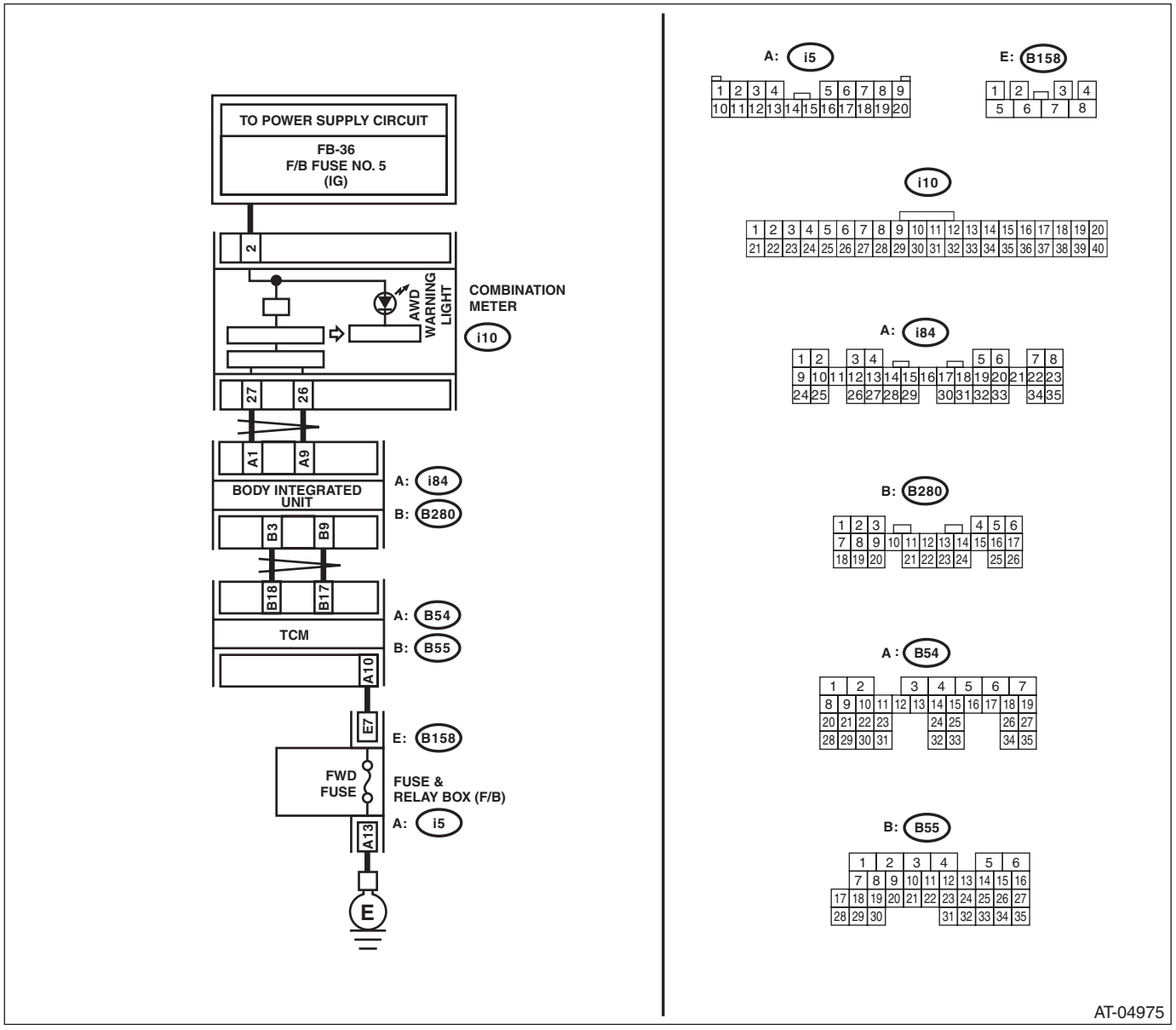
14.Diagnostic Procedure without Diagnostic Trouble Code (DTC)

A: CHECK FWD SWITCH

DIAGNOSIS:
FWD signal circuit is open or shorted.
TROUBLE SYMPTOM:
LED does not illuminate even if FWD is ON.
WIRING DIAGRAM:

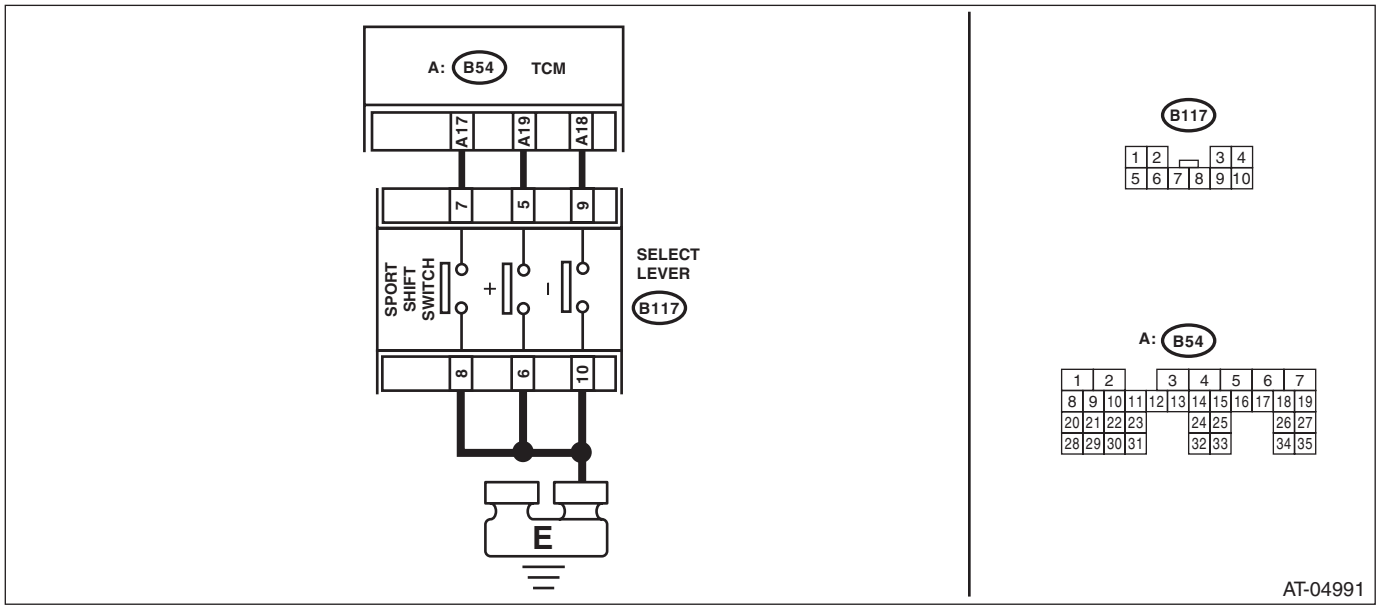


Step		Check	Yes	No
1	**CHECK INDICATOR.** Turn the ignition switch to ON.	Is the AWD warning light illuminated?	Go to step **2**.	Perform the self-diagnosis of combination meter.
2	**CHECK INDICATOR.** Turn the ignition switch to ON and wait for at least 2 seconds.	Is the AWD warning light illuminated?	Go to step **3**.	Go to step **6**.
3	**CHECK INDICATOR.** Start the engine and wait for 2 seconds or more.	Does the AWD warning light go off?	Go to step **4**.	Go to step **11**.
4	**CHECK SPARE FUSE.**	Is the spare fuse OK?	Go to step **5**.	Replace the fuse.

	Step	Check	Yes	No
5	**CHECK INDICATOR.** 1) Turn the ignition switch to OFF. 2) Install a fuse to the FWD fuse holder. 3) Start the engine and wait for 2 seconds or more.	Is the AWD warning light illuminated?	Normal. Finish the diagnosis.	Go to step **6**.
6	**CHECK BODY INTEGRATED UNIT.**	Is DTC of CAN communication displayed?	Perform the diagnosis according to DTC.	Go to step **7**.
7	**CHECK TCM.** 1) Turn the ignition switch to OFF. 2) Install a fuse to the FWD fuse holder. 3) Connect the Subaru Select Monitor to data link connector. 4) Turn the ignition switch to ON. 5) Read the data of “FWD Switch” using Subaru Select Monitor.	Is “ON” displayed?	Perform the self-diagnosis of combination meter.	Go to step **8**.
8	**CHECK HARNESS CONNECTOR BETWEEN TCM AND FUSE BOX.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and fuse box. 3) Measure the resistance of the harness between TCM and fuse box. ***Connector & terminal*** ***(B54) No. 10 — (B158) No. 7:***	Is the resistance less than 1 Ω?	Go to step **9**.	Repair the open circuit of harness between TCM and fuse box.
9	**CHECK HARNESS CONNECTOR BETWEEN FUSE BOX AND CHASSIS GROUND.** Measure the resistance of the harness between fuse box and chassis ground. ***Connector & terminal*** ***(i5) No. 13 — Chassis ground:***	Is the resistance less than 1 Ω?	Go to step **10**.	Repair the open circuit of harness between fuse box and chassis ground.
10	**CHECK FOR POOR CONTACT.** Check poor contact of FWD switch circuit.	Is there poor contact of FWD switch circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-61, Transmission Control Module (TCM).>
11	**CHECK TCM.** 1) Turn the ignition switch to OFF. 2) Connect the Subaru Select Monitor to data link connector. 3) Start the engine. 4) Read the data of “Engine Speed” using Subaru Select Monitor.	Is the measured value 400 rpm or more?	Go to step **12**.	Inspect the ECM.
12	**CHECK TCM.** Read the data of “FWD Switch” using Subaru Select Monitor.	Is “OFF” displayed?	Perform the self-diagnosis of combination meter.	Go to step **13**.
13	**CHECK HARNESS CONNECTOR BETWEEN TCM AND FUSE BOX.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and fuse box. 3) Measure the resistance of harness connector between TCM and chassis ground. ***Connector & terminal*** ***(B54) No. 10 — Chassis ground:***	Is the resistance 1 MΩ or more?	Replace the TCM. <Ref. to 4AT-61, Transmission Control Module (TCM).>	Repair the short circuit of harness between TCM and fuse box.

B: CHECK SPORT SHIFT SWITCH

DIAGNOSIS:
Input signal circuit of SPORT shift switch is open or shorted.
TROUBLE SYMPTOM:
Does not shift on manual mode.
WIRING DIAGRAM:



	Step	Check	Yes	No
1	**CHECK SPORT SHIFT INDICATOR.** 1) Turn the ignition switch to ON. 2) Shift the select lever to SPORT mode. 3) Set the select lever to + side. 4) Read the SPORT shift indicator display in combination meter.	Is the gear position displayed?	Go to step **2**.	Go to step **3**.
2	**CHECK SPORT SHIFT INDICATOR.** Read the SPORT shift indicator display in combination meter.	Is “2” displayed?	Go to step **17**.	Go to step **9**.
3	**CHECK BODY INTEGRATED UNIT.**	Is DTC of CAN communication displayed?	Perform the diagnosis according to DTC.	Go to step **4**.
4	**CHECK TCM.** Read the “Tiptronic Mode Switch” data using the Subaru Select Monitor.	Is “ON” displayed?	Go to step **9**.	Go to step **5**.
5	**CHECK HARNESS CONNECTOR BETWEEN TCM AND SPORT SHIFT SWITCH.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and SPORT shift switch. 3) Measure the resistance of harness between TCM and SPORT shift switch. ***Connector & terminal*** ***(B54) No. 17 — (B117) No. 7:***	Is the resistance less than 1 Ω?	Go to step **6**.	Repair the open circuit of harness between TCM and SPORT shift switch.
6	**CHECK SPORT SHIFT SWITCH.** Measure the resistance between SPORT shift switch terminals. ***Connector & terminal*** ***(B117) No. 7 — No. 8:***	Is the resistance less than 1 Ω?	Go to step **7**.	Replace the guide plate assembly.

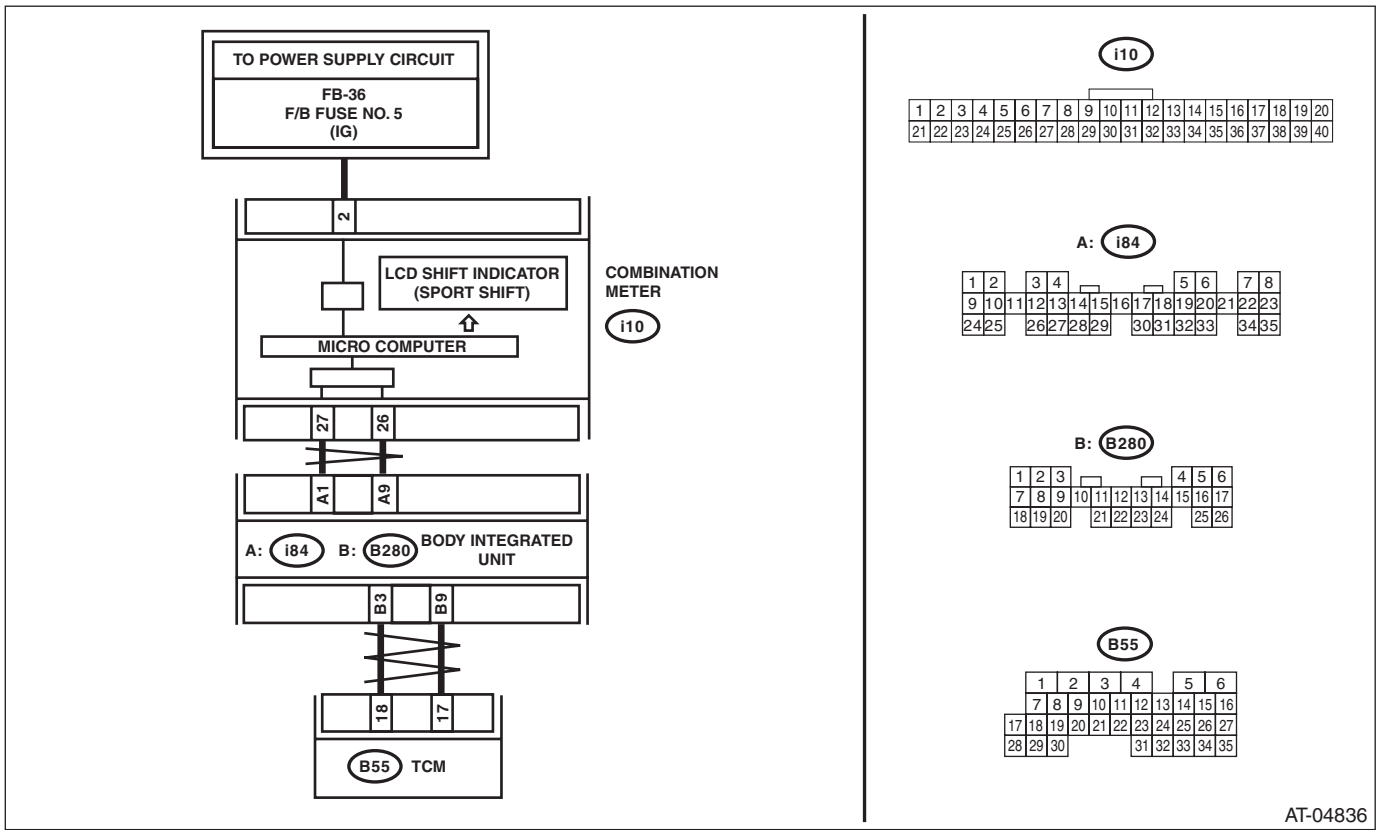
	Step	Check	Yes	No
7	**CHECK HARNESS CONNECTOR BETWEEN SPORT SHIFT SWITCH AND CHASSIS GROUND.** Measure the resistance of harness between SPORT shift switch and chassis ground. ***Connector & terminal*** ***(B117) No. 8 — Chassis ground:***	Is the resistance less than 1 Ω?	Go to step **8**.	Repair the open circuit of harness between the SPORT shift switch and chassis ground.
8	**CHECK FOR POOR CONTACT.** Check poor contact of SPORT shift switch circuit.	Is there poor contact of the SPORT shift switch circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-61, Transmission Control Module (TCM).>
9	**CHECK TCM.** 1) Shift and hold the select lever to + side. 2) Read the "Up Switch" data using Subaru Select Monitor.	Is "ON" displayed?	Go to step **14**.	Go to step **10**.
10	**CHECK HARNESS CONNECTOR BETWEEN TCM AND + SWITCH.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and + switch. 3) Measure the resistance of harness between TCM and + switch. ***Connector & terminal*** ***(B54) No. 19 — (B117) No. 5:***	Is the resistance less than 1 Ω?	Go to step **11**.	Repair the open circuit of harness between TCM and + switch.
11	**CHECK + SWITCH.** 1) Shift and hold the select lever to + side. 2) Measure the resistance between + switch terminals. ***Connector & terminal*** ***(B117) No. 5 — No. 6:***	Is the resistance less than 1 Ω?	Go to step **12**.	Replace the guide plate assembly.
12	**CHECK HARNESS CONNECTOR BETWEEN + SWITCH AND CHASSIS GROUND.** Measure the resistance of harness between + switch and chassis ground. ***Connector & terminal*** ***(B117) No. 6 — Chassis ground:***	Is the resistance less than 1 Ω?	Go to step **13**.	Repair the open circuit of harness between + switch and chassis ground.
13	**CHECK FOR POOR CONTACT.** Check poor contact of + switch circuit.	Is there poor contact of + switch circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-61, Transmission Control Module (TCM).>
14	**CHECK TCM.** 1) Set the select lever to the center position. (Tilt the select lever to SPORT mode, and release the hold.) 2) Read the "Up Switch" data using Subaru Select Monitor.	Is "OFF" displayed?	Perform the self-diagnosis of combination meter.	Go to step **15**.
15	**CHECK HARNESS CONNECTOR BETWEEN TCM AND + SWITCH.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and + switch. 3) Measure the resistance of harness between TCM and + switch. ***Connector & terminal*** ***(B54) No. 19 — Chassis ground:***	Is the resistance 1 MΩ or more?	Go to step **16**.	Repair the short circuit of harness between TCM and + switch.

	Step	Check	Yes	No
16	**CHECK + SWITCH.** Measure the resistance between + switch terminals. ***Connector & terminal*** ***(B117) No. 5 — No. 6:***	Is the resistance 1 MΩ or more?	Replace the TCM. <Ref. to 4AT-61, Transmission Control Module (TCM).>	Replace the guide plate assembly.
17	**CHECK SPORT SHIFT INDICATOR.** 1) Set the select lever to – side. 2) Read the SPORT shift indicator display in combination meter.	Is "1" displayed?	Normal. Finish the diagnosis.	Go to step **18**.
18	**CHECK TCM.** 1) Shift and hold the select lever to – side. 2) Read the "Down Switch" data using Subaru Select Monitor.	Is "ON" displayed?	Go to step **23**.	Go to step **19**.
19	**CHECK HARNESS CONNECTOR BETWEEN TCM AND – SWITCH.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and – switch. 3) Measure the resistance of harness between TCM and – switch. ***Connector & terminal*** ***(B54) No. 18 — (B117) No. 9:***	Is the resistance less than 1 Ω?	Go to step **20**.	Repair the open circuit of harness between TCM and – switch.
20	**CHECK – SWITCH.** 1) Shift and hold the select lever to – side. 2) Measure the resistance between – switch terminals. ***Connector & terminal*** ***(B117) No. 9 — No. 10:***	Is the resistance less than 1 Ω?	Go to step **21**.	Replace the guide plate assembly.
21	**CHECK HARNESS CONNECTOR BETWEEN – SWITCH AND CHASSIS GROUND.** Measure the resistance of harness between – switch and chassis ground. ***Connector & terminal*** ***(B117) No. 10 — Chassis ground:***	Is the resistance less than 1 Ω?	Go to step **22**.	Repair the open circuit of harness between – switch and chassis ground.
22	**CHECK FOR POOR CONTACT.** Check poor contact of – switch circuit.	Is there poor contact of – switch circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-61, Transmission Control Module (TCM).>
23	**CHECK TCM.** 1) Set the select lever to the center position. (Tilt the select lever to SPORT mode, and release the hold.) 2) Read the "Down Switch" data using Subaru Select Monitor.	Is "OFF" displayed?	Perform the self-diagnosis of combination meter.	Go to step **24**.
24	**CHECK HARNESS CONNECTOR BETWEEN TCM AND – SWITCH.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and – switch. 3) Measure the resistance of harness between TCM and – switch. ***Connector & terminal*** ***(B54) No. 18 — Chassis ground:***	Is the resistance 1 MΩ or more?	Go to step **25**.	Repair the short circuit of harness between TCM and – switch.
25	**CHECK – SWITCH.** Measure the resistance between – switch terminals. ***Connector & terminal*** ***(B117) No. 9 — No. 10:***	Is the resistance 1 MΩ or more?	Replace the TCM.	Replace the guide plate assembly.

C: CHECK SPORT SHIFT INDICATOR

DIAGNOSIS:
Output signal circuit of SPORT shift indicator is open or shorted.
TROUBLE SYMPTOM:
- SPORT shift indicator does not display or remains displayed.
- SPORT shift indicator display does not change.

WIRING DIAGRAM:

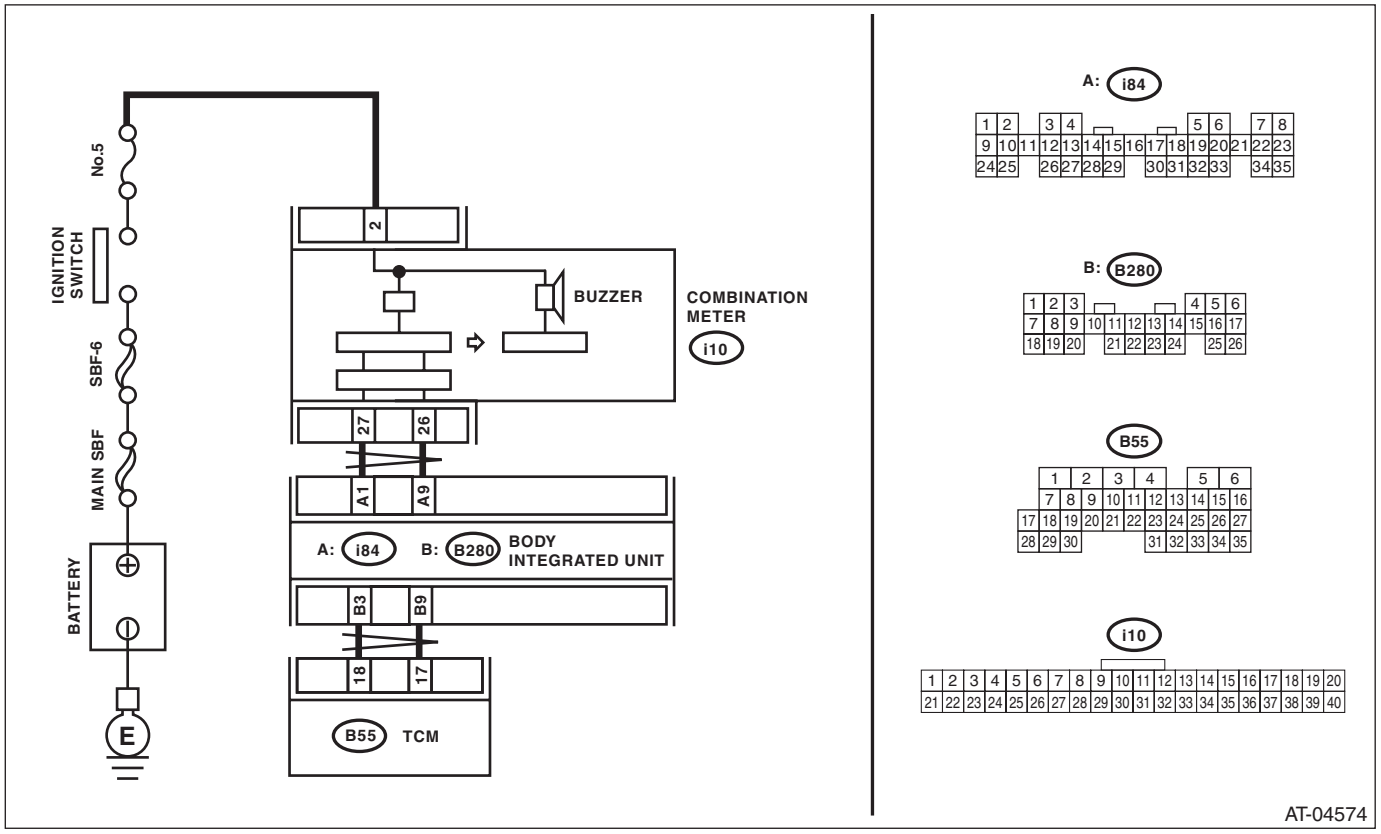


Step		Check	Yes	No
1	**CHECK BODY INTEGRATED UNIT.** Check DTC of body integrated unit.	Is DTC of CAN communication displayed?	Perform the diagnosis according to DTC.	Go to step **2**.
2	**CHECK TCM.** 1) Turn the ignition switch to OFF. 2) Connect the Subaru Select Monitor to data link connector. 3) Turn the ignition switch to ON. 4) Run the Subaru Select Monitor. 5) Shift the select lever to SPORT mode. 6) Read the “Gear Position” data of TCM using Subaru Select Monitor.	Is “1” displayed?	Go to step **3**.	Replace the TCM. <Ref. to 4AT-61, Transmission Control Module (TCM).>
3	**CHECK TCM.** 1) Shift down the selector lever. 2) Read the “Gear Position” data of TCM using Subaru Select Monitor.	Is “2” displayed?	Go to step **4**.	Replace the TCM. <Ref. to 4AT-61, Transmission Control Module (TCM).>
4	**CHECK BODY INTEGRATED UNIT.** Read the data of “SPORT Shift gear position” using Subaru Select Monitor.	Is “2” displayed?	Go to step **5**.	Check body integrated unit.

	Step	Check	Yes	No
5	**CHECK COMBINATION METER.** <Ref. to IDI-4, INSPECTION, Combination Meter System.>	Is the SPORT shift indicator OK?	Check the buzzer. <Ref. to 4AT(diag)-85, CHECK BUZZER, Diagnostic Procedure without Diagnostic Trouble Code (DTC).>	Replace the combination meter assembly. <Ref. to IDI-15, Combination Meter.>

D: CHECK BUZZER

DIAGNOSIS:
Output signal circuit of buzzer is open or shorted.
TROUBLE SYMPTOM:
Buzzer remains beeping.
WIRING DIAGRAM:



Step		Check	Yes	No
1	**CHECK BODY INTEGRATED UNIT.** 1) Turn the ignition switch to OFF. 2) Connect the Subaru Select Monitor to data link connector. 3) Turn the ignition switch to ON. 4) Run the Subaru Select Monitor. 5) Read the “SPORT shift (buzzer 1)” and “SPORT shift (buzzer 2)” data using Subaru Select Monitor.	Is “ON” displayed?	Replace the TCM. <Ref. to 4AT-61, Transmission Control Module (TCM).>	Go to step **2**.
2	**CHECK COMBINATION METER.** <Ref. to IDI-4, INSPECTION, Combination Meter System.>	Is the buzzer OK?	Refer to “Diagnostics with Phenomenon”. <Ref. to 4AT(diag)-86, Diagnostics with Phenomenon.>	Replace the combination meter assembly. <Ref. to IDI-15, Combination Meter.>