

## 2012 - Mazda6 - Engine

### OBD-II DRIVE MODE [MZI 3.7 V6]

- The following procedure is designed to execute and complete the OBD-II monitors and to clear the Ford P1000:00, inspection/maintenance (I/M) readiness code. To complete a specific monitor for repair verification, follow steps 1 through 4, then continue with the step described by the appropriate monitor found under the OBD Monitor Exercised column. For the EVAP monitor to run, the ambient air temperature must be between **4.4—37.8 °C { 40—100 °F }**, and the altitude below **2,438 m { 7,999 ft }**. If the P1000:00 code must be cleared in these conditions, the PCM must detect them once (twice on some applications) before the EVAP monitor can be bypassed and DTC P1000:00 is cleared. The EVAP bypassing procedure is described in the following drive cycle.
- To complete a specific monitor for repair verification, follow Steps 1 through 4, then continue using the steps indicated by the appropriate monitor.
- The Drive Mode is performed using the M-MDS.

#### CAUTION:

- While performing the Drive Mode, always operate the vehicle in a safe and lawful manner.
- When the M-MDS is used to observe monitor system status while driving, be sure to have another technician with you, or record the data in the M-MDS using the PID/DATA MONITOR AND RECORD function and inspect later.

#### NOTE:

- If the OBD-II system inspection is not completed during the Drive Mode, the following causes are considered:
  - The OBD-II system detects a malfunction.
  - The Drive Mode procedure is not completed correctly.
- Disconnecting the battery will reset the memory. Do not disconnect the battery during and after Drive Mode.
- The M-MDS can be used at anytime through the course of the Drive Mode to monitor the completion status. Monitoring can be done by viewing the ON BOARD SYSTEM READINESS menu.
- Most OBD-II monitors will complete more readily using a "steady foot" driving style during cruise or acceleration. Operating the throttle in a "smooth" fashion will minimize the time required for monitor completion.
- The fuel tank level should be between 1/2 and 3/4 full with 3/4 full being the most desirable.
- The evaporative emission system monitor can only operate during the first 30 min of the engine operation. When executing the procedure for the evaporative emission system monitor, remain in part throttle position and drive in a smooth fashion to minimize "fuel slosh".

- When bypassing the EVAP soak times, the PCM must remain powered (ignition switch to the ON position) after clearing the continuous DTCs and relearning emission diagnostic information.

| OBD-II monitor exercised | Step | Procedure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Purpose                                                           |
|--------------------------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| Drive Mode Preparation   | 1    | <p><b>NOTE:</b></p> <ul style="list-style-type: none"> <li>• To bypass the EVAP soak timer (normally 6 hours), the PCM must remain powered after clearing the continuous DTCs and resetting the emission monitors information in the PCM.</li> <li>• Connect the M-MDS to the DLC-2.</li> <li>• Switch the ignition to ON (engine off).</li> <li>• Switch the ignition to off, then to ON (engine off).</li> <li>• Select the appropriate vehicle and engine qualifier.</li> <li>• Clear the continuous DTCs and reset the emission monitors information in the PCM.</li> </ul> <p><b>NOTE:</b></p> <ul style="list-style-type: none"> <li>• The following events occur when the continuous DTCs and the emission monitors information is cleared from the PCM: <ul style="list-style-type: none"> <li>▪ Clears the number of DTCs and the DTCs.</li> <li>▪ Clears the freeze frame data.</li> <li>▪ Clears the diagnostic monitoring test results.</li> <li>▪ Clears the status of the OBD-II system monitors is</li> </ul> </li> </ul> | Bypasses the engine soak timer. Resets the OBD-II monitor status. |

|                        |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                   |
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|                        |   | <p>reset.</p> <ul style="list-style-type: none"> <li>▪ Sets DTC P1000:00.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                              |                                                   |
|                        | 2 | <ul style="list-style-type: none"> <li>• Start the engine without turning the ignition switch off.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                     |                                                   |
|                        | 3 | <ul style="list-style-type: none"> <li>• Idle the engine for <b>15 s</b>.</li> <li>• Drive at <b>72 km/ h { 45 mph }</b> until the ECT is <b>76.7 °C { 170 °F } or more</b>.</li> </ul>                                                                                                                                                                                                                                                                                           |                                                   |
| Prep for Monitor Entry | 4 | <p><b>NOTE:</b></p> <ul style="list-style-type: none"> <li>• When the IAT is not within <b>4.4—37.8 °C { 40—100 °F }</b> or the altitude is <b>above 2,438 m { 8,000 ft }</b>, the EVAP monitor will not run.</li> <li>• Is the IAT <b>within 4.4—37.8 °C { 40—100 °F }</b> ? <ul style="list-style-type: none"> <li>▪ If not within the specification, complete the following steps but, note that step 14 will be required to "bypass" the EVAP monitor.</li> </ul> </li> </ul> | Engine warm-up and provides IAT input to the PCM. |
| HO2S                   | 5 | <ul style="list-style-type: none"> <li>• Cruise at <b>72 km/ h { 45 mph }</b> for up to <b>5 min</b>.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                  | Executes the HO2S monitor.                        |
| EVAP                   | 6 | <p><b>NOTE:</b></p> <ul style="list-style-type: none"> <li>• To initiate the monitor, the throttle should be at part throttle, Evaporative Emissions Duty Cycle must be more than 75%, and FLI must be 15—85%, and for fuel tanks over 25 gallons Fuel Level Indicator Input must be 30—85%.</li> <li>• Cruise at <b>72—104km/ h { 45—65 mph }</b> for <b>10 min</b>.</li> </ul>                                                                                                  | Executes the EVAP emission monitor.               |
| Catalyst               | 7 | <ul style="list-style-type: none"> <li>• Stop the vehicle and go to traffic conditions.</li> <li>• Include five different constant cruise speeds, ranging from <b>40—72 km/ h { 25—44 mph }</b> over a <b>10 min</b> period.</li> </ul>                                                                                                                                                                                                                                           | Executes the catalyst efficiency monitor.         |
| EGR                    | 8 | <ul style="list-style-type: none"> <li>• Stop the vehicle.</li> <li>• Idle the engine for <b>30 s</b>.</li> <li>• Accelerate to <b>72 km/ h { 45 mph }</b> at 50—</li> </ul>                                                                                                                                                                                                                                                                                                      | Executes the EGR monitor.                         |

|                                     |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                              |
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|                                     |    | <p>75% throttle, cruise at steady throttle for <b>1 min.</b></p> <ul style="list-style-type: none"> <li>Repeat idle, acceleration and cruise 3 times.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                |                                                                                              |
| CCM (Engine)                        | 9  | <ul style="list-style-type: none"> <li>Stop the vehicle.</li> <li>Idle the engine for <b>2 min</b> with the selector lever in the D range.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                           | Executes the idle air control portion of the CCM.                                            |
| CCM (Transaxle)                     | 10 | <ul style="list-style-type: none"> <li>Stop the vehicle.</li> <li>In overdrive, moderately accelerate to <b>81 km/ h { 50 mph}</b> and cruise for <b>15 s or more.</b></li> <li>Stop the vehicle and repeat without overdrive to <b>64 km/ h { 40 mph}</b> cruising for <b>30 s or more.</b></li> <li>While at <b>64 km/ h { 40 mph}</b> , activate overdrive and accelerate to <b>81 km/ h { 50 mph}</b> and cruise for <b>15 s or more.</b></li> <li>Stop the vehicle for <b>20 s or more.</b></li> <li>Repeat Step 10 five times.</li> </ul> | Executes the transaxle portion of the CCM.                                                   |
| Misfire, Fuel and HO2S Monitors     | 11 | <ul style="list-style-type: none"> <li>Stop the vehicle.</li> <li>Accelerate to <b>104 km/ h { 60 mph}</b> , hold steady throttle for <b>5 s.</b></li> <li>Decelerate at closed throttle until reaching <b>64 km/ h { 40 mph}</b> (no brakes).</li> <li>Accelerate from <b>64 km/ h { 40mph}</b> to <b>104 km/ h { 65 mph}</b> , hold steady throttle for <b>5 s.</b></li> <li>Repeat 5 times.</li> </ul>                                                                                                                                       | Allows learning for the misfire monitor, and completion of Decel Fuel Shut Off HO2S monitor. |
| Readiness Check                     | 12 | <ul style="list-style-type: none"> <li>Access the ON BOARD SYSTEM READINESS to verify the OBD-II monitoring status. <ul style="list-style-type: none"> <li>If completed, all of the OBD-II monitoring status items change from non-completed to completed.</li> <li>If not completed, go to the next step.</li> </ul> </li> </ul>                                                                                                                                                                                                               | Determines if any monitor has not been completed.                                            |
| Pending Code Check and EVAP Monitor | 13 | <ul style="list-style-type: none"> <li>Verify that no pending code has been stored. If any pending code has been stored, perform the appropriate DTC inspection.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                     | <p><b>NOTE:</b></p> <ul style="list-style-type: none"> <li>The DTC P1000:00</li> </ul>       |

|                     |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                            |
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| Bypass Check        |    | <p>(See <b>DTC TABLE [MZI 3.7 V6]</b> .)</p> <ul style="list-style-type: none"> <li>Otherwise, return any incomplete monitor.</li> </ul> <p><b>NOTE:</b></p> <ul style="list-style-type: none"> <li>If the EVAP monitor is not completed and the IAT was out of the <b>4.4—37.8 °C { 40 —100 °F}</b> range, or the altitude is <b>above 2,438 m { 8,000 ft}</b> , the "EVAP Monitor Bypass" procedure must be followed.</li> <li>Perform the "EVAP Monitor Bypass" procedure.</li> </ul> | <p>will be stored if any of the OBD-II monitors does not complete.</p> <p>Determines if a pending code is preventing the clearing of the DTC P1000:00.</p> |
| EVAP Monitor Bypass | 14 | <ul style="list-style-type: none"> <li>Leave the vehicle for <b>8 h</b>.</li> <li>Go to Step 2 then perform from Step 2 to 12.</li> </ul>                                                                                                                                                                                                                                                                                                                                                | <p>Allows the "bypass" counter to increment to two.</p>                                                                                                    |

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- To complete a specific monitor for repair verification, follow Steps 1 through 4, then continue using the steps indicated by the appropriate monitor.
- The Drive Mode is performed using the M-MDS.

#### CAUTION:

- While performing the Drive Mode, always operate the vehicle in a safe and lawful manner.
- When the M-MDS is used to observe monitor system status while driving, be sure to have another technician with you, or record the data in the M-MDS using the PID/DATA MONITOR AND RECORD function and inspect later.

#### NOTE:

- If the OBD-II system inspection is not completed during the Drive Mode, the following causes are considered:
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- Most OBD-II monitors will complete more readily using a "steady foot" driving style during cruise or acceleration. Operating the throttle in a "smooth" fashion will minimize the time required for monitor completion.
- The fuel tank level should be between 1/2 and 3/4 full with 3/4 full being the most desirable.
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- When bypassing the EVAP soak times, the PCM must remain powered (ignition switch to the ON position) after clearing the continuous DTCs and relearning emission diagnostic information.

| OBD-II monitor exercised | Step | Procedure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Purpose                                                           |
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|                        |   | <p>reset.</p> <ul style="list-style-type: none"> <li>▪ Sets DTC P1000:00.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                            |                                                   |
|                        | 2 | <ul style="list-style-type: none"> <li>• Start the engine without turning the ignition switch off.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                   |                                                   |
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| Prep for Monitor Entry | 4 | <p><b>NOTE:</b></p> <ul style="list-style-type: none"> <li>• When the IAT is not within <b>4.4—37.8 °C { 40—100 °F}</b> or the altitude is <b>above 2,438 m { 8,000 ft}</b> , the EVAP monitor will not run.</li> <li>• Is the IAT <b>within 4.4—37.8 °C { 40—100 °F}</b> ? <ul style="list-style-type: none"> <li>▪ If not within the specification, complete the following steps but, note that step 14 will be required to "bypass" the EVAP monitor.</li> </ul> </li> </ul> | Engine warm-up and provides IAT input to the PCM. |
| HO2S                   | 5 | <ul style="list-style-type: none"> <li>• Cruise at <b>72 km/ h { 45 mph}</b> for up to <b>5 min</b>.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                 | Executes the HO2S monitor.                        |
| EVAP                   | 6 | <p><b>NOTE:</b></p> <ul style="list-style-type: none"> <li>• To initiate the monitor, the throttle should be at part throttle, Evaporative Emissions Duty Cycle must be more than 75%, and FLI must be 15—85%, and for fuel tanks over 25 gallons Fuel Level Indicator Input must be 30—85%.</li> <li>• Cruise at <b>72—104km/ h { 45—65 mph}</b> for <b>10 min</b>.</li> </ul>                                                                                                 | Executes the EVAP emission monitor.               |
| Catalyst               | 7 | <ul style="list-style-type: none"> <li>• Stop the vehicle and go to traffic conditions.</li> <li>• Include five different constant cruise speeds, ranging from <b>40—72 km/ h { 25—44 mph}</b> <b>over a 10 min</b> period.</li> </ul>                                                                                                                                                                                                                                          | Executes the catalyst efficiency monitor.         |
| EGR                    | 8 | <ul style="list-style-type: none"> <li>• Stop the vehicle.</li> <li>• Idle the engine for <b>30 s</b>.</li> <li>• Accelerate to <b>72 km/ h { 45 mph}</b> at 50—</li> </ul>                                                                                                                                                                                                                                                                                                     | Executes the EGR monitor.                         |

|                                     |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                              |
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|                                     |    | <p>75% throttle, cruise at steady throttle for <b>1 min.</b></p> <ul style="list-style-type: none"> <li>Repeat idle, acceleration and cruise 3 times.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                |                                                                                              |
| CCM (Engine)                        | 9  | <ul style="list-style-type: none"> <li>Stop the vehicle.</li> <li>Idle the engine for <b>2 min</b> with the selector lever in the D range.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                           | Executes the idle air control portion of the CCM.                                            |
| CCM (Transaxle)                     | 10 | <ul style="list-style-type: none"> <li>Stop the vehicle.</li> <li>In overdrive, moderately accelerate to <b>81 km/ h { 50 mph}</b> and cruise for <b>15 s or more.</b></li> <li>Stop the vehicle and repeat without overdrive to <b>64 km/ h { 40 mph}</b> cruising for <b>30 s or more.</b></li> <li>While at <b>64 km/ h { 40 mph}</b> , activate overdrive and accelerate to <b>81 km/ h { 50 mph}</b> and cruise for <b>15 s or more.</b></li> <li>Stop the vehicle for <b>20 s or more.</b></li> <li>Repeat Step 10 five times.</li> </ul> | Executes the transaxle portion of the CCM.                                                   |
| Misfire, Fuel and HO2S Monitors     | 11 | <ul style="list-style-type: none"> <li>Stop the vehicle.</li> <li>Accelerate to <b>104 km/ h { 60 mph}</b> , hold steady throttle for <b>5 s.</b></li> <li>Decelerate at closed throttle until reaching <b>64 km/ h { 40 mph}</b> (no brakes).</li> <li>Accelerate from <b>64 km/ h { 40mph}</b> to <b>104 km/ h { 65 mph}</b> , hold steady throttle for <b>5 s.</b></li> <li>Repeat 5 times.</li> </ul>                                                                                                                                       | Allows learning for the misfire monitor, and completion of Decel Fuel Shut Off HO2S monitor. |
| Readiness Check                     | 12 | <ul style="list-style-type: none"> <li>Access the ON BOARD SYSTEM READINESS to verify the OBD-II monitoring status. <ul style="list-style-type: none"> <li>If completed, all of the OBD-II monitoring status items change from non-completed to completed.</li> <li>If not completed, go to the next step.</li> </ul> </li> </ul>                                                                                                                                                                                                               | Determines if any monitor has not been completed.                                            |
| Pending Code Check and EVAP Monitor | 13 | <ul style="list-style-type: none"> <li>Verify that no pending code has been stored. If any pending code has been stored, perform the appropriate DTC inspection.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                     | <p><b>NOTE:</b></p> <ul style="list-style-type: none"> <li>The DTC P1000:00</li> </ul>       |

|                     |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                            |
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| Bypass Check        |    | <p>(See <b>DTC TABLE [MZI 3.7 V6]</b> .)</p> <ul style="list-style-type: none"> <li>Otherwise, return any incomplete monitor.</li> </ul> <p><b>NOTE:</b></p> <ul style="list-style-type: none"> <li>If the EVAP monitor is not completed and the IAT was out of the <b>4.4—37.8 °C { 40 —100 °F}</b> range, or the altitude is <b>above 2,438 m { 8,000 ft}</b> , the "EVAP Monitor Bypass" procedure must be followed.</li> <li>Perform the "EVAP Monitor Bypass" procedure.</li> </ul> | <p>will be stored if any of the OBD-II monitors does not complete.</p> <p>Determines if a pending code is preventing the clearing of the DTC P1000:00.</p> |
| EVAP Monitor Bypass | 14 | <ul style="list-style-type: none"> <li>Leave the vehicle for <b>8 h</b>.</li> <li>Go to Step 2 then perform from Step 2 to 12.</li> </ul>                                                                                                                                                                                                                                                                                                                                                | <p>Allows the "bypass" counter to increment to two.</p>                                                                                                    |

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