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1990 MAZDA 323 (BG) Sedan OEM Service and Repair Workshop Manual

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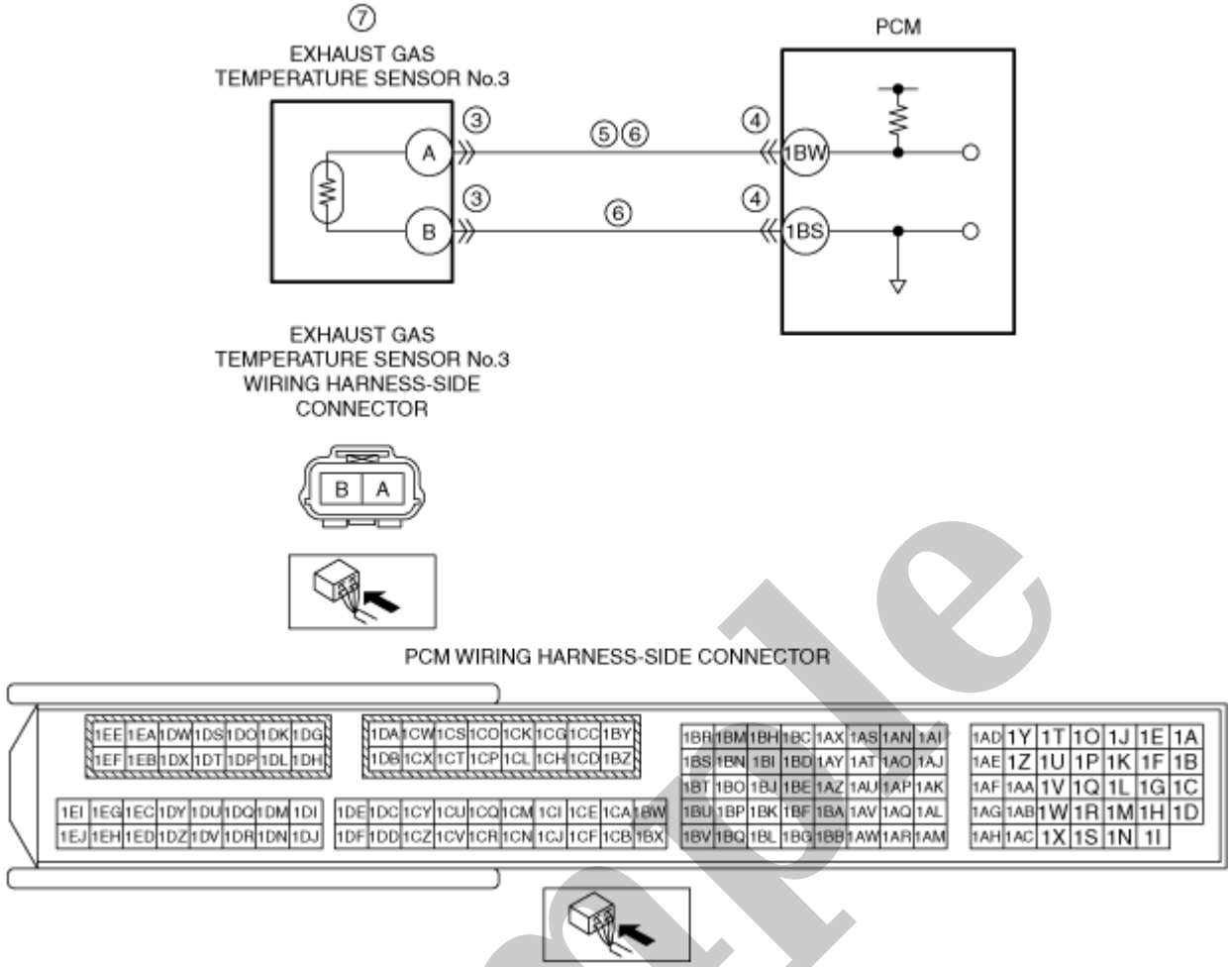
DTC P242D:00	Exhaust gas temperature sensor No.3 circuit high input



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 FREEZE FRAME DATA/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 P206B:00 [PCM (SKYACTIV-D 2.2)]

SM2896057

id0102j520620

DTC P206B:00	Diesel Exhaust Fluid (DEF) quality sensor range/performance
DETECTION CONDITION	• With the following conditions met, the difference between the temperature sensor of the DEF Quality sensor and the urea temperature sensor is more than 19.56 °C {67.21 °F} or less than -29.34 °C {-20.8 °F}. MONITORING CONDITIONS — Ignition switched ON — Period vehicle being left: 6 h or more — Diesel exhaust fluid (DEF) amount: 23.5 % — Ambiant temperature is higher than specified value — Battery voltage: 8 V or more — The following DTC is not detected: • DEF quality sensor: P206C:00, P206D:00, P207F:00, P21CE:00 Diagnostic support note • This is a continuous monitor (CCM). • The check engine light illuminates if the PCM detects the above malfunction condition in two consecutive drive cycles or in one drive cycle while the DTC for the same malfunction has been stored in the PCM. • PENDING CODE is available if the PCM detects the above malfunction condition during first drive cycle. • FREEZE FRAME DATA/Snapshot data is available. • DTC is stored in the PCM memory. Note • When this DTC is detected, inducement DTC P2BAF:00 is also detected. • This DTC is established to record that the inducement warning has been activated with the remaining distance to empty at 402 km {250 miles} or less due to an inducement malfunction.
FAIL-SAFE FUNCTION	• Not applicable
POSSIBLE CAUSE	• Urea level sensor/urea temperature sensor/urea tank heater/diesel exhaust fluid (DEF) quality sensor connector or terminals malfunction • Dosing control unit connector or terminals malfunction • PCM connector or terminals malfunction • CAN communication line malfunction • Diesel exhaust fluid (DEF) quality sensor malfunction • Urea temperature sensor malfunction • Dosing control unit malfunction • PCM malfunction
SYSTEM WIRING DIAGRAM	• Not applicable

Diagnostic Procedure

DTC P242C:00 [PCM (SKYACTIV-D 2.2)]

SM2896055

id0102j515890

DTC P242C:00	Exhaust gas temperature sensor No.3 circuit low input
DETECTION CONDITION	• The PCM monitors the exhaust gas temperature sensor No.3 signal. If the PCM detects that the exhaust gas temperature sensor No.3 voltage at the PCM terminal 1BW is below 0.14 V for 5 s, the PCM determines that the exhaust gas temperature 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	• PCM restricts engine torque. • Inhibits the automatic diesel particulate filter regeneration control and compulsory diesel particulate filter regeneration control. • Inhibits the DENOx/DESOx control. • Stops activation of the A/F sensor heater. • Inhibits the EGR control.
POSSIBLE CAUSE	• Exhaust gas temperature sensor No.3 connector or terminals malfunction • PCM connector or terminals malfunction • Short to ground in wiring harness between exhaust gas temperature sensor No.3 terminal A and PCM terminal 1BW • Exhaust gas temperature sensor No.3 signal circuit and ground circuit are shorted to each other • Exhaust gas temperature 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.

STEP	INSPECTION		ACTION
5	INSPECT EGR VALVE • Inspect the EGR valve. (See EGR VALVE INSPECTION [SKYACTIV-D 2.2].) • Is there any malfunction?	Yes	Replace the EGR valve, then go to the next step. (See EGR VALVE REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
		No	Go to the next step.
6	VERIFY DTC TROUBLESHOOTING COMPLETED • Always reconnect all disconnected connectors. • Clear the DTC from the PCM memory using the M-MDS. (See AFTER REPAIR PROCEDURE [PCM (SKYACTIV-D 2.2)].) • Start the engine and idle it. • Wait until the ECT PID value is above 80 °C {176 °F}. • Wait for 1 min (idle). • Perform the DTC Reading Procedure. (See ON-BOARD DIAGNOSTIC 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.
7	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.

STEP	INSPECTION	RESULTS	ACTION
3	**INSPECT COMPRESSOR BYPASS SOLENOID VALVE CONNECTOR CONDITION** • Switch the ignition off. • Disconnect the compressor bypass solenoid valve 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.
4	**INSPECT COMPRESSOR BYPASS SOLENOID VALVE POWER SUPPLY CIRCUIT FOR SHORT TO GROUND OR OPEN CIRCUIT** • Verify that the compressor bypass solenoid valve 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 compressor bypass solenoid valve terminal A (wiring harness-side). • Is the voltage B+?	Yes	Go to the next step.
		No	Inspect the ENGINE2 15 A fuse. • If the fuse is blown: — Refer to the wiring diagram and verify whether or not there is a common connector between ENGINE2 15 A fuse and compressor bypass solenoid valve 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 compressor bypass solenoid valve 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 9.
5	**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 9.
		No	Go to the next step.

STEP	INSPECTION		ACTION
1	**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.
2	**VERIFY DTC REPEATABILITY** • Clear the DTC from the PCM memory using the M-MDS. (See CLEARING DTC [PCM (SKYACTIV-D 2.2)].) • Start the engine and warm it up completely. • Perform the DTC Reading Procedure. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-D 2.2)].) • Is the same DTC present?	Yes	Go to the next step.
		No	DTC troubleshooting completed. • Explain to the customer that P2299:00 is stored by the brake override system operation.
3	**VERIFY VEHICLE USE CONDITION** • Verify the vehicle use condition. — The floor mat is doubled over — The floor mat is spread against the accelerator pedal — The accelerator and brake pedals are being depressed simultaneously • Are any of the conditions above applicable to vehicle use condition?	Yes	**There is a malfunction in a related floor mat** • Explain to the customer that the floor mat may prevent the accelerator pedal from springing back after release, then go to Step 10. **There is a malfunction in the pedal operation** • Give the customer advice on how to depress the accelerator and brake pedals while driving the vehicle, then go to Step 10.
		No	Go to the next step.
4	**INSPECT APP SENSOR** • Is the condition of the accelerator pedal one of the following? — Accelerator pedal sticking has occurred when operated — There is evidence of accelerator pedal disassembly	Yes	Replace the accelerator pedal, then go to Step 10. (See ACCELERATOR PEDAL REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
		No	Go to the next step.
5	**VERIFY CURRENT INPUT SIGNAL STATUS OF APP SENSOR** • Access the following PIDs using the M-MDS: (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-D 2.2)].) — APP1 — APP2 • Does the value for PID APP1, APP2 change when the accelerator pedal is continually depressed?	Yes	Go to Step 7.
		No	Go to the next step.
6	**INSPECT APP SENSOR RELATED WIRING HARNESS AND CONNECTOR** • Inspect the wiring harness related to the APP sensor for connector disconnection, short circuit, and poor contact. • Is there any malfunction?	Yes	Repair or replace the malfunctioning part according to the inspection results, then go to Step 10.
		No	APP sensor malfunction. • Replace the accelerator pedal, then go to Step 10. (See ACCELERATOR PEDAL REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
7	**VERIFY CURRENT INPUT SIGNAL STATUS OF BRAKE SWITCH** • Access the following PIDs using the M-MDS: (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-D 2.2)].) — BOO — BPA • Are all PIDs normal? (See PCM INSPECTION [SKYACTIV-D 2.2].)	Yes	It is possible that the accelerator and brake pedals have been depressed simultaneously. (during braking operation using left foot) • Go to Step 10.
		No	Go to the next step.

DESCRIPTION	P1052:00: Fuel injector No.1 system: Fuel injection amount increases	
	P1054:00: Fuel injector No.2 system: Fuel injection amount increases	
	P1056:00: Fuel injector No.3 system: Fuel injection amount increases	
	P1058:00: Fuel injector No.4 system: Fuel injection amount increases	
DETECTION CONDITION	Determination conditions	• The PCM detects that the difference between the actual main fuel injection amount of fuel injectors No.1 to No.4 and the target main fuel injection amount is larger than the specified value during the specified rotation.
	Preconditions	• Battery voltage: 10.5–18 V [*1] • Engine speed: 700–2,500 rpm [*1] • Diesel particulate filter regeneration control is not performed • Target main fuel injection amount is greater than 15 mm^3/stroke and 45 mm^3/stroke • Actual fuel pressure is greater than 120 MPa {1224 kgf/cm^2, 17405 psi} and less than 217 MPa {2213 kgf/cm^2, 31474 psi} • Engine coolant temperature is greater than 5 °C {41 °F} [*1] • Fuel temperature is greater than 5 °C {41 °F} [*1] • The following DTCs are not detected: — Fuel injector: P0201:00, P0202:00, P0203, P0204:00, P2146:00, P2147:00, P2148:00, P2149:00, P2150:00, P2151:00, P1378:00, P1379:00, P2696:00, P268C:00, P268D:00, P268E:00, P268F:00 — Fuel pressure sensor (integrated with fuel injector): P10C1:00, P10C2:00, P10C3:00, P10C4:00, P10C5:00, P10C6:00, P10C7:00, P10C8:00, P10C9:00, P10CA:00, P10CB:00, P10CC:00, P10CD:00 — Fuel temperature sensor (integrated with fuel injector): P10D1:00, P10D2:00, P10D3:00, P10D4:00, P10D5:00 — ECT sensor No.1: P0116:00, P0117:00, P0118:00 — Sensor reference voltage: P0698:00, P0699:00, P06A4:00, P06A5:00 — Fuel system: P0087:00, P0088:00, P310B:00, P310C:00 — Idle speed control system: P0506:00 — LIN communication system: U1201:00, U1202:00, U1203:00, U1204:00 — Fuel pressure relief valve: P009B:00 — Suction control valve: P062A:00 — PCM: P0601:00, P0606:00, P060A:00, P062B:00, P06B8:00 [*1]: Standard can be verified by displaying PIDs using M-MDS
	Malfunction determination period	• 36,000 deg.CA (Accumulate)
	Drive cycle	• 2
	Self test type	• CMDTC self test
	Sensor used	• Fuel injector No.1 • Fuel injector No.2 • Fuel injector No.3 • Fuel injector No.4 • Fuel pressure sensor/fuel temperature sensor No.1 (built-into fuel injector No.1) • Fuel pressure sensor/fuel temperature sensor No.2 (built-into fuel injector No.2) • Fuel pressure sensor/fuel temperature sensor No.3 (built-into fuel injector No.3) • Fuel pressure sensor/fuel temperature sensor No.4 (built-into fuel injector No.4)
FAIL-SAFE FUNCTION	• 36,000 deg.CA (Acuumulate)	
VEHICLE STATUS WHEN DTCs ARE OUTPUT	• Illuminates check engine light.	

STEP	INSPECTION	RESULTS	ACTION
1	**PURPOSE: DETERMINE INTEGRITY OF FUEL INJECTOR No.1–No.4** • Inspect the fuel injector No.1–No.4. (See FUEL INJECTOR INSPECTION [SKYACTIV-D 2.2].) • Is there any malfunction?	Yes	Replace the suspected fuel injector, then go to Step 4. (See FUEL INJECTOR REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
		No	Go to the next step.
2	**PURPOSE: INSPECT FUEL PRESSURE SENSOR No.1–No.4** • Inspect the fuel pressure sensor No.1–No.4. (See FUEL PRESSURE SENSOR INSPECTION [SKYACTIV-D 2.2].) • Is there any malfunction?	Yes	Replace the suspected fuel injector, then go to Step 4. (See FUEL INJECTOR REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
		No	Go to the next step.
3	**PURPOSE: INSPECT FUEL TEMPERATURE SENSOR No.1–No.4** • Inspect the fuel temperature sensor No.1–No.4. (See FUEL TEMPERATURE SENSOR INSPECTION [SKYACTIV-D 2.2].) • Is there any malfunction?	Yes	Replace the suspected fuel injector, then go to the next step. (See FUEL INJECTOR REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
		No	Go to the next step.
4	**PURPOSE: VERIFICATION OF VEHICLE REPAIR COMPLETION** • 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 Pending Trouble Code Access Procedure. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-D 2.2)].) • Is the PENDING CODE/DTC P1052:00, P1054:00, P1056:00 or P1058:00 also 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.