13.Diagnostic Procedure with Diagnostic Trouble Code (DTC)

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

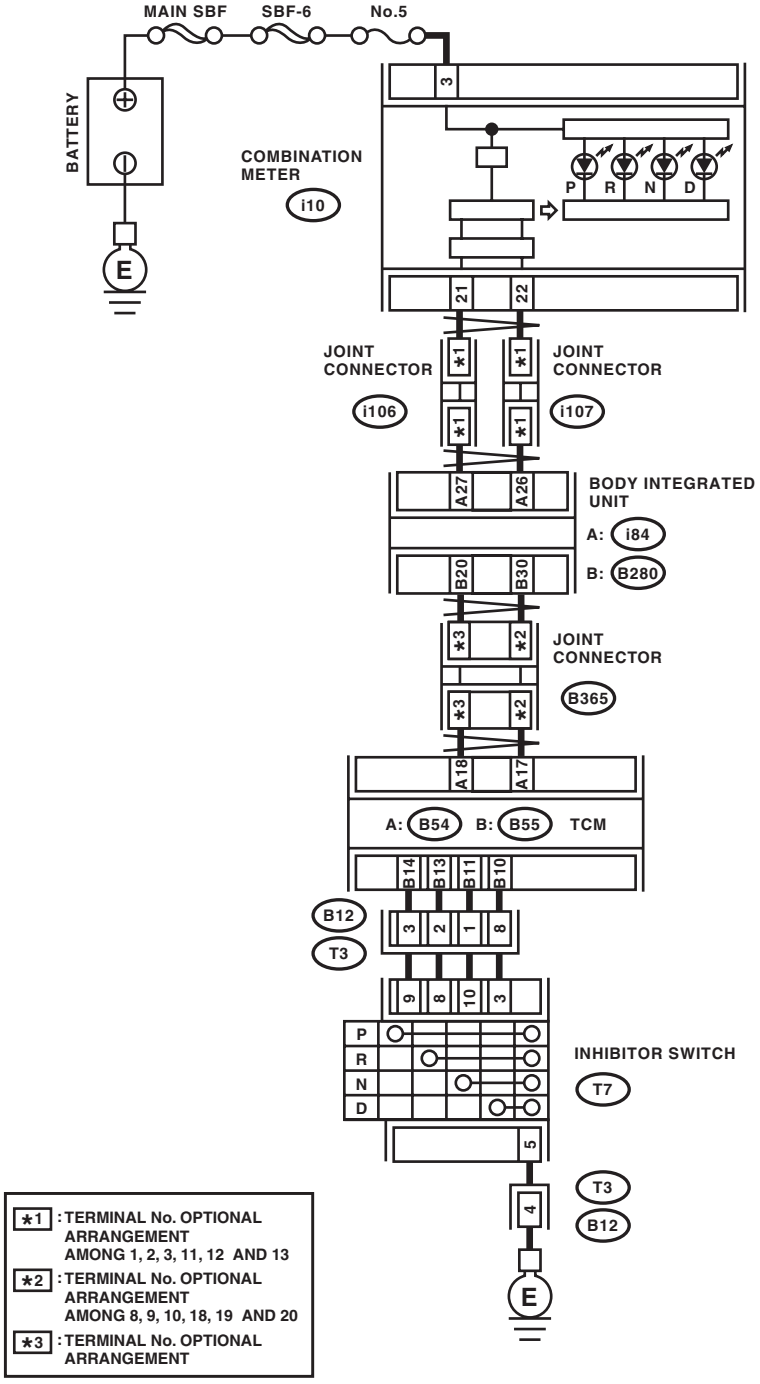
DTC DETECTING CONDITION:

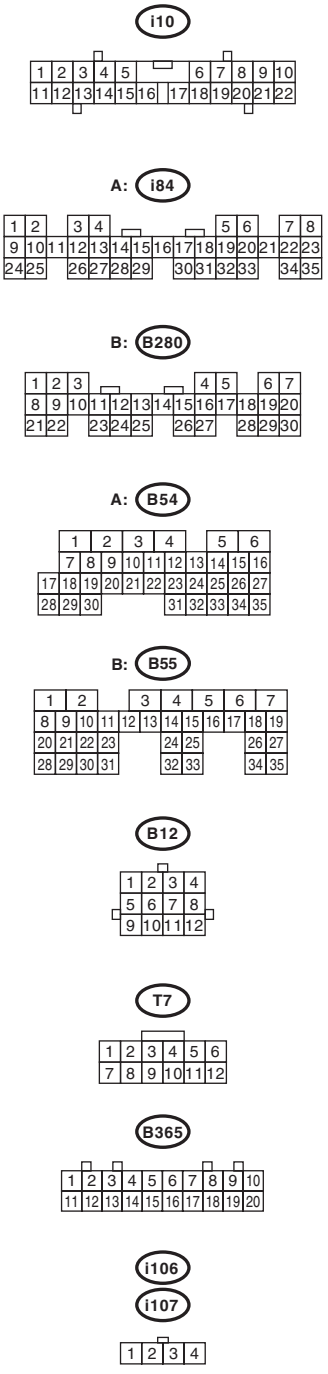
- Inhibitor switch is faulty.
- At least 2 range signal is input.

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.

WIRING DIAGRAM:





AT-03765

	Step	Check	Yes	No
1	**CHECK INDICATOR LIGHT.** 1) Turn the ignition switch to ON. 2) Shift the select lever to "P" range.	Does the "P" range indicator light on combination meter illuminate?	Go to step **2**.	Go to step **12**.
2	**CHECK INDICATOR LIGHT.**	Does the "P" range indicator light on combination meter illuminate?	Go to step **26**.	Go to step **3**.
3	**CHECK INDICATOR LIGHT.**	Does the "N" range indicator light on combination meter illuminate?	Go to step **33**.	Go to step **4**.
4	**CHECK INDICATOR LIGHT.**	Does the "D" range indicator light on combination meter illuminate?	Go to step **40**.	Go to step **5**.
5	**CHECK "P" RANGE SWITCH.** 1) Connect the Subaru Select Monitor to the data link connector. 2) Shift the select lever to "R" range.	Does the "P" range LED of Subaru Select Monitor illuminate?	Go to step **19**.	Go to step **6**.
6	**CHECK INDICATOR LIGHT.**	Does the "P" range indicator light on combination meter illuminate?	Go to step **8**.	Go to step **7**.
7	**CHECK "R" RANGE SWITCH.**	Does the "R" range LED of Subaru Select Monitor illuminate?	Go to step **23**.	Go to step **20**.
8	**CHECK INDICATOR LIGHT.** Shift the select lever to "N" range.	Does the "P" range indicator light on combination meter illuminate?	Go to step **10**.	Go to step **9**.
9	**CHECK "N" RANGE SWITCH.**	Does the "N" range LED of Subaru Select Monitor illuminate?	Go to step **30**.	Go to step **27**.
10	**CHECK INDICATOR LIGHT.** Shift the select lever to "D" range.	Does the "D" range indicator light on combination meter illuminate?	Even if the ATF temperature warning light blinks, the circuit is in normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or connector in TCM and transmission.	Go to step **11**.
11	**CHECK "D" RANGE SWITCH.**	Does the "D" range LED of Subaru Select Monitor illuminate?	Go to step **37**.	Go to step **34**.
12	**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. 5 — Chassis ground:***	Is the resistance 1 Ω or more?	Go to step **13**.	Repair the open circuit of harness between inhibitor switch and chassis ground, and poor contact of the connector.

	Step	Check	Yes	No
13	**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. 9:***	Is resistance less than 1 Ω?	Go to step **14**.	Repair the open circuit of harness between TCM and inhibitor switch connector, and poor contact of the connector.
14	**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) Shift 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 **15**.	Go to step **41**.
15	**CHECK INPUT SIGNAL FOR TCM.** 1) Shift the select lever to any range other than "P". 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 **16**.	Replace the TCM. <Ref. to 4AT-60, Transmission Control Module (TCM).>
16	**CHECK BODY INTEGRATED UNIT.** Read the data of inhibitor switch from Subaru Select Monitor. <Ref. to LAN(diag)-12, OPERATION, Subaru Select Monitor.>	Is "7" displayed?	Go to step **17**.	Check the body integrated unit.
17	**CHECK BODY INTEGRATED UNIT.** Check DTC of body integrated unit.	Is DTC of CAN communication displayed?	Perform the diagnosis according to DTC.	Go to step **18**.
18	**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 **41**.	Replace the combination meter assembly. <Ref. to IDI-19, Combination Meter.>
19	**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. 14 — Chassis ground:***	Is the resistance 1 MΩ or more?	Go to step **42**.	Repair ground short circuit in "P" range circuit.
20	**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. 8:***	Is resistance less than 1 Ω?	Go to step **21**.	Repair the open circuit of harness between TCM and inhibitor switch connector, and poor contact of the connector.

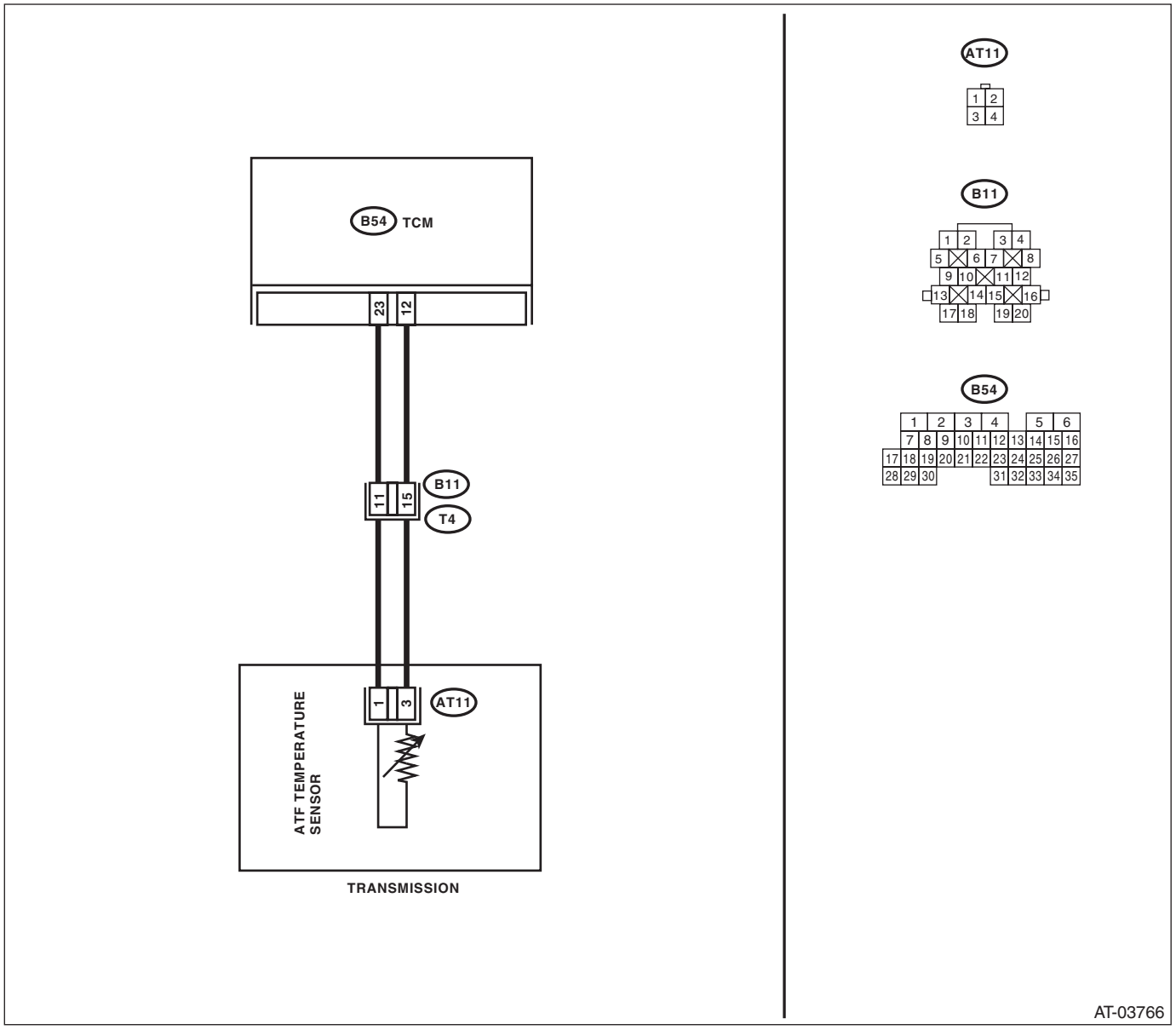
	Step	Check	Yes	No
21	**CHECK INPUT SIGNAL FOR TCM.** 1) Turn the ignition switch to OFF. 2) Connect the connector to TCM and inhibitor switch. 3) Turn the ignition switch to ON. 4) Shift the select lever to "R" range. 5) Measure the voltage between TCM and chassis ground. ***Connector & terminal*** ***(B55) No. 13 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **22**.	Go to step **41**.
22	**CHECK INPUT SIGNAL FOR TCM.** 1) Shift the select lever to other than "R" range. 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 **41**.	Replace the TCM. <Ref. to 4AT-60, Transmission Control Module (TCM).>
23	**CHECK BODY INTEGRATED UNIT.** Read the data of shift position from Subaru Select Monitor. <Ref. to LAN(diag)-12, OPERATION, Subaru Select Monitor.>	Is "6" displayed?	Go to step **24**.	Check the body integrated unit.
24	**CHECK BODY INTEGRATED UNIT.** Check DTC of body integrated unit.	Is DTC of CAN communication displayed?	Perform the diagnosis according to DTC.	Go to step **25**.
25	**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 **41**.	Replace the combination meter assembly. <Ref. to IDI-19, Combination Meter.>
26	**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. 13 — Chassis ground:***	Is the resistance 1 MΩ or more?	Go to step **41**.	Repair ground short circuit in "R" range circuit.
27	**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. 10:***	Is resistance less than 1 Ω?	Go to step **28**.	Repair the open circuit of harness between TCM and inhibitor switch connector, and poor contact of the connector.
28	**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) Shift 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 **29**.	Go to step **41**.

	Step	Check	Yes	No
29	**CHECK INPUT SIGNAL FOR TCM.** 1) Shift the select lever to any range other than "N" range. 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 **41**.	Replace the TCM. <Ref. to 4AT-60, Transmission Control Module (TCM).>
30	**CHECK BODY INTEGRATED UNIT.** Read the data of shift position from Subaru Select Monitor. <Ref. to LAN(diag)-12, OPERATION, Subaru Select Monitor.>	Is "5" displayed?	Go to step **31**.	Check the body integrated unit.
31	**CHECK BODY INTEGRATED UNIT.** Check DTC of body integrated unit.	Is DTC of CAN communication displayed?	Perform the diagnosis according to DTC.	Go to step **32**.
32	**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 **41**.	Replace the combination meter assembly. <Ref. to IDI-19, Combination Meter.>
33	**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. 11 — Chassis ground:***	Is the resistance 1 MΩ or more?	Go to step **41**.	Repair the ground short circuit in "N" range circuit.
34	**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. 3:***	Is resistance less than 1 Ω?	Go to step **35**.	Repair the open circuit of harness between TCM and inhibitor switch connector, and poor contact of the connector.
35	**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) Shift the select lever to "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 **36**.	Go to step **41**.
36	**CHECK INPUT SIGNAL FOR TCM.** 1) Shift the select lever to any range other than "D" range. 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 **41**.	Replace the TCM. <Ref. to 4AT-60, Transmission Control Module (TCM).>
37	**CHECK BODY INTEGRATED UNIT.** Read the data of inhibitor switch from Subaru Select Monitor. <Ref. to LAN(diag)-12, OPERATION, Subaru Select Monitor.>	Is "4" displayed?	Go to step **38**.	Check the body integrated unit.

	Step	Check	Yes	No
38	**CHECK BODY INTEGRATED UNIT.** Check DTC of body integrated unit.	Is DTC of CAN communication displayed?	Perform the diagnosis according to DTC.	Go to step **39**.
39	**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 **41**.	Replace the combination meter assembly. <Ref. to IDI-19, Combination Meter.>
40	**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 MΩ or more?	Go to step **41**.	Repair ground short circuit in “D” range circuit.
41	**CHECK POOR CONTACT.**	Is there poor contact in the inhibitor switch circuit?	Repair the poor contact.	Go to step **42**.
42	**CHECK INHIBITOR SWITCH.**	Is the inhibitor switch in the normal position?	Replace the TCM. <Ref. to 4AT-60, Transmission Control Module (TCM).>	Adjust inhibitor switch and select cable. <Ref. to 4AT-45, Inhibitor Switch.> <Ref. to CS-28, Select Cable.>

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:

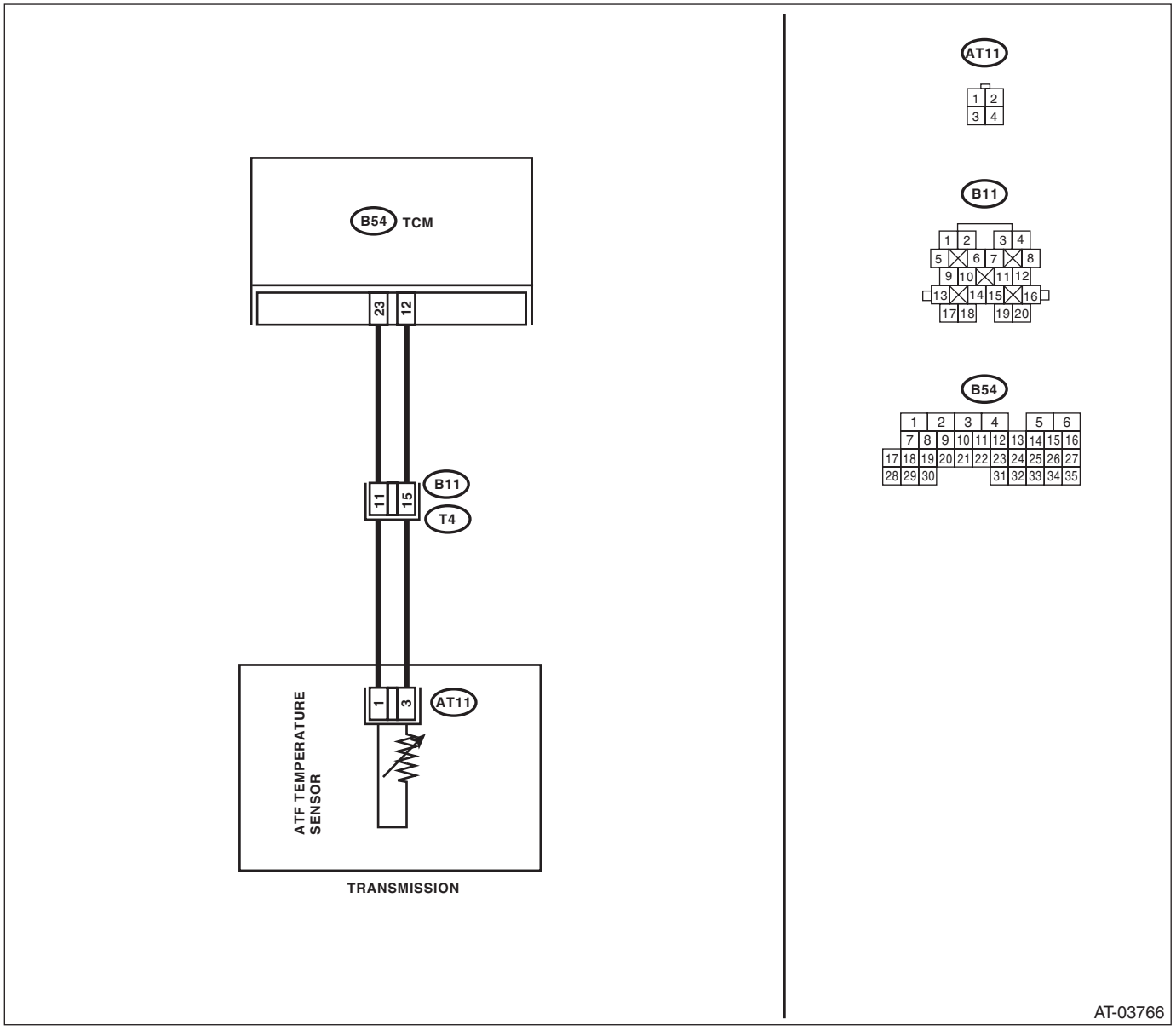


	Step	Check	Yes	No
1	**CHECK HARNESS CONNECTOR BETWEEN TCM AND ATF TEMPERATURE SENSOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission and TCM. 3) Measure the resistance of harness between TCM and transmission connector. ***Connector & terminal*** ***(B54) No. 23 — (B11) No. 11:***	Is 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*** ***(B54) No. 12 — (B11) No. 15:***	Is 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) Turn the ignition switch to ON and start 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 (engine OFF). 4) Read the data of ATF temperature using Subaru Select Monitor.	Does the ATF temperature gradually decrease?	Even if the ATF temperature warning light blinks, the circuit is in normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness and poor contact of ATF temperature sensor and transmission connector.	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).>

	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 and support with rigid racks. NOTE: Raise all wheels off the floor. 5) Drain the automatic transmission fluid. **CAUTION:** **Do not drain ATF until it cools down.** 6) Remove the oil pan, and disconnect the control valve connector. 7) Measure the resistance of harness between ATF temperature sensor and transmission connector. ***Connector & terminal*** ***(T4) No. 11 — (AT11) No. 1:***	Is 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 — (AT11) No. 3:***	Is 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 MΩ 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 MΩ or more?	Replace the control valve body. <Ref. to 4AT-55, Control Valve Body.>	Repair the short circuit of harness between ATF temperature sensor and transmission connector.

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:

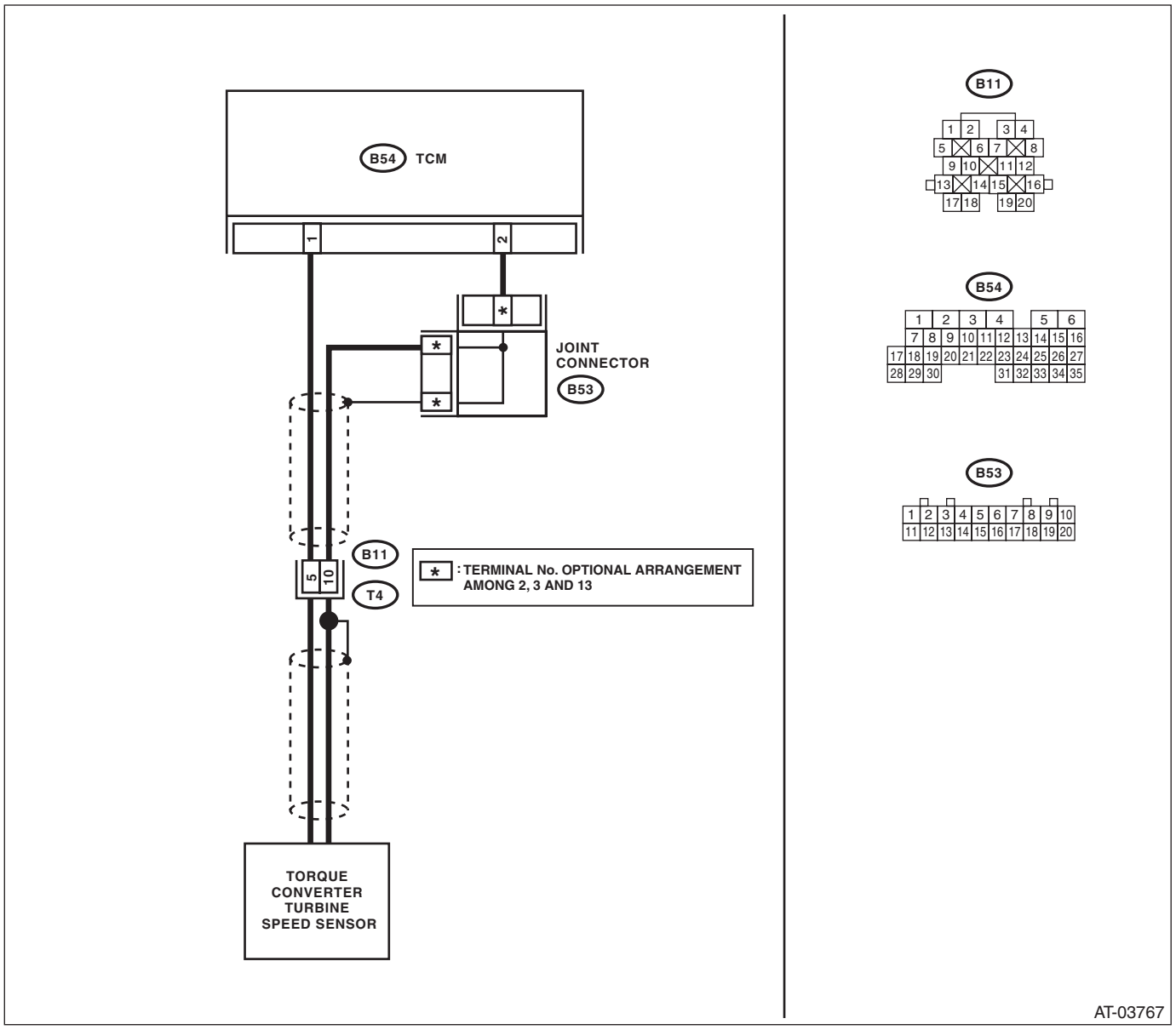


	Step	Check	Yes	No
1	**CHECK HARNESS CONNECTOR BETWEEN TCM AND ATF TEMPERATURE SENSOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM. 3) Measure the resistance between TCM connector terminals. ***Connector & terminal*** ***(B54) No. 23 — No. 12:***	Is the resistance 500 Ω or more?	Go to step **2**.	Go to step **4**.
2	**CHECK HARNESS CONNECTOR BETWEEN TCM AND ATF TEMPERATURE SENSOR.** Measure the resistance of harness between TCM connector and chassis ground. ***Connector & terminal*** ***(B54) No. 23 — Chassis ground:***	Is the resistance 1 MΩ 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*** ***(B54) 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 harness between TCM connector and chassis ground. ***Connector & terminal*** ***(B54) No. 23 — Chassis ground:***	Is the resistance 1 MΩ or more?	Go to step **5**.	Repair the short circuit of harness between TCM and transmission harness.
5	**CHECK HARNESS CONNECTOR BETWEEN TCM AND ATF TEMPERATURE SENSOR.** Measure the resistance of harness between TCM connector and chassis ground. ***Connector & terminal*** ***(B54) 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?	Even if the ATF temperature warning light blinks, the circuit is in normal condition at this time. A temporary short circuit of connector or harness may be the cause. Repair the harness or connector.	Go to step **7**.
7	**CHECK TRANSMISSION HARNESS.** 1) Lift up the vehicle and place it on rigid racks. 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 ATF temperature sensor connector terminals. 6) 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.

	Step	Check	Yes	No
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. ***Terminals*** ***No. 1 — No. 3:***	Is the resistance 500 Ω or more?	Even if the ATF temperature warning light blinks, the circuit is in normal condition at this time. A temporary short circuit of connector or harness may be the cause. Repair the harness or connector.	Replace the control valve body. <Ref. to 4AT-55, Control Valve Body.>

D: DTC P0715 INPUT/TURBINE SPEED SENSOR CIRCUIT

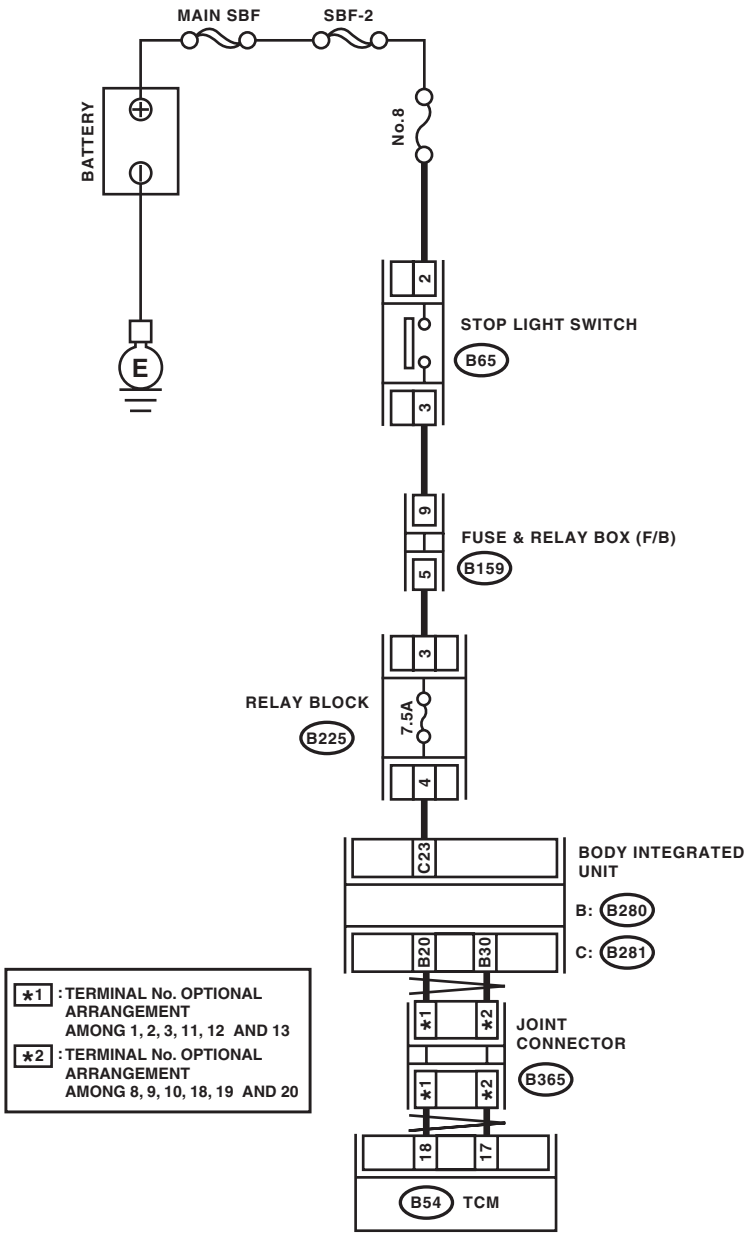
DTC DETECTING CONDITION:
Input signal circuit of TCM is open or shorted.
TROUBLE SYMPTOM:
Excessive shift shock
WIRING DIAGRAM:

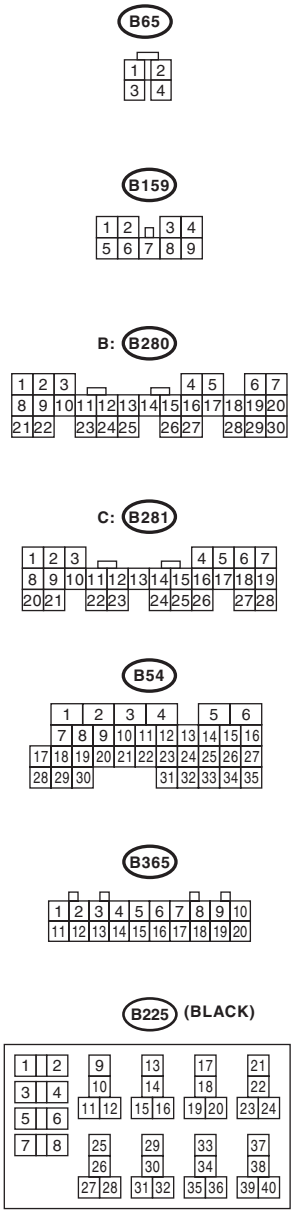


	Step	Check	Yes	No
1	**CHECK TORQUE CONVERTER TURBINE SPEED SENSOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission. 3) Measure the resistance between transmission connector receptacle's terminals. ***Connector & terminal*** ***(T4) No. 5 — No. 10:***	Is the resistance between 450 — 650 Ω?	Go to step **2**.	Replace the torque converter turbine speed sensor. <Ref. to 4AT-52, Torque Converter Turbine Speed Sensor.>
2	**CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.** 1) Disconnect the connector from TCM. 2) Measure the resistance of harness between TCM connector and transmission connector. ***Connector & terminal*** ***(B54) No. 1 — (B11) No. 5:***	Is 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 harness between TCM connector and transmission connector. ***Connector & terminal*** ***(B54) No. 2 — (B11) No. 10:***	Is 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 harness between TCM connector and chassis ground. ***Connector & terminal*** ***(B54) No. 2 — Chassis ground:***	Is the resistance 1 MΩ 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 harness between TCM connector and chassis ground. ***Connector & terminal*** ***(B54) No. 1 — Chassis ground:***	Is the resistance 1 MΩ 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, and run the Subaru Select Monitor. 4) Start the engine. 5) Shift the select lever to "P" or "N" range. 6) Read the data of "Turbine Revolution Speed" using Subaru Select Monitor. • Compare the tachometer with Subaru Select Monitor indications.	Is the revolution value same as the tachometer reading shown on the combination meter?	Even if the ATF temperature warning light blinks, the circuit is in normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or connector in TCM and transmission.	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).>

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.
WIRING DIAGRAM:





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	Step	Check	Yes	No
1	**CHECK DTC.**	Does the DTC of CAN communication appear in the on-board diagnostics test mode?	Perform the diagnosis according to 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 (7.5 A).** Remove the fuse (7.5A).	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 of harness between fuse (7.5A) and 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. (engine OFF) 4) Run the Subaru Select Monnitor. 5) Depress the brake pedal. 6) Read the data of “Stop Light Switch” using Subaru Select Monitor. <Ref. to LAN(diag)-12, 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 Subaru Select Monitor. <Ref. to 4AT(diag)-15, 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 4AT-60, Transmission Control Module (TCM).>
6	**CHECK BODY INTEGRATED UNIT INPUT SIGNAL.** 1) Depress the brake pedal. 2) Disconnect the connector from body integrated unit. 3) Measure the voltage of harness between body integrated unit and stop light switch. ***Connector & terminal*** ***(B281) No. 23 (+) — (B65) No. 3 (–):***	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*** ***(B281) No. 23 — (B65) No. 3:***	Is resistance less than 1 Ω?	Go to step **8**.	Repair the open circuit of harness between body integrated unit and stop light switch.

	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*** ***(B281) No. 23 — 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.

F: DTC P0720 OUTPUT SPEED SENSOR CIRCUIT

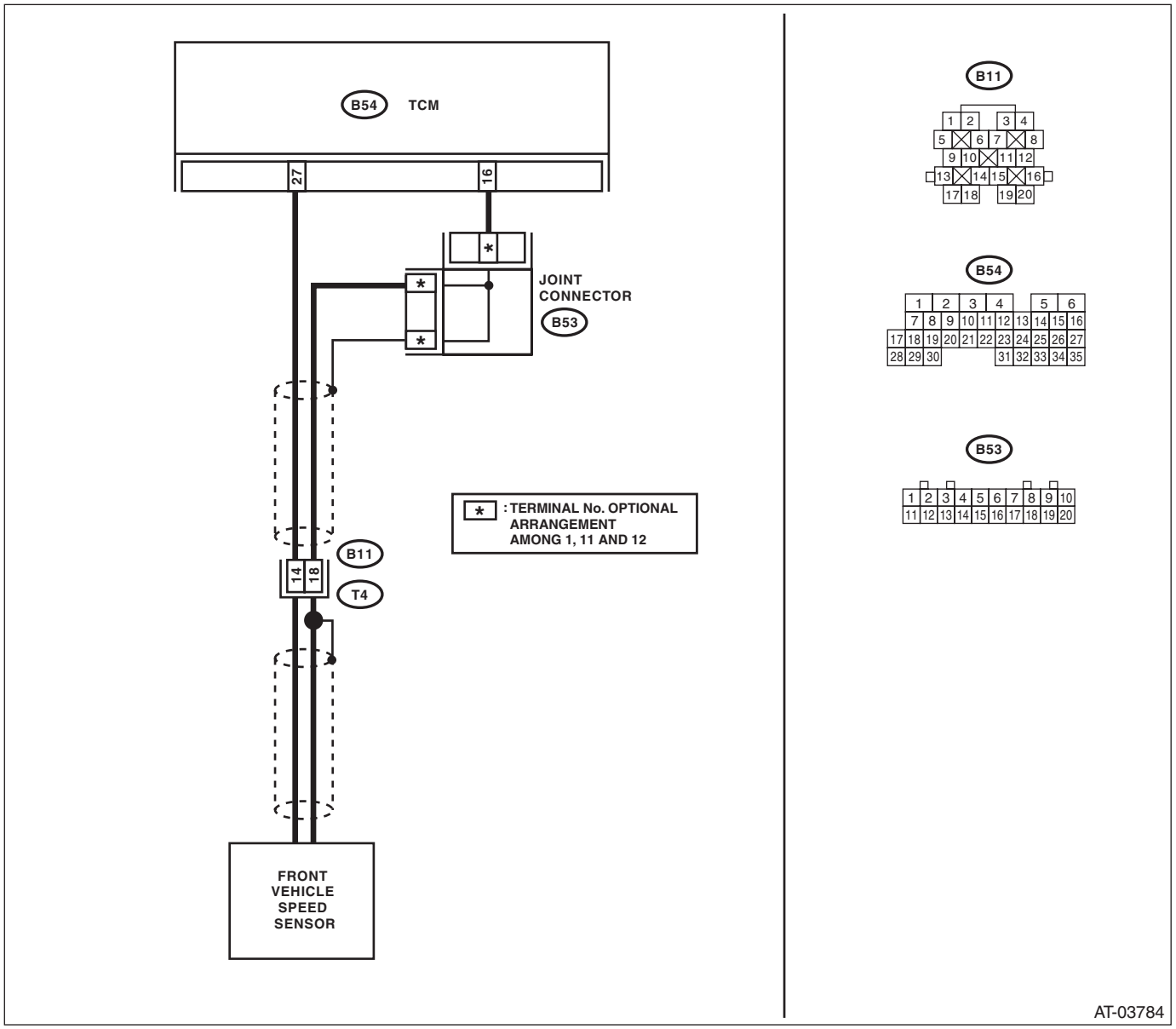
DTC DETECTING CONDITION:

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

TROUBLE SYMPTOM:

Driving performance is poor.

WIRING DIAGRAM:

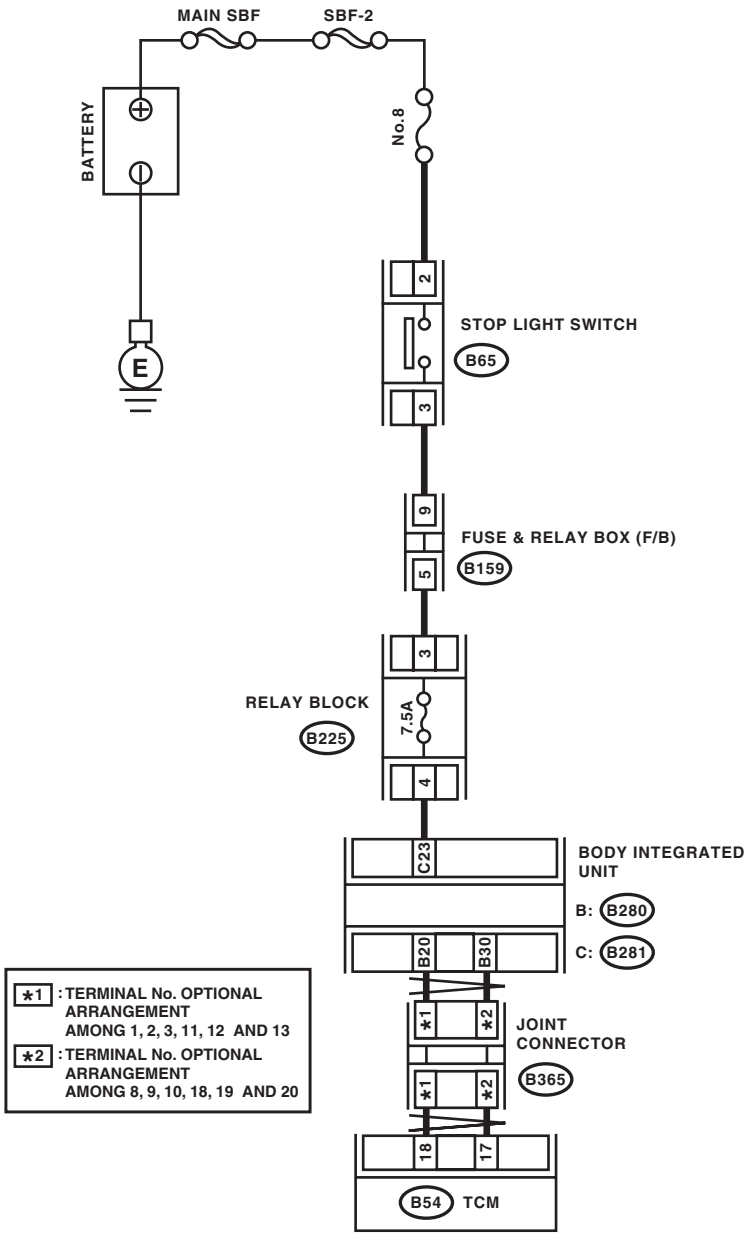


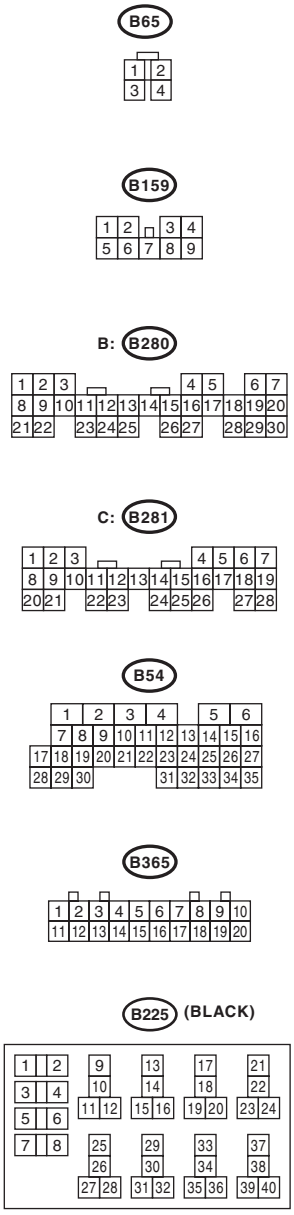
Step		Check	Yes	No
1	**CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance of harness between TCM connector and transmission connector. ***Connector & terminal*** ***(B54) No. 27 — (B11) No. 14:***	Is resistance less than 1 Ω?	Go to step **2**.	Repair the open circuit of harness between TCM and transmission connector.

	Step	Check	Yes	No
2	**CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.** Measure the resistance of harness between TCM connector and transmission connector. ***Connector & terminal*** ***(B54) No. 16 — (B11) No. 18:***	Is 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.
3	**CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.** Measure the resistance of harness between TCM connector and transmission connector. ***Connector & terminal*** ***(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.
4	**CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.** Measure the resistance of harness between TCM connector and transmission connector. ***Connector & terminal*** ***(B54) No. 16 — Chassis ground:***	Is the resistance 1 MΩ or more?	Go to step **5**.	Repair the short circuit of the harness between TCM and transmission connector, and poor contact of connector.
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-48, 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 and support with rigid racks. NOTE: Raise all wheels off the floor. 4) Turn the ignition switch to ON, and run the Subaru Select Monitor. 5) Start the engine. 6) Read the data of vehicle speed using Subaru Select Monitor. • Compare the speedometer with Subaru Select Monitor indications. • Vehicle speed is indicated in "km/h" or "MPH" 7) Slowly increase the vehicle speed to 60 km/h (37 MPH). NOTE: The speed difference between front and rear wheels may illuminate the ABS warning light, but this does not indicate a malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS(diag)-24, Clear Memory Mode.>	Does the speedometer indication increase as the Subaru Select Monitor front wheel speed data increases?	Even if the ATF temperature warning light blinks, the circuit is in normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness in of front vehicle speed sensor circuit.	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).>

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.
WIRING DIAGRAM:





AT-03768

	Step	Check	Yes	No
1	**CHECK DTC.**	Does the DTC of CAN communication appear in the on-board diagnostics test mode?	Perform the diagnosis according to 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. (engine OFF) 4) Run the Subaru Select Monnitor. 5) Read the data of “Stop Light Switch” using Subaru Select Monitor. <Ref. to LAN(diag)-12, 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 Subaru Select Monitor. <Ref. to 4AT(diag)-15, 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 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*** ***(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.** 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. ***Terminals*** ***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*** ***(B281) No. 23 (+) — 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.

H: DTC P0725 ENGINE SPEED INPUT CIRCUIT

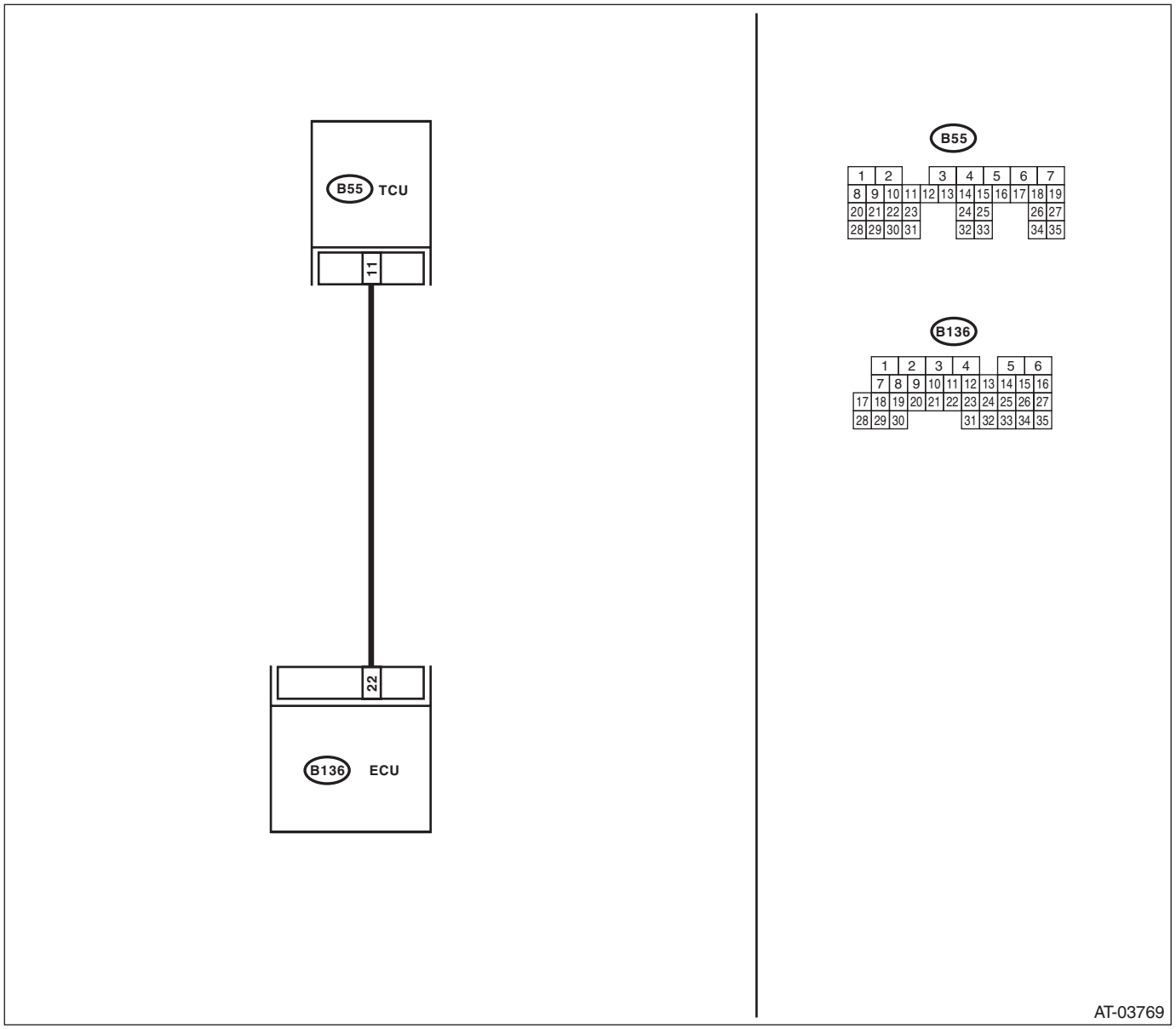
DTC DETECTING CONDITION:

Engine speed input signal circuit is open or shorted.

TROUBLE SYMPTOM:

- No lock-up occurs. (After engine is warmed-up)
- ATF temperature warning light remains ON when the vehicle speed is “0”.

WIRING DIAGRAM:



	Step	Check	Yes	No
1	**CHECK HARNESS CONNECTOR BETWEEN TCM AND ECM.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and ECM. 3) Measure the resistance of harness between TCM and ECM. ***Connector & terminal*** ***(B55) No. 11 — (B136) No. 22:***	Is resistance less than 1 Ω?	Go to step **2**.	Repair the open circuit of harness between TCM and ECM connector.
2	**CHECK HARNESS CONNECTOR BETWEEN TCM AND ECM.** Measure the resistance of harness between TCM connector and chassis ground. ***Connector & terminal*** ***(B55) No. 11 — Chassis ground:***	Is the resistance 1 MΩ or more?	Go to step **3**.	Repair the short circuit of harness between TCM and ECM connector.
3	**CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR.** 1) Connect the connectors to TCM and ECM. 2) Connect the Subaru Select Monitor to the data link connector. 3) Start the engine, and run the Subaru Select Monitor. 4) Run the engine at idle. 5) Read the data of “Engine Speed” using Subaru Select Monitor. • Display shows engine speed signal value sent from ECM.	Is the revolution value same as the tachometer reading shown on the combination meter?	Even if the ATF temperature warning light blinks, the circuit is in normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or connector in the TCM and ECM.	Go to step **4**.
4	**CHECK POOR CONTACT.**	Is there poor contact in engine speed signal circuit?	Repair the poor contact.	Go to step **5**.
5	**CONFIRM DTC P0725.** Replace the ECM with a new part.	Does the DTC appear again, after the memory has been cleared?	Replace the TCM. <Ref. to 4AT-60, Transmission Control Module (TCM).>	Replace the ECM.

I: DTC P0731 GEAR 1 INCORRECT RATIO

NOTE:
Refer to DTC P0736 for diagnostic procedure. <Ref. to 4AT(diag)-54, 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 4AT(diag)-54, 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 4AT(diag)-54, 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 4AT(diag)-54, DTC P0736 REVERSE INCORRECT RATIO, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

M: 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 value of "Accel. opening angle" on Subaru Select Monitor display.	Does the value of "Accel. opening angle" change from 0% to 100% smoothly when throttle is operated from fully closed to fully open?	Go to step **2**.	Check the accelerator pedal position sensor circuit.
2	**CHECK FRONT VEHICLE SPEED SENSOR.** 1) Lift up the vehicle and support with rigid racks. 2) Start the engine. 3) Shift the select lever to "D" range and slowly increase vehicle speed. NOTE: The speed difference between front and rear wheels may illuminate the ABS warning light, but this indicates no malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS(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) Shift the select lever to "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.

N: 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 DTC P0743 procedure.	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 DTC P0705 procedure.	Is there any fault?	Repair or replace the inhibitor switch circuit.	Go to step **3**.
3	**CHECK STOP LIGHT SWITCH CIRCUIT.** Diagnose according to DTC P0719 and P0724 procedures.	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 DTC P0712 AND P0713 procedure.	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 value of “Accel. opening angle” on Subaru Select Monitor display.	Does the value of accelerator pedal position sensor change from 0% to 100% smoothly when throttle 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) Shift the select lever to “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 turbine speed displayed by Subaru Select Monitor almost correspond with the value of the tachometer?	There is transmission assembly mechanical malfunction.	Check the engine speed signal circuit.

O: DTC P0743 TORQUE CONVERTER CLUTCH CIRCUIT ELECTRICAL

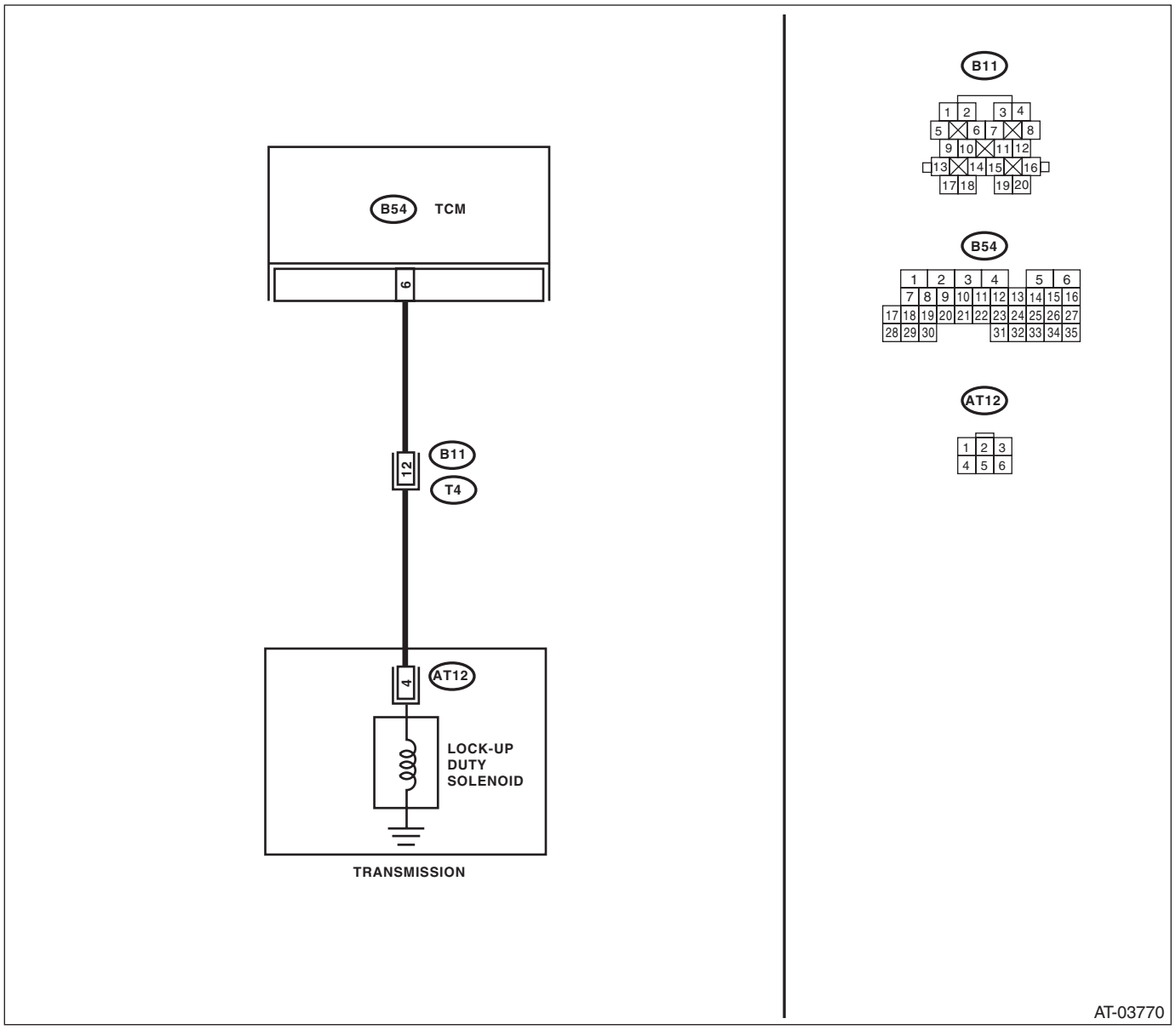
DTC DETECTING CONDITION:

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:



	Step	Check	Yes	No
1	**CHECK DTC.**	Do multiple DTCs appear in the on-board diagnostics test mode?	Go to other 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 harness between TCM connector and transmission connector. ***Connector & terminal*** ***(B54) No. 6 — (B11) No. 12:***	Is 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*** ***(B54) No. 6 — Chassis ground:***	Is the resistance 1 MΩ 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 and support with rigid racks. NOTE: Raise all wheels off the floor. 3) Connect the Subaru Select Monitor to the data link connector. 4) Start the engine, and run the Subaru Select Monitor. 5) Start the engine and 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. 6) Read the data of "Lock Up Duty Ratio" using Subaru Select Monitor. • Lock-up duty solenoid is indicated in "%". 7) Shift the select lever to "D", and slowly increase vehicle speed to 60 km/h (37 MPH). NOTE: The speed difference between front and rear wheels may illuminate the ABS warning light, but this does not indicate a malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS(diag)-24, Clear Memory Mode.>	Is the measured value 95%?	Go to step **6**.	Go to step **7**.

	Step	Check	Yes	No
6	**CHECK OUTPUT SIGNAL FROM TCM USING SUBARU SELECT MONITOR.** Return the engine to idling speed, shift the select lever to "N" range and read the data. NOTE: The speed difference between front and rear wheels may illuminate the ABS warning light, but this does not indicate a malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS(diag)-24, Clear Memory Mode.>	Is the measured value 5%?	Even if the ATF temperature warning light blinks, the circuit is in normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or connector in TCM and transmission.	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*** ***(AT12) No. 4 — Transmission ground:***	Is the resistance between 2.0 — 6.0 Ω?	Go to step **9**.	Replace the control valve body. <Ref. to 4AT-55, 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 — (AT12) No. 4:***	Is 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 MΩ or more?	Even if the ATF temperature warning light blinks, the circuit is in normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or connector in lock-up duty solenoid and transmission.	Repair the short circuit of harness between lock-up duty solenoid and transmission connector.

P: DTC P0748 PRESSURE CONTROL SOLENOID “A” ELECTRICAL

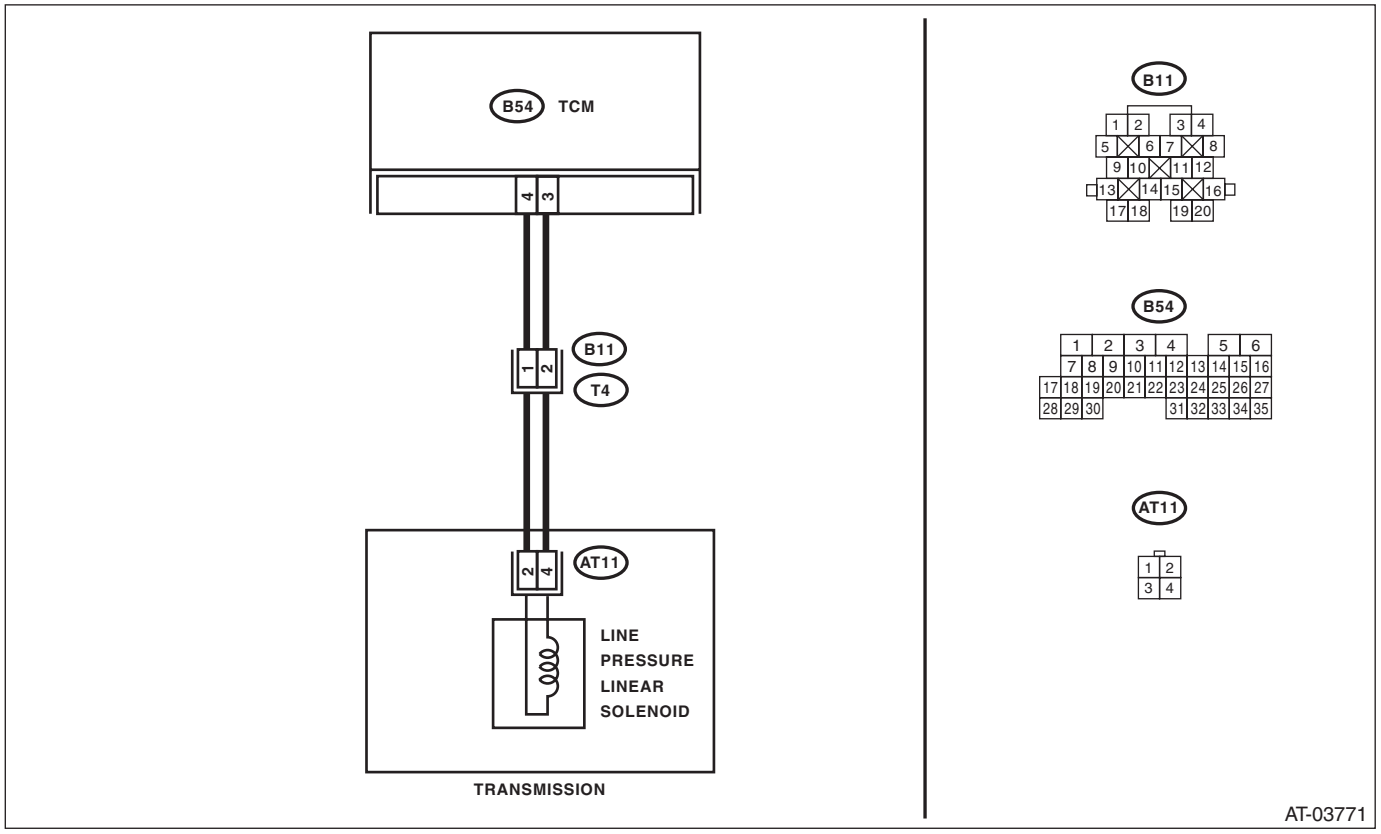
DTC DETECTING CONDITION:

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

TROUBLE SYMPTOM:

Excessive shift shock

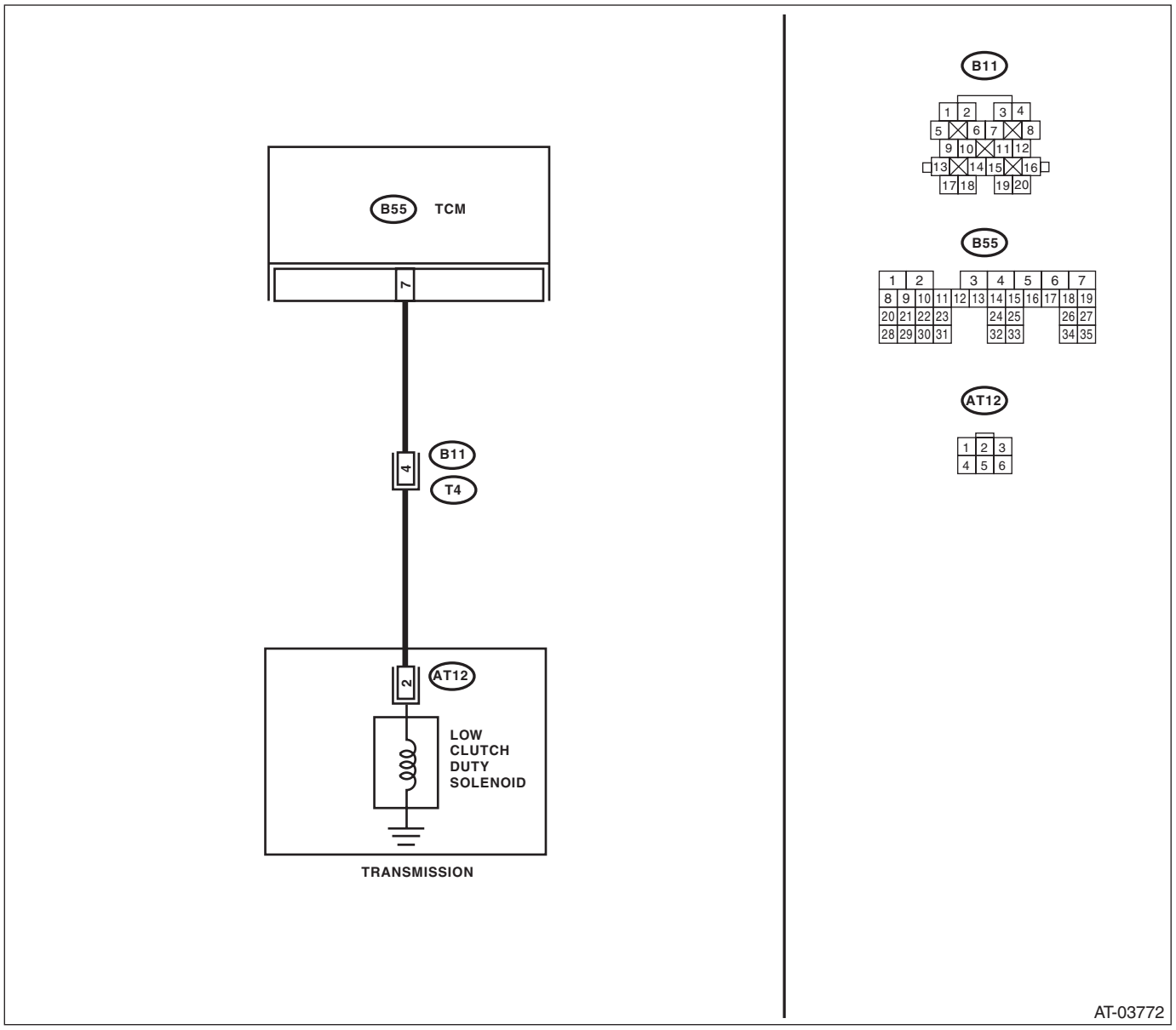
WIRING DIAGRAM:



	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 harness between TCM connector and transmission connector. ***Connector & terminal*** ***(B54) No. 3 — (B11) No. 2:*** ***(B54) No. 4 — (B11) No. 1:***	Is 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. 3 — Chassis ground:*** ***(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 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?	Go to step **5**.	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*** ***(AT11) No. 2 — No. 4:***	Is the resistance between 4 — 8 Ω?	Go to step **5**.	Replace the control valve body. <Ref. to 4AT-55, 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 — (AT11) No. 4:*** ***(T4) No. 1 — (AT11) No. 2:***	Is 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 MΩ or more?	Even if the ATF temperature warning light blinks, the circuit is in normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or connector in line pressure linear solenoid and transmission.	Repair the short circuit of harness between line pressure linear solenoid and transmission connector.

Q: 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:

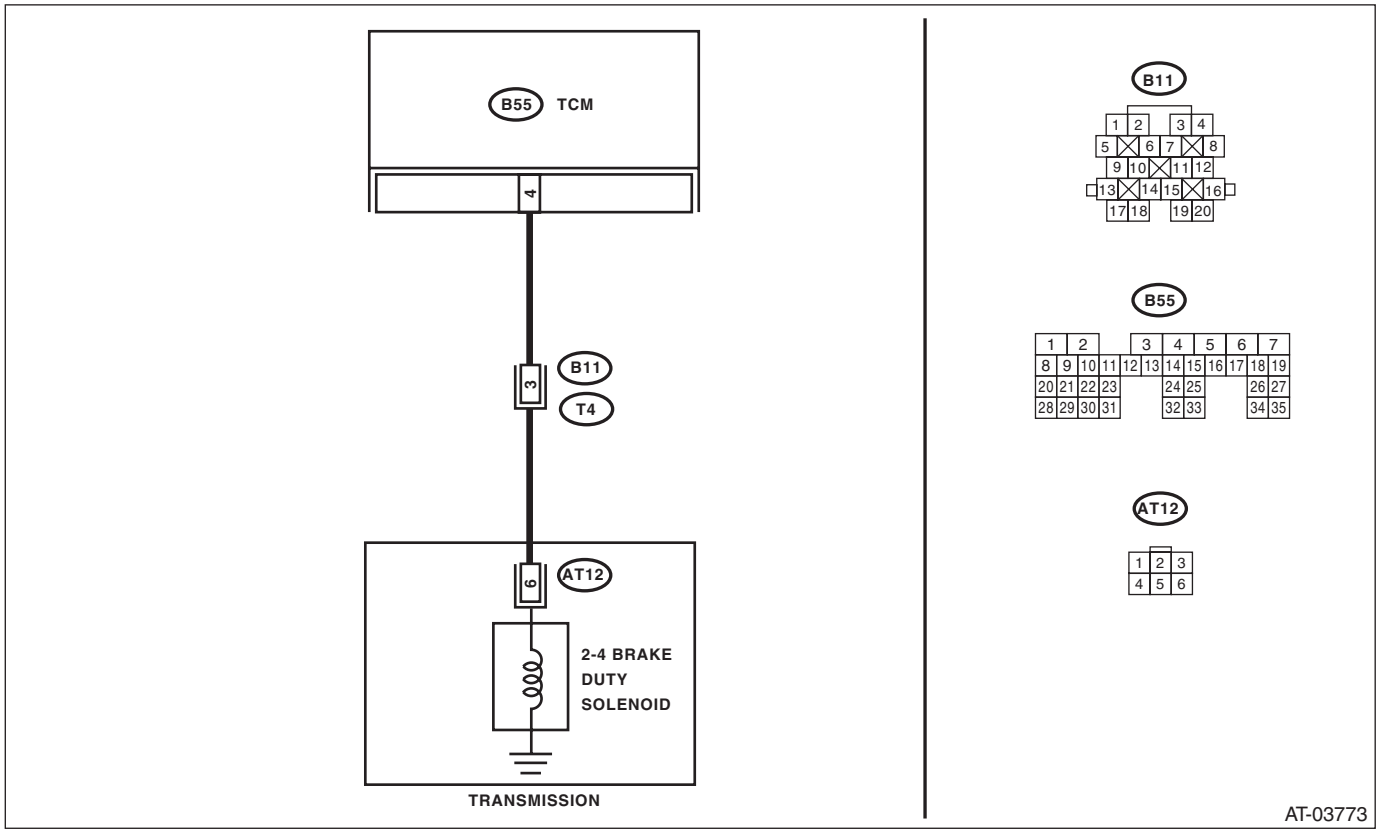


	Step	Check	Yes	No
1	**CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector. ***Connector & terminal*** ***(B55) No. 7 — (B11) No. 4:***	Is 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*** ***(B55) No. 7 — 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 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 **4**.	Go to step **7**.
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, and run the Subaru Select Monitor. 4) 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. 5) Stop the engine and turn the ignition switch to ON (with engine OFF). 6) Shift the select lever to “P” or “N” range, and depress the accelerator pedal. 7) Read the data of “Low Clutch Duty Ratio” using Subaru Select Monitor. • Low clutch duty solenoid is indicated in “%”.	Is the measured value 100%?	Go to step **5**.	Go to step **6**.
5	**CHECK OUTPUT SIGNAL FROM TCM USING SUBARU SELECT MONITOR.** 1) Turn the ignition switch to ON (engine OFF). 2) Shift the select lever to “D” range. 3) Read the data of “Low Clutch Duty Ratio”.	Is the measured value 0%?	Even if the ATF temperature warning light blinks, the circuit is in normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or connector in transmission.	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).>

	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*** ***(AT12) 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-55, 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 — (AT12) No. 2:***	Is 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 MΩ or more?	Even if the ATF temperature warning light blinks, the circuit is in normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or connector of the low clutch duty solenoid and transmission.	Repair the short circuit of harness between low clutch duty solenoid and transmission connector.

R: 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:

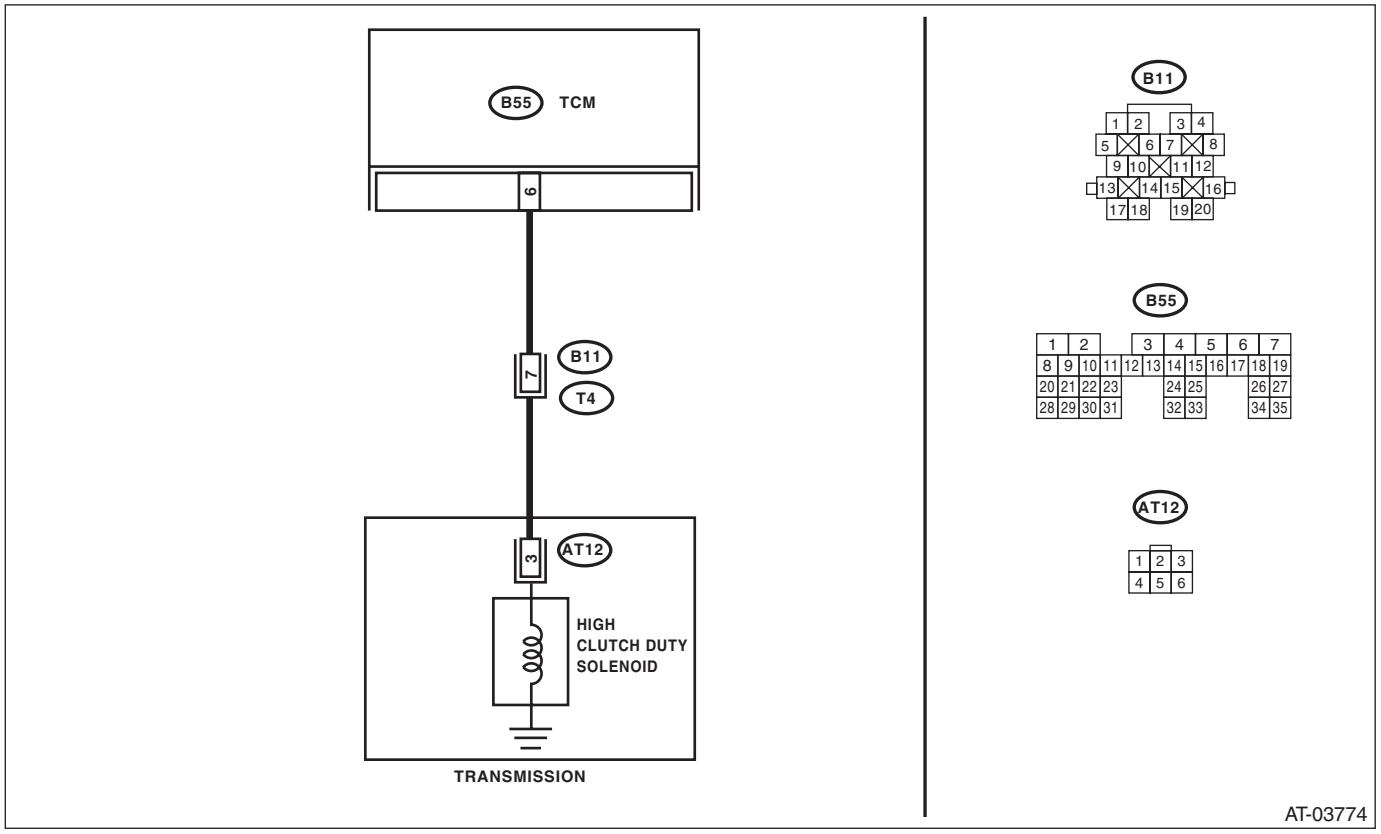


	Step	Check	Yes	No
1	**CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance of harness between TCM connector and transmission connector. ***Connector & terminal*** ***(B55) No. 4 — (B11) No. 3:***	Is 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*** ***(B55) 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 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, and run the Subaru Select Monitor. 4) 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. 5) Stop the engine and turn the ignition switch to ON (with engine OFF). 6) Shift the select lever to “N” range, and depress the accelerator pedal. 7) Read the data of “Brake Clutch Duty Ration” using Subaru Select Monitor. 2-4 brake duty solenoid is indicated in “%”.	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%?	Even if the ATF temperature warning light blinks, the circuit is in normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or connector in TCM and transmission.	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).>

	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 2-4 brake duty solenoid. 4) Measure the resistance of harness between 2-4 brake duty solenoid connector and transmission ground. ***Connector & terminal*** ***(AT3) No. 6 — Transmission ground:***	Is the resistance between 2.0 — 6.0 Ω?	Go to step **8**.	Replace the control valve body. <Ref. to 4AT-55, 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 — (AT12) No. 6:***	Is 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 MΩ or more?	Even if the ATF temperature warning light blinks, the circuit is in normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or connector in 2-4 brake duty solenoid and transmission.	Repair the short circuit of harness between 2-4 brake duty solenoid and transmission connector.

S: 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:



	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 connector and transmission connector. ***Connector & terminal*** ***(B55) No. 6 — (B11) No. 7:***	Is 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*** ***(B55) No. 6 — 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 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 and support with rigid racks. NOTE: Raise all wheels off the floor. 3) Connect the Subaru Select Monitor to the data link connector. 4) Start the engine, and run the Subaru Select Monitor. 5) Start the engine and 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. 6) Read the data of "High Clutch Duty Ratio" using Subaru Select Monitor. • High clutch duty solenoid is indicated in "%". 7) Shift the select lever to "D", and slowly increase vehicle speed to measure at 3rd or 4th. NOTE: The speed difference between front and rear wheels may illuminate the ABS warning light, but this does not indicate a malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS(diag)-24, Clear Memory Mode.>	Is the measured value 0%?	Go to step **5**.	Go to step **6**.

	Step	Check	Yes	No
5	**CHECK OUTPUT SIGNAL FROM TCM USING SUBARU SELECT MONITOR.** Return the engine to idling speed and shift the select lever to "N" range. NOTE: The speed difference between front and rear wheels may illuminate the ABS warning light, but this does not indicate a malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS(diag)-24, Clear Memory Mode.>	Is the measured value 100%?	Even if the ATF temperature warning light blinks, the circuit is in normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or connector in TCM and transmission.	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 control valve body connector. 4) Measure the resistance between high clutch duty solenoid connector and transmission ground. ***Connector & terminal*** ***(AT12) 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-55, 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 — (AT12) No. 3:***	Is 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 MΩ or more?	Even if the ATF temperature warning light blinks, the circuit is in normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or connector in high clutch duty solenoid and transmission.	Repair the short circuit of harness between high clutch duty solenoid and transmission connector.

T: DTC P0768 SHIFT SOLENOID “D” ELECTRICAL

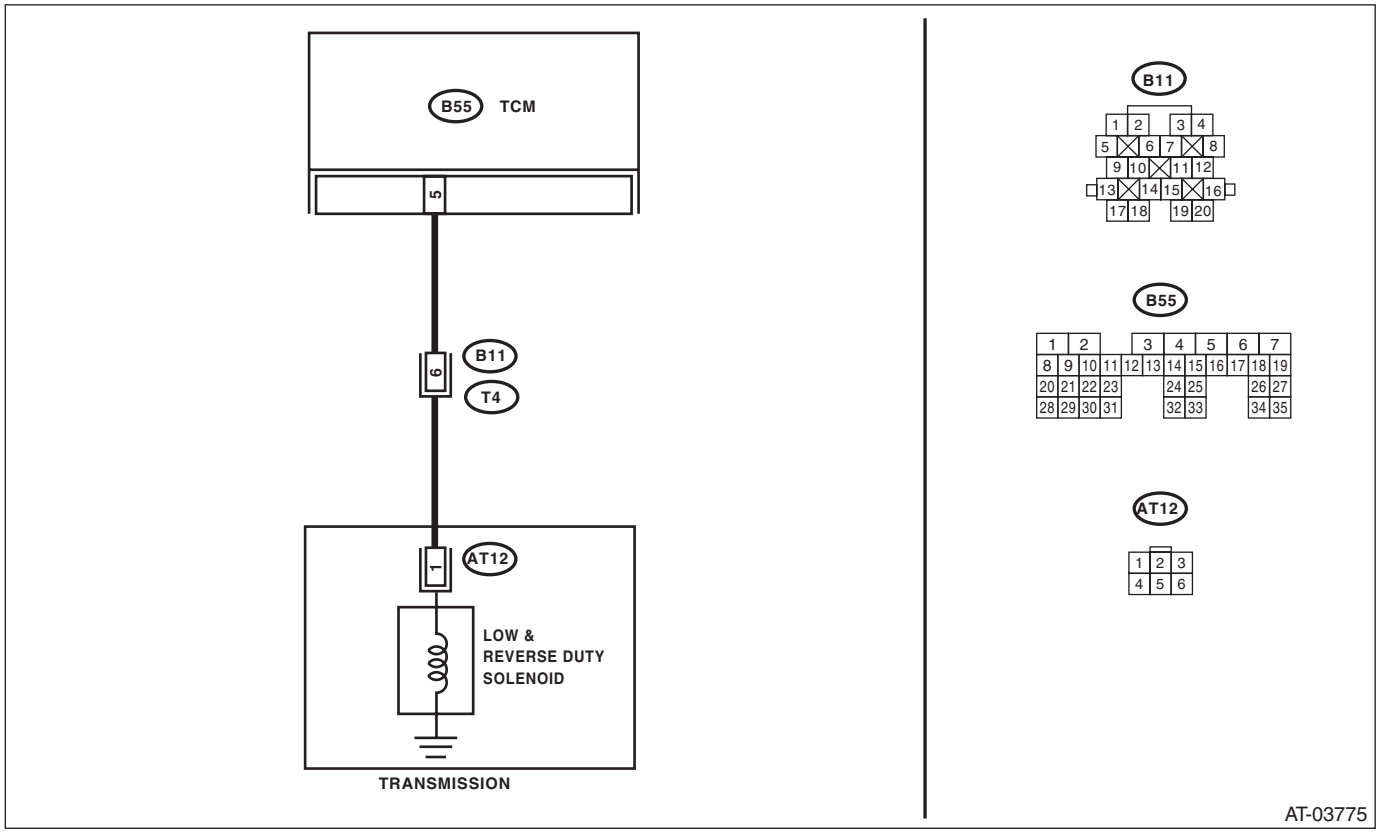
DTC DETECTING CONDITION:

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

TROUBLE SYMPTOM:

Gear is not changed.

WIRING DIAGRAM:



	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 harness between TCM connector and transmission connector. ***Connector & terminal*** ***(B55) No. 5 — (B11) No. 6:***	Is 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*** ***(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 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, and run the Subaru Select Monitor. 4) 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. 5) Stop the engine and turn the ignition switch to ON (with engine OFF). 6) Shift the select lever to “N” range. 7) Read the data of “L&R/B duty ratio” using Subaru Select Monitor. • Low & reverse duty solenoid is indicated in “%”.	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 and support with rigid racks. NOTE: Raise all wheels off the floor. 2) Shift the select lever to manual mode, and then hold it on 1st. Slowly increase the vehicle speed up to 15 km/h (9 MPH), and then return the accelerator pedal. NOTE: The speed difference between front and rear wheels may illuminate the ABS warning light, but this does not indicate a malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS(diag)-24, Clear Memory Mode.> 3) Read the data of “L&R/B duty ratio”.	Is the measured value 55%?	Even if the ATF temperature warning light blinks, the circuit is in normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or connector in TCM and transmission.	Go to step **6**.

	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*** ***(AT12) 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-55, 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 — (AT12) No. 1:***	Is 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 MΩ or more?	Even if the ATF temperature warning light blinks, the circuit is in normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair harness or connector in low & reverse duty solenoid and transmission.	Repair the short circuit of the harness between the low & reverse duty solenoid and the transmission connector.

U: DTC P0801 REVERSE INHIBIT CONTROL CIRCUIT

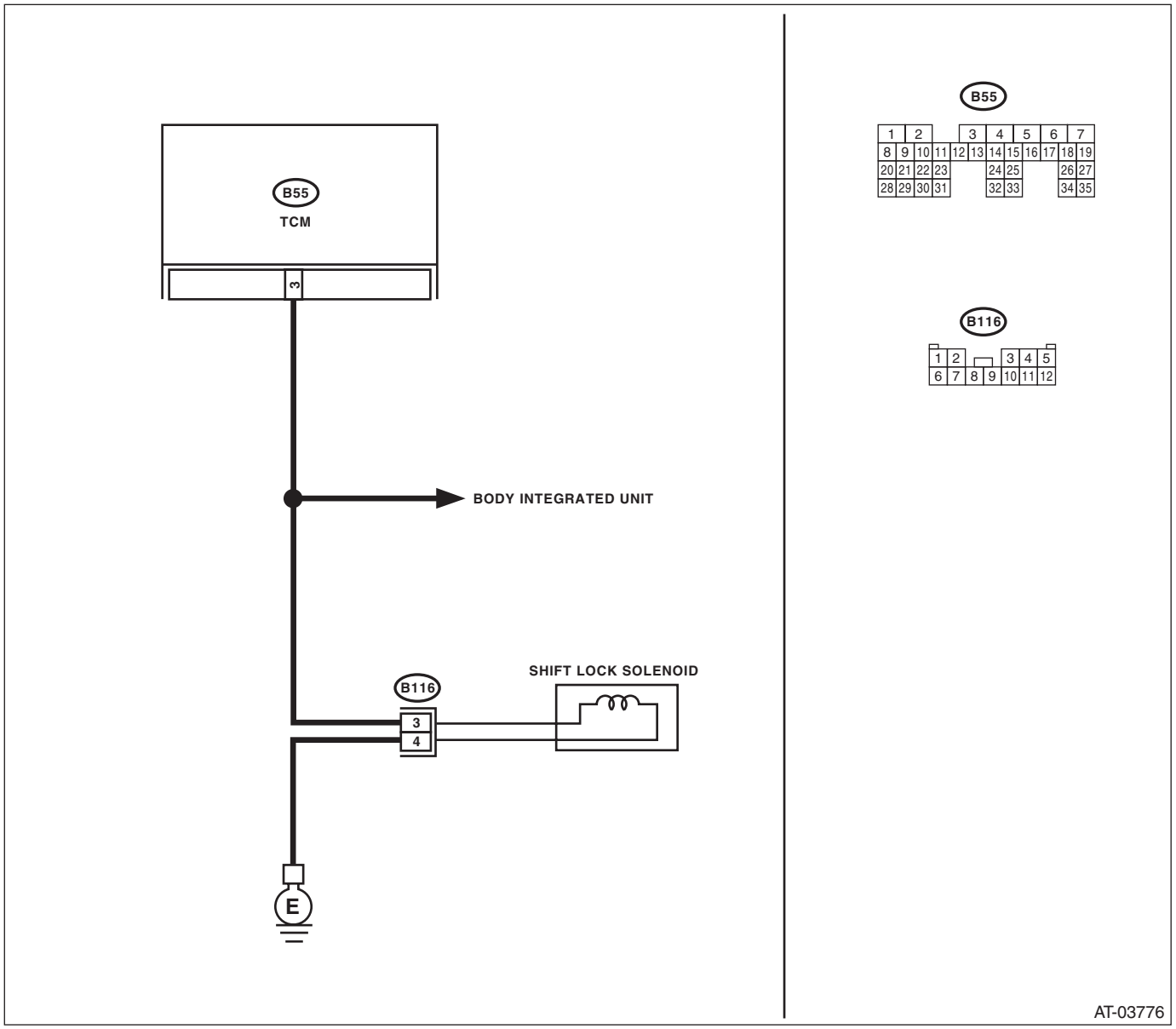
DTC DETECTING CONDITION:

Shift lock solenoid malfunction, open or short reverse inhibitor control circuit

TROUBLE SYMPTOM:

- Gear is shifted from “N” range to “P” range during driving at 20 km/h (12 MPH) or more.
- Gear cannot be shifted from “N” range to “R” range.

WIRING DIAGRAM:

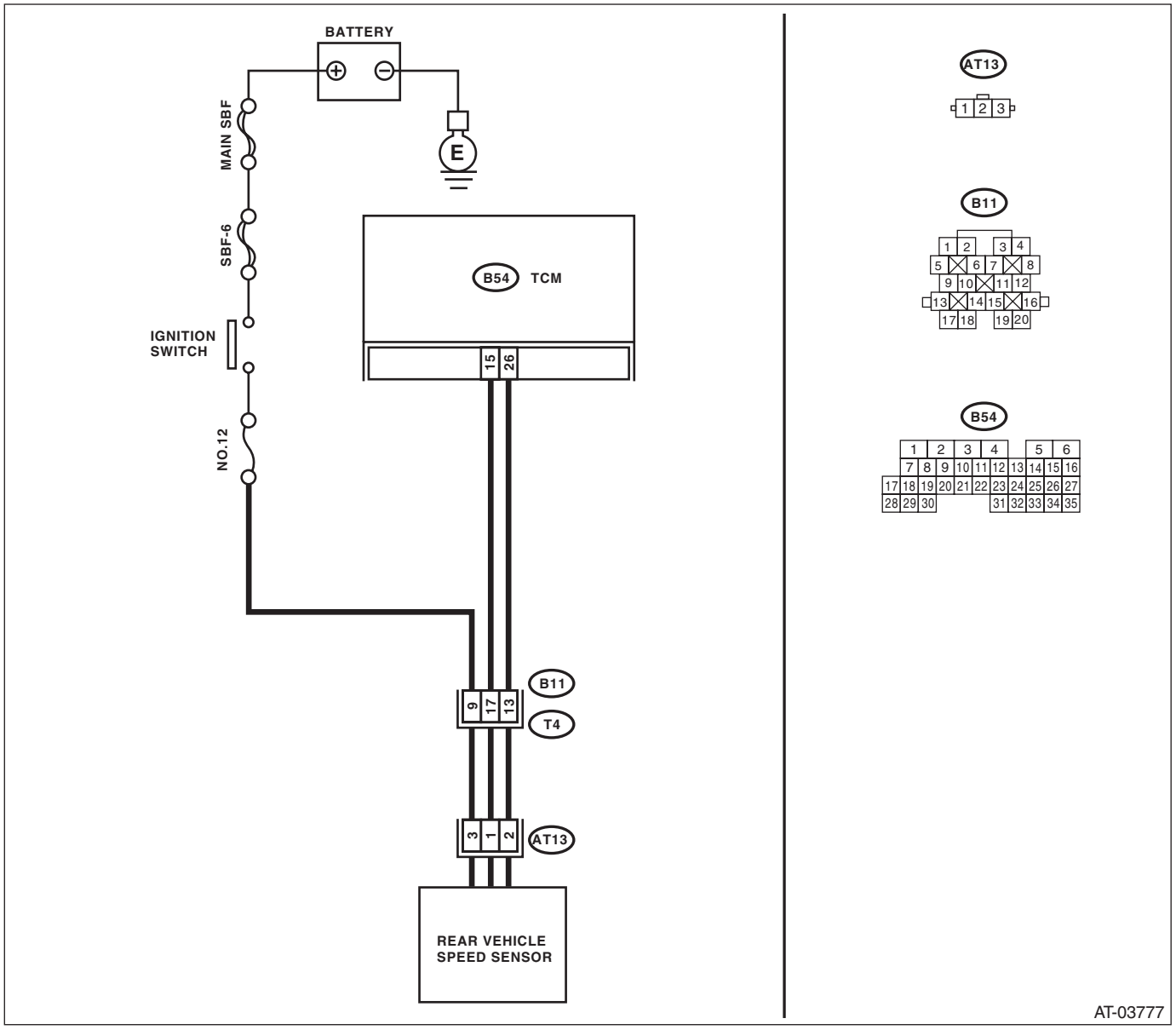


Step		Check	Yes	No
1	**CHECK HARNESS CONNECTOR BETWEEN TCM AND SHIFT LOCK SOLENOID.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and shift lock solenoid. 3) Measure the resistance of harness between TCM and shift lock solenoid connector. ***Connector & terminal*** ***(B55) No. 3 — (B116) No. 3:***	Is resistance less than 1 Ω?	Go to step **2**.	Repair the open circuit of harness between TCM and shift lock solenoid connector.

	Step	Check	Yes	No
2	**CHECK HARNESS CONNECTOR BETWEEN TCM AND SHIFT LOCK SOLENOID.** Measure the resistance of the harness between TCM and chassis ground. ***Connector & terminal*** ***(B55) No. 3 — Chassis ground:***	Is the resistance 1 MΩ or more?	Go to step **3**.	Repair the short circuit of harness between TCM and shift lock solenoid connector.
3	**CHECK HARNESS BETWEEN SHIFT LOCK SOLENOID AND CHASSIS GROUND TERMINAL.** Measure the resistance of harness between shift lock solenoid and chassis ground. ***Connector & terminal*** ***(B116) No. 4 — Chassis ground:***	Is resistance less than 1 Ω?	Go to step **4**.	Repair the open circuit of harness between chassis ground and shift lock solenoid connector.
4	**CHECK SHIFT LOCK SOLENOID.** Measure the resistance of shift lock solenoid terminals. ***Connector & terminal*** ***(B116) No. 3 — No. 4:***	Is the resistance between 12 — 18 Ω?	Go to step **5**.	Replace the shift lock solenoid.
5	**CHECK OUTPUT SIGNAL OF TCM.** 1) Connect all connectors. 2) Turn the ignition switch to ON. 3) Shift the select lever to “D” range. 4) Measure the voltage between TCM and chassis ground. ***Connector & terminal*** ***(B55) No. 3 (+) — Chassis ground (–):***	Is the voltage 10.5 V or more?	Go to step **6**.	Go to step **7**.
6	**CHECK OUTPUT SIGNAL OF TCM.** 1) Lift up the vehicle and support with rigid racks. NOTE: Raise all wheels off the floor. 2) Start the engine. 3) Shift the select lever to “D” range and slowly increase vehicle speed to over 20 km/h (12 MPH). NOTE: The speed difference between front and rear wheels may illuminate the ABS warning light, but this does not indicate a malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS(diag)-24, Clear Memory Mode.> 4) Measure the voltage between TCM and chassis ground. ***Connector & terminal*** ***(B55) No. 3 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Even if the ATF temperature warning light blinks, the circuit is in normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or connector in the reverse inhibitor control circuit.	Go to step **7**.
7	**CHECK POOR CONTACT.**	Is there poor contact in the reverse inhibitor control circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-60, Transmission Control Module (TCM).>

V: 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 occured.
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. Turn the ignition switch to ON. 3) Measure the ignition power supply voltage between rear vehicle speed sensor connector and transmission ground. ***Connector & terminal*** ***(AT13) No. 3 (+) — Transmission ground (–):***	Is the voltage 10 V or more?	Go to step **2**.	Check harness between rear vehicle speed sensor and battery for open circuit, short or poor contact. Repair the harness if required.
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*** ***(B54) No. 15 — (AT13) No. 1:***	Is 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*** ***(B54) No. 26 — (AT13) No. 2:***	Is 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.
4	**CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.** Measure the resistance of harness between TCM connector and chassis ground. ***Connector & terminal*** ***(B54) 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 harness between TCM connector and chassis ground. ***Connector & terminal*** ***(B54) 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	**PREPARE OSCILLOSCOPE.**	Do you have an oscilloscope?	Go to step **8**.	Go to step **7**.

	Step	Check	Yes	No
7	**CHECK INPUT SIGNAL FOR TCM.** 1) Connect the connectors to TCM and transmission. 2) Lift up the vehicle and support with rigid racks. NOTE: Raise all wheels off the floor. 3) Start the engine and set vehicle in 20 km/h (12 MPH) condition. NOTE: The speed difference between front and rear wheels may illuminate the ABS warning light, but this does not indicate a malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS(diag)-24, Clear Memory Mode.> 4) Measure the AC voltage between TCM connector terminals. ***Connector & terminal*** ***(B54) No. 26 (+) — No. 15 (–):***	Is the voltage approx. 2 V or more?	Go to step **9**.	Replace the rear vehicle speed sensor.
8	**CHECK INPUT SIGNAL FOR TCM USING OSCILLOSCOPE.** 1) Connect the connectors to TCM and transmission. 2) Lift up the vehicle and support with rigid racks. NOTE: Raise all wheels off the floor. 3) Set the oscilloscope to TCM connector terminals. ***Connector & terminal*** ***Positive probe; (B54) No. 26:*** ***Ground lead; (B54) No. 15:*** 4) Start the engine and set vehicle in 20 km/h (12 MPH) condition. NOTE: The speed difference between front and rear wheels may illuminate the ABS warning light, but this does not indicate a malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS(diag)-24, Clear Memory Mode.> 5) Measure the signal voltage indicated on oscilloscope.	Is the pulse voltage approx. 5 V?	Go to step **9**.	Replace the rear vehicle speed sensor.
9	**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).>

W: DTC P1707 AT AWD SOLENOID VALVE CIRCUIT MALFUNCTION

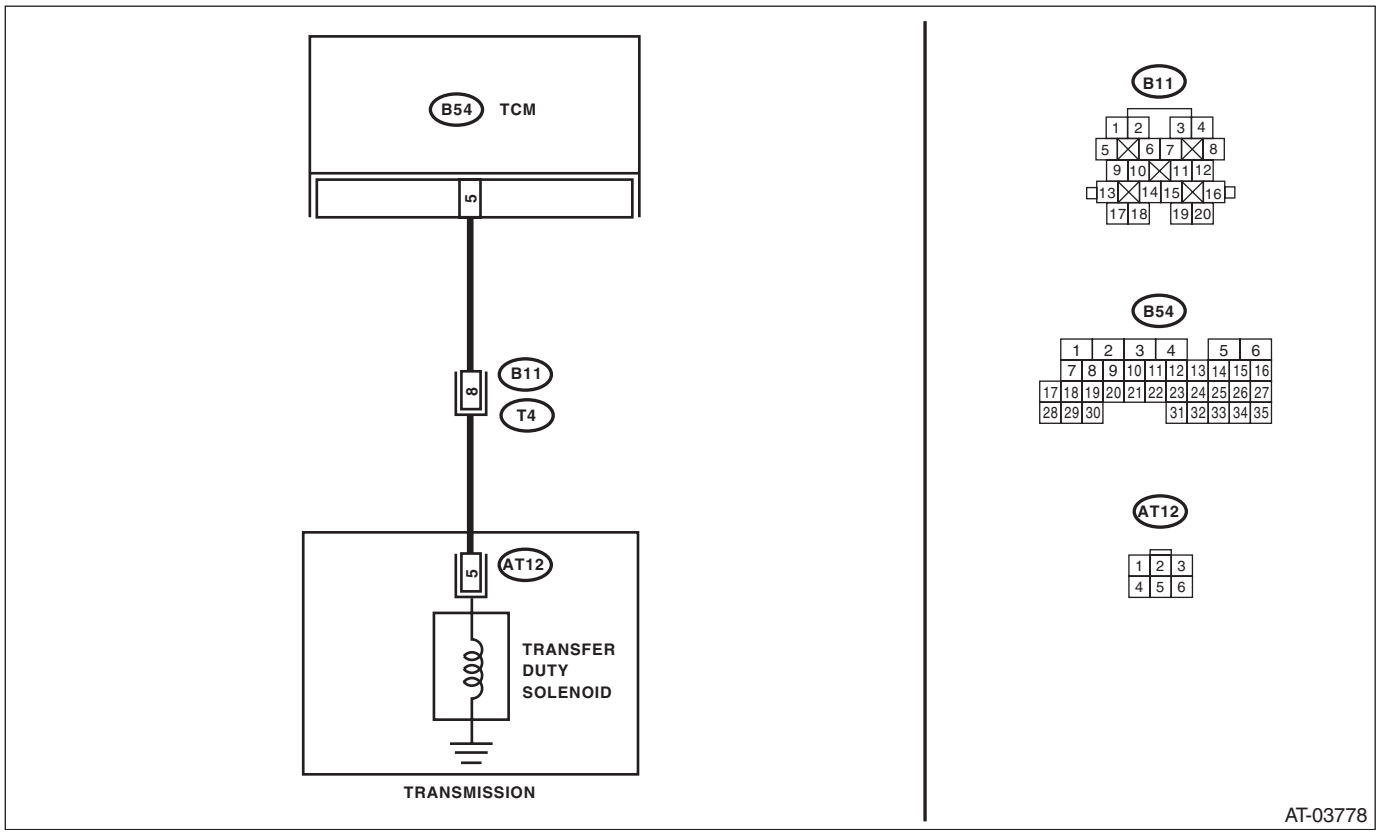
DTC DETECTING CONDITION:

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

TROUBLE SYMPTOM:

- Tight corner braking phenomenon is occurred.
- Front wheel slips on the slippery road.

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 harness between TCM connector and transmission connector. ***Connector & terminal*** ***(B54) No. 5 — (B11) No. 8:***	Is 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*** ***(B54) 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**.
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 (engine OFF) and run the Subaru Select Monitor. 4) Shift the select lever to the “N” range, and fully close the throttle pedal. (Vehicle speed is 0 km/h (0 MPH)) 5) Read the data of “Transfer duty Ratio” using Subaru Select Monitor. Transfer duty solenoid is indicated in “%”.	Is the value approx. 5%?	Go to step **5**.	Go to step **6**.
5	**CHECK OUTPUT SIGNAL FROM TCM USING SUBARU SELECT MONITOR.** 1) Shift the select lever to “D” range. 2) Read the data of “Transfer duty Ratio” using Subaru Select Monitor. Transfer duty solenoid is indicated in “%”.	Is the measured value approx. 18 — 35%?	Even if the ATF temperature warning light blinks, the circuit is in normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or connector in TCM and transmission.	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).>

	Step	Check	Yes	No
7	**CHECK TRANSFER DUTY SOLENOID (IN TRANSMISSION).** 1) Lift up the vehicle and support with rigid racks. NOTE: Raise all wheels off the floor. 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*** ***(AT12) No. 5 — Transmission ground:***	Is the resistance between 2.0 — 6.0 Ω?	Go to step **8**.	Replace the control valve body. <Ref. to 4AT-55, 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 — (AT12) No. 5:***	Is 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 MΩ or more?	Even if the ATF temperature warning light blinks, the circuit is in normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or poor contact in the transfer duty solenoid and transmission.	Repair short circuit of the harness between the transfer duty solenoid and transmission connector.

X: DTC P1718 CAN COMMUNICATION CIRCUIT

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

Y: DTC P1817 SPORT MODE SWITCH CIRCUIT

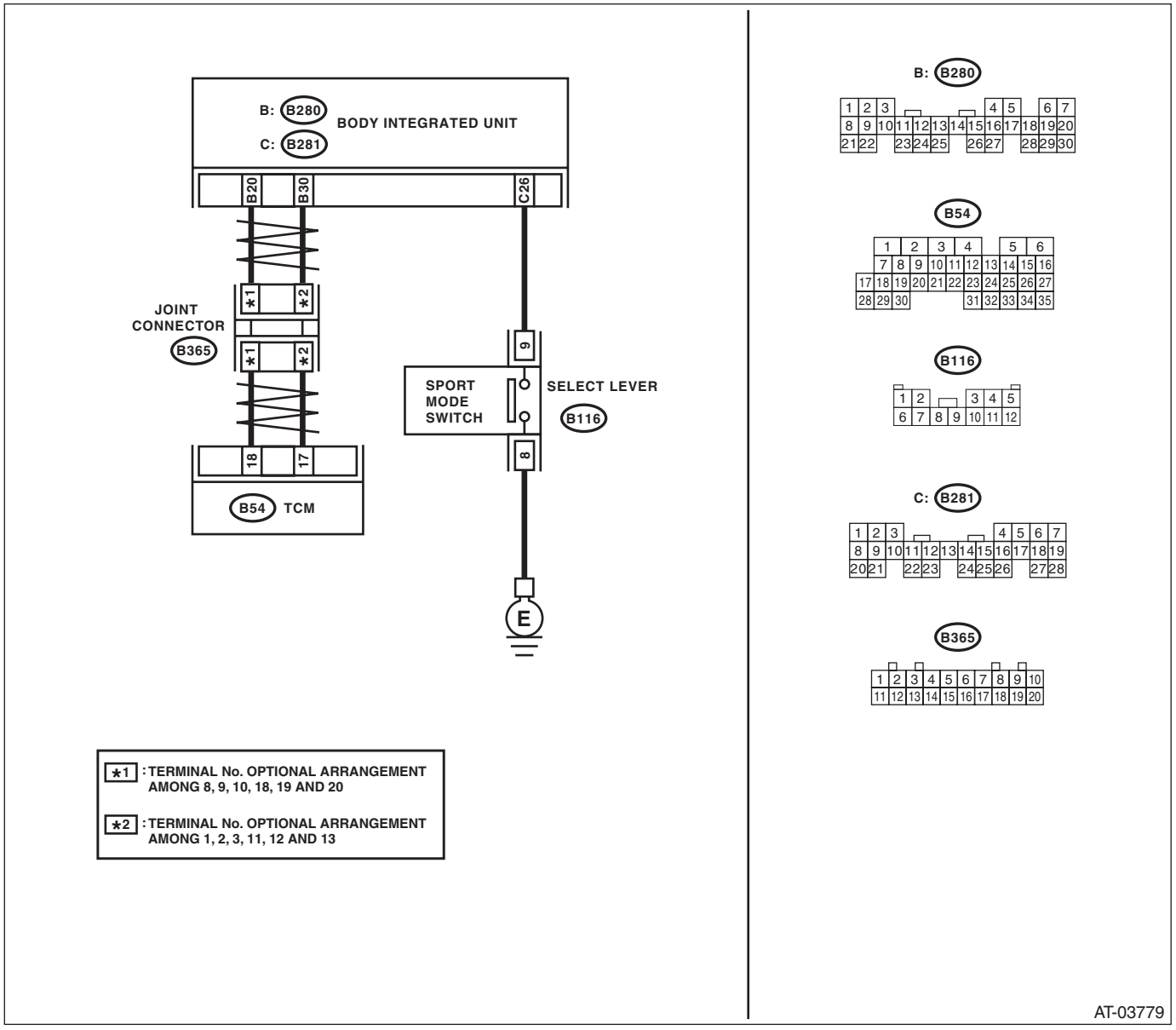
DTC DETECTING CONDITION:

The input signal circuit of SPORT shift switch is shorted.

TROUBLE SYMPTOM:

- Manual mode can not be set.
- The SPORT indicator light does not illuminate.
- No SPORT mode occurs.

WIRING DIAGRAM:



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. (engine OFF) 3) Read the DTC of body integrated unit using Subaru Select Monitor. <Ref. to LAN(diag)-12, OPERATION, Subaru Select Monitor.>	Is DTC displayed?	Perform the diagnosis according to DTC.	Go to step **2**.

	Step	Check	Yes	No
2	**CHECK BODY INTEGRATED UNIT INPUT SIGNAL.** 1) Shift the select lever to “P” range. 2) Read the TIP mode SW data of body integrated unit using Subaru Select Monitor. <Ref. to LAN(diag)-12, OPERATION, Subaru Select Monitor.>	Is OFF displayed?	Go to step **3**.	Go to step **7**.
3	**CHECK BODY INTEGRATED UNIT INPUT SIGNAL.** 1) Shift the select lever from “P” to “D” range. 2) Read the TIP mode SW data of body integrated unit using Subaru Select Monitor. <Ref. to LAN(diag)-12, OPERATION, Subaru Select Monitor.>	Is the indication on each range OFF?	Go to step **4**.	Replace the select lever assembly. <Ref. to CS-24, Select Lever.>
4	**CHECK BODY INTEGRATED UNIT INPUT SIGNAL.** 1) Shift the select lever to SPORT mode. 2) Read the TIP mode SW data of body integrated unit using Subaru Select Monitor. <Ref. to LAN(diag)-12, OPERATION, Subaru Select Monitor.>	Is ON displayed?	Go to step **5**.	Replace the select lever assembly. <Ref. to CS-24, Select Lever.>
5	**CHECK INHIBITOR SWITCH.** Shift the select lever from “P” to “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-45, ADJUSTMENT, Inhibitor Switch.> <Ref. to CS-31, ADJUSTMENT, Select Cable.>
6	**CHECK INPUT SIGNAL FROM TCM.** 1) Shift the select lever from “P” to “D” range. 2) Read the TIP mode SW data of TCM using Subaru Select Monitor. <Ref. to 4AT(diag)-15, OPERATION, Subaru Select Monitor.>	Is the indication on each range OFF?	Even if the ATF temperature warning light blinks, the circuit is in normal condition. A temporary short circuit of connector or harness may be the cause. Repair the harness or connector.	Replace the TCM. <Ref. to 4AT-60, Transmission Control Module (TCM).>
7	**CHECK HARNESS BETWEEN BODY INTEGRATED UNIT AND SPORT SHIFT SWITCH.** 1) Turn the ignition switch to OFF. 2) Disconnect the harness connector from body integrated unit and select lever. 3) Measure the resistance between the body integrated unit and chassis ground. ***Connector & terminal*** ***(B281) No. 26 — Chassis ground:***	Is the resistance 1 MΩ or more?	Go to step **8**.	Repair the short circuit of harness between body integrated unit and SPORT shift switch.
8	**CHECK SPORT SHIFT SWITCH.** 1) Shift the select lever to “P” range. 2) Measure the resistance of SPORT shift switch connector terminals. ***Terminals*** ***No. 9 — No. 8:***	Is the resistance 1 MΩ or more?	Check the body integrated unit.	Replace the select lever assembly. <Ref. to CS-24, Select Lever.>