

G - TESTS W/CODES - 2.0L - A/T
Selected Block
1997 Mazda 626
For www.alflash.narod.ru
Copyright © 1998 Mitchell Repair Information Company, LLC
Friday, September 14, 2001 08:04AM

DTC P0171, P0172, P1130, P1131 OR P1132 - FUEL CONTROL -
HO2S NOT SWITCHING

NOTE: For connector terminal identification, see CONNECTOR IDENTIFICATION section. For wiring diagram, see L - WIRING DIAGRAMS - 2.0L article.

Diagnostic Aids

Perform this test when instructed during QUICK TEST or if directed by other test procedures. Only use this test to diagnose the following:

- * HO2S and sensor connection.
- * Vacuum systems.
- * Fuel injector and/or fuel injector circuitry.
- * Powertrain Control Module (PCM).
- * Electrical circuits (HO2S, HO2S GND, INJ 1-4, VPWR and SIG RTN).

NOTE: HO2S may be displayed on scan tool as 02S.

To prevent replacement of good components, be aware, the following non-EEC areas may be cause of driveability concerns:

- * Ignition system.
- * Faulty evaporative emission system.
- * EGR and/or PCV system.
- * Air intake system.
- * Engine oil contamination.
- * Fuel system.
- * Exhaust system leaks or restriction.
- * Engine cooling system.

1) HO2S Not Switching

DTC P1131 indicates air/fuel ratio is correcting rich for an overly lean condition. DTC P1132 indicates air/fuel ratio is correcting lean for an overly rich condition. DTC P1130 indicates fuel system has reached maximum compensation and HO2S is not switching at the adaptive limits.

Possible causes are as follows:

- * Fuel system malfunction.
- * EGR system malfunction.
- * Air intake or vacuum system leak.
- * Engine oil level too high.
- * Excessive internal engine wear.

Inspect engine for obvious defects in specified systems.
Repair or replace as necessary.

DTC P0171 indicates air/fuel ratio is correcting rich for an overly lean condition. DTC P0172 indicates air/fuel ratio is correcting lean for an overly rich condition.

G - TESTS W/CODES - 2.0L - A/T

Selected Block (p. 2)

1997 Mazda 626

For www.alflash.narod.ru

Copyright © 1998 Mitchell Repair Information Company, LLC

Friday, September 14, 2001 08:04AM

Possible causes are as follows:

- * Fuel system malfunction.
- * EGR system malfunction.
- * Air intake or vacuum system leak.
- * Engine oil level too high.
- * Excessive internal engine wear.

Inspect engine for obvious defects in specified systems. Repair or replace as necessary. If no faults are found, go to next step.

2) Perform KOER Self-Test

With ignition off, connect scan tool to DLC. Disconnect fuel vapor hose from intake manifold. Plug fitting at intake manifold. Start engine, and operate at 2000 RPM for one minute. Perform KOER self-test and go to next step.

3) Check Fuel Pressure

Release fuel system pressure. With ignition off, install fuel pressure gauge. Ensure manifold vacuum is connected to fuel pressure regulator. Start engine and operate at 2500 RPM. If vehicle will not start, cycle key on and off. If fuel system pressure is 30-45 psi (2.1-3.1 kg/cm²), go to next step. If fuel system pressure is not as specified, go to DTC P1250.

4) Check System Ability To Hold Fuel Pressure

With fuel pressure gauge installed, cycle ignition from OFF to ON position 3-4 times to pressurize fuel system (DO NOT start engine). If fuel pressure remains within 5 psi of highest fuel pressure reading for 60 seconds, proceed as follows:

- * For no-start vehicles, go to step 6).
- * For DTCs P0171, P0172 and P1130 go to next step.
- * For HO2S DTCs displayed with misfire DTCs, go to step 7).
- * For all other DTCs, go to step 11).

5) Check Ability To Hold Fuel Pressure With Key On

With fuel pressure gauge installed, cycle ignition switch from OFF to ON position 3-4 times to pressurize fuel system (DO NOT start engine). Note fuel pressure. If fuel pressure remains within 5 psi of original pressure for at least 10 seconds, go to step 7). If fuel pressure drops more than 5 psi, go to step 9).

6) Check Ability Of Injectors To Deliver Fuel

With fuel pressure gauge installed, cycle ignition switch from OFF to ON position 3-4 times to pressurize fuel system (DO NOT start engine). Note fuel pressure. Disconnect Inertia Fuel Switch (IFS). Crank engine for 5 seconds. If fuel pressure remains within 5 psi of original pressure, reconnect IFS switch and go to next step. If fuel pressure drops more than 5 psi, repair fuel system as necessary. See appropriate I - SYSTEM/COMPONENT TESTS - 2.0L article.

G - TESTS W/CODES - 2.0L - A/T

Selected Block (p. 3)

1997 Mazda 626

For www.alfash.narod.ru

Copyright © 1998 Mitchell Repair Information Company, LLC

Friday, September 14, 2001 08:04AM

7) Check Fuel Injector & Circuit Resistance

Turn ignition off. Disconnect PCM 104-pin connector. Inspect connector for damage or corrosion and repair as necessary. Install Breakout Box (014-00950), leaving PCM disconnected. Measure and record resistance between suspected fuel injector circuit test pin and test pin No. 71 and 97 at breakout box. Refer to FUEL INJECTOR INJ CIRCUIT IDENTIFICATION table. Resistance should be 11-18 ohms. If resistance is not correct, go to next step. If resistance is correct, go to step 10).

FUEL INJECTOR INJ CIRCUIT IDENTIFICATION

Injector No.	Test Pin No.
1	75
2	101
3	74
4	100

8) Check Resistance Of Fuel Injector Circuit

Turn ignition off. Disconnect suspect fuel injector wiring harness connector. Measure resistance between test pins No. 71 and 97 at breakout box and fuel injector VPWR terminal at wiring harness connector. Measure resistance between fuel injector signal test pin(s) at breakout box and same fuel injector circuit terminal at each fuel injector wiring harness connector. If each resistance is less than 5 ohms, go to next step. If each resistance is 5 ohms or more, repair open circuit. and repeat QUICK TEST.

9) Check Fuel Injector Circuit For Short To Power Or Ground

Turn ignition off. Disconnect suspect fuel injector wiring harness connector. Measure resistance between fuel injector test pin and test pins No. 24, 71, 97 and 103 at breakout box. Also, measure resistance between fuel injector test pin(s) at breakout box and chassis ground. If each resistance is 10,000 ohms or more, go to step 10). If any resistance is less than 10,000 ohms, repair short circuit and repeat QUICK TEST.

10) Check Fuel Injector Drive Signal

With ignition off, connect PCM to breakout box. Connect non-powered 12-volt test light between suspect fuel injector and test pins No. 71 and 97. Crank or start engine. If test light glows dimly, go to next step. If test light does not glow dimly (no light/bright light), replace PCM and repeat QUICK TEST.

11) Check Fuel Injector Flow & Leakage

Turn ignition off. Remove breakout box. Reconnect PCM. Use Rotunda Injector Tester (113-00001) to flow-test fuel injectors. If fuel injector flow or leakage rate is not okay, replace fuel injector, and repeat QUICK TEST. If flow rate for each fuel injector is okay, proceed as follows:

G - TESTS W/CODES - 2.0L - A/T

Selected Block (p. 4)

1997 Mazda 626

For www.alflash.narod.ru

Copyright © 1998 Mitchell Repair Information Company, LLC

Friday, September 14, 2001 08:04AM

- * For DTCs P1131 and P1132, go to next step.
- * For DTC P1130 go to step 13).
- * For DTCs P0171 and P0172, go to CIRCUIT TEST Z (INTERMITTENT).

12) Check Cylinder Compression

Using compression gauge, check cylinder compression. If cylinder compression is not okay, repair engine as necessary. Clear PCM memory and repeat QUICK TEST. If compression is okay, go to next step for DTCs P1130 and P1131, or step 19) for DTC P1132. If misfire DTCs are displayed with fuel control DTCs, go to appropriate DTC test.

13) Check HO2S Integrity

DTCs P1130 and P1131 indicate HO2S switches slow or doesn't switch, is always lean or fuel is at adaptive limit. Possible causes are as follows:

- * Moisture inside HO2S causing short to ground.
- * HO2S coated with contaminates.
- * HO2S circuit open or shorted to ground.

Turn ignition off. Inspect HO2S and circuit for damage or contamination. Repair or replace HO2S or wiring as necessary. Start engine and operate at 2000 RPM for 3 minutes. Turn ignition off. Connect scan tool to DLC. Perform KOER self-test while monitoring HO2S voltage. If HO2S voltage is 0.5 volt or more at the end of test, go to next step. If voltage is less than 0.5 volt, replace HO2S sensor and repeat QUICK TEST.

14) Check Continuity Of Ground Circuits

Turn ignition off. Disconnect PCM from breakout box. Measure resistance between test pin No. 91 (SIG RTN) at breakout box and SIG RTN terminal of HO2S harness connector. If resistance is less than 5 ohms, replace PCM and repeat QUICK TEST. If resistance is 5 ohms or more, repair open circuit and repeat QUICK TEST.

15) Check Resistance Of HO2S Ground Circuits

Turn ignition off. Install breakout box, leaving PCM disconnected. Disconnect suspect HO2S wiring harness connector. Inspect connector for damage and repair as necessary. Measure resistance between HO2S test pin at breakout box and HO2S terminal at sensor wiring harness connector. If resistance is less than 5 ohms, go to next step. If any resistance is 5 ohms or more, repair open circuit and repeat QUICK TEST.

16) Check HO2S Circuit For Short To Ground

Turn ignition off. Leave breakout box installed and PCM disconnected. Disconnect HO2S. Measure resistance between HO2S SIG circuit test pin and test pins No. 24, 51, 77, 91 and 103 at breakout box. If all readings are 10,000 ohms or more, go to next step. If any reading is less than 10,000 ohms, repair short circuit and repeat

G - TESTS W/CODES - 2.0L - A/T

Selected Block (p. 5)

1997 Mazda 626

For www.alfash.narod.ru

Copyright © 1998 Mitchell Repair Information Company, LLC

Friday, September 14, 2001 08:04AM

QUICK TEST.

17) Check HO2S PID

Leave ignition off and HO2S disconnected. Turn ignition on. Using scan tool, access HO2S PID of suspect sensor. If HO2S PID voltage is more than 0.2 volts, go to next step. If HO2S voltage is 0.2 volt or less, go to step 19).

18) Check For Short To Power

Turn ignition off. Disconnect scan tool from DLC (if applicable). Disconnect PCM 104-pin connector. Inspect connector for damaged pins, corrosion and loose wires. Repair wiring as necessary. Install Breakout Box (014-00950), leaving PCM disconnected. Leave suspect HO2S disconnected. Measure resistance between HO2S terminal of wiring harness connector and following test pins at breakout box:

- * DTCs P01130 and P01132; test pin No. 60 and test pins No. 71, 93 and 97.
- * DTCs P01150 and P01152; test pin No. 87 and test pins No. 71, 94 and 97.

If each resistance is more than 10,000 ohms, replace PCM and repeat QUICK TEST. If any resistance is 10,000 ohms or less, repair short to power and repeat QUICK TEST.

19) Check HO2S PID

Leave ignition off and HO2S disconnected. Turn ignition on. Using scan tool, access HO2S PID of suspect sensor. If HO2S PID voltage is more than 0.2 volt, go to next step. If HO2S voltage is 0.2 volt or less, go to step 21).

20) Perform KOER Self-Test

Start engine, and warm it to normal operating temperature. Turn ignition off. Disconnect suspect HO2S. Using a jumper wire, connect HO2S terminal of wiring harness connector to negative battery terminal. Perform KOER self-test. If DTC P1131 is present, remove jumper wire and go to next step. If DTC P1131 is not present, check PCM connector and service if necessary. If connector is okay, replace PCM. Repeat QUICK TEST.

21) HO2S Check

Leave HO2S disconnected. Connect DVOM between HO2S SIG terminal and SIG RTN terminal of HO2S wiring harness connector. Disconnect any vacuum hose from vacuum tree. Start engine and operate at 2000 RPM. If DVOM reads less than 0.4 volt within 30 seconds, go to next step. If DVOM does not read as specified, replace HO2S and repeat QUICK TEST.

22) Monitor HO2S PID

Connect scan tool to DLC. Start engine and allow to idle. Using scan tool, access HO2S PID. Observe HO2S PID while shaking and bending wiring harness between HO2S and PCM. If HO2S voltage stays at

G - TESTS W/CODES - 2.0L - A/T

Selected Block (p. 6)

1997 Mazda 626

For www.alfash.narod.ru

Copyright © 1998 Mitchell Repair Information Company, LLC

Friday, September 14, 2001 08:04AM

0.45 volt, go to next step. If HO2S voltage is more than 0.45 volt or less than 0.45 volt, isolate fault and repair as necessary.

23) Monitor HO2S PID During Test Drive

Leave scan tool connected to DLC. Using an assistant, test drive vehicle under various conditions while observing HO2S PID. If HO2S voltage switches from about 0.4 to 0.6 volt, system is okay and testing is complete. If voltage does not switch, replace HO2S and repeat QUICK TEST.