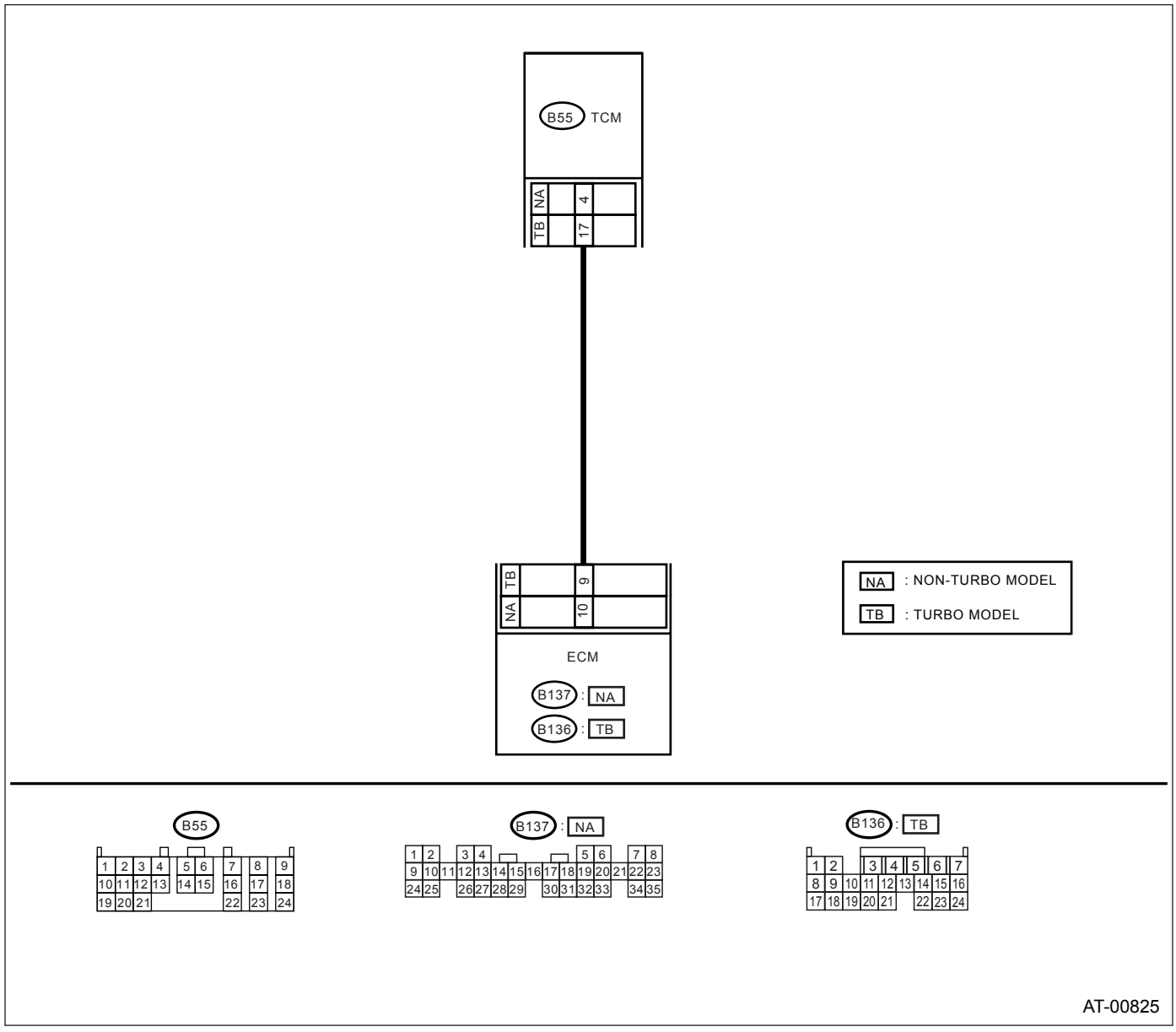
14.Diagnostic Procedure with Diagnostic Trouble Code (DTC)

A: DTC 11 ENGINE SPEED SIGNAL

DIAGNOSIS:
Engine speed input signal circuit is open or shorted.
TROUBLE SYMPTOM:
- No lock-up (after engine warm-up).
- AT OIL TEMP warning light remains on when the vehicle speed is “0”.

WIRING DIAGRAM:

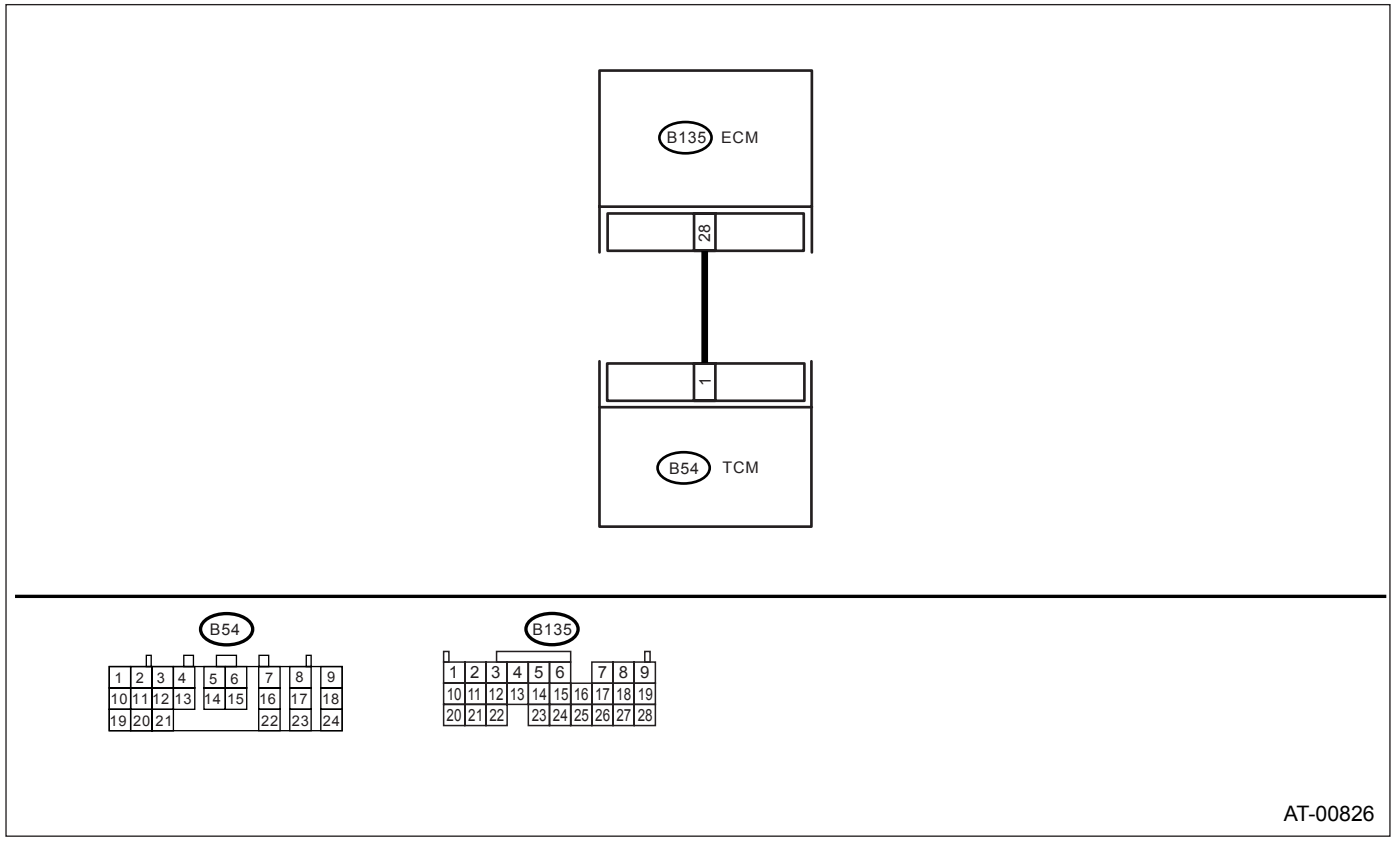


	Step	Check	Yes	No
1	**CHECK HARNESS CONNECTOR BETWEEN TCM AND ECM.** 1)Turn the ignition switch to OFF. 2)Disconnect the connectors from TCM and ECM. 3)Measure the resistance of harness between TCM and ECM connector. ***Connector & terminal*** ***Non-turbo model*** ***(B55) No. 4 — (B137) No. 10:*** ***Turbo model*** ***(B55) No. 17 — (B136) No. 9:*** Is the measured value less than the specified value?	1 Ω	Go to step **2.**	Repair open circuit in 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*** ***Non-turbo model*** ***(B55) No. 4 — Chassis ground:*** ***Turbo model*** ***(B55) No. 17 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **3.**	Repair short circuit in harness between TCM and ECM connector.
3	**PREPARE SUBARU SELECT MONITOR.** Do you have a Subaru Select Monitor?	A SUBARU SELECT MONITOR is available.	Go to step **5.**	Go to step **4.**
4	**CHECK INPUT SIGNAL FOR TCM.** 1)Connect the connectors to TCM and ECM. 2)Turn the ignition switch to ON (engine OFF). 3)Measure the voltage between TCM connector and chassis ground. ***Connector & terminal*** ***Non-turbo model*** ***(B55) No. 4 (+) — Chassis ground (−):*** ***Turbo model*** ***(B55) No. 17 (+) — Chassis ground (−):*** Is the measured value same as the specified value?	0 V	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or connector in the TCM and ECM.	Go to step **6.**
5	**CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR.** 1)Connect the connectors to TCM and ECM. 2)Connect the Subaru Select Monitor to data link connector. 3)Start the engine, and turn the Subaru Select Monitor switch to ON. 4)Warm-up the engine until engine coolant temperature is above 80°C (176°F). 5)Engine idling. 6)Read the data of engine speed using the Subaru Select Monitor. •Display shows engine speed signal value sent from ECM. Is the revolution value the same as the tachometer reading shown on the combination meter?	The reading of the tachometer and select monitor are the same.	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or connector in the TCM and ECM.	Go to step **6.**

	Step	Check	Yes	No
6	**CHECK POOR CONTACT.** Is there poor contact in engine speed signal circuit?	There is a poor contact.	Repair poor contact.	Go to step **7.**
7	**CONFIRM DTC 11.** Replace the ECM with a new one. Does the trouble code appear again, after the memory has been cleared?	Diagnostic trouble code (DTC) 11 is indicated.	Replace the TCM. <Ref. to AT-71, Transmission Control Module (TCM).>	Replace the ECM.

B: DTC 23 MASS AIR FROW SIGNAL

DIAGNOSIS:
Input signal circuit of TCM from ECM is open or shorted.
TROUBLE SYMPTOM:
Excessive shift shock.
WIRING DIAGRAM:

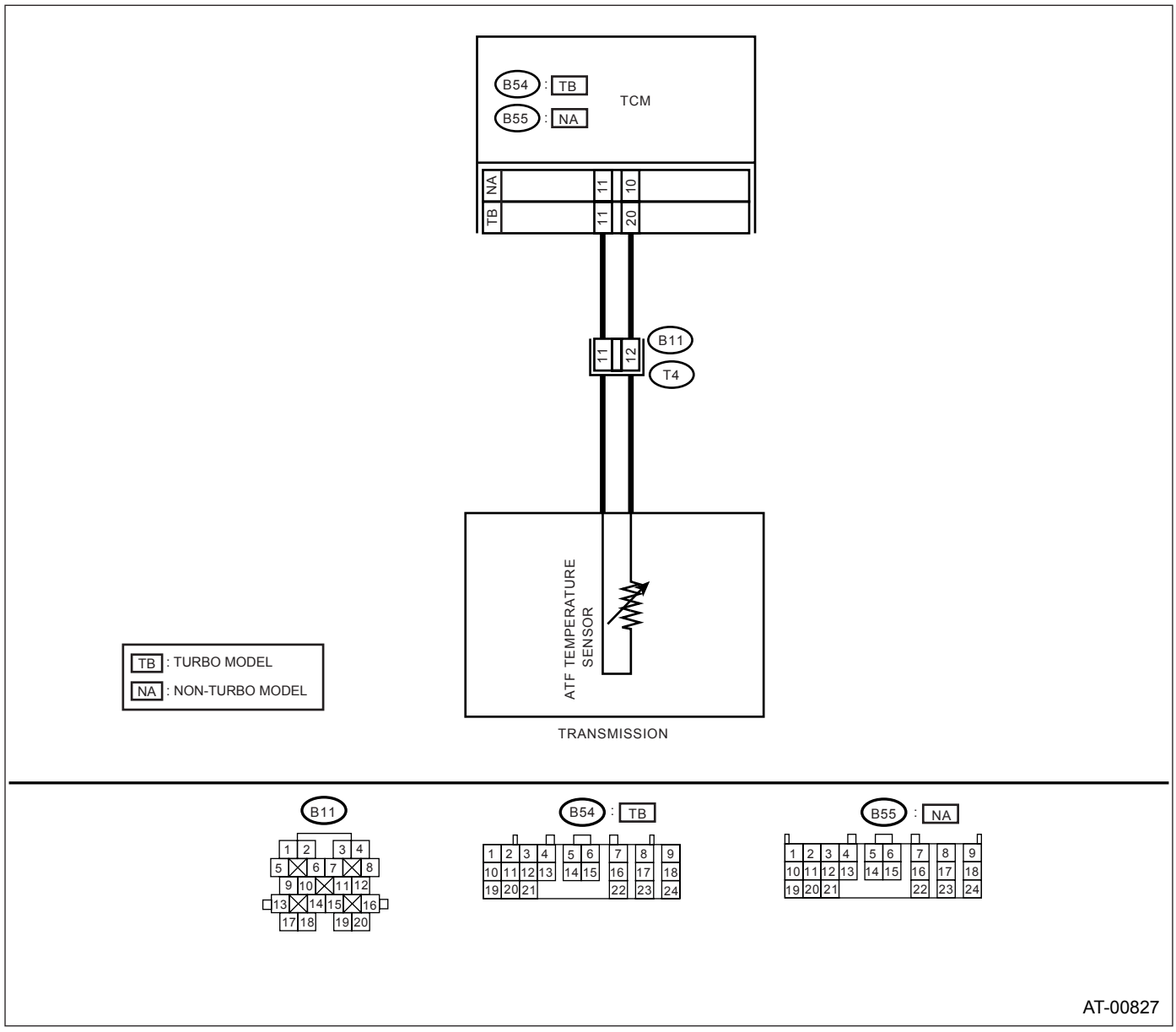


	Step	Check	Yes	No
1	**CHECK ENGINE GROUND TERMINALS AND GROUND CIRCUIT OF ECM** <Ref. to AT-54, DTC 31 THROTTLE POSITION SENSOR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> Is there a problem?	There is a problem.	Repair ground terminal and/or ground circuit of ECM.	Go to step **2.**
2	**CHECK HARNESS CONNECTOR BETWEEN TCM AND ECM.** 1)Turn the ignition switch to OFF. 2)Disconnect the connectors from TCM and ECM. 3)Measure the resistance of harness between TCM and ECM connector. ***Connector & terminal*** ***(B54) No. 1 — (B135) No. 28:*** Is the measured value less than the specified value?	1 Ω	Go to step **3.**	Repair open circuit in harness between TCM and ECM connector.

	Step	Check	Yes	No
3	**CHECK HARNESS CONNECTOR BETWEEN TCM AND ECM.** Measure the resistance of harness between TCM connector and chassis ground. ***Connector & terminal*** ***(B54) No. 1 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **4.**	Repair short circuit in harness between TCM and ECM connector.
4	**PREPARE SUBARU SELECT MONITOR.** Do you have a Subaru Select Monitor?	A SUBARU SELECT MONITOR is available.	Go to step **6.**	Go to step **5.**
5	**CHECK INPUT SIGNAL FOR TCM.** 1)Connect the connectors to TCM and ECM. 2)Start the engine, and warm-up the transmission until ATF temperature is above 80°C (176°F). NOTE: If ambient temperature is below 0°C (32°F), drive the vehicle until the ATF reaches its operating temperature. 3)Engine idling. 4)Measure the voltage between TCM connector and chassis ground. ***Connector & terminal*** ***(B54) No. 1 (+) — Chassis ground (−):*** Is the measured value within the specified range?	0.9 — 1.4 V	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or connector in the TCM and ECM.	Go to step **7.**
6	**CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR.** 1)Connect the connectors to TCM and ECM. 2)Connect the Subaru Select Monitor to data link connector. 3)Start the engine, and turn the Subaru Select monitor switch to ON. 4)Warm-up the engine until the engine coolant temperature is above 80°C (176°F). 5)Engine idling. 6)Read the data of intake manifold pressure signal using Subaru Select Monitor. •Display shows the intake manifold pressure signal value sent from ECM. Is the measured value within the specified range?	0.9 — 1.4 V	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or connector in the TCM and ECM.	Go to step **7.**
7	**CHECK POOR CONTACT.** Is there poor contact in intake manifold pressure signal circuit?	There is a poor contact.	Repair the poor contact.	Replace the TCM. <Ref. to AT-71, Transmission Control Module (TCM).>

C: DTC 27 ATF TEMPERATURE SENSOR

DIAGNOSIS:
Input signal circuit of TCM to ATF temperature sensor is open or shorted.
TROUBLE SYMPTOM:
Excessive shift shock.
WIRING DIAGRAM:



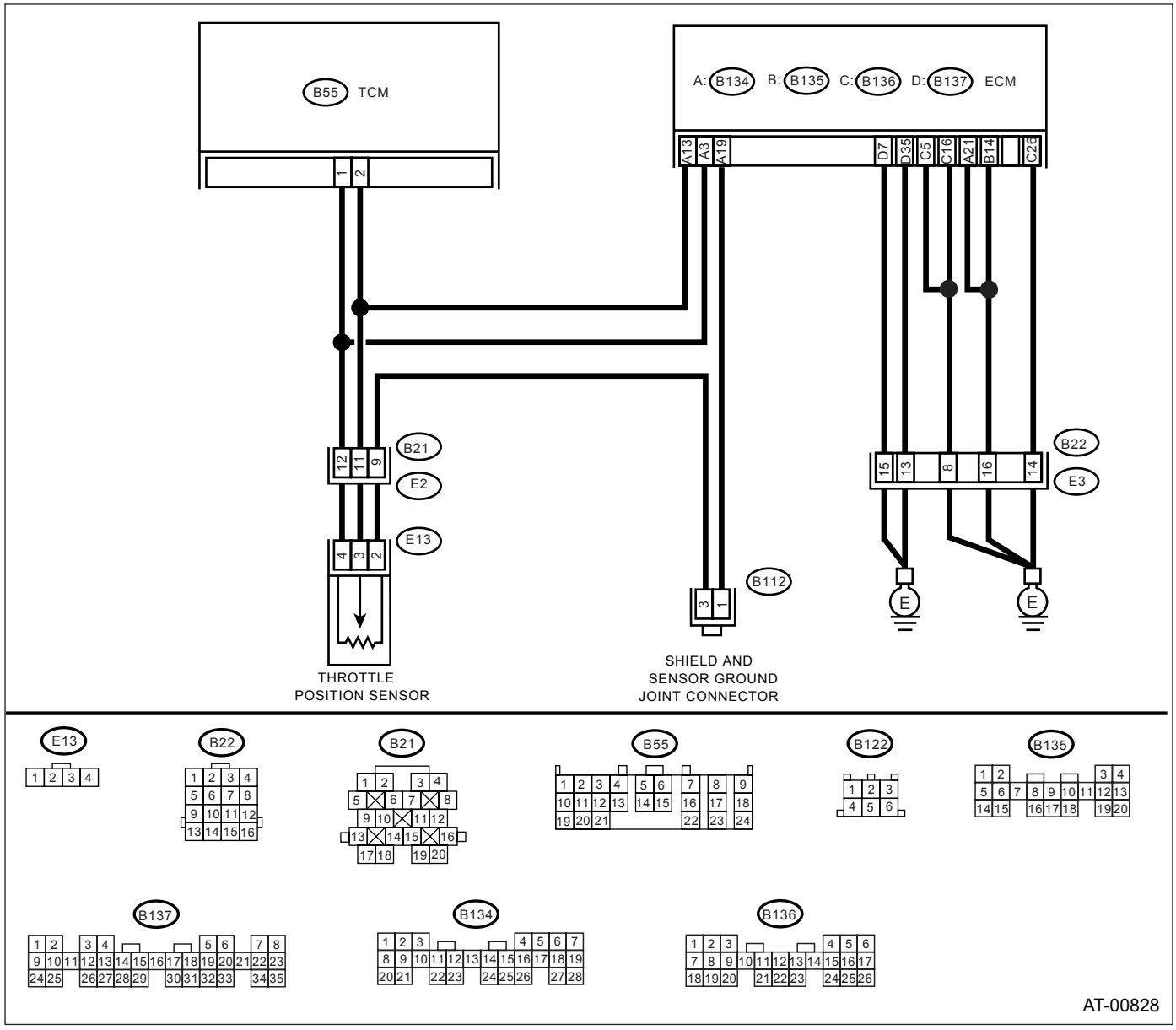
	Step	Check	Yes	No
1	**CHECK HARNESS CONNECTOR BETWEEN TCM AND ATF TEMPERATURE SENSOR.** 1)Turn the ignition switch to OFF. 2)Disconnect the connector from transmission and TCM. 3)Measure the resistance of harness between TCM and transmission connector. ***Connector & terminal*** ***Non-turbo model*** ***(B55) No. 10 — (B11) No. 12:*** ***Turbo mode*** ***(B54) No. 20 — (B11) No. 12:*** Is the measured value less than the specified value?	1 Ω	Go to step **2.**	Repair open circuit in 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*** ***Non-turbo model*** ***(B55) No. 11 — (B11) No. 11:*** ***Turbo mode*** ***(B54) No. 11 — (B11) No. 11:*** Is the measured value less than the specified value?	1 Ω	Go to step **3.**	Repair open circuit in harness between TCM and transmission connector.
3	**CHECK HARNESS CONNECTOR BETWEEN TCM AND ATF TEMPERATURE SENSOR.** Measure the resistance of harness between TCM connector and chassis ground. ***Connector & terminal*** ***Non-turbo model*** ***(B55) No. 10 — Chassis ground:*** ***Turbo mode*** ***(B54) No. 20 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **4.**	Repair short circuit in harness between TCM and transmission connector.
4	**CHECK HARNESS CONNECTOR BETWEEN TCM AND ATF TEMPERATURE SENSOR.** Measure the resistance of harness between TCM connector and chassis ground. ***Connector & terminal*** ***Non-turbo model*** ***(B55) No. 11 — Chassis ground:*** ***Turbo mode*** ***(B54) No. 11 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **5.**	Repair short circuit in harness between TCM and transmission connector.

	Step	Check	Yes	No
5	**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 reaches to 80°C (176°F). NOTE: If 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. 12:*** Is the measured value within the specified range?	275 — 375 Ω	Go to step **6.**	Replace ATF Temperature Sensor.<Ref. to AT-64, Shift Solenoids, Duty Solenoids and ATF Temperature Sensor.>
6	**CHECK ATF TEMPERATURE SENSOR.** 1)Turn the ignition switch to ON (engine OFF). 2)Measure the resistance between transmission connector terminals. ***Connector & terminal*** ***(T4) No. 11 — No. 12:*** Does the resistance value increase while the ATF temperature decreases?	The resistance value increases while the ATF temperature decreases.	Go to step **7.**	Replace ATF Temperature Sensor.<Ref. to AT-64, Shift Solenoids, Duty Solenoids and ATF Temperature Sensor.>
7	**PREPARE SUBARU SELECT MONITOR.** Do you have a Subaru Select Monitor?	A SUBARU SELECT MONITOR is available.	Go to step **9.**	Go to step **8.**
8	**CHECK INPUT SIGNAL FOR TCM.** 1)Connect the connector to transmission. 2)Warm-up the transmission until the ATF temperature is about 80°C (176°F). NOTE: If ambient temperature is below 0°C (32°F), drive the vehicle until the ATF reaches its operating temperature. 3)Measure the voltage between TCM connector terminal. ***Connector & terminal*** ***Non-turbo model*** ***(B55) No. 11 (+) — No. 10 (–):*** ***Turbo model*** ***(B54) No. 11 (+) — No. 20 (–):*** ***<Ref. to AT-30, INSPECTION, ATF.>***	0.4 — 0.9 V	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. Temporary poor contact of the connector or harness may be the case. Repair harness or contact in the ATF temperature sensor and transmission connector.	Go to step **10.**

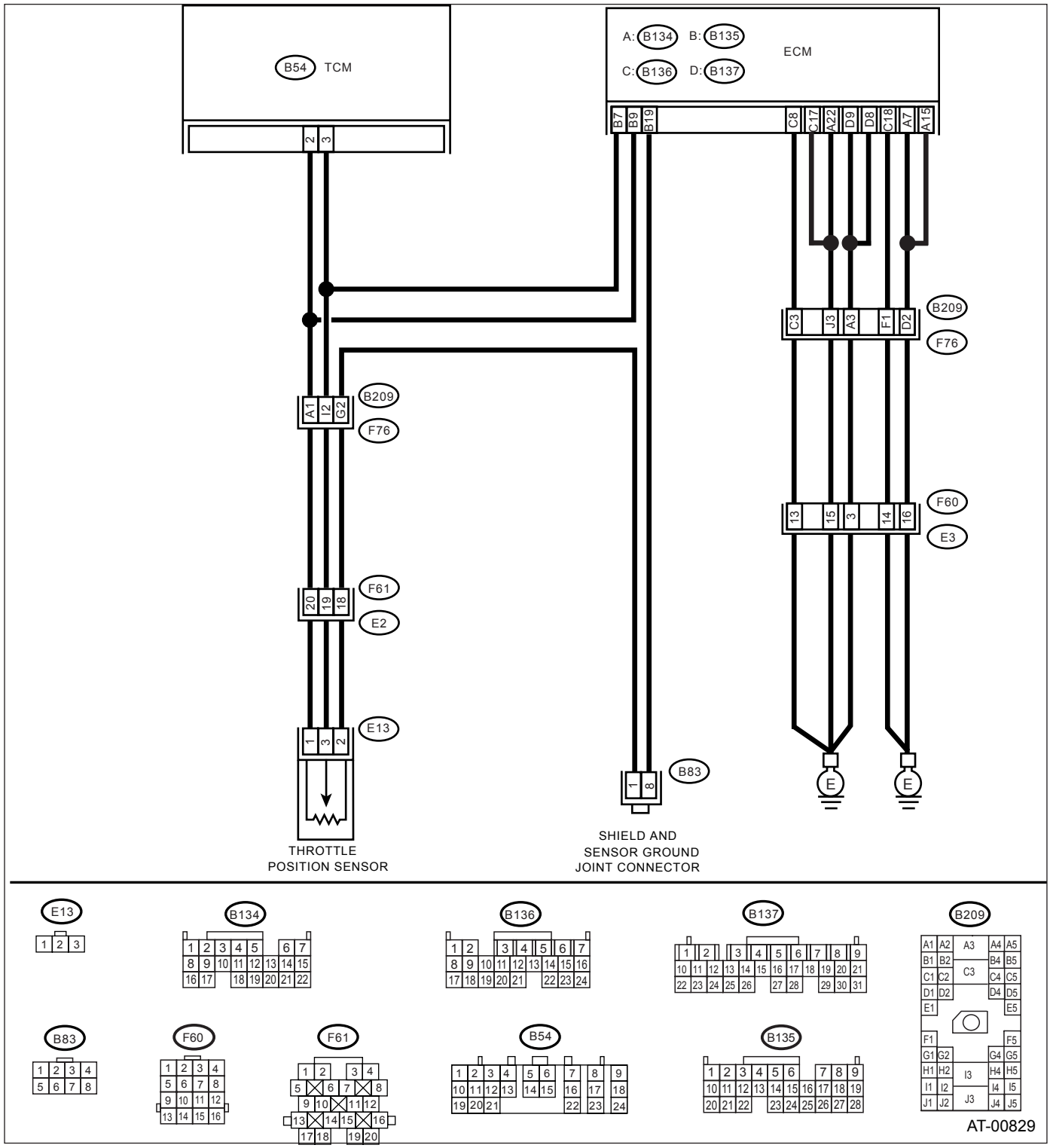
	Step	Check	Yes	No
9	**CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR.** 1)Connect the connector to transmission. 2)Turn the ignition switch to ON (engine OFF). Does the ATF temperature gradually decrease?	The ATF temperature gradually decreases.	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. Temporary poor contact of the connector or harness may be the case. Repair harness or contact in the ATF temperature sensor and transmission connector.	Go to step **10.**
10	**CHECK POOR CONTACT.** Is there poor contact in ATF temperature sensor circuit?	There is a poor contact.	Repair poor contact.	Replace the TCM. <Ref. to AT-71, Transmission Control Module (TCM).>

D: DTC 31 THROTTLE POSITION SENSOR

DIAGNOSIS:
Input signal circuit of throttle position sensor is open or shorted.
TROUBLE SYMPTOM:
Shift point too high or too low; excessive shift shock; excessive tight corner “braking”.
WIRING DIAGRAM:
NON-TURBO MODEL



TURBO MODEL


B54 TCM
2 3
A: B134 B: B135
C: B136 D: B137
ECM
B7 B9 B19
C8 C17 A22 D9 D8 C18 A7 A15
B209
F76
C3 J3 A3 F1 D2
A1 I2 G2
F60
E3
13 15 3 14 16
F61
E2
20 19 18
E13
1 3 2
B83
1 8
THROTTLE POSITION SENSOR
SHIELD AND SENSOR GROUND JOINT CONNECTOR
E
E13
B134
B136
B137
B209
B83
F60
F61
B54
B135
A3
C3
I3
J3
AT-00829

	Step	Check	Yes	No
1	**CHECK ENGINE GROUND TERMINALS.** Are the engine ground terminals properly tightened?	The engine ground terminals are tightened.	Go to step **2.**	Tighten the engine ground terminals.
2	**CHECK GROUND CIRCUIT OF ECM.** 1)Turn the ignition switch to OFF. 2)Disconnect the connector from ECM. 3)Measure the resistance of harness between ECM and engine ground. ***Connector & terminal*** ***Non-turbo model*** ***(B134) No. 21 — Engine ground:*** ***(B135) No. 14 — Engine ground:*** ***(B136) No. 5 — Engine ground:*** ***(B136) No. 16 — Engine ground:*** ***(B136) No. 26 — Engine ground:*** ***(B137) No. 7 — Engine ground:*** ***(B137) No. 35 — Engine ground:*** ***Turbo model*** ***(B134) No. 7 — Engine ground:*** ***(B134) No. 15 — Engine ground:*** ***(B134) No. 22 — Engine ground:*** ***(B136) No. 8 — Engine ground:*** ***(B136) No. 17 — Engine ground:*** ***(B136) No. 18 — Engine ground:*** ***(B137) No. 8 — Engine ground:*** ***(B137) No. 9 — Engine ground:*** Is the measured value less than the specified value?	5 Ω	Go to step **3.**	Repair open circuit in harness between ECM connector and engine grounding terminal.
3	**CHECK THROTTLE POSITION SENSOR.** 1)Disconnect the connector from throttle position sensor. 2)Measure the resistance between throttle position sensor connector receptacle's terminals. ***Terminals*** ***Non-turbo model*** ***No. 4 — No. 2:*** ***Turbo model*** ***No. 1 — No. 2:*** Is the measured value within the specified range?	3.0 — 4.2 kΩ	Go to step **4.**	Replace the throttle position sensor.
4	**CHECK THROTTLE POSITION SENSOR.** Measure the resistance between throttle position sensor connector receptacle's terminals. ***Terminals*** ***No. 2 — No. 3:*** Is the measured value within the specified range?	0.35 — 0.5 kΩ	Go to step **5.**	Replace the throttle position sensor.
5	**CHECK HARNESS CONNECTOR BETWEEN TCM AND THROTTLE POSITION SENSOR.** 1)Disconnect the connector from TCM. 2)Measure the resistance of harness between TCM and throttle position sensor connector. ***Connector & terminal*** ***Non-turbo model*** ***(B55) No. 2 — (E13) No. 3:*** ***Turbo model*** ***(B54) No. 3 — (E13) No. 3:*** Is the measured value less than the specified value?	1 Ω	Go to step **6.**	Repair open circuit in harness between TCM and throttle position sensor connector, and poor contact in coupling connector.

	Step	Check	Yes	No
6	**CHECK HARNESS CONNECTOR BETWEEN TCM AND THROTTLE POSITION SENSOR.** Measure the resistance of harness between TCM and throttle position sensor connector. ***Connector & terminal*** ***Non-turbo model*** ***(B55) No. 1 — (E13) No. 4:*** ***Turbo model*** ***(B54) No. 2 — (E13) No. 4:*** Is the measured value less than the specified value?	1 Ω	Go to step **7.**	Repair open circuit in harness between TCM and throttle position sensor connector, and poor contact in coupling connector.
7	**CHECK HARNESS CONNECTOR BETWEEN TCM AND THROTTLE POSITION SENSOR.** Measure the resistance of harness between TCM connector and chassis ground. ***Connector & terminal*** ***Non-turbo model*** ***(B55) No. 2 — Chassis ground:*** ***Turbo model*** ***(B54) No. 3 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **8.**	Repair short circuit in harness between TCM and throttle position sensor connector.
8	**CHECK HARNESS CONNECTOR BETWEEN TCM AND THROTTLE POSITION SENSOR.** Measure the resistance of harness between TCM connector and chassis ground. ***Connector & terminal*** ***Non-turbo model*** ***(B55) No. 1 — Chassis ground:*** ***Turbo model*** ***(B54) No. 2 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **9.**	Repair short circuit in harness between TCM and throttle position sensor connector.
9	**CHECK HARNESS CONNECTOR BETWEEN TCM AND ECM.** Measure the resistance of harness between TCM and ECM connector. ***Connector & terminal*** ***Non-turbo model*** ***(B55) No. 2 — (B134) No. 14:*** ***Turbo model*** ***(B54) No. 3 — (B135) No. 7:*** Is the measured value less than the specified value?	1 Ω	Go to step **10.**	Repair open circuit in harness between TCM and ECM connector.
10	**CHECK HARNESS CONNECTOR BETWEEN TCM AND ECM.** Measure the resistance of harness between TCM and ECM connector. ***Connector & terminal*** ***Non-turbo model*** ***(B55) No. 1 — (B134) No. 3:*** ***Turbo model*** ***(B54) No. 2 — (B135) No. 9:*** Is the measured value less than the specified value?	1 Ω	Go to step **11.**	Repair open circuit in harness between TCM and ECM connector.
11	**PREPARE SUBARU SELECT MONITOR.** Do you have a Subaru Select Monitor?	A SUBARU SELECT MONITOR is available.	Go to step **14.**	Go to step **12.**

	Step	Check	Yes	No
12	**CHECK INPUT SIGNAL FOR TCM.** 1)Connect the connectors to TCM, throttle position sensor and ECM. 2)Turn the ignition switch to ON (engine OFF). 3)Close the throttle completely. 4)Measure the voltage between TCM connector and chassis ground. ***Connector & terminal*** ***Non-turbo model*** ***(B55) No. 2 (+) — Chassis ground (−):*** ***Turbo model*** ***(B54) No. 3 (+) — Chassis ground (−):*** Is the measured value within the specified range?	0.2 — 1.0 V	Go to step **13.**	Go to step **18.**
13	**CHECK INPUT SIGNAL FOR TCM.** 1)Open the throttle completely. 2)Measure the voltage between TCM connector and chassis ground. ***Connector & terminal*** ***Non-turbo model*** ***(B55) No. 2 (+) — Chassis ground (−):*** ***Turbo model*** ***(B54) No. 3 (+) — Chassis ground (−):*** Is the measured value within the specified range?	4.2 — 4.7 V	Go to step **16.**	Go to step **18.**
14	**CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR.** 1)Connect the connectors to TCM, throttle position sensor and ECM. 2)Connect the Subaru Select Monitor to data link connector. 3)Turn the ignition switch to ON (engine OFF). 4)Turn the Subaru Select Monitor switch to ON. 5)Throttle fully closed. 6)Read the data of throttle position sensor using Subaru Select Monitor. •Throttle position sensor input signal is indicated. Is the throttle position sensor data within the specified range?	0.2 — 1.0 V	Go to step **15.**	Go to step **18.**
15	**CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR.** Throttle fully open. NOTE: Must be changed correspondingly with accelerator pedal operation (from “released” to “depressed” position). Is the throttle position sensor data within the specified range?	4.2 — 4.7 V	Go to step **17.**	Go to step **18.**

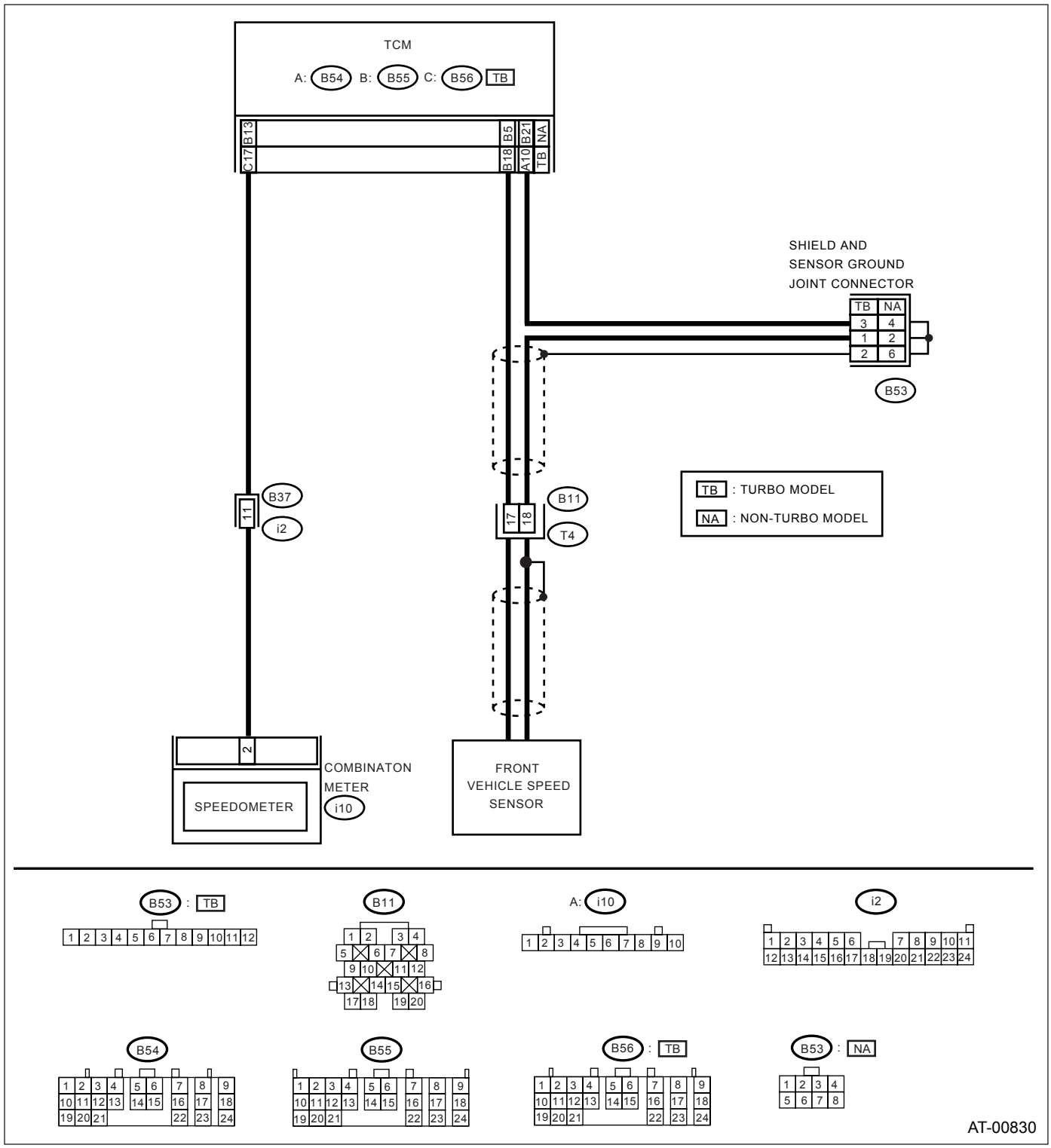
	Step	Check	Yes	No
16	**CHECK INPUT SIGNAL FOR TCM (THROTTLE POSITION SENSOR POWER SUPPLY).** Measure the voltage between TCM connector and chassis ground. ***Connector & terminal*** ***Non-turbo model*** ***(B55) No. 1 (+) — Chassis ground (−):*** ***Turbo model*** ***(B54) No. 2 (+) — Chassis ground (−):*** Is the measured value within the specified range?	4.8 — 5.3 V	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or connector in throttle position sensor circuit.	Go to step **18.**
17	**CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR (THROTTLE POSITION SENSOR POWER SUPPLY).** Read the data of throttle position sensor power supply using Subaru Select Monitor. •Throttle position sensor power supply voltage is indicated. Is the throttle position sensor power supply data within the specified range?	4.8 — 5.3 V	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or connector in throttle position sensor circuit.	Go to step **18.**
18	**CHECK POOR CONTACT.** Is there poor contact in throttle position sensor circuit?	There is a poor contact.	Repair the poor contact.	Replace the TCM. <Ref. to AT-71, Transmission Control Module (TCM).>

E: DTC 33 FRONT VEHICLE SPEED SENSOR

DIAGNOSIS:
- The vehicle speed signal is abnormal.
- The circuit in combination meter is faulty.
- The harness connector between TCM and vehicle speed sensor is in short or open.

TROUBLE SYMPTOM:
- Erroneous idling.
- Engine stalls.
- Poor driving performance.

WIRING DIAGRAM:



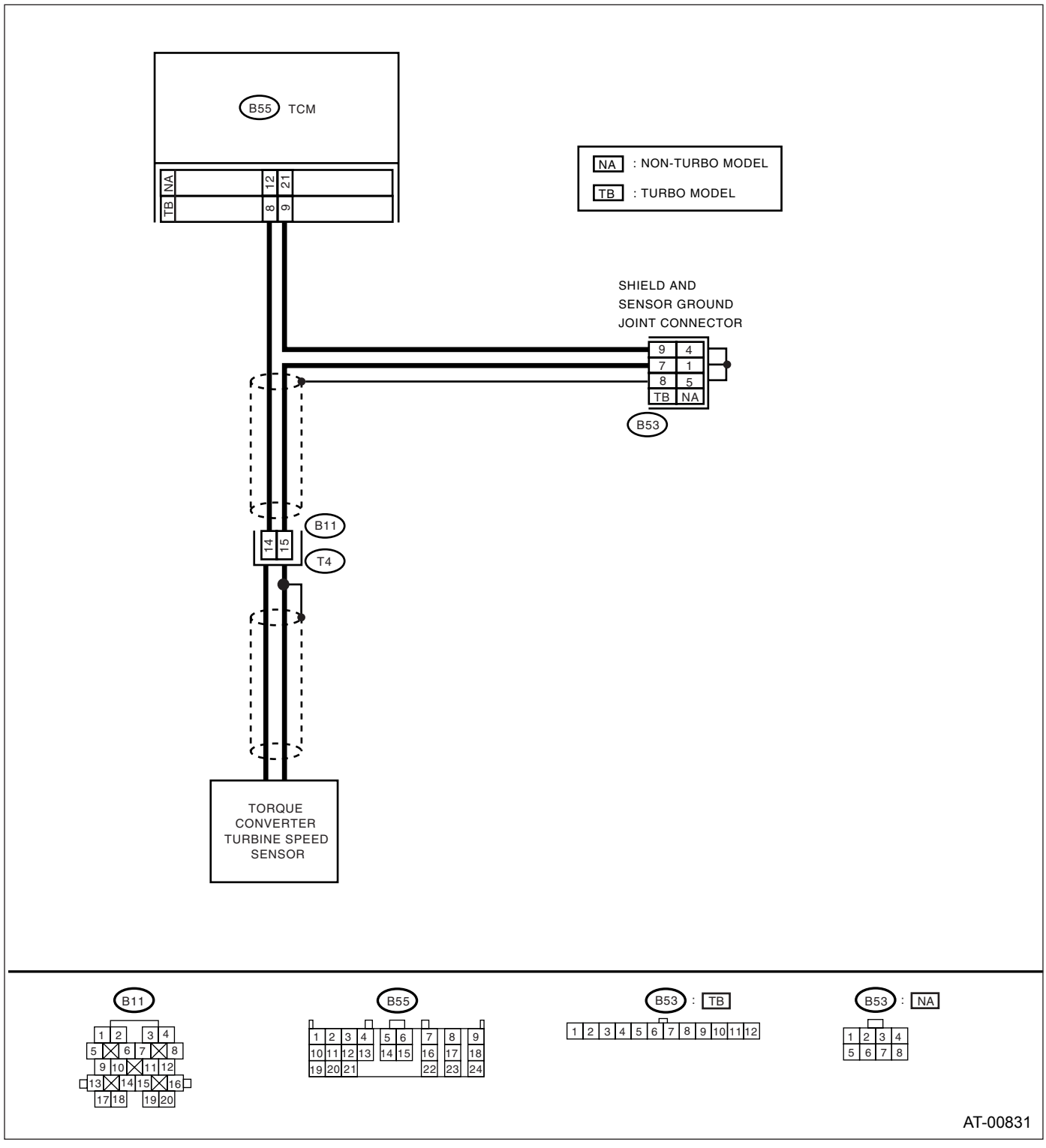
	Step	Check	Yes	No
1	**CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.** 1)Turn the ignition switch to OFF. 2)Disconnect the connector from TCM and transmission. 3)Measure the resistance of harness between TCM and transmission connector. ***Connector & terminal*** ***Non-turbo model*** ***(B55) No. 5 — (B11) No. 17:*** ***Turbo model*** ***(B55) No. 18 — (B11) No. 17:*** Is the measured value less than the specified value?	1 Ω	Go to step **2.**	Repair open circuit in harness between TCM and transmission connector.
2	**CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.** Measure the resistance of harness between TCM and transmission connector. ***Connector & terminal*** ***Non-turbo model*** ***(B55) No. 21 — (B11) No. 18:*** ***Turbo model*** ***(B54) No. 10 — (B11) No. 18:*** Is the measured value less than the specified value?	1 Ω	Go to step **3.**	Repair open circuit in harness between TCM and transmission connector, and poor contact in coupling connector.
3	**CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.** Measure the resistance of harness between TCM and transmission connector. ***Connector & terminal*** ***Non-turbo model*** ***(B55) No. 21 — Chassis ground:*** ***Turbo model*** ***(B54) No. 10 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **4.**	Repair short circuit in harness between TCM and transmission connector.
4	**CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.** Measure the resistance of harness between TCM and transmission connector. ***Connector & terminal*** ***Non-turbo model*** ***(B55) No. 5 — Chassis ground:*** ***Turbo model*** ***(B55) No. 18 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **5.**	Repair short circuit in harness between TCM and transmission connector, and poor contact in coupling connector.
5	**CHECK FRONT VEHICLE SPEED SENSOR.** Measure the resistance between transmission connector receptacle's terminals. ***Connector & terminal*** ***(T4) No. 17 — No. 18:*** Is the measured value within the specified range?	450 — 650 Ω	Go to step **6.**	Replace the front vehicle speed sensor. <Ref. to AT-52, Front Vehicle Speed Sensor.>
6	**PREPARE OSCILLOSCOPE.** Do you have an oscilloscope?	An oscilloscope is available.	Go to step **9.**	Go to step **7.**
7	**PREPARE SUBARU SELECT MONITOR.** Do you have a Subaru Select Monitor?	A SUBARU SELECT MONITOR is available.	Go to step **10.**	Go to step **8.**

	Step	Check	Yes	No
8	**CHECK INPUT SIGNAL FOR TCM.** 1)Connect all connectors. 2)Lift-up or raise the vehicle and place safety stands. **CAUTION:** **Raise all wheels off floor.** 3)Start the engine and set the vehicle in 20 km/h (12 MPH) condition. NOTE: The speed difference between front and rear wheels may light the ABS warning light, but this indicates no malfunction. When the AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS-24, Clear Memory Mode.> 4)Measure the voltage between TCM connector terminals. ***Connector & terminal*** ***Non-turbo model*** ***(B55) No. 5 (+) — No. 21 (−):*** ***Turbo model*** ***(B55) No. 18 (+) — (B54) No. 10 (−):*** Is the measured value more than the specified value?	1 V	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contactor or harness may be the case. Repair harness or connector in the front vehicle speed sensor circuit.	Go to step **11.**
9	**CHECK FRONT VEHICLE SPEED SENSOR USING OSCILLOSCOPE.** 1)Connect all connectors. 2)Lift-up the vehicle and place safety stands. **CAUTION:** **Raise all wheels off ground.** 3)Set the oscilloscope to TCM connector terminals. ***Connector & terminal*** ***Non-turbo model*** ***Positive probe; (B55) No. 5*** ***Earth lead; (B55) No. 21*** ***Turbo model*** ***Positive probe; (B55) No. 18*** ***Earth lead; (B54) No. 10*** 4)Start the engine, and drive the wheels slowly. NOTE: The speed difference between front and rear wheels may light the ABS warning light, but this indicates no malfunctions. When the AT control diagnosis is finished, perform the ABS memory clearance procedure of self-diagnosis system. <Ref. to ABS-24, Clear Memory Mode.> 5)Measure the signal voltage indicated on oscilloscope. Is the measured value more than the specified value?	AC 4 V	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contactor or harness may be the case. Repair harness or connector in the front vehicle speed sensor circuit.	Go to step **11.**

	Step	Check	Yes	No
10	**CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR.** 1)Connect all connectors. 2)Connect the Subaru Select Monitor to data link connector. 3)Lift-up or raise the vehicle and place safety stands. **CAUTION:** **Raise all wheels off floor.** 4)Turn the ignition switch to ON and turn the Subaru Select Monitor switch to ON. 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 or 37 MPH. NOTE: The speed difference between front and rear wheels may light the ABS warning light, but this indicates no malfunction. When the AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS-24, Clear Memory Mode.> Does the speedometer indication increase as the Subaru Select Monitor data increases?	The speedometer indication increases.	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor connector or harness may be the case. Repair harness or connector in the front vehicle speed sensor circuit.	Go to step **11.**
11	**CHECK POOR CONTACT.** Is there poor contact in front vehicle speed sensor circuit?	There is a poor contact.	Repair poor contact.	Replace the TCM. <Ref. to AT-71, Transmission Control Module (TCM).>

F: DTC 36 TORQUE CONVERTER TURBINE SPEED SENSOR

DIAGNOSIS:
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. 14 — No. 15:*** Is the measured value within the specified range?	450 — 650 Ω	Go to step **1.**	Replace the turbine speed sensor. <Ref. to AT-57, 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 and transmission connector. ***Connector & terminal*** ***Non-turbo model*** ***(B55) No. 12 — (B11) No. 14:*** ***Turbo model*** ***(B55) No. 8 — (B11) No. 14:*** Is the measured value less than the specified value?	1 Ω	Go to step **3.**	Repair open circuit in harness between TCM and transmission connector.
3	**CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.** Measure the resistance of harness between TCM and transmission connector. ***Connector & terminal*** ***Non-turbo model*** ***(B55) No. 21 — (B11) No. 15:*** ***Turbo model*** ***(B55) No. 9 — (B11) No. 15:*** Is the measured value less than the specified value?	1 Ω	Go to step **4.**	Repair open circuit in harness between TCM and transmission connector, and poor contact in coupling connector.
4	**CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.** Measure the resistance of harness between TCM and chassis ground. ***Connector & terminal*** ***Non-turbo model*** ***(B55) No. 21 — Chassis ground:*** ***Turbo model*** ***(B55) No. 9 — Chassis ground:*** Is the measured value less than the specified value?	1 MΩ	Go to step **5.**	Repair short circuit in harness between TCM and transmission connector.
5	**CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.** Measure the resistance of harness between TCM and chassis ground. ***Connector & terminal*** ***Non-turbo model*** ***(B55) No. 12 — Chassis ground:*** ***Turbo model*** ***(B55) No. 8 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **6.**	Repair short circuit in harness between TCM and transmission connector, and poor contact in coupling connector.
6	**PREPARE OSCILLOSCOPE.** Do you have an oscilloscope?	An oscilloscope is available.	Go to step **10.**	Go to step **7.**
7	**PREPARE SUBARU SELECT MONITOR.** Do you have a Subaru Select Monitor?	A SUBARU SELECT MONITOR is available.	Go to step **9.**	Go to step **8.**

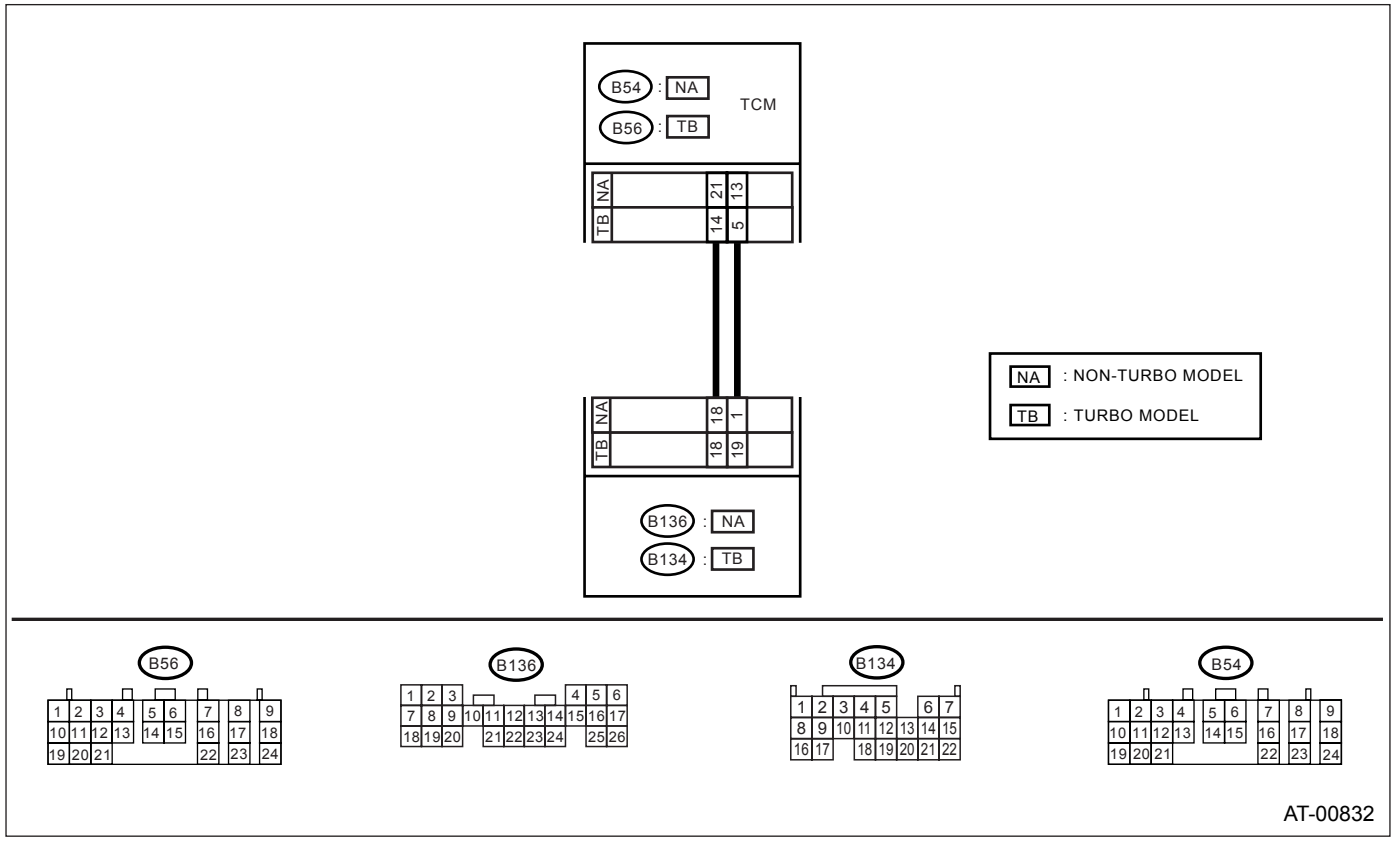
	Step	Check	Yes	No
8	**CHECK INPUT SIGNAL FOR TCM.** 1)Connect the connectors to TCM and transmission. 2)Move the select lever to "P" or "N" range and start the engine. 3)Measure the voltage between TCM connector terminals. ***Connector & terminal*** ***Non-turbo model*** ***(B55) No. 12 (+) — No. 21 (–):*** ***Turbo model*** ***(B55) No. 8 (+) — No. 9 (–):*** Is the measured value more than the specified value?	AC 1 V	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or connector in the TCM and transmission.	Go to step **11.**
9	**CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR.** 1)Connect the connectors to TCM and transmission. 2)Connect the Subaru Select Monitor to data link connector. 3)Turn the ignition switch to ON and turn the Subaru Select Monitor switch to ON. 4)Start the engine. 5)Move the select lever to “P” or “N” range. 6)Read the data of turbine 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?	The value is same as the tachometer reading.	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or connector in the TCM and transmission.	Go to step **11.**
10	**CHECK INPUT SIGNAL FOR TCM USING OSCILLOSCOPE.** 1)Connect the connectors to TCM and transmission. 2)Set the oscilloscope to TCM connector terminals. ***Connector & terminal*** ***Turbo model*** ***Positive probe; (B55) No. 8*** ***Earth lead; (B55) No. 9*** ***Non-turbo model*** ***Positive probe; (B55) No. 12*** ***Earth lead; (B55) No. 21*** 3)Move the select lever to "P" or "N" range and start the engine. Is the measured value more than the specified value?	AC 1 V	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or connector in the TCM and transmission.	Go to step **11.**
11	**CHECK POOR CONTACT.** Is there poor contact in torque converter turbine speed sensor circuit?	There is a poor contact.	Repair poor contact.	Replace the TCM. <Ref. to AT-71, Transmission Control Module (TCM).>

G: DTC 38 TORQUE CONTROL SIGNAL

DIAGNOSIS:
- The signal circuit is open or shorted.

TROUBLE SYMPTOM:
Excessive shift shock.

WIRING DIAGRAM:



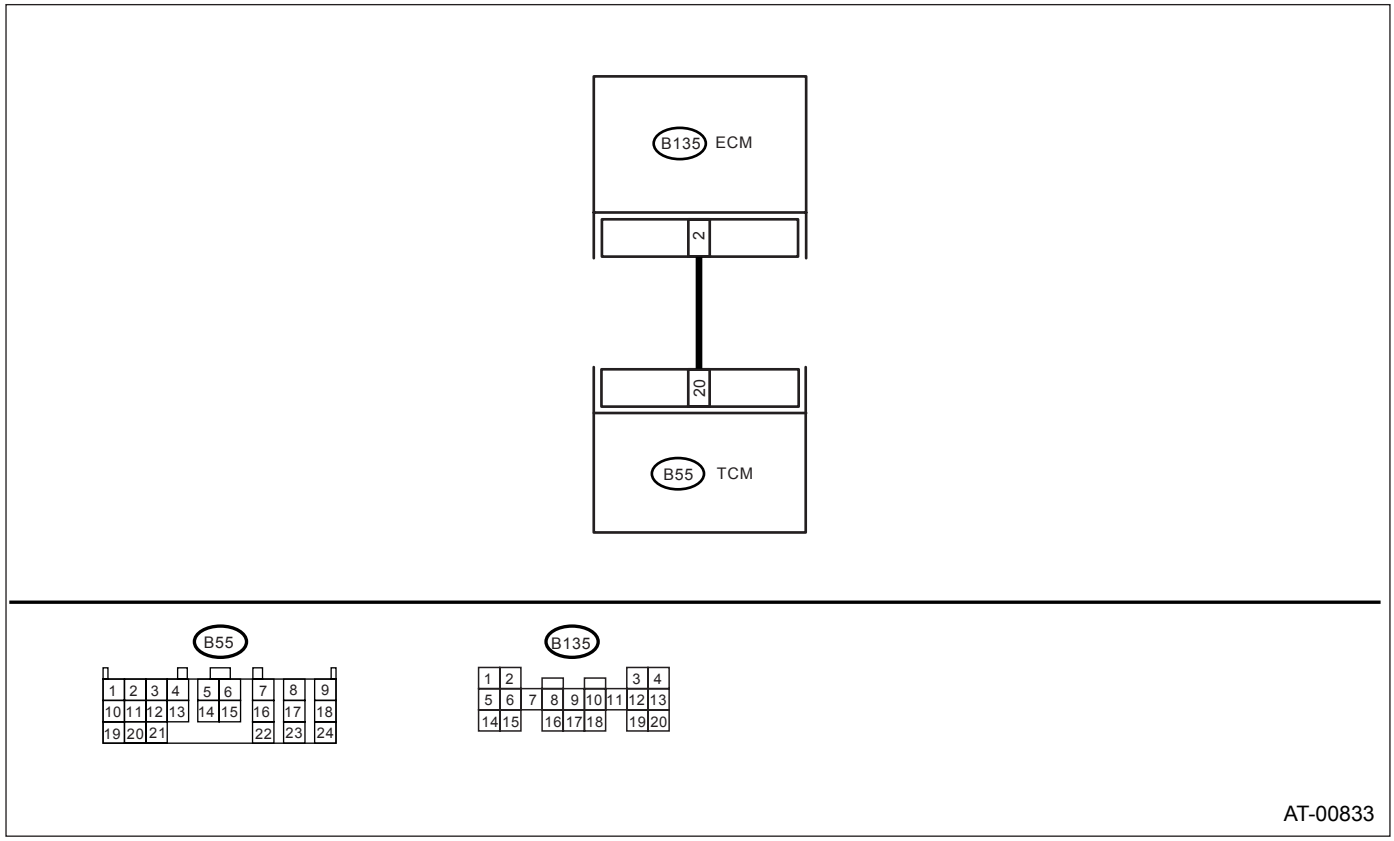
Step		Check	Yes	No
1	**CHECK HARNESS CONNECTOR BETWEEN TCM AND ECM.** 1)Turn the ignition switch to OFF. 2)Disconnect the connectors from TCM and ECM. 3)Measure the resistance of harness between TCM and ECM connector. ***Connector & terminal*** ***Non-turbo model*** ***(B54) No. 21 — (B136) No. 18:*** ***(B54) No. 13 — (B136) No. 1:*** ***Turbo model*** ***(B56) No. 14 — (B135) No. 18:*** ***(B56) No. 5 — (B135) No. 19:*** Is the measured value less than the specified value?	1 Ω	Go to step **2.**	Repair open circuit in harness between TCM and ECM connector.

	Step	Check	Yes	No
2	**CHECK HARNESS CONNECTOR BETWEEN TCM AND ECM.** Measure the resistance of harness between TCM connector and chassis ground. ***Connector & terminal*** ***Non-turbo model*** ***(B54) No. 21 — Chassis ground:*** ***(B54) No. 13 — Chassis ground:*** ***Turbo model*** ***(B56) No. 14 — Chassis ground:*** ***(B56) No. 5 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **3.**	Repair short circuit in harness between TCM and ECM connector.
3	**CHECK OUTPUT SIGNAL EMITTED FROM TCM.** 1)Connect the connectors to TCM and ECM. 2)Turn the ignition switch to ON (engine OFF). 3)Measure the voltage between TCM connector terminals. ***Connector & terminal*** ***Non-turbo model*** ***(B54) No. 21 (+) — Chassis ground (–):*** ***(B54) No. 13 (+) — Chassis ground (–):*** ***Turbo model*** ***(B56) No. 14 (+) — Chassis ground (–):*** ***(B56) No. 5 (+) — Chassis ground (–):*** Is the measured value more than the specified value?	4.8 V	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or connector in the TCM and ECM.	Go to step **4.**
4	**CHECK POOR CONTACT.** Is there poor contact in torque control signal circuit?	There is a poor contact.	Repair poor contact.	Go to step **5.**
5	**CHECK GROUND LINE BETWEEN TRANSMISSION AND BODY.** Check the installing condition of ground line in transmission and body. Is there any dirt or rust at ground line installing point?	Dirt or rust is found.	Remove dirt and rust.	Go to step **6.**
6	**CHECK GROUND LINE BETWEEN TRANSMISSION AND BODY.** Check the installing condition of ground line in transmission and body. Is the tightening torque value within specification?	10 — 16 N·m (1.0 — 1.6 kgf-m, 7.2 — 11.6 ft-lb)	Go to step **7.**	Tighten to specified torque.
7	**CHECK GROUND LINE INSIDE TRANSMISSION.** 1)Drain the AT fluid and remove the oil pan. 2)Check the tightening torque value of ground line installing bolt. Is the tightening torque value within specification?	7 — 9 N·m (0.7 — 0.9 kgf-m, 5.1 — 6.5 ft-lb)	Go to step **9.**	Tighten to specified torque.
8	**CHECK GROUND CIRCUIT OF ECM.** <Ref. to AT-54, DTC 31 THROTTLE POSITION SENSOR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> Is there a problem?	There is a problem.	Repair ground terminal and/or ground circuit of ECM.	Go to step **9.**

	Step	Check	Yes	No
9	**RECHECK OUTPUT SIGNAL EMITTED FROM TCM.** Measure the voltage between TCM connector and chassis ground. ***Connector & terminal*** ***Non-turbo model*** ***(B54) No. 21 (+) — Chassis ground (−):*** ***(B54) No. 13 (+) — Chassis ground (−):*** ***Turbo model*** ***(B56) No. 14 (+) — Chassis ground (−):*** ***(B56) No. 5 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	4.8 V	Replace the TCM. <Ref. to AT-71, Transmission Control Module (TCM).>	Replace the ECM.

H: DTC 45 INTAKE MANIFOLD PRESSURE SIGNAL

DIAGNOSIS:
Input signal circuit of TCM from ECM is open or shorted.
TROUBLE SYMPTOM:
Excessive shift shock.
WIRING DIAGRAM:

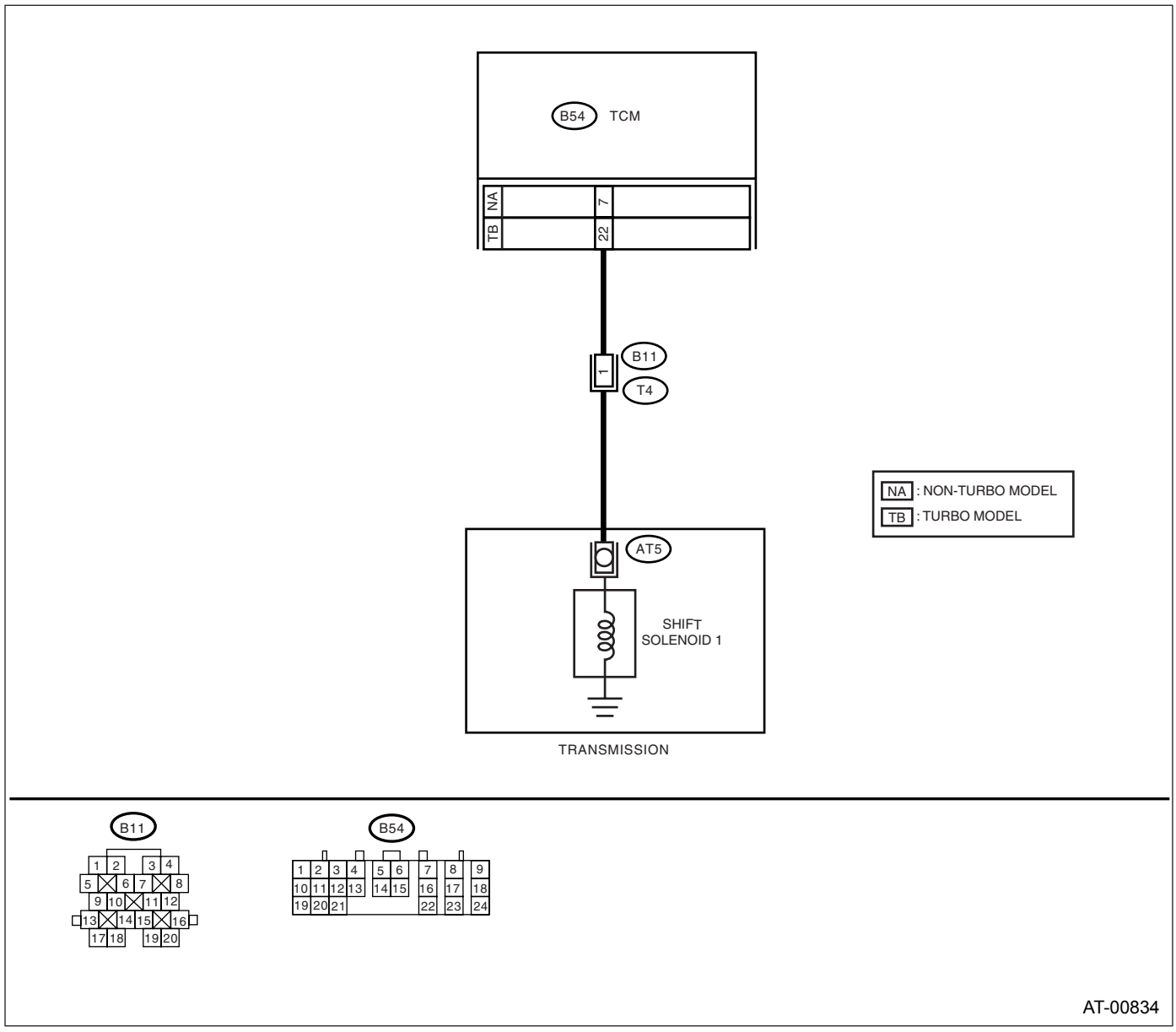


	Step	Check	Yes	No
1	**CHECK ENGINE GROUND TERMINALS AND GROUND CIRCUIT OF ECM** <Ref. to AT-54, DTC 31 THROTTLE POSITION SENSOR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> Is there a problem?	There is a problem.	Repair ground terminal and/or ground circuit of ECM.	Go to step **2.**
2	**CHECK HARNESS CONNECTOR BETWEEN TCM AND ECM.** 1)Turn the ignition switch to OFF. 2)Disconnect the connectors from TCM and ECM. 3)Measure the resistance of harness between TCM and ECM connector. ***Connector & terminal*** ***(B55) No. 20 — (B135) No. 2:*** Is the measured value less than the specified value?	1 Ω	Go to step **3.**	Repair open circuit in harness between TCM and ECM connector.

	Step	Check	Yes	No
3	**CHECK HARNESS CONNECTOR BETWEEN TCM AND ECM.** Measure the resistance of harness between TCM connector and chassis ground. ***Connector & terminal*** ***(B55) No. 20 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **4.**	Repair short circuit in harness between TCM and ECM connector.
4	**PREPARE SUBARU SELECT MONITOR.** Do you have a Subaru Select Monitor?	A SUBARU SELECT MONITOR is available.	Go to step **6.**	Go to step **5.**
5	**CHECK INPUT SIGNAL FOR TCM.** 1)Connect the connectors to TCM and ECM. 2)Start the engine, and warm-up the transmission until the ATF temperature is above 80°C (176°F). NOTE: If ambient temperature is below 0°C (32°F), drive the vehicle until the ATF reaches its operating temperature. 3)Engine idling. 4)Measure the voltage between TCM connector and chassis ground. ***Connector & terminal*** ***(B55) No. 20 (+) — Chassis ground (−):*** Is the measured value within the specified range?	0.4 — 1.6 V	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or connector in the TCM and ECM.	Go to step **7.**
6	**CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR.** 1)Connect the connectors to TCM and ECM. 2)Connect the Subaru Select Monitor to data link connector. 3)Start the engine, and turn the Subaru Select monitor switch to ON. 4)Warm-up the engine until the engine coolant temperature is above 80°C (176°F). 5)Engine idling. 6)Read the data of intake manifold pressure signal using Subaru Select Monitor. •Display shows the intake manifold pressure signal value sent from ECM. Does the AT OIL TEMP warning light turn on?	0.4 — 1.6 V	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or connector in the TCM and ECM.	Go to step **7.**
7	**CHECK POOR CONTACT.** Is there poor contact in intake manifold pressure signal circuit?	There is a poor contact.	Repair poor contact.	Replace the TCM. <Ref. to AT-71, Transmission Control Module (TCM).>

I: DTC 71 SHIFT SOLENOID 1

DIAGNOSIS:
Output signal circuit of shift solenoid 1 is open or shorted.
TROUBLE SYMPTOM:
Does not shift.
WIRING DIAGRAM:

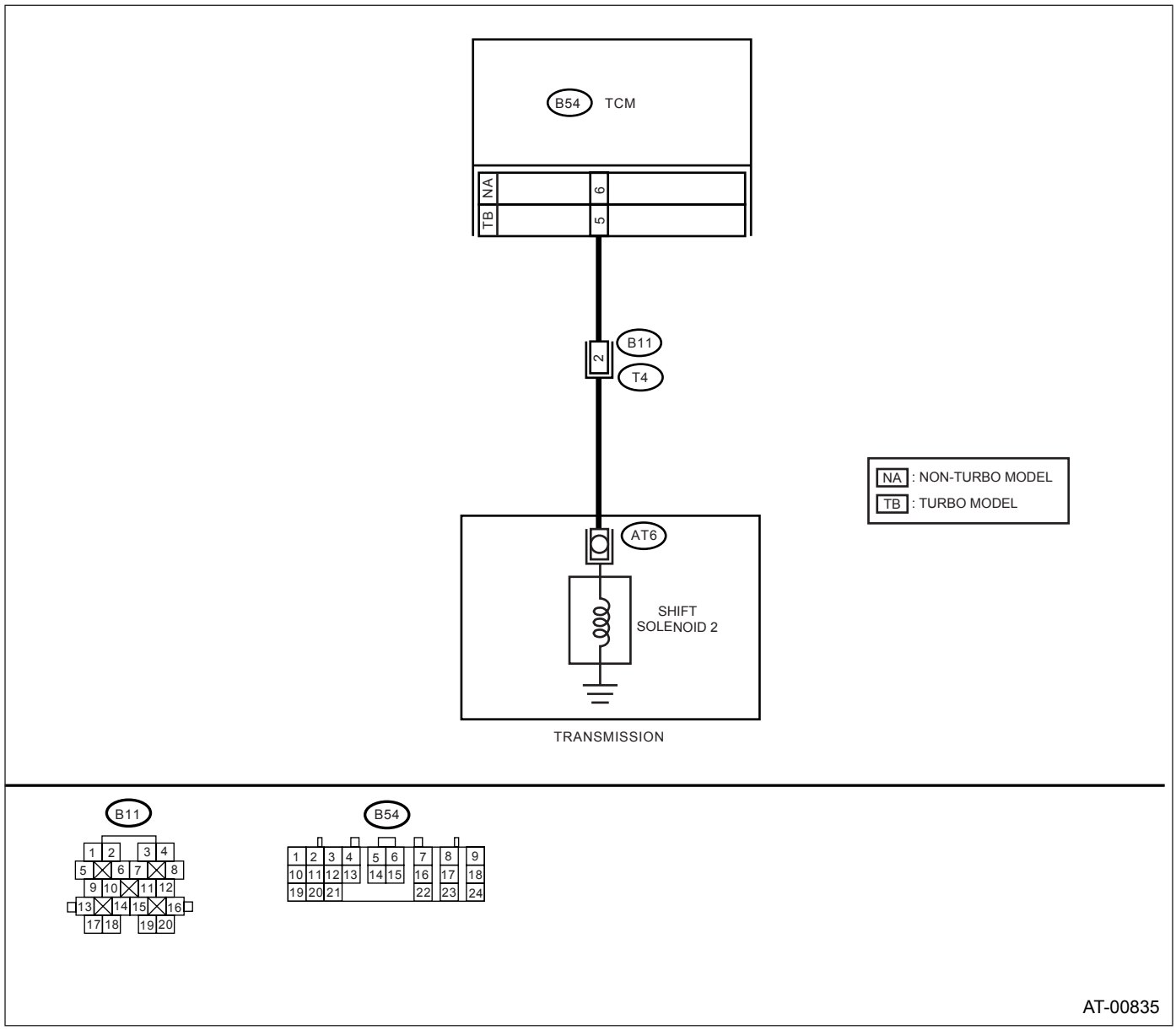


	Step	Check	Yes	No
1	**CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.** 1)Turn the ignition switch to OFF. 2)Disconnect the connector from TCM and transmission. 3)Measure the resistance of harness between TCM and shift solenoid 1 connector. ***Connector & terminal*** ***Non-turbo model*** ***(B54) No. 7 — (B11) No. 1:*** ***Turbo model*** ***(B54) No. 22 — (B11) No. 1:*** Is the measured value less than the specified value?	1 Ω	Go to step **2.**	Repair open circuit in harness between TCM and transmission connector.
2	**CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.** Measure the resistance of harness between TCM connector and chassis ground. ***Connector & terminal*** ***Non-turbo model*** ***(B54) No. 7 — Chassis ground:*** ***Turbo model*** ***(B54) No. 22 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **3.**	Repair short circuit in harness between TCM and transmission connector.
3	**CHECK SHIFT SOLENOID 1.** Measure the resistance between transmission connector terminals. ***Connector & terminal*** ***(T4) No. 1 — No. 16:*** Is the measured value within the specified range?	10 — 16 Ω	Go to step **4.**	Go to step **7.**
4	**CHECK OUTPUT SIGNAL EMITTED FROM TCM.** 1)Connect the connectors to TCM and transmission. 2)Turn the ignition switch to ON (engine OFF). 3)Move the select lever to “D” range. 4)Measure the voltage between TCM connector and chassis ground. ***Connector & terminal*** ***Non-turbo model*** ***(B54) No. 7 (+) — Chassis ground (−):*** ***Turbo model*** ***(B54) No. 22 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	9 V	Go to step **5.**	Go to step **6.**

	Step	Check	Yes	No
5	**CHECK OUTPUT SIGNAL EMITTED FROM TCM.** 1)Move the select lever to "2" range. 2)Measure the voltage between TCM connector and chassis ground. ***Connector & terminal*** ***Non-turbo model*** ***(B54) No. 7 (+) — Chassis ground (−):*** ***Turbo model*** ***(B54) No. 22 (+) — Chassis ground (−):*** Is the measured value less than the specified value?	1 V	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or contact in the TCM.	Go to step **6.**
6	**CHECK POOR CONTACT.** Is there poor contact in shift solenoid 1 circuit?	There is a poor contact.	Repair poor contact.	Replace the TCM. <Ref. to AT-71, Transmission Control Module (TCM).>
7	**CHECK SHIFT SOLENOID 1 (IN TRANSMISSION).** 1)Remove the transmission connector from bracket. 2)Lift-up or raise the vehicle and support with safety stand. 3)Drain the automatic transmission fluid. **CAUTION:** **Do not drain the automatic transmission fluid until it cools down.** 4)Remove the oil pan, and disconnect the connector from shift solenoid 1. 5)Measure the resistance between shift solenoid 1 connector and transmission ground. ***Terminal*** ***No. 1 — Transmission ground:*** Is the measured value within the specified range?	10 — 16 Ω	Go to step **8.**	Replace the shift solenoid 1. <Ref. to AT-64, Shift Solenoids, Duty Solenoids and ATF Temperature Sensor.>
8	**CHECK HARNESS CONNECTOR BETWEEN SHIFT SOLENOID 1 AND TRANSMISSION.** Measure the resistance of harness between shift solenoid 1 and transmission connector. ***Connector & terminal*** ***(AT5) No. 1 — (T4) No. 1:*** Is the measured value less than the specified value?	1 Ω	Go to step **9.**	Repair open circuit in harness between shift solenoid 1 and transmission connector.
9	**CHECK HARNESS CONNECTOR BETWEEN SHIFT SOLENOID 1 AND TRANSMISSION.** Measure the resistance of harness between shift solenoid 1 connector and transmission ground. ***Connector & terminal*** ***(T4) No. 1 — Transmission ground:*** Is the measured value more than the specified value?	1 MΩ	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or connector in shift solenoid 1 and transmission.	Repair short circuit harness between shift solenoid 1 and transmission connector.

J: DTC 72 SHIFT SOLENOID 2

DIAGNOSIS:
Output signal circuit of shift solenoid 2 is open or shorted.
TROUBLE SYMPTOM:
Does not shift.
WIRING DIAGRAM:



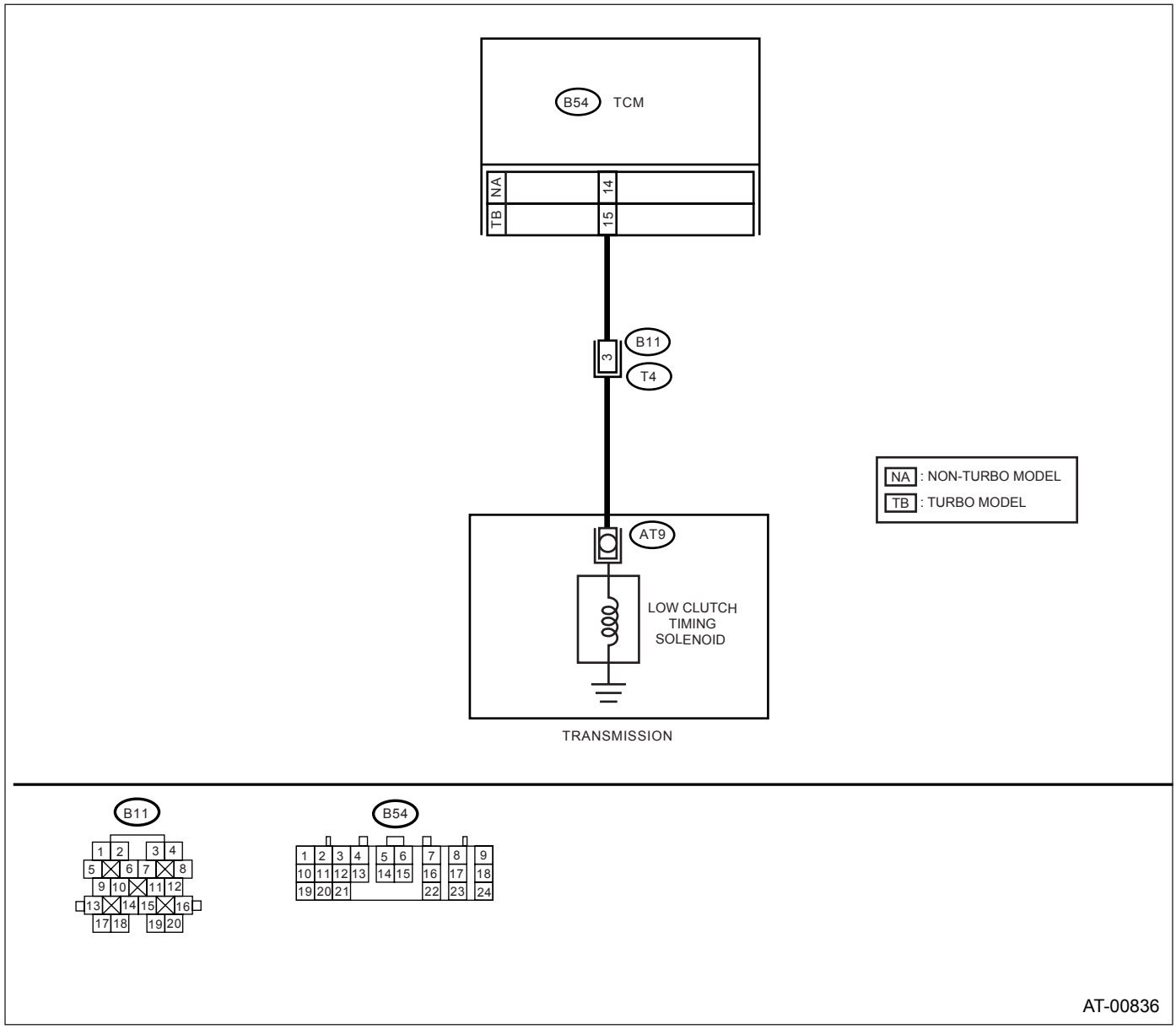
	Step	Check	Yes	No
1	**CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.** 1)Turn the ignition switch to OFF. 2)Disconnect the connector from TCM and transmission. 3)Measure the resistance of harness between TCM and shift solenoid 2 connector. ***Connector & terminal*** ***Non-turbo model*** ***(B54) No. 6 — (B11) No. 2:*** ***Turbo model*** ***(B54) No. 5 — (B11) No. 2:*** Is the measured value less than the specified value?	1 Ω	Go to step **2.**	Repair open circuit in harness between TCM and transmission connector.
2	**CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.** Measure the resistance of harness between TCM connector and chassis ground. ***Connector & terminal*** ***Non-turbo model*** ***(B54) No. 6 — Chassis ground:*** ***Turbo model*** ***(B54) No. 5 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **3.**	Repair short circuit in harness between TCM and transmission connector.
3	**CHECK SHIFT SOLENOID 2.** Measure the resistance between transmission connector terminals. ***Connector & terminal*** ***(T4) No. 2 — No. 16:*** Is the measured value within the specified range?	10 — 16 Ω	Go to step **4.**	Go to step **6.**

	Step	Check	Yes	No
4	**CHECK OUTPUT SIGNAL EMITTED FROM TCM.** 1)Connect the connectors to TCM and transmission. 2)Lift-up or raise the vehicle and support with safety stand. **CAUTION:** **Raise all wheels off ground.** 3)Start the engine and warm-up the transmission until the ATF temperature is above 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. 4)Move the selector lever to "D", and slowly increase the vehicle speed to 50 km/h (31 MPH). NOTE: The speed difference between front and rear wheels may light the ABS warning light, but this indicates no malfunction. When the AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS-24, Clear Memory Mode.> 5)Measure the voltage between TCM connector and chassis ground. ***Connector & terminal*** ***Non-turbo model*** ***(B54) No. 6 (+) — Chassis ground (−):*** ***Turbo model*** ***(B54) No. 5 (+) — Chassis ground (−):*** Is the measured value less than the specified value?	1 V	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or connector in the TCM and transmission.	Go to step **5.**
5	**CHECK POOR CONTACT.** Is there poor contact in shift solenoid 2 circuit?	There is a poor contact.	Repair poor contact.	Replace the TCM. <Ref. to AT-71, Transmission Control Module (TCM).>
6	**CHECK SHIFT SOLENOID 2 (IN TRANSMISSION).** 1)Remove the transmission connector from bracket. 2)Drain the automatic transmission fluid. **CAUTION:** **Do not drain the automatic transmission fluid until it cools down.** 3)Remove the oil pan, and disconnect the connector from shift solenoid 2. 4)Measure the resistance between shift solenoid 2 connector and transmission ground. ***Connector & terminal*** ***No. 1 — Transmission ground:*** Is the measured value within the specified range?	10 — 16 Ω	Go to step **7.**	Replace the shift solenoid 2 assembly. <Ref. to AT-64, Shift Solenoids, Duty Solenoids and ATF Temperature Sensor.>

	Step	Check	Yes	No
7	**CHECK HARNESS CONNECTOR BETWEEN SHIFT SOLENOID 2 AND TRANSMISSION.** Measure the resistance of harness between shift solenoid 2 and transmission connector. ***Connector & terminal*** ***(AT6) No. 1 — (T4) No. 2:*** Is the measured value less than the specified value?	1 Ω	Go to step **8.**	Repair open circuit in harness between shift solenoid 2 and transmission connector.
8	**CHECK HARNESS CONNECTOR BETWEEN SHIFT SOLENOID 2 AND TRANSMISSION.** Measure the resistance of harness between shift solenoid 2 connector and transmission ground. ***Connector & terminal*** ***(T4) No. 2 — Transmission ground:*** Is the measured value more than the specified value?	1 MΩ	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or connector in shift solenoid 2 and transmission.	Repair short circuit harness between shift solenoid 2 and transmission connector.

K: DTC 73 LOW CLUTCH TIMING SOLENOID

DIAGNOSIS:
Output signal circuit of low clutch timing solenoid is open or shorted.
TROUBLE SYMPTOM:
Excessive shift shock.
WIRING DIAGRAM:



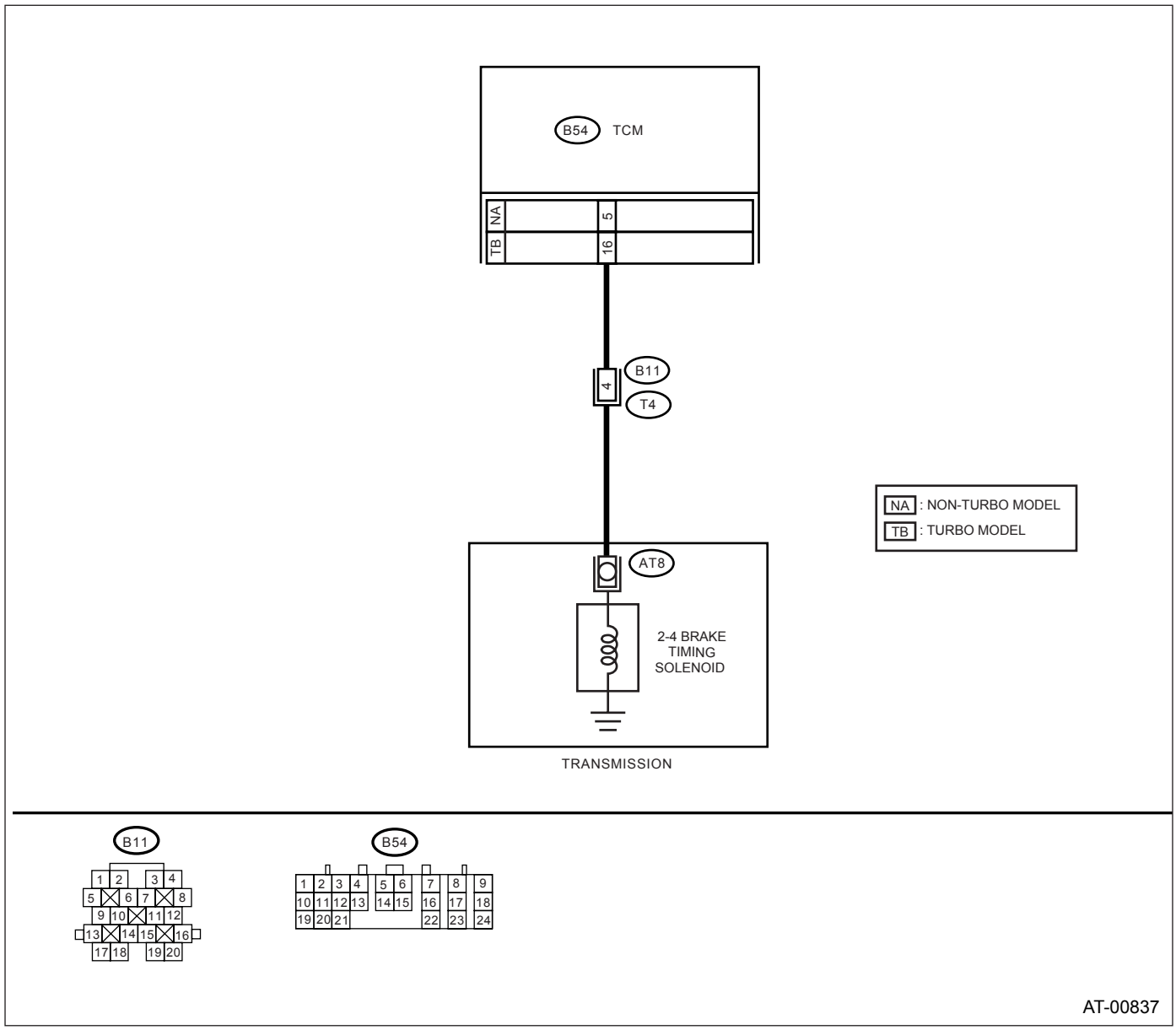
	Step	Check	Yes	No
1	**CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.** 1)Turn the ignition switch to OFF. 2)Disconnect the connector from TCM and transmission. 3)Measure the resistance of harness between TCM and transmission connector. ***Connector & terminal*** ***Non-turbo model*** ***(B54) No. 14 — (B11) No. 3:*** ***Turbo model*** ***(B54) No. 15 — (B11) No. 3:*** Is the measured value less than the specified value?	1 Ω	Go to step **2.**	Repair open circuit in 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*** ***Non-turbo model*** ***(B54) No. 14 — Chassis ground:*** ***Turbo model*** ***(B54) No. 15 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **3.**	Repair short circuit in harness between TCM and transmission connector.
3	**CHECK LOW CLUTCH TIMING SOLENOID.** Measure the resistance between transmission connector terminals. ***Connector & terminal*** ***(T4) No. 3 — No. 16:*** Is the measured value within the specified range?	10 — 16 Ω	Go to step **4.**	Go to step **7.**
4	**CHECK OUTPUT SIGNAL EMITTED FROM TCM.** 1)Connect the connectors to TCM and transmission. 2)Turn the ignition switch to ON (engine OFF). 3)Move the select lever to “D” range. 4)Measure the voltage between TCM connector and chassis ground. ***Connector & terminal*** ***Non-turbo model*** ***(B54) No. 14 (+) — Chassis ground (−):*** ***Turbo model*** ***(B54) No. 15 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	9 V	Go to step **5.**	Go to step **6.**

	Step	Check	Yes	No
5	**CHECK OUTPUT SIGNAL EMITTED FROM TCM.** 1)Move the select lever to "2" range. 2)Measure the voltage between TCM connector and chassis ground. ***Connector & terminal*** ***Non-turbo model*** ***(B54) No. 14 (+) — Chassis ground (−):*** ***Turbo model*** ***(B54) No. 15 (+) — Chassis ground (−):*** Is the measured value less than the specified value?	1 V	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or contact in the TCM and transmission.	Go to step **6.**
6	**CHECK POOR CONTACT.** Is there poor contact in low clutch timing solenoid circuit?	There is a poor contact.	Repair poor contact.	Replace the TCM. <Ref. to AT-71, Transmission Control Module (TCM).>
7	**CHECK LOW CLUTCH TIMING SOLENOID (IN TRANSMISSION).** 1)Remove the transmission connector from bracket. 2)Lift-up or raise the vehicle and support with safety stands. 3)Drain the automatic transmission fluid. **CAUTION:** **Do not drain the automatic transmission fluid until it cools down.** 4)Remove the oil pan, and disconnect the connector from low clutch timing solenoid. 5)Measure the resistance between low clutch timing solenoid connector and transmission ground. ***Terminal*** ***No. 1 — Transmission ground:*** Is the measured value within the specified range?	Between 10 and 16 Ω	Go to step **8.**	Replace the low clutch timing solenoid. <Ref. to AT-64, Shift Solenoids, Duty Solenoids and ATF Temperature Sensor.>
8	**CHECK HARNESS CONNECTOR BETWEEN LOW CLUTCH TIMING SOLENOID AND TRANSMISSION.** Measure the resistance of harness between low clutch timing solenoid and transmission connector. ***Connector & terminal*** ***(AT9) No. 1 — (T4) No. 3:*** Is the measured value less than the specified value?	1 Ω	Go to step **9.**	Repair open circuit in harness between low clutch timing solenoid and transmission connector.

	Step	Check	Yes	No
9	**CHECK HARNESS CONNECTOR BETWEEN LOW CLUTCH TIMING SOLENOID AND TRANSMISSION.** Measure the resistance of harness between low clutch timing solenoid connector and transmission ground. ***Connector & terminal*** ***(T4) No. 3 — Transmission ground:*** Is the measured value more than the specified value?	1 MΩ	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or connector in low clutch timing solenoid and transmission.	Repair short circuit harness between low clutch timing solenoid and transmission connector.

L: DTC 74 2-4 BRAKE TIMING SOLENOID

DIAGNOSIS:
Output signal circuit of 2-4 brake timing solenoid is open or shorted.
TROUBLE SYMPTOM:
Excessive shift shock.
WIRING DIAGRAM:



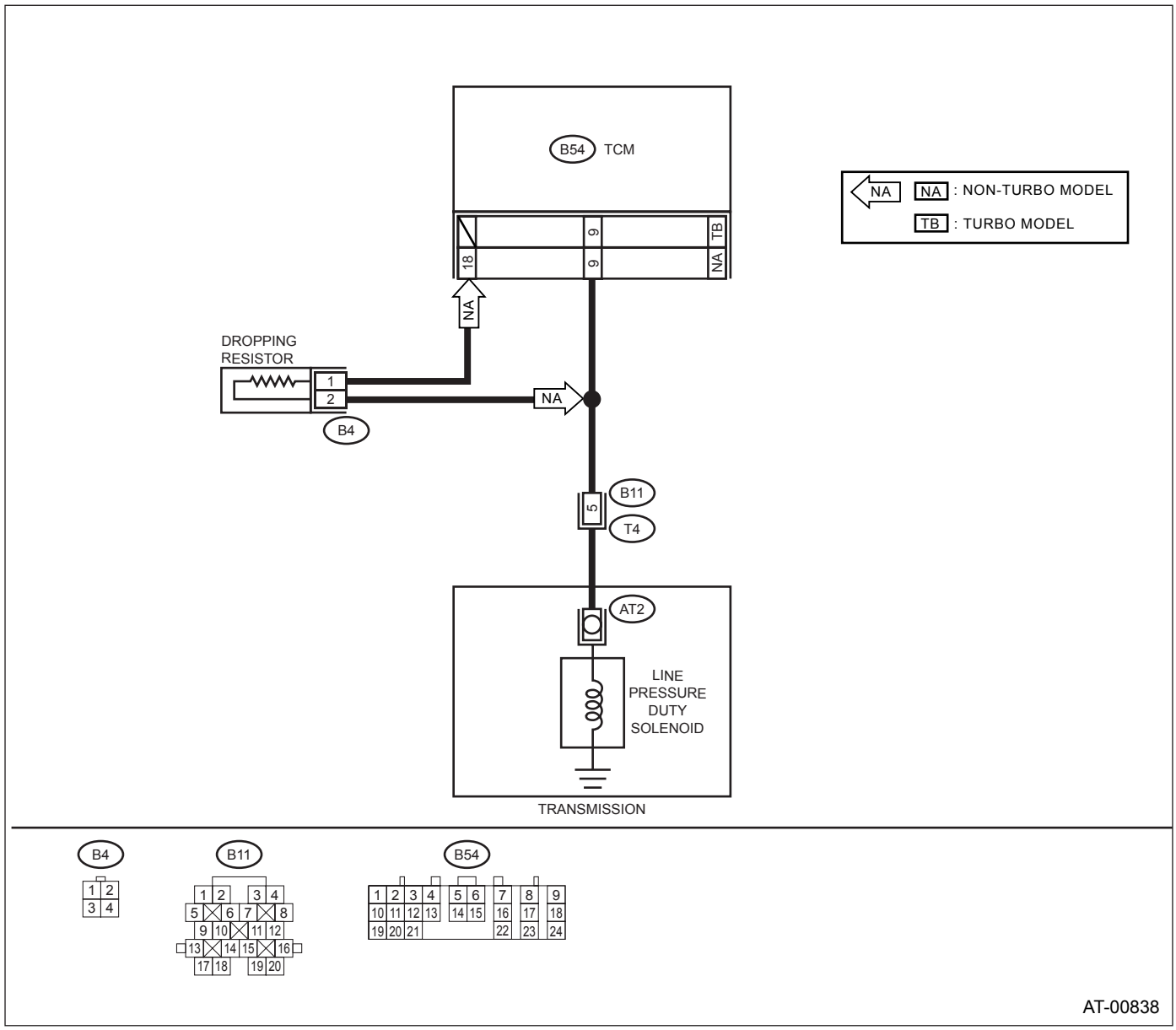
	Step	Check	Yes	No
1	**CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.** 1)Turn the ignition switch to OFF. 2)Disconnect the connector from TCM and transmission. 3)Measure the resistance of harness between TCM and transmission connector. ***Connector & terminal*** ***Non-turbo model*** ***(B54) No. 5 — (B11) No. 4:*** ***Turbo model*** ***(B54) No. 16 — (B11) No. 4:*** Is the measured value less than the specified value?	1 Ω	Go to step **2.**	Repair open circuit in 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*** ***Non-turbo model*** ***(B54) No. 5 — Chassis ground:*** ***Turbo model*** ***(B54) No. 16 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **3.**	Repair short circuit in harness between TCM and transmission connector.
3	**CHECK 2-4 BRAKE TIMING SOLENOID.** Measure the resistance between transmission connector terminals. ***Connector & terminal*** ***(T4) No. 4 — No. 16:*** Is the measured value within the specified range?	10 — 16 Ω	Go to step **4.**	Go to step **7.**

	Step	Check	Yes	No
4	**CHECK OUTPUT SIGNAL EMITTED FROM TCM.** 1)Connect the connectors to TCM and transmission. 2)Lift-up or raise the vehicle and support with safety stands. **CAUTION:** **Raise all wheels off ground.** 3)Start the engine and warm-up the transmission until the ATF temperature is above 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. 4)Move the select lever to “1”, and slowly increase vehicle speed to 10 km/h (6 MPH). NOTE: The speed difference between front and rear wheels may light the ABS warning light, but this indicates no malfunction. When the AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS-24, Clear Memory Mode.> 5)Measure the voltage between TCM connector and chassis ground. ***Connector & terminal*** ***Non-turbo model*** ***(B54) No. 5 (+) — Chassis ground (−):*** ***Turbo model*** ***(B54) No. 16 (+) — Chassis ground (−):*** Is the measured value less than the specified value?	1 V	Go to step **5.**	Go to step **6.**
5	**CHECK OUTPUT SIGNAL EMITTED FROM TCM.** 1)Move the select lever to “D”, and slowly increase vehicle speed to 65 km/h (40 MPH). NOTE: The speed difference between front and rear wheels may light the ABS warning light, but this indicates no malfunction. When the AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS-24, Clear Memory Mode.> 2)Measure the voltage between TCM connector and chassis ground. ***Connector & terminal*** ***Non-turbo model*** ***(B54) No. 5 (+) — Chassis ground (−):*** ***Turbo model*** ***(B54) No. 16 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	9 V	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or contact in the transmission.	Go to step **6.**

	Step	Check	Yes	No
6	**CHECK POOR CONTACT.** Is there poor contact in 2-4 brake timing solenoid circuit?	There is a poor contact.	Repair poor contact.	Replace the TCM. <Ref. to AT-71, Transmission Control Module (TCM).>
7	**CHECK 2-4 BRAKE TIMING SOLENOID (IN TRANSMISSION).** 1)Remove the transmission connector from bracket. 2)Lift-up or raise the vehicle and support with safety stands. **CAUTION:** **Raise all wheels off ground.** 3)Drain the automatic transmission fluid. **CAUTION:** **Do not drain the automatic transmission fluid until it cools down.** 4)Remove the oil pan, and disconnect the connector from 2-4 brake timing solenoid. 5)Measure the resistance between 2-4 brake timing solenoid connector and transmission ground. ***Terminal*** ***No. 1 — Transmission ground:*** Is the measured value within the specified range?	10 — 16 Ω	Go to step **8.**	Replace the 2-4 brake timing solenoid. <Ref. to AT-64, Shift Solenoids, Duty Solenoids and ATF Temperature Sensor.>
8	**CHECK HARNESS CONNECTOR BETWEEN 2-4 BRAKE TIMING SOLENOID AND TRANSMISSION.** Measure the resistance of harness between 2-4 brake timing solenoid and transmission connector. ***Connector & terminal*** ***(AT8) No. 1 — (T4) No. 4:*** Is the measured value less than the specified value?	1 Ω	Go to step **9.**	Repair open circuit in harness between 2-4 brake timing solenoid and transmission connector.
9	**CHECK HARNESS CONNECTOR BETWEEN 2-4 BRAKE TIMING SOLENOID AND TRANSMISSION.** Measure the resistance of harness between 2-4 brake timing solenoid connector and transmission ground. ***Connector & terminal*** ***(T4) No. 4 — Transmission ground:*** Is the measured value more than the specified value?	1 MΩ	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or connector in 2-4 brake timing solenoid and transmission.	Repair short circuit harness between 2-4 brake timing solenoid and transmission connector.

M: DTC 75 LINE PRESSURE DUTY SOLENOID

DIAGNOSIS:
Output signal circuit of line pressure duty solenoid is open or shorted.
TROUBLE SYMPTOM:
Excessive shift shock.
WIRING DIAGRAM:



Step		Check	Yes	No
1	**CHECK VEHICLE.** Is the target non-turbo model?	Non-turbo model.	Go to step **2.**	Go to step **7.**

	Step	Check	Yes	No
2	**CHECK RESISTOR.** 1)Turn the ignition switch to OFF. 2)Disconnect the connector from dropping resistor. 3)Measure the resistance between dropping resistor terminal. ***Terminals*** ***No. 1 — No. 2:*** Is the measured value within the specified range?	9 — 15 Ω	Go to step **3.**	Replace the dropping resistor. <Ref. to AT-72, Dropping Resistor.>
3	**CHECK HARNESS CONNECTOR BETWEEN TCM AND DROPPING RESISTOR.** 1)Disconnect the connector from TCM. 2)Measure the resistance of harness between TCM connector and dropping resistor connector. ***Connector & terminal*** ***(B54) No. 18 — (B4) No. 1:*** Is the measured value less than the specified value?	1 Ω	Go to step **4.**	Repair open circuit in harness between TCM and dropping resistor connector.
4	**CHECK HARNESS CONNECTOR BETWEEN TCM AND DROPPING RESISTOR.** Measure the resistance of harness between dropping resistor connector and chassis ground. ***Connector & terminal*** ***(B4) No. 1 — Chassis ground:*** Is the measured value within the specified range?	1 MΩ	Go to step **5.**	Repair short circuit in harness between TCM and dropping resistor connector.
5	**CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND DROPPING RESISTOR.** 1)Disconnect the connector from transmission. 2)Measure the resistance of harness between transmission and dropping resistor connector. ***Connector & terminal*** ***(B4) No. 2 — (B11) No. 5:*** Is the measured value less than the specified value?	1 Ω	Go to step **6.**	Repair open circuit in harness between dropping resistor and transmission connector.
6	**CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND DROPPING RESISTOR.** Measure the resistance of harness between dropping resistor connector and chassis ground. ***Connector & terminal*** ***(B4) No. 2 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **7.**	Repair short circuit in harness between dropping resistor and transmission connector.

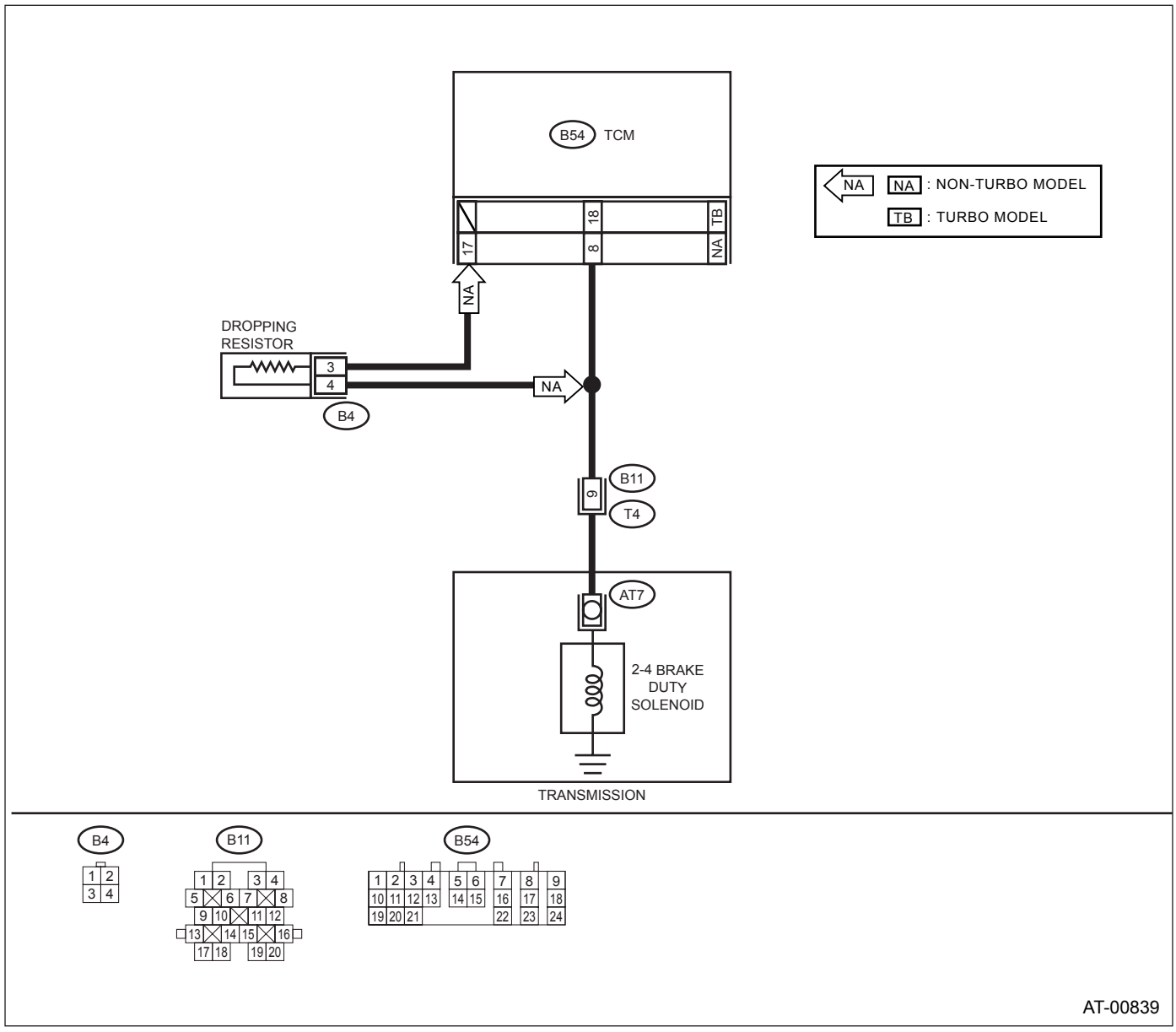
	Step	Check	Yes	No
7	**CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.** 1)Turn the ignition switch to OFF. 2)Disconnect the connector from transmission and TCM. 3)Measure the resistance of harness between TCM and transmission connector. ***Connector & terminal*** ***(B54) No. 9 — (B11) No. 5:*** Is the measured value less than the specified value?	1 Ω	Go to step **8.**	Repair open circuit in harness between TCM and transmission connector.
8	**CHECK HARNESS CONNECTOR BETWEEN TCM AND CHASSIS GROUND.** Measure the resistance of harness between TCM and chassis ground. ***Connector & terminal*** ***(B54) No. 9 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **9.**	Repair short circuit in harness between TCM and transmission connector.
9	**CHECK LINE PRESSURE DUTY SOLENOID.** Measure the resistance between transmission connector receptacle's terminals. ***Terminal*** ***(T4) No. 5 — No. 16:*** Is the measured value within the specified range?	2.0 — 4.5 Ω	Go to step **10.**	Go to step **16.**
10	**PREPARE SUBARU SELECT MONITOR.** Do you have a Subaru Select Monitor?	A SUBARU SELECT MONITOR is available.	Go to step **13.**	Go to step **11.**
11	**CHECK OUTPUT SIGNAL EMITTED FROM TCM.** 1)Connect all connectors. 2)Start the engine and warm-up the transmission until the ATF temperature is above 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. 3)Turn the ignition switch to ON (engine OFF). 4)Move the select lever to “N”. 5)Throttle is fully closed. 6)Measure the voltage between TCM connector and chassis ground. ***Connector & terminal*** ***(B54) No. 9 (+) — Chassis ground (−):*** Is the measured value within the specified range?	1.5 — 5.0 V	Go to step **12.**	Go to step **15.**

	Step	Check	Yes	No
12	**CHECK OUTPUT SIGNAL EMITTED FROM TCM.** 1)Throttle is wide open. 2)Measure the voltage between TCM connector and chassis ground. ***Connector & terminal*** ***(B54) No. 9 (+) — Chassis ground (−):*** Is the measured value less than the specified value?	1 V	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or connector in transmission.	Go to step **15.**
13	**CHECK OUTPUT SIGNAL EMITTED FROM TCM USING SUBARU SELECT MONITOR.** 1)Connect the connectors to TCM and transmission. 2)Connect the Subaru Select Monitor to data link connector. 3)Start the engine, and turn the Subaru Select Monitor switch to ON. 4)Warm-up the transmission until the ATF temperature is above 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)Stop the engine and turn the ignition switch to ON (engine OFF). 6)Move the select lever to “N”. 7)Read the data of line pressure duty solenoid using Subaru Select Monitor. •Line pressure duty solenoid is indicated in “%”. 8)Throttle is fully closed. Is the line pressure duty solenoid data same as the specified value?	100%	Go to step **14.**	Go to step **15.**
14	**CHECK OUTPUT SIGNAL EMITTED FROM TCM USING SUBARU SELECT MONITOR.** 1)Turn the ignition switch to ON (Engine OFF). 2)Throttle is fully open. 3)Read the data of line pressure duty solenoid using Subaru Select Monitor. Is the line pressure duty solenoid data less than the specified value?	25%	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or connector in transmission.	Go to step **15.**
15	**CHECK POOR CONTACT.** Is there poor contact in line pressure duty solenoid circuit?	There is a poor contact.	Repair poor contact.	Replace the TCM. <Ref. to AT-71, Transmission Control Module (TCM).>

	Step	Check	Yes	No
16	**CHECK LINE PRESSURE DUTY SOLENOID (IN TRANSMISSION).** 1)Remove the transmission connector from bracket. 2)Drain the automatic transmission fluid. **CAUTION:** **Do not drain the automatic transmission fluid until it cools down.** 3)Remove the oil pan, and disconnect the connector from line pressure duty solenoid. 4)Measure the resistance between line pressure duty solenoid connector and transmission ground. ***Terminal*** ***No. 1 — Transmission ground:*** Is the measured value within the specified range?	2.0 — 4.5 Ω	Go to step **17.**	Replace the line pressure duty solenoid. <Ref. to AT-64, Shift Solenoids, Duty Solenoids and ATF Temperature Sensor.>
17	**CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND LINE PRESSURE DUTY SOLENOID.** Measure the resistance of harness between line pressure duty solenoid and transmission connector. ***Connector & terminal*** ***(T4) No. 5 — (AT2) No. 1:*** Is the measured value less than the specified value?	1 Ω	Go to step **18.**	Repair open circuit in harness between line pressure duty solenoid and transmission connector.
18	**CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND LINE PRESSURE DUTY SOLENOID.** Measure the resistance of harness between transmission connector and transmission ground. ***Connector & terminal*** ***(T4) No. 5 — Transmission ground:*** Is the measured value more than the specified value?	1 MΩ	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or connector in line pressure duty solenoid and transmission.	Repair short circuit in harness between line pressure duty solenoid and transmission connector.

N: DTC 76 2–4 BRAKE DUTY SOLENOID

DIAGNOSIS:
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 VEHICLE.** Is the target non-turbo model?	Non-turbo model.	Go to step **2.**	Go to step **7.**
2	**CHECK RESISTOR.** 1)Turn the ignition switch to OFF. 2)Disconnect the connector from dropping resistor. 3)Measure the resistance between dropping resistor terminal. ***Terminals*** ***No. 3 — No. 4:*** Is the measured value within the specified range?	9 — 15 Ω	Go to step **3.**	Replace the dropping resistor. <Ref. to AT-72, Dropping Resistor.>
3	**CHECK HARNESS CONNECTOR BETWEEN TCM AND DROPPING RESISTOR.** 1)Disconnect the connector from TCM. 2)Measure the resistance of harness between TCM connector and dropping resistor connector. ***Connector & terminal*** ***(B54) No. 17 — (B4) No. 3:*** Is the measured value less than the specified value?	1 Ω	Go to step **4.**	Repair open circuit in harness between TCM and dropping resistor connector.
4	**CHECK HARNESS CONNECTOR BETWEEN TCM AND DROPPING RESISTOR.** Measure the resistance of harness between dropping resistor connector and chassis ground. ***Connector & terminal*** ***(B4) No. 3 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **5.**	Repair short circuit in harness between TCM and dropping resistor connector.
5	**CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND DROPPING RESISTOR.** 1)Disconnect the connector from transmission. 2)Measure the resistance of harness between transmission and dropping resistor connector. ***Connector & terminal*** ***(B4) No. 4 — (B11) No. 9:*** Is the measured value less than the specified value?	1 Ω	Go to step **6.**	Repair open circuit in harness between dropping resistor and transmission connector.
6	**CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND DROPPING RESISTOR.** Measure the resistance of harness between dropping resistor connector and chassis ground. ***Connector & terminal*** ***(B4) No. 4 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **7.**	Repair short circuit in harness between dropping resistor and transmission connector.

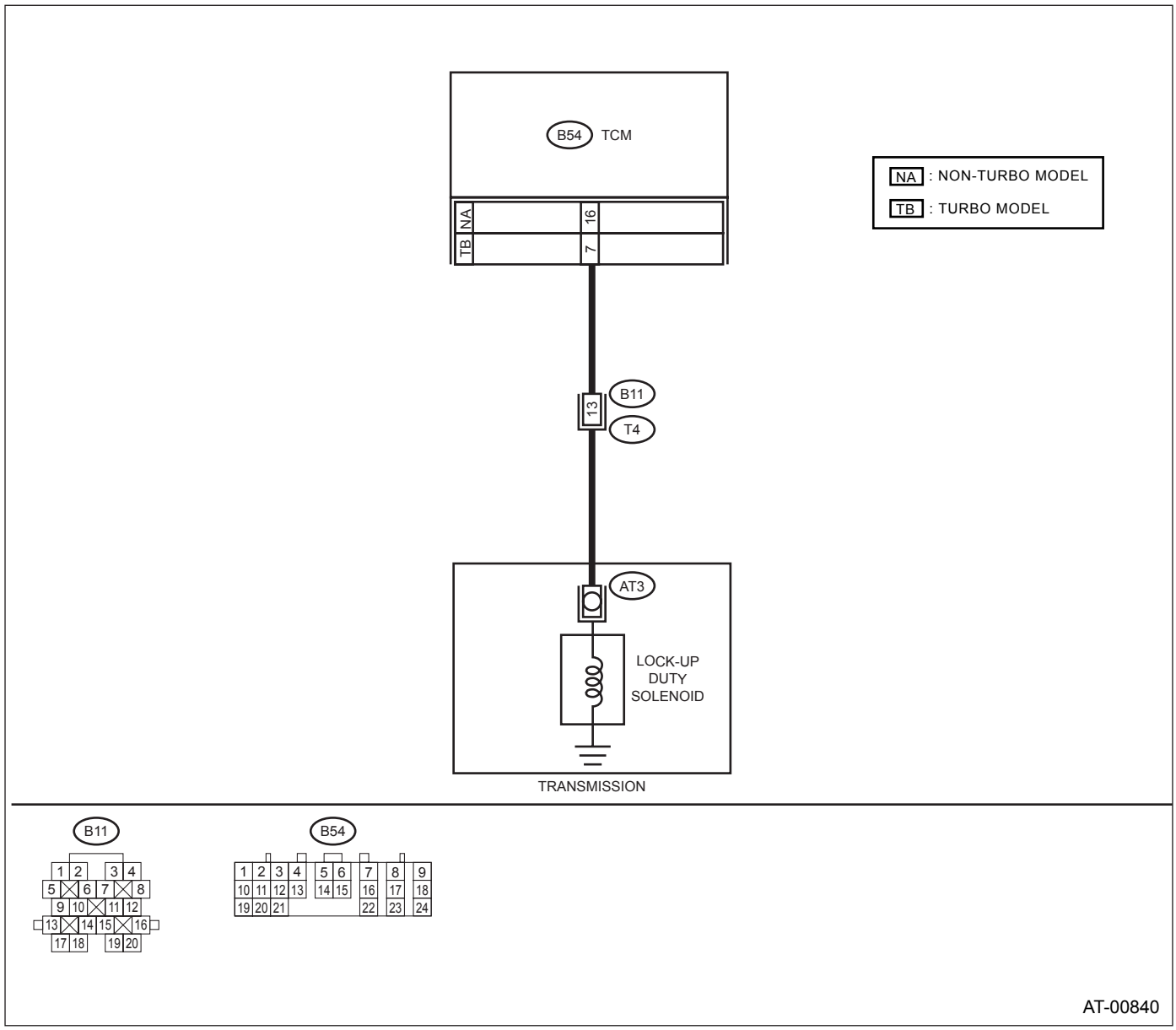
	Step	Check	Yes	No
7	**CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.** 1)Turn the ignition switch to OFF. 2)Disconnect the connector from transmission and TCM. 3)Measure the resistance of harness between TCM and transmission connector. ***Connector & terminal*** ***Non-turbo model*** ***(B54) No. 8 — (B11) No. 9:*** ***Turbo model*** ***(B54) No. 18 — (B11) No. 9:*** Is the measured value less than the specified value?	1 Ω	Go to step **8.**	Repair open circuit in harness between TCM and transmission connector.
8	**CHECK HARNESS CONNECTOR BETWEEN TCM AND CHASSIS GROUND.** Measure the resistance of harness between TCM and chassis ground. ***Connector & terminal*** ***Non-turbo model*** ***(B54) No. 8 — Chassis ground:*** ***Turbo model*** ***(B54) No. 18 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **9.**	Repair short circuit in harness between TCM and transmission connector.
9	**CHECK 2-4 BRAKE DUTY SOLENOID.** Measure the resistance between transmission connector receptacle's terminals. ***Terminal*** ***(T4) No. 16 — No. 9:*** Is the measured value within the specified range?	2.0 — 4.5 Ω	Go to step **10.**	Go to step **16.**
10	**PREPARE SUBARU SELECT MONITOR.** Do you have a Subaru Select Monitor?	A SUBARU SELECT MONITOR is available.	Go to step **13.**	Go to step **11.**
11	**CHECK OUTPUT SIGNAL EMITTED FROM TCM.** 1)Connect all connectors. 2)Start the engine and warm-up the transmission until the ATF temperature is above 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. 3)Turn the ignition switch to ON (engine OFF). 4)Move the select lever to “N”. 5)Throttle is fully closed. 6)Measure the voltage between TCM connector and chassis ground. ***Connector & terminal*** ***Non-turbo model*** ***(B54) No. 8 (+) — Chassis ground (−):*** ***Turbo model*** ***(B54) No. 18 (+) — Chassis ground (−):*** Is the measured value within the specified range?	1.5 — 5.0 V	Go to step **12.**	Go to step **15.**

	Step	Check	Yes	No
12	**CHECK OUTPUT SIGNAL EMITTED FROM TCM.** 1)Throttle is wide open. 2)Measure the voltage between TCM connector and chassis ground. ***Connector & terminal*** ***Non-turbo model*** ***(B54) No. 8 (+) — Chassis ground (−):*** ***Turbo model*** ***(B54) No. 18 (+) — Chassis ground (−):*** Is the measured value less than the specified value?	1 V	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or connector in TCM and transmission.	Go to step **15.**
13	**CHECK OUTPUT SIGNAL EMITTED FROM TCM USING SUBARU SELECT MONITOR.** 1)Connect all connectors. 2)Connect the Subaru Select Monitor to data link connector. 3)Start the engine, and turn the Subaru Select Monitor switch to ON. 4)Warm-up the transmission until the ATF temperature is above 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)Stop the engine and turn the ignition switch to ON (engine OFF). 6)Move the select lever to “N”. 7)Read the data of 2-4 brake duty solenoid using Subaru Select Monitor. •2-4 brake duty solenoid is indicated in “%”. 8)Throttle is fully closed. Is the 2-4 brake duty solenoid data same as the specified value?	100%	Go to step **14.**	Go to step **15.**
14	**CHECK OUTPUT SIGNAL EMITTED FROM TCM USING SUBARU SELECT MONITOR.** 1)Turn the ignition switch to ON (Engine OFF). 2)Throttle is fully open. 3)Read the data of 2-4 brake duty solenoid using Subaru Select Monitor. Is the 2-4 brake duty solenoid data less than the specified value?	25%	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or connector in TCM and transmission.	Go to step **15.**
15	**CHECK POOR CONTACT.** Is there poor contact in 2-4 brake duty solenoid circuit?	There is a poor contact.	Repair poor contact.	Replace the TCM. <Ref. to AT-71, Transmission Control Module (TCM).>

	Step	Check	Yes	No
16	**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 the automatic transmission fluid until it cools down.** 3)Remove the oil pan, and disconnect the connector from 2-4 brake duty solenoid. 4)Measure the resistance between 2-4 brake duty solenoid connector and transmission ground. ***Terminal*** ***No. 1 — Transmission ground:*** Is the measured value within the specified range?	2.0 — 4.5 Ω	Go to step **17.**	Replace the 2-4 brake duty solenoid. <Ref. to AT-64, Shift Solenoids, Duty Solenoids and ATF Temperature Sensor.>
17	**CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND 2-4 BRAKE DUTY SOLENOID.** Measure the resistance of harness between 2-4 brake duty solenoid and transmission connector. ***Connector & terminal*** ***(T4) No. 9 — (AT7) No. 1:*** Is the measured value less than the specified value?	1 Ω	Go to step **18.**	Repair open circuit in harness between 2-4 brake duty solenoid and transmission connector.
18	**CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND 2-4 BRAKE DUTY SOLENOID.** Measure the resistance of harness between transmission connector and transmission ground. ***Connector & terminal*** ***(T4) No. 9 — Transmission ground:*** Is the measured value more than the specified value?	1 MΩ	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or connector in line pressure duty solenoid and transmission.	Repair short circuit in harness between 2-4 brake duty solenoid and transmission connector.

O: DTC 77 LOCK-UP DUTY SOLENOID

DIAGNOSIS:
Output signal circuit of lock-up duty solenoid is open or shorted.
TROUBLE SYMPTOM:
No “lock-up” (after engine warm-up).
WIRING DIAGRAM:



	Step	Check	Yes	No
1	**CHECK DTC.** Do multiple trouble codes appear in the on-board diagnostics test mode?	Diagnostic trouble codes (DTC) are indicated.	Go to another trouble code.	Go to step **2.**
2	**CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.** 1)Turn the ignition switch to OFF. 2)Disconnect the connector from TCM and transmission. 3)Measure the resistance of harness between TCM and transmission connector. ***Connector & terminal*** ***Non-turbo model*** ***(B54) No. 16 — (B11) No. 13:*** ***Turbo model*** ***(B54) No. 7 — (B11) No. 13:*** Is the measured value less than the specified value?	1 Ω	Go to step **3.**	Repair open circuit in harness between TCM and transmission connector.
3	**CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.** Measure the resistance of harness connector between TCM and chassis ground. ***Connector & terminal*** ***Non-turbo model*** ***(B54) No. 16 — Chassis ground:*** ***Turbo model*** ***(B54) No. 7 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **4.**	Repair short circuit in 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. 13 — No. 16:*** Is the measured value within the specified range?	10 — 17 Ω	Go to step **5.**	Go to step **11.**
5	**PREPARE SUBARU SELECT MONITOR.** Do you have a Subaru Select Monitor?	A SUBARU SELECT MONITOR is available.	Go to step **8.**	Go to step **6.**

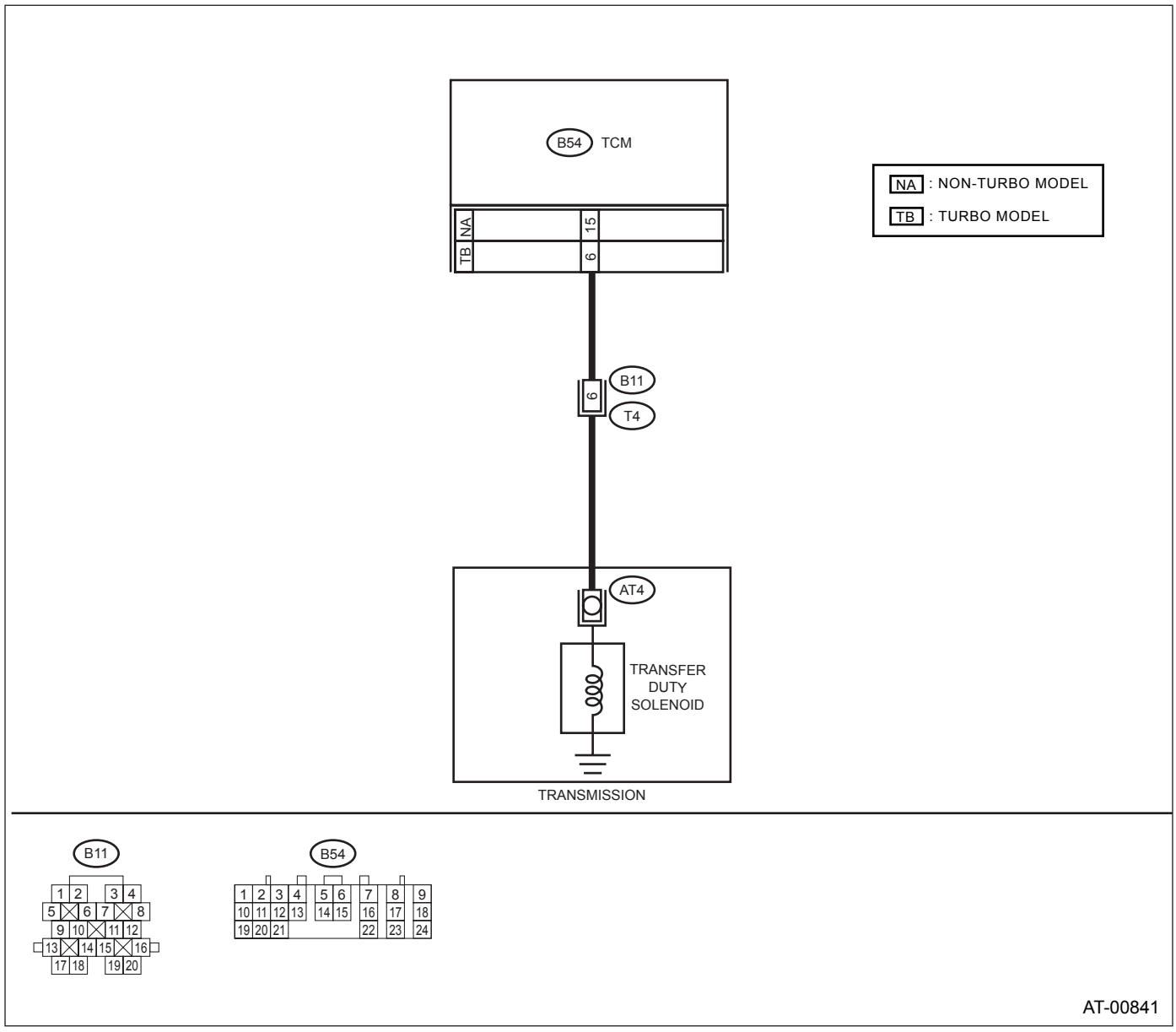
	Step	Check	Yes	No
6	**CHECK OUTPUT SIGNAL EMITTED FROM TCM.** 1)Connect the connectors to TCM and transmission. 2)Lift-up the vehicle and place safety stand. **CAUTION:** **Raise all wheels off ground.** 3)Start the engine and warm-up the transmission until the ATF temperature is above 80°C (176°F). NOTE: If the ambient temperature is below 0°C (32°F), drive the vehicle until the ATF reaches its operating temperature. 4)Move the select lever to “D” and slowly increase the vehicle speed to 75 km/h (47 MPH). Wheels will lock-up. NOTE: The speed difference between front and rear wheels may light the ABS warning light, but this indicates no malfunction. When the AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS-24, Clear Memory Mode.> 5)Measure the voltage between TCM connector and chassis ground. ***Connector & terminal*** ***Non-turbo model*** ***(B54) No. 16 (+) — Chassis ground (−):*** ***Turbo model*** ***(B54) No. 7 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	8.5 V	Go to step **7.**	Go to step **10.**
7	**CHECK OUTPUT SIGNAL EMITTED FROM TCM.** 1)Return the engine to idling speed and move the select lever to “N”. 2)Measure the voltage between TCM connector and chassis ground. ***Connector & terminal*** ***Non-turbo model*** ***(B54) No. 16 (+) — Chassis ground (−):*** ***Turbo model*** ***(B54) No. 7 (+) — Chassis ground (−):*** Is the measured value less than the specified value?	0.5 V	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or connector in TCM and transmission.	Go to step **10.**

	Step	Check	Yes	No
8	**CHECK OUTPUT SIGNAL EMITTED FROM TCM USING SUBARU SELECT MONITOR.** 1)Connect the connectors to TCM and transmission. 2)Lift-up the vehicle and place safety stand. **CAUTION:** **Raise all wheels off ground.** 3)Connect the Subaru Select Monitor to data link connector. 4)Start the engine, and turn the Subaru Select Monitor switch to ON. 5)Start the engine and warm-up the transmission until the ATF temperature is above 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 solenoid using Subaru Select Monitor. •Lock-up duty solenoid is indicated in "%". 7)Move the select lever to "D" and slowly increase the vehicle speed to 75 km/h (47 MPH). Wheels will lock-up. NOTE: The speed difference between front and rear wheels may light the ABS warning light, but this indicates no malfunction. When the AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS-24, Clear Memory Mode.> Is the lock-up duty solenoid data same as the specified value?	95%	Go to step **9.**	Go to step **10.**
9	**CHECK OUTPUT SIGNAL EMITTED FROM TCM USING SUBARU SELECT MONITOR.** 1)Return the engine to idling speed and move the select lever to "N". NOTE: The speed difference between front and rear wheels may light 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-24, Clear Memory Mode.> 2)Read the data of lock-up duty solenoid using Subaru Select Monitor. Is the lock-up duty solenoid data same as the specified value?	5%	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or connector in TCM and transmission.	Go to step **10.**
10	**CHECK POOR CONTACT.** Is there poor contact in lock-up duty solenoid circuit?	There is a poor contact.	Repair poor contact.	Replace the TCM. <Ref. to AT-71, Transmission Control Module (TCM).>

	Step	Check	Yes	No
11	**CHECK LOCK-UP DUTY SOLENOID (IN TRANSMISSION).** 1)Remove the transmission connector from bracket. 2)Drain the automatic transmission fluid. **CAUTION:** **Do not drain the automatic transmission fluid until it cools down.** 3)Remove the oil pan, and disconnect the connector from lock-up duty solenoid. 4)Measure the resistance between lock-up duty solenoid connector and transmission ground. ***Terminal*** ***No. 1 — Transmission ground:*** Is the measured value within the specified range?	10 — 17 Ω	Go to step **12.**	Replace the lock-up duty solenoid. <Ref. to AT-64, Shift Solenoids, Duty Solenoids and ATF Temperature Sensor.>
12	**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. 13 — (AT3) No. 1:*** Is the measured value less than the specified value?	1 Ω	Go to step **13.**	Repair open circuit in harness between TCM and transmission connector.
13	**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. 13 — Transmission ground:*** Is the measured value more than the specified value?	1 MΩ	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or connector in lock-up duty solenoid and transmission.	Repair short circuit in harness between lock-up duty solenoid and transmission connector.

P: DTC 79 TRANSFER DUTY SOLENOID

DIAGNOSIS:
Output signal circuit of transfer duty solenoid is open or shorted.
TROUBLE SYMPTOM:
Excessive “braking” in tight corners.
WIRING DIAGRAM:



AT-00841

	Step	Check	Yes	No
1	**CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.** 1)Turn the ignition switch to OFF. 2)Disconnect the connector from TCM and transmission. 3)Measure the resistance of harness between TCM and transmission connector. ***Connector & terminal*** ***Non-turbo model*** ***(B54) No. 15 — (B11) No. 6:*** ***Turbo model*** ***(B54) No. 6 — (B11) No. 6:*** Is the measured value less than the specified value?	1 Ω	Go to step **2.**	Repair open circuit in harness between TCM and transmission connector.
2	**CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.** Measure the resistance harness connector between TCM and chassis ground. ***Connector & terminal*** ***Non-turbo model*** ***(B54) No. 15 — Chassis ground:*** ***Turbo model*** ***(B54) No. 6 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **3.**	Repair short circuit in harness between TCM and transmission connector.
3	**CHECK TRANSFER DUTY SOLENOID.** Measure the resistance between transmission connector and transmission terminals. ***Connector & terminal*** ***(T4) No. 6 — No. 16:*** Is the measured value within the specified range?	10 — 17 Ω	Go to step **4.**	Go to step **13.**
4	**PREPARE SUBARU SELECT MONITOR.** Do you have a Subaru Select Monitor?	A SUBARU SELECT MONITOR is available.	Go to step **7.**	Go to step **5.**
5	**CHECK OUTPUT SIGNAL EMITTED FROM TCM.** 1)Connect the connectors to TCM and transmission. 2)Turn the ignition switch to ON (engine OFF). 3)Move the selector lever to "P" range. 4)Throttle is fully closed. 5)Measure the voltage between TCM connector and chassis ground. ***Connector & terminal*** ***Non-turbo model*** ***(B54) No. 15 (+) — Chassis ground (−):*** ***Turbo model*** ***(B54) No. 6 (+) — Chassis ground (−):*** Is the measured value less than the specified value?	1 V	Go to step **6.**	Go to step **12.**

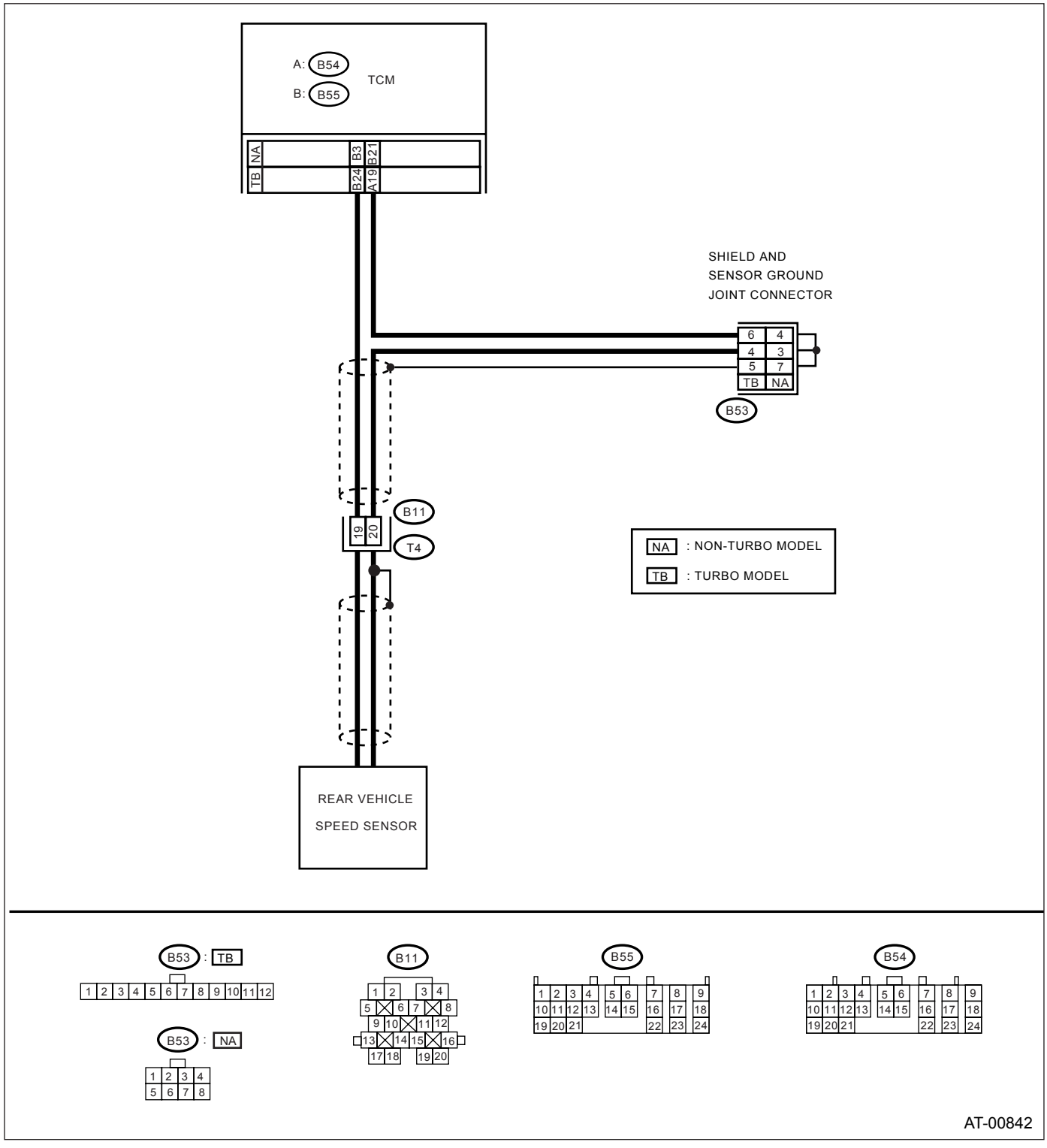
	Step	Check	Yes	No
6	**CHECK OUTPUT SIGNAL EMITTED FROM TCM.** 1)Move the selector lever to "D" range. 2)Measure the voltage between TCM connector and chassis ground. ***Connector & terminal*** ***Non-turbo model*** ***(B54) No. 15 (+) — Chassis ground (−):*** ***Turbo model*** ***(B54) No. 6 (+) — Chassis ground (−):*** Is the measured value within the specified range?	5 — 7 V	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or connector in the TCM and transmission.	Go to step **12.**
7	**CHECK VEHICLE** Is the target non-turbo model?	Non-turbo model.	Go to step **8.**	Go to step **10.**
8	**CHECK OUTPUT SIGNAL EMITTED FROM TCM USING SUBARU SELECT MONITOR.** 1)Connect the connectors to TCM and transmission. 2)Connect the Subaru Select Monitor to data link connector. 3)Turn the ignition switch to ON (engine OFF) and turn the Subaru Select Monitor switch to ON. 4)Move the select lever to "D" with wide open throttle (vehicle speed 0 km/h or 0 MPH). 5)Read the data of transfer duty solenoid using Subaru Select Monitor. •Transfer duty solenoid is indicated in “%”. Read the data of transfer duty solenoid.	5 — 10%	Go to step **9.**	Go to step **12.**
9	**CHECK OUTPUT SIGNAL EMITTED FROM TCM USING SUBARU SELECT MONITOR.** 1)Move the select lever to "N" with throttle fully closed (vehicle speed 0 km/h or 0 MPH). 2)Rear the data of transfer duty solenoid using Subaru Select Monitor. •Transfer duty solenoid is indicated in “%”. Is the transfer duty solenoid data within the specified range?	approx. 60% — approx. 70%	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or connector in the TCM and transmission.	Go to step **12.**
10	**CHECK OUTPUT SIGNAL EMITTED FROM TCM USING SUBARU SELECT MONITOR.** 1)Connect connectors to TCM and transmission. 2)Connect Subaru Select Monitor to data link connector. 3)Turn ignition switch to ON (engine OFF) and turn Subaru Select Monitor switch to ON. 4)Move the select lever to "D" with wide open throttle (vehicle speed 0 km/h or 0 MPH). 5)Read data of transfer duty solenoid using Subaru Select Monitor. •Transfer duty solenoid is indicated in “%”. Is the transfer duty solenoid data within the specified range?	80 — 95%	Go to step **11.**	Go to step **12.**

	Step	Check	Yes	No
11	**CHECK OUTPUT SIGNAL EMITTED FROM TCM USING SUBARU SELECT MONITOR.** 1)Move the select lever to "N" with throttle fully closed (vehicle speed 0 km/h or 0 MPH). 2)Rear data of transfer duty solenoid using Subaru Select Monitor. •Transfer duty solenoid is indicated in “%”. Is the transfer duty solenoid data same as the specified value?	Approx. 40%	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or connector in the transfer duty solenoid and TCM connector.	Go to step **12.**
12	**CHECK POOR CONTACT.** Is there poor contact in transfer duty solenoid circuit?	There is a poor contact.	Repair poor contact.	Replace the TCM. <Ref. to AT-71, Transmission Control Module (TCM).>
13	**CHECK TRANSFER DUTY SOLENOID (IN TRANSMISSION).** 1)Lift-up the vehicle and place safety stand. 2)Drain the automatic transmission fluid. **CAUTION:** **Do not drain the automatic transmission fluid 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*** ***(AT4) No. 1 — Transmission ground:*** Is the measured value within the specified range?	10 — 17 Ω	Go to step **14.**	Replace the transfer duty solenoid.
14	**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. 6 — (AT4) No. 1:*** Is the measured value less than the specified value?	1 Ω	Go to step **15.**	Repair open circuit in harness between transfer duty solenoid and transmission connector.

	Step	Check	Yes	No
15	**CHECK HARNESS CONNECTOR BETWEEN TRANSFER DUTY SOLENOID AND TRANSMISSION.** Measure the resistance of harness between transmission connector and transmission ground. ***Connector & terminal*** ***(T4) No. 6 — Transmission ground:*** Is the measured value more than the specified value?	1 MΩ	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or contact in the transfer duty solenoid and transmission.	Repair short circuit in harness between transfer duty solenoid and transmission connector.

Q: DTC 93 REAR VEHICLE SPEED SENSOR

DIAGNOSIS:
Input signal circuit of TCM is open or shorted.
TROUBLE SYMPTOM:
No lock-up or excessive tight corner “braking”.
WIRING DIAGRAM:



AT-00842

	Step	Check	Yes	No
1	**CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.** 1)Turn the ignition switch to OFF. 2)Disconnect the connector from TCM and transmission. 3)Measure the resistance of harness between TCM and transmission connector. ***Connector & terminal*** ***Non-turbo model*** ***(B55) No. 3 — (B11) No. 19:*** ***Turbo model*** ***(B55) No. 24 — (B11) No. 19:*** Is the measured value less than the specified value?	1 Ω	Go to step **2.**	Repair open circuit in harness between TCM and transmission connector.
2	**CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.** Measure the resistance of harness between TCM and transmission connector. ***Connector & terminal*** ***Non-turbo model*** ***(B55) No. 21 — (B11) No. 20:*** ***Turbo model*** ***(B54) No. 19 — (B11) No. 20:*** Is the measured value less than the specified value?	1 Ω	Go to step **3.**	Repair open circuit in harness between TCM and transmission, and poor contact in coupling connector.
3	**CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.** Measure the resistance of harness between TCM and chassis ground. ***Connector & terminal*** ***Non-turbo model*** ***(B55) No. 3 — Chassis ground:*** ***Turbo model*** ***(B55) No. 24 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **4.**	Repair short circuit in harness between TCM and transmission connector.
4	**CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.** Measure the resistance of harness between TCM and chassis ground. ***Connector & terminal*** ***Non-turbo model*** ***(B55) No. 21 — Chassis ground:*** ***Turbo model*** ***(B54) No. 19 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **5.**	Repair short circuit in harness between TCM and transmission connector.
5	**CHECK REAR VEHICLE SPEED SENSOR.** Measure the resistance between transmission connector receptacle's terminals. ***Connector & terminal*** ***(T4) No. 19 — No. 20:*** Is the measured value within the specified range?	450 — 650 Ω	Go to step **6.**	Replace the rear vehicle speed sensor. <Ref. to AT-56, Rear Vehicle Speed Sensor.>
6	**PREPARE OSCILLOSCOPE.** Do you have an oscilloscope?	An oscilloscope is available.	Go to step **10.**	Go to step **7.**
7	**PREPARE SUBARU SELECT MONITOR.** Do you have a Subaru Select Monitor?	A SUBARU SELECT MONITOR is available.	Go to step **9.**	Go to step **8.**

	Step	Check	Yes	No
8	**CHECK INPUT SIGNAL FOR TCM.** 1)Connect the connectors to TCM and transmission. 2)Lift-up or raise the vehicle and place safety stands. **CAUTION:** **Raise all wheels off 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 light the ABS warning light, but this indicates no malfunction. When the AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS-24, Clear Memory Mode.> 4)Measure the voltage between TCM connector terminals. ***Connector & terminal*** ***Non-turbo model*** ***(B55) No. 3 (+) — (B54) No. 21 (–):*** ***Turbo model*** ***(B55) No. 24 (+) — (B54) No. 19 (–):*** Is the measured value more than the specified value?	AC 1 V	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or connector in the TCM and transmission.	Go to step **11.**
9	**CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR.** 1)Connect the connectors to TCM and transmission. 2)Connect the Subaru Select Monitor to data link connector. 3)Lift-up or raise the vehicle and place safety stands. **CAUTION:** **Raise all wheels off floor.** 4)Turn the ignition switch to ON and turn the Subaru Select Monitor switch to ON. 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 or 37 MPH. NOTE: The speed difference between front and rear wheels may light the ABS warning light, but this indicates no malfunction. When the AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS-24, Clear Memory Mode.> Does the speedometer indication increase as the Subaru Select Monitor data increases?	The speedometer indication increases.	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or connector in the TCM and transmission.	Go to step **11.**

	Step	Check	Yes	No
10	**CHECK INPUT SIGNAL FOR TCM USING OSCILLOSCOPE.** 1)Connect the connectors to TCM and transmission. 2)Lift-up or raise the vehicle and place safety stands. **CAUTION:** **Raise all wheels off floor.** 3)Set the oscilloscope to TCM connector terminals. ***Connector & terminal*** ***Turbo model*** ***Positive probe; (B55) No. 24*** ***Earth lead; (B55) No. 19*** ***Non-turbo model*** ***Positive probe; (B55) No. 3*** ***Earth lead; (B55) No. 21*** 4)Start the engine and set the vehicle in 20 km/h (12 MPH) condition. NOTE: The speed difference between front and rear wheels may light the ABS warning light, but this indicates no malfunction. When the AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS-24, Clear Memory Mode.> 5)Measure the signal voltage indicated on oscilloscope. Is the measured value more than the specified value?	AC 1 V	Even if the AT OIL TEMP warning lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be the cause. Repair harness or connector in the TCM and transmission.	Go to step **11.**
11	**CHECK POOR CONTACT.** Is there poor contact in rear vehicle speed sensor circuit?	There is a poor contact.	Repair poor contact.	Replace the TCM. <Ref. to AT-71, Transmission Control Module (TCM).>