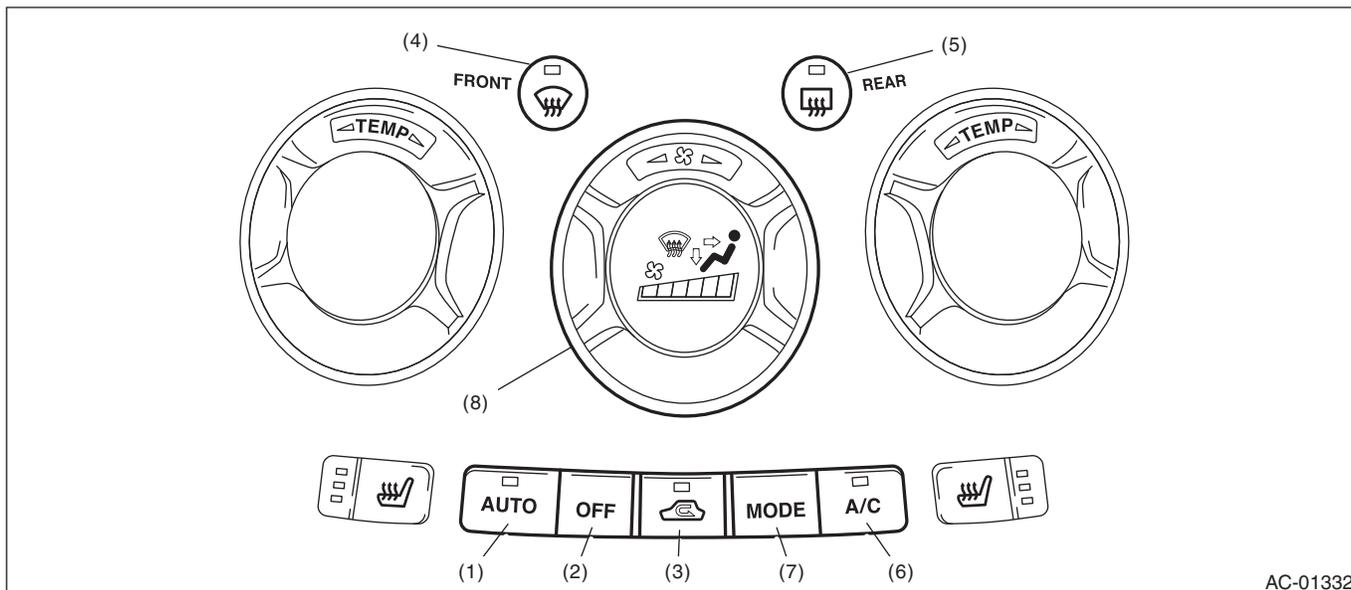


Diagnostic Chart for Self-diagnosis

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

5. Diagnostic Chart for Self-diagnosis

A: OPERATION



AC-01332

- | | | |
|-------------------------|---------------------------------|-----------------------------|
| (1) AUTO switch | (4) Defroster switch | (7) Air flow control switch |
| (2) OFF switch | (5) Rear window defogger switch | (8) FAN switch |
| (3) FRESH/RECIRC switch | (6) A/C switch | |

NOTE:

For A/C system self-diagnosis, there is one that checks the control panel, and the other that checks the whole control system (sensor, actuator, blower motor, etc.). Perform the self-diagnosis for control panel first, and then perform the self-diagnosis for control system.

Diagnostic Chart for Self-diagnosis

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

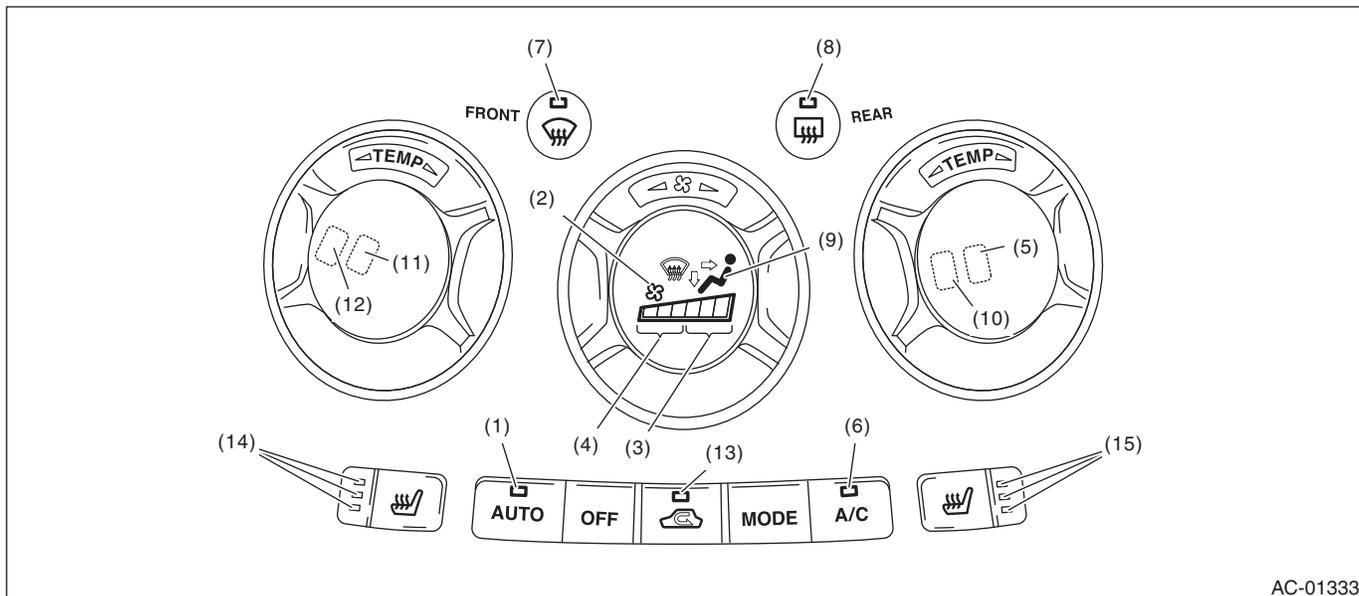
1. A/C CONTROL PANEL SELF-DIAGNOSIS

Step	Check	Yes	No
1 SET SELF-DIAGNOSIS MODE BY OPERATING A/C CONTROL PANEL. 1) Turn the ignition switch to ON with the AUTO switch and MODE switch pressed. 2) The status of communication with the A/C ECM is displayed in the left TEMP display field.	Does the self-diagnosis function operate?	Go to step 2.	<Ref. to AC(diag)-15, A/C OR SELF-DIAGNOSIS SYSTEMS DO NOT OPERATE, Diagnostics for A/C System Malfunction.>
2 CHECK DISPLAY AND INDICATOR. Check if all the screen display and indicators come on and then go off. NOTE: "11" — "14" is displayed on the screen when malfunction occurs.	Do all the screen display and indicators come on then go off?	Go to step 3.	Replace the A/C control panel.
3 CHECK SWITCH AND TEMPERATURE CONTROL DIAL INPUT. According to the switch check table, press each switch or turn the temperature control dial, and check the relative screen display and indicators illuminate. <Ref. to AC(diag)-12, SWITCH CHECK TABLE, OPERATION, Diagnostic Chart for Self-diagnosis.>	Does the screen display related to each switch and dial input illuminate?	Go to step 4.	Replace the A/C control panel.
4 CHECK A/C CONTROL PANEL COMMUNICATION. 1) Turn the ignition switch to OFF. 2) Disconnect the auto A/C control module harness connector. 3) Using a suitable lead wire, short the terminal No. 18 and No. 19 of auto A/C control module harness connector (B283). 4) Turn the ignition switch from OFF to ACC, and wait for 2 seconds. 5) Turn the ignition switch to ON while pressing the AUTO switch and A/C switch. 6) Press any switch on A/C control panel. 7) When no malfunction occurs in the control panel communication, "CL" (no open line) is displayed in the left side TEMP display field on the screen; and when a malfunction occurs, "OP" (open line exists) is displayed.	Is "CL" displayed on the screen?	A/C control panel is normal. Turn the ignition switch to OFF, and connect the auto A/C control module harness connector.	Replace the A/C control panel.

Diagnostic Chart for Self-diagnosis

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

2. SWITCH CHECK TABLE



AC-01333

Switch	Display screen	Switch	Display screen
A/C switch	(6)	FAN switch (+)	(4)
AUTO switch	(1)	FAN switch (-)	(3)
Air flow control switch	(9)	Driver's side temperature control dial	Right rotation (11) Left rotation (12)
FRESH/RECIRC	(13)	Passenger's side temperature control dial	Right rotation (5) Left rotation (10)
Defroster switch	(7)	OFF switch	(2)
Rear defogger switch	(8)	Driver's seat heater switch	(14)
Passenger's seat heater switch	(15)		

Diagnostic Chart for Self-diagnosis

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

3. A/C CONTROL SYSTEM SELF-DIAGNOSIS

Step	Check	Yes	No
<p>1 SET SELF-DIAGNOSIS MODE BY OPERATING A/C CONTROL PANEL.</p> <p>1) Start the engine with the auto switch and FRESH/RECIRC switch pressed.</p> <p>NOTE: Self-diagnosis can also be performed with ignition switch ON, but start the engine because observing the magnet clutch operation is difficult.</p> <p>2) All the indicators blink four times.</p>	Does the self-diagnosis function operate?	Go to step 2.	<Ref. to AC(diag)-15, A/C OR SELF-DIAGNOSIS SYSTEMS DO NOT OPERATE, Diagnostics for A/C System Malfunction.>
<p>2 CHECK EACH SENSOR AND POTENTIOMETER</p> <p>1) After the indicators stop blinking, automatically change to the Inspection Mode of sensor and potentiometer.</p> <p>NOTE: Display items can be changed each time the A/C switch is pressed. (Step Operation)</p> <p>2) When malfunction occurs in each sensor and potentiometer, codes are displayed on the screen. When no malfunction occurs in each sensor and potentiometer, code "20" is displayed on the screen.</p> <p>3) Identify the defective sensor according to the sensor check table. <Ref. to AC(diag)-14, SENSOR CHECK TABLE, OPERATION, Diagnostic Chart for Self-diagnosis.></p>	Are other codes except "20" displayed?	Repair the defective sensor. <Ref. to AC(diag)-31, Diagnostic Procedure for Sensors.>	Go to step 3.
<p>3 CHECK EACH ACTUATOR, BLOWER FAN AND MAGNET CLUTCH.</p> <p>1) After completing each sensor and potentiometer inspection, change to the Inspection Mode of actuator, blower fan and magnet clutch by pressing the defroster switch.</p> <p>2) Each mode will change and operate automatically every four seconds.</p> <p>NOTE: Operation mode items can be changed each time the A/C switch is pressed. (Step Operation)</p> <p>3) Check the operation of actuator, blower fan and magnet clutch in each mode according to the operating mode table. <Ref. to AC(diag)-14, OPERATING MODE TABLE, OPERATION, Diagnostic Chart for Self-diagnosis.></p>	Do the actuator, blower fan and magnet clutch operate as described in the operating mode table?	A/C control system is normal. Press the OFF switch and complete the self-diagnosis function.	Repair the defective part in accordance with each diagnostic chart. <Ref. to AC(diag)-15, Diagnostics for A/C System Malfunction.> or <Ref. to AC(diag)-24, Diagnostic Procedure for Actuators.>

Diagnostic Chart for Self-diagnosis

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

4. SENSOR CHECK TABLE

NOTE:

When the sunload sensor check is performed indoors or in the shade, it could be diagnosed as having an open circuit. Always check the sunload sensor with the sun shining on it.

Display screen (Malfunction at present) *1	Sensor	Trouble contents
21/AUTO Blink	In-vehicle sensor	Open
-21/AUTO Blink		Short
22/AUTO Blink	Ambient sensor	Sensor trouble or communication failure
23/AUTO Blink	Evaporator sensor	Open
-23/AUTO Blink		Short
24/AUTO Blink	Engine coolant temperature sensor	Sensor trouble or communication failure
25 Blink	Sunload sensor	Open *2
-25/AUTO Blink		Short
26/AUTO Blink	Driver's side air mix door actuator potentiometer	COOL
27/AUTO Blink		HOT
-26/AUTO Blink	Passenger's side air mix door actuator potentiometer	COOL
-27/AUTO Blink		HOT
28/AUTO Blink	Mode door actuator potentiometer	FACE
29/AUTO Blink		DEF
41/AUTO Blink	Seat heater thermistor (Driver's side)	Open
-41/AUTO Blink		Short
42/AUTO Blink	Seat heater thermistor (Passenger's side)	Open
-42/AUTO Blink		Short
20 Blink	When all conditions are normal	

*1: "AUTO" display does not blink when past malfunction occurred. Past malfunction means that abnormal signals were continuously input for a certain time in the past.

*2: Present malfunction only is displayed for sunload sensor open circuit.

5. OPERATING MODE TABLE

Display screen	FRESH/RECIRC door	Mode door	Air mix door*	Blower fan	A/C compressor (Magnet clutch)
31	FRESH	FACE	Maximum cool	LO	OFF
32	RECIRC	FACE	Maximum cool	LO	ON
33	RECIRC	FACE	Maximum cool	M1	ON
34	FRESH	B/L	50%	M1	ON
35	FRESH	HEAT	50%	M1	ON
36	FRESH	HEAT	Maximum hot	M3	ON
37	FRESH	D/H	Maximum hot	M3	ON
38	FRESH	DEF	Maximum hot	HI	ON

*Same opening angle for both driver's and passenger's side

Diagnostics for A/C System Malfunction

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

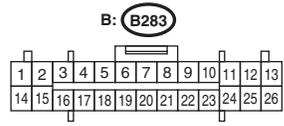
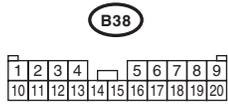
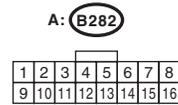
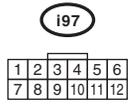
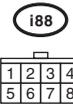
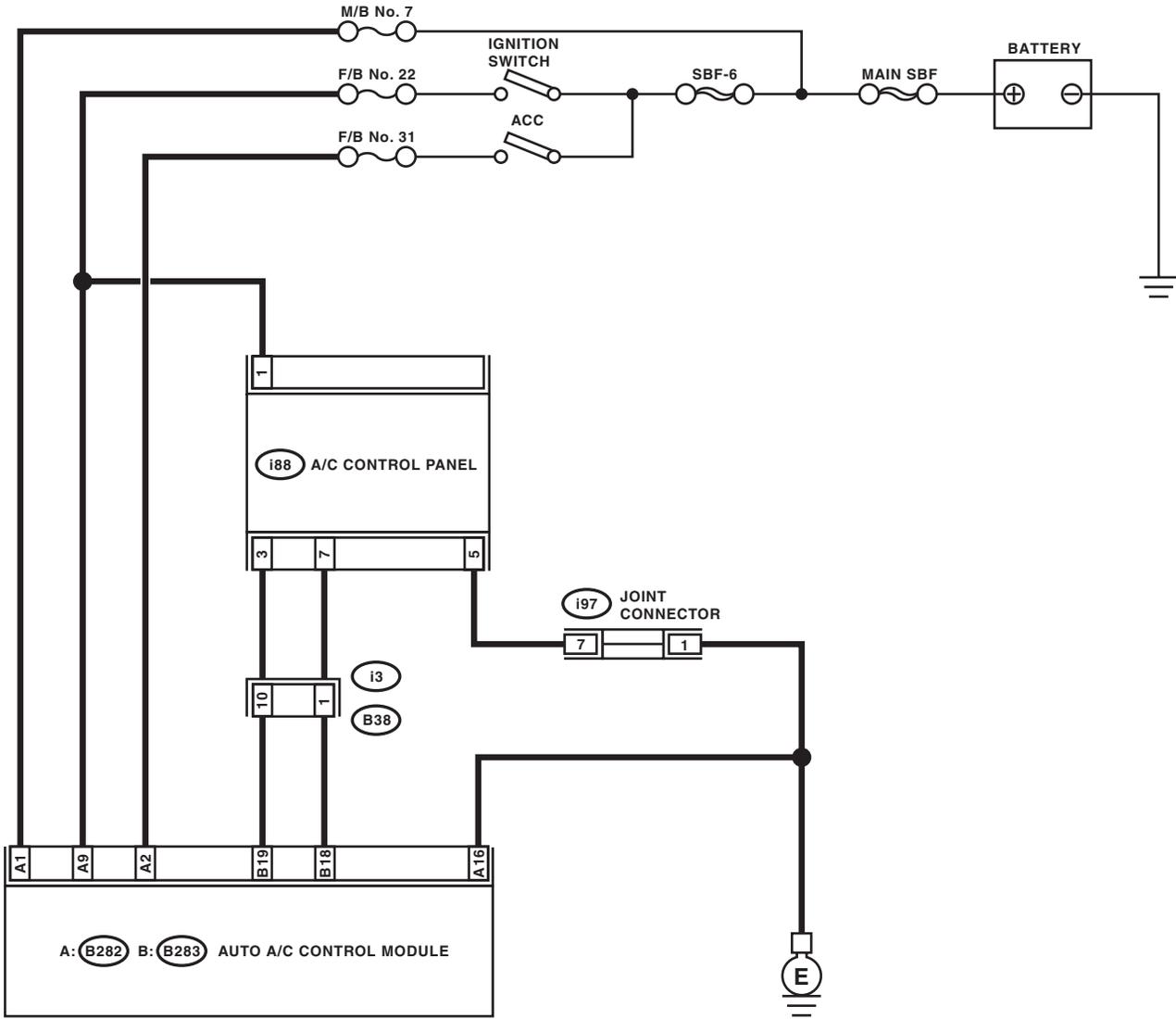
6. Diagnostics for A/C System Malfunction

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:



AC-01461

Diagnostics for A/C System Malfunction

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK FUSE. 1) Turn the ignition switch to OFF. 2) Remove the fuse No. 7 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. 22 and No. 31 from fuse & relay box. 3) Check the condition of fuse.	Is the fuse blown out?	Replace the fuse.	Go to step 3.
3 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. <i>Connector & terminal</i> <i>(i88) No. 1 (+) — Chassis ground (-):</i>	Is the voltage more than 10 V?	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 GROUND POWER CIRCUIT. Measure the resistance of harness between A/C control panel and chassis ground after turning the ignition switch to OFF. <i>Connector & terminal</i> <i>(i88) No. 5 — Chassis ground:</i>	Is the resistance less than 10 Ω ?	Go to step 5.	Repair the harness for ground line.
5 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 OFF. <i>Connector & terminal</i> <i>(B282) No. 1 (+) — Chassis ground (-):</i>	Is the voltage more than 10 V?	Go to step 6.	Check open or short circuit of harness between auto A/C control module and fuse.
6 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 ACC. <i>Connector & terminal</i> <i>(B282) No. 2 (+) — Chassis ground (-):</i>	Is the voltage more than 10 V?	Go to step 7.	Check open or short circuit of harness between auto A/C control module and fuse.
7 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. <i>Connector & terminal</i> <i>(B282) No. 9 (+) — Chassis ground (-):</i>	Is the voltage more than 10 V?	Go to step 8.	Check open or short circuit of harness between auto A/C control module and fuse.
8 CHECK AUTO A/C CONTROL MODULE GROUND CIRCUIT. Measure the resistance of harness between auto A/C control module and chassis ground. <i>Connector & terminal</i> <i>(B282) No. 16 — Chassis ground:</i>	Is the resistance less than 5 Ω ?	Go to step 9.	Repair the harness for ground line.
9 CHECK COMMUNICATION CIRCUIT. Measure the resistance of harness between A/C control panel and auto A/C control module. <i>Connector & terminal</i> <i>(i88) No. 3 — (B283) No. 19:</i> <i>(i88) No. 7 — (B283) No. 18:</i>	Is the resistance less than 1 Ω ?	Go to step 10.	Repair the harness.

Diagnostics for A/C System Malfunction

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
10 CHECK POOR CONTACT. Check poor contact of auto A/C control module connector.	Is there poor contact in connector?	Repair the connector.	Replace the auto A/C control module. <Ref. to AC-33, REMOVAL, Control Unit (Auto A/C Model).>

Diagnostics for A/C System Malfunction

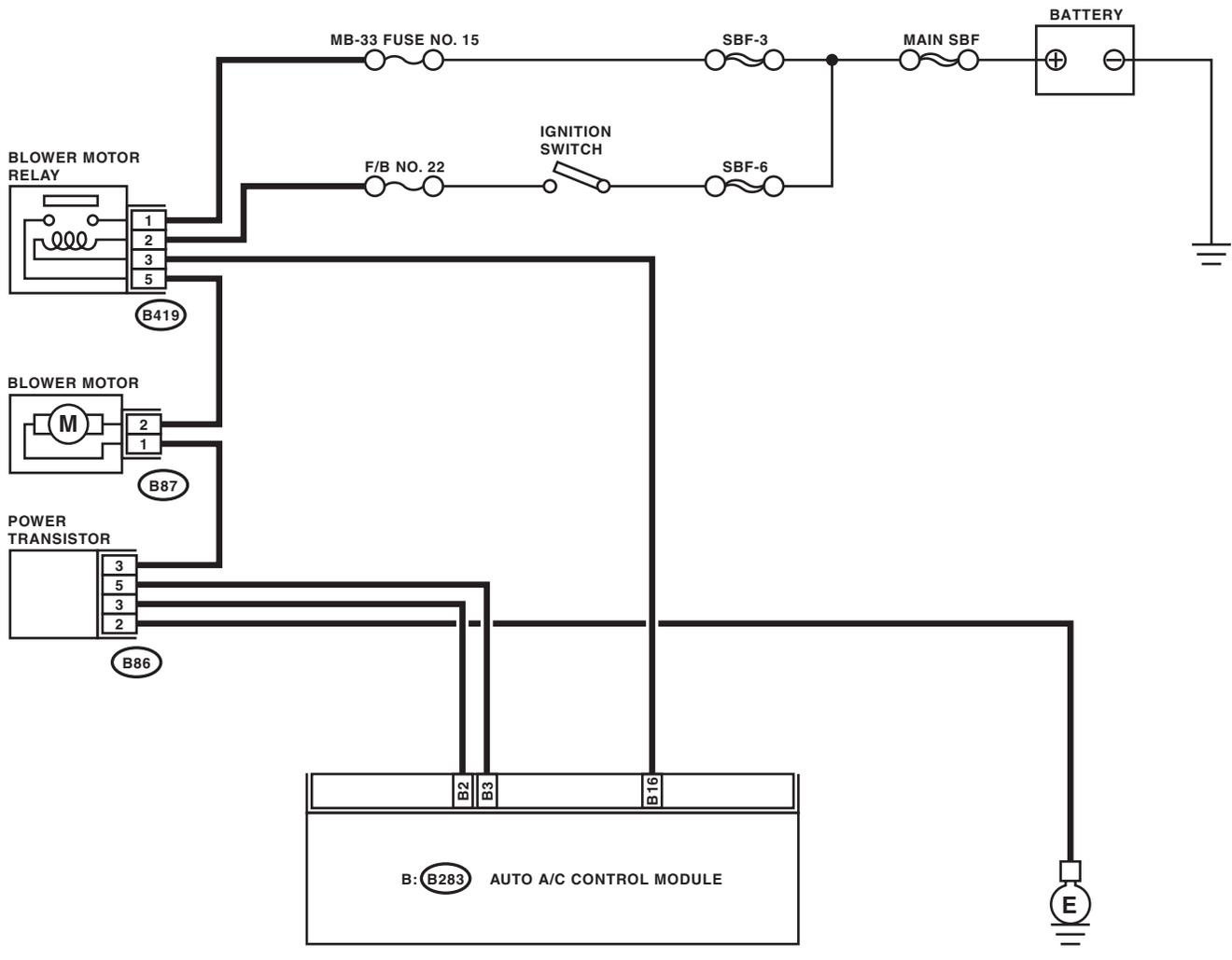
HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

B: BLOWER FAN DOES NOT ROTATE.

TROUBLE SYMPTOM:

- Blower motor does not rotate.
- Blower motor does not rotate in "HI".

WIRING DIAGRAM:



Diagnostics for A/C System Malfunction

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK FUSE. 1) Remove the fuse No. 22 in fuse & relay box, and the fuse No. 15 in main fuse 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 blower switch to ON. 3) Measure the voltage between blower motor and chassis ground. Connector & terminal (B87) No. 2 (+) — Chassis ground (-):	Is the voltage more than 10 V?	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. 2 of blower motor relay, and negative (-) terminal to terminal No. 3. 4) Measure the resistance between terminals No. 1 and No. 5. Terminals (B419) No. 1 — (B419) No. 5:	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. 2 of blower motor connector, and negative (-) terminal to terminal No. 1. 3) Make sure the blower motor runs.	Does the blower motor run?	Go to step 5.	Replace the blower motor. <Ref. to AC-28, REMOVAL, Blower Motor.>
5 CHECK POOR CONTACT. Check poor contact of auto A/C control module connector.	Is there poor contact in connector?	Repair the connector.	Replace the auto A/C control module. <Ref. to AC-33, REMOVAL, Control Unit (Auto A/C Model).>