

2012 - Mazda6 - Engine

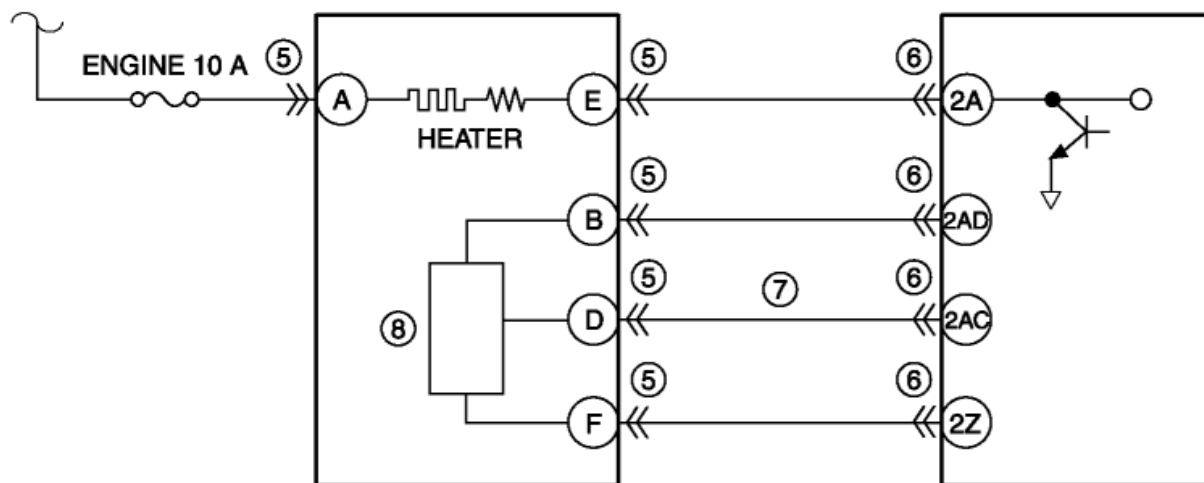
DTC P2251:00 [MZR 2.5]

DTC P2251:00	A/F sensor negative current control circuit open
DETECTION CONDITION	- The PCM monitors the A/F sensor negative current control circuit voltage. If either of the following conditions are met while the engine running, the PCM determines that the A/F sensor negative current control circuit is open. MONITORING CONDITIONS - Element impedance: more than 240 ohm - Circuit voltage oscillation - The PCM detects DTC P0030:00 or P0134:00 while pending code P2251:00 is stored. Diagnostic support note - This is a continuous monitor (A/F sensor, HO2S). - The MIL illuminates if PCM detects the above malfunctioning condition in two consecutive drive cycles or in one drive cycle while the DTC for the same malfunction has been stored in the PCM. - PENDING CODE is available if PCM detects the above malfunction conditions during first drive cycle. - FREEZE FRAME DATA (Mode 2)/Snapshot data is available. - The DTC is stored in the PCM memory
POSSIBLE CAUSE	- A/F sensor connector or terminal malfunction - PCM connector or terminal malfunction - Open circuit in wiring harness between A/F sensor terminal D and PCM terminal 2AC - A/F sensor malfunction - PCM malfunction

MAIN RELAY
TERMINAL D

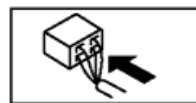
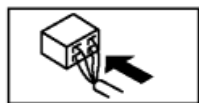
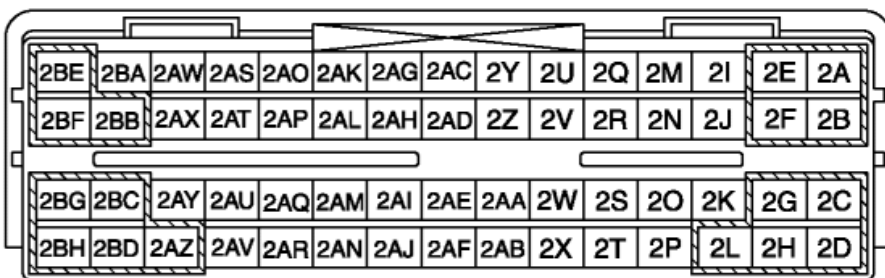
A/F SENSOR

PCM



A/F SENSOR
WIRING HARNESS-SIDE
CONNECTOR

PCM WIRING HARNESS-SIDE CONNECTOR



Diagnostic procedure

STEP	INSPECTION	ACTION
1	IDENTIFY TRIGGER DTC FOR FREEZE FRAME DATA (MODE 2) Is the DTC P2251:00 on FREEZE FRAME DATA (Mode 2)?	Yes Go to the next step. No Go to troubleshooting procedures for DTC on FREEZE FRAME DATA (Mode 2). (See DTC TABLE [MZR 2.5] .)
2	VERIFY FREEZE FRAME DATA (MODE 2)/ SNAPSHOT DATA AND DIAGNOSTIC MONITORING TEST RESULTS HAVE BEEN RECORDED Have the FREEZE FRAME DATA (Mode 2)/snapshot data and DIAGNOSTIC MONITORING TEST RESULTS (A/F sensor, HO2S related) been recorded?	Yes Go to the next step. No Record the FREEZE FRAME DATA (Mode 2)/snapshot data and DIAGNOSTIC MONITORING TEST RESULTS on the repair order, then go to the next step.
3	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.
4	VERIFY RELATED PENDING AND STORED DTC	Yes Go to the applicable DTC inspection.

	- Switch the ignition to off, then to ON (engine off). - Verify pending and stored DTCs using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [MZR 2.5].) - Is the DTC P0030:00, P0031:00 or P0032:00 also present?	(See DTC P0030:00 [MZR 2.5].) (See DTC P0031:00 [MZR 2.5].) (See DTC P0032:00 [MZR 2.5].)	
		No	Go to the next step.
5	INSPECT A/ F SENSOR CONNECTOR CONDITION - Switch the ignition to off. - Disconnect the A/F sensor connector. - Inspect for poor connection (such as damaged/pulled-out pins, corrosion). - Is there any malfunction?	Yes	Repair or replace the terminal and/or connector, then go to Step 9.
		No	Go to the next step.
6	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 terminal and/or connector, then go to Step 9.
		No	Go to the next step.
7	INSPECT A/ F SENSOR NEGATIVE CURRENT CONTROL CIRCUIT FOR OPEN CIRCUIT - A/F sensor and PCM connectors are disconnected. - Inspect for continuity between A/F sensor terminal D (wiring harness-side) and PCM terminal 2AC (wiring harness-side). - Is there continuity?	Yes	Go to the next step.
		No	Repair or replace the wiring harness for a possible open circuit, then go to Step 9.
8	INSPECT A/ F SENSOR - Reconnect the A/F sensor and PCM connectors. - Inspect the A/F sensor. (See AIR FUEL RATIO (A/ F) SENSOR INSPECTION [MZR 2.5].) - Is there any malfunction?	Yes	Replace the A/F sensor, then go to the next step.
		No	Go to the next step.
9	VERIFY DTC TROUBLESHOOTING COMPLETED - Make sure to reconnect all disconnected connectors. - Clear the DTC from the PCM memory using the M-MDS. (See AFTER REPAIR PROCEDURE [MZR 2.5].) - Perform the KOEO or KOER self test. (See KOEO/ KOER SELF TEST [MZR 2.5].) - 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 [MZR 2.5].) Go to the next step.
		No	Go to the next step.
10	VERIFY AFTER REPAIR PROCEDURE - Perform the "AFTER REPAIR PROCEDURE". (See AFTER REPAIR PROCEDURE [MZR 2.5].) - Are any DTCs present?	Yes	Go to the applicable DTC inspection.
		No	DTC troubleshooting completed.

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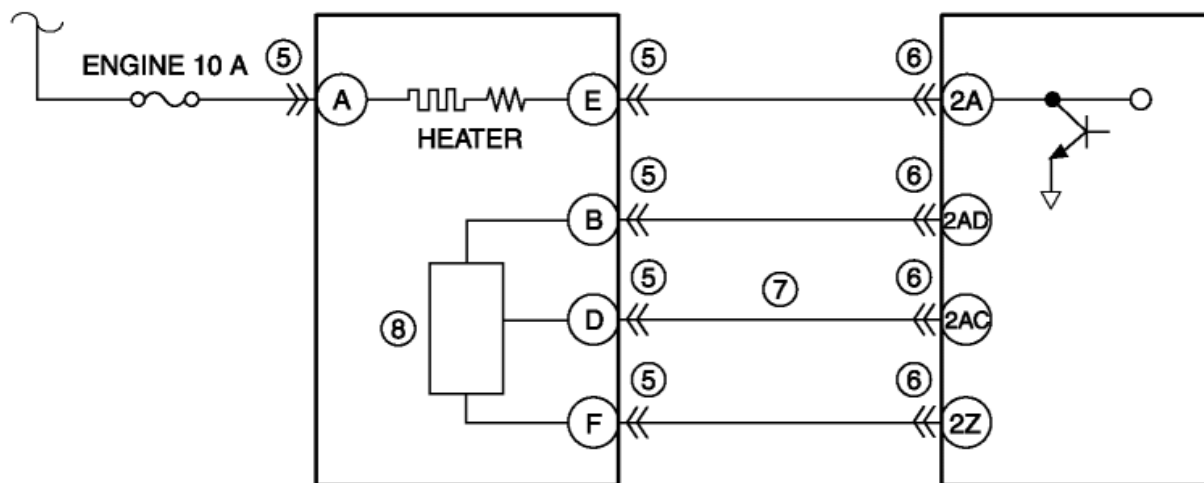
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MAIN RELAY
TERMINAL D

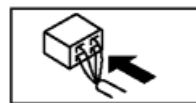
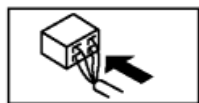
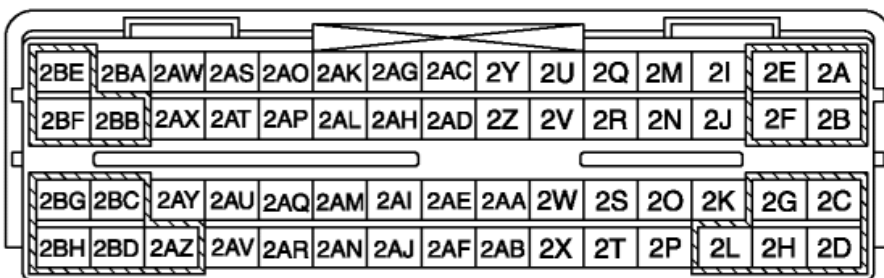
A/F SENSOR

PCM



A/F SENSOR
WIRING HARNESS-SIDE
CONNECTOR

PCM WIRING HARNESS-SIDE CONNECTOR



Diagnostic procedure

STEP	INSPECTION	ACTION
1	IDENTIFY TRIGGER DTC FOR FREEZE FRAME DATA (MODE 2) Is the DTC P2251:00 on FREEZE FRAME DATA (Mode 2)?	Yes Go to the next step. No Go to troubleshooting procedures for DTC on FREEZE FRAME DATA (Mode 2). (See DTC TABLE [MZR 2.5] .)
2	VERIFY FREEZE FRAME DATA (MODE 2)/ SNAPSHOT DATA AND DIAGNOSTIC MONITORING TEST RESULTS HAVE BEEN RECORDED Have the FREEZE FRAME DATA (Mode 2)/snapshot data and DIAGNOSTIC MONITORING TEST RESULTS (A/F sensor, HO2S related) been recorded?	Yes Go to the next step. No Record the FREEZE FRAME DATA (Mode 2)/snapshot data and DIAGNOSTIC MONITORING TEST RESULTS on the repair order, then go to the next step.
3	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.
4	VERIFY RELATED PENDING AND STORED DTC	Yes Go to the applicable DTC inspection.

	- Switch the ignition to off, then to ON (engine off). - Verify pending and stored DTCs using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [MZR 2.5].) - Is the DTC P0030:00, P0031:00 or P0032:00 also present?	(See DTC P0030:00 [MZR 2.5].) (See DTC P0031:00 [MZR 2.5].) (See DTC P0032:00 [MZR 2.5].)	
		No	Go to the next step.
5	INSPECT A/ F SENSOR CONNECTOR CONDITION - Switch the ignition to off. - Disconnect the A/F sensor connector. - Inspect for poor connection (such as damaged/pulled-out pins, corrosion). - Is there any malfunction?	Yes	Repair or replace the terminal and/or connector, then go to Step 9.
		No	Go to the next step.
6	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 terminal and/or connector, then go to Step 9.
		No	Go to the next step.
7	INSPECT A/ F SENSOR NEGATIVE CURRENT CONTROL CIRCUIT FOR OPEN CIRCUIT - A/F sensor and PCM connectors are disconnected. - Inspect for continuity between A/F sensor terminal D (wiring harness-side) and PCM terminal 2AC (wiring harness-side). - Is there continuity?	Yes	Go to the next step.
		No	Repair or replace the wiring harness for a possible open circuit, then go to Step 9.
8	INSPECT A/ F SENSOR - Reconnect the A/F sensor and PCM connectors. - Inspect the A/F sensor. (See AIR FUEL RATIO (A/ F) SENSOR INSPECTION [MZR 2.5].) - Is there any malfunction?	Yes	Replace the A/F sensor, then go to the next step. (See AIR FUEL RATIO (A/ F) SENSOR REMOVAL/ INSTALLATION [MZR 2.5] .)
		No	Go to the next step.
9	VERIFY DTC TROUBLESHOOTING COMPLETED - Make sure to reconnect all disconnected connectors. - Clear the DTC from the PCM memory using the M-MDS. (See AFTER REPAIR PROCEDURE [MZR 2.5].) - Perform the KOEO or KOER self test. (See KOEO/ KOER SELF TEST [MZR 2.5].) - 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 [MZR 2.5].) Go to the next step.
		No	Go to the next step.
10	VERIFY AFTER REPAIR PROCEDURE - Perform the "AFTER REPAIR PROCEDURE". (See AFTER REPAIR PROCEDURE [MZR 2.5].) - Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [MZR 2.5] .)
		No	DTC troubleshooting completed.

