BODY SECTION

This service manual has been prepared to provide SUBARU service personnel with the necessary information and data for the correct maintenance and repair of SUBARU vehicles.
This manual includes the procedures for maintenance, disassembling, reassembling, inspection and adjustment of components and diagnostics for guidance of experienced mechanics.
Please peruse and utilize this manual fully to ensure complete repair work for satisfying our customers by keeping their vehicle in optimum condition. When replacement of parts during repair work is needed, be sure to use SUBARU genuine parts.

All information, illustration and specifications contained in this manual are based on the latest product information available at the time of publication approval.

BODY SECTION

HVAC SYSTEM (AUTO A/C)(DIAGNOSTIC)

AC

1. Basic Diagnostics Procedure

A: PROCEDURE

	Step	Check	Yes	No
1	**START INSPECTIONS.** 1) Perform the pre-inspection. <Ref. to AC-3, INSPECTION, General Description.> 2) Perform the self-diagnosis. <Ref. to AC-9, OPERATION, Diagnostic Chart for Self-Diagnosis.>	Does the self-diagnosis operate?	Go to step **2.**	<Ref. to AC-12, A/C OR SELF-DIAGNOSIS SYSTEMS DO NOT OPERATE, Diagnostics for A/C System Malfunction.>
2	**IDENTIFY MALFUNCTION PART.** Identify the malfunction part with self-diagnosis.	Can the malfunction part be identified?	Repair the malfunction part in accordance with each diagnostic chart.	Go to step **3.**
3	**CHECK COMPARTMENT TEMPERATURE.** 1) Turn ON the A/C switch. 2) Turn the temperature control dial at maximum cool position. 3) Check the compartment temperature change.	Does the compartment temperature change?	Go to step **4.**	<Ref. to AC-16, COMPARTMENT TEMPERATURE DOES NOT CHANGE, OR A/C SYSTEM DOES NOT RESPOND PROMPTLY., Diagnostics for A/C System Malfunction.>
4	**CHECK A/C SYSTEM RESPONSE.** Change the temperature setting, and check the response of A/C system.	Does the A/C system respond quickly?	A/C system is normal.	<Ref. to AC-16, COMPARTMENT TEMPERATURE DOES NOT CHANGE, OR A/C SYSTEM DOES NOT RESPOND PROMPTLY., Diagnostics for A/C System Malfunction.>

2. General Description

A: CAUTION

1) Never connect the battery in reverse polarity.
Auto A/C control module may be destroyed instantly.
2) Do not disconnect the battery terminals while the engine is running.
A large counter electromotive force will be generated in the generator, and this voltage may damage electronic parts such as auto A/C control module, etc.
3) Before disconnecting the connectors of each sensor and the auto A/C control module, be sure to turn off the ignition switch.
Auto A/C control module may be damaged.
4) Every A/C-related part is a precision part. Do not drop them.
5) Airbag system wiring harness is routed near the A/C control panel (auto A/C control module) and junction box.

CAUTION:
• For airbag system, yellow-colored wiring harness and connectors are all used. Do not use the electrical test equipment on these circuits.
• Be careful not to damage the airbag system wiring harness when servicing the A/C control panel (auto A/C control module) and junction box.

B: INSPECTION

Before performing the diagnosis, check the following items which might affect A/C system problems.

1. BATTERY

1) Measure battery voltage and specific gravity of electrolyte.

Standard voltage: 12 V

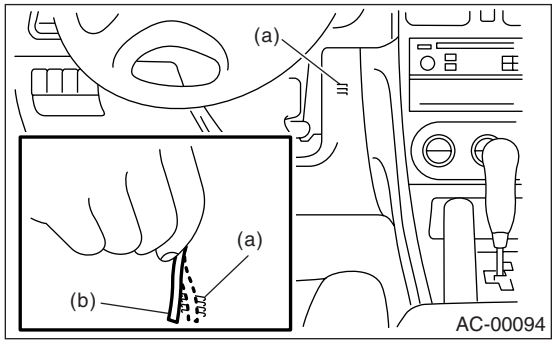
Specific gravity: More than 1.260

2) Check the condition of the fuses for A/C system power supply and other fuses.
3) Check the condition of harness and harness connector connections.

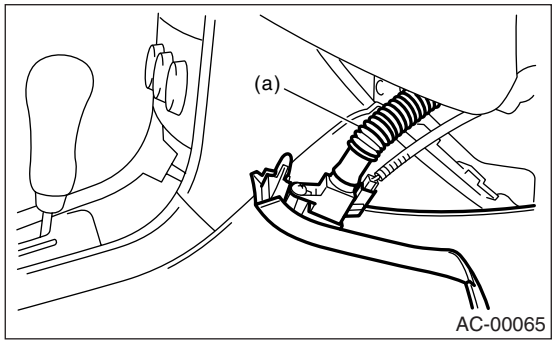
2. ASPIRATOR HOSE

1) Turn the ignition switch to ON, and press the A/C switch.
2) Turn the temperature control dial at maximum hot position.
3) Press the defroster switch.
4) Turn the fan speed control dial to 4th position.
5) Approach a strip of paper (b) in front of the in-vehicle sensor suction port (a) located in the instrument lower cover, and check that air is being sucked into the port by seeing the paper moving towards port.

NOTE:
Be careful not to let the paper get sucked into port.

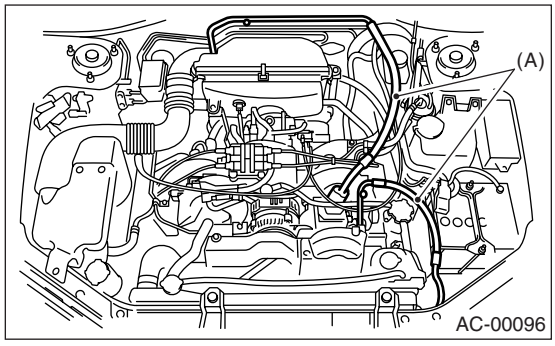


6) If the paper does not move at all, remove the instrument panel lower cover <Ref. to EI-40, REMOVAL, Instrument Panel Assembly.> and check for improper connection of the aspirator hose (a), in-vehicle sensor and heater unit, and repair them if necessary.



3. A/C LINE

Check the connection for A/C line (A) and lower side high-pressure pipe.



4. CONTROL LINKAGE

1) Check the state of mode door linkage.
2) Check the state of air mix door linkage.
3) Check the state of intake door linkage.

5. CONTROL SWITCHES

Start and warm-up the engine completely.

1) Inspection using switches

No.	Point to check	Switch operation	Judgment standard
1	Fan speed control dial	Turn the fan speed control dial clockwise.	Fan speed changes 1st → 2nd → 3rd → 4th as dial turn.
2	AUTO switch	1) Press the AUTO switch. 2) Turn the temperature control dial to the left fully, and set maximum cool position.	• Outlet air temperature: COOL • Fan speed: 4th • Outlet opening: VENT • Inlet opening: RECIRC • Compressor: AUTO
		3) Turn the temperature control dial to the right slowly, and change the setting from maximum cool position to maximum hot position gradually.	• Outlet air temperature: COOL → HOT • Fan speed: AUTO • Outlet opening: AUTO • Inlet opening: AUTO • Compressor: AUTO
		4) Turn the temperature control dial to the right fully, and set maximum hot position.	• Outlet air temperature: HOT • Fan speed: 4th • Outlet opening: HEAT • Inlet opening: FRESH • Compressor: AUTO
3	Defroster switch	Press the defroster switch.	• Outlet air temperature: AUTO • Fan speed: AUTO • Outlet opening: DEF • Inlet opening: FRESH • Compressor: ON
4	FRESH/RECIRC switch	Press the FRESH/RECIRC switch.	Inlet opening switches RECIRC → FRESH or FRESH → RECIRC each time pressing the switch.
5	Mode control dial	Press the mode control dial.	Outlet opening switches VENT → BI-LEVEL → HEAT → DEF/HEAT each time dialing clockwise.

2) Compressor operation inspection

No.	Point to check	Switch operation	Judgment standard
1	Compressor	1) A/C switch is turned to ON. 2) Turn the fan speed control clockwise.	Compressor: ON

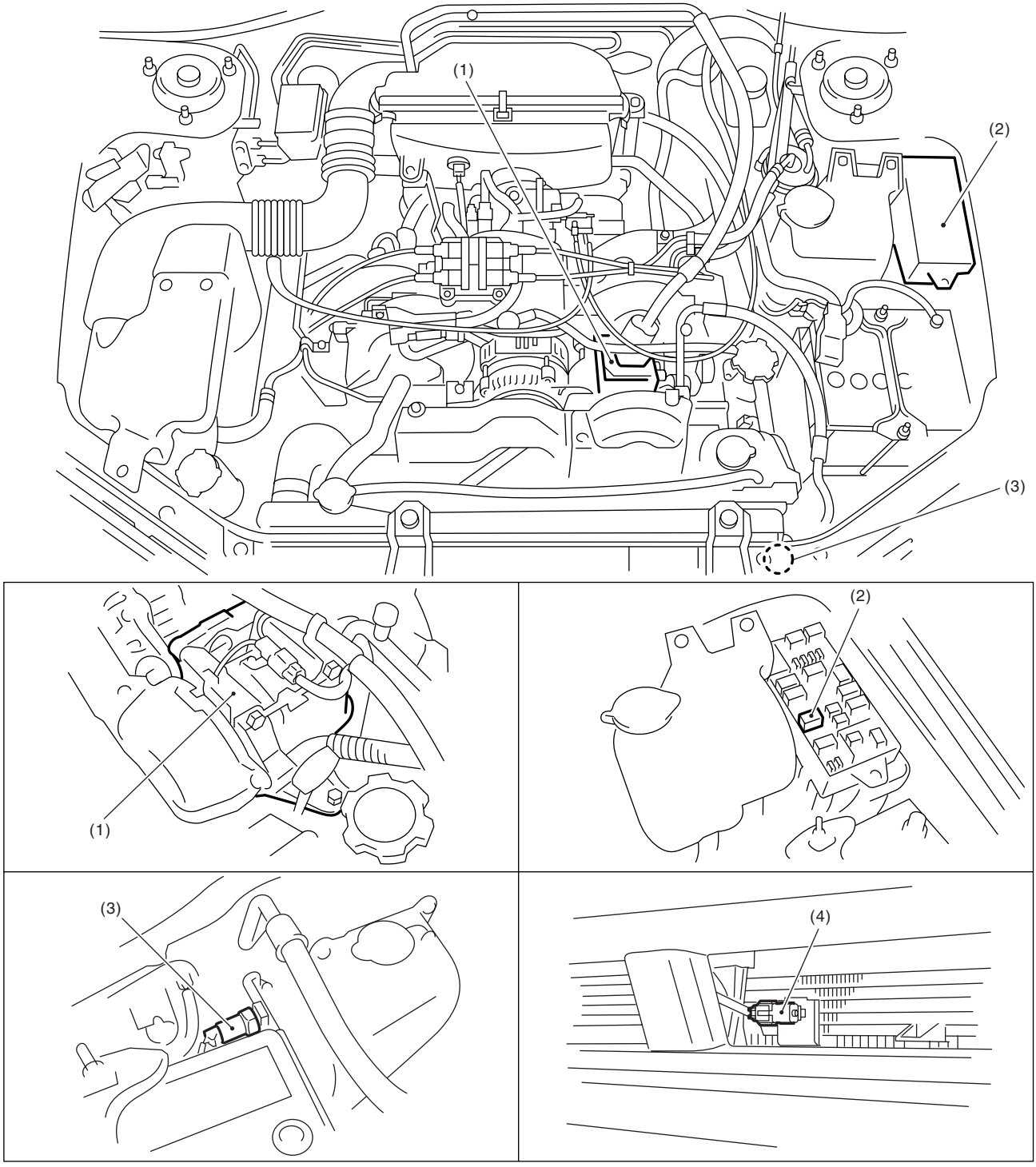
3) Inspection of illumination control

No.	Point to check	Switch operation	Judgment standard
1	Illumination	1) Turn the lighting switch to ON.	Illumination comes on.
		2) Press the OFF switch one second or more.	Illumination dimming is cancelled.

3. Electrical Component Location

A: LOCATION

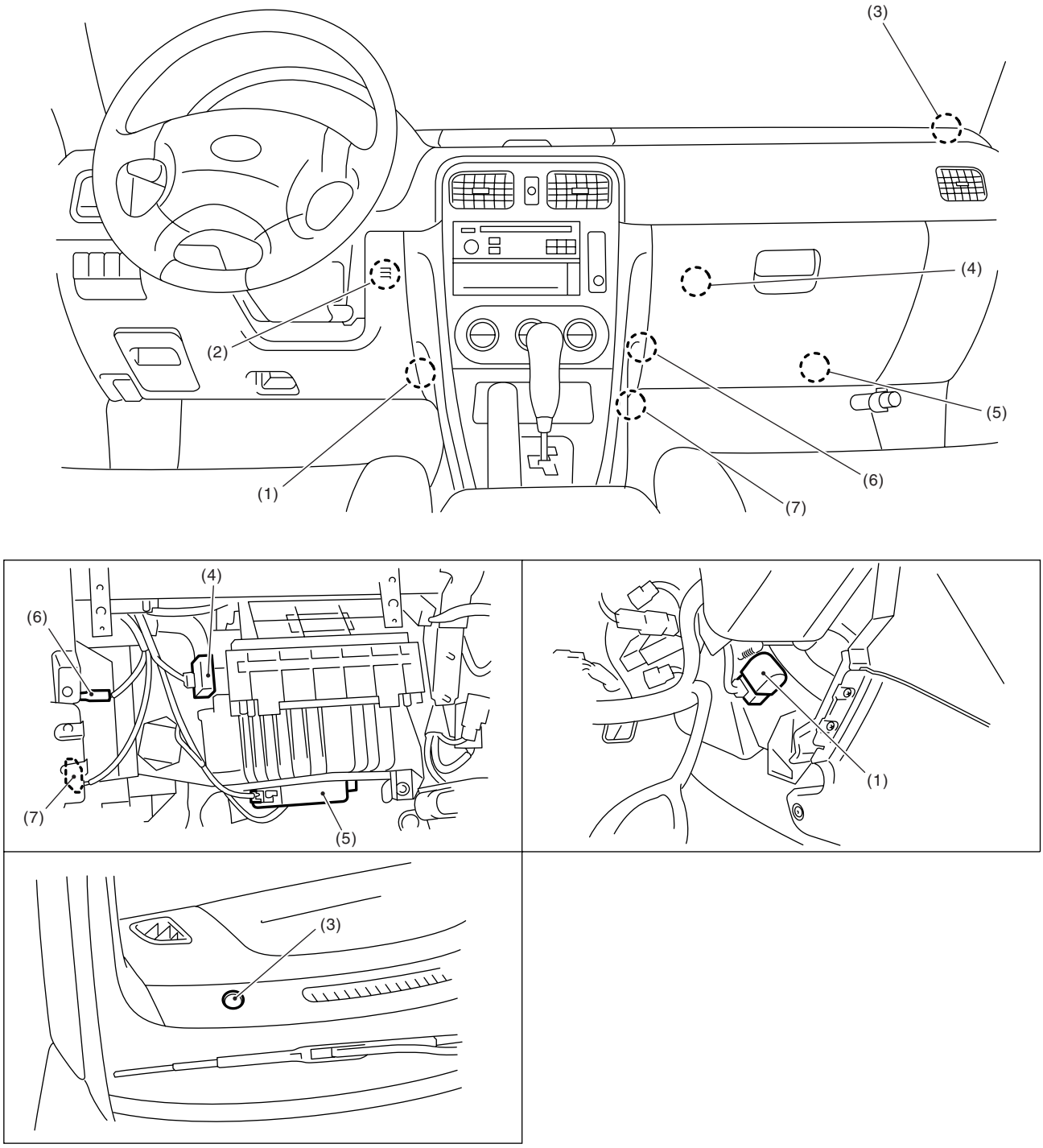
1. ENGINE COMPARTMENT



AC-00097

(1) A/C compressor
(2) A/C relay
(3) Pressure switch
(4) Ambient sensor

2. PASSENGER COMPARTMENT

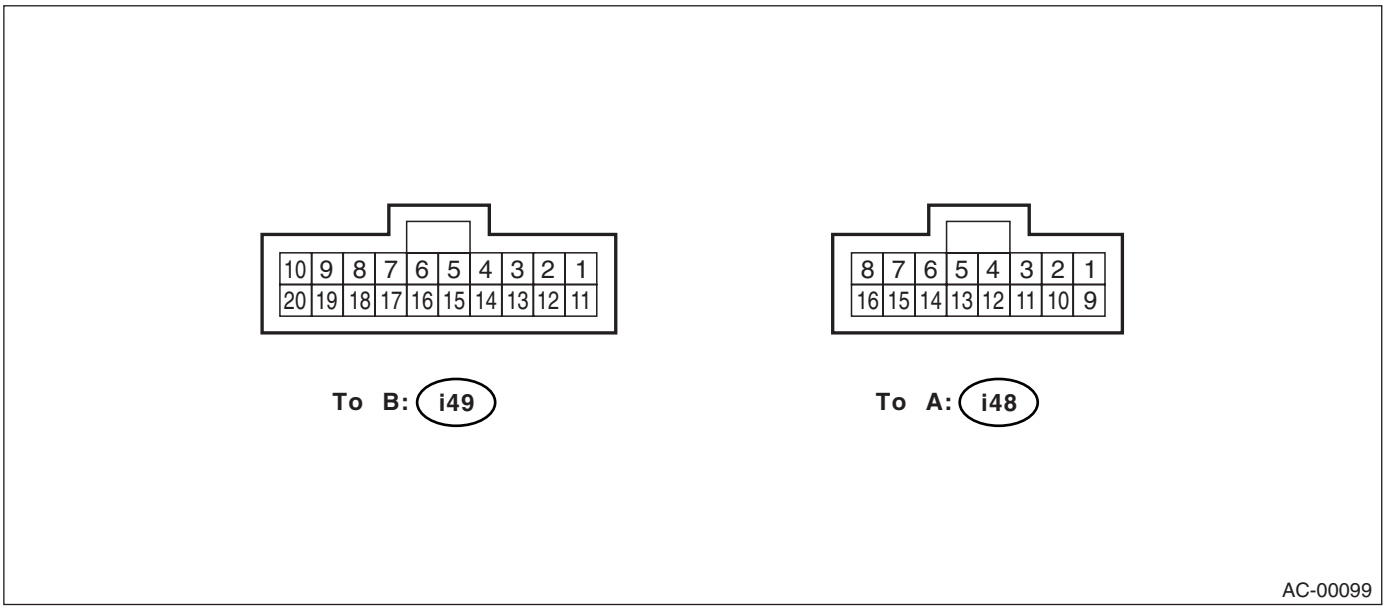


AC-00098

(1) Mode door actuator
(2) In-vehicle sensor
(3) Sunload sensor
(4) Intake door actuator
(5) Blower motor
(6) Evaporator sensor
(7) Air mix door actuator

4. Auto A/C Control Module I/O Signal

A: ELECTRICAL SPECIFICATION



Terminal No.	Content	Measuring condition		Specified value
B9	Mode door actuator power supply	Changes outlet from VENT to DEF.		*2
B8		Changes outlet from DEF to VENT.		
B7	Air mix door actuator power supply	Changes air mix door from COOL to HOT.		*1
B6		Changes air mix door from HOT to COOL.		
B5	IGN power supply	Ignition switch: ON		Battery voltage
B4	Battery power supply	Ignition switch: OFF, ACC, ON		Battery voltage
B3	Sunload sensor	Ignition switch: ON and under normal sunload (without sunload: 5 V)		3 V
B2	Evaporator sensor	Ignition switch: ON		5 V or less
B1	Air mix door actuator P.B.R. signal	Air mix door: COOL position		0.5 V
		Air mix door: HOT position		4.5 V
B20	Intake door actuator signal	Air inlet: FRESH (other positions: 12 V)		0 V
B19		Air inlet: MIX (other positions: 12 V)		0 V
B18		Air inlet: RECIRC (other positions: 12 V)		0 V
B17	A/C ON signal	A/C: ON (A/C OFF: 0 V)		8 — 10 V
B16	Blower motor control	*3		*3
B15	Blower fan ON signal	When blower fan running (when blower fan not running: 12 V)		0 V
B13	Engine coolant temperature sensor	When the engine coolant is at 49°C (120°F)		8.9 V
B12	In-vehicle sensor	—		—
B11	Ground	When there is continuity to chassis ground		0 Ω
A7	Air mix door actuator P.B.R. reference voltage	Ignition switch: ON		5 V
A5	Mode door actuator position detection signal	Outlet	BI-LEVEL, DEF	5 V
			VENT, HEAT, DEF/HEAT	0 V
A4	Mode door actuator position detection signal	Outlet	HEAT, DEF/HEAT, DEF	5 V
			VENT, BI-LEVEL	0 V
A1	Illumination power supply	Ignition switch: ON, light switch: ON		Battery voltage
		Ignition switch: ON, light switch: OFF		0 V
A16	Sensor ground	When there is continuity to chassis ground		0 Ω

Terminal No.	Content	Measuring condition		Specified value
A14	Combination meter (ambient temperature signal)	*3		*3
A13	Mode door actuator position detection signal	Outlet	VENT, BI-LEVEL, HEAT	5 V
			DEF/HEAT, DEF	0 V
A12	Mode door actuator position detection signal	Outlet	VENT, DEF/HEAT	5 V
			BI-LEVEL, HEAT, DEF	0 V
A10	A/C cutout signal	A/C: ON		Battery voltage
		Pressure switch operated		0 V
A9	Illumination ground	When there is continuity to chassis ground		0 Ω

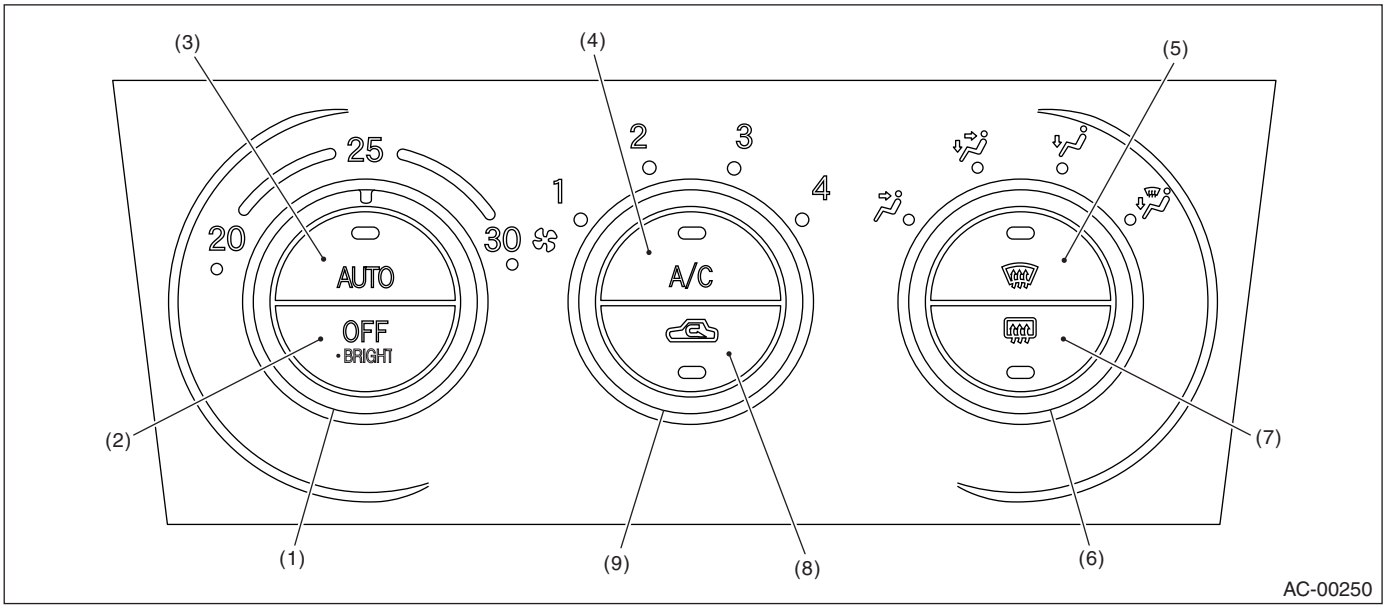
*1: Battery voltage is indicated when motor running, 0 V or battery voltage pulse signal is output when motor stops.
*2: Battery voltage is indicated when motor running, 0 V is indicated when motor stops.
*3: Voltage can not be measured because of pulse signal.

B: WIRING DIAGRAM:

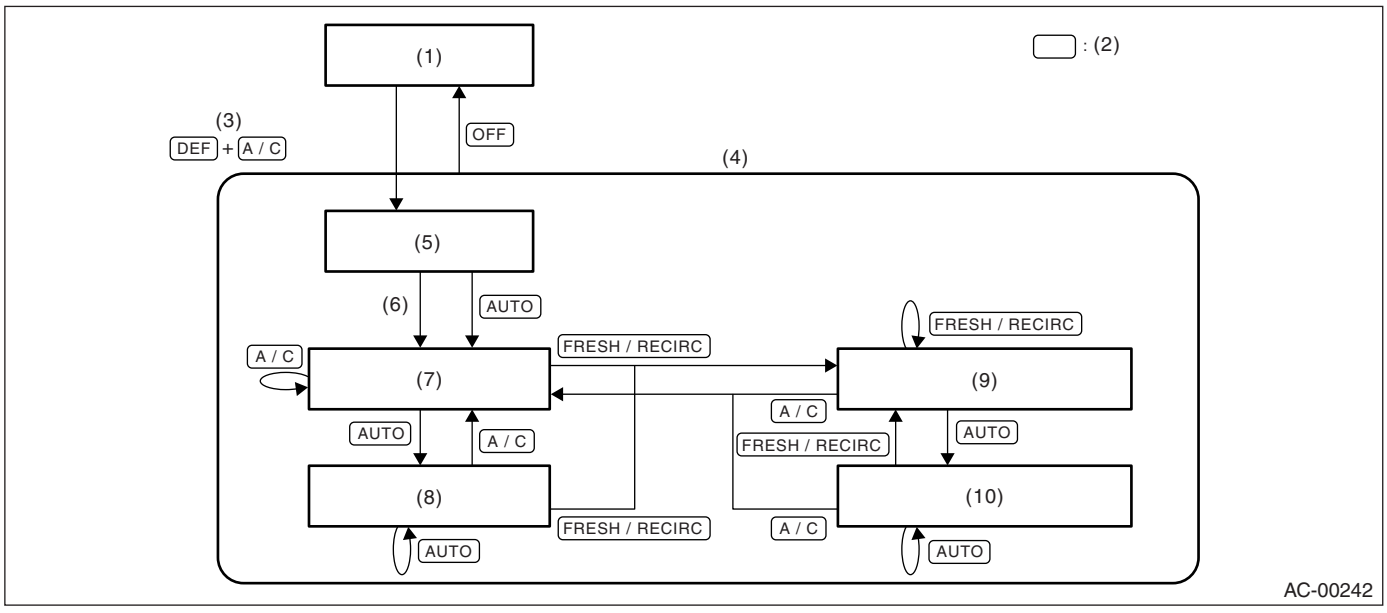
<Ref. to WI-58, WIRING DIAGRAM, Air Conditioning System.>

5. Diagnostic Chart for Self-Diagnosis

A: OPERATION



(1) Temperature control dial
(2) OFF/BRIGHT switch
(3) AUTO switch
(4) A/C switch
(5) Defroster switch
(6) Air flow control switch
(7) Rear window defogger switch
(8) FRESH/RECIRC switch
(9) Fan speed control dial



(1) Normal Operation
(2) Switch
(3) IG OFF → ON with pressing
(4) Self-Diagnosis Mode
(5) LED Display Check
(6) After the LED display (Approx. 20 sec.)
(7) Sensor Check (Sequential Operation)
(8) Sensor Check (Phased Operation)
(9) Output Equipment Operation (Sequential Operation)
(10) Output Equipment Operation (Phased Operation)

Diagnostic Chart for Self-Diagnosis

	Step	Check	Yes	No
1	**SELECT CONTROL PANEL TO SELF-DIAGNOSIS MODE.** 1) Turn the ignition switch to OFF. 2) Start the engine while pressing defroster switch and A/C switch. NOTE: Self-diagnosis can also be performed with the ignition switch ON, but start the engine because telling the magnet clutch operation is difficult. 3) The LED in A/C control panel blinks.	Does the self-diagnosis mode operate?	Go to step **2.**	<Ref. to AC-12, A/C OR SELF-DIAGNOSIS SYSTEMS DO NOT OPERATE, Diagnostics for A/C System Malfunction.>
2	**CHECK LED ILLUMINATION.** Make sure that three LED blink in turn on A/C control panel (5 patterns are repeated 2 times).	Do all LED blink?	Go to step **3.**	Go to step **5.**
3	**CHECK SENSORS MALFUNCTION.** 1) After completing the LED check or when AUTO switch is pressed, the A/C switch LED illuminates, and then the sensor check is started. 2) Check the input signal of each sensor in turn. If there are any trouble for each sensor, DEF, MODE and fan speed LEDs are blinked. Also check for each sensor is possible respectively every time AUTO switch is pressed. (At this time, the AUTO switch LED illuminates.) 3) If there is no trouble, DEF, MODE and fan speed LEDs are turned off. NOTE: Rear window defogger LED illuminates in case of stored malfunction but does not illuminate in case of present malfunction.	Does each DEF, MODE and fan speed LED turn off?	Go to step **4.**	Confirm the combination of illuminating LEDs by using Sensor Check Table, and identify the malfunctioning sensor before repairing. <Ref. to AC-11, SENSOR CHECK TABLE, OPERATION, Diagnostic Chart for Self-Diagnosis.>
4	**CHECK OPERATION OF EACH ACTUATOR, COMPRESSOR AND FAN MOTOR.** 1) Press the FRESH/RECIRC switch (FRESH/RECIRC switch LED illuminates at this time.). 2) Refer to OPERATING MODE TABLE to check the operation of each actuator, compressor and fan motor. <Ref. to AC-11, OPERATING MODE TABLE, OPERATION, Diagnostic Chart for Self-Diagnosis.> Also check for each step is possible respectively every time AUTO switch pressed. (At this time, the AUTO switch LED illuminates.)	Does each actuator, compressor and fan motor operate according to operating mode table?	Press the OFF switch or turn the ignition switch to OFF and finish the self-diagnosis mode.	Refer to each diagnostics chart for actuator, compressor and fan motor, and repair the malfunctioning part as necessary. <Ref. to AC-12, Diagnostics for A/C System Malfunction.> <Ref. to AC-21, Diagnostic Procedure for Actuators.>
5	**CHECK POOR CONTACT.** Check the auto A/C control module connector for poor contact.	Is there a poor contact in connector?	Replace the auto A/C control module.	Repair the connector.

1. SENSOR CHECK TABLE

NOTE:
When the sunload sensor is checked indoors or in the shade, open circuit might be indicated. Always check the sunload sensor at a place where sun shines directly on it.

Diagnostic steps	Checked sensor	Open circuit		Short circuit		Present malfunction	Stored malfunction
		DEF LED	MODE/FAN LED	DEF LED	MODE/FAN LED	REAR WINDOW DEFOGGER LED	
1	In-vehicle sensor	Turn off	VENT LED blinks	Illuminate	VENT LED blinks	Turn off	Illuminate
2	Ambient sensor		BI-LEVEL LED blinks		BI-LEVEL LED blinks		
3	Evaporator sensor		HEAT LED blinks		HEAT LED blinks		
4	Sunload sensor*1		DEF/HEAT LED blinks		DEF/HEAT LED blinks		
5	Air mix door actuator P.B.R.		Fan speed 1st LED blinks		Fan speed 1st LED blinks		
6	Combination meter communication (Ambient sensor)		Fan speed 2nd LED blinks		Fan speed 2nd LED blinks		
When all parts are in good condition		Turn off					

*1: Only present malfunction is indicated for open circuit of sunload sensor. (However, stored malfunction can be indicated for short circuit of sunload sensor.)

2. OPERATING MODE TABLE

Step	1	2	3	4	5	6	7	8
Illuminating LED	VENT LED	BI-LEVEL VENT	HEAT LED	DEF/HEAT LED	Fan speed 1st LED	Fan speed 2nd LED	Fan speed 3rd LED	Fan speed 4th LED
Fan speed	LO	LO	ML	ML	ML	MH	MH	HI
Mode actuator	VENT	VENT	VENT	BI-LEVEL	HEAT	HEAT	DEF/HEAT	DEF
Intake actuator	FRESH	RECIRC	RECIRC	FRESH	FRESH	FRESH	FRESH	FRESH
Air mix door actuator	FULL COOL (0%)	FULL COOL (0%)	FULL COOL (0%)	MEDIUM (50%)	MEDIUM (50%)	FULL HOT (100%)	FULL HOT (100%)	FULL HOT (100%)
Compressor (magnet clutch)	OFF	ON	ON	ON	ON	ON	ON	ON

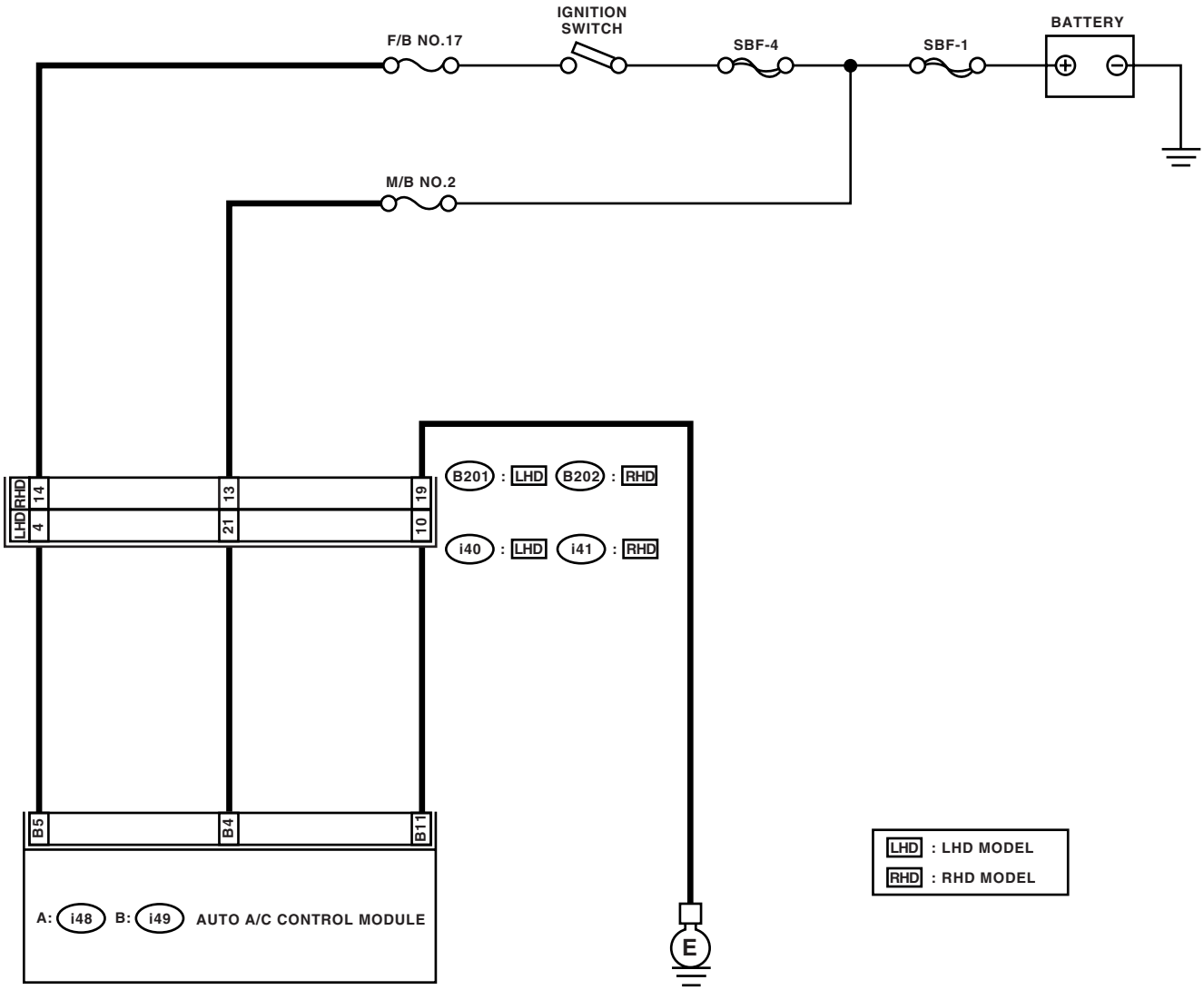
6. Diagnostics for A/C System Malfunction

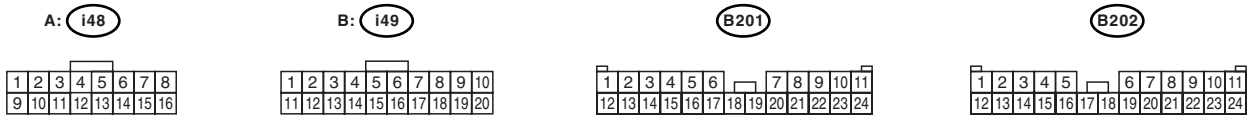
A: A/C OR SELF-DIAGNOSIS SYSTEMS DO NOT OPERATE

TROUBLE SYMPTOM:

- Switch LEDs are faulty and switches do not operate.
- Self-diagnosis system does not operate.

WIRING DIAGRAM:





AC-00149

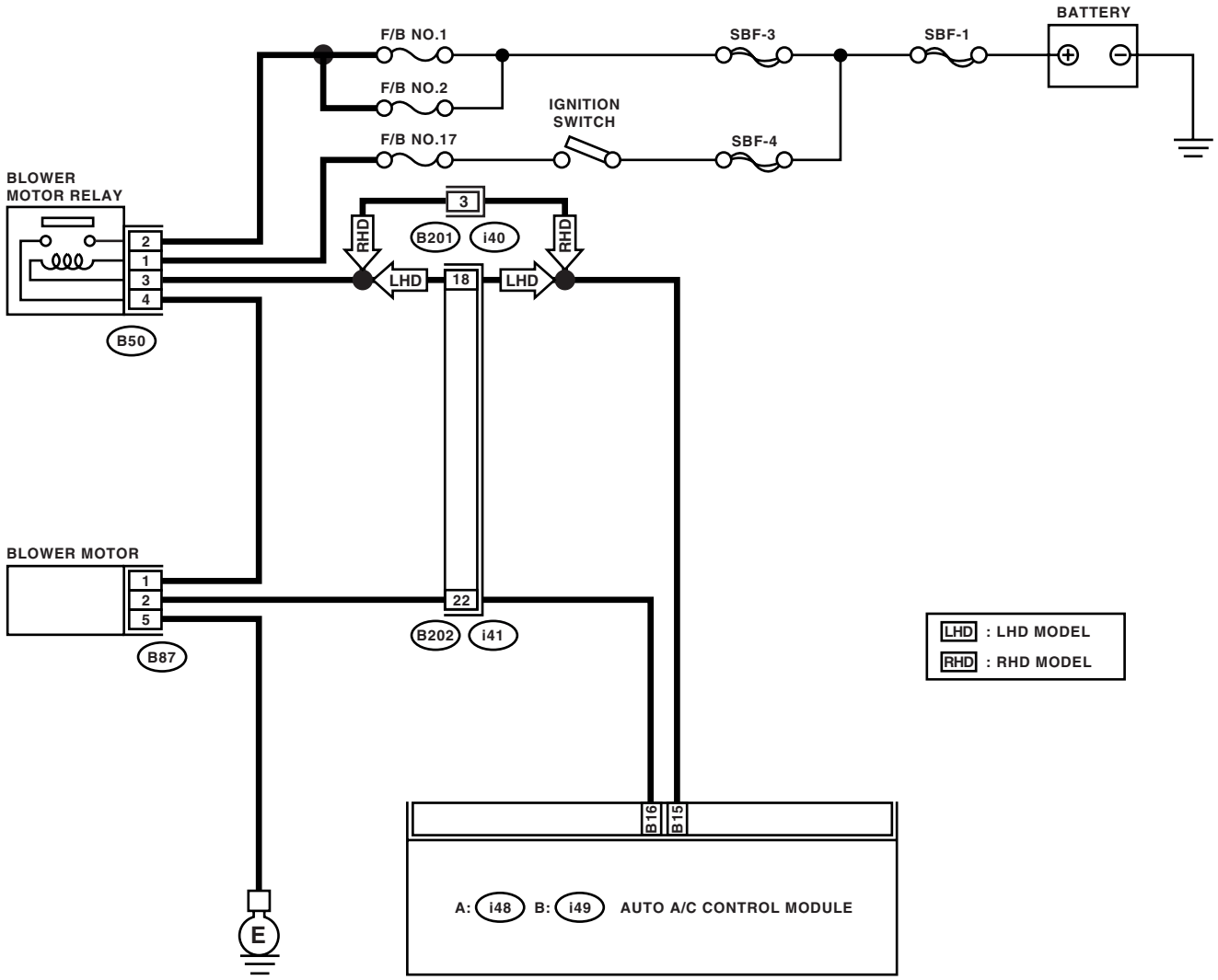
	Step	Check	Yes	No
1	**CHECK FUSE.** 1) Turn the ignition switch to OFF. 2) Remove the fuse No. 2 from main fuse box. 3) Check the condition of fuse.	Is the fuse blown-out?	Replace the fuse.	Go to step **2.**
2	**CHECK FUSE.** 1) Turn the ignition switch to OFF. 2) Remove the fuse No. 17 from fuse & relay box. 3) Check the condition of fuse.	Is the fuse blown-out?	Replace the fuse.	Go to step **3.**
3	**CHECK AUTO A/C CONTROL MODULE POWER CIRCUIT.** 1) Pull out the auto A/C control module connector. 2) Measure the voltage between auto A/C control module connector terminal and chassis ground after turning the ignition switch to OFF position. ***Connector & terminal*** ***(i49) No. 4 (+) — Chassis ground (–):***	Is the voltage more than 10 V?	Go to step **4.**	Check open or short circuit in harness between auto A/C control module and fuse.
4	**CHECK AUTO A/C CONTROL MODULE POWER CIRCUIT.** Measure the voltage between auto A/C control module connector terminal and chassis ground after turning the ignition switch to ON position. ***Connector & terminal*** ***(i49) No. 5 (+) — Chassis ground (–):***	Is the voltage more than 10 V?	Go to step **5.**	Check open or short circuit in harness between auto A/C control module and fuse.
5	**CHECK AUTO A/C CONTROL MODULE GROUND CIRCUIT.** Measure the resistance in harness between auto A/C control module and chassis ground. ***Connector & terminal*** ***(i49) No. 11 — Chassis ground:***	Is the resistance less than 1 Ω?	Go to step **6.**	Repair the harness for ground line.
6	**CHECK POOR CONTACT.** Check poor contact in auto A/C control module connector.	Is there poor contact in connector?	Repair the connector.	Replace the auto A/C control module.

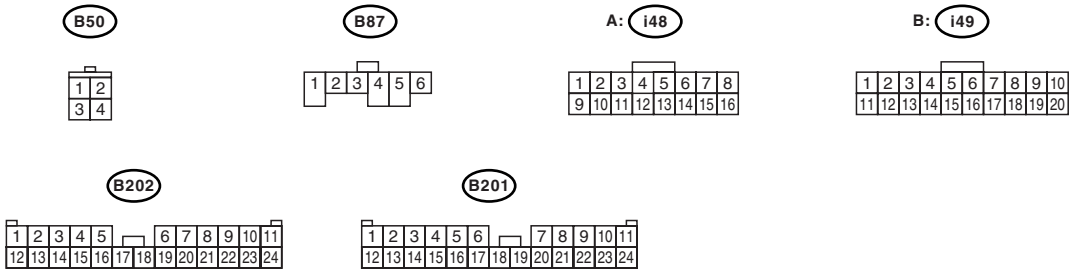
B: BLOWER FAN DOES NOT ROTATE.

TROUBLE SYMPTOM:

- Blower motor does not rotate.
- Blower motor does not change.

WIRING DIAGRAM:





AC-00150

	Step	Check	Yes	No
1	**CHECK FUSE.** 1) Remove the fuse No. 1, 2 and 17 from fuse & relay box. 2) Check the condition of fuse.	Is any fuse blown-out?	Replace the fuse.	Go to step **2.**
2	**CHECK POWER SUPPLY FOR BLOWER MOTOR.** 1) Turn the ignition switch to ON. 2) Turn the fan speed control dial clockwise. 3) Measure the voltage between blower motor and chassis ground. ***Connector & terminal*** ***(B87) No. 1 (+) — Chassis ground (–):***	Is the voltage more than 8 V (at normal temperature)?	Go to step **3.**	Repair the open circuit of blower motor power supply line harness.
3	**CHECK BLOWER MOTOR RELAY.** 1) Turn the ignition switch to OFF. 2) Remove the blower motor relay. 3) Connect the battery positive (+) terminal to terminal No. 1 of blower motor relay, and negative (–) terminal to terminal No. 3. 4) Measure the resistance between terminals No. 2 and 4. ***Terminals*** ***No. 2 — No. 4:***	Is the resistance less than 1 Ω?	Go to step **4.**	Replace the blower motor relay.
4	**CHECK BLOWER MOTOR.** 1) Disconnect the connector from blower motor. 2) Connect the battery positive (+) terminal to terminal No. 1 of blower motor connector, and negative (–) terminal to terminal No. 2 and No. 5. 3) Make sure the blower motor runs.	Does the blower motor run?	Go to step **5.**	Replace the blower motor.
5	**CHECK POOR CONTACT.** Check poor contact in auto A/C control module connector.	Is there poor contact in connector?	Repair the connector.	Replace the auto A/C control module.

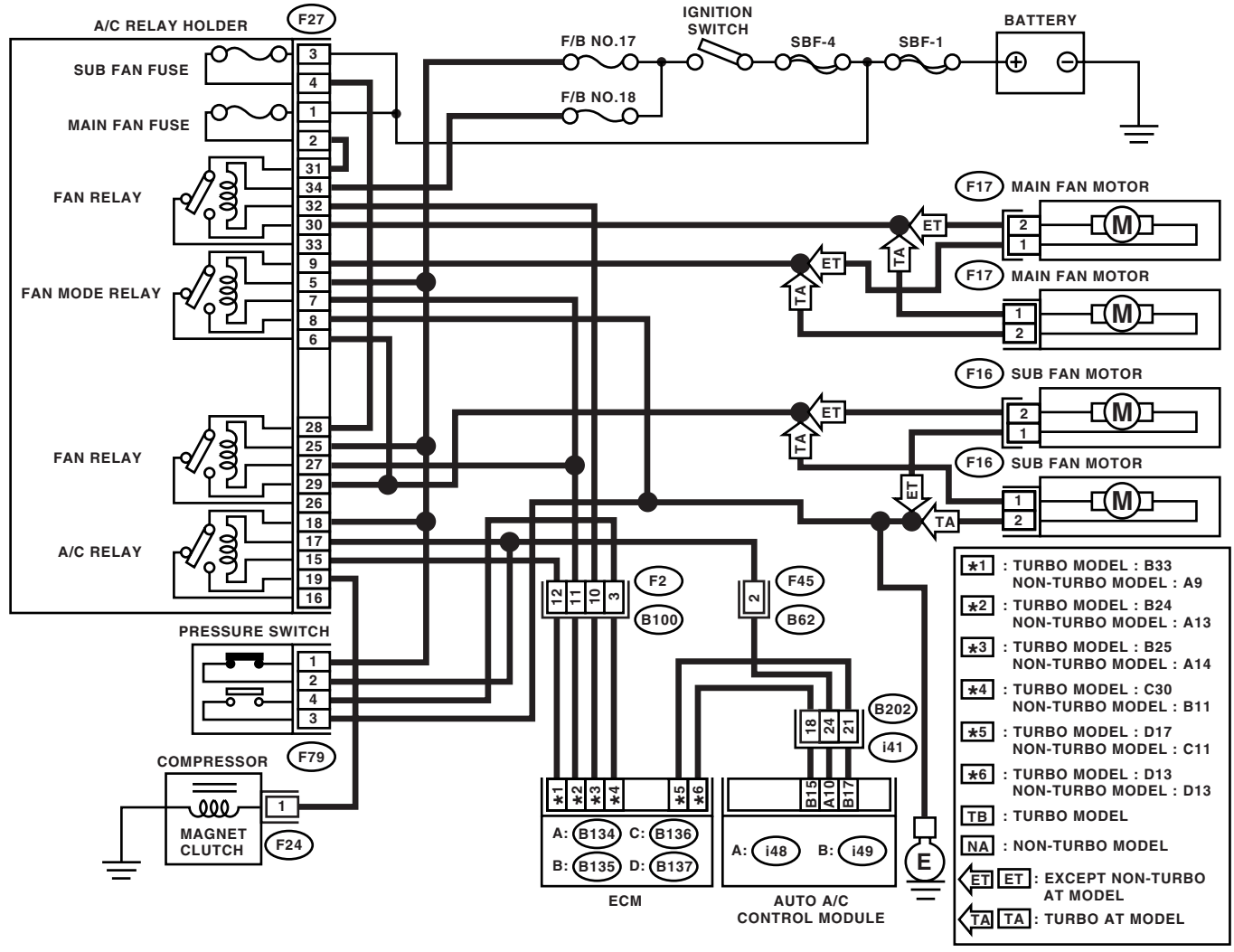
C: COMPARTMENT TEMPERATURE DOES NOT CHANGE, OR A/C SYSTEM DOES NOT RESPOND PROMPTLY.

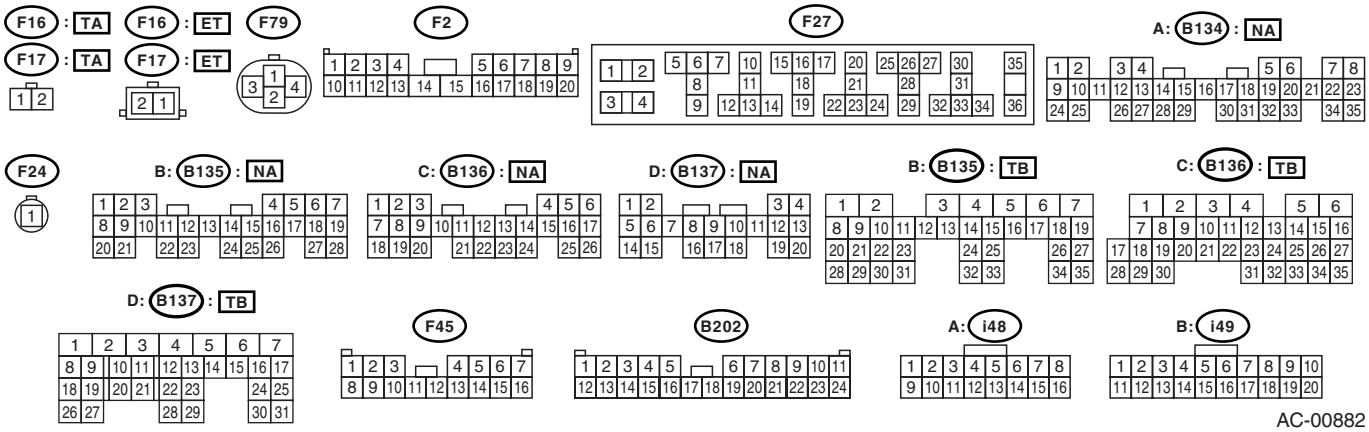
TROUBLE SYMPTOM:

- Compartment temperature is not changed. (No cool air is discharged.)
- A/C system does not respond quickly.

WIRING DIAGRAM:

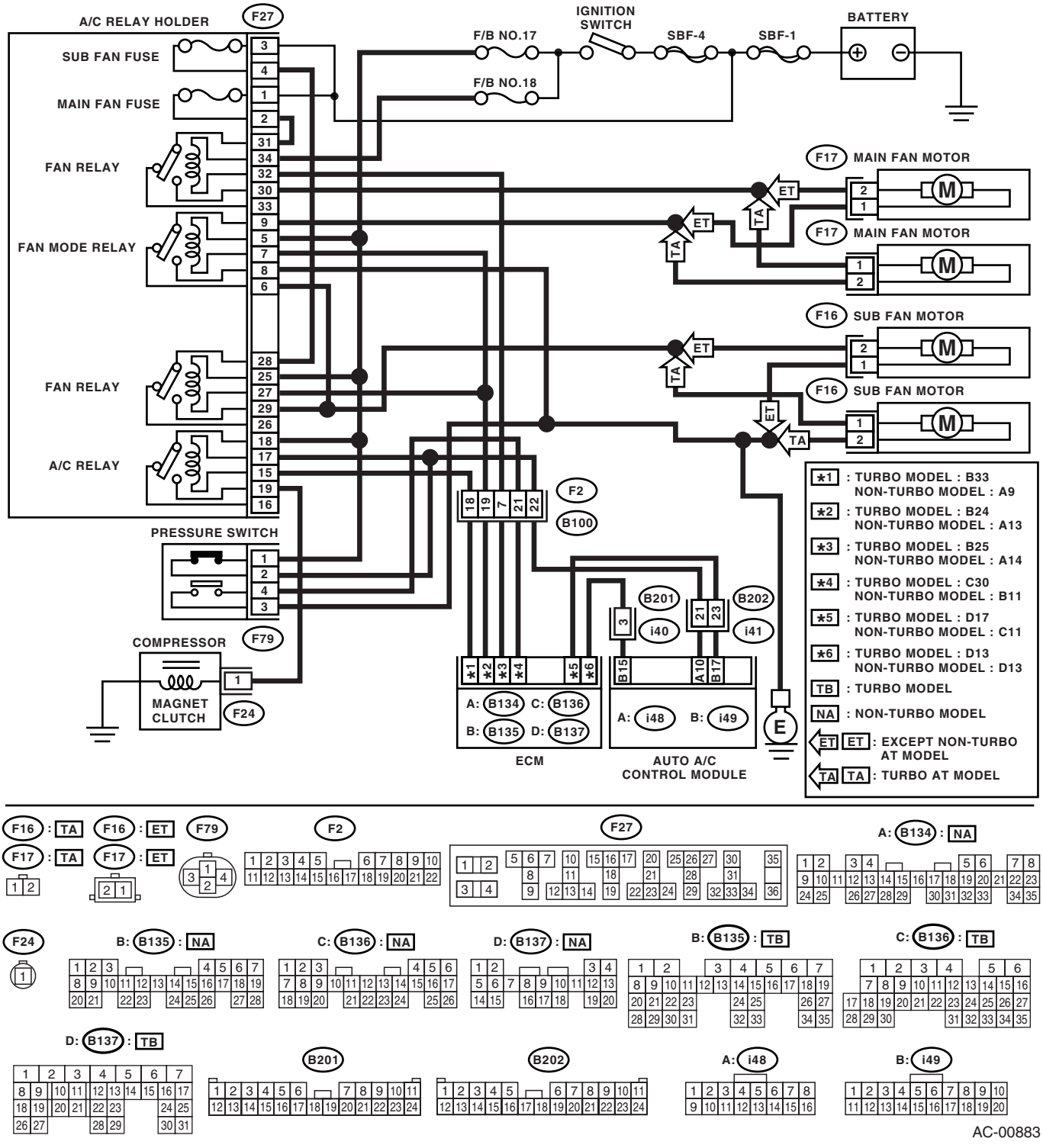
- LHD model





AC-00882

- RHD model



AC-00883

	Step	Check	Yes	No
1	**CHECK FUSE.** 1) Turn the ignition switch to OFF. 2) Remove the main fan fuse and sub fan fuse in main fuse box. 3) Check the condition of fuse.	Is the fuse blown out?	Replace the fuse.	Go to step **2.**
2	**CHECK THE POWER SUPPLY TO PRESSURE SWITCH.** 1) Disconnect the connector from pressure switch. 2) Turn the ignition switch to ON. 3) Measure the voltage between harness connector and chassis ground. ***Connector & terminal*** ***(F79) No. 1 (+) — Chassis ground (–):***	Is the voltage more than 10 V?	Go to step **3.**	Repair the harness for pressure switch power supply circuit.
3	**CHECK THE HARNESS BETWEEN PRESSURE SWITCH AND A/C RELAY HARNESS.** 1) Turn the ignition switch to OFF. 2) Remove the A/C relay in the main fuse box. 3) Measure the resistance between A/C relay and pressure switch connector. ***Connector & terminal*** ***(F27) No. 17 — (F79) No. 2:***	Is the resistance less than 1 Ω?	Go to step **4.**	Repair the harness between A/C relay and pressure switch.
4	**CHECK THE PRESSURE SWITCH.** Measure the resistance between pressure switch terminals. ***Terminals*** ***No. 1 — No. 2:***	Is the resistance less than 1 Ω?	Go to step **5.**	Replace the pressure switch.
5	**CHECK THE A/C CUT SIGNAL CIRCUIT.** 1) Disconnect the connector from auto A/C control module. 2) Measure the resistance between auto A/C control module and pressure switch connector. ***Connector & terminal*** ***(i48) No. 10 — (F79) No. 2:***	Is the resistance less than 1 Ω?	Go to step **6.**	Repair the harness between auto A/C control module and pressure switch.
6	**CHECK THE A/C ON SIGNAL CIRCUIT.** 1) Disconnect the connector from ECM. 2) Measure the resistance between ECM and auto A/C control module connector. ***Connector & terminal*** ***Turbo model*** ***(B137) No. 17 — (i49) No. 17:*** ***Non-turbo model*** ***(B136) No. 11 — (i49) No. 17:***	Is the resistance less than 1 Ω?	Go to step **7.**	Repair the harness between auto A/C control module and ECM.
7	**CHECK A/C RELAY.** 1) Remove the A/C relay in main fuse box. 2) Check the A/C relay. <Ref. to AC-42, INSPECTION, Relay and Fuse.>	Is the operation of the relay OK?	Go to step **8.**	Replace the A/C relay.
8	**CHECK POWER SUPPLY TO MAGNET CLUTCH OF A/C COMPRESSOR.** 1) Turn the ignition switch to OFF, and then connect the A/C relay connector and all removed connectors. 2) Start the engine, and turn A/C switch to ON. 3) Set the temperature control dial to maximum cold position. 4) Measure the voltage between magnet clutch harness connector and chassis ground. ***Connector & terminal*** ***(F24) No. 1 (+) — Chassis ground (–):***	Is the voltage more than 10.5 V (at normal temperature)?	Go to step **9.**	Repair the harness for power supply line of A/C compressor.

	Step	Check	Yes	No
9	**CHECK OPERATION OF MAIN FAN MOTOR.** 1) Start the engine and turn the A/C switch to ON. 2) Check the operation of main fan motor.	Does the main fan motor operate normally?	Go to step **14.**	Go to step **10.**
10	**CHECK POWER SUPPLY TO MAIN FAN MOTOR.** **CAUTION:** **Be careful not to overheat the engine during repair.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from main fan motor. 3) Start the engine, and warm it up until engine coolant temperature increases over 100°C (212°F). 4) Stop the engine and turn ignition switch to ON. 5) Measure the voltage between main fan motor harness connector and chassis ground. ***Connector & terminal*** ***Except turbo AT model:*** ***(F17) No. 2 (+) — Chassis ground (–):*** ***Turbo AT model:*** ***(F17) No. 1 (+) — Chassis ground (–):***	Is the voltage more than 10 V?	Go to step **11.**	Repair the harness for main fan motor power supply circuit.
11	**CHECK GROUND CIRCUIT OF MAIN FAN MOTOR.** Measure the resistance between main fan motor harness connector and chassis ground. ***Connector & terminal*** ***Except turbo AT model:*** ***(F17) No. 1 — Chassis ground:*** ***Turbo AT model:*** ***(F17) No. 2 — Chassis ground:***	Is the resistance less than 1 Ω?	Go to step **12.**	Repair the harness for main fan motor ground circuit.
12	**CHECK MAIN FAN MOTOR.** Connect the battery positive (+) terminal to terminal No. 2, and ground (–) terminal to terminal No. 1 of main fan motor connector to make sure that main fan motor rotate.	Does the main fan rotate?	Go to step **13.**	Replace the main fan motor.
13	**CHECK POOR CONTACT IN MAIN FAN MOTOR CONNECTOR.** Check poor contact in main fan motor harness connector.	Is there poor contact in connector?	Go to step **14.**	Repair the poor contact in main fan motor connector.
14	**CHECK OPERATION OF SUB FAN MOTOR.** 1) Start the engine and turn the A/C switch to ON. 2) Check the operation of sub fan motor.	Does the sub fan motor operate normally?	Go to step **19.**	Go to step **15.**

	Step	Check	Yes	No
15	**CHECK POWER SUPPLY TO SUB FAN MOTOR.** **CAUTION:** **Be careful not to overheat the engine during repair.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from sub fan motor. 3) Start the engine, and warm it up until engine coolant temperature increases over 100°C (212°F). 4) Stop the engine and turn ignition switch to ON. 5) Measure the voltage between sub fan motor harness connector and chassis ground. ***Connector & terminal*** ***Except turbo AT model:*** ***(F16) No. 2 (+) — Chassis ground (–):*** ***Turbo AT model:*** ***(F16) No. 1 (+) — Chassis ground (–):***	Is the voltage more than 10 V?	Go to step **16.**	Repair the harness for sub fan motor power supply circuit.
16	**CHECK GROUND CIRCUIT OF SUB FAN MOTOR.** Measure the resistance between sub fan motor harness connector and chassis ground. ***Connector & terminal*** ***Except turbo AT model:*** ***(F16) No. 1 — Chassis ground:*** ***Turbo AT model:*** ***(F16) No. 2 — Chassis ground:***	Is the resistance less than 1 Ω?	Go to step **17.**	Repair the harness for sub fan motor ground circuit.
17	**CHECK SUB FAN MOTOR.** Connect the battery positive (+) terminal to terminal No. 2, and ground (–) terminal to terminal No. 1 of sub fan motor connector to make sure that sub fan motor rotate.	Does the sub fan motor rotate?	Go to step **18.**	Replace the sub fan motor.
18	**CHECK POOR CONTACT IN SUB FAN MOTOR CONNECTOR.** Check poor contact in sub fan motor connector.	Is there poor contact in connector?	Go to step **19.**	Repair the poor contact in sub fan motor connector.
19	**CHECK POOR CONTACT IN AUTO A/C CONTROL MODULE CONNECTOR.** Check poor contact in auto A/C control module connector.	Is there poor contact in connector?	Replace the auto A/C control module.	Repair the connector.

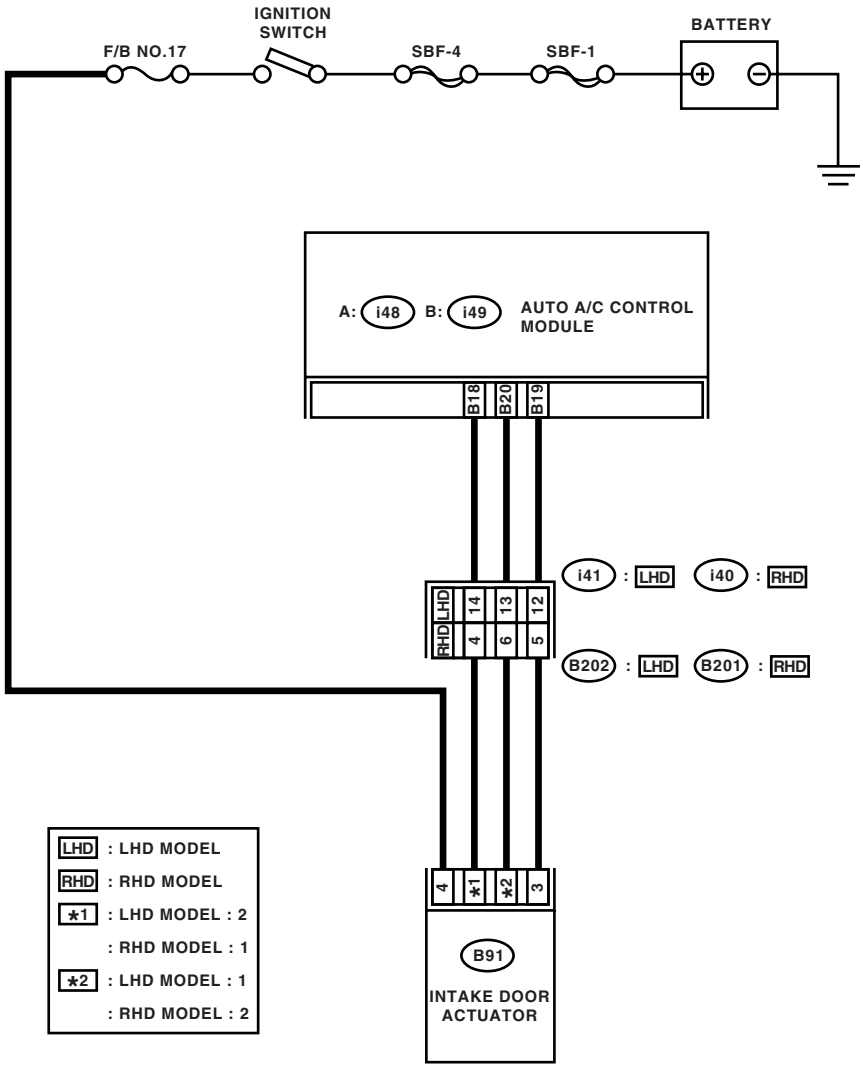
7. Diagnostic Procedure for Actuators

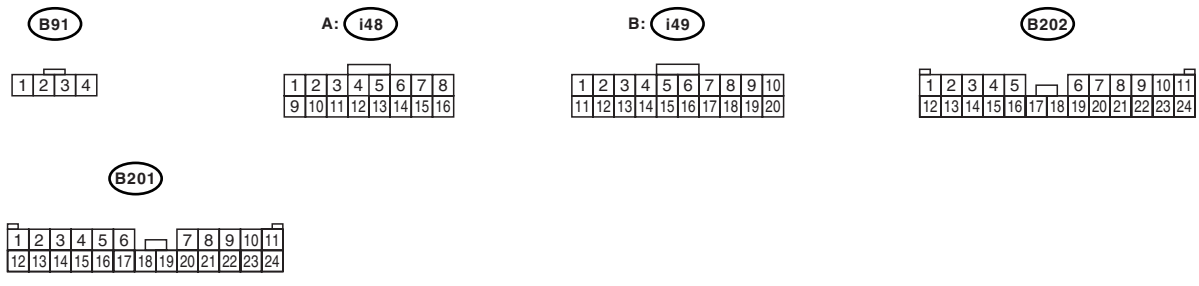
A: INTAKE DOOR ACTUATOR

TROUBLE SYMPTOM:

FRESH/RECIRC mode is not changed.

WIRING DIAGRAM:





AC-00153

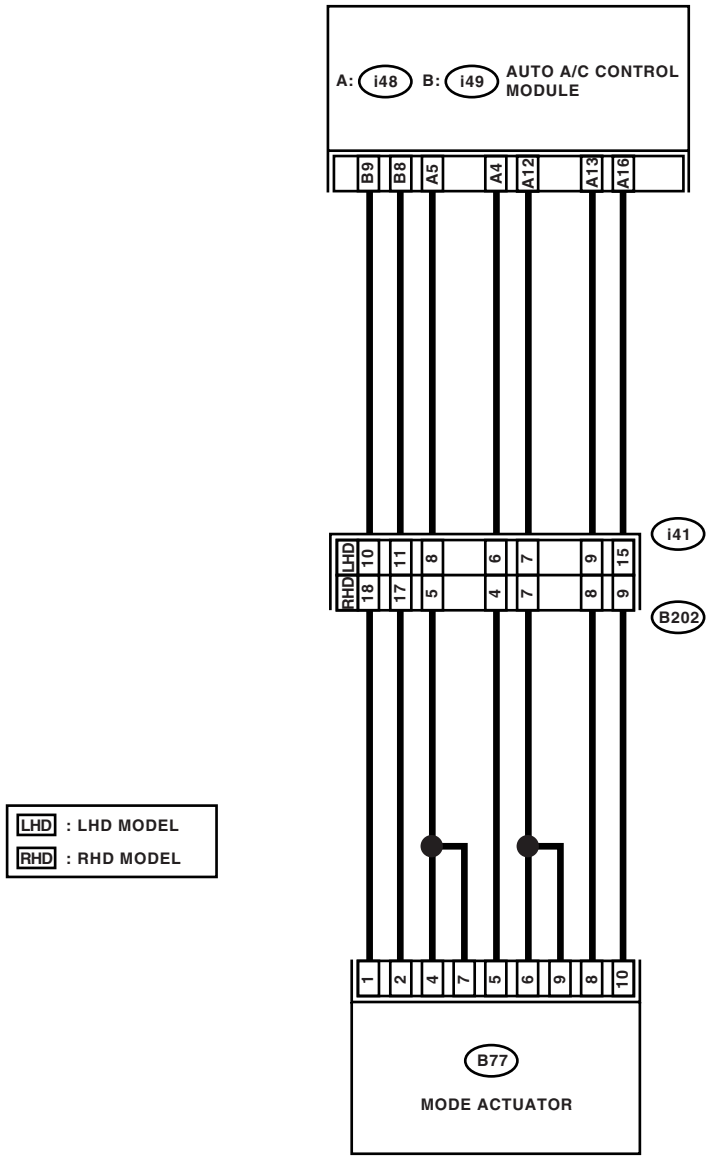
	Step	Check	Yes	No
1	**CHECK POWER SUPPLY FOR INTAKE DOOR ACTUATOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the intake door actuator connector. 3) Turn the ignition switch to ON. 4) Measure the voltage between intake door actuator connector and chassis ground. ***Connector & terminal*** ***(B91) No. 4 (+) — Chassis ground (–):***	Is the voltage 7 V (at normal temperature)?	Go to step **2.**	Check open or short circuit in harness between intake door actuator and fuse.
2	**CHECK HARNESS BETWEEN AUTO A/C CONTROL MODULE AND INTAKE DOOR ACTUATOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the auto A/C control module connector. 3) Measure the resistance between intake door actuator connector and auto A/C control module connector. ***Connector & terminal*** ***LHD model:*** ***(i49) No. 18 — (B91) No. 2:*** ***(i49) No. 19 — (B91) No. 3:*** ***(i49) No. 20 — (B91) No. 1:*** ***RHD model:*** ***(i49) No. 18 — (B91) No. 1:*** ***(i49) No. 19 — (B91) No. 3:*** ***(i49) No. 20 — (B91) No. 2:***	Is the resistance less than 1 Ω?	Go to step **3.**	Repair the harness between auto A/C control module and intake door actuator.
3	**CHECK OPERATION OF INTAKE DOOR ACTUATOR.** 1) Connect the intake door actuator connector. 2) Ground the auto A/C control module connector with a suitable wire. 3) Turn the ignition switch to ON, and check the operation of intake door actuator. ***Connector & terminal*** ***(i49) No. 20 — Chassis ground:***	Does the actuator move to FRESH side?	Go to step **4.**	Replace the intake door actuator.
4	**CHECK OPERATION OF INTAKE DOOR ACTUATOR.** 1) Turn the ignition switch to OFF. 2) Ground the auto A/C control module connector with a suitable wire. 3) Turn the ignition switch to ON, and check the operation of intake door actuator. ***Connector & terminal:*** ***(i49) No. 18 — Chassis ground:***	Does the actuator move to RECIRC side?	Replace the auto A/C control module.	Replace the intake door actuator.

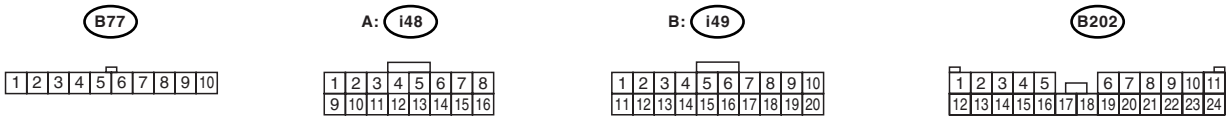
B: MODE DOOR ACTUATOR

TROUBLE SYMPTOM:

Air flow outlet is not changed.

WIRING DIAGRAM:





AC-00154

	Step	Check	Yes	No
1	**CHECK POWER SUPPLY FOR AUTO A/C CONTROL MODULE SIDE.** 1) Turn the ignition switch to ON. 2) Turn the mode control dial to VENT position. 3) Press the defroster switch and measure the voltage between auto A/C control module and chassis ground when VENT is changed to DEF position. ***Connector & terminal*** ***(i49) No. 9 (+) — Chassis ground (–):***	Is the voltage more than 12 V?	Go to step **2.**	Replace the auto A/C control module.
2	**CHECK POWER SUPPLY FOR ACTUATOR SIDE.** 1) Turn the mode control dial to VENT position. 2) Press the defroster switch and measure the voltage between mode door actuator harness connector and chassis ground when VENT is changed to DEF position. ***Connector & terminal*** ***(B77) No. 1 (+) — Chassis ground (–):***	Is the voltage more than 7 V (at normal temperature)?	Go to step **3.**	Repair the harness between auto A/C control module and mode door actuator.
3	**CHECK POWER SUPPLY FOR AUTO A/C CONTROL MODULE SIDE.** 1) Press the defroster switch. 2) Turn the mode control dial to VENT position and measure the voltage between auto A/C control module and chassis ground when DEF is changed to VENT position. ***Connector & terminal*** ***(i49) No. 8 (+) — Chassis ground (–):***	Is the voltage more than 12 V?	Go to step **4.**	Replace the auto A/C control module.
4	**CHECK POWER SUPPLY FOR ACTUATOR SIDE.** 1) Press the defroster switch. 2) Turn the mode control dial to VENT position and measure the voltage between mode door actuator harness connector and chassis ground when DEF is changed to VENT position. ***Connector & terminal*** ***(B77) No. 2 (+) — Chassis ground (–):***	Is the voltage more than 7 V (at normal temperature)?	Go to step **5.**	Repair the harness between auto A/C control module and mode door actuator.
5	**CHECK ACTUATOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from mode door actuator. 3) Connect the battery positive (+) terminal to terminal No. 1 and ground (–) terminal to terminal No. 2 of mode door actuator to make sure that actuator operates. 4) Connect the battery positive (+) terminal to terminal No. 2 and ground (–) terminal to terminal No. 1 of mode door actuator to make sure that actuator operates.	Does the motor operate normally?	Go to step **6.**	Replace the mode door actuator.

	Step	Check	Yes	No
6	**CHECK AUTO A/C CONTROL MODULE SIGNAL VOLTAGE.** 1) Turn the ignition switch to ON. 2) Turn the mode control dial and measure voltage between auto A/C control module harness connector and chassis ground for each mode. ***Connector & terminal*** ***(i48) No. 4 (+) — Chassis ground (–):***	Is the voltage 5 V when HEAT, D/H, DEF position and 0 V when VENT, BI-LEVEL position?	Go to step **9.**	Go to step **7.**
7	**CHECK AUTO A/C CONTROL MODULE SIGNAL POWER SUPPLY.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from mode door actuator. 3) Turn the ignition switch to ON. 4) Measure the voltage between mode door actuator harness connector and chassis ground. ***Connector & terminal*** ***(B77) No. 5 (+) — Chassis ground (–):***	Is the voltage 5 V?	Go to step **9.**	Go to step **8.**
8	**CHECK HARNESS BETWEEN AUTO A/C CONTROL MODULE AND MODE DOOR ACTUATOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from auto A/C control module and mode door actuator. 3) Measure the resistance of harness between auto A/C control module and mode door actuator. ***Connector & terminal*** ***(i48) No. 4 (+) — (B77) No. 5 (–):***	Is the resistance less than 1 Ω?	Replace the auto A/C control module.	Repair the harness between auto A/C control module and mode door actuator.
9	**CHECK AUTO A/C CONTROL MODULE SIGNAL VOLTAGE.** 1) Turn ignition switch to ON. 2) Turn the mode control dial and measure voltage between auto A/C control module harness connector and chassis ground for each mode. ***Connector & terminal*** ***(i48) No. 12 (+) — Chassis ground (–):***	Is the voltage 5 V when VENT, D/H position and 0 V when BI-LEVEL, HEAT, DEF position?	Go to step **12.**	Go to step **10.**
10	**CHECK AUTO A/C CONTROL MODULE SIGNAL POWER SUPPLY.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from mode door actuator. 3) Turn the ignition switch to ON. 4) Measure the voltage between mode door actuator harness connector and chassis ground. ***Connector & terminal*** ***(B77) No. 6, 9 (+) — Chassis ground (–):***	Is the voltage 5 V?	Go to step **12.**	Go to step **11.**

	Step	Check	Yes	No
11	**CHECK HARNESS BETWEEN AUTO A/C CONTROL MODULE AND MODE DOOR ACTUATOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from auto A/C control module and mode door actuator. 3) Measure the resistance of harness between auto A/C control module and mode door actuator. ***Connector & terminal*** ***(i48) No. 12 — (B77) No. 6, 9:***	Is the resistance less than 1 Ω?	Replace the auto A/C control module.	Repair the harness between auto A/C control module and mode door actuator.
12	**CHECK AUTO A/C CONTROL MODULE SIGNAL VOLTAGE.** 1) Turn ignition switch to ON. 2) Turn the mode control dial and measure voltage between auto A/C control module harness connector and chassis ground for each mode. ***Connector & terminal*** ***(i48) No. 5 (+) — Chassis ground (–):***	Is the voltage 5 V when BI-LEVEL, DEF position and 0 V when VENT, HEAT, D/H position?	Go to step **15.**	Go to step **13.**
13	**CHECK AUTO A/C CONTROL MODULE SIGNAL POWER SUPPLY.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from mode door actuator. 3) Turn the ignition switch to ON. 4) Measure the voltage between mode door actuator harness connector and chassis ground. ***Connector & terminal*** ***(B77) No. 4, 7 (+) — Chassis ground (–):***	Is the voltage 5 V?	Go to step **15.**	Go to step **14.**
14	**CHECK HARNESS BETWEEN AUTO A/C CONTROL MODULE AND MODE DOOR ACTUATOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from auto A/C control module and mode door actuator. 3) Measure the resistance of harness between auto A/C control module and mode door actuator. ***Connector & terminal*** ***(i48) No. 5 — (B77) No. 4, 7:***	Is the resistance less than 1 Ω?	Replace the auto A/C control module.	Repair the harness between auto A/C control module and mode door actuator.
15	**CHECK AUTO A/C CONTROL MODULE SIGNAL VOLTAGE.** 1) Turn ignition switch to ON. 2) Turn the mode control dial and measure voltage between auto A/C control module harness connector and chassis ground for each mode. ***Connector & terminal*** ***(i48) No. 13 (+) — Chassis ground (–):***	Is the voltage 5 V when VENT, BI-LEVEL, HEAT position and 0 V when D/H, DEF position?	Go to step **19.**	Go to step **16.**

	Step	Check	Yes	No
16	**CHECK AUTO A/C CONTROL MODULE SIGNAL POWER SUPPLY.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from mode door actuator. 3) Turn the ignition switch to ON. 4) Measure the voltage between mode door actuator and chassis ground. ***Connector & terminal*** ***(B77) No. 8 (+) — Chassis ground (–):***	Is the voltage 5 V?	Go to step **18.**	Go to step **17.**
17	**CHECK HARNESS BETWEEN AUTO A/C CONTROL MODULE AND MODE DOOR ACTUATOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from auto A/C control module and mode door actuator. 3) Measure the resistance of harness between auto A/C control module and mode door actuator. ***Connector & terminal*** ***(i48) No. 13 — (B77) No. 8:***	Is the resistance less than 1 Ω?	Replace the auto A/C control module.	Repair the harness between auto A/C control module and mode door actuator.
18	**CHECK ACTUATOR GROUND CIRCUIT.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from auto A/C control module. 3) Measure the resistance of harness between auto A/C control module and mode door actuator. ***Connector & terminal*** ***(i48) No. 16 — (B77) No. 10:***	Is the resistance less than 1 Ω?	Replace the mode door actuator.	Repair the harness between auto A/C control module and mode door actuator.
19	**CHECK POOR CONTACT.** Check poor contact in auto A/C control module connector.	Is there poor contact in connector?	Repair the poor contact in auto A/C control module.	Repair the connector.

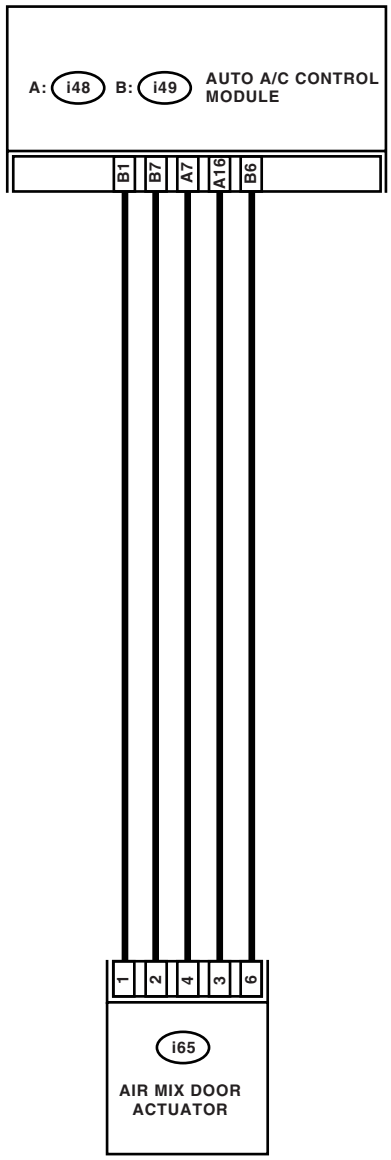
C: AIR MIX DOOR ACTUATOR

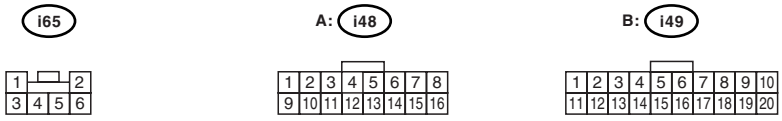
TROUBLE SYMPTOM:

Outlet air temperature does not change.

WIRING DIAGRAM:

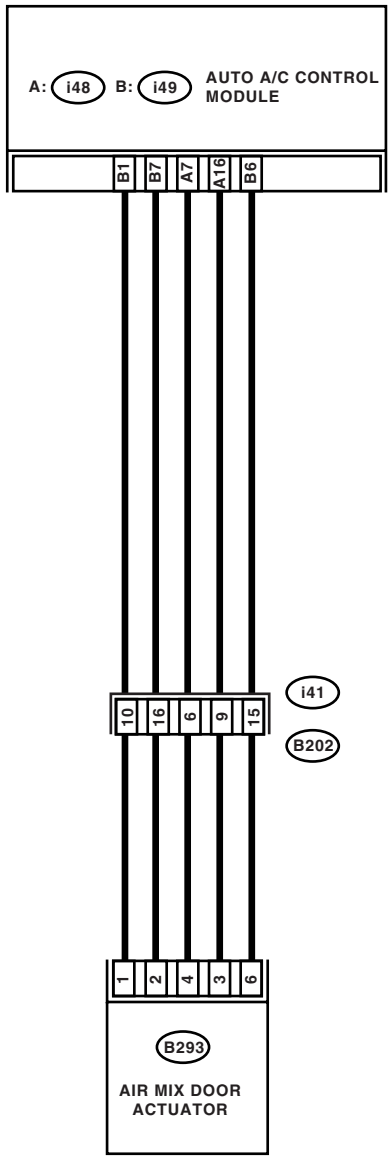
- LHD model

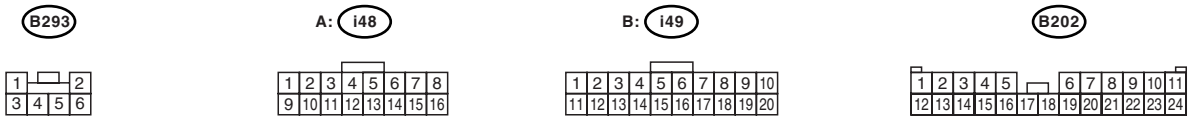




AC-00106

- RHD model





AC-00155

	Step	Check	Yes	No
1	**CHECK POWER SUPPLY FOR AIR MIX DOOR ACTUATOR POSITION SWITCH.** 1) Turn the ignition switch to OFF. 2) Disconnect the air mix door actuator connector. 3) Turn the ignition switch and AUTO switch to ON. 4) Measure the voltage between auto A/C control module connector terminals. ***Connector & terminal*** ***(i48) No. 7 (+) — (i48) No. 16 (–):***	Is the voltage approx. 5 V?	Go to step **2.**	Replace the auto A/C control module.
2	**CHECK POWER SUPPLY FOR AIR MIX DOOR ACTUATOR.** Measure the voltage between auto A/C control module connector and chassis ground after turning the temperature control dial to maximum COOL position. ***Connector & terminal*** ***(i49) No. 6 (+) — Chassis ground (–):***	Is the voltage 7 V (at normal temperature)?	Go to step **3.**	Replace the auto A/C control module.
3	**CHECK POWER SUPPLY FOR AIR MIX DOOR ACTUATOR.** Measure the voltage between auto A/C control module connector and chassis ground after turning the temperature control dial to maximum HOT position. ***Connector & terminal*** ***(i49) No. 7 (+) — Chassis ground (–):***	Is the voltage 7 V (at normal temperature)?	Go to step **4.**	Replace the auto A/C control module.
4	**CHECK HARNESS BETWEEN AUTO A/C CONTROL MODULE AND AIR MIX DOOR ACTUATOR.** 1) Turn the A/C and ignition switch to OFF. 2) Disconnect the auto A/C control module connector. 3) Measure the resistance between auto A/C control module and air mix door actuator connector. ***Connector & terminal*** ***LHD model:*** ***(i65) No. 1 — (i49) No. 1:*** ***(i65) No. 2 — (i49) No. 7:*** ***(i65) No. 3 — (i48) No. 16:*** ***(i65) No. 4 — (i48) No. 7:*** ***(i65) No. 6 — (i49) No. 6:*** ***RHD model:*** ***(B293) No. 1 — (i49) No. 1:*** ***(B293) No. 2 — (i49) No. 7:*** ***(B293) No. 3 — (i48) No. 16:*** ***(B293) No. 4 — (i48) No. 7:*** ***(B293) No. 6 — (i48) No. 6:***	Is the resistance less than 1 Ω?	Go to step **5.**	Repair the harness between auto A/C control module and air mix door actuator.

	Step	Check	Yes	No
5	**CHECK AIR MIX DOOR ACTUATOR POSITION SWITCH SIGNAL.** 1) Connect the connector of auto A/C control module and air mix door actuator. 2) Turn the ignition switch and AUTO switch to ON. 3) Check the voltage between auto A/C control module connector terminals while changing the setting temperature between maximum COOL and maximum HOT. ***Connector & terminal*** ***(i49) No. 1 (+) — (i48) No. 16 (–):***	Does the voltage change between 0.5 (Max. HOT) — 4.5 (Max. COOL) V?	Go to step **6.**	Replace the air mix door actuator.
6	**CHECK POOR CONTACT.** Check poor contact in auto A/C control module and connector.	Is there poor contact in connector?	Repair the connector.	Replace the auto A/C control module.

8. Diagnostic Procedure for Sensors

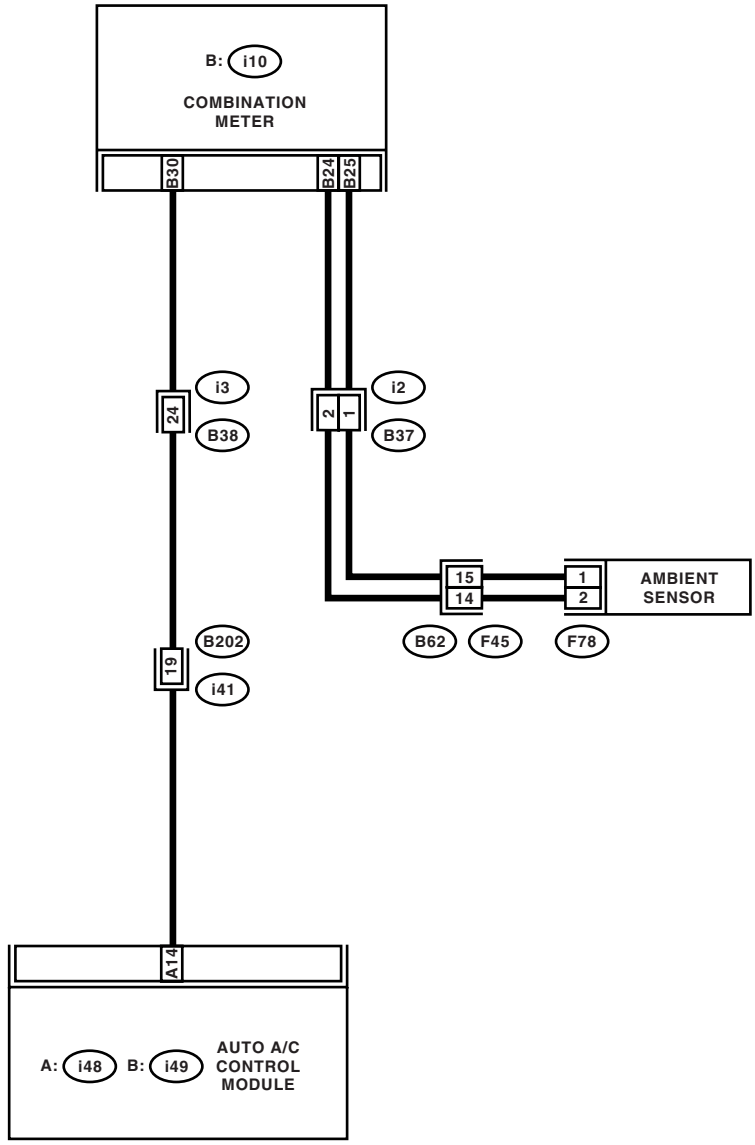
A: AMBIENT SENSOR

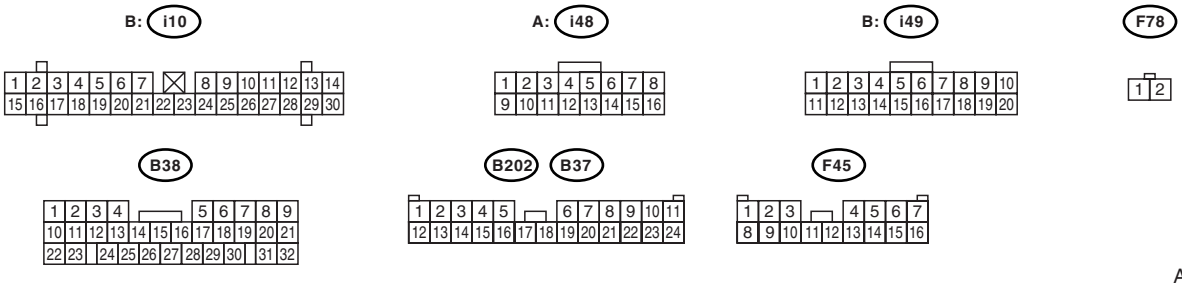
TROUBLE SYMPTOM:

- Fan speed is not switched when the fan speed control dial is in AUTO position.
- Malfunction related to ambient sensor is indicated in self diagnosis.

WIRING DIAGRAM:

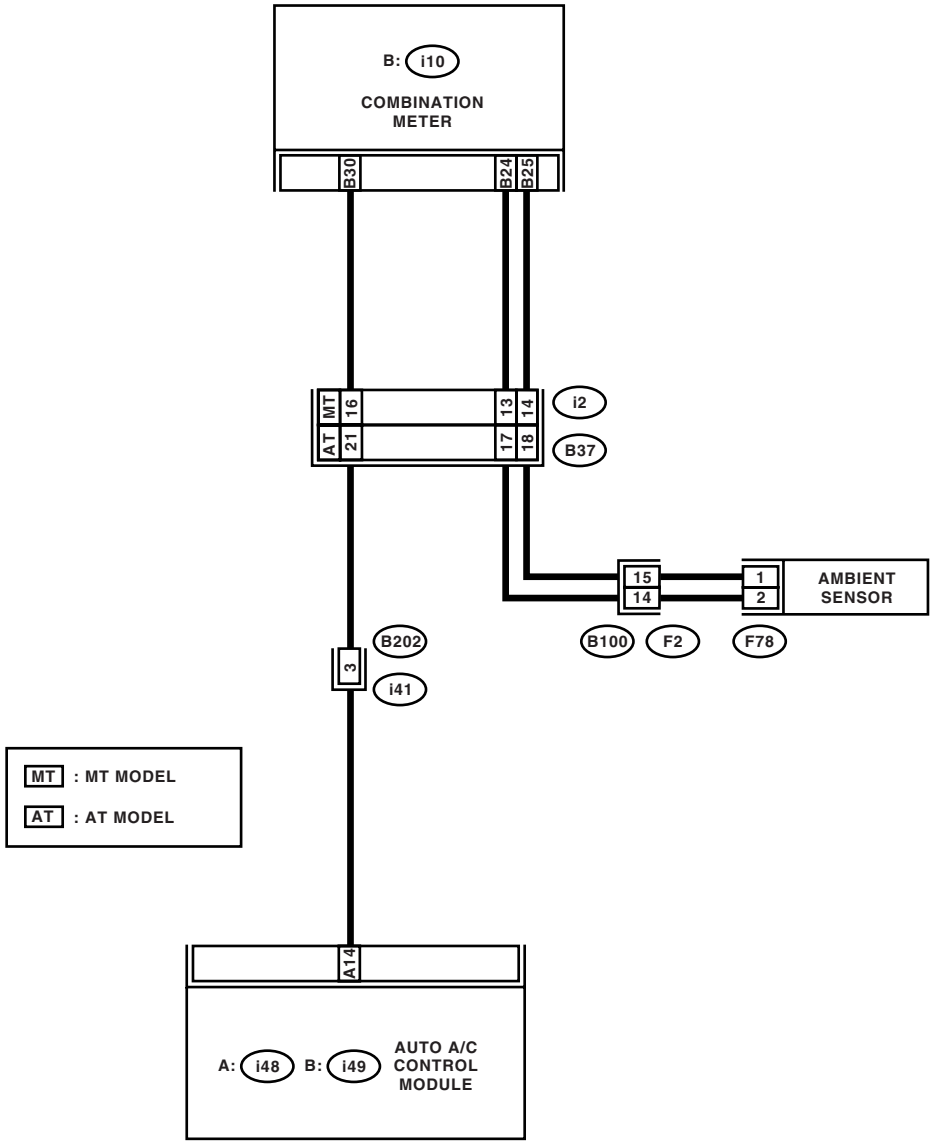
- LHD model

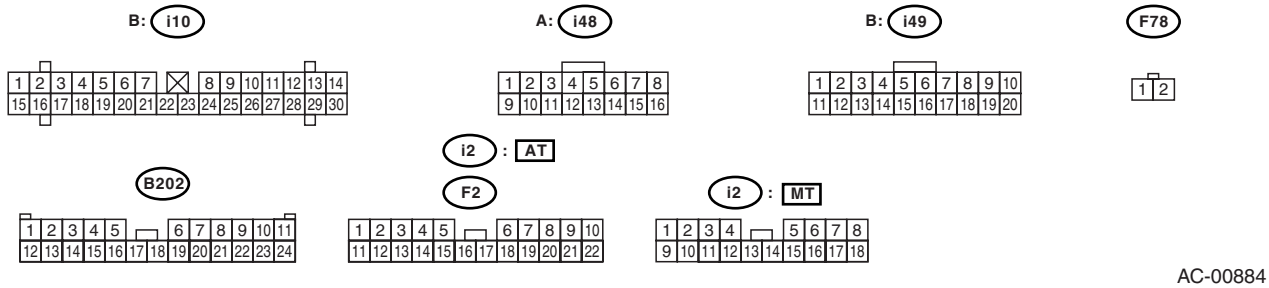




AC-00107

- RHD model





AC-00884

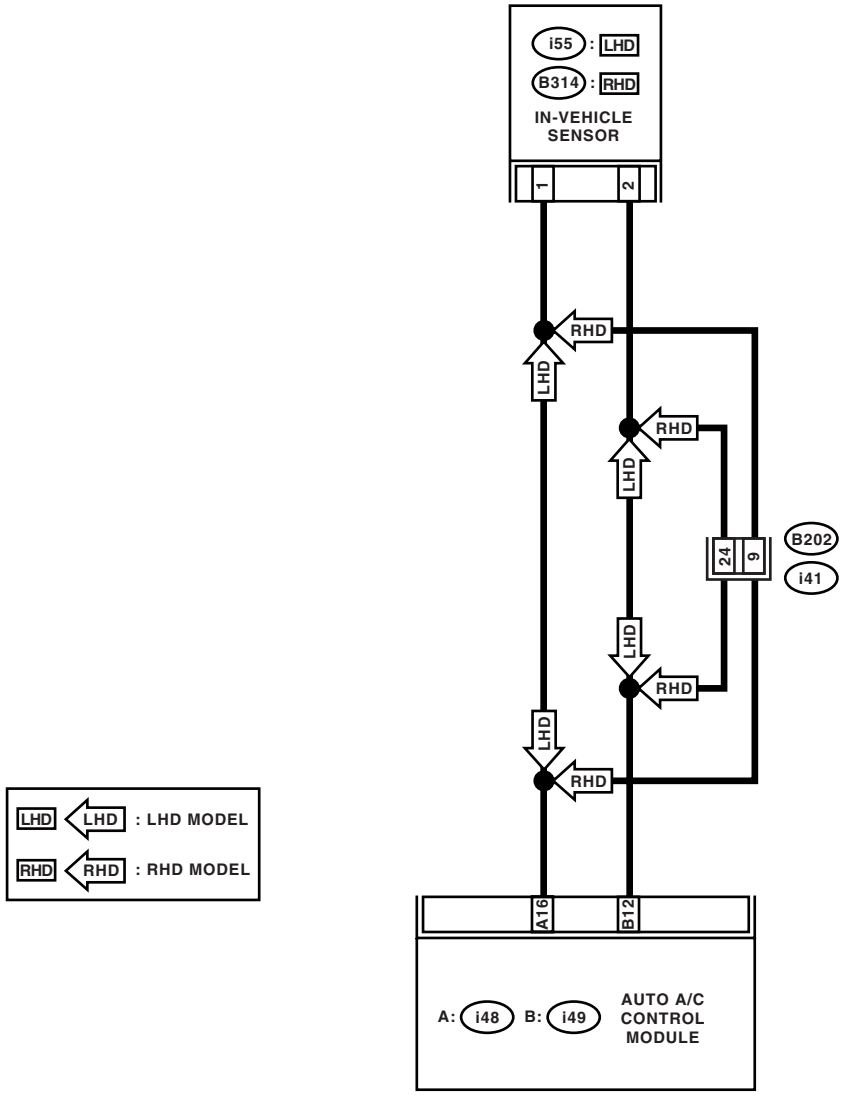
	Step	Check	Yes	No
1	**CHECK HARNESS CONNECTOR BETWEEN AUTO A/C CONTROL MODULE AND COMBINATION METER.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from auto A/C control module and combination meter. 3) Measure the resistance in harness between auto A/C control module and combination meter. ***Connector & terminal*** ***(i10) No. 30 — (i48) No. 14:***	Is the resistance less than 1 Ω?	Go to step **2.**	Repair the harness between auto A/C control module and combination meter.
2	**CHECK AMBIENT SENSOR CIRCUIT.** Check the ambient sensor circuit. <Ref. to IDI-8, CHECK OUTSIDE TEMPERATURE INDICATOR, INSPECTION, Combination Meter System.>	Is the ambient sensor circuit normal?	Go to step **3.**	Repair the ambient sensor circuit.
3	**CHECK POOR CONTACT.** Check poor contact in auto A/C control module connector.	Is there poor contact in connector?	Repair the connector.	Replace the A/C control module.

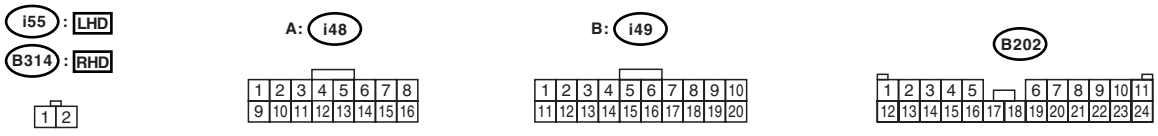
B: IN-VEHICLE SENSOR

TROUBLE SYMPTOM:

- Blower fan speed, outlet port and inlet port do not change after turning the AUTO switch to ON.
- Malfunction related to ambient sensor is indicated in self diagnosis.

WIRING DIAGRAM:



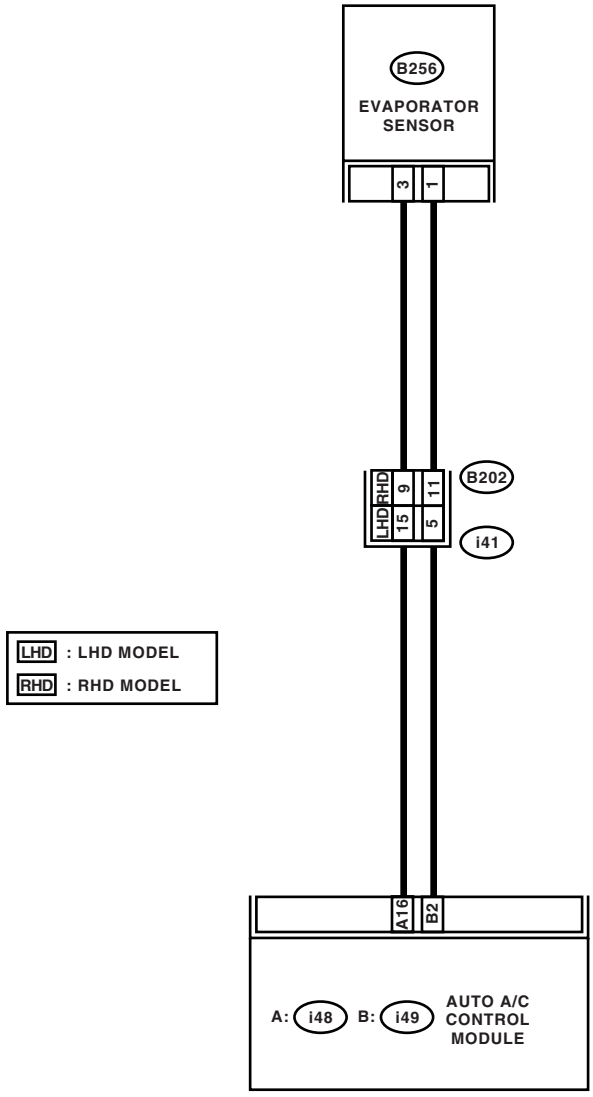


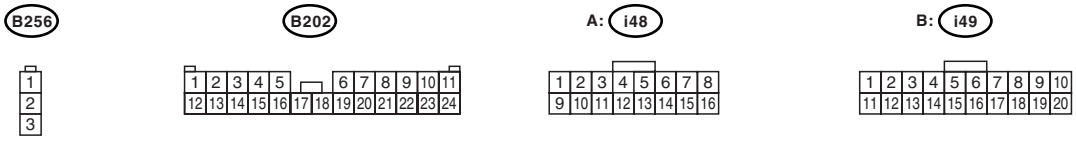
AC-00157

	Step	Check	Yes	No
1	**CHECK IN-VEHICLE SENSOR.** 1) Turn the ignition switch to OFF. 2) Remove the instrument panel lower cover. 3) Disconnect the connector from in-vehicle sensor. 4) Measure the resistance between connector terminals of in-vehicle sensor. ***Terminals*** ***No. 1 — No. 2:***	Is the resistance approx. 2.7 kΩ at 20°C (68°F)?	Go to step **2.**	Replace the in-vehicle sensor.
2	**CHECK INPUT SIGNAL FOR IN-VEHICLE SENSOR.** 1) Turn the ignition switch to ON. 2) Measure the voltage between in-vehicle sensor harness connector terminal and chassis ground. ***Connector & terminal*** ***LHD model:*** ***(i55) No. 2 (+) — Chassis ground (–):*** ***RHD model:*** ***(B314) No. 2 (+) — Chassis ground (–):***	Is the voltage approx. 5 V?	Go to step **6.**	Go to step **3.**
3	**CHECK AUTO A/C CONTROL MODULE OUTPUT SIGNAL.** 1) Turn the ignition switch to OFF. 2) Remove the auto A/C control module. 3) Turn the ignition switch to ON. 4) Measure the voltage between connector terminals of auto A/C control module. ***Connector & terminal*** ***(i49) No. 12 (+) — (i48) No. 16:***	Is the voltage approx. 5 V?	Go to step **4.**	Go to step **6.**
4	**CHECK HARNESS BETWEEN AUTO A/C CONTROL MODULE AND IN-VEHICLE SENSOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from auto A/C control module. 3) Measure the resistance in harness between auto A/C control module and in-vehicle sensor. ***Connector & terminal*** ***LHD model:*** ***(i55) No. 2 — (i49) No. 12:*** ***RHD model:*** ***(B314) No. 2 — (i49) No. 12:***	Is the resistance less than 1 Ω?	Go to step **5.**	Repair the harness between auto A/C control module and in-vehicle sensor.
5	**CHECK HARNESS BETWEEN AUTO A/C CONTROL MODULE AND IN-VEHICLE SENSOR.** Measure the resistance in harness between auto A/C control module and in-vehicle sensor. ***Connector & terminal*** ***LHD model:*** ***(i55) No. 1 — (i48) No. 16:*** ***RHD model:*** ***(B314) No. 1 — (i48) No. 16:***	Is the resistance less than 1 Ω?	Go to step **6.**	Repair the harness between auto A/C control module and in-vehicle sensor.
6	**CHECK POOR CONTACT.** Check poor contact in auto A/C control module connector.	Is there poor contact in connector?	Repair the connector.	Replace the auto A/C control module.

C: EVAPORATOR SENSOR

WIRING DIAGRAM:





AC-00158

	Step	Check	Yes	No
1	**CHECK EVAPORATOR SENSOR.** 1) Turn the ignition switch to OFF. 2) Remove the glove box. 3) Disconnect the connector from evaporator sensor. 4) Measure the resistance between connector terminals of evaporator sensor. ***Terminals*** ***No. 1 — No. 2:***	Is the resistance approx. 2.7 kΩ at 20°C (68°F)?	Go to step **2.**	Replace the evaporator sensor.
2	**CHECK INPUT SIGNAL FOR EVAPORATOR SENSOR.** 1) Turn the ignition switch to ON. 2) Measure the voltage between connector (B256) terminal and chassis ground. ***Connector & terminal*** ***(B256) No. 1 (+) — Chassis ground (–):***	Is the voltage approx. 5 V?	Go to step **5.**	Go to step **3.**
3	**CHECK AUTO A/C CONTROL MODULE OUTPUT SIGNAL.** 1) Turn the ignition switch to OFF. 2) Remove the auto A/C control module. 3) Turn the ignition switch to ON. 4) Measure the voltage between connector terminals of auto A/C control module. ***Connector & terminal*** ***(i49) No. 2 (+) — (i48) No. 16 (–):***	Is the voltage approx. 5 V?	Go to step **4.**	Go to step **6.**
4	**CHECK HARNESS CONNECTOR BETWEEN AUTO A/C CONTROL MODULE AND EVAPORATOR SENSOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from auto A/C control module. 3) Measure the resistance in harness between auto A/C control module and evaporator sensor. ***Connector & terminal*** ***(B256) No. 1 — (i49) No. 2:***	Is the resistance less than 1Ω?	Go to step **5.**	Repair the open circuit in harness between auto A/C control module and evaporator sensor.
5	**CHECK HARNESS CONNECTOR BETWEEN AUTO A/C CONTROL MODULE AND EVAPORATOR SENSOR.** Measure the resistance in harness between auto A/C control module and evaporator sensor. ***Connector & terminal*** ***(B256) No. 3 — (i48) No. 16:***	Is the resistance less than 1 Ω?	Go to step **6.**	Repair the open circuit in harness between auto A/C control module and evaporator sensor.
6	**CHECK POOR CONTACT.** Check poor contact in auto A/C control module connector.	Is there poor contact in connector?	Repair the connector.	Replace the auto A/C control module.

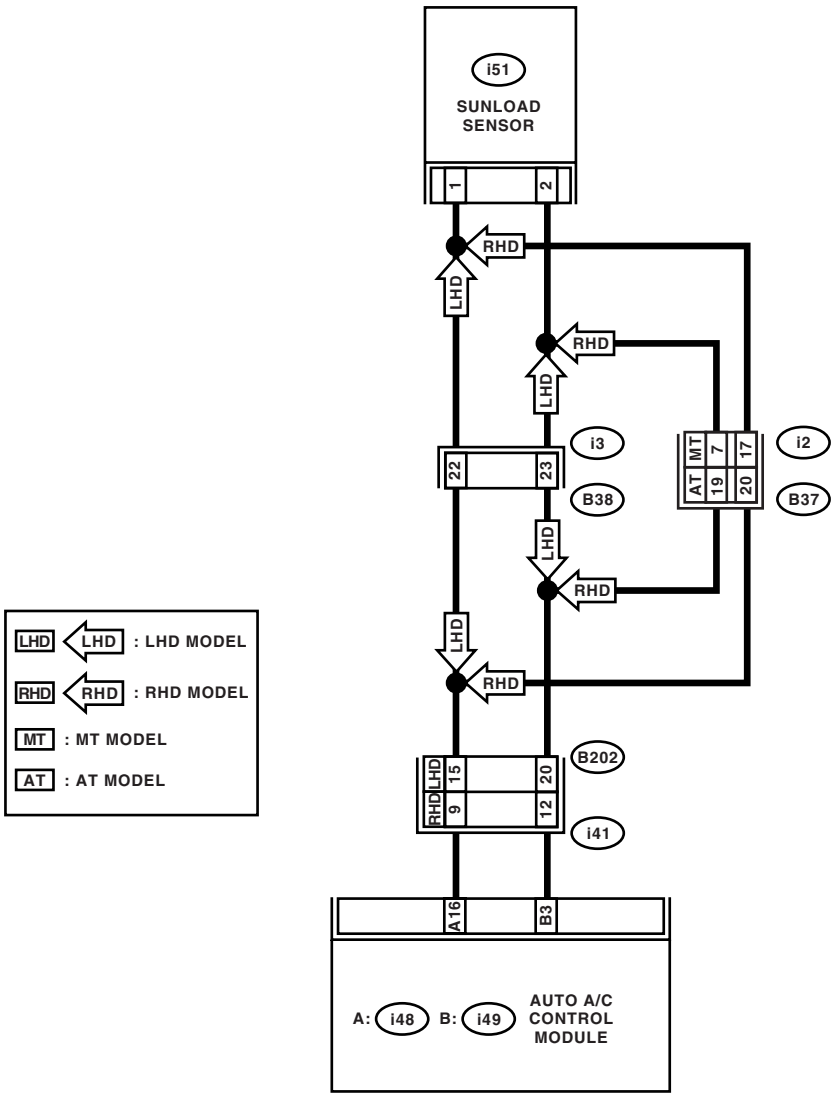
D: SUNLOAD SENSOR

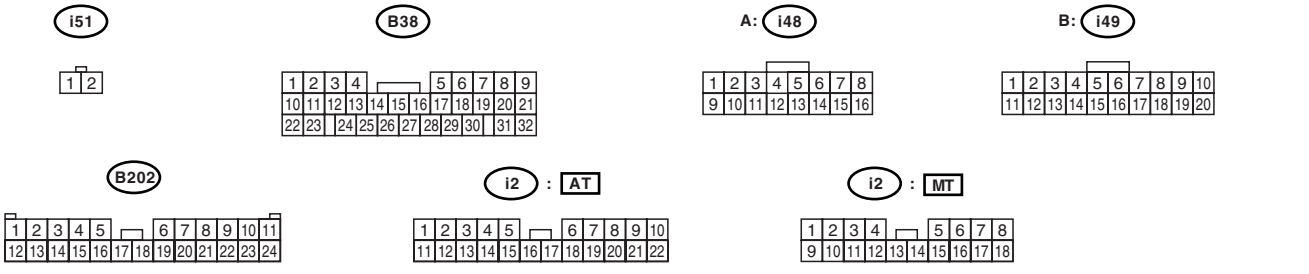
TROUBLE SYMPTOM:

- Sensor identifies that sunlight is at maximum. Then, A/C system is controlled to COOL side.
- Sensor identifies that sunlight is at minimum. Then, A/C system is controlled to HOT side.

NOTE:
When the sunload sensor check is conducted indoors or in the shade, open circuit might be indicated. Always check the sunload sensor at the place where the sun shines directly on it.

WIRING DIAGRAM:





AC-00885

	Step	Check	Yes	No
1	**CHECK POWER SUPPLY VOLTAGE FOR SUNLOAD SENSOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from sunload sensor. 3) Turn the ignition switch to ON. 4) Measure the power supply voltage for sunload sensor. ***Connector & terminal*** ***(i51) No. 2 (+) — Chassis ground (–):***	Is the voltage approx. 5 V?	Go to step **4.**	Go to step **2.**
2	**CHECK AUTO A/C CONTROL MODULE OUTPUT SIGNAL.** 1) Turn the ignition switch to OFF. 2) Remove the auto A/C control module. 3) Turn the ignition switch to ON. 4) Measure the voltage between connector terminals of auto A/C control module. ***Connector & terminal*** ***(i49) No. 3 (+) — (i48) No. 16 (–):***	Is the voltage approx. 5 V?	Go to step **3.**	Go to step **6.**
3	**CHECK HARNESS CONNECTOR BETWEEN AUTO A/C CONTROL MODULE AND SUNLOAD SENSOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from auto A/C control module. 3) Measure the resistance in harness between auto A/C control module and sunload sensor. ***Connector & terminal*** ***(i51) No. 2 — (i49) No. 3:***	Is the resistance less than 1 Ω?	Go to step **4.**	Repair the harness between auto A/C control module and sunload sensor.
4	**CHECK HARNESS CONNECTOR BETWEEN AUTO A/C CONTROL MODULE AND SUNLOAD SENSOR.** Measure the resistance in harness between auto A/C control module and sunload sensor. ***Connector & terminal*** ***(i51) No. 1 — (i48) No. 16:***	Is the resistance less than 1 Ω?	Go to step **5.**	Repair the harness between auto A/C control module and sunload sensor.
5	**CHECK INPUT VOLTAGE FOR AUTO A/C CONTROL MODULE.** 1) Connect the connector of auto A/C control module. 2) Turn the ignition switch to ON. 3) Measure the voltage between connector terminals of auto A/C control module. ***Connector & terminal*** ***(i49) No. 3 (+) — (i48) No. 16 (–):***	Is the voltage approx. 2.5 V?	Go to step **6.**	Replace the sunload sensor.
6	**CHECK POOR CONTACT.** Check poor contact in auto A/C control module connector.	Is there poor contact in connector?	Repair the connector.	Replace the auto A/C control module.

9. General Diagnostic Table

A: INSPECTION

Symptom	Problem parts
A/C system fails to operate.	• Fuse • Connector (Poor contact) • Ground • Auto A/C control module • Blower fan motor • Blower fan relay • A/C Relay • Compressor (Magnet clutch) • Evaporator sensor
Fuse is blown out.	• Fuse • Connector (Poor contact)
Illumination cannot dim.	• Fuse • Connector (Poor contact) • Auto A/C control module
Blower fan does not rotate or fan speed cannot be controlled.	• Fuse • Connector (Poor contact) • Ground • Auto A/C control module • Blower fan motor • Blower fan relay
Unable to switch suction vents.	• Connector (Poor contact) • Auto A/C control module • Intake door actuator
Unable to switch blow vents.	• Connector (Poor contact) • Auto A/C control module • Mode door actuator
Compartment temperature does not increase. (No hot air is discharged.)	• Connector (Poor contact) • Auto A/C control module • Air mix door actuator • In-vehicle sensor, ambient sensor, evaporator sensor and sunload sensor • In-vehicle sensor aspirator hose
Compartment temperature does not decrease. (No cool air is discharged.)	• Connector (Poor contact) • Auto A/C control module • Air mix door actuator • A/C Relay • Compressor (Magnet clutch) • Radiator fan motor • Radiator fan relay • In-vehicle sensor, ambient sensor, evaporator sensor and sunload sensor • In-vehicle sensor aspirator hose
Compartment temperature is higher or lower than setting temperature.	• Auto A/C control module • Air mix door actuator • In-vehicle sensor, ambient sensor, evaporator sensor and sunload sensor • In-vehicle sensor aspirator hose
Compartment temperature does not quickly respond to setting temperature.	• Air mix door actuator • In-vehicle sensor, ambient sensor, evaporator sensor and sunload sensor • In-vehicle sensor aspirator hose
Radiator fan does not rotate during A/C operation.	• Radiator fan motor • Radiator fan relay