

GENERAL INFORMATION

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 the air bag in certain frontal collisions.

The SRS Airbag consists of two air bag modules, SRS air bag control unit (SRS-ECU), SRS warning light, and clock spring. The driver's air bag is located in the centre of the steering wheel and the passenger's airbag 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.

SEAT BELT WITH PRE-TENSIONER

The seat belt with pre-tensioner allows the seat belt to be wound up automatically in a frontal collision so that forward movement of the passenger can be restrained. Once the front impact sensor installed at the front of the body detects impact forces exceeding the specified value, the pre-tensioner helps the gas generator to fire for gas generation according to the signals from the SRS-ECU.

The seat belt pretensioner is a device built into the front seat belt retractor assembly which activates to retract the seat belt and remove looseness in the event of a collision in which the deceleration force exceeds a specific value.

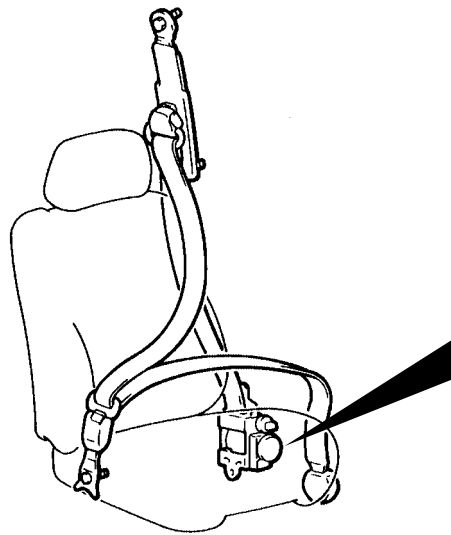
Only authorised service personnel should do work on or around the SRS components. Those service personnel should read this manual carefully before starting any such work.

Caution

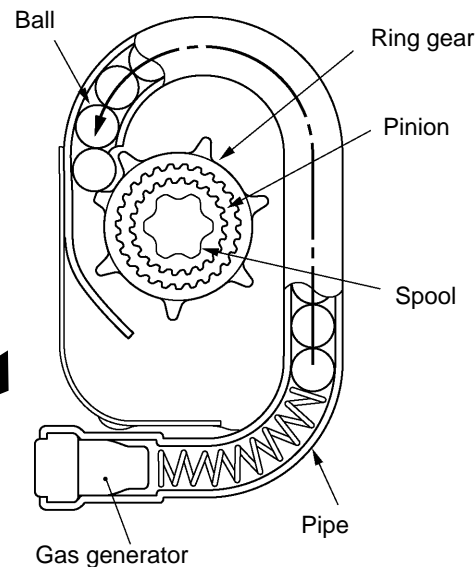
Extreme care must be used when servicing the SRS or performing repairs on components mounted near SRS components to avoid injury to the service personnel (by inadvertent deployment of the air bags) or the driver (by rendering the SRS inoperative).

Gas pressure forces a ball to move inside the pipe contacting the protrusion of the ring gear causing the ring gear to be pushed in and engage in the pinion.

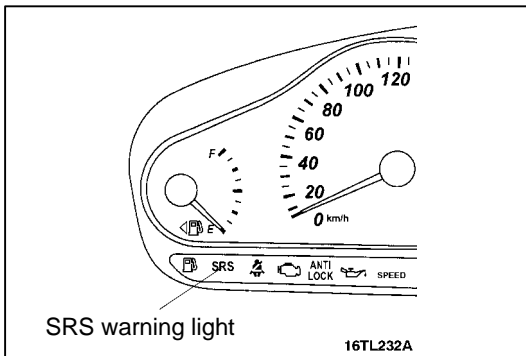
Rotation of the ring gear allows the pinion to rotate the spool in the direction of belt retraction so that the webbing can be wound up.



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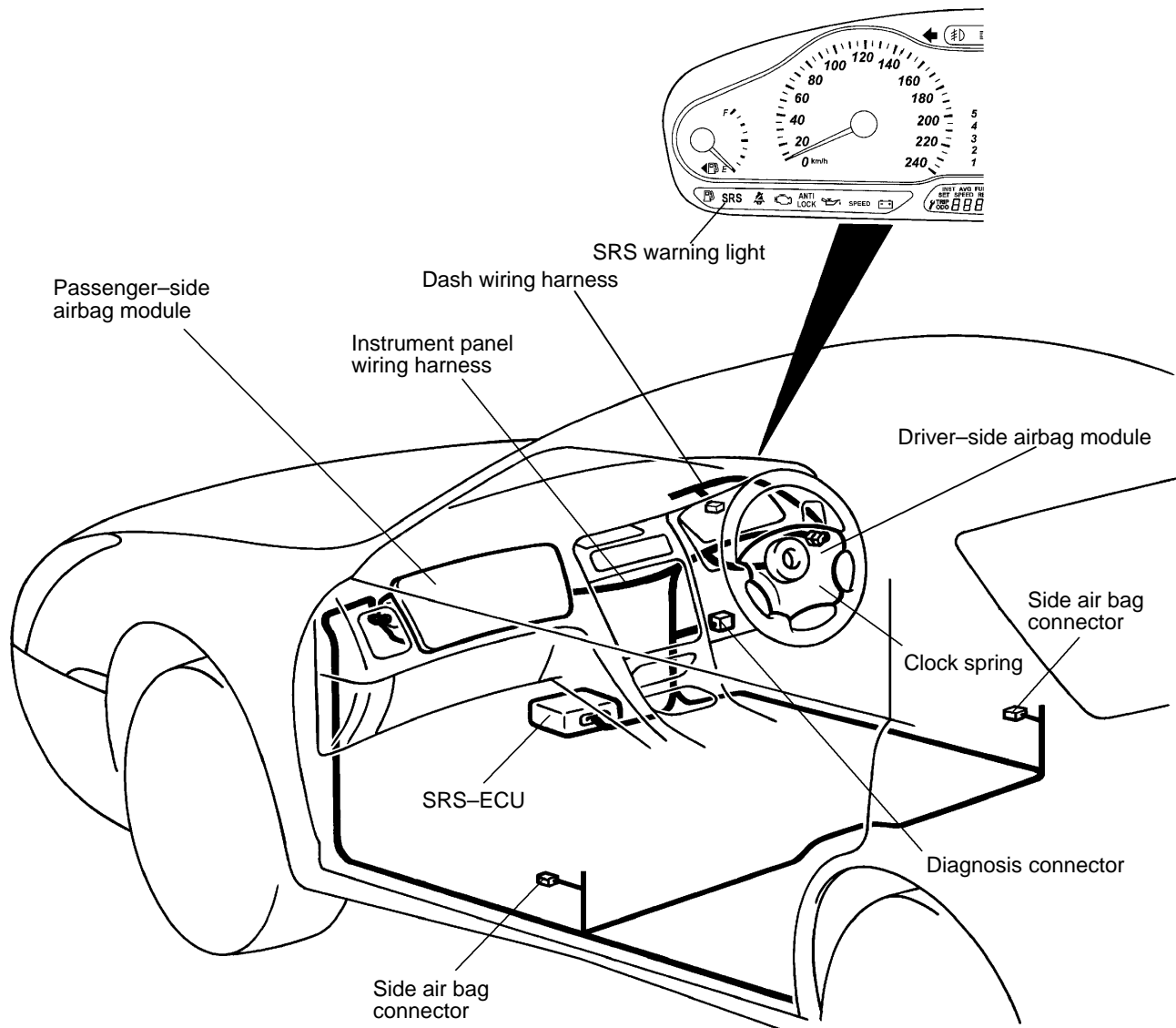


SRS WARNING LIGHT FUNCTION

The SRS-ECU monitors the SRS Airbag and Seat belt pre-tensioner 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 and remain extinguished for at least 5 seconds. That indicates that the SRS system is in operational order. If the SRS warning light does any of the following, immediate inspection by an authorised 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.

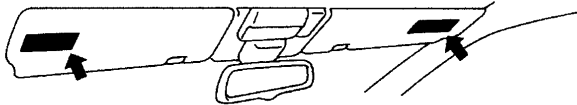
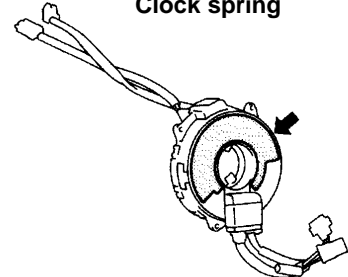
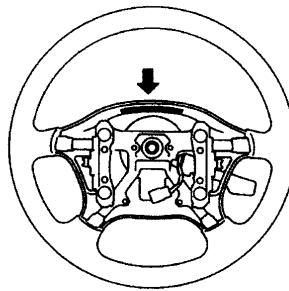
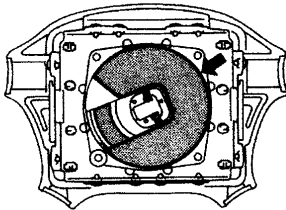
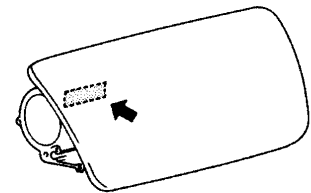
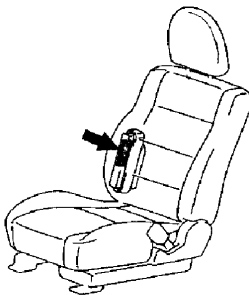
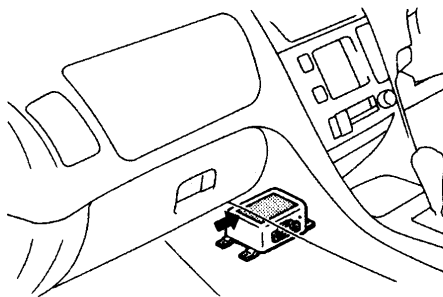
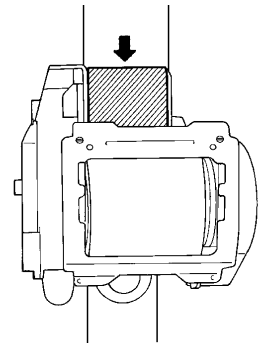
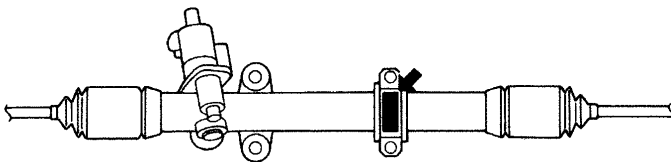
CONSTRUCTION DIAGRAM



WARNING/CAUTION LABELS

A number of caution labels related to the SRS are found in the vehicle, as shown in the following

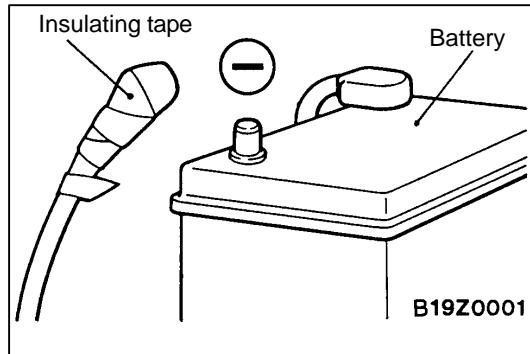
illustration. Follow label instructions when servicing SRS. If labels are dirty or damaged, replace them.

Sun visor**Clock spring****Steering wheel****Air bag module (driver's side)****Air bag module
(front passenger's side)****Side air bag module
(drivers and passenger's side)****SRS-ECU****Seat belt with pretensioner****Steering gear box****Instrument panel**

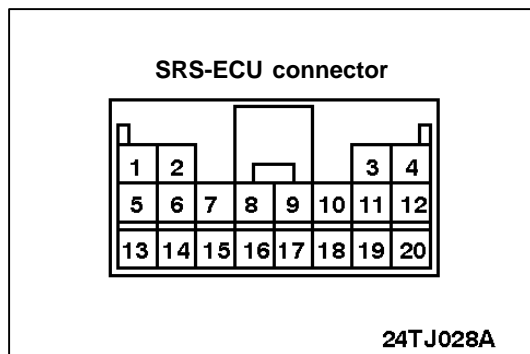
SRS SERVICE PRECAUTIONS

- 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.
- Do not use any electrical test equipment on or near SRS Airbag components, except those specified in [special tools](#).
- Never Attempt to Repair the Following Components:**
 - SRS air bag control unit (SRS-ECU)
 - Clock Spring
 - Air Bag Module
 - Pretensioner seat belts

If any of these components are diagnosed as faulty, they should only be replaced, in accordance with the [INDIVIDUAL COMPONENT SERVICE PROCEDURE](#) 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.



- Do not attempt to repair the wiring harness connectors of the SRS airbag. 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.

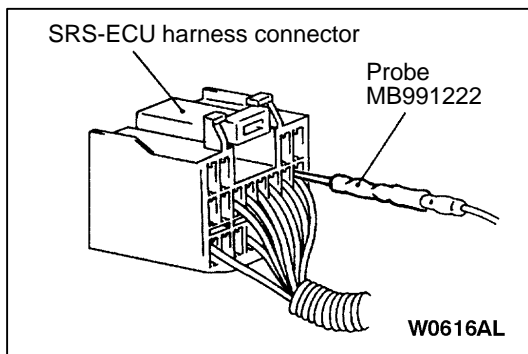
SRS-ECU terminal No.	Destination of harness	Corrective action
1 to 6	—	—
7	Body wiring harness → Ground	Correct or replace each wiring harness.
8	Body wiring harness → SRS warning light	
9	Body wiring harness → Air bag module (Front passenger's side)	
10		
11	Body wiring harness → Clock spring → Air bag module (Driver's side)	Correct or replace each wiring harness. Replace clock spring.
12		
13	Body wiring harness → Junction block (fuse No.4)	Correct or replace each wiring harness.
14	Body wiring harness → BEM (crash detector)	
15	Body wiring harness → Ground	
16	Body wiring harness → Junction block (fuse No.13)	
17 to 19	—	—
20	Body wiring harness → Diagnosis connector	Correct or replace body wiring harness.

6. SRS components should not be subjected to heat over 93°C, so remove the SRS-ECU, air bag module, clock spring and pretensioner-fitted seat belts before drying or baking the vehicle after painting.
7. Whenever you finish servicing the SRS airbag, check **warning light operation** to make sure that the system functions properly.
8. Make certain that the ignition switch is OFF when the MUT-II is connected or disconnected.

WARNING

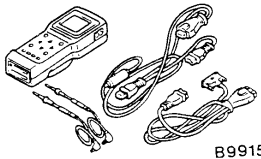
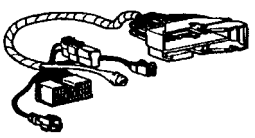
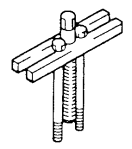
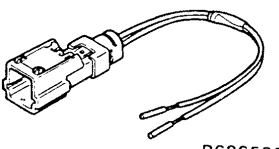
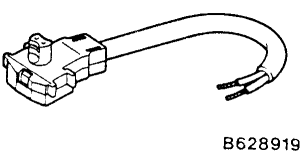

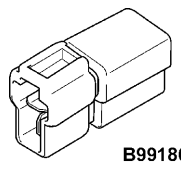
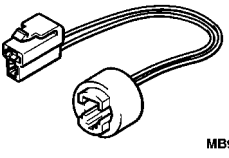
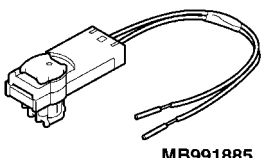
AS SERIOUS INJURY CAN RESULT FROM UNINTENDED DEPLOYMENT OF THE AIRBAGS OR PRETENSIONER-FITTED SEATBELTS, USE ONLY THE PROCEDURES AND EQUIPMENT SPECIFIED IN THIS MANUAL.

9. If checks are carried out using the SRS-ECU harness connector, observe the following procedures:
Insert a small probe (MB991222) into the connector from the harness (rear) side, and connect the tester to this probe. If any tool other than a small probe is used, damage to the harness and other components will result. Never insert the probe directly to 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 cause drops in reliability.




SPECIAL TOOLS

Main
Index52B
Index

Tool	Tool number and name	Supersession	Application
 B991502	MB991502 MUT-II	–	<ul style="list-style-type: none"> • Reading diagnosis trouble codes • Erasing diagnosis trouble codes • Reading trouble period • Reading erase times
	MB991613 SRS check harness	–	Checking the SRS electrical circuitry with a digital multi-meter
 B990803	7245 Steering wheel puller	–	Removal of steering wheel
 B686560	MB686560 SRS air bag adaptor harness A	–	<ul style="list-style-type: none"> • Deployment of air bag module inside the vehicle • Deployment of air bag module (front passengers side) outside the vehicle
 B628919	MR203491 or MB628919 SRS air bag adaptor harness B	–	Deployment of air bag module (driver's side) outside the vehicle
 MB991222	MB991222 Probe (part of harness set MB991223)	–	Checking the SRS electrical circuitry with a digital multi-meter
 B991865	MB991865	Dummy resistor	Checking the seat belt pre-tensioner electrical circuit
 MB991884	MB991884	Resistor harness (for pre-tensioner)	Checking the seat belt pre-tensioner electrical circuit
 MB991885	MB991885	Seat belt pre-tensioner adaptor harness	Deploying the seat belt pre-tensioner inside or outside the vehicle

TEST EQUIPMENT

Tool	Name	Use
 13R0746	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

STANDARD FLOW OF DIAGNOSIS TROUBLESHOOTING

Refer [Group 00](#).

DIAGNOSIS FUNCTION

DIAGNOSIS CODES CHECK

Connect the MUT-II to the diagnosis connector (16-pin) under the instrument under cover, then check diagnosis codes.

(Refer [Group 00](#).)

ERASING DIAGNOSIS CODES

(Refer [Group 00](#).)

INSPECTION CHART FOR DIAGNOSIS TROUBLE CODES

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

Code No.	Diagnosis item
14	Front impact analog G-sensor system in the SRS-ECU
15, 16	Front impact safing G-sensor system in the SRS-ECU
17	Side impact safing G-sensor system inside SRS-ECU
21*2, 22*2, 61, 62*	Driver's air bag module (squib) system
24*2, 25*2, 64, 65*	Front passenger's air bag module (squib) system
26*2, 27*2, 66, 67	Driver's side pre-tensioner (squib) system
28*2, 29*2, 68, 69	Front passenger's side pre-tensioner (squib) system
31, 32	SRS-ECU DC-DC converter system
34*1	Connector lock system
35	SRS-ECU (deployed air bag) system
41*1	IG ₁ (A) power circuit system (fuse No.13)
42*2	IG ₁ (B) power circuit system (fuse No.4)
43*1	SRS warning light drive circuit system
	Light does not illuminate. Light does not switch off.
44*1	SRS warning light drive circuit system
45	Internal circuit system of non-volatile memory (EEPROM) inside SRS-ECU
51, 52	Driver's air bag module (squib) system
54, 55	Front passenger's air bag module (squib) system
56, 57	Driver's side pre-tensioner (squib ignition drive circuit) system
58, 59	Front passenger's side pre-tensioner (squib ignition drive circuit) system
71*2, 72*2, 75, 76	Side air bag module (R.H.) (squib) system
73, 74	Side air bag module (R.H.) (squib) system
79, 93	Side impact sensor (L.H.) communication system
81*2, 82*2, 85, 86	Side air bag module (L.H.) (squib) system
83, 84	Side air bag module (L.H.) (squib ignition drive circuit) system
89, 96	Side impact sensor (R.H.) communication system
91*1	Side impact sensor (L.H.) power supply circuit system
92	Analog G-sensor system inside side impact sensor
94*1	Side impact sensor (R.H.) power supply circuit
95	Analog G-sensor system inside side impact sensor (R.H.)

NOTE:

- (1) *1: If the vehicle condition returns to normal, the diagnosis code will be automatically erased, and the SRS warning light will return to normal.

NOTE:

- (1) *1: If the vehicle condition returns to normal, the diagnosis code will be automatically erased, and the SRS warning light will return to normal.
- (2) *2: However, if no diagnosis code resets, the SRS warning lamp will be switched off. (The diagnosis code will be retained).
- (3) If the vehicle has a discharged battery it will store the diagnosis codes 41 or 42. When these diagnosis codes are displayed, check the battery.

NOTE:

The SRS-ECU automatically checks the part number of the side impact sensor. A fault will be reported through the SRS warning light if the incorrect part is fitted.

INSPECTION PROCEDURE CLASSIFIED BY DIAGNOSIS CODE

Code No.14, 15, 16, 17, 31, 32, 45, 51, 52, 54, 55, 73, 74, 83, 84 System in the SRS-ECU	Probable cause
These diagnosis trouble codes are output when a fault is detected in the SRS-ECU. The trouble causes for each diagnosis code No. are as follows.	<ul style="list-style-type: none"> • Malfunction of SRS-ECU

Code No.	Defective part	Trouble symptom
14	Front impact 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	Front impact safing G-sensor	Short circuit in the safing G-sensor
16		Open circuit in the safing G-sensor
17	Side impact safing G-sensor	<ul style="list-style-type: none"> • When the safing G-sensor is not operating • When the characteristics of the safing G-sensor are abnormal • When the output from the safing G-sensor is abnormal
31	DC-DC converter	Voltage at the DC-DC converter terminal is higher than the specified value for five seconds or more.
32		Voltage at the DC-DC converter terminal is lower than the specified value for five seconds or more (this is not detected if diagnosis code No.41 or 42 indicating battery voltage drop has been output.)
45	Non-volatile memory (EEPROM)	When the non-volatile memory (EEPROM) is abnormal
51	Driver's side air bag module (squib)	Short circuit in the squib ignition drive circuit
52		Open circuit in the squib ignition drive circuit
54	Passenger's air bag module (squib)	Short circuit in the squib ignition drive circuit
55		Open circuit in the squib ignition drive circuit
73	Side air bag module (R.H.) (squib)	Short circuit in the squib ignition drive circuit
74		Open circuit in the squib ignition drive circuit
83	Side air bag module (L.H.) (squib)	Short circuit in the squib ignition drive circuit
84		Open circuit in the squib ignition drive circuit

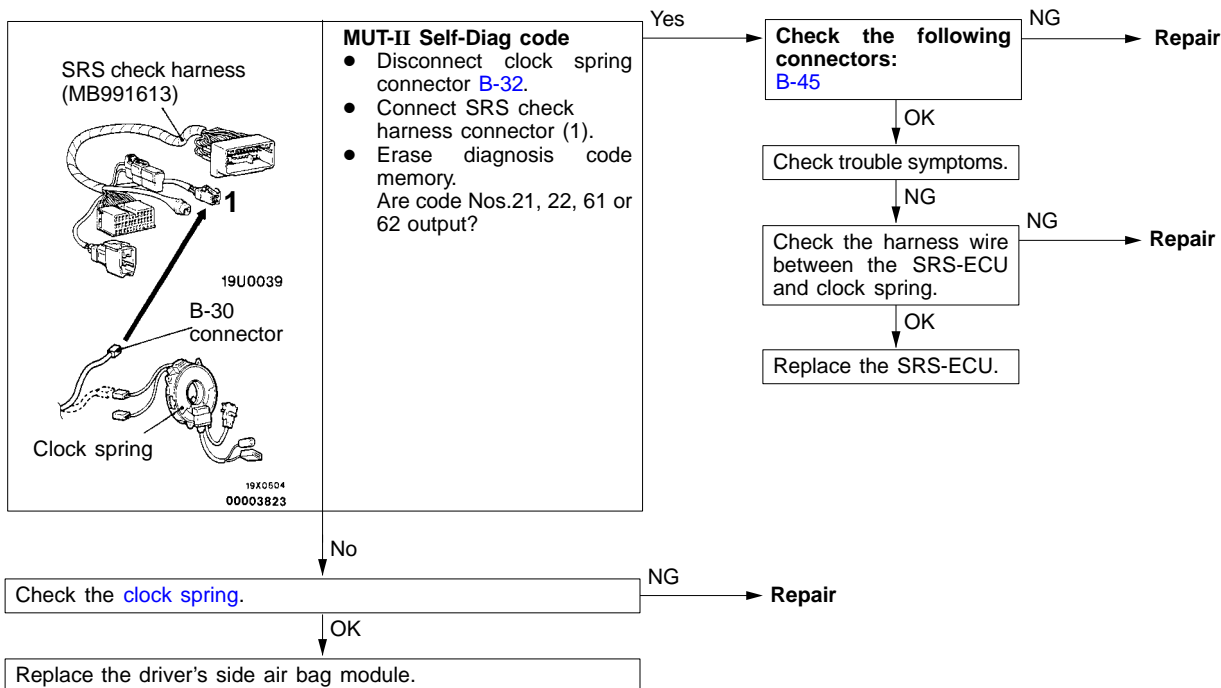
Replace the SRS-ECU.

Code No.21, 22, 61 or 62 Driver's side air bag module (squib) system	Probable cause
These diagnosis trouble codes are output if there is abnormal resistance between the input terminals of the driver's air bag module (squib) inside the SRS-ECU. The trouble causes for each diagnosis trouble code No. are as follows. However, as for code Nos.21 and 22, if the vehicle's condition returns to normal, SRS warning lamp will go out. (diagnosis code will remained stored)	<ul style="list-style-type: none"> • Malfunction of clock spring • Partially open as clock spring is not in neutral position • Malfunction of wiring harnesses or connectors • Malfunction of driver's side air bag module (squib) • Malfunction of SRS-ECU

Code No.	Trouble symptom
21	<ul style="list-style-type: none"> • Short in driver's air bag module (squib) or harness short • Short in clock spring • Poor connector contact *
22	<ul style="list-style-type: none"> • Open circuit in driver's side air bag module (squib) or open harness • Open circuit in clock spring • Disconnected driver's air bag module (squib) connector • Partially open as clock spring is not in neutral position • Malfunction of connector contact
61	<ul style="list-style-type: none"> • Short in driver's air bag module (squib) harness leading to the power supply
62	<ul style="list-style-type: none"> • Short in driver's air bag module (squib) harness leading to the ground

Note:

*: The shorting bars, which short positive (+) and negative (–) wires to prevent the air bags from accidental deployment during the disconnection of the connector, are set in the squib circuit connectors. In a defective connector, the short-bar may be still working even after the connection of the squib.

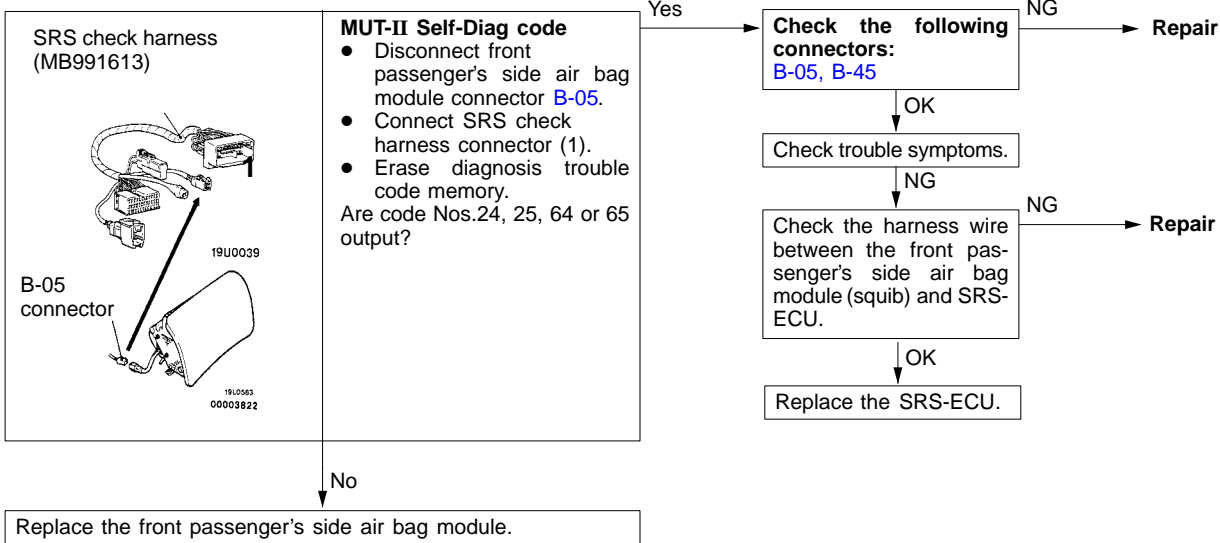


Code No.24, 25, 64 or 65 Front passenger's side air bag module (squib) system	Probable cause
These diagnosis codes are output if there is abnormal resistance between the input terminals of the front passenger's air bag module (squib) inside the SRS-ECU. The trouble causes for each diagnosis code No. are as follows. However, as for code Nos.24 and 25, if the vehicle's condition returns to normal, SRS warning light will go out. (diagnosis code will remain stored)	<ul style="list-style-type: none"> • Malfunction of wiring harness or connector • Malfunction of front passenger's air bag module (squib) • Malfunction of SRS-ECU

Code No.	Trouble symptom
24	<ul style="list-style-type: none"> • Short in passenger's air bag module (squib) or harness short • Poor connector contact *
25	<ul style="list-style-type: none"> • Open circuit in passenger's air bag module (squib) or open harness • Poor connector contact
64	<ul style="list-style-type: none"> • Short in passenger's air bag module (squib) harness leading to the power supply
65	<ul style="list-style-type: none"> • Short in passenger's air bag module (squib) harness leading to the ground

Note:

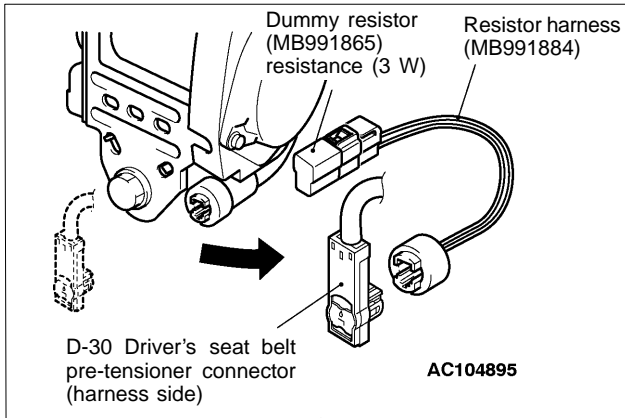
*: The shorting bars, which short positive (+) and negative (–) wires to prevent the air bags from accidental deployment during the disconnection of the connector, are set in the squib circuit connectors. In a defective connector, the short-bar may be still working even after the connection of the squib.



Code No.26 Driver's seat belt pre-tensioner (squib) system	Possible cause
This code is output when short circuit occurs between terminals of the SRS-ECU driver's seat belt pre-tensioner (squib) circuit. However, SRS warning lamp goes out when a normal operation is resumed (diagnosis code is not cleared.)	<ul style="list-style-type: none"> • Connector engagement faulty or short bar faulty* • Short circuit between terminals of the driver's seat belt pre-tensioner (squib) circuit • Faulty connector • SRS-ECU inoperable

NOTE:

*: The connector of the squib circuit contains a short bar (short-circuiting the positive (+) cable and the negative (–) cable to avoid an erroneous deployment caused by static electricity when a connector is not connected). Thus, when a connector is connected, the short bar may not be released due to improper engagement of the connector or faulty connector as shown in the illustration below. Disconnect the connector as shown in the illustration below, then reconnect it. Check that a diagnosis code is output again after erasing the memory. If the diagnosis code is not output, the above-mentioned code is output due to improper engagement of the connector.



<Driver's seat belt pre-tensioner (squib) check>

MUT-II Self-diag code

- Disconnect the negative (–) battery terminal.
- Disconnect driver's seat belt pre-tensioner connector D-30.
- Connect dummy resistor (MB991865) to resistor harness (MB991884)
- Connect resistor harness (MB991884) to driver's seat belt pre-tensioner connector D-30 harness side
- Connect the negative (–) battery terminal.
- Check that a diagnosis code is output again after erasing the memory. Is code No.26 output?

YES

NO

<Check the circuit between the SRS-ECU and driver's seat belt pre-tensioner>

Measure at SRS-ECU connector D-39.

- Disconnect SRS-ECU connector D-39.
- Disconnect driver's seat belt pre-tensioner connector D-30.

Caution

In order to release the short spring of SRS-ECU connector in the operation shown below, disconnect this connector to keep the squib circuit short-circuited.

- Insert a cable band, etc. (width: 3 mm, thickness: 0.5 mm), between SRS-ECU connector B-39 terminals 9 and 10 and the short spring, and release the short spring. (See illustration A.)

Caution

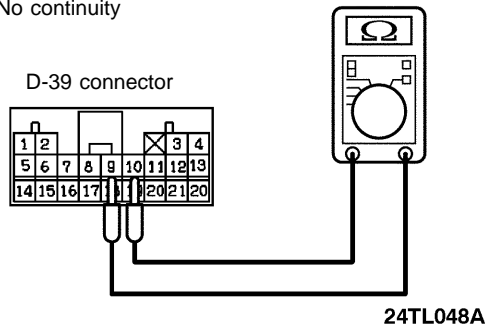
To avoid the occasion of inability of releasing the short spring due to insufficient insertion, insert the insulator for 4 mm or more.

- Continuity between 9 and 10

Caution

In order to avoid deterioration of contact pressure, do not insert a probe into the terminal directly from the front of the connector.

OK: No continuity



OK

Replace SRS-ECU.

Replace driver's seat belt pre-tensioner.

NG

Check the following connectors: D-39, D-30

YES

Check trouble symptoms.

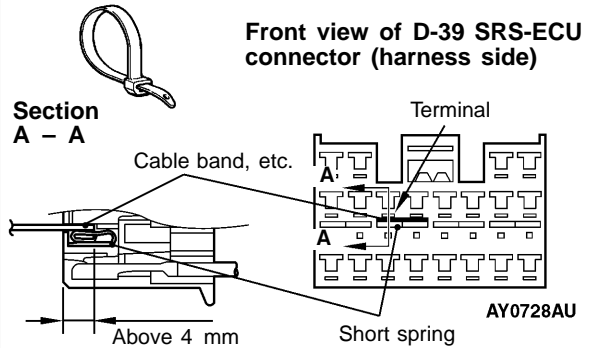
NG

Check harness wire between driver's seat belt pre-tensioner and SRS-ECU, and repair if necessary.

NG

Repair

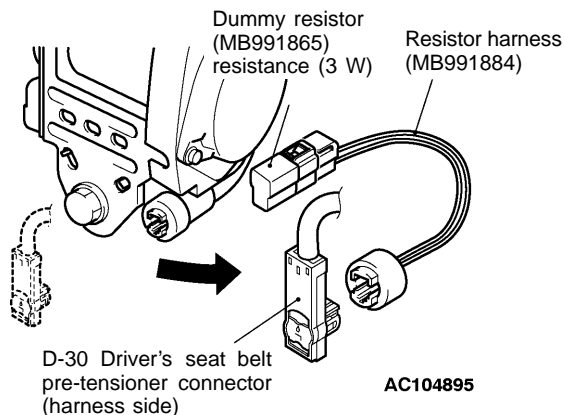
Illustration A



Code No.27 Driver's seat belt pre-tensioner (squib) system**Possible cause**

This code is output when open circuit occurs in the SRS-ECU driver's seat belt pre-tensioner (squib) circuit.
However, SRS warning lamp goes out when a normal operation is resumed (diagnosis code is not cleared.)

- Connector improper contact
- Open in the driver's seat pre-tensioner (squib) circuit
- SRS-ECU inoperable

**<Driver's seat belt pre-tensioner (squib) check>****MUT-II Self-diag code**

- Disconnect the negative (–) battery terminal.
- Disconnect driver's seat belt pre-tensioner connector D-30.
- Connect dummy resistor (MB991865) to resistor harness (MB991884)
- Connect resistor harness (MB991884) to driver's seat belt pre-tensioner connector D-30 (harness side).
- Connect the negative (–) battery terminal.
- Check that a diagnosis code is output again after erasing the memory. Is code No.27 output?

YES

NO

<Check the circuit between the SRS-ECU and driver's seat belt pre-tensioner>

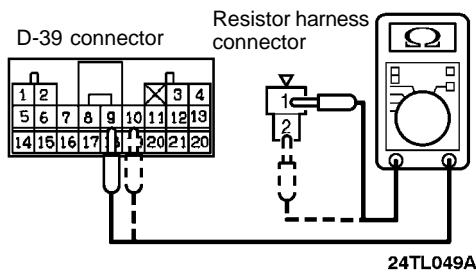
Measure at SRS-ECU connector D-39 and resistor harness connector

- Disconnect SRS-ECU connector D-39 and measure at the harness side
 - Disconnect driver's seat belt pre-tensioner connector D-30 and connect resistor harness (MB991884) to the harness side
 - Continuity between following terminals
- | D-39 connector | | Resistor harness connector |
|----------------|---|----------------------------|
| 10 | – | 1 |
| 9 | – | 2 |

Caution

In order to avoid deterioration of contact pressure, do not insert a probe into the terminal directly from the front of the connector.

OK: Continuity (2 Ω or less)



OK

Replace SRS-ECU.

Replace driver's seat belt pre-tensioner.

NG

Check the following connectors: D-39, D-30

OK

NG

Check trouble symptoms.

Repair

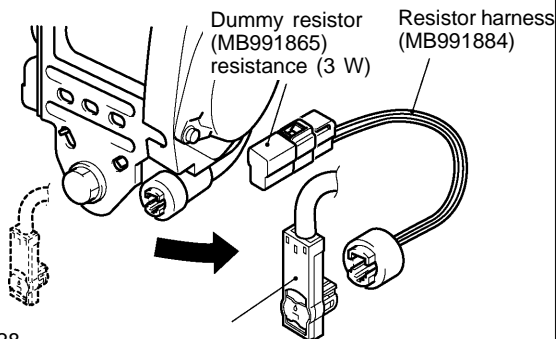
NG

Check harness wire between driver's seat belt pre-tensioner and SRS-ECU, and repair if necessary.

Code No.28 Front passenger's seat belt pre-tensioner (squib) system**Possible cause**

This code is output when short circuit occurs between terminals of the SRS-ECU front passenger's seat belt pre-tensioner (squib) circuit. However, SRS warning lamp goes out when a normal operation is resumed (diagnosis code is not cleared.)

- Connector engagement faulty or short bar faulty*
- Short circuit between terminals of the front passenger's seat belt pre-tensioner (squib) circuit
- Faulty connector
- SRS-ECU inoperable



D-28
Front passenger's seat belt
pre-tensioner connector
(harness side)

AC104895

<Front passenger's seat belt pre-tensioner (squib) check>
MUT-II Self-diag code

- Disconnect the negative (–) battery terminal.
 - Disconnect front passenger's seat belt pre-tensioner connector D-28.
 - Connect dummy resistor (MB991865) to resistor harness (MB991884)
 - Connect resistor harness (MB991884) to front passenger's seat belt pre-tensioner connector D-28 (harness side).
 - Connect the negative (–) battery terminal.
 - Check that a diagnosis code is output again after erasing the memory.
- Is code No.28 output?

YES

<Check the circuit between the SRS-ECU and front passenger's seat belt pre-tensioner>

Measure at SRS-ECU connector D-39.

- Disconnect SRS-ECU connector D-39.
- Disconnect front passenger's seat belt pre-tensioner connector D-28.

Caution

In order to release the short spring of SRS-ECU connector in the operation shown below, disconnect this connector to keep the squib circuit short-circuited.

- Insert a cable band, etc. (width: 3 mm, thickness: 0.5 mm), between SRS-ECU connector D-39 terminals 7 and 8 and the short spring, and release the short spring. (See illustration A.)

Caution

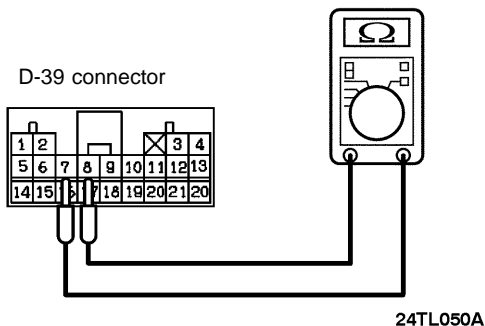
To avoid the occasion of inability of releasing the short spring due to insufficient insertion, insert the insulator for 4 mm or more.

- Continuity between 7 and 8

Caution

In order to avoid deterioration of contact pressure, do not insert a probe into the terminal directly from the front of the connector.

OK: No continuity



OK

Replace SRS-ECU.

NO

Replace front passenger's seat belt pre-tensioner.

NG

Check the following connectors: D-39, D-25, D-28

YES

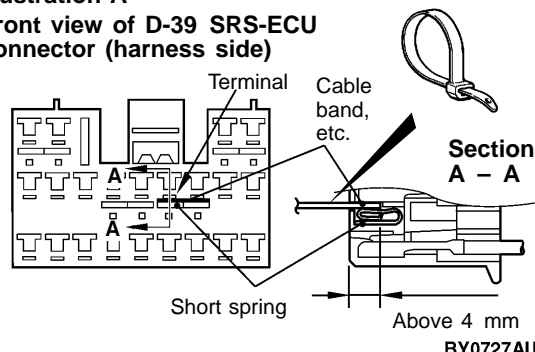
Check trouble symptoms.

NG

Check harness wire between front passenger's seat belt pre-tensioner and SRS-ECU, and repair if necessary.

NG
Repair

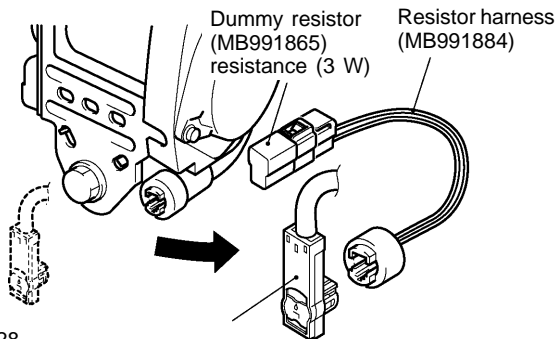
Illustration A
Front view of D-39 SRS-ECU connector (harness side)



Code No.29 Front passenger's seat belt pre-tensioner (squib) system**Possible cause**

This code is output when short circuit occurs between terminals of the SRS-ECU front passenger's seat belt pre-tensioner (squib) circuit. However, SRS warning lamp goes out when a normal operation is resumed (diagnosis code is not cleared.)

- Short circuit between terminals of the front passenger's seat belt pre-tensioner (squib) circuit
- Connector engagement faulty
- SRS-ECU inoperable



D-28
Front passenger's seat belt
pre-tensioner connector
harness side

AC104895

<Front passenger's seat belt pre-tensioner (squib) check>**MUT-II Self-diag code**

- Disconnect the negative (–) battery terminal.
- Disconnect front passenger's seat belt pre-tensioner connector D-28.
- Connect dummy resistor (MB991865) to resistor harness (MB991884)
- Connect resistor harness (MB991884) to front passenger's seat belt pre-tensioner connector D-28 (harness side).
- Connect the negative (–) battery terminal.
- Check that a diagnosis code is output again after erasing the memory. Is code No.29 output?

YES

<Check the circuit between the SRS-ECU and front passenger's seat belt pre-tensioner>

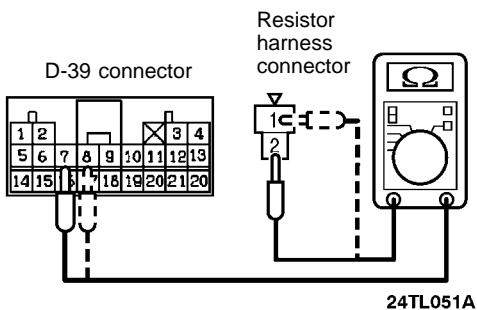
Measure at SRS-ECU connector D-39 and resistor harness connector

- Disconnect SRS-ECU connector D-39 and measure at the harness side
 - Disconnect front passenger's seat belt pre-tensioner connector D-32 and connect resistor harness (MB991884).
 - Continuity between following terminals
- | D-39 connector | | Resistor harness connector |
|----------------|---|----------------------------|
| 8 | – | 2 |
| 7 | – | 1 |

Caution

In order to avoid deterioration of contact pressure, do not insert a probe into the terminal directly from the front of the connector.

OK: Continuity ($2\ \Omega$ or less)



OK

Replace SRS-ECU.

NO

Replace front passenger's seat belt pre-tensioner.

NG

Check the following connectors: D-39, D-25, D-28

OK

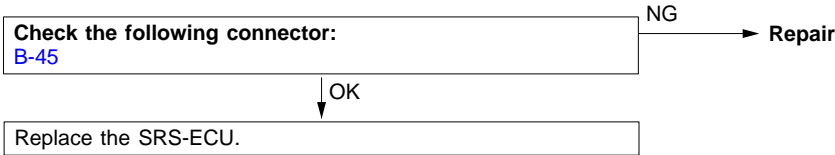
Check trouble symptoms.

NG

Check harness wire between front passenger's seat belt pre-tensioner and SRS-ECU, and repair if necessary.

Repair

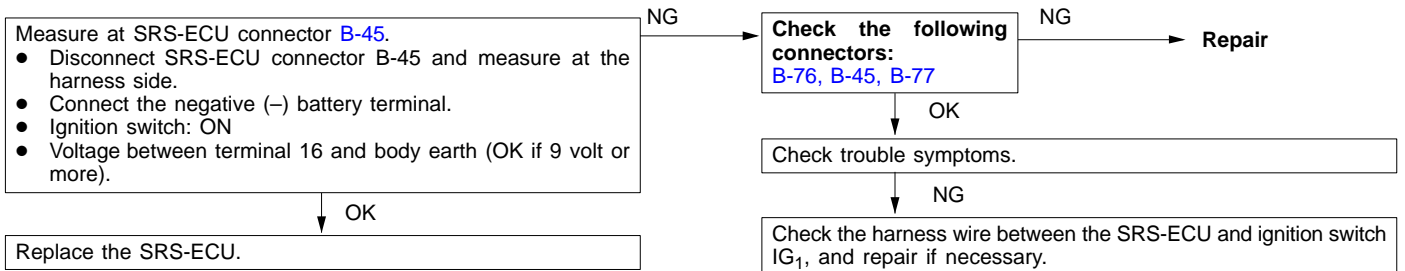
Code No.34 Connector lock system	Probable cause
This diagnosis code is output when the SRS-ECU detects that the SRS-ECU connector is improperly connected. However, if the vehicle condition returns to normal, diagnosis code No.34 will be automatically erased, and the SRS warning light will go out.	<ul style="list-style-type: none"> • Malfunction of connector • Malfunction of SRS-ECU



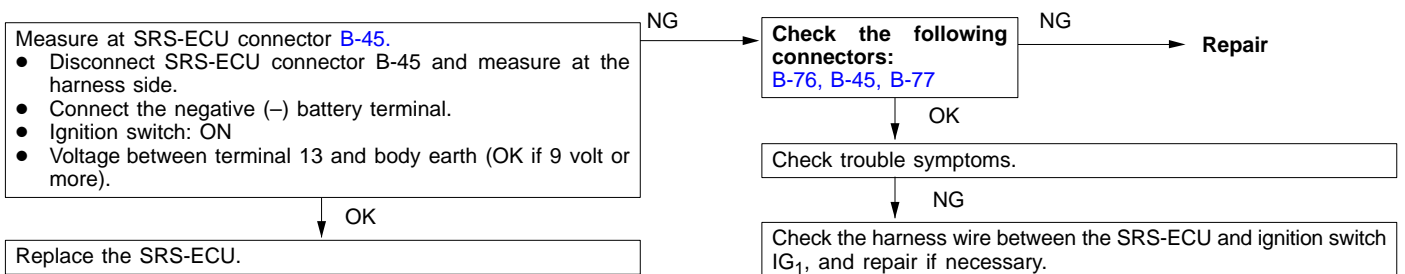
Code No.35 SRS-ECU (deployed air bag) system	Probable cause
This diagnosis code is output after the air bag deploys. If this code is output before the air bag has deployed, the cause is probably a malfunction inside the SRS-ECU.	<ul style="list-style-type: none"> • Malfunction of SRS-ECU

Replace the SRS-ECU.

Code No.41 IG ₁ (A) power circuit system	Probable cause
<p>This diagnosis code is output if the voltage between the IG₁ terminal (SRS-ECU terminal 16) and ground is lower than the specified value for a continuous period of 5 seconds or more.</p> <p>However, if the vehicle condition returns to normal, diagnosis code No.41 will be automatically erased, and the SRS warning light will switch off. If codes Nos.41 and 42 are displayed together, check the battery first as vehicle may have discharged battery.</p>	<ul style="list-style-type: none"> • Malfunction of wiring harnesses or connectors • Malfunction of SRS-ECU



Code No.42 IG ₁ (B) power circuit system	Probable cause
<p>This diagnosis code is output if the voltage between the IG₁ terminal (SRS-ECU terminal 13) and ground is lower than the specified value for a continuous period of 5 seconds or more.</p> <p>However, if the vehicle condition returns to normal, diagnosis code No.42 will be automatically erased, and the SRS warning light will switch off.. If codes Nos.41 and 42 are displayed together, check the battery first as vehicle may have discharged battery.</p>	<ul style="list-style-type: none"> • Malfunction of wiring harnesses or connectors • Malfunction of SRS-ECU

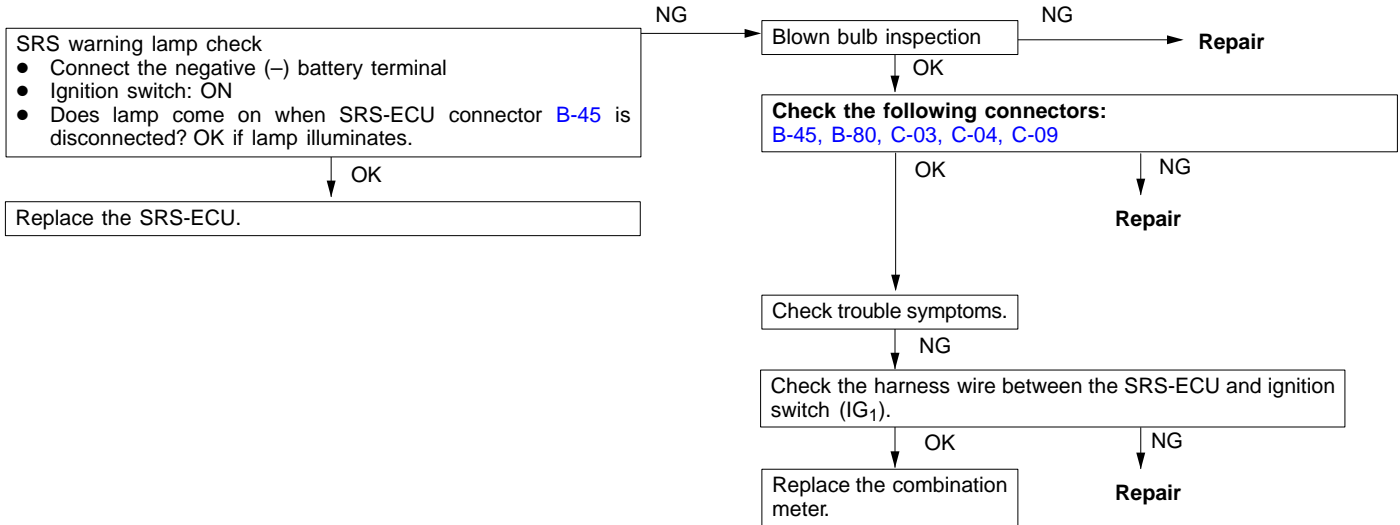


52B SRS – Troubleshooting

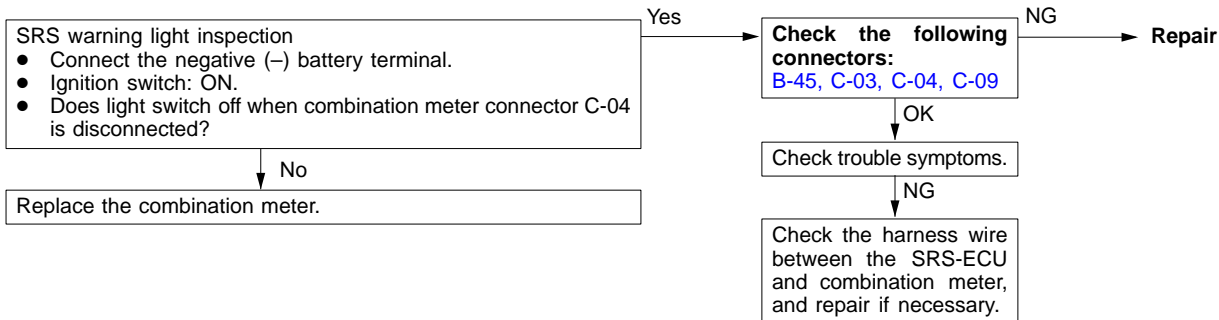
**Main
Index**

**52B
Index**

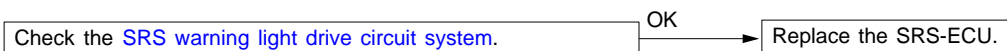
Code No.43 SRS warning light drive circuit system (Light does not illuminate.)	Probable cause
<p>This diagnosis code is output when an open circuit occurs for a continuous period of 5 seconds while the SRS-ECU is monitoring the SRS warning light and the light is OFF (transistor OFF). However, if this code is output due to an open circuit, if the vehicle condition returns to normal, this diagnosis code No.43 will be automatically erased, and the SRS warning light will return to normal.</p>	<ul style="list-style-type: none"> • Malfunction of wiring harness or connector • Blown bulb • Malfunction of SRS-ECU • Malfunction of combination meter



Code No.43 SRS warning light drive circuit system (Light does not switch off.)	Probable cause
<p>This diagnosis code is output when a short to ground occurs in the harness between the SRS warning light and the SRS-ECU. However, the vehicle condition returns to normal condition, this code will be automatically erased, and SRS warning lamp will go out.</p>	<ul style="list-style-type: none"> • Malfunction of wiring harness or connector • Malfunction of SRS-ECU • Malfunction of combination meter



Code No.44 SRS warning light drive circuit system	Probable cause
<p>This diagnosis 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. However, if the vehicle conditions return to normal, the diagnosis code No. 44 will be automatically erased, and the SRS warning light will go out.</p>	<ul style="list-style-type: none"> • Malfunction of wiring harnesses or connectors • Malfunction of SRS-ECU



Code No.56, 57, 58, 59 System inside SRS-ECU	Probable cause
These diagnostic trouble codes are output when a fault is detected in the SRS-ECU. The defective parts and trouble causes for each diagnosis code No. are as follows.	<ul style="list-style-type: none"> Malfunction of SRS-ECU

Code No.	Defective parts	Trouble symptom
56	Driver's side pre-tensioner (squib ignition drive circuit)	<ul style="list-style-type: none"> Short circuit in the squib ignition drive circuit
57		<ul style="list-style-type: none"> Open circuit in the squib ignition drive circuit
58	Front passenger's side pre-tensioner (squib ignition drive circuit)	<ul style="list-style-type: none"> Short circuit in the squib ignition drive circuit
59		<ul style="list-style-type: none"> Open circuit in the squib ignition drive circuit

If the diagnosis code(s) above is set, replace the SRS-ECU.

Code No.71, 72, 75, 76 Side air bag module (R.H.) (squib) system	Probable cause
These diagnostic trouble codes are output if there is an abnormal resistance between the input terminals of the side air bag module (R.H.) (squib) inside the SRS-ECU. The trouble causes for each diagnosis code No. are as follows. However, as for code No. 71, 72, if the vehicle conditions return to normal, the SRS warning lamp will go out. (Diagnosis code will remain stored)	<ul style="list-style-type: none"> Malfunction of harness or connector Malfunction of side air bag module (R.H.) (squib) Malfunction of SRS-ECU

Code No.	Trouble symptom
71	<ul style="list-style-type: none"> Short in side air bag module (R.H.) (squib) or harness short
72	<ul style="list-style-type: none"> Open in side air bag module (R.H.) (squib) or open harness Poor connector harness
75	<ul style="list-style-type: none"> Short in side air bag (R.H.) (squib) harness leading to the power supply
76	<ul style="list-style-type: none"> Short in side air bag (R.H.) (squib) harness leading to earth

SRS check harness (MB991606 or MB991613)

Resistance (3Ω)

Side air bag wiring harness

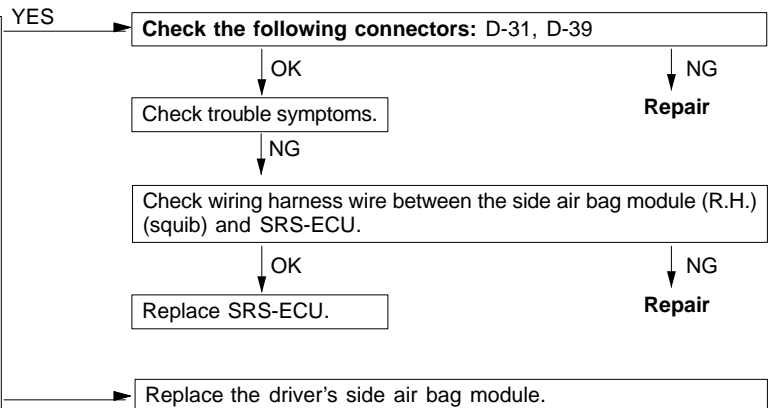
4

Side air bag module connector (R.H.) AV0380AE

MUT-II Self-diag code

- Disconnect the side air bag module (R.H.) connector D-31 and connect the harness side connector to the SRS check harness (MB991606 or MB991613) No.4 connector.
- Connect the negative (–) battery terminal.
- Erase diagnosis code memory.

Are code Nos.71, 72, 75 or 76 displayed?



Code No.79, 93 Side impact sensor communication system (L.H.)
Probable cause

These diagnosis codes are output if communication between the side impact sensor (L.H.) and the SRS-ECU is not possible (code No.93) or abnormal (code No.79).

- Malfunction of harness or connector
- Malfunction of side impact sensor (L.H.)
- Malfunction of SRS-ECU

MUT-II Self-diag code

- Switch over the right side impact sensor (R.H.) and the side impact sensor (L.H.).
- Connect the negative (–) battery terminal.
- Erase diagnosis code memory.

Are code Nos.79 and 93 erased and code Nos.89 and 96 output?

YES

Replace the side impact sensor (L.H.) mounted driver's side.

NO

Check the following connectors: D-27, D-25, D-39

OK

Check trouble symptoms.

NG

Check the harness wire between the left side impact sensor and the SRS-ECU.

OK

Replace the SRS-ECU.

Repair

Repair

Code No.81, 82, 85, 86 Side air bag module (L.H.) (squib) system
Probable cause

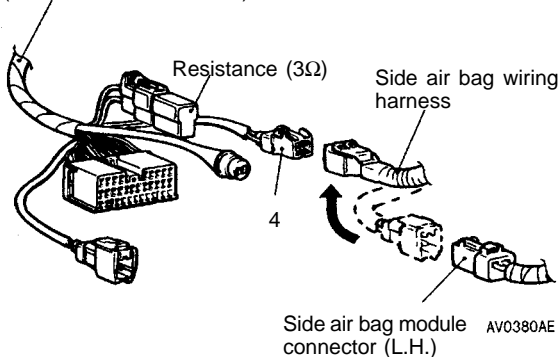
These diagnostic trouble codes are output if there is an abnormal resistance between the input terminals of the side air bag module (L.H.) (squib) inside the SRS-ECU. The trouble causes for each diagnosis code No. are as follows. However, as for code No. 81, 82, if the vehicle conditions return to normal, the SRS warning lamp will go out. (Diagnosis code will remain stored)

- Malfunction of harness or connector
- Malfunction of side air bag module (L.H.) (squib)
- Malfunction of SRS-ECU

Code No. Trouble symptom

81	<ul style="list-style-type: none"> • Short in side air bag module (L.H.) (squib) or harness short
82	<ul style="list-style-type: none"> • Open in side air bag module (L.H.) (squib) or open harness • Poor connector harness
85	<ul style="list-style-type: none"> • Short in side air bag (L.H.) (squib) harness leading to the power supply
86	<ul style="list-style-type: none"> • Short in side air bag (L.H.) (squib) harness leading to earth

SRS check harness
(MB991606 or MB991613)


MUT-II Self-diag code

- Disconnect the side air bag module (L.H.) connector D-32 and connect the harness side connector to the SRS check harness (MB991606 or MB991613) No.4 connector.
 - Connect the negative (–) battery terminal.
 - Erase diagnosis code memory.
- Are code Nos.81, 82, 85 or 86 displayed?

YES

Check the following connectors: D-32, D-39

OK

Check trouble symptoms.

NG

Check wiring harness wire between the side air bag module (L.H.) (squib) and SRS-ECU.

OK

Replace SRS-ECU.

NG

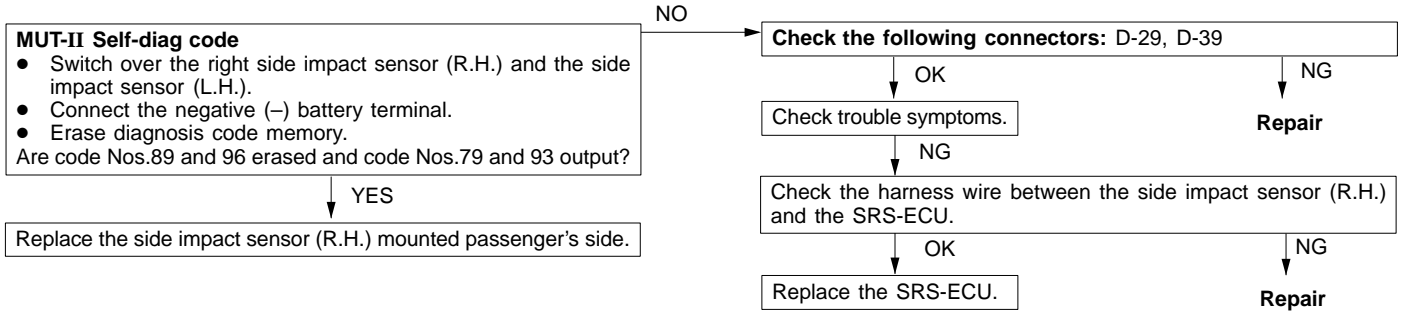
Repair

NG

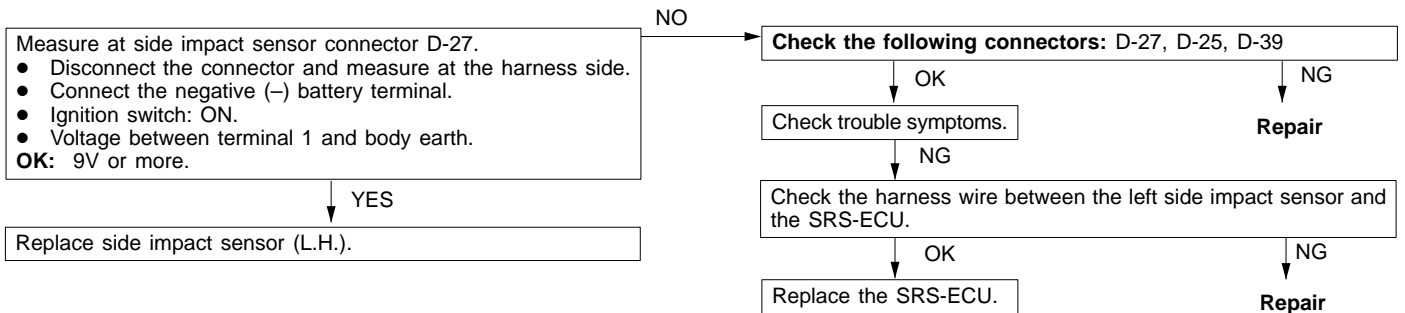
Repair

Replace the passenger's side air bag module.

Code No.89, 96 Side impact sensor communication system (R.H.)	Probable cause
These diagnosis codes are output if communication between the side impact sensor (R.H.) and the SRS-ECU is not possible (code No.96) or abnormal (code No.89).	<ul style="list-style-type: none"> Malfunction of harness or connector Malfunction of side impact sensor (R.H.) Malfunction of SRS-ECU



Code No.91 Side impact sensor (L.H.) power supply circuit system	Probable cause
Power supply voltage of side impact sensor (L.H.) is lower than specified for five successive seconds or more. However, when vehicle condition returns to normal, this code will be automatically erased, and the SRS warning lamp will go out.	<ul style="list-style-type: none"> Malfunction of harness or connector Malfunction of side impact sensor (L.H.) Malfunction of SRS-ECU

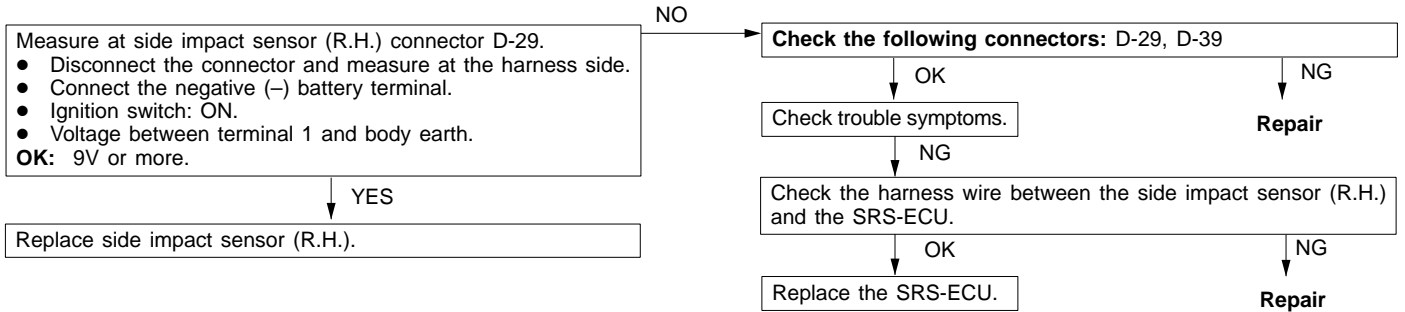


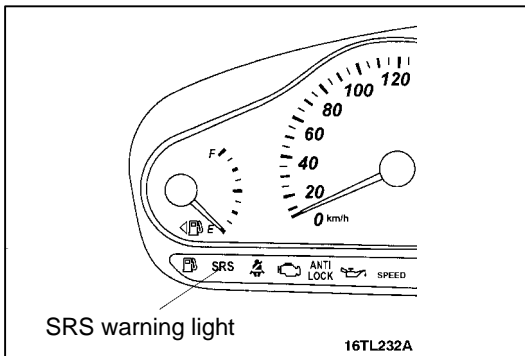
Code No.92, 95 Side impact sensor system	Probable cause
Code No.92 is displayed when malfunction is present inside impact sensor (L.H.). Code No.95 is displayed when malfunction is present inside impact sensor (R.H.). The trouble causes for each diagnosis code No. are as follows.	<ul style="list-style-type: none"> Malfunction of side impact sensor (L.H.) (incase of code No.92) Malfunction of side impact sensor (R.H.) (incase of code No.95)

Code No.	Defective parts	Trouble symptom
92	Side impact analog G-sensor	<ul style="list-style-type: none"> Not working Having abnormal characteristics Having abnormal output
95		

- Replace the side impact sensor (L.H.) (in case of code No.92.
- Replace the side impact sensor (R.H.) in case of code No.95.

Code No.94 Side impact sensor (R.H.) power supply circuit system	Probable cause
Power supply voltage of side impact sensor (R.H.) is lower than specified for five successive seconds or more. However, when vehicle condition returns to normal, this code will be automatically erased, and the SRS warning lamp will go out.	<ul style="list-style-type: none"> • Malfunction of harness or connector • Malfunction of side impact sensor (R.H.) • Malfunction of 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 switch off and remain extinguished for at least 5 seconds.
3. If the above is not the case, inspect for diagnosis codes.

INSPECTION CHART FOR TROUBLE SYMPTOMS

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

Trouble symptom		Inspection procedure No.
Communication with MUT-II is not possible.	Communication with all systems is not possible.	1
	Communication is not possible with SRS only.	2
When the ignition key is turned to "ON" (engine stopped), the SRS warning light does not illuminate.		Refer to diagnosis code No.43 .
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 or No.44 .

INSPECTION PROCEDURE FOR TROUBLE SYMPTOMS

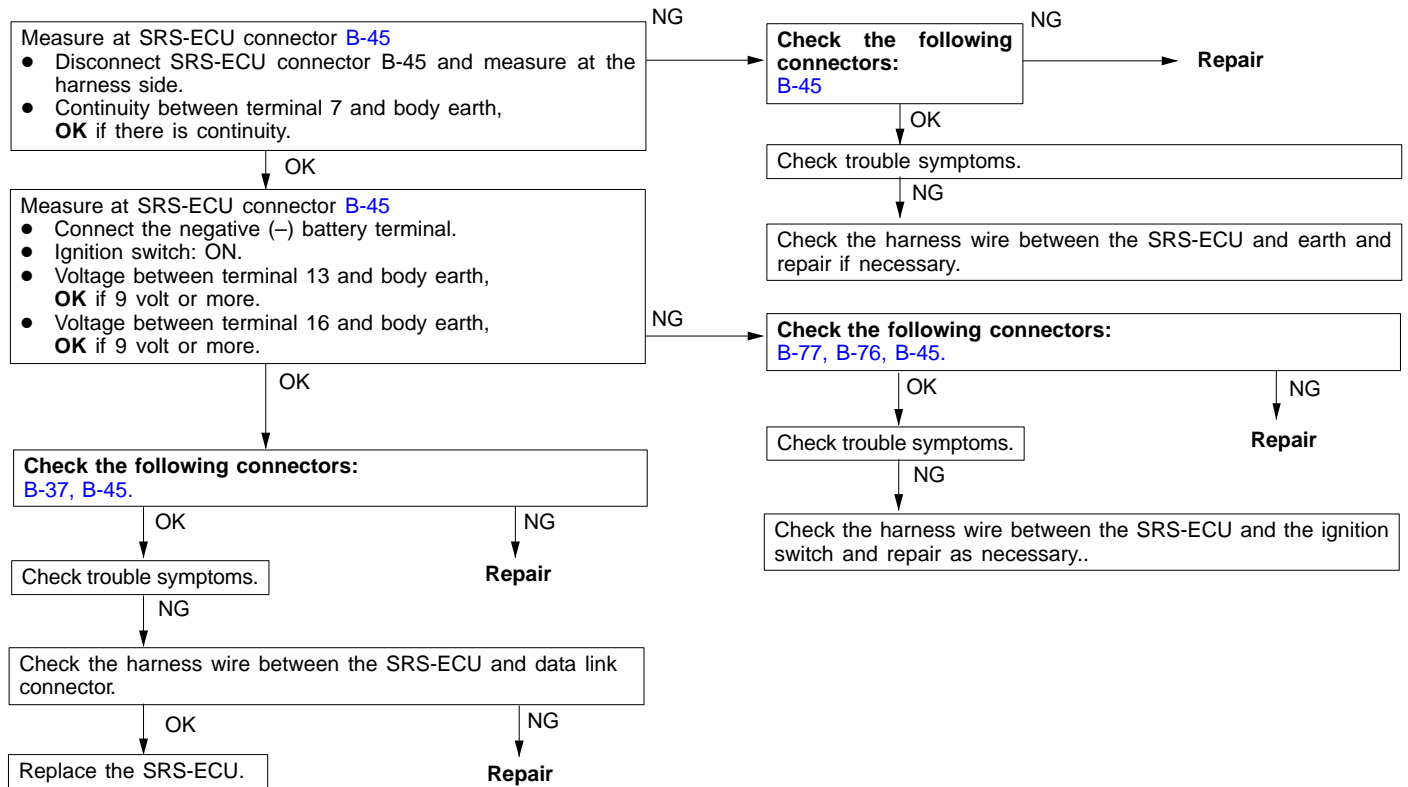
Inspection Procedure 1

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

Refer [Group 13A](#).

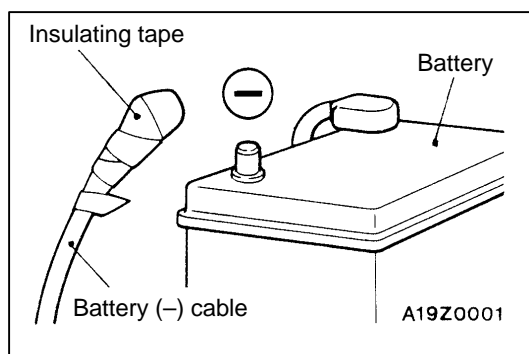
Inspection Procedure 2

Communication with MUT-II is not possible. (Communication is not possible with SRS only.)	Probable cause
If communication is not possible only with the SRS, the cause is probably an open circuit in the diagnosis output circuit of the SRS or in the power circuit (including ground circuit).	<ul style="list-style-type: none"> • Malfunction of wiring harnesses or connectors • Malfunction of SRS-ECU



SRS MAINTENANCE

The SRS must be inspected by an authorised dealer up to 10 years after the date of vehicle registration.

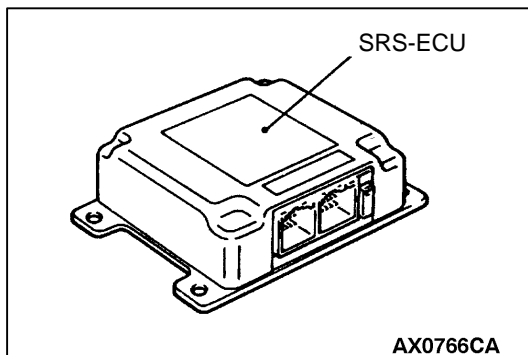


SRS COMPONENT VISUAL CHECK

Turn the ignition key to the "LOCK" position, disconnect the negative battery cable and tape the terminal.

Caution

Wait at least 60 seconds after disconnecting the battery cable before doing any further work. (Refer [SRS service precautions.](#))

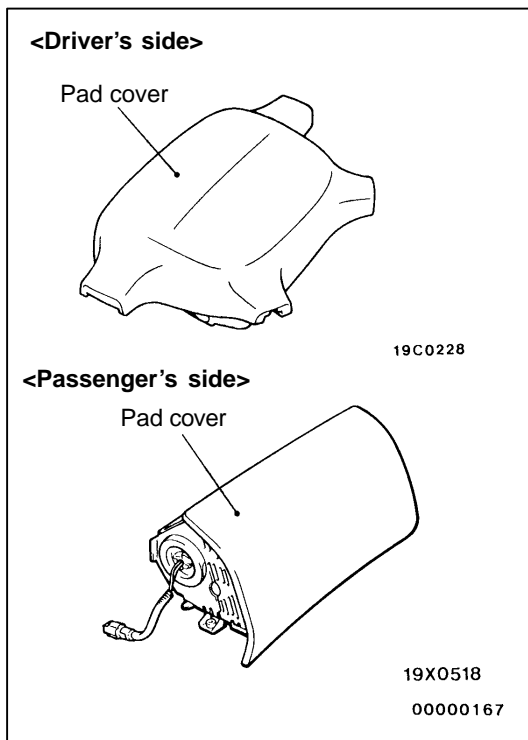
**SRS CONTROL UNIT (SRS-ECU)**

1. Check SRS-ECU case and brackets for dents, cracks, deformation or rust.

Caution

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

2. Check connector for damage, and terminals for deformation or rust.
Replace SRS-ECU if it fails visual check. (Refer [ECU removal & Installation.](#))

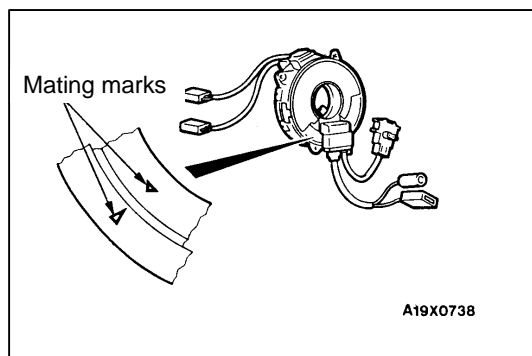
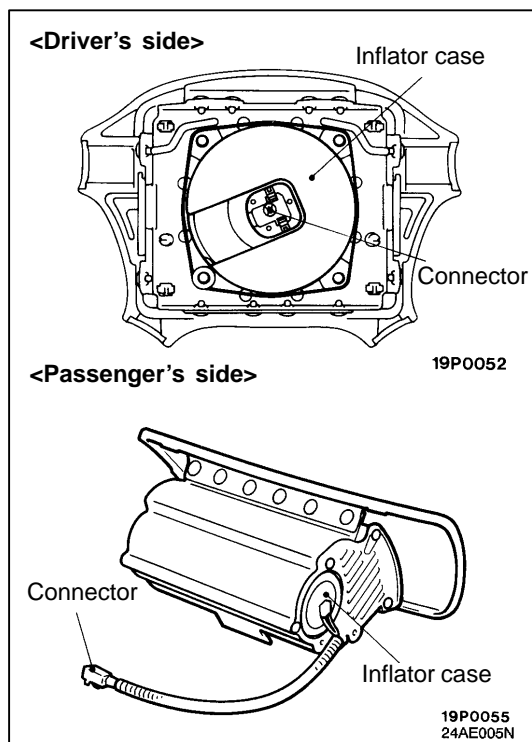
**AIR BAG MODULES, STEERING WHEEL AND CLOCK SPRING**

1. Remove the air bag modules, steering wheel and clock spring. (Refer [On vehicle service precautions.](#))

Caution

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

2. Check pad cover for dents, cracks or deformities.



3. Check connector for damage, terminals for deformities, and harness for binding.
4. Check air bag inflator case for dents, cracks or deformities.
5. Check harness (built into steering wheel) and connectors for damage and terminals for deformities.

6. Check clock spring connectors and protective tube for damage, and terminals for deformation.
7. Visually check the clock spring case for damage.
8. Align the mating marks of the clock spring and after turning the vehicles wheels to the straight ahead position, install the clock spring to the column switch..

Mating Mark Alignment

Turn the clock spring clockwise fully, and then turn it back approx. 3 4/5 turns counterclockwise to align the mating marks.

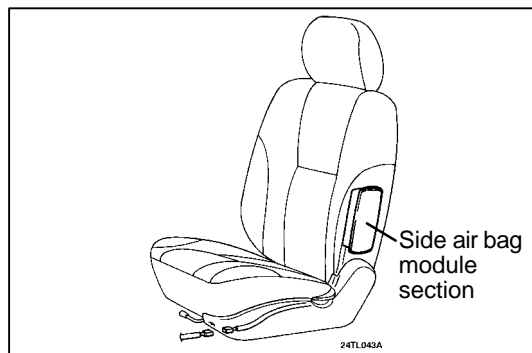
Caution

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

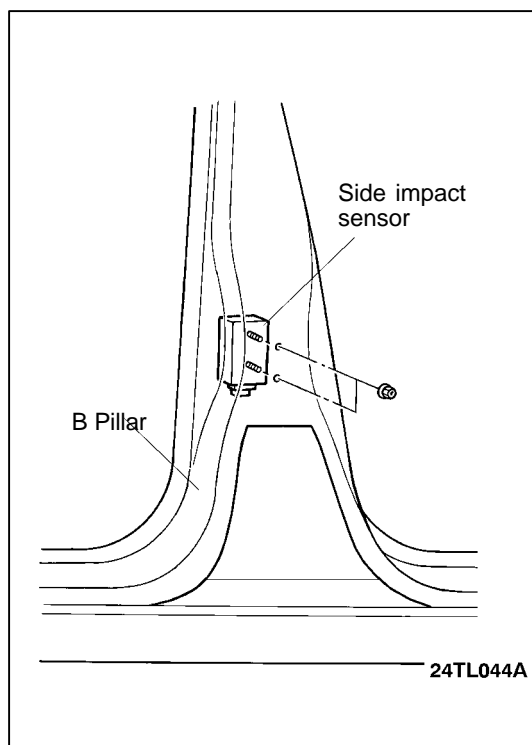
9. Install the steering column covers, steering wheel and the air bag module.
10. Check the steering wheel for noise, binds or difficult operation.
11. Check the steering wheel for excessive free play.
REPLACE ANY VISUALLY INSPECTED PART IF IT FAILS THAT INSPECTION. (Refer [Component service.](#))

Caution

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

**FRONT SEAT BACK ASSEMBLY (SIDE AIR BAG MODULE)**

1. Check the side air bag module deployment section in the seat for dents or deformation.
2. Check the harness for binds, the connector for damage and the terminals for deformation.

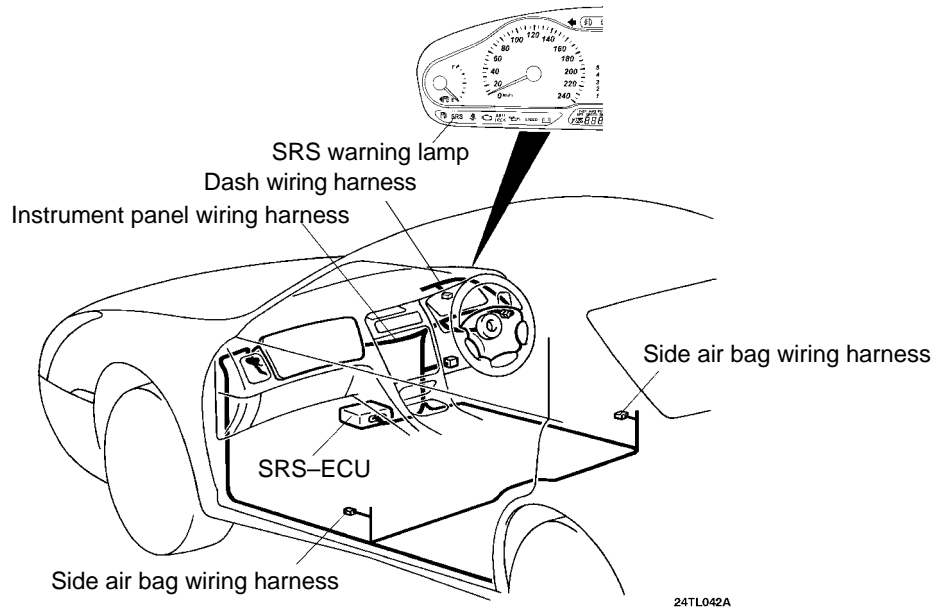
**SIDE IMPACT SENSOR**

1. Check the B pillar for deformation or rust.
2. Check the side impact sensors for dents, cracks, deformation and rust.
3. Check the connector for damage and the terminals for deformation.

Caution

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

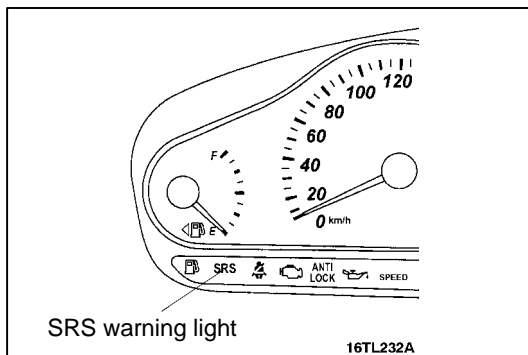
BODY WIRING HARNESS



1. Check connectors for poor connection.
2. Check harnesses for binding, connectors for damage, and terminals for deformation.
REPLACE ANY CONNECTORS OR HARNESS THAT FAIL THE VISUAL INSPECTION.
(Refer [SRS - Service precautions](#).)

Caution

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

**POST-INSTALLATION INSPECTION**

Reconnect the negative battery terminal. Turn the ignition key to the "ON" position. Does the SRS warning light illuminate for about 7 seconds, turn off and then remain extinguished for at least 5 seconds? If yes, SRS system is functioning properly. If not, refer to [Troubleshooting](#).

POST-COLLISION DIAGNOSIS

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 MUT-II to the diagnosis connector (16-pin).

Caution

Turn off ignition switch before connecting or disconnecting the MUT-II.

2. Read (and write down) all displayed diagnosis codes. (Refer [Inspection chart for diagnosis trouble codes.](#))

NOTE

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

3. Read the data list (fault duration and how many times memories are erased) using the MUT-II.

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: 9999 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 diagnosis codes and after waiting 5 seconds or more read (and write down) all displayed diagnosis codes. (Refer [Inspection chart for diagnosis trouble codes.](#))

REPAIR PROCEDURE**WHEN FRONT AIR BAGS DEPLOY IN A COLLISION.**

1. Replace the following parts with new ones.
 - SRS-ECU (Refer [On vehicle service.](#))
 - Air bag modules (Refer [On vehicle service.](#))
2. Check the following parts and replace if there are any malfunctions.
 - Clock spring (Refer [On vehicle service.](#))
 - 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.
3. Check harnesses for binding, connectors for damage, poor connections, and terminals for deformation. (Refer [SRS Service Precautions.](#))

WHEN SIDE AIR BAGS DEPLOY IN A COLLISION.

1. Replace the following parts with new ones:
 - SRS-ECU (Refer [On vehicle service.](#))
 - Side impact sensors
 - Front seat back assemblies
2. Check harnesses for binding, connectors for damage, poor connections, and terminals for deformation. (Refer to [Individual component service.](#))

WHEN PRE-TENSIONER OPERATES IN A COLLISION.

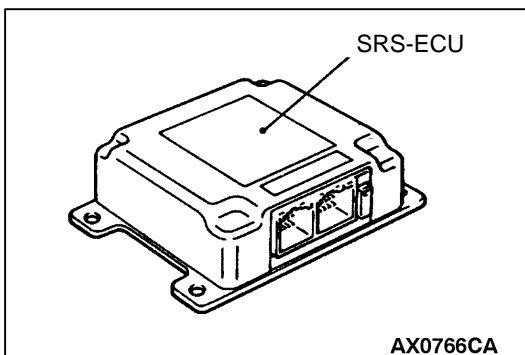
1. Replace the following parts with new ones.
 - SRS-ECU
 - Seat belt with pre-tensioner (Refer to [Seat belt with Pre-tensioner.](#))
2. Check harnesses for binding, connectors for damage, poor connections, and terminals for deformation.

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

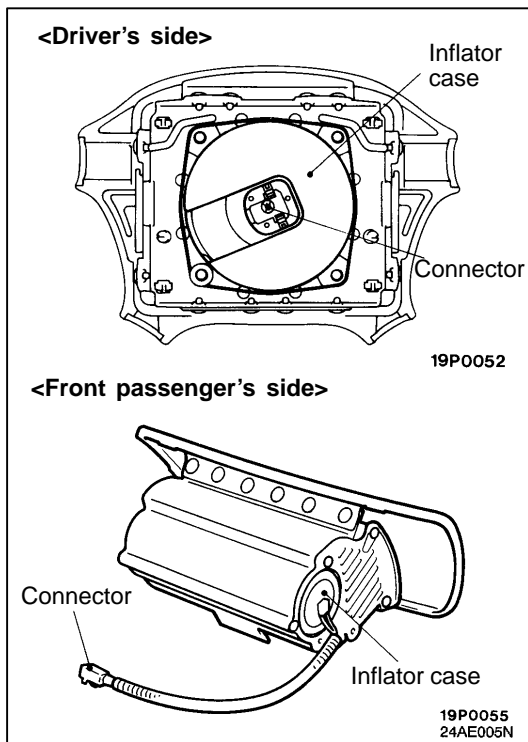
Check the SRS-ECU and Seat belt with pre-tensioner. If visible damage such as dents, cracks, or deformation are found on the the SRS-ECU and Seat belt with pre-tensioner, replace them with new ones. Concerning parts removed for inspection, replacement with new parts and cautionary points for working, refer to appropriate [INDIVIDUAL COMPONENT SERVICE](#).

Seat belt with pre-tensioner

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

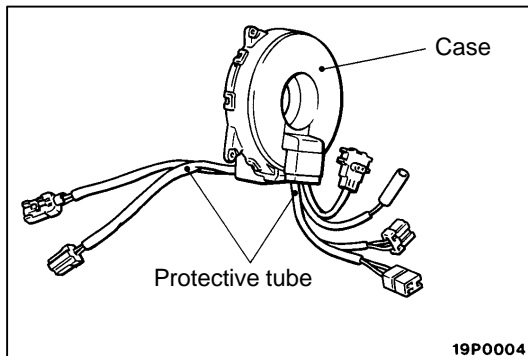
**SRS-ECU**

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



Air bag modules

1. Check pad cover for dents, cracks or deformation.
2. Check connector for damage, terminals deformities, and harness for binds.
3. Check air bag inflator case for dents, cracks or deformities.
4. Check air bag modules for fit and proper installation.



Clock spring

1. Check clock spring connectors and protective tube 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 [SRS Service Precautions](#).)

INDIVIDUAL COMPONENT SERVICE

If the SRS components are to be removed or replaced as a result of maintenance, troubleshooting, etc., follow each procedure. ([SRS Air Bag Control Unit](#), [Air Bag Modules and Clock Spring](#).)

Caution

1. SRS components should not be subjected to heat over 93°C, so remove the SRS-ECU, air bag modules, clock spring and pretensioner-fitted seat belts before drying or baking the vehicle after painting.
Recheck SRS airbag system after re-installing components. (Refer to [Group 00](#).)
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)

Caution

1. Disconnect the negative (–) battery terminal and wait for 60 seconds or more before starting work. Also, the disconnected battery terminal should be insulated with tape.
2. Never attempt to disassemble or repair the SRS-ECU. If faulty, replace it.
3. Do not drop or subject the SRS-ECU to impact or vibration.

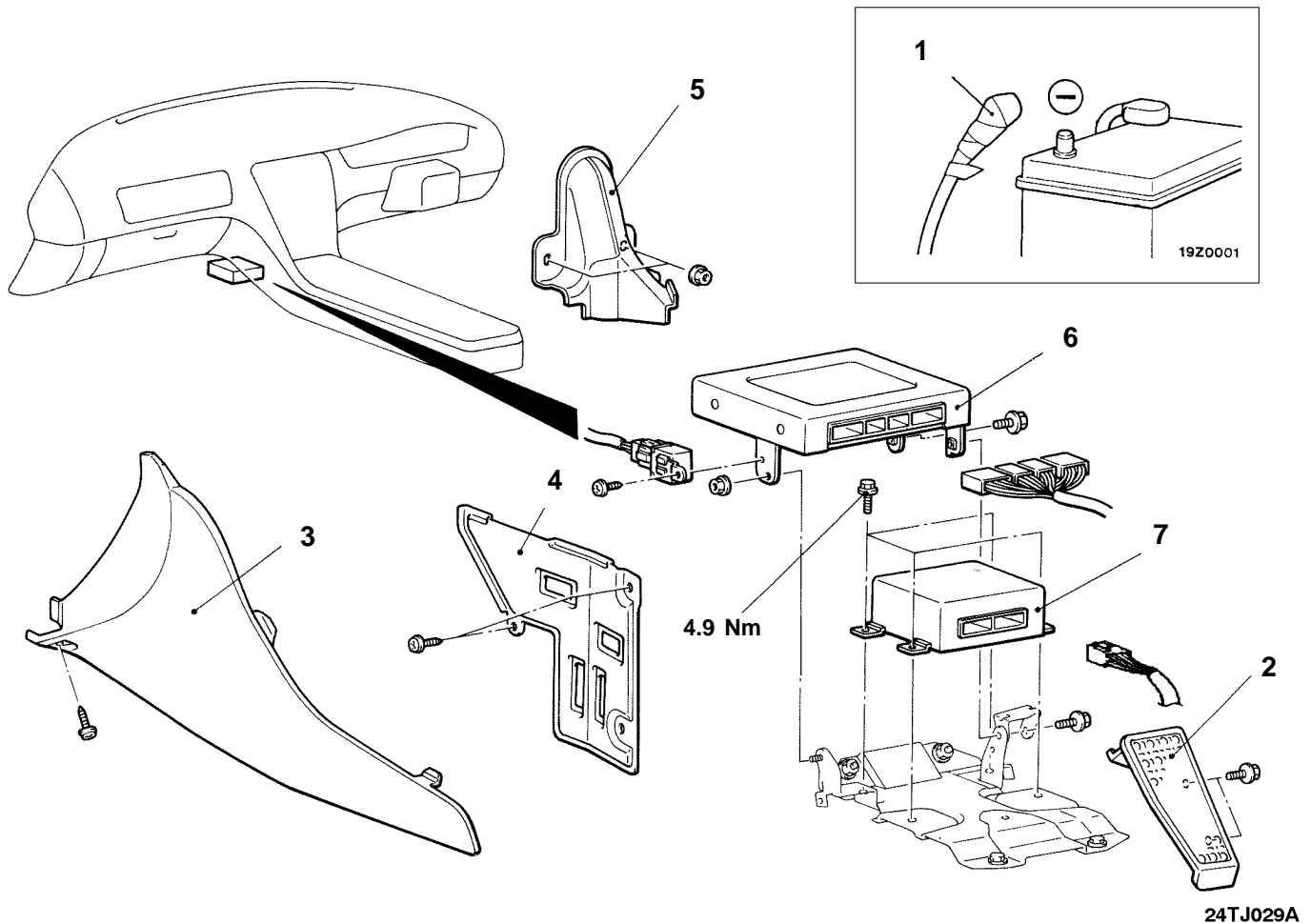
If denting, cracking, deformation, or rust are discovered in the SRS-ECU, replace it with a new SRS-ECU. Discard the old one.

4. After deployment of an air bag, replace the SRS-ECU with a new one.
5. Never use an ohmmeter on or near the SRS-ECU, and use only the **special test equipment**.

REMOVAL AND INSTALLATION

Pre-removal Operation

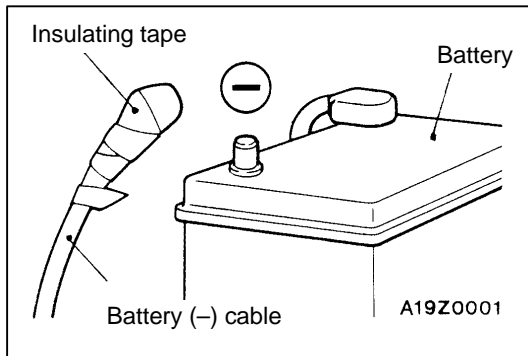
- Turn the ignition key to the "LOCK" position.



Removal steps

- ◀A▶ ▶B▶
- Post-installation inspection
 - 1. Negative (–) battery cable connection
 - 2. Footrest
 - 3. Console side cover (LH and RH)
 - 4. Floor carpet reinforcement (LH and RH)

- ▶A▶ ▶B▶
- 5. Harness protector
 - 6. Engine-A/T-ECU and A/T control relay
 - 7. SRS-ECU



REMOVAL SERVICE POINT

◀A▶ NEGATIVE (-) BATTERY CABLE DISCONNECTION

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

Caution

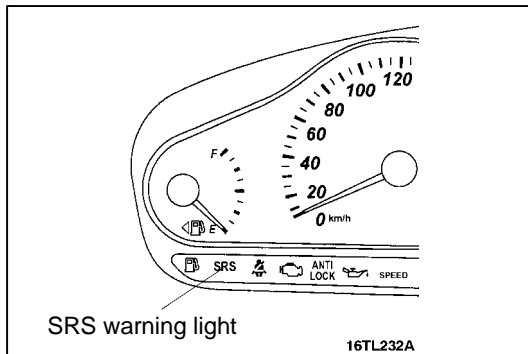
Wait at least 60 seconds after disconnecting the battery cable before doing any further work. (Refer [SRS-Service Precautions](#).)

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, consult [Troubleshooting](#).

INSPECTION

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

For checking of the SRS-ECU other than described above, refer [Troubleshooting](#).

AIR BAG MODULES AND CLOCK SPRING

Caution

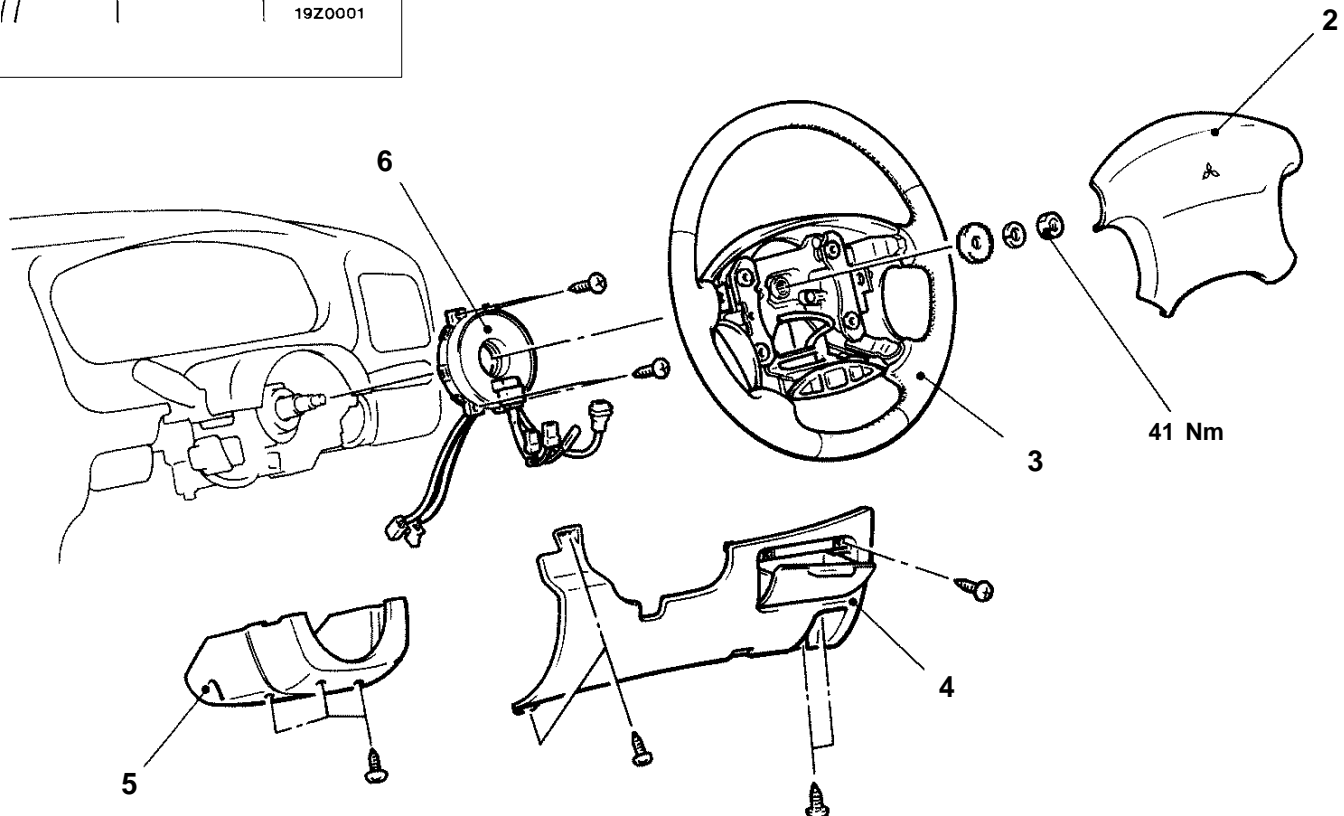
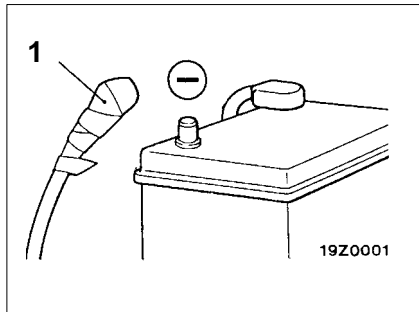
1. Disconnect the negative (–) battery terminal and wait for 60 seconds or more before starting work. Also, the disconnected battery terminal should be insulated with tape.
2. Never attempt to disassemble or repair the air bag modules or clock spring. If faulty, replace the component.
3. Do not drop the air bag modules or clock spring or allow contact with water, grease or oil. Replace the component if a dent, crack, deformation or rust is detected.
4. 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.
5. Do not expose the air bag modules to temperatures over 93°C.
6. After deployment of an air bag, replace the air bag with a new one.
7. Wear gloves and safety glasses when handling air bags that have already deployed.
8. An undeployed air bag module should only be disposed of in accordance with the [Undeployed air bag disposal procedures](#).

REMOVAL AND INSTALLATION

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

Pre-removal Operation

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



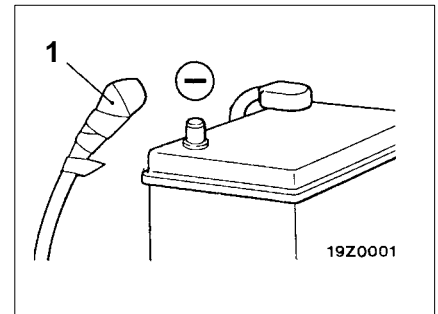
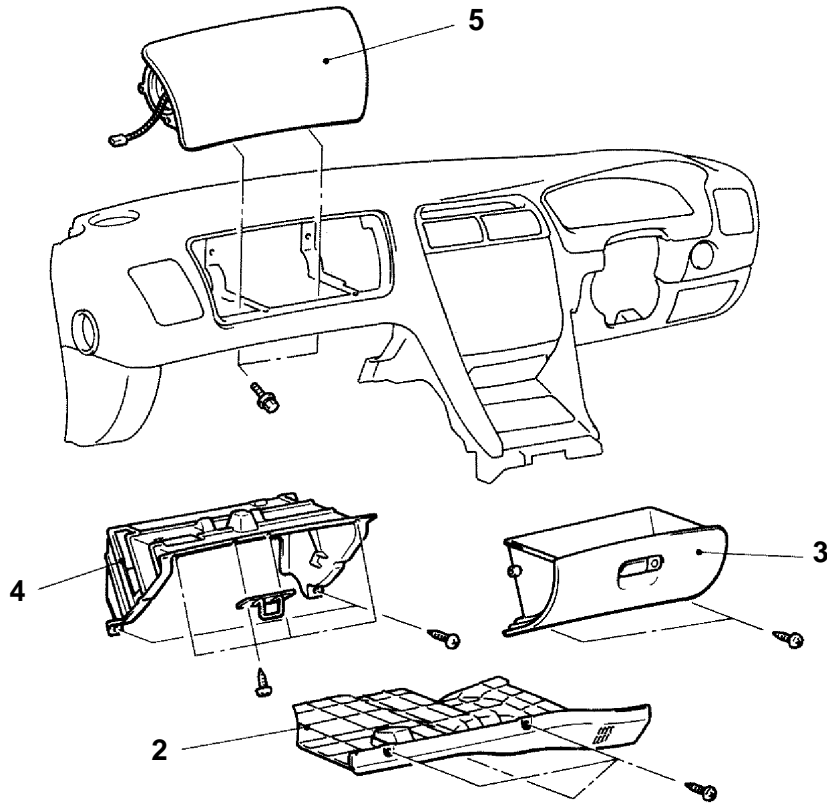
Air bag module removal steps

- Post-installation inspection
- 1. Negative (-) battery cable connection
- 2. Air bag module
- Pre-installation inspection

Clock spring removal steps

- Post-installation inspection
- 1. Negative (-) battery cable connection
- 2. Air bag module
- 3. Steering wheel
- 4. Instrument lower panel
- 5. Column cover lower
- 6. Clock spring
- Pre-installation inspection

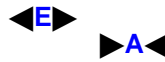
<Air bag module (front passenger's side)>



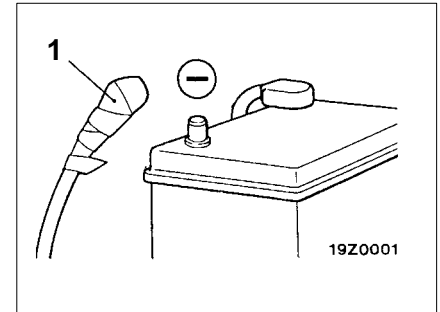
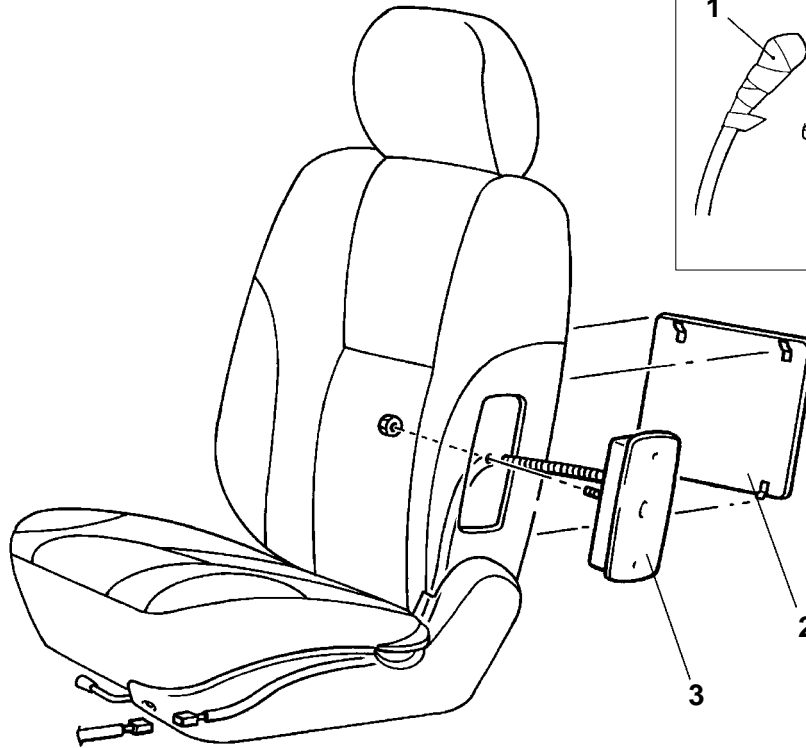
Air bag module removal steps

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

- 3. Glove box assembly
- 4. Glove box case
- 5. Air bag module
- Pre-installation inspection



<Side Air bag module (front seat)>

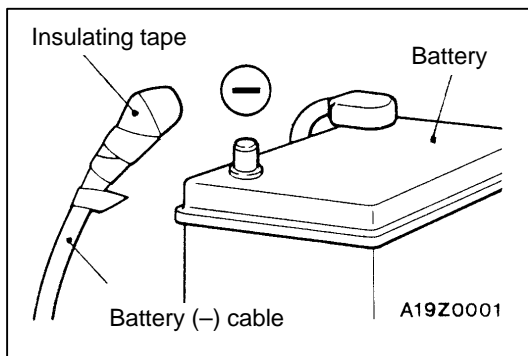


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Air bag module removal steps

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

- 2. Front back panel assembly
- 3. Air bag module
- Pre-installation inspection



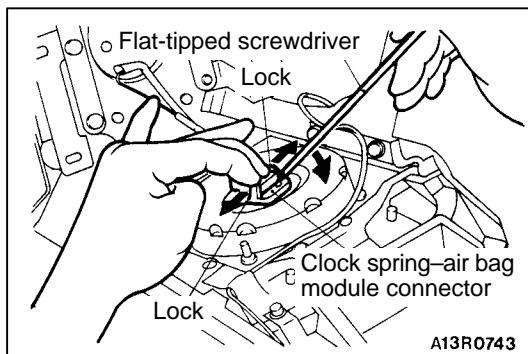
REMOVAL SERVICE POINTS

◀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 [SRS - Service precautions.](#))

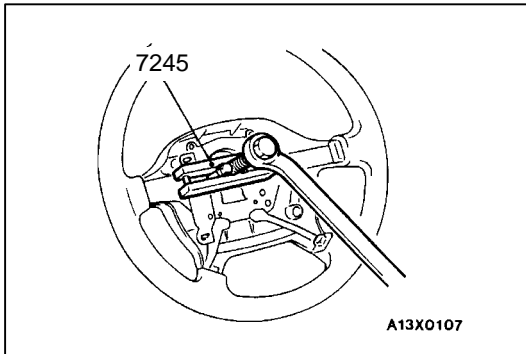


◀B▶ AIR BAG MODULE REMOVAL (DRIVER'S SIDE)

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, prying 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.
2. 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.

◀F▶ AIR BAG MODULE REMOVAL (SIDE AIR BAG)**Caution**

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

INSTALLATION SERVICE POINTS**▶A◀ PRE-INSTALLATION INSPECTION**

1. When installing the new air bag modules and clock spring, refer to [INSPECTION](#).

Caution

Dispose of air bag modules only according to the [specified procedure](#).

2. Connect the battery (–) terminal.
3. Connect the MUT-II to the diagnosis connector.

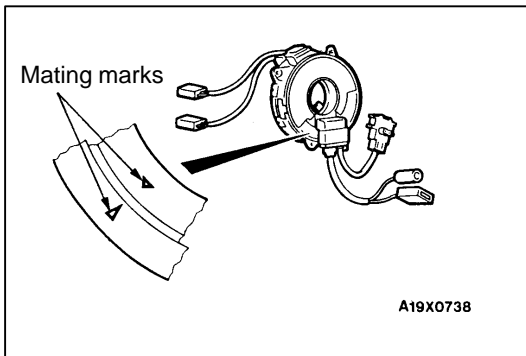
Caution

Turn off the ignition switch before connecting or disconnecting the MUT-II.

4. Turn the ignition key to the "ON" position.
5. Conduct diagnosis test using the MUT-II to ensure entire SRS operates properly.
6. Turn the ignition key to the "LOCK" position, disconnect the negative battery cable and tape the terminal.

Caution

Wait at least 60 seconds after disconnecting the battery cable before doing any further work.



►B◄ CLOCK SPRING INSTALLATION

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

Mating Mark Alignment

Turn the clock spring clockwise fully, and 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.

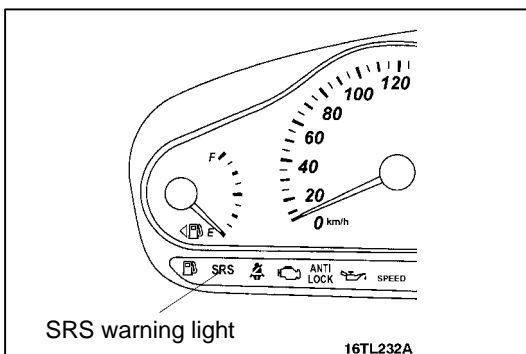
►C◄ STEERING WHEEL INSTALLATION

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

Be sure when installing the steering wheel, that the harness of the clock spring does not become caught or tangled.

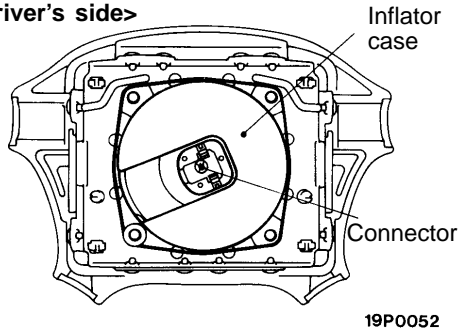
2. After securing the steering wheel, turn the steering wheel all the way in both directions to confirm that steering wheel rotation is normal.



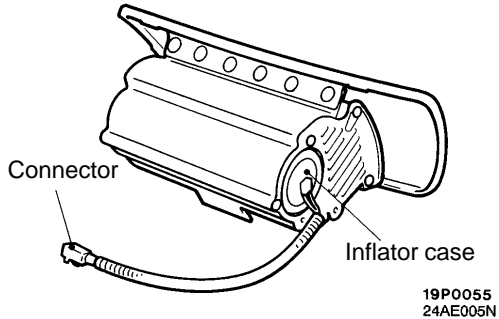
►D◄ POST-INSTALLATION INSPECTION

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 [Troubleshooting](#).

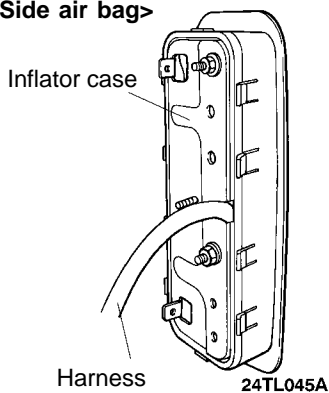
<Driver's side>



<Front passenger's side>



<Side air bag>

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

If any improper part is found during the following inspection, replace the air bag module with a new one. Dispose the old one according to the [specified procedure](#).

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 bag 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 or alignment.

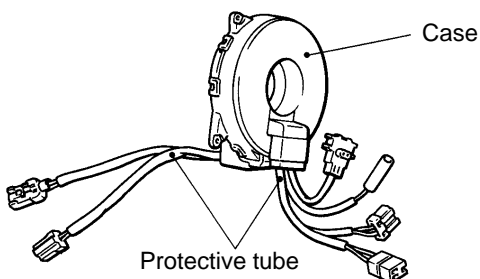
Caution

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](#).

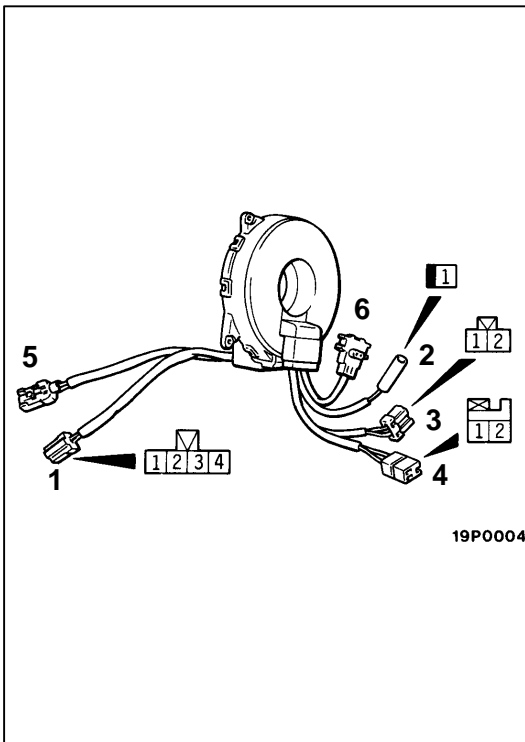
CLOCK SPRING CHECK

If, as result of following checks, even one abnormal point is discovered, replace the clock spring with a new one.

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



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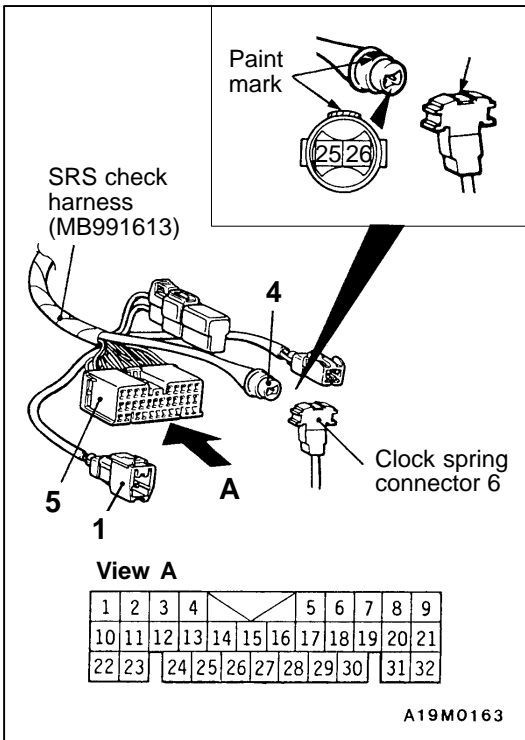


- Check for continuity between the No.1 connector of the clock spring and connectors No.2, 3 and 4

NOTE:

Connector No.1 terminal 4 and connector No.3 are provided only on vehicles equipped with audio system remote control.

Connector No.	1				2	3		4	
Terminal No.	1	2	3	4	1	1	2	1	2
Continuity between terminals	○								○
		○				○			
		○						○	
			○		○				
				○		○			



- Align the paint mark of the SRS check harness connector No.4 with the notch in clock spring connector No.6 (arrow in the illustration) to connect the connectors Nos.6 and 4.
- Connect SRS check harness connector No.1 with clock spring connector No.5.
- Check continuity between terminals 22 and 25 and between terminals 23 and 24 of the SRS check harness connector No.5.

FRONT SEATBELTS WITH PRETENSIONER

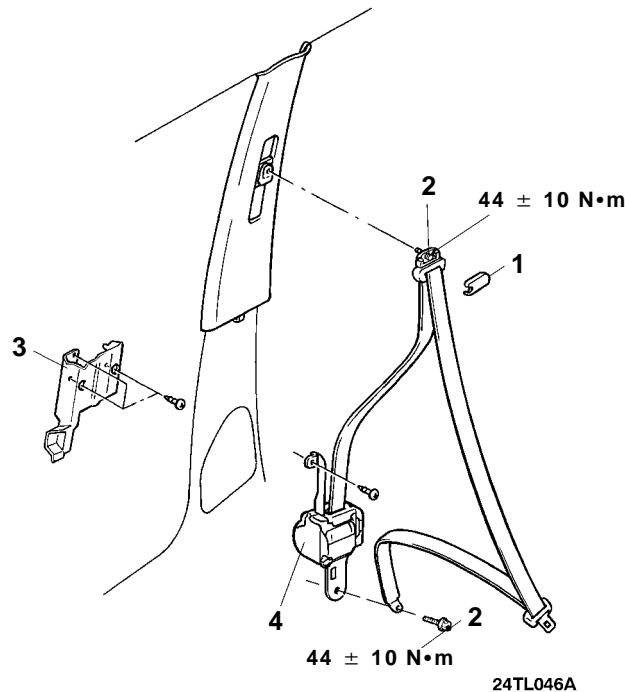
Caution:

1. Wait for at least 60 seconds after disconnecting the negative (–) terminal of the battery before starting any operation. The removed negative (–) terminal must be protected by wrapping with tape.
2. Never disassemble or repair the seat belt with pre-tensioner. Replace the part with a new one when it malfunctions.
3. Take extra care to deal with the seat belt with pre-tensioner by avoiding dropping or wetting it with water or oil. If any dent, crack, or deformation is found, be sure to replace the seat belt with pre-tensioner with a new part.
4. Do not place a heavy object on top of the seat belt pre-tensioner.
5. Never keep the seat belt with pre-tensioner in a place where the temperature can exceed over 93°C.
6. Replace the seat belt with pre-tensioner with a new one after deployment of the seat belt pre-tensioner.
7. Wear gloves or protective glasses when handling the seat belt after the pre-tensioner has been deployed.
8. If the seat belt with pre-tensioner needs to be discarded, be sure to do so after deploying the seat belt pre-tensioner. (Refer to Pretensioner-fitted seat belt disposal procedure)

REMOVAL AND INSTALLATION

Pre-removal Operation

- Turn the ignition key to the LOCK (OFF) position.
- Disconnect the negative (–) terminal of the battery.

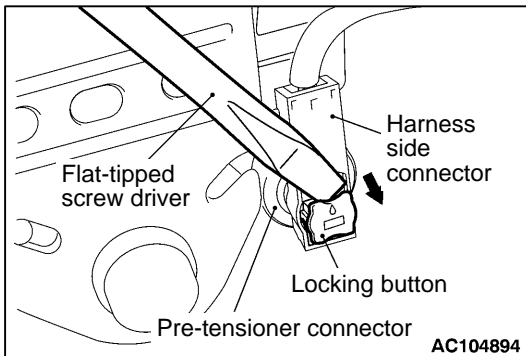


Removal steps

1. Sash cover guide
2. Seat belt mounting bolt
 - Lower center pillar trim
3. Bracket
4. Seat belt with pre-tensioner

Installation steps

- ▶ **A** ◀
- Pre-installation inspection
 - 1. Sash cover guide
 - 2. Seat belt mounting bolt
 - Lower center pillar trim
 - 3. Bracket
 - Lower center pillar trim
 - 4. Seat belt with pre-tensioner
 - Negative (–) terminal of the battery connection
- ▶ **B** ◀
- Post-installation inspection



REMOVAL SERVICE POINTS

◀A▶ SEAT BELT WITH PRE-TENSIONER REMOVAL

1. While the harness side connector locking button is pulled forward using a flat tipped screwdriver, release the lock and disconnect the connector.

INSTALLATION SERVICE POINTS

▶A◀ PRE-INSTALLATION INSPECTION

1. Pre-installation inspection must be carried out even when installing a new seat belt with pre-tensioner. (Refer to Inspections.)

Caution

If the seat belt with pre-tensioner is discarded, discard it after operating the seat belt pre-tensioner according to the specified procedure. (Refer to P.52B-52.)

2. Connect the negative (–) terminal of the battery.
3. Connect the MUT-II to the diagnosis connector (16 pin).

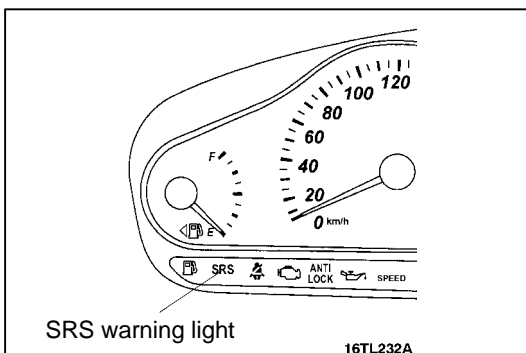
Caution

Connection and disconnection of the MUT-II must be carried out after turning the ignition switch to the LOCK (OFF) position.

4. Turn the ignition switch to ON position.
5. Check that there is no abnormality except for open circuit in the seat belt pre-tensioner after reading diagnostic codes.
6. Turn the ignition key to the LOCK (OFF) position.
7. Release the negative (–) terminal cable of the battery and wrap a tape around it for insulation.

Caution

Wait for at least 60 seconds after disconnecting the negative (–) battery cable before starting any operation. (Refer to P.52B-3.)



▶B◀ POST-INSTALLATION INSPECTION

1. Turn the ignition switch to the ON position.
2. Check that the SRS warning lamp illuminates for 6 to 8 seconds and goes out.
3. Carry out troubleshooting if the lamp does not go out.

INSPECTION

SEAT BELT PRE-TENSIONER

1. Check the seat belt pre-tensioner for dents, cracks, or deformation
2. Check the harness and connector for damage and terminal for deformation

If any fault is discovered by the inspections, replace the seat belt with pre-tensioner with a new one.

Discard the old parts according to the specified procedure after operating the seat belt pre-tensioner. ([Refer to Seat belt with pretensioner disposal procedure.](#))

Caution

Do not measure the circuit resistance of the seat belt pre-tensioner even if it is done with a specified tester.

If a tester is used to measure the circuit resistance, squib charged with current or erroneous activation by static may cause deployment of the pre-tensioner seat belt.

AIR BAG MODULE DISPOSAL PROCEDURES

Before disposing of an air bag or a vehicle which is equipped with it, 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.

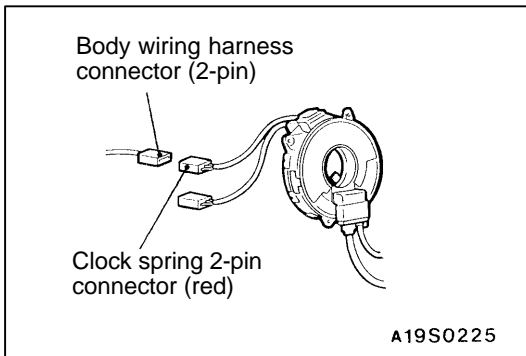
DEPLOYMENT INSIDE THE VEHICLE

(when disposing of a vehicle)

1. Open all windows and doors of the vehicle. 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

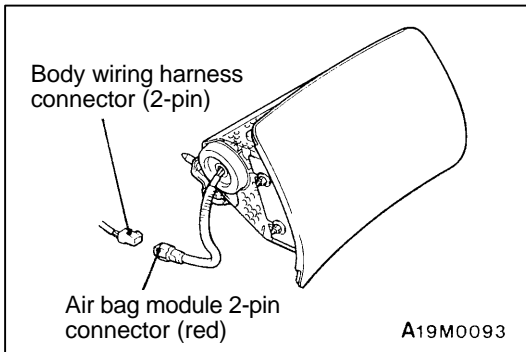
Wait at least 60 seconds after disconnecting the battery cables before doing any further work.
(Refer to [SRS - Service precautions.](#))



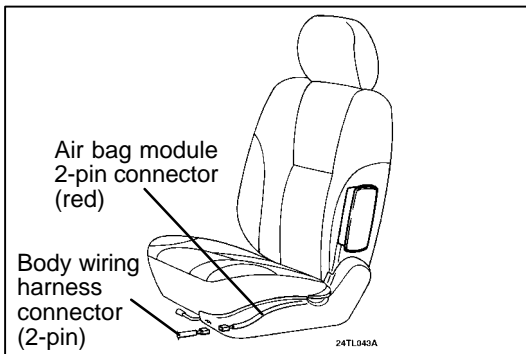
3. To deploy the air bag module (driver's side):
 - (1) Remove the steering column cover lower.
 - (2) Remove the connection between the clock spring 2-pin connector (red) and the body wiring harness connector.

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.



4. To deploy the air bag module (front passenger's side):
 - (1) Remove the glove box. (Refer [Removal & Installation.](#))
 - (2) Remove the connection between the air bag module (front passenger's side) connector (red 2-pin) and the body wiring harness connector.



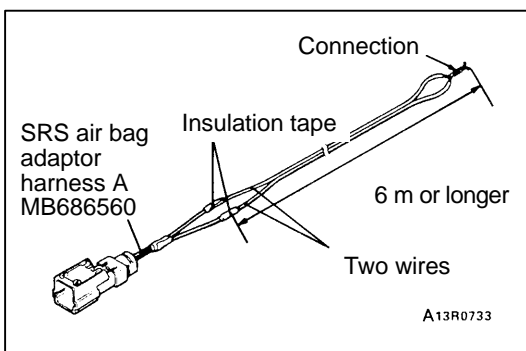
5. To deploy the air bag module (side air bag module):
 - (1) Disconnect the side air bag module connector (red 2-pin).
 - (2) Slide the seat base all the way forward and move the seat back to the upright position.

Caution

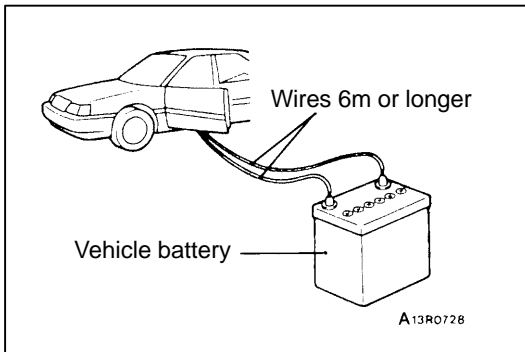
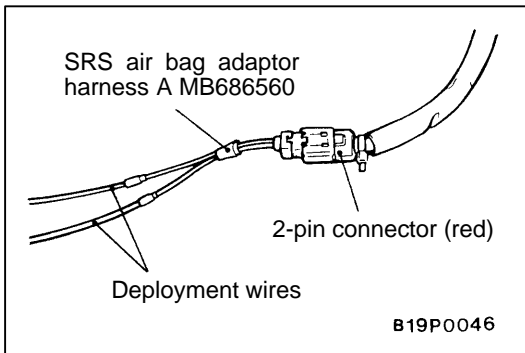
The side air bag modules both in the driver's and passenger's sides should be deployed.

NOTE

Once disconnected from the side air bag wiring harness, both electrodes of the side air bag module connector short automatically. This prevents the side air bag from accidental deployment caused by static electricity.



6. Connect two wires, each six metres or longer, to the two leads of SRS air bag adaptor 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.



7. Connect the clock spring or air bag modules 2-pin connector (red) to SRS air bag adaptor harness A and pass the deployment wires out of the vehicle.

8. 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

1. 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.
 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](#) for post-deployment handling instructions.
 3. If the air bag module fails to deploy when the procedures above are followed, do not go near the module. Contact your local Distributor
9. After deployment, dispose of the air bag module according to the [Deployed Air Bag Module Disposal Procedures](#).

DEPLOYMENT OUTSIDE THE VEHICLE

Caution

1. This should be carried out in a wide, flat area at least 6 metres away from obstacles and other people.
 2. 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.
1. Disconnect the negative (–) and positive (+) battery cables from the battery terminals, and then remove the battery from the vehicle.

Caution

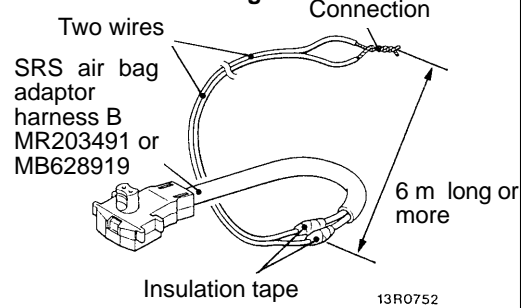
Wait at least 60 seconds after disconnecting the battery cables before doing any further work. (Refer [SRS - Service precautions](#).)

2. Remove the air bag module from the vehicle. (Refer [Removal and installation](#).)

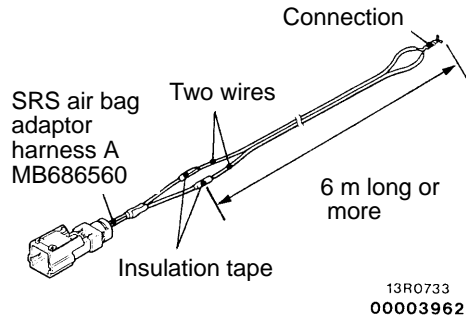
Caution

The air bag module should be stored on a flat surface and placed so that the pad cover face up. Do not place anything on top of it.

<Driver's side air bag>



<Front passenger's side or side air bag>



3. Connect two wires, each six metres or longer, to the two leads of SRS air bag adaptor harness B <driver's side> or SRS air bag adaptor harness A <front passenger's side or 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.

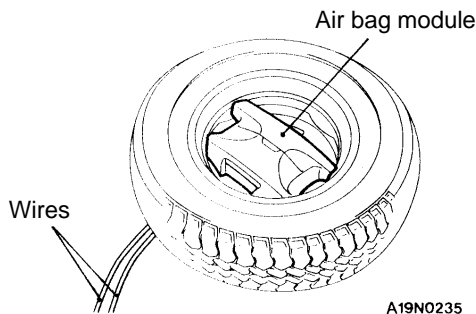
4. Set the air bag module as follows:

<Air bag module (driver's side)>

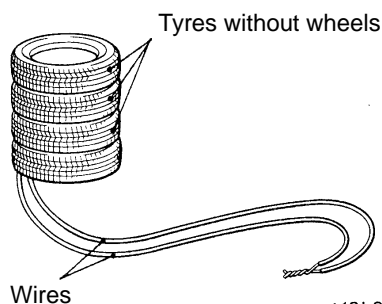
- (1) Take the SRS air bag adaptor harness B that is connected to the wires, pass it beneath an old tyre and wheel assembly, and connect it to the air bag module.
- (2) Pass thick wire through the air bag module mounting hole, and then secure the air bag module to an old tyre with a wheel in it so that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

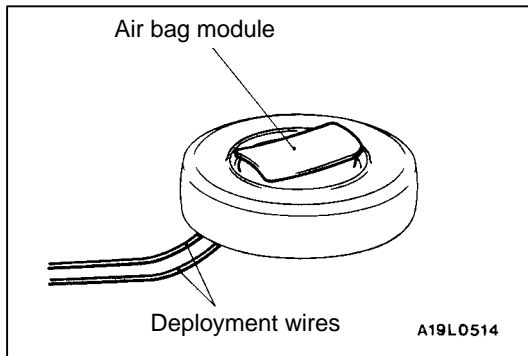
Caution

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.



- (3) Place three old tyres with no wheels on top of the tyre secured to the air bag module, and secure all tyres with ropes (4 locations).



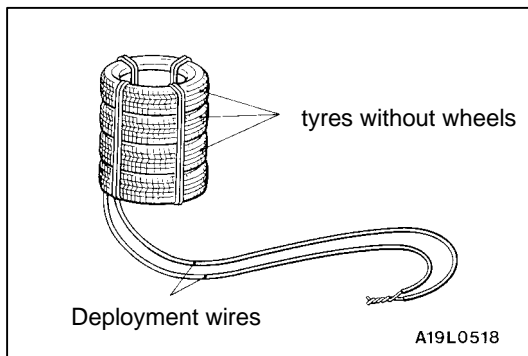


<Air bag module (front passenger's side and side)>

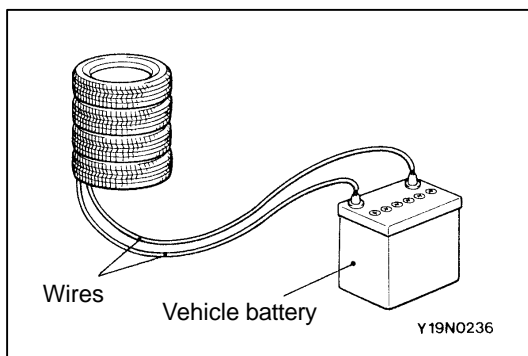
- (1) Connect the deployment wires to the SRS air bag adaptor harness A, pass it beneath the tyre and wheel assembly, and connect it to the air bag module.
- (2) Pass thick wires into the hole of the air bag module bracket, and secure it to the wheel of an old tyre and wheel (4 locations), with the air 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. **While deployment takes place, do not have the connector of the SRS air bag adaptor harness A inserted between the tyres.**



- (3) Place four old tyres without wheels on top of the tyre secured to the air bag module, and secure all tyres 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](#) for post-deployment handling instructions.**
3. **If the air bag fails to deploy when the procedures above are followed, do not go near the module. Contact your local Distributor.**
6. After deployment, dispose of the air bag module according to the [Deployed Air Bag Module Disposal Procedures](#).

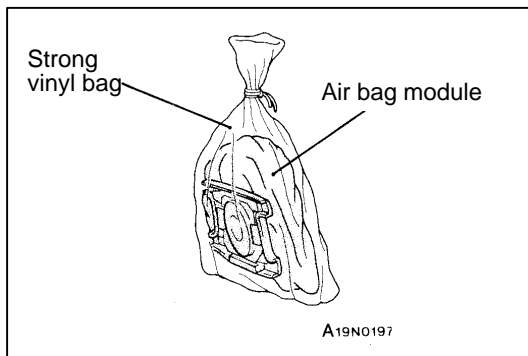
DEPLOYED AIR BAG MODULE DISPOSAL

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 that may be in force except that the following points should be carefully noted during 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, adhered to the deployed air bag module, material that could irritate the eye and/or skin, so 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.

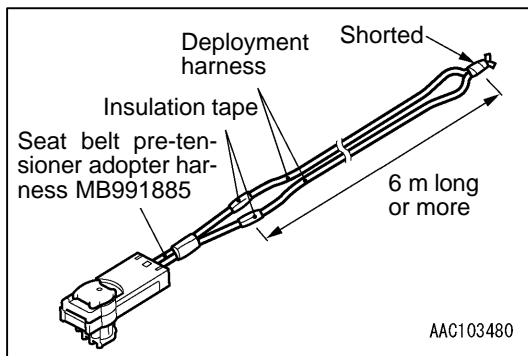
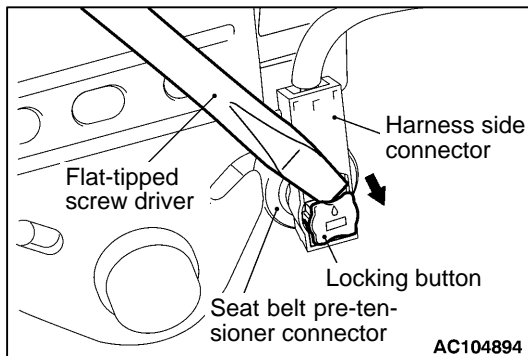


4. Tightly seal the air bag module in a strong vinyl bag for disposal.
5. Be sure to always wash your hands after completing this operation.

SEAT BELT WITH PRETENSIONER DISPOSAL PROCEDURE

Before disposing of a seat belt with pretensioner or a vehicle which is equipped with it, follow the procedures below to deploy the seat belt pretensioner (s).

Refer to [air bag module disposal procedures](#).



DEPLOYMENT INSIDE THE VEHICLE

Seat belt pre-tensioner

1. Remove the lower center pillar trim.
2. Use a flat-tipped screw driver to pull out the locking button on the harness side of the connector forward so that the connector can be unlocked for disconnection.

NOTE

Once disconnected from the floor wiring harness, both electrodes of the seat belt pre-tensioner connector short-circuit automatically. This prevents the seat belt pre-tensioner from accidental deployment caused by static, and etc.

3. Prepare two operation harnesses longer than 6 m to connect with the pretensioner adapter harnesses (MB991885) and insulate the connections with tape. Furthermore, connect one end of the operation harnesses with the other to short-circuit.

NOTE

Short-circuiting both ends of the operation harness prevents the pretensioner from accidental deployment caused by static, etc.

4. Connect the pretensioner adapter harness (MB991885) to the pretensioner 2-pin connector in order to pull the operation harness out of the vehicle.
5. Close all the doors with the windows fully closed and put a cover over the vehicle to minimize excessive noise from deployment.
6. Separate the deployment harnesses as far from the vehicle as possible and connect to the terminals of the battery removed from the vehicle. Then deploy.

Caution

1. Before operating the seat belt pre-tensioner, see that no one is in or near the vehicle.
2. The operation makes the insulator of the seat belt pre-tensioner very hot. Before handling the inflator, wait more than 30 minutes for cooling.
3. If the seat belt pre-tensioner fails to operate although the procedure is respected, do not go near the seat belt pre-tensioner. Contact your local distributor.
7. Discard the operated seat belt pre-tensioner according to Disposal Procedure.

DEPLOYMENT OUTSIDE THE VEHICLE

Operation must be carried out in the same manner as before except for the items described below:

Caution

1. Carry out seat belt pre-tensioner operation on large flat area at least 6 m away from any object or person.
2. Avoid a strong wind when carrying out deployment or operation outside the vehicle. Ignite the seat belt pretensioner at a place upwind from the seat belt pre-tensioner.

1. 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 before proceeding with any further work after the disconnection of the battery cables.

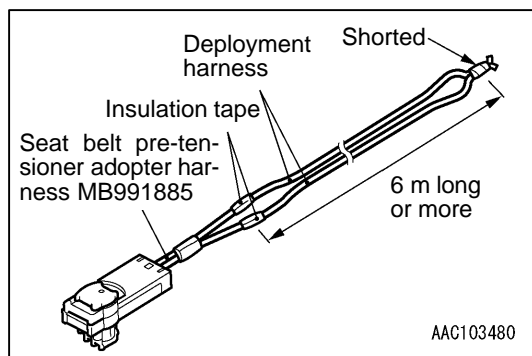
2. Carry out deployment of the seat belt pre-tensioner according to the following procedure.

Seat belt pre-tensioner

1. Remove the seat belt with pre-tensioner from the vehicle. (Refer to Front seat belts with pretensioner.)

Caution

Once disconnected, both electrodes of the seat belt pre-tensioner are short-circuited automatically to prevent accidental deployment caused by static etc.



2. Prepare two operation harnesses longer than 6 m to connect with the pretensioner adapter harnesses (MB991885) and insulate the connections with tape. Furthermore, connect one end of the operation harnesses with the other to short-circuit.

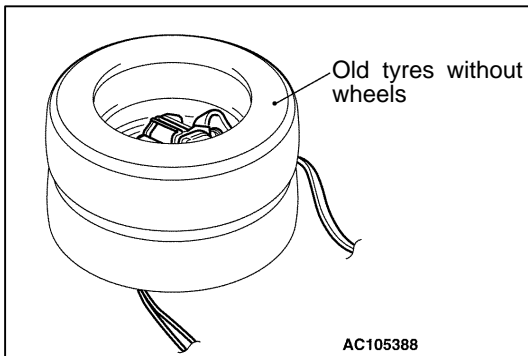
NOTE

Short-circuiting both ends of the operation harness prevents the pretensioner from accidental deployment caused by static, etc.

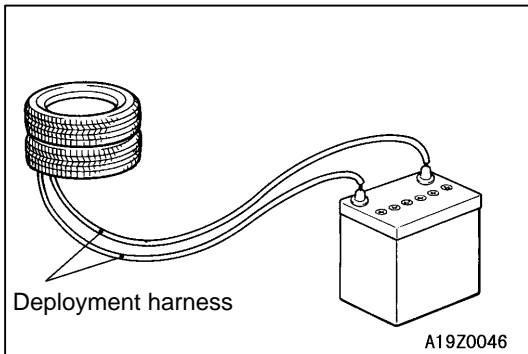
3. Route a thick wire through the holes in the seat belt retractor bracket to secure at the top of the wheel (convex part). (two locations)
4. Connect the seat belt pre-tensioner connector to the the SRS air bag adapter harness with the operation harness attached.
5. Pull out the seat belt outside the tyre.

Caution

Place the connector of the seat belt pretensioner adapter harness so that it is not clamped by the tyres at deployment.



6. Place an old tyre (without a wheel) on the tyre, to which the seat belt with pre-tensioner is secured .

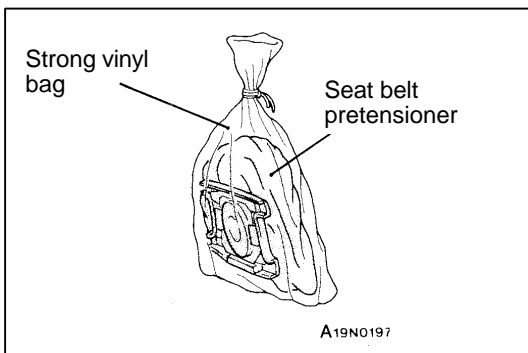


7. At a location as far away from the seat belt pretensioner as possible, and from a shielded position, disconnect the two connected wires from each other, and connect them to the terminals of the battery (which has been removed from the vehicle) to deploy the pretensioner.

DEPLOYED PRETENSIONER FITTED SEAT BELT 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 a deployed pretensioner fitted seat belt
3. There may be, adhered to the deployed pretensioner fitted seat belt, material that could irritate the eye and/or skin, so wear gloves and safety glasses when handling a deployed pretensioner fitted seat belt.

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 pretensioner fitted seat belt in a strong vinyl bag for disposal.
5. Be sure to always wash your hands after completing this operation.