

## GROUP 54

# CHASSIS ELECTRICAL

## GENERAL

### OUTLINE OF CHANGE

The following service procedure of the immobilizer system has been changed. The same procedures as before are applied except for the items shown below.

- The troubleshooting has been changed due to the addition to the 4D56 engine which complies with emission regulation step III.

## IMMOBILIZER SYSTEM

The troubleshooting and the ignition key registration method other than below are the same as before. Refer to PAJERO '97 Workshop Manual. (Pub. No. PWJE9086-H)

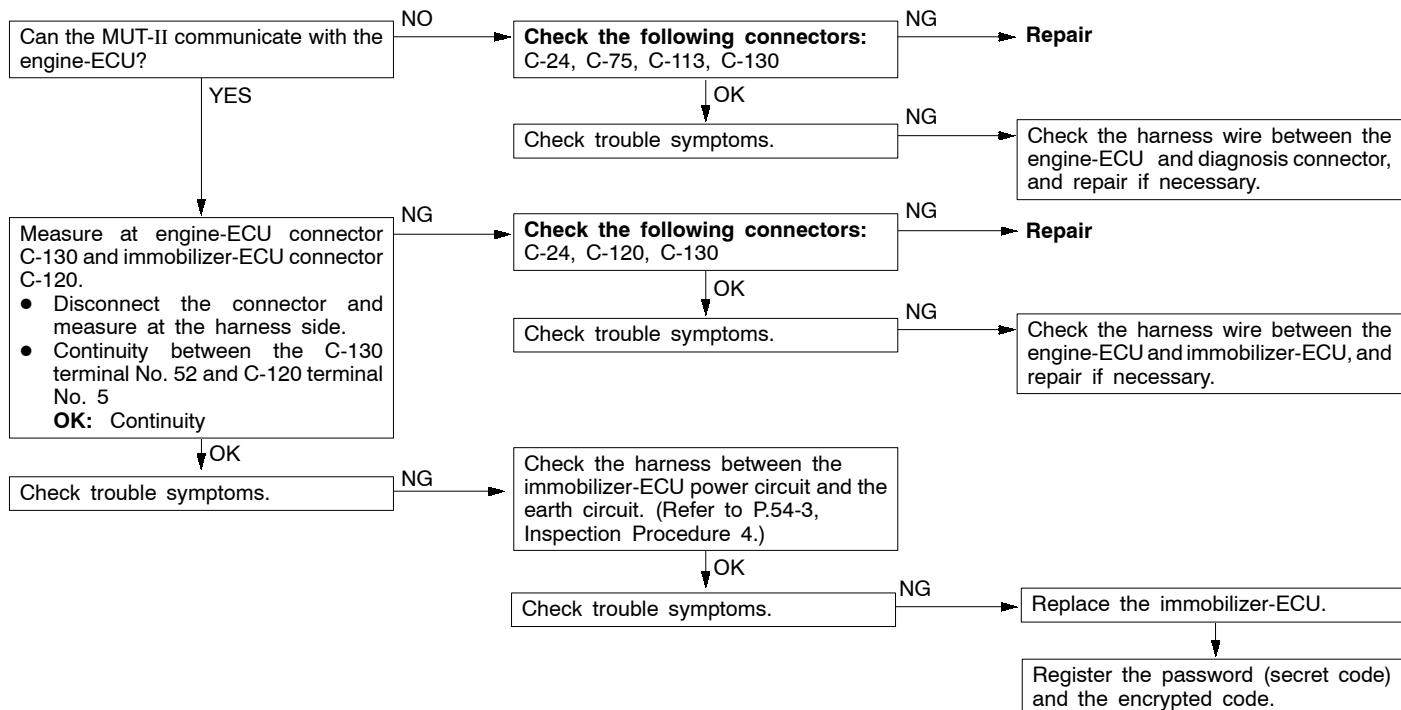
### INSPECTION CHART FOR TROUBLE SYMPTOMS

Trouble symptom	Inspection procedure No.	Reference page
Communication with MUT-II is not possible.	1	54-1
Encrypted code cannot be registered using the MUT-II.	2	54-2
Engine does not start (Cranking but no initial combustion).	3	54-2
Malfunction of the immobilizer-ECU power source and earth circuit.	4	54-3

### INSPECTION PROCEDURE FOR TROUBLE SYMPTOMS <4D56-Step III>

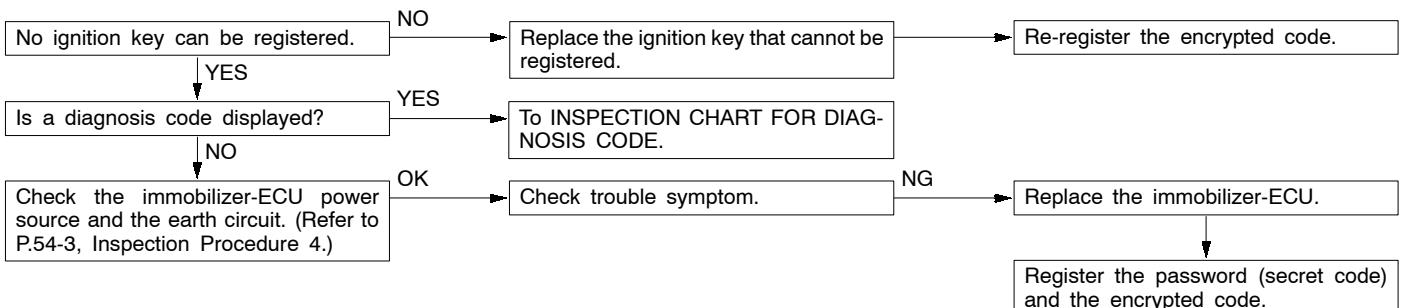
#### Inspection Procedure 1

Communication with MUT-II is impossible	Probable cause
The cause is probably that a malfunction of the diagnosis line or the immobilizer-ECU is not functioning.	<ul style="list-style-type: none"> <li>• Malfunction of diagnosis line</li> <li>• Malfunction of harness or connector</li> <li>• Malfunction of immobilizer-ECU</li> </ul>

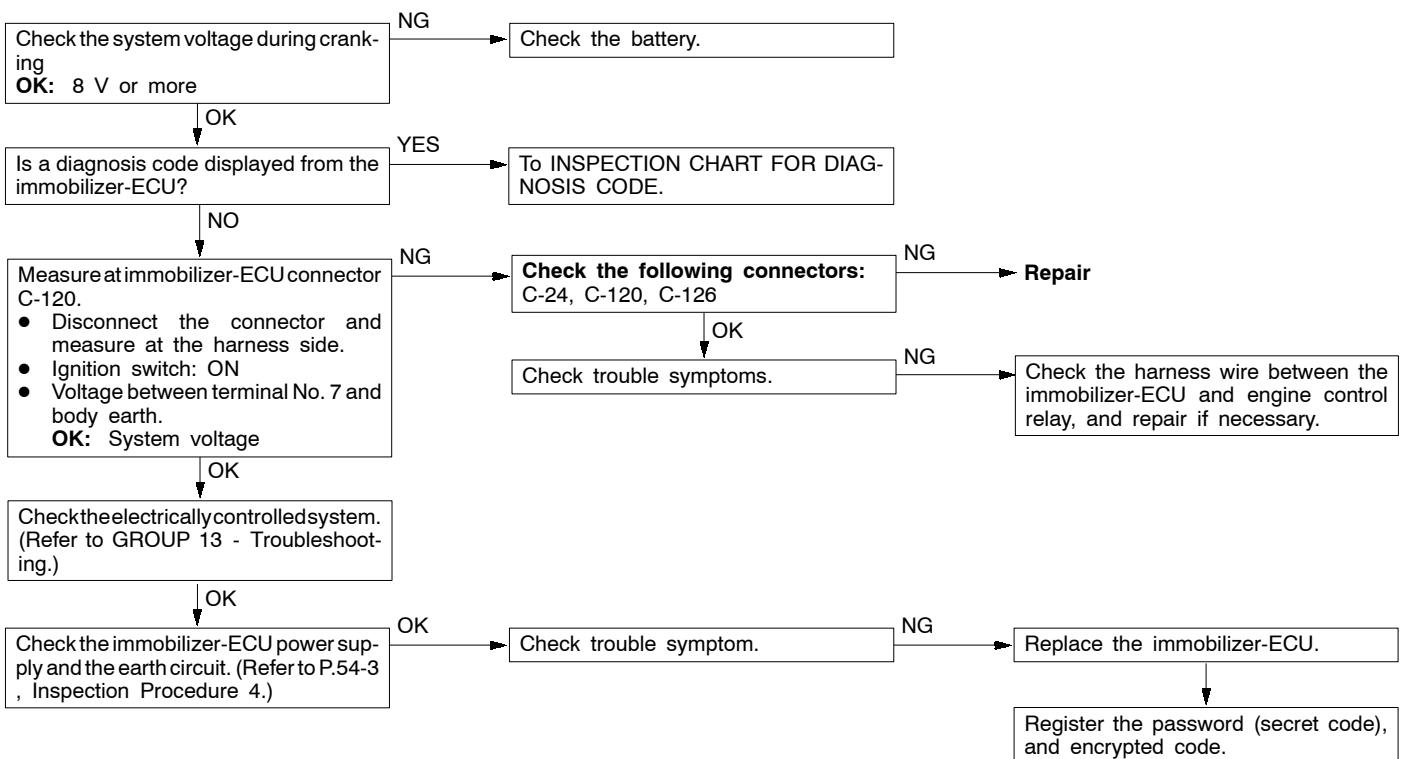


**Inspection Procedure 2**

Encrypted code cannot be registered using the MUT-II	Probable cause
The cause is probably that there is no encrypted code registered in the immobilizer-ECU or there is a malfunction of the immobilizer-ECU.	<ul style="list-style-type: none"> <li>Malfunction of transponder</li> <li>Malfunction of ignition key ring antenna</li> <li>Malfunction of harness or connector</li> <li>Malfunction of immobilizer-ECU</li> </ul>

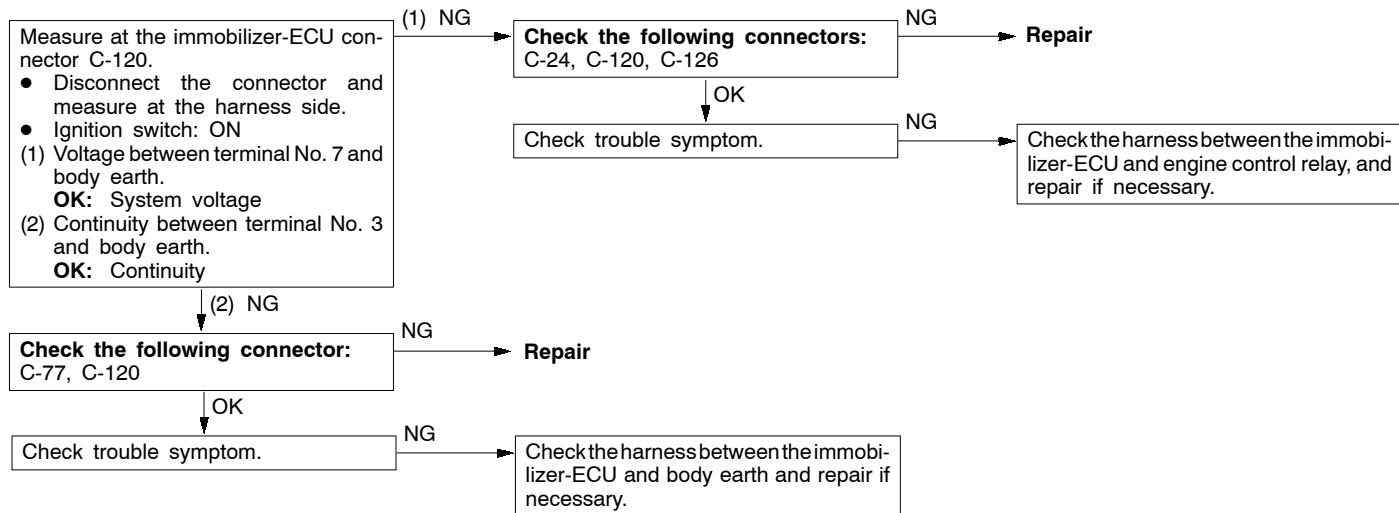
**Inspection Procedure 3**

Engine does not start (Cranking but no initial combustion).	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.	<ul style="list-style-type: none"> <li>Malfunction of diesel fuel injection system</li> <li>Malfunction of immobilizer-ECU</li> </ul>



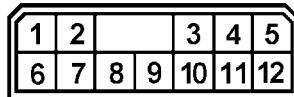
## Inspection Procedure 4

## Malfunction of the immobilizer-ECU power source and earth circuit



## CHECK AT IMMOBILIZER-ECU

## Terminal Voltage Check Chart



20F0191

Terminal No.	Signal	Checking requirements	Terminal voltage
3	Immobilizer-ECU earth	Always	0 V
7	Immobilizer-ECU power supply	Ignition switch: OFF or approx. 5 or more seconds after switch has been turned from ON to OFF.	0 V
		Ignition switch: ON or within approx. 5 or more seconds after switch has been turned from ON to OFF	System voltage