	Step	Check	Yes	No
1	**CHECK VEHICLE.**	Is vehicle being diagnosed for U5 model?	Go to step **20.**	Tighten the engine ground terminals.
2	**CHECK ENGINE GROUND TERMINALS.**	Have engine ground terminals been tightened?	Go to step **3.**	Tighten the engine ground terminals.
3	**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*** ***EXCEPT 3.0 L MODEL*** ***(B134) No. 7 — Engine ground:*** ***(B134) No. 35 — Engine ground:*** ***(B136) No. 5 — Engine ground:*** ***(B136) No. 16 — Engine ground:*** ***(B136) No. 26 — Engine ground:*** ***(B135) No. 21 — Engine ground:*** ***(B137) No. 14 — Engine ground:*** ***3.0 L MODEL*** ***(B134) No. 22 — Engine ground:*** ***(B136) No. 8 — Engine ground:*** ***(B136) No. 17 — Engine ground:*** ***(B136) No. 18 — Engine ground:*** ***(B137) No. 8 — Engine ground:*** ***(B137) No. 9 — Engine ground:*** ***(B137) No. 21 — Engine ground:*** ***(B137) No. 31 — Engine ground:***	Is the resistance less than 5 Ω?	Go to step **4.**	Repair the open circuit in harness between ECM connector and engine grounding terminal.
4	**CHECK THROTTLE POSITION SENSOR.** 1) Disconnect the connector from throttle position sensor. 2) Measure the resistance between throttle position sensor connector receptacle's terminals. ***Terminals*** ***2.5 L MODEL*** ***No. 4 — No. 2:*** ***3.0 L MODEL*** ***No. 1 — No. 2:***	Is the resistance 3.0 — 4.2 kΩ?	Go to step **5.**	Replace the throttle position sensor.
5	**CHECK THROTTLE POSITION SENSOR.** Measure the resistance between throttle position sensor connector receptacle's terminals. ***Terminals*** ***2.5 L MODEL*** ***No. 2 — No. 3:*** ***3.0 L MODEL*** ***No. 1 — No. 2:***	Is the resistance 0.35 — 0.5 kΩ?	Go to step **6.**	Replace the throttle position sensor.

	Step	Check	Yes	No
6	**CHECK HARNESS CONNECTOR BETWEEN TCM AND THROTTLE POSITION SENSOR.** 1) Disconnect the connector from TCM. 2) Measure the resistance of harness between TCM and throttle position sensor connector. ***Connector & terminal*** ***2.5 L MODEL without SPORT shift*** ***(B55) No. 2 — (E13) No. 3:*** ***2.5 L MODEL with SPORT shift*** ***(B54) No. 3 — (E13) No. 3:*** ***3.0 L MODEL without VDC system*** ***(B55) No. 2 — (E13) No. 2:*** ***3.0 L MODEL with VDC system*** ***(B54) No. 3 — (E13) No. 2:***	Is the resistance less than 1 Ω?	Go to step **7.**	Repair the open circuit in harness between TCM and throttle position sensor connector, and poor contact in coupling connector.
7	**CHECK HARNESS CONNECTOR BETWEEN TCM AND THROTTLE POSITION SENSOR.** Measure the resistance of harness between TCM and throttle position sensor connector. ***Connector & terminal*** ***2.5 L MODEL without SPORT shift*** ***(B55) No. 1 — (E13) No. 4:*** ***2.5 L MODEL with SPORT shift*** ***(B54) No. 2 — (E13) No. 4:*** ***3.0 L MODEL without VDC system*** ***(B55) No. 1 — (E13) No. 3:*** ***3.0 L MODEL with VDC system*** ***(B54) No. 2 — (E13) No. 3:***	Is the resistance less than 1 Ω?	Go to step **8.**	Repair the open circuit in harness between TCM and throttle position sensor connector, and poor contact in coupling connector.
8	**CHECK HARNESS CONNECTOR BETWEEN TCM AND THROTTLE POSITION SENSOR.** Measure the resistance of harness between TCM connector and chassis ground. ***Connector & terminal*** ***Without VDC system and SPORT shift*** ***(B55) No. 2 — Chassis ground:*** ***With VDC system or SPORT shift*** ***(B54) No. 3 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **9.**	Repair the short circuit in harness between TCM and throttle position sensor connector.
9	**CHECK HARNESS CONNECTOR BETWEEN TCM AND THROTTLE POSITION SENSOR.** Measure the resistance of harness between TCM connector and chassis ground. ***Connector & terminal*** ***With VDC system or SPORT shift*** ***(B54) No. 2 — Chassis ground:*** ***Without VDC system and SPORT shift*** ***(B55) No. 1 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **10.**	Repair the short circuit in harness between TCM and throttle position sensor connector.
10	**CHECK HARNESS CONNECTOR BETWEEN TCM AND ECM.** Measure the resistance of harness between TCM and ECM connector. ***Connector & terminal*** ***2.5 L MODEL without SPORT shift*** ***(B55) No. 2 — (B135) No. 19:*** ***2.5 L MODEL with SPORT shift*** ***(B54) No. 3 — (B135) No. 19:*** ***3.0 L MODEL with VDC system*** ***(B54) No. 3 — (B135) No. 7:*** ***3.0 L MODEL without VDC system*** ***(B55) No. 2 — (B135) No. 7:***	Is the resistance less than 1 Ω?	Go to step **11.**	Repair the open circuit in harness between TCM and ECM connector.

	Step	Check	Yes	No
11	**CHECK HARNESS CONNECTOR BETWEEN TCM AND ECM.** Measure the resistance of harness between TCM and ECM connector. ***Connector & terminal*** ***2.5 L MODEL without SPORT shift*** ***(B55) No. 1 — (B135) No. 13:*** ***2.5 L MODEL with SPORT shift*** ***(B54) No. 2 — (B135) No. 13:*** ***3.0 L MODEL with VDC system*** ***(B54) No. 2 — (B135) No. 9:*** ***3.0 L MODEL without VDC system*** ***(B55) No. 1 — (B135) No. 9:***	Is the resistance less than 1 Ω?	Go to step **12.**	Repair the open circuit in harness between TCM and ECM connector.
12	**PREPARE SUBARU SELECT MONITOR.**	Do you have a Subaru Select Monitor?	Go to step **15.**	Go to step **13.**
13	**CHECK INPUT SIGNAL FOR TCM.** 1) Connect the connectors to TCM, throttle position sensor and ECM. 2) Turn the ignition switch to ON (engine OFF). 3) Close the throttle completely. 4) Measure the voltage between TCM connector and chassis ground. ***Connector & terminal*** ***Without VDC system and SPORT shift*** ***(B55) No. 2 (+) — Chassis ground (–):*** ***With VDC system or SPORT shift*** ***(B54) No. 3 (+) — Chassis ground (–):***	Is the voltage 0.2 — 1.0 V?	Go to step **14.**	Go to step **19.**
14	**CHECK INPUT SIGNAL FOR TCM.** 1) Open the throttle completely and hold it. 2) Measure the voltage between TCM connector and chassis ground. ***Connector & terminal*** ***Without VDC system and SPORT shift*** ***(B55) No. 2 (+) — Chassis ground (–):*** ***With VDC system or SPORT shift*** ***(B54) No. 3 (+) — Chassis ground (–):***	Is the voltage 4.2 — 4.7 V?	Go to step **19.**	Go to step **19.**
15	**CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR.** 1) Connect the connectors to TCM, throttle position sensor and ECM. 2) Connect the Subaru Select Monitor to data link connector. 3) Turn the ignition switch to ON (engine OFF). 4) Turn the Subaru Select Monitor switch to ON. 5) Throttle fully closed. 6) Read the data of throttle position sensor using Subaru Select Monitor. •Throttle position sensor input signal is indicated.	Is the value voltage 0.2 — 1.0 V?	Go to step **16.**	Go to step **19.**
16	**CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR.** Throttle fully open. NOTE: Must be changed correspondingly with the accelerator pedal operation (from “released” to “depressed” position).	Is the value voltage 4.2 — 4.7 V?	Go to step **17.**	Go to step **18.**

	Step	Check	Yes	No
17	**CHECK INPUT SIGNAL FOR TCM (THROTTLE POSITION SENSOR POWER SUPPLY).** Measure the voltage between TCM connector and chassis ground. ***Connector & terminal*** ***Without VDC system and SPORT shift*** ***(B55) No. 1 (+) — Chassis ground (–):*** ***With VDC system or SPORT shift*** ***(B54) No. 2 (+) — Chassis ground (–):***	Is the voltage 4.8 — 5.3 V?	Even if the AT OIL TEMP warning light illuminates, 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 throttle position sensor circuit.	Go to step **19.**
18	**CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR (THROTTLE POSITION SENSOR POWER SUPPLY).** Read the data of throttle position sensor power supply using Subaru Select Monitor. •Throttle position sensor power supply voltage is indicated.	Is the value voltage 4.8 — 5.3 V?	Even if the AT OIL TEMP warning light illuminates, 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 throttle position sensor circuit.	Go to step **19.**
19	**CHECK POOR CONTACT.**	Is there poor contact in throttle position sensor circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-79, Transmission Control Module (TCM).>
20	**CHECK ENGINE GROUND TERMINALS.**	Are engine ground terminals tightened?	Go to step **21.**	Tighten the engine terminals.
21	**CHECK GROUND TERMINAL 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*** ***(B134) No. 7 — Engine ground:*** ***(B136) No. 8 — Engine ground:*** ***(B136) No. 17 — Engine ground:*** ***(B136) No. 18 — Engine ground:*** ***(B84) No. 1 — Engine ground:*** ***(B84) No. 8 — Engine ground:*** ***(B84) No. 9 — Engine ground:*** ***(B84) No. 21 — Engine ground:*** ***(B84) No. 31 — Engine ground:***	Is the resistance less than 5 Ω?	Go to step **22.**	Repair open circuit in harness between ECM connector and engine grounding terminal.
22	**CHECK ACCELERATOR PEDAL POSITION SENSOR.** 1) Disconnect connector from accelerator pedal position sensor. 2) Measure the resistance between accelerator pedal position sensor connectors. ***Connector & terminal*** ***No. 1 — No. 6:***	Is the resistance within 0.75 to 3.15 kΩ?	Go to step **23.**	Replace the accelerator position sensor.

Step		Check	Yes	No
23	**CHECK ACCELERATOR POSITION SENSOR.** Measure the resistance between accelerator pedal position sensor connector receptacle's terminals. ***Connector & terminal*** ***No. 2 — No. 6:***	Is the resistance within 0.15 to 0.63 kΩ?	Go to step **24.**	Replace the accelerator position sensor.
24	**CHECK HARNESS CONNECTOR BETWEEN TCM AND ACCELERATOR PEDAL POSITION SENSOR.** 1) Disconnect connector from TCM. 2) Measure the resistance of harness between TCM and accelerator pedal position sensor connector. ***Connector & terminal*** ***Without SPORT shift*** ***(B54) No. 3 — (B315) No. 1:*** ***(B54) No. 4 — (B315) No. 2:*** ***With SPORT shift*** ***(B54) No. 2 — (B315) No. 1:*** ***(B54) No. 3 — (B315) No. 2:***	Is the resistance less than 1 Ω?	Go to step **25.**	Repair open circuit in harness between TCM and throttle position sensor connector, and poor contact in coupling connector.
25	**CHECK HARNESS CONNECTOR BETWEEN TCM AND ACCELERATOR PEDAL POSITION SENSOR.** Measure the resistance of harness between TCM and chassis ground. ***Connector & terminal*** ***Without SPORT shift*** ***(B54) No. 3 — Chassis ground:*** ***(B54) No. 4 — Chassis ground:*** ***With SPORT shift*** ***(B54) No. 2 — Chassis ground:*** ***(B54) No. 3 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **26.**	Repair short circuit in harness between TCM connector and throttle sensor connector.
26	**CHECK HARNESS CONNECTOR BETWEEN TCM AND ECM.** 1) Disconnect connector from ECM. 2) Measure the voltage between TCM connector and chassis ground. ***Connector & terminal*** ***Without SPORT shift*** ***(B54) No. 3 — (B136) No. 8:*** ***(B54) No. 4 — (B136) No. 9:*** ***With SPORT shift*** ***(B54) No. 2 — (B136) No. 8:*** ***(B54) No. 3 — (B136) No. 9:***	Is the resistance less than 1 Ω?	Go to step **27.**	Repair open circuit in harness between TCM and ECM connector, and poor contact in coupling connector.
27	**PREPARE SUBARU SELECT MONITOR.**	Do you have a Subaru Select Monitor?	Go to step **30.**	Go to step **28.**

	Step	Check	Yes	No
28	**CHECK INPUT SIGNAL FOR TCM.** 1) Connect all connectors. 2) Turn the ignition switch to ON (engine OFF). 3) Close the throttle completely. 4) Measure the voltage between TCM connector and chassis ground. ***Connector & terminal*** ***Without SPORT shift*** ***(B54) No. 3 (+) — Chassis ground (–):*** ***(B54) No. 4 (+) — Chassis ground (–):*** ***With SPORT shift*** ***(B54) No. 2 (+) — Chassis ground (–):*** ***(B54) No. 3 (+) — Chassis ground (–):***	Is the voltage more than 0.2 V?	Go to step **29.**	Go to step **34.**
29	**CHECK INPUT SIGNAL FOR TCM.** 1) Open the throttle completely and hold it. 2) Measure the voltage between TCM connector and chassis ground. ***Connector & terminal*** ***Without SPORT shift*** ***(B54) No. 3 (+) — Chassis ground (–):*** ***(B54) No. 4 (+) — Chassis ground (–):*** ***With SPORT shift*** ***(B54) No. 2 (+) — Chassis ground (–):*** ***(B54) No. 3 (+) — Chassis ground (–):***	Is the voltage more than 4.6 V?	Go to step **32.**	Go to step **34.**
30	**CHECK TCM INPUT SIGNAL USING SUBARU SELECT MONITOR.** 1) Connect all connector. 2) Connect Subaru Select Monitor to data link connector. 3) Turn the ignition to ON (engine OFF). 4) Turn the Subaru Select Monitor switch to ON. 5) Accelerator pedal 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 0.5 V?	Go to step **31.**	Go to step **34.**
31	**CHECK TCM INPUT SIGNAL USING SUBARU SELECT MONITOR.** 1) Accelerator pedal fully open. 2) 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 4.5 V?	Go to step **34.**	Go to step **33.**
32	**CHECK INPUT SIGNAL FOR TCM (ACCELERATOR PEDAL POSITION SENSOR SUPPLY).** Measure the voltage between TCM connector and chassis ground. ***Connector & terminal*** ***Without SPORT shift*** ***(B54) No. 3 (+) — Chassis ground (–):*** ***(B54) No. 4 (+) — Chassis ground (–):*** ***With SPORT shift*** ***(B54) No. 2 (+) — Chassis ground (–):*** ***(B54) No. 3 (+) — Chassis ground (–):***	Is the voltage within 4.8 to 5.3 V?	Even if the AT OIL TEMP warning light illuminates, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness maybe the cause. Repair the harness or connector in accelerator pedal position sensor circuit.	Go to step **34.**

Step		Check	Yes	No
33	**CHECK TCM INPUT SIGNAL USING SUBARU SELECT MONITOR (ACCELERATOR PEDAL POSITION SENSOR POWER SUPPLY).** Read the data of accelerator pedal position sensor using Subaru Select Monitor. •Accelerator pedal position sensor power supply voltage is indicated.	Is the voltage within 4.8 to 5.3 V?	Even if the AT OIL TEMP warning light illuminates, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector or harness maybe the cause. Repair the harness or connector in accelerator pedal position sensor circuit.	Go to step **34.**
34	**CHECK POOR CONTACT.**	Is there poor contact in accelerator pedal position sensor circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-79, Transmission Control Module (TCM).>