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1989 MAZDA 323 (BG) Hatchback OEM Service and Repair Workshop Manual

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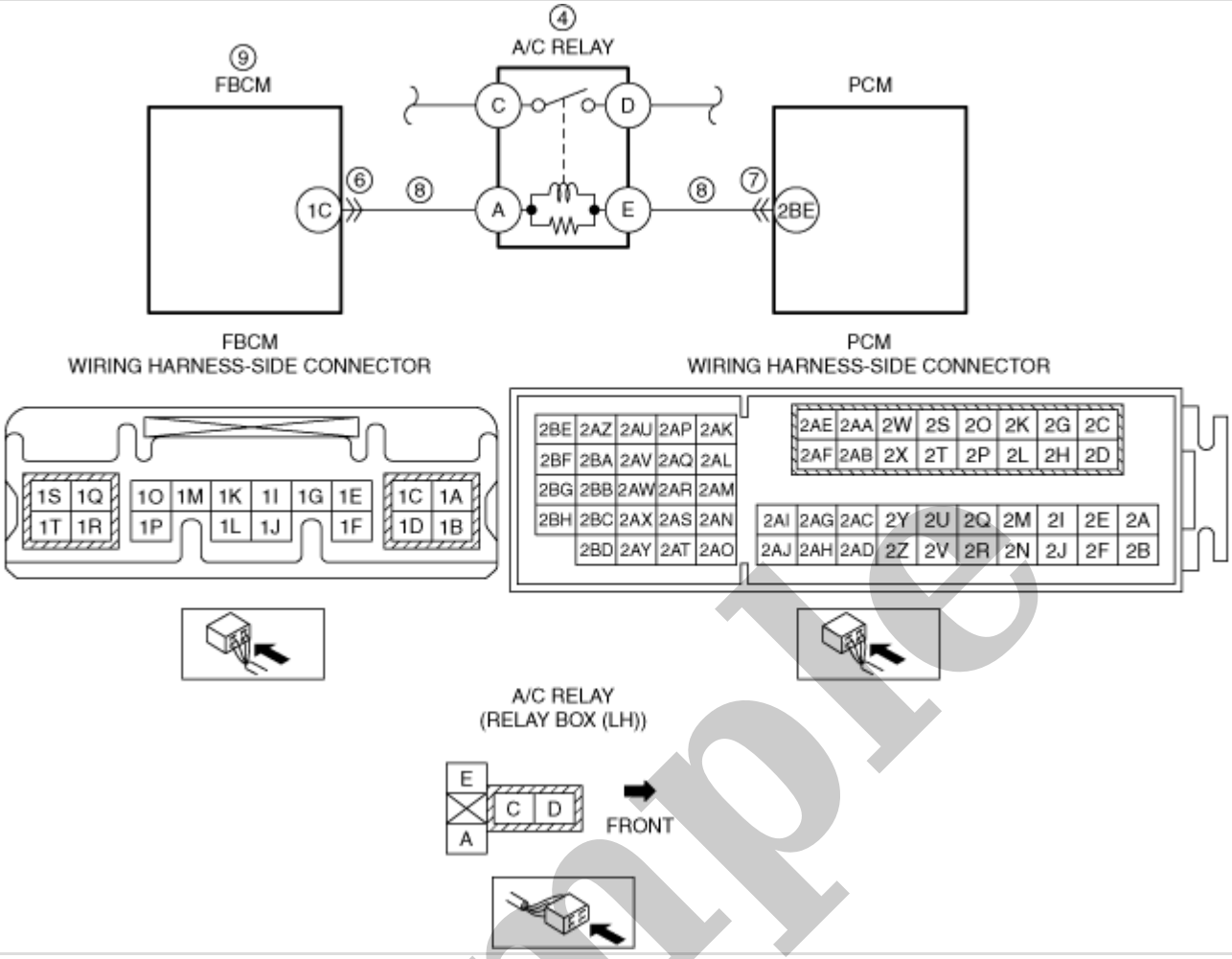
DTC P0646:00	A/C relay circuit low input



Diagnostic Procedure

STEP	INSPECTION	RESULTS	ACTION
1	RECORD VEHICLE STATUS AT TIME OF DTC DETECTION TO UTILIZE WITH REPEATABILITY VERIFICATION Note • Recording can be facilitated using the screen capture function of the PC. • Record the snapshot data on the repair order.	–	Go to the next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY • Verify related Service Bulletins and/or on-line repair information availability. • Is any related repair information available?	Yes	Perform repair or diagnosis according to the available repair information. • If the vehicle is not repaired, go to the next step.
		No	Go to the next step.

DTC P2031:00 [PCM (SKYACTIV-D 2.2)]

SM2896197

id0102j567890

DTC P2031:00	Exhaust gas temperature sensor No.2 circuit range/performance problem
POSSIBLE CAUSE	• Exhaust gas temperature sensor No.1 connector or terminals malfunction • Exhaust gas temperature sensor No.2 connector or terminals malfunction • Exhaust gas temperature sensor No.3 connector or terminals malfunction • Exhaust gas temperature sensor No.4 connector or terminals malfunction • Exhaust gas temperature sensor No.5 connector or terminals malfunction • PCM connector or terminals malfunction • Short to ground in wiring harness between the following terminals: — Exhaust gas temperature sensor No.1 terminal A—PCM terminal 1CI — Exhaust gas temperature sensor No.2 terminal A—PCM terminal 1CA — Exhaust gas temperature sensor No.3 terminal A—PCM terminal 1BW — Exhaust gas temperature sensor No.4 terminal A—PCM terminal 1DU — Exhaust gas temperature sensor No.5 terminal A—PCM terminal 1DQ • Short to power supply in wiring harness between the following terminals: — Exhaust gas temperature sensor No.1 terminal A—PCM terminal 1CI — Exhaust gas temperature sensor No.2 terminal A—PCM terminal 1CA — Exhaust gas temperature sensor No.3 terminal A—PCM terminal 1BW — Exhaust gas temperature sensor No.4 terminal A—PCM terminal 1DU — Exhaust gas temperature sensor No.5 terminal A—PCM terminal 1DQ • Open circuit in wiring harness between the following terminals: — Exhaust gas temperature sensor No.1 terminal A—PCM terminal 1CI — Exhaust gas temperature sensor No.1 terminal B—PCM terminal 1AC — Exhaust gas temperature sensor No.2 terminal A—PCM terminal 1CA — Exhaust gas temperature sensor No.2 terminal B—PCM terminal 1CB — Exhaust gas temperature sensor No.3 terminal A—PCM terminal 1BW — Exhaust gas temperature sensor No.3 terminal B—PCM terminal 1BS — Exhaust gas temperature sensor No.4 terminal A—PCM terminal 1DU — Exhaust gas temperature sensor No.4 terminal B—PCM terminal 1DR — Exhaust gas temperature sensor No.5 terminal A—PCM terminal 1DQ — Exhaust gas temperature sensor No.5 terminal B—PCM terminal 1DZ • Exhaust gas temperature sensor No.2 malfunction • PCM malfunction

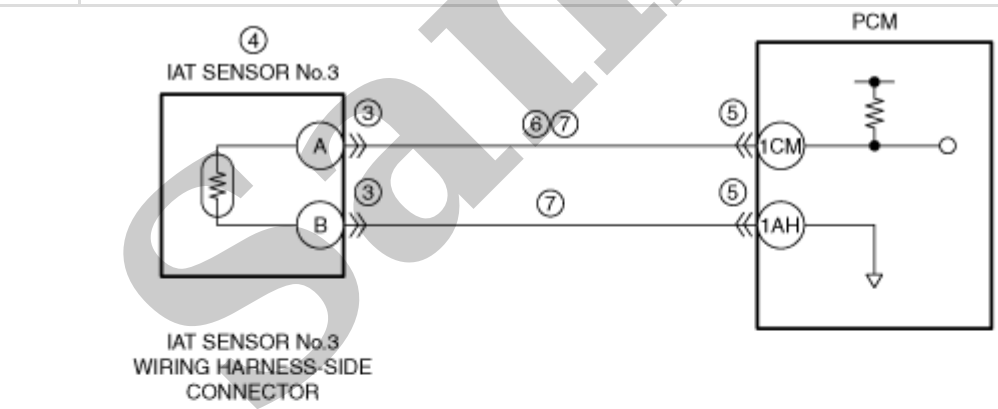
STEP	INSPECTION		ACTION
5	INSPECT EXHAUST GAS TEMPERATURE SENSOR CIRCUIT FOR SHORT TO GROUND • Verify that the exhaust gas temperature sensor No.1, exhaust gas temperature sensor No.2, exhaust gas temperature sensor No.3, exhaust gas temperature sensor No.4 and exhaust gas temperature sensor No.5 connectors are disconnected. • Switch the ignition off. • Inspect for continuity between the following terminals (wiring harness-side) and body ground: — Exhaust gas temperature sensor No.1 terminal A — Exhaust gas temperature sensor No.2 terminal A — Exhaust gas temperature sensor No.3 terminal A — Exhaust gas temperature sensor No.4 terminal A — Exhaust gas temperature sensor No.5 terminal A • Is there continuity?	Yes	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: — Exhaust gas temperature sensor No.1 terminal A–PCM terminal 1CI — Exhaust gas temperature sensor No.2 terminal A–PCM terminal 1CA — Exhaust gas temperature sensor No.3 terminal A–PCM terminal 1BW — Exhaust gas temperature sensor No.4 terminal A–PCM terminal 1DU — Exhaust gas temperature sensor No.5 terminal A–PCM terminal 1DQ **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-D 2.2].) Go to Step 9.
		No	Go to the next step.

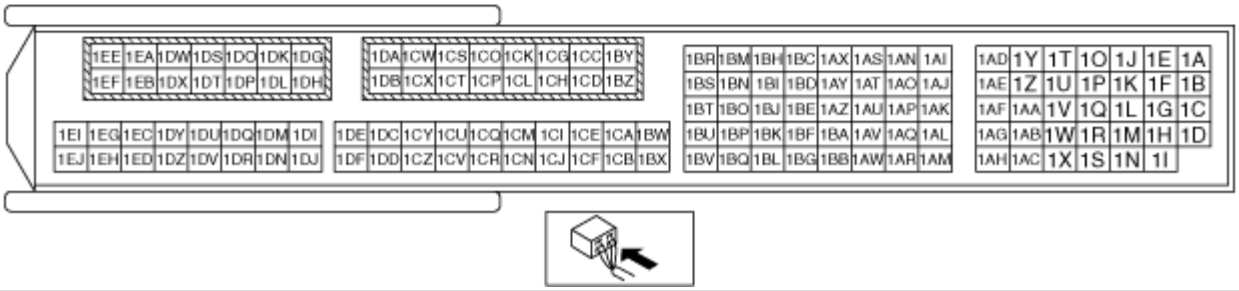
DTC P00EA:00 [PCM (SKYACTIV-D 2.2)]

SM2896273

id0102j577570

DTC P00EA:00	IAT sensor No.3 circuit low input
DETECTION CONDITION	• If the PCM detects that the IAT sensor No.3 voltage at the PCM terminal 1CM is below 0.05 V for 5 s with the following condition met, the PCM determines that the IAT sensor No.3 circuit voltage is low. MONITORING CONDITIONS — Battery voltage: 8 V or more 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	• Limits the engine torque or the upper limit of the engine speed. • Inhibits the DENOx/DESOx control. • Inhibits the EGR control. • PCM restricts engine-transaxle integration control.
POSSIBLE CAUSE	• Intake air temperature is too high • IAT sensor No.3 connector or terminals malfunction • IAT sensor No.3 malfunction • PCM connector or terminals malfunction • Short to ground in wiring harness between IAT sensor No.3 terminal A and PCM terminal 1CM • IAT sensor No.3 signal circuit and ground circuit are shorted to each other • PCM malfunction





DTC P00EB:00 [PCM (SKYACTIV-D 2.2)]

SM2896274

id0102j577580

DTC P00EB:00	IAT sensor No.3 circuit high input
DETECTION CONDITION	• The PCM monitors the input signal from the IAT sensor No.3. If the voltage from the IAT sensor No.3 is above 4.94 V for 5 s, the PCM determines that the IAT sensor No.3 circuit has a malfunction. MONITORING CONDITIONS — Battery voltage: 8 V or more 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	• Limits the engine torque or the upper limit of the engine speed. • Inhibits the DENOx/DESOx control. • Inhibits the EGR control. • PCM restricts engine-transaxle integration control.
POSSIBLE CAUSE	• Intake air temperature is too low • IAT sensor No.3 connector or terminals malfunction • PCM connector or terminals malfunction • Short to power supply in wiring harness between IAT sensor No.3 terminal A and PCM terminal 1CM • Open circuit in wiring harness between the following terminals: — IAT sensor No.3 terminal A—PCM terminal 1CM — IAT sensor No.3 terminal B—PCM terminal 1AH • IAT sensor No.3 malfunction • PCM malfunction

STEP	INSPECTION	RESULTS	ACTION
8	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-D 2.2)].) • Perform the KOEO or KOER self test. (See KOEO/KOER SELF TEST [PCM (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.
9	VERIFY AFTER REPAIR PROCEDURE • Perform the "AFTER REPAIR PROCEDURE". (See AFTER REPAIR PROCEDURE [PCM (SKYACTIV-D 2.2)].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [PCM (SKYACTIV-D 2.2)].)
		No	DTC troubleshooting completed.

the multi-information display. (With multi-information display)

Repeatability Verification Procedure

1. Start the engine and run it at idle.

PID Item/Simulation Item Used In Diagnosis

PID/DATA monitor item table

Item	Definition	Unit	Condition/Specification
EOL	Engine oil level	mm, in	• Displays engine oil level
EOT2	Engine oil temperature from engine oil level sensor	°C, °F	• Displays engine oil temperature

Function Inspection Using M-MDS

STEP	INSPECTION	RESULTS	ACTION
1	PURPOSE: RECORD VEHICLE STATUS AT TIME OF DTC DETECTION TO UTILIZE WITH REPEATABILITY VERIFICATION Note • Recording can be facilitated using the screen capture function of the PC. • Record the snapshot data on the repair order.	–	Go to the next step.
2	PURPOSE: VERIFY RELATED REPAIR INFORMATION AVAILABILITY • Verify related Service Bulletins and/or on-line repair information availability. • Is any related repair information available?	Yes	Perform repair or diagnosis according to the available repair information. • If the vehicle is not repaired, go to the next step.
		No	Go to the next step.
3	PURPOSE: IDENTIFY TRIGGER DTC FOR FREEZE FRAME DATA • Perform the Freeze Frame PID Data Access Procedure. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-D 2.2)].) • Is the DTC P250A:00 on FREEZE FRAME DATA?	Yes	Go to the next step.
		No	Go to the troubleshooting procedure for DTC on FREEZE FRAME DATA. (See DTC TABLE [PCM (SKYACTIV-D 2.2)].)
4	PURPOSE: VERIFY IF DIAGNOSTIC RESULT IS AFFECTED BY OTHER RELATED DTCs OCCURRING • Switch the ignition off, then ON (engine off). • Perform the Pending Trouble Code Access Procedure and DTC Reading Procedure. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-D 2.2)].) • Is the other PENDING CODE/DTC also present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [PCM (SKYACTIV-D 2.2)].)
		No	Go to the next step.

STEP	INSPECTION	RESULTS	ACTION
3	**INSPECT ENGINE OIL LEVEL SENSOR CIRCUIT FOR OPEN CIRCUIT** • Verify that the engine oil level sensor and PCM connectors are disconnected. • Inspect for continuity between engine oil level sensor terminal B (wiring harness-side) and PCM terminal 2G (wiring harness-side). • Is there continuity?	Yes	Replace the engine oil level sensor, then go to the next step. (See ENGINE OIL LEVEL SENSOR REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
		No	Refer to the wiring diagram and verify whether or not there is a common connector between engine oil level sensor terminal B and PCM terminal 2G. **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.
4	**PURPOSE: PERFORM DTC INSPECTION AND VERIFY IF MALFUNCTIONING PART IS PCM** • Always reconnect all disconnected connectors. • Clear the DTC from the PCM memory using the M-MDS. (See CLEARING DTC [PCM (SKYACTIV-D 2.2)].) • Implement the repeatability verification procedure. (See Repeatability Verification Procedure.) • Perform the DTC Reading Procedure. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-D 2.2)].) • 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-D 2.2].) Go to the next step.
		No	Go to the next step.
5	**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-D 2.2)].)
		No	DTC troubleshooting completed.