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1990 MAZDA 626 (Mk.3) Sedan OEM Service and Repair Workshop Manual

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STEP	INSPECTION	RESULTS	ACTION
6	PURPOSE: VERIFY CONNECTOR CONNECTIONS • Access the following PIDs using the M-MDS: (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-D 2.2)].) — BARO — EGRP — EGRP_ACT — EGR_C_BP — EGR_C_BP_ACT — EXHTEMP1 — EXHTEMP2 — EXHTEMP4 — EXHPRESS_DIF — HTR11 — IAT — ISV_ACT — ISV_DSD — O2S11 — MAF • When the following parts are shaken, does the PID value include a PID item which has changed? — BARO sensor (built-in PCM) — EGR valve — EGR valve position sensor — EGR cooler bypass valve — EGR cooler bypass valve position sensor — Exhaust gas temperature sensor No.2 — Exhaust gas temperature sensor No.3 — Exhaust gas temperature sensor No.4 — Exhaust gas pressure sensor No.2 — A/F sensor heater — Intake air temperature sensor No.1 — Intake shutter valve position sensor — Intake shutter valve — A/F sensor — MAF sensor — PCM	Yes	Inspect the related wiring harness and connector. • Repair or replace the malfunctioning part. Go to the troubleshooting procedure to perform the procedure from Step 20.
		No	Go to the troubleshooting procedure to perform the procedure from Step 1.

Troubleshooting Diagnostic Procedure

Caution

• If a hand or tool touches a fuel injector terminal or fuel injector connector terminal, the fuel injector might be damaged. To prevent damage to a fuel injector, do not touch the terminals.
• If high-voltage generating parts or components and electronic devices come near a fuel injector, the fuel injector could be damaged. To prevent damage to a fuel injector, always keep high-voltage generating parts or components and electronic devices away from it.

Intention of troubleshooting procedure

• Step 1–5

— Perform inspection of A/F sensor signal related parts.

• Step 6

— Perform a unit inspection of the fuel injector No.1–No.4.

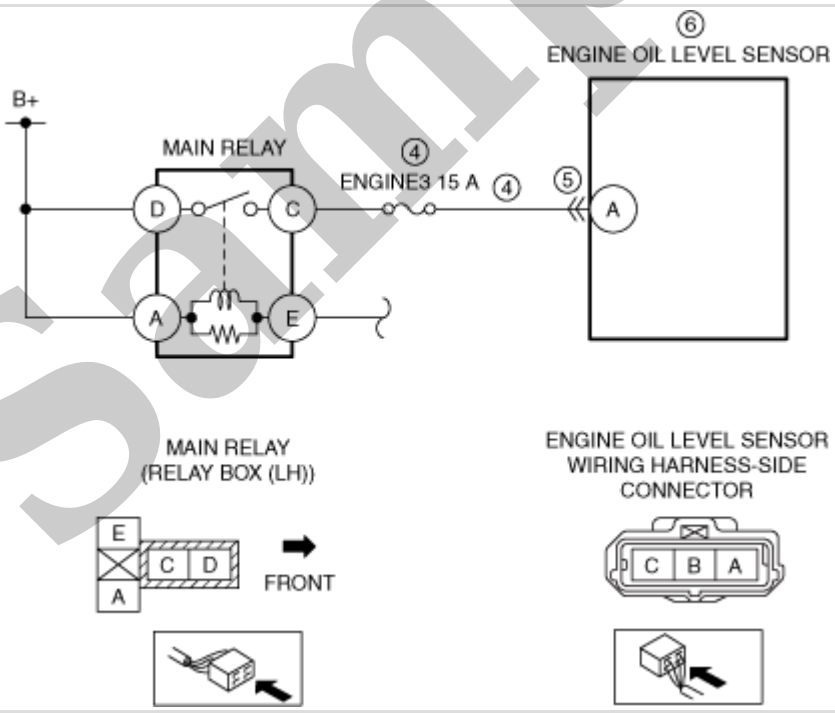
STEP	INSPECTION	RESULTS	ACTION
14	**INSPECT EGR COOLER BYPASS VALVE POSITION SENSOR** • Reconnect all disconnected connectors. • Inspect the EGR cooler bypass valve position sensor. (See EGR VALVE POSITION SENSOR INSPECTION [SKYACTIV-D 2.2] • Is there any malfunction?	Yes	Replace the EGR cooler bypass valve, then go to Step 20. (See EGR COOLER BYPASS VALVE REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
		No	Go to the next step.
15	**PURPOSE: INSPECT BARO SENSOR** • Inspect the BARO sensor . (See BAROMETRIC PRESSURE (BARO) SENSOR INSPECTION [SKYACTIV-D 2.2].) • Is there any malfunction?	Yes	Replace the PCM, then go to Step 20. (See PCM REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
		No	Go to the next step.
16	**PURPOSE: INSPECT EXHAUST GAS TEMPERATURE SENSOR** • Inspect the exhaust gas temperature sensor No.2, No.3 and No.4. (See EXHAUST GAS TEMPERATURE SENSOR INSPECTION [SKYACTIV-D 2.2].) • Is there any malfunction?	Yes	Replace the suspect exhaust gas temperature sensor, then go to Step 20. (See EXHAUST GAS TEMPERATURE SENSOR REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
		No	Go to the next step.
17	**PURPOSE: INSPECT EXHAUST GAS PRESSURE SENSOR NO.2** • Reconnect all disconnected connectors. • Inspect the exhaust gas pressure sensor No.2. (See EXHAUST GAS PRESSURE SENSOR INSPECTION [SKYACTIV-D 2.2].) • Is there any malfunction?	Yes	Replace the exhaust gas pressure sensor No.2, then go to Step 20. (See EXHAUST GAS PRESSURE SENSOR REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
		No	Go to the next step.
18	**PURPOSE: INSPECT EXHAUST SYSTEM FOR LEAKAGE** • Start the engine and inspect each exhaust system component for exhaust gas leakage. • Is there any malfunction?	Yes	Repair or replace the malfunctioning part according to the inspection results, then go to Step 20.
		No	Go to the next step.
19	**PURPOSE: INSPECT DIESEL PARTICULATE FILTER** • Perform the DIESEL PARTICULATE FILTER INSPECTION. (See DIESEL PARTICULATE FILTER INSPECTION [SKYACTIV-D 2.2].) • Is there any malfunction?	Yes	Repair or replace the malfunctioning part according to the inspection results, then go to the next step.
		No	Catalytic converter can be considered the cause. • Replace the catalytic converter, then go to the next step. (See EXHAUST SYSTEM REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
20	**PURPOSE: VERIFICATION OF VEHICLE REPAIR COMPLETION** • Always reconnect all disconnected connectors. • Clear the DTC from the PCM memory using the M-MDS. (See CLEARING DTC [PCM (SKYACTIV-D 2.2)].) • Implement the repeatability verification procedure. (See Repeatability Verification Procedure.) • Perform the Pending Trouble Code Access Procedure. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-D 2.2)].) • 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-D 2.2].)
		No	DTC troubleshooting completed.

STEP	INSPECTION		ACTION
10	INSPECT CRANKSHAFT BEARING FOR DAMAGE • Remove the belts for the engine accessories. (See DRIVE BELT REMOVAL/INSTALLATION [SKYACTIV-D 2.2].) • Install a wrench to the crankshaft pulley lock bolt and turn it clockwise. (See TIMING CHAIN REMOVAL/INSTALLATION [SKYACTIV-D 2.2].) • Does the crankshaft rotate smoothly?	Yes	**If damage to the fuel injector is detected in Step 8:** • Replace the fuel injector. (See FUEL INJECTOR REMOVAL/INSTALLATION [SKYACTIV-D 2.2].) **If denting or adhesion of melted matter on the cylinder head is detected in Step 8:** • Replace or overhaul the cylinder head. (See CYLINDER HEAD GASKET REPLACEMENT [SKYACTIV-D 2.2].) Add genuine engine oil, then go to Step 13. (See ENGINE OIL REPLACEMENT [SKYACTIV-D 2.2].)
		No	Overhaul the engine, then go to Step 13.
11	VISUALLY INSPECT INSIDE OF CYLINDER • Is there any vertical scratching (such as one that a fingernail can detect by scratching), or a dent on the cylinder liner caused by valve impact?	Yes	Overhaul the engine, then go to Step 13.
		No	Go to the next step.
12	INSPECT CRANKSHAFT BEARING FOR DAMAGE • Remove the belts for the engine accessories. (See DRIVE BELT REMOVAL/INSTALLATION [SKYACTIV-D 2.2].) • Install a wrench to the crankshaft pulley lock bolt and turn it clockwise. (See TIMING CHAIN REMOVAL/INSTALLATION [SKYACTIV-D 2.2].) • Does the crankshaft rotate smoothly?	Yes	Engine internal parts are normal. • Add genuine engine oil, then go to the next step. (See ENGINE OIL REPLACEMENT [SKYACTIV-D 2.2].)
		No	Overhaul the engine, then go to the next step.
13	VERIFY DTC TROUBLESHOOTING COMPLETED • Always reconnect all disconnected connectors. • Clear the DTC from the PCM memory using the M-MDS. (See AFTER REPAIR PROCEDURE [PCM (SKYACTIV-D 2.2)].) • Perform the "FUEL INJECTOR INJECTION AMOUNT CORRECTION". (See FUEL INJECTOR INJECTION AMOUNT CORRECTION [SKYACTIV-D 2.2].) • Start the engine and warm it up completely. • Switch the ignition off. • Perform the DTC Reading Procedure. (See ON-BOARD DIAGNOSTIC 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.
14	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.

DTC U1100:00 [PCM (SKYACTIV-D 2.2)]

SM2896294

id0102j585590

DTC U1100:00	LIN communication: communication error to engine oil level sensor
DETECTION CONDITION	• a communication error between the engine oil level sensor continues for 5 s or more. Diagnostic support note • This is a continuous monitor (other). • The check engine light does not illuminate. • FREEZE FRAME DATA/Snapshot data is not available. • DTC is stored in the PCM memory.
FAIL-SAFE FUNCTION	• Not applicable
POSSIBLE CAUSE	• LIN communication line malfunction between engine oil level sensor and PCM • Engine oil level sensor connector or terminals malfunction • Short to ground or open circuit in engine oil level sensor power supply circuit — Short to ground in wiring harness between ENGINE3 15 A fuse and engine oil level sensor terminal A — ENGINE3 15 A fuse malfunction — Open circuit in wiring harness between main relay terminal C and engine oil level sensor terminal A • PCM connector or terminals malfunction • Engine oil level sensor malfunction • PCM malfunction
	

Diagnostic Procedure

DTC P1260:00 [PCM (SKYACTIV-D 2.2)]

SM2896295

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DTC P1260:00	Immobilizer system problem
DETECTION CONDITION	• The start stop unit detects an immobilizer system malfunction. **Diagnostic support note** • This is a continuous monitor (other). • The check engine light does not illuminate. • FREEZE FRAME DATA/Snapshot data is not available. • DTC is not stored in the PCM memory.
FAIL-SAFE FUNCTION	• Not applicable
POSSIBLE CAUSE	• Immobilizer system malfunction • PCM malfunction
SYSTEM WIRING DIAGRAM	Not applicable

Diagnostic Procedure

STEP	INSPECTION		ACTION
1	VERIFY RELATED SERVICE INFORMATION AVAILABILITY • Verify related Service Bulletins and/or on-line repair information availability. • Is any related Service 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	VERIFY IMMOBILIZER SYSTEM DTC • Verify the immobilizer system DTC. (See DTC INSPECTION [START STOP UNIT].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [START STOP UNIT].)
		No	Go to the next step.
3	VERIFY DTC TROUBLESHOOTING COMPLETED • Clear the DTC from the PCM memory using the M-MDS. (See AFTER REPAIR PROCEDURE [PCM (SKYACTIV-D 2.2)].) • Perform the DTC Reading Procedure. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-D 2.2)].) • Is the same DTC present?	Yes	Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
		No	Go to the next step.
4	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
10	INSPECT SUPPLY PUMP • Inspect the supply pump. (See SUPPLY PUMP INSPECTION [SKYACTIV-D 2.2].) • Is there any malfunction?	Yes	Replace the supply pump, then go to Step 12. (See SUPPLY PUMP REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
		No	Go to the next step.
11	INSPECT FUEL INJECTOR • Inspect the fuel injector. (See FUEL INJECTOR INSPECTION [SKYACTIV-D 2.2].) • Is there any malfunction?	Yes	Replace the fuel injector, then go to the next step. (See FUEL INJECTOR REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
		No	Go to the next step.
12	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 Drive Mode. (See OBD-II DRIVE MODE [PCM (SKYACTIV-D 2.2)].) • Perform the Pending Trouble Code Access Procedure. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-D 2.2)].) • 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-D 2.2].) Go to the next step.
		No	Go to the next step.
13	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	RESULTS	ACTION
7	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 or KOER 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.
8	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
9	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
3	**INSPECT FUEL PRESSURE RELIEF VALVE CONNECTOR CONDITION** • Switch the ignition off. • Disconnect the fuel pressure relief valve 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 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.
5	**INSPECT FUEL PRESSURE RELIEF VALVE CIRCUIT FOR SHORT TO GROUND** • Verify that the fuel pressure relief valve and PCM connectors are disconnected. • Inspect for continuity between the following terminals (wiring harness-side) and body ground: — Fuel pressure relief valve terminal A — Fuel pressure relief valve 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: • Fuel pressure relief valve terminal A—PCM terminal 1DK • Fuel pressure relief valve terminal B—PCM terminal 1DG **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 FUEL PRESSURE RELIEF VALVE CIRCUIT FOR SHORT TO POWER SUPPLY** • Verify that the fuel pressure relief valve 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 following terminals (wiring harness-side): — Fuel pressure relief valve terminal A — Fuel pressure relief valve terminal B • 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 the following terminals: • Fuel pressure relief valve terminal A—PCM terminal 1DK • Fuel pressure relief valve terminal B—PCM terminal 1DG **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.