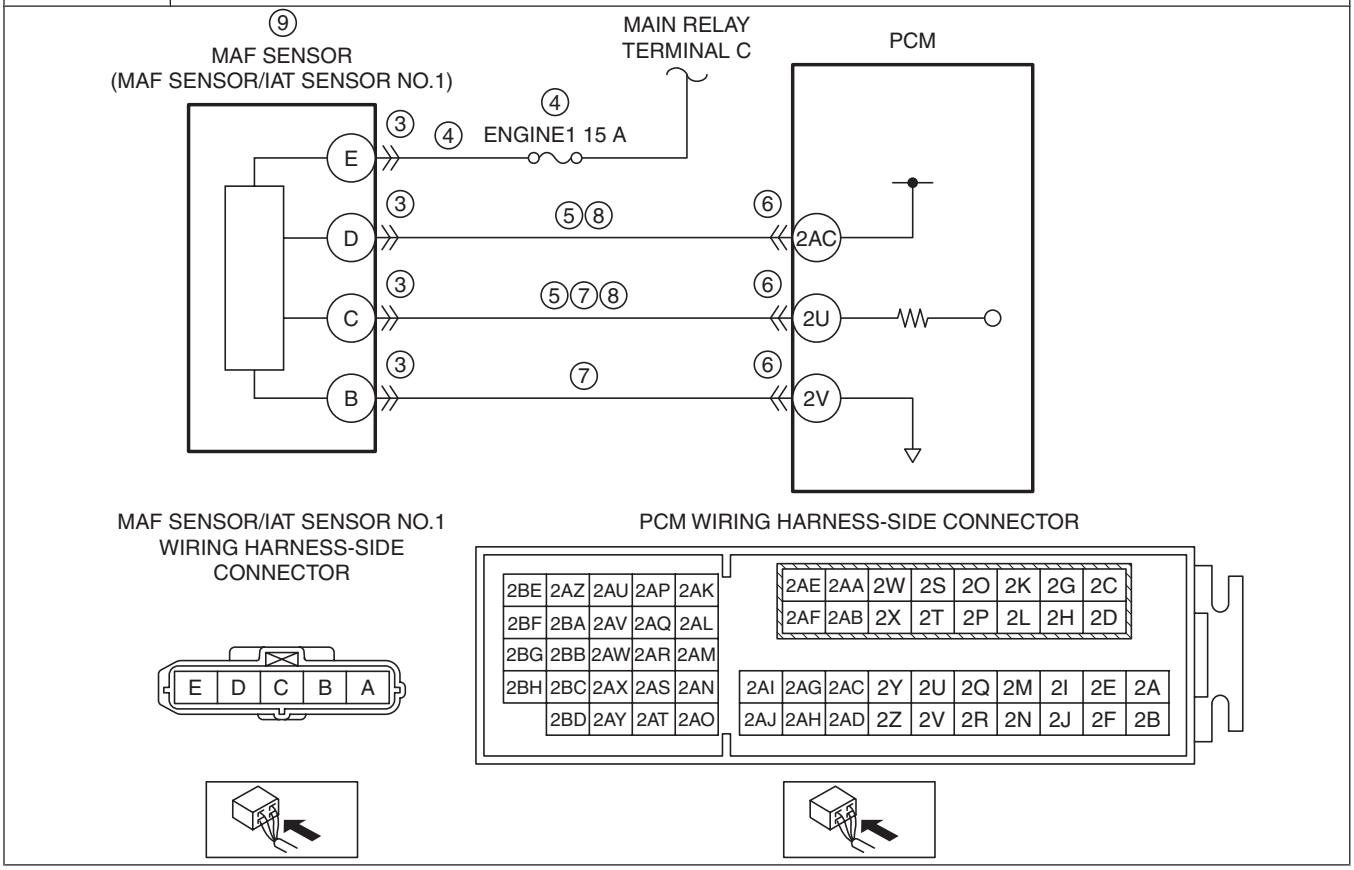
DTC P0102:00 [SKYACTIV-D 2.2]

id0102s4700900

DTC P0102:00	MAF sensor circuit low input
DETECTION CONDITION	• If the PCM detects that the MAF sensor voltage at the PCM terminal 2U is **0.10 V or less** for **5 s** with the following condition met, the PCM determines that the MAF sensor circuit voltage is low. **MONITORING CONDITIONS** — Battery voltage: **8—20 V** **Diagnostic support note** • This is a continuous monitor (CCM). • The check engine light illuminates if the PCM detects the above malfunction condition during the first drive cycle. • FREEZE FRAME DATA (Mode 2)/Snapshot data is available. • DTC is stored in the PCM memory.
FAIL-SAFE FUNCTION	• PCM restricts engine torque. • Inhibits the EGR control. • Inhibits the diesel particulate filter regeneration control. • The fast idle up correction for the idle speed control is inhibited. • Inhibits engine-stop by operating the i-stop function. • PCM restricts engine-transaxle integration control.
POSSIBLE CAUSE	• MAF sensor/IAT sensor No.1 connector or terminals malfunction • Short to ground or open circuit in MAF sensor power supply circuit — Short to ground in wiring harness between ENGINE1 15 A fuse and MAF sensor/IAT sensor No.1 terminal E — ENGINE1 15 A fuse malfunction — Open circuit in wiring harness between main relay terminal C and MAF sensor/IAT sensor No.1 terminal E • Short to ground in wiring harness between the following terminals: — MAF sensor/IAT sensor No.1 terminal D—PCM terminal 2AC — MAF sensor/IAT sensor No.1 terminal C—PCM terminal 2U • PCM connector or terminals malfunction • MAF sensor signal circuit and ground circuit are shorted to each other • Open circuit in wiring harness between the following terminals: — MAF sensor/IAT sensor No.1 terminal D—PCM terminal 2AC — MAF sensor/IAT sensor No.1 terminal C—PCM terminal 2U • MAF sensor malfunction • PCM malfunction

DTC P0102:00	MAF sensor circuit low input



Diagnostic Procedure

STEP	INSPECTION		ACTION
1	**VERIFY FREEZE FRAME DATA (MODE 2)/ SNAPSHOT DATA HAS BEEN RECORDED** • 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** • 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.
3	**INSPECT MAF SENSOR/IAT SENSOR NO.1 CONNECTOR CONDITION** • Switch the ignition off. • Disconnect the MAF sensor/IAT sensor No.1 connector. • Inspect for poor connection (such as damaged/ pulled-out pins, corrosion). • Is there any malfunction?	Yes	Repair or replace the connector and/or terminals, then go to Step 10.
		No	Go to the next step.
4	**INSPECT MAF SENSOR POWER SUPPLY CIRCUIT FOR SHORT TO GROUND OR OPEN CIRCUIT** • Verify that the MAF sensor/IAT sensor No.1 connector is disconnected. • Switch the ignition ON (engine off). • Measure the voltage at the MAF sensor/IAT sensor No.1 terminal E (wiring harness-side). • Is the voltage **B+**?	Yes	Go to the next step.
		No	Inspect the ENGINE1 15 A fuse. • If the fuse is blown: — Repair or replace the wiring harness for a possible short to ground. — Replace the fuse. • If the fuse is deteriorated: — Replace the fuse. • If the fuse is normal: — Repair or replace the wiring harness for a possible open circuit. Go to Step 10.

STEP	INSPECTION		ACTION
5	**INSPECT MAF SENSOR CIRCUIT FOR SHORT TO GROUND** • Verify that the MAF sensor/IAT sensor No.1 connector is disconnected. • Switch the ignition off. • Inspect for continuity between the following terminals (wiring harness-side) and body ground: — MAF sensor/IAT sensor No.1 terminal D — MAF sensor/IAT sensor No.1 terminal C • Is there continuity?	Yes	If the short to ground circuit could be detected in the wiring harness: • Repair or replace the wiring harness for a possible short to ground. If the short to ground circuit could not be detected in the wiring harness: • Replace the PCM (short to ground in the PCM internal circuit). (See PCM REMOVAL/INSTALLATION [SKYACTIV-D 2.2].) Go to Step 10.
		No	Go to the next step.
6	**INSPECT PCM CONNECTOR CONDITION** • Disconnect the PCM connector. • Inspect for poor connection (such as damaged/ pulled-out pins, corrosion). • 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 MAF SENSOR SIGNAL CIRCUIT AND GROUND CIRCUIT FOR SHORT TO EACH OTHER** • Verify that the MAF sensor/IAT sensor No.1 and PCM connectors are disconnected. • Inspect for continuity between MAF sensor/IAT sensor No.1 terminals C and B (wiring harness-side). • Is there continuity?	Yes	Repair or replace the wiring harness for a possible short to each other, then go to Step 10.
		No	Go to the next step.
8	**INSPECT MAF SENSOR CIRCUIT FOR OPEN CIRCUIT** • Verify that the MAF sensor/IAT sensor No.1 and PCM connectors are disconnected. • Inspect for continuity between the following terminals (wiring harness-side): — MAF sensor/IAT sensor No.1 terminal D— PCM terminal 2AC — MAF sensor/IAT sensor No.1 terminal C— PCM terminal 2U • Is there continuity?	Yes	Go to the next step.
		No	Repair or the replace the wiring harness for a possible open circuit, then go to Step 10.
9	**INSPECT MAF SENSOR** • Reconnect all disconnected connectors. • Inspect the MAF sensor. (See MASS AIR FLOW (MAF) SENSOR INSPECTION [SKYACTIV-D 2.2].) • Is there any malfunction?	Yes	Replace the MAF sensor/IAT sensor No.1, then go to the next step. (See MASS AIR FLOW (MAF) SENSOR/INTAKE AIR TEMPERATURE (IAT) SENSOR NO.1 REMOVAL/ INSTALLATION [SKYACTIV-D 2.2].)
		No	Go to the next step.
10	**VERIFY DTC TROUBLESHOOTING COMPLETED** • Always reconnect all disconnected connectors. • Clear the DTC from the PCM memory using the M-MDS. (See AFTER REPAIR PROCEDURE [SKYACTIV-D 2.2].) • Perform the KOEO or KOER self test. (See KOEO/KOER SELF TEST [SKYACTIV-D 2.2].) • Is the same DTC present?	Yes	Repeat the inspection from Step 1. • If the malfunction recurs, replace the PCM. (See PCM REMOVAL/INSTALLATION [SKYACTIV-D 2.2].) Go to the next step.
		No	Go to the next step.
11	**VERIFY AFTER REPAIR PROCEDURE** • Perform the “AFTER REPAIR PROCEDURE”. (See AFTER REPAIR PROCEDURE [SKYACTIV-D 2.2].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [SKYACTIV-D 2.2].)
		No	DTC troubleshooting completed.