

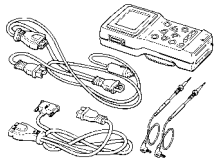
GENERAL

OUTLINE OF CHANGES

The following service procedures have been added to correspond to the use of the immobilizer system.

IGNITION SWITCH AND IMMOBILIZER SYSTEM

SPECIAL TOOL

Tool	Number	Name	Use
	MB991502	MUT-II sub assembly	<ul style="list-style-type: none"> Immobilizer system check (Diagnosis display using the MUT-II) Registration of the ID code

TROUBLESHOOTING

Caution

The ID code should always be re-registered when replacing the immobilizer-ECU.

STANDARD FLOW OF DIAGNOSIS TROUBLESHOOTING

Refer – [How To Use Troubleshooting/Inspection Service Points](#).

DIAGNOSIS FUNCTION

DIAGNOSIS CODES CHECK

Refer – [How To Use Troubleshooting/Inspection Service Points](#).

ERASING DIAGNOSIS CODES

Refer – [How To Use Troubleshooting/Inspection Service Points](#).

Caution

The diagnosis codes which result from disconnecting the battery cables cannot be erased.

INSPECTION CHART FOR DIAGNOSIS CODES

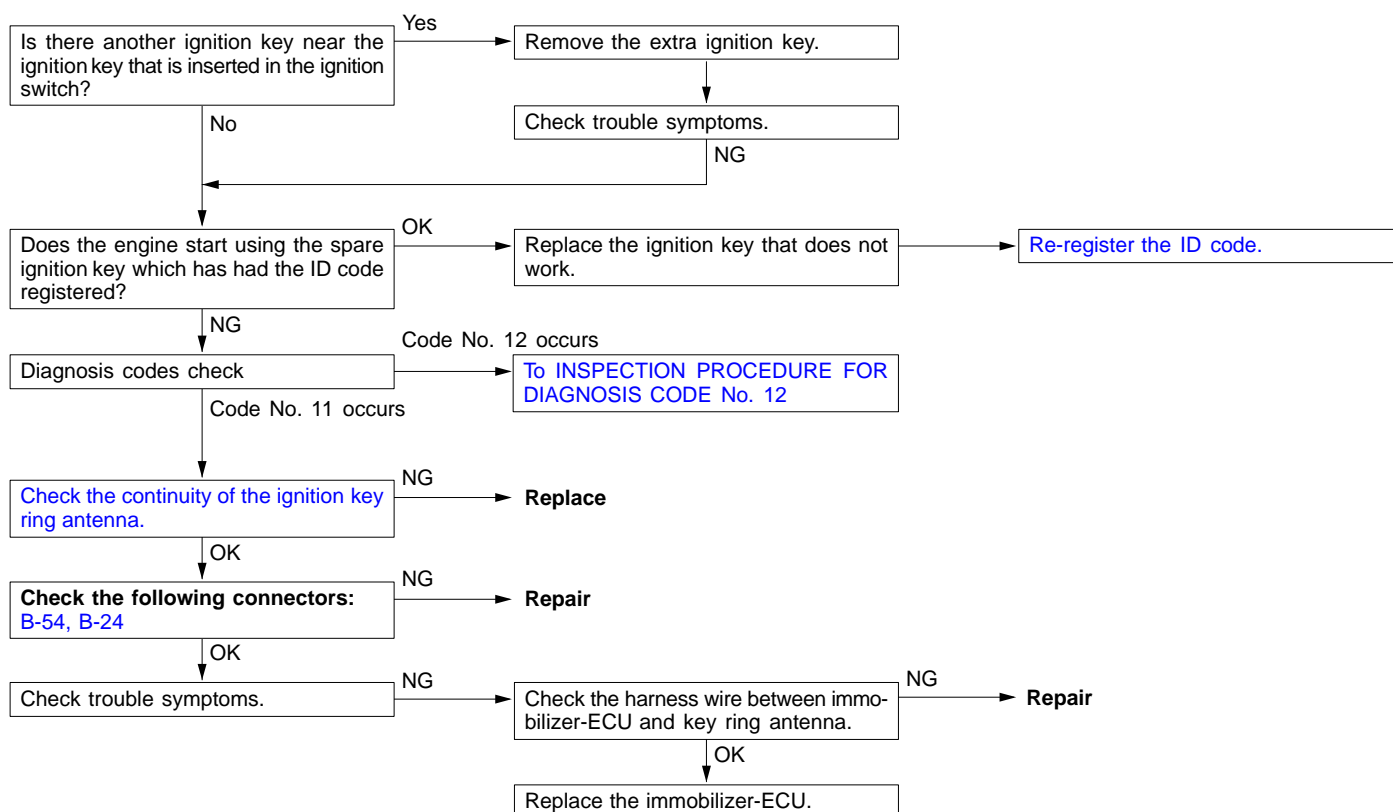
Diagnosis code No.	Inspection items
11*	Transponder communication system
12*	ID code are not the same or are not registered
21	Communication system between immobilizer-ECU and engine-ECU
31	EEPROM abnormality inside immobilizer-ECU
33*	Engine immobilization

NOTE

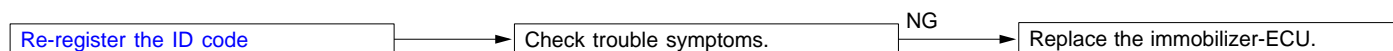
*: Diagnosis codes No. 11, No. 12 and No. 33 are not recorded.

INSPECTION PROCEDURE FOR DIAGNOSIS CODES

Code No. 11 Transponder communication system	Probable cause
<ul style="list-style-type: none"> The ID code of the transponder is not sent to the immobilizer-ECU immediately after the ignition switch is turned to the ON position. When starting the engine, one ignition key's ID code interferes with another ignition key's code. 	<ul style="list-style-type: none"> Radio interference of ID codes Malfunction of the transponder Malfunction of the ignition key ring antenna Malfunction of harness or connector Malfunction of the immobilizer-ECU



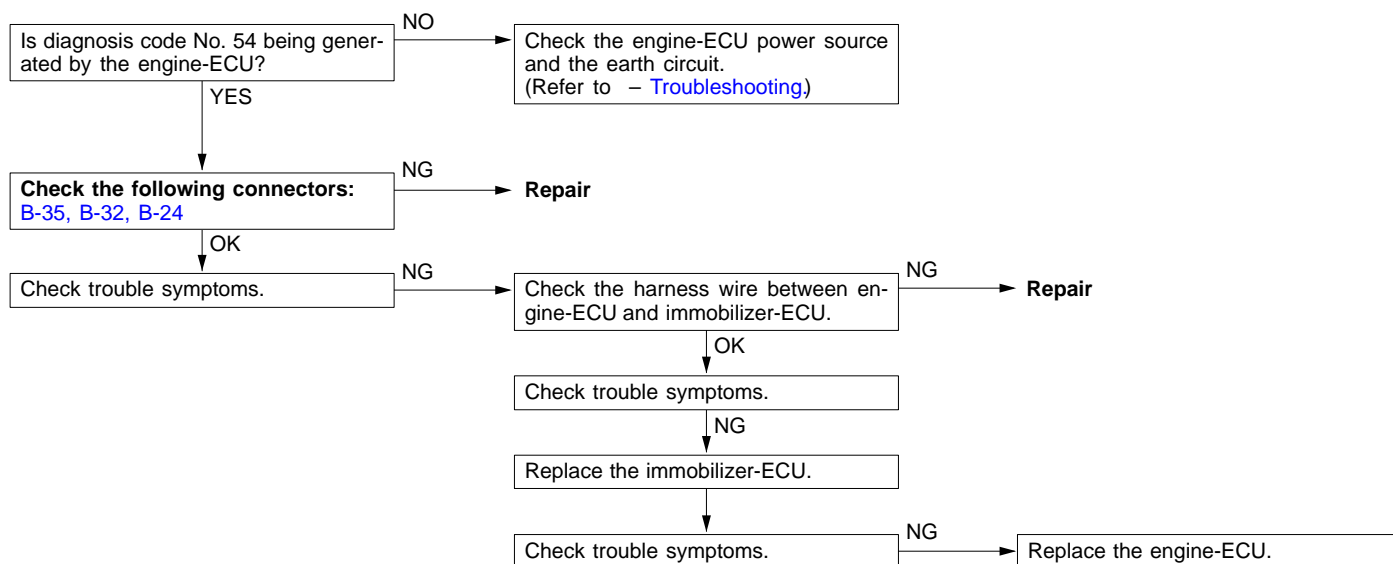
Code No. 12 ID code are not the same or are not registered	Probable cause
The ID code which is sent from the transponder is not the same as the ID code which is registered in the immobilizer-ECU.	<ul style="list-style-type: none"> The ID code in the ignition key being used has not been properly registered. 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**

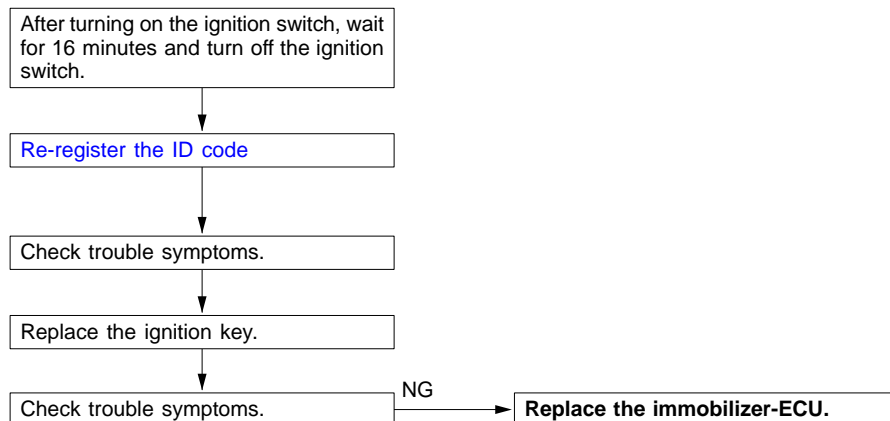
No data has been written to the EEPROM inside the immobilizer-ECU.

- Malfunction of the immobilizer-ECU

**Code No.33 Engine immobilization****Probable cause**

This diagnostic trouble code will be output when the transponder outputs an incorrect code five consecutive times. This code will be erased by turning on the ignition switch and turning off again after 16 minutes.

- Malfunction of the immobilizer-ECU
- Malfunction of the transponder



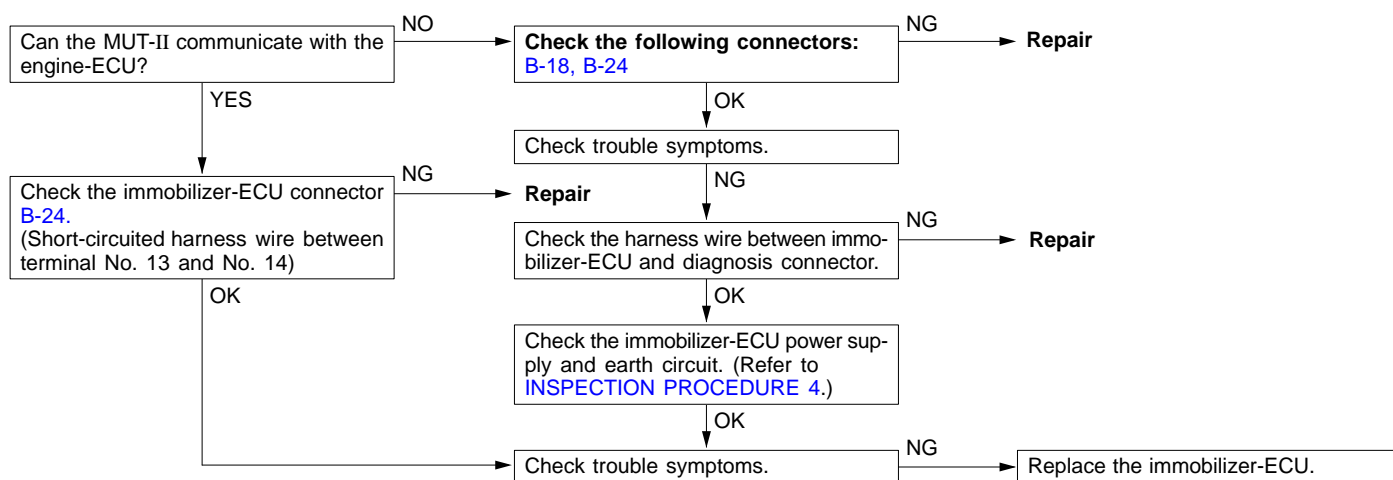
INSPECTION CHART FOR TROUBLE SYMPTOMS

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

INSPECTION PROCEDURE FOR TROUBLE SYMPTOMS

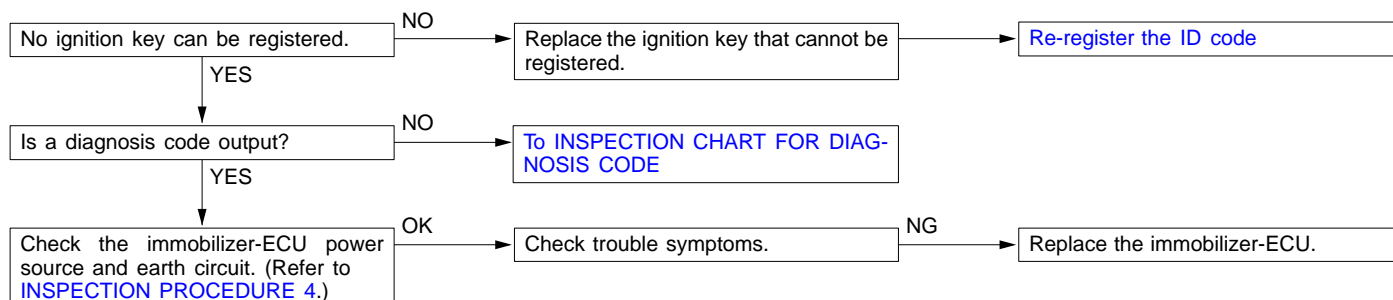
Inspection Procedure 1

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"> • Malfunction of the diagnosis line • Malfunction of harness or connector • Malfunction of the immobilizer-ECU



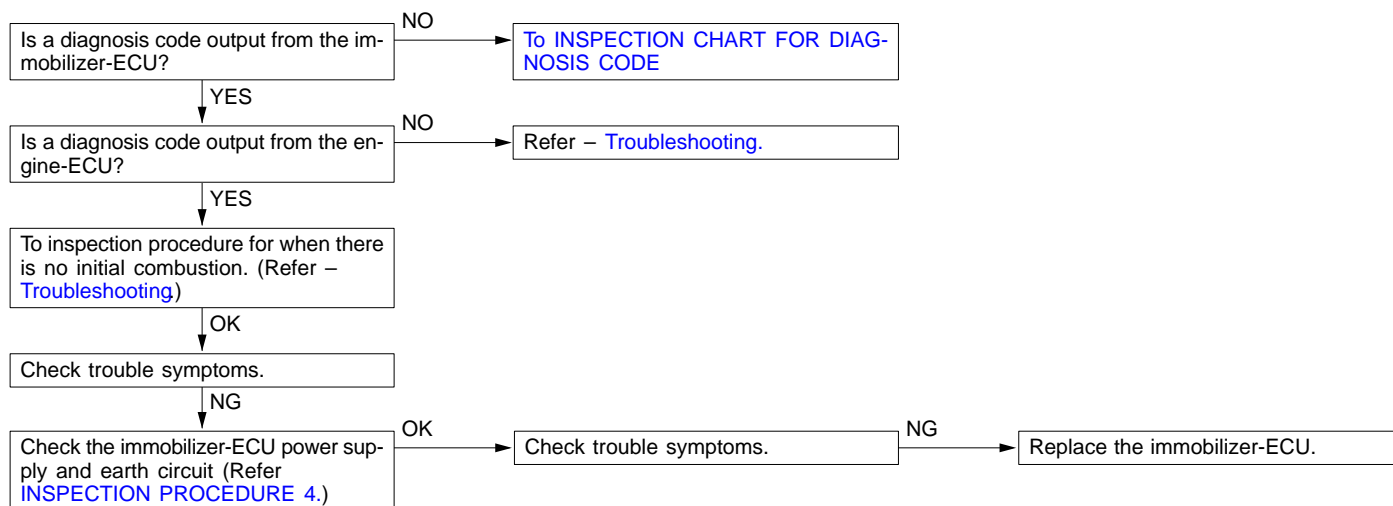
Inspection Procedure 2

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



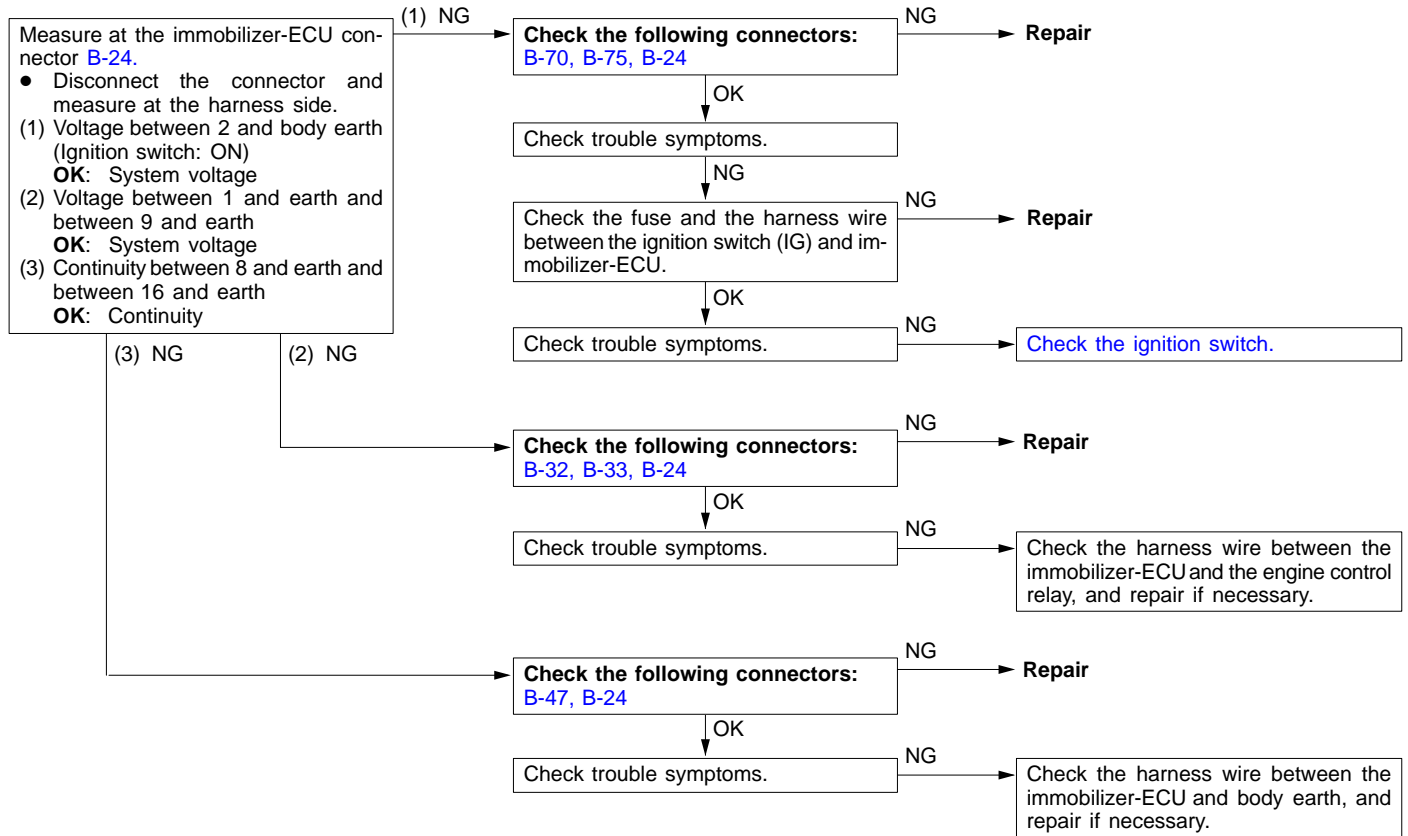
Inspection Procedure 3

Engine does not start (cranking but no initial combustion).	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.	<ul style="list-style-type: none"> • Malfunction of the MPI system • Malfunction of the immobilizer-ECU



Inspection Procedure 4

Malfunction of the immobilizer-ECU power supply and earth circuit

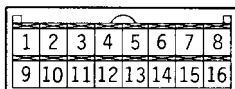


MAIN

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CHECK AT IMMOBILIZER-ECU TERMINAL VOLTAGE CHECK CHART



16W0390

Terminal No.	Signal	Checking requirements	Terminal voltage
1	Immobilizer-ECU power supply	Ignition switch: ON	System voltage
2	Ignition switch-IG	Ignition switch: OFF	0V
		Ignition switch: ON	System voltage
8	Immobilizer-ECU earth	Always	0V
9	Immobilizer-ECU power supply	Ignition switch: ON	System voltage
16	Immobilizer-ECU earth	Always	0V

IGNITION SWITCH AND IMMOBILIZER SYSTEM

REMOVAL AND INSTALLATION

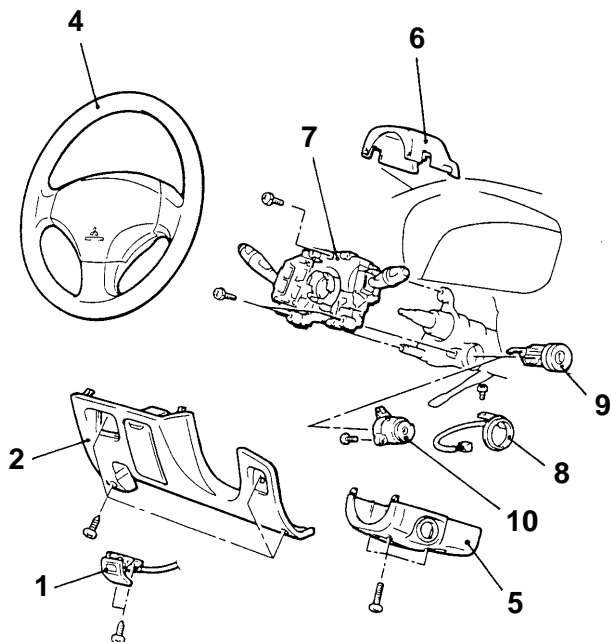
Caution: SRS

Before removal of air bag module and clock spring, refer to GROUP 52B – [SRS Service Precautions](#) and [Air Bag Module and Clock Spring](#).

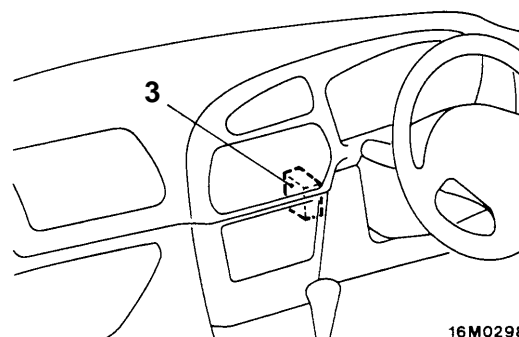
MAIN

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16M0393

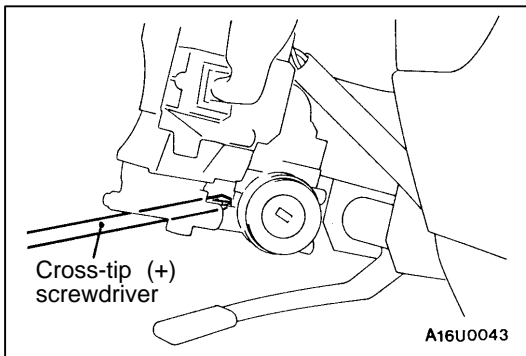
16M0298
00005134
Immobilizer-ECU removal steps

1. Hood lock release handle
2. Driver's side lower cover
 - Radio and tape player
 - Heater control assembly
3. Immobilizer-ECU

Ignition switch and ignition key ring antenna removal steps

1. Hood lock release handle
2. Driver's side lower cover
4. Steering wheel
5. Column cover, lower
6. Column cover, upper
7. Clock spring and column switch
<vehicles with SRS> or column switch <vehicle without SRS>
8. Ignition key ring antenna
9. Steering lock cylinder
10. Ignition switch

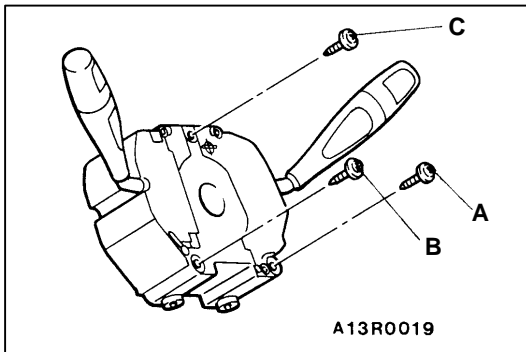




REMOVAL SERVICE POINTS

◀A▶ STEERING LOCK CYLINDER REMOVAL

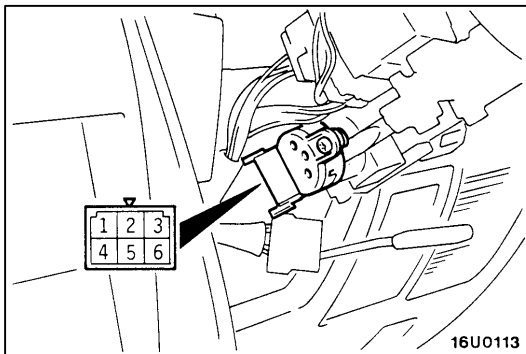
1. Insert the key in the steering lock cylinder and turn it to the "ACC" position.
2. Using a cross-tip (+) screwdriver (small) or a similar tool, push the lock pin of the steering lock cylinder inward and then pull the steering lock cylinder toward you.



INSTALLATION SERVICE POINTS

▶A◀ CLOCK SPRING AND COLUMN SWITCH/COLUMN SWITCH INSTALLATION

Tighten the screws in an alphabetical order.

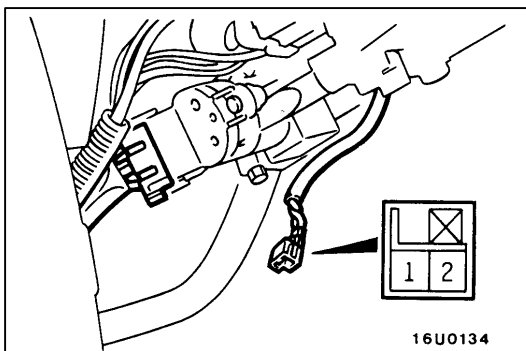


INSPECTION

IGNITION SWITCH CONTINUITY CHECK

1. Remove the column cover lower and upper.
2. Disconnect the wiring connector from the ignition switch.
3. Operate the switch, and check the continuity between the terminals.

Ignition key position	Terminal No.				
	1	2	3	5	6
LOCK					
ACC		○	—	○	
ON	○	○	○	○	
START		○	○	—	○



IGNITION KEY RING ANTENNA CONTINUITY CHECK

Use a circuit tester to check the continuity between the terminals.

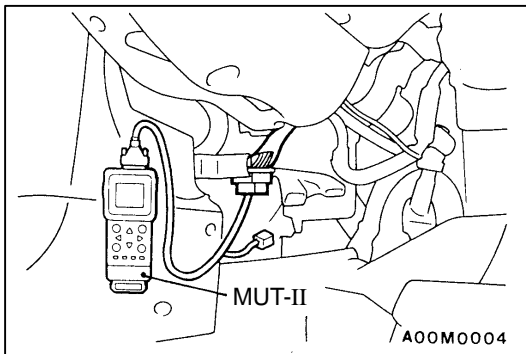
ID CODE REGISTRATION METHOD

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 register the password that the user specifies into the immobilizer-ECU. (Refer to the MUT-II instruction manual for instructions on using the MUT-II.)

Caution

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



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

Caution

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

2. Check that the diagnosis code No.54 is not displayed for MPI system. If the code is displayed, carry out troubleshooting before proceeding to the next step. (Refer – [Troubleshooting](#)).
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 by each one of the ignition keys.
7. Check that the diagnosis code No.54 is not displayed for MPI system. If the code is displayed, erase it. (Refer – [Troubleshooting](#)).