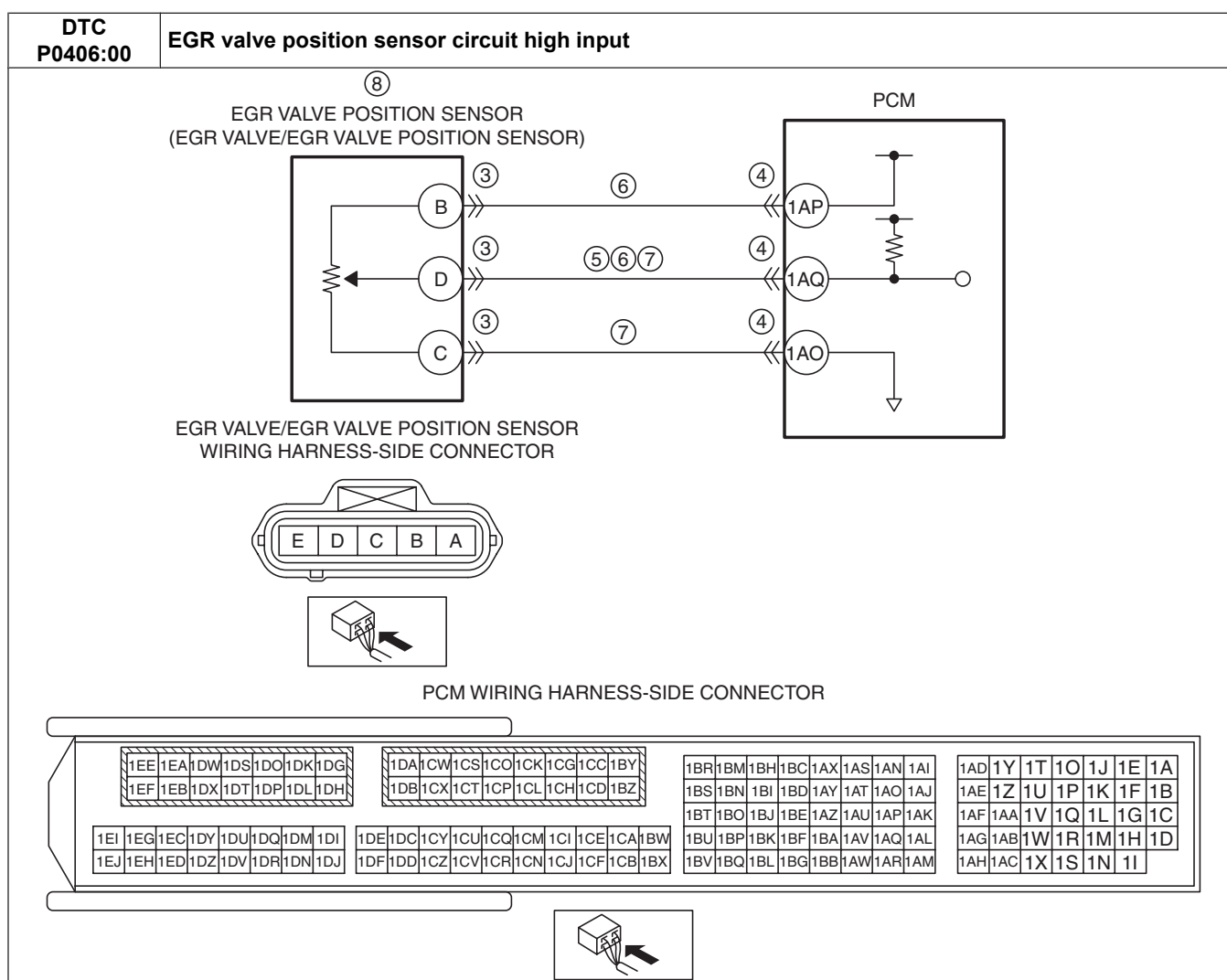


**DTC P0406:00 [SKYACTIV-D 2.2]**

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<b>DTC P0406:00</b>	<b>EGR valve position sensor circuit high input</b>
<b>DETECTION CONDITION</b>	<ul style="list-style-type: none"><li>• If the input voltage at the PCM terminal 1AQ is <b>more than 4.9 V</b> for <b>1 s</b>, the PCM determines that the EGR valve position sensor circuit is high.</li></ul> <b>MONITORING CONDITIONS</b> <ul style="list-style-type: none"><li>— Battery voltage: <b>8—20 V</b></li></ul> <b>Diagnostic support note</b> <ul style="list-style-type: none"><li>• This is a continuous monitor (CCM).</li><li>• The check engine light illuminates if the PCM detects the above malfunction condition during the first drive cycle.</li><li>• FREEZE FRAME DATA (Mode 2)/Snapshot data is available.</li><li>• DTC is stored in the PCM memory.</li></ul>
<b>FAIL-SAFE FUNCTION</b>	<ul style="list-style-type: none"><li>• PCM restricts engine torque.</li><li>• Inhibits the two-stage turbo control.</li><li>• Inhibits the EGR control.</li><li>• Inhibits the diesel particulate filter regeneration control.</li><li>• Inhibits engine-stop by operating the i-stop function.</li><li>• PCM restricts engine-transaxle integration control.</li></ul>
<b>POSSIBLE CAUSE</b>	<ul style="list-style-type: none"><li>• EGR valve/EGR valve position sensor connector or terminals malfunction</li><li>• PCM connector or terminals malfunction</li><li>• Short to power supply in wiring harness between EGR valve/EGR valve position sensor terminal D and PCM terminal 1AQ</li><li>• EGR valve position sensor power supply circuit and signal circuit are shorted to each other</li><li>• Open circuit in wiring harness between the following terminals:<ul style="list-style-type: none"><li>— EGR valve/EGR valve position sensor terminal D—PCM terminal 1AQ</li><li>— EGR valve/EGR valve position sensor terminal C—PCM terminal 1AO</li></ul></li><li>• EGR valve position sensor malfunction</li><li>• PCM malfunction</li></ul>



## Diagnostic Procedure

STEP	INSPECTION	ACTION	
1	<b>VERIFY FREEZE FRAME DATA (MODE 2)/ SNAPSHOT DATA HAS BEEN RECORDED</b> • Has the FREEZE FRAME DATA (Mode 2)/ snapshot data been recorded?	Yes	Go to the next step.
		No	Record the FREEZE FRAME DATA (Mode 2)/snapshot data on the repair order, then go to the next step.
2	<b>VERIFY RELATED SERVICE INFORMATION AVAILABILITY</b> • Verify related Service Information availability. • Is any related Service Information available?	Yes	Perform repair or diagnosis according to the available Service Information. • If the vehicle is not repaired, go to the next step.
		No	Go to the next step.
3	<b>INSPECT EGR VALVE/EGR VALVE POSITION SENSOR CONNECTOR CONDITION</b> • Switch the ignition off. • Disconnect the EGR valve/EGR valve position sensor connector. • Inspect for poor connection (such as damaged/ pulled-out pins, corrosion). • Is there any malfunction?	Yes	Repair or replace the connector and/or terminals, then go to Step 9.
		No	Go to the next step.
4	<b>INSPECT PCM CONNECTOR CONDITION</b> • Disconnect the PCM connector. • Inspect for poor connection (such as damaged/ pulled-out pins, corrosion). • Is there any malfunction?	Yes	Repair or replace the connector and/or terminals, then go to Step 9.
		No	Go to the next step.

STEP	INSPECTION	ACTION	
5	<b>INSPECT EGR VALVE/EGR VALVE POSITION SENSOR CIRCUIT FOR SHORT TO POWER SUPPLY</b> <ul style="list-style-type: none"> <li>• Verify that the EGR valve/EGR valve position sensor and PCM connectors are disconnected.</li> <li>• Switch the ignition ON (engine off).</li> <li>• Measure the voltage at the EGR valve/EGR valve position sensor terminal D (wiring harness-side).</li> <li>• Is the voltage <b>0 V</b>?</li> </ul>	Yes	Go to the next step.
		No	Repair or replace the wiring harness for a possible short to power supply, then go to Step 9.
6	<b>INSPECT EGR VALVE POSITION SENSOR POWER SUPPLY CIRCUIT AND SIGNAL CIRCUIT FOR SHORT TO EACH OTHER</b> <ul style="list-style-type: none"> <li>• Verify that the EGR valve/EGR valve position sensor and PCM connectors are disconnected.</li> <li>• Switch the ignition off.</li> <li>• Inspect for continuity between EGR valve/EGR valve position sensor terminals B and D (wiring harness-side).</li> <li>• Is there continuity?</li> </ul>	Yes	Repair or replace the wiring harness for a possible short to each other, then go to Step 9.
		No	Go to the next step.
7	<b>INSPECT EGR VALVE POSITION SENSOR CIRCUIT FOR OPEN CIRCUIT</b> <ul style="list-style-type: none"> <li>• Verify that the EGR valve/EGR valve position sensor and PCM connectors are disconnected.</li> <li>• Inspect for continuity between the following terminals (wiring harness-side): <ul style="list-style-type: none"> <li>— EGR valve/EGR valve position sensor terminal D—PCM terminal 1AQ</li> <li>— EGR valve/EGR valve position sensor terminal C—PCM terminal 1AO</li> </ul> </li> <li>• Is there continuity?</li> </ul>	Yes	Go to the next step.
		No	Repair or replace the wiring harness for a possible open circuit, then go to Step 9.
8	<b>INSPECT EGR VALVE POSITION SENSOR</b> <ul style="list-style-type: none"> <li>• Reconnect all disconnected connectors.</li> <li>• Inspect the EGR valve position sensor. (See EGR VALVE POSITION SENSOR INSPECTION [SKYACTIV-D 2.2].)</li> <li>• Is there any malfunction?</li> </ul>	Yes	Replace the EGR valve, then go to the next step. (See EGR VALVE REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
		No	Go to the next step.
9	<b>VERIFY DTC TROUBLESHOOTING COMPLETED</b> <ul style="list-style-type: none"> <li>• Always reconnect all disconnected connectors.</li> <li>• Clear the DTC from the PCM memory using the M-MDS. (See AFTER REPAIR PROCEDURE [SKYACTIV-D 2.2].)</li> <li>• Perform the KOEO or KOER self test. (See KOEO/KOER SELF TEST [SKYACTIV-D 2.2].)</li> <li>• Is the same DTC present?</li> </ul>	Yes	Repeat the inspection from Step 1. • If the malfunction recurs, replace the PCM. (See PCM REMOVAL/INSTALLATION [SKYACTIV-D 2.2].) Go to the next step.
		No	Go to the next step.
10	<b>VERIFY AFTER REPAIR PROCEDURE</b> <ul style="list-style-type: none"> <li>• Perform the "AFTER REPAIR PROCEDURE". (See AFTER REPAIR PROCEDURE [SKYACTIV-D 2.2].)</li> <li>• Are any DTCs present?</li> </ul>	Yes	Go to the applicable DTC inspection. (See DTC TABLE [SKYACTIV-D 2.2].)
		No	DTC troubleshooting completed.