MITSUBISHI L300

WORKSHOP MANUAL SUPPLEMENT

FOREWORD

This Workshop Manual contains procedures for removal, disassembly, inspection, adjustment, reassembly and installation, etc. for service mechanics. Use the following manuals in combination with this manual required.

WORKSHOP MANUAL	
CHASSIS GROUP	PWWE8608
	(Looseleaf edition)
	PWWE9409
ENGINE GROUP	PWEE□□□□
	(Looseleaf edition)
WIRING HARNESS	PHWE8604□
	PHWE8907□
	PHWE9022□
PARTS CATALOGUE	B603180□A□
	B803180□A□
	BFA3180□A□

All information, illustrations and product descriptions contained in this manual are current as at the time of publication. We, however, reserve the right to make changes at any time without prior notice or obligation.

MITSUBISHI MOTORS CORPORATION

GROUP INDEX

 Sept. 1997 PWWE8608-Q

NOTES

GENERAL

CONTENTS

VEHICLE IDENTIFICATION

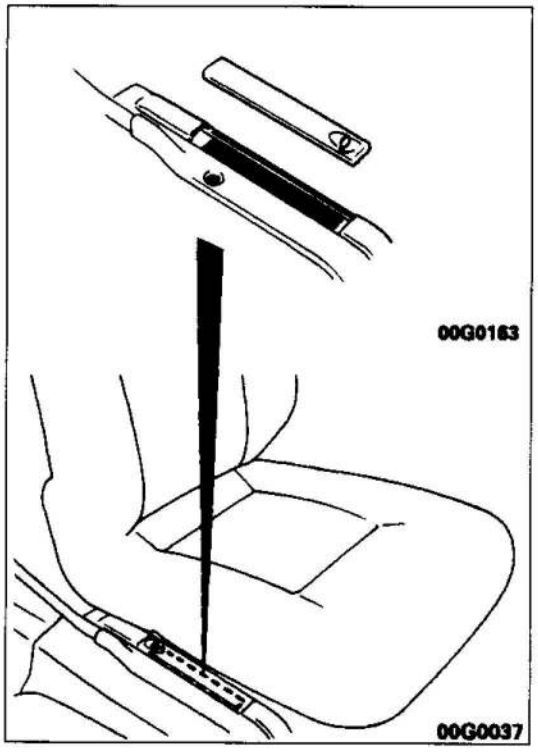
MODELS

Model code		Engine model	Transmission model	Fuel supply system	Body type
P03V	LNEL6	4G63-16VALVE	R5M21 (2WD-5M/T) <Floor shift>	MPI	Window van
	GLNEL6/R6				Panel van
P13V	JLNEL6/R6				Panel van, High roof, Long body
P05V	GLNL6/R6	4D56		Diesel fuel injection	Panel van
P15V	HLNL6				Window van, High roof, Long body
	JLNL6/R6				Panel van, High roof, Long body
P45V	JLNTL6	4D56 with turbocharger	V5M21 (4WD-5MT) <Floor shift>		Panel van, High roof, Long body

NEW VEHICLES

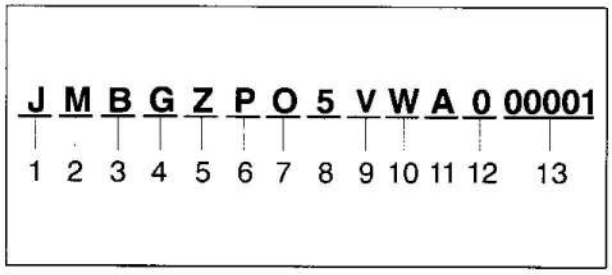
New vehicles have been added as shown below. Each of the new vehicles has been developed from the respective basic vehicles.
Specifications show only a particular part of the new vehicles. For the remaining part, refer to specifications for basic vehicles.

New vehicle	Basic vehicle	Note
P03VLNEL6	P03VLZEL6	Shift lever location has been changed from column to floor.
P03VGLNEL6/R6	P03VGLZEL6/R6	
P13VJLNEL6/R6	P13VJLZEL6/R6	
P05VGLNL6/R6	P05VGLZL6/R6	
P15VHLNL6	P15VHLZL6	
P15VJLNL6/R6	P15VJLZL6/R6	



CHASSIS NUMBER

The chassis number is stamped on the floor pan (B).

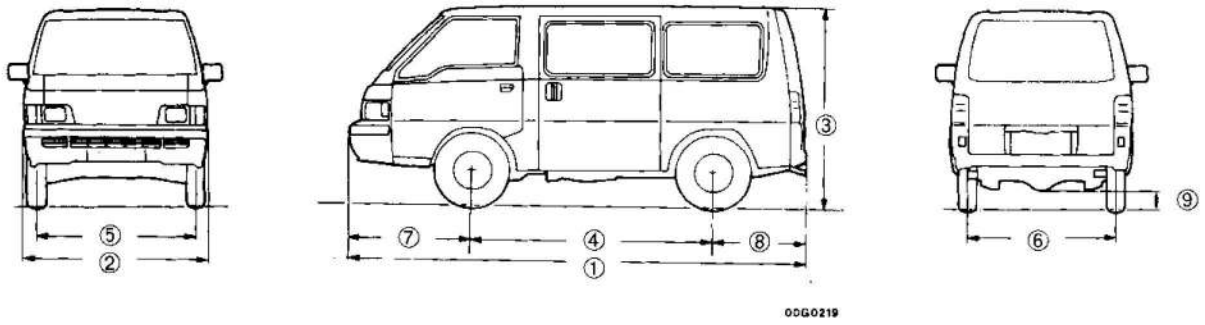


No.	Items		Contents
1	Fixed figure	J	Asia
2	Distribution channel	M	Japan channel
3	Destination	A	Right hand drive
		B	Left hand drive
4	Body style	G	Standard roof (Dark window)
		H	High roof (Clear window)
		J	High roof (Dark window)
5	Transmission type	N	5-speed manual transmission (Floor shift)
6	Vehicle line	P	New L300
7	Chassis type	0	Standard wheelbase <2WD>
		1	Long wheelbase <2WD>
		4	Long wheelbase <4WD>
8	Development order	3	1,997 mℓ, Petrol engine
		5	2,476 mℓ, Diesel engine

No.	Items		Contents
9	Body type	V	Panel van
10	Model year	W*	1998
11	Plant	A	Mizushima Motor Vehicle works
		Z	Okazaki Plant of Nagoya Motor Vehicle Works
		Y,P,J	Ooe Plant of Nagoya Motor Vehicle Works
12	Exhaust emission specification	0	ECE15-04
		1	A10 for S and CH
13	Serial number	–	–

NOTE
* indicates changes.

MAJOR SPECIFICATIONS



Vehicles, which are not described, have not been changed.

Items			P05VGLNL6	P05VGLNR6	P15VJLNL6	P15VJLNR6
Vehicle dimensions mm	Overall length	①	4,285	4,285	4,685	4,685
	Overall width	②	1,690	1,690	1,690	1,690
	Overall height (unladen)	③	1,845	1,845	1,960	1,960
	Wheelbase	④	2,235	2,235	2,435	2,435
	Tread-Front	⑤	1,445	1,445	1,445	1,445
	Tread-Rear	⑥	1,380	1,380	1,380	1,380
	Overhang-Front	⑦	1,160	1,160	1,160	1,160
	Overhang-Rear	⑧	890	890	1,090	1,090
	Ground clearance (unladen)	⑨	195	195	195	195
Vehicle weight kg	Kerb weight		1,375	1,375	1,395	1,395
	Maximum vehicle weight		2,275	2,275	2,505	2,505
Seating capacity			3	3	3	3
Perfor-mance	Maximum speed km/h		130	130	126	126
	Maximum climbing ability tanθ		0.42	0.42	0.42	0.42
	Minimum turning radius m		4.5	4.5	4.9	4.9
Engine	Model		4D56	4D56	4D56	4D56
	Total displacement mℓ		2,477	2,477	2,477	2,477
Fuel system	Carburettor		Fuel injection	Fuel injection	Fuel injection	Fuel injection
	Fuel pump type		Vane type	Vane type	Vane type	Vane type
	Fuel tank capacity ℓ		55	55	55	55
Coolant quantity ℓ			8.7	8.7	8.7	8.7

Items		P05VGLNL6	P05VGLNR6	P15VJLNL6	P15VJLNR6
Clutch type		Dry single-disc clutch with hydraulic actuation			
Transmission	Model	R5M21	R5M21	R5M21	R5M21
	Type	5-speed manual	5-speed manual	5-speed manual	5-speed manual
Rear axle	Type	Banjo type axle housing semi-floating type axle shaft, hypoid gear differential			
	Final gear ratio	3.909	3.909	3.909	3.909
Wheel	Front tyre size	185R14C-8PR	185R14C-8PR	185R14C-8PR	185R14C-8PR
	Rear tyre size	185R14C-8PR	185R14C-8PR	185R14C-8PR	185R14C-8PR
	Disc wheel size	14 × 5J	14 × 5J	14 × 5J	14 × 5J
Suspension	Front	Independent double wishbone with torsion bar and telescopic shock absorber			
	Rear	Semi-elliptic leaf spring with telescopic shock absorber			
Steering system		Rack and pinion with power assist*			
Service brakes	Type	Double-circuit hydraulic brake system, brake servo			
	Front	Discs			
	Rear	Drums (Leading, trailing)			
Parking brake type		Mechanical, internal-expansion type, acting on rear wheels			
Electrical system	Battery type	95D31R, 80D26R*	95D31R	95D31R, 80D26R*	95D31R
	Battery capacity (5HR) Ah	64, 55*	64	64, 55*	64

NOTE
* indicates optional

Items			P15VHLNL6	P45VJLNTL6	P03VLNEL6	P03VGLNEL6
Vehicle dimensions mm	Overall length	①	4,685	4,775	4,285	4,285
	Overall width	②	1,690	1,690	1,690	1,690
	Overall height (unladen)	③	1,960	2,105	1,845	1,845
	Wheelbase	④	2,435	2,440	2,235	2,235
	Tread-Front	⑤	1,445	1,430	1,445	1,445
	Tread-Rear	⑥	1,380	1,415	1,380	1,380
	Overhang-Front	⑦	1,160	1,160	1,160	1,160
	Overhang-Rear	⑧	1,090	1,175	890	890
	Ground clearance (unladen)	⑨	195	230	195	195
Vehicle weight kg	Kerb weight		1,500	1,700	1,390	1,330
	Maximum vehicle weight		2,505	2,505	2,200	2,200
Seating capacity			3/6	2	3/6	3
Perfor-mance	Maximum speed km/h		126	128	150	150
	Maximum climbing ability tanθ		0.42	0.70	0.53	0.53
	Minimum turning radius m		4.9	5.4	4.5	4.5
Engine	Model		4D56	4D56	4G63	4G63
	Total displacement mℓ		2,477	2,477	1,997	1,997
Fuel system	Carburettor		Fuel injection	Fuel injection	MPI	MPI
	Fuel pump type		Vane type	Vane type	Electrical fuel pump	Electrical fuel pump
	Fuel tank capacity ℓ		55	60	55	55
Coolant quantity ℓ			8.7	9.7	7.35	7.35
Clutch type			Dry single-disc clutch with hydraulic actuation		Dry single-disc clutch with cable actuation	
Transmis-sion	Model		R5M21	V5M21	R5M21	R5M21
	Type		5-speed manual	5-speed manual	5-speed manual	5-speed manual
Transfer type			–	Part-time 2-speed directcoupled	–	–

Items		P15VHLNL6	P45VJLNTL6	P03VLNEL6	P03VGLNEL6
Front axle	Type	–	Full-floating type drive shaft hypoid gear differential	–	–
	Final gear ratio	–	4.875	–	–
Rear axle	Type	Banjo type axle housing semi-floating type axle shaft, hypoid gear differential			
	Final gear ratio	3.909	4.875	4.875	4.875
Wheel	Front tyre size	185R14C-8PR	215R15-100Q	185R14C-8PR	185R14C-8PR
	Rear tyre size	185R14C-8PR	215R15–100Q	185R14C-8PR	185R14C-8PR
	Disc wheel size	14 × 5J	15 × 5.5JJ, 15 × 6JJ*	14 × 5J	14 × 5J
Suspen-sion	Front	Independent double wishbone with torsion bar and telescopic shock absorber			
	Rear	Semi-elliptic leaf spring with telescopic shock absorber			
Steering system		Rack and pinion with power assist*			
Service brakes	Type	Double-circuit hydraulic brake system, brake servo			
	Front	Discs			
	Rear	Drums (Leading, trailing)			
Parking brake type		Mechanical, internal-expansion type, acting on rear wheels			
Electrical system	Battery type	95D31R, 80D26R*	95D31R, 80D26R*	65D23R	65D23R
	Battery capacity (5HR) Ah	64, 55*	64, 55*	52	52

NOTE
* indicates optional

Items			P03VGLNER6	P13VJLNEL6	P13VJLNER6
Vehicle dimensions mm	Overall length	①	4,285	4,685	4,685
	Overall width	②	1,690	1,690	1,690
	Overall height (unladen)	③	1,845	1,960	1,960
	Wheelbase	④	2,235	2,435	2,435
	Tread-Front	⑤	1,445	1,445	1,445
	Tread-Rear	⑥	1,380	1,380	1,380
	Overhang-Front	⑦	1,160	1,160	1,160
	Overhang-Rear	⑧	890	1,090	1,090
	Ground clearance (unladen)	⑨	195	195	195
Vehicle weight kg	Kerb weight		1,330	1,340	1,340
	Maximum vehicle weight		2,200	2,505	2,505
Seating capacity			3	3	3
Perfor-mance	Maximum speed km/h		150	150	150
	Maximum climbing ability tanθ		0.53	0.42	0.42
	Minimum turning radius m		4.5	4.9	4.9
Engine	Model		4G63	4G63	4G63
	Total displacement mℓ		1,997	1,997	1,997
Fuel system	Carburettor		MPI		
	Fuel pump type		Electrical fuel pump		
	Fuel tank capacity ℓ		55	55	55
Coolant quantity ℓ			7.35	7.35	7.35
Clutch type			Dry single-disc clutch with cable actuation		
Transmis-sion	Model		R5M21	R5M21	R5M21
	Type		5-speed manual	5-speed manual	5-speed manual
Rear axle	Type		Banjo type axle housing semi-floating type axle shaft, hypoid gear differential		
	Final gear ratio		4.875	4.875	4.875
Wheel	Front tyre size		185R14C-8PR	185R14C-8PR	185R14C-8PR
	Rear tyre size		185R14C-8PR	185R14C-8PR	185R14C-8PR
	Disc wheel size		14 × 5J	14 × 5J	14 × 5J
Suspen-sion	Front		Independent double wishbone with torsion bar and telescopic shock absorber		
	Rear		Semi-elliptic leaf spring with telescopic shock absorber		

Items		P03VGLNER6	P13VJLNEL6	P13VJLNER6
Steering system		Rack and pinion with power assist*		
Service brakes	Type	Double-circuit hydraulic brake system, brake servo		
	Front	Discs		
	Rear	Drums (Leading, trailing)		
Parking brake type		Mechanical, internal-expansion type, acting on rear wheels		
Electrical system	Battery type	65D23R	65D23R	65D23R
	Battery capacity (5HR) Ah	52	52	52

NOTE
* indicates optional

GROUP 13
FUEL

GENERAL

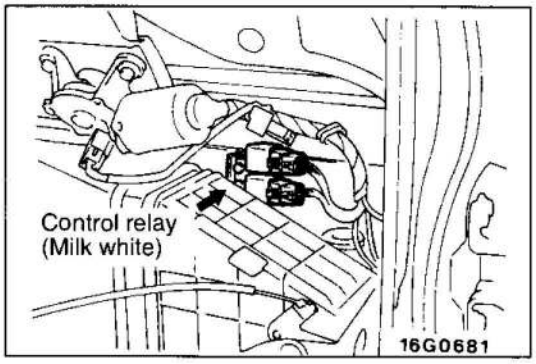
OUTLINE OF CHANGE

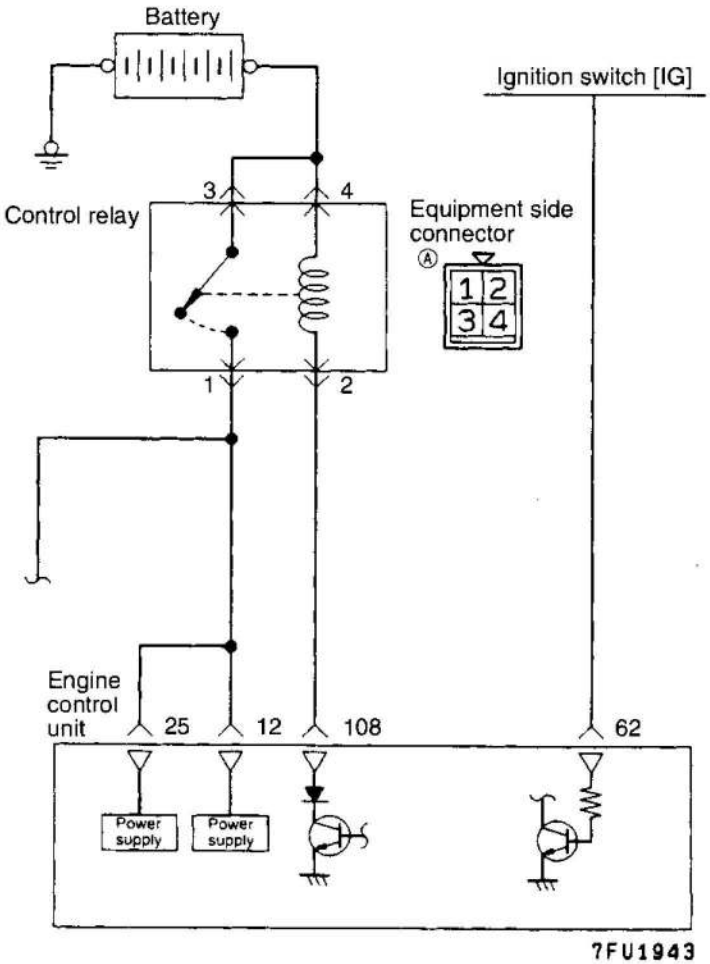
The following changes have been performed for the vehicles with 4G63-MPI. To correspond to this, the maintenance service procedures which are different from the previous models are given below.

- The terminal arrangement of the engine-ECU has been changed (from 64-pin connector to 76-pin connector).
- Fuel injection has been changed to sequential injection.

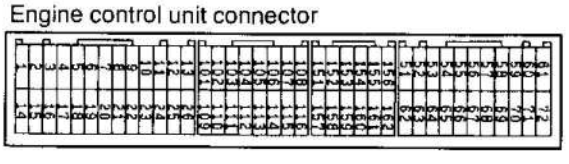
SERVICE ADJUSTMENT PROCEDURES (MPI)

POWER SUPPLY AND IGNITION SWITCH – IG





Engine control unit connector



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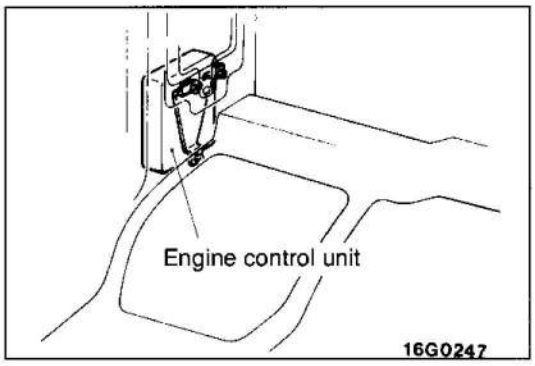
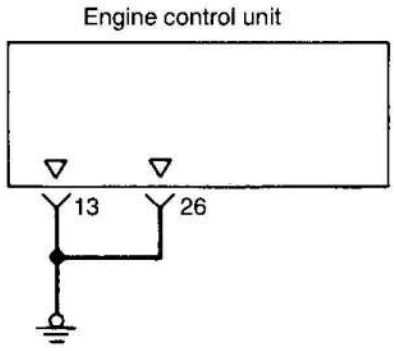
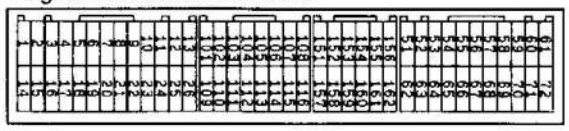
ENGINE CONTROL UNIT POWER EARTH





01A0191

Engine control unit connector



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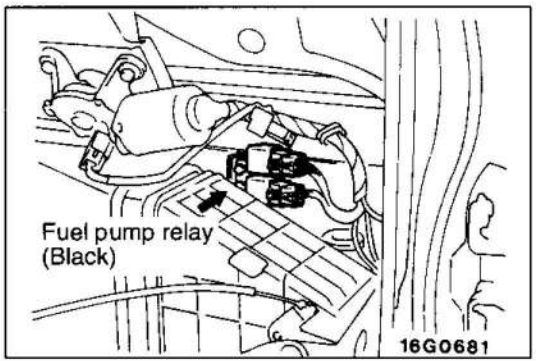
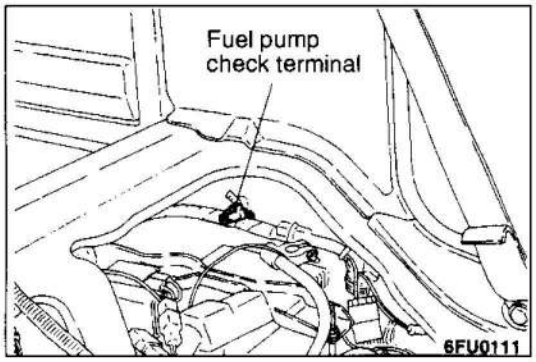
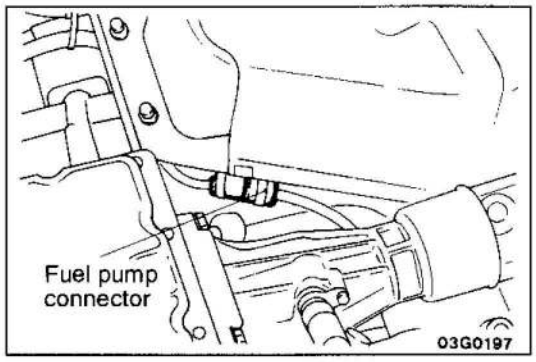
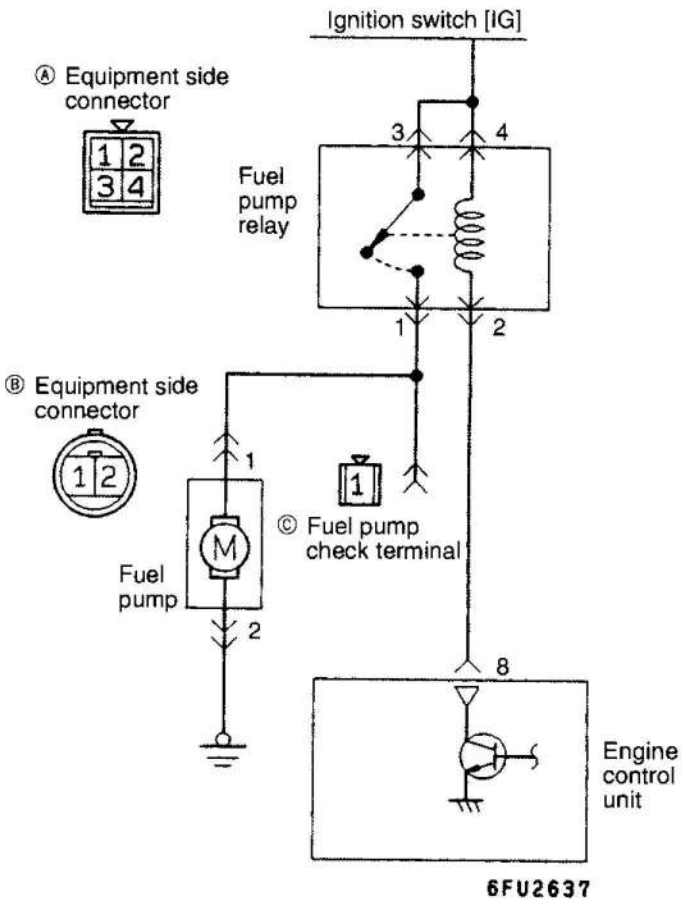
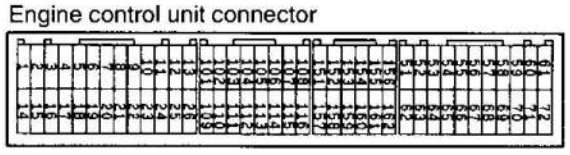
FUEL PUMP


Fuel pump relay
(Black)
16G0681

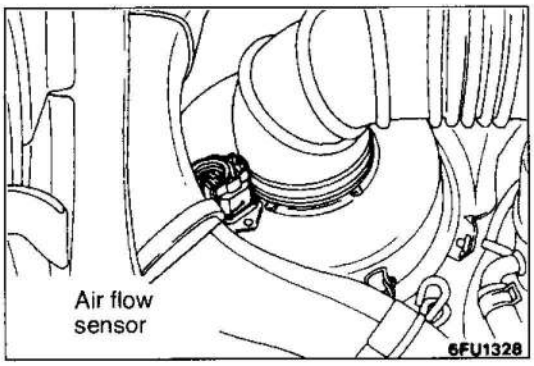

Fuel pump
check terminal
6FU0111

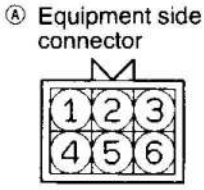

Fuel pump
connector
03G0197

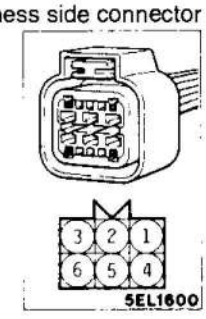

Ignition switch [IG]
Ⓐ Equipment side connector
1 2
3 4
Fuel pump relay
3
4
1
2
Ⓑ Equipment side connector
1 2
1
1
Ⓒ Fuel pump check terminal
Fuel pump
M
2
8
Engine control unit
6FU2637

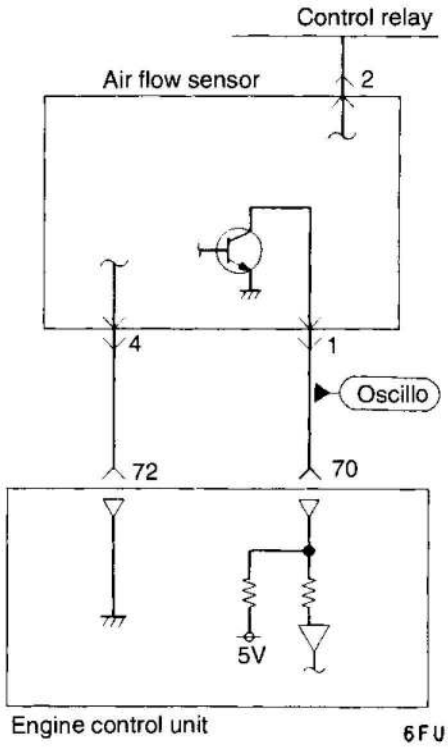

Engine control unit connector
6FU2828

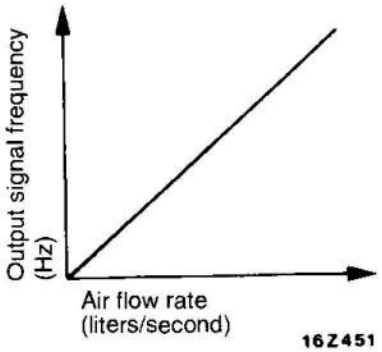
AIR FLOW SENSOR



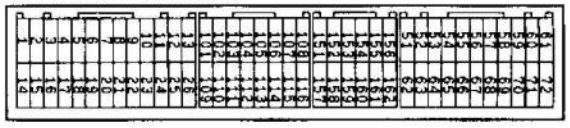








Engine control unit connector



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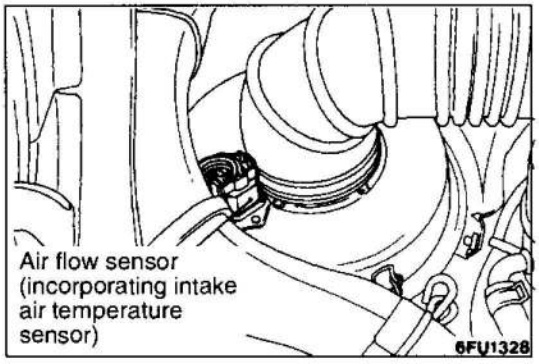
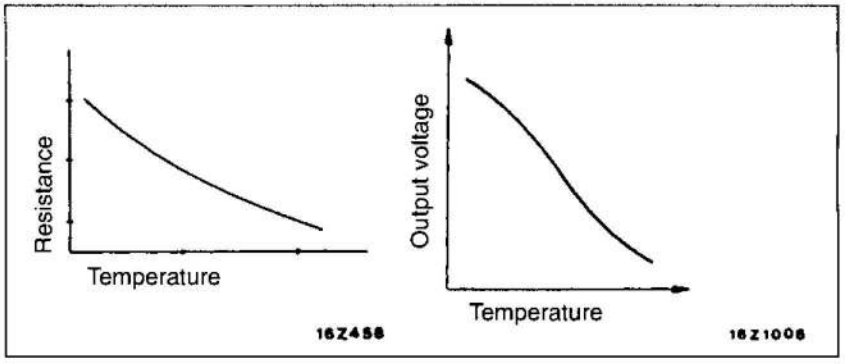
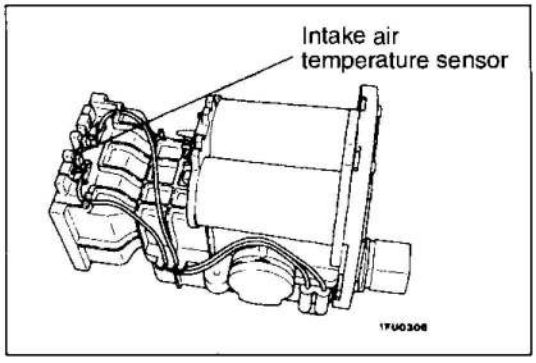
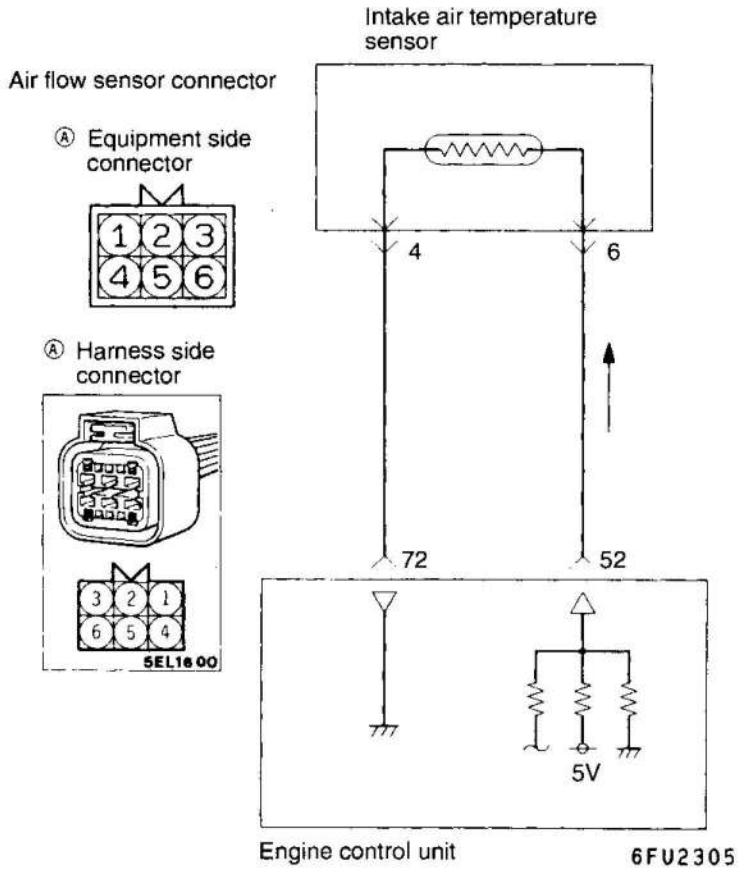
INTAKE AIR TEMPERATURE SENSOR

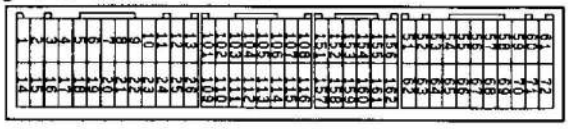








Engine control unit connector



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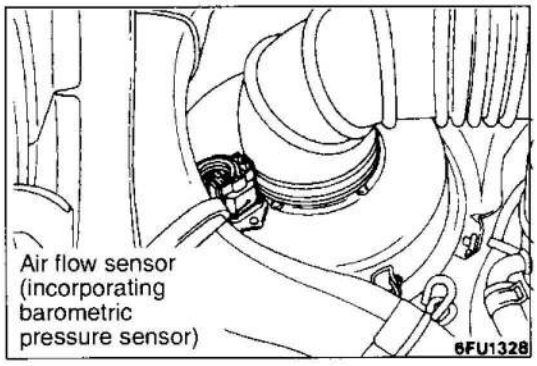
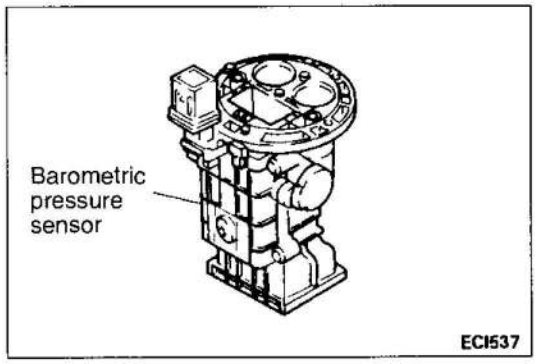
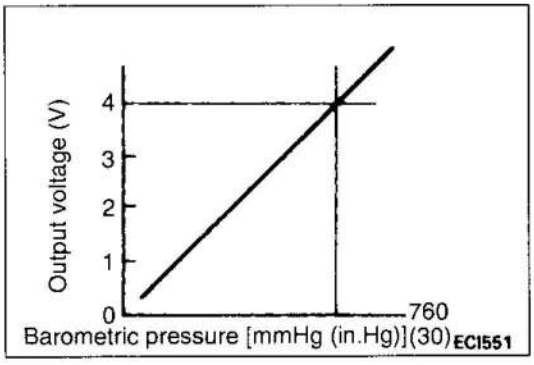
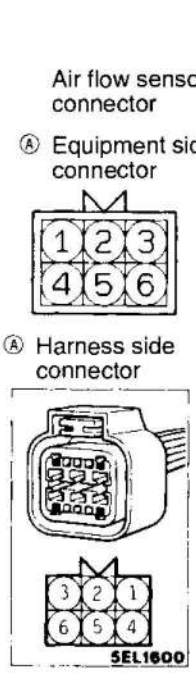
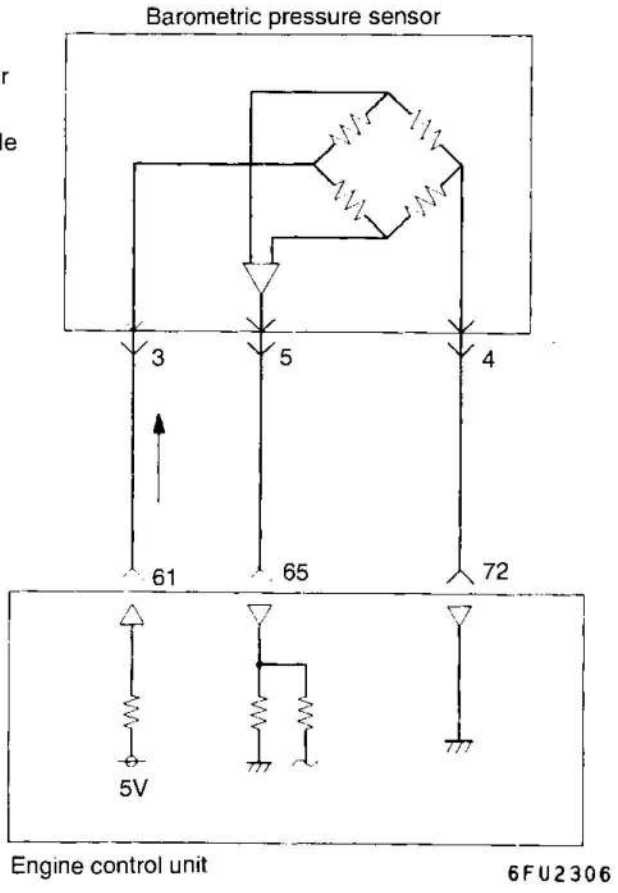
BAROMETRIC PRESSURE SENSOR

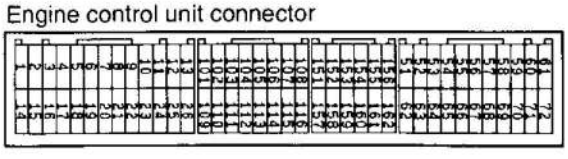




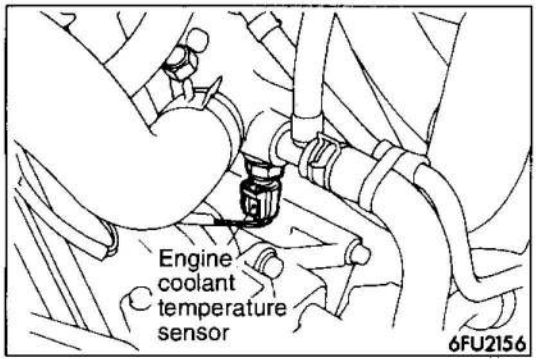


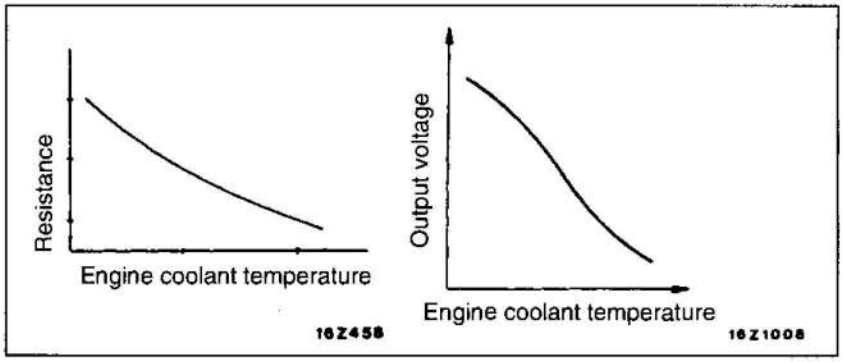


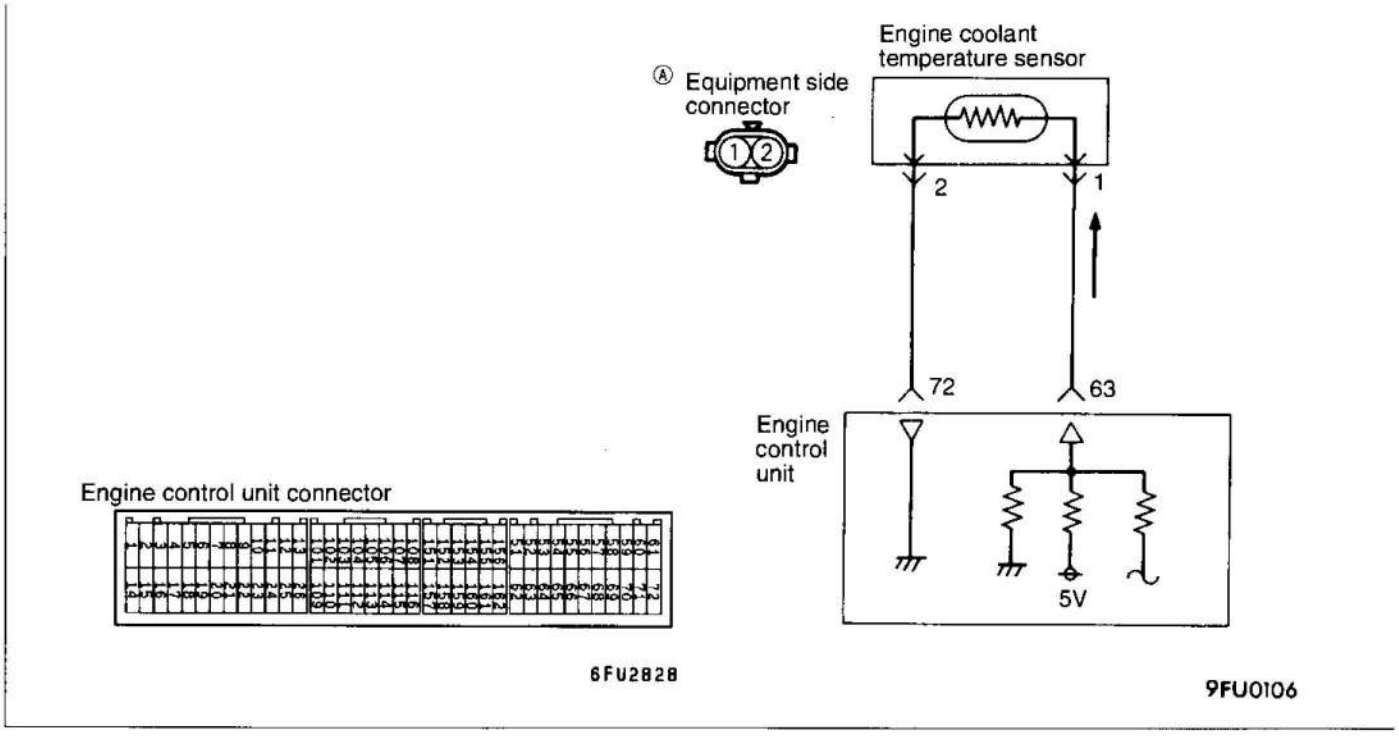




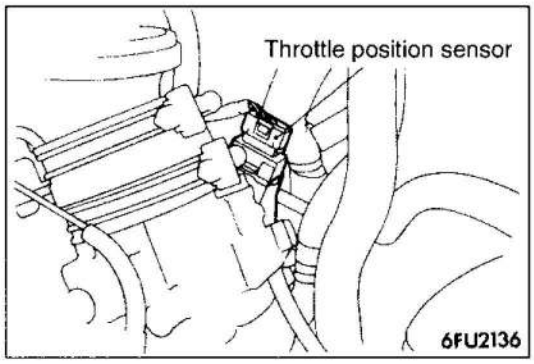
ENGINE COOLANT TEMPERATURE SENSOR

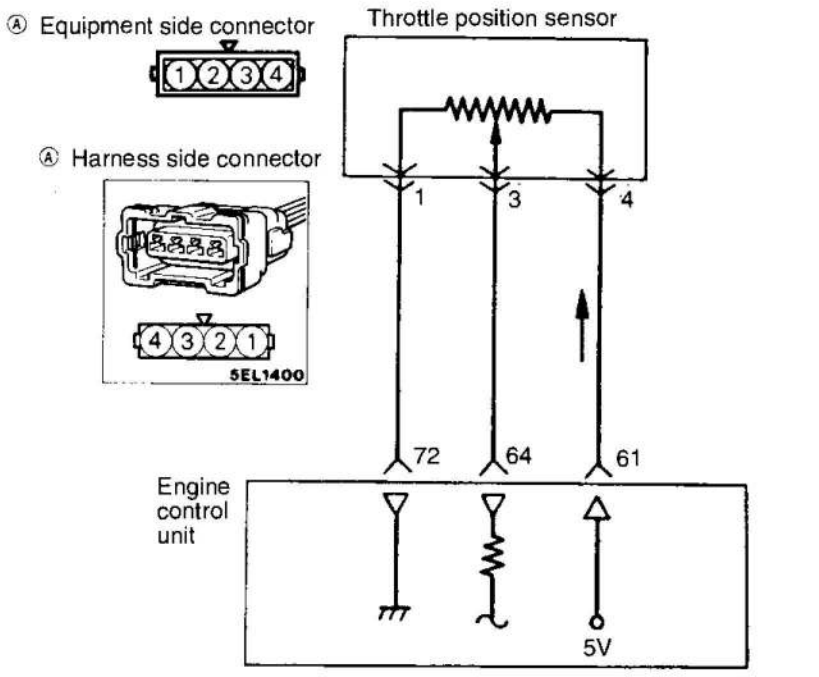


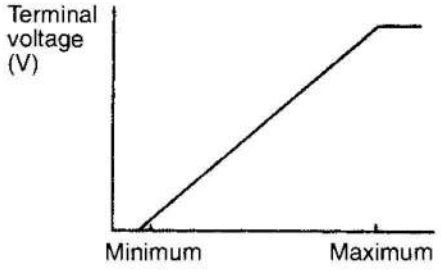


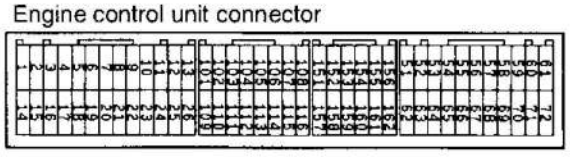


THROTTLE POSITION SENSOR

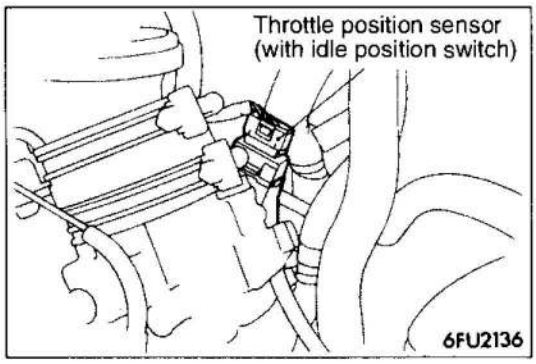


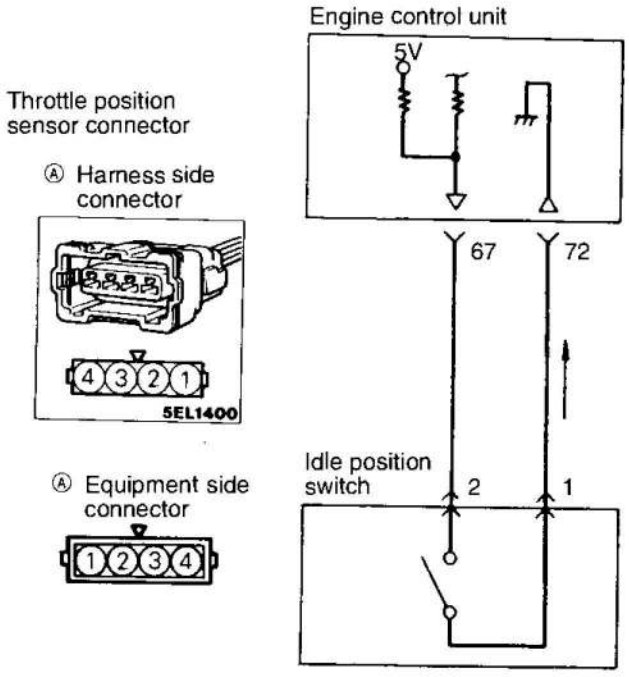


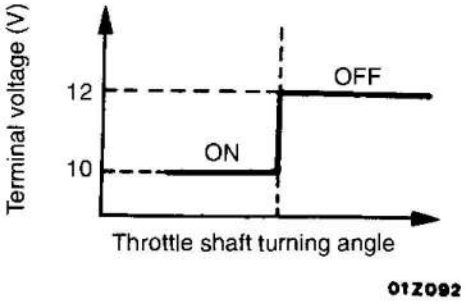


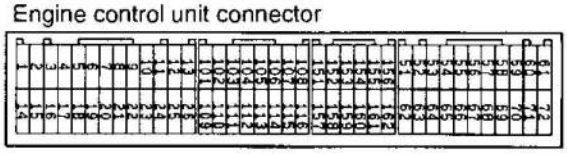


IDLE POSITION SWITCH

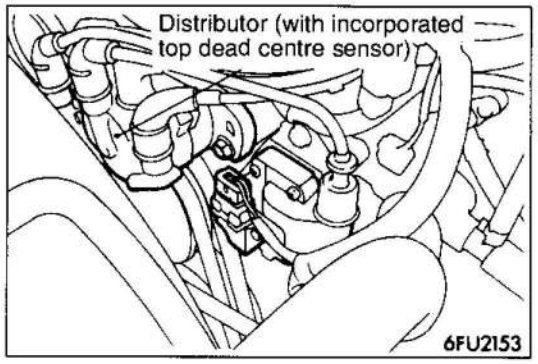




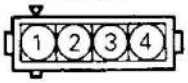


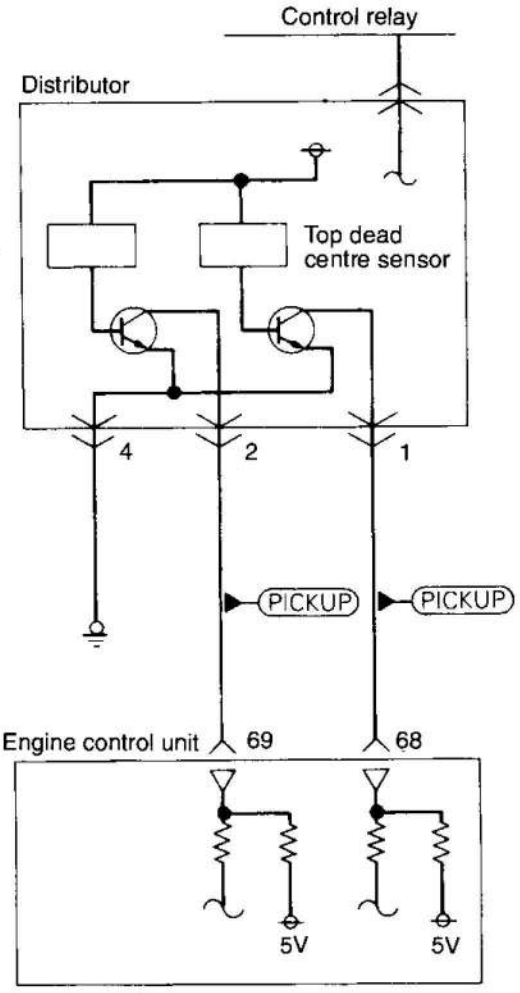


TOP DEAD CENTRE SENSOR

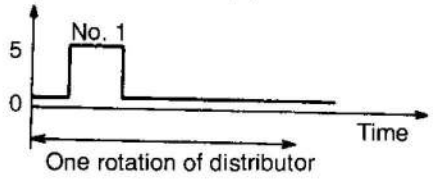


Ⓐ Equipment side connector



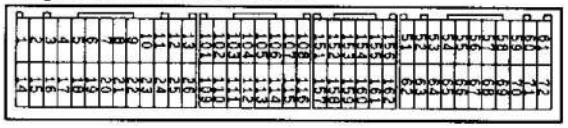


Output characteristic (V)



01R0102

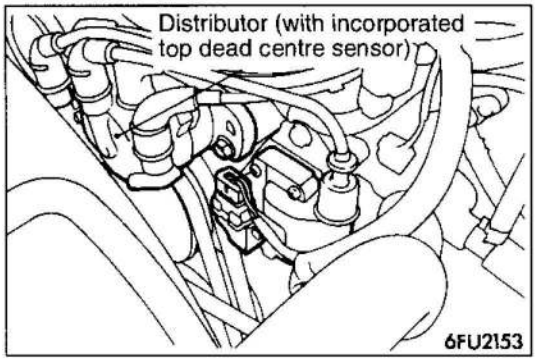
Engine control unit connector

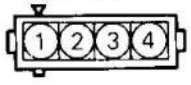


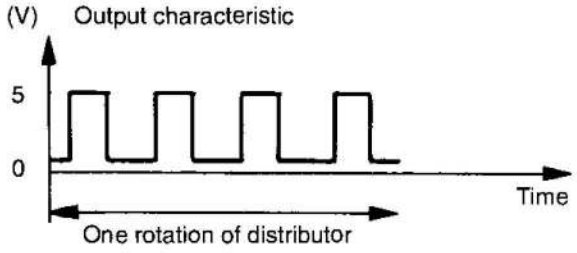
6FU2828

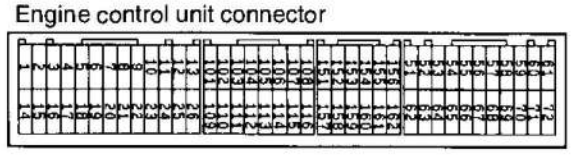
9FU0205

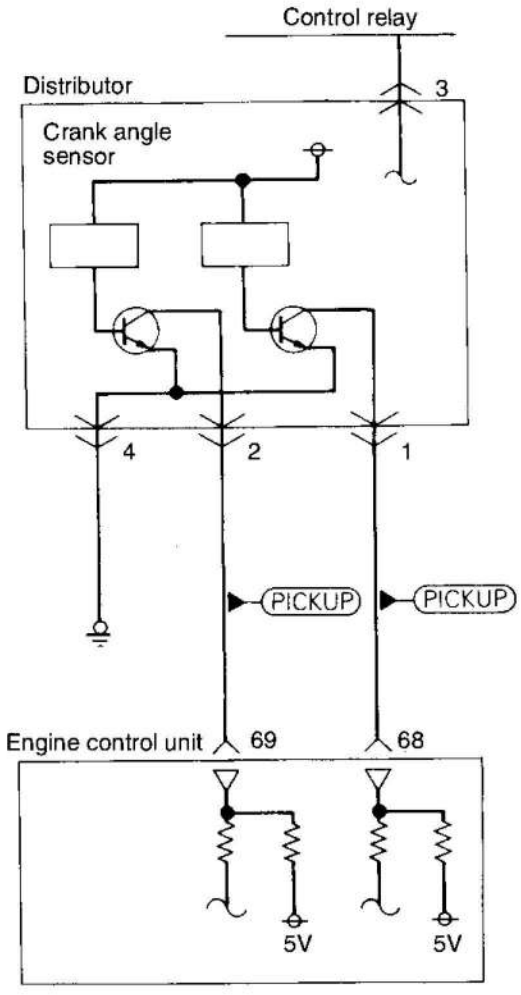
CRANK ANGLE SENSOR





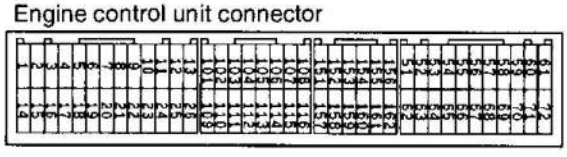


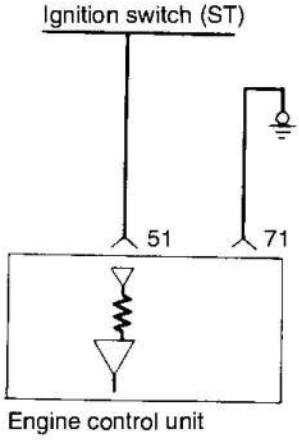




9FU0205

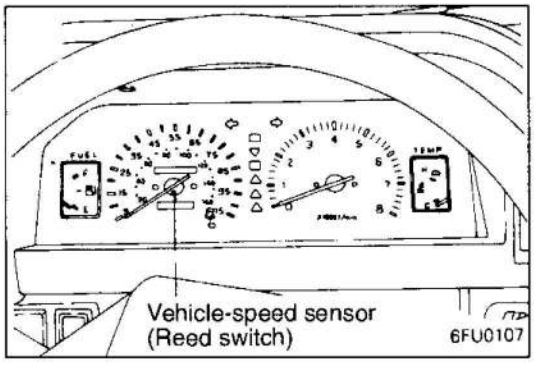
IGNITION SWITCH – ST

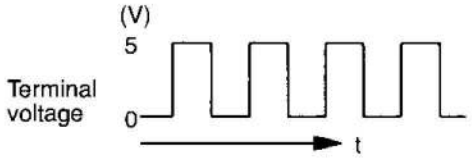




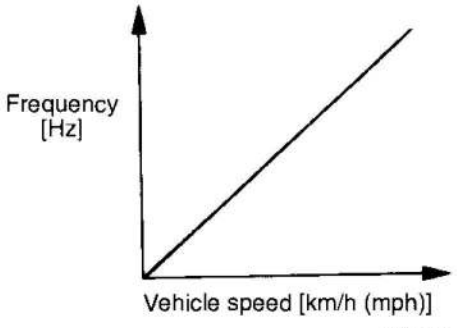
6FU1257

VEHICLE SPEED SENSOR





16Z478



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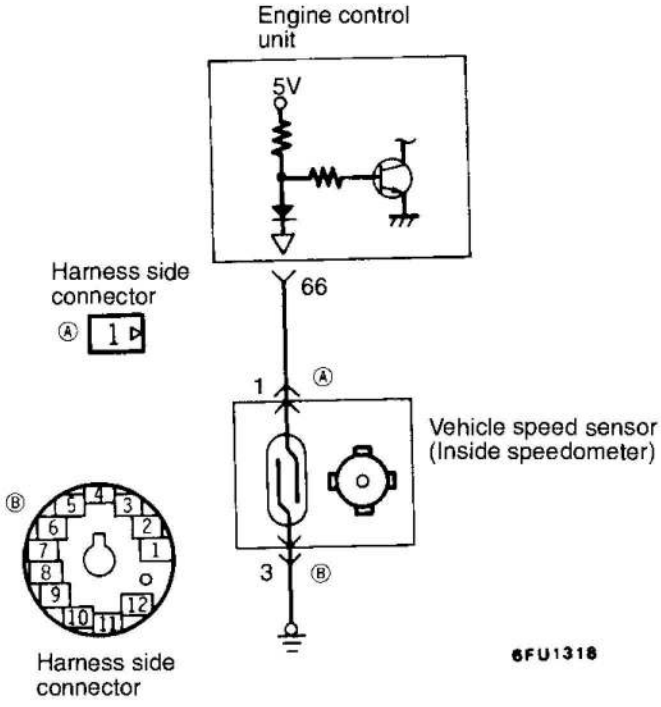
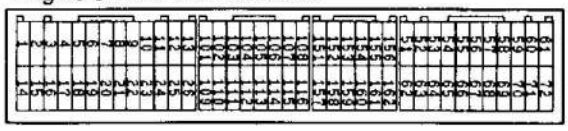


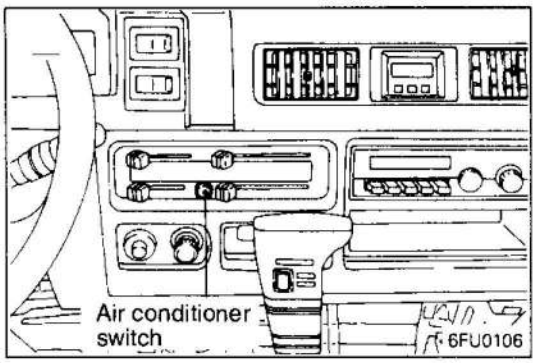
6FU1318

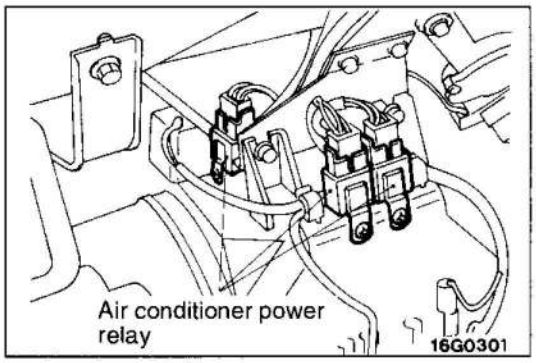
Engine control unit connector

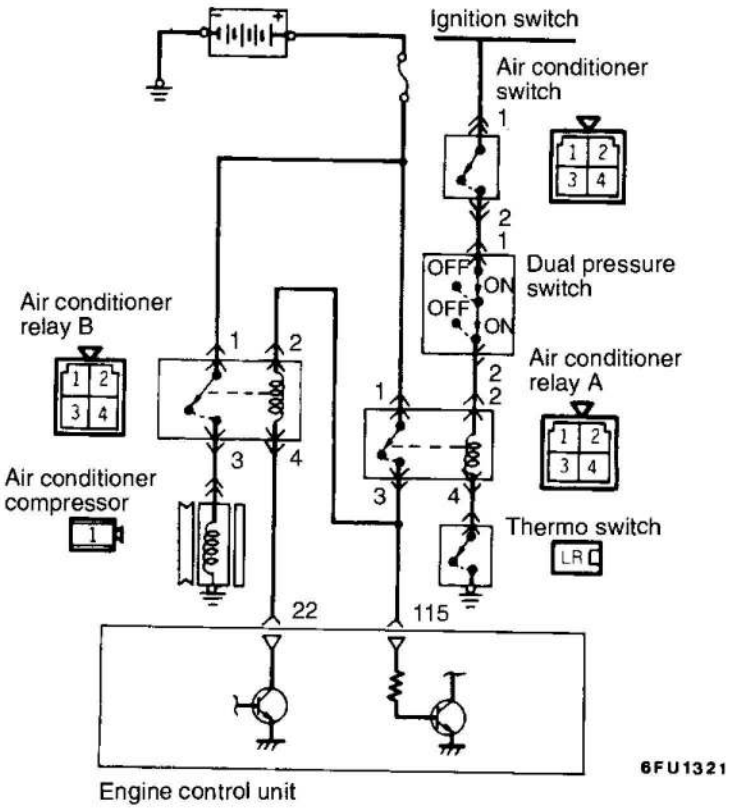


6FU2828

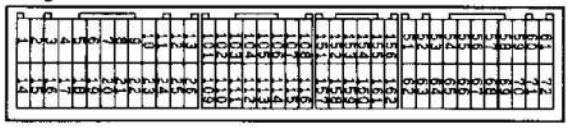
AIR CONDITIONER SWITCH AND POWER RELAY





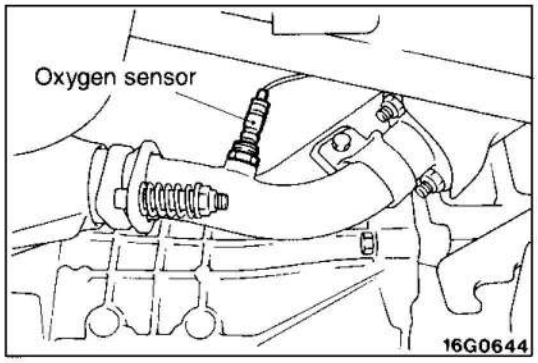


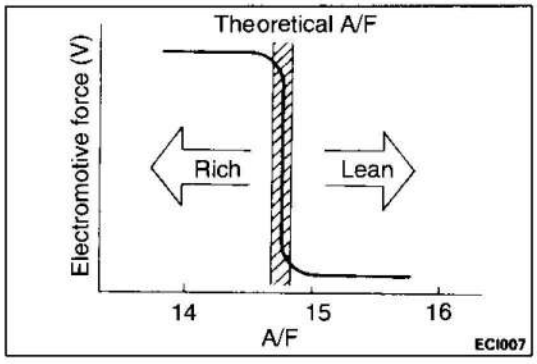
Engine control unit connector

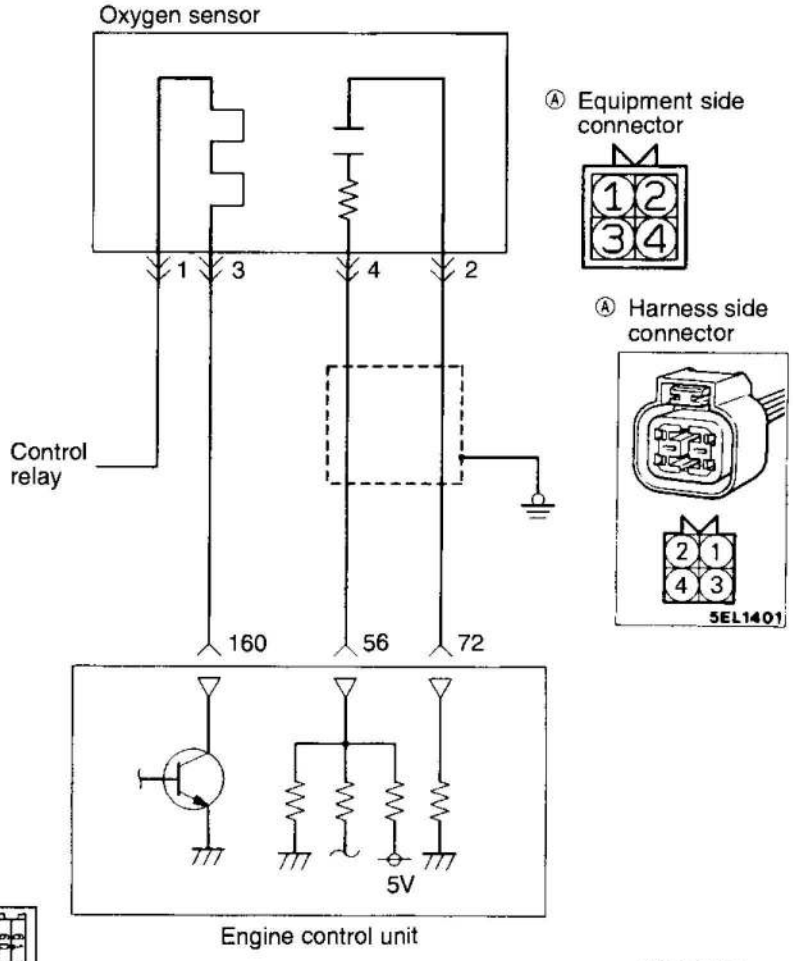


6FU2828

OXYGEN SENSOR

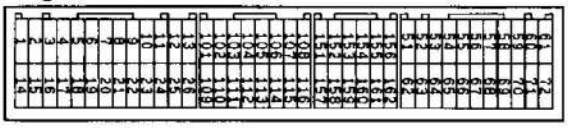






6FU2310

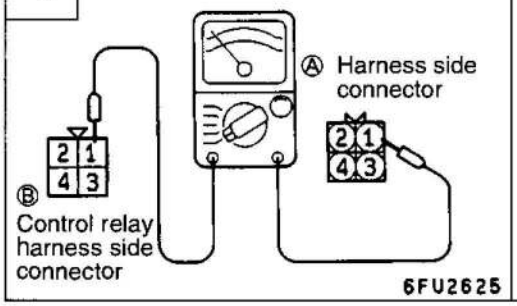
Engine control unit connector



6FU2828

HARNESS INSPECTION

1



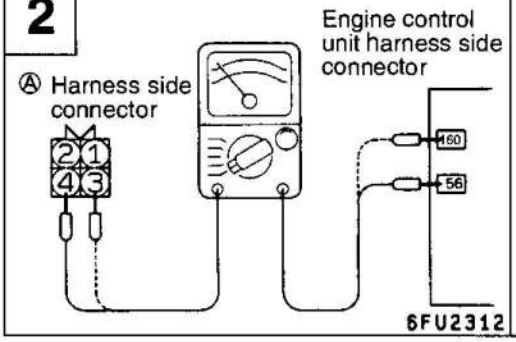
Check for continuity between oxygen sensor and control relay.
- Oxygen sensor connector: Disconnected
- Control relay connector: Disconnected

NOTE
Touch the circuit tester probes to both ends of the harness.

OK → 2

OK → Repair the harness. (Ⓐ1 – Ⓑ1)

2

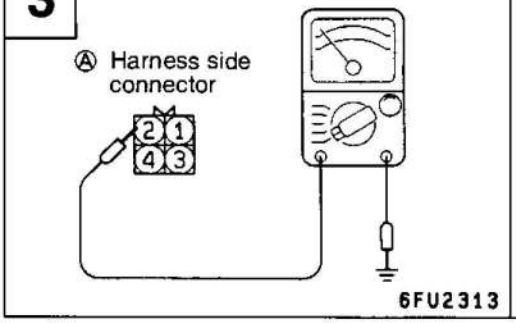


Check for an open-circuit, or a short-circuit to earth, between the engine control unit and the oxygen sensor.
- Oxygen sensor connector: Disconnected
- Engine control unit connector: Disconnected

OK → 3

OK → Repair the harness. (Ⓐ3 – 160) (Ⓐ4 – 56)

3

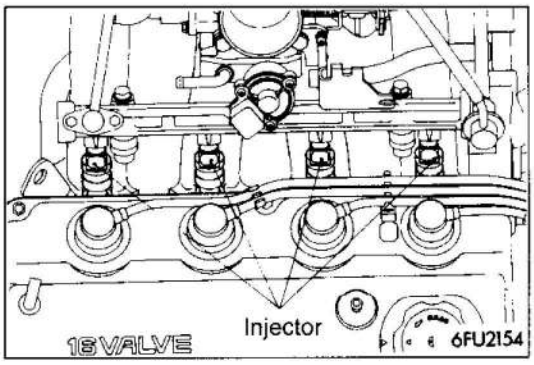


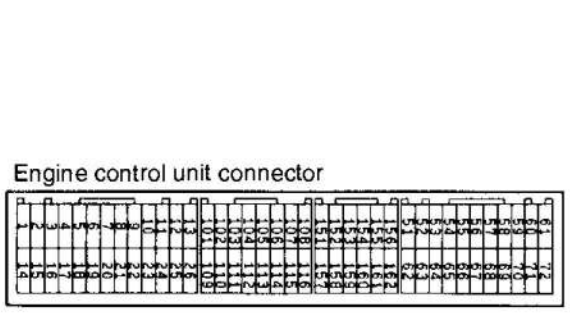
Check for continuity of the earth circuit.
- Oxygen sensor connector: Disconnected

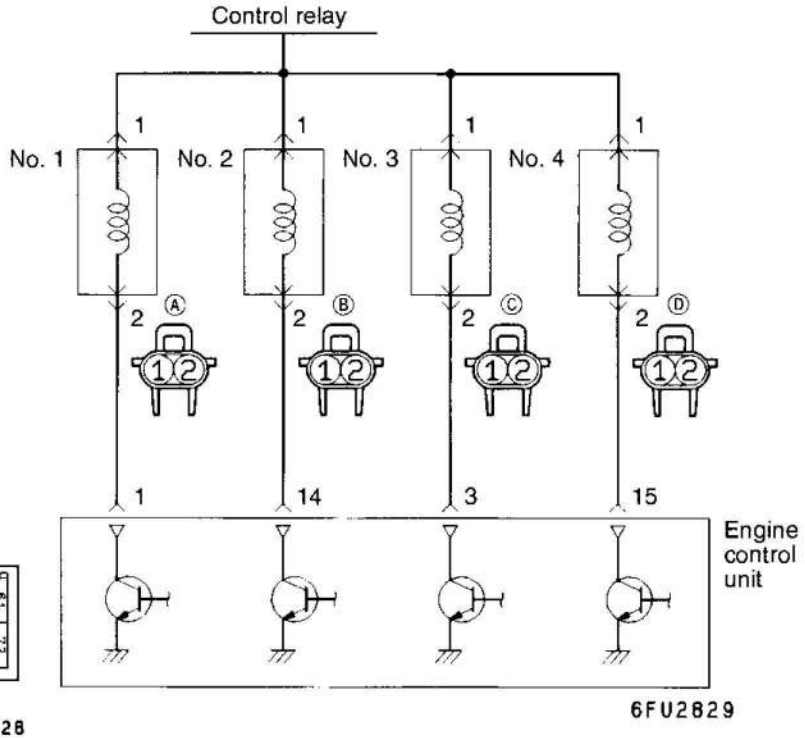
OK → STOP

OK → Repair the harness. (Ⓐ2 – 72)

INJECTOR







OPERATION

- The injector is an injection nozzle with a solenoid valve which injects fuel according to the injection signal coming from the engine control unit.
- The injector has a fixed nozzle opening area and the fuel pressure against manifold inside pressure is regulated to a fixed level. Therefore, the volume of fuel injected by the injector is determined by the time during which the needle valve is open, namely, by the time during which the solenoid coil is energized.
- The battery voltage is applied through the control relay to this injector. When the engine control unit turns On the power transistor in the unit, the solenoid coil is energized to open the injector valve, which then injects fuel.

TROUBLESHOOTING HINTS

Hint 1: If the engine is hard to start when hot, check fuel pressure and check the injector for leaks.

Hint 2: If the injector does not when the engine that is hard to start is cranked, the following as well as the injector itself may be responsible.
(1) Faulty power supply circuit to the engine control unit, faulty earth circuit
(2) Faulty control relay
(3) Faulty crank angle sensor, top dead centre sensor

Hint 3: If there is any cylinder whose idle state remains unchanged when the fuel injection of injectors is cut one after another during idling, make following checks about such cylinder.
(1) Injector and harness check
(2) Spark plug and high tension cable check
(3) Compression pressure check

Hint 4: If the injector harness and individual part checks have resulted normal but the injector drive time is out of specification, the following troubles are suspected.
(1) Poor combustion in the cylinder (faulty spark plug, ignition coil, compression pressure, etc.)
(2) Loose EGR valve seating
(3) High engine resistance

INSPECTION

Using MUT-II

Function	Item No.	Data display	Check condition	Coolant temperature	Standard value
Data reading	41	Drive time*1	Engine: Cranking	0°C (32°C)	57 – 72
				20°C (68°F)	30 – 37
				80°C (176°F)	5.8 – 7.0

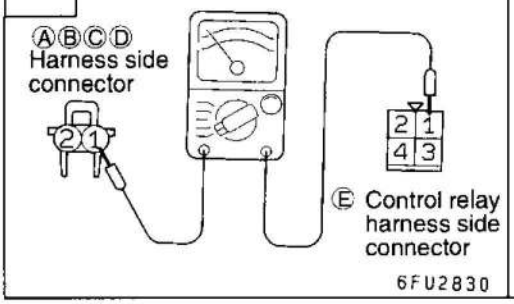
Function	Item No.	Data display	Check condition	Coolant temperature	Standard value
Data reading	41	Drive time*2	• Engine coolant temperature: 80 to 95°C (176 to 203°F) • Lamps and accessories: OFF • Transmission: Neutral	Idle	2.8 – 4.0 ms
				2,000 r/min.	2.6 – 3.8 ms
				When sharp racing is made	To increase

NOTE
*1: The injector drive time refers to when the supply voltage is 11 V and the cranking speed is less than 250 r/min.
*2: When the vehicle is new [within initial operation of about 500 km (300 miles)], the injector drive time may be about 10% longer.

Function	Item No.	Drive content	Check condition	Normal state
Actuator test	01	No. 1 injector shut off	Engine: Idling after warm-up (Shut off the injectors in sequence during after engine warm-up, check the idling condition.)	Idle state to change further (becoming less stable or stalling)
	02	No. 2 injector shut off		
	03	No. 3 injector shut off		
	04	No. 4 injector shut off		

HARNESS INSPECTION

1

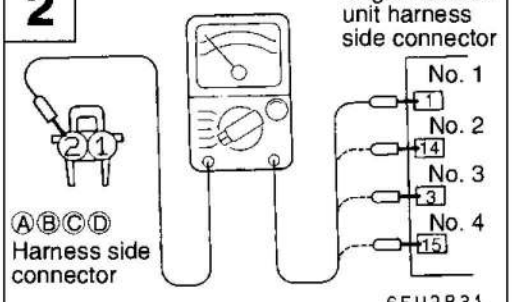


Check for continuity between the control relay and the injector.
- Injector connector: Disconnected
- Control relay connector: Disconnected

OK → 2

NG → Repair the harness. (Ⓐ Ⓑ Ⓒ Ⓓ 1 – Ⓔ 1)

2

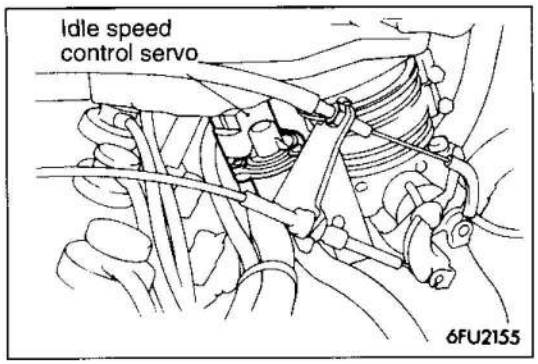


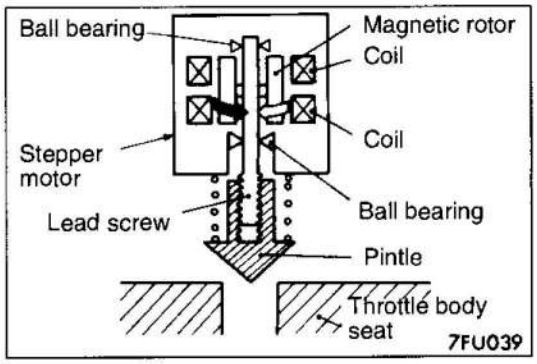
Check for an open-circuit, or a short-circuit to earth between the engine control unit and the injector.
- Engine control unit connector: Disconnected
- Injector connector: Disconnected

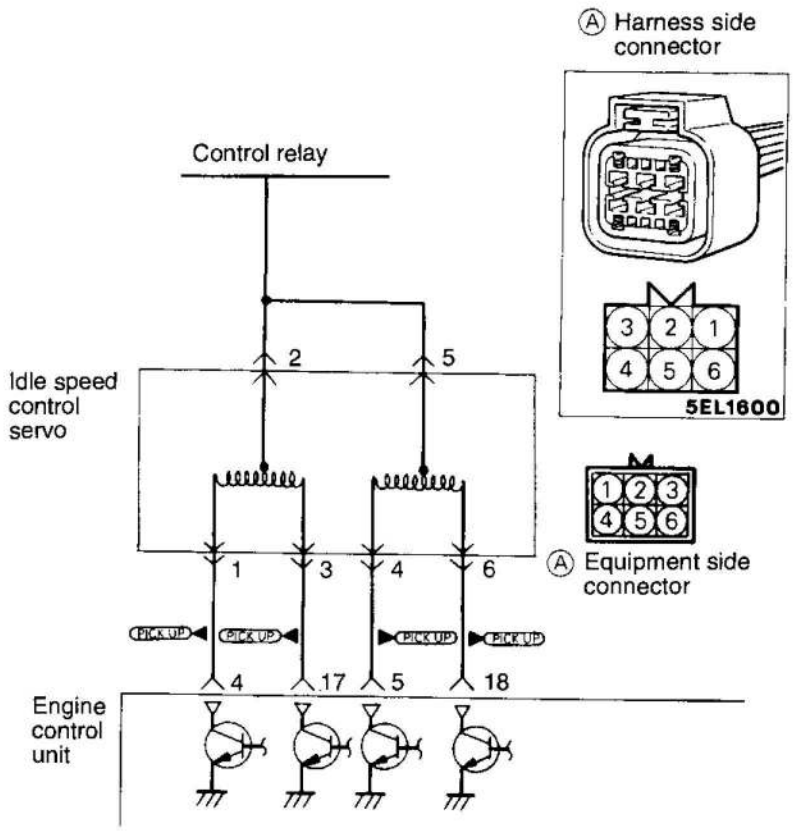
OK → STOP

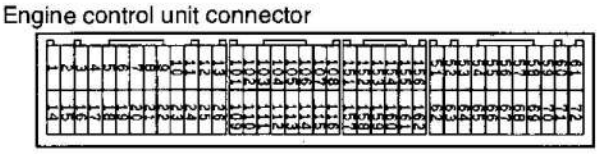
NG → Repair the harness.
(Ⓐ 2 – 1)
(Ⓑ 2 – 14)
(Ⓒ 2 – 3)
(Ⓓ 2 – 15)

IDLE SPEED CONTROL SERVO (STEPPER MOTOR)

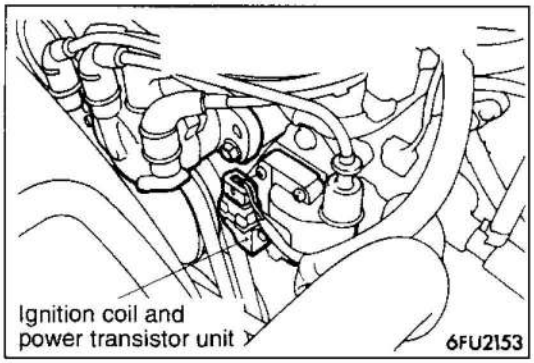


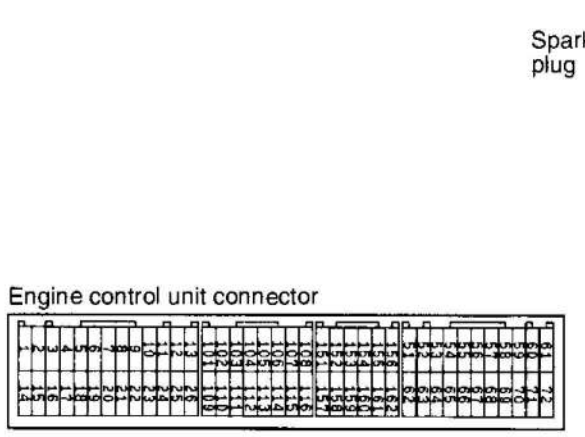


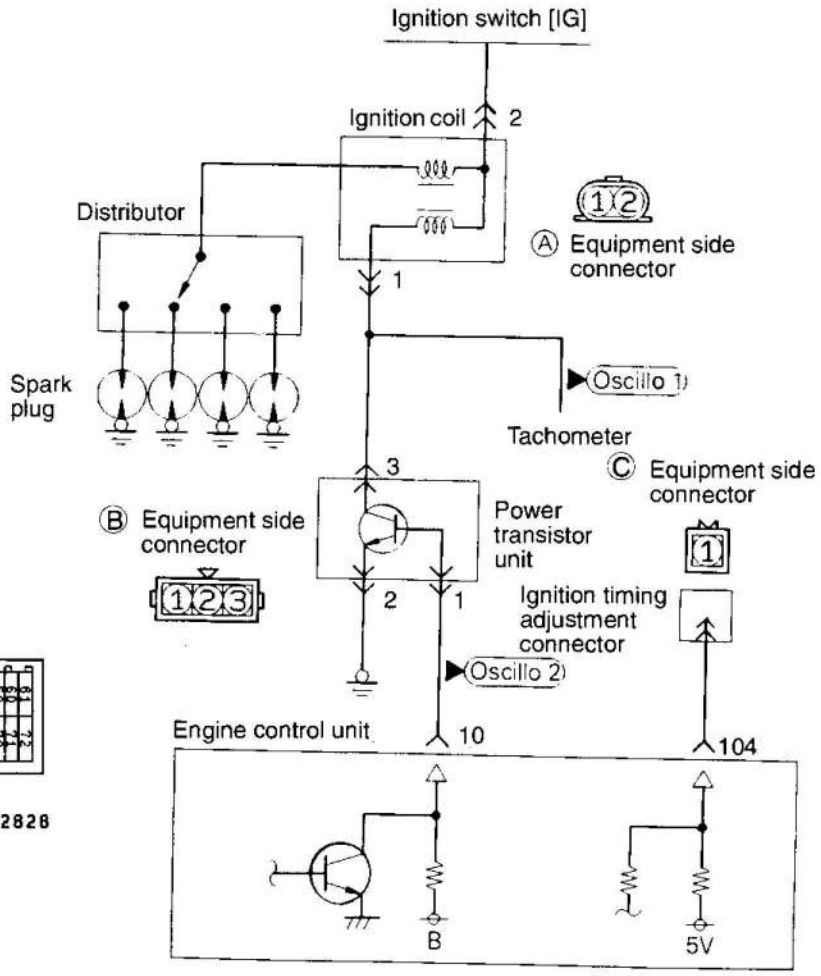




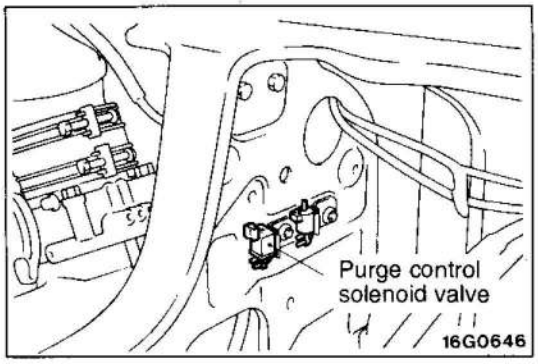
IGNITION COIL AND POWER TRANSISTOR UNIT

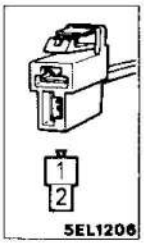


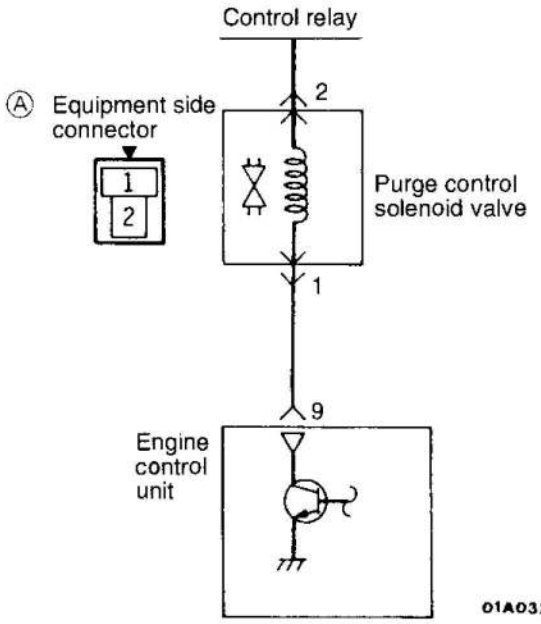




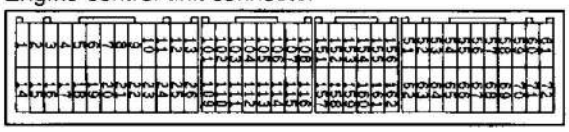
PURGE CONTROL SOLENOID VALVE







Engine control unit connector



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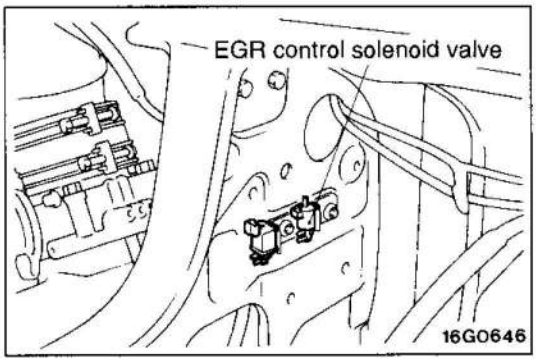
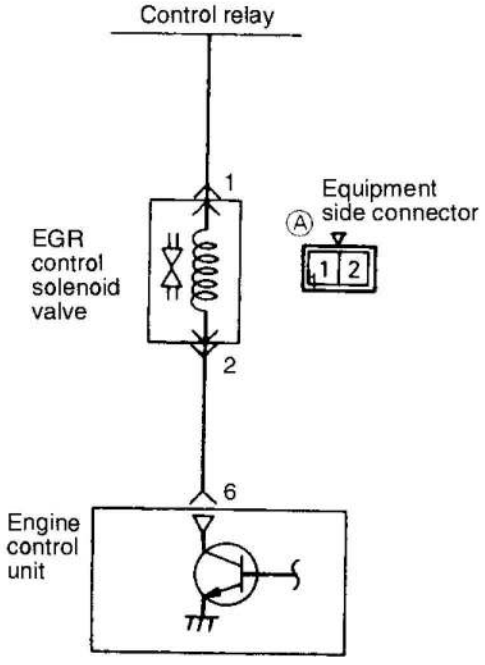
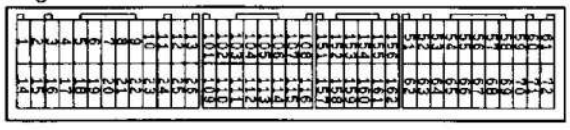
EGR CONTROL SOLENOID VALVE





Engine control unit connector



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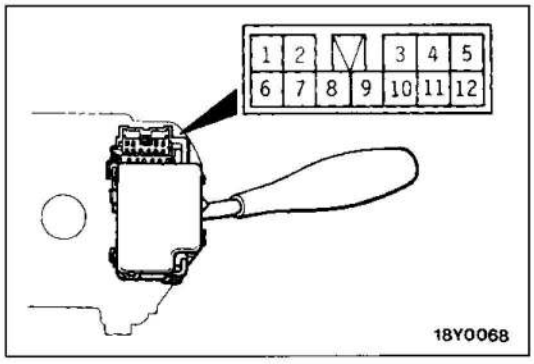
GROUP 51
EXTERIOR

GENERAL

OUTLINE OF CHANGES

- SRS has been adopted as an optional equipment. To correspond to this, inspection procedure of the column switch (wiper and washer switch) has been added.
  Applicable models : vehicles with SRS



WINDSHIELD WIPER AND WASHER

INSPECTION

COLUMN SWITCH CHECK

Wiper and Washer Switch

Switch position		Terminal No.				
		8	9	10	11	12
Wiper switch	OFF			○	○	
	INT			○	○	
	1 (LO)	○		○		
	2 (HI)	○	○			
Washer switch	ON	○				○

Intermittent Wiper Relay (Intermittent Operation Inspection)

1. Connect the column switch connector.
2. Turn the ignition switch to ACC.
3. Inspect the intermittent operation time when the wiper switch is turned to INT.

   Approx. 4 seconds

SUPPLEMENTAL RESTRAINT SYSTEM (SRS)

CONTENTS

CAUTION

- **Carefully read and observe the information in the 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.) section.**
- **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-21.) for the components involved.**
- **If you have any questions about the SRS, please contact your local distributor.**

GENERAL

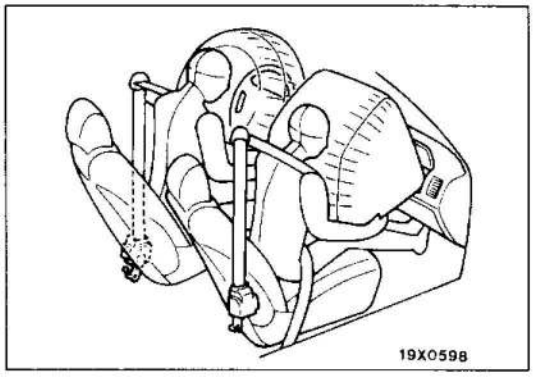
OUTLINE OF CHANGE

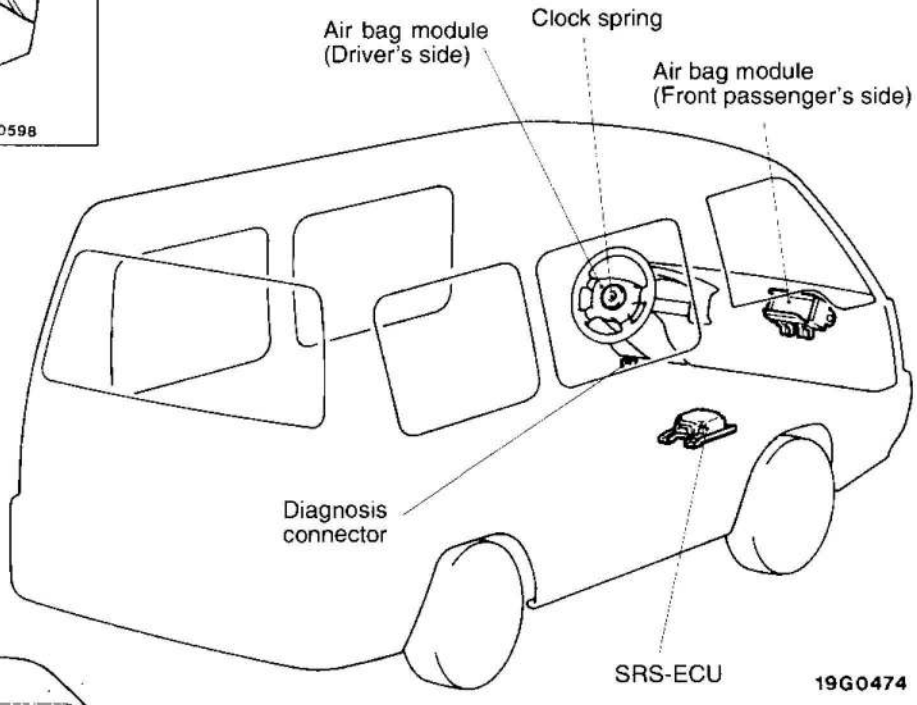
- SRS has been adopted as an optional equipment. To correspond to this, maintenance service procedures have been added.

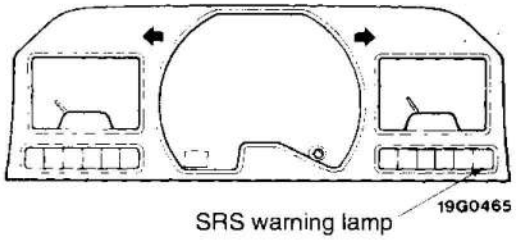
GENERAL INFORMATION

To improve safety, the SRS is available as optional parts. This system enhances collision safety by restraining the front passengers in case of an accident.
The SRS consists of two air bag modules, SRS air bag control unit (SRS-ECU), SRS warning lamp and clock spring. One air bag is located in the centre of the steering wheel and another above the glove box. Each air bag has a folded air bag and an inflator unit. The SRS-ECU under the instrument panel monitors the system and has a safing G sensor and an analogue G sensor.

The warning lamp on the instrument panel indicates the operational status of the SRS. The clock spring is installed in the steering column.
Only authorized service personnel should do work on or around the SRS components. Those service personnel should read this manual carefully before starting any such work. Extreme care must be used when servicing the SRS to avoid injury to the service personnel (by inadvertent deployment of the air bags) or the driver (by rendering the SRS inoperative).



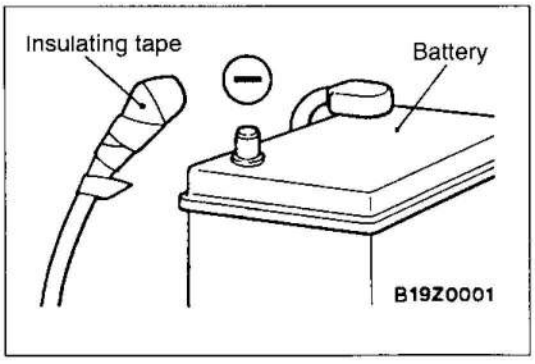




SRS SERVICE PRECAUTIONS

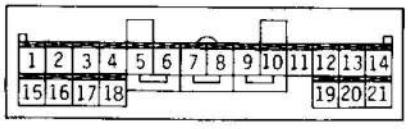
1. In order to avoid injury to yourself or others from accidental deployment of the air bag during servicing, read and carefully follow all the precautions and procedures described in this manual.
2. Do not use any electrical test equipment on or near SRS components, except those specified on P.52B-4.
3. **Never Attempt to Repair the Following Components:**
   - SRS air bag control unit (SRS-ECU)
   - Clock spring
   - Air bag module (Driver's side or front passenger's side*)

NOTE
*: Vehicles with front passenger's air bag.
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-21.



4. **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.**
   Wind a tape around the disconnected (–) terminal for insulation.

SRS-ECU connector



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

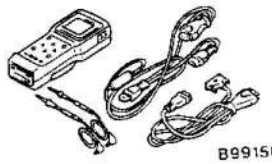
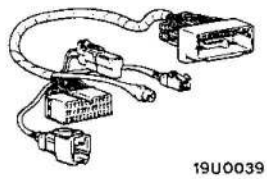
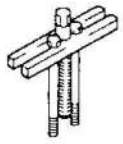
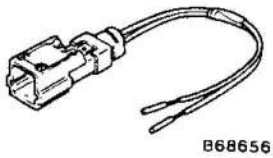
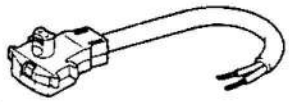
SRS-ECU Terminal No.	Harness connector (No. of terminals, colour)	Destination of harness	Corrective action
1 to 4	21 pins, yellow	–	–
5		Front wiring harness → Clock spring → Air bag module (Driver's side)	Correct or replace the front wiring harness. Replace the clock spring.
6			
7*		Front wiring harness → Air bag module (Front passenger's side)	Correct or replace the front wiring harness.
8*			
9, 10		–	–
11		Front wiring harness → Diagnosis connector	Correct or replace the front wiring harness.
12		–	–
13		Front wiring harness → Dedicated fuse	Correct or replace the front wiring harness.
14		Front wiring harness → Dedicated fuse	
15		Front wiring harness → SRS warning lamp	
16 to 19		–	–
20, 21		Front wiring harness → Earth	Correct or replace the front wiring harness.

NOTE
*: Vehicles with front passenger's air bag

6. SRS components should not be subjected to heat over 93°C, so remove the SRS-ECU, air bag module and clock spring before drying or baking the vehicle after painting.
7. Whenever you finish servicing the SRS, check warning lamp operation to make sure that the system functions properly. (Refer to P.52B-15.)
8. Make certain that the ignition switch is OFF when the 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.

SPECIAL TOOLS

Tool	Number	Name	Use
 B991502	MB991502	MUT-II sub assembly	• Reading diagnosis codes • Erasing diagnosis code • Reading trouble period • Reading erase times
 19U0039	MB991613	SRS check harness	Checking the SRS electrical circuitry
 B990803	MB990803	Steering wheel puller	Steering wheel removal
 B686560	MB686560	SRS air bag adapter harness A	• Deployment of air bag modules inside the vehicle • Deployment of air bag module (front passenger's side) outside the vehicle
 B628919	MR203491 or MB628919	SRS air bag adapter harness B	Deployment of air bag module (driver's side) outside the vehicle

TEST EQUIPMENT

Tool	Name	Use
	Digital multi-meter	Checking the SRS electrical circuitry Use a multi-meter for which the maximum test current is 2 mA or less at the minimum range of resistance measurement

TROUBLESHOOTING

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

Refer to GROUP 13 – Service Adjustment Procedures (MPI). (Refer to the '95 L300 Workshop Manual <Pub. No. PWWE9409(1/2)>.)

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 to GROUP 13 – Service Adjustment Procedures (MPI). (Refer to the '95 L300 Workshop Manual <Pub. No. PWWE9409(1/2)>.)

ERASING DIAGNOSIS CODES

Refer to GROUP 13 – Service Adjustment Procedures (MPI). (Refer to the '95 L300 Workshop Manual <Pub. No. PWWE9409(1/2)>.)

INSPECTION CHART FOR DIAGNOSIS CODES

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

Code No.	Diagnosis Item		Reference page
14	Analogue G-sensor system in the SRS-ECU		52B-7
15, 16	Safing G sensor system inside SRS-ECU		52B-7
21, 22, 51, 54*1, 61, 64*1	Driver's side air bag module (squib) system		52B-8
24, 25, 51, 54, 61, 64	Front passenger's side air bag module (squib) system		52B-9
31, 32	SRS-ECU capacitor system		52B-9
34*2	Connector lock system		52B-10
35	SRS-ECU (deployed air bag) system		52B-10
41*2	IG_1 power circuit system (fuse No. 14 circuit)		52B-10
42*2	IG_1 power circuit system (fuse No. 15 circuit)		52B-10
43	SRS warning lamp drive circuit system	Lamp does not illuminate.*2	52B-11
		Lamp does not switch off.	52B-12
44*2	SRS warning lamp drive circuit system		52B-12
45	Internal circuit system of non-volatile memory (EEPROM) inside SRS-ECU		52B-12

Code No.	Diagnosis Item	Reference page
51, 52, 54*1	Driver's side air bag module (squib ignition drive circuit) system	52B-12
51, 54, 55	Front passenger's side air bag module (squib ignition drive circuit) system	52B-12

NOTE
(1) *1: Vehicles with front passenger's air bag.
(2) *2: If the vehicle condition returns to normal, the diagnosis code will be automatically erased, and the SRS warning lamp will return to normal.
(3) If the vehicle has a discharged battery it will store the fault codes 41 or 42. When these diagnosis codes are displayed, check the battery.

INSPECTION PROCEDURE CLASSIFIED BY DIAGNOSIS CODE

Code No.14 Analogue G-sensor system in the SRS-ECU	**Probable cause**
The SRS-ECU monitors the output of the analogue G-sensor inside the SRS-ECU. It outputs this code when any of the following are detected. • When the analogue G-sensor is not operating • When the characteristics of the analogue G-sensor are abnormal • When the output from the analogue G-sensor is abnormal	• Malfunction of SRS-ECU

Replace the SRS-ECU.

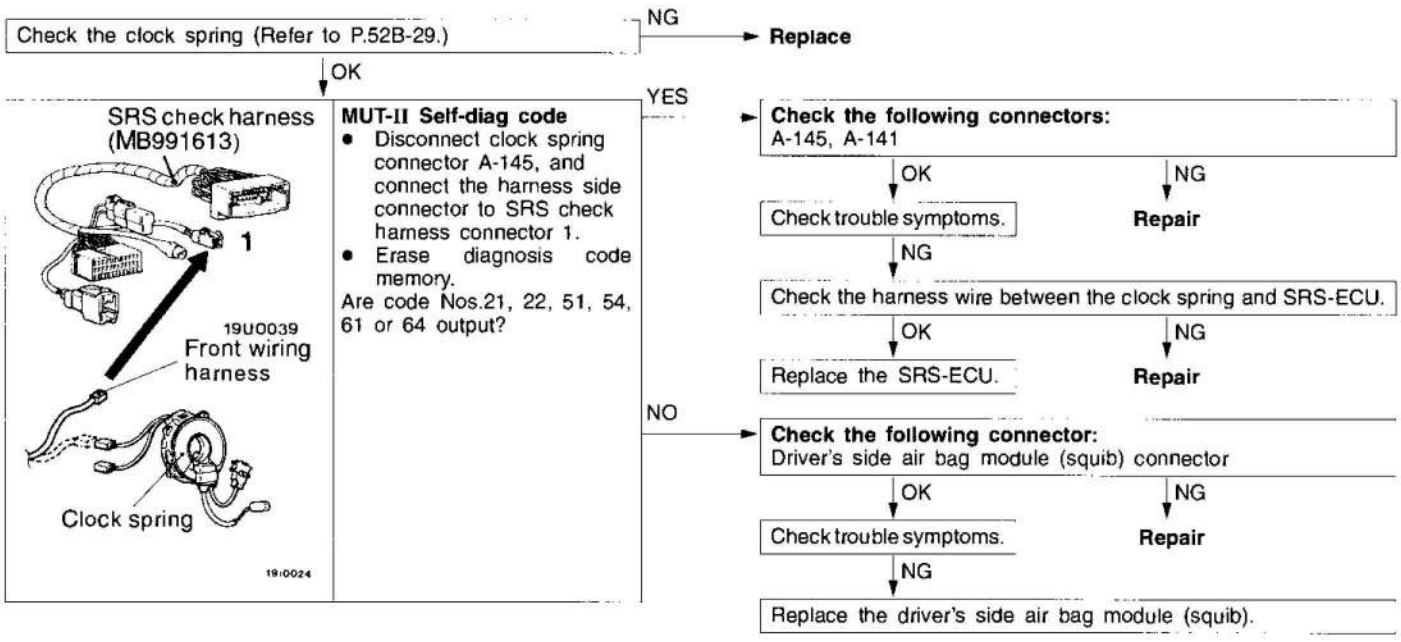
Code No.15 or 16 Safing G sensor system inside SRS-ECU	**Probable cause**
These diagnosis codes are output if there is a short or open circuit between the terminals of the safing G-sensor inside the SRS-ECU. The trouble causes for each diagnosis code No. are as follows.	• Malfunction of SRS-ECU

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

Replace the SRS-ECU.

Code No.21, 22, 51, 54, 61 or 64 Driver'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 driver's side air bag module (squib). The trouble causes for each diagnosis code No. are as follows.	• Malfunction of clock spring • Partial disconnection due to incorrect clock spring neutral position • Malfunction of wiring harnesses or connectors • Malfunction of driver's side air bag module (squib) • Malfunction of SRS-ECU

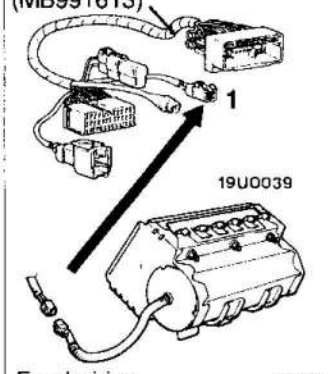
Code No.	Trouble cause
21	• Short in driver's side air bag module (squib) or harness short • Short in clock spring
22	• Open circuit in driver's side air bag module (squib) or open harness • Open circuit in clock spring • Disconnected driver's side air bag module (squib) connector • Partial disconnection due to incorrect clock spring neutral position • Malfunction of connector contact
51, 54	• Short in driver's side air bag module (squib) harness leading to the earth
61, 64	• Short in driver's side air bag module (squib) harness leading to the power supply



Code No.24, 25, 51, 54, 61 or 64 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 side air bag module (squib). The trouble causes for each diagnosis code No. are as follows.	• Malfunction of wiring harnesses or connectors • Malfunction of front passenger's side air bag module (squib) • Malfunction of SRS-ECU

Code No.	Trouble cause
24	• Short in front passenger's side air bag module (squib) or harness short
25	• Open circuit in front passenger's side air bag module (squib) or open harness • Malfunction of connector contact
51, 54	• Short in front passenger's side air bag module (squib) harness leading to the earth
61, 64	• Short in front passenger's side air bag module (squib) harness leading to the power supply

SRS check harness (MB991613)



Front wiring harness

MUT-II Self-diag code
- Disconnect front passenger's side air bag module connector A-140, and connect the harness side connector to SRS check harness connector 1.
- Erase diagnosis code memory.

Are code Nos.24, 25, 51, 54, 61 or 64 output?

YES → **Check the following connectors:** A-140, A-141

OK → Check trouble symptoms.

NG → **Repair**

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

OK → Replace the SRS-ECU.

NG → **Repair**

NO → Replace the front passenger's side air bag module (squib).

Code No.31 or 32 SRS-ECU capacitor system	Probable cause
These diagnosis codes are output if the voltage at the SRS-ECU capacitor terminals is higher (No.31) or lower (No.32) than the specified value for 5 seconds or more. However, if diagnosis code Nos.41 and 42 are being output due to a drop in battery voltage, code No.32 will not be detected.	• Malfunction of SRS-ECU

Replace the SRS-ECU.

Code No.34 Connector lock system	Probable cause
This diagnosis code is output if a poor connection of the SRS-ECU is detected. However, if the vehicle condition returns to normal, diagnosis code No.34 will be automatically erased, and the SRS warning lamp will switch off.	• Malfunction of connectors • Malfunction of SRS-ECU

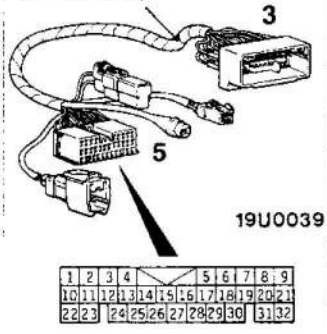
Check the following connector:
A-141
NG → **Repair**
OK ↓
Replace the SRS-ECU.

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.	• Malfunction of SRS-ECU

Replace the SRS-ECU.

Code No.41 IG_1 power circuit system (fuse No. 14 circuit) Code No.42 IG_1 power circuit system (fuse No. 15 circuit)	Probable cause
This diagnosis code is output if the voltage between the IG_1 terminal (No. 13 terminal or No. 14 terminal at the SRS-ECU) and the earth is lower than the specified value for a continuous period of 5 seconds or more. However, if the vehicle condition returns to normal, diagnosis code No.41 or No. 42 will be automatically erased, and the SRS warning lamp will switch off.	• Malfunction of wiring harnesses or connectors • Malfunction of SRS-ECU

SRS check harness (MB991613)



Measure at SRS check harness connector 5.
- Disconnect SRS-ECU connector A-141.
- Connect SRS check harness connector 3 to SRS-ECU connector.
- Connect the battery (–) terminal.
- Ignition switch: ON
- Voltage between terminal 14 (for code No. 41) or 13 (for code No. 42) and body earth

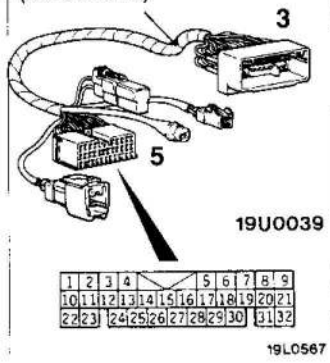
OK: 9 V or more

NG → **Check the following connector:**
A-141
OK ↓ Check trouble symptoms.
NG ↓ Check the harness wire between the SRS-ECU and ignition switch IG1, and repair if necessary.
NG → **Repair**

OK ↓
Replace the SRS-ECU.

Code No.43 SRS warning lamp drive circuit system (Lamp does not Illuminate.)	Probable cause
This diagnosis code is output when an open circuit occurs for a continuous period of 5 seconds while the SRS-ECU in monitoring the SRS warning lamp and the lamp 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 lamp will return to normal.	• Malfunction of wiring harnesses or connectors • Blown bulb • Malfunction of SRS-ECU • Malfunction of combination meter

SRS check harness (MB991613)



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Measure at SRS check harness connector 5.
- Disconnect SRS-ECU connector A-141.
- Connect SRS check harness connector 3 to SRS-ECU connector.
- Connect the battery (–) terminal.
- Ignition switch: ON
- Connect terminal 15 to the body earth.

OK: Lamp illuminates

NG → Blown bulb inspection

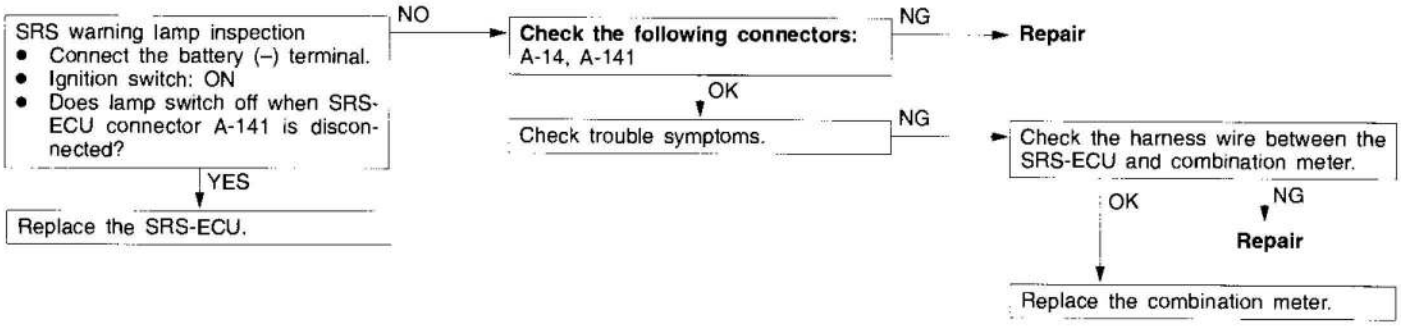
Blown bulb inspection
- OK → **Check the following connectors:** A-141, A-13, A-14
- NG → **Repair**

Check the following connectors: A-141, A-13, A-14
- DK → Check trouble symptoms.
- NG → **Repair**

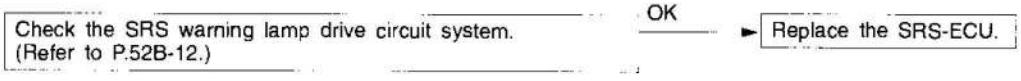
Check trouble symptoms.
- NG → Check the harness wire between the SRS-ECU, combination meter and ignition switch IG1.
- DK → Replace the SRS-ECU.

Check the harness wire between the SRS-ECU, combination meter and ignition switch IG1.
- OK → Replace the combination meter.
- NG → **Repair**

Code No.43 SRS warning lamp drive circuit system (Lamp does not switch off.)	Probable cause
This diagnosis code is output when a short to earth occurs in the harness between the lamp and the SRS-ECU while SRS-ECU is monitoring the SRS warning lamp and the lamp is ON.	• Malfunction of wiring harnesses or connectors • Malfunction of SRS-ECU • Malfunction of combination meter



Code No.44 SRS warning lamp drive circuit system	Probable cause
This diagnosis code is output when a short occurs in the lamp drive circuit or a malfunction of the output transistor inside the SRS-ECU is detected while the SRS-ECU is monitoring the SRS warning lamp drive circuit. However, if the vehicle condition returns to normal, diagnosis code No.44 will be automatically erased, and the SRS warning lamp will switch off.	• Malfunction of wiring harnesses or connectors • Malfunction of SRS-ECU



Code No.45 Internal circuit system of non-volatile memory (EEPROM) inside SRS-ECU	Probable cause
This diagnosis code is output if there is an internal problem with the non-volatile memory (EEPROM) ,etc. inside the SRS-ECU.	• Malfunction of SRS-ECU

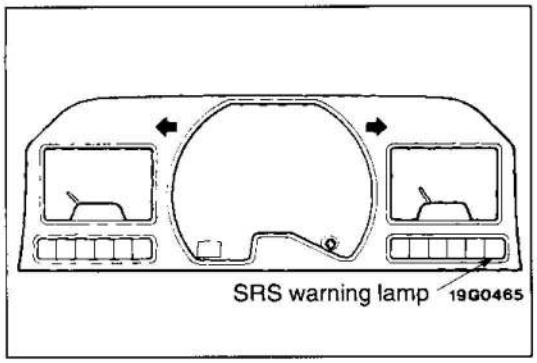
Replace the SRS-ECU.

Code No.51, 52 or 54 Driver's side air bag module (squib ignition drive circuit) system	Probable cause
This diagnosis code is output if a short (No.51 or 54) or an open circuit (No.52) is detected in the circuit for the driver's seat.	• Malfunction of SRS-ECU

Replace the SRS-ECU.

Code No.51, 54 or 55 Front passenger's side air bag module (squib ignition drive circuit) system	Probable cause
This diagnosis code is output if a short (No.51 or 54) or an open circuit (No.55) is detected in the circuit for the passenger's seat.	• Malfunction of SRS-ECU

Replace the SRS-ECU.



SRS WARNING LAMP INSPECTION

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

INSPECTION CHART FOR TROUBLE SYMPTOMS

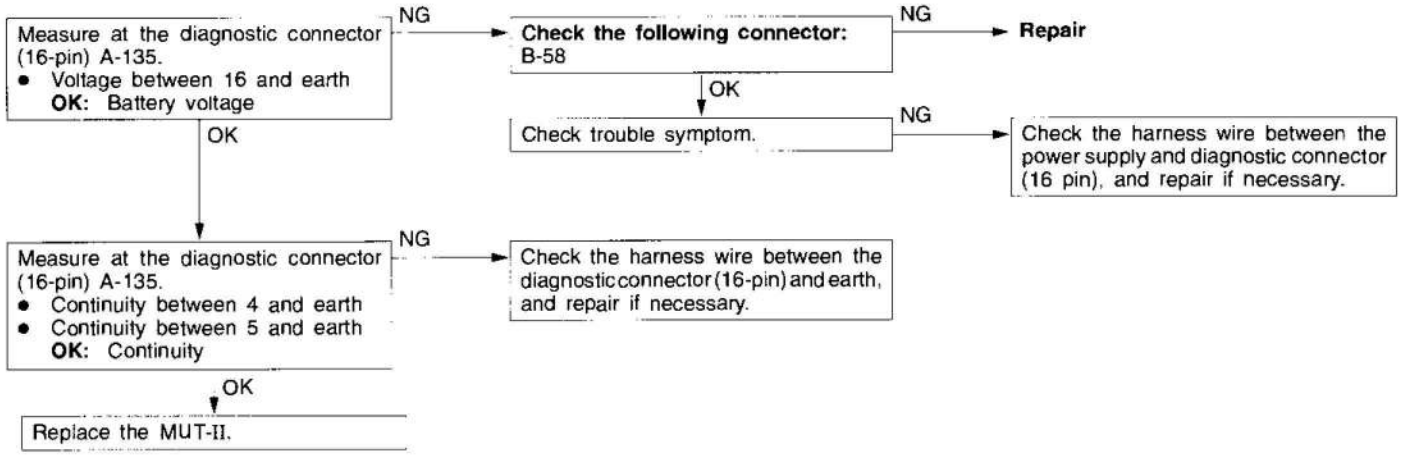
Get an understanding of the trouble symptoms and check according to the inspection procedure chart.

Trouble symptom		Inspection procedure No.	Reference page
Communication with MUT-II is not possible.	Communication with all systems is not possible.	1	52B-13
	Communication is not possible with SRS only.	2	52B-14
When the ignition key is turned to ON (engine stopped), the SRS warning lamp does not illuminate.		Refer to diagnosis code No.43.	52B-11
After the ignition switch is turned to ON, the SRS warning lamp is still on after approximately 7 seconds have passed.		Refer to diagnosis code No.43, 44.	52B-12

INSPECTION PROCEDURE FOR TROUBLE SYMPTOMS

Inspection Procedure 1

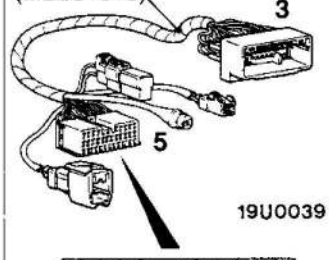
Communication with MUT-II is not possible. (Communication with all systems is not possible.)	**Probable cause**
The cause is probably a power supply system (including earth circuit) of the diagnosis line.	• Malfunction of connectors • Malfunction of wiring harness



Inspection Procedure 2

Communication with MUT-II is not possible. (Communication is not possible with SRS only.)	Probable cause
If communication is not possible with the SRS only, the cause is probably an open circuit in the diagnosis output circuit of the SRS or in the power circuit (including earth circuit).	• Malfunction of wiring harnesses or connectors • Malfunction of SRS-ECU

SRS check harness (MB991613)



Measure at SRS check harness connector 5.
- Disconnect SRS-ECU connector A-141.
- Connect SRS check harness connector 3 to SRS-ECU connector.

(1) Continuity between terminal 20 and body earth, and between terminal 21 and body earth
OK: Continuity

(2) Voltage between terminal 13 and body earth
OK: 9 V or more

(3) Voltage between terminal 14 and body earth
OK: 9 V or more

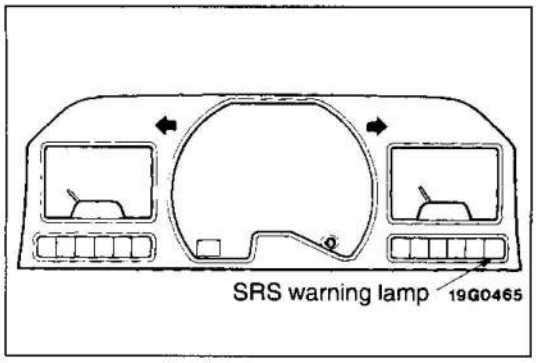
(1) NG → **Check the following connector:** A-141
- OK → Check trouble symptoms.
  - NG → **Repair**
  - NG → Check the harness wire between the SRS-ECU and earth, and repair if necessary.

(2), (3) NG → **Check the following connector:** A-141
- OK → Check trouble symptoms.
  - NG → **Repair**
  - NG → Check the harness wire between the SRS-ECU and ignition switch IG1, and repair if necessary.

OK → **Check the following connectors:** A-141, A-135
- NG → **Repair**
- OK → Check trouble symptoms.
  - NG → Check the harness wire between the SRS-ECU and diagnosis connector.
    - NG → **Repair**
    - OK → Replace the SRS-ECU.

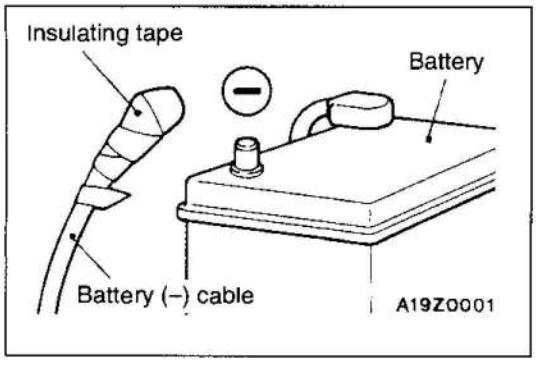
SRS MAINTENANCE

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



SRS WARNING LAMP CHECK

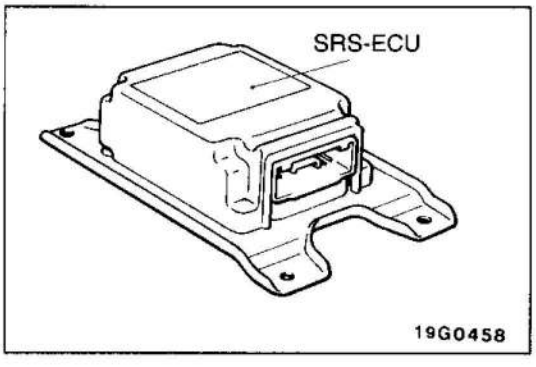
Turn the ignition key to the "ON" position. Does the SRS warning lamp illuminate for about 7 seconds, turn off and then remain extinguished for at least 5 seconds? If yes, SRS system is functioning properly. If no, consult page 52B-8.



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 to P.52B-3.)

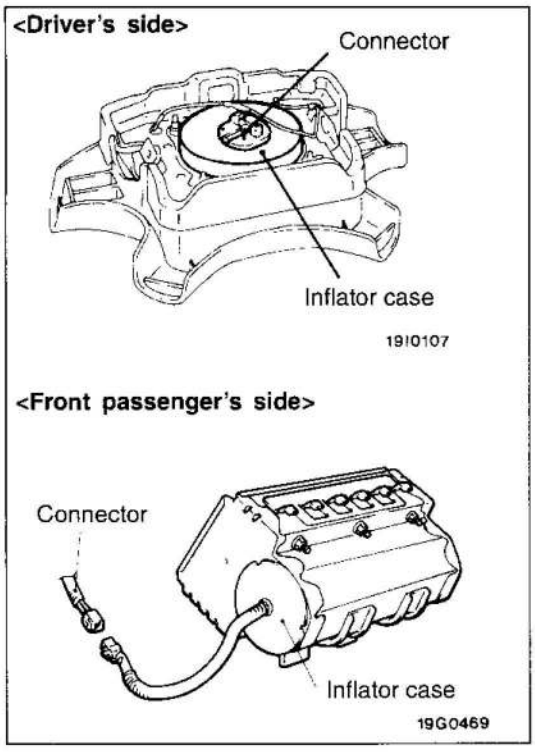


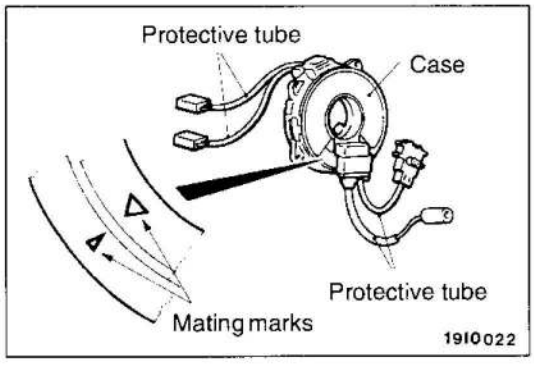
SRS AIR BAG CONTROL UNIT (SRS-ECU)

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 to P.52B-23.)





AIR BAG MODULES, STEERING WHEEL AND CLOCK SPRING

1. Remove the air bag modules, steering wheel and clock spring. (Refer to P.52B-25, 26.)

   Caution
   The removed air bag modules should be stored in a clean, dry place with the air bag deployment side face up.

2. Check pad cover for dents, cracks or deformation.
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 and connectors for damage, and terminals for deformation.
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 vehicle's front wheels to straight-ahead position, install the clock spring to the column switch.

   Mating Mark Alignment

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

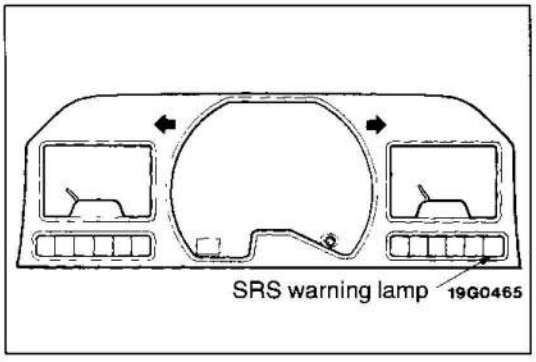
   Caution
   If the clock spring's mating mark is not properly aligned, the steering wheel may not be completely rotational during a turn, or the flat cable within the clock spring may be severed, obstructing normal operation of the SRS and possibly leading to serious injury to the vehicle's driver or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

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-25, 26.)

    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 WIRING HARNESS

1. Check connector for poor connection.
2. Check harnesses for binds, connectors for damage, and terminals for deformation.
   REPLACE ANY CONNECTORS OR HARNESSES THAT FAIL THE VISUAL INSPECTION. (Refer to P.52B-4.)
   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 or front passenger.



POST-INSTALLATION INSPECTION

Reconnect the negative battery terminal. Turn the ignition key to the "ON" position. Does the SRS warning lamp illuminate for about 7 seconds, turn off and then remain extinguished for at least 5 seconds? If yes, SRS system is functioning properly. If no, consult page 52B-6.

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

2. Read (and write down) all displayed diagnosis codes. (Refer to P.52B-6.)

   NOTE
   If the battery power supply has been disconnected or disrupted by the collision, the MUT-II cannot communicate with the SRS-ECU. Inspect and, if necessary, repair the dash wiring harness 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 firest 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 igniting signal till now)	

4. Erase the diagnosis codes and after waiting 45 seconds or more read (and write down) all displayed diagnosis codes. (Refer to P.52B-6.)

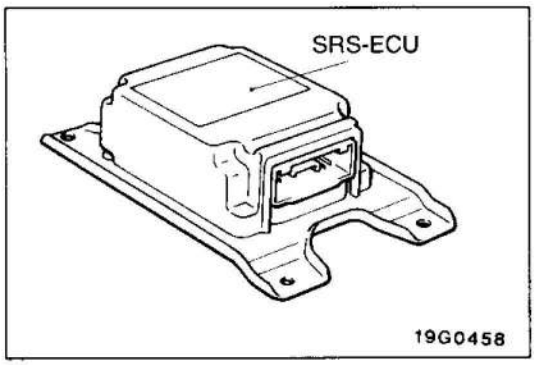
REPAIR PROCEDURE

WHEN AIR BAGS (DRIVER'S SIDE AND FRONT PASSENGER'S SIDE) DEPLOY IN A COLLISION.

1. Replace the following parts with new ones.
   - SRS-ECU (Refer to P.52B-23.)
   - Driver's side air bag module (Refer to P.52B-25.)
   - Front passenger's side air bag module (Refer to P.52B-26.)
   - Instrument pad assembly (Refer to GROUP 52A – Instrument Panel.)
2. Check the following parts and replace if there are any malfunctions.
   - Clock spring (Refer to P.52B-25.)
   - Steering wheel, steering column and intermediate joint
     (1) Check wiring harness (built into steering wheel) and connectors for damage, and terminals for deformation.
     (2) Install air bag module to check fit or alignment with steering wheel.
     (3) Check steering wheel for noise, binds or difficult operation and excessive free play.
3. Check harnesses for binding, connectors for damage, poor connections, and terminals for deformation. (Refer to P.52B-17.)

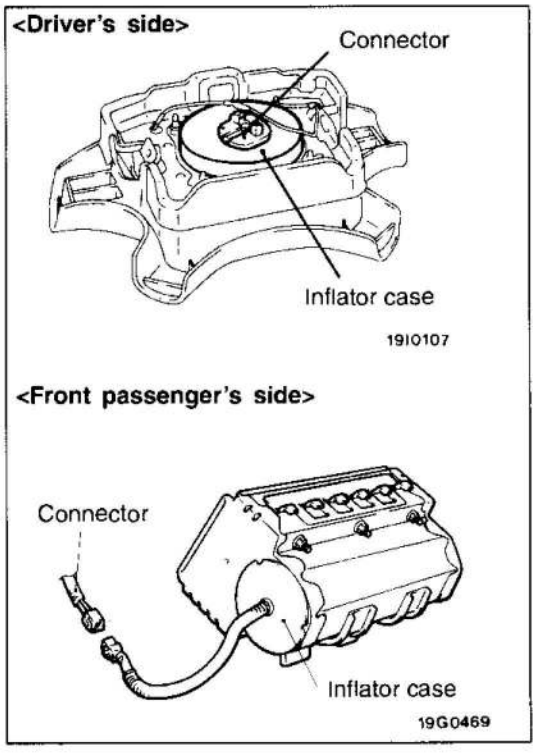
WHEN AIR BAG DOES NOT DEPLOY IN LOW-SPEED COLLISION.

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-21.



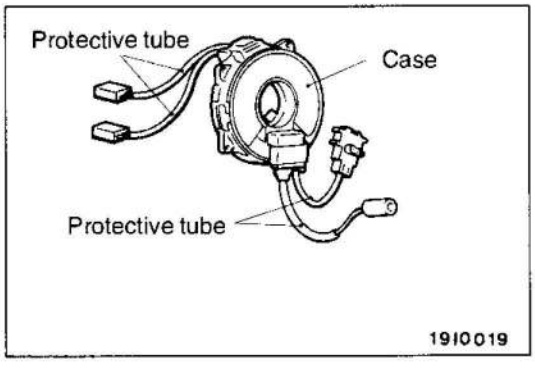
SRS-ECU

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



Air bag modules

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



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, binds or difficult operation and excessive free play.

Harness connector (front wiring harness)

Check harnesses for binding, connectors for damage, poor connection, and terminals for deformation. (Refer to P.52B-17.)

INDIVIDUAL COMPONENT SERVICE

If the SRS components are to be removed or replaced as a result of maintenance, troubleshooting, etc., follow each procedure (P.52B-23 – P.52B-30).

Caution

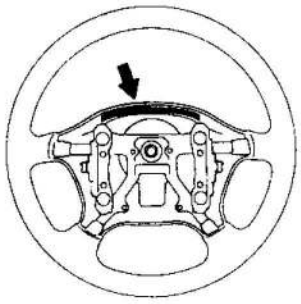
1. **SRS components should not be subjected to heat, so remove the SRS-ECU, air bag modules (driver's side and front passenger's side) and clock spring before drying or baking the vehicle after painting.**
   - **SRS-ECU, air bag module, clock spring: 93°C or more**

   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

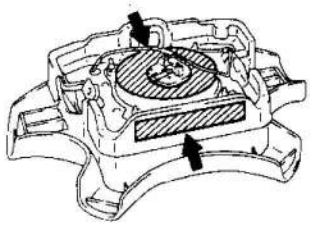
A number of caution labels relating to the SRS are found in the vehicle, as shown in the following illustration. Follow label instructions when servicing SRS. If labels are dirty or damaged, replace them with new ones.

Steering wheel



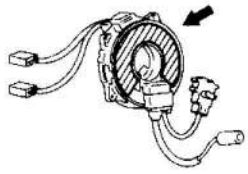
1910042

Air bag module (driver's side)



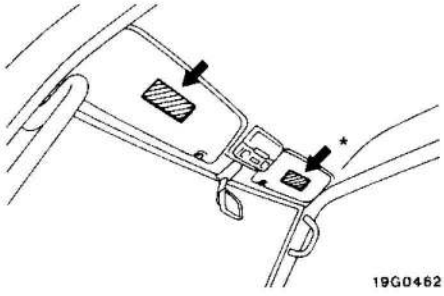
1910034

Clock spring



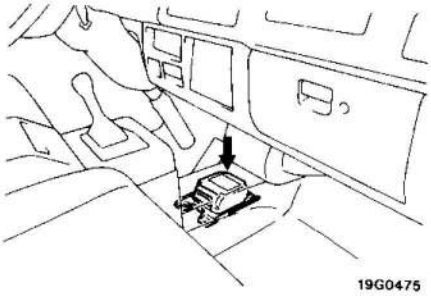
1910020

Sun visor



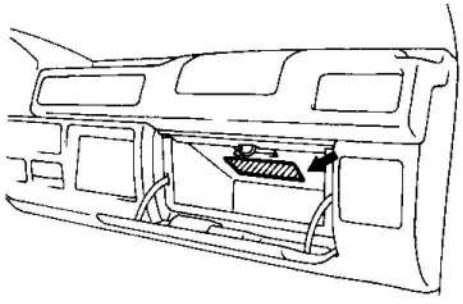
19G0462

SRS-ECU



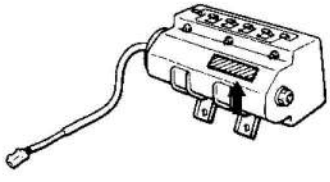
19G0475

Glove box



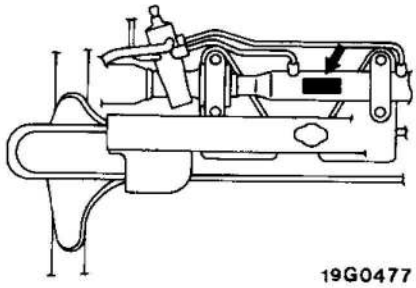
19G0476

Air bag module (front passenger's side)



19G0461

Steering gear box



19G0477

NOTE

*: Vehicles with front passenger's air bag

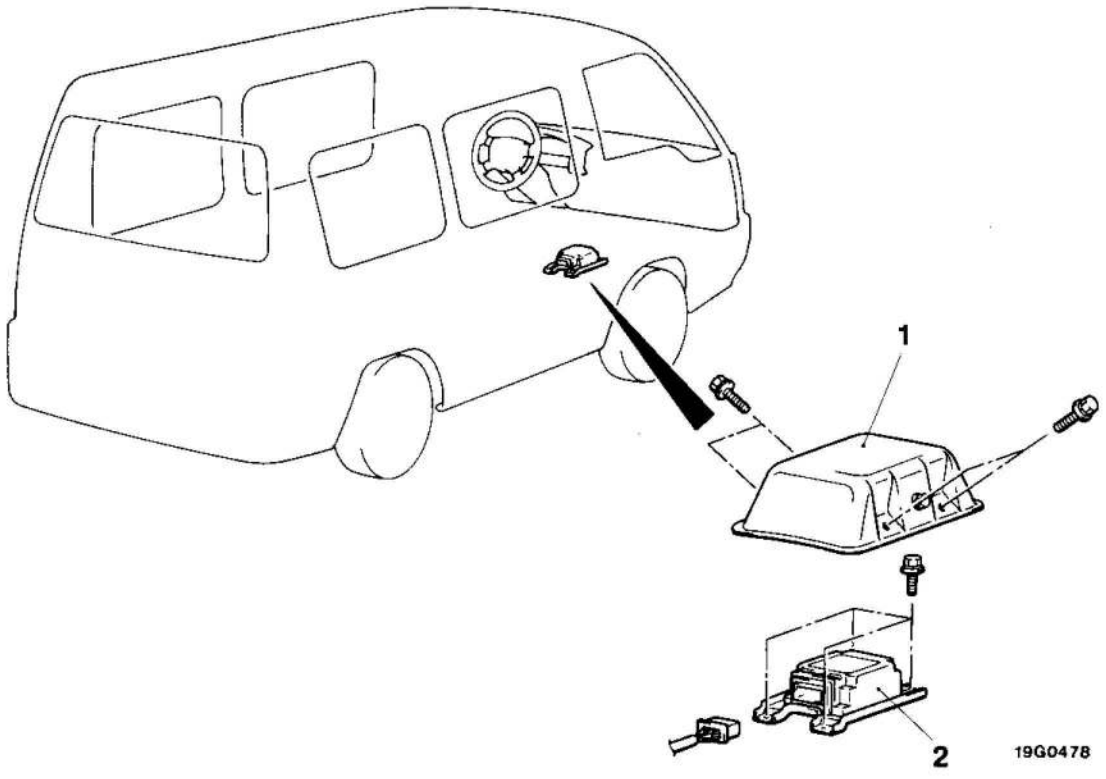
SRS AIR BAG CONTROL UNIT (SRS-ECU)

Caution

1. **Disconnect the battery (–) terminal and wait for 60 seconds or more before starting work. Furthermore, the disconnected battery terminal should be covered with tape to insulate it. (Refer to P.52B-4.)**
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 described on P.52B-6.**

REMOVAL AND INSTALLATION

Pre-removal Operation
Turn the ignition key to the "LOCK" position.



Removal steps

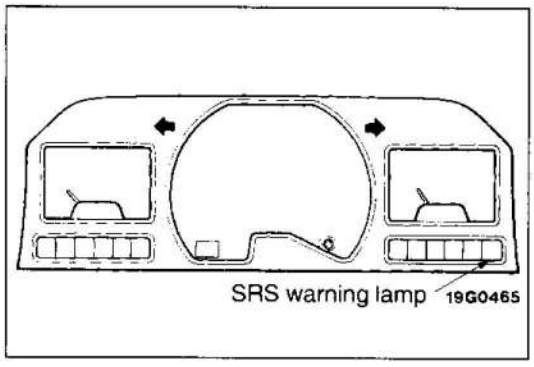
▶B◀ • Post-installation inspection
• Negative (–) battery cable connection
• Front floor carpet
1. SRS-ECU cover

▶A◀ 2. SRS-ECU

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. Reconnect the negative battery terminal.
2. Turn the ignition key to the "ON" position.
3. Does the "SRS" warning lamp illuminate for about 7 seconds, and then remain extinguished for at least 5 seconds after turning OFF?
4. If yes, SRS system is functioning properly.
   If no, consult page 52B-6.

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 to the section concerning troubleshooting. (Refer to P.52B-6.)

AIR BAG MODULES AND CLOCK SPRING

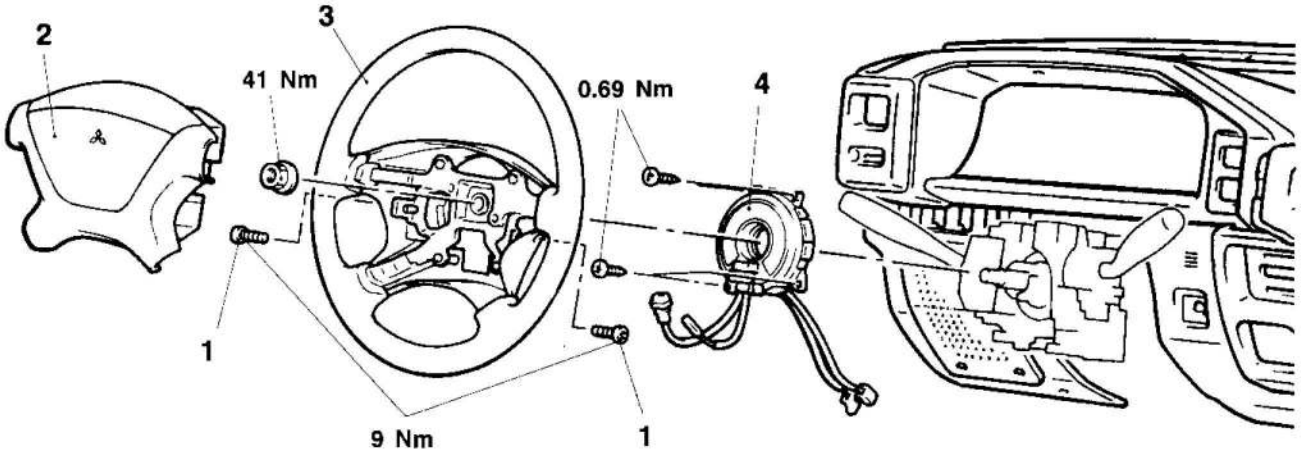
Caution

1. **Disconnect the battery (–) terminal and wait for 60 seconds or more before starting work. Furthermore, the disconnected battery terminal should be covered with tape to insulate it. (Refer to P.52B-3.)**
2. **Never attempt to disassemble or repair the air bag modules or clock spring. If faulty, replace it.**
3. **Do not drop the air bag modules or clock spring or allow contact with water, grease or oil. Replace it if a dent, crack, deformation or rust is detected.**
4. **The air bag modules should be stored on a flat surface and placed so that the air bag deployment surfaces are facing upward.**
5. **Do not expose the air bag modules to temperatures over 93°C.**
6. **When the driver's side and passenger's side air bags have been deployed, the air bag modules (driver's side and passenger's side) should be replaced with new modules. Check the clock spring, and if faulty, replace it with a new part.**
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 procedures (Refer to P.52B-31.)**

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.



19G0479

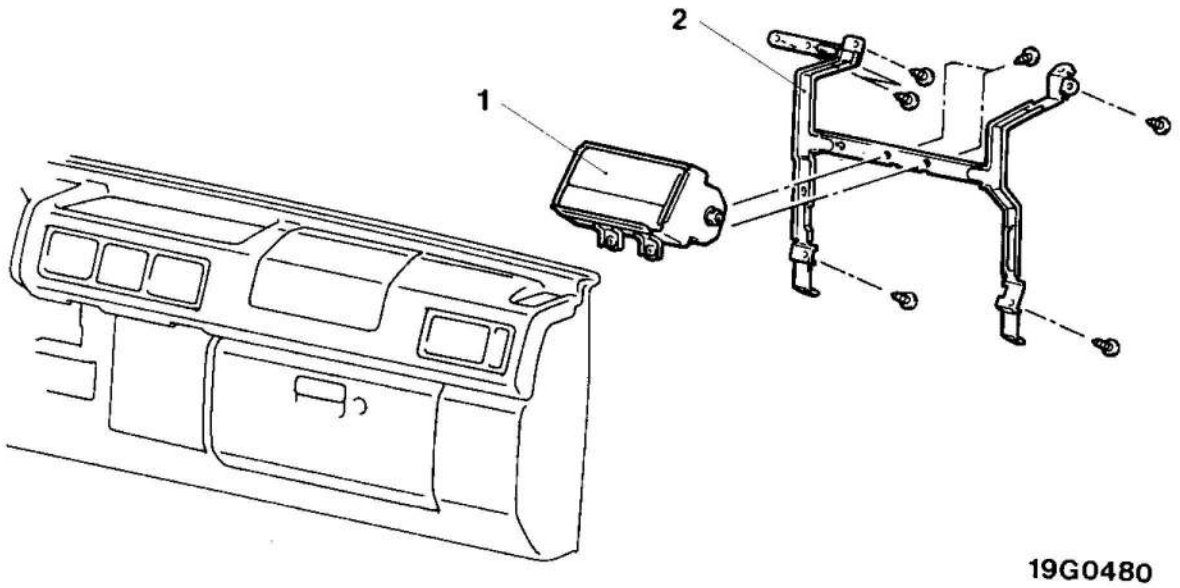
Air bag module removal steps

- ▶D◀ • Post-installation inspection
- • Negative (–) battery cable connection
- 1. Air bag module mounting screw (Torx screw)
- ◀A▶ 2. Air bag module
- ▶A◀ • Pre-installation inspection

Clock spring removal steps

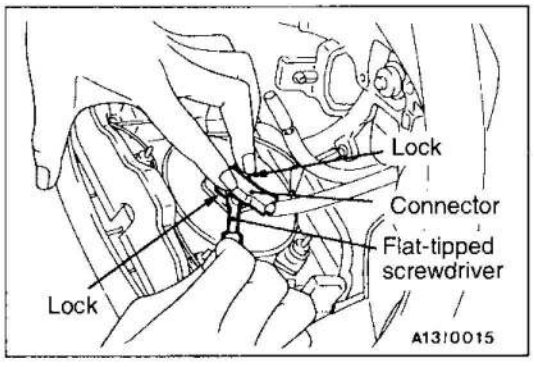
- ▶D◀ • Post-installation inspection
- • Negative (–) battery cable connection
- 1. Air bag module mounting screw (Torx screw)
- ◀A▶ 2. Air bag module
- ◀B▶ ▶C◀ 3. Steering wheel
- • Column cover
- ◀C▶ ▶B◀ 4. Clock spring
- ▶A◀ • Pre-installation inspection

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



Air bag module removal steps

▶D◀ • Post-installation inspection
• Negative (–) battery cable connection
• Instrument Panel
◀D▶ 1. Air bag module
2. Air bag module bracket (passenger's side)
▶A◀ • Pre-installation inspection



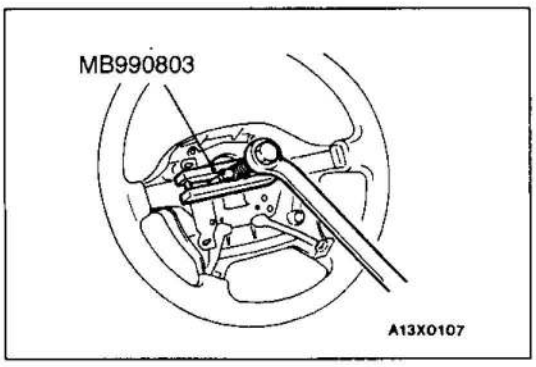
REMOVAL SERVICE POINTS

◀A▶ 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 towards the outer side to spread it open. Use a flat-tipped screwdriver, as shown in the figure at the left, to pry so as to remove the connector gently.

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 facing up.**



◀B▶ STEERING WHEEL REMOVAL

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

◀C▶ CLOCK SPRING REMOVAL

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

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

Caution
The removed air bag module should be stored in a clean, dry place with the air bag deployment side facing up.

INSTALLATION SERVICE POINTS

▶A◀ PRE-INSTALLATION INSPECTION

1. When installing the new air bag modules and clock spring, refer to "INSPECTION", P.52B-29, 30.

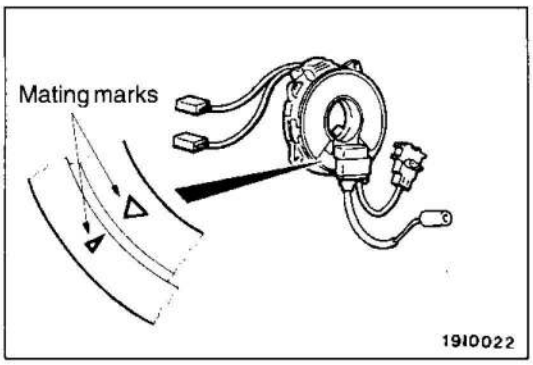
   Caution
   Dispose of air bag modules only according to the specified procedure. (Refer to P.52B-31.)

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

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

4. Turn the ignition key to the "ON" position.
5. Conduct self-diagnosis using the MUT-II to ensure entire SRS operates properly, except open circuit of air bag modules.
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-3.)



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

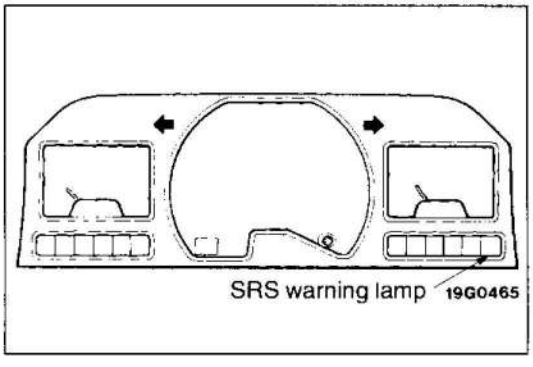
Caution
If the clock spring's mating marks are not properly aligned, the steering wheel may not be completely rotational during a turn, or the flat cable within the clock spring may be severed, obstructing normal operation of the SRS and possibly leading to serious injury to the vehicle's driver.

▶C◀ STEERING WHEEL INSTALLATION

1. Before installation 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.

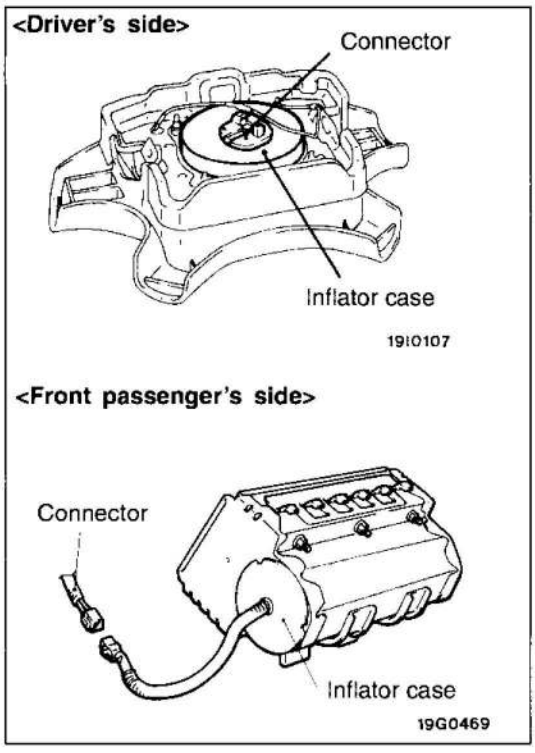
   Caution
   Be sure when installing the steering wheel, that the harness of the clock spring does not become caught or tangled.

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



▶D◀ POST-INSTALLATION INSPECTION

1. Reconnect the negative battery terminal.
2. Turn the ignition key to the "ON" position.
3. Does the "SRS" warning lamp illuminate for about 7 seconds, and then remain extinguished for at least 5 seconds after turning OFF?
4. If yes, SRS system is functioning properly.
   If no, consult page 52B-6.



INSPECTION

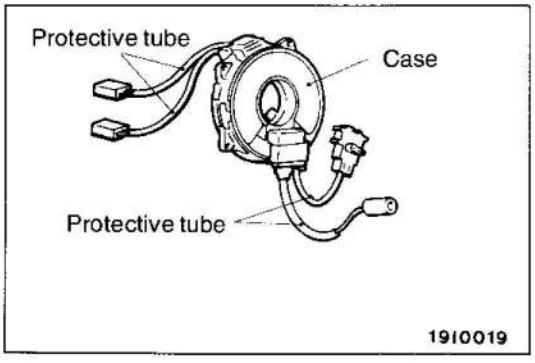
AIR BAG MODULE CHECK

If any improper part is found during the following inspection, replace the air bag modules with a new one.
Dispose the old one according to the specified procedure. (Refer to P.52B-31.)

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

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

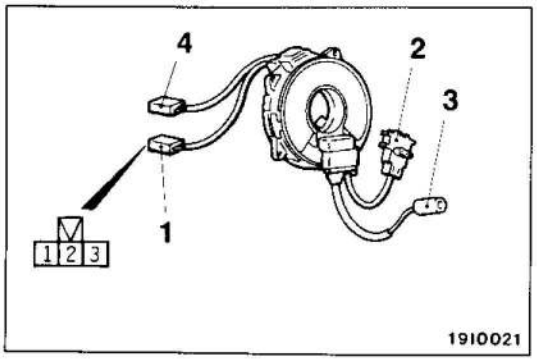
Caution
If dents, cracks, deformation, or rust are discovered in the air bag module, replace it with a new one.
Dispose of the old one according to the specified procedure. (Refer to P.52B-31.)



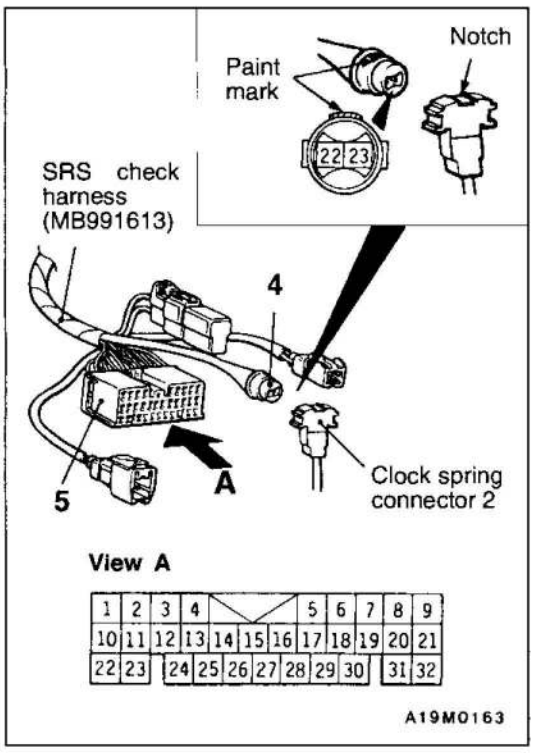
CLOCK SPRING CHECK

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.



3. Check that there is continuity between terminal 3 of the clock spring connector No. 1 and connector No. 3.



4. Align the paint mark of the SRS check harness connector No.4 with the notch in clock spring connector No.2 to connect the connectors Nos.2 and 4.
5. Check continuity between the terminals 22 and 23 of the SRS check harness connector No.5.

AIR BAG MODULE DISPOSAL PROCEDURES

Before disposing of a vehicle which is equipped with air bags, or when disposing of the air bags themselves, the following procedures must be used to deploy the air bags before disposal.

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 operated 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 are deployed, avoid residential areas whenever possible.**
3. **Since there is a 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.**

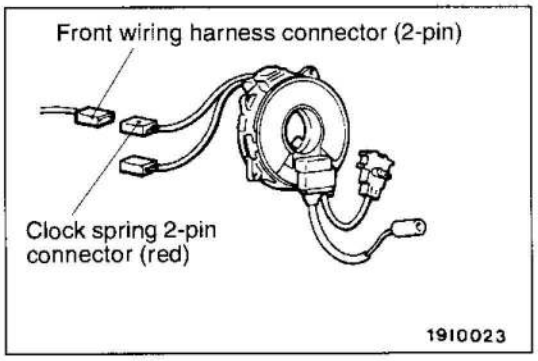
AIR BAG MODULE DEPLOYMENT

Deployment Inside The Vehicle

(when disposing of a vehicle)

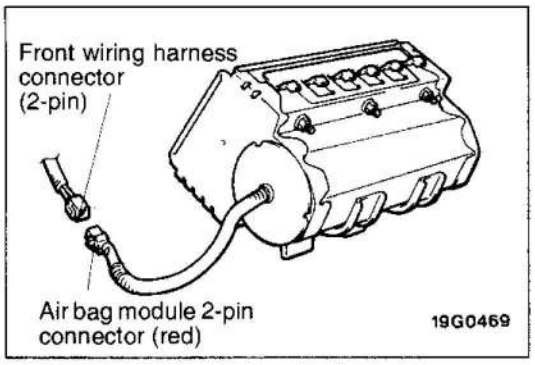
1. Move the vehicle to an isolated spot.
2. Disconnect the negative (–) and positive (+) battery cables from the battery terminals, and then remove the battery from the vehicle.

   Caution
   Wait at least 60 seconds after disconnecting the battery cables before doing any further work. (Refer to P.52B-3.)



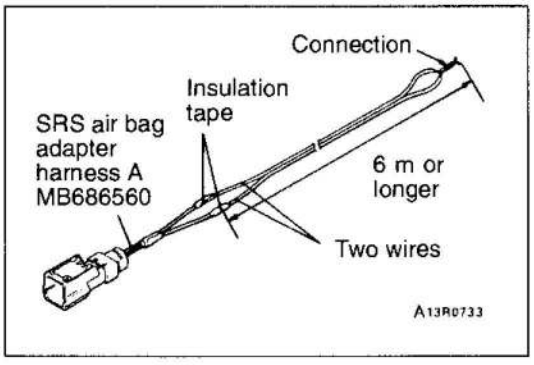
3. To deploy the air bag module (driver's side):
   (1) Remove the steering column lower cover.
   (2) Remove the connection between the clock spring 2-pin connector (red) and the front wiring harness connector.

   NOTE
   If the clock spring connector is disconnected from the front 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.

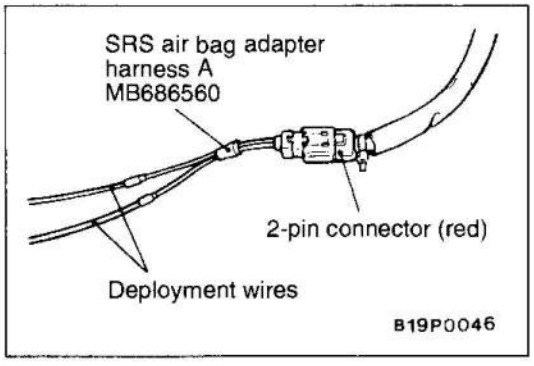


4. To deploy the air bag module (front passenger's side):
   (1) Remove the glove box.
   (2) Remove the connection between the air bag module (front passenger's side) connector (red 2-pin) and the front wiring harness connector.

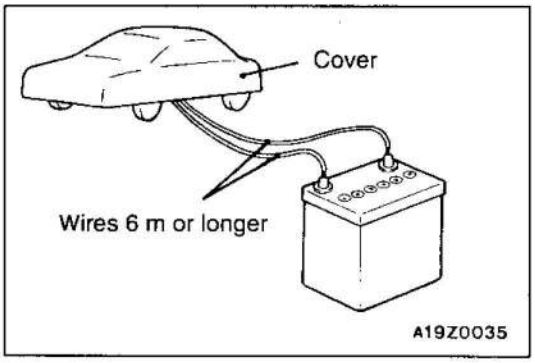
   NOTE
   If the air bag module connector is disconnected from the front wiring harness, both electrodes of the air bag module connector will be automatically shorted to prevent unintended deployment of the air bag due to static electricity, etc.



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



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



7. Fully close all door windows, close the doors and place a cover over the vehicle to minimize the amount of noise.

   Caution
   If the glass is damaged, it may break, so the car must be covered.

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 (P.52B-37.) 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 air bag module according to the Deployed Air Bag Module Disposal Procedures. (Refer to P.52B-37.)

Deployment Outside The Vehicle

Caution

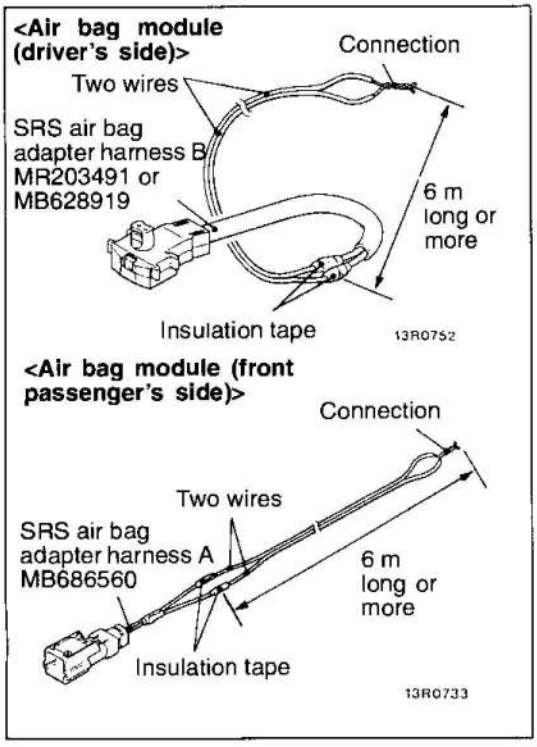
1. **This should be carried out in a wide, flat area at least 6 m away from obstacles and other people.**
2. **Do not perform deployment outside, if a strong wind is blowing, and if there is even a slight breeze, the air bag module should be placed and deployed downwind from the battery.**

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

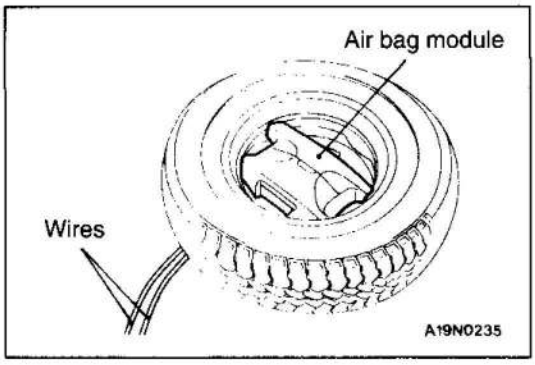
   Caution
   Wait at least 60 seconds after disconnecting the battery cables before doing any further work. (Refer to P.52B-3.)

2. Remove the air bag modules (driver's-side and front passenger's-side) (Refer to P.52B-25, 26.) from the vehicle.

   Caution
   The air bag modules should be stored on flat surface and placed so that the air bag deployment surfaces are facing upward. Do not place anything on top of them.



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

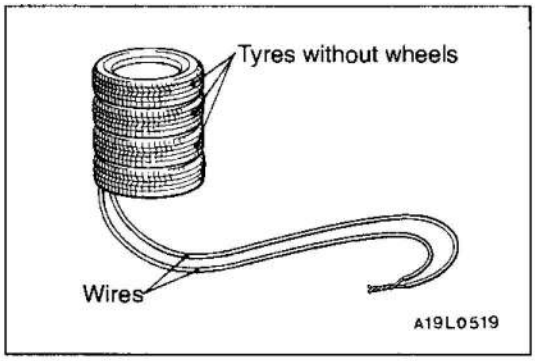


4. Set the air bag modules as follows:

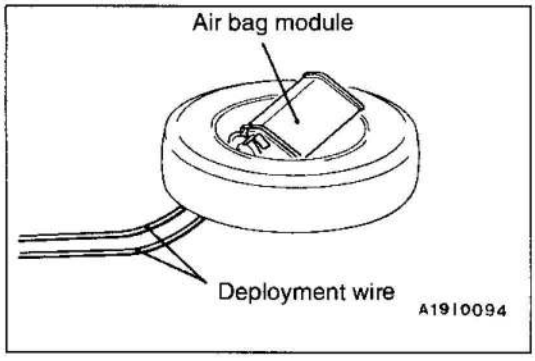
<Air bag module (driver's side)>

(1) Take the SRS air bag adapter harness B that is connected to the wires, pass it beneath the old tyre wheel assembly, and connect it to the air bag module.
(2) Pass the 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.



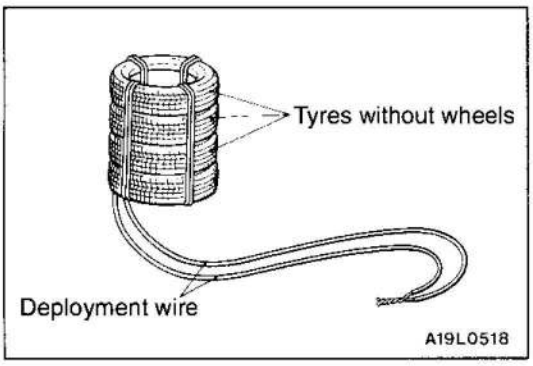
(3) Place three old tyres with no wheels on top of the tyre secured to the air bag module.



<Air bag module (front passenger's 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 them to the wheel of the old tyre with wheel (4 locations) with the air bag deployment surface 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.

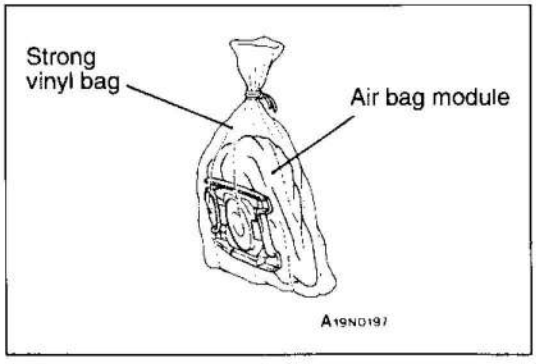
   Caution
   1. **Before deployment, check carefully to be sure that no one is nearby.**
   2. **The inflator will be quite hot immediately following deployment, so wait at least 30 minutes to allow it to cool before attempting to handle it. Although the gas resulting from air bag deployment is not poisonous, it should not be inhaled. Refer to the Deployed Air Bag Module Disposal Procedures (P.52B-37) 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 air bag module according to the Deployed Air Bag Module Disposal Procedures. (Refer to P.52B-37.)

DEPLOYED AIR BAG MODULE DISPOSAL PROCEDURES

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. 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.

GROUP 54
CHASSIS ELECTRICAL

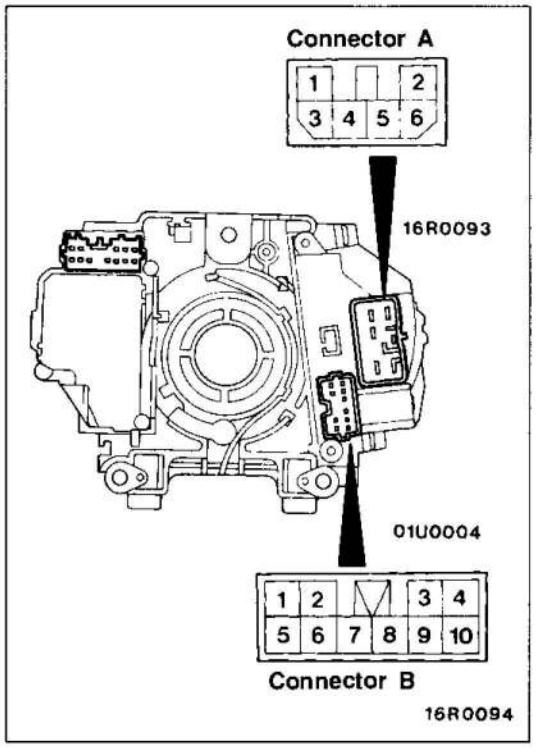
GENERAL

OUTLINE OF CHANGES

SRS has been adopted as an optional equipment. To correspond to this, the following changes have been performed.

- Inspection procedures of the column switch (lighting switch, dimmer/passing switch and turn-signal lamp switch) have been added.
  Applicable models: Vehicles with SRS
- The horn relay and headlamp relays (for high beam and low beam) have been added. To correspond to this, the inspection procedures have been added.
  Applicable models : Vehicles with SRS

The high mounted stop lamp has been added to all models. To correspond to this, the maintenance service procedures have been added.



COLUMN SWITCH

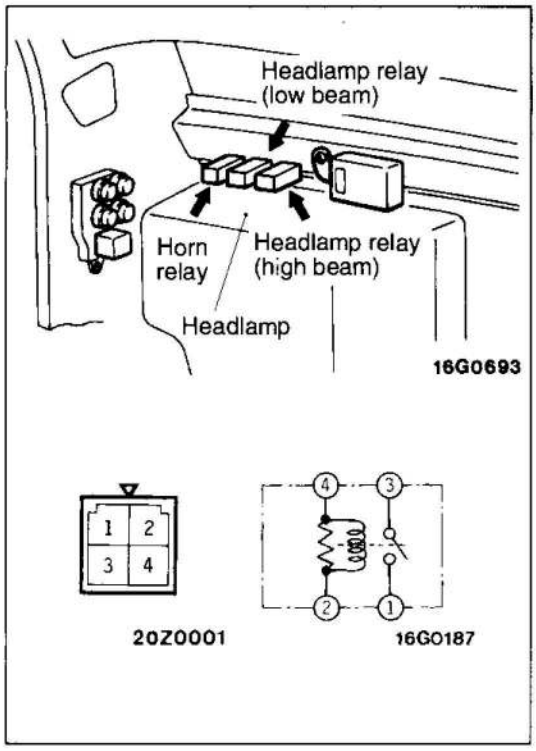
INSPECTION

COLUMN SWITCH CHECK

Lighting Switch, Dimmer / Passing Switch and Turn-signal Lamp Switch

Switch position		Connector A-terminal No.					Connector B-terminal No.					
		1	2	3	4	6	3	5	6	7	8	9
LIGHTING SWITCH	OFF											
	TAIL							○		○		
	HEAD	○				○		○		○		
DIMMER/ PASSING SWITCH	LOWER			○	○							
	UPPER				○	○						
	PASSING	○	○	○ *1	○	○ *2						
TURN-SIGNAL LAMP SWITCH	RH										○	○
	OFF											
	LH						○				○	

NOTE
1. *1 indicates continuity when the dimmer switch is in the lower position.
2. *2 indicates continuity when the dimmer switch is in the upper position.



RELAY

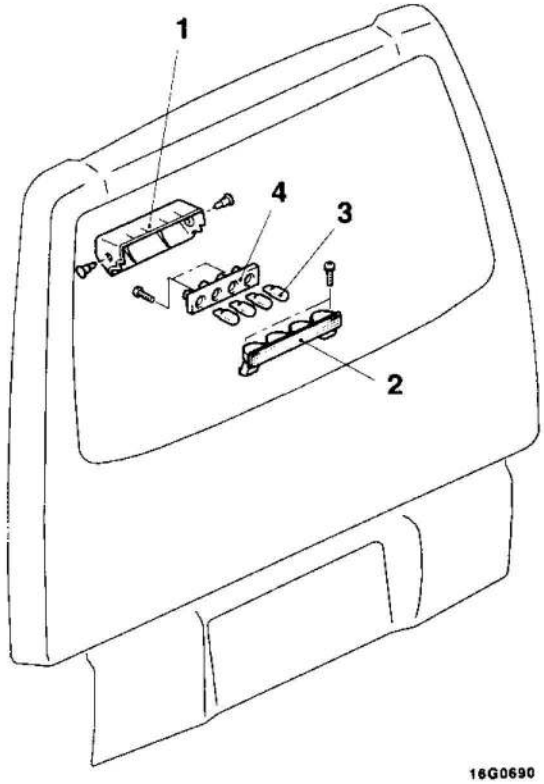
INSPECTION

HORN RELAY, HEADLAMP RELAY (high beam, low beam) CHECK

Battery voltage	Terminal No.			
	1	2	3	4
Supplied	○	⊕	○	⊖
Not supplied		○		○

HIGH MOUNTED STOP LAMP

REMOVAL AND INSTALLATION



Removal steps

1. Cover
2. Lamp unit
3. Bulb
4. Socket assembly

NOTES