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1995 MAZDA 626 (Mk.4) Hatchback OEM Service and Repair Workshop Manual

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DTC P0610:00 [PCM (SKYACTIV-G 2.5T)]

SM2896568

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DTC P0610:00	PCM vehicle configuration error
DETECTION CONDITION	• PCM data configuration error. 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	• Not applicable
POSSIBLE CAUSE	• Configuration procedure has not been completed • PCM connector or terminals malfunction • PCM malfunction
SYSTEM WIRING DIAGRAM	• Not applicable

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.
3	PERFORM PCM CONFIGURATION (USING READ/WRITE FUNCTION) • Perform the PCM configuration (using read/write function). (See PCM CONFIGURATION (USING READ/WRITE FUNCTION) [SKYACTIV-G 2.5T].) • 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	Go to the next step.
		No	Go to Step 6.

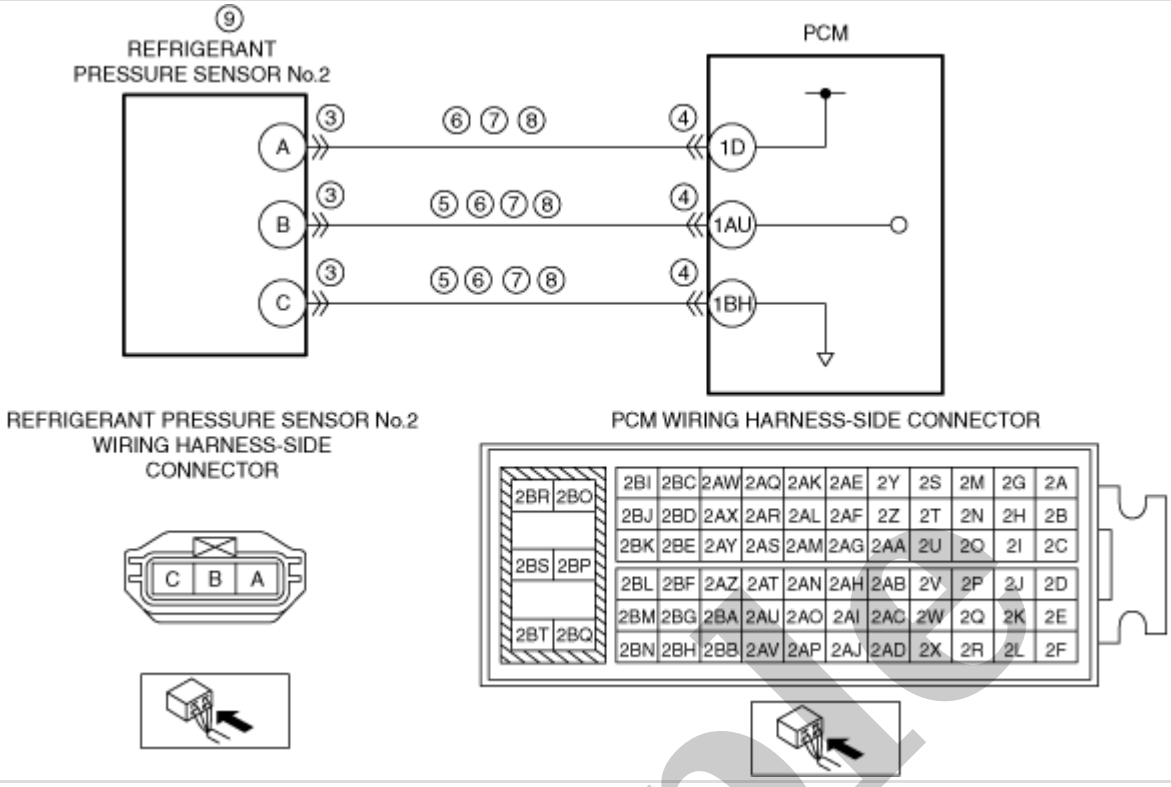
STEP	INSPECTION	RESULTS	ACTION
3	INSPECT LOW FUEL PRESSURE SENSOR/FUEL TEMPERATURE SENSOR CONNECTOR CONDITION • Switch the ignition off. • Disconnect the low fuel pressure sensor/fuel temperature sensor connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Is there any malfunction?	Yes	Repair or replace the connector and/or terminals, then go to Step 7.
		No	Go to the next step.
4	INSPECT LOW FUEL PRESSURE SENSOR • Inspect the low fuel pressure sensor. (See LOW FUEL PRESSURE SENSOR INSPECTION [SKYACTIV-G 2.5T].) • Is there any malfunction?	Yes	Replace the low fuel pressure sensor/fuel temperature sensor, then go to Step 7. (See LOW FUEL PRESSURE SENSOR/FUEL TEMPERATURE SENSOR REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].)
		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.
6	IINSPECT FUEL PUMP UNIT • Perform the fuel line pressure inspection. (See FUEL LINE PRESSURE INSPECTION [SKYACTIV-G 2.5T].) • Is the fuel pressure within the standard?	Yes	Go to the next step.
		No	Repair or replace the malfunctioning location and perform the repair completion verification. (See FUEL PUMP UNIT REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].)
7	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)].) • Start the engine. (Engine cold) • Drive the vehicle on a flat road surface 10 times under the following conditions. 1. Drive the vehicle in second gear at 25 km/h {16 mph} while maintaining the speed for 25 s. 2. Stop the vehicle and idle the engine. • Perform the Pending Trouble Code Access Procedure. (See ON-BOARD DIAGNOSTIC 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.
8	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
6	**INSPECT COMPRESSOR VALVE POWER SUPPLY CIRCUIT FOR OPEN CIRCUIT** • Verify that the ENGINE4 15 A fuse is removed. • Verify that the compressor valve connector is disconnected. • Inspect for continuity between compressor valve terminal A (wiring harness-side) and ENGINE4 15 A fuse (wiring harness-side). • 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 compressor valve terminal A and ENGINE4 15 A fuse. **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 11.
7	**INSPECT PCM CONNECTOR FOR MALFUNCTION** • 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 11.
		No	Go to the next step.
8	**INSPECT COMPRESSOR VALVE CONTROL CIRCUIT FOR SHORT TO GROUND** • Verify that the compressor valve and PCM connectors are disconnected. • Inspect for continuity between compressor valve terminal B (wiring harness-side) and body ground. • Is there continuity?	Yes	Refer to the wiring diagram and verify whether or not there is a common connector between compressor valve terminal B and PCM terminal 1CA. **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. Go to Step 11.
		No	Go to the next step.
9	**INSPECT COMPRESSOR VALVE CONTROL CIRCUIT FOR OPEN CIRCUIT** • Verify that the compressor valve and PCM connectors are disconnected. • Inspect for continuity between compressor valve terminal B (wiring harness-side) and PCM terminal 1CA (wiring harness-side). • Is there continuity?	Yes	Refer to the wiring diagram and verify whether or not there is a common connector between compressor valve terminal B and PCM terminal 1CA. **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. Go to Step 11.
		No	Go to the next step.

Step	Inspection	Results	Action
1	**RECORD VEHICLE STATUS WHEN DTC WAS DETECTED TO UTILIZE WITH REPEATABILITY VERIFICATION** • Record the freeze frame data/snapshot data. **Note** **• Recording can be facilitated using the screen capture function of the PC.**	–	Go to the next step.
2	**VERIFY RELATED REPAIR INFORMATION OR SERVICE INFORMATION AVAILABILITY** • Verify related Service Bulletins, on-line repair information, or Service Information availability. • Is any related Information available?	Yes	Perform repair or diagnosis according to the available information. • If the vehicle is not repaired, go to the next step.
		No	Go to the next step.
3	**INSPECT COMPRESSOR VALVE CONNECTOR FOR MALFUNCTION** • Disconnect the compressor 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 7.
		No	Go to the next step.
4	**INSPECT PCM CONNECTOR FOR MALFUNCTION** • 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.
5	**INSPECT COMPRESSOR VALVE CONTROL CIRCUIT FOR SHORT TO POWER SUPPLY** • Verify that the compressor valve 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 A/C relay terminal E (wiring harness-side). • 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 compressor valve terminal B and PCM terminal 1CA. **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 7.

STEP	INSPECTION	RESULTS	ACTION
1	**RECORD VEHICLE STATUS WHEN DTC WAS DETECTED TO UTILIZE WITH REPEATABILITY VERIFICATION** • Record the freeze frame data/snapshot data. **Note** **• Recording can be facilitated using the screen capture function of the PC.**	–	Go to the next step.
2	**VERIFY RELATED REPAIR INFORMATION OR SERVICE INFORMATION AVAILABILITY** • Verify related Service Bulletins, on-line repair information, or Service Information availability. • Is any related Information available?	Yes	Perform repair or diagnosis according to the available information. • If the vehicle is not repaired, go to the next step.
		No	Go to the next step.
3	**INSPECT REFRIGERANT PRESSURE SENSOR No.2 CONNECTOR CONDITION** • Switch the ignition off. • Disconnect the refrigerant pressure sensor No.2 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 REFRIGERANT PRESSURE SENSOR No.2 CIRCUIT FOR SHORT TO GROUND** • Verify that the refrigerant pressure sensor No.2 and PCM connectors are disconnected. • Inspect for continuity between the following terminals (wiring harness-side) and body ground: — Refrigerant pressure sensor No.2 terminal A — Refrigerant pressure sensor No.2 terminal B • Is there continuity?	Yes	Refer to the wiring diagram and verify whether or not there is a common connector between the following terminals: • Refrigerant pressure sensor No.2 terminal A–PCM terminal 1D • Refrigerant pressure sensor No.2 terminal B–PCM terminal 1AU **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. 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.

DTC P2518:00	Refrigerant pressure sensor No.2 circuit high input



Diagnostic Procedure

STEP	INSPECTION	RESULTS	ACTION
1	RECORD VEHICLE STATUS WHEN DTC WAS DETECTED TO UTILIZE WITH REPEATABILITY VERIFICATION • Record the freeze frame data/snapshot data. Note • Recording can be facilitated using the screen capture function of the PC.	–	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 REFRIGERANT PRESSURE SENSOR No.2 CONNECTOR CONDITION • Switch the ignition off. • Disconnect the refrigerant pressure sensor No.2 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 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 10.
		No	Go to the next step.

STEP	INSPECTION	RESULTS	ACTION
11	VERIFY AFTER REPAIR PROCEDURE • Perform the "AFTER REPAIR PROCEDURE". (See AFTER REPAIR PROCEDURE [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))].)
		No	DTC troubleshooting completed.

DESCRIPTION	Thermostat stuck open
POSSIBLE CAUSE	• ECT sensor No.1 malfunction • ECT sensor No.2 malfunction • Poor assembly of ECT sensor • Poor assembly of engine coolant hose (engine coolant passage malfunction) • Engine coolant insufficient • Engine coolant leakage • Engine coolant frozen • Use of unspecified engine coolant • Foreign matter caught in thermostat (foreign matter penetration in engine coolant) • Thermostat (built-into coolant control valve) malfunction (Without EGR cooler) • Thermostat malfunction (With EGR cooler) • PCM malfunction

System Wiring Diagram

• Not applicable

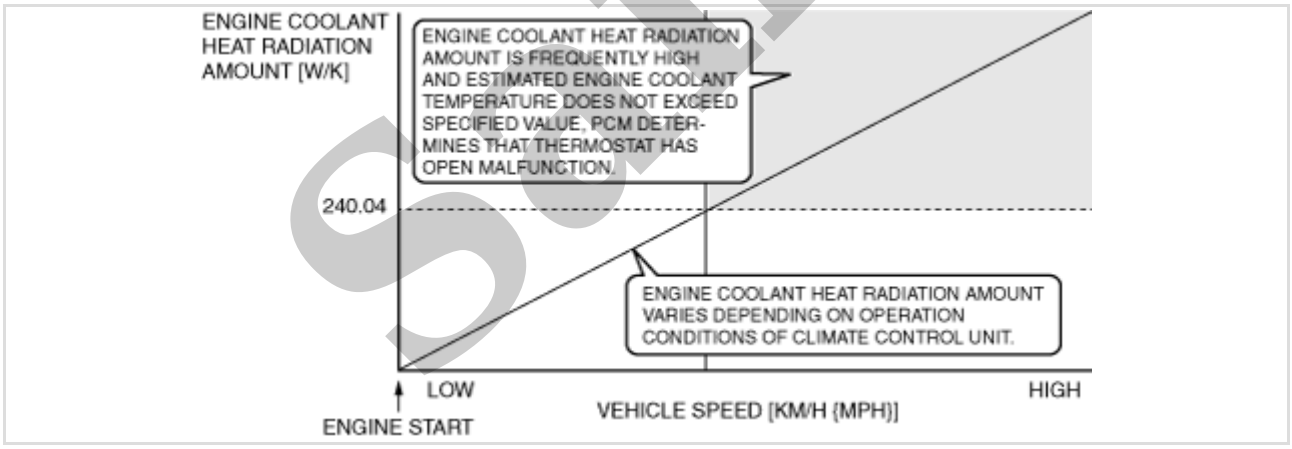
Function Explanation (DTC Detection Outline)

• The PCM calculates an estimate of the engine coolant temperature based on the following information.

— Vehicle speed
— Engine coolant temperature heat radiation amount
— Climate control unit operation condition

• The PCM determines that there is a malfunction and stores a DTC when it detects the following conditions.

— Engine coolant heat radiation amount is frequently high
— Engine coolant temperature estimated by PCM does not exceed 77°C {171°F}
— The condition in which the precondition of P0126:00 is met and the detection condition is also met was repeated 3 times during 1 drive cycle.



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Repeatability Verification Procedure

1. Switch the ignition off.
2. Leave the vehicle until the engine coolant temperature decreases to 35°C {95°F} or less.
3. Start the engine.

Note

• Match the engine coolant temperature in the recorded FREEZE FRAME DATA/snapshot data, the vehicle speed, and engine speed values to the best extent possible while driving the vehicle.

4. Try to reproduce the malfunction by driving the vehicle for 5 min based on the values in the FREEZE FRAME DATA/snapshot data.

STEP	INSPECTION	RESULTS	ACTION
6	PURPOSE: DETERMINE INTEGRITY OF THERMOSTAT • Inspect the thermostat. (See THERMOSTAT INSPECTION [SKYACTIV-G (WITH EGR COOLER)].) • Is there any malfunction?	Yes	Replace the thermostat, then go to Step 8. (See THERMOSTAT REMOVAL/INSTALLATION [SKYACTIV-G (WITH EGR COOLER)].)
		No	Go to Step 8.
7	PURPOSE: PERFORM DTC INSPECTION AND VERIFY IF MALFUNCTIONING PART IS THERMOSTAT • Always reconnect all disconnected connectors. • Clear the DTC from the PCM memory using the M-MDS. (See CLEARING DTC [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))].) • Implement the repeatability verification procedure. (See Repeatability Verification Procedure.) • Perform the Pending Trouble Code Access Procedure. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))].) • Is the PENDING CODE for this DTC present?	Yes	Replace the coolant control valve, then go to the next step. (See COOLANT CONTROL VALVE REMOVAL/INSTALLATION [SKYACTIV-G (WITHOUT EGR COOLER)].)
		No	Go to the next step.
8	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-G 2.5 (WITH CYLINDER DEACTIVATION))].) • Implement the repeatability verification procedure. (See Repeatability Verification Procedure.) • Perform the Pending Trouble Code Access Procedure. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))].) • Is the PENDING CODE for this DTC present?	Yes	Repeat the inspection from Step 1 of the troubleshooting diagnostic procedure. • If the malfunction recurs, replace the PCM. (See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].) Go to the next step.
		No	Go to the next step.
9	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 2.5 (WITH CYLINDER DEACTIVATION))].)
		No	DTC troubleshooting completed.