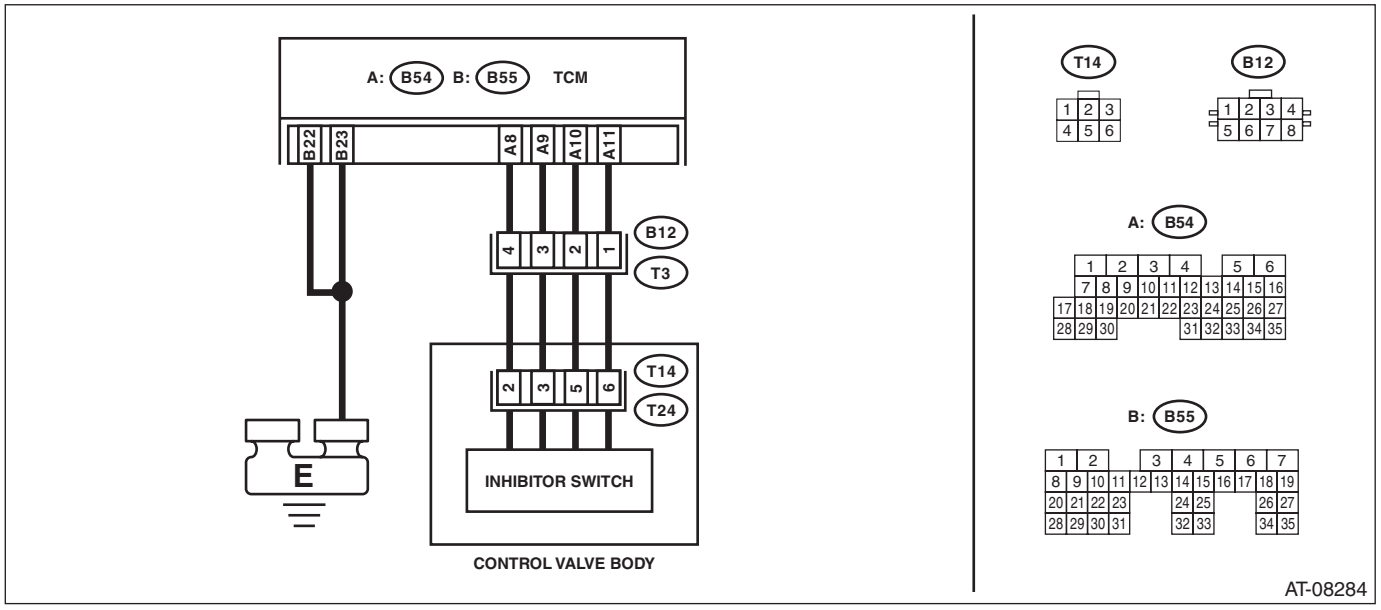
# 15.Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## A: DTC P0705 TRANSMISSION RANGE SENSOR CIRCUIT (PRNDL INPUT)

**DTC DETECTING CONDITION:**
The inhibitor switch is open or short.
**TROUBLE SYMPTOM:**
- Shift characteristics are erroneous.
- Shift indicator does not match with select lever.
- Shift indicator does not illuminate.
- N-D, N-R shock occur.

**WIRING DIAGRAM:**
AT control system <Ref. to WI-50, AT Control System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC OF TCM.** | Is DTC of AT CAN communication circuit displayed? | Perform the diagnosis according to DTC. | Go to step **2**. |
| 2 | **CHECK INHIBITOR SWITCH.**<br>Using Subaru Select Monitor, read the data of «Inhibitor SW 1» — «Inhibitor SW 4» for each range.<br><br>○=High<br>AT-05083 | Is the display as in the table of step 2? | Go to step **9**. | Go to step **3**. |
| 3 | **CHECK INHIBITOR SWITCH.**<br>Using Subaru Select Monitor, read the data of «Inhibitor SW 1» for “P” and “D” ranges. | Is the display “High” for both “P” and “D”? | Go to step **4**. | Go to step **7**. |
| 4 | **CHECK INHIBITOR SWITCH.**<br>Using Subaru Select Monitor, read the data of «Inhibitor SW 2» for “R” and “D” ranges. | Is the display “High” for both “R” and “D”? | Go to step **5**. | Go to step **7**. |

| | SW1 | SW2 | SW3 | SW4 |
|---|---|---|---|---|
| P | ○ | | | ○ |
| R | | ○ | | |
| N | | | ○ | ○ |
| D | ○ | ○ | ○ | |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 5 | **CHECK INHIBITOR SWITCH.**<br>Using Subaru Select Monitor, read the data of «Inhibitor SW 3» for “N” and “D” ranges. | Is the display “High” for both “N” and “D”? | Go to step **6**. | Go to step **7**. |
| 6 | **CHECK INHIBITOR SWITCH.**<br>Using Subaru Select Monitor, read the data of «Inhibitor SW 4» for “P” and “N” ranges. | Is the display “High” for both “P” and “N”? | Go to step **8**. | Go to step **7**. |
| 7 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connectors from TCM and transmission.<br>3) Measure the resistance of harness between TCM connector and transmission connector.<br>***Connector & terminal***<br>***(B54) No. 8 — (B12) No. 4:***<br>***(B54) No. 9 — (B12) No. 3:***<br>***(B54) No. 10 — (B12) No. 2:***<br>***(B54) No. 11 — (B12) No. 1:*** | Is the resistance less than 1 Ω? | Go to step **8**. | Repair the open circuit of harness between TCM connector and transmission connector. |
| 8 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connectors from TCM and transmission.<br>3) Measure the resistance between TCM connector and chassis ground.<br>***Connector & terminal***<br>***(B54) No. 8 — Chassis ground:***<br>***(B54) No. 9 — Chassis ground:***<br>***(B54) No. 10 — Chassis ground:***<br>***(B54) No. 11 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Go to step **9**. | Repair the short circuit of harness between TCM connector and chassis ground. |
| 9 | **CHECK INPUT SIGNAL FOR TCM.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the transmission connector (B12).<br>3) Connect the TCM connector.<br>4) Turn the ignition switch to ON.<br>5) Measure the voltage between TCM terminals.<br>***Connector & terminal***<br>***(B54) No. 8 (+) — (B55) No. 23 (–):***<br>***(B54) No. 9 (+) — (B55) No. 23 (–):***<br>***(B54) No. 10 (+) — (B55) No. 23 (–):***<br>***(B54) No. 11 (+) — (B55) No. 23 (–):*** | Is the voltage of «Inhibitor SW 1» — «Inhibitor SW 4» 8 V or more? | Go to step **11**. | Go to step **10**. |
| 10 | **CHECK TCM I/O SIGNAL.**<br>Check the power supply and ground I/O signals. <Ref. to 5AT(diag)-12, ELECTRICAL SPECIFICATION, Transmission Control Module (TCM) I/O Signal.> | Is TCM I/O signal OK? | Replace the TCM. <Ref. to 5AT-55, Transmission Control Module (TCM).> | Repair the open or short circuit for power supply and ground. |

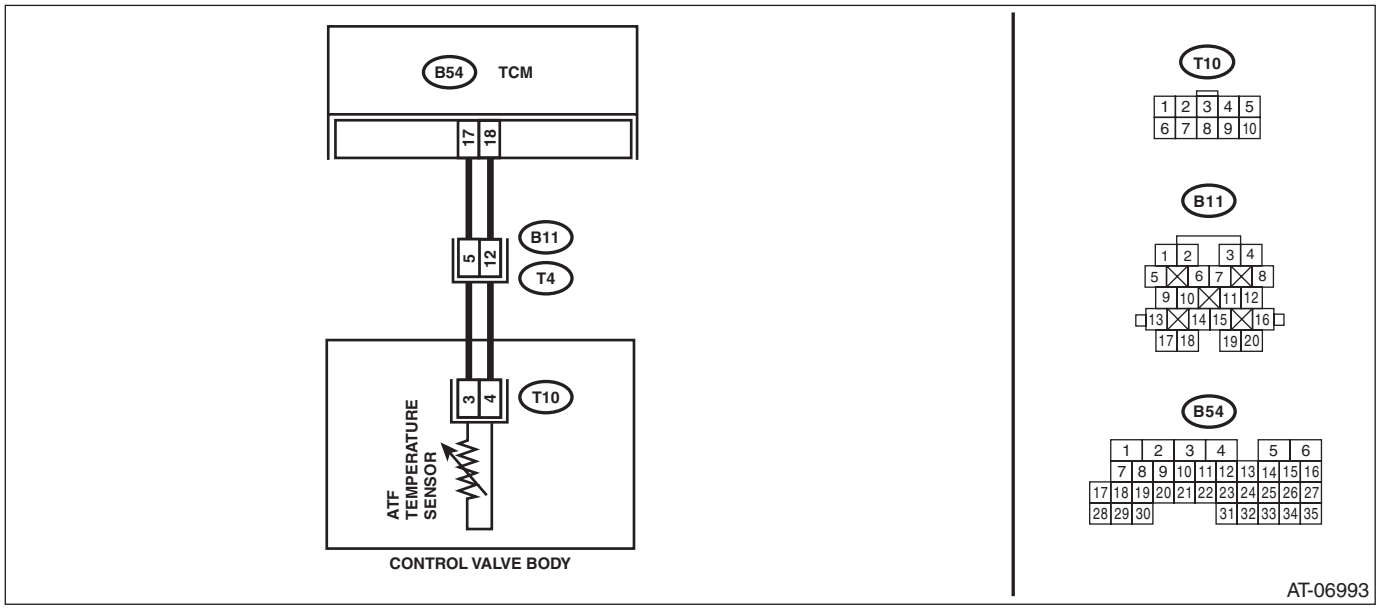
| | Step | Check | Yes | No |
|---|---|---|---|---|
| 11 | **CHECK INPUT SIGNAL FOR TCM.**<br>1) Connect all connectors.<br>2) Lift up the vehicle.<br>3) Start the engine.<br>4) Read the data of «Front Wheel Speed» and «AT Turbine Speed 2» using Subaru Select Monitor. <Ref. to 5AT(diag)-16, READ CURRENT DATA, OPERATION, Subaru Select Monitor.><br>NOTE:<br>The speed difference between front and rear wheels lights the ABS warning light or the VDC warning light, but this does not indicate a malfunction. If the warning light is illuminated, clear the memory of ABS or VDC after completing AT control diagnosis. <Ref. to VDC(diag)-27, Clear Memory Mode.> | Does the speedometer indication increase as «Front Wheel Speed» and «AT Turbine Speed 2» values increase? | Go to step **12**. | Replace the control valve body. <Ref. to 5AT-53, Control Valve Body.> |
| 12 | **CHECK INPUT SIGNAL FOR TCM.**<br>1) Drive at 4th of manual mode.<br>NOTE:<br>Turbine speed sensor 1 signal can be measured only on 4th speed.<br>2) Read the data of «Rear Wheel Speed» and «AT Turbine Speed 1» using Subaru Select Monitor. <Ref. to 5AT(diag)-16, READ CURRENT DATA, OPERATION, Subaru Select Monitor.><br>NOTE:<br>The speed difference between front and rear wheels lights the ABS warning light or the VDC warning light, but this does not indicate a malfunction. If the warning light is illuminated, clear the memory of ABS or VDC after completing AT control diagnosis. <Ref. to VDC(diag)-27, Clear Memory Mode.> | Does the speedometer indication increase as «Rear Wheel Speed» and «AT Turbine Speed 1» values increase? | Go to step **13**. | Repair the open circuit of harness or poor contact of connector between TCM and rear vehicle speed sensor and turbine speed sensor 1. |
| 13 | **CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connector from transmission.<br>3) Remove the transmission connector from bracket.<br>4) Lift up the vehicle.<br>5) Drain the ATF.<br>**CAUTION:**<br>**Do not drain ATF until it cools down.**<br>6) Remove the oil pan.<br>7) Disconnect the control valve body connector.<br>8) Measure the resistance between transmission connector and control valve body connector.<br>***Connector & terminal***<br>***(T3) No. 4 — (T14) No. 2:***<br>***(T3) No. 3 — (T14) No. 3:***<br>***(T3) No. 2 — (T14) No. 5:***<br>***(T3) No. 1 — (T14) No. 6:*** | Is the resistance less than 1 Ω? | Go to step **14**. | Repair the open circuit between control valve body connector and transmission connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 14 | **CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.**<br>Measure the resistance between transmission ground and control valve body connector.<br>***Connector & terminal***<br>***(T14) No. 2 — Transmission ground:***<br>***(T14) No. 3 — Transmission ground:***<br>***(T14) No. 5 — Transmission ground:***<br>***(T14) No. 6 — Transmission ground:*** | Is the resistance 1 MΩ or more? | Go to step **15**. | Repair the short circuit between control valve body connector and transmission connector. |
| 15 | **CHECK FOR POOR CONTACT.** | Is there any poor contact of «Inhibitor SW 1» — «Inhibitor SW 4» monitor circuit? | Repair the poor contact. | Replace the control valve body. <Ref. to 5AT-53, Control Valve Body.> |

# B: DTC P0711 ATF TEMP. SENSOR CIRCUIT RANGE/PERFORMANCE

**DTC DETECTING CONDITION:**
ATF temperature does not reach 20°C (68°F). (ATF temperature does not increase.)
**TROUBLE SYMPTOM:**
Excessive shift shock

**CAUTION:**
**After diagnosis, perform Clear Memory Mode for each system.**
**WIRING DIAGRAM:**
AT control system <Ref. to WI-50, AT Control System.>

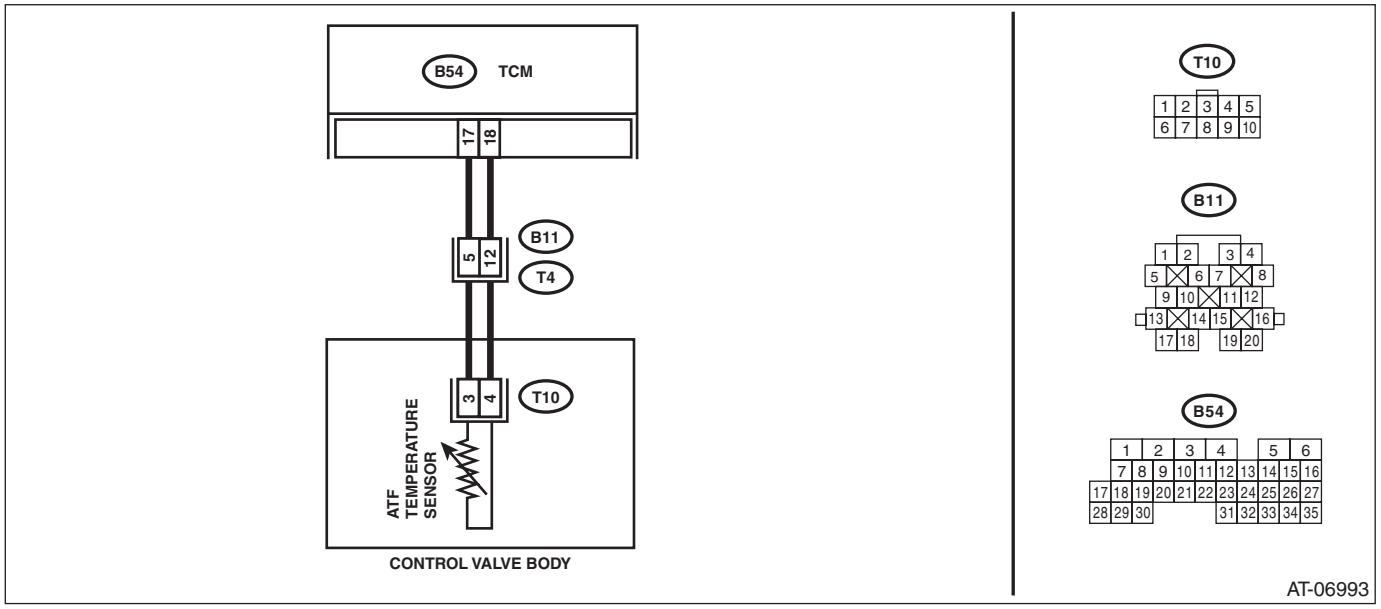



| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.**<br>Check the DTC using Subaru Select Monitor. | Is DTC P0712 or P0713 displayed? | Perform the diagnosis according to DTC. | Go to step **2**. |
| 2 | **CHECK TRANSMISSION FLUID.**<br>Check the amount of ATF. <Ref. to 5AT-29, INSPECTION, Automatic Transmission Fluid.> | Is the ATF amount correct? | Go to step **3**. | Adjust the amount of ATF. <Ref. to 5AT-29, INSPECTION, Automatic Transmission Fluid.> |
| 3 | **CHECK INPUT SIGNAL FOR TCM.**<br>Check «ATF Temp.» using the Subaru Select Monitor. | Is «ATF Temp.» less than 20°C (68°F)? | Go to step **4**. | Reconfirm after the ATF temperature drops below 20°C (68°F). |
| 4 | **CHECK INPUT SIGNAL FOR TCM.**<br>1) Lift up the vehicle.<br>2) Apply the parking brake.<br>3) Start the engine.<br>4) Set the select lever to “D” range.<br>5) Warm up the engine until the ATF temperature reaches 20°C (68°F).<br>6) Read the data of «ATF Temp.» using the Subaru Select Monitor. | Does «ATF Temp.» increase by 1°C (1.8°F) within 3 minutes? | Current condition is normal. | Go to step **5**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 5 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the TCM and transmission connectors.<br>3) Measure the resistance between TCM connector and transmission connectors.<br>***Connector & terminal***<br>***(B54) No. 17 — (B11) No. 5:***<br>***(B54) No. 18 — (B11) No. 12:*** | Is the resistance less than 1 Ω? | Go to step **6**. | Check for poor contact of the harness between the ATF temperature sensor and transmission connector, and repair the defective part. |
| 6 | **CHECK INPUT SIGNAL FOR TCM.**<br>1) Connect the connector to TCM. (with the transmission connector disconnected)<br>2) Turn the ignition switch to ON.<br>3) Read the data of «ATF Temp.» using the Subaru Select Monitor. | Is –40°C (–40°F) displayed in «ATF Temp.»? | Replace the control valve body. <Ref. to 5AT-53, Control Valve Body.> | Replace the TCM. <Ref. to 5AT-55, Transmission Control Module (TCM).> |

# C: DTC P0712 TRANSMISSION FLUID TEMPERATURE SENSOR CIRCUIT LOW INPUT

**DTC DETECTING CONDITION:**
Input signal circuit to ATF temperature sensor is shorted.
**TROUBLE SYMPTOM:**
Excessive shift shock
**WIRING DIAGRAM:**
AT control system <Ref. to WI-50, AT Control System.>

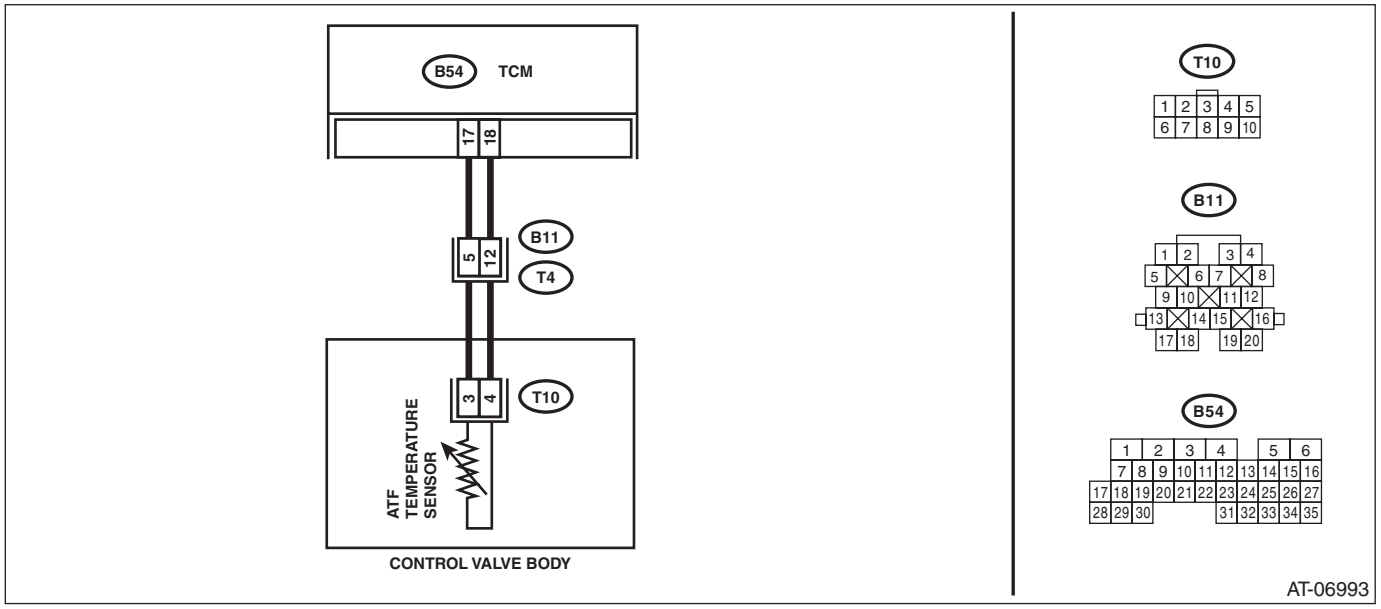



| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connectors from TCM and transmission.<br>3) Measure the resistance of harness between TCM connector and chassis ground.<br>***Connector & terminal***<br>***(B54) No. 17 — Chassis ground:***<br>***(B54) No. 18 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Go to step **2**. | Repair the short circuit of harness between TCM and transmission connector. |
| 2 | **CHECK ATF TEMPERATURE SENSOR.**<br>1) Turn the ignition switch to OFF.<br>2) Connect the connectors to transmission and TCM.<br>3) Start the engine.<br>4) Warm up the transmission until the ATF temperature exceeds 80°C (176°F).<br>5) Disconnect the connector from transmission.<br>6) Measure the resistance between transmission connector terminals.<br>***Connector & terminal***<br>***(T4) No. 5 — (T4) No. 12:*** | Is the resistance 300 — 800 Ω? | Go to step **3**. | Go to step **5**. |
| 3 | **CHECK ATF TEMPERATURE SENSOR.**<br>Measure the resistance between transmission connector terminals.<br>***Connector & terminal***<br>***(T4) No. 5 — (T4) No. 12:*** | Does the resistance value increase while the ATF temperature decreases? | Go to step **4**. | Go to step **5**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK INPUT SIGNAL FOR TCM.**<br>1) Connect the connector.<br>2) Turn the ignition switch to ON. (engine OFF)<br>3) Read the data of «ATF Temp.» using the Subaru Select Monitor. | Does the ATF temperature gradually decrease? | Check for poor contact of the harness between the ATF temperature sensor and transmission connector, and repair the defective part. | Go to step **6**. |
| 5 | **CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connector from transmission.<br>3) Remove the transmission connector from bracket.<br>4) Lift up the vehicle.<br>5) Drain the ATF.<br>**CAUTION:**<br>**Do not drain ATF until it cools down.**<br>6) Remove the oil pan.<br>7) Disconnect the connector from the control valve body.<br>8) Measure the resistance between chassis ground and control valve body connector.<br>***Connector & terminal***<br>***(T10) No. 3 — Chassis ground:***<br>***(T10) No. 4 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Replace the control valve body. <Ref. to 5AT-53, Control Valve Body.> | Repair the short circuit of harness between transmission connector and control valve body connector. |
| 6 | **CHECK FOR POOR CONTACT.** | Is there poor contact of ATF temperature sensor circuit? | Repair the poor contact. | Replace the TCM. <Ref. to 5AT-55, Transmission Control Module (TCM).> |

# D: DTC P0713 TRANSMISSION FLUID TEMPERATURE SENSOR CIRCUIT HIGH INPUT

**DTC DETECTING CONDITION:**
Input signal circuit to ATF temperature sensor is open.
**TROUBLE SYMPTOM:**
Excessive shift shock
**WIRING DIAGRAM:**
AT control system <Ref. to WI-50, AT Control System.>



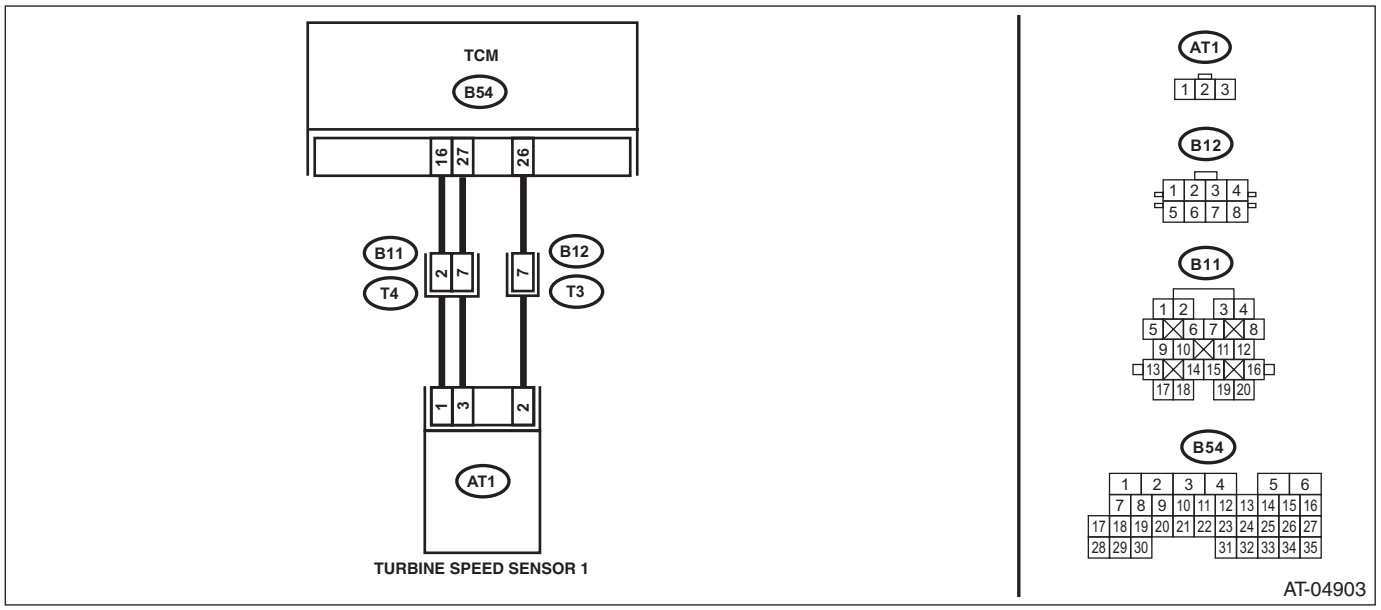

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connectors from TCM and transmission.<br>3) Measure the resistance of harness between TCM connector and transmission connector.<br>***Connector & terminal***<br>***(B54) No. 17 — (B11) No. 5:***<br>***(B54) No. 18 — (B11) No. 12:*** | Is the resistance less than 1 Ω? | Go to step **2**. | Repair the open circuit of harness between TCM and transmission connector. |
| 2 | **CHECK ATF TEMPERATURE SENSOR.**<br>1) Turn the ignition switch to OFF.<br>2) Connect the connectors to transmission and TCM.<br>3) Start the engine.<br>4) Warm up the transmission until the ATF temperature exceeds 80°C (176°F).<br>5) Disconnect the connector from transmission.<br>6) Measure the resistance between transmission connector terminals.<br>***Connector & terminal***<br>***(T4) No. 5 — (T4) No. 12:*** | Is the resistance 300 — 800 Ω? | Go to step **3**. | Go to step **5**. |
| 3 | **CHECK ATF TEMPERATURE SENSOR.**<br>Measure the resistance between transmission connector terminals.<br>***Connector & terminal***<br>***(T4) No. 5 — (T4) No. 12:*** | Does the resistance value increase while the ATF temperature decreases? | Go to step **4**. | Go to step **5**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK INPUT SIGNAL FOR TCM.**<br>1) Connect the connector.<br>2) Turn the ignition switch to ON. (engine OFF)<br>3) Read the data of «ATF Temp.» using the Subaru Select Monitor. | Does the ATF temperature gradually decrease? | Check for poor contact of the harness between the ATF temperature sensor and transmission connector, and repair the defective part. | Go to step **6**. |
| 5 | **CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connector from transmission.<br>3) Remove the transmission connector from bracket.<br>4) Lift up the vehicle.<br>5) Drain the ATF.<br>**CAUTION:**<br>**Do not drain ATF until it cools down.**<br>6) Remove the oil pan.<br>7) Disconnect the connector from the control valve body.<br>8) Measure the resistance between transmission connector and control valve body connector.<br>***Connector & terminal***<br>***(T4) No. 5 — (T10) No. 3:***<br>***(T4) No. 12 — (T10) No. 4:*** | Is the resistance less than 1 Ω? | Replace the control valve body. <Ref. to 5AT-53, Control Valve Body.> | Repair the open circuit of harness between transmission connector and control valve body connector. |
| 6 | **CHECK FOR POOR CONTACT.** | Is there poor contact of ATF temperature sensor circuit? | Repair the poor contact. | Replace the TCM. <Ref. to 5AT-55, Transmission Control Module (TCM).> |

# E: DTC P0715 INPUT/TURBINE SPEED SENSOR CIRCUIT

**DTC DETECTING CONDITION:**
Input signal circuit of TCM is open or shorted.
**TROUBLE SYMPTOM:**
- Excessive shift shock
- Does not shift to 5th.

**WIRING DIAGRAM:**
AT control system <Ref. to WI-50, AT Control System.>



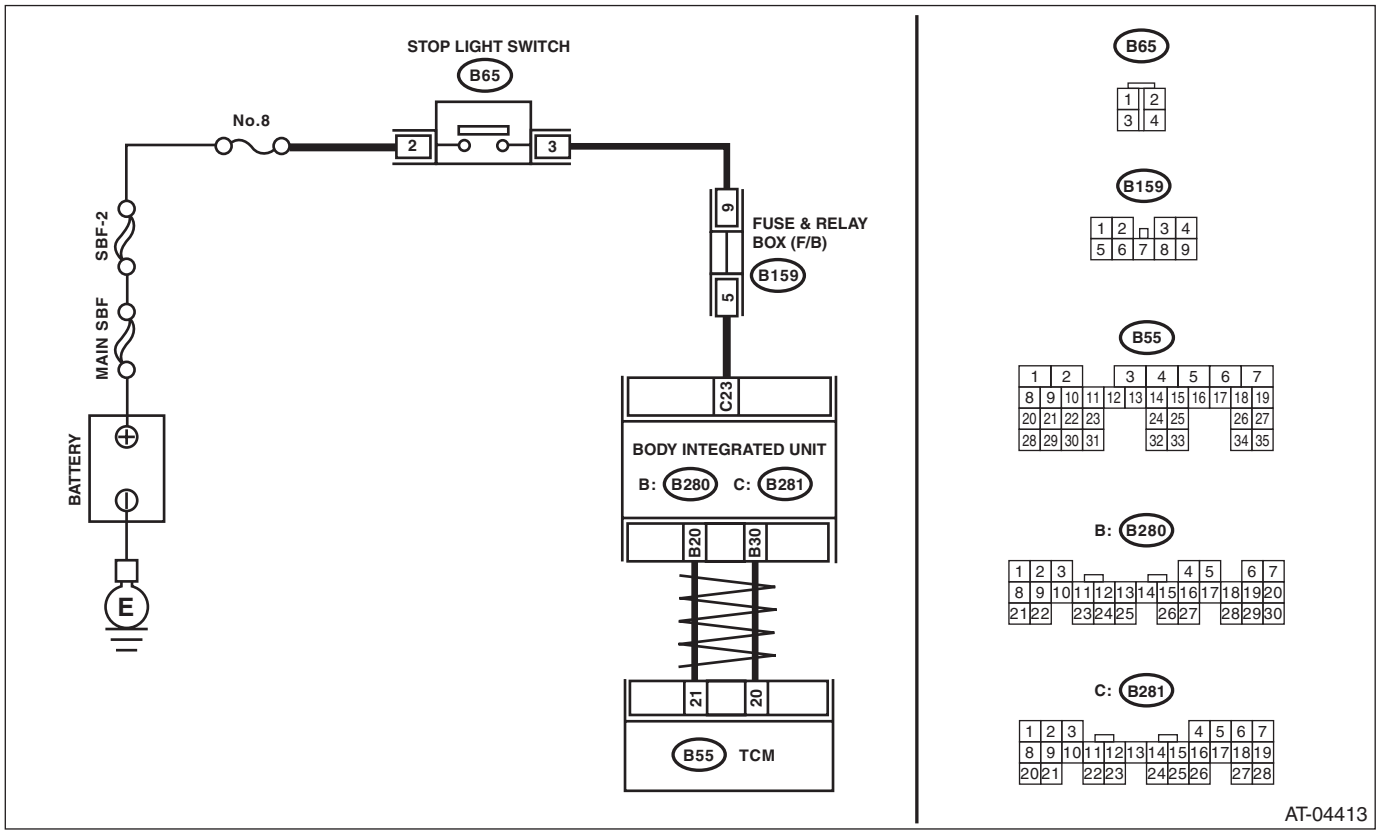

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK TCM I/O SIGNAL.**<br>Check the power supply and ground I/O signals. <Ref. to 5AT(diag)-12, ELECTRICAL SPECIFICATION, Transmission Control Module (TCM) I/O Signal.> | Is TCM I/O signal OK? | Go to step **2**. | Repair the open or short circuit for power supply and ground. |
| 2 | **CHECK TCM AND TRANSMISSION HARNESS CONNECTOR.**<br>1) Disconnect the connectors from TCM and transmission.<br>2) Measure the resistance of harness between TCM connector and transmission connector.<br>***Connector & terminal***<br>***(B54) No. 16 — (B11) No. 2:***<br>***(B54) No. 26 — (B12) No. 7:***<br>***(B54) No. 27 — (B11) No. 7:*** | Is the resistance less than 1 Ω? | Go to step **3**. | Repair the open circuit of harness between TCM and transmission connector. |
| 3 | **CHECK TCM AND TRANSMISSION HARNESS CONNECTOR.**<br>Measure the resistance of harness between TCM connector and chassis ground.<br>***Connector & terminal***<br>***(B54) No. 16 — Chassis ground:***<br>***(B54) No. 26 — Chassis ground:***<br>***(B54) No. 27 — Chassis ground:*** | Is the resistance less than 1 MΩ? | Go to step **4**. | Repair the short circuit of harness between TCM and transmission connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK TCM POWER SUPPLY OUTPUT.**<br>1) Connect the connector to TCM. (Transmission connector is disconnected)<br>2) Turn the ignition switch to ON. (engine OFF)<br>3) Measure the voltage between transmission connector and chassis ground.<br>***Connector & terminal***<br>***(B11) No. 7 (+) — Chassis ground (–):*** | Is the voltage 10 — 13 V? | Go to step **5**. | Replace the TCM. <Ref. to 5AT-55, Transmission Control Module (TCM).> |
| 5 | **CHECK INPUT CIRCUIT OF TCM TURBINE SPEED SENSOR.**<br>Measure the voltage between TCM connector terminals.<br>***Connector & terminal***<br>***(B12) No. 7 (+) — (B11) No. 2 (–):*** | Is the voltage 4 — 6 V? | Go to step **6**. | Replace the TCM. <Ref. to 5AT-55, Transmission Control Module (TCM).> |
| 6 | **CHECK HARNESS ASSEMBLY (TURBINE SPEED SENSOR GROUND).**<br>Check the installing condition of ground connecting harness of harness assembly (used for both of turbine speed sensor 1, rear vehicle speed sensor). | Is the ground connecting harness installed to transmission body correctly, with their harnesses and connector terminals not damaged? | Go to step **7**. | When poor installation of ground occurs, install it securely. Replace the transmission assembly if the harness or terminal is damaged. <Ref. to 5AT-37, Automatic Transmission Assembly.> |
| 7 | **CHECK HARNESS ASSEMBLY.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connector from transmission.<br>3) Disconnect the connector from turbine speed sensor 1.<br>4) Measure the resistance between transmission connector and turbine speed sensor 1 connector.<br>***Connector & terminal***<br>***(T3) No. 7 — (AT1) No. 2:***<br>***(T4) No. 7 — (AT1) No. 3:***<br>***(T4) No. 2 — (AT1) No. 1:***<br>***(AT1) No. 1 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **8**. | Repair the open circuit of harness between TCM and transmission connector, or poor contact of connector. |
| 8 | **CHECK HARNESS ASSEMBLY.**<br>Measure the resistance between transmission connector and chassis ground.<br>***Connector & terminal***<br>***(T3) No. 7 — Chassis ground:***<br>***(T4) No. 7 — Chassis ground:***<br>***(T4) No. 2 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Go to step **9**. | Repair the short circuit of harness between TCM and transmission connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 9 | **CHECK INPUT SIGNAL FOR TCM.**<br>1) Connect all connectors.<br>2) Lift up the vehicle.<br>3) Start the engine.<br>4) Set the vehicle in 4th speed driving condition of manual mode.<br>NOTE:<br>Turbine speed sensor 1 signal can be measured only on 4th speed.<br>5) Read the data of «AT Turbine Speed 1» and «AT Turbine Speed 2» using Subaru Select Monitor. <Ref. to 5AT(diag)-16, READ CURRENT DATA, OPERATION, Subaru Select Monitor.><br>NOTE:<br>The speed difference between front and rear wheels lights the ABS warning light or the VDC warning light, but this does not indicate a malfunction. If the warning light illuminates, delete the ABS or VDC memory after completing the AT control diagnosis. <Ref. to VDC(diag)-27, Clear Memory Mode.> | Are the values of «AT Turbine Speed 1» and «AT Turbine Speed 2» almost the same? | Check for poor contact of the harness of the turbine speed sensor 1 circuit, and repair the faulty part. | Replace the turbine speed sensor 1. <Ref. to 5AT-52, Turbine Speed Sensor 1.> |

# F: DTC P0719 BRAKE SWITCH CIRCUIT LOW

**DTC DETECTING CONDITION:**
Brake switch malfunction, open input signal circuit
**TROUBLE SYMPTOM:**
Gear is not shifted down when climbing a hill or driving down a hill.
**WIRING DIAGRAM:**
Stop light system <Ref. to WI-97, Stop Light System.>
CAN communication system <Ref. to WI-78, CAN Communication System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.** | Is any of following DTC displayed? / AT CAN Communication Circuit / Output Speed Sensor Circuit / AT Vehicle Speed Sensor Circuit Malfunction (Rear Wheel) / VDC Brake SW Circuit | Perform the diagnosis according to DTC. | Go to step **2**. |
| 2 | **CHECK BODY INTEGRATED UNIT.**<br>1) Turn the ignition switch to OFF.<br>2) Connect the Subaru Select Monitor to data link connector.<br>3) Turn the ignition switch to ON. (engine OFF)<br>4) Run the Subaru Select Monitor.<br>5) Depress the brake pedal.<br>6) Read the data of «Stop Light Switch» using Subaru Select Monitor. <Ref. to LAN(diag)-13, DISPLAY OF CURRENT DATA, OPERATION, Subaru Select Monitor.> | Is “ON” displayed? | Go to step **3**. | Go to step **4**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK TCM.**<br>Read the data of «Stop Light Switch» using Subaru Select Monitor. <Ref. to 5AT(diag)-16, READ CURRENT DATA, OPERATION, Subaru Select Monitor.> | Is "ON" displayed? | A temporary poor contact of connector or harness may be the cause. Check the poor contact. | Replace the TCM. <Ref. to 5AT-55, Transmission Control Module (TCM).> |
| 4 | **CHECK BODY INTEGRATED UNIT INPUT SIGNAL.**<br>1) Disconnect the connector from body integrated unit.<br>2) Depress the brake pedal.<br>3) Measure the voltage between body integrated unit connector and chassis ground.<br>***Connector & terminal***<br>***(B281) No. 23 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Go to step **7**. | Go to step **5**. |
| 5 | **CHECK HARNESS CONNECTOR BETWEEN BODY INTEGRATED UNIT AND STOP LIGHT SWITCH.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connector from stop light switch.<br>3) Measure the resistance of harness between body integrated unit and stop light switch.<br>***Connector & terminal***<br>***(B281) No. 23 — (B65) No. 3:*** | Is the resistance less than 1 Ω? | Go to step **6**. | Repair the open circuit of harness between body integrated unit and stop light switch. |
| 6 | **CHECK HARNESS CONNECTOR BETWEEN BODY INTEGRATED UNIT AND STOP LIGHT SWITCH.**<br>Measure the resistance of harness between body integrated unit connector and stop light switch.<br>***Connector & terminal***<br>***(B281) No. 23 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Go to step **7**. | Repair the short circuit of harness between body integrated unit and stop light switch. |
| 7 | **CHECK FOR POOR CONTACT.** | Is there poor contact of input signal of brake switch? | Repair the poor contact. | Check body integrated unit. |

# G: DTC P0720 OUTPUT SPEED SENSOR CIRCUIT

**DTC DETECTING CONDITION:**

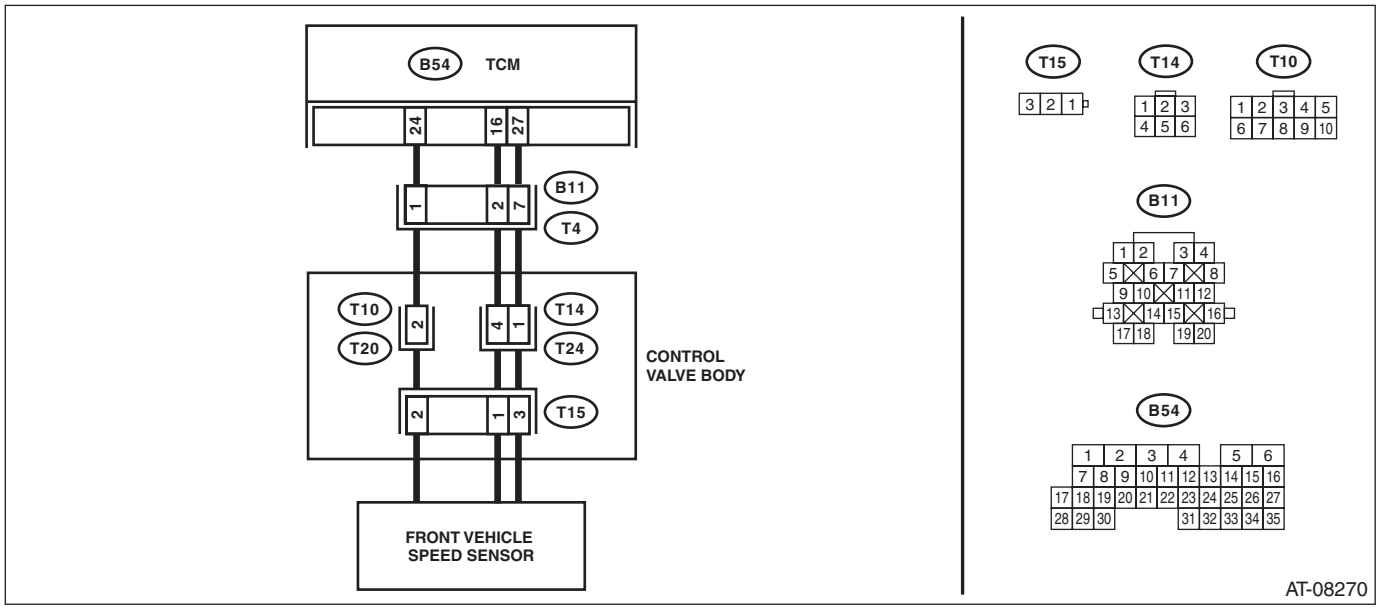
- AT vehicle speed signal is abnormal.
- The harness connector between TCM and vehicle speed sensor is shorted or open.

**TROUBLE SYMPTOM:**

- Shifting quality malfunction
- Driving performance is poor.

**WIRING DIAGRAM:**

AT control system <Ref. to WI-50, AT Control System.>



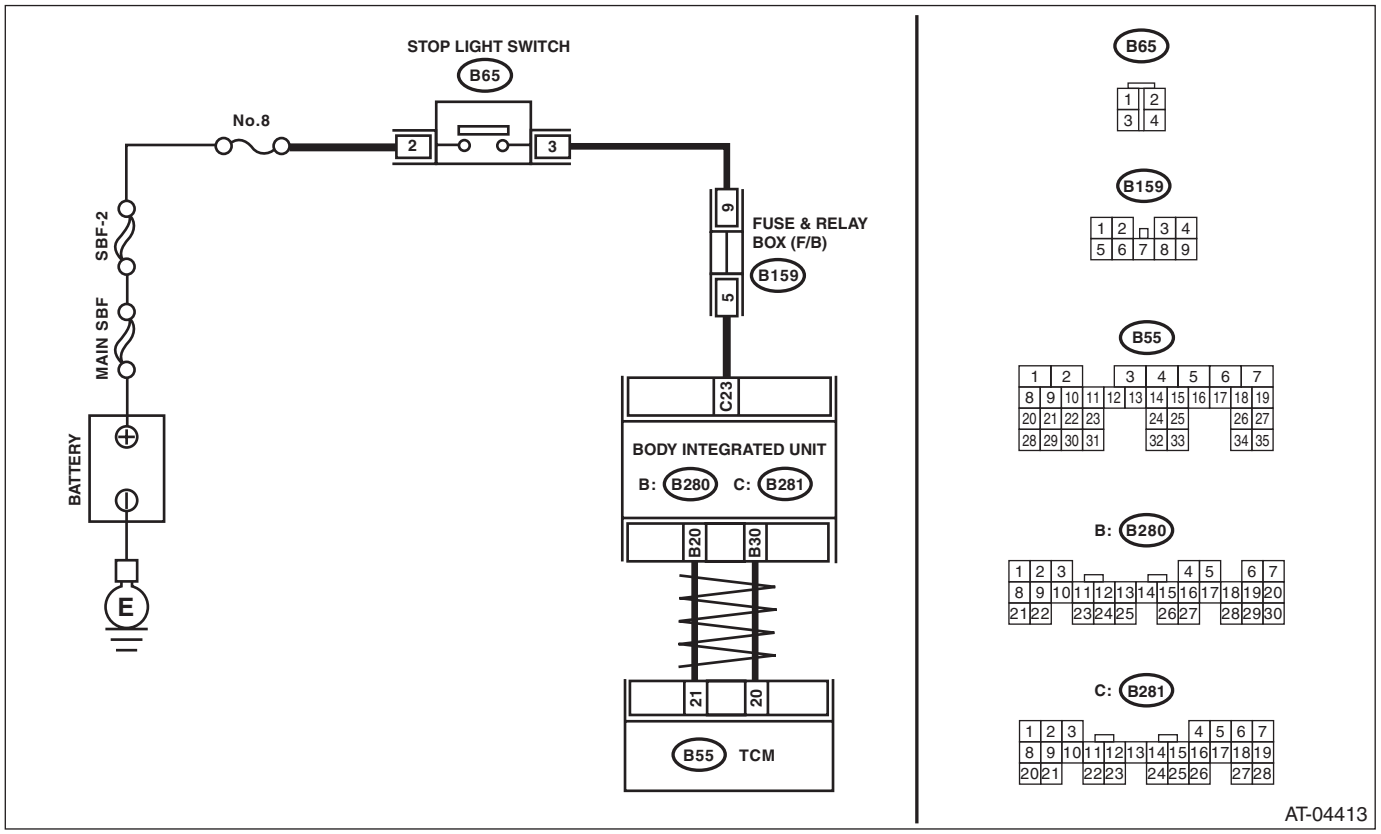

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK TCM I/O SIGNAL.**<br>Check the power supply and ground I/O signals. <Ref. to 5AT(diag)-12, ELECTRICAL SPECIFICATION, Transmission Control Module (TCM) I/O Signal.> | Is TCM I/O signal OK? | Go to step **2**. | Repair the open or short circuit for power supply and ground. |
| 2 | **CHECK TCM AND TRANSMISSION HARNESS CONNECTOR.**<br>1) Disconnect the connectors from TCM and transmission.<br>2) Measure the resistance of harness between TCM connector and transmission connector.<br>***Connector & terminal***<br>***(B54) No. 16 — (B11) No. 2:***<br>***(B54) No. 24 — (B11) No. 1:***<br>***(B54) No. 27 — (B11) No. 7:*** | Is the resistance less than 1 Ω? | Go to step **3**. | Repair the open circuit of harness between TCM and transmission connector. |
| 3 | **CHECK TCM AND TRANSMISSION HARNESS CONNECTOR.**<br>Measure the resistance of harness between TCM connector and chassis ground.<br>***Connector & terminal***<br>***(B54) No. 24 — Chassis ground:*** | Is the resistance less than 1 MΩ? | Go to step **4**. | Repair the short circuit of harness between TCM and transmission connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK TCM POWER SUPPLY OUTPUT.**<br>1) Connect the connector to TCM. (Transmission connector is disconnected)<br>2) Turn the ignition switch to ON. (engine OFF)<br>3) Measure the voltage between transmission connector and chassis ground.<br>***Connector & terminal***<br>***(B11) No. 7 (+) — Chassis ground (–):*** | Is the voltage 10 — 13 V? | Go to step **5**. | Replace the TCM. <Ref. to 5AT-55, Transmission Control Module (TCM).> |
| 5 | **CHECK INPUT CIRCUIT OF TCM TURBINE SPEED SENSOR.**<br>Measure the voltage variation between TCM connector terminals.<br>***Connector & terminal***<br>***(B11) No. 1 (+) — (B11) No. 2 (–):*** | Is the voltage 4 — 6 V? | Go to step **6**. | Replace the TCM. <Ref. to 5AT-55, Transmission Control Module (TCM).> |
| 6 | **CHECK INPUT SIGNAL FOR TCM.**<br>1) Connect all connectors.<br>2) Lift up the vehicle.<br>3) Start the engine.<br>4) Read the data of «Front Wheel Speed» using Subaru Select Monitor. <Ref. to 5AT(diag)-16, READ CURRENT DATA, OPERATION, Subaru Select Monitor.><br>NOTE:<br>The speed difference between front and rear wheels lights the ABS warning light or the VDC warning light, but this does not indicate a malfunction. If the warning light illuminates, delete the ABS or VDC memory after completing the AT control diagnosis. <Ref. to VDC(diag)-27, Clear Memory Mode.> | Does the speedometer indication increase as the «Front Wheel Speed» data increases? | Check the harness of the front vehicle speed sensor circuit, and repair the defective part. | Go to step **7**. |
| 7 | **CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connector from transmission.<br>3) Remove the transmission connector from bracket.<br>4) Lift up the vehicle.<br>5) Drain the ATF.<br>**CAUTION:**<br>**Do not drain ATF until it cools down.**<br>6) Remove the oil pan.<br>7) Disconnect the connector from the control valve body.<br>8) Measure the resistance between transmission connector and control valve body connector.<br>***Connector & terminal***<br>***(T4) No. 1 — (T10) No. 2:*** | Is the resistance less than 1 Ω? | Go to step **8**. | Repair the open circuit of harness between control valve body connector and transmission connector. |
| 8 | **CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.**<br>Measure the resistance between transmission ground and control valve body connector.<br>***Connector & terminal***<br>***(T10) No. 2 — Transmission ground:*** | Is the resistance 1 MΩ or more? | Go to step **9**. | Repair the short circuit of harness between transmission connector and transmission ground. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 9 | **CHECK HARNESS CONNECTOR BETWEEN CONTROL VALVE BODY AND VEHICLE SPEED SENSOR.**<br>1) Disconnect the connector from vehicle speed sensor.<br>2) Measure the resistance of harness between control valve body connector and vehicle speed sensor connector.<br>***Connector & terminal***<br>***(T20) No. 2 — (T15) No. 2:***<br>***(T24) No. 1 — (T15) No. 3:***<br>***(T24) No. 4 — (T15) No. 1:*** | Is the resistance less than 1 Ω? | Go to step **10**. | Replace the control valve body. <Ref. to 5AT-53, Control Valve Body.> |
| 10 | **CHECK HARNESS CONNECTOR BETWEEN CONTROL VALVE BODY AND VEHICLE SPEED SENSOR.**<br>Measure the resistance of harness between control valve body connector and transmission ground.<br>***Connector & terminal***<br>***(T20) No. 2 — Transmission ground:*** | Is the resistance 1 MΩ or more? | Replace the front vehicle speed sensor. | Replace the control valve body. <Ref. to 5AT-53, Control Valve Body.> |

# H: DTC P0724 BRAKE SWITCH CIRCUIT HIGH

**DTC DETECTING CONDITION:**
Brake switch malfunction, open input signal circuit
**TROUBLE SYMPTOM:**
Gear is not shifted down when climbing a hill.
**WIRING DIAGRAM:**
Stop light system <Ref. to WI-97, Stop Light System.>
CAN communication system <Ref. to WI-78, CAN Communication System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.** | Is any of following DTC detected? / AT CAN Communication Circuit / Output Speed Sensor Circuit / AT Vehicle Speed Sensor Circuit Malfunction (Rear Wheel) / VDC Brake SW Circuit | Perform the diagnosis according to DTC. | Go to step **2**. |
| 2 | **CHECK BODY INTEGRATED UNIT.**<br>1) Turn the ignition switch to OFF.<br>2) Connect the Subaru Select Monitor to data link connector.<br>3) Turn the ignition switch to ON. (engine OFF)<br>4) Run the Subaru Select Monitor.<br>5) Read the data of «Stop Light Switch» using Subaru Select Monitor. <Ref. to LAN(diag)-13, DISPLAY OF CURRENT DATA, OPERATION, Subaru Select Monitor.> | Is “OFF” displayed? | Go to step **3**. | Go to step **4**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK TCM.**<br>Read the data of «Stop Light Switch» using Subaru Select Monitor. <Ref. to 5AT(diag)-16, READ CURRENT DATA, OPERATION, Subaru Select Monitor.> | Is "OFF" displayed? | A temporary poor contact of connector or harness may be the cause. Check the poor contact. | Replace the TCM. <Ref. to 5AT-55, Transmission Control Module (TCM).> |
| 4 | **CHECK BODY INTEGRATED UNIT INPUT SIGNAL.**<br>1) Disconnect the connector from body integrated unit.<br>2) Measure the voltage between body integrated unit connector and chassis ground.<br>***Connector & terminal***<br>***(B281) No. 23 (+) — Chassis ground (–):*** | Is the voltage 10 V or more? | Go to step **5**. | Go to step **7**. |
| 5 | **CHECK STOP LIGHT SWITCH.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connector from stop light switch.<br>3) Measure the resistance of harness between stop light switch connectors.<br>***Connector & terminal***<br>***(B65) No. 3 — (B65) No. 2:*** | Is the resistance 1 MΩ or more? | Go to step **6**. | Replace the stop light switch. <Ref. to BR-39, Stop Light Switch.> |
| 6 | **CHECK HARNESS CONNECTOR BETWEEN BODY INTEGRATED UNIT AND STOP LIGHT SWITCH.**<br>1) Turn the ignition switch to ON.<br>2) Measure the voltage of harness between body integrated unit connector and chassis ground.<br>***Connector & terminal***<br>***(B281) No. 23 (+) — Chassis ground (–):*** | Is the voltage less than 1 V? | Go to step **7**. | Repair the short circuit of harness between body integrated unit and stop light switch. |
| 7 | **CHECK FOR POOR CONTACT.** | Is there poor contact of input signal of stop light switch? | Repair the poor contact. | Check body integrated unit. |

## I: DTC P0731 GEAR 1 INCORRECT RATIO

NOTE:
Refer to DTC P0736 for diagnostic procedure. <Ref. to 5AT(diag)-56, DTC P0736 REVERSE INCORRECT RATIO, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## J: DTC P0732 GEAR 2 INCORRECT RATIO

NOTE:
Refer to DTC P0736 for diagnostic procedure. <Ref. to 5AT(diag)-56, DTC P0736 REVERSE INCORRECT RATIO, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## K: DTC P0733 GEAR 3 INCORRECT RATIO

NOTE:
Refer to DTC P0736 for diagnostic procedure. <Ref. to 5AT(diag)-56, DTC P0736 REVERSE INCORRECT RATIO, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## L: DTC P0734 GEAR 4 INCORRECT RATIO

NOTE:
Refer to DTC P0736 for diagnostic procedure. <Ref. to 5AT(diag)-56, DTC P0736 REVERSE INCORRECT RATIO, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## M: DTC P0735 GEAR 5 INCORRECT RATIO

NOTE:
Refer to DTC P0736 for diagnostic procedure. <Ref. to 5AT(diag)-56, DTC P0736 REVERSE INCORRECT RATIO, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## N: DTC P0736 REVERSE INCORRECT RATIO

**DTC DETECTING CONDITION:**
Target gear ratio and actual gear ratio do not match.
**TROUBLE SYMPTOM:**
- Shift point is too high or too low.
- Excessive shift shock
- Gear is not changed.
- The vehicle does not move in “D” or “R” range with the engine running at high speed.

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC.** | Is any of the following DTCs displayed? P0751, P0753, P0756, P0758, P0761, P0763, P0766, P0768, P0771, P0773 | Perform the diagnosis according to DTC. | Go to step **2**. |
| 2 | **CHECK DTC.** | Is DTC P1718 displayed? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK AT TURBINE SPEED SENSOR CIRCUIT.**<br>Perform diagnosis according to DTC P0715. <Ref. to 5AT(diag)-45, DTC P0715 INPUT/ TURBINE SPEED SENSOR CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> | Is there any trouble? | Check the turbine speed sensor 1 circuit. | Go to step **4**. |
| 4 | **CHECK AT TURBINE SPEED SENSOR CIRCUIT.**<br>Perform diagnosis according to DTC P1710. <Ref. to 5AT(diag)-94, DTC P1710 TORQUE CONVERTER TURBINE 2 SPEED SIGNAL CIRCUIT MALFUNCTION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> | Is there any trouble? | Check the turbine speed sensor 2 circuit. | Go to step **5**. |
| 5 | **CHECK AT VEHICLE SPEED SENSOR CIRCUIT.**<br>Perform diagnosis according to DTC P0720. <Ref. to 5AT(diag)-50, DTC P0720 OUTPUT SPEED SENSOR CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> | Is there any trouble? | Check for poor contact of the front vehicle speed sensor circuit harness and repair the fault location. | Go to step **6**. |
| 6 | **CHECK AT VEHICLE SPEED SENSOR CIRCUIT.**<br>Perform diagnosis according to DTC P1706. <Ref. to 5AT(diag)-90, DTC P1706 AT VEHICLE SPEED SENSOR CIRCUIT MALFUNCTION (REAR WHEEL), Diagnostic Procedure with Diagnostic Trouble Code (DTC).> | Is there any trouble? | Check for poor contact of the rear vehicle speed sensor circuit harness and repair the fault location. | Go to step **7**. |
| 7 | **CHECK TRANSMISSION RANGE SENSOR CIRCUIT (PRNDL INPUT).**<br>Perform diagnosis according to DTC P0705. <Ref. to 5AT(diag)-35, DTC P0705 TRANSMISSION RANGE SENSOR CIRCUIT (PRNDL INPUT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).> | Is there any trouble? | Check the inhibitor switch circuit. | There are malfunctions in TCM, TCM connector poor contact, or transmission assembly mechanical malfunction. |

## O: DTC P0741 TORQUE CONVERTER CLUTCH CIRCUIT PERFORMANCE OR STUCK OFF

**DTC DETECTING CONDITION:**

- Lock up clutch malfunction
- Defective torque converter assembly
- Defective control valve
- Defective turbine speed sensor 1 or 2

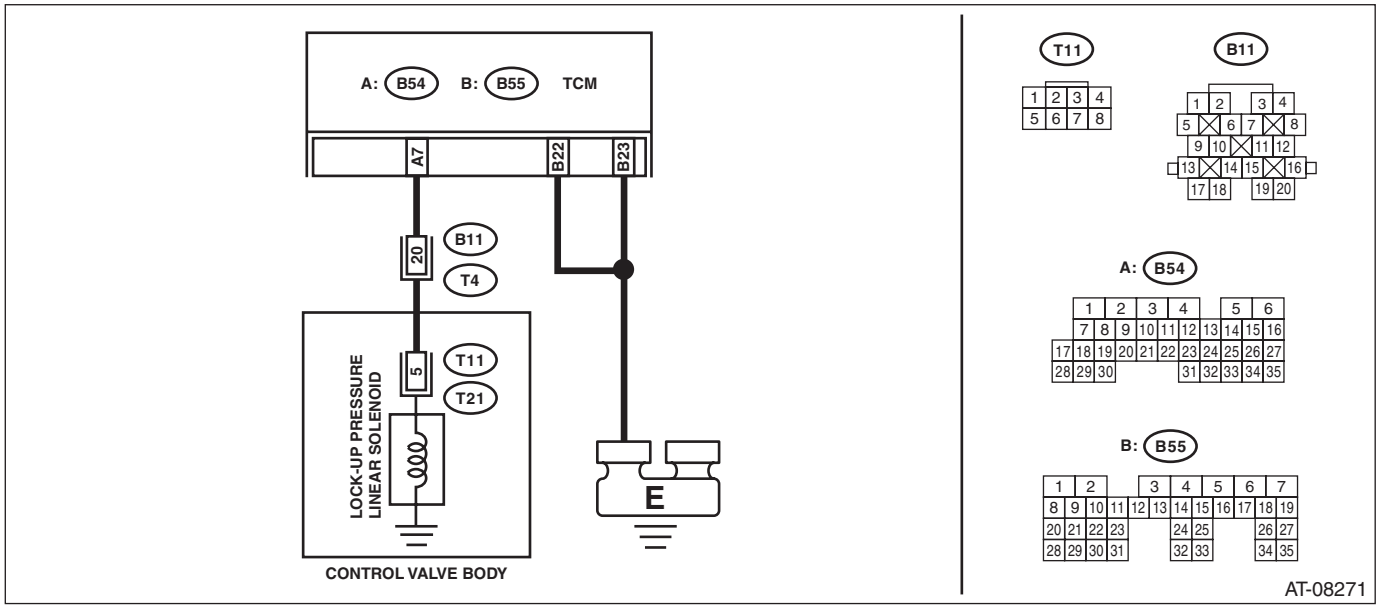
**TROUBLE SYMPTOM:**

No lock-up occurs. (After engine is warmed up)

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC OF TCM.** | Is any DTC of the followings detected? P0715, P0720, P0753, P0758, P0763, P0768, P0773, P0751, P0756, P0761, P0766, P0771, P1710, P1718 | Perform the diagnosis according to each DTC. | Go to step **2**. |
| 2 | **DRIVING CHECK FOR LOCK-UP CONDITION.**<br>1) Perform the Clear Memory Mode.<br>2) Maintain the value of «Accel. Opening Angle» displayed on Subaru Select Monitor and drive the vehicle at 85 km/h or more.<br>3) Make sure that «L/U Solenoid Current» is 0.6 A or more using Subaru Select Monitor.<br>4) Read the data of «Engine Speed» and «Turbine Revolution Speed» using Subaru Select Monitor. | Is the difference between «Engine Speed» and «Turbine Revolution Speed» within 100 rpm? | Temporary poor contact or open circuit occurs. Recheck that the harness connector has no faulty. | Replace the transmission assembly when the speed difference becomes 100 rpm or more or DTC P0741 is displayed. When DTC other than P0741 is displayed, perform the diagnosis corresponding to the DTC. |

# P: DTC P0743 TORQUE CONVERTER CLUTCH CIRCUIT ELECTRICAL

**DTC DETECTING CONDITION:**
The output signal circuit of lock up solenoid is open or shorted.
**TROUBLE SYMPTOM:**
No lock-up occurs. (After engine is warmed up.)
**WIRING DIAGRAM:**
AT control system <Ref. to WI-50, AT Control System.>

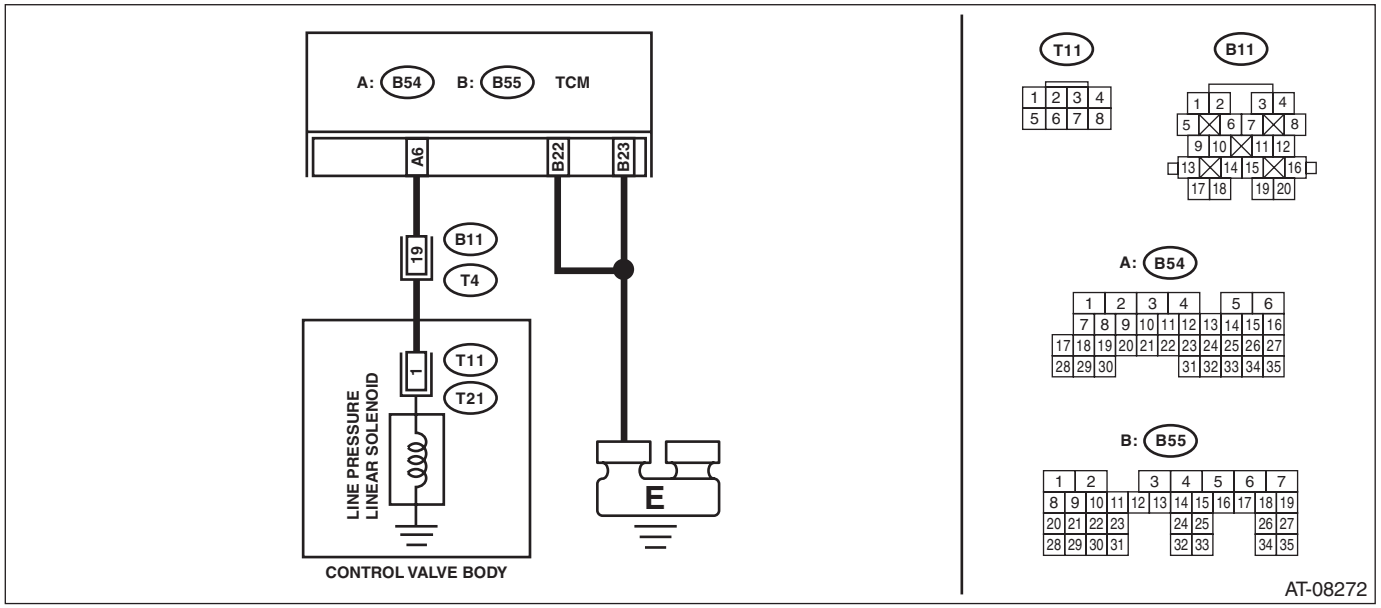



| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connectors from TCM and transmission.<br>3) Measure the resistance of harness between TCM connector and transmission connector.<br>***Connector & terminal***<br>***(B54) No. 7 — (B11) No. 20:***<br>***(B55) No. 22 — Chassis ground:***<br>***(B55) No. 23 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **2**. | Repair the open circuit of harness between TCM connector and transmission connector. |
| 2 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND CHASSIS GROUND.**<br>Measure the resistance of harness between TCM connector and chassis ground.<br>***Connector & terminal***<br>***(B54) No. 7 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Go to step **3**. | Repair the short circuit of harness between TCM connector and transmission connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connector from transmission.<br>3) Remove the transmission connector from bracket.<br>4) Lift up the vehicle.<br>5) Drain the ATF.<br>NOTE:<br>Do not drain ATF until it cools down.<br>6) Remove the oil pan.<br>7) Disconnect the connector from the control valve body.<br>8) Measure the resistance between transmission connector and control valve body connector.<br>***Connector & terminal***<br>***(T4) No. 20 — (T11) No. 5:*** | Is the resistance less than 1 Ω? | Go to step **4**. | Repair the open circuit of harness between transmission connector and control valve body connector. |
| 4 | **CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.**<br>Measure the resistance between transmission ground and control valve body connector.<br>***Connector & terminal***<br>***(T11) No. 5 — Transmission ground:*** | Is the resistance 1 MΩ or more? | Go to step **5**. | Repair the short circuit of harness between control valve body connector and transmission ground. |
| 5 | **CHECK LOCK-UP SOLENOID.**<br>Measure the resistance between transmission ground and control valve body connector.<br>***Connector & terminal***<br>***(T21) No. 5 — Transmission ground:*** | Is the resistance 3 — 9 Ω? | Go to step **6**. | Replace the control valve body. <Ref. to 5AT-53, Control Valve Body.> |
| 6 | **CHECK FOR POOR CONTACT.**<br>Check the TCM connector, transmission connector and control valve body connector. | Is there poor contact (loosing terminal, entering foreign matter, damaging connector body)? | Repair the poor contact. | Go to step **7**. |
| 7 | **CHECK AFTER REPAIR.**<br>1) Perform the Clear Memory Mode.<br>2) Drive for a while and read DTC. | Is DTC displayed? | Replace the TCM. <Ref. to 5AT-55, Transmission Control Module (TCM).> | Temporary poor contact or open circuit occurs. Recheck that the harness connector has no faulty. |

# Q: DTC P0748 PRESSURE CONTROL SOLENOID "A" ELECTRICAL

**DTC DETECTING CONDITION:**
Output signal circuit of line pressure solenoid is open or shorted.
**TROUBLE SYMPTOM:**
Excessive shift shock
**WIRING DIAGRAM:**
AT control system <Ref. to WI-50, AT Control System.>

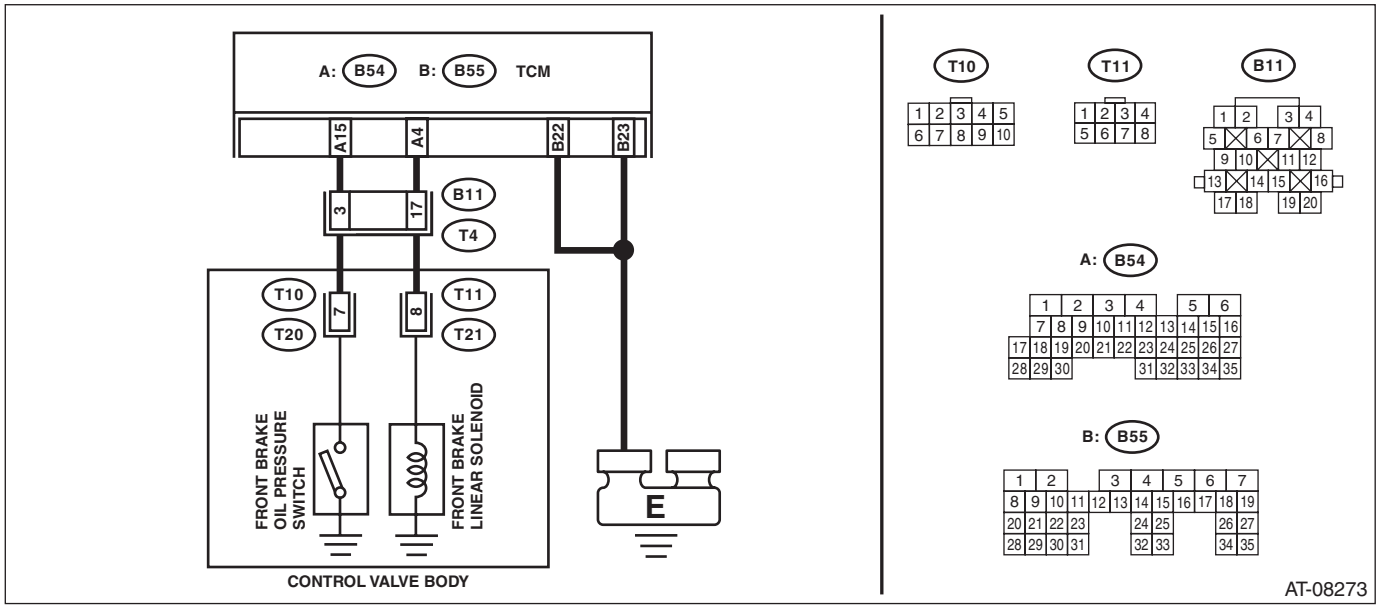



| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connectors from TCM and transmission.<br>3) Measure the resistance of harness between TCM connector and transmission connector.<br>***Connector & terminal***<br>***(B54) No. 6 — (B11) No. 19:***<br>***(B55) No. 22 — Chassis ground:***<br>***(B55) No. 23 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **2**. | Repair the open circuit of harness between TCM connector and transmission connector. |
| 2 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND CHASSIS GROUND.**<br>Measure the resistance between TCM connector and chassis ground.<br>***Connector & terminal***<br>***(B54) No. 6 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Go to step **3**. | Repair the short circuit of harness between TCM connector and transmission connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connector from transmission.<br>3) Remove the transmission connector from bracket.<br>4) Lift up the vehicle.<br>5) Drain the ATF.<br>**CAUTION:**<br>**Do not drain ATF until it cools down.**<br>6) Remove the oil pan.<br>7) Disconnect the connector from the control valve body.<br>8) Measure the resistance between transmission connector and control valve body connector.<br>***Connector & terminal***<br>***(T4) No. 19 — (T11) No. 1:*** | Is the resistance less than 1 Ω? | Go to step **4**. | Repair the open circuit of harness between transmission connector and control valve body connector. |
| 4 | **CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.**<br>Measure the resistance between transmission ground and control valve body connector.<br>***Connector & terminal***<br>***(T11) No. 1 — Transmission ground:*** | Is the resistance 1 MΩ or more? | Go to step **5**. | Repair the short circuit of harness between control valve body connector and transmission ground. |
| 5 | **CHECK LINE PRESSURE SOLENOID.**<br>Measure the resistance between transmission ground and control valve body connector.<br>***Connector & terminal***<br>***(T21) No. 1 — Transmission ground:*** | Is the resistance 3 — 9 Ω? | Go to step **6**. | Replace the control valve body. <Ref. to 5AT-53, Control Valve Body.> |
| 6 | **CHECK FOR POOR CONTACT.**<br>Check the TCM connector, transmission connector and control valve body connector. | Is there poor contact (loosing terminal, entering foreign matter, damaging connector body)? | Repair the poor contact. | Go to step **7**. |
| 7 | **CHECK AFTER REPAIR.**<br>1) Perform the Clear Memory Mode.<br>2) Drive for a while and read DTC. | Is DTC displayed? | Replace the TCM. <Ref. to 5AT-55, Transmission Control Module (TCM).> | Temporary poor contact or open circuit occurs. Recheck that the harness connector has no faulty. |

# R: DTC P0751 SHIFT SOLENOID "A" PERFORMANCE OR STUCK OFF

**DTC DETECTING CONDITION:**
Output signal of front brake solenoid does not match with oil pressure.
**TROUBLE SYMPTOM:**
Locked to 1st gear.
**WIRING DIAGRAM:**
AT control system <Ref. to WI-50, AT Control System.>

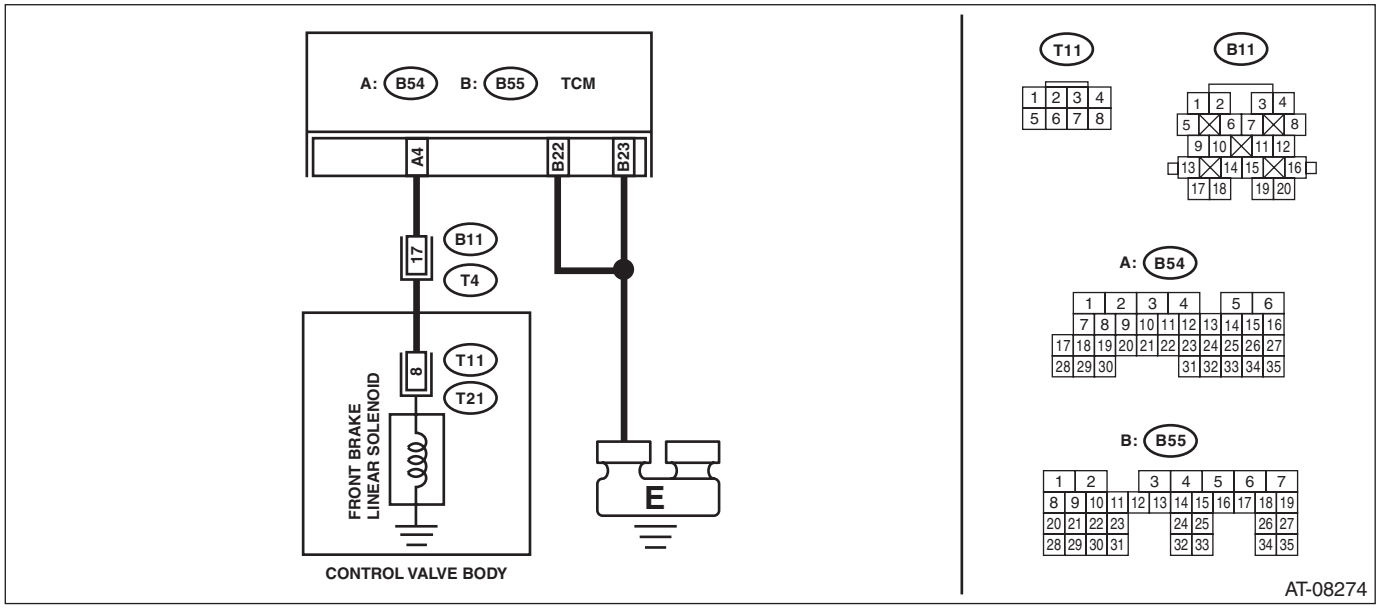



| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connectors from TCM and transmission.<br>3) Measure the resistance of harness between TCM connector and transmission connector.<br>***Connector & terminal***<br>***(B54) No. 4 — (B11) No. 17:***<br>***(B54) No. 15 — (B11) No. 3:***<br>***(B55) No. 22 — Chassis ground:***<br>***(B55) No. 23 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **2**. | Repair the open circuit of harness between TCM and transmission connector. |
| 2 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND CHASSIS GROUND.**<br>Measure the resistance of harness between TCM connector and chassis ground.<br>***Connector & terminal***<br>***(B54) No. 4 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Go to step **3**. | Repair the short circuit of harness between TCM and transmission connector. |
| 3 | **CHECK INPUT SIGNAL FOR TCM.**<br>1) Connect all connectors.<br>2) Turn the ignition switch to ON. (engine OFF)<br>3) Read the data of «F/B Fluid Pressure» using Subaru Select Monitor. | Is "OFF" displayed? | Go to step **4**. | Go to step **6**. |
| 4 | **CHECK INPUT SIGNAL FOR TCM.**<br>1) Turn the ignition switch to OFF.<br>2) Start the engine.<br>3) Shift to 1st speed while checking the current gear position using Subaru Select Monitor.<br>4) Read the data of «F/B Fluid Pressure» using Subaru Select Monitor. | Is "ON" displayed? | Check for poor contact of harness in the solenoid output and oil pressure SW input, and repair the defective part. | Go to step **5**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 5 | **CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connector from transmission.<br>3) Remove the transmission connector from bracket.<br>4) Lift up the vehicle.<br>5) Drain the ATF.<br>**CAUTION:**<br>**Do not drain ATF until it cools down.**<br>6) Remove the oil pan.<br>7) Disconnect the connector from the control valve body.<br>8) Measure the resistance between transmission connector and control valve body connector.<br>***Connector & terminal***<br>***(T4) No. 3 — (T10) No. 7:***<br>***(T4) No. 17 — (T11) No. 8:*** | Is the resistance less than 1 Ω? | Replace the control valve body. <Ref. to 5AT-53, Control Valve Body.> | Replace the transmission harness assembly. |
| 6 | **CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connector from transmission.<br>3) Remove the transmission connector from bracket.<br>4) Lift up the vehicle.<br>5) Drain the ATF.<br>**CAUTION:**<br>**Do not drain ATF until it cools down.**<br>6) Remove the oil pan.<br>7) Disconnect the connector from the control valve body.<br>8) Measure the resistance between transmission ground and control valve body connector.<br>***Connector & terminal***<br>***(T10) No. 7 — Transmission ground:*** | Is the resistance 1 MΩ or more? | Replace the control valve body. <Ref. to 5AT-53, Control Valve Body.> | Replace the transmission harness assembly. |

# S: DTC P0753 SHIFT SOLENOID "A" ELECTRICAL

**DTC DETECTING CONDITION:**
Output signal circuit of front brake solenoid is open or shorted.
**TROUBLE SYMPTOM:**
Locked to 1st gear.
**WIRING DIAGRAM:**
AT control system <Ref. to WI-50, AT Control System.>

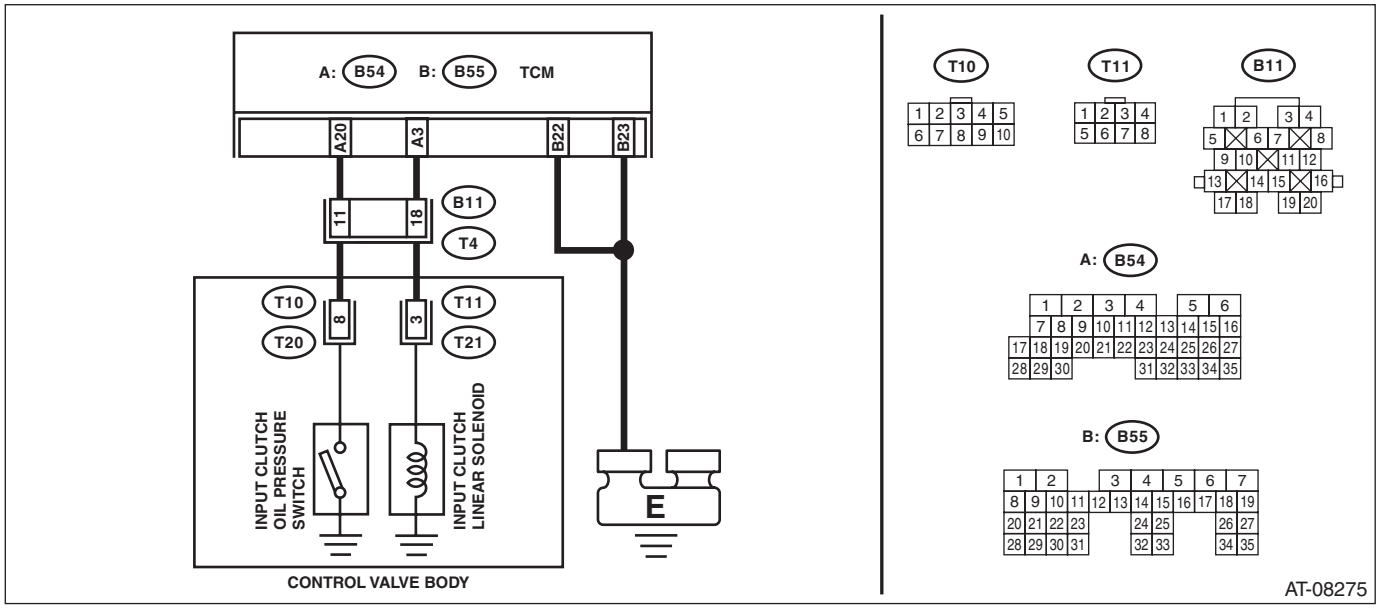



| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connectors from TCM and transmission.<br>3) Measure the resistance of harness between TCM connector and transmission connector.<br>***Connector & terminal***<br>***(B54) No. 4 — (B11) No. 17:***<br>***(B55) No. 22 — Chassis ground:***<br>***(B55) No. 23 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **2**. | Repair the open circuit of harness between TCM connector and transmission connector. |
| 2 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND CHASSIS GROUND.**<br>Measure the resistance of harness between TCM connector and chassis ground.<br>***Connector & terminal***<br>***(B54) No. 4 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Go to step **3**. | Repair the short circuit of harness between TCM connector and transmission connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connector from transmission.<br>3) Remove the transmission connector from bracket.<br>4) Lift up the vehicle.<br>5) Drain the ATF.<br>**CAUTION:**<br>**Do not drain ATF until it cools down.**<br>6) Remove the oil pan.<br>7) Disconnect the connector from the control valve body.<br>8) Measure the resistance between transmission connector and control valve body connector.<br>***Connector & terminal***<br>***(T4) No. 17 — (T11) No. 8:*** | Is the resistance less than 1 Ω? | Go to step **4**. | Repair the open circuit of harness between transmission connector and control valve body connector. |
| 4 | **CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.**<br>Measure the resistance between transmission ground and control valve body connector.<br>***Connector & terminal***<br>***(T11) No. 8 — Transmission ground:*** | Is the resistance 1 MΩ or more? | Go to step **5**. | Repair the short circuit of harness between control valve body connector and transmission ground. |
| 5 | **CHECK FRONT BRAKE SOLENOID.**<br>Measure the resistance between transmission ground and control valve body connector.<br>***Connector & terminal***<br>***(T21) No. 8 — Transmission ground:*** | Is the resistance 3 — 9 Ω? | Go to step **6**. | Replace the control valve body. <Ref. to 5AT-53, Control Valve Body.> |
| 6 | **CHECK FOR POOR CONTACT.**<br>Check the TCM connector, transmission connector and control valve body connector. | Is there poor contact (loosing terminal, entering foreign matter, damaging connector body)? | Repair the poor contact. | Go to step **7**. |
| 7 | **CHECK AFTER REPAIR.**<br>1) Perform the Clear Memory Mode.<br>2) Drive for a while and read DTC. | Is DTC displayed? | Replace the TCM. <Ref. to 5AT-55, Transmission Control Module (TCM).> | Temporary poor contact or open circuit occurs. Recheck that the harness connector has no faulty. |

# T: DTC P0756 SHIFT SOLENOID "B" PERFORMANCE OR STUCK OFF

**DTC DETECTING CONDITION:**
Output signal value of input clutch solenoid and oil pressure does not match.
**TROUBLE SYMPTOM:**
Locked to 1st or 4th gear.
**WIRING DIAGRAM:**
AT control system <Ref. to WI-50, AT Control System.>

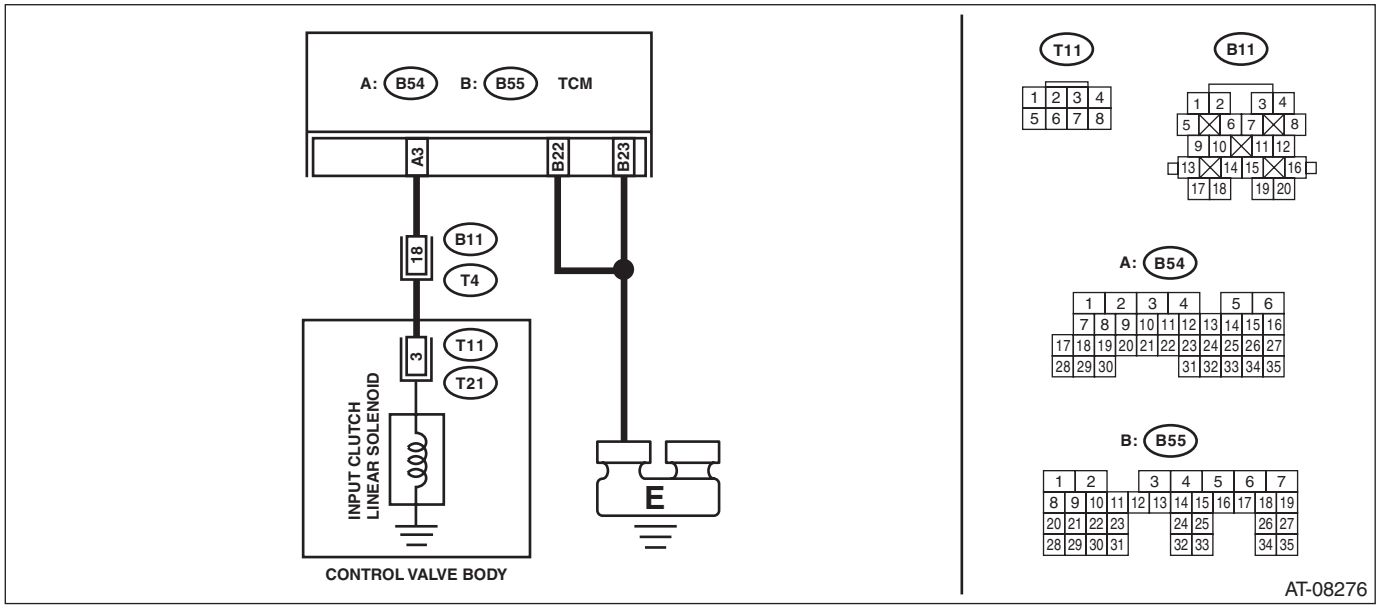



| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connectors from TCM and transmission.<br>3) Measure the resistance of harness between TCM connector and transmission connector.<br>***Connector & terminal***<br>***(B54) No. 3 — (B11) No. 18:***<br>***(B54) No. 20 — (B11) No. 11:***<br>***(B55) No. 22 — Chassis ground:***<br>***(B55) No. 23 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **2**. | Repair the open circuit of harness between TCM and transmission connector. |
| 2 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND CHASSIS GROUND.**<br>Measure the resistance of harness between TCM connector and chassis ground.<br>***Connector & terminal***<br>***(B54) No. 20 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Go to step **3**. | Repair the short circuit of harness between TCM and transmission connector. |
| 3 | **CHECK INPUT SIGNAL FOR TCM.**<br>1) Connect all connectors.<br>2) Turn the ignition switch to ON. (engine OFF)<br>3) Read the data of «I/C Fluid Pressure» using Subaru Select Monitor. | Is "OFF" displayed? | Go to step **4**. | Go to step **6**. |
| 4 | **CHECK INPUT SIGNAL FOR TCM.**<br>1) Turn the ignition switch to OFF.<br>2) Start the engine.<br>3) Drive the vehicle on 4th speed of manual mode with checking current gear position using Subaru Select Monitor.<br>4) Read the data of «I/C Fluid Pressure» using Subaru Select Monitor. | Is "ON" displayed? | Check for poor contact of harness in the solenoid output and oil pressure SW input, and repair the defective part. | Go to step **5**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 5 | **CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connector from transmission.<br>3) Remove the transmission connector from bracket.<br>4) Lift up the vehicle.<br>5) Drain the ATF.<br>**CAUTION:**<br>**Do not drain ATF until it cools down.**<br>6) Remove the oil pan.<br>7) Disconnect the connector from the control valve body.<br>8) Measure the resistance between transmission connector and control valve body connector.<br>***Connector & terminal***<br>***(T4) No. 11 — (T10) No. 8:***<br>***(T4) No. 18 — (T11) No. 3:*** | Is the resistance less than 1 Ω? | Replace the control valve body. <Ref. to 5AT-53, Control Valve Body.> | Replace the transmission harness assembly. |
| 6 | **CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connector from transmission.<br>3) Remove the transmission connector from bracket.<br>4) Lift up the vehicle.<br>5) Drain the ATF.<br>**CAUTION:**<br>**Do not drain ATF until it cools down.**<br>6) Remove the oil pan.<br>7) Disconnect the connector from the control valve body.<br>8) Measure the resistance between transmission ground and control valve body connector.<br>***Connector & terminal***<br>***(T10) No. 8 — Transmission ground:*** | Is the resistance 1 MΩ or more? | Replace the control valve body. <Ref. to 5AT-53, Control Valve Body.> | Replace the transmission harness assembly. |

# U: DTC P0758 SHIFT SOLENOID “B” ELECTRICAL

**DTC DETECTING CONDITION:**
Output signal circuit of input clutch solenoid is open or shorted.
**TROUBLE SYMPTOM:**
Locked to 1st or 4th gear.
**WIRING DIAGRAM:**
AT control system <Ref. to WI-50, AT Control System.>

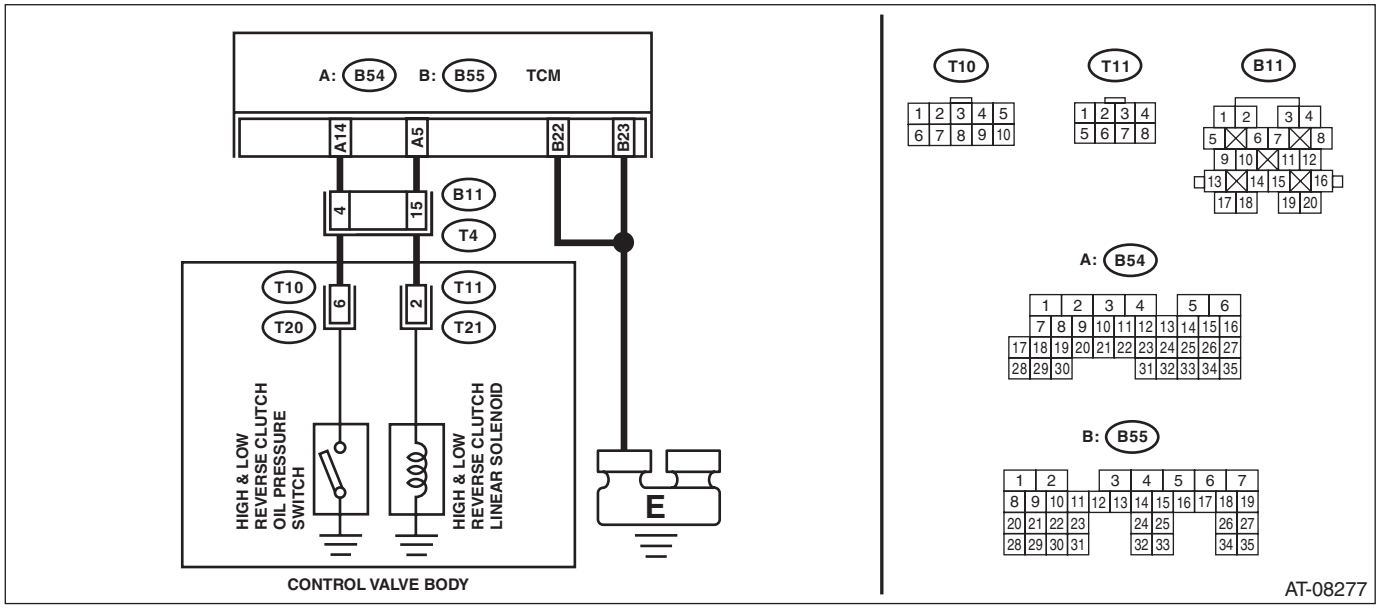



| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connectors from TCM and transmission.<br>3) Measure the resistance of harness between TCM connector and transmission connector.<br>***Connector & terminal***<br>***(B54) No. 3 — (B11) No. 18:***<br>***(B55) No. 22 — Chassis ground:***<br>***(B55) No. 23 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **2**. | Repair the open circuit of harness between TCM and transmission connector. |
| 2 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND BODY HARNESS.**<br>Measure the resistance of harness between TCM connector and body harness.<br>***Connector & terminal***<br>***(B54) No. 3 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Go to step **3**. | Repair the short circuit of harness between TCM and transmission connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connector from transmission.<br>3) Remove the transmission connector from bracket.<br>4) Lift up the vehicle.<br>5) Drain the ATF.<br>**CAUTION:**<br>**Do not drain ATF until it cools down.**<br>6) Remove the oil pan.<br>7) Disconnect the connector from the control valve body.<br>8) Measure the resistance between transmission connector and control valve body connector.<br>***Connector & terminal***<br>***(T4) No. 18 — (T11) No. 3:*** | Is the resistance less than 1 Ω? | Go to step **4**. | Repair the open circuit of harness between transmission connector and control valve body connector. |
| 4 | **CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.**<br>Measure the resistance between transmission ground and control valve body connector.<br>***Connector & terminal***<br>***(T11) No. 3 — Transmission ground:*** | Is the resistance 1 MΩ or more? | Go to step **5**. | Repair the short circuit of harness between control valve body connector and transmission ground. |
| 5 | **CHECK INPUT CLUTCH SOLENOID.**<br>Measure the resistance between transmission ground and control valve body connector.<br>***Connector & terminal***<br>***(T21) No. 3 — Transmission ground:*** | Is the resistance 3 — 9 Ω? | Go to step **6**. | Replace the control valve body. <Ref. to 5AT-53, Control Valve Body.> |
| 6 | **CHECK FOR POOR CONTACT.**<br>Check the TCM connector, transmission connector and control valve body connector. | Is there poor contact (loosing terminal, entering foreign matter, damaging connector body)? | Repair the poor contact. | Go to step **7**. |
| 7 | **CHECK AFTER REPAIR.**<br>1) Perform the Clear Memory Mode.<br>2) Drive for a while and read DTC. | Is DTC displayed? | Replace the TCM. <Ref. to 5AT-55, Transmission Control Module (TCM).> | Temporary poor contact or open circuit occurs. Recheck that the harness connector has no faulty. |

# V: DTC P0761 SHIFT SOLENOID "C" PERFORMANCE OR STUCK OFF

**DTC DETECTING CONDITION:**
Output signal value of high & low reverse clutch solenoid and oil pressure does not match.
**TROUBLE SYMPTOM:**
Locked to 1st gear.
**WIRING DIAGRAM:**
AT control system <Ref. to WI-50, AT Control System.>

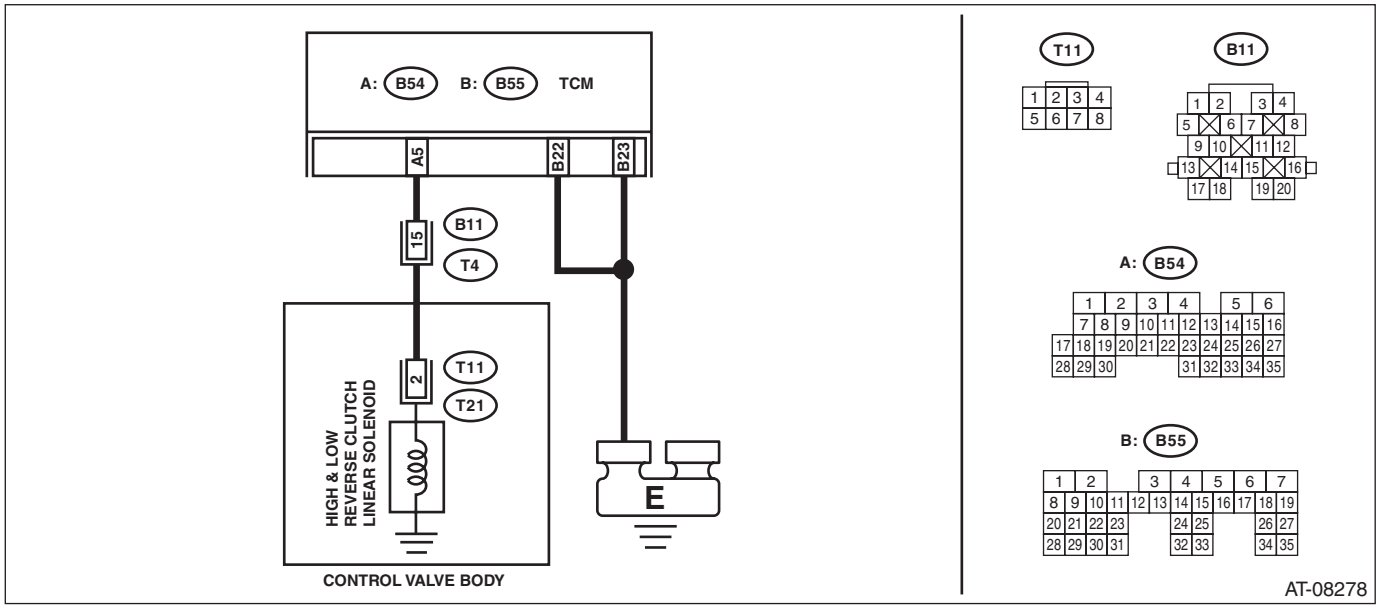



| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connectors from TCM and transmission.<br>3) Measure the resistance of harness between TCM connector and transmission connector.<br>***Connector & terminal***<br>***(B54) No. 5 — (B11) No. 15:***<br>***(B54) No. 14 — (B11) No. 4:***<br>***(B55) No. 22 — Chassis ground:***<br>***(B55) No. 23 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **2**. | Repair the open circuit of harness between TCM and transmission connector. |
| 2 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND CHASSIS GROUND.**<br>Measure the resistance of harness between TCM connector and chassis ground.<br>***Connector & terminal***<br>***(B54) No. 14 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Go to step **3**. | Repair the short circuit of harness between TCM and transmission connector. |
| 3 | **CHECK INPUT SIGNAL FOR TCM.**<br>1) Connect all connectors.<br>2) Turn the ignition switch to ON. (engine OFF)<br>3) Read the data of «H&LR/C Oil Pressure Switch» using Subaru Select Monitor. | Is "OFF" displayed? | Go to step **4**. | Go to step **6**. |
| 4 | **CHECK INPUT SIGNAL FOR TCM.**<br>1) Turn the ignition switch to OFF.<br>2) Start the engine.<br>3) Set the select lever to "N" range while depressing the brake pedal.<br>4) Read the data of «H&LR/C Oil Pressure Switch» using Subaru Select Monitor. | Does the display show "OFF"? | Check for poor contact of harness in the solenoid output and oil pressure SW input, and repair the defective part. | Go to step **5**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 5 | **CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connector from transmission.<br>3) Remove the transmission connector from bracket.<br>4) Lift up the vehicle.<br>5) Drain the ATF.<br>**CAUTION:**<br>**Do not drain ATF until it cools down.**<br>6) Remove the oil pan.<br>7) Disconnect the connector from the control valve body.<br>8) Measure the resistance between transmission connector and control valve body connector.<br>***Connector & terminal***<br>***(T4) No. 4 — (T10) No. 6:***<br>***(T4) No. 15 — (T11) No. 2:*** | Is the resistance less than 1 Ω? | Replace the control valve body. <Ref. to 5AT-53, Control Valve Body.> | Replace the transmission harness assembly. |
| 6 | **CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connector from transmission.<br>3) Remove the transmission connector from bracket.<br>4) Lift up the vehicle.<br>5) Drain the ATF.<br>**CAUTION:**<br>**Do not drain ATF until it cools down.**<br>6) Remove the oil pan.<br>7) Disconnect the connector from the control valve body.<br>8) Measure the resistance between transmission ground and control valve body connector.<br>***Connector & terminal***<br>***(T10) No. 6 — Transmission ground:*** | Is the resistance 1 MΩ or more? | Replace the control valve body. <Ref. to 5AT-53, Control Valve Body.> | Replace the transmission harness assembly. |

## W: DTC P0763 SHIFT SOLENOID "C" ELECTRICAL

**DTC DETECTING CONDITION:**
Output signal circuit of high & low reverse clutch solenoid is open or shorted.
**TROUBLE SYMPTOM:**
Locked to 1st gear.
**WIRING DIAGRAM:**
AT control system <Ref. to WI-50, AT Control System.>

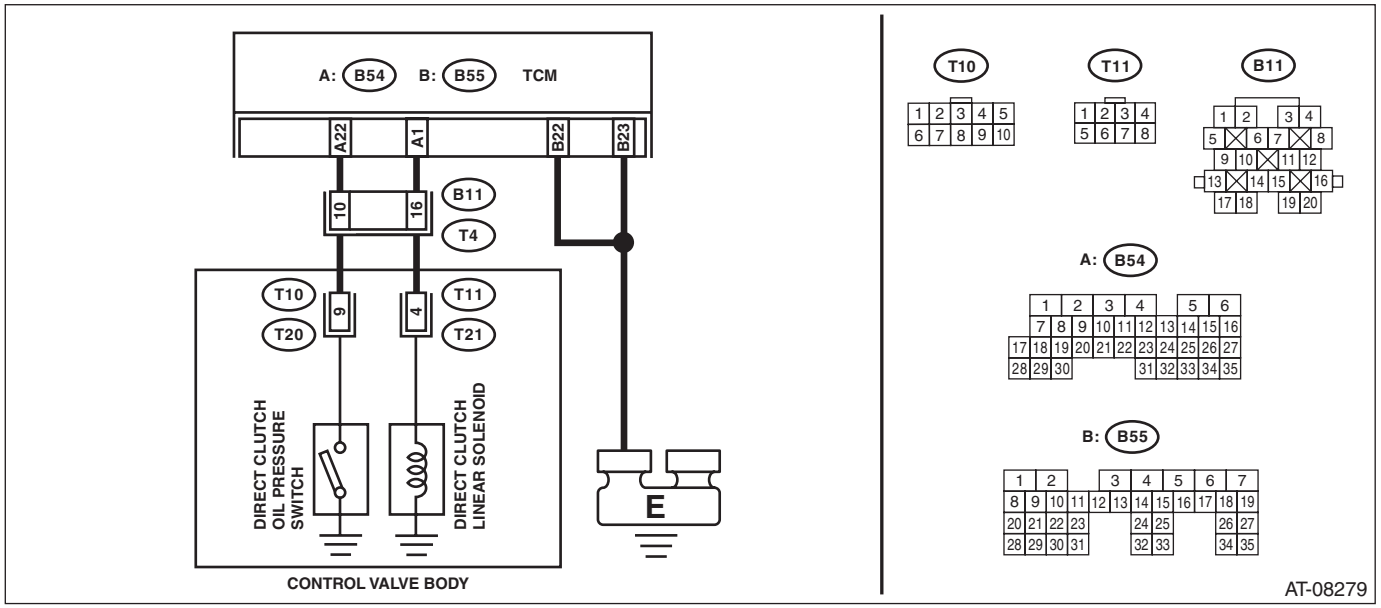



| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connectors from TCM and transmission.<br>3) Measure the resistance of harness between TCM connector and transmission connector.<br>***Connector & terminal***<br>***(B54) No. 5 — (B11) No. 15:***<br>***(B55) No. 22 — Chassis ground:***<br>***(B55) No. 23 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **2**. | Repair the open circuit of harness between TCM connector and transmission connector. |
| 2 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND CHASSIS GROUND.**<br>Measure the resistance of harness between TCM connector and chassis ground.<br>***Connector & terminal***<br>***(B54) No. 5 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Go to step **3**. | Repair the short circuit of harness between TCM connector and transmission connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connector from transmission.<br>3) Remove the transmission connector from bracket.<br>4) Lift up the vehicle.<br>5) Drain the ATF.<br>**CAUTION:**<br>**Do not drain ATF until it cools down.**<br>6) Remove the oil pan.<br>7) Disconnect the connector from the control valve body.<br>8) Measure the resistance between transmission connector and control valve body connector.<br>***Connector & terminal***<br>***(T4) No. 15 — (T11) No. 2:*** | Is the resistance less than 1 Ω? | Go to step **4**. | Repair the open circuit of harness between transmission connector and control valve body connector. |
| 4 | **CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.**<br>Measure the resistance between transmission ground and control valve body connector.<br>***Connector & terminal***<br>***(T11) No. 2 — Transmission ground:*** | Is the resistance 1 MΩ or more? | Go to step **5**. | Repair the short circuit of harness between control valve body connector and transmission ground. |
| 5 | **CHECK HIGH & LOW REVERSE CLUTCH SOLENOID.**<br>Measure the resistance between transmission ground and control valve body connector.<br>***Connector & terminal***<br>***(T21) No. 2 — Transmission ground:*** | Is the resistance 3 — 9 Ω? | Go to step **6**. | Replace the control valve body. <Ref. to 5AT-53, Control Valve Body.> |
| 6 | **CHECK FOR POOR CONTACT.**<br>Check the TCM connector, transmission connector and control valve body connector. | Is there poor contact (loosing terminal, entering foreign matter, damaging connector body)? | Repair the poor contact. | Go to step **7**. |
| 7 | **CHECK AFTER REPAIR.**<br>1) Perform the Clear Memory Mode.<br>2) Drive for a while and read DTC. | Is DTC displayed? | Replace the TCM. <Ref. to 5AT-55, Transmission Control Module (TCM).> | Temporary poor contact or open circuit occurs. Recheck that the harness connector has no faulty. |

# X: DTC P0766 SHIFT SOLENOID "D" PERFORMANCE OR STUCK OFF

**DTC DETECTING CONDITION:**
Output signal value of direct clutch solenoid and oil pressure does not match.
**TROUBLE SYMPTOM:**
Locked to 1st or 4th gear.
**WIRING DIAGRAM:**
AT control system <Ref. to WI-50, AT Control System.>

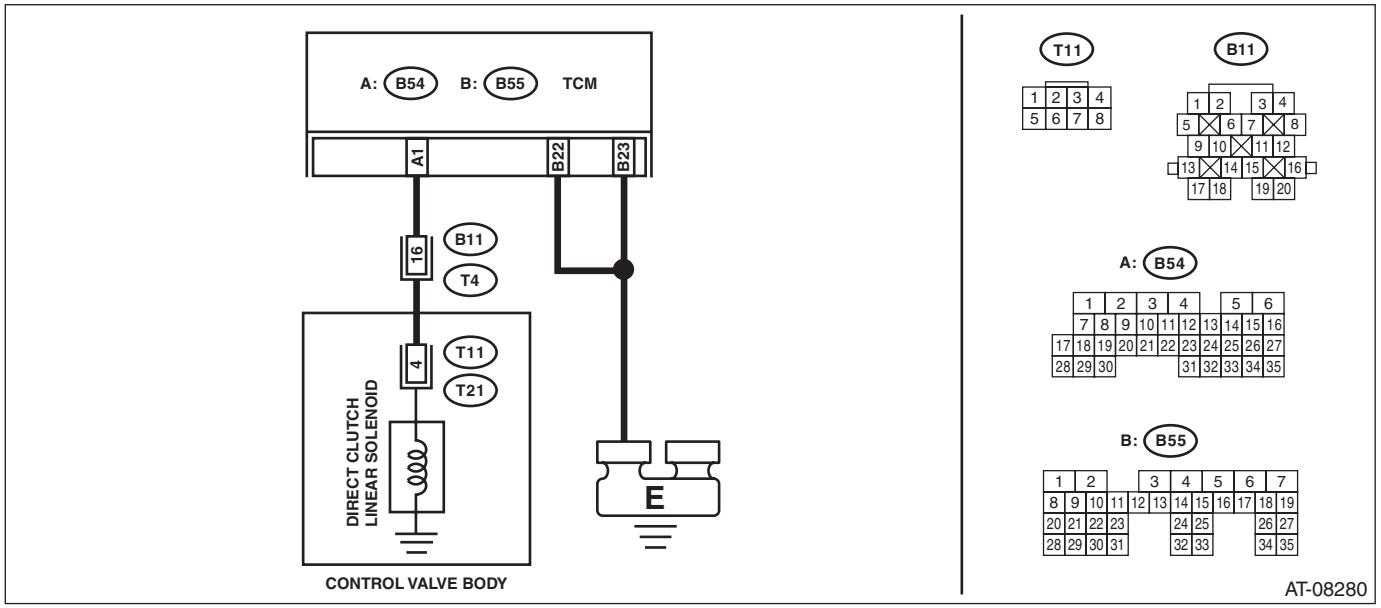



| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connectors from TCM and transmission.<br>3) Measure the resistance of harness between TCM connector and transmission connector.<br>***Connector & terminal***<br>***(B54) No. 1 — (B11) No. 16:***<br>***(B54) No. 22 — (B11) No. 10:***<br>***(B55) No. 22 — Chassis ground:***<br>***(B55) No. 23 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **2**. | Repair the open circuit of harness between TCM and transmission connector. |
| 2 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND BODY HARNESS.**<br>Measure the resistance of harness between TCM connector and body harness.<br>***Connector & terminal***<br>***(B54) No. 22 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Go to step **3**. | Repair the short circuit of harness between TCM and transmission connector. |
| 3 | **CHECK INPUT SIGNAL FOR TCM.**<br>1) Connect all connectors.<br>2) Turn the ignition switch to ON. (engine OFF)<br>3) Read the data of «D/C Fluid Pressure» using Subaru Select Monitor. | Is "OFF" displayed? | Go to step **4**. | Go to step **6**. |
| 4 | **CHECK INPUT SIGNAL FOR TCM.**<br>1) Turn the ignition switch to OFF.<br>2) Start the engine.<br>3) Shift to 2nd speed of manual mode and depress the brake pedal while checking the current gear position using Subaru Select Monitor.<br>4) Read the data of «D/C Fluid Pressure» using Subaru Select Monitor. | Is "ON" displayed? | Check for poor contact of harness in the solenoid output and oil pressure SW input, and repair the defective part. | Go to step **5**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 5 | **CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connector from transmission.<br>3) Remove the transmission connector from bracket.<br>4) Lift up the vehicle.<br>5) Drain the ATF.<br>**CAUTION:**<br>**Do not drain ATF until it cools down.**<br>6) Remove the oil pan.<br>7) Disconnect the connector from the control valve body.<br>8) Measure the resistance between transmission connector and control valve body connector.<br>***Connector & terminal***<br>***(T4) No. 10 — (T10) No. 9:***<br>***(T4) No. 16 — (T11) No. 4:*** | Is the resistance less than 1 Ω? | Replace the control valve body. <Ref. to 5AT-53, Control Valve Body.> | Replace the transmission harness assembly. |
| 6 | **CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connector from transmission.<br>3) Remove the transmission connector from bracket.<br>4) Lift up the vehicle.<br>5) Drain the ATF.<br>**CAUTION:**<br>**Do not drain ATF until it cools down.**<br>6) Remove the oil pan.<br>7) Disconnect the connector from the control valve body.<br>8) Measure the resistance between transmission ground and control valve body connector.<br>***Connector & terminal***<br>***(T10) No. 9 — Transmission ground:*** | Is the resistance 1 MΩ or more? | Replace the control valve body. <Ref. to 5AT-53, Control Valve Body.> | Replace the transmission harness assembly. |

# Y: DTC P0768 SHIFT SOLENOID "D" ELECTRICAL

**DTC DETECTING CONDITION:**
The output signal circuit of direct clutch solenoid is open or shorted.
**TROUBLE SYMPTOM:**
Locked to 1st or 4th gear.
**WIRING DIAGRAM:**
AT control system <Ref. to WI-50, AT Control System.>

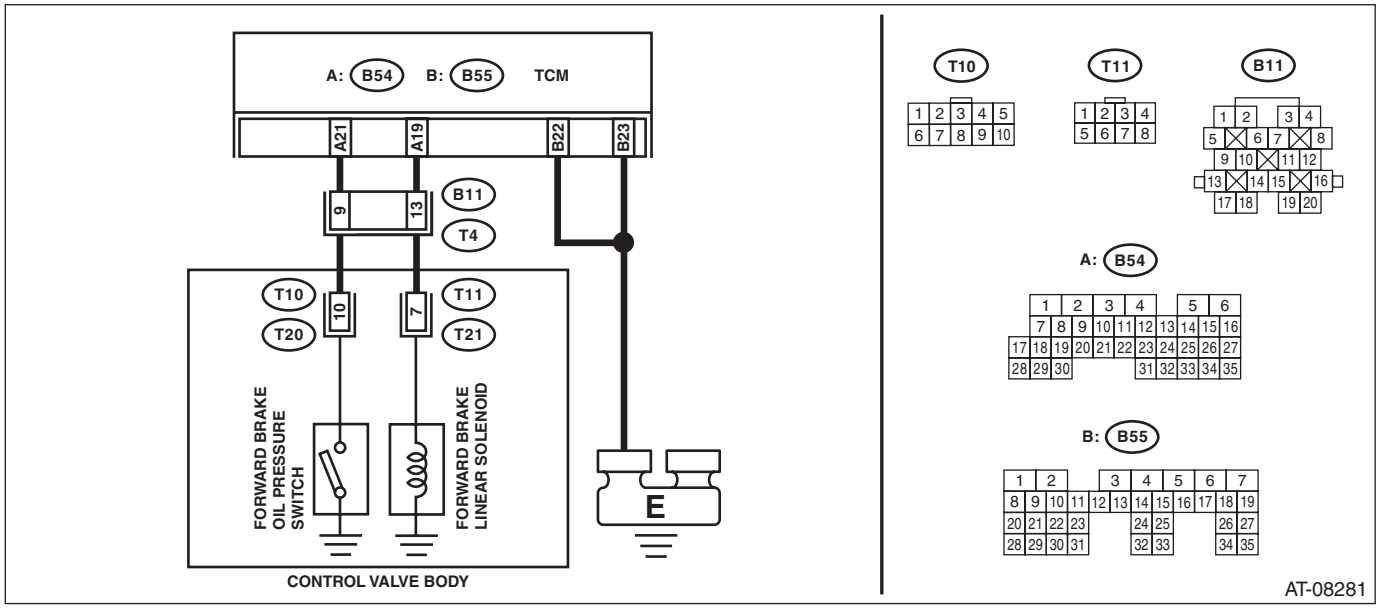



| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connectors from TCM and transmission.<br>3) Measure the resistance of harness between TCM connector and transmission connector.<br>***Connector & terminal***<br>***(B54) No. 1 — (B11) No. 16:***<br>***(B55) No. 22 — Chassis ground:***<br>***(B55) No. 23 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **2**. | Repair the open circuit of harness between TCM connector and transmission connector. |
| 2 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND CHASSIS GROUND.**<br>Measure the resistance of harness between TCM connector and chassis ground.<br>***Connector & terminal***<br>***(B54) No. 1 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Go to step **3**. | Repair the short circuit of harness between TCM connector and transmission connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connector from transmission.<br>3) Remove the transmission connector from bracket.<br>4) Lift up the vehicle.<br>5) Drain the ATF.<br>**CAUTION:**<br>**Do not drain ATF until it cools down.**<br>6) Remove the oil pan.<br>7) Disconnect the connector from the control valve body.<br>8) Measure the resistance between transmission connector and control valve body connector.<br>***Connector & terminal***<br>***(T4) No. 16 — (T11) No. 4:*** | Is the resistance less than 1 Ω? | Go to step **4**. | Repair the open circuit of harness between transmission connector and control valve body connector. |
| 4 | **CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.**<br>Measure the resistance between transmission ground and control valve body connector.<br>***Connector & terminal***<br>***(T11) No. 4 — Transmission ground:*** | Is the resistance 1 MΩ or more? | Go to step **5**. | Repair the short circuit of harness between control valve body connector and transmission ground. |
| 5 | **CHECK DIRECT CLUTCH SOLENOID.**<br>Measure the resistance between transmission ground and control valve body connector.<br>***Connector & terminal***<br>***(T21) No. 4 — Transmission ground:*** | Is the resistance 3 — 9 Ω? | Go to step **6**. | Replace the control valve body. <Ref. to 5AT-53, Control Valve Body.> |
| 6 | **CHECK FOR POOR CONTACT.**<br>Check the TCM connector, transmission connector and control valve body connector. | Is there poor contact (loosing terminal, entering foreign matter, damaging connector body)? | Repair the poor contact. | Go to step **7**. |
| 7 | **CHECK AFTER REPAIR.**<br>1) Perform the Clear Memory Mode.<br>2) Drive for a while and read DTC. | Is DTC displayed? | Replace the TCM. <Ref. to 5AT-55, Transmission Control Module (TCM).> | Temporary poor contact or open circuit occurs. Recheck that the harness connector has no faulty. |

# Z: DTC P0771 SHIFT SOLENOID "E" PERFORMANCE OR STUCK OFF

**DTC DETECTING CONDITION:**
Output signal of forward brake solenoid does not match the oil pressure.
**TROUBLE SYMPTOM:**
Locked to 2nd, 3rd or 4th gear.
**WIRING DIAGRAM:**
AT control system <Ref. to WI-50, AT Control System.>

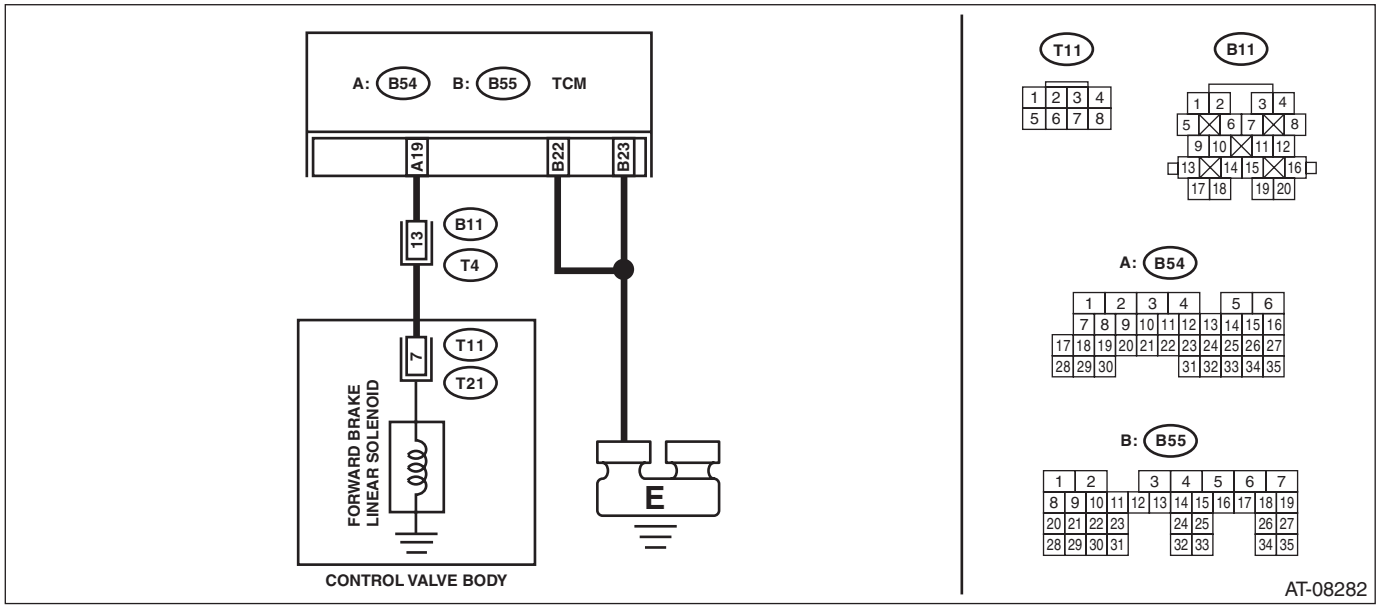



| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connectors from TCM and transmission.<br>3) Measure the resistance of harness between TCM connector and transmission connector.<br>***Connector & terminal***<br>***(B54) No. 19 — (B11) No. 13:***<br>***(B54) No. 21 — (B11) No. 9:***<br>***(B55) No. 22 — Chassis ground:***<br>***(B55) No. 23 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **2**. | Repair the open circuit of harness between TCM and transmission connector. |
| 2 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND CHASSIS GROUND.**<br>Measure the resistance between TCM connector and chassis ground.<br>***Connector & terminal***<br>***(B54) No. 21 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Go to step **3**. | Repair the short circuit of harness between TCM and transmission connector. |
| 3 | **CHECK INPUT SIGNAL FOR TCM.**<br>1) Connect all connectors.<br>2) Turn the ignition switch to ON. (engine OFF)<br>3) Read the data of «Fwd/B hydraulic pressure SW» using Subaru Select Monitor. | Is "OFF" displayed? | Go to step **4**. | Go to step **6**. |
| 4 | **CHECK INPUT SIGNAL FOR TCM.**<br>1) Turn the ignition switch to OFF.<br>2) Start the engine.<br>3) Drive the vehicle on 2nd speed of manual mode at 15 km/h (9 MPH) with checking current gear position using Subaru Select Monitor.<br>4) Read the data of «Fwd/B hydraulic pressure SW» using Subaru Select Monitor. | Is "ON" displayed? | Check for poor contact of harness in the solenoid output and oil pressure SW input, and repair the defective part. | Go to step **5**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 5 | **CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connector from transmission.<br>3) Remove the transmission connector from bracket.<br>4) Lift up the vehicle.<br>5) Drain the ATF.<br>**CAUTION:**<br>**Do not drain ATF until it cools down.**<br>6) Remove the oil pan.<br>7) Disconnect the connector from the control valve body.<br>8) Measure the resistance between transmission connector and control valve body connector.<br>***Connector & terminal***<br>***(T4) No. 9 — (T10) No. 10:***<br>***(T4) No. 13 — (T11) No. 7:*** | Is the resistance less than 1 Ω? | Replace the control valve body. <Ref. to 5AT-53, Control Valve Body.> | Replace the transmission harness assembly. |
| 6 | **CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connector from transmission.<br>3) Remove the transmission connector from bracket.<br>4) Lift up the vehicle.<br>5) Drain the ATF.<br>**CAUTION:**<br>**Do not drain ATF until it cools down.**<br>6) Remove the oil pan.<br>7) Disconnect the connector from the control valve body.<br>8) Measure the resistance between transmission ground and control valve body connector.<br>***Connector & terminal***<br>***(T10) No. 10 — Transmission ground:*** | Is the resistance 1 MΩ or more? | Replace the control valve body. <Ref. to 5AT-53, Control Valve Body.> | Replace the transmission harness assembly. |

## AA:DTC P0773 SHIFT SOLENOID "E" ELECTRICAL

**DTC DETECTING CONDITION:**
Output signal circuit of forward brake solenoid is open or shorted.
**TROUBLE SYMPTOM:**
Locked to 2nd, 3rd or 4th gear.
**WIRING DIAGRAM:**
AT control system <Ref. to WI-50, AT Control System.>



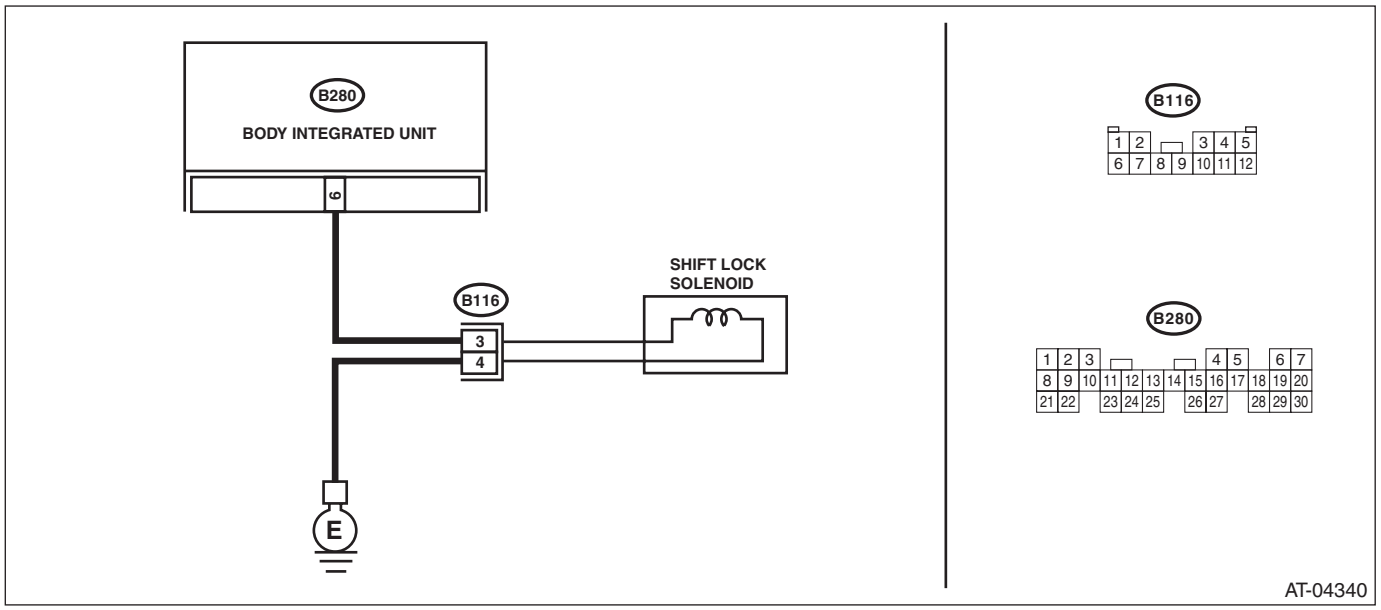

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connectors from TCM and transmission.<br>3) Measure the resistance of harness between TCM connector and transmission connector.<br>***Connector & terminal***<br>***(B54) No. 19 — (B11) No. 13:***<br>***(B55) No. 22 — Chassis ground:***<br>***(B55) No. 23 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **2**. | Repair the open circuit of harness between TCM connector and transmission connector. |
| 2 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND BODY HARNESS.**<br>Measure the resistance of harness between TCM connector and body harness.<br>***Connector & terminal***<br>***(B54) No. 19 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Go to step **3**. | Repair the short circuit of harness between TCM connector and transmission connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connector from transmission.<br>3) Remove the transmission connector from bracket.<br>4) Lift up the vehicle.<br>5) Drain the ATF.<br>**CAUTION:**<br>**Do not drain ATF until it cools down.**<br>6) Remove the oil pan.<br>7) Disconnect the connector from the control valve body.<br>8) Measure the resistance between transmission connector and control valve body connector.<br>***Connector & terminal***<br>***(T4) No. 13 — (T11) No. 7:*** | Is the resistance less than 1 Ω? | Go to step **4**. | Repair the open circuit of harness between transmission connector and control valve body connector. |
| 4 | **CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.**<br>Measure the resistance between transmission ground and control valve body connector.<br>***Connector & terminal***<br>***(T11) No. 7 — Transmission ground:*** | Is the resistance 1 MΩ or more? | Go to step **5**. | Repair the short circuit of harness between control valve body connector and transmission ground. |
| 5 | **CHECK FORWARD BRAKE SOLENOID.**<br>Measure the resistance between transmission ground and control valve body connector.<br>***Connector & terminal***<br>***(T21) No. 7 — Transmission ground:*** | Is the resistance 3 — 9 Ω? | Go to step **6**. | Replace the control valve body. <Ref. to 5AT-53, Control Valve Body.> |
| 6 | **CHECK FOR POOR CONTACT.**<br>Check the TCM connector, transmission connector and control valve body connector. | Is there poor contact (loosing terminal, entering foreign matter, damaging connector body)? | Repair the poor contact. | Go to step **7**. |
| 7 | **CHECK AFTER REPAIR.**<br>1) Perform the Clear Memory Mode.<br>2) Drive for a while and read DTC. | Is DTC displayed? | Replace the TCM. <Ref. to 5AT-55, Transmission Control Module (TCM).> | Temporary poor contact occurs. Recheck that the harness connector has no faulty. |

## AB:DTC P0801 REVERSE INHIBIT CONTROL CIRCUIT

**DTC DETECTING CONDITION:**
Shift lock solenoid malfunction, open or short reverse inhibitor control circuit
**TROUBLE SYMPTOM:**
- Gear is shifted from “N” range to “R” range during driving at 20 km/h (12 MPH) or more.
- Gear can not be shifted from “N” range to “R” range though the vehicle is parked.

**WIRING DIAGRAM:**
AT shift lock control system <Ref. to WI-57, AT Shift Lock Control System.>



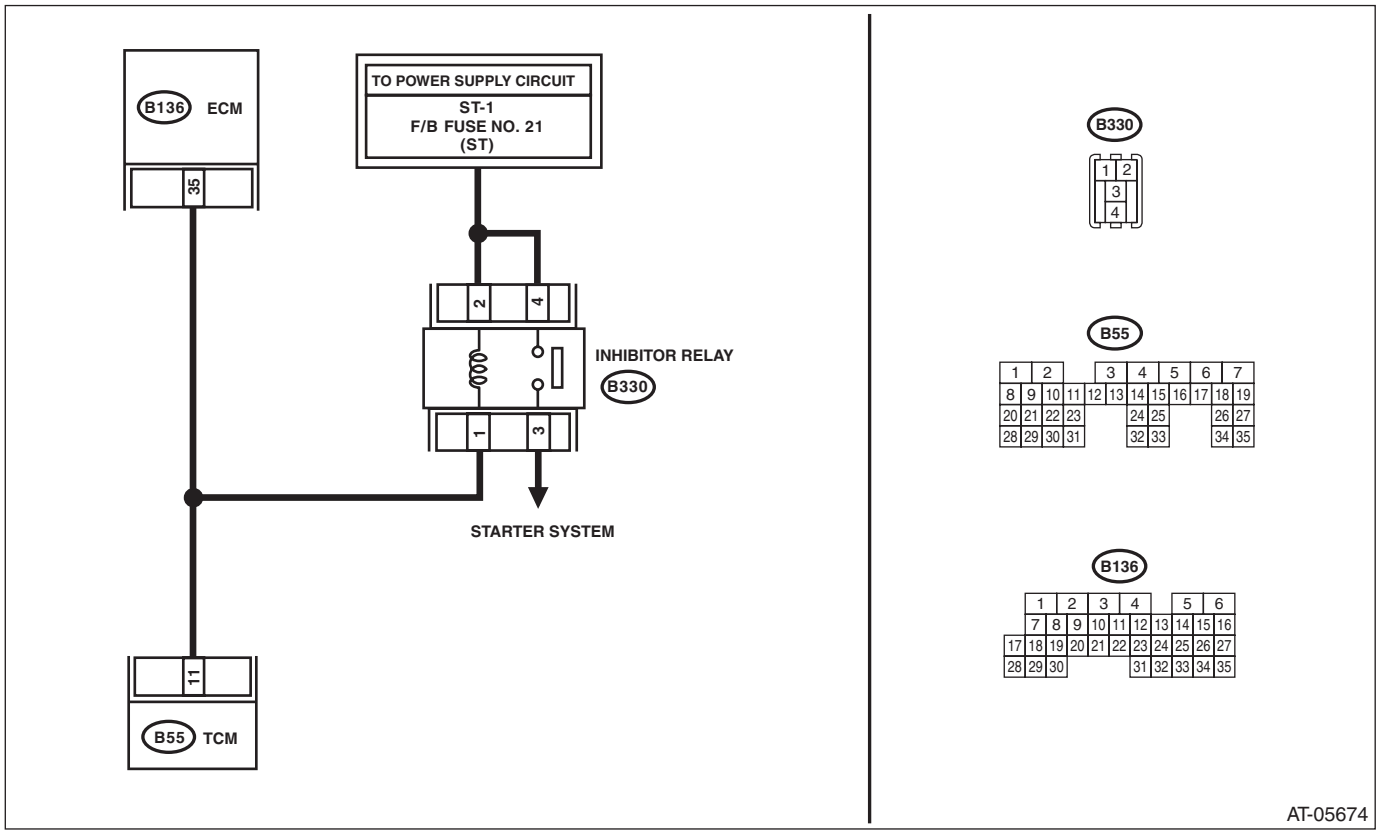

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK SHIFT LOCK SOLENOID.**<br>1) Forcibly activate the body integrated unit to check the operation of shift lock solenoid. (<Ref. to LAN(diag)-12, OPERATION, Subaru Select Monitor.>)<br>2) Move the select lever without depressing the brake pedal. | Does the select lever shift? | Go to step **2**. | Go to step **3**. |
| 2 | **CHECK OUTPUT SIGNAL OF BODY INTEGRATED UNIT.**<br>1) Display the following items using Subaru Select Monitor. <Ref. to LAN(diag)-29, Read Current Data.><br>• Key-lock warning SW<br>• Shift position<br>• P SW<br>• Stop light switch<br>2) With the brake pedal depressed, shift the select lever to “P” range. | Do the units of measure of items displayed change? | Go to step **3**. | Check the circuits of the items whose values do not change. |
| 3 | **CHECK HARNESS CONNECTOR BETWEEN BODY INTEGRATED UNIT AND SHIFT LOCK SOLENOID.**<br>Measure the harness resistance between the body integrated unit and chassis ground.<br>***Connector & terminal***<br>***(B280) No. 6 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Go to step **4**. | Repair the short circuit of harness between body integrated unit and shift lock solenoid connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK HARNESS BETWEEN SHIFT LOCK SOLENOID AND CHASSIS GROUND TERMINAL.**<br>Measure the resistance of harness between shift lock solenoid and chassis ground.<br>***Connector & terminal***<br>***(B116) No. 4 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **5**. | Repair the open circuit of harness between chassis ground and shift lock solenoid connector. |
| 5 | **CHECK SHIFT LOCK SOLENOID.**<br>Measure the resistance of shift lock solenoid terminals.<br>***Connector & terminal***<br>***(B116) No. 3 — No. 4:*** | Is the resistance 7 — 21 Ω? | Go to step **6**. | Replace the shift lock solenoid. |
| 6 | **CHECK OUTPUT SIGNAL OF BODY INTEGRATED UNIT.**<br>1) Connect all connectors.<br>2) Turn the ignition switch to ON.<br>3) With the brake pedal depressed, shift the select lever to “D” range.<br>4) Measure the voltage between body integrated unit and chassis ground.<br>***Connector & terminal***<br>***(B280) No. 6 (+) — Chassis ground (–):*** | Is the voltage 10.5 V or more? | Go to step **7**. | Go to step **8**. |
| 7 | **CHECK OUTPUT SIGNAL OF BODY INTEGRATED UNIT.**<br>1) Lift up the vehicle.<br>2) Start the engine.<br>3) Shift the select lever to “D” range and slowly increase the vehicle speed to more than 20 km/h (12 MPH).<br>NOTE:<br>The speed difference between front and rear wheels lights the ABS warning light or the VDC warning light, but this does not indicate a malfunction. If the warning light illuminates, delete the ABS or VDC memory after completing the AT control diagnosis. <Ref. to VDC(diag)-27, Clear Memory Mode.><br>4) Measure the voltage between body integrated unit and chassis ground.<br>***Connector & terminal***<br>***(B280) No. 6 (+) — Chassis ground (–):*** | Is the voltage less than 1 V? | Check the harnesses or connectors in reverse inhibitor control circuit, and repair the defective part. | Go to step **8**. |
| 8 | **CHECK FOR POOR CONTACT.** | Is there poor contact of the reverse inhibitor control circuit? | Repair the poor contact. | Replace the body integrated unit. <Ref. to SL-48, Body Integrated Unit.> |

# AC:DTC P0817 STARTER DISABLE CIRCUIT

**DTC DETECTING CONDITION:**
Open or short in P/N signal output circuit
**TROUBLE SYMPTOM:**
- Engine can be started on other than “P” or “N” range.
- Engine can not be started on “P” or “N” range.

**WIRING DIAGRAM:**
Engine electrical system <Ref. to WI-32, Engine Electrical System.>

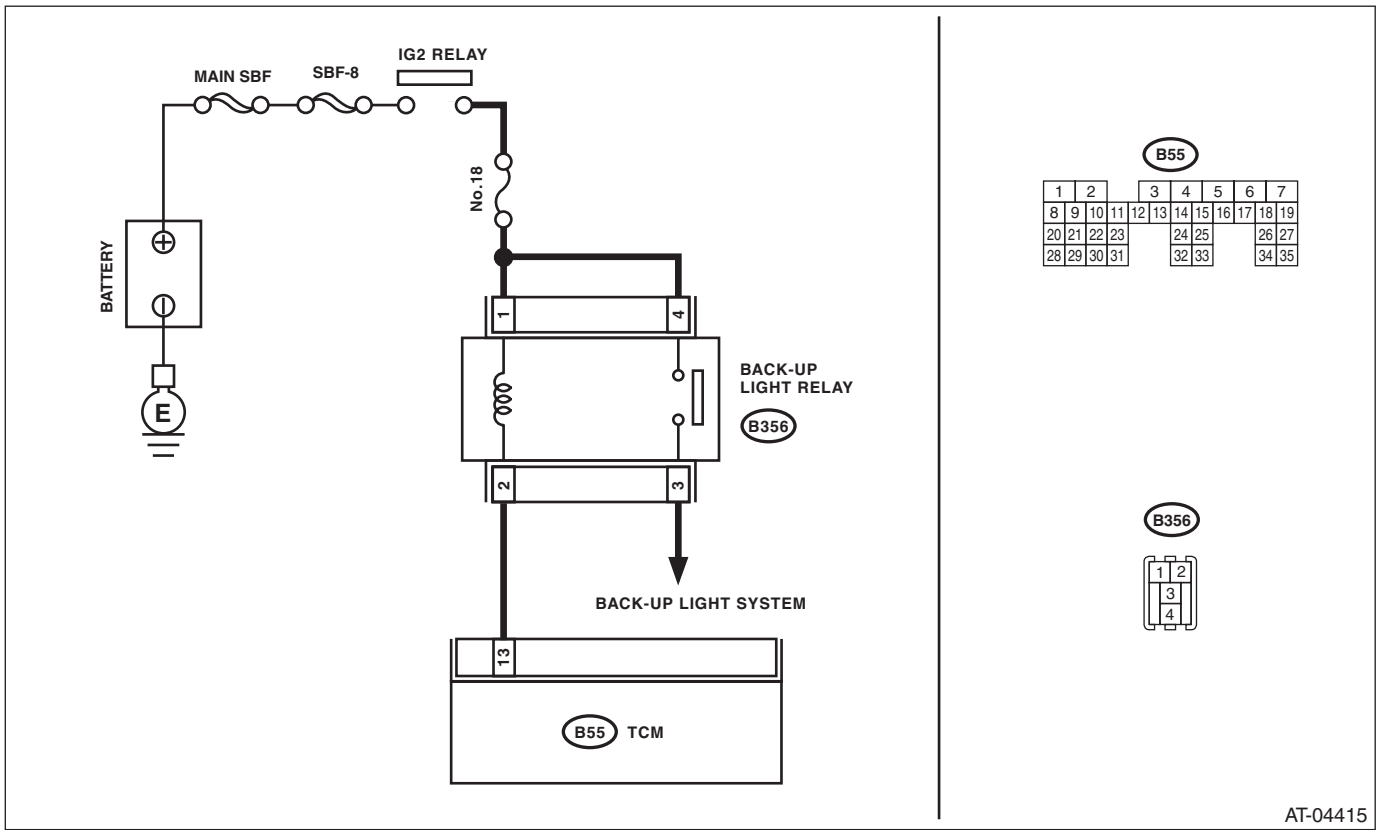



| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC OF TCM.** | Is DTC of Transmission Range Sensor Circuit (PRNDL Input) detected? | Perform the diagnosis according to DTC. | Go to step **2**. |
| 2 | **CHECK ECM.** | Is the communication between Subaru Select Monitor and ECM normal? | Go to step **3**. | Perform the diagnosis according to DTC of ECM. |
| 3 | **CHECK FUSE (NO. 21).**<br>1) Turn the ignition switch to OFF.<br>2) Remove the fuse. | Is the fuse (No. 21) blown out? | Replace the fuse (No. 21). If the replaced fuse (No. 21) has blown out easily, repair the short circuit of harness between fuse (No. 21) and inhibitor relay. | Go to step **4**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND ECM.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connectors from TCM, ECM and inhibitor relay.<br>3) Measure the resistance of harness between TCM connector and ECM connector.<br>***Connector & terminal***<br>***(B55) No. 11 — (B136) No. 35*** | Is the resistance less than 1 Ω? | Go to step **5**. | Repair the open circuit of harness between TCM and ECM connector, or poor contact of connector. |
| 5 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND INHIBITOR RELAY.**<br>Measure the resistance of the harness between TCM and inhibitor relay.<br>***Connector & terminal***<br>***(B55) No. 11 — (B330) No. 1:*** | Is the resistance less than 1 Ω? | Go to step **6**. | Repair the open circuit of harness between TCM and inhibitor relay, or poor contact of connector. |
| 6 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND CHASSIS GROUND.**<br>Measure the resistance of harness between TCM connector and chassis ground.<br>***Connector & terminal***<br>***(B55) No. 11 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Go to step **7**. | Repair the short circuit of harness between transmission connector and chassis ground. |
| 7 | **CHECK OUTPUT SIGNAL OF TCM.**<br>1) Connect the TCM, ECM, and inhibitor relay connector.<br>2) Turn the ignition switch to ON.<br>3) Shift the select lever to “P” range.<br>4) Measure the voltage between TCM connector and chassis ground.<br>***Connector & terminal***<br>***(B55) No. 11 (+) — Chassis ground (–):*** | Is the voltage 1 V or less? | Go to step **8**. | Replace the TCM. <Ref. to 5AT-55, Transmission Control Module (TCM).> |
| 8 | **CHECK OUTPUT SIGNAL OF TCM.**<br>1) Set the select lever to “D” range.<br>2) Measure the voltage between TCM connector and chassis ground.<br>***Connector & terminal***<br>***(B55) No. 11 (+) — Chassis ground (–):*** | Is the voltage 8 V or more? | Go to step **9**. | Replace the TCM. <Ref. to 5AT-55, Transmission Control Module (TCM).> |
| 9 | **CHECK FOR POOR CONTACT.** | Is there any open or poor contact of connector (loosing terminal, entering foreign matter, damaging connector body)? | Repair the poor contact. | Check the neutral position switch circuit of ECM. |

# AD:DTC P0957 BACKUP LIGHT RELAY CIRCUIT LOW

**DTC DETECTING CONDITION:**
Output circuit of the back-up light relay is open or shorted
**TROUBLE SYMPTOM:**
Back-up light does not illuminate in “R” range.
**WIRING DIAGRAM:**
AT control system <Ref. to WI-50, AT Control System.>

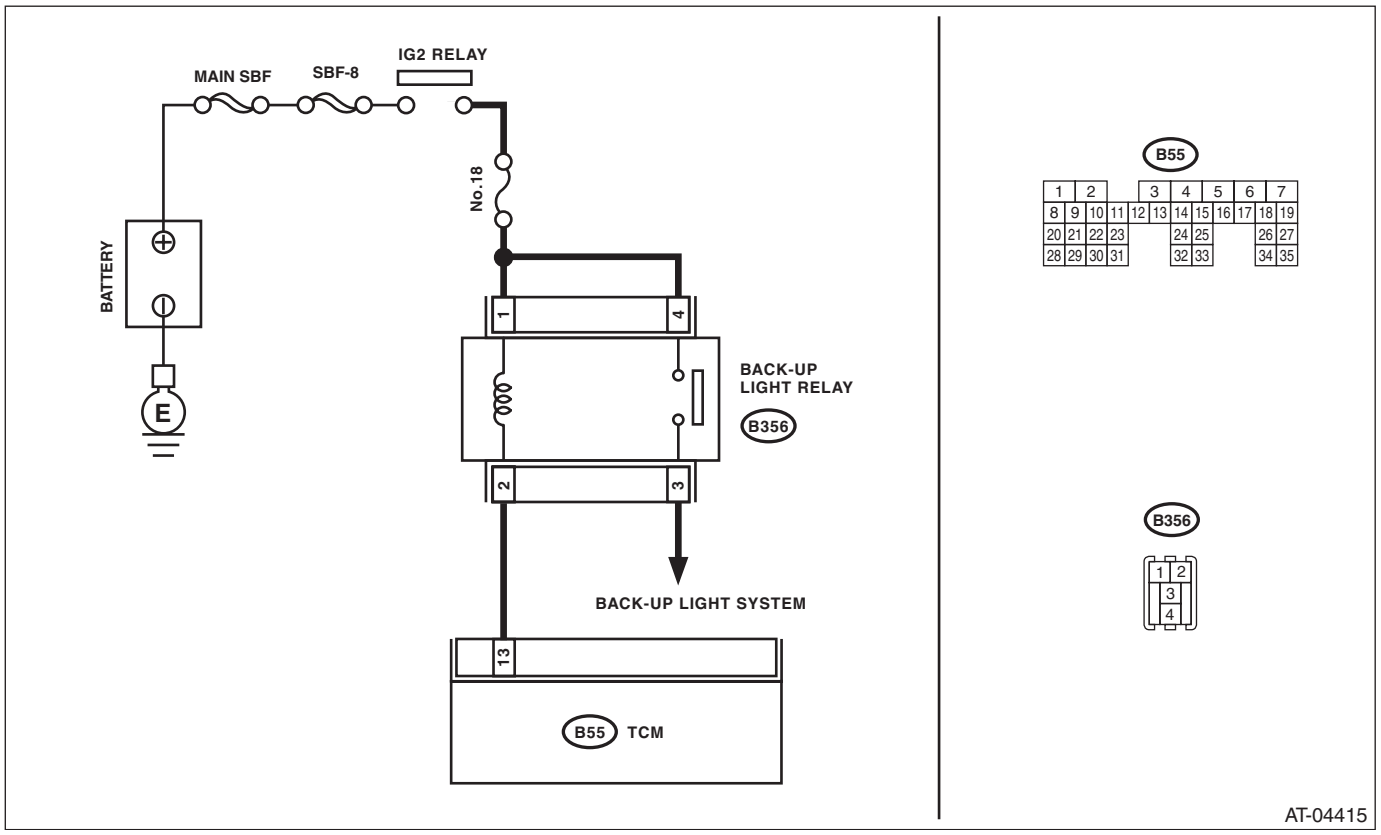



| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC OF TCM.** | Is DTC of Transmission Range Sensor Circuit (PRNDL Input) detected? | Perform the diagnosis according to DTC. | Go to step **2**. |
| 2 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND BACK-UP LIGHT RELAY.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connector from TCM and back-up light relay.<br>3) Measure the resistance of harness between TCM connector and back-up light relay connector.<br>***Connector & terminal***<br>***(B55) No. 13 — (B356) No. 2:*** | Is the resistance less than 1 Ω? | Go to step **3**. | Repair the open circuit of the harness or poor contact of the connector between TCM and back-up light relay connector. |
| 3 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.**<br>Measure the resistance of harness between TCM connector and chassis ground.<br>***Connector & terminal***<br>***(B55) No. 13 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Go to step **4**. | Repair the short circuit of the harness between TCM and back-up light relay connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK OUTPUT SIGNAL OF TCM.**<br>1) Turn the ignition switch to ON. (engine OFF)<br>2) Shift the select lever to “P” range.<br>3) Measure the voltage between TCM connector and chassis ground.<br>***Connector & terminal***<br>***(B55) No. 13 (+) — Chassis ground (–):*** | Is the voltage 8 V or more? | Go to step **5**. | Replace the TCM. <Ref. to 5AT-55, Transmission Control Module (TCM).> |
| 5 | **CHECK OUTPUT SIGNAL OF TCM.**<br>1) Set the select lever to “R” range.<br>2) Measure the voltage between TCM connector and chassis ground.<br>***Connector & terminal***<br>***(B55) No. 13 (+) — Chassis ground (–):*** | Is the voltage 1 V or less? | Go to step **6**. | Replace the TCM. <Ref. to 5AT-55, Transmission Control Module (TCM).> |
| 6 | **CHECK INPUT VOLTAGE FOR BACK-UP LIGHT RELAY.**<br>Measure the voltage between back-up light relay and chassis ground. | Is the voltage 10 — 13 V? | Replace the back-up light relay. | Check open or short circuit of harness between fuse (No. 18) and back-up light relay. |

## AE:DTC P0958 BACKUP LIGHT RELAY CIRCUIT HIGH

**DTC DETECTING CONDITION:**
Output circuit of the back-up light relay is open or shorted
**TROUBLE SYMPTOM:**
Back-up light does not illuminate in “R” range.
**WIRING DIAGRAM:**
AT control system <Ref. to WI-50, AT Control System.>



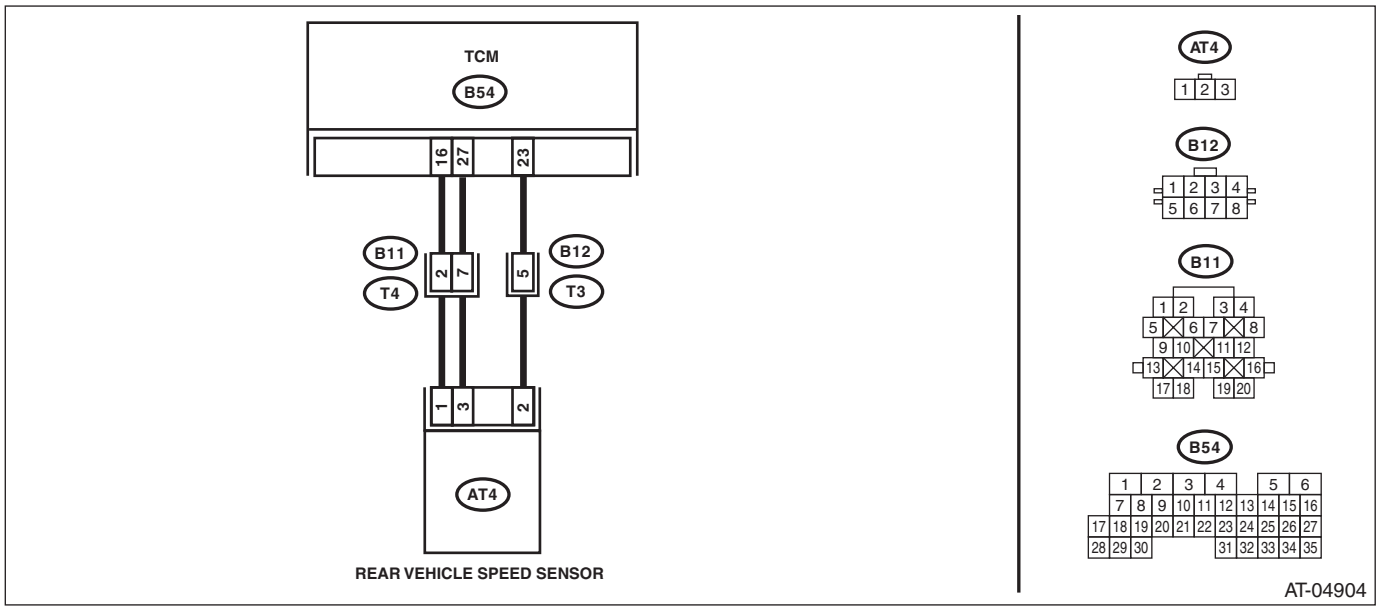

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK DTC OF TCM.** | Is DTC of Transmission Range Sensor Circuit (PRNDL Input) detected? | Perform the diagnosis according to DTC. | Go to step **2**. |
| 2 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND BACK-UP LIGHT RELAY.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connector from TCM and back-up light relay.<br>3) Measure the resistance of harness between TCM connector and back-up light relay connector.<br>***Connector & terminal***<br>***(B55) No. 13 — (B356) No. 2:*** | Is the resistance less than 1 Ω? | Go to step **3**. | Repair the open circuit of the harness or poor contact of the connector between TCM and back-up light relay connector. |
| 3 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.**<br>Measure the resistance of harness between TCM connector and chassis ground.<br>***Connector & terminal***<br>***(B55) No. 13 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Go to step **4**. | Repair the short circuit of the harness between TCM and back-up light relay connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK OUTPUT SIGNAL OF TCM.**<br>1) Turn the ignition switch to ON. (engine OFF)<br>2) Shift the select lever to “P” range.<br>3) Measure the voltage between TCM connector and chassis ground.<br>***Connector & terminal***<br>***(B55) No. 13 (+) — Chassis ground (–):*** | Is the voltage 8 V or more? | Go to step **5**. | Replace the TCM. <Ref. to 5AT-55, Transmission Control Module (TCM).> |
| 5 | **CHECK OUTPUT SIGNAL OF TCM.**<br>1) Set the select lever to “R” range.<br>2) Measure the voltage between TCM connector and chassis ground.<br>***Connector & terminal***<br>***(B55) No. 13 (+) — Chassis ground (–):*** | Is the voltage 1 V or less? | Go to step **6**. | Replace the TCM. <Ref. to 5AT-55, Transmission Control Module (TCM).> |
| 6 | **CHECK INPUT VOLTAGE FOR BACK-UP LIGHT RELAY.**<br>Measure the voltage between back-up light relay and chassis ground. | Is the voltage 10 — 13 V? | Replace the back-up light relay. | Check open or short circuit of harness between fuse (No. 18) and back-up light relay. |

# AF:DTC P1706 AT VEHICLE SPEED SENSOR CIRCUIT MALFUNCTION (REAR WHEEL)

**DTC DETECTING CONDITION:**
Input signal circuit of TCM is open or shorted.
**TROUBLE SYMPTOM:**
- Shifting quality malfunction
- Tight corner braking phenomenon occurs.

**WIRING DIAGRAM:**
AT control system <Ref. to WI-50, AT Control System.>




| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK TCM I/O SIGNAL.**<br>Check the power supply and ground I/O signals. <Ref. to 5AT(diag)-12, ELECTRICAL SPECIFICATION, Transmission Control Module (TCM) I/O Signal.> | Is TCM I/O signal OK? | Go to step **2**. | Repair the open or short circuit for power supply and ground. |
| 2 | **CHECK TCM AND TRANSMISSION HARNESS CONNECTOR.**<br>1) Disconnect the connectors from TCM and transmission.<br>2) Measure the resistance of harness between TCM connector and transmission connector.<br>***Connector & terminal***<br>***(B54) No. 16 — (B11) No. 2:***<br>***(B54) No. 23 — (B12) No. 5:***<br>***(B54) No. 27 — (B11) No. 7:*** | Is the resistance less than 1 Ω? | Go to step **3**. | Repair the open circuit of harness between TCM and transmission connector. |
| 3 | **CHECK TCM AND TRANSMISSION HARNESS CONNECTOR.**<br>Measure the resistance of harness between TCM connector and chassis ground.<br>***Connector & terminal***<br>***(B54) No. 16 — Chassis ground:***<br>***(B54) No. 23 — Chassis ground:***<br>***(B54) No. 27 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Go to step **4**. | Repair the short circuit of harness between TCM and transmission connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK TCM POWER SUPPLY OUTPUT.**<br>1) Connect the connector to TCM. (Transmission connector is disconnected)<br>2) Turn the ignition switch to ON. (engine OFF)<br>3) Measure the voltage between transmission connector and chassis ground.<br>***Connector & terminal***<br>***(B11) No. 7 (+) — Chassis ground (–):*** | Is the voltage 10 — 13 V? | Go to step **5**. | Replace the TCM. <Ref. to 5AT-55, Transmission Control Module (TCM).> |
| 5 | **CHECK INPUT CIRCUIT OF TCM TURBINE SPEED SENSOR.**<br>Measure the voltage variation between TCM connector terminals.<br>***Connector & terminal***<br>***(B12) No. 5 (+) — (B11) No. 2 (–):*** | Is the voltage 4 — 6 V? | Go to step **7**. | Go to step **6**. |
| 6 | **CHECK HARNESS ASSEMBLY (TURBINE SPEED SENSOR GROUND).**<br>Check the installing condition of ground connecting harness (used for both of turbine speed sensor 1, rear vehicle speed sensor). | Is the ground connecting harness installed to transmission body correctly, or the harness and connector terminals not damaged? | Go to step **7**. | When the poor installation of ground connecting harness, install it securely.<br>Replace the transmission assembly when the harness is damaged. <Ref. to 5AT-37, Automatic Transmission Assembly.> |
| 7 | **CHECK INPUT SIGNAL FOR TCM.**<br>1) Connect all connectors.<br>2) Lift up the vehicle.<br>3) Start the engine.<br>4) Read the data of «Rear Wheel Speed» using Subaru Select Monitor. <Ref. to 5AT(diag)-16, READ CURRENT DATA, OPERATION, Subaru Select Monitor.><br>NOTE:<br>The speed difference between front and rear wheels lights the ABS warning light or the VDC warning light, but this does not indicate a malfunction. If the warning light illuminates, delete the ABS or VDC memory after completing the AT control diagnosis. <Ref. to VDC(diag)-27, Clear Memory Mode.> | Does the speedometer indication in the combination meter change according to «Rear Wheel Speed» data? | Check for poor contact of rear vehicle speed sensor circuit harness, and repair the defective part. | Replace the transmission harness. |

# AG:DTC P1707 AT AWD SOLENOID VALVE CIRCUIT MALFUNCTION

**DTC DETECTING CONDITION:**

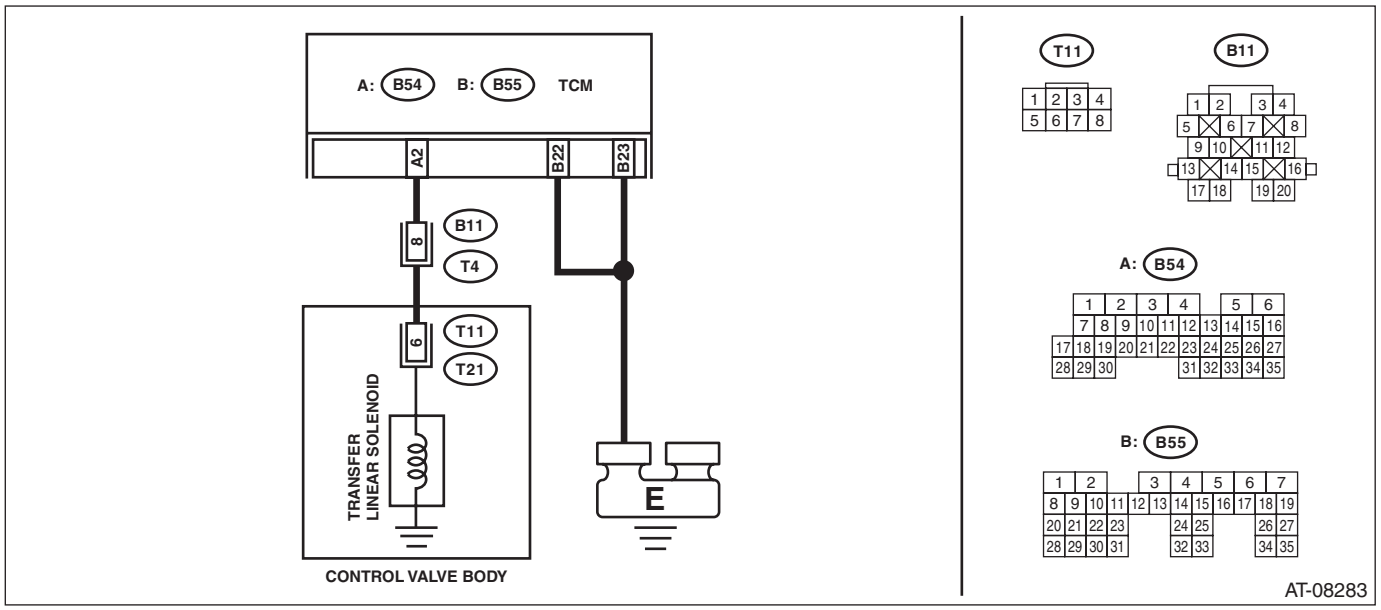
Output signal circuit of transfer solenoid is open or shorted.

**TROUBLE SYMPTOM:**

- Tight corner braking phenomenon occurs.
- Drivability getting worse.

**WIRING DIAGRAM:**

AT control system <Ref. to WI-50, AT Control System.>



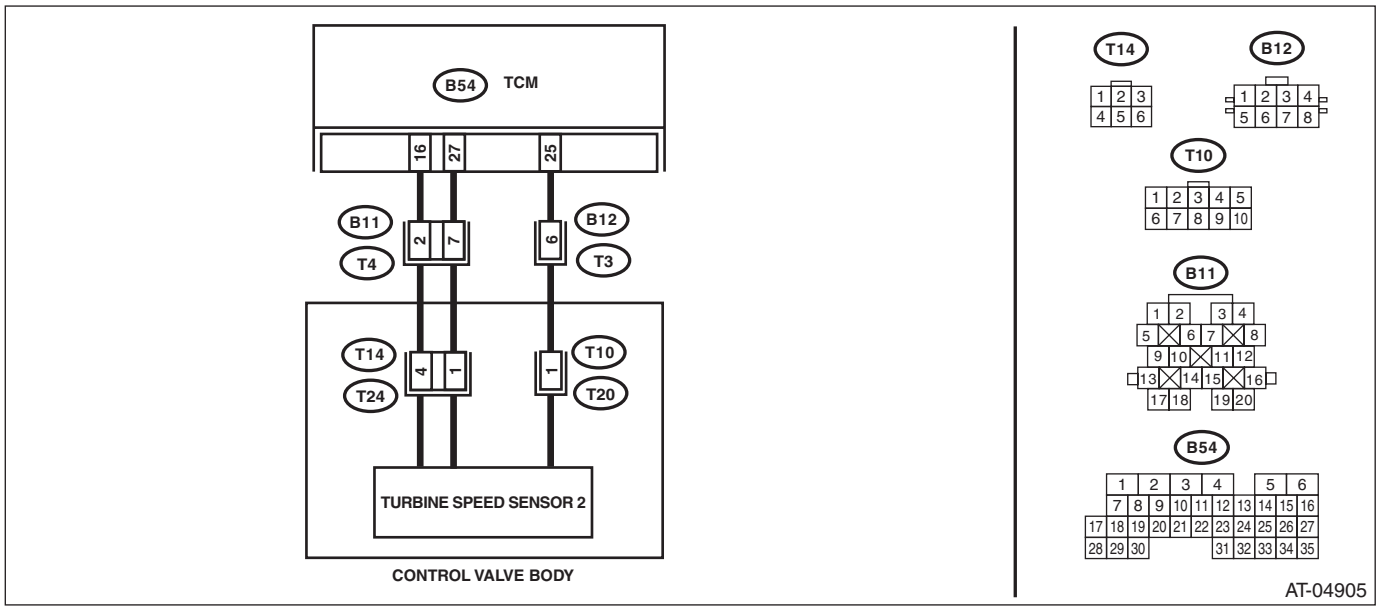

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connectors from TCM and transmission.<br>3) Measure the resistance of harness between TCM connector and transmission connector.<br>***Connector & terminal***<br>***(B54) No. 2 — (B11) No. 8:***<br>***(B55) No. 22 — Chassis ground:***<br>***(B55) No. 23 — Chassis ground:*** | Is the resistance less than 1 Ω? | Go to step **2**. | Repair the open circuit of harness between TCM connector and transmission connector. |
| 2 | **CHECK HARNESS CONNECTOR BETWEEN TCM AND CHASSIS GROUND.**<br>Measure the resistance of harness between TCM connector and chassis ground.<br>***Connector & terminal***<br>***(B55) No. 23 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Go to step **3**. | Repair the short circuit of harness between TCM connector and transmission connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 3 | **CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connector from transmission.<br>3) Remove the transmission connector from bracket.<br>4) Lift up the vehicle.<br>5) Drain the ATF.<br>**CAUTION:**<br>**Do not drain ATF until it cools down.**<br>6) Remove the oil pan.<br>7) Disconnect the connector from the control valve body.<br>8) Measure the resistance between transmission connector and control valve body connector.<br>***Connector & terminal***<br>***(T4) No. 8 — (T11) No. 6:*** | Is the resistance less than 1 Ω? | Go to step **4**. | Repair the open circuit of harness between transmission connector and control valve body connector. |
| 4 | **CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.**<br>Measure the resistance between transmission ground and control valve body connector.<br>***Connector & terminal***<br>***(T11) No. 6 — Transmission ground:*** | Is the resistance 1 MΩ or more? | Go to step **5**. | Repair the short circuit of harness between control valve body connector and transmission ground. |
| 5 | **CHECK TRANSFER SOLENOID.**<br>Measure the resistance between transmission ground and control valve body connector.<br>***Connector & terminal***<br>***(T21) No. 6 — Transmission ground:*** | Is the resistance 3 — 9 Ω? | Go to step **6**. | Replace the control valve body. <Ref. to 5AT-53, Control Valve Body.> |
| 6 | **CHECK FOR POOR CONTACT.**<br>Check the TCM connector, transmission connector and control valve body connector. | Is there poor contact (loosing terminal, entering foreign matter, damaging connector body)? | Repair the poor contact. | Go to step **7**. |
| 7 | **CHECK AFTER REPAIR.**<br>1) Perform the Clear Memory Mode.<br>2) Drive for a while and read DTC. | Is DTC displayed? | Replace the TCM. <Ref. to 5AT-55, Transmission Control Module (TCM).> | Temporary poor contact or open circuit occurs. Recheck that the harness connector has no faulty. |

# AH:DTC P1710 TORQUE CONVERTER TURBINE 2 SPEED SIGNAL CIRCUIT MALFUNCTION

**DTC DETECTING CONDITION:**
Input signal circuit of TCM is open or shorted.
**TROUBLE SYMPTOM:**
- Excessive shift shock
- Does not shift to 5th.

**WIRING DIAGRAM:**
AT control system <Ref. to WI-50, AT Control System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK TCM I/O SIGNAL.**<br>Check the power supply and ground I/O signals. <Ref. to 5AT(diag)-12, ELECTRICAL SPECIFICATION, Transmission Control Module (TCM) I/O Signal.> | Is TCM I/O signal OK? | Go to step **2**. | Repair the open or short circuit for power supply and ground. |
| 2 | **CHECK TCM AND TRANSMISSION HARNESS CONNECTOR.**<br>1) Disconnect the connectors from TCM and transmission.<br>2) Measure the resistance of harness between TCM connector and transmission connector.<br>***Connector & terminal***<br>***(B54) No. 16 — (B11) No. 2:***<br>***(B54) No. 25 — (B12) No. 6:***<br>***(B54) No. 27 — (B11) No. 7:*** | Is the resistance less than 1 Ω? | Go to step **3**. | Repair the open circuit of harness between TCM and transmission connector. |
| 3 | **CHECK TCM AND TRANSMISSION HARNESS CONNECTOR.**<br>Measure the resistance of harness between TCM connector and chassis ground.<br>***Connector & terminal***<br>***(B54) No. 25 — Chassis ground:*** | Is the resistance less than 1 MΩ? | Go to step **4**. | Repair the short circuit of harness between TCM and transmission connector. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK TCM POWER SUPPLY OUTPUT.**<br>1) Connect the connector to TCM. (Transmission connector is disconnected)<br>2) Turn the ignition switch to ON. (engine OFF)<br>3) Measure the voltage between transmission connector and chassis ground.<br>***Connector & terminal***<br>***(B11) No. 7 (+) — Chassis ground (–):*** | Is the voltage 10 — 13 V? | Go to step **5**. | Replace the TCM. <Ref. to 5AT-55, Transmission Control Module (TCM).> |
| 5 | **CHECK INPUT CIRCUIT OF TCM TURBINE SPEED SENSOR 2.**<br>Measure the voltage between TCM connector terminals.<br>***Connector & terminal***<br>***(B12) No. 6 (+) — (B11) No. 2 (–):*** | Is the voltage 4 — 6 V? | Go to step **6**. | Replace the TCM. <Ref. to 5AT-55, Transmission Control Module (TCM).> |
| 6 | **CHECK INPUT SIGNAL FOR TCM.**<br>1) Connect all connectors.<br>2) Lift up the vehicle.<br>3) Start the engine.<br>4) Drive at 1st of manual mode.<br>5) Read the data of «AT Turbine Speed 2» using Subaru Select Monitor. <Ref. to 5AT(diag)-16, READ CURRENT DATA, OPERATION, Subaru Select Monitor.><br>NOTE:<br>The speed difference between front and rear wheels lights the ABS warning light or the VDC warning light, but this does not indicate a malfunction. If the warning light illuminates, delete the ABS or VDC memory after completing the AT control diagnosis. <Ref. to VDC(diag)-27, Clear Memory Mode.> | Does the speedometer indication in the combination meter change according to «AT Turbine Speed 2» data? | Check for poor contact of the harness between the turbine speed sensor 2 and transmission connector, and repair the defective part. | Go to step **7**. |
| 7 | **CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connector from transmission.<br>3) Remove the transmission connector from bracket.<br>4) Lift up the vehicle.<br>5) Drain the ATF.<br>**CAUTION:**<br>**Do not drain ATF until it cools down.**<br>6) Remove the oil pan.<br>7) Disconnect the connector from the control valve body.<br>8) Measure the resistance between transmission connector and control valve body connector.<br>***Connector & terminal***<br>***(T3) No. 6 — (T10) No. 1:*** | Is the resistance less than 1 Ω? | Go to step **8**. | Repair the open circuit of harness between transmission connector and control valve body connector. |
| 8 | **CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.**<br>Measure the resistance between transmission ground and control valve body connector.<br>***Connector & terminal***<br>***(T10) No. 1 — Transmission ground:*** | Is the resistance 1 MΩ or more? | Replace the control valve body. <Ref. to 5AT-53, Control Valve Body.> | Repair the short circuit of harness between transmission connector and transmission ground. |

## AI: DTC P1718 AT CAN COMMUNICATION CIRCUIT

NOTE:
Refer to “LAN SYSTEM” for diagnostic procedure. <Ref. to LAN(diag)-2, Basic Diagnostic Procedure.>

## AJ:DTC P1724 AT EEPROM ERROR

**DTC DETECTING CONDITION:**
TCM EEPROM malfunction
**TROUBLE SYMPTOM:**
- AT learning is not finished.
- Shock occurs when selecting N → D, N → R.

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BATTERY.**<br>1) Turn the ignition switch to ON.<br>2) Read the data of «Battery voltage» using Subaru Select Monitor. | Is the «Battery voltage» 10 V or more? | Go to step **2**. | Check the battery. |
| 2 | **CHECK DTC.**<br>1) Turn the ignition switch to OFF.<br>2) Turn the ignition switch to ON after one minute. | Is DTC P1724 displayed as a temporary code? | Replace the TCM. <Ref. to 5AT-55, Transmission Control Module (TCM).> | Current condition is normal. Check for poor contact of TCM connector or harness. |

# AK:DTC P1817 SPORTS MODE SWITCH CIRCUIT (MANUAL SWITCH)

**DTC DETECTING CONDITION:**

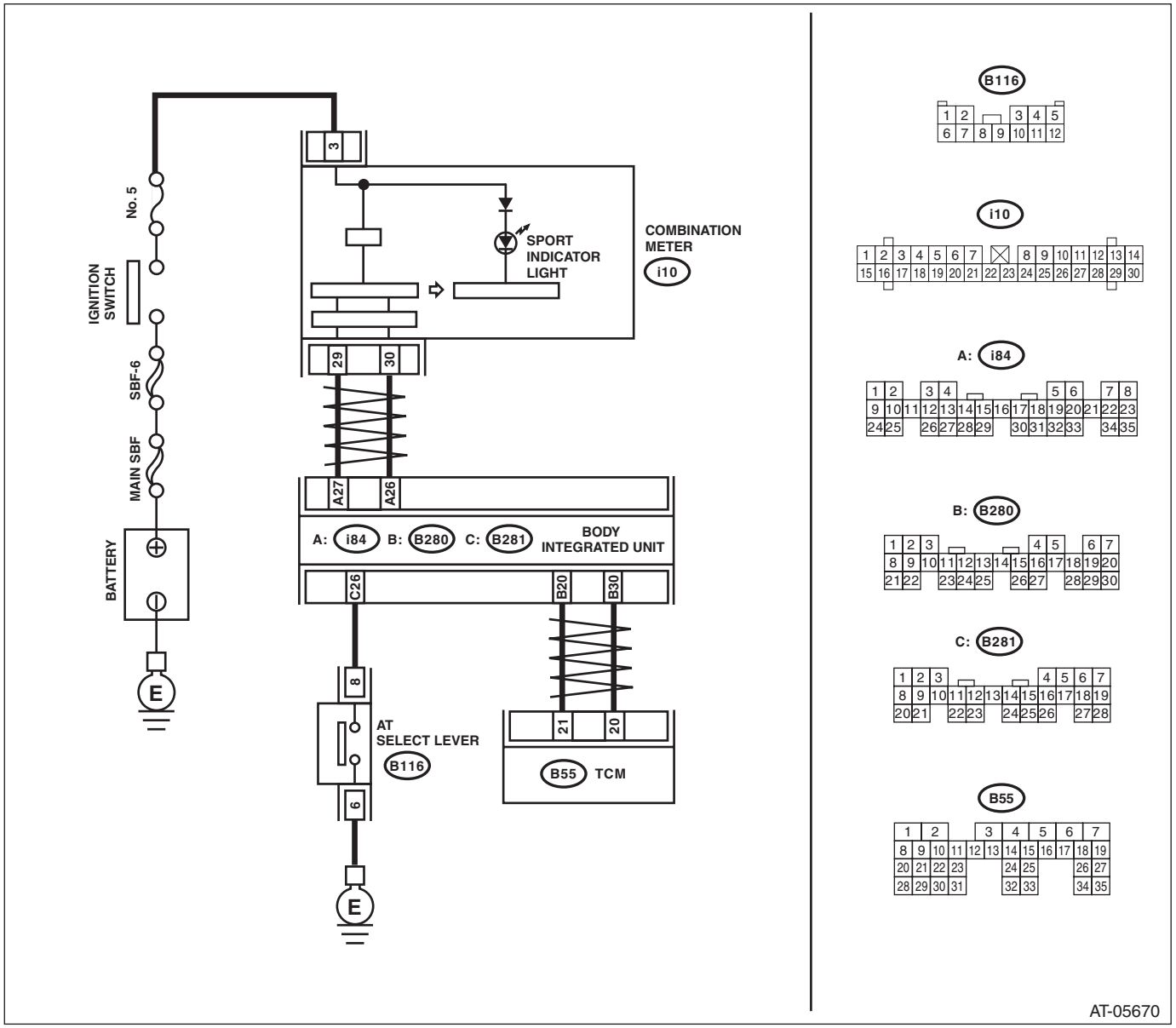
Input signal circuit of manual mode switch is open or shorted.

**TROUBLE SYMPTOM:**

- Manual mode can not be set.
- Shift indicator light illuminates when shifting “N” → “D”.

**WIRING DIAGRAM**:

AT control system <Ref. to WI-50, AT Control System.>




| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK BODY INTEGRATED UNIT.**<br>1) Connect the Subaru Select Monitor to data link connector.<br>2) Turn the ignition switch to ON. (engine OFF)<br>3) Read the DTC of body integrated unit using Subaru Select Monitor. <Ref. to LAN(diag)-27, OPERATION, Read Diagnostic Trouble Code (DTC).> | Is DTC displayed? | Perform the diagnosis according to DTC. | Go to step **2**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 2 | **CHECK BODY INTEGRATED UNIT INPUT SIGNAL.**<br>1) Shift the select lever to “P” range.<br>2) Read the «Tiptronic Mode Switch» data of the body integrated unit using the Subaru Select Monitor. <Ref. to LAN(diag)-13, DISPLAY OF CURRENT DATA, OPERATION, Subaru Select Monitor.> | Is “OFF” displayed? | Go to step **3**. | Go to step **7**. |
| 3 | **CHECK BODY INTEGRATED UNIT INPUT SIGNAL.**<br>1) Move the select lever from “P” to “D” range.<br>2) Read the «Tiptronic Mode Switch» data of the body integrated unit using the Subaru Select Monitor. <Ref. to LAN(diag)-13, DISPLAY OF CURRENT DATA, OPERATION, Subaru Select Monitor.> | Is the indication on each range OFF? | Go to step **4**. | Replace the select lever assembly. <Ref. to CS-19, Select Lever.> |
| 4 | **CHECK BODY INTEGRATED UNIT INPUT SIGNAL.**<br>1) Shift the select lever to manual mode.<br>2) Shift the select lever to other than “D” range.<br>3) Read the «Tiptronic Mode Switch» data of the body integrated unit using the Subaru Select Monitor. <Ref. to LAN(diag)-13, DISPLAY OF CURRENT DATA, OPERATION, Subaru Select Monitor.> | Is “OFF” displayed? | Go to step **5**. | Replace the select lever assembly. <Ref. to CS-19, Select Lever.> |
| 5 | **CHECK DTC OF TCM.** | Is DTC of Transmission Range Sensor Circuit (PRNDL Input) and AT CAN communication circuit displayed? | Perform the diagnosis according to each DTC. | Go to step **6**. |
| 6 | **CHECK INPUT SIGNAL FOR TCM.**<br>1) Move the select lever from “P” to “D” range.<br>2) Read the «Tiptronic Mode Switch» data of the TCM using the Subaru Select Monitor. <Ref. to 5AT(diag)-16, READ CURRENT DATA, OPERATION, Subaru Select Monitor.> | Is the indication on each range OFF? | Check for poor contact in connectors or harnesses, and repair the defective part. | Replace the TCM. <Ref. to 5AT-55, Transmission Control Module (TCM).> |
| 7 | **CHECK HARNESS BETWEEN BODY INTEGRATED UNIT AND MANUAL MODE SWITCH.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect harness connector from body integrated unit and select lever.<br>3) Measure the harness resistance between the body integrated unit and chassis ground.<br>***Connector & terminal***<br>***(i84) No. 27 — Chassis ground:*** | Is the resistance 1 MΩ or more? | Go to step **8**. | Repair the short circuit of the harness between the body integrated unit and manual mode switch. |
| 8 | **CHECK MANUAL MODE SWITCH.**<br>1) Shift the select lever to “P” range.<br>2) Measure the resistance between harness connector terminals of manual mode switch.<br>***Connector & terminal***<br>***(B116) No. 6 — No. 8*** | Is the resistance 1 MΩ or more? | Check body integrated unit. | Replace the select lever assembly. <Ref. to CS-19, Select Lever.> |

## AL:DTC P1840 TRANSMISSION FLUID PRESSURE SENSOR SWITCH A CIRCUIT

**DTC DETECTING CONDITION:**
Front brake oil pressure switch malfunction
**TROUBLE SYMPTOM:**
Excessive shift shock

NOTE:
Refer to DTC P0751 for diagnostic procedure. <Ref. to 5AT(diag)-62, DTC P0751 SHIFT SOLENOID “A” PERFORMANCE OR STUCK OFF, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## AM:DTC P1841 TRANSMISSION FLUID PRESSURE SENSOR SWITCH B CIRCUIT

**DTC DETECTING CONDITION:**
Forward brake oil pressure switch malfunction
**TROUBLE SYMPTOM:**
Excessive shift shock

NOTE:
Refer to DTC P0771 for diagnostic procedure. <Ref. to 5AT(diag)-78, DTC P0771 SHIFT SOLENOID “E” PERFORMANCE OR STUCK OFF, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## AN:DTC P1842 TRANSMISSION FLUID PRESSURE SENSOR SWITCH C CIRCUIT

**DTC DETECTING CONDITION:**
Input clutch oil pressure switch is malfunction.
**TROUBLE SYMPTOM:**
Excessive shift shock

NOTE:
Refer to DTC P0756 for diagnostic procedure. <Ref. to 5AT(diag)-66, DTC P0756 SHIFT SOLENOID “B” PERFORMANCE OR STUCK OFF, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## AO:DTC P1843 TRANSMISSION FLUID PRESSURE SENSOR SWITCH D CIRCUIT

**DTC DETECTING CONDITION:**
Direct clutch oil pressure switch malfunction.
**TROUBLE SYMPTOM:**
Excessive shift shock

NOTE:
Refer to DTC P0766 for diagnostic procedure. <Ref. to 5AT(diag)-74, DTC P0766 SHIFT SOLENOID “D” PERFORMANCE OR STUCK OFF, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## AP:DTC P1844 TRANSMISSION FLUID PRESSURE SENSOR SWITCH E CIRCUIT

**DTC DETECTING CONDITION:**
High & low reverse clutch oil pressure switch malfunction.
**TROUBLE SYMPTOM:**
Excessive shift shock

NOTE:
Refer to DTC P0761 for diagnostic procedure. <Ref. to 5AT(diag)-70, DTC P0761 SHIFT SOLENOID “C” PERFORMANCE OR STUCK OFF, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>