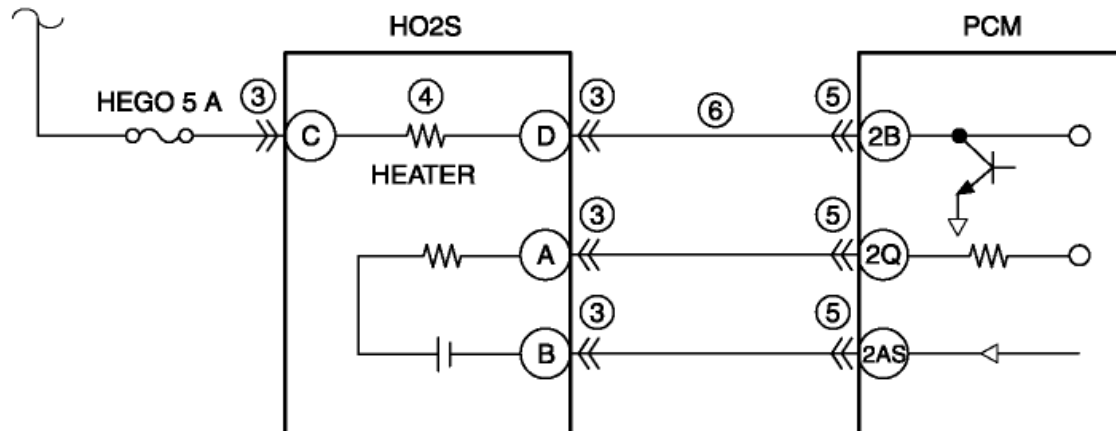


2012 - Mazda6 - Engine

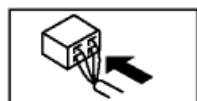
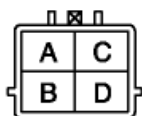
DTC P0038:00 [MZR 2.5]

DTC P0038:00	HO2S heater control circuit high input
DETECTION CONDITION	• The PCM monitors the HO2S heater output voltage. If the PCM turns the HO2S heater on but the HO2S heater circuit remains high voltage, the PCM determines that the HO2S heater circuit has a malfunction. Diagnostic support note • This is a continuous monitor (A/F sensor heater, HO2S heater). • The MIL illuminates if the PCM detects the above malfunction 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 the PCM detects the above malfunction condition during the first drive cycle. • FREEZE FRAME DATA (Mode 2)/Snapshot data is available. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• HO2S connector or terminal malfunction • HO2S heater malfunction • PCM connector or terminal malfunction • Short to power supply in wiring harness between HO2S terminal D and PCM terminal 2B • PCM malfunction

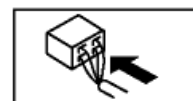
IGNITION SWITCH (IG1)
 TERMINAL C*¹/
 RELAY BLOCK (IG1 RELAY)
 TERMINAL 1B*²



HO2S
 WIRING HARNESS-SIDE
 CONNECTOR



PCM WIRING HARNESS-SIDE CONNECTOR



*1

Vehicles without advanced keyless entry and push button start system

*2

Vehicles with advanced keyless entry and push button start system

Diagnostic procedure

STEP	INSPECTION	ACTION
1	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 heater, HO2S heater 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.
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 HO2S CONNECTOR CONDITION Switch the ignition to off.	Yes Repair or replace the terminal and/or connector, then go to Step 7.

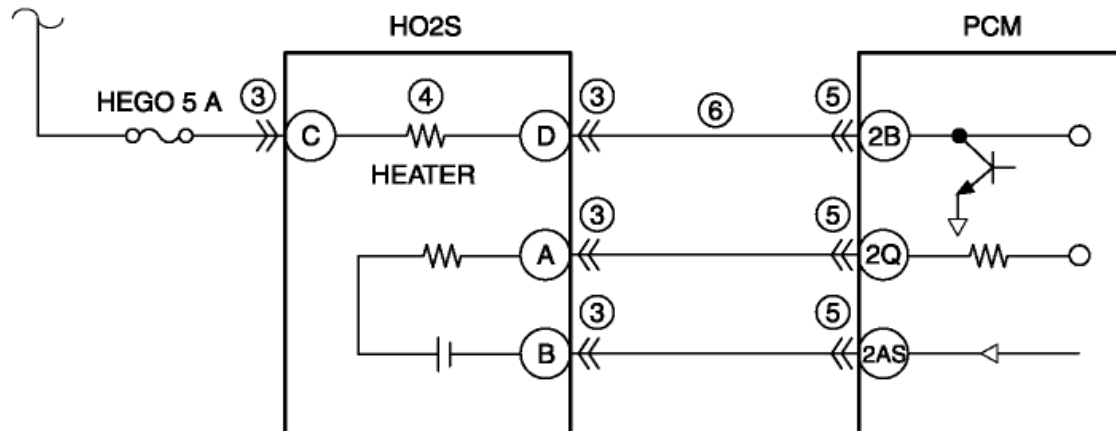
	Disconnect the HO2S connector. - Inspect for poor connection (such as damaged/pulled-out pins, corrosion). - Is there any malfunction?	No	Go to the next step.
4	INSPECT HO2S HEATER - Inspect the HO2S heater. (See HEATED OXYGEN SENSOR (HO2S) INSPECTION [MZR 2.5].) - Is there any malfunction?	Yes	Replace the HO2S, then go to Step 7. (See HEATED OXYGEN SENSOR (HO2S) REMOVAL/ INSTALLATION [MZR 2.5].)
		No	Go to the next step.
5	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 7.
		No	Go to the next step.
6	INSPECT HO2S HEATER CONTROL CIRCUIT FOR SHORT TO POWER SUPPLY - HO2S and PCM connectors are disconnected. - Switch the ignition to ON (engine off). - Measure the voltage between HO2S terminal D (wiring harness-side) and body ground. - Is there any voltage?	Yes	Repair or replace the wiring harness for a possible short to power supply, then go to the next step.
		No	Go to the next step.
7	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.
8	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.

2012 - Mazda6 - Engine

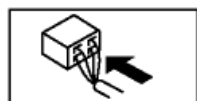
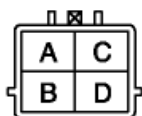
DTC P0038:00 [MZR 2.5]

DTC P0038:00	HO2S heater control circuit high input
DETECTION CONDITION	• The PCM monitors the HO2S heater output voltage. If the PCM turns the HO2S heater on but the HO2S heater circuit remains high voltage, the PCM determines that the HO2S heater circuit has a malfunction. Diagnostic support note • This is a continuous monitor (A/F sensor heater, HO2S heater). • The MIL illuminates if the PCM detects the above malfunction 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 the PCM detects the above malfunction condition during the first drive cycle. • FREEZE FRAME DATA (Mode 2)/Snapshot data is available. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• HO2S connector or terminal malfunction • HO2S heater malfunction • PCM connector or terminal malfunction • Short to power supply in wiring harness between HO2S terminal D and PCM terminal 2B • PCM malfunction

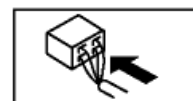
IGNITION SWITCH (IG1)
 TERMINAL C*¹/
 RELAY BLOCK (IG1 RELAY)
 TERMINAL 1B*²



HO2S
 WIRING HARNESS-SIDE
 CONNECTOR



PCM WIRING HARNESS-SIDE CONNECTOR



*1

Vehicles without advanced keyless entry and push button start system

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Vehicles with advanced keyless entry and push button start system

Diagnostic procedure

STEP	INSPECTION	ACTION
1	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 heater, HO2S heater 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.
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 HO2S CONNECTOR CONDITION Switch the ignition to off.	Yes Repair or replace the terminal and/or connector, then go to Step 7.

	Disconnect the HO2S connector. - Inspect for poor connection (such as damaged/pulled-out pins, corrosion). - Is there any malfunction?	No	Go to the next step.
4	INSPECT HO2S HEATER - Inspect the HO2S heater. (See HEATED OXYGEN SENSOR (HO2S) INSPECTION [MZR 2.5].) - Is there any malfunction?	Yes	Replace the HO2S, then go to Step 7. (See HEATED OXYGEN SENSOR (HO2S) REMOVAL/ INSTALLATION [MZR 2.5].)
		No	Go to the next step.
5	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 7.
		No	Go to the next step.
6	INSPECT HO2S HEATER CONTROL CIRCUIT FOR SHORT TO POWER SUPPLY - HO2S and PCM connectors are disconnected. - Switch the ignition to ON (engine off). - Measure the voltage between HO2S terminal D (wiring harness-side) and body ground. - Is there any voltage?	Yes	Repair or replace the wiring harness for a possible short to power supply, then go to the next step.
		No	Go to the next step.
7	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.
8	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.