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1997 MAZDA 626 (Mk.4) Hatchback OEM Service and Repair Workshop Manual

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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 VEHICLE STATUS AT TIME OF DTC DETECTION TO UTILIZE WITH REPEATABILITY VERIFICATION • Recording can be facilitated using the screen capture function of the PC. Note • Record the FREEZE FRAME DATA/snapshot data on the repair order.	–	Go to the next step.
3	PURPOSE: VERIFY RELATED PENDING CODE AND/OR DTC • 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))].) Go to the next step.
		No	Go to the next step.
4	PURPOSE: VERIFY EXHAUST SHUTTER VALVE POSITION SENSOR INPUT SIGNAL • Perform the exhaust shutter valve position sensor inspection. (See EXHAUST SHUTTER VALVE POSITION SENSOR INSPECTION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].) • Are all items normal?	Yes	Go to the next step.
		No	Replace the TWC. (See EXHAUST SHUTTER VALVE POSITION SENSOR REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].) Go to Troubleshooting Diagnostic Procedure to perform the procedure from Step 8.
5	PURPOSE: VERIFY CONNECTOR CONNECTIONS • Access the EFCV_AP_M PID using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))].) • Does the PID value fluctuate when the following connectors are shaken? — Exhaust shutter valve position sensor — PCM	Yes	Repair or replace the applicable wiring harness or connector parts. Go to Troubleshooting Diagnostic Procedure to perform the procedure from Step 8.
		No	Go to Troubleshooting Diagnostic Procedure to perform the procedure from Step 1.

Troubleshooting Diagnostic Procedure

Intention of troubleshooting procedure

• Step 1–6

— Perform an inspection of the connectors and wiring harnesses between the exhaust shutter valve and the PCM.

• Step 7

— Perform a unit inspection of the exhaust shutter valve.

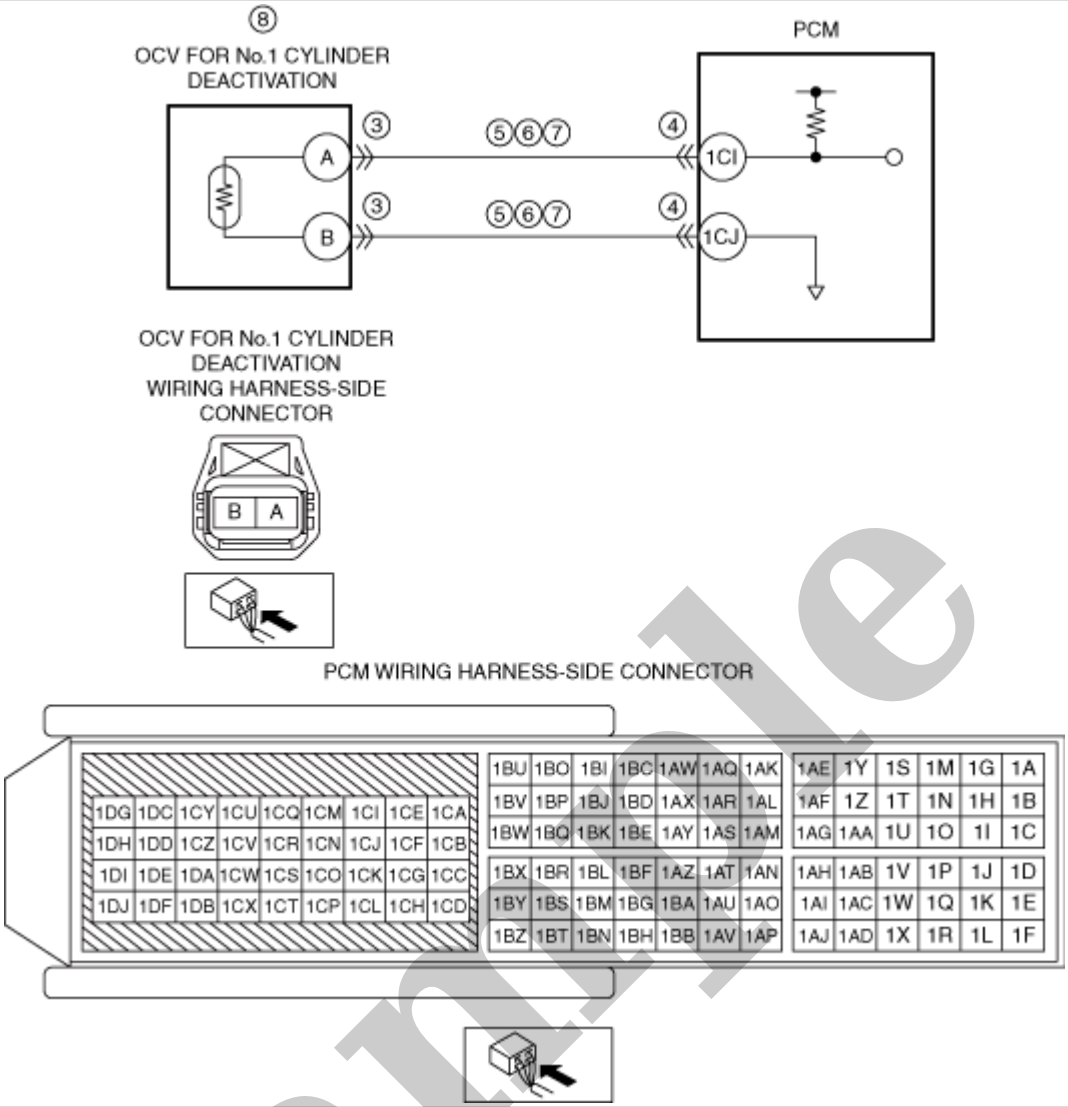
• Step 8–9

— Verify that the primary malfunction is resolved and there are no other malfunctions.

Step	Inspection	Results	Action
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.

STEP	INSPECTION		ACTION
3	**INSPECT ENGINE OIL PRESSURE SENSOR/ENGINE OIL TEMPERATURE SENSOR CONNECTOR CONDITION** • Switch the ignition off. • Disconnect the engine oil pressure sensor/engine oil 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 8.
		No	Go to the next step.
4	**DETERMINE IF ENGINE OIL TEMPERATURE SENSOR OR WIRING HARNESS MALFUNCTION** • Verify that the engine oil pressure sensor/engine oil temperature sensor 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 engine oil pressure sensor/engine oil temperature sensor terminal E (wiring harness-side). • Is the voltage approx. 5 V?	Yes	Replace the engine oil pressure sensor/engine oil temperature sensor, then go to Step 8. (See ENGINE OIL TEMPERATURE SENSOR/ENGINE OIL PRESSURE SENSOR REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].)
		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 8.
		No	Go to the next step.
6	**INSPECT ENGINE OIL TEMPERATURE SENSOR SIGNAL CIRCUIT FOR SHORT TO GROUND** • Verify that the engine oil pressure sensor/engine oil temperature sensor and PCM connectors are disconnected. • Switch the ignition off. • Inspect for continuity between engine oil pressure sensor/engine oil temperature sensor terminal E (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 engine oil pressure sensor/engine oil temperature sensor terminal E and PCM terminal 1AN. **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 8.
		No	Go to the next step.

DTC P3403:00	OCV for No.1 cylinder deactivation circuit low input



Diagnostic Procedure

STEP	INSPECTION		ACTION
1	RECORD VEHICLE STATUS WHEN DTC WAS DETECTED TO UTILIZE WITH REPEATABILITY VERIFICATION Note • Recording can be facilitated using the screen capture of the PC function. • Record the freeze frame data/snap shot data.	–	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 P3404:00 [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))]

SM2896730

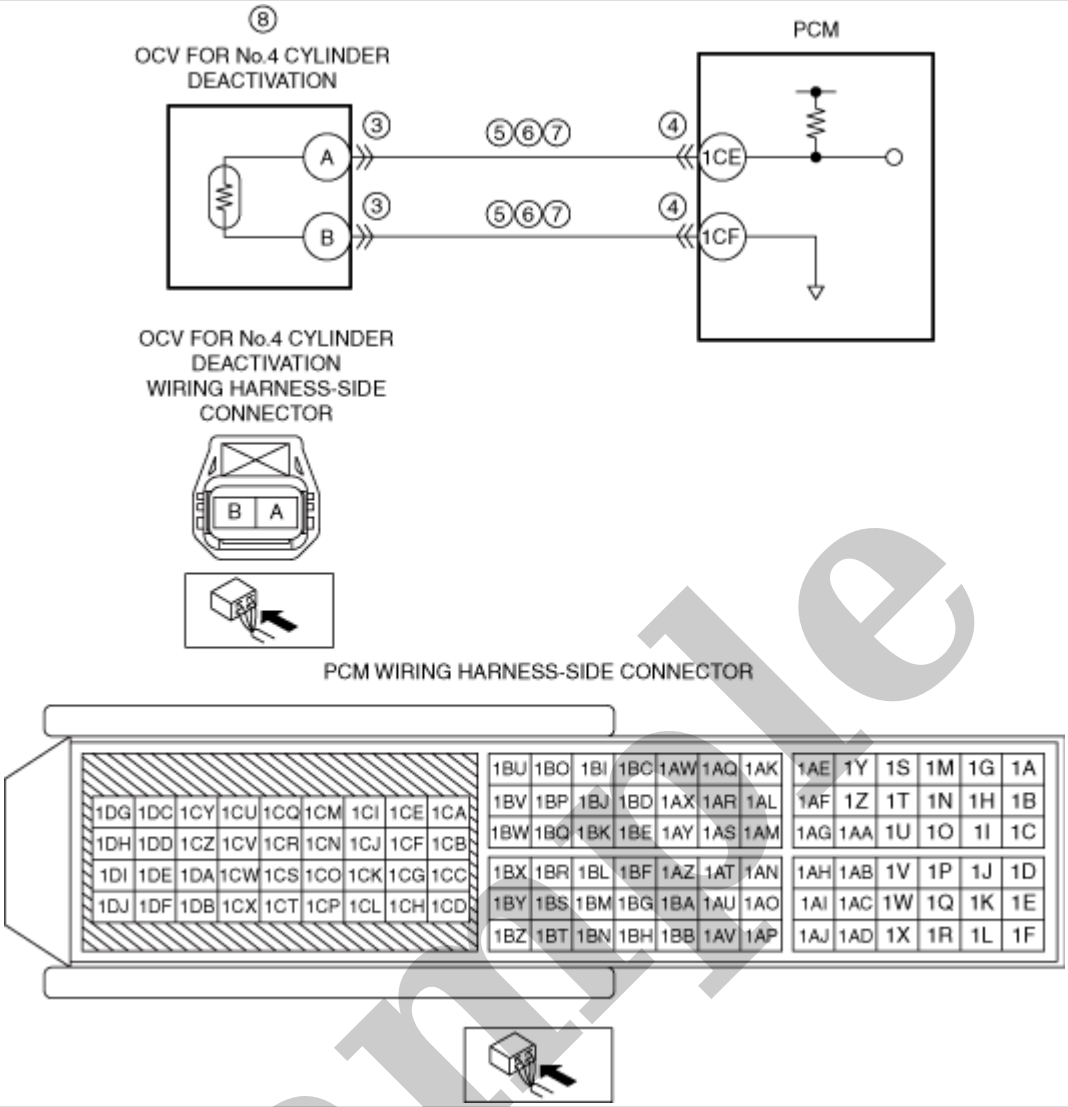
id0102s951720

DTC P3404:00	**OCV for No.1 cylinder deactivation circuit high input**
DETECTION CONDITION	• A condition continues for a specified period of time in which the OCV control voltage or current for No.1 cylinder deactivation relative to the PCM control exceeds the specified value. **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 cylinder deactivation control.
POSSIBLE CAUSE	• Oil control valve (OCV) for No.1 cylinder deactivation connector or terminals malfunction • PCM connector or terminals malfunction • Short to power supply in wiring harness between OCV for No.1 cylinder deactivation terminal A and PCM terminal 1CI • Open circuit in wiring harness between the following terminals: — OCV for No.1 cylinder deactivation terminal A—PCM terminal 1CI — OCV for No.1 cylinder deactivation terminal B—PCM terminal 1CJ • OCV for No.1 cylinder deactivation malfunction • PCM malfunction

STEP	INSPECTION		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-G 2.5 (WITH CYLINDER DEACTIVATION))].) • Start the engine and warm it up completely. **Caution** **• While performing this step, always operate the vehicle in a safe and lawful manner.** **• When the M-MDS is used to observe monitor system status while driving, be sure to have another technician with you, or record the data in the M-MDS using the PID/DATA MONITOR AND RECORD capturing function and inspect later.** • Drive the vehicle under the snapshot data condition. • 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.
9	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.

STEP	INSPECTION		ACTION
3	INSPECT OCV FOR No.4 CYLINDER DEACTIVATION CONNECTOR CONDITION • Switch the ignition off. • Disconnect the OCV for No.4 cylinder deactivation 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 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.
5	INSPECT OCV FOR No.4 CYLINDER DEACTIVATION CIRCUIT FOR OPEN CIRCUIT • Verify that the OCV for No.4 cylinder deactivation and PCM connectors are disconnected. • Inspect for continuity between the following terminals (wiring harness-side): — OCV for No.4 cylinder deactivation terminal A–PCM terminal 1CE — OCV for No.4 cylinder deactivation terminal B–PCM terminal 1CF • 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: • OCV for No.4 cylinder deactivation terminal A–PCM terminal 1CE • OCV for No.4 cylinder deactivation terminal B–PCM terminal 1CF **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.
6	INSPECT OCV FOR No.4 CYLINDER DEACTIVATION CIRCUIT FOR SHORT TO GROUND • Verify that the OCV for No.4 cylinder deactivation and PCM connectors are disconnected. • Inspect for continuity between the following terminals (wiring harness-side) and body ground: — OCV for No.4 cylinder deactivation terminal A — OCV for No.4 cylinder deactivation 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: • OCV for No.4 cylinder deactivation terminal A–PCM terminal 1CE • OCV for No.4 cylinder deactivation terminal B–PCM terminal 1CF **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.

DTC P3428:00	OCV for No.4 cylinder deactivation circuit high input



Diagnostic Procedure

STEP	INSPECTION		ACTION
1	RECORD VEHICLE STATUS WHEN DTC WAS DETECTED TO UTILIZE WITH REPEATABILITY VERIFICATION Note • Recording can be facilitated using the screen capture of the PC function. • Record the freeze frame data/snap shot data.	–	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.