DTC P0643:00 [SKYACTIV-D 2.2]

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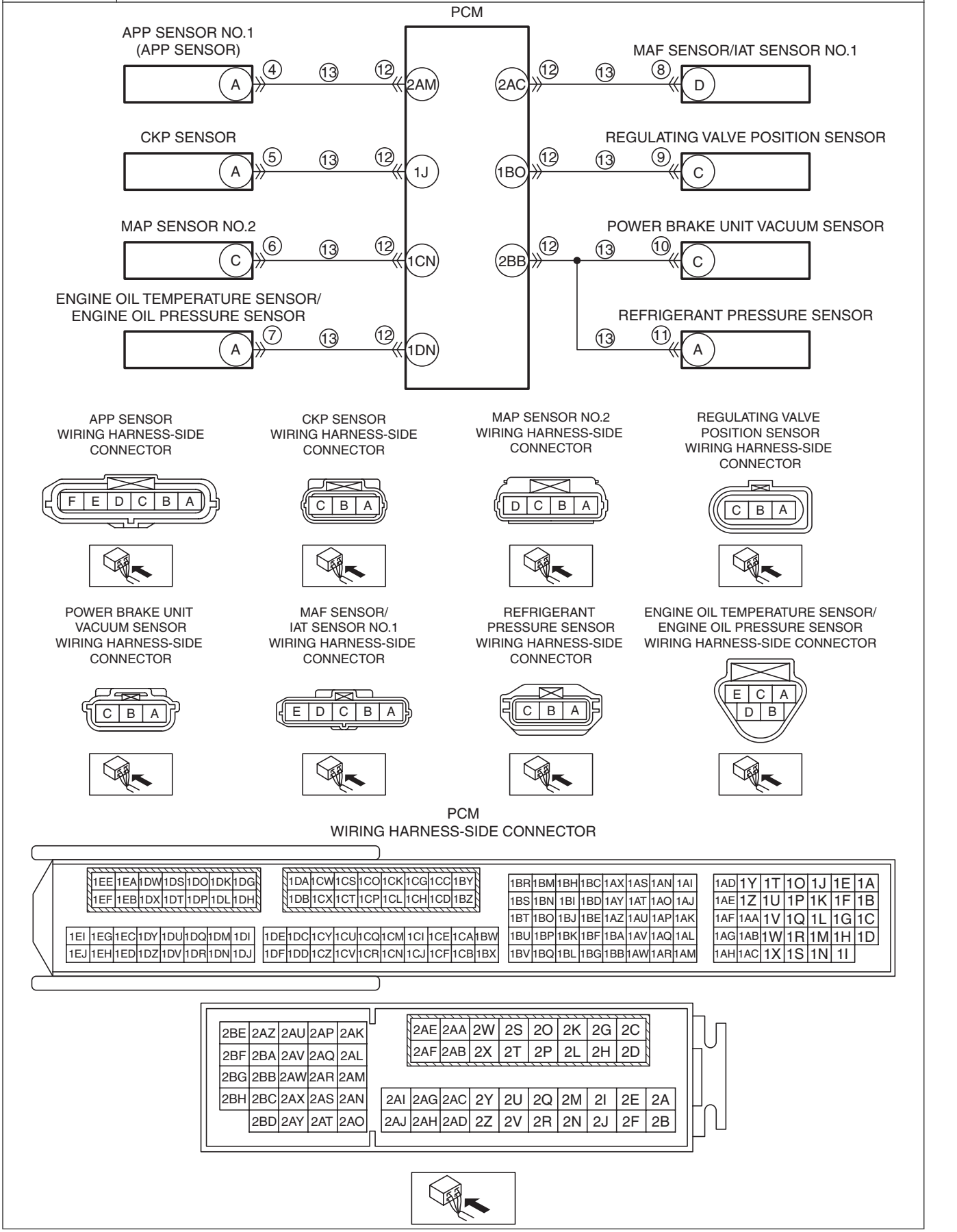
DTC P0643:00	Constant voltage power supply circuit high input
DETECTION CONDITION	• When the following condition is met, the output voltage of the **5 V** power supply terminal **exceeds 4.1 V** for a continuous **1 s**: **MONITORING CONDITIONS** — Battery voltage: **8—20 V** **Diagnostic support note** • This is a continuous monitor (CCM). • The check engine light illuminates if the PCM detects the above malfunction condition during the first drive cycle. • FREEZE FRAME DATA (Mode 2)/Snapshot data is available. • DTC is stored in the PCM memory.
FAIL-SAFE FUNCTION	• Inhibits the EGR control. • Inhibits engine-stop by operating the i-stop function.
POSSIBLE CAUSE	• APP sensor connector or terminals malfunction • CKP sensor connector or terminals malfunction • MAP sensor No.2 connector or terminals malfunction • Engine oil temperature sensor/engine oil pressure sensor connector or terminals malfunction • MAF sensor/IAT sensor No.1 connector or terminals malfunction • Regulating valve position sensor connector or terminals malfunction • Power brake unit vacuum sensor connector or terminals malfunction • Refrigerant pressure sensor connector or terminals malfunction • PCM connector or terminals malfunction • Short to power supply in wiring harness between the following terminals: — APP sensor terminal A—PCM terminal 2AM — CKP sensor terminal A—PCM terminal 1J — MAP sensor No.2 terminal C—PCM terminal 1CN — Engine oil temperature sensor/engine oil pressure sensor terminal A—PCM terminal 1DN — MAF sensor/IAT sensor No.1 terminal D—PCM terminal 2AC — Regulating valve position sensor terminal C—PCM terminal 1BO — Power brake unit vacuum sensor terminal C—PCM terminal 2BB — Refrigerant pressure sensor terminal A—PCM terminal 2BB • PCM malfunction

DTC P0643:00	Constant voltage power supply circuit high input



Diagnostic Procedure

STEP	INSPECTION		ACTION
1	**VERIFY FREEZE FRAME DATA (MODE 2)/ SNAPSHOT DATA HAS BEEN RECORDED** • Has the FREEZE FRAME DATA (Mode 2)/ snapshot data been recorded?	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	**VERIFY RELATED SERVICE INFORMATION AVAILABILITY** • 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** • Switch the ignition off, then ON (engine off). • Perform the Pending Trouble Code Access Procedure and DTC Reading Procedure. (See ON-BOARD DIAGNOSTIC TEST [SKYACTIV-D 2.2].) • Are any other PENDING CODEs and/or DTCs present?	Yes	Go to the applicable PENDING CODE or DTC inspection. (See DTC TABLE [SKYACTIV-D 2.2].)
		No	Go to the next step.
4	**INSPECT APP SENSOR CONNECTOR CONDITION** • Switch the ignition off. • Disconnect the APP sensor 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 14.
		No	Go to the next step.
5	**INSPECT CKP SENSOR CONNECTOR CONDITION** • Disconnect the CKP sensor 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 14.
		No	Go to the next step.
6	**INSPECT MAP SENSOR NO.2 CONNECTOR CONDITION** • Disconnect the MAP sensor No.2 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 14.
		No	Go to the next step.
7	**INSPECT ENGINE OIL TEMPERATURE SENSOR/ENGINE OIL PRESSURE SENSOR CONNECTOR CONDITION** • Disconnect the engine oil temperature sensor/ engine oil pressure sensor 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 14.
		No	Go to the next step.
8	**INSPECT MAF SENSOR/IAT SENSOR NO.1 CONNECTOR CONDITION** • Disconnect the MAF sensor/IAT sensor No.1 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 14.
		No	Go to the next step.
9	**INSPECT REGULATING VALVE POSITION SENSOR CONNECTOR CONDITION** • Disconnect the regulating valve position sensor 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 14.
		No	Go to the next step.

STEP	INSPECTION		ACTION
10	**INSPECT POWER BRAKE UNIT VACUUM SENSOR CONNECTOR CONDITION** • Disconnect the power brake unit vacuum sensor 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 14.
		No	Go to the next step.
11	**INSPECT REFRIGERANT PRESSURE SENSOR CONNECTOR CONDITION** • Disconnect the refrigerant pressure sensor 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 14.
		No	Go to the next step.
12	**INSPECT PCM CONNECTOR CONDITION** • 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 14.
		No	Go to the next step.
13	**INSPECT EACH POWER SUPPLY CIRCUIT FOR SHORT TO POWER SUPPLY** • Verify that the APP sensor and CKP sensor and MAP sensor No.2 and engine oil temperature sensor/engine oil pressure sensor and MAF sensor/IAT sensor No.1 and regulating valve position sensor and power brake unit vacuum sensor and refrigerant pressure sensor connectors are disconnected. • Measure the voltage at the following terminals (wiring harness-side): — APP sensor terminal A — CKP sensor terminal A — MAP sensor No.2 terminal C — Engine oil temperature sensor/engine oil pressure sensor terminal A — MAF sensor/IAT sensor No.1 terminal D — Regulating valve position sensor terminal C — Power brake unit vacuum sensor terminal C — Refrigerant pressure sensor terminal A • 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 the next step.
14	**VERIFY DTC TROUBLESHOOTING COMPLETED** • Always reconnect all disconnected connectors. • Clear the DTC from the PCM memory using the M-MDS. (See AFTER REPAIR PROCEDURE [SKYACTIV-D 2.2].) • Perform the DTC Reading Procedure. (See ON-BOARD DIAGNOSTIC TEST [SKYACTIV-D 2.2].) • Is the same DTC present?	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.
15	**VERIFY AFTER REPAIR PROCEDURE** • Perform the “AFTER REPAIR PROCEDURE”. (See AFTER REPAIR PROCEDURE [SKYACTIV-D 2.2].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [SKYACTIV-D 2.2].)
		No	DTC troubleshooting completed.