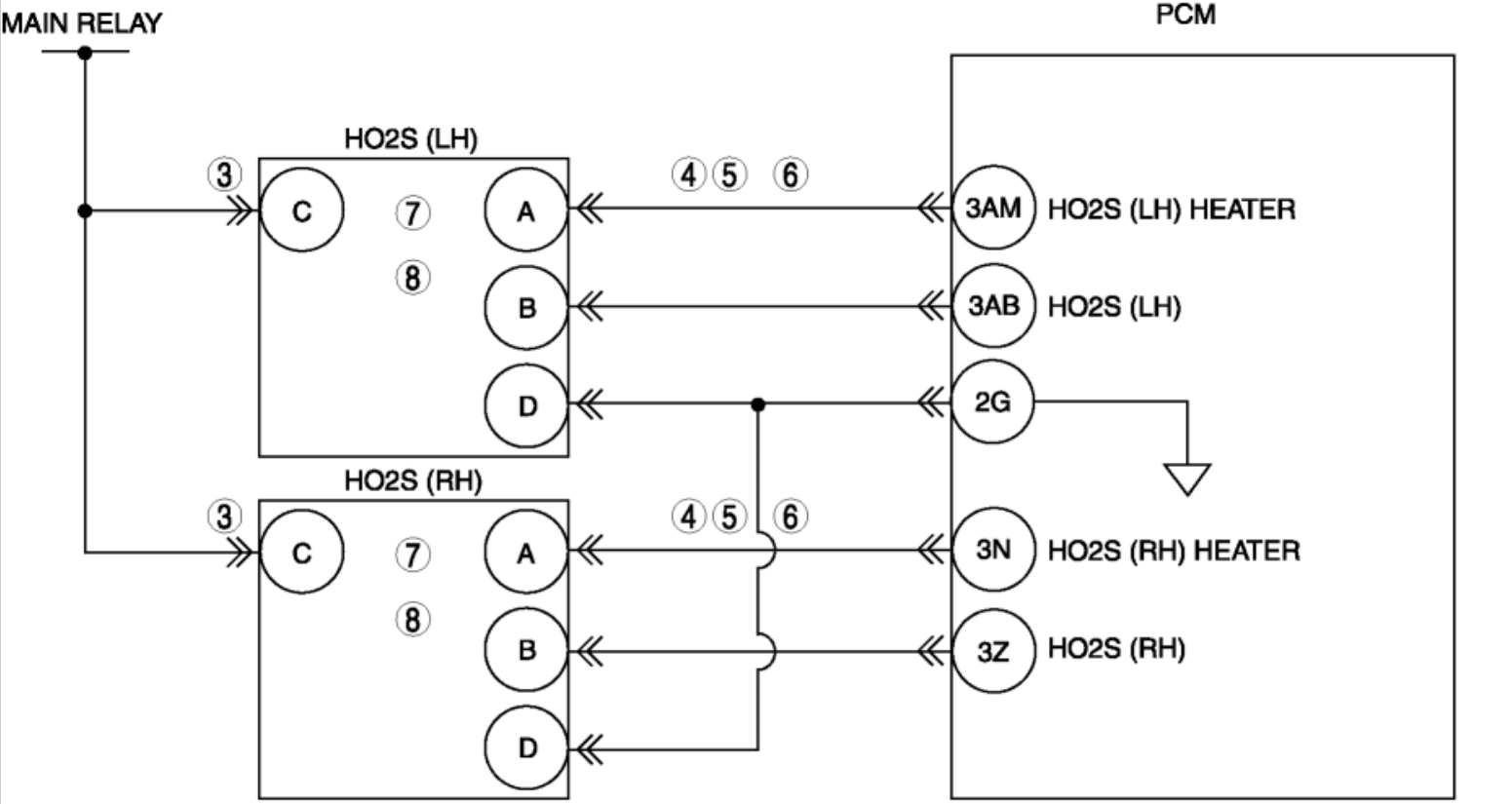


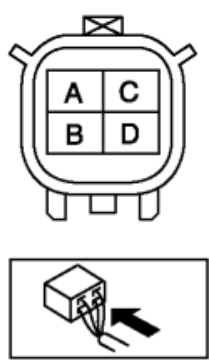
2012 - Mazda6 - Engine

DTC P0054:00, P0060:00 [MZI 3.7 V6]

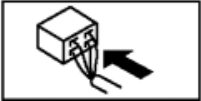
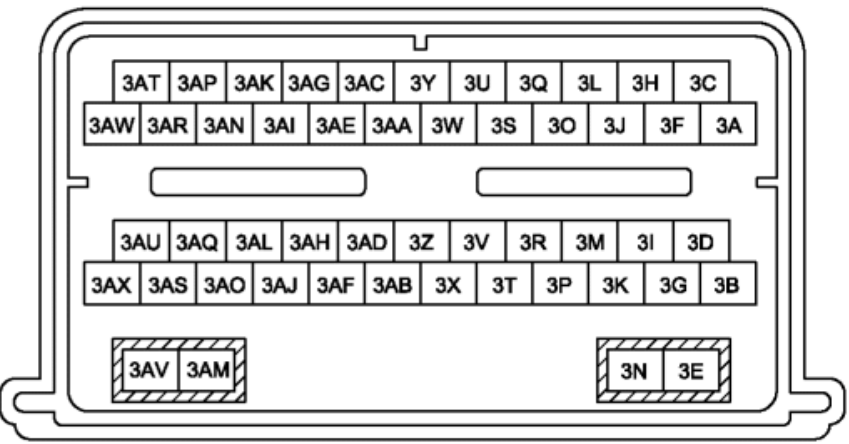
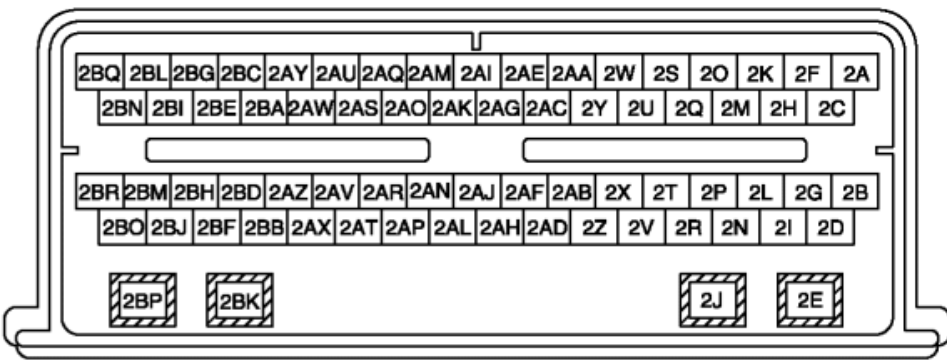
DTC P0054:00 DTC P0060:00	P0054:00: HO2S (RH) heater resistance P0060:00: HO2S (LH) heater resistance
DETECTION CONDI TION	• P0054:00 indicates HO2S (RH) heater resistance. • P0060:00 indicates HO2S (LH) heater resistance. • Heater current requirements too low or high in the heated oxygen sensor (HO2S) heater control circuit.
POSSI BLE CAUSE	• Open circuit between HO2S terminal C and main relay terminal D • DTC P0054:00: Short to ground circuit between HO2S (RH) terminal A and PCM terminal 3N • DTC P0060:00: Short to ground circuit between HO2S (LH) terminal A and PCM terminal 3AM • HO2S circuits are shorted each other • DTC P0054:00: Open circuit between HO2S (RH) terminal A and PCM terminal 3N • DTC P0060:00: Open circuit between HO2S (LH) terminal A and PCM terminal 3AM • HO2S heater malfunction • PCM malfunction



HO2S (LH, RH)
WIRING HARNESS-SIDE
CONNECTOR



PCM
WIRING HARNESS-SIDE CONNECTOR



Diagnostic procedure

STEP	INSPECTION	ACTION	
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED Has FREEZE FRAME DATA been recorded?	Yes	Go to the next step.
		No	Record FREEZE FRAME DATA 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 Service Bulletins available?	Yes	Perform repair or diagnosis according to the available Service Bulletins. If the vehicle is not repaired, go to the next step.
		No	Go to the next step.
3	INSPECT FOR POWER SUPPLY IN WIRING HARNESS - Disconnect the suspect HO2S connector. - Switch the ignition to ON (Engine off). - Measure the voltage between the suspect HO2S wiring harness-side connector terminal C and ground. - Is the voltage more than 10 V?	Yes	Switch the ignition to off. Go to the next step.
		No	Inspect the ENGINE fuse. - If the fuse deterioration, replace the fuse. - If the fuse melts, repair for short to ground and replace the fuse. - If the fuse is normal, repair the open circuit. Go to Step 9.
4	INSPECT HO2S HEATER FOR SHORT TO GROUND - Suspect HO2S connector is disconnected. - Disconnect the PCM. - Measure the resistance between HO2S connector terminal A, the wiring harness side, and body ground. - Is the resistance more than 10 kilohms?	Yes	Go to the next step.
		No	Repair or replace suspected part, go to Step 9
5	INSPECT HO2S HEATER FOR SHORT IN WIRING HARNESS - Suspect HO2S and PCM connectors are disconnected. - Measure the resistance between the following terminals: - HO2S terminal A (wiring harness-side) and HO2S terminal C (wiring harness-side) - HO2S terminal A (wiring harness-side) and HO2S terminal D (wiring harness-side) - HO2S terminal A (wiring harness-side) and HO2S	Yes	Go to the next step.
		No	Repair or replace suspected part, go to Step 9

	terminal B (wiring harness-side) Are the resistances more than 10 kilohms?		
6	INSPECT HO2S HEATER CIRCUIT FOR OPEN CIRCUIT IN WIRING HARNESS - Suspect HO2S and PCM connectors are disconnected. - For DTC P0054:00 Measure resistance between PCM terminal 3N and HO2S (RH) terminal A. - For DTC P0060:00 Measure resistance between PCM terminal 3AM and HO2S (LH) terminal A. - Is the resistance less than 5.0 ohms?	Yes	Go to the next step.
		No	Repair or replace suspected part, go to Step 9.
7	INSPECT INTERNAL RESISTANCE OF HO2S HEATER - Suspect HO2S and PCM connectors are disconnected. - Measure the resistance between the suspect HO2S terminal A and C on the component side. - Is the resistance between 2—50 ohms?	Yes	Go to the next step.
		No	Replace the suspect HO2S. (See HEATED OXYGEN SENSOR (HO2S) REMOVAL/ INSTALLATION [MZI 3.7 V6].) Go to Step 9.
8	INSPECT HO2S CASE FOR SHORT TO POWER SUPPLY, HTR, AND SIGNRTN - Suspect HO2S and PCM connectors are disconnected. - Measure the resistance between the suspect HO2S terminal A and D on the component side. - Measure the resistance between the suspect HO2S terminal A and body ground. - Is the resistance more than 10 kilohms?	Yes	Go to the next step. (The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.)
		No	Replace the suspect HO2S. (See HEATED OXYGEN SENSOR (HO2S) REMOVAL/ INSTALLATION [MZI 3.7 V6].) Go to the next step.
9	VERIFY TROUBLESHOOTING OF DTC P0054:00, P0060:00 HAVE BEEN COMPLETED - Verify that all disconnected connectors reconnected. - Switch the ignition to ON (Engine off). - Clear the DTC from the PCM memory using the M-MDS. - Start the engine and run it at idle. - Perform the KOEO or KOER self-test. (See KOEO/ KOER SELF TEST [MZI 3.7 V6].) - 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 [MZI 3.7 V6].) Go to the next step.
		No	Go to the next step.
10	VERIFY AFTER REPAIR PROCEDURE	Yes	Go to the applicable DTC inspection.

	- Perform the "AFTER REPAIR PROCEDURE". (See AFTER REPAIR PROCEDURE [MZI 3.7 V6].) - Are any DTCs present?		(See DTC TABLE [MZI 3.7 V6] .)
			No Troubleshooting completed.

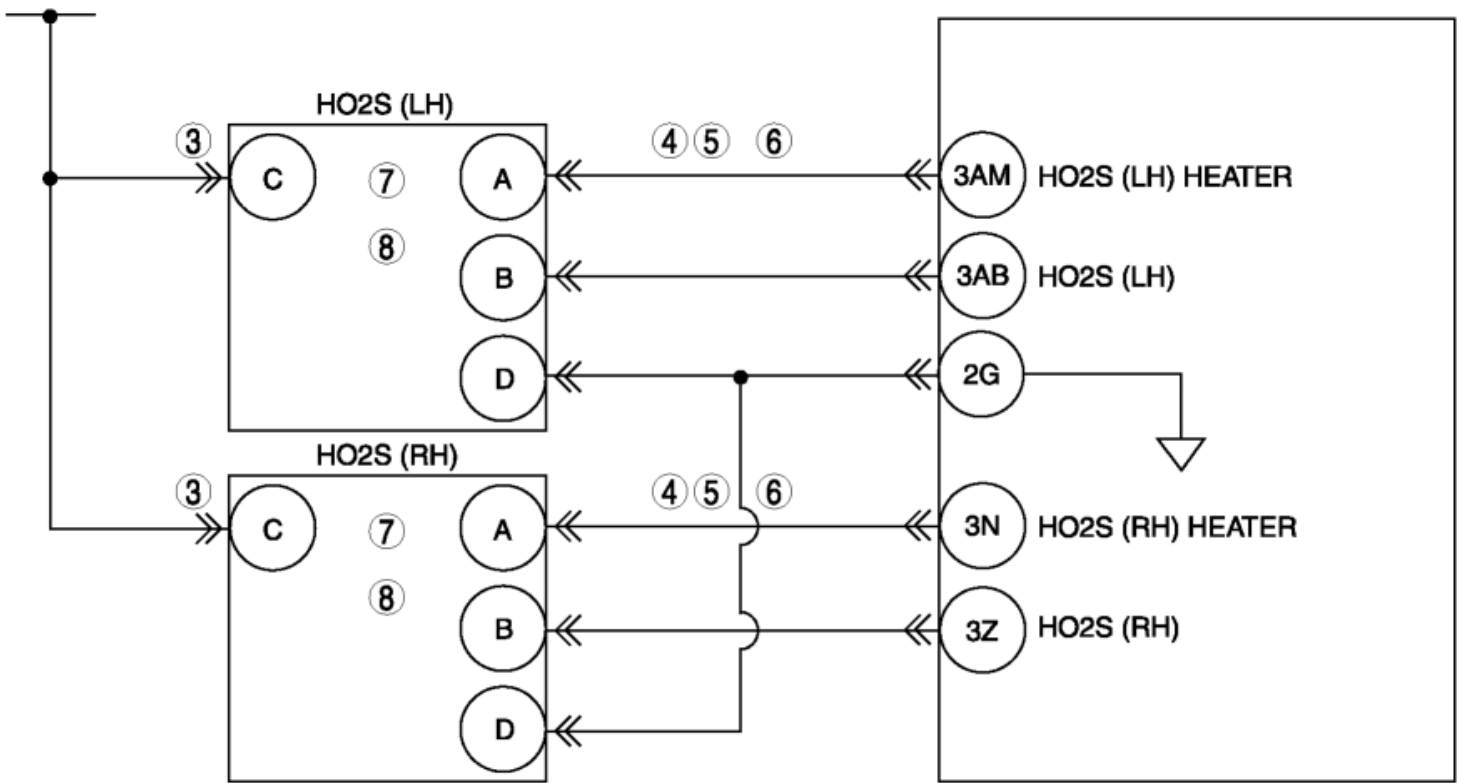
2012 - Mazda6 - Engine

DTC P0054:00, P0060:00 [MZI 3.7 V6]

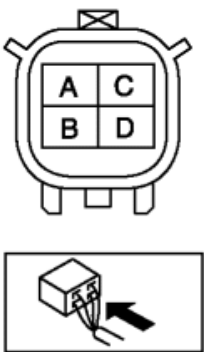
DTC P0054:00 DTC P0060:00	P0054:00: HO2S (RH) heater resistance P0060:00: HO2S (LH) heater resistance
DETECTION CONDI TION	• P0054:00 indicates HO2S (RH) heater resistance. • P0060:00 indicates HO2S (LH) heater resistance. • Heater current requirements too low or high in the heated oxygen sensor (HO2S) heater control circuit.
POSSI BLE CAUSE	• Open circuit between HO2S terminal C and main relay terminal D • DTC P0054:00: Short to ground circuit between HO2S (RH) terminal A and PCM terminal 3N • DTC P0060:00: Short to ground circuit between HO2S (LH) terminal A and PCM terminal 3AM • HO2S circuits are shorted each other • DTC P0054:00: Open circuit between HO2S (RH) terminal A and PCM terminal 3N • DTC P0060:00: Open circuit between HO2S (LH) terminal A and PCM terminal 3AM • HO2S heater malfunction • PCM malfunction

MAIN RELAY

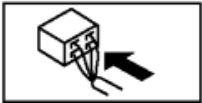
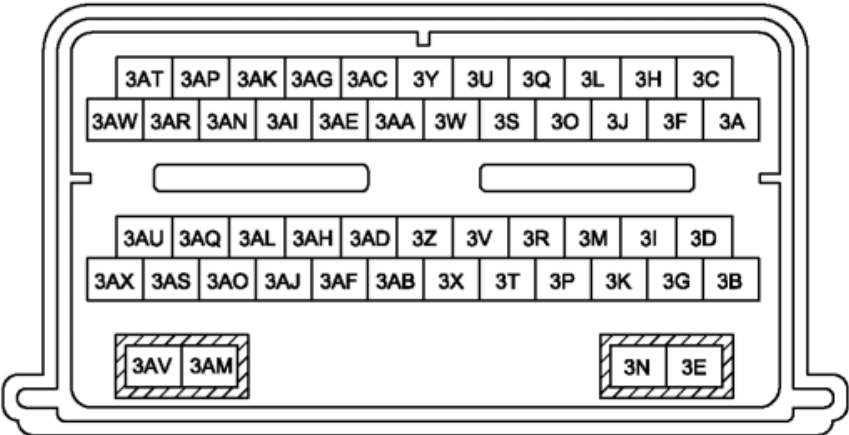
PCM



HO2S (LH, RH)
WIRING HARNESS-SIDE
CONNECTOR



PCM
WIRING HARNESS-SIDE CONNECTOR



Diagnostic procedure

STEP	INSPECTION	ACTION	
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED Has FREEZE FRAME DATA been recorded?	Yes	Go to the next step.
		No	Record FREEZE FRAME DATA 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 Service Bulletins available?	Yes	Perform repair or diagnosis according to the available Service Bulletins. If the vehicle is not repaired, go to the next step.
		No	Go to the next step.
3	INSPECT FOR POWER SUPPLY IN WIRING HARNESS - Disconnect the suspect HO2S connector. - Switch the ignition to ON (Engine off). - Measure the voltage between the suspect HO2S wiring harness-side connector terminal C and ground. - Is the voltage more than 10 V?	Yes	Switch the ignition to off. Go to the next step.
		No	Inspect the ENGINE fuse. - If the fuse deterioration, replace the fuse. - If the fuse melts, repair for short to ground and replace the fuse. - If the fuse is normal, repair the open circuit. Go to Step 9.
4	INSPECT HO2S HEATER FOR SHORT TO GROUND - Suspect HO2S connector is disconnected. - Disconnect the PCM. - Measure the resistance between HO2S connector terminal A, the wiring harness side, and body ground. - Is the resistance more than 10 kilohms?	Yes	Go to the next step.
		No	Repair or replace suspected part, go to Step 9
5	INSPECT HO2S HEATER FOR SHORT IN WIRING HARNESS - Suspect HO2S and PCM connectors are disconnected. - Measure the resistance between the following terminals: - HO2S terminal A (wiring harness-side) and HO2S terminal C (wiring harness-side) - HO2S terminal A (wiring harness-side) and HO2S terminal D (wiring harness-side) - HO2S terminal A (wiring harness-side) and HO2S	Yes	Go to the next step.
		No	Repair or replace suspected part, go to Step 9

	terminal B (wiring harness-side) Are the resistances more than 10 kilohms?		
6	INSPECT HO2S HEATER CIRCUIT FOR OPEN CIRCUIT IN WIRING HARNESS - Suspect HO2S and PCM connectors are disconnected. - For DTC P0054:00 Measure resistance between PCM terminal 3N and HO2S (RH) terminal A. - For DTC P0060:00 Measure resistance between PCM terminal 3AM and HO2S (LH) terminal A. - Is the resistance less than 5.0 ohms?	Yes	Go to the next step.
		No	Repair or replace suspected part, go to Step 9.
7	INSPECT INTERNAL RESISTANCE OF HO2S HEATER - Suspect HO2S and PCM connectors are disconnected. - Measure the resistance between the suspect HO2S terminal A and C on the component side. - Is the resistance between 2—50 ohms?	Yes	Go to the next step.
		No	Replace the suspect HO2S. (See HEATED OXYGEN SENSOR (HO2S) REMOVAL/ INSTALLATION [MZI 3.7 V6].) Go to Step 9.
8	INSPECT HO2S CASE FOR SHORT TO POWER SUPPLY, HTR, AND SIGNRTN - Suspect HO2S and PCM connectors are disconnected. - Measure the resistance between the suspect HO2S terminal A and D on the component side. - Measure the resistance between the suspect HO2S terminal A and body ground. - Is the resistance more than 10 kilohms?	Yes	Go to the next step. (The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.)
		No	Replace the suspect HO2S. (See HEATED OXYGEN SENSOR (HO2S) REMOVAL/ INSTALLATION [MZI 3.7 V6].) Go to the next step.
9	VERIFY TROUBLESHOOTING OF DTC P0054:00, P0060:00 HAVE BEEN COMPLETED - Verify that all disconnected connectors reconnected. - Switch the ignition to ON (Engine off). - Clear the DTC from the PCM memory using the M-MDS. - Start the engine and run it at idle. - Perform the KOEO or KOER self-test. (See KOEO/ KOER SELF TEST [MZI 3.7 V6].) - 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 [MZI 3.7 V6].) Go to the next step.
		No	Go to the next step.
10	VERIFY AFTER REPAIR PROCEDURE	Yes	Go to the applicable DTC inspection.

	- Perform the "AFTER REPAIR PROCEDURE". (See AFTER REPAIR PROCEDURE [MZI 3.7 V6].) - Are any DTCs present?	(See DTC TABLE [MZI 3.7 V6] .)
		No Troubleshooting completed.