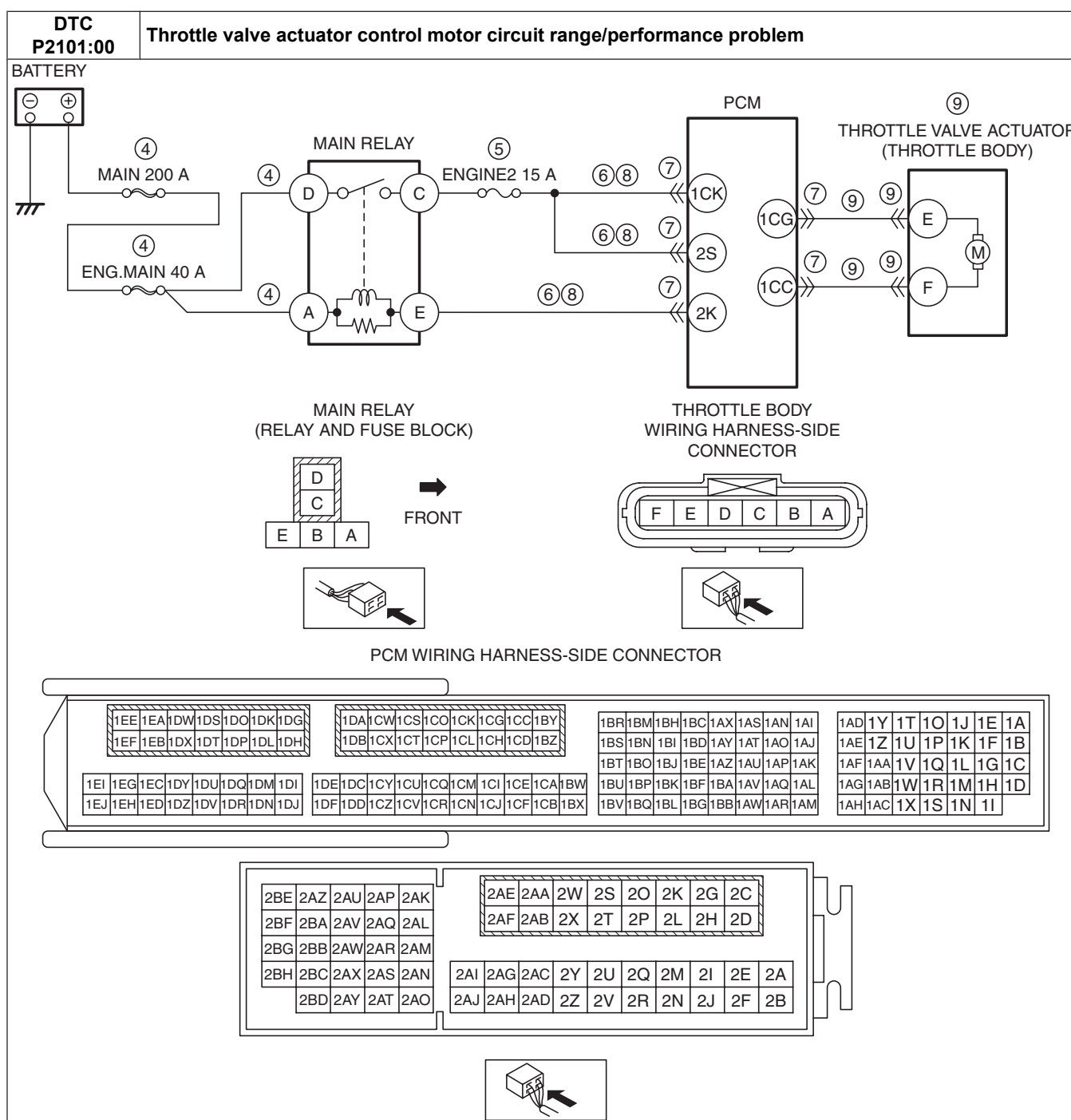


**DTC P2101:00 [SKYACTIV-G 2.0, SKYACTIV-G 2.5]**

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<b>DTC P2101:00</b>	<b>Throttle valve actuator control motor circuit range/performance problem</b>
<b>DETECTION CONDITION</b>	<ul style="list-style-type: none"><li>• The PCM turns the main relay on, but if the input voltage is <b>6.0 V or less</b>, then the PCM determines that the main relay control circuit voltage is low.</li><li>• There is a system error in the electrical throttle control system of the PCM.</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>• Restricts the upper limit of the engine speed.</li><li>• Stops drive-by-wire control (throttle valve is open at <b>approx. 8 °</b> by return spring force)</li></ul>
<b>POSSIBLE CAUSE</b>	<ul style="list-style-type: none"><li>• Short to ground or open circuit in main relay power supply circuit:<ul style="list-style-type: none"><li>— MAIN 200 A fuse and/or ENG.MAIN 40 A fuse malfunction</li></ul></li><li>• ENGINE2 15 A fuse malfunction</li><li>• Short to ground in wiring harness between the following terminals:<ul style="list-style-type: none"><li>— Main relay terminal C—PCM terminal 1CK</li><li>— Main relay terminal C—PCM terminal 2S</li><li>— Main relay terminal E—PCM terminal 2K</li></ul></li><li>• PCM connector or terminals malfunction</li><li>• Open circuit in wiring harness between the following terminals:<ul style="list-style-type: none"><li>— Main relay terminal C—PCM terminal 1CK</li><li>— Main relay terminal C—PCM terminal 2S</li><li>— Main relay terminal E—PCM terminal 2K</li></ul></li><li>• Throttle valve actuator and/or related circuit malfunction</li><li>• Throttle valve actuator 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.

STEP	INSPECTION	ACTION	
3	<b>VERIFY RELATED PENDING CODE AND/OR DTC</b> <ul style="list-style-type: none"> <li>Switch the ignition off, then ON (engine off).</li> <li>Perform the Pending Trouble Code Access Procedure and DTC Reading Procedure. (See ON-BOARD DIAGNOSTIC TEST [SKYACTIV-G 2.0, SKYACTIV-G 2.5].)</li> <li>Are any other PENDING CODEs and/or DTCs present?</li> </ul>	Yes	Go to the applicable PENDING CODE or DTC inspection. (See DTC TABLE [SKYACTIV-G 2.0, SKYACTIV-G 2.5].)
		No	Go to the next step.
4	<b>INSPECT MAIN RELAY POWER SUPPLY CIRCUIT FOR SHORT TO GROUND OR OPEN CIRCUIT</b> <ul style="list-style-type: none"> <li>Switch the ignition off.</li> <li>Remove the main relay.</li> <li>Measure the voltage at the following terminals (wiring harness-side): <ul style="list-style-type: none"> <li>Main relay terminal D</li> <li>Main relay terminal A</li> </ul> </li> <li>Is the voltage <b>B+</b>?</li> </ul>	Yes	Go to the next step.
		No	Inspect the MAIN 200 A fuse and ENG.MAIN 40 A fuse. <ul style="list-style-type: none"> <li>If the fuse is blown: <ul style="list-style-type: none"> <li>Repair or replace the wiring harness for a possible short to ground.</li> <li>Replace the malfunctioning fuse.</li> </ul> </li> <li>If the fuse is deteriorated: <ul style="list-style-type: none"> <li>Replace the malfunctioning fuse.</li> </ul> </li> <li>If all fuses are normal: <ul style="list-style-type: none"> <li>Repair or replace the wiring harness for a possible open circuit.</li> </ul> </li> </ul> Go to Step 10.
5	<b>INSPECT ENGINE2 15 A FUSE</b> <ul style="list-style-type: none"> <li>Remove the ENGINE2 15 A fuse.</li> <li>Inspect the ENGINE2 15 A fuse.</li> <li>Is there any malfunction?</li> </ul>	Yes	If the fuse is blown: <ul style="list-style-type: none"> <li>Repair or replace the wiring harness for a possible short to ground.</li> <li>Replace the fuse.</li> </ul> If the fuse is deteriorated: <ul style="list-style-type: none"> <li>Replace the fuse.</li> </ul> Go to Step 10.
		No	Reinstall the ENGINE2 15 A fuse, then go to the next step.
6	<b>INSPECT MAIN RELAY CIRCUIT FOR SHORT TO GROUND</b> <ul style="list-style-type: none"> <li>Main relay is removed.</li> <li>Inspect for continuity between the following terminals (wiring harness-side) and body ground: <ul style="list-style-type: none"> <li>Main relay terminal C</li> <li>Main relay terminal E</li> </ul> </li> <li>Is there continuity?</li> </ul>	Yes	If the short to ground circuit could be detected in the wiring harness: <ul style="list-style-type: none"> <li>Repair or replace the wiring harness for a possible short to ground.</li> </ul> If the short to ground circuit could not be detected in the wiring harness: <ul style="list-style-type: none"> <li>Replace the PCM (short to ground in the PCM internal circuit). (See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].)</li> </ul> Go to Step 10.
		No	Go to the next step.
7	<b>INSPECT PCM CONNECTOR CONDITION</b> <ul style="list-style-type: none"> <li>Disconnect the PCM connector.</li> <li>Inspect for poor connection (such as damaged/ pulled-out pins, corrosion).</li> <li>Is there any malfunction?</li> </ul>	Yes	Repair or replace the connector and/or terminals, then go to Step 10.
		No	Go to the next step.
8	<b>INSPECT MAIN RELAY CIRCUIT FOR OPEN CIRCUIT</b> <ul style="list-style-type: none"> <li>Main relay is removed.</li> <li>Verify that the PCM connector is disconnected.</li> <li>Inspect for continuity between the following terminals (wiring harness-side): <ul style="list-style-type: none"> <li>Main relay terminal C—PCM terminal 1CK</li> <li>Main relay terminal C—PCM terminal 2S</li> <li>Main relay terminal E—PCM terminal 2K</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 10.

STEP	INSPECTION		ACTION
9	<b>INSPECT THROTTLE VALVE ACTUATOR</b> <ul style="list-style-type: none"> <li>Inspect the throttle valve actuator. (See ENGINE CONTROL SYSTEM OPERATION INSPECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].)</li> <li>(See THROTTLE BODY INSPECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].)</li> <li>Is there any malfunction?</li> </ul>	Yes	Inspect the throttle valve actuator related circuits and connectors. <ul style="list-style-type: none"> <li>If there is any malfunction:               <ul style="list-style-type: none"> <li>Repair or replace the malfunctioning part according to the inspection results.</li> </ul> </li> <li>If there is no malfunction:               <ul style="list-style-type: none"> <li>Replace the throttle body. (See INTAKE-AIR SYSTEM REMOVAL/INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].)</li> </ul> </li> </ul> Go to the next step.
		No	Go to the next step.
10	<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-G 2.0, SKYACTIV-G 2.5].)</li> <li>Perform the KOEO self test. (See KOEO/KOER SELF TEST [SKYACTIV-G 2.0, SKYACTIV-G 2.5].)</li> <li>Is the same DTC present?</li> </ul>	Yes	Repeat the inspection from Step 1. <ul style="list-style-type: none"> <li>If the malfunction recurs, replace the PCM. (See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].)</li> </ul> Go to the next step.
		No	Go to the next step.
11	<b>VERIFY AFTER REPAIR PROCEDURE</b> <ul style="list-style-type: none"> <li>Perform the "AFTER REPAIR PROCEDURE". (See AFTER REPAIR PROCEDURE [SKYACTIV-G 2.0, SKYACTIV-G 2.5].)</li> <li>Are any DTCs present?</li> </ul>	Yes	Go to the applicable DTC inspection. (See DTC TABLE [SKYACTIV-G 2.0, SKYACTIV-G 2.5].)
		No	DTC troubleshooting completed.