

Basic Diagnostic Procedure

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

1. Basic Diagnostic Procedure

A: PROCEDURE

Step	Check	Yes	No
1 START INSPECTIONS. 1) Perform the pre-inspection. <Ref. to AC(diag)-3, INSPECTION, General Description.> 2) Perform the self-diagnosis. <Ref. to AC(diag)-9, OPERATION, Diagnostic Chart for Self-diagnosis.>	Does the self-diagnosis operate?	Go to step 2.	<Ref. to AC(diag)-14, 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 confirmed?	Repair the malfunctioning 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(diag)-18, 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(diag)-18, 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. Doing so may immediately damage the auto A/C control module.
- 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 sensors 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 and junction box.

CAUTION:

- Do not use electrical test equipment on wiring harness and connector circuits of the airbag system.
- Be careful not to damage the airbag system wiring harness when servicing the A/C control panel and junction box.

B: INSPECTION

Before performing the diagnosis, check the following items which may cause problems in the A/C system.

1. BATTERY

- 1) Measure the battery voltage and specific gravity of electrolyte.

Standard voltage: 12 V

Specific gravity: 1.260 or more

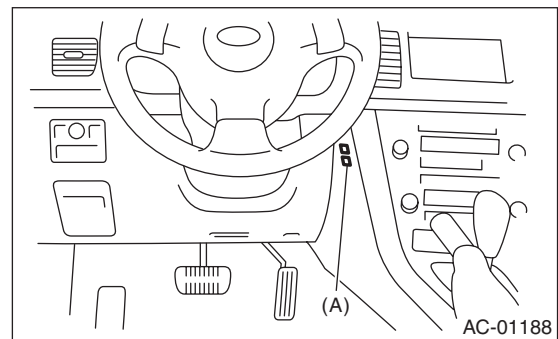
- 2) Check the condition of the fuses for A/C system power supply and other fuses.
- 3) Check the condition of harness and harness connector connections.

2. ASPIRATOR HOSE

- 1) Turn the ignition switch to ON, and press the A/C switch.
- 2) Turn the temperature control dial to maximum hot position.
- 3) Turn the air flow control dial to "DEF" position.
- 4) Turn the fan dial to MAX.
- 5) Put a strip of paper close to the front side of in-vehicle sensor suction port (A) located in the driver's side console side panel, and check that air is being sucked into the port by seeing the paper moving towards the port.

NOTE:

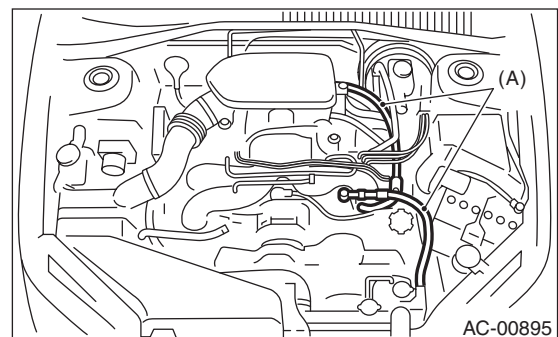
Be careful not to let the paper get sucked into the port.



- 6) If the paper does not move at all, remove the driver's side console side panel <Ref. to EI-55, REMOVAL, Center Console.> and check for improper connection of the aspirator hose, 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 FRESH/RECIRC door linkage.

General Description

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

5. CONTROL SWITCHES

Start the engine and warm-up completely.

1) Inspection using switches

No.	Point to check	Switch operation	Judgment standard
1	OFF switch	Press the OFF switch.	Setting temperature display goes out. • Blower fan: OFF • Inlet opening: FRESH • Compressor: OFF
2	AUTO switch, driver's side temperature control dial and passenger's side temperature control dial	1) Press the AUTO switch. 2) Turn the temperature control dial to the left fully, and set to 18°C (65°F) (maximum cool position).	AUTO display illuminates. • Outlet air temperature: COOL • Blower fan: HI (AUTO) • Outlet opening: FACE • Inlet opening: AUTO • Compressor: AUTO
		3) Turn the temperature control dial to the right slowly, and change the setting from 18°C (65°F) (maximum cool position) to 32°C (85°F).	• Outlet air temperature: COOL → HOT • Blower fan: AUTO • Outlet opening: FACE → B/L → FOOT • Inlet opening: AUTO • Compressor: AUTO
		4) Turn the temperature control dial to the right fully, and set to 32°C (85°F) (maximum hot position).	• Outlet air temperature: HOT • Blower fan: HI (AUTO) • Outlet opening: FOOT • Inlet opening: FRESH (AUTO) • Compressor: AUTO
3	Defroster switch	Press the defroster switch.	Defroster switch indicator illuminates. • Outlet air temperature: AUTO • Blower fan: 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 switch	Press the MODE switch.	Outlet opening switches FACE → B/L → FOOT → F/D each time pressing the switch.
6	FAN switch	Press the FAN switch (+).	Inlet opening switches LO → M1 → M2 → M3 → M4 → HI each time pressing the switch.

2) Compressor operation inspection

No.	Point to check	Switch operation	Judgment standard
1	Compressor	1) Turn the A/C switch to ON. 2) Set the FAN switch between LO and HI.	Compressor: ON

3) Inspection of illumination control

No.	Point to check	Switch operation	Judgment standard
1	Illumination	Turn the lighting switch to ON.	Illumination comes on.

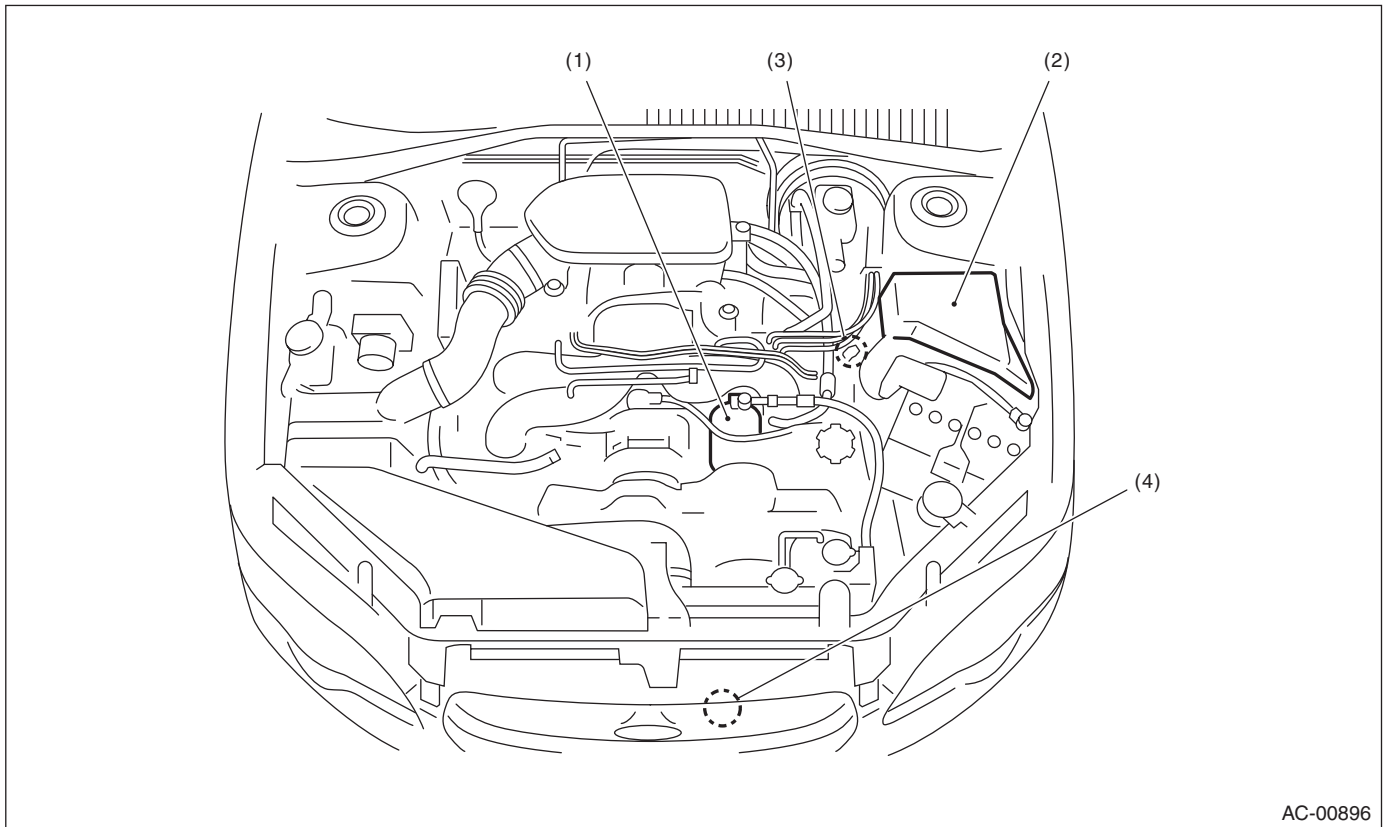
Electrical Component Location

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

3. Electrical Component Location

A: LOCATION

1. ENGINE COMPARTMENT

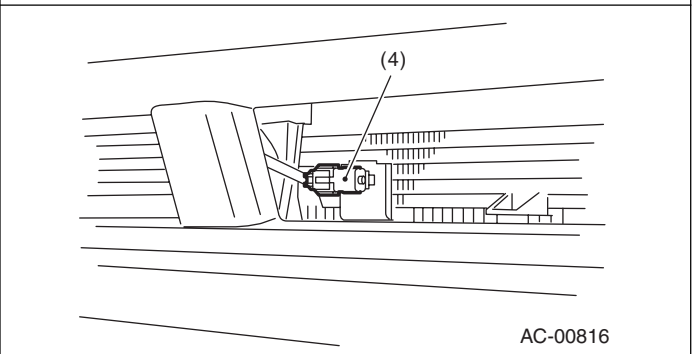
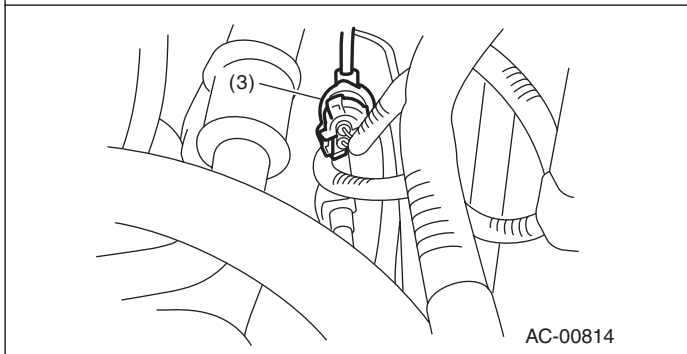
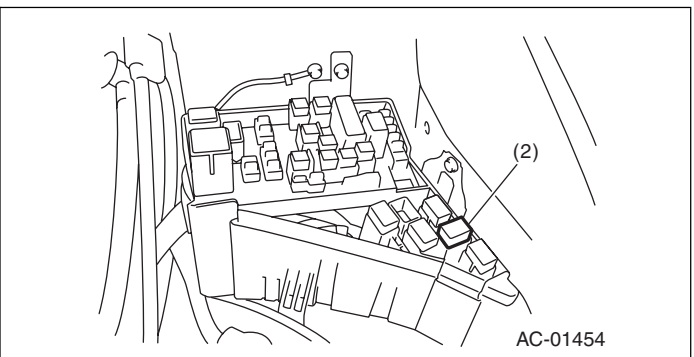
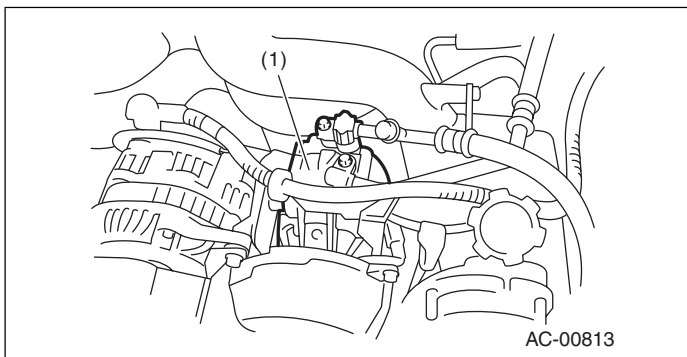


(1) A/C compressor

(3) Pressure switch

(4) Ambient sensor

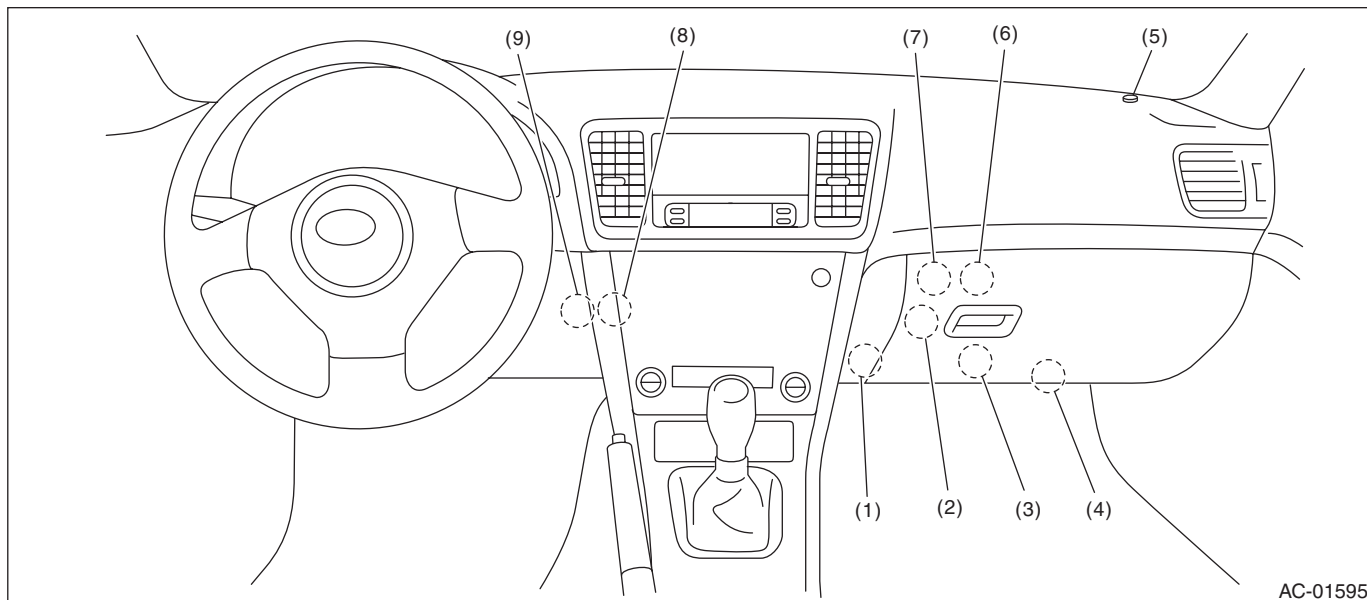
(2) A/C relay



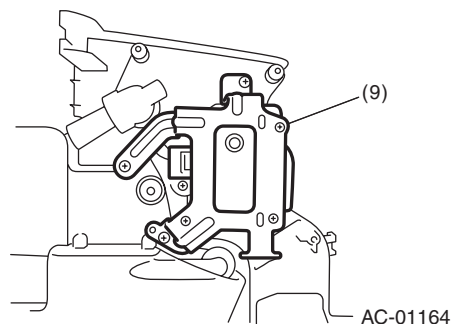
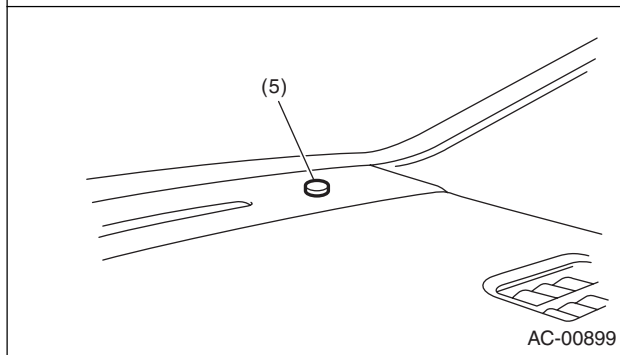
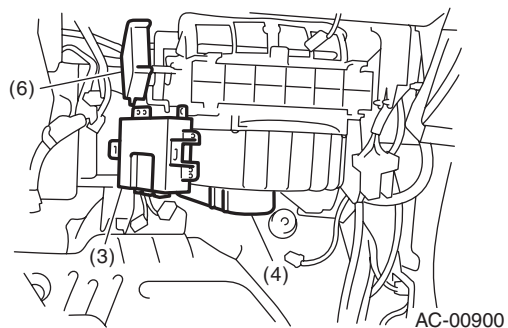
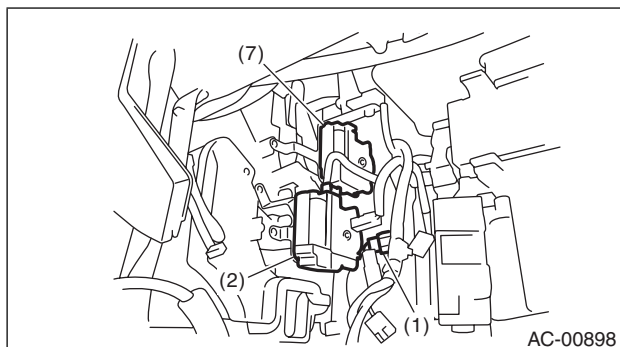
Electrical Component Location

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

2. PASSENGER COMPARTMENT

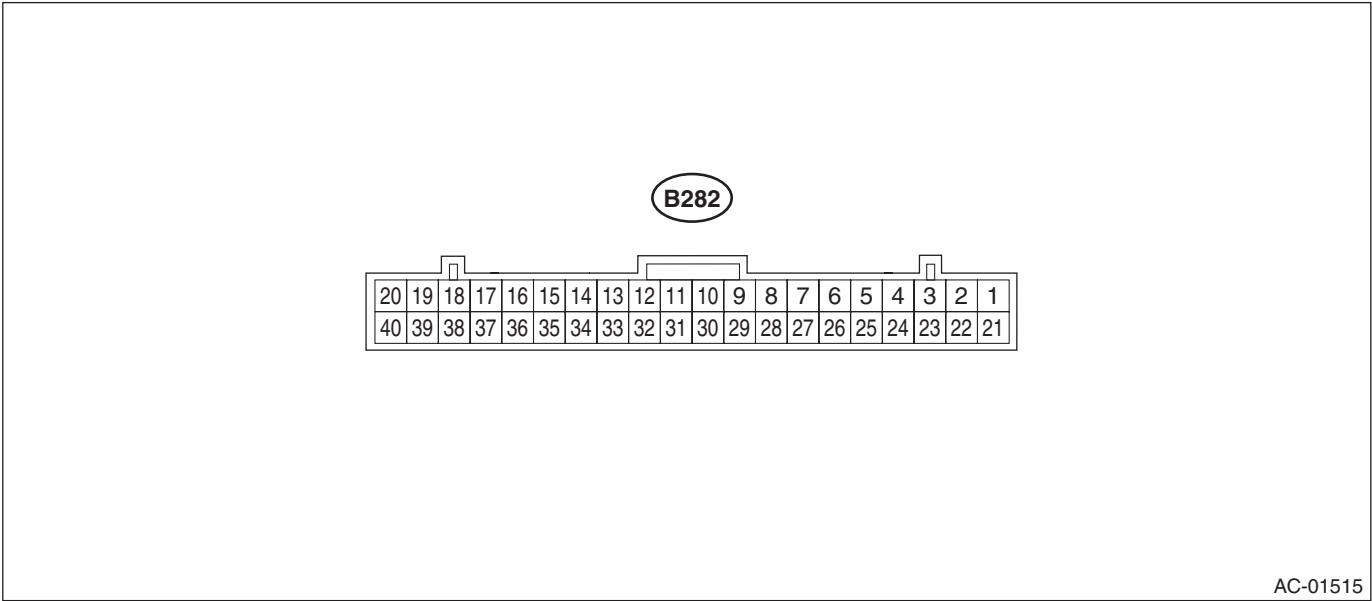


- | | | |
|--|--------------------------|---|
| (1) Evaporator sensor | (4) Blower motor | (7) Mode door actuator |
| (2) Passenger's side air mix door actuator | (5) Sunload sensor | (8) In-vehicle sensor |
| (3) Auto A/C control module | (6) Intake door actuator | (9) Driver's side air mix door actuator |



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

A: ELECTRICAL SPECIFICATION



AC-01515

Auto A/C Control Module I/O Signal

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Terminal No.	Remarks	Measuring condition	Standard
1	Battery power supply	Ignition switch: OFF	Battery voltage
3	Mode door actuator position signal	Mode door: FACE position	4 V
		Mode door: DEF position	1 V
4	Air mix door actuator (passenger's side) position signal	Air mix door: Maximum cool position	4 V
		Air mix door: Maximum hot position	1 V
5	In-vehicle sensor	Ignition switch: ON	25°C: 1 — 5 V 40°C: 1 — 5 V
6	Sunload sensor	Ignition switch: ON, With Sunload (No sunload: 0 V)	Sunlight: 3 V Indoor light: 3 V
8	Each potentiometer and sunload sensor power supply	Ignition switch: ON	5 V
9	CAN LO	—	*1
10	CAN HI	—	*1
11	Blower motor voltage feedback	Ignition switch : ON, Blower switch : ON	0.45 — 10 V
12	Blower motor control signal	Ignition switch : ON, Blower switch : ON	9.05 V
13	RAM monitor Tx	Outputs the RAM value when the terminal No. 33 (RAMver) is connected to GND.	*1
14	RAM monitor Rx		*1
15	Magnet clutch ON demand signal output sensor GND	Ignition switch: ON, Blower switch: ON, A/C switch: ON	HI: 5.5 V LO: 2.0 V
16	Mode servo drive signal	When the actuator is operating 16 (+) - 36 (-): rotate to the FACE side 16 (-) - 36 (+): rotate to the DEF side 16 - 36 short: brake	0 or 12 V
36			
17	Air mix door actuator (passenger's side) drive signal	When the actuator is operating 17 (+) - 37 (-): rotate to the COOL side 17 (-) - 37 (+): rotate to the HOT side 17 - 37 short: brake	0 or 12 V
37			
18	Air mix door actuator (driver's side)	When the actuator is operating 18 (+) - 38 (-): rotate to the COOL side 18 (-) - 38 (+): rotate to the HOT side 18 - 38 short: brake	0 or 12 V
38			
20	Intake door actuator drive signal	When the intake door actuator is operating	0.7 V or less
40			
21	Ignition power supply	Ignition switch: ON	Battery voltage
22	Pressure switch signal	Ignition switch: ON	Normal: ON Abnormal: OFF
24	Air mix door actuator (driver's side) position signal	Air mix door: Maximum cool position	4 V
		Air mix door: Maximum hot position	1 V
25	After-evaporator sensor signal	Changes by the temperature after the evaporator	1 — 4.5 V
26	VER switch signal (FOOT switch)	When switching FOOT	0 V
27	Sensor ground	Always	0 V
28	Control module GND	Always	0 V
32	Heater main relay drive signal	Ignition switch: ON	Battery voltage
33	RAM monitor ON signal	RAM monitor ON	0 V
34	Heater control panel communication	—	*1
35	Heater control panel communication	—	*1

*1: Unable to measure the voltage for digital signal.

B: WIRING DIAGRAM

1. AIR CONDITIONER AUTO A/C MODEL

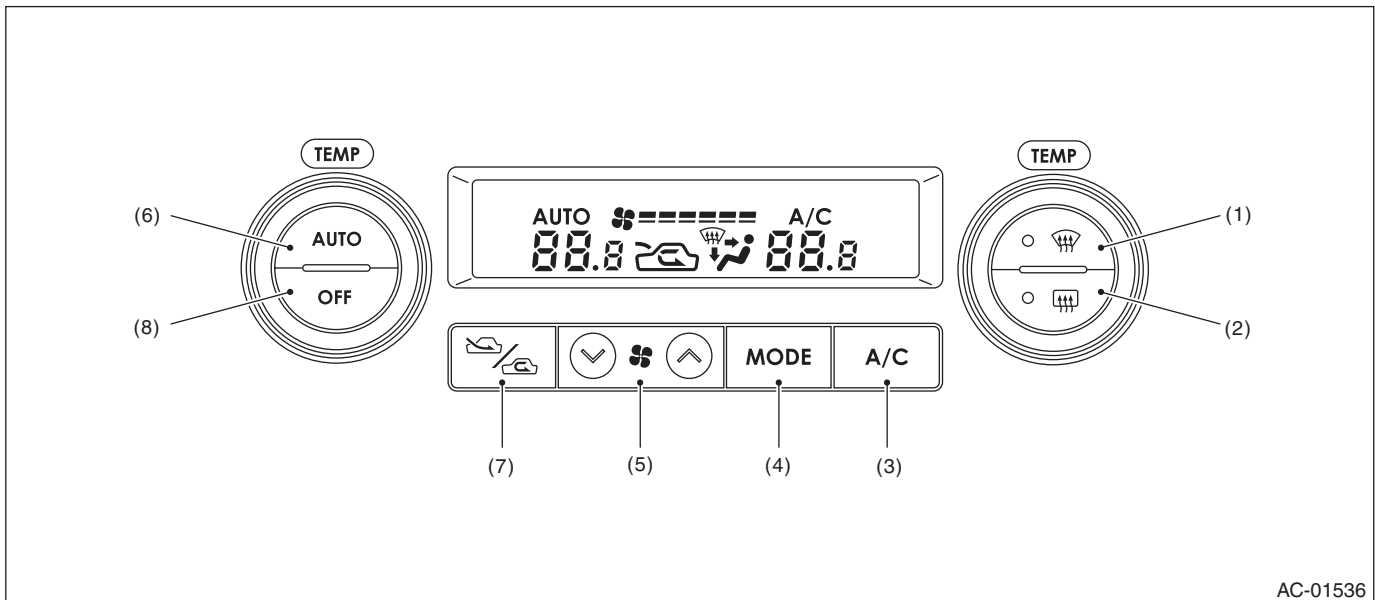
<Ref. to WI-140, WIRING DIAGRAM, Air Conditioning System.>

Diagnostic Chart for Self-diagnosis

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

5. Diagnostic Chart for Self-diagnosis

A: OPERATION



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

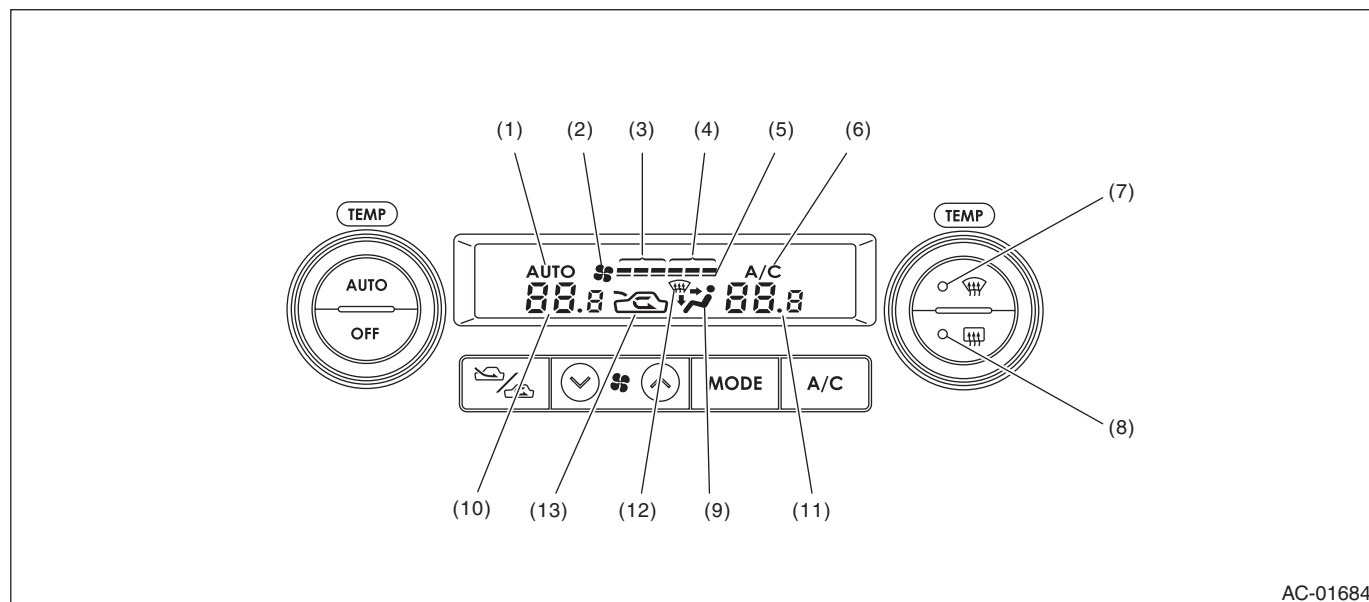
	Step	Check	Yes	No
1	PERFORM A/C CONTROL PANEL SELF-DIAGNOSIS FUNCTION. 1) Turn the ignition switch to OFF. 2) Turn the ignition switch to ON with the AUTO switch and MODE switch pressed at the same time. 3) All the screen display illuminate (for approx. 5 seconds) and the self-diagnosis mode starts.	Does the self-diagnosis function operate?	Go to step 2.	<Ref. to AC(diag)-14, A/C OR SELF-DIAGNOSIS SYSTEMS DO NOT OPERATE, Diagnostics for A/C System Malfunction.>
2	CHECK SCREEN DISPLAY. Check the illumination condition while the display is illuminated.	Does all the screen display and indicators illuminate?	Go to step 3.	Replace the A/C control panel.
3	CHECK SCREEN DISPLAY. After the illumination ends, check the display.	Are the numbers 11 — 14 displayed at the setting temperature display area?	Go to step 5.	Go to step 4.
4	CHECK SWITCH AND TEMPERATURE CONTROL DIAL INPUT. 1) Operate each switch or dial according to the switch check table. 2) Check the display or indicator illumination condition when operating the switch or dial. <Ref. to AC(diag)-11, SWITCH CHECK TABLE, OPERATION, Diagnostic Chart for Self-diagnosis.>	Does the input of each switch or dial correspond to the switch check list?	Go to step 5.	Replace the heater control panel.
5	CHECK A/C CONTROL PANEL COMMUNICATION. 1) Turn the ignition switch to OFF. 2) Disconnect the connector of the auto A/C control module. 3) Using a suitable lead wire, short the terminal No. 34 and No. 35 of auto A/C control module vehicle side connector (B282). 4) Turn the ignition switch to ON with the A/C switch and AUTO switch pressed at the same time. 5) Check the screen display when operating each switch and dial.	Is "CL" displayed on the screen when operating each switch and dial?	Go to step 6.	Go to step 7.
6	CHECK A/C CONTROL PANEL COMMUNICATION. 1) Turn the ignition switch to OFF. 2) Disconnect the lead wire used to short the terminals. 3) Turn the ignition switch to ON with the A/C switch and AUTO switch pressed at the same time. 4) Check the screen display when operating each switch and dial.	Is "OP" displayed on the screen when operating each switch and dial?	A/C control panel and body harness are normal.	Go to step 7.
7	CHECK HARNESS. 1) Turn the ignition switch to OFF. 2) Disconnect the A/C control panel connector (i88). 3) Measure the resistance between connectors with a tester. Connector & terminal (i88) No. 7 — (B282) No. 34: (i88) No. 3 — (B282) No. 35:	Is the resistance less than 10 Ω?	Go to step 8.	Repair the open circuit of the harness between A/C control panel and auto A/C control module.

Diagnostic Chart for Self-diagnosis

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
8 CHECK HARNESS. Measure the resistance between connectors with a tester. Connector & terminal (i88) No. 7 — No. 3:	Is the resistance less than 10 Ω?	Repair the short circuit of the harness between A/C control panel and auto A/C control module.	Replace the A/C control panel.

2. SWITCH CHECK TABLE



AC-01684

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	(9), (10), (12)
FRESH/RECIRC	(13)	Passenger's side temperature control dial	(9), (11), (12)
Defroster switch	(7), (12)	OFF switch	(2), (5)
Rear defogger switch	(8)		

Diagnostic Chart for Self-diagnosis

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

3. A/C CONTROL SYSTEM SELF-DIAGNOSIS

	Step	Check	Yes	No
1	SET SELF-DIAGNOSIS MODE BY OPERATING A/C CONTROL PANEL. 1) Start the engine with the A/C switch and front defroster switch pressed. NOTE: Self-diagnosis can also be performed with ignition switch ON, but start the engine because observing the magnet clutch operation is difficult. 2) All the indicators blink four times.	Does the self-diagnosis function operate?	Go to step 2.	<Ref. to AC(diag)-14, A/C OR SELF-DIAGNOSIS SYSTEMS DO NOT OPERATE, Diagnostics for A/C System Malfunction.>
2	CHECK EACH SENSOR AND POTENTIOMETER. 1) After the indicators stop blinking, automatically change to the Inspection Mode of sensor and potentiometer. NOTE: Display items can be changed each time the A/C switch is pressed. (Step Operation) 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. 3) Identify the defective sensor according to the sensor check table. <Ref. to AC(diag)-13, SENSOR CHECK TABLE, OPERATION, Diagnostic Chart for Self-diagnosis.>	Are other codes except "20" displayed?	Repair the defective sensor. <Ref. to AC(diag)-29, Diagnostic Procedure for Sensors.>	Go to step 3.
3	CHECK EACH ACTUATOR, BLOWER FAN AND MAGNET CLUTCH. 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. 2) Each mode will change and operate automatically every four seconds. NOTE: Operation mode items can be changed each time the A/C switch is pressed. (Step Operation) 3) Check the operation of actuator, blower fan and magnet clutch in each mode according to the operating mode table. <Ref. to AC(diag)-13, OPERATING MODE TABLE, OPERATION, Diagnostic Chart for Self-diagnosis.>	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)-14, Diagnostics for A/C System Malfunction.> or <Ref. to AC(diag)-22, 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
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	FOOT	50%	M1	ON
36	FRESH	FOOT	Maximum hot	M3	ON
37	FRESH	F/D	Maximum hot	M3	ON
38	FRESH	DEF	Maximum hot	HI	ON

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

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

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

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

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Diagnostics for A/C System Malfunction

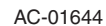
HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

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 from the 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. Connector & terminal (i88) No. 1 (+) — 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 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 (i88) No. 5 — Chassis ground:	Is 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. Connector & terminal (B282) No. 1 (+) — Chassis ground (-):	Is the voltage 10 V or more?	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 the ON position. Connector & terminal (B282) No. 21 (+) — Chassis ground (-):	Is the voltage 10 V or more?	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 GROUND CIRCUIT. Measure the resistance of harness between auto A/C control module and chassis ground. Connector & terminal (B282) No. 28 — Chassis ground:	Is resistance less than 5 Ω ?	Go to step 8.	Repair the harness for ground line.
8	CHECK COMMUNICATION CIRCUIT. Measure the resistance of harness between A/C control panel and auto A/C control module. Connector & terminal (i88) No. 3 — (B282) No. 35: (i88) No. 7 — (B282) No. 34:	Is the resistance less than 1 Ω ?	Go to step 9.	Repair the harness.
9	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.

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

TROUBLE SYMPTOM:

- ### WIRING DIAGRAM:



Diagnostics for A/C System Malfunction

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

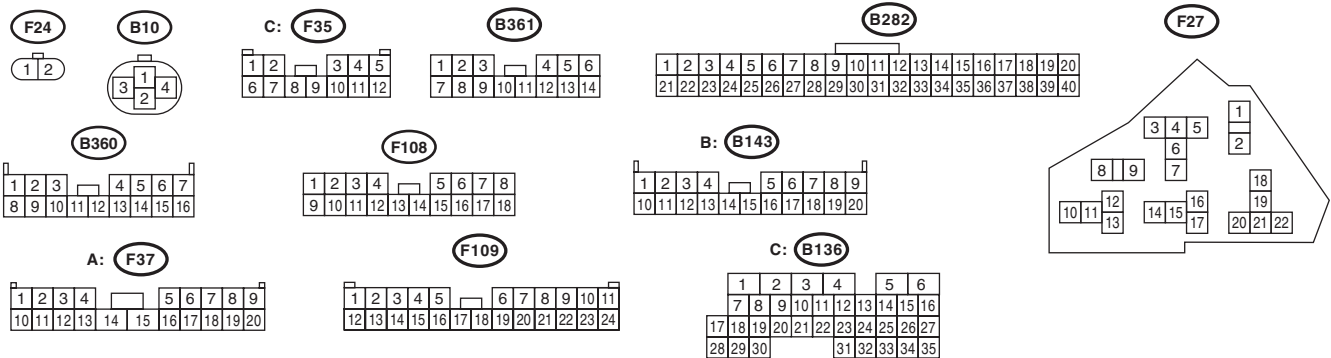
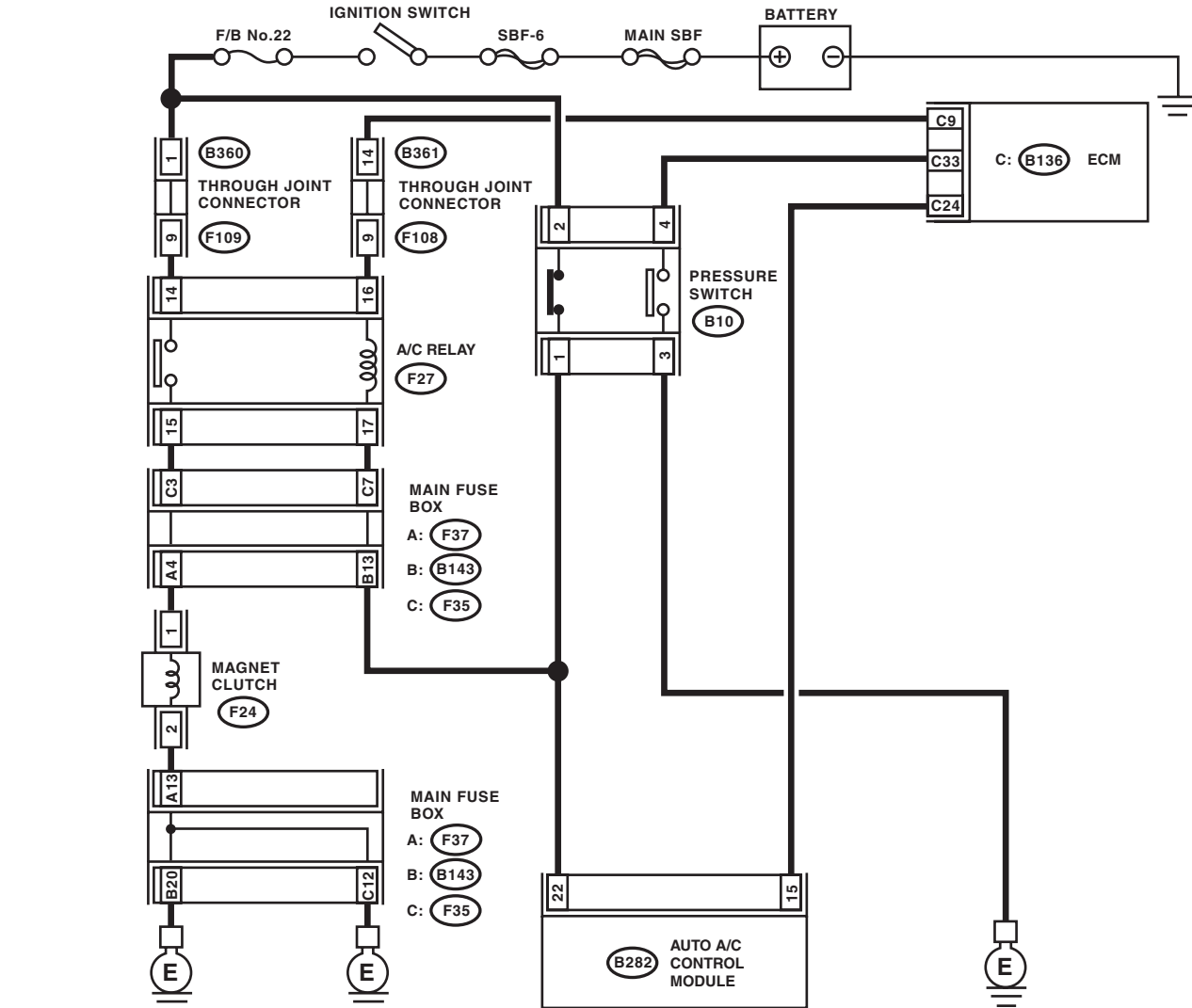
	Step	Check	Yes	No
1	CHECK FUSE. 1) Remove fuse No. 22, 27 and 28 from fuse & relay box. 2) Check the condition of fuse.	Is any fuse blown out?	Replace the fuse.	Go to step 2.
2	CHECK POWER SUPPLY FOR BLOWER MOTOR. 1) Turn the ignition switch to ON. 2) Turn the blower switch to ON. 3) Measure the voltage between blower motor and chassis ground. Connector & terminal (B87) No. 2 (+) — Chassis ground (-):	Is the voltage 10 V or more?	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. 23 of blower motor relay, and negative (-) terminal to terminal No. 24. 4) Measure the resistance between terminals No. 21 and No. 22. Terminals (B225) No. 21 — (B225) No. 22:	Is resistance less than 1 Ω ?	Go to step 4.	Replace the blower motor relay.
4	CHECK BLOWER MOTOR. 1) Disconnect the connector from the 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.
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.

Diagnostics for A/C System Malfunction

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

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

WIRING DIAGRAM:



AC-01683

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. 22 from fuse & relay box. 3) Check the condition of fuse.	Is the fuse blown out?	Replace the fuse.	Go to step 2.
2 CHECK POWER SUPPLY TO A/C RELAY AND AUTO A/C CONTROL MODULE. 1) Disconnect the A/C relay and auto A/C control module harness connector. 2) Turn the ignition switch to ON. 3) Measure the voltage between A/C relay connector terminal and chassis ground. 4) Measure the voltage between auto A/C control module harness connector terminal and chassis ground. Connector & terminal (F27) No. 17 (+) — Chassis ground (-): (B282) No. 22 (+) — Chassis ground (-):	Is the voltage 10 V or more?	Go to step 5.	Go to step 3.
3 CHECK POWER SUPPLY FOR PRESSURE SWITCH. 1) Turn the ignition switch to OFF. 2) Disconnect the pressure switch harness connector. 3) Turn the ignition switch to ON. 4) Measure the voltage between pressure switch harness connector terminal and chassis ground. Connector & terminal (B10) No. 2 (+) — Chassis ground (-):	Is the voltage 10 V or more?	Go to step 4.	Check for open or short circuit in the harness between fuse and pressure switch.
4 CHECK HARNESS BETWEEN PRESSURE SWITCH AND A/C RELAY, AUTO A/C CONTROL MODULE. 1) Turn the ignition switch to OFF. 2) Measure the resistance of harness between pressure switch connector and A/C relay connector. 3) Measure the resistance of harness between pressure switch connector and auto A/C control module connector. Connector & terminal (B10) No. 1 — (F27) No. 17: (B10) No. 1 — (B282) No. 22:	Is the resistance less than 1 Ω ?	Check the pressure switch. <Ref. to AC-41, INSPECTION, Pressure Switch (Triple Pressure Switch).>	Repair the harness.
5 CHECK POWER SUPPLY FOR A/C RELAY. Measure the voltage between A/C relay connector terminal and chassis ground. Connector & terminal (F27) No. 14 (+) — Chassis ground (-):	Is the voltage 10 V or more?	Go to step 6.	Check open or short circuit of harness between fuse and A/C relay.
6 CHECK A/C RELAY. Check the A/C relay. <Ref. to AC-40, INSPECTION, Relay and Fuse.>	Is there a malfunction in the A/C relay?	Replace the A/C relay.	Go to step 7.

Diagnostics for A/C System Malfunction

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
7 CHECK A/C ON SIGNAL. 1) Turn the ignition switch to OFF. 2) Connect the A/C relay and all disconnected connectors. 3) Start the engine and turn the AUTO switch to ON. 4) Turn the temperature control dial at maximum cool position. 5) Measure the voltage between auto A/C control module harness connector terminal and chassis ground. Connector & terminal (B282) No. 15 (+) — Chassis ground (-):	Is the voltage 5.5 V or more?	Go to step 9.	Go to step 8.
8 CHECK HARNESS BETWEEN AUTO A/C CONTROL MODULE AND ECM. 1) Turn the ignition switch to OFF. 2) Disconnect the harness connector of auto A/C control module and ECM. 3) Measure the resistance of harness between auto A/C control module connector and ECM connector. Connector & terminal (B282) No. 15 — (B136) No. 24:	Is the resistance less than 1 Ω ?	Replace the auto A/C control module.	Repair the harness.
9 CHECK MAGNET CLUTCH ON SIGNAL. 1) Stop the engine, and turn the AUTO switch to OFF. 2) Turn the ignition switch to ON. 3) Measure the voltage between ECM connector terminal and chassis ground. Connector & terminal (B136) No. 9 (+) — Chassis ground (-):	Is the voltage 10 V or more?	Go to step 10.	Check for open or short circuit in the harness between A/C relay and ECM.
10 CHECK MAGNET CLUTCH ON SIGNAL. 1) Start the engine and turn the AUTO switch to ON. 2) Turn the temperature control dial at maximum cool position. 3) Measure the voltage between ECM connector terminal and chassis ground. Connector & terminal (B136) No. 9 (+) — Chassis ground (-):	Is the voltage 0 V?	Go to step 11.	Replace the ECM.
11 CHECK POWER SUPPLY FOR MAGNET CLUTCH. 1) Stop the engine, and turn the AUTO switch to OFF. 2) Disconnect the harness connector of magnet clutch. 3) Start the engine and turn the AUTO switch to ON. 4) Turn the temperature control dial at maximum cool position. 5) Measure the voltage between magnet clutch harness connector terminal and chassis ground. Connector & terminal (F24) No. 1 (+) — Chassis ground (-):	Is the voltage 10 V or more?	Go to step 12.	Check for open or short circuit in the harness between A/C relay and magnet clutch.

Diagnostics for A/C System Malfunction

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
12 CHECK HARNESS BETWEEN AUTO A/C CONTROL MODULE AND ECM. 1) Stop the engine, and turn the AUTO switch to OFF. 2) Measure the resistance between magnet clutch harness connector terminal and chassis ground. Connector & terminal (F24) No. 2 — Chassis ground:	Is the resistance less than 1 Ω ?	Inspect the compressor. <Ref. to AC-35, INSPECTION, Compressor.>	Repair the harness.

Diagnostic Procedure for Actuators

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

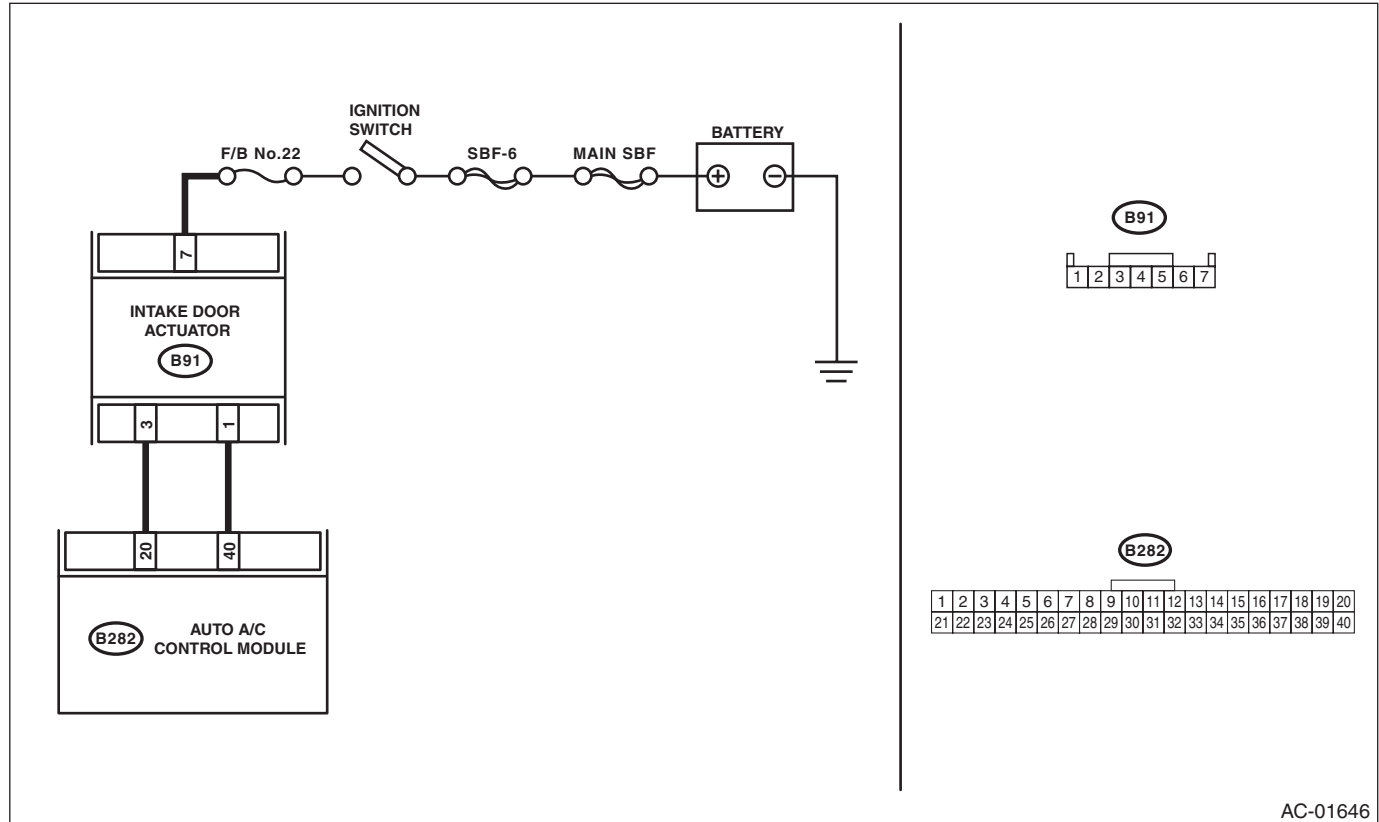
7. Diagnostic Procedure for Actuators

A: INTAKE DOOR ACTUATOR

TROUBLE SYMPTOM:

FRESH/RECIRC mode is not changed.

WIRING DIAGRAM:



AC-01646

Diagnostic Procedure for Actuators

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

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. 7 (+) — Chassis ground (-):	Is the voltage 7 V (at normal temperature)?	Go to step 2.	Check for open or short circuit in the 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 (B282) No. 20 — (B91) No. 3: (B282) No. 40 — (B91) No. 1:	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 (B282) No. 20 — Chassis ground:	Does the actuator move to the 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: (B282) No. 40 — Chassis ground:	Does the actuator move to the RECIRC side?	Replace the auto A/C control module.	Replace the intake door actuator.

Diagnostic Procedure for Actuators

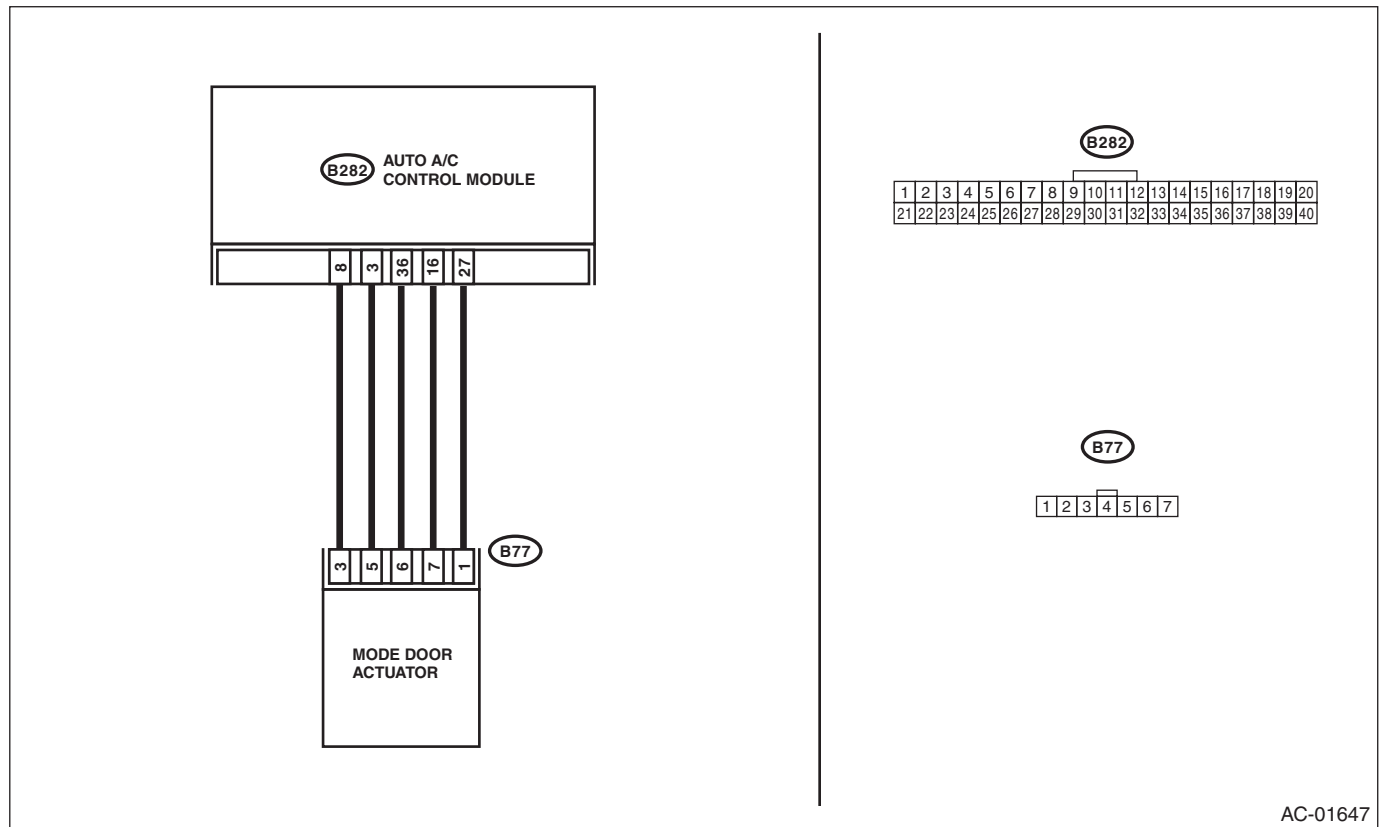
HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

B: MODE DOOR ACTUATOR

TROUBLE SYMPTOM:

Air flow outlet is not changed.

WIRING DIAGRAM:



Diagnostic Procedure for Actuators

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK POWER SUPPLY FOR MODE DOOR ACTUATOR POSITION SENSOR. 1) Turn the ignition switch to OFF. 2) Disconnect the mode 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 (B282) No. 8 (+) — (B282) No. 27 (-):	Is the voltage approx. 5 V?	Go to step 2.	Replace the auto A/C control module.
2 CHECK POWER SUPPLY FOR MODE DOOR ACTUATOR. Measure the voltage between auto A/C control module connector and chassis ground after turning the air flow control switch to FACE position. Connector & terminal (B282) No. 16 (+) — 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 MODE DOOR ACTUATOR. Measure the voltage between auto A/C control module connector and chassis ground after turning the air flow control switch to DEF position. Connector & terminal (B282) No. 36 (+) — 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 MODE 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 mode door actuator connector. Connector & terminal (B77) No. 1 — (B282) No. 27: (B77) No. 3 — (B282) No. 8: (B77) No. 5 — (B282) No. 3: (B77) No. 6 — (B282) No. 36: (B77) No. 7 — (B282) No. 16:	Is the resistance less than 1 Ω ?	Go to step 5.	Repair the harness between auto A/C control module and mode door actuator.
5 CHECK MODE DOOR ACTUATOR POSITION SWITCH SIGNAL. 1) Connect the connector of auto A/C control module and mode 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 mode between DEF and FACE. Connector & terminal (B282) No. 3 (+) — (B282) No. 27 (-):	Does the voltage change between 1 V (DEF) and 4 V (FACE)?	Go to step 6.	Replace the mode door actuator.
6 CHECK POOR CONTACT. Check poor contact of auto A/C control module and connector.	Is there poor contact in connector?	Repair the connector.	Replace the auto A/C control module.

Diagnostic Procedure for Actuators

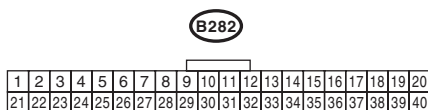
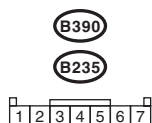
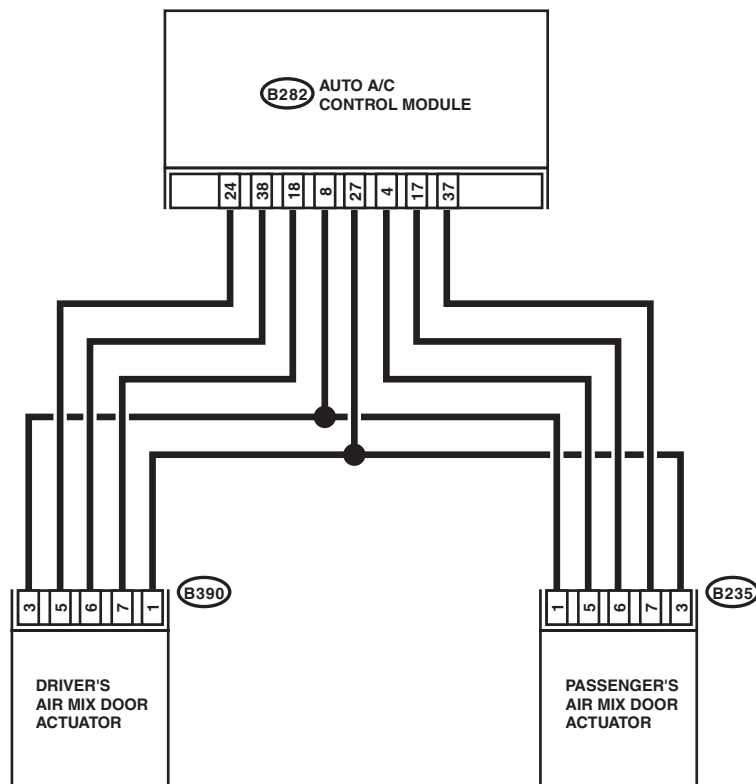
HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

C: AIR MIX DOOR ACTUATOR

TROUBLE SYMPTOM:

Outlet air temperature does not change.

WIRING DIAGRAM:



AC-01648

Diagnostic Procedure for Actuators

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

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 (B282) No. 8 (+) — (B282) No. 27 (-):	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 Driver's side (B282) No. 18 (+) — Chassis ground (-): Passenger's side (B282) No. 17 (+) — 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 Driver's side (B282) No. 38 (+) — Chassis ground (-): Passenger's side (B282) No. 37 (+) — 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 Driver's side (B390) No. 1 — (B282) No. 27: (B390) No. 3 — (B282) No. 8: (B390) No. 5 — (B282) No. 24: (B390) No. 6 — (B282) No. 38: (B390) No. 7 — (B282) No. 18: Passenger's side (B235) No. 1 — (B282) No. 8: (B235) No. 3 — (B282) No. 27: (B235) No. 5 — (B282) No. 4: (B235) No. 6 — (B282) No. 17: (B235) No. 7 — (B282) No. 37:	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.

Diagnostic Procedure for Actuators

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

	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 Driver's side (B282) No. 24 (+) — (B282) No. 27 (-): Passenger's side (B282) No. 4 (+) — (B282) No. 27 (-):	Does the voltage change between 1 V (Max. HOT) and 4 V (Max. COOL)?	Go to step 6.	Replace the air mix door actuator.
6	CHECK POOR CONTACT. Check poor contact of auto A/C control module and connector.	Is there poor contact in connector?	Repair the connector.	Replace the auto A/C control module.

Diagnostic Procedure for Sensors

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

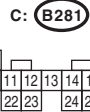
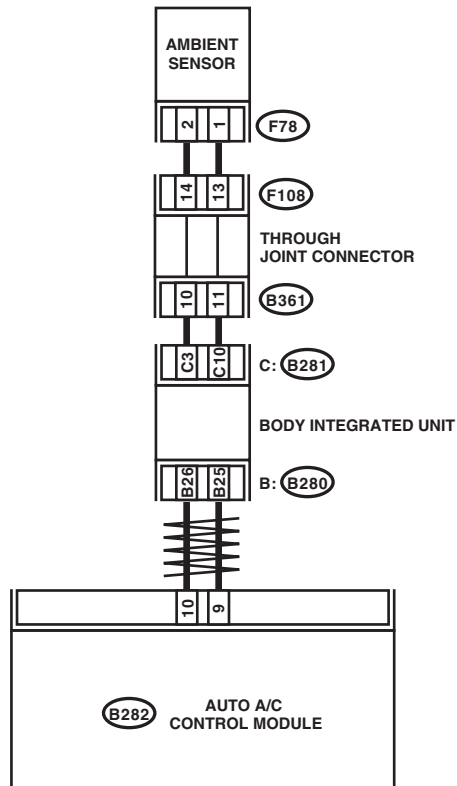
8. Diagnostic Procedure for Sensors

A: AMBIENT SENSOR

TROUBLE SYMPTOM:

Fan speed is not switched when the fan speed control dial is in AUTO position.

WIRING DIAGRAM:



AC-01652

Diagnostic Procedure for Sensors

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step		Check	Yes	No
1	CHECK AMBIENT SENSOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ambient sensor. 3) Measure the resistance between connector terminals of ambient sensor. Terminals No. 1 — No. 2:	Is the resistance approximately 2.2 k Ω at 25°C (77°F)?	Go to step 2.	Replace the ambient sensor.
2	CHECK INPUT SIGNAL FOR AMBIENT SENSOR. 1) Turn the ignition to ON. 2) Measure the voltage between connector (F78) terminals. Connector & terminal (F78) No. 1 (+) — No. 2 (-):	Is the voltage approx. 5 V?	Go to step 6.	Go to step 3.
3	CHECK OUTPUT SIGNAL OF BODY INTEGRATED UNIT. 1) Turn the ignition switch to OFF. 2) Draw out the body integrated unit. 3) Disconnect the connector from ambient sensor. 4) Turn the ignition switch to ON. 5) Measure the voltage between connector terminals of body integrated unit. Connector & terminal (B281) No. 3 (+) — No. 10 (-):	Is the voltage approx. 5 V?	Go to step 4.	Go to step 6.
4	CHECK HARNESS CONNECTOR BETWEEN BODY INTEGRATED UNIT AND AMBIENT SENSOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from body integrated unit. 3) Measure the resistance of harness between body integrated unit and ambient sensor. Connector & terminal (F78) No. 1 — (B281) No. 10:	Is the resistance less than 1 Ω ?	Go to step 5.	Repair the open circuit of harness between body integrated unit and ambient sensor.
5	CHECK HARNESS CONNECTOR BETWEEN BODY INTEGRATED UNIT AND AMBIENT SENSOR. Measure the resistance of harness between body integrated unit and ambient sensor. Connector & terminal (F78) No. 2 — (B281) No. 3:	Is the resistance less than 1 Ω ?	Go to step 6.	Repair the open circuit of harness between body integrated unit and ambient sensor.
6	CHECK DTC. 1) Connect the connectors of body integrated unit and ambient sensor as originally connected. 2) Read the DTC of body integrated unit using Subaru Select Monitor.	Is DTC "U xxx" of CAN communication displayed?	Check the communication circuit. <Ref. to LAN(diag)-2, Basic Diagnostic Procedure.>	Go to step 7.
7	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.

Diagnostic Procedure for Sensors

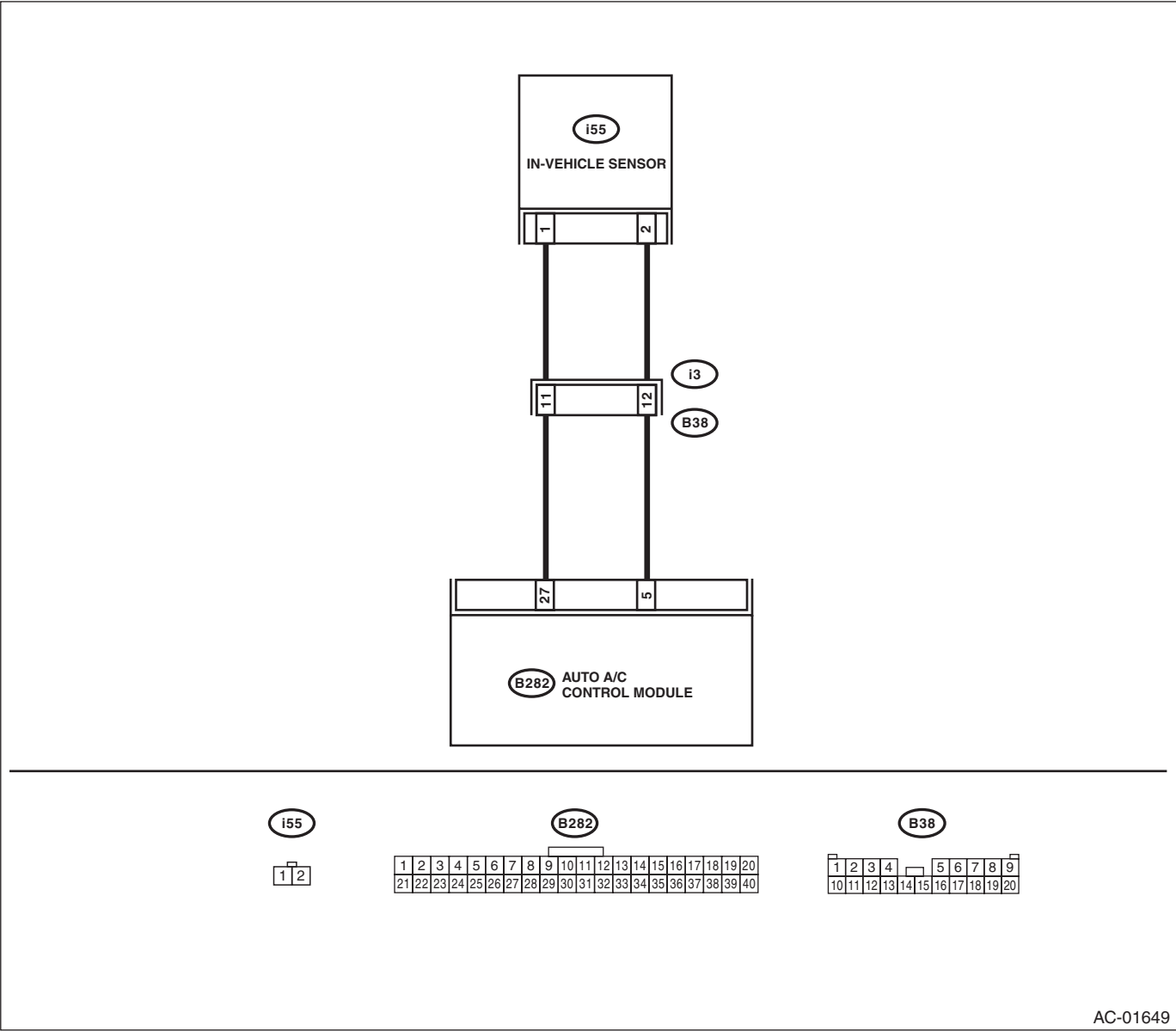
HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

B: IN-VEHICLE SENSOR

TROUBLE SYMPTOM:

Blower fan speed, outlet port and inlet port do not change after turning the AUTO switch to ON

WIRING DIAGRAM:



Diagnostic Procedure for Sensors

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

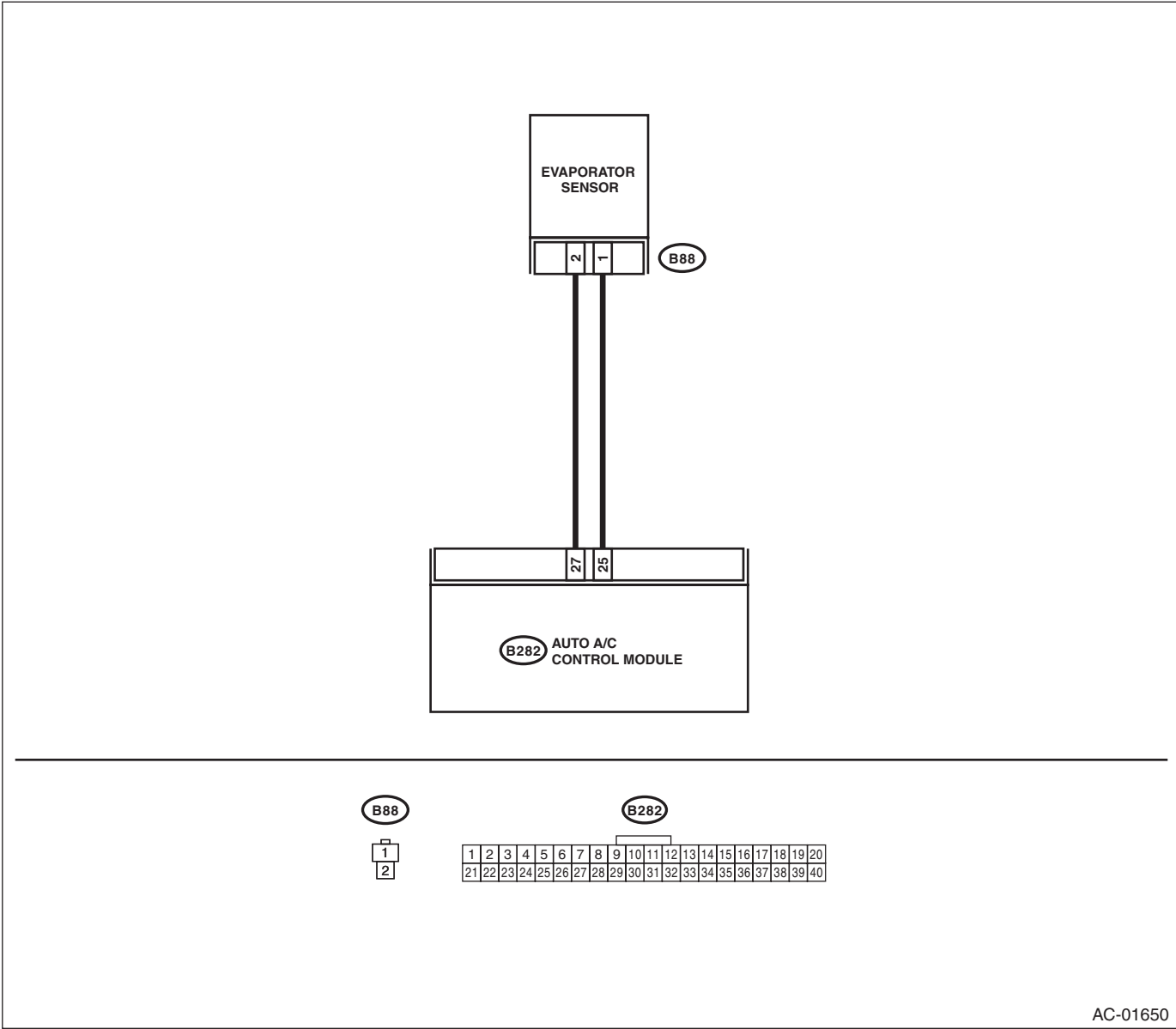
	Step	Check	Yes	No
1	CHECK IN-VEHICLE SENSOR. 1) Turn the ignition switch to OFF. 2) Remove the driver's side lower cover. 3) Disconnect the connector from in-vehicle sensor. 4) Measure the resistance between connector terminals of in-vehicle sensor. Terminals No. 1 — No. 2:	Is the resistance approximately 2.7 k Ω 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 (i55) No. 2 (+) — No. 1 (-):	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 (B282) No. 5 (+) — (B282) No. 27 (-):	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 the auto A/C control module. 3) Measure the resistance of harness between auto A/C control module and in-vehicle sensor. Connector & terminal (i55) No. 2 — (B282) No. 5:	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 of harness between auto A/C control module and in-vehicle sensor. Connector & terminal (i55) No. 1 — (B282) No. 27:	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 of auto A/C control module connector.	Is there poor contact in connector?	Repair the connector.	Replace the auto A/C control module.

Diagnostic Procedure for Sensors

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

C: EVAPORATOR SENSOR

WIRING DIAGRAM:



AC-01650

Diagnostic Procedure for Sensors

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

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 the evaporator sensor. Terminals No. 1 — No. 2:	Is the resistance approximately 3.3 k Ω 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 (B88) terminal and chassis ground. Connector & terminal (B88) No. 1 (+) — No. 2 (-):	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 (B282) No. 25 (+) — No. 27 (-):	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 the auto A/C control module. 3) Measure the resistance of harness between auto A/C control module and evaporator sensor. Connector & terminal (B88) No. 2 — (B282) No. 27:	Is the resistance less than 1 Ω ?	Go to step 5.	Repair the open circuit of 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 of harness between auto A/C control module and evaporator sensor. Connector & terminal (B88) No. 1 — (B282) No. 25:	Is the resistance less than 1 Ω ?	Go to step 6.	Repair the open circuit of harness between auto A/C control module and evaporator sensor.
6 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.

Diagnostic Procedure for Sensors

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

D: SUNLOAD SENSOR

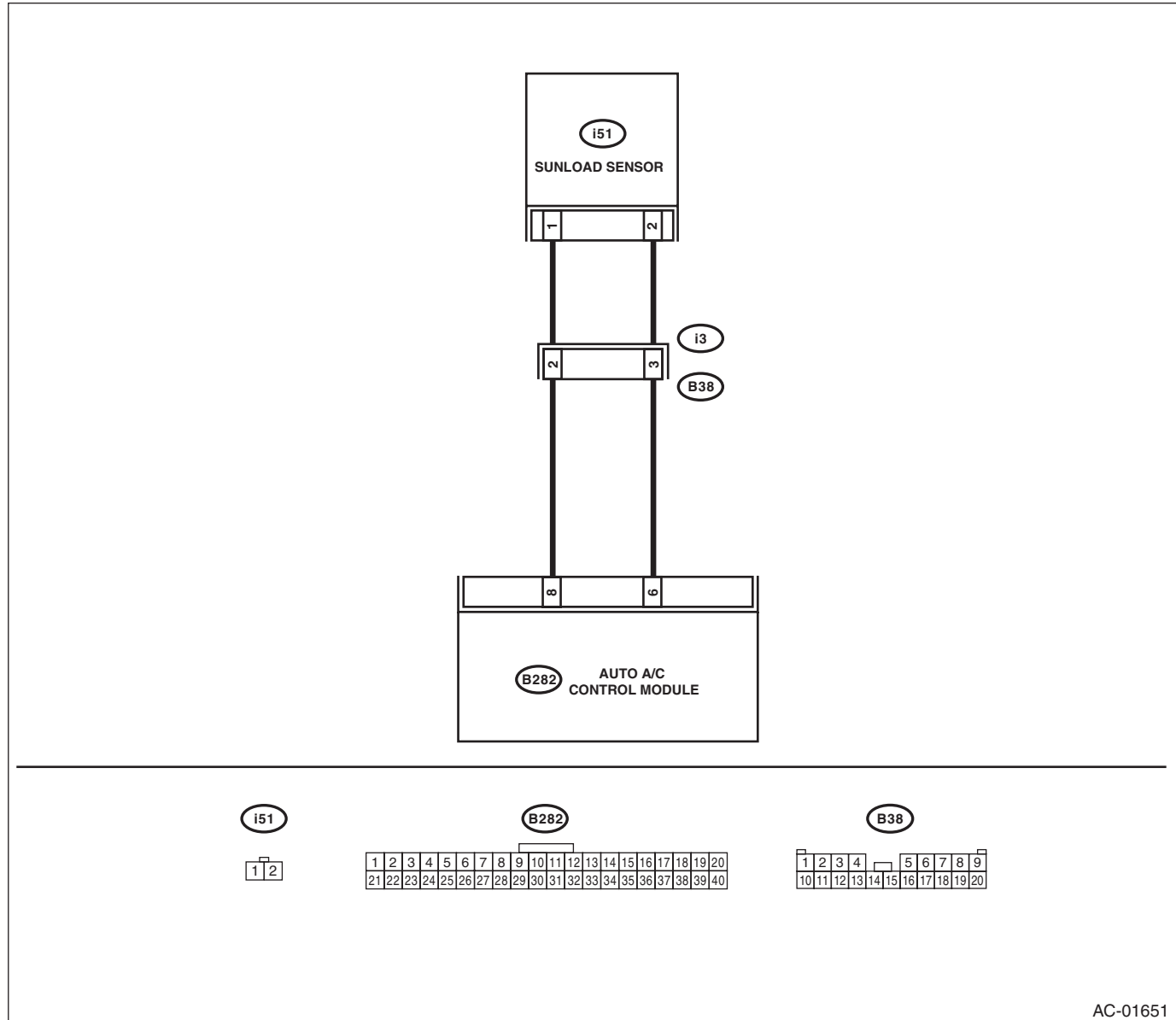
TROUBLE SYMPTOM:

- 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 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.

WIRING DIAGRAM:



Diagnostic Procedure for Sensors

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

	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. 1 (+) — No. 2 (-):	Is the voltage approx. 5 V?	Go to step 4.	Go to step 2.
2	CHECK HARNESS CONNECTOR BETWEEN AUTO A/C CONTROL MODULE AND SUNLOAD SENSOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from the auto A/C control module. 3) Measure the resistance of the harness between the auto A/C control module and sunload sensor. Connector & terminal (i51) No. 2 — (B282) No. 6:	Is the resistance less than 1 Ω ?	Go to step 3.	Repair the harness between auto A/C control module and sunload sensor.
3	CHECK HARNESS CONNECTOR BETWEEN AUTO A/C CONTROL MODULE AND SUNLOAD SENSOR. Measure the resistance of the harness between the auto A/C control module and sunload sensor. Connector & terminal (i51) No. 1 — (B282) No. 8:	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 INPUT VOLTAGE FOR AUTO A/C CONTROL MODULE. 1) Connect the connectors of sunload sensor and 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 (B282) No. 8 (+) — (B282) No. 6 (-):	Is the voltage approx. 2.5 V?	Go to step 5.	Replace the sunload sensor.
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.

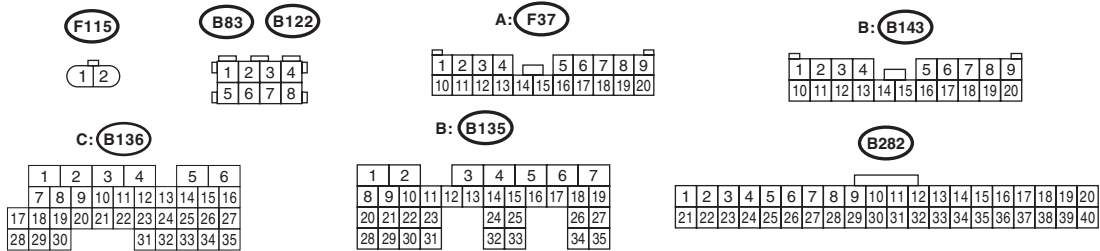
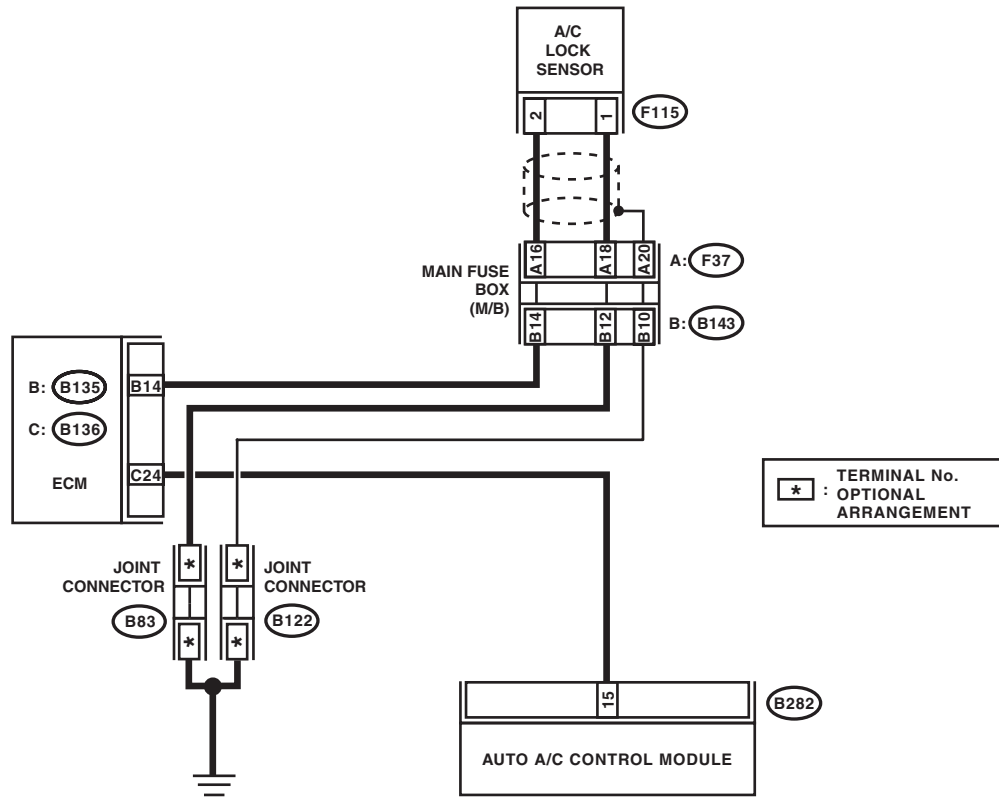
Diagnostic Procedure for Sensors

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

E: A/C LOCK SENSOR

H6 model

WIRING DIAGRAM:



AC-01653

Diagnostic Procedure for Sensors

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK A/C LOCK SENSOR SIGNAL. 1) Turn the ignition switch to OFF. 2) Connect the Subaru Select Monitor to the data link connector. 3) Start the engine and turn the A/C switch to ON. 4) Read the data of A/C lock signal using Subaru Select Monitor. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H6DO)(diag)-36, READ CURRENT DATA FOR ENGINE (NORMAL MODE), OPERATION, Subaru Select Monitor.>	Is the A/C lock signal switch ON?	Go to step 4.	Go to step 2.
2 CHECK A/C LOCK SENSOR SIGNAL. 1) Start the engine and turn the A/C switch to ON. 2) Measure the voltage between auto A/C control module harness connector and chassis ground. Connector & terminal (B282) No. 15 (+) — Chassis ground (-):	Is the voltage 7 — 14 V?	Replace the auto A/C control module.	Go to step 3.
3 CHECK ECM. Measure the voltage between ECM and chassis ground. Connector & terminal (B136) No. 24 (+) — Chassis ground (-):	Is the voltage 7 — 14 V?	Repair the harness between the ECM and the auto A/C control module connector.	Replace the ECM.
4 CHECK A/C LOCK SENSOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM. 3) Measure the resistance between ECM connector and chassis ground. Connector & terminal (B135) No. 14 — Chassis ground:	Is the resistance between 240 — 290 Ω ?	Replace the ECM.	Go to step 5.
5 CHECK A/C LOCK SENSOR. 1) Turn the ignition switch to OFF. 2) Disconnect the main fuse box harness connector. 3) Measure the resistance between main fuse box terminal. Connector & terminal (F37) No. 16 — No. 18:	Is the resistance between 240 — 290 Ω ?	Go to step 7.	Go to step 6.
6 CHECK A/C LOCK SENSOR. 1) Turn the ignition switch to OFF. 2) Disconnect the A/C lock sensor connector. 3) Measure the resistance between A/C lock sensor terminals. Connector & terminal (F115) No. 1 — No. 2:	Is the resistance between 240 — 290 Ω ?	Repair or Replace the harness between A/C lock sensor and main fuse box.	Replace the A/C compressor assembly. (A/C lock switch malfunction)
7 CHECK MAIN FUSE BOX. 1) Turn the ignition switch to OFF. 2) Disconnect the connector and then measure the resistance between main fuse box terminal. Connector & terminal (F37) No. 16 — (B143) No. 12: (F37) No. 18 — (B143) No. 14:	Is the resistance less than 10 Ω ?	Repair or Replace the harness between A/C lock sensor and main fuse box.	Replace the main fuse box.

9. Diagnostics with Phenomenon

A: INSPECTION

Symptom	Problem parts
A/C system fails to operate.	<ul style="list-style-type: none"> • Fuse (M/B No. 8, F/B No. 22, 31) • 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.	<ul style="list-style-type: none"> • Fuse (M/B No. 8, F/B No. 22, 31) • Connector (Poor contact)
Illumination cannot dim.	<ul style="list-style-type: none"> • Fuse (M/B No. 8, F/B No. 22, 31) • Connector (Poor contact) • Auto A/C control module • Body integrated unit
Blower fan does not rotate or fan speed cannot be controlled.	<ul style="list-style-type: none"> • Fuse (F/B No. 22, 27, 28) • Connector (Poor contact) • Ground • Auto A/C control module • Blower fan motor • Blower fan relay
Unable to switch suction vents.	<ul style="list-style-type: none"> • Connector (Poor contact) • Auto A/C control module • Intake door actuator
Unable to switch vents.	<ul style="list-style-type: none"> • Connector (Poor contact) • Auto A/C control module • Mode door actuator
The compartment temperature does not rise. (Warm air does not come out.)	<ul style="list-style-type: none"> • 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
The compartment temperature does not lower. (Cold air does not come out.)	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • Radiator fan motor • Radiator fan relay

Diagnostics with Phenomenon

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)
