

<b>DTC P004C:00</b>	<b>Wastegate solenoid valve control circuit low input</b>
<b>DETECTION CONDITION</b>	<ul style="list-style-type: none"> <li>If the PCM detects that the wastegate solenoid valve voltage at the PCM terminal 1CL is <b>0.19 V or less</b> for <b>1 s</b> with the following condition met, the PCM determines that the wastegate solenoid valve circuit voltage is low.</li> </ul> <p><b>MONITORING CONDITIONS</b></p> <ul style="list-style-type: none"> <li>Battery voltage: <b>8—20 V</b></li> </ul> <p><b>Diagnostic support note</b></p> <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>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>Wastegate solenoid valve connector or terminals malfunction</li> <li>Short to ground or open circuit in wastegate solenoid valve power supply circuit <ul style="list-style-type: none"> <li>Short to ground in wiring harness between ENGINE2 15 A fuse and wastegate solenoid valve terminal A</li> <li>ENGINE2 15 A fuse malfunction</li> <li>Open circuit in wiring harness between main relay terminal C and wastegate solenoid valve terminal A</li> </ul> </li> <li>Short to ground in wiring harness between wastegate solenoid valve terminal B and PCM terminal 1CL</li> <li>PCM connector or terminals malfunction</li> <li>Open circuit in wiring harness between wastegate solenoid valve terminal B and PCM terminal 1CL</li> <li>Wastegate solenoid valve malfunction</li> <li>PCM malfunction</li> </ul>

MAIN RELAY  
TERMINAL C

WASTEGATE SOLENOID VALVE

WASTEGATE SOLENOID VALVE  
WIRING HARNESS-SIDE  
CONNECTOR

PCM WIRING HARNESS-SIDE CONNECTOR

## Diagnostic Procedure

STEP	INSPECTION		ACTION
1	<b>VERIFY FREEZE FRAME DATA (MODE 2)/ SNAPSHOT DATA HAS BEEN RECORDED</b> <ul style="list-style-type: none"> <li>Has the FREEZE FRAME DATA (Mode 2)/ snapshot data been recorded?</li> </ul>	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> <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.
3	<b>INSPECT WASTEGATE SOLENOID VALVE CONNECTOR CONDITION</b> <ul style="list-style-type: none"> <li>Switch the ignition off.</li> <li>Disconnect the wastegate solenoid valve 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 9.
		No	Go to the next step.
4	<b>INSPECT WASTEGATE SOLENOID VALVE POWER SUPPLY CIRCUIT FOR SHORT TO GROUND OR OPEN CIRCUIT</b> <ul style="list-style-type: none"> <li>Verify that the wastegate solenoid valve connector is disconnected.</li> <li>Switch the ignition ON (engine off).</li> <li>Measure the voltage at the wastegate solenoid valve 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. <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 fuse.</li> </ul> </li> <li>If the fuse is deteriorated:               <ul style="list-style-type: none"> <li>Replace the fuse.</li> </ul> </li> <li>If the fuse is 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 9.
5	<b>INSPECT WASTEGATE SOLENOID VALVE CONTROL CIRCUIT FOR SHORT TO GROUND</b> <ul style="list-style-type: none"> <li>Verify that the wastegate solenoid valve connector is disconnected.</li> <li>Switch the ignition off.</li> <li>Inspect for continuity between wastegate solenoid valve terminal B (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: <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-D 2.2].)</li> </ul> Go to Step 9.
		No	Go to the next step.
6	<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 9.
		No	Go to the next step.
7	<b>INSPECT WASTEGATE SOLENOID VALVE CONTROL CIRCUIT FOR OPEN CIRCUIT</b> <ul style="list-style-type: none"> <li>Verify that the wastegate solenoid valve and PCM connectors are disconnected.</li> <li>Inspect for continuity between wastegate solenoid valve terminal B (wiring harness-side) and PCM terminal 1CL (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 9.
8	<b>INSPECT WASTEGATE SOLENOID VALVE</b> <ul style="list-style-type: none"> <li>Inspect the wastegate solenoid valve. (See WASTEGATE SOLENOID VALVE INSPECTION [SKYACTIV-D 2.2].)</li> <li>Is there any malfunction?</li> </ul>	Yes	Replace the wastegate solenoid valve, then go to the next step. (See WASTEGATE SOLENOID VALVE REMOVAL/ INSTALLATION [SKYACTIV-D 2.2].)
		No	Go to the next step.

STEP	INSPECTION	ACTION	
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.