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1986 MAZDA 323 (BF) Station Wagon OEM Service and Repair Workshop Manual

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DTC P0106:00 [PCM (SKYACTIV-D 2.2)]

SM2896015

id0102j514670

DTC P0106:00	MAP sensor No.2 circuit range/performance problem
DETECTION CONDITION	• If the PCM detects all of the following conditions for a continuous 3 s: — Difference between MAP sensor No.1 value and MAP sensor No.2 value is outside of the range of ±19 kPa {143 mmHg, 5.6 inHg} — Difference between BARO sensor value and MAP sensor No.2 value is outside of the range of ±10.1 kPa {75.8 mmHg, 2.98 inHg} — Difference between exhaust gas pressure sensor No.1 value and MAP sensor No.2 value is outside of the range of ±30.6 kPa {230 mmHg, 9.04 inHg} MONITORING CONDITIONS — Battery voltage: 8 V or more — 7–10 s from when ignition is switched off. — The following DTCs are not detected: • BARO sensor: P2228:00, P2229:00 • MAP sensor No.1: P0237:00, P0238:00 • Exhaust gas pressure sensor No.1: P0472:00, P0473:00 • MAP sensor No.2: P0107:00, P0108:00 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	• Inhibits the compulsory diesel particulate filter regeneration control. • Inhibits the DENOx/DESOx control. • Stops activation of the A/F sensor heater. • Fully opens the intake shutter valve opening angle. • Inhibits the EGR control. • PCM restricts engine-transaxle integration control.
POSSIBLE CAUSE	• Open or short circuit in wiring harness between the following terminals: — MAP sensor No.2–PCM — MAP sensor No.1–PCM — Exhaust gas pressure sensor No.1–PCM — BARO sensor (PCM internal circuit)–PCM • MAP sensor No.2 connector or terminals malfunction • MAP sensor No.1 connector or terminals malfunction • Exhaust gas pressure sensor No.1 connector or terminals malfunction • PCM connector or terminals malfunction • MAP sensor No.2 malfunction • PCM malfunction
SYSTEM WIRING DIAGRAM	Not applicable

Diagnostic Procedure

DTC P0116:00 [PCM (SKYACTIV-D 2.2)]

SM2896016

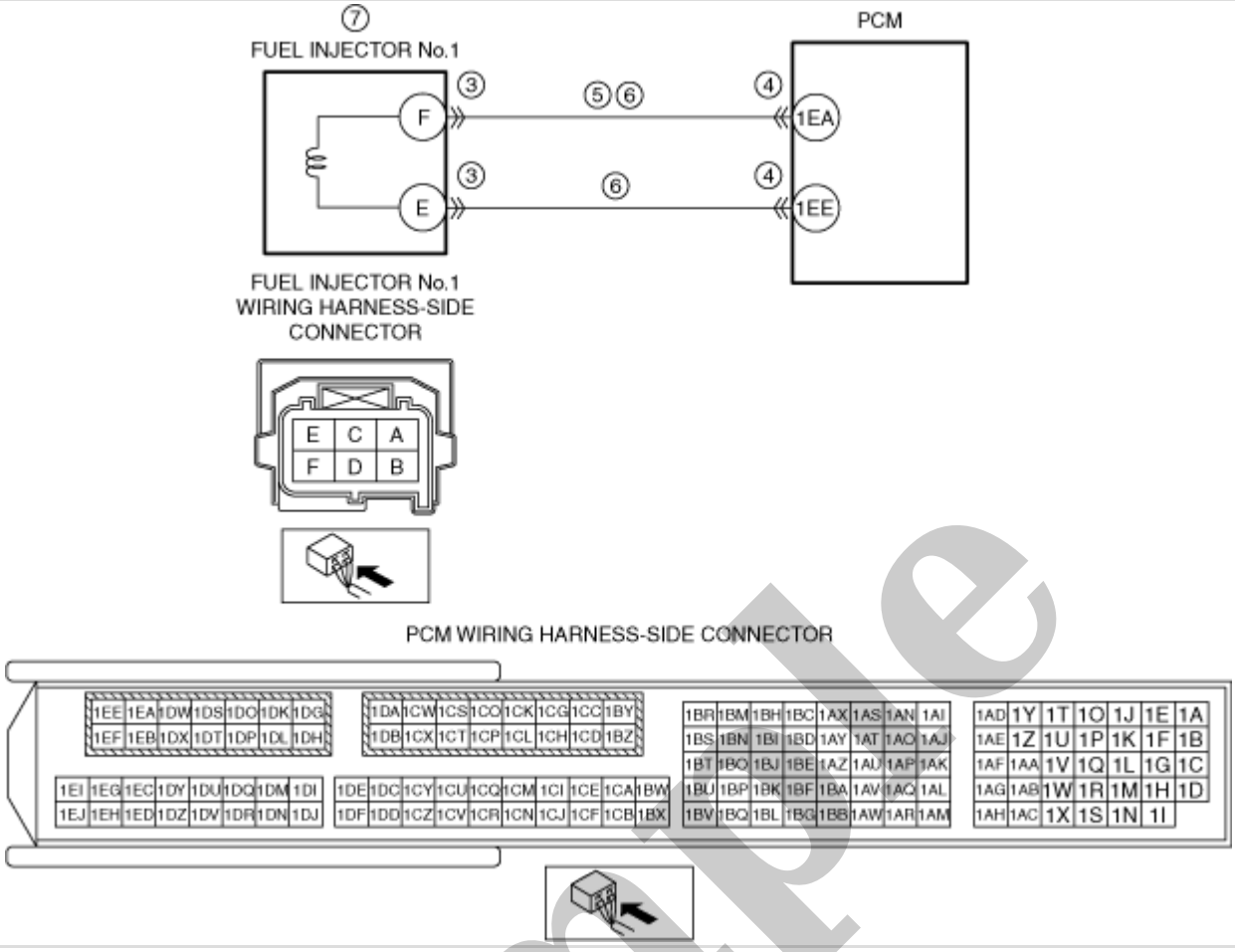
id0102j514680

DTC P0116:00	ECT sensor No.1 circuit range/performance problem
DETECTION CONDITION	• The engine coolant temperature does not increase above 3 °C {37.4 °F} for a continuous 1 s MONITORING CONDITIONS — Period vehicle being left: above 6 h — Battery voltage: above 8 V — Difference between duration time from engine start and fuel cut implemented time: above 5 min — The following DTCs are not detected: • ECT Sensor No.1: P0117:00, P0118:00, P011A:00 Diagnostic support note • This is a continuous monitor (Engine cooling system). • 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.
FAIL-SAFE FUNCTION	• Inhibits the compulsory diesel particulate filter regeneration control. • Inhibits the DENOx/DESOx control. • Stops activation of the A/F sensor heater. • Inhibits the EGR control. • Inhibits the A/C control.
POSSIBLE CAUSE	• ECT Sensor No.1 connector or terminals malfunction • PCM connector or terminals malfunction • ECT sensor No.1 malfunction • Thermostat malfunction • PCM malfunction
SYSTEM WIRING DIAGRAM	Not applicable

Diagnostic Procedure

STEP	INSPECTION		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 and DIAGNOSTIC MONITORING TEST RESULTS (engine cooling system related) 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 P0201:00	Fuel injector No.1 circuit operating abnormally



Caution

• If a hand or tool touches a fuel injector terminal or fuel injector connector terminal, the fuel injector might be damaged. To prevent damage to a fuel injector, do not touch the terminals.
• If high-voltage generating parts or components and electronic devices come near a fuel injector, the fuel injector could be damaged. To prevent damage to a fuel injector, always keep high-voltage generating parts or components and electronic devices away from it.

Diagnostic Procedure

STEP	INSPECTION		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.

DTC U2300:00 [PCM (SKYACTIV-D 2.2)]

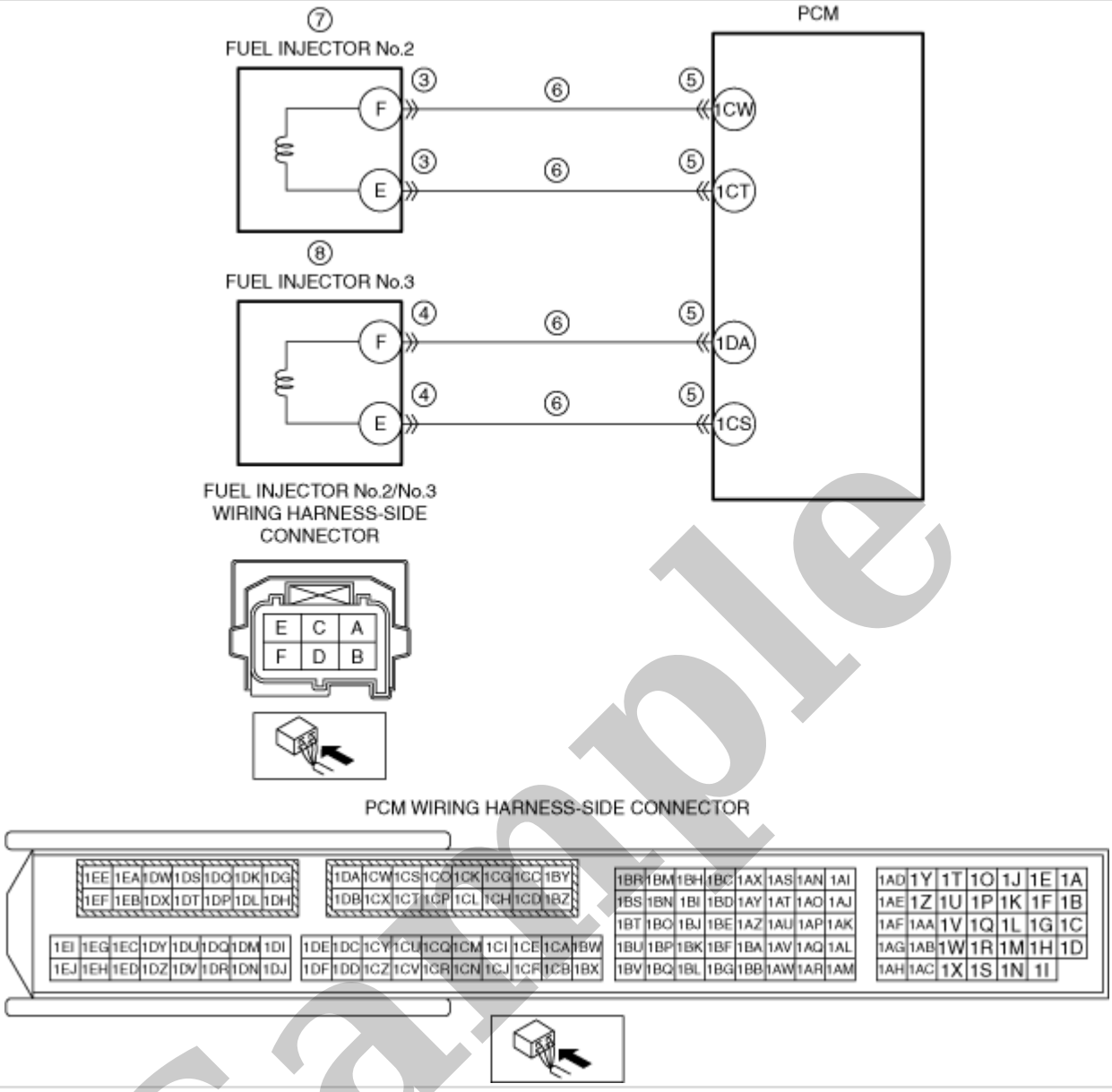
SM2896094

id0102j522830

DTC U2300:00	Global central configuration error
DETECTION CONDITION	• Any of following conditions occurs: — No configuration of the instrument cluster. — The configuration signal with the estimated CAN ID is not sent from the instrument cluster. — The configuration signal value sent via CAN from the instrument cluster is unknown or invalid. — The configuration signal value sent via CAN from the instrument cluster is a value other than the estimated value. — The configuration signal value sent via CAN from the instrument cluster does not match the PCM value. **Diagnostic support note** • This is a continuous monitor (other). • The check engine light does not illuminate. • FREEZE FRAME DATA/Snapshot data is not available. • DTC is stored in the PCM memory.
FAIL-SAFE FUNCTION	Not applicable
POSSIBLE CAUSE	• CAN drive error (instrument cluster or PCM) • Configuration data for the instrument cluster is incorrectly set • CAN communication line malfunction between instrument cluster and PCM — Instrument cluster terminal B—active driving display terminal J — Instrument cluster terminal D—active driving display terminal L — Active driving display terminal I—Front body control module (FBCM) terminal 2K — Active driving display terminal K—Front body control module (FBCM) terminal 2I — Front body control module (FBCM) terminal 2P—PCM terminal 2AK — Front body control module (FBCM) terminal 2N—PCM terminal 2AL • Front body control module (FBCM) connector or terminals malfunction • Active driving display connector or terminals malfunction • Front body control module (FBCM) malfunction • Instrument cluster connector or terminals malfunction • PCM connector or terminals malfunction • Instrument cluster loose • Active driving display malfunction • Instrument cluster malfunction • Error in non-volatile memory in PCM • PCM malfunction

STEP	INSPECTION		ACTION
7	**INSPECT FRONT BODY CONTROL MODULE (FBCM) CONNECTOR CONDITION** • Switch the ignition off. • Disconnect the front body control module (FBCM) 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 12.
		No	Go to the next step.
8	**INSPECT ACTIVE DRIVING DISPLAY CONNECTOR CONDITION** • Switch the ignition off. • Disconnect the active driving display 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 12.
		No	Go to the next step.
9	**INSPECT INSTRUMENT CLUSTER CONNECTOR CONDITION** • Disconnect the instrument cluster 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 12.
		No	Go to the next step.
10	**INSPECT INSTALLATION OF INSTRUMENT CLUSTER** • Inspect installation of instrument cluster. • Is the instrument cluster installed securely?	Yes	Go to the next step.
		No	Retighten the instrument cluster, then go to Step 12. (See INSTRUMENT CLUSTER REMOVAL/INSTALLATION.)
11	**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 the next step.
		No	Repair or replace the following wiring harnesses. • Instrument cluster terminal B–active driving display terminal J • Instrument cluster terminal D–active driving display terminal L • Active driving display terminal I–Front body control module (FBCM) terminal 2K • Active driving display terminal K–Front body control module (FBCM) terminal 2I • Front body control module (FBCM) terminal 2P–PCM terminal 2AK • Front body control module (FBCM) terminal 2N–PCM terminal 2AL — If the malfunction recurs, replace the instrument cluster. (See INSTRUMENT CLUSTER REMOVAL/INSTALLATION.) Go to the next step.

DTC P2150:00	Fuel injector No.2 and No.3 circuit low input



Caution

• If a hand or tool touches a fuel injector terminal or fuel injector connector terminal, the fuel injector might be damaged. To prevent damage to a fuel injector, do not touch the terminals.
• If high-voltage generating parts or components and electronic devices come near a fuel injector, the fuel injector could be damaged. To prevent damage to a fuel injector, always keep high-voltage generating parts or components and electronic devices away from it.

Diagnostic Procedure

DTC P2151:00 [PCM (SKYACTIV-D 2.2)]

SM2896096

id0102j525680

DTC P2151:00	Fuel injector No.2 and No.3 circuit high input
DETECTION CONDITION	• When the following condition is met, the PCM detects the charge current at fuel injectors No.2 and No.3 as exceeding 39 A and discharge current as exceeding 40 A 4 times: MONITORING CONDITIONS — Battery voltage: 8 V or more — Fuel-cut control is not implemented • When the following condition is met, the PCM detects the charge current at fuel injectors No.2 as exceeding 35 A 4 times: MONITORING CONDITIONS — Battery voltage: 8 V or more — Fuel-cut control is not implemented • When the following condition is met, the PCM detects the charge current at fuel injectors No.3 as exceeding 35 A 4 times: MONITORING CONDITIONS — Battery voltage: 8 V or more — Fuel-cut control is not implemented Diagnostic support note • This is an intermittent 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	• Inhibits the automatic diesel particulate filter regeneration control and compulsory diesel particulate filter regeneration control. • Inhibits the DENOx/DESOx control. • Fully opens the intake shutter valve opening angle. • Inhibits the EGR control. • PCM restricts engine-transaxle integration control.
POSSIBLE CAUSE	• Fuel injector No.2 connector or terminals malfunction • Fuel injector No.3 connector or terminals malfunction • PCM connector or terminals malfunction • Short to power supply in wiring harness between the following terminals: — Fuel injector No.2 terminal F—PCM terminal 1CW — Fuel injector No.2 terminal E—PCM terminal 1CT — Fuel injector No.3 terminal F—PCM terminal 1DA — Fuel injector No.3 terminal E—PCM terminal 1CS • Fuel injector No.2 malfunction • Fuel injector No.3 malfunction • PCM malfunction

STEP	INSPECTION		ACTION
6	**INSPECT FUEL INJECTOR CIRCUIT FOR SHORT TO POWER SUPPLY** • Verify that the fuel injector No.2, fuel injector No.3, and PCM connectors are 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 following terminals (wiring harness-side): — Fuel injector No.2 terminal F — Fuel injector No.2 terminal E — Fuel injector No.3 terminal F — Fuel injector No.3 terminal E • Is the voltage 0 V?	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: • Fuel injector No.2 terminal F–PCM terminal 1CW • Fuel injector No.2 terminal E–PCM terminal 1CT • Fuel injector No.3 terminal F–PCM terminal 1DA • Fuel injector No.3 terminal E–PCM terminal 1CS **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.
7	**INSPECT FUEL INJECTOR No.2** • Inspect the fuel injector No.2. (See FUEL INJECTOR INSPECTION [SKYACTIV-D 2.2].) • Is there any malfunction?	Yes	Replace the fuel injector No.2, then go to Step 9. (See FUEL INJECTOR REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
		No	Go to the next step.
8	**INSPECT FUEL INJECTOR No.3** • Inspect the fuel injector No.3. (See FUEL INJECTOR INSPECTION [SKYACTIV-D 2.2].) • Is there any malfunction?	Yes	Replace the fuel injector No.3, then go to the next step. (See FUEL INJECTOR REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
		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-D 2.2)].) • Perform the 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.
10	**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
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.
3	**INSPECT FUEL INJECTOR No.1 CONNECTOR CONDITION** • Switch the ignition off. • Disconnect the fuel injector 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 7.
		No	Go to the next step.
4	**INSPECT FUEL INJECTOR No.4 CONNECTOR CONDITION** • Disconnect the fuel injector No.4 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 7.
		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 7.
		No	Go to the next step.