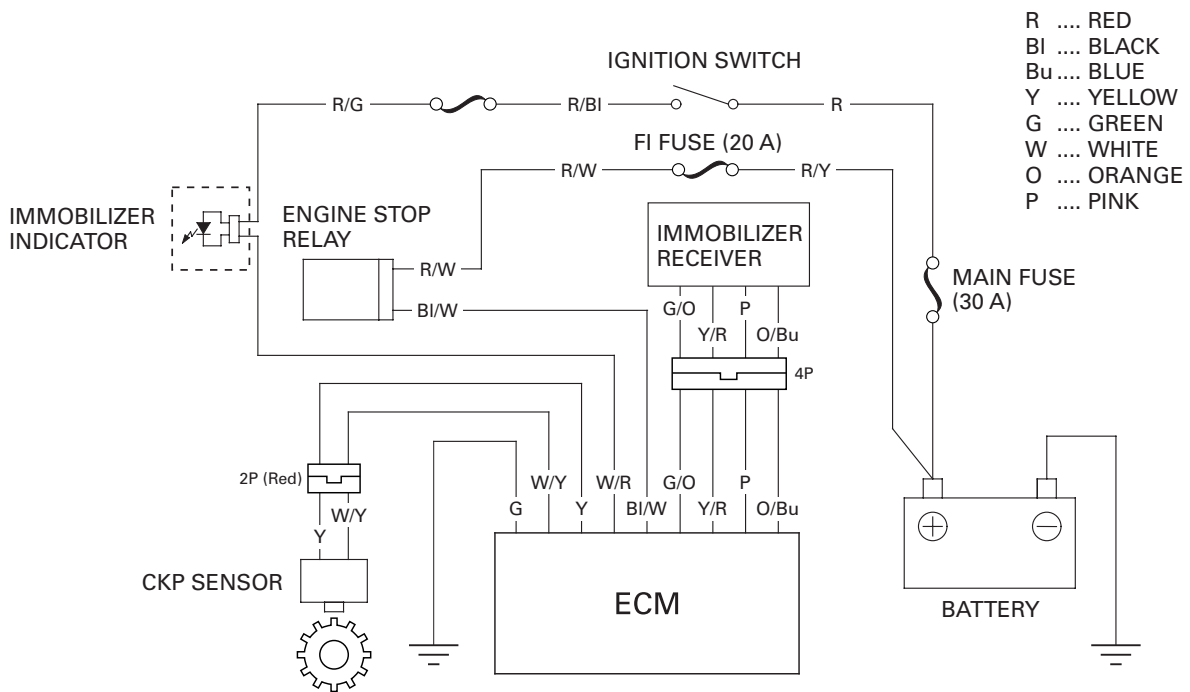
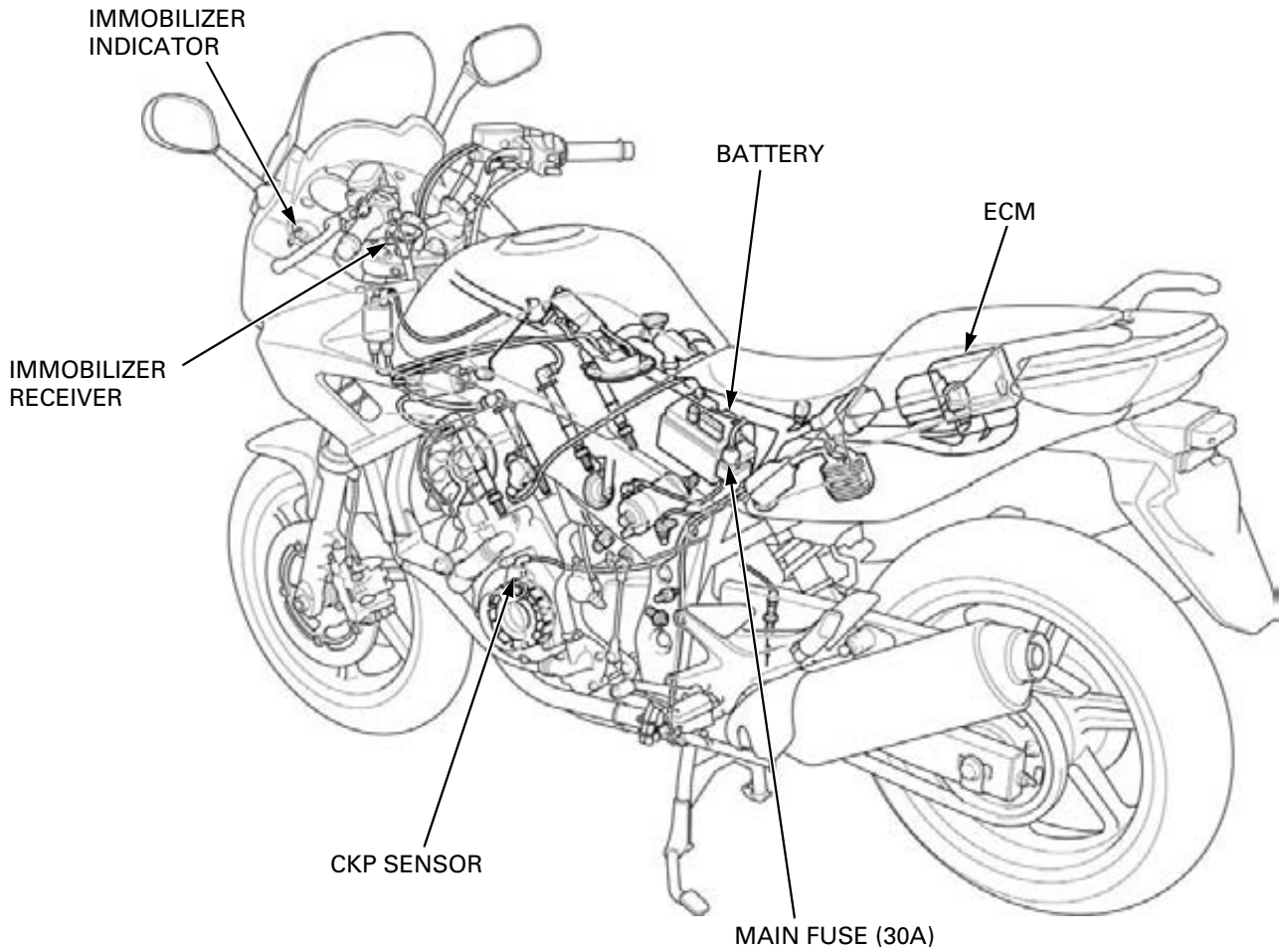


22. IMMOBILIZER SYSTEM (HISS)

SYSTEM DIAGRAM.....	22-2	TROUBLESHOOTING.....	22-9
SERVICE INFORMATION	22-3	IMMOBILIZER INDICATOR	22-12
KEY REGISTRATION PROCEDURES	22-4	ENGINE CONTROL MODULE (ECM).....	22-13
DIAGNOSTIC CODE INDICATION	22-7	IMMOBILIZER RECEIVER.....	22-14

IMMOBILIZER SYSTEM (HISS)


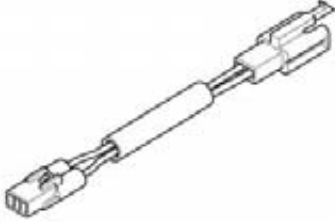

SYSTEM DIAGRAM



SERVICE INFORMATION**GENERAL**

- When checking the immobilizer system (HISS), follow the steps in the troubleshooting flow chart (page 22-9).
- Keep the immobilizer key away from the other vehicle's immobilizer key when using it. The jamming of the key code signal may occur and the proper operation of the system will be obstructed.
- The key has built-in electronic part (transponder). Do not drop and strike the key against a hard material object, and do not leave the key on the dashboard in the car, etc. where the temperature will rise. Do not leave the key in the water for a prolonged time such as by washing the clothes.
- The ECM as well as the transponder keys must be replaced if all transponder keys have been lost.
- The system does not function with a duplicated key code is registered into the transponder with the immobilizer system (HISS).
- The ECM can store up to four key codes. (The four keys can be registered.)
- Do not modify the immobilizer system as it can cause the system failure. (The engine cannot be started.)
- Refer to the ignition system inspection (page 19-5).
- Refer to the ignition switch servicing (page 21-20).

TOOLS

<p>Inspection harness 07XMZ-MBW0101</p>  A coiled cable with a connector on one end and two alligator clips on the other.	<p>Test harness adaptor 070MZ-MEC0100</p>  A long, thin cable with a connector on one end and a multi-pin connector on the other.	<p>Test probe 07ZAJ-RDJA110</p>  A long, thin probe with a threaded end on one side and a pointed tip on the other.
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IMMOBILIZER SYSTEM (HISS)

KEY REGISTRATION PROCEDURES

When the key has been lost, or additional spare key is required:

1. Obtain a new transponder key.
2. Grind the key in accordance with the shape of the original key.
3. Apply 12 V battery voltage to the CKP sensor lines of the ECM using the special tool (page 22-7).
4. Turn the ignition switch ON with the original key. The immobilizer indicator comes on and it remains on.
 - The code of the original key recognized by the ECM.
 - If there is any problem in the immobilizer system (HISS), the system will enter the diagnostic mode and the indicator will remain on for approx. ten seconds, then it will indicate the diagnostic code (page 22-7).
5. Disconnect the red clip of the inspection adaptor from the battery positive (+) terminal for two seconds or more, then connect it again. The indicator remains on for approx. two seconds, then it blinks four times repeatedly.



- The immobilizer system (HISS) enters the registration mode. Registrations of all key except the original key inserted in the ignition switch are cancelled. (Registration of the lost key or spare key is cancelled.)
The spare key must be registered again.
6. Turn the ignition switch OFF and remove the key.
 7. Turn the ignition switch ON with a new key or the spare key. (Never use the key registered in previous steps.) The indicator comes on for four seconds then it blinks four times repeatedly.



- The new key or spare key is registered in the ECM.
 - If there is any problem in the registration, the system will enter the diagnostic mode and the indicator will remain for approx. ten seconds, then it will indicate the diagnostic code (page 22-8).
 - Keep the other transponder key away from the immobilizer receiver more than 50 mm (2.0 in).
8. Repeat the steps 6 and 7 when you continuously register the other new key.
The ECM can store up to four key codes. (The four keys can be registered.)
 9. Turn the ignition switch OFF, remove the inspection adaptor and connect the CKP sensor 2P (Red) connector.
 10. Turn the ignition switch ON with the registered key.
 - The immobilizer system (HISS) returns to the normal mode.
 11. Check that the engine can be started using all registered keys.

When the ignition switch is faulty:

1. Obtain a new ignition switch and two new transponder keys.
2. Remove the ignition switch (page 21-21).
3. Apply 12 V battery voltage to the CKP sensor lines of the ECM using the special tool (page 22-7).
4. Set the original (registered) key near the immobilizer receiver so that the transponder in the key can communicate with the receiver.
5. Connect a new ignition switch to the wire harness and turn it ON with a new transponder key. (keep the ignition switch away from the receiver.) The immobilizer indicator comes on and it remains on.
 - The code of the original key recognized by the ECM.
 - If there is any problem in the immobilizer system (HISS), the system will enter the diagnostic mode and the indicator will remain on for approx. ten seconds, then it will indicate the diagnostic code (page 22-7).
6. Disconnect the red clip of the inspection adaptor from the battery positive (+) terminal for two seconds or more, then connect it again. The indicator remains on for approx. two seconds then it blinks four times repeatedly.



- The immobilizer system (HISS) enters the registration mode. Registrations of all key except the original key set near the receiver are cancelled.
7. Turn the ignition switch OFF and remove the key.
 8. Install the ignition switch onto the top bridge (page 21-21).
 9. Turn the ignition switch ON with a first new key. The indicator comes on for four seconds then it blinks four times repeatedly.



- The first new key is registered in the ECM.
 - If there is any problem in the registration, the system will enter the diagnostic mode and the indicator will remain for approx. ten seconds, then it will indicate the diagnostic code (page 22-8).
10. Turn the ignition switch OFF and disconnect the red clip of the inspection adaptor from the battery positive (+) terminal.
 11. Turn the ignition switch ON (with the first key registered in step 9). The immobilizer indicator comes on for two seconds then it goes off.
 - The immobilizer system (HISS) returns to the normal mode.
 12. Turn the ignition switch OFF and connect the red clip of the inspection adaptor to the battery positive (+) terminal.
 13. Turn the ignition switch ON (with the first key registered in step 9). The immobilizer indicator comes on and it remains on.
 - The code of the first key is recognized by the ECM.
 - If there is any problem in the immobilizer system (HISS), the system will enter the diagnostic mode and the indicator will remain on for approx. ten seconds, then it will indicate the diagnostic code (page 22-7).
 14. Disconnect the red clip of the inspection adaptor from the battery positive (+) terminal for two seconds or more, then connect it again. The indicator remains on for approx. two seconds then it blinks four times repeatedly.
 - The immobilizer system (HISS) enters the registration mode. Registration of the original key used in step 4 is cancelled.

IMMOBILIZER SYSTEM (HISS)

15. Turn the ignition switch OFF and remove the key.
16. Turn the ignition switch ON with a second new key. (Never use the key registered in previous step.) The indicator comes on for four seconds then it blinks four times repeatedly.
 - The second new key is registered in the ECM.
 - If there is any problem in the registration, the system will enter the diagnostic mode and the indicator will remain for approx. ten seconds, then it will indicate the diagnostic code (page 22-8).
 - Keep the other transponder key away from the immobilizer receiver more than 50 mm (2.0 in).
17. Repeat the steps 15 and 16 when you continuously register the other new key.

The ECM can store up to four key codes. (The four keys can be registered.)
18. Turn the ignition switch OFF, remove the inspection adaptor and connect the CKP sensor connector.
19. Turn the ignition switch ON with the registered key.
 - The immobilizer system (HISS) returns to the normal mode.
20. Check that the engine can be started using all registered keys.

When all keys have been lost, or the Engine Control Module (ECM) is faulty:

1. Obtain a new ECM and two new transponder keys.
2. Grind the keys in accordance with the shape of the original key (or use the key number plate when all keys have been lost).
3. Replace the ECM with a new one (page 6-82).
4. Turn the ignition switch ON with a first new key. The immobilizer indicator comes on for two seconds, then it blinks four times repeatedly.
 - The first key is registered in the ECM.
 - If there is any problem in the registration, the system will enter the diagnostic mode and the indicator will remain for approx. ten seconds, then it will indicate the diagnostic code (page 22-8).
5. Turn the ignition switch OFF and remove the first key.
6. Turn the ignition switch ON with a second new key. The immobilizer indicator comes on for two seconds, then it blinks four times repeatedly.
 - The second key is registered in the ECM.
 - If there is any problem in the registration, the system will enter the diagnostic mode and the indicator will remain for approx. ten seconds, then it will indicate the diagnostic code (page 22-8).
7. Turn the ignition switch OFF and remove the second key.
 - The system (ECM) will not enter the normal mode unless the two keys are registered in ECM.
 - The third new key cannot be continuously registered. When it is necessary to register the third key, follow the procedures "When the key has been lost, or additional key is required" (page 22-4).
8. Check that the engine can be started using all registered keys.

DIAGNOSTIC CODE INDICATION

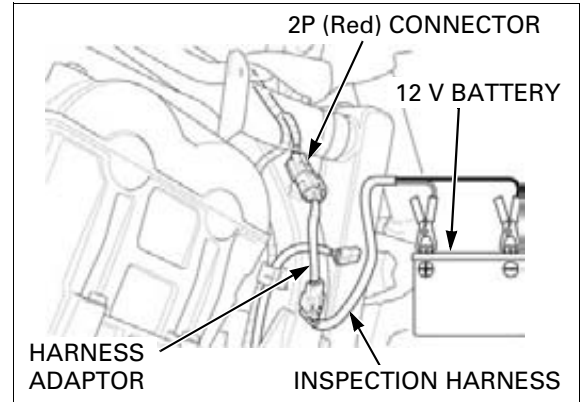
Disconnect the CKP sensor 2P (Red) connector.

Connect the inspection adaptor and harness adaptor to the wire harness side connector.

Connect the red clip of the adaptor to the 12 V battery positive (+) terminal and green clip to the negative (-) terminal.

TOOLS:

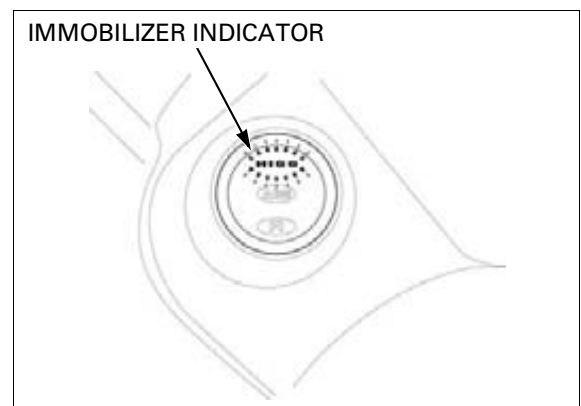
Inspection harness **07XMZ-MBW0101**
Test harness adaptor **070MZ-MEC0100**



Turn the ignition switch ON with the properly registered key.

The immobilizer indicator will come on for approx. ten seconds then it will start blinking to indicate the diagnostic code if the system is abnormal. The blinking frequency is repeated.

The immobilizer indicator remains on when the system is normal. (The system is in the normal mode and the diagnostic code does not appear.)






DIAGNOSTIC CODE

When the system (ECM) enters the diagnostic mode from the normal mode:

BLINKING PATTERN	SYMPTOM	PROBLEM	PROCEDURE
<p>ON --- OFF --- 10 sec.</p>	ECM data is abnormal	Faulty ECM	Replace the ECM
	Code signals cannot send or receive	Faulty immobilizer receiver or wire harness	Follow the troubleshooting (page 22-9)
	Identification code is disagree	Jamming by the other transponder	Keep the other vehicle's transponder key away from the immobilizer receiver more than 50 mm (2.0 in)
	Secret code is disagree		

IMMOBILIZER SYSTEM (HISS)

When the system (ECM) enters the diagnostic mode from the registration mode:

BLINKING PATTERN	SYMPTOM	PROBLEM	PROCEDURE
 <p>ON OFF 10 sec.</p>	Registration is overlapped	The key is already registered properly	Use a new key or cancelled key
	Code signals cannot send or receive	Communication fails	Follow the troubleshooting (page 22-9)
	Registration is impossible	The key is already registered on the other system	Use a new key

TROUBLESHOOTING

The immobilizer indicator comes on for approx. two seconds then it goes off, when the ignition switch is turned ON with the properly registered key and the immobilizer system (HISS) functions normally. If there is any problem or the properly registered key is not used, the indicator will remain on.

Immobilizer indicator does not come on when the ignition switch is turned ON

1. Fuse Inspection

Check for blown fuse (10 A).

Is the fuse blown?

YES – Replace the fuse

NO – GO TO STEP 2.

2. Combination Meter Inspection

Check that the neutral indicator comes on with the ignition switch ON.

Does the indicator come on?

NO – GO TO STEP 3.

YES – GO TO STEP 4.

3. Combination Meter Power Input line Inspection

Check the power input line (Black/brown wire) at the combination meter connector (page 22-12).

Is the voltage specified value?

NO – • Open circuit in Black/brown wire
• Open circuit in Green wire

YES – Faulty combination meter

4. Immobilizer Indicator Line Inspection At The ECM Connector

Check the immobilizer indicator line (White/red wire) at the ECM connector (page 22-13).

Is the voltage specified?

NO – GO TO STEP 5.

YES – GO TO STEP 6.

5. Immobilizer Indicator Line Inspection At The Combination Meter Connector

Check the immobilizer indicator line (White/red wire) at the combination meter connector (page 22-12).

Is the voltage specified value?

NO – Open circuit in White/red wire

YES – • Faulty combination meter

6. Power Input Line Inspection At The ECM Connector

Check the power input line (Black/white wire) at the ECM connector (page 22-13).

Is the voltage specified?

NO – • Open circuit in Black/white wire
• Faulty engine stop relay
• Blown FI fuse (20 A)
• Open circuit in Red/yellow or Red/white wire between the battery and engine stop relay

YES – GO TO STEP 7.

7. Ground Line Inspection At The ECM Connector

Check the ground lines (Green and Green/pink wire) at the ECM connector (page 22-13).

Is there continuity?

NO – Open circuit in Green or Green/pink wire

YES – • Loose or poor ECM connector contact
• Faulty ECM

IMMOBILIZER SYSTEM (HISS)

Immobilizer indicator remains on with the ignition switch ON

1. Immobilizer Receiver Jamming Inspection

Check that there is any metal obstruction or the other vehicle's transponder key near the immobilizer receiver and key.

Is there any metal obstruction or the other key?

YES – Remove it and recheck.

NO – GO TO STEP 2.

2. First Transponder Key Inspection

Turn the ignition switch ON with the spare transponder key and check the immobilizer indicator. The indicator should come on for 2 seconds then go off.

Is there indicator go off?

YES – Faulty first transponder key

NO – GO TO STEP 3.

3. Diagnostic Code Inspection

Perform the diagnostic code indication procedure (page 22-7) and check that the immobilizer indicator comes on then it starts blinking.

Is there indicator Blinks or Stay Lit?

BLINKS–Read the diagnostic code (page 22-7).

STAY LIT–GO TO STEP 4.

4. Immobilizer Indicator Line Inspection At The ECM Connector

Check the immobilizer indicator line (White/red wire) at the ECM connector (page 22-13).

Is the voltage specified?

NO – Short circuit in White/red wire

YES – GO TO STEP 5.

5. CKP Sensor Line Inspection

Check the CKP sensor lines (Yellow and White/yellow wires) between the ECM and CKP sensor connectors (page 22-14).

Is there Continuity?

NO – Faulty ECM

YES – Open circuit in Yellow or White/yellow wire

Diagnostic code  is indicated (Code signals cannot send or receive)

1. Immobilizer Receiver Power Input Line Inspection

Check the power input line (Yellow/red) at the immobilizer receiver connector (page 22-14).

Is there approx. 5 V?

NO – Open or short circuit in Yellow/red wire

YES – GO TO STEP 2.

2. Immobilizer Receiver Ground Line Inspection

Check the ground line (Green/orange) at the immobilizer receiver connector (page 22-14).

Is there continuity?

NO – Open or short circuit in Green/orange wire

YES – GO TO STEP 3.

3. Immobilizer Receiver Signal Line Inspection

Check the signal lines (Pink and Orange/blue) between the immobilizer receiver and ECM connectors (page 22-15).

Is there continuity?

NO – • Open or short circuit in Pink wire
• Open or short circuit in Orange/blue wire

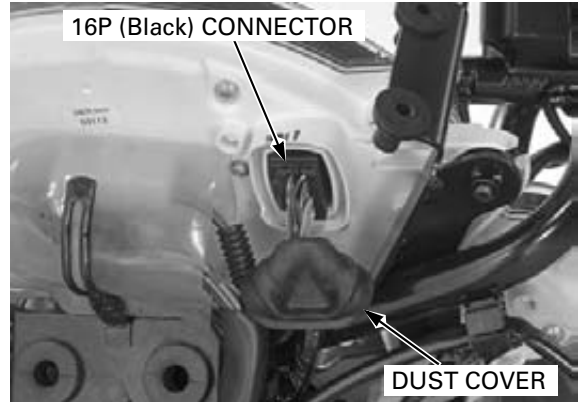
YES – Faulty immobilizer receiver

IMMOBILIZER SYSTEM (HISS)

IMMOBILIZER INDICATOR

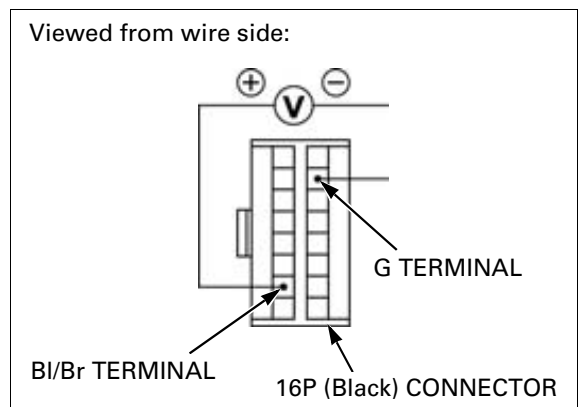
Remove the front center cowl (page 3-8).

Perform the following inspections with the combination meter 16P (Black) connector connected.



POWER INPUT LINE INSPECTION

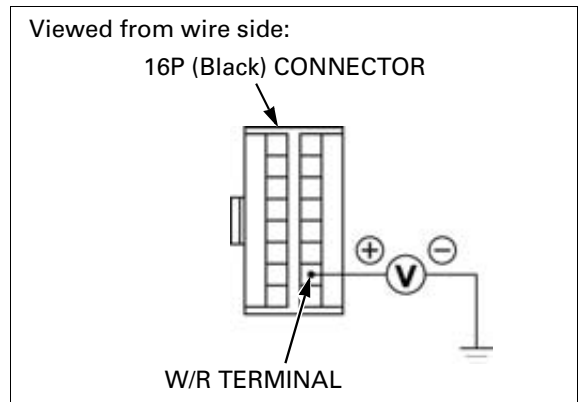
Measure the voltage between the Black/brown (+) and Green (-) wire terminals.
Turn the ignition switch ON.
There should be battery voltage.



IMMOBILIZER INDICATOR LINE INSPECTION

Measure the voltage between the White/red (+) and ground (-).
Turn the ignition switch ON.
There should be battery voltage.

There should be no voltage for approx. two seconds after the ignition switch is turned ON, then the battery voltage should appear, if the system is normal.



ENGINE CONTROL MODULE (ECM)

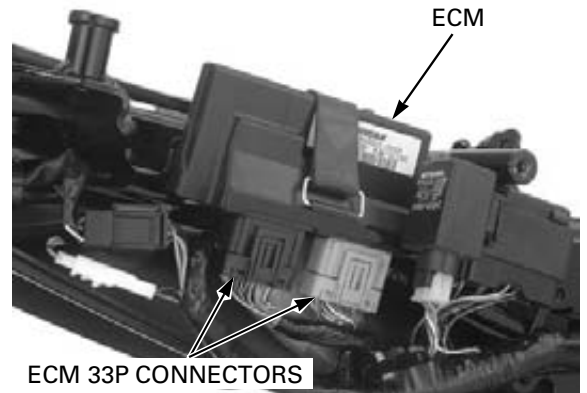
Remove the right rear cowl (page 3-8).

Disconnect the ECM 33P connectors.
Perform the following inspections at the wire harness side connector of the ECM.

TOOLS:

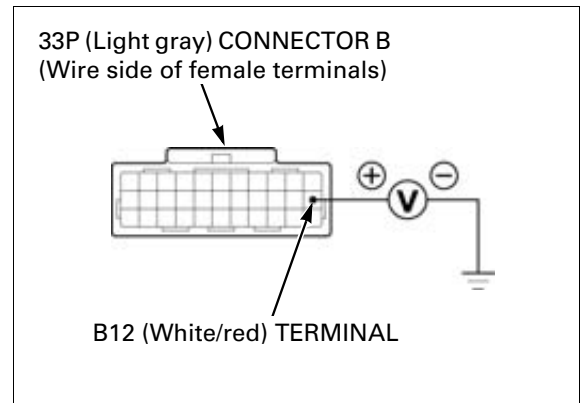
Test probe

07ZAJ-RDJA110



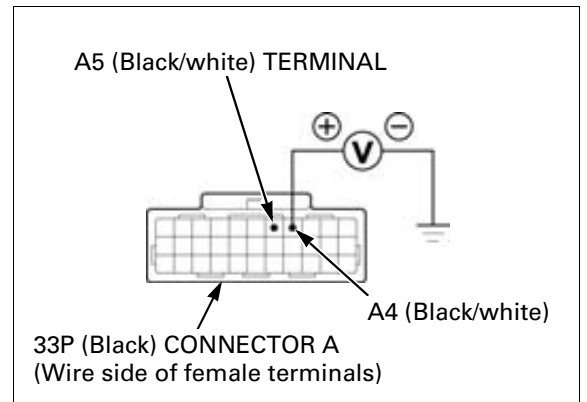
IMMOBILIZER INDICATOR LINE INSPECTION

Measure the voltage between the B12 (White/red) wire terminal (+) and ground (-).
Turn the ignition switch ON.
There should be battery voltage.



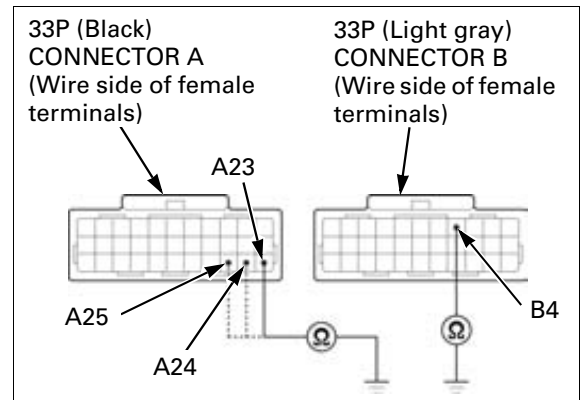
POWER INPUT LINE INSPECTION

Measure the voltage between the A4 and A5 (Black/white) wire terminal (+) and ground (-).
Turn the ignition switch ON.
There should be battery voltage.



GROUND LINE INSPECTION

Check the continuity between the B4 (Green) wire terminal and ground.
Also check the continuity between the A23, A24 and A25 (Green/pink) wire terminal and ground.
There should be continuity at all times.

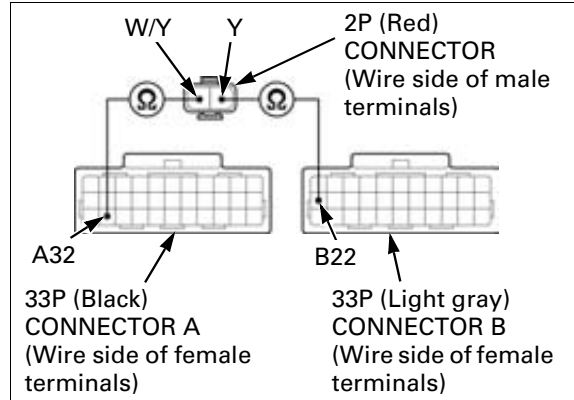


IMMOBILIZER SYSTEM (HISS)

CKP SENSOR LINE INSPECTION

Disconnect the CKP sensor 2P (Red) connector.
Check the Yellow wire for continuity between the ECM and CKP sensor connectors.
Also check the White/yellow wire for continuity between the ECM and CKP sensor connectors

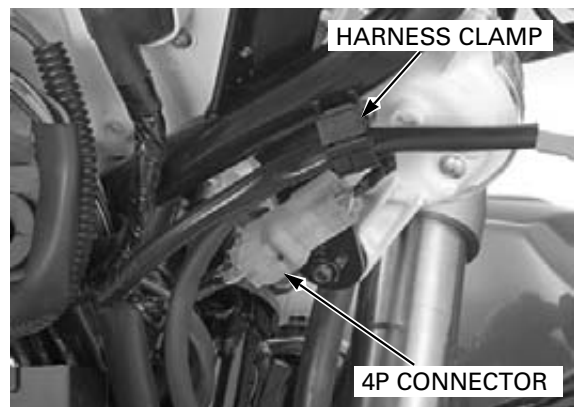
There should be continuity between the same color wire terminals.



IMMOBILIZER RECEIVER

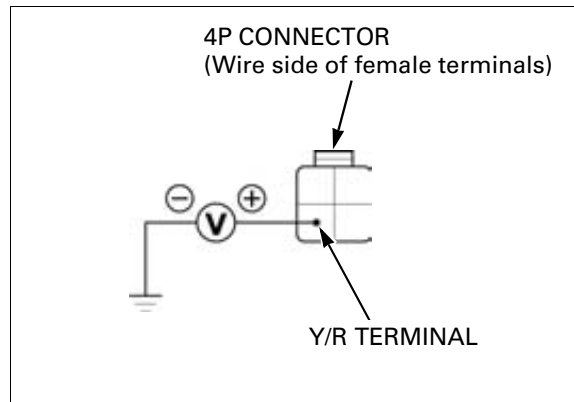
Remove the front center cowl (page 3-7).

Release the immobilizer receiver wire from the harness clamp and disconnect the 4P (Natural) connector.



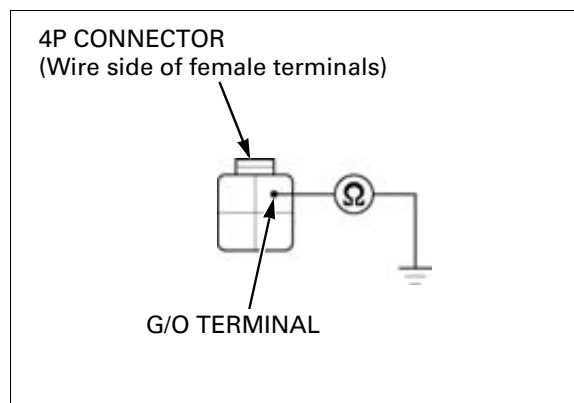
POWER INPUT LINE INSPECTION

Measure the voltage between the Yellow/red wire terminal (+) of the wire harness side connector and ground (-).
Turn the ignition switch ON.
There should be approx. 5 V.



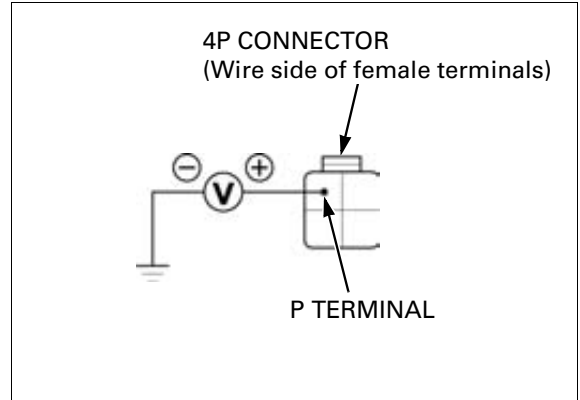
GROUND LINE INSPECTION

Check for continuity between the Green/orange wire terminal of the wire harness side connector and ground.
There should be continuity at all times.



SIGNAL LINE INSPECTION

Measure the voltage between the Pink wire terminal (+) of the wire harness side connector and body ground (-).
Turn the ignition switch ON.
There should be approx. 5 V.



Disconnect the ECM 33P (Light gray) connector (page 22-13).

Check the Orange/blue wire for continuity between the immobilizer receiver and ECM connectors.

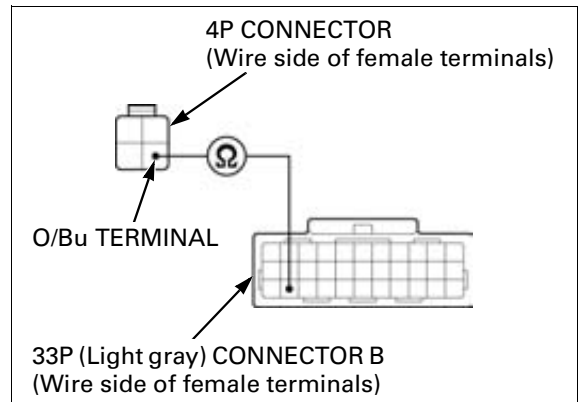
TOOLS:

Test probe **07ZAJ-RDJA110**

There should be continuity.

Check for continuity between the Orange/blue wire terminal and ground.

There should be no continuity.



REPLACEMENT

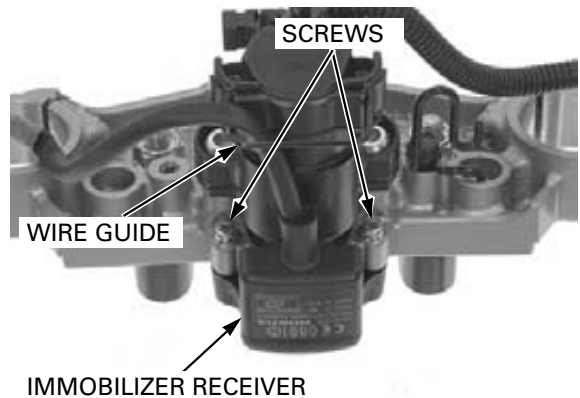
Remove the top bridge (page 14-30).

Remove the wire guide.

Remove the two screws and immobilizer receiver.

Install new receiver and tighten the two screws.

Install the removed parts in the reverse order of removal.



REPLACEMENT PARTS FOR PROBLEM

Problem	Replacement parts				
	Transponder Key	Immobilizer receiver	ECM	Ignition switch	*Accessory lock and key
One Key has been lost, or additional spare key is required	C				
All key have been lost, or ECM is faulty	C		C		
Immobilizer receiver is faulty		C			
Ignition switch is faulty	C			C	
*Accessory lock is faulty					C

*Accessory lock means the seat lock and fuel fill cap.

MEMO
