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2009 MAZDA 3 / Axela Sedan OEM Service and Repair Workshop Manual

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ENGINE OIL TEMPERATURE SENSOR INSPECTION [SKYACTIV-G 2.5T]

SM2897698

id0140h021680

Note

- The engine oil pressure sensor and engine oil temperature sensor cannot be removed as a single unit. When replacing the engine oil temperature sensor, replace the engine oil pressure sensor/engine oil temperature sensor.

Function inspection

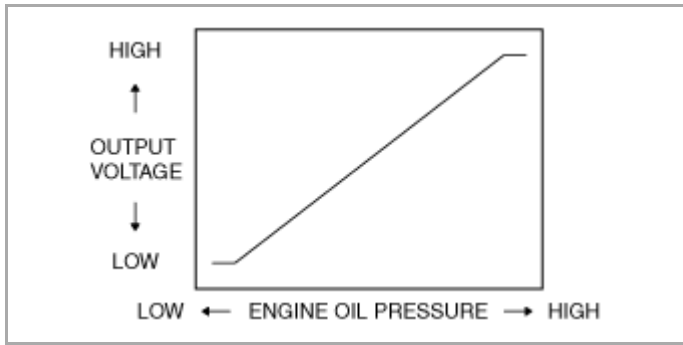
- 1.Connect the M-MDS to the DLC-2.
- 2.Switch the ignition ON (engine off).
- 3.Display the PID OIL_TEMP. (See [ON-BOARD DIAGNOSTIC TEST \[PCM \(SKYACTIV-G 2.5T\)\]](#).) (See [PCM INSPECTION \[SKYACTIV-G 2.5T\]](#).)
- 4.Compare the voltage and temperature indications for the PID OIL_TEMP with the standard in the table indicated below.
 - If they do not match the standard, perform the resistance inspection. (See [Resistance Inspection](#).)

Standard

OIL_TEMP	
V	°C {°F}
Approx. 3.02	Approx. 32 {89.6}
Approx. 1.1	Approx. 94 {201.2}

Resistance Inspection

- 1.Turn the steering wheel to full right lock.
- 2.Disconnect the negative battery terminal. (See [NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION](#).)
- 3.Lift up the vehicle.
- 4.Remove the front splash shield (RH). (See [SPLASH SHIELD REMOVAL/INSTALLATION](#).)



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Sample

BOOST PRESSURE SENSOR INSPECTION [SKYACTIV-G 2.5T]

SM2897701

id0140h021910

Function Inspection

- 1.Connect the M-MDS to the DLC-2.
- 2.Switch the ignition ON (engine off).
- 3.Display the PID INLET_PRES. (See [ON-BOARD DIAGNOSTIC TEST \[PCM \(SKYACTIV-G 2.5T\)\]](#).) (See [PCM INSPECTION \[SKYACTIV-G 2.5T\]](#).)
- 4.Compare the voltage and boost pressure indications for the PID INLET_PRES with the standard in the table indicated below.
 - If they do not match the standard, perform the voltage inspection. (See [Voltage Inspection](#).)

Standard

INLET_PRES		Remarks
V	kPa {kgf/cm ² , psi}	
Approx. 1.83	107 {1.09, 15.5}	Ignition switched ON (engine off)
Approx. 1.95	115 {1.17, 16.7}	Idle (after warm up)
Approx. 1.98	117 {1.19, 17.0}	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 boost pressure sensor output voltage (PID: INLET_PRES) is within the specification. (See [ON-BOARD DIAGNOSTIC TEST \[PCM \(SKYACTIV-G 2.5T\)\]](#).) (See [PCM INSPECTION \[SKYACTIV-G 2.5T\]](#).)
 - If not as specified, replace the boost pressure sensor/boost air temperature sensor. (See [BOOST PRESSURE SENSOR/BOOST AIR TEMPERATURE SENSOR REMOVAL/INSTALLATION \[SKYACTIV-G 2.5T\]](#).)

Specification (Reference)

- If the voltage is not within the specification, replace the exhaust gas pressure sensor. (See [EXHAUST GAS PRESSURE SENSOR REMOVAL/INSTALLATION \[SKYACTIV-G 2.5T\].](#))

Specification (Reference)

Approx. 1.03 V

Sample

WASTEGATE VALVE POSITION SENSOR REMOVAL/INSTALLATION [SKYACTIV-G 2.5T]

SM2897705

id0140h049870

Note

- The wastegate valve position sensor is integrated in the wastegate valve actuator.
- The wastegate valve actuator cannot be removed as a single unit. When replacing the wastegate valve actuator, replace it together with the dynamic pressure turbo as a single unit.

1.Remove the dynamic pressure turbo. (See [DYNAMIC PRESSURE TURBO REMOVAL/INSTALLATION \[SKYACTIV-G 2.5T\]](#).)

ENGINE OIL LEVEL SENSOR INSPECTION [SKYACTIV-G 2.5T]

SM2897707

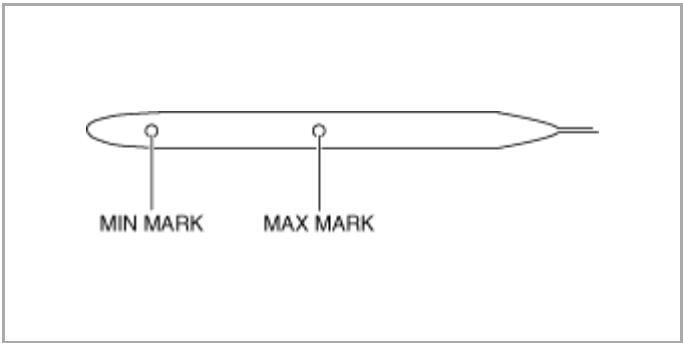
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PID/DATA Monitor Inspection

1. Verify that there is no engine oil leakage.
 - If there is any malfunction, repair or replace the malfunctioning part according to the inspection results.
2. Inspect the engine oil level. (See [ENGINE OIL LEVEL INSPECTION \[SKYACTIV-G 2.5T\]](#).)
3. Connect the M-MDS to the DLC-2.
4. Switch the ignition ON (engine off).
5. Access the PID/DATA monitor item OIL_LEVEL using the M-MDS. (See [ON-BOARD DIAGNOSTIC TEST \[PCM \(SKYACTIV-G 2.5T\)\]](#).)
6. Verify that the PID OIL_LEVEL value and the engine oil amount measured using the dipstick are same.

Engine oil level sensor output value (Reference)

PID OIL_LEVEL value		Measurable upper limit value of engine oil level sensor
Dipstick level: MIN	Dipstick level: MAX	
Approx. 55 mm {2.2 in}	Approx. 72 mm {2.8 in}	74 mm {2.9 in}



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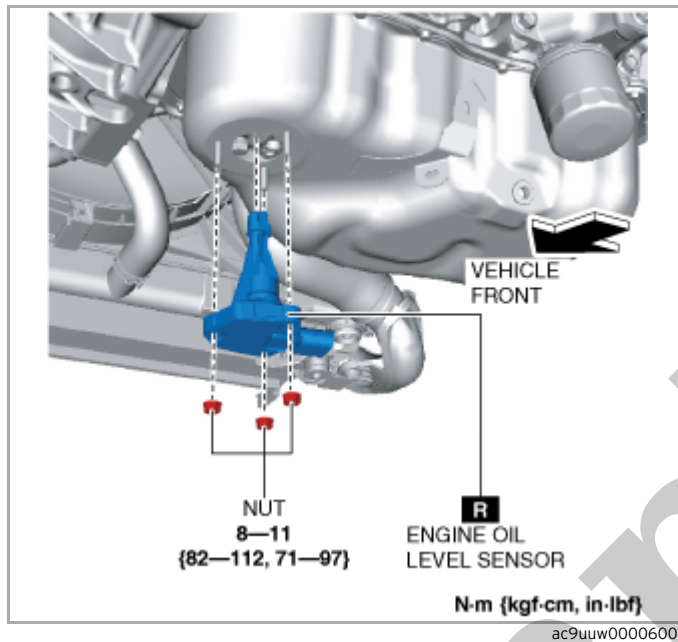
Note

- Due to the structure of the engine oil level sensor, a value exceeding the measurable upper limit value may be detected. If the oil level gauge is the upper limit position or more and the engine oil level sensor output value exceeds the measurable upper

7. Disconnect the short cord connector.

8. Remove the short cord.

9. Remove the nuts.



10. Remove the engine oil level sensor.

11. Install in the reverse order of removal.

12. Refill with the specified type and amount of the engine oil. (See [ENGINE OIL REPLACEMENT \[SKYACTIV-G 2.5T\]](#).)

13. Start the engine and confirm that there is no oil leakage.

- If there is oil leakage, repair or replace the malfunctioning part according to the inspection results.

14. Inspect the engine oil level. (See [ENGINE OIL LEVEL INSPECTION \[SKYACTIV-G 2.5T\]](#).)

HIGH FUEL PRESSURE SENSOR INSPECTION [SKYACTIV-G 2.5T]

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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.

Function Inspection

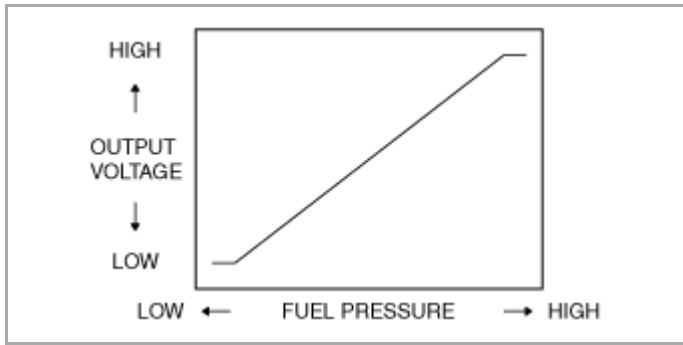
- 1.Connect the M-MDS to the DLC-2.
- 2.Switch the ignition ON (engine off).
- 3.Display the PID FUEL_PRES. (See [ON-BOARD DIAGNOSTIC TEST \[PCM \(SKYACTIV-G 2.5T\)\]](#).) (See [PCM INSPECTION \[SKYACTIV-G 2.5T\]](#).)
- 4.Compare the voltage and fuel pressure indications for the PID FUEL_PRES with the standard in the table indicated below.
 - If they do not match the standard, perform the voltage inspection. (See [Voltage Inspection](#).)

Standard

FUEL_PRES		Remarks
V	MPa {kgf/cm ² , psi}	
Approx. 0.98–1.05	3.44–3.95 {35.1–40.2, 499–572}	Idle (after warm up)

Voltage Inspection

- 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 [ON-BOARD DIAGNOSTIC TEST \[PCM \(SKYACTIV-G 2.5T\)\]](#).) (See [PCM INSPECTION \[SKYACTIV-G 2.5T\]](#).)



Sample