

15. Diagnostic Procedure with Diagnostic Trouble Code (DTC)

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

DTC DETECTING CONDITION:

- Inhibitor switch is faulty.
- At least 2 range signal is input.

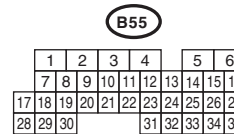
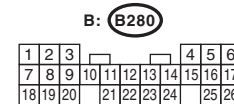
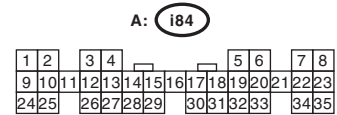
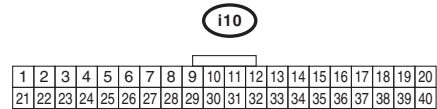
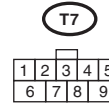
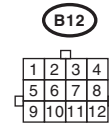
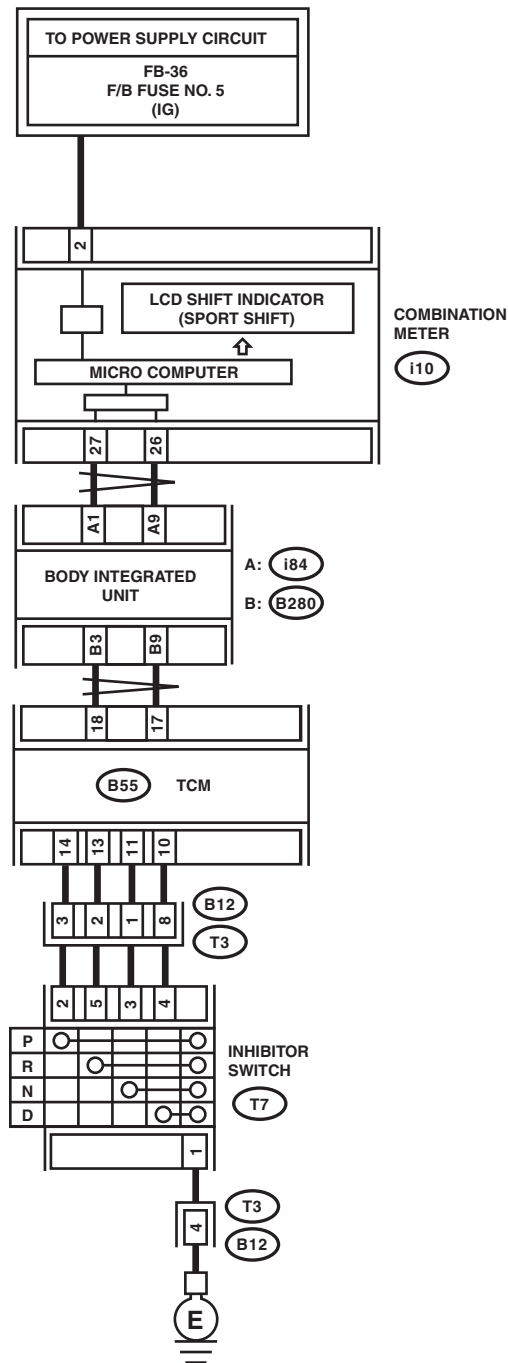
TROUBLE SYMPTOM:

- Shift characteristics are erroneous.
- The range position of the select lever and the AT select lever position indicator light on the combination meter do not match.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

WIRING DIAGRAM:



AT-04752

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK INDICATOR LIGHT. 1) Turn the ignition switch to ON. 2) Move the select lever to "P" range.	Does the "P" range indicator light in the combination meter illuminate?	Go to step 2.	Go to step 6.
2 CHECK INDICATOR LIGHT. Set the select lever to "R" range.	Does the "P" range indicator light in the combination meter illuminate?	Go to step 20.	Go to step 3.
3 CHECK INDICATOR LIGHT. Move the select lever to "P" range.	Does the "R" range indicator light on combination meter illuminate?	Go to step 27.	Go to step 4.
4 CHECK INDICATOR LIGHT.	Does the "N" range indicator light on combination meter illuminate?	Go to step 34.	Go to step 5.
5 CHECK INDICATOR LIGHT.	Does the "D" range indicator light on combination meter illuminate?	Go to step 41.	Go to step 7.
6 CHECK "P" RANGE SWITCH. Read the data of "P range" using the Subaru Select Monitor.	Is ON displayed?	Go to step 17.	Go to step 13.
7 CHECK INDICATOR LIGHT. Set the select lever to "R" range.	Does the "R" range indicator light on combination meter illuminate?	Go to step 9.	Go to step 8.
8 CHECK "R" RANGE SWITCH. Read the data of "R range" using the Subaru Select Monitor.	Is ON displayed?	Go to step 24.	Go to step 21.
9 CHECK INDICATOR LIGHT. Set the select lever to "N" range.	Does the "N" range indicator light on combination meter illuminate?	Go to step 11.	Go to step 10.
10 CHECK "N" RANGE SWITCH. Read the data of "N range" using the Subaru Select Monitor.	Is ON displayed?	Go to step 31.	Go to step 28.
11 CHECK INDICATOR LIGHT. Set the select lever to the "D" range.	Does the "D" range indicator light on combination meter illuminate?	Check for poor contact in the TCM and transmission harness or connectors, and repair the fault location.	Go to step 12.
12 CHECK "D" RANGE SWITCH. Read the data of "D range" using the Subaru Select Monitor.	Is ON displayed?	Go to step 38.	Go to step 35.
13 CHECK HARNESS CONNECTOR BETWEEN INHIBITOR SWITCH AND CHASSIS GROUND. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from inhibitor switch. 3) Measure the resistance of harness between inhibitor switch and chassis ground. Connector & terminal (T7) No. 1 — Chassis ground:	Is the resistance less than 1 Ω ?	Go to step 14.	Repair the open circuit of harness between inhibitor switch and chassis ground, and poor contact of the connector.
14 CHECK HARNESS CONNECTOR BETWEEN TCM AND INHIBITOR SWITCH. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and inhibitor switch. 3) Measure the resistance of the harness between TCM and inhibitor switch connector. Connector & terminal (B55) No. 14 — (T7) No. 2:	Is the resistance less than 1 Ω ?	Go to step 15.	Repair the open circuit of harness between TCM and inhibitor switch connector, and poor contact of the connector.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
15 CHECK INPUT SIGNAL FOR TCM. 1) Turn the ignition switch to OFF. 2) Connect the connector to TCM and inhibitor switch. 3) Turn the ignition switch to ON. 4) Move the select lever to "P" range. 5) Measure the voltage between TCM and chassis ground. Connector & terminal (B55) No. 14 (+) — Chassis ground (-):	Is the voltage less than 1 V?	Go to step 16.	Go to step 42.
16 CHECK INPUT SIGNAL FOR TCM. 1) Set the select lever to other than "P" range. 2) Measure the voltage between TCM and chassis ground. Connector & terminal (B55) No. 14 (+) — Chassis ground (-):	Is the voltage 8 V or more?	Go to step 42.	Replace the TCM. <Ref. to 4AT-60, Transmission Control Module (TCM).>
17 CHECK BODY INTEGRATED UNIT. Read the data of the "Inhibitor Switch" using the Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.>	Is "7" displayed?	Go to step 18.	Check the body integrated unit.
18 CHECK BODY INTEGRATED UNIT. Check DTC of body integrated unit.	Is DTC of CAN communication displayed?	Perform diagnosis according to the DTC.	Go to step 19.
19 CHECK COMBINATION METER. Check the "P" range indicator light. <Ref. to IDI-4, INSPECTION, Combination Meter System.>	Is the "P" range indicator light bulb OK?	Go to step 42.	Replace the combination meter assembly. <Ref. to IDI-16, Combination Meter.>
20 CHECK HARNESS CONNECTOR BETWEEN TCM AND INHIBITOR SWITCH. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM, inhibitor switch and combination meter. 3) Measure the resistance of the harness between TCM connector and chassis ground. Connector & terminal (B55) No. 14 — Chassis ground:	Is the resistance 1 MΩ or more?	Go to step 42.	Repair ground short circuit in "P" range circuit.
21 CHECK HARNESS CONNECTOR BETWEEN TCM AND INHIBITOR SWITCH. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and inhibitor switch. 3) Measure the resistance of the harness between TCM and inhibitor switch connector. Connector & terminal (B55) No. 13 — (T7) No. 5:	Is the resistance less than 1 Ω?	Go to step 22.	Repair the open circuit of harness between TCM and inhibitor switch connector, and poor contact of the connector.
22 CHECK INPUT SIGNAL FOR TCM. 1) Turn the ignition switch to OFF. 2) Connect the connector to TCM and inhibitor switch. 3) Turn the ignition switch to ON. 4) Set the select lever to "R" range. 5) Measure the voltage between TCM and chassis ground. Connector & terminal (B55) No. 13 (+) — Chassis ground (-):	Is the voltage less than 1 V?	Go to step 23.	Go to step 42.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
23 CHECK INPUT SIGNAL FOR TCM. 1) Set the select lever to a range other than "R". 2) Measure the voltage between TCM and chassis ground. Connector & terminal (B55) No. 13 (+) — Chassis ground (-):	Is the voltage 8 V or more?	Go to step 42.	Replace the TCM. <Ref. to 4AT-60, Transmission Control Module (TCM).>
24 CHECK BODY INTEGRATED UNIT. Using the Subaru Select Monitor, read the data of "Shift Position". <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.>	Is "6" displayed?	Go to step 25.	Check the body integrated unit.
25 CHECK BODY INTEGRATED UNIT. Check DTC of body integrated unit.	Is DTC of CAN communication displayed?	Perform diagnosis according to the DTC.	Go to step 26.
26 CHECK COMBINATION METER. Check the "R" range indicator light. <Ref. to IDI-4, INSPECTION, Combination Meter System.>	Is the "R" range indicator light OK?	Go to step 42.	Replace the combination meter assembly. <Ref. to IDI-16, Combination Meter.>
27 CHECK HARNESS CONNECTOR BETWEEN TCM AND INHIBITOR SWITCH. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM, inhibitor switch and combination meter. 3) Measure the resistance of the harness between TCM connector and chassis ground. Connector & terminal (B55) No. 13 — Chassis ground:	Is the resistance 1 MΩ or more?	Go to step 42.	Repair ground short circuit in "R" range circuit.
28 CHECK HARNESS CONNECTOR BETWEEN TCM AND INHIBITOR SWITCH. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and inhibitor switch. 3) Measure the resistance of the harness between TCM and inhibitor switch connector. Connector & terminal (B55) No. 11 — (T7) No. 3:	Is the resistance less than 1 Ω?	Go to step 29.	Repair the open circuit of harness between TCM and inhibitor switch connector, and poor contact of the connector.
29 CHECK INPUT SIGNAL FOR TCM. 1) Turn the ignition switch to OFF. 2) Connect the connector to TCM and inhibitor switch. 3) Turn the ignition switch to ON. 4) Set the select lever to "N" range. 5) Measure the voltage between TCM and chassis ground. Connector & terminal (B55) No. 11 (+) — Chassis ground (-):	Is the voltage less than 1 V?	Go to step 30.	Go to step 42.
30 CHECK INPUT SIGNAL FOR TCM. 1) Set the select lever to a range other than "N". 2) Measure the voltage between TCM and chassis ground. Connector & terminal (B55) No. 11 (+) — Chassis ground (-):	Is the voltage 8 V or more?	Go to step 42.	Replace the TCM. <Ref. to 4AT-60, Transmission Control Module (TCM).>
31 CHECK BODY INTEGRATED UNIT. Using the Subaru Select Monitor, read the data of "Shift Position". <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.>	Is "5" displayed?	Go to step 32.	Check the body integrated unit.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
32 CHECK BODY INTEGRATED UNIT. Check DTC of body integrated unit.	Is DTC of CAN communication displayed?	Perform diagnosis according to the DTC.	Go to step 33.
33 CHECK COMBINATION METER. Check the "N" range indicator light. <Ref. to IDI-4, INSPECTION, Combination Meter System.>	Is the "N" range indicator light OK?	Go to step 42.	Replace the combination meter assembly. <Ref. to IDI-16, Combination Meter.>
34 CHECK HARNESS CONNECTOR BETWEEN TCM AND INHIBITOR SWITCH. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM, inhibitor switch and combination meter. 3) Measure the resistance of the harness between TCM connector and chassis ground. Connector & terminal (B55) No. 11 — Chassis ground:	Is the resistance 1 MΩ or more?	Go to step 42.	Repair the ground short circuit in "N" range circuit.
35 CHECK HARNESS CONNECTOR BETWEEN TCM AND INHIBITOR SWITCH. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and inhibitor switch. 3) Measure the resistance of the harness between TCM and inhibitor switch connector. Connector & terminal (B55) No. 10 — (T7) No. 4:	Is the resistance less than 1 Ω?	Go to step 36.	Repair the open circuit of harness between TCM and inhibitor switch connector, and poor contact of the connector.
36 CHECK INPUT SIGNAL FOR TCM. 1) Turn the ignition switch to OFF. 2) Connect the connector to TCM and inhibitor switch. 3) Turn the ignition switch to ON. 4) Set the select lever to the "D" range. 5) Measure the voltage between TCM and chassis ground. Connector & terminal (B55) No. 10 (+) — Chassis ground (-):	Is the voltage less than 1 V?	Go to step 37.	Go to step 42.
37 CHECK INPUT SIGNAL FOR TCM. 1) Set the select lever to a range other than "D". 2) Measure the voltage between TCM and chassis ground. Connector & terminal (B55) No. 10 (+) — Chassis ground (-):	Is the voltage 8 V or more?	Go to step 42.	Replace the TCM. <Ref. to 4AT-60, Transmission Control Module (TCM).>
38 CHECK BODY INTEGRATED UNIT. Read the data of the "Inhibitor Switch" using the Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.>	Is "4" displayed?	Go to step 39.	Check the body integrated unit.
39 CHECK BODY INTEGRATED UNIT. Check DTC of body integrated unit.	Is DTC of CAN communication displayed?	Perform diagnosis according to the DTC.	Go to step 40.
40 CHECK COMBINATION METER. Check the "D" range indicator light. <Ref. to IDI-4, INSPECTION, Combination Meter System.>	Is the "D" range indicator light OK?	Go to step 42.	Replace the combination meter assembly. <Ref. to IDI-16, Combination Meter.>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
41 CHECK HARNESS CONNECTOR BETWEEN TCM AND INHIBITOR SWITCH. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM, inhibitor switch and combination meter. 3) Measure the resistance of harness between TCM connector and chassis ground. Connector & terminal (B55) No. 10 — Chassis ground:	Is the resistance 1 M Ω or more?	Go to step 42.	Repair ground short circuit in "D" range circuit.
42 CHECK POOR CONTACT.	Is there poor contact in the inhibitor switch circuit?	Repair the poor contact.	Go to step 43.
43 CHECK INHIBITOR SWITCH.	Is the inhibitor switch in a normal position?	Replace the TCM. <Ref. to 4AT-60, Transmission Control Module (TCM).>	Adjust the inhibitor switch and select cable. <Ref. to 4AT-46, Inhibitor Switch.> <Ref. to CS-25, Select Cable.>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

B: DTC P0712 TRANSMISSION FLUID TEMPERATURE SENSOR CIRCUIT LOW INPUT

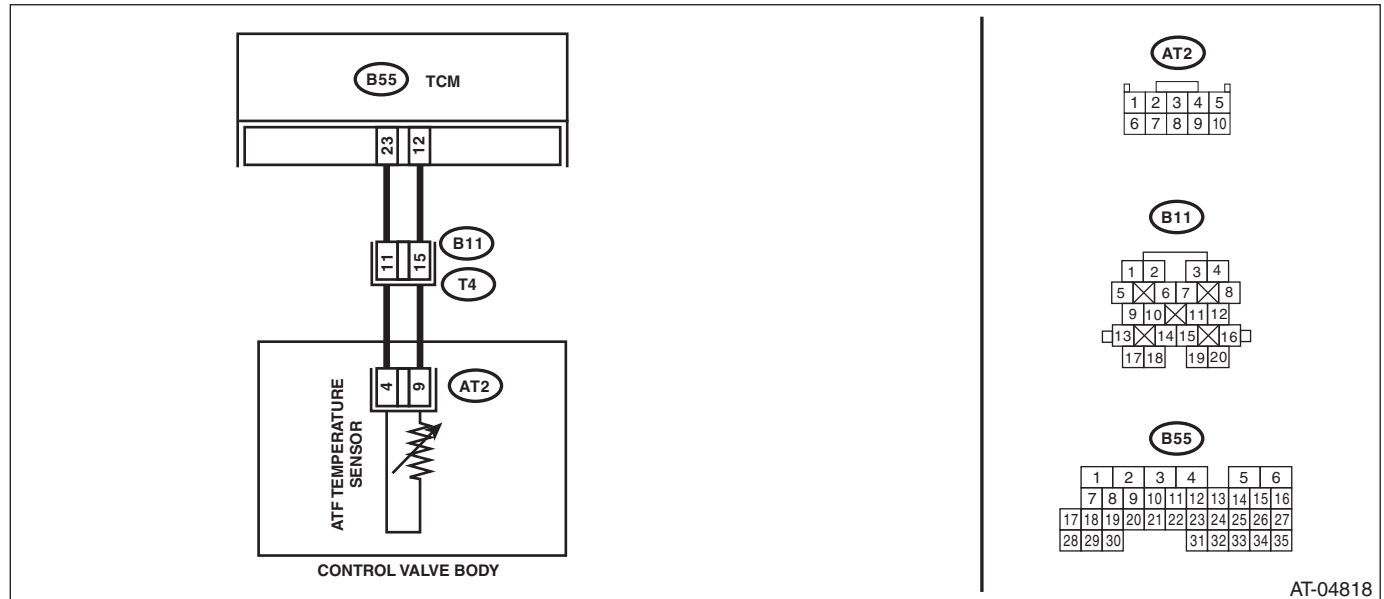
DTC DETECTING CONDITION:

Input signal circuit to ATF temperature sensor is open or shorted.

TROUBLE SYMPTOM:

Excessive shift shock

WIRING DIAGRAM:



AT-04818

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK HARNESS CONNECTOR BETWEEN TCM AND ATF TEMPERATURE SENSOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission and TCM. 3) Measure the resistance of harness between TCM and transmission connector. Connector & terminal (B55) No. 23 — (B11) No. 11:	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 ATF TEMPERATURE SENSOR. Measure the resistance of harness between TCM and transmission connector. Connector & terminal (B55) No. 12 — (B11) No. 15:	Is the resistance less than 1 Ω ?	Go to step 3.	Repair the open circuit of harness between TCM and transmission connector.
3 CHECK ATF TEMPERATURE SENSOR. 1) Turn the ignition switch to OFF. 2) Connect the connectors to transmission and TCM. 3) Start the engine. 4) Warm-up the transmission until the ATF temperature exceeds 80°C (176°F). NOTE: If the ambient temperature is below 0°C (32°F), drive the vehicle until the ATF reaches its operating temperature. 5) Disconnect the connector from transmission. 6) Measure the resistance between transmission connector terminals. Connector & terminal (T4) No. 11 — No. 15:	Is the resistance between 300 — 800 Ω ?	Go to step 4.	Go to step 7.
4 CHECK ATF TEMPERATURE SENSOR. Measure the resistance between transmission connector terminals. Connector & terminal (T4) No. 11 — No. 15:	Does the resistance value increase while the ATF temperature decreases?	Go to step 5.	Go to step 7.
5 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR. 1) Connect the connector to transmission. 2) Connect the Subaru Select Monitor to the data link connector. 3) Turn the ignition switch to ON. 4) Read the data of "ATF Temp." using the Subaru Select Monitor.	Does the ATF temperature gradually decrease?	Check for poor contact in the ATF temperature sensor and transmission connector harness, and repair the fault location.	Go to step 6.
6 CHECK POOR CONTACT.	Is there poor contact in ATF temperature sensor circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-60, Transmission Control Module (TCM).>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
7 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND ATF TEMPERATURE SENSOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission. 3) Remove the transmission connector from bracket. 4) Lift up the vehicle. 5) Drain the automatic transmission fluid. CAUTION: Do not drain ATF until it cools down. 6) Remove the oil pan, and disconnect the connector from the control valve. 7) Measure the resistance of harness between ATF temperature sensor and transmission connector. Connector & terminal (T4) No. 11 — (AT2) No. 4:	Is the resistance less than 1 Ω ?	Go to step 8.	Repair the open circuit of harness between ATF temperature sensor and transmission connector.
8 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND ATF TEMPERATURE SENSOR. Measure the resistance of harness between ATF temperature sensor and transmission connector. Connector & terminal (T4) No. 15 — (AT2) No. 9:	Is the resistance less than 1 Ω ?	Go to step 9.	Repair the open circuit of harness between ATF temperature sensor and transmission connector.
9 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND ATF TEMPERATURE SENSOR. Measure the resistance of harness between transmission connector and transmission ground. Connector & terminal (T4) No. 11 — Transmission ground:	Is the resistance 1 M Ω or more?	Go to step 10.	Repair the short circuit of harness between ATF temperature sensor and transmission connector.
10 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND ATF TEMPERATURE SENSOR. Measure the resistance of harness between transmission connector and transmission ground. Connector & terminal (T4) No. 15 — Transmission ground:	Is the resistance 1 M Ω or more?	Replace the control valve body. <Ref. to 4AT-56, Control Valve Body.>	Repair the short circuit of harness between ATF temperature sensor and transmission connector.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

C: DTC P0713 TRANSMISSION FLUID TEMPERATURE SENSOR CIRCUIT HIGH INPUT

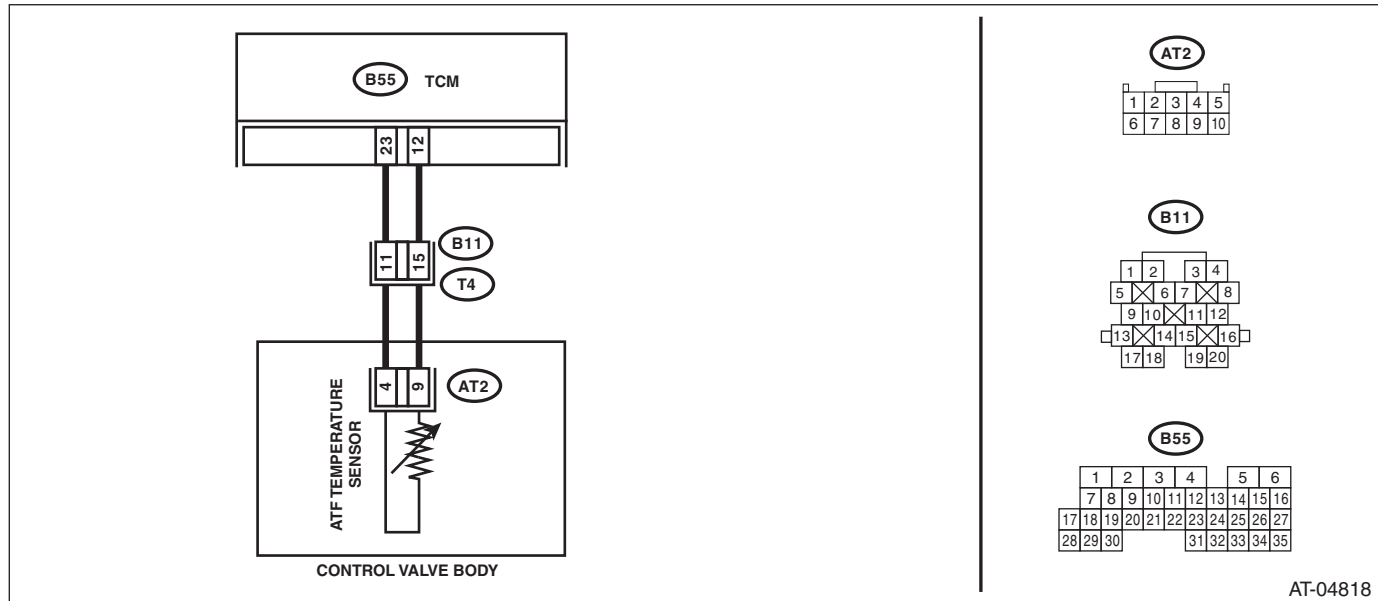
DTC DETECTING CONDITION:

Input signal circuit to ATF temperature sensor is shorted.

TROUBLE SYMPTOM:

Excessive shift shock

WIRING DIAGRAM:



Step	Check	Yes	No
1 CHECK HARNESS CONNECTOR BETWEEN TCM AND ATF TEMPERATURE SENSOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM. 3) Measure the resistance between TCM connector terminals. Connector & terminal (B55) No. 23 — No. 12:	Is the resistance 500 Ω or more?	Go to step 2.	Go to step 4.
2 CHECK HARNESS CONNECTOR BETWEEN TCM AND ATF TEMPERATURE SENSOR. Measure the resistance of the harness between TCM connector and chassis ground. Connector & terminal (B55) No. 23 — Chassis ground:	Is the resistance 1 M Ω or more?	Go to step 3.	Go to step 4.
3 CHECK HARNESS. Measure the resistance between TCM connector terminals while shaking the harness. Connector & terminal (B55) No. 23 — No. 12:	Does the resistance change?	Go to step 4.	Replace the TCM. <Ref. to 4AT-60, Transmission Control Module (TCM).>
4 CHECK HARNESS CONNECTOR BETWEEN TCM AND ATF TEMPERATURE SENSOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission. 3) Measure the resistance of the harness between TCM connector and chassis ground. Connector & terminal (B55) No. 23 — Chassis ground:	Is the resistance 1 M Ω or more?	Go to step 5.	Repair the short circuit of harness between TCM and transmission harness.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
5 CHECK HARNESS CONNECTOR BETWEEN TCM AND ATF TEMPERATURE SENSOR. Measure the resistance of the harness between TCM connector and chassis ground. Connector & terminal (B55) No. 12 — Chassis ground:	Is the resistance 1 MΩ or more?	Go to step 6.	Repair the short circuit of harness between TCM and transmission harness.
6 CHECK ATF TEMPERATURE SENSOR. Measure the resistance between transmission connector terminals. Connector & terminal (T4) No. 11 — No. 15:	Is the resistance 500 Ω or more?	Check for short circuits in the harness or connectors, and repair the fault location.	Go to step 7.
7 CHECK TRANSMISSION HARNESS. 1) Lift up the vehicle. 2) Drain the automatic transmission fluid. CAUTION: Do not drain ATF until it cools down. 3) Remove the oil pan. 4) Disconnect the harness connector from control valve. 5) Measure the resistance between transmission connector and transmission ground. Connector & terminal (T4) No. 11 — Transmission ground:	Is the resistance 1 MΩ or more?	Go to step 8.	Replace the transmission harness.
8 CHECK TRANSMISSION HARNESS. Measure the resistance between transmission connector and transmission ground. Connector & terminal (T4) No. 15 — Transmission ground:	Is the resistance 1 MΩ or more?	Go to step 9.	Replace the transmission harness.
9 CHECK ATF TEMPERATURE SENSOR. Measure the resistance between control valve connector terminals. Connector & terminal (AT2) No. 4 — No. 9:	Is the resistance 500 Ω or more?	Check for short circuits in the harness or connectors, and repair the fault location.	Replace the control valve body. <Ref. to 4AT-56, Control Valve Body.>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

D: DTC P0715 INPUT/TURBINE SPEED SENSOR CIRCUIT

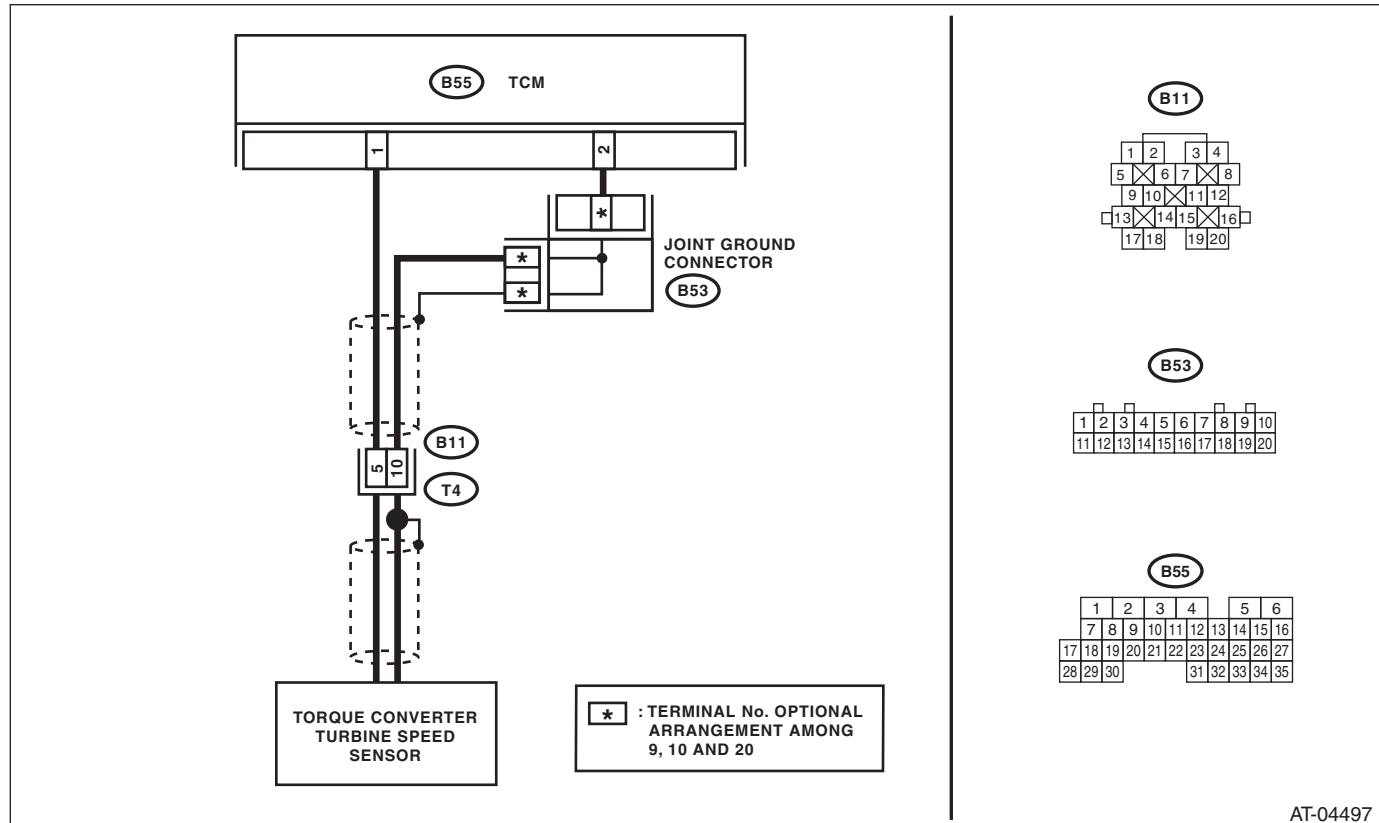
DTC DETECTING CONDITION:

Input signal circuit of TCM is open or shorted.

TROUBLE SYMPTOM:

Excessive shift shock

WIRING DIAGRAM:



AT-04497

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK TORQUE CONVERTER TURBINE SPEED SENSOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission. 3) Measure the resistance between transmission connector receptacle's terminals. Connector & terminal (T4) No. 5 — No. 10:	Is the resistance between 450 — 650 Ω ?	Go to step 2.	Replace the torque converter turbine speed sensor. <Ref. to 4AT-53, Torque Converter Turbine Speed Sensor.>
2 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Disconnect the connector from TCM. 2) Measure the resistance of the harness between TCM connector and transmission connector. Connector & terminal (B55) No. 1 — (B11) No. 5:	Is the resistance less than 1 Ω ?	Go to step 3.	Repair the open circuit of harness between TCM and transmission connector.
3 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. Measure the resistance of the harness between TCM connector and transmission connector. Connector & terminal (B55) No. 2 — (B11) No. 10:	Is the resistance less than 1 Ω ?	Go to step 4.	Repair the open circuit of harness between TCM and transmission connector, and poor contact of the connector.
4 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. Measure the resistance of the harness between TCM connector and chassis ground. Connector & terminal (B55) No. 2 — Chassis ground:	Is the resistance 1 M Ω or more?	Go to step 5.	Repair the short circuit of harness between TCM and transmission connector.
5 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. Measure the resistance of the harness between TCM connector and chassis ground. Connector & terminal (B55) No. 1 — Chassis ground:	Is the resistance 1 M Ω or more?	Go to step 6.	Repair the short circuit of the harness between TCM and transmission connector, and poor contact of connector.
6 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR. 1) Connect the connectors to TCM and transmission. 2) Connect the Subaru Select Monitor to the data link connector. 3) Turn the ignition switch to ON. 4) Run the Subaru Select Monitor. 5) Start the engine. 6) Move the select lever to the "P" or "N" range. 7) Read the data of "Turbine Revolution Speed" using Subaru Select Monitor. 8) Compare the tachometer with Subaru Select Monitor indications.	Is the revolution value same as the tachometer reading shown on the combination meter?	Check for poor contact in the TCM and transmission harness or connectors, and repair the fault location.	Go to step 7.
7 CHECK POOR CONTACT.	Is there poor contact in torque converter turbine speed sensor circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-60, Transmission Control Module (TCM).>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

E: DTC P0719 BRAKE SWITCH CIRCUIT LOW

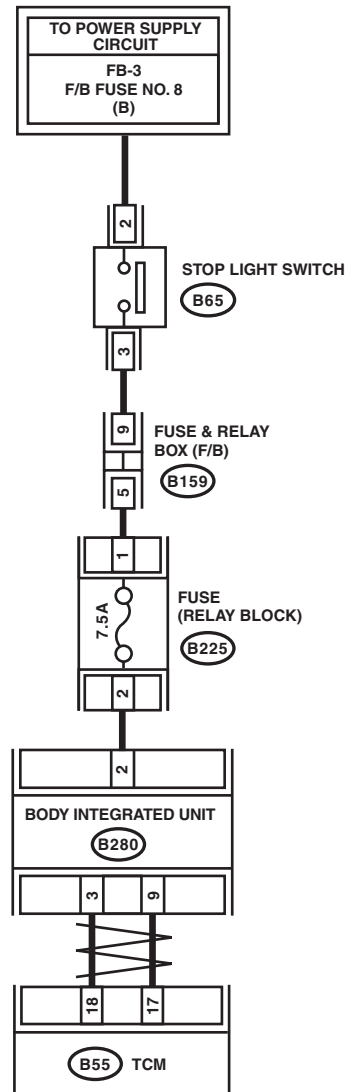
DTC DETECTING CONDITION:

Brake switch malfunction, open input signal circuit

TROUBLE SYMPTOM:

- Gear is not shifted down when driving a down hill.
- Neutral control does not operate.

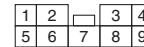
WIRING DIAGRAM:



B65



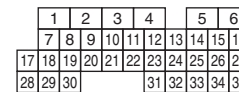
B159



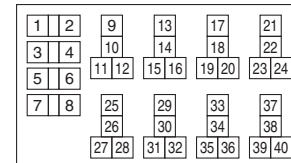
B280



B55



B225



AT-04828

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

	Step	Check	Yes	No
1	CHECK DTC.	Is DTC of CAN communication displayed?	Perform diagnosis according to the DTC.	Go to step 2.
2	CHECK FUSE (NO. 8). 1) Turn the ignition switch to OFF. 2) Remove the fuse (No. 8).	Is the fuse (No. 8) blown out?	Replace the fuse (No. 8). If the replaced fuse (No. 8) has blown out easily, repair the short circuit of harness between fuse (No. 8) and stop light switch.	Go to step 3.
3	CHECK FUSE. Remove the fuse (7.5A) in the relay block.	Is the fuse (7.5A) blown out?	Replace the fuse (7.5A). If the replaced fuse (7.5A) blows out easily, repair the short circuit in the harness between the fuse (7.5A) and the TCM.	Go to step 4.
4	CHECK BODY INTEGRATED UNIT. 1) Turn the ignition switch to OFF. 2) Connect the Subaru Select Monitor to the data link connector. 3) Turn the ignition switch to ON. 4) Run the Subaru Select Monitor. 5) Depress the brake pedal. 6) Read the data of "Stop Light Switch" using the Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.>	Is ON displayed?	Go to step 5.	Go to step 6.
5	CHECK TCM. Read the data of "Stop Light Switch" using the Subaru Select Monitor. <Ref. to 4AT(diag)-15, OPERATION, Subaru Select Monitor.>	Is ON displayed?	Check for poor contact in the connector or harness, and repair the fault location.	Replace the TCM. <Ref. to 4AT-60, Transmission Control Module (TCM).>
6	CHECK BODY INTEGRATED UNIT INPUT SIGNAL. 1) Disconnect the connector from body integrated unit. 2) Depress the brake pedal. 3) Measure the voltage of harness between the body integrated unit and chassis ground. Connector & terminal (B280) No. 2 (+) — Chassis ground (-):	Is the voltage 10 V or more?	Go to step 9.	Go to step 7.
7	CHECK HARNESS CONNECTOR BETWEEN BODY INTEGRATED UNIT AND STOP LIGHT SWITCH. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from stop light switch. 3) Measure the resistance of harness between body integrated unit and stop light switch. Connector & terminal (B280) No. 2 — (B65) No. 3:	Is the resistance less than 1 Ω?	Go to step 8.	Repair the open circuit of harness between body integrated unit and stop light switch.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
8 CHECK HARNESS CONNECTOR BETWEEN BODY INTEGRATED UNIT AND STOP LIGHT SWITCH. Measure the resistance of harness between body integrated unit and stop light switch. Connector & terminal (B280) No. 2 — Chassis ground:	Is the resistance 1 MΩ or more?	Go to step 9.	Repair the short circuit of harness between body integrated unit and stop light switch.
9 CHECK POOR CONTACT.	Is there poor contact in input signal of brake switch?	Repair the poor contact.	Check the body integrated unit.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

F: DTC P0720 OUTPUT SPEED SENSOR CIRCUIT

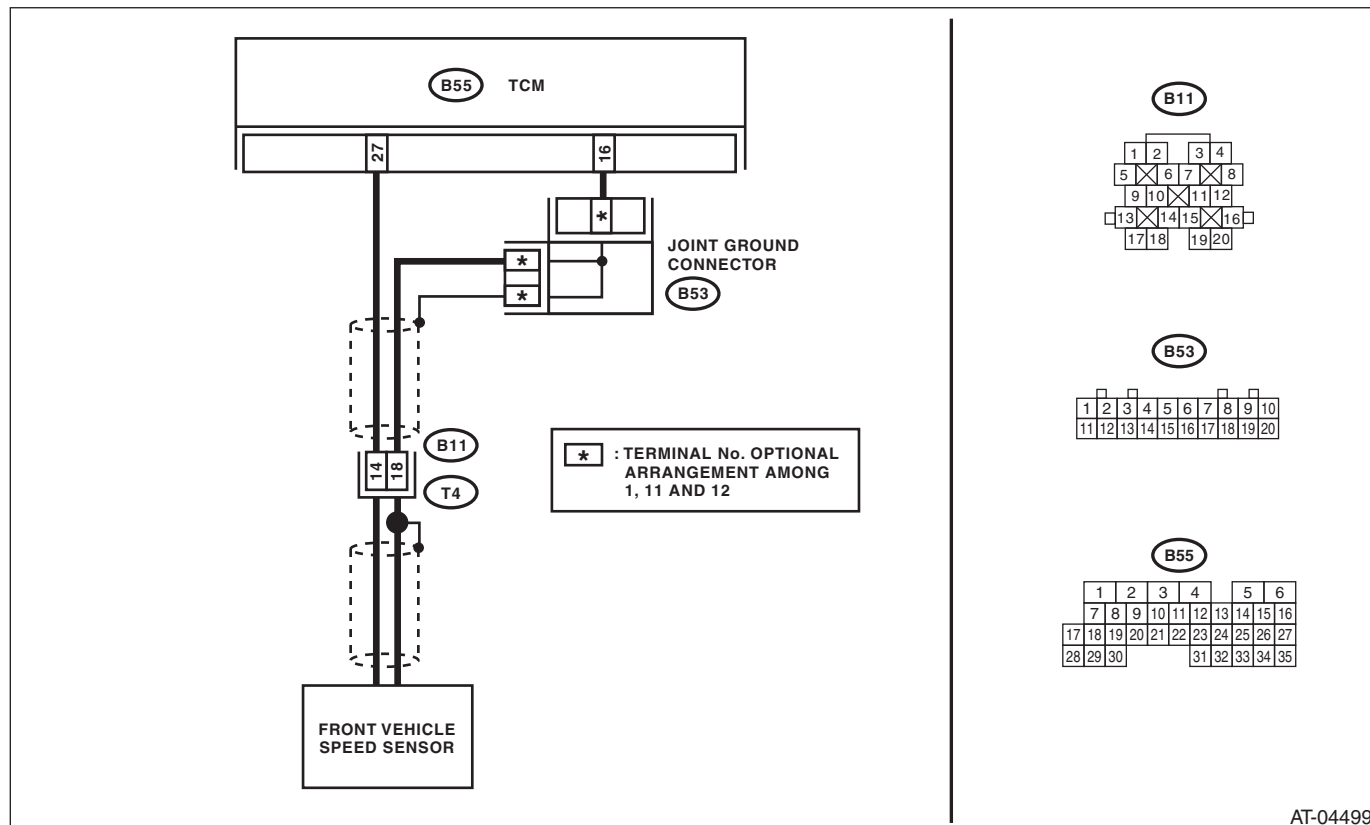
DTC DETECTING CONDITION:

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

TROUBLE SYMPTOM:

- Neutral control does not operate.
- Slip lock up control does not operate.
- Driving performance is poor.

WIRING DIAGRAM:



AT-04499

Step	Check	Yes	No
1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance of the harness between TCM connector and transmission connector. Connector & terminal (B55) No. 27 — (B11) No. 14:	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 TRANSMISSION. Measure the resistance of the harness between TCM connector and transmission connector. Connector & terminal (B55) No. 16 — (B11) No. 18:	Is the resistance less than 1 Ω?	Go to step 3.	Repair the open circuit of harness between TCM and transmission connector, and poor contact of the connector.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
3 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. Measure the resistance of harness between TCM connector and chassis ground. Connector & terminal (B55) No. 27 — Chassis ground:	Is the resistance 1 MΩ or more?	Go to step 4.	Repair the short circuit in the harness between the TCM and chassis ground.
4 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. Measure the resistance of harness between TCM connector and chassis ground. Connector & terminal (B55) No. 16 — Chassis ground:	Is the resistance 1 MΩ or more?	Go to step 5.	Repair the short circuit of the harness and poor contact of connectors between the TCM and chassis ground.
5 CHECK FRONT VEHICLE SPEED SENSOR. Measure the resistance between transmission connector receptacle's terminals. Connector & terminal (T4) No. 14 — No. 18:	Is the resistance between 450 — 650 Ω?	Go to step 6.	Replace the front vehicle speed sensor. <Ref. to 4AT-49, Front Vehicle Speed Sensor.>
6 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR. 1) Connect all connectors. 2) Connect the Subaru Select Monitor to the data link connector. 3) Lift up the vehicle. 4) Turn the ignition switch to ON. 5) Run the Subaru Select Monitor. 6) Start the engine. 7) Read the data of "front wheel speed" using Subaru Select Monitor. 8) Compare the speedometer with Subaru Select Monitor indications. 9) Slowly increase the vehicle speed to 60 km/h (37 MPH). NOTE: The speed difference between the front and rear wheels will illuminate the ABS warning light or 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)-24, Clear Memory Mode.>	Does the speedometer indication increase as the Subaru Select Monitor front wheel speed data increases?	Check for poor contact in the front vehicle speed sensor circuit harness and repair the fault location.	Go to step 7.
7 CHECK POOR CONTACT.	Is there poor contact in front vehicle speed sensor circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-60, Transmission Control Module (TCM).>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

G: DTC P0724 BRAKE SWITCH CIRCUIT HIGH

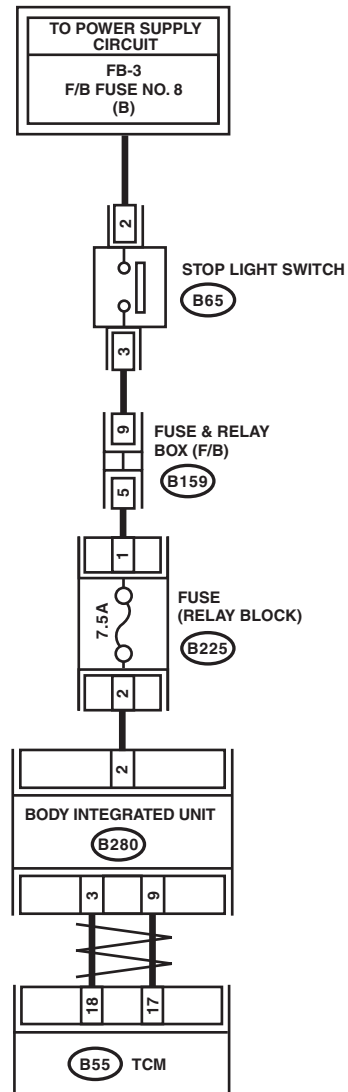
DTC DETECTING CONDITION:

Brake switch malfunction, open input signal circuit

TROUBLE SYMPTOM:

- Gear is not shifted down when driving a down hill.
- Neutral control does not operate.

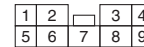
WIRING DIAGRAM:



B65



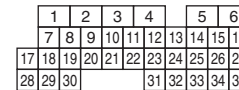
B159



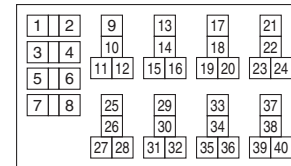
B280



B55



B225



AT-04828

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

	Step	Check	Yes	No
1	CHECK DTC.	Is DTC of CAN communication displayed?	Perform diagnosis according to the DTC.	Go to step 2.
2	CHECK BODY INTEGRATED UNIT. 1) Turn the ignition switch to OFF. 2) Connect the Subaru Select Monitor to the data link connector. 3) Turn the ignition switch to ON. 4) Run the Subaru Select Monitor. 5) Read the data of "Stop Light Switch" using the Subaru Select Monitor. <Ref. to 4AT(diag)-15, OPERATION, Subaru Select Monitor.>	Is OFF displayed?	Go to step 3.	Go to step 4.
3	CHECK TCM. Read the data of "Stop Light Switch" using the Subaru Select Monitor. <Ref. to 4AT(diag)-15, OPERATION, Subaru Select Monitor.>	Is OFF displayed?	Check for poor contact in the connector or harness, and repair the fault location.	Replace the TCM. <Ref. to 4AT-60, Transmission Control Module (TCM).>
4	CHECK BODY INTEGRATED UNIT INPUT SIGNAL. 1) Disconnect the harness connector of body integrated unit. 2) Measure the voltage of harness between body integrated unit and stop light switch. Connector & terminal (B280) No. 2 (+) — Chassis ground (-):	Is the voltage 10 V or more?	Go to step 5.	Go to step 7.
5	CHECK STOP LIGHT SWITCH. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from stop light switch. 3) Measure the resistance of harness between stop light switch connectors. Connector & terminal (B65) No. 2 — No. 3:	Is the resistance 1 MΩ or more?	Go to step 6.	Replace the stop light switch.
6	CHECK HARNESS CONNECTOR BETWEEN BODY INTEGRATED UNIT AND STOP LIGHT SWITCH. 1) Turn the ignition switch to ON. 2) Measure the voltage of harness between the body integrated unit and chassis ground. Connector & terminal (B280) No. 2 (+) — Chassis ground (-):	Is the voltage less than 1 V?	Go to step 7.	Repair the short circuit of harness between TCM and stop light switch.
7	CHECK POOR CONTACT.	Is there poor contact in input signal of brake switch?	Repair the poor contact.	Check the body integrated unit.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

H: DTC P0731 GEAR 1 INCORRECT RATIO

NOTE:

Refer to DTC P0736 for diagnostic procedure. <Ref. to 4AT(diag)-53, DTC P0736 REVERSE INCORRECT RATIO, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

I: DTC P0732 GEAR 2 INCORRECT RATIO

NOTE:

Refer to DTC P0736 for diagnostic procedure. <Ref. to 4AT(diag)-53, DTC P0736 REVERSE INCORRECT RATIO, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

J: DTC P0733 GEAR 3 INCORRECT RATIO

NOTE:

Refer to DTC P0736 for diagnostic procedure. <Ref. to 4AT(diag)-53, DTC P0736 REVERSE INCORRECT RATIO, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

K: DTC P0734 GEAR 4 INCORRECT RATIO

NOTE:

Refer to DTC P0736 for diagnostic procedure. <Ref. to 4AT(diag)-53, DTC P0736 REVERSE INCORRECT RATIO, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

L: DTC P0736 REVERSE INCORRECT RATIO

DTC DETECTING CONDITION:

Vehicle sensor, torque converter turbine speed sensor or control valve malfunction

TROUBLE SYMPTOM:

- Shift point is too high or too low.
- Excessive shift shock
- Tight corner braking phenomenon occurs.
- Gear is not shifted to reverse.
- Gear position is held by fail safe function.

Step	Check	Yes	No
1 CHECK ACCELERATOR PEDAL POSITION SENSOR. 1) Connect the Subaru Select Monitor to the data link connector. 2) Turn the ignition switch to ON. 3) Read the data of "Accel. Opening Angle" on the Subaru Select Monitor.	Does the value of accelerator pedal position sensor change from 0% to 100% smoothly when the accelerator pedal is operated from fully closed to fully open?	Go to step 2.	Check the circuit of the accelerator pedal position sensor.
2 CHECK FRONT VEHICLE SPEED SENSOR. 1) Lift up the vehicle. 2) Start the engine. 3) Set the select lever to the "D" range and slowly increase vehicle speed. NOTE: The speed difference between the front and rear wheels will illuminate the ABS warning light or 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)-24, Clear Memory Mode.>	Does the vehicle speed displayed by Subaru Select Monitor roughly correspond with vehicle speed indicated by the combination meter?	Go to step 3.	Check the front vehicle speed sensor circuit.
3 CHECK TORQUE CONVERTER TURBINE SPEED SENSOR. 1) Move the select lever to the "P" or "N" range. 2) Idle the engine.	Does the value of torque converter turbine speed sensor displayed by Subaru Select Monitor roughly correspond with the value of tachometer in combination meter?	There are malfunctions in TCM, TCM connector poor contact, or transmission assembly mechanical malfunction.	Check the torque converter turbine speed sensor circuit.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

M: DTC P0741 TORQUE CONVERTER CLUTCH CIRCUIT PERFORMANCE OR STUCK OFF

DTC DETECTING CONDITION:

- Lock up clutch malfunction
- Sticky valve

TROUBLE SYMPTOM:

No lock-up occurs.

Step	Check	Yes	No
1 CHECK LOCK-UP DUTY SOLENOID CIRCUIT. Diagnose according to procedures of DTC P0743.	Is there any fault?	Repair or replace the lock up duty solenoid circuit.	Go to step 2.
2 CHECK INHIBITOR SWITCH CIRCUIT. Diagnose according to procedures of DTC P0705.	Is there any fault?	Repair or replace the inhibitor switch circuit.	Go to step 3.
3 CHECK STOP LIGHT SWITCH CIRCUIT. Diagnose according to procedures of DTC P0719 and P0724.	Is there any fault?	Repair or replace the stop light switch circuit.	Go to step 4.
4 CHECK ATF TEMPERATURE SENSOR CIRCUIT. Diagnose according to procedures of DTC P0712 and P0713.	Is there any fault?	Repair or replace the ATF temperature sensor circuit.	Go to step 5.
5 CHECK ACCELERATOR PEDAL POSITION SENSOR. 1) Connect the Subaru Select Monitor to the data link connector. 2) Turn the ignition switch to ON. 3) Read the data of "Accel Opening Angle" using the Subaru Select Monitor.	Does the value of accelerator pedal position sensor change from 0% to 100% smoothly when the accelerator pedal is operated from fully closed to fully open?	Go to step 6.	Check the accelerator pedal position sensor circuit.
6 CHECK TORQUE CONVERTER TURBINE SPEED SENSOR. 1) Move the select lever to the "P" or "N" range. 2) Idle the engine.	Does the value of turbine speed displayed by Subaru Select Monitor almost correspond with the value of the tachometer?	Go to step 7.	Check the torque converter turbine speed sensor circuit.
7 CHECK ENGINE SPEED SIGNAL. Idle the engine.	Does the value of engine speed displayed by the Subaru Select Monitor almost correspond with the value of the tachometer?	There is transmission assembly mechanical malfunction.	Check the engine speed signal circuit.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

N: DTC P0743 TORQUE CONVERTER CLUTCH CIRCUIT ELECTRICAL

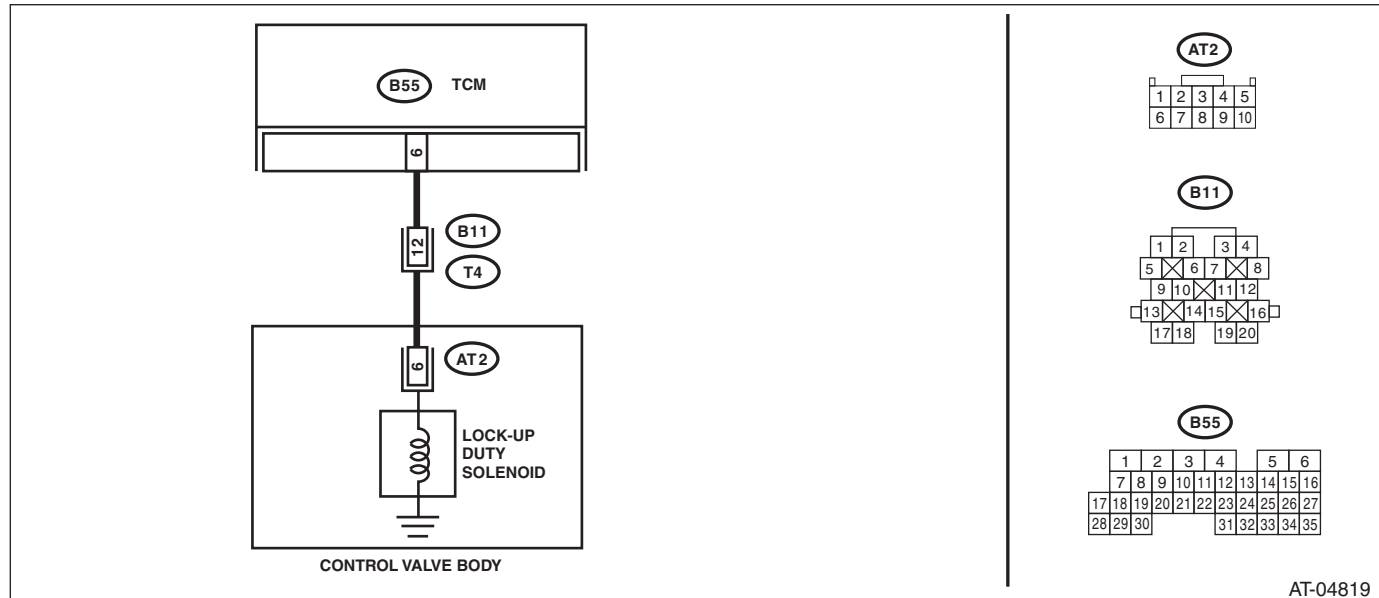
DTC DETECTING CONDITION:

Output signal circuit of lock-up duty solenoid is open or shorted.

TROUBLE SYMPTOM:

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

WIRING DIAGRAM:



Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

	Step	Check	Yes	No
1	CHECK DTC.	Are DTCs other than P0743 displayed?	Perform diagnosis according to the DTC.	Go to step 2.
2	CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance of the harness between TCM connector and transmission connector. Connector & terminal (B55) No. 6 — (B11) No. 12:	Is the resistance less than 1 Ω ?	Go to step 3.	Repair the open circuit of harness between TCM and transmission connector.
3	CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. Measure the resistance of the harness connector between TCM connector and chassis ground. Connector & terminal (B55) No. 6 — Chassis ground:	Is the resistance 1 M Ω or more?	Go to step 4.	Repair the short circuit of harness between TCM and transmission connector.
4	CHECK LOCK-UP DUTY SOLENOID. Measure the resistance between transmission connector receptacle's terminals. Connector & terminal (T4) No. 12 — No. 20:	Is the resistance between 2.0 — 6.0 Ω ?	Go to step 5.	Go to step 8.
5	CHECK OUTPUT SIGNAL FROM TCM USING SUBARU SELECT MONITOR. 1) Connect the connectors to TCM and transmission. 2) Lift up the vehicle. 3) Connect the Subaru Select Monitor to the data link connector. 4) Start the engine. 5) Run the Subaru Select Monitor. 6) Warm-up the engine until the ATF temperature exceeds 80°C (176°F). NOTE: If the ambient temperature is below 0°C (32°F), drive the vehicle until the ATF reaches its operating temperature. 7) Read the data of "Lock Up Duty Ratio" using Subaru Select Monitor. 8) Set the select lever to the "D" range, and slowly increase vehicle speed to 60 km/h (37 MPH). NOTE: The speed difference between the front and rear wheels will illuminate the ABS warning light or 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)-24, Clear Memory Mode.>	Is the measured value 95%?	Go to step 6.	Go to step 7.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
6 CHECK OUTPUT SIGNAL FROM TCM USING SUBARU SELECT MONITOR. Return the engine speed to idling, set the select lever to the "N" range and read the data. NOTE: The speed difference between the front and rear wheels will illuminate the ABS warning light or 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)-24, Clear Memory Mode.>	Is the measured value 0%?	Check for poor contact in the TCM and transmission harness or connectors, and repair the fault location.	Go to step 7.
7 CHECK POOR CONTACT.	Is there poor contact in lock-up duty solenoid circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-60, Transmission Control Module (TCM).>
8 CHECK LOCK-UP DUTY SOLENOID (IN TRANSMISSION). 1) Disconnect the transmission connector. 2) Drain the automatic transmission fluid. CAUTION: Do not drain ATF until it cools down. 3) Remove the oil pan, and disconnect the connector from control valve body. 4) Measure the resistance between lock-up duty solenoid and transmission ground. Connector & terminal (AT2) No. 6 — Transmission ground:	Is the resistance between 2.0 — 6.0 Ω ?	Go to step 9.	Replace the control valve body. <Ref. to 4AT-56, Control Valve Body.>
9 CHECK HARNESS CONNECTOR BETWEEN LOCK-UP DUTY SOLENOID AND TRANSMISSION. Measure the resistance of harness between lock-up duty solenoid and transmission connector. Connector & terminal (T4) No. 12 — (AT2) No. 6:	Is the resistance less than 1 Ω ?	Go to step 10.	Repair the open circuit of harness between TCM and transmission connector.
10 CHECK HARNESS CONNECTOR BETWEEN LOCK-UP DUTY SOLENOID AND TRANSMISSION. Measure the resistance of harness between transmission connector and transmission ground. Connector & terminal (T4) No. 12 — Transmission ground:	Is the resistance 1 M Ω or more?	Check for poor contact in the lock up duty solenoid and transmission harness or connectors, and repair the fault location.	Repair the short circuit of harness between lock-up duty solenoid and transmission connector.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

O: DTC P0748 PRESSURE CONTROL SOLENOID "A" ELECTRICAL

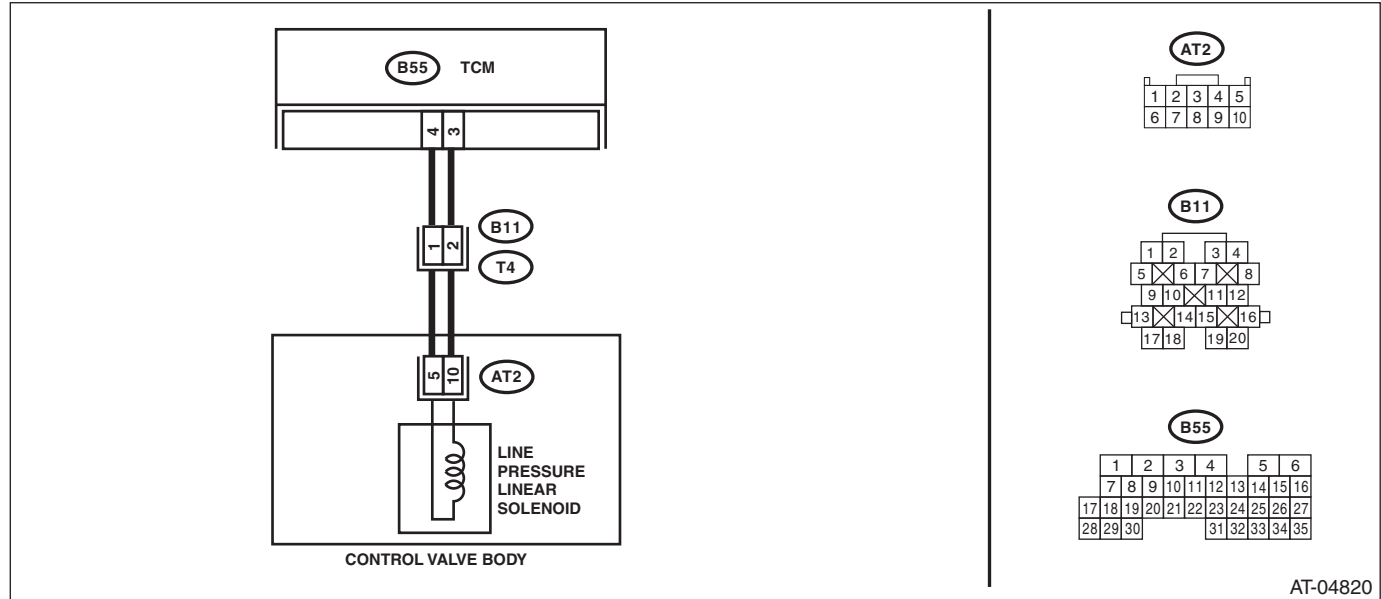
DTC DETECTING CONDITION:

Output signal circuit of line pressure linear solenoid is open or shorted.

TROUBLE SYMPTOM:

Excessive shift shock

WIRING DIAGRAM:



Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission and TCM. 3) Measure the resistance of the harness between TCM connector and transmission connector. Connector & terminal (B55) No. 3 — (B11) No. 2: (B55) No. 4 — (B11) No. 1:	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. Measure the resistance of the harness between TCM connector and chassis ground. Connector & terminal (B55) No. 3 — Chassis ground: (B55) No. 4 — Chassis ground:	Is the resistance 1 M Ω or more?	Go to step 3.	Repair the short circuit of harness between TCM and transmission connector.
3 CHECK LINE PRESSURE LINEAR SOLENOID. Measure the resistance between transmission connector receptacle's terminals. Connector & terminal (T4) No. 1 — No. 2:	Is the resistance between 4 — 8 Ω ?	Replace the TCM. <Ref. to 4AT-60, Transmission Control Module (TCM).>	Go to step 4.
4 CHECK LINE PRESSURE LINEAR SOLENOID (IN TRANSMISSION). 1) Remove the transmission connector from bracket. 2) Drain the automatic transmission fluid. CAUTION: Do not drain ATF until it cools down. 3) Remove the oil pan, and disconnect the connector from control valve body. 4) Measure the resistance of line pressure linear solenoid connector terminals. Connector & terminal (AT2) No. 5 — No. 10:	Is the resistance between 4 — 8 Ω ?	Go to step 5.	Replace the control valve body. <Ref. to 4AT-56, Control Valve Body.>
5 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND LINE PRESSURE LINEAR SOLENOID. Measure the resistance of harness between line pressure linear solenoid and transmission connector. Connector & terminal (T4) No. 2 — (AT2) No. 10: (T4) No. 1 — (AT2) No. 5:	Is the resistance less than 1 Ω ?	Go to step 6.	Repair the open circuit of harness between line pressure linear solenoid and transmission connector.
6 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND LINE PRESSURE LINEAR SOLENOID. Measure the resistance of harness between transmission connector and transmission ground. Connector & terminal (T4) No. 1 — Transmission ground: (T4) No. 2 — Transmission ground:	Is the resistance 1 M Ω or more?	Check for poor contact in the line pressure linear solenoid and transmission harness or connectors, and repair the fault location.	Repair the short circuit of harness between line pressure linear solenoid and transmission connector.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

P: DTC P0753 SHIFT SOLENOID “A” ELECTRICAL

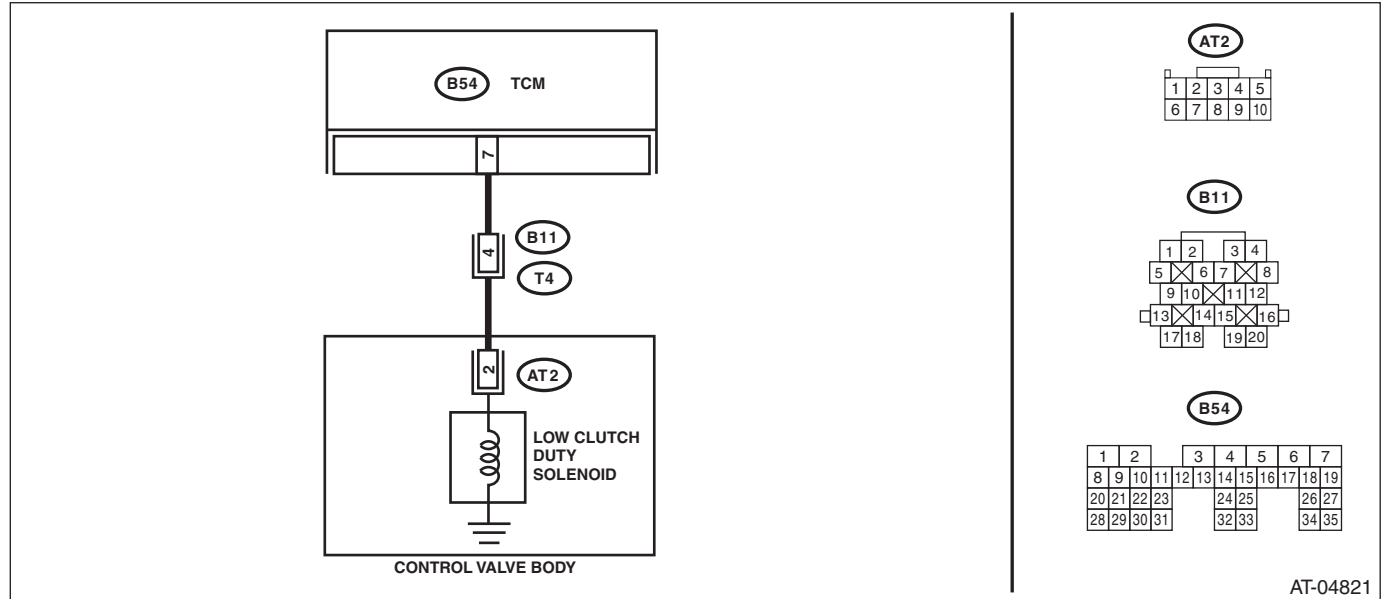
DTC DETECTING CONDITION:

Output signal circuit of low clutch duty solenoid is open or shorted.

TROUBLE SYMPTOM:

Excessive shift shock

WIRING DIAGRAM:



Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector. Connector & terminal (B54) No. 7 — (B11) No. 4:	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 TRANSMISSION. Measure the resistance of harness between TCM connector and transmission ground. Connector & terminal (B54) No. 7 — Chassis ground:	Is the resistance 1 M Ω or more?	Go to step 3.	Repair the short circuit of harness between TCM and transmission connector.
3 CHECK LOW CLUTCH DUTY SOLENOID. Measure the resistance between transmission connector terminals. Connector & terminal (T4) No. 4 — No. 20:	Is the resistance between 2.0 — 6.0 Ω ?	Go to step 5.	Go to step 4.
4 CHECK OUTPUT SIGNAL FROM TCM USING SUBARU SELECT MONITOR. 1) Connect the connectors to TCM and transmission. 2) Connect the Subaru Select Monitor to the data link connector. 3) Start the engine. 4) Run the Subaru Select Monitor. 5) Warm-up the transmission until the ATF temperature exceeds approximately 80°C (176°F). NOTE: If the ambient temperature falls below 0°C (32°F), drive the vehicle until the ATF reaches its operating temperature. 6) Stop the engine. 7) Turn the ignition switch to ON. 8) Set the select lever to the "P" or "N" range, and depress the accelerator pedal. 9) Read the data of "Low Clutch Duty Ratio" using Subaru Select Monitor.	Is the measured value 100%?	Go to step 5.	Go to step 7.
5 CHECK OUTPUT SIGNAL FROM TCM USING SUBARU SELECT MONITOR. 1) Turn the ignition switch to ON. 2) Set the select lever to the "D" range. 3) Read the data of "Low Clutch Duty Ratio".	Is the measured value 0%?	Check for poor contact in the TCM and transmission harness or connectors, and repair the fault location.	Go to step 6.
6 CHECK POOR CONTACT.	Is there poor contact in low clutch duty solenoid circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-60, Transmission Control Module (TCM).>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
7 CHECK LOW CLUTCH DUTY SOLENOID (IN TRANSMISSION). 1) Remove the transmission connector from bracket. 2) Drain the automatic transmission fluid. CAUTION: Do not drain ATF until it cools down. 3) Remove the oil pan, and disconnect the connector from control valve body. 4) Measure the resistance between low clutch duty solenoid connector and transmission ground. Connector & terminal (AT2) No. 2 — Transmission ground:	Is the resistance between 2.0 — 6.0 Ω ?	Go to step 8.	Replace the control valve body. <Ref. to 4AT-56, Control Valve Body.>
8 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND LOW CLUTCH DUTY SOLENOID. Measure the resistance of harness between low clutch duty solenoid and transmission connector. Connector & terminal (T4) No. 4 — (AT2) No. 2:	Is the resistance less than 1 Ω ?	Go to step 9.	Repair the open circuit of harness between low clutch duty solenoid and transmission connector.
9 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND LOW CLUTCH DUTY SOLENOID. Measure the resistance of harness between transmission connector and transmission ground. Connector & terminal (T4) No. 4 — Transmission ground:	Is the resistance 1 M Ω or more?	Check for poor contact in the low clutch duty solenoid and transmission harness or connectors, and repair the fault location.	Repair the short circuit of harness between low clutch duty solenoid and transmission connector.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Q: DTC P0758 SHIFT SOLENOID “B” ELECTRICAL

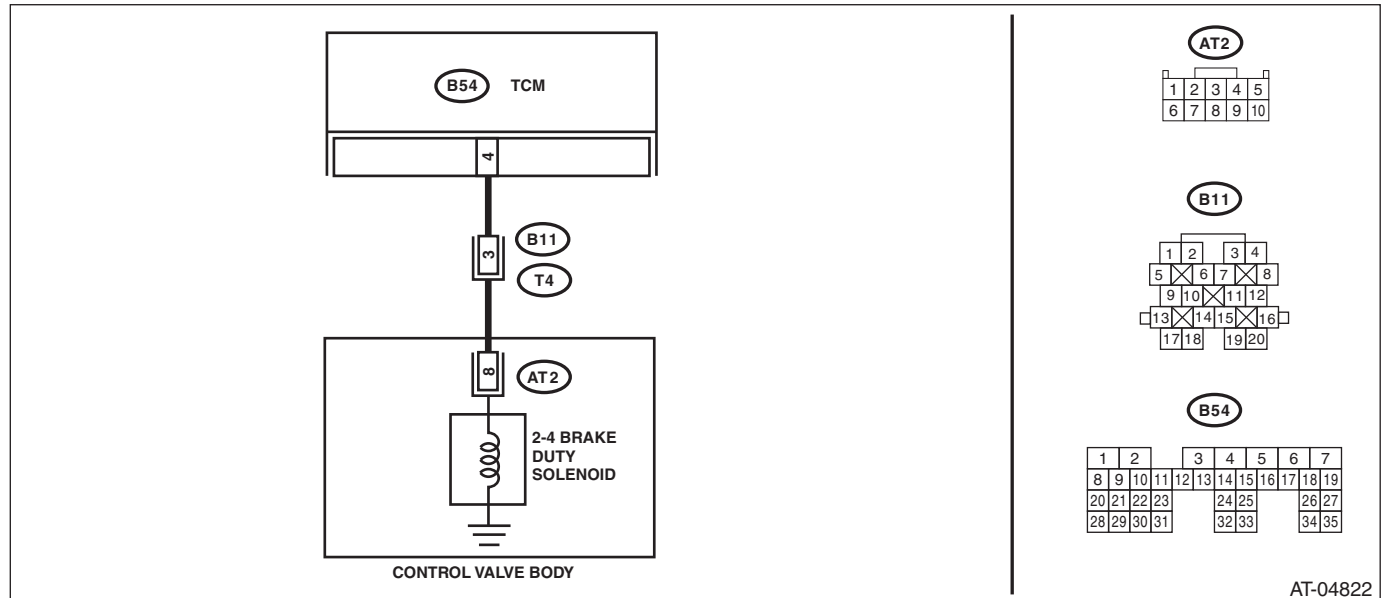
DTC DETECTING CONDITION:

Output signal circuit of 2-4 brake duty solenoid is open or shorted.

TROUBLE SYMPTOM:

Excessive shift shock

WIRING DIAGRAM:



Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance of the harness between TCM connector and transmission connector. Connector & terminal (B54) No. 4 — (B11) No. 3:	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. Measure the resistance of harness between TCM connector and chassis ground. Connector & terminal (B54) No. 4 — Chassis ground:	Is the resistance 1 M Ω or more?	Go to step 3.	Repair the short circuit of harness between TCM and transmission connector.
3 CHECK 2-4 BRAKE DUTY SOLENOID. Measure the resistance between transmission connector terminals. Connector & terminal (T4) No. 3 — No. 20:	Is the resistance between 2.0 — 6.0 Ω ?	Go to step 4.	Go to step 7.
4 CHECK OUTPUT SIGNAL FROM TCM USING SUBARU SELECT MONITOR. 1) Connect all connectors. 2) Connect the Subaru Select Monitor to the data link connector. 3) Start the engine. 4) Run the Subaru Select Monitor. 5) Warm-up the transmission until the ATF temperature exceeds approximately 80°C (176°F). NOTE: If the ambient temperature falls below 0°C (32°F), drive the vehicle until the ATF reaches its operating temperature. 6) Stop the engine. 7) Turn the ignition switch to ON. 8) Set the select lever to the "N" range, and depress the accelerator pedal. 9) Read the data of "Brake Clutch Duty Ratio" using Subaru Select Monitor.	Is the measured value 100%?	Go to step 5.	Go to step 6.
5 CHECK OUTPUT SIGNAL FROM TCM USING SUBARU SELECT MONITOR. Shift the select lever to 2nd on manual mode.	Is the measured value 0%?	Check for poor contact in the TCM and transmission harness or connectors, and repair the fault location.	Go to step 6.
6 CHECK POOR CONTACT.	Is there poor contact in 2-4 brake duty solenoid circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-60, Transmission Control Module (TCM).>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
7 CHECK 2-4 BRAKE DUTY SOLENOID (IN TRANSMISSION). 1) Remove the transmission connector from bracket. 2) Drain the automatic transmission fluid. CAUTION: Do not drain ATF until it cools down. 3) Remove the oil pan, and disconnect the connector from control valve body. 4) Measure the resistance of harness between 2-4 brake duty solenoid connector and transmission ground. Connector & terminal (AT2) No. 8 — Transmission ground:	Is the resistance between 2.0 — 6.0 Ω ?	Go to step 8.	Replace the control valve body. <Ref. to 4AT-56, Control Valve Body.>
8 CHECK HARNESS CONNECTOR BETWEEN 2-4 BRAKE DUTY SOLENOID AND TRANSMISSION. Measure the resistance of harness between 2-4 brake duty solenoid and transmission connector. Connector & terminal (T4) No. 3 — (AT2) No. 8:	Is the resistance less than 1 Ω ?	Go to step 9.	Repair the open circuit of harness between 2-4 brake duty solenoid and transmission connector.
9 CHECK HARNESS CONNECTOR BETWEEN 2-4 BRAKE DUTY SOLENOID AND TRANSMISSION. Measure the resistance of harness between transmission connector and transmission ground. Connector & terminal (T4) No. 3 — Transmission ground:	Is the resistance 1 M Ω or more?	Check for poor contact in the 2-4 brake duty solenoid and transmission harness or connectors, and repair the fault location.	Repair the short circuit of harness between 2-4 brake duty solenoid and transmission connector.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

R: DTC P0763 SHIFT SOLENOID “C” ELECTRICAL

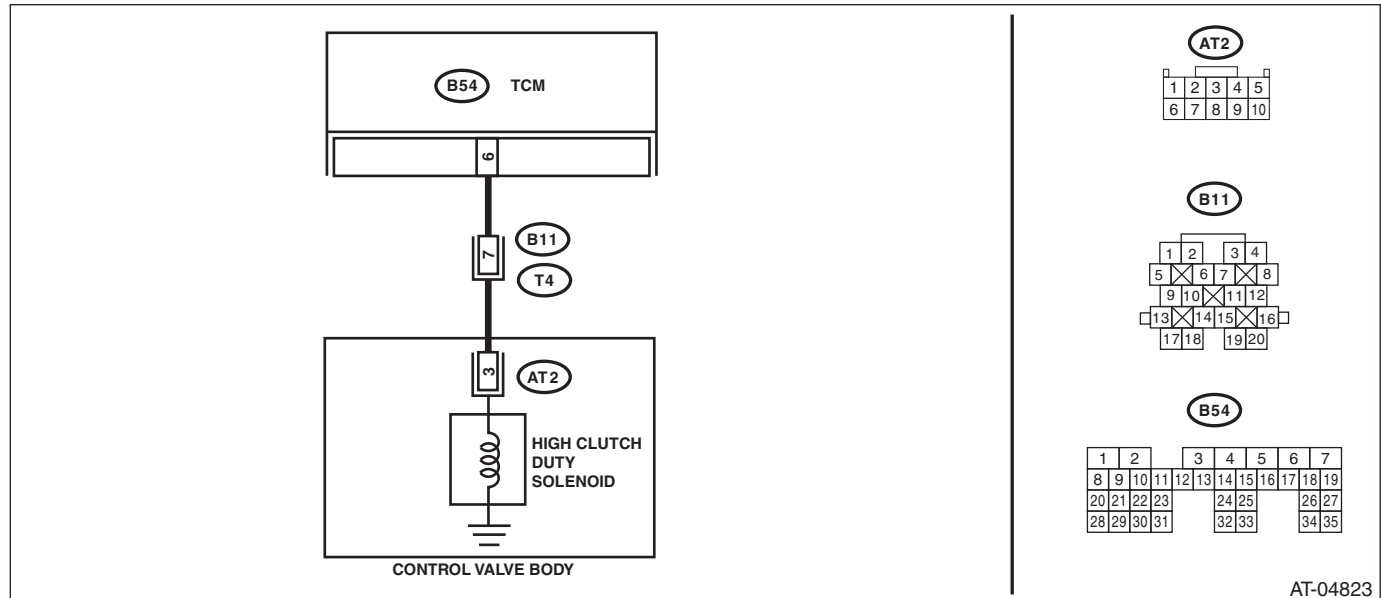
DTC DETECTING CONDITION:

Output signal circuit of high clutch duty solenoid is open or shorted.

TROUBLE SYMPTOM:

Excessive shift shock

WIRING DIAGRAM:



Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance of the harness between TCM connector and transmission connector. Connector & terminal (B54) No. 6 — (B11) No. 7:	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 TRANSMISSION. Measure the resistance of the harness connector between TCM connector and chassis ground. Connector & terminal (B54) No. 6 — Chassis ground:	Is the resistance 1 M Ω or more?	Go to step 3.	Repair the short circuit of harness between TCM and transmission connector.
3 CHECK HIGH CLUTCH DUTY SOLENOID. Measure the resistance between transmission connector receptacle's terminals. Connector & terminal (T4) No. 7 — No. 20:	Is the resistance between 2.0 — 6.0 Ω ?	Go to step 4.	Go to step 7.
4 CHECK OUTPUT SIGNAL FROM TCM USING SUBARU SELECT MONITOR. 1) Connect the connectors to TCM and transmission. 2) Lift up the vehicle. 3) Connect the Subaru Select Monitor to the data link connector. 4) Start the engine. 5) Run the Subaru Select Monitor. 6) Warm-up the engine until the ATF temperature exceeds 80°C (176°F). NOTE: If the ambient temperature is below 0°C (32°F), drive the vehicle until the ATF reaches its operating temperature. 7) Read the data of "High Clutch Duty" using Subaru Select Monitor. 8) Set the select lever to the "D" range, and slowly increase vehicle speed to measure in 3rd or 4th gear. NOTE: The speed difference between the front and rear wheels will illuminate the ABS warning light or 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)-24, Clear Memory Mode.>	Is the measured value 0%?	Go to step 5.	Go to step 6.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
5 CHECK OUTPUT SIGNAL FROM TCM USING SUBARU SELECT MONITOR. Return the engine speed to idling and set the select lever to the "N" range. NOTE: The speed difference between the front and rear wheels will illuminate the ABS warning light or 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)-24, Clear Memory Mode.>	Is the measured value 100%?	Check for poor contact in the TCM and transmission harness or connectors, and repair the fault location.	Go to step 6.
6 CHECK POOR CONTACT.	Is there poor contact in high clutch duty solenoid circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-60, Transmission Control Module (TCM).>
7 CHECK HIGH CLUTCH DUTY SOLENOID (IN TRANSMISSION). 1) Remove the transmission connector from bracket. 2) Drain the automatic transmission fluid. CAUTION: Do not drain ATF until it cools down. 3) Remove the oil pan, and disconnect the connector from control valve body. 4) Measure the resistance between high clutch duty solenoid connector and transmission ground. Connector & terminal (AT2) No. 3 — Transmission ground:	Is the resistance between 2.0 — 6.0 Ω ?	Go to step 8.	Replace the control valve body. <Ref. to 4AT-56, Control Valve Body.>
8 CHECK HARNESS CONNECTOR BETWEEN HIGH CLUTCH DUTY SOLENOID AND TRANSMISSION. Measure the resistance of harness between high clutch duty solenoid and transmission connector. Connector & terminal (T4) No. 7 — (AT2) No. 3:	Is the resistance less than 1 Ω ?	Go to step 9.	Repair the open circuit of harness between TCM and transmission connector.
9 CHECK HARNESS CONNECTOR BETWEEN HIGH CLUTCH DUTY SOLENOID AND TRANSMISSION. Measure the resistance of harness between transmission connector and transmission ground. Connector & terminal (T4) No. 7 — Transmission ground:	Is the resistance 1 M Ω or more?	Check for poor contact in the high clutch duty solenoid and transmission harness or connectors, and repair the fault location.	Repair the short circuit of harness between high clutch duty solenoid and transmission connector.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

S: DTC P0768 SHIFT SOLENOID “D” ELECTRICAL

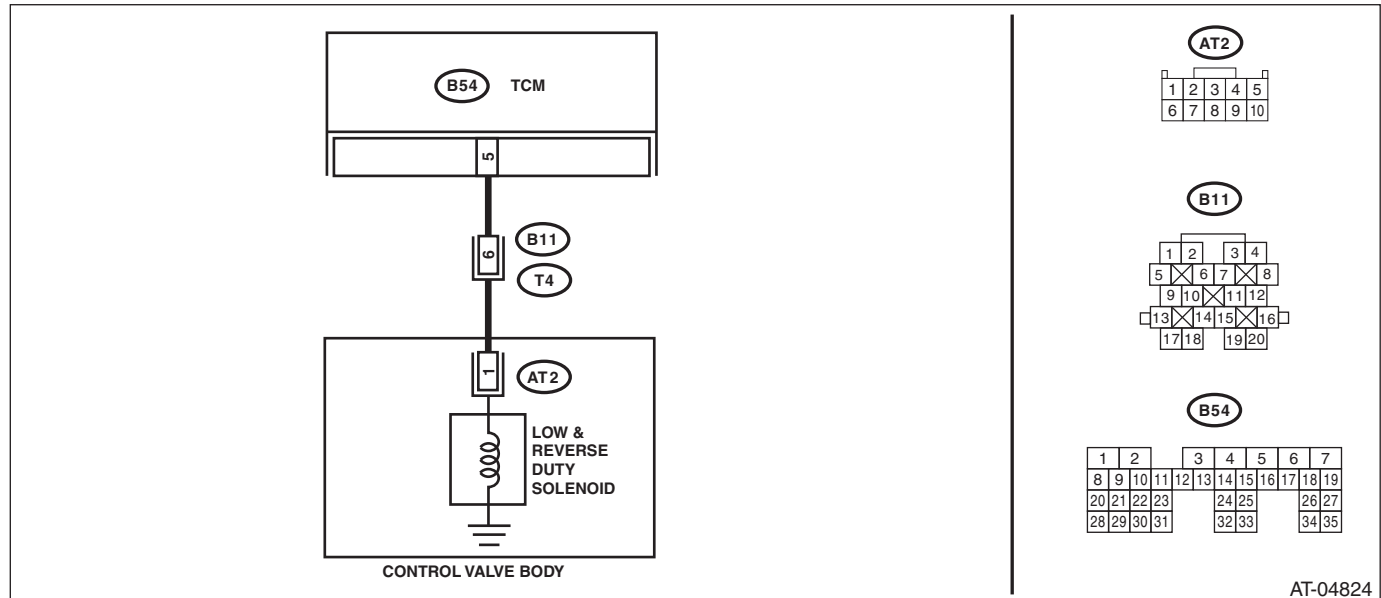
DTC DETECTING CONDITION:

The output signal circuit of low & reverse duty solenoid is open or shorted.

TROUBLE SYMPTOM:

Gear is not changed.

WIRING DIAGRAM:



Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission and TCM. 3) Measure the resistance of the harness between TCM connector and transmission connector. Connector & terminal (B54) No. 5 — (B11) No. 6:	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. Measure the resistance of the harness between TCM connector and chassis ground. Connector & terminal (B54) No. 5 — Chassis ground:	Is the resistance 1 M Ω or more?	Go to step 3.	Repair the short circuit of harness between TCM and transmission connector.
3 CHECK LOW & REVERSE DUTY SOLENOID. Measure the resistance between transmission connector terminals. Connector & terminal (T4) No. 6 — No. 20:	Is the resistance between 2.0 — 6.0 Ω ?	Go to step 4.	Go to step 7.
4 CHECK OUTPUT SIGNAL FROM TCM USING SUBARU SELECT MONITOR. 1) Connect all connectors. 2) Connect the Subaru Select Monitor to the data link connector. 3) Start the engine. 4) Run the Subaru Select Monitor. 5) Warm-up the transmission until the ATF temperature exceeds approximately 80°C (176°F). NOTE: If the ambient temperature falls below 0°C (32°F), drive the vehicle until the ATF reaches its operating temperature. 6) Stop the engine. 7) Turn the ignition switch to ON. 8) Set the select lever to "N" range. 9) Read the data of "L&R/B Duty" using Subaru Select Monitor.	Is the measured value 100%?	Go to step 5.	Go to step 6.
5 CHECK OUTPUT SIGNAL FROM TCM USING SUBARU SELECT MONITOR. 1) Lift up the vehicle. 2) Set the select lever to manual mode, and then hold it in 1st gear. Slowly increase the vehicle speed up to 15 km/h (9 MPH), and then return the accelerator pedal. NOTE: The speed difference between the front and rear wheels will illuminate the ABS warning light or VDC warning light, but this does not indicate a malfunction. If the warning light illuminates, delete the ABS or VDC memory of the on-board diagnosis system after completing the AT control diagnosis. <Ref. to VDC(diag)-24, Clear Memory Mode.> 3) Read the data of the low & reverse duty solenoid.	Is the measured value 55%?	Check for poor contact in the TCM and transmission harness or connectors, and repair the fault location.	Go to step 6.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
6 CHECK POOR CONTACT.	Is there poor contact in the low & reverse duty solenoid circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-60, Transmission Control Module (TCM).>
7 CHECK LOW & REVERSE BRAKE DUTY SOLENOID (IN TRANSMISSION). 1) Remove the transmission connector from bracket. 2) Drain the automatic transmission fluid. CAUTION: Do not drain ATF until it cools down. 3) Remove the oil pan, and disconnect the connector from control valve body. 4) Measure the resistance between low & reverse duty solenoid connector and transmission ground. Connector & terminal (AT2) No. 1 — Transmission ground:	Is the resistance between 2.0 — 6.0 Ω ?	Go to step 8.	Replace the control valve body. <Ref. to 4AT-56, Control Valve Body.>
8 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND LOW & REVERSE DUTY SOLENOID. Measure the resistance of harness between low & reverse duty solenoid and transmission connector. Connector & terminal (T4) No. 6 — (AT2) No. 1:	Is the resistance less than 1 Ω ?	Go to step 9.	Repair open circuit of harness between low & reverse duty solenoid and transmission connector.
9 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND LOW & REVERSE DUTY SOLENOID. Measure the resistance of harness between transmission connector and transmission ground. Connector & terminal (T4) No. 6 — Transmission ground:	Is the resistance 1 M Ω or more?	Check for poor contact in the low & reverse duty solenoid and transmission harness or connectors, and repair the fault location.	Repair the short circuit of the harness between the low & reverse duty solenoid and the transmission connector.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

T: DTC P0801 REVERSE INHIBIT CONTROL CIRCUIT

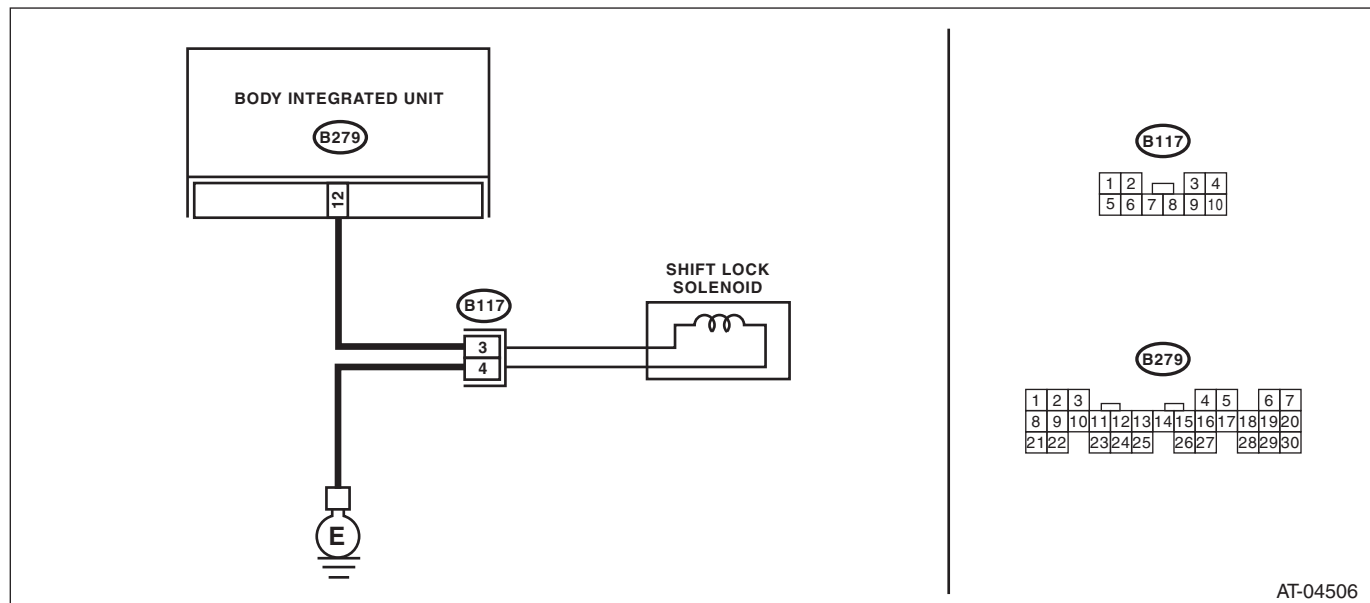
DTC DETECTING CONDITION:

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 cannot be selected from “N” range to “R” range.

WIRING DIAGRAM:



Step	Check	Yes	No
1 CHECK SHIFT LOCK SOLENOID. 1) Force start the integrated unit, and check the operation of shift lock solenoid. (<Ref. to LAN(diag)-15, Read Diagnostic Trouble Code (DTC).>) 2) Operate the select lever without depressing the brake pedal.	Does the select lever operate?	Go to step 2.	Go to step 3.
2 CHECK OUTPUT SIGNAL OF INTEGRATED UNIT. 1) Using the Subaru Select Monitor, display the following items. • Key-lock warning SW • Shift Position • P SW • Stop Light Switch 2) Step on the brake and 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. Measure the harness resistance between the body integrated unit and chassis ground. Connector & terminal (B279) No. 12 — 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.
4 CHECK HARNESS BETWEEN SHIFT LOCK SOLENOID AND CHASSIS GROUND TERMINAL. Measure the resistance of harness between shift lock solenoid and chassis ground. Connector & terminal (B117) 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.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
5 CHECK SHIFT LOCK SOLENOID. Measure the resistance of shift lock solenoid terminals. Connector & terminal (B117) No. 3 — No. 4:	Is the resistance between 7 — 21 Ω ?	Go to step 6.	Replace the shift lock solenoid.
6 CHECK OUTPUT SIGNAL OF BODY INTEGRATED UNIT. 1) Connect all connectors. 2) Turn the ignition switch to ON. 3) Set the select lever to the "D" range while stepping on the brake pedal. 4) Measure the voltage between body integrated unit and chassis ground. Connector & terminal (B279) No. 12 (+) — 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. 1) Lift up the vehicle. 2) Start the engine. 3) Set the select lever to the "D" range and slowly increase vehicle speed to above 20 km/h (12 MPH). NOTE: The speed difference between the front and rear wheels will illuminate the ABS warning light or 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)-24, Clear Memory Mode.> 4) Measure the voltage between body integrated unit and chassis ground. Connector & terminal (B279) No. 12 (+) — Chassis ground (-):	Is the voltage less than 1 V?	Check for poor contact in the reverse inhibitor control circuit harness or connectors, and repair the fault location.	Go to step 8.
8 CHECK POOR CONTACT.	Is there poor contact in the reverse inhibitor control circuit?	Repair the poor contact.	Replace the body integrated unit. <Ref. to SL-42, Body Integrated Unit.>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

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

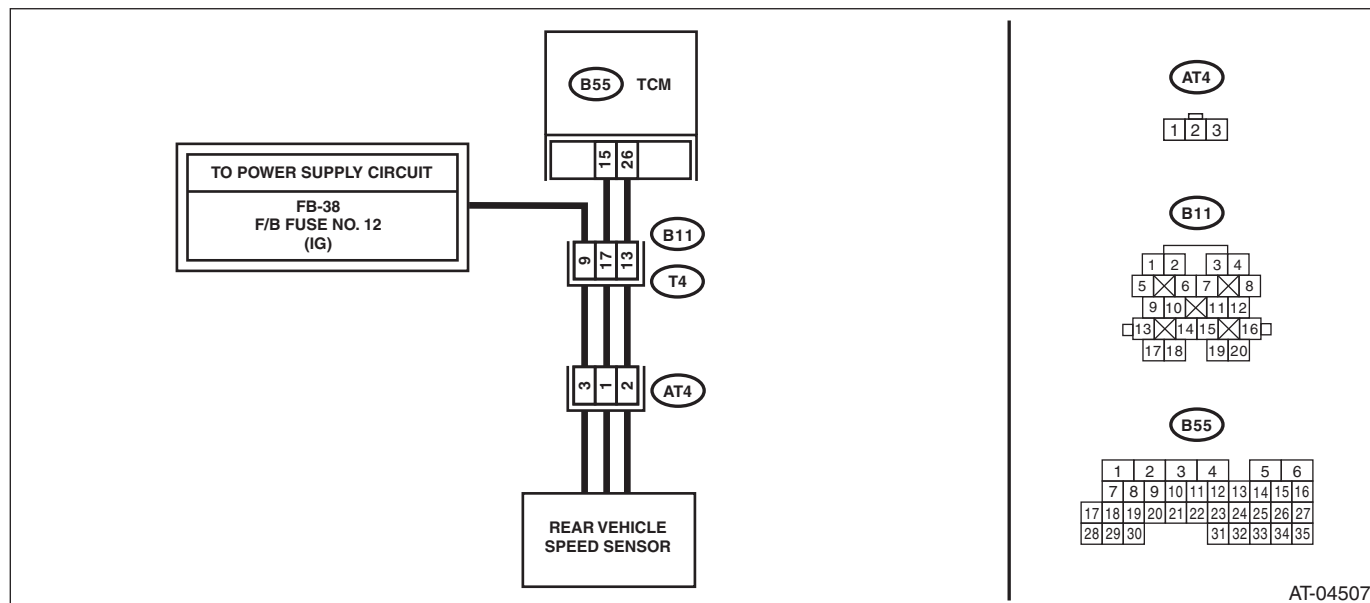
DTC DETECTING CONDITION:

Input signal circuit of TCM is open or shorted.

TROUBLE SYMPTOM:

No lock up or tight corner braking phenomenon is occurred.

WIRING DIAGRAM:



Step	Check	Yes	No
1 CHECK IGNITION POWER SUPPLY CIRCUIT. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from rear vehicle speed sensor. 3) Turn the ignition switch to ON. 4) Measure the ignition power supply voltage between rear vehicle speed sensor connector and transmission ground. Connector & terminal (AT4) No. 3 (+) — Transmission ground (-):	Is the voltage 10 V or more?	Go to step 2.	Check for open circuits, shorts or poor contact in the harness between the rear vehicle speed sensor and battery, and perform repairs.
2 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Measure the resistance of harness between TCM connector and rear vehicle speed sensor connector. Connector & terminal (B55) No. 15 — (AT4) No. 1:	Is the resistance less than 1 Ω?	Go to step 3.	Repair the open circuit or poor contact of the connector in harness between TCM and rear vehicle speed sensor connector.
3 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. Measure the resistance of harness between TCM connector and rear vehicle speed sensor connector. Connector & terminal (B55) No. 26 — (AT4) No. 2:	Is the resistance less than 1 Ω?	Go to step 4.	Repair the open circuit or poor contact of the connector in harness between TCM and rear vehicle speed sensor connector.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
4 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. Measure the resistance of the harness between TCM connector and chassis ground. Connector & terminal (B55) No. 15 — Chassis ground:	Is the resistance 1 MΩ or more?	Go to step 5.	Repair the short circuit of harness between TCM and rear vehicle speed sensor connector.
5 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. Measure the resistance of the harness between TCM connector and chassis ground. Connector & terminal (B55) No. 26 — Chassis ground:	Is the resistance 1 MΩ or more?	Go to step 6.	Repair the short circuit of harness between TCM and rear vehicle speed sensor connector.
6 CHECK INPUT SIGNAL FOR TCM. 1) Connect the connectors to TCM and transmission. 2) Lift up the vehicle. 3) Start the engine and drive the vehicle at 20 km/h (12 MPH). NOTE: The speed difference between the front and rear wheels will illuminate the ABS warning light or 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)-24, Clear Memory Mode.> 4) Measure the AC voltage between TCM connector terminals. Connector & terminal (B55) No. 26 (+) — No. 15 (-):	Is the voltage approx. 2 V or more?	Go to step 7.	Replace the rear vehicle speed sensor.
7 CHECK POOR CONTACT.	Is there poor contact in rear vehicle speed sensor circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-60, Transmission Control Module (TCM).>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

V: DTC P1707 AT AWD SOLENOID VALVE CIRCUIT MALFUNCTION

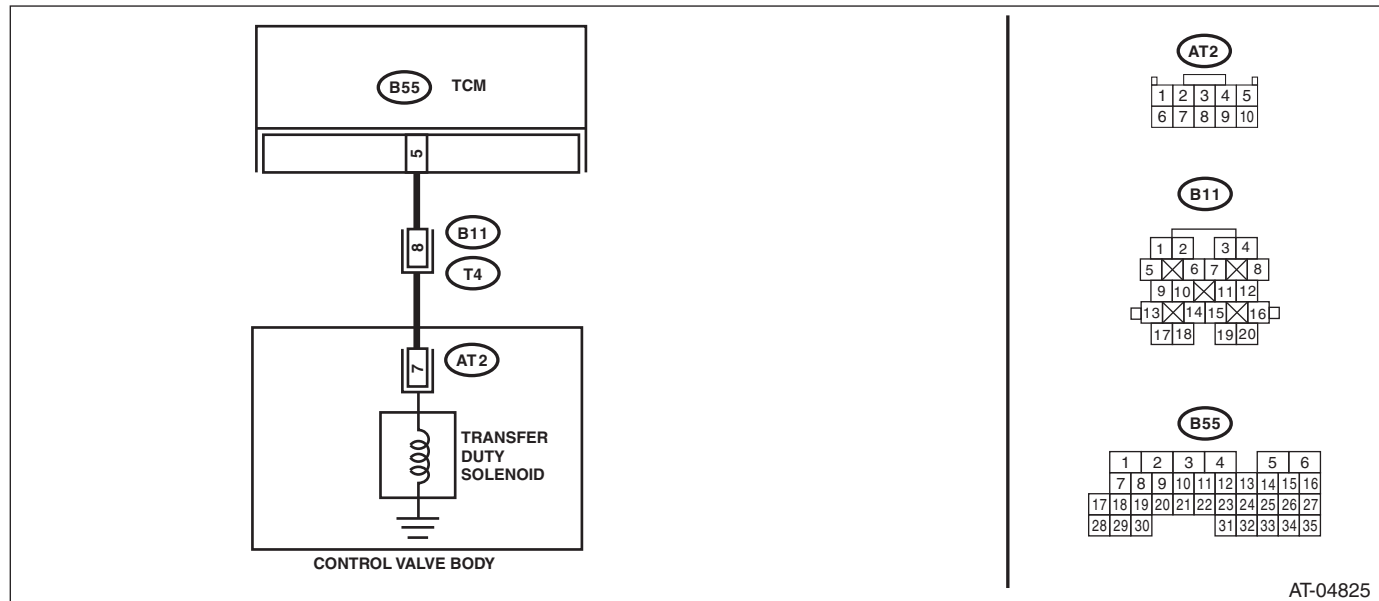
DTC DETECTING CONDITION:

Output signal circuit of transfer duty solenoid is open or shorted.

TROUBLE SYMPTOM:

- Tight corner braking phenomenon occurs.
- Front wheel slips on slippery roads.

WIRING DIAGRAM:



Step	Check	Yes	No
1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance of the harness between TCM connector and transmission connector. Connector & terminal (B55) No. 5 — (B11) No. 8:	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 TRANSMISSION. Measure the resistance of harness connector between TCM and chassis ground. Connector & terminal (B55) No. 5 — 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 TRANSFER DUTY SOLENOID. Measure the resistance between transmission connector and transmission terminals. Connector & terminal (T4) No. 8 — No. 20:	Is the resistance between 2.0 — 6.0 Ω?	Go to step 4.	Go to step 7.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
4 CHECK OUTPUT SIGNAL FROM TCM USING SUBARU SELECT MONITOR. 1) Connect the connectors to TCM and transmission. 2) Connect the Subaru Select Monitor to the data link connector. 3) Turn the ignition switch to ON. 4) Run the Subaru Select Monitor. 5) Set the select lever to the "N" range, and fully close the throttle. (Vehicle speed is 0 km/h (0 MPH)) 6) Using Subaru Select Monitor, read the data of "Transfer Duty Ratio".	Is the value approx. 5%?	Go to step 5.	Go to step 6.
5 CHECK OUTPUT SIGNAL FROM TCM USING SUBARU SELECT MONITOR. 1) Set the select lever to the "D" range. 2) Using Subaru Select Monitor, read the data of "Transfer Duty Ratio".	Is the measured value approx. 18 — 35%?	Check for poor contact in the TCM and transmission harness or connectors, and repair the fault location.	Go to step 6.
6 CHECK POOR CONTACT.	Is there poor contact in transfer duty solenoid circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-60, Transmission Control Module (TCM).>
7 CHECK TRANSFER DUTY SOLENOID (IN TRANSMISSION). 1) Lift up the vehicle. 2) Drain the automatic transmission fluid. CAUTION: Do not drain ATF until it cools down. 3) Remove the extension case, and disconnect the connector from transfer duty solenoid. 4) Measure the resistance between transfer duty solenoid connector and transmission ground. Connector & terminal (AT2) No. 7 — Transmission ground:	Is the resistance between 2.0 — 6.0 Ω ?	Go to step 8.	Replace the control valve body. <Ref. to 4AT-56, Control Valve Body.>
8 CHECK HARNESS CONNECTOR BETWEEN TRANSFER DUTY SOLENOID AND TRANSMISSION. Measure the resistance of harness between transfer duty solenoid and transmission connector. Connector & terminal (T4) No. 8 — (AT2) No. 7:	Is the resistance less than 1 Ω ?	Go to step 9.	Repair the open circuit of harness between transfer duty solenoid and transmission connector.
9 CHECK HARNESS CONNECTOR BETWEEN TRANSFER DUTY SOLENOID AND TRANSMISSION. Measure the resistance of harness between transmission connector and transmission ground. Connector & terminal (T4) No. 8 — Transmission ground:	Is the resistance 1 M Ω or more?	Check for poor contact in the transfer duty solenoid and transmission harness or connectors, and repair the fault location.	Repair short circuit of the harness between the transfer duty solenoid and transmission connector.

W: DTC P1718 CAN COMMUNICATION CIRCUIT

NOTE:

Refer to "Body Integrated Unit" for diagnosis of P1718. <Ref. to LAN(diag)-2, Basic Diagnostic Procedure.>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

X: DTC P1817 SPORT MODE SWITCH CIRCUIT

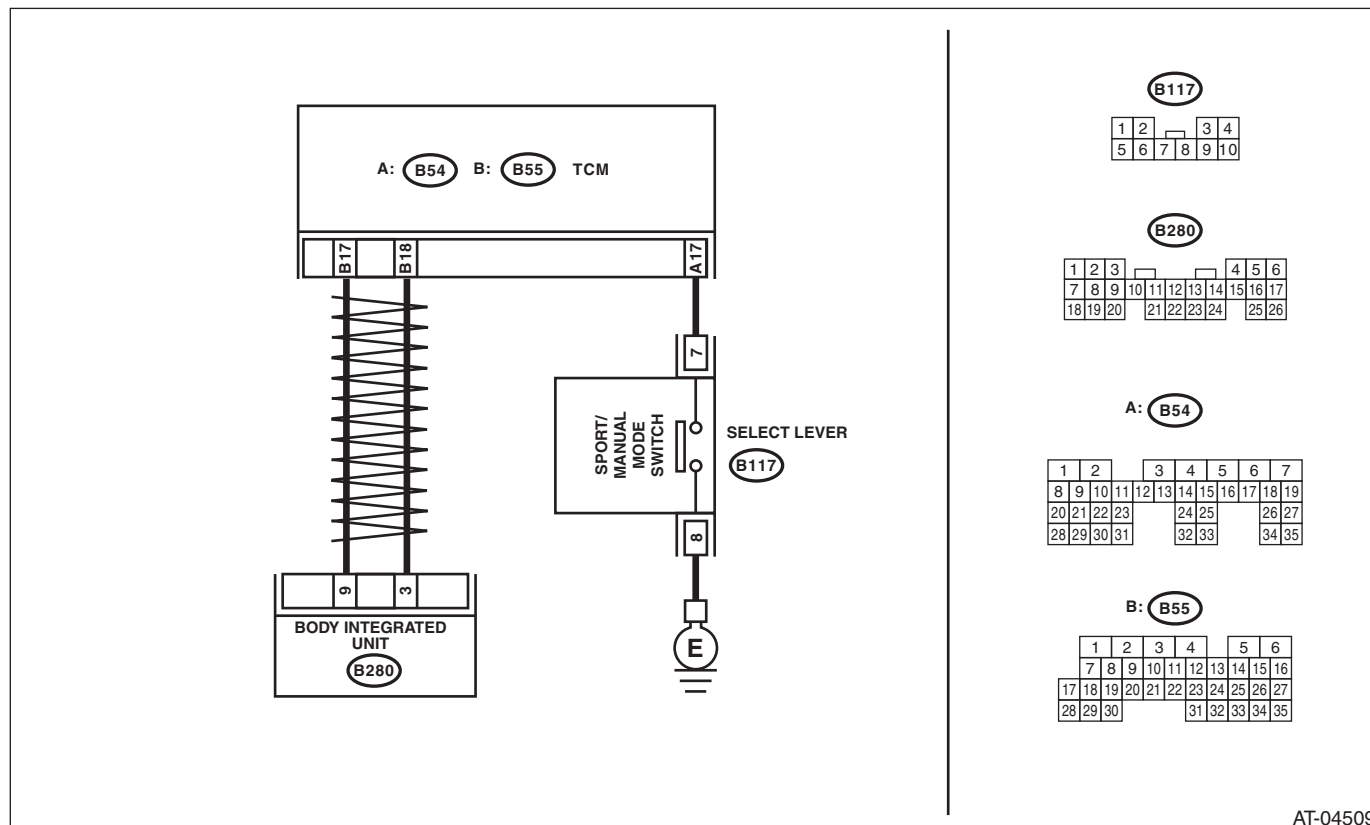
DTC DETECTING CONDITION:

Input signal circuit of SPORT shift switch is shorted.

TROUBLE SYMPTOM:

- Manual mode can not be set.
- ATF temperature warning light does not illuminate.
- No SPORT mode occurs.

WIRING DIAGRAM:



AT-04509

Step	Check	Yes	No
1 CHECK BODY INTEGRATED UNIT. 1) Connect the Subaru Select Monitor to the data link connector. 2) Turn the ignition switch to ON. 3) Read the DTC of the body integrated unit using the Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.>	Is DTC displayed?	Perform diagnosis according to the DTC.	Go to step 2.
2 CHECK BODY INTEGRATED UNIT INPUT SIGNAL. 1) Move the select lever to "P" range. 2) Read the "Tiptronic Mode Switch" data of the body integrated unit using the Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.>	Is OFF displayed?	Go to step 3.	Go to step 7.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
3 CHECK BODY INTEGRATED UNIT INPUT SIGNAL. 1) Move the select lever from the "P" range to the "D" range. 2) Read the "Tiptronic Mode Switch" data of the body integrated unit using the Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.>	Is the indication on each range OFF?	Go to step 4.	Replace the select lever assembly. <Ref. to CS-20, Select Lever.>
4 CHECK BODY INTEGRATED UNIT INPUT SIGNAL. 1) Shift the select lever to the SPORT mode side. 2) Set the select lever to a range other than "D". 3) Read the "Tiptronic Mode Switch" data of the body integrated unit using the Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.>	Is OFF displayed?	Go to step 5.	Replace the select lever assembly. <Ref. to CS-20, Select Lever.>
5 CHECK INHIBITOR SWITCH. Move the select lever from the "P" range to the "D" range.	Is the indication of range position indicator light in combination meter synchronized with position of select lever?	Go to step 6.	Adjust the inhibitor switch and select cable. <Ref. to 4AT-46, ADJUSTMENT, Inhibitor Switch.> <Ref. to CS-27, ADJUSTMENT, Select Cable.>
6 CHECK INPUT SIGNAL FROM TCM. 1) Move the select lever from the "P" range to the "D" range. 2) Read the "Tiptronic Mode Switch" data of the TCM using the Subaru Select Monitor. <Ref. to 4AT(diag)-15, OPERATION, Subaru Select Monitor.>	Is the indication on each range OFF?	Check for short circuits in the harness or connectors, and repair the fault location.	Replace the TCM. <Ref. to 4AT-60, Transmission Control Module (TCM).>
7 CHECK HARNESS BETWEEN TCM AND SPORT SHIFT SWITCH. 1) Turn the ignition switch to OFF. 2) Disconnect the harness connectors from the TCM and select lever. 3) Measure the resistance between TCM and chassis ground. Connector & terminal (B54) No. 17 — Chassis ground:	Is the resistance 1 MΩ or more?	Go to step 8.	Repair the short circuit in the harness between the TCM and sports shift switch.
8 CHECK SPORT SHIFT SWITCH. 1) Move the select lever to "P" range. 2) Measure the resistance between the SPORT shift switch connector terminals. Connector & terminal (B117) No. 7 — No. 8:	Is the resistance 1 MΩ or more?	Check the body integrated unit.	Replace the select lever assembly. <Ref. to CS-20, Select Lever.>