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1991 MAZDA 626 (Mk.4) Hatchback OEM Service and Repair Workshop Manual

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STEP	INSPECTION	RESULTS	ACTION
4	PURPOSE: VERIFICATION OF VEHICLE REPAIR COMPLETION • Always reconnect all disconnected connectors. • Clear the DTC from the dosing control unit memory using the M-MDS. (See CLEARING DTC [DOSING CONTROL UNIT (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 [DOSING CONTROL UNIT (SKYACTIV-D 2.2)].) • Is the same Pending DTC present?	Yes	Repeat the inspection from Step 1. • If the malfunction recurs, replace the dosing control unit. (See DOSING CONTROL UNIT REMOVAL/INSTALLATION [SKYACTIV-D 2.2].) Go to the next step.
		No	Go to the next step.
5	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 [DOSING CONTROL UNIT (SKYACTIV-D 2.2)].)
		No	DTC troubleshooting completed.

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 P3200:00 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 [DOSING CONTROL UNIT (SKYACTIV-D 2.2)].)
3	**PURPOSE: RECORD FREEZE FRAME DATA/SNAPSHOT DATA AND DIAGNOSTIC MONITORING TEST RESULTS 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 and DIAGNOSTIC MONITORING TEST RESULTS (PM sensor) on the repair order.	–	Go to Troubleshooting Diagnostic Procedure to perform the procedure from step 1.

Troubleshooting Diagnostic Procedure

Intention of troubleshooting procedure

- Step 1–7
  - — Perform inspection of PM sensor signal related parts.
- Step 8
  - — Verify whether malfunction is PM sensor or diesel particulate filter
- Step 9–10
  - — Verify that the primary malfunction is resolved and there are no other malfunctions.

STEP	INSPECTION	RESULTS	ACTION
1	**PURPOSE: INSPECT PM SENSOR CONNECTOR CONDITION** • Switch the ignition off. • Disconnect the PM 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 9.
		No	Go to the next step.

STEP	INSPECTION	RESULTS	ACTION
9	PURPOSE: VERIFICATION OF VEHICLE REPAIR COMPLETION • Clear the DTC from the dosing control unit memory using the M-MDS. (See CLEARING DTC [DOSING CONTROL UNIT (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 [DOSING CONTROL UNIT (SKYACTIV-D 2.2)].) • Is the same Pending DTC present?	Yes	Repeat the inspection from Step 1. • If the malfunction recurs, replace the dosing control unit. (See DOSING CONTROL UNIT REMOVAL/INSTALLATION [SKYACTIV-D 2.2].) Go to the next step.
		No	Go to the next step.
10	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 [DOSING CONTROL UNIT (SKYACTIV-D 2.2)].)
		No	DTC troubleshooting completed.

STEP	INSPECTION	RESULTS	ACTION
2	PURPOSE: INSPECT DOSING CONTROL UNIT CONNECTOR CONDITION • Switch the ignition off. • Disconnect the dosing control unit 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 4.
		No	Go to the next step.
3	PURPOSE: VISUALLY INSPECT PM SENSOR FOR SOOT ACCUMULATION OR DAMAGE • Visually inspect the PM sensor. (See PM SENSOR INSPECTION [SKYACTIV-D 2.2].) • Disconnect the dosing control unit connector. • Is there any malfunction?	Yes	Replace the PM sensor, then go to the next step. (See PM SENSOR REMOVAL/INSTALLATION [SKYACTIV-D 2.2])
		No	Go to the next step.
4	PURPOSE: VERIFICATION OF VEHICLE REPAIR COMPLETION • Always reconnect all disconnected connectors. • Clear the DTC from the dosing control unit memory using the M-MDS. (See CLEARING DTC [DOSING CONTROL UNIT (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 [DOSING CONTROL UNIT (SKYACTIV-D 2.2)].) • Is the same Pending DTC present?	Yes	Repeat the inspection from Step 1. • If the malfunction recurs, replace the dosing control unit. (See DOSING CONTROL UNIT REMOVAL/INSTALLATION [SKYACTIV-D 2.2].) Go to the next step.
		No	Go to the next step.
5	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 [DOSING CONTROL UNIT (SKYACTIV-D 2.2)].)
		No	DTC troubleshooting completed.

STEP	INSPECTION	RESULTS	ACTION
3	**INSPECT UREA LEVEL SENSOR/UREA TEMPERATURE SENSOR/UREA TANK HEATER CONNECTOR CONDITION** • Switch the ignition off. • Disconnect the urea level sensor/urea temperature sensor/urea tank heater 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 DOSING CONTROL UNIT CONNECTOR CONDITION** • Disconnect the dosing control unit 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 UREA LEVEL SENSOR CIRCUIT FOR SHORT TO GROUND** • Verify that the urea level sensor/urea temperature sensor/urea tank heater and dosing control unit connectors are disconnected. • Inspect for continuity between the following terminals (wiring harness-side) and body ground: — Urea level sensor/urea temperature sensor/urea tank heater terminal A—Dosing control unit terminal AR — Urea level sensor/urea temperature sensor/urea tank heater terminal B—Dosing control unit terminal AV — Urea level sensor/urea temperature sensor/urea tank heater terminal C—Dosing control unit terminal L • Is there continuity?	Yes	Refer to the wiring diagram and verify whether or not there is a common connector between the following terminals: • Urea level sensor/urea temperature sensor/urea tank heater terminal A—Dosing control unit terminal AR • Urea level sensor/urea temperature sensor/urea tank heater terminal B—Dosing control unit terminal AV • Urea level sensor/urea temperature sensor/urea tank heater terminal C—Dosing control unit terminal L **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.

DTC P203C:00 [DOSING CONTROL UNIT (SKYACTIV-D 2.2)]

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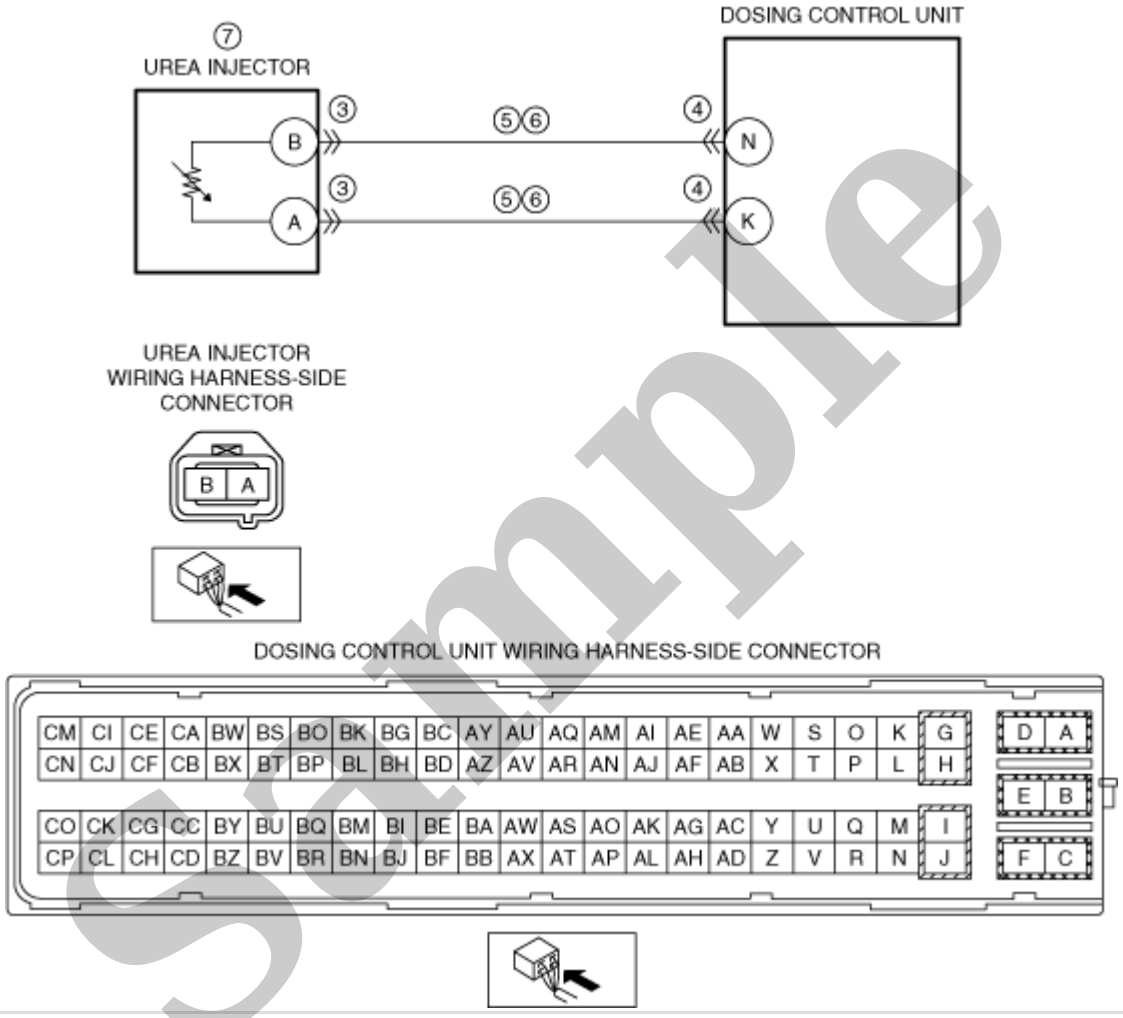
DTC P203C:00	Urea level sensor circuit low input
DETECTION CONDITION	• The dosing control unit detects that the output duty signal circuit voltage of the urea level sensor is more than 1.18 V for 2 s. MONITORING CONDITIONS — Ignition switched ON — Battery voltage: 10.9–16 V Note • DTC P2BAF:00 is also stored in the PCM and the vehicle speed is restricted. • DTC P1640:00 is also stored in the PCM. Diagnostic support note • This is a continuous monitor (CCM). • The check engine light illuminates if the dosing control unit detects the above malfunction condition during the first drive cycle. • FREEZE FRAME DATA/Snapshot data is available. • DTC is stored in the dosing control unit memory.
FAIL-SAFE FUNCTION	• Restricts the maximum remaining distance to empty. • Limits the upper limit of the engine speed.
POSSIBLE CAUSE	• Urea level sensor/urea temperature sensor/urea tank heater connector or terminals malfunction • Dosing control unit connector or terminals malfunction • Short to ground in wiring harness between the following terminals: — Urea level sensor/urea temperature sensor/urea tank heater terminal C–Dosing control unit terminal L — Urea level sensor/urea temperature sensor/urea tank heater terminal A–Dosing control unit terminal AR • Open circuit in wiring harness between the following terminals: — Urea level sensor/urea temperature sensor/urea tank heater terminal C–Dosing control unit terminal L — Urea level sensor/urea temperature sensor/urea tank heater terminal A–Dosing control unit terminal AR • Urea level sensor malfunction • Dosing control unit malfunction

STEP	INSPECTION	RESULTS	ACTION
8	VERIFY DTC TROUBLESHOOTING COMPLETED • Always reconnect all disconnected connectors. • Clear the DTC from the dosing control unit memory using the M-MDS. (See CLEARING DTC [DOSING CONTROL UNIT (SKYACTIV-D 2.2)].) • Idle the engine for 30 s. • Retrieve the dosing control unit DTCs using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [DOSING CONTROL UNIT (SKYACTIV-D 2.2)].) • Is the same Pending DTC present?	Yes	Repeat the inspection from Step 1. • If the malfunction recurs, replace the dosing control unit. (See DOSING CONTROL UNIT REMOVAL/INSTALLATION [SKYACTIV-D 2.2].) Go to the next step.
		No	Go to the next step.
9	VERIFY IF OTHER DTCs DISPLAYED • Are any other DTCs displayed?	Yes	Repair or replace the malfunctioning part according to the applicable DTC troubleshooting. (See DTC TABLE [DOSING CONTROL UNIT (SKYACTIV-D 2.2)].)
		No	DTC troubleshooting completed.

DTC P202E:00	Urea injector circuit range/performance problem
POSSIBLE CAUSE	• Urea injector connector or terminals malfunction • Dosing control unit connector or terminals malfunction • Short to ground in wiring harness between the following terminals: — Urea injector terminal B–Dosing control unit terminal N — Urea injector terminal A–Dosing control unit terminal K • Open circuit in wiring harness between the following terminals: — Urea injector terminal B–Dosing control unit terminal N — Urea injector terminal A–Dosing control unit terminal K • Urea injector malfunction • Dosing control unit malfunction



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 snapshot data on the repair order.	–	Go to the next step.

DTC P203E:00 [DOSING CONTROL UNIT (SKYACTIV-D 2.2)]

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DTC P203E:00	Urea level sensor malfunction
DETECTION CONDITION	• With all of the following conditions met, the dosing control unit receives a reception signal from the urea level sensor only less than 3 times while the vehicle is being driven 5 km {3 mile} or more. **MONITORING CONDITIONS** — Ignition switched ON (engine off or on) — Urea tank level: more than 20.6% — Acceleration: 2 m/sec^2 {7 ft/s} — Diesel exhaust fluid (DEF) temperature: more than 4.96 °C {40.9 °F} — Battery voltage: 10.9–16 V — The following DTCs are not detected: • P203B:00, P203C:00, P203D:00 **Note** **• DTC P1640:00 is also stored in the PCM.** **Diagnostic support note** • This is a continuous monitor (CCM). • The check engine light illuminates if the dosing control unit detects the above malfunction condition in two consecutive drive cycles or in one drive cycle while the DTC for same malfunction has been stored in the dosing control unit. • PENDING CODE is available if the dosing control unit detects the above malfunction condition first driving cycle. • FREEZE FRAME DATA / Snapshot data is available. • DTC is stored in the dosing control unit memory.
FAIL-SAFE FUNCTION	• Not applicable
POSSIBLE CAUSE	• Diesel Exhaust Fluid (DEF) more than specification added • Urea level sensor/urea temperature sensor/urea tank heater connector or terminals malfunction • Dosing control unit connector or terminals malfunction • Urea level sensor malfunction • Urea tank malfunction • Dosing control unit 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 snapshot data on the repair order.	–	Go to the next step.