F52RANNAA

SUPPLEMENTAL RESTRAINT SYSTEM (SRS)

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CAUTION

- Carefully read and observe the information in the SRS SERVICE PRECAUTIONS (P.52B-3.) Prior to any service.
- For information concerning troubleshooting or maintenance, always observe the procedures in the Troubleshooting (P.52B-6.) or the SRS Maintenance (P.52B-26.) sections respectively.
- If any SRS components are removed or replaced in connection with any service procedures, be sure to follow the procedures in the INDIVIDUAL COMPONENT SERVICE section (P.52B-33.) for the components involved.
- If you have any questions about the SRS, please contact your local distributor.

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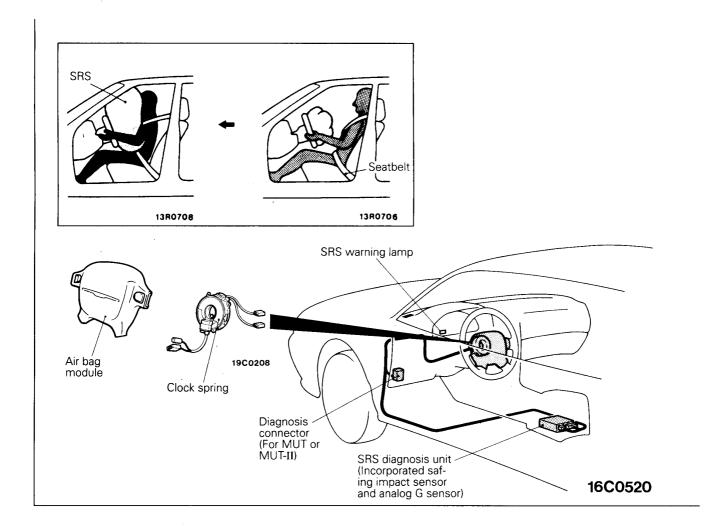
GENERAL INFORMATION

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

The SRS consists of: an air bag module located in the centre of the steering wheel, which contains the folded air bag and an inflator unit; the SRS diagnosis unit located under the floor console assembly, which monitors the system, and which contains a safing impact sensor and analog G sensor; an SRS warning lamp located on the instrument panel, which indicates the operation status of the SRS, and clock spring interconnection located within the steering column; wiring.

The SRS is designed so that the air bag will deploy when the safing sensor activates while the fire output is signaled by monitoring the analog G sensor. Only authorized service personnel should do work on or around the SRS components. Those service personnel should read this manual carefully before starting any such work. Extreme care must be used when servicing the SRS to avoid injury to the service personnel (by inadvertent deployment of the air bag) or the driver (by rendering the SRS inoperative).



SRS SERVICE PRECAUTIONS

- 1. In order to avoid injury to yourself or others from accidental deployment of the air bag during serv-Clock Spring Air Bag Module icing, read and carefully follow all the precautions and procedures described in this manual.
- 2. Do not use any electrical test equipment on or near SRS components, except those specified on P.52B-5.

Never use an analogue ohmmeter.

- 3. Never Attempt to Repair the Following Components:
- SRS Diagnosis Unit (SDU)

If any of these components are diagnosed as faulty, they should only be replaced, in accordance with the INDIVIDUAL COMPONENT SERVICE procedures in this manual, starting at page 52B-33.

4. Do not attempt to repair the wiring harness connectors of the SRS. If any of the connectors are diagnosed as faulty, replace the wiring harness. If the wires are diagnosed as faulty, replace or repair the wiring harness according to the following table.

SDU Ter- minal No.	Harness Connector (No. of Ter- minals, Colour)	Destination of Harness	Corrective Action	
1	2 pins, red	Main wiring harness → Clock spring	Correct or replace each wiring harness.	
2	z piris, red	Wain wining harness — Clock spring	Replace clock spring.	
7 and 8		-	-	
9		Main wiring harness → Diagnosis connector	Correct or replace each wiring harness	
10		_		
11		Main wiring harness — Junction block (fuse No. 11)		
12	14 pins, red	Main wiring harness → Junction block (fuse No. 18)	Correct or replace	
13	,	Instrument SRS warning	each wiring harness	
14		Main wiring harness panel wiring harness harness		
15 to 18		-	_	
19		Main wiring bornood	Correct or replace	
20		Main wiring harness → Earth	main wiring harness	

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- 5. 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 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.
- 6. SRS components should not be subjected to heat over 93°C (200°F), so remove the SRS diagnosis unit, air bag module and clock spring before drying or baking the vehicle after painting. Recheck SRS system operability after re-installing the components.
- 7. Whenever you finish servicing the SRS, check the SRS warning lamp operation to make sure that the system functions properly. (Refer to P.52B-7)
- 8. Make certain that the ignition switch is OFF when the MUT or MUT-II is connected or disconnected.
- 9. If you have any questions about the SRS, please contact your local distributor.

NOTE

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

SERVICE SPECIFICATIONS

E52BC00AA

Items	Specifications
Standard value	
Clock spring resistance Ω	less than 0.4

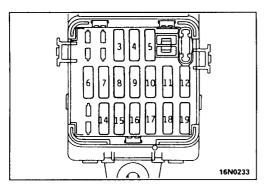
SPECIAL TOOLS AND TEST EQUIPMENT

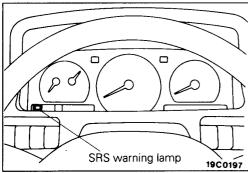
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Tool	Number	Name	Use
	MB991341	Multi-use tester sub assembly	Up to 1993 models Reading diagnosis codes Erasing diagnosis code Reading trouble period Reading erase times
	For the number, refer GROUP 00 – Precautic Before Service.		[Refer to MULTI-USE TESTER] [INSTRUCTION MANUAL]
	MB991502	Mut-II sub as- sembly	All models Reading diagnosis codes Erasing diagnosis code Reading trouble period Reading erase times [Refer to MUT-II OPERATING
16X0607		ROM pack	INSTRUCTION)
Resistor (3 Ω)	MB991349 or MB991530 3	SRS Check Har- ness	 Checking the SRS electrical circuitry with a digital multi-meter. NOTE SRS check harness is used on various Diagnostic Tests. For details, refer to DIAGNOSTIC SEQUENCE (P.52B-7 – P.52B-25)
ÂB	To SDU connector clock spring	or for	$egin{array}{c} abla \\ A \\ B \end{array}$ (connected 3 Ω resistor)
19X	0463		19X0464
Connector to ha		10 11 12 16 17 18 19 20 19N0303 ct to harness-side	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 (check connector)
clock spring con (2-pin, red)	nector main w	riring harness tor (14 pin, red)	15002.00

52B-6 SUPPLEMENTAL RESTRAINT SYSTEM (SRS) - Special Tools and Test Equipment/Troubleshooting

Tool	Number	Name	Use
	MB991341	Digital multi-meter	Checking the SRS electrical circuitry with SRS Check Harness
O	Use a multi-meter for which maximum test current is 2 less at the minimum range to the maximum range to the measurement to the	mA or	
	MB990803 ⊃	Steering wheel puller	Removal of steering wheel
	MB686560	SRS AIR BAG ADAPTER HAR- NESS A	Deployment of air bag module
0	13R0732		





TROUBLESHOOTING

E52EA--

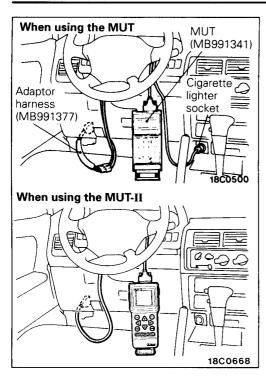
SRS DIAGNOSTIC PROCEDURES - INITIAL STEPS

FOLLOW THESE STEPS WHEN BEGINNING ANY SRS SERVICE.

- Check the SRS fuses (multi-purpose fuses No. 11 and No. 18.)
 If either is loose, tighten it; if damaged or blown, replace it.
- 2. After performing step 1. turn the ignition key "ON". Does "SRS" warning lamp illuminate for about 7 seconds and then turn OFF? If yes, SRS system is functioning properly. If no, continue with following steps.

NOTE

The SRS warning lamp will also illuminate if the battery voltage drops. In such cases, if the battery voltage returns to normal, the SRS warning lamp will switch off.



- 3. Turn the ignition key to the "LOCK" position.
- 4. Connect the MUT or MUT-II to the diagnosis connector located at the junction block.

Caution

Make certain that the ignition switch is OFF when the MUT or MUT-II is connected or disconnected.

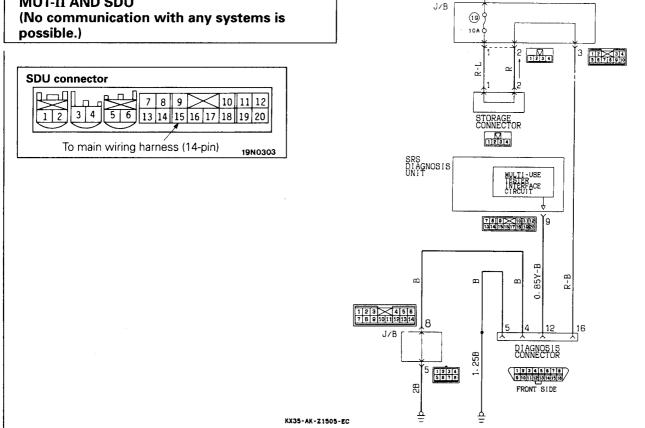
- 5. Carry out the Test 1 when MUT or MUT-II can't communicate with any systems.
- 6. Start the SRS diagnosis, by conducting TEST 2 (SRS warning lamp does not extinguish) or TEST 3 (SRS warning lamp does not illuminate.) which begins on next page.

SUB FUSIBLE LINK ①

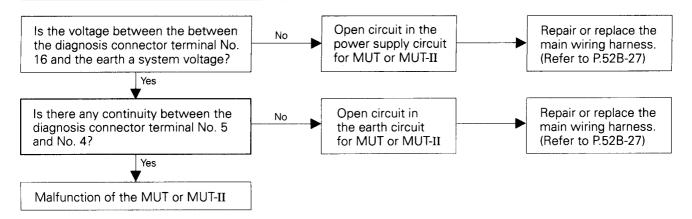
8 1

DIAGNOSTIC SEQUENCE

NO COMMUNICATION BETWEEN MUT OR MUT-II AND SDU (No communication with any systems is possible.)



52B-8 SUPPLEMENTAL RESTRAINT SYSTEM (SRS) - Troubleshooting



TEST 2 SRS WARNING LAMP DOES NOT EXTINGUISH

(1) Read (and write down) all of the displayed diagnosis codes and service data (fault duration and how many time memories are erased) using the MUT or MUT-II.

NOTE

- (1) If the MUT or MUT-II displays "CAN'T COMM.", check the MUT or MUT-II and vehicle side diagnosis connector for poor connections (Refer to the previous page.) and perform TEST 4.
- (2) Maximum stored period: 9999 minutes (approximately 7 days)
- (3) Maximum number of times to be stored: 250
- (2) Erase in diagnosis codes following the MUT or MUT-II messages.
- (3) Start engine.

Does "SRS" warning lamp illuminate for about 7 seconds, turn OFF?

If yes, SRS system is functioning properly now.

If no, check the diagnosis codes written down at step (1), refer to SELF-DIAGNOSIS QUICK REFERENCE CHART (P.52B-9) and perform service indicated there.

Carry out the TEST 5 when the SRS warning lamp does not go off with no trouble codes displayed.

TEST 3 SRS WARNING LAMP DOES NOT ILLUMINA

(1) Read (and write down) all of the displayed diagnosis codes and service data (fault duration and how many times memories are erased) using the MUT or MUT-II.

NOTE

- (1) If the MUT or MUT-II displays "CAN'T COMM.", check the MUT or MUT-II and vehicle side diagnosis connector for poor connections (Refer to P.52B-7) and perform TEST 6.
- (2) Maximum stored period: 9999 minutes (approximately 7 days)
- (3) Maximum number of times to be stored: 250
- (2) Check diagnosis codes against SELF-DIAGNOSIS QUICK REFERENCE CHART and perform service indicated there.

SELF-DIAGNOSIS QUICK REFERENCE CHART

After carrying out test 2 or 3, use the following table to repair.

Diagnosis code No.	Explanation	Service
_	Normal, The SRS is in good order.	-
14	Analog G sensor output signal is abnormal. Analog G sensor does not function or its characteristic is abnormal.	Replace the SDU (Refer to P.52B-34.)
15	The circuits for the safing impact sensor are shorted together or the circuit is earthed.	
16	The safing input sensor circuit is open or the wire from the air module to the SDU is open circuit.	
21	The circuit for the air bag module (squib) are shorted together or the circuit is earthed.	Perform TEST 7
22	The air bag module (squib) circuit is open or the wire from the air bag module to the SDU (clock spring) is open circuit, the harness connection is defective, or the (+) side of the harness between the air bag module and the SDU is shorted to the earth.	
31	The DC/DC converter (integrated in the SDU) terminal voltage is higher than the specified value for 5 seconds.	Replace the SDU (Refer to P.52B-34.)

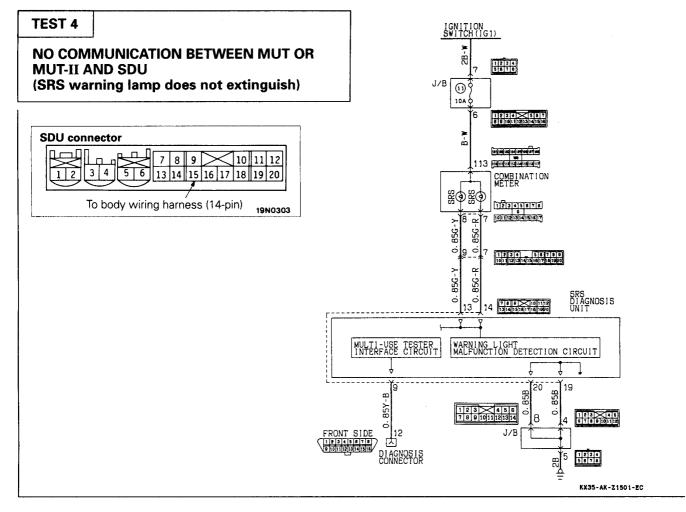
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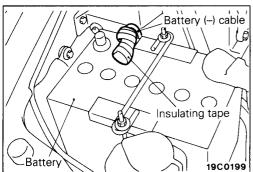
52B-10 SUPPLEMENTAL RESTRAINT SYSTEM (SRS) - Troubleshooting

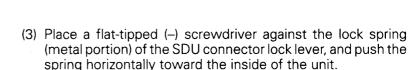
32	The DC/DC converter (integrated in the SDU) terminal voltage is lower than the specified value for 5 seconds. Or the battery runs short.	If the battery voltage is normal, replace SDU. (Refer to P.52B-34.) If the battery is run down, turn the ignition key to the "LOCK" position, disconnect the negative battery cable and wrap the terminal with tape for insulation. Then, charge the battery.	
34* ¹	The lock switch (short bar) of the SDU double lock connector is open.	Perform TEST 8	
35	Air bag ignition is complete	This code is normally output after the air bag has deployed. If this code is output before the air bag has deployed, the SDU is defective, so replace the SDU. (Refer to GROUP 52B – 34.)	
41	The multi-purpose fuse (No. 11) is blown or the wire from the fuse to the SDU is open-circuit or its resistance value is increased, or the battery runs short. It takes at least 5 seconds that the SDU detects this fault.	If the battery voltage is normal, perform TEST 9 If the battery is run down, turn the ignition key to the "LOCK" position, disconnect the negative battery cable and wrap the terminal with tape for insulation. Then, charge the battery.	
42	The multi-purpose fuse (No. 18) is blown or the wire from the fuse to the SDU is open-circuit or its resistance value is increased, or the battery runs short. It takes at least 5 seconds that the SDU detects this fault.	If the battery voltage is normal, perform TEST 10. If the battery is run down, turn the ignition key to the "LOCK" position, disconnect the negative battery cable and wrap the terminal with tape for insulation. Then, charge the battery.	
43*2	The SRS warning lamp circuits are open when SRS warning lamp extinguishes. It takes at least 5 seconds with the lamp OFF that the SDU detects this fault.	Perform TEST 11	
44	The SRS warning lamp drive transistor (integrated in the SDU) is troubled when SRS warning lamp illuminates.	Replace the SDU. (Refer to P.52B-34.)	
45	The EEP ROM or A/D converter (integrated in the SDU) is defective.		
46	The analog impact judgement circuit is not operating or a characteristics abnormality is detected.	Replace the SDU. (Refer to P.52B-34.)	
47 and 51	The air bag module (squib) drive circuit is shorted.		
48 and 52	The air bag module (squib) drive circuit is open.		

NOTE - IMPORTANT

- (1) After repairing the SRS, reconnect the battery cable, erase the diagnosis code memory from the MUT or MUT-II and check the SRS warning lamp operation to verify the system functions properly. (Refer to TEST 1.)
- (2) SDU = SRS Diagnosis Unit
- (3) *1: If the condition is normal for a continuous period of 1±0.2 seconds, the diagnosis code will be erased and the SRS warning lamp will switch off.
- (4) *2: If the condition is normal for a continuous period of 5±0.2 seconds, the diagnosis code will be erased and the SRS warning lamp will switch off.
- (5) If diagnosis codes 41 and 42 are output simultaneously, the cause is probably a drop in the battery voltage, so first check the battery.





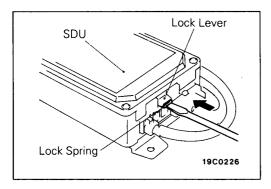


(2) Remove the rear console assembly. (Refer to P.52B-34.)

(1) Turn the ignition key to the "LOCK" position, disconnect the

Wait at least 60 seconds after disconnecting the battery cable before doing any further work. (Refer to P.52B-4

negative battery cable and tape the terminal.



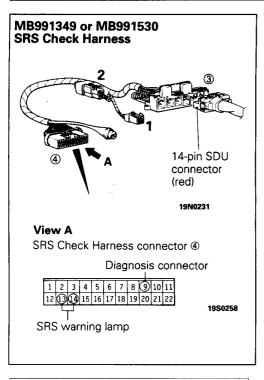
Caution

No. 5)

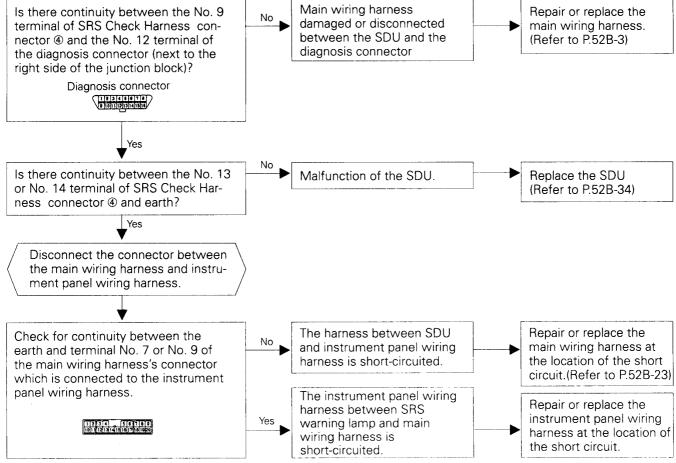
- 1. Do not use excessive force to raise the lock lever (green).
- 2. Do not insert the screwdriver into the gap between the lock lever (green) and the lock spring (metal portion).
- (3) Disconnect the red 14-pin connector from the SDU.

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52B-12 SUPPLEMENTAL RESTRAINT SYSTEM (SRS) – Troubleshooting



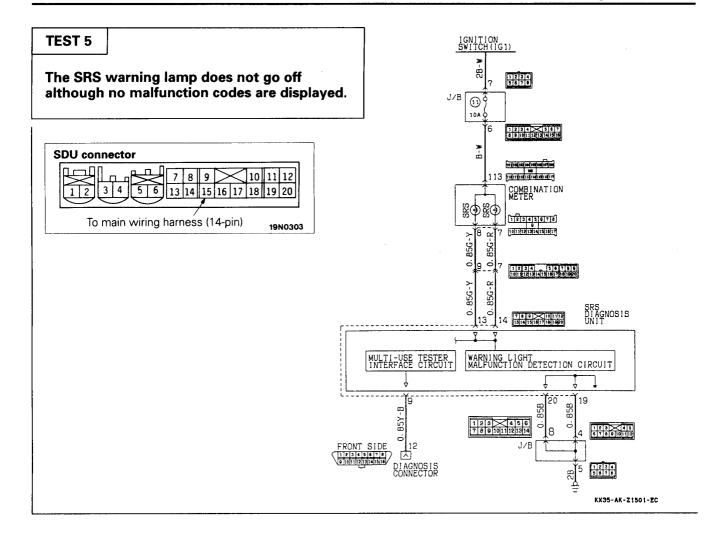
- (5). Connector the red harness-side SDU connector (14-pin) to the connector ③ or the SRS Check Harness.
- (6). Check according to the flow chart below, using the specified digital multi-meter.

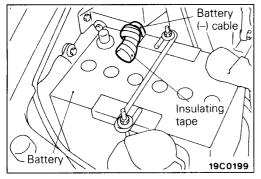


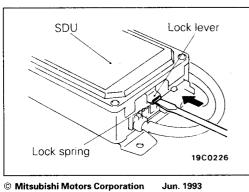
(2) SDU = SRS Diagnosis Unit

NOTE - IMPORTANT

(1) After repairing the SRS, reconnect the battery cable, erase the diagnosis code memory from the MUT or MUT-II and check the SRS warning lamp operation to verify the system functions properly. (Refer to TEST 2.)







(3) Insert the screwdriver, etc., into the lock spring (metal part) of the SDU connector lock lever as shown in the diagram.

(2) Remove the rear console assembly. (Refer to P.52B-34.)

(1) Turn the ignition key to the "LOCK" position, disconnect the

Wait at least 60 seconds after disconnecting the battery cable before doing any further work. (Refer to P.52B-4

negative battery cable and tape the terminal.

Press horizontally toward the back of the unit and release the lock lever.

No. 5)

Caution

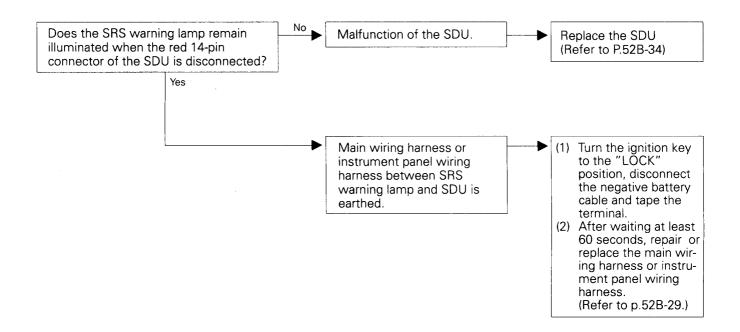
1. Do not push up the lock lever with force.

- 2. Do not insert the screwdriver in between the lock lever and lock spring.
- (4) Disconnect the red 14-pin connector from the SDU.

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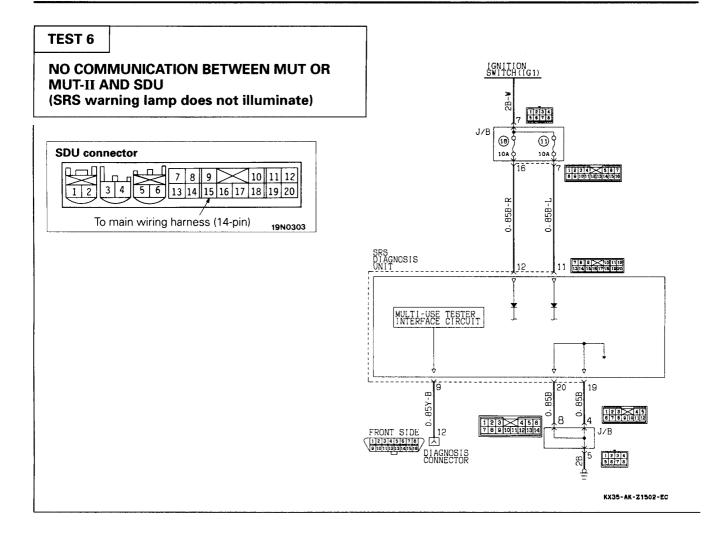
52B-14 SUPPLEMENTAL RESTRAINT SYSTEM (SRS) - Troubleshooting

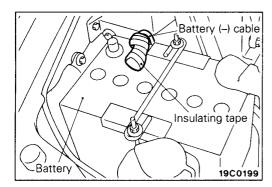
- (5) Reconnect negative terminal of battery, and turn the ignition key to the "ON" position.
- (6). Check according to the flow chart below.

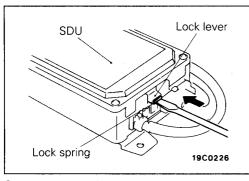


NOTE - IMPORTANT

- (1) After repairing the SRS, reconnect the battery cable and check the SRS warning lamp operation to verify the system function properly. (Refer to TEST 2.)
- (2) SDU = SRS Diagnosis Unit







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(1) 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 to P.52B-4 No. 5)

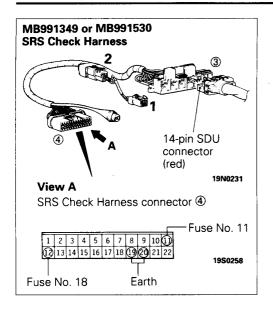
- (2) Remove the rear console assembly. (Refer to P.52B-34.)
- (3) Place a flat-tipped (–) screwdriver against the lock spring (metal portion) of the SDU connector lock lever, and push the spring horizontally toward the inside of the unit.

Caution

- 1. Do not use excessive force to raise the lock lever (green).
- 2. Do not insert the screwdriver into the gap between the lock lever (green) and the lock spring (metal portion).
- (4) Disconnect the red 14-pin connector from the SDU.

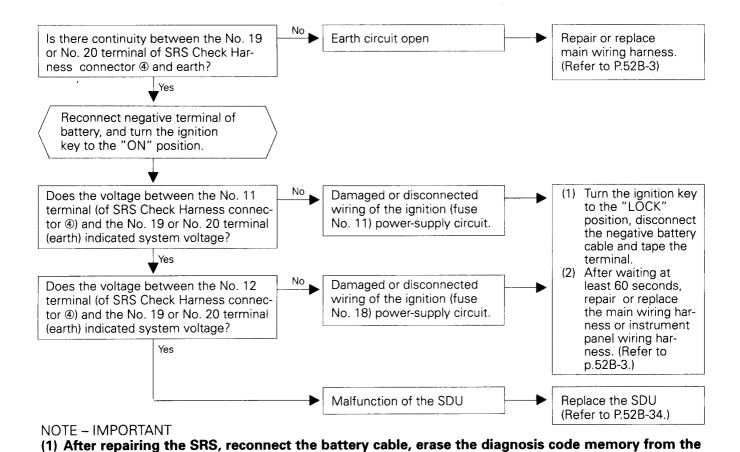
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52B-16 SUPPLEMENTAL RESTRAINT SYSTEM (SRS) - Troubleshooting

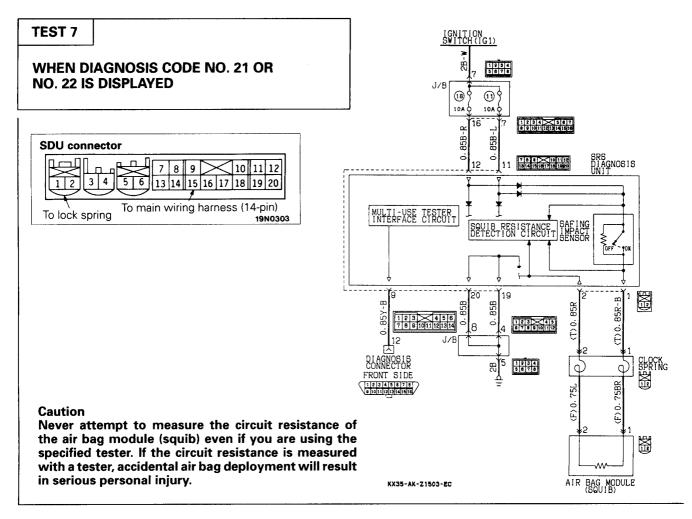


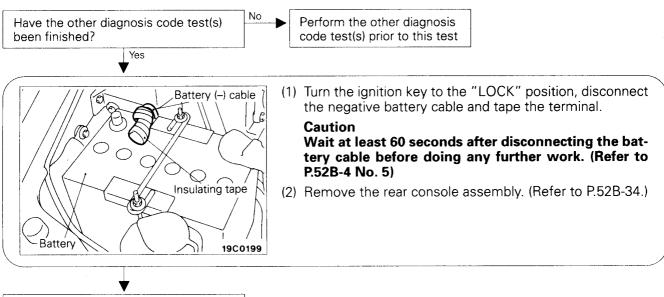
(Refer to TEST 2.)
(2) SDU = SRS Diagnosis Unit

- (5) Connector the red harness-side SDU connector (14-pin) to the connector ③ or the SRS Check Harness.
- (6) Check according to the flow chart below, using the specified digital multi-meter.



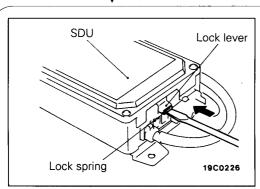
MUT or MUT-II and check the SRS warning lamp operation to verify the system functions properly.

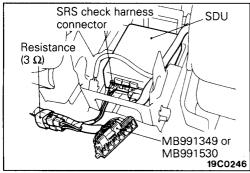




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(3) Place a flat-tipped (–) screwdriver against the lock spring (metal portion) of the SDU connector lock lever, and push the spring horizontally toward the inside of the unit

Caution

- 1. Do not use excessive force to raise the lock lever (green).
- 2. Do not insert the screwdriver into the gap between the lock lever (green) and the lock spring (metal portion).
- (4) Disconnect the red 2-pin connector from the SDU.
- (5) Connect the red connector ① of the SRS Check Harness to the SDU instead of the now-disconnected harness-side connector of the SDU, which were connected to the air bag module (squib) through the clock spring.

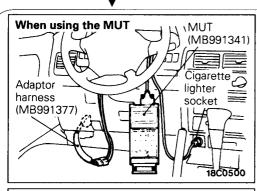
NOTE

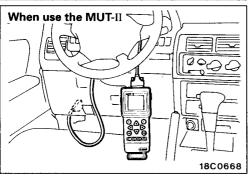
A 3-ohm resistor that corresponds to the resistance of the air bag module (squib) and the wiring resistance is connected between the terminals of the connector ① of the SRS Check Harness.

(6) Make the double locking.

NOTE

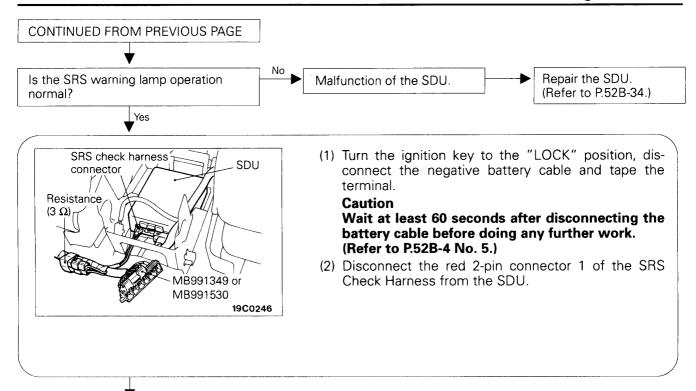
If double locking cannot be made, the connector is incorrectly or incompletely inserted; re-check to insert the connector correctly and securely.

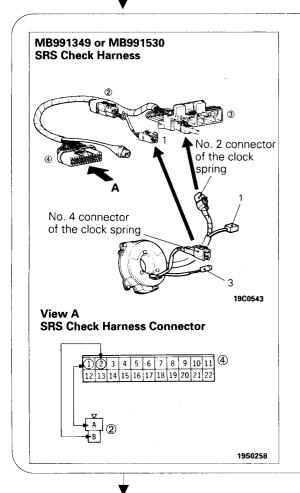




- (1) Reconnect negative terminal of battery and turn the ignition key to the "ON" position.
- (2) Using the MUT or MUT-II erase the diagnosis code memory. (Refer to TEST 2.)
- (3) Return the ignition key from the "ON" to the "LOCK" position and then back to the "ON" position.

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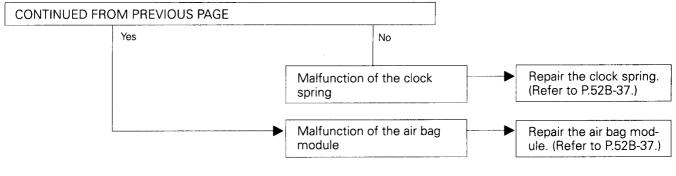




- (1) Remove the air bag module. (Refer to P.52B-37.)
- (2) Join the No. 2 and No. 4 connectors of the clock spring to SRS Check Harness connector ③ and SRS Check Harness connector ① respectively.
- (3) Disconnect the SRS Check Harness connector @ (connector for resistor).
- (4) Is the resistance between terminal 1 of SRS Check Harness connector @ and terminal 1 of SRS Check Harness connector @ normal?
- (5) Is the resistance between terminal 2 of SRS Check Harness connector @ and terminal 2 of SRS Check Harness connector @ normal?

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52B-20 SUPPLEMENTAL RESTRAINT SYSTEM (SRS) - Troubleshooting

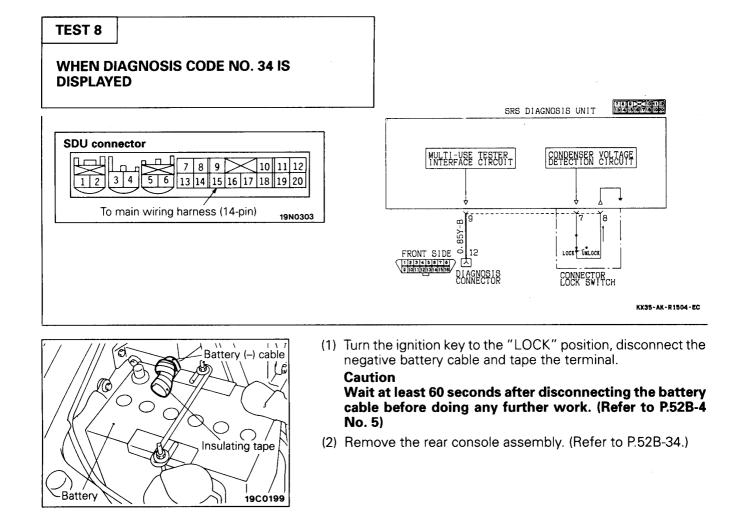


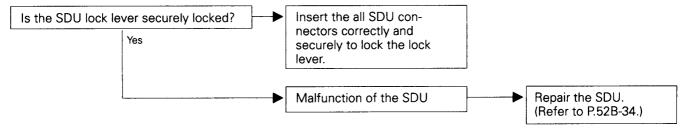
Caution

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

NOTE - IMPORTANT

- (1) After repairing the SRS, reconnect the battery cable, erase the diagnosis code memory from the MUT or MUT-II and check the SRS warning lamp operation to verify the system functions properly. (Refer to TEST 1.)
- (2) SDU = SRS Diagnosis Unit





NOTE - IMPORTANT

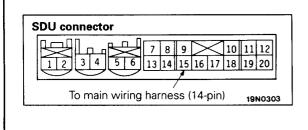
- (1) After repairing the SRS, reconnect the battery cable and check the SRS warning lamp operation to verify the system functions properly. (Refer to TEST 2)
- (2) SDU = SRS Diagnosis Unit

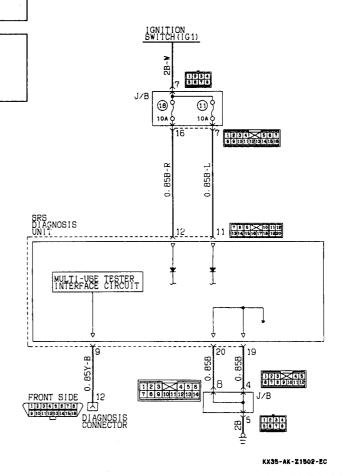
TEST 9

WHEN DIAGNOSIS CODE NO. 41 IS DISPLAYED

TEST 10

WHEN DIAGNOSIS CODE NO. 42 IS DISPLAYED





Battery (-) cable

Insulating tape

Battery

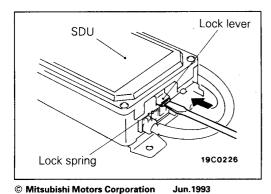
19C0199

(1) 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 to P.52B-4 No. 5)

(2) Remove the rear console assembly. (Refer to P.52B-32.)

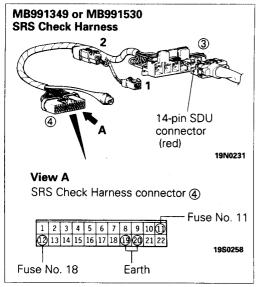


(3) Place a flat-tipped (–) screwdriver against the lock spring (metal portion) of the SDU connector lock lever, and push the spring horizontally toward the inside of the unit.

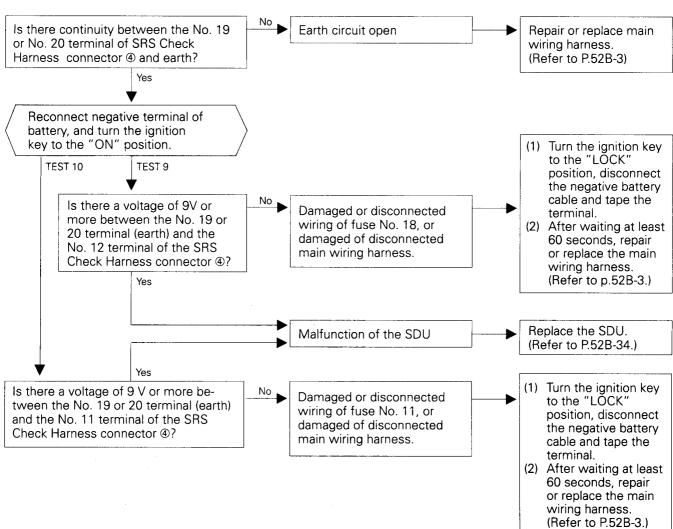
Caution

- 1. Do not use excessive force to raise the lock lever (green).
- 2. Do not insert the screwdriver into the gap between the lock lever (green) and the lock spring (metal portion).
- (4) Disconnect the red 14-pin connector from the SDU.

PWDE9104-D ADDED

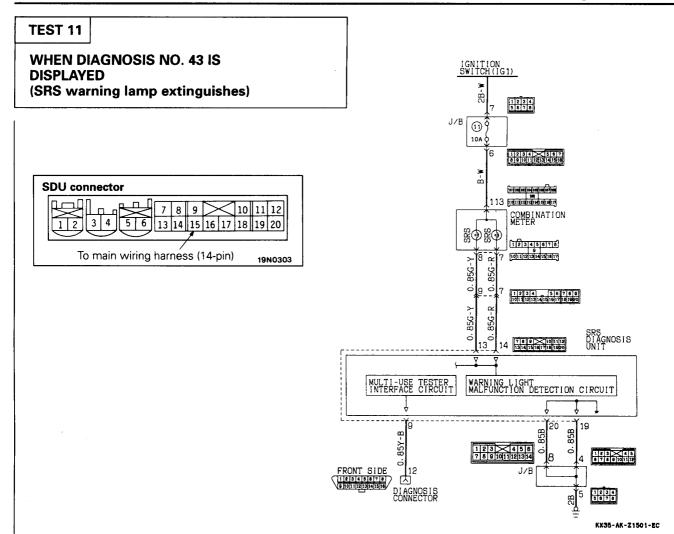


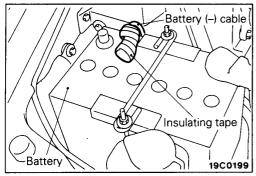
- (5) Connect the now disconnected red harness-side SDU connector (14-pin) to the connector ③ of the SRS Check Harness.
- (6) Check according to the flow chart below, using the specified digital multi-meter.

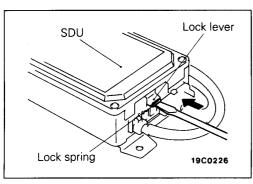


NOTE - IMPORTANT

- (1) After repairing the SRS, reconnect the battery cable and check the SRS warning lamp operation to verify the system functions properly. (Refer to TEST 2.)
- (2) SDU = SRS Diagnosis Unit







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

Caution

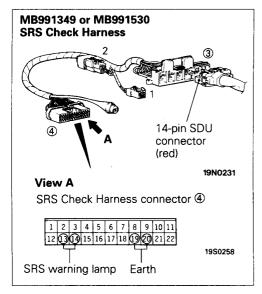
Wait at least 60 seconds after disconnecting the battery cable before doing any further work. (Refer to P.52B-4 No. 5)

- (2) Remove the rear console assembly. (Refer to P.52B-34.)
- (3) Place a flat-tipped (–) screwdriver against the lock spring (metal portion) of the SDU connector lock lever, and push the spring horizontally toward the inside of the unit.

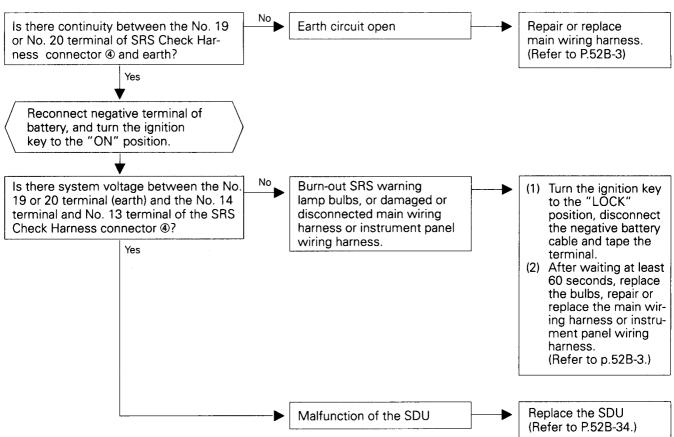
Caution

- 1. Do not use excessive force to raise the lock lever (green).
- 2. Do not insert the screwdriver into the gap between the lock lever (green) and the lock spring (metal portion).
- (4) Disconnect the red 14-pin connector from the SDU.

PWDE9104-D ADDED



- (5) Connector the now disconnected red harness-side SDU connector (14-pin) to the connector ③ or the SRS Check Harness.
- (6) Check according to the flow chart below, using the specified digital multi-meter.



NOTE - IMPORTANT

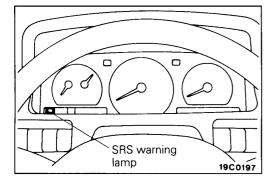
(1) After repairing the SRS, reconnect the battery cable check the SRS warning lamp operation to verify the system functions properly. (Refer to TEST 2.)

(2) SDU = SRS Diagnosis Unit

SRS MAINTENANCE

E52BF00AA

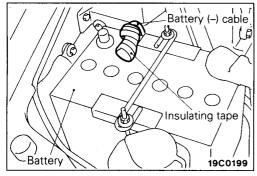
The SRS must be inspected by an authorized dealer 10 years after the date of vehicle registration.



"SRS" WARNING LAMP CHECK

E52BF01AA

Turn the ignition with the key "ON" position. Does the "SRS" warning lamp illuminate for about 7 seconds? If yes, SRS system is functioning properly. If no, consult page 52B-9.



SRS CONPONENTS VISUAL CHECK

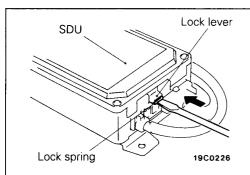
E52BF03AA

1. Turn the ignition key to "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 to P.52B-4.)

2. Remove the rear console assembly. (Refer to P.52B-34.)



3. Place a flat-tipped (–) screwdriver against the lock spring (metal portion) of the SDU connector lock lever, and push the spring horizontally toward the inside of the unit.

Caution

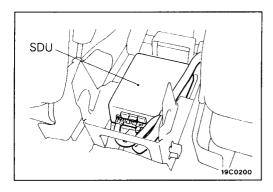
- 1. Do not use excessive force to raise the lock lever (green).
- 2. Do not insert the screwdriver into the gap between the lock lever (green) and the lock spring (metal portion).
- 4. Disconnect the red 14-pin connector from the SRS diagnosis unit while pressing down the lock of the connector.

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PWDE9104-D

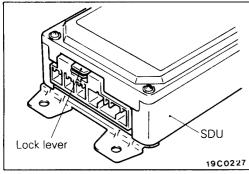
ADDED



SRS DIAGNOSIS UNIT (SDU)

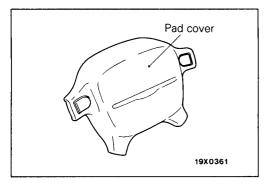
E52BF03CA

1. Check SDU case and brackets for dents, cracks, deformities of rust.



2. Check connectors and lock lever for damage, and terminals for deformities or rust.

Replace SDU if it fails visual check. (Refer to P.52B-34.)



AIR BAG MODULE, STEERING WHEEL AND CLOCK SPRING

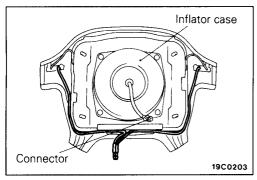
E52BF03DA

1. Remove the air bag module, steering wheel and clock spring. (Refer to P.52B-37.)

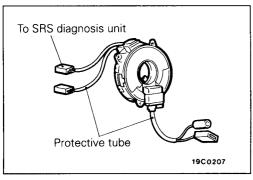
Caution

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 of deformities.



- 3. Check connector for damage, terminals deformities, and harness for binds.
- 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 deformities.

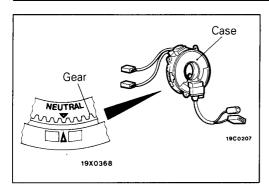
© Mitsubishi Motors Corporation

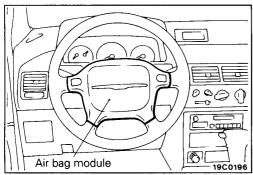
Jun. 1993

PWDE9104-D

ADDED

52B-28 SUPPLEMENTAL RESTRAINT SYSTEM (SRS) – SRS Maintenance





- 7. Visually check the clock spring case and the gears for damage.
- 8. Align the mating mark and "NEUTRAL" position indicator and, after turning the vehicle's front wheel to straightahead position, install the clock spring to the column switch.

Caution

If the clock spring's mating mark is 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.

- 9. Install the steering column covers, steering wheel and the air bag module.
- 10. Check steering wheel for noise, binds of difficult operation.
- 11. Check steering wheel for excessive free play.

REPLACE ANY VISUALLY INSPECTED PART IF IT FAILS THAT INSPECTION.

(Refer to P.52B-37.)

Caution

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

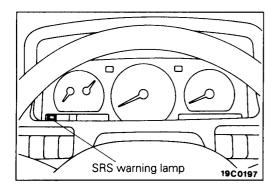
Instrument panel wiring harness Main wiring harness Main wiring harness

- 1. Check connector for poor connection.
- 2. Check harnesses for binds, connectors for damage, and terminals for deformities.

REPLACE ANY CONNECTORS OR HARNESS THAT FAIL THE VISUAL INSPECTION. (Refer to P.52B-3.)

Caution

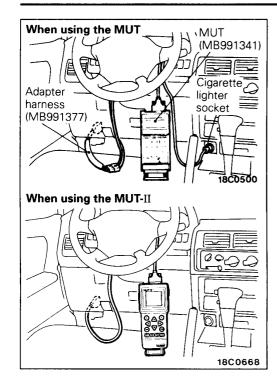
The SRS may not activate if SRS harness or connectors are damaged or improperly connected, which could result in serious injury or death to the vehicle's driver.



POST-INSTALLATION INSPECTION

E52BF04AA

Reconnect the negative battery terminal. Turn the ignition key to the "ON" position. Does the "SRS" warning lamp illuminate for about 7 seconds? If yes. SRS system is functioning properly. If no, consult page 52B-9.



POST-COLLISION DIAGNOSIS

E13BF20AA

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

SRS DIAGNOSIS UNIT MEMORY CHECK F13BF21AA

1. Connect the MUT or MUT-II to the diagnosis connector (16-pin) located at the right or left side of the junction block.

Caution

Make certain that the ignition switch is OFF when the MUT or MUT-II is connected or disconnected.

2. Read (and write down) all displayed diagnosis codes. (Refer to P.52B-9.)

NOTE

If the battery power supply has been disconnected or disrupted by the collision, the MUT or MUT-II cannot communicate with the SRS diagnosis unit. Inspect and, if necessary, repair the main wiring harness before proceeding further.

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

NOTE

- Maximum stored period: 9999 minutes (approximately 7 days)
- Maximum number of times to be stored: 250
- 4. Erase the diagnosis codes and after waiting 45 seconds or more read (and write down) all displayed diagnosis codes. (Refer to P.52B-9.)

REPAIR PROCEDURE

E13BF22AA

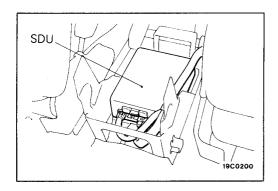
When air bag deploys collision.

- 1. Replace the following parts with new ones.
 - SRS diagnosis unit (SDU) (Refer to P.52B-34.)
 - Air bag module (Refer to P.52B-37.)
 - Clock spring (Refer to P.52B-37.)
 - Steering wheel, steering column and intermediate joint (Refer to GROUP 37A – Steering Wheel and Shaft.)
- 2. Check harnesses for binding, connectors for damage, poor connections, and terminals for deformities. (Refer to P.52B-3.)

When air bag does not deploy in low-speed collision.

Check the SRS components.

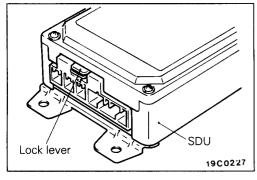
If the SRS components are showing any visible damage such as dents, cracks, or deformation, replace them with new ones. Concerning parts removed for inspection, replacement with new parts and cautionary points for working, refer to appropriate INDIVIDUAL COMPONENT SERVICE, P.52B-33.



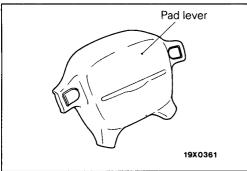
SRS DIAGNOSIS UNIT (SDU)

E52BF24AA

 Check SDU case and brackets for dents, cracks or deformities.



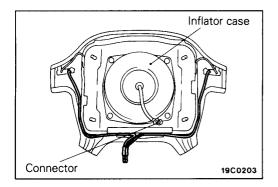
2. Check connectors and lock lever for damage, and terminals for deformities.



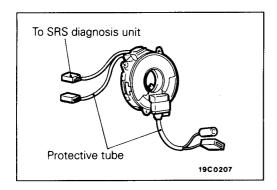
AIR BAG MODULE

E52BF25AA

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



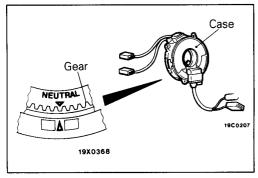
- 2. Check connector for damage, terminals deformities, and harness for binds.
- 3. Check air bag inflator case for dents, cracks or deformities.
- 4. Install air bag module to steering wheel to check fit or alignment with the wheel.



CLOCK SPRING

E52BF26AA

1. Check clock spring connectors and protective tube for damage, and terminals for deformities.



2. Visually check the case and the gear for damage.

STEERING WHEEL, STEERING COLUMN AND **INTERMEDIATE JOINT**

E52BD27AA

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

HARNESS CONNECTOR (INSTRUMENT PANEL **AND MAIN WIRING HARNESS)**

Check harnesses for binding, connectors for damage, poor connections, and terminals for deformities. (Refer to P. 52B-3.)

INDIVIDUAL COMPONENT SERVICE

E52BF40AA

If the SRS components are to be removed or replaced as a result of maintenance, troubleshooting, etc., follow each procedure (P.52B-34 – P.52B-42.)

Caution

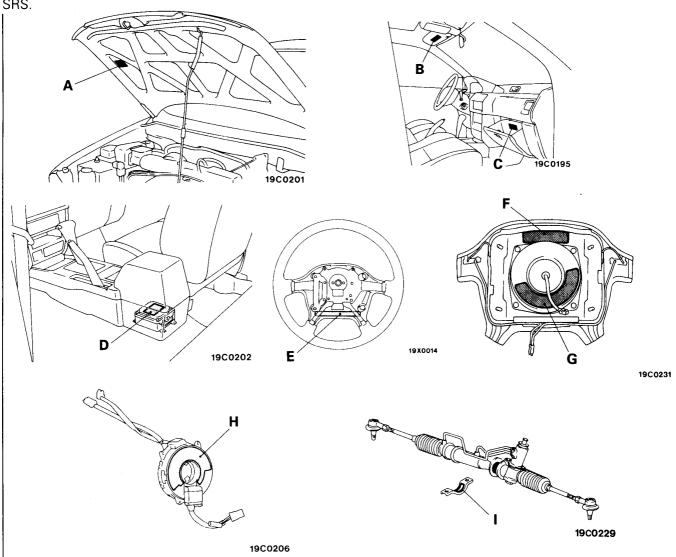
- 1. SRS components should not be subjected to heat over 93°C (200°F), so remove the SRS diagnosis unit and air bag module and clock spring before drying or baking the vehicle after painting. Recheck SRS system operability after re-installing them.
- 2. If the SRS components are removed for the purpose of check, sheet metal repair, painting, etc., they should be stored in a clean, dry place until they are reinstalled.

WARNING/CAUTION LABELS

E52BD41AA

A number of caution labels relating 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 with new ones.



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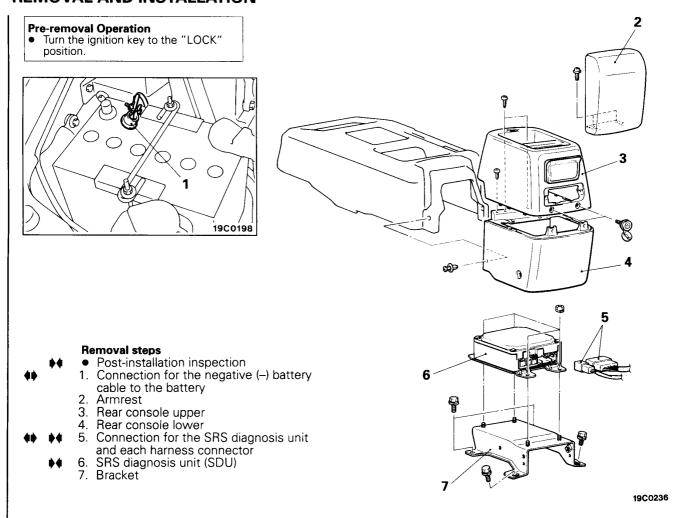
SRS DIAGNOSIS UNIT (SDU)

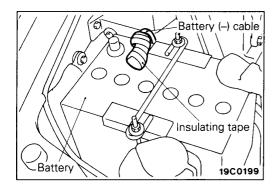
E52BH00AA

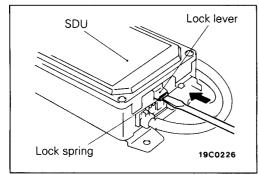
Caution

- 1. Never attempt to disassemble or repair the SDU. If faulty, replace it.
- 2. Do not drop or subject the SDU to impact or vibration.
 - If denting, cracking, deformation, or rust are discovered in the SDU, replace it with a new SDU. Discard the old one.
- 3. After deployment of an air bag, replace the SDU with a new one.
- 4. Never use an ohmmeter on or near the SDU, and use only the special test equipment described on P.52B-5.

REMOVAL AND INSTALLATION







SERVICE POINTS OF REMOVAL

E52BH01AA

1. DISCONNECTION OF NEGATIVE (-) BATTERY CABLE FROM THE BATTERY

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 to P.52B-4.)

5. DISCONNECTION OF SDU AND EACH HARNESS CONNECTOR

(1) Place a flat-tipped (–) screwdriver against the lock spring (metal portion) of the SDU connector lock lever, and push the spring horizontally toward the insid of the unit.

Caution

- 1. Do not use excessive force to raise the lock lever (green).
- 2. Do not insert the screwdriver into the gap between the lock lever (green) and the lock spring (metal portion.)
- (2) While pushing the locks of each connector downwards, remove each connector from the SDU.

Caution

Because a double lock mechanism is employed for the SDU connectors, be careful not to exert undue force to remove the connectors, as this will damage them.

INSPECTION E52BH02AA

- Check the SDU case and brackets for dents, cracks or deformities.
- Check connectors and lock lever for damage, and terminals for deformities.

Caution

If a dent, cracks, deformation or rust discovered, replace the SDU with a new one.

NOTE

For checking of the SDU other than described above, refer to the section concerning troubleshooting. (Refer to P.52B-6.)

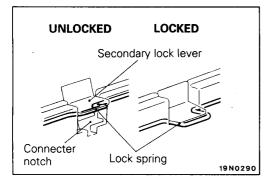
SERVICE POINTS OF INSTALLATION

E52BH04AA

6. INSTALLATION OF SRS DIAGNOSIS UNIT (SDU)

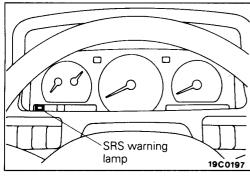
Caution

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



5. CONNECTION OF SDU AND EACH HARNESS CONNECTION

After connecting each harness connector securely and correctly to the SDU, be sure to press down the lock lever of the SDU.



POST-INSTALLATION INSPECTION

Reconnect the negative battery terminal. Turn the ignition key to the "ON" position. Does the "SRS" warning lamp illuminated for about 7 seconds? If yes, SRS system is functioning properly. If no, consult page 52B-9.)

AIR BAG MODULE AND CLOCK SPRING

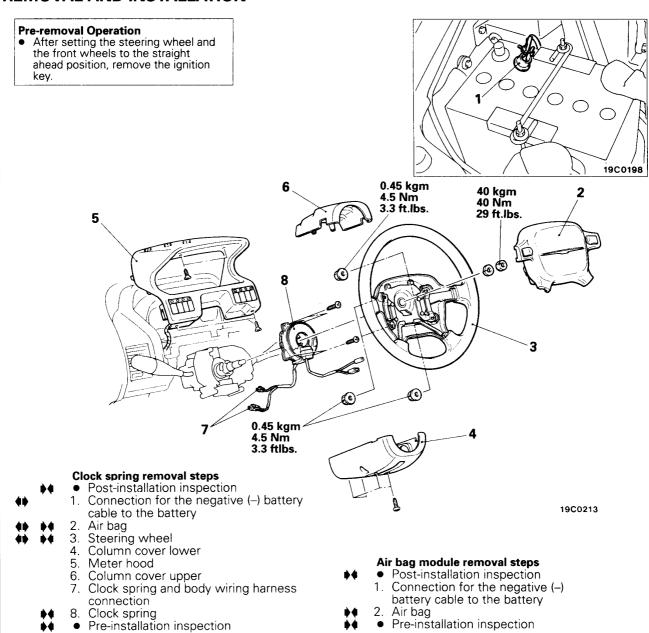
E52BI00AA

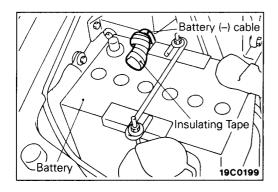
Caution

- 1. Never attempt to disassemble or repair the air bag module or clock spring. If faulty, replace it.
- 2. Do not drop the air bag module or clock spring or allow contact with water, grease or
 - Replace it if a dent, crack, deformation or rust are detected.
- 3. The air bag module should be stored on a flat surface and placed so that the pad surface is facing upward.

- Do not place anything on top of it.
- 4. Do not expose the air bag module to temperature over 93°C (200°F).
- 5. After deployment of an air bag, replace the clock spring with a new one.
- 6. Wear gloves and safety glasses when handling an air bag that has already deployed.
- 7. An undeployed air bag module should only be disposed of in accordance with the procedures [P.52B-43 - P.52B-46].

REMOVAL AND INSTALLATION





SERVICE POINTS OF REMOVAL

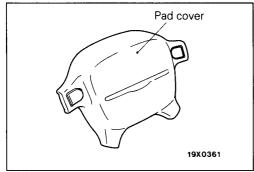
E52BI01AA

1. DISCONNECTION OF NEGATIVE (-) CABLE FROM THE BATTERY

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 to P.52B-4.)

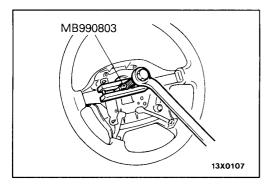


2. REMOVAL OF AIR BAG MODULE

Remove the air bag module mounting nut using a socket wrench from the back side.

Caution

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



3. REMOVAL OF STEERING WHEEL

Caution

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

INSPECTION AIR BAG MODULE

E52BI02AA

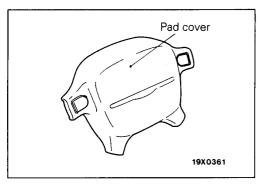
If any improper part is found during the following inspection, replace the air bag module with a new one.

Dispose of the old one according to the specified procedure. (Refer to P.52B-43.)

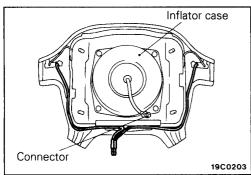
Caution

Never attempt to measure the circuit resistance of the air bag module (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.

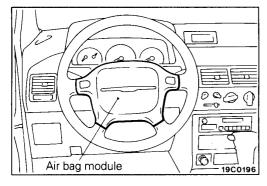
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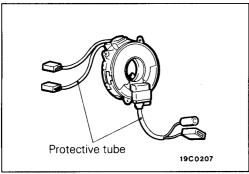
(1) Check pad cover for dents, cracks or deformities.



- (2) Check the air module for denting, cracking or deformation.
- (3) Check connectors for damage, terminals for deformities, and harness for binds.
- (4) Check air bag inflator case for dents, cracks or deformities.



(5) Install the air bag module to steering wheel to check fit or alignment with the wheel.

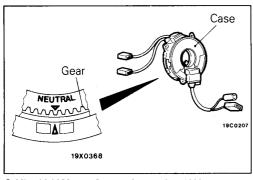


CLOCK SPRING

E52B10BA

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

Check connectors and protective tube for damage, and terminals for deformities.

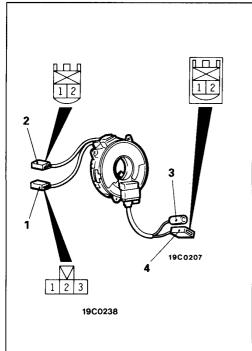


(2) Visually check the case and the gears for damage.

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PWDE9104-D

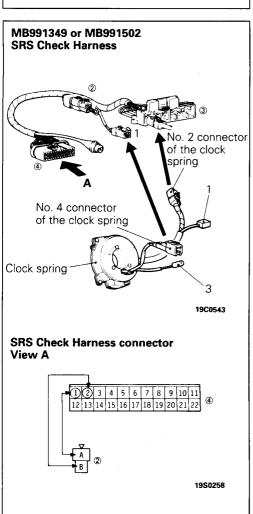
ADDED



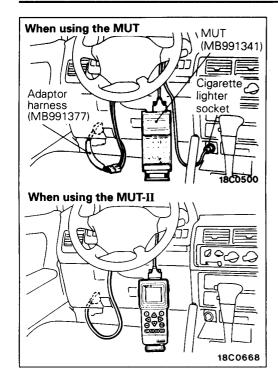
(3) Check for continuity between the connectors.

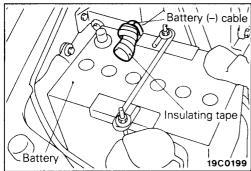
No.1 connector	No.2 connector		No.3	No.4 connector	
Terminal 3	Terminal 1	Terminal 2		Terminal 1	Terminal 2
0			\bigcirc		
	O			$\overline{}$,
		<u> </u>			<u> </u>
To horn relay	To SRS diagnosis unit		To horn switch	To air bag module	

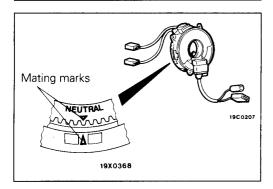
O—O indicates that there is continuity between the terminal



- (4) Check of resistance between the terminals.
 - a. Joint the No. 2 connector and No. 4 connector of the clock spring to connector ③ and connector ①, respectively, of the SRS Check Harness.
 - b. Disconnect the SRS Check Harness connector @ (connector for resistor).
 - c. Is the resistance between terminal 1 of SRS Check Harness connector @ and terminal 1 of SRS Check Harness connector @ normal?
 - d. Is the resistance between terminal 2 of SRS Check Harness connector @ and terminal 2 of SRS Check Harness connector @ normal?







SERVICE POINTS OF INSTALLATION PRE-INSTALLATION INSPECTION

E52BI04AA

 When installing new air bag module and clock spring, refer to "INSPECTION".

Caution

Dispose of an bag module only according to the specified procedure. (Refer to P.52B-43.)

- (2) Connected the battery (-) terminal.
- (3) Connect the MUT or MUT-II to the diagnosis connector located at the right side of the junction block.

Caution

Make certain that the ignition switch is OFF when the MUT or MUT-II is connected or disconnected.

- (4) Reconnected negative terminal of battery, and turn the ignition key to the "ON" position.
- (5) Conduct self-diagnosis using the MUT or MUT-II to ensure entire SRS operates properly, except open circuit of air bag module (Diagnosis code No. 22). (Refer to P.52B-9.)
- (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. (Refer to P.52B-4.)

8. INSTALLATION OF CLOCK SPRING

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

Caution

If the clock spring's mating mark is 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.

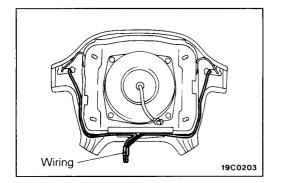
3. INSTALLATION OF STEERING WHEEL

(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 mark and "NEUTRAL" position indicator of the clock spring.

Caution

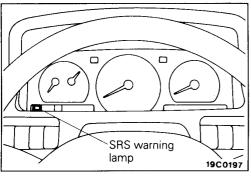
Be sure when installing the steering wheel, that the harness of the clock spring does not become caught or tangled.

(2) After clamping, turn the steering wheel all the way in both directions to confirm that steering is normal.



2. INSTALLATION OF AIR BAG MODULE

Install the air bag module, taking care that no wiring is caught by it.



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POST-INSTALLATION INSPECTION

- (1) After installing the clock spring, the steering wheel, the column covers and the air bag module, check steering wheel of noise, binds or difficult operation.
- (2) Reconnect the negative battery terminal. Turn the ignition key to the "ON" position. Does the "SRS" warning lamp illuminate for about 7 seconds? If yes, SRS system is functioning properly. If no, consult page 52B-9.)

PWDE9104-D ADDED

AIR BAG MODULE DISPOSAL PROCEDURES

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Before either disposing of a vehicle equipped with an air bag, or prior to disposing of the air bag module,

be sure to first follow the procedures described below to and deploy the air bag.

UNDEPLOYED AIR BAG MODULE DISPOSAL

E52BF51AA

Caution

- 1. If the vehicle is to be scrapped, or otherwise disposed of, deploy the air bag inside the vehicle. If the vehicle will continue to be operated and only the air bag module is to be disposed of, deploy the air bag outside the vehicle.
- 2. Since a large amount of smoke is produced when the air bag is deployed, select a well-ventilated site. Moreover, never attempt the test near a smoke sensor.
- 3. Since there is a loud noise when the air bag is deployed. avoid residental areas whenever possible. If anyone is nearby, give warning of the impending noise.

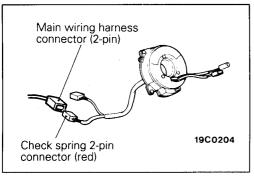
DEPLOYMENT INSIDE THE VEHICLE (when disposing a vehicle)

E52BF51BA

- (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 form the vehicle.

Caution

Wait at least 60 seconds after disconnecting the battery cable before doing any further work. (Refer to P.52B-4.)



- (3) Remove the steering column cover lower.
- (4) Remove the connection between the clock spring 2-pin connector (red) and the main wiring harness connector.

If the clock spring connector is disconnected from the main 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.

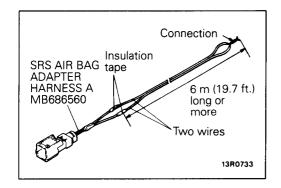
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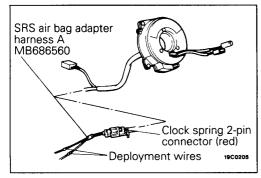
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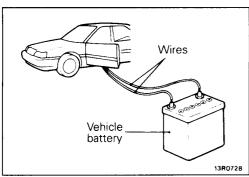
52B-44 SUPPLEMENTAL RESTRAINT SYSTEM (SRS) — Air Bag Module Disposal Procedures



(5) Connect two wires, each six meters (19.7 ft.) long or more, to the two leads of SRS AIR BAG ADAPTER HARNESS A and cover the connections with insulation tape. The other ends of the two wires should be connected to each other (shortcircuited), to prevent sudden unexpected deployment of the air bag.



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



(7) 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 (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 the Deployed Air Bag Module Disposal Procedures (P.52B-46) 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.
- (8) Dispose of the air bag module after deployment according to the Deployed Air Bag Module Disposal Procedures. (Refer to

DEPLOYMENT OUTSIDE THE VEHICLE

Contact your local distributor.

E52BF51CA

Caution

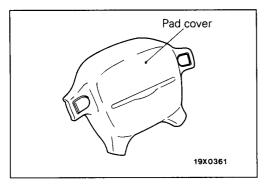
P.52B-46.)

- 1. Should be carried out in a wide, flat area at least 6 m (19.7 ft.) away from obstacles and other people.
- Do not perform deployment outside, if a strong wind is blowing, and if there is even a slight breeze, the air bag module should be placed and deployed downwind from the battery.

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

Caution

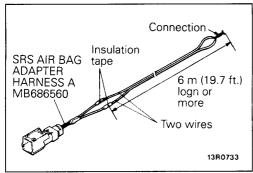
Wait at least 60 seconds after disconnecting the battery cables before doing any further work. (Refer to P.52B-4.)



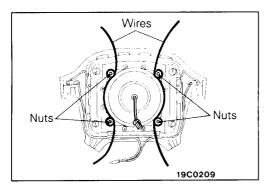
(2) Remove the air bag module for the vehicle. (Refer to P.52B-37.)

Caution

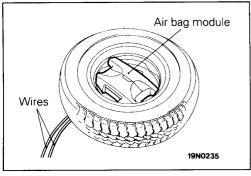
The air bag module should be stored on a flat surface and placed so that the pad cover face up. Do not place anything on top of it.



(3) Connect two wires, each six meters (19.7 ft.) long or more, to the two leads of SRS AIR BAG ADAPTER HARNESS A, and cover the connections with insulation tape. The other ends of the two wires should be connected to each other (short-circuited). to prevent sudden unexpected deployment of the air bag.



- (4) Install nuts that are no longer needed to the four bolts on the rear side of the air bag module, and tie some thick wire to secure to the wheel.
- (5) Take the SRS air bag adaptor harness A that is connected to the wires, pass it beneath the old tyre that is attached to the wheel, and connect it to the air bag module.



(6) Insert that air bag module into the wheel on which the old tyre has been installed, and secure it with the wires that are tied to the bolts, with the air bag facing upward.

Caution

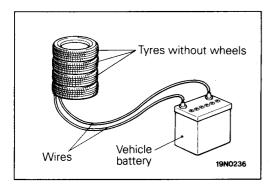
Leave some space below the wheel for the adaptor harness. If there is no space, the reaction when the air bag deploys could damage the adaptor harness.

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- (7) Place three old tyres with no wheels on top of the tyre secured to the air bag module.
- (8) At a location as far away from the air bag module as possible, and from a shielded position, if possible, disconnect the two connected wires from each other and connect them to the two terminals of the battery (removed from the vehicle) to deploy the air bag.

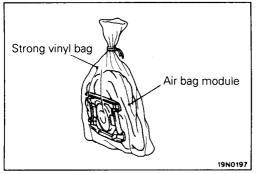
Caution

- 1. Before deployment, check carefully to be sure that no one is nearby.
- 2. The inflator will be quite hot immediately following 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 the Deployed Air Bag Module Disposal Procedures (as shown below) 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) Dispose of the air bag module after deployment according to the Deployed Air Bag Module Disposal Procedures.

DEPLOYED AIR BAG MODULE DISPOSAL PROCEDURES E52BF52AA

After deployment, the air bag module should be disposed of in the same manner as any other scrap parts, 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 to 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 eyes and/or skin, so wear gloves and safety glasses when handling a deployed air bag module. IF DESPITE THESE PRECAUTIONS, THE 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 ATTEN-



- (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.

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TION.

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