

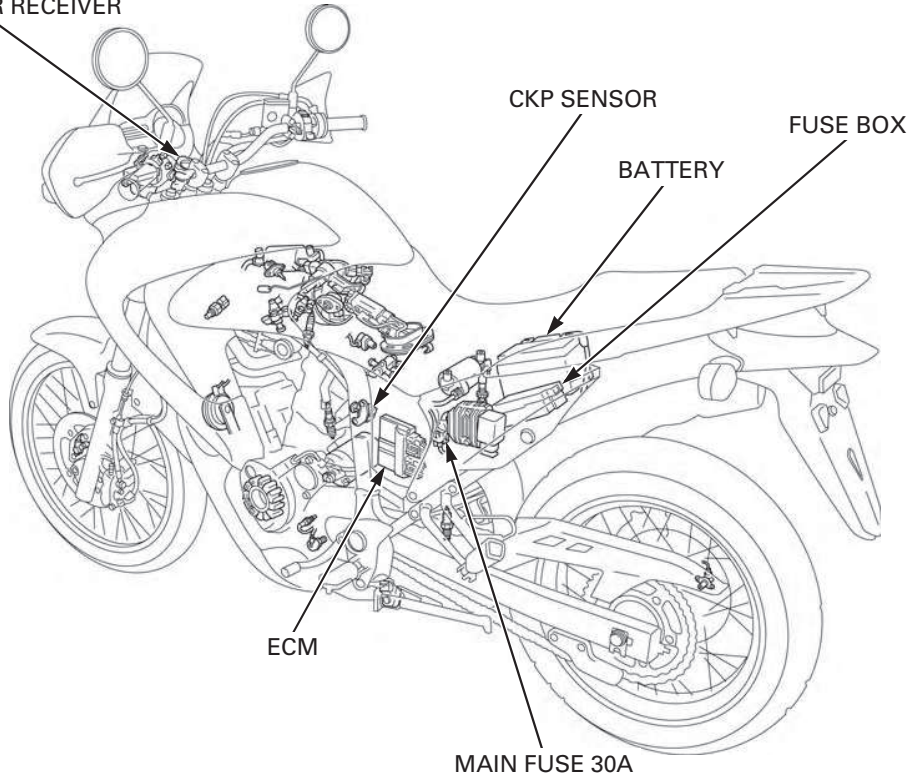
21. IMMOBILIZER SYSTEM (HISS)

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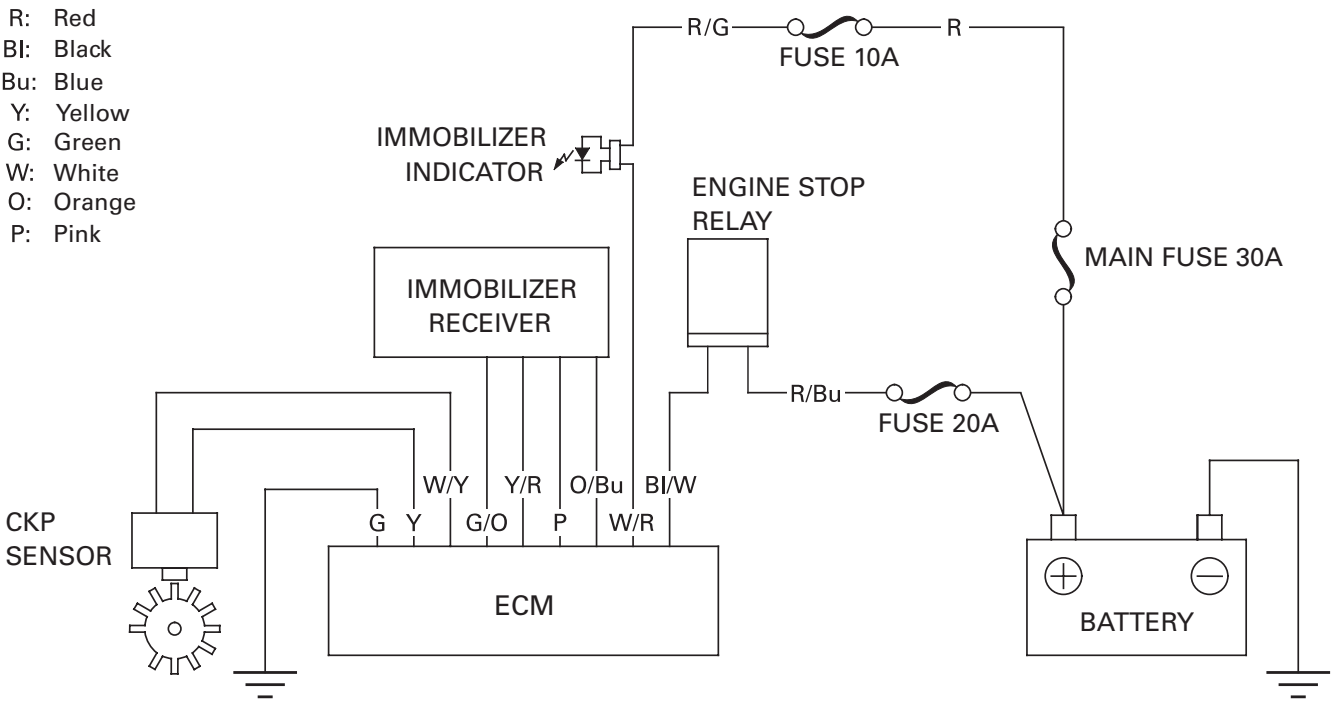
IMMOBILIZER SYSTEM (HISS)

SYSTEM DIAGRAM

IGNITION SWITCH
IMMOBILIZER RECEIVER



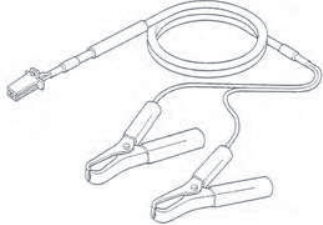
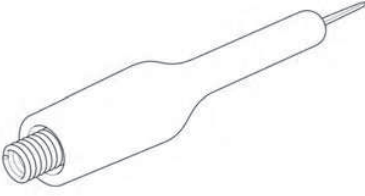
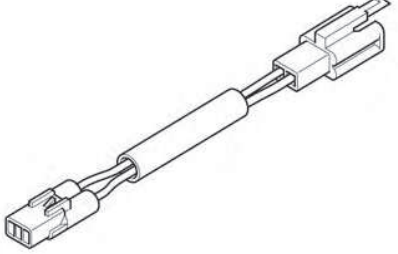
- R: Red
- Bl: Black
- Bu: Blue
- Y: Yellow
- G: Green
- W: White
- O: Orange
- P: Pink



SERVICE INFORMATION**GENERAL**

- When checking the immobilizer system (HISS), follow the steps in the troubleshooting flow chart (page 21-9).
- 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 18-5).
- Refer to the ignition switch servicing (page 20-20).

TOOLS

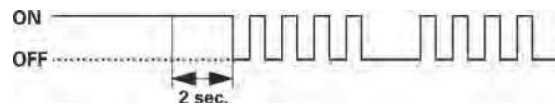
<p>Inspection test harness 07XMZ-MBW0101</p>  A coiled cable with a connector at one end and two alligator clips at the other.	<p>Test probe 07ZAJ-RDJA110</p>  A long, thin probe with a threaded base and a pointed tip.	<p>Test harness adaptor 070MZ-MEC0100</p>  A cable with a connector at one end and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

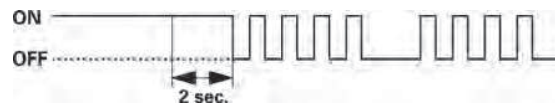
KEY REGISTRATION PROCEDURES

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 21-7).
4. Turn the ignition switch ON with the original key. The HISS 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 21-7).
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.



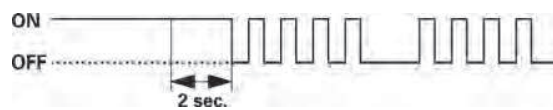
- The immobilizer system (HISS) enters the registration mode. Registrations of all key except the original key inserted in the ignition switch are cancelled. (Registration of the lost key or spare key is cancelled.)
The spare key must be registered again.
6. Turn the ignition switch OFF and remove the 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 two seconds then it blinks four times repeatedly.



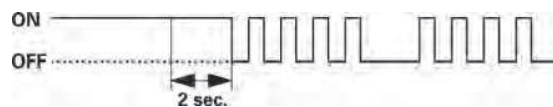
- The new key or spare key is registered in the ECM.
 - If there is any problem in the registration, the system will enter the diagnostic mode and the indicator will remain for approx. ten seconds, then it will indicate the diagnostic code (page 21-8).
 - Keep the other transponder key away from the 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 key.

When the ignition switch is faulty:

1. Obtain a new ignition switch and two new transponder keys.
2. Remove the ignition switch (page 20-20).
3. Apply 12 V battery voltage to the CKP sensor lines of the ECM using the special tool (page 21-7).
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 HISS 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 21-7).
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 (page 20-20).
 9. Turn the ignition switch ON with a first new key. The indicator comes on for two seconds then it blinks four times repeatedly.



- The first 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 21-8).
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 HISS 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 HISS 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 21-7).
 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 two seconds then it blinks four times repeatedly.
 - The second 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 21-8).
 - 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 2P (Red) 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 key.

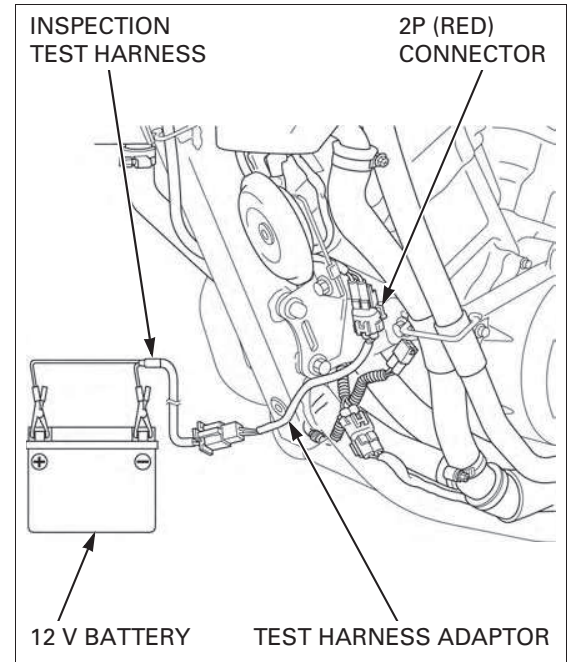
When all keys have been lost, or the ECM is faulty

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 key have been lost).
3. Replace the ECM with a new one.
4. Turn the ignition switch ON with a first new key. The HISS 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 21-8).
5. Turn the ignition switch OFF and remove the first key.
6. Turn the ignition switch ON with a second new key. The HISS 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 21-8).
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 21-4).
8. Check that the engine can be started using all registered keys.

DIAGNOSTIC CODE INDICATION

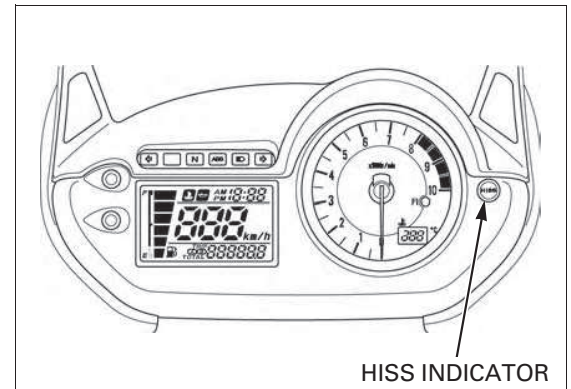
Remove the under cowl (page 2-13).
 Disconnect the CKP sensor 2P (Red) connector.
 Connect the inspection adaptor to the wire harness side connector.
 Connect the Red clip of the adaptor to the 12 V battery positive (+) terminal and Black clip to the negative (-) terminal.

TOOLS:
Inspection test harness 07XMZ-MBW0101
Test harness adaptor 070MZ-MEC0100



Turn the ignition switch ON with the properly registered key.
 The HISS 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 HISS indicator remains on when the system is normal. (The system is in the normal mode and the diagnostic code does not appear.)



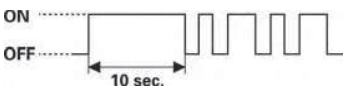


DIAGNOSTIC CODE

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 21-9).
	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 21-9).
	Registration is impossible.	The key is already registered on the other system.	Use a new key.

TROUBLESHOOTING

The HISS 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.

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

1. Fuse Inspection

Check for blown fuse (TURN/CLOCK 10 A).

Is the fuse blown?

YES – Replace the fuse.

NO – GO TO STEP 2.

2. Combination Meter Inspection

Check that the odometer/trip meter function with the ignition switch ON.

Is the meter function normal?

NO – GO TO STEP 3.

YES – GO TO STEP 4.

3. Combination Meter Back-up voltage line Inspection

Check the back-up voltage line (Red/green wire) at the combination meter 20P connector (page 20-9).

Is the voltage specified value?

NO – • Open circuit in Red/green wire
• Open circuit in Green wire

YES – Faulty combination meter

4. HISS Indicator Line Inspection At The ECM Connector

Check the HISS indicator line (White/red wire) at the ECM 33P (Gray) connector (page 21-13).

Is the voltage specified value?

NO – GO TO STEP 5.

YES – GO TO STEP 6.

5. HISS Indicator Line Inspection At The Combination Meter Connector

Check the HISS indicator line (White/red wire) at the combination meter 20P connector (page 21-12).

Is the voltage specified value?

YES – Open circuit in White/red wire

NO – Faulty combination meter

6. Power Input Line Inspection At The ECM Connector

Check the power input line (Black/white wire) at the ECM 33P (Black) connector (page 21-13).

Is the voltage specified value?

NO – • Open circuit in Black/white wire
• Faulty engine stop relay
• Blown fuse (FI 20 A)

YES – GO TO STEP 7.

7. Ground Line Inspection At The ECM Connector

Check the ground line (Green and Green/pink wires) at the ECM 33P connectors (page 21-13).

Is there continuity?

NO – Open circuit in Green and Green/pink wires

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

IMMOBILIZER SYSTEM (HISS)

HISS 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 HISS indicator. The indicator should come on for two 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 21-7) and check that the HISS indicator comes on then it starts blinking.

Is there indicator Brinks or Stay Lit?

BRINKS–Read the diagnostic code (page 21-7).

STAY LIT–GO TO STEP 4.

4. HISS Indicator Line Inspection At The ECM Connector

Check the HISS indicator line (White/red wire) at the ECM 33P (Gray) connector (page 21-13).

Is the voltage specified value?

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 21-14).

Is there Continuity?

YES – Faulty ECM

NO –

- Open circuit in Yellow wire
- Open circuit in 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 4P (Natural) connector (page 21-15).

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 4P (Natural) connector (page 21-15).

Is there continuity?

NO – Open 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 4P (Natural) connector and ECM 33P (Gray) connector (page 21-15).

Is there continuity?

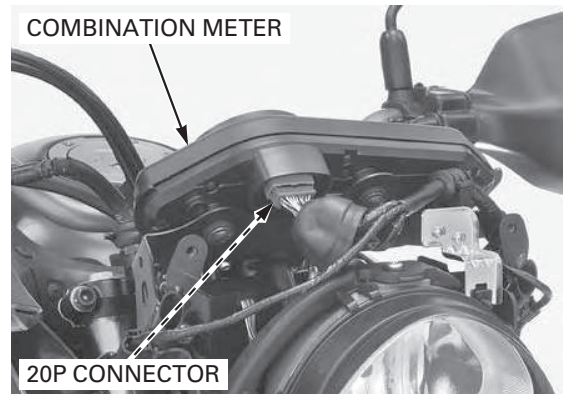
NO – • Open circuit in Pink wire
• Open circuit in Orange/blue wire

YES – Faulty immobilizer receiver

IMMOBILIZER SYSTEM (HISS)

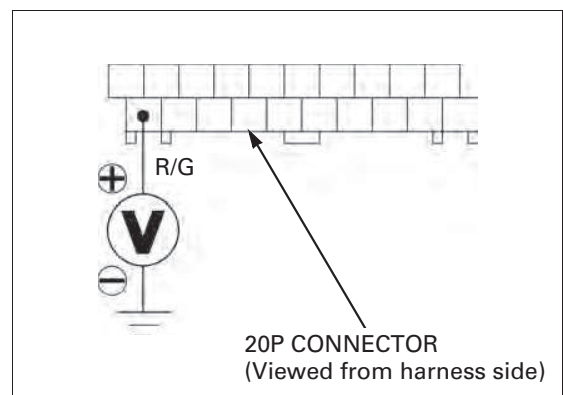
HISS INDICATOR

Remove the front center cowl (page 2-12).
Perform the following inspections.



BACK-UP VOLTAGE LINE INSPECTION

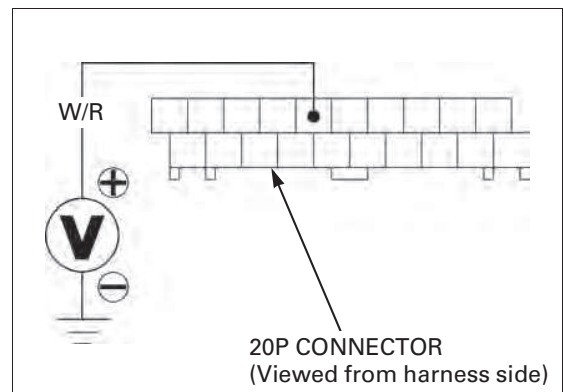
Measure the voltage between the Red/green wire terminal (+) and ground (-).
There should be battery voltage at all times.



HISS INDICATOR LINE INSPECTION

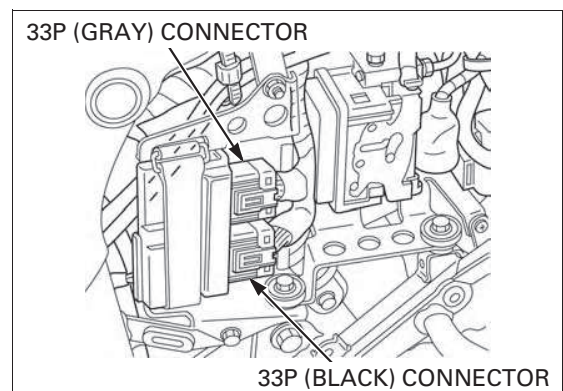
Measure the voltage between the White/red wire terminal (+) and ground (-) with the combination meter 20P connector connected.
Turn the ignition switch ON.
There should be battery voltage.

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.



ECM

Remove the left side cover (page 2-4).
Disconnect the ECM 33P (Black) and 33P (Gray) connectors.
Perform the following inspections at the wire harness side connector of the ECM.



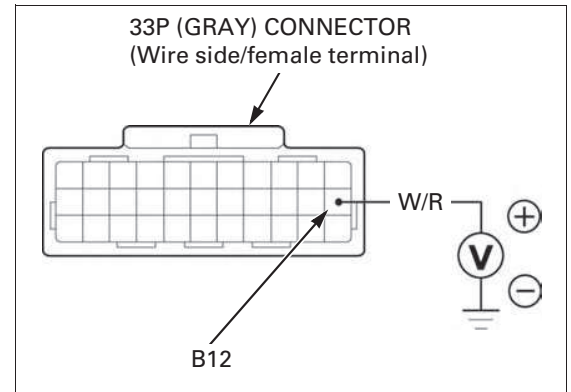
HISS INDICATOR LINE INSPECTION

Measure the voltage between the B12 (White/red) wire terminal (+) and ground (-).

TOOL:

Test probe 07ZAJ-RDJA110

Turn the ignition switch ON.
There should be battery voltage.



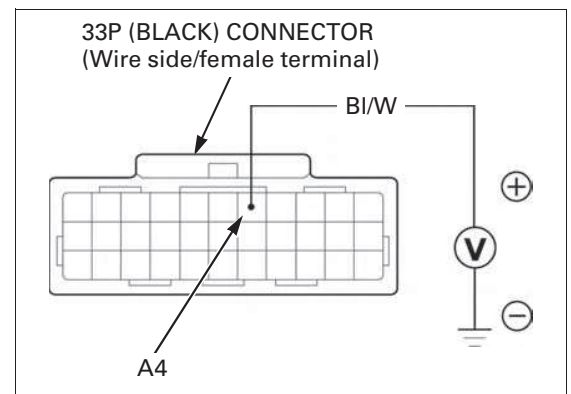
POWER INPUT LINE INSPECTION

Measure the voltage between the A4 (Black/white) wire terminal (+) and ground (-).

TOOL:

Test probe 07ZAJ-RDJA110

Turn the ignition switch ON.
There should be battery voltage.

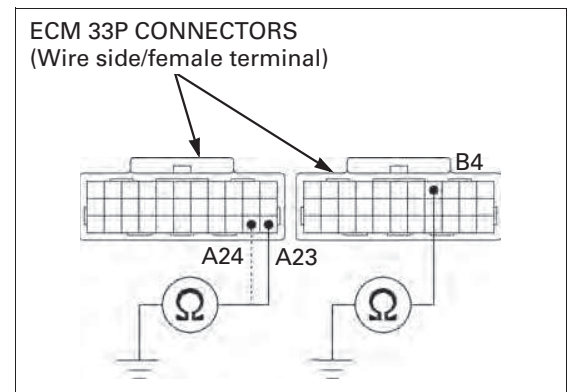


GROUND LINE INSPECTION

Check for continuity between the B4 (Green) and A23/24 (Green/pink) wire terminals and ground. There should be continuity at all times.

TOOL:

Test probe 07ZAJ-RDJA110



IMMOBILIZER SYSTEM (HISS)

CKP SENSOR LINE INSPECTION

Remove the under cowl (page 2-13).

Disconnect the CKP sensor 2P (Red) connector.

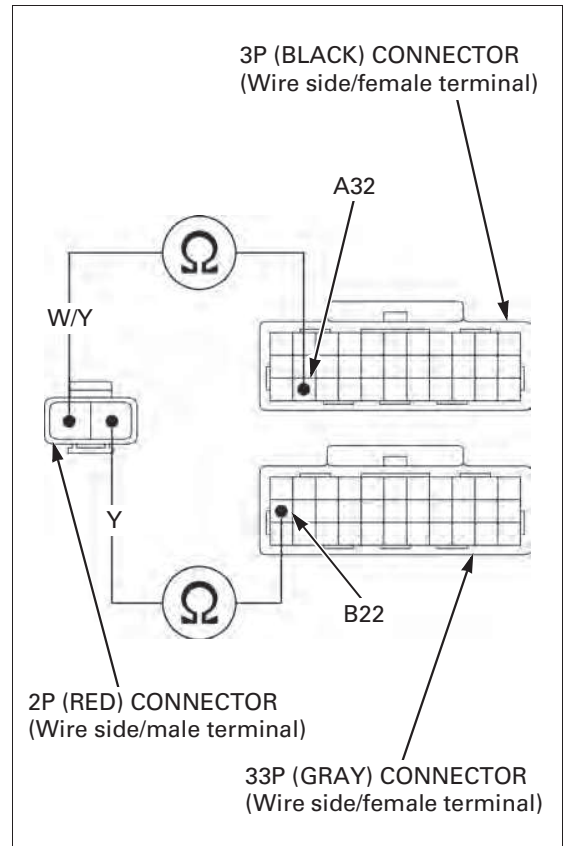
Check the Yellow and White/yellow wire for continuity between the ECM and CKP sensor connectors.

There should be continuity between the same color wire terminals.

TOOL:

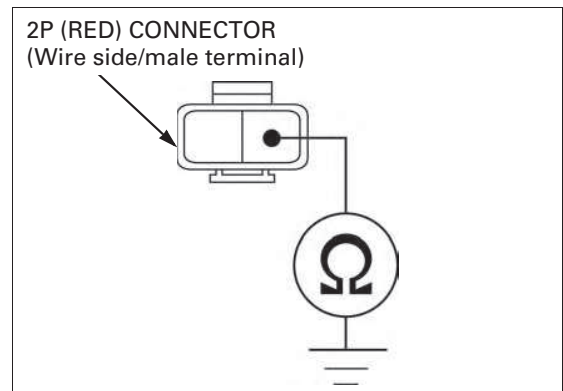
Test probe

07ZAJ-RDJA110



Connect the ECM 33P connectors.

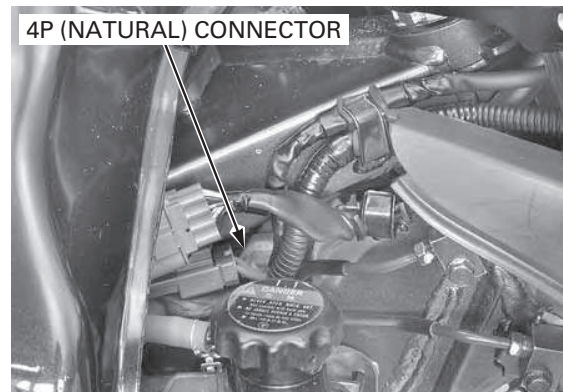
Check the Yellow wire for continuity between the CKP sensor 2P (Red) connector of the wire harness side and ground.



IMMOBILIZER RECEIVER

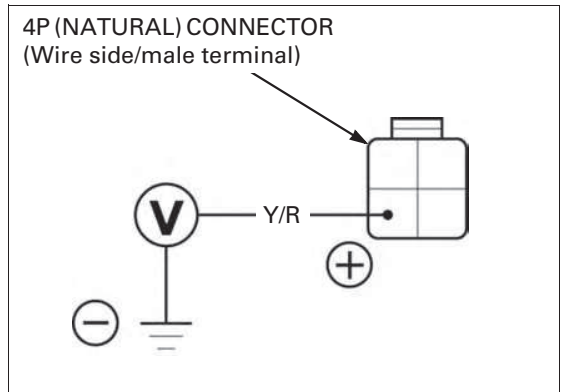
Remove the right front side cowl (page 2-9).

Disconnect the immobilizer receiver 4P (Natural) connector.



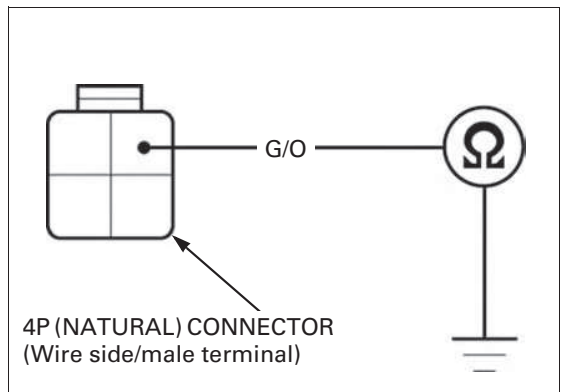
POWER INPUT LINE INSPECTION

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.



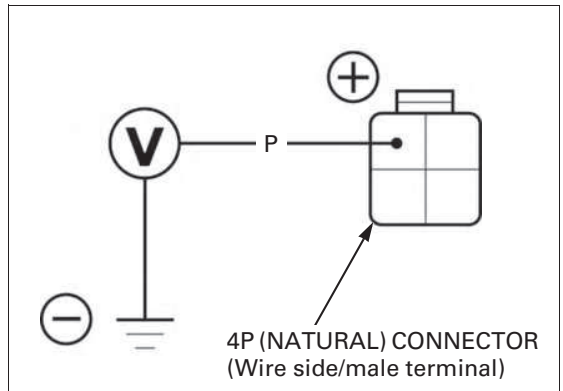
GROUND LINE INSPECTION

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 ground (-).
Turn the ignition switch ON.
There should be approx. 5 V.



Turn the ignition switch OFF.
Disconnect the ECM 33P (Gray) connector.
Check the Orange/blue wire for continuity between the immobilizer receiver and ECM connectors.
There should be continuity.

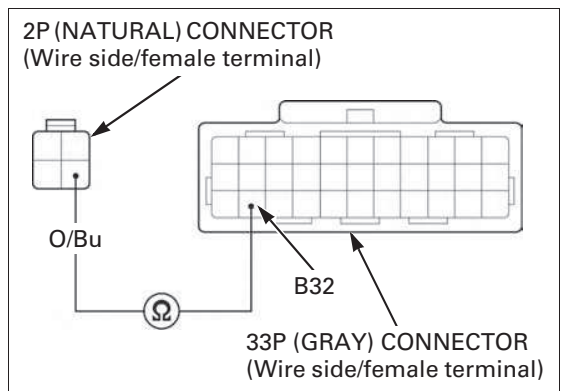
Check for continuity between the Orange/blue wire terminal and ground.
There should be no continuity.

TOOL:

Test probe

07ZAJ-RDJA110

Connect the ECM 33P (Gray) connector.



IMMOBILIZER SYSTEM (HISS)

REPLACEMENT

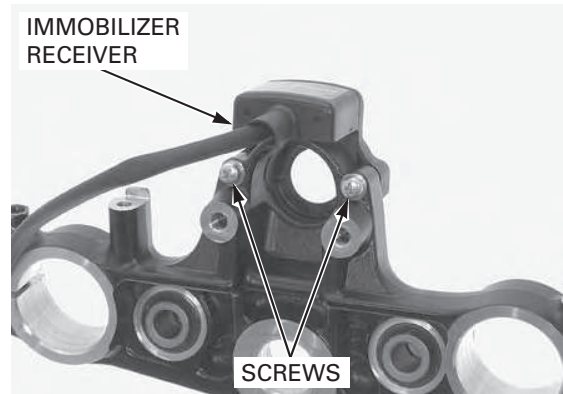
Remove the ignition switch (page 20-20).

Remove the screws and the immobilizer receiver.

Install a new receiver and tighten the screws securely.

Route the receiver wire properly (page 1-21).

Install the ignition switch (page 20-20).



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.	○				
All key have been lost, or ECM is faulty.	○		○		
Immobilizer receiver is faulty.		○			
Ignition switch is faulty.	○			○	
*Accessory lock is faulty.					○

*Accessory lock means the fuel fill cap, seat lock or handle lock.