

Your Ultimate Source for OEM Repair Manuals

FactoryManuals.net is a great resource for anyone who wants to save money on repairs by doing their own work. The manuals provide detailed instructions and diagrams that make it easy to understand how to fix a vehicle.

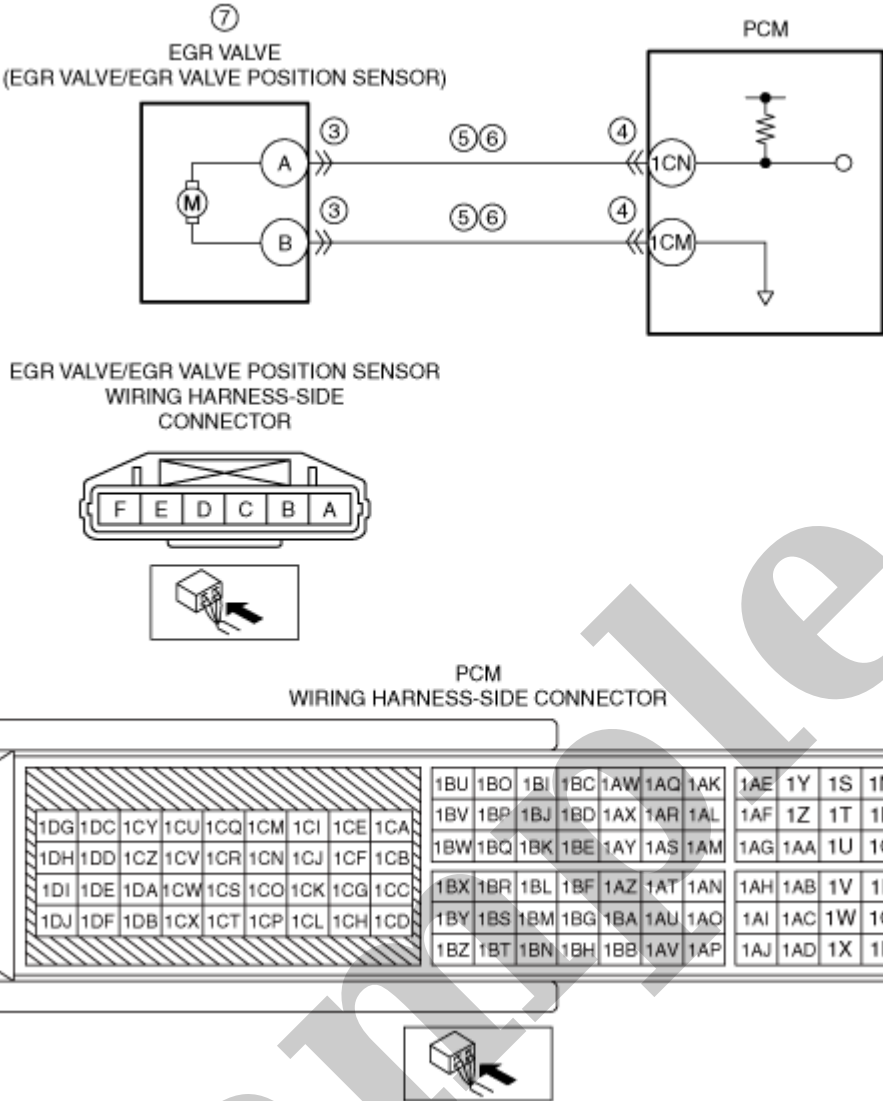
1996 MAZDA Xedos 9 OEM Service and Repair Workshop Manual

[Go to manual page](#)

STEP	INSPECTION	RESULTS	ACTION
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY <ul style="list-style-type: none"> • 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 RELATED PENDING CODE AND/OR DTC <ul style="list-style-type: none"> • 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-G 2.5 (WITH CYLINDER DEACTIVATION))].) • Are any other PENDING CODEs and/or DTCs present? 	Yes	Go to the applicable PENDING CODE or DTC inspection. (See DTC TABLE [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))] .)
		No	Go to the next step.

STEP	INSPECTION	RESULTS	ACTION
			If there is no common connector: <ul style="list-style-type: none"> • Repair or replace the wiring harness which has an open circuit. Go to Step 9.
5	INSPECT PCM CONNECTOR CONDITION <ul style="list-style-type: none"> • 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.
6	INSPECT MAIN RELAY CIRCUIT FOR SHORT TO GROUND <ul style="list-style-type: none"> • Verify that main relay is removed. • Verify that the PCM connector is disconnected. • Inspect for continuity between the following terminals (wiring harness-side) and body ground: <ul style="list-style-type: none"> — Main relay terminal C — Main relay terminal E • Is there continuity? 	Yes	Refer to the wiring diagram and verify whether or not there is a common connector between the following terminals: <ul style="list-style-type: none"> • Main relay terminal C–PCM terminal 2BO • Main relay terminal C–PCM terminal 2BR • Main relay terminal E–PCM terminal 2B If there is a common connector: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • Repair or replace the wiring harness which has a short to ground. Go to Step 9.
		No	Go to the next step.
7	INSPECT MAIN RELAY CIRCUIT FOR OPEN CIRCUIT <ul style="list-style-type: none"> • Verify that main relay is removed. • Verify that the PCM connector is disconnected. • Inspect for continuity between the following terminals (wiring harness-side): <ul style="list-style-type: none"> — Main relay terminal C–PCM terminal 2BO — Main relay terminal C–PCM terminal 2BR — Main relay terminal E–PCM terminal 2B • 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 the following terminals: <ul style="list-style-type: none"> • Main relay terminal C–PCM terminal 2BO • Main relay terminal C–PCM terminal 2BR • Main relay terminal E–PCM terminal 2B If there is a common connector: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • Repair or replace the wiring harness which has an open circuit. Go to Step 9.

STEP	INSPECTION	RESULTS	ACTION
1	<p>RECORD VEHICLE STATUS AT TIME OF DTC DETECTION TO UTILIZE WITH REPEATABILITY VERIFICATION</p> <p>Note</p> <ul style="list-style-type: none"> 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	<p>VERIFY RELATED REPAIR INFORMATION AVAILABILITY</p> <ul style="list-style-type: none"> 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.
		No	Go to the next step.
3	<p>INSPECT THROTTLE BODY CONNECTOR CONDITION</p> <ul style="list-style-type: none"> Switch the ignition off. Disconnect the throttle body 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 6.
		No	Go to the next step.
4	<p>INSPECT PCM CONNECTOR CONDITION</p> <ul style="list-style-type: none"> 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 6.
		No	Go to the next step.
5	<p>INSPECT THROTTLE VALVE ACTUATOR CIRCUITS FOR SHORT TO EACH OTHER</p> <ul style="list-style-type: none"> Verify that the throttle body and PCM connectors are disconnected. Inspect for continuity between throttle body terminals E and F (wiring harness-side). Is there continuity? 	Yes	<p>Refer to the wiring diagram and verify whether or not there is a common connector between the following terminals:</p> <ul style="list-style-type: none"> Throttle body terminal E–PCM terminal 1CQ Throttle body terminal F–PCM terminal 1CR <p>If there is a common connector:</p> <ul style="list-style-type: none"> 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 each other. Repair or replace the malfunctioning part. <p>If there is no common connector:</p> <ul style="list-style-type: none"> Repair or replace the wiring harness which has a short to each other. <p>Go to the next step.</p>
		No	Go to the next step.
6	<p>VERIFY DTC TROUBLESHOOTING COMPLETED</p> <ul style="list-style-type: none"> 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))].) Perform the KOEO or KOER self test. (See KOEO/KOER SELF TEST [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))].) Is the same Pending DTC present? 	Yes	<p>Repeat the inspection from Step 1.</p> <ul style="list-style-type: none"> If the malfunction recurs, replace the PCM. (See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].) <p>Go to the next step.</p>
		No	Go to the next step.



Diagnostic Procedure

STEP	INSPECTION	RESULTS	ACTION
1	<p>RECORD VEHICLE STATUS AT TIME OF DTC DETECTION TO UTILIZE WITH REPEATABILITY VERIFICATION</p> <p>Note</p> <ul style="list-style-type: none">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	<p>VERIFY RELATED REPAIR INFORMATION AVAILABILITY</p> <ul style="list-style-type: none">Verify related Service Bulletins and/or on-line repair information availability.Is any related repair information available?	<div>Yes</div> <div>No</div>	<div>Perform repair or diagnosis according to the available repair information.<ul style="list-style-type: none">If the vehicle is not repaired, go to the next step.</div> <div>Go to the next step.</div>

DTC P2226:00 [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))]

SM2896671

id0102s915930

Note

- To determine the malfunctioning part, proceed with the diagnostics from "Function Inspection Using M-MDS".

Details On DTCs

DESCRIPTION	BARO sensor range/performance problem	
DETECTION CONDITION	Determination conditions	<ul style="list-style-type: none">• Communication error between BARO sensor and PCM• Non-volatile memory error in BARO sensor
	Preconditions	<ul style="list-style-type: none">• Battery voltage: 10.5–16 V ^{*1} <p>^{*1}: Standard can be verified by displaying PIDs using M-MDS</p>
	Malfunction determination period	<ul style="list-style-type: none">• 5 s period
	Drive cycle	<ul style="list-style-type: none">• 1
	Self test type	<ul style="list-style-type: none">• CMDTC self test, KOEO self test, KOER self test
	Sensor used	<ul style="list-style-type: none">• BARO sensor (built-into PCM)
FAIL-SAFE FUNCTION	<ul style="list-style-type: none">• Fixes the barometric pressure for the engine control at 101.32 kPa {1.0332 kgf/cm², 14.695 psi}.	
VEHICLE STATUS WHEN DTCs ARE OUTPUT	<ul style="list-style-type: none">• Illuminates check engine light.	
POSSIBLE CAUSE	<ul style="list-style-type: none">• BARO sensor (built-into PCM) malfunction• PCM malfunction	

System Wiring Diagram

- Not applicable

Function Explanation (DTC Detection Outline)

- If there is a communication error between the BARO sensor and the CPU or a malfunction in the non-volatile memory inside the BARO sensor, the PCM stores a DTC.

Repeatability Verification Procedure

- Not applicable

PID Item/Simulation Item Used In Diagnosis

- Not applicable

Function Inspection Using M-MDS

STEP	INSPECTION	RESULTS	ACTION
3	INSPECT EGR VALVE/EGR VALVE POSITION SENSOR CONNECTOR CONDITION <ul style="list-style-type: none"> • Switch the ignition off. • Disconnect the EGR valve/EGR valve position 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 6.
		No	Go to the next step.
4	INSPECT PCM CONNECTOR CONDITION <ul style="list-style-type: none"> • 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 6.
		No	Go to the next step.
5	INSPECT EGR VALVE <ul style="list-style-type: none"> • Reconnect all disconnected connectors. • Inspect the EGR valve. (See EGR VALVE INSPECTION [SKYACTIV-G (WITH EGR COOLER)].) • Is there any malfunction ? 	Yes	Replace the EGR valve, then go to the next step. (See EGR VALVE REMOVAL/INSTALLATION [SKYACTIV-G (WITH EGR COOLER)] .)
		No	Go to the next step.
6	VERIFY DTC TROUBLESHOOTING COMPLETED <ul style="list-style-type: none"> • 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))].) • Perform the KOEO or KOER self test. (See KOEO/KOER SELF TEST [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))].) • 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 2.5 (WITH CYLINDER DEACTIVATION)] .) Go to the next step.
		No	Go to the next step.
7	VERIFY AFTER REPAIR PROCEDURE <ul style="list-style-type: none"> • 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.

STEP	INSPECTION		ACTION
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY <ul style="list-style-type: none"> • 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 COOLANT CONTROL VALVE/COOLANT CONTROL VALVE POSITION SENSOR CONNECTOR CONDITION <ul style="list-style-type: none"> • Switch the ignition off. • Disconnect the coolant control valve/coolant control valve position 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 Step10.
		No	Go to the next step.
4	INSPECT PCM CONNECTOR CONDITION <ul style="list-style-type: none"> • 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.
5	INSPECT COOLANT CONTROL VALVE CIRCUIT FOR SHORT TO GROUND <ul style="list-style-type: none"> • Verify that the coolant control valve/coolant control valve position sensor and PCM connectors are disconnected. • Inspect for continuity between the following terminals (wiring harness-side) and body ground: <ul style="list-style-type: none"> — Coolant control valve/coolant control valve position sensor terminal A — Coolant control valve/coolant control valve position sensor 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: <ul style="list-style-type: none"> • Coolant control valve/coolant control valve position sensor terminal A–PCM terminal 1CW • Coolant control valve/coolant control valve position sensor terminal B–PCM terminal 1CX If there is a common connector: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • Repair or replace the wiring harness which has a short to power supply. Go to Step 10.
		No	Go to the next step.
6	INSPECT COOLANT CONTROL VALVE CIRCUIT FOR OPEN CIRCUIT <ul style="list-style-type: none"> • Verify that the coolant control valve/coolant control valve position sensor and PCM connectors are disconnected. • Inspect for continuity between the following terminals (wiring harness-side): <ul style="list-style-type: none"> — Coolant control valve/coolant control valve position sensor terminal A–PCM terminal 1CW — Coolant control valve/coolant control valve position sensor terminal B–PCM terminal 1CX • 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 the following terminals: <ul style="list-style-type: none"> • Coolant control valve/coolant control valve position sensor terminal A–PCM terminal 1CW • Coolant control valve/coolant control valve position sensor terminal B–PCM terminal 1CX If there is a common connector: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • Repair or replace the wiring harness which has an open circuit. Go to Step 10.

DTC P2B60:00 [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))]

SM2896673

id0102s916790

Note

- To determine the malfunctioning part, proceed with the diagnostics from “Function Inspection Using M-MDS”.

Details On DTCs

DESCRIPTION	Coolant control valve position sensor circuit range/performance	
DETECTION CONDITION	Determination conditions	• The coolant control valve position sensor determines that the coolant control valve has an internal malfunction, and the PCM receives an error signal from the coolant control valve position sensor for 5 s.
	Drive cycle	• 1
	Self test type	• CMDTC self test
	Sensor used	• Coolant control valve position sensor
FAIL-SAFE FUNCTION	• Not applicable	
VEHICLE STATUS WHEN DTCs ARE OUTPUT	• Illuminates check engine light.	
POSSIBLE CAUSE	• Coolant control valve/coolant control valve position sensor connector or terminals malfunction • PCM connector or terminals malfunction • Coolant control valve position sensor malfunction • PCM malfunction	

System Wiring Diagram

STEP	INSPECTION	RESULTS	ACTION
1	INSPECT COOLANT CONTROL VALVE <ul style="list-style-type: none"> Inspect the coolant control valve. (See COOLANT CONTROL VALVE INSPECTION [SKYACTIV-G (WITHOUT EGR COOLER)].) Is there any malfunction? 	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.
2	PURPOSE: VERIFICATION OF VEHICLE REPAIR COMPLETION <ul style="list-style-type: none"> 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. • 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.
3	PURPOSE: VERIFY IF THERE IS ANY OTHER MALFUNCTION <ul style="list-style-type: none"> 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.