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1994 MAZDA 626 (Mk.4) Hatchback OEM Service and Repair Workshop Manual

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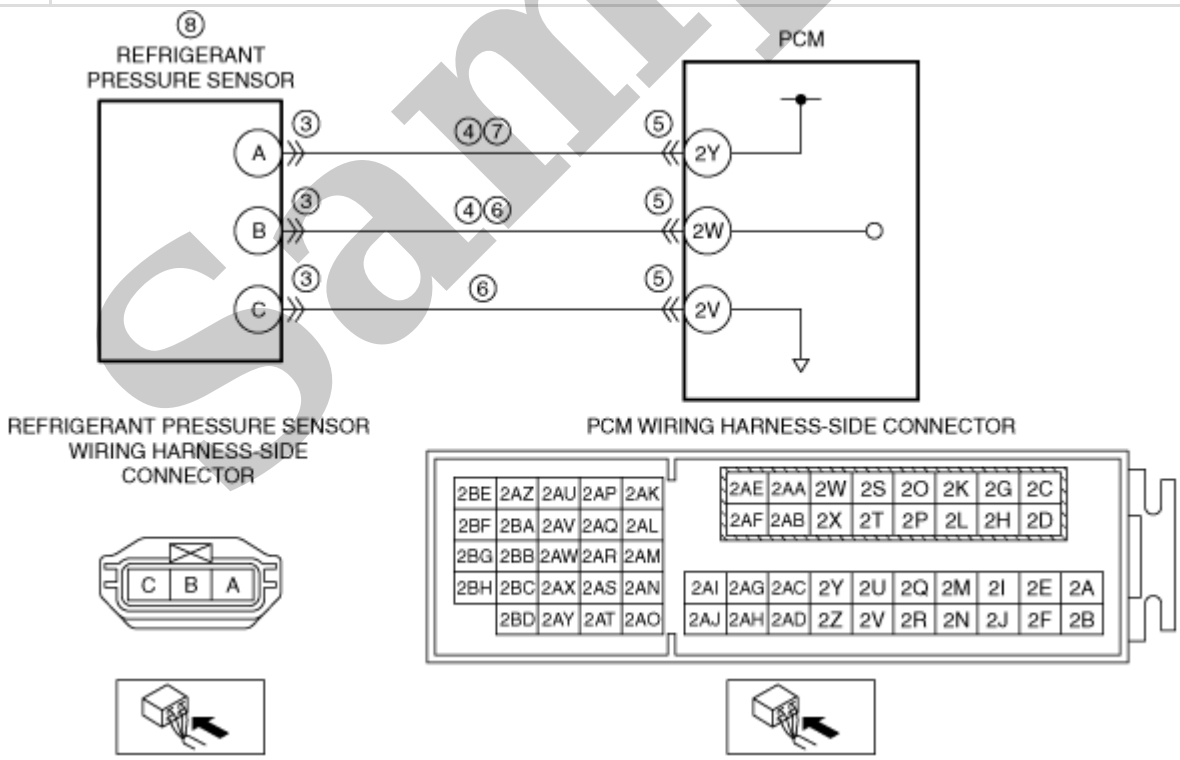
DTC P0532:00 [PCM (SKYACTIV-G 2.5T)]

SM2896607

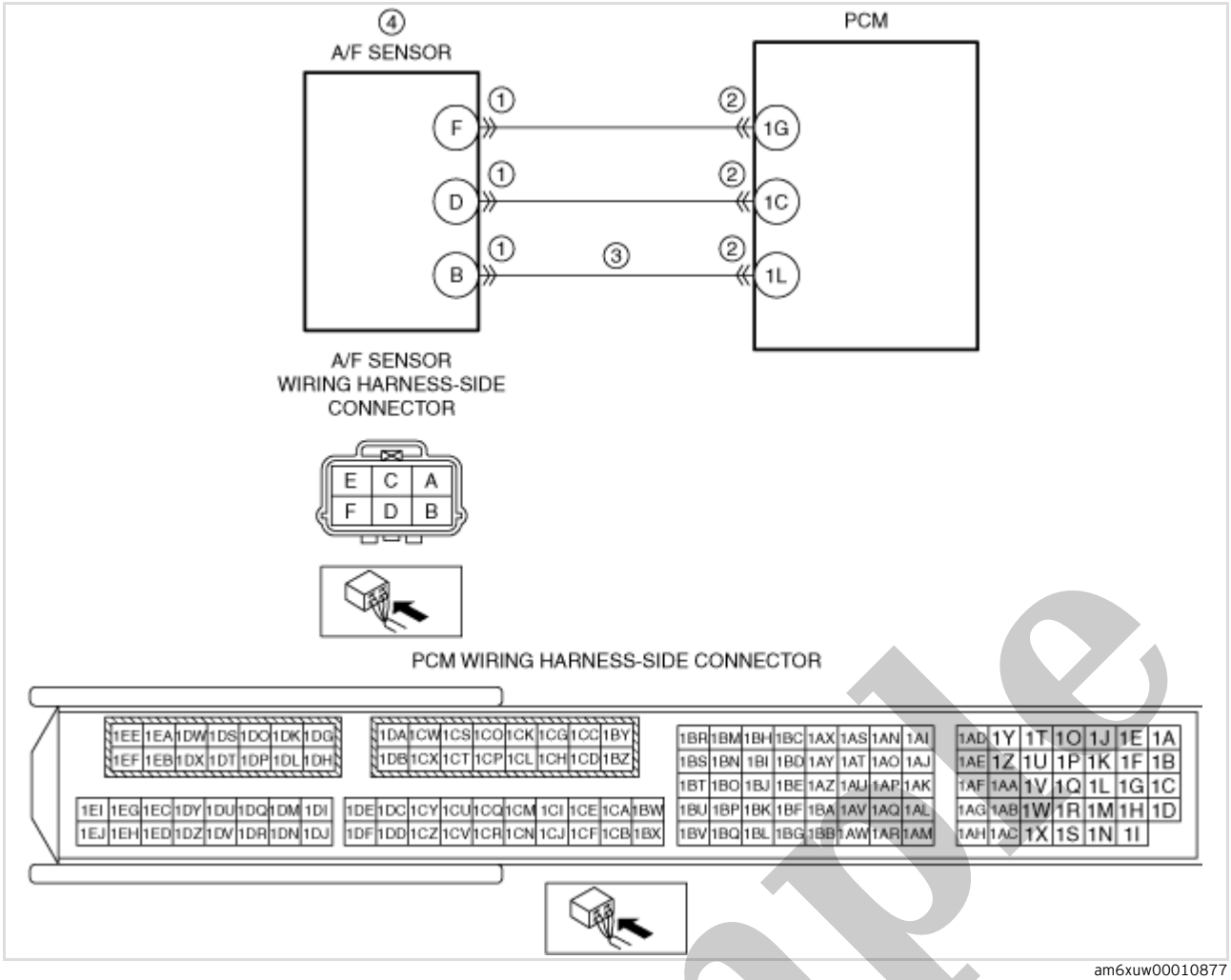
id0102s885020

DTC P0532:00	Refrigerant pressure sensor circuit low input
DETECTION CONDITION	• The PCM monitors input voltage from the refrigerant pressure sensor. If the input voltage at the PCM terminal 2W is below 0.1 V for 5 s, the PCM determines that the refrigerant pressure sensor circuit has a malfunction. Diagnostic support note • This is a continuous 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	• Refrigerant pressure sensor connector or terminals malfunction • Short to ground in wiring harness between the following terminals: — Refrigerant pressure sensor terminal A—PCM terminal 2Y — Refrigerant pressure sensor terminal B—PCM terminal 2W • PCM connector or terminals malfunction • Refrigerant pressure sensor signal circuit and ground circuit are shorted to each other • Open circuit in wiring harness between refrigerant pressure sensor terminal A and PCM terminal 2Y • Refrigerant pressure sensor malfunction • PCM malfunction



Diagnostic Procedure

STEP	INSPECTION	RESULTS	ACTION
7	**DETERMINE IF REFRIGERANT PRESSURE SENSOR SIGNAL CIRCUIT OR REFRIGERANT PRESSURE SENSOR GROUND CIRCUIT MALFUNCTION** • Switch the ignition off. • Disconnect the refrigerant pressure sensor connector. • Access the AC_PRES PID using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5T)].) • Verify the AC_PRES PID value. • Is the AC_PRES PID value 5 V or B+?	Yes	Go to the next step.
		No	Go to Step 9.
8	**INSPECT REFRIGERANT PRESSURE SENSOR SIGNAL CIRCUIT FOR OPEN CIRCUIT** • Verify that the refrigerant pressure sensor connector is disconnected. • Switch the ignition off. • Disconnect the PCM connector. • Inspect for continuity between refrigerant pressure sensor terminal B (wiring harness-side) and PCM terminal 2W (wiring harness-side). • Is there continuity?	Yes	Refer to the wiring diagram and verify whether or not there is a common connector between refrigerant pressure sensor terminal B and PCM terminal 2W. **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 10.
		No	Refer to the wiring diagram and verify whether or not there is a common connector between refrigerant pressure sensor terminal B and PCM terminal 2W. **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.
9	**INSPECT REFRIGERANT PRESSURE SENSOR GROUND CIRCUIT FOR OPEN CIRCUIT** • Verify that the refrigerant pressure sensor connector is disconnected. • Switch the ignition off. • Disconnect the PCM connector. • Inspect for continuity between refrigerant pressure sensor terminal C (wiring harness-side) and PCM terminal 2V (wiring harness-side). • Is there continuity?	Yes	Replace the refrigerant pressure sensor, then go to the next step. (See REFRIGERANT PRESSURE SENSOR REMOVAL/INSTALLATION [FULL-AUTO AIR CONDITIONER].)
		No	Refer to the wiring diagram and verify whether or not there is a common connector between refrigerant pressure sensor terminal C and PCM terminal 2V. **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.



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Function Explanation (DTC Detection Outline)

• If a condition in which terminal 1C remains within the specified range for 5 s or more, the PCM determines an open circuit between A/F sensor terminal B and PCM terminal 1L and stores a DTC.

Repeatability Verification Procedure

1. Warm up the engine to allow the engine coolant temperature to reach 80 °C {176 °F} or more.
2. Start the engine and leave it idling for 1 min.
3. Shift to 2nd gear and drive the vehicle for 1 min at a speed of 50 km/h {31 mph} or more.

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.

PID Item/Simulation Item Used In Diagnosis

PID/DATA monitor item table

DTC P0600:00 [PCM (SKYACTIV-G 2.5T)]

SM2896609

id0102s885040

DTC P0600:00	Serial communication link
DETECTION CONDITION	• PCM internal malfunction. **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	• 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 DTC INSPECTION AND VERIFY IF MALFUNCTIONING PART IS PCM** • Clear the DTC from the PCM memory using the M-MDS. (See CLEARING DTC [PCM (SKYACTIV-G 2.5T)].) • Start the engine and warm it up completely. • Perform the KOEO or KOER self test. (See KOEO/KOER SELF TEST [PCM (SKYACTIV-G 2.5T)].) • Is the same Pending DTC present?	Yes	Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].)
		No	Go to the next step.
4	**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.

DTC U053B:00 [PCM (SKYACTIV-G 2.5T)]

SM2896435

id0102s805300

DTC U053B:00	Abnormal message from forward sensing camera (FSC)
DETECTION CONDITION	• Correct data cannot be received from forward sensing camera (FSC). Diagnostic support note • This is a continuous 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	• Inhibits the smart city brake support (SCBS) control. (With smart city brake support (SCBS)) • Displays a message related to a smart city brake support (SCBS) in the display. (With smart city brake support (SCBS)) • Illuminates smart city brake support (SCBS) indicator light (red). (With smart city brake support (SCBS), without multi-information display)
POSSIBLE CAUSE	• Forward sensing camera (FSC) 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 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	VERIFY FORWARD SENSING CAMERA (FSC) DTC • Switch the ignition off, then ON (engine off). • Perform the forward sensing camera (FSC) DTC inspection using the M-MDS. (See DTC INSPECTION [FORWARD SENSING CAMERA (FSC)].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [FORWARD SENSING CAMERA (FSC)].) Go to the next step.
		No	Go to the next step.

STEP	INSPECTION	RESULTS	ACTION
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	VERIFY INTAKE VALVE TIMING MECHANISM INSTALLATION • Verify the intake valve timing mechanism installation for the timing chain. • Is the intake valve timing mechanism installed correctly?	Yes	Go to the next step.
		No	Reinstall the timing chain correctly, then go to Step 16.
4	INSPECT TIMING CHAIN • Inspect the timing chain. (See TIMING CHAIN REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].) • Is there any malfunction?	Yes	Repair or replace the malfunctioning part according to the inspection results, then go to Step 16.
		No	Go to the next step.
5	INSPECT INTAKE CAMSHAFT SPROCKET • Inspect the intake camshaft sprocket. (See TIMING CHAIN REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].) • Is there any malfunction?	Yes	Repair or replace the malfunctioning part according to the inspection results, then go to Step 16.
		No	Go to the next step.
6	INSPECT VALVE TIMING • Inspect the valve timing. (See TIMING CHAIN REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].) • Is there any malfunction?	Yes	Adjust the valve timing properly, then go to Step 16. (See TIMING CHAIN REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].)
		No	Go to the next step.
7	INSPECT CKP SENSOR CONNECTOR CONDITION • Switch the ignition off. • Disconnect the CKP 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 16.
		No	Go to the next step.
8	INSPECT CKP SENSOR FOR FOREIGN MATTER • Visually inspect the CKP sensor for foreign matter. (See CRANKSHAFT POSITION (CKP) SENSOR INSPECTION [SKYACTIV-G 2.5T].) • Is there any foreign matter on the CKP sensor?	Yes	Remove the foreign matter from the CKP sensor, then go to Step 16.
		No	Go to the next step.
9	INSPECT CKP SENSOR PULSE WHEEL • Visually inspect the CKP sensor pulse wheel. • Is there any damage or scratching on the CKP sensor pulse wheel?	Yes	Replace the CKP sensor pulse wheel, then go to Step 16.
		No	Go to the next step.
10	INSPECT CKP SENSOR • Reconnect all disconnected connectors. • Inspect the CKP sensor. (See CRANKSHAFT POSITION (CKP) SENSOR INSPECTION [SKYACTIV-G 2.5T].) • Is there any malfunction?	Yes	Replace the CKP sensor, then go to Step 16. (See CRANKSHAFT POSITION (CKP) SENSOR REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].)
		No	Go to the next step.
11	INSPECT INTAKE CMP SENSOR CONNECTOR CONDITION • Switch the ignition off. • Disconnect the intake CMP 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 16.
		No	Go to the next step.
12	INSPECT INTAKE CMP SENSOR FOR FOREIGN MATTER • Visually inspect the intake CMP sensor for foreign matter. (See CAMSHAFT POSITION (CMP) SENSOR INSPECTION [SKYACTIV-G 2.5T].) • Is there any foreign matter on the intake CMP sensor?	Yes	Remove the foreign matter from the intake CMP sensor, then go to Step 16.
		No	Go to the next step.

DESCRIPTION	Evaporator system: Abnormal purge flow (during boost)
POSSIBLE CAUSE	• Malfunction in evaporative gas passage between purge solenoid valve and ejector — Clogging, cracks, and poor connection of hose between purge solenoid valve and check valve (ejector side) — Clogging, cracks, and poor connection of hose between check valve (ejector side) and ejector — Check valve (ejector side) malfunction • Ejector loose • Ejector malfunction • Check valve (intake manifold side) malfunction (stuck open) • Malfunction in evaporative gas passage between fuel tank and purge solenoid valve — Clogging, cracks, and poor connection of hose between fuel tank and fuel tank pressure sensor — Clogging, cracks, and poor connection of hose between fuel tank pressure sensor and charcoal canister — Clogging, cracks, and poor connection of hose between charcoal canister and purge solenoid valve • CV solenoid valve malfunction (stuck open) • Charcoal canister malfunction (worsening of airflow resistance, or other) • Purge solenoid valve malfunction • PCM malfunction

System Wiring Diagram

• Not applicable

Function Explanation (DTC Detection Outline)

• To monitor the purge flow while the engine is in boost operation, the PCM closes the purge solenoid valve and CV solenoid valve and seals the fuel tank. Then, the evaporative gas from the fuel tank is introduced upstream of the dynamic pressure turbo by the venturi effect of the ejector. The pressure in the fuel tank decreases because the purge solenoid valve opens and the evaporative gas flows. Variation in the fuel tank pressure is measured by the fuel tank pressure sensor. If the pressure in the fuel tank does not decrease to the target pressure even though the integrated target purge flow amount is a certain value or more, the PCM determines that there is no purge flow during boost and stores a pending code. If this condition occurs in 2 successive drive cycles, the PCM determines the malfunction and stores the DTC.

Function Inspection Using M-MDS

STEP	INSPECTION	RESULTS	ACTION
1	**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.
2	**PURPOSE: RECORD FREEZE FRAME DATA/SNAPSHOT DATA AND DIAGNOSTIC MONITORING TEST RESULTS 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 (EVAP system related) on the repair order.	–	Go to the next step.
3	**PURPOSE: VERIFY IF DIAGNOSTIC RESULT IS AFFECTED BY MALFUNCTION OF CONTROL PART REQUIRED FOR DIAGNOSIS** • Perform the Pending Trouble Code Access Procedure and DTC Reading Procedure. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5T)].) • Is the PENDING CODE/DTC P0112:00, P0113:00, P0116:00, P0117:00, P0118:00, P0443:00, P0446:00, P0451:00, P0452:00, P0453:00, P0460:00, P0461:00, P0462:00, P0463:00, P2227:00, P2228:00 or P2229:00 also present?	Yes	Go to the applicable PENDING CODE or DTC inspection. (See DTC P0112:00 [PCM (SKYACTIV-G 2.5T)].) (See DTC P0113:00 [PCM (SKYACTIV-G 2.5T)].) (See DTC P0116:00 [PCM (SKYACTIV-G 2.5T)].) (See DTC P0117:00 [PCM (SKYACTIV-G 2.5T)].) (See DTC P0118:00 [PCM (SKYACTIV-G 2.5T)].) (See DTC P0443:00 [PCM (SKYACTIV-G 2.5T)].) (See DTC P0446:00 [PCM (SKYACTIV-G 2.5T)].) (See DTC P0451:00 [PCM (SKYACTIV-G 2.5T)].) (See DTC P0452:00 [PCM (SKYACTIV-G 2.5T)].) (See DTC P0453:00 [PCM (SKYACTIV-G 2.5T)].) (See DTC P0460:00 [PCM (SKYACTIV-G 2.5T)].) (See DTC P0461:00 [PCM (SKYACTIV-G 2.5T)].) (See DTC P0462:00 [PCM (SKYACTIV-G 2.5T)].) (See DTC P0463:00 [PCM (SKYACTIV-G 2.5T)].) (See DTC P2227:00 [PCM (SKYACTIV-G 2.5T)].) (See DTC P2228:00 [PCM (SKYACTIV-G 2.5T)].) (See DTC P2229:00 [PCM (SKYACTIV-G 2.5T)].)
		No	Go to the Troubleshooting Diagnostic Procedure to perform the procedure from Step 1.