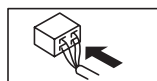
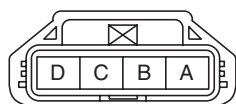
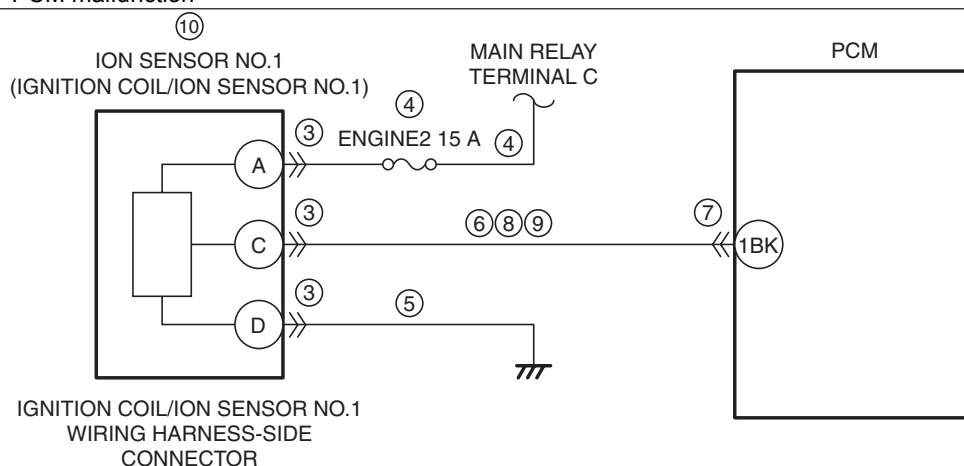


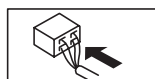
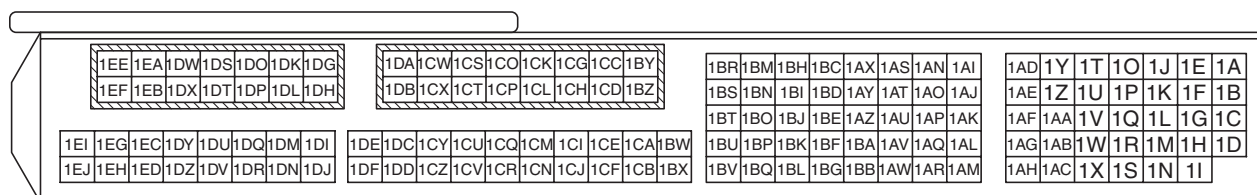
**DTC P2302:00 [SKYACTIV-G 2.0, SKYACTIV-G 2.5]**

id0102h4743000

<b>DTC P2302:00</b>	<b>Ion sensor No.1 circuit problem</b>
<b>DETECTION CONDITION</b>	<ul style="list-style-type: none"> <li>• After the engine is started, when the engine speed is <b>2,000 rpm or less</b>, the signal input to the PCM from ion sensor No.1 is in error.</li> </ul> <p><b>Diagnostic support note</b></p> <ul style="list-style-type: none"> <li>• This is a continuous monitor (other).</li> <li>• The check engine light does not illuminate.</li> <li>• FREEZE FRAME DATA (Mode 2)/Snapshot data is not available.</li> <li>• DTC is stored in the PCM memory.</li> </ul>
<b>FAIL-SAFE FUNCTION</b>	Not applicable
<b>POSSIBLE CAUSE</b>	<ul style="list-style-type: none"> <li>• Cylinder No.1 misfire</li> <li>• Ignition coil/ion sensor No.1 connector or terminals malfunction</li> <li>• Short to ground or open circuit in ion sensor No.1 power supply circuit             <ul style="list-style-type: none"> <li>— Short to ground in wiring harness between ENGINE2 15 A fuse and ignition coil/ion sensor No.1 terminal A</li> <li>— ENGINE2 15 A fuse malfunction</li> <li>— Open circuit in wiring harness between main relay terminal C and ignition coil/ion sensor No.1 terminal A</li> </ul> </li> <li>• Open circuit in wiring harness between ignition coil/ion sensor No.1 terminal D and body ground</li> <li>• Short to ground in wiring harness between ignition coil/ion sensor No.1 terminal C and PCM terminal 1BK</li> <li>• PCM connector or terminals malfunction</li> <li>• Short to power supply in wiring harness between ignition coil/ion sensor No.1 terminal C and PCM terminal 1BK</li> <li>• Open circuit in wiring harness between ignition coil/ion sensor No.1 terminal C and PCM terminal 1BK</li> <li>• Ion sensor No.1 malfunction</li> <li>• PCM malfunction</li> </ul>



PCM WIRING HARNESS-SIDE CONNECTOR



## Diagnostic Procedure

STEP	INSPECTION		ACTION
1	<b>VERIFY RELATED SERVICE INFORMATION AVAILABILITY</b> <ul style="list-style-type: none"> <li>• Verify related Service Information availability.</li> <li>• Is any related Service Information available?</li> </ul>	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.
2	<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>• Is the PENDING CODE/DTC P0301:00 also present?</li> </ul>	Yes	Go to the applicable PENDING CODE or DTC inspection. (See DTC P0301:00, P0302:00, P0303:00, P0304:00 [SKYACTIV-G 2.0, SKYACTIV-G 2.5].)
		No	Go to the next step.
3	<b>INSPECT IGNITION COIL/ION SENSOR NO.1 CONNECTOR CONDITION</b> <ul style="list-style-type: none"> <li>• Switch the ignition off.</li> <li>• Disconnect the ignition coil/ion sensor No.1 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 11.
		No	Go to the next step.
4	<b>INSPECT ION SENSOR NO.1 POWER SUPPLY CIRCUIT FOR SHORT TO GROUND OR OPEN CIRCUIT</b> <ul style="list-style-type: none"> <li>• Verify that the ignition coil/ion sensor No.1 connector is disconnected.</li> <li>• Switch the ignition ON (engine off).</li> <li>• Measure the voltage at the ignition coil/ion sensor No.1 terminal A (wiring harness-side).</li> <li>• Is the voltage <b>B+</b>?</li> </ul>	Yes	Go to the next step.
		No	Inspect the ENGINE2 15 A fuse. • If the fuse is blown: — Repair or replace the wiring harness for a possible short to ground. — Replace the fuse. • If the fuse is deteriorated: — Replace the fuse. • If the fuse is normal: — Repair or replace the wiring harness for a possible open circuit. Go to Step 11.
5	<b>INSPECT ION SENSOR NO.1 GROUND CIRCUIT FOR OPEN CIRCUIT</b> <ul style="list-style-type: none"> <li>• Verify that the ignition coil/ion sensor No.1 connector is disconnected.</li> <li>• Switch the ignition off.</li> <li>• Inspect for continuity between ignition coil/ion sensor No.1 terminal D (wiring harness-side) and body ground.</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 11.
6	<b>INSPECT ION SENSOR NO.1 SIGNAL CIRCUIT FOR SHORT TO GROUND</b> <ul style="list-style-type: none"> <li>• Verify that the ignition coil/ion sensor No.1 connector is disconnected.</li> <li>• Inspect for continuity between ignition coil/ion sensor No.1 terminal C (wiring harness-side) and body ground.</li> <li>• Is there continuity?</li> </ul>	Yes	If the short to ground circuit could be detected in the wiring harness: • Repair or replace the wiring harness for a possible short to ground. If the short to ground circuit could not be detected in the wiring harness: • Replace the PCM (short to ground in the PCM internal circuit). (See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) Go to Step 11.
		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 11.
		No	Go to the next step.

STEP	INSPECTION	ACTION	
8	<b>INSPECT ION SENSOR NO.1 SIGNAL CIRCUIT FOR SHORT TO POWER SUPPLY</b> <ul style="list-style-type: none"> <li>• Verify that the ignition coil/ion sensor No.1 and PCM connectors are disconnected.</li> <li>• Switch the ignition ON (engine off).</li> <li>• Measure the voltage at the ignition coil/ion sensor No.1 terminal C (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 11.
9	<b>INSPECT ION SENSOR NO.1 SIGNAL CIRCUIT FOR OPEN CIRCUIT</b> <ul style="list-style-type: none"> <li>• Verify that the ignition coil/ion sensor No.1 and PCM connectors are disconnected.</li> <li>• Switch the ignition off.</li> <li>• Inspect for continuity between ignition coil/ion sensor No.1 terminal C (wiring harness-side) and PCM terminal 1BK (wiring harness-side).</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 11.
10	<b>INSPECT ION SENSOR NO.1</b> <ul style="list-style-type: none"> <li>• Inspect the ion sensor No.1. (See ION SENSOR INSPECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].)</li> <li>• Is there any malfunction?</li> </ul>	Yes	Replace the ignition coil/ion sensor No.1, then go to the next step. (See IGNITION COIL/ION SENSOR REMOVAL/INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].)
		No	Go to the next step.
11	<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>• Start the engine.</li> <li>• Perform the KOER 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. • If the malfunction recurs, replace the PCM. (See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) Go to the next step.
		No	Go to the next step.
12	<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.