

# DTC P24A5:00 [SKYACTIV-D 2.2]

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DTC P24A5:00	EGR cooler bypass valve control: EGR cooler bypass valve (stuck)
<b>DETECTION CONDITION</b>	<ul style="list-style-type: none"> <li>When all of the following conditions are met, the EGR cooler bypass valve operation does not conform to the target value. <ul style="list-style-type: none"> <li>EGR cooler bypass valve is operating.</li> <li>Battery voltage: <b>8—20 V</b></li> </ul> </li> <li>When the EGR cooler bypass valve fully closes from the open condition, the EGR cooler bypass valve position sensor output value is not that for the fully closed condition.</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 in two consecutive drive cycles or in one drive cycle while the DTC for the same malfunction has been stored in the PCM.</li> <li>PENDING CODE is available 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>PCM restricts engine torque.</li> <li>Inhibits the two-stage turbo control.</li> <li>Inhibits the EGR control.</li> <li>Inhibits the diesel particulate filter regeneration control.</li> <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>EGR cooler bypass valve malfunction (stuck)</li> <li>EGR cooler bypass valve/EGR cooler bypass valve position sensor connector or terminals malfunction</li> <li>EGR cooler bypass valve position sensor malfunction</li> <li>EGR cooler bypass valve malfunction</li> <li>PCM connector or terminals malfunction</li> <li>PCM malfunction</li> </ul>
<b>SYSTEM WIRING DIAGRAM</b>	Not applicable

## 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>DETERMINE IF MALFUNCTION CAUSE IS EGR COOLER BYPASS VALVE POSITION SENSOR OR OTHER</b> <ul style="list-style-type: none"> <li>Start the engine and idle it.</li> <li>Set the EGR_C_BP value to <b>0 %</b> using the simulation function. (See ON-BOARD DIAGNOSTIC TEST [SKYACTIV-D 2.2].)</li> <li>Access the EGR_C_BP_ACT PID using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [SKYACTIV-D 2.2].)</li> <li>Does the EGR_C_BP_ACT monitor value conform to the override operation using the simulation function?</li> </ul>	Yes Go to the next step.
		No Go to Step 5.

STEP	INSPECTION	ACTION	
4	<b>INSPECT EGR VALVE CONTROL SYSTEM OPERATION/EGR COOLER BYPASS VALVE CONTROL SYSTEM OPERATION</b> <ul style="list-style-type: none"> <li>Using the simulation function, verify that the PID EGRP_ACT value conforms when changing the EGRP value (%), and that the EGR_C_BP_ACT value conforms when changing the EGR_C_BP value (%). (See ON-BOARD DIAGNOSTIC TEST [SKYACTIV-D 2.2].)</li> <li>Do the EGRP_ACT and EGR_C_BP_ACT values conform?</li> </ul>	Yes	Go to Step 9.
		No	Go to the next step.
5	<b>INSPECT EGR COOLER BYPASS VALVE/EGR COOLER BYPASS VALVE POSITION SENSOR CONNECTOR CONDITION</b> <ul style="list-style-type: none"> <li>Switch the ignition off.</li> <li>Disconnect the EGR cooler bypass valve/EGR cooler bypass valve position sensor 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.
6	<b>INSPECT EGR COOLER BYPASS VALVE POSITION SENSOR</b> <ul style="list-style-type: none"> <li>Reconnect all disconnected connectors.</li> <li>Inspect the EGR cooler bypass valve position sensor. (See EGR COOLER BYPASS VALVE POSITION SENSOR INSPECTION [SKYACTIV-D 2.2].)</li> <li>Is there any malfunction?</li> </ul>	Yes	Replace the EGR cooler bypass valve, then go to Step 9. (See EGR COOLER BYPASS VALVE REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
		No	Go to the next step.
7	<b>INSPECT EGR COOLER BYPASS VALVE</b> <ul style="list-style-type: none"> <li>Inspect the EGR cooler bypass valve. (See EGR COOLER BYPASS VALVE INSPECTION [SKYACTIV-D 2.2].)</li> <li>Is there any malfunction?</li> </ul>	Yes	Replace the EGR cooler bypass valve, then go to Step 9. (See EGR COOLER BYPASS VALVE REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
		No	Go to the next step.
8	<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 the next step.
		No	Go to the next step.
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 Drive Mode Type A. (See OBD DRIVE MODE [SKYACTIV-D 2.2].)</li> <li>Perform the Pending Trouble Code Access Procedure. (See ON-BOARD DIAGNOSTIC TEST [SKYACTIV-D 2.2].)</li> <li>Is the PENDING CODE for this 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.