

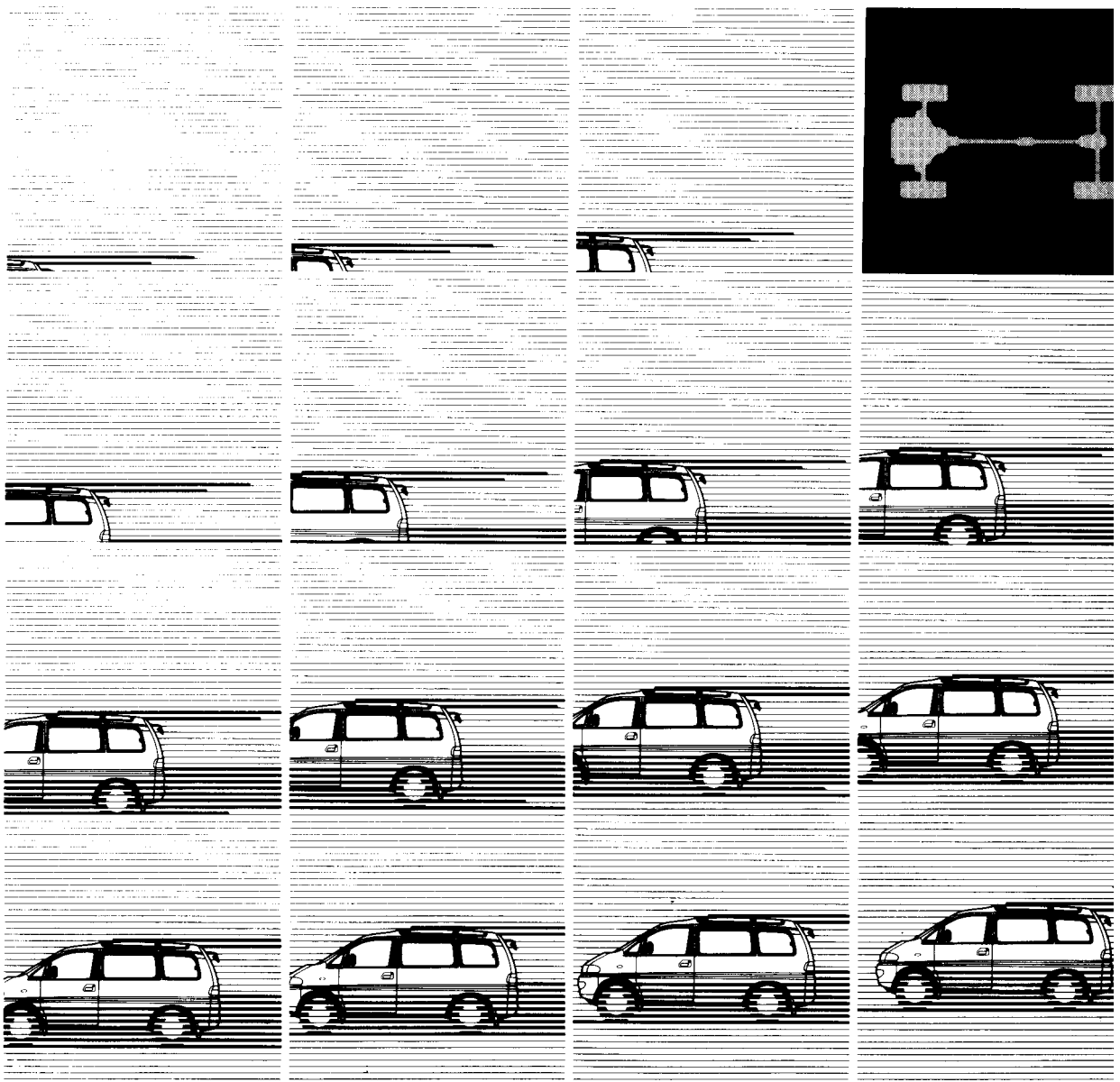


Workshop Manual

chassis

SUPPLEMENT

MITSUBISHI L400 '96



mitsubishi **L400**

WORKSHOP MANUAL

SUPPLEMENT

FOREWORD

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

TECHNICAL INFORMATION MANUAL

PYWE9410

WORKSHOP MANUAL

CHASSIS GROUP

ENGINE GROUP

ELECTRICAL WIRING

BODY REPAIR MANUAL

PARTS CATALOGUE

PWWE9410

PWEE □□□□

(Looseleaf edition)

PHWE9407

PHWE9407-A

PBWE9404

B603A805A□

General	00
Fuel	13
Manual Transmission	22
Service Brakes	35
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Interior and Supplemental Restraint System (SRS)	52
Chassis Electrical	54

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.



GROUP 00 GENERAL

VEHICLE IDENTIFICATION MODELS

<Standard wheelbase models>

Model code		Engine model	Transmission model	Fuel supply system
PA3V	GLZDEL6	4G63 (1,997 mℓ)	R5M21 (2WD-5M/T)	MPI
	GLZDER6			
	NLZDEL6			
	NLNUEL6			
PA5V	GLZDTL6	4D56 (2,476 mℓ) with turbocharger	R5M21 (2WD-5M/T)	Diesel Fuel Injection
	GLZDTR6			
	NLZDTL6			
PD4V	NLNDEL6	4G64 (2,350 mℓ)	V5M21 (4WD-5M/T)	MPI
PD5V	GLNDTL6	4D56 (2,476 mℓ) with turbocharger	V5M21 (4WD-5M/T)	Diesel Fuel Injection
	GLNDTAL6			
PA3W	NLZJEL6	4G63 (1,997 mℓ)	R5M21 (2WD-5M/T)	MPI
	NLZUEL6			
	NLNUEL6			
PA4W	NLEUEL6	4G64 (2,350 mℓ)	R4AW2 (2WD-4A/T)	MPI
	NSNHEL6		R5M21 (2WD-5M/T)	
	NSEHEL6		R4AW2 (2WD-4A/T)	
	HSNHEL6		R5M21 (2WD-5M/T)	
PA5W	HSEHEL6	4D56 (2,476 mℓ) with intercooler turbocharger	R4AW2 (2WD-4A/T)	Diesel Fuel Injection
	NLZUFL6		R5M31 (2WD-5M/T)	
	NLNUFL6			
PD4W	NLNUEL6	4G64 (2,350 mℓ)	V5M21 (4WD-5M/T)	MPI
PD5W	NLNUFL6	4D56 (2,476 mℓ) with intercooler turbocharger	V5M31 (4WD-5M/T)	Diesel Fuel Injection
	NLNUFAL6			

<Long wheelbase models>

Model code		Engine model	Transmission model	Fuel supply system
PB3V	HLZDEL6	4G63 (1,997 mℓ)	R5M21 (2WD-5M/T)	MPI
	JLZDEL6			
	JLZDER6			
PB5V	HLZDTL6	4D56 (2,476 mℓ) with turbocharger	R5M21 (2WD-5M/T)	Diesel Fuel Injection
	JLZDTL6			
	JLZDTR6			
	JLZDTAL6			

MODEL CODE

P	A	5	W	H	S	Z	J	T	A	L	6
1	2	3	4	5	6	7	8	9	10	11	

00W0047

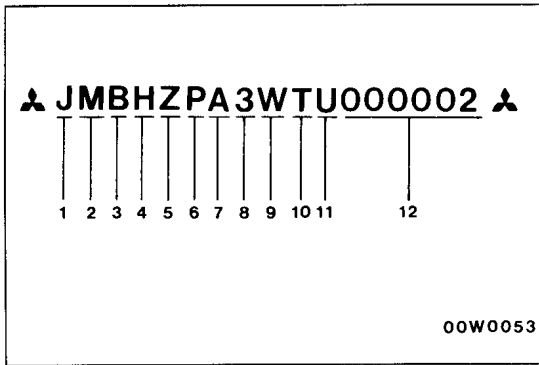
No.	Items		Contents
1	Sort	P	L400 VAN or SPACE GEAR
		A	Standard wheelbase <2WD>
2	Chassis type	B	Long wheelbase <2WD>
		D	Standard wheelbase <4WD>
3	Development order	3	1,997 ml, Petrol engine
		4	2,350 ml, Petrol engine
		5	2,476 ml, Diesel engine
4	Body type	V	Panel van or window van
		W	Wagon
5	Roof type	NS*	Standard roof – 3-door with tailgate (Clear window)
		NL	Standard roof – 4-door with tailgate (Clear window)
		HS	High roof – 3-door with tailgate (Clear window)
		HL	High roof – 4-door with tailgate (Clear window)
		JL	High roof – 4-door with tailgate (Dark window)
		GL	Standard roof – 4-door with tailgate (Dark window)
6	Transmission type	Z	5-speed manual transmission (Column shift)
		N	5-speed manual transmission (Floor shift)
		E	4-speed automatic transmission (Column shift)
7	Trim code	D	GL
		H	GLS
		J	GL <Rear 5-link coil spring suspension>
		U	GLX
8	Specified engine feature	A	SOHC–Electronic controlled carburettor
		E	SOHC-MPI
		F	Turbocharger with intercooler
		T	Turbocharger
9	Exhaust emission specification	None	Without EGR system <Diesel-powered vehicles>
		A	With EGR system <Diesel-powered vehicles>
10	Steering wheel location	L	Left hand
		R	Right hand
11	Destination	6	For Europe

NOTE:

* Indicates change

CHASSIS NUMBER

The chassis number is stamped on the toeboard inside the engine compartment.

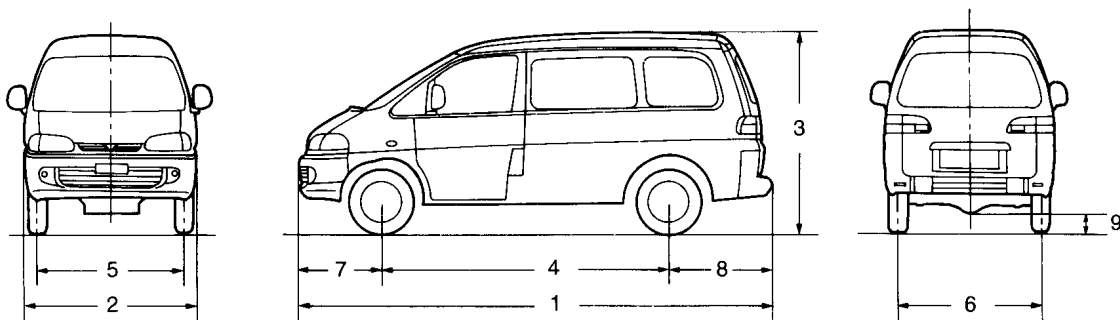


No.	Items	Contents
1	Fixed figure	J Asia
2	Distribution channel	M Japan channel
3	Destination	A For Europe, right hand drive
		B For Europe, left hand drive
4	Body style	G Standard roof (Dark window)
		H High roof (Clear window)
		J High roof (Dark window)
		N Standard roof (Clear window)
5	Transmission type	E 4-speed automatic transmission (Column shift)
		N 5-speed manual transmission (Floor shift)
		Z 5-speed manual transmission (Column shift)
6	Vehicle line	P L400 VAN or SPACE GEAR
7	Feature	A Standard wheelbase <2WD>
		B Long wheelbase <2WD>
		D Standard wheelbase <4WD>
8	Development order	3 1,997 ml, Petrol engine
		4 2,350 ml, Petrol engine
		5 2,476 ml, Diesel engine
9	Body type	V Panel van or window van
		W Wagon
10	Model year	T* 1996
11	Plant	U Mizushima Motor Vehicle Works
12	Serial number	—

NOTE:

* Indicates change

MAJOR SPECIFICATIONS



00W0042

Items			PA3VGLZDEL6 PA3VGLZDER6	PA3VNLZDEL6	PA3VNLNUEL6	PA5VGLZDTL6 PA5VGLZDTR6 PA5VNLZDTL6	PD4VNLNDEL6
Vehicle dimensions mm	Overall length	1	4,595	4,595	4,595	4,595	4,595
	Overall width	2	1,695	1,695	1,695	1,695	1,695
	Overall height (unladen)	3	1,855	1,855	1,855	1,855	1,965
	Wheelbase	4	2,800	2,800	2,800	2,800	2,800
	Tread–Front	5	1,445	1,445	1,445	1,445	1,440
	Tread–Rear	6	1,420	1,420	1,420	1,420	1,435
	Overhang–Front	7	795	795	795	795	795
	Overhang–Rear	8	1,000	1,000	1,000	1,000	1,000
	Ground clearance (unladen)	9	195	195	190	190	195
Vehicle weight kg	Kerb weight		1,450	1,470	1,515	1,525, 1,550*	1,640
	Maximum vehicle weight		2,510	2,510	2,510	2,510	2,510
Seating capacity			3	6	5	3, 6*	5
Engine	Model		4G63	4G63	4G63	4D56	4G64
	Total displacement ml		1,997	1,997	1,997	2,476	2,350
Transmission	Model		R5M21	R5M21	R5M21	R5M21	V5M21
	Type		5-speed manual	5-speed manual	5-speed manual	5-speed manual	5-speed manual

NOTE

*: PA5VNLZDTL6

Items			PD5VGLNDTL6 PD5VGLNDTAL6	PA3WNLZJEL6	PA3WNLZUEL6	PA3WNLNUEL6	PA3WNLLEUEL6
Vehicle dimensions mm	Overall length	1	4,595	4,595	4,595	4,595	4,595
	Overall width	2	1,695	1,695	1,695	1,695	1,695
	Overall height (unladen)	3	1,965	1,855	1,855	1,855	1,855
	Wheelbase	4	2,800	2,800	2,800	2,800	2,800
	Tread–Front	5	1,440	1,445	1,455	1,455	1,455
	Tread–Rear	6	1,435	1,420	1,420	1,420	1,420
	Overhang–Front	7	795	795	795	795	795
	Overhang–Rear	8	1,000	1,000	1,000	1,000	1,000
	Ground clearance (unladen)	9	195	195	195	195	195
Vehicle weight kg	Kerb weight		1,620	1,560	1,570	1,580	1,595
	Maximum vehicle weight		2,600	2,460	2,460	2,440	2,440
Seating capacity			2	9	9	8	8
Engine	Model		4D56	4G63	4G63	4G63	4G63
	Total displacement mℓ		2,476	1,997	1,997	1,997	1,997
Transmission	Model		V5M21	R5M21	R5M21	R5M21	R4AW2
	Type		5-speed manual	5-speed manual	5-speed manual	5-speed manual	4-speed automatic

Items			PA4WNSNHEL6	PA4WNSEHEL6	PA4WHSNHEL6	PA4WHSEHEL6
Vehicle dimensions mm	Overall length	1	4,595	4,595	4,595	4,595
	Overall width	2	1,695	1,695	1,695	1,695
	Overall height (unladen)	3	1,855	1,855	1,950	1,950
	Wheelbase	4	2,800	2,800	2,800	2,800
	Tread–Front	5	1,445	1,445	1,445	1,445
	Tread–Rear	6	1,420	1,420	1,420	1,420
	Overhang–Front	7	795	795	795	795
	Overhang–Rear	8	1,000	1,000	1,000	1,000
	Ground clearance (unladen)	9	190	190	190	190
Vehicle weight kg	Kerb weight		1,610	1,635	1,660	1,685
	Maximum vehicle weight		2,440	2,440	2,440	2,440
Seating capacity			7	7	7	7
Engine	Model		4G64	4G64	4G64	4G64
	Total displacement mℓ		2,350	2,350	2,350	2,350
Transmission	Model		R5M31	R4AW2	R5M21	R4AW2
	Type		5-speed manual	4-speed automatic	5-speed manual	4-speed automatic

Items			PA5WNLZUFL6 PA5WNLNUFL6	PD4WNLNUEL6	PD5WNLNUFL6 PD5WNLNUFAL6	PB3VHLZDEL6 PB3VJLZDEL6 PB3VJLZDER6	PB5VHLZDTL6 PB5VJLZDTL6 PB5VJLZDTR6 PB5VJLZDTAL6
Vehicle dimensions mm	Overall length	1	4,595	4,595	4,595	4,995	4,995
	Overall width	2	1,695	1,695	1,695	1,695	1,695
	Overall height (unladen)	3	1,855	1,965	1,965	1,960	1,960
	Wheelbase	4	2,800	2,800	2,800	3,000	3,000
	Tread–Front	5	1,445	1,440	1,440	1,445	1,445
	Tread–Rear	6	1,420	1,435	1,435	1,420	1,420
	Overhang–Front	7	795	795	795	795	795
	Overhang–Rear	8	1,000	1,000	1,000	1,200	1,200
	Ground clearance (unladen)	9	190	195	195	190	170
Vehicle weight kg	Kerb weight		1,650 1,660* ¹	1,735	1,835	1,500* ² , 1,480	1,630* ³ , 1,585
	Maximum vehicle weight		2,550 2,520* ¹	2,580	2,700	2,700	2,700
Seating capacity			9,8* ¹	8	8	6* ² , 3	6* ³ , 3
Engine	Model		4D56	4G64	4D56	4G63	4D56
	Total displacement ml		2,476	2,350	2,476	1,997	2,476
Transmission	Model		R5M31	V5M21	V5M31	R5M21	R5M21
	Type		5-speed manual	5-speed manual	5-speed manual	5-speed manual	5-speed manual

NOTE

*1: PA5WNLNUFL6

*2: PB3VHLZDEL6

*3: PB5VHLZDTL6

GROUP 13A

MULTI POINT FUEL INJECTION (MPI)

GENERAL

OUTLINE OF CHANGES

- Part of the Troubleshooting procedures have been changed to correspond to changes in the immobilizer-ECU. Items other than those listed below are the same as before.

TROUBLESHOOTING

INSPECTION CHART FOR DIAGNOSTIC TROUBLE CODES

Code No.	Diagnosis item	Reference page
11	Oxygen sensor system	Refer to P.13A-11 – 21 of the '95 L400 Workshop Manual <Pub. No. PWWE9410>.
12	Air flow sensor system	
13	Intake air temperature sensor system	
14	Throttle position sensor system	
21	Engine coolant temperature sensor system	
22	Crank angle sensor system	
23	Top dead centre sensor system	
24	Vehicle speed sensor system	
25	Barometric pressure sensor system	
36* ¹	Ignition timing adjustment signal system	
41	Injector system	
54* ²	Immobilizer system	13A-2.

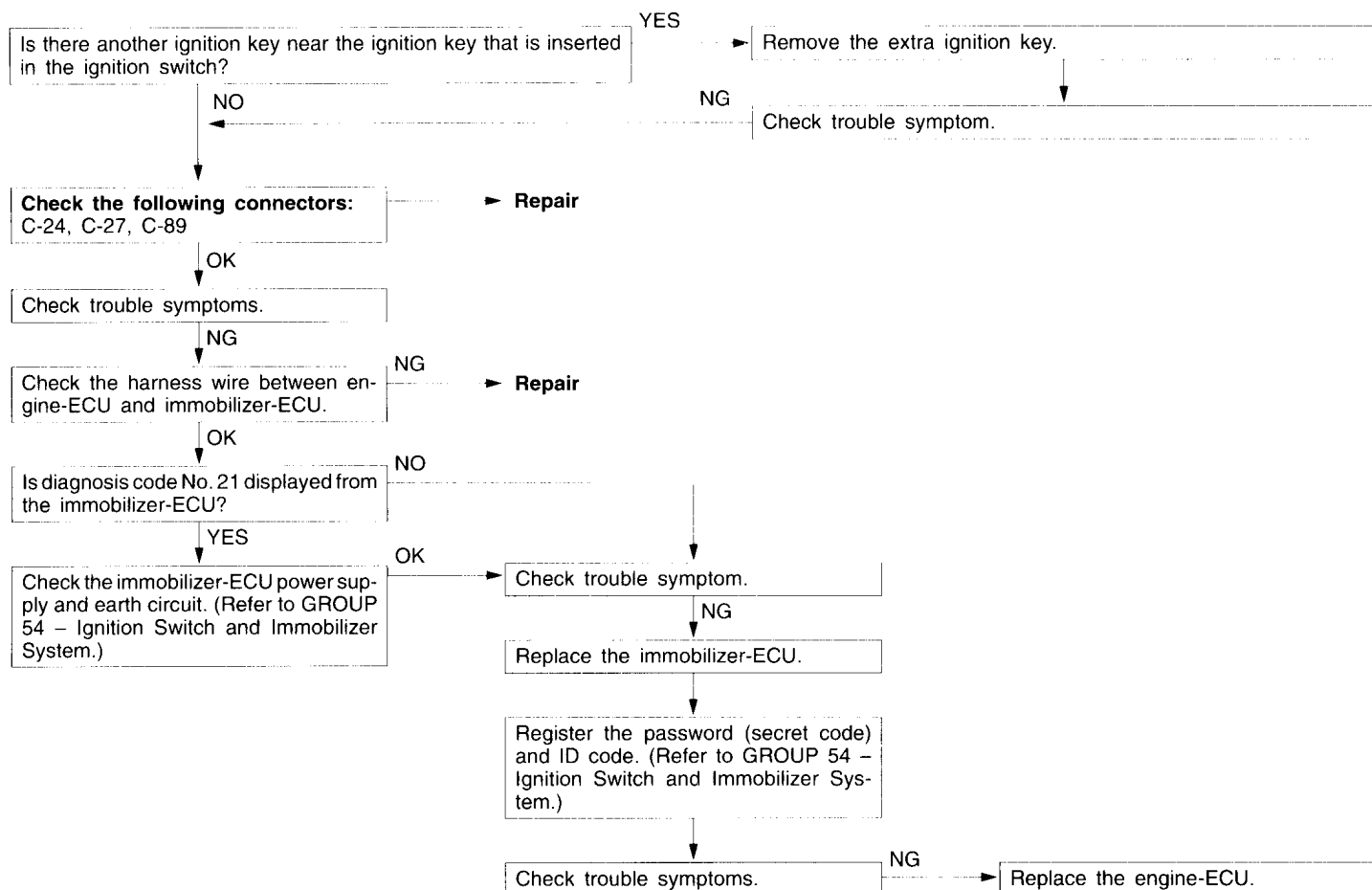
NOTE

(1) *¹: Malfunction code No. 36 is not memorized.

(2) *²: If code No. 54 occurs after the key ID code for the immobilizer system has been registered, this code will be cleared.

INSPECTION PROCEDURE FOR DIAGNOSTIC TROUBLE CODES

Code No. 54 Immobilizer system	Probable cause
There is a problem with communication between the engine-ECU and the immobilizer-ECU. If the ignition switches are close each other when starting the engine, radio interference may cause this code to be displayed. This code may be displayed when registering the key ID code.	• Radio interference of ID codes • Incorrect ID code • Malfunction of harness or connector • Malfunction of the immobilizer-ECU • Malfunction of the engine-ECU



INSPECTION CHART FOR TROUBLE SYMPTOMS

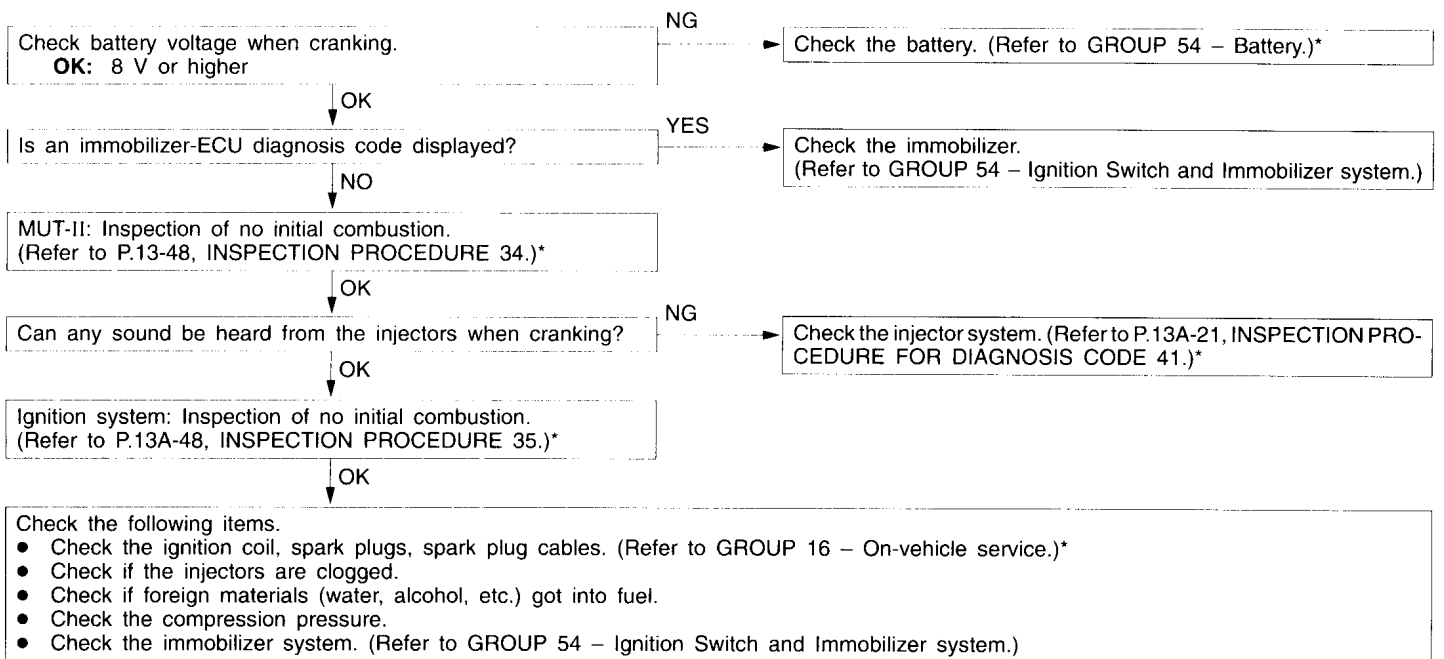
Trouble symptom		Inspection procedure No.	Reference page
Starting	No initial combustion (starting impossible)	1	13A-3

INSPECTION PROCEDURE 1

No initial combustion (starting impossible)	Probable cause
In cases such as the above, the cause is probably that a spark plug is defective, or that the supply of fuel to the combustion chamber is defective. In addition, foreign materials (water, kerosene, etc.) may be mixed with the fuel.	● Malfunction of the ignition system ● Malfunction of the fuel pump system ● Malfunction of the injectors ● Malfunction of the engine-ECU ● Malfunction of the immobilizer system ● Foreign materials in fuel

NOTE

*: Refer to L400 Workshop Manual <Pub No. PWWE9410>



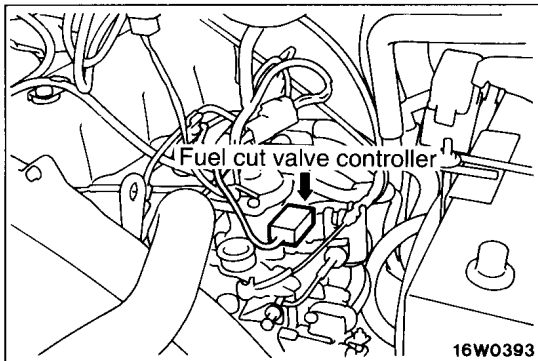
GROUP 13E

DIESEL FUEL

GENERAL

OUTLINE OF CHANGES

The fuel cut valve controller with integrated fuel cut solenoid valve has been installed to the fuel injection pump to correspond to the addition of vehicles with immobilizer system.



SERVICE ADJUSTMENT PROCEDURES

FUEL CUT VALVE CONTROLLER INSPECTION

Service points of inspection have been changed to correspond to the addition of an immobilizer system.

Operation inspection

When a sound scope is held against the fuel cut valve controller and the ignition switch is turned to "ON", check that the sound of the valve operation can be heard.

If no operating sound can be heard, check the immobilizer system while referring to GROUP 54 – Ignition Switch and Immobilizer System.

GROUP 22 MANUAL TRANSMISSION

GENERAL

OUTLINE OF CHANGES

- Transmission control is carried out by a new R5M31-7 type direct drive (floor shift type) transmission. Other maintenance service points are the same as before.

GROUP 35A SERVICE BRAKES

GENERAL

OUTLINE OF CHANGES

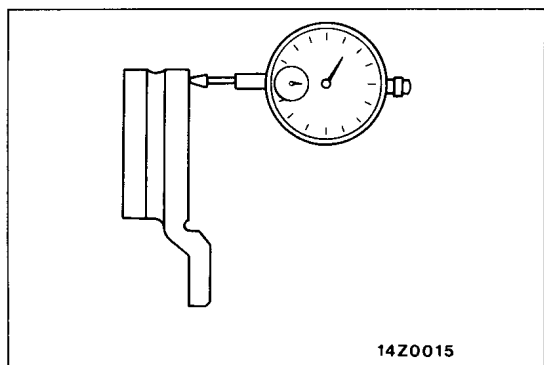
- The limit value for the front disc brake runout has been changed. All other maintenance service points are the same as before.

SERVICE SPECIFICATIONS

Items	Limit
Front brake disc runout mm	New: 0.06 Old: 0.07

SERVICE ADJUSTMENT PROCEDURES

FRONT DISC BRAKE ROTOR INSPECTION



RUN-OUT CHECK

1. Remove the caliper support; then raise the caliper assembly upward and secure by using wire.
2. Inspect the disc surface for grooves, cracks, and rust. Clean the disc thoroughly and remove all rust.
3. Place a dial gauge approximately 5 mm from the outer circumference of the brake disc, and measure the run-out of the disc.

Limit: 0.06 mm

GROUP 35C

ANTI-SKID BRAKE SYSTEM (ABS) <4WD>

GENERAL

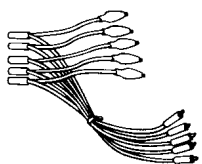
OUTLINE OF CHANGES

- The following maintenance service points have been established to correspond to the reduction in size of the G-sensor.

SERVICE SPECIFICATIONS

Items		Standard value
G-sensor output voltage V	When installed	2.3 – 2.7
	When removed with arrow mark facing down	3.3 – 3.7

SPECIAL TOOL

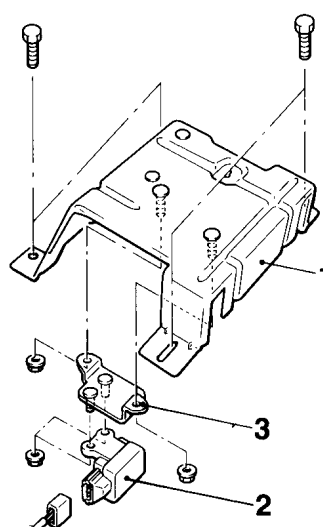
Tool	Number	Name	Use
	MB991348	Test harness set	For checking of G-sensor

G-SENSOR

REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operation

- Driver's Side Front Seat Removal and Installation

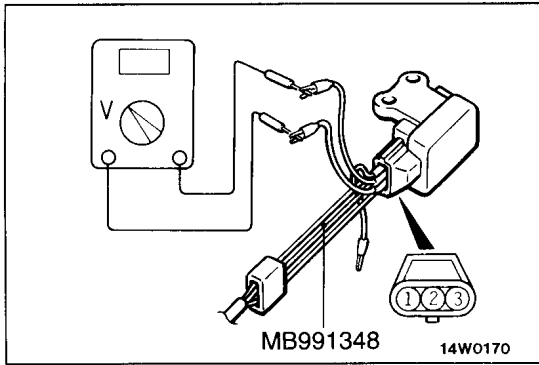


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Removal steps

- G-sensor bracket
- G-sensor
- Bracket

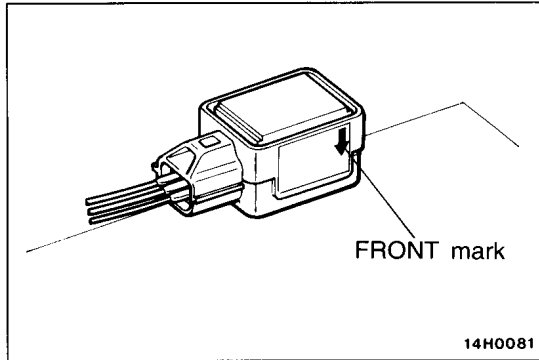
Caution
Do not drop the G-sensor or subject it to shocks.



INSPECTION

- (1) Disconnect the G-sensor connector and connect the special tool between the terminals of the disconnected connector.
- (2) Turn the ignition switch to ON and take a reading of the following output voltage.
Between terminals (2) and (3).

Standard value: 2.3 – 2.7V



- (3) With the special tools still connected, secure the G-sensor so that the FRONT mark on the sensor mounting surface faces straight down, and then take a reading of the following output voltage between terminals (2) and (3).

Standard value: 3.3 – 3.7V

- (4) If the voltage is outside the standard value, after checking to be sure that there is no abnormality in the power supply and earth wires, replace the G-sensor.

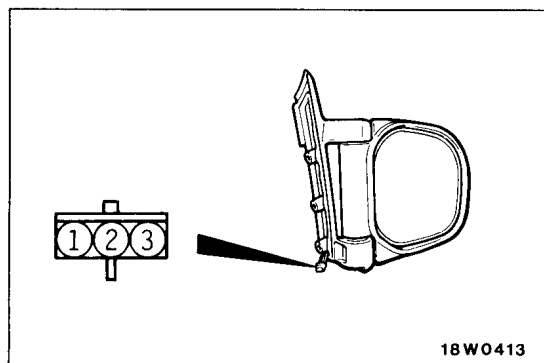
GROUP 51

EXTERIOR

GENERAL

OUTLINE OF CHANGES

- Maintenance service points for mirrors with hot wires have been added to correspond to the addition of door mirrors with hot wires.



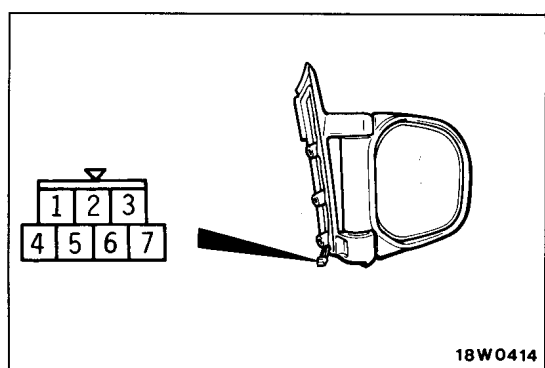
DOOR MIRROR

INSPECTION

ELECTRIC REMOTE-CONTROLLED DOOR MIRROR INSPECTION

<Without hot wire>

Battery connection terminal			Direction of operation
1	2	3	
⊖	---	⊕	UP
⊕	---	⊖	DOWN
⊕	---	⊖	LEFT
⊖	---	⊕	RIGHT



<With hot wire>

Battery connection terminal			Direction of operation
5	6	7	
⊖	---	⊕	UP
⊕	---	⊖	DOWN
⊕	---	⊖	LEFT
⊖	---	⊕	RIGHT

Hot wire	Terminal No.	
	1	4
Always	○	○

NOTE

The hot wires in the door mirror work in conjunction with the rear window defogger.

GROUP 52A INTERIOR

GENERAL

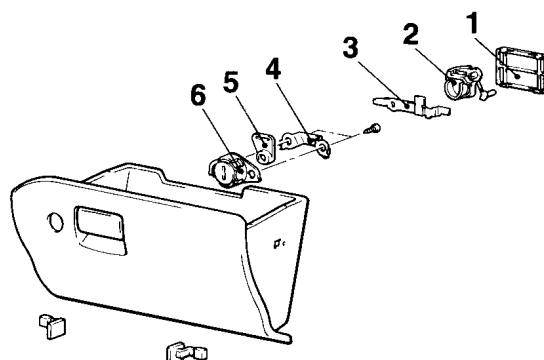
- Maintenance service points have been established to correspond to the addition of a key cylinder lock to the glove box.
- Maintenance service points have been established to correspond to the addition of an under tray to the front seat (R.H.).
- ELR/ALR belts have been provided as an option for the 3-point second seat belts. Maintenance service points are the same as before.

INSTRUMENT PANEL

GLOVE BOX <Wagon>

DISASSEMBLY AND REASSEMBLY

1. Hole cover
2. Clip B
3. Rod
4. Spring
5. Clip A
6. Glove box lock cylinder

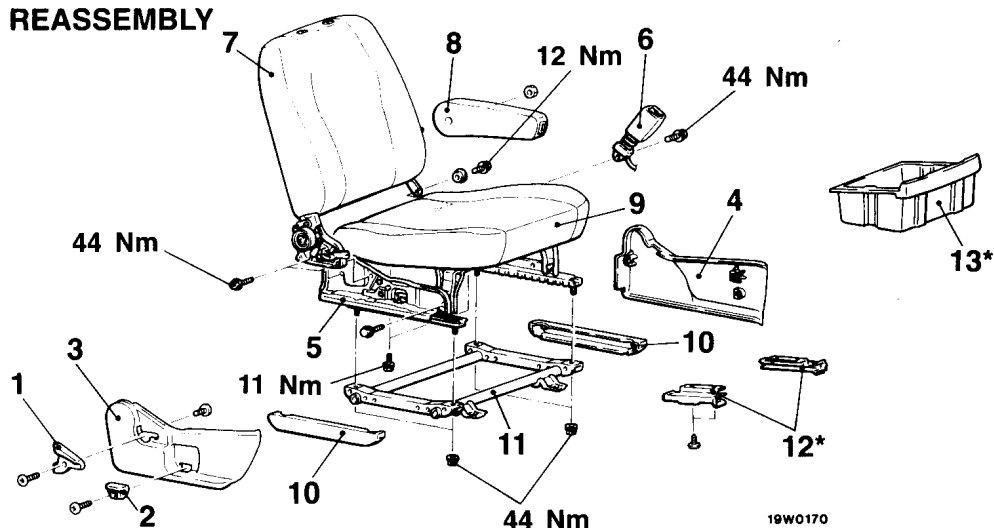


19W0252

SEAT

FRONT SEAT <Wagon>

DISASSEMBLY AND REASSEMBLY



19W0251

19W0170

Disassembly steps

1. Reclining knob
2. Seat adjuster knob
3. Hinge cover, R.H.
4. Hinge cover, L.H.
5. Seat adjuster
6. Inner seat belt
7. Front seat back

8. Armrest
9. Front seat cushion
10. Stand cover
11. Stand assembly
12. Under tray bracket*
13. Under tray*

NOTE

*: Indicates added parts.

GROUP 54

CHASSIS ELECTRICAL

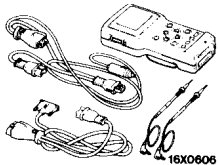
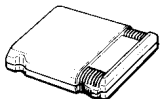
GENERAL

OUTLINE OF CHANGES

- An immobilizer-ECU in which the password (secret code) that is necessary for registering immobilizer system ID codes can be set as desired by the customer has been adopted. Part of the Troubleshooting procedures have been changed to correspond to this.

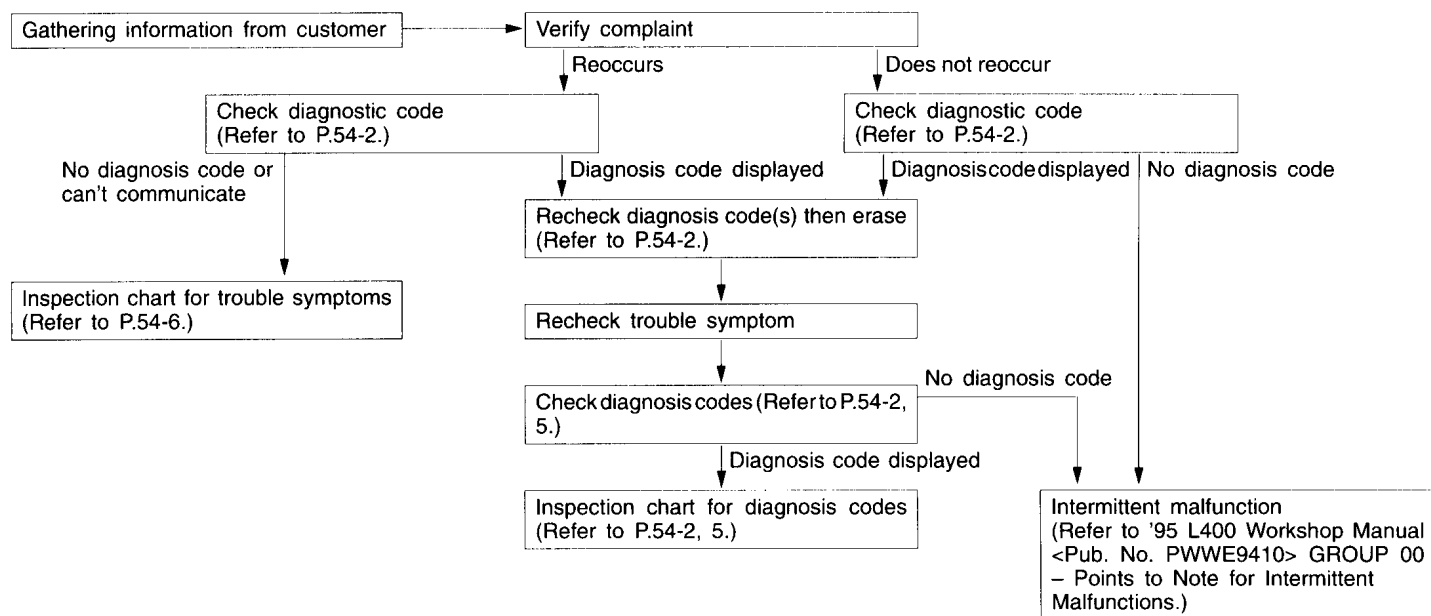
IGNITION SWITCH AND IMMOBILIZER SYSTEM

SPECIAL TOOLS

Tool	Number	Name	Use
	MB991502	MUT-II sub assembly	- Immobilizer system check - Registration of the ID code - Resetting the code to the factory setting <Diesel-powered vehicles> - Change of the password
	—	ROM pack	

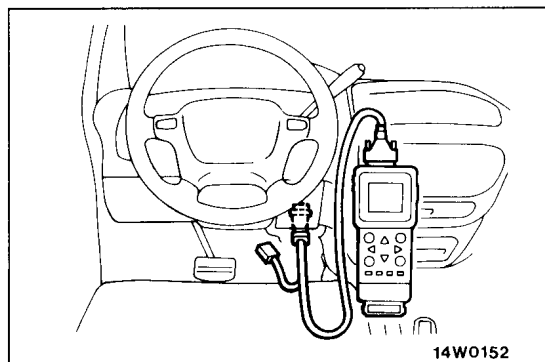
TROUBLESHOOTING

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING



Caution

1. The ID code should always be re-registered when replacing the immobilizer-ECU.
<Petrol-powered vehicles>
2. If the immobilizer-ECU has been replaced, you will need to re-register the ignition key ID codes and to reset the code for the fuel cut valve controller to the factory setting. <Vehicles with diesel engine>
3. If the immobilizer-ECU has been replaced with a new part, the password (Vehicle secret code) which has been stored in the immobilizer-ECU for each vehicle will be replaced by the password (secret code) specified by the customer.

**DIAGNOSTIC FUNCTION****DIAGNOSTIC CODES CHECK****With the MUT-II**

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

Caution

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

ERASING DIAGNOSTIC CODES**With the MUT-II**

Connect the MUT-II to the diagnosis connector (16-pin), then erase the diagnostic codes.

Caution

1. Turn the ignition switch off before connecting or disconnecting the MUT-II.
2. The diagnosis codes which result from disconnecting the battery cables cannot be erased.

INSPECTION CHART FOR DIAGNOSIS CODES <PETROL-POWERED VEHICLES>

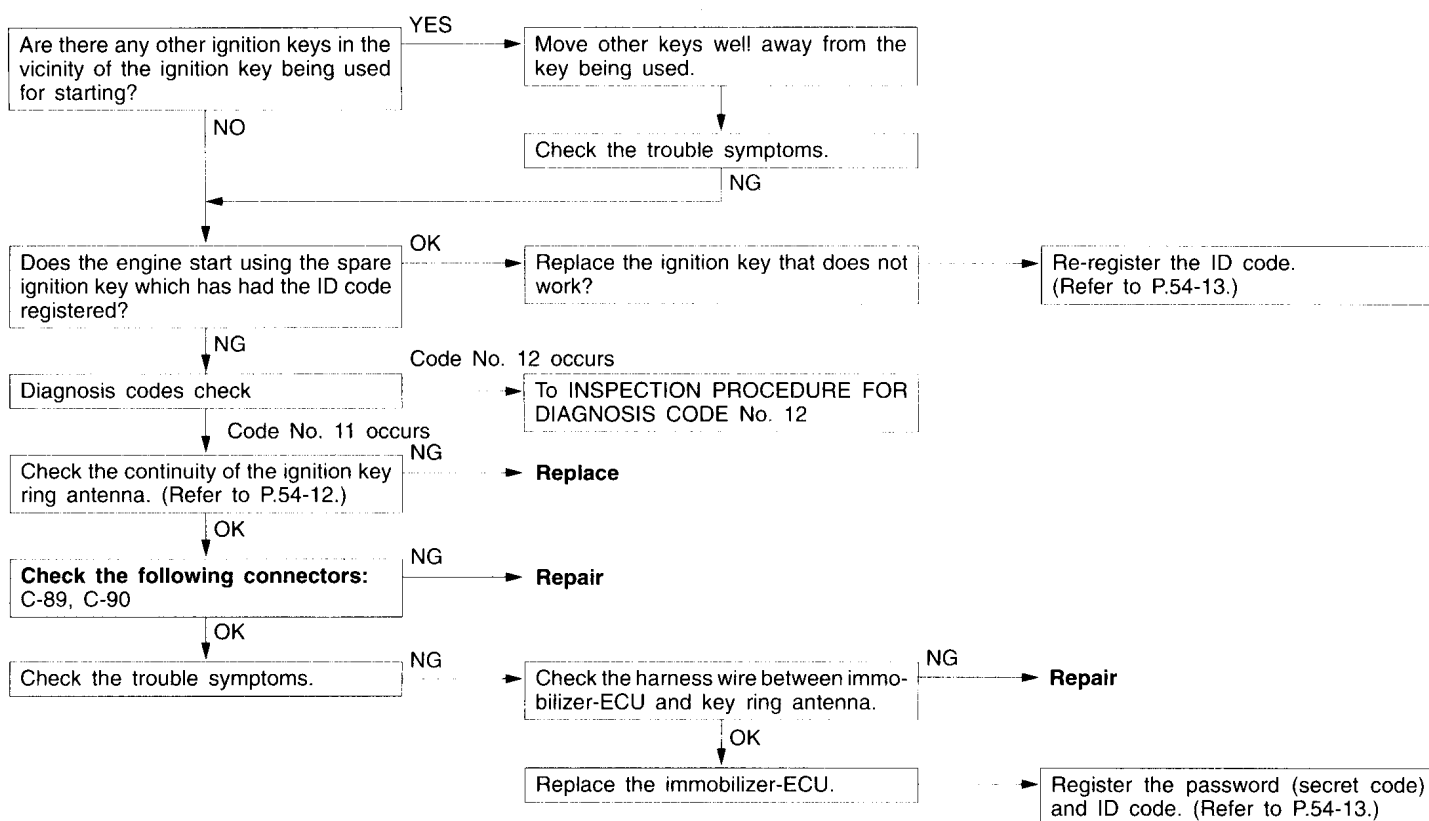
Diagnosis code No.	Inspection items	Reference page
11	Transponder communication system or radio interference of ID code	54-3
12*	ID codes are not the same or are not registered	54-3
21	Communication system between MUT-II and engine-ECU	54-4
31	EEPROM abnormality inside immobilizer-ECU	54-4

NOTE

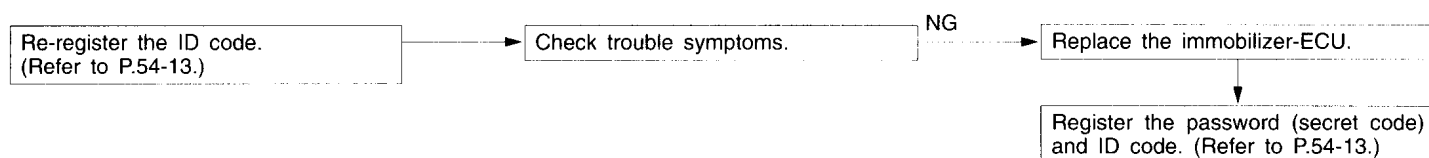
*: Diagnosis code No. 12 is recorded.

INSPECTION PROCEDURE FOR DIAGNOSIS CODES <PETROL-POWERED VEHICLES>

Code No. 11 Transponder communication system or radio interference of ID code	Probable cause
- The ID code of the transponder is not sent to the immobilizer-ECU immediately after the ignition switch is turned to the ON position. - If the engine is started while several ignition keys are in the vicinity, then interference between the different keys may occur, which will cause this code to be generated.	- Radio interference of ID code - Malfunction of the transponder - Malfunction of the ignition key ring antenna - Malfunction of harness or connector - Malfunction of the immobilizer-ECU



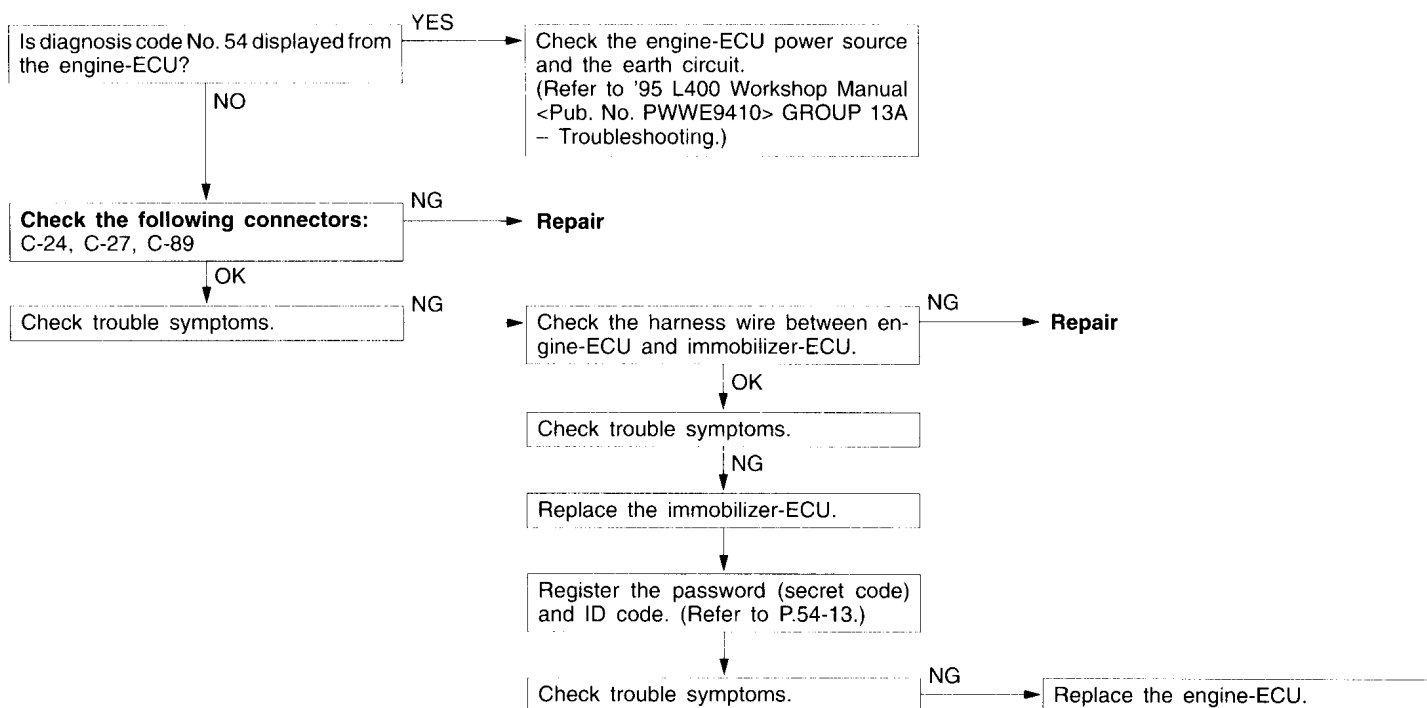
Code No. 12 ID codes are not the same or are not registered	Probable cause
The ID code which is sent from the transponder is not the same as the ID code which is registered in the immobilizer-ECU.	- The ID code in the ignition key being used has not been properly registered. - Malfunction of the immobilizer-ECU



Code No. 21 Communication system between MUT-II and engine-ECU**Probable cause**

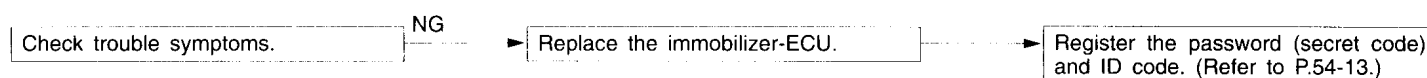
After the ignition switch is turned to the ON position, the confirmation code is not received from the engine-ECU within the allowable time, or an abnormal code is received.

- Malfunction of harness or connector
- Malfunction of the engine-ECU
- Malfunction of the immobilizer-ECU

**Code No. 31 EEPROM abnormality inside immobilizer-ECU****Probable cause**

No data has been written to the EEPROM inside the immobilizer-ECU.

- Malfunction of the immobilizer-ECU



INSPECTION CHART FOR DIAGNOSIS CODES <DIESEL-POWERED VEHICLES>

Diagnosis code No.	Inspection items	Reference page
11	Transponder communication system or radio interference of ID code	54-3
12*	ID codes are not the same or are not registered	54-3
21	Communication system between fuel cut valve controller and immobilizer-ECU	54-5
22	Malfunction of fuel cut valve controller system	54-5
23	Identification codes are not identical	54-5
31	EEPROM abnormality inside immobilizer-ECU	54-4

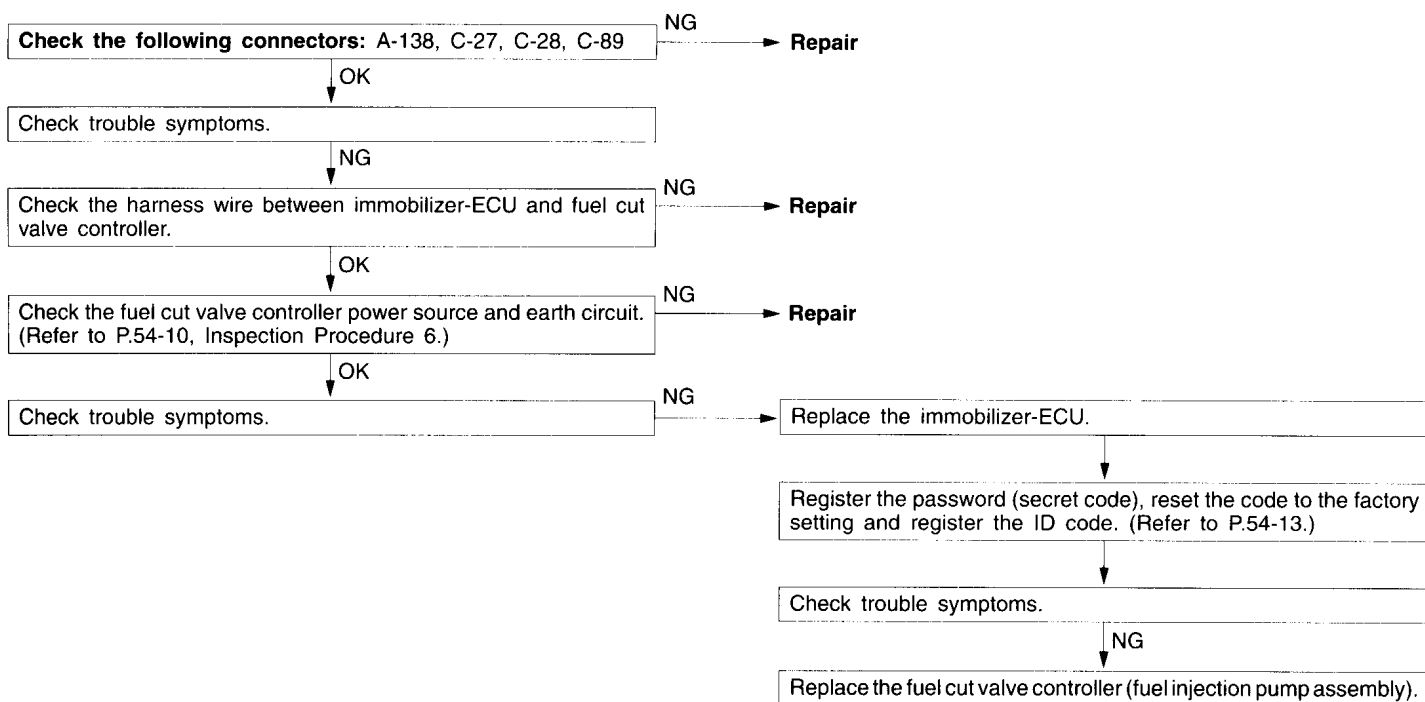
NOTE

*: Diagnosis code No. 12 is recorded.

INSPECTION PROCEDURE FOR DIAGNOSIS CODES <DIESEL-POWERED VEHICLES>

For diagnosis code numbers other than those listed below, refer to "PETROL-POWERED VEHICLES".

Code No. 21 Communication system between fuel cut valve controller and immobilizer-ECU	Probable cause
The confirmation code is not sent from the fuel cut valve controller within the specified time after the ignition key is turned to ON, or an incorrect code is sent.	• Malfunction of the harness or connector • Malfunction of fuel cut valve controller • Malfunction of the immobilizer-ECU



Code No. 22 Malfunction of fuel cut valve controller system	Probable cause
The cause is probably a malfunction of the fuel cut valve controller.	Malfunction of fuel cut valve controller

Check the fuel cut valve controller power source and earth circuit.
(Refer to P.54-10, Inspection Procedure 6.)

OK

Check trouble symptoms.

NG

Replace the fuel cut valve controller (fuel injection pump assembly).

Code No. 23 Identification codes are not identical	Probable cause
The identification code received from the immobilizer-ECU is not identical to the identification code that has been recorded in the fuel cut valve controller.	- Resetting the code to the factory setting is not made using the MUT-II. - Malfunction of fuel cut valve controller

Use the MUT-II to reset the code to the factory setting.
(Refer to P.54-14.)



Check trouble symptoms.

NG

Replace the fuel cut valve controller (fuel injection pump assembly).



Check trouble symptoms.

NG

Replace the immobilizer-ECU.



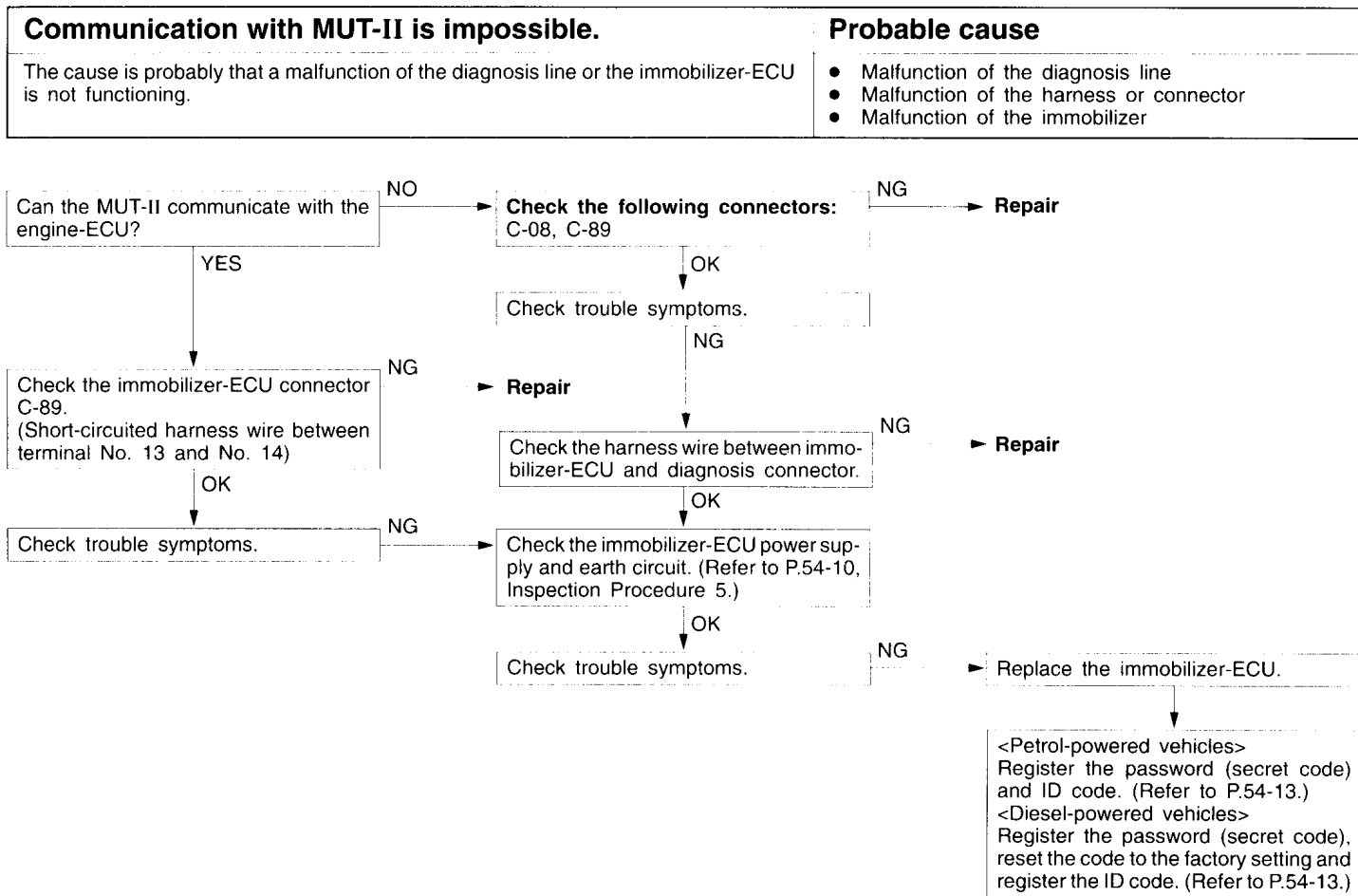
Register the password (secret code), reset the code to the factory setting and register the ID code. (Refer to P.54-13.)

INSPECTION CHART FOR TROUBLE SYMPTOMS

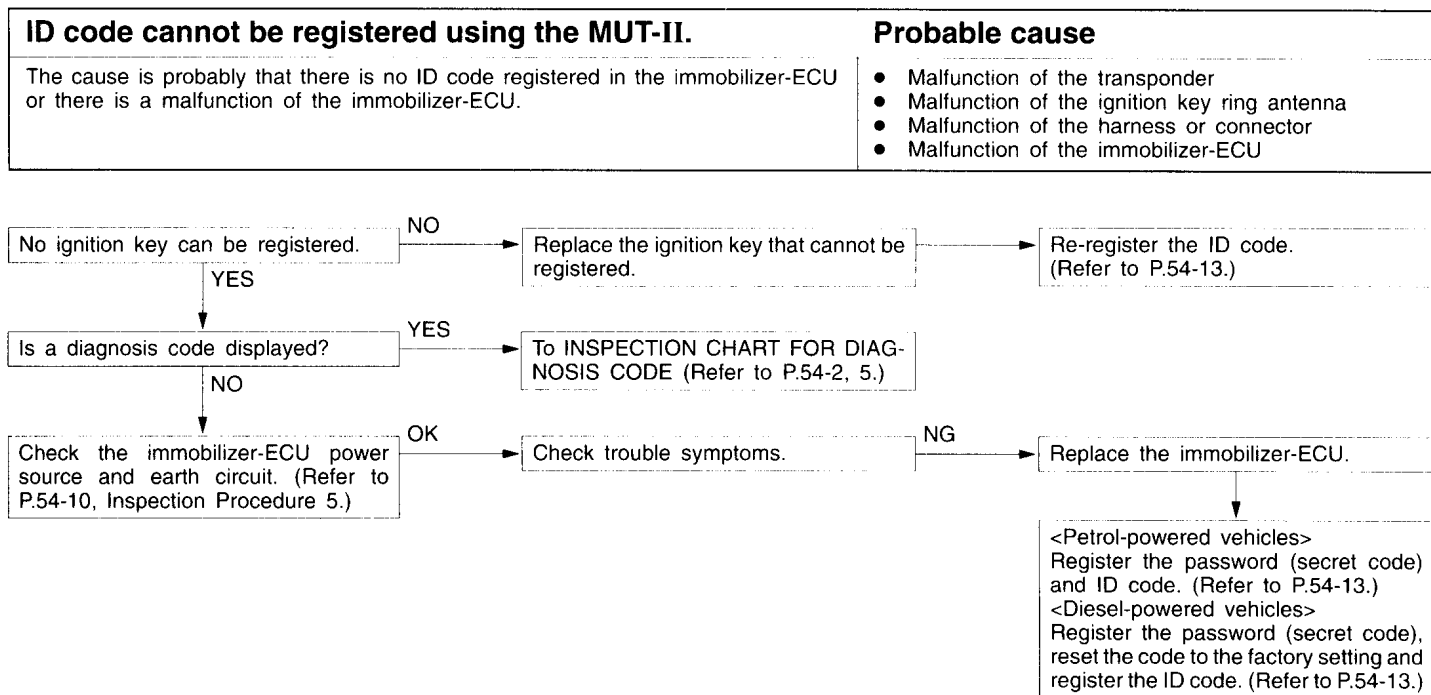
Trouble Symptom	Inspection procedure No.	Reference page
Communication with MUT-II is impossible.	1	54-7
ID code cannot be registered using the MUT-II.	2	54-7
Engine does not start (Cranking but no initial combustion). <Petrol-powered vehicles>	3	54-8
Engine does not start (Cranking but no initial combustion). <Diesel-powered vehicles>	4	54-9
Malfunction of the immobilizer-ECU power source and earth circuit.	5	54-10
Malfunction of the fuel cut valve controller power source and earth circuit. <Diesel-powered vehicles>	6	54-10

INSPECTION PROCEDURE FOR TROUBLE SYMPTOMS

Inspection Procedure 1

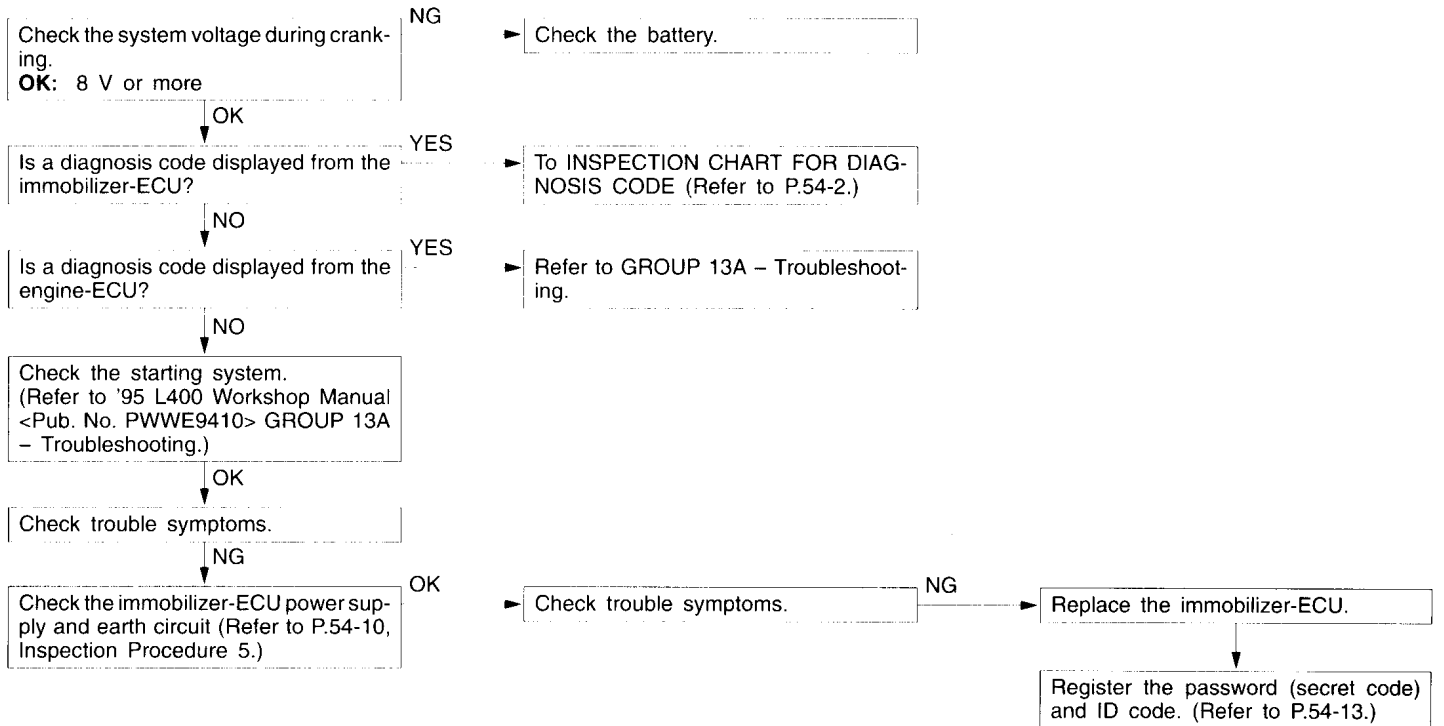


Inspection Procedure 2



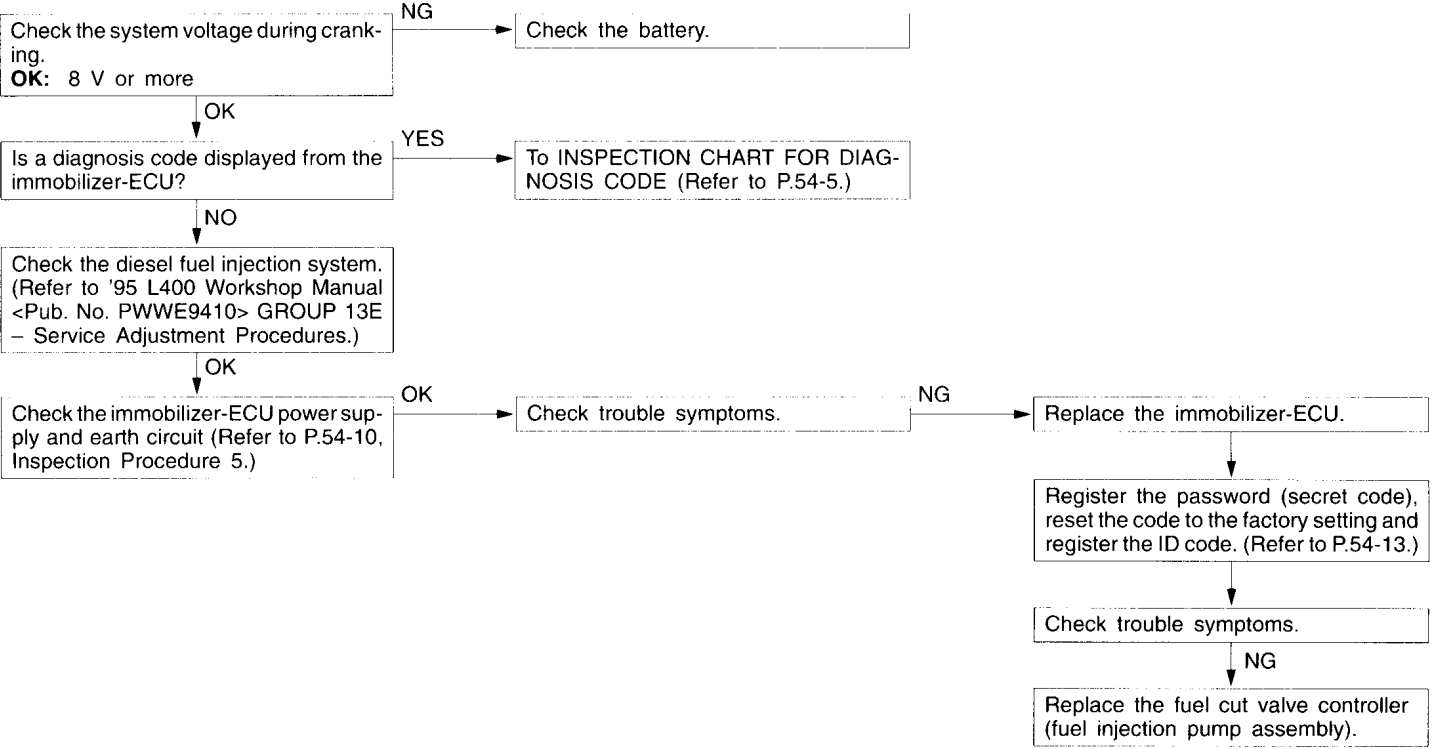
Inspection Procedure 3

Engine does not start (cranking but no initial combustion). <Petrol-powered vehicles>	Probable cause
If the fuel injectors are not operating, there might be a problem with the MPI system in addition to a malfunction of the immobilizer system. It is normal for this to occur if an attempt is made to start the engine using a key that has not been properly registered.	• Malfunction of the MPI system • Malfunction of the immobilizer-ECU



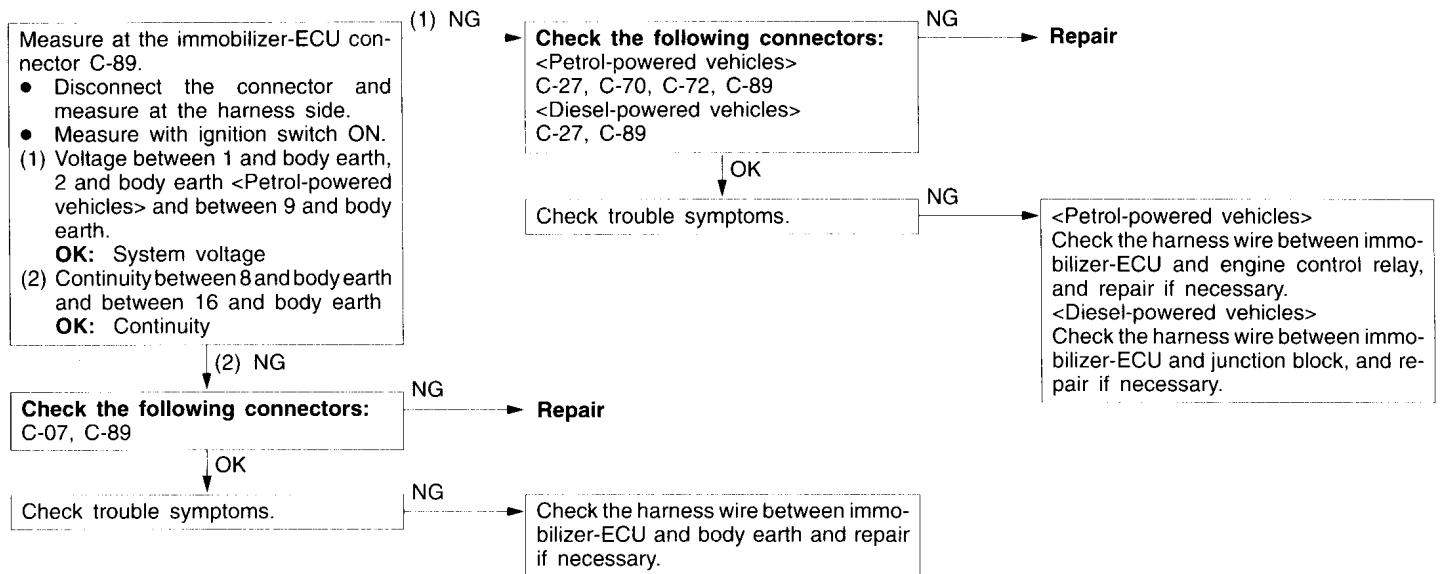
Inspection Procedure 4

Engine does not start (cranking but no initial combustion). <Diesel-powered vehicles>	Probable cause
If no fuel injection, there might be a problem with the fuel injection system in addition to a malfunction of the immobilizer system. It is normal for this to occur if an attempt is made to start the engine using a key that has not been properly registered.	- Malfunction of the diesel fuel injection system - Malfunction of the immobilizer-ECU



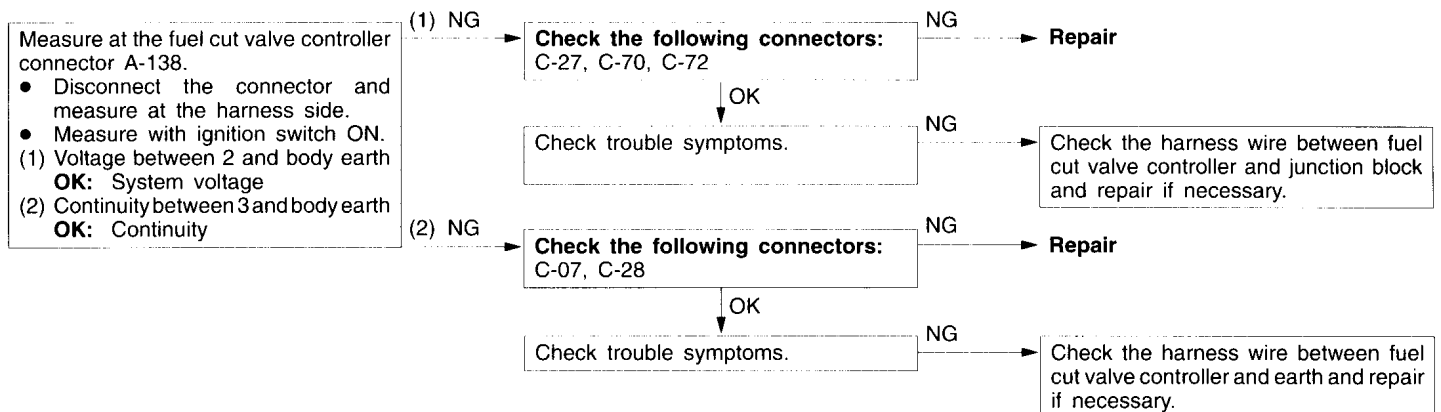
Inspection Procedure 5

Malfunction of the immobilizer-ECU power supply and earth circuit



Inspection Procedure 6

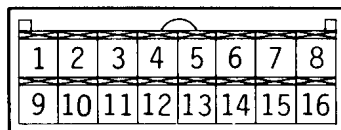
Malfunction of the fuel cut valve controller power supply and earth circuit <Diesel-powered vehicles>



54-11 CHASSIS ELECTRICAL – Ignition Switch and Immobilizer System

CHECK AT IMMOBILIZER-ECU

Terminal Voltage Check Chart



16W0390

Terminal No.	Signal	Checking requirements	Terminal voltage
1	Immobilizer-ECU power supply (Backup)	Ignition switch: ON	System voltage
2	Ignition switch-IG <Petrol-powered vehicles>	Ignition switch: OFF	0 V
		Ignition switch: ON	System voltage
8	Immobilizer-ECU earth	Always	0 V
9	Immobilizer-ECU power supply	Ignition switch: ON	System voltage
16	Immobilizer-ECU earth	Always	0 V

IGNITION SWITCH AND IMMOBILIZER SYSTEM

REMOVAL AND INSTALLATION <Vehicles with Immobilizer System>

CAUTION: SRS

Before removal of air bag module and clock spring, refer to '95 L400 Workshop Manual <Pub. No. PWWE9410> GROUP 52B – Service Precautions and Air Bag Module and Clock Spring.

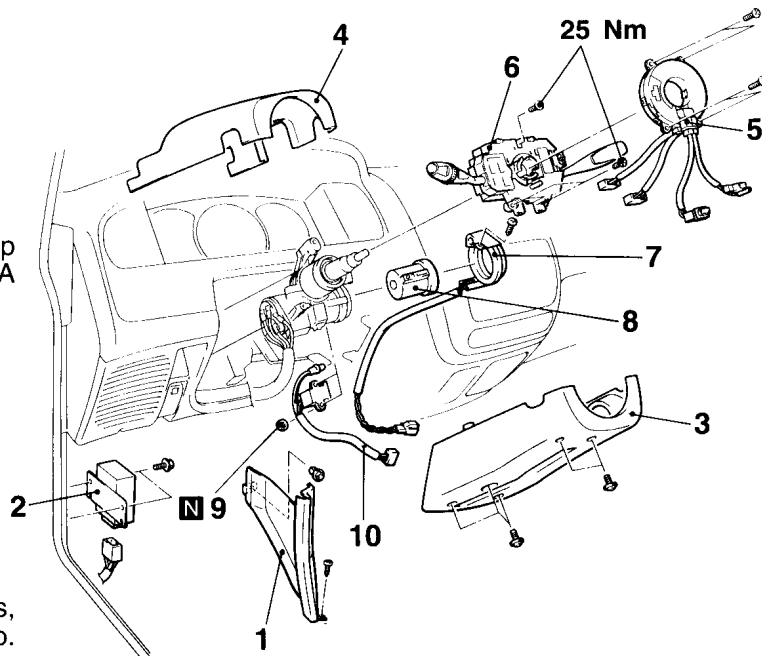
Immobilizer-ECU removal steps

1. Cowl side trim (driver's side)
2. Immobilizer-ECU

Ignition key ring antenna, steering lock cylinder and key reminder switch removal steps

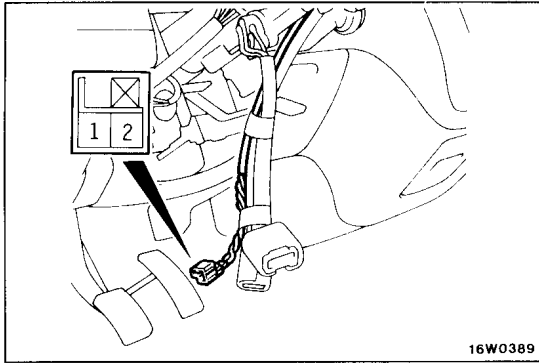
- Steering wheel (Refer to '95 L400 Workshop Manual <Pub. No. PWWE9410> GROUP 37A – Steering Wheel and shaft.
3. Column cover, lower
 4. Column cover, upper
 5. Clock spring <Vehicles with SRS>
 6. Column switch assembly
 7. Ignition key ring antenna
 8. Steering lock cylinder
 9. Push nut
 10. Key reminder switch

►A◄

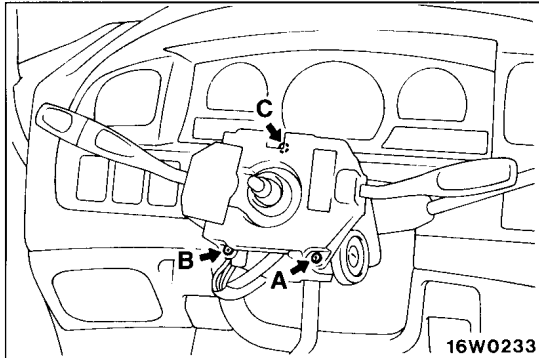


NOTE

For the ignition switch and buzzer-ECU removal steps, refer to the '95 L400 Workshop Manual <Pub. No. PWWE9410>.

**INSPECTION****IGNITION KEY RING ANTENNA CONTINUITY INSPECTION**

Use a circuit tester to measure the resistance between the terminals.

**INSTALLATION SERVICE POINT****►A◄ COLUMN SWITCH ASSEMBLY INSTALLATION**

Tighten the column switch assembly mounting screws to the specified torque in the order of A, B and C.

Tightening torque: 25 Nm

ID CODE REGISTRATION METHOD AND RESET- TING THE CODE TO THE FACTORY SETTING

Register the ID code in the immobilizer-ECU and then reset the code to factory setting after parts have been replaced.

Replacement part	Petrol-powered vehicles	Diesel-powered vehicles	
		ID code registration	Resetting the code to the factory setting
Ignition key	Necessary	Necessary	Not necessary
Ignition key ring antenna	Not necessary	Not necessary	Not necessary
Immobilizer-ECU	Necessary	Necessary	Necessary
Engine-ECU <Petrol-powered vehicles>	Not necessary	–	–
Fuel cut valve controller (fuel injection pump) <Diesel-powered vehicles>	–	Not necessary	Not necessary (New part) Necessary (Used part)

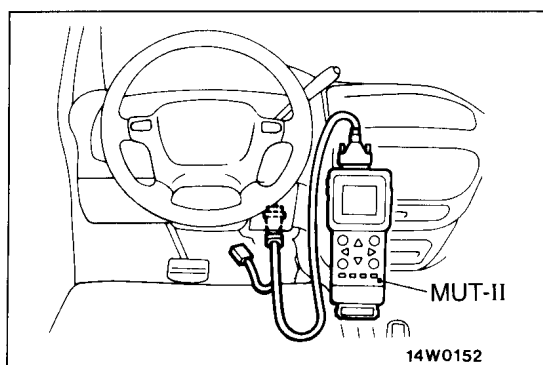
ID Code Registration Method

If using an ignition key that has just been newly purchased, or if the immobilizer-ECU has been replaced, you will need to register the ID codes for each ignition key being used into the immobilizer-ECU. (A maximum of eight different ID codes can be registered.)

Moreover, when the immobilizer-ECU has been replaced, you will need to use the MUT-II to input the vehicle secret code and to register the password (secret code) that the user specifies into the immobilizer-ECU. (Refer to the MUT-II instruction manual for instructions on using the MUT-II.)

Caution

Because registering of the ID codes is carried out after all previously-registered codes have been erased, you should have ready all of the ignition keys that have already been registered.



- (1) Connect the MUT-II to the diagnosis connector.

Caution

Connection and disconnection of the MUT-II should always be carried out with the ignition switch in the OFF position.

- (2) Check that diagnosis code No. 54 is not being generated by the engine-ECU. If it is being generated, check according to the Troubleshooting procedures before continuing.

- (3) Use the ignition key that is to be registered to turn the ignition switch to the ON position.
- (4) Use the MUT-II to register the ID code. If you are registering two or more codes, use the next key to be registered to turn the ignition switch to the ON position without disconnecting the MUT-II.
- (5) Disconnect the MUT-II. This completes the registration operation.
- (6) Check that the engine can be started with each of the ignition keys.
- (7) Check the diagnosis output from the engine-ECU, and erase code No. 54 if it appears.

Resetting the code to the factory setting**<Diesel-powered vehicles>**

Reset the code to the factory setting by the following procedure.

(Refer to the MUT-II INSTRUCTION MANUAL for instruction on handling the MUT-II.)

NOTE

Resetting the code to the factory setting refers to the process of clearing the identification code which has been recorded in the fuel cut valve controller and switching the controller to learning mode. After this resetting has been carried out, the identification code in the immobilizer-ECU will be recorded in the controller the next time the ignition switch is turned to the ON position.

- (1) Connect the MUT-II to the diagnosis connector.

Caution

Connection and disconnection of the MUT-II should always be carried out with the ignition switch in the OFF position.

- (2) Turn the ignition switch to the ON position.
- (3) Use the MUT-II to reset the code to the factory setting.

NOTE

Approximately 16 minutes are required to complete resetting the code to the factory setting.

- (4) Disconnect the MUT-II. This completes the procedure.