

DTC P2308:00	Ion sensor No.3 circuit problem
DETECTION CONDITION	<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.3 is in error.</li></ul> <b>Diagnostic support note</b> <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>The DTC is stored in the PCM memory.</li></ul>
FAIL-SAFE FUNCTION	—
POSSIBLE CAUSE	<ul style="list-style-type: none"><li>Cylinder No.3 misfire</li><li>Ignition coil/ion sensor No.3 connector or terminals malfunction</li><li>Short to ground or open circuit in ion sensor No.3 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.3 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.3 terminal A</li></ul></li><li>Open circuit in wiring harness between ignition coil/ion sensor No.3 terminal D and body ground</li><li>Short to ground in wiring harness between ignition coil/ion sensor No.3 terminal C and PCM terminal 1BA</li><li>PCM connector or terminals malfunction</li><li>Short to power supply in wiring harness between ignition coil/ion sensor No.3 terminal C and PCM terminal 1BA</li><li>Open circuit in wiring harness between ignition coil/ion sensor No.3 terminal C and PCM terminal 1BA</li><li>Ion sensor No.3 malfunction</li><li>PCM malfunction</li></ul>

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ION SENSOR NO.3  
(IGNITION COIL/ION SENSOR NO.3)

MAIN RELAY  
TERMINAL C

PCM

IGNITION COIL/ION SENSOR NO.3  
WIRING HARNESS-SIDE  
CONNECTOR

PCM WIRING HARNESS-SIDE CONNECTOR

1EE	1EA	1DW	1DS	1DO	1DK	1DG
1EF	1EB	1DX	1DT	1DP	1DL	1DH

1DA	1CW	1CS	1CO	1CK	1CG	1CC	1BY
1DB	1CX	1CT	1CP	1CL	1CH	1CD	1BZ

1BR	1BM	1BH	1BC	1AX	1AS	1AN	1AI
1BS	1BN	1BI	1BD	1AY	1AT	1AO	1AJ
1BT	1BO	1BJ	1BE	1AZ	1AU	1AP	1AK
1BU	1BP	1BK	1BF	1BA	1AV	1AQ	1AL
1BV	1BQ	1BL	1BG	1BB	1AW	1AR	1AM

1AD	1Y	1T	1O	1J	1E	1A
1AE	1Z	1U	1P	1K	1F	1B
1AF	1AA	1V	1Q	1L	1G	1C
1AG	1AB	1W	1R	1M	1H	1D
1AH	1AC	1X	1S	1N	1I	

## 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 to off, then to 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].)</li> <li>• Is the PENDING CODE/DTC P0303:00 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].)
		No	Go to the next step.
3	<b>INSPECT IGNITION COIL/ION SENSOR NO.3 CONNECTOR CONDITION</b> <ul style="list-style-type: none"> <li>• Switch the ignition to off.</li> <li>• Disconnect the ignition coil/ion sensor No.3 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.3 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.3 connector is disconnected.</li> <li>• Switch the ignition ON (engine off or on).</li> <li>• Measure the voltage at the ignition coil/ion sensor No.3 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.3 GROUND CIRCUIT FOR OPEN CIRCUIT</b> <ul style="list-style-type: none"> <li>• Verify that the ignition coil/ion sensor No.3 connector is disconnected.</li> <li>• Switch the ignition to off.</li> <li>• Inspect for continuity between ignition coil/ion sensor No.3 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.3 SIGNAL CIRCUIT FOR SHORT TO GROUND</b> <ul style="list-style-type: none"> <li>• Verify that the ignition coil/ion sensor No.3 connector is disconnected.</li> <li>• Inspect for continuity between ignition coil/ion sensor No.3 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].) 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.3 SIGNAL CIRCUIT FOR SHORT TO POWER SUPPLY</b> <ul style="list-style-type: none"> <li>• Verify that the ignition coil/ion sensor No.3 and PCM connectors are disconnected.</li> <li>• Switch the ignition ON (engine off or on).</li> <li>• Measure the voltage at the ignition coil/ion sensor No.3 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.3 SIGNAL CIRCUIT FOR OPEN CIRCUIT</b> <ul style="list-style-type: none"> <li>• Verify that the ignition coil/ion sensor No.3 and PCM connectors are disconnected.</li> <li>• Switch the ignition to off.</li> <li>• Inspect for continuity between ignition coil/ion sensor No.3 terminal C (wiring harness-side) and PCM terminal 1BA (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.3</b> <ul style="list-style-type: none"> <li>• Inspect the ion sensor No.3. (See ION SENSOR INSPECTION [SKYACTIV-G 2.0].)</li> <li>• Is there any malfunction?</li> </ul>	Yes	Replace the ignition coil/ion sensor No.3, then go to the next step. (See IGNITION COIL/ION SENSOR REMOVAL/ INSTALLATION [SKYACTIV-G 2.0].)
		No	Go to the next step.
11	<b>VERIFY DTC TROUBLESHOOTING COMPLETED</b> <ul style="list-style-type: none"> <li>• Make sure to 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].)</li> <li>• Start the engine.</li> <li>• Perform the KOER self test. (See KOEO/KOER SELF TEST [SKYACTIV-G 2.0].)</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].) 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].)</li> <li>• Are any DTCs present?</li> </ul>	Yes	Go to the applicable DTC inspection. (See DTC TABLE [SKYACTIV-G 2.0].)
		No	DTC troubleshooting completed.