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## 2012 MAZDA 3 / Axela Hatchback OEM Service and Repair Workshop Manual

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| Step | Inspection | Results | Action |
|---|---|---|---|
| 3 | **INSPECT BACKUP VOLTAGE CIRCUIT FOR SHORT TO GROUND OR OPEN CIRCUIT**<br>• Reconnect all disconnected connectors.<br>• Access the VPWR PID using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].) (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))].)<br>• Verify the VPWR PID value.<br>• Is the VPWR PID value B+? | Yes | Go to the next step. |

# FOREWORD [DSC HU/CM]

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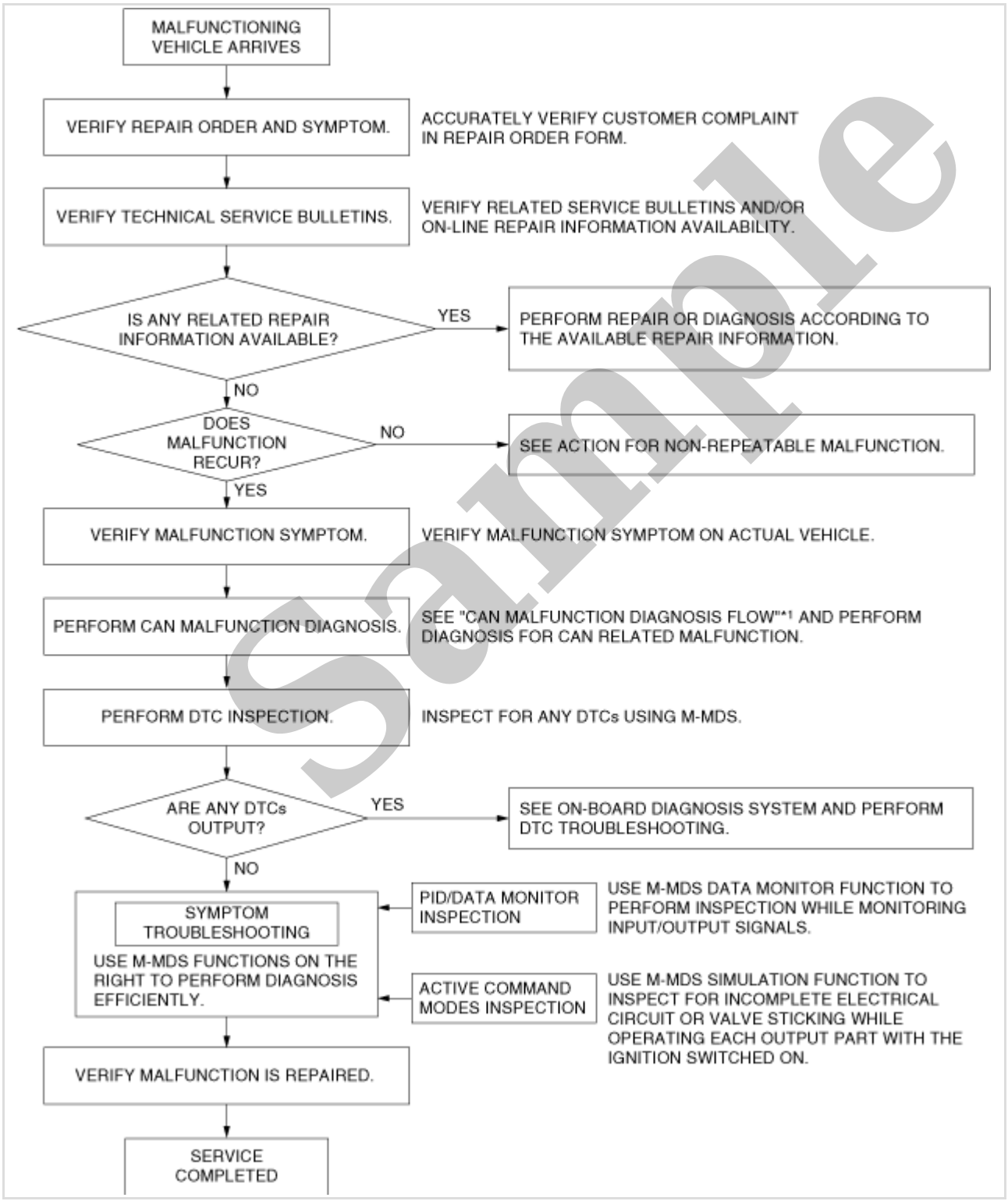
•If there is any vehicle malfunction complaint lodged by a customer, perform malfunction diagnosis according to the troubleshooting procedure.

## Troubleshooting Procedure

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# DTC U0405:00 [DSC HU/CM]

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| DTC | U0405:00 | Abnormal message from PCM |
|---|---|---|
| DETECTION CONDITION | • Correct data cannot be received from PCM | |
| FAIL-SAFE FUNCTION | Refer to "DTC Table" and "Fail-safe Function Malfunction Contents". (See DTC TABLE [DSC HU/CM].) | |
| POSSIBLE CAUSE | • PCM malfunction | |
| SYSTEM WIRING DIAGRAM | Not applicable | |

## Diagnostic procedure

| Step | Inspection | Results | Action |
|---|---|---|---|
| 1 | INSPECT FOR PCM MALFUNCTION<br>• Switch the ignition to off.<br>• Using the M-MDS, perform the DTC inspection for the PCM. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].) (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))].) (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-D 2.2)].) (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5T)].)<br>• Are any DTCs detected? | Yes | Go to applicable DTC inspection.<br>(See DTC TABLE [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].)<br>(See DTC TABLE [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))].)<br>(See DTC TABLE [PCM (SKYACTIV-D 2.2)].)<br>(See DTC TABLE [PCM (SKYACTIV-G 2.5T)].) |
| | | No | Go to the next step. |
| 2 | VERIFY THAT THE SAME DTC IS NOT PRESENT<br>• Using the M-MDS, clear the DTC from the DSC HU/CM. (See CLEARING DTC [DSC HU/CM].)<br>• Using the M-MDS, perform the DSC HU/CM DTC inspection. (See DTC INSPECTION [DSC HU/CM].)<br>• Are the same DTCs present? | Yes | Repeat the inspection from Step 1.<br>If the malfunction recurs, replace the PCM, then go to the next step.<br>(See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION)].)<br>(See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].)<br>(See PCM REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)<br>(See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].) |
| | | No | Go to the next step. |

| Step | Inspection | Results | Action |
|---|---|---|---|
| 3 | VERIFY THAT NO OTHER DTCS ARE PRESENT<br>• Are any other DTCs output? | Yes | Go to the applicable DTC inspection.<br>(See DTC TABLE [DSC HU/CM].) |
| | | No | DTC troubleshooting completed. |

| Step | Inspection | Results | Action |
|---|---|---|---|
| 4 | VERIFY THAT THE SAME DTC IS NOT PRESENT<br>• Using the M-MDS, clear the DTC from the DSC HU/CM. (See CLEARING DTC [DSC HU/CM].)<br>• Using the M-MDS, perform the DSC HU/CM DTC inspection. (See DTC INSPECTION [DSC HU/CM].)<br>• Are the same DTCs present? | Yes | Repeat the inspection from Step 1.<br>If the malfunction recurs, replace the DSC HU/CM, then go to the next step.<br>(See DSC HU/CM REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION)].)<br>(See DSC HU/CM REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].)<br>(See DSC HU/CM REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)<br>(See DSC HU/CM REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].) |
| | | No | Go to the next step. |
| 5 | VERIFY THAT NO OTHER DTCS ARE PRESENT<br>• Are any other DTCs output? | Yes | Go to the applicable DTC inspection.<br>(See DTC TABLE [DSC HU/CM].) |
| | | No | DTC troubleshooting completed. |

# DTC U3003:08/U3003:16/U3003:17 [DSC HU/CM]

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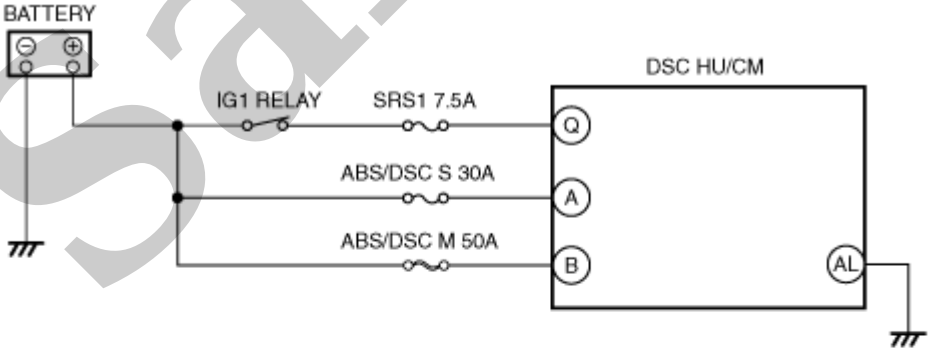
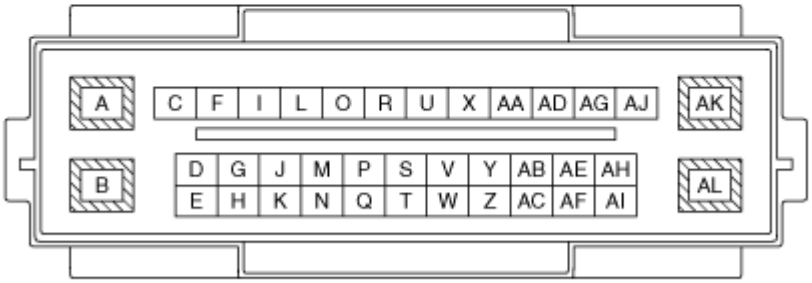
| DTC | U3003:08, U3003:16, U3003:17 | Power supply system |
|---|---|---|
| DETECTION CONDITION | • U3003:08<br>— While the vehicle is traveling at a speed of 10km/h {6.2 mph} or more, a CAN signal error caused by low power supply voltage is detected.<br>• U3003:16<br>— Low ignition voltage ( 7.9–9.6 V) is detected at the voltage monitor of the solenoid valve or motor monitor. (Except engine cranking condition)<br>— Low ignition voltage ( 6.0–7.9 V) is detected at the voltage monitor of the solenoid valve or motor monitor.<br>— Low ignition voltage ( below 6.0 V) is detected at the voltage monitor of the solenoid valve or motor monitor.<br>• U3003:17<br>— High ignition voltage ( 17 V or more) is detected at the voltage monitor of the solenoid valve or motor monitor. | |
| FAIL-SAFE FUNCTION | Refer to “DTC Table” and “Fail-safe Function Malfunction Contents”. (See DTC TABLE [DSC HU/CM].) | |
| POSSIBLE CAUSE | • Battery deterioration<br>• Generator malfunction<br>• Fuse (SRS1 7.5A, ABS/DSC S 30A, ABS/DSC M 50A) malfunction<br>• Open or short circuit in wiring harness between DSC HU/CM terminal A and battery<br>• Open or short circuit in wiring harness between DSC HU/CM terminal B and battery<br>• Open or short circuit in wiring harness between DSC HU/CM terminal Q and battery<br>• Open circuit in wiring harness between DSC HU/CM terminal AL and body ground<br>• Poor connection at connectors (female terminal) | |




DSC HU/CM WIRING HARNESS-SIDE CONNECTOR




# DTC U0420:00 [DSC HU/CM]

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| | | |
|---|---|---|
| DTC | U0420:00 | Abnormal message from EPS control module |
| DETECTION CONDITION | •Correct data cannot be received from EPS control module | |
| FAIL-SAFE FUNCTION | Refer to "DTC Table" and "Fail-safe Function Malfunction Contents". (See DTC TABLE [DSC HU/CM].) | |
| POSSIBLE CAUSE | •EPS control module malfunction | |
| SYSTEM WIRING DIAGRAM | Not applicable | |

## Diagnostic procedure

| Step | Inspection | Results | Action |
|---|---|---|---|
| 1 | INSPECT FOR EPS CONTROL MODULE MALFUNCTION<br>•Switch the ignition to off.<br>•Using the M-MDS, perform the DTC inspection for the EPS control module. (See DTC INSPECTION [ELECTRIC POWER STEERING (EPS) CONTROL MODULE].)<br>•Are any DTCs detected? | Yes | Go to applicable DTC inspection. (See DTC TABLE [ELECTRIC POWER STEERING (EPS) CONTROL MODULE].) |
| | | No | Go to the next step. |
| 2 | VERIFY THAT THE SAME DTC IS NOT PRESENT<br>•Using the M-MDS, clear the DTC from the DSC HU/CM. (See CLEARING DTC [DSC HU/CM].)<br>•Using the M-MDS, perform the DSC HU/CM DTC inspection. (See DTC INSPECTION [DSC HU/CM].)<br>•Are the same DTCs present? | Yes | Repeat the inspection from Step 1. If the malfunction recurs, replace the EPS control module, then go to the next step. (See STEERING WHEEL AND COLUMN REMOVAL/INSTALLATION.) |
| | | No | Go to the next step. |
| 3 | VERIFY THAT NO OTHER DTCS ARE PRESENT<br>•Are any other DTCs output? | Yes | Go to the applicable DTC inspection. (See DTC TABLE [DSC HU/CM].) |
| | | No | DTC troubleshooting completed. |

# DTC C0030:07/C0031:07/C0031:29/C0031:2F/C0031:64/C0033:07/C0034:07/C0034:29/C0034:2F/C0034:64/C0036:07/C0037:07/C0037:29/C0037:2F/C0037:64/C0039:07/C003A:07/C003A:29/C003A:2F/C003A:64 [DSC HU/CM]

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**Note**

**• When only the driving wheels are rotated while the vehicle is jacked up, DTCs C0037:29 and C003A:29 are input to the memory.**

| | | |
|---|---|---|
| DTC | C0030:07 | LF ABS sensor rotor |
| | C0031:07, C0031:29, C0031:2F, C0031:64 | LF ABS wheel-speed sensor/ABS sensor rotor |
| | C0033:07 | RF ABS sensor rotor |
| | C0034:07, C0034:29, C0034:2F, C0034:64 | RF ABS wheel-speed sensor/ABS sensor rotor |
| | C0036:07 | LR ABS sensor rotor |
| | C0037:07, C0037:29, C0037:2F, C0037:64 | LR ABS wheel-speed sensor/ABS sensor rotor |
| | C0039:07 | RR ABS sensor rotor |
| | C003A:07, C003A:29, C003A:2F, C003A:64 | RR ABS wheel-speed sensor/ABS sensor rotor |
| DETECTION CONDITION | • C0030:07, C0033:07, C0036:07, C0039:07<br>— Periodic abnormality is detected in the signal wave pattern from the ABS wheel-speed sensors.<br>• C0031:07, C0034:07, C0037:07, C003A:07<br>— While the vehicle is traveling at a speed of 10 km/h {6.2 mph} or more, no signal in any of the four wheels or an extremely low vehicle speed signal is detected.<br>• C0031:29, C0034:29, C0037:29, C003A:29<br>— The wheel-speed signal is not input or an extremely low wheel-speed signal is detected from any of the four wheels when driving at a vehicle speed of 10 km/h {6.2 mph} or more<br>• C0031:2F, C0034:2F, C0037:2F, C003A:2F<br>— The wheel speed or acceleration speed in any of the 4 wheels is not within the specification.<br>— ABS control continues to operate for 28 s or more.<br>• C0031:64, C0034:64, C0037:64, C003A:64<br>— While the vehicle is traveling at a speed of 20 km/h {12 mph} or more, an extremely high vehicle speed signal in any of the four wheels is detected. | |
| FAIL-SAFE FUNCTION | Refer to "DTC Table" and "Fail-safe Function Malfunction Contents". (See DTC TABLE [DSC HU/CM].) | |
| POSSIBLE CAUSE | • ABS sensor rotor malfunction (missing ABS sensor rotor teeth due to foreign material obstruction)<br>• ABS wheel-speed sensor or ABS sensor rotor installation malfunction (If the ABS sensor rotor is installed at an angle, it may cause output of abnormal wave pattern at high speeds.)<br>• Excessive clearance between the ABS wheel-speed sensor and sensor rotor<br>• ABS wheel-speed sensor malfunction<br>• DSC HU/CM malfunction<br>• Continuous ABS operation | |

# DTC C0051:62/C0051:64/C0051:67/C0051:85 [DSC HU/CM]

SM2898125

id04026290620

| DTC | C0051:62, C0051:64, C0051:67, C0051:85 | Steering angle sensor |
|---|---|---|
| DETECTION CONDITION | •C0051:62<br>—The difference between the steering angle calculated by each sensor and the steering angle from the steering angle sensor is the specification or more when the vehicle is driven in a straight line.<br>•C0051:64<br>—The difference between the steering angle calculated by each sensor and the steering angle from the steering angle sensor exceeds the specification.<br>•C0051:67<br>—The neutral position of the steering angle cannot be estimated from the signals from the ABS wheel-speed sensors and the SAS control module.<br>**Note**<br>**•Each time the ignition is switched ON, the DSC HU/CM calculates the steering angle neutral position based on the signals from each sensor and each module.**<br>**•If the vehicle is driven as follows just after the engine is started, DTC C0051:67 may be output.**<br>**—Vehicle is accelerated rapidly while being steered right or left**<br>**—Vehicle is driven on abnormal road surface such as banked road**<br>**—Vehicle is driven on continuously curved road such as mountain road**<br>**•If the DTC is a past malfunction during DTC inspection, it does not indicate a vehicle malfunction.**<br>•C0051:85<br>—The steering angle sensor detects signal modulation or steering angle that exceeds specification. | |
| FAIL-SAFE FUNCTION | Refer to “DTC Table” and “Fail-safe Function Malfunction Contents”. (See DTC TABLE [DSC HU/CM].) | |
| POSSIBLE CAUSE | •C0051:62, C0051:64, C0051:67, C0051:85<br>—Improper installation or positioning of the steering angle sensor<br>—Steering angle sensor malfunction<br>—DSC HU/CM malfunction<br>—Connector or terminal malfunction<br>•C0051:67<br>—Vehicle is accelerated rapidly while being steered right or left<br>—Vehicle is driven on abnormal road surface such as banked road<br>—Vehicle is driven on continuously curved road such as mountain road | |
| SYSTEM WIRING DIAGRAM | Not applicable | |

**Diagnostic procedure**