

DTC P0421:00 [SKYACTIV-G 2.0]

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DTC P0421:00	Warm up catalyst system efficiency below threshold
DETECTION CONDITION	<ul style="list-style-type: none"> The PCM compares the number of the A/F sensor and HO2S inversions for a predetermined time to detect the inversion ratio. It does this by monitoring the HO2S inversion counts when the following conditions are met. If the inversion ratio is below specification, the PCM determine that the catalyst system has deteriorated. <ul style="list-style-type: none"> The A/F sensor inversion counts is as prescribed when the following monitoring conditions are met: The accumulated occurrence time of the following monitoring conditions has exceeded the prescribed time limit: <p>MONITORING CONDITIONS</p> <ul style="list-style-type: none"> Calculated TWC temperature: above 400 °C {752 °F} Engine speed: 1,100—3,000 rpm LOAD: 19—63 % (at engine speed of 1,500 rpm) <p>Diagnostic support note</p> <ul style="list-style-type: none"> This is an intermittent monitor (catalyst). 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. PENDING CODE is available if the PCM detects the above malfunction condition during first drive cycle. FREEZE FRAME DATA (Mode 2)/Snapshot data is available. The DTC is stored in the PCM memory.
FAIL-SAFE FUNCTION	—
POSSIBLE CAUSE	<ul style="list-style-type: none"> Exhaust system leakage A/F sensor loose HO2S loose TWC deterioration or malfunction PCM malfunction
SYSTEM WIRING DIAGRAM	—

Diagnostic Procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA (MODE 2)/ SNAPSHOT DATA AND DIAGNOSTIC MONITORING TEST RESULTS HAVE BEEN RECORDED <ul style="list-style-type: none"> Have the FREEZE FRAME DATA (Mode 2)/ snapshot data and DIAGNOSTIC MONITORING TEST RESULTS (catalyst related) been recorded? 	Yes Go to the next step.
		No Record the FREEZE FRAME DATA (Mode 2)/snapshot data and DIAGNOSTIC MONITORING TEST RESULTS on the repair order, then go to the next step.
2	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.
3	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].) Are any other PENDING CODEs and/or DTCs present? 	Yes Go to the applicable PENDING CODE or DTC inspection. (See DTC TABLE [SKYACTIV-G 2.0].)
		No Go to the next step.
4	INSPECT EXHAUST SYSTEM FOR LEAKAGE <ul style="list-style-type: none"> Visually inspect for exhaust leakage in the exhaust system. Is there any leakage? 	Yes Repair or replace the malfunctioning part according to the inspection results, then go to Step 7.
		No Go to the next step.

STEP	INSPECTION	ACTION
5	INSPECT INSTALLATION OF A/F SENSOR AND HO2S <ul style="list-style-type: none"> Inspect installation of A/F sensor and HO2S. Are the A/F sensor and HO2S installed securely? 	Yes Go to the next step.
		No Retighten the A/F sensor and/or HO2S, then go to Step 7. (See AIR FUEL RATIO (A/F) SENSOR REMOVAL/INSTALLATION [SKYACTIV-G 2.0].) (See HEATED OXYGEN SENSOR (HO2S) REMOVAL/INSTALLATION [SKYACTIV-G 2.0].)
6	VERIFY WHETHER MALFUNCTION IS IN TWC OR ELSEWHERE <ul style="list-style-type: none"> Perform the Idle Mixture Inspection. (See ENGINE TUNE-UP [SKYACTIV-G 2.0].) Is there any malfunction? 	Yes Perform the symptom troubleshooting "NO.15 EMISSION COMPLIANCE". (See NO.15 EMISSION COMPLIANCE [SKYACTIV-G 2.0].) <ul style="list-style-type: none"> If there is any malfunction: <ul style="list-style-type: none"> Repair or replace the malfunctioning part according to the inspection results. If there is no malfunction: <ul style="list-style-type: none"> Replace the TWC. (See EXHAUST SYSTEM REMOVAL/INSTALLATION [SKYACTIV-G 2.0].) Go to the next step.
		No Go to the next step.
7	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].) Perform the Drive Mode 03 (Variable Valve Timing, A/F Sensor Heater, HO2S Heater, A/F Sensor, HO2S and TWC Repair Verification Drive Mode). (See OBD DRIVE MODE [SKYACTIV-G 2.0].) Is the PENDING CODE for this DTC present? 	Yes Repeat the inspection from Step 1. <ul style="list-style-type: none"> 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.
8	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.