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1988 MAZDA 626 (Mk.3) Station Wagon OEM Service and Repair Workshop Manual

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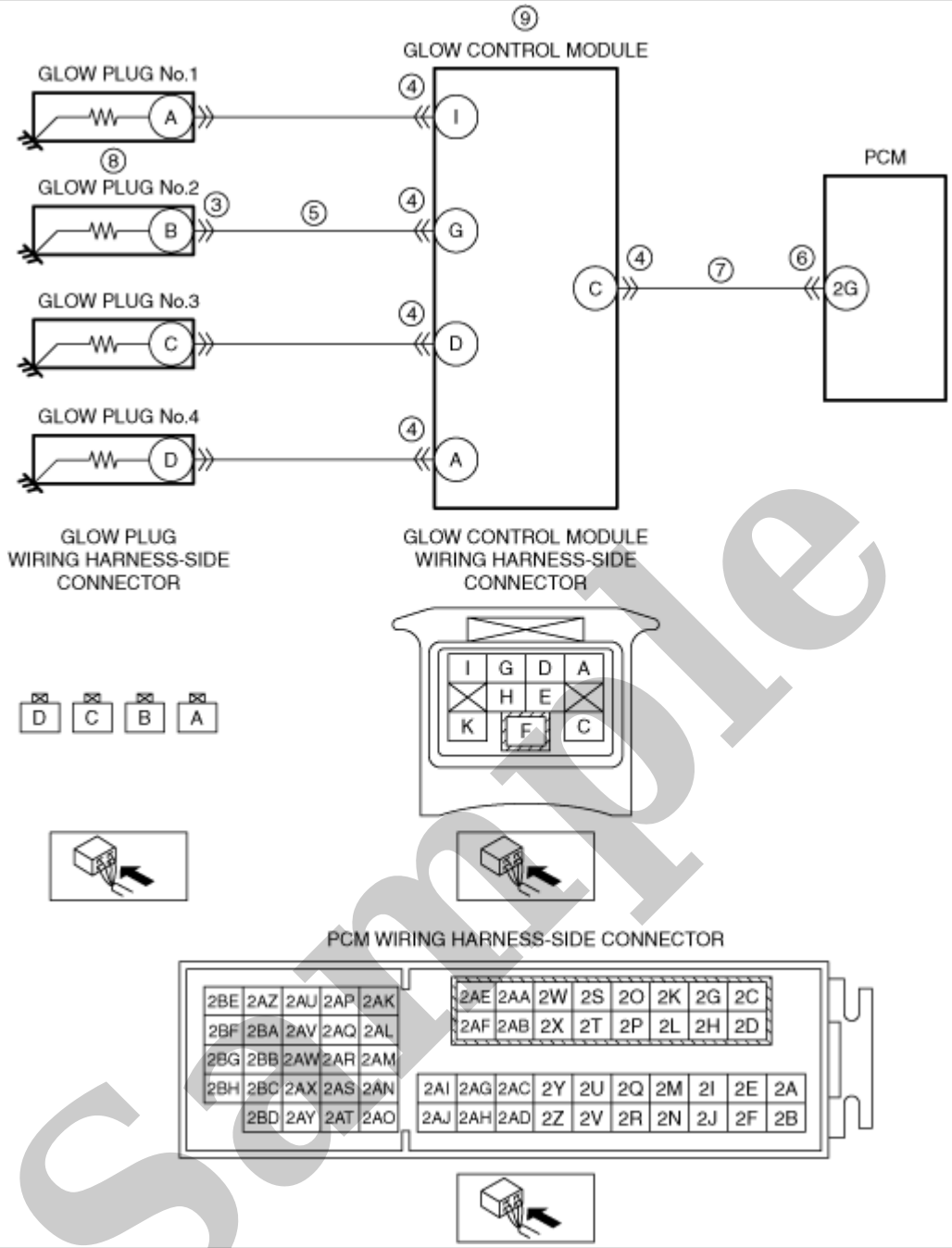
STEP	INSPECTION		ACTION
1	**RECORD VEHICLE STATUS AT TIME OF DTC DETECTION TO UTILIZE WITH REPEATABILITY VERIFICATION** **Note** **• Recording can be facilitated using the screen capture function of the PC.** • Record the FREEZE FRAME DATA/snapshot data on the repair order.	–	Go to the next step.
2	**VERIFY 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 GLOW PLUG No.1 CONNECTOR CONDITION** • Switch the ignition off. • Disconnect the glow plug No.1 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 GLOW CONTROL MODULE CONNECTOR CONDITION** • Disconnect the glow control module 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 GLOW PLUG No.1 CONTROL CIRCUIT FOR SHORT TO GROUND** • Verify that the glow plug No.1 and glow control module connectors are disconnected. • Inspect for continuity between glow plug No.1 terminal A (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 glow plug No.1 terminal A and glow control module terminal I. **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 10.
		No	Go to the next step.
6	**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 10.
		No	Go to the next step.

DTC P066C:00	Glow plug No.2 control circuit low input



Diagnostic Procedure

DTC P066E:00 [PCM (SKYACTIV-D 2.2)]

SM2896112

id0102j530900

DTC P066E:00	Glow plug No.3 control circuit low input
DETECTION CONDITION	• If the PCM detects that the glow plug No.3 control circuit current is above 100 A for 5 s, the PCM determines that the glow plug No.3 control circuit has a malfunction. MONITORING CONDITIONS — Ignition switched ON (engine off or on) — Battery voltage: 8V or more — The following DTC is not detected: • LIN communication system: U0106:00 • Glow plug control module: P138B:00 Diagnostic support note • This is a continuous monitor (CCM). • The check engine light illuminates if the PCM detects the above malfunction condition in two consecutive drive cycles or in one drive cycle while the DTC for the same malfunction has been stored in the PCM. • PENDING CODE is available if the PCM detects the above malfunction condition during first drive cycle. • FREEZE FRAME DATA/Snapshot data is available. • DTC is stored in the PCM memory.
FAIL-SAFE FUNCTION	• Not applicable
POSSIBLE CAUSE	• Glow plug No.3 connector or terminals malfunction • Glow control module connector or terminals malfunction • Short to ground in wiring harness between glow plug No.3 terminal C and glow control module terminal D • PCM connector or terminals malfunction • Short to ground in wiring harness between glow control module terminal C and PCM terminal 2G • Glow plug No.3 malfunction • Glow control module malfunction • PCM malfunction

STEP	INSPECTION		ACTION
7	**INSPECT GLOW CONTROL MODULE SIGNAL CIRCUIT FOR SHORT TO GROUND** • Verify that the glow plug No.3, glow control module, and PCM connectors are disconnected. • Inspect for continuity between glow control module terminal C (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 glow control module terminal C and PCM terminal 2G. **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 10.
		No	Go to the next step.
8	**INSPECT GLOW PLUG No.3** • Inspect the glow plug No.3. (See GLOW PLUG INSPECTION [SKYACTIV-D 2.2].) • Is there any malfunction?	Yes	Replace the glow plug No.3, then go to Step 10. (See GLOW PLUG REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
		No	Go to the next step.
9	**INSPECT GLOW CONTROL MODULE** • Inspect the glow control module. (See GLOW PLUG CONTROL MODULE INSPECTION [SKYACTIV-D 2.2].) • Is there any malfunction?	Yes	Replace the glow control module, then go to the next step. (See GLOW PLUG CONTROL MODULE REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
		No	Go to the next step.
10	**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-D 2.2)].) • Perform the KOEO self test. (See KOEO/KOER SELF TEST [PCM (SKYACTIV-D 2.2)].) • Is the same DTC present?	Yes	Repeat the inspection from Step 1. • If the malfunction recurs, replace the PCM. (See PCM REMOVAL/INSTALLATION [SKYACTIV-D 2.2].) Go to the next step.
		No	Go to the next step.
11	**VERIFY AFTER REPAIR PROCEDURE** • Perform the "AFTER REPAIR PROCEDURE". (See AFTER REPAIR PROCEDURE [PCM (SKYACTIV-D 2.2)].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [PCM (SKYACTIV-D 2.2)].)
		No	DTC troubleshooting completed.

STEP	INSPECTION		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 GLOW PLUG No.4 CONNECTOR CONDITION** • Switch the ignition off. • Disconnect the glow plug No.4 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 GLOW CONTROL MODULE CONNECTOR CONDITION** • Disconnect the glow control module 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 GLOW PLUG No.4 CONTROL CIRCUIT FOR SHORT TO GROUND** • Verify that the glow plug No.4 and glow control module connectors are disconnected. • Inspect for continuity between glow plug No.4 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 glow plug No.4 terminal D and glow control module terminal A. **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 10.
		No	Go to the next step.
6	**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 10.
		No	Go to the next step.

DTC P0343:00 [PCM (SKYACTIV-D 2.2)]

SM2896192

id0102j556530

DTC P0343:00	Camshaft Position Sensor "A" Circuit High (Bank 1 or single sensor)
DETECTION CONDITION	• There is no CMP sensor signal input while the crankshaft rotates 12 times when the following conditions are met. MONITORING CONDITIONS — Battery voltage: 8 V or more — Engine speed: 700 rpm or more 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	• Related wiring harness malfunction • CMP sensor connector or terminals malfunction • Improper installation of CMP sensor • CMP sensor malfunction • Deviation between camshaft and CMP sensor detection area • Damage to detection area of CMP sensor • PCM connector or terminals malfunction • CMP sensor pulse wheel malfunction • PCM malfunction
SYSTEM WIRING DIAGRAM	Not applicable

Diagnostic Procedure

STEP	INSPECTION		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.

DTC P3310:00 [PCM (SKYACTIV-D 2.2)]

SM2896190

id0102j551910

DTC P3310:00	Burnt out bulb check circuit malfunction at engine start
DETECTION CONDITION	• With the following conditions met, the output voltage of the glow indicator light-related circuit exceeds 4.9 V for 16.8 s. — Glow indicator light illumination time: 0.448 s or more — The following DTCs are not detected: • U0155:00 **MONITORING CONDITIONS** — Illuminates glow indicator light — Ignition switched ON — Battery voltage: 8 V or more **Diagnostic support note** • This is a continuous monitor (CCM). • The check engine light illuminates if the PCM detects the above malfunction condition in two consecutive drive cycles or in one drive cycle while the DTC for the same malfunction has been stored in the PCM. • PENDING CODE is available if the PCM detects the above malfunction condition during first drive cycle. • FREEZE FRAME DATA/Snapshot data is available. • DTC is stored in the PCM memory.
FAIL-SAFE FUNCTION	• Not applicable
POSSIBLE CAUSE	• CAN communication line lost or malfunction between instrument cluster and PCM • PCM connector or terminals malfunction • Instrument cluster connector or terminals malfunction • Instrument cluster 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.

Diagnostic Procedure

STEP	INSPECTION	RESULTS	ACTION
1	VERIFY DTC CAUSING FREEZE FRAME DATA (MODE 2) • Is DTC P039A:00, P03A4:00, P03AE:00, or P03B8:00 causing the FREEZE FRAME DATA?	Yes	Go to the next step.
		No	Inspect the DTC causing the FREEZE FRAME DATA. (See DTC TABLE [PCM (SKYACTIV-D 2.2)].)
2	RECORD VEHICLE STATUS WHEN DTC WAS DETECTED TO UTILIZE WITH REPEATABILITY VERIFICATION Note • Recording can be facilitated using the screen capture function of the PC. • Record the FREEZE FRAME DATA/snap shot data.	–	Go to the next step.
3	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.
4	VERIFY OTHER RELATED DTCs • Switch the ignition OFF, and then switch it ON (engine off). • Perform the Pending Trouble Code Access Procedure and DTC Reading Procedure. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-D 2.2)].) • Is the PENDING CODE/DTC P039A:00, P03A4:00, P03AE:00, and P03B8:00 also present?	Yes	Repair the malfunctioning location according to the applicable DTC troubleshooting first, then go to the next step. (See DTC TABLE [PCM (SKYACTIV-D 2.2)].)
		No	Go to the next step.
5	INSPECT CKP SENSOR • Inspect the CKP sensor. (See CRANKSHAFT POSITION (CKP) SENSOR INSPECTION [SKYACTIV-D 2.2].) • Is there any malfunction?	Yes	Replace the CKP sensor, then go to Step 7. (See CRANKSHAFT POSITION (CKP) SENSOR REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
		No	Go to the next step.
6	INSPECT ENGINE COMPRESSION PRESSURE • Inspect the engine compression pressure. (See COMPRESSION INSPECTION [SKYACTIV-D 2.2].) • Is the engine compression pressure normal?	Yes	Regard it as a temporary decrease in compression pressure, then go to the next step.
		No	Repair or replace the malfunctioning location, then go to the next step.

DESCRIPTION	Turbocharger boost control slow response	
DETECTION CONDITION	Determination conditions	• The time the actual boost pressure takes to change to the target boost pressure exceeds 2.5 s for a continuous 30 s.
	Preconditions	• 80 s or more have elapsed with all of the following conditions met: — Intake shutter valve position: 80 ° or more — Barometric pressure: 72 kPa {0.73 kgf/cm^2, 10 psi} or more — Intake air temperature: -10 °C {14 °F} or more — Engine coolant temperature: -10 °C {14 °F} or more — No change in control range of boost control — When any of the following conditions is met: • Change in unit time of target boost pressure is specified value or more • Target boost pressure: 125 kPa {1.28 kgf/cm^2, 18.2 psi} or more — Actual boost pressure: 260 kPa {2.65 kgf/cm^2, 37.7 psi} or less — The following DTCs are not detected: • BARO sensor: P2227:00, P2228:00, P2229:00 • EGR cooler bypass valve position sensor: P2494:00, P2495:00 • EGR cooler bypass valve: P245A:00, P245B:00, P24A5:00 • EGR valve: P0404:00,P0488:00 • ECT sensor No.1: P0116:00, P0117:00, P0118:00, P011A:00 • Exhaust gas temperature sensor No.1: P0545:00, P0546:00, P2080:00 • Exhaust gas pressure sensor No.1: P0471:00, P0472:00, P0473:00 • IAT sensor No.1: P0111:00, P0112:00, P0113:00 • IAT sensor No.2: P00E9:00, P00EA:00, P00EB:00 • MAP sensor No.2: P0106:00, P0107:00, P0108:00 • MAF sensor: P0101:00, P0102:00, P0103:00 • Intake shutter valve position sensor: P0122:00, P0123:00 • Intake shutter valve: P2101:00, P2118:00 • Regulating valve position sensor: P2564:00, P2565:00 • Regulating valve: P2263:00 • Regulating solenoid valve: P0047:00, P0048:00 • Compressor bypass solenoid valve: P0034:00, P0035:00 • Wastegate solenoid valve: P0245:00, P0246:00 • EGR valve position sensor: P0405:00, P0406:00
	Drive cycle	• 2
	Self test type	• CMDTC self test
	Sensor used	• MAP sensor No.2 • Exhaust gas temperature sensor No.1 • Exhaust gas pressure sensor No.1
FAIL-SAFE FUNCTION	• Not applicable	
VEHICLE STATUS WHEN DTCs ARE OUTPUT	• Not applicable	