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1991 MAZDA MX-5 / Miata OEM Service and Repair Workshop Manual

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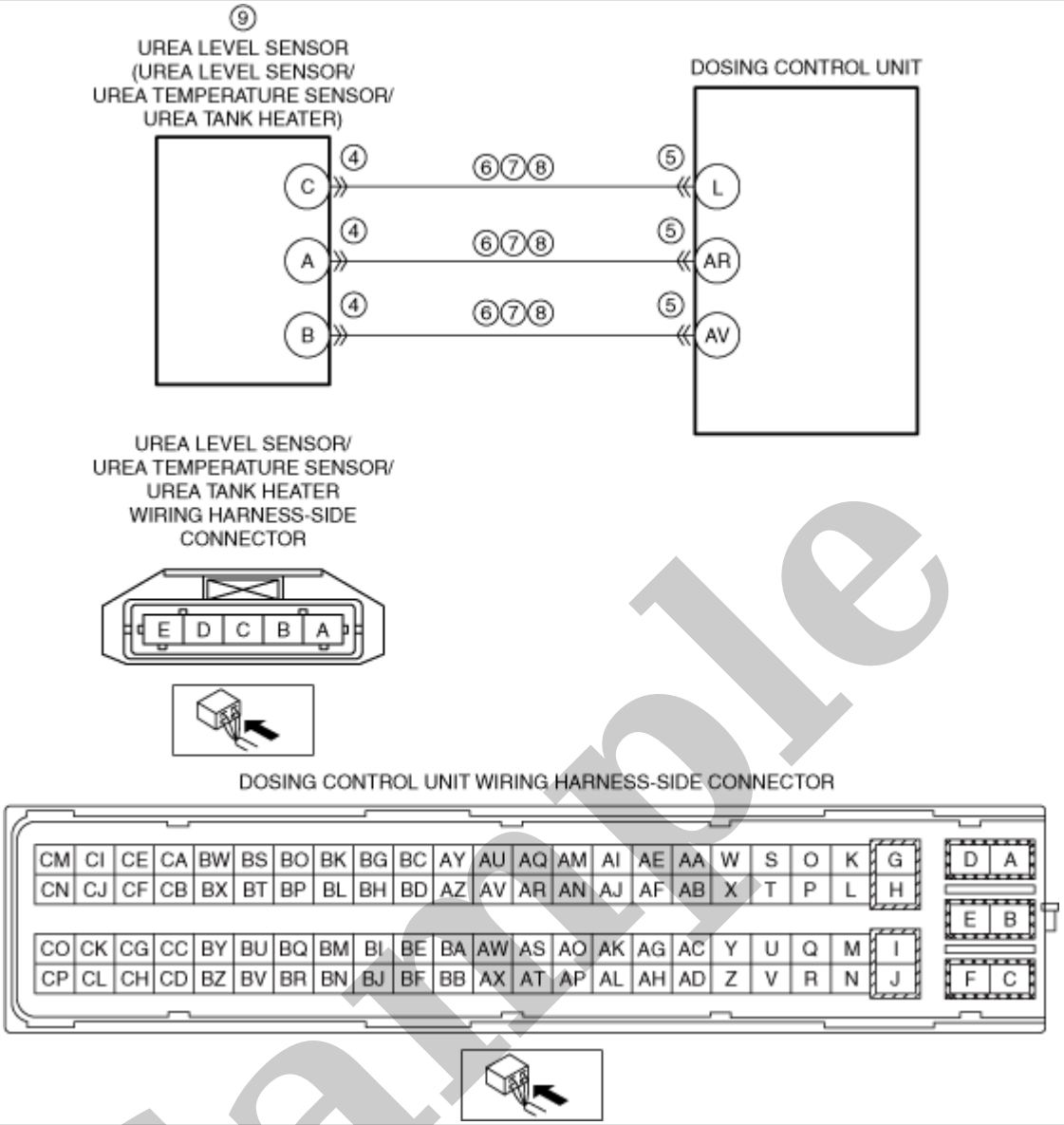
DTC P205B:00	DEF tank temperature sensor circuit range/performance



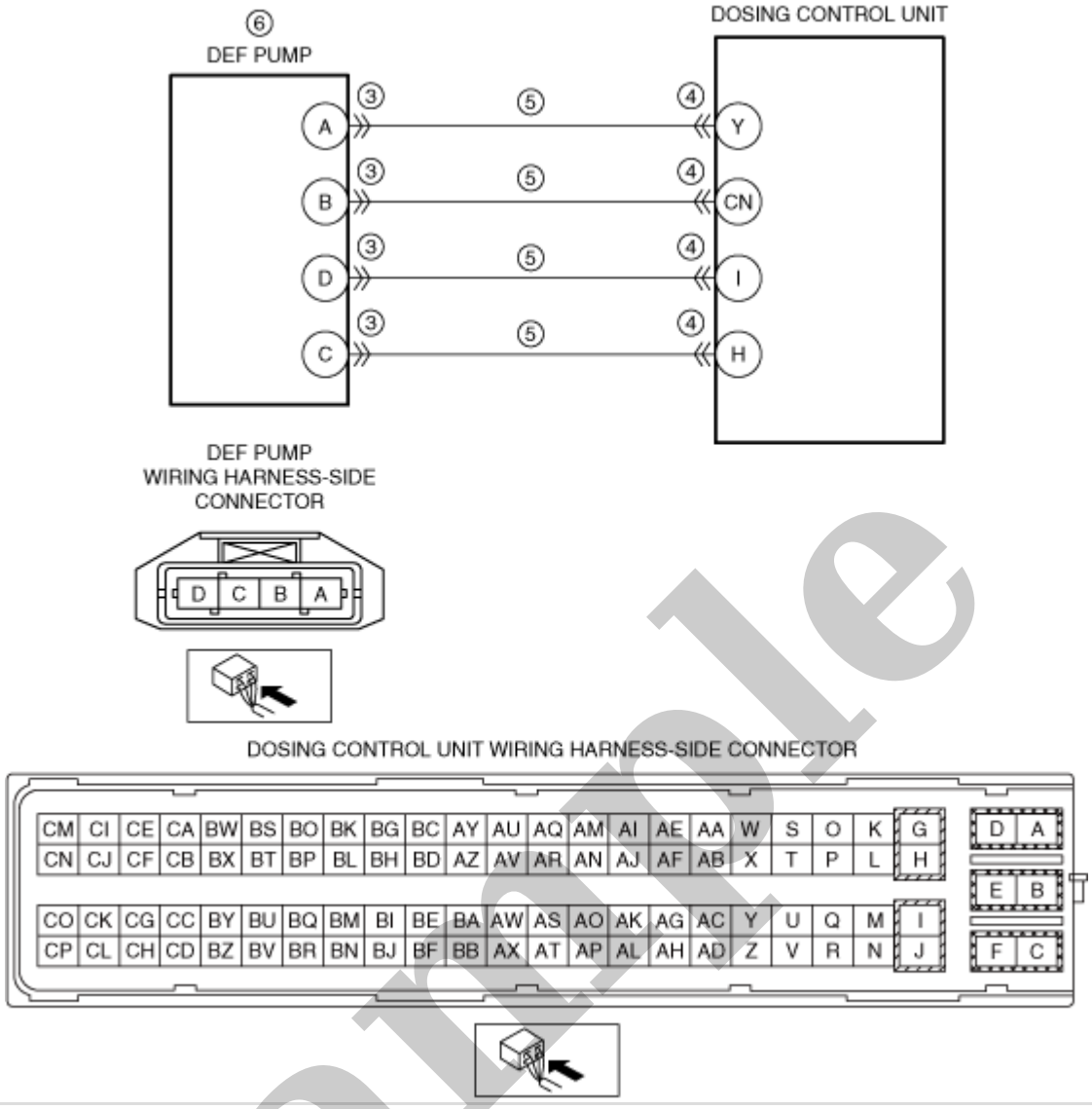
Diagnostic Procedure

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.
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.

STEP	INSPECTION	RESULTS	ACTION
10	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)].) • Verify that the remaining amount in the urea tank is above 23.5 %. • Leave the vehicle for 6 h. • Leave for 6 min while idling. • 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	Replace the urea level sensor/urea temperature sensor/urea tank heater, then go to the next step. • 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.
11	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.

STEP	INSPECTION	RESULTS	ACTION
3	**INSPECT DEF PUMP CONNECTOR CONDITION** • Switch the ignition off. • Disconnect the DEF 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 9.
		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 9.
		No	Go to the next step.
5	**INSPECT DEF PUMP CIRCUIT FOR SHORT TO GROUND** • Verify that the DEF pump and dosing control unit connectors are disconnected. • Inspect for continuity between the following terminals (wiring harness-side) and body ground: — DEF pump terminal A — DEF pump terminal B — DEF pump terminal C — DEF pump terminal D • Is there continuity?	Yes	Refer to the wiring diagram and verify whether or not there is a common connector between the following terminals: • DEF pump terminal A—Dosing control unit terminal Y • DEF pump terminal B—Dosing control unit terminal CN • DEF pump terminal C—Dosing control unit terminal • DEF pump terminal D—Dosing control unit terminal H **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.
6	**INSPECT DEF PUMP CIRCUIT FOR OPEN CIRCUIT** • Verify that the DEF pump and dosing control unit connectors are disconnected. • Inspect for continuity between the following terminals (wiring harness-side): — DEF pump terminal A—Dosing control unit terminal Y — DEF pump terminal B—Dosing control unit terminal CN — DEF pump terminal C—Dosing control unit terminal I — DEF pump terminal D—Dosing control unit terminal H • Is there continuity?	No	Go to the next step.
		Yes	Refer to the wiring diagram and verify whether or not there is a common connector between the following terminals: • DEF pump terminal A—Dosing control unit terminal Y • DEF pump terminal B—Dosing control unit terminal CN • DEF pump terminal C—Dosing control unit terminal • DEF pump terminal D—Dosing control unit terminal H **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.

DTC P208A:00	DEF pump control circuit 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.
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 P208B:00 [DOSING CONTROL UNIT (SKYACTIV-D 2.2)]

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STEP	INSPECTION	RESULTS	ACTION
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 DEF PUMP CONNECTOR CONDITION** • Switch the ignition off. • Disconnect the DEF 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 7.
		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 7.
		No	Go to the next step.
5	**INSPECT DEF PUMP** • Inspect the DEF pump. (See DEF PUMP INSPECTION [SKYACTIV-D 2.2].) • Is there any malfunction?	Yes	Replace the DEF pump, then go to Step 7. (See DEF PUMP REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
		No	Go to the next step.
6	**INSPECT UREA HOSE FOR CLOGGING** • Remove the urea hose. (See QUICK RELEASE CONNECTOR (EMISSION SYSTEM) REMOVAL/INSTALLATION [SKYACTIV-D 2.2].) • Verify the urea hose condition. • Is there any clogging?	Yes	Replace the urea hose, then go to the next step. (See QUICK RELEASE CONNECTOR (EMISSION SYSTEM) REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
		No	A temporary malfunction can be considered due to freezing of the diesel exhaust fluid. Perform the "Operation After Replacing SCR system pressure line" procedure, then go to the next step. (See SCR SYSTEM INSPECTION [SKYACTIV-D 2.2].)
7	**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)].) • Leave the vehicle for 6 h. • Verify that the ambient temperature exceeds -3 °C. • Start the engine and idle it for 1 min. **If the remaining distance to empty exceeds 0 km** • Drive the vehicle at a constant speed of 4,000 rpm for 15 min. **If the remaining distance to empty is 0 km** • Start the engine. • 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.
8	**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.

STEP	INSPECTION	RESULTS	ACTION
3	**VERIFY DTC FOR MODULE COMMUNICATION** • Switch the ignition off, then ON (engine off). • Perform the Pending Trouble Code Access Procedure and DTC Reading Procedure. (See ON-BOARD DIAGNOSTIC TEST [DOSING CONTROL UNIT (SKYACTIV-D 2.2)].) • Are any other PENDING CODEs and/or DTCs present?	Yes	Go to the applicable PENDING CODE or DTC inspection. (See DTC TABLE [DOSING CONTROL UNIT (SKYACTIV-D 2.2)].)
		No	Go to the next step.
4	**INSPECT DEF QUALITY SENSOR CONNECTOR CONDITION** • Switch the ignition off. • Disconnect the DEF quality 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 11.
		No	Go to the next step.
5	**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 11.
		No	Go to the next step.
6	**INSPECT PM SENSOR CIRCUIT FOR OPEN CIRCUIT** • Verify that the DEF quality sensor and dosing control unit connectors are disconnected. • Switch the ignition off. • Inspect for continuity between the following terminals (wiring harness-side): — DEF quality sensor terminal A–dosing control unit terminal T — DEF quality sensor terminal B–dosing control unit terminal BA — DEF quality sensor terminal D–dosing control unit terminal BE • 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: • DEF quality sensor terminal A–dosing control unit terminal T • DEF quality sensor terminal B–dosing control unit terminal BA • DEF quality sensor terminal D–dosing control unit terminal BE **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 11.

DTC U02A3:00 [DOSING CONTROL UNIT (SKYACTIV-D 2.2)]

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DTC U02A3:00	CAN communication system: PM sensor information communication error with dosing control unit
DETECTION CONDITION	• With the following conditions met, a communication error between the dosing control unit and PM sensor is continued for 5 s or more. MONITORING CONDITIONS • Battery voltage: 10.9–16 V • Ignition switched: On 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 during the first drive cycle. • FREEZE FRAME DATA/Snapshot data is available. • DTC is stored in the dosing control unit memory.
FAIL-SAFE FUNCTION	• Not applicable
POSSIBLE CAUSE	• PM sensor connector or terminals malfunction • Dosing control unit connector or terminals malfunction • CAN communication line between PM sensor and dosing control unit — PM sensor terminal B–dosing control unit terminal BK — PM sensor terminal C–dosing control unit terminal BL • PM sensor malfunction • Dosing control unit malfunction

STEP	INSPECTION	RESULTS	ACTION
8	**INSPECT PM SENSOR** • Inspect the PM sensor. (See PM SENSOR INSPECTION [SKYACTIV-D 2.2].) • 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.
9	**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)].) • Start the engine and leave it idling for 10 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 contro unit. (See DOSING CONTROL UNIT REMOVAL/INSTALLATION [SKYACTIV-D 2.2].) Go to the next step.
		No	Go to the next step.
10	**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.