DTC P0134:00 [SKYACTIV-G 2.0, SKYACTIV-G 2.5]

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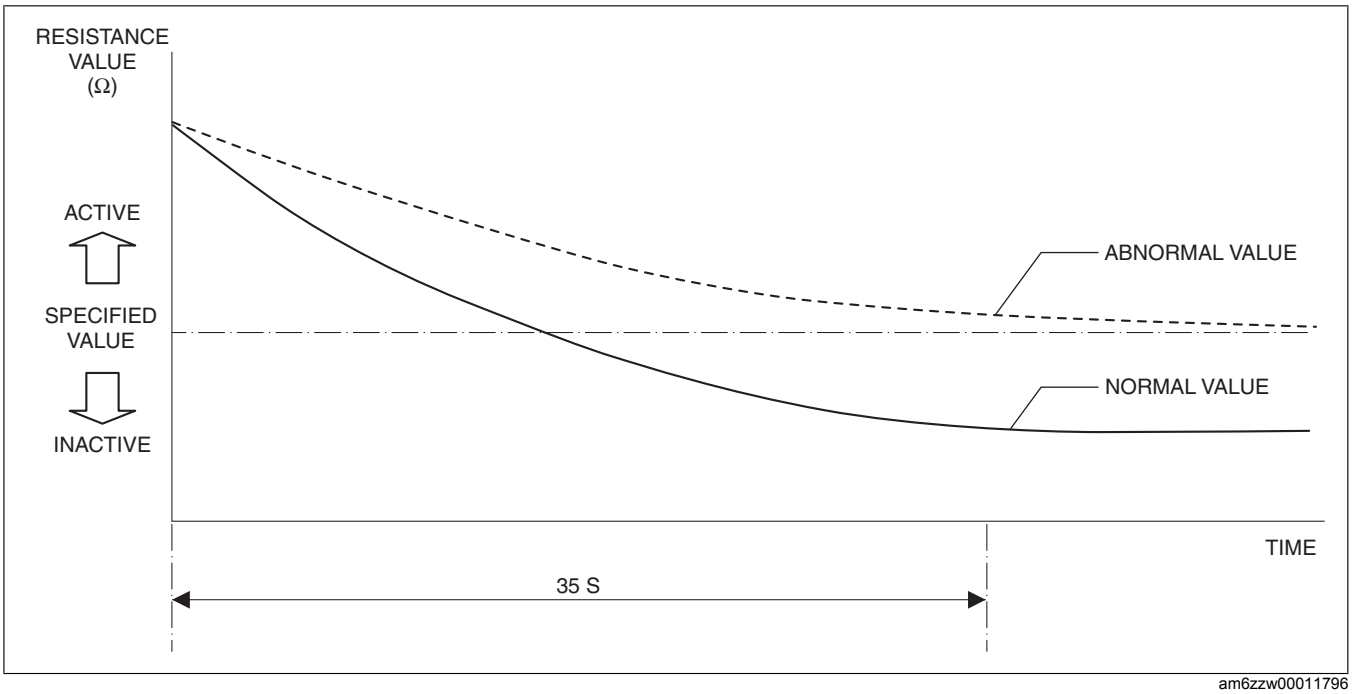
Note
- To determine the malfunctioning part, proceed with the diagnostics from "Function Inspection Using M-MDS".

Details On DTCs

DESCRIPTION	**A/F sensor circuit no activity detected**	
DETECTION CONDITION	Determination conditions	• The condition in which the A/F sensor element impedance is the specified value or more continues for **35 s**.
	Preconditions	• Battery voltage: **11—18 V** *1 • The following DTCs are not detected: — A/F sensor heater: P0031:00, P0032:00 — A/F sensor: P0131:00, P0132:00 *1: Value can be verified by displaying PIDs using M-MDS
	Malfunction determination period	• **35 s** period
	Drive cycle	• 2
	Self test type	• CMDTC self test
	Sensor used	• A/F sensor
FAIL-SAFE FUNCTION	• Fixes duty value of A/F sensor heater • Stops fuel feedback control of A/F sensor	
VEHICLE STATUS WHEN DTCs ARE OUTPUT	• Illuminates check engine light.	
POSSIBLE CAUSE	• A/F sensor malfunction — A/F sensor connector or terminals malfunction — A/F sensor loose — A/F sensor deterioration • A/F sensor related wiring harness malfunction • PCM malfunction	

System Wiring Diagram
- Not applicable

Function Explanation (DTC Detection Outline)
- The PCM performs verification as to whether a condition in which A/F (air/fuel ratio) detection is not implemented due to poor A/F sensor activation by a decrease in A/F sensor performance or other malfunction has occurred. A DTC is stored if the A/F sensor cannot implement feedback (non-active condition (resistance value is specified value or more)) for a continuous 35 s or more under the condition in which the A/F sensor heater control has been normally implemented. However, under a condition prior to the A/F sensor performing activation (such as ignition switched off), and if there is an open/short circuit (P2251:00) between the A/F sensor terminal D and PCM terminal 1AB (COM terminal), or an open/short circuit (P2243:00) between A/F sensor terminal F and PCM terminal 1W (B+ terminal), A/F sensor activation determination is not performed and A/F sensor non-activation (P0134:00) is determined. In addition, if a temporary malfunction is determined in the previous drive cycle because poor A/F sensor activation was determined at the second drive cycle, DTCs are established for each malfunction determination even if the PCM determined a COM open circuit (P2251:00 temporary malfunction) or a B+ open circuit (P2243:00 temporary malfunction) in the previous drive cycle.



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Repeatability Verification Procedure

1. Warm up the engine to allow the engine coolant temperature to reach **80 °C {176 °F} or more**.
2. Start the engine and leave it idling for **1 min**.

   Note
   - Match the engine coolant temperature in the recorded FREEZE FRAME DATA (Mode 2)/snapshot data, the vehicle speed, and engine speed values to the best extent possible while driving the vehicle.

3. Try to reproduce the malfunction by driving the vehicle for **5 min** based on the values in the FREEZE FRAME DATA (Mode 2)/snapshot data.

PID Item/Simulation Item Used In Diagnosis

PID/DATA monitor item table

Item	Definition	Unit/ Condition	Condition/Specification (Reference)
O2S11	A/F sensor	μA	• Idle (after warm up): Approx. -39 μA • Deceleration fuel cut (accelerator pedal released from engine speed of 4,000 rpm or more): Approx. 3.84 mA

Function Inspection Using M-MDS

STEP	INSPECTION	RESULTS	ACTION
1	**PURPOSE: 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.
2	**PURPOSE: IDENTIFY TRIGGER DTC FOR FREEZE FRAME DATA (MODE 2)** • Is the DTC P0134:00 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-G 2.0, SKYACTIV-G 2.5].)
3	**PURPOSE: RECORD VEHICLE STATUS AT TIME OF DTC DETECTION TO UTILIZE WITH REPEATABILITY VERIFICATION** • 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. **Note** • Recording can be facilitated using the screen capture function of the PC.

STEP	INSPECTION	RESULTS	ACTION
4	**PURPOSE: VERIFY IF DIAGNOSTIC RESULT IS AFFECTED BY DTC OCCURRING FROM A/F SENSOR UNIT OPEN OR SHORT CIRCUIT** • 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-G 2.0, SKYACTIV-G 2.5].) • Is the PENDING CODE/DTC P2243:00 or P2251:00 also present?	Yes	Go to the applicable DTC inspection. (See DTC P2243:00 [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) (See DTC P2251:00 [SKYACTIV-G 2.0, SKYACTIV-G 2.5].)
		No	Go to the next step.
5	**PURPOSE: VERIFY A/F SENSOR INPUT SIGNAL** • Start the engine and warm it up completely. • Access the O2S11 PID using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) • Drive the vehicle under the following conditions. **Warning** **• When the M-MDS is used to observe monitor system status while driving, be sure to have another technician with you, or record the data in the M-MDS using the PID/DATA MONITOR AND RECORD capturing function and inspect later.** **• While performing this step, always operate the vehicle in a safe and lawful manner.** — After increasing the engine speed to **3,000 rpm**, decelerate using engine braking. • Is the displayed PID value as follows? — O2S11: **0.25 mA or more**	Yes	Go to the troubleshooting procedure to perform the procedure from step 2.
		No	Go to the next step.
6	**INSPECT RELATED SENSOR WIRING HARNESS AND CONNECTOR** • Access the O2S11 PID using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) • Does the PID value fluctuate when the PCM and A/F sensor connectors are shaken?	Yes	Inspect the related wiring harness and connector. • Repair or replace the malfunctioning part. Go to the troubleshooting procedure to perform the procedure from Step 3.
		No	Go to the troubleshooting procedure to perform the procedure from Step 1.

Troubleshooting Diagnostic Procedure
Intention of troubleshooting procedure

- Step 1—2
  - — Perform an inspection of the A/F sensor signal related parts.
- Step 3—4
  - — Verify that the primary malfunction is resolved and there are no other malfunctions.

STEP	INSPECTION	RESULTS	ACTION
1	**PURPOSE: INSPECT INSTALLATION OF A/F SENSOR** • Inspect installation of A/F sensor. • Is the A/F sensor installed securely?	Yes	Replace the A/F sensor, then go to Step 3. (See AIR FUEL RATIO (A/F) SENSOR REMOVAL/INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].)
		No	Retighten the A/F sensor, then go to Step 3. (See AIR FUEL RATIO (A/F) SENSOR REMOVAL/INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].)
2	**PURPOSE: INSPECT INSTALLATION OF A/F SENSOR** • Inspect installation of A/F sensor. • Is the A/F sensor installed securely?	Yes	Go to the next step.
		No	Retighten the A/F sensor, then go to the next step. (See AIR FUEL RATIO (A/F) SENSOR REMOVAL/INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].)

STEP	INSPECTION	RESULTS	ACTION
3	**PURPOSE: VERIFICATION OF VEHICLE REPAIR COMPLETION** • Always reconnect all disconnected connectors. • Clear the DTC from the PCM memory using the M-MDS. (See AFTER REPAIR PROCEDURE [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) • Implement the repeatability verification procedure. (See Repeatability Verification Procedure.) • Perform the Pending Trouble Code Access Procedure. (See ON-BOARD DIAGNOSTIC TEST [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) • Is the PENDING CODE for this DTC present?	Yes	Repeat the inspection from Step 1. • If the malfunction recurs, replace the PCM. (See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) Go to the next step.
		No	Go to the next step.
4	**PURPOSE: VERIFY IF THERE IS ANY OTHER MALFUNCTION** • Is any other DTC or pending code stored?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [SKYACTIV-G 2.0, SKYACTIV-G 2.5].)
		No	DTC troubleshooting completed.