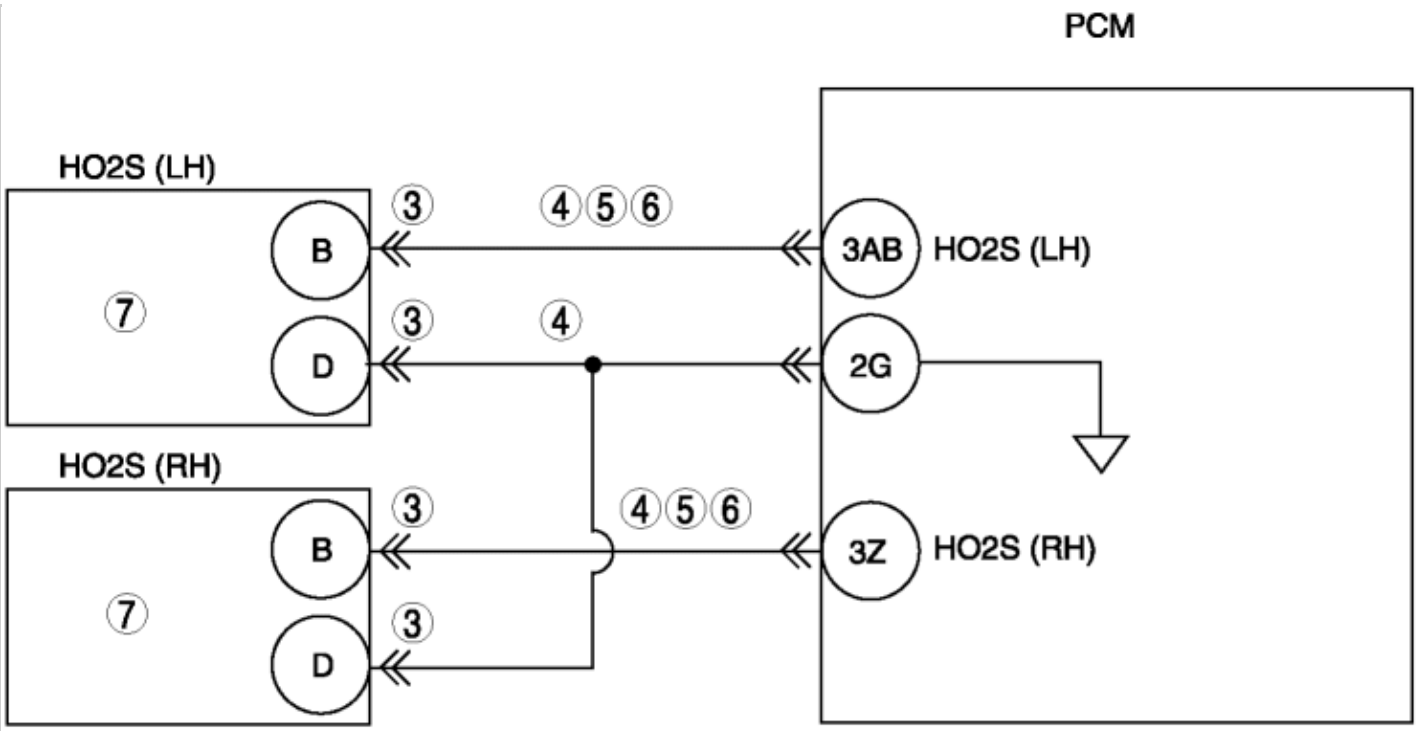
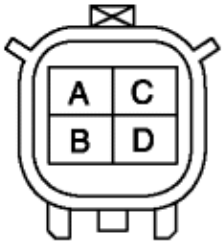
2012 - Mazda6 - Engine

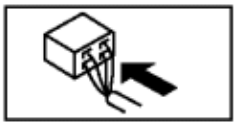
DTC P0137:00, P0157:00 [MZI 3.7 V6]

DTC P0137:00 DTC P0157:00	P0137:00: HO2S (RH) circuit low voltage P0157:00: HO2S (LH) circuit low voltage
DETECTION CONDITION	• P0137:00 indicates that HO2S (RH) circuit low voltage • P0157:00 indicates that HO2S (LH) circuit low voltage • The powertrain control module (PCM) monitors the heated oxygen sensor (HO2S) for a circuit concern. This DTC sets when the PCM detects a concern with the circuit used to determine the oxygen content in the exhaust gas.
POSSIBLE CAUSE	• P0137:00: Open circuit in wiring harness between PCM terminal 3Z and HO2S(RH) terminal B • P0157:00: Open circuit in wiring harness between PCM terminal 3AB and HO2S(LH) terminal B • P0137:00: Open circuit in wiring harness between PCM terminal 2G and HO2S(RH) terminal D • P0157:00: Open circuit in wiring harness between PCM terminal 2G and HO2S(LH) terminal D • P0137:00: Short to ground in wiring harness between PCM 3Z and HO2S(RH) terminal B • P0157:00: Short to ground in wiring harness between PCM 3AB and HO2S(LH) terminal B • P0137:00: Short to power supply in wiring harness between PCM 3Z and HO2S(RH) terminal B • P0157:00: Short to power supply in wiring harness between PCM 3AB and HO2S(LH) terminal B • Damaged HO2S sensor • PCM malfunction

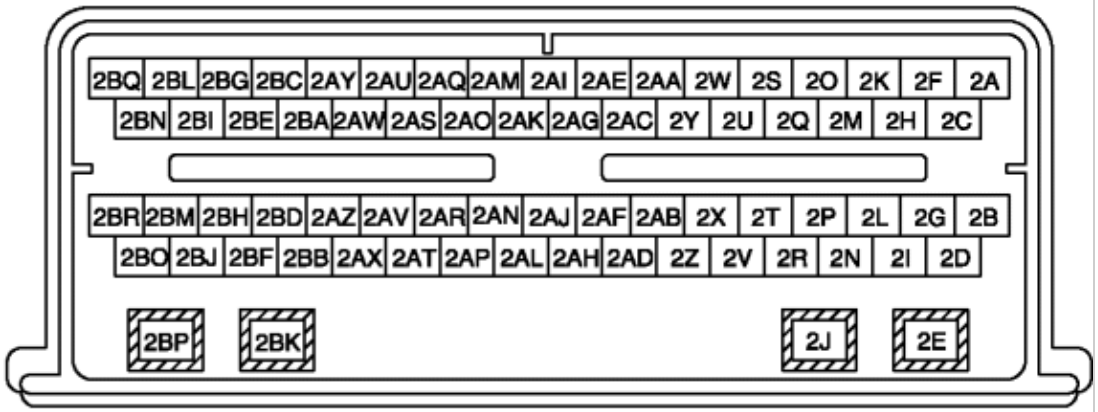


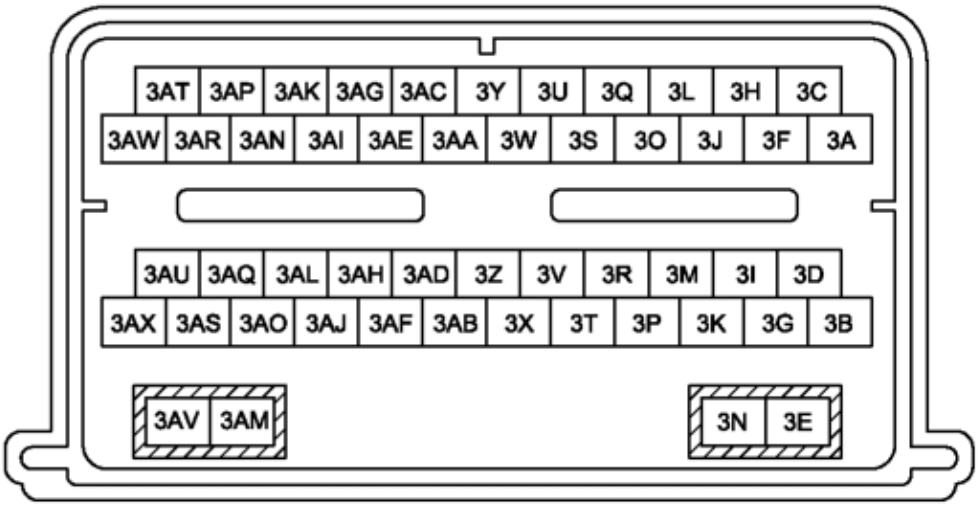
HO2S (LH, RH)
WIRING HARNESS-SIDE
CONNECTOR

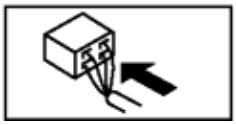




PCM
WIRING HARNESS-SIDE CONNECTOR







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	**VISUALLY INSPECT HO2S AND PCM WIRING HARNESS** **NOTE:** • Disconnect the HO2S wiring harness connector. Only the suspect HO2S needs to be diagnosed. • Switch the ignition to off. • Disconnect the suspect HO2S and PCM connectors. • Visually inspect the HO2S wiring harness. ▪ Check the connector (both halves) for contamination ▪ Make sure the connector pins are fully seated • Is a concern present?	Yes	Repair if necessary. Go to Step 8.
		No	Go to the next step.
4	**CHECK HO2S CIRCUIT(S) FOR OPEN IN HARNESS** **NOTE:** • Diagnose the suspect sensor indicated by the DTC. • Verify the harness pins are in the correct location. • HO2S and PCM connectors are disconnected.	Yes	Go to the next step.
		No	Repair for open circuit, then go to Step 8.

	• Switch the ignition to off. • Measure the resistance between: **For DTC P0137:00:** ▪ PCM terminal 3Z (wiring harness-side) and HO2S (RH) terminal B (wiring harness-side) ▪ PCM terminal 2G (wiring harness-side) and HO2S (RH) terminal D (wiring harness-side) **For DTC P0157:00:** ▪ PCM terminal 3AB (wiring harness-side) and HO2S (LH) terminal B (wiring harness-side) ▪ PCM terminal 2G (wiring harness-side) and HO2S (LH) terminal D (wiring harness-side) • Is the resistance less than 5 ohm?		
5	**CHECK HO2S CIRCUIT FOR SHORT TO GROUND** • HO2S and PCM connectors are disconnected. • Measure the resistance between: ▪ Suspect HO2S terminal B and D (wiring harness-side) ▪ Suspect HO2S terminal B (wiring harness-side) and body ground • Is the resistance greater than 10 kilohms?	Yes	Go to the next step.
		No	Repair for short circuit, then go to Step 8.
6	**CHECK HO2S CIRCUIT FOR SHORT TO POWER SUPPLY IN WIRING HARNESS**	Yes	Repair for short circuit, then go to Step 8.

	• HO2S and PCM connectors are disconnected. • Switch the ignition to ON (engine off). • Measure the voltage between suspect HO2S terminal B (wiring harness-side) and ground. • Is any voltage present?	No	Go to the next step.
7	**CHECK HO2S CIRCUIT CONTINUITY** **NOTE:** • HO2S is displayed as HO2S on the scan tool. • HO2S connector is disconnected. • Switch the ignition to off. • Connect the PCM connector. • Connect a 5 A fused jumper wire between suspect HO2S harness-side connector terminal B and C. • Start the engine and run it at idle. • Access the PCM and monitor the suspect HO2S signal PID (VOLT). • Is the voltage greater than 1 V?	Yes	Replace the HO2S, then go to the next step. (See **HEATED OXYGEN SENSOR (HO2S) REMOVAL/ INSTALLATION [MZI 3.7 V6]**.)
		No	Go to the next step. (The system is operating normal at this time. The concern may have been caused by a loose or corroded connector.)
8	**VERIFY TROUBLESHOOTING OF DTC P0137:00, P0157:00 HAS BEEN COMPLETED** • Verify that all disconnected connectors are reconnected. • Switch the ignition to ON (Engine off). • Clear the DTC from the PCM memory using the M-MDS. • Perform the 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.
9	**VERIFY AFTER REPAIR PROCEDURE** • Perform the "AFTER REPAIR PROCEDURE". (See **AFTER REPAIR PROCEDURE [MZI 3.7 V6]**.) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See **DTC TABLE [MZI 3.7 V6]**.)
		No	Troubleshooting completed.

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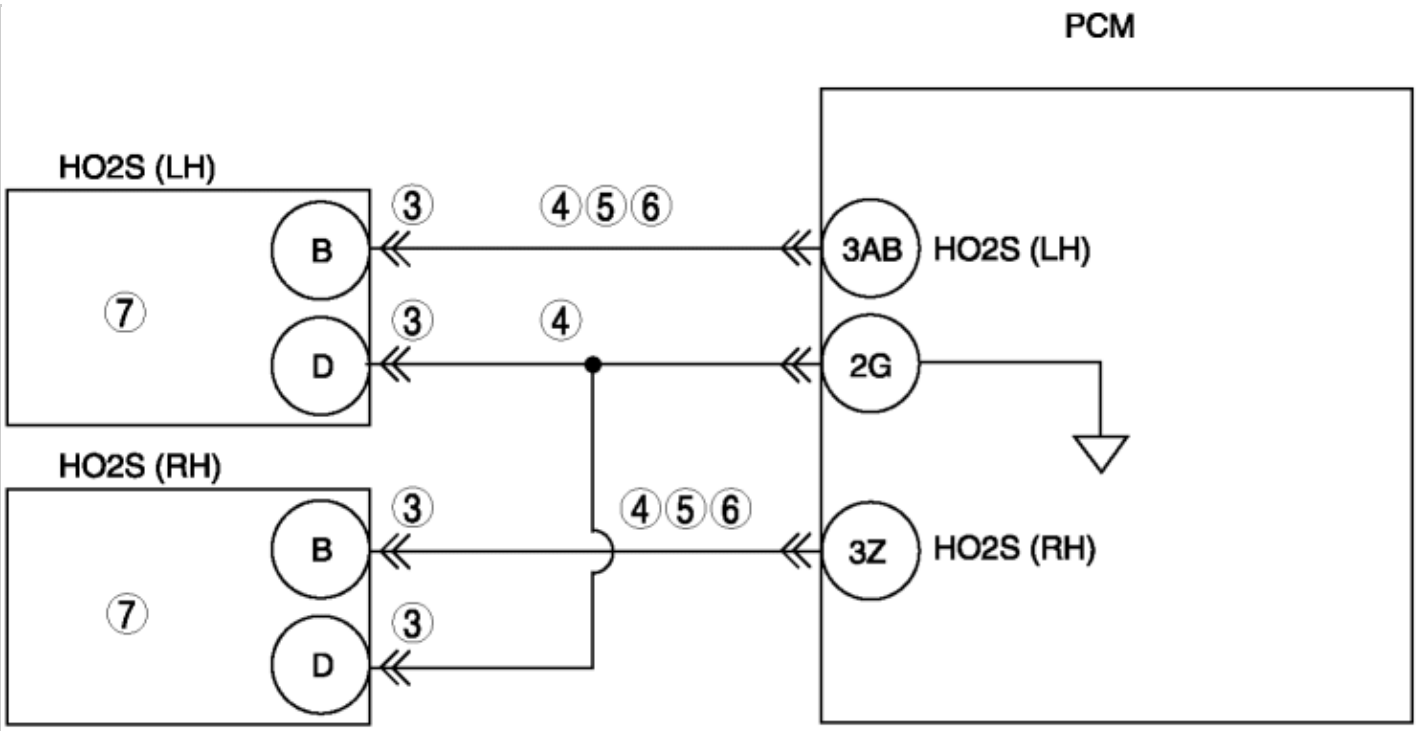
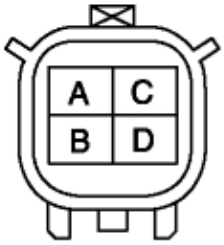
2012 - Mazda6 - Engine

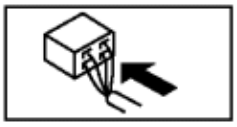
DTC P0137:00, P0157:00 [MZI 3.7 V6]

DTC P0137:00 DTC P0157:00	P0137:00: HO2S (RH) circuit low voltage P0157:00: HO2S (LH) circuit low voltage
DETECTION CONDITION	• P0137:00 indicates that HO2S (RH) circuit low voltage • P0157:00 indicates that HO2S (LH) circuit low voltage • The powertrain control module (PCM) monitors the heated oxygen sensor (HO2S) for a circuit concern. This DTC sets when the PCM detects a concern with the circuit used to determine the oxygen content in the exhaust gas.
POSSIBLE CAUSE	• P0137:00: Open circuit in wiring harness between PCM terminal 3Z and HO2S(RH) terminal B • P0157:00: Open circuit in wiring harness between PCM terminal 3AB and HO2S(LH) terminal B • P0137:00: Open circuit in wiring harness between PCM terminal 2G and HO2S(RH) terminal D • P0157:00: Open circuit in wiring harness between PCM terminal 2G and HO2S(LH) terminal D • P0137:00: Short to ground in wiring harness between PCM 3Z and HO2S(RH) terminal B • P0157:00: Short to ground in wiring harness between PCM 3AB and HO2S(LH) terminal B • P0137:00: Short to power supply in wiring harness between PCM 3Z and HO2S(RH) terminal B • P0157:00: Short to power supply in wiring harness between PCM 3AB and HO2S(LH) terminal B • Damaged HO2S sensor • PCM malfunction



HO2S (LH, RH)
WIRING HARNESS-SIDE
CONNECTOR





PCM
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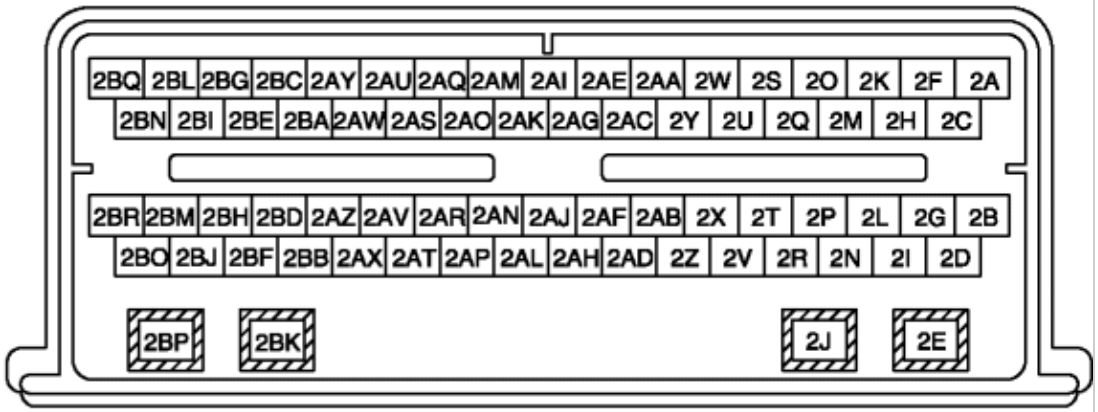

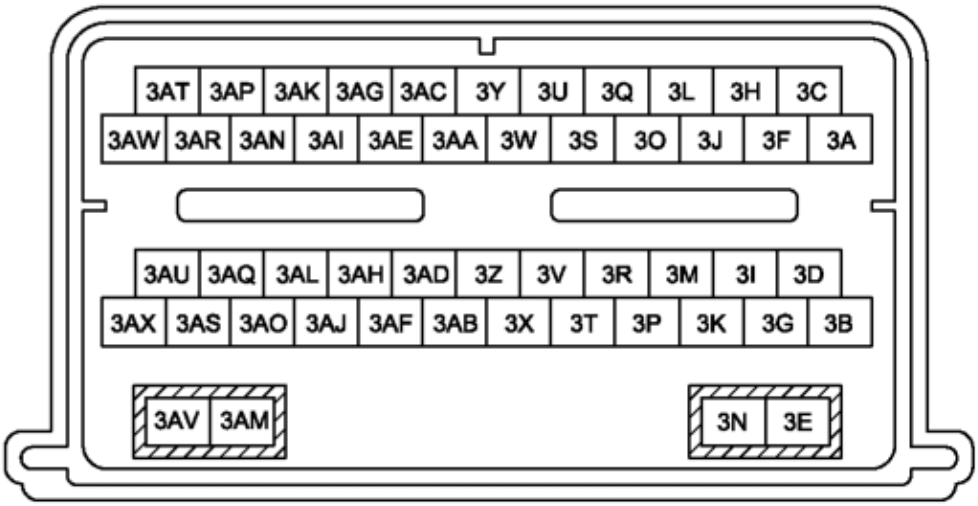

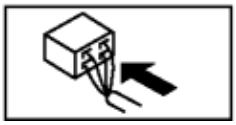

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STEP	INSPECTION		ACTION
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4	**CHECK HO2S CIRCUIT(S) FOR OPEN IN HARNESS** **NOTE:** • Diagnose the suspect sensor indicated by the DTC. • Verify the harness pins are in the correct location. • HO2S and PCM connectors are disconnected.	Yes	Go to the next step.
		No	Repair for open circuit, then go to Step 8.

	• Switch the ignition to off. • Measure the resistance between: **For DTC P0137:00:** ▪ PCM terminal 3Z (wiring harness-side) and HO2S (RH) terminal B (wiring harness-side) ▪ PCM terminal 2G (wiring harness-side) and HO2S (RH) terminal D (wiring harness-side) **For DTC P0157:00:** ▪ PCM terminal 3AB (wiring harness-side) and HO2S (LH) terminal B (wiring harness-side) ▪ PCM terminal 2G (wiring harness-side) and HO2S (LH) terminal D (wiring harness-side) • Is the resistance less than 5 ohm?		
5	**CHECK HO2S CIRCUIT FOR SHORT TO GROUND** • HO2S and PCM connectors are disconnected. • Measure the resistance between: ▪ Suspect HO2S terminal B and D (wiring harness-side) ▪ Suspect HO2S terminal B (wiring harness-side) and body ground • Is the resistance greater than 10 kilohms?	Yes	Go to the next step.
		No	Repair for short circuit, then go to Step 8.
6	**CHECK HO2S CIRCUIT FOR SHORT TO POWER SUPPLY IN WIRING HARNESS**	Yes	Repair for short circuit, then go to Step 8.

	• HO2S and PCM connectors are disconnected. • Switch the ignition to ON (engine off). • Measure the voltage between suspect HO2S terminal B (wiring harness-side) and ground. • Is any voltage present?	No	Go to the next step.
7	**CHECK HO2S CIRCUIT CONTINUITY** **NOTE:** • HO2S is displayed as HO2S on the scan tool. • HO2S connector is disconnected. • Switch the ignition to off. • Connect the PCM connector. • Connect a 5 A fused jumper wire between suspect HO2S harness-side connector terminal B and C. • Start the engine and run it at idle. • Access the PCM and monitor the suspect HO2S signal PID (VOLT). • Is the voltage greater than 1 V?	Yes	Replace the HO2S, then go to the next step. (See **HEATED OXYGEN SENSOR (HO2S) REMOVAL/ INSTALLATION [MZI 3.7 V6]**.)
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		No	Go to the next step.
9	**VERIFY AFTER REPAIR PROCEDURE** • Perform the "AFTER REPAIR PROCEDURE". (See **AFTER REPAIR PROCEDURE [MZI 3.7 V6]**.) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See **DTC TABLE [MZI 3.7 V6]**.)
		No	Troubleshooting completed.

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