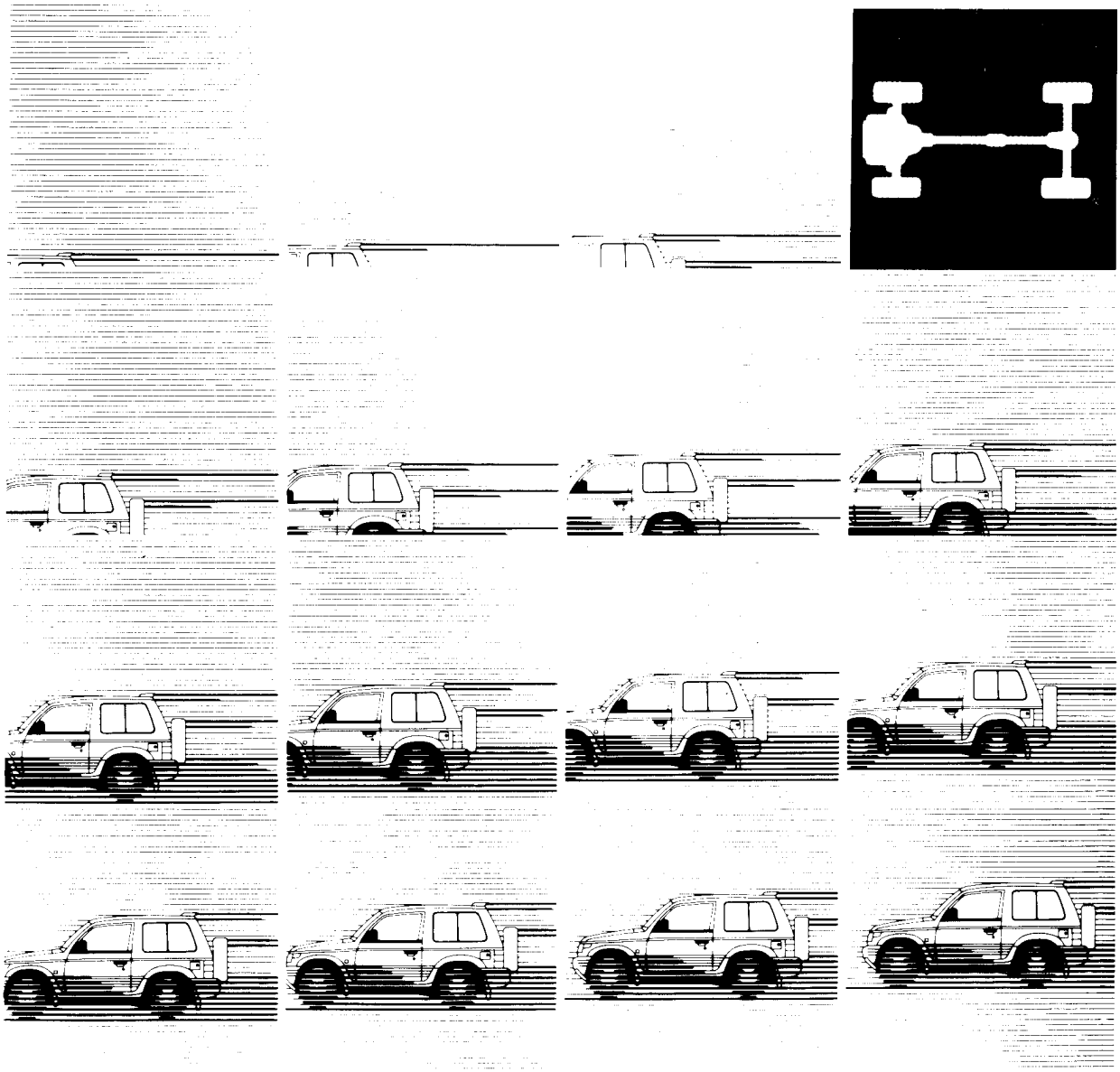
MITSUBISHI MOTORS

Workshop Manual

chassis

SUPPLEMENT

PAJERO '97



Pub. No. PWJE9086-H

MITSUBISHI PAJERO

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 as required.

TECHNICAL INFORMATION MANUAL
PYJE9002

WORKSHOP MANUAL

ENGINE GROUP	PWEE□□□□ (Looseleaf edition)
CHASSIS GROUP	PWJE9086 (Looseleaf edition) PWJE9086-G (Supplement)
ELECTRICAL WIRING	PHJE9026 (Looseleaf edition) PHJE9026-D (Supplement) PHJE9026-E (Supplement) PHJE9026-F (Supplement)
PARTS CATALOGUE	B6035607A□

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

GENERAL

CONTENTS

VEHICLE IDENTIFICATION

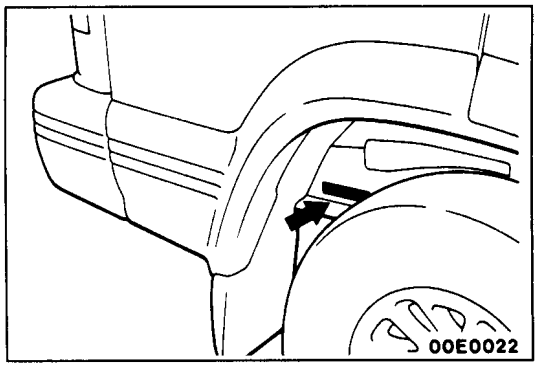
MODELS

<2-DOOR MODELS>

Model code		Body style	Engine model	Transmission model	Fuel supply system
V24C	NSFL6	Canvas top	4D56 [2,477 mℓ] with turbocharger and inter-cooler	V5MT1 (5M/T)	Injection
V23C	GNHVL6/R6	Canvas top with wide fender	6G72 [2,972 mℓ]		MPI
	GRHVL6/R6			V4AW3 (4A/T)	
V24W	NDFL6	Wagon	4D56 [2,477 mℓ] with turbocharger and inter-cooler	V5MT1 (5M/T)	Injection
	NHFL6/R6				
V24WG	NXFL6/R6	Wagon with wide fender			
V26W	NHFL6	Wagon	4M40 [2,835 mℓ] with turbocharger and inter-cooler	V5M31 (5M/T)	
V26WG	NXFL6/R6	Wagon with wide fender			
V23W	NHVL6	Wagon	6G72 [2,972 mℓ]	V5MT1 (5M/T)	MPI
	GNXVL6/R6	Wagon with wide fender			
	GRXVL6/R6			V4AW3 (4A/T)	
V25W	GNXML6/R6		6G74 [3,497 mℓ]	V5M31 (5M/T)	
	GRXML6/R6			V4AW3 (4A/T)	

<4-DOOR MODELS>

Model code		Body style	Engine model	Transmission model	Fuel supply system
V44W	NDFL6	Wagon	4D56 [2,477 mℓ] with turbocharger and inter-cooler	V5MT1 (5M/T)	Injection
	NDFCL6	Wagon without 3rd seat row			
	NHFL6	Wagon			
V44WG	NXFL6/R6	Wagon with wide fender			
V46W	NDFL6	Wagon	4M40 [2,835 mℓ] with turbocharger and inter-cooler	V5M31 (5M/T)	
	NDFCL6	Wagon without 3rd seat row			
	NHFL6/R6	Wagon			
	RHFR6			V4AW3 (4A/T)	
V46WG	NXFL6/R6	Wagon with wide fender		V5M31 (5M/T)	
	RXFL6/R6			V4AW3 (4A/T)	
V43W	NHVL6/R6	Wagon	6G72 [2,972 mℓ]	V5MT1 (5M/T)	MPI
	RHVL6/R6			V4AW3 (4A/T)	
	GNXVL6/R6	Wagon with wide fender		V5MT1 (5M/T)	
	GRXVL6/R6			V4AW3 (4A/T)	
V45W	GNXML6/R6		6G74 [3,497 mℓ]	V5M31 (5M/T)	
	GRXML6/R6			V4AW3 (4A/T)	



CHASSIS NUMBER

The chassis number is stamped on the side wall of the frame near the right rear wheel.

⛢	J	M	B	0	N	V24	0	V	J	3	00001	⛢
	1	2	3	4	5	6	7	8	9	10	11	

1. Asia

2. Japan

3. MITSUBISHI
   A: Right hand drive for Europe
   B: Left hand drive for Europe

4. Sort
   0: 4 or 2-door with tailgate (backdoor)
   A: 2-door semi-open (canvas top)

5. Transmission
   N: 5 × 2-speed manual transmission
   R: 4 × 2-speed automatic transmission

6. Development order
   V23: 2,972 mℓ
   Petrol engine <2-door models>
   V24: 2,477 mℓ
   Diesel engine <2-door models>
   V25: 3,497 mℓ
   Petrol engine <2-door models>
   V26: 2,835 mℓ
   Diesel engine <2-door models>
   V43: 2,972 mℓ
   Petrol engine <4-door models>
   V44: 2,477 mℓ
   Diesel engine <4-door models>
   V45: 3,497 mℓ
   Petrol engine <4-door models>
   V46: 2,835 mℓ
   Diesel engine <4-door models>

7. Body style
   0: Frame

8. Model year
   V: 1997

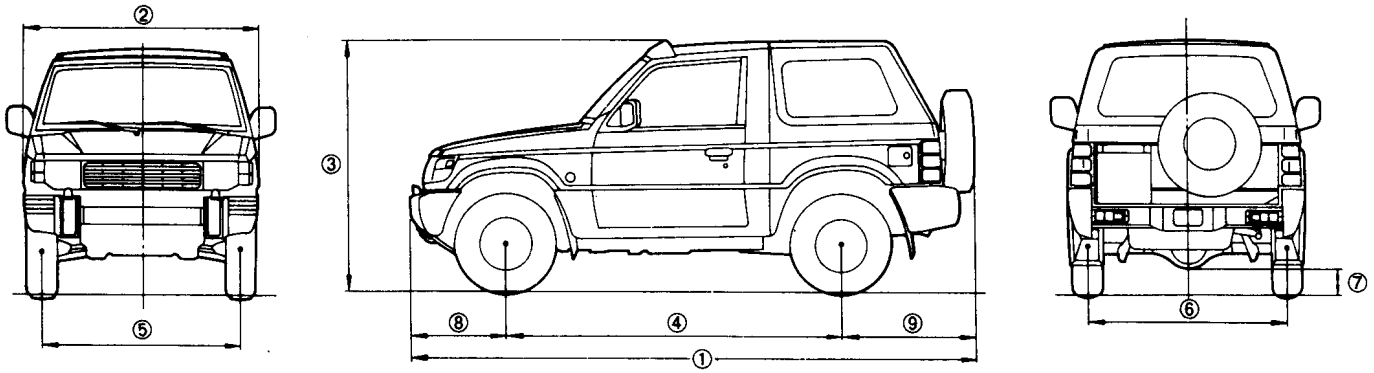
9. Plant
   J,P,Y: Oye Plant of NAGOYA Motor Vehicle Works

10. Engine specification
    0: Without turbocharger, with catalyzer.
    3: With turbocharger, without catalyzer.

11. Serial number
    00001 ~

MAJOR SPECIFICATIONS

CANVAS TOP

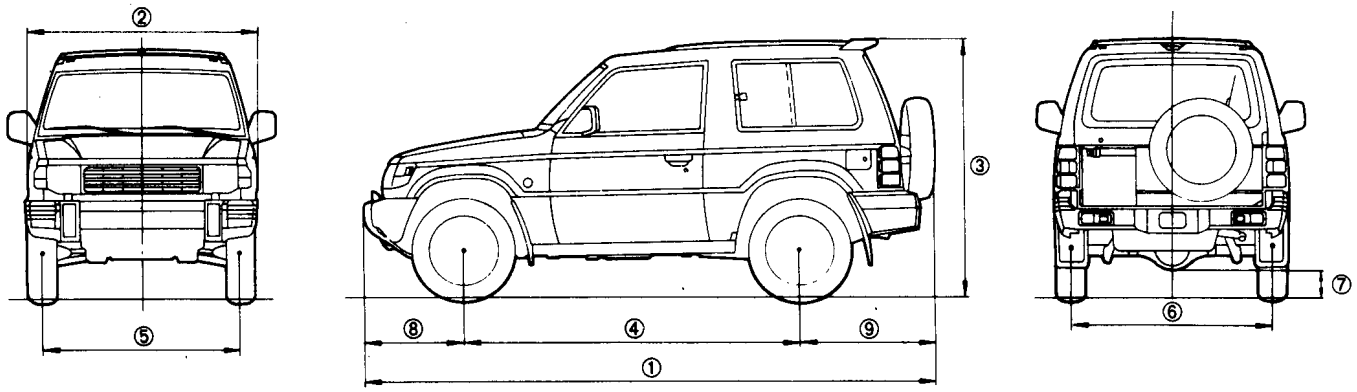


00E0038

Items		V24CNSFL6	V23CGNHVL6/R6	V23CGRHVL6/R6
Dimensions mm				
Overall length	①	4,075	4,145	
Overall width	②	1,695	1,785	
Overall height (unladen)	③	1,835	1,845	
Wheelbase	④	2,420	2,420	
Track–front	⑤	1,420	1,465	
Track–rear	⑥	1,435	1,480	
Ground clearance (laden)	⑦	190	200	
Overhang-front	⑧	675	720	
Overhang-rear	⑨	980	1,005	
Weight kg				
Kerb weight		1,655 – 1,800	1,725 – 1,855	1,735 – 1,865
Max. gross vehicle weight		2,510	2,510	2,510
Max. front axle load		1,100 or 1,070 *1	1,200 or 1,030*1	1,200 or 1,030*1
Max. rear axle load		1,650 or 1,565*1	1,650 or 1,405*1	1,650 or 1,405*1
Seating capacity		4		
Engine				
Model		4D56	6G72	
Total displacement	mℓ	2,477	2,972	
Transmission				
Type		5-speed manual	5-speed manual	4-speed automatic
Model		V5MT1	V5MT1	V4AW3

NOTE
*1 : Vehicles for Belgium and France

METAL TOP



<VEHICLES WITH PETROL ENGINE>

00E0039

Items		V23WNHVL6	V23WGNXVL6/R6	V23WGRXVL6/R6	V25WGNXML6/R6 V25WGRXML6/R6
Dimensions mm					
Overall length	①	4,120	4,145		4,145
Overall width	②	1,695	1,785		1,785
Overall height (unladen)	③	1,835	1,845		1,845
Wheelbase	④	2,420	2,420		2,420
Track-front	⑤	1,420	1,465		1,465
Track-rear	⑥	1,435	1,480		1,480
Ground clearance (laden)	⑦	190	200		200
Overhang-front	⑧	720	720		720
Overhang-rear	⑨	980	1,005		1,005
Weight kg					
Kerb weight		1,735 – 1,865	1,760 – 1,875	1,770 – 1,885	1,810 – 1,925
Max. gross vehicle weight		2,510	2,510	2,510	2,510
Max. front axle load		1,200 or 1,030 *1	1,200 or 1,030 *1	1,200 or 1,030 *1	1,200 or 1,050 *1
Max. rear axle load		1,650 or 1,405 *1 or 1,780 *2	1,650 or 1,405 *1	1,650 or 1,405 *1	1,780 or 1,345 *1
Seating capacity		5			
Engine					
Model		6G72	6G72	6G72	6G74
Total displacement m ℓ		2,972	2,972	2,972	3,497
Transmission					
Type		5-speed manual	5-speed manual	4-speed automatic	5-speed manual or 4-speed automatic *3
Model		V5MT1	V5MT1	V4AW3	V5M31 or V4AW3 *3

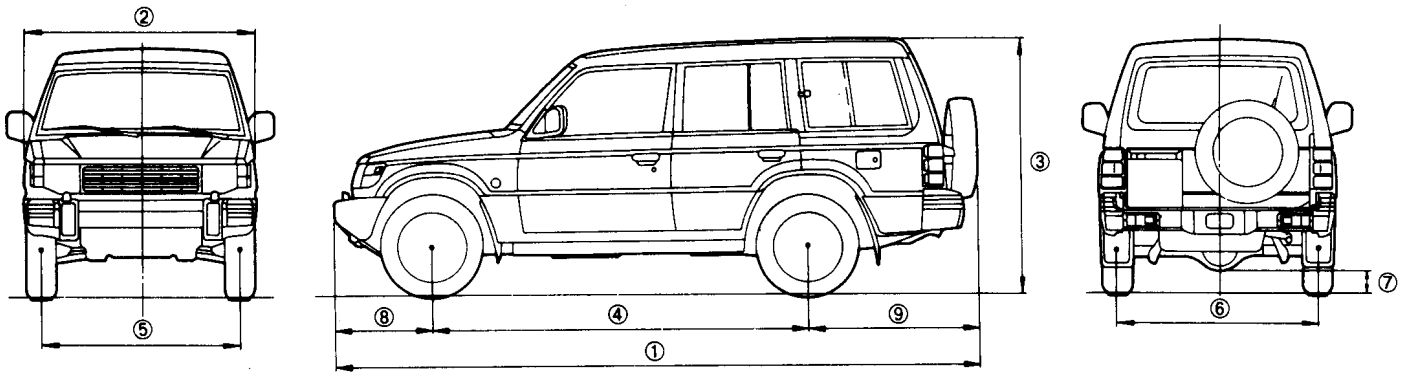
NOTES
*1: Vehicles for Belgium and France
*2: Vehicles for Sweden
*3: V25WGRXML6/R6

<VEHICLES WITH DIESEL ENGINE>

Items		V24WNDFL6	V24WNHFL6 /R6	V24WGNXFL6/ R6	V26WNHFL6	V26WGNXFL6/R6
Dimensions mm						
Overall length	①	4,075	4,120	4,145	4,120	4,145
Overall width	②	1,695	1,695	1,785	1,695	1,785
Overall height (unladen)	③	1,835	1,835	1,845	1,835	1,845
Wheelbase	④	2,420	2,420	2,420	2,420	2,420
Track-front	⑤	1,420	1,420	1,465	1,420	1,465
Track-rear	⑥	1,435	1,435	1,480	1,435	1,480
Ground clearance (laden)	⑦	190	190	200	180	195
Overhang-front	⑧	675	720	720	720	720
Overhang-rear	⑨	980	980	1,005	980	1,005
Weight kg						
Kerb weight		1,680 – 1,820	1,730 – 1,900	1,755 – 1,905	1,830 – 2,000	1,855 – 2,005
Max. gross vehicle weight		2,510	2,510	2,510	2,510	2,510
Max. front axle load		1,100 or 1,070*1	1,100 or 1,070*1	1,100 or 1,070*1	1,200 or 1,115*1	1,200 or 1,115*1
Max. rear axle load		1,650 or 1,565*1	1,650 or 1,565*1	1,650 or 1,565*1	1,780 or 1,440*1	1,780 or 1,440*1
Seating capacity		5				
Engine						
Model		4D56			4M40	
Total displacement mℓ		2,477			2,835	
Transmission						
Type		5-speed manual			5-speed manual	
Model		V5MT1			V5M31	

NOTE
*1: Vehicles for Belgium and France

WAGON



00E0040

<VEHICLES WITH PETROL ENGINE>

Items		V43WNHVL6/R6	V43WRHVL6/R6	V43WGNXVL6/R6
Dimensions mm				
Overall length	①	4,700		4,725
Overall width	②	1,695		1,785
Overall height (unladen)	③	1,890		1,900
Wheelbase	④	2,725		2,725
Track-front	⑤	1,420		1,465
Track-rear	⑥	1,435		1,480
Ground clearance (laden)	⑦	190		200
Overhang-front	⑧	720		720
Overhang-rear	⑨	1,255		1,280
Weight kg				
Kerb weight		1,925 – 2,085	1,920 – 2,105 or 1,920 – 2,080 *2	1,955 – 2,115
Max. gross vehicle weight		2,650	2,650	2,650
Max. front axle load		1,200 or 1,075 *1	1,200 or 1,075 *1	1,200 or 1,075 *1
Max. rear axle load		1,650	1,650	1,650
Seating capacity		7		
Engine				
Model		6G72		
Total displacement	m ℓ	2,972		
Transmission				
Type		5-speed manual	4-speed automatic	5-speed manual
Model		V5MT1	V4AW3	V5MT1

NOTE
*1: Vehicles for Belgium and France
*2: Vehicles for Sweden

Items		V43WGRXVL6/R6	V45WGNXML6/R6	V45WGRXML6/R6
Dimensions mm				
Overall length	①	4,725	4,725	
Overall width	②	1,785	1,785	
Overall height (unladen)	③	1,900	1,900	
Wheelbase	④	2,725	2,725	
Track-front	⑤	1,465	1,465	
Track-rear	⑥	1,480	1,480	
Ground clearance (laden)	⑦	200	195	
Overhang-front	⑧	720	720	
Overhang-rear	⑨	1,280	1,280	
Weight kg				
Kerb weight		1,955 – 2,115	1,955 – 2,150	1,990 – 2,145
Max. gross vehicle weight		2,650	2,720	2,720
Max. front axle load		1,200 or 1,075 *1	1,200 or 1,090 *1	1,200 or 1,090 *1
Max. rear axle load		1,650	1,780 or 1,670 *1	1,780 or 1,670 *1
Seating capacity		7		
Engine				
Model		6G72	6G74	
Total displacement	m ℓ	2,972	3,497	
Transmission				
Type		4-speed automatic	5-speed manual	4-speed automatic
Model		V4AW3	V5M31	V4AW3

NOTE
*1: Vehicles for Belgium and France

<VEHICLES WITH DIESEL ENGINE>

Items		V46WNDFL6	V46WNDFCL6	V46WNHFL6/R6
Dimensions mm				
Overall length	①	4,655		4,700
Overall width	②	1,695		1,695
Overall height (unladen)	③	1,890		1,890
Wheelbase	④	2,725		2,725
Track-front	⑤	1,420		1,420
Track-rear	⑥	1,435		1,435
Ground clearance (laden)	⑦	180		180
Overhang-front	⑧	675		720
Overhang-rear	⑨	1,255		1,255
Weight kg				
Kerb weight		1,960 – 2,095	1,920 – 2,055	2,010 – 2,180
Max. gross vehicle weight		2,720	2,720	2,720
Max. front axle load		1,200 or 1,145 *1	1,200 or 1,145 *1	1,200 or 1,145 *1
Max. rear axle load		1,780 or 1,655	1,780 or 1,655 *1	1,780 or 1,655 *1
Seating capacity		7	5	7
Engine				
Model		4M40		
Total displacement	mℓ	2,835		
Transmission				
Type		5-speed manual		
Model		V5M31		

NOTE
*1: Vehicles for Belgium and France

Items		V46WRHFR6	V46WGNXFL6/R6	V46WGRXFL6/R6
Dimensions mm				
Overall length	①	4,700	4,725	
Overall width	②	1,695	1,785	
Overall height (unladen)	③	1,890	1,900	
Wheelbase	④	2,725	2,725	
Track–front	⑤	1,420	1,465	
Track–rear	⑥	1,435	1,480	
Ground clearance (laden)	⑦	180	195	
Overhang–front	⑧	720	720	
Overhang–rear	⑨	1,255	1,280	
Weight kg				
Kerb weight		2,005 – 2,175	2,045 – 2,180	2,050 – 2,185
Max. gross vehicle weight		2720	2,720	2,720
Max. front axle load		1,200 or 1,145*1	1,200 or 1,145*1	1,200 or 1,145*1
Max. rear axle load		1,780 or 1,655	1,780 or 1,655*1	1,780 or 1,655*1
Seating capacity		7		
Engine				
Model		4M40		
Total displacement mℓ		2,835		
Transmission				
Type		4-speed automatic	5-speed manual	4-speed automatic
Model		V4AW3	V5M31	V4AW3

NOTE
*1 : Vehicles for Belgium and France

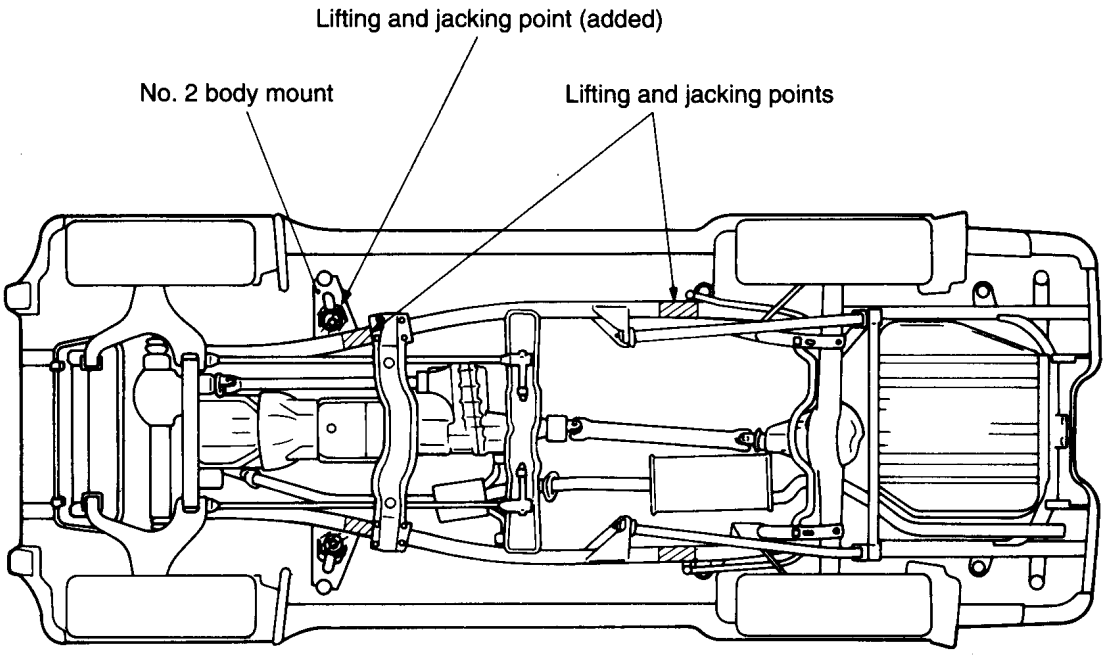
Items		V44WNDFL6	V44WNDFCL6	V44WNHFL6	V44WGNXFL6/R6
Dimensions mm					
Overall length	①	4,655	4,655	4,700	4,725
Overall width	②	1,695	1,695	1,695	1,785
Overall height (unladen)	③	1,890	1,890	1,890	1,900
Wheelbase	④	2,725	2,725	2,725	2,725
Track–front	⑤	1,420	1,420	1,420	1,465
Track–rear	⑥	1,435	1,435	1,435	1,480
Ground clearance (laden)	⑦	190	190	190	200
Overhang–front	⑧	675	675	720	720
Overhang–rear	⑨	1,255	1,255	1,255	1,280
Weight kg					
Kerb weight		1,865 – 2,000	1,840 – 1,975	1,915 – 2,110	1,950 – 2,120
Max. gross vehicle weight		2,650	2,650	2,650	2,650
Max. front axle load		1,200 or 1,075*1	1,100 or 1,090*1	1,100 or 1,090*1	1,100 or 1,090*1
Max. rear axle load		1,650	1,650	1,650	1,650
Seating capacity		7	5	7	7
Engine					
Model		4D56			
Total displacement mℓ		2,477			
Transmission					
Type		5-speed manual			
Model		V5MT1			

NOTE
*1 : Vehicles for Belgium and France

SUPPORT LOCATIONS FOR LIFTING AND JACKING

Caution
Do not support the vehicle at locations other than specified supporting points. If do so, this will cause damage etc..

- A lifting and jacking point has been added to the No. 2 body mount of the vehicle frame.



00E0092

FUEL

CONTENTS

FUEL SYSTEM <6G72-24 Valve Engine, 6G74 Engine>

GENERAL

OUTLINE OF CHANGES

The maintenance service points below have been established to correspond to the following changes.

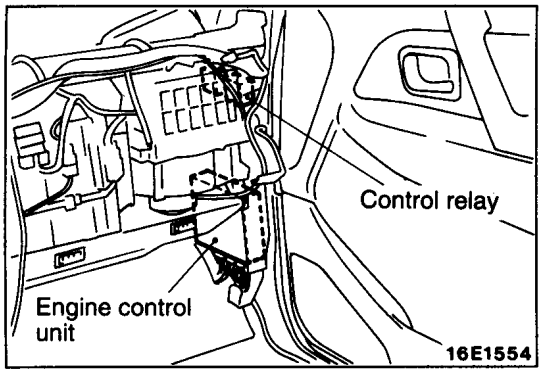
- Changes in the engine-ECU
- Separation of the engine control relay and fuel pump control relay which were previously integrated

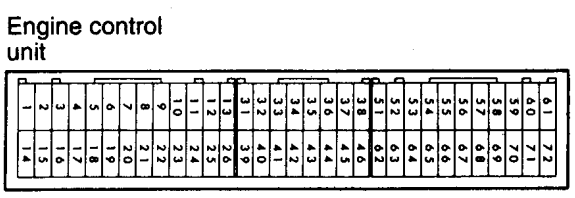
GENERAL INFORMATION

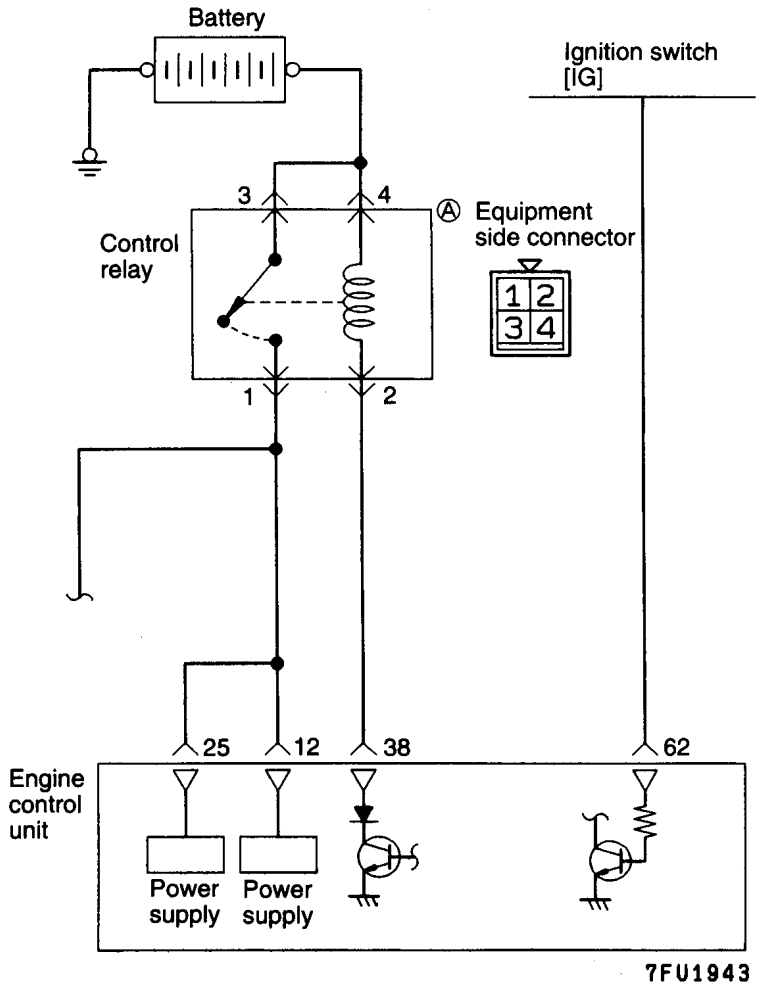
Items			Specifications
Engine ECU	Identification model No.	SOHC	E2T37498 E2T37499 <Vehicles with immobilizer system>
		DOHC	E2T39987 E2T39988 <Vehicles with immobilizer system>

ON-VEHICLE INSPECTION OF MPI COMPONENTS

POWER SUPPLY (Control relay) AND IGNITION SWITCH-IG

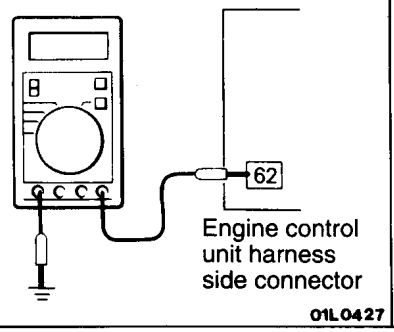






HARNESS INSPECTION

1



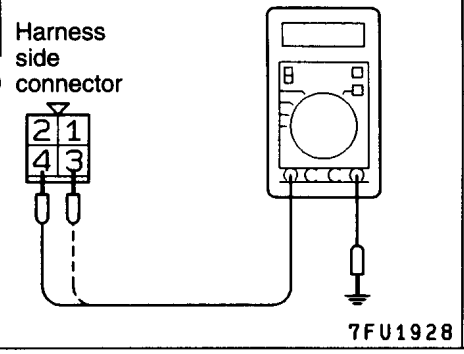
Measure the ignition switch (IG) terminal input voltage
- Engine control unit connector: Disconnected

Ignition switch	Voltage (V)
OFF	0 – 1
ON	SV

OK → 2 Repair the harness. (Ignition switch – 62) or check the ignition switch

NG → Repair the harness. (Ignition switch – 62)

2



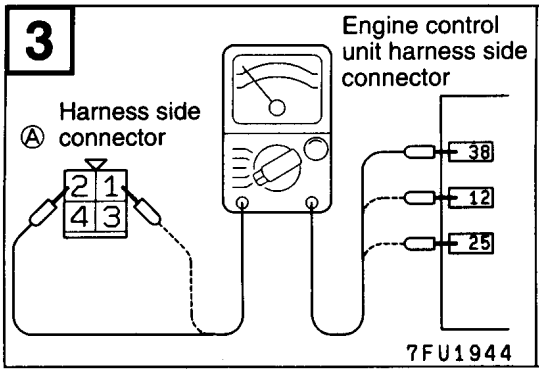
Measure the power supply voltage of the control relay.
- Ignition switch: OFF
- Control relay connector: Disconnected

Voltage (V)
SV

OK → 3

NG → Repair the harness. (Battery – Ⓐ 3, Ⓐ 4)

3

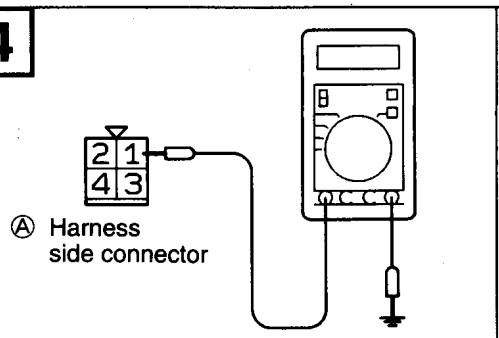


Check for an open-circuit, or a short-circuit to earth, between the engine control unit and the control relay.
- Engine control unit connector: Disconnected
- Control relay connector: Disconnected

OK → 4

NG → Repair the harness. (Ⓐ 2 ~ 38) (Ⓐ 1 ~ 12, 25)

4



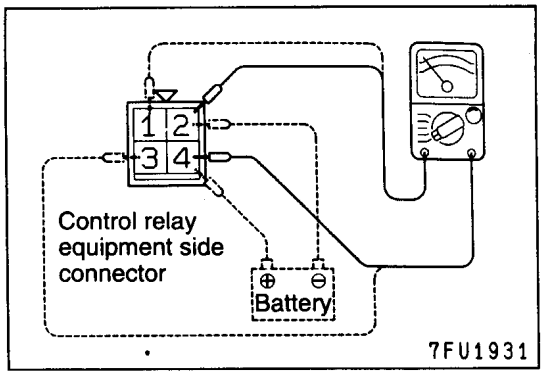
Measure power voltage to the actuator.
- Control relay connector: Connected
- Engine control unit connector: Connected

Engine	Voltage (V)
Cranking	8V oder higher
Racing	SV

OK → STOP

NG → Replace the control relay or defective engine control unit

CONTROL RELAY INSPECTION

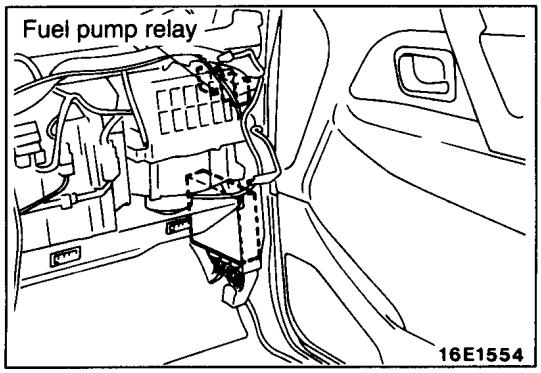


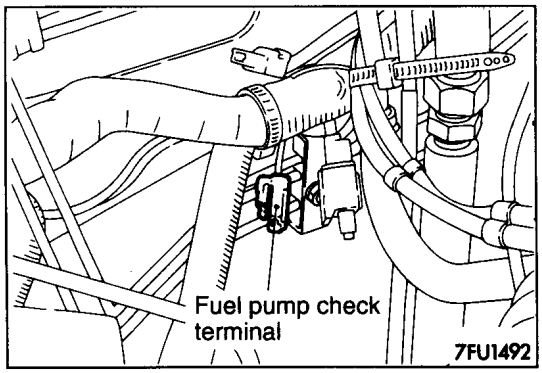
(1) Disconnect the control relay.

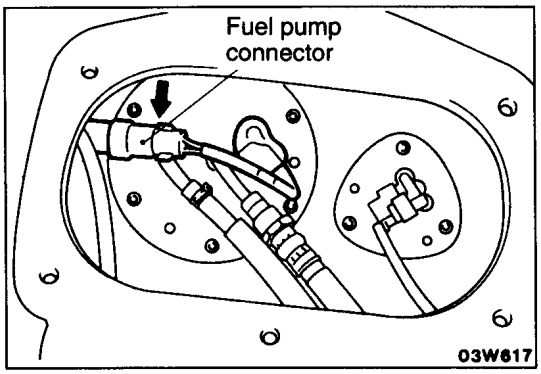
Battery voltage	Terminal No.			
	1	2	3	4
Not supplied		○		○
Supplied	○		○	
		⊖		⊕

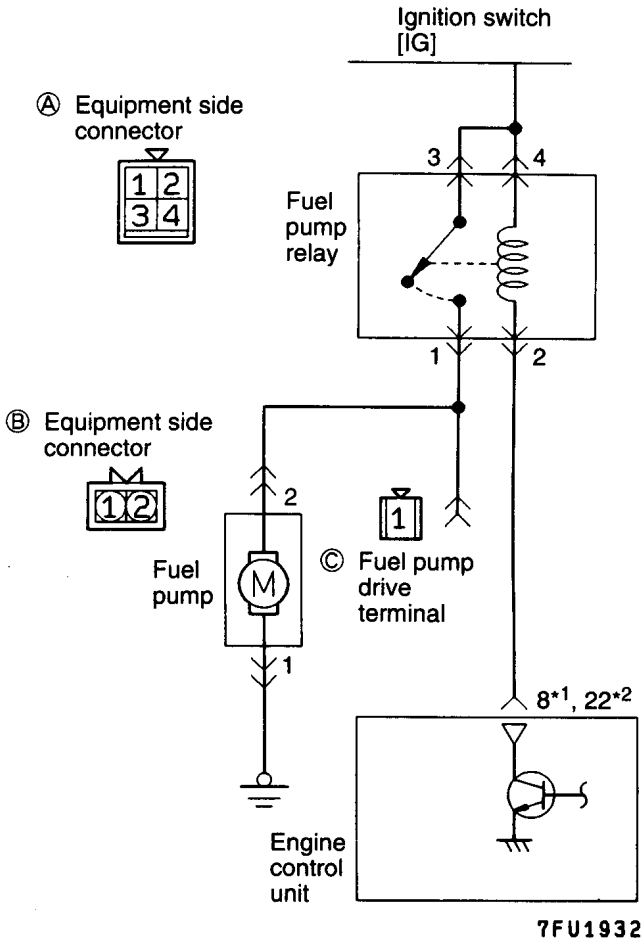
(2) Replace the control relay if faulty.

FUEL PUMP

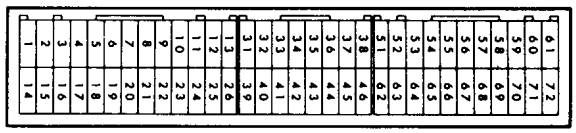








Engine control unit connector

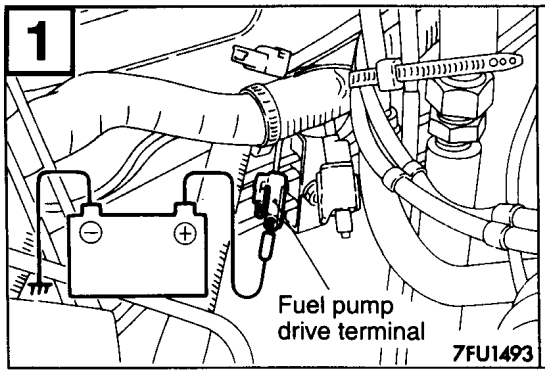


9FU0101

NOTE
*1 : Vehicle without immobilizer system
*2 : Vehicles with immobilizer system

HARNESS INSPECTION

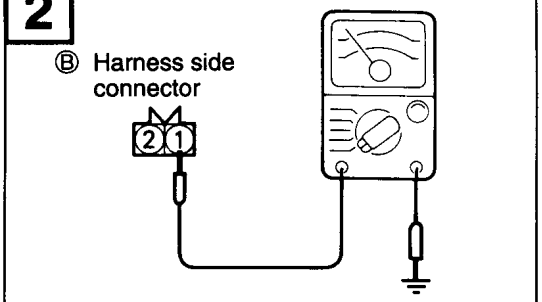
1



Check the fuel pump
- Apply battery voltage to the fuel pump drive terminal and operate the pump

OK → 4
NO → 2

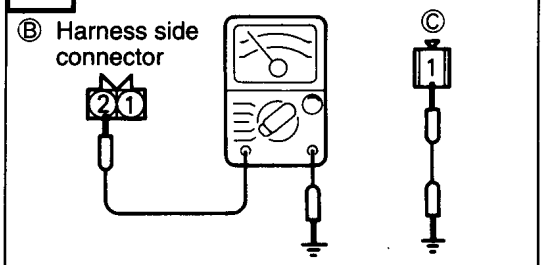
2



Check for continuity of the fuel pump earthing line.
- Fuel pump connector: Disconnected

OK → 3
NO → Repair the harness. (Ⓑ 1 – Earth)

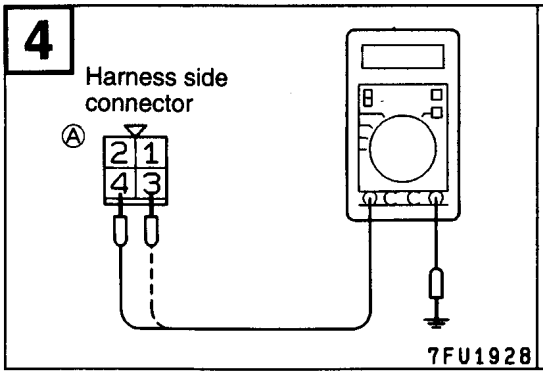
3



Check for open-circuit or short-circuit between the fuel pump and the fuel pump drive terminal.
- Fuel pump connector: Disconnected
- Fuel pump relay connector: Disconnected

OK → 4
NO → Repair the harness. (Ⓑ 2 – Ⓒ 1)

4

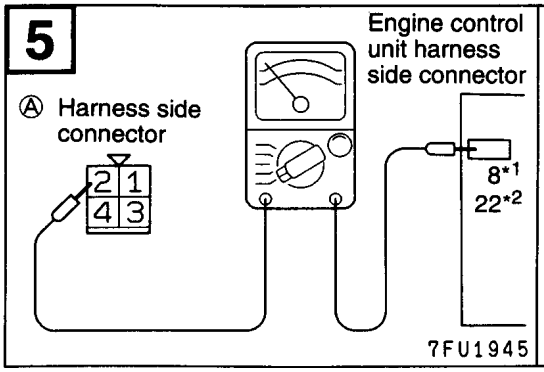


Measure the power supply voltage of the fuel pump relay.
- Fuel pump relay connector: Disconnected

Ignition switch	Voltage (V)
OFF	0 – 1
ON	SV

OK → 5
NO → Repair the harness. (Ignition switch – Ⓐ 3 4) or check for ignition switch.

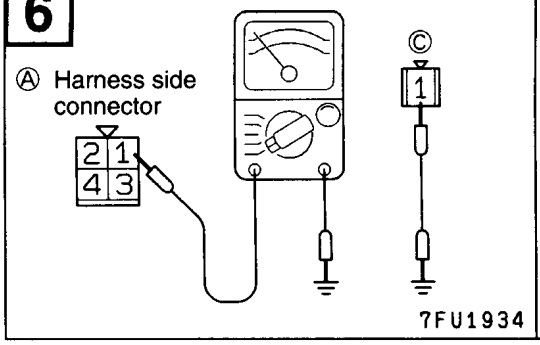
5



Check for an open-circuit, or a short-circuit to earth between the fuel pump relay and the engine control unit.
- Fuel pump relay connector: Disconnected
- Engine control unit connector: Disconnected

OK → 6
NO → Repair the harness. (Ⓐ 2 – 8)*1 (Ⓐ 2 – 22)*2

6

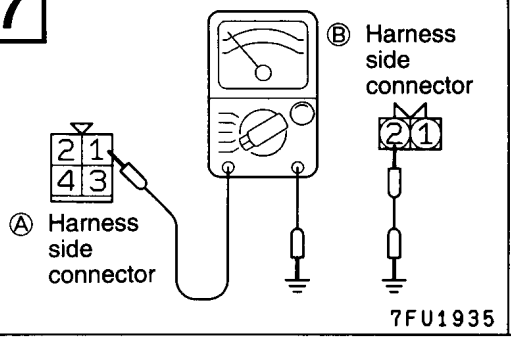


Check for continuity between the fuel pump drive terminal and the fuel pump relay.
- Fuel pump relay connector: Disconnected
- Fuel pump connector: Disconnected

OK → 7

NG → Repair the harness. (Ⓐ 1 – Ⓒ 1)

7

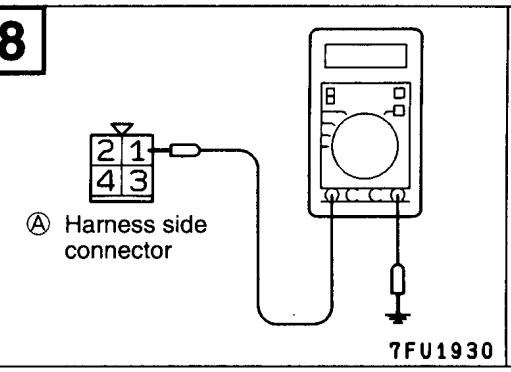


Check for an open-circuit, or a short-circuit to earth between the fuel pump relay and the fuel pump.
- Fuel pump relay connector: Disconnected
- Fuel pump connector: Disconnected

OK → 8

NG → Repair the harness. (Ⓐ 1 – Ⓑ 2)

8



Measure the power supply voltage of the fuel pump.
- Fuel pump relay connector: Connected
- Engine control unit connector: Connected

Engine	Voltage (V)
Cranking	8V or more
Racing	SV

OK → STOP

NG → Fuel pump relay or engine control unit is defective.

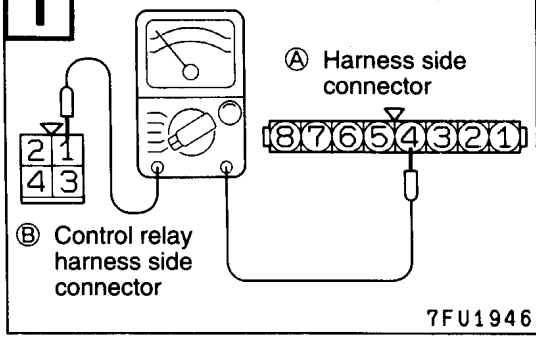
FUEL PUMP RELAY INSPECTION

Refer to P.13-4.

AIR FLOW SENSOR

HARNESS INSPECTION

1



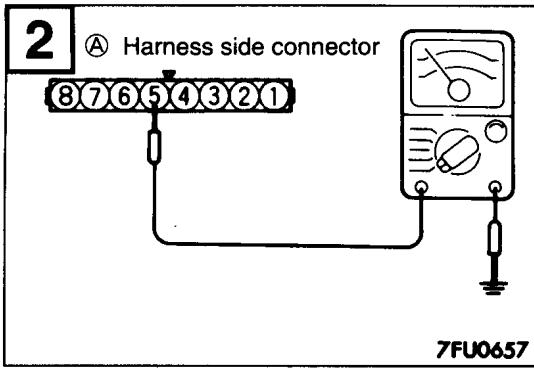
Check the continuity between the air flow sensor and the control relay.
- Control relay connector: Disconnected
- Air flow sensor connector: Disconnected

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

OK → 2

NG → Repair the harness. (Ⓐ 4 – Ⓑ 1)

2

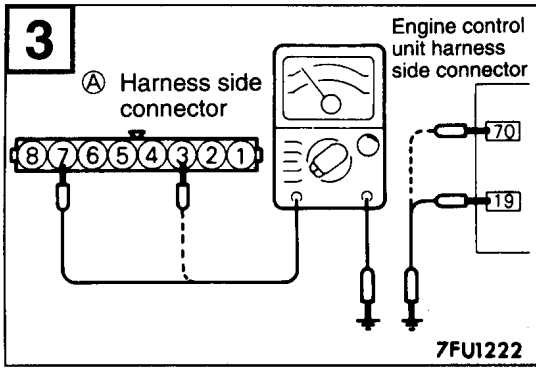


Check for continuity of the earth circuit.
- Connector: Disconnected

OK → 3

NG → Repair the harness. (Ⓐ 5 – 72)

3

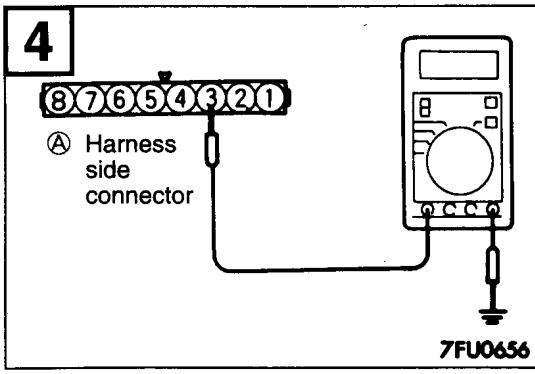


Check for open-circuit or short-circuit between the air flow sensor and the engine control unit.
- Air flow sensor connector: Disconnected
- Engine control unit connector: Disconnected

OK → 4

NG → Repair the harness. (Ⓐ 3 – 70) (Ⓐ 7 – 19)

4



Measure the applied voltage.
- Air flow sensor connector: Disconnected
- Engine control unit connector: Connected
- Ignition switch: ON

Voltage (V)
4.8 – 5.2

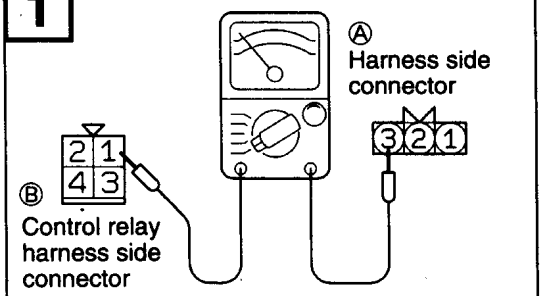
OK → STOP

NG → Replace the engine control unit.

CAM POSITION SENSOR

HARNESS INSPECTION

1



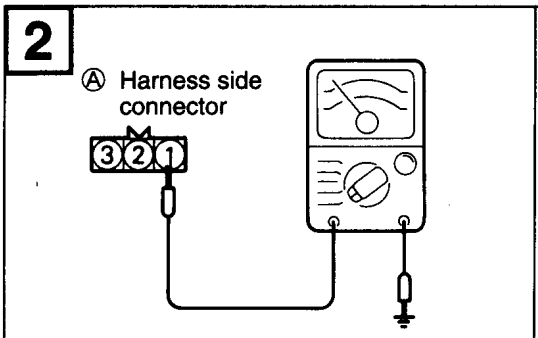
Check for continuity between the cam position sensor and control relay.
- Cam position sensor connector: Disconnected
- Control relay connector: Disconnected

NOTE
Touch ohmmeter probes to both ends of the harness.

OK → 2

OK → Repair the harness. (Ⓐ 3 – Ⓑ 1)

2

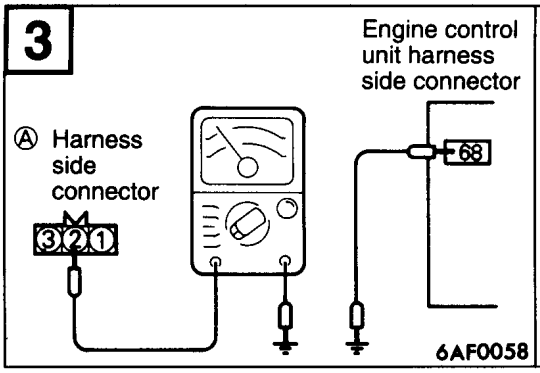


Check for continuity of the earth circuit.
- Cam position sensor connector: Disconnected

OK → 3

OK → Repair the harness. (Ⓐ 1 – Earth)

3

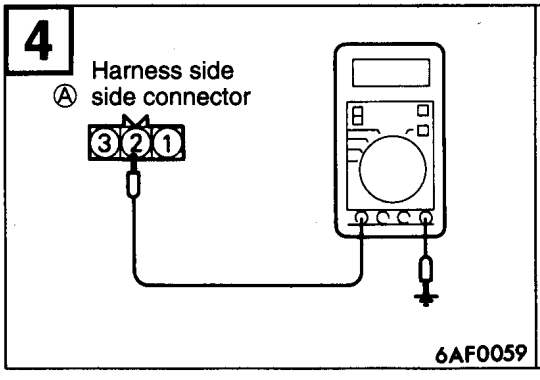


Check for an open-circuit, or a short-circuit to earth between the cam position sensor and the engine control unit.
- Engine control unit connector: Disconnected
- Cam position sensor connector: Disconnected

OK → 4

OK → Repair the harness. (Ⓐ 2 – 68)

4



Measure the impressed voltage
- Cam position sensor connector: Disconnected
- Engine control unit connector: Connected
- Ignition switch: ON

Voltage (V)
4.8 – 5.2

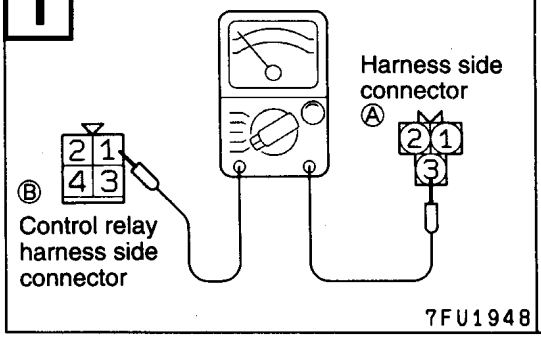
OK → STOP

OK → Replace the engine control unit.

CRANK ANGLE SENSOR

HARNESS INSPECTION

1



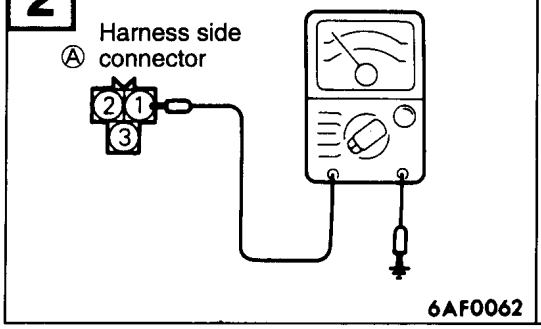
Check for continuity between the crank angle sensor and the control relay.
- Crank angle sensor connector: Disconnected
- Control relay connector: Disconnected

NOTE
Touch ohmmeter probes to both ends of the harness

OK → 2

NG → Repair the harness. (Ⓐ 3 – Ⓑ 1)

2

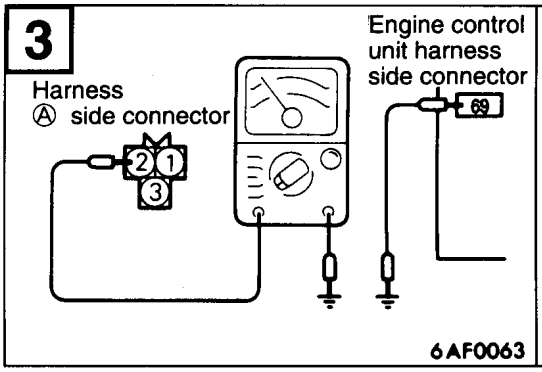


Check for continuity of the earth circuit.
- Crank angle sensor connector: Disconnected

OK → 3

NG → Repair the harness. (Ⓐ 1 – Earth)

3

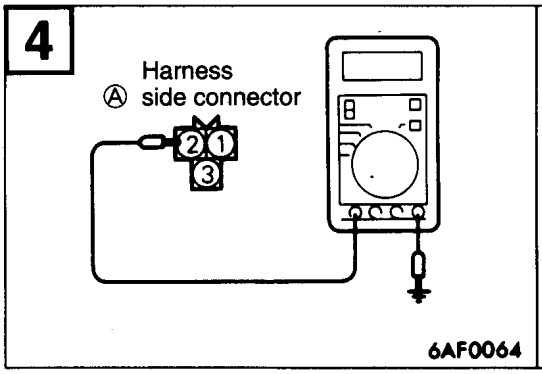


Check for an open-circuit, or a short-circuit to earth between the crank angle sensor and the engine control unit.
- Engine control unit connector: Disconnected
- Crank angle sensor connector: Disconnected

OK → 4

NG → Repair the harness. (Ⓐ 2 – 69)

4



Measure the impressed voltage.
- Crank angle sensor connector: Disconnected
- Engine control unit connector: Connected
- Ignition switch: ON

Voltage (V)
4.8 – 5.2

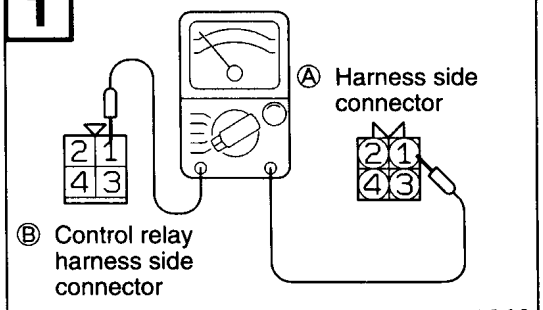
OK → STOP

NG → Replace the engine control unit.

OXYGEN SENSOR

HARNESS INSPECTION

1



Check for continuity between the oxygen sensor and the control relay.

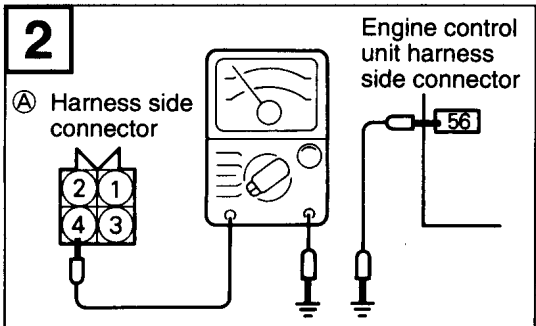
- Control relay connector: Disconnected
- Oxygen sensor connector: Disconnected

NOTE
Touch the ohmmeter probes to both ends of the harness.

OK → 2

NG → Repair the harness. (Ⓐ 1 – Ⓑ 1)

2



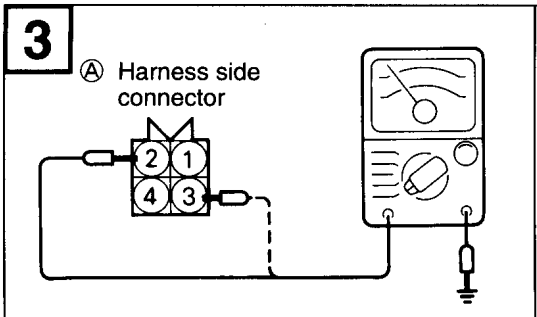
Check for an open-circuit, or a short-circuit to earth, between the engine control unit and the oxygen sensor.

- Oxygen sensor connector: Disconnected
- Engine control unit connector: Disconnected

OK → 3

NG → Repair the harness. (Ⓐ 4 – 56)

3



Check for continuity of the earth circuit.

- Oxygen sensor connector: Disconnected
- Engine control unit connector: Disconnected

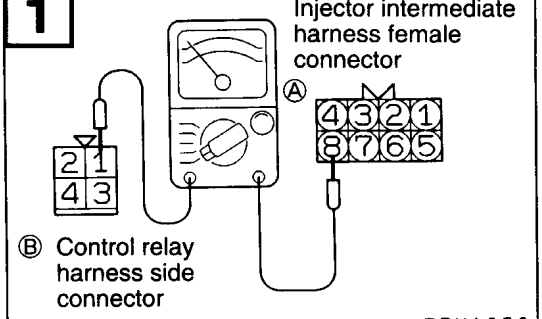
OK → STOP

NG → Repair the harness. (Ⓐ 2 – 72) (Ⓐ 3 – Earth)

INJECTORS

HARNESS INSPECTION

1



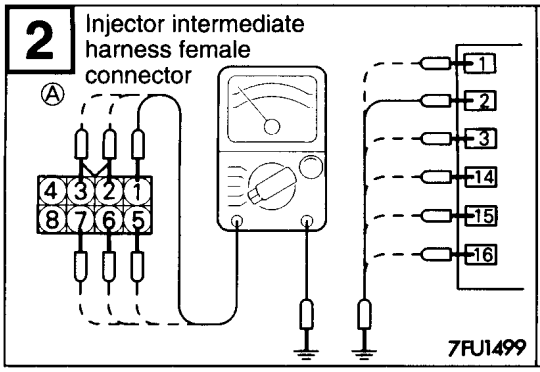
Check for continuity between the injectors and the control relay.
- Injector intermediate connector: Disconnected
- Control relay connector: Disconnected

NOTE
Touch the ohmmeter probes to both ends of the harness.

OK → 2

NG → Repair the harness. (Ⓐ 8 – Ⓑ 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 intermediate connector: Disconnected

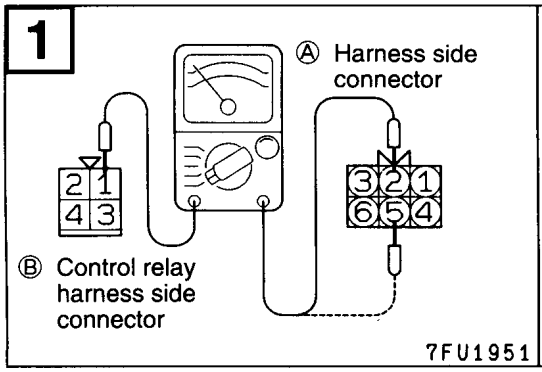
OK → STOP

NG → Repair the harness.
(Ⓐ 1 – 2)
(Ⓐ 2 – 14)
(Ⓐ 3 – 1)
(Ⓐ 5 – 16)
(Ⓐ 6 – 3)
(Ⓐ 7 – 15)

IDLE SPEED CONTROL SERVO (STEPPER MOTOR TYPE)

HARNESS INSPECTION

1



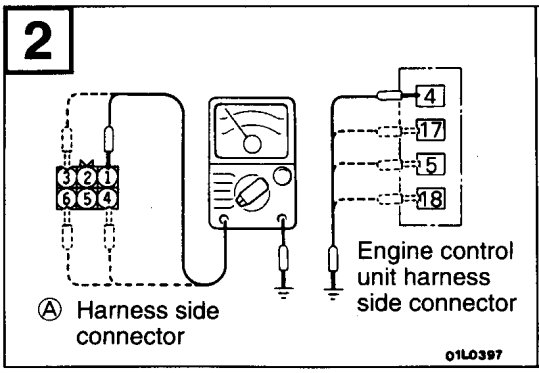
Check for continuity between the idle speed control servo and the control relay.
- Idle speed control servo connector: Disconnected
- Control relay connector: Disconnected

NOTE
Touch the ohmmeter probes to both ends of the harness.

OK → 2

NG → Repair the harness. (Ⓐ 2 5 – Ⓑ 1)

2



Check for an open-circuit, or a short-circuit to earth between the engine control unit and the idle speed control servo.
- Engine control unit connector: Disconnected
- Idle speed control servo connector: Disconnected

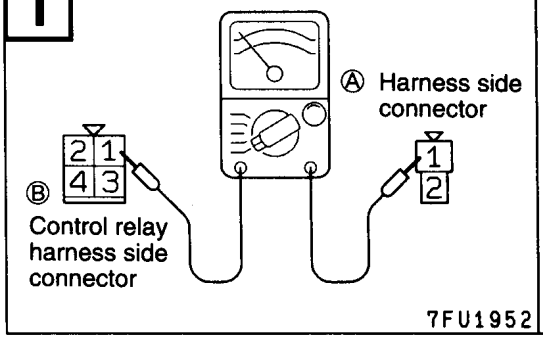
OK → STOP

NG → Repair the harness.
(Ⓐ 1 – 4)
(Ⓐ 3 – 17)
(Ⓐ 4 – 5)
(Ⓐ 6 – 18)

VARIABLE INDUCTION CONTROL SOLENOID VALVE <DOHC>

HARNESS INSPECTION

1



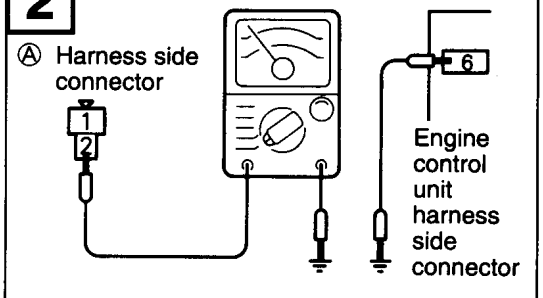
Check for continuity between variable induction control solenoid valve and control relay.
- Variable induction control solenoid valve connector: Disconnected
- Control relay connector: Disconnected

NOTE
Touch the ohmmeter probes to both ends of the harness.

OK → 2

NG → Repair the harness. (Ⓐ 1 – Ⓑ 1)

2



Check for an open-circuit, or a short-circuit to earth, between the variable induction control solenoid valve and the engine control unit.
- Variable induction control solenoid valve connector: Disconnected
- Engine control unit connector: Disconnected

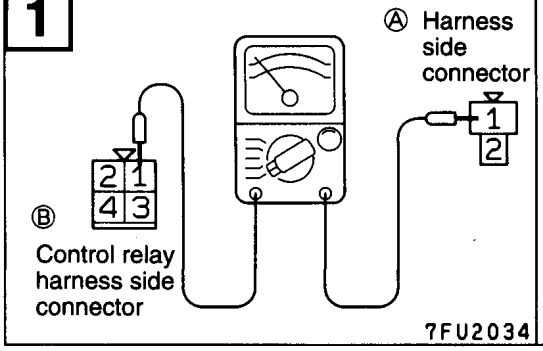
OK → STOP

NG → Repair the harness. (Ⓐ 2 – 6)

PURGE CONTROL SOLENOID VALVE

HARNESS INSPECTION

1



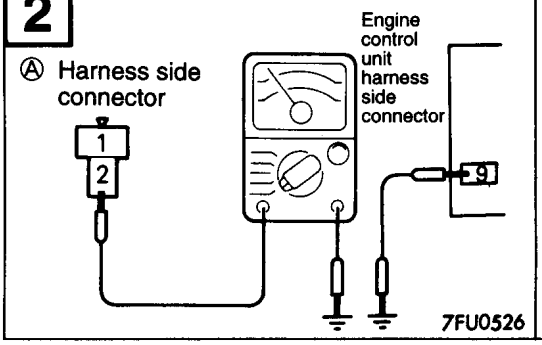
Check for continuity between the purge control solenoid valve and the control relay.
- Purge control solenoid valve connector: Disconnected
- Control relay connector: Disconnected

NOTE
Touch the ohmmeter probes to both ends of the harness.

OK → 2

NG → Repair the harness. (Ⓐ 1 – Ⓑ 1)

2



Check for an open-circuit, or a short-circuit to earth, between the purge control solenoid valve and the engine control unit.
- Purge control solenoid valve connector: Disconnected
- Engine control unit connector: Disconnected

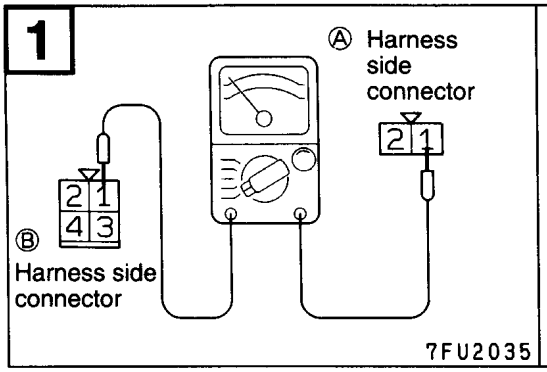
OK → STOP

NG → Repair the harness. (Ⓐ 2 – 9)

EGR CONTROL SOLENOID VALVE

HARNESS INSPECTION

1



Check for continuity between EGR control solenoid valve and control relay

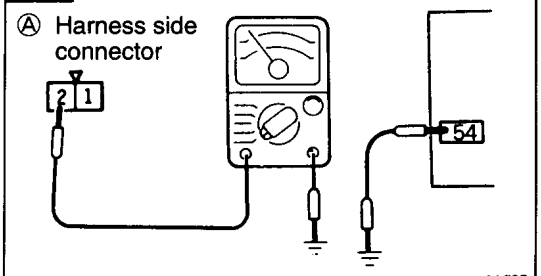
- EGR control solenoid valve connector: Disconnected
- Control relay connector: Disconnected

NOTE
Touch the ohmmeter probes to both ends of the harness

OK → 2

NO → Repair the harness. (Ⓐ 1 – Ⓑ 1)

2



Check for an open-circuit, or a short-circuit to earth, between the EGR control solenoid valve and the engine control unit.

- EGR control solenoid valve connector: Disconnected
- Engine control unit connector: Disconnected

OK → STOP

NO → Repair the harness. (Ⓐ 2 – 54)

GROUP 15
INTAKE AND EXHAUST

GENERAL

OUTLINE OF CHANGES

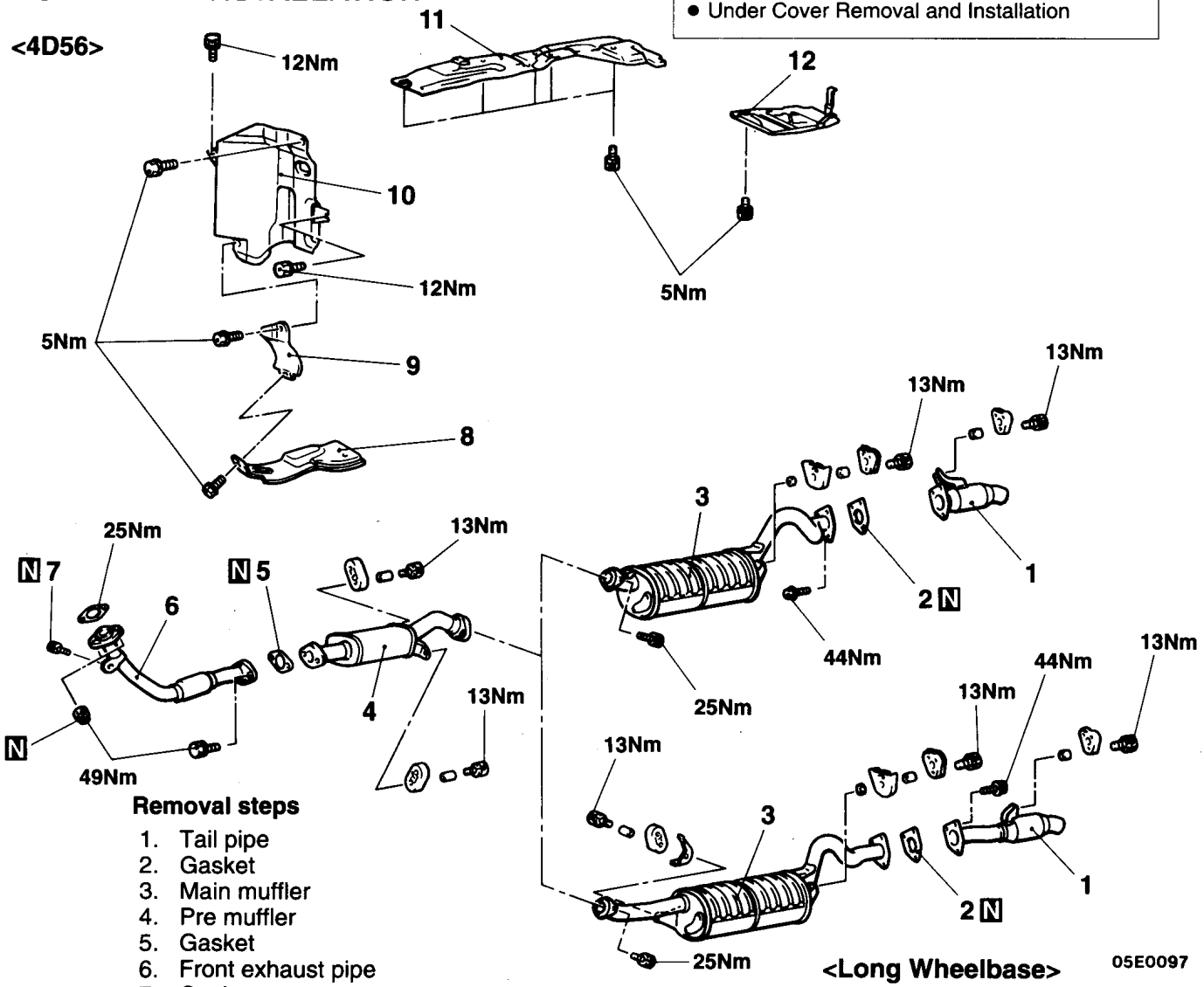
Maintenance service points have been established to correspond to the following changes to the exhaust system.

- The front exhaust pipe has been changed from a spring-type ball joint to a flat joint, and a flexible pipe section has been added in vehicles with 4D56 engine.
- A pre-muffler has been added to the tailpipe in all vehicle models.

EXHAUST PIPE AND MUFFLER <4D56, 4M40>

REMOVAL AND INSTALLATION

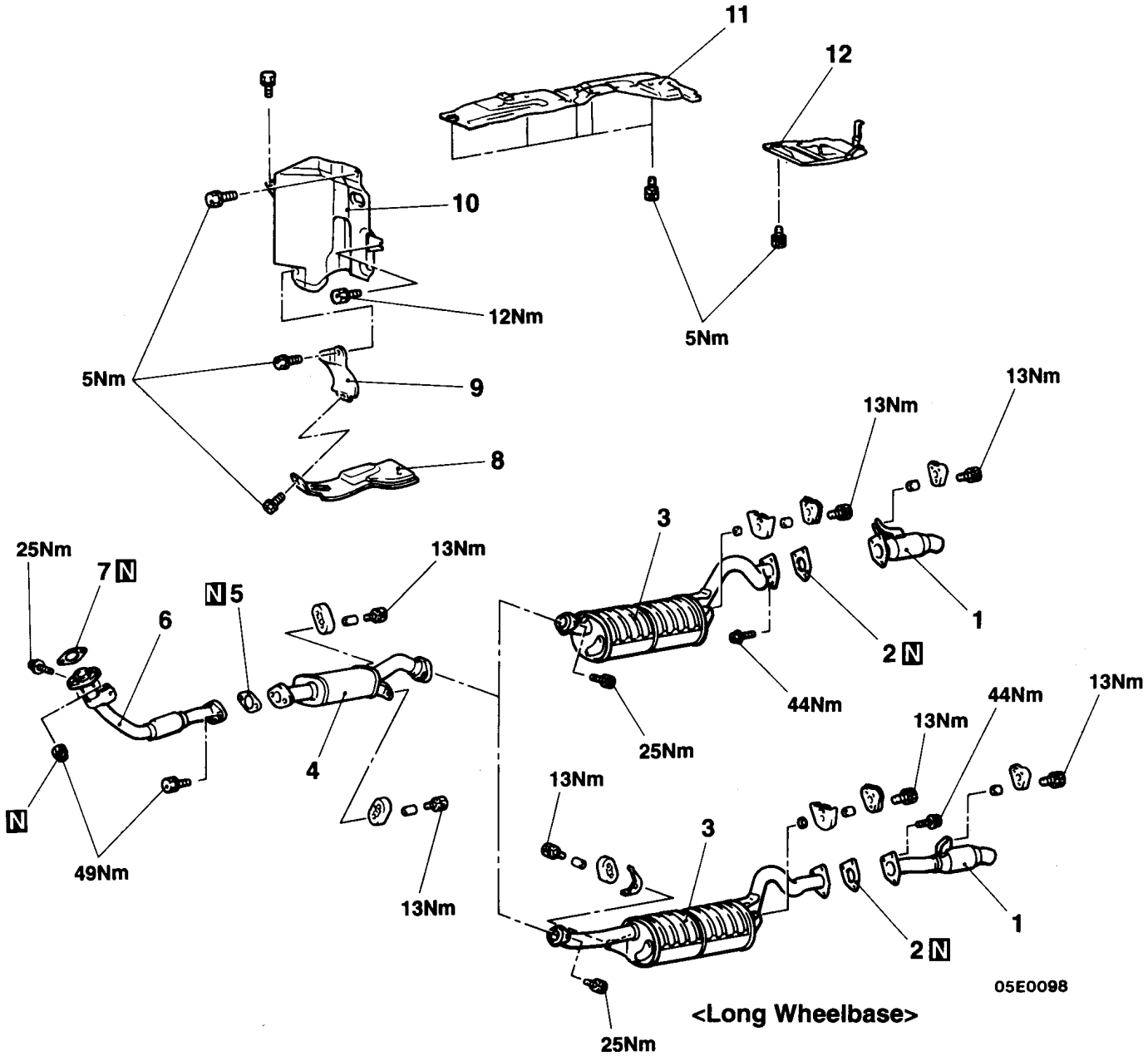
Pre-removal and Post-installation Operation
- Under Cover Removal and Installation



Removal steps

1. Tail pipe
2. Gasket
3. Main muffler
4. Pre muffler
5. Gasket
6. Front exhaust pipe
7. Gasket
8. Dash panel heat protector
9. Heat protector
10. Dash panel heat protector upper
11. Front panel heat protector
12. Rear heater heat protector
    <Vehicles with Rear heater>

<4M40>



Removal steps

1. Tail pipe
2. Gasket
3. Main muffler
4. Pre muffler
5. Gasket
6. Front exhaust pipe
7. Gasket
8. Dash panel heat protector
9. Heat protector
10. Dash panel heat protector upper
11. Front panel heat protector
12. Rear heater heat protector
    <Vehicles with rear heater>

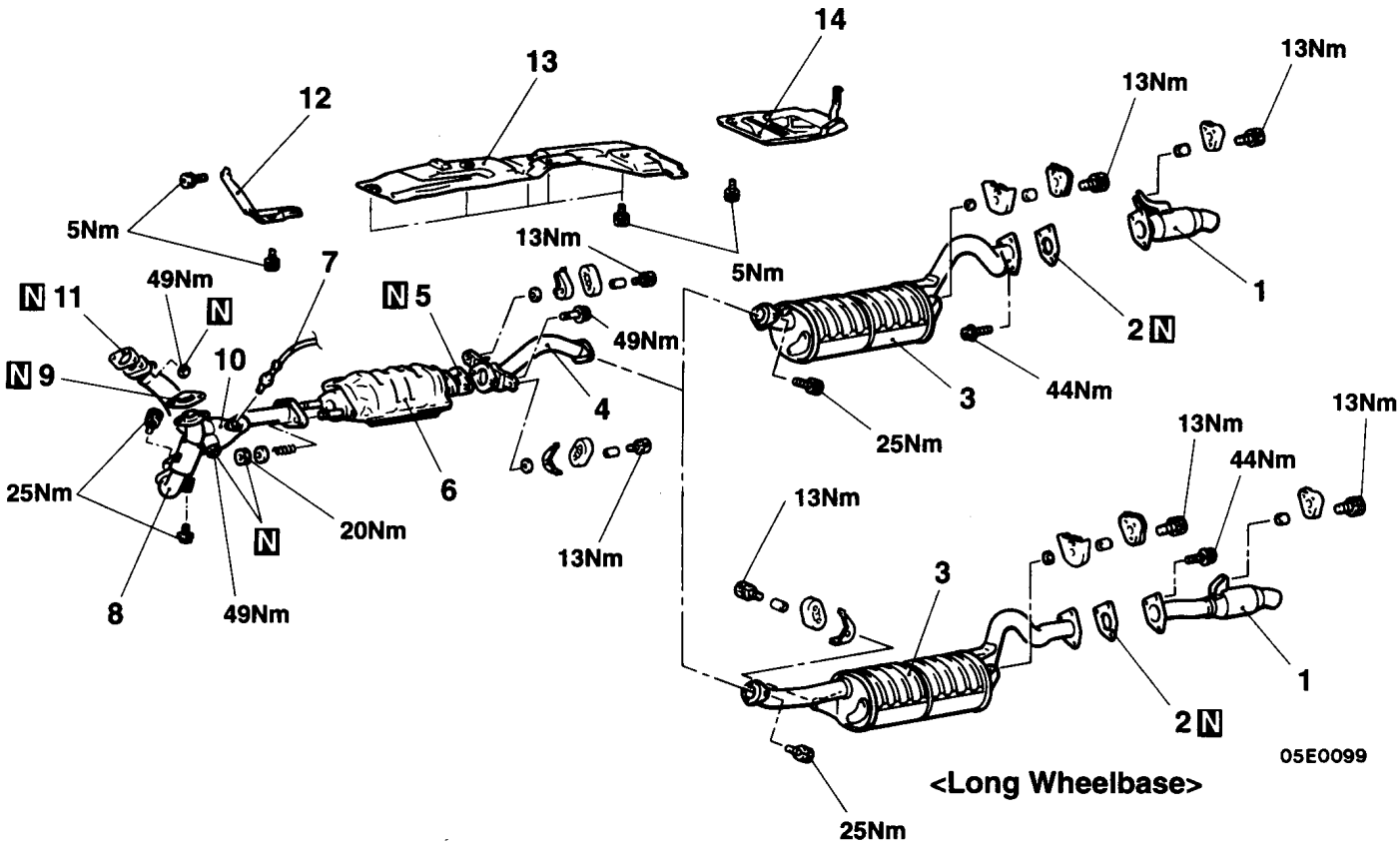
INSPECTION

- Check the mufflers and pipes for corrosion or damage.
- Check the rubber hangers and rubber suspenders for deterioration or damage.
- Check for gas leakage from mufflers and pipes.

EXHAUST PIPE, MUFFLER AND CATALYTIC CONVERTER <6G72 – 24 VALVE, 6G74>

REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operation
- Under Cover Removal and Installation



Removal steps
1. Tail pipe
2. Gasket
3. Main muffler
4. Center exhaust pipe
5. Gasket
6. Catalytic converter
7. Oxygen sensor
8. Front exhaust pipe (L.H.)
9. Gasket
10. Front exhaust pipe (R.H.)
11. Gasket
12. Heat protector
13. Front panel heat protector
14. Rear heater heat protector <Vehicles with rear heater>

INSPECTION

- Check the mufflers and pipes for corrosion or damage.
- Check the rubber hangers and rubber suspenders for deterioration or damage.
- Check for gas leakage from mufflers and pipes.

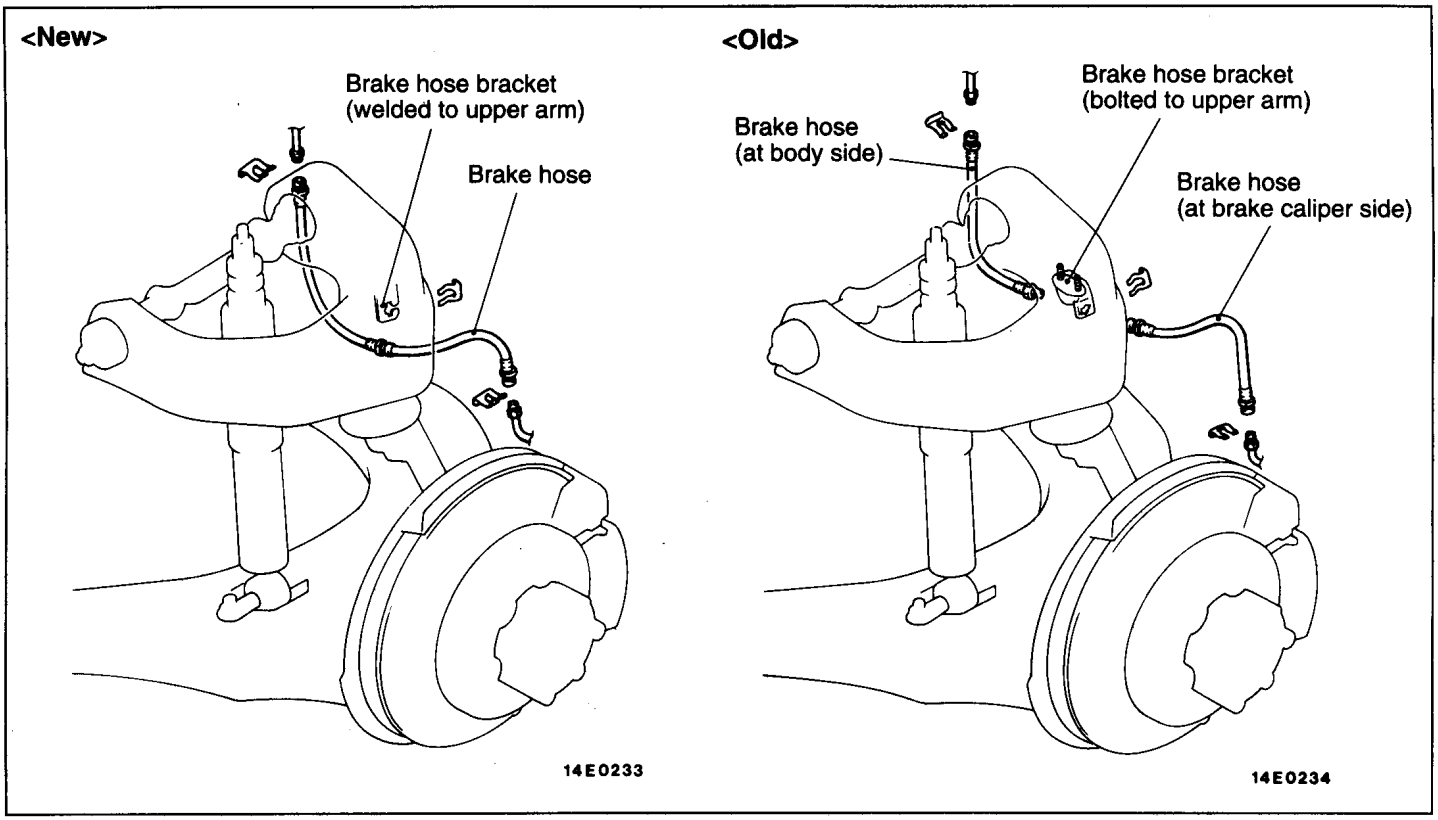
SERVICE BRAKES

CONTENTS

GENERAL

OUTLINE OF CHANGES

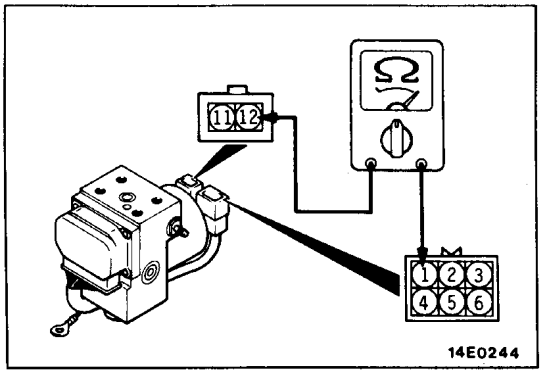
- The front brake hose has been changed from a double-hose type to a single-hose type. Maintenance service points have been established to correspond to this.
- Maintenance service points have been established to correspond to changes in the ABS hydraulic unit.
- Maintenance service points have been established to correspond to changes in the ABS wheel speed sensors.



SPECIFICATIONS

SERVICE SPECIFICATIONS

Items	Specifications
Standard value	
Speed sensor's internal resistance kΩ	
Front	1.17 – 1.35
Rear	1.3 – 1.5
Hydraulic unit solenoid valve internal resistance Ω	
IN	4.29 ± 0.25
OUT	8.54 ± 0.5



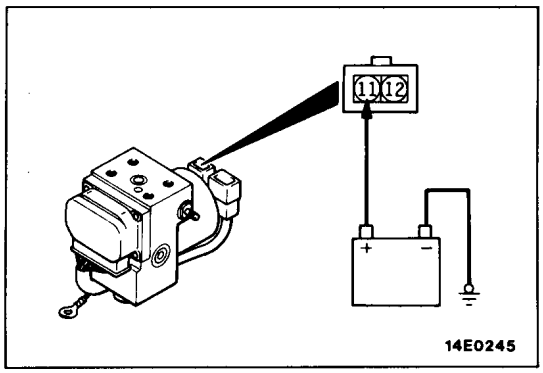
SERVICE ADJUSTMENT PROCEDURES

HYDRAULIC UNIT SOLENOID VALVE CHECK

Measure the resistance between terminals.

Standard value:

Solenoid	Measurement Terminals	Resistance between Terminals
To front wheel cylinder (right side)	12 – 4	4.29 ± 0.25 Ω
To front wheel cylinder (left side)	12 – 5	
To rear wheel cylinder	12 – 6	
From front wheel cylinder (right side)	12 – 1	8.54 ± 0.5 Ω
From front wheel cylinder (left side)	12 – 2	
From rear wheel cylinder	12 – 3	



HYDRAULIC UNIT MOTOR OPERATION CHECK

Connect the battery and check to be sure that the sound of the hydraulic unit motor operating can be heard.

Caution

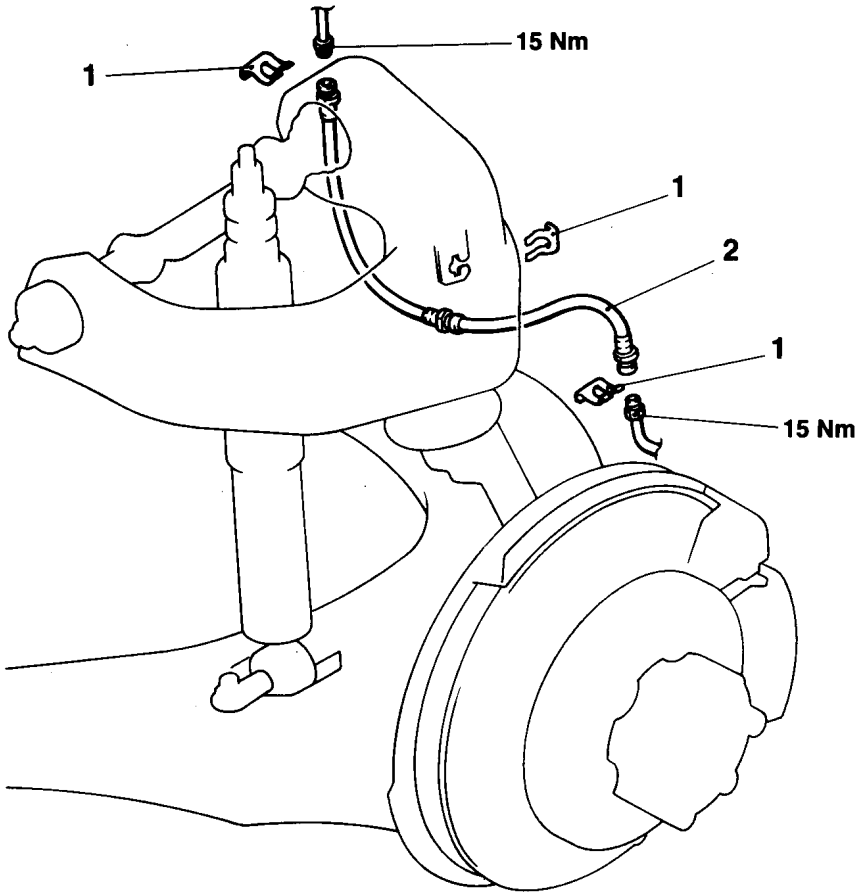
The battery power should not be applied for more than 1 second.

FRONT BRAKE HOSE

REMOVAL AND INSTALLATION

Pre-removal Operation
- Brake Fluid Draining

Post-installation Operation
- Brake Fluid Supplying
- Air Bleeding from Brake Lines



Removal steps
1. Hose clip
2. Front brake hose

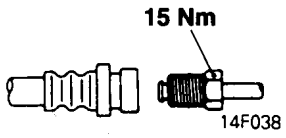
HYDRAULIC UNIT <ABS>

REMOVAL AND INSTALLATION

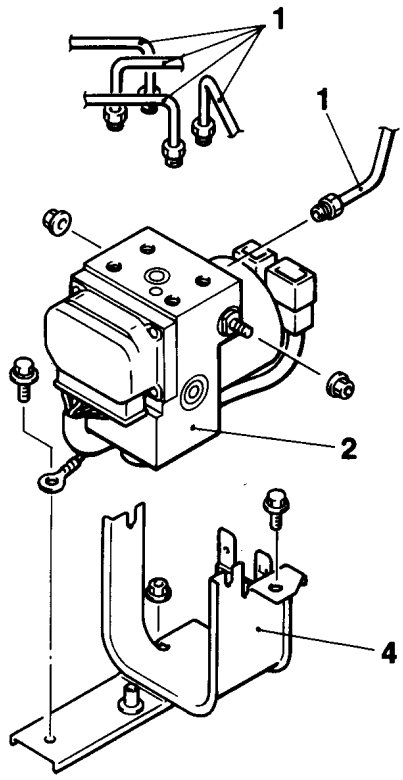
Pre-removal Operation
- Brake Fluid Draining

Post-installation Operation
- Brake Fluid Supplying
- Air Bleeding from Brake Lines
- Checking by Using the MUT-II

Flare nut

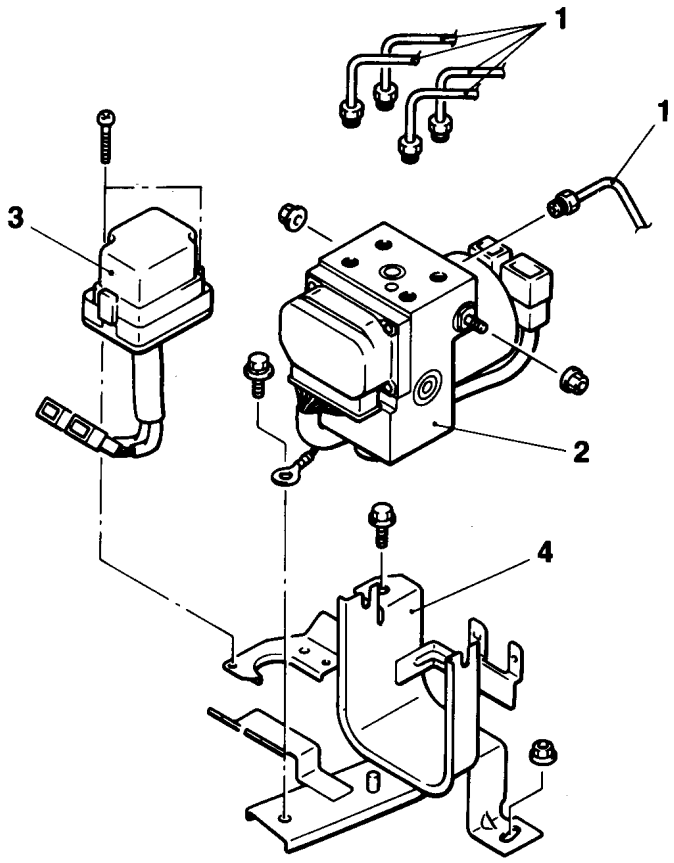


<4M40-LHD and 4D56-LHD>



14E0248

<6G72, 6G74, 4M40-RHD and 4D56-RHD>



14E0235

Removal steps

◆◆ 1. Brake tube connection
◆◆ 2. Hydraulic unit
3. ABS relay box
4. Hydraulic unit bracket

NOTE
(1) RHD: R.H.drive vehicles
(2) LHD: L.H.drive vehicles.

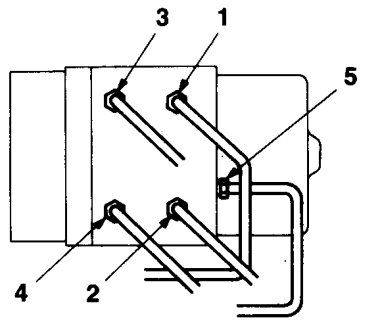
REMOVAL SERVICE POINT

2 HYDRAULIC UNIT REMOVAL

Caution

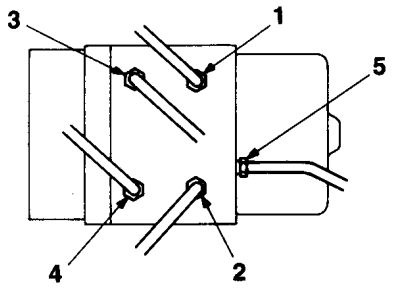
1. **The hydraulic unit is heavy, and so care should be taken when removing it.**
2. **The hydraulic unit is not to be disassembled; its nuts and bolts should absolutely not be loosened.**
3. **The hydraulic unit must not be dropped or otherwise subjected to shocks.**
4. **The hydraulic unit must not be turned upside down or laid on its side.**

<6G72, 6G74, 4M40-RHD and 4D56-RHD>



14E0232

<4M40-LHD and 4D56-LHD>



14E0249

INSTALLATION SERVICE POINT

1. BRAKE TUBE CONNECTION

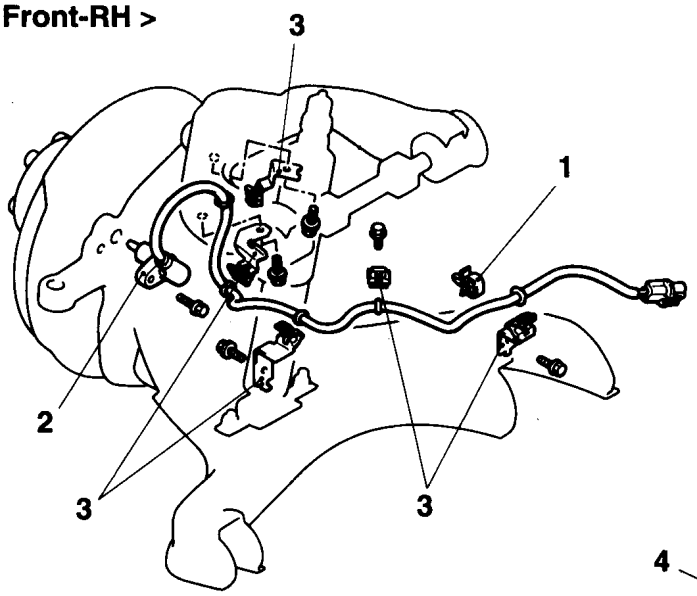
Install the brake tube as shown in the illustration.

1. From master cylinder to hydraulic unit (to rear brake)
2. From master cylinder to hydraulic unit (to front brake)
3. From hydraulic unit to rear brake
4. From hydraulic unit to front brake (LH)
5. From hydraulic unit to front brake (RH)

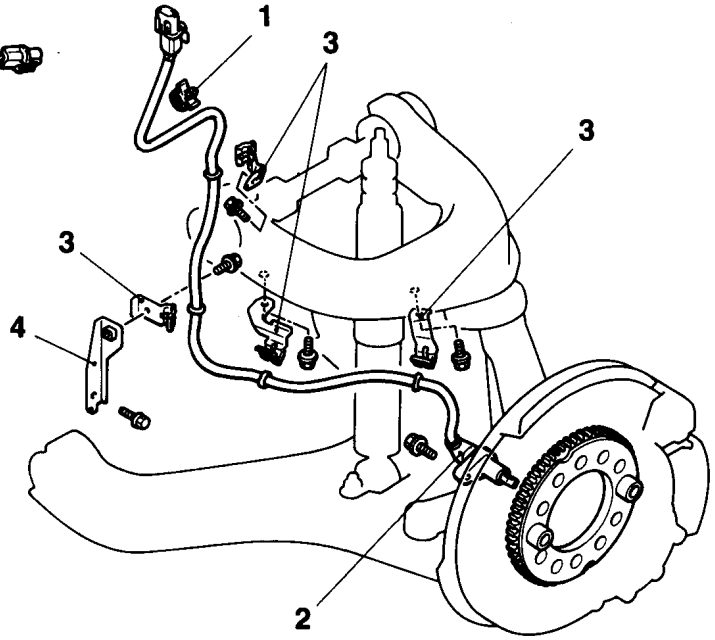
WHEEL SPEED SENSOR <ABS>

REMOVAL AND INSTALLATION

< Front-RH >



< Front-LH >

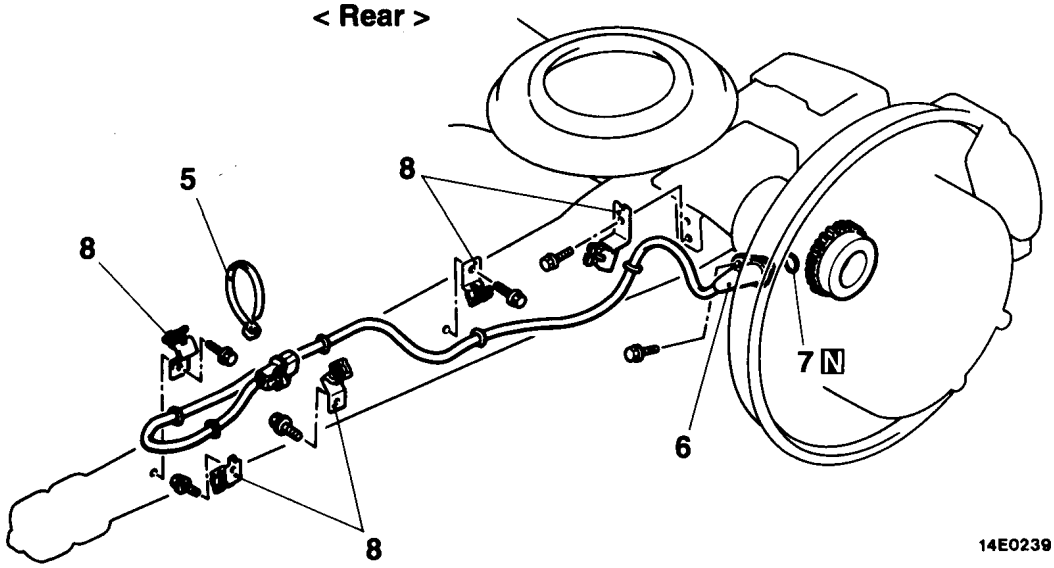


Front speed sensor removal steps

1. Clip
2. Front speed sensor
3. Clip
4. Harness bracket

14E0238

< Rear >

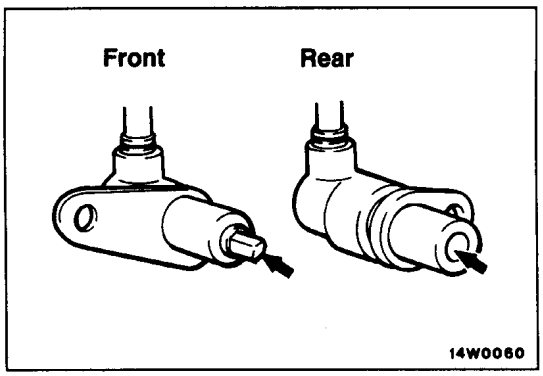


14E0239

Rear speed sensor removal steps

5. Band
6. Rear speed sensor
7. O-ring
8. Clip

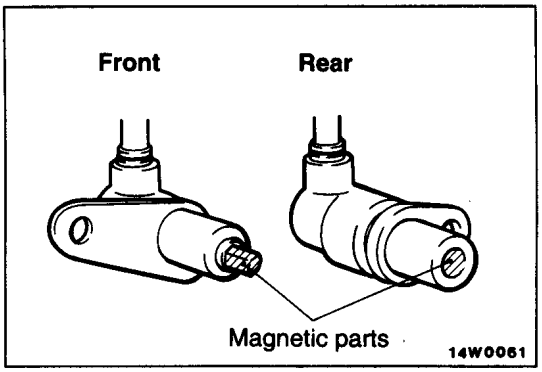
NOTE
The clearance between the speed sensor and the rotor cannot be adjusted.



REMOVAL SERVICE POINTS

2. FRONT SPEED SENSOR/6. REAR SPEED SENSOR REMOVAL

Caution
Be careful when handling the pole piece at the tip of the speed sensor and the toothed edge of the rotor so as not to damage them by striking against other parts.



INSPECTION

SPEED SENSOR

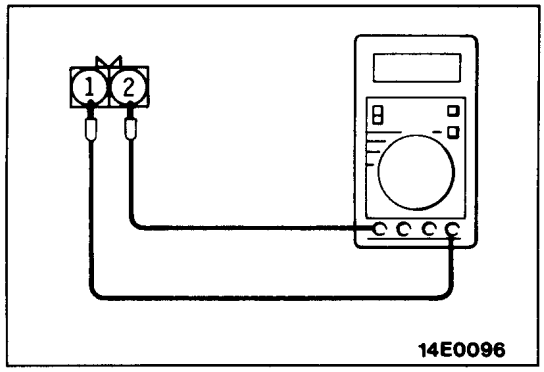
(1) Check whether any metallic foreign material has adhered to the pole piece at the speed sensor tip, and, if so, remove it.
Also check whether the pole piece is damaged, and, if so, replace it with a new one.

NOTE
The pole piece can become magnetized because of the magnet built into the speed sensor, so that metallic foreign material easily adheres to it. Moreover, the pole piece may not be able to sense correctly the wheel rotation speed if it is damaged.

(2) Measure the resistance between the speed sensor terminals.

Standard value:
Front: 1.17 – 1.35 kΩ
Rear: 1.3 – 1.5 kΩ

If the internal resistance of the speed sensor is not within the standard value, replace it with a new speed sensor.



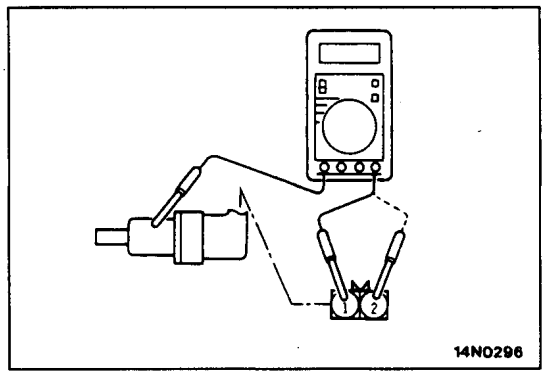
(3) Remove all connections from the speed sensor, and then measure the resistance between terminals (1) and (2) and the body of the speed sensor.

Standard value: 100 kΩ or more

(4) If the speed sensor insulation resistance is outside the standard value range, replace with a new speed sensor.

(5) Check the speed sensor cable for breakage, damage or disconnection; replace with a new one if a problem is found.

NOTE
When checking for cable damage, remove the cable clamp part from the body and then bend and pull the cable near the clamp to check whether or not temporary disconnection occurs.



GROUP 52A
INTERIOR

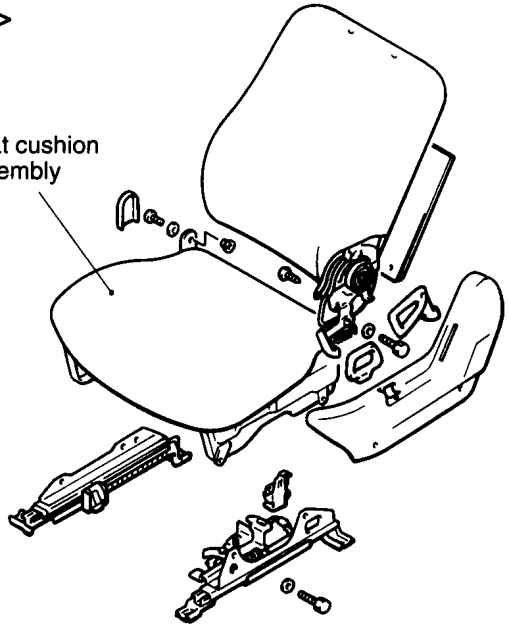
GENERAL

OUTLINE OF CHANGES

- The seat cushion assembly for fixed mounting boss-type front seats has been integrated with the seat leg assembly. Disassembly service points have been established to correspond to this.
- The suspension mechanism in front suspension seats has been changed from a shock absorber – spring mechanism to a rubber-moulded spring mechanism. Disassembly service points have been established to correspond to this.

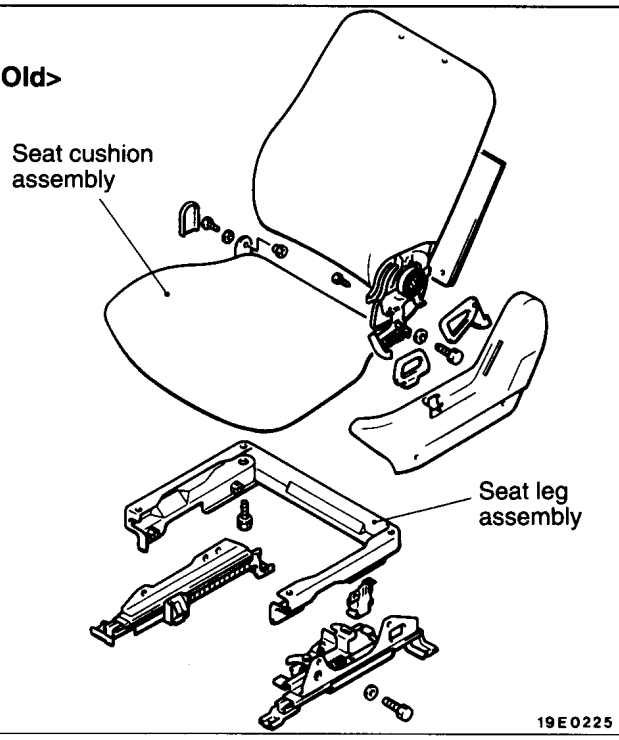
- **Normal seats**

<New>



19E0226

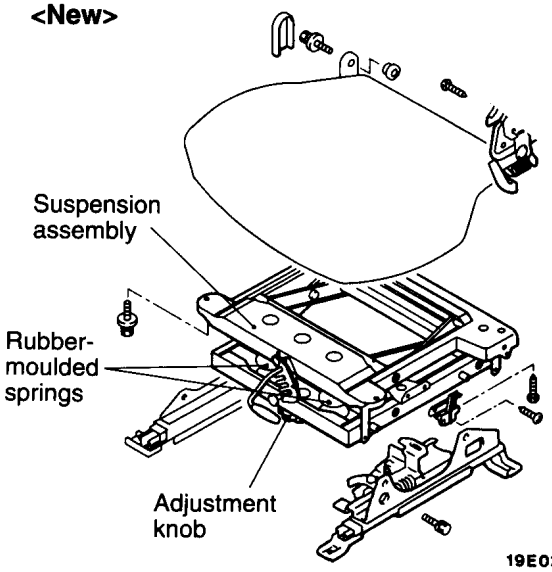
<Old>



19E0225

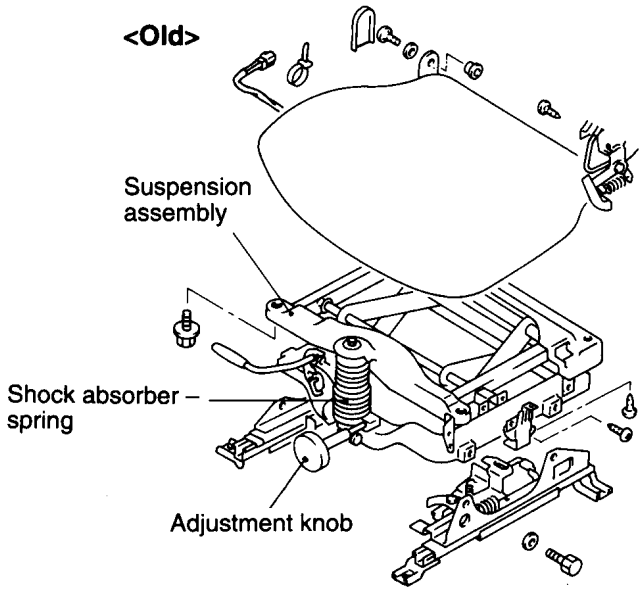
- **Suspension seats**

<New>



19E0246

<Old>

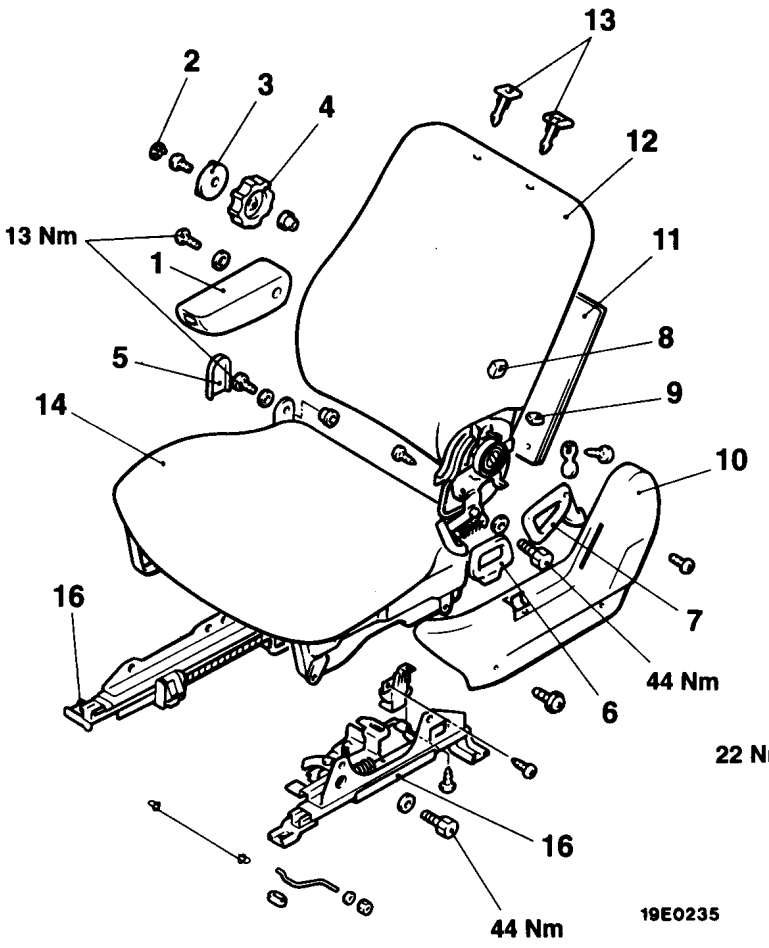


19E0070

FRONT SEAT

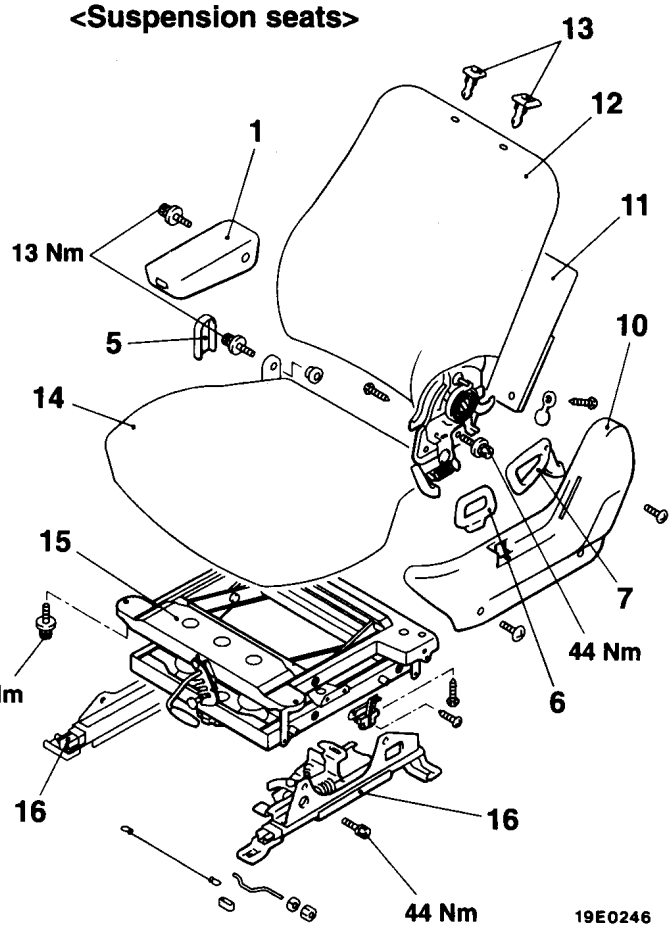
DISASSEMBLY AND REASSEMBLY

<Normal seats>



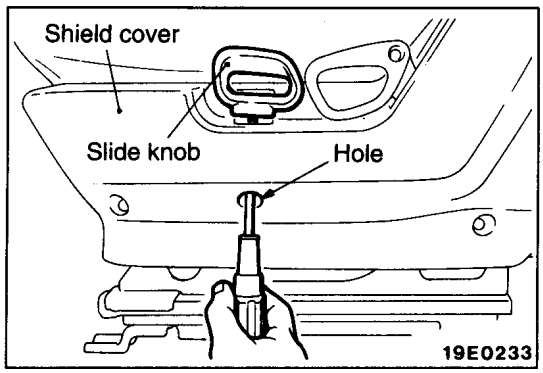
Pre-removal and Post-installation Operation
- Removal and Installation of Front Inner Seat Belt assembly

<Suspension seats>



Disassembly steps

1. Armrest assembly
2. Side support lever cap
3. Side support lever
4. Lumbar support lever
5. Free hinge protector
6. ◆◆ Slide knob
7. Reclining knob
8. Reclining memory knob
9. Walk-in knob
10. Shield cover
11. Back pocket assembly
12. Seatback assembly
13. Headrestraint guide
14. Seat cushion assembly
15. Suspension assembly
16. Seat adjuster



DISASSEMBLY SERVICE POINT

6. SLIDE KNOB REMOVAL

Pass a screwdriver through the shield cover hold and remove the slide knob mounting screw.

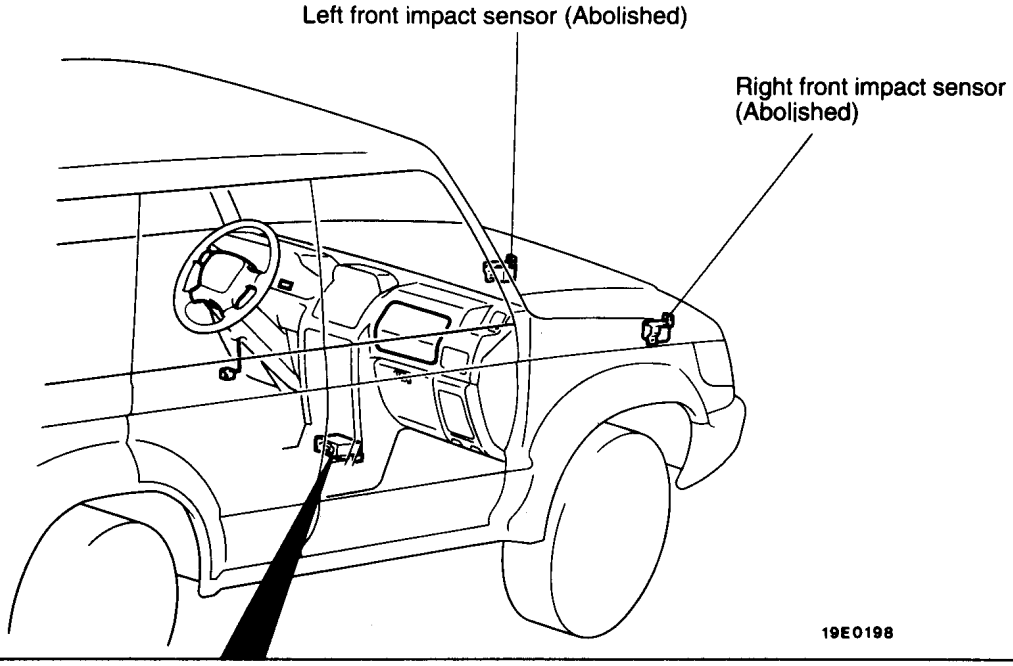
GROUP 52B
SUPPLEMENTAL RESTRAINT SYSTEM (SRS)

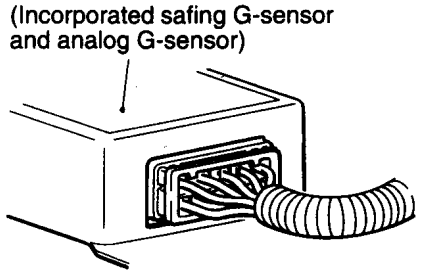
GENERAL

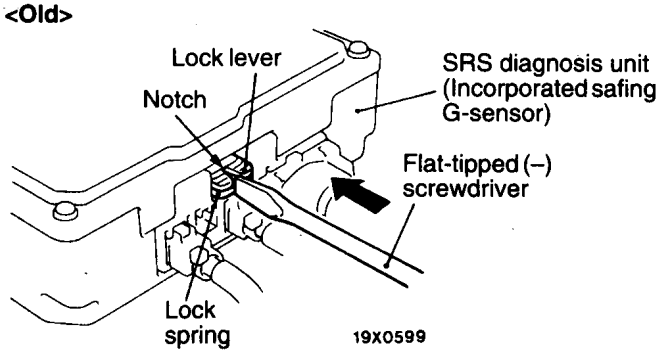
OUTLINE OF CHANGES

The following changes have been made to the SRS. Items other than these are the same as before.

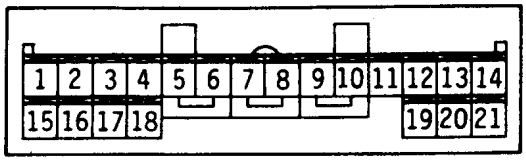
- The front impact sensors have been abolished.
- The special tool has been changed and the removal procedures for the SRS-ECU connector have become simpler as a result of the SRS diagnosis unit being changed to a SRS-ECU.





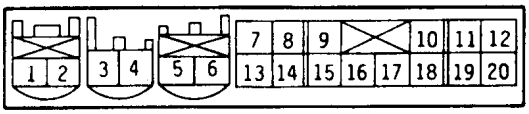


SRS-ECU side connector



19X0739

SDU side connector



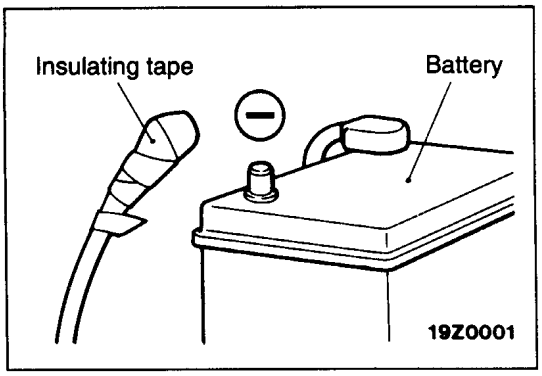
19X0600

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 basic manual.
   Never use an analog ohmmeter.
3. **Never attempt to repair the following components:**
   - SRS-ECU
   - Clock Spring
   - Air Bag Module
     (Driver's side or front passenger's side)

   If any of these components are diagnosed as faulty, they should only be replaced, in accordance with the INDIVIDUAL COMPONENTS SERVICE procedures in basic manual. (Refer to PAJERO Workshop Manual Pub No. PWJE9086-F)
4. Do not attempt to repair the wiring harness connectors of the SRS. If any of the connectors are diagnosed as faulty, replace the wiring harness. If the wires are diagnosed as faulty, replace or repair the wiring harness according to the following table.

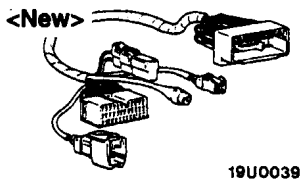
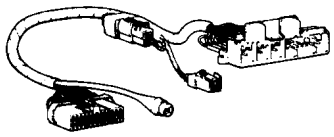
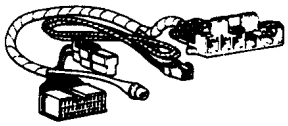
SRS-ECU Terminal No.	Harness Connector (No. of Terminals, Colour)	Destination of Harness	Corrective Action
1 to 4	21 pins, yellow	–	–
5		Dash wiring harness → Clock spring → Air bag module (Driver's side)	Correct or replace dash wiring harness Replace clock spring
6			
7		Dash wiring harness → Air bag module (Front passenger's side)	Correct or replace dash wiring harness
8			
9, 10		–	–
11		Dash wiring harness → Diagnosis connector	Correct or replace each wiring harness
12		–	–
13		Dash wiring harness → Junction block (fuse No.18)	Correct or replace each wiring harness
14		Dash wiring harness → Junction block (fuse No.12)	
15		Dash wiring harness → Instrument panel wiring harness → SRS warning lamp	
16 to 19		–	–
20		Dash wiring harness → Earth	Correct or replace dash wiring harness
21			



5. **After disconnecting the negative battery cable, wait 60 seconds or more before proceeding with the following work. The SRS system is designed to retain enough voltage to deploy the air bag for short time even after the battery has been disconnected, so serious injury may result from unintended air bag deployment if work is done on the SRS system immediately after the battery cables are disconnected.**
6. SRS components should not be subjected to heat over 93°C, 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 the SRS warning lamp operation to make sure that the system functions properly. (Refer to PAJERO Workshop Manual Pub. No. PWJE9086-F.)
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
<New>  19U0039	MB991613	SRS Check Harness	• Checking the SRS electrical circuitry with a digital multi-meter (For both vehicles with driver's side air bag only and vehicles with both driver's side and front passenger's side air bags)
<Old> 	MB991349	SRS Check Harness	• Checking the SRS electrical circuitry with a digital multi-meter <Vehicles without front passenger's air bag>
<Old> 	MB991530	SRS Check Harness	• Checking the SRS electrical circuitry with a digital multi-meter <Vehicles with front passenger's air bag>

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

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	Analog G-sensor system in the SRS-ECU		52B-6
15, 16	Safing G-sensor system in the SRS-ECU		52B-6
21, 22, 61	Driver's side air bag module (squib) system		52B-6
24, 25, 64	Front passenger's side air bag module (squib)		52B-8
31, 32	SRS-ECU capacitor system		52B-9
34*	Connector lock system		52B-9
35	SRS-ECU (deployed air bag) system		52B-9
41*	IG_1 (A) power circuit system		52B-10
42*	IG_1 (B) power circuit system		52B-11
43	SRS warning lamp drive circuit system	Lamp does not illuminate*	52B-12
		Lamp does not switch off	52B-13
44	SRS warning lamp drive circuit system		52B-13
45	SRS-ECU non-volatile memory (EEPROM) and A/D converter system		52B-13
51, 52	Driver's side air bag module (squib ignition drive circuit) system		52B-14
54, 55	Front passenger's side air bag module (squib ignition drive circuit) system		52B-14

NOTE

(1)* If the vehicle condition returns to normal for a continuous period of 5 ± 0.2 seconds, the diagnosis code will be automatically erased, and the SRS warning lamp will return to normal.

(2) 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 Analog G-sensor system in the SRS-ECU	Probable cause
The SRS-ECU monitors the output of the analog G-sensor inside the SRS-ECU. It outputs this code when any of the following are detected. • When the analog G-sensor is not operating • When the characteristics of the analog G-sensor are abnormal • When the output from the analog G-sensor is abnormal	• Malfunction of SRS-ECU

Replace the SRS-ECU.

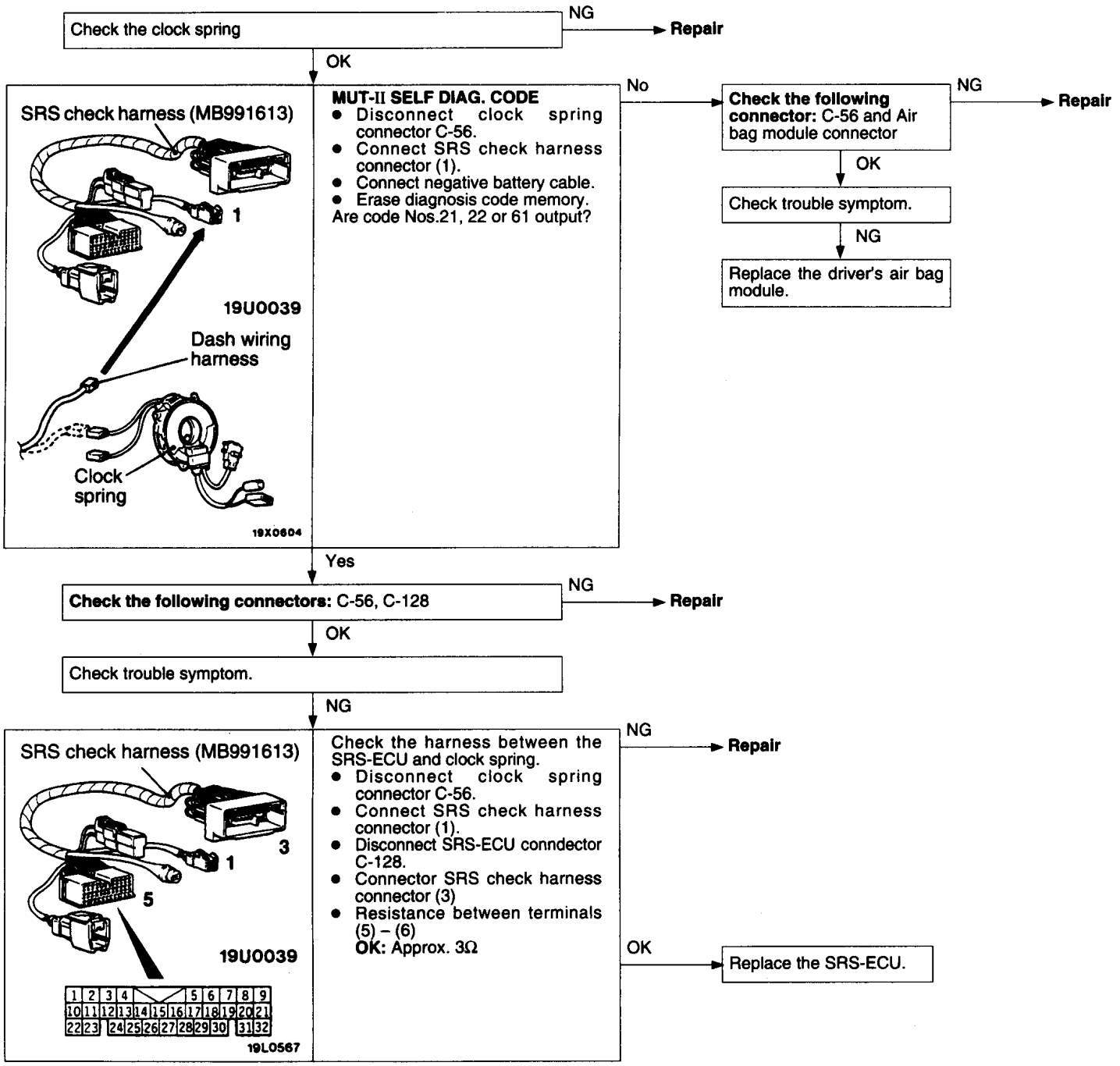
Code No.15 or 16 Safing G-sensor system in the SRS-ECU	Probable cause
This code is output if there is a short or open circuit between the terminals of the safing G-sensor inside the SRS-ECU. The trouble causes for each diagnosis code No. are as follows.	• Malfunction of SRS-ECU

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

Replace the SRS-ECU.

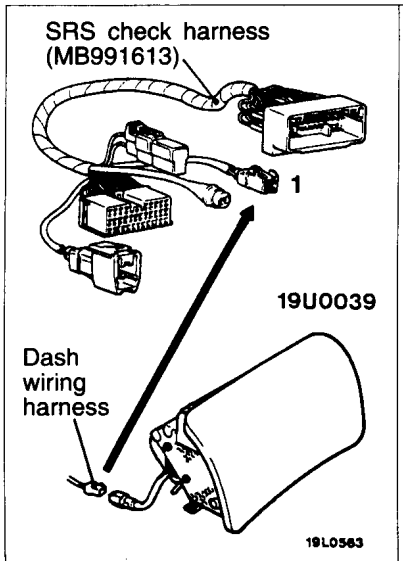
Code No. 21, 22 or 61 Air bag module (driver's side squib) system	Probable cause
These diagnosis codes are output if there is abnormal resistance between the input terminals of the air bag module (driver's side squib). The trouble causes for each code No. are as follows.	• Malfunction of clock spring • Malfunction of harnesses or connectors • Malfunction of air bag module (driver's side squib) • Malfunction of SRS-ECU

Code No.	Trouble Symptom
21	• Short in air bag module (driver's side squib) or harness short • Short in clock spring
22	• Open circuit in air bag module (driver's side squib) or open harness • Open circuit in clock spring • Malfunction of connector contact
61	• Short in air bag module (driver's side squib) harness leading to the power supply



Code No. 24, 25 or 64 Air bag module (front passenger's side squib) system <Vehicles with front passenger's air bag>	Probable cause
These diagnosis codes are output if there is abnormal resistance between the input terminals of the air bag module (front passenger's side squib). The trouble causes for each code No. are as follows.	• Malfunction of harnesses or connectors • Malfunction of air bag module (front passenger's side squib) • Malfunction of SRS-ECU

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



MUT-II SELF DIAG. CODE
- Disconnect front passenger's air bag module connector C-126.
- Connect SRS check harness connector (1).
- Connect negative battery cable.
- Erase diagnosis code memory.

Are code Nos. 24, 25 or 64 output?

Yes → **Check the following connectors:** C-128, C-126 — NG → **Repair**

OK → Check trouble symptom.

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

OK → Replace the SRS-ECU.

No → Replace the front passenger's air bag module.

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.

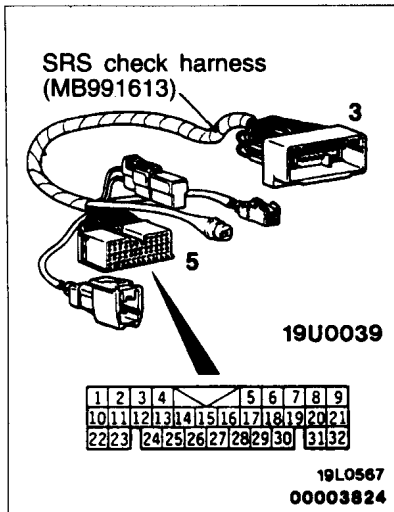
Code No. 34 Connector lock system	Probable cause
This diagnosis code is output if a poor connection of the SRS-ECU is detected. However, if the vehicle condition returns to normal, diagnosis code No. 34 will be automatically erased, and the SRS warning lamp will switch off.	• Malfunction of connectors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

Check the following connector.
C-128
NG → **Repair**
OK ↓
Replace the SRS-ECU.

Code No. 35 SRS-ECU (deployed air bag) system	Probable cause
This 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 (A) power circuit system	Probable cause
This diagnosis code is output if the voltage between the IG_1 (A) terminal 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 will be automatically erased, and the SRS warning lamp will switch off.	• Malfunction of harnesses of connectors • Malfunction of SRS-ECU



Measure at SRS check harness connector (5).
- Disconnect SRS-ECU connector C-128.
- Connect SRS check harness connector (3)
- Continuity between terminals (20) – (21)

OK: Continuity

NG → **Check the following connector.** C-128 NG → **Repair**

OK → Check trouble symptom.

NG → Check the harness between the SRS-ECU and earth, and repair if necessary.

OK → Measure at SRS check harness connector (5).
- Disconnect SRS-ECU connector C-128.
- Connect SRS check harness connector (3).
- Connect negative battery cable.
- Ignition switch: ON
- Voltage between terminal (14) and body earth.

OK: 9 V or more

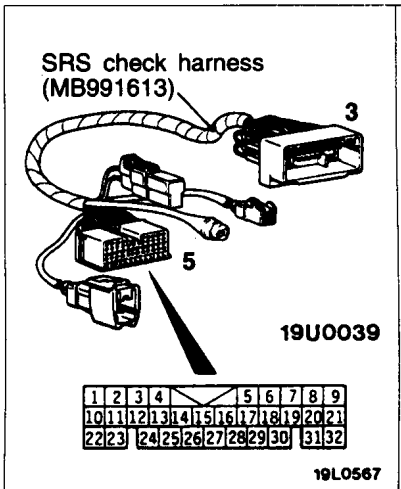
NG → **Check the following connectors.** C-116, C-107, C-77<L. H.drive vehicles>and C-78<R.H.drive vehicles> NG → **Repair**

OK → Check trouble symptom.

NG → Check the harness between the SRS-ECU and ignition switch IG1, and repair if necessary.

OK → Replace the SRS-ECU.

Code No. 42 IG_1 (B) power circuit system	Probable cause
This diagnosis code is output if the voltage between the IG_1 (B) terminal 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. 42 will be automatically erased, and the SRS warning lamp will switch off.	• Malfunction of harnesses or connectors



Measure at SRS check harness connector (5).
- Disconnect SRS-ECU connector C-128.
- Connect SRS check harness connector (3)
- Continuity between terminals (20) – (21)

OK: Continuity

NG → **Check the following connector.** C-128 NG → **Repair**

OK → Check trouble symptom

NG → Check the harness between the SRS-ECU and earth, and repair if necessary.

OK → Measure at SRS check harness connector (5).
- Disconnect SRS-ECU connector C-128.
- Connect SRS-ECU check harness connector (3).
- Connect negative battery cable.
- Ignition switch: ON
- Voltage between the terminal (13) and body earth.

OK: 9 V or more

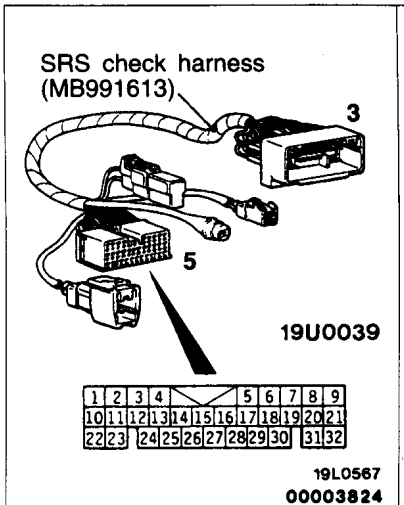
NG → **Check the following connectors.** C-116, C-102 and C-107 NG → **Repair**

OK → Check trouble symptom.

NG → Check the harness between the SRS-ECU and ignition switch IG1, and repair if necessary.

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 harnesses or connectors • Blown bulb • Malfunction of SRS-ECU • Malfunction of combination meter



Measure at SRS check harness connector (5).
- Disconnect SRS-ECU connector C-128.
- Connect SRS check harness connector (3)
- Continuity between terminals (20) – (21)

OK: Continuity

NG → **Check the following connector.** C-128 → NG → **Repair**

OK → Check trouble symptom → NG → Check the harness between the SRS-ECU and earth, and repair if necessary.

OK → Measure at SRS check harness connector (5).
- Disconnect SRS-ECU connect C-128.
- Connect SRS check harness connector (3).
- Connect negative battery cable.
- Ignition switch: ON
- Connect terminal (15) to the body earth.

OK: Lamp illuminates

NG → Blown bulb inspection → NG → **Repair**

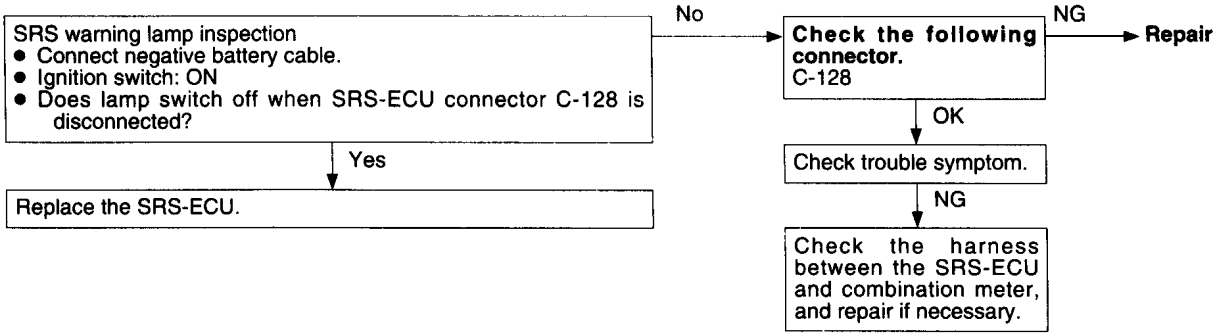
OK → **Check the following connectors.** C-116, C-110, C-05 and C-11 → NG → **Repair**

OK → Check trouble symptom. → NG → Check the harness between the SRS-ECU and ignition switch (IG1). → NG → **Repair**

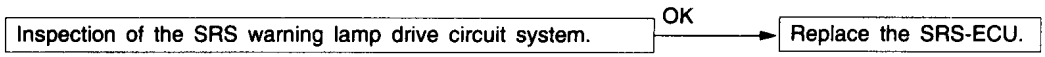
OK → Replace the combination meter.

OK → Replace the SRS-ECU.

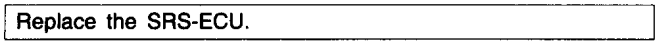
Code No. 43 SRS warning lamp drive circuit system (Lamp does not switch off.)	Probable cause
This diagnosis code is output when a short to earth occurs in the harness between the lamp and the SRS-ECU while the SRS-ECU is monitoring the SRS warning lamp and the lamp is ON.	• Malfunction of harnesses or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



Code No. 45 SRS-ECU non-volatile memory (EEPROM) and A/D converter system	Probable cause
This diagnosis code is output if there is a malfunction in the SRS-ECU non-volatile memory (EEPROM) or A/D converter.	• Malfunction of SRS-ECU

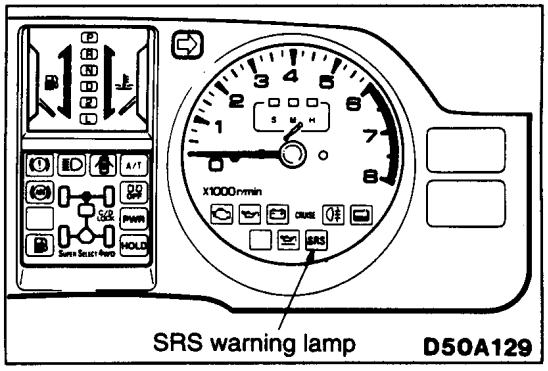


Code No. 51 or 52 Driver's side air bag module (squib ignition drive circuit) system	Probable cause
This code output if a short (No. 51) or an open circuit (No. 52) is detected in the circuit for the driver's seat.	• Malfunction of SRS-ECU

Replace the SRS-ECU.

Code No. 54 or 55 Front passenger's side air bag module (squib ignition drive circuit) system	Probable cause
This code is output if a short (No. 54) or 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 case, inspect the diagnosis codes.

INSPECTION CHART FOR TROUBLE SYMPTOMS

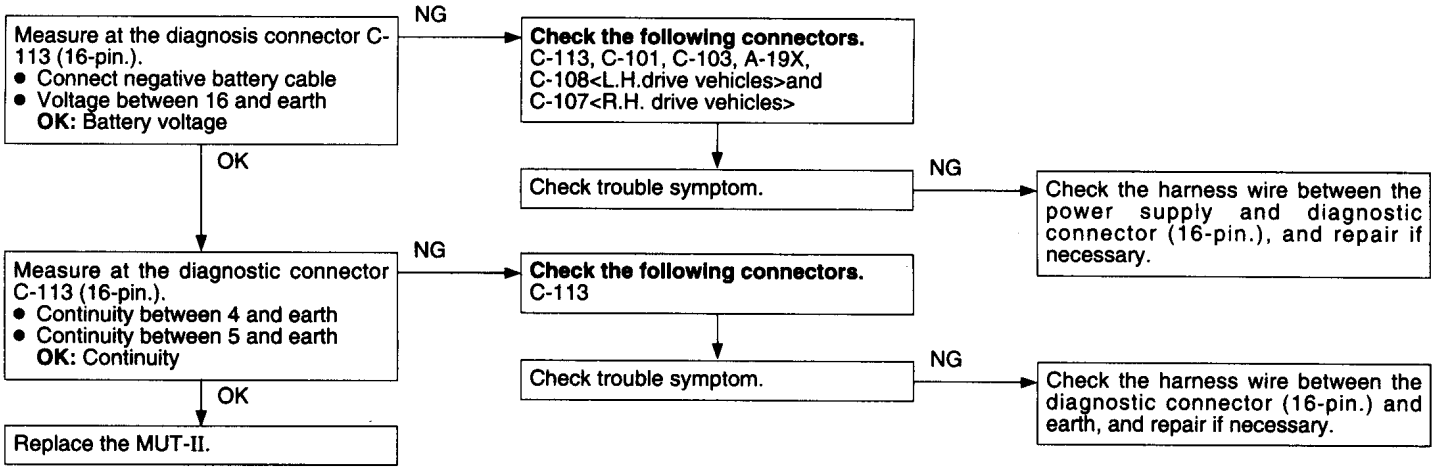
Get an understanding of the trouble symptoms and check according to the inspection procedure chart.

Trouble symptom		Inspection Procedure No.	Reference page
Communication with MUT-II is not possible.	Communication with all systems is not possible.	1	52B-15
	Communication is not possible with SRS only	2	52B-16
When the ignition key is turned to "ON" (engine stopped), the SRS warning lamp does not illuminate.		Refer to diagnosis code No. 43.	52B-13
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.	52B-13

INSPECTION PROCEDURE FOR TROUBLE SYMPTOMS

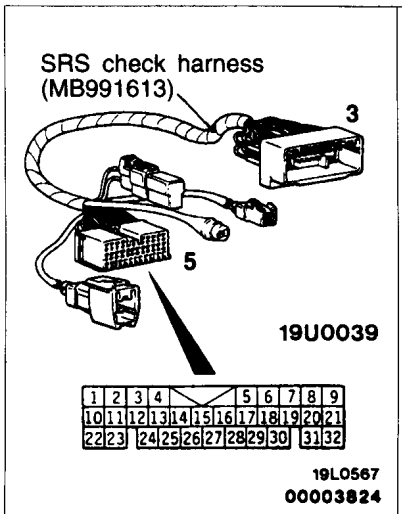
Inspection Procedure 1

Communication with MUT-II is not possible. (Communication with all system 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 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 harnesses or connectors • Malfunction of SRS-ECU



Measure at SRS check harness connector (5).
- Disconnect SRS-ECU connector C-128.
- Connect SRS check harness connector (3)
- Continuity between terminals (20) – (21)
  OK: Continuity

NG → **Check the following connector.** C-128 NG → **Repair**

OK → Check trouble symptom.

NG → Check the harness between the SRS-ECU and earth, and repair if necessary.

OK → Measure at SRS check harness connector (5).
- Disconnect SRS-ECU connector C-128.
- Connect SRS check harness connector (3).
- Connect negative battery cable.
- Ignition switch: ON
- Voltage between the terminal (13) and body earth.
  OK: 9 V or more
- Voltage between the terminal (14) and body earth
  OK: 9 V or more

NG → **Check the following connectors.** C-116, C-102, C-107, C-77<L.H.drive vehicles> and C-78<R.H.drive vehicles> NG → **Repair**

OK → Check trouble symptom.

NG → Check the harness between the SRS-ECU and ignition switch IG1 or ignition switch IG1 (B), and repair if necessary.

OK → Check the harness between the SRS-ECU and diagnosis connector. NG → **Repair**

OK → Replace the SRS-ECU.

GROUP 54
CHASSIS ELECTRICAL

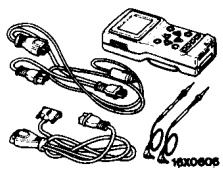
GENERAL

OUTLINE OF CHANGES

- The immobilizer-ECU has been changed. The service procedures except for those described below are the same as before.
  (1) A troubleshooting item (for diagnosis code No. 33) has been added for when the engine starting prevention mode is activated because the incorrect key has been used five times in succession.
  (2) Diagnosis code No. 11 is now erased automatically when the condition returns to normal. (Previously it was erased using the MUT-II.)

IMMOBILIZER SYSTEM

SPECIAL TOOLS

Tool	Number	Name	Use
	MB991502	MUT-II sub assembly	• Immobilizer system check (Diagnosis display using the MUT-II) • Registration of the ID code.
 16X0607		ROM back	

TROUBLESHOOTING

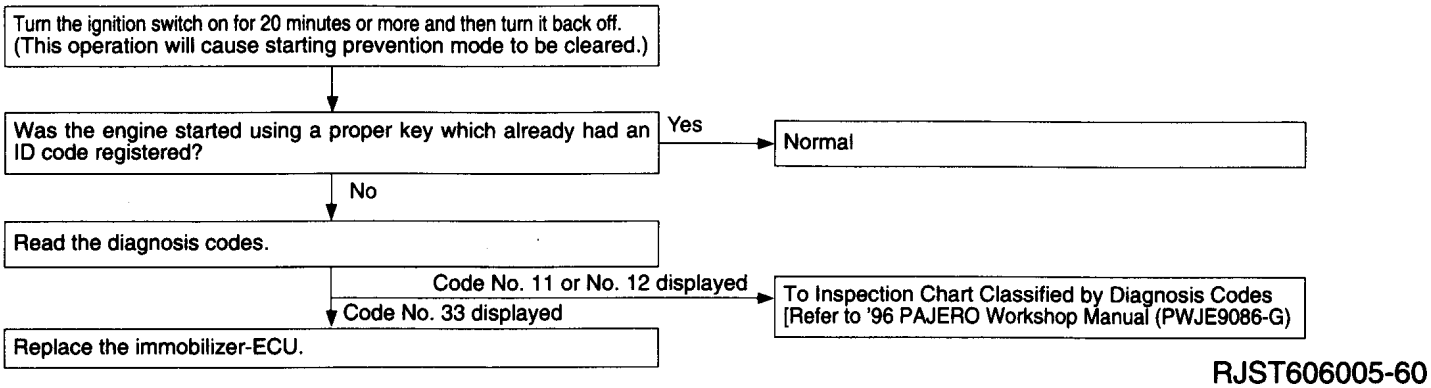
INSPECTION CHART FOR DIAGNOSIS CODES

Diagnosis code No.	Inspection items	Reference page
11*1	Transponder communication system	Refer to '96 PAJERO Workshop Manual (PWJE9086-G)
12*1	ID code are not the same or are not registered	Refer to '96 PAJERO Workshop Manual (PWJE9086-G)
21*2	Communication system between MUT-II and engine-ECU	Refer to '96 PAJERO Workshop Manual (PWJE9086-G)
21*3	Communication system between fuel cut valve-ECU and immobilizer-ECU	Refer to '96 PAJERO Workshop Manual (PWJE9086-G)
22*3	Fuel cut valve-ECU system	Refer to '96 PAJERO Workshop Manual (PWJE9086-G)
23*3	Starting permission codes are not identical	Refer to '96 PAJERO Workshop Manual (PWJE9086-G)
31	EEPROM abnormality inside immobilizer-ECU	Refer to '96 PAJERO Workshop Manual (PWJE9086-G)
32*2	Ignition switch IG signal circuit system	Refer to '96 PAJERO Workshop Manual (PWJE9086-G)
33	Starting prevention system activated due to incorrect operation	54-2

NOTE
(1) *1: Diagnosis code No.11 and No.12 are not recorded.
(2) *2: Indicates vehicles with petrol engines.
(3) *3: Indicates vehicles with Diesel engines.

INSPECTION PROCEDURE FOR DIAGNOSIS CODES

Code No. 33 Starting prevention system activated due to incorrect operation	Probable cause
If the ignition switch is turned on more than five times in succession using an invalid key which does not have an ID code registered, diagnosis code No. 33 is generated and starting prevention mode is activated. (When starting prevention mode is activated, the engine will not start even when a proper key is used. This condition will continue until starting prevention mode is cleared.)	• The ID code in the ignition key being used has not been properly registered. • Malfunction of the immobilizer-ECU



RJST606005-60