

# SUPPLEMENTAL RESTRAINT SYSTEM (SRS)

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52409000117

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### CAUTION

- Carefully read and observe the information in the **SRS SERVICE PRECAUTIONS (P.52B-10.)** prior to any service.
- For information concerning troubleshooting or maintenance, always observe the procedures in the **Troubleshooting (P.52B-13.)** or the **SRS Maintenance (P.52B-22.)** 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 (P.52B-25.) for the components involved.
- If you have any questions about the SRS, please contact your local distributor.

## GENERAL INFORMATION

### INTRODUCTION

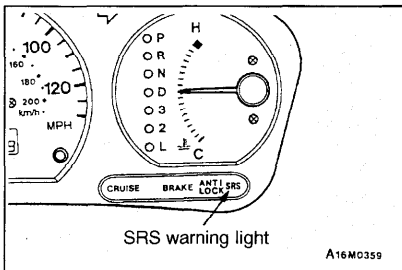
The Supplemental Restraint System (SRS) is designed to supplement the driver's and front passenger's seat belts to help reduce the risk or severity of injury to the driver and front passenger by activating and deploying both air bags in certain frontal collisions.

The SRS consist of two air bag modules, SRS air bag control unit (SRS-ECU), SRS warning light, and clock spring. One air bag is located in the center of the steering wheel and another 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 warning light on the instrument panel indicates the operational status of the SRS. The clock spring is installed in the steering column. 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.

#### Caution

**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).**

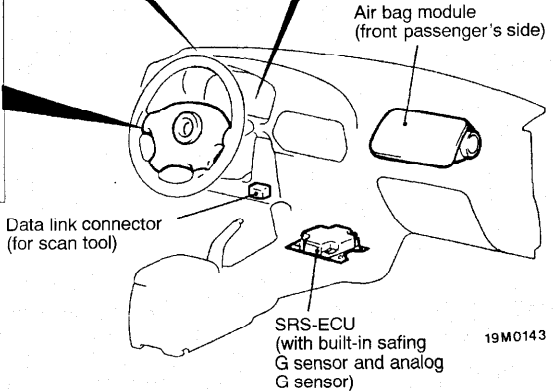
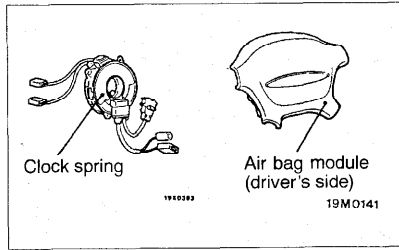
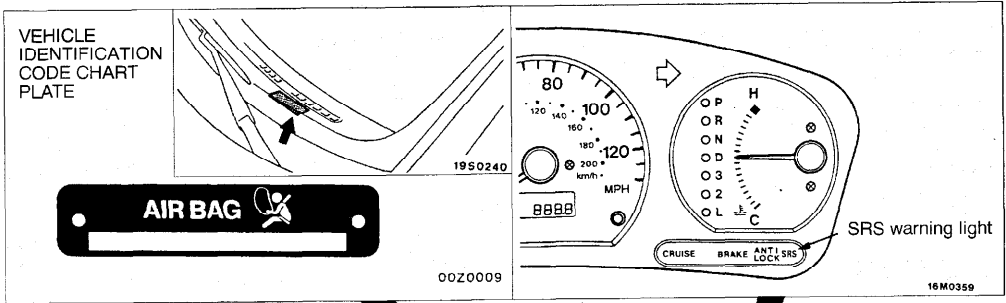


### ON-BOARD DIAGNOSTIC/SRS WARNING LIGHT FUNCTION

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



00004822

NOTE

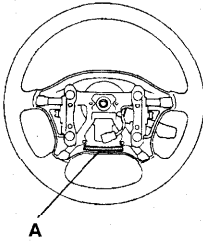
This construction diagram shows the general view of the SRS components. For details, refer to "Schematic" ( P.52B-6), "Configuration Diagrams" ( P.52B-7) and "Circuit Diagram" ( P.52B-8).

**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

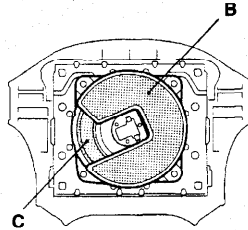
SRS. The label J is not to be removed except by owner. If the other labels are dirty or damaged, replace them.

Steering wheel



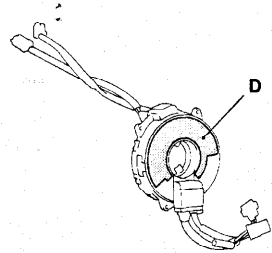
19X0541

Air bag module (driver's side)



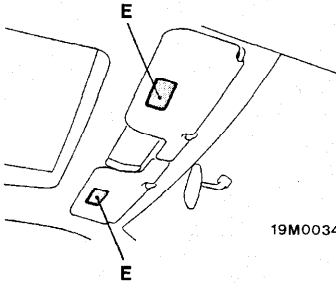
19M0147

Clock spring



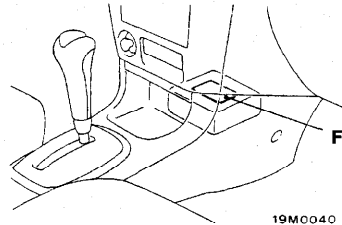
19X0015

Sun visor



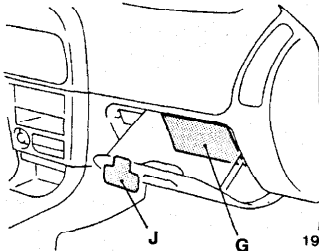
19M0034

SRS-ECU



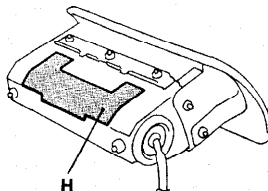
19M0040

Glove box



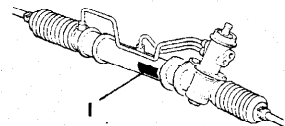
19M0190

Air bag module (front passenger's side)




19M0021

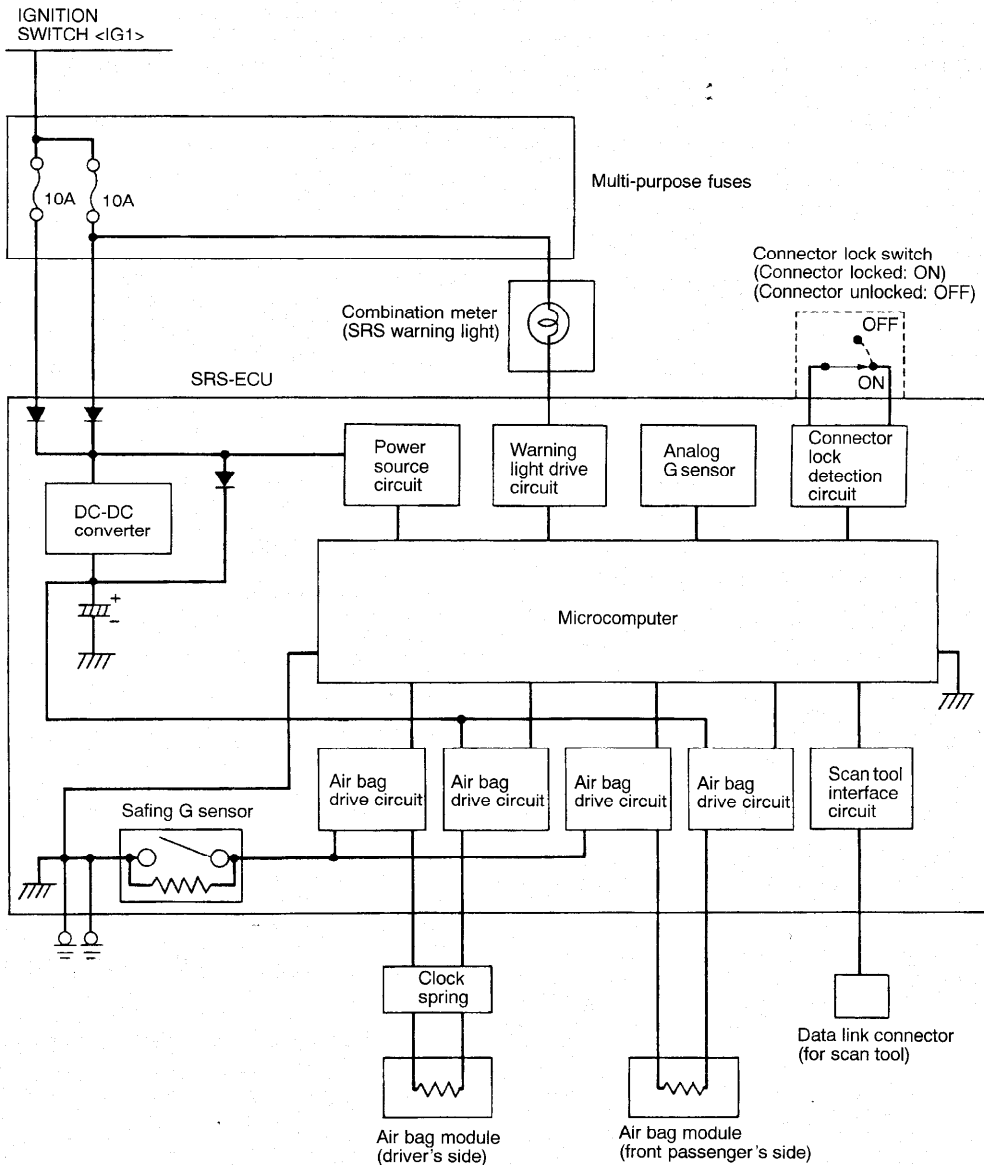
Steering gear box



19S0223

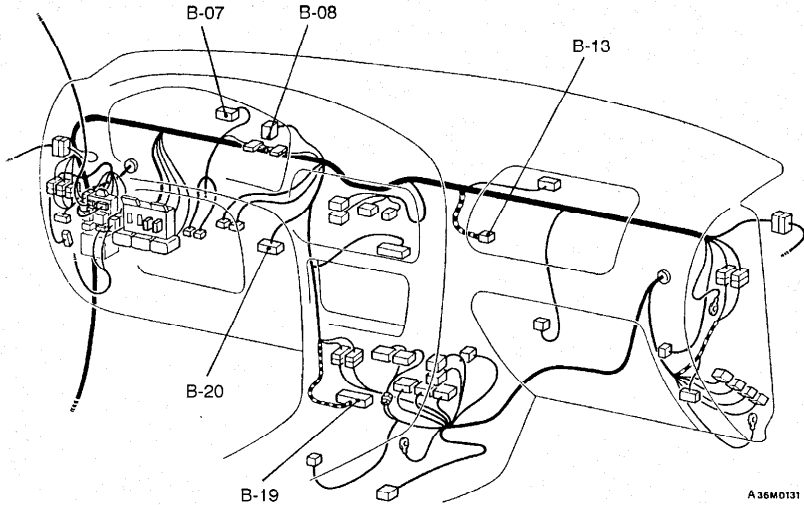
Label contents	Label contents
<p>A. CAUTION: SRS Before replacing steering wheel, read service manual, center front wheels, and align SRS clock spring neutral marks. Failure to do so may render SRS system inoperative, risking serious driver injury.</p>	<p>G. AIR BAG SYSTEM INFORMATION This vehicle has an air bag system which will supplement the seatbelt in certain frontal collisions. The air bag is not a substitute for the seatbelt in any type of collision. The driver and all other occupants should wear seatbelts at all times. <b>WARNING!</b> 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 vehicle's front end is damaged or if the air bag has deployed, take the vehicle for service immediately. 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. Read the "SRS" section of your owner's manual before driving for important information about operation and service of the air bag system. When you are going to discard your gas generator or vehicle, please see your dealer.</p>
<p>B. 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>	<p>H. 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. <b>DANGER POISON</b> Keep out of the reach of children. Contains sodium azide and potassium nitrate. Contents are poisonous and extremely flammable. Contact with acid, water, or heavy metals may produce harmful and irritating gases or explosive compounds. Do not dismantle, incinerate, bring into contact with electricity, or store at temperatures exceeding 200 °F (93 °C). <b>FIRST AID:</b> If contents are swallowed, induce vomiting. For eye contact flush eye with water for 15 minutes. If gases from acid or water contact are inhaled, fresh air. In every case, get prompt medical attention.</p>
<p>C. 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>	<p>I. CAUTION: SRS Before removal of steering gear box, read service manual, center front wheels and remove ignition key. Failure to do so may damage SRS clock spring and render SRS system inoperative, risking serious driver injury.</p>
<p>D. 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>	<p>J. WARNING: 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 seats. Not to be removed except by owner.</p>
<p>E.  V0037AA <b>WARNING: DEATH or SERIOUS INJURY</b> can occur</p> <ul style="list-style-type: none"> <li>• Children 12 and under can be killed by the air bag.</li> <li>• The BACK SEAT is the SAFEST place for children.</li> <li>• NEVER put a rear-facing child seat in the front.</li> <li>• Sit as far back as possible from the air bag.</li> <li>• ALWAYS use SEAT BELTS and CHILD RESTRAINTS.</li> </ul>	
<p>F. CAUTION: Do not disassemble or drop. If defective refer to service manual.</p>	

**SCHEMATIC**



**CONFIGURATION DIAGRAMS**

**Dash panel**

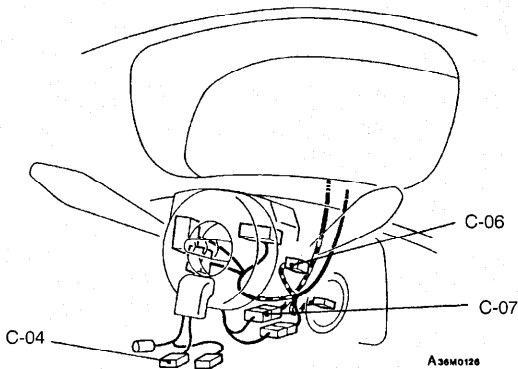


- B-07 Combination meter (for SRS warning light)
- B-08 Combination meter (for SRS warning light)

- B-13 Air bag module (front passenger's side)
- B-19 SRS-ECU
- B-20 Data link connector (for scan tool)

A36M0131

**Steering column**



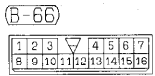
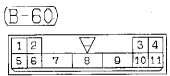
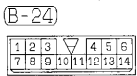
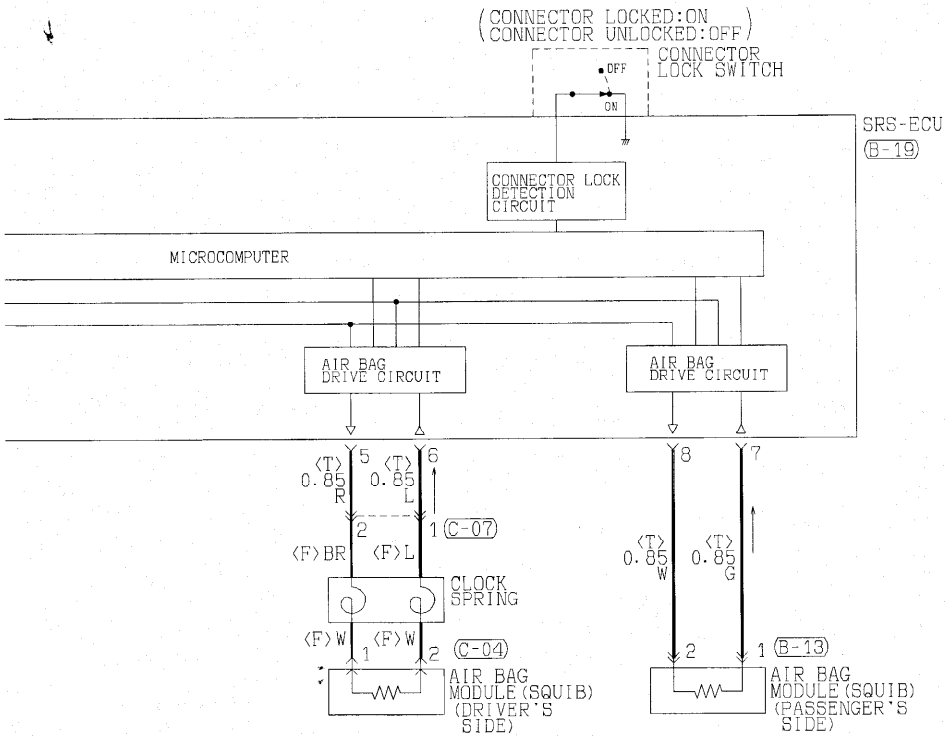
- C-04 Air bag module (driver's side)
- C-06 Ignition switch

- C-07 Clock spring

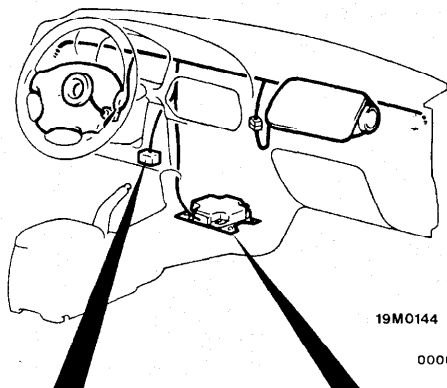
A36M0126







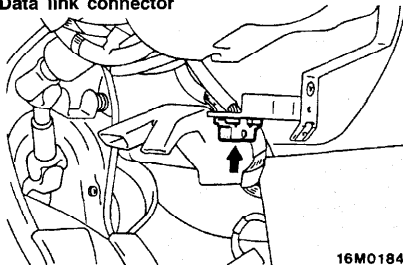
## COMPONENT LOCATION



19M0144

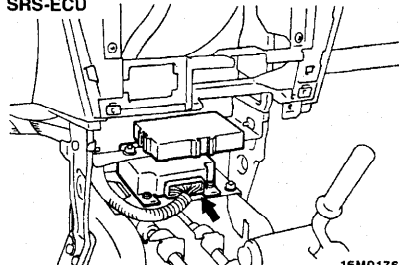
00004824

Data link connector



16M0184

SRS-ECU



16M0176

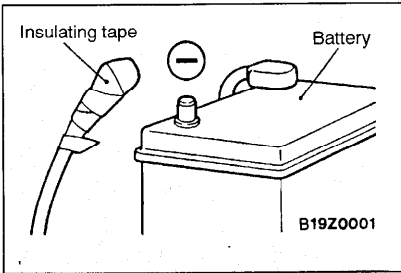
## SRS SERVICE PRECAUTIONS

1. 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.
2. Do not use any electrical test equipment on or near SRS components, except those specified on P.52B-12 and P.52B-12.

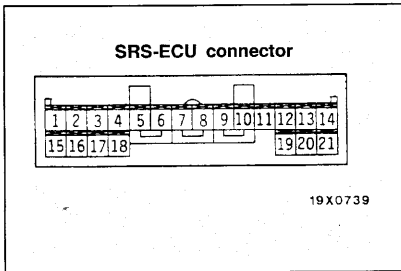
3. **Never Attempt to Repair the Following Components:**

- SRS air bag control unit (SRS-ECU)
- Clock Spring
- Air Bag Module

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 at page 52B-25.



- 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.



- 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 to 4	-	-
5	Body wiring harness → Clock spring → Air bag module (Driver's side)	Correct or replace each wiring harness. Replace clock spring.
6		
7	Body wiring harness → Air bag module (Front passenger's side)	Correct or replace each wiring harness.
8		
9,10	-	-
11	Body wiring harness → Data link connector	Correct or replace each wiring harness.
12	-	-
13	Body wiring harness → Junction block (fuse No.2)	Correct or replace each wiring harness.
14	Body wiring harness → Junction block (fuse No.4)	
15	Body wiring harness → SRS warning light	
16 to 19	-	-
20	Body wiring harness → Ground	Correct or replace body wiring harness.
21		

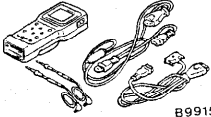
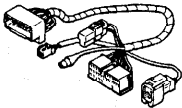
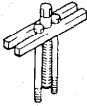
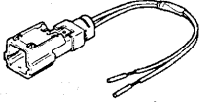
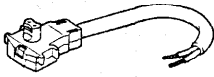
- SRS components should not be subjected to heat over 93 °C (200 °F), so remove the SRS-ECU, air bag module and clock spring before drying or baking the vehicle after painting.
- Whenever you finish servicing the SRS, check warning light operation to make sure that the system functions properly. (Refer to P.52B-2.)
- Make certain that the ignition switch is OFF when the scan tool is connected or disconnected.
- If you have any questions about the SRS, please contact the MMSA tech Line.

**NOTE**

SERIOUS INJURY CAN RESULT FROM UNINTENDED AIR BAG DEPLOYMENT, SO USE ONLY THE PROCEDURES AND EQUIPMENT SPECIFIED IN THIS MANUAL.


## SPECIAL TOOLS

52400070131

Tool	Tool number and name	Supersession	Application
 B991502	MB991502 Scan tool (MUT-II)	MB991496-OD	<ul style="list-style-type: none"> <li>Reading diagnostic trouble codes</li> <li>Erasing diagnostic trouble codes</li> <li>Reading vehicle data for a specific period</li> <li>Reading erase times [Refer to MUT-II OPERATING INSTRUCTIONS]</li> </ul>
 B991613	MB991613 SRS check harness		Checking the SRS electrical circuitry with a digital multi-meter
 B990803	MB990803 Steering wheel puller	General service tool	Removal of steering wheel
 B686560	MB686560 SRS air bag adapter harness A	General service tool	<ul style="list-style-type: none"> <li>Deployment of air bag module inside the vehicle</li> <li>Deployment of air bag module (front passenger's side) outside the vehicle</li> </ul>
 B628919	MR203491 or MB628919 SRS air bag adapter harness B	General service tool	Deployment of air bag module (driver's side) outside the vehicle

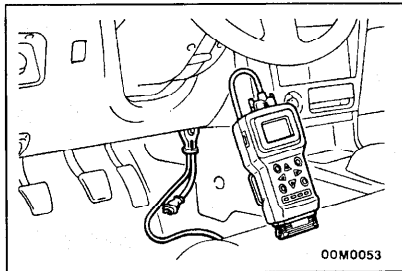
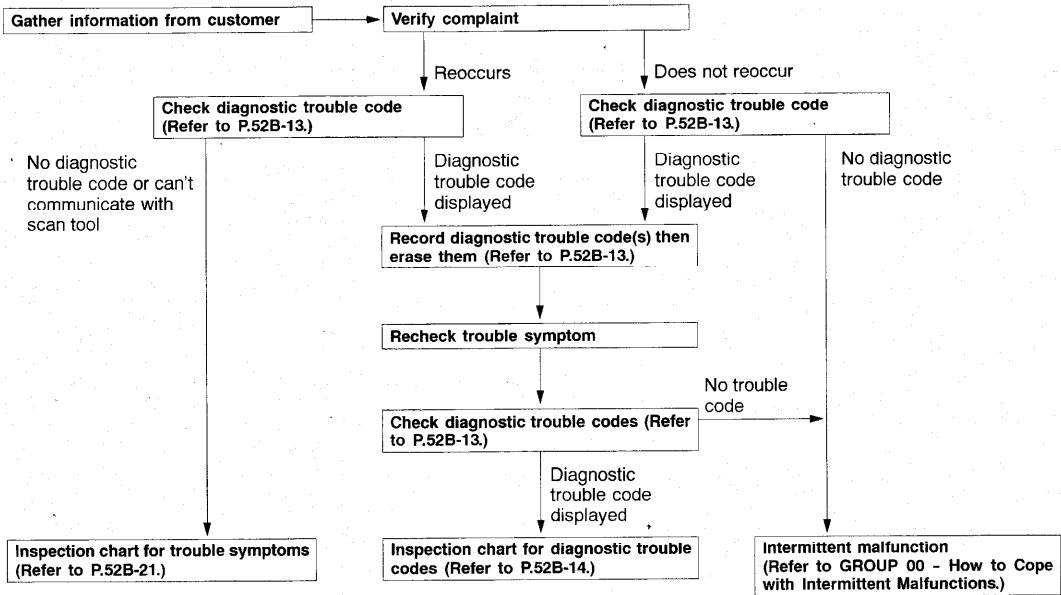
## TEST EQUIPMENT

52400080028

Tool	Tool name	Use
 130746	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

## TROUBLESHOOTING

## DIAGNOSTIC TROUBLESHOOTING FLOW



## DIAGNOSTIC FUNCTION

52400320106

## DIAGNOSTIC TROUBLE CODE CHECK

Connect the scan tool to the data link connector then check diagnostic trouble codes.

**Caution**

**Make certain that the ignition switch is OFF when the scan tool is connected or disconnected.**

## ERASING DIAGNOSTIC TROUBLE CODES

Connect the scan tool to the data link connector then erase the diagnostic trouble codes.

## INSPECTION CHART FOR DIAGNOSTIC TROUBLE CODES

Inspect according to the inspection chart that is appropriate for the diagnostic trouble code.

Code No.	On-board diagnostic item	Reference page	
14	Analog G-sensor system in the SRS-ECU	52B-14	
15,16	Safing G-sensor system in the SRS-ECU	52B-14	
21, 22, 61, 62	Driver's side air bag module (squib) system	52B-15	
24, 25, 64, 65	Front passenger's side air bag module (squib) system	52B-16	
31, 32	SRS-ECU capacitor system	52B-16	
34*	Connector lock system	52B-16	
35	SRS-ECU (deployed air bag) system	52B-17	
41*	IG <sub>1</sub> (A) power circuit system	52B-17	
42*	IG <sub>1</sub> (B) power circuit system	52B-18	
43	SRS warning light drive circuit system	Light does not illuminate.*	52B-19
		Light does not switch off.	52B-19
44*	SRS warning light drive circuit system	52B-20	
45	SRS-ECU non-volatile memory (EEPROM) and A/D converter system	52B-20	
51, 52	Driver's side air bag module (squib ignition drive circuit) system	52B-20	
54, 55	Front passenger's side air bag module (squib ignition drive circuit) system	52B-20	

### NOTE

- (1) \*: If the vehicle condition returns to normal, the diagnostic trouble code will be automatically erased, and the SRS warning light will return to normal.
- (2) If the vehicle has a discharged battery it will store the diagnostic trouble codes 41 or 42. When these diagnostic trouble codes are displayed, check the battery.

## INSPECTION PROCEDURE CLASSIFIED BY DIAGNOSTIC TROUBLE CODE

Code No.14 Analog G-sensor system in the SRS-ECU	Probable cause
<p>The SRS-ECU monitors the output of the analog G-sensor inside the SRS-ECU. It outputs this code when any of the following are detected.</p> <ul style="list-style-type: none"> <li>● When the analog G-sensor is not operating</li> <li>● When the characteristics of the analog G-sensor are abnormal</li> <li>● When the output from the analog G-sensor is abnormal</li> </ul>	<ul style="list-style-type: none"> <li>● Malfunction of SRS-ECU</li> </ul>

Replace the SRS-ECU.

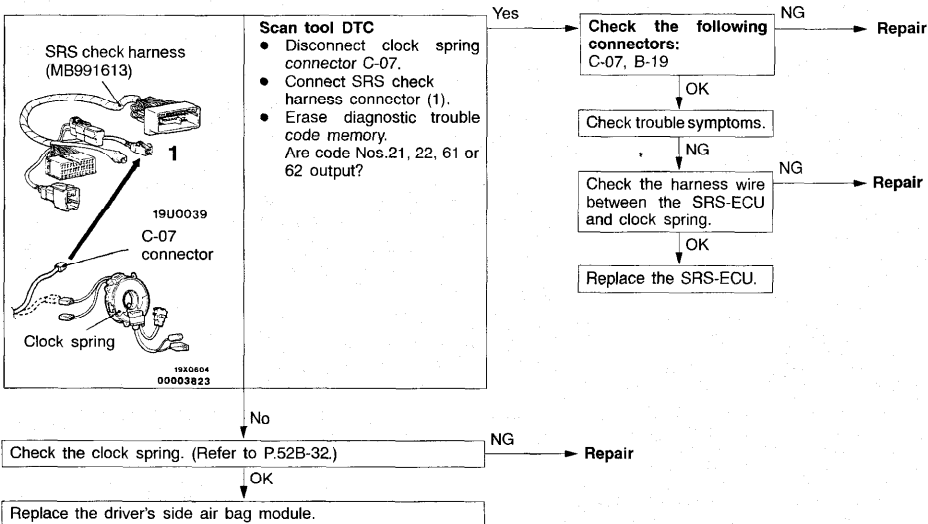
Code No.15 or 16 Safing G-sensor system in the SRS-ECU	Probable cause
<p>This code is output if there is a short or open circuit inside the SRS ECU between the terminals of the safing G-sensor.</p> <p>The trouble causes for each diagnostic trouble code No. are as follows.</p>	<ul style="list-style-type: none"> <li>● Malfunction of SRS ECU</li> </ul>

Code No.	Trouble symptom
15	Short circuit in the safing G-sensor
16	Open circuit in the safing G-sensor

Replace the SRS-ECU.

Code No.21, 22, 61 or 62 Driver's side air bag module (squib) system	Probable cause
<p>These diagnostic trouble codes are output if there is abnormal resistance between the input terminals of the driver's side air bag module (squib). The trouble causes for each diagnostic trouble code No. are as follows.</p>	<ul style="list-style-type: none"> <li>● Malfunction of clock spring</li> <li>● Malfunction of wiring harnesses or connectors</li> <li>● Malfunction of driver's side air bag module (squib)</li> <li>● Malfunction of SRS-ECU</li> </ul>

Code No.	Trouble symptom
21	<ul style="list-style-type: none"> <li>● Short in driver's side air bag module (squib) or harness short</li> <li>● Short in clock spring</li> </ul>
22	<ul style="list-style-type: none"> <li>● Open circuit in driver's side air bag module (squib) or open harness</li> <li>● Open circuit in clock spring</li> <li>● Malfunction of connector contact</li> </ul>
61	<ul style="list-style-type: none"> <li>● Short in driver's side air bag module (squib) harness leading to the power supply</li> </ul>
62	<ul style="list-style-type: none"> <li>● Short in driver's side air bag module (squib) harness leading to the ground</li> </ul>



**Code No.24, 25, 64 or 65 Front passenger's side air bag module (squib) system****Probable cause**

These diagnostic trouble codes are output if there is abnormal resistance between the input terminals of the front passenger's side air bag module (squib). The trouble causes for each diagnostic trouble code No. are as follows.

- Malfunction of wiring harnesses or connectors
- Malfunction of front passenger's side air bag module (squib)
- Malfunction of SRS-ECU

Code No.

Trouble symptom

24

- Short in front passenger's side air bag module (squib) or harness short

25

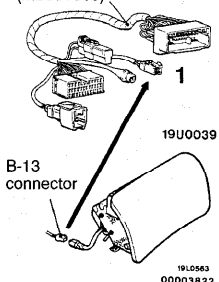
- Open circuit in front passenger's side air bag module (squib) or open harness
- Malfunction of connector contact

64

- Short in front passenger's side air bag module (squib) harness leading to the power supply

65

- Short in front passenger's side air bag module (squib) harness leading to the ground

SRS check harness  
(MB991613)**Scan tool DTC**

- Disconnect front passenger's side air bag module connector B-13.
- Connect SRS check harness connector (1).
- Erase diagnostic trouble code memory.

Are code Nos.24, 25, 64 or 65 output?

Yes

**Check the following connectors:**  
B-13, B-19

NG

**Repair**

OK

Check trouble symptoms.

NG

Check the harness wire between the front passenger's side air bag module (squib) and SRS-ECU.

NG

**Repair**

OK

Replace the SRS-ECU.

No

Replace the front passenger's side air bag module.

**Code No.31 or 32 SRS-ECU capacitor system****Probable cause**

These diagnostic trouble codes are output if the voltage at the SRS-ECU capacitor terminals is higher (No.31) or lower (No.32) than the specified value for 5 seconds or more.

However, if the diagnostic trouble code Nos. 41 and 42 are being output due to a drop in battery voltage, code No. 32 will not be detected.

- Malfunction of SRS-ECU

Replace the SRS-ECU.

**Code No.34 Connector lock system****Probable cause**

This diagnostic trouble code is output if a poor connection at the SRS-ECU is detected. However, if the vehicle condition returns to normal, diagnostic trouble code No.34 will be automatically erased, and the SRS warning light will switch off.

- Malfunction of connectors
- Malfunction of SRS-ECU

**Check the following connector:**  
B-19

NG

**Repair**

OK

Replace the SRS-ECU.



**Code No.35 SRS-ECU (deployed air bag) system****Probable cause**

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

- Malfunction of SRS-ECU

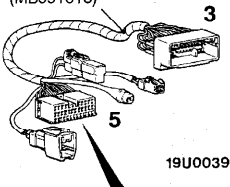
Replace the SRS-ECU.

**Code No.41 IG<sub>1</sub> (A) power circuit system****Probable cause**

This diagnostic trouble code is output if the voltage between the IG<sub>1</sub> (A) terminal and ground is lower than the specified value for a continuous period of 5 seconds or more.  
However, if the vehicle condition returns to normal, diagnostic trouble code No.41 will be automatically erased, and the SRS warning light will switch off.

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

SRS check harness  
(MB991613)



19U0039

1	2	3	4	5	6	7	8	9			
10	11	12	13	14	15	16	17	18	19	20	21
22	23	24	25	26	27	28	29	30	31	32	

19L0567  
00003824

Measure at SRS check harness connector (5).

- Disconnect SRS-ECU connector B-19.
- Connect SRS check harness connector (3).
- Continuity between terminal (20) and ground  
OK: Continuity
- Continuity between terminal (21) and ground  
OK: Continuity

NG

Check the following connectors:  
B-64, B-68, B-19

NG

Repair

OK

Check trouble symptoms.

NG

Check the harness wire between the SRS-ECU and ground, and repair if necessary.

OK

Measure at SRS check harness connector (b).

- Disconnect SRS-ECU connector B-19.
- Connect SRS check harness connector (3).
- Ignition switch: ON
- Voltage between terminal (14) and body ground  
OK: 9 V or more

NG

Check the following connectors:  
B-19, B-68

NG

Repair

OK

Check trouble symptoms.

NG

Check the harness wire between the SRS-ECU and ignition switch IG<sub>1</sub>, and repair if necessary.

OK

Replace the SRS-ECU.

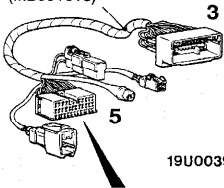
**Code No.42 IG<sub>1</sub> (B) power circuit system****Probable cause**

This diagnostic trouble code is output if the voltage between the IG<sub>1</sub> (B) terminal and ground is lower than the specified value for a continuous period of 5 seconds or more.

However, if the vehicle condition returns to normal, diagnostic trouble code No.42 will be automatically erased, and the SRS warning light will switch off.

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

SRS check harness  
(MB991613)



1	2	3	4	5	6	7	8	9			
10	11	12	13	14	15	16	17	18	19	20	21
22	23	24	25	26	27	28	29	30	31	32	

19U0039

19L0567  
00003824

Measure at SRS check harness connector (5).

- Disconnect SRS-ECU connector B-19.
- Connect SRS check harness connector (3).
- Continuity between terminal (20) and ground  
OK: Continuity
- Continuity between terminal (21) and ground  
OK: Continuity

NG

**Check the following connectors:**  
B-64, B-68, B-19

NG

Repair

OK

Check trouble symptoms.

NG

Check the harness wire between the SRS-ECU and ground, and repair if necessary.

OK

Measure at SRS check harness connector (5).

- Disconnect SRS-ECU connector B-19.
- Connect SRS check harness connector (3).
- Ignition switch: ON
- Voltage between terminal (13) and body ground  
OK: 9 V or more

NG

**Check the following connectors:**  
B-19, B-68

NG

Repair

OK

Check trouble symptoms.

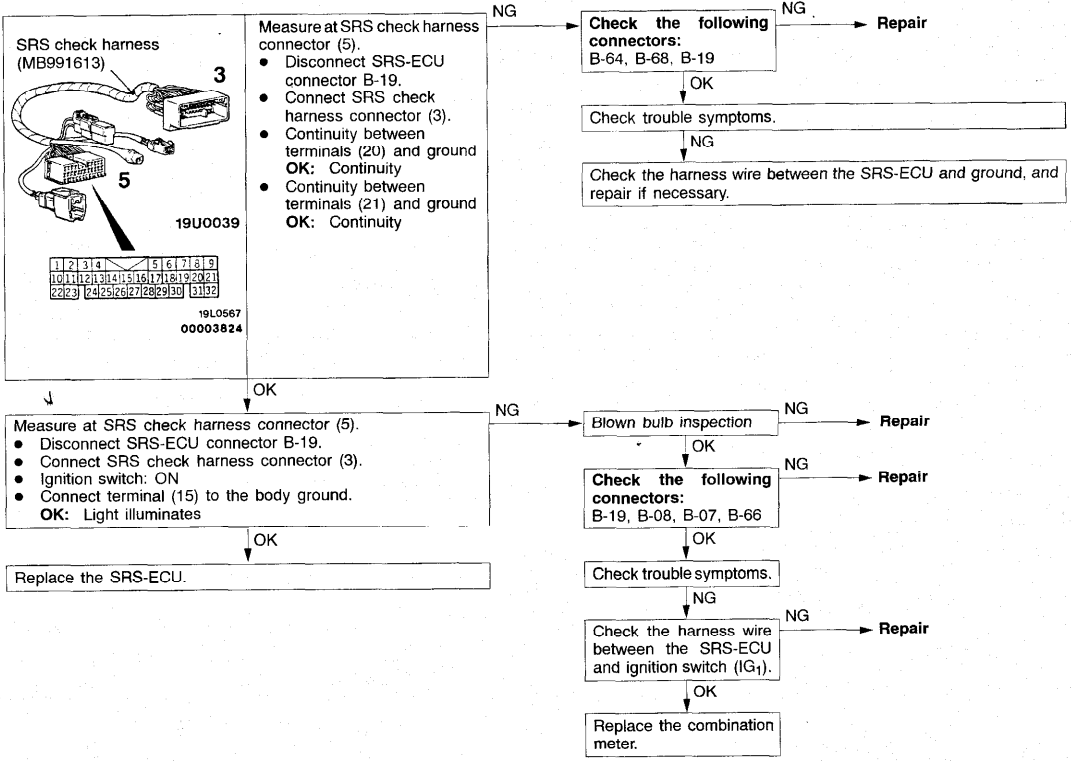
NG

Check the harness wire between the SRS-ECU and ignition switch IG<sub>1</sub>, and repair if necessary.

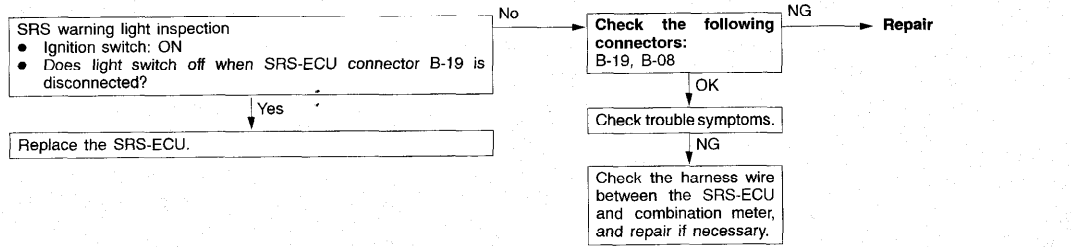
OK

Replace the SRS-ECU.

Code No.43 SRS warning light drive circuit system (Light does not illuminate.)	Probable cause
<p>This diagnostic trouble code is output when an open circuit occurs 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 this code is output due to an open circuit, if the vehicle condition returns to normal, this diagnostic trouble code No.43 will be automatically erased, and the SRS warning light will return to normal.</p>	<ul style="list-style-type: none"> <li>● Malfunction of wiring harnesses or connectors</li> <li>● Blown bulb</li> <li>● Malfunction of SRS-ECU</li> <li>● Malfunction of combination meter</li> </ul>



Code No.43 SRS warning light drive circuit system (Light does not switch off.)	Probable cause
<p>This diagnostic trouble code is output when a short to ground occurs in the harness between the light and the SRS-ECU while SRS-ECU is monitoring the SRS warning light and the light is ON.</p>	<ul style="list-style-type: none"> <li>● Malfunction of wiring harnesses or connectors</li> <li>● Malfunction of SRS-ECU</li> <li>● Malfunction of combination meter</li> </ul>



Code No.44 SRS warning light drive circuit system	Probable cause
<p>This diagnostic trouble code is output when a short occurs in the light drive circuit or a malfunction of the output transistor inside the SRS-ECU is detected while the SRS-ECU is monitoring the SRS warning light drive circuit.</p> <p>However, if the vehicle conditions return to normal, the diagnostic trouble code No. 44 will be automatically erased, and the SRS warning light will switch off.</p>	<ul style="list-style-type: none"> <li>● Malfunction of wiring harnesses or connectors</li> <li>● Malfunction of SRS-ECU</li> </ul>

Check the SRS warning light drive circuit system.  
(Refer to P.52B-19 and P.52B-19.)

OK

Replace the SRS-ECU.

Code No.45 SRS-ECU non-volatile memory (EEPROM) and A/D converter system	Probable cause
<p>This diagnostic trouble code is output if there is a malfunction in the SRS-ECU non-volatile memory (EEPROM) and A/D converter.</p>	<ul style="list-style-type: none"> <li>● Malfunction of SRS-ECU</li> </ul>

Replace the SRS-ECU.

Code No.51 or 52 Driver's side air bag module (squib ignition drive circuit) system	Probable cause
<p>This diagnostic trouble code is output if a short (No.51) or an open circuit (No.52) is detected in the circuit for the driver's seat.</p>	<ul style="list-style-type: none"> <li>● Malfunction of SRS-ECU</li> </ul>

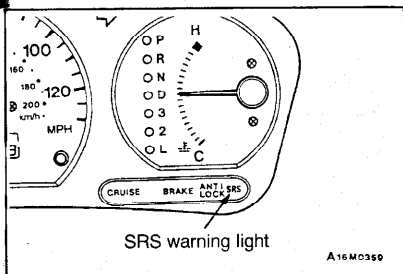
Replace the SRS-ECU.

Code No.54 or 55 Front passenger's side air bag module (squib ignition drive circuit) system	Probable cause
<p>This diagnostic trouble code is output if a short (No.54) or an open circuit (No.55) is detected in the circuit for the passenger's seat.</p>	<ul style="list-style-type: none"> <li>● Malfunction of SRS-ECU</li> </ul>

Replace the SRS-ECU.

## SRS WARNING LIGHT CHECK

1. Check to be sure that the SRS warning light illuminates when the ignition switch is in the ON position.
2. Check to be sure that it illuminates for approximately 7 seconds and then switches off.
3. If the above is not the case, inspect for diagnostic trouble codes.



## INSPECTION CHART FOR TROUBLE SYMPTOMS

52400340119

Get an understanding of the trouble symptoms and check according to the inspection procedure chart.

Trouble symptom		Inspection procedure No.	Reference page
Communication with scan tool is not possible.	Communication with all systems is not possible.	1	52B-21
	Communication is not possible with SRS only.	2	52B-21
When the ignition key is turned to "ON" (engine stopped), the SRS warning light does not illuminate.		Refer to diagnosis code No.43.	52B-19
After the ignition switch is turned to ON, the SRS warning light is still on after approximately 7 seconds have passed.		Refer to diagnosis code No.43.	52B-19

## INSPECTION PROCEDURE FOR TROUBLE SYMPTOMS

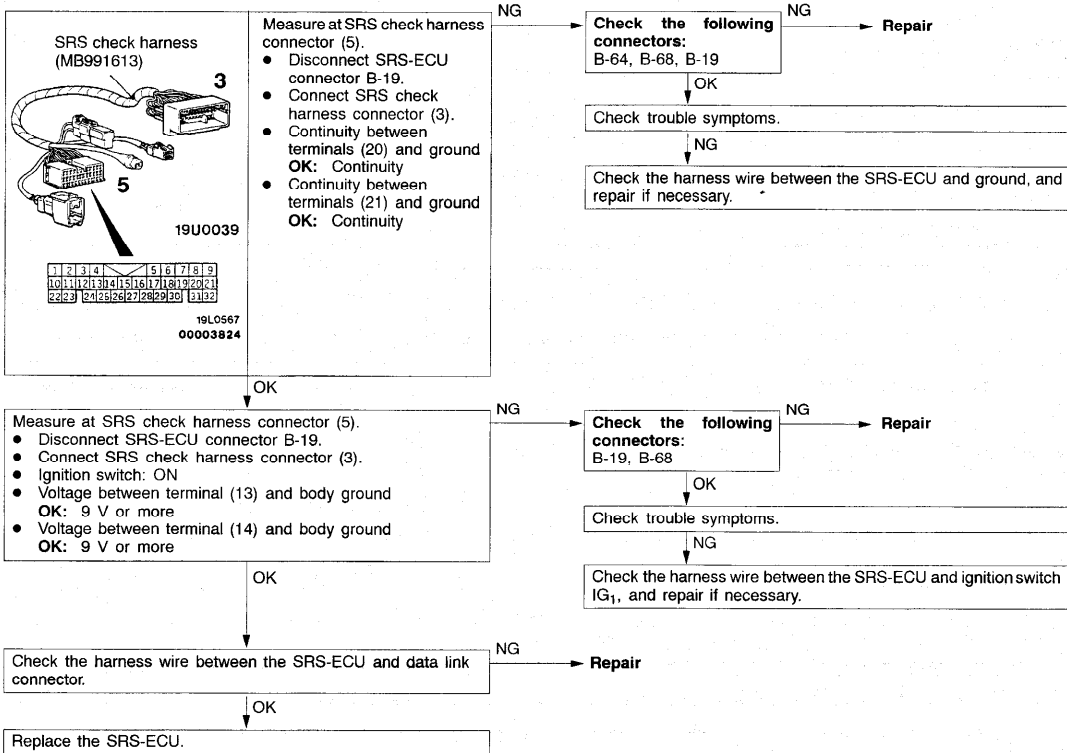
### Inspection Procedure 1

Communication with scan tool is not possible. (Communication with all systems is not possible.)	Probable cause
The cause is probably a power supply system (including ground circuit) of the diagnostic line.	<ul style="list-style-type: none"> <li>• Malfunction of wiring harnesses or connectors</li> </ul>

Refer to GROUP 13A - Troubleshooting

### Inspection Procedure 2

Communication with scan tool is not possible. (Communication is not possible with SRS only.)	Probable cause
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).	<ul style="list-style-type: none"> <li>• Malfunction of wiring harnesses or connectors</li> <li>• Malfunction of SRS-ECU</li> </ul>



## SRS MAINTENANCE

52400390206

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.)

## POST-COLLISION DIAGNOSIS

52400110130

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**

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

**Caution**

**Turn off ignition switch before connecting or disconnecting the scan tool.**

2. Read (and write down) all displayed diagnostic trouble codes. (Refer to P.52B-14.)

**NOTE**

If the battery power supply has been disconnected or disrupted by the collision, the scan tool cannot communicate with the SRS-ECU. Check the battery, then inspect and, if necessary, repair the body wiring harness before proceeding.

3. Read the data list (fault duration and how many times memories are erased) using the scan tool.

**Data list**

No	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)	

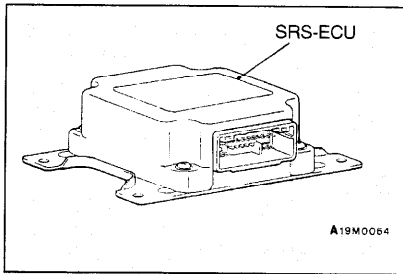
4. Erase the diagnostic trouble codes and after waiting 5 seconds or more read (and write down) all displayed diagnostic trouble codes. (Refer to P.52B-14.)

**REPAIR PROCEDURE****WHEN AIR BAG DEPLOYS IN A COLLISION.**

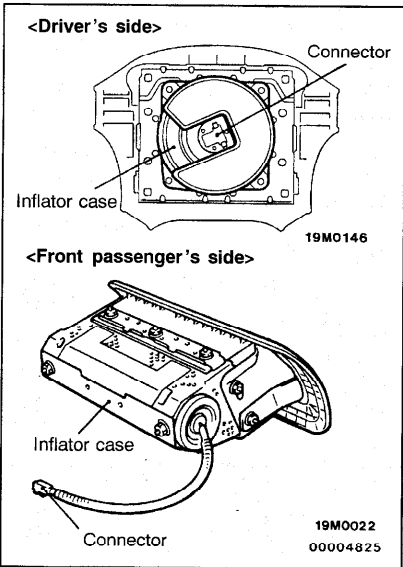
1. Replace the following parts with new ones.
  - SRS-ECU (Refer to P.52B-26.)
  - Air bag module (Refer to P.52B-27.)
2. Check the following parts and replace if there are any malfunctions.
  - Clock spring (Refer to P.52B-27.)
  - Steering wheel, steering column and intermediate joint
    - (1) Check wiring harness (built into steering wheel) and connectors for damage, and terminals for deformation.
    - (2) Install air bag module to check fit or alignment with steering wheel.
    - (3) Check steering wheel for noise, binds or difficult operation and excessive free play.
3. Check harnesses for binding, connectors for damage, poor connections, and terminals for deformation. (Refer to P.52B-10.)

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

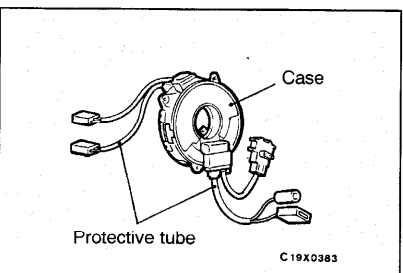
Check the SRS components. If the SRS components are showing any visible damage such as dents, cracks, or deformation, replace them with new ones. Concerning parts removed for inspection, replacement with new parts and cautionary points for working, refer to appropriate INDIVIDUAL COMPONENT SERVICE, P.52B-25.

**SRS-ECU**

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

**Air bag modules**

1. Check pad cover for dents, cracks or deformation.
2. Check connector for damage, terminals deformities, and harness for binding.
3. Check air bag inflator case for dents, cracks or deformities.
4. Install air bag module to steering wheel to check fit or alignment with the steering wheel.

**Clock spring**

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



**Steering wheel, steering column and intermediate joint**

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

**Harness connector (body wiring harness)**

Check harnesses for binding, connectors for damage, poor connection, and terminals for deformation. (Refer to P.52B-10.)

**INDIVIDUAL COMPONENT SERVICE**

52400290278

If the SRS components are to be removed or replaced as a result of maintenance, troubleshooting, etc., follow the appropriate procedure in this section. (SRS Air Bag Control Unit: refer to P.52B-26, Air Bag Modules and Clock Spring: refer to P.52B-27.)

**Caution**

1. **SRS components should not be subjected to heat over 93°C (200 °F), so remove the SRS-ECU, air bag modules and clock spring before drying or baking the vehicle after painting. Recheck SRS system operability after reinstalling them. (Refer to GROUP 00 - Maintenance Service.)**
2. **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.**

# SRS AIR BAG CONTROL UNIT (SRS-ECU)

52400210106

## Caution

1. Never attempt to disassemble or repair the SRS-ECU. If faulty, replace it.
2. 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.

3. After deployment of an air bag, replace the SRS-ECU with a new one.
4. Never use an ohmmeter on or near the SRS-ECU, and use only the special test equipment described on P.52B-12 and P.52B-12.

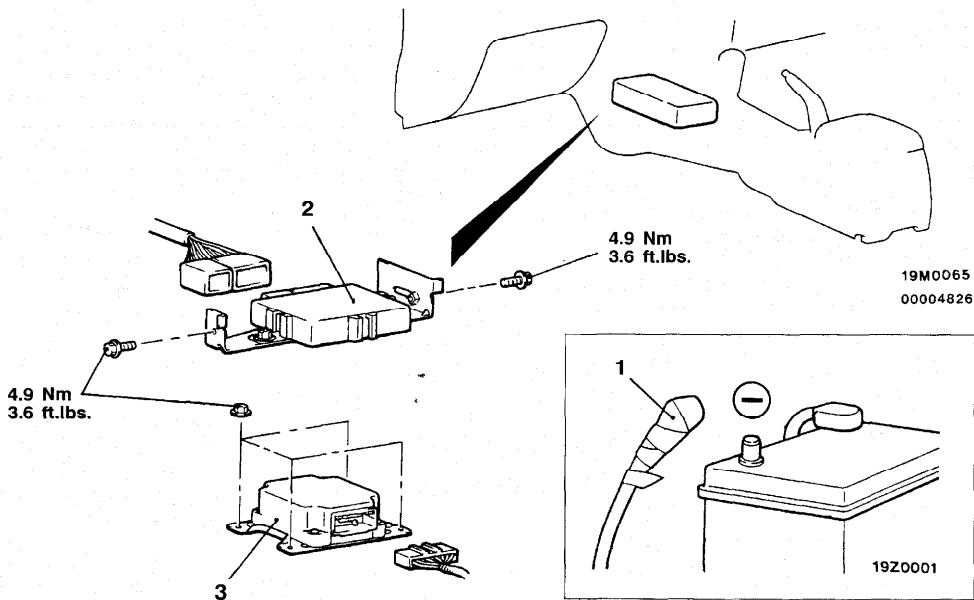
## REMOVAL AND INSTALLATION

### Pre-removal Operation

- Turn the ignition key to the "LOCK" position.
- Floor Console Removal (Refer to GROUP 52A.)

### Post-installation Operation

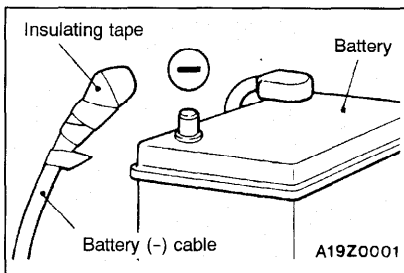
- Floor Console Installation (Refer to GROUP 52A.)



### Removal steps

1. Negative (-) battery cable connection

2. ABS-ECU <Vehicles with ABS>
3. SRS-ECU



## REMOVAL SERVICE POINT

### ◀A▶ NEGATIVE (-) BATTERY CABLE DISCONNECTION

Disconnect the negative battery cable from the battery and tape the terminal.

### Caution

Wait at least 60 seconds after disconnecting the battery cable before doing any further work. (Refer to P.52B-11.)

## INSTALLATION SERVICE POINTS

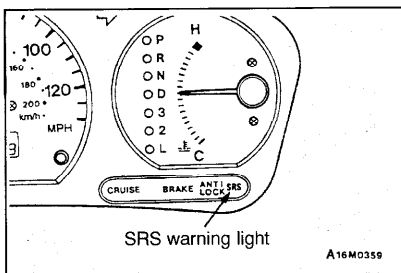
### ►A◀ SRS-ECU INSTALLATION

#### Caution

The SRS may not activate if 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. Turn the ignition key to the "ON" position.
2. Does the "SRS" warning light illuminate for about 7 seconds, and then remain off for at least 5 seconds after turning off?
3. If yes, SRS system is functioning properly. If no, refer to page 52B-13.



## INSPECTION

52400220086

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

#### Caution

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

#### NOTE

Refer to page 52B-13 for inspection of SRS-ECU for other than physical damage.

## AIR BAG MODULES AND CLOCK SPRING

52400240136

#### Caution

1. Never attempt to disassemble or repair the air bag modules or clock spring. If faulty, replace it.
2. 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.
3. 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.

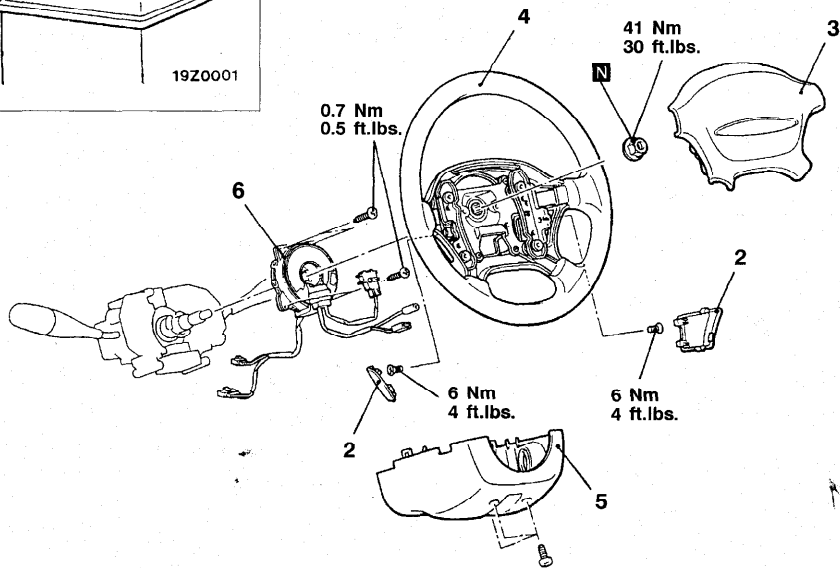
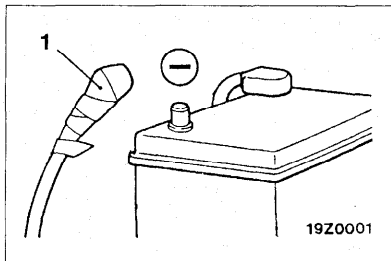
4. Do not expose the air bag modules to temperatures over 93°C (200 °F).
5. After deployment of an air bag, replace the air bag modules. Inspect the clock spring, and replace it with a new part if it is faulty.
6. Wear gloves and safety glasses when handling air bags that have already deployed.
7. An undeployed air bag module should only be disposed of in accordance with the procedures (Refer to P.52B-34.)

## REMOVAL AND INSTALLATION

## &lt;Air bag module (driver's side), clock spring&gt;

**Pre-removal Operation**

- After setting the steering wheel and the front wheels to the straight ahead position, remove the ignition key.



19M0135

00004827

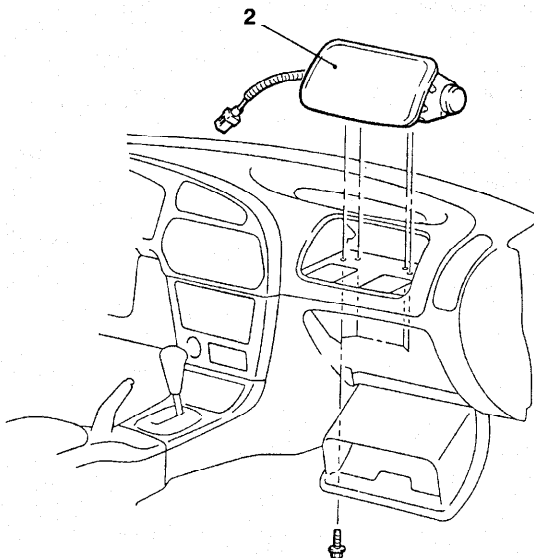
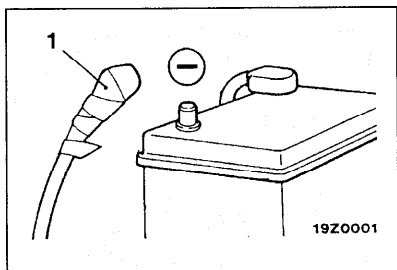
**Air bag module removal steps**

- ◀D▶ ● Post-installation inspection
- ◀A▶ 1. Negative (-) battery cable connection
- ◀B▶ 2. Cover
- ◀A▶ 3. Air bag module
- ◀A▶ ● Pre-installation inspection

**Clock spring removal steps**

- ◀D▶ ● Post-installation inspection
- ◀A▶ 1. Negative (-) battery cable connection
- ◀B▶ 2. Cover
- ◀C▶ 3. Air bag module
- ◀C▶ 4. Steering wheel
- ◀D▶ 5. Column cover lower
- ◀B▶ 6. Clock spring
- ◀A▶ ● Pre-installation inspection

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



**Air bag module removal steps**

- Post-installation inspection
- 1. Negative (-) battery cable connection

- 2. Air bag module
- Pre-installation inspection

**REMOVAL SERVICE POINTS**

**◀A▶ NEGATIVE (-) BATTERY CABLE DISCONNECTION**

Disconnect the negative battery cable from the battery and tape the terminal.

**Caution**

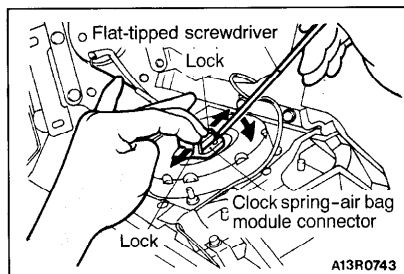
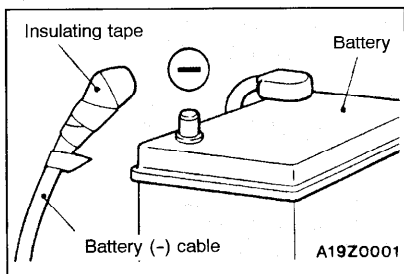
Wait at least 60 seconds after disconnecting the battery cable before doing any further work. (Refer to P.52B-11.)

**◀B▶ AIR BAG MODULE REMOVAL (DRIVER'S SIDE)**

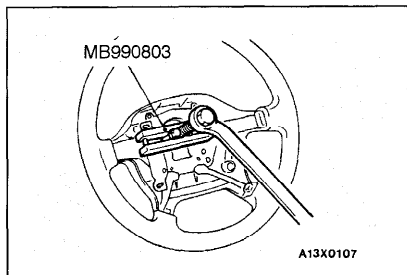
When disconnecting the connector of the clock spring from the air bag module, press the air bag's lock toward the outer side to spread it open. Use a flat-tipped screwdriver to pry gently as shown in the figure at the left, to remove the connector.

**Caution**

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



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



### ◀C▶ STEERING WHEEL REMOVAL

#### Caution

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

### ◀D▶ CLOCK SPRING REMOVAL

#### Caution

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

### ◀E▶ AIR BAG MODULE REMOVAL (FRONT PASSENGER'S SIDE)

#### Caution

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

## INSTALLATION SERVICE POINTS

### ▶A◀ PRE-INSTALLATION INSPECTION

- When installing the new air bag modules and clock spring, refer to "INSPECTION" (P.52B-32).

#### Caution

Dispose of air bag modules only according to the specified procedure. (Refer to P.52B-34.)

- Connect the battery (-) terminal.
- Connect the scan tool to the data link connector.

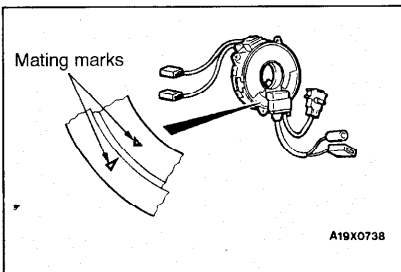
#### Caution

Turn off the ignition switch before connecting or disconnecting the scan tool.

- Turn the ignition key to the "ON" position.
- Conduct diagnostic test using the scan tool to ensure entire SRS operates properly.
- Turn the ignition key to the "LOCK" position. Disconnect the negative battery cable and tape the terminal to prevent accidental connection and air bag(s) deployment.

#### Caution

Wait at least 60 seconds after disconnecting the battery cable before doing any further work. (Refer to P.52B-11.)



### ►B◄ CLOCK SPRING INSTALLATION

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 approx. 3 4/5 turns counterclockwise to align the mating marks.

#### Caution

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

### ►C◄ STEERING WHEEL INSTALLATION

1. Before installing the steering wheel, be sure to first turn the vehicle's front wheels to the straight-ahead position and align the mating marks of the clock spring.

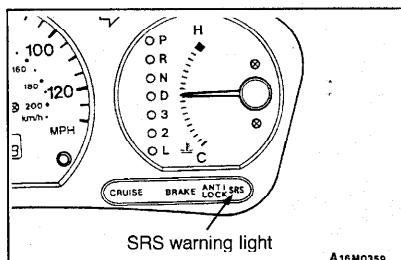
#### Caution

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

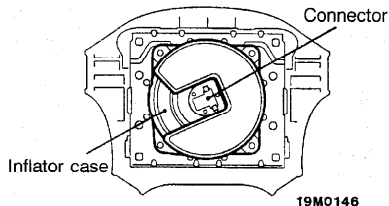
2. After securing the steering wheel, turn the steering wheel all the way in both directions to confirm that steering wheel rotation is normal.

### ►D◄ POST-INSTALLATION INSPECTION

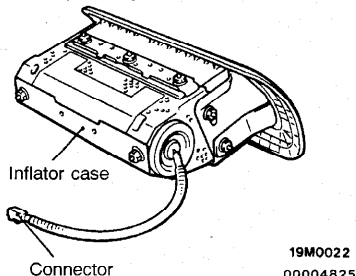
1. Turn the ignition key to the "ON" position.
2. Does the "SRS" warning light illuminate for about 7 seconds, and then remain off for at least 5 seconds after turning off?
3. If yes, SRS system is functioning properly. If no, consult page 52B-13.



&lt;Driver's side&gt;



&lt;Front passenger's side&gt;

**INSPECTION****AIR BAG MODULE CHECK**

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-34.)

**Caution**

**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 bags deployment will result in serious personal injury.**

1. Check pad cover for dents, cracks or deformation.
2. Check connectors for damage, terminals for deformation, and harness for binds.
3. Check air bag inflator case for dents, cracks or deformation.
4. Install the air bag module to steering wheel or dash to check fit and alignment with the wheel.

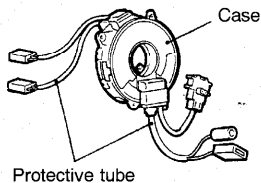
**Caution**

**If dents, cracks, deformation, or rust are discovered in the air bag module, replace it with a new one. Dispose of the old one according to the specified procedure. (Refer to P.52B-34.)**

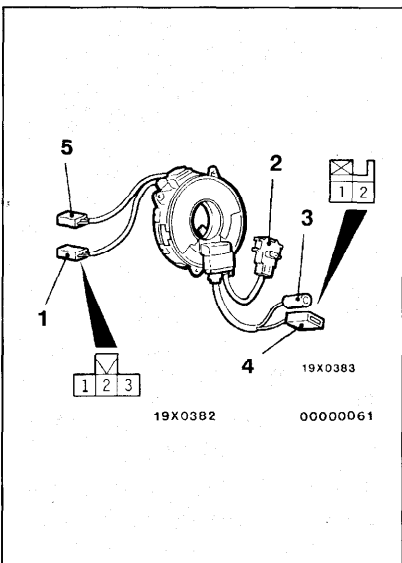
**CLOCK SPRING CHECK**

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

If even one abnormality is discovered, replace the clock spring with a new one.

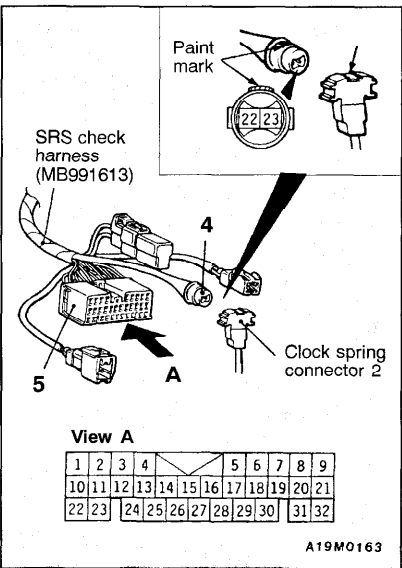






3. Check for continuity between the No.1 connector of the clock spring and connectors No.3 and 4

No.1 connector			No.3 connector	No.4 connector	
Terminal 1	Terminal 2	Terminal 3		Terminal 1	Terminal 2
○			○	○	○
	○		○		
		○	○		
To auto-cruise control unit	To ACC power	To horn relay	To horn switch	To auto-cruise control switch	



4. Align the paint mark of the SRS check harness connector No.4 with the notch in clock spring connector No.2 (arrow in the illustration) to connect the connectors Nos.2 and 4.

5. Check continuity between the terminals 22 and 23 of the SRS check harness connector No.5.

View A

1	2	3	4	5	6	7	8	9			
10	11	12	13	14	15	16	17	18	19	20	21
22	23	24	25	26	27	28	29	30	31	32	

## AIR BAG MODULE DISPOSAL PROCEDURES

52400120133

Before disposing of an air bag or a vehicle equipped with an air bag, follow the procedures below to deploy the air bag (s).

### UNDEPLOYED AIR BAG MODULE DISPOSAL

#### Caution

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

### DEPLOYMENT INSIDE THE VEHICLE

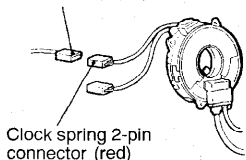
#### (when disposing of a vehicle)

1. Move the vehicle to an isolated spot.
2. Disconnect the negative (-) and positive (+) battery cables from the battery terminals, and then remove the battery from the vehicle.

#### Caution

Wait at least 60 seconds after disconnecting the battery cables before doing any further work.  
(Refer to P.52B-11.)

Body wiring harness connector (2-pin)



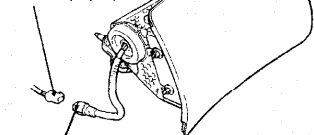
A19S0225

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 2-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.

Body wiring harness connector (2-pin)



Air bag module 2-pin connector (red)

A19M0093

4. To deploy the air bag module (front passenger's side):
  - (1) Remove the glove box. (Refer to P.52B-29.)
  - (2) Remove the connection between the air bag module (front passenger's side) connector (red 2-pin) and the body wiring harness connector.

SRS air bag adapter harness A MB686560

Insulation tape

Connection

6 m (20 ft.) or longer

Two wires

A13R0733

5. Connect two wires, each six meters (20 feet) or longer, to the two leads of SRS air bag adapter harness A and cover the connections with insulation tape. The other ends of the two wires should be connected to each other (short-circuited), to prevent sudden unexpected deployment of the air bag.

SRS air bag adapter harness A MB686560

2-pin connector (red)

Deployment wires

B19P0046

6. Connect the clock spring or air bag module (front passenger's side) 2-pin connector (red) to SRS air bag adapter harness A and move the deployment wires out of the vehicle.

Cover

Wires 6 m (20 ft.) or longer

A19Z0035

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

**Caution**

If the glass is scratched, air bag deployment could cause it to crack and fly out of the vehicle, so always put a cover over the vehicle.

- 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.

**Caution**

- Before deploying the air bag in this manner, first check to be sure that there is no one in or near the vehicle. Wear safety glasses.**
  - The inflator will be quite hot immediately following the deployment, so wait at least 30 minutes to allow it to cool before attempting to handle it. Although not poisonous, do not inhale gas from air bag deployment. See Deployed Air Bag Module Disposal Procedures (Refer to P.52B-39) for post-deployment handling instructions.**
  - If the air bag module fails to deploy when the procedures above are followed, do not go near the module. Contact the MMSA Tech Line.**
- After deployment, dispose of the air bag module according to the Deployed Air Bag Module Disposal Procedures. (Refer to P.52B-39.)

**DEPLOYMENT OUTSIDE THE VEHICLE****Caution**

- Deploy the air bag in a wide, flat area at least 6 m (20 feet) away from obstacles and other people.**
  - Do not perform deployment outside, if a strong wind is blowing, and if there is even a slight breeze, the air bag module should be placed and deployed downwind from the battery.**
- Disconnect the negative (-) and positive (+) battery cables from the battery terminals, and then remove the battery from the vehicle.

**Caution**

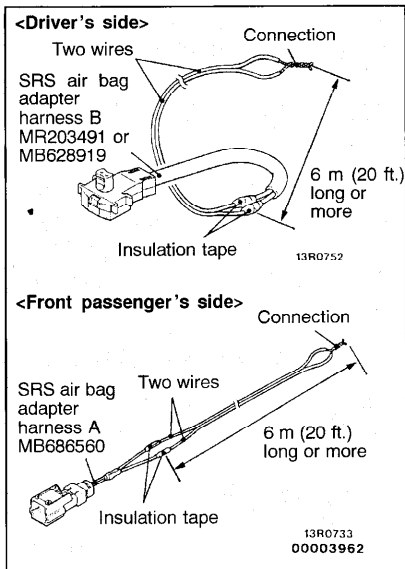
**Wait at least 60 seconds after disconnecting the battery cables before doing any further work. (Refer to P.52B-11.)**

- Remove the air bag module from the vehicle. (Refer to P.52B-27.)

**Caution**

**Store the air bag module on a flat surface with the pad cover facing up. Do not place anything on top of it.**

- Connect two wires, each six meters (20 feet) or longer, to the two leads of SRS air bag adapter harness B <driver's side> or SRS air bag adapter harness A <front passenger's side>, and cover the connections with insulation tape. The other ends of the two wires should be connected to each other (short-circuited), to prevent sudden unexpected deployment of the air bag module.



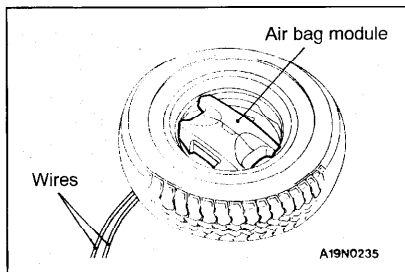
- Prepare the air bag modules as follows:

**<Air bag module (driver's side)>**

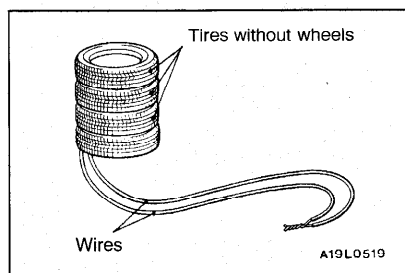
- Take the SRS air bag adapter harness B that is connected to the wires, pass it beneath an old tire wheel assembly, and connect it to the air bag module.
- Pass the thick wire through the air bag module mounting hole, and then secure the air bag module to an old tire with a wheel in it so that the pad on the module is facing upwards.

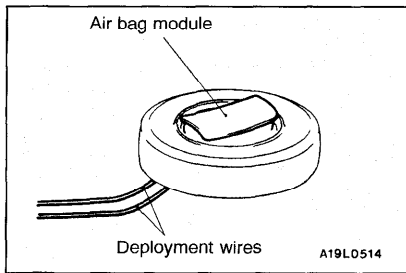
**Caution**

**Leave some space below the wheel for the adaptor harness. If there is no space, the reaction when the air bag deploys could damage the adaptor harness.**



- Place three old tires with no wheels on top of the tire secured to the air bag module.



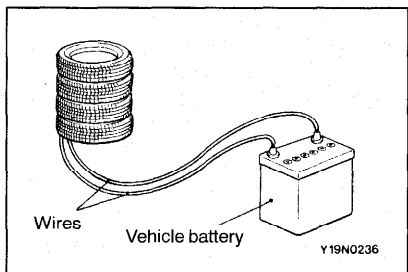
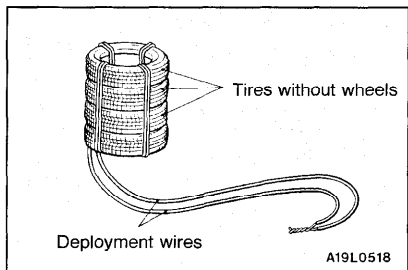


#### <Air bag module (front passenger's side)>

- (1) Connect the deployment wires to the SRS air bag adaptor harness A, pass it beneath the tire and wheel assembly, and connect it to the air bag module.
- (2) 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 (4 locations), with the air bag facing upwards.

#### Caution

1. Leave some space below the wheel for the deployment wires.  
If there is no space, the reaction of the air bag deployment could result in damage of the adaptor harness.
2. During deployment takes place, do not have the connector of the SRS air bag adaptor harness A inserted between the tires.



- (3) Place four old tires without wheels on top of the tire secured to the air bag module, and secure all tires together with ropes (4 locations).

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.

#### Caution

1. Before deployment, check carefully to be sure that no one is nearby.
2. The inflator will be quite hot immediately following the deployment, so wait at least 30 minutes to allow it to cool before attempting to handle it. Although not poisonous, do not inhale gas from air bag deployment. See Deployed Air Bag Module Disposal Procedures (P.52B-39) for post-deployment handling instructions.
3. If the air bag fails to deploy, do not go near the module. Contact the MMSA Tech Line.
6. After deployment, dispose of the air bag module according to the Deployed Air Bag Module Disposal Procedures on the next page.

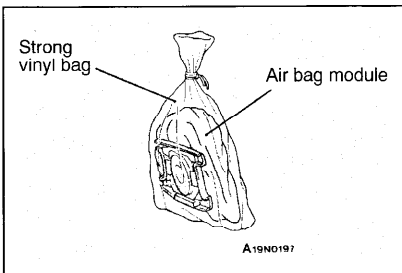
## DEPLOYED AIR BAG MODULE DISPOSAL

After deployment, the air bag module 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.
3. There may be material on the deployed air bag module, that could irritate the eye and/or skin. Wear gloves and safety glasses when handling a deployed air bag module.

### Caution

**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.**



4. Tightly seal the air bag module in a strong vinyl bag for disposal.
5. Be sure to always wash your hands after completing this operation.