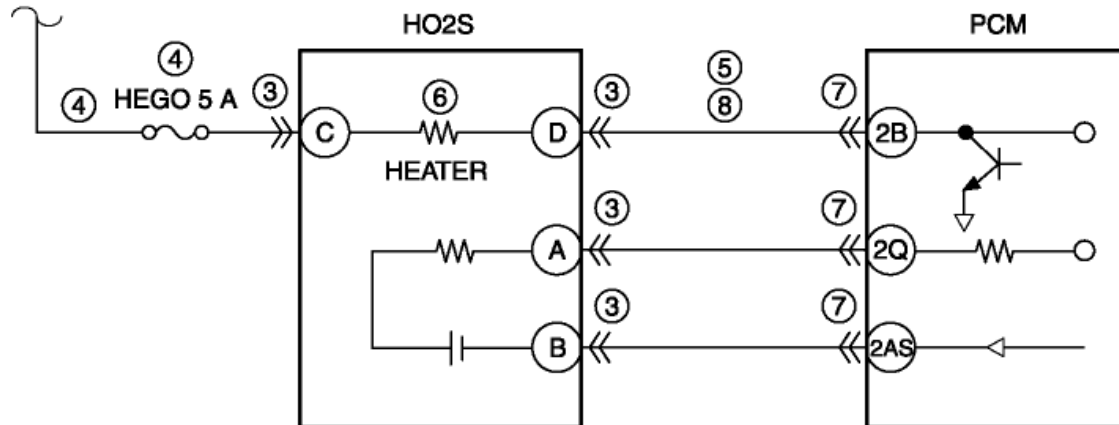


2012 - Mazda6 - Engine

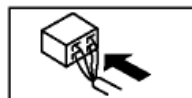
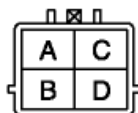
DTC P0054:00 [MZR 2.5]

DTC P0054:00	HO2S heater resistance problem
DETECTION CONDITION	- The PCM monitors the HO2S heater resistance when under the HO2S heater control. If the resistance is more than 34 ohms, the PCM determines that there is a HO2S heater circuit problem. Diagnostic support note - This is an intermittent monitor (A/F sensor heater, HO2S heater). - 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	- HO2S connector or terminal malfunction - Short to ground or open circuit in HO2S heater power supply circuit - Short to ground in wiring harness between ignition switch terminal C*¹/relay block terminal 1B*² and HO2S terminal C - HEGO 5 A fuse malfunction - Open circuit in wiring harness between ignition switch terminal C*¹/relay block terminal 1B*² and HO2S terminal C - Short to ground in wiring harness between HO2S terminal D and PCM terminal 2B - HO2S heater malfunction - PCM connector or terminal malfunction - Open circuit in wiring harness between HO2S terminal D and PCM terminal 2B - PCM malfunction

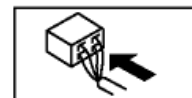
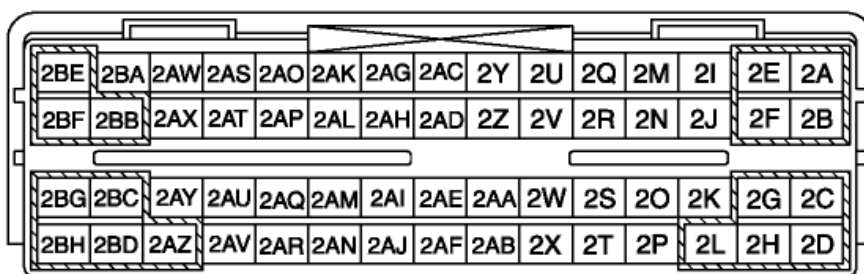
IGNITION SWITCH (IG1)
 TERMINAL C*¹/
 RELAY BLOCK (IG1 RELAY)
 TERMINAL 1B*²



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. - Disconnect the HO2S connector.	Yes Repair or replace the terminal and/or connector, then go to Step 9. No Go to the next step.

	- Inspect for poor connection (such as damaged/pulled-out pins, corrosion). - Is there any malfunction?		
4	INSPECT HO2S HEATER POWER SUPPLY CIRCUIT FOR SHORT TO GROUND OR OPEN CIRCUIT - HO2S connector is disconnected. - Switch the ignition to ON (engine off). - Measure the voltage between HO2S terminal C (wiring harness-side) and body ground. - Is the voltage B+ ?	Yes	Go to the next step.
		No	Inspect the HEGO 5 A fuse. - If the fuse is melt: - Repair or replace the wiring harness for a possible short to ground. - Replace the fuse. - If the fuse is deterioration: - Replace the fuse. - If the fuse is normal: - Repair or replace the wiring harness for a possible open circuit. Go to Step 9.
5	INSPECT HO2S HEATER CONTROL CIRCUIT FOR SHORT TO GROUND - HO2S connector is disconnected. - Switch the ignition to off. - Inspect for continuity between HO2S terminal D (wiring harness-side) and body ground. - Is there continuity?	Yes	If the short to ground circuit could be detected: - Repair or replace the wiring harness for a possible short to ground. If the short to ground circuit could not be detected: - Replace the PCM (short to ground in PCM internal circuit). (See PCM REMOVAL/ INSTALLATION [MZR 2.5] .) Go to Step 9.
		No	Go to the next step.
6	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 9. (See HEATED OXYGEN SENSOR (HO2S) REMOVAL/ INSTALLATION [MZR 2.5] .)
		No	Go to the next step.
7	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.
8	INSPECT HO2S CONTROL CIRCUIT FOR OPEN CIRCUIT - HO2S and PCM connectors are disconnected. - Inspect for continuity between HO2S terminal D (wiring harness-side) and PCM terminal 2B (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 the next step.
	VERIFY DTC TROUBLESHOOTING COMPLETED		

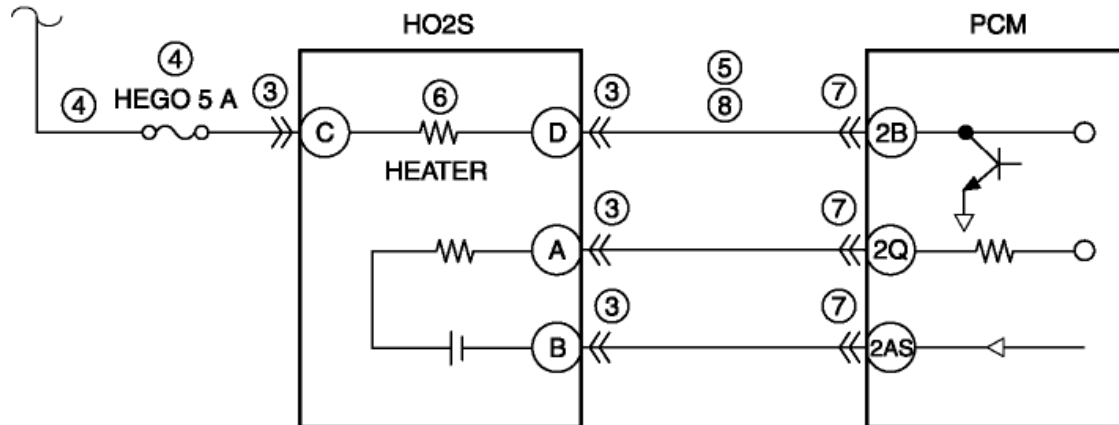
9	• Make sure to reconnect all disconnected connectors. • Clear the DTC from the PCM memory using the M-MDS. (See AFTER REPAIR PROCEDURE [MZR 2.5].) • Perform the KOEO or KOER self test. (See KOEO/ KOER SELF TEST [MZR 2.5].) • Is the PENDING CODE for this DTC present?	Yes	Repeat the inspection from Step 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.

2012 - Mazda6 - Engine

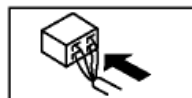
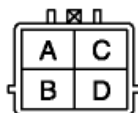
DTC P0054:00 [MZR 2.5]

DTC P0054:00	HO2S heater resistance problem
DETECTION CONDITION	- The PCM monitors the HO2S heater resistance when under the HO2S heater control. If the resistance is more than 34 ohms, the PCM determines that there is a HO2S heater circuit problem. Diagnostic support note - This is an intermittent monitor (A/F sensor heater, HO2S heater). - 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	- HO2S connector or terminal malfunction - Short to ground or open circuit in HO2S heater power supply circuit - Short to ground in wiring harness between ignition switch terminal C*¹/relay block terminal 1B*² and HO2S terminal C - HEGO 5 A fuse malfunction - Open circuit in wiring harness between ignition switch terminal C*¹/relay block terminal 1B*² and HO2S terminal C - Short to ground in wiring harness between HO2S terminal D and PCM terminal 2B - HO2S heater malfunction - PCM connector or terminal malfunction - Open circuit in wiring harness between HO2S terminal D and PCM terminal 2B - PCM malfunction

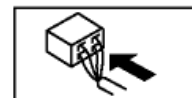
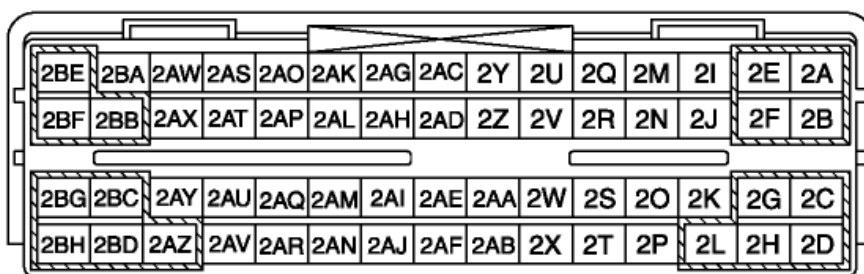
IGNITION SWITCH (IG1)
 TERMINAL C*¹/
 RELAY BLOCK (IG1 RELAY)
 TERMINAL 1B*²



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. - Disconnect the HO2S connector.	Yes Repair or replace the terminal and/or connector, then go to Step 9. No Go to the next step.

	- Inspect for poor connection (such as damaged/pulled-out pins, corrosion). - Is there any malfunction?		
4	INSPECT HO2S HEATER POWER SUPPLY CIRCUIT FOR SHORT TO GROUND OR OPEN CIRCUIT - HO2S connector is disconnected. - Switch the ignition to ON (engine off). - Measure the voltage between HO2S terminal C (wiring harness-side) and body ground. - Is the voltage B+ ?	Yes	Go to the next step.
		No	Inspect the HEGO 5 A fuse. - If the fuse is melt: - Repair or replace the wiring harness for a possible short to ground. - Replace the fuse. - If the fuse is deterioration: - Replace the fuse. - If the fuse is normal: - Repair or replace the wiring harness for a possible open circuit. Go to Step 9.
5	INSPECT HO2S HEATER CONTROL CIRCUIT FOR SHORT TO GROUND - HO2S connector is disconnected. - Switch the ignition to off. - Inspect for continuity between HO2S terminal D (wiring harness-side) and body ground. - Is there continuity?	Yes	If the short to ground circuit could be detected: - Repair or replace the wiring harness for a possible short to ground. If the short to ground circuit could not be detected: - Replace the PCM (short to ground in PCM internal circuit). (See PCM REMOVAL/ INSTALLATION [MZR 2.5] .) Go to Step 9.
		No	Go to the next step.
6	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 9. (See HEATED OXYGEN SENSOR (HO2S) REMOVAL/ INSTALLATION [MZR 2.5] .)
		No	Go to the next step.
7	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.
8	INSPECT HO2S CONTROL CIRCUIT FOR OPEN CIRCUIT - HO2S and PCM connectors are disconnected. - Inspect for continuity between HO2S terminal D (wiring harness-side) and PCM terminal 2B (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 the next step.
	VERIFY DTC TROUBLESHOOTING COMPLETED		

9	• 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.