Your Ultimate Source for OEM Repair Manuals

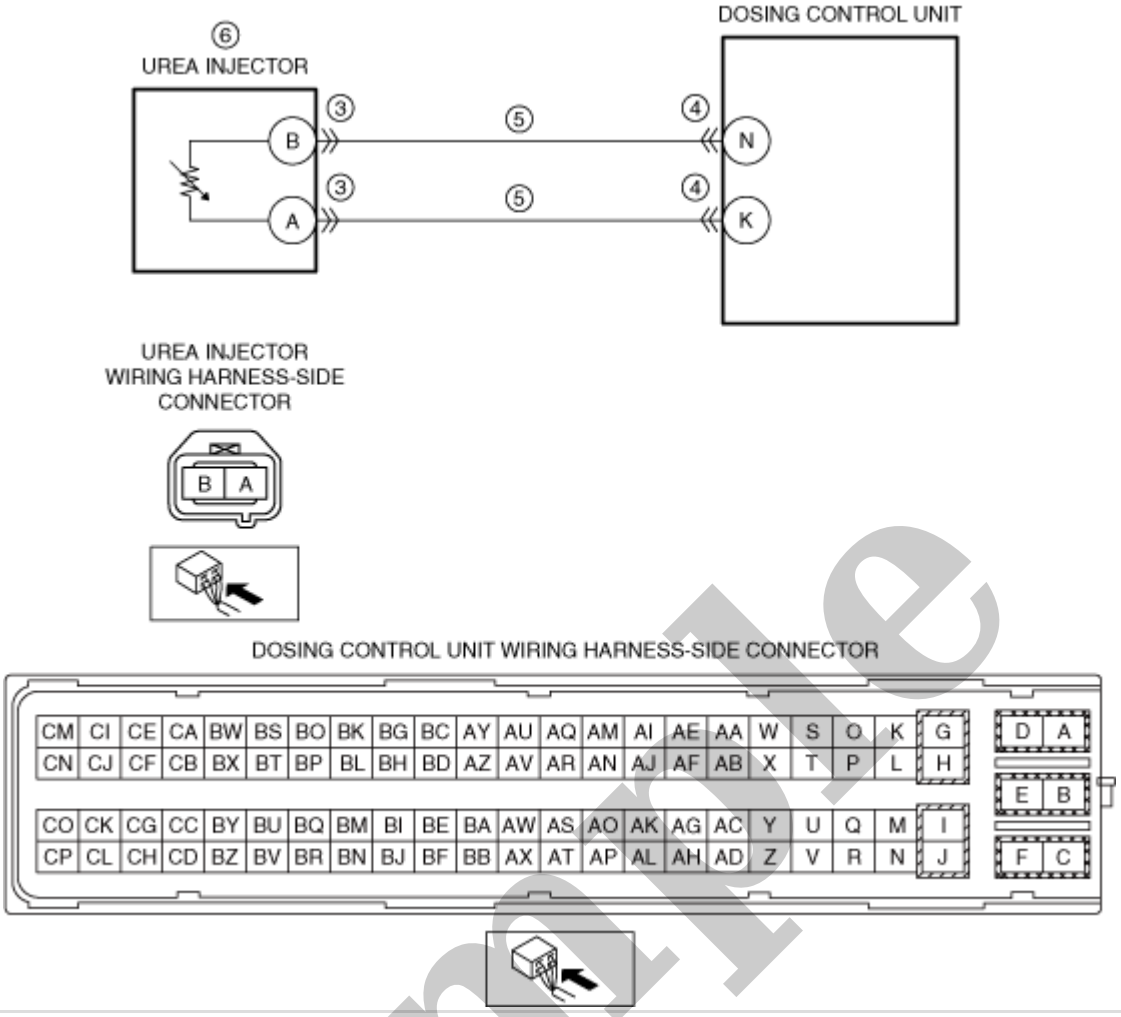
FactoryManuals.net is a great resource for anyone who wants to save money on repairs by doing their own work. The manuals provide detailed instructions and diagrams that make it easy to understand how to fix a vehicle.

1991 MAZDA MX-3 OEM Service and Repair Workshop Manual

Go to manual page

STEP	INSPECTION	RESULTS	ACTION
3	**INSPECT UREA INJECTOR CONNECTOR CONDITION** • Switch the ignition off. • Disconnect the urea injector 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 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 8.
		No	Go to the next step.
5	**INSPECT UREA INJECTOR CIRCUIT FOR SHORT TO GROUND** • Verify that the urea injector and dosing control unit connectors are disconnected. • Inspect for continuity between the following terminals (wiring harness-side) and body ground: — Urea injector terminal B — Urea injector terminal A • Is there continuity?	Yes	Refer to the wiring diagram and verify whether or not there is a common connector between the following terminals: • Urea injector terminal B—Dosing control unit terminal N • Urea injector terminal A—Dosing control unit terminal K **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 UREA INJECTOR CIRCUIT FOR OPEN CIRCUIT** • Verify that the urea injector and dosing control unit connectors are disconnected. • Inspect for continuity between the following terminals (wiring harness-side): — Urea injector terminal B—Dosing control unit terminal N — Urea injector terminal A—Dosing control unit terminal K • 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: • Urea injector terminal B—Dosing control unit terminal N • Urea injector terminal A—Dosing control unit terminal K **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.
7	**INSPECT UREA INJECTOR** • Inspect the urea injector. (See UREA INJECTOR INSPECTION [SKYACTIV-D 2.2].) • Is there any malfunction?	Yes	Replace the urea injector, then go to the next step. (See UREA INJECTOR REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
		No	Go to the next step.

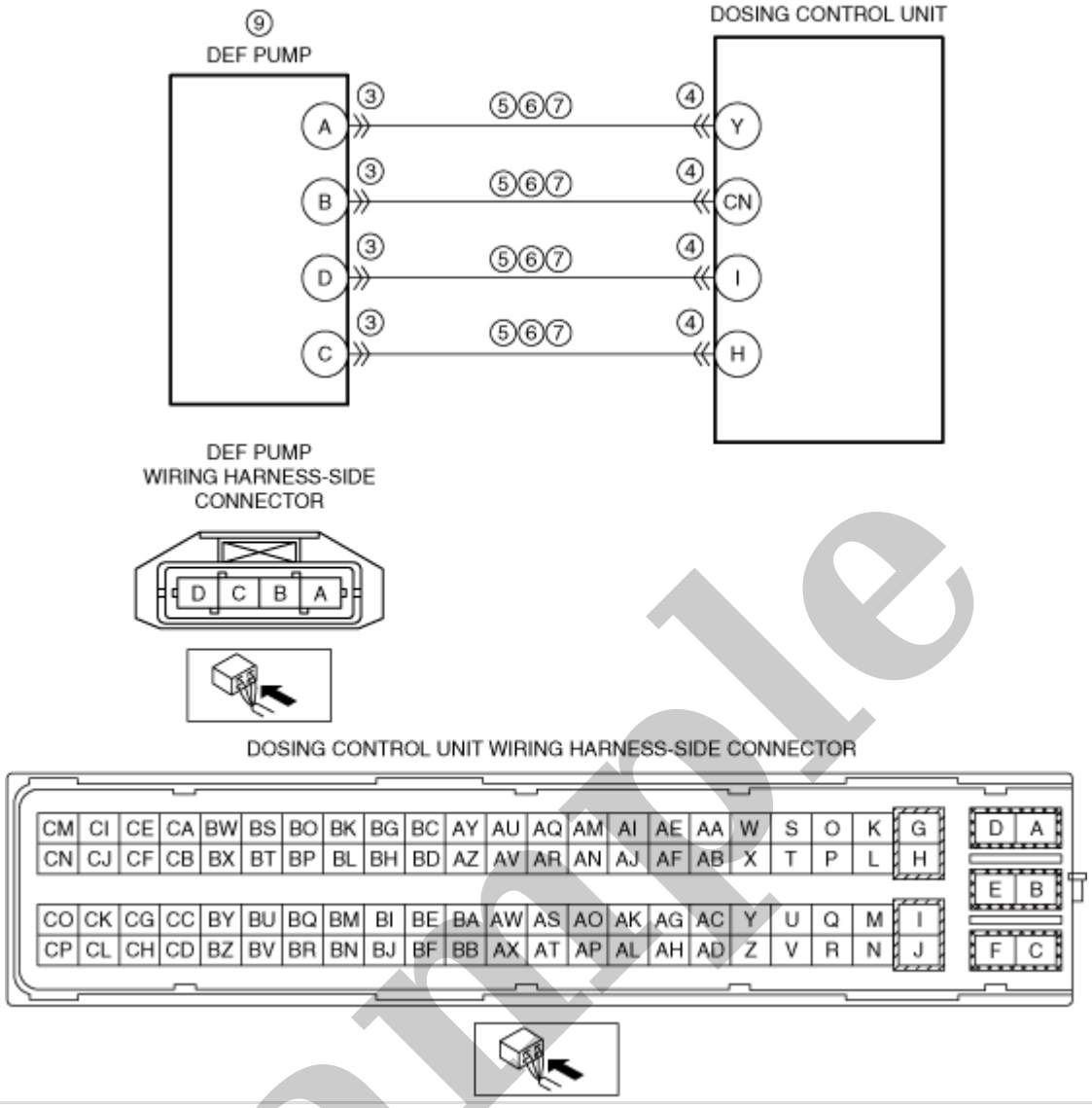
DTC P2049:00	Urea injector circuit high input



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 P204F:00	DEF pump performance problem



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
11	**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)].) **If the vehicle is driven at a constant speed of 4,000 rpm:** — Perform the "COMPULSORY DIESEL PARTICULATE FILTER REGENERATION". (See COMPULSORY DIESEL PARTICULATE FILTER REGENERATION [SKYACTIV-D 2.2].) — Drive the vehicle at a constant speed of 4,000 rpm for 5 min 2 times. — Leave for 15 min while idling. **If the remaining distance to empty is 0 km and the vehicle cannot be driven at a constant speed of 4,000 rpm:** — Replace the dosing control unit. (See DOSING CONTROL UNIT REMOVAL/INSTALLATION [SKYACTIV-D 2.2].) — Perform the "COMPULSORY DIESEL PARTICULATE FILTER REGENERATION". (See COMPULSORY DIESEL PARTICULATE FILTER REGENERATION [SKYACTIV-D 2.2].) • 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.
12	**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 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 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 UREA TEMPERATURE 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 C — Urea level sensor/urea temperature sensor/urea tank heater terminal A • 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 C—Dosing control unit terminal L • Urea level sensor/urea temperature sensor/urea tank heater terminal A—Dosing control unit terminal AR **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 UREA TEMPERATURE SENSOR SIGNAL CIRCUIT FOR SHORT TO POWER SUPPLY** • Verify that the urea level sensor/urea temperature sensor/urea tank heater and dosing control unit connectors are disconnected. • Switch the ignition ON (engine off). **Note** **• Another DTC may be stored by the dosing control unit detecting an open circuit.** • Measure the voltage at the urea level sensor/urea temperature sensor/urea tank heater terminal A (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 urea level sensor/urea temperature sensor/urea tank heater terminal A and dosing control unit terminal AR. **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 9.

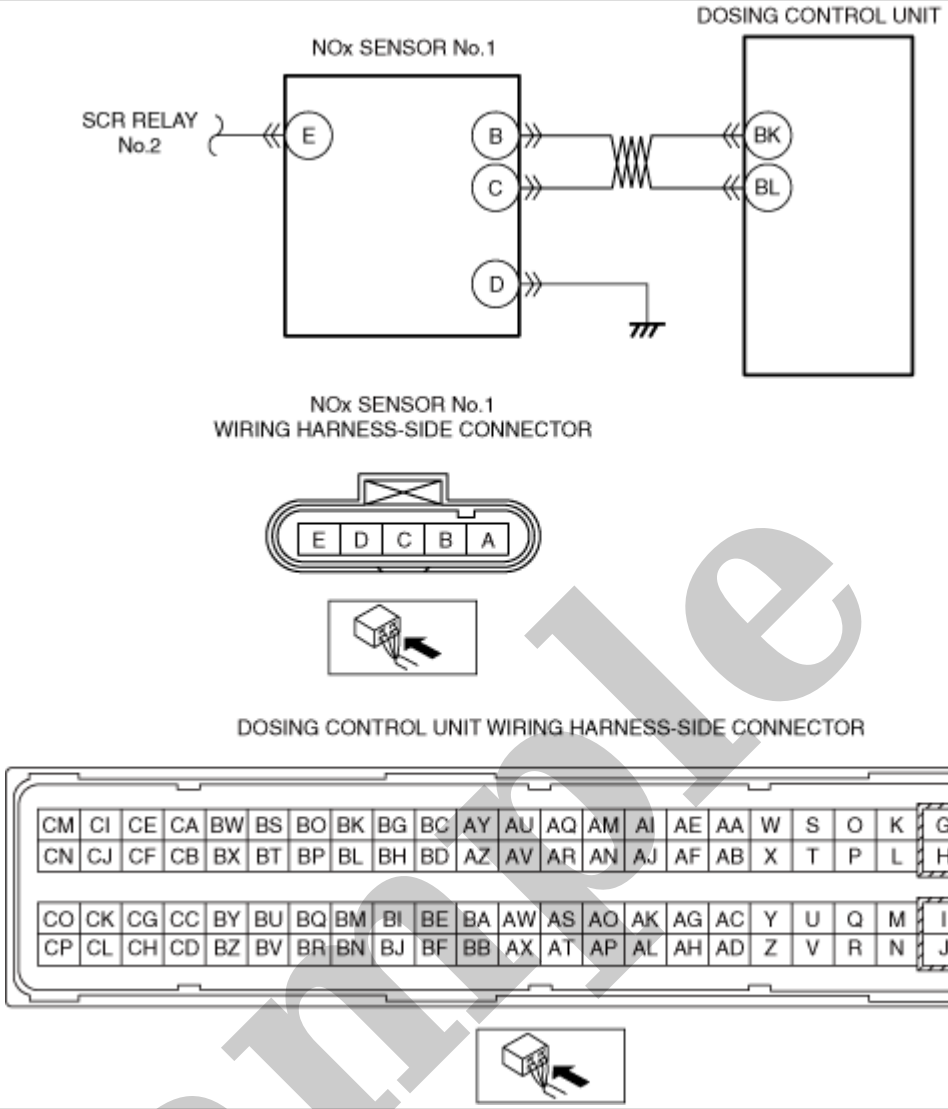
DTC U0073:00, U0100:00, U0101:00 [DOSING CONTROL UNIT (SKYACTIV-D 2.2)]

SM2896411

id0102k191350

DTC U0073:00	CAN system communication error (HS CAN)
DETECTION CONDITION	• Malfunction in CAN bus communication line. MONITORING CONDITIONS • Battery voltage: 10.9–16 V • Ignition switched ON (engine off or on) 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 (other). • The check engine light does not illuminate. • FREEZE FRAME DATA is not available. • Snapshot data is available. • DTC is stored in the dosing control unit memory.
FAIL-SAFE FUNCTION	• Not applicable
POSSIBLE CAUSE	• CAN bus communication line malfunction • Dosing control unit malfunction
SYSTEM WIRING DIAGRAM	• Not applicable

DTC U0100:00	CAN communication: communication error to PCM
DETECTION CONDITION	• Communication error between the dosing control unit and PCM continues for 5 s or more. MONITORING CONDITIONS • Battery voltage: 10.9–16 V • Ignition switched ON (engine off or on) 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	• CAN communication line malfunction between PCM and dosing control unit • PCM malfunction • Dosing control unit malfunction
SYSTEM WIRING DIAGRAM	• Not applicable

DTC U029D:00	CAN communication system: NOx sensor No.1 information communication error with dosing control unit
SYSTEM WIRING DIAGRAM	

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.

DTC U029E:00 [DOSING CONTROL UNIT (SKYACTIV-D 2.2)]

SM2896413

id0102k194650

DTC U029E:00	**CAN communication system: NOx sensor No.2 information communication error with dosing control unit**
DETECTION CONDITION	• With the following conditions met, a communication error between the dosing control unit and NOx sensor No.2 is continued for 5 s or more. **MONITORING CONDITIONS** • Battery voltage: 10.9–16 V • Ignition switched ON (engine off or on) **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	• NOx sensor No.2 connector or terminals malfunction • Dosing control unit connector or terminals malfunction • CAN communication line between NOx sensor No.2 and dosing control unit malfunction — NOx sensor No.2 terminal B–dosing control unit terminal BK — NOx sensor No.2 terminal C–dosing control unit terminal BL • NOx sensor No.2 malfunction • Dosing control unit malfunction

STEP	INSPECTION	RESULTS	ACTION
7	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)].) • Start the engine and leave it idling for 10 s. • 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.
8	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.