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1991 MAZDA 626 (Mk.5) Sedan OEM Service and Repair Workshop Manual

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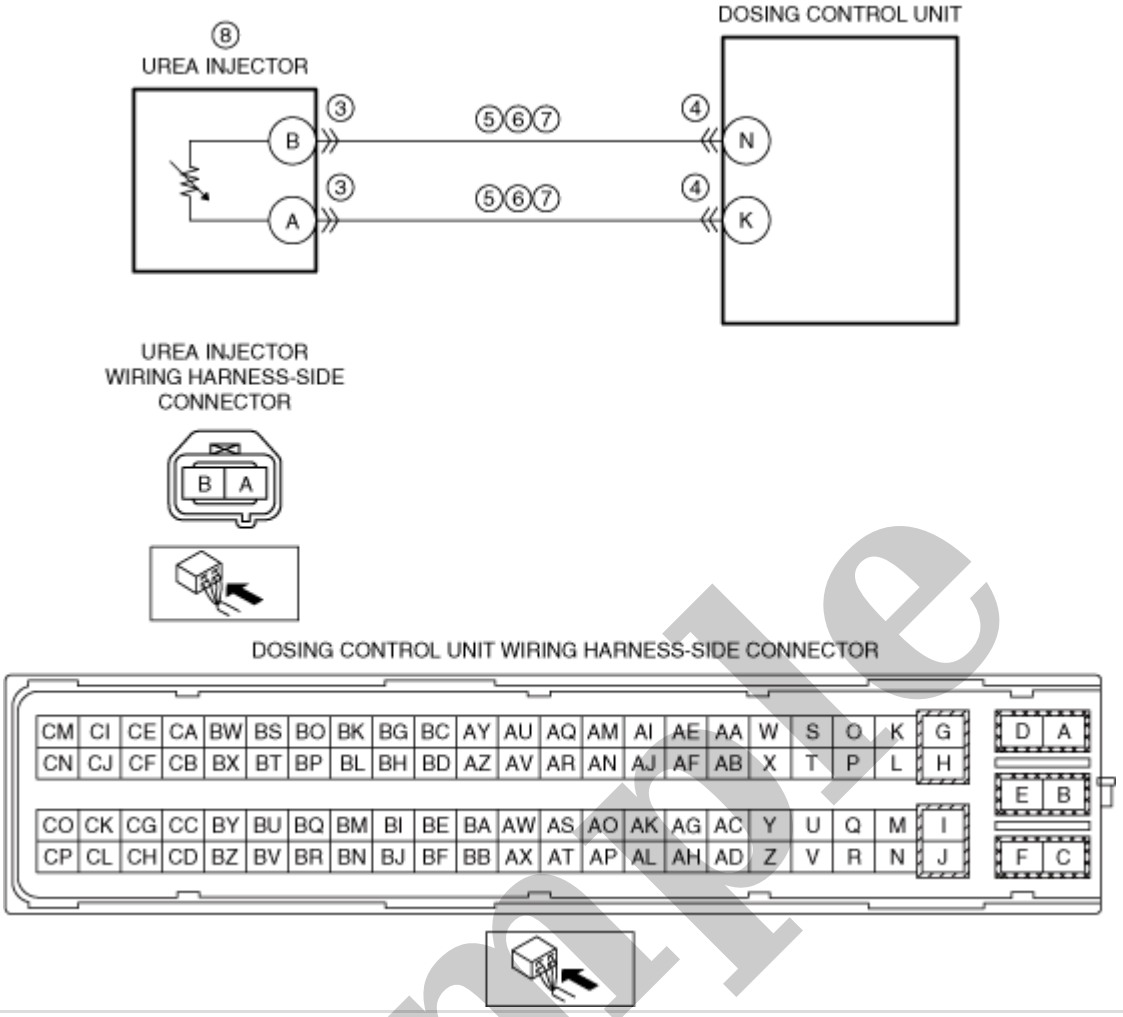
DTC P2047:00	Urea injector control circuit problem



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.

DTC P22FC:00, P22FD:00 [DOSING CONTROL UNIT (SKYACTIV-D 2.2)]

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Note

• To determine the malfunctioning part, proceed with the diagnostics from "Function Inspection Using M-MDS".

Details On DTCs

DESCRIPTION	**NOx sensor No.2 (oxygen concentration) system:** **• P22FC:00: Slow response (during transition from rich to lean)** **• P22FD:00: Slow response (during transition from lean to rich)**	
DETECTION CONDITION	Determination conditions	**P22FC:00** • The dosing control unit detects that the response speed of the NOx sensor No.2 (oxygen concentration) input signal when the air/fuel ratio is fluctuated from rich to lean is slow 3 times. **P22FD:00** • The dosing control unit detects that the response speed of the NOx sensor No.2 (oxygen concentration) input signal when the air/fuel ratio is fluctuated from lean to rich is slow 3 times.
	Preconditions	• The following conditions continue for more than 5 s. — During engine start — Diesel particulate filter regeneration control is not operating — DENOx control is not operating — DESOx control is not operating — Ambient pressure: more than 72.2 kPa {0.736 kgf/cm^2, 10.5 psi} — Ambient air temperature: more than -10.0 °C {14 °F} • Signals from NOx sensor normally received • Exhaust mass flow: more than 4.17 g/sec {0.552 lb/min} • Vehicle speed: more than 10.0 km/h {6.2 mph} • Battery voltage: 10.9–16 V • The following DTCs are not detected: — Boost air temperature sensor: P007B:00, P007C:00, P007D:00 — IAT sensor No.2: P00E9:00, P00EA:00, P00EB:00 — MAF sensor: P0101:00, P0102:00, P0103:00 — MAP sensor No.2: P0106:00, P0107:00, P0108:00 — ECT sensor: P0116:00, P0117:00, P0118:00, P011A:00 — Intake shutter valve position sensor: P0122:00, P0123:00 — Exhaust gas pressure sensor No.1: P0471:00, P0472:00, P0473:00 — Exhaust gas temperature sensor No.1: P0545:00, P0546:00, P161D:00, P2080:00 — BARO sensor: P2227:00, P2228:00, P2229:00 — NOx sensor No.2: P220B:00, P220F:00, P229E:00, P22A0:00, P22A1:00 — CAN system communication error: U0100:00, U029E:00
	Drive cycle	• 2
	Self test type	• CMDTC self test
	Sensor used	• NOx sensor No.2 • Dosing control unit
FAIL-SAFE FUNCTION	• Not applicable	

STEP	INSPECTION	RESULTS	ACTION
1	**PURPOSE: DETERMINE INTEGRITY OF NOx SENSOR NO.2** • Inspect the NOx sensor No.2. (See NOx SENSOR INSPECTION [SKYACTIV-D 2.2].) • Is there any malfunction?	Yes	Replace the NOx sensor No.2, then go to Step 4. (See NOx SENSOR REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
		No	Go to the next step.
2	**PURPOSE: INSPECT EXHAUST SYSTEM FOR LEAKAGE** • Visually inspect for exhaust gas leakage from the exhaust system. • Is there any malfunction?	Yes	Repair or replace the malfunctioning part according to the inspection results, then go to Step 4.
		No	Go to the next step.
3	**PURPOSE: VERIFY IF SCR CONVERTER DAMAGE AFFECTS NOx SENSOR No.2 SIGNAL** • Verify if the SCR converter is damaged. • Is there any malfunction?	Yes	Replace the SCR converter, then go to the next step. (See EXHAUST SYSTEM REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
		No	Go to the next step.
4	**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.
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.

ON-BOARD DIAGNOSTIC TEST [DOSING CONTROL UNIT (SKYACTIV-D 2.2)]

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DTC Reading Procedure

1.Connect the M-MDS to the DLC-2.

2.After the vehicle is identified, select the following items from the initialization screen of the M-MDS.

(1)Select "Self Test".

(2)Select "Modules".

(3)Select "SCRCU".

3.Then, select the "Retrieve CMDTCs" and perform procedures according to directions on the M-MDS screen.

4.Verify the DTC according to the directions on the M-MDS screen.

• If any DTCs are displayed, perform troubleshooting according to the corresponding DTC inspection.

5.After completion of repairs, clear all DTCs stored in the dosing control unit. (See CLEARING DTC [DOSING CONTROL UNIT (SKYACTIV-D 2.2)].)

PID/DATA Monitor and Record Procedure

Note

• The PID data screen function is used for monitoring the calculated value of input/output signals in the module. Therefore, if the monitored value of the output parts is not within specification, it is necessary to inspect the monitored value of input parts corresponding to the applicable output part control. In addition, because the system does not display an output part malfunction as an abnormality in the monitored value, it is necessary to inspect the output parts individually.
• When detecting DTCs, PIDs related to a malfunctioning system may not display even if the module is normal. Therefore, if a PID is not displayed, it is necessary to verify the DTC, perform malfunction diagnosis of the DTC that was detected, and do repairs.

1.Connect the M-MDS to the DLC-2.

2.After the vehicle is identified, select the following items from the initialization screen of the M-MDS.

(1)Select "DataLogger".

(2)Select "Modules".

DTC No.	Check engine light	Master warning indication/master warning light	Charging system warning indication/charging system warning light	Engine oil warning indication/engine oil warning light	Engine oil level warning indication/Engine oil level warning light	Wrench warning indication	Diesel particulate filter indication/Diesel particulate filter indicator light	Glow Indicator Light	Sele cata redu (SCI war ligh
P013E:00	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
P013F:00	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
P06EA:00	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
P06EB:00	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
P2002:00	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
P202E:00	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	

DTC No.	Check engine light	Master warning indication/master warning light	Charging system warning indication/charging system warning light	Engine oil warning indication/engine oil warning light	Engine oil level warning indication/Engine oil level warning light	Wrench warning indication	Diesel particulate filter indication/Diesel particulate filter indicator light	Glow Indicator Light	Sele cata redu (SCI warn light
P20BB:00	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
P20BC:00	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
P20BD:00	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
P20BF:00	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
P20C0:00	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
P20E8:00	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
P20E9:00	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
P20EA:00	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	

DTC No.	Check engine light	Master warning indication/master warning light	Charging system warning indication/charging system warning light	Engine oil warning indication/engine oil warning light	Engine oil level warning indication/Engine oil level warning light	Wrench warning indication	Diesel particulate filter indication/Diesel particulate filter indicator light	Glow Indicator Light	Sele cata redu (SCI wari ligh
P2204:00	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
P2205:00	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
P220A:00	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
P220B:00	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
P220E:00	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
P220F:00	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
P221C:00	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
P221D:00	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	

DTC No.	Check engine light	Master warning indication/master warning light	Charging system warning indication/charging system warning light	Engine oil warning indication/engine oil warning light	Engine oil level warning indication/Engine oil level warning light	Wrench warning indication	Diesel particulate filter indication/Diesel particulate filter indicator light	Glow Indicator Light	Sele cata redu (SCI warn light
P239E:00	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
P249C:00	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
P24AE:00	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
P24AF:00	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
P24B1:00	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
P24B3:00	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
P24B6:00	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
P24B7:00	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	

*1:C: CMDTC self test, O: KOEO self test, R: KOER self test