## DTC P176E:00 [SKYACTIV-D 2.2]

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| DTC P176E: 00 | **Clutch stroke sensor/starter interlock switch correlation problem** |
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| **DETECTION CONDITION** | • Correlation malfunction between clutch stroke sensor and starter interlock switch.<br>— If the clutch stroke sensor circuit voltage **above 4.9 V** or **below 0.1 V** for **10 s**, the PCM determines that the clutch stroke sensor circuit has a malfunction.<br>— CPP switch stuck ON or OFF.<br>— Starter interlock switch stuck ON.<br>**Diagnostic support note**<br>• This is a continuous monitor (other).<br>• The check engine light does not illuminate.<br>• FREEZE FRAME DATA (Mode 2)/Snapshot data is not available.<br>• DTC is stored in the PCM memory. |
| **FAIL-SAFE FUNCTION** | • Inhibits engine-stop by operating the i-stop function. |
| **POSSIBLE CAUSE** | **Caution**<br>**• Inspect the CPP switch with it installed to the clutch pedal, otherwise the CPP switch may not operate normally after inspection. If the CPP switch is removed from the clutch pedal, replace the CPP switch with a new one.**<br><br>• CPP switch, clutch stroke sensor and/or starter interlock switch loose<br>• Starter interlock switch connector or terminals malfunction<br>• Starter interlock switch malfunction<br>• Short to ground in wiring harness between starter interlock switch terminal A and PCM terminal 2AI<br>• PCM connector or terminals malfunction<br>• CPP switch connector or terminals malfunction<br>• CPP switch malfunction<br>• Open circuit in wiring harness between CPP switch terminal B and body ground<br>• Short to ground in wiring harness between CPP switch terminal A and PCM terminal 2AG<br>• Open circuit in wiring harness between CPP switch terminal A and PCM terminal 2AG<br>• Short to power supply in wiring harness between CPP switch terminal A and PCM terminal 2AG<br>• Clutch stroke sensor connector or terminals malfunction<br>• Short to ground in wiring harness between the following terminals:<br>— Clutch stroke sensor terminal C—PCM terminal 2BB<br>— Clutch stroke sensor terminal B—PCM terminal 2AJ<br>• Short to power supply in wiring harness between clutch stroke sensor terminal B and PCM terminal 2AJ<br>• Clutch stroke sensor circuits are shorted to each other.<br>• Open circuit in wiring harness between the following terminals:<br>— Clutch stroke sensor terminal C—PCM terminal 2BB<br>— Clutch stroke sensor terminal B—PCM terminal 2AJ<br>— Clutch stroke sensor terminal A—PCM terminal 2AH<br>• Clutch stroke sensor malfunction<br>• PCM malfunction |

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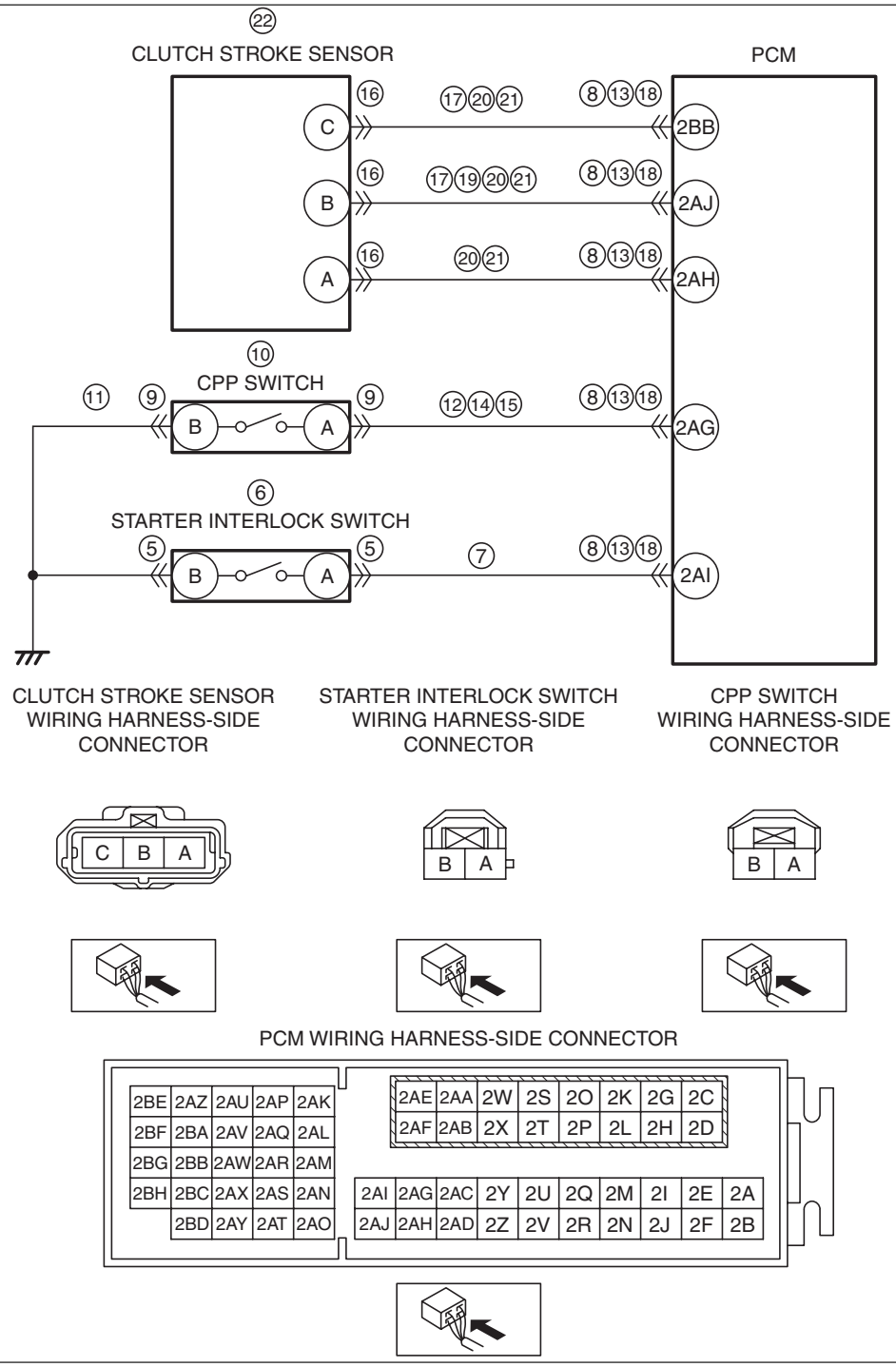


**Diagnostic Procedure**

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 1 | **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. |

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 2 | **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>• Is the PENDING CODE/DTC P0704:00 also present? | Yes | Go to the applicable PENDING CODE or DTC inspection. (See DTC P0704:00 [SKYACTIV-D 2.2].) |
| | | No | Go to the next step. |
| 3 | **INSPECT INSTALLATION OF CPP SWITCH, CLUTCH STROKE SENSOR AND STARTER INTERLOCK SWITCH**<br>• Inspect installation of CPP switch, clutch stroke sensor and starter interlock switch.<br>• Are the CPP switch, clutch stroke sensor and starter interlock switch installed securely? | Yes | Go to the next step. |
| | | No | Retighten the malfunctioning switch and/or sensor, then go to Step 23. |
| 4 | **DETERMINE MALFUNCTIONING SYSTEM**<br>• Inspect the following: (See ON-BOARD DIAGNOSTIC TEST [SKYACTIV-D 2.2].)<br>— PCM PID:<br>• CPP (%)<br>— PCM terminal 2AI voltage<br>• Is there any malfunction? (See PCM INSPECTION [SKYACTIV-D 2.2].) | Yes | If the PCM terminal 2AI voltage is not normal:<br>• Go to the next step.<br>If the CPP PID (%) is not normal:<br>• Go to Step 9. |
| | | No | Intermittent concern exists.<br>• Perform the “INTERMITTENT CONCERN TROUBLESHOOTING” procedure. (See INTERMITTENT CONCERN TROUBLESHOOTING [SKYACTIV-D 2.2].) |
| 5 | **INSPECT STARTER INTERLOCK SWITCH CONNECTOR CONDITION**<br>• Switch the ignition off.<br>• Disconnect the starter interlock switch 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 23. |
| | | No | Go to the next step. |
| 6 | **INSPECT STARTER INTERLOCK SWITCH**<br>• Inspect the starter interlock switch. (See STARTER INTERLOCK SWITCH INSPECTION [SKYACTIV-D 2.2].)<br>• Is there any malfunction? | Yes | Replace the starter interlock switch, then go to Step 23. |
| | | No | Go to the next step. |
| 7 | **INSPECT STARTER INTERLOCK SWITCH SIGNAL CIRCUIT FOR SHORT TO GROUND**<br>• Verify that the starter interlock switch connector is disconnected.<br>• Inspect for continuity between starter interlock switch terminal A (wiring harness-side) and body ground.<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). (See PCM REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)<br>Go to Step 23. |
| | | No | Go to the next step. |
| 8 | **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 Step 23. |
| | | No | Go to the next step. |
| 9 | **INSPECT CPP SWITCH CONNECTOR CONDITION**<br>• Switch the ignition off.<br>• Disconnect the CPP switch 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 23. |
| | | No | Go to the next step. |

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 10 | **INSPECT CPP SWITCH**<br>• Inspect the CPP switch. (See CLUTCH PEDAL POSITION (CPP) SWITCH INSPECTION [SKYACTIV-D 2.2].)<br>• Is there any malfunction? | Yes | Replace the CPP switch, then go to Step 23. (See CLUTCH PEDAL POSITION SWITCH REMOVAL/ INSTALLATION [D66M-R, D66MX-R].) |
| | | No | Go to the next step. |
| 11 | **INSPECT CPP SWITCH GROUND CIRCUIT FOR OPEN CIRCUIT**<br>• Verify that the CPP switch connector is disconnected.<br>• Inspect for continuity between CPP switch terminal B (wiring harness-side) and body ground.<br>• Is there continuity? | Yes | Go to the next step. |
| | | No | Repair or replace the wiring harness for a possible open circuit, then go to Step 23. |
| 12 | **INSPECT CPP SWITCH SIGNAL CIRCUIT FOR SHORT TO GROUND**<br>• Verify that the CPP switch connector is disconnected.<br>• Inspect for continuity between CPP switch terminal A (wiring harness-side) and body ground.<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). (See PCM REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)<br>Go to Step 23. |
| | | 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 Step 23. |
| | | No | Go to the next step. |
| 14 | **INSPECT CPP SWITCH SIGNAL CIRCUIT FOR OPEN CIRCUIT**<br>• Verify that the CPP switch and PCM connectors are disconnected.<br>• Inspect for continuity between CPP switch terminal A (wiring harness-side) and PCM terminal 2AG (wiring harness-side).<br>• Is there continuity? | Yes | Go to the next step. |
| | | No | Repair or replace the wiring harness for a possible open circuit, then go to Step 23. |
| 15 | **INSPECT CPP SWITCH SIGNAL CIRCUIT FOR SHORT TO POWER SUPPLY**<br>• Verify that the CPP switch and PCM connectors are disconnected.<br>• Switch the ignition ON (engine off).<br>• Measure the voltage at the CPP switch terminal A (wiring harness-side).<br>• 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 Step 23. |
| 16 | **INSPECT CLUTCH STROKE SENSOR CONNECTOR CONDITION**<br>• Switch the ignition off.<br>• Disconnect the clutch stroke 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 23. |
| | | No | Go to the next step. |
| 17 | **INSPECT CLUTCH STROKE SENSOR CIRCUIT FOR SHORT TO GROUND**<br>• Verify that the clutch stroke sensor connector is disconnected.<br>• Inspect for continuity between the following terminals (wiring harness-side) and body ground:<br>— Clutch stroke sensor terminal C<br>— Clutch stroke sensor terminal B<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). (See PCM REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)<br>Go to Step 23. |
| | | No | Go to the next step. |

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 18 | **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 Step 23. |
| | | No | Go to the next step. |
| 19 | **INSPECT CLUTCH STROKE SENSOR CIRCUIT FOR SHORT TO POWER SUPPLY**<br>• Verify that the clutch stroke sensor and PCM connectors are disconnected.<br>• Switch the ignition ON (engine off).<br>• Measure the voltage at the clutch stroke sensor terminal B (wiring harness-side).<br>• 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 Step 23. |
| 20 | **INSPECT CLUTCH STROKE SENSOR CIRCUIT FOR SHORT TO EACH OTHER**<br>• Verify that the clutch stroke sensor and PCM connectors are disconnected.<br>• Switch the ignition off.<br>• Inspect for continuity between clutch stroke sensor terminals C, B and A (wiring harness-side).<br>• Is there continuity? | Yes | Repair or replace the wiring harness for a possible short to each other, then go to Step 23. |
| | | No | Go to the next step. |
| 21 | **INSPECT CLUTCH STROKE SENSOR CIRCUIT FOR OPEN CIRCUIT**<br>• Verify that the clutch stroke sensor and PCM connectors are disconnected.<br>• Inspect for continuity between the following terminals (wiring harness-side):<br>— Clutch stroke sensor terminal C—PCM terminal 2BB<br>— Clutch stroke sensor terminal B—PCM terminal 2AJ<br>— Clutch stroke sensor terminal A—PCM terminal 2AH<br>• Is there continuity? | Yes | Go to the next step. |
| | | No | Repair or replace the wiring harness for a possible open circuit, then go to Step 23. |
| 22 | **INSPECT CLUTCH STROKE SENSOR**<br>• Inspect the clutch stroke sensor. (See CLUTCH STROKE SENSOR INSPECTION [SKYACTIV-D 2.2].)<br>• Is there any malfunction? | Yes | Replace the clutch master cylinder, then go to the next step. (See CLUTCH MASTER CYLINDER REMOVAL/ INSTALLATION [D66M-R, D66MX-R].) |
| | | No | Repeat Step 4. |
| 23 | **VERIFY DTC TROUBLESHOOTING COMPLETED**<br>• Always reconnect all disconnected connectors.<br>• Clear the DTC from the PCM memory using the M-MDS. (See AFTER REPAIR PROCEDURE [SKYACTIV-D 2.2].)<br>• Depress and release the clutch pedal.<br>• Perform the KOEO or KOER self test. (See KOEO/KOER SELF 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. (See PCM REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)<br>Go to the next step. |
| | | No | Go to the next step. |
| 24 | **VERIFY AFTER REPAIR PROCEDURE**<br>• Perform the “AFTER REPAIR PROCEDURE”. (See AFTER REPAIR PROCEDURE [SKYACTIV-D 2.2].)<br>• Are any DTCs present? | Yes | Go to the applicable DTC inspection. (See DTC TABLE [SKYACTIV-D 2.2].) |
| | | No | DTC troubleshooting completed. |