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## 2015 MAZDA 6 / Atenza Sedan OEM Service and Repair Workshop Manual

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| Step | Inspection | | Action |
|---|---|---|---|
| 3 | INSPECT DRIVER-SIDE PRESSURE SENSOR CIRCUIT FOR SHORT TO GROUND<br>• Disconnect the following connectors:<br>— Driver-side pressure sensor (See PRESSURE SENSOR REMOVAL/INSTALLATION [TWO-STEP DEPLOYMENT CONTROL SYSTEM - US/CANADA/ISRAEL SPEC.].)<br>— SAS control module (See SAS CONTROL MODULE REMOVAL/INSTALLATION [TWO-STEP DEPLOYMENT CONTROL SYSTEM - US/CANADA/ISRAEL SPEC.].)<br>• Inspect for continuity between the following terminals (wiring harness-side) and body ground:<br>— SAS control module terminal 1V<br>— SAS control module terminal 1T<br>**Note**<br>**• Inspect for continuity while shaking the wiring harness between the SAS control module and driver-side pressure sensor.**<br>• Is there continuity? | Yes | Refer to the wiring diagram and verify whether or not there is a common connector between SAS control module terminal and driver-side pressure sensor terminal.<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>• Replace the malfunctioning part.<br>**If there is no common connector:**<br>• Replace the wiring harness which has a short to ground.<br>Perform the repair completion verification 1. |
| | | No | Go to the next step. |

| Step | Inspection | | Action |
|---|---|---|---|
| Repair completion verification 1 | VERIFY THAT VEHICLE IS REPAIRED<br>• Switch the ignition off.<br>• Disconnect the negative battery terminal and wait for 1 min or more. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.)<br>• Connect the SAS control module connectors. (See SAS CONTROL MODULE REMOVAL/INSTALLATION [TWO-STEP DEPLOYMENT CONTROL SYSTEM - US/CANADA/ISRAEL SPEC.].)<br>• Install/connect the part removed/disconnected during the troubleshooting procedure.<br>• Connect the negative battery terminal. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.)<br>• Switch the ignition ON.<br>• Clear the DTC recorded in the memory. (See CLEARING DTC.)<br>• Perform the DTC inspection for the SAS control module. (See DTC INSPECTION.)<br>• Is the same Pending DTC present? | Yes | Refer to the controller area network (CAN) malfunction diagnosis flow to inspect for a CAN communication error.<br>(See CONTROLLER AREA NETWORK (CAN) MALFUNCTION DIAGNOSIS FLOW [TYPE-A (SKYACTIV-G 2.5)].) (See CONTROLLER AREA NETWORK (CAN) MALFUNCTION DIAGNOSIS FLOW [TYPE-A (SKYACTIV-G 2.5T, SKYACTIV-D 2.2)].) (See CONTROLLER AREA NETWORK (CAN) MALFUNCTION DIAGNOSIS FLOW [TYPE-B].)<br>• If the malfunction recurs, replace the SAS control module, then go to the next step. (See SAS CONTROL MODULE REMOVAL/INSTALLATION [TWO-STEP DEPLOYMENT CONTROL SYSTEM - US/CANADA/ISRAEL SPEC.].) |
| | | No | Go to the next step. |
| Repair completion verification 2 | VERIFY IF OTHER DTCs DISPLAYED<br>• Perform the DTC inspection. (See DTC INSPECTION.)<br>• Are any other DTCs displayed? | Yes | Repair or replace the malfunctioning location according to the applicable DTC troubleshooting. |
| | | No | DTC troubleshooting completed. |

# FLOWCHART [SAS CONTROL MODULE (TWO-STEP DEPLOYMENT CONTROL SYSTEM - US/CANADA/ISRAEL SPEC.)]

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• Use the following flowchart to verify the cause of the trouble.

**Note**

**• When inspecting past malfunction codes, inspect only the DTCs that were indicated before beginning the inspection. A misdiagnosis could occur as a result of new DTCs being added while performing an inspection by disconnecting related parts or connectors.**
**• When DTCs of the present malfunction are no longer output after present or past malfunctions or both have been repaired, be sure to clear the past malfunction from memory to prevent repair of malfunctions that have already been repaired.**

## Diagnostic Procedure

Warning

• Handling the component parts improperly can accidentally operate (deploy) the air bag modules and pre-tensioner seat belts, which may seriously injure you. Read the service warnings/cautions and the workshop manual before handling the air bag system components. (See AIR BAG SYSTEM SERVICE WARNINGS [TWO-STEP DEPLOYMENT CONTROL SYSTEM - US/CANADA/ISRAEL SPEC.].) (See AIR BAG SYSTEM SERVICE CAUTIONS [TWO-STEP DEPLOYMENT CONTROL SYSTEM - US/CANADA/ISRAEL SPEC.].)

| Step | Inspection | | Action |
|---|---|---|---|
| 1 | VERIFY IF PASSENGER-SIDE PRESSURE SENSOR IS INSTALLED CORRECTLY<br>• Switch the ignition off.<br>• Disconnect the negative battery terminal and wait for 1 min or more. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.)<br>• Verify the passenger-side pressure sensor installation condition. (See PRESSURE SENSOR REMOVAL/INSTALLATION [TWO-STEP DEPLOYMENT CONTROL SYSTEM - US/CANADA/ISRAEL SPEC.].)<br>• Is the installation condition normal? | Yes | Go to the next step. |
| | | No | Correctly install the passenger-side pressure sensor and perform the repair completion verification 1. (See PRESSURE SENSOR REMOVAL/INSTALLATION [TWO-STEP DEPLOYMENT CONTROL SYSTEM - US/CANADA/ISRAEL SPEC.].) |
| 2 | INSPECT PASSENGER-SIDE PRESSURE SENSOR CONNECTOR<br>• Disconnect the passenger-side pressure sensor connector. (See PRESSURE SENSOR REMOVAL/INSTALLATION [TWO-STEP DEPLOYMENT CONTROL SYSTEM - US/CANADA/ISRAEL SPEC.].)<br>• Inspect the passenger-side pressure sensor connector (wiring harness-side). (Corrosion, damage, and disconnected pins)<br>• Is there any malfunction of the passenger-side pressure sensor connector (wiring harness-side)? | Yes | Replace the malfunctioning part, then perform the repair completion verification 1. |
| | | No | Go to the next step. |

| Step | Inspection | | Action |
|---|---|---|---|
| 6 | **INSPECT PASSENGER-SIDE PRESSURE SENSOR CIRCUIT FOR SHORT TO OTHER AIR BAG SENSOR CIRCUITS**<br>• Passenger-side pressure sensor and SAS control module connectors are disconnected.<br>• Refer to the wiring diagram and inspect for continuity between the passenger-side pressure sensor terminal and other air bag sensor terminals (wiring harness-side).<br>**Note**<br>**• Inspect for continuity while shaking the wiring harness between the SAS control module and passenger-side pressure sensor.**<br>• Is there continuity? | Yes | Refer to the wiring diagram and verify whether or not there is a common connector between SAS control module terminal and passenger-side pressure sensor terminal.<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 other air bag sensor circuits.<br>• Replace the malfunctioning part.<br>**If there is no common connector:**<br>• Replace the wiring harness which has a short to other air bag sensor circuits.<br>Perform the repair completion verification 1. |
| | | No | Go to the next step. |
| 7 | **INSPECT PASSENGER-SIDE PRESSURE SENSOR CIRCUIT FOR SHORT TO POWER SUPPLY**<br>• Passenger-side pressure sensor and SAS control module connectors are disconnected.<br>• Connect the negative battery terminal. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.)<br>• Switch the ignition ON (engine off or on).<br>• Measure the voltage at the following terminals (wiring harness-side):<br>— SAS control module terminal 1B<br>— SAS control module terminal 1F<br>**Note**<br>**• Inspect for continuity while shaking the wiring harness between the SAS control module and passenger-side pressure sensor.**<br>• Is the voltage 0 V? | Yes | Replace the passenger-side pressure sensor. (See PRESSURE SENSOR REMOVAL/INSTALLATION [TWO-STEP DEPLOYMENT CONTROL SYSTEM - US/CANADA/ISRAEL SPEC.].)<br>Perform the repair completion verification 1. |
| | | No | Refer to the wiring diagram and verify whether or not there is a common connector between SAS control module terminal and passenger-side pressure sensor terminal.<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>• Replace the malfunctioning part.<br>**If there is no common connector:**<br>• Replace the wiring harness which has a short to power supply.<br>Perform the repair completion verification 1. |

## Diagnostic procedure

| Step | Inspection | | Action |
|---|---|---|---|
| 1 | **INSPECT INDICATOR UNIT CONNECTOR CONDITION**<br>• Switch the ignition off.<br>• Disconnect the negative battery terminal and wait for 1 min or more. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.)<br>• Disconnect the indicator unit connector. (See INDICATOR UNIT REMOVAL/INSTALLATION.)<br>• Inspect the connector engagement and connection condition and inspect the terminals for damage, deformation, corrosion, or disconnection.<br>• Is the connector normal? | Yes | Go to the next step. |
| | | No | Replace the malfunctioning part, then go to Step 6. |
| 2 | **INSPECT INSTRUMENT CLUSTER CONNECTOR CONDITION**<br>• Disconnect the instrument cluster connector. (See INSTRUMENT CLUSTER REMOVAL/INSTALLATION.)<br>• Inspect the connector engagement and connection condition and inspect the terminals for damage, deformation, corrosion, or disconnection.<br>• Is the connector normal? | Yes | Go to the next step. |
| | | No | Replace the malfunctioning part, then go to Step 6. |
| 3 | **INSPECT INDICATOR UNIT CIRCUIT FOR OPEN CIRCUIT**<br>• Indicator unit and instrument cluster connectors are disconnected.<br>• Inspect for continuity between the following terminals (wiring harness-side):<br>— Indicator unit terminal J–instrument cluster M<br>— Indicator unit terminal E–instrument cluster Q<br>**Note**<br>**• Inspect for continuity while shaking the wiring harness between the instrument cluster and indicator unit.**<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 instrument cluster and indicator unit.<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>• Replace the malfunctioning part.<br>**If there is no common connector:**<br>• Replace the wiring harness which has an open circuit.<br>Go to Step 6. |

| Step | Inspection | | Action |
|---|---|---|---|
| 4 | PERFORM SAS CONTROL MODULE DTC INSPECTION<br>• Reconnect all disconnected connectors.<br>• Connect the negative battery terminal. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.)<br>• Switch the ignition ON (engine off or on).<br>• Clear the DTC for the SAS control module using the M-MDS. (See CLEARING DTC [SAS CONTROL MODULE (TWO-STEP DEPLOYMENT CONTROL SYSTEM - US/CANADA/ISRAEL SPEC.)].)<br>• Perform the DTC inspection for the SAS control module using the M-MDS. (See DTC INSPECTION [SAS CONTROL MODULE (TWO-STEP DEPLOYMENT CONTROL SYSTEM - US/CANADA/ISRAEL SPEC.)].)<br>• Are the same DTCs present? | Yes | Repeat the inspection from Step 1.<br>• If the malfunction recurs, replace the SAS control module. (See SAS CONTROL MODULE REMOVAL/INSTALLATION [TWO-STEP DEPLOYMENT CONTROL SYSTEM - US/CANADA/ISRAEL SPEC.].) |
| | | No | DTC troubleshooting completed. |

(1)Select "Self Test".

(2)Select "Modules".

(3)Select "RCM".

3.Verify the DTC according to the directions on the screen.

• If any DTCs are displayed, perform troubleshooting according to the corresponding DTC inspection. (See DTC TABLE [SAS CONTROL MODULE (TWO-STEP DEPLOYMENT CONTROL SYSTEM - US/CANADA/ISRAEL SPEC.)].)

4.After completion of repairs, clear all DTCs stored in the SAS control module. (See CLEARING DTC [SAS CONTROL MODULE (TWO-STEP DEPLOYMENT CONTROL SYSTEM - US/CANADA/ISRAEL SPEC.)].)



## Snapshot Data Table

**Note**

**• The SAS control module stores the following two types of information when a DTC is detected and displays snap shot data in the M-MDS.**

**— Vehicle information detected by SAS control module**
**— Vehicle information detected by instrument cluster and received by SAS control module via CAN signal**

• The data for all DTCs currently detected is stored.

| Snapshot data item | Unit | Definition | Data read/use method | Corresponding PID data monitor item |
|---|---|---|---|---|
| AAT | °C °F | Ambient temperature | – | – |
| AB_WRNG_RCV_FAULT_CLEAR | – | Air bag system warning light status | – | – |
| AB_WRNG_RCV_FAULT_DETECT | – | Air bag system warning light status | – | – |
| AB_WRNG_REQ_FAULT_CLEAR | – | Air bag system warning light status (request signal) | – | – |
| AB_WRNG_REQ_FAULT_DETECT | – | Air bag system warning light status (request signal) | – | – |
| APP_STATUS | Accelerator Pedal Off/ Under20%/ Over20%/ FAIL | Accelerator pedal position status | – | – |
| CFG_STATUS | Config Complete/ Not Configured/ Config Error | Instrument cluster configuration status | – | – |
| CONN_A_RES_FAULT_CLEAR | ohm | Partially disconnected detection bar (A) resistance nominal | – | – |
| CONN_A_RES_FAULT_DETECT | ohm | Partially disconnected detection bar (A) resistance nominal | – | – |

| Snapshot data item | Unit | | Definition | Data read/use method | Corresponding PID data monitor item |
|---|---|---|---|---|---|
| RPM_STATUS | Engine Stop/<br>Under1500rpm/<br>Over1500rpm/<br>FAIL | | Engine speed status | • The SAS control module constantly receives the engine speed sent via CAN signal from the instrument cluster.<br>• If a DTC is detected, the SAS control module records the engine speed when the DTC was detected, and it is displayed in the Mazda Modular Diagnostic System (M-MDS). | TACHOMTR *2 |
| SHIFT_STATUS | P/N/<br>D/<br>R/<br>FAIL | | Selector lever position status | • The SAS control module constantly receives the selector lever position sent via CAN signal from the instrument cluster.<br>• If a DTC is detected, the SAS control module records the selector lever position when the DTC was detected, and it is displayed in the Mazda Modular Diagnostic System (M-MDS). | – |
| TOTAL_DIST | km | miles | Accumulated total traveled distance from completion of vehicle until SAS control module detects DTC (Odometer value in instrument cluster) | The total traveled distance from which the SAS control module detects DTCs to the present can be calculated by performing the following procedure.<br>1. Verify the odometer value in the instrument cluster.<br>2. Verify the snapshot data item TOTAL_DIST.<br>3. Subtract 2 from 1. | – |
| TOTAL_TIME | hh:mm:ss *1 | | Accumulated total elapsed time since vehicle completion until SAS control module detects a DTC *3<br>**Note**<br>**• When the ROOM fuse is removed, and the ignition is switched off, the time is not included in the elapsed time.** | The elapsed time from which the SAS control module detects DTCs to the present can be calculated by performing the following procedure.<br>1. Verify the instrument cluster PID item TOTAL_TIME.<br>2. Verify the snapshot data item TOTAL_TIME.<br>3. Subtract 2 from 1. | TOTAL_TIME *2 |
| VPWR | V | | SAS control module power supply | – | VPWR_IGA |
| VSPD_STATUS | Stop/<br>0-10km/h/<br>Over10km/h/<br>FAIL | | Vehicle speed status | • The SAS control module constantly receives the vehicle speed sent via CAN signal from the instrument cluster.<br>• If a DTC is detected, the SAS control module records the vehicle speed when the DTC was detected, and it is displayed in the Mazda Modular Diagnostic System (M-MDS). | SPEEDOMTR *2 |

***1:The seconds may be indicated after the decimal point.**

***2:Instrument cluster PID (See PID/DATA MONITOR TABLE [INSTRUMENT CLUSTER].)**

***3:The snap shot data of the number of stored malfunction detections, B+ counters, or IG ON counters is combined with the DTC detection conditions of the SAS control module, and the point-in-time data in the following table is stored.**