## DTC P0133:00 [SKYACTIV-D 2.2]

id0102s4702400

| DTC P0133:00 | A/F sensor circuit no activity detected |
|---|---|
| DETECTION CONDITION | • The PCM monitors the A/F sensor impedance when the following conditions are met. If the impedance is more than threshold (**40 Ω** (cold), **100 Ω** (hot)) for **5 s**, the PCM determines that A/F sensor is not activated.<br>**MONITORING CONDITIONS**<br>— Battery voltage: **11—16 V**<br>— A/F sensor feedback correction is actuated<br>**Diagnostic support note**<br>• This is a continuous monitor (A/F sensor).<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 | • PCM restricts engine torque.<br>• Inhibits the EGR control.<br>• Inhibits the diesel particulate filter regeneration control.<br>• Inhibits engine-stop by operating the i-stop function. |
| POSSIBLE CAUSE | • A/F sensor heater malfunction<br>• A/F sensor malfunction<br>— A/F sensor connector or terminals malfunction<br>— A/F sensor deterioration<br>— A/F sensor loose<br>— Exhaust system leakage<br>• PCM malfunction |
| SYSTEM WIRING DIAGRAM | Not applicable |

### Diagnostic Procedure

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 1 | **IDENTIFY TRIGGER DTC FOR FREEZE FRAME DATA (MODE 2)**<br>• Perform the Freeze Frame PID Data Access Procedure. (See ON-BOARD DIAGNOSTIC TEST [SKYACTIV-D 2.2].)<br>• Is the DTC P0133:00 on FREEZE FRAME DATA (Mode 2)? | Yes | Go to the next step. |
| | | No | Go to the troubleshooting procedure for DTC on FREEZE FRAME DATA (Mode 2). (See DTC TABLE [SKYACTIV-D 2.2].) |
| 2 | **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. |
| 3 | **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. |
| 4 | **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. |
| 5 | **INSPECT A/F SENSOR HEATER**<br>• Inspect the A/F sensor heater. (See AIR FUEL RATIO (A/F) SENSOR INSPECTION [SKYACTIV-D 2.2].)<br>• Is there any malfunction? | Yes | Replace the A/F sensor, then go to Step 10. (See AIR FUEL RATIO (A/F) SENSOR REMOVAL/ INSTALLATION [SKYACTIV-D 2.2].) |
| | | No | Go to the next step. |

| STEP | INSPECTION | | ACTION |
|---|---|---|---|
| 6 | **INSPECT A/F SENSOR CONNECTOR CONDITION**<br>• Switch the ignition off.<br>• Disconnect the A/F 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 10. |
| | | No | Go to the next step. |
| 7 | **INSPECT CURRENT SIGNAL STATUS OF A/F SENSOR**<br>• Reconnect all disconnected connectors.<br>• Inspect the A/F sensor.<br>(See AIR FUEL RATIO (A/F) SENSOR INSPECTION [SKYACTIV-D 2.2].)<br>• Is there any malfunction? | Yes | Go to the next step. |
| | | No | Go to Step 10. |
| 8 | **INSPECT INSTALLATION OF A/F SENSOR**<br>• Inspect installation of A/F sensor.<br>• Is the A/F sensor installed securely? | Yes | Go to the next step. |
| | | No | Retighten the A/F sensor, then go to Step 10.<br>(See AIR FUEL RATIO (A/F) SENSOR REMOVAL/ INSTALLATION [SKYACTIV-D 2.2].) |
| 9 | **INSPECT EXHAUST SYSTEM FOR LEAKAGE**<br>• Visually inspect for exhaust system.<br>• Is there any leakage? | Yes | Repair or replace the malfunctioning part according to the inspection results, then go to the next step. |
| | | No | Inspect the related wiring harness.<br>• If there is any malfunction:<br>— Repair or replace the suspected wiring harness, then go to the next step.<br>• If there is no malfunction:<br>— Replace the A/F sensor, then go to the next step.<br>(See AIR FUEL RATIO (A/F) SENSOR REMOVAL/ INSTALLATION [SKYACTIV-D 2.2].) |
| 10 | **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 Drive Mode Type A.<br>(See OBD DRIVE MODE [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. |
| 11 | **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. |