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.

2001 MAZDA 626 (Mk.5) Sedan OEM Service and Repair Workshop Manual

Go to manual page

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: IDENTIFY TRIGGER DTC FOR FREEZE FRAME DATA** • Is the DTC P0087:00 on FREEZE FRAME DATA?	Yes	Go to the next step.
		No	Go to the troubleshooting procedure for DTC on FREEZE FRAME DATA. (See DTC TABLE [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].)
3	**PURPOSE: 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.
4	**PURPOSE: VERIFICATION IF MALFUNCTION CAUSED BY LACK OF FUEL** • Verify the snapshot data FLI. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].) • Is the snapshot data FLI 5% or less?	Yes	Refill the fuel. Go to Troubleshooting Diagnostic Procedure to perform the procedure from Step 3.
		No	Go to the next step.
5	**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 (WITHOUT 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 (WITHOUT CYLINDER DEACTIVATION))].) Go to the next step.
		No	Go to the next step.
6	**PURPOSE: VERIFY CONNECTOR CONNECTIONS** • Start the engine. • Access the FUEL_PRES PID using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].) • Does the PID value fluctuate when the following connectors are shaken? — Fuel pressure sensor — PCM	Yes	Repair or replace the applicable wiring harness or connector parts. Go to Troubleshooting Diagnostic Procedure to perform the procedure from Step 3.
		No	Go to the next step.

DTC P025D:00 [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))]

SM2896844

id0102t300850

DTC P025D:00	Fuel pump control module result of on-board diagnostic test high input
DETECTION CONDITION	• Result of on-board test cannot be received from fuel pump control module (voltage is too high). **Diagnostic support note** • This is a continuous monitor (CCM). • 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	• Fuel pump control module connector or terminals malfunction • PCM connector or terminals malfunction • Short to power supply in wiring harness between fuel pump control module terminal 1A and PCM terminal 2AX • Open circuit in wiring harness between fuel pump control module terminal 1A and PCM terminal 2AX • Fuel pump control module malfunction • Short to ground in wiring harness between fuel pump relay terminal D and fuel pump control module terminal 2A • Short to power supply in wiring harness between fuel pump relay terminal D and fuel pump control module terminal 2A • Open circuit in wiring harness between fuel pump relay terminal D and fuel pump control module terminal 2A • Fuel pump relay malfunction • Short to ground or open circuit in fuel pump relay power supply circuit: — Short to ground in wiring harness between battery positive terminal and fuel pump relay terminal C — MAIN 200 A fuse and/or FUEL PUMP 15 A fuse malfunction — Open circuit in wiring harness between battery positive terminal and fuel pump relay terminal C • PCM malfunction

STEP	INSPECTION	RESULTS	ACTION
8	**INSPECT FUEL PUMP RELAY CONTROL CIRCUIT FOR SHORT TO GROUND** • Remove the fuel pump relay. • Verify that the fuel pump control module and PCM connectors are disconnected. • Inspect for continuity between fuel pump relay terminal D (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 fuel pump relay terminal D and fuel pump control module terminal 2A. **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 13.
		No	Go to the next step.
9	**INSPECT FUEL PUMP RELAY CONTROL CIRCUIT FOR SHORT TO POWER SUPPLY** • Verify that fuel pump relay is removed. • Verify that the fuel pump control module 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 fuel pump relay terminal D (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 fuel pump relay terminal D and fuel pump control module terminal 2A. **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 13.
10	**INSPECT FUEL PUMP RELAY CONTROL CIRCUIT FOR OPEN CIRCUIT** • Verify that fuel pump relay is removed. • Verify that the fuel pump control module and PCM connectors are disconnected. • Switch the ignition off. • Inspect for continuity between fuel pump relay terminal D (wiring harness-side) and fuel pump control module terminal 2A (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 fuel pump relay terminal D and fuel pump control module terminal 2A. **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 13.
11	**INSPECT FUEL PUMP RELAY** • Verify that fuel pump relay is removed. • Inspect the fuel pump relay. (See RELAY INSPECTION.) • Is there any malfunction?	Yes	Replace the fuel pump relay, then go to Step 13.
		No	Go to the next step.

DTC P0365:00 [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))]

SM2896845

id0102t300870

DTC P0365:00	Exhaust CMP sensor circuit problem
DETECTION CONDITION	• The exhaust CMP sensor input signal pattern, received while the crankshaft rotates 24 times, is incorrect. • Cylinder identification is not completed while the crankshaft rotates 15 times. 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	• Stops fuel injection • Stops ignition
POSSIBLE CAUSE	• Exhaust CMP sensor connector or terminals malfunction • Short to ground or open circuit in exhaust CMP sensor power supply circuit — Short to ground in wiring harness between ENGINE2 15 A fuse and exhaust CMP sensor terminal C — ENGINE2 15 A fuse malfunction — Open circuit in wiring harness between sub relay terminal C and exhaust CMP sensor terminal C • Short to ground in wiring harness between exhaust CMP sensor terminal A and PCM terminal 1BZ • PCM connector or terminals malfunction • Short to power supply in wiring harness between exhaust CMP sensor terminal A and PCM terminal 1BZ • Exhaust CMP sensor signal circuit and ground circuit are shorted to each other • Open circuit in wiring harness between the following terminals: — Exhaust CMP sensor terminal A—PCM terminal 1BZ — Exhaust CMP sensor terminal B—PCM terminal 1AI • Exhaust CMP sensor malfunction — Exhaust CMP sensor is dirty — Exhaust CMP sensor pulse wheel malfunction • CKP sensor connector or terminals malfunction • Loose timing chain or improper valve timing • PCM malfunction

STEP	INSPECTION	RESULTS	ACTION
5	**INSPECT EXHAUST CMP SENSOR POWER SUPPLY CIRCUIT FOR SHORT TO GROUND OR OPEN CIRCUIT** • Verify that the exhaust CMP 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 exhaust CMP sensor terminal C (wiring harness-side). • Is the voltage B+?	Yes	Go to the next step.
		No	Inspect the ENGINE2 15 A fuse. • If the fuse is blown: — Refer to the wiring diagram and verify whether or not there is a common connector between ENGINE2 15 A fuse and exhaust CMP sensor terminal C. **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. • Replace the fuse. • If the fuse is damaged: — Replace the fuse. • If the fuse is normal: — Refer to the wiring diagram and verify whether or not there is a common connector between sub relay terminal C and exhaust CMP sensor terminal C. **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 14.

STEP	INSPECTION	RESULTS	ACTION
14	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 (WITHOUT CYLINDER DEACTIVATION))].) • Start the engine and race it. • Perform the KOER self test. (See KOEO/KOER SELF TEST [PCM (SKYACTIV-G 2.5 (WITHOUT 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 (WITHOUT CYLINDER DEACTIVATION)].) Go to the next step.
		No	Go to the next step.
15	VERIFY AFTER REPAIR PROCEDURE • Perform the "AFTER REPAIR PROCEDURE". (See AFTER REPAIR PROCEDURE [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].)
		No	DTC troubleshooting completed.

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	INSPECT HIGH PRESSURE FUEL PUMP CONNECTOR CONDITION • Switch the ignition off. • Disconnect the high pressure fuel pump 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	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.
5	INSPECT SPILL VALVE CONTROL SOLENOID VALVE CONTROL CIRCUIT FOR SHORT TO GROUND • Verify that the high pressure fuel pump and PCM connectors are disconnected. • Inspect for continuity between high pressure fuel pump 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 high pressure fuel pump terminal B and PCM terminal 1DJ. 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.
6	INSPECT SPILL VALVE CONTROL SOLENOID VALVE CIRCUIT FOR OPEN CIRCUIT • Verify that the high pressure fuel pump and PCM connectors are disconnected. • Inspect for continuity between the following terminals (wiring harness-side): — High pressure fuel pump terminal A–PCM terminal 1DI — High pressure fuel pump terminal B–PCM terminal 1DJ • 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: • High pressure fuel pump terminal A–PCM terminal 1DI • High pressure fuel pump terminal B–PCM terminal 1DJ 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 8.

DESCRIPTION	Spill valve control solenoid valve control circuit range/performance problem
POSSIBLE CAUSE	• High pressure fuel pump connector or terminals malfunction • PCM connector or terminals malfunction • Fuel pressure sensor malfunction • High pressure fuel pump malfunction — Spill valve control solenoid valve (built-into high pressure fuel pump) malfunction • High pressure fuel pipe clogging • Fuel distributor malfunction • Fuel injector malfunction • PCM malfunction

System Wiring Diagram

• Not applicable

Function Explanation (DTC Detection Outline)

• The PCM calculates the target fuel pressure appropriate to the engine conditions relative to the actual fuel pressure based on the fuel pressure signal, and provides feedback to the high pressure fuel pump control.
• If the average fuel pressure exceeds the specified value, the PCM determines a malfunction in the high pressure fuel pump system, and stores a DTC.
• If the fuel pressure decreases to the specification or less instantaneously after the fuel pressure on the high pressure side measured by the fuel pressure sensor exceeds the specification, the PCM determines a malfunction in the high pressure fuel pump system, 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.

PID Item/Simulation Item Used In Diagnosis

• Not applicable

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: IDENTIFY TRIGGER DTC FOR FREEZE FRAME DATA • Is the DTC P0089:00 on FREEZE FRAME DATA?	Yes	Go to the next step.
		No	Go to the troubleshooting procedure for DTC on FREEZE FRAME DATA. (See DTC TABLE [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].)

DTC P2090:00 [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))]

SM2896850

id0102t300980

DTC P2090:00	OCV circuit low input
DETECTION CONDITION	• The OCV control voltage relative to the PCM control is too low. 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	• Set the exhaust variable valve timing control to the maximum advanced position.
POSSIBLE CAUSE	• OCV connector or terminals malfunction • Short to ground or open circuit in OCV power supply circuit — Short to ground in wiring harness between ENGINE4 15 A fuse and OCV terminal B — ENGINE4 15 A fuse malfunction — Open circuit in wiring harness between main relay terminal C and OCV terminal B • Short to ground in wiring harness between OCV terminal A and PCM terminal 1CO • PCM connector or terminals malfunction • Open circuit in wiring harness between OCV terminal A and PCM terminal 1CO • OCV malfunction • PCM malfunction