

## 2012 - Mazda6 - Engine

### DTC P014A:00 [MZI 3.7 V6]

|                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| DTC<br>P014A:00                | HO2S (LH) delayed response-rich to lean                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>DETECTION<br/>CONDITION</b> | <ul style="list-style-type: none"> <li>During a deceleration fuel shut-off event, the PCM monitors the HO2S (LH) signal to determine if the signal is stuck in range. The PCM expects the signal to exceed a calibrated rich or lean value within a calibrated amount of time. If the signal voltage remains less than the rich value after a number of occurrences, the PCM forcefully controls the fuel system rich over increasing time periods in an attempt to force the signal to greater than the calibrated rich value. The test fails if after 3 consecutive forced attempts the signal cannot be forced greater than the calibrated rich value. Also, if the signal voltage remains greater than the lean value after a calibrated amount of time with the fuel injectors off, a counter is incremented. The test fails if after 3 consecutive occurrences the signal is not less than the calibrated lean value.</li> </ul> |
| <b>POSSIBLE<br/>CAUSE</b>      | <ul style="list-style-type: none"> <li>Exhaust leaks before or near the HO2S (LH)</li> <li>Aftermarket exhaust accessories or performance modifications</li> <li>Ethanol content in the fuel</li> <li>Circuit intermittent</li> <li>HO2S (LH) malfunction</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

### Diagnostic procedure

| STEP | INSPECTION                                                                                                                         | ACTION                                                                                           |
|------|------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| 1    | <b>VERIFY FREEZE FRAME DATA HAS BEEN RECORDED</b>                                                                                  | Yes Go to the next step.                                                                         |
|      | <ul style="list-style-type: none"> <li>Has FREEZE FRAME DATA been recorded?</li> </ul>                                             | No Record FREEZE FRAME DATA on the repair order, then go to the next step.                       |
| 2    | <b>VERIFY RELATED REPAIR INFORMATION AVAILABILITY</b>                                                                              | Yes Perform repair or diagnosis according to the available Service Bulletins.                    |
|      | <ul style="list-style-type: none"> <li>Verify related Service Bulletins and/or on-line repair information availability.</li> </ul> | <ul style="list-style-type: none"> <li>If the vehicle is not repaired, go to the next</li> </ul> |

|   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |     |                                                                                                                                       |
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|   | <ul style="list-style-type: none"> <li>Is any related Service Bulletins available?</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                        |     | step.                                                                                                                                 |
|   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | No  | Go to the next step.                                                                                                                  |
| 3 | <p><b>VERIFY RELATED PENDING CODE OR STORED DTCS</b></p> <ul style="list-style-type: none"> <li>Switch the ignition to off, then to the ON (Engine off).</li> <li>Verify related PENDING CODE or stored DTCS.</li> <li>Are any DTCs present other than the following: <ul style="list-style-type: none"> <li>P013A:00, P013C:00, P013E:00 or P014A:00?</li> </ul> </li> </ul>                                                                                                        | Yes | Go to the appropriate DTC troubleshooting procedures.<br><br>(See <b>DTC TABLE [MZI 3.7 V6]</b> .)                                    |
|   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | No  | Go to the next step.                                                                                                                  |
| 4 | <p><b>INSPECT EXHAUST SYSTEM AND FUEL SELECTION CONCERNS</b></p> <ul style="list-style-type: none"> <li>Inspect the exhaust system (LH) for the following: <ul style="list-style-type: none"> <li>Leaks, cracks, or punctures</li> <li>Aftermarket accessories and performance modifications</li> <li>Exhaust leaks at the HO2S</li> </ul> </li> <li>Verify with the customer that flex fuel is not being used on a non-flex fuel vehicle.</li> <li>Is a concern present?</li> </ul> | Yes | Repair suspect part, if necessary.<br><br>Go to Step 6.                                                                               |
|   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | No  | Go to the next step.                                                                                                                  |
| 5 | <p><b>INSPECT INTERMITTENT HO2S SIGNAL WIRING HARNESS</b></p> <ul style="list-style-type: none"> <li>Access the PCM and monitor the O2S22 PID.</li> <li>Wiggle, shake, and bend small sections of the wiring harness while working from the sensor to the PCM.</li> <li>Is a concern present?</li> </ul>                                                                                                                                                                             | Yes | Repair if necessary, then go to the next step.                                                                                        |
|   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | No  | Replace the HO2S (LH), then go to the next step.<br><br>(See <b>HEATED OXYGEN SENSOR (HO2S) REMOVAL/ INSTALLATION [MZI 3.7 V6]</b> .) |
| 6 | <p><b>VERIFY TROUBLESHOOTING OF DTC P014A:00 HAS BEEN COMPLETED</b></p> <ul style="list-style-type: none"> <li>Verify that all disconnected connectors</li> </ul>                                                                                                                                                                                                                                                                                                                    | Yes | Repeat the inspection from Step 1. <ul style="list-style-type: none"> <li>If the malfunction recurs, replace the PCM.</li> </ul>      |

|   |                                                                                                                                                                                                                                                                                                                            |     |                                                                                          |
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|   | <p>are reconnected.</p> <ul style="list-style-type: none"><li>• Switch the ignition to ON (Engine off).</li><li>• Clear the DTC from the PCM memory using the M-MDS.</li><li>• Start the engine and run it at idle.</li><li>• Retrieve DTCs using the M-MDS.</li><li>• Is the PENDING CODE for this DTC present?</li></ul> |     | <p>(See <b>PCM REMOVAL/ INSTALLATION [MZI 3.7 V6]</b> .)</p> <p>Go to the next step.</p> |
|   |                                                                                                                                                                                                                                                                                                                            | No  | Go to the next step.                                                                     |
| 7 | <p><b>VERIFY AFTER REPAIR PROCEDURE</b></p> <ul style="list-style-type: none"><li>• Perform the "AFTER REPAIR PROCEDURE".</li></ul> <p>(See <b>AFTER REPAIR PROCEDURE [MZI 3.7 V6]</b> .)</p> <ul style="list-style-type: none"><li>• Are any DTCs present?</li></ul>                                                      | Yes | Go to the applicable DTC inspection.<br><br>(See <b>DTC TABLE [MZI 3.7 V6]</b> .)        |
|   |                                                                                                                                                                                                                                                                                                                            | No  | Troubleshooting completed.                                                               |

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| DTC<br>P014A:00                | HO2S (LH) delayed response-rich to lean                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>DETECTION<br/>CONDITION</b> | <ul style="list-style-type: none"> <li>During a deceleration fuel shut-off event, the PCM monitors the HO2S (LH) signal to determine if the signal is stuck in range. The PCM expects the signal to exceed a calibrated rich or lean value within a calibrated amount of time. If the signal voltage remains less than the rich value after a number of occurrences, the PCM forcefully controls the fuel system rich over increasing time periods in an attempt to force the signal to greater than the calibrated rich value. The test fails if after 3 consecutive forced attempts the signal cannot be forced greater than the calibrated rich value. Also, if the signal voltage remains greater than the lean value after a calibrated amount of time with the fuel injectors off, a counter is incremented. The test fails if after 3 consecutive occurrences the signal is not less than the calibrated lean value.</li> </ul> |
| <b>POSSIBLE<br/>CAUSE</b>      | <ul style="list-style-type: none"> <li>Exhaust leaks before or near the HO2S (LH)</li> <li>Aftermarket exhaust accessories or performance modifications</li> <li>Ethanol content in the fuel</li> <li>Circuit intermittent</li> <li>HO2S (LH) malfunction</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

### Diagnostic procedure

| STEP | INSPECTION                                                                                                                         | ACTION                                                                                           |
|------|------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| 1    | <b>VERIFY FREEZE FRAME DATA HAS BEEN RECORDED</b>                                                                                  | Yes Go to the next step.                                                                         |
|      | <ul style="list-style-type: none"> <li>Has FREEZE FRAME DATA been recorded?</li> </ul>                                             | No Record FREEZE FRAME DATA on the repair order, then go to the next step.                       |
| 2    | <b>VERIFY RELATED REPAIR INFORMATION AVAILABILITY</b>                                                                              | Yes Perform repair or diagnosis according to the available Service Bulletins.                    |
|      | <ul style="list-style-type: none"> <li>Verify related Service Bulletins and/or on-line repair information availability.</li> </ul> | <ul style="list-style-type: none"> <li>If the vehicle is not repaired, go to the next</li> </ul> |

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|   | <ul style="list-style-type: none"> <li>Is any related Service Bulletins available?</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                        |     | step.                                                                                                                                 |
|   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | No  | Go to the next step.                                                                                                                  |
| 3 | <p><b>VERIFY RELATED PENDING CODE OR STORED DTCS</b></p> <ul style="list-style-type: none"> <li>Switch the ignition to off, then to the ON (Engine off).</li> <li>Verify related PENDING CODE or stored DTCS.</li> <li>Are any DTCs present other than the following: <ul style="list-style-type: none"> <li>P013A:00, P013C:00, P013E:00 or P014A:00?</li> </ul> </li> </ul>                                                                                                        | Yes | Go to the appropriate DTC troubleshooting procedures.<br><br>(See <b>DTC TABLE [MZI 3.7 V6]</b> .)                                    |
|   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | No  | Go to the next step.                                                                                                                  |
| 4 | <p><b>INSPECT EXHAUST SYSTEM AND FUEL SELECTION CONCERNS</b></p> <ul style="list-style-type: none"> <li>Inspect the exhaust system (LH) for the following: <ul style="list-style-type: none"> <li>Leaks, cracks, or punctures</li> <li>Aftermarket accessories and performance modifications</li> <li>Exhaust leaks at the HO2S</li> </ul> </li> <li>Verify with the customer that flex fuel is not being used on a non-flex fuel vehicle.</li> <li>Is a concern present?</li> </ul> | Yes | Repair suspect part, if necessary.<br><br>Go to Step 6.                                                                               |
|   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | No  | Go to the next step.                                                                                                                  |
| 5 | <p><b>INSPECT INTERMITTENT HO2S SIGNAL WIRING HARNESS</b></p> <ul style="list-style-type: none"> <li>Access the PCM and monitor the O2S22 PID.</li> <li>Wiggle, shake, and bend small sections of the wiring harness while working from the sensor to the PCM.</li> <li>Is a concern present?</li> </ul>                                                                                                                                                                             | Yes | Repair if necessary, then go to the next step.                                                                                        |
|   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | No  | Replace the HO2S (LH), then go to the next step.<br><br>(See <b>HEATED OXYGEN SENSOR (HO2S) REMOVAL/ INSTALLATION [MZI 3.7 V6]</b> .) |
| 6 | <p><b>VERIFY TROUBLESHOOTING OF DTC P014A:00 HAS BEEN COMPLETED</b></p> <ul style="list-style-type: none"> <li>Verify that all disconnected connectors</li> </ul>                                                                                                                                                                                                                                                                                                                    | Yes | Repeat the inspection from Step 1. <ul style="list-style-type: none"> <li>If the malfunction recurs, replace the PCM.</li> </ul>      |

|   |                                                                                                                                                                                                                                                                                                                            |     |                                                                                          |
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|   | <p>are reconnected.</p> <ul style="list-style-type: none"><li>• Switch the ignition to ON (Engine off).</li><li>• Clear the DTC from the PCM memory using the M-MDS.</li><li>• Start the engine and run it at idle.</li><li>• Retrieve DTCs using the M-MDS.</li><li>• Is the PENDING CODE for this DTC present?</li></ul> |     | <p>(See <b>PCM REMOVAL/ INSTALLATION [MZI 3.7 V6]</b> .)</p> <p>Go to the next step.</p> |
|   |                                                                                                                                                                                                                                                                                                                            | No  | Go to the next step.                                                                     |
| 7 | <p><b>VERIFY AFTER REPAIR PROCEDURE</b></p> <ul style="list-style-type: none"><li>• Perform the "AFTER REPAIR PROCEDURE".</li></ul> <p>(See <b>AFTER REPAIR PROCEDURE [MZI 3.7 V6]</b> .)</p> <ul style="list-style-type: none"><li>• Are any DTCs present?</li></ul>                                                      | Yes | Go to the applicable DTC inspection.<br><br>(See <b>DTC TABLE [MZI 3.7 V6]</b> .)        |
|   |                                                                                                                                                                                                                                                                                                                            | No  | Troubleshooting completed.                                                               |