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2009 MAZDA MX-5 / Miata OEM Service and Repair Workshop Manual

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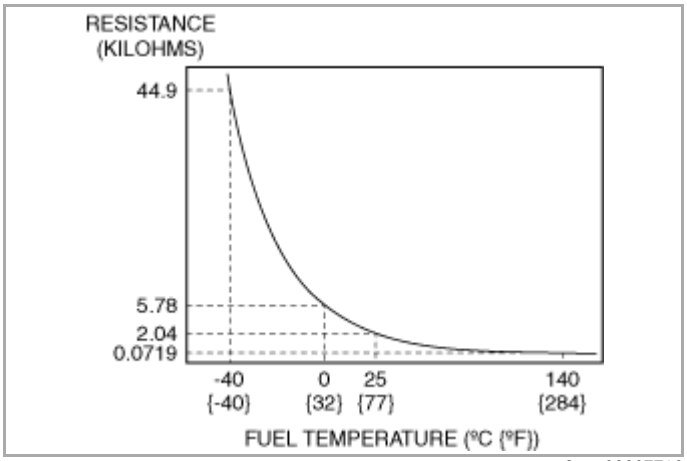
• Connection of the negative battery terminal and the current sensor connector will be done in the battery condition initial setting (i-stop setting) procedure.

4.Perform services not related to i-stop control which are required after connecting the negative battery terminal. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.)



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SWIRL CONTROL VALVE POSITION SENSOR INSPECTION [SKYACTIV-G (WITH EGR COOLER)]

SM3344946

id0140h38368m

Note

• The swirl control valve position sensor cannot be removed as a single unit. When replacing the swirl control valve position sensor, replace it together with the intake manifold as a single unit.

PID/DATA Monitor Inspection

1.Connect the M-MDS to the DLC-2.

2.Switch the ignition ON (engine off).

3.Display PCM PID [IMRC_ACT] and PCM simulation item [IMRC_DSD] using the M-MDS. (See PID/DATA MONITOR INSPECTION.)(See PCM INSPECTION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].)

4.Verify that the PID [IMRC_ACT] value conforms to the simulation item [IMRC_DSD] value when the swirl control valve opening angle simulation item [IMRC_DSD] is driven using the simulation function.

• If they cannot be verified, replace the intake manifold. (See ENGINE DISASSEMBLY/ASSEMBLY [SKYACTIV-G (WITH EGR COOLER)].)

3.Disconnect the quick release connectors and remove the evaporative hose component (fuel tank-side). (See QUICK RELEASE CONNECTOR (FUEL SYSTEM) REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].) (See CHARCOAL CANISTER REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].)

4.Switch the ignition ON (engine off).

5.Plug one end of the charcoal canister and verify that the output voltage from the fuel tank pressure sensor changes when pressure is applied from the other end.

- If not as verified, replace the charcoal canister. (See CHARCOAL CANISTER REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].)

i-stop OFF SWITCH REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)]

SM3344948

id0140h388880

Note

• The i-stop OFF switch is integrated with the cluster switch.
• For the i-stop OFF switch removal/installation, refer to “CLUSTER SWITCH REMOVAL/INSTALLATION”. (See CLUSTER SWITCH REMOVAL/INSTALLATION.)

POWER BRAKE UNIT VACUUM SENSOR INSPECTION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)]

SM3344950

id0140h388940

Function Inspection

1.Connect the M-MDS to the DLC-2.

2.Switch the ignition ON (engine off).

3.Display the PID BBP. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))].) (See PCM INSPECTION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].)

4.Compare the voltage and power brake unit vacuum indications for the PID BBP with the standard in the table indicated below.

- If they do not match the standard, replace the PCM. (See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].)
- If they match the standard, perform the voltage inspection. (See Voltage Inspection.)

Standard

BBP	
V	kPa {kgf/cm^2, psi}
Approx. 0.29	7.54 {0.0769, 1.09}
Approx. 3.81	96.7 {0.986, 14.0}

Voltage Inspection

1.Connect the M-MDS to the DLC-2.

2.Switch the ignition ON (engine off).

3.Verify that the power brake unit vacuum sensor output voltage (PID: BBP) is within the specification. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))].) (See PCM INSPECTION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].)

• If not as specified, replace the A/F sensor. (See AIR FUEL RATIO (A/F) SENSOR REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].)

A/F Sensor Heater Inspection

Warning

• A hot engine and exhaust system can cause severe burns. Turn off the engine and wait until they are cool before removing the exhaust system.

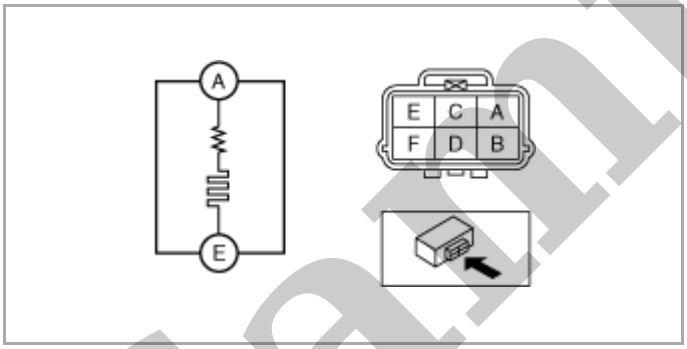
Caution

• Do not allow flammable objects such as the taping for bundling a wiring harness to come into contact with the exhaust manifold and silencer.

1.Disconnect the negative battery terminal. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.)

2.Disconnect the A/F sensor connector. (See AIR FUEL RATIO (A/F) SENSOR REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].)

3.Measure the resistance between A/F sensor terminals A and E.



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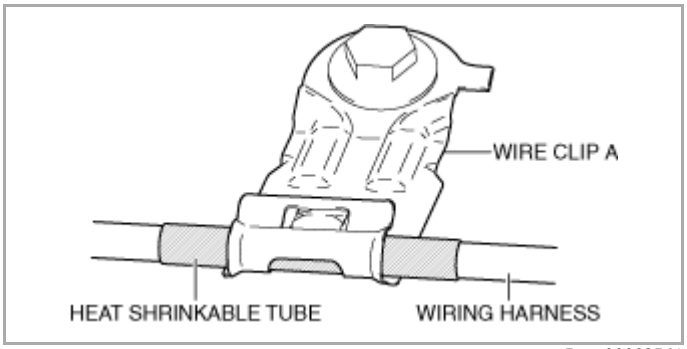
• If not as specified, replace the A/F sensor. (See AIR FUEL RATIO (A/F) SENSOR REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].)

A/F sensor heater resistance

1−10 ohms [normal temperature]



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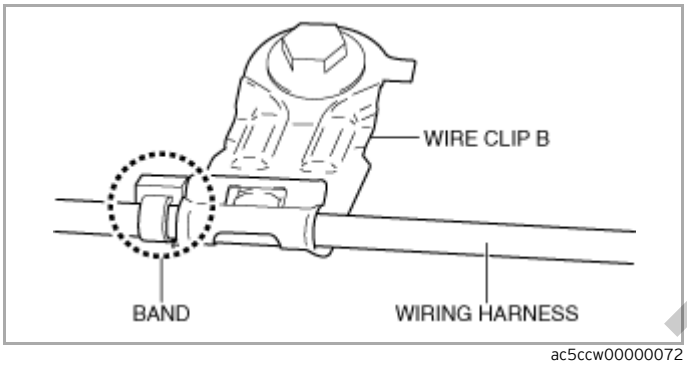
• Secure the wiring harness to wire clip B so that the band on the wiring harness is positioned to the position shown in the figure.



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ION SENSOR REMOVAL/INSTALLATION [SKYACTIV-G (WITHOUT EGR COOLER)]

SM3344951

id0140h39546m

Note

• Because the ion sensor is integrated in the ignition coil, replacing the ion sensor includes replacement of the ignition coil/ion sensor.

1.Remove the ignition coil/ion sensor. (See IGNITION COIL/ION SENSOR REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].)