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2009 MAZDA 6/Atenza Wagon OEM Service and Repair Workshop Manual

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HIGH FUEL PRESSURE SENSOR INSPECTION [SKYACTIV-G (WITH EGR COOLER)]

SM3344934

id0140h35401m

Voltage Inspection

Note

• The high fuel pressure sensor cannot be removed as a single unit. When replacing the high fuel pressure sensor, replace it together with the fuel distributor as a single unit.

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

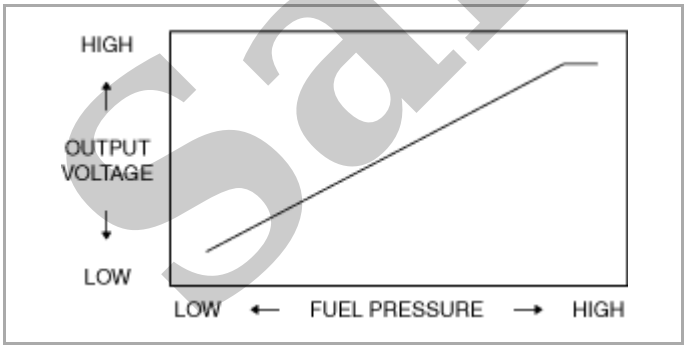
2.Switch the ignition ON (engine off).

3.Start the engine and warm it up completely.

4.Verify that the high fuel pressure sensor output voltage (PID: FUEL_PRES) is within the specification. (See PID/DATA MONITOR INSPECTION.) (See PCM INSPECTION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].)

• If not as specified, replace the fuel distributor. (See FUEL INJECTOR REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].)

Specification



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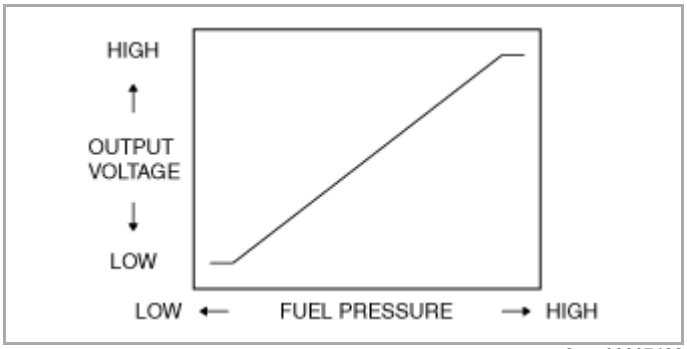

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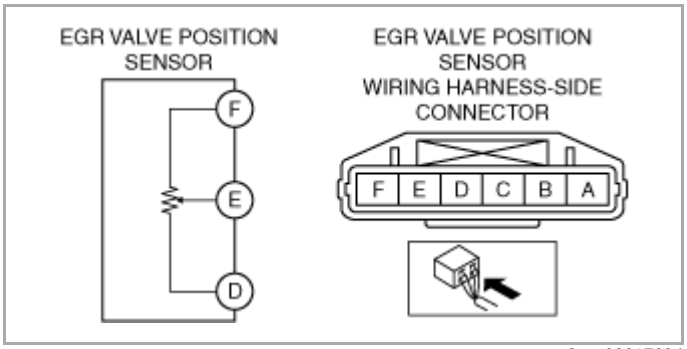

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• If the voltage is not within the standard, replace the EGR valve. (See EGR VALVE REMOVAL/INSTALLATION [SKYACTIV-G (WITH EGR COOLER)].)

Standard

1.05–1.35 V

CRANKSHAFT POSITION (CKP) SENSOR INSPECTION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)]

SM2897759

id0140h380050

Visual Inspection

Caution

• If foreign matter such as metal shaving adhere to the CKP sensor, it can cause abnormal output from the sensor because of flux turbulence, which can negatively affect the engine control. Verify that there is no foreign matter on the CKP sensor when replacing.
• Do not assemble the CKP sensor or change the installation position using any method other than the following. Otherwise, it could negatively affect engine control, such as the ignition timing and fuel injection.

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

2.Lift up the vehicle.

3.Remove the following parts for easier access.

(1)Service hole cover (installed to front under cover No.2) used to remove the oil filter (See OIL FILTER REPLACEMENT [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].)

(2)Front splash shield (RH) (See SPLASH SHIELD REMOVAL/INSTALLATION.)

4.Disconnect the CKP sensor connector.

5.Remove the CKP sensor. (See CRANKSHAFT POSITION (CKP) SENSOR REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].)

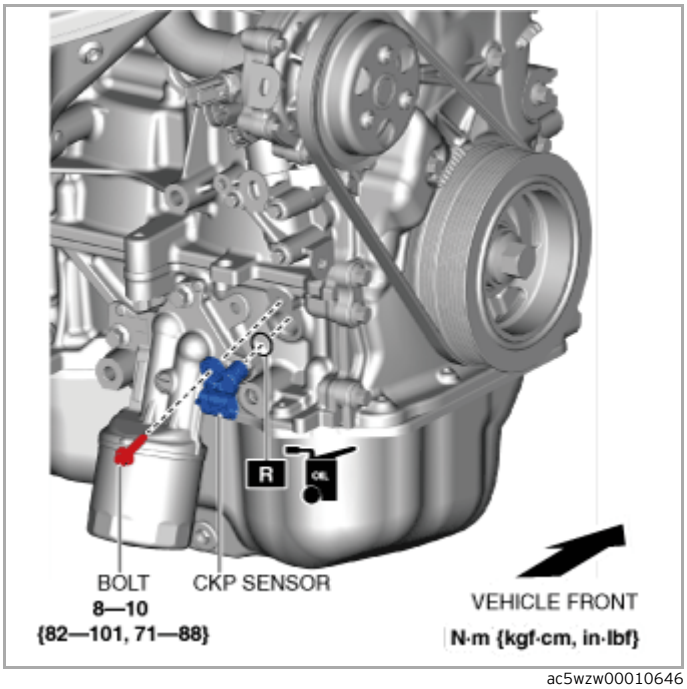
6.Verify that there are no metal shavings on the sensor.

• If there is a malfunction, remove any metal shavings that are adhering.

Voltage Inspection

Caution

• If foreign matter such as metal shaving adhere to the CKP sensor, it can cause abnormal output from the sensor because of flux turbulence, which can negatively affect the engine control. Verify that there is no foreign matter on the CKP sensor when replacing.
• Do not assemble the CKP sensor or change the installation position using any method other than the following. Otherwise, it could negatively affect engine control, such as the ignition timing and fuel injection.



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6.Install in the reverse order of removal.

MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR INSPECTION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)]

SM2897762

id0140h380090

Function Inspection

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

2.Switch the ignition ON (engine off).

3.Display the PIDs MAP_V and MAP. (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 manifold absolute pressure indications for the PIDs MAP_V and MAP with the standard in the table indicated below.

- If they do not match the standard, perform the voltage inspection. (See Voltage Inspection.)

Standard

MAP_V	MAP	Remarks
V	kPa {kgf/cm^2, psi}	
Approx. 4.04	100 {1.02, 14.5}	Ignition switched ON (engine off)
Approx. 1.40	35 {0.36, 5.1}	Idle (after warm up)
Approx. 1.01	26 {0.27, 3.8}	Racing (Engine speed: 2,000 rpm)

Voltage Inspection

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

2.Switch the ignition ON (engine off).

3.Verify that the MAP sensor output voltage (PID: MAP_V) 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 within the specification, replace the MAP sensor/IAT sensor No.2. (See MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR/INTAKE AIR TEMPERATURE (IAT) SENSOR NO.2 REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITH CYLINDER

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

SM3344939

id0140h38012m

Note

• The fuel pressure sensor cannot be removed as a single unit. When replacing the fuel pressure sensor, replace it together with the fuel distributor as a single unit.

1.Remove the fuel distributor. (See FUEL INJECTOR REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].)

CAMSHAFT POSITION (CMP) SENSOR INSPECTION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)]

SM2897766

id0140h380140

Intake CMP Sensor

Visual inspection

Caution

• When replacing the CMP sensor, make sure there is no foreign matter on it such as metal shavings. If it is installed with foreign matter, the sensor output signal will malfunction resulting from fluctuation in magnetic flux and cause a deterioration in engine control.

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

2.Remove the plug hole plate. (See PLUG HOLE PLATE REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].)

3.Disconnect the intake CMP sensor connector.

4.Remove the intake CMP sensor. (See CAMSHAFT POSITION (CMP) SENSOR REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].)

5.Verify that there are no metal shavings on the intake CMP sensor.

• If there is a malfunction, remove any metal shavings that are adhering.

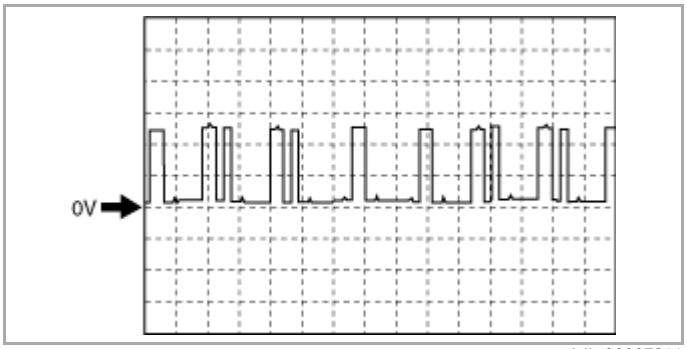
Voltage inspection

Caution

• When replacing the CMP sensor, make sure there is no foreign matter on it such as metal shavings. If it is installed with foreign matter, the sensor output signal will malfunction resulting from fluctuation in magnetic flux and cause a deterioration in engine control.
• If the wiring harnesses or waterproof connectors are damaged, water penetrating the connector will cause a sensor malfunction. To prevent this, be careful not to damage wiring harnesses or waterproof connectors.

1.Idle the engine.

2.Measure the output voltage wave pattern between intake CMP sensor terminals A and B using an oscilloscope.



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Oscilloscope setting

• 2 V/DIV (Y), 20 ms/DIV (X), DC range

Vehicle condition

• Idle (after warm up)