

14. Diagnostic Procedure with Diagnostic Trouble Code (DTC)

A: DTC P0705 — TRANSMISSION RANGE SENSOR —

DIAGNOSIS:

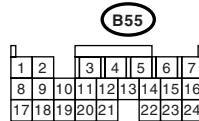
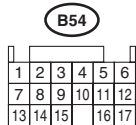
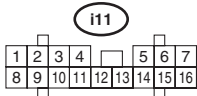
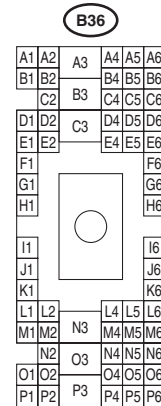
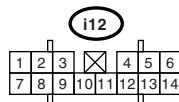
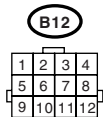
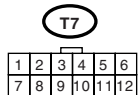
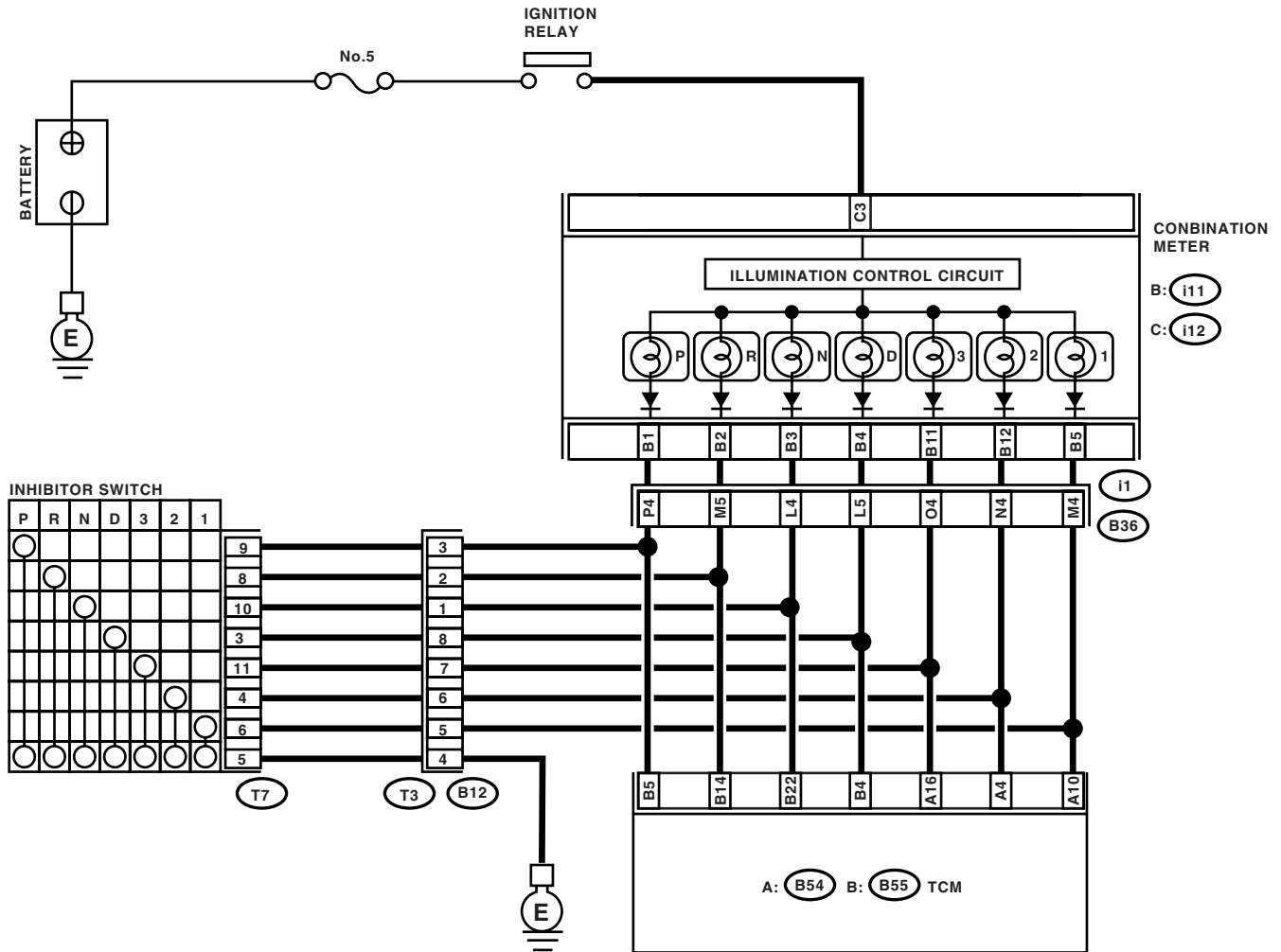
- There is malfunction in inhibitor switch.
- The input signal circuit of inhibitor switch is open or shorted.

TROUBLE SYMPTOM:

- Shift characteristics are erroneous.
- Engine brake is not effected when select lever is in “3” range.
- Engine brake is not effected when select lever is in “2” range.
- Engine brake is not effected when select lever is in “1” range.

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) AUTOMATIC TRANSMISSION (DIAGNOSTICS)

WIRING DIAGRAM:



AT-01600

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

	Step	Check	Yes	No
1	CHECK "P" RANGE SWITCH.	When the "P" range is selected, does LED light up?	Go to step 2.	Go to step 22.
2	CHECK INDICATOR LIGHT.	Does the combination meter "P" range indicator illuminate?	Go to step 3.	Go to step 26.
3	CHECK "P" RANGE SWITCH.	When the "R" range is selected, does "P" range LED light up?	Go to step 28.	Go to step 4.
4	CHECK "R" RANGE SWITCH.	When the "R" range is selected, does LED light up?	Go to step 5.	Go to step 29.
5	CHECK INDICATOR LIGHT.	Does the combination meter "R" range indicator illuminate?	Go to step 6.	Go to step 32.
6	CHECK "R" RANGE SWITCH.	When the "N" range is selected, does "R" range LED light up?	Go to step 34.	Go to step 7.
7	CHECK "N" RANGE SWITCH.	When the "N" range is selected, does LED light up?	Go to step 8.	Go to step 35.
8	CHECK INDICATOR LIGHT.	Does the combination meter "N" range indicator illuminate?	Go to step 9.	Go to step 38.
9	CHECK "N" RANGE SWITCH.	When the "D" range is selected, does "N" range LED light up?	Go to step 40.	Go to step 10.
10	CHECK "D" RANGE SWITCH.	When the "D" range is selected, does LED light up?	Go to step 11.	Go to step 41.
11	CHECK INDICATOR LIGHT.	Does the combination meter "D" range indicator illuminate?	Go to step 12.	Go to step 44.
12	CHECK "D" RANGE SWITCH.	When the "3" range is selected, does "D" range LED light up?	Go to step 46.	Go to step 13.
13	CHECK "3" RANGE SWITCH.	When the "3" range is selected, does LED light up?	Go to step 14.	Go to step 47.
14	CHECK INDICATOR LIGHT.	Does the combination meter "3" range indicator illuminate?	Go to step 15.	Go to step 50.
15	CHECK "3" RANGE SWITCH.	When the "2" range is selected, does "3" range LED light up?	Go to step 52.	Go to step 16.
16	CHECK "2" RANGE SWITCH.	When the "2" range is selected, does LED light up?	Go to step 17.	Go to step 53.
17	CHECK INDICATOR LIGHT.	Does the combination meter "2" range indicator illuminate?	Go to step 18.	Go to step 56.
18	CHECK "2" RANGE SWITCH.	When the "1" range is selected, does "2" range LED light up?	Go to step 58.	Go to step 19.
19	CHECK "1" RANGE SWITCH.	When the "1" range is selected, does LED light up?	Go to step 20.	Go to step 59.
20	CHECK INDICATOR LIGHT.	Does the combination meter "1" range indicator illuminate?	Go to step 21.	Go to step 62.
21	CHECK "1" RANGE SWITCH.	When the "2" range is selected, does "1" range LED light up?	Go to step 64.	Replace the TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
22 CHECK HARNESS CONNECTOR BETWEEN INHIBITOR SWITCH AND CHASSIS GROUND. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from inhibitor switch. 3) Measure the resistance of harness between inhibitor switch and chassis ground. Connector & terminal (T7) No. 5 — Chassis ground:	Is the resistance less than 1 Ω ?	Go to step 23.	Repair the open circuit in harness between inhibitor switch connector and chassis ground, and poor contact in coupling connector.
23 CHECK HARNESS CONNECTOR BETWEEN TCM AND INHIBITOR SWITCH. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and inhibitor switch. 3) Measure the resistance of harness between TCM and inhibitor switch connector. Connector & terminal (B55) No. 5 — (T7) No. 9:	Is the resistance less than 1 Ω ?	Go to step 24.	Repair the open circuit in harness between TCM and inhibitor switch connector, and poor contact in coupling connector.
24 CHECK INPUT SIGNAL FOR TCM. 1) Turn the ignition switch to OFF. 2) Connect the connector to TCM and inhibitor switch. 3) Turn the ignition switch to ON. 4) Move the select lever to "P" range. 5) Measure the voltage between TCM and chassis ground. Connector & terminal (B55) No. 5 (+) — Chassis ground (-):	Is the voltage less than 1 V?	Go to step 25.	Go to step 65.
25 CHECK INPUT SIGNAL FOR TCM. 1) Move the select lever except for "P" range. 2) Measure the voltage between TCM and chassis ground. Connector & terminal (B55) No. 5 (+) — Chassis ground (-):	Is the voltage more than 8 V?	Go to step 65.	Replace the TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>
26 CHECK "P" RANGE INDICATOR LIGHT BULB. 1) Turn the ignition switch to OFF. 2) Remove the combination meter. 3) Remove the "P" range indicator light bulb from combination meter.	Is the "P" range indicator light bulb OK?	Go to step 27.	Replace the "P" range indicator light bulb. <Ref. to IDI-13, Combination Meter Assembly.>
27 CHECK HARNESS CONNECTOR BETWEEN TCM AND COMBINATION METER. 1) Disconnect the connectors from TCM and combination meter. 2) Measure the resistance of harness between TCM and combination meter. Connector & terminal (B55) No. 5 — (i11) No. 1:	Is the resistance more than 1 Ω ?	Go to step 65.	Repair the open circuit in harness between TCM connector and combination meter, and poor contact in coupling connector.
28 CHECK HARNESS CONNECTOR BETWEEN TCM AND INHIBITOR SWITCH. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM, inhibitor switch and combination meter. 3) Measure the resistance of harness between TCM and chassis ground. Connector & terminal (B55) No. 5 — Chassis ground:	Is the resistance less than 1 M Ω ?	Go to step 29.	Repair the ground short circuit in "P" range circuit.

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
29 CHECK HARNESS CONNECTOR BETWEEN TCM AND INHIBITOR SWITCH. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and inhibitor switch. 3) Measure the resistance of harness between TCM and inhibitor switch connector. Connector & terminal (B55) No. 14 — (T7) No. 8:	Is the resistance less than 1 Ω ?	Go to step 30 .	Repair the open circuit in harness between TCM and inhibitor switch connector, and poor contact in coupling connector.
30 CHECK INPUT SIGNAL FOR TCM. 1) Turn the ignition switch to OFF. 2) Connect the connector to TCM and inhibitor switch. 3) Turn the ignition switch to ON. 4) Move the select lever to "R" range. 5) Measure the voltage between TCM and chassis ground. Connector & terminal (B55) No. 14 (+) — Chassis ground (-):	Is the voltage less than 1 V?	Go to step 31 .	Go to step 65 .
31 CHECK INPUT SIGNAL FOR TCM. 1) Move the select lever except for "R" range. 2) Measure the voltage between TCM and chassis ground. Connector & terminal (B55) No. 14 (+) — Chassis ground (-):	Is the voltage more than 8 V?	Go to step 65 .	Replace the TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>
32 CHECK "R" RANGE INDICATOR LIGHT BULB. 1) Turn the ignition switch to OFF. 2) Remove the combination meter. 3) Remove the "R" range indicator light bulb from combination meter.	Is "R" range indicator light bulb OK?	Go to step 33 .	Replace the "R" range indicator light bulb. <Ref. to IDI-13, Combination Meter Assembly.>
33 CHECK HARNESS CONNECTOR BETWEEN TCM AND COMBINATION METER. 1) Disconnect the connectors from TCM and combination meter. 2) Measure the resistance of harness between TCM and combination meter. Connector & terminal (B55) No. 14 — (i11) No. 2:	Is the resistance less than 1 Ω ?	Go to step 65 .	Repair the open circuit in harness between TCM connector and combination meter, and poor contact in TCM connector.
34 CHECK HARNESS CONNECTOR BETWEEN TCM AND INHIBITOR SWITCH. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM, inhibitor switch and combination meter. 3) Measure the resistance of harness between TCM and chassis ground. Connector & terminal (B55) No. 14 — Chassis ground:	Is the resistance more than 1 M Ω ?	Go to step 35 .	Repair the ground short circuit in "R" range circuit.
35 CHECK HARNESS CONNECTOR BETWEEN TCM AND INHIBITOR SWITCH. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and inhibitor switch. 3) Measure the resistance of harness between TCM and inhibitor switch connector. Connector & terminal (B55) No. 22 — (T7) No. 10:	Is the resistance less than 1 Ω ?	Go to step 36 .	Repair the open circuit in harness between TCM and inhibitor switch connector, and poor contact in coupling connector.

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
36 CHECK INPUT SIGNAL FOR TCM. 1) Turn the ignition switch to OFF. 2) Connect the connector to TCM and inhibitor switch. 3) Turn the ignition switch to ON. 4) Move the select lever to "N" range. 5) Measure the voltage between TCM and chassis ground. Connector & terminal (B55) No. 22 (+) — Chassis ground (-):	Is the voltage less than 1 V?	Go to step 37.	Go to step 65.
37 CHECK INPUT SIGNAL FOR TCM. 1) Move the select lever to except for "N" range. 2) Measure the voltage between TCM and chassis ground. Connector & terminal (B55) No. 22 (+) — Chassis ground (-):	Is the voltage more than 8 V?	Go to step 65.	Replace the TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>
38 CHECK "N" RANGE INDICATOR LIGHT BULB. 1) Turn the ignition switch to OFF. 2) Remove the combination meter. 3) Remove the "N" range indicator light bulb from combination meter.	Is the "N" range indicator light bulb OK?	Go to step 39.	Replace the "N" range indicator light bulb. <Ref. to IDI-13, Combination Meter Assembly.>
39 CHECK HARNESS CONNECTOR BETWEEN TCM AND COMBINATION METER. 1) Disconnect the connectors from TCM and combination meter. 2) Measure the resistance of harness between TCM and combination meter. Connector & terminal (B55) No. 22 — (I11) No. 3:	Is the resistance less than 1 Ω ?	Go to step 65.	Repair the open circuit in harness between TCM connector and combination meter, and poor contact in TCM connector.
40 CHECK HARNESS CONNECTOR BETWEEN TCM AND INHIBITOR SWITCH. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM, inhibitor switch and combination meter. 3) Measure the resistance of harness between TCM and chassis ground. Connector & terminal (B55) No. 22 — Chassis ground:	Is the resistance more than 1 M Ω ?	Go to step 41.	Repair the ground short circuit in "N" range circuit.
41 CHECK HARNESS CONNECTOR BETWEEN TCM AND INHIBITOR SWITCH. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and inhibitor switch. 3) Measure the resistance of harness between TCM and inhibitor switch connector. Connector & terminal (B55) No. 4 — (T7) No. 3:	Is the resistance less than 1 Ω ?	Go to step 42.	Repair the open circuit in harness between TCM and inhibitor switch connector, and poor contact in coupling connector.
42 CHECK INPUT SIGNAL FOR TCM. 1) Turn the ignition switch to OFF. 2) Connect the connector to TCM and inhibitor switch. 3) Turn the ignition switch to ON. 4) Move the select lever to "D" range. 5) Measure the voltage between TCM and chassis ground. Connector & terminal (B55) No. 4 (+) — Chassis ground (-):	Is the voltage less than 1 V?	Go to step 43.	Go to step 65.

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
43 CHECK INPUT SIGNAL FOR TCM. 1) Move the select lever except for "D" range. 2) Measure the voltage between TCM and chassis ground. Connector & terminal (B55) No. 4 (+) — Chassis ground (-):	Is the voltage more than 8 V?	Go to step 65 .	Replace the TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>
44 CHECK "D" RANGE INDICATOR LIGHT BULB. 1) Turn the ignition switch to OFF. 2) Remove the combination meter. 3) Remove the "D" range indicator light bulb from combination meter.	Is the "D" range indicator light bulb OK?	Go to step 45 .	Replace the "D" range indicator light bulb. <Ref. to ID1-13, Combination Meter Assembly.>
45 CHECK HARNESS CONNECTOR BETWEEN TCM AND COMBINATION METER. 1) Disconnect the connectors from TCM and combination meter. 2) Measure the resistance of harness between TCM and combination meter. Connector & terminal (B55) No. 4 — (i11) No. 4:	Is the resistance less than 1 Ω ?	Go to step 65 .	Repair the open circuit in harness between TCM connector and combination meter, and TCM connector.
46 CHECK HARNESS CONNECTOR BETWEEN TCM AND INHIBITOR SWITCH. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM, inhibitor switch and combination meter. 3) Measure the resistance of harness between TCM and chassis ground. Connector & terminal (B55) No. 4 — Chassis ground:	Is the resistance more than 1 $M\Omega$?	Go to step 47 .	Repair the ground short circuit in "D" range circuit.
47 CHECK HARNESS CONNECTOR BETWEEN TCM AND INHIBITOR SWITCH. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and inhibitor switch. 3) Measure the resistance of harness between TCM and inhibitor switch connector. Connector & terminal (B54) No. 16 — (T7) No. 11:	Is the resistance less than 1 Ω ?	Go to step 48 .	Repair the open circuit in harness between TCM and inhibitor switch connector, and poor contact in coupling connector.
48 CHECK INPUT SIGNAL FOR TCM. 1) Turn the ignition switch to OFF. 2) Connect the connector to TCM and inhibitor switch. 3) Turn the ignition switch to ON. 4) Move the select lever to "3" range. 5) Measure the voltage between TCM and chassis ground. Connector & terminal (B54) No. 16 (+) — Chassis ground (-):	Is the voltage less than 1 V?	Go to step 49 .	Go to step 65 .
49 CHECK INPUT SIGNAL FOR TCM. 1) Move the select lever except for "3" range. 2) Measure the voltage between TCM and chassis ground. Connector & terminal (B54) No. 16 (+) — Chassis ground (-):	Is the voltage more than 8 V?	Go to step 65 .	Replace the TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
50 CHECK "3" RANGE INDICATOR LIGHT BULB. 1) Turn the ignition switch to OFF. 2) Remove the combination meter. 3) Remove the "3" range indicator light bulb from combination meter.	Is the "3" range indicator light bulb OK?	Go to step 51.	Replace the "3" range indicator light bulb. <Ref. to IDI-13, Combination Meter Assembly.>
51 CHECK HARNESS CONNECTOR BETWEEN TCM AND COMBINATION METER. 1) Disconnect the connectors from TCM and combination meter. 2) Measure the resistance of harness between TCM and combination meter. Connector & terminal (B54) No. 16 — (i11) No. 11:	Is the resistance more than 1 Ω ?	Go to step 65.	Repair the open circuit in harness between TCM connector and combination meter, and poor contact in TCM connector.
52 CHECK HARNESS CONNECTOR BETWEEN TCM AND INHIBITOR SWITCH. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM, inhibitor switch and combination meter. 3) Measure the resistance of harness between TCM and chassis ground. Connector & terminal (B54) No. 16 — Chassis ground:	Is the resistance more than 1 $M\Omega$?	Go to step 53.	Repair the ground short circuit in "3" range circuit.
53 CHECK HARNESS CONNECTOR BETWEEN TCM AND INHIBITOR SWITCH. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and inhibitor switch. 3) Measure the resistance of harness between TCM and inhibitor switch connector. Connector & terminal (B54) No. 4 — (T7) No. 4:	Is the resistance less than 1 Ω ?	Go to step 54.	Repair the open circuit in harness between TCM and inhibitor switch connector, and poor contact in coupling connector.
54 CHECK INPUT SIGNAL FOR TCM. 1) Turn the ignition switch to OFF. 2) Connect the connector to TCM and inhibitor switch. 3) Turn the ignition switch to ON. 4) Move the select lever to "2" range. 5) Measure the voltage between TCM and chassis ground. Connector & terminal (B54) No. 4 (+) — Chassis ground (-):	Is the voltage less than 1 V?	Go to step 55.	Go to step 65.
55 CHECK INPUT SIGNAL FOR TCM. 1) Move the select lever except for "2" range. 2) Measure the voltage between TCM and chassis ground. Connector & terminal (B54) No. 4 (+) — Chassis ground (-):	Is the voltage more than 8 V?	Go to step 65.	Replace the TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>
56 CHECK "2" RANGE INDICATOR LIGHT BULB. 1) Turn the ignition switch to OFF. 2) Remove the combination meter. 3) Remove the "2" range indicator light bulb from combination meter.	Is the "2" range indicator light bulb OK?	Go to step 57.	Replace the "2" range indicator light bulb. <Ref. to IDI-13, Combination Meter Assembly.>

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
57 CHECK HARNESS CONNECTOR BETWEEN TCM AND COMBINATION METER. 1) Disconnect the connectors from TCM and combination meter. 2) Measure the resistance of harness between TCM and combination meter. <i>Connector & terminal</i> <i>(B54) No. 4 — (i11) No. 12:</i>	Is the resistance less than 1 Ω ?	Go to step 65 .	Repair the open circuit in harness between TCM and combination meter, and poor contact in TCM connector.
58 CHECK HARNESS CONNECTOR BETWEEN TCM AND INHIBITOR SWITCH. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM, inhibitor switch and combination meter. 3) Measure the resistance of harness between TCM and chassis ground. <i>Connector & terminal</i> <i>(B54) No. 4 — Chassis ground:</i>	Is the resistance more than 1 $M\Omega$?	Go to step 59 .	Repair the ground short circuit in "2" range circuit.
59 CHECK HARNESS CONNECTOR BETWEEN TCM AND INHIBITOR SWITCH. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and inhibitor switch. 3) Measure the resistance of harness between TCM and inhibitor switch connector. <i>Connector & terminal</i> <i>(B54) No. 10 — (T7) No. 6:</i>	Is the resistance less than 1 Ω ?	Go to step 60 .	Repair the open circuit in harness between TCM and inhibitor switch connector, and poor contact in coupling connector.
60 CHECK INPUT SIGNAL FOR TCM. 1) Turn the ignition switch to OFF. 2) Connect the connector to TCM and inhibitor switch. 3) Turn the ignition switch to ON. 4) Move the select lever to "1" range. 5) Measure the voltage between TCM and chassis ground. <i>Connector & terminal</i> <i>(B54) No. 10 (+) — Chassis ground (-):</i>	Is the voltage less than 1 V?	Go to step 61 .	Go to step 65 .
61 CHECK INPUT SIGNAL FOR TCM. 1) Move the select lever except for "1" range. 2) Measure the voltage between TCM and chassis ground. <i>Connector & terminal</i> <i>(B54) No. 10 (+) — Chassis ground (-):</i>	Is the voltage more than 8 V?	Go to step 65 .	Replace the TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>
62 CHECK "1" RANGE INDICATOR LIGHT BULB. 1) Turn the ignition switch to OFF. 2) Remove the combination meter. 3) Remove the "1" range indicator light bulb from combination meter.	Is the "1" range indicator light bulb OK?	Go to step 63 .	Replace the "1" range indicator light bulb. <Ref. to ID1-13, Combination Meter Assembly.>
63 CHECK HARNESS CONNECTOR BETWEEN TCM AND COMBINATION METER. 1) Disconnect the connectors from TCM and combination meter. 2) Measure the resistance of harness between TCM and combination meter. <i>Connector & terminal</i> <i>(B54) No. 10 — (i11) No. 5:</i>	Is the resistance less than 1 Ω ?	Go to step 65 .	Repair the open circuit in harness between TCM and combination meter, poor contact in TCM connector.

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
64 CHECK HARNESS CONNECTOR BETWEEN TCM AND INHIBITOR SWITCH. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM, inhibitor switch and combination meter. 3) Measure the resistance of harness between TCM and chassis ground. Connector & terminal (B54) No. 10 — Chassis ground:	Is the resistance more than 1 M Ω ?	Go to step 65 .	Repair the ground short circuit in "1" range circuit.
65 CHECK POOR CONTACT.	Is there poor contact in inhibitor switch circuit?	Repair the poor contact.	Go to step 66 .
66 CHECK INHIBITOR SWITCH.	Is the inhibitor switch in proper position?	Replace the TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>	Adjust the inhibitor switch and select cable. <Ref. to 4AT-50, Inhibitor Switch.> and <Ref. to CS-31, Select Cable.>

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)
AUTOMATIC TRANSMISSION (DIAGNOSTICS)

MEMO:

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

B: DTC P0712 — TRANSMISSION FLUID TEMPERATURE SENSOR CIRCUIT LOW INPUT —

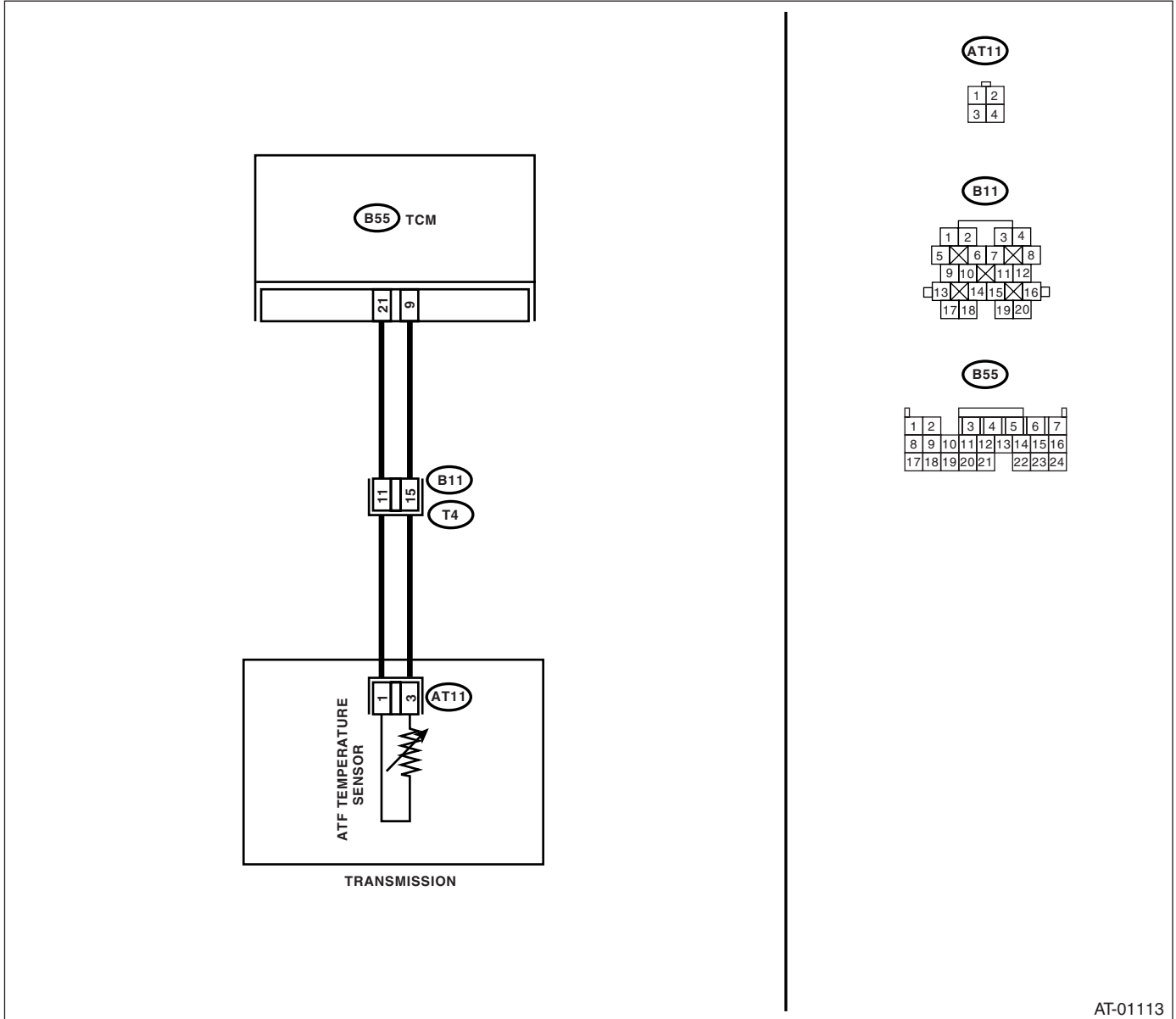
DIAGNOSIS:

The input signal circuit of TCM to ATF temperature sensor is open or shorted.

TROUBLE SYMPTOM:

Excessive shift shock.

WIRING DIAGRAM:



AT-01113

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK HARNESS CONNECTOR BETWEEN TCM AND ATF TEMPERATURE SENSOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission and TCM. 3) Measure the resistance of harness between TCM and transmission connector. <i>Connector & terminal</i> <i>(B55) No. 21 — (B11) No. 11:</i>	Is the resistance less than 1 Ω ?	Go to step 2.	Repair the 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. <i>Connector & terminal</i> <i>(B55) No. 9 — (B11) No. 15:</i>	Is the resistance less than 1 Ω ?	Go to step 3.	Repair the open circuit in harness between TCM and transmission connector.
3 CHECK ATF TEMPERATURE SENSOR. 1) Turn the ignition switch to OFF. 2) Connect the connectors to transmission and TCM. 3) Turn the ignition switch to ON and start engine. 4) Warm-up the transmission until ATF temperature reaches to 80°C (176°F). NOTE: If ambient temperature is below 0°C (32°F), drive the vehicle until ATF reaches its operating temperature. 5) Disconnect the connector from transmission. 6) Measure the resistance between transmission connector terminals. <i>Connector & terminal</i> <i>(T4) No. 11 — No. 15:</i>	Is the resistance 300 — 800 Ω ?	Go to step 4.	Go to step 7.
4 CHECK ATF TEMPERATURE SENSOR. Measure the resistance between transmission connector terminals. <i>Connector & terminal</i> <i>(T4) No. 11 — No. 15:</i>	Does the resistance value increase when ATF temperature decreases?	Go to step 5.	Go to step 7.
5 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR. 1) Connect the connector to transmission. 2) Turn the ignition switch to ON (engine OFF).	Does the ATF temperature gradually decrease?	Even if the AT OIL TEMP warning light blinks, the circuit has returned to a normal condition at this time. Temporary poor contact of the connector or harness may be the cause. Repair the harness or contact in ATF temperature sensor and transmission connector.	Go to step 6.
6 CHECK POOR CONTACT.	Is there poor contact in ATF temperature sensor circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<p>7 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND ATF TEMPERATURE SENSOR.</p> <p>1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission. 3) Remove the transmission connector from bracket. 4) Lift-up the vehicle and place safety stand.</p> <p>NOTE: Raise all wheels off floor. 5) Drain the ATF.</p> <p>CAUTION: Do not drain the ATF until it cools down.</p> <p>6) Remove the oil pan, and disconnect the connector from ATF temperature sensor connector. 7) Measure the resistance of harness between ATF temperature sensor and transmission connector.</p> <p>Connector & terminal (T4) No. 11 — (AT11) No. 1:</p>	<p>Is the resistance less than 1 Ω?</p>	<p>Go to step 8.</p>	<p>Repair the open circuit in harness between ATF temperature sensor and transmission connector.</p>
<p>8 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND ATF TEMPERATURE SENSOR.</p> <p>Measure the resistance of harness between ATF temperature sensor and transmission connector.</p> <p>Connector & terminal (T4) No. 15 — (AT11) No. 3:</p>	<p>Is the resistance less than 1 Ω?</p>	<p>Go to step 9.</p>	<p>Repair the open circuit in harness between ATF temperature sensor and transmission connector.</p>
<p>9 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND ATF TEMPERATURE SENSOR.</p> <p>Measure the resistance of harness between transmission connector and transmission ground.</p> <p>Connector & terminal (T4) No. 11 — Transmission ground:</p>	<p>Is the resistance more than 1 $M\Omega$?</p>	<p>Go to step 10.</p>	<p>Repair the short circuit in harness between ATF temperature sensor and transmission connector.</p>
<p>10 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND ATF TEMPERATURE SENSOR.</p> <p>Measure the resistance of harness between transmission connector and transmission ground.</p> <p>Connector & terminal (T4) No. 15 — Transmission ground:</p>	<p>Is the resistance more than 1 $M\Omega$?</p>	<p>Replace the control valve body. <Ref. to 4AT-61, Control Valve Body.></p>	<p>Repair the short circuit in harness between ATF temperature sensor and transmission connector.</p>

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)
AUTOMATIC TRANSMISSION (DIAGNOSTICS)

MEMO:

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

C: DTC P0713 — TRANSMISSION FLUID TEMPERATURE SENSOR CIRCUIT HIGH INPUT —

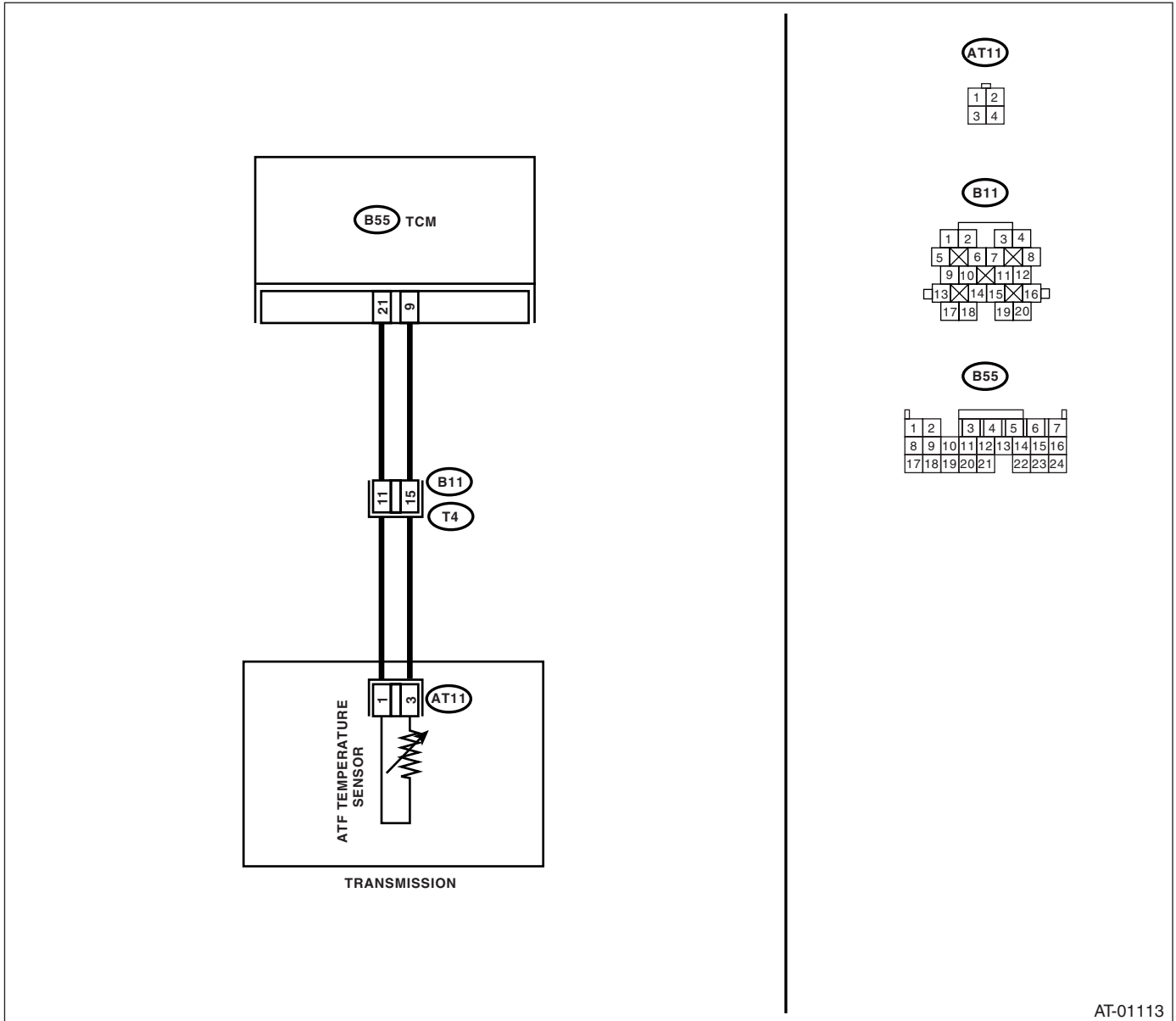
DIAGNOSIS:

The input signal circuit of TCM to ATF temperature sensor is open or shorted.

TROUBLE SYMPTOM:

Excessive shift shock.

WIRING DIAGRAM:



AT-01113

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK HARNESS CONNECTOR BETWEEN TCM AND ATF TEMPERATURE SENSOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission and TCM. 3) Turn the ignition switch to ON. 4) Measure the voltage of harness between TCM connector and chassis ground. Connector & terminal (B55) No. 21 (+) — Chassis ground (-):	Is the voltage less than 1 V?	Go to step 2.	Repair the short circuit in harness between TCM and transmission connector.
2 CHECK HARNESS CONNECTOR BETWEEN TCM AND ATF TEMPERATURE SENSOR. Measure the voltage of harness between TCM connector and chassis ground. Connector & terminal (B55) No. 9 (+) — Chassis ground (-):	Is the voltage less than 1 V?	Go to step 3.	Repair the short circuit in harness between TCM and transmission connector.
3 CHECK ATF TEMPERATURE SENSOR. 1) Turn the ignition switch to OFF. 2) Connect the connectors to transmission and TCM. 3) Turn the ignition switch to ON and start engine. 4) Warm-up the transmission until ATF temperature reaches to 80°C (176°F). NOTE: If ambient temperature is below 0°C (32°F), drive the vehicle until ATF reaches its operating temperature. 5) Disconnect the connector from transmission. 6) Measure the resistance between transmission connector terminals. Connector & terminal (T4) No. 11 — No. 15:	Is the resistance 500 — 600 Ω?	Go to step 4.	Replace control valve body.
4 CHECK ATF TEMPERATURE SENSOR. Measure the resistance between transmission connector terminals. Connector & terminal (T4) No. 11 — No. 15:	Does the resistance value increase when ATF temperature decreases?	Go to step 7.	Replace control valve body.
5 PREPARE SUBARU SELECT MONITOR.	Do you have a Subaru Select Monitor?	Go to step 7.	Go to step 6.
6 CHECK INPUT SIGNAL FOR TCM. 1) Connect the connector to transmission. 2) Warm-up the transmission until ATF temperature is about 80°C (176°F). NOTE: If ambient temperature is below 0°C (32°F), drive the vehicle until ATF reaches its operating temperature. 3) Measure the voltage between TCM connector terminal. Connector & terminal (B55) No. 9 (+) — No. 21 (-):	Is the voltage 1.5 — 1.9 V?	Even if the AT OIL TEMP warning light turns on, the circuit has returned to a normal condition at this time. Temporary poor contact of the connector or harness may be the cause. Repair the harness or contact in ATF temperature sensor and transmission connector.	Go to step 8.

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

	Step	Check	Yes	No
7	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?	Even if the AT OIL TEMP warning light turns on, the circuit has returned to a normal condition at this time. Temporary poor contact of the connector or harness may be the cause. Repair the harness or contact in ATF temperature sensor and transmission connector.	Go to step 8.
8	CHECK POOR CONTACT.	Is there poor contact in ATF temperature sensor circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

MEMO:

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

D: DTC P0715 — INPUT/TURBINE SPEED SENSOR CIRCUIT —

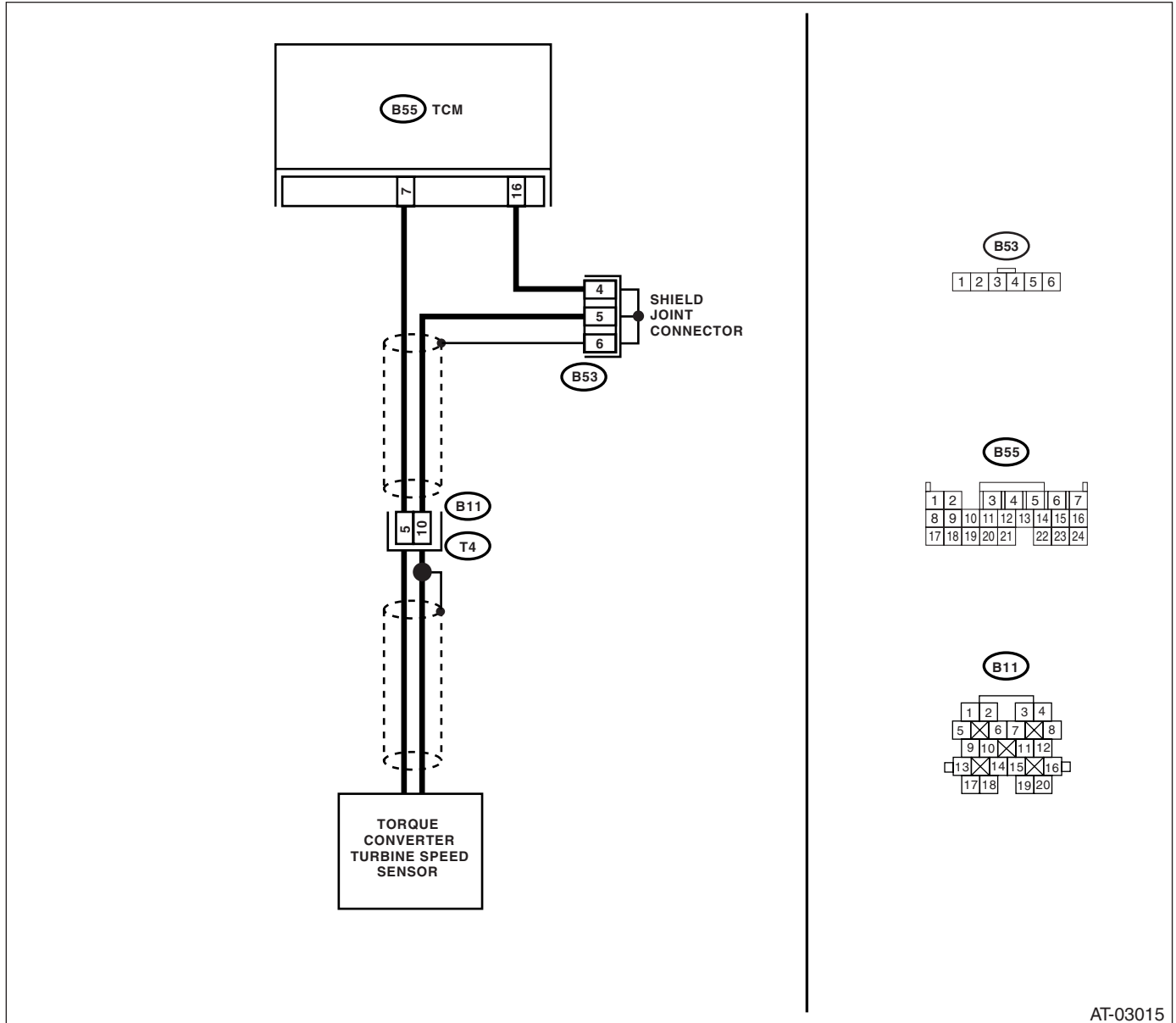
DIAGNOSIS:

The input signal circuit of TCM is open or shorted.

TROUBLE SYMPTOM:

Excessive shift shock.

WIRING DIAGRAM:



AT-03015

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK TORQUE CONVERTER TURBINE SPEED SENSOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission. 3) Measure the resistance between transmission connector receptacle's terminals. <i>Connector & terminal (T4) No. 5 — No. 10:</i>	Is the resistance 450 — 650 Ω ?	Go to step 2.	Replace the turbine speed sensor. <Ref. to 4AT-60, 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. <i>Connector & terminal (B55) No. 7 — (B11) No. 5:</i>	Is the resistance less than 1 Ω ?	Go to step 3.	Repair the 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. <i>Connector & terminal (B55) No. 16 — (B11) No. 10:</i>	Is the resistance less than 1 Ω ?	Go to step 4.	Repair the 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. <i>Connector & terminal (B55) No. 16 — Chassis ground:</i>	Is the resistance more than 1 $M\Omega$?	Go to step 5.	Repair the 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. <i>Connector & terminal (B55) No. 7 — Chassis ground:</i>	Is the resistance more than 1 $M\Omega$?	Go to step 6.	Repair the short circuit in harness between TCM and transmission connector, and poor contact in coupling connector.
6 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR. 1) Connect the connectors to TCM and transmission. 2) Connect the Subaru Select Monitor to data link connector. 3) Turn the ignition switch to ON and turn 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?	Even if the AT OIL TEMP warning light blinks, 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 the harness or connector in TCM and transmission.	Go to step 7.
7 CHECK POOR CONTACT.	Is there poor contact in torque converter turbine speed sensor circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

E: DTC P0719 — TORQUE CONVERTER/BRAKE SWITCH “B” CIRCUIT LOW —

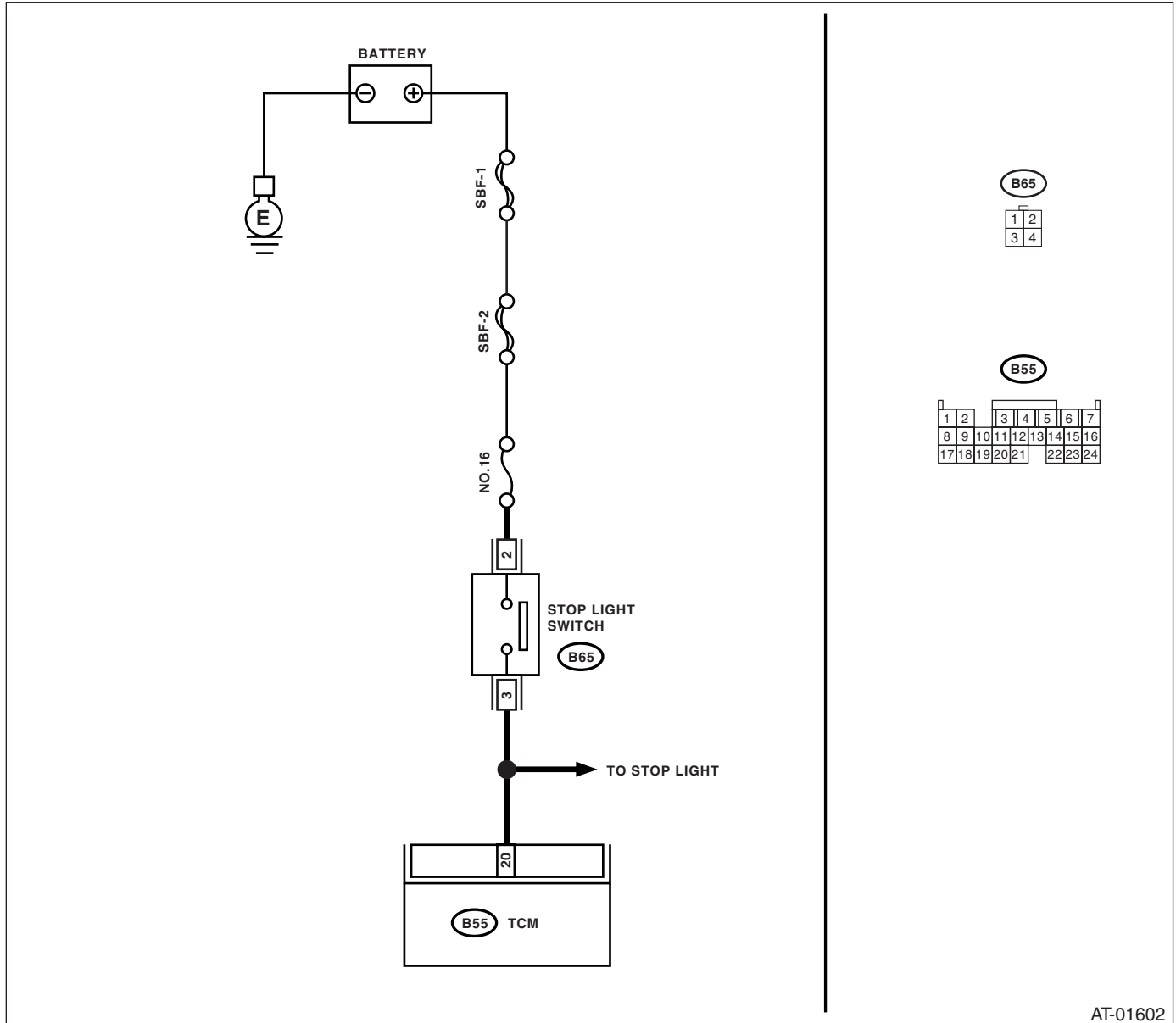
DIAGNOSIS:

Brake switch malfunction or input signal open circuit.

TROUBLE SYMPTOM:

Gear is not shifted down when climbing hill.

WIRING DIAGRAM:



AT-01602

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK OPERATION OF BRAKE LIGHT. Depress the brake pedal.	Does the brake light illuminate?	Go to step 2.	Check the brake light circuit.
2 CHECK TCM INPUT SIGNAL. 1) Depress the brake pedal. 2) Measure the voltage of harness between TCM and stop light switch. Connector & terminal (B55) No. 20 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Go to step 5.	Go to step 3.
3 HECK HARNESS CONNECTOR BETWEEN TCM AND BRAKE LIGHT SWITCH. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and stop light switch. 3) Measure the resistance between TCM and stop light switch. Connector & terminal (B55) No. 20 — (B65) No. 3:	Is the resistance less than 1 Ω ?	Go to step 4.	Repair the open harness between TCM and stop light switch.
4 CHECK HARNESS CONNECTOR BETWEEN TCM AND BRAKE LIGHT SWITCH. Measure the resistance between TCM and stop light switch. Connector & terminal (B55) No. 20 — (B65) No. 3:	Is the resistance more than 1 $M\Omega$?	Go to step 5.	Repair the short harness between TCM and stop light switch.
5 INSPECT POOR CONTACT.	Is there poor contact in the brake switch input signal circuit?	Repair poor contact.	Replace the TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

F: DTC P0720 — AT VEHICLE SPEED SENSOR CIRCUIT —

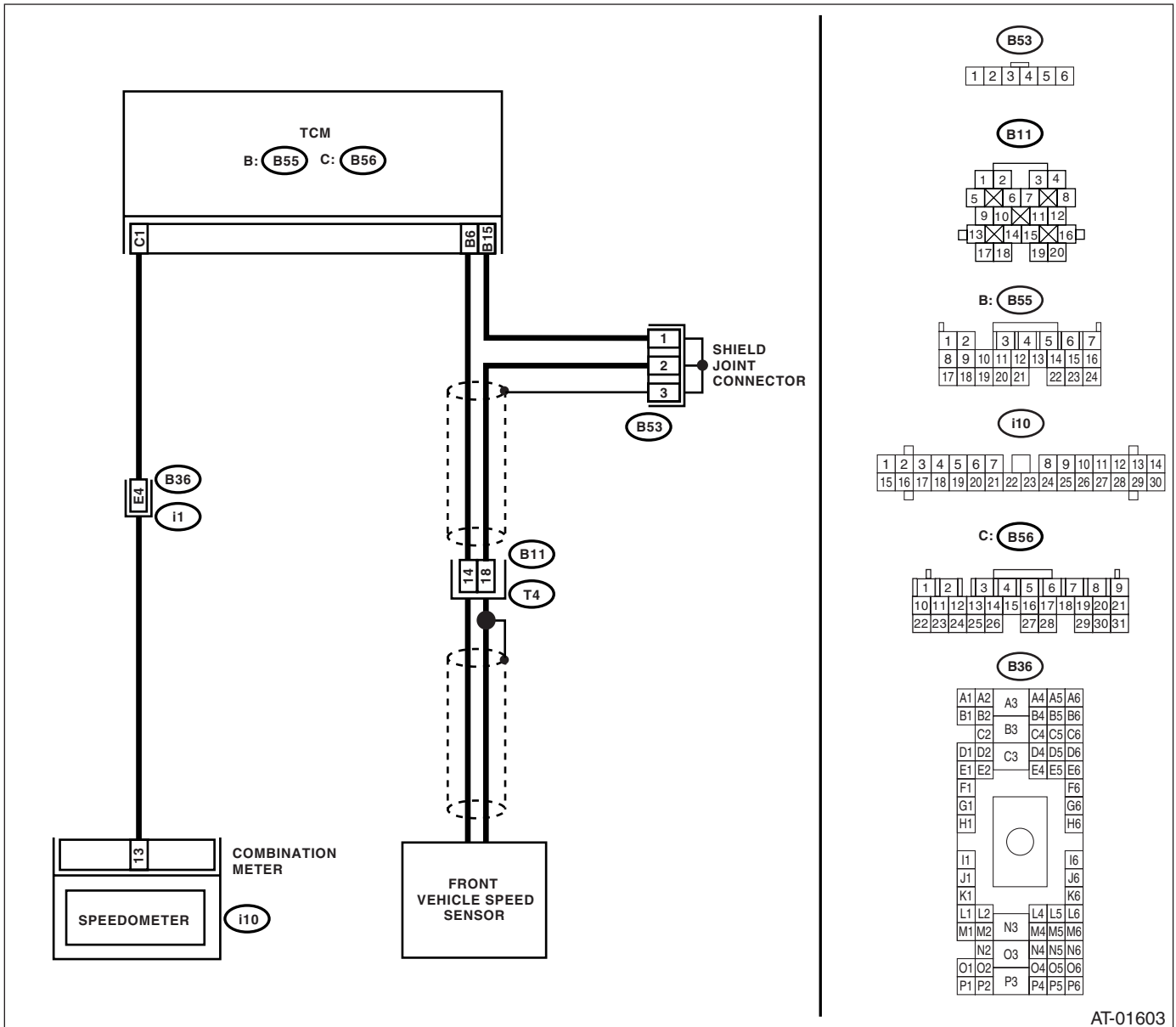
DIAGNOSIS:

- 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:



AT-01603

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector. Connector & terminal (B55) No. 6 — (B11) No. 14:	Is the resistance less than 1 Ω ?	Go to step 2.	Repair the 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 (B55) No. 15 — (B11) No. 18:	Is the resistance less than 1 Ω ?	Go to step 3.	Repair the 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 (B55) No. 6 — Chassis ground:	Is the resistance more than 1 $M\Omega$?	Go to step 4.	Repair the 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 (B55) No. 15 — Chassis ground:	Is the resistance more than 1 $M\Omega$?	Go to step 5.	Repair the 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. 14 — No. 18:	Is the resistance 450 — 650 Ω ?	Go to step 6.	Replace the front vehicle speed sensor. <Ref. to 4AT-54, Front Vehicle Speed Sensor.>

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<p>6 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR.</p> <ol style="list-style-type: none"> 1) Connect all connectors. 2) Connect the Subaru Select Monitor to data link connector. 3) Lift-up the vehicle and place safety stands. <p>NOTE: Raise all wheels off floor.</p> <ol style="list-style-type: none"> 4) Turn the ignition switch to ON and turn Subaru Select Monitor switch to ON. 5) Start the engine. 6) Read the data of vehicle speed using Subaru Select Monitor. <ul style="list-style-type: none"> • Compare the speedometer with Subaru Select Monitor indications. • Vehicle speed is indicated in “km/h” or “MPH”. <ol style="list-style-type: none"> 7) Slowly increase the vehicle speed to 60 km/h or 37 MPH. <p>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-21, Clear Memory Mode.></p>	<p>Does the speedometer indication increase as Subaru Select Monitor front wheel speed data increases?</p>	<p>Even if the AT OIL TEMP warning light blinks, the circuit has returned to a normal condition at this time. A temporary poor connector or harness may be the cause. Repair the harness or connector in front vehicle speed sensor circuit.</p>	<p>Go to step 7.</p>
<p>7 CHECK POOR CONTACT.</p>	<p>Is there poor contact in front vehicle speed sensor circuit?</p>	<p>Repair the poor contact.</p>	<p>Replace the TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).></p>

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)
AUTOMATIC TRANSMISSION (DIAGNOSTICS)

MEMO:

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

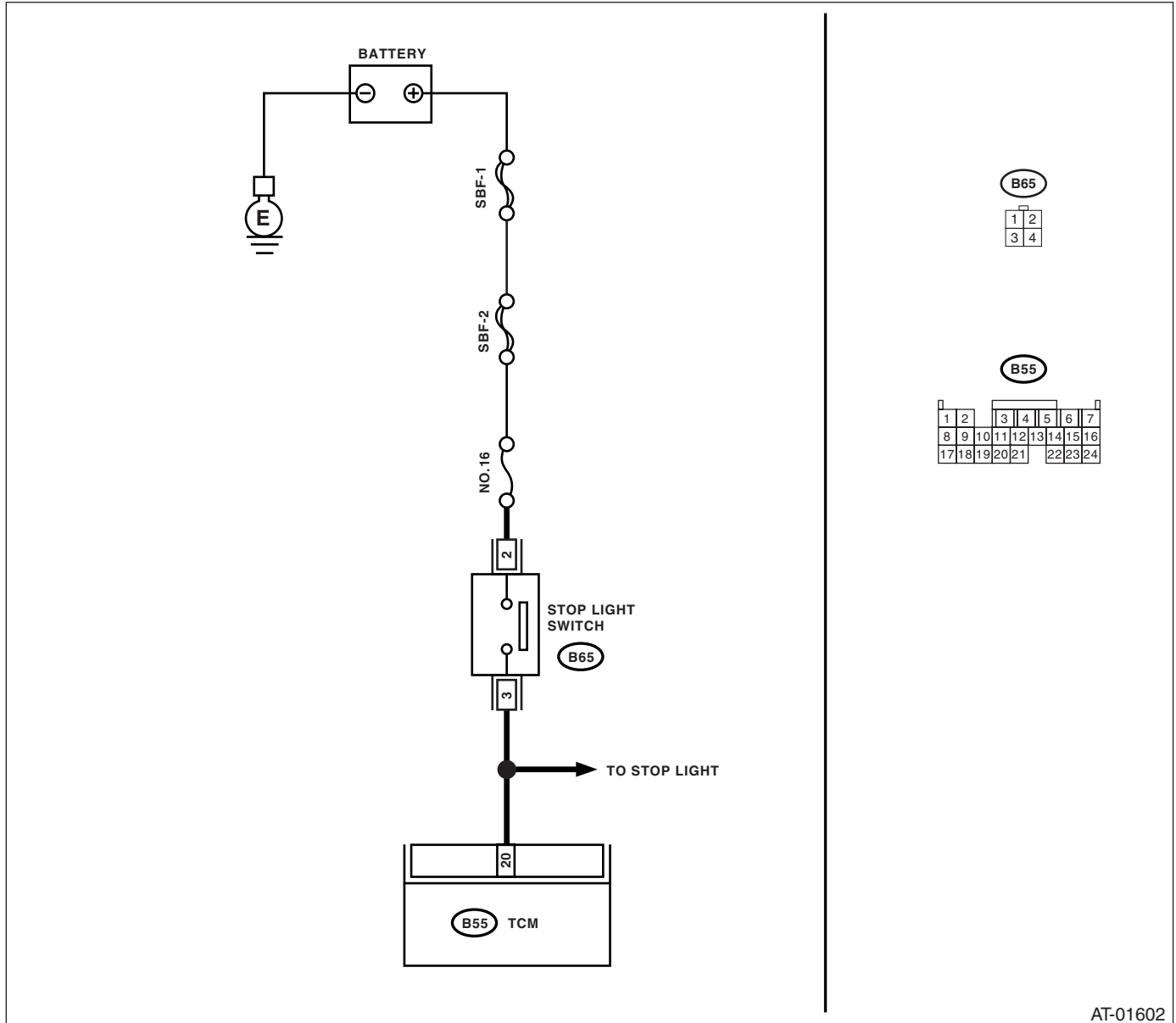
G: DTC P0724 — TORQUE CONVERTER/BRAKE SWITCH “B” CIRCUIT HIGH — DIAGNOSIS:

Brake switch malfunction or open brake switch input signal circuit.

TROUBLE SYMPTOM:

Gear is not shifted down when climbing hill.

WIRING DIAGRAM:



AT-01602

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

	Step	Check	Yes	No
1	CHECK TCM INPUT SIGNAL. 1) Disconnect the harness connector from TCM. 2) Measure the voltage of harness between TCM and stop light switch. Connector & terminal (B55) No. 20 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Go to step 2.	Go to step 4.
2	CHECK STOP LIGHT SWITCH. 1) Turn the ignition switch OFF. 2) Disconnect the connector from stop light switch. 3) Measure the resistance between stop light switch connector. Connector & terminal No. 2 — No. 3:	Is the resistance more than 1 M Ω ?	Go to step 3.	Replace the stop light switch.
3	CHECK HARNESS CONNECTOR BETWEEN TCM AND STOP LIGHT SWITCH. 1) Turn the ignition switch ON. 2) Measure the voltage between TCM and chassis ground. Connector & terminal (B55) No. 20 (+) — Chassis ground (-):	Is the voltage less than 1 V?	Go to step 4.	Repair the short in power supply circuit to harness between TCM and stop light switch.
4	INSPECT POOR CONTACT.	Is there poor contact in the brake switch input signal circuit?	Repair poor contact.	Replace the TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

H: DTC P0725 — ENGINE SPEED INPUT CIRCUIT —

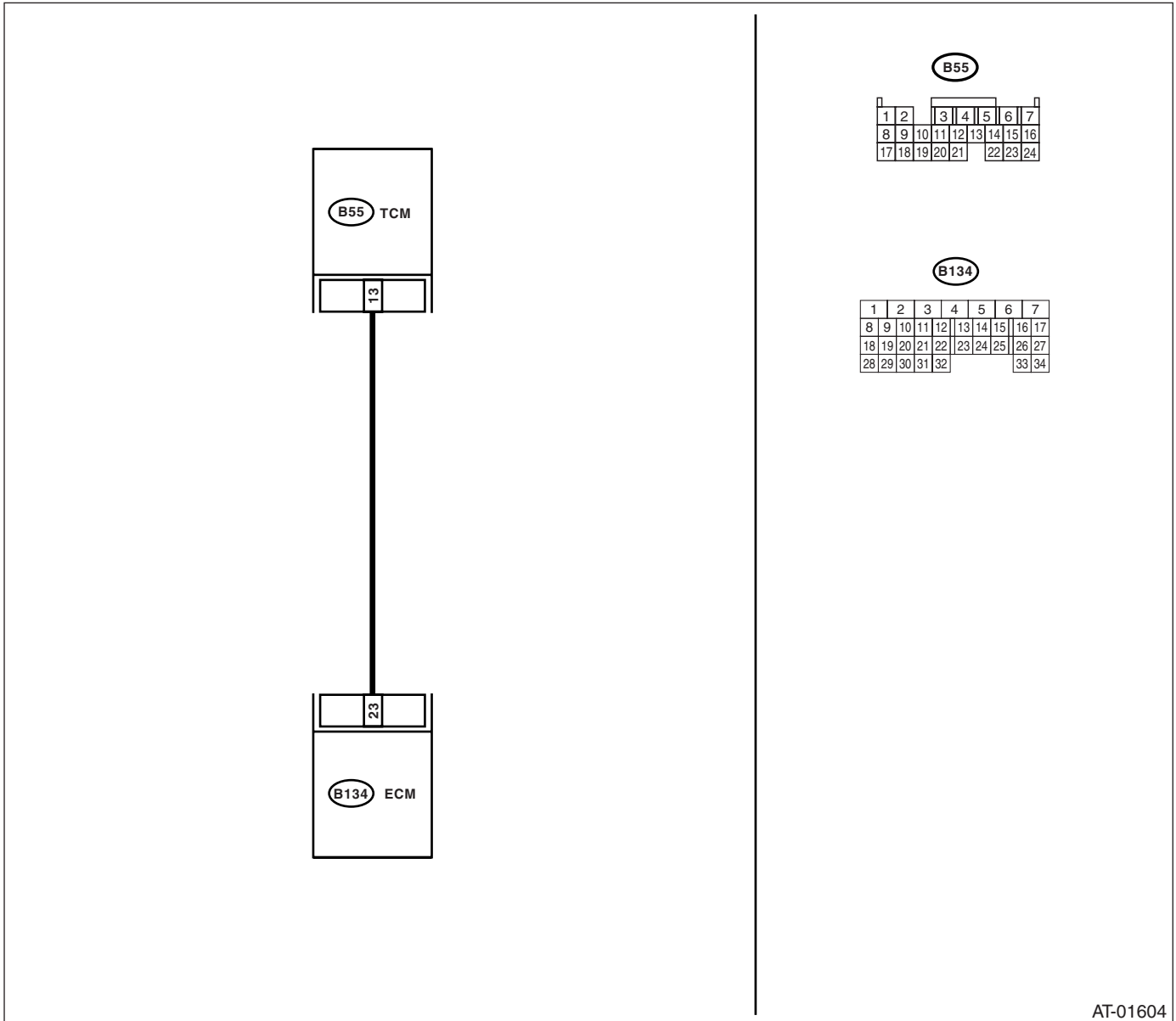
DIAGNOSIS:

The engine speed input signal circuit is open or shorted.

TROUBLE SYMPTOM:

- No lock-up (after engine warm-up).
- The AT OIL TEMP warning light remains on when vehicle speed is "0".

WIRING DIAGRAM:



AT-01604

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

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 (B55) No. 13 — (B134) No. 23:	Is the resistance less than 1 Ω ?	Go to step 2.	Repair the 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 (B55) No. 13 — Chassis ground:	Is the resistance more than 1 $M\Omega$?	Go to step 3.	Repair the short circuit in harness between TCM and ECM connector.
3 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR. 1) Connect the connectors to TCM and ECM. 2) Connect the Subaru Select Monitor to data link connector. 3) Start the engine and turn Subaru Select Monitor switch to ON. 4) Idle the engine. 5) Read the data of engine speed using Subaru Select Monitor. • Display shows the engine speed signal value sent from ECM.	Is the revolution value same as tachometer reading shown on combination meter?	Even if the AT OIL TEMP warning light blinks, 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 the harness or connector in TCM and ECM.	Go to step 4.
4 CHECK POOR CONTACT.	Is there poor contact in engine speed signal circuit?	Repair the poor contact.	Go to step 5.
5 CONFIRM DTC P0725. Replace the ECM with a new one.	Does the DTC appear again, after memory has been cleared?	Replace the TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>	Replace the ECM.

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)
AUTOMATIC TRANSMISSION (DIAGNOSTICS)

I: DTC P0731 — GEAR 1 INCORRECT RATIO —

NOTE:

Refer to DTC P0736 for diagnostic procedure. <Ref. to 4AT(D)-65, DTC P0736 — REVERSE INCORRECT RATIO —.>

J: DTC P0732 — GEAR 2 INCORRECT RATIO —

NOTE:

Refer to DTC P0736 for diagnostic procedure. <Ref. to 4AT(D)-65, DTC P0736 — REVERSE INCORRECT RATIO —.>

K: DTC P0733 — GEAR 3 INCORRECT RATIO —

NOTE:

Refer to DTC P0736 for diagnostic procedure. <Ref. to 4AT(D)-65, DTC P0736 — REVERSE INCORRECT RATIO —.>

L: DTC P0734 — GEAR 4 INCORRECT RATIO —

NOTE:

Refer to DTC P0736 for diagnostic procedure. <Ref. to 4AT(D)-65, DTC P0736 — REVERSE INCORRECT RATIO —.>

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

M: DTC P0736 — REVERSE INCORRECT RATIO —

DIAGNOSIS:

Vehicle speed sensor malfunction and torque converter turbine speed sensor malfunction, etc. or control valve malfunction.

TROUBLE SYMPTOM:

- Shift point is too high or too low.
- Excessive shift shock.
- Tight cornering condition is occurred.
- Gear is not shifted to reverse.
- Gear position is held by fail safe function.

Step	Check	Yes	No
1 CHECK ACCELERATOR PEDAL POSITION SENSOR. 1) Connect the Subaru Select Monitor to data link connector. 2) Turn the ignition switch to ON. 3) Read the value of accelerator pedal position sensor.	Does the value of accelerator pedal position sensor change from 0% to 100% smoothly when throttle position sensor was operated from fully closing to fully opening?	Go to step 2.	Check accelerator pedal position sensor. <Ref. to 4AT(D)-100, DTC P1708 — THROTTLE POSITION SENSOR CIRCUIT LOW INPUT —.>
2 FRONT VEHICLE SPEED SENSOR. 1) Lift-up the vehicle and place safety stand. 2) Start the engine. 3) Move the select lever “D” range and slowly increase vehicle speed. NOTE: The speed difference between front and rear wheels may light 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.	Does the vehicle speed displayed by Subaru Select Monitor almost correspond with vehicle speed indicated by combination meter?	Go to step 3.	Check the front vehicle speed sensor.
3 CHECK TORQUE CONVERTER TURBINE SPEED SENSOR. 1) Move the select lever to “P” or “N” range. 2) Idle the engine.	Does the turbine speed sensor revolution displayed by Subaru Select Monitor almost correspond with engine revolution indicated by tachometer?	There are malfunctions in TCM, TCM connector poor contact, or transmission assembly mechanical malfunction.	Check the torque converter turbine speed sensor circuit.

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

N: DTC P0741 — TORQUE CONVERTER CLUTCH CIRCUIT PERFORMANCE OR STUCK OFF —

DIAGNOSIS:

- Lock up clutch malfunction
- Locking of valve

TROUBLE SYMPTOM:

Lock up is not operated.

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

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)
AUTOMATIC TRANSMISSION (DIAGNOSTICS)

MEMO:

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)
 AUTOMATIC TRANSMISSION (DIAGNOSTICS)

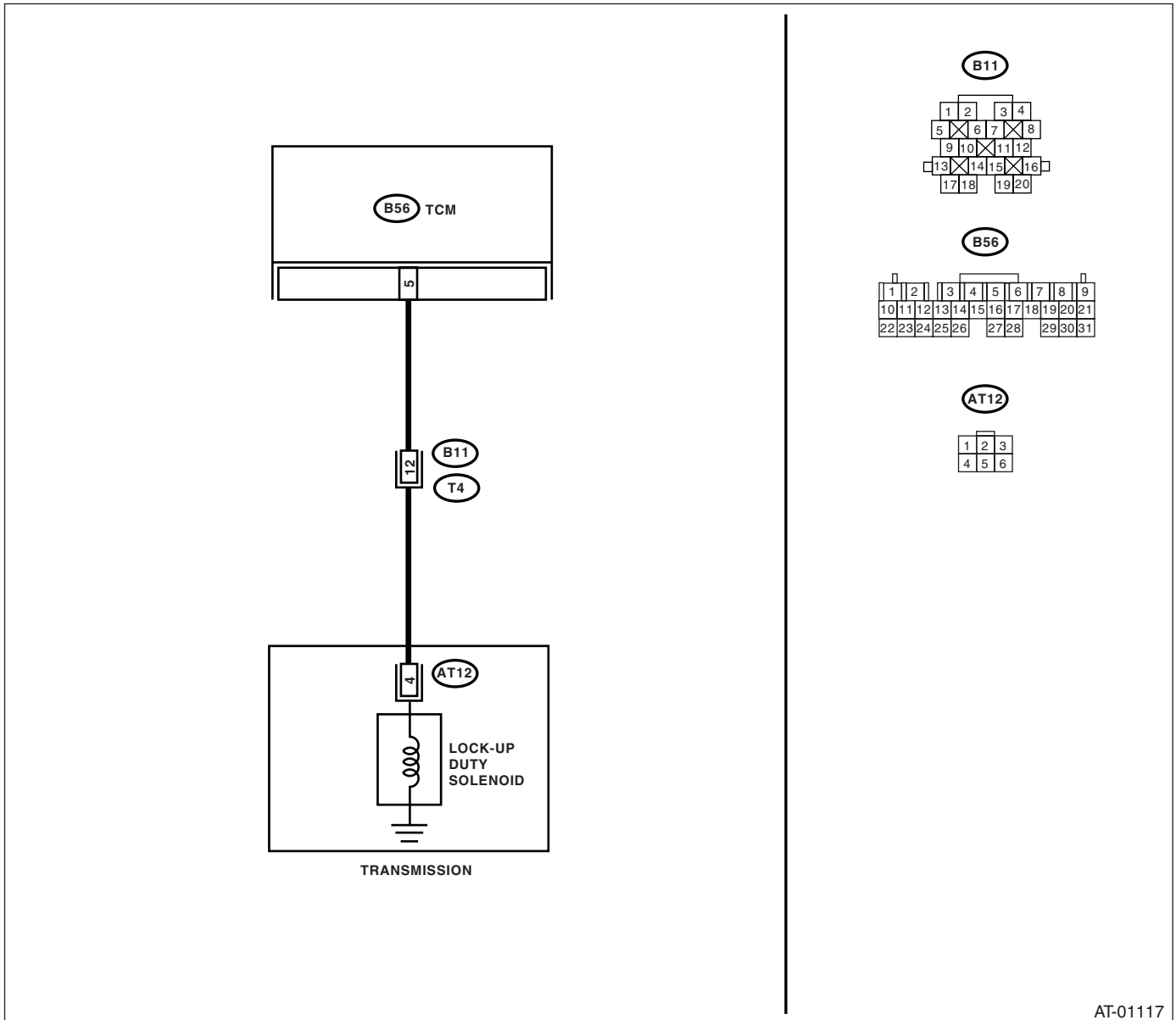
O: DTC P0743 — TORQUE CONVERTER CLUTCH CIRCUIT ELECTRICAL —
DIAGNOSIS:

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

TROUBLE SYMPTOM:

No "lock-up" (after engine warm-up).

WIRING DIAGRAM:



AT-01117

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
1	CHECK DTC.	Go to another DTC.	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 (B56) No. 5 — (B11) No. 12:	Go to step 3.	Repair the 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 (B56) No. 5 — Chassis ground:	Go to step 4.	Repair the 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. 12 — No. 20:	Go to step 6.	Go to step 5.
5	CHECK LOCK-UP DUTY SOLENOID (IN TRANSMISSION). 1) Disconnect the transmission connector. 2) Drain the ATF. CAUTION: Do not drain the ATF until it cools down. 3) Remove the oil pan and disconnect connector from lock-up duty solenoid. 4) Measure the resistance between lock-up duty solenoid and transmission ground. Connector & terminal (AT12) No. 4 — Transmission ground:	Go to step 6.	Replace the control valve body. <Ref. to 4AT-61, Control Valve Body.>
6	CHECK HARNESS CONNECTOR BETWEEN LOCK-UP DUTY SOLENOID AND TRANSMISSION. Measure the resistance of harness between lock-up duty solenoid and transmission connector. Connector & terminal (T4) No. 12 — (AT12) No. 4:	Go to step 7.	Repair the open circuit in harness between TCM and transmission connector.
7	CHECK HARNESS CONNECTOR BETWEEN LOCK-UP DUTY SOLENOID AND TRANSMISSION. Measure the resistance of harness between transmission connector and transmission ground. Connector & terminal (T4) No. 12 — Transmission ground:	Even if the AT OIL TEMP warning light blinks, 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 the harness or connector in lock-up duty solenoid and transmission.	Repair the short circuit in harness between lock-up duty solenoid and transmission connector.

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

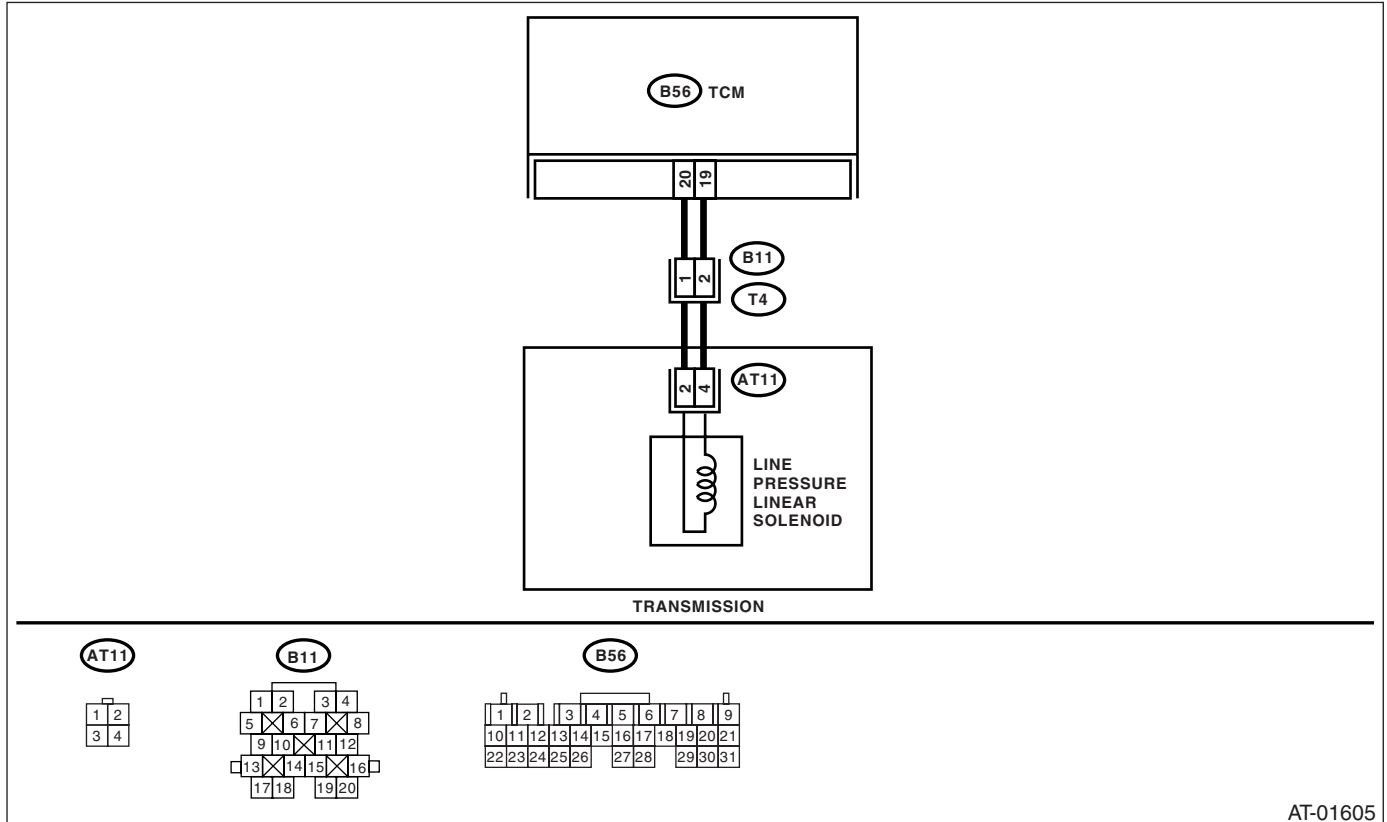
P: DTC P0748 — PRESSURE CONTROL SOLENOID “A” ELECTRICAL — DIAGNOSIS:

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

TROUBLE SYMPTOM:

Excessive shift shock.

WIRING DIAGRAM:



AT-01605

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission and TCM. 3) Measure the resistance of harness between TCM and transmission connector. <i>Connector & terminal</i> <i>(B56) No. 19 — (B11) No. 2:</i> <i>(B56) No. 20 — (B11) No. 1:</i>	Is the resistance less than 1 Ω ?	Go to step 2.	Repair the open circuit in harness between TCM and transmission connector.
2 CHECK HARNESS CONNECTOR BETWEEN TCM AND CHASSIS GROUND. Measure the resistance of harness between TCM and chassis ground. <i>Connector & terminal</i> <i>(B56) No. 19 — Chassis ground:</i> <i>(B56) No. 20 — Chassis ground:</i>	Is the resistance more than 1 $M\Omega$?	Go to step 3.	Repair the short circuit in harness between TCM and transmission connector.
3 CHECK LINE PRESSURE LINEAR SOLENOID. Measure the resistance between transmission connector receptacle's terminals. <i>Connector & terminal</i> <i>(T4) No. 1 — No. 2:</i>	Is the resistance 4 — 6 Ω ?	Go to step 5.	Go to step 4.
4 CHECK LINE PRESSURE LINEAR SOLENOID (IN TRANSMISSION). 1) Remove the transmission connector from bracket. 2) Drain the ATF. CAUTION: Do not drain the ATF until it cools down. 3) Remove the oil pan, and disconnect connector from line pressure linear solenoid. 4) Measure the resistance between line pressure linear solenoid connector and transmission ground. <i>Connector & terminal</i> <i>(AT11) No. 2 — No. 4:</i>	Is the resistance 2.0 — 4.5 Ω ?	Go to step 5.	Replace the control valve body. <Ref. to 4AT-61, Control Valve Body.>
5 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND LINE PRESSURE LINEAR SOLENOID. Measure the resistance of harness between line pressure linear solenoid and transmission connector. <i>Connector & terminal</i> <i>(T4) No. 2 — (AT11) No. 4:</i> <i>(T4) No. 1 — (AT11) No. 2:</i>	Is the resistance less than 1 Ω ?	Go to step 6.	Repair the open circuit in harness between line pressure linear solenoid and transmission connector.

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<p>6 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND LINE PRESSURE LINEAR SOLENOID. Measure the resistance of harness between transmission connector and transmission ground. Connector & terminal (T4) No. 1 — Transmission ground: (T4) No. 2 — Transmission ground:</p>	Is the resistance more than 1 MΩ?	Even if the AT OIL TEMP warning light blinks, 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 the harness or connector in line pressure linear solenoid and transmission.	Repair the short circuit in harness between line pressure linear solenoid and transmission connector.

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

MEMO:

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Q: DTC P0753 — SHIFT SOLENOID “A” ELECTRICAL —

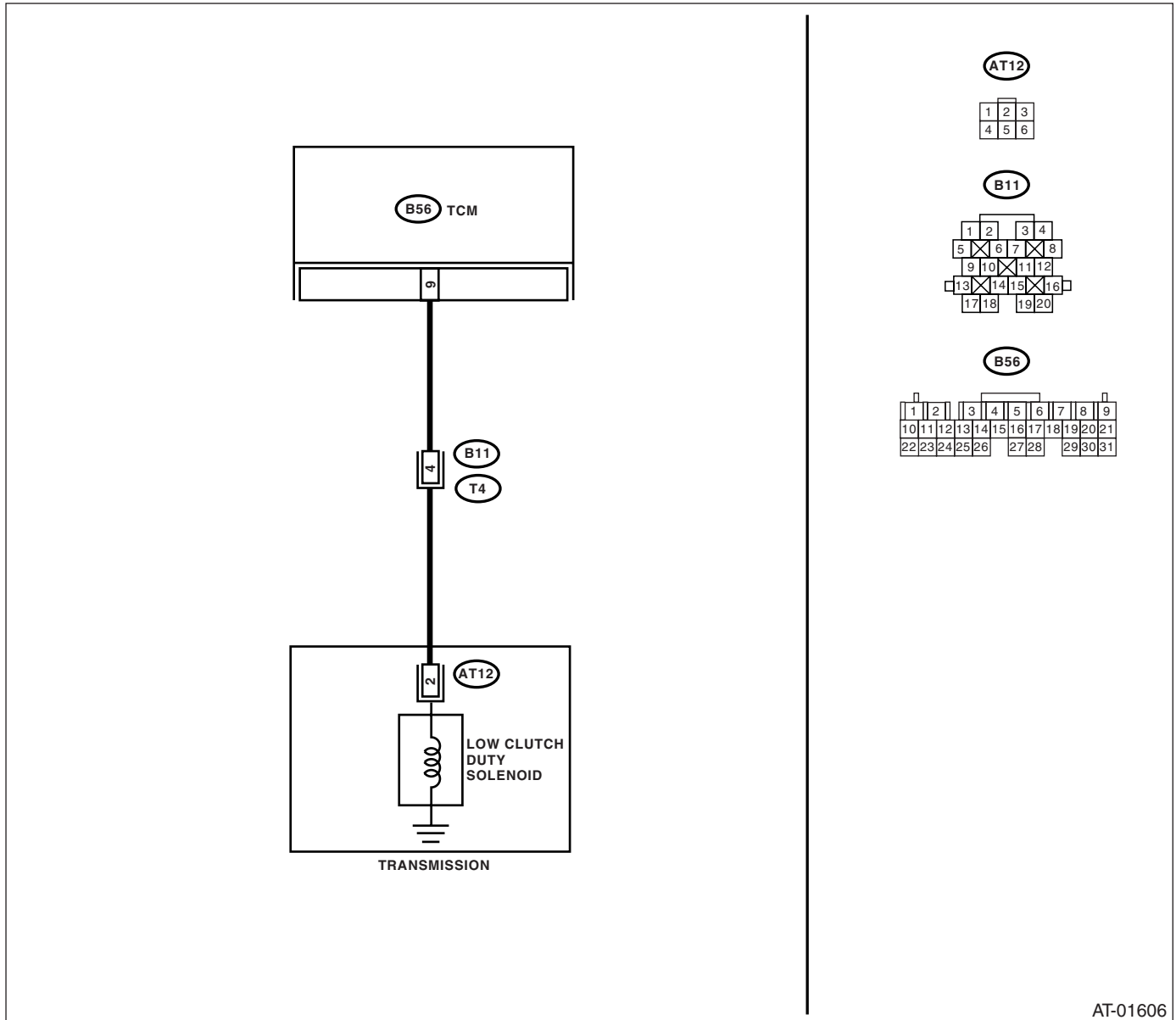
DIAGNOSIS:

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

TROUBLE SYMPTOM:

Excessive shift shock.

WIRING DIAGRAM:



AT-01606

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and transmission. 3) Measure the resistance of harness between TCM and shift solenoid 1 connector. <i>Connector & terminal</i> <i>(B56) No. 9 — (B11) No. 4:</i>	Is the resistance less than 1 Ω ?	Go to step 2.	Repair the 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. <i>Connector & terminal</i> <i>(B56) No. 9 — Chassis ground:</i>	Is the resistance more than 1 $M\Omega$?	Go to step 3.	Repair the short circuit in harness between TCM and transmission connector.
3 CHECK LOW CLUTCH DUTY SOLENOID. Measure the resistance between transmission connector terminals. <i>Connector & terminal</i> <i>(T4) No. 4 — No. 20:</i>	Is the resistance 2.0 — 6.0 Ω ?	Go to step 4.	Go to step 7.
4 CHECK OUTPUT SIGNAL FROM TCM USING SUBARU SELECT MONITOR. 1) Connect the connectors to TCM and transmission. 2) Connect the Subaru Select Monitor to data link connector. 3) Start the engine and turn Subaru Select Monitor switch to ON. 4) 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 ATF reaches its operating temperature. 5) Stop the engine and turn ignition switch to ON (engine OFF). 6) Move the select lever to “P” or “N” range and depress accelerator pedal. 7) Read the data of low clutch duty solenoid using Subaru Select Monitor. • Low clutch duty solenoid is indicated in “%”.	Is the value 100%?	Go to step 5.	Go to step 6.
5 CHECK OUTPUT SIGNAL FROM TCM USING SUBARU SELECT MONITOR. 1) Turn the ignition switch to ON (engine OFF). 2) Move the select lever to “D” range. 3) Read the data of low clutch duty solenoid.	Is the value 0%?	Even if the AT OIL TEMP warning light blinks, 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 the harness or connector in transmission.	Go to step 6.
6 CHECK POOR CONTACT.	Is there poor contact in low clutch duty solenoid circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<p>7 CHECK LOW CLUTCH DUTY SOLENOID (IN TRANSMISSION). 1) Remove the transmission connector from bracket. 2) Drain the ATF. CAUTION: Do not drain the ATF until it cools down. 3) Remove the oil pan, and disconnect connector from low clutch duty solenoid. 4) Measure the resistance between low clutch duty solenoid connector and transmission ground. Connector & terminal (AT12) No. 2 — Transmission ground:</p>	<p>Is the resistance 2.0 — 6.0 Ω?</p>	<p>Go to step 8.</p>	<p>Replace the control valve body. <Ref. to 4AT-61, Control Valve Body.></p>
<p>8 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND LOW CLUTCH DUTY SOLENOID. Measure the resistance of harness between low clutch duty solenoid and transmission connector. Connector & terminal (T4) No. 4 — (AT12) No. 2:</p>	<p>Is the resistance less than 1 Ω?</p>	<p>Go to step 9.</p>	<p>Repair the open circuit in harness between low clutch duty solenoid and transmission connector.</p>
<p>9 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND LOW CLUTCH DUTY SOLENOID. Measure the resistance of harness between transmission connector and transmission ground. Connector & terminal (T4) No. 4 — Transmission ground:</p>	<p>Is the resistance more than 1 MΩ?</p>	<p>Even if the AT OIL TEMP warning light blinks, 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 the harness or connector in low clutch duty solenoid and transmission.</p>	<p>Repair the short circuit in harness between low clutch duty solenoid and transmission connector.</p>

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

MEMO:

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

R: DTC P0758 — SHIFT SOLENOID “B” ELECTRICAL —

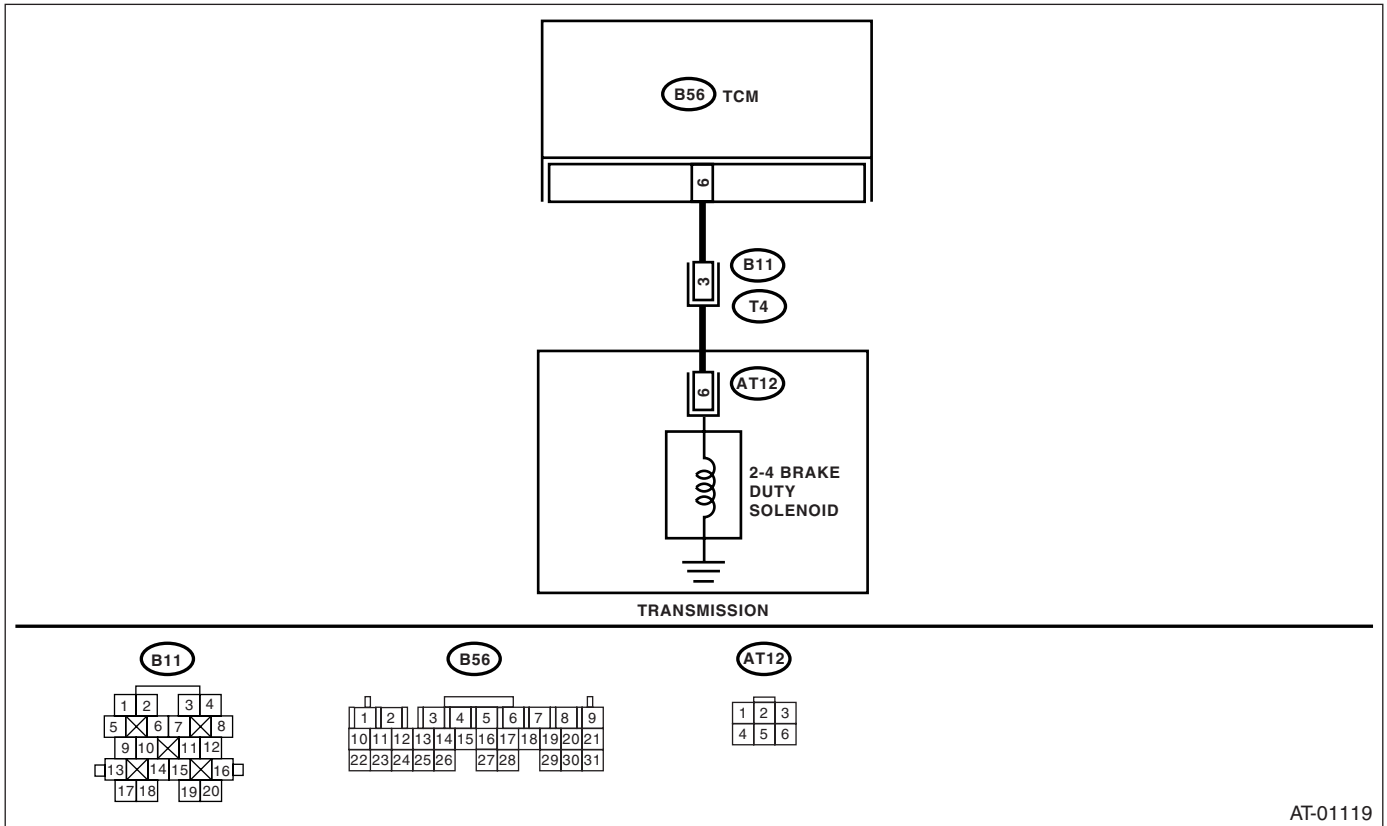
DIAGNOSIS:

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

TROUBLE SYMPTOM:

Excessive shift shock.

WIRING DIAGRAM:



AT-01119

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and transmission. 3) Measure the resistance of harness between TCM and shift transmission connector. <i>Connector & terminal</i> <i>(B56) No. 6 — (B11) No. 3:</i>	Is the resistance less than 1 Ω ?	Go to step 2.	Repair the open circuit in harness between TCM and transmission connector.
2 CHECK HARNESS CONNECTOR BETWEEN TCM AND CHASSIS GROUND. Measure the resistance of harness between TCM connector and chassis ground. <i>Connector & terminal</i> <i>(B56) No. 6 — Chassis ground:</i>	Is the resistance more than 1 M Ω ?	Go to step 3.	Repair the short circuit in harness between TCM and transmission connector.
3 CHECK 2-4 BRAKE DUTY SOLENOID. Measure the resistance between transmission connector terminals. <i>Connector & terminal</i> <i>(T4) No. 3 — No. 20:</i>	Is the resistance 2.0 — 6.0 Ω ?	Go to step 4.	Go to step 7.
4 CHECK OUTPUT SIGNAL FROM TCM USING SUBARU SELECT MONITOR. 1) Connect all connectors. 2) Connect the Subaru Select Monitor to data link connector. 3) Start the engine and turn Subaru Select Monitor switch to ON. 4) 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 ATF reaches its operating temperature. 5) Stop the engine and turn ignition switch to ON (engine OFF). 6) Move the select lever to “N” range. 7) Read the data of 2-4 brake duty solenoid using Subaru Select Monitor. • 2-4 brake duty solenoid is indicated in “%”.	Is the value 100%?	Go to step 5.	Go to step 6.
5 CHECK OUTPUT SIGNAL FROM TCM USING SUBARU SELECT MONITOR. Move the select lever to “2” range.	Is the value 0%?	Even if the AT OIL TEMP warning light blinks, 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 the harness or connector in TCM and transmission.	Go to step 6.
6 CHECK POOR CONTACT.	Is there poor contact in 2-4 brake duty solenoid circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<p>7</p> <p>CHECK 2-4 BRAKE DUTY SOLENOID (IN TRANSMISSION).</p> <p>1) Remove the transmission connector from bracket.</p> <p>2) Drain the ATF.</p> <p>CAUTION: Do not drain the ATF until it cools down.</p> <p>3) Remove the oil pan, and disconnect connector from 2-4 brake duty solenoid.</p> <p>4) Measure the resistance between 2-4 brake duty solenoid connector and transmission ground.</p> <p>Connector & terminal (AT12) No. 6 — Transmission ground:</p>	<p>Is the resistance 2.0 — 6.0 Ω?</p>	<p>Go to step 8.</p>	<p>Replace control valve body. <Ref. to 4AT-61, Control Valve Body.></p>
<p>8</p> <p>CHECK HARNESS CONNECTOR BETWEEN 2-4 BRAKE DUTY SOLENOID AND TRANSMISSION.</p> <p>Measure the resistance of harness between 2-4 brake duty solenoid and transmission connector.</p> <p>Connector & terminal (T4) No. 3 — (AT12) No. 6:</p>	<p>Is the resistance less than 1 Ω?</p>	<p>Go to step 9.</p>	<p>Repair open circuit in harness between 2-4 brake duty solenoid and transmission connector.</p>
<p>9</p> <p>CHECK HARNESS CONNECTOR BETWEEN 2-4 BRAKE DUTY SOLENOID AND TRANSMISSION.</p> <p>Measure the resistance of harness between transmission connector and transmission ground.</p> <p>Connector & terminal (T4) No. 3 — Transmission ground:</p>	<p>Is the resistance more than 1 MΩ?</p>	<p>Even if the AT OIL TEMP warning light blinks, 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 the harness or connector in high clutch duty solenoid and transmission.</p>	<p>Repair short circuit in harness between 2-4 brake duty solenoid and transmission connector.</p>

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)
AUTOMATIC TRANSMISSION (DIAGNOSTICS)

MEMO:

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

S: DTC P0763 — SHIFT SOLENOID “C” ELECTRICAL —

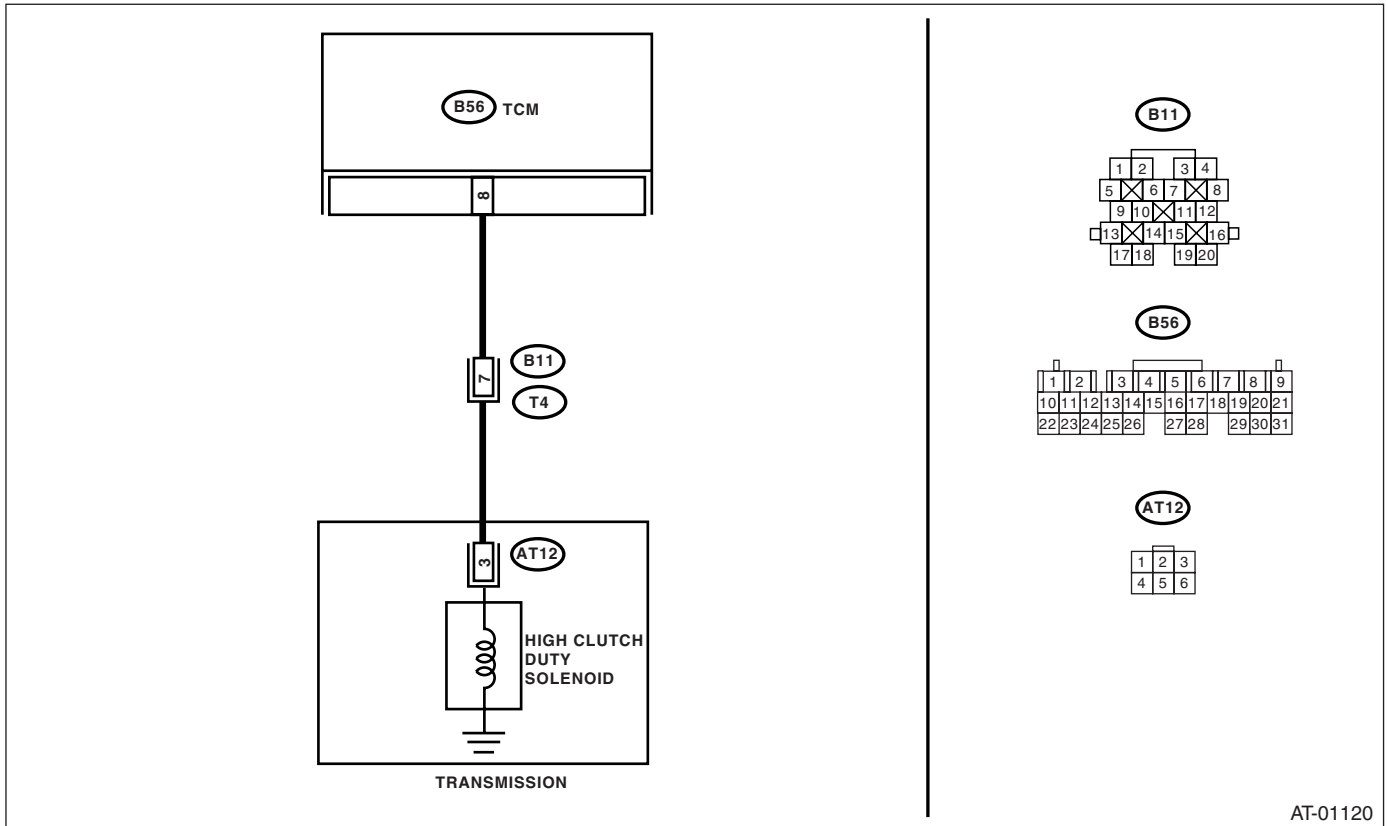
DIAGNOSIS:

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

TROUBLE SYMPTOM:

Excessive shift shock.

WIRING DIAGRAM:



AT-01120

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector. Connector & terminal (B56) No. 8 — (B11) No. 7:	Is the resistance less than 1 Ω ?	Go to step 2.	Repair the open circuit in harness between TCM and transmission connector.
2 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. Measure the resistance of harness connector between TCM and chassis ground. Connector & terminal (B56) No. 8 — Chassis ground:	Is the resistance more than 1 $M\Omega$?	Go to step 3.	Repair the short circuit in harness between TCM and transmission connector.
3 CHECK HIGH CLUTCH DUTY SOLENOID. Measure the resistance between transmission connector receptacle's terminals. Connector & terminal (T4) No. 7 — No. 20:	Is the resistance 2.0 — 6.0 Ω ?	Go to step 4.	Go to step 7.
4 CHECK OUTPUT SIGNAL FROM TCM USING SUBARU SELECT MONITOR. 1) Connect the connectors to TCM and transmission. 2) Lift-up the vehicle and place safety stand. NOTE: Raise all wheels off ground. 3) Connect the Subaru Select Monitor to data link connector. 4) Start the engine and turn Subaru Select Monitor switch to ON. 5) 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 ATF reaches its operating temperature. 6) Read the data of high clutch duty solenoid using Subaru Select Monitor. • High clutch duty solenoid is indicated in "%". 7) Move the select lever to "D" range and slowly increase vehicle speed and measure at 3rd or 4th gear. 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-21, Clear Memory Mode.>	Is the value 0%?	Go to step 5.	Go to step 6.

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<p>5 CHECK OUTPUT SIGNAL FROM TCM USING SUBARU SELECT MONITOR. Return the engine to idling speed and move select lever to "N" range.</p> <p>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-21, Clear Memory Mode.></p>	Is the value 100%?	Even if the AT OIL TEMP warning light blinks, 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 the harness or connector in TCM and transmission.	Go to step 6.
<p>6 CHECK POOR CONTACT.</p>	Is there poor contact in high clutch duty circuit?	Repair poor contact.	Replace the TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>
<p>7 CHECK HIGH CLUTCH DUTY SOLENOID (IN TRANSMISSION). 1) Remove the transmission connector from bracket. 2) Drain the ATF.</p> <p>CAUTION: Do not drain the ATF until it cools down. 3) Remove the oil pan and disconnect connector from high clutch duty solenoid. 4) Measure the resistance between high clutch duty solenoid connector and transmission ground.</p> <p>Connector & terminal (AT12) No. 3 — Transmission ground:</p>	Is the resistance 2.0 — 6.0 Ω?	Go to step 8.	Replace the control valve body. <Ref. to 4AT-61, Control Valve Body.>
<p>8 CHECK HARNESS CONNECTOR BETWEEN HIGH CLUTCH DUTY SOLENOID AND TRANSMISSION. Measure the resistance of harness between high clutch duty solenoid and transmission connector.</p> <p>Connector & terminal (T4) No. 7 — (AT12) No. 3:</p>	Is the resistance less than 1 Ω?	Go to step 9.	Repair the open circuit in harness between TCM and transmission connector.
<p>9 CHECK HARNESS CONNECTOR BETWEEN HIGH CLUTCH DUTY SOLENOID AND TRANSMISSION. Measure the resistance of harness between transmission connector and transmission ground.</p> <p>Connector & terminal (T4) No. 7 — Transmission ground:</p>	Is the resistance more than 1 MΩ?	Even if the AT OIL TEMP warning light blinks, 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 the harness or connector in high clutch duty solenoid and transmission.	Repair the short circuit in harness between high clutch duty solenoid and transmission connector.

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

MEMO:

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

T: DTC P0768 — SHIFT SOLENOID “D” ELECTRICAL —

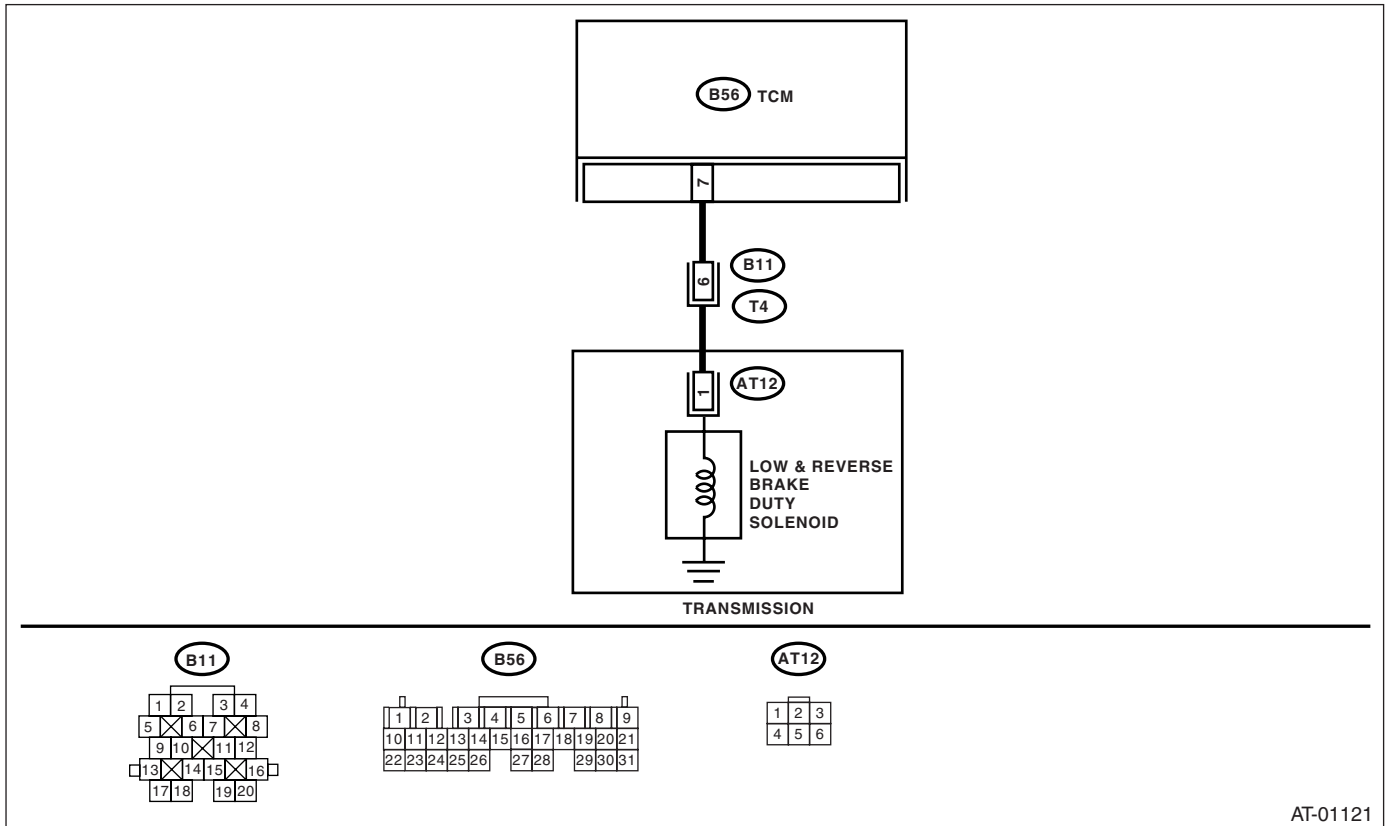
DIAGNOSIS:

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

TROUBLE SYMPTOM:

Gear is not changed.

WIRING DIAGRAM:



AT-01121

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission and TCM. 3) Measure the resistance of harness between TCM and transmission connector. <i>Connector & terminal (B56) No. 7 — (B11) No. 6:</i>	Is the resistance less than 1 Ω ?	Go to step 2.	Repair the open circuit in harness between TCM and transmission connector.
2 CHECK HARNESS CONNECTOR BETWEEN TCM AND CHASSIS GROUND. Measure the resistance of harness between TCM and chassis ground. <i>Connector & terminal (B56) No. 7 — Chassis ground:</i>	Is the resistance more than 1 M Ω ?	Go to step 3.	Repair the short circuit in harness between TCM and transmission connector.
3 CHECK LOW & REVERSE BRAKE DUTY SOLENOID. Measure the resistance between transmission connector receptacle's terminals. <i>Connector & terminal (T4) No. 6 — No. 20:</i>	Is the resistance 2.0 — 6.0 Ω ?	Go to step 4.	Go to step 7.
4 CHECK OUTPUT SIGNAL FROM TCM USING SUBARU SELECT MONITOR. 1) Connect all connectors. 2) Connect the Subaru Select Monitor to data link connector. 3) Start the engine and turn Subaru Select Monitor switch to ON. 4) 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 ATF reaches its operating temperature. 5) Stop the engine and turn ignition switch to ON (engine OFF). 6) Move the select lever to "N" range. 7) Read the data of low & reverse duty solenoid using Subaru Select Monitor. • Low & reverse duty solenoid is indicated in "%".	Is the value 100%?	Go to step 5.	Go to step 6.
5 CHECK OUTPUT SIGNAL FROM TCM USING SUBARU SELECT MONITOR. 1) Move the select lever to "1" range. 2) Read the data of low & reverse duty solenoid.	Is the value 61.5%?	Even if the AT OIL TEMP warning light blinks, 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 the harness or connector in TCM and transmission.	Go to step 6.
6 CHECK POOR CONTACT.	Is there poor contact in low & reverse duty solenoid circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<p>7</p> <p>CHECK LOW & REVERSE BRAKE DUTY SOLENOID (IN TRANSMISSION).</p> <p>1) Remove the transmission connector from bracket.</p> <p>2) Drain the ATF.</p> <p>CAUTION: Do not drain the ATF until it cools down.</p> <p>3) Remove the oil pan, and disconnect connector from low & reverse duty solenoid.</p> <p>4) Measure the resistance between low & reverse duty solenoid connector and transmission ground.</p> <p>Connector & terminal (AT12) No. 1 — Transmission ground:</p>	<p>Is the resistance 2.0 — 6.0 Ω?</p>	<p>Go to step 8.</p>	<p>Replace the control valve body. <Ref. to 4AT-61, Control Valve Body.></p>
<p>8</p> <p>CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND LOW & REVERSE DUTY SOLENOID.</p> <p>Measure the resistance of harness between low & reverse duty solenoid and transmission connector.</p> <p>Connector & terminal (T4) No. 6 — (AT12) No. 1:</p>	<p>Is the resistance less than 1 Ω?</p>	<p>Go to step 9.</p>	<p>Repair the open circuit in harness between low & reverse brake duty solenoid and transmission connector.</p>
<p>9</p> <p>CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND LOW & REVERSE BRAKE DUTY SOLENOID.</p> <p>Measure the resistance of harness between transmission connector and transmission ground.</p> <p>Connector & terminal (T4) No. 6 — Transmission ground:</p>	<p>Is the resistance more than 1 $M\Omega$?</p>	<p>Even if the AT OIL TEMP warning light blinks, 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 the harness or connector in low & reverse brake duty solenoid and transmission.</p>	<p>Repair the short circuit in harness between low & reverse brake duty solenoid and transmission connector.</p>

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)
AUTOMATIC TRANSMISSION (DIAGNOSTICS)

MEMO:

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

U: DTC P0801 — REVERSE INHIBITOR CONTROL CIRCUIT —

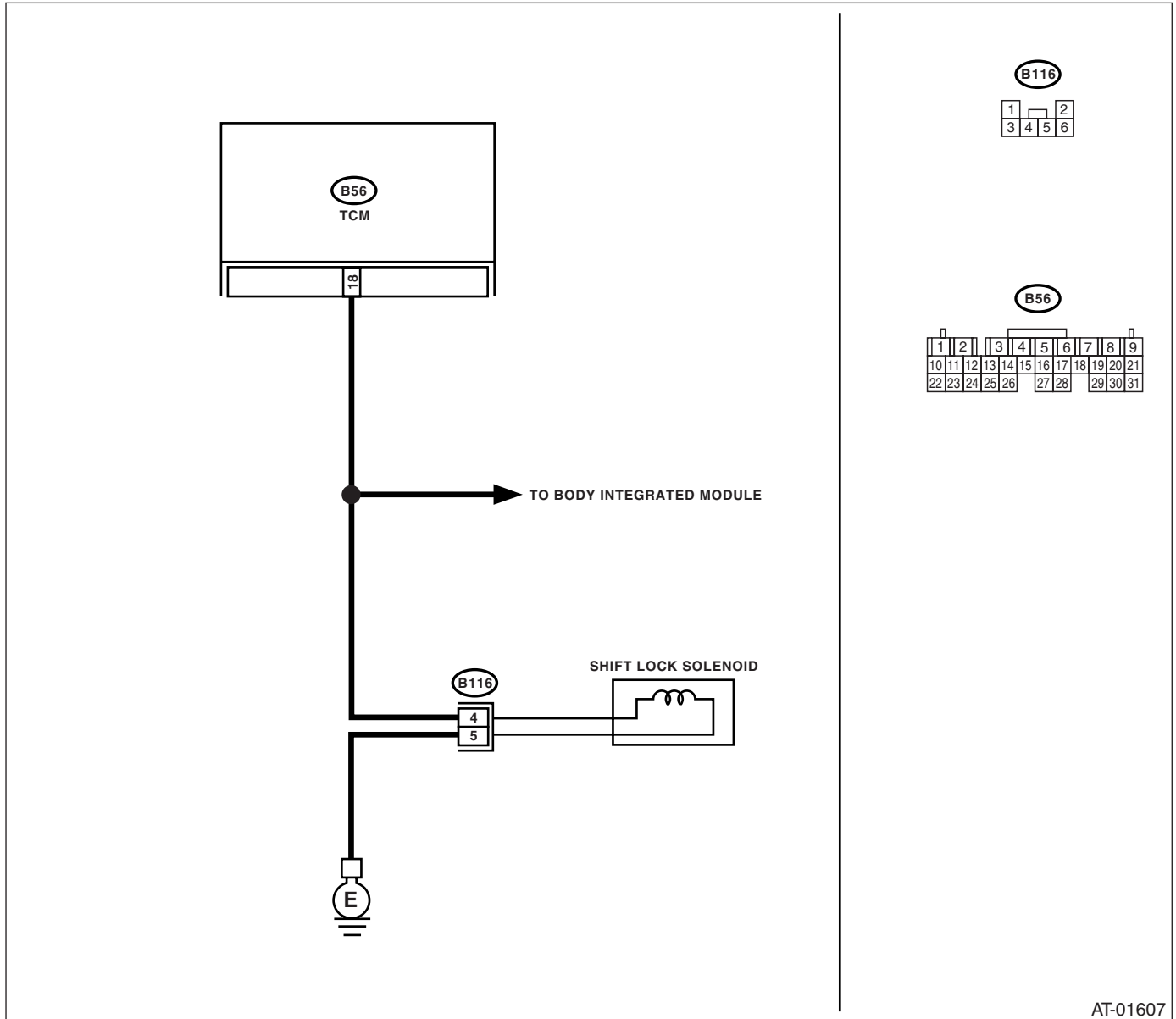
DIAGNOSIS:

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

TROUBLE SYMPTOM:

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

WIRING DIAGRAM:



AT-01607

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK HARNESS CONNECTOR BETWEEN TCM AND SHIFT LOCK SOLENOID. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and shift lock solenoid. 3) Measure the resistance harness between TCM and shift lock solenoid connector. <i>Connector & terminal (B56) No. 18 — (B116) No. 4:</i>	Is the resistance less than 1 Ω ?	Go to step 2.	Repair the open circuit in harness between TCM and shift lock solenoid connector.
2 CHECK HARNESS CONNECTOR BETWEEN TCM AND SHIFT LOCK SOLENOID. Measure the resistance of harness between TCM and chassis ground. <i>Connector & terminal (B56) No. 18 — Chassis ground:</i>	Is the resistance more than 1 M Ω ?	Go to step 3.	Repair the short circuit in harness between TCM and shift lock solenoid connector.
3 CHECK HARNESS CONNECTOR BETWEEN SHIFT LOCK SOLENOID AND CHASSIS GROUND. Measure the resistance of harness between shift lock solenoid and chassis ground. <i>Connector & terminal (B116) No. 5 — Chassis ground:</i>	Is the resistance less than 1 Ω ?	Go to step 4.	Repair the open circuit in harness between chassis ground terminal and shift lock solenoid connector.
4 CHECK SHIFT LOCK SOLENOID. Measure the resistance between shift lock solenoid. <i>Connector & terminal (B116) No. 5 — No. 4:</i>	Is the resistance 20 — 40 Ω ?	Go to step 5.	Replace the shift lock solenoid.
5 CHECK TCM OUTPUT SIGNAL. 1) Connect all connectors. 2) Turn the ignition switch to ON. 3) Move the select lever to "D" range. 4) Measure the voltage between TCM and chassis ground. <i>Connector & terminal (B56) No. 18 (+) — Chassis ground (-):</i>	Is the voltage more than 10.5 V?	Go to step 6.	Go to step 7.
6 CHECK OUTPUT SIGNAL FROM TCM. 1) Lift-up the vehicle and place safety stand. NOTE: Raise all wheels off ground. 2) Start the engine. 3) Move the select lever "D" range and slowly increase vehicle speed to 20 km/h (12 MPH). NOTE: The speed difference between front and rear wheels may light 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. 4) Measure the voltage between TCM and chassis ground. <i>Connector & terminal (B56) No. 18 (+) — Chassis ground (-):</i>	Is the voltage less than 1 V?	Even if the AT OIL TEMP warning light blinks, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness may be cause. Repair the harness or connector in reverse inhibitor control circuit.	Go to step 7.
7 CHECK POOR CONTACT.	Is there poor contact in the reverse inhibitor control circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)
 AUTOMATIC TRANSMISSION (DIAGNOSTICS)

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

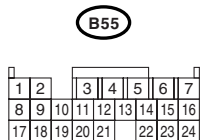
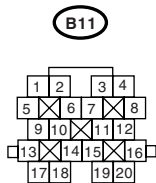
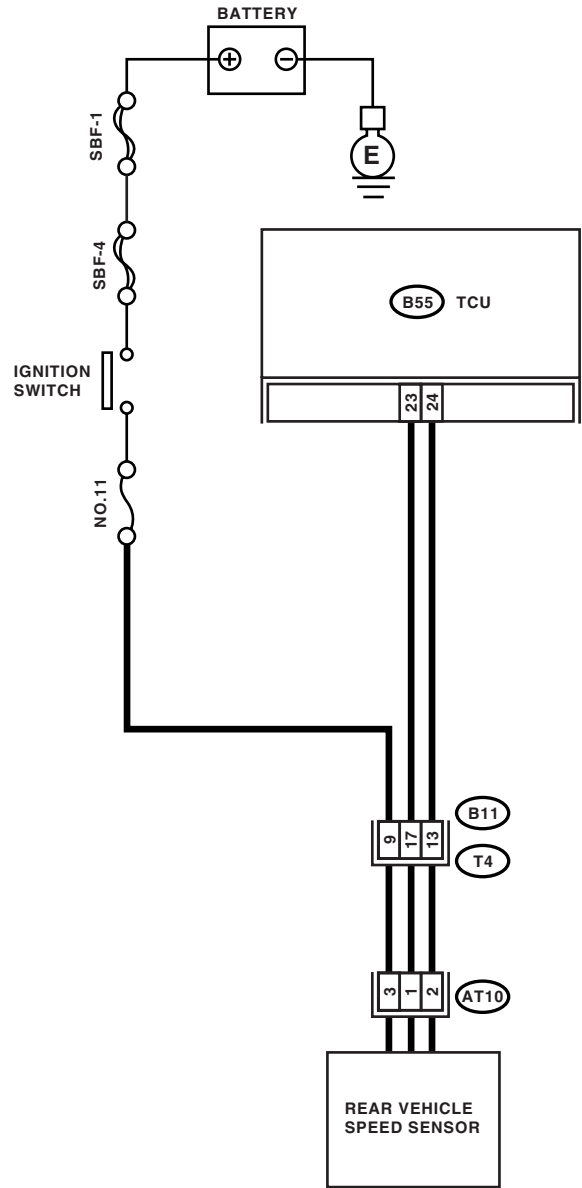
DIAGNOSIS:

The input signal circuit of TCM is open or shorted.

TROUBLE SYMPTOM:

No lock-up or excessive tight corner “braking”.

WIRING DIAGRAM:



DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK IGNITION POWER SUPPLY CIRCUIT. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from rear vehicle speed sensor. 3) Measure the ignition power supply between rear vehicle speed sensor connector and transmission ground. Connector & terminal (AT10) No. 3 (+) — Transmission ground (-):	Is the voltage more than 10 V?	Go to step 2.	Check harness between rear vehicle speed sensor and battery for open circuit, short or poor contact. Repair the harness if required.
2 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Measure the resistance of harness between TCM and transmission connector. Connector & terminal (B55) No. 23 — (AT10) No. 1:	Is the resistance less than 1 Ω ?	Go to step 3.	Repair the open circuit or poor contact of connector in harness between TCM and rear vehicle speed sensor connector.
3 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. Measure the resistance of harness between TCM and transmission connector. Connector & terminal (B55) No. 24 — (AT10) No. 2:	Is the resistance less than 1 Ω ?	Go to step 4.	Repair the open circuit or poor contact of connector in harness between TCM and rear vehicle speed sensor connector.
4 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. Measure the resistance of harness between TCM and chassis ground. Connector & terminal (B55) No. 23 — Chassis ground:	Is the resistance more than 1 $M\Omega$?	Go to step 5.	Repair the short circuit in harness between TCM and rear vehicle speed sensor connector.
5 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. Measure the resistance of harness between TCM and chassis ground. Connector & terminal (B55) No. 24 — Chassis ground:	Is the resistance more than 1 $M\Omega$?	Go to step 7.	Repair the short circuit in harness between TCM and rear vehicle speed sensor connector.
6 PREPARE OSCILLOSCOPE.	Do you have an oscilloscope?	Go to step 8.	Go to step 7.
7 CHECK INPUT SIGNAL FOR TCM. 1) Connect the connectors to TCM and transmission. 2) Lift-up the vehicle and place safety stands. NOTE: Raise all wheels off ground. 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 AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS-21, Clear Memory Mode.> 4) Measure the AC voltage between TCM connector terminals. Connector & terminal (B55) No. 24 (+) — No. 23 (-):	Is the voltage more than AC 2 V?	Go to step 9.	Replace the rear vehicle speed sensor.

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

	Step	Check	Yes	No
8	<p>CHECK INPUT SIGNAL FOR TCM USING OSCILLOSCOPE.</p> <p>1) Connect the connectors to TCM and transmission.</p> <p>2) Lift-up the vehicle and place safety stands.</p> <p>NOTE: Raise all wheels off ground.</p> <p>3) Set the oscilloscope to TCM connector terminals.</p> <p>Connector & terminal Positive probe; (B55) No. 24: Earth lead; (B55) No. 23:</p> <p>4) Start the engine and set vehicle in 20 km/h (12 MPH) condition.</p> <p>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-21, Clear Memory Mode.></p> <p>5) Measure the signal voltage indicated on oscilloscope.</p>	Is the pulse voltage approx. 5 V?	Go to step 9.	Replace the rear vehicle speed sensor.
9	<p>CHECK POOR CONTACT.</p>	Is there poor contact in rear vehicle speed sensor circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)
AUTOMATIC TRANSMISSION (DIAGNOSTICS)

MEMO:

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)
 AUTOMATIC TRANSMISSION (DIAGNOSTICS)

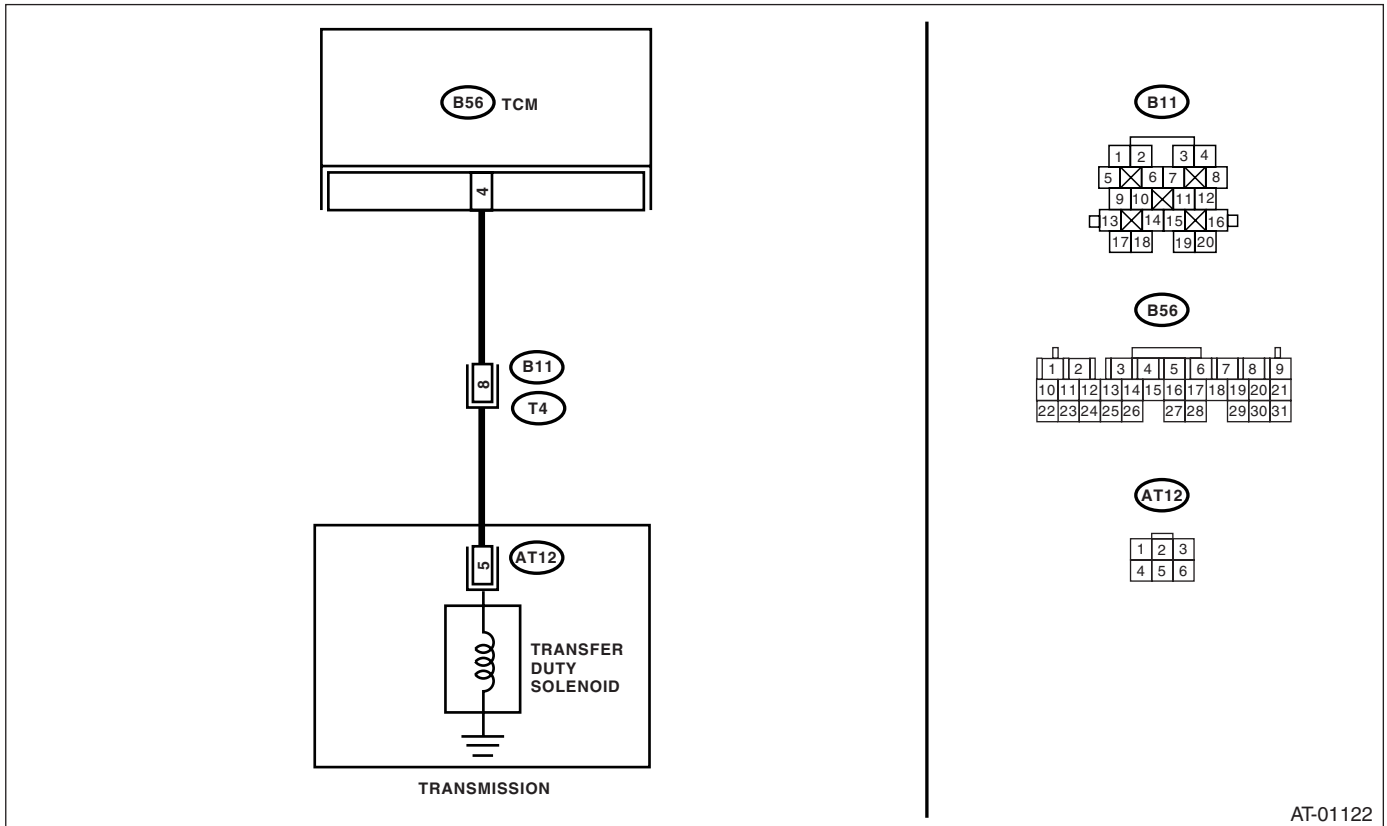
W: DTC P1707 — AT AWD SOLENOID VALVE CIRCUIT MALFUNCTION —
DIAGNOSIS:

The output signal circuit of transfer duty solenoid is open or shorted.

TROUBLE SYMPTOM:

Excessive tight corner “braking”.

WIRING DIAGRAM:



AT-01122

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector. Connector & terminal (B56) No. 4 — (B11) No. 8:	Is the resistance less than 1 Ω	Go to step 2.	Repair the 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 (B56) No. 4 — Chassis ground:	Is the resistance more than 1 M Ω ?	Go to step 3.	Repair the 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. 8 — No. 20:	Is the resistance 2.0 — 4.5 Ω ?	Go to step 4.	Go to step 6.
4 CHECK OUTPUT SIGNAL FROM TCM USING SUBARU SELECT MONITOR. 1) Move the select lever to "D" range with throttle fully open (vehicle speed 0 km/h or 0 MPH). 2) Read the data of transfer duty solenoid using Subaru Select Monitor. • Transfer duty solenoid is indicated in "%".	Is the value 90 — 95%?	Even if the AT OIL TEMP warning light blinks, 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 the harness or connector in TCM and transmission.	Go to step 5.
5 CHECK POOR CONTACT.	Is there poor contact in transfer duty solenoid circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>
6 CHECK TRANSFER DUTY SOLENOID (IN TRANSMISSION). 1) Lift-up the vehicle and place safety stand. NOTE: Raise all wheels off ground. 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 connector from transfer duty solenoid. 4) Measure the resistance between transfer duty solenoid connector and transmission ground. Connector & terminal (AT12) No. 5 — Transmission ground:	Is the resistance 2.0 — 6.0 Ω ?	Go to step 7.	Replace the control valve body. <Ref. to 4AT-61, Control Valve Body.>

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
7 CHECK HARNESS CONNECTOR BETWEEN TRANSFER DUTY SOLENOID AND TRANSMISSION. Measure the resistance of harness between transfer duty solenoid and transmission connector. Connector & terminal (T4) No. 8 — (AT12) No. 5:	Is the resistance less than 1 Ω ?	Go to step 8 .	Repair the open circuit in harness between transfer duty solenoid and transmission connector.
8 CHECK HARNESS CONNECTOR BETWEEN TRANSFER DUTY SOLENOID AND TRANSMISSION. Measure the resistance of harness between transmission connector and transmission ground. Connector & terminal (T4) No. 8 — Transmission ground:	Is the resistance more than 1 $M\Omega$?	Even if the AT OIL TEMP warning light blinks, 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 the harness or contact in transfer duty solenoid and transmission.	Repair the short circuit in harness between transfer duty solenoid and transmission connector.

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

MEMO:

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
1	CHECK ENGINE GROUND TERMINALS.	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 <i>(B134) No. 7 — Engine ground:</i> <i>(B134) No. 6 — Engine ground:</i> <i>(B135) No. 1 — Engine ground:</i> <i>(B135) No. 4 — Engine ground:</i> <i>(B135) No. 12 — Engine ground:</i> <i>(B137) No. 2 — Engine ground:</i> <i>(B137) No. 1 — Engine ground:</i> <i>(B137) No. 7 — Engine ground:</i>	Go to step 3.	Repair the open circuit in harness between ECM connector and engine grounding terminal.
3	CHECK ACCELERATOR PEDAL POSITION SENSOR. 1) Disconnect the connector from accelerator pedal position sensor. 2) Measure the resistance between accelerator pedal position sensor connector receptacle's terminals. Connector & terminal <i>No. 1 — No. 6:</i>	Go to step 4.	Replace the accelerator pedal position sensor.
4	CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance between accelerator pedal position sensor connector receptacle's terminals. Connector & terminal <i>No. 6 — No. 2:</i>	Go to step 5.	Replace the accelerator pedal position sensor.
5	CHECK HARNESS CONNECTOR BETWEEN TCM AND ACCELERATOR PEDAL POSITION SENSOR. 1) Disconnect the connector from TCM. 2) Measure the resistance of harness between TCM and accelerator pedal position sensor connector. Connector & terminal <i>(B55) No. 19 — (B315) No. 2:</i>	Go to step 6.	Repair the open circuit in harness between TCM and accelerator pedal position sensor connector, and poor contact in coupling connector.
6	CHECK HARNESS CONNECTOR BETWEEN TCM AND ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of harness between TCM connector and chassis ground. Connector & terminal <i>(B55) No. 19 — Chassis ground:</i>	Go to step 7.	Repair the short circuit in harness between TCM and accelerator pedal position sensor connector.
7	CHECK HARNESS CONNECTOR BETWEEN ECM AND ACCELERATOR PEDAL POSITION SENSOR. 1) Disconnect the connector from ECM. 2) Measure the resistance of harness between accelerator pedal position sensor and chassis ground. Connector & terminal <i>(B315) No. 6 — Chassis ground:</i>	Go to step 8.	Repair the short circuit in harness between ECM and accelerator pedal position sensor.

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
8 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR. 1) Connect the connectors to TCM, accelerator pedal 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 accelerator pedal position sensor using Subaru Select Monitor. • Accelerator pedal position sensor input signal is indicated.	Is the voltage more than 0.4 V?	Even if the AT OIL TEMP warning light blinks, 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 the harness or connector in accelerator pedal position sensor circuit.	Go to step 9.
9 CHECK POOR CONTACT.	Is there poor contact in accelerator pedal position sensor circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)
AUTOMATIC TRANSMISSION (DIAGNOSTICS)

MEMO:

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

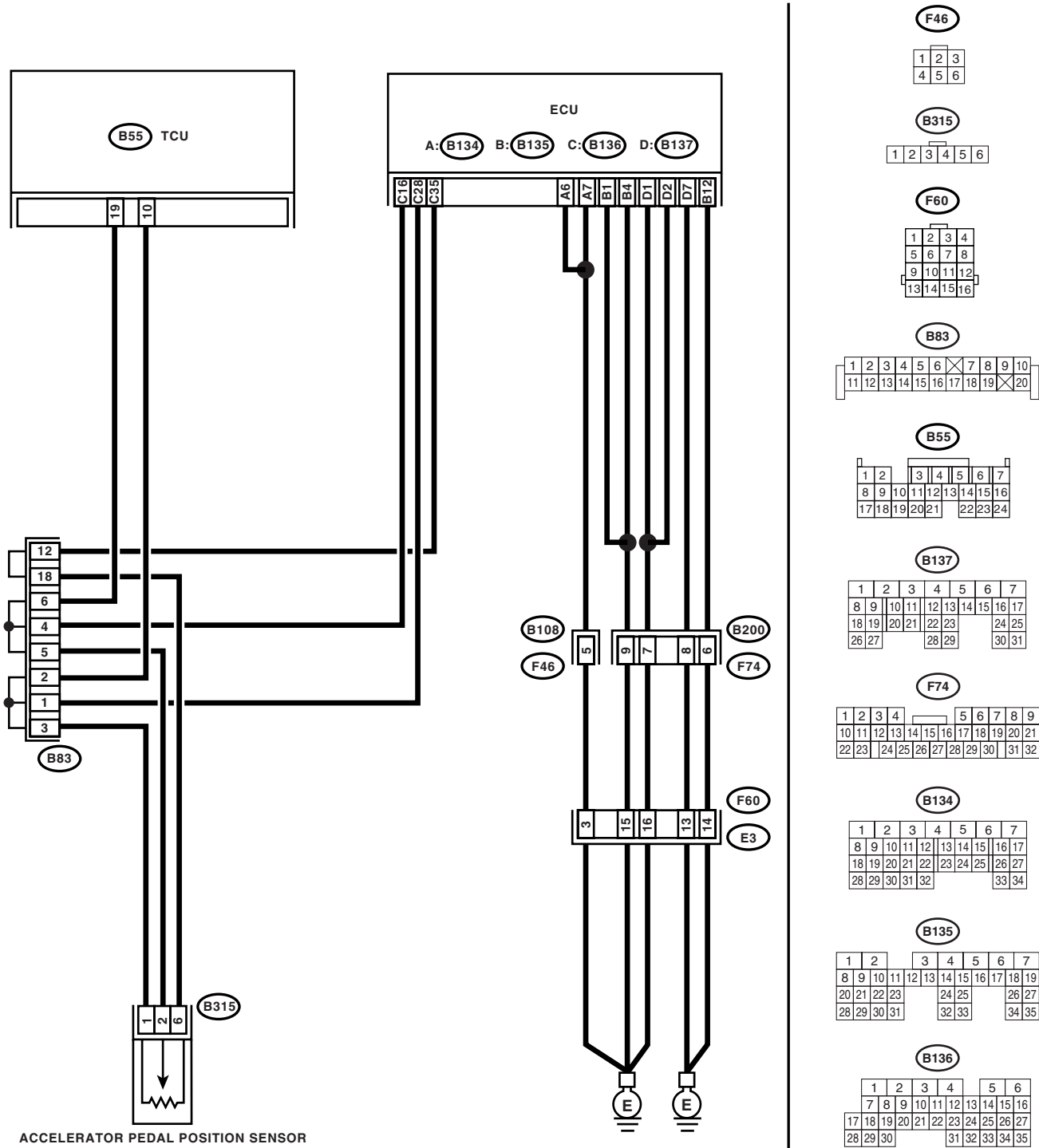
Y: DTC P1709 — THROTTLE POSITION SENSOR CIRCUIT HIGH INPUT — DIAGNOSIS:

The input signal circuit of accelerator pedal position sensor is shorted.

TROUBLE SYMPTOM:

- Shift point too high or too low.
- Excessive shift shock.
- Excessive tight corner “braking”.

WIRING DIAGRAM:



DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
1	CHECK ENGINE GROUND TERMINALS.	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 <i>(B134) No. 6 — Engine ground:</i> <i>(B134) No. 7 — Engine ground:</i> <i>(B135) No. 1 — Engine ground:</i> <i>(B135) No. 4 — Engine ground:</i> <i>(B135) No. 12 — Engine ground:</i> <i>(B137) No. 1 — Engine ground:</i> <i>(B137) No. 2 — Engine ground:</i> <i>(B137) No. 7 — Engine ground:</i>	Go to step 3.	Repair the open circuit in harness between ECM connector and engine grounding terminal.
3	CHECK ACCELERATOR PEDAL POSITION SENSOR. 1) Disconnect the connector from accelerator pedal position sensor. 2) Measure the resistance between accelerator pedal position sensor connector receptacle's terminals. Connector & terminal <i>No. 1 — No. 6:</i>	Go to step 4.	Replace the accelerator pedal position sensor.
4	CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance between accelerator pedal position sensor connector receptacle's terminals. Connector & terminal <i>No. 2 — No. 6:</i>	Go to step 5.	Replace the accelerator pedal position sensor.
5	CHECK HARNESS CONNECTOR BETWEEN TCM AND ACCELERATOR PEDAL POSITION SENSOR. 1) Disconnect the connector from TCM. 2) Measure the resistance of harness between TCM connector and chassis ground. Connector & terminal <i>(B55) No. 19 — Chassis ground:</i>	Go to step 6.	Repair the short circuit in harness between TCM and accelerator pedal position sensor connector.
6	CHECK HARNESS CONNECTOR BETWEEN ECM AND ACCELERATOR PEDAL POSITION SENSOR. 1) Disconnect the connector from ECM. 2) Measure the resistance of harness between ECM connector and accelerator pedal position sensor connector. Connector & terminal <i>(B315) No. 6 — (B136) No. 35:</i>	Go to step 7.	Repair the short circuit in harness between ECM and accelerator pedal position sensor connector.

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
7 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR. 1) Connect the connectors to TCM, accelerator pedal 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 opened. 6) Read the data of accelerator pedal position sensor using Subaru Select Monitor. • Accelerator pedal position sensor input signal is indicated.	Is the voltage more than 4.6 V?	Go to step 8 .	Even if the AT OIL TEMP warning light blinks, 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 the harness or connector in accelerator pedal position sensor circuit.
8 CHECK POOR CONTACT.	Is there poor contact in accelerator pedal position sensor circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)
AUTOMATIC TRANSMISSION (DIAGNOSTICS)

MEMO:

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

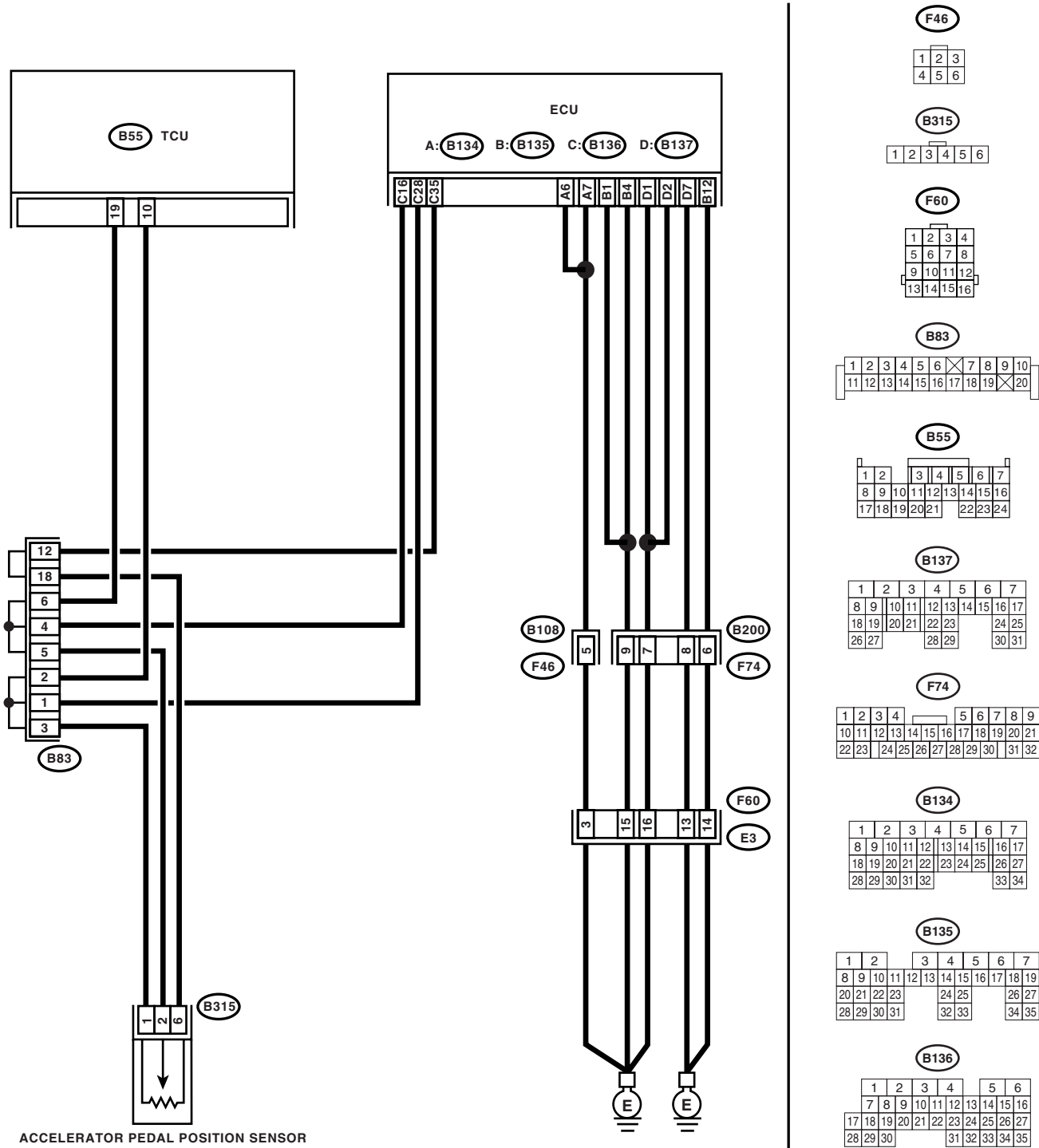
Z: DTC P1714 — THROTTLE POSITION SENSOR POWER SUPPLY CIRCUIT — DIAGNOSIS:

The power supply circuit of accelerator pedal position sensor is open or shorted.

TROUBLE SYMPTOM:

- Shift point too high or too low.
- Excessive shift shock.
- Excessive tight corner “braking”.

WIRING DIAGRAM:



ACCELERATOR PEDAL POSITION SENSOR

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

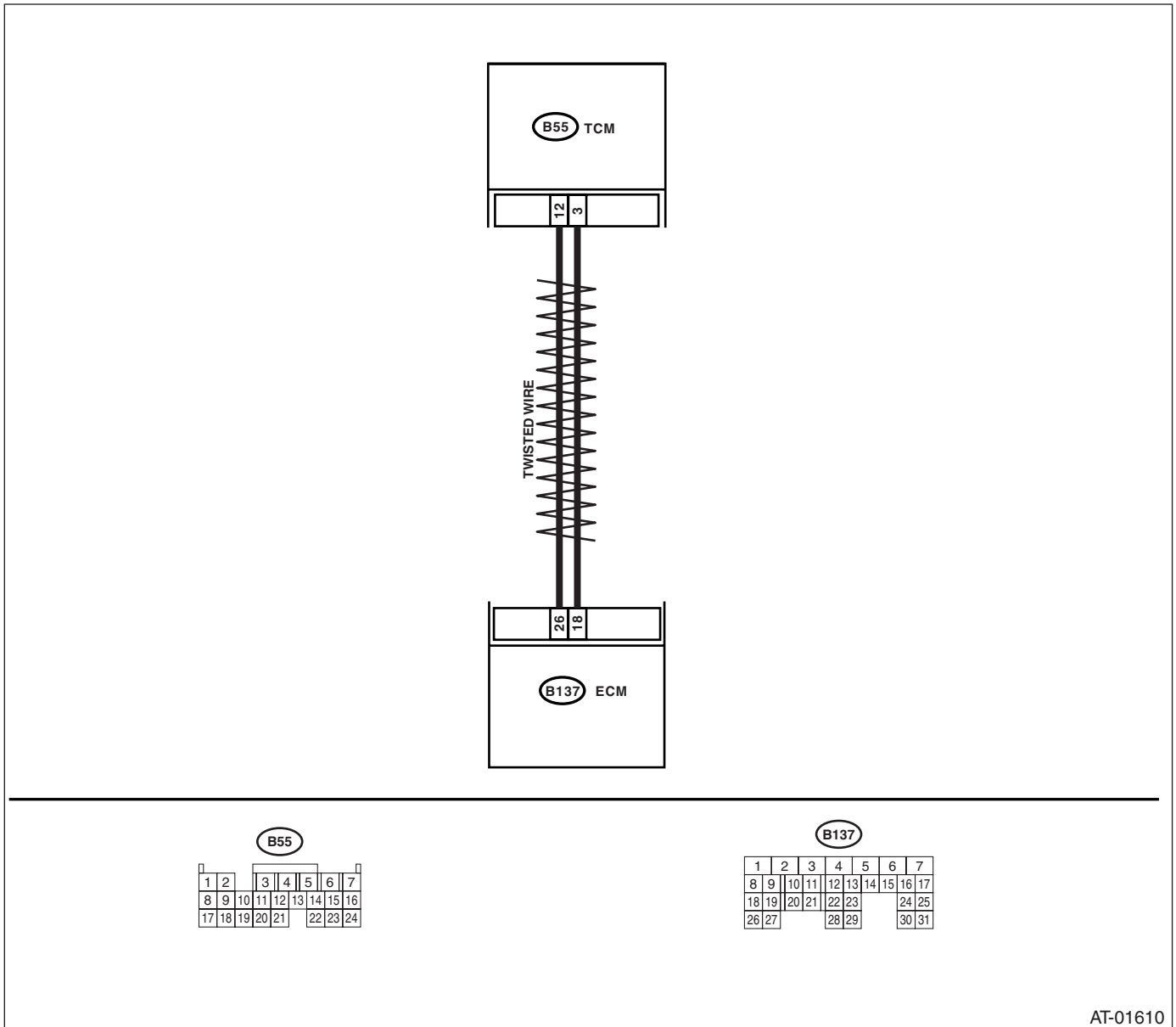
Step	Check	Yes	No
1 CHECK HARNESS CONNECTOR BETWEEN TCM AND ACCELERATOR PEDAL POSITION SENSOR. 1) Disconnect the connector from TCM. 2) Measure the resistance of harness between TCM and accelerator pedal position sensor connector. <i>Connector & terminal</i> <i>(B55) No. 10 — (B315) No. 1:</i>	Is the resistance less than 1 Ω ?	Go to step 2.	Repair the open circuit in harness between TCM and accelerator pedal position sensor connector, and poor contact in coupling connector.
2 CHECK HARNESS CONNECTOR BETWEEN TCM AND ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of harness between TCM connector and chassis ground. <i>Connector & terminal</i> <i>(B55) No. 10 — Chassis ground:</i>	Is the resistance more than 1 $M\Omega$?	Go to step 3.	Repair the short circuit in harness between TCM and accelerator pedal position sensor connector.
3 CHECK HARNESS CONNECTOR BETWEEN TCM AND ECM. 1) Connect all connectors. 2) Turn the ignition switch to ON. 3) Measure the voltage between TCM and chassis ground. <i>Connector & terminal</i> <i>(B55) No. 10 (+) — Chassis ground (-):</i>	Is the voltage approx. 5 V?	Go to step 4.	Even if the AT OIL TEMP warning light blinks, 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 the harness or connector in accelerator pedal position sensor circuit.
4 CHECK POOR CONTACT.	Is there poor contact in accelerator pedal position sensor circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)
 AUTOMATIC TRANSMISSION (DIAGNOSTICS)

AA:DTC P1718 — CAN COMMUNICATION CIRCUIT MALFUNCTION —
DIAGNOSIS:

Input signal circuit of TCM is open or shorted.

WIRING DIAGRAM:



AT-01610

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

	Step	Check	Yes	No
1	CHECK DTC. Check if multiple trouble codes appear in the on-board diagnostics test mode.	Are multiple DTCs displayed?	Go to other DTC.	Go to step 2.
2	CHECK HERNESS CONNECTOR BETWEEN TCM AND ECM. 1) Turn the ignition switch to OFF. 2) Disconnect TCM and ECM connectors. 3) Measure resistance of harness between ECM and TCM connector. Connector & Terminal (B55) No. 3 — (B137) No. 18:	Is the measured value less than 1 Ω ?	Go to step 3.	Repair open circuit in harness between TCM and ECM, or poor contact in coupling connector.
3	CHECK HERNESS CONNECTOR BETWEEN TCM AND ECM. Measure resistance of harness between ECM and TCM connector. Connector & Terminal (B55) No. 12 — (B137) No. 26:	Is the measured value less than 1 Ω ?	Go to step 4.	Repair open circuit in harness between TCM and ECM, or poor contact in coupling connector.
4	CHECK HERNESS CONNECTOR BETWEEN TCM AND ECM. Measure resistance of harness between TCM and chassis ground. Connector & Terminal (B55) No. 3 — Chassis ground: (B55) No. 12 — Chassis ground:	Is the measured value more than 1 $M\Omega$?	There is failure in the TCM or ECM. (Replace and check again)	Repair short circuit in harness between TCM and ECM.

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

AB:DTC P1817 — SPORT MODE SWITCH CIRCUIT (MANUAL SWITCH) —

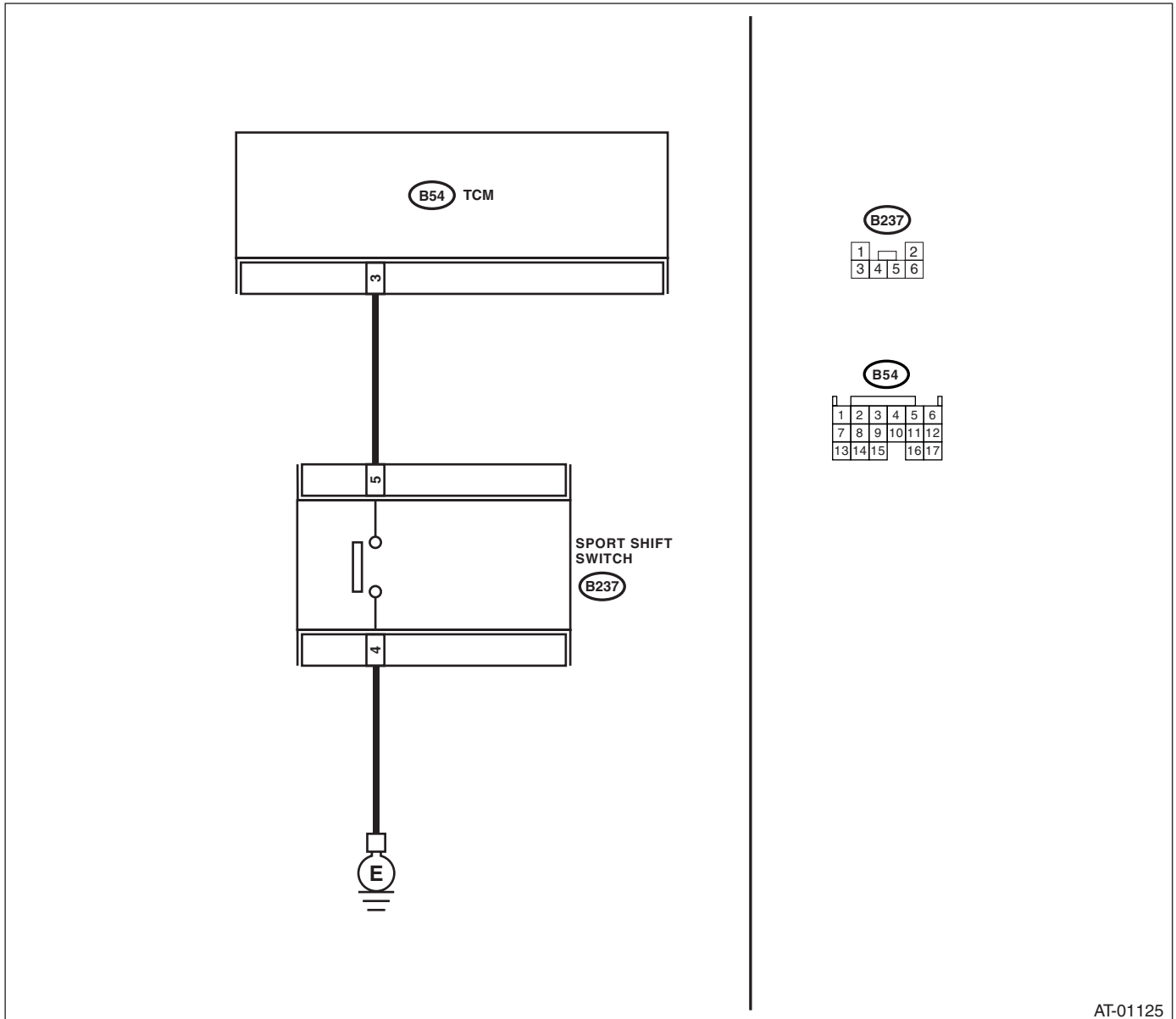
DIAGNOSIS:

The SPORT shift switch input signal circuit is open or shorted.

TROUBLE SYMPTOM:

- No SPORT shift mode occurs.

WIRING DIAGRAM:



AT-01125

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK SPORT SHIFT SWITCH GROUND LINE. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from SPORT shift switch. 3) Measure the resistance of harness between SPORT shift switch connector and chassis ground. Connector & terminal (B237) No. 4 — Chassis ground:	Is the resistance less than 1 Ω ?	Go to step 2.	Repair open circuit in harness between SPORT shift switch and chassis ground.
2 CHECK SPORT SHIFT SWITCH. Measure the resistance between SPORT shift switch terminals. Connector & terminal (B237) No. 4 — No. 5:	Is the resistance more than 1 M Ω ?	Go to step 3.	Replace the lever plate assembly.
3 CHECK SPORT SHIFT SWITCH. 1) Move the select lever to SPORT shift mode. 2) Measure the resistance between SPORT shift switch terminals. Connector & terminal (B237) No. 4 — No. 5:	Is the resistance less than 1 Ω ?	Go to step 4.	Replace the lever plate assembly.
4 CHECK HARNESS CONNECTOR BETWEEN TCM AND SPORT SHIFT SWITCH. 1) Disconnect the connector from TCM. 2) Measure the resistance of harness between TCM connector and SPORT shift switch connector. Connector & terminal (B237) No. 5 — (B54) No. 3:	Is the resistance less than 1 Ω ?	Go to step 5.	Repair the open circuit in harness between SPORT shift switch connector and TCM connector and poor contact in coupling connector.
5 CHECK HARNESS CONNECTOR BETWEEN TCM AND SPORT SHIFT SWITCH. 1) Disconnect the connector from TCM. 2) Measure the resistance of harness between SPORT shift switch connector and chassis ground. Connector & terminal (B237) No. 5 — Chassis ground:	Is the resistance more than 1 M Ω ?	Go to step 6.	Repair the short circuit in harness between SPORT shift switch connector and TCM connector.
6 CHECK INPUT SIGNAL FOR TCM. 1) Connect the connector to TCM and SPORT shift switch. 2) Turn ignition switch to ON. (Engine is stopped.) 3) Move the select lever to normal mode. 4) Measure the signal voltage for TCM. Connector & terminal (B54) No. 3 (+) — Chassis ground (-):	Is the voltage more than 9 V?	Go to step 7.	Replace the TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

	Step	Check	Yes	No
7	CHECK INPUT SIGNAL FOR TCM. 1) Move the select lever to SPORT shift mode. 2) Measure the signal voltage for TCM. Connector & terminal (B55) No. 15 (+) — Chassis ground (-):	Is the voltage less than 1 V?	Even if the AT OIL TEMP warning light blinks, 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 the connector or harness in SPORT shift switch circuit.	Go to step 8.
8	CHECK POOR CONTACT.	Is there poor contact in SPORT shift switch circuit?	Repair the poor the contact.	Replace the TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC)
AUTOMATIC TRANSMISSION (DIAGNOSTICS)

MEMO: