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1993 MAZDA 323 (BF) Station Wagon OEM Service and Repair Workshop Manual

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STEP	INSPECTION	RESULTS	ACTION
2	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 [PCM (SKYACTIV-G 2.5T)].)
		No	DTC troubleshooting completed.

DTC U1100:00 [PCM (SKYACTIV-G 2.5T)]

SM2896614

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DTC U1100:00	LIN communication: communication error to engine oil level sensor
DETECTION CONDITION	• With the following conditions continued for 1.5 s, a communication error between the PCM and engine oil level sensor is continued for 5 s or more. — Battery voltage: 10–16 V — Ignition switched ON (engine off or on) Diagnostic support note • This is an intermittent monitor (other). • The check engine light does not illuminate. • FREEZE FRAME DATA is not available. • Snapshot data is available. • DTC is stored in the PCM memory.
FAIL-SAFE FUNCTION	• Not applicable
POSSIBLE CAUSE	• LIN communication line malfunction between engine oil level sensor and PCM • Engine oil level sensor connector or terminals malfunction • Short to ground or open circuit in engine oil level sensor power supply circuit — Short to ground in wiring harness between ENGINE3 15 A fuse and engine oil level sensor terminal A — ENGINE3 15 A fuse malfunction — Open circuit in wiring harness between main relay terminal C and engine oil level sensor terminal A • PCM connector or terminals malfunction • Engine oil level sensor malfunction • PCM malfunction

STEP	INSPECTION	RESULTS	ACTION
5	**INSPECT ENGINE OIL LEVEL SENSOR POWER SUPPLY CIRCUIT FOR SHORT TO GROUND OR OPEN CIRCUIT** • Verify that the engine oil level sensor connector is disconnected. • Switch the ignition ON (engine off). **Note** **• Another DTC may be stored by the PCM detecting an open circuit.** • Measure the voltage at the engine oil level sensor terminal A (wiring harness-side). • Is the voltage B+?	Yes	Go to the next step.
		No	Inspect the ENGINE3 15 A fuse. • If the fuse is blown: — Refer to the wiring diagram and verify whether or not there is a common connector between ENGINE3 15 A fuse and engine oil level sensor terminal A. **If there is a common connector:** • 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. • Repair or replace the malfunctioning part. **If there is no common connector:** • Repair or replace the wiring harness which has a short to ground. • Replace the fuse. • If the fuse is damaged: — Replace the fuse. • If the fuse is normal: — Refer to the wiring diagram and verify whether or not there is a common connector between main relay terminal C and engine oil level sensor terminal A. **If there is a common connector:** • 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. • Repair or replace the malfunctioning part. **If there is no common connector:** • Repair or replace the wiring harness which has an open circuit. Go to Step 8.
6	**INSPECT PCM CONNECTOR CONDITION** • Switch the ignition off. • 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 8.
		No	Go to the next step.
7	**INSPECT ENGINE OIL LEVEL SENSOR** • Inspect the engine oil level sensor. (See ENGINE OIL LEVEL SENSOR INSPECTION [SKYACTIV-G 2.5T].) • Is there any malfunction?	Yes	Replace the engine oil level sensor, then go to the next step. (See ENGINE OIL LEVEL SENSOR REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].)
		No	Go to the next step.

CLEARING DTC [PCM (SKYACTIV-G 2.5T)]

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1.Connect the M-MDS to the DLC-2.

2.After the vehicle is identified, select the following items from the initialization screen of the M-MDS.

(1)Select “Self Test”.

(2)Select “Modules”.

(3)Select “PCM”.

3.Then, select the “Retrieve CMDTCs” and perform procedures according to the directions on the M-MDS screen.

4.Verify the DTC according to the directions on the M-MDS screen.

5.Press the clear button on the DTC screen to clear the DTC.

6.Verify that no DTCs are displayed.

7.Switch the ignition off.

STEP	INSPECTION	RESULTS	ACTION
6	INSPECT MAIN RELAY CIRCUIT FOR SHORT TO GROUND • Verify that main relay is removed. • Inspect for continuity between the following terminals (wiring harness-side) and body ground: Main relay terminal C Main relay terminal E • Is there continuity?	Yes	Disconnect the PCM connector and inspect the wiring harness for short to ground. • If the short to ground circuit could be detected in the wiring harness: Refer to the wiring diagram and verify whether or not there is a common connector between the following terminals: • Main relay terminal C–PCM terminal 1CK • Main relay terminal C–PCM terminal 2S • Main relay terminal E–PCM terminal 2K If there is a common connector: • 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. • Repair or replace the malfunctioning part. If there is no common connector: • Repair or replace the wiring harness which has a 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-G 2.5T].) Go to Step 10.
		No	Go to the next step.
7	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.
8	INSPECT MAIN RELAY CIRCUIT FOR OPEN CIRCUIT • Verify that main relay is removed. • Verify that the PCM connector is disconnected. • Inspect for continuity between the following terminals (wiring harness-side): Main relay terminal C–PCM terminal 1CK Main relay terminal C–PCM terminal 2S Main relay terminal E–PCM terminal 2K • Is there continuity?	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: • Main relay terminal C–PCM terminal 1CK • Main relay terminal C–PCM terminal 2S • Main relay terminal E–PCM terminal 2K If there is a common connector: • 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. • Repair or replace the malfunctioning part. If there is no common connector: • Repair or replace the wiring harness which has an open circuit. Go to Step 10.

DTC P2122:00 [PCM (SKYACTIV-G 2.5T)]

SM2896576

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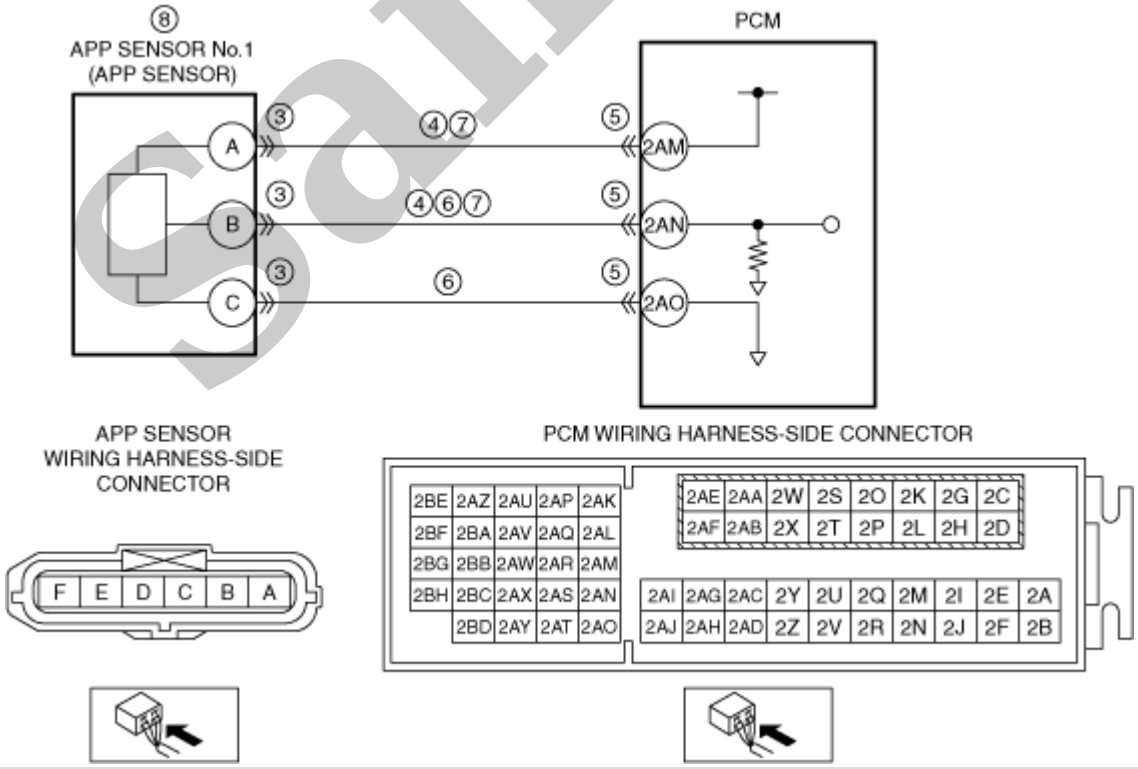
DTC P2122:00	APP sensor No.1 circuit low input
DETECTION CONDITION	• The PCM monitors the input voltage from APP sensor No.1. If the input voltage at the PCM terminal 2AN is less than 0.1 V, the PCM determines that the APP sensor No.1 circuit input voltage is low. Diagnostic support note • This is a continuous monitor (CCM). • The check engine light illuminates if the PCM detects the above malfunction condition during the first drive cycle. • FREEZE FRAME DATA/Snapshot data is available. • DTC is stored in the PCM memory.
FAIL-SAFE FUNCTION	• Regulates the upper limit of the APP sensor output.
POSSIBLE CAUSE	• APP sensor connector or terminals malfunction • Short to ground in wiring harness between the following terminals: — APP sensor terminal A–PCM terminal 2AM — APP sensor terminal B–PCM terminal 2AN • PCM connector or terminals malfunction • APP sensor No.1 signal circuit and ground circuit are shorted to each other • Open circuit in wiring harness between the following terminals: — APP sensor terminal A–PCM terminal 2AM — APP sensor terminal B–PCM terminal 2AN • APP sensor No.1 malfunction • PCM malfunction



Caution

• Verify the malfunction symptom according to not only the PID value but also the symptom troubleshooting.

STEP	INSPECTION	RESULTS	ACTION
7	**INSPECT APP SENSOR No.1 CIRCUIT FOR OPEN CIRCUIT** • Verify that the APP sensor and PCM connectors are disconnected. • Inspect for continuity between the following terminals (wiring harness-side): — APP sensor terminal A–PCM terminal 2AM — APP sensor terminal B–PCM terminal 2AN • Is there continuity?	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: • APP sensor terminal A–PCM terminal 2AM • APP sensor terminal B–PCM terminal 2AN **If there is a common connector:** • 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. • Repair or replace the malfunctioning part. **If there is no common connector:** • Repair or replace the wiring harness which has an open circuit. Go to Step 9.
8	**INSPECT APP SENSOR No.1** • Reconnect all disconnected connectors. • Inspect the APP sensor No.1. (See ACCELERATOR PEDAL POSITION (APP) SENSOR INSPECTION [SKYACTIV-G 2.5T].) • Is there any malfunction?	Yes	Replace the accelerator pedal, then go to the next step. (See ACCELERATOR PEDAL REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].)
		No	Go to the next step.
9	**VERIFY DTC TROUBLESHOOTING COMPLETED** • Always reconnect all disconnected connectors. • Clear the DTC from the PCM memory using the M-MDS. (See CLEARING DTC [PCM (SKYACTIV-G 2.5T)].) • Perform the KOEO or KOER self test. (See KOEO/KOER SELF TEST [PCM (SKYACTIV-G 2.5T)].) • Is the same Pending DTC present?	Yes	Repeat the inspection from Step 1. • If the malfunction recurs, replace the PCM. (See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].) Go to the next step.
		No	Go to the next step.
10	**VERIFY AFTER REPAIR PROCEDURE** • Perform the "AFTER REPAIR PROCEDURE". (See AFTER REPAIR PROCEDURE [PCM (SKYACTIV-G 2.5T)].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [PCM (SKYACTIV-G 2.5T)].)
		No	DTC troubleshooting completed.

STEP	INSPECTION	RESULTS	ACTION
5	**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 9.
		No	Go to the next step.
6	**INSPECT APP SENSOR No.1** • Reconnect all disconnected connectors. • Inspect the APP sensor No.1. (See ACCELERATOR PEDAL POSITION (APP) SENSOR INSPECTION [SKYACTIV-G 2.5T].) • Is there any malfunction?	Yes	Replace the accelerator pedal, then go to Step 9. (See ACCELERATOR PEDAL REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].)
		No	Go to Step 9.
7	**INSPECT APP SENSOR No.1 SIGNAL CIRCUIT FOR SHORT TO POWER SUPPLY** • Switch the ignition off. • Disconnect the APP sensor connector. • Access the APP1 PID using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5T)].) • Verify the APP1 PID value. • Is the APP1 PID value 5 V or B+?	Yes	Refer to the wiring diagram and verify whether or not there is a common connector between APP sensor terminal B and PCM terminal 2AN. **If there is a common connector:** • 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. • Repair or replace the malfunctioning part. **If there is no common connector:** • Repair or replace the wiring harness which has a short to power supply. Go to Step 9.
		No	Go to the next step.
8	**INSPECT APP SENSOR No.1 GROUND CIRCUIT FOR OPEN CIRCUIT** • Verify that the APP sensor connector is disconnected. • Switch the ignition off. • Disconnect the PCM connector. • Inspect for continuity between APP sensor terminal C (wiring harness-side) and PCM terminal 2AO (wiring harness-side). • Is there continuity?	Yes	Replace the accelerator pedal, then go to the next step. (See ACCELERATOR PEDAL REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].)
		No	Refer to the wiring diagram and verify whether or not there is a common connector between APP sensor terminal C and PCM terminal 2AO. **If there is a common connector:** • 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. • Repair or replace the malfunctioning part. **If there is no common connector:** • Repair or replace the wiring harness which has an open circuit. Go to the next step.
9	**VERIFY DTC TROUBLESHOOTING COMPLETED** • Always reconnect all disconnected connectors. • Clear the DTC from the PCM memory using the M-MDS. (See CLEARING DTC [PCM (SKYACTIV-G 2.5T)].) • Perform the KOEO or KOER self test. (See KOEO/KOER SELF TEST [PCM (SKYACTIV-G 2.5T)].) • Is the same Pending DTC present?	Yes	Repeat the inspection from Step 1. • If the malfunction recurs, replace the PCM. (See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].) Go to the next step.
		No	Go to the next step.
10	**VERIFY AFTER REPAIR PROCEDURE** • Perform the "AFTER REPAIR PROCEDURE". (See AFTER REPAIR PROCEDURE [PCM (SKYACTIV-G 2.5T)].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [PCM (SKYACTIV-G 2.5T)].)
		No	DTC troubleshooting completed.

STEP	INSPECTION	RESULTS	ACTION
4	**INSPECT APP SENSOR No.2 CIRCUIT FOR SHORT TO GROUND** • Verify that the APP sensor connector is disconnected. • Inspect for continuity between the following terminals (wiring harness-side) and body ground: — APP sensor terminal F — APP sensor terminal E • Is there continuity?	Yes	Disconnect the PCM connector and inspect the wiring harness for short to ground. • If the short to ground circuit could be detected in the wiring harness: — Refer to the wiring diagram and verify whether or not there is a common connector between the following terminals: • APP sensor terminal F–PCM terminal 2AC • APP sensor terminal E–PCM terminal 2AR **If there is a common connector:** • 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. • Repair or replace the malfunctioning part. **If there is no common connector:** • Repair or replace the wiring harness which has a 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-G 2.5T].) Go to Step 9.
		No	Go to the next step.
5	**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 9.
		No	Go to the next step.
6	**INSPECT APP SENSOR No.2 SIGNAL CIRCUIT AND GROUND CIRCUIT FOR SHORT TO EACH OTHER** • Verify that the APP sensor and PCM connectors are disconnected. • Inspect for continuity between APP sensor terminals E and D (wiring harness-side). • Is there continuity?	Yes	Refer to the wiring diagram and verify whether or not there is a common connector between the following terminals: • APP sensor terminal E–PCM terminal 2AR • APP sensor terminal D–PCM terminal 2AT **If there is a common connector:** • 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 each other. • Repair or replace the malfunctioning part. **If there is no common connector:** • Repair or replace the wiring harness which has a short to each other. Go to Step 9.
		No	Go to the next step.