# Your Ultimate Source for OEM Repair Manuals

FactoryManuals.net is a great resource for anyone who wants to save money on repairs by doing their own work. The manuals provide detailed instructions and diagrams that make it easy to understand how to fix a vehicle.

## 1998 MAZDA 323 F (CB) OEM Service and Repair Workshop Manual

Go to manual page

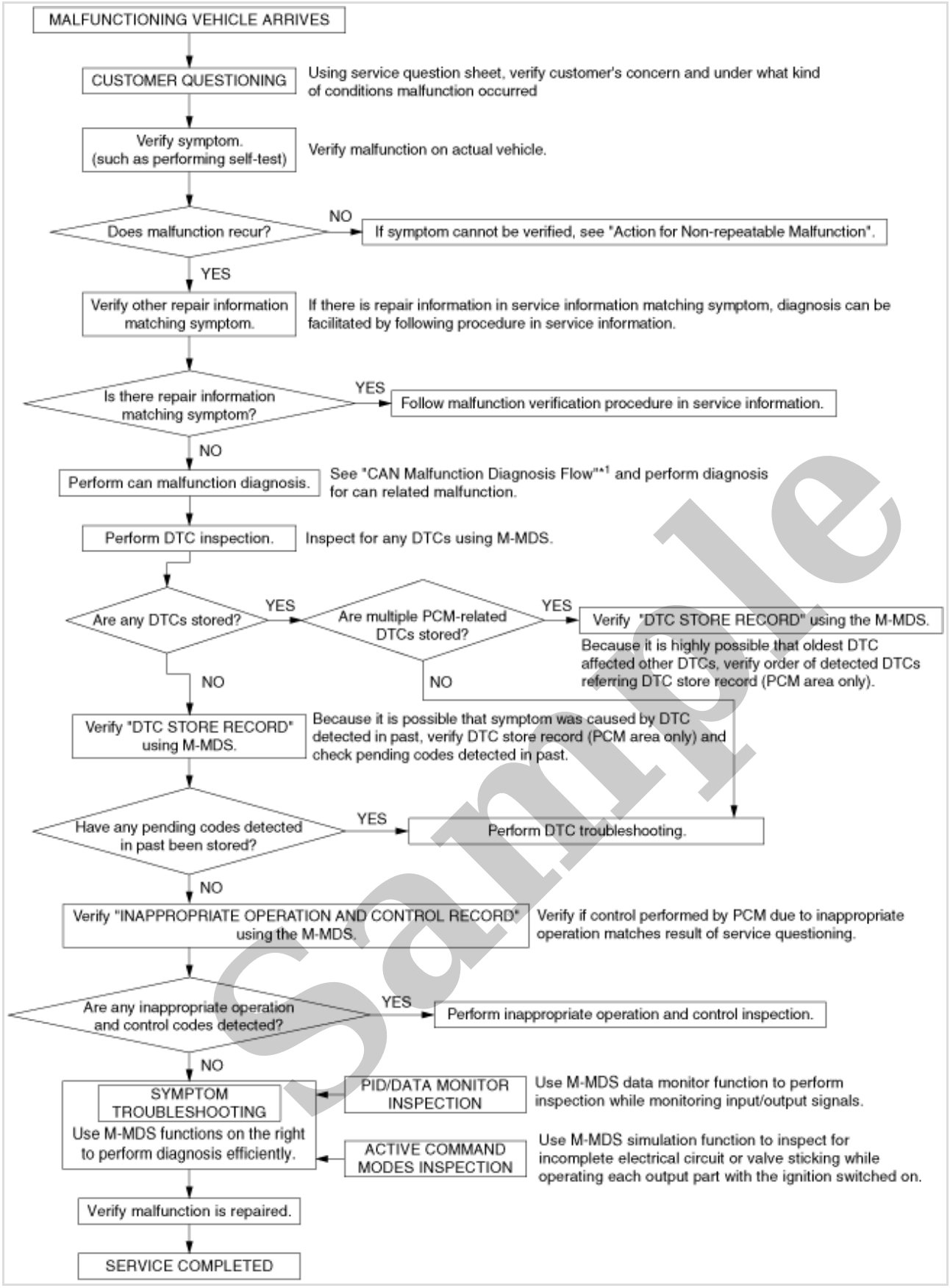
| STEP | INSPECTION | RESULTS | ACTION |
|---|---|---|---|
| 4 | PURPOSE: VERIFY IF THERE IS PID ITEM CAUSING DRASTIC CHANGES OF ACCELERATION FLUCTUATION BY INPUT SIGNAL TO PCM<br>• Access the following PID using the M-MDS: (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))].)<br>— EOL<br>• Is there any signal that is far out of specification? (See ENGINE OIL LEVEL SENSOR INSPECTION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].) | Yes | Go to the next step. |
| | | No | Go to Troubleshooting Diagnostic Procedure to perform the procedure from Step 1. |
| 5 | PURPOSE: VERIFY CONNECTOR CONNECTIONS<br>• Access the following PID using the M-MDS: (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))].)<br>— EOL<br>• When the following parts are shaken, does the PID value include a PID item which has changed?<br>— Engine oil level sensor<br>— PCM | Yes | Repair or replace the applicable connector parts.<br>Go to Troubleshooting Diagnostic Procedure to perform the procedure from Step 3. |
| | | No | Go to Troubleshooting Diagnostic Procedure to perform the procedure from Step 1. |

## Troubleshooting Diagnostic Procedure

**Intention of troubleshooting procedure**

- Step 1
  - — Perform inspection of engine oil leakage.
- Step 2
  - — Perform inspection of engine oil level.
- Step 3–4
  - — Verify that the primary malfunction is resolved and there are no other malfunctions.

| STEP | INSPECTION | RESULTS | ACTION |
|---|---|---|---|
| 1 | PURPOSE: INSPECT ENGINE OIL LEAKAGE<br>• Start the engine.<br>• Verify that there is no engine oil leakage in the hydraulic circuit.<br>• Is there any leakage? | Yes | Repair or replace the malfunctioning part according to the inspection results, then add genuine engine oil.<br>(See ENGINE OIL REPLACEMENT [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].)<br>Go to Step 3. |
| | | No | Replace the engine oil level sensor, then go to the next step.<br>(See ENGINE OIL LEVEL SENSOR REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].) |
| 2 | PURPOSE: INSPECT ENGINE OIL LEVEL<br>• Inspect the engine oil level. (See ENGINE OIL LEVEL SENSOR INSPECTION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].)<br>• Is the engine oil level sufficient? | Yes | Go to the next step. |
| | | No | Add genuine engine oil, then go to the next step.<br>(See ENGINE OIL REPLACEMENT [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].) |

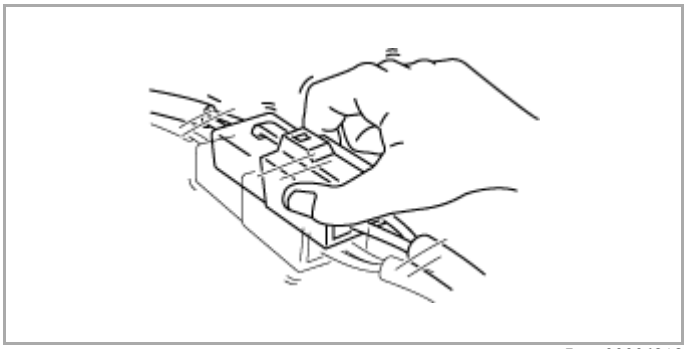



ac5uuw00006316

*1:(See CONTROLLER AREA NETWORK (CAN) MALFUNCTION DIAGNOSIS FLOW [TYPE-A (SKYACTIV-G 2.5)].) (See CONTROLLER AREA NETWORK (CAN) MALFUNCTION DIAGNOSIS FLOW [TYPE-B].)

## Repair Order Form

— Shake the wiring harness or connector of the electrical component which is suspected to be the cause of the malfunction, and inspect for occurrence of any malfunction or DTCs.

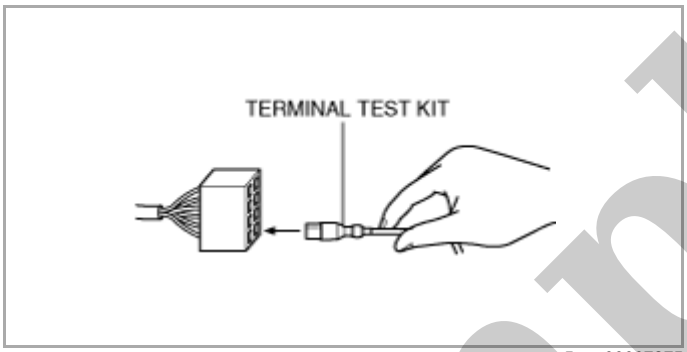


ac5uuw00006319

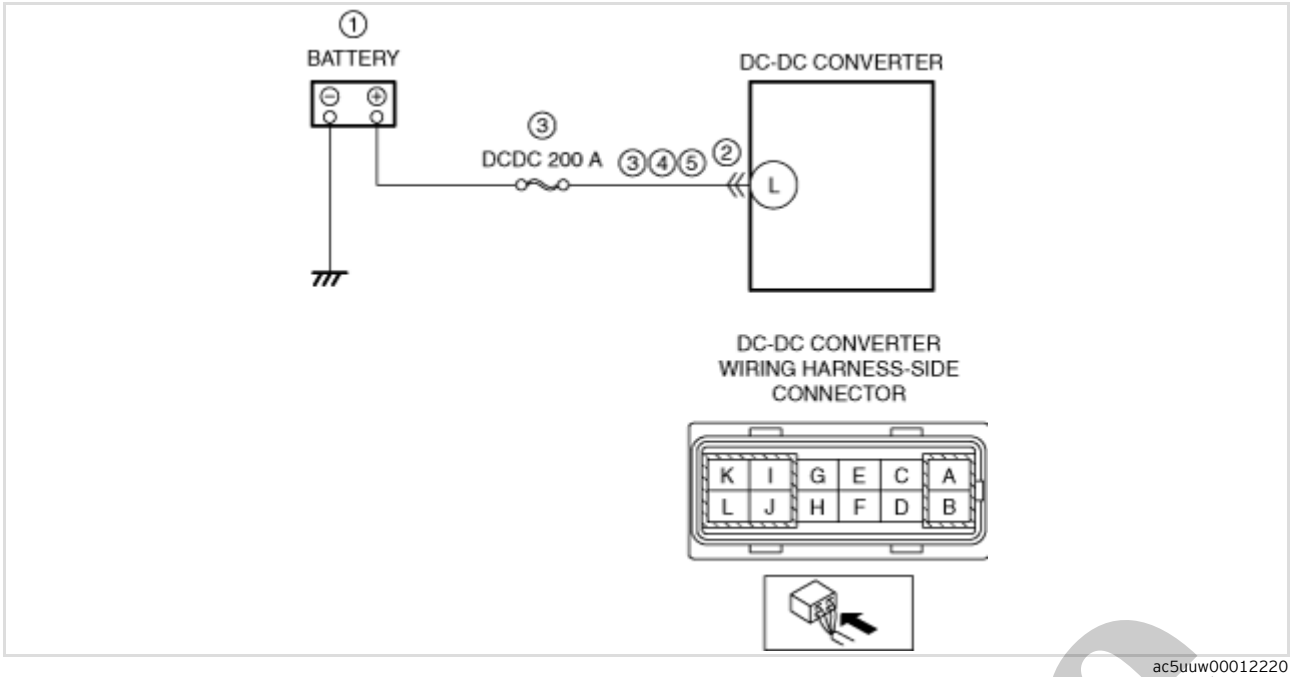
— Inspect the female terminals on the connector of the electric component which is suspected to be the cause of the malfunction for poor connection. (See ELECTRICAL SYSTEM.)

Note

• Tool used (Reference): terminal test kit (49US-15-KIT)




ac5uuw00007975



ac5uuw00012220

## Function explanation (DTC detection outline)

• The PCM assures engine startability and power during driving based on control of the battery related parts. The PCM detects the battery voltage during engine starting and the battery internal resistance based on the current sensor signal, and if the battery voltage during engine starting is low or the battery internal resistance is high, it determines that there is a malfunction in the battery related parts and stores a DTC.

## Repeatability verification procedure

1. Start the engine.
2. Perform battery condition initial setting (i-stop setting). (See BATTERY CONDITION INITIALIZATION SETTING (i-stop SETTING).)

## PID item/simulation item used in diagnosis

### PID/DATA monitor item table

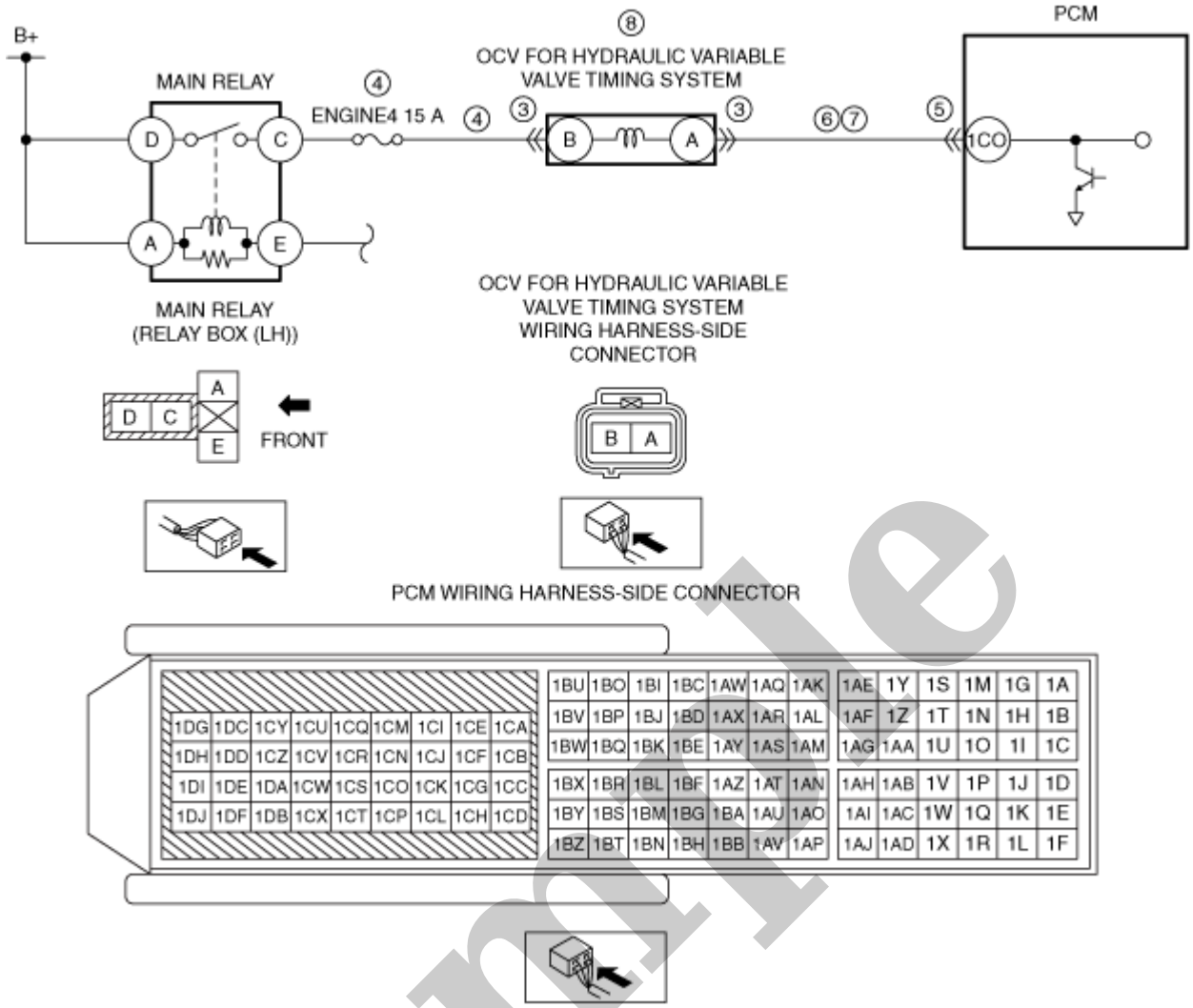
| Item | Definition | Unit | Condition/Specification |
|---|---|---|---|
| BATT_CUR | Battery charge/discharge current | A | • Displays battery charge/discharge current value |
| VPWR | Battery positive voltage | V | • Displays battery voltage |

## Function inspection using M-MDS

| STEP | INSPECTION | RESULTS | ACTION |
|---|---|---|---|
| 5 | **PURPOSE: VERIFY IF OPEN CIRCUIT IN EACH WIRING HARNESS AFFECTS DIAGNOSTIC RESULTS**<br>• Verify that the battery, current sensor, PCM and DC-DC converter connectors are disconnected.<br>• Inspect for continuity between the following terminals (wiring harness-side):<br>— Battery positive terminal–DC-DC converter terminal L<br>• Is there continuity? | Yes | Go to the next step. |
| | | No | Refer to the wiring diagram and verify whether or not there is a common connector between the following terminals:<br>• Battery positive terminal–DC-DC converter terminal L<br>**If there is a common connector:**<br>• Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for an open circuit.<br>• Repair or replace the malfunctioning part.<br>**If there is no common connector:**<br>• Repair or replace the wiring harness which has an open circuit.<br>Go to the next step. |
| 6 | **PURPOSE: VERIFICATION OF VEHICLE REPAIR COMPLETION**<br>• Always reconnect all disconnected connectors.<br>• Clear the DTC from the PCM memory using the M-MDS. (See CLEARING DTC [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))].)<br>• Implement the repeatability verification procedure. (See Repeatability verification procedure.)<br>• Perform the DTC Reading Procedure. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))].)<br>• Is the same Pending DTC present? | Yes | Repeat the inspection from Step 1.<br>• If the malfunction recurs, replace the PCM. (See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].)<br>Go to the next step. |
| | | No | Go to the next step. |
| 7 | **PURPOSE: VERIFY IF THERE IS ANY OTHER MALFUNCTION**<br>• Is any other DTC or pending code stored? | Yes | Go to the applicable DTC inspection.<br>(See DTC TABLE [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))].) |
| | | No | DTC troubleshooting completed. |

| STEP | INSPECTION | RESULTS | ACTION |
|---|---|---|---|
| 2 | VERIFY RELATED REPAIR INFORMATION AVAILABILITY<br>• Verify related Service Bulletins and/or on-line repair information availability.<br>• Is any related repair information available? | Yes | Perform repair or diagnosis according to the available repair information.<br>• If the vehicle is not repaired, go to the next step. |
| | | No | Go to the next step. |
| 3 | INSPECT ELECTRIC VARIABLE VALVE TIMING MOTOR/DRIVER CONNECTOR CONDITION<br>• Switch the ignition off.<br>• Disconnect the electric variable valve timing motor/driver connector.<br>• Inspect for poor connection (such as damaged/pulled-out pins, corrosion).<br>• Is there any malfunction? | Yes | Repair or replace the connector and/or terminals, then go to Step 10. |
| | | No | Go to the next step. |
| 4 | INSPECT PCM CONNECTOR CONDITION<br>• Disconnect the PCM connector.<br>• Inspect for poor connection (such as damaged/pulled-out pins, corrosion).<br>• Is there any malfunction? | Yes | Repair or replace the connector and/or terminals, then go to Step 10. |
| | | No | Go to the next step. |
| 5 | INSPECT ELECTRIC VARIABLE VALVE TIMING MOTOR/DRIVER SIGNAL CIRCUIT FOR SHORT TO GROUND<br>• Verify that the electric variable valve timing motor/driver and PCM connectors are disconnected.<br>• Inspect for continuity between electric variable valve timing motor/driver terminal 1A (wiring harness-side) and body ground.<br>• Is there continuity? | Yes | Refer to the wiring diagram and verify whether or not there is a common connector between electric variable valve timing motor/driver terminal 1A and PCM terminal 1AD.<br>**If there is a common connector:**<br>• Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for a short to ground.<br>• Repair or replace the malfunctioning part.<br>**If there is no common connector:**<br>• Repair or replace the wiring harness which has a short to ground.<br>Go to Step 10. |
| | | No | Go to the next step. |
| 6 | INSPECT ELECTRIC VARIABLE VALVE TIMING MOTOR/DRIVER SIGNAL CIRCUIT FOR SHORT TO POWER SUPPLY<br>• Verify that the electric variable valve timing motor/driver and PCM connectors are disconnected.<br>• Switch the ignition ON (engine off).<br>**Note**<br>**• Another DTC may be stored by the PCM detecting an open circuit.**<br>• Measure the voltage at the electric variable valve timing motor/driver terminal 1A (wiring harness-side).<br>• Is the voltage 0 V? | Yes | Go to the next step. |
| | | No | Refer to the wiring diagram and verify whether or not there is a common connector between electric variable valve timing motor/driver terminal 1A and PCM terminal 1AD.<br>**If there is a common connector:**<br>• Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for a short to power supply.<br>• Repair or replace the malfunctioning part.<br>**If there is no common connector:**<br>• Repair or replace the wiring harness which has a short to power supply.<br>Go to Step 10. |

| DTC P2090:00 | OCV for hydraulic variable valve timing system circuit low input |
|---|---|






Diagnostic Procedure

| STEP | INSPECTION | RESULTS | ACTION |
|---|---|---|---|
| 1 | RECORD VEHICLE STATUS AT TIME OF DTC DETECTION TO UTILIZE WITH REPEATABILITY VERIFICATION<br>Note<br>• Recording can be facilitated using the screen capture function of the PC.<br>• Record the FREEZE FRAME DATA/snapshot data on the repair order. | – | Go to the next step. |
| 2 | VERIFY RELATED REPAIR INFORMATION AVAILABILITY<br>• Verify related Service Bulletins and/or on-line repair information availability.<br>• Is any related repair information available? | Yes | Perform repair or diagnosis according to the available repair information.<br>• If the vehicle is not repaired, go to the next step. |
| | | No | Go to the next step. |

| STEP | INSPECTION | RESULTS | ACTION |
|---|---|---|---|
| 7 | VERIFY DTC TROUBLESHOOTING COMPLETED<br>• Always reconnect all disconnected connectors.<br>• Clear the DTC from the PCM memory using the M-MDS. (See CLEARING DTC [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))].)<br>• Perform the KOER self test. (See KOEO/KOER SELF TEST [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))].)<br>• Is the same Pending DTC present? | Yes | Repeat the inspection from Step 1.<br>• If the malfunction recurs, replace the PCM. (See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].)<br>Go to the next step. |
| | | No | Go to the next step. |
| 8 | VERIFY AFTER REPAIR PROCEDURE<br>• Perform the "AFTER REPAIR PROCEDURE". (See AFTER REPAIR PROCEDURE [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))].)<br>• Are any DTCs present? | Yes | Go to the applicable DTC inspection. (See DTC TABLE [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))].) |
| | | No | DTC troubleshooting completed. |