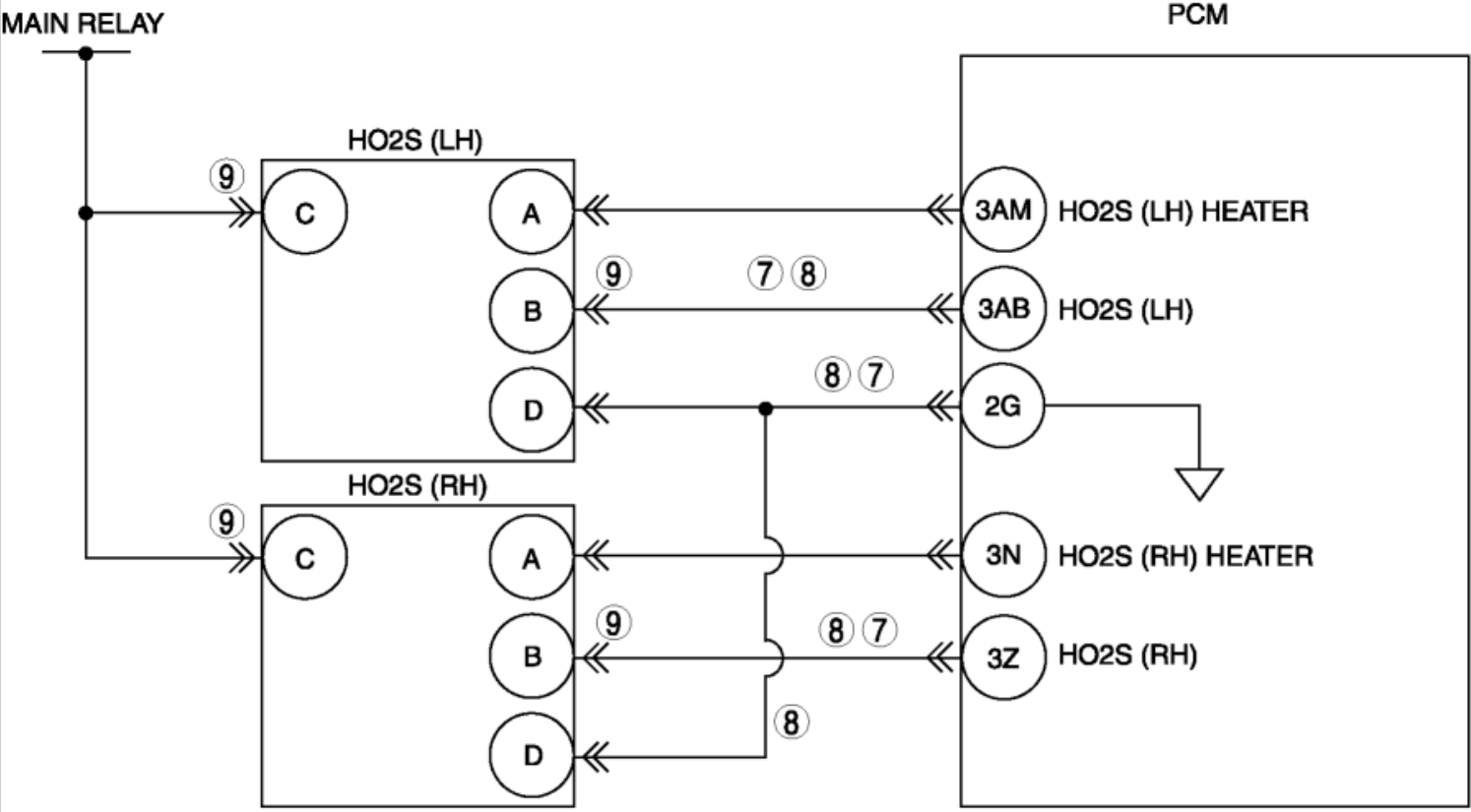


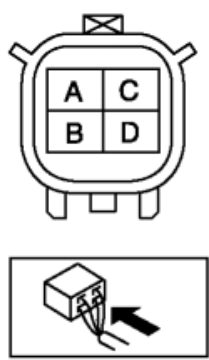
2012 - Mazda6 - Engine

DTC P2270:00, P2272:00 [MZI 3.7 V6]

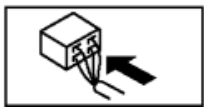
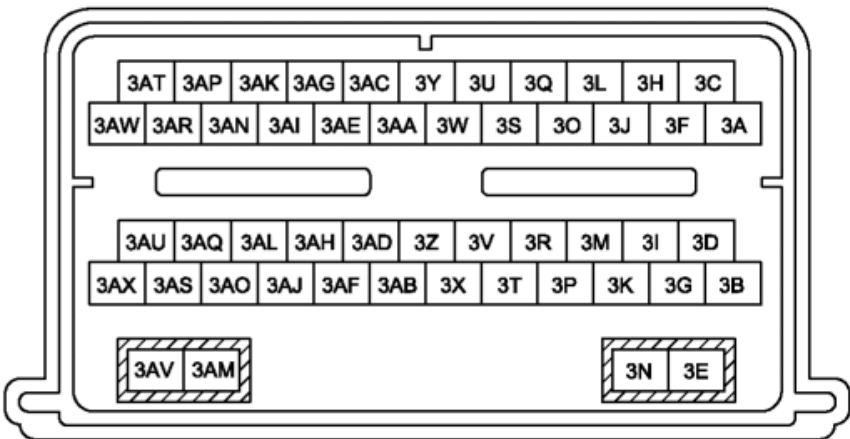
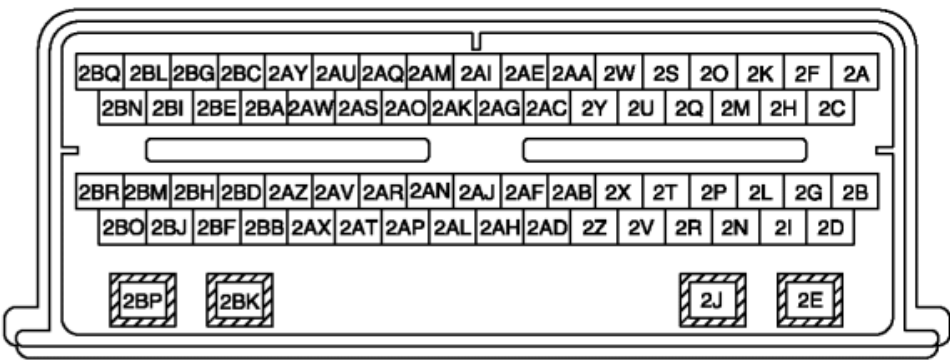
DTC P2270:00	P2270:00: HO2S (RH) signal stuck lean
DTC P2272:00	P2272:00: HO2S (LH) signal stuck lean
DETECTION CONDITION	• P2270:00 indicates that HO2S (RH) signal is stuck lean • P2272:00 indicates that HO2S (LH) signal is stuck lean • The downstream HO2S is forced rich and monitored by the PCM. The test fails if the PCM does not detect the output of the HO2S in a calibrated amount of time
POSSIBLE CAUSE	Electrical System: • HO2S installed incorrectly • HO2S signal circuit short to other HO2S wiring harness • P2270:00: Open circuit between HO2S (RH) terminal B and PCM terminal 3Z • P2272:00: Open circuit between HO2S (LH) terminal B and PCM terminal 3AB • HO2S malfunction • PCM malfunction Intake Air System: • Air leaks • Vacuum leaks • PCV system malfunction • Incorrectly seated engine oil dipstick, tube or oil filler cap Base Engine: • Exhaust leaks (flange, gaskets)



HO2S (LH, RH)
WIRING HARNESS-SIDE
CONNECTOR



PCM
WIRING HARNESS-SIDE CONNECTOR



Diagnostic procedure

STEP	INSPECTION	ACTION
1	IDENTIFY TRIGGER DTC FOR FREEZE FRAME DATA Is DTC P2270:00 or P2272:00 on the FREEZE FRAME DATA?	Yes Go to the next step.
		No Go to the troubleshooting for the DTC on the FREEZE FRAME DATA. (See DTC TABLE [MZI 3.7 V6] .)
2	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.
3	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 Perform the PCM reprogramming procedure. (See PCM CONFIGURATION [MZI 3.7 V6] .) Then go to the next step.
4	VERIFY RELATED PENDING CODE OR STORED DTCs - Switch the ignition off then to the ON position (Engine off). - Verify the related PENDING CODE or stored DTCs using the M-MDS.	Yes Go to the appropriate DTC troubleshooting. (See DTC TABLE [MZI 3.7 V6] .)
		No Go to the next step.
5	INSPECT FOR KOER DTC - Switch the ignition ON (Engine off). - Clear the DTCs. - Start the engine. - Run the engine at approximately 2,000 RPM. Maintain the engine speed for 3 min. - Retrieve the continuous memory DTCs. - Are DTCs P2271:00 or P2273:00 present?	Yes Go to the next step.
		No Unable to duplicate or identify the concern this time.
6	INSPECT IF HO2S SIGNAL LEVEL IS TOO HIGH NOTE: - Fuel calculations can be affected by unmetered air leaks. - Switch the ignition off. - Carefully inspect the following areas for potential air leaks: - Hoses connecting to the MAF sensor component	Yes Repair or replace malfunctioning part, then go to Step 10.
		No Go to the next step.

	▪ Hoses connecting to the throttle body ▪ Intake manifold gasket leaks ▪ PCV system ▪ Vacuum lines are disconnected ▪ Improperly seated engine oil dipstick, tube or oil fill cap ▪ Exhaust leaks at flanges and gaskets • With the transaxle in P or N position, position it on a hoist. (See JACKING POSITIONS, VEHICLE LIFT (2 SUPPORTS) AND SAFETY STAND (RIGID RACK) POSITIONS.) • Visually inspect for: ▪ Exhaust leaks at flanges and gaskets ▪ HO2S not tightened to specification ▪ Physical exhaust system concerns ▪ Aftermarket exhaust system ▪ Punctures or cracks in the catalyst • Is a concern present?	
7	INSPECT FOR SHORT CIRCUIT BETWEEN CIRCUITS IN HO2S WIRING HARNESS • Switch the ignition off. • Disconnect the PCM and suspect HO2S connectors. • Measure the resistance between the following PCM harness-side connector terminals and battery negative terminal. For DTC P2270:00: ▪ Terminal 3Z For DTC P2272:00: ▪ Terminal 3AB • Measure the resistance between the following on the PCM harness-side connector. For DTC P2270:00: ▪ Terminal 3Z and terminal 2G ▪ Terminal 3Z and terminal 3N For DTC P2272:00: ▪ Terminal 3AB and terminal 2G ▪ Terminal 3AB and terminal 3AM	YesGo to the next step. No Repair for a short circuit, then go to Step 10.

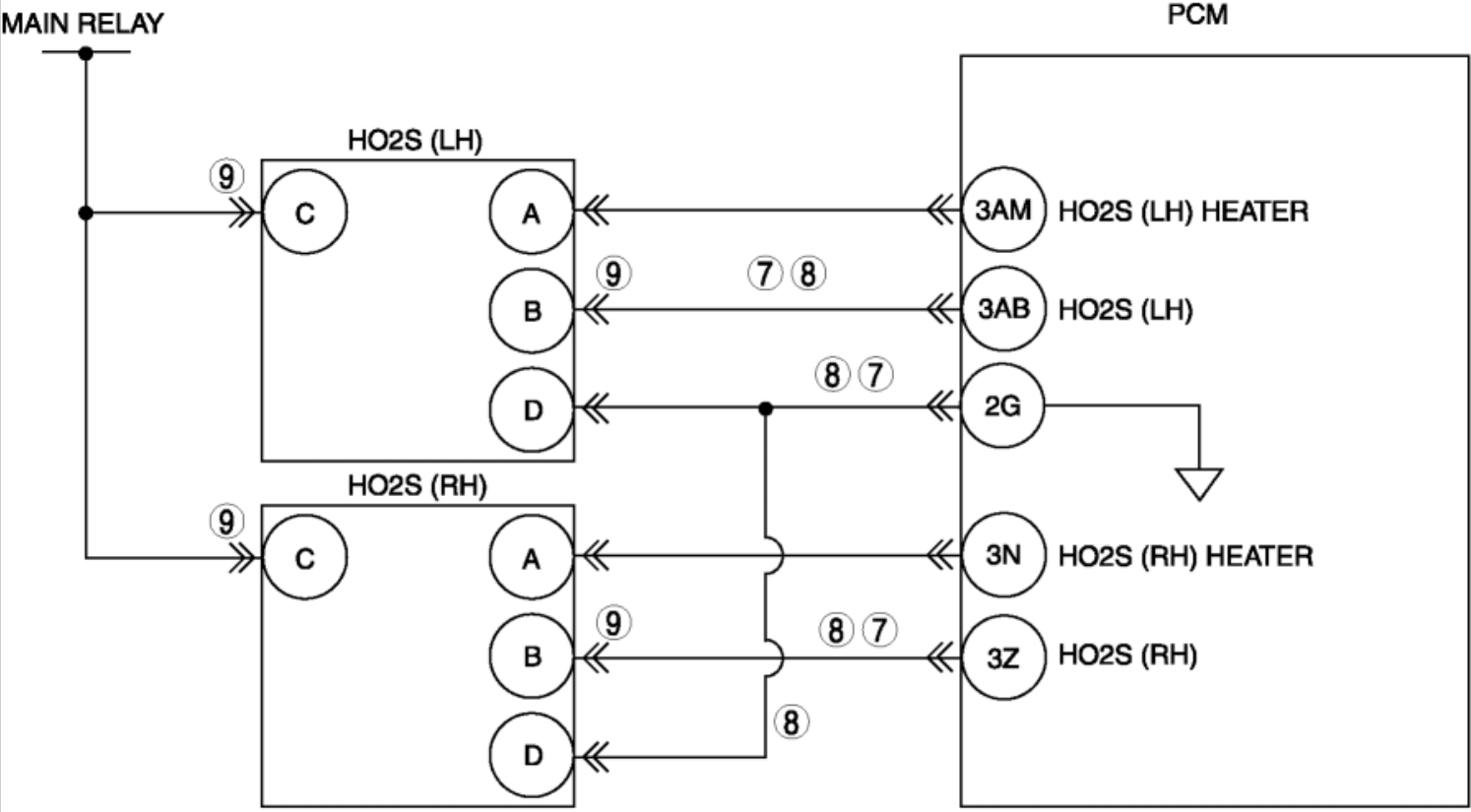
	Are the resistances greater than 10 kilohms?		
8	INSPECT HO2S CIRCUIT FOR OPEN CIRCUIT IN WIRING HARNESS - PCM and suspect HO2S connectors are disconnected. - Measure the resistance between the following on the wiring harness-side connector. For DTC P2270:00: - PCM terminal 3Z and HO2S (RH) terminal B - PCM terminal 2G and HO2S (RH) terminal D For DTC P2272:00: - HO2S terminal 3AB and HO2S (LH) terminal B - PCM terminal 2G and HO2S (LH) terminal D - Are the resistances less than 5 ohms?	Yes	Go to the next step.
		No	Repair for an open circuit, then go to Step 10.
9	INSPECT HO2S CIRCUIT FOR OPEN OR SHORT CIRCUIT TO GROUND IN HO2S - PCM and suspect HO2S connectors are disconnected. - Connect 5A fuse jumper wire between suspect HO2S wiring harness-side connector terminal B and C. - Switch the ignition ON (Engine off). - Access and monitor the following PCM the HO2S signal PID using the M-MDS: For DTC P2270:00: - O2S12 For DTC P2272:00: - O2S22 - Is the voltage greater than 1.5 V?	Yes	Replace the suspect HO2S. (See HEATED OXYGEN SENSOR (HO2S) REMOVAL/ INSTALLATION [MZI 3.7 V6] .) Then go to the next step.
		No	Go to the next step. (The system is operating normally at this time. The concern may have been caused by a loose or corroded connector.)
10	VERIFY TROUBLESHOOTING OF DTC P2270:00, P2272:00 HAS BEEN COMPLETED - Verify that all disconnected connectors are reconnected. - Switch the ignition ON (Engine off). - Clear the DTC from the PCM memory using the M-MDS. - Perform no load racing at the engine speed of 2,500—3,500 rpm for 60s or more, then idle the engine for 60s or more. - Perform the KOER self-test.	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.

	(See KOE0/ KOER SELF TEST [MZI 3.7 V6] .)		
	• Is the PENDING CODE for this DTC present?		
11	VERIFY AFTER REPAIR PROCEDURE Perform the "AFTER REPAIR PROCEDURE". (See AFTER REPAIR PROCEDURE [MZI 3.7 V6] .)	Yes	Go to the applicable DTC inspection. (See DTC TABLE [MZI 3.7 V6] .)
		No	Troubleshooting completed.

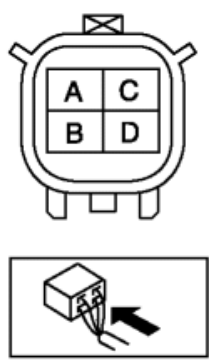
2012 - Mazda6 - Engine

DTC P2270:00, P2272:00 [MZI 3.7 V6]

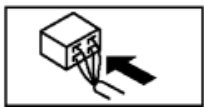
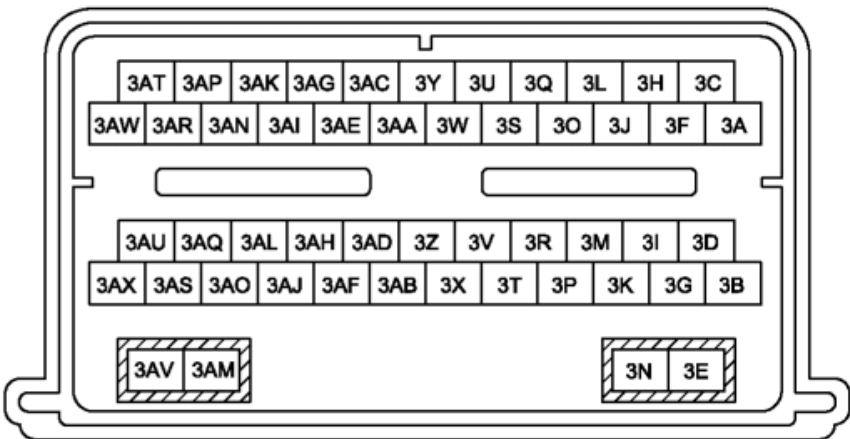
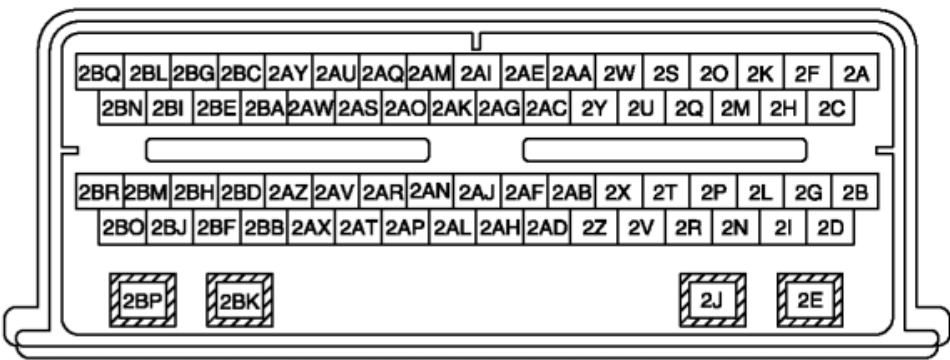
DTC P2270:00	P2270:00: HO2S (RH) signal stuck lean
DTC P2272:00	P2272:00: HO2S (LH) signal stuck lean
DETECTION CONDITION	• P2270:00 indicates that HO2S (RH) signal is stuck lean • P2272:00 indicates that HO2S (LH) signal is stuck lean • The downstream HO2S is forced rich and monitored by the PCM. The test fails if the PCM does not detect the output of the HO2S in a calibrated amount of time
POSSIBLE CAUSE	Electrical System: • HO2S installed incorrectly • HO2S signal circuit short to other HO2S wiring harness • P2270:00: Open circuit between HO2S (RH) terminal B and PCM terminal 3Z • P2272:00: Open circuit between HO2S (LH) terminal B and PCM terminal 3AB • HO2S malfunction • PCM malfunction Intake Air System: • Air leaks • Vacuum leaks • PCV system malfunction • Incorrectly seated engine oil dipstick, tube or oil filler cap Base Engine: • Exhaust leaks (flange, gaskets)



HO2S (LH, RH)
WIRING HARNESS-SIDE
CONNECTOR



PCM
WIRING HARNESS-SIDE CONNECTOR



Diagnostic procedure

STEP	INSPECTION	ACTION
1	IDENTIFY TRIGGER DTC FOR FREEZE FRAME DATA Is DTC P2270:00 or P2272:00 on the FREEZE FRAME DATA?	Yes Go to the next step.
		No Go to the troubleshooting for the DTC on the FREEZE FRAME DATA. (See DTC TABLE [MZI 3.7 V6] .)
2	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.
3	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 Perform the PCM reprogramming procedure. (See PCM CONFIGURATION [MZI 3.7 V6] .) Then go to the next step.
4	VERIFY RELATED PENDING CODE OR STORED DTCs - Switch the ignition off then to the ON position (Engine off). - Verify the related PENDING CODE or stored DTCs using the M-MDS.	Yes Go to the appropriate DTC troubleshooting. (See DTC TABLE [MZI 3.7 V6] .)
		No Go to the next step.
5	INSPECT FOR KOER DTC - Switch the ignition ON (Engine off). - Clear the DTCs. - Start the engine. - Run the engine at approximately 2,000 RPM. Maintain the engine speed for 3 min. - Retrieve the continuous memory DTCs. - Are DTCs P2271:00 or P2273:00 present?	Yes Go to the next step.
		No Unable to duplicate or identify the concern this time.
6	INSPECT IF HO2S SIGNAL LEVEL IS TOO HIGH NOTE: - Fuel calculations can be affected by unmetered air leaks. - Switch the ignition off. - Carefully inspect the following areas for potential air leaks: - Hoses connecting to the MAF sensor component	Yes Repair or replace malfunctioning part, then go to Step 10.
		No Go to the next step.

	▪ Hoses connecting to the throttle body ▪ Intake manifold gasket leaks ▪ PCV system ▪ Vacuum lines are disconnected ▪ Improperly seated engine oil dipstick, tube or oil fill cap ▪ Exhaust leaks at flanges and gaskets • With the transaxle in P or N position, position it on a hoist. (See JACKING POSITIONS, VEHICLE LIFT (2 SUPPORTS) AND SAFETY STAND (RIGID RACK) POSITIONS.) • Visually inspect for: ▪ Exhaust leaks at flanges and gaskets ▪ HO2S not tightened to specification ▪ Physical exhaust system concerns ▪ Aftermarket exhaust system ▪ Punctures or cracks in the catalyst • Is a concern present?	
7	INSPECT FOR SHORT CIRCUIT BETWEEN CIRCUITS IN HO2S WIRING HARNESS • Switch the ignition off. • Disconnect the PCM and suspect HO2S connectors. • Measure the resistance between the following PCM harness-side connector terminals and battery negative terminal. For DTC P2270:00: ▪ Terminal 3Z For DTC P2272:00: ▪ Terminal 3AB • Measure the resistance between the following on the PCM harness-side connector. For DTC P2270:00: ▪ Terminal 3Z and terminal 2G ▪ Terminal 3Z and terminal 3N For DTC P2272:00: ▪ Terminal 3AB and terminal 2G ▪ Terminal 3AB and terminal 3AM	YesGo to the next step. No Repair for a short circuit, then go to Step 10.

	Are the resistances greater than 10 kilohms?		
8	INSPECT HO2S CIRCUIT FOR OPEN CIRCUIT IN WIRING HARNESS - PCM and suspect HO2S connectors are disconnected. - Measure the resistance between the following on the wiring harness-side connector. For DTC P2270:00: - PCM terminal 3Z and HO2S (RH) terminal B - PCM terminal 2G and HO2S (RH) terminal D For DTC P2272:00: - HO2S terminal 3AB and HO2S (LH) terminal B - PCM terminal 2G and HO2S (LH) terminal D - Are the resistances less than 5 ohms?	Yes	Go to the next step.
		No	Repair for an open circuit, then go to Step 10.
9	INSPECT HO2S CIRCUIT FOR OPEN OR SHORT CIRCUIT TO GROUND IN HO2S - PCM and suspect HO2S connectors are disconnected. - Connect 5A fuse jumper wire between suspect HO2S wiring harness-side connector terminal B and C. - Switch the ignition ON (Engine off). - Access and monitor the following PCM the HO2S signal PID using the M-MDS: For DTC P2270:00: - O2S12 For DTC P2272:00: - O2S22 - Is the voltage greater than 1.5 V?	Yes	Replace the suspect HO2S. (See HEATED OXYGEN SENSOR (HO2S) REMOVAL/ INSTALLATION [MZI 3.7 V6] .) Then go to the next step.
		No	Go to the next step. (The system is operating normally at this time. The concern may have been caused by a loose or corroded connector.)
10	VERIFY TROUBLESHOOTING OF DTC P2270:00, P2272:00 HAS BEEN COMPLETED - Verify that all disconnected connectors are reconnected. - Switch the ignition ON (Engine off). - Clear the DTC from the PCM memory using the M-MDS. - Perform no load racing at the engine speed of 2,500—3,500 rpm for 60s or more, then idle the engine for 60s or more. - Perform the KOER self-test.	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.

	(See KOE0/ KOER SELF TEST [MZI 3.7 V6] .)		
	• Is the PENDING CODE for this DTC present?		
11	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.