

DTC P2311:00	Ion sensor No.4 circuit problem
DETECTION CONDITION	<ul style="list-style-type: none"> After the engine is started, when the engine speed is 2,000 rpm or less, the signal input to the PCM from ion sensor No.4 is in error. Diagnostic support note <ul style="list-style-type: none"> This is a continuous monitor (other). The check engine light does not illuminate. FREEZE FRAME DATA (Mode 2)/Snapshot data is not available. The DTC is stored in the PCM memory.
FAIL-SAFE FUNCTION	—
POSSIBLE CAUSE	<ul style="list-style-type: none"> Cylinder No.4 misfire Ignition coil/ion sensor No.4 connector or terminals malfunction Short to ground or open circuit in ion sensor No.4 power supply circuit <ul style="list-style-type: none"> Short to ground in wiring harness between ENGINE2 15 A fuse and ignition coil/ion sensor No.4 terminal A ENGINE2 15 A fuse malfunction Open circuit in wiring harness between main relay terminal C and ignition coil/ion sensor No.4 terminal A Open circuit in wiring harness between ignition coil/ion sensor No.4 terminal D and body ground Short to ground in wiring harness between ignition coil/ion sensor No.4 terminal C and PCM terminal 1AV PCM connector or terminals malfunction Short to power supply in wiring harness between ignition coil/ion sensor No.4 terminal C and PCM terminal 1AV Open circuit in wiring harness between ignition coil/ion sensor No.4 terminal C and PCM terminal 1AV Ion sensor No.4 malfunction PCM malfunction

ION SENSOR NO.4
(IGNITION COIL/ION SENSOR NO.4)

MAIN RELAY
TERMINAL C

PCM

IGNITION COIL/ION SENSOR NO.4
WIRING HARNESS-SIDE
CONNECTOR

PCM WIRING HARNESS-SIDE CONNECTOR

Diagnostic Procedure

STEP	INSPECTION		ACTION
1	VERIFY RELATED SERVICE INFORMATION AVAILABILITY <ul style="list-style-type: none"> • 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.
2	VERIFY RELATED PENDING CODE AND/OR DTC <ul style="list-style-type: none"> • Switch the ignition to off, then to ON (engine off). • Perform the Pending Trouble Code Access Procedure and DTC Reading Procedure. (See ON-BOARD DIAGNOSTIC TEST [SKYACTIV-G 2.0].) • Is the PENDING CODE/DTC P0304:00 also present? 	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	INSPECT IGNITION COIL/ION SENSOR NO.4 CONNECTOR CONDITION <ul style="list-style-type: none"> • Switch the ignition to off. • Disconnect the ignition coil/ion sensor No.4 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 11.
		No	Go to the next step.
4	INSPECT ION SENSOR NO.4 POWER SUPPLY CIRCUIT FOR SHORT TO GROUND OR OPEN CIRCUIT <ul style="list-style-type: none"> • Verify that the ignition coil/ion sensor No.4 connector is disconnected. • Switch the ignition ON (engine off or on). • Measure the voltage at the ignition coil/ion sensor No.4 terminal A (wiring harness-side). • Is the voltage B+? 	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	INSPECT ION SENSOR NO.4 GROUND CIRCUIT FOR OPEN CIRCUIT <ul style="list-style-type: none"> • Verify that the ignition coil/ion sensor No.4 connector is disconnected. • Switch the ignition to off. • Inspect for continuity between ignition coil/ion sensor No.4 terminal D (wiring harness-side) and body ground. • Is there continuity? 	Yes	Go to the next step.
		No	Repair or replace the wiring harness for a possible open circuit, then go to Step 11.
6	INSPECT ION SENSOR NO.4 SIGNAL CIRCUIT FOR SHORT TO GROUND <ul style="list-style-type: none"> • Verify that the ignition coil/ion sensor No.4 connector is disconnected. • Inspect for continuity between ignition coil/ion sensor No.4 terminal C (wiring harness-side) and body ground. • Is there continuity? 	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	INSPECT PCM CONNECTOR CONDITION <ul style="list-style-type: none"> • 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 11.
		No	Go to the next step.

STEP	INSPECTION	ACTION	
8	INSPECT ION SENSOR NO.4 SIGNAL CIRCUIT FOR SHORT TO POWER SUPPLY <ul style="list-style-type: none"> • Verify that the ignition coil/ion sensor No.4 and PCM connectors are disconnected. • Switch the ignition ON (engine off or on). • Measure the voltage at the ignition coil/ion sensor No.4 terminal C (wiring harness-side). • Is the voltage 0 V? 	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	INSPECT ION SENSOR NO.4 SIGNAL CIRCUIT FOR OPEN CIRCUIT <ul style="list-style-type: none"> • Verify that the ignition coil/ion sensor No.4 and PCM connectors are disconnected. • Switch the ignition to off. • Inspect for continuity between ignition coil/ion sensor No.4 terminal C (wiring harness-side) and PCM terminal 1AV (wiring harness-side). • Is there continuity? 	Yes	Go to the next step.
		No	Repair or replace the wiring harness for a possible open circuit, then go to Step 11.
10	INSPECT ION SENSOR NO.4 <ul style="list-style-type: none"> • Inspect the ion sensor No.4. (See ION SENSOR INSPECTION [SKYACTIV-G 2.0].) • Is there any malfunction? 	Yes	Replace the ignition coil/ion sensor No.4, then go to the next step. (See IGNITION COIL/ION SENSOR REMOVAL/ INSTALLATION [SKYACTIV-G 2.0].)
		No	Go to the next step.
11	VERIFY DTC TROUBLESHOOTING COMPLETED <ul style="list-style-type: none"> • Make sure to reconnect all disconnected connectors. • Clear the DTC from the PCM memory using the M-MDS. (See AFTER REPAIR PROCEDURE [SKYACTIV-G 2.0].) • Start the engine. • Perform the KOER self test. (See KOEO/KOER SELF TEST [SKYACTIV-G 2.0].) • Is the same DTC present? 	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	VERIFY AFTER REPAIR PROCEDURE <ul style="list-style-type: none"> • Perform the "AFTER REPAIR PROCEDURE". (See AFTER REPAIR PROCEDURE [SKYACTIV-G 2.0].) • Are any DTCs present? 	Yes	Go to the applicable DTC inspection. (See DTC TABLE [SKYACTIV-G 2.0].)
		No	DTC troubleshooting completed.