## DTC P0642:00 [SKYACTIV-D 2.2]

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| DTC P0642:00 | Constant voltage power supply circuit low input |
|---|---|
| DETECTION CONDITION | • When the following condition is met, the output voltage of the **5 V** power supply terminal **3.9 V or less** for a continuous **1 s**:<br>**MONITORING CONDITIONS**<br>— Battery voltage: **8—20 V**<br>**Diagnostic support note**<br>• This is a continuous monitor (CCM).<br>• The check engine light illuminates if the PCM detects the above malfunction condition during the first drive cycle.<br>• FREEZE FRAME DATA (Mode 2)/Snapshot data is available.<br>• DTC is stored in the PCM memory. |
| FAIL-SAFE FUNCTION | • Inhibits the EGR control.<br>• Inhibits engine-stop by operating the i-stop function. |
| POSSIBLE CAUSE | • APP sensor connector or terminals malfunction<br>• CKP sensor connector or terminals malfunction<br>• MAP sensor No.2 connector or terminals malfunction<br>• Engine oil temperature sensor/engine oil pressure sensor connector or terminals malfunction<br>• MAF sensor/IAT sensor No.1 connector or terminals malfunction<br>• Regulating valve position sensor connector or terminals malfunction<br>• Power brake unit vacuum sensor connector or terminals malfunction<br>• Refrigerant pressure sensor connector or terminals malfunction<br>• Short to ground in wiring harness between the following terminals:<br>— APP sensor terminal A—PCM terminal 2AM<br>— CKP sensor terminal A—PCM terminal 1J<br>— MAP sensor No.2 terminal C—PCM terminal 1CN<br>— Engine oil temperature sensor/engine oil pressure sensor terminal A—PCM terminal 1DN<br>— MAF sensor/IAT sensor No.1 terminal D—PCM terminal 2AC<br>— Regulating valve position sensor terminal C—PCM terminal 1BO<br>— Power brake unit vacuum sensor terminal C—PCM terminal 2BB<br>— Refrigerant pressure sensor terminal A—PCM terminal 2BB<br>• PCM connector or terminals malfunction<br>• PCM malfunction |

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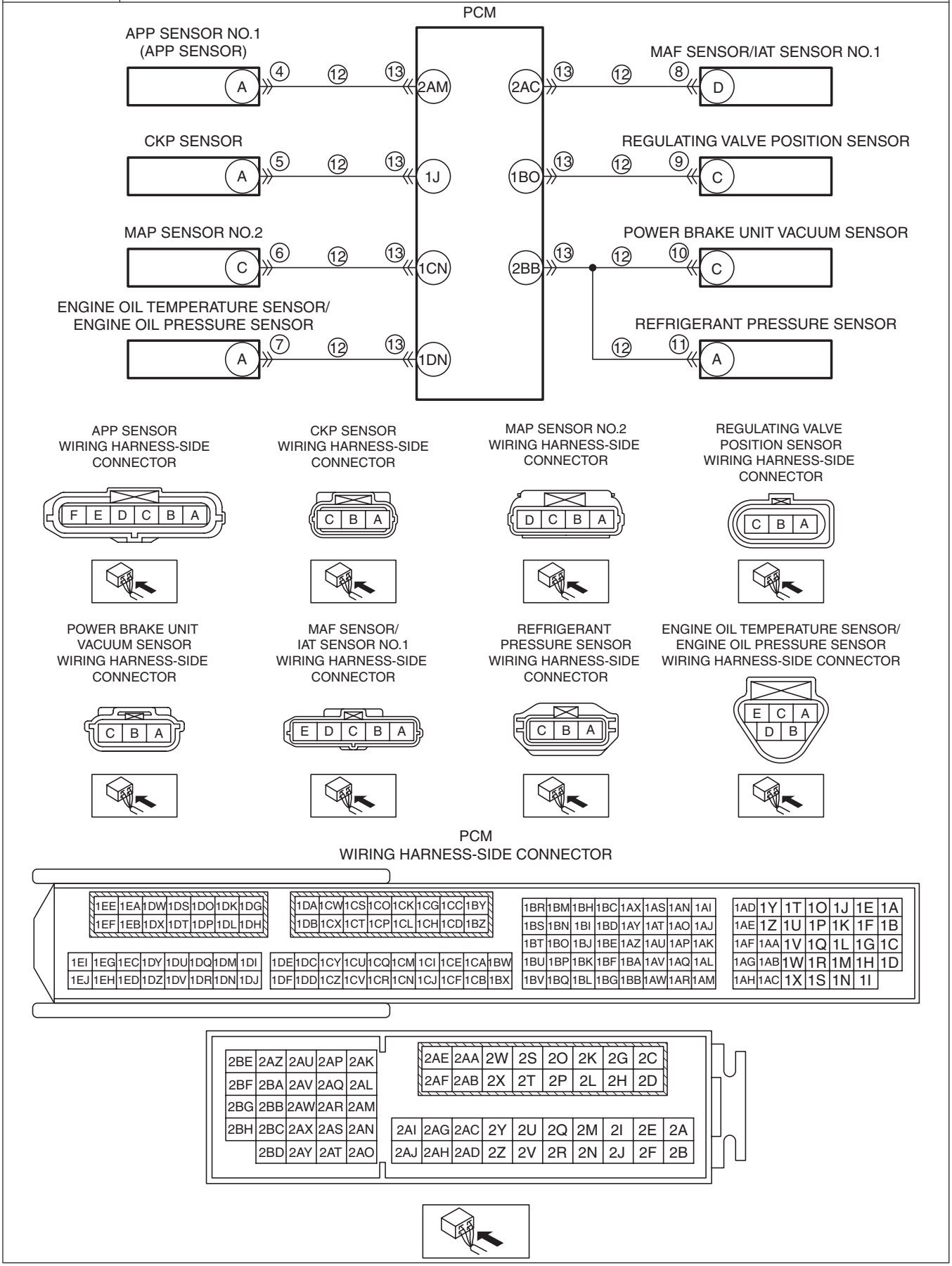

**Diagnostic Procedure**

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 1 | **VERIFY FREEZE FRAME DATA (MODE 2)/ SNAPSHOT DATA HAS BEEN RECORDED**<br>• 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**<br>• Verify related Service Information availability.<br>• Is any related Service Information available? | Yes | Perform repair or diagnosis according to the available Service Information.<br>• 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**<br>• Switch the ignition off, then ON (engine off).<br>• Perform the Pending Trouble Code Access Procedure and DTC Reading Procedure. (See ON-BOARD DIAGNOSTIC TEST [SKYACTIV-D 2.2].)<br>• 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**<br>• Switch the ignition off.<br>• Disconnect the APP sensor connector.<br>• Inspect for poor connection (such as damaged/ pulled-out pins, corrosion).<br>• 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**<br>• Disconnect the CKP sensor connector.<br>• Inspect for poor connection (such as damaged/ pulled-out pins, corrosion).<br>• 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**<br>• Disconnect the MAP sensor No.2 connector.<br>• Inspect for poor connection (such as damaged/ pulled-out pins, corrosion).<br>• 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**<br>• Disconnect the engine oil temperature sensor/ engine oil pressure sensor connector.<br>• Inspect for poor connection (such as damaged/ pulled-out pins, corrosion).<br>• 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**<br>• Disconnect the MAF sensor/IAT sensor No.1 connector.<br>• Inspect for poor connection (such as damaged/ pulled-out pins, corrosion).<br>• 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**<br>• Disconnect the regulating valve position sensor connector.<br>• Inspect for poor connection (such as damaged/ pulled-out pins, corrosion).<br>• 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**<br>• Disconnect the power brake unit vacuum sensor connector.<br>• Inspect for poor connection (such as damaged/ pulled-out pins, corrosion).<br>• 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**<br>• Disconnect the refrigerant pressure sensor connector.<br>• Inspect for poor connection (such as damaged/ pulled-out pins, corrosion).<br>• 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 EACH POWER SUPPLY CIRCUIT FOR SHORT TO GROUND**<br>• 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.<br>• Inspect for continuity between the following terminals (wiring harness-side) and body ground:<br>— APP sensor terminal A<br>— CKP sensor terminal A<br>— MAP sensor No.2 terminal C<br>— Engine oil temperature sensor/engine oil pressure sensor terminal A<br>— MAF sensor/IAT sensor No.1 terminal D<br>— Regulating valve position sensor terminal C<br>— Power brake unit vacuum sensor terminal C<br>— Refrigerant pressure sensor terminal A<br>• Is there continuity? | Yes | If the short to ground circuit could be detected in the wiring harness:<br>• Repair or replace the wiring harness for a possible short to ground.<br>If the short to ground circuit could not be detected in the wiring harness:<br>• Replace the PCM (short to ground in the PCM internal circuit).<br>(See PCM REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)<br>Go to Step 14. |
| | | No | Go to the next step. |
| 13 | **INSPECT PCM CONNECTOR CONDITION**<br>• Disconnect the PCM connector.<br>• Inspect for poor connection (such as damaged/ pulled-out pins, corrosion).<br>• Is there any malfunction? | Yes | Repair or replace the connector and/or terminals, then go to the next step. |
| | | No | Go to the next step. |
| 14 | **VERIFY DTC TROUBLESHOOTING COMPLETED**<br>• Always reconnect all disconnected connectors.<br>• Clear the DTC from the PCM memory using the M-MDS.<br>(See AFTER REPAIR PROCEDURE [SKYACTIV-D 2.2].)<br>• Perform the DTC Reading Procedure.<br>(See ON-BOARD DIAGNOSTIC TEST [SKYACTIV-D 2.2].)<br>• Is the same DTC present? | Yes | Repeat the inspection from Step 1.<br>• If the malfunction recurs, replace the PCM.<br>(See PCM REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)<br>Go to the next step. |
| | | No | Go to the next step. |
| 15 | **VERIFY AFTER REPAIR PROCEDURE**<br>• Perform the “AFTER REPAIR PROCEDURE”.<br>(See AFTER REPAIR PROCEDURE [SKYACTIV-D 2.2].)<br>• Are any DTCs present? | Yes | Go to the applicable DTC inspection.<br>(See DTC TABLE [SKYACTIV-D 2.2].) |
| | | No | DTC troubleshooting completed. |