassemble or repair the air bag modules or clock spring. If faulty, replace it.**
- **Do not drop the air bag modules or clock spring or allow contact with water, grease or oil.**
- **Replace it if a dent, crack, deformation or rust is detected.**
- **The air bag modules should be stored on a flat surface and placed so that the pad surface is facing upward. Do not place anything on top of it.**
- **Do not expose the air bag modules to temperatures over 93° C (200° F).**
- **After deployment of an air bag, replace the air bag modules. Check the clock spring, and if faulty, replace it with a new part.**
- **Wear gloves and safety glasses when handling air bags that have already deployed.**
- **An undeployed air bag module should only be disposed of in accordance with the procedures (Refer to [P.52B-82.](#))**

<Air bag module (driver's side), clock spring>

AC003312AB

**AIR BAG MODULE REMOVAL
STEPS**

- <<A>> 1. NEGATIVE (-) BATTERY CABLE CONNECTION
- <> 2. AIR BAG MODULE

**CLOCK SPRING REMOVAL
STEPS**

- <<A>> 1. NEGATIVE (-) BATTERY CABLE CONNECTION
- <> 2. AIR BAG MODULE
- <<C>> 3. STEERING WHEEL

CLOCK SPRING REMOVAL

STEPS (Continued)

- <<D>> 4. COLUMN COVER LOWER
5. CLOCK SPRING

AIR BAG MODULE

INSTALLATION STEPS

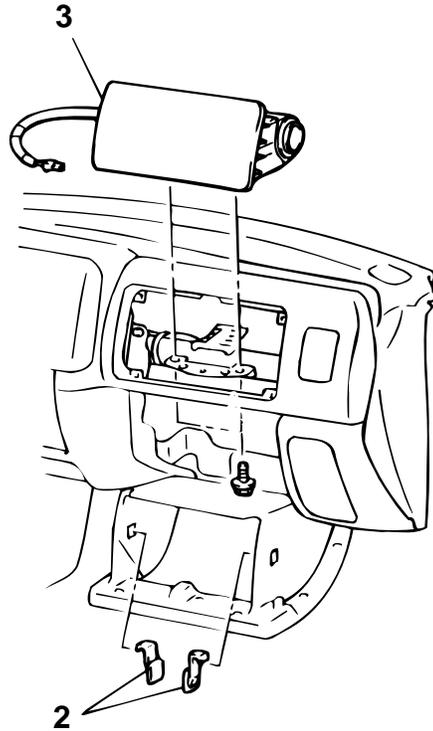
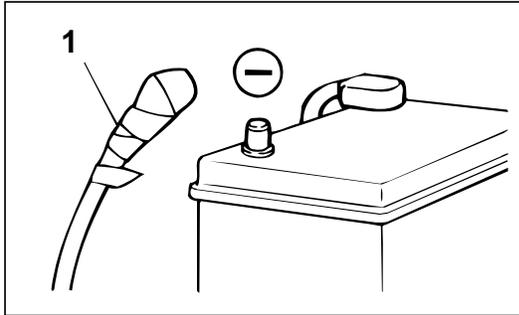
- >>A<< • PRE-INSTALLATION INSPECTION
>>D<< 2. AIR BAG MODULE
1. NEGATIVE (-) BATTERY CABLE CONNECTION
>>E<< • POST-INSTALLATION INSPECTION

CLOCK SPRING

INSTALLATION STEPS

- >>A<< • PRE-INSTALLATION INSPECTION
>>B<< 5. CLOCK SPRING
4. COLUMN COVER LOWER
>>C<< 3. STEERING WHEEL
>>D<< 2. AIR BAG MODULE
1. NEGATIVE (-) BATTERY CABLE CONNECTION
>>E<< • POST-INSTALLATION INSPECTION

<Air bag module (front passenger's side)>



AC003313AB

**AIR BAG MODULE REMOVAL
STEPS**

- <<A>>
1. NEGATIVE (-) BATTERY CABLE CONNECTION
 2. STOPPER
- <<E>>
3. AIR BAG MODULE

**AIR BAG MODULE
INSTALLATION STEPS**

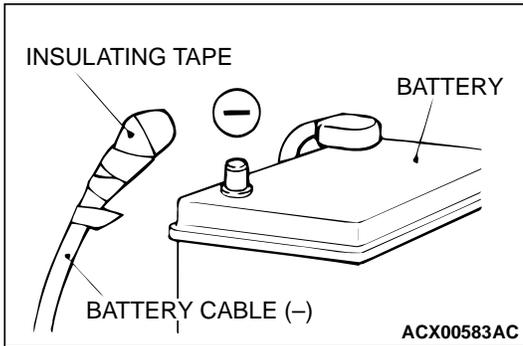
- >>A<<
- PRE-INSTALLATION INSPECTION
 - 3. AIR BAG MODULE
 - 2. STOPPER
 - 1. NEGATIVE (-) BATTERY CABLE CONNECTION
- >>E<<
- POST-INSTALLATION INSPECTION

Required Special Tool:

- MB991502:Scan Tool (MUT-II)
- MB990803: Steering Wheel Puller
- MB991613: SRS Check Harness

REMOVAL SERVICE POINTS

<<A>> NEGATIVE (-) BATTERY CABLE DISCONNECTION



⚠ DANGER

Wait at least 60 seconds after disconnecting the battery cable before doing any further work. (Refer to P.52B-15.)

⚠ WARNING

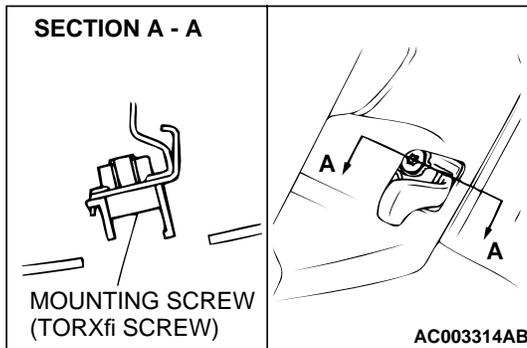
Battery posts, terminals and related accessories contain lead and lead compounds. WASH HANDS AFTER HANDLING.

Disconnect the negative (-) battery cable from the battery and tape the terminal to prevent accidental connection and air bags deployment.

<> AIR BAG MODULE REMOVAL (DRIVER'S SIDE)

1. Remove the air bag module mounting screws (TORX® screws) at the sides of the steering wheel.

NOTE: Do not remove the screws from the holders.



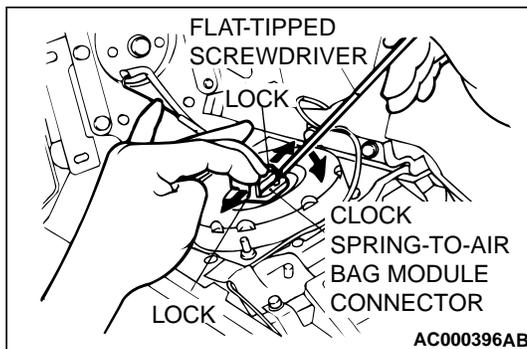
⚠ CAUTION

When disconnecting the air bag module-to-clock spring connector, take care not to apply excessive force to it.

⚠ WARNING

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

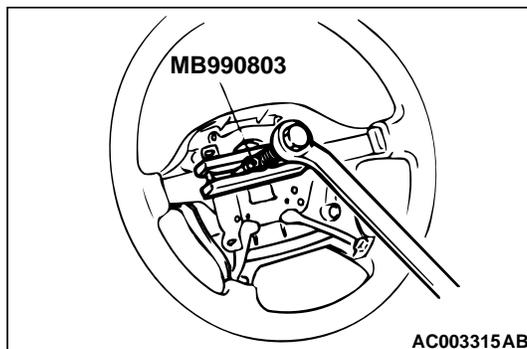
2. When disconnecting the connector of the clock spring from the air bag module, press the air bag's lock toward the outer side to spread it open. Use a flat-tipped screwdriver, as shown in the figure at the left, to pry gently to remove the connector.



<<C>> STEERING WHEEL REMOVAL

⚠ CAUTION

Do not hammer on the steering wheel. Doing so may damage the collapsible column mechanism.



<<D>> CLOCK SPRING REMOVAL

⚠ WARNING

The removed clock spring should be stored in a clean, dry place.

<<E>> AIR BAG MODULE REMOVAL (FRONT PASSENGER'S SIDE)

⚠ WARNING

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

INSTALLATION SERVICE POINTS

>>A<< PRE-INSTALLATION INSPECTION

⚠ WARNING

Dispose of air bag modules only according to the specified procedure. (Refer to P.52B-82.)

1. When installing the new air bag modules and clock spring, refer to "INSPECTION" (P.52B-78).
2. Connect the negative (-) battery cable.

⚠ CAUTION

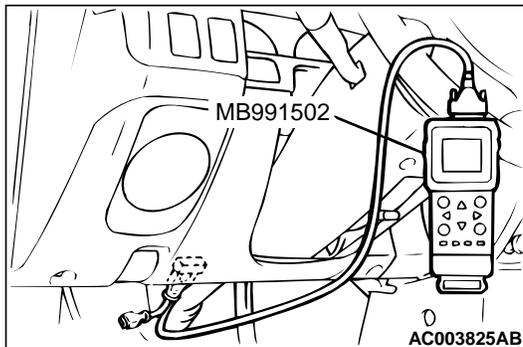
To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB994502.

3. Connect scan tool MB991502 to the data link connector.
4. Turn the ignition key to the "ON" position.
5. Conduct diagnostic test using scan tool MB991502 to ensure entire SRS operates properly.

⚠ WARNING

Wait at least 60 seconds after disconnecting the battery cable before doing any further work. (Refer to P.52B-15.)

6. Turn the ignition key to the "OFF" position. Disconnect the negative (-) battery cable and tape the terminal to prevent accidental connection and air bags deployment.

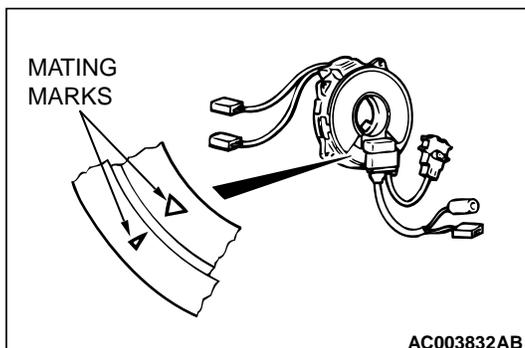


>>B<< CLOCK SPRING INSTALLATION

⚠ WARNING

Ensure that the clock spring's mating marks are properly aligned. If not, the steering wheel may not rotate completely during a turn, or the flat cable in the clock spring could be damaged. This would prevent normal SRS operation and possibly cause serious injury to the driver.

1. Check that the front wheels is in the straight-ahead position.
2. Align the mating marks of the clock spring. Turn the front wheels to the straight-ahead position. Then install the clock spring to the column switch.



Mating Mark Alignment

Turn the clock spring clockwise fully. Then turn it back approximately 3 4/5 turns counterclockwise to align the mating marks.

>>C<< STEERING WHEEL INSTALLATION

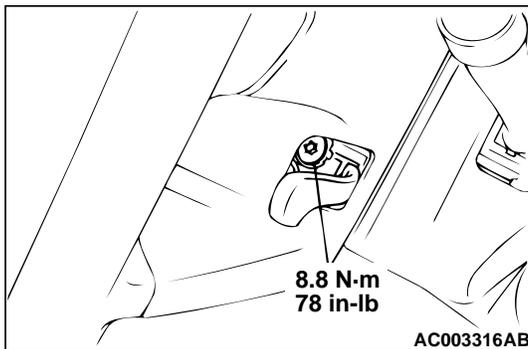
⚠ CAUTION

When installing the steering wheel, ensure that the harness of the clock spring does not become caught or tangled.

1. Before installing the steering wheel, turn the vehicle's front wheels to the straight-ahead position and align the mating marks of the clock spring.
2. After securing the steering wheel, turn the steering wheel all the way in both directions to confirm that the steering wheel rotation is normal.

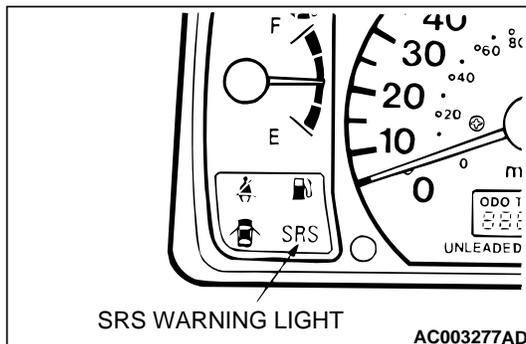
>>D<< AIR BAG MODULE INSTALLATION (DRIVER'S SIDE)

1. Connect the air bag module connector securely.
2. Tighten the air bag module mounting screws to 8.8 N·m (78 in-lb).



>>E<< POST-INSTALLATION INSPECTION

1. Reconnect the negative (-) battery cable.
2. Turn the ignition key to the "ON" position.
3. Does the "SRS" warning light illuminate for approximately 7 seconds, and the remain off for at least 5 seconds after turning "OFF?"
4. If yes, the SRS system is functioning properly. If no, consult [P.52B-20](#).



INSPECTION

AIR BAG MODULE CHECK

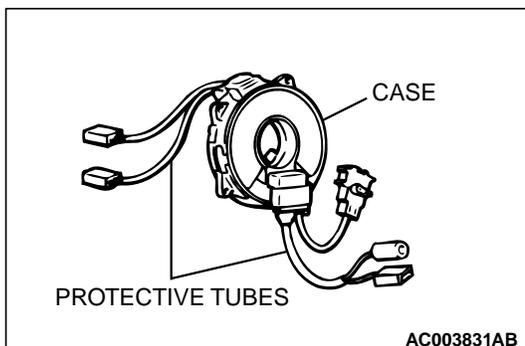
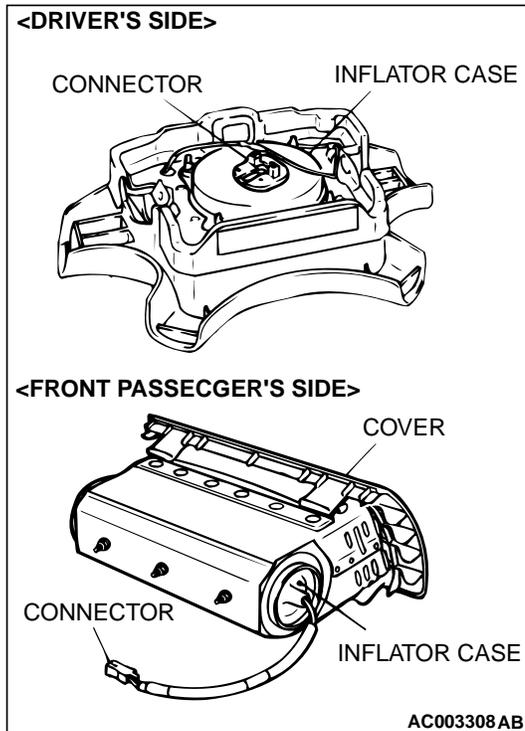
⚠ DANGER

Never attempt to measure the circuit resistance of the air bag modules (squib) even if you are using the specified tester. If the circuit resistance is measured with a tester, accidental air bag deployment will result in serious personal injury.

⚠ WARNING

- **If any component damage is found during the following inspection, replace the air bag module with a new one. Dispose of the old one according to the specified procedure. (Refer to P.52B-82.)**
- **Never attempt to measure the circuit resistance of the air bag modules (squib) even if you are using the specified tester. If the circuit resistance is measured with a tester, accidental air bag deployment will result in serious personal injury.**

1. Check the pad cover for dents, cracks or deformation.
2. Check the connectors for damage, the terminals for deformation, and the harness for binds.
3. Check the air bag inflator case for dents, cracks or deformation.
4. Install the air bag module (driver's side) to the steering wheel and check fit and alignment with the wheel.
5. Install the air bag module (front passenger's side) to the instrument panel and crossmember and check fit and alignment.
6. Install the air bag module cover (front passenger's side) to the instrument panel to check fit and alignment.



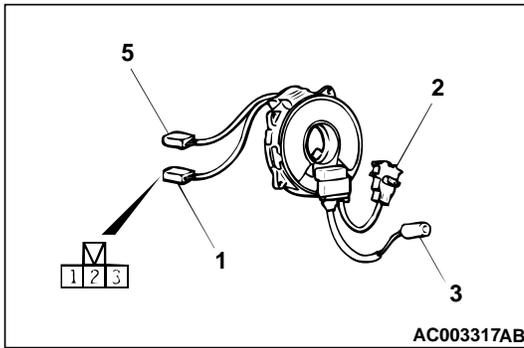
CLOCK SPRING CHECK

Required Special Tool:

MB991613: SRS Check Harness

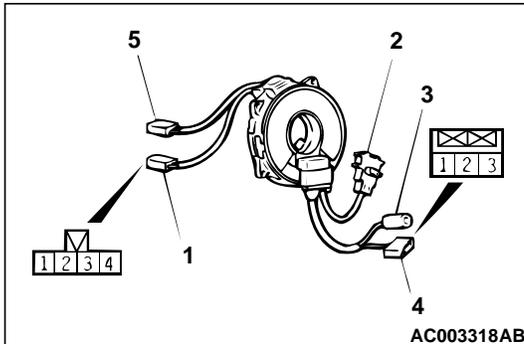
If, even one abnormality is discovered in Steps 1 to 5, replace the clock spring with a new one.

1. Check the connectors and protective tube for damage, and the terminals for deformation.
2. Visually check the case for damage.
3. Check continuity.



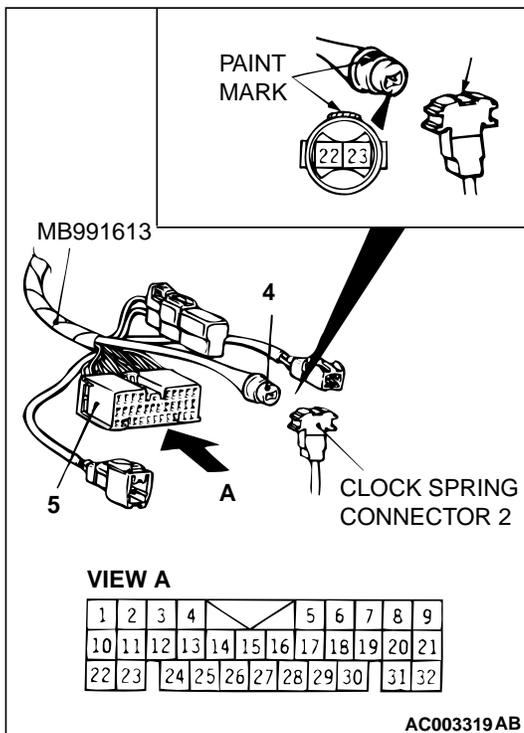
<Vehicles without auto-cruise control>

- Check continuity between the number 1 connector terminal 3 and number 3 connector.



<Vehicles with auto-cruise control>

- Check continuity between the number 1 connector terminal 1 and number 4 connector terminal 2, number 1 connector terminal 2 and number 4 connector terminal 1, number 1 connector terminal 3 and number 3 connector, number 1 connector terminal 4 and number 4 connector terminal 3 respectively.



4. Align the paint mark of special tool MB991613 connector number 4 with the notch in clock spring connector number 2 (arrow in the illustration) to connect the connectors number 2 and 4.
5. Check that the resistance meets the standard value between the terminals 22 and 23 of special tool MB991613 connector number 5.

Standard value: less than 0.4 Ω

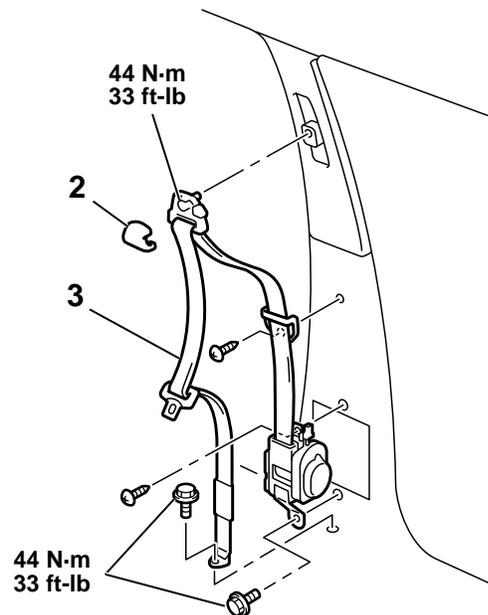
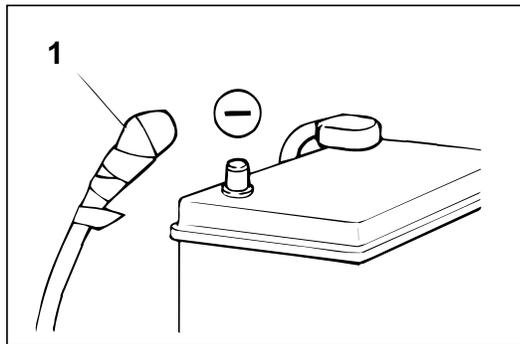
SEAT BELTS WITH PRE-TENSIONER

REMOVAL AND INSTALLATION

M1524004100118

⚠ WARNING

- **Never attempt to disassemble or repair the seat belt pre-tensioner. If faulty, replace it.**
- **Be extremely careful when handling the seat belt with pre-tensioner. Do not subject it to shocks, drop it, bring it close to strong magnets or allow contact with water, grease or oil. Always replace it with a new part if any dents, cracks or deformation is found.**
- **Do not place anything on top of the seat belt pre-tensioner.**
- **Do not expose the seat belt with pre-tensioner to temperatures over 90° C (194° F).**
- **After operating the seat belt pre-tensioner, replace the seat belt pre-tensioner with a new part.**
- **Gloves and protective goggles should be worn when handling a seat belt with pre-tensioner once it has been used.**
- **If disposing of a seat belt with pre-tensioner which has not yet been used, its seat belt pre-tensioner should be operated first before disposal. (Refer to [P.52B-82.](#))**



AC004152 AB

<<A>>

REMOVAL STEPS

1. NEGATIVE (-) BATTERY CABLE DISCONNECTION
2. SASH GUIDE COVER
3. SEAT BELT WITH PRE-TENSIONER

>>A<<

INSTALLATION STEPS

- PRE-INSTALLATION INSPECTION
- 3. SEAT BELT WITH PRE-TENSIONER
- 2. SASH GUIDE COVER
- 1. NEGATIVE (-) BATTERY CABLE DISCONNECTION
- POST-INSTALLATION INSPECTION

>>B<<

REMOVAL SERVICE POINTS

<<A>> NEGATIVE (-) BATTERY CABLE DISCONNECTION

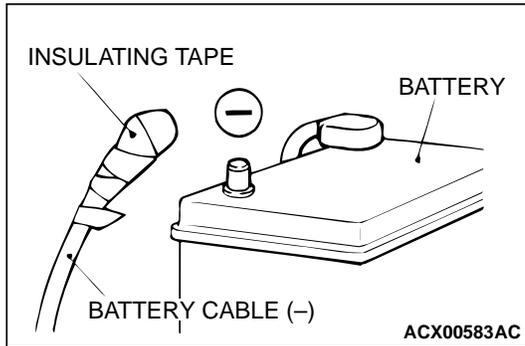
⚠ DANGER

Wait at least 60 seconds after disconnecting the battery cable before doing any further work. (Refer to [P.52B-15.](#))

⚠ WARNING

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

Disconnect the negative (-) battery cable from the battery and tape the terminal to prevent accidental connection and deployment.



INSTALLATION SERVICE POINTS

>>A<< PRE-INSTALLATION INSPECTION

⚠ WARNING

Dispose of seat belt pre-tensioner only according to the specified procedure. (Refer to [P.52B-82.](#))

1. When installing the new seat belt with pre-tensioner, refer to "INSPECTION" [P.52B-82.](#)
2. Connect the negative (-) battery cable.

⚠ CAUTION

Turn "OFF" the ignition switch before connecting or disconnecting scan tool MB991502.

3. Connect scan tool MB991502 to the data link connector.
4. Turn the ignition key to the "ON" position.
5. Conduct diagnostic test using scan tool MB991502 to ensure entire SRS operates properly.

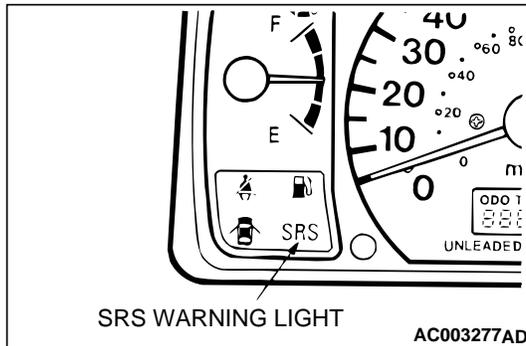
⚠ WARNING

Wait at least 60 seconds after disconnecting the battery cable before doing any further work. (Refer to [P.52B-15.](#))

6. Turn the ignition key to the "OFF" position. Disconnect the negative (-) battery cable and tape the terminal to prevent accidental connection and air bags deployment.

>>B<< POST-INSTALLATION INSPECTION

1. Reconnect the negative (-) battery cable.
2. Turn the ignition key to the "ON" position.



3. Does the "SRS" warning light illuminate for approximately 7 seconds, and then remain off for at least 5 seconds after turning "OFF"?
4. If yes, the SRS system is functioning properly. If no, consult [P.52B-20](#).

INSPECTION

M1524004200115

SEAT BELT WITH PRE-TENSIONER CHECK

⚠ WARNING

- ***If any component damage is found during the following inspection, replace the seat belt with pre-tensioner with a new one. Dispose of the old one according to the specified procedure. (Refer to [P.52B-82](#).)***
 - ***Never attempt to measure the circuit resistance of the seat belt pre-tensioner even if you are using the specified tester. If the circuit resistance is measured with a tester, accidental seat belt pre-tensioner operation will result in serious personal injury.***
1. Check seat belt pre-tensioner for dents, cracks or deformation.
 2. Check the connectors for damage, the terminals for deformation, and the harness for binds.

AIR BAG MODULE AND SEAT BELT PRE-TENSIONER DISPOSAL PROCEDURES

M1524001200213

Before disposing of a vehicle which is equipped with air bags or seat belts with pre-tensioner, or when disposing of the air bags or seat belt pre-tensioner themselves, the following procedures must be used to deploy the air bags or operate the seat belt pre-tensioner before disposal.

UNDEPLOYED AIR BAG MODULE AND SEAT BELT PRE-TENSIONER DISPOSAL

Required Special Tools:

- MB628919 or MR203491: SRS Air bag adapter harness B
- MB686560: SRS air bag adapter harness A

⚠ WARNING

- *If the vehicle is to be scrapped or otherwise disposed of, deploy the air bags and operate the seat belt pre-tensioner inside the vehicle. If the vehicle will continue to be used and only the air bag modules and seat belt pre-tensioner are to be disposed of, deploy the air bags and operate the seat belt pre-tensioner outside the vehicle.*
- *Since a large amount of smoke is produced when the air bag is deployed and the seat belt pre-tensioner is operated, avoid residential areas whenever possible.*
- *Since there is loud noise when the air bags are deployed and when the seat belt pre-tensioner are operated, avoid residential areas whenever possible. If anyone is nearby, give warning of the impending noise.*
- *Suitable ear protection should be worn by personnel performing these procedures or by people in the immediate area.*

DEPLOYMENT INSIDE THE VEHICLE (when disposing of a vehicle)

1. Move the vehicle to an isolated spot.

⚠ DANGER

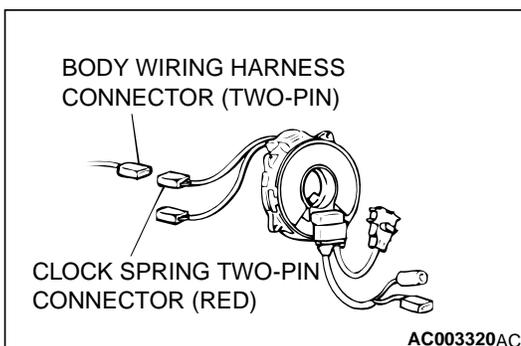
Wait at least 60 seconds after disconnecting the battery cables before doing any further work. (Refer to [P.52B-15.](#))

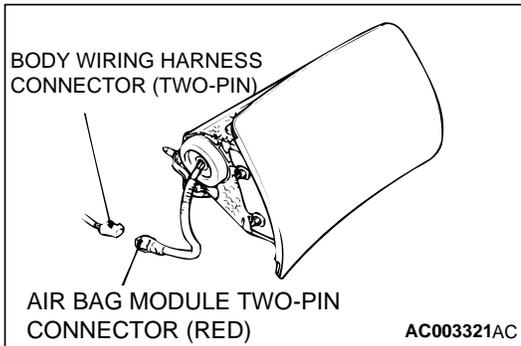
⚠ WARNING

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

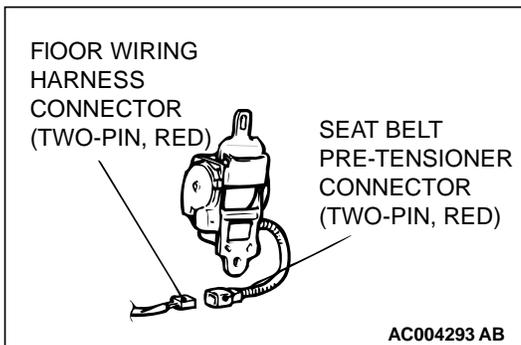
2. Disconnect the negative (–) and positive (+) battery cables from the battery terminals, and then remove the battery from the vehicle.
3. To deploy the air bag module (driver's side):
 - (1) Remove the steering column cover lower.
 - (2) Remove the connection between the clock spring two-pin connector (red) and the body wiring harness connector.

NOTE: *If the clock spring connector is disconnected from the body wiring harness, both electrodes of the clock spring connector will be automatically shorted to prevent unintended deployment of the air bag due to static electricity, etc.*



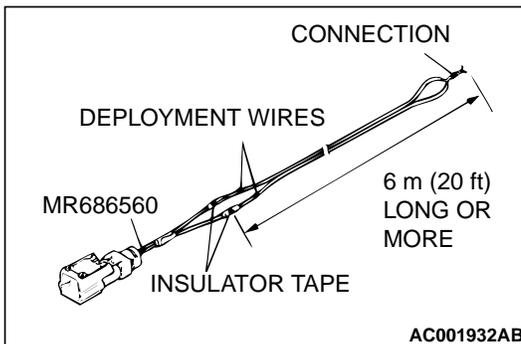


4. To deploy the air bag module (front passenger's side):
 - (1) Loosen the stopper to remove the glove box. (Refer to [P.52A-32.](#))
 - (2) Remove the connection between the air bag module (front passenger's side) connector (red two-pin) and the body wiring harness connector.

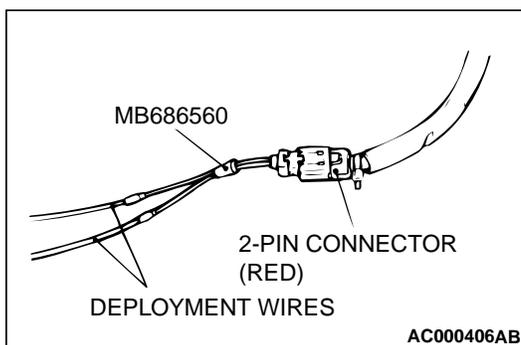


5. To operate the seat belt pre-tensioner:
 - (1) Remove the center pillar trim, lower. (Refer to [P.52A-36.](#))
 - (2) Remove the connection between the seat belt pre-tensioner two-pin connector (red) and the floor wiring harness connector (two-pin, red).

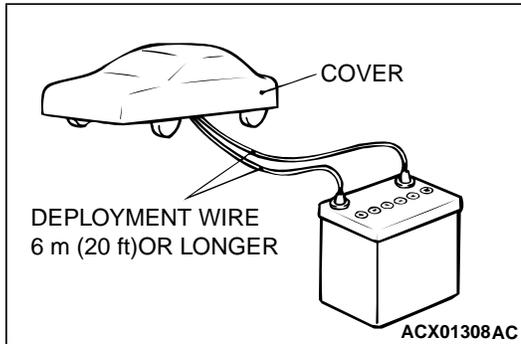
NOTE: If the seat belt pre-tensioner connector is disconnected from the floor wiring harness, both electrodes of the seat belt pre-tensioner connector will be automatically shorted to prevent unintended operation of the seat belt pre-tensioner due to static electricity, etc.



6. Connect deployment wires, each 6 meters (20 feet) or longer, to the two leads of special tool MB686560 and cover the connections with insulation tape. The other ends of the deployment wires should be connected to each other (short-circuited), to prevent sudden unexpected deployment of the air bag and operate the seat belt pre-tensioner.



7. Connect the clock spring or air bag module (front passenger's side) or seat belt pre-tensioner two-pin connector (red) to special tool MB686560 and move the deployment wires out of the vehicle.



⚠ WARNING

If the glass is scratched, air bag deployment or seat belt pre-tensioner operation could cause it to crack and fly out of the vehicle, so always put a cover over the vehicle.

8. To suppress the operation sound as much as possible completely close all door windows, close the door and put the cover on the vehicle.

⚠ WARNING

- ***Before deploying the air bag and operating the seat belt pre-tensioner in this manner, first check to be sure that there is no one in or near the vehicle. Wear safety glasses.***
 - ***After the air bag has been deployed or the seat belt pre-tensioner has been triggered, the inflator is very hot. So wait for at least thirty minutes before the inflator is handled. See Deployed Air Bag Module and Seat Belt pre-tensioner Disposal Procedures (Refer to [P.52B-89](#)) for post-deployment handling instructions.***
 - ***Just in case that the air bag module could not been deployed or the seat belt pre-tensioner could not been operated, contact the MMSA Tech Line.***
9. At a location as far away from the vehicle as possible, disconnect the two connected wires from each other, and connect them to the two terminals of the battery (which has been removed from the vehicle) to deploy the air bag and operating the seat belt pre-tensioner.
 10. For the disposal of an deployed air bag module or seat belt pre-tensioner, see the Deployed Air Bag Module Disposal Procedures [P.52B-89](#).

DEPLOYMENT OUTSIDE THE VEHICLE

⚠ DANGER

Wait at least 60 seconds after disconnecting the battery cables before doing any further work. (Refer to P.52B-15.)

⚠ WARNING

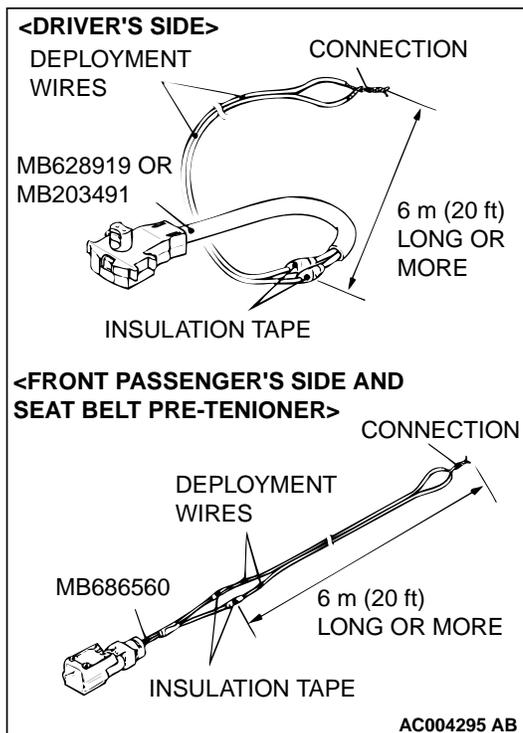
- **Battery posts, terminals and related accessories contain lead and lead compounds. WASH HANDS AFTER HANDLING.**
- **Deploy the air bag or operate the seat belt pre-tensioner in a wide, flat area at least 6 m (20 feet) away from obstacles and other people.**
- **Do not perform deployment or operation outside if a strong wind is blowing. If there is a slight breeze, place the air bag module or seat belt pre-tensioner downwind from the battery.**

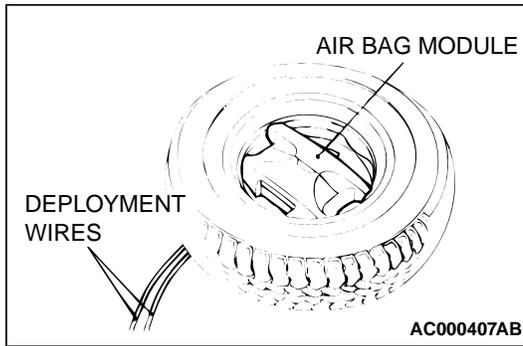
1. Disconnect the negative (–) and positive (+) battery cables from the battery terminals, and then remove the battery from the vehicle.

⚠ WARNING

Store the deployed air bag module or seat belt pre-tensioner the correct way up with its padded surface or its operation surface uppermost on a flat surface. Do not place anything on top of them.

2. Remove the air bag module and seat belt with pre-tensioner from the vehicle. (Refer to P.52B-72 and P.52B-80.)
3. Connect deployment wires, each 6 meters (20 feet) or longer, to the two leads of special tool MB628919 or MR203491 <drive's side> or special tool MB686560 <front passenger's side and seat belt pre-tensioner>, and cover the connections with insulation tape. The other ends of the deployment wires should be connected to each other (short-circuited), to prevent sudden unexpected deployment of the air bag module operation seat belt pre-tensioner.





4. Prepare the air bag modules and seat belt pre-tensioner as follows:

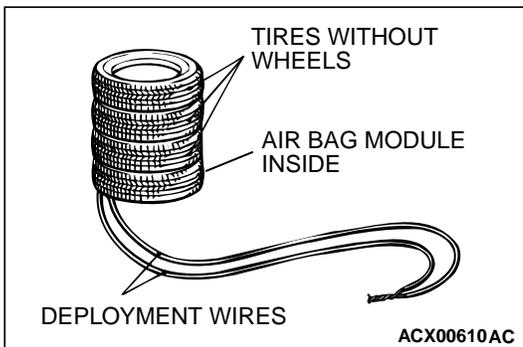
(1) Air bag module (driver's side)

- a. Take special tool MB628919 or MR203491 that is connected to the deployment wires, pass it beneath an old tire wheel assembly, and connect it to the air bag module.

CAUTION

The adapter harness below the wheel should be loose. If it is too tight, the reaction when the air bag deploys could damage the adapter harness.

- b. Pass the thick wire through the air bag module mounting hole, and then secure the air bag module to an old tire with a wheel in it so that the pad on the module is facing upwards.
- c. Place three old tires without wheels on top of the tire secured to the air bag module.



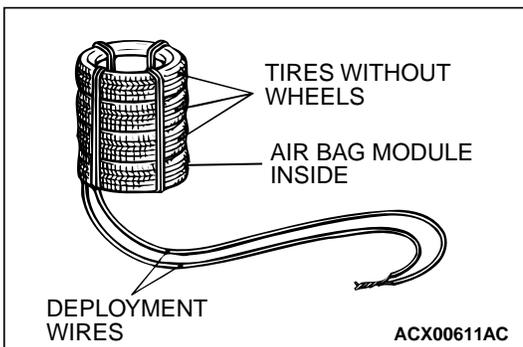
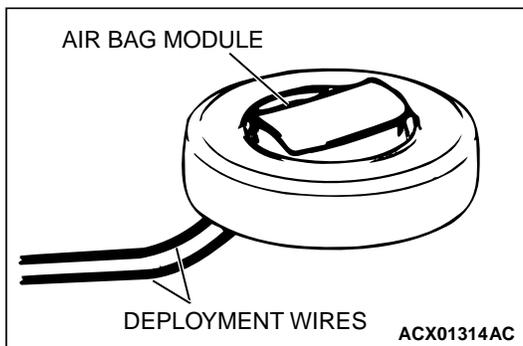
(2) Air bag module (font passenger's side)

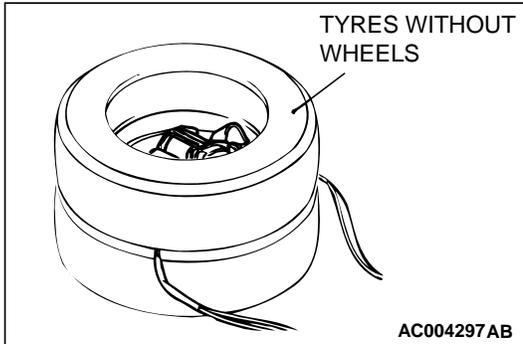
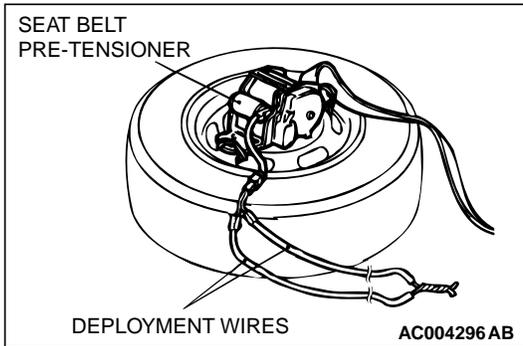
- a. Connect the deployment wires to special tool MB686560, pass it beneath the tire and wheel assembly, and connect it to the air bag module.

CAUTION

- **The adapter harness below the wheel should be loose. If it is too tight, the reaction when the air bag deploys could damage the adapter harness.**
- **During deployment, the connector of special tool MB686560 must not be between the tires.**

- b. Pass the thick wires into the hole of the air bag module bracket, and secure it to the wheel of the old tire with wheel (four locations), with the air bag facing upwards.
- c. Place three old tires without wheels on top of the tire secured to the air bag module, and secure all tires together with ropes (four locations).





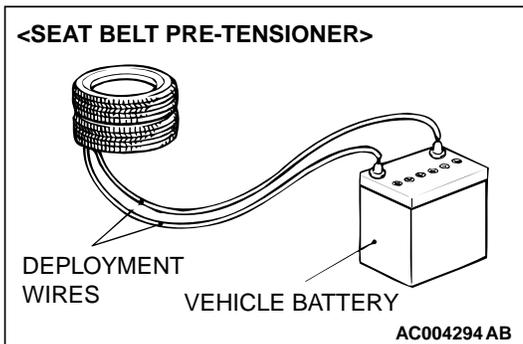
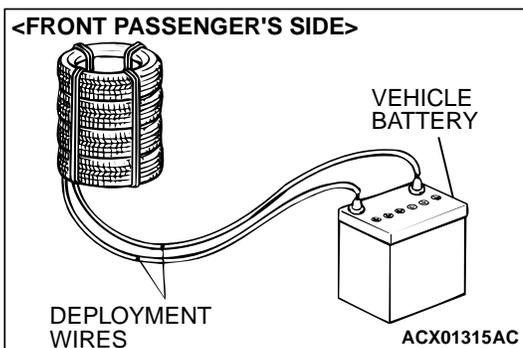
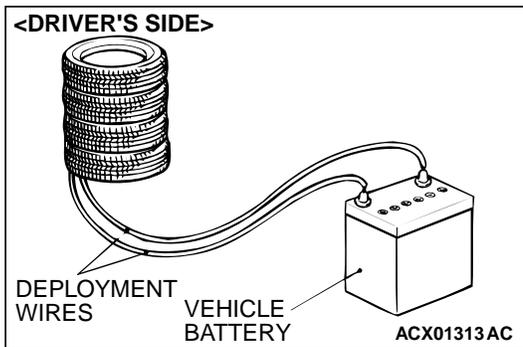
(3) Seat belt pre-tensioner

- a. Connect special tool MB686560, which the deployment wires is attached to, to the seat belt pre-tensioner connector.

CAUTION

The adapter harness below the wheel should be loose. If it is too tight, the reaction when the air bag deploys could damage the adapter harness.

- b. Pass the thick wires through the hole on the seat belt pre-tensioner bracket and secure them to the front (raised part) of the wheel on two places.
- c. Pull the seat belt out the outside of the tire, and then place one tire without a wheel inside on top of the existing tire.



⚠ WARNING

- **Before deployment and operation, check carefully to be sure that no one is nearby.**
- **After the air bag has been deployed or the seat belt pre-tensioner has been triggered, the inflator is very hot. So wait for at least thirty minutes before the inflator is handled. See Deployed Air Bag Module and Seat Belt pre-tensioner Disposal Procedures (Refer to [P.52B-89](#)) for post-deployment handling instructions.**
- **Just in case that the air bag module could not be deployed or the seat belt pre-tensioner could not be operated, contact the MMSA Tech Line.**

5. At a location as far away from the air bag module as possible, and from a shielded position, disconnect the two connected wires from each other, and connect them to the two terminals of the battery (which has been removed from the vehicle) to deploy the air bag and operate the seat belt pre-tensioner.
6. For the disposal of an deployed air bag module or seat belt pre-tensioner, see the Deployed Air Bag Module Disposal Procedures [P.52B-89](#).

DEPLOYED AIR BAG MODULE DISPOSAL

After deployment and operation, the air bag module and seat belt pre-tensioner should be disposed of in the same manner as any other scrap parts, adhering to local laws and/or legislation. Observe the following precautions during air bag disposal:

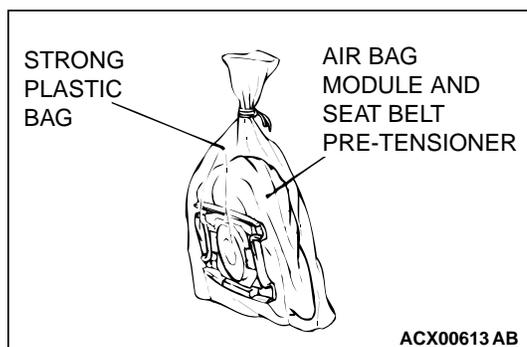
1. The inflator will be quite hot immediately following deployment, so wait at least 30 minutes to allow it cool before attempting to handle it.

2. Do not put water or oil on the air bag after deployment or on the seat belt pre-tensioner after operation.

⚠ WARNING

If after following these precautions, any material does get into the eyes or on the skin, immediately rinse the affected area with a large amount of clean water. If any irritation develops, seek medical attention.

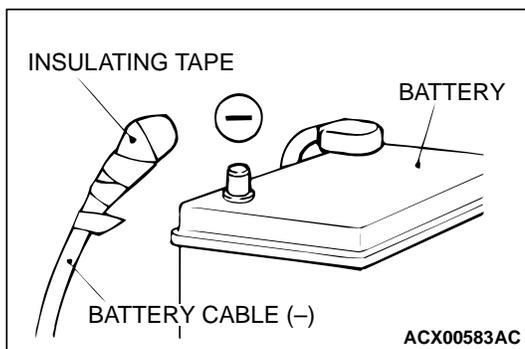
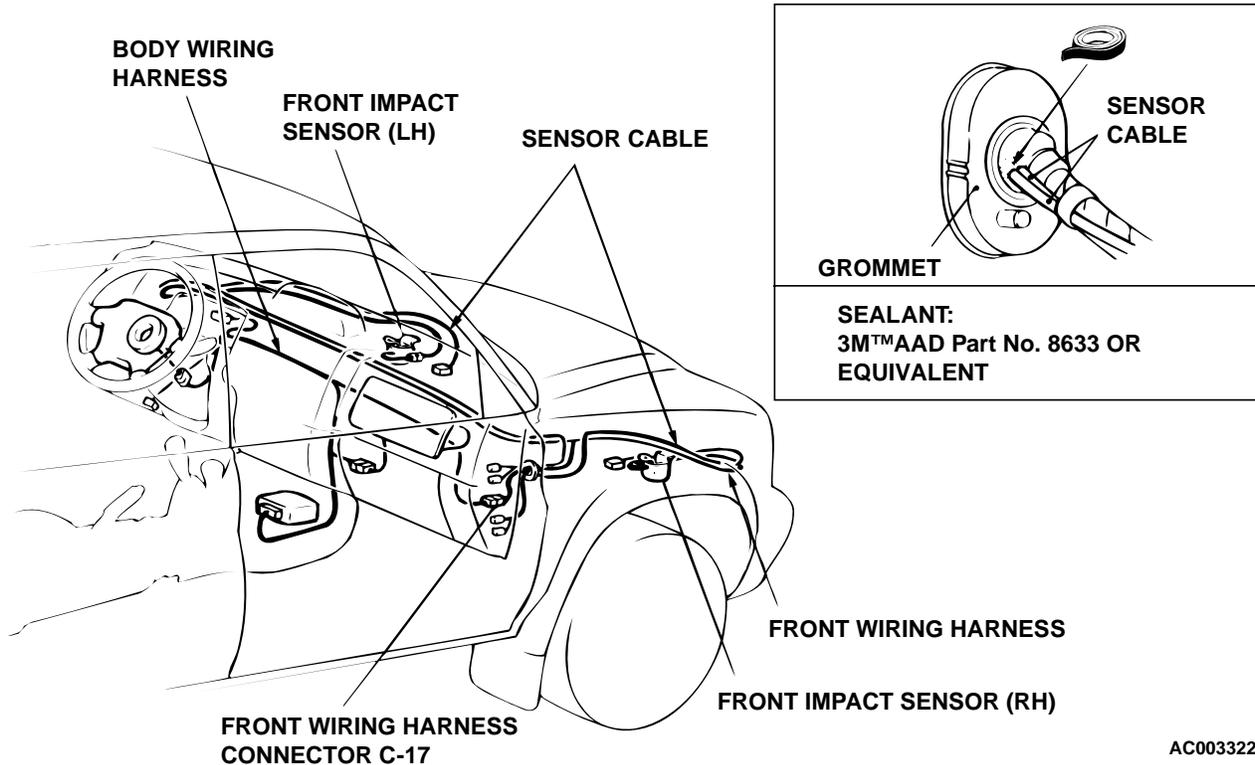
3. There may be material on the deployed air bag module or the operated seat belt pre-tensioner, that could irritate the eye and/or skin. Wear gloves and safety glasses when handling a deployed air bag module or the operated seat belt pre-tensioner.
4. Tightly seal the air bag module and seat belt pre-tensioner in a strong plastic bag for disposal.
5. Be sure to always wash your hands after completing this operation.



SENSOR CABLE INSTALLATION PROCEDURE

M1524001300061

If there is a malfunction in the front wiring harness between the front impact sensor and body wiring harness, install and route a new sensor cable (Refer to P.52B-15.)



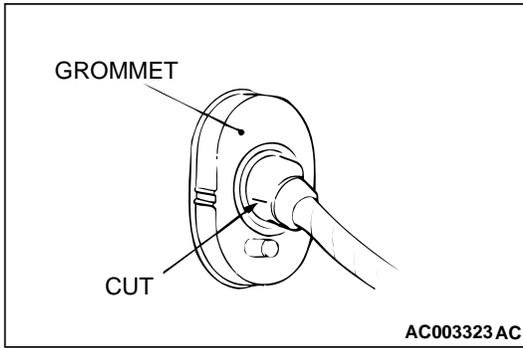
⚠ DANGER

Wait at least 60 seconds after disconnecting the battery cable before doing any further work. (Refer to P.52B-15.)

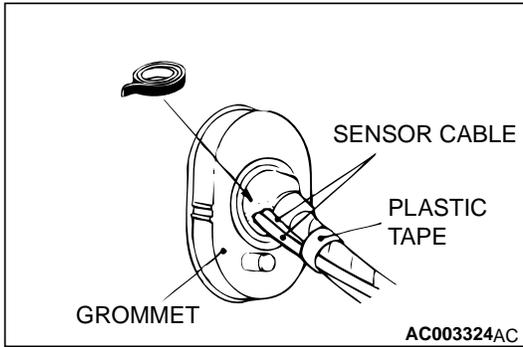
⚠ WARNING

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

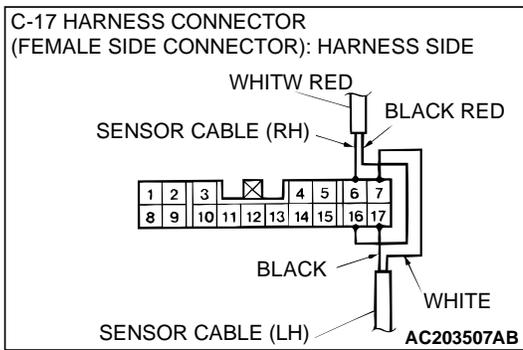
1. Disconnect the negative (-) battery cable and tape the terminal to prevent accidental connection and air bags deployment.



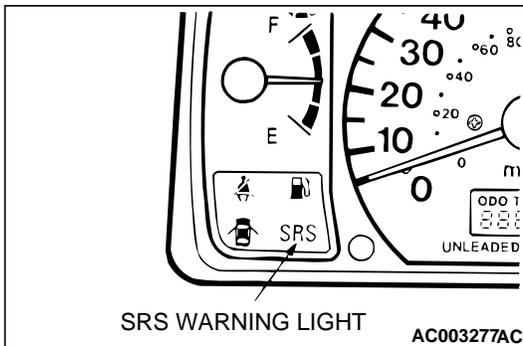
2. Make a cut in the grommet in the place shown in the illustration, and pass the sensor cable through the cut.



3. Run the sensor cable along the front wiring harness, and then secure the cable to the harness with insulation tape.
4. Apply the specified sealant inside the grommet.



5. Exchange the terminal of the front wiring harness connector C-17 (Female side connector) shown in the illustration with the terminal of the sensor cable shown in the illustration.



POST-INSTALLATION INSPECTION

1. Reconnect the negative (-) battery cable.
2. Turn the ignition key to the "ON" position.
3. Does the "SRS" warning light illuminate for approximately 7 seconds, and then remain off for at least 5 seconds after turning "OFF?"
4. If yes, SRS system is functioning properly. If no, refer to "SRS Diagnosis" on P.52B-53.

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

M1524004900181

ITEM	SPECIFICATION
Air bag module (driver's side) mounting screw	8.8 N·m (78 in-lb)
Front impact sensor bolt	4.9 N·m (43 in-lb)
Seat belt with pre-tensioner bolt	44 N·m (33 ft-lb)
SRS-ECU bolt	4.9 N·m (43 in-lb)
SRS-ECU bracket bolt	4.9 N·m (43 in-lb)
Steering wheel nut	39 N·m (29 ft-lb)

SERVICE SPECIFICATION

M1524000400151

ITEM	STANDARD VALUE
Front impact sensor resistance Ω	820 \pm 82
Clock spring resistance Ω	Less than 0.4

SEALANT

M1524000600069

ITEM	SPECIFIED SEALANT
Sensor cable	3M™ ADD part No.8633 or equivalent

NOTES