6. Diagnostics for A/C System Malfunction

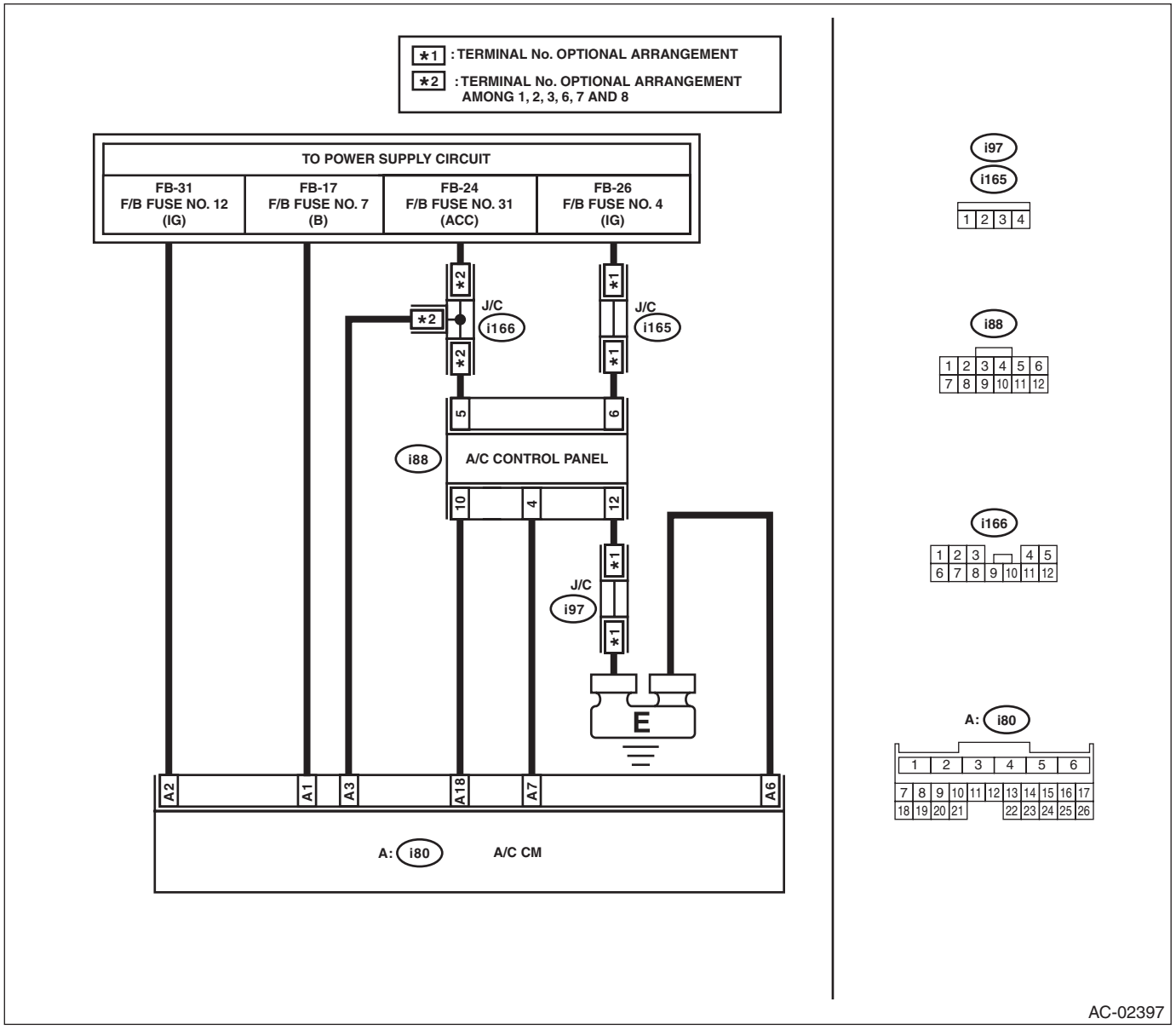
A: A/C OR SELF-DIAGNOSIS SYSTEMS DO NOT OPERATE

TROUBLE SYMPTOM:

- Set temperature is not indicated on the display, switch LEDs are faulty and switches do not operate.
- Self-diagnosis system does not operate.

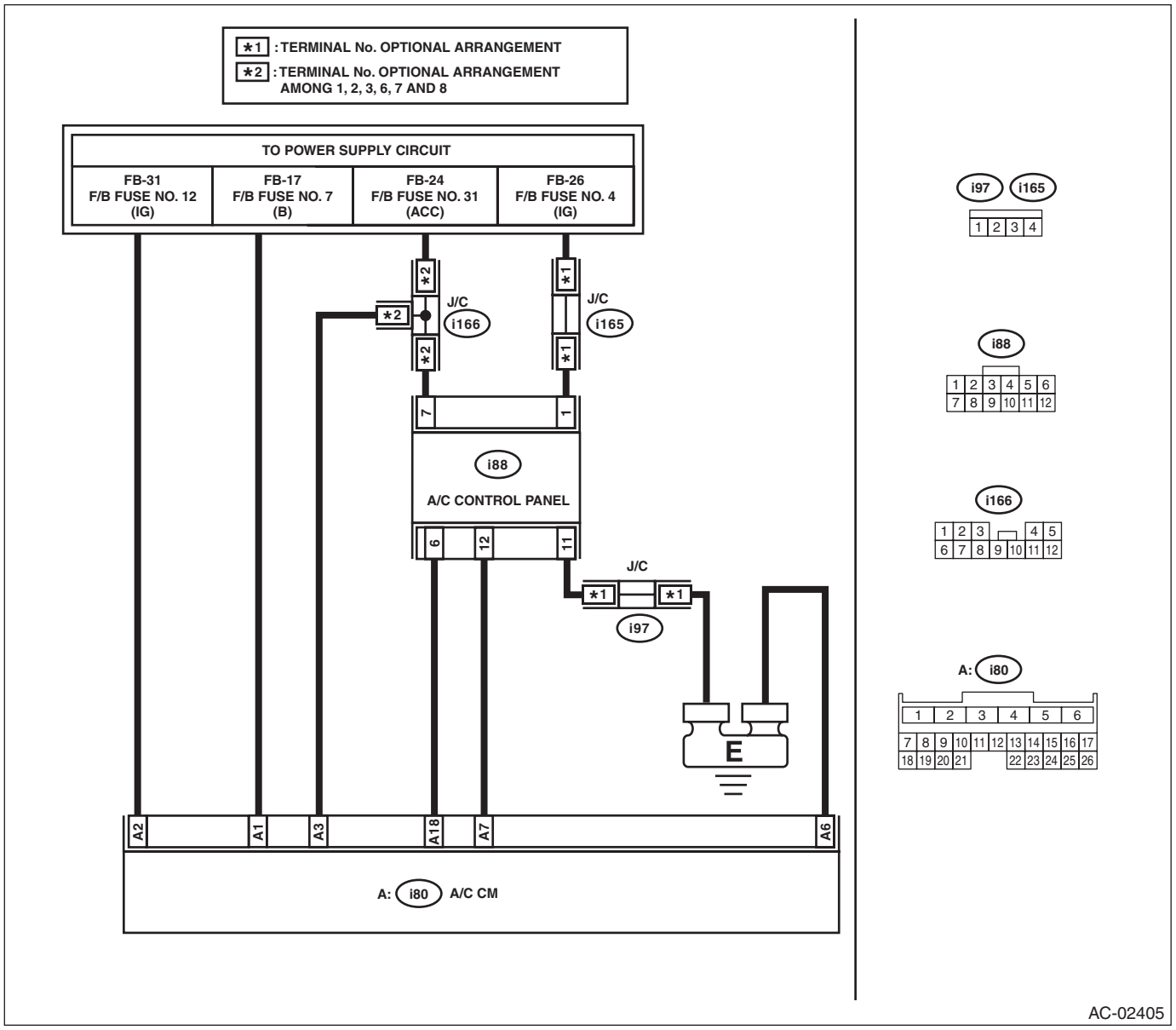
WIRING DIAGRAM:

- Auto A/C model



AC-02397

- Manual A/C model



Step		Check	Yes	No
1	**CHECK CONNECTOR.** Check for poor contact of the power supply circuit connectors.	Is there poor contact of connector?	Repair the connector.	Go to step **2**.
2	**CHECK FUSE.** 1) Turn the ignition switch to OFF. 2) Remove fuses No. 4, No. 7, No. 12 and No. 31 from the fuse & relay box. 3) Check the condition of fuse.	Is the fuse blown out?	Replace the fuse.	Go to step **3**.

	Step	Check	Yes	No
3	**CHECK A/C CONTROL PANEL POWER CIRCUIT.** 1) Remove the A/C control panel. 2) Disconnect the A/C control panel harness connector. 3) Turn the ignition switch to ACC, and measure the voltage between A/C control panel harness connector terminal and chassis ground. ***Connector & terminal*** ***Auto A/C model*** ***(i88) No. 5 (+) — Chassis ground (–):*** ***Manual A/C model*** ***(i88) No. 7 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Go to step **4**.	Check for open or short circuit in the harness between A/C control panel and fuse.
4	**CHECK A/C CONTROL PANEL POWER CIRCUIT.** Measure the voltage between A/C control panel harness connector terminal and chassis ground after turning the ignition switch to ON. ***Connector & terminal*** ***Auto A/C model*** ***(i88) No. 6 (+) — Chassis ground (–):*** ***Manual A/C model*** ***(i88) No. 1 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Go to step **5**.	Check for open or short circuit in the harness between A/C control panel and fuse.
5	**CHECK A/C CONTROL PANEL GROUND POWER CIRCUIT.** Measure the resistance of harness between A/C control panel and chassis ground after turning the ignition switch to OFF. ***Connector & terminal*** ***Auto A/C model*** ***(i88) No. 12 — Chassis ground:*** ***Manual A/C model*** ***(i88) No. 11 — Chassis ground:***	Is the resistance less than 10 Ω?	Go to step **6**.	Repair the harness for ground line.
6	**CHECK A/C CONTROL MODULE POWER CIRCUIT.** Measure the voltage between A/C control module connector terminal and chassis ground after turning the ignition switch to OFF. ***Connector & terminal*** ***(i80) No. 1 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Go to step **7**.	Check for open or short circuit in the harness between A/C control module and fuse.
7	**CHECK A/C CONTROL MODULE POWER CIRCUIT.** Measure the voltage between A/C control module connector terminal and chassis ground after turning the ignition switch to ON. ***Connector & terminal*** ***(i80) No. 2 (+) — Chassis ground (–):*** ***(i80) No. 3 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Go to step **8**.	Check for open or short circuit in the harness between A/C control module and fuse.
8	**CHECK A/C CONTROL MODULE GROUND CIRCUIT.** Measure the resistance of harness between A/C control module and chassis ground. ***Connector & terminal*** ***(i80) No. 6 — Chassis ground:***	Is the resistance less than 5 Ω?	Go to step **9**.	Repair the harness for ground line.

	Step	Check	Yes	No
9	**CHECK COMMUNICATION CIRCUIT.** Check the continuity of harness between A/C control panel and A/C control module. ***Connector & terminal*** ***Auto A/C model*** ***(i88) No. 10 — (i80) No. 18:*** ***(i88) No. 4 — (i80) No. 7:*** ***Manual A/C model*** ***(i88) No. 6 — (i80) No. 18:*** ***(i88) No. 12 — (i80) No. 7:***	Is there continuity?	Go to step **10**.	Repair the harness.
10	**CHECK COMMUNICATION CIRCUIT HARNESS.** Check the continuity between communication circuit harness and chassis ground. ***Connector & terminal*** ***(i80) No. 18 — Chassis ground:*** ***(i80) No. 7 — Chassis ground:***	Is there continuity?	Repair or replace the short circuit of the harness.	Go to step **11**.
11	**CHECK COMMUNICATION CIRCUIT HARNESS.** Check the continuity between communication circuit harness. ***Connector & terminal*** ***(i80) No. 18 — No. 7:***	Is there continuity?	Repair or replace the short circuit of the harness.	Replace the A/C CM. <Ref. to AC-48, REMOVAL, Control Unit.>

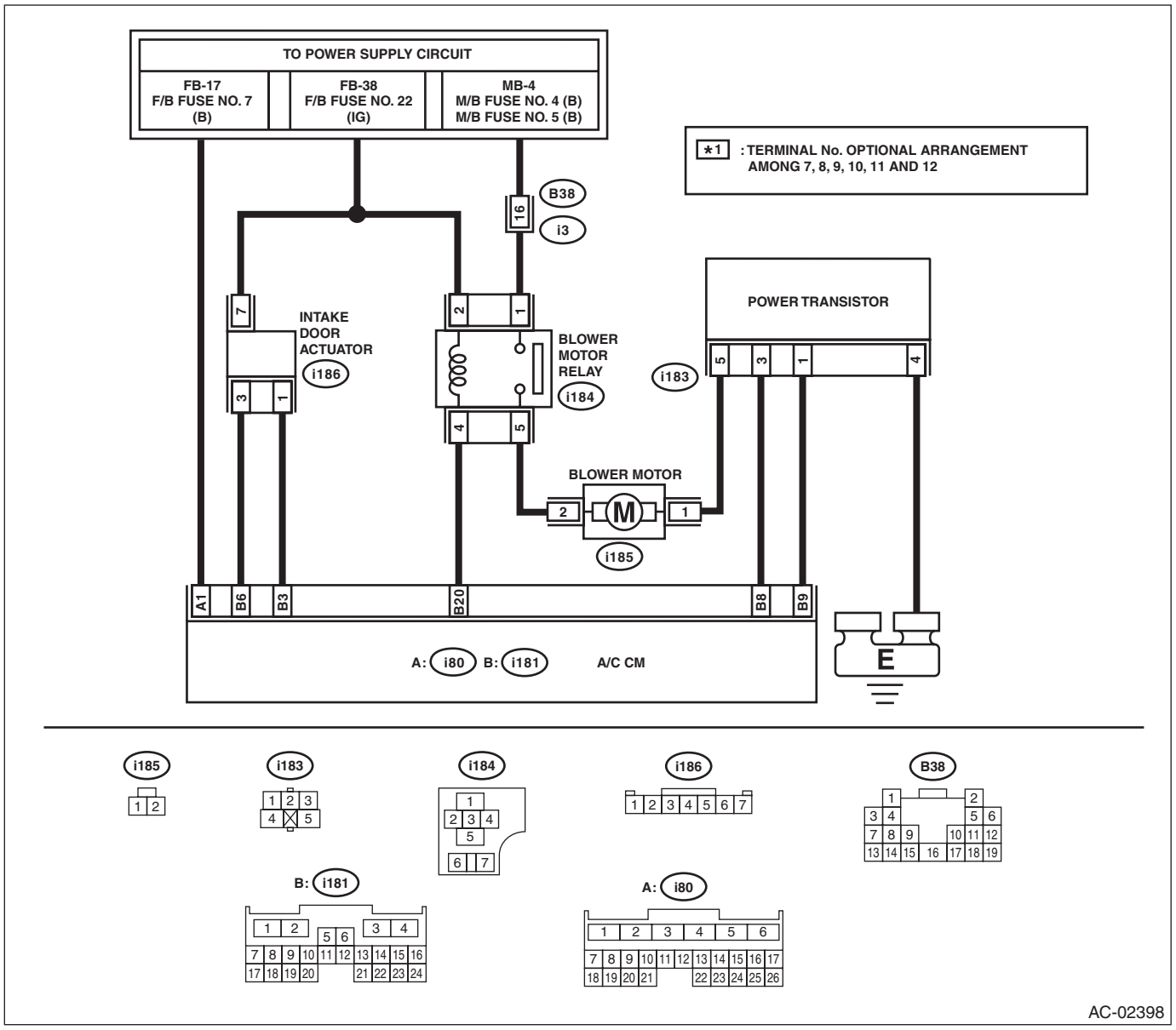
B: BLOWER MOTOR DOES NOT ROTATE

TROUBLE SYMPTOM:

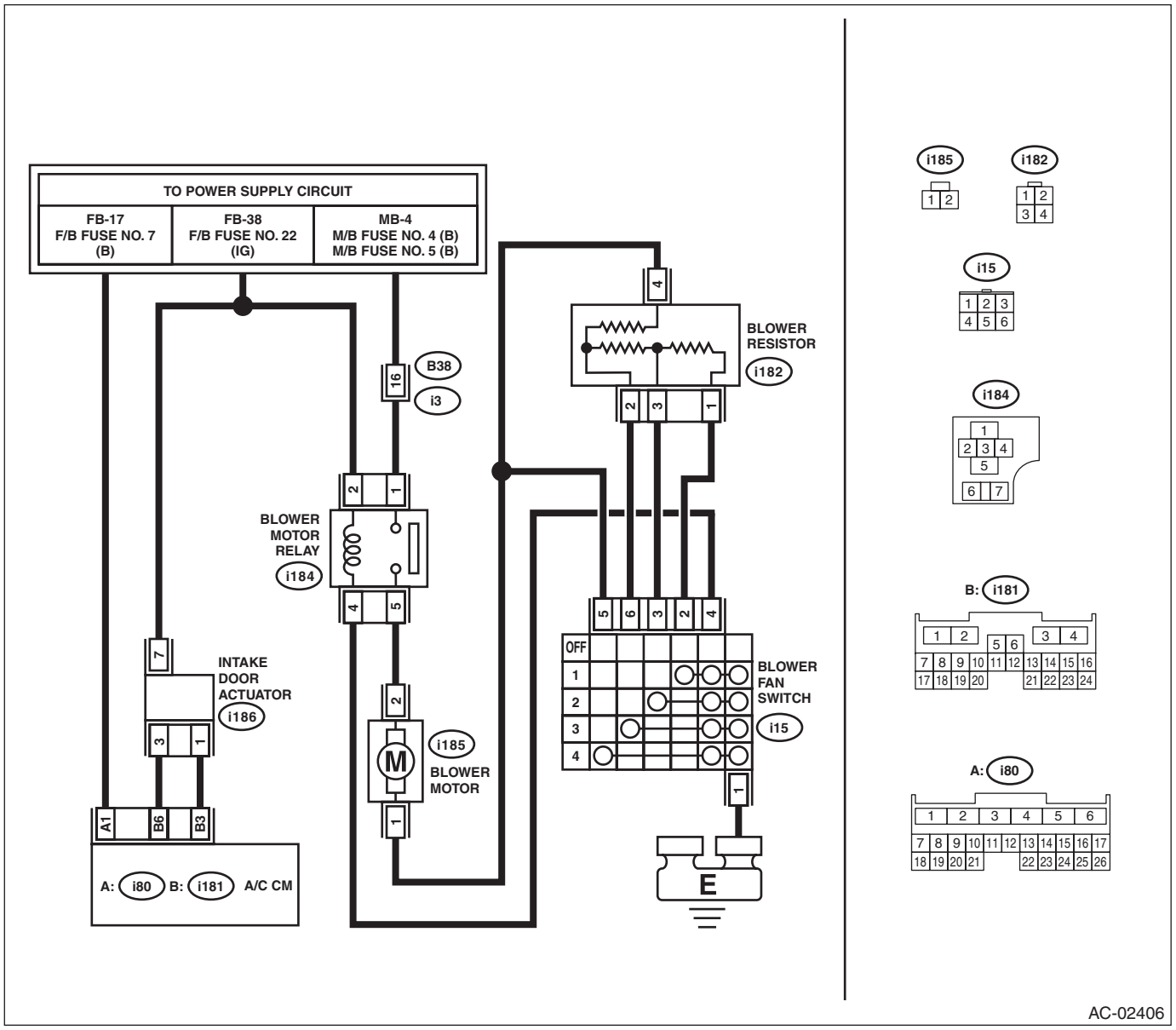
- Blower motor does not rotate.
- Blower motor does not rotate in “HI”.

WIRING DIAGRAM:

- Auto A/C model



- Manual A/C model



Step		Check	Yes	No
1	**CHECK CONNECTOR.** Check for poor contact of the power supply circuit connectors.	Is there poor contact of connector?	Repair the connector.	Go to step **2**.
2	**CHECK FUSE.** 1) Remove fuse No. 22 and 7 from fuse & relay box, and fuse No. 4 and 5 from the main fuse box. 2) Check the condition of fuse.	Is any fuse blown out?	Replace the fuse.	Go to step **3**.
3	**CHECK POWER SUPPLY FOR BLOWER MOTOR.** 1) Turn the ignition switch to ON. 2) Turn the blower switch to ON. 3) Measure the voltage between blower motor and chassis ground. ***Connector & terminal*** ***(i185) No. 2 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Go to step **5**.	Go to step **4**.

	Step	Check	Yes	No
4	**CHECK BLOWER MOTOR RELAY.** 1) Turn the ignition switch to OFF. 2) Remove the blower motor relay. 3) Check the blower motor relay. <Ref. to AC-25, CHECK RELAY, INSPECTION, Relay and Fuse.>	Is the relay OK?	Repair the open circuit of blower motor power supply line harness.	Replace the blower motor relay. <Ref. to AC-25, LOCATION, Relay and Fuse.>
5	**CHECK BLOWER MOTOR.** 1) Disconnect the connector from blower motor. 2) Make sure the blower motor runs. <Ref. to AC-32, INSPECTION, Blower Motor.>	Does the blower motor run?	Auto A/C model Go to step **6**. Manual A/C model Go to step **8**.	Replace the blower motor. <Ref. to AC-31, REMOVAL, Blower Motor.>
6	**CHECK A/C CONTROL MODULE.** Replace the A/C control module with a properly functioning part.	Does the blower motor run?	Replace the A/C CM. <Ref. to AC-48, REMOVAL, Control Unit.>	Go to step **7**.
7	**CHECK HARNESS.** 1) Disconnect the auto A/C control module and the power transistor connector. 2) Using the tester, check the open or short circuit between terminals. ***Connector & terminal*** ***Check open circuit*** ***(i185) No. 1 — (i183) No. 5:*** ***(i183) No. 3 — (i181) No. 8:*** ***(i183) No. 1 — (i181) No. 9:*** ***(i183) No. 4 — Chassis ground:*** ***Check short circuit*** ***(i185) No. 1 — Chassis ground:*** ***(i183) No. 3 — Chassis ground:*** ***(i183) No. 1 — Chassis ground:***	Is harness normal?	Replace the power transistor. <Ref. to AC-33, REMOVAL, Power Transistor (Auto A/C Model).>	Repair the harness.
8	**CHECK BLOWER RESISTOR.** Check the blower resistor. <Ref. to AC-35, INSPECTION, Blower Resistor (Manual A/C Model).>	Is the blower resistor OK?	Go to step **9**.	Replace the blower resistor. <Ref. to AC-34, REMOVAL, Blower Resistor (Manual A/C Model).>
9	**CHECK BLOWER FAN SWITCH.** Check the blower fan switch. <Ref. to AC-47, BLOWER SWITCH (MANUAL A/C MODEL), INSPECTION, Control Panel.>	Is the blower fan switch OK?	Repair the harness.	Replace the control panel. <Ref. to AC-44, MANUAL A/C MODEL, REMOVAL, Control Panel.>

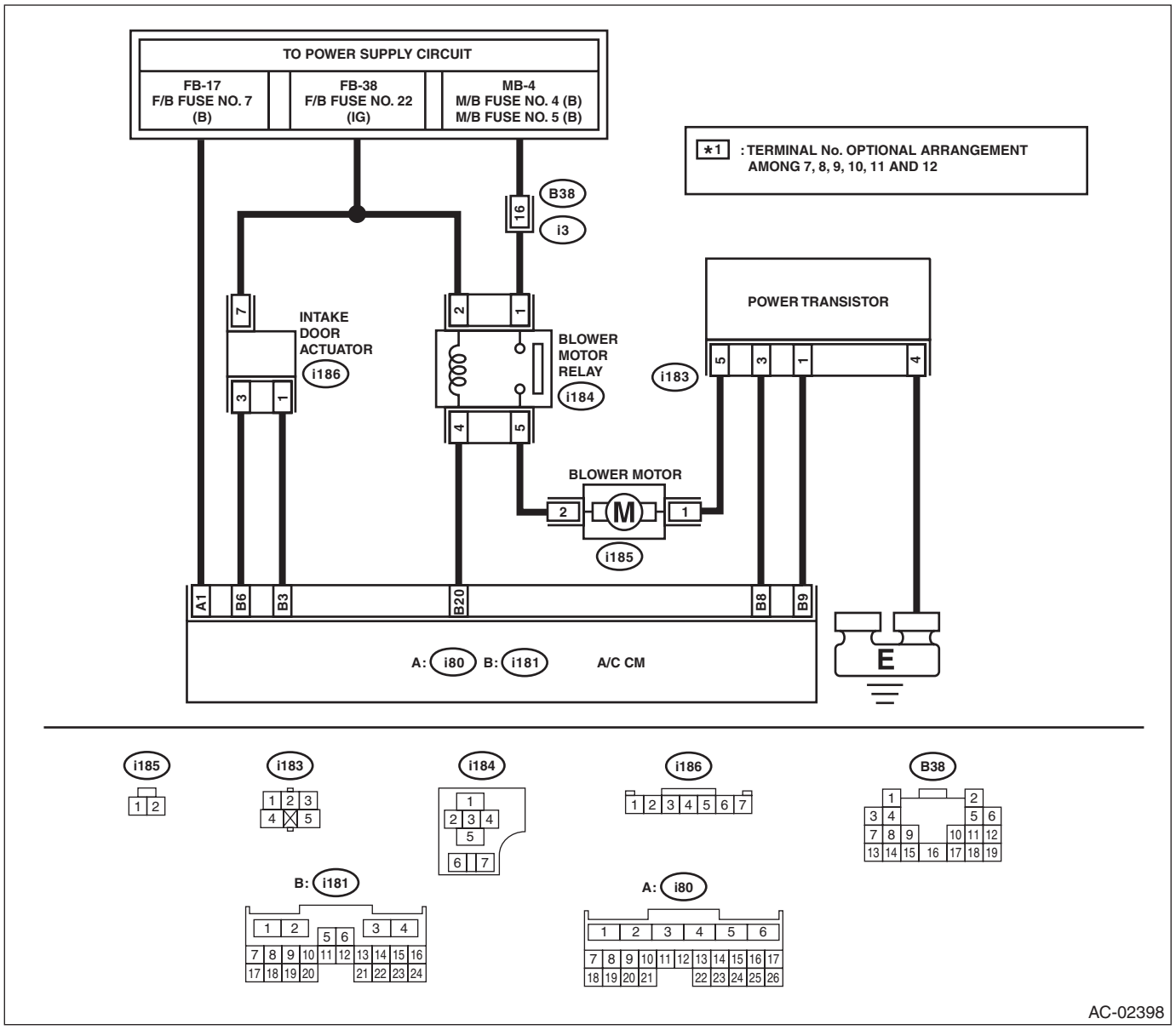
C: BLOWER MOTOR TURNS AROUND EARLY

TROUBLE SYMPTOM:

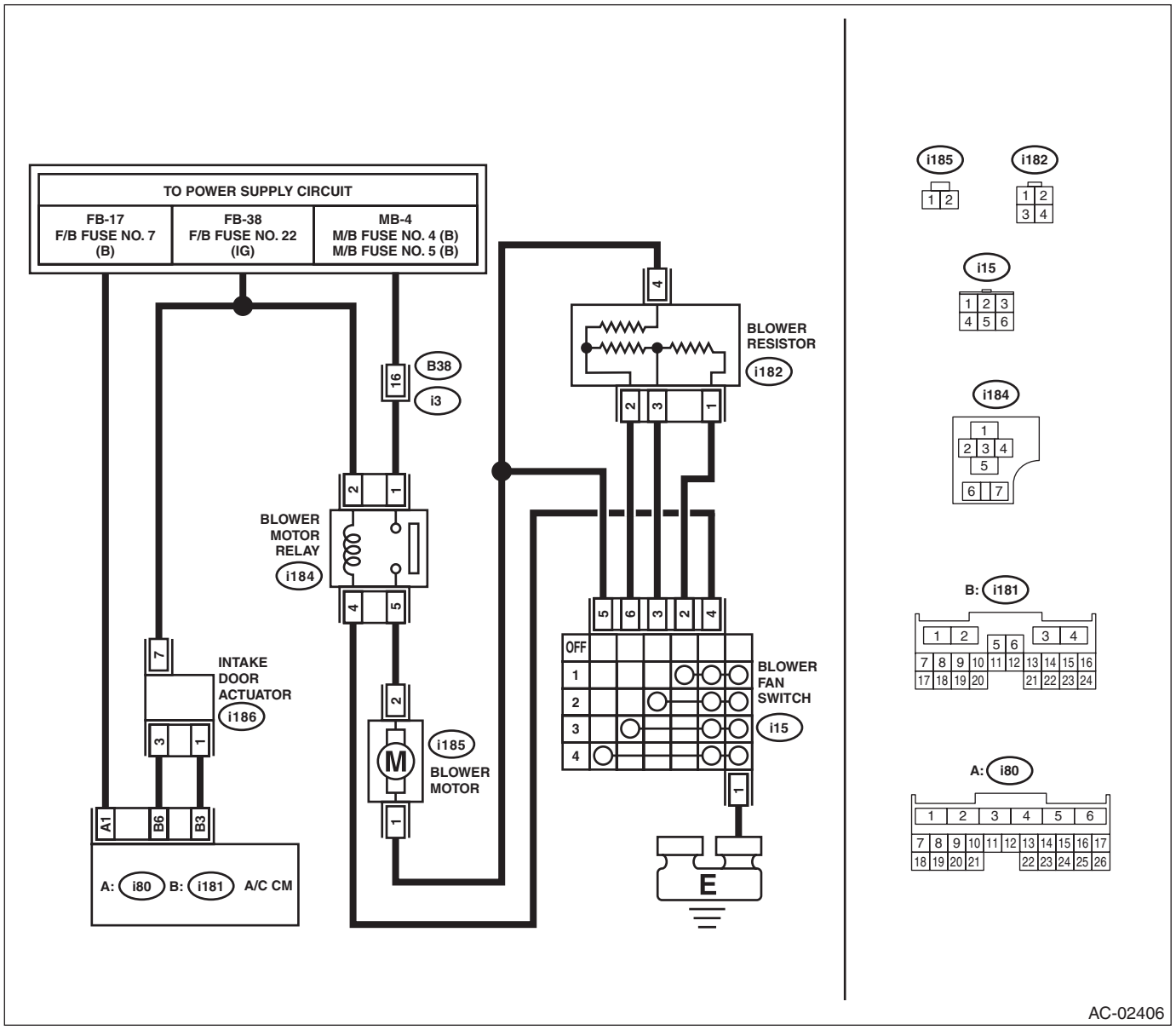
- The blower rotates even though the blower switch is not turned on.
- The blower motor continues to rotate at high speed. (Not adjustable.)

WIRING DIAGRAM:

- Auto A/C model



- Manual A/C model

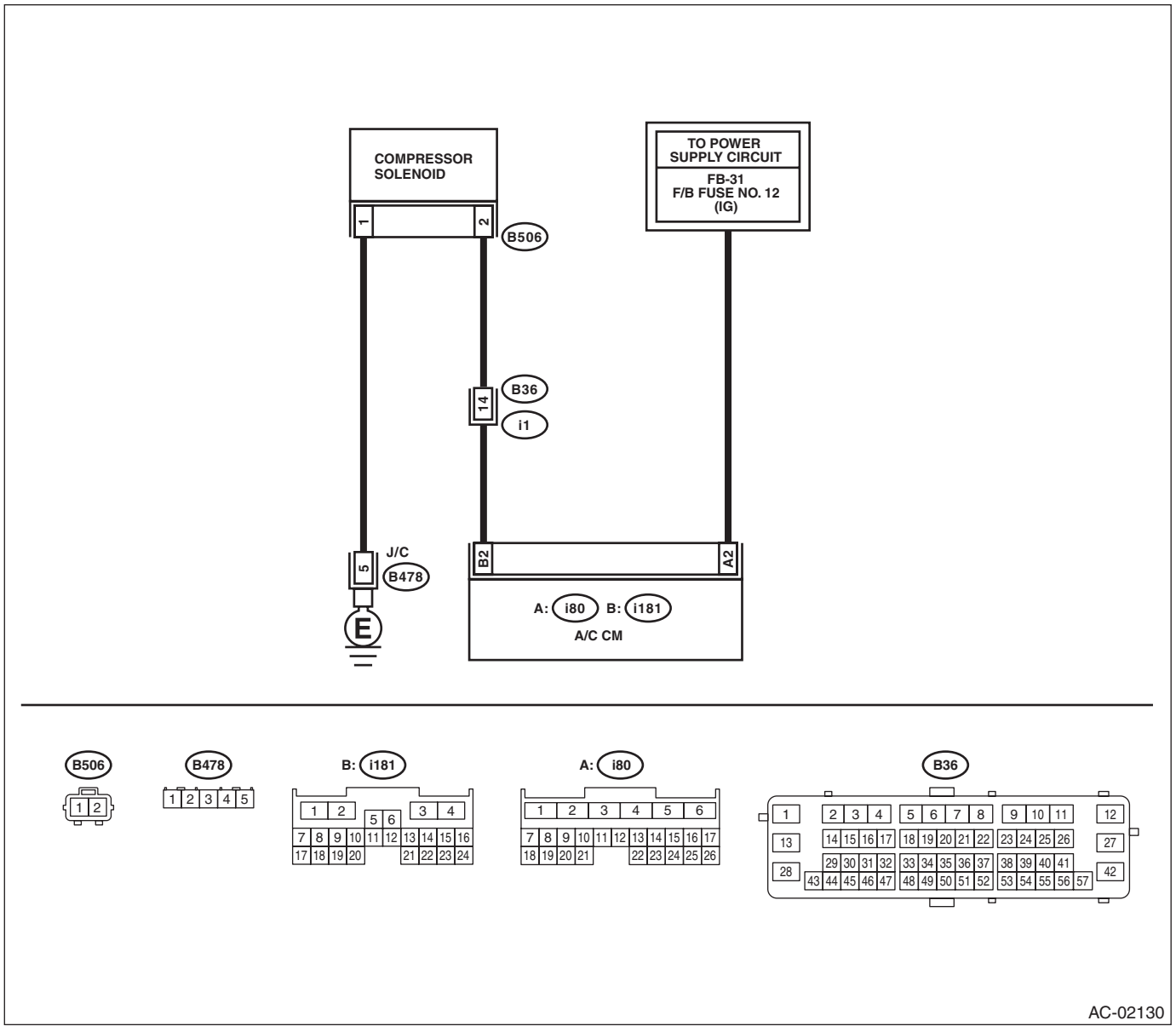


Step		Check	Yes	No
1	**CHECK BLOWER MOTOR CIRCUIT.** 1) Turn the ignition switch to OFF. 2) Disconnect the power transistor or the blower resistor connector. 3) Use a tester to measure the resistance between each terminal and chassis ground. ***Connector & terminal*** ***Auto A/C model*** ***(i183) No. 5 — Chassis ground:*** ***Manual A/C model*** ***(i184) No. 4 — Chassis ground:*** ***(i185) No. 1 — Chassis ground:*** ***(i182) No. 2 — Chassis ground:*** ***(i182) No. 3 — Chassis ground:***	Is there continuity?	Repair or replace the short circuit of the harness.	Go to step **2**.

	Step	Check	Yes	No
2	**CHECK HARNESS.** 1) Remove the A/C CM. 2) Use a tester to measure the resistance between the power transistor connector and chassis ground. ***Connector & terminal*** ***(i183) No. 1 — Chassis ground:***	Is there continuity?	Repair or replace the short circuit of the harness.	For auto A/C model, Go to step **3**. For manual A/C model, replace the blower resistor. <Ref. to AC-34, REMOVAL, Blower Resistor (Manual A/C Model).>
3	**CHECK POWER TRANSISTOR.** 1) Connect the disconnected connectors. 2) Turn the ignition switch to ON. 3) Use a tester to measure the voltage between the power transistor connector and chassis ground. ***Connector & terminal*** ***(i183) No. 1 (+) — Chassis ground (–):***	Is the voltage approx. 10 V when the fan switch is set to 1st, and approx. 1 V when set to 6th?	Replace the power transistor. <Ref. to AC-33, REMOVAL, Power Transistor (Auto A/C Model).>	Go to step **4**.
4	**CHECK A/C CM.** 1) Turn the fan switch to OFF. 2) Disconnect the power transistor connector. 3) Use a tester to measure the resistance between the power transistor connector and chassis ground. ***Connector & terminal*** ***(i183) No. 1 — Chassis ground:***	When the fan switch is OFF and other than OFF, does the resistance change?	Replace the power transistor. <Ref. to AC-33, REMOVAL, Power Transistor (Auto A/C Model).>	Replace the A/C CM. <Ref. to AC-48, REMOVAL, Control Unit.>

D: COMPARTMENT TEMPERATURE DOES NOT CHANGE, OR A/C SYSTEM DOES NOT RESPOND PROMPTLY

WIRING DIAGRAM:



Step		Check	Yes	No
1	**CHECK DTC.** 1) Turn the ignition switch to ON. 2) Read the DTC of the A/C system using the Subaru Select Monitor.	Is DTC detected?	Perform the diagnosis according to DTC.	Go to step **2**.
2	**CHECK AMOUNT OF REFRIGERANT.** Check the refrigerant pressure. <Ref. to AC-19, PROCEDURE, Refrigerant Pressure with Manifold Gauge Set.>	Is the refrigerant pressure within the standard?	Go to step **3**.	Check and repair the refrigerant leakage.

	Step	Check	Yes	No
3	**CHECK POWER SUPPLY OF CONTROL MODULE.** 1) Disconnect the A/C CM connector. 2) Turn the ignition switch to ON. 3) Using a tester, measure the voltage between the connector terminal and chassis ground. ***Connector & terminal*** ***(i80) No. 2 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Go to step **4**.	Repair the defective power supply circuit.
4	**CHECK CONTROL MODULE.** 1) Disconnect the compressor solenoid connector. 2) Turn the ignition switch to ON. 3) Using the tester, measure the voltage between terminals. ***Connector & terminal*** ***(i181) No. 2 — Chassis ground:***	Is the voltage 10 V or more?	Go to step **5**.	Repair the defective harness.
5	**CHECK HARNESS.** 1) Disconnect the A/C CM connector. 2) Using a tester, check continuity between terminals. ***Connector & terminal*** ***(B506) No. 2 — (i181) No. 2:***	Is there continuity?	Go to step **6**.	Repair or replace the open circuit.
6	**CHECK GROUND.** Using a tester, check the continuity between the connector terminal and chassis ground. ***Connector & terminal*** ***(B506) No. 1 — Chassis ground:***	Is there continuity?	Go to step **7**.	Repair or replace the open circuit.
7	**CHECK COMPRESSOR SOLENOID.** Using the tester, measure the resistance between compressor solenoid terminals. ***Connector & terminal*** ***(B506) No. 1 — No. 2:***	Is the resistance 10 — 12 Ω?	Replace the A/C CM. <Ref. to AC-48, REMOVAL, Control Unit.>	Replace the compressor solenoid. <Ref. to AC-49, REMOVAL, Compressor.>