

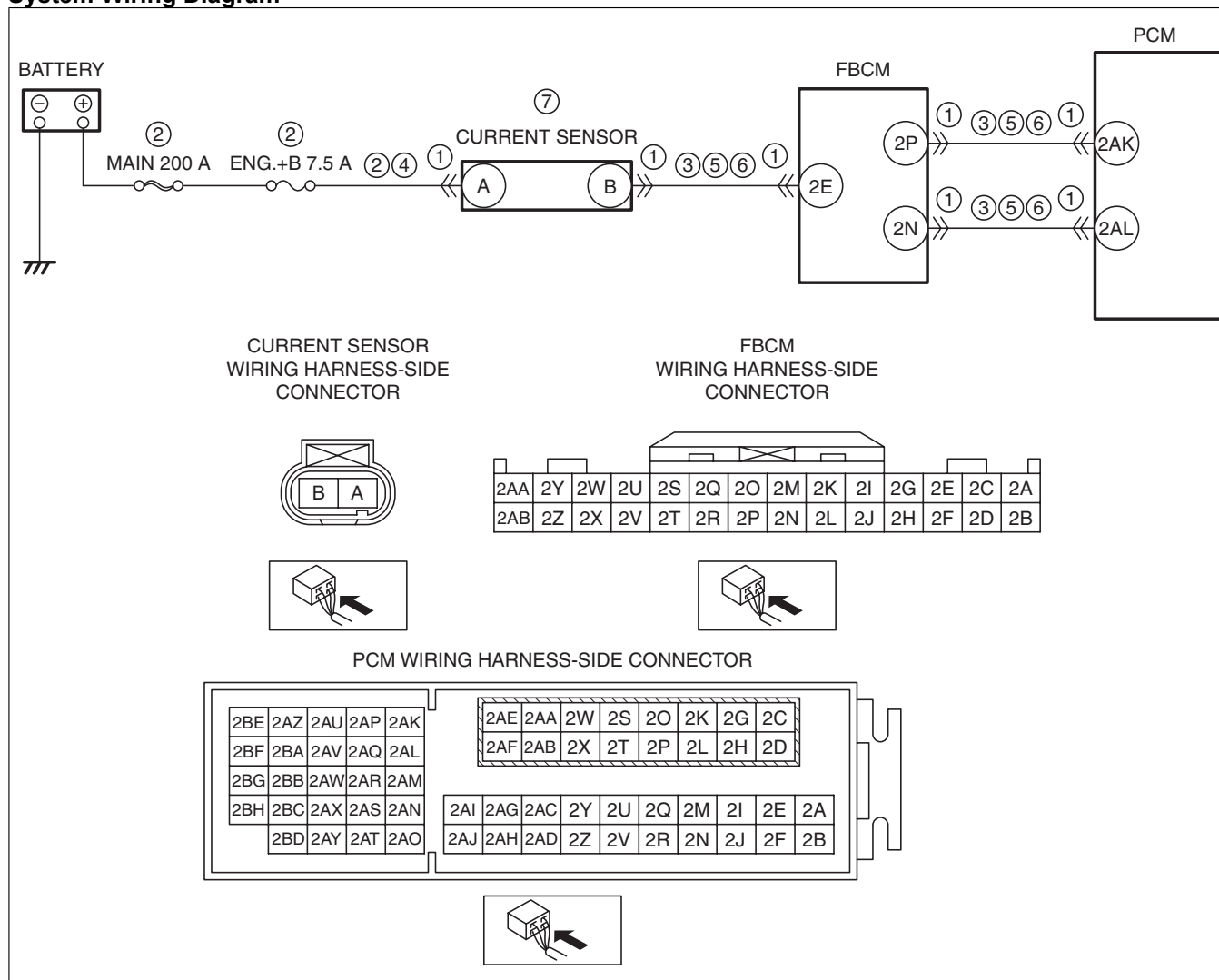
**DTC P058A:00 [SKYACTIV-D 2.2]**

id0102s4401100

**Details On DTCs**

DESCRIPTION	Current sensor: Function malfunction	
DETECTION CONDITION	Determination conditions	• Error signal from the current sensor is received.
	Preconditions	• Not applicable
	Drive cycle	• 2
	Self test type	• CMDTC self test
	Sensor used	• Current sensor
FAIL-SAFE FUNCTION	• Inhibits engine-stop by operating the i-stop function.	
VEHICLE STATUS WHEN DTCs ARE OUTPUT	• Flashes i-stop warning light (amber). • Illuminates master warning light. • The engine cannot be started or the engine may stall due to battery voltage decrease.	
POSSIBLE CAUSE	<ul style="list-style-type: none"><li>• Connector or terminal malfunction of the following parts:<ul style="list-style-type: none"><li>— Current sensor</li><li>— Front body control module (FBCM)</li><li>— PCM</li></ul></li><li>• Short to ground or open circuit in current sensor power supply circuit<ul style="list-style-type: none"><li>— Short to ground in wiring harness between battery positive terminal and current sensor terminal A</li><li>— MAIN 200 A fuse and/or ENG.+B 7.5 A fuse malfunction</li><li>— Open circuit in wiring harness between battery positive terminal and current sensor terminal A</li></ul></li><li>• Short to ground in wiring harness between the following terminals:<ul style="list-style-type: none"><li>— Current sensor terminal B—Front body control module (FBCM) terminal 2E</li><li>— Front body control module (FBCM) terminal 2P—PCM terminal 2AK</li><li>— Front body control module (FBCM) terminal 2N—PCM terminal 2AL</li></ul></li><li>• Short to power supply in wiring harness between the following terminals:<ul style="list-style-type: none"><li>— Battery positive terminal—Current sensor terminal A</li><li>— Current sensor terminal B—Front body control module (FBCM) terminal 2E</li><li>— Front body control module (FBCM) terminal 2P—PCM terminal 2AK</li><li>— Front body control module (FBCM) terminal 2N—PCM terminal 2AL</li></ul></li><li>• Open circuit in wiring harness between the following terminals:<ul style="list-style-type: none"><li>— Current sensor terminal B—Front body control module (FBCM) terminal 2E</li><li>— Front body control module (FBCM) terminal 2P—PCM terminal 2AK</li><li>— Front body control module (FBCM) terminal 2N—PCM terminal 2AL</li></ul></li><li>• Current sensor malfunction</li><li>• Front body control module (FBCM) malfunction</li><li>• PCM malfunction</li></ul>	

## System Wiring Diagram



ac5wzw00006583

### Function Explanation (DTC Detection Outline)

- The current sensor detects the battery condition and sends the battery condition signal to the PCM via the FBCM. The PCM receives the battery condition signal from the current sensor and controls the battery. If the current sensor malfunctions, the battery is constantly charged because battery control is lost, which could cause the fuel economy to worsen.
- The current sensor performs self-diagnosis on the battery voltage, battery fluid temperature and internal circuit, and if the PCM receives a malfunction signal from the current sensor, it stores a DTC.

### Repeatability Verification Procedure

- Start the engine.
- Wait for 10s (idle).

### PID Item/Simulation Item Used In Diagnosis

- Not applicable

### Function Inspection Using M-MDS

STEP	INSPECTION	RESULTS	ACTION
1	<b>PURPOSE: VERIFY RELATED SERVICE INFORMATION AVAILABILITY</b> <ul style="list-style-type: none"> <li>Verify related Service Information availability.</li> <li>Is any related Service Information available?</li> </ul>	Yes	Perform repair or diagnosis according to the available Service Information. <ul style="list-style-type: none"> <li>If the vehicle is not repaired, go to the next step.</li> </ul>
		No	Go to the next step.

STEP	INSPECTION	RESULTS	ACTION
2	<b>PURPOSE: VERIFY IF CURRENT SENSOR MALFUNCTION IS FALSELY RECOGNIZED BY DTC RELATED CAN OR LIN COMMUNICATION</b> <ul style="list-style-type: none"> <li>Switch the ignition off, then ON (engine off).</li> <li>Perform the PCM and front body control module (FBCM) DTC inspection using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [SKYACTIV-D 2.2].)</li> <li>(See DTC INSPECTION [FRONT BODY CONTROL MODULE (FBCM)].)</li> <li>Are DTCs related CAN or LIN communication recorded?</li> </ul>	Yes	Repair or replace the malfunctioning part according to the applicable DTC troubleshooting. (See DTC TABLE [SKYACTIV-D 2.2].)
		No	Go to the next step.
3	<b>PURPOSE: VERIFY IF CURRENT SENSOR MALFUNCTION IS FALSELY RECOGNIZED BY DTC RELATED TO FRONT BODY CONTROL MODULE (FBCM)</b> <ul style="list-style-type: none"> <li>Perform the front body control module (FBCM) DTC inspection using the M-MDS. (See DTC INSPECTION [FRONT BODY CONTROL MODULE (FBCM)].)</li> <li>Are any DTCs present?</li> </ul>	Yes	Go to the applicable DTC inspection. (See DTC TABLE [FRONT BODY CONTROL MODULE (FBCM)].)
		No	Go to the troubleshooting procedure to perform the procedure from Step 1.

## Troubleshooting Diagnostic Procedure

### Intention of troubleshooting procedure

- Step 1—6
  - Perform inspection of each signal transmission system.
- Step 7
  - Perform a unit inspection of the current sensor.
- Step 8—9
  - Verify that the primary malfunction is resolved and there are no other malfunctions.

STEP	INSPECTION	RESULTS	ACTION
1	<b>PURPOSE: VERIFY IF CONNECTOR DAMAGE OF EACH PART AFFECTS DIAGNOSTIC RESULTS</b> <p><b>Note</b></p> <ul style="list-style-type: none"> <li>Always disconnect current sensor connector before disconnecting the negative battery cable.</li> </ul> <ul style="list-style-type: none"> <li>Switch the ignition off.</li> <li>Disconnect the connector of the following parts.               <ul style="list-style-type: none"> <li>Current sensor</li> <li>Front body control module (FBCM)</li> <li>PCM</li> </ul> </li> <li>Inspect for poor connection (such as damaged/pulled-out pins, corrosion).</li> <li>Is there any malfunction?</li> </ul>	Yes	Repair or replace the connector and/or terminals, then go to Step 8.
		No	Go to the next step.

STEP	INSPECTION	RESULTS	ACTION
2	<b>PURPOSE: VERIFY IF OPEN CIRCUIT OR SHORT TO GROUND IN CURRENT SENSOR POWER SUPPLY CIRCUIT AFFECTS DIAGNOSTIC RESULTS</b> <ul style="list-style-type: none"> <li>Verify that the current sensor, front body control module (FBCM) and PCM connectors are disconnected.</li> <li>Measure the voltage at the current sensor terminal A (wiring harness-side).</li> <li>Is the voltage <b>0 V</b>?</li> </ul>	Yes	Inspect the MAIN 200 A fuse and ENG.+B 7.5 A fuse. <ul style="list-style-type: none"> <li>If the fuse is burnt out:               <ul style="list-style-type: none"> <li>Refer to the wiring diagram and verify whether or not there is a common connector between battery positive terminal and current sensor terminal A.</li> <li><b>If there is a common connector:</b> <ul style="list-style-type: none"> <li>Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for a short to ground.</li> <li>Repair or replace the malfunctioning part.</li> </ul> </li> <li><b>If there is no common connector:</b> <ul style="list-style-type: none"> <li>Repair or replace the wiring harness which has a short to ground.</li> <li>Replace the malfunctioning fuse.</li> </ul> </li> </ul> </li> <li>If the fuse is damaged:               <ul style="list-style-type: none"> <li>Replace the malfunctioning fuse.</li> </ul> </li> <li>If all fuses are normal:               <ul style="list-style-type: none"> <li>Refer to the wiring diagram and verify whether or not there is a common connector between battery positive terminal and current sensor terminal A.</li> <li><b>If there is a common connector:</b> <ul style="list-style-type: none"> <li>Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for an open circuit.</li> <li>Repair or replace the malfunctioning part.</li> </ul> </li> <li><b>If there is no common connector:</b> <ul style="list-style-type: none"> <li>Repair or replace the wiring harness which has an open circuit.</li> </ul> </li> </ul> </li> </ul> Go to Step 8.
		No	Go to the next step.
3	<b>PURPOSE: VERIFY IF SHORT TO GROUND IN EACH WIRING HARNESS AFFECTS DIAGNOSTIC RESULTS</b> <ul style="list-style-type: none"> <li>Verify that the current sensor, front body control module (FBCM) and PCM connectors are disconnected.</li> <li>Inspect for continuity between the following terminals (wiring harness-side) and body ground:               <ul style="list-style-type: none"> <li>Current sensor terminal B</li> <li>Front body control module (FBCM) terminal 2P</li> <li>Front body control module (FBCM) terminal 2N</li> </ul> </li> <li>Is there continuity?</li> </ul>	Yes	Refer to the wiring diagram and verify whether or not there is a common connector between the following terminals: <ul style="list-style-type: none"> <li>Current sensor terminal B—Front body control module (FBCM) terminal 2E</li> <li>Front body control module (FBCM) terminal 2P—PCM terminal 2AK</li> <li>Front body control module (FBCM) terminal 2N—PCM terminal 2AL</li> </ul> <b>If there is a common connector:</b> <ul style="list-style-type: none"> <li>Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for a short to ground.</li> <li>Repair or replace the malfunctioning part.</li> </ul> <b>If there is no common connector:</b> <ul style="list-style-type: none"> <li>Repair or replace the wiring harness which has a short to ground.</li> </ul> Go to Step 8.
		No	Go to the next step.

STEP	INSPECTION	RESULTS	ACTION
4	<b>PURPOSE: VERIFY IF SHORT TO POWER SUPPLY IN CURRENT SENSOR POWER SUPPLY CIRCUIT AFFECTS DIAGNOSTIC RESULTS</b> <ul style="list-style-type: none"> <li>Verify that the current sensor, front body control module (FBCM) and PCM connectors are disconnected.</li> <li>Switch the ignition ON (engine off).</li> <li>Measure the voltage at the current sensor terminal A (wiring harness-side).</li> <li>Is the voltage <b>above B+</b>?</li> </ul>	Yes	Refer to the wiring diagram and verify whether or not there is a common connector between battery positive terminal and current sensor terminal A. <b>If there is a common connector:</b> <ul style="list-style-type: none"> <li>Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for a short to power supply.</li> <li>Repair or replace the malfunctioning part.</li> </ul> <b>If there is no common connector:</b> <ul style="list-style-type: none"> <li>Repair or replace the wiring harness which has a short to power supply.</li> </ul> Go to Step 8.
		No	Go to the next step.
5	<b>PURPOSE: VERIFY IF SHORT TO POWER SUPPLY IN EACH WIRING HARNESS AFFECTS DIAGNOSTIC RESULTS</b> <ul style="list-style-type: none"> <li>Verify that the current sensor, front body control module (FBCM) and PCM connectors are disconnected.</li> <li>Measure the voltage at the following terminals (wiring harness-side): <ul style="list-style-type: none"> <li>Current sensor terminal B</li> <li>Front body control module (FBCM) terminal 2P</li> <li>Front body control module (FBCM) terminal 2N</li> </ul> </li> <li>Is the voltage <b>0 V</b>?</li> </ul>	Yes	Go to the next step.
		No	Refer to the wiring diagram and verify whether or not there is a common connector between the following terminals: <ul style="list-style-type: none"> <li>Current sensor terminal B—Front body control module (FBCM) terminal 2E</li> <li>Front body control module (FBCM) terminal 2P—PCM terminal 2AK</li> <li>Front body control module (FBCM) terminal 2N—PCM terminal 2AL</li> </ul> <b>If there is a common connector:</b> <ul style="list-style-type: none"> <li>Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for a short to power supply.</li> <li>Repair or replace the malfunctioning part.</li> </ul> <b>If there is no common connector:</b> <ul style="list-style-type: none"> <li>Repair or replace the wiring harness which has a short to power supply.</li> </ul> Go to Step 8.
6	<b>PURPOSE: VERIFY IF OPEN CIRCUIT IN EACH WIRING HARNESS AFFECTS DIAGNOSTIC RESULTS</b> <ul style="list-style-type: none"> <li>Verify that the current sensor, front body control module (FBCM) and PCM connectors are disconnected.</li> <li>Switch the ignition off.</li> <li>Inspect for continuity between the following terminals (wiring harness-side): <ul style="list-style-type: none"> <li>Current sensor terminal B—Front body control module (FBCM) terminal 2E</li> <li>Front body control module (FBCM) terminal 2P—PCM terminal 2AK</li> <li>Front body control module (FBCM) terminal 2N—PCM terminal 2AL</li> </ul> </li> <li>Is there continuity?</li> </ul>	Yes	Go to the next step.
		No	Refer to the wiring diagram and verify whether or not there is a common connector between the following terminals: <ul style="list-style-type: none"> <li>Current sensor terminal B—Front body control module (FBCM) terminal 2E</li> <li>Front body control module (FBCM) terminal 2P—PCM terminal 2AK</li> <li>Front body control module (FBCM) terminal 2N—PCM terminal 2AL</li> </ul> <b>If there is a common connector:</b> <ul style="list-style-type: none"> <li>Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for an open circuit.</li> <li>Repair or replace the malfunctioning part.</li> </ul> <b>If there is no common connector:</b> <ul style="list-style-type: none"> <li>Repair or replace the wiring harness which has an open circuit.</li> </ul> Go to Step 8.
7	<b>PURPOSE: DETERMINE INTEGRITY OF CURRENT SENSOR</b> <ul style="list-style-type: none"> <li>Inspect the current sensor. (See CURRENT SENSOR INSPECTION [SKYACTIV-D 2.2].)</li> <li>Is there any malfunction?</li> </ul>	Yes	Replace the current sensor, then go to the next step. (See CURRENT SENSOR REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
		No	Go to the next step.

STEP	INSPECTION	RESULTS	ACTION
8	<b>PURPOSE: VERIFICATION OF VEHICLE REPAIR COMPLETION</b> <ul style="list-style-type: none"> <li>• Always reconnect all disconnected connectors.</li> <li>• Clear the DTC from the PCM memory using the M-MDS. (See AFTER REPAIR PROCEDURE [SKYACTIV-D 2.2].)</li> <li>• Implement the repeatability verification procedure. (See Repeatability Verification Procedure.)</li> <li>• Perform the Pending Trouble Code Access Procedure. (See ON-BOARD DIAGNOSTIC TEST [SKYACTIV-D 2.2].)</li> <li>• Is the PENDING CODE for this DTC present?</li> </ul>	Yes	Repeat the inspection from Step 1. <ul style="list-style-type: none"> <li>• If the malfunction recurs, replace the PCM. (See PCM REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)</li> </ul> Go to the next step.
		No	Go to the next step.
9	<b>PURPOSE: VERIFY IF THERE IS ANY OTHER MALFUNCTION</b> <ul style="list-style-type: none"> <li>• Is any other DTC or pending code stored?</li> </ul>	Yes	Go to the applicable DTC inspection. (See DTC TABLE [SKYACTIV-D 2.2].)
		No	DTC troubleshooting completed.