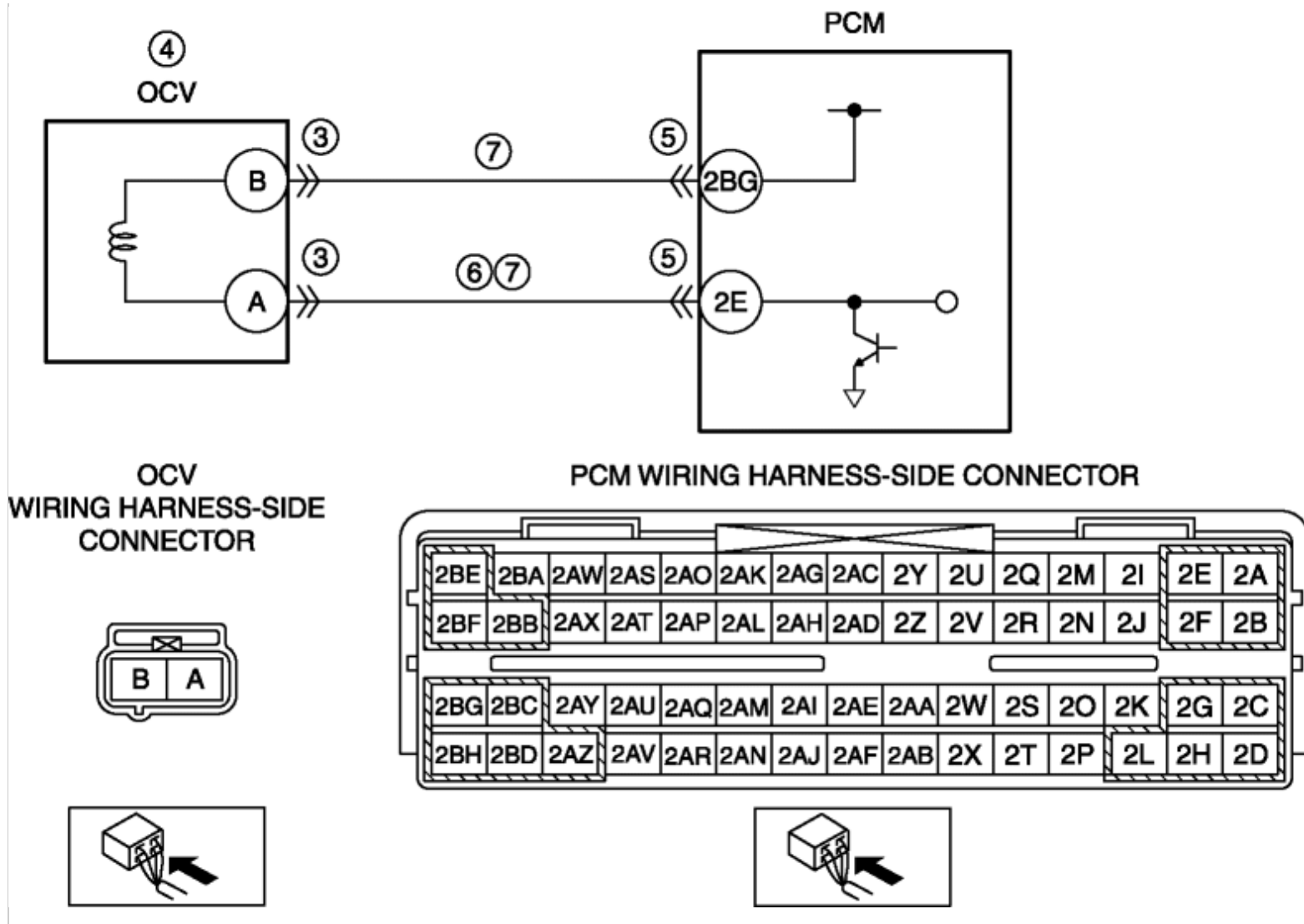


## 2012 - Mazda6 - Engine

### DTC P2089:00 [MZR 2.5]

|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DTC<br>P2089:00        | OCV circuit high input                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| DETECTION<br>CONDITION | <ul style="list-style-type: none"><li>• The PCM monitors the OCV voltage. If the PCM detects that the OCV control voltage (calculated from the OCV) is above the threshold voltage (calculated from battery positive voltage), the PCM determines that the OCV circuit has a malfunction.</li></ul> <p><b>Diagnostic support note</b></p> <ul style="list-style-type: none"><li>• This is a continuous monitor (CCM).</li><li>• The MIL illuminates if the PCM detects the above malfunction condition during the first drive cycle.</li><li>• FREEZE FRAME DATA (Mode 2)/Snapshot data is available.</li><li>• The DTC is stored in the PCM memory.</li></ul> |
| POSSIBLE<br>CAUSE      | <ul style="list-style-type: none"><li>• OCV connector or terminals malfunction</li><li>• OCV malfunction</li><li>• PCM connector or terminals malfunction</li><li>• Short to power supply in wiring harness between OCV terminal A and PCM terminal 2E</li><li>• OCV power supply circuit and control circuit are shorted to each other</li><li>• PCM malfunction</li></ul>                                                                                                                                                                                                                                                                                    |
|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |



## Diagnostic procedure

| STEP | INSPECTION                                                                                                                                                                                                                                     | ACTION                                                                                                                                                                                                           |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | <b>VERIFY FREEZE FRAME DATA (MODE 2)/ SNAPSHOT DATA HAS BEEN RECORDED</b> <ul style="list-style-type: none"> <li>Has the FREEZE FRAME DATA (Mode 2)/snapshot data been recorded?</li> </ul>                                                    | Yes Go to the next step.<br><br>No Record the FREEZE FRAME DATA (Mode 2)/snapshot data on the repair order, then go to the next step.                                                                            |
| 2    | <b>VERIFY RELATED REPAIR INFORMATION AVAILABILITY</b> <ul style="list-style-type: none"> <li>Verify related Service Bulletins and/or on-line repair information availability.</li> <li>Is any related repair information available?</li> </ul> | Yes Perform repair or diagnosis according to the available repair information. <ul style="list-style-type: none"> <li>If the vehicle is not repaired, go to the next step.</li> </ul><br>No Go to the next step. |
| 3    | <b>INSPECT OCV CONNECTOR CONDITION</b>                                                                                                                                                                                                         | Yes Repair or replace the terminal and/or connector,                                                                                                                                                             |

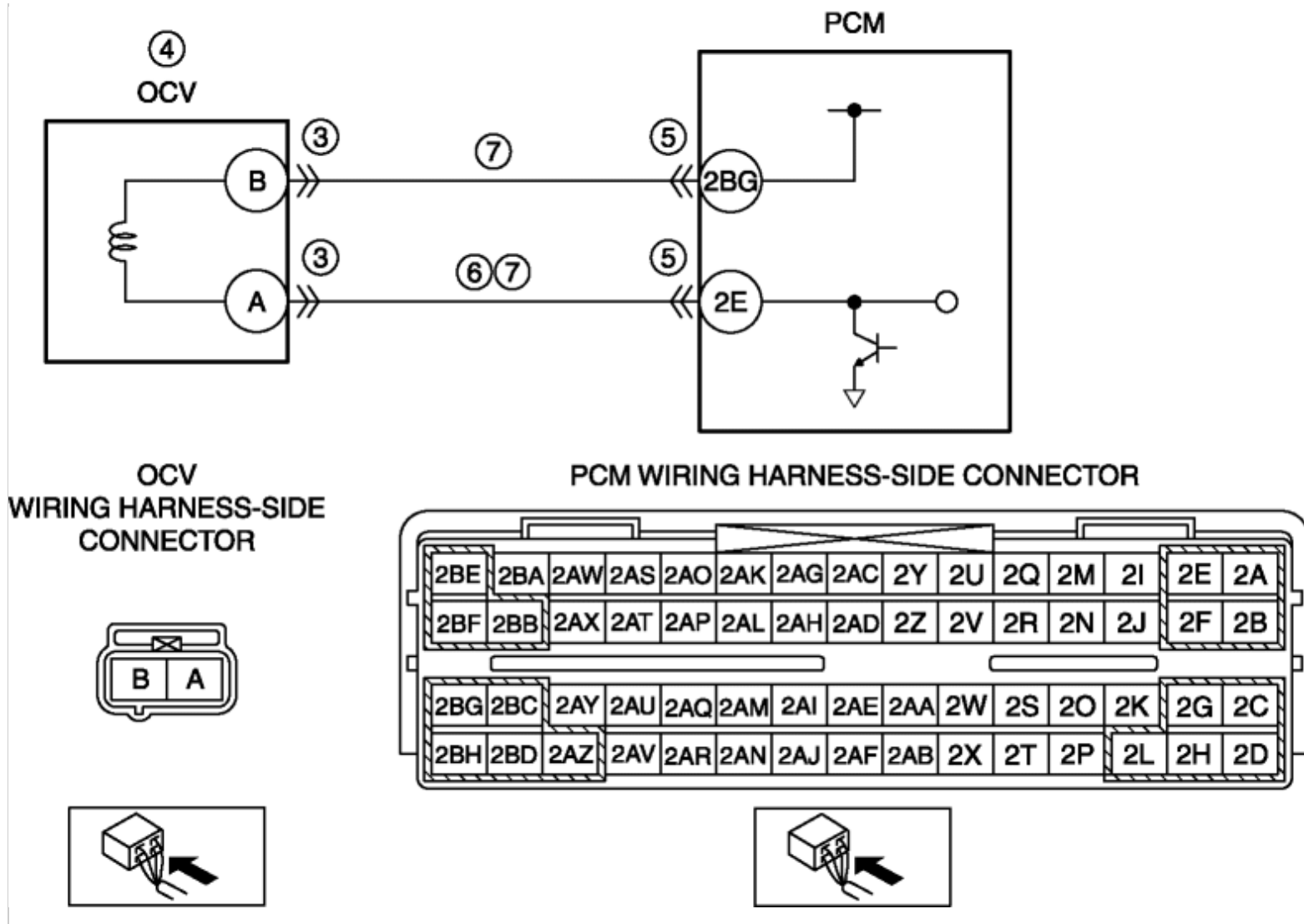
|   |                                                                                                                                                                                                                                                                                                                                                |                    |                                                                                                                   |
|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-------------------------------------------------------------------------------------------------------------------|
|   | <p>Switch the ignition to off.</p> <ul style="list-style-type: none"> <li>• Disconnect the OCV connector.</li> <li>• Inspect for poor connection (such as damaged/pulled-out pins, corrosion).</li> <li>• Is there any malfunction?</li> </ul>                                                                                                 | then go to Step 8. |                                                                                                                   |
|   |                                                                                                                                                                                                                                                                                                                                                | No                 | Go to the next step.                                                                                              |
| 4 | <b>INSPECT OCV</b> <ul style="list-style-type: none"> <li>• Inspect the OCV.</li> </ul> <p>(See <b>OIL CONTROL VALVE (OCV) INSPECTION [MZR 2.5]</b>.)</p> <ul style="list-style-type: none"> <li>• Is there any malfunction?</li> </ul>                                                                                                        | Yes                | Replace the OCV, then go to Step 8.<br><br>(See <b>OIL CONTROL VALVE (OCV) REMOVAL/ INSTALLATION [MZR 2.5]</b> .) |
|   |                                                                                                                                                                                                                                                                                                                                                | No                 | Go to the next step.                                                                                              |
| 5 | <b>INSPECT PCM CONNECTOR CONDITION</b> <ul style="list-style-type: none"> <li>• Disconnect the PCM connector.</li> <li>• Inspect for poor connection (such as damaged/pulled-out pins, corrosion).</li> <li>• Is there any malfunction?</li> </ul>                                                                                             | Yes                | Repair or replace the terminal and/or connector, then go to Step 8.                                               |
|   |                                                                                                                                                                                                                                                                                                                                                | No                 | Go to the next step.                                                                                              |
| 6 | <b>INSPECT OCV CONTROL CIRCUIT FOR SHORT TO POWER SUPPLY</b> <ul style="list-style-type: none"> <li>• OCV and PCM connectors are disconnected.</li> <li>• Switch the ignition to ON (engine off).</li> <li>• Measure the voltage between OCV terminal A (wiring harness-side) and body ground.</li> <li>• Is there any voltage?</li> </ul>     | Yes                | Repair or replace the wiring harness for a possible short to power supply, then go to Step 8.                     |
|   |                                                                                                                                                                                                                                                                                                                                                | No                 | Go to the next step.                                                                                              |
| 7 | <b>INSPECT OCV POWER SUPPLY CIRCUIT AND CONTROL CIRCUIT FOR SHORT TO EACH OTHER</b> <ul style="list-style-type: none"> <li>• OCV and PCM connectors are disconnected.</li> <li>• Switch the ignition to off.</li> <li>• Inspect for continuity between OCV terminals B and A (wiring harness-side).</li> <li>• Is there continuity?</li> </ul> | Yes                | Repair or replace the wiring harness for a possible short to each other, then go to the next step.                |
|   |                                                                                                                                                                                                                                                                                                                                                | No                 | Go to the next step.                                                                                              |
| 8 | <b>VERIFY DTC TROUBLESHOOTING COMPLETED</b> <ul style="list-style-type: none"> <li>• Make sure to reconnect all</li> </ul>                                                                                                                                                                                                                     | Yes                | Repeat the inspection from Step 1. <ul style="list-style-type: none"> <li>• If the malfunction recurs,</li> </ul> |

|   |                                                                                                                                                                                                                                                                                                                                                                                                                 |     |                                                                                                              |
|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|--------------------------------------------------------------------------------------------------------------|
|   | <p>disconnected connectors.</p> <ul style="list-style-type: none"><li>• Clear the DTC from the PCM memory using the M-MDS.</li></ul> <p>(See <b>AFTER REPAIR PROCEDURE [MZR 2.5]</b>.)</p> <ul style="list-style-type: none"><li>• Perform the KOEO or KOER self test.</li></ul> <p>(See <b>KOEO/ KOER SELF TEST [MZR 2.5]</b>.)</p> <ul style="list-style-type: none"><li>• Is the same DTC present?</li></ul> |     | <p>replace the PCM.</p> <p>(See <b>PCM REMOVAL/ INSTALLATION [MZR 2.5]</b>.)</p> <p>Go to the next step.</p> |
|   |                                                                                                                                                                                                                                                                                                                                                                                                                 | No  | Go to the next step.                                                                                         |
| 9 | <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 [MZR 2.5]</b>.)</p> <ul style="list-style-type: none"><li>• Are any DTCs present?</li></ul>                                                                                                                                               | Yes | Go to the applicable DTC inspection.                                                                         |
|   |                                                                                                                                                                                                                                                                                                                                                                                                                 | No  | DTC troubleshooting completed.                                                                               |

2012 - Mazda6 - Engine

DTC P2089:00 [MZR 2.5]

|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DTC<br>P2089:00        | OCV circuit high input                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| DETECTION<br>CONDITION | <ul style="list-style-type: none"><li>• The PCM monitors the OCV voltage. If the PCM detects that the OCV control voltage (calculated from the OCV) is above the threshold voltage (calculated from battery positive voltage), the PCM determines that the OCV circuit has a malfunction.</li></ul> <p><b>Diagnostic support note</b></p> <ul style="list-style-type: none"><li>• This is a continuous monitor (CCM).</li><li>• The MIL illuminates if the PCM detects the above malfunction condition during the first drive cycle.</li><li>• FREEZE FRAME DATA (Mode 2)/Snapshot data is available.</li><li>• The DTC is stored in the PCM memory.</li></ul> |
| POSSIBLE<br>CAUSE      | <ul style="list-style-type: none"><li>• OCV connector or terminals malfunction</li><li>• OCV malfunction</li><li>• PCM connector or terminals malfunction</li><li>• Short to power supply in wiring harness between OCV terminal A and PCM terminal 2E</li><li>• OCV power supply circuit and control circuit are shorted to each other</li><li>• PCM malfunction</li></ul>                                                                                                                                                                                                                                                                                    |
|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |



## Diagnostic procedure

| STEP | INSPECTION                                                                                                                                                                                                                                     | ACTION                                                                                                                                                                                                           |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | <b>VERIFY FREEZE FRAME DATA (MODE 2)/ SNAPSHOT DATA HAS BEEN RECORDED</b> <ul style="list-style-type: none"> <li>Has the FREEZE FRAME DATA (Mode 2)/snapshot data been recorded?</li> </ul>                                                    | Yes Go to the next step.<br><br>No Record the FREEZE FRAME DATA (Mode 2)/snapshot data on the repair order, then go to the next step.                                                                            |
| 2    | <b>VERIFY RELATED REPAIR INFORMATION AVAILABILITY</b> <ul style="list-style-type: none"> <li>Verify related Service Bulletins and/or on-line repair information availability.</li> <li>Is any related repair information available?</li> </ul> | Yes Perform repair or diagnosis according to the available repair information. <ul style="list-style-type: none"> <li>If the vehicle is not repaired, go to the next step.</li> </ul><br>No Go to the next step. |
| 3    | <b>INSPECT OCV CONNECTOR CONDITION</b>                                                                                                                                                                                                         | Yes Repair or replace the terminal and/or connector,                                                                                                                                                             |

|   |                                                                                                                                                                                                                                                                                                                                                       |                    |                                                                                                                          |
|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------|
|   | <p>Switch the ignition to off.</p> <ul style="list-style-type: none"> <li>• Disconnect the OCV connector.</li> <li>• Inspect for poor connection (such as damaged/pulled-out pins, corrosion).</li> <li>• Is there any malfunction?</li> </ul>                                                                                                        | then go to Step 8. |                                                                                                                          |
|   |                                                                                                                                                                                                                                                                                                                                                       | No                 | Go to the next step.                                                                                                     |
| 4 | <p><b>INSPECT OCV</b></p> <ul style="list-style-type: none"> <li>• Inspect the OCV.</li> </ul> <p>(See <b>OIL CONTROL VALVE (OCV) INSPECTION [MZR 2.5]</b>.)</p> <ul style="list-style-type: none"> <li>• Is there any malfunction?</li> </ul>                                                                                                        | Yes                | <p>Replace the OCV, then go to Step 8.</p> <p>(See <b>OIL CONTROL VALVE (OCV) REMOVAL/ INSTALLATION [MZR 2.5]</b>.)</p>  |
|   |                                                                                                                                                                                                                                                                                                                                                       | No                 | Go to the next step.                                                                                                     |
| 5 | <p><b>INSPECT PCM CONNECTOR CONDITION</b></p> <ul style="list-style-type: none"> <li>• Disconnect the PCM connector.</li> <li>• Inspect for poor connection (such as damaged/pulled-out pins, corrosion).</li> <li>• Is there any malfunction?</li> </ul>                                                                                             | Yes                | Repair or replace the terminal and/or connector, then go to Step 8.                                                      |
|   |                                                                                                                                                                                                                                                                                                                                                       | No                 | Go to the next step.                                                                                                     |
| 6 | <p><b>INSPECT OCV CONTROL CIRCUIT FOR SHORT TO POWER SUPPLY</b></p> <ul style="list-style-type: none"> <li>• OCV and PCM connectors are disconnected.</li> <li>• Switch the ignition to ON (engine off).</li> <li>• Measure the voltage between OCV terminal A (wiring harness-side) and body ground.</li> <li>• Is there any voltage?</li> </ul>     | Yes                | Repair or replace the wiring harness for a possible short to power supply, then go to Step 8.                            |
|   |                                                                                                                                                                                                                                                                                                                                                       | No                 | Go to the next step.                                                                                                     |
| 7 | <p><b>INSPECT OCV POWER SUPPLY CIRCUIT AND CONTROL CIRCUIT FOR SHORT TO EACH OTHER</b></p> <ul style="list-style-type: none"> <li>• OCV and PCM connectors are disconnected.</li> <li>• Switch the ignition to off.</li> <li>• Inspect for continuity between OCV terminals B and A (wiring harness-side).</li> <li>• Is there continuity?</li> </ul> | Yes                | Repair or replace the wiring harness for a possible short to each other, then go to the next step.                       |
|   |                                                                                                                                                                                                                                                                                                                                                       | No                 | Go to the next step.                                                                                                     |
| 8 | <p><b>VERIFY DTC TROUBLESHOOTING COMPLETED</b></p> <ul style="list-style-type: none"> <li>• Make sure to reconnect all</li> </ul>                                                                                                                                                                                                                     | Yes                | <p>Repeat the inspection from Step 1.</p> <ul style="list-style-type: none"> <li>• If the malfunction recurs,</li> </ul> |

|   |                                                                                                                                                                                                                                                                                                                                                                                                                 |     |                                                                                                              |
|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|--------------------------------------------------------------------------------------------------------------|
|   | <p>disconnected connectors.</p> <ul style="list-style-type: none"><li>• Clear the DTC from the PCM memory using the M-MDS.</li></ul> <p>(See <b>AFTER REPAIR PROCEDURE [MZR 2.5]</b>.)</p> <ul style="list-style-type: none"><li>• Perform the KOEO or KOER self test.</li></ul> <p>(See <b>KOEO/ KOER SELF TEST [MZR 2.5]</b>.)</p> <ul style="list-style-type: none"><li>• Is the same DTC present?</li></ul> |     | <p>replace the PCM.</p> <p>(See <b>PCM REMOVAL/ INSTALLATION [MZR 2.5]</b>.)</p> <p>Go to the next step.</p> |
|   |                                                                                                                                                                                                                                                                                                                                                                                                                 | No  | Go to the next step.                                                                                         |
| 9 | <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 [MZR 2.5]</b>.)</p> <ul style="list-style-type: none"><li>• Are any DTCs present?</li></ul>                                                                                                                                               | Yes | Go to the applicable DTC inspection.                                                                         |
|   |                                                                                                                                                                                                                                                                                                                                                                                                                 | No  | DTC troubleshooting completed.                                                                               |