

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

AC

	Page
1. General Description	2
2. Air Conditioning System	21
3. Refrigerant Pressure with Manifold Gauge Set	22
4. Refrigerant Recovery Procedure	26
5. Refrigerant Charging Procedure	27
6. Refrigerant Leak Check	30
7. Relay and Fuse	32
8. Compressor Oil	34
9. Blower Motor Unit Assembly	35
10. Blower Motor	37
11. Power Transistor (Auto A/C Model)	39
12. Blower Resistor (Manual A/C Model)	40
13. Heater Core	42
14. Control Panel	48
15. Compressor	52
16. Condenser	55
17. Heater and Cooling Unit	58
18. Evaporator	62
19. Expansion Valve	68
20. Hose and Pipe	70
21. Pressure Switch (Triple Pressure Switch)	71
22. Ambient Sensor	72
23. Sunload Sensor (Auto A/C Model)	74
24. In-Vehicle Sensor (Auto A/C Model)	76
25. Evaporator Sensor	80
26. FRESH/RECIRC Door Actuator	83
27. Mode Door Actuator	88
28. Air Mix Door Actuator	90
29. Air Vent Grille	92
30. Heater Duct	95
31. Heater Vent Duct	96
32. A/C Filter	97
33. Diagnostics with Phenomenon	98



General Description

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

1. General Description

A: SPECIFICATION

1. HEATER SYSTEM

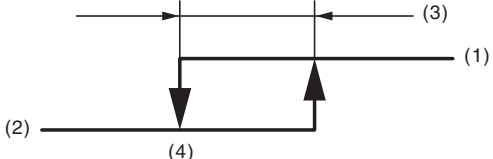
Item		Specifications	Condition
Heating capacity		5.0 kW (4,299 kcal/h, 17,059 BTU/h) or more	- Air flow control dial or switch: FOOT - Temperature control dial: HI (MAX HOT) - Temperature difference between hot water and inlet air: 65°C (149°F) - Hot water flow rate: 360 L (95.1 US gal, 79.2 Imp gal)/h
Air flow rate		290 m ³ (10,243 cu ft)/h	FOOT mode (FRESH), MAX HOT at 12.5 V
Max air flow rate		480 m ³ (16,954 cu ft)/h	- Temperature control dial: LO (MAX COOL) - Fan dial: HI (MAX) - Auto A/C model: 7th position - Manual A/C model: 4th position - FRESH/RECIRC switch: RECIRC
Heater core	Dimensions (W × H × T)	257.5 × 118.5 × 27 mm (10.1 × 4.67 × 1.06 in)	—
Blower motor	Type	Magnet motor 300 W or less	12 V
	Fan type and size (diameter × width)	Sirocco fan type 150 × 75 mm (5.91 × 2.95 in)	—

2. A/C SYSTEM

Item		Specifications
Type of air conditioner		Reheat air-mix type
Cooling capacity		5.0 kW (4,299 kcal/h, 17,059 BTU/h)
Refrigerant		HFC-134a (CH ₂ FCF ₃) [0.475±0.025 kg (1.05±0.06 lb)]
Compressor	Type	Rotary fixed capacity (DKV-10Z)
	Discharge	105 cc (6.41 cu in)/rev
	Max. permissible speed	7,700 rpm
Magnet clutch	Type	Dry, single-disc type
	Power consumption	41.2 W
	Type of belt	V-belt 6 PK
	Pulley dia. (effective dia.)	110 mm (4.33 in)
	Pulley ratio	1.3
Condenser	Type	Sub cool type
	Core face area	0.188 m ² (2.002 sq ft)
	Core thickness	16 mm (0.63 in)
	Radiation area	4.5 m ² (48.44 sq ft)
Expansion valve	Type	Block
Evaporator	Type	Dual-tank
	Dimensions (W × H × T)	290.1 × 172 × 39 mm (11.42 × 6.77 × 1.54 in)
Blower fan	Fan type	Sirocco fan
	Outer diameter × Width	150 × 75 mm (5.91 × 2.95 in)
	Power consumption	280 W
Condenser fan (sub fan)	Motor type	Magnet
	Power consumption	120 W
	Fan outer diameter	318.5 mm (12.5 in)

General Description

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

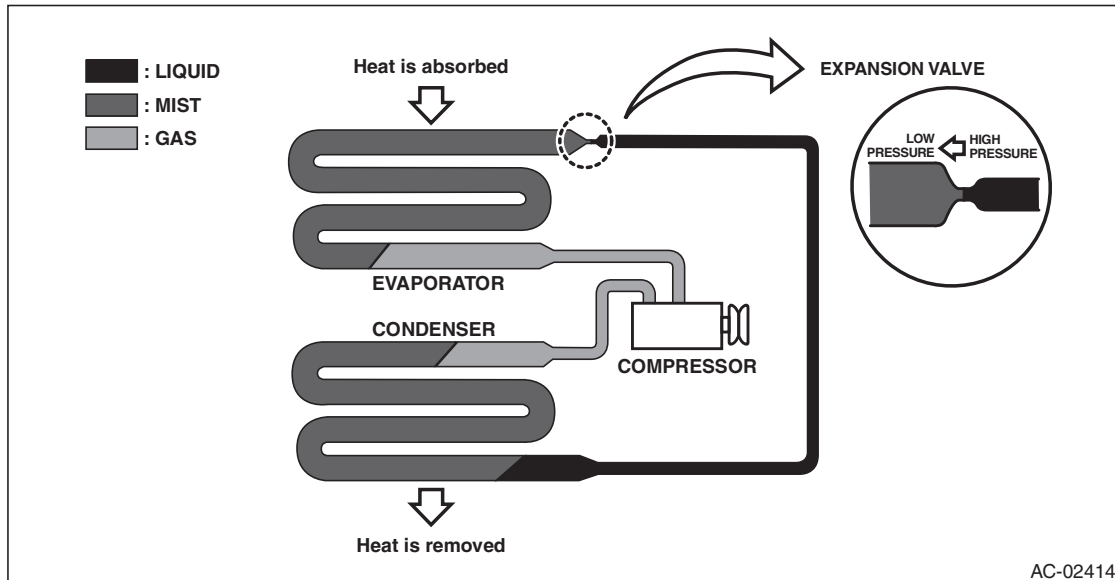
Item		Specifications	
Radiator fan (main fan)		Motor type	Magnet
		Power consumption	120 W
		Fan outer diameter	318.5 mm (12.5 in)
Idle speed		No load	Non-turbo MT model: 650±100 rpm Non-turbo CVT model: 675±100 rpm Turbo model: 700±100 rpm
		A/C ON	Non-turbo model: 850±100 rpm Turbo model: 700 — 835±50 rpm
Triple switch (Pressure switch)	Low-pressure switch operating pressure	ON → OFF	196±25 kPa (2.00±0.25 kgf/cm ² , 28.4±3.6 psi)
		OFF → ON	225±30 kPa (2.29±0.31 kgf/cm ² , 32.6±4.3 psi)
	High-pressure switch operating pressure	ON → OFF	2,940±200 kPa (29.98±2.04 kgf/cm ² , 426.3±29 psi)
		OFF → ON	2,350±200 kPa (24.00±2.04 kgf/cm ² , 340.7±29.0 psi)
	Middle-pressure switch operating pressure	ON → OFF	1,470±120 kPa (14.99±1.22 kgf/cm ² , 213.15±17.4 psi)
		OFF → ON	1,770±100 kPa (18.05±1.02 kgf/cm ² , 256.65±14.5 psi)
Thermo-control amplifier working temperature		 AC-00601 (1) ON (2) OFF (3) 1.5±0.3°C (34.7±0.5°F) (4) 1.0±0.5°C (33.8±0.9°F)	

General Description

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

3. BASIC OPERATION

The cooling system cools down the compartment by using the pipes connecting parts and cycling the evaporable liquid (refrigerant) within the sealed system in a repeated process of “vaporization — liquefaction — re-vaporization”.



Item	Operation
Compressor	Sucks and pressurizes the low temperature, low pressure refrigerant gas that was vaporized at the evaporator by absorbing heat from the compartment, and sends the high temperature, high pressure refrigerant gas to the condenser.
Condenser	Cools the high temperature, high pressure refrigerant gas sent from the compressor for condense and liquefaction.
Expansion valve	• Sprays the high temperature, high pressure liquid refrigerant from the small hole in order to let the refrigerant expand rapidly to turn it into low temperature, low pressure mist. • The refrigerant amount is adjusted according to the refrigerant vaporization condition in the evaporator.
Evaporator	The evaporator turns into a low temperature condition when the mist refrigerant that was turned into a low temperature, low pressure condition at the expansion valve is vaporized in large quantity in the evaporator. Passing air flow through the low temperature evaporator emits cold air.

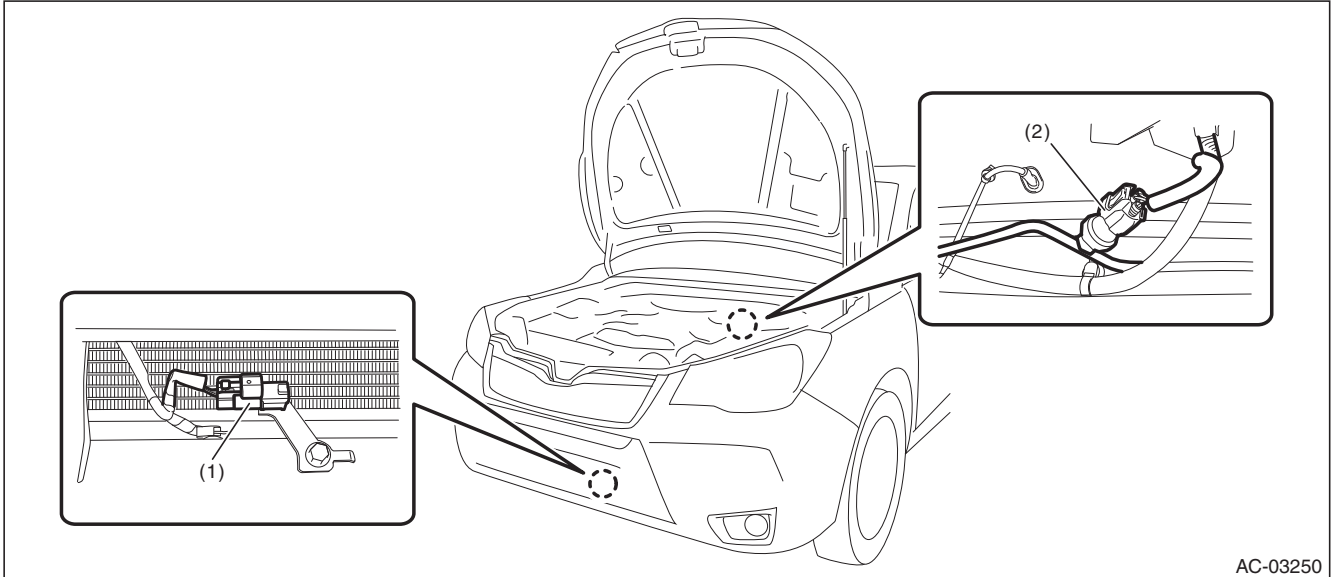
General Description

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

B: LOCATION

1. ELECTRICAL COMPONENT (ACTUATORS AND SENSORS)

- Engine compartment

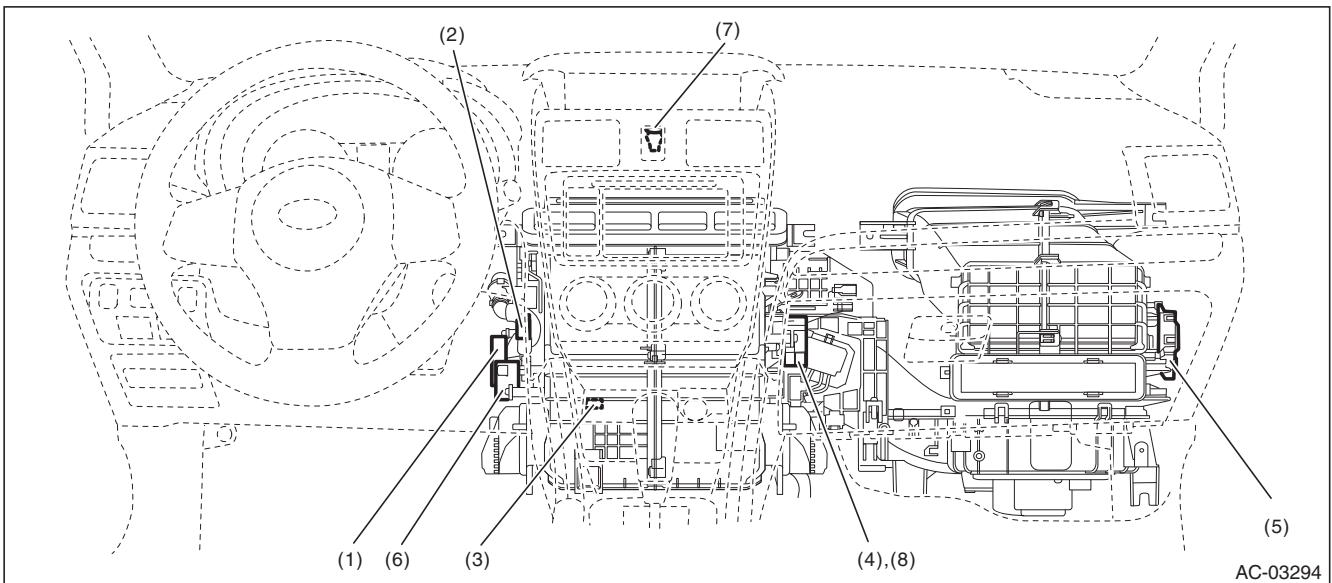


AC-03250

(1) Ambient sensor

(2) Pressure switch

- Compartment



AC-03294

(1) Dual A/C air mix door actuator LH

(4) Dual A/C air mix door actuator RH

(7) Sunload sensor

(2) In-vehicle sensor

(5) Intake door actuator

(8) Single A/C air mix door actuator

(3) Evaporator sensor

(6) Mode door actuator

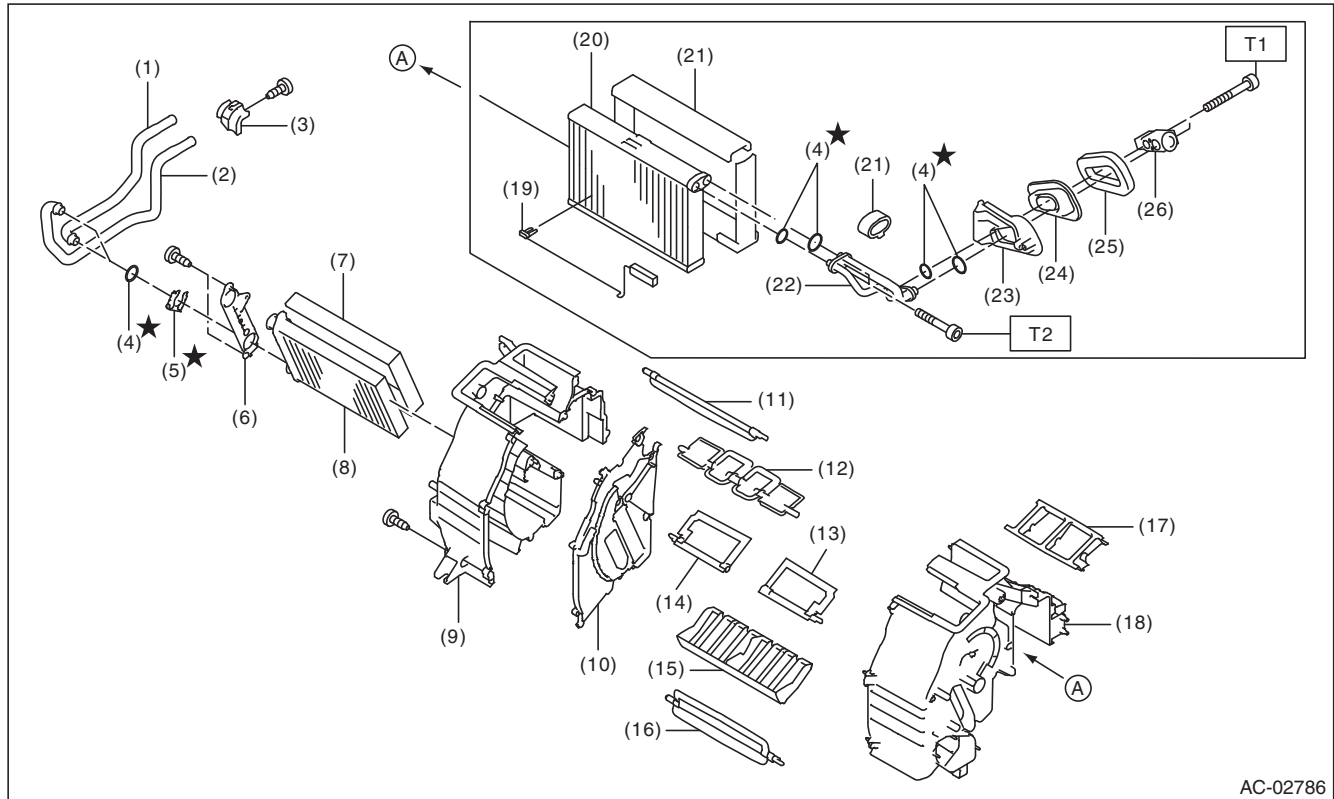
General Description

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

C: COMPONENT

1. HEATER AND COOLING UNIT

- Manual A/C model



AC-02786

- | | | |
|-------------------------------|--------------------------------|--------------------------------|
| (1) Pipe - inlet | (11) Shutter - defroster | (21) Packing - evaporator core |
| (2) Pipe - outlet | (12) Shutter - vent | (22) Pipe - evaporator core |
| (3) Clamp - pipe | (13) Shutter - air mix RH | (23) Case - expansion valve |
| (4) Seal O-ring | (14) Shutter - air mix LH | (24) Seal - cooling |
| (5) Clamp | (15) Guide - heater unit | (25) Packing - heater unit |
| (6) Plate - heater core | (16) Shutter - foot | (26) Expansion valve - cooling |
| (7) Packing - heater core | (17) Case - vent duct | |
| (8) Heater core | (18) Case - heater unit UPR RH | |
| (9) Case - heater unit UPR LH | (19) Thermostat - cooling | |
| (10) Plate CTR | (20) Evaporator ASSY - cooling | |

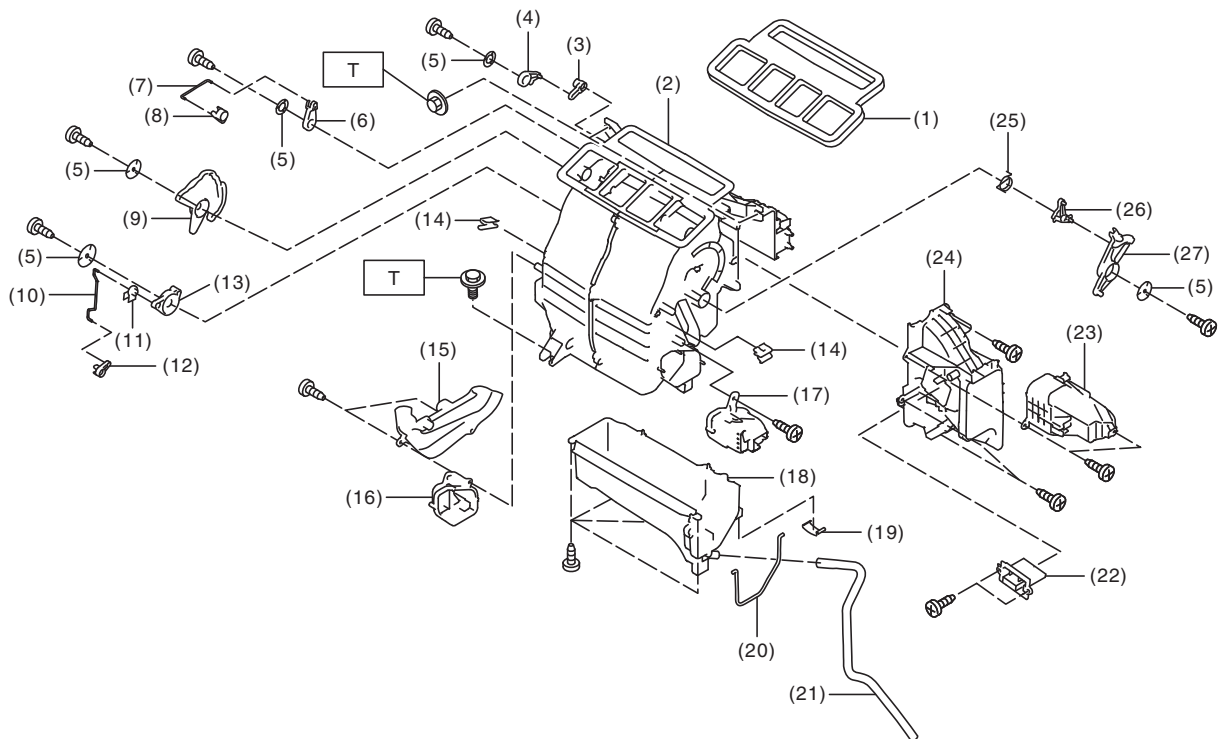
Tightening torque: N·m (kgf·m, ft·lb)

T1: 5.0 (0.51, 3.7)

T2: 6.7 (0.68, 4.9)

General Description

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)



AC-02787

- | | | |
|-----------------------------|---------------------------------|---------------------------|
| (1) Packing - heater unit | (11) Clip | (21) Hose - drain |
| (2) Case - heater unit | (12) Lever - foot | (22) Resistor |
| (3) Lever - defroster | (13) Lever - foot sub | (23) Cover |
| (4) Lever - defroster sub | (14) Clamp - cable | (24) Cover - heater unit |
| (5) Washer - heater | (15) Cover - heater pipe | (25) Spring - heater unit |
| (6) Lever - ventilator sub | (16) Duct - foot LH | (26) Lever A |
| (7) Rod - ventilator | (17) Duct - foot RH | (27) Lever B |
| (8) Lever - ventilator door | (18) Case - heater LWR | |
| (9) Lever - mode | (19) Clip - case | |
| (10) Rod - foot | (20) Packing - evaporator cover | |

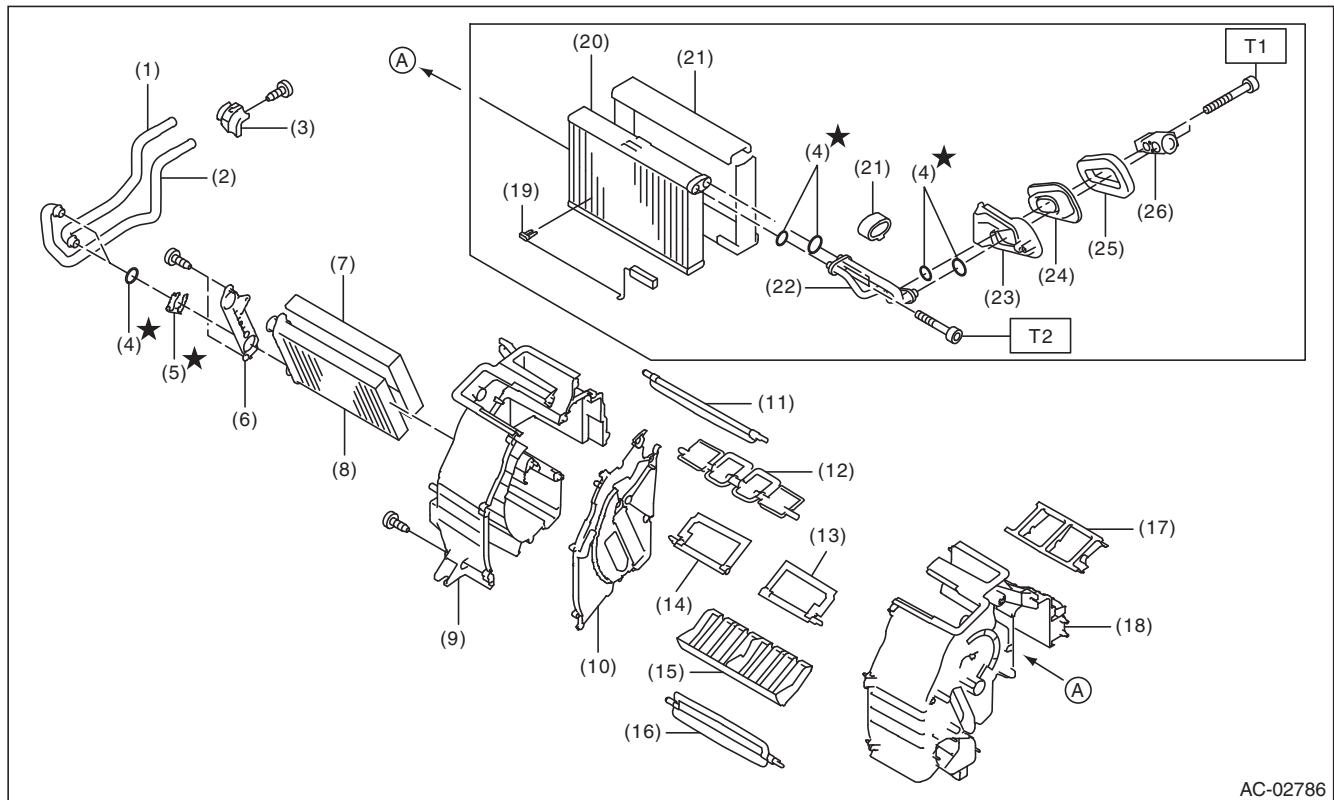
Tightening torque: N-m (kgf-m, ft-lb)

T: 7.5 (0.76, 5.5)

General Description

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

- Auto A/C model



- | | | |
|-------------------------------|--------------------------------|--------------------------------|
| (1) Pipe - inlet | (11) Shutter - defroster | (21) Packing - evaporator core |
| (2) Pipe - outlet | (12) Shutter - vent | (22) Pipe - evaporator core |
| (3) Clamp - pipe | (13) Shutter - air mix RH | (23) Case - expansion valve |
| (4) Seal O-ring | (14) Shutter - air mix LH | (24) Seal - cooling |
| (5) Clamp | (15) Guide - heater unit | (25) Packing - heater unit |
| (6) Plate - heater core | (16) Shutter - foot | (26) Expansion valve - cooling |
| (7) Packing - heater core | (17) Case - vent duct | |
| (8) Heater core | (18) Case - heater unit UPR RH | |
| (9) Case - heater unit UPR LH | (19) Thermostat - cooling | |
| (10) Plate CTR | (20) Evaporator ASSY - cooling | |

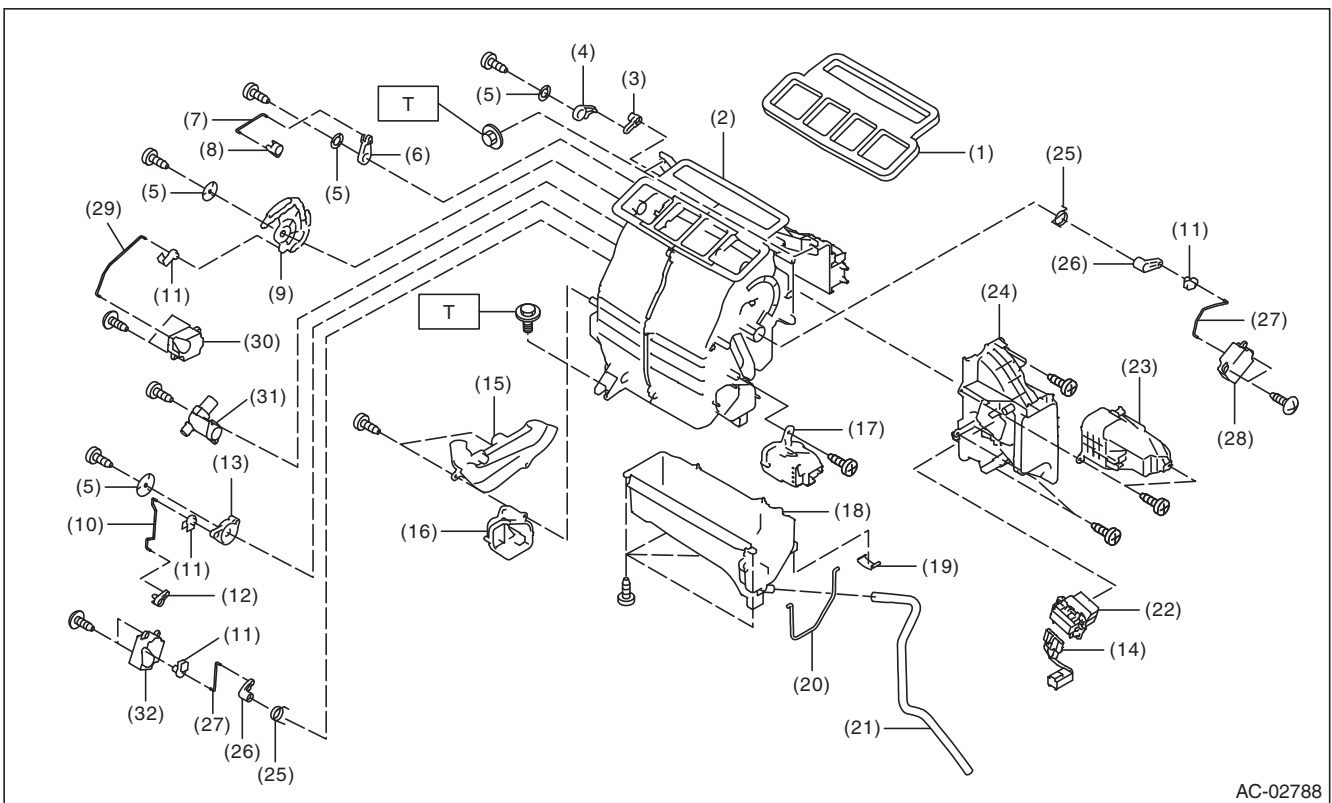
Tightening torque: N·m (kgf-m, ft-lb)

T1: 5.0 (0.51, 3.7)

T2: 6.7 (0.68, 4.9)

General Description

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)



AC-02788

- | | | |
|-----------------------------|---------------------------------|---|
| (1) Packing - heater unit | (13) Lever - foot sub | (25) Spring - heater unit |
| (2) Case - heater unit | (14) Harness - heater unit | (26) Lever - air mix |
| (3) Lever - defroster | (15) Cover - heater pipe | (27) Rod - air mix |
| (4) Lever - defroster sub | (16) Duct - foot LH | (28) Motor - actuator mix RH |
| (5) Washer - heater | (17) Duct - foot RH | (29) Rod - mode |
| (6) Lever - ventilator sub | (18) Case - heater LWR | (30) Motor - actuator mode |
| (7) Rod - ventilator | (19) Clip - case | (31) Aspirator - heater unit |
| (8) Lever - ventilator door | (20) Packing - evaporator cover | (32) Motor - actuator mix LH (dual A/C model) |
| (9) Lever - mode | (21) Hose - drain | |
| (10) Rod - foot | (22) Power transistor | |
| (11) Clip | (23) Cover | |
| (12) Lever - foot | (24) Cover - heater unit | |

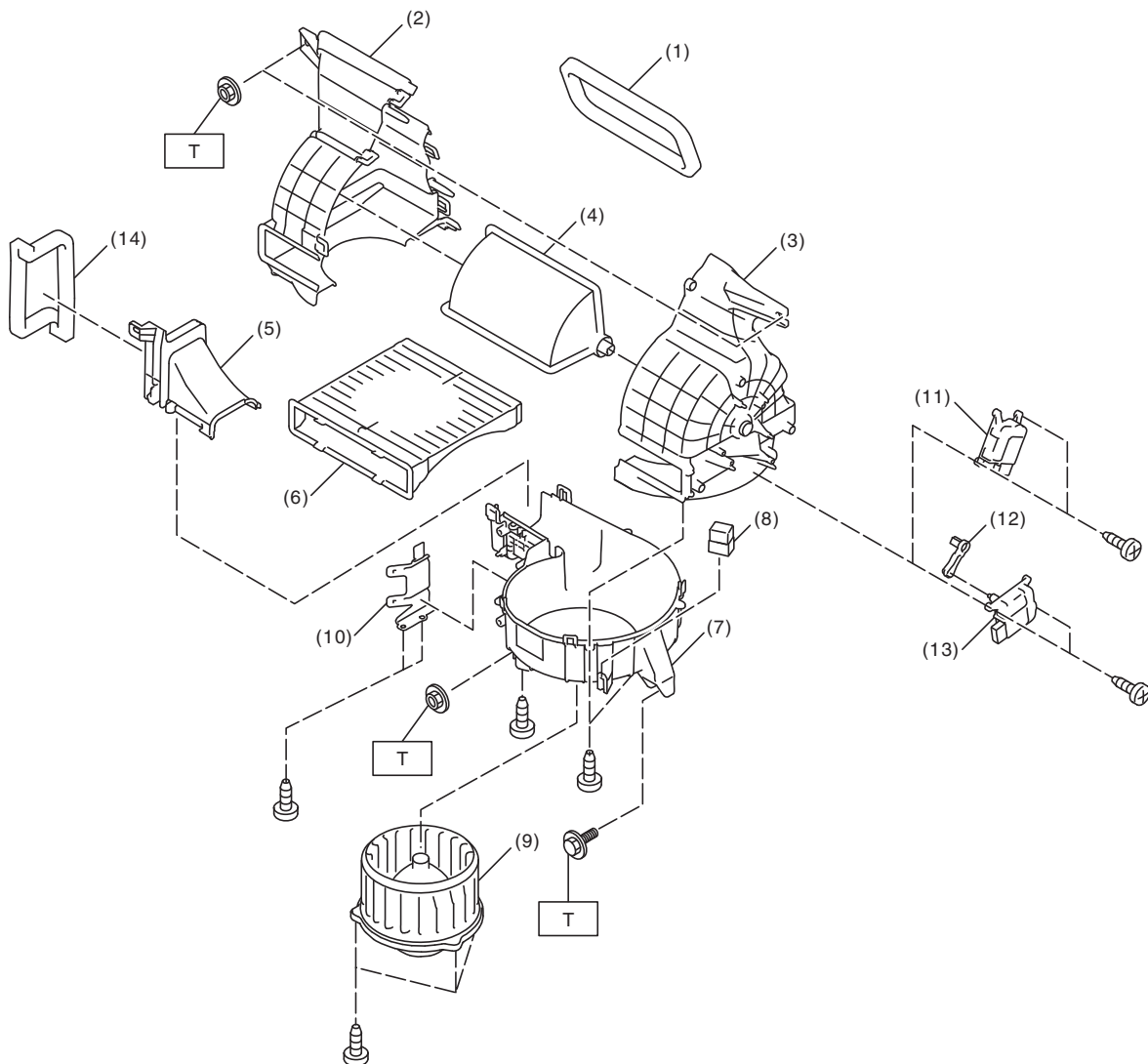
Tightening torque: N·m (kgf·m, ft·lb)

T: 7.5 (0.76, 5.5)

General Description

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

2. BLOWER MOTOR UNIT



AC-02675

(1) Packing - blower

(7) Case lower - blower

(13) Motor - actuator blower (manual A/C model)

(2) Case - blower intake LH

(8) Blower motor relay

(14) Packing

(3) Case - blower intake RH

(9) Blower - motor

(4) Shutter - blower

(10) Bracket

Tightening torque: N-m (kgf-m, ft-lb)

(5) Case upper - blower

(11) Motor - actuator blower (auto A/C model)

T: 7.5 (0.76, 5.5)

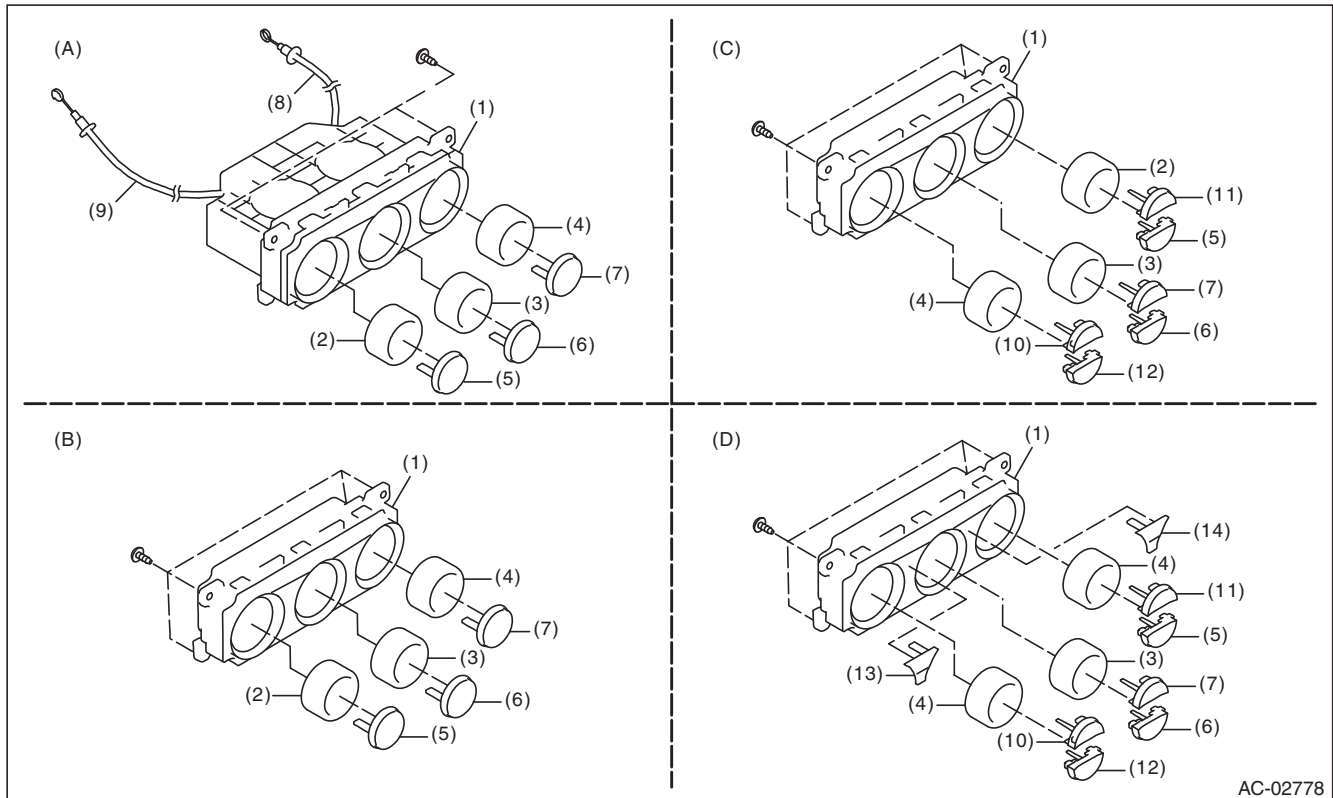
(6) Filter kit

(12) Lever

General Description

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

3. CONTROL PANEL



AC-02778

(A) Manual A/C model

(C) Single auto A/C model (with high grade MFD)

(D) Dual auto A/C model

(B) Single auto A/C model (with standard MFD)

- (1) Control case
- (2) Air flow control dial
- (3) Fan dial
- (4) Temperature adjustment dial
- (5) Rear window defogger switch

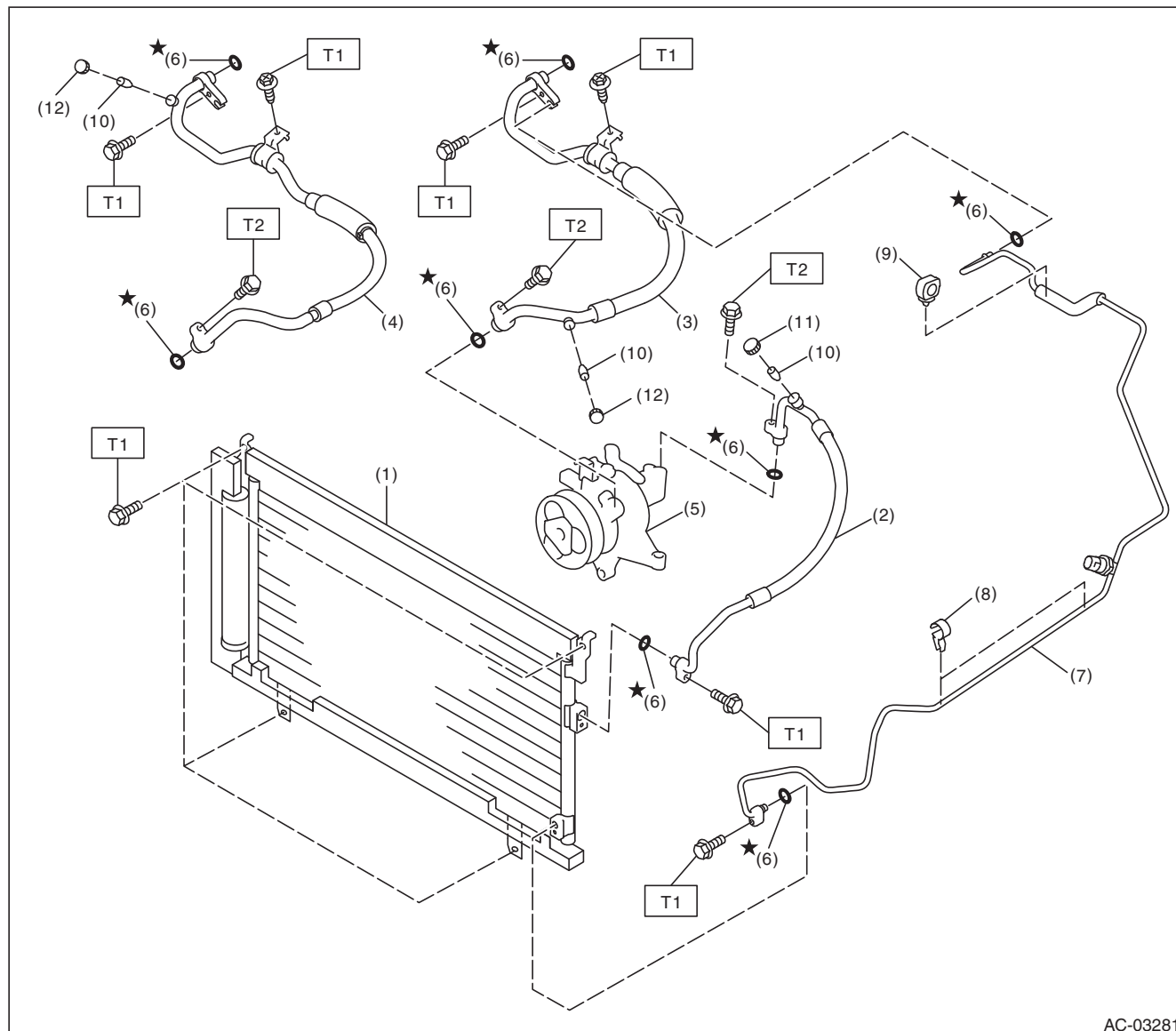
- (6) FRESH/RECIRC switch
- (7) A/C switch
- (8) Temperature control cable
- (9) Air flow control cable
- (10) AUTO switch

- (11) Defroster switch
- (12) OFF switch
- (13) Air flow control switch
- (14) Dual switch

General Description

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

4. AIR CONDITIONING UNIT



AC-03281

- | | |
|---|------------------------------------|
| (1) Condenser ASSY - air conditioner | (7) Pipe - evaporator cooling |
| (2) Hose - pressure discharge | (8) Clip - pipe |
| (3) Hose - pressure suction (non-turbo model) | (9) Clip |
| (4) Hose - pressure suction (turbo model) | (10) Valve - hose pressure |
| (5) Compressor ASSY | (11) Cap - hose pressure discharge |
| (6) Seal O-ring | (12) Cap - hose pressure suction |

Tightening torque: N·m (kgf·m, ft·lb)

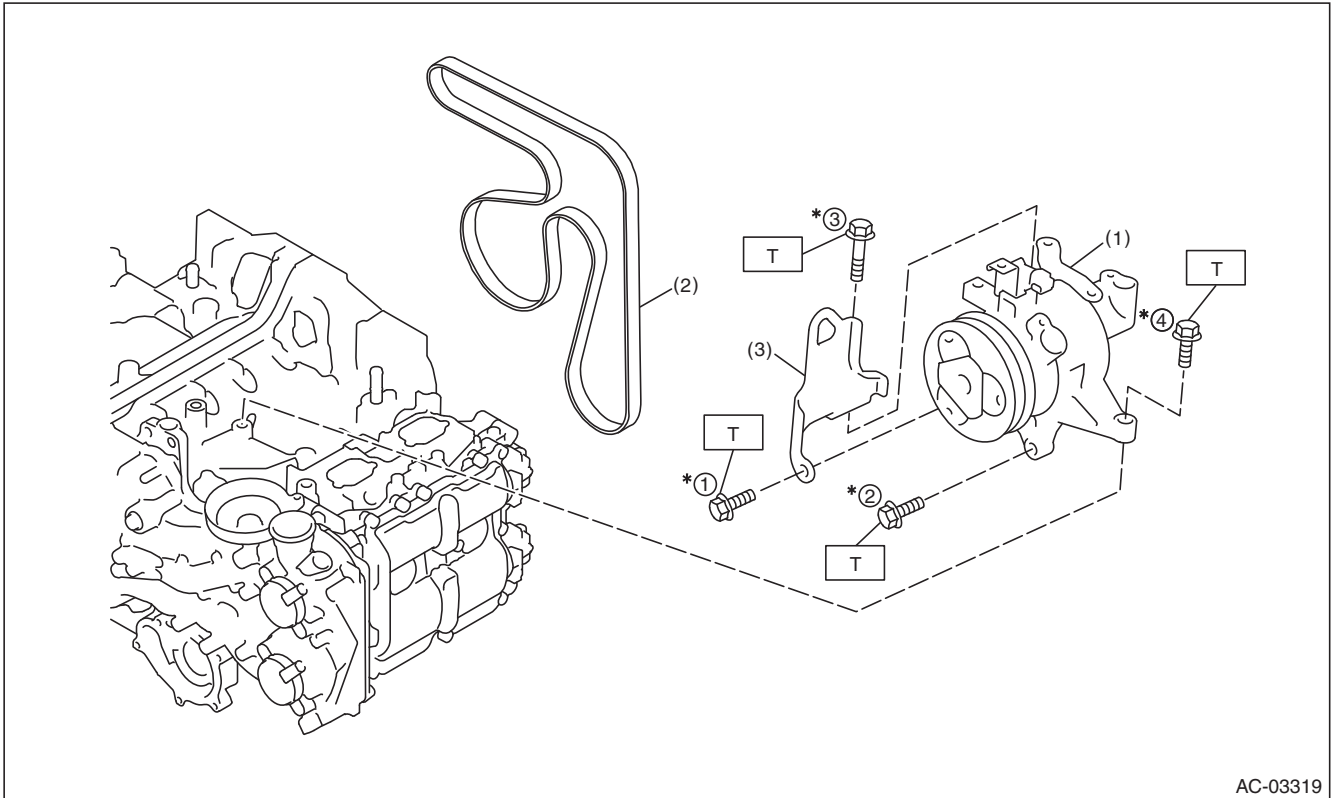
T1: 7.5 (0.76, 5.5)

T2: 10 (1.02, 7.4)

General Description

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

5. COMPRESSOR



(1) Compressor ASSY

(3) Hanger - engine front

(2) V-belt (6 PK)

Tightening torque: N-m (kgf-m, ft-lb)

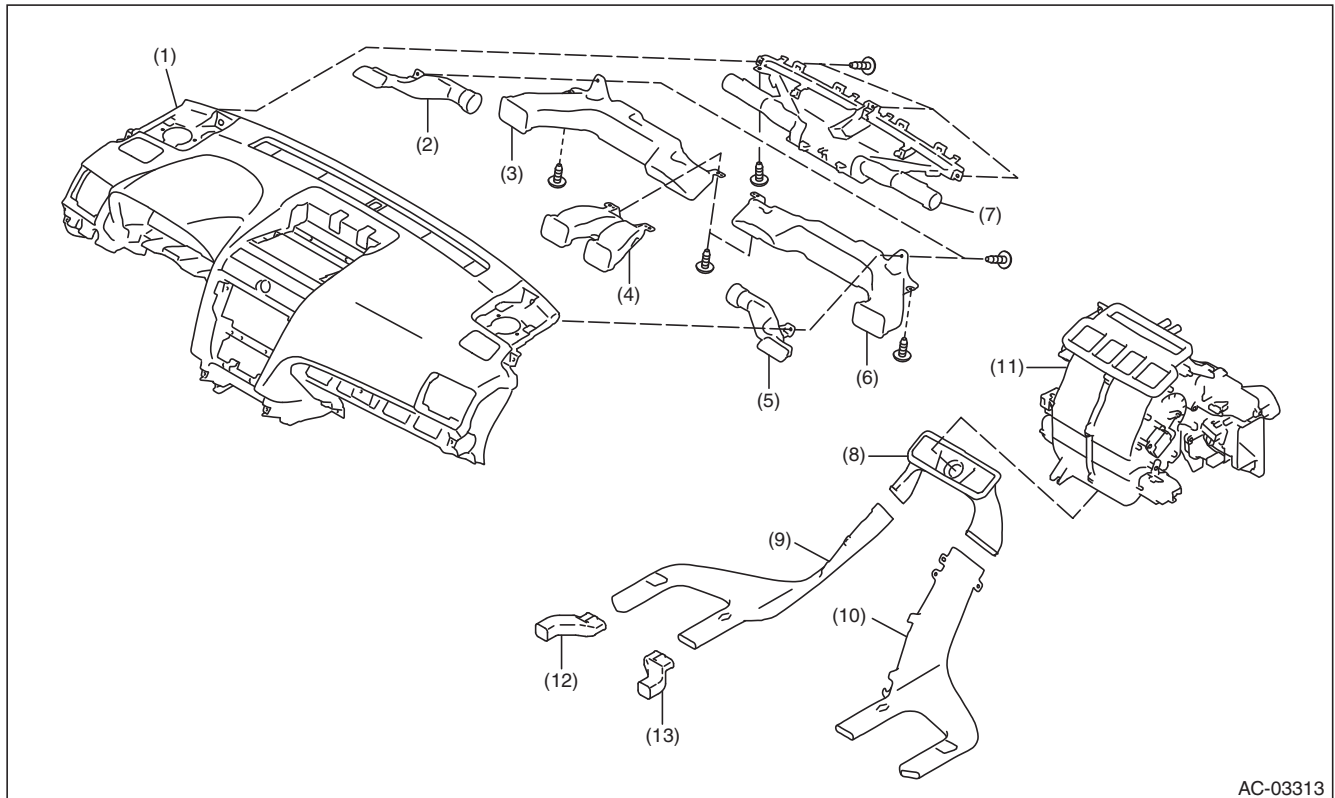
T: 36 (3.67, 26.6)

* Tighten the compressor in the numerical order as shown in the figure.

General Description

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

6. HEATER DUCT



- | | | |
|--------------------------------|--------------------------------|---|
| (1) Panel COMPL - instrument | (6) Duct - side ventilation RH | (11) Heater and cooling unit ASSY |
| (2) Duct - side defroster LH | (7) Nozzle - front defroster | (12) Duct - rear heater extension LH
(models with harman/kardon® audio system) |
| (3) Duct - side ventilation LH | (8) Duct - rear heater CTR | (13) Duct - rear heater extension RH
(models with harman/kardon® audio system) |
| (4) Duct - center vent | (9) Duct - rear heater LH | |
| (5) Duct - side defroster RH | (10) Duct - rear heater RH | |

General Description

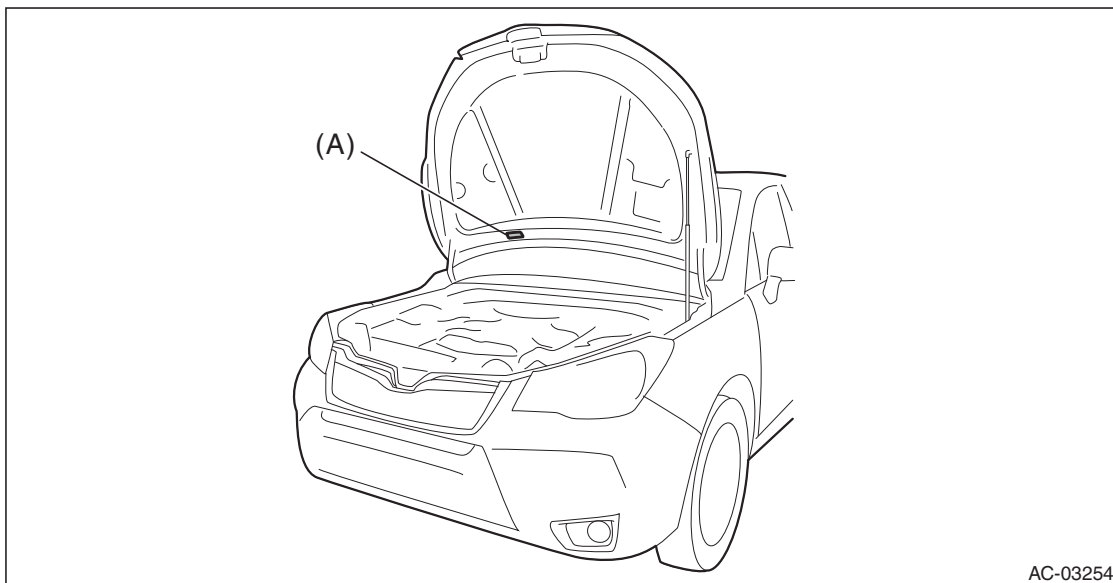
HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

D: CAUTION

- Before disassembling or reassembling parts, always disconnect the battery ground cable from battery. When replacing the radio, control module, and other parts provided with memory functions, record the memory contents before disconnecting the battery ground cable. Otherwise, the memory is cleared.
- Reassemble the parts in the reverse order of disassembly procedure unless otherwise indicated.
- Connect the connectors securely during reassembly.
- After reassembly, make sure that each component operates normally.

1. HFC-134A A/C SYSTEM

- The cooling system components for the HFC-134a system such as the refrigerant and compressor oil are different from the conventional CFC-12 system components and they are incompatible with each other.
 - Vehicles with the HFC-134a system can be identified by the label (A) attached to the vehicle.
- Before maintenance, check A/C system which is installed to the vehicle.



AC-03254

2. COMPRESSOR OIL

- HFC-134a compressor oil has no compatibility with that of CFC-12 system.
- Use only the manufacturer-authorized compressor oil for the HFC-134a system; only use DH-PR (ZXL200PG).
- Do not mix multiple compressor oils.

If CFC-12 compressor oil is used in the HFC-134a A/C system, the compressor may become stuck due to poor lubrication, or the refrigerant may leak due to swelling of rubber parts.

On the other hand, if HFC-134a compressor oil is used in a CFC-12 A/C system, the durability of the A/C system will be lowered.

- HFC-134a compressor oil is very hygroscopic. When replacing or installing/removing A/C parts, immediately isolate the oil from atmosphere using a plug or tape. In order to avoid moisture, store the oil in a container with its cap tightly closed.

3. REFRIGERANT

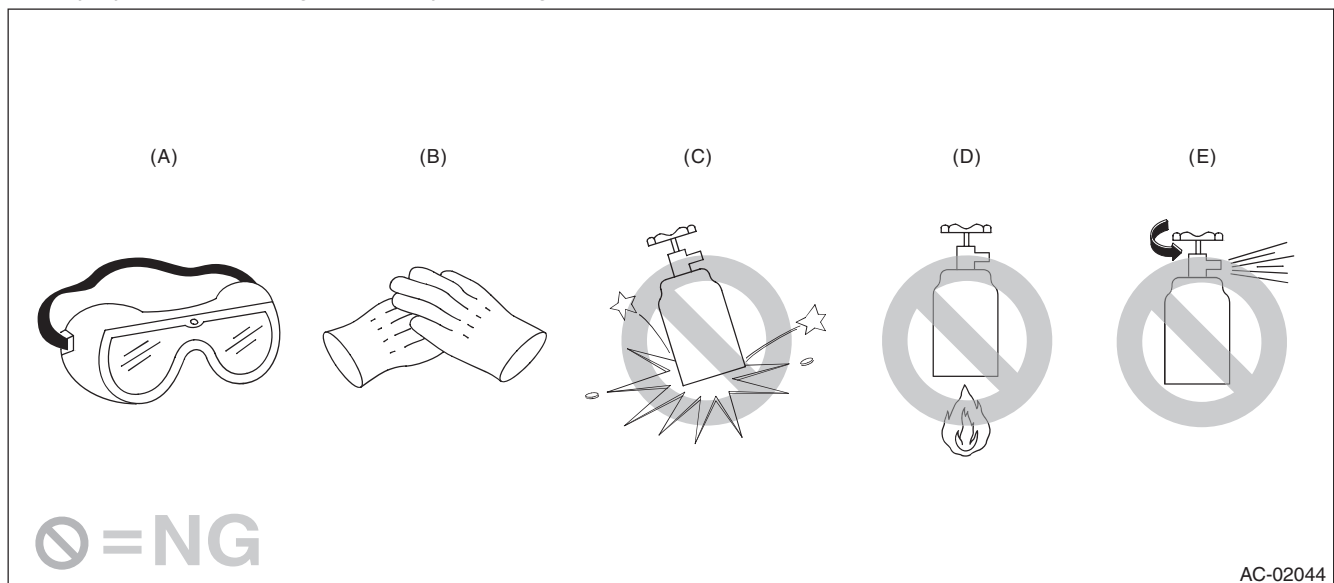
- CFC-12 refrigerant cannot be used in a HFC-134a A/C system. HFC-134a refrigerant, also cannot be used in a CFC-12 A/C system.
- If an incorrect or no refrigerant is used, it will result in poor lubrication and the compressor itself may be damaged.

General Description

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

4. HANDLING OF REFRIGERANT

- The refrigerant boils at approx. -30°C (-22°F). When handling it, be sure to wear protective goggles and protective gloves. Direct contact of the refrigerant with skin may cause frostbite. If the refrigerant gets into your eye, avoid rubbing your eyes with your hands. Wash your eye with plenty of water, and receive medical treatment from an eye doctor.
- Do not heat a service can. If a service can is directly heated, or put into boiling water, the inside pressure will become extremely high. This may cause the can to explode. If a service can must be warmed up, use warm water of 40°C (104°F) or less.
- Do not drop or impact a service can. (Observe the precautions and operation procedure described on the refrigerant can.)
- When the engine is running, do not open the high-pressure valve of manifold gauge. The high-pressure gas will back-flow resulting in an explosion of the can.
- Provide good ventilation and do not work in a closed area.
- In order to prevent global warming, avoid releasing HFC-134a into the atmosphere. Using a refrigerant recovery system, discharge and recycle the gas.



- (A) Goggles
(B) Gloves

- (C) Do not apply impact.
(D) No direct heat on container

- (E) Do not discharge

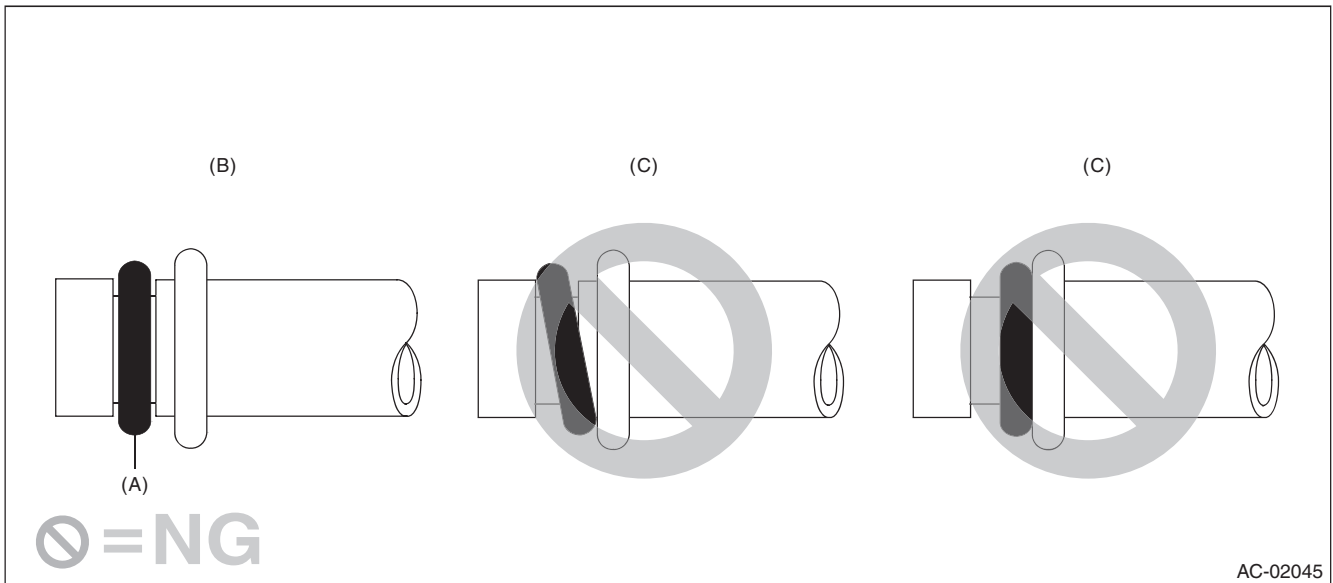
5. O-RING CONNECTIONS

- Always use a new O-ring.
- In order to keep the O-rings free of lint which will cause a refrigerant gas leak, perform work without using gloves or waste cloths.
- Apply compressor oil to O-rings to avoid sticking, before installation.
- Use a torque wrench to tighten the O-ring fittings. Over-tightening will result in damage of the O-ring and deformation of the pipe end.
- If the work is interrupted before completing pipe connections, recap the pipes, components and fittings with a plug or tape to prevent foreign matter from entering.
- Visually check the surfaces and mating surfaces of O-rings, threads and connecting points. If a failure is found, replace the applicable parts.

General Description

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

- Install the O-rings straight against the pipe groove.

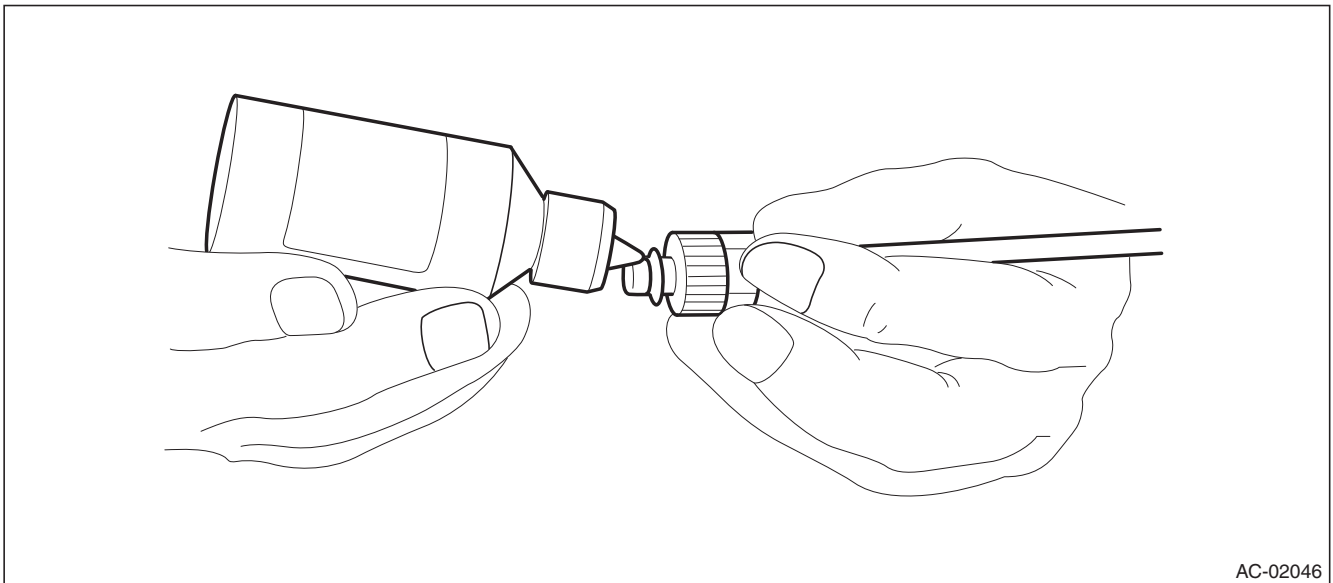


(A) O-ring

(B) OK

(C) NG

- Use compressor oil specified in the service manual to lubricate the O-rings. Apply oil to the top and sides of O-rings before installation. Apply compressor oil to the pipe grooves.



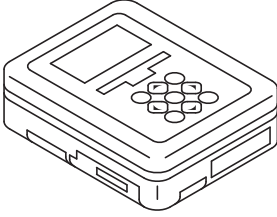
- After tightening, use a clean cloth to remove excess compressor oil from the connections and any oil which may have run on the vehicle body or other parts.
- If any leakage is suspected after tightening, do not tighten the connections further, but disconnect the connections, remove the O-rings, and check the O-rings, threads, and connections.

General Description

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

E: PREPARATION TOOL

1. SPECIAL TOOL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST1B022XU0	1B022XU0	SUBARU SELECT MONITOR III KIT	Used for troubleshooting the electrical system. NOTE: For detailed operation procedures of SUBARU SELECT MONITOR III KIT, refer to "PC application help for Subaru Select Monitor".

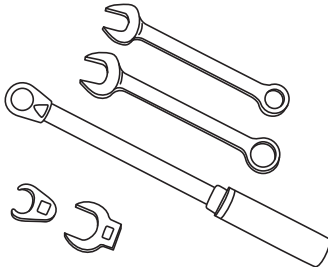
2. GENERAL TOOL

CAUTION:

When working on vehicles with a HFC-134a system, only use HFC-134a specified tools and parts. Do not mix CFC-12 tools and parts. If HFC-134a and CFC-12 refrigerant or compressor oil is mixed, it will result in poor lubrication and the compressor itself may be damaged.

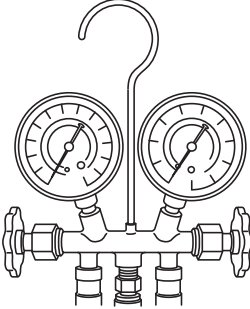
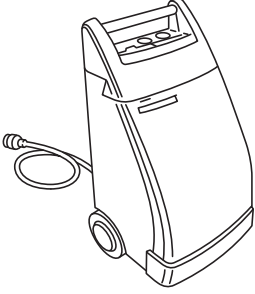
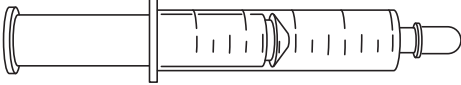
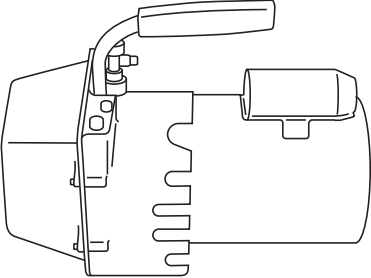
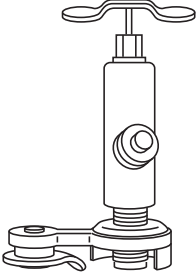
In order to prevent the mixture of HFC-134a and CFC-12 parts and liquid, the type of tool and screw, and the replacement valves used are different. The gas leak detectors for the HFC-134a and CFC-12 systems must also not be interchanged.

	HFC-134a	CFC-12
Tool & screw type	Millimeter size	Inch size
Valve type	Quick joint type	Screw-in type

Illustration	Tools and Equipment
 AC-00213	Wrench Various WRENCHES will be required to service any A/C system. 7 — 40 N·m (0.7 to 4.1 kgf-m, 5 to 30 ft-lb) torque wrench and various crowfoot wrenches will be needed. Open end or flare nut wrenches will be needed to affix the pipe and hose fittings.
 AC-00012	Applicator bottle A small APPLICATOR BOTTLE is recommended to apply compressor oil to the various parts. It can be available at a hardware store.

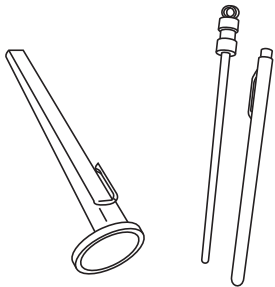
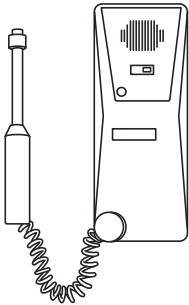
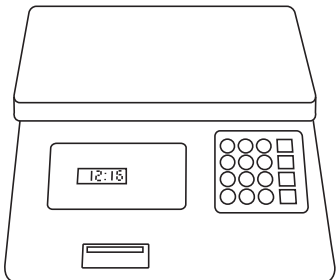
General Description

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

Illustration	Tools and Equipment
 AC-00013	Manifold gauge set A MANIFOLD GAUGE SET (with hoses) is available at either a refrigerant supplier or an automotive equipment supplier.
 AC-00014	Refrigerant recovery system A REFRIGERANT RECOVERY SYSTEM is used for the recovery and recycling of A/C system refrigerant after contaminants and moisture have been removed from the refrigerant.
 AC-00015	Syringe A graduated plastic SYRINGE will be needed to add oil into the system again. A syringe can be available at a pharmacy or drug store.
 AC-00016	Vacuum pump A VACUUM PUMP is necessary (for a good working condition), and may be available at either a refrigerant supplier or an automotive equipment supplier.
 AC-00017	Can tap A CAN TAP for the 397 g (14 oz.) can is available at an automotive equipment supplier.

General Description

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

Illustration	Tools and Equipment
 AC-00018	Thermometer A Pocket THERMOMETER is available at either a industrial hardware store or a refrigerant supplier.
 AC-00019	Electronic leak detector An ELECTRONIC LEAK DETECTOR can be available at either a specialty tool supplier or an A/C equipment supplier.
 AC-00020	Weight scale A WEIGHT SCALE such as an electronic charging scale or a bathroom scale with digital display will be needed, if a 13.6 kg (30 lb) refrigerant container is used.

Air Conditioning System

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

2. Air Conditioning System

A: WIRING DIAGRAM

Refer to "Air Conditioning System" in the wiring diagram.

- Manual A/C model: <Ref. to WI-67, MANUAL A/C, WIRING DIAGRAM, Air Conditioning System.>
- Auto A/C model: <Ref. to WI-72, AUTO A/C, WIRING DIAGRAM, Air Conditioning System.>

B: ELECTRICAL SPECIFICATION

Refer to "Auto A/C Control Module I/O Signal" of "HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)" section. <Ref. to AC(diag)-6, ELECTRICAL SPECIFICATION, Auto A/C Control Module I/O Signal.>

C: INSPECTION

Refer to "Basic Diagnostic Procedure" for "HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)" section. <Ref. to AC(diag)-2, Basic Diagnostic Procedure.>

D: NOTE

For procedure of each component in the air conditioning system, refer to the respective section.

- Blower motor unit assembly: <Ref. to AC-35, Blower Motor Unit Assembly.>
- Blower motor: <Ref. to AC-37, Blower Motor.>
- Power transistor (auto A/C model): <Ref. to AC-39, Power Transistor (Auto A/C Model).>
- Blower resistor (manual A/C model): <Ref. to AC-40, Blower Resistor (Manual A/C Model).>
- Control panel: <Ref. to AC-48, Control Panel.>
- Compressor: <Ref. to AC-52, Compressor.>
- Condenser: <Ref. to AC-55, Condenser.>
- Heater and cooling unit: <Ref. to AC-58, Heater and Cooling Unit.>
- Evaporator: <Ref. to AC-62, Evaporator.>
- Expansion valve: <Ref. to AC-68, Expansion Valve.>
- Hose & pipe: <Ref. to AC-70, Hose and Pipe.>
- Ambient sensor: <Ref. to AC-72, Ambient Sensor.>
- Sunload sensor (auto A/C model): <Ref. to AC-74, Sunload Sensor (Auto A/C Model).>
- In-vehicle sensor (auto A/C model): <Ref. to AC-76, In-Vehicle Sensor (Auto A/C Model).>
- Evaporator sensor: <Ref. to AC-80, Evaporator Sensor.>
- Intake door actuator: <Ref. to AC-83, FRESH/RECIRC Door Actuator.>
- Mode door actuator: <Ref. to AC-88, Mode Door Actuator.>
- Air mix door actuator: <Ref. to AC-90, Air Mix Door Actuator.>



Refrigerant Pressure with Manifold Gauge Set

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

3. Refrigerant Pressure with Manifold Gauge Set

A: PROCEDURE

1. REFRIGERANT GAS PRESSURE INSPECTION

Preparation tool:

Manifold gauge set

Thermometer and hygrometer

1) Prepare the vehicle.

NOTE:

Check that the ambient temperature is 25 — 40°C (77 — 104°F) and that the humidity is 30% — 80%.

- Place the vehicle in the shade and windless condition, and open the front hood.
- Open the front windows and close all doors.

2) Connect the manifold gauge set, and then check the refrigerant pressure.

- (1) Connect the manifold gauge set, and start the engine.
- (2) Set the vehicle to the following conditions.

Item	Condition
Engine	Warmed up (Engine coolant temperature indicator light: OFF)
Air vent grille	Shutter is fully open.
A/C switch	ON
Temperature adjustment dial	LO (MAX COOL)
FRESH/RECIRC switch	RECIRC
Air flow control dial or switch	VENT
Fan dial	Auto A/C model: 5/7 level
	Manual A/C model: 3/4 level

(3) In the condition of step (2), idle the engine for 30 minutes.

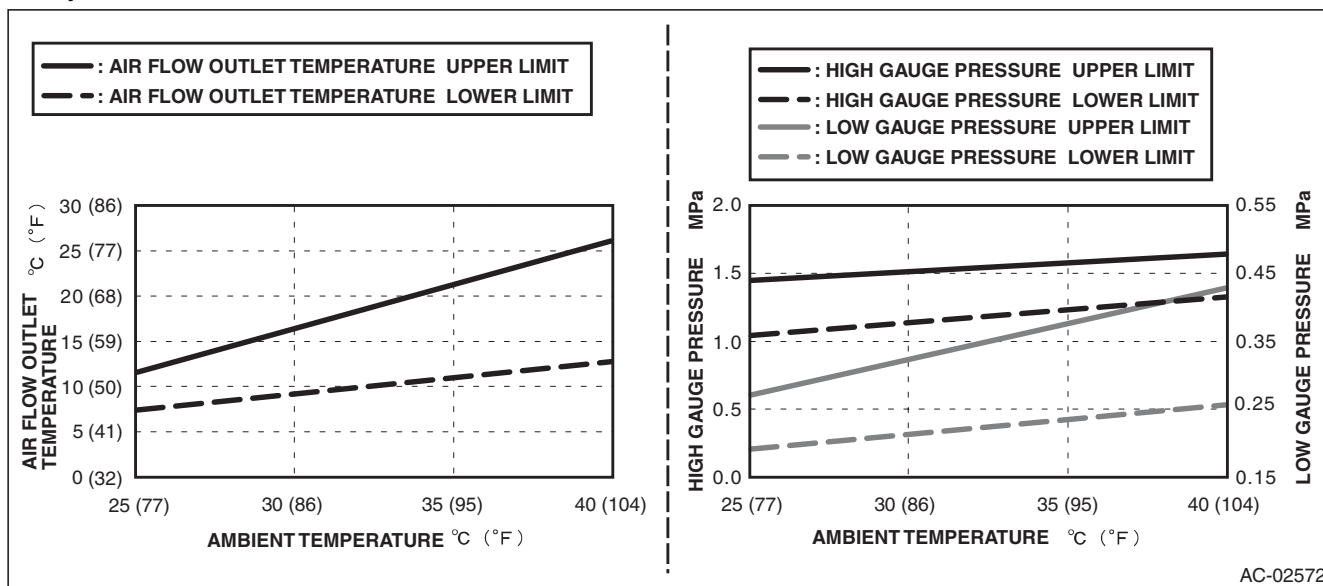
(4) Read the gauge values on both high pressure side and low pressure side for manifold gauge.

3) Measure the air vent grille outlet opening temperature, ambient temperature and humidity.

NOTE:

For outlet opening temperature, measure the average temperature of center grille assembly and side grille assembly.

4) Check that the high and low pressures and outlet opening temperature for ambient temperature and humidity is within the standard value described in the chart below.



AC-02572

Refrigerant Pressure with Manifold Gauge Set

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

5) Refer to "DIAGNOSIS WITH SYMPTOM" if the inspection result is not within the standard value. <Ref. to AC-23, INSPECTION WITH PRESSURE SYMPTOMS, INSPECTION, Refrigerant Pressure with Manifold Gauge Set.>

B: INSPECTION

1. INSPECTION WITH PRESSURE SYMPTOMS

Symptoms	Reference
Both high and low pressure sides are low.	<Ref. to AC-23, BOTH HIGH AND LOW PRESSURE SIDES ARE LOW, INSPECTION, Refrigerant Pressure with Manifold Gauge Set.>
Both high and low pressure sides are high.	<Ref. to AC-23, BOTH HIGH AND LOW PRESSURE SIDES ARE HIGH, INSPECTION, Refrigerant Pressure with Manifold Gauge Set.>
Both high and low pressure sides are equal, or high-pressure side is low.	<Ref. to AC-24, BOTH HIGH AND LOW PRESSURE SIDES ARE EQUAL, OR HIGH-PRESSURE SIDE IS LOW, INSPECTION, Refrigerant Pressure with Manifold Gauge Set.>
High-pressure side is high.	<Ref. to AC-24, HIGH-PRESSURE SIDE IS HIGH, INSPECTION, Refrigerant Pressure with Manifold Gauge Set.>
Low-pressure side is low.	<Ref. to AC-25, LOW-PRESSURE SIDE IS LOW, INSPECTION, Refrigerant Pressure with Manifold Gauge Set.>
Low-pressure side is high.	<Ref. to AC-25, LOW-PRESSURE SIDE IS HIGH, INSPECTION, Refrigerant Pressure with Manifold Gauge Set.>

2. BOTH HIGH AND LOW PRESSURE SIDES ARE LOW

Step	Check	Yes	No
1 CHECK REFRIGERANT LEAKAGE. Check the refrigerant for leakage. <Ref. to AC-30, INSPECTION, Refrigerant Leak Check.> NOTE: When the pressure on the high-pressure side is less than 0.69 Mpa: Go to Step 2.	Are there any refrigerant leakage?	Repair the refrigerant leakage.	Go to step 2.
2 FILL PROPER AMOUNT OF REFRIGERANT. Drain the refrigerant completely, and then refill the proper amount of refrigerant. - Recovery: <Ref. to AC-26, PROCEDURE, Refrigerant Recovery Procedure.> - Refill: <Ref. to AC-27, PROCEDURE, Refrigerant Charging Procedure.>	Is the refrigerant pressure within the specified range?	Refrigerant pressure is normal.	Perform appropriate inspection with pressure symptoms.

3. BOTH HIGH AND LOW PRESSURE SIDES ARE HIGH

Step	Check	Yes	No
1 FILL PROPER AMOUNT OF REFRIGERANT. Drain the refrigerant completely, and then refill the proper amount of refrigerant. - Recovery: <Ref. to AC-26, PROCEDURE, Refrigerant Recovery Procedure.> - Refill: <Ref. to AC-27, PROCEDURE, Refrigerant Charging Procedure.>	Is the refrigerant pressure within the specified range?	Refrigerant pressure is normal.	Perform appropriate inspection with pressure symptoms.

Refrigerant Pressure with Manifold Gauge Set

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

4. BOTH HIGH AND LOW PRESSURE SIDES ARE EQUAL, OR HIGH-PRESSURE SIDE IS LOW

Step	Check	Yes	No
1 CHECK REFRIGERANT LEAKAGE. Check the refrigerant for leakage. <Ref. to AC-30, INSPECTION, Refrigerant Leak Check.> NOTE: When the pressure on the high-pressure side is less than 0.69 Mpa: Go to Step 2.	Are there any refrigerant leakage?	Repair the refrigerant leakage.	Go to step 2.
2 FILL PROPER AMOUNT OF REFRIGERANT. Drain the refrigerant completely, and then refill the proper amount of refrigerant. • Recovery: <Ref. to AC-26, PROCEDURE, Refrigerant Recovery Procedure.> • Refill: <Ref. to AC-27, PROCEDURE, Refrigerant Charging Procedure.>	Is the refrigerant pressure within the specified range?	Refrigerant pressure is normal.	Inspect the compressor. <Ref. to AC(diag)-34, COOL AIR DOES NOT COME OUT WHEN PRESSING THE A/C SWITCH. FOG CANNOT BE CLEARED. (COMPRESSOR DOES NOT OPERATE.), DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.>

5. HIGH-PRESSURE SIDE IS HIGH

Step	Check	Yes	No
1 CHECK CONDENSER. Check the condenser. <Ref. to AC-57, INSPECTION, Condenser.>	Is condenser normal?	Go to step 2.	Clean or replace the condenser.
2 CHECK RADIATOR FAN. Check the radiator fan system. <Ref. to CO(H4DO)-8, Radiator Fan System.>	Is radiator fan system normal?	Go to step 3.	Repair or replace the faulty parts of the radiator fan system.
3 FILL PROPER AMOUNT OF REFRIGERANT. Drain the refrigerant completely, and then refill the proper amount of refrigerant. • Recovery: <Ref. to AC-26, PROCEDURE, Refrigerant Recovery Procedure.> • Refill: <Ref. to AC-27, PROCEDURE, Refrigerant Charging Procedure.>	Is the refrigerant pressure within the specified range?	Refrigerant pressure is normal.	Check the high-pressure hose and condenser for deformation or clogging, and replace if defective.

Refrigerant Pressure with Manifold Gauge Set

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

6. LOW-PRESSURE SIDE IS LOW

Step	Check	Yes	No
1 CHECK REFRIGERANT LEAKAGE. Check the refrigerant for leakage. <Ref. to AC-30, INSPECTION, Refrigerant Leak Check.> NOTE: When the pressure on the high-pressure side is less than 0.69 Mpa: Go to Step 2.	Are there any refrigerant leakage?	Repair the refrigerant leakage.	Go to step 2.
2 FILL PROPER AMOUNT OF REFRIGERANT. Drain the refrigerant completely, and then refill the proper amount of refrigerant. • Recovery: <Ref. to AC-26, PROCEDURE, Refrigerant Recovery Procedure.> • Refill: <Ref. to AC-27, PROCEDURE, Refrigerant Charging Procedure.>	Is the refrigerant pressure within the specified range?	Refrigerant pressure is normal.	Go to step 3.
3 REPLACE EXPANSION VALVE. Replace the expansion valve. <Ref. to AC-68, REMOVAL, Expansion Valve.>	Is the refrigerant pressure within the specified range?	Refrigerant pressure is normal.	Inspect the compressor. <Ref. to AC(diag)-34, COOL AIR DOES NOT COME OUT WHEN PRESSING THE A/C SWITCH. FOG CANNOT BE CLEARED. (COMPRESSOR DOES NOT OPERATE.), DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.>

7. LOW-PRESSURE SIDE IS HIGH

Step	Check	Yes	No
1 FILL PROPER AMOUNT OF REFRIGERANT. Drain the refrigerant completely, and then refill the proper amount of refrigerant. • Recovery: <Ref. to AC-26, PROCEDURE, Refrigerant Recovery Procedure.> • Refill: <Ref. to AC-27, PROCEDURE, Refrigerant Charging Procedure.>	Is the refrigerant pressure within the specified range?	Refrigerant pressure is normal.	Go to step 2.
2 REPLACE EXPANSION VALVE. Replace the expansion valve. <Ref. to AC-68, REMOVAL, Expansion Valve.>	Is the refrigerant pressure within the specified range?	Refrigerant pressure is normal.	Replace the evaporator. <Ref. to AC-62, REMOVAL, Evaporator.>

Refrigerant Recovery Procedure

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

4. Refrigerant Recovery Procedure

A: PROCEDURE

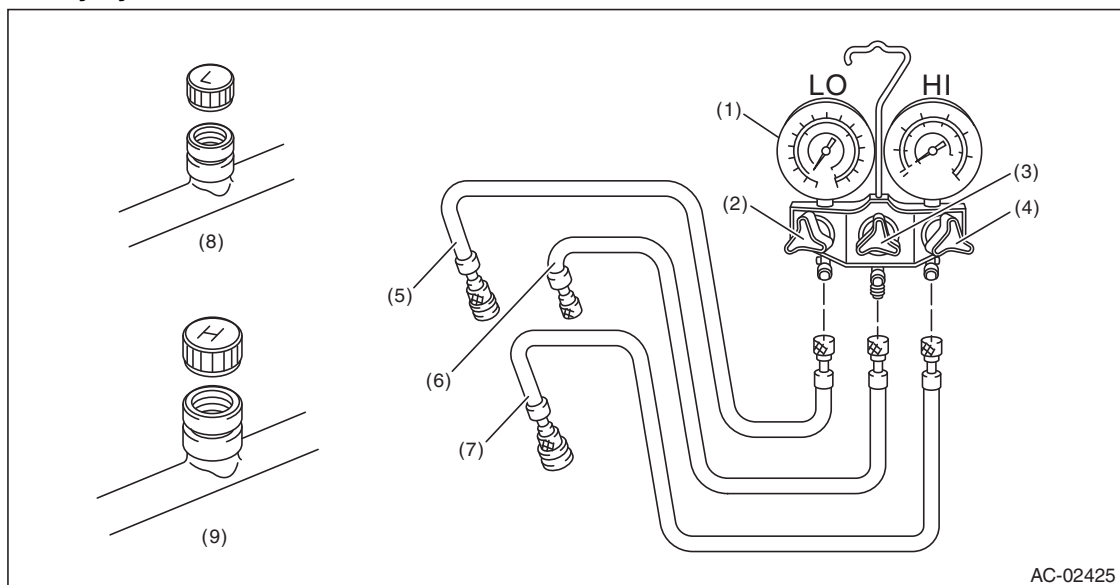
PREPARATION TOOL:

Manifold gauge set

Refrigerant recovery system

CAUTION:

- During operation, be sure to wear protective goggles and protective gloves.
- Connect the refrigerant recovery system with the manifold gauge set to discharge the refrigerant from the A/C system and recycle the gas.
- When recycling the discharged refrigerant, keep service cans on hand. Because the recovery rate with the recovery system is approx. 90%, service cans are necessary to charge the refrigerant.
- Follow the detailed operation procedure described in the operation manual attached to the refrigerant recovery system.



AC-02425

- | | | |
|------------------------|---|--|
| (1) Manifold gauge | (4) High pressure valve | (7) High-pressure hose (high-pressure) |
| (2) Low pressure valve | (5) Low-pressure hose (low-pressure) | (8) Low-pressure side service port |
| (3) Center valve | (6) Center manifold hose (vacuum pump and charge) | (9) High-pressure side service port |

- 1) Perform compressor oil return operation. <Ref. to AC-34, PROCEDURE, Compressor Oil.>
- 2) Stop the engine.
- 3) Attach the manifold gauge set.
 - (1) Confirm that all valves are fully closed.
 - (2) Install the low/high pressure hoses to the service ports on the low/high pressure sides of the vehicle respectively.

CAUTION:

Confirm that the connections are secure.

- (3) Connect the center hose to the refrigerant recovery system.
- 4) Follow the operation manual attached to the refrigerant recovery system to recover the refrigerant.

Refrigerant Charging Procedure

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

5. Refrigerant Charging Procedure

A: PROCEDURE

Preparation tool:

Manifold gauge set

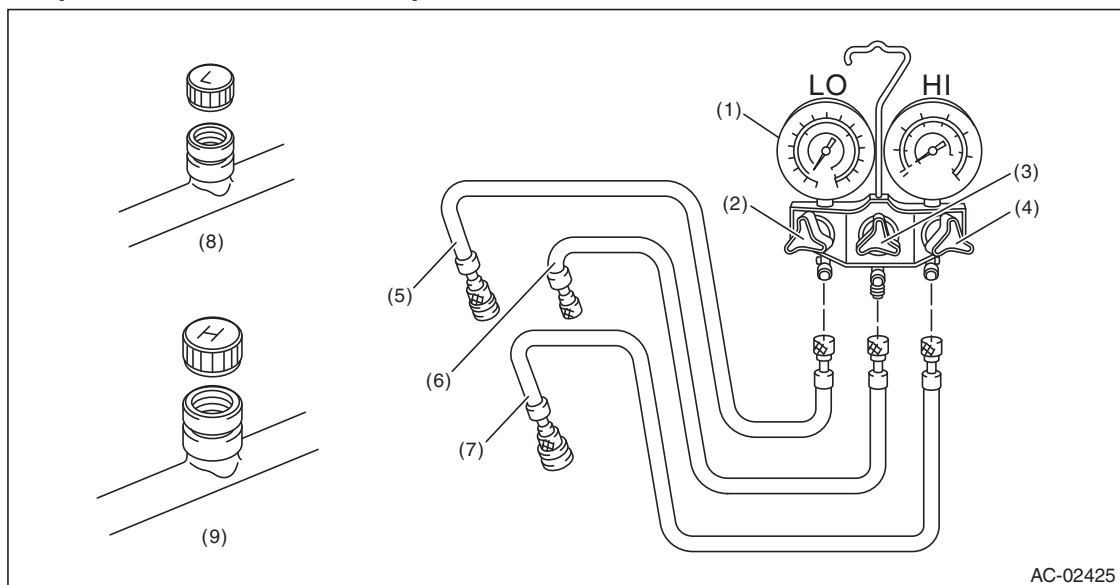
Vacuum pump

Can tap

Weight scale

CAUTION:

- While working, be sure to wear protective goggles and protective gloves.
- Air in the cycle can cause insufficient air conditioning, and water in the cycle can cause clogging in the cycle (icing) and rust. To remove this air and water content, use a vacuum pump to perform evacuation before filling with refrigerant. By making the inside of the cycle a vacuum, the water content will evaporate even at normal temperatures, and can be removed.



- | | | |
|------------------------|---|-------------------------------------|
| (1) Manifold gauge | (4) High pressure valve | (7) High-pressure hose |
| (2) Low pressure valve | (5) Low-pressure hose | (8) Low-pressure side service port |
| (3) Center valve | (6) Center manifold hose (vacuum pump and charge) | (9) High-pressure side service port |

Refrigerant Charging Procedure

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

- 1) Attach the manifold gauge set.
 - (1) Check that all valves are fully closed.
 - (2) Install the low/high pressure hoses to the service ports on the low/high pressure sides of the vehicle respectively.

CAUTION:

Confirm that the connections are secure.

- (3) Connect the center manifold hose of the manifold gauge to the vacuum pump.
- 2) Perform evacuation.

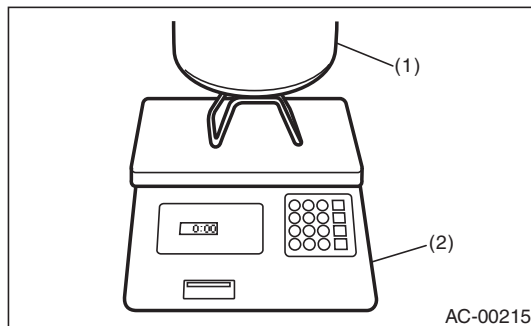
CAUTION:

Make sure to perform evacuation using a vacuum pump.

- (1) Open the low-pressure valve, high-pressure valve and center valve.
 - (2) Operate the vacuum pump.
 - (3) Perform evacuation for 5 minutes or more, and when the low pressure gauge needle reaches -0.1 MPa (-1.0 kgf/cm², -14 psi), close the center manifold hose valve, and stop the vacuum pump.
 - (4) Leave alone for 5 to 10 minutes after closing the low pressure side and high pressure side valves, and check whether there is any change in the low pressure gauge needle indication.
If the needle position changes, this indicates a leak. Check the pipe and hose connections, and repair the location with the problem.
After repair, retry charging the refrigerant from the step 1).
 - (5) If there is no leakage, continue evacuation for additional 20 — 30 minutes, close all valves and then stop the vacuum pump.
- 3) Charge refrigerant.
 - (1) Follow the can tap operation manual to attach it to the refrigerant can.
 - (2) Disconnect the center manifold hose from the vacuum pump, and connect the hose to the tap valve.

NOTE:

When 13.6 kg (30 lb) refrigerant container (1) is used, measure the amount of refrigerant with a refrigerant charging scale (2), and connect with the center manifold hose.



- (3) Open the tap valve of HFC-134a supply container (refrigerant can or refrigerant container).
 - (4) Loosen the center manifold hose connection on the manifold gauge for a few seconds (if there is a purge valve on the manifold gauge, push this instead) to allow the air in the center manifold hose to be bled by the refrigerant pressure.
 - (5) Open the low-pressure side and high-pressure side valves of the manifold gauge to fill with refrigerant.

NOTE:

If the HFC-134a supply container is empty, close all manifold gauge valves and the tap valve of HFC-134a supply container, and replace the empty supply container with a new one. After replacing with a new HFC-134a supply container, perform air purge, and resume the filling operation.

- (6) If the low pressure gauge indicates approximately 0.2 MPa (2.0 kgf/cm², 29 psi) or refrigerant filling efficiency drops, close the low-pressure side valve and high-pressure side valve.
 - (7) Check that the low-pressure side valve and high-pressure side valve are closed, turn off the A/C switch and start the engine.

CAUTION:

When filling with the engine running, do not open the high pressure side valve. Always fill from the low pressure side.

Refrigerant Charging Procedure

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

- (8) To prevent damage to the compressor, push the A/C switch ON-OFF quickly a few times.
(9) Set the vehicle to the following conditions.

Item	Condition
Engine speed	1,500 rpm
A/C switch	ON
Temperature adjustment dial	LO (MAX COOL)
Fan dial	HI (MAX)
FRESH/RECIRC switch	RECIRC
Air flow control dial or switch	VENT
WINDOW	OPEN

(10) Open the low-pressure side valve, check the refrigerant pressure with a manifold gauge and fill with refrigerant up to the specified amount. <Ref. to AC-23, INSPECTION WITH PRESSURE SYMPTOMS, INSPECTION, Refrigerant Pressure with Manifold Gauge Set.>

- 4) Using an electronic leak detector (leak tester), check for refrigerant leaks in the system. <Ref. to AC-30, INSPECTION, Refrigerant Leak Check.>
5) After filling with refrigerant, close all valves and remove the manifold gauge set.
6) Attach cap to the service port of the low-pressure side and high-pressure side.



Refrigerant Leak Check

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

6. Refrigerant Leak Check

A: INSPECTION

PREPARATION TOOL:

Manifold gauge set

Electronic leak detector

1) Attach the manifold gauge set.

(1) Confirm that all valves are fully closed.

(2) Install the low/high pressure hoses to the service ports on the low/high pressure sides of the vehicle respectively.

CAUTION:

Confirm that the connections are secure.

(3) Start the engine to operate the A/C system for approx. 10 minutes, and check that the high-pressure side shows at least 0.69 MPa (7.0 kgf/cm², 100 psi).

2) Stop the engine to start the leak test.

Inspection parts	Condition	Corrective action
Pipe	Check the connection between pipe and expansion valve.	Check the O-ring and tightening torque on the connection. If necessary, replace each part.
	Check the connection between pressure switch or pressure sensor and high-pressure pipe.	Replace the pressure switch or pressure sensor.
	Check the connection between pipe and condenser.	Check the O-ring and tightening torque on the connection. If necessary, replace each part.
Condenser	Check the welded spot of condenser and the core.	Replace the condenser.
Hose (high-pressure)	Check the connection between hose (high-pressure) and compressor.	Check the O-ring and tightening torque on the connection. If necessary, replace each part.
	Check the connection between hose (high-pressure) and condenser.	Check the O-ring and tightening torque on the connection. If necessary, replace each part.
	Check the rubber part of the flexible hose and the seam between hose and pipe. CAUTION: Carefully check the external surface of flexible hose and pipe at approx. 25 mm (0.98 in) per second.	Replace the hose (high-pressure).
	Check the valve and cap in the service port.	Check the rubber seal of the valve and cap. If necessary, replace valve or cap.
Compressor	Check the compressor pulley and the vicinity of shaft seal. CAUTION: Some shaft seals will show a slight amount of leakage, about 3 g (0.1 oz) per year. This is not a problem.	Replace the compressor.
Hose (low-pressure)	Check the connection between hose (low-pressure) and expansion valve.	Check the O-ring and tightening torque on the connection. If necessary, replace each part.
	Check the connection between hose (low-pressure) and compressor.	Check the O-ring and tightening torque on the connection. If necessary, replace each part.
	Check the rubber part of the flexible hose and the seam between hose and pipe. CAUTION: Carefully check the external surface of flexible hose and pipe at approx. 25 mm (0.98 in) per second.	Replace the hose (low-pressure).
	Check the valve and cap in the service port.	Check the rubber seal of the valve and cap. If necessary, replace valve or cap.

Refrigerant Leak Check

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

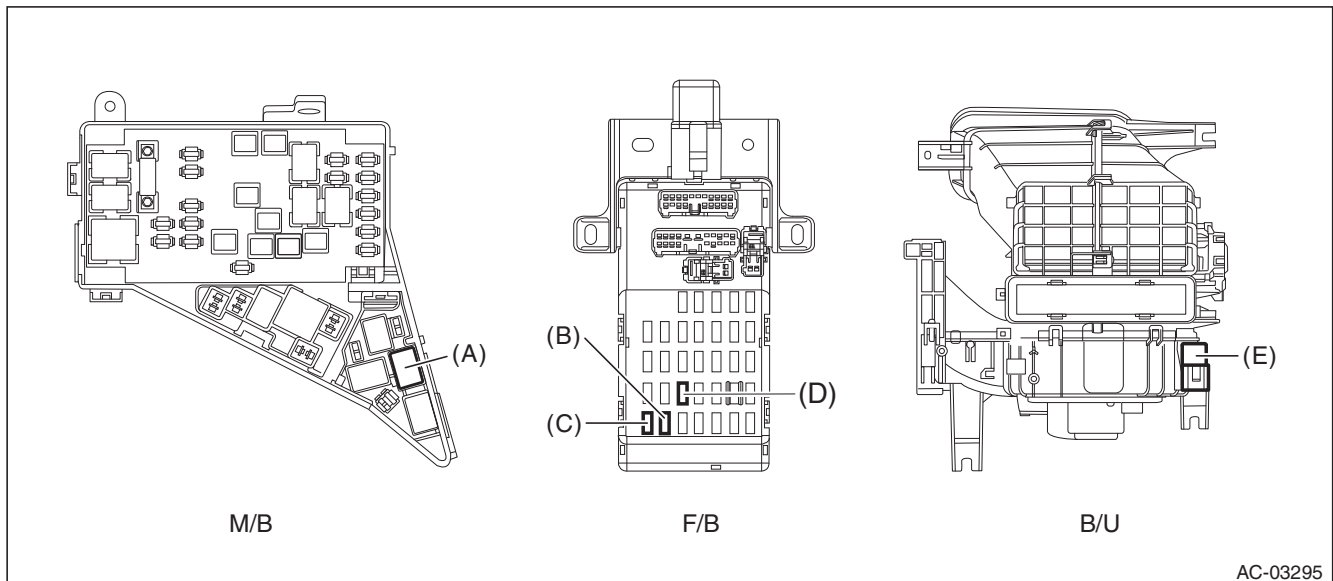
Inspection parts	Condition	Corrective action
Evaporator	Remove the drain hose from the heater case, and check the end portion for 10 seconds or more.	Replace the evaporator.
	Check the air vent grille. NOTE: Turn the ignition switch to ON, and run the blower at high speed for approx. 1 minute. Stop the blower to check the air vent grille on the instrument panel. While moving the tester closer to the grille, run the blower for 1 or 2 seconds, then stop it. Check the grille at that position for at least 10 seconds.	Replace the evaporator.

Relay and Fuse

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

7. Relay and Fuse

A: LOCATION



AC-03295

Main fuse box	A/C relay	(A)
Relay & fuse box	Fuse 15 A (blower motor relay)	(B)
	Fuse 15 A (blower motor relay)	(C)
	Fuse 10 A (A/C control panel)	(D)
Blower motor unit	Blower motor relay	(E)

NOTE:

For other related fuses, refer to the wiring diagram. <Ref. to WI-24, Power Supply Circuit.>

Relay and Fuse

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

B: INSPECTION

1. CHECK FUSE

- 1) Remove the fuse and inspect visually.
- 2) If the fuse is blown out, replace the fuse.

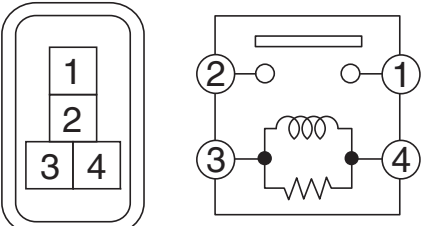
NOTE:

If the fuse is blown again, check the system wiring harness.

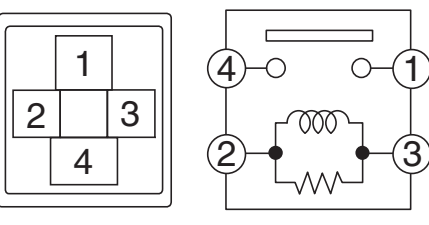
2. CHECK RELAY

- 1) Check the resistance between relay terminals.

- A/C relay

Terminal No.	Inspection conditions	Standard	Circuit
1 — 2	Always	1 MΩ or more	 LI-01273
1 — 2	Apply battery voltage between terminals 4 and 3.	Less than 1 Ω	

- Blower motor relay

Terminal No.	Inspection conditions	Standard	Circuit
1 — 4	Always	1 MΩ or more	 AC-02796
1 — 4	Apply battery voltage between terminals 2 and 3.	Less than 1 Ω	

- 2) Replace the relay if the inspection result is not within the standard.

Compressor Oil

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

8. Compressor Oil

A: PROCEDURE

NOTE:

Before making repairs, perform the oil return operation to return the compressor oil in circulation with the refrigerant to the compressor assembly.

- 1) Increase the engine to 1,500 rpm.
- 2) Turn the A/C switch to ON.
- 3) Turn the temperature control dial to LO (MAX COOL).
- 4) Turn the FRESH/RECIRC switch to RECIRC position.
- 5) Turn the fan dial to HI (MAX).
- 6) Leave in this condition for 10 minutes.

B: ADJUSTMENT

- If a component has been replaced, add an appropriate amount of compressor oil (same as the amount of remaining oil in removed component).
- When replacing the compressor assembly, the new compressor assembly will already have the specified amount of oil in it. Adjust the oil amount (so that the amount remains the same as that of the removed compressor assembly) and install the new compressor assembly.

NOTE:

Since the hygroscopicity of compressor oil is high, perform this series of works quickly.

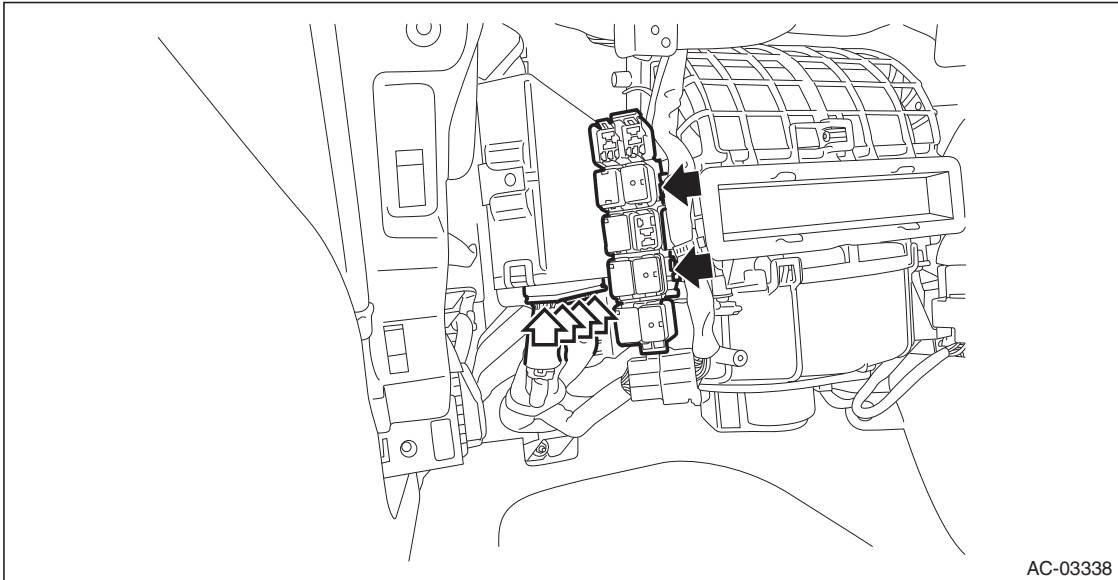
Blower Motor Unit Assembly

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

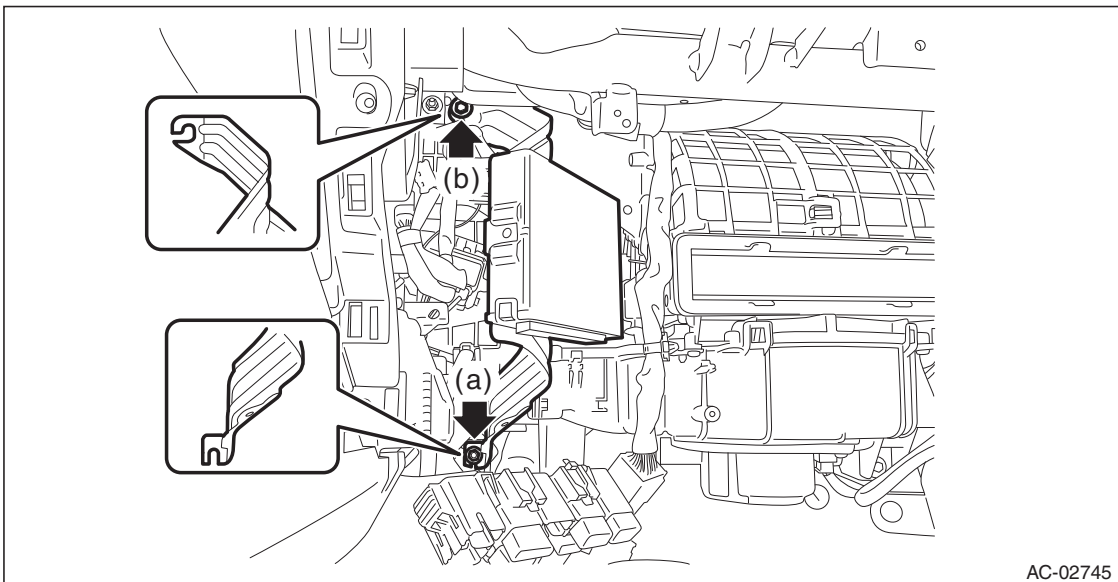
9. Blower Motor Unit Assembly

A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Remove the glove box. <Ref. to EI-61, REMOVAL, Glove Box.>
- 3) Remove the engine control module (ECM). (Non-turbo model)
 - (1) Release the lock and remove the relay holder.
 - (2) Disconnect the connector.



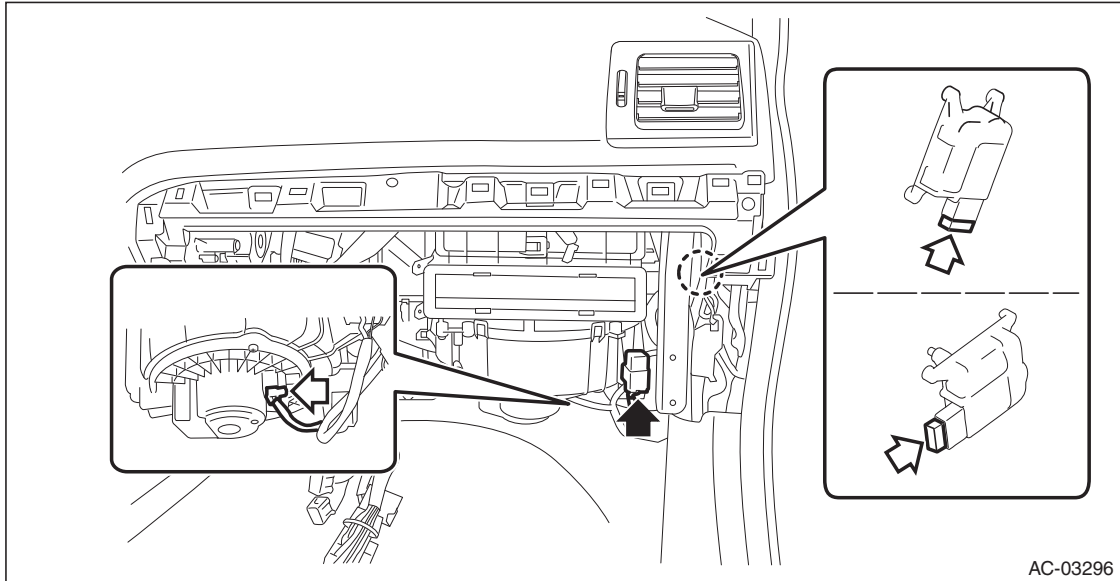
- (3) Remove the nuts (a).
- (4) Loosen the bolt (b), and remove the engine control module (ECM).



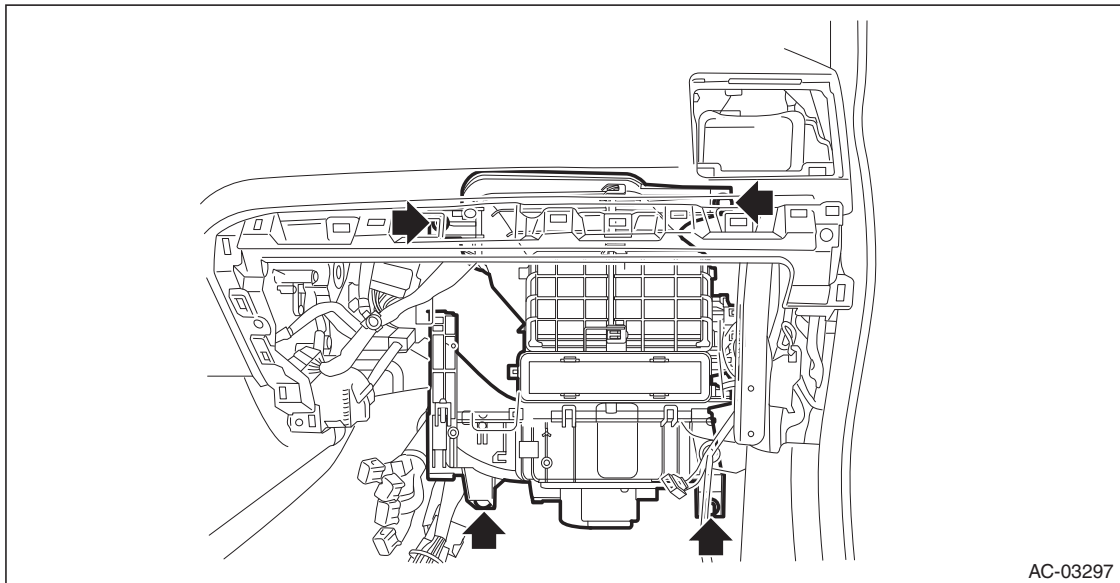
Blower Motor Unit Assembly

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

- 4) Remove the blower motor unit assembly.
(1) Disconnect the blower motor relay and each connector.



- (2) Remove the bolts and nuts to remove blower motor unit assembly.



B: INSTALLATION

Install each part in the reverse order of removal.

Tightening torque:

Blower motor unit: <Ref. to AC-10, BLOWER MOTOR UNIT, COMPONENT, General Description.>

Engine control module (ECM): 7.5 N·m (0.76 kgf-m, 5.5 ft-lb)

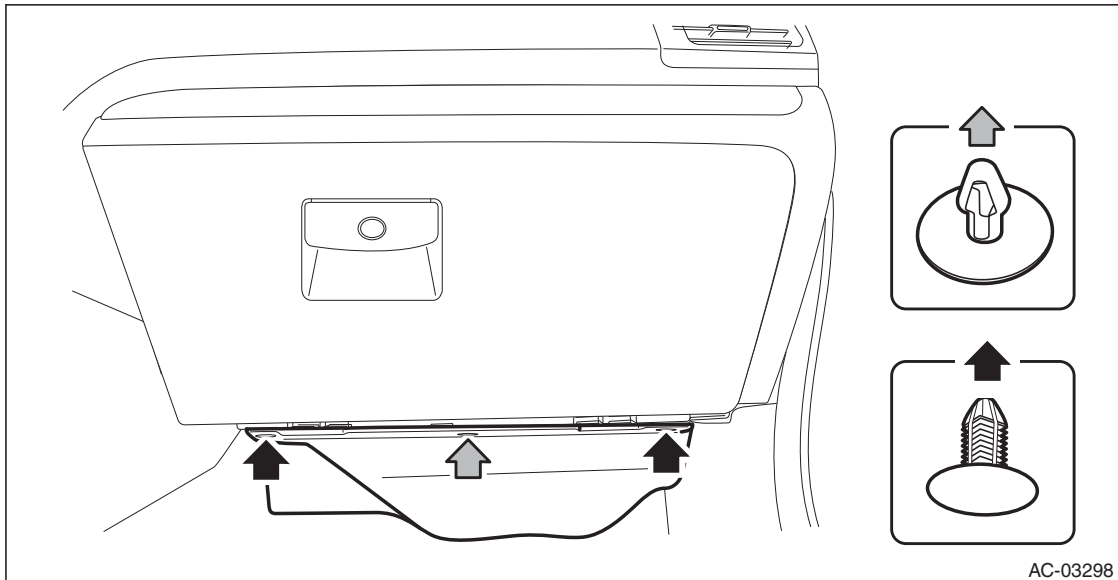
Blower Motor

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

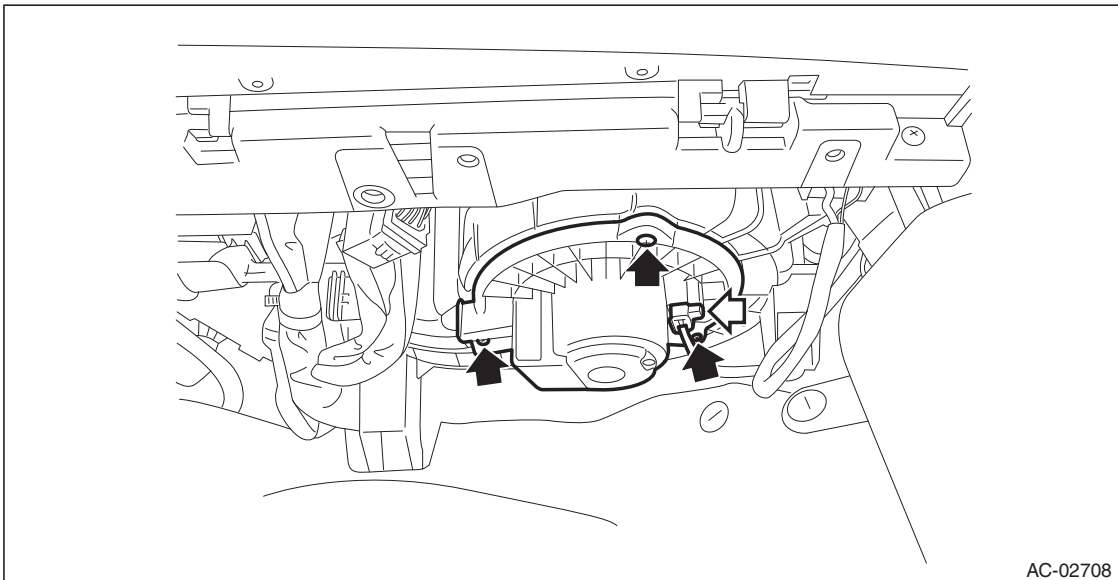
10. Blower Motor

A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Release the clips, and remove the back panel - under cover.



- 3) Remove the blower - motor.
 - (1) Disconnect the connector.
 - (2) Remove the screws and detach the blower - motor.



B: INSTALLATION

Install each part in the reverse order of removal.

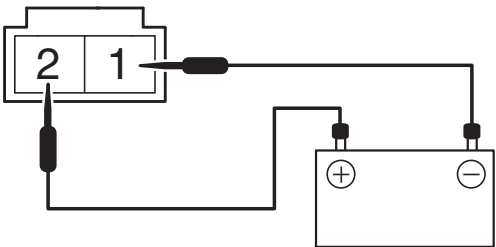
Blower Motor

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

C: INSPECTION

UNIT INSPECTION

1) Check the motor operation when battery voltage is applied between the terminals of motor.

Terminal No.	Inspection conditions	Specification	Connection diagram
2 (+) — 1 (—)	Connect battery to the terminals	Speed	 AC-02797

2) If it does not operate normally, replace the blower - motor.



Power Transistor (Auto A/C Model)

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

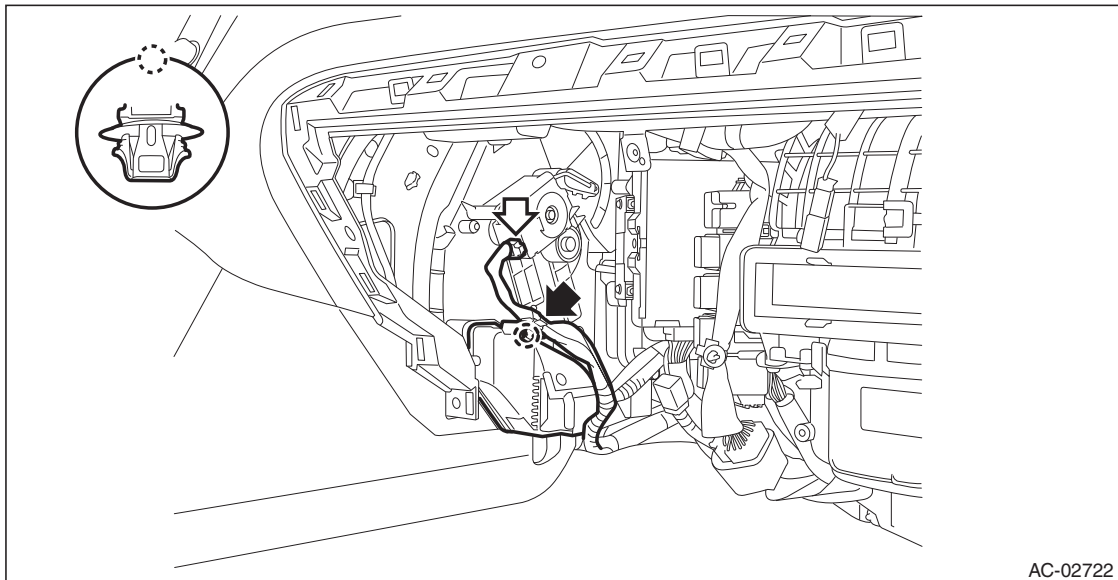
11. Power Transistor (Auto A/C Model)

A: REMOVAL

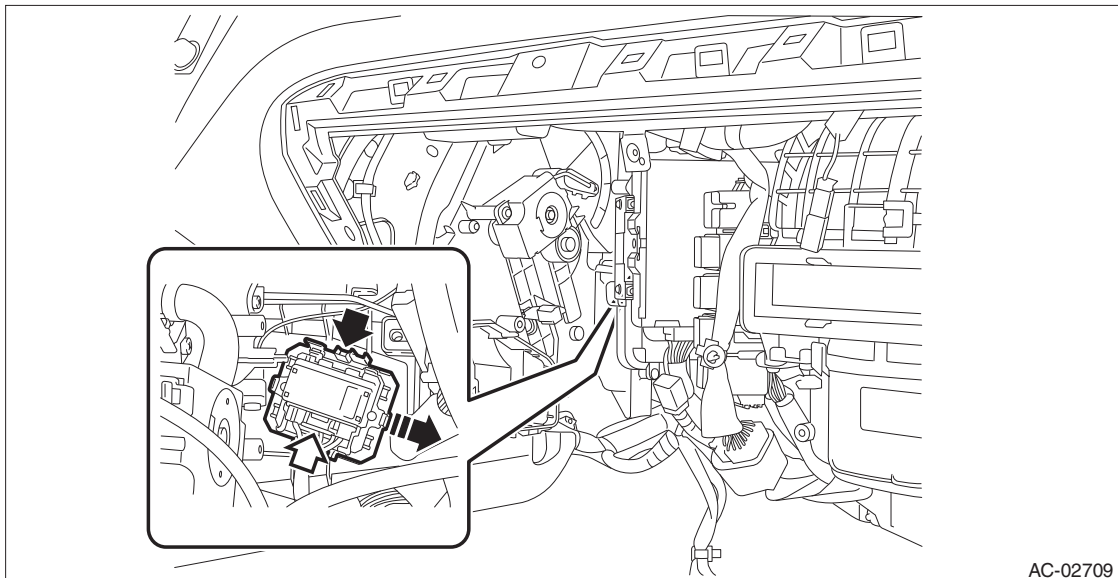
- 1) Disconnect the ground cable from battery.
- 2) Remove the glove box. <Ref. to EI-61, REMOVAL, Glove Box.>
- 3) Remove the screws and remove the duct - foot RH.

NOTE:

Remove the connector and clip of the motor - actuator mix RH, and move the harness aside.



- 4) Remove the power transistor.
 - (1) Disconnect the connector.
 - (2) Remove the power transistor while pressing the power transistor body claw part and sliding it.



B: INSTALLATION

Install each part in the reverse order of removal.

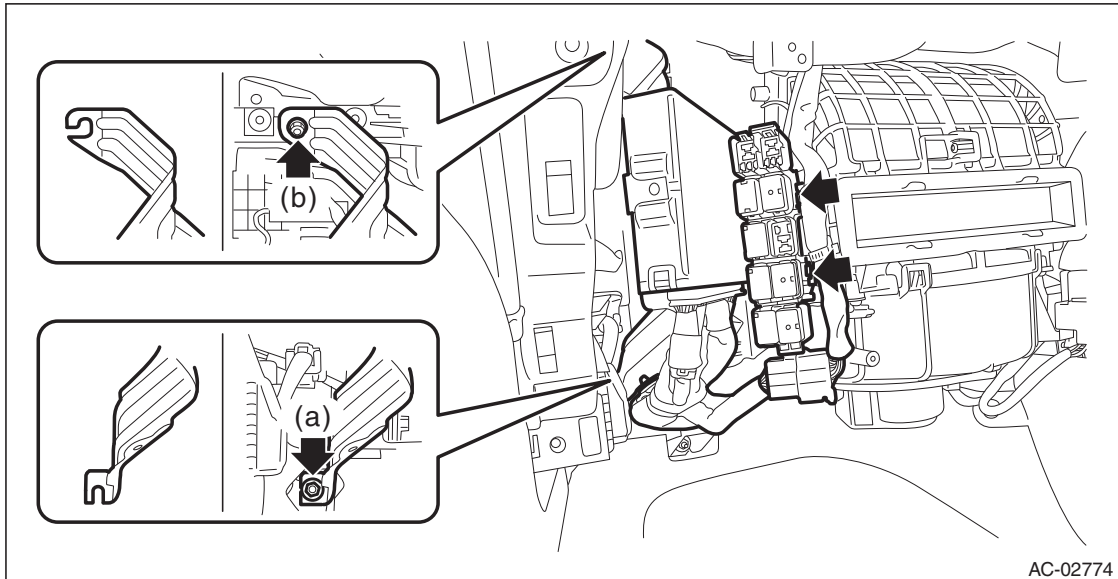
Blower Resistor (Manual A/C Model)

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

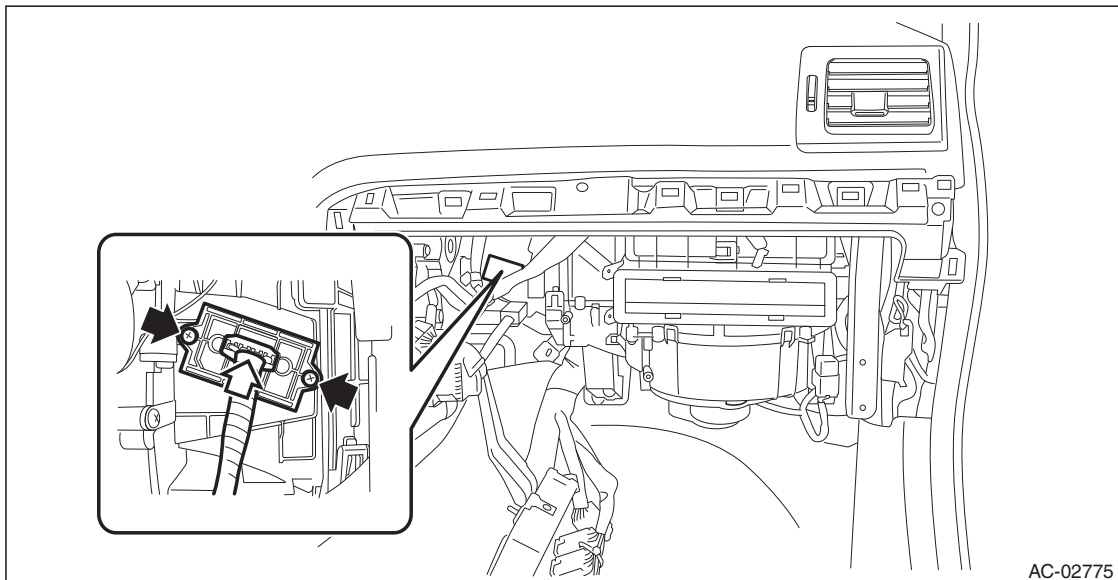
12. Blower Resistor (Manual A/C Model)

A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Remove the glove box. <Ref. to EI-61, REMOVAL, Glove Box.>
- 3) Remove the engine control module (ECM). (Non-turbo model)
 - (1) Release the lock and remove the relay holder.
 - (2) Remove the nuts (a).
 - (3) Loosen the bolt (b), and remove the engine control module (ECM).



- 4) Remove the resistor.
 - (1) Disconnect the connector.
 - (2) Remove the screw and remove the resistor.



B: INSTALLATION

Install each part in the reverse order of removal.

Tightening torque:

Engine control module (ECM): 7.5 N·m (0.76 kgf-m, 5.5 ft-lb)

Blower Resistor (Manual A/C Model)

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

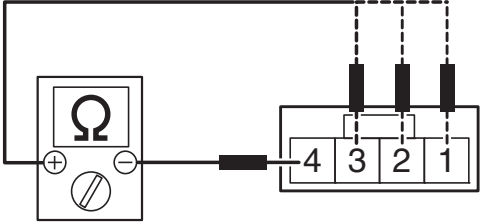
C: INSPECTION

UNIT INSPECTION

PREPARATION TOOL:

Circuit tester

1) Check the resistance between resistor terminals.

Terminal No.	Standard	Connection diagram
4 — 3	Approx. 0.43 Ω	 AC-02897
4 — 2	Approx. 1.03 Ω	
4 — 1	Approx. 3 Ω	

2) Replace the resistor if the inspection result is not within the standard.



Heater Core

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

13.Heater Core

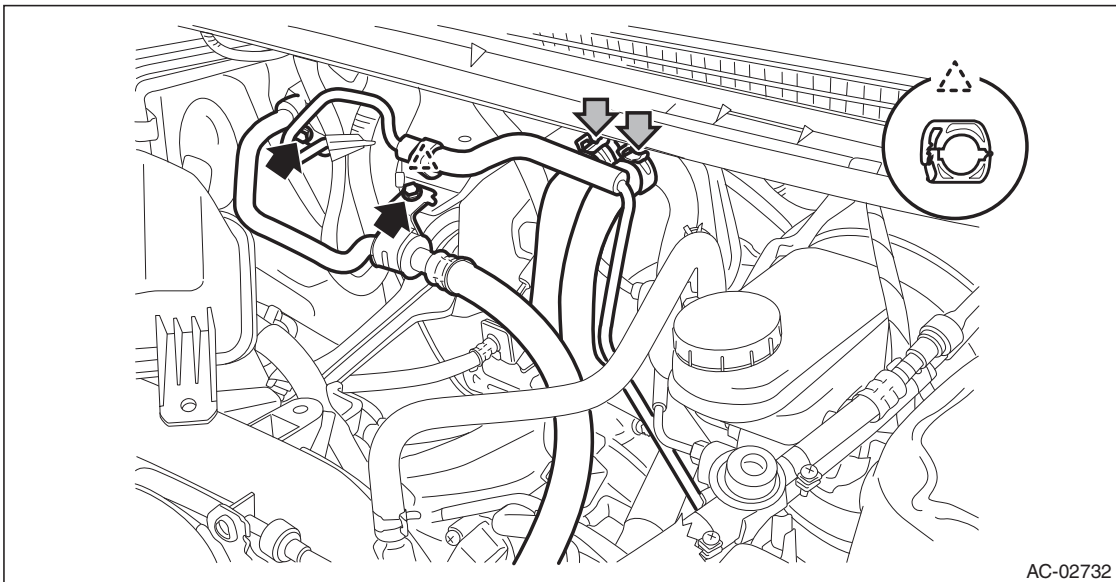
A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Using the refrigerant recovery system, discharge refrigerant. <Ref. to AC-26, PROCEDURE, Refrigerant Recovery Procedure.>
- 3) Drain the coolant from the radiator.
 - Non-turbo model: <Ref. to CO(H4DO)-14, DRAINING OF ENGINE COOLANT, REPLACEMENT, Engine Coolant.>
 - Turbo model: <Ref. to CO(H4DOTC)-13, DRAINING OF ENGINE COOLANT, REPLACEMENT, Engine Coolant.>
- 4) Remove the air intake boot. (Non-turbo model) <Ref. to IN(H4DO)-11, REMOVAL, Air Intake Boot.>

CAUTION:

Move aside the air intake boot to perform the operation without disconnecting the PCV hose.

- 5) Remove the intercooler. (Turbo model) <Ref. to IN(H4DOTC)-35, REMOVAL, Intercooler.>
- 6) Remove the bolt, and remove the hose - pressure suction and the pipe - evaporator cooling from the expansion valve - cooling.
- 7) Loosen the heater hose clamps and remove the hoses.

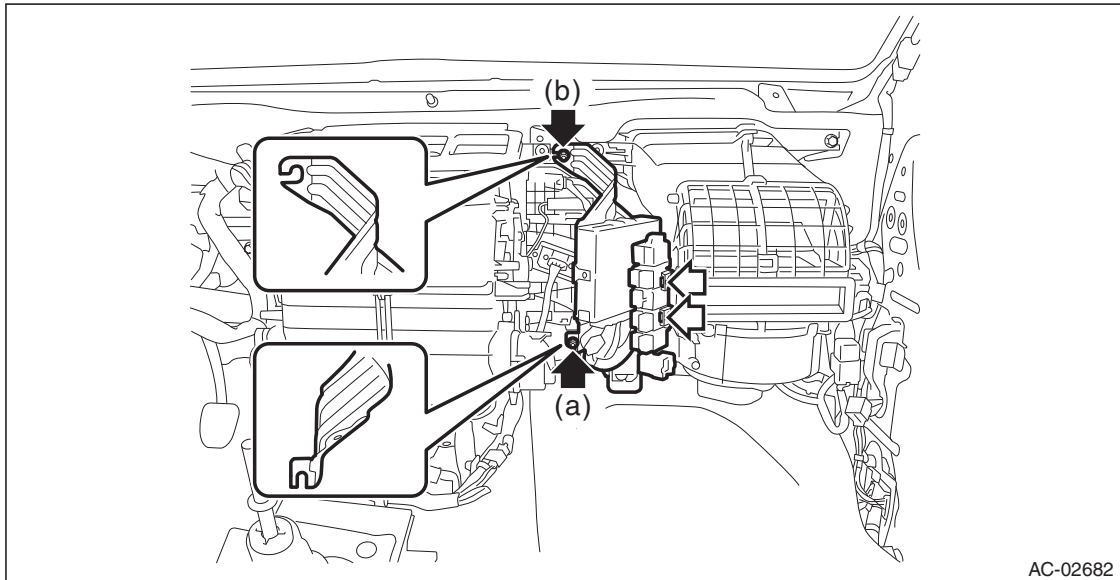


- 8) Remove the instrument panel assembly. <Ref. to EI-69, REMOVAL, Instrument Panel Assembly.>

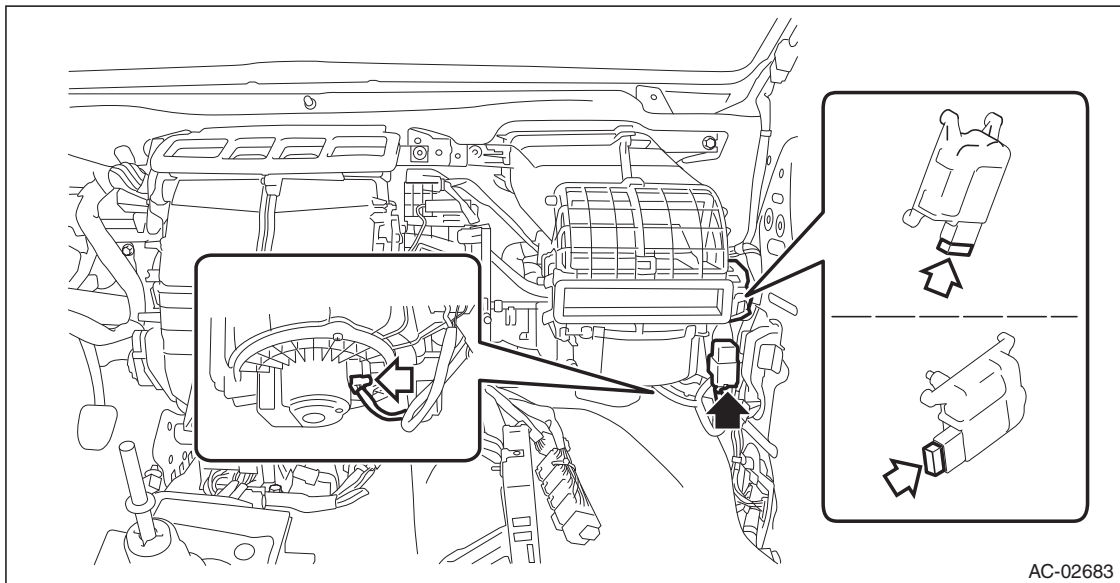
Heater Core

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

- 9) Remove the engine control module (ECM). (Non-turbo model)
- (1) Release the lock and remove the relay holder.
 - (2) Remove the nuts (a).
 - (3) Loosen the bolt (b), and remove the engine control module (ECM).



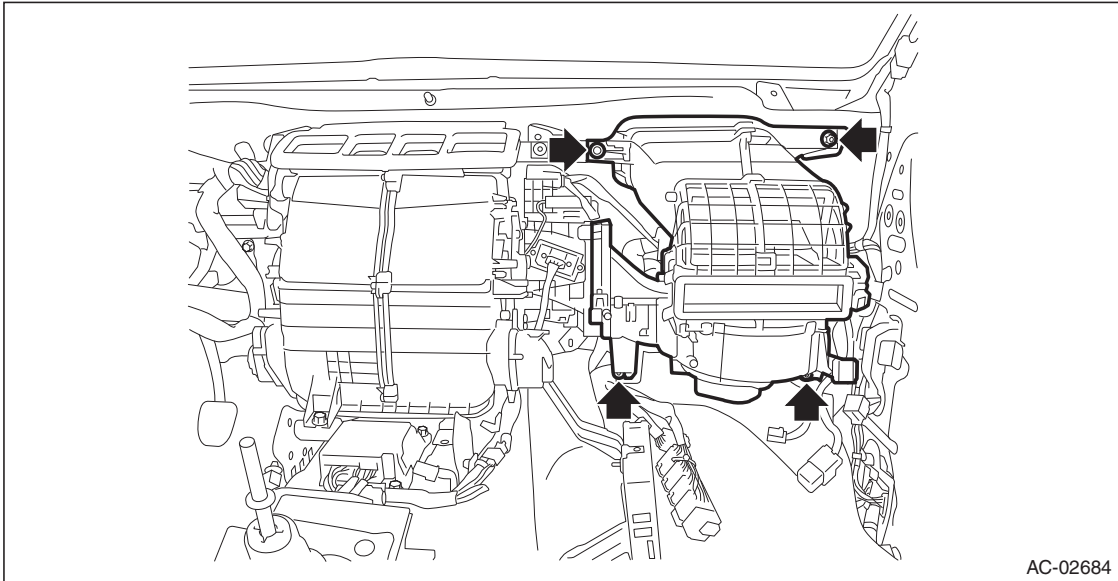
- 10) Remove the blower motor unit assembly.
- (1) Disconnect the blower motor relay and each connector.



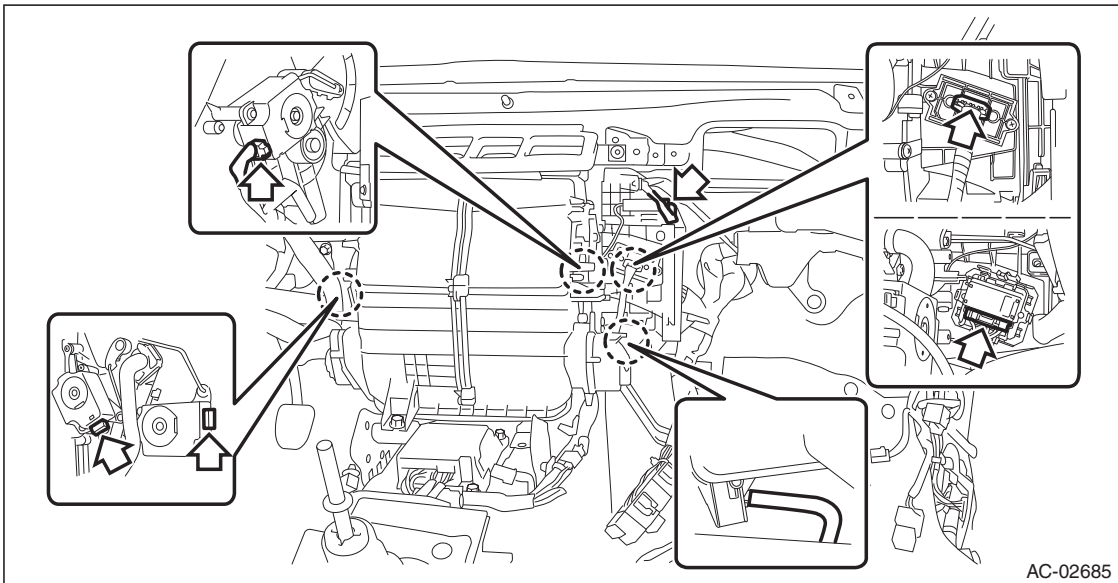
Heater Core

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

- (2) Remove the bolts and nuts to remove blower motor unit assembly.



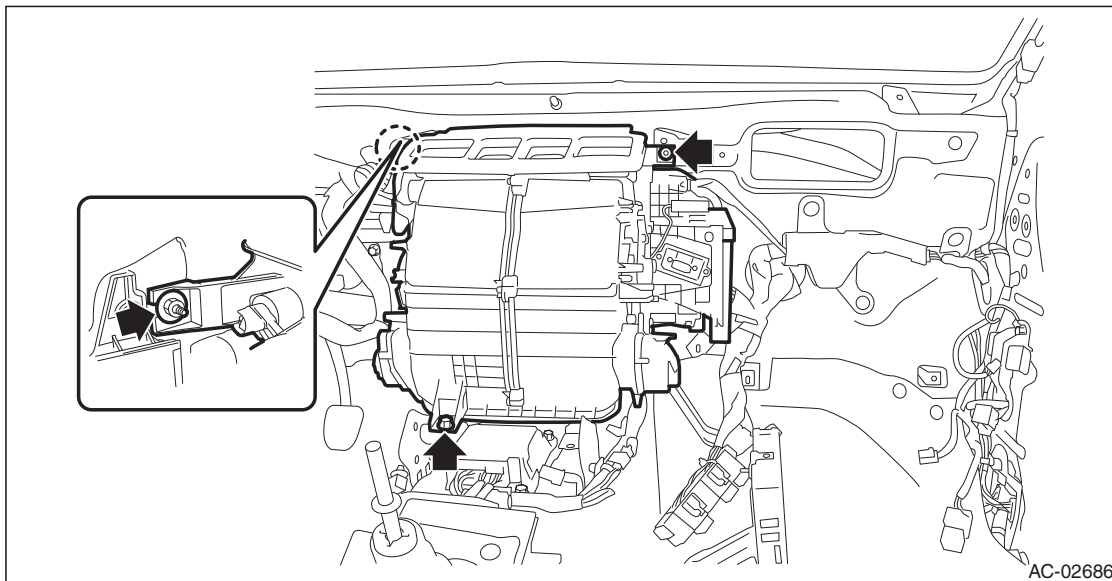
- 11) Remove the heater and cooling unit assembly.
(1) Disconnect each connector and the hose - drain.



Heater Core

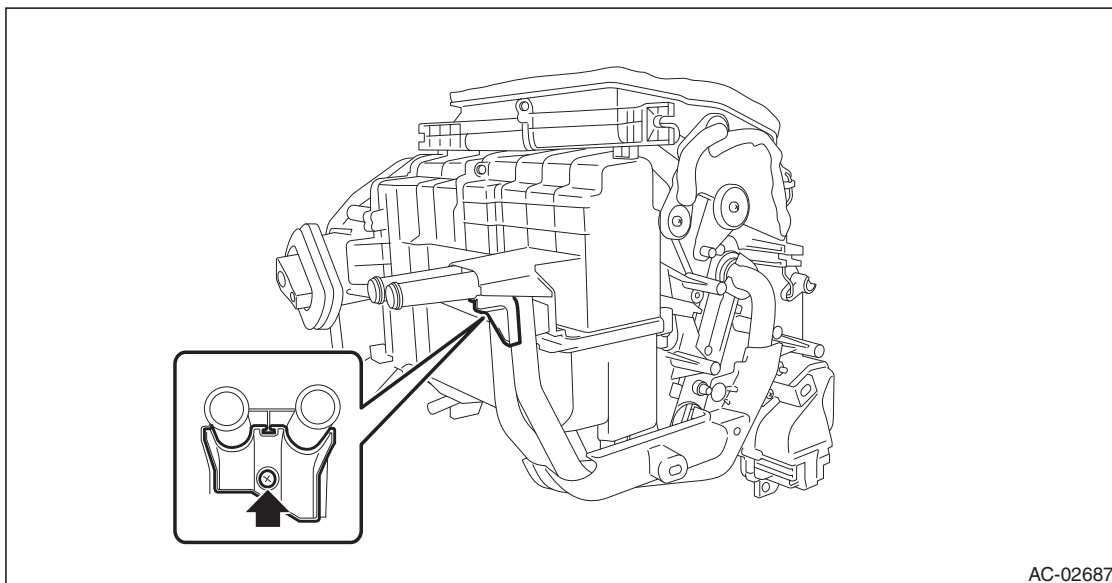
HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

- (2) Remove the bolt and nuts, and remove the heater & cooling unit assembly.



- 12) Remove the heater core.

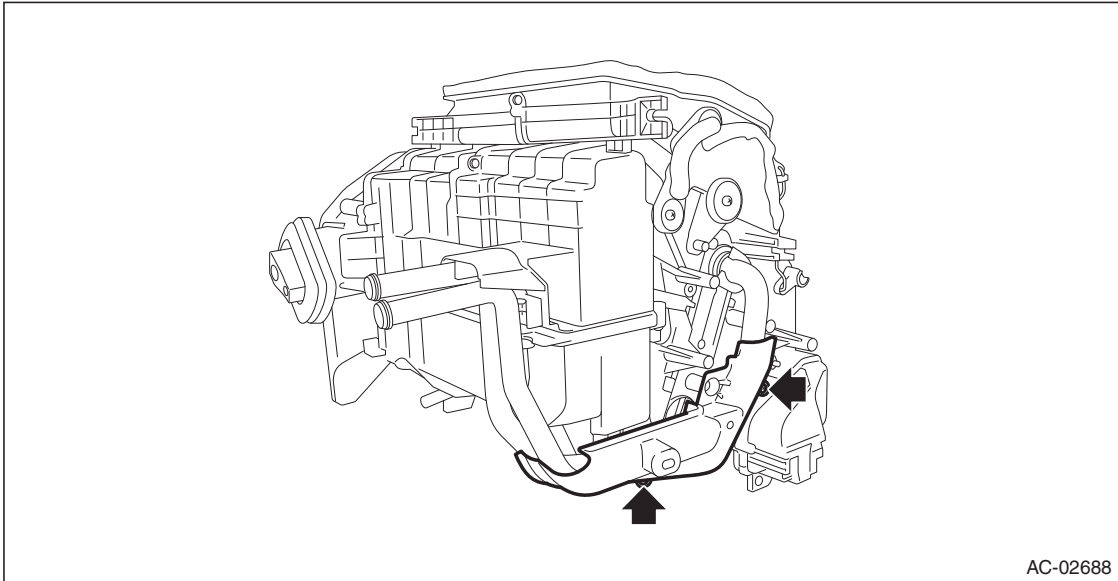
- (1) Remove the screw and detach the clamp - pipe.



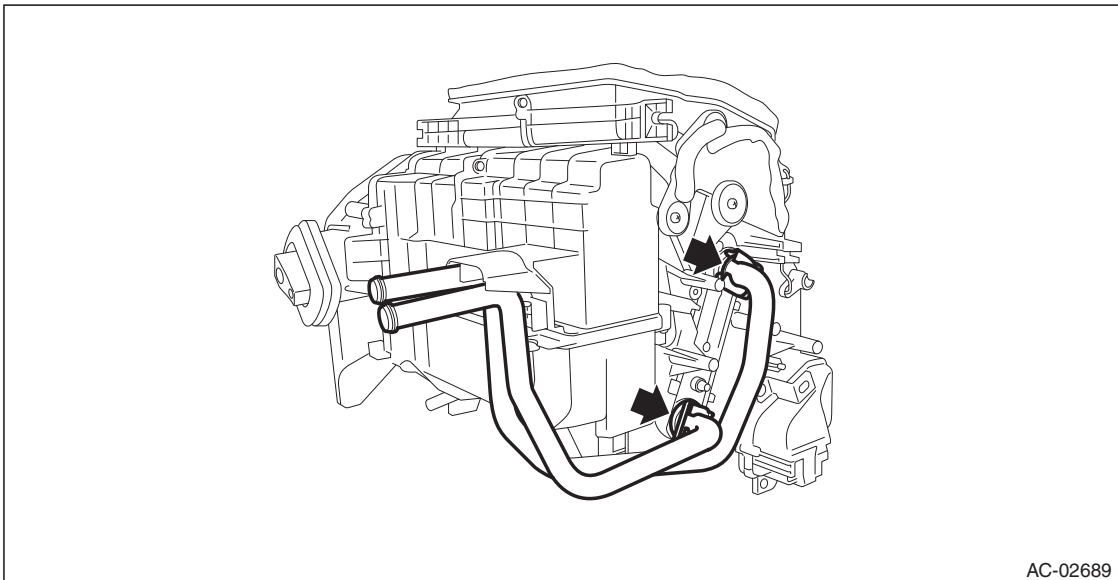
Heater Core

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

- (2) Remove the screws and detach the cover - heater pipe.



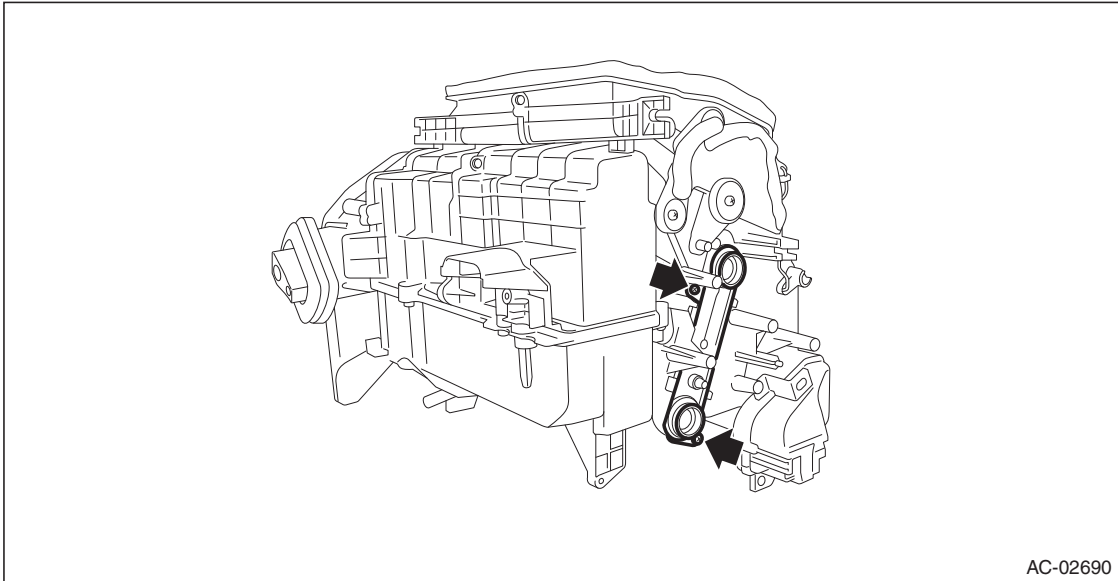
- (3) Remove the clamp, and remove the pipe - inlet and outlet.



Heater Core

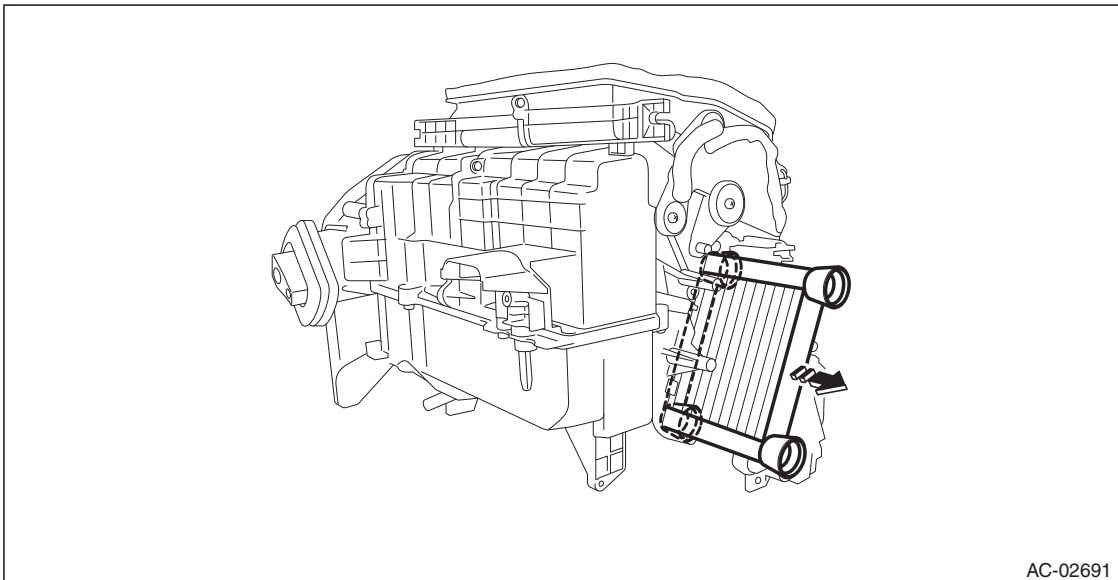
HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

- (4) Remove the screws and detach the plate - heater core.



AC-02690

- (5) Pull out the heater core from the case - heater unit.



AC-02691

B: INSTALLATION

CAUTION:

Replace O-rings and clamps with new parts and install securely.

- 1) Install each part in the reverse order of removal.

Tightening torque:

Heater cooling unit: <Ref. to AC-6, HEATER AND COOLING UNIT, COMPONENT, General Description.>

Blower motor unit: <Ref. to AC-10, BLOWER MOTOR UNIT, COMPONENT, General Description.>

Engine control module (ECM): 7.5 N·m (0.76 kgf-m, 5.5 ft-lb)

- 2) Fill engine coolant.

- Non-turbo model: <Ref. to CO(H4DO)-15, FILLING OF ENGINE COOLANT, REPLACEMENT, Engine Coolant.>

- Turbo model: <Ref. to CO(H4DOTC)-14, FILLING OF ENGINE COOLANT, REPLACEMENT, Engine Coolant.>

- 3) Charge refrigerant. <Ref. to AC-27, PROCEDURE, Refrigerant Charging Procedure.>

Control Panel

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

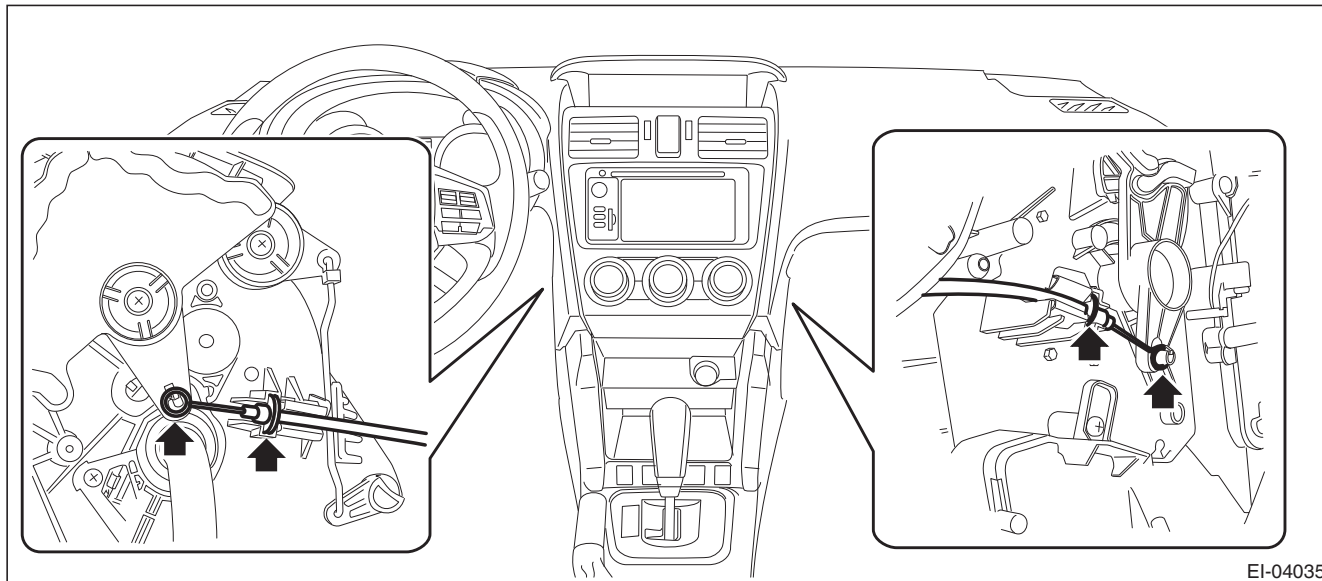
14. Control Panel

A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Remove the panel center assembly.

CAUTION:

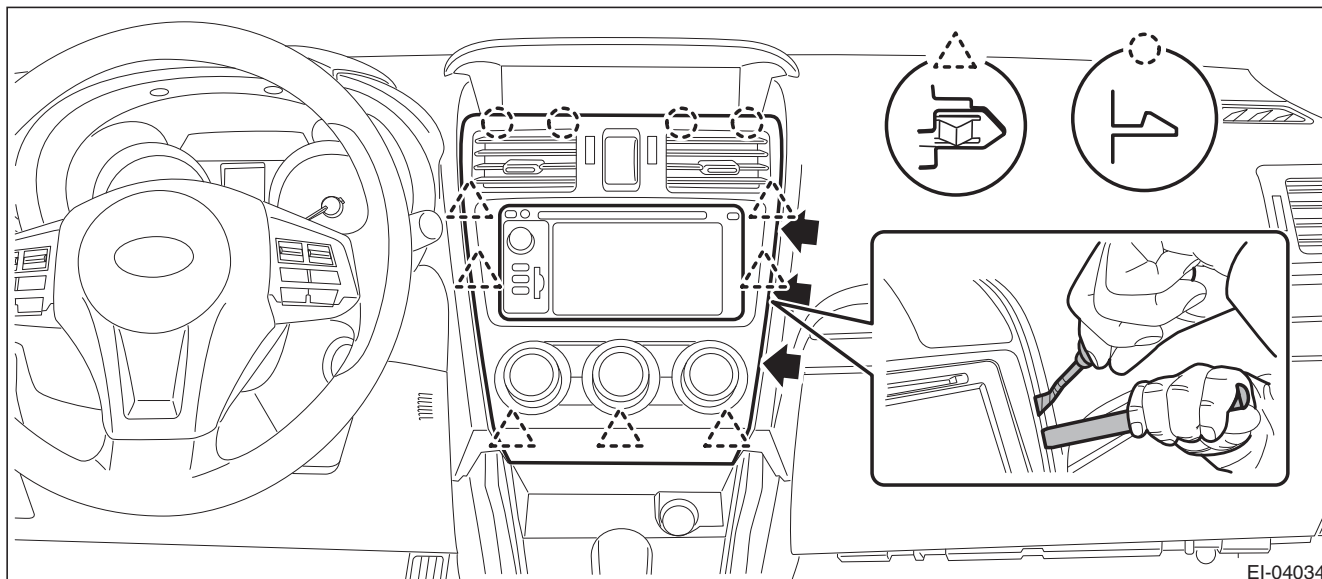
- Do not put your finger on the fin of the air vent grille. Doing so may damage the fin.
- Pull the panel center assembly slowly. Pulling with excessive force may damage the connector.
 - (1) On manual A/C models, disconnect the control cables from both sides of the heater and cooling unit assembly.



NOTE:

Remove the glove box pocket assembly on the passenger's side.

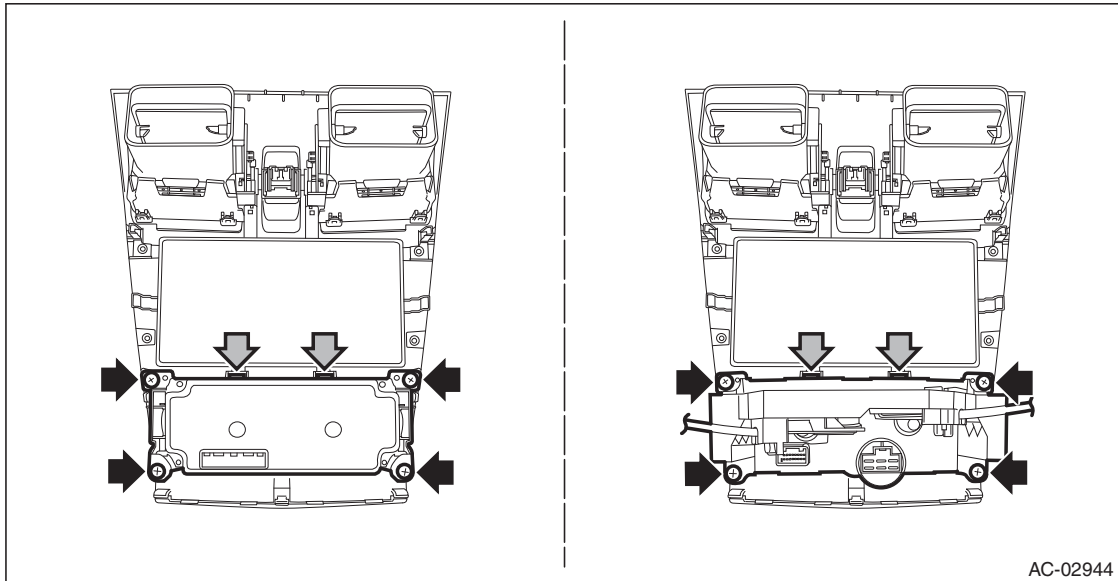
- (2) Insert a plastic remover to the three areas shown by the arrows, and slightly lift up the panel center assembly.
- (3) With the panel center assembly lifted up slightly, release the claw by using a clip remover wrapped with protective tape.
- (4) Release the rest of the claws, and pull out the panel center assembly.
- (5) Disconnect the connectors, and remove the panel center assembly.



Control Panel

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

- 3) Remove the heater control assembly.
- (1) Remove the screws.
 - (2) Release the claws, and then remove the heater control assembly from the panel center assembly.



B: INSTALLATION

CAUTION:

After installing the panel center assembly, check that the air vent grille of the panel center assembly is inserted correctly into the air vent duct.

Install each part in the reverse order of removal.

Control Panel

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

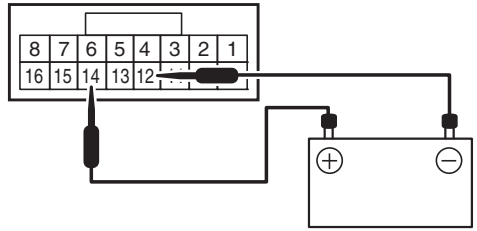
C: INSPECTION

1. CHECK ILLUMINATION

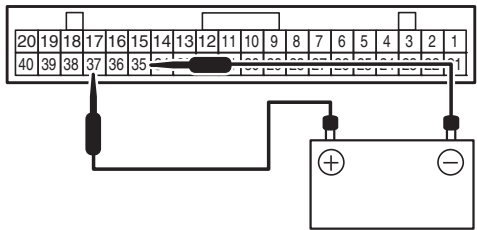
UNIT INSPECTION

1) Check the illumination operation when battery voltage is applied between the terminals of control panel.

- Manual A/C model

Terminal No.	Inspection conditions	Specification	Connection diagram
14 (+) — 12 (-)	Connect battery to the terminals	Light ON	 AC-02733

- Auto A/C model

Terminal No.	Inspection conditions	Specification	Connection diagram
37 (+) — 35 (-)	Connect battery to the terminals	Light ON	 AC-02734

2) If it does not operate normally, replace the heater control assembly.

Control Panel

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

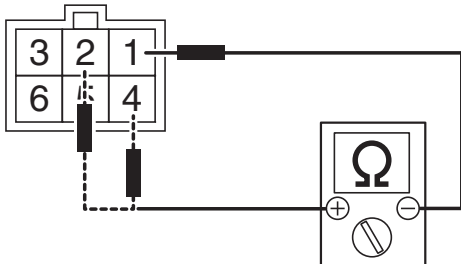
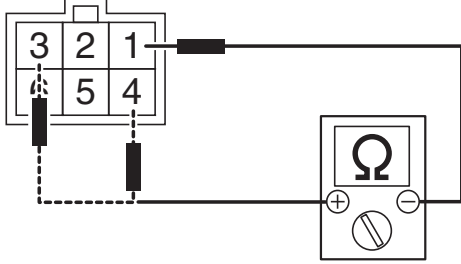
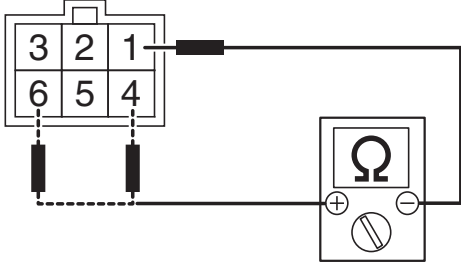
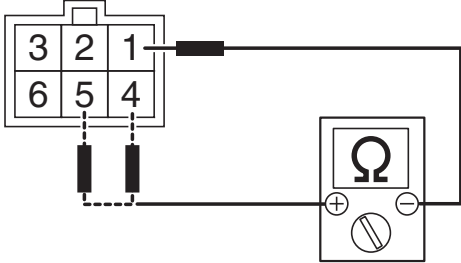
2. BLOWER SWITCH (MANUAL A/C MODEL)

UNIT INSPECTION

PREPARATION TOOL:

Circuit tester

1) Measure the resistance between the control panel terminals.

Terminal No.	Inspection conditions	Standard	Connection diagram
—	OFF	—	—
1 — 2, 4	1 (LO)	Less than 1 Ω	 AC-02798
1 — 3, 4	2 (M1)	Less than 1 Ω	 AC-02799
1 — 4, 6	3 (M2)	Less than 1 Ω	 AC-02800
1 — 4, 5	4 (HI)	Less than 1 Ω	 AC-02801

2) Replace the heater control assembly if the inspection result is not within the standard.



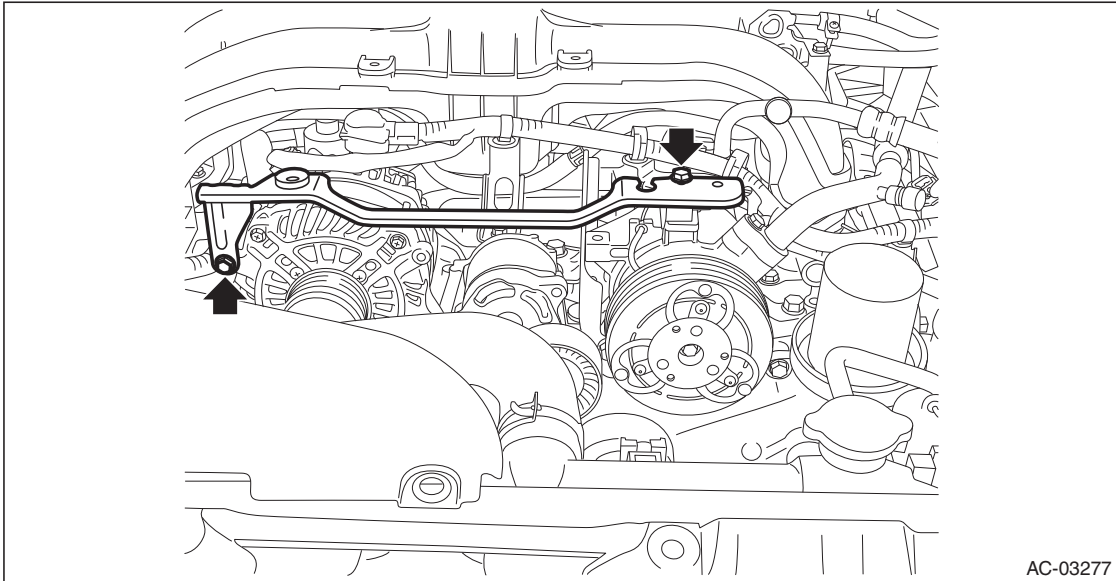
Compressor

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

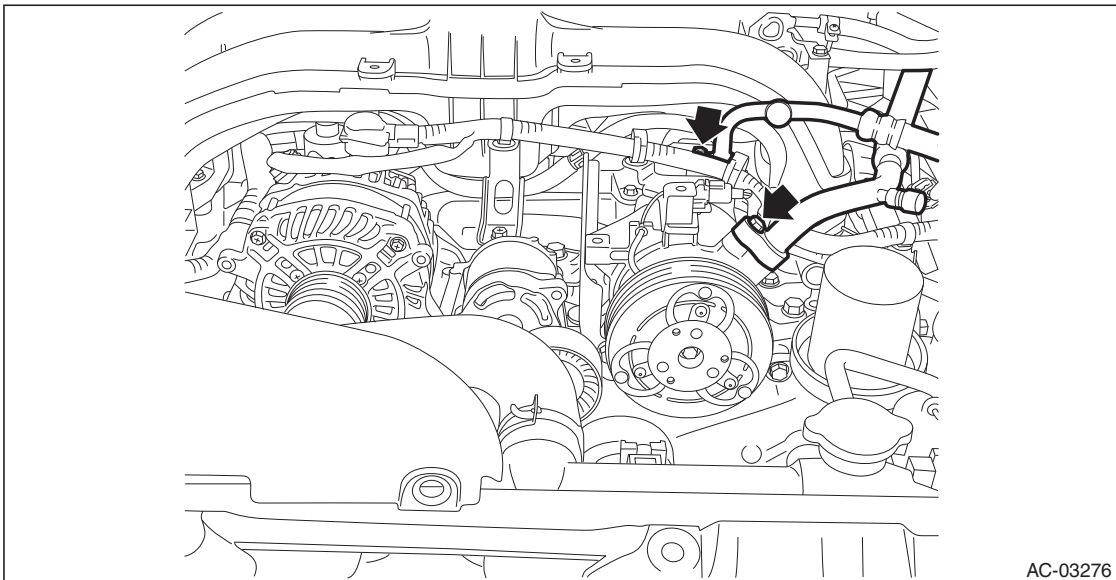
15.Compressor

A: REMOVAL

- 1) Perform compressor oil return operation. <Ref. to AC-34, PROCEDURE, Compressor Oil.>
- 2) Turn the A/C switch to OFF and stop the engine.
- 3) Using the refrigerant recovery system, discharge refrigerant. <Ref. to AC-26, PROCEDURE, Refrigerant Recovery Procedure.>
- 4) Disconnect the ground cable from battery.
- 5) Remove the V-belts.
 - Non-turbo model: <Ref. to ME(H4DO)-83, REMOVAL, V-belt.>
 - Turbo model: <Ref. to ME(H4DOTC)-75, REMOVAL, V-belt.>
- 6) Remove the bolts and remove the V-belt cover bracket.



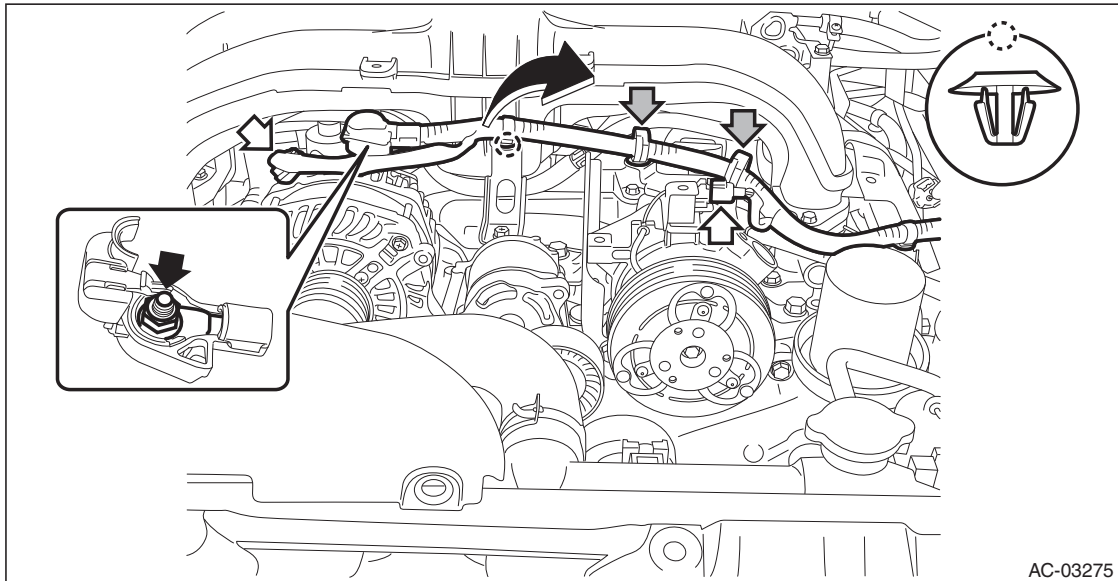
- 7) Remove the bolt, and detach the hose - pressure suction and the hose - pressure discharge.



Compressor

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

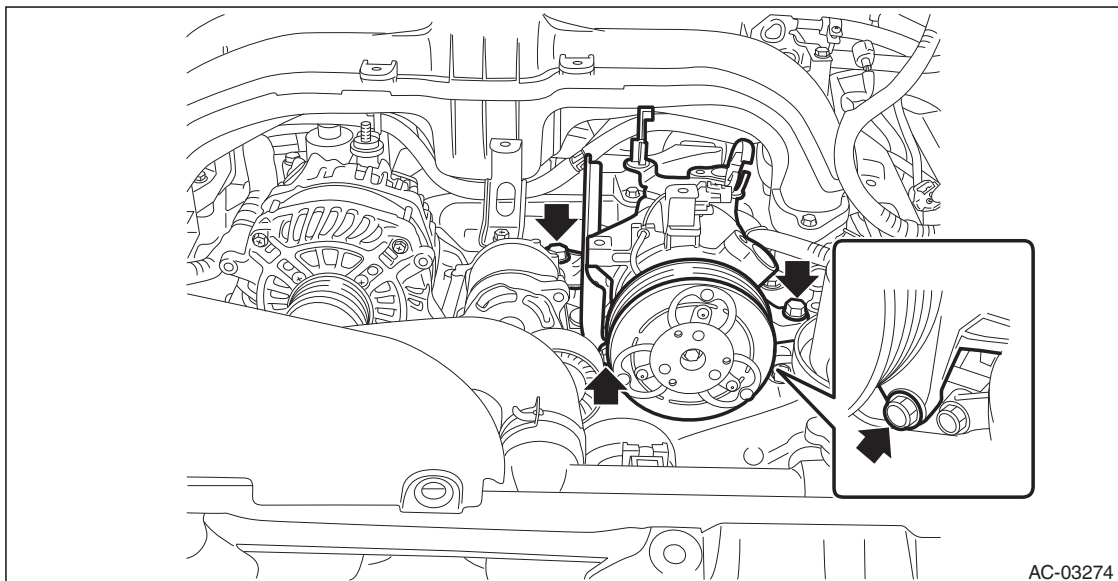
8) Disconnect the nut, washer, harness clams and each connector, and move the generator harness to the right.



9) Remove the bolts and remove the compressor assembly.

NOTE:

The hanger - engine front is tightened with the compressor assembly.



Compressor

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

B: INSTALLATION

CAUTION:

- Replace the O-rings on the hose - pressure suction and discharge with new parts, and then apply compressor oil.
- After replacing the compressor assembly, adjust the amount of the compressor oil. <Ref. to AC-34, PROCEDURE, Compressor Oil.>

1) Install each part in the reverse order of removal.

Tightening torque:

Air conditioning unit: <Ref. to AC-12, AIR CONDITIONING UNIT, COMPONENT, General Description.>

Compressor: <Ref. to AC-13, COMPRESSOR, COMPONENT, General Description.>

V-belt cover bracket: <Ref. to SC(H4DO)-5, GENERATOR BRACKET, COMPONENT, General Description.>

2) Charge refrigerant. <Ref. to AC-27, PROCEDURE, Refrigerant Charging Procedure.>

C: INSPECTION

1. MAGNET CLUTCH CLEARANCE INSPECTION

1) Check the clearance of entire circumference around the drive plate and pulley.

Specification:

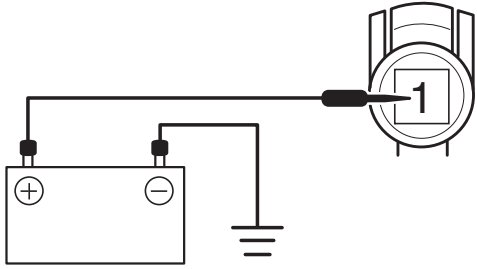
0.3 — 0.6 mm (0.0118 — 0.0236 in)

2) Replace the compressor assembly if the inspection result is not within the standard.

2. MAGNET CLUTCH OPERATION INSPECTION

UNIT INSPECTION

1) Check the magnet clutch operation when battery voltage is applied to the compressor terminal.

Terminal No.	Inspection conditions	Specification	Connection diagram
1 (+) — chassis ground (—)	Battery connection between compressor terminal and chassis ground	Engagement of magnet clutch	 AC-02772

2) If it does not operate normally, replace the compressor assembly.

Condenser

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

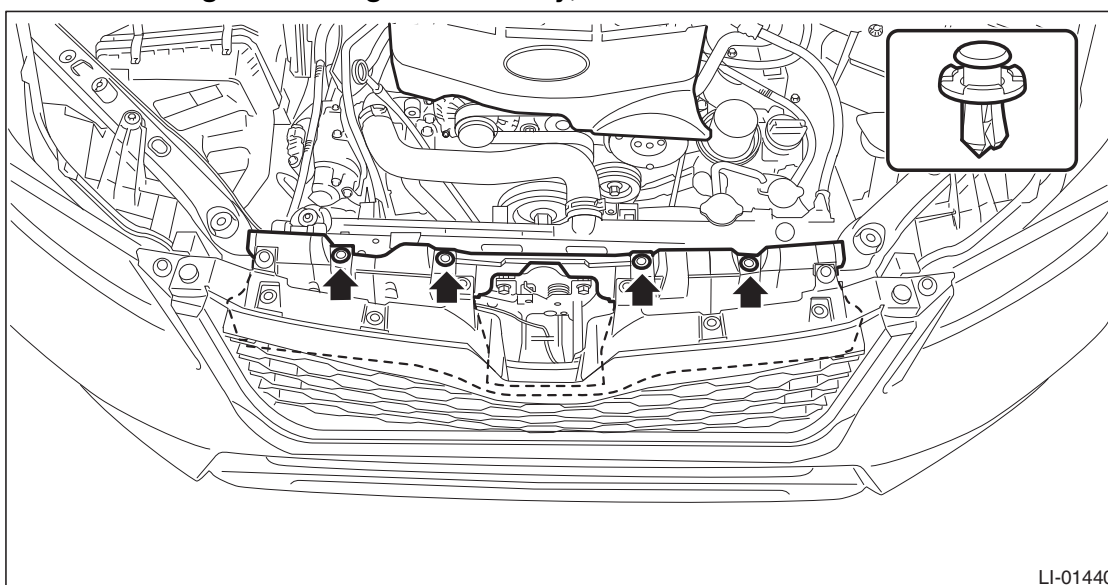
16. Condenser

A: REMOVAL

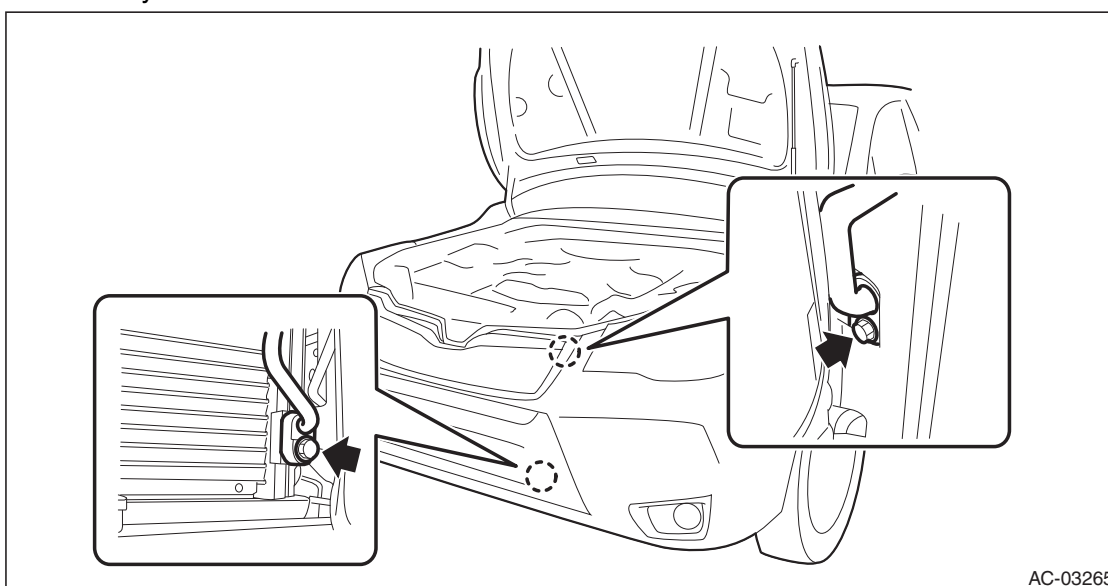
- 1) Using the refrigerant recovery system, discharge refrigerant. <Ref. to AC-26, PROCEDURE, Refrigerant Recovery Procedure.>
- 2) Remove the air intake duct.
 - Non-turbo model: <Ref. to IN(H4DO)-12, REMOVAL, Air Intake Duct.>
 - Turbo model: <Ref. to IN(H4DOTC)-19, REMOVAL, Air Intake Duct.>
- 3) Remove the reservoir tank.
 - Non-turbo model: <Ref. to CO(H4DO)-70, REMOVAL, Reservoir Tank.>
 - Turbo model: <Ref. to CO(H4DOTC)-58, REMOVAL, Reservoir Tank.>
- 4) Remove the clip, and remove the bracket - grille.

CAUTION:

Be careful not to damage the front grille assembly, etc.



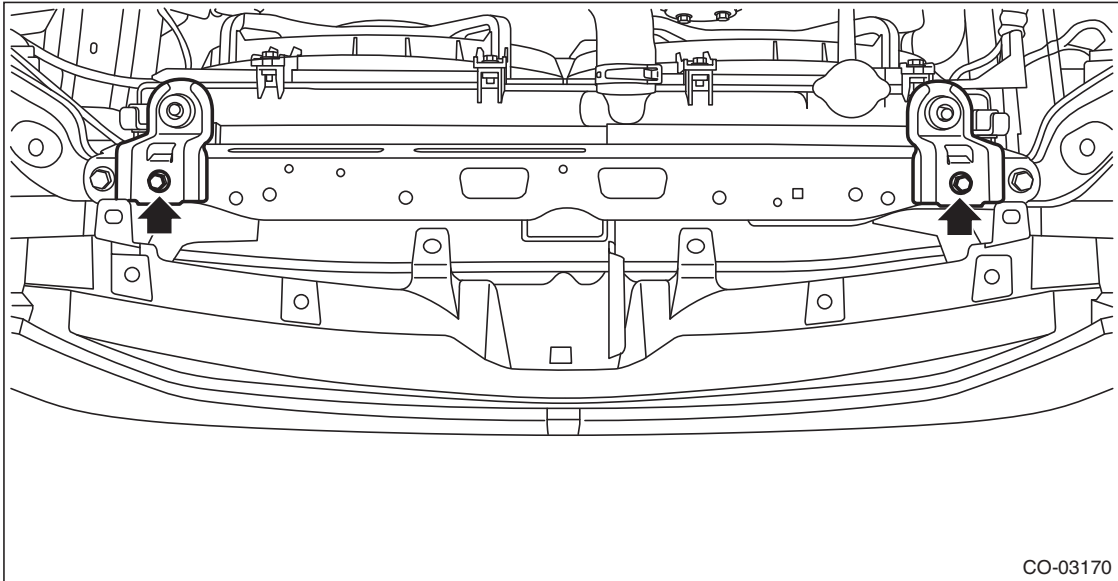
- 5) Remove the bolt, and disconnect the hose - pressure discharge and the pipe - evaporator cooling from the condenser assembly - air conditioner.



Condenser

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

6) Remove the bolts and remove the radiator upper bracket.



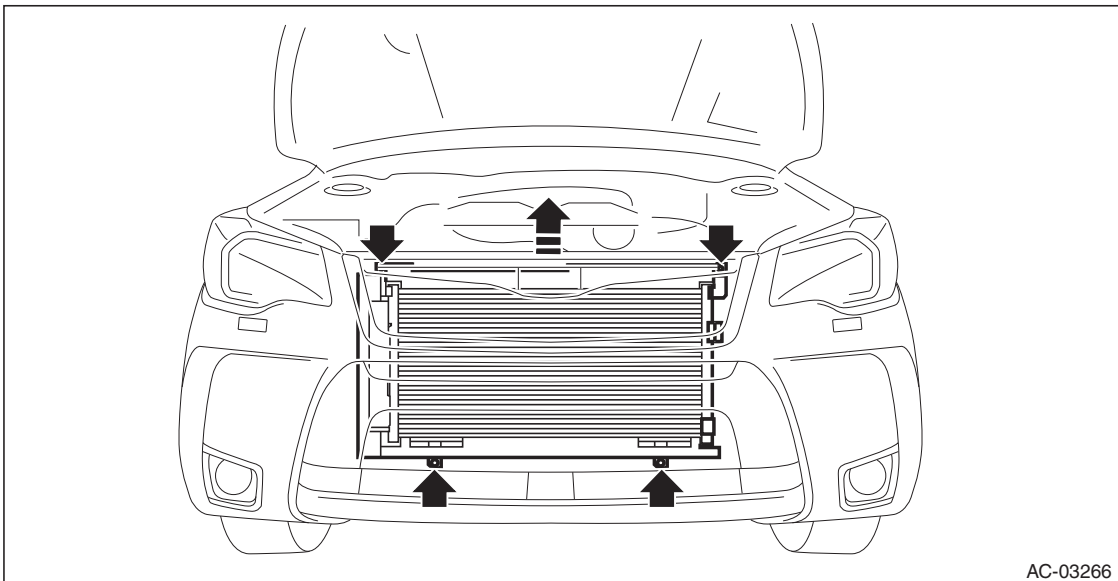
7) Remove the condenser assembly - air conditioner.

(1) Remove the bolt.

(2) By lifting the condenser assembly - air conditioner, pull it out through the space between the radiator and the radiator panel.

CAUTION:

Be careful not to damage the condenser and radiator fin. If a damaged fin is found, repair it using a thin screwdriver.



Condenser

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

B: INSTALLATION

CAUTION:

- If the condenser assembly - air conditioner has been replaced, add an appropriate amount of compressor oil. <Ref. to AC-34, ADJUSTMENT, Compressor Oil.>
- Replace the O-rings with new parts, and then apply compressor oil.

1) Install each part in the reverse order of removal.

NOTE:

To tighten the bolts at the bottom of the condenser, use the ST.

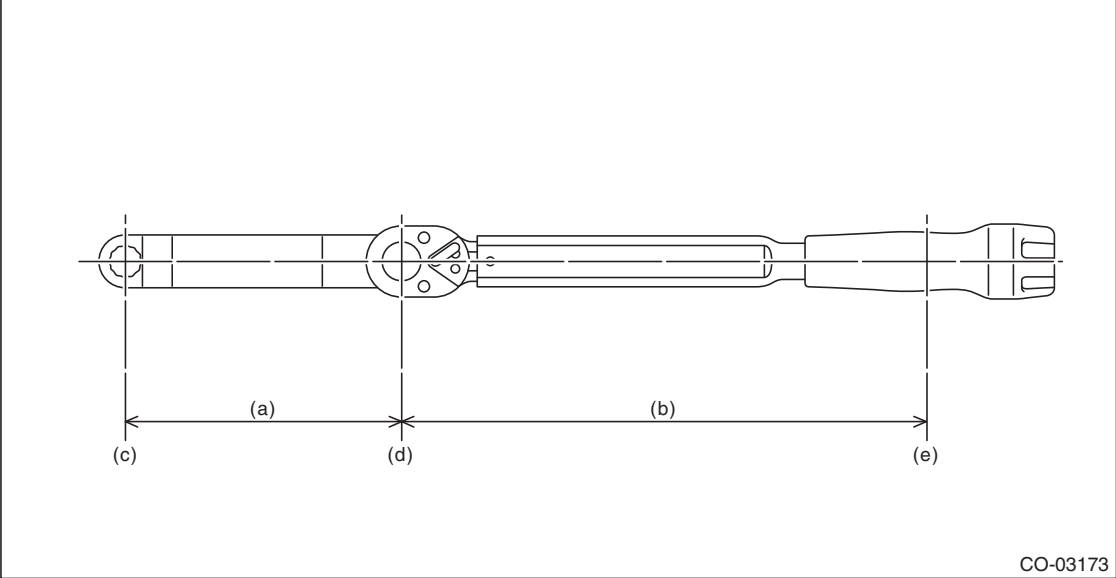
ST 73099SG000 SPECIAL TOOL CONDENSER

Tightening torque:

Air conditioning unit: <Ref. to AC-12, AIR CONDITIONING UNIT, COMPONENT, General Description.>

Radiator upper bracket: 12 N·m (1.22 kgf-m, 8.9 ft-lb)

Condenser (bolts at the bottom)

Calculation formula
$T = L / (100 \text{ mm (3.94 in)} + L) \times 7.5 \text{ N·m (0.8 kgf-m, 5.5 ft-lb)}$
T: Tightening torque L: Effective length of torque wrench
NOTE: If the effective length of the torque wrench used is unknown, consult the manufacturer of the torque wrench.
 CO-03173
(a) Effective length of the ST (b) Effective length of the torque wrench (c) Center of drive angle of the ST (d) Center of drive angle of the torque wrench (e) Center of the position where a force is applied by hand

2) Charge refrigerant. <Ref. to AC-27, PROCEDURE, Refrigerant Charging Procedure.>

C: INSPECTION

- 1) Check to see that the condenser fins are not clogged with debris or insects. Blow with compressed air or flush fins with water as needed.
- 2) If any oil leak is found, replace the condenser assembly - air conditioner.

Heater and Cooling Unit

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

17. Heater and Cooling Unit

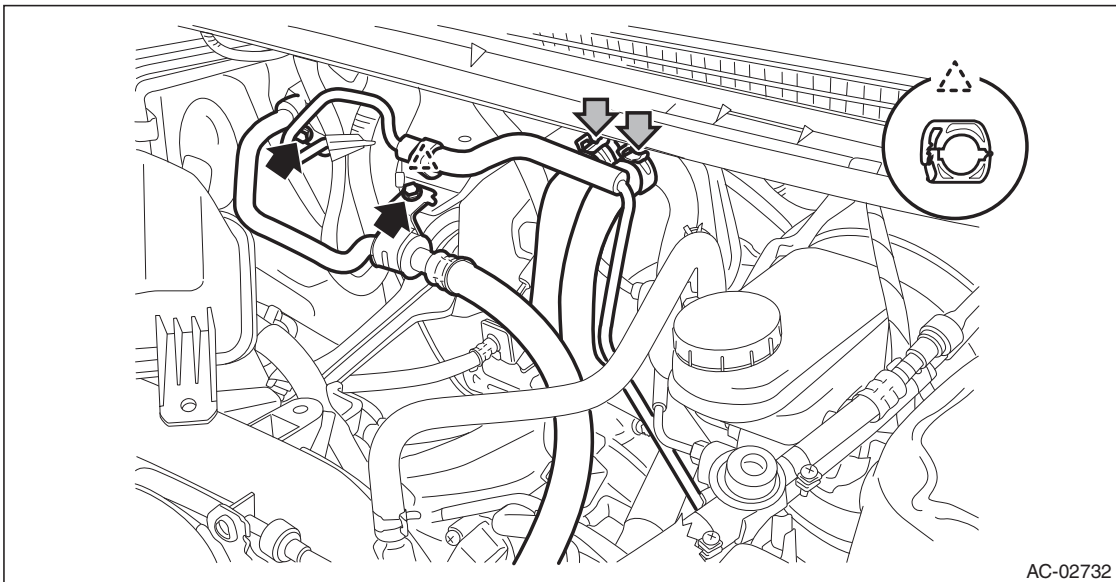
A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Using the refrigerant recovery system, discharge refrigerant. <Ref. to AC-26, PROCEDURE, Refrigerant Recovery Procedure.>
- 3) Drain the coolant from the radiator.
 - Non-turbo model: <Ref. to CO(H4DO)-14, DRAINING OF ENGINE COOLANT, REPLACEMENT, Engine Coolant.>
 - Turbo model: <Ref. to CO(H4DOTC)-13, DRAINING OF ENGINE COOLANT, REPLACEMENT, Engine Coolant.>
- 4) Remove the air intake boot. (Non-turbo model) <Ref. to IN(H4DO)-11, REMOVAL, Air Intake Boot.>

CAUTION:

Move aside the air intake boot to perform the operation without disconnecting the PCV hose.

- 5) Remove the intercooler. (Turbo model) <Ref. to IN(H4DOTC)-35, REMOVAL, Intercooler.>
- 6) Remove the bolt, and remove the hose - pressure suction and the pipe - evaporator cooling from the expansion valve - cooling.
- 7) Loosen the heater hose clamps and remove the hoses.

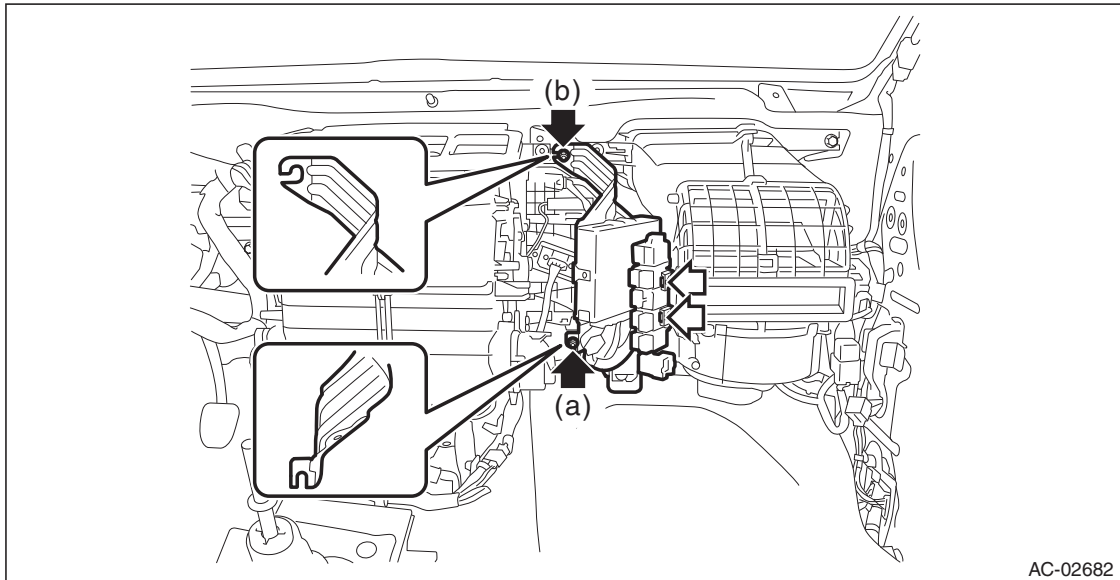


- 8) Remove the instrument panel assembly. <Ref. to EI-69, REMOVAL, Instrument Panel Assembly.>

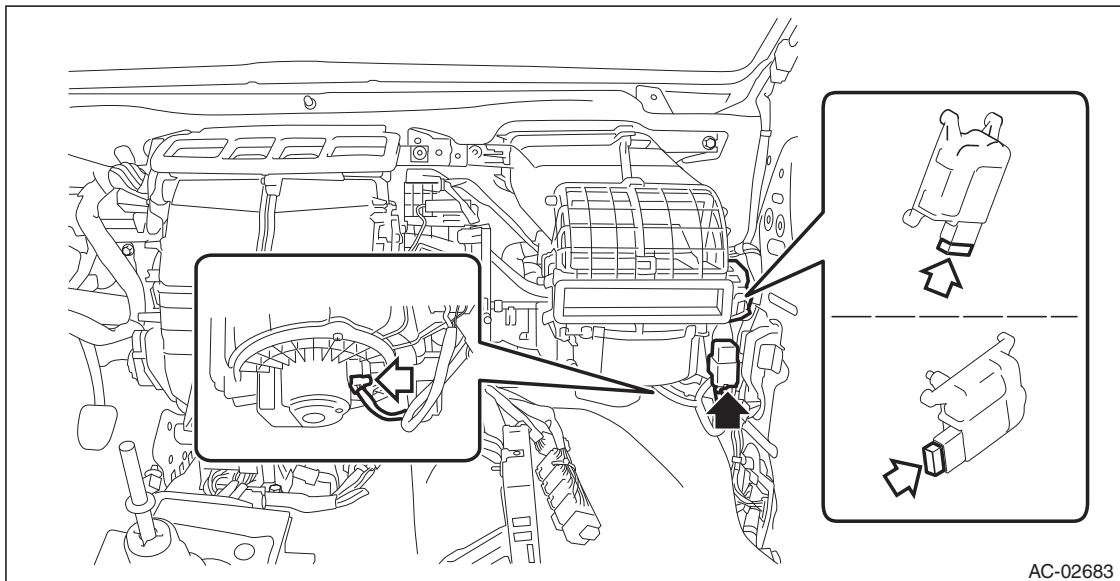
Heater and Cooling Unit

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

- 9) Remove the engine control module (ECM). (Non-turbo model)
- (1) Release the lock and remove the relay holder.
 - (2) Remove the nuts (a).
 - (3) Loosen the bolt (b), and remove the engine control module (ECM).



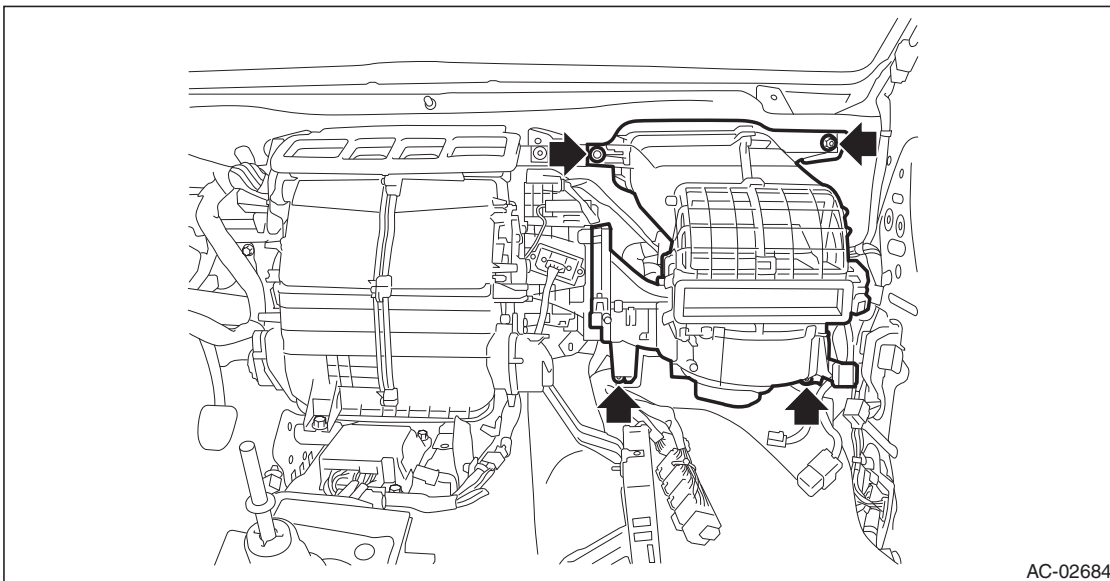
- 10) Remove the blower motor unit assembly.
- (1) Disconnect the blower motor relay and each connector.



Heater and Cooling Unit

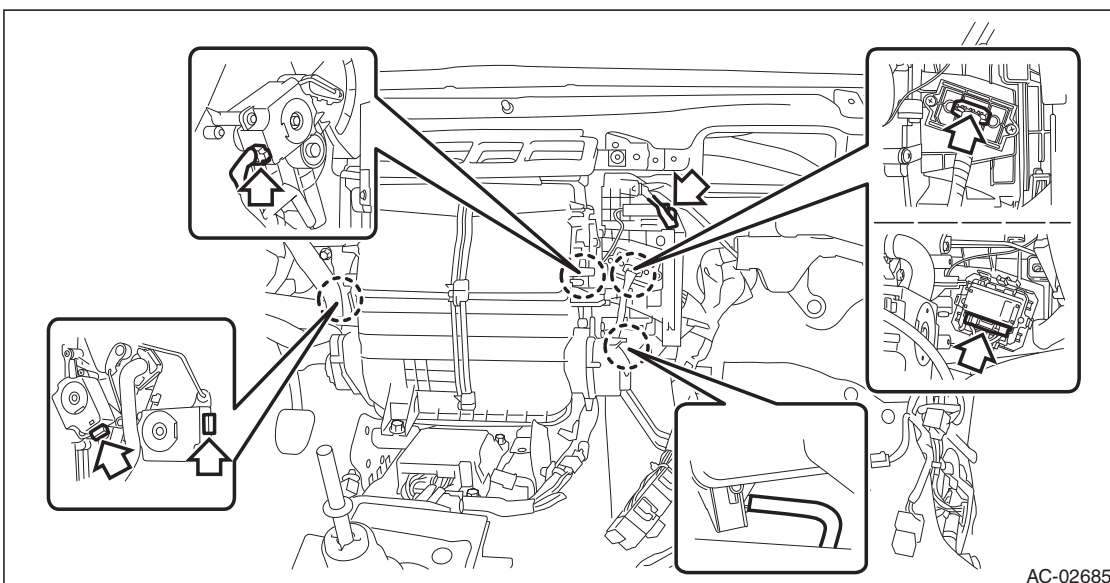
HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

- (2) Remove the bolts and nuts to remove blower motor unit assembly.



AC-02684

- 11) Remove the heater and cooling unit assembly.
(1) Disconnect each connector and the hose - drain.

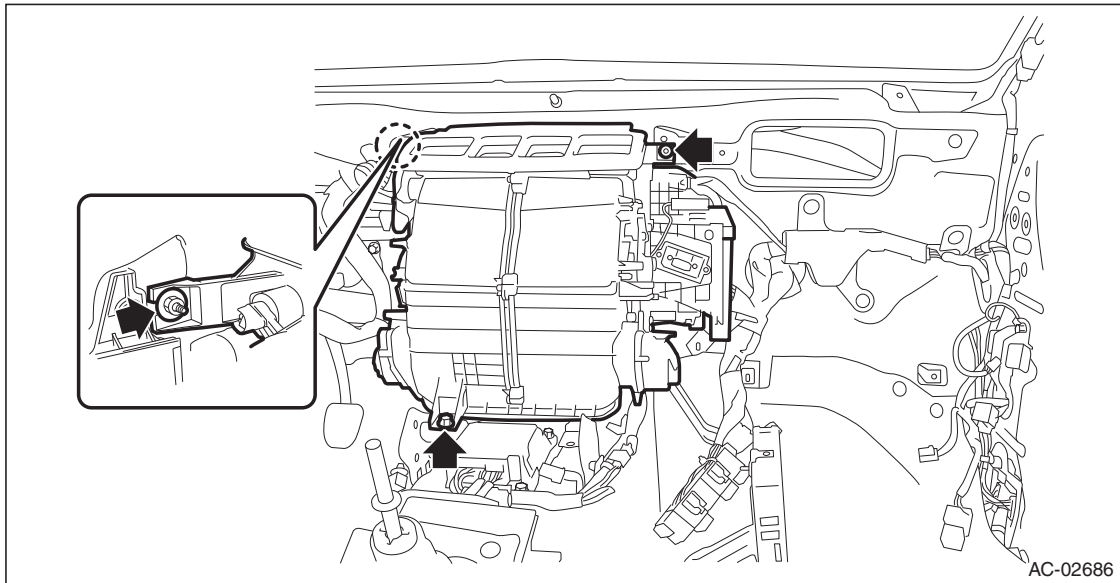


AC-02685

Heater and Cooling Unit

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

- (2) Remove the bolt and nuts, and remove the heater & cooling unit assembly.



B: INSTALLATION

CAUTION:

Replace O-rings with new parts and install securely.

- 1) Install each part in the reverse order of removal.

Tightening torque:

Heater cooling unit: <Ref. to AC-6, HEATER AND COOLING UNIT, COMPONENT, General Description.>

Blower motor unit: <Ref. to AC-10, BLOWER MOTOR UNIT, COMPONENT, General Description.>

Engine control module (ECM): 7.5 N·m (0.76 kgf-m, 5.5 ft-lb)

- 2) Fill engine coolant.

- Non-turbo model: <Ref. to CO(H4DO)-15, FILLING OF ENGINE COOLANT, REPLACEMENT, Engine Coolant.>
- Turbo model: <Ref. to CO(H4DOTC)-14, FILLING OF ENGINE COOLANT, REPLACEMENT, Engine Coolant.>

- 3) Charge refrigerant. <Ref. to AC-27, PROCEDURE, Refrigerant Charging Procedure.>

Evaporator

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

18. Evaporator

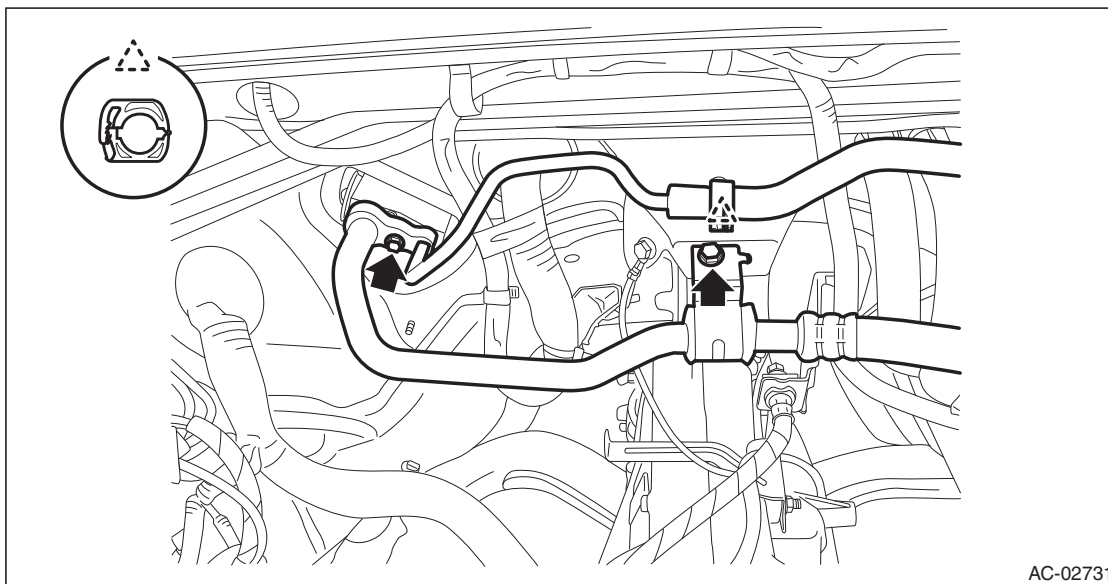
A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Using the refrigerant recovery system, discharge refrigerant. <Ref. to AC-26, PROCEDURE, Refrigerant Recovery Procedure.>
- 3) Remove the air intake boot. (Non-turbo model) <Ref. to IN(H4DO)-11, REMOVAL, Air Intake Boot.>

CAUTION:

Move aside the air intake boot to perform the operation without disconnecting the PCV hose.

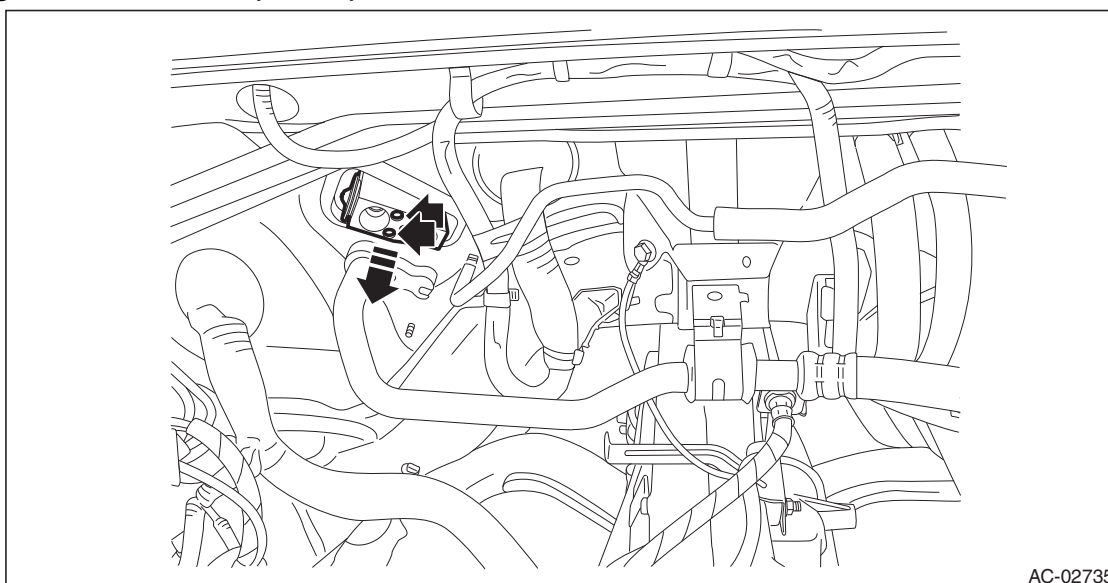
- 4) Remove the intercooler. (Turbo model) <Ref. to IN(H4DOTC)-35, REMOVAL, Intercooler.>
- 5) Remove the expansion valve - cooling.
 - (1) Remove the bolt, and detach the hose - pressure suction and the pipe - evaporator cooling.



- (2) Remove the bolt, and remove the expansion valve - cooling.

Preparation tool:

Hexagon wrench: 4 mm (0.16 in)



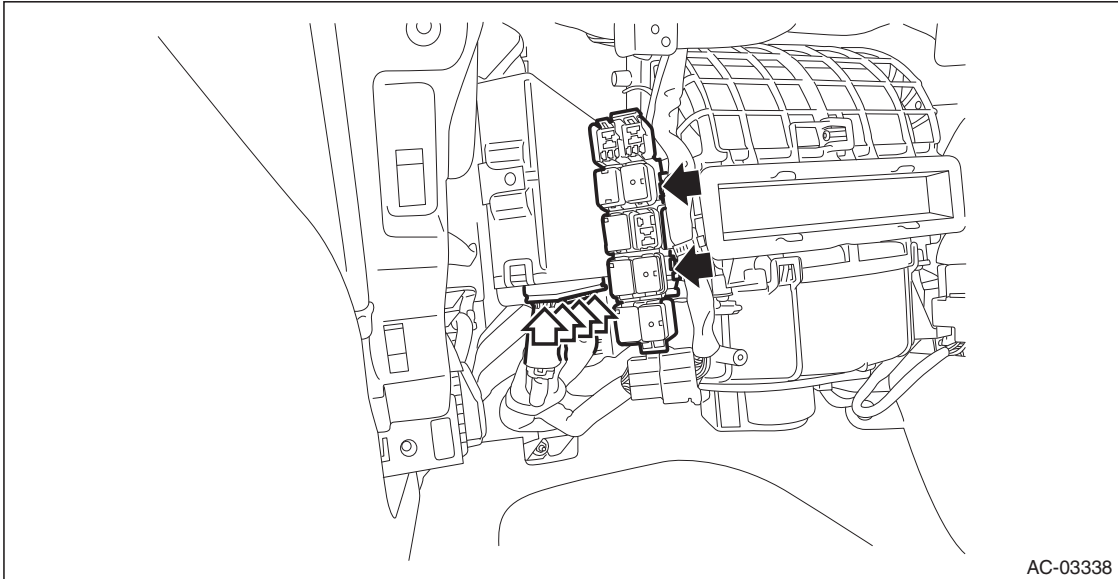
- 6) Remove the glove box. <Ref. to EI-61, REMOVAL, Glove Box.>

Evaporator

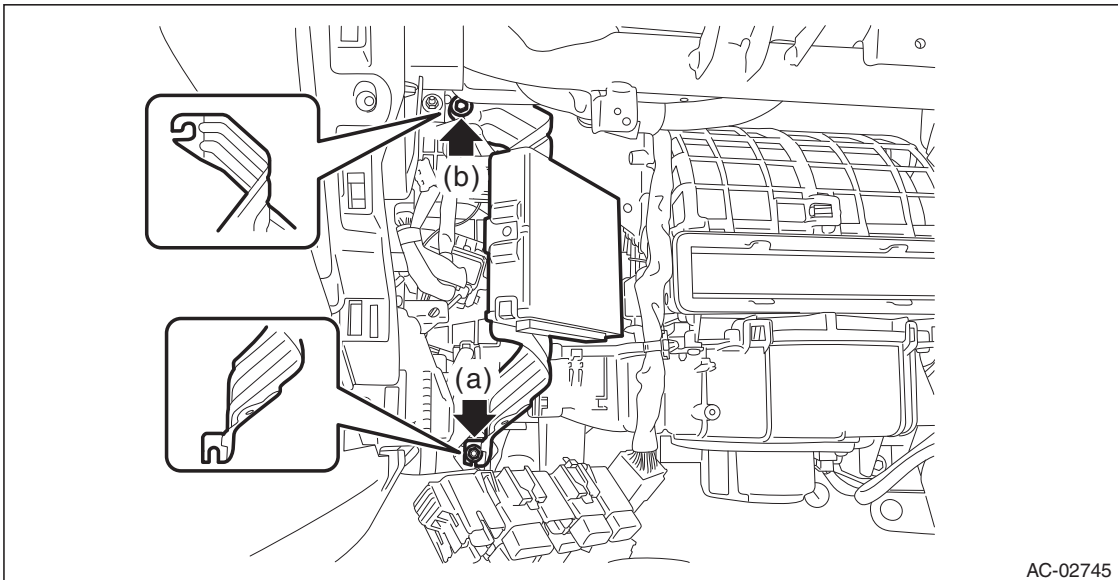
HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

7) Remove the engine control module (ECM). (Non-turbo model)

- (1) Release the lock and remove the relay holder.
- (2) Disconnect the connector.



- (3) Remove the nuts (a).
- (4) Loosen the bolt (b), and remove the engine control module (ECM).

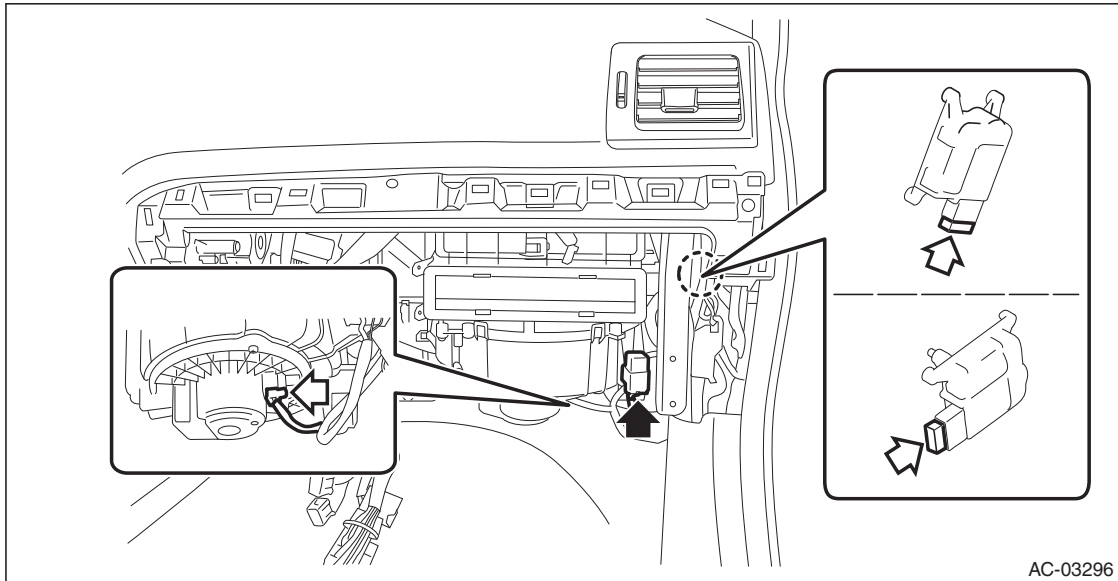


Evaporator

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

8) Remove the blower motor unit assembly.

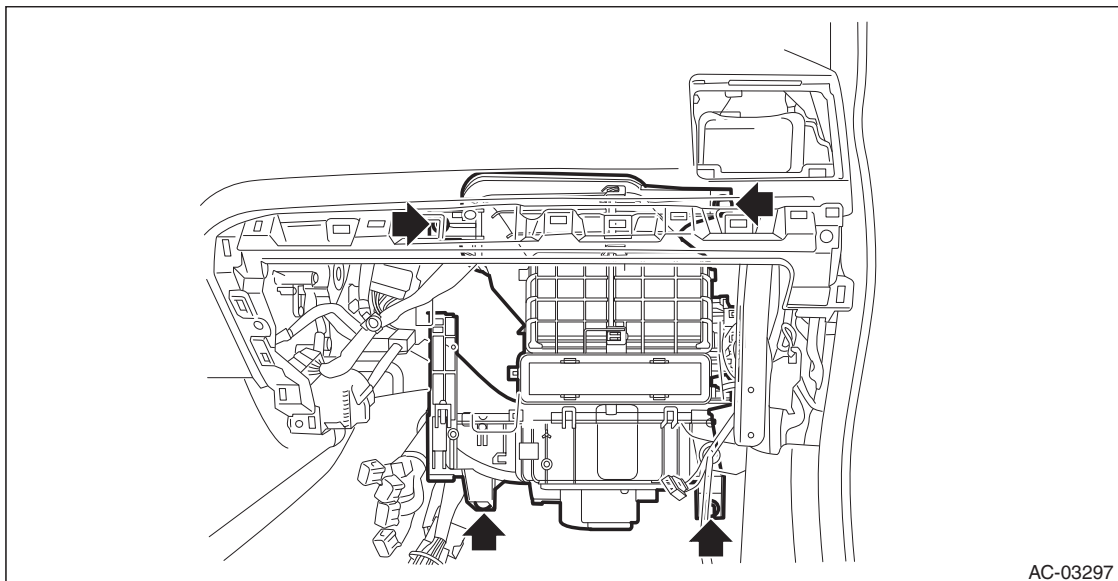
- (1) Release the claws, and then remove the grille assembly - ventilation RH.
- (2) Disconnect the blower motor relay and each connector.



(3) Remove the bolts and nuts to remove blower motor unit assembly.

NOTE:

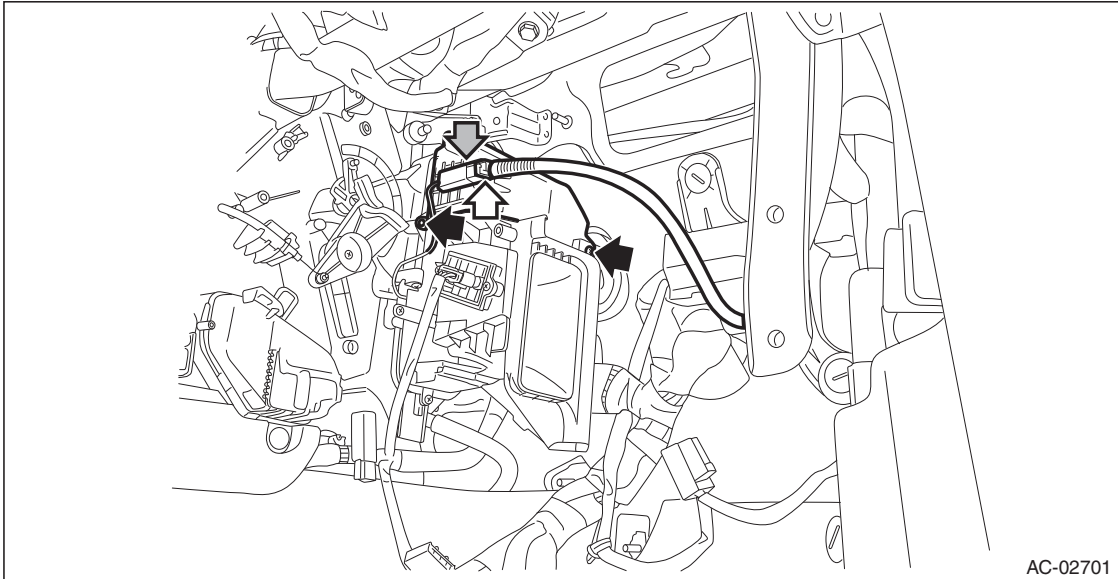
Remove the RH upper nut from the mounting portion of the grille assembly - ventilation RH.



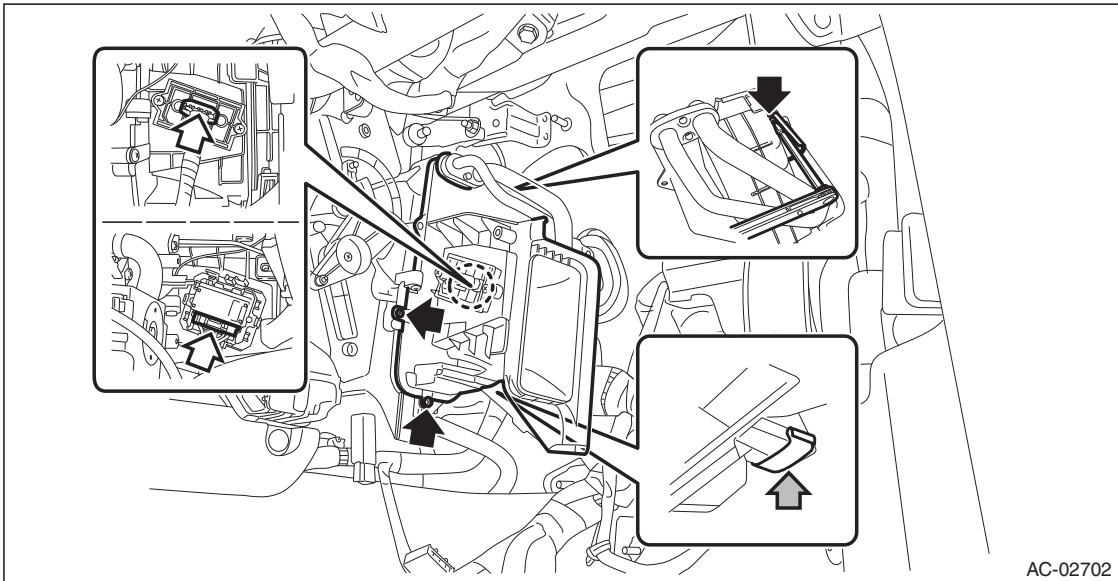
Evaporator

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

- 9) Remove the evaporator assembly - cooling.
- Disconnect the connector and lock of the thermostat - cooling.
 - Remove the screws and detach the cover.



- (3) Remove the cover - heater unit.
- Disconnect the connector for the power transistor or resistor.
 - Remove the screws and clips to remove the cover - heater unit.



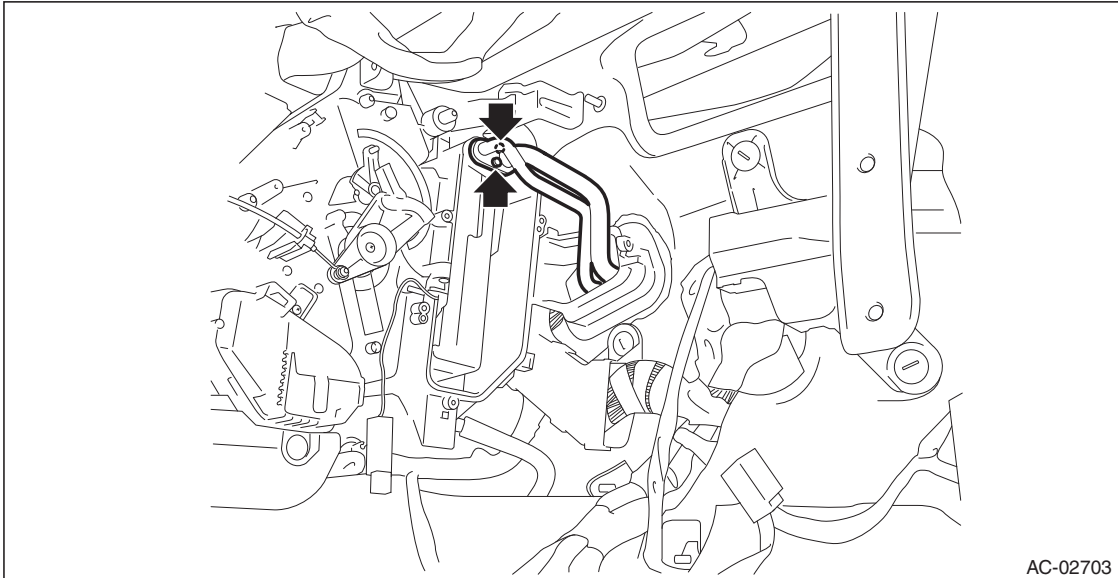
Evaporator

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

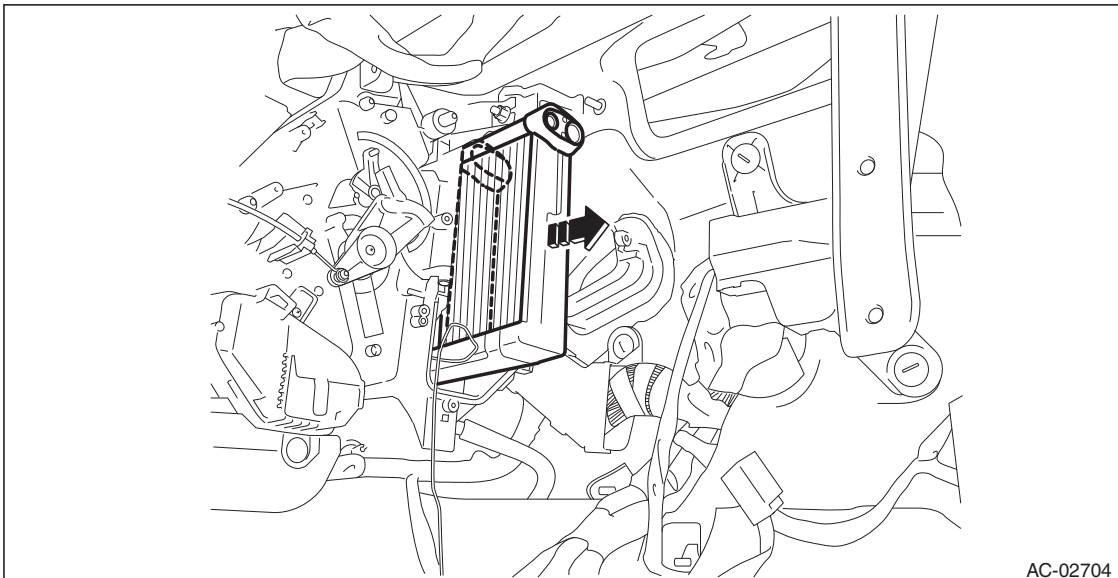
- (4) Remove the bolt, and detach the pipe - evaporator core.

Preparation tool:

Hexagon wrench: 4 mm (0.16 in)



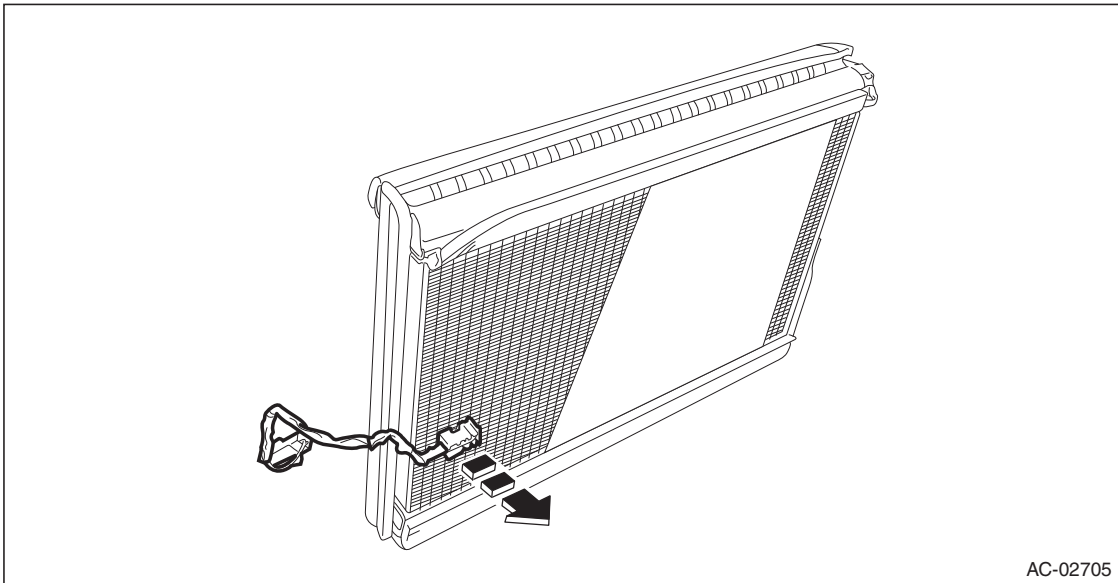
- (5) Pull out the evaporator assembly - cooling from the case - heater unit.



Evaporator

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

- (6) Remove the thermostat - cooling from the evaporator assembly - cooling.



AC-02705

B: INSTALLATION

CAUTION:

- If the evaporator assembly - cooling has been replaced, add an appropriate amount of compressor oil. <Ref. to AC-34, ADJUSTMENT, Compressor Oil.>
- When the evaporator assembly - cooling has been replaced, replace the packing of the expansion valve - cooling with a new one, and then apply compressor oil.
- Make sure that the water seal packing on the cover attachment area is securely attached.
- Replace the O-rings with new parts, and then apply compressor oil.

- 1) Install the thermostat - cooling to the specified position. <Ref. to AC-80, INSTALLATION, Evaporator Sensor.>
- 2) Install each part in the reverse order of removal.

Tightening torque:

Blower motor unit: <Ref. to AC-10, BLOWER MOTOR UNIT, COMPONENT, General Description.>

Engine control module (ECM): 7.5 N·m (0.76 kgf-m, 5.5 ft-lb)

- 3) Charge refrigerant. <Ref. to AC-27, PROCEDURE, Refrigerant Charging Procedure.>

C: INSPECTION

- 1) Check the evaporator fin for dust. Blow with compressed air or flush fins with water as needed.
- 2) If any oil leak is found, replace the evaporator assembly - cooling.

Expansion Valve

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

19.Expansion Valve

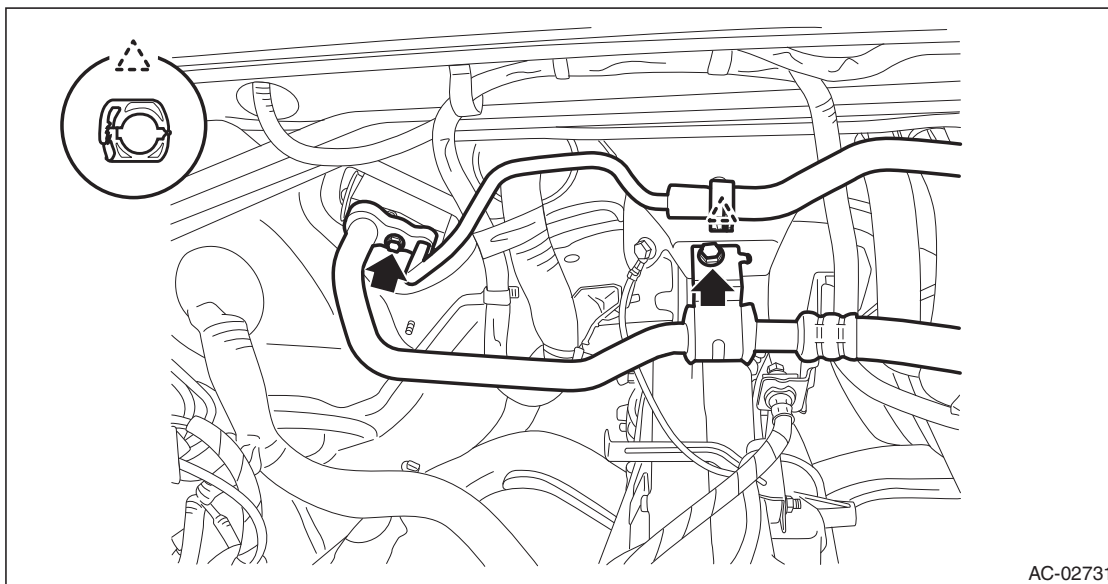
A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Using the refrigerant recovery system, discharge refrigerant. <Ref. to AC-26, PROCEDURE, Refrigerant Recovery Procedure.>
- 3) Remove the air intake boot. (Non-turbo model) <Ref. to IN(H4DO)-11, REMOVAL, Air Intake Boot.>

CAUTION:

Move aside the air intake boot to perform the operation without disconnecting the PCV hose.

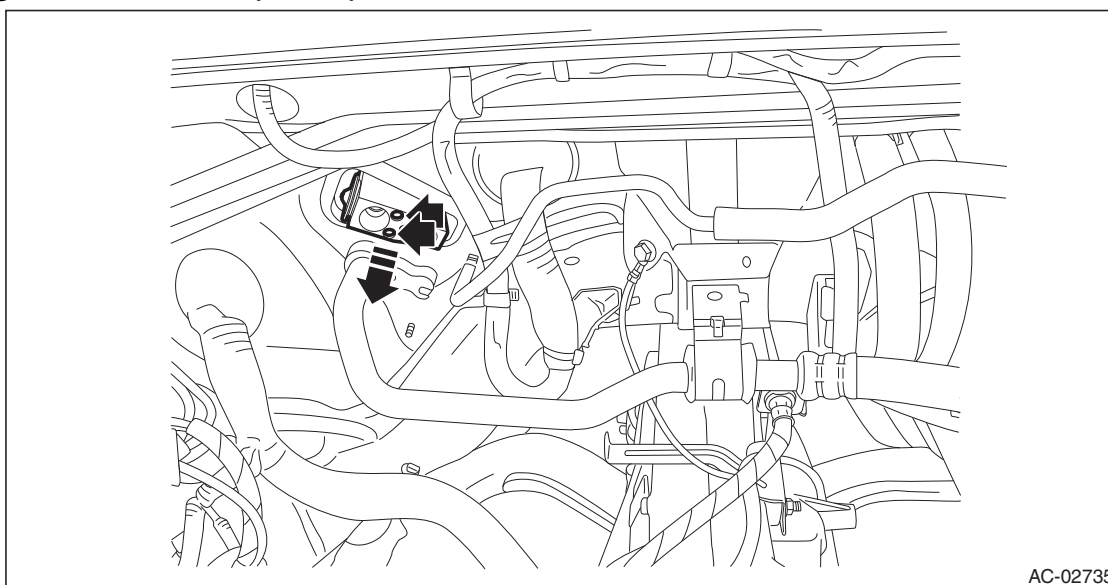
- 4) Remove the intercooler. (Turbo model) <Ref. to IN(H4DOTC)-35, REMOVAL, Intercooler.>
- 5) Remove the expansion valve - cooling.
 - (1) Remove the bolt, and detach the hose - pressure suction and the pipe - evaporator cooling.



- (2) Remove the bolt, and remove the expansion valve - cooling.

Preparation tool:

Hexagon wrench: 4 mm (0.16 in)



Expansion Valve

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

B: INSTALLATION

CAUTION:

Replace the O-rings with new parts, and then apply compressor oil.

1) Install each part in the reverse order of removal.

Tightening torque:

Refer to "COMPONENT" of "General Description". <Ref. to AC-12, AIR CONDITIONING UNIT, COMPONENT, General Description.>

2) Charge refrigerant. <Ref. to AC-27, PROCEDURE, Refrigerant Charging Procedure.>

Hose and Pipe

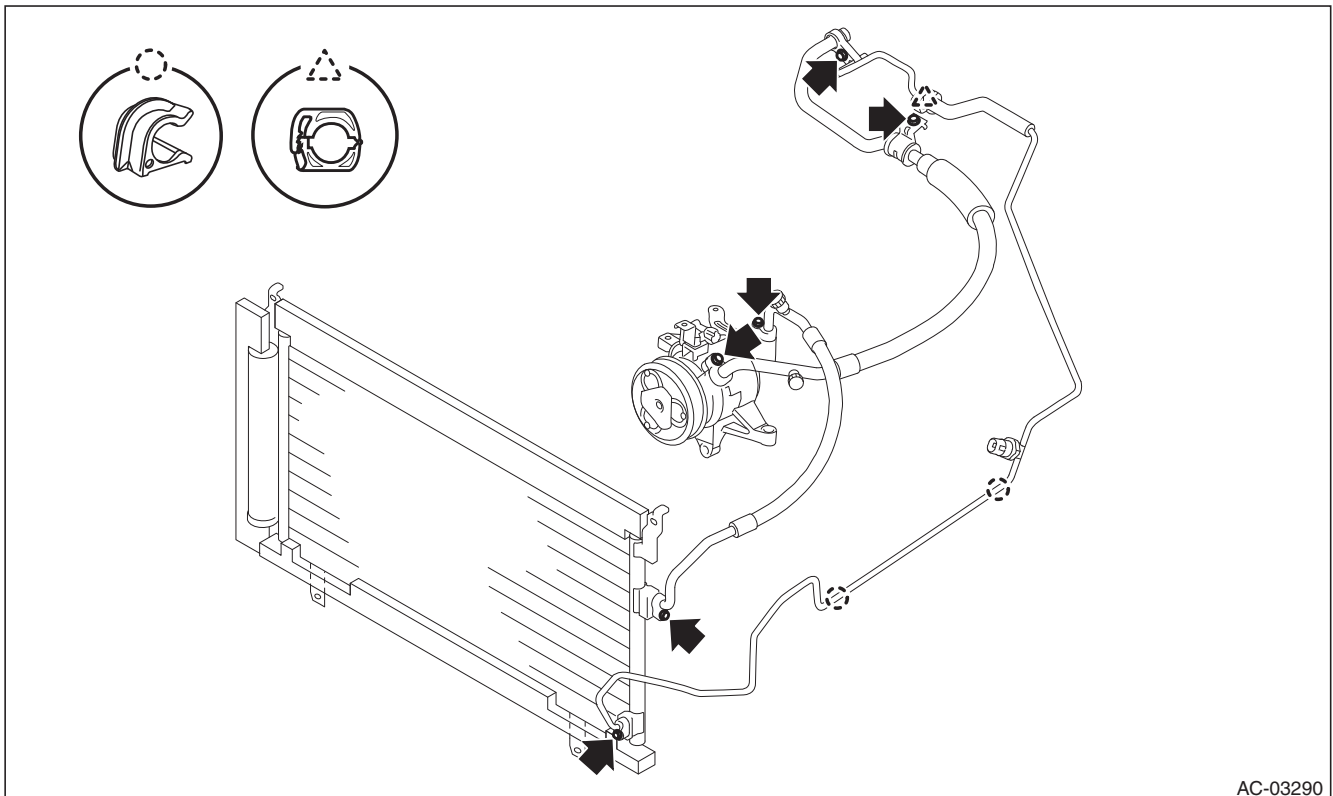
HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

20.Hose and Pipe

A: REMOVAL

CAUTION:

- When disconnecting hoses, do not apply excessive force.
 - Seal the disconnected hose with a plug or vinyl tape to prevent foreign matter from entering.
- 1) Disconnect the ground cable from battery.
 - 2) Using the refrigerant recovery system, discharge refrigerant. <Ref. to AC-26, PROCEDURE, Refrigerant Recovery Procedure.>
 - 3) Remove the bolt and detach the hoses and pipes.



B: INSTALLATION

CAUTION:

- If the hose and pipe has been replaced, add an appropriate amount of compressor oil to the compressor. <Ref. to AC-34, ADJUSTMENT, Compressor Oil.>
 - Replace the O-rings with new parts, and then apply compressor oil.
 - When connecting hoses, do not apply an excessive force to them. After installing, check that no torsion or excessive tension applied to the hoses.
- 1) Install each part in the reverse order of removal.

Tightening torque:

Refer to "COMPONENT" of "General Description". <Ref. to AC-12, AIR CONDITIONING UNIT, COMPONENT, General Description.>

- 2) Charge refrigerant. <Ref. to AC-27, PROCEDURE, Refrigerant Charging Procedure.>

C: INSPECTION

- 1) Check the hoses for cracks, damage and expansion. Replace the hose if faulty.
- 2) Check the pipes for crack or damage. Replace the pipe if faulty.

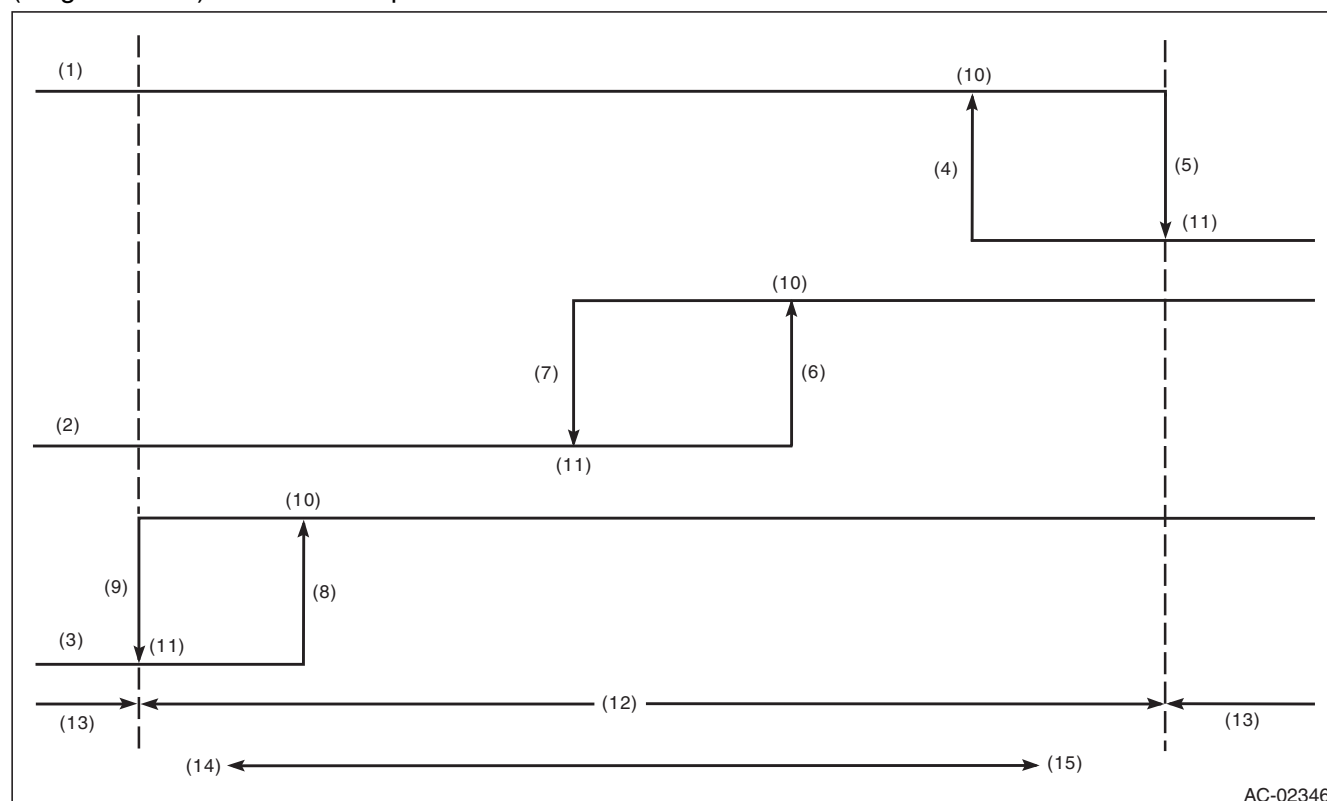
Pressure Switch (Triple Pressure Switch)

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

21. Pressure Switch (Triple Pressure Switch)

A: INSPECTION

- 1) Connect the manifold gauge to the service valve on the high-pressure side.
- 2) Disconnect the connector.
- 3) Start the air conditioner, and check the operating pressure of switch by turning the compressor assembly (magnet clutch) to ON/OFF. Operation of each switch is as follows.



(1) High pressure switch	(6) $1,770 \pm 100$ kPa (18.05 ± 1.02 kg/cm ² , 256.65 ± 14.5 psi)	(11) OFF
(2) Middle pressure switch	(7) $1,470 \pm 120$ kPa (14.99 ± 1.22 kg/cm ² , 213.15 ± 17.4 psi)	(12) Operative range of compressor ASSY
(3) Low pressure switch	(8) 225 ± 30 kPa (2.29 ± 0.31 kg/cm ² , 32.6 ± 4.3 psi)	(13) Inoperative range of compressor ASSY
(4) $2,350 \pm 200$ kPa (24.00 ± 2.04 kg/cm ² , 340.7 ± 29.0 psi)	(9) 196 ± 25 kPa (2.00 ± 0.25 kg/cm ² , 28.4 ± 3.6 psi)	(14) Low pressure
(5) $2,940 \pm 200$ kPa (29.98 ± 2.04 kg/cm ² , 426.3 ± 29.0 psi)	(10) ON	(15) High pressure

NOTE:

- High pressure switch turns the compressor assembly (magnet clutch) to OFF when the refrigerant pressure becomes extremely high to prevent the evaporator, air conditioner piping and expansion valve from getting damaged or frozen, etc.
- The middle pressure switch is used to effectively control the radiator fan output by judging high load/low load in normal pressure range.
- The low pressure switch detects a refrigerant shortage and deactivates the compressor assembly (magnet clutch) if the refrigerant pressure is abnormally low. (Because any further compressor assembly operation in such a state may lead to compressor seizure)

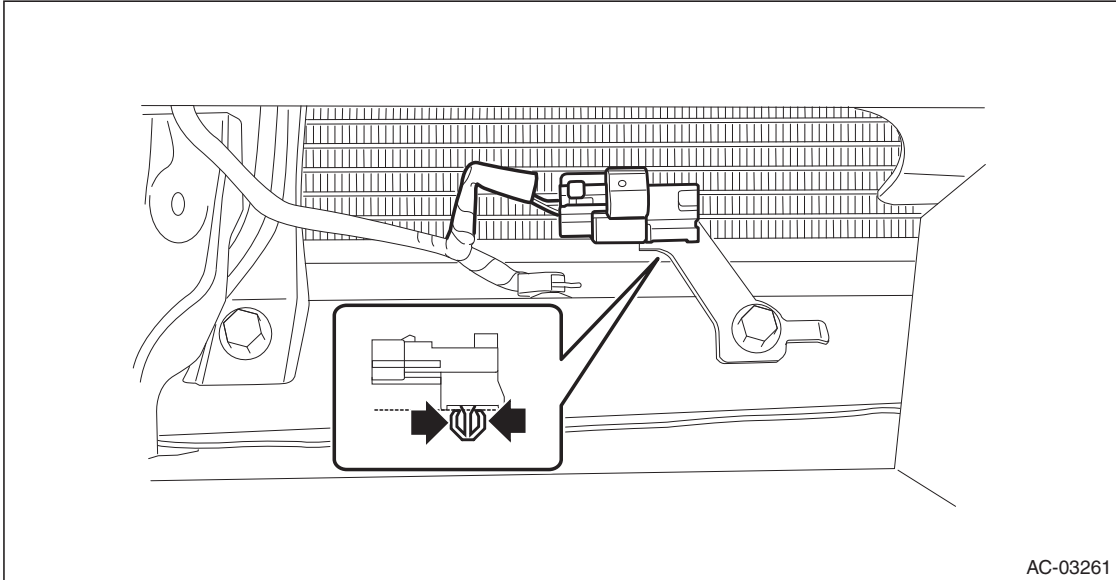
Ambient Sensor

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

22. Ambient Sensor

A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Remove the ambient sensor.
 - (1) Disconnect the connector.
 - (2) Release the claws, and then remove the ambient sensor from the bracket.



B: INSTALLATION

Install each part in the reverse order of removal.

Ambient Sensor

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

C: INSPECTION

UNIT INSPECTION

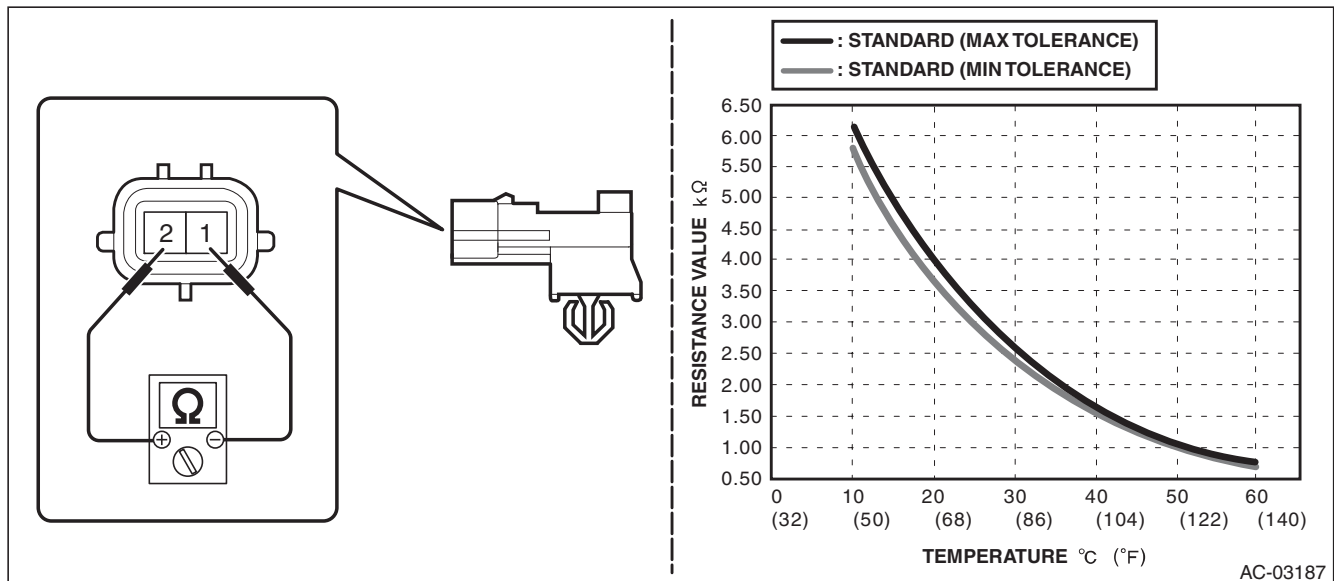
Preparation tool:

Circuit tester

- 1) Visually check the ambient sensor for dirt or damage, and clean or replace as necessary.
- 2) Check the resistance between ambient sensor terminals.

CAUTION:

During inspection, be careful not to touch the sensor end in order to avoid misjudgment due to body temperature.



Terminal No.	Inspection conditions	Standard
1 — 2	10°C	5.82 — 6.18 kΩ
	15°C	4.58 — 4.87 kΩ
	20°C	3.64 — 3.86 kΩ
	25°C	2.91 — 3.09 kΩ
	30°C	2.35 — 2.49 kΩ
	35°C	1.9 — 2.02 kΩ
	40°C	1.56 — 1.65 kΩ
	45°C	1.28 — 1.36 kΩ
	50°C	1.06 — 1.12 kΩ
	55°C	0.88 — 0.93 kΩ
	60°C	0.74 — 0.78 kΩ

- 3) Replace the ambient sensor if the inspection result is not within the standard value.

Sunload Sensor (Auto A/C Model)

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

23.Sunload Sensor (Auto A/C Model)

A: REMOVAL

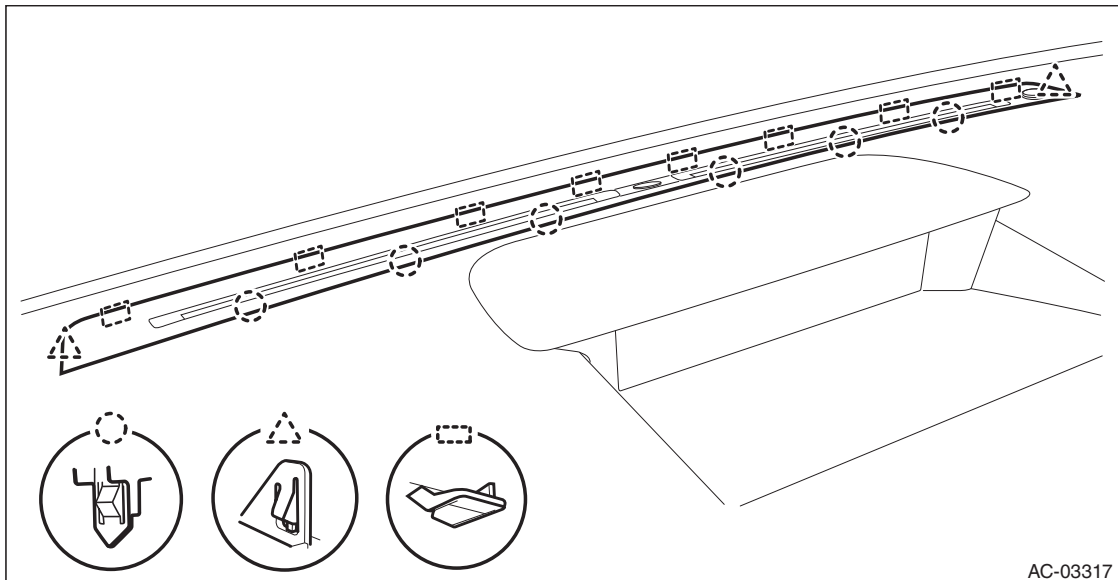
CAUTION:

Be careful not to damage the sensors and interior trims when removing.

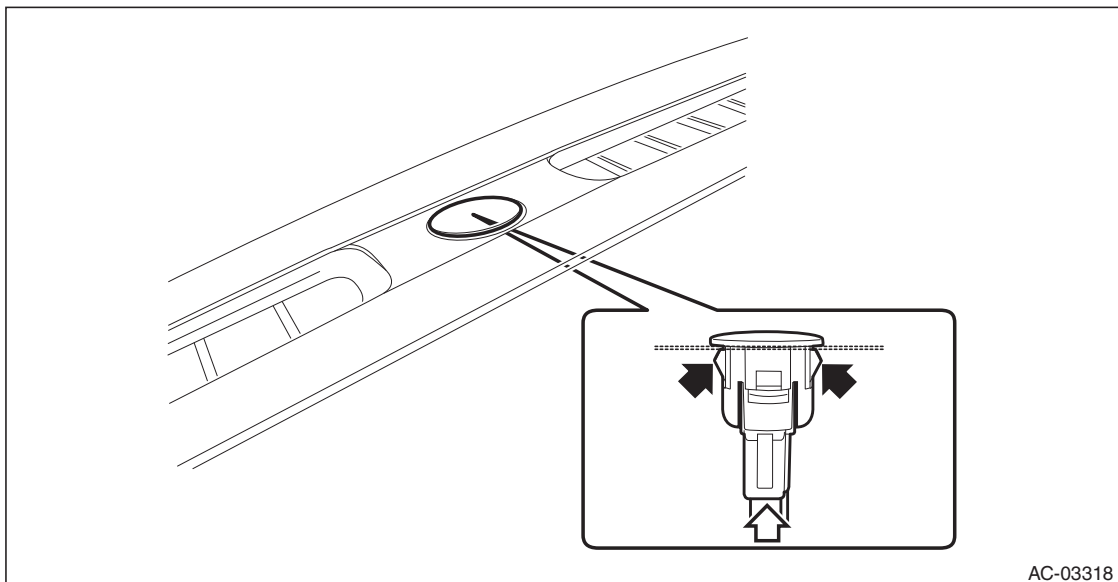
1) Disconnect the ground cable from battery.

2) Remove the sensor - sunload.

(1) Release the connector and claws, and remove the panel COMPL - instrument UPR.



(2) Press the left and right claws to remove the sensor - sunload from the panel COMPL - instrument UPR.



B: INSTALLATION

Install each part in the reverse order of removal.

Sunload Sensor (Auto A/C Model)

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

C: INSPECTION

On- the vehicle inspection

PREPARATION TOOL:

SUBARU SELECT MONITOR III KIT

- 1) Check if there is anything that affects sensing, around the sensor - sunload.
 - (1) Is there anything placed on the sensor - sunload that disturbs sensing?
 - (2) Is there anything on the windshield glass, such as sticker and film, that disturbs sensing?
 - **No** → Go to step 2).
 - **Yes** → Remove everything that affects sensing.
- 2) Using the Subaru Select Monitor, check «Quantity of Sunload».

NOTE:

For detailed procedures, refer to "PC application help for Subaru Select Monitor".

- (1) Cover the sensor - sunload with cloth.
- (2) Does the «Quantity of Sunload» indicate 0 W/m² when the direct sunlight is shielded?
 - **Yes** → Go to step 3).
 - **No** → Replace the sensor - sunload.
- 3) From the condition in step 2), expose the sensor - sunload to light.
 - (1) Place intense light such as incandescent light at 30 cm or less from the sunload sensor.
 - (2) Does «Quantity of Sunload» indicate 2000 W/m² or less?

CAUTION:

The value changes depending on the angle of light.

- **Yes** → The sensor - sunload is normal.
- **No** → Replace the sensor - sunload.

In-Vehicle Sensor (Auto A/C Model)

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

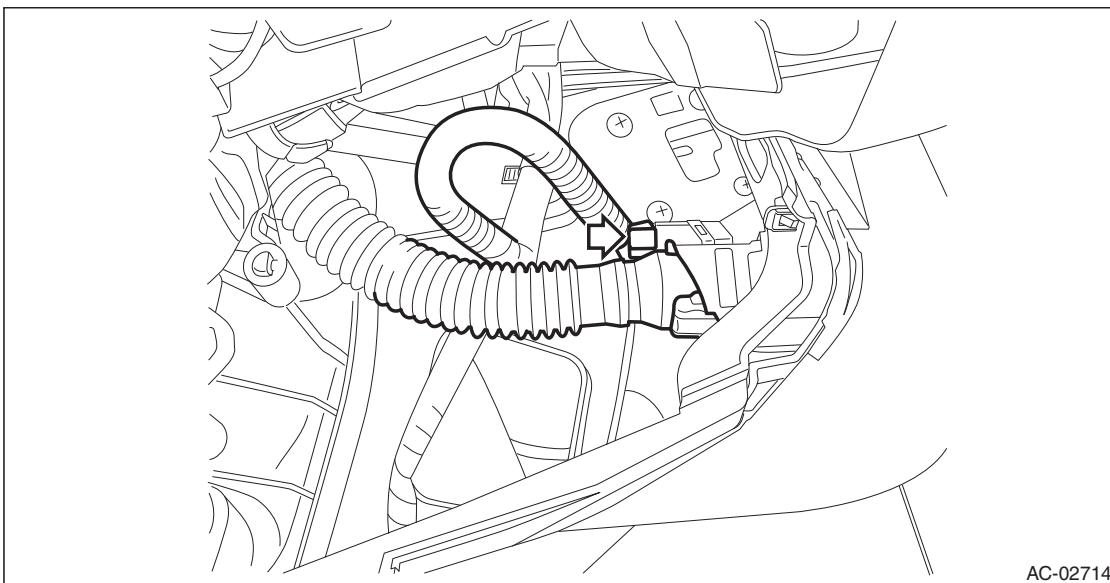
24. In-Vehicle Sensor (Auto A/C Model)

A: REMOVAL

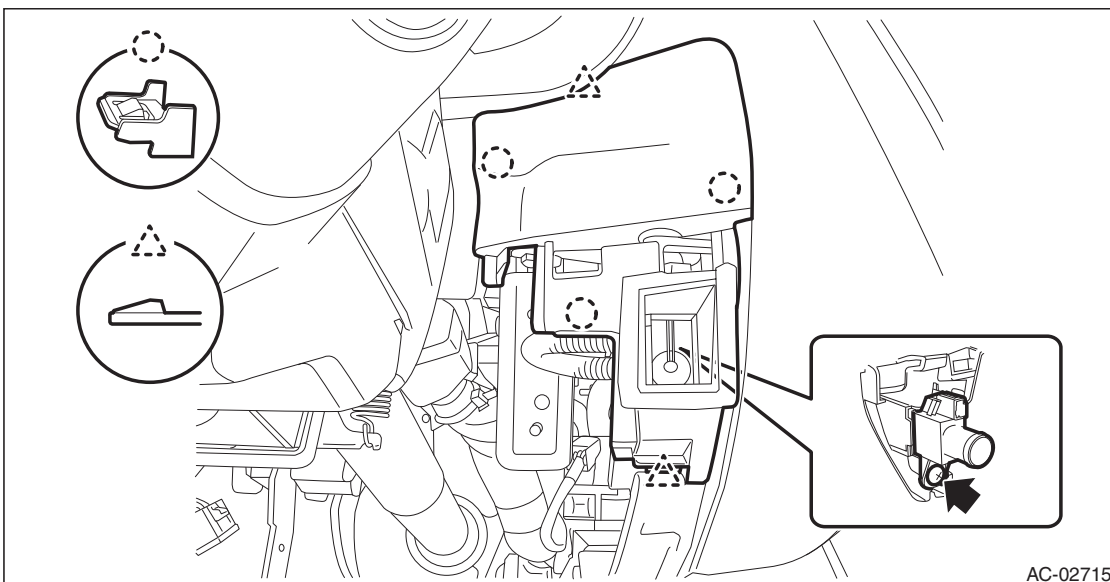
CAUTION:

Be careful not to damage the sensors and interior trims when removing.

- 1) Remove the instrument panel lower cover and knee airbag module. <Ref. to AB-39, REMOVAL, Knee Airbag Module.>
- 2) Remove the in-vehicle sensor.
 - (1) Disconnect the connector, and remove the aspirator hose.



- (2) Release the claws and remove the cover switch - starter.
 - (3) Remove the screw and remove the in-vehicle sensor from the cover switch - starter.



In-Vehicle Sensor (Auto A/C Model)

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

B: INSTALLATION

Install each part in the reverse order of removal.

NOTE:

Refer to "INSTALLATION" of "Knee Airbag Module". <Ref. to AB-41, INSTALLATION, Knee Airbag Module.>

Tightening torque:

Blower motor unit: <Ref. to AC-10, BLOWER MOTOR UNIT, COMPONENT, General Description.>

Engine control module (ECM): 7.5 N·m (0.76 kgf-m, 5.5 ft-lb)

C: INSPECTION

On the vehicle inspection

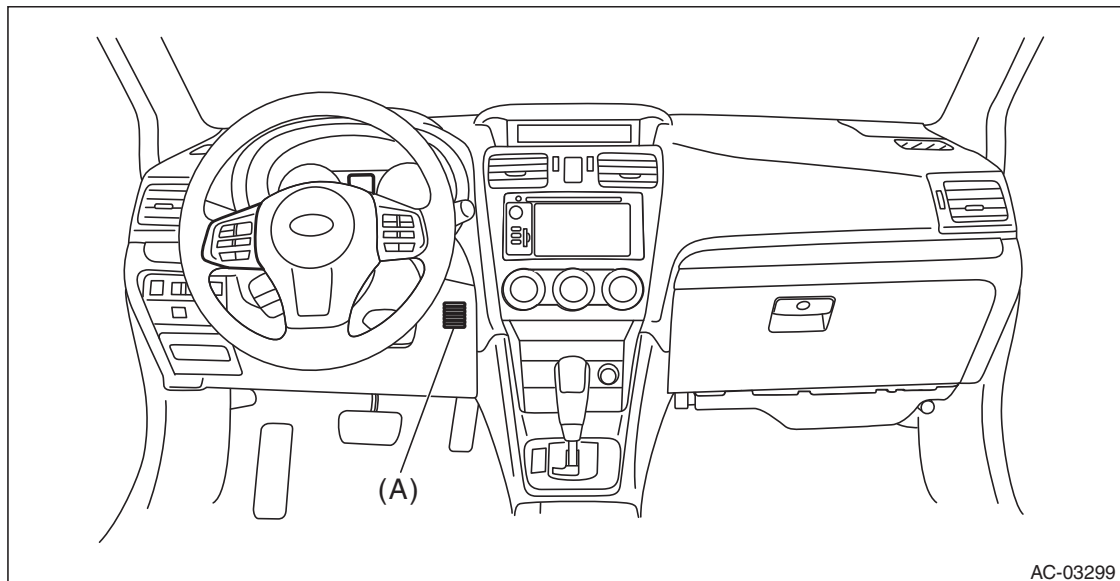
Preparation tool:

Circuit tester

1) Set the vehicle to the following conditions.

Item	Condition
Ignition switch	ON
A/C switch	ON
Temperature adjustment dial	HI (MAX HOT)
Air flow control dial or switch	DEF
Fan dial	HI (MAX)

2) Check the suction port (A) for in-vehicle sensor of the cover assembly - instrument panel LWR driver INN.



(1) Put a strip of paper close to the front side of the suction port (A).

(2) Can you see the paper moving towards the port and the air being sucked into the port?

CAUTION:

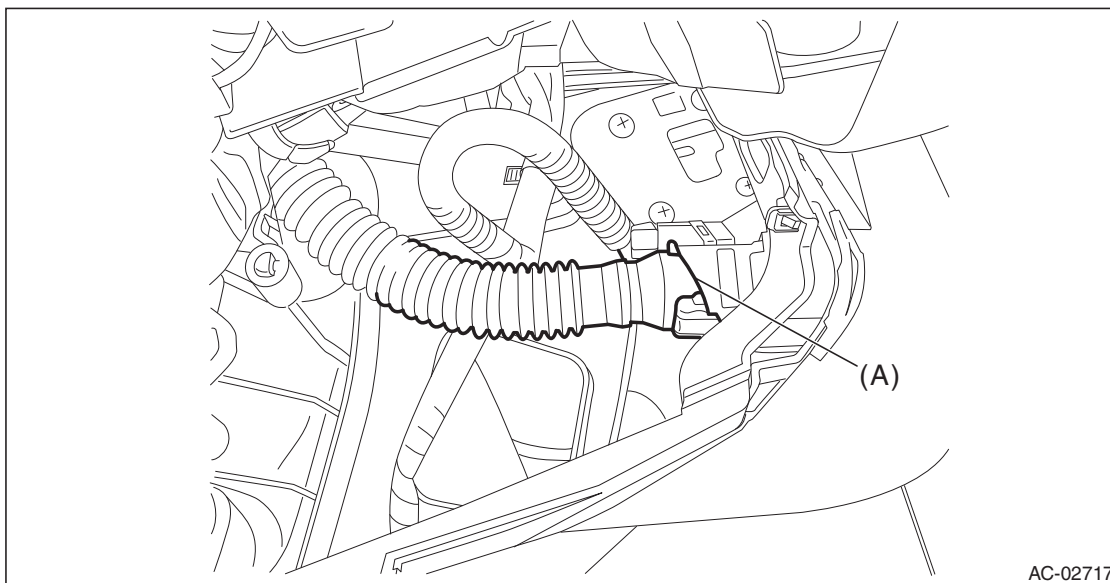
Be careful not to let the paper get sucked into the port.

- **Yes** → Go to step 5).
- **No** → Go to step 3).

In-Vehicle Sensor (Auto A/C Model)

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

3) Remove the cover assembly - instrument panel LWR driver INN, and check the aspirator hose (A).



(1) Are the aspirator hoses on both sides of the case and sensor connected securely?

(2) Is the aspirator hose free from any kinks or cracks?

- **Yes** → Go to step 4).

- **No** → Repair or replace the aspirator hose if necessary.

4) Check if there is anything that affects sensing, around the in-vehicle sensor.

(1) Is the in-vehicle sensor hole free from clogging?

(2) Is the peripheral area of in-vehicle sensor free from any heat-producing parts (such as audio, navigation system etc.)?

- **Yes** → Go to step 5).

- **No** → Remove everything that affects sensing.

In-Vehicle Sensor (Auto A/C Model)

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

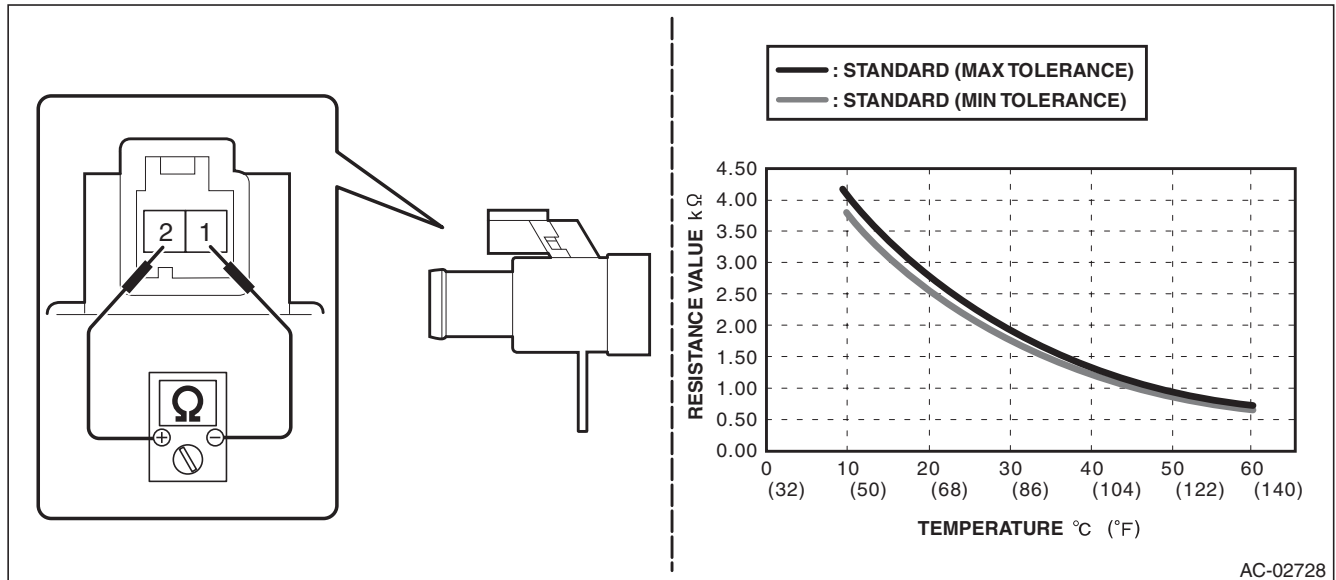
5) Perform the inspection of in-vehicle sensor unit.

(1) Disconnect the in-vehicle sensor connector.

(2) Is the resistance between terminals of in-vehicle sensor within standard value?

CAUTION:

During inspection, be careful not to touch the sensor end in order to avoid misjudgment due to body temperature.



Terminal No.	Inspection conditions	Standard
1 — 2	10°C	3.772 — 4.101 kΩ
	15°C	3.096 — 3.338 kΩ
	20°C	2.556 — 2.734 kΩ
	25°C	2.121 — 2.251 kΩ
	30°C	1.756 — 1.878 kΩ
	35°C	1.462 — 1.574 kΩ
	40°C	1.223 — 1.326 kΩ
	45°C	1.028 — 1.122 kΩ
	50°C	0.868 — 0.9542 kΩ
	55°C	0.7363 — 0.8147 kΩ
	60°C	0.6273 — 0.6984 kΩ

- **Yes** → The in-vehicle sensor is normal.
- **No** → Replace the in-vehicle sensor.

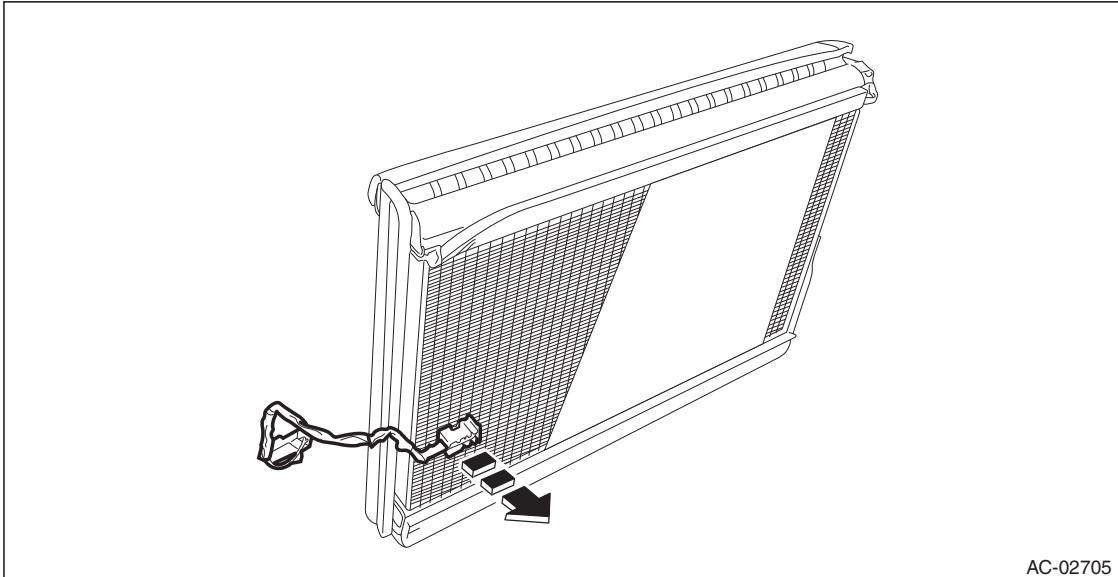
Evaporator Sensor

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

25. Evaporator Sensor

A: REMOVAL

- 1) Remove the evaporator assembly - cooling. <Ref. to AC-62, REMOVAL, Evaporator.>
- 2) Remove the thermostat - cooling from the evaporator assembly - cooling.

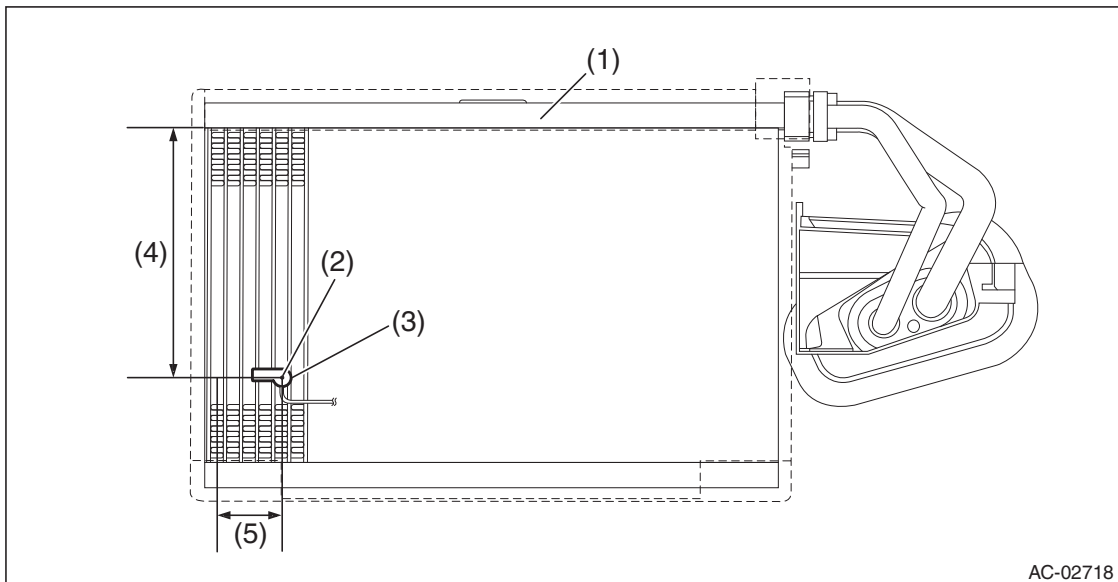


B: INSTALLATION

CAUTION:

- Make sure that the water seal packing on the cover attachment area is securely attached.
- Replace the O-rings with new parts, and then apply compressor oil.

- 1) Install the thermostat - cooling at the position shown in the figure below.



- | | | |
|-------------------------------|---|-------------------------------------|
| (1) Evaporator ASSY - cooling | (3) Thermostat - cooling | (5) Fifth row fin from the left end |
| (2) Center | (4) 130 mm (5.12 in) from the upper end of the fins | |



Evaporator Sensor

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

2) Install each part in the reverse order of removal.

Tightening torque:

Heater cooling unit: <Ref. to AC-6, HEATER AND COOLING UNIT, COMPONENT, General Description.>

Blower motor unit: <Ref. to AC-10, BLOWER MOTOR UNIT, COMPONENT, General Description.>

3) Charge refrigerant. <Ref. to AC-27, PROCEDURE, Refrigerant Charging Procedure.>

C: INSPECTION

On- the vehicle inspection

Preparation tool:

SUBARU SELECT MONITOR III KIT

Circuit tester

Thermometer and hygrometer

1) Prepare the vehicle.

NOTE:

Check that the ambient temperature is 25 — 40°C (77 — 104°F) and that the humidity is 30% — 80%.

- Place the vehicle in the workshop or in the shade and windless condition.
- Open all windows.

2) Set the vehicle to the following conditions.

Item	Condition
Engine	Idling
Air vent grille	Shutter is fully open.
A/C switch	OFF
Temperature adjustment dial	LO (MAX COOL)
FRESH/RECIRC switch	CIRC
Air flow control dial or switch	VENT
Fan dial	Auto A/C model: 5/7 level
	Manual A/C model: 3/4 level

3) Using the Subaru Select Monitor, check «Evaporator Temperature».

NOTE:

For detailed procedures, refer to “PC application help for Subaru Select Monitor”.

(1) Idle the engine for 15 minutes, and then compare the air flow outlet temperature with «Evaporator Temperature».

NOTE:

For outlet opening temperature, measure the average temperature of center grille assembly and side grille assembly.

(2) Do the air flow outlet temperature and «Evaporator Temperature» differ by 3°C (5.4°F) or more?

- **Yes** → Go to step 4).
- **No** → Evaporator sensor is normal.

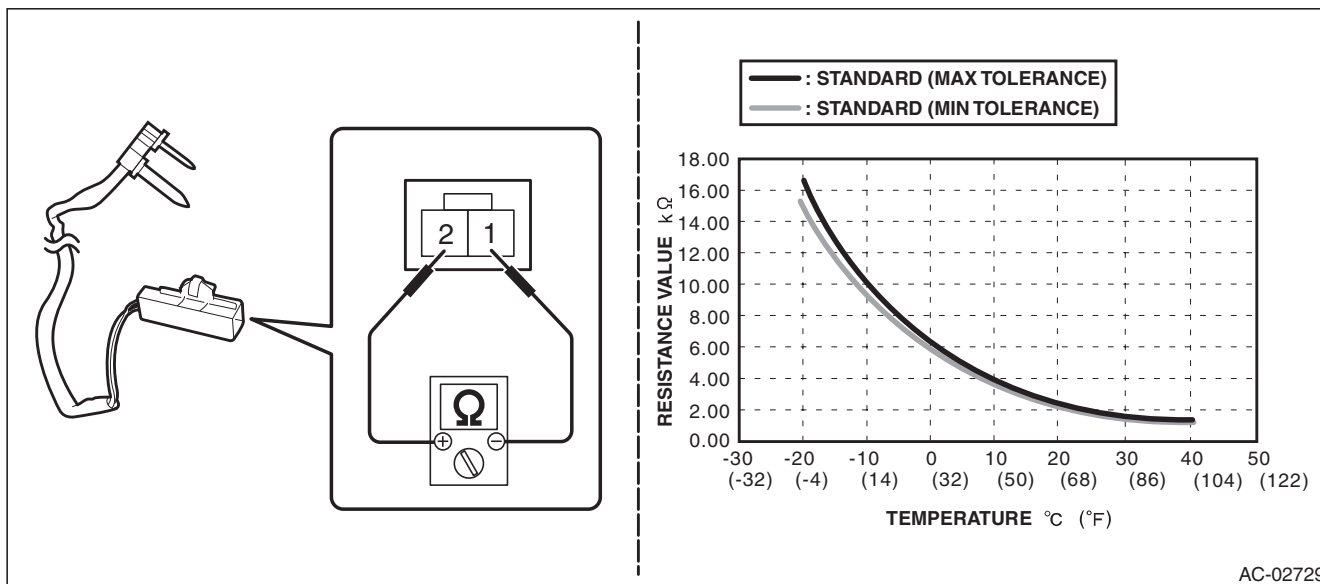
Evaporator Sensor

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

4) Check the evaporator sensor.

(1) Disconnect the evaporator sensor connector.

(2) Is the resistance between terminals of evaporator sensor within standard value?



Terminal No.	Inspection conditions	Standard
1 — 2	-20°C	15.37 — 16.62 kΩ
	-15°C	12.09 — 12.87 kΩ
	-10°C	9.576 — 10.05 kΩ
	-5°C	7.636 — 7.899 kΩ
	0°C	6.132 — 6.256 kΩ
	5°C	4.891 — 5.057 kΩ
	10°C	3.928 — 4.113 kΩ
	15°C	3.174 — 3.366 kΩ
	20°C	2.581 — 2.77 kΩ
	25°C	2.111 — 2.292 kΩ
	30°C	1.737 — 1.907 kΩ
	35°C	1.437 — 1.595 kΩ
	40°C	1.195 — 1.34 kΩ

- **Yes** → Evaporator sensor is normal.
- **No** → Replace the evaporator sensor.

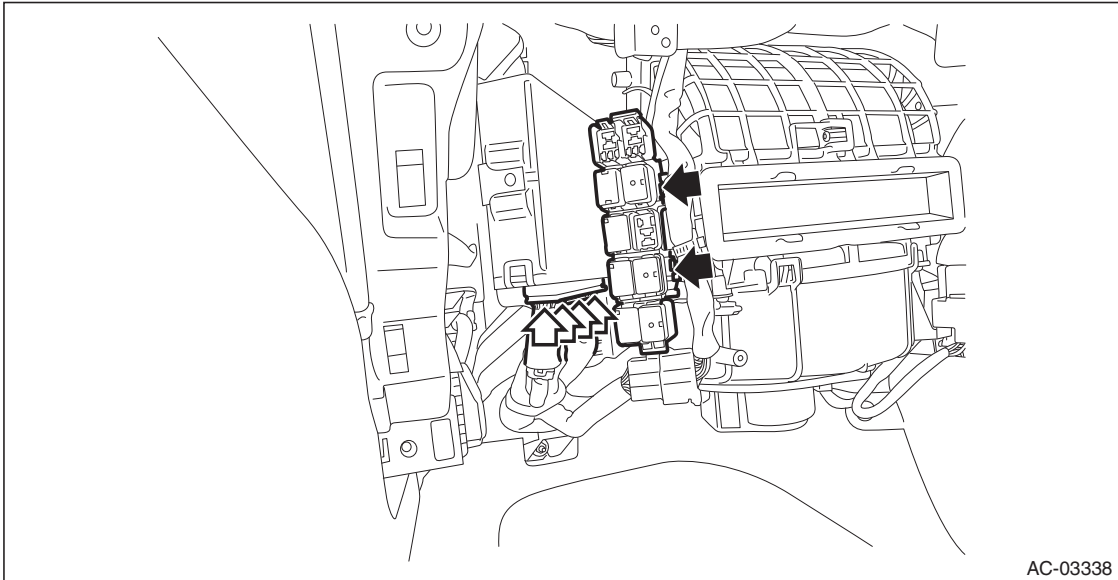
FRESH/RECIRC Door Actuator

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

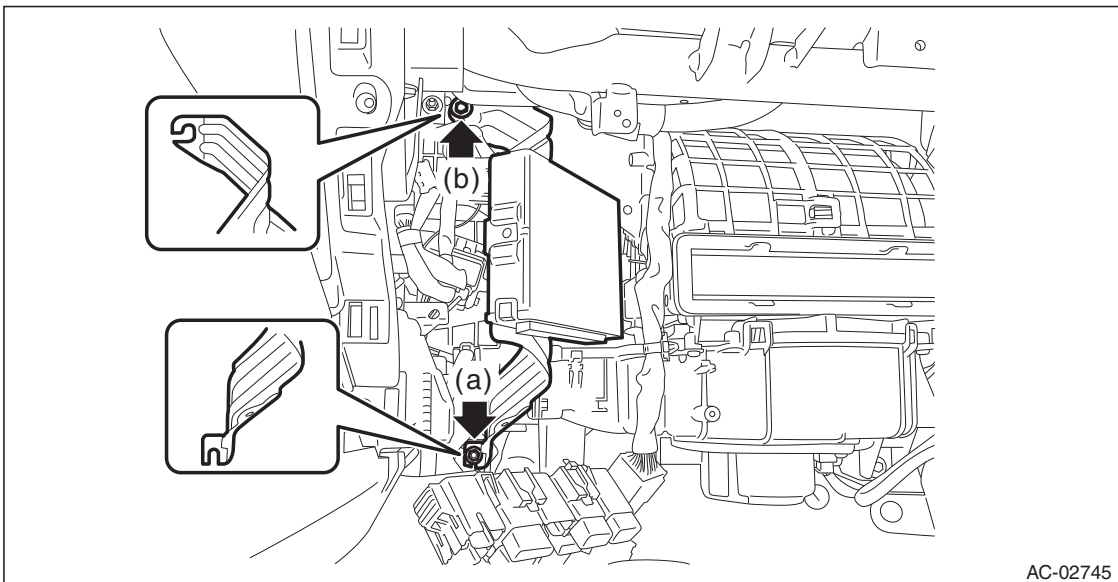
26.FRESH/RECIRC Door Actuator

A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Remove the glove box. <Ref. to EI-61, REMOVAL, Glove Box.>
- 3) Remove the engine control module (ECM). (Non-turbo model)
 - (1) Release the lock and remove the relay holder.
 - (2) Disconnect the connector.



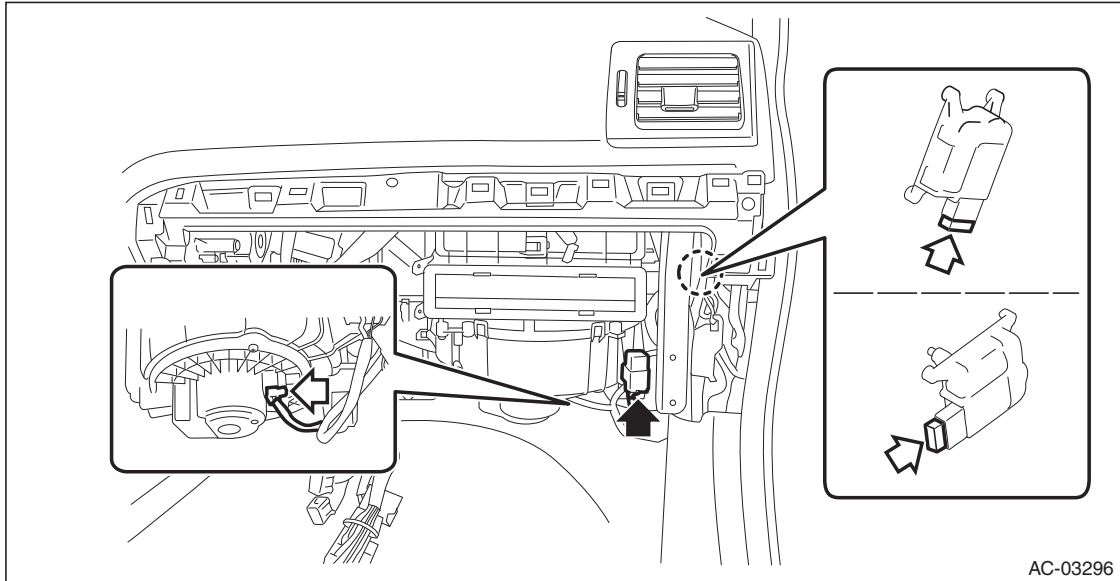
- (3) Remove the nuts (a).
- (4) Loosen the bolt (b), and remove the engine control module (ECM).



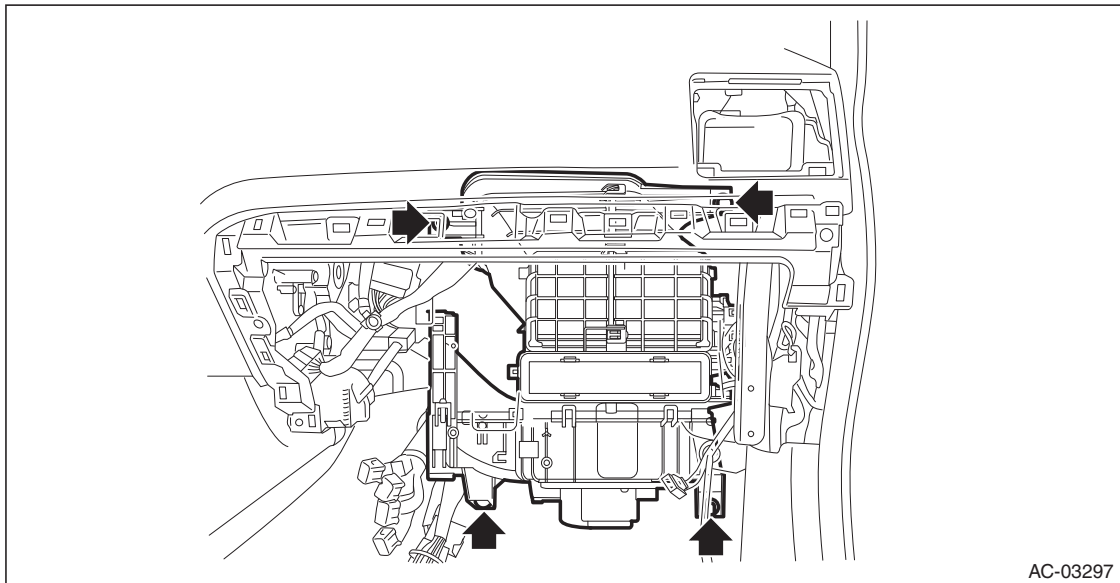
FRESH/RECIRC Door Actuator

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

- 4) Remove the blower motor unit assembly.
(1) Disconnect the blower motor relay and each connector.



- (2) Remove the bolts and nuts to remove blower motor unit assembly.

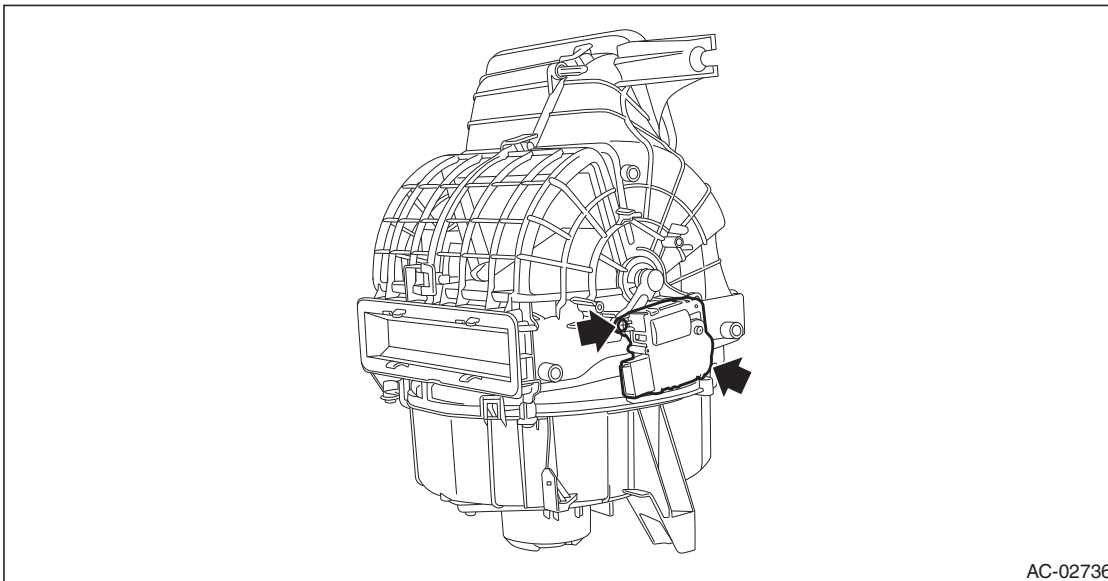


FRESH/RECIRC Door Actuator

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

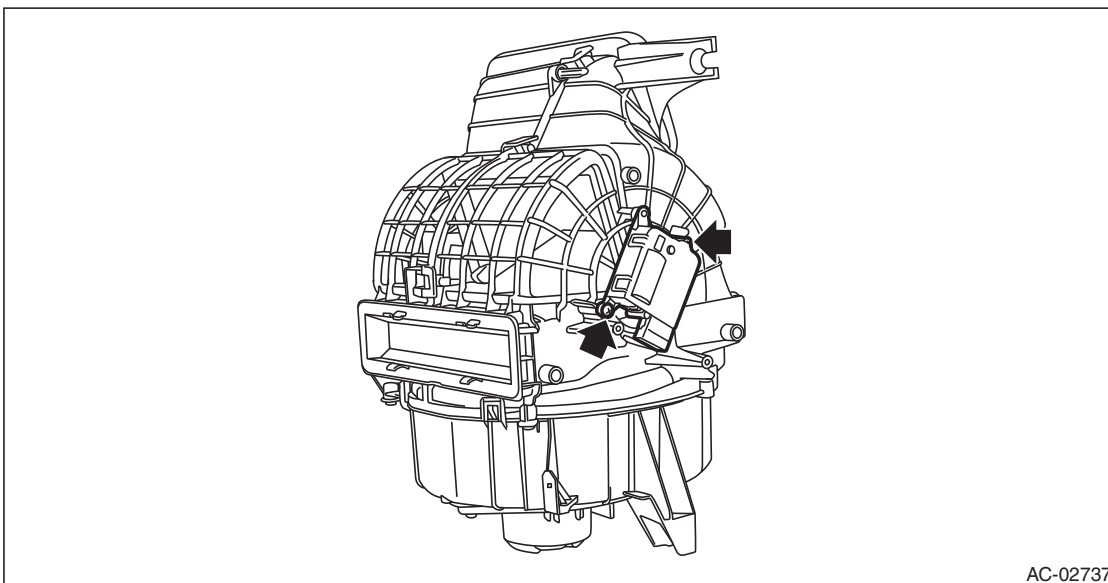
5) Remove the screws and detach the motor - actuator blower.

- Manual A/C model



AC-02736

- Auto A/C model



AC-02737

B: INSTALLATION

Install each part in the reverse order of removal.

Tightening torque:

Blower motor unit: <Ref. to AC-10, BLOWER MOTOR UNIT, COMPONENT, General Description.>

Engine control module (ECM): 7.5 N·m (0.76 kgf-m, 5.5 ft-lb)

FRESH/RECIRC Door Actuator

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

C: INSPECTION

1. CHECK LINK

- 1) Visually check the operation range of the link, and remove the foreign material if any.
- 2) Operate the FRESH/RECIRC switch to check that the link operates normally.
- 3) If it does not operate normally as the result of inspection, check the motor - actuator blower.

2. CHECK ACTUATOR

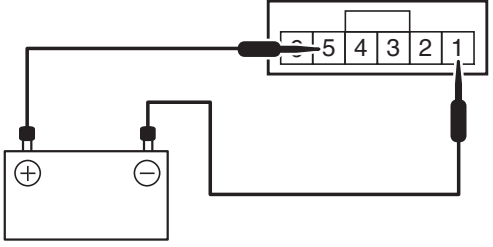
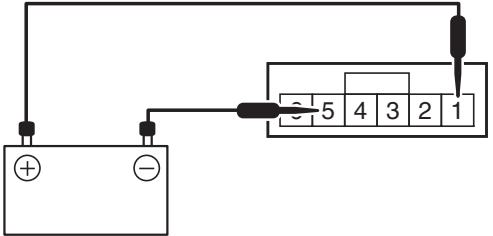
UNIT INSPECTION

- 1) Check the actuator operation when battery voltage is applied between the terminals of actuator.

CAUTION:

Remove the battery immediately once the actuator stops operating. Otherwise, damage to the motor can occur.

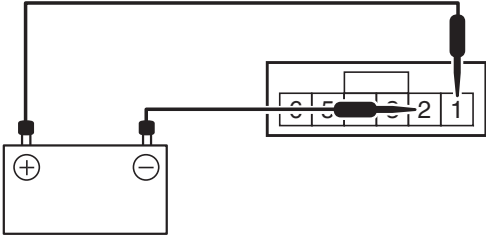
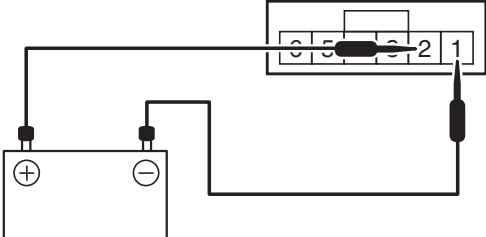
- Manual A/C model

Terminal No.	Inspection conditions	Position	Connection diagram
5 (+) — 1 (—)	Connect battery to the terminals	RECIRC	 AC-02738
1 (+) — 5 (—)		FRESH	 AC-02739

FRESH/RECIRC Door Actuator

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

- Auto A/C model

Terminal No.	Inspection conditions	Position	Connection diagram
1 (+) — 2 (–)	Connect battery to the terminals	RECIRC	 AC-02742
2 (+) — 1 (–)		FRESH	 AC-02741

2) If it does not operate normally as the result of inspection, replace the motor - actuator blower.



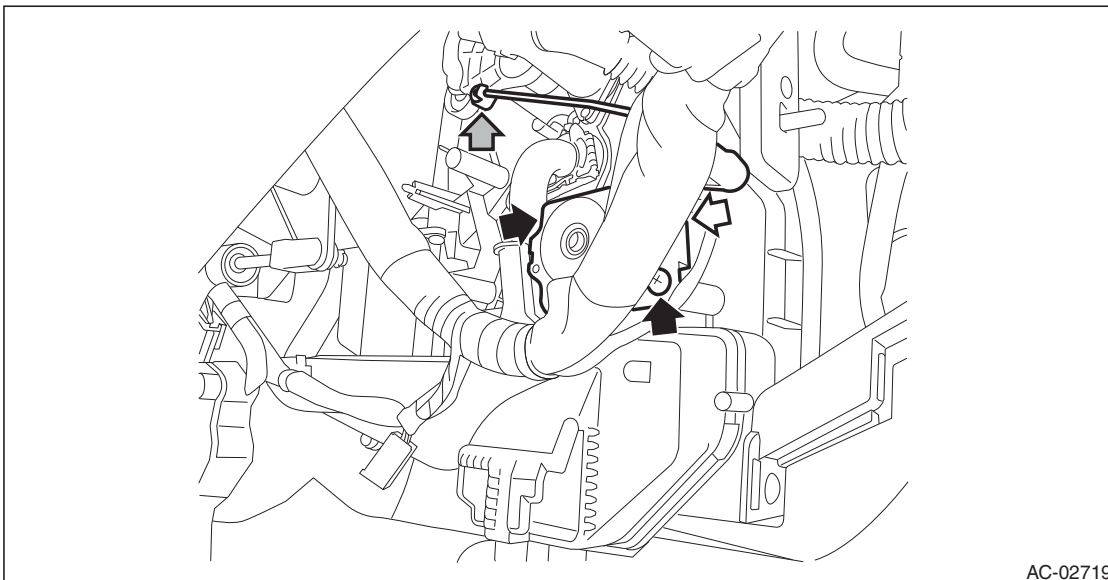
Mode Door Actuator

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

27.Mode Door Actuator

A: REMOVAL

- 1) Remove the instrument panel lower cover and knee airbag module. <Ref. to AB-39, REMOVAL, Knee Airbag Module.>
- 2) Remove the motor - actuator mode.
 - (1) Disconnect the connector, and remove the rod from the rod clamp.
 - (2) Remove the screws and detach the motor - actuator mode.



B: INSTALLATION

Install each part in the reverse order of removal.

Mode Door Actuator

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

C: INSPECTION

1. CHECK LINK

- 1) Visually check the operation range of the link, and remove the foreign material if any.
- 2) Operate the air flow control dial or switch to check that the link operates normally.
- 3) If it does not operate normally as the result of inspection, check the motor - actuator mode.

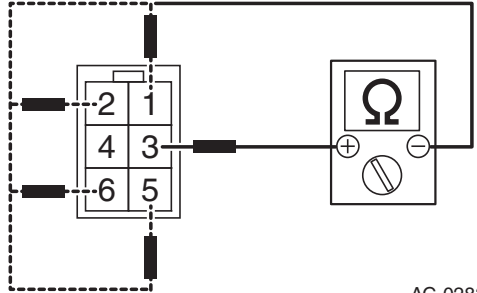
2. CHECK ACTUATOR

UNIT INSPECTION

PREPARATION TOOL:

Circuit tester

- 1) Check the resistance between actuator terminals.

Terminal No.	Inspection conditions	Standard	Connector sketch
3 — 1	Always	80 — 100 Ω	
3 — 2			
3 — 5			
3 — 6			

AC-02839

- 2) Replace the motor - actuator mode if it is found defective as a result of inspection.



Air Mix Door Actuator

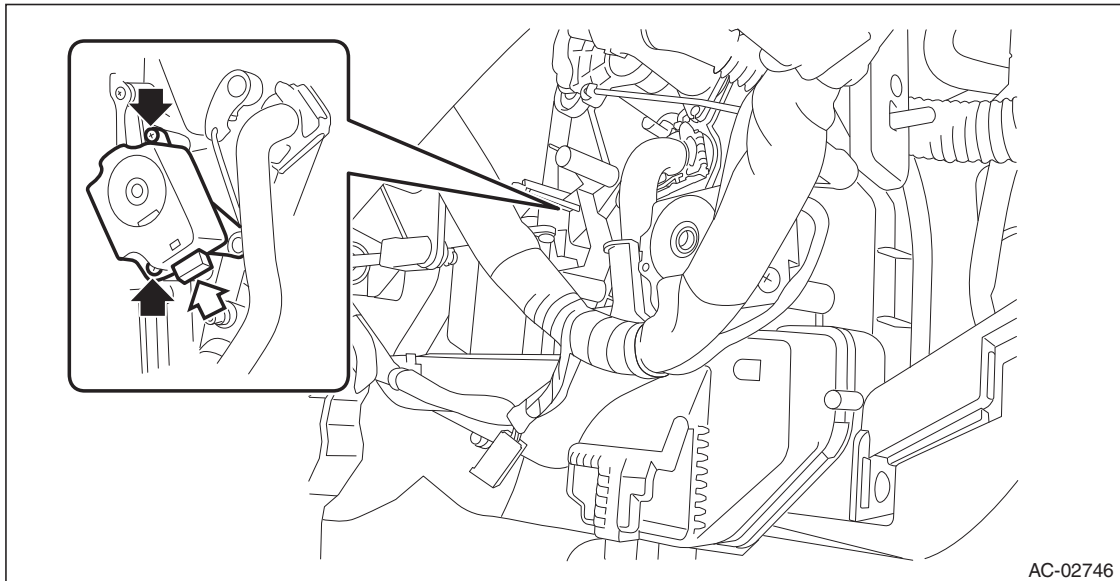
HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

28. Air Mix Door Actuator

A: REMOVAL

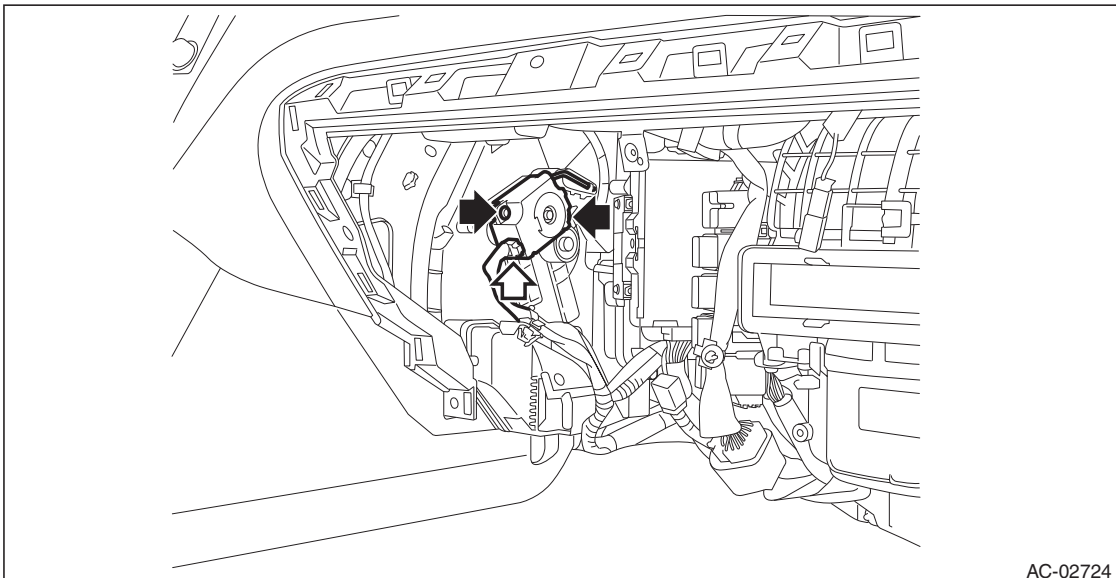
1. LH

- 1) Remove the instrument panel lower cover and knee airbag module. <Ref. to AB-39, REMOVAL, Knee Airbag Module.>
- 2) Remove the motor - actuator mix.
 - (1) Disconnect the connector, and remove the rod from the rod clamp.
 - (2) Remove the screws and detach the motor - actuator mix.



2. RH

- 1) Remove the glove box. <Ref. to EI-61, REMOVAL, Glove Box.>
- 2) Remove the motor - actuator mix.
 - (1) Disconnect the connector, and remove the rod from the rod clamp.
 - (2) Remove the screws and detach the motor - actuator mix.



B: INSTALLATION

Install each part in the reverse order of removal.

Air Mix Door Actuator

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

C: INSPECTION

1. CHECK LINK

- 1) Visually check the operation range of the link, and remove the foreign material if any.
- 2) Operate the temperature control dial to check that the link operates normally.
- 3) If it does not operate normally as the result of inspection, check the motor - actuator mix.

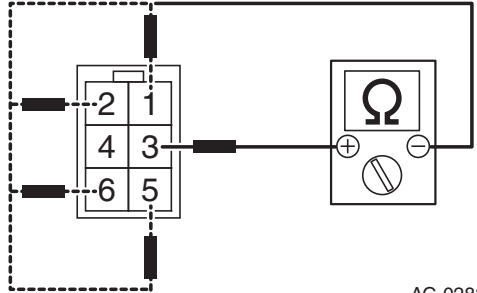
2. CHECK ACTUATOR

UNIT INSPECTION

PREPARATION TOOL:

Circuit tester

- 1) Check the resistance between actuator terminals.

Terminal No.	Inspection conditions	Standard	Connector sketch
3 — 1	Always	80 — 100 Ω	
3 — 2			
3 — 5			
3 — 6			

AC-02839

- 2) Replace the motor - actuator mix if it is found defective as a result of inspection.



Air Vent Grille

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

29. Air Vent Grille

A: REMOVAL

1. CENTER GRILLE ASSEMBLY

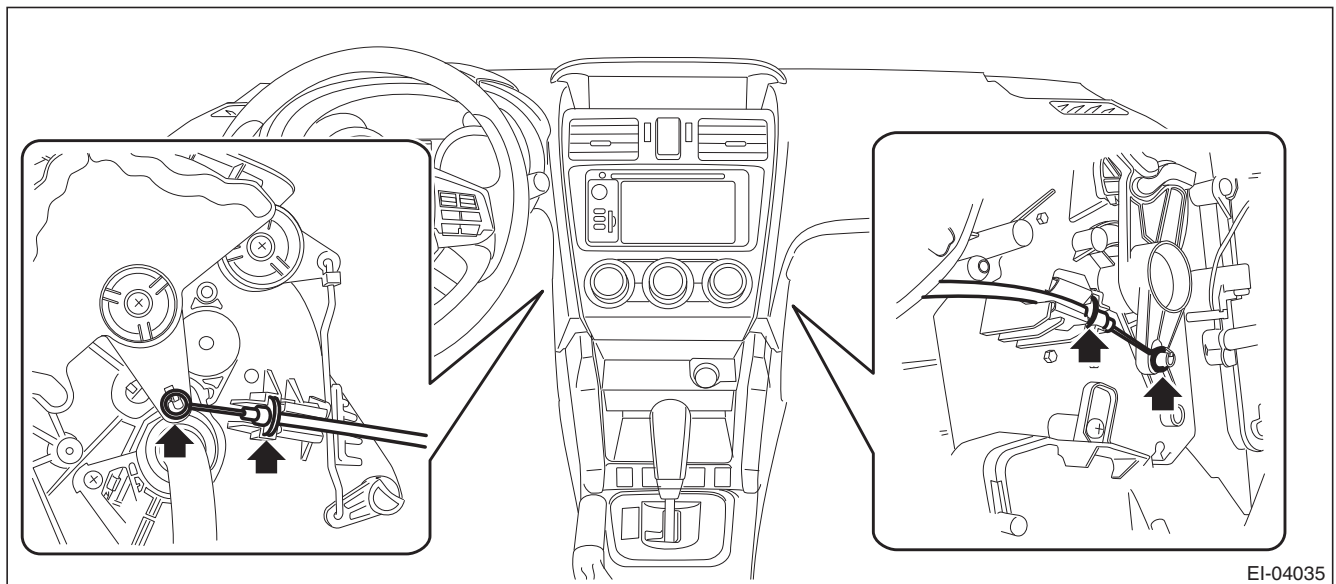
CAUTION:

Be careful not to damage the interior trims when removing.

- 1) Disconnect the ground cable from battery.
- 2) Remove the panel center assembly.

CAUTION:

- **Do not put your finger on the fin of the air vent grille. Doing so may damage the fin.**
- **Pull the panel center assembly slowly. Pulling with excessive force may damage the connector.**
 - (1) On manual A/C models, disconnect the control cables from both sides of the heater and cooling unit assembly.



NOTE:

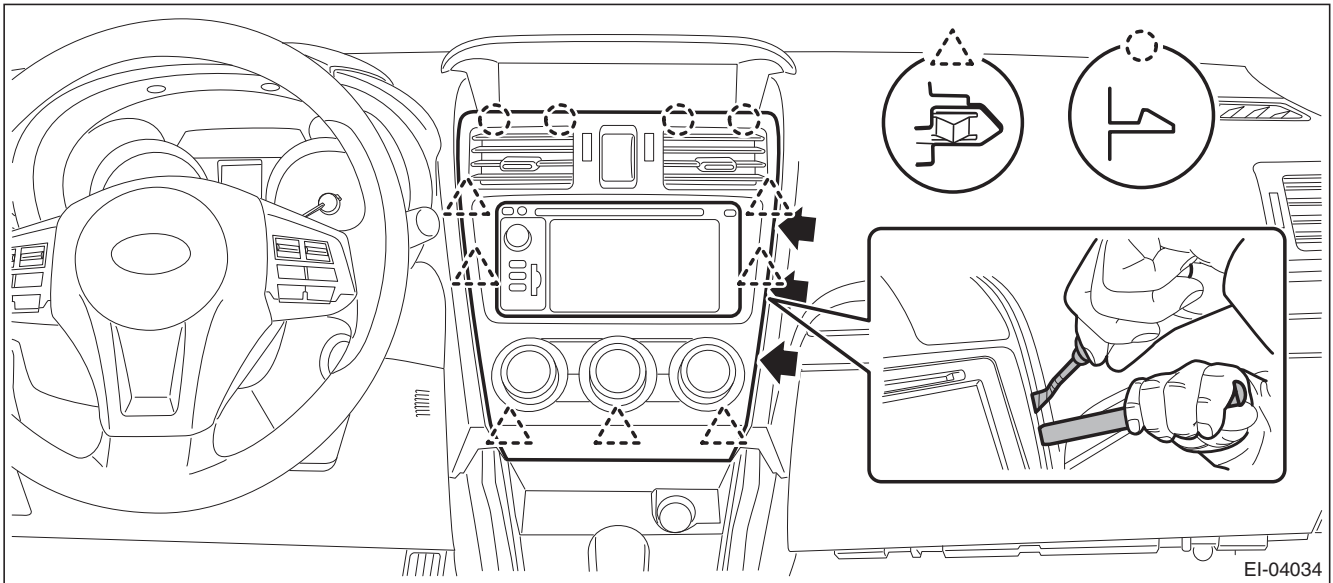
Remove the glove box pocket assembly on the passenger's side.

- (2) Insert a plastic remover to the three areas shown by the arrows, and slightly lift up the panel center assembly.
- (3) With the panel center assembly lifted up slightly, release the claw by using a clip remover wrapped with protective tape.
- (4) Release the rest of the claws, and pull out the panel center assembly.

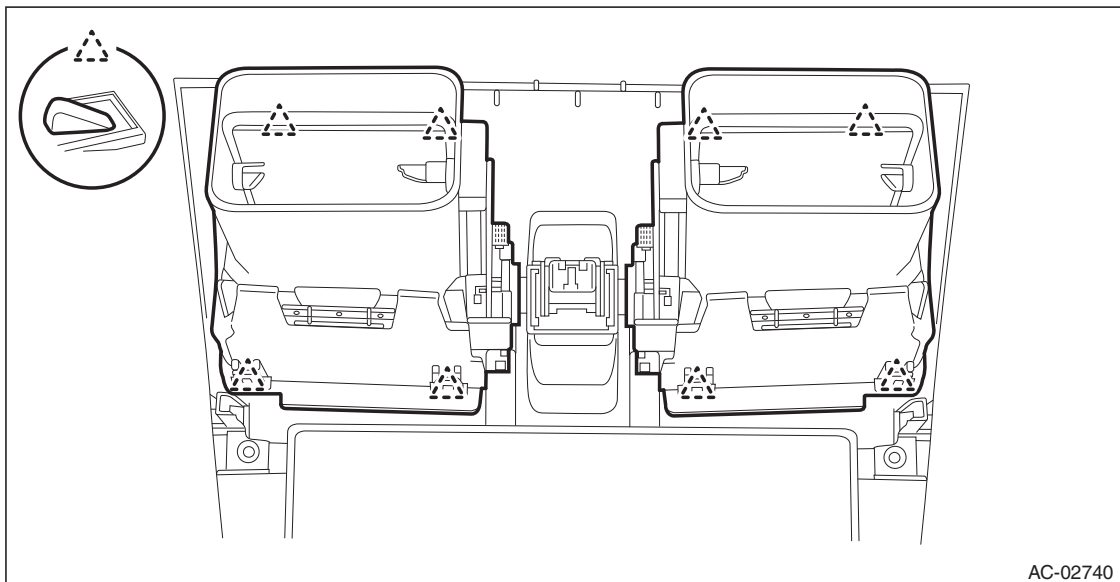
Air Vent Grille

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

(5) Disconnect the connectors, and remove the panel center assembly.



3) Release the claws, and then remove the grille assembly - CTR ventilation from the panel center assembly.



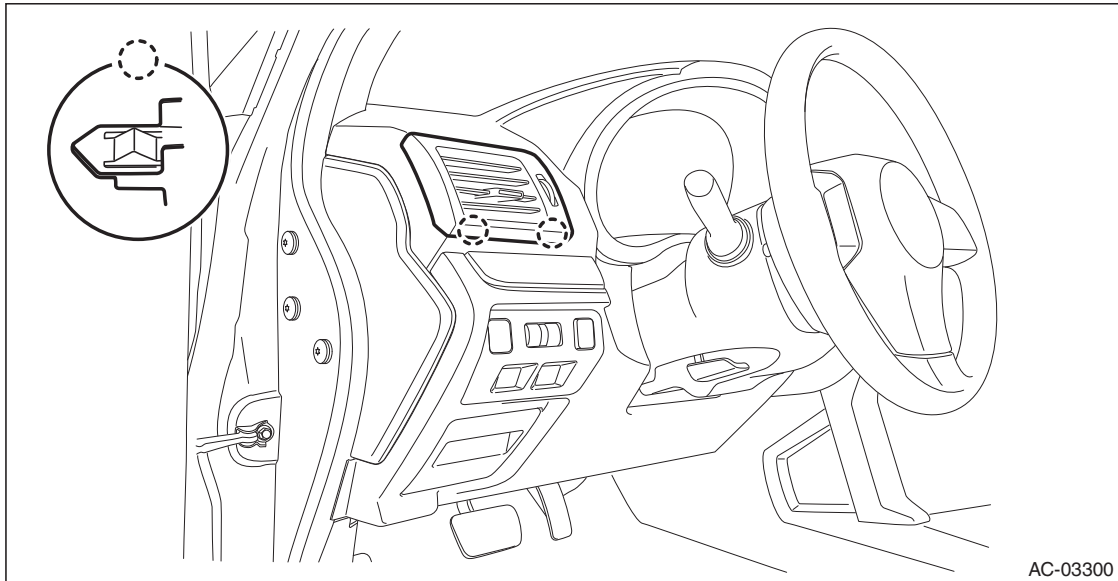
Air Vent Grille

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

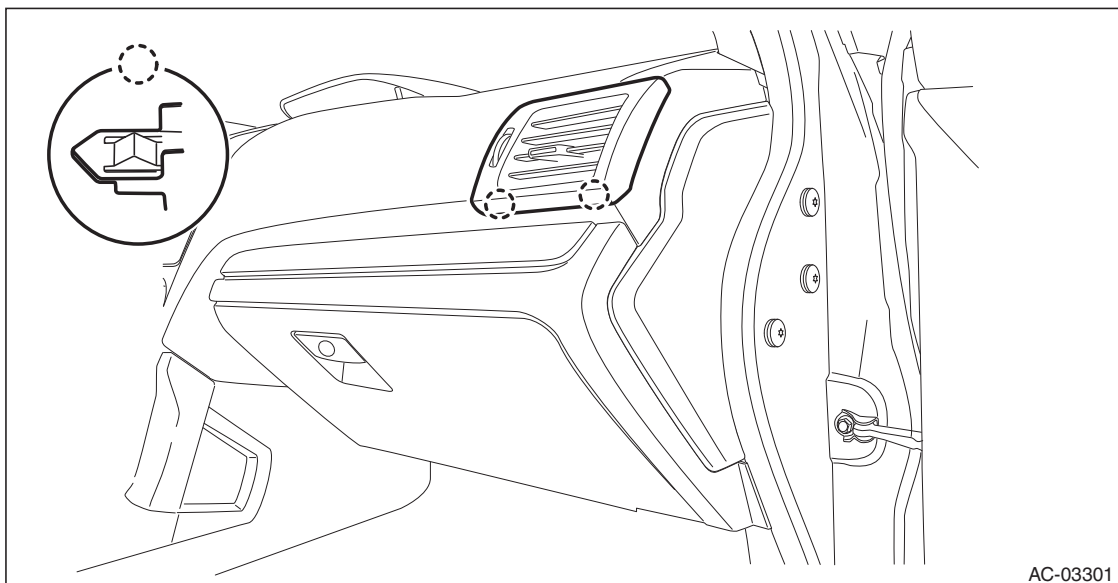
2. SIDE GRILLE ASSEMBLY

Release the claws, and then remove the grille assembly - ventilation RH.

- LH



- RH



B: INSTALLATION

CAUTION:

After installing the panel center assembly or grille assembly - ventilation, check that the air vent grille is inserted correctly into the air vent duct.

Install each part in the reverse order of removal.

C: INSPECTION

- 1) Check that the direction and amount of air can be adjusted smoothly. Replace the grille assembly - ventilation if faulty.
- 2) Check that the adjustment can be maintained in each position. Replace the grille assembly - ventilation if faulty.

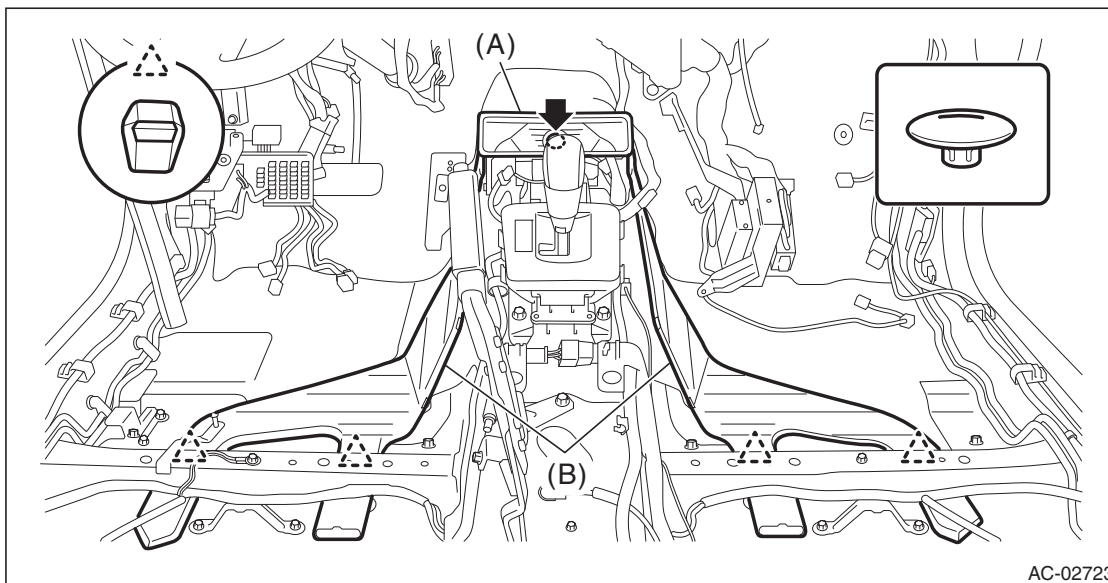
Heater Duct

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

30.Heater Duct

A: REMOVAL

- 1) Remove the front seats. <Ref. to SE-8, REMOVAL, Front Seat.>
- 2) Remove the instrument panel assembly. <Ref. to EI-69, REMOVAL, Instrument Panel Assembly.>
- 3) Remove the duct - rear heater extension and the power amplifier assembly. (Model with harman/kardon[®] audio system) <Ref. to ET-14, REMOVAL, Power Amplifier.>
- 4) Remove the duct - rear heater.
 - (1) Lift the floor carpet.
 - (2) Remove the clips, and remove the duct - rear heater CTR (A).
 - (3) Release the claws, and remove the duct - rear heater (B) on LH and RH sides.



B: INSTALLATION

Install each part in the reverse order of removal.

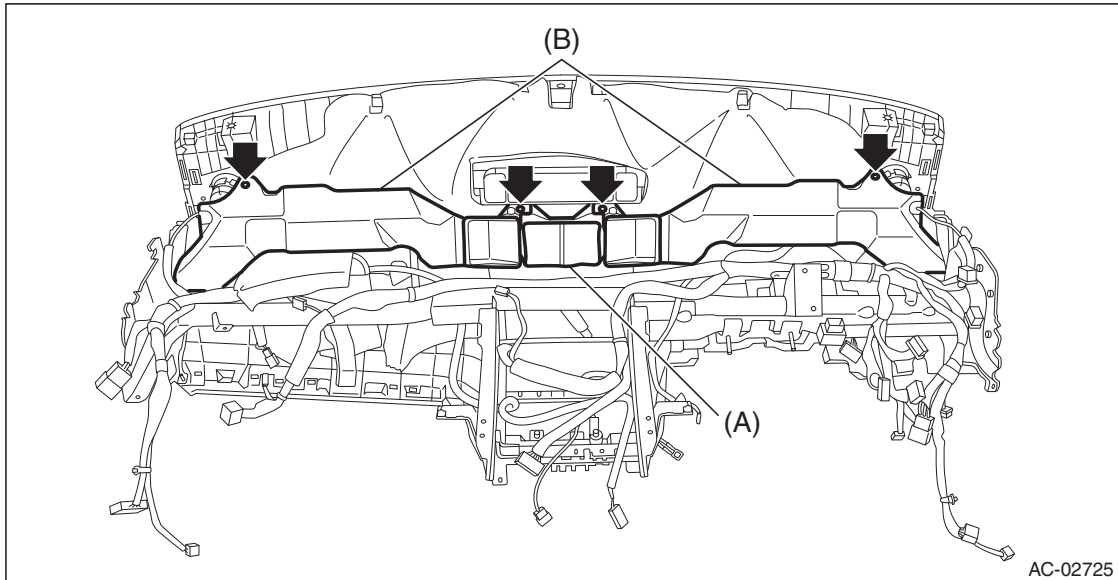
Heater Vent Duct

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

31.Heater Vent Duct

A: REMOVAL

- 1) Remove the instrument panel assembly. <Ref. to EI-69, REMOVAL, Instrument Panel Assembly.>
- 2) Remove the screws and remove the duct - center vent (A) and the duct - side ventilation (B) on LH and RH sides.



AC-02725

B: INSTALLATION

Install each part in the reverse order of removal.

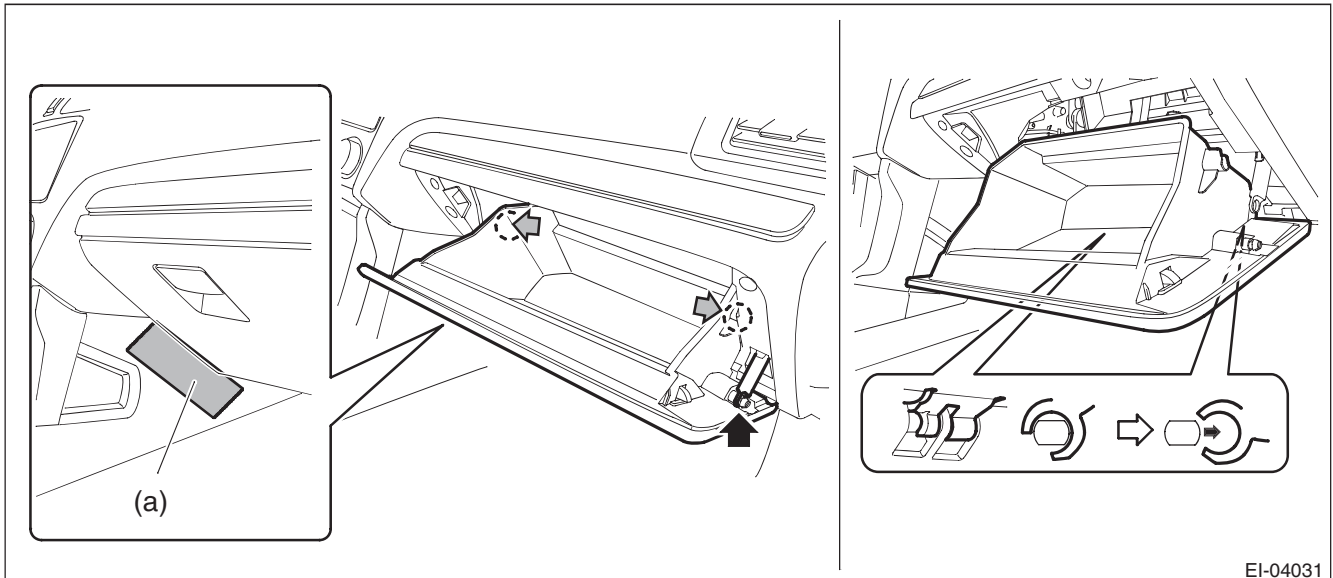
A/C Filter

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

32.A/C Filter

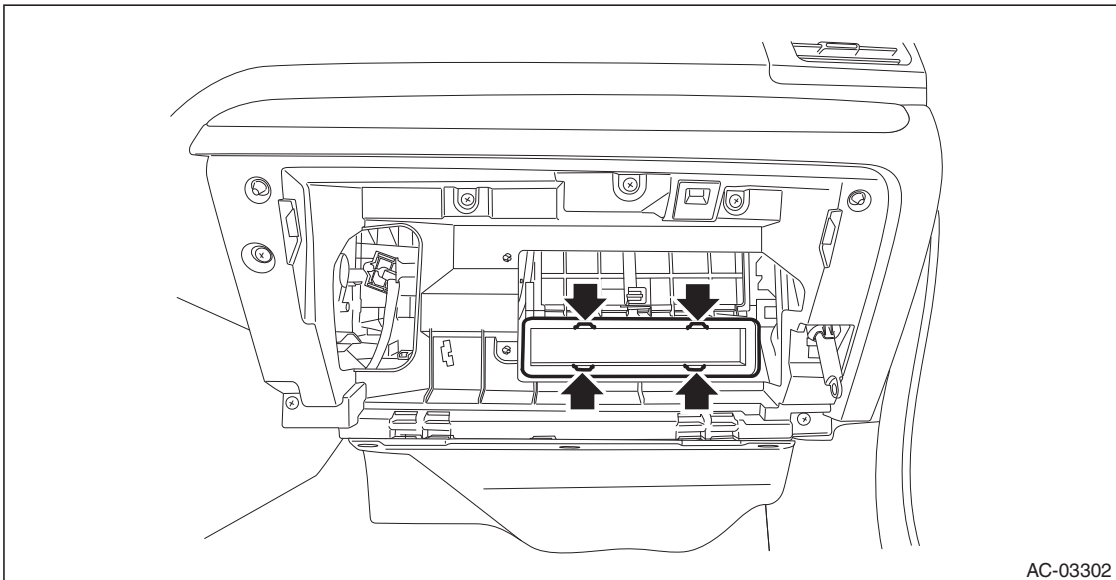
A: REPLACEMENT

- 1) Remove the pocket assembly.
 - (1) Attach the protective tape (a) to the panel center LWR.
 - (2) Remove the damper COMPL - pocket.
 - (3) Release the stoppers and remove the pocket assembly by pulling it toward you.



EI-04031

- 2) Pinch the tabs to release the lock, and remove the filter kit.



AC-03302

- 3) Install each part in the reverse order of removal.

Diagnostics with Phenomenon

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

33.Diagnostics with Phenomenon

A: INSPECTION

Refer to “Diagnostics with Phenomenon” for “HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)” section. <Ref. to AC(diag)-16, Diagnostics with Phenomenon.>

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

AC(diag)

	Page
1. Basic Diagnostic Procedure	2
2. General Description	3
3. Electrical Component Location	4
4. Auto A/C Control Module I/O Signal	6
5. Diagnostic Chart for Self-Diagnosis	8
6. Diagnostics with Phenomenon	16
7. Subaru Select Monitor	40
8. Read Diagnostic Trouble Code (DTC)	41
9. Clear Memory Mode	42
10. Read Current Data	43
11. Diagnostic Procedure for Subaru Select Monitor Communication	45
12. List of Diagnostic Trouble Code (DTC)	47
13. Diagnostic Procedure with Diagnostic Trouble Code (DTC)	49



Basic Diagnostic Procedure

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

1. Basic Diagnostic Procedure

A: PROCEDURE

NOTE:

When the sunload sensor check is performed indoors or in the shade, it could be diagnosed as having an open circuit of the sensor. Always perform the check in direct sunlight.

Step	Check	Yes	No
1 START INSPECTIONS. 1) Prepare a tool. <Ref. to AC-18, PREPARATION TOOL, General Description.> 2) Perform the pre-inspection. <Ref. to AC(diag)-3, INSPECTION, General Description.>	Is a malfunction found in pre-inspection?	Solve the malfunction found in pre-inspection, and go to the next inspection procedure. Go to step 2.	Go to step 2.
2 PREPARE SUBARU SELECT MONITOR. Prepare the Subaru Select Monitor.	Is the Subaru Select Monitor prepared?	Go to step 3.	Go to step 4.
3 CHECK DTC. 1) Leave the vehicle in a troubled condition for one minute or more. 2) Read the DTC using Subaru Select Monitor. NOTE: • If the communication function of the Subaru Select Monitor cannot be executed properly, check the communication circuit. <Ref. to AC(diag)-45, COMMUNICATION FOR INITIALIZING IMPOSSIBLE, Diagnostic Procedure for Subaru Select Monitor Communication.> • Record the freeze frame data that is recorded with DTC.	Is DTC displayed?	<Ref. to AC(diag)-47, LIST, List of Diagnostic Trouble Code (DTC).>	Refer to Diagnostics with Phenomenon. <Ref. to AC(diag)-16, INSPECTION, Diagnostics with Phenomenon.>
4 A/C CONTROL PANEL SELF-DIAGNOSIS. 1) Leave the vehicle in a troubled condition for one minute or more. 2) Perform the self-diagnosis of A/C control panel. <Ref. to AC(diag)-8, OPERATION, Diagnostic Chart for Self-Diagnosis.>	Is a malfunction detected?	Perform the diagnosis according to the self-diagnosis procedure.	Refer to Diagnostics with Phenomenon. <Ref. to AC(diag)-16, INSPECTION, Diagnostics with Phenomenon.>

General Description

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

2. General Description

A: CAUTION

- 1) Never connect the battery in reverse polarity.
 - Doing so may immediately damage the A/C control panel.
- 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 A/C control panel etc.
- 3) Before disconnecting the connectors of sensors and the A/C control panel, be sure to turn off the ignition switch.
 - A/C control panel may be damaged.
- 4) Every A/C-related part is a precision part. Do not drop them.
- 5) Airbag system harness is routed near the A/C control panel and junction box.

CAUTION:

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

B: INSPECTION

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

1. BATTERY

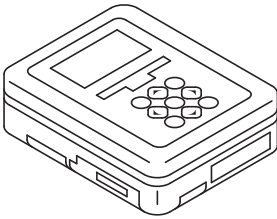
Check the battery. <Ref. to SC(H4DO)-63, INSPECTION, Battery.>

NOTE:

If the battery voltage does not reach the specified value, recharge or replace the battery.

C: PREPARATION TOOL

1. SPECIAL TOOL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST1B022XU0	1B022XU0	SUBARU SELECT MONITOR III KIT	Used for troubleshooting the electrical system.

2. GENERAL TOOL

TOOL NAME	REMARKS
Circuit tester	Used for measuring resistance, voltage and current.



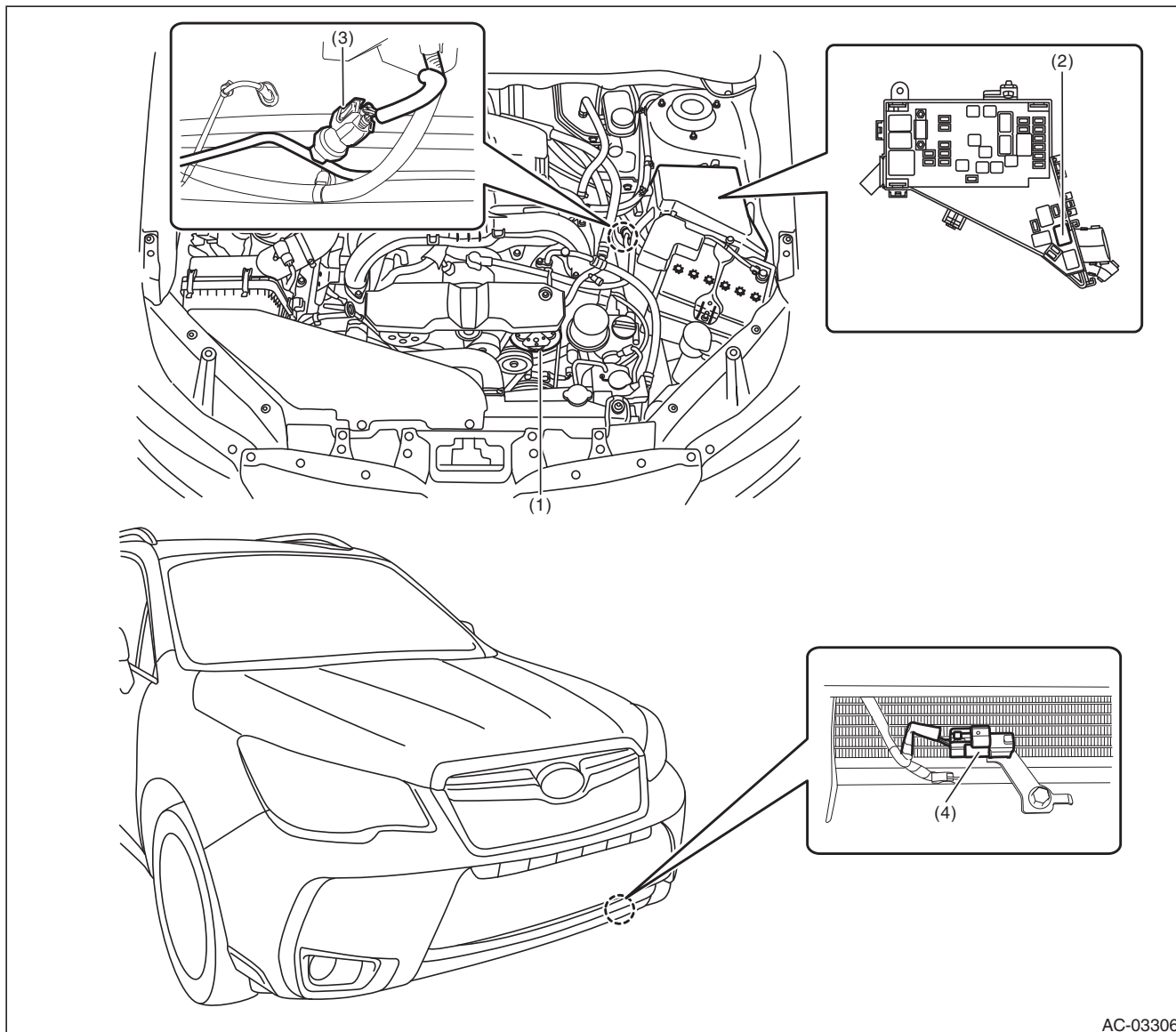
Electrical Component Location

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

3. Electrical Component Location

A: LOCATION

1. OUTSIDE VEHICLE



(1) A/C compressor

(2) A/C relay

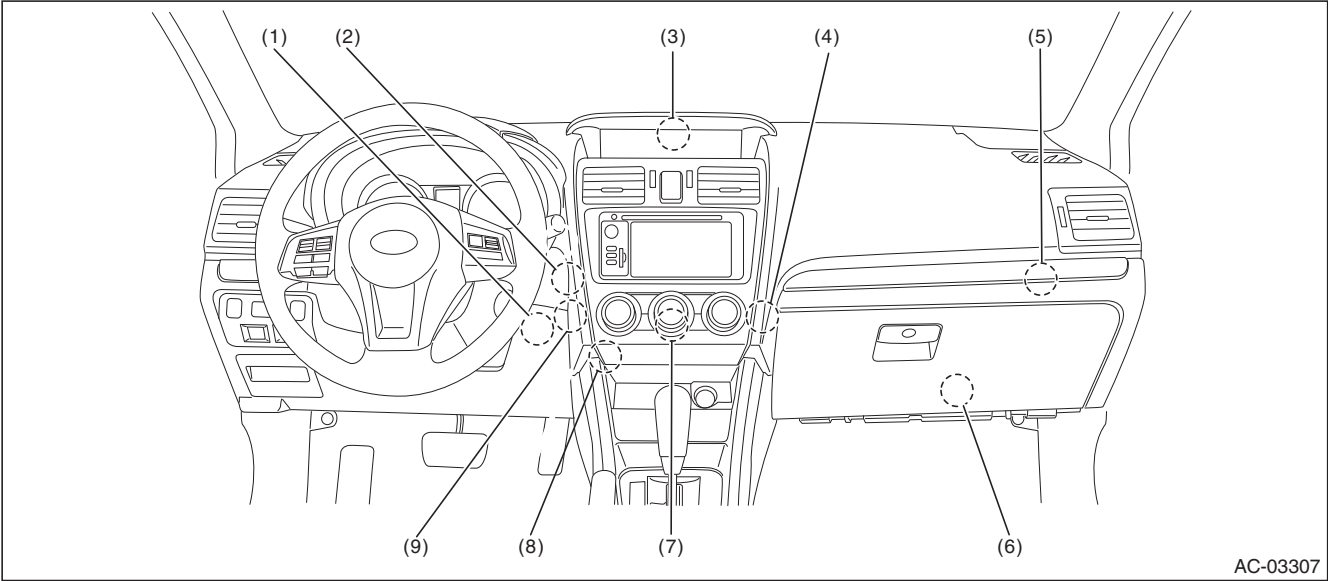
(3) Pressure switch

(4) Ambient sensor

Electrical Component Location

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

2. COMPARTMENT



AC-03307

- | | | |
|--------------------------------|---|------------------------|
| (1) In-vehicle sensor | (4) Air mix door actuator*1 or air mix door actuator RH*2 | (7) A/C control panel |
| (2) Air mix door actuator LH*2 | (5) Intake door actuator | (8) Evaporator sensor |
| (3) Sunload sensor | (6) Blower motor | (9) Mode door actuator |

*1: Without left/right independent air conditioning function
*2: With left/right independent air conditioning function

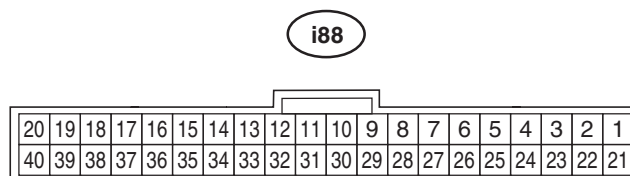


Auto A/C Control Module I/O Signal

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

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

A: ELECTRICAL SPECIFICATION



AC-01692



Auto A/C Control Module I/O Signal

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Terminal No.	Description	Measuring condition		Standard
1	Mode door actuator #4	Digital signal; can not be measured		—
2	Mode door actuator #3	Digital signal; can not be measured		—
3	Mode door actuator #2	Digital signal; can not be measured		—
4	Mode door actuator #1	Digital signal; can not be measured		—
6	Intake door actuator (FRESH)	FRESH mode		8 V or more
8	Intake door actuator (RECIRC)	RECIRC mode		8 V or more
9	Blower fan ON signal	Blower fan is ON		1 V or less
10	Intake door potentiometer power supply	Ignition switch ON		5 V
11	A/C cut-off signal	A/C is cut off		1 V or less
12	Intake door potentiometer signal	Ignition switch ON		0 — 5 V
14	GND for sensors	Always		1 V or less
15	ACC power supply	ACC ON		Battery voltage
16	Sunload sensor	Sunlight is contacting sensor		1 — 4 V
17	RECIRC sensor	Ignition switch ON		25°C: 2.5 V
18	Post evaporator sensor	Depends on temperature after the evaporator.		1 — 4.5 V
19	CAN Lo	Digital signal; can not be measured		—
20	CAN Hi	Digital signal; can not be measured		—
21	Air mix door actuator LH #4*2	Digital signal; can not be measured		—
22	Air mix door actuator LH #3*2	Digital signal; can not be measured		—
23	Air mix door actuator LH #2*2	Digital signal; can not be measured		—
24	Air mix door actuator LH #1*2	Digital signal; can not be measured		—
25	Air mix door actuator #4 *1 or air mix door actuator RH #4 *2	Digital signal; can not be measured		—
26	Air mix door actuator #3 *1 or air mix door actuator RH #3 *2	Digital signal; can not be measured		—
27	Air mix door actuator #2 *1 or air mix door actuator RH #2 *2	Digital signal; can not be measured		—
28	Air mix door actuator #1 *1 or air mix door actuator RH #1 *2	Digital signal; can not be measured		—
31	BATT	Always		Battery voltage
32	IGN	Ignition ON		Battery voltage
34	GND	Always		1 V or less
35	ILL-	Illumination ON (measure between 37 — 35)		Battery voltage
37	ILL+			
40	Fan control signal	Ignition switch: ON, Blower switch: ON	1st	Approx. 9 V
			2nd	Approx. 8 V
			3rd	Approx. 7 V
			4th	Approx. 6 V
			5th	Approx. 5 V
			6th	Approx. 3.5 V
			7th	Approx. 0.5 V

*1: Without left/right independent air conditioning function

*2: With left/right independent air conditioning function

B: WIRING DIAGRAM

1. AIR CONDITIONER AUTO A/C MODEL

<Ref. to WI-67, WIRING DIAGRAM, Air Conditioning System.>

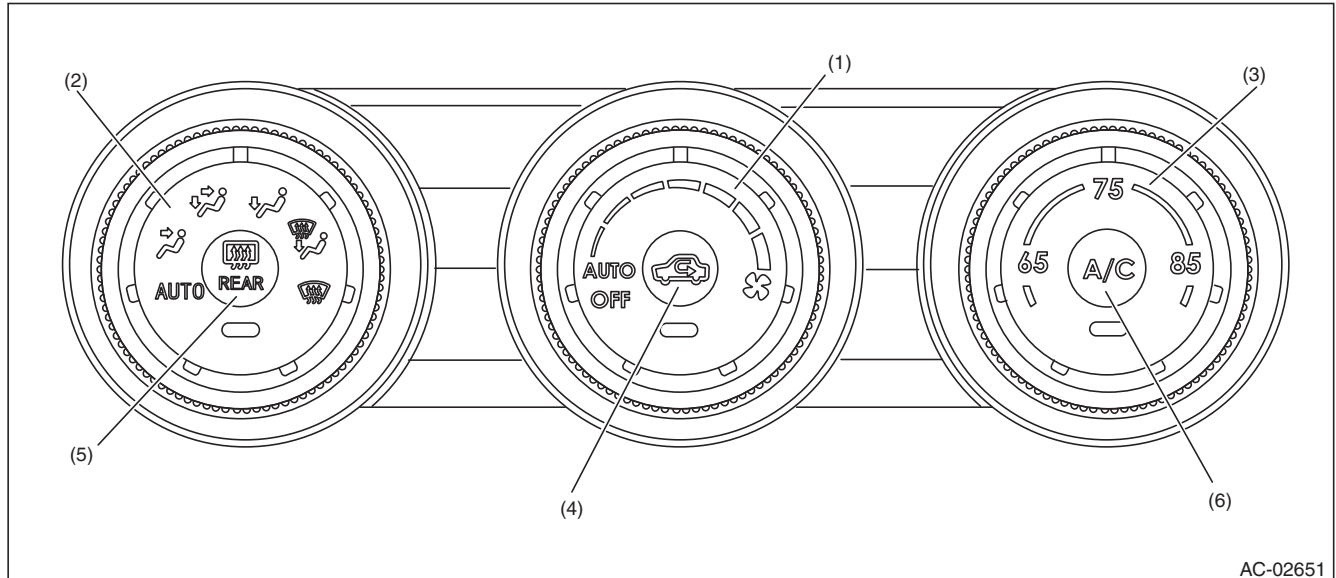
Diagnostic Chart for Self-Diagnosis

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

5. Diagnostic Chart for Self-Diagnosis

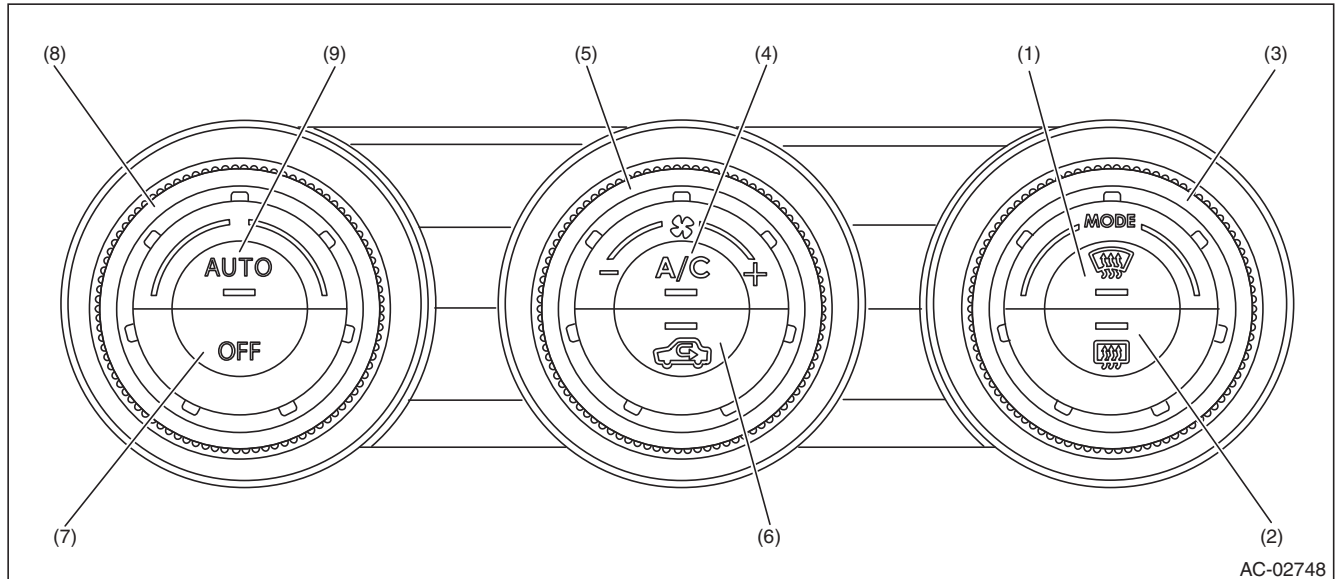
A: OPERATION

- Without left/right independent air conditioning function (without high grade MFD)



- | | | |
|---------------------------|---------------------------------|---------------------------------|
| (1) Fan dial | (3) Temperature adjustment dial | (5) Rear window defogger switch |
| (2) Air flow control dial | (4) FRESH/RECIRC switch | (6) A/C switch |

- Without left/right independent air conditioning function (with high grade MFD)

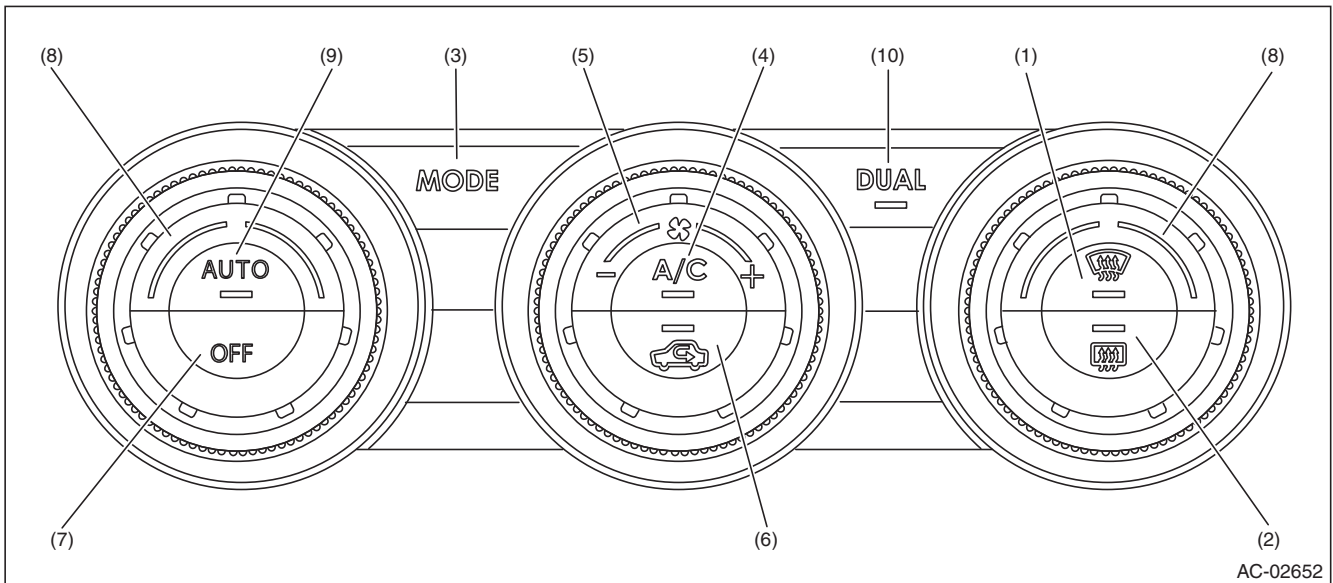


- | | | |
|---------------------------------|-------------------------|---------------------------------|
| (1) Defroster switch | (4) A/C switch | (7) OFF switch |
| (2) Rear window defogger switch | (5) Fan dial | (8) Temperature adjustment dial |
| (3) Air flow control dial | (6) FRESH/RECIRC switch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

Diagnostic Chart for Self-Diagnosis

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

- With left/right independent air conditioning function



- | | | |
|---------------------------------|-------------------------|---------------------------------|
| (1) Defroster switch | (5) Fan dial | (8) Temperature adjustment dial |
| (2) Rear window defogger switch | (6) FRESH/RECIRC switch | (9) AUTO switch |
| (3) Air flow control switch | (7) OFF switch | (10) Dual switch |
| (4) A/C switch | | |

1. A/C CONTROL PANEL SELF-DIAGNOSIS

- Without left/right independent air conditioning function (without high grade MFD)

Step	Check	Yes	No
1 SELECT SELF-DIAGNOSIS MODE IN THE CONTROL MODULE. 1) Set the air flow control dial and fan dial to the AUTO position. 2) Start the engine with the A/C switch and the FRESH/RECIRC switch pressed.	Does the self-diagnosis mode operate?	Go to step 2.	<Ref. to AC(diag)-17, NOTHING IS DISPLAYED ON THE SCREEN. NO ILLUMINATION APPEARS ON THE INDICATOR, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.>
2 CHECK THE LIGHTING OF THE LED. Make sure that all switch LEDs on the control panel illuminate.	Do all LEDs blink eight times?	Go to step 3.	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>
3 CHECK SENSOR MALFUNCTION. 1) Set the air flow control dial and fan dial to the AUTO position. 2) If the system has trouble for each sensor, the FRESH/RECIRC switch LED blinks or is turned off. 3) If the system has no malfunctions, the FRESH/RECIRC switch LED is illuminated.	Does the FRESH/RECIRC switch LED illuminate?	Go to step 5.	Go to step 4.

Diagnostic Chart for Self-Diagnosis

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
4 CONFIRM MALFUNCTIONING SENSOR. 1) Set the air flow control dial to AUTO. 2) Turn the fan dial to each mode position, and check each switch LED illumination according to sensor check table. <Ref. to AC(diag)-12, SENSOR CHECK TABLE, OPERATION, Diagnostic Chart for Self-Diagnosis.>	When turning the fan dial to each mode position, does the FRESH/RECIRC switch LED go off?	Go to step 5.	Repair the defective sensor.
5 CHECK AIR MIX DOOR AND MODE DOOR POSITION OPERATION SIGNALS. 1) Set the air flow control dial to FACE. 2) Turn the fan dial to AUTO. 3) If there is a system malfunction in the air mix door signal or the mode door position signal, the FRESH/RECIRC switch LED goes off or blinks. 4) If the system has no malfunctions, the FRESH/RECIRC switch LED is illuminated.	Does the FRESH/RECIRC switch LED illuminate?	Go to step 8.	Go to step 6.
6 CHECK AIR MIX DOOR POSITION DRIVE SIGNALS. 1) Set the air flow control dial to FACE. 2) Place the fan dial in each position and then check each LED illumination conditions. <Ref. to AC(diag)-14, DRIVE SIGNAL CHECK TABLE, OPERATION, Diagnostic Chart for Self-Diagnosis.>	Do the LEDs illuminate in accordance with operation signal table?	Go to step 7.	Check the air mix door actuator circuit.
7 CHECK MODE DOOR POSITION DRIVE SIGNAL. 1) Press the A/C switch. 2) Place the fan dial in each position and then check each LED illumination conditions. <Ref. to AC(diag)-14, DRIVE SIGNAL CHECK TABLE, OPERATION, Diagnostic Chart for Self-Diagnosis.>	Do the LEDs illuminate in accordance with operation signal table?	Go to step 8.	Check the mode door actuator circuit.
8 CHECK OPERATION OF EACH ACTUATOR, BLOWER FAN AND COMPRESSOR CLUTCH. 1) Set the air flow control dial to B/L. 2) Turn the fan dial from AUTO to 7th, and select operating modes. 3) Check the operation of each mode according to operating mode table. <Ref. to AC(diag)-13, OPERATING MODE TABLE, OPERATION, Diagnostic Chart for Self-Diagnosis.>	Does the operation of each mode match to operating mode table?	Turn the fan dial to OFF or the ignition switch to OFF in order to complete self-diagnosis.	Repair the malfunctioning part in accordance with each diagnostic chart.

Diagnostic Chart for Self-Diagnosis

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

- Without left/right independent air conditioning function (with high grade MFD), with left/right independent air conditioning function

Step	Check	Yes	No
1 SELECT SELF-DIAGNOSIS MODE IN THE CONTROL MODULE. Start the engine with the A/C switch and the FRESH/RECIRC switch pressed.	Does the self-diagnosis mode operate?	Go to step 2.	<Ref. to AC(diag)-17, NOTHING IS DISPLAYED ON THE SCREEN. NO ILLUMINATION APPEARS ON THE INDICATOR, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.>
2 CHECK INDICATOR BLINKS. Make sure that all switch indicators on the control panel blink.	Do all indicators blink eight times?	Go to step 3.	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>
3 CHECK SENSOR MALFUNCTION. 1) The inspection mode for sensor is initiated by turning the fan dial one click to the right. (The auto switch indicator blinks two times.) 2) If all sensors have no malfunctions, the A/C switch indicator illuminates. If any sensor has a malfunction, the A/C switch indicator blinks. 3) Identify defective sensors according to the sensor check table. <Ref. to AC(diag)-12, SENSOR CHECK TABLE, OPERATION, Diagnostic Chart for Self-Diagnosis.>	Does the A/C switch indicator illuminate?	Go to step 4.	Repair the defective sensor.
4 CHECK ACTUATOR DRIVE SIGNAL. 1) The inspection mode for actuator is initiated by turning the fan dial one click to the right. (The AUTO switch indicator blinks three times.) 2) If all actuators have no malfunctions, the defroster indicator illuminates. If any actuator has a malfunction, the defroster indicator blinks. 3) Identify defective actuator circuit according to the drive signal check table. <Ref. to AC(diag)-14, DRIVE SIGNAL CHECK TABLE, OPERATION, Diagnostic Chart for Self-Diagnosis.>	Does the defroster switch indicator illuminate?	Go to step 5.	Repair the defective actuator circuit.
5 CHECK OPERATION OF EACH ACTUATOR, BLOWER FAN AND COMPRESSOR CLUTCH. 1) The inspection mode for blower fan, actuator and compressor is initiated by turning the fan dial one click to the right. (The AUTO switch indicator blinks four times.) 2) The number of blinking of A/C switch indicator changes and the operation mode changes each time the A/C switch is pressed. 3) Check each operation according to the operating mode table. <Ref. to AC(diag)-13, OPERATING MODE TABLE, OPERATION, Diagnostic Chart for Self-Diagnosis.>	Does each operation match to operating mode table?	System is normal. Press the OFF switch or turn the ignition switch to OFF in order to complete self-diagnosis.	Repair the defective part in accordance with each diagnostic chart.

Diagnostic Chart for Self-Diagnosis

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

2. SENSOR CHECK TABLE

- Without left/right independent air conditioning function (without high grade MFD)

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 at a location exposed to direct sunlight.
- Past malfunction will illuminate if four malfunctions or more were detected previously.
- To cancel the past malfunction, perform either of the following procedure: Disconnect the negative battery terminal or press and hold the FRESH/RECIRC switch for 5 seconds or more while performing self-diagnosis step 3 — 7.

Air flow control dial position	Fan dial position	Sensor to be checked	No trouble	Short circuit	Open circuit	When currently malfunctioning	When having malfunctioned in the past
AUTO	AUTO	In-vehicle sensor	FRESH/RECIRC switch LED is turned off	FRESH/RECIRC switch LED blinks (Illuminates for 0.2 sec. ↔ turns off for 0.2 sec.)	FRESH/RECIRC switch LED blinks (Illuminates for 1 sec. ↔ turns off for 1 sec.)	Rear window defogger switch LED is turned off	Rear window defogger switch LED illuminates
	1st	Ambient sensor		FRESH/RECIRC switch LED blinks (Illuminates for 0.2 sec. ↔ turns off for 0.2 sec.)			
	2nd	Evaporator sensor		FRESH/RECIRC switch LED blinks (Illuminates for 0.2 sec. ↔ turns off for 0.2 sec.)			
	3rd	Engine coolant temperature sensor		—			
	4th	Sunload sensor		FRESH/RECIRC switch LED blinks (Illuminates for 0.2 sec. ↔ turns off for 0.2 sec.)			
	5th	CAN communication		—			
	6th	FRESH/RECIRC potentiometer		FRESH/RECIRC switch LED blinks (Illuminates for 0.2 sec. ↔ turns off for 0.2 sec.)			



Diagnostic Chart for Self-Diagnosis

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

- Without left/right independent air conditioning function (with high grade MFD), with left/right independent air conditioning function

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 at a location exposed to direct sunlight.
- If there are multiple defective sensors, a malfunction is displayed in the sequence of priority (1, 2, 3, etc.). The display changes in the sequence of priority (1, 2, 3, etc.) each time the A/C switch is pressed.
- Past malfunction will illuminate if four malfunctions or more were detected previously.
- To cancel the past malfunction, perform either of the following procedure: Disconnect the negative battery terminal or press and hold the FRESH/RECIRC switch for 5 seconds or more while performing self-diagnosis step 3 — 4.

Sensor	A/C switch indicator	FRESH/RECIRC switch indicator				Rear defroster switch indicator *2	
		Open	Sequence of priority	Short	Sequence of priority	Current malfunction	Past malfunction
In-vehicle sensor	Once	Light OFF	1	Light ON	2	Light OFF	Light ON
Ambient sensor	Twice	Light OFF	3	Light ON	4	Light OFF	Light ON
Evaporator sensor	3 times	Light OFF	5	Light ON	6	Light OFF	Light ON
Engine coolant temperature sensor	4 times	Light OFF			7	Light OFF	Light ON
Sunload sensor	5 times	Light OFF*1	8	Light ON	9	Light OFF	Light ON
CAN communication	6 times	Light OFF	10	—		Light OFF	Light ON
FRESH/RECIRC potentiometer	7 times	Light OFF	11	Light ON	12	Light OFF	Light ON

*1: Displays current malfunction only

*2: If the same diagnostic object contains a current malfunction and a past malfunction, the current malfunctions is displayed.

3. OPERATING MODE TABLE

- Without left/right independent air conditioning function (without high grade MFD)

Operation	Fan dial position							
	AUTO	1st	2nd	3rd	4th	5th	6th	7th
Blower fan	4 V	4 V	4.9 V	5.9 V	7.0 V	8.3 V	9.8 V	14 V
FRESH/RECIRC door	RECIRC	RECIRC	MIX	FRESH	FRESH	FRESH	FRESH	FRESH
Air flow control door	FACE	FACE	FACE	B/L	HEAT	HEAT	D/H	DEF
Air mix door	0%	0%	0%	50%	50%	100%	100%	100%
A/C compressor	OFF	ON	ON	ON	ON	ON	ON	ON

- Without left/right independent air conditioning function (with high grade MFD), with left/right independent air conditioning function

Operation	Number of blinking of A/C switch indicator							
	Once	Twice	3 times	4 times	5 times	6 times	7 times	8 times
Blower fan	4 V	4 V	4.9 V	5.9 V	7.0 V	8.3 V	9.8 V	14 V
FRESH/RECIRC door	RECIRC	RECIRC	MIX	FRESH	FRESH	FRESH	FRESH	FRESH
Air flow control door	FACE	FACE	FACE	B/L	HEAT	HEAT	D/H	DEF
Air mix door *1 or air mix door RH *2	0%	0%	0%	50%	50%	100%	100%	100%
Air mix door LH *2	0%	0%	0%	50%	50%	100%	100%	100%
A/C compressor	OFF	ON	ON	ON	ON	ON	ON	ON

*1: Without left/right independent air conditioning function

*2: With left/right independent air conditioning function

Diagnostic Chart for Self-Diagnosis

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

4. DRIVE SIGNAL CHECK TABLE

- Without left/right independent air conditioning function (without high grade MFD)

NOTE:

- Past malfunction will illuminate if four malfunctions or more were detected previously.
- To cancel the past malfunction, perform either of the following procedure: Disconnect the negative battery terminal or press and hold the FRESH/RECIRC switch for 5 seconds or more while performing self-diagnosis step 3 — 7.

Air flow control dial position	Fan dial position	Drive signal to check	A/C switch LED	No trouble	Short circuit	Open circuit	When currently malfunctioning	When having malfunctioned in the past
FACE	AUTO	MIX #1	Blinking (Illuminates for 0.2 sec. $\longleftrightarrow$ turns off for 0.2 sec.)	FRESH/RECIRC switch LED is turned off	FRESH/RECIRC switch LED blinks (Illuminates for 0.2 sec. $\longleftrightarrow$ turns off for 0.2 sec.)	FRESH/RECIRC switch LED blinks (Illuminates for 1 sec. $\longleftrightarrow$ turns off for 1 sec.)	Rear window defogger switch LED is turned off	Rear window defogger switch LED illuminates
	1st	MIX #2						
	2nd	MIX #3						
	3rd	MIX #4						
	4th to 7th	Intake door actuator lock	FRESH/RECIRC switch LED blinks (Illuminates for 1 sec. $\longleftrightarrow$ turns off for 1 sec.)		—			
	AUTO	MODE #1	Blinking (Illuminates for 1 sec. $\longleftrightarrow$ turns off for 1 sec.)		FRESH/RECIRC switch LED blinks (Illuminates for 0.2 sec. $\longleftrightarrow$ turns off for 0.2 sec.)	FRESH/RECIRC switch LED blinks (Illuminates for 1 sec. $\longleftrightarrow$ turns off for 1 sec.)	Rear window defogger switch LED is turned off	
	1st	MODE #2						
	2nd	MODE #3						
	3rd	MODE #4						
	4th to 7th	Intake door actuator lock						

Diagnostic Chart for Self-Diagnosis

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

- Without left/right independent air conditioning function (with high grade MFD), with left/right independent air conditioning function

NOTE:

- If there are multiple defective sensors, a malfunction is displayed in the sequence of priority (1, 2, 3, etc.). The display changes in the sequence of priority (1, 2, 3, etc.) each time the A/C switch is pressed.
- Past malfunction will illuminate if four malfunctions or more were detected previously.
- To cancel the past malfunction, perform either of the following procedure: Disconnect the negative battery terminal or press and hold the FRESH/RECIRC switch for 5 seconds or more while performing self-diagnosis step 3 — 4.

Drive signal		Defroster indicator	A/C switch indicator	FRESH/RECIRC switch indicator				Rear defogger switch indicator *3	
				Open	Sequence of priority	Short	Sequence of priority	Current malfunction	Past malfunction
Air mix door actuator *1 or air mix door actuator RH *2	#1	Once	Once	Light OFF	1	Light ON	2	Light OFF	Light ON
	#2		Twice	Light OFF	3	Light ON	4	Light OFF	Light ON
	#3		3 times	Light OFF	5	Light ON	6	Light OFF	Light ON
	#4		4 times	Light OFF	7	Light ON	8	Light OFF	Light ON
Air mix door actuator LH *2	#1	Twice	Once	Light OFF	9	Light ON	10	Light OFF	Light ON
	#2		Twice	Light OFF	11	Light ON	12	Light OFF	Light ON
	#3		3 times	Light OFF	13	Light ON	14	Light OFF	Light ON
	#4		4 times	Light OFF	15	Light ON	16	Light OFF	Light ON
Air flow control door actuator	#1	3 times	Once	Light OFF	17	Light ON	18	Light OFF	Light ON
	#2		Twice	Light OFF	19	Light ON	20	Light OFF	Light ON
	#3		3 times	Light OFF	21	Light ON	22	Light OFF	Light ON
	#4		4 times	Light OFF	23	Light ON	24	Light OFF	Light ON
Intake door actuator		4 times	Light ON	Light ON				—	Light ON

*1: Without left/right independent air conditioning function

*2: With left/right independent air conditioning function

*3: If the same diagnostic object contains a current malfunction and a past malfunction, the current malfunctions is displayed.

5. DIAGNOSTIC PROCEDURE IF A/C CONTROL PANEL SELF DIAGNOSIS FAILS TO OPERATE

NOTE:

For the diagnostic procedures, refer to Diagnostics with Phenomenon "Nothing is displayed on the screen. No illumination appears on the indicator." <Ref. to AC(diag)-17, NOTHING IS DISPLAYED ON THE SCREEN. NO ILLUMINATION APPEARS ON THE INDICATOR, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.>

Diagnostics with Phenomenon

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

6. Diagnostics with Phenomenon

A: INSPECTION

1. Perform the diagnosis according to the diagnostic procedure of the corresponding symptom that is shown in the symptom list.
2. If there are multiple symptoms, perform the diagnosis in the symptom sequence (1 → 2 → ... → 13).

1. SYMPTOM LIST

Symptoms		Diagnostic procedure
1	Nothing is displayed on the screen. No illumination appears on the indicator.	<Ref. to AC(diag)-17, NOTHING IS DISPLAYED ON THE SCREEN. NO ILLUMINATION APPEARS ON THE INDICATOR, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.>
2	Air conditioner does not stop when pressing the OFF switch.	<Ref. to AC(diag)-19, AIR CONDITIONER DOES NOT STOP WHEN PRESSING THE OFF SWITCH, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.>
3	Windshield glass does not clear when pressing the DEF switch.	<Ref. to AC(diag)-20, WINDSHIELD GRASS DOES NOT CLEAR WHEN PRESSING THE DEF SWITCH, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.>
4	Cold air not emitted.	<Ref. to AC(diag)-21, COLD AIR NOT EMITTED, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.>
5	Warm air not emitted.	<Ref. to AC(diag)-23, WARM AIR NOT EMITTED, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.>
6	Compartment temperature is lower than setting temperature.	<Ref. to AC(diag)-25, COMPARTMENT TEMPERATURE IS LOWER THAN SETTING TEMPERATURE, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.>
7	Compartment temperature is higher than setting temperature.	<Ref. to AC(diag)-27, COMPARTMENT TEMPERATURE IS HIGHER THAN SETTING TEMPERATURE, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.>
8	Air does not come out. Airflow is low. (Blower motor does not rotate.)	<Ref. to AC(diag)-29, AIR DOES NOT COME OUT. AIRFLOW IS LOW, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.>
9	Airflow cannot be adjusted. (Blower motor turns at a high speed.)	<Ref. to AC(diag)-32, AIR CANNOT BE CONTROLLED, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.>
10	Cool air does not come out when pressing the A/C switch. Fog cannot be cleared. (Compressor does not operate.)	<Ref. to AC(diag)-34, COOL AIR DOES NOT COME OUT WHEN PRESSING THE A/C SWITCH. FOG CANNOT BE CLEARED. (COMPRESSOR DOES NOT OPERATE.), DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.>
11	Unable to switch suction vents.	<Ref. to AC(diag)-37, UNABLE TO SWITCH SUCTION VENTS, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.>
12	Unable to switch blow vents.	<Ref. to AC(diag)-37, UNABLE TO SWITCH VENTS, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.>
13	Illumination does not illuminate or cannot be dimmed.	<Ref. to AC(diag)-38, ILLUMINATION DOES NOT ILLUMINATE OR CANNOT BE DIMMED, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.>

Diagnostics with Phenomenon

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

B: DIAGNOSTIC PROCEDURE WITH PHENOMENON

1. NOTHING IS DISPLAYED ON THE SCREEN. NO ILLUMINATION APPEARS ON THE INDICATOR

TROUBLE SYMPTOM:

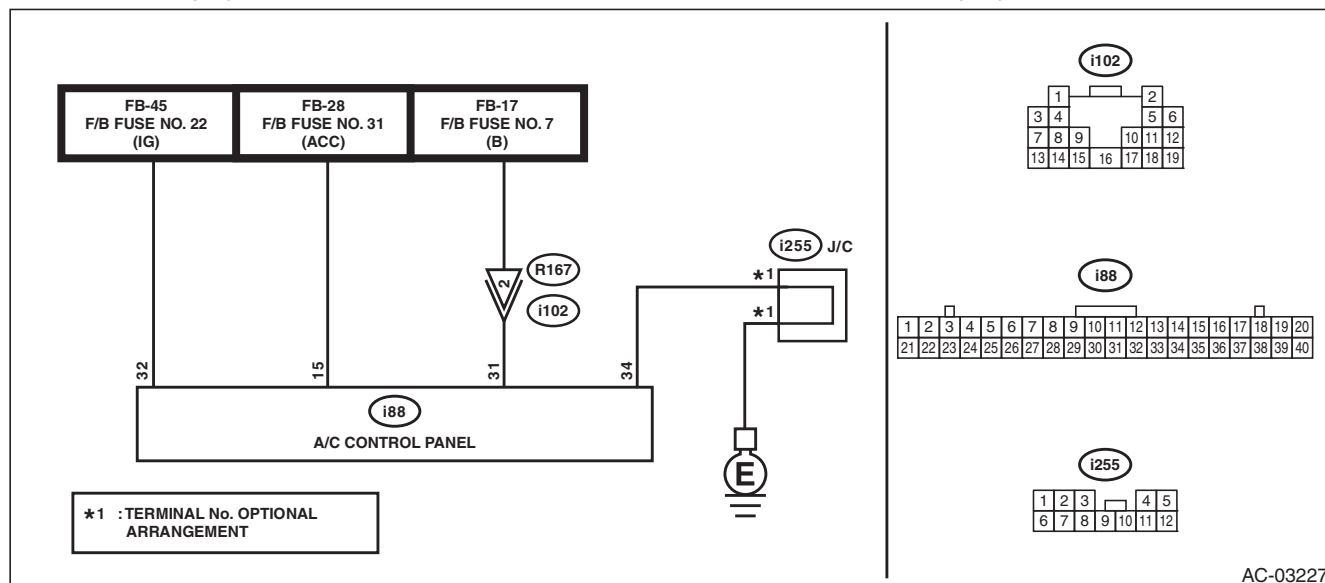
- When the AUTO button is pressed with IGN ON, nothing is displayed on the screen or indicators do not illuminate.
- Self diagnosis using A/C control panel does not operate.

TROUBLE CAUSES:

- A/C control panel power supply circuit failure
- CAN communication failure

WIRING DIAGRAM:

Air conditioning system <Ref. to WI-67, WIRING DIAGRAM, Air Conditioning System.>



Diagnostics with Phenomenon

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

	Step	Check	Yes	No
1	CHECK FUSE. 1) Turn the ignition switch to OFF. 2) Remove a fuse from fuse & relay box. 3) Check the condition of fuse.	Is the fuse blown out?	Replace the fuse.	Go to step 2.
2	CHECK CONNECTOR. Check for poor contact of connector.	Is there poor contact of connector?	Repair the connector.	Go to step 3.
3	CHECK A/C CONTROL PANEL POWER CIRCUIT. 1) Remove the A/C control panel. 2) Disconnect the A/C control panel connector. 3) Measure the voltage between A/C control panel connector terminal and chassis ground after turning the ignition switch to ON. Connector & terminal (i88) No. 15 (+) — Chassis ground (–): (i88) No. 31 (+) — Chassis ground (–): (i88) No. 32 (+) — 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 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. 34 — Chassis ground:	Is the resistance less than 10 Ω ?	Go to step 5.	Repair the harness for ground line.
5	CHECK FOR POOR CONTACT. Check poor contact of A/C control panel connector.	Is there poor contact of connector?	Repair the connector.	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>

Diagnostics with Phenomenon

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

2. AIR CONDITIONER DOES NOT STOP WHEN PRESSING THE OFF SWITCH

TROUBLE SYMPTOM:

Blower fan does not switch to OFF, inlet opening does not switch to FRESH, and compressor does not switch to OFF, when pressing the OFF switch.

TROUBLE CAUSE:

- CAN communication failure
- A/C control panel failure
- Blower motor failure
- Intake actuator failure
- Compressor failure

	Step	Check	Yes	No
1	CHECK A/C CONTROL PANEL. 1) Turn the ignition switch to ON. 2) Press the OFF switch located on the A/C panel. 3) Check the following data in “Read Current Data” using the Subaru Select Monitor. • Blower Fan Level • Fresh/Recircle Air Door Actuator Position Target	Does “Blower Fan Level” indicate 0 and “Fresh/Recircle Air Door Actuator Position Target” indicate 100%?	Go to step 2.	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>
2	CHECK BLOWER MOTOR. Check the blower motor operation with the OFF switch pressed.	Does the blower motor stop?	Go to step 3.	<Ref. to AC(diag)-32, AIR CANNOT BE CONTROLLED, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.>
3	CHECK INTAKE ACTUATOR. Check the intake door operation with the OFF switch pressed.	Is the intake door FRESH?	Go to step 4.	<Ref. to AC(diag)-37, UNABLE TO SWITCH SUCTION VENTS, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.>
4	CHECK COMPRESSOR. Check the compressor operation with the OFF switch pressed.	Does the compressor stop?	System is normal.	<Ref. to AC(diag)-34, COOL AIR DOES NOT COME OUT WHEN PRESSING THE A/C SWITCH. FOG CANNOT BE CLEARED. (COMPRESSOR DOES NOT OPERATE.), DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.>

Diagnostics with Phenomenon

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

3. WINDSHIELD GRASS DOES NOT CLEAR WHEN PRESSING THE DEF SWITCH

TROUBLE SYMPTOM:

Defroster indicator does not illuminate, outlet opening does not switch to DEF, compressor does not switch to ON, and inlet opening does not switch to FRESH, when pressing the DEF switch.

TROUBLE CAUSE:

- CAN communication failure
- A/C control panel failure
- Mode door actuator failure
- Compressor failure
- Intake actuator failure

	Step	Check	Yes	No
1	CHECK A/C CONTROL PANEL. 1) Turn the ignition switch to ON. 2) Press the DEF switch located on the A/C panel. 3) Check the following data in “Read Current Data” using the Subaru Select Monitor. • Mode Door Actuator Position Target • Fresh/Recircle Air Door Actuator Position Target	Does “Mode Door Actuator Position Target” indicate 100% and “Fresh/Recircle Air Door Actuator Position Target” indicate 100%?	Go to step 2.	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>
2	CHECK MODE DOOR ACTUATOR. Check the mode door operation with the DEF switch in ON.	Does air come out from the DEF outlet opening?	Go to step 3.	<Ref. to AC(diag)-37, UNABLE TO SWITCH VENTS, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.>
3	CHECK INTAKE ACTUATOR. Check the intake door operation with the DEF switch in ON.	Does the intake door operate normally?	Go to step 4.	<Ref. to AC(diag)-37, UNABLE TO SWITCH SUCTION VENTS, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.>
4	CHECK COMPRESSOR. Check the compressor operation with the DEF switch in ON.	Does the compressor operate?	System is normal.	<Ref. to AC(diag)-34, COOL AIR DOES NOT COME OUT WHEN PRESSING THE A/C SWITCH. FOG CANNOT BE CLEARED. (COMPRESSOR DOES NOT OPERATE.), DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.>

Diagnostics with Phenomenon

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

4. COLD AIR NOT EMITTED

TROUBLE SYMPTOM:

Cold air not emitted.

TROUBLE CAUSES:

- Airflow capacity failure
- Refrigerant pressure failure
- CAN communication failure
- A/C control panel failure
- Air mix actuator RH failure
- Air mix actuator LH failure (only with left/right independent air conditioning function)
- Intake door actuator failure
- Evaporator sensor failure
- In-vehicle sensor failure
- Ambient sensor failure
- Sunload sensor failure

Step	Check	Yes	No
1 CHECK MAX COOL. Set the A/C control panel dials as follows. Temperature control dial: MAX COOL FRESH/RECIRC switch: RECIRC Mode switch or mode dial: VENT A/C switch: ON	Does no cold air come out?	Go to step 2.	Go to step 4.
2 CHECK AIRFLOW CAPACITY. Check the airflow capacity. <Ref. to AC(diag)-29, AIR DOES NOT COME OUT. AIRFLOW IS LOW, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.>	Is the airflow capacity normal?	Go to step 3.	Perform repair according to inspection procedure.
3 CHECK AMOUNT OF REFRIGERANT PRESSURE. Check the refrigerant pressure. <Ref. to AC-22, REFRIGERANT GAS PRESSURE INSPECTION, PROCEDURE, Refrigerant Pressure with Manifold Gauge Set.>	Is the refrigerant pressure normal?	Go to step 4.	Perform repair according to refrigerant pressure inspection.
4 CHECK A/C CONTROL PANEL. 1) Turn the temperature control dials (driver's side) and (passenger's side) to MAX COOL. 2) Using Subaru Select Monitor, display the following data in "Read Current Data". • Heater Control Panel Setting Value (Driver's) • Heater Control Panel Setting Value (Passenger's)	Do "Heater Control Panel Setting Value (Driver's)" and "Heater Control Panel Setting Value (Passenger's)" indicate "60"*1?	Go to step 5.	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>
5 CHECK A/C CONTROL PANEL. 1) Turn the temperature control dials (driver's side) and (passenger's side) to MAX HOT. 2) Using Subaru Select Monitor, display the following data in "Read Current Data". • Heater Control Panel Setting Value (Driver's) • Heater Control Panel Setting Value (Passenger's)	Do "Heater Control Panel Setting Value (Driver's)" and "Heater Control Panel Setting Value (Passenger's)" indicate "90"*2?	Go to step 6.	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>
6 CHECK DTC. 1) Turn the ignition switch to ON. 2) Turn the temperature control dial at MAX COOL and leave for 16 seconds or more. (For vehicles with left/right independent air conditioner, perform setting on both sides.) 3) Read the DTC using Subaru Select Monitor.	Is DTC B14E1, B14E2, B14E3 or B14E4 displayed?	Perform the diagnosis according to DTC.	Go to step 7.

Diagnostics with Phenomenon

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
7 CHECK DTC. 1) Turn the ignition switch to ON. 2) Turn the temperature control dial at MAX HOT and leave for 16 seconds or more. (For vehicles with left/right independent air conditioner, perform setting on both sides.) 3) Read the DTC using Subaru Select Monitor.	Is DTC B14E1, B14E2, B14E3 or B14E4 displayed?	Perform the diagnosis according to DTC.	Go to step 8.
8 CHECK INTAKE DOOR ACTUATOR. Visually check the intake door actuator operation.	Is the intake door actuator normal?	Go to step 9.	Check the intake door actuator. <Ref. to AC(diag)-37, UNABLE TO SWITCH SUC-TION VENTS, DIAGNOSTIC PROCEDURE WITH PHENOME-NON, Diagnostics with Phenome-non.>
9 CHECK EVAPORATOR SENSOR UNIT. Perform the inspection of evaporator sensor unit. <Ref. to AC-81, INSPECTION, Evaporator Sensor.>	Is the evaporator sensor normal?	Go to step 10.	Replace the evaporator sensor. <Ref. to AC-80, REMOVAL, Evapo-rator Sensor.>
10 CHECK IN-VEHICLE SENSOR UNIT. Check in-vehicle sensor. <Ref. to AC-77, INSPECTION, In-Vehicle Sensor (Auto A/C Model).>	Is the in-vehicle sensor normal?	Go to step 11.	Replace the in-vehicle sensor. <Ref. to AC-76, REMOVAL, In-Vehicle Sensor (Auto A/C Model).>
11 CHECK AMBIENT SENSOR UNIT. Check the ambient sensor. <Ref. to AC-73, INSPECTION, Ambient Sensor.>	Is the ambient sensor normal?	Go to step 12.	Replace the ambient sensor. <Ref. to AC-72, REMOVAL, Ambi-ent Sensor.>
12 CHECK SUNLOAD SENSOR UNIT. Check the sunload sensor unit. <Ref. to AC-75, INSPECTION, Sunload Sensor (Auto A/C Model).>	Is the sunload sensor normal?	System is normal.	Replace the sun-load sensor. <Ref. to AC-74, REMOVAL, Sun-load Sensor (Auto A/C Model).>

*1: For the 75°F center specification. Note that 18 for 25°C center specification and 15 for 22°C center specification.

*2: For the 75°F center specification. Note that 32 for 25°C center specification and 29 for 22°C center specification.

Diagnostics with Phenomenon

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

5. WARM AIR NOT EMITTED

TROUBLE SYMPTOM:

Warm air not emitted.

TROUBLE CAUSES:

- Airflow capacity failure
- Coolant level failure
- CAN communication failure
- A/C control panel failure
- Air mix actuator RH failure
- Air mix actuator LH failure (only with left/right independent air conditioning function)
- Intake door actuator failure
- Evaporator sensor failure
- In-vehicle sensor failure
- Ambient sensor failure
- Sunload sensor failure

Step	Check	Yes	No
1 CHECK MAX HOT. Set the A/C control panel dials as follows. Temperature control dial: MAX HOT FRESH/RECIRC switch: FRESH Mode switch or mode dial: HEAT A/C switch: OFF	Does no warm air come out?	Go to step 2.	Go to step 4.
2 CHECK AIRFLOW CAPACITY. Check the airflow capacity. <Ref. to AC(diag)-29, AIR DOES NOT COME OUT. AIRFLOW IS LOW, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.>	Is the airflow capacity normal?	Go to step 3.	Perform repair according to inspection procedure.
3 CHECK ENGINE COOLANT. Check engine coolant amount.	Is the engine coolant level within the specification?	Go to step 4.	Fill engine coolant. If there is coolant leakage, repair the leaks according to Engine Cooling System Trouble in General. <Ref. to CO(H4DO)-71, Engine Cooling System Trouble in General.>
4 CHECK A/C CONTROL PANEL. 1) Turn the temperature control dials (driver's side) and (passenger's side) to MAX COOL. 2) Using Subaru Select Monitor, display the following data in "Read Current Data". • Heater Control Panel Setting Value (Driver's) • Heater Control Panel Setting Value (Passenger's)	Do "Heater Control Panel Setting Value (Driver's)" and "Heater Control Panel Setting Value (Passenger's)" indicate "60"*1?	Go to step 5.	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>
5 CHECK A/C CONTROL PANEL. 1) Turn the temperature control dials (driver's side) and (passenger's side) to MAX HOT. 2) Using Subaru Select Monitor, display the following data in "Read Current Data". • Heater Control Panel Setting Value (Driver's) • Heater Control Panel Setting Value (Passenger's)	Do "Heater Control Panel Setting Value (Driver's)" and "Heater Control Panel Setting Value (Passenger's)" indicate "90"*2?	Go to step 6.	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>

Diagnostics with Phenomenon

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
6 CHECK DTC. 1) Turn the ignition switch to ON. 2) Turn the temperature control dial at MAX COOL and leave for 16 seconds or more. (For vehicles with left/right independent air conditioner, perform setting on both sides.) 3) Read the DTC using Subaru Select Monitor.	Is DTC B14E1, B14E2, B14E3 or B14E4 displayed?	Perform the diagnosis according to DTC.	Go to step 7.
7 CHECK DTC. 1) Turn the ignition switch to ON. 2) Turn the temperature control dial at MAX HOT and leave for 16 seconds or more. (For vehicles with left/right independent air conditioner, perform setting on both sides.) 3) Read the DTC using Subaru Select Monitor.	Is DTC B14E1, B14E2, B14E3 or B14E4 displayed?	Perform the diagnosis according to DTC.	Go to step 8.
8 CHECK INTAKE DOOR ACTUATOR. Visually check the intake door actuator operation.	Is the intake door actuator normal?	Go to step 9.	Check the intake door actuator. <Ref. to AC(diag)-37, UNABLE TO SWITCH SUC-TION VENTS, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.>
9 CHECK EVAPORATOR SENSOR UNIT. Perform the inspection of evaporator sensor unit. <Ref. to AC-81, INSPECTION, Evaporator Sensor.>	Is the evaporator sensor normal?	Go to step 10.	Replace the evaporator sensor. <Ref. to AC-80, REMOVAL, Evaporator Sensor.>
10 CHECK IN-VEHICLE SENSOR UNIT. Check in-vehicle sensor circuit. <Ref. to AC-77, INSPECTION, In-Vehicle Sensor (Auto A/C Model).>	Is the in-vehicle sensor circuit normal?	Go to step 11.	Replace the in-vehicle sensor. <Ref. to AC-76, REMOVAL, In-Vehicle Sensor (Auto A/C Model).>
11 CHECK AMBIENT SENSOR UNIT. Check the ambient sensor. <Ref. to AC-73, INSPECTION, Ambient Sensor.>	Is the ambient sensor normal?	Go to step 12.	Replace the ambient sensor. <Ref. to AC-72, REMOVAL, Ambient Sensor.>
12 CHECK SUNLOAD SENSOR UNIT. Check the sunload sensor unit. <Ref. to AC-75, INSPECTION, Sunload Sensor (Auto A/C Model).>	Is the sunload sensor normal?	System is normal.	Replace the sunload sensor. <Ref. to AC-74, REMOVAL, Sunload Sensor (Auto A/C Model).>

*1: For the 75°F center specification. Note that 18 for 25°C center specification and 15 for 22°C center specification.

*2: For the 75°F center specification. Note that 32 for 25°C center specification and 29 for 22°C center specification.

Diagnostics with Phenomenon

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

6. COMPARTMENT TEMPERATURE IS LOWER THAN SETTING TEMPERATURE

TROUBLE SYMPTOM:

Compartment temperature is excessively lower than setting temperature.

TROUBLE CAUSES:

- Large airflow capacity
- Refrigerant pressure failure
- CAN communication failure
- A/C control panel failure
- Air mix actuator RH failure
- Air mix actuator LH failure (only with left/right independent air conditioning function)
- Evaporator sensor failure
- In-vehicle sensor failure
- Ambient sensor failure
- Sunload sensor failure

Step	Check	Yes	No
1 CHECK AIRFLOW CAPACITY. Check the airflow capacity. <Ref. to AC(diag)-32, AIR CANNOT BE CONTROLLED, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.>	Is the airflow capacity normal?	Go to step 2.	Perform repair according to inspection procedure.
2 CHECK AMOUNT OF REFRIGERANT PRESSURE. Check the refrigerant pressure. <Ref. to AC-22, REFRIGERANT GAS PRESSURE INSPECTION, PROCEDURE, Refrigerant Pressure with Manifold Gauge Set.>	Is the refrigerant pressure normal?	Go to step 3.	Perform repair according to refrigerant pressure inspection.
3 CHECK A/C CONTROL PANEL. 1) Turn the temperature control dials (driver's side) and (passenger's side) to MAX COOL. 2) Using Subaru Select Monitor, display the following data in "Read Current Data". • Heater Control Panel Setting Value (Driver's) • Heater Control Panel Setting Value (Passenger's)	Do "Heater Control Panel Setting Value (Driver's)" and "Heater Control Panel Setting Value (Passenger's)" indicate "60" * 1?	Go to step 4.	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>
4 CHECK A/C CONTROL PANEL. 1) Turn the temperature control dials (driver's side) and (passenger's side) to MAX HOT. 2) Using Subaru Select Monitor, display the following data in "Read Current Data". • Heater Control Panel Setting Value (Driver's) • Heater Control Panel Setting Value (Passenger's)	Do "Heater Control Panel Setting Value (Driver's)" and "Heater Control Panel Setting Value (Passenger's)" indicate "90" * 2?	Go to step 5.	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>
5 CHECK DTC. 1) Turn the ignition switch to ON. 2) Turn the temperature control dial at MAX COOL and leave for 16 seconds or more. (For vehicles with left/right independent air conditioner, perform setting on both sides.) 3) Read the DTC using Subaru Select Monitor.	Is DTC B14E1, B14E2, B14E3 or B14E4 displayed?	Perform the diagnosis according to DTC.	Go to step 6.
6 CHECK DTC. 1) Turn the ignition switch to ON. 2) Turn the temperature control dial at MAX HOT and leave for 16 seconds or more. (For vehicles with left/right independent air conditioner, perform setting on both sides.) 3) Read the DTC using Subaru Select Monitor.	Is DTC B14E1, B14E2, B14E3 or B14E4 displayed?	Perform the diagnosis according to DTC.	Go to step 7.

Diagnostics with Phenomenon

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
7 CHECK EVAPORATOR SENSOR UNIT. Perform the inspection of evaporator sensor unit. <Ref. to AC-81, INSPECTION, Evaporator Sensor.>	Is the evaporator sensor normal?	Go to step 8 .	Replace the evaporator sensor. <Ref. to AC-80, REMOVAL, Evaporator Sensor.>
8 CHECK IN-VEHICLE SENSOR UNIT. Check in-vehicle sensor circuit. <Ref. to AC-77, INSPECTION, In-Vehicle Sensor (Auto A/C Model).>	Is the in-vehicle sensor circuit normal?	Go to step 9 .	Replace the in-vehicle sensor. <Ref. to AC-76, REMOVAL, In-Vehicle Sensor (Auto A/C Model).>
9 CHECK AMBIENT SENSOR UNIT. Check the ambient sensor. <Ref. to AC-73, INSPECTION, Ambient Sensor.>	Is the ambient sensor normal?	Go to step 10 .	Replace the ambient sensor. <Ref. to AC-72, REMOVAL, Ambient Sensor.>
10 CHECK SUNLOAD SENSOR UNIT. Check the sunload sensor unit. <Ref. to AC-75, INSPECTION, Sunload Sensor (Auto A/C Model).>	Is the sunload sensor normal?	System is normal.	Replace the sunload sensor. <Ref. to AC-74, REMOVAL, Sunload Sensor (Auto A/C Model).>

*1: For the 75°F center specification. Note that 18 for 25°C center specification and 15 for 22°C center specification.

*2: For the 75°F center specification. Note that 32 for 25°C center specification and 29 for 22°C center specification.



Diagnostics with Phenomenon

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

7. COMPARTMENT TEMPERATURE IS HIGHER THAN SETTING TEMPERATURE

TROUBLE SYMPTOM:

Compartment temperature is excessively higher than setting temperature.

TROUBLE CAUSES:

- Large airflow capacity
- CAN communication failure
- A/C control panel failure
- Air mix actuator RH failure
- Air mix actuator LH failure (only with left/right independent air conditioning function)
- Intake door actuator failure
- Evaporator sensor failure
- In-vehicle sensor failure
- Ambient sensor failure
- Sunload sensor failure

Step	Check	Yes	No
1 CHECK AIRFLOW CAPACITY. Check the airflow capacity. <Ref. to AC(diag)-32, AIR CANNOT BE CONTROLLED, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.>	Is the airflow capacity normal?	Go to step 2.	Perform repair according to inspection procedure.
2 CHECK A/C CONTROL PANEL. 1) Turn the temperature control dials (driver's side) and (passenger's side) to MAX COOL. 2) Using Subaru Select Monitor, display the following data in "Read Current Data". • Heater Control Panel Setting Value (Driver's) • Heater Control Panel Setting Value (Passenger's)	Do "Heater Control Panel Setting Value (Driver's)" and "Heater Control Panel Setting Value (Passenger's)" indicate "60"*1?	Go to step 3.	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>
3 CHECK A/C CONTROL PANEL. 1) Turn the temperature control dials (driver's side) and (passenger's side) to MAX HOT. 2) Using Subaru Select Monitor, display the following data in "Read Current Data". • Heater Control Panel Setting Value (Driver's) • Heater Control Panel Setting Value (Passenger's)	Do "Heater Control Panel Setting Value (Driver's)" and "Heater Control Panel Setting Value (Passenger's)" indicate "90"*2?	Go to step 4.	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>
4 CHECK DTC. 1) Turn the ignition switch to ON. 2) Turn the temperature control dial at MAX COOL and leave for 16 seconds or more. (For vehicles with left/right independent air conditioner, perform setting on both sides.) 3) Read the DTC using Subaru Select Monitor.	Is DTC B14E1, B14E2, B14E3 or B14E4 displayed?	Perform the diagnosis according to DTC.	Go to step 5.
5 CHECK DTC. 1) Turn the ignition switch to ON. 2) Turn the temperature control dial at MAX HOT and leave for 16 seconds or more. (For vehicles with left/right independent air conditioner, perform setting on both sides.) 3) Read the DTC using Subaru Select Monitor.	Is DTC B14E1, B14E2, B14E3 or B14E4 displayed?	Perform the diagnosis according to DTC.	Go to step 6.

Diagnostics with Phenomenon

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
6 CHECK INTAKE DOOR ACTUATOR. Visually check the intake door actuator operation.	Is the intake door actuator normal?	Go to step 7.	Check the intake door actuator. <Ref. to AC(diag)-37, UNABLE TO SWITCH SUCTION VENTS, DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.>
7 CHECK EVAPORATOR SENSOR UNIT. Perform the inspection of evaporator sensor unit. <Ref. to AC-81, INSPECTION, Evaporator Sensor.>	Is the evaporator sensor normal?	Go to step 8.	Replace the evaporator sensor. <Ref. to AC-80, REMOVAL, Evaporator Sensor.>
8 CHECK IN-VEHICLE SENSOR UNIT. Check in-vehicle sensor circuit. <Ref. to AC-77, INSPECTION, In-Vehicle Sensor (Auto A/C Model).>	Is the in-vehicle sensor circuit normal?	Go to step 9.	Replace the in-vehicle sensor. <Ref. to AC-76, REMOVAL, In-Vehicle Sensor (Auto A/C Model).>
9 CHECK AMBIENT SENSOR UNIT. Check the ambient sensor. <Ref. to AC-73, INSPECTION, Ambient Sensor.>	Is the ambient sensor normal?	Go to step 10.	Replace the ambient sensor. <Ref. to AC-72, REMOVAL, Ambient Sensor.>
10 CHECK SUNLOAD SENSOR UNIT. Check the sunload sensor unit. <Ref. to AC-75, INSPECTION, Sunload Sensor (Auto A/C Model).>	Is the sunload sensor normal?	System is normal.	Replace the sunload sensor. <Ref. to AC-74, REMOVAL, Sunload Sensor (Auto A/C Model).>

*1: For the 75°F center specification. Note that 18 for 25°C center specification and 15 for 22°C center specification.

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Diagnostics with Phenomenon

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

8. AIR DOES NOT COME OUT. AIRFLOW IS LOW

TROUBLE SYMPTOM:

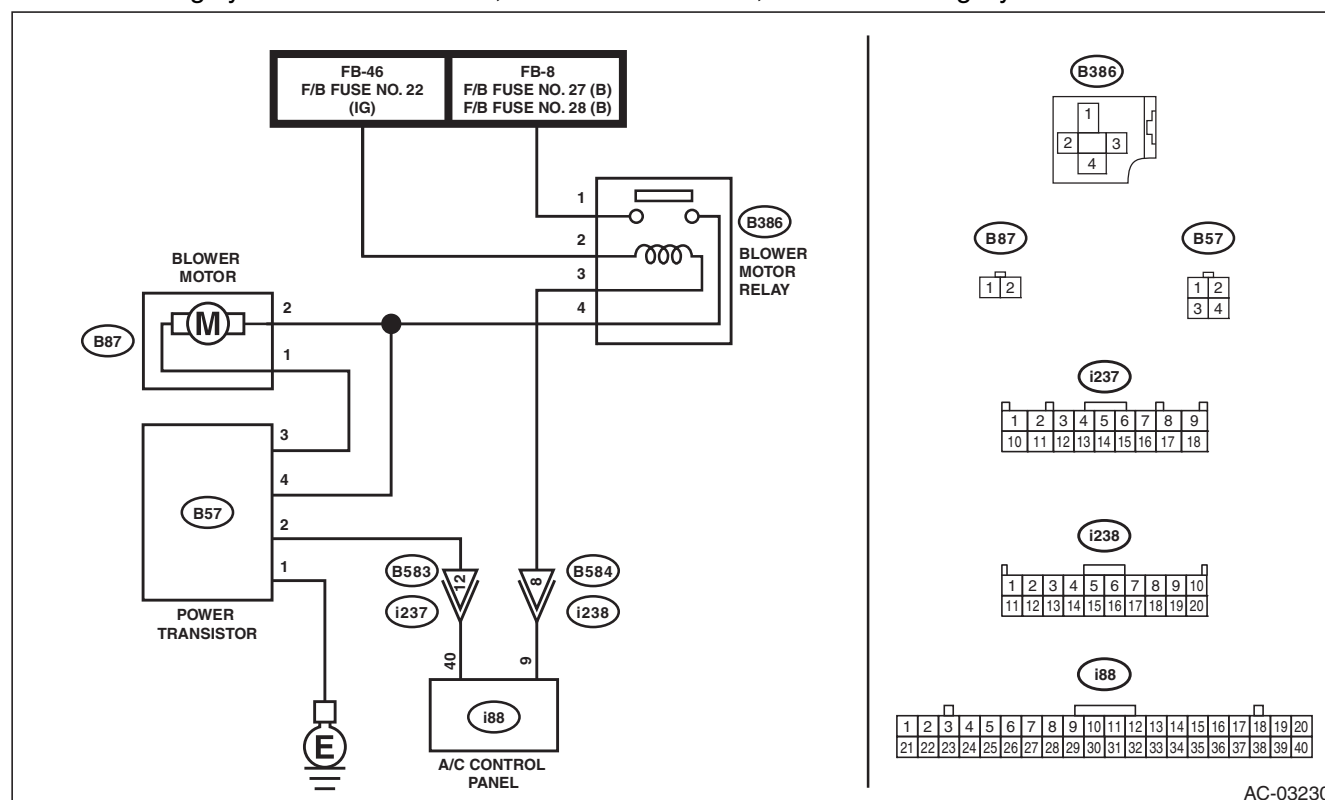
- Airflow capacity is insufficient.
- Air does not come out when operating the fan dial.

TROUBLE CAUSES:

- Airflow capacity failure
- CAN communication failure
- A/C control panel failure
- Blower motor failure

WIRING DIAGRAM:

Air conditioning system <Ref. to WI-67, WIRING DIAGRAM, Air Conditioning System.>



Step	Check	Yes	No
1	CHECK A/C CONTROL PANEL. 1) Using Subaru Select Monitor, display the following data in "Read Current Data". • Air mix door actuator position (driver's side) • Air mix door actuator position (passenger's) • Blower fan level 2) Turn the temperature control dial at MAX COOL and increase and decrease the A/C control panel fan dial. (For vehicles with left/right independent air conditioner, perform setting on both sides.)	Go to step 2.	Go to step 5.
2	CHECK AIRFLOW CAPACITY. Turn the temperature control dial to LO (both dials for the models equipped with left/right independent air conditioning function), A/C control panel fan dial to MAX and FRESH/RECIRC switch to RECIRC.	Go to step 3.	System is normal.
3	CHECK A/C FILTER. Check the A/C filter.	Go to step 4.	Clean or replace the A/C filter.

Diagnostics with Phenomenon

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
4 CHECK EACH DUCT. Check each duct joint for disconnection or clogging.	Is each duct normal?	Go to step 5.	Repair the faulty duct.
5 CHECK A/C CONTROL PANEL. 1) Turn the ignition switch to ON. 2) Turn the fan dial to the maximum position. 3) Using the Subaru Select Monitor, check "Blower Fan Level" of the current data from the A/C diagnosis.	Does "Blower Fan Level" indicate "7"?	Go to step 6.	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>
6 CHECK A/C CONTROL PANEL. 1) Turn the fan dial to the minimum position. 2) Using the Subaru Select Monitor, check "Blower Fan Level" of the current data from the A/C diagnosis.	Does "Blower Fan Level" indicate "1"?	Go to step 7.	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>
7 CHECK CONNECTOR. Check for poor contact of connector.	Is there poor contact of connector?	Repair the connector.	Go to step 8.
8 CHECK FUSE. 1) Remove a fuse in the fuse & relay box. 2) Check the condition of fuse.	Is the fuse blown out?	Replace the fuse.	Go to step 9.
9 CHECK BLOWER MOTOR RELAY ON SIGNAL. 1) Stop the engine. 2) Turn the fan dial OFF. 3) Turn the ignition switch to ON. 4) Using a tester, measure the voltage between the A/C control panel connector (i88) and chassis ground. Connector & terminal (i88) 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 fuse and ECM. • Check the blower relay connector and relay unit. <Ref. to AC-33, CHECK RELAY, INSPECTION, Relay and Fuse.>
10 CHECK BLOWER MOTOR RELAY ON SIGNAL. 1) Start the engine. 2) Turn the fan dial to ON. 3) Using a tester, measure the voltage between the A/C control panel connector (i88) and chassis ground. Connector & terminal (i88) No. 9 (+) — Chassis ground (-):	Is the voltage 0 V?	Go to step 11.	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>
11 CHECK BLOWER MOTOR POWER SUPPLY CIRCUIT. 1) Turn the ignition switch to ON. 2) Turn the fan dial to ON. 3) Use a tester to measure the voltage between the blower motor connector (B87) and chassis ground. Connector & terminal (B87) No. 2 (+) — Chassis ground (-):	Is the voltage 10 V or more?	Go to step 12.	• Check the blower motor power supply line harness for open circuit or connector disconnection. • Check the blower relay connector and relay unit. <Ref. to AC-33, CHECK RELAY, INSPECTION, Relay and Fuse.>
12 CHECK BLOWER MOTOR UNIT. Check the blower motor. <Ref. to AC-38, INSPECTION, Blower Motor.>	Is the blower motor OK?	Go to step 13.	Replace the blower motor. <Ref. to AC-37, REMOVAL, Blower Motor.>

Diagnostics with Phenomenon

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
13 CHECK HARNESS. 1) Disconnect the power transistor and A/C control panel connector. 2) Using a tester, measure the resistance between harness terminals. <i>Connector & terminal</i> <i>(B386) No. 4 — (B57) No. 4:</i> <i>(B87) No. 1 — (B57) No. 3:</i> <i>(B57) No. 2 — (i88) No. 40:</i> <i>(B57) No. 1 — Chassis ground:</i>	Is the resistance less than 1 Ω ?	Go to step 14.	Repair or replace the open circuit of harness.
14 CHECK HARNESS. Use a tester to measure the harness resistance between the power transistor connector and chassis ground. <i>Connector & terminal</i> <i>(B57) No. 2 — Chassis ground:</i>	Is the resistance less than 1 Ω ?	Repair or replace the short circuit of the harness.	Go to step 15.
15 CHECK POWER TRANSISTOR. Replace the power transistor with a properly functioning part.	Does the blower motor rotate?	Replace the power transistor. <Ref. to AC-39, REMOVAL, Power Transistor (Auto A/C Model).>	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>

Diagnostics with Phenomenon

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

9. AIR CANNOT BE CONTROLLED

TROUBLE SYMPTOM:

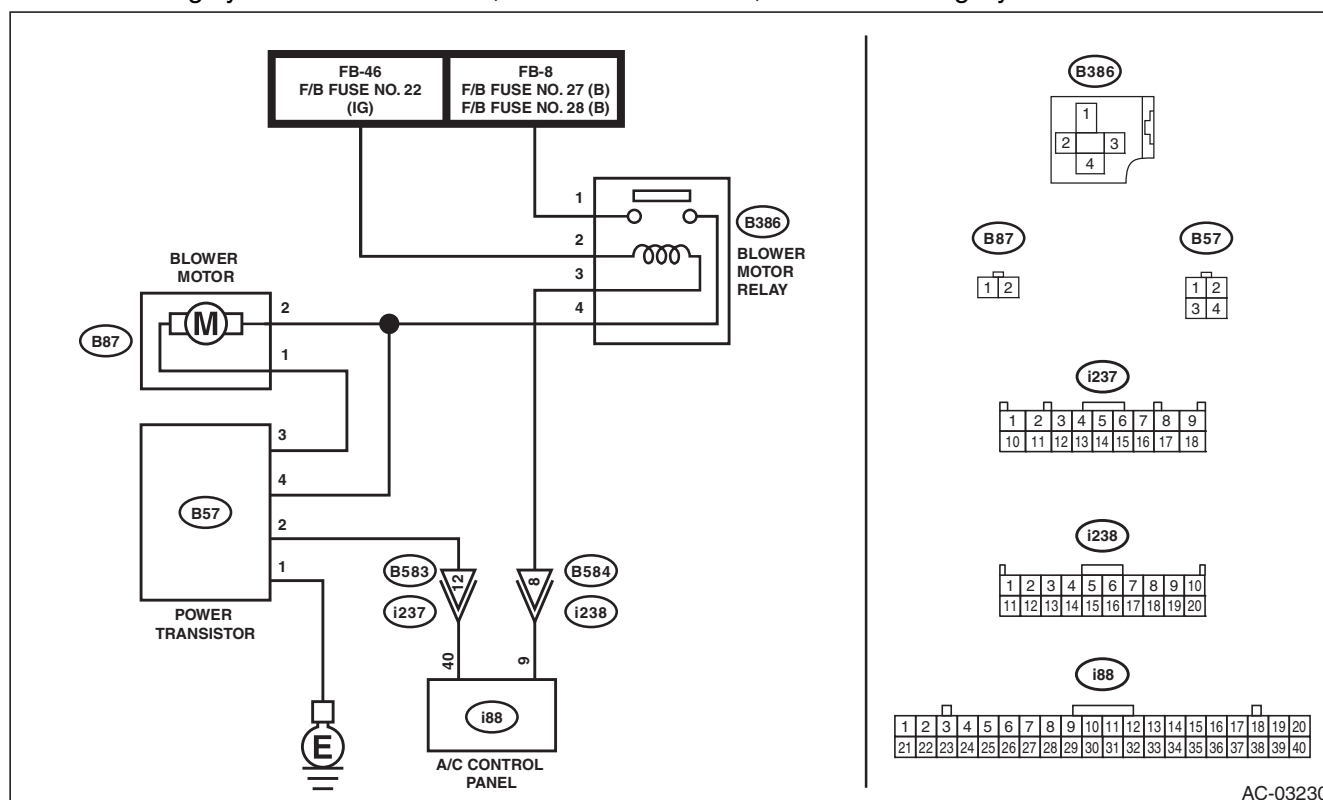
- The blower rotates even though the blower switch is not turned on.
- The blower motor continues to rotate at high speed. (Not adjustable.)

TROUBLE CAUSES:

- Airflow capacity failure
- CAN communication failure
- A/C control panel failure
- Blower motor failure

WIRING DIAGRAM:

Air conditioning system <Ref. to WI-67, WIRING DIAGRAM, Air Conditioning System.>



AC-03230

Step	Check	Yes	No
1	CHECK A/C CONTROL PANEL. 1) Turn the ignition switch to ON. 2) Turn the fan dial to the maximum position. 3) Using the Subaru Select Monitor, check "Blower Fan Level" of the current data from the A/C diagnosis.	Go to step 2.	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>
2	CHECK A/C CONTROL PANEL. 1) Turn the fan dial to the minimum position. 2) Using the Subaru Select Monitor, check "Blower Fan Level" of the current data from the A/C diagnosis.	Go to step 3.	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>
3	CHECK HARNESS. 1) Turn the ignition switch to OFF. 2) Disconnect the power transistor connector. 3) Use a tester to measure the resistance between the power transistor connector and chassis ground. Connector & terminal (B57) No. 4 — Chassis ground:	Is the resistance less than 1 Ω? Repair or replace the short circuit of the harness between blower motor and power transistor.	Go to step 4.

Diagnostics with Phenomenon

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
4 CHECK HARNESS. 1) Remove the A/C control panel. 2) Turn the ignition switch to ON. 3) Use a tester to measure the resistance between the power transistor connector and chassis ground. <i>Connector & terminal</i> <i>(B57) No. 2 — Chassis ground:</i>	Is the resistance less than 1 Ω ?	Repair or replace the short circuit of the harness between A/C control panel and power transistor.	Go to step 5.
5 CHECK HARNESS. 1) Connect the disconnected connectors. 2) Turn the ignition switch to ON. 3) Use a tester to measure the voltage between the power transistor connector and chassis ground. <i>Connector & terminal</i> <i>(B57) No. 2 (+) — Chassis ground (-):</i>	Is the voltage approx. 9 V when fan dial in 1st, and approx. 3.5 V when fan dial in 6th?	Replace the power transistor. <Ref. to AC-39, REMOVAL, Power Transistor (Auto A/C Model).>	Go to step 6.
6 CHECK A/C CONTROL PANEL. 1) Turn the fan dial OFF. 2) Disconnect the power transistor connector. 3) Use a tester to measure the resistance between the power transistor connector and chassis ground. <i>Connector & terminal</i> <i>(B57) No. 2 — Chassis ground:</i>	When the fan dial is OFF and other than OFF, does the resistance change?	Replace the power transistor. <Ref. to AC-39, REMOVAL, Power Transistor (Auto A/C Model).>	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>

Diagnostics with Phenomenon

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

10.COOL AIR DOES NOT COME OUT WHEN PRESSING THE A/C SWITCH. FOG CANNOT BE CLEARED. (COMPRESSOR DOES NOT OPERATE.)

TROUBLE SYMPTOM:

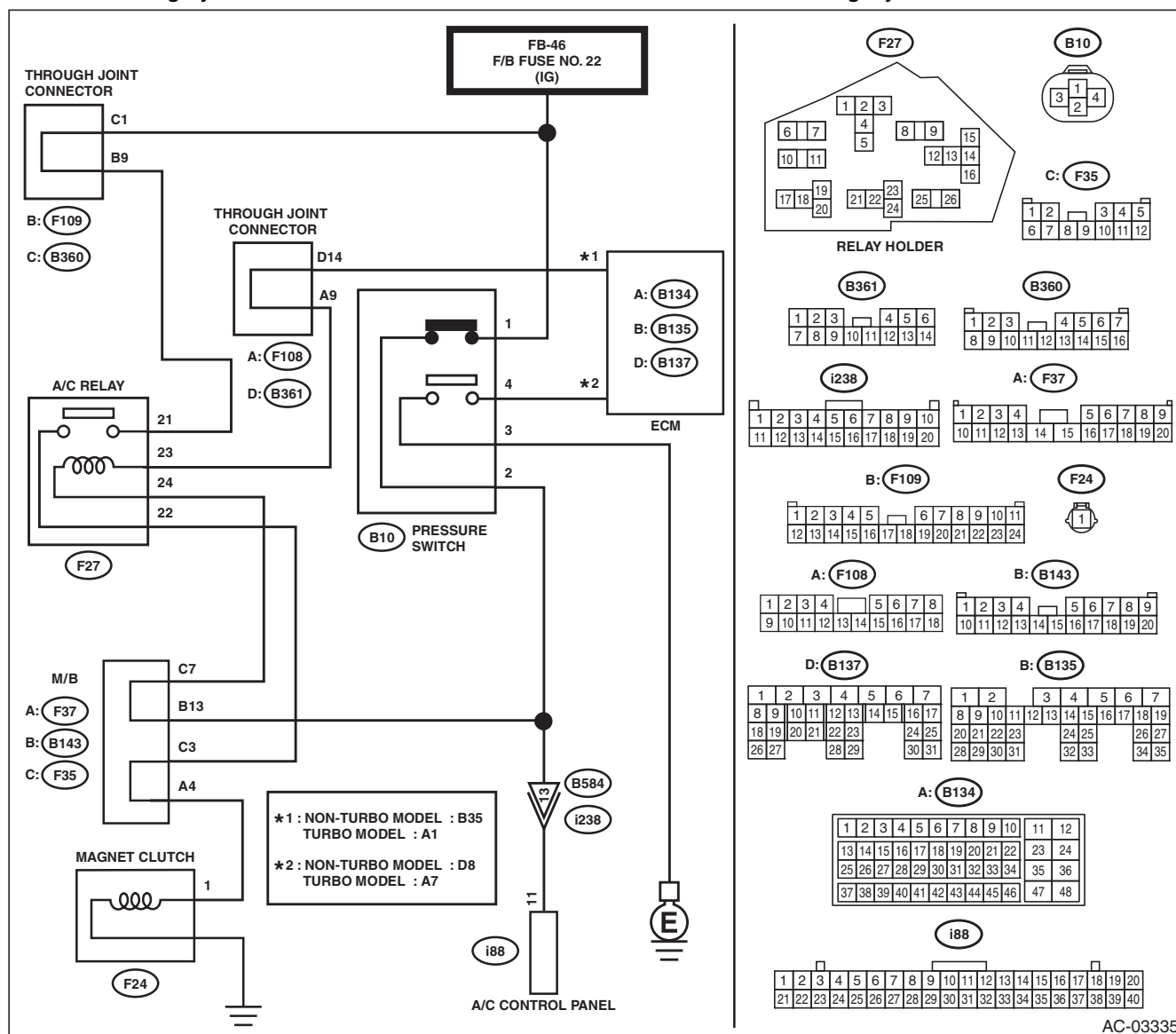
Compressor does not operate after turning the A/C switch to ON and fan dial between LO and HI.

TROUBLE CAUSES:

Compressor failure

WIRING DIAGRAM:

Air conditioning system <Ref. to WI-67, WIRING DIAGRAM, Air Conditioning System.>



Diagnostics with Phenomenon

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK A/C CONTROL PANEL. 1) Leave the vehicle under the condition at ambient temperature of 15°C (59°F) or more. 2) Turn the ignition switch to ON. 3) Turn the fan dial to the maximum position. 4) Press the A/C switch.	Is "A/C" displayed on the A/C control panel?	Go to step 2.	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>
2 CHECK EVAPORATOR SENSOR. Using the Subaru Select Monitor, check "Evaporator Temp." of the current data from the A/C diagnosis.	Does the data indicate -0.5 degree or more?	Go to step 4.	Go to step 3.
3 CHECK EVAPORATOR SENSOR. Check the evaporator sensor. <Ref. to AC-81, INSPECTION, Evaporator Sensor.>	Is the sensor normal?	Go to step 4.	Replace the evaporator sensor. <Ref. to AC-80, REMOVAL, Evaporator Sensor.>
4 CHECK PRESSURE SWITCH. Check the pressure switch connection.	Is the connector normal?	Go to step 5.	Repair the connector.
5 CHECK PRESSURE SWITCH. Using the Subaru Select Monitor, check "Pressure Switch" of the current data from Air Conditioning Diagnosis.	Does the data indicate normal?	Go to step 10.	Go to step 6.
6 CHECK AMOUNT OF REFRIGERANT PRESSURE. Check the refrigerant pressure. <Ref. to AC-22, REFRIGERANT GAS PRESSURE INSPECTION, PROCEDURE, Refrigerant Pressure with Manifold Gauge Set.>	Is the refrigerant pressure normal?	Go to step 7.	Perform repair according to refrigerant pressure inspection.
7 CHECK CONNECTOR. Check poor contact of A/C control panel connector.	Is the connector normal?	Go to step 8.	Repair the connector.
8 CHECK FUSE. 1) Turn the ignition switch to ON. 2) Remove a fuse in the fuse & relay box. 3) Check the fuse.	Is the fuse normal?	Go to step 9.	Replace the fuse.
9 CHECK PRESSURE SWITCH SIGNAL. 1) Turn the ignition switch to OFF. 2) Disconnect the A/C control panel connector. 3) Turn the ignition switch to ON. 4) Measure the voltage between A/C control panel connector terminal and chassis ground. Connector & terminal (i88) No. 11 (+) — Chassis ground (-):	Is the voltage 10 V or more?	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>	• Check for open or short circuit in the harness between fuse and A/C control panel. • Check for poor contact of pressure switch connector.
10 CHECK CAN COMMUNICATION CIRCUIT. Using the Subaru Select Monitor, check "A/C Switch Signal" of the current data from Engine Diagnosis.	Does the data indicate ON?	Go to step 12.	Go to step 11.
11 CHECK CAN COMMUNICATION CIRCUIT. Perform the diagnosis for LAN system. <Ref. to LAN(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>	Is the system normal?	Repair it according to DTC of LAN system.	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>

Diagnostics with Phenomenon

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
12 CHECK A/C RELAY ON SIGNAL. 1) Disconnect the ECM connector. 2) Turn the ignition switch to ON. 3) Measure the voltage between ECM connector terminal and chassis ground. Connector & terminal Non-turbo model <i>(B135) No. 35 (+) — Chassis ground (-):</i> Turbo model <i>(B134) No. 1 (+) — Chassis ground (-):</i>	Is the voltage 10 V or more?	Go to step 13.	• Check for open or short in the harness between pressure switch and ECM. • Check poor contact of A/C relay connector. • Check the A/C relay. <Ref. to AC-33, INSPECTION, Relay and Fuse.>
13 CHECK A/C RELAY ON SIGNAL. 1) Start the engine. 2) Turn the A/C switch to ON. 3) Turn the temperature control dial at maximum cool position. 4) Measure the voltage between ECM connector terminal and chassis ground. Connector & terminal Non-turbo model <i>(B135) No. 35 (+) — Chassis ground (-):</i> Turbo model <i>(B134) No. 1 (+) — Chassis ground (-):</i>	Is the voltage 0 V?	Go to step 14.	Replace the ECM.
14 CHECK MAGNET CLUTCH POWER SUPPLY CIRCUIT. 1) Stop the engine. 2) Disconnect the magnet clutch connector. 3) Start the engine. 4) Turn the A/C switch to ON. 5) Turn the temperature control dial at maximum cool position. 6) Measure the voltage between magnet clutch connector terminal and chassis ground. Connector & terminal <i>(F24) No. 1 (+) — Chassis ground (-):</i>	Is the voltage 10 V or more?	Check the magnet clutch.	• Check for open or short circuit in the harness between fuse and magnet clutch. • Check poor contact of A/C relay connector. • Check the A/C relay. <Ref. to AC-33, INSPECTION, Relay and Fuse.>

Diagnostics with Phenomenon

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

11.UNABLE TO SWITCH SUCTION VENTS

TROUBLE SYMPTOM:

Inlet opening does not switch RECIRC → FRESH or FRESH → RECIRC each time pressing the FRESH/RECIRC switch.

TROUBLE CAUSE:

Intake actuator failure.

Step	Check	Yes	No
1 VISUALLY CHECK INTAKE DOOR OPERATION. 1) Remove the glove box. <Ref. to EI-61, REMOVAL, Glove Box.> 2) Visually check the intake door operation by operating the FRESH/RECIRC switch.	Does the intake door operate normally? Is the portion between intake door and intake door case sealed completely?	System is normal.	Go to step 2.
2 CHECK A/C CONTROL PANEL. 1) Turn the ignition switch to ON. 2) Using the Subaru Select Monitor, check "Fresh/Recircle Air Door Actuator Position Target" of the current data from Air Conditioning Diagnosis. 3) Operate the FRESH/RECIRC switch.	Does "Fresh/Recircle Air Door Actuator Position Target" indicate 0 ↔ 100?	Go to step 3.	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>
3 CHECK DTC. 1) Turn the FRESH/RECIRC switch to RECIRC, and leave for 16 seconds or more. 2) Read the DTC using Subaru Select Monitor.	Is DTC B14E9, B14EA and B14EB displayed?	Perform the diagnosis according to DTC.	Go to step 4.
4 CHECK DTC. 1) Turn the FRESH/RECIRC switch to FRESH, and leave for 16 seconds or more. 2) Read the DTC using Subaru Select Monitor.	Is DTC B14E9, B14EA and B14EB displayed?	Perform the diagnosis according to DTC.	System is normal.

12.UNABLE TO SWITCH VENTS

TROUBLE SYMPTOM:

- Unable to switch blow vents.
- Outlet opening does not switch in the sequence of FACE → B/L → FOOT → F/D after operating the mode switch or mode dial.

TROUBLE CAUSE:

Mode actuator failure.

Step	Check	Yes	No
1 CHECK A/C CONTROL PANEL. 1) Turn the ignition switch to ON. 2) Using the Subaru Select Monitor, check "Mode Door Actuator Position Target" of the current data from Air Conditioning Diagnosis. 3) Operate the air flow control switch.	Does the value of "Mode Door Actuator Position Target" change?	Go to step 2.	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>
2 CHECK DTC. 1) Turn the air flow control switch to DEF, and leave for 16 seconds or more. 2) Read the DTC using Subaru Select Monitor.	Is DTC B14E5 and B14E6 displayed?	Perform the diagnosis according to DTC.	Go to step 3.
3 CHECK DTC. 1) Turn the air flow control switch to VENT, and leave for 16 seconds or more. 2) Using the Subaru Select Monitor, read DTC of A/C control panel.	Is DTC B14E5 and B14E6 displayed?	Perform the diagnosis according to DTC.	System is normal.

Diagnostics with Phenomenon

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

13. ILLUMINATION DOES NOT ILLUMINATE OR CANNOT BE DIMMED

TROUBLE SYMPTOM:

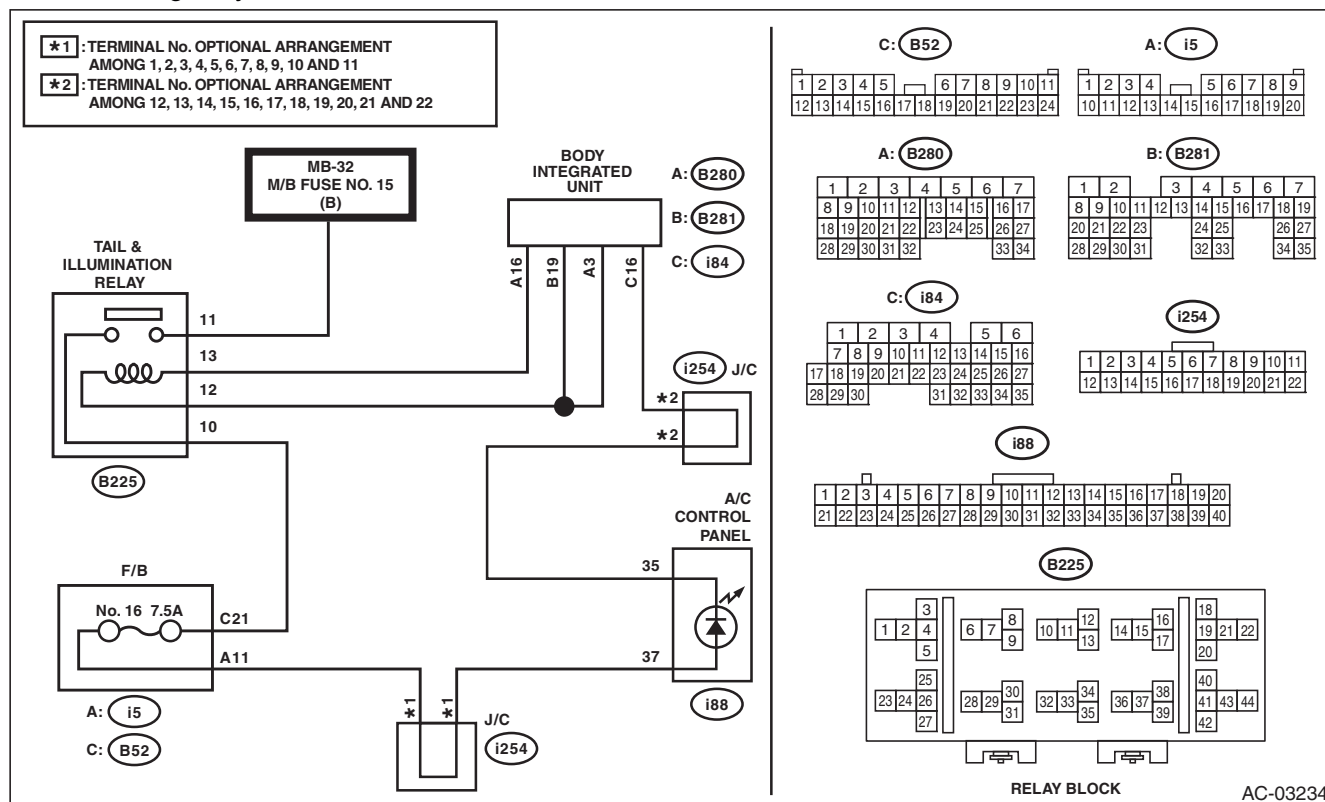
Even when the lighting switch is operated, the illumination does not come on. Even when the illumination control is operated, the illumination does not dim.

TROUBLE SYMPTOM:

Open circuit in illumination circuit

WIRING DIAGRAM:

Clearance Light and Illumination Light System <Ref. to WI-108, WIRING DIAGRAM, Clearance Light and Illumination Light System.>



Step	Check	Yes	No
1 CHECK ILLUMINATION. Make sure that all illuminations except A/C come on.	Do other illuminations come on.	Go to step 2.	<Ref. to LI-9, INSPECTION, Clearance Light and Illumination Light System.>
2 CHECK CONNECTOR. Check for poor contact of connector.	Is there poor contact?	Repair the connector.	Go to step 3.
3 CHECK HARNESS. 1) Turn the lighting switch to ON. 2) Using a tester, measure the voltage between the A/C control panel connector and chassis ground. Connector & terminal (i88) No. 37 (+) — Chassis ground (-):	Is the voltage 10 V or more?	Go to step 4.	Repair or replace the open circuit of harness.
4 CHECK HARNESS. 1) Turn the lighting switch to OFF. 2) Measure the resistance between A/C control panel connector and body integrated unit connector. Connector & terminal (i88) No. 35 — (i84) No. 16:	Is the resistance less than 10 Ω?	Go to step 5.	Repair or replace the open circuit of harness.

Diagnostics with Phenomenon

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
5 CHECK A/C CONTROL PANEL UNIT. Check the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>	Is A/C control panel OK?	A/C control panel illumination circuit is normal.	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>

Subaru Select Monitor

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

7. Subaru Select Monitor

A: OPERATION

For details of basic operations, refer to "PC application help for Subaru Select Monitor".

NOTE:

If the communication for initializing of Subaru Select Monitor is impossible, perform the diagnosis using "Diagnostic Procedure for Subaru Select Monitor Communication Error".

Read Diagnostic Trouble Code (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

8. Read Diagnostic Trouble Code (DTC)

A: OPERATION

For detailed operation procedures, refer to "PC application help for Subaru Select Monitor".

Clear Memory Mode

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

9. Clear Memory Mode

A: OPERATION

For detailed operation procedures, refer to "PC application help for Subaru Select Monitor".

Read Current Data

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

10. Read Current Data

A: OPERATION

For detailed operation procedures, refer to "PC application help for Subaru Select Monitor".

B: LIST

Items to be displayed	Unit of measure	Content	Note
In-vehicle Sensor Temperature	°C (°F)	A/C control panel input value	—
Quantity of Sunload	W/m ²	A/C control panel input value	—
A/C Pressure Switch	Normal/Abnormal	A/C control panel input value	—
Heater Water Temperature	°C (°F)	Data value received by CAN	—
Heater Control Panel Setting Value (Driver's)	LO: 18°C (60°F) HI: 32°C (90°F)	Control panel display value	—
Heater Control Panel Setting Value (Passenger's)	LO: 18°C (60°F) HI: 32°C (90°F)	Control panel display value	For models with left/right independent air conditioning function only
Blower outlet request temperature (Driver's)	°C (°F)	A/C control panel internal setting value	For models with left/right independent air conditioning function only
Blower outlet request temperature (Passenger's)	°C (°F)	A/C control panel internal setting value	For models with left/right independent air conditioning function only
Air mix door actuator position (driver's side)	%	A/C control panel input value	—
Air mix door actuator position (passenger's side)	%	A/C control panel input value	For models with left/right independent air conditioning function only
Mode Door Actuator Position	%	A/C control panel input value	—
Fresh/Recircle Air Door Actuator Position	%	A/C control panel input value	—
Target air mix door actuator position (driver's side)	%	A/C control panel input value	—
Target air mix door actuator position (passenger's side)	%	A/C control panel input value	—
Mode Door Actuator Position Target	%	A/C control panel input value	—
Fresh/Recircle Air Door Actuator Position Target	%	A/C control panel input value	—
Blower Fan Level	Level	A/C control panel internal output value	—
Ambient Air Temperature	°C (°F)	Data value received by CAN	—
Compressor operation status	OFF/AUTO	A/C control panel input value	—
Blower Fan Operating Condition	MANU/AUTO	A/C control panel input value	—
A/C Operating Condition	MANU/AUTO	A/C control panel input value	—
Fresh/Recircle Air Operating Condition	MANU/AUTO	A/C control panel input value	—



Read Current Data

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Items to be displayed	Unit of measure	Content	Note
Mode Operating Condition	MANU/AUTO	A/C control panel input value	—
Rear Defogger	ON/OFF	A/C control panel input value	—
Engine Speed	rpm	Data value received by CAN	—
Vehicle Speed	km/h	Data value received by CAN	—
Evaporator Temperature	°C (°F)	A/C control panel input value	—
Evaporator Temperature Target	°C (°F)	A/C control panel input value	—
Blower outlet Door Request Temperature	°C (°F)	A/C control panel internal setting value	—
PTC permitted number	0 — 3	A/C control panel input value	Not supported
PTC operation steps	0 — 3	A/C control panel input value	Not supported
PTC Heater 3	Inoperative/Operate	A/C control panel input value	Not supported
PTC Heater 2	Inoperative/Operate	A/C control panel input value	Not supported
PTC Heater 1	Inoperative/Operate	A/C control panel input value	Not supported
Request engine speed	0: Without Request 1: Cooler H 2: Heater H 3: Cooler L 4: Heater L	A/C control panel internal output value	—
Heater core Temp.	°C (°F)	A/C control panel input value	Not supported

NOTE:

For detailed operation procedures, refer to “PC application help for Subaru Select Monitor”.

Diagnostic Procedure for Subaru Select Monitor Communication

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

11.Diagnostic Procedure for Subaru Select Monitor Communication

A: COMMUNICATION FOR INITIALIZING IMPOSSIBLE

DIAGNOSIS:

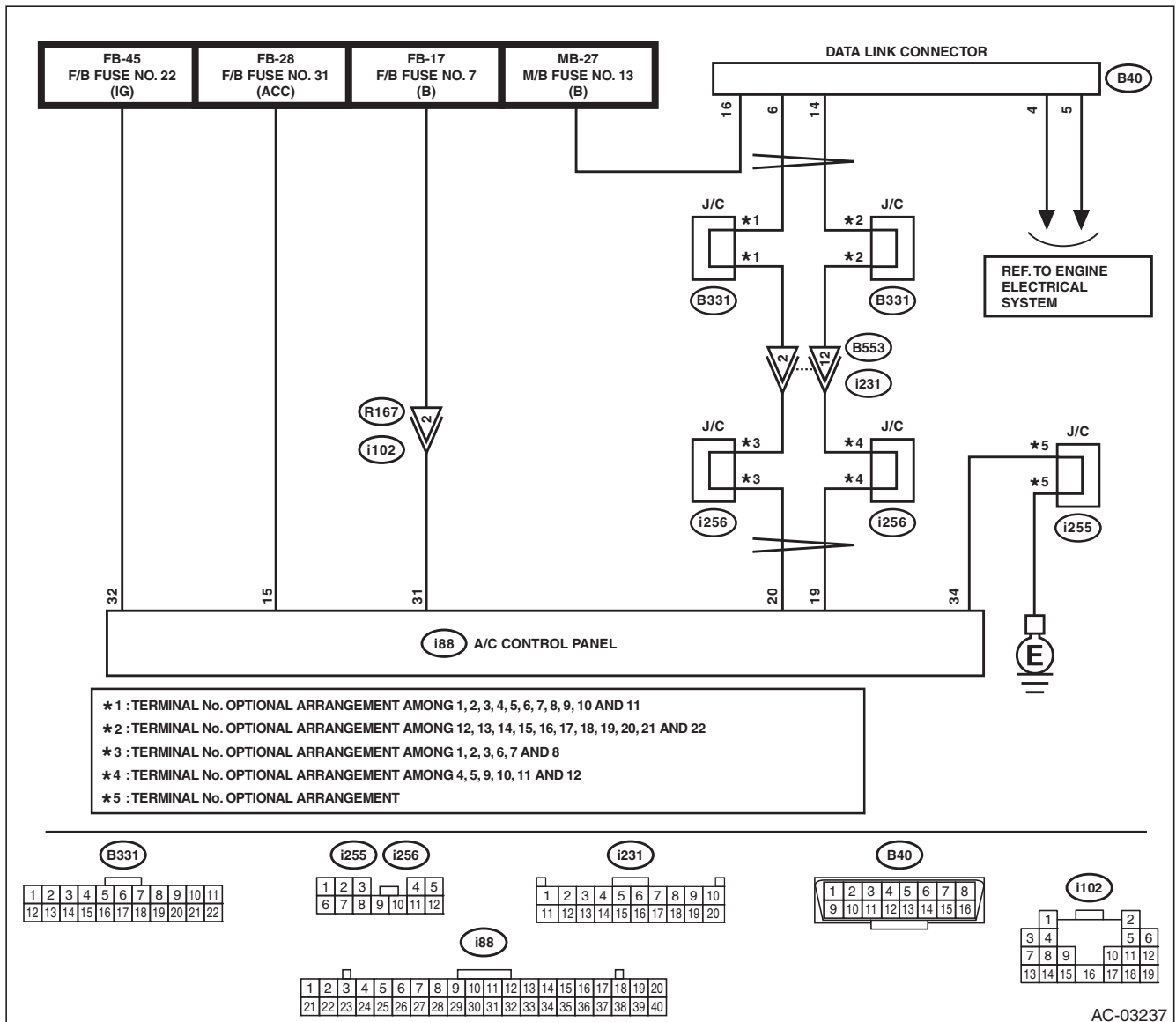
Defective CAN communication circuit

TROUBLE SYMPTOM:

- LAN system is abnormal.
- Communication failure between Subaru Select Monitor and A/C control panel

WIRING DIAGRAM:

Air conditioning system <Ref. to WI-67, WIRING DIAGRAM, Air Conditioning System.>



Step	Check	Yes	No
1	CHECK POWER SUPPLY CIRCUIT. Connect SDI (Subaru Diagnosis Interface) to the data link connector.	Is SDI powered on? Go to step 4.	Go to step 2.

Diagnostic Procedure for Subaru Select Monitor Communication

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
2 CHECK POWER SUPPLY CIRCUIT. Measure the voltage between data link connector and chassis ground. <i>Connector & terminal</i> <i>(B40) No. 16 (+) — Chassis ground (-):</i>	Is the voltage 10 V or more?	Go to step 3.	Repair the power supply circuit. NOTE: In this case, repair the following item: • Open or ground short circuit of harness between battery and data link connector • Blown out of fuse (M/B No. 12)
3 CHECK HARNESS BETWEEN DATA LINK CONNECTOR AND CHASSIS GROUND. 1) Turn the ignition switch to OFF. 2) Measure the resistance of harness between data link connector and chassis ground. <i>Connector & terminal</i> <i>(B40) No. 4 — Chassis ground:</i> <i>(B40) No. 5 — Chassis ground:</i>	Is the resistance less than 5 Ω?	Repair the poor contact of data link connector.	Repair the harness and connector.
4 CHECK SUBARU SELECT MONITOR. 1) Connect the Subaru Select Monitor to a normal vehicle. 2) Start the engine and perform communication between the Subaru Select Monitor and vehicle.	Is communication possible?	Go to step 5.	Use another Subaru Select Monitor because the CAN communication circuit of the Subaru Select Monitor is faulty.
5 CHECK LAN SYSTEM. Check the LAN system. <Ref. to LAN(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>	Is LAN system normal?	Go to step 6.	Repair it according to the diagnosis for LAN system.
6 CHECK CONNECTOR. Check for poor contact of power supply circuit connector.	Is there poor contact of connector?	Repair the connector.	Go to step 7.
7 CHECK FUSE. 1) Turn the ignition switch to OFF. 2) Remove a fuse from the fuse box. 3) Check the fuse.	Is the fuse blown out?	Replace the fuse.	Go to step 8.
8 CHECK A/C CONTROL PANEL POWER CIRCUIT. 1) Disconnect the A/C control panel connector. 2) Measure the voltage between A/C control panel connector terminal and chassis ground after turning the ignition switch to ON. <i>Connector & terminal</i> <i>(i88) No. 15 (+) — Chassis ground (-):</i> <i>(i88) No. 31 (+) — Chassis ground (-):</i> <i>(i88) No. 32 (+) — Chassis ground (-):</i>	Is the voltage 10 V or more?	Go to step 9.	Check for open or short circuit in the harness between A/C control panel and fuse.
9 CHECK A/C CONTROL PANEL GROUND CIRCUIT. Measure the resistance of harness between A/C control panel and chassis ground. <i>Connector & terminal</i> <i>(i88) No. 34 — Chassis ground:</i>	Is the resistance less than 5 Ω?	Check the connection between the data link connector and Subaru Select Monitor.	Repair the harness for ground line.

List of Diagnostic Trouble Code (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

12. List of Diagnostic Trouble Code (DTC)

A: LIST

DTC	Item	Content of diagnosis	Note
B1430	Room Temperature Sensor Circuit Wire Break	In-vehicle air temperature sensor circuit is open.	<Ref. to AC(diag)-49, DTC B1430 ROOM TEMPERATURE SENSOR CIRCUIT WIRE BREAK, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
B1431	Room Temperature Sensor Circuit Short-Circuit	In-vehicle air temperature sensor circuit is shorted.	<Ref. to AC(diag)-50, DTC B1431 ROOM TEMPERATURE SENSOR CIRCUIT SHORT-CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
B1432	Outside Air Sensor Circuit Wire Break (Air-Conditioning)	Ambient air temperature sensor circuit is open.	<Ref. to AC(diag)-51, DTC B1432 OUTSIDE AIR SENSOR CIRCUIT WIRE BREAK (AIR-CONDITIONING), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
B1433	Outside Air Sensor Circuit Short-Circuit (Air-Conditioning)	Ambient air temperature sensor circuit is shorted.	<Ref. to AC(diag)-53, DTC B1433 OUTSIDE AIR SENSOR CIRCUIT SHORT-CIRCUIT (AIR-CONDITIONING), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
B1434	Ambient Temperature Sensor Circuit Wire Break	Post evaporator sensor circuit is open.	<Ref. to AC(diag)-55, DTC B1434 AMBIENT TEMPERATURE SENSOR CIRCUIT WIRE BREAK, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
B1435	Evaporator Sensor Circuit Short-Circuit	Post evaporator sensor circuit is shorted.	<Ref. to AC(diag)-56, DTC B1435 EVAPORATOR SENSOR CIRCUIT SHORT-CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
B14A1	Sunload Sensor Circuit Open	Sunload sensor circuit is open.	<Ref. to AC(diag)-57, DTC B14A1 SUNLOAD SENSOR CIRCUIT OPEN, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
B14A2	Sunload Sensor Circuit Short	Sunload sensor circuit is shorted.	<Ref. to AC(diag)-58, DTC B14A2 SUNLOAD SENSOR CIRCUIT SHORT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
B14E1	Air Mix Door Actuator Stepping Motor Circuit Wire Break (Driver's Seat)	Air mix door actuator stepping motor circuit is open.	<Ref. to AC(diag)-59, DTC B14E1 AIR MIX DOOR ACTUATOR STEPPING MOTOR CIRCUIT WIRE BREAK (DRIVER'S SEAT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
B14E2	Air Mix Door Actuator Stepping Motor Circuit Short-Circuit (Driver's Seat)	Air mix door actuator stepping motor circuit is shorted.	<Ref. to AC(diag)-61, DTC B14E2 AIR MIX DOOR ACTUATOR STEPPING MOTOR CIRCUIT SHORT-CIRCUIT (DRIVER'S SEAT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
B14E3	Air Mix Door Actuator Stepping Motor Circuit Wire Break (Passenger's Seat)	Air mix door actuator stepping motor circuit is open.	<Ref. to AC(diag)-63, DTC B14E3 AIR MIX DOOR ACTUATOR STEPPING MOTOR CIRCUIT WIRE BREAK (PASSENGER'S SEAT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
B14E4	Air Mix Door Actuator Stepping Motor Circuit Short-Circuit (Passenger's Seat)	Air mix door actuator stepping motor circuit is shorted.	<Ref. to AC(diag)-65, DTC B14E4 AIR MIX DOOR ACTUATOR STEPPING MOTOR CIRCUIT SHORT-CIRCUIT (PASSENGER'S SEAT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
B14E5	Mode Door Actuator Stepping Motor Circuit Wire Break	Mode door actuator stepping motor circuit is open.	<Ref. to AC(diag)-67, DTC B14E5 MODE DOOR ACTUATOR STEPPING MOTOR CIRCUIT WIRE BREAK, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>



List of Diagnostic Trouble Code (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

DTC	Item	Content of diagnosis	Note
B14E6	Mode Door Actuator Stepping Motor Circuit Short-Circuit	Mode door actuator stepping motor circuit is shorted.	<Ref. to AC(diag)-69, DTC B14E6 MODE DOOR ACTUATOR STEPPING MOTOR CIRCUIT SHORT-CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
B14E9	Intake Door Actuator Potentiometer Circuit Wire Break	Intake door actuator potentiometer circuit is open.	<Ref. to AC(diag)-71, DTC B14E9 INTAKE DOOR ACTUATOR POTENTIOMETER CIRCUIT WIRE BREAK, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
B14EA	Intake Door Actuator Potentiometer Circuit Short-Circuit	Intake door actuator potentiometer circuit is shorted.	<Ref. to AC(diag)-73, DTC B14EA INTAKE DOOR ACTUATOR POTENTIOMETER CIRCUIT SHORT-CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
B14EB	Intake Door Actuator Lock	Intake door actuator is locked.	<Ref. to AC(diag)-75, DTC B14EB INTAKE DOOR ACTUATOR LOCK, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
U0073	Control Module Communication Bus "A" Off	CAN communication error occurred.	<Ref. to AC(diag)-76, DTC U0073 CONTROL MODULE COMMUNICATION BUS "A" OFF, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
U0100	Lost Communication With ECM/PCM "A"	ECM data receive error occurred.	<Ref. to AC(diag)-76, DTC U0100 LOST COMMUNICATION WITH ECM/PCM "A", Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
U0101	Lost Communication With TCM	TCM data receive error occurred.	<Ref. to AC(diag)-76, DTC U0101 LOST COMMUNICATION WITH TCM, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
U0122	Lost Communication With Vehicle Dynamics Control Module	VDC data receive error occurred.	<Ref. to AC(diag)-76, DTC U0122 LOST COMMUNICATION WITH VEHICLE DYNAMICS CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
U0140	Lost Communication With Body Control Module	BIU data receive error occurred.	<Ref. to AC(diag)-76, DTC U0140 LOST COMMUNICATION WITH BODY CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
U0155	Lost Communication With Instrument Panel Cluster (IPC) Control Module	METER data receive error occurred.	<Ref. to AC(diag)-76, DTC U0155 LOST COMMUNICATION WITH INSTRUMENT PANEL CLUSTER (IPC) CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
U0401	Invalid Data Received From ECM/PCM "A"	An error occurred in ECM data.	<Ref. to AC(diag)-76, DTC U0401 INVALID DATA RECEIVED FROM ECM/PCM "A", Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
U0402	Invalid Data Received From TCM	An error occurred in TCM data.	<Ref. to AC(diag)-77, DTC U0402 INVALID DATA RECEIVED FROM TCM, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
U0416	Invalid Data Received From Vehicle Dynamics Control Module	An error occurred in VDC data.	<Ref. to AC(diag)-77, DTC U0416 INVALID DATA RECEIVED FROM VEHICLE DYNAMICS CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
U0422	Invalid Data Received From Body Control Module	An error occurred in BIU data.	<Ref. to AC(diag)-77, DTC U0422 INVALID DATA RECEIVED FROM BODY CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
U0423	Invalid Data Received From Instrument Panel Cluster Control Module	An error occurred in METER data.	<Ref. to AC(diag)-77, DTC U0423 INVALID DATA RECEIVED FROM INSTRUMENT PANEL CLUSTER CONTROL MODULE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>



Diagnostic Procedure with Diagnostic Trouble Code (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

13. Diagnostic Procedure with Diagnostic Trouble Code (DTC)

A: DTC B1430 ROOM TEMPERATURE SENSOR CIRCUIT WIRE BREAK

DTC DETECTING CONDITION:

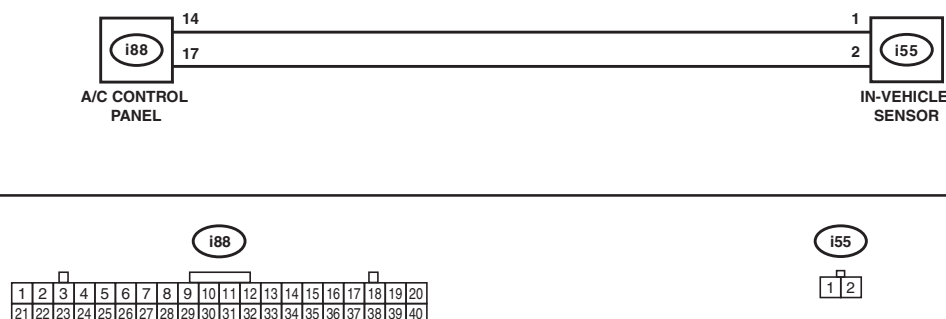
In-vehicle sensor circuit is open.

TROUBLE SYMPTOM:

In-vehicle air temperature is falsely recognized as 25°C (77°F), and the compartment temperature is adjusted.

WIRING DIAGRAM:

Air conditioning system <Ref. to WI-67, WIRING DIAGRAM, Air Conditioning System.>



AC-02888

Step	Check	Yes	No
1 CHECK CONNECTOR. 1) Check the condition of connector connection. 2) Read the DTC using Subaru Select Monitor.	Is B1430 displayed?	Go to step 2.	Check the connection of the in-vehicle sensor circuit.
2 CHECK IN-VEHICLE SENSOR. 1) Disconnect the in-vehicle sensor. 2) Short the connector. 3) Read the DTC relating the ECM using the Subaru Select Monitor.	Is B1431 displayed?	Replace the in-vehicle sensor. <Ref. to AC-76, REMOVAL, In-Vehicle Sensor (Auto A/C Model).>	Go to step 3.
3 CHECK HARNESS. 1) Turn the ignition switch to ON. 2) Using the tester, measure the voltage between terminals. Connector & terminal (i55) No. 2 (+) — No. 1 (-):	Is the voltage 4.5 — 5.0 V?	Go to step 4.	Repair or replace the open circuit of harness.
4 CHECK HARNESS. 1) Disconnect the connector from the A/C control panel. 2) Using a tester, check continuity between terminals. Connector & terminal (i55) No. 1 — (i88) No. 14: (i55) No. 2 — (i88) No. 17:	Is there continuity?	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>	Repair or replace the open circuit of harness.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

B: DTC B1431 ROOM TEMPERATURE SENSOR CIRCUIT SHORT-CIRCUIT

DTC DETECTING CONDITION:

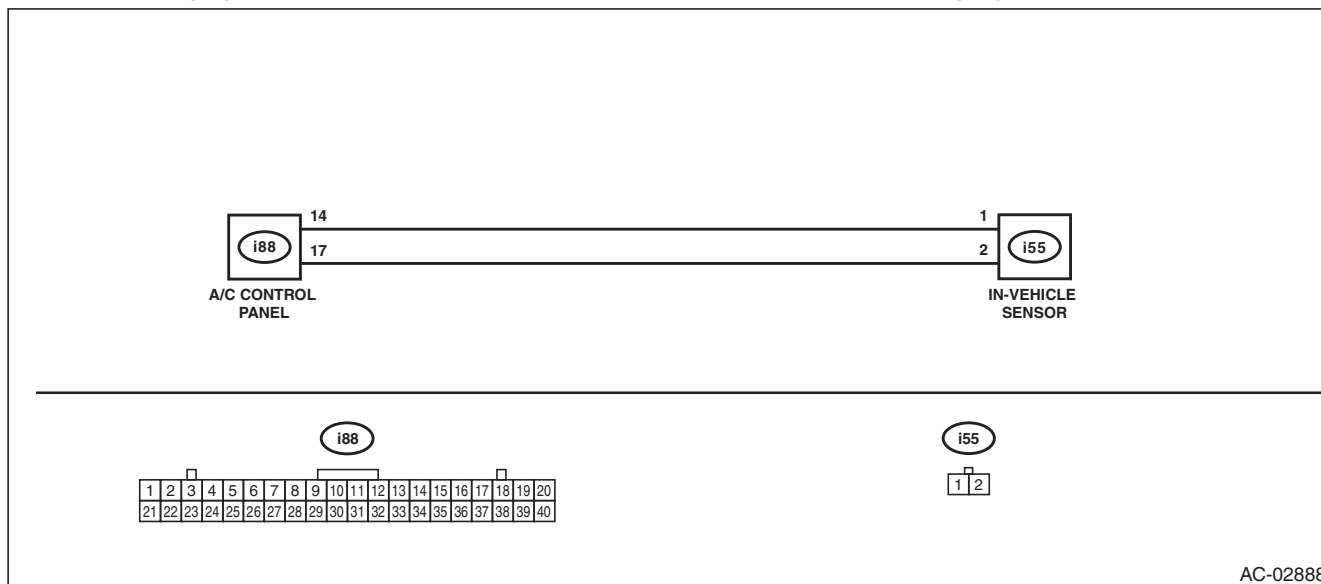
In-vehicle sensor circuit is shorted.

TROUBLE SYMPTOM:

In-vehicle air temperature is falsely recognized as 25°C (77°F), and the compartment temperature is adjusted.

WIRING DIAGRAM:

Air conditioning system <Ref. to WI-67, WIRING DIAGRAM, Air Conditioning System.>



Step	Check	Yes	No
1 CHECK CONNECTOR. 1) Check the condition of connector connection. 2) Read the DTC using Subaru Select Monitor.	Is B1431 displayed?	Go to step 2.	Check the connection of the in-vehicle sensor circuit.
2 CHECK IN-VEHICLE SENSOR. 1) Disconnect the in-vehicle sensor. <Ref. to AC-76, REMOVAL, In-Vehicle Sensor (Auto A/C Model).> 2) Read the DTC using Subaru Select Monitor.	Is B1430 displayed?	Replace the in-vehicle sensor. <Ref. to AC-76, REMOVAL, In-Vehicle Sensor (Auto A/C Model).>	Go to step 3.
3 CHECK HARNESS. 1) Turn the ignition switch to ON. 2) Using the tester, measure the voltage between terminals. Connector & terminal (i55) No. 2 (+) — No. 1 (-):	Is the voltage 4.5 — 5.0 V?	Check the connection of the in-vehicle sensor circuit.	Go to step 4.
4 CHECK HARNESS. 1) Disconnect the connector from the A/C control panel. 2) Using a tester, check continuity between terminals. Connector & terminal (i55) No. 1 — No. 2:	Is there continuity?	Repair or replace the short circuit of the harness.	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

C: DTC B1432 OUTSIDE AIR SENSOR CIRCUIT WIRE BREAK (AIR-CONDITIONING)

DTC DETECTING CONDITION:

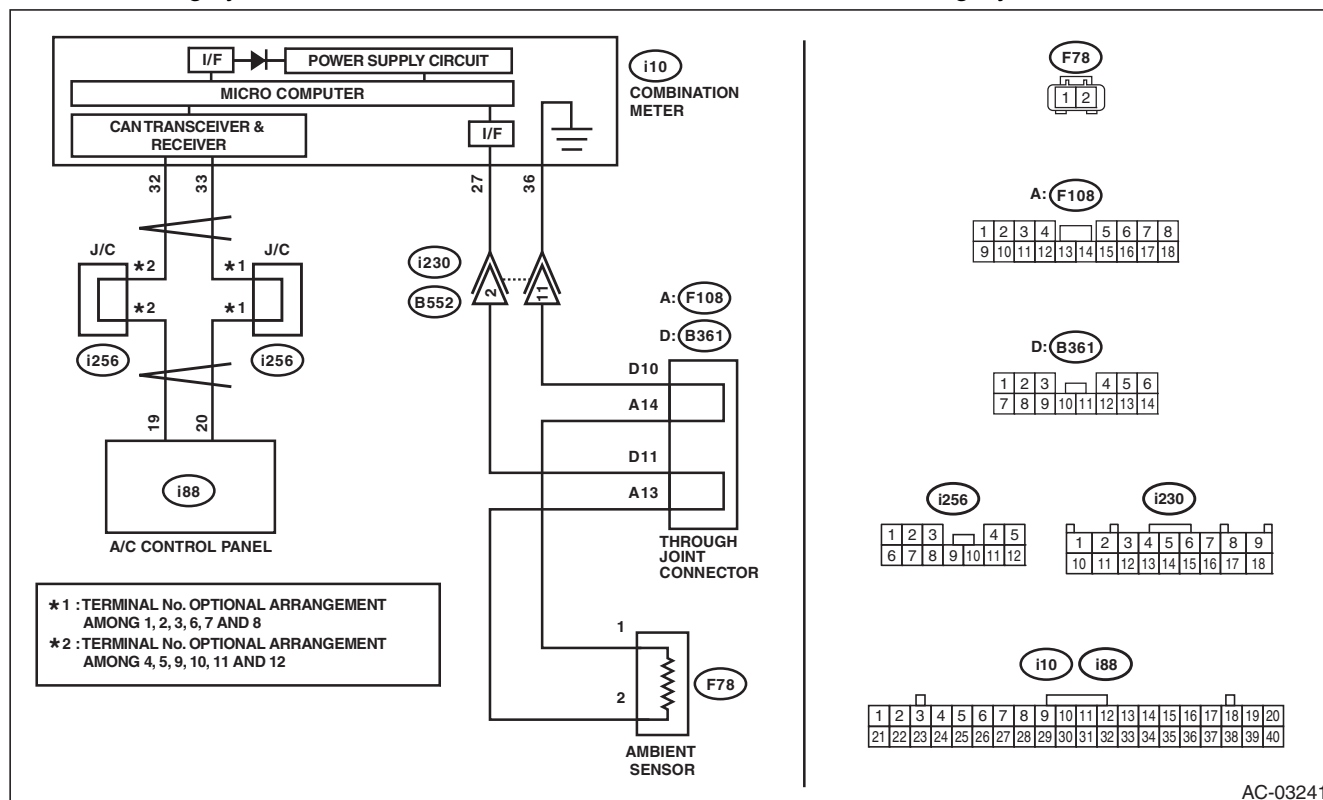
Ambient sensor circuit is open.

TROUBLE SYMPTOM:

Ambient temperature is falsely recognized, and the compartment temperature is adjusted.

WIRING DIAGRAM:

Air conditioning system <Ref. to WI-67, WIRING DIAGRAM, Air Conditioning System.>



AC-03241

Step	Check	Yes	No
1	CHECK AMBIENT SENSOR. Perform the inspection of ambient sensor unit. <Ref. to AC-73, INSPECTION, Ambient Sensor.>	Is the sensor normal?	Go to step 2.
2	CHECK HARNESS. 1) Turn the ignition switch to ON. 2) Using the tester, measure the voltage between terminals. Connector & terminal (F78) No. 2 (+) — No. 1 (-):	Is the voltage 4.5 — 5.0 V?	Replace the combination meter. <Ref. to IDI-18, REMOVAL, Combination Meter.>
3	CHECK COMBINATION METER OUTPUT SIGNAL. 1) Turn the ignition switch to OFF. 2) Pull out the combination meter. 3) Disconnect the connector from the combination meter. 4) Turn the ignition switch to ON. 5) Measure the voltage between the combination meter connector terminals. Connector & terminal (i10) No. 36 (+) — No. 27 (-):	Is the voltage 4.5 — 5.0 V?	Go to step 4.
			Replace the combination meter. <Ref. to IDI-18, REMOVAL, Combination Meter.>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

	Step	Check	Yes	No
4	CHECK HARNESS. 1) Disconnect the connector from the A/C control panel. 2) Using a tester, check continuity between terminals. Connector & terminal (F78) No. 1 — (i10) No. 36: (F78) No. 2 — (i10) No. 27:	Is there continuity?	Go to step 5.	Repair or replace the open circuit of harness.
5	CHECK FOR POOR CONTACT. Check for poor contact of combination meter connector.	Is there poor contact of connector?	Repair the connector.	Replace the combination meter. <Ref. to IDI-18, REMOVAL, Combination Meter.>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

D: DTC B1433 OUTSIDE AIR SENSOR CIRCUIT SHORT-CIRCUIT (AIR-CONDITIONING)

DTC DETECTING CONDITION:

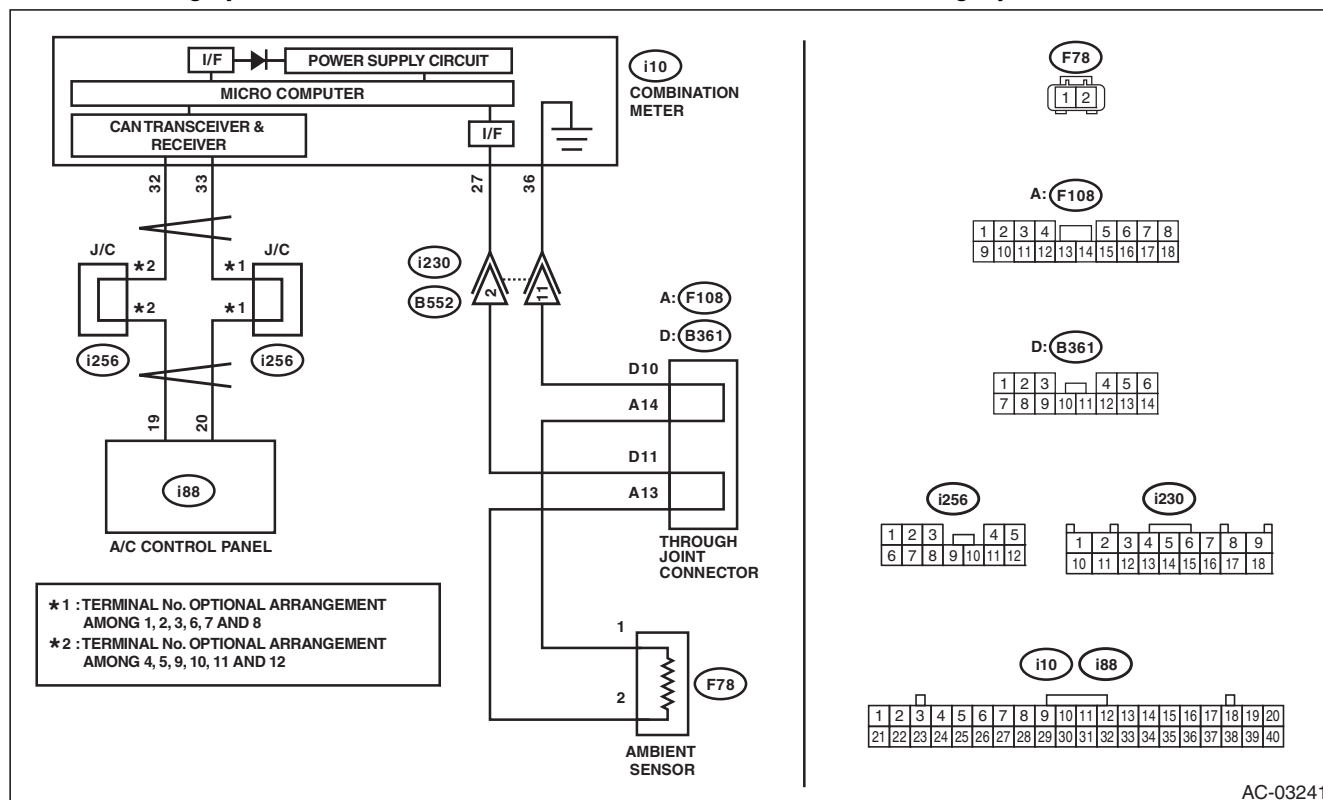
Ambient sensor circuit is shorted.

TROUBLE SYMPTOM:

Ambient temperature is falsely recognized, and the compartment temperature is adjusted.

WIRING DIAGRAM:

Air conditioning system <Ref. to WI-67, WIRING DIAGRAM, Air Conditioning System.>



AC-03241

Step	Check	Yes	No
1	CHECK AMBIENT SENSOR. Perform the inspection of ambient sensor unit. <Ref. to AC-73, INSPECTION, Ambient Sensor.>	Is the sensor normal?	Go to step 2.
2	CHECK HARNESS. 1) Turn the ignition switch to ON. 2) Using the tester, measure the voltage between terminals. Connector & terminal (F78) No. 2 (+) — No. 1 (-):	Is the voltage 4.5 — 5.0 V?	Replace the combination meter. <Ref. to IDI-18, REMOVAL, Combination Meter.>
3	CHECK COMBINATION METER OUTPUT SIGNAL. 1) Turn the ignition switch to OFF. 2) Pull out the combination meter. 3) Disconnect the connector from the combination meter. 4) Turn the ignition switch to ON. 5) Measure the voltage between the combination meter connector terminals. Connector & terminal (i10) No. 36 (+) — No. 27 (-):	Is the voltage 4.5 — 5.0 V?	Go to step 4.
			Replace the combination meter. <Ref. to IDI-18, REMOVAL, Combination Meter.>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step		Check	Yes	No
4	CHECK HARNESS. 1) Disconnect the connector from the A/C control panel. 2) Using a tester, check continuity between terminals. Connector & terminal (F78) No. 1 — (F78) No. 2:	Is there continuity?	Repair or replace the short circuit of the harness.	Replace the combination meter. <Ref. to IDI-18, REMOVAL, Combination Meter.>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

E: DTC B1434 AMBIENT TEMPERATURE SENSOR CIRCUIT WIRE BREAK

DTC DETECTING CONDITION:

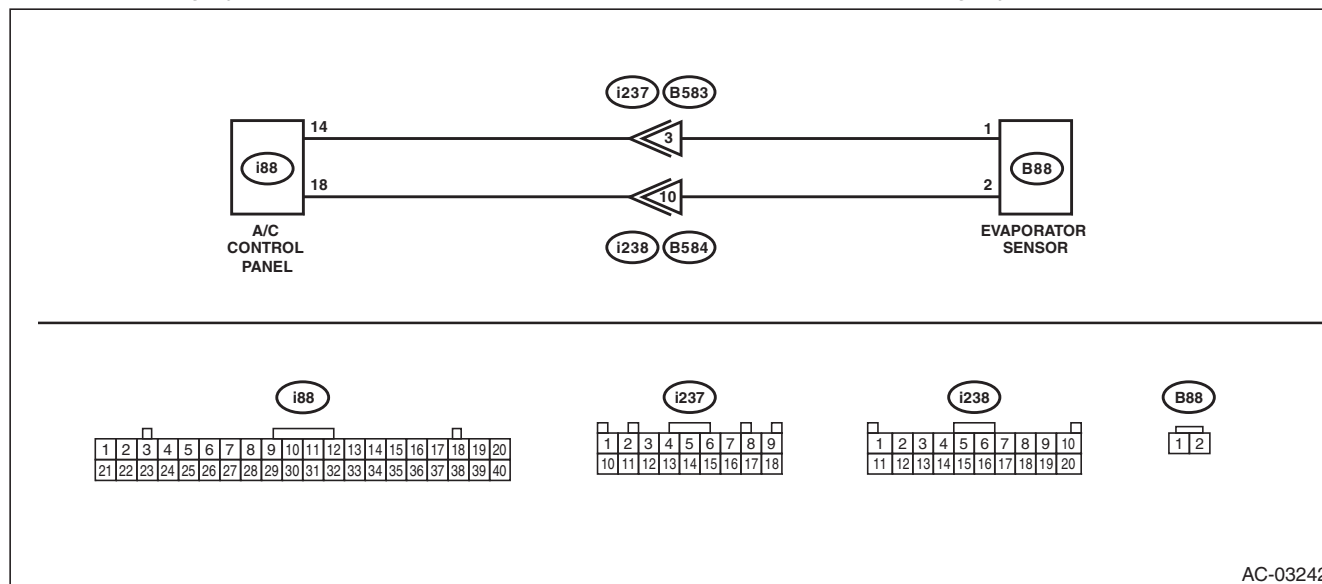
Evaporator sensor circuit is open.

TROUBLE SYMPTOM:

Evaporator temperature is falsely recognized as low, and the compartment temperature is adjusted.

WIRING DIAGRAM:

Air conditioning system <Ref. to WI-67, WIRING DIAGRAM, Air Conditioning System.>



Step	Check	Yes	No
1 CHECK CONNECTOR. 1) Check the condition of connector connection. 2) Read the DTC using Subaru Select Monitor.	Is B1434 displayed?	Go to step 2.	Check the connection of the evaporator sensor circuit.
2 CHECK EVAPORATOR SENSOR. 1) Disconnect the evaporator sensor. 2) Short the evaporator sensor connector (B88). 3) Read the DTC using Subaru Select Monitor.	Is B1435 displayed?	Replace the evaporator sensor. <Ref. to AC-62, REMOVAL, Evaporator.>	Go to step 3.
3 CHECK HARNESS. 1) Turn the ignition switch to ON. 2) Using the tester, measure the voltage between terminals. <i>Connector & terminal</i> <i>(B88) No. 2 (+) — No. 1 (-):</i>	Is the voltage 4.5 — 5.0 V?	Go to step 4.	Repair or replace the open circuit of harness.
4 CHECK HARNESS. 1) Disconnect the connector from the A/C control panel. 2) Using a tester, check continuity between terminals. <i>Connector & terminal</i> <i>(B88) No. 1 — (i88) No. 14:</i> <i>(B88) No. 2 — (i88) No. 18:</i>	Is there continuity?	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>	Repair or replace the open circuit of harness.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

F: DTC B1435 EVAPORATOR SENSOR CIRCUIT SHORT-CIRCUIT

DTC DETECTING CONDITION:

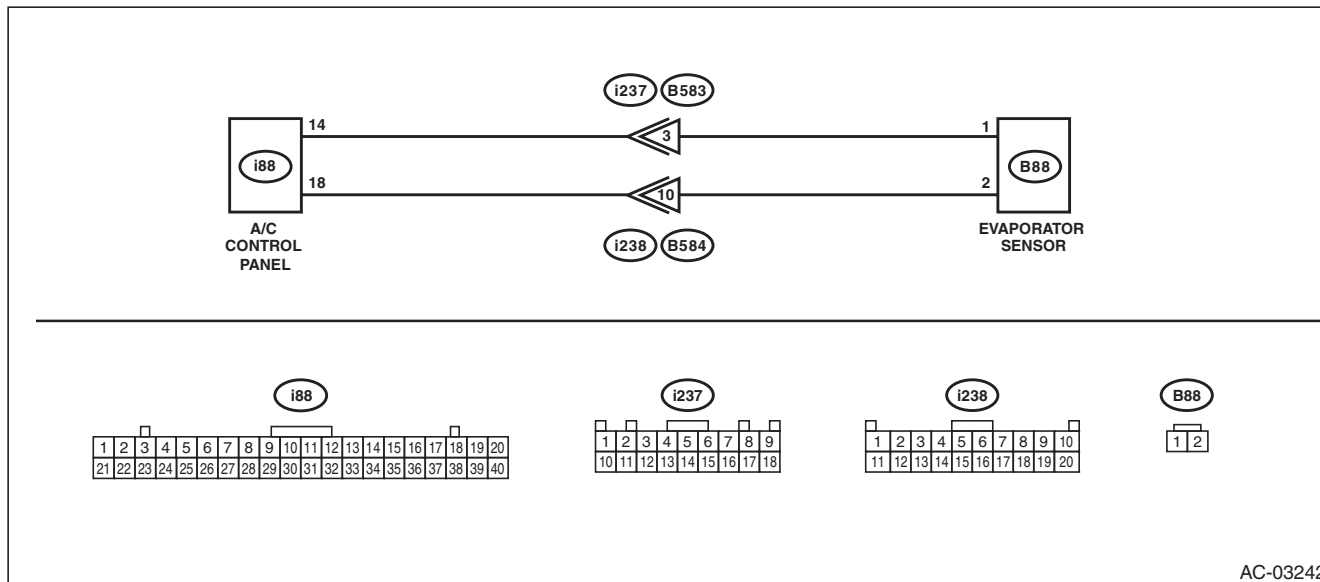
Evaporator sensor circuit is shorted.

TROUBLE SYMPTOM:

Evaporator temperature is falsely recognized as high, and the compartment temperature is adjusted.

WIRING DIAGRAM:

Air conditioning system <Ref. to WI-67, WIRING DIAGRAM, Air Conditioning System.>



Step	Check	Yes	No
1 CHECK CONNECTOR. 1) Check the condition of connector connection. 2) Read the DTC using Subaru Select Monitor.	Is B1435 displayed?	Go to step 2.	Check the connection of the evaporator sensor circuit.
2 CHECK EVAPORATOR SENSOR. 1) Disconnect the evaporator sensor. 2) Read the DTC using Subaru Select Monitor.	Is B1434 displayed?	Replace the evaporator sensor. <Ref. to AC-62, REMOVAL, Evaporator.>	Go to step 3.
3 CHECK HARNESS. 1) Turn the ignition switch to ON. 2) Using the tester, measure the voltage between terminals. Connector & terminal (B88) No. 2 (+) — No. 1 (–):	Is the voltage 4.5 — 5.0 V?	Check the connection of the evaporator sensor circuit.	Go to step 4.
4 CHECK HARNESS. 1) Disconnect the connector from the A/C control panel. 2) Using a tester, check continuity between terminals. Connector & terminal (B88) No. 1 — No. 2:	Is there continuity?	Repair or replace the short circuit of the harness.	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

G: DTC B14A1 SUNLOAD SENSOR CIRCUIT OPEN

DTC DETECTING CONDITION:

Sunload sensor circuit is open. (Displayed for current malfunction)

NOTE:

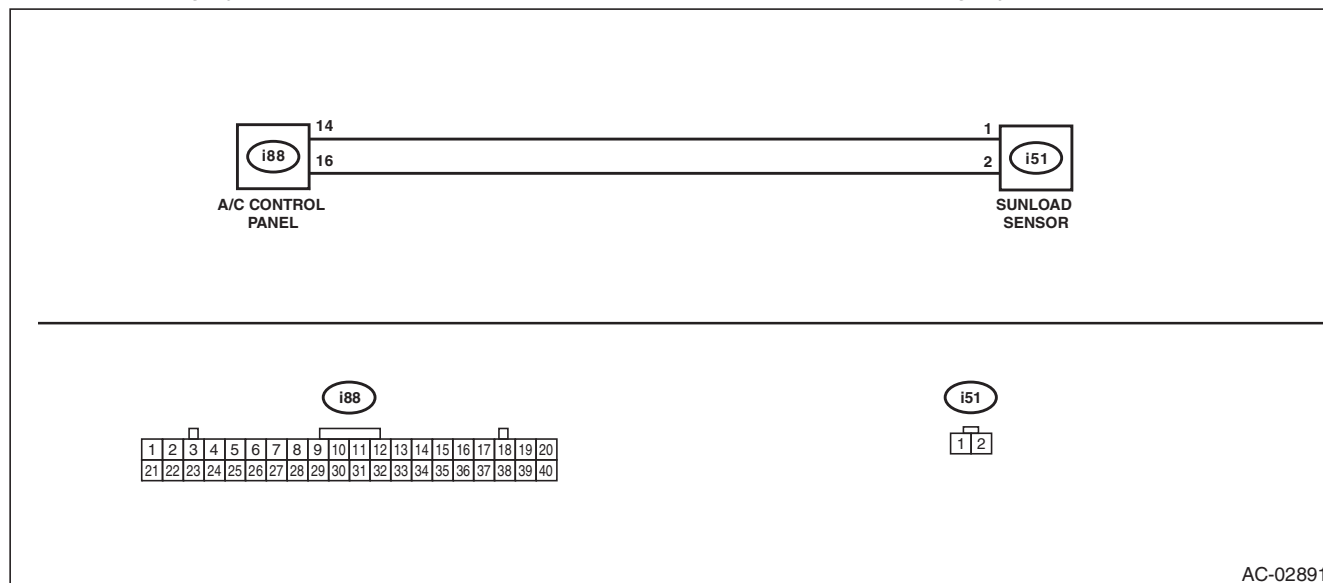
When the sunload sensor check is performed indoors or in the shade, it could be diagnosed as having an open circuit. Always check the sunload sensor in direct sunlight.

TROUBLE SYMPTOM:

Operation is performed as no sunload.

WIRING DIAGRAM:

Air conditioning system <Ref. to WI-67, WIRING DIAGRAM, Air Conditioning System.>



AC-02891

Step	Check	Yes	No
1 CHECK CONNECTOR. 1) Check the condition of connector connection. 2) Read the DTC using Subaru Select Monitor.	Is B14A1 displayed?	Go to step 2.	Check the connection of the sunload sensor circuit.
2 CHECK SUNLOAD SENSOR. 1) Disconnect the sunload sensor. 2) Short the connector. 3) Read the DTC using Subaru Select Monitor.	Is B14A2 displayed?	Replace the sunload sensor. <Ref. to AC-74, REMOVAL, Sunload Sensor (Auto A/C Model).>	Go to step 3.
3 CHECK HARNESS. 1) Turn the ignition switch to ON. 2) Using the tester, measure the voltage between terminals. Connector & terminal (i51) No. 2 (+) — No. 1 (-):	Is the voltage 4.5 — 5.0 V?	Go to step 4.	Repair or replace the open circuit of the harness.
4 CHECK HARNESS. 1) Disconnect the connector from the A/C control panel. 2) Using a tester, check continuity between terminals. Connector & terminal (i51) No. 1 — (i88) No. 14: (i51) No. 1 — (i88) No. 16:	Is there continuity?	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>	Repair or replace the short circuit of the harness.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

H: DTC B14A2 SUNLOAD SENSOR CIRCUIT SHORT

DTC DETECTING CONDITION:

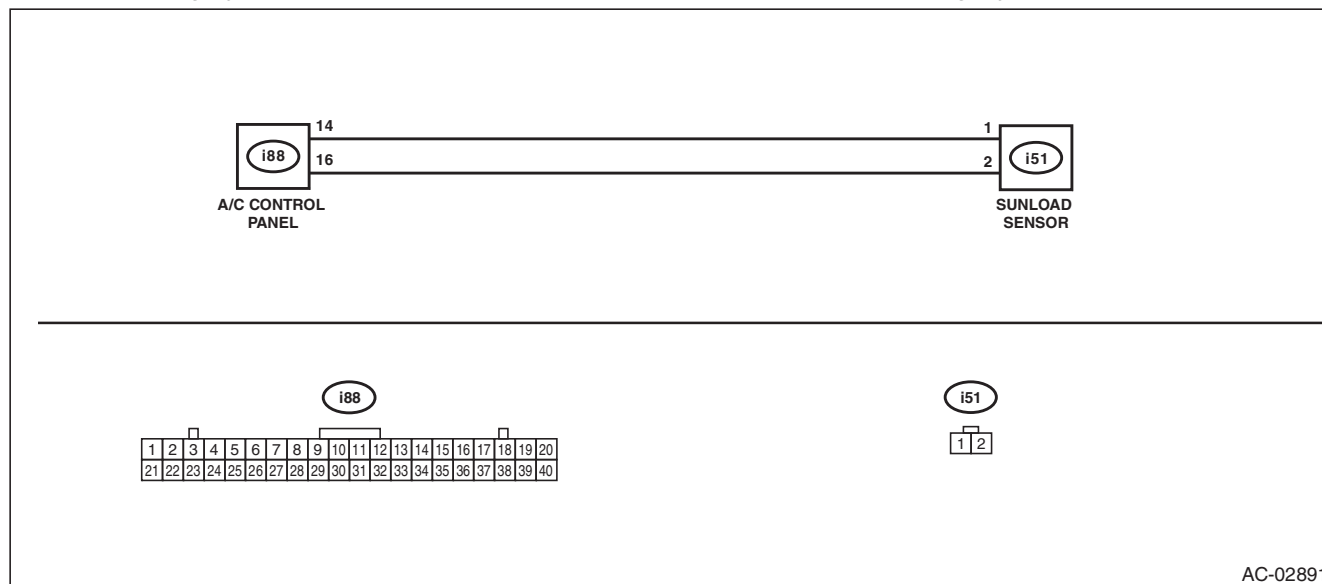
Sunload sensor circuit is shorted.

TROUBLE SYMPTOM:

Operation is performed as no sunload.

WIRING DIAGRAM:

Air conditioning system <Ref. to WI-67, WIRING DIAGRAM, Air Conditioning System.>



AC-02891

Step	Check	Yes	No
1 CHECK CONNECTOR. 1) Check the condition of connector connection. 2) Read the DTC using Subaru Select Monitor.	Is B14A2 displayed?	Go to step 2.	Check the connection of the sunload sensor circuit.
2 CHECK SUNLOAD SENSOR. 1) Disconnect the sunload sensor. 2) Read the DTC using Subaru Select Monitor.	Is B14A1 displayed?	Replace the sunload sensor. <Ref. to AC-74, REMOVAL, Sunload Sensor (Auto A/C Model).>	Go to step 3.
3 CHECK HARNESS. 1) Turn the ignition switch to ON. 2) Using the tester, measure the voltage between terminals. Connector & terminal (i51) No. 2 (+) — No. 1 (-):	Is the voltage 4.5 — 5.0 V?	Check the connection of the sunload sensor circuit.	Go to step 4.
4 CHECK HARNESS. 1) Disconnect the connector from the A/C control panel. 2) Using a tester, check continuity between terminals. Connector & terminal (i51) No. 1 — No. 2:	Is there continuity?	Repair or replace the short circuit of the harness.	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

I: DTC B14E1 AIR MIX DOOR ACTUATOR STEPPING MOTOR CIRCUIT WIRE BREAK (DRIVER'S SEAT)

DTC DETECTING CONDITION:

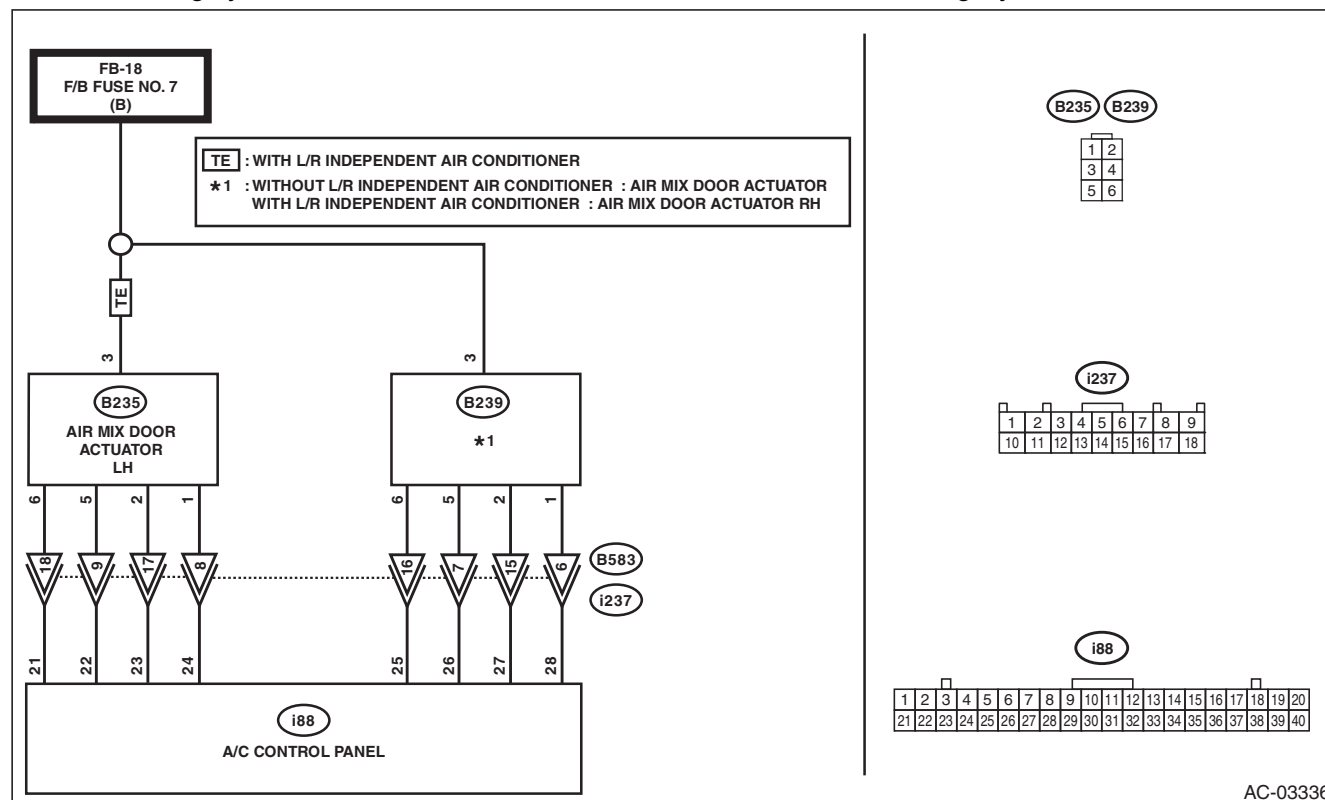
Air mix door actuator stepping motor circuit is open.

TROUBLE SYMPTOM:

Temperature cannot be adjusted.

WIRING DIAGRAM:

Air conditioning system <Ref. to WI-67, WIRING DIAGRAM, Air Conditioning System.>



AC-03336

Step	Check	Yes	No
1 CHECK CONNECTOR. 1) Check the condition of connector connection. 2) Read the DTC using Subaru Select Monitor.	Is B14E1 displayed?	Go to step 2.	Repair the poor contact of connector.
2 CHECK ACTUATOR. 1) Turn the ignition switch to OFF. 2) Disconnect the air mix door actuator connector. 3) Turn the ignition switch to ON. 4) Measure the voltage between the air mix door actuator connector terminal and chassis ground. Connector & terminal Without left/right independent air conditioning function (B239) No. 3 (+) — Chassis ground (-): With left/right independent air conditioning function (B235) No. 3 (+) — Chassis ground (-):	Is the voltage approx. 10 V or more?	Go to step 3.	Check the DC power supply circuit.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
3 CHECK AIR MIX DOOR ACTUATOR. 1) Turn the ignition switch to OFF. 2) Measure the resistance between air mix door actuator terminals using a tester. Connector & terminal Without left/right independent air conditioning function <i>(B239) No. 3 — No. 1:</i> <i>(B239) No. 3 — No. 2:</i> <i>(B239) No. 3 — No. 5:</i> <i>(B239) No. 3 — No. 6:</i> With left/right independent air conditioning function <i>(B235) No. 3 — No. 1:</i> <i>(B235) No. 3 — No. 2:</i> <i>(B235) No. 3 — No. 5:</i> <i>(B235) No. 3 — No. 6:</i>	Is the resistance 80 — 100 Ω?	Go to step 4.	Replace the actuator. <Ref. to AC-90, REMOVAL, Air Mix Door Actuator.>
4 CHECK HARNESS BETWEEN A/C CONTROL PANEL AND AIR MIX DOOR ACTUATOR. 1) Disconnect the A/C control panel connector. 2) Measure the resistance between A/C control panel and air mix door actuator connector. Connector & terminal Without left/right independent air conditioning function <i>(B239) No. 1 — (i88) No. 28:</i> <i>(B239) No. 2 — (i88) No. 27:</i> <i>(B239) No. 5 — (i88) No. 26:</i> <i>(B239) No. 6 — (i88) No. 25:</i> With left/right independent air conditioning function <i>(B235) No. 1 — (i88) No. 24:</i> <i>(B235) No. 2 — (i88) No. 23:</i> <i>(B235) No. 5 — (i88) No. 22:</i> <i>(B235) No. 6 — (i88) No. 21:</i>	Is there continuity?	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>	Repair or replace the open circuit of harness.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

J: DTC B14E2 AIR MIX DOOR ACTUATOR STEPPING MOTOR CIRCUIT SHORT-CIRCUIT (DRIVER'S SEAT)

DTC DETECTING CONDITION:

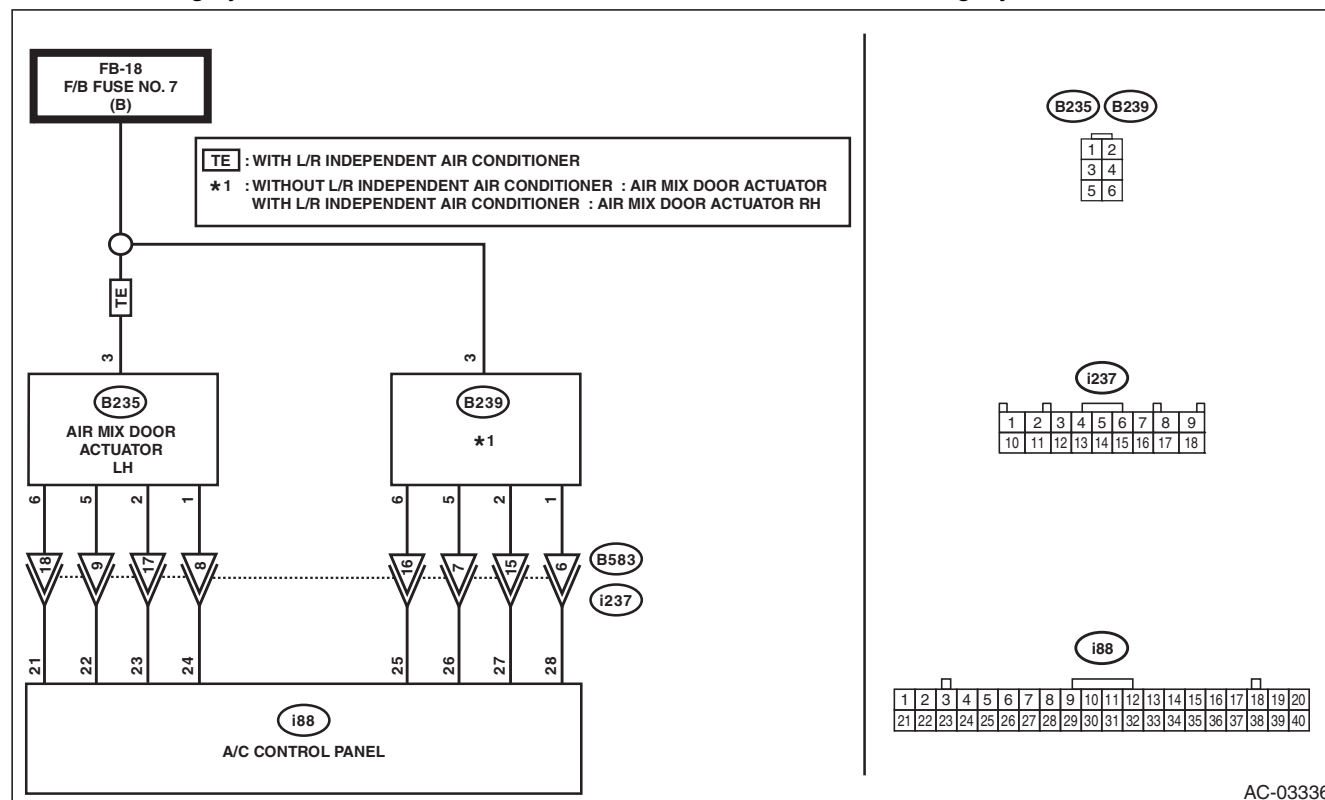
Air mix door actuator stepping motor circuit is shorted.

TROUBLE SYMPTOM:

Temperature cannot be adjusted.

WIRING DIAGRAM:

Air conditioning system <Ref. to WI-67, WIRING DIAGRAM, Air Conditioning System.>



Step	Check	Yes	No
1 CHECK CONNECTOR. 1) Check the condition of connector connection. 2) Read the DTC using Subaru Select Monitor.	Is B14E2 displayed?	Go to step 2.	Repair the poor contact of connector.
2 CHECK POWER SUPPLY OF AIR MIX DOOR ACTUATOR. 1) Turn the ignition switch to OFF. 2) Disconnect the air mix door actuator connector. 3) Turn the ignition switch to ON. 4) Measure the voltage between the air mix door actuator connector terminal and chassis ground. Connector & terminal Without left/right independent air conditioning function (B239) No. 3 (+) — Chassis ground (–): With left/right independent air conditioning function (B235) No. 3 (+) — Chassis ground (–):	Is the voltage approx. 10 V or more?	Go to step 3.	Check the DC power supply circuit.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
3 CHECK AIR MIX DOOR ACTUATOR. 1) Turn the ignition switch to OFF. 2) Measure the resistance between air mix door actuator terminals using a tester. Connector & terminal Without left/right independent air conditioning function (B239) No. 3 — No. 1: (B239) No. 3 — No. 2: (B239) No. 3 — No. 5: (B239) No. 3 — No. 6: With left/right independent air conditioning function (B235) No. 3 — No. 1: (B235) No. 3 — No. 2: (B235) No. 3 — No. 5: (B235) No. 3 — No. 6:	Is the resistance 80 — 100 Ω?	Go to step 4.	Replace the actuator. <Ref. to AC-90, REMOVAL, Air Mix Door Actuator.>
4 CHECK HARNESS BETWEEN A/C CONTROL PANEL AND AIR MIX DOOR ACTUATOR. 1) Disconnect the A/C control panel connector. 2) Measure the voltage between air mix door actuator connector and chassis ground. Connector & terminal Without left/right independent air conditioning function (B239) No. 1 (+) — Chassis ground (–): (B239) No. 2 (+) — Chassis ground (–): (B239) No. 5 (+) — Chassis ground (–): (B239) No. 6 (+) — Chassis ground (–): With left/right independent air conditioning function (B235) No. 1 (+) — Chassis ground (–): (B235) No. 2 (+) — Chassis ground (–): (B235) No. 5 (+) — Chassis ground (–): (B235) No. 6 (+) — Chassis ground (–):	Is there any voltage?	Repair or replace the short circuit of the harness.	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

K: DTC B14E3 AIR MIX DOOR ACTUATOR STEPPING MOTOR CIRCUIT WIRE BREAK (PASSENGER'S SEAT)

DTC DETECTING CONDITION:

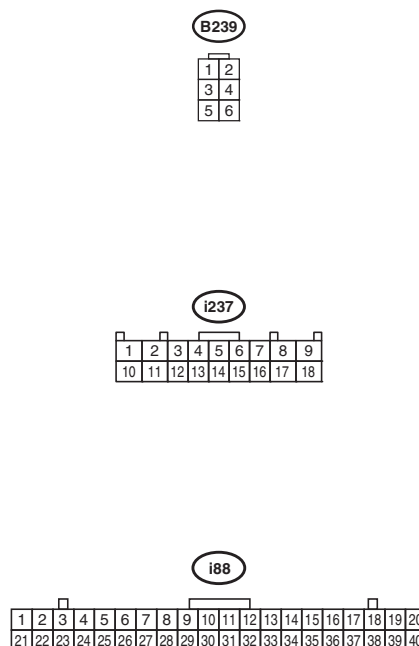
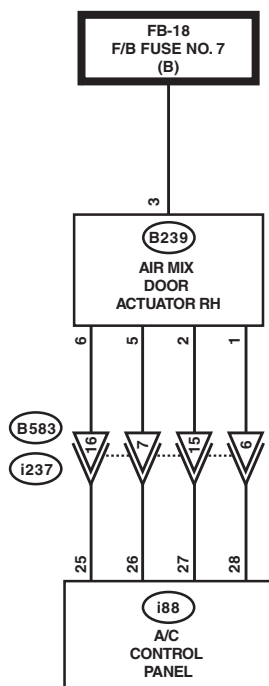
Air mix door actuator stepping motor circuit is open.

TROUBLE SYMPTOM:

Temperature cannot be adjusted.

WIRING DIAGRAM:

Air conditioning system <Ref. to WI-67, WIRING DIAGRAM, Air Conditioning System.>



AC-03243

Step	Check	Yes	No
1 CHECK CONNECTOR. 1) Check the condition of connector connection. 2) Read the DTC using Subaru Select Monitor.	Is B14E3 displayed?	Go to step 2.	Repair the poor contact of connector.
2 CHECK ACTUATOR. 1) Turn the ignition switch to OFF. 2) Disconnect the air mix door actuator connector. 3) Turn the ignition switch to ON. 4) Measure the voltage between the air mix door actuator connector terminal and chassis ground. Connector & terminal (B239) No. 3 (+) — Chassis ground (-):	Is the voltage approx. 10 V or more?	Go to step 3.	Check the DC power supply circuit.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
3 CHECK AIR MIX DOOR ACTUATOR. 1) Turn the ignition switch to OFF. 2) Measure the resistance between air mix door actuator terminals using a tester. Connector & terminal <i>(B239) No. 3 — No. 1:</i> <i>(B239) No. 3 — No. 2:</i> <i>(B239) No. 3 — No. 5:</i> <i>(B239) No. 3 — No. 6:</i>	Is the resistance 80 — 100 Ω ?	Go to step 4.	Replace the actuator. <Ref. to AC-90, REMOVAL, Air Mix Door Actuator.>
4 CHECK HARNESS BETWEEN A/C CONTROL PANEL AND AIR MIX DOOR ACTUATOR. 1) Disconnect the A/C control panel connector. 2) Measure the resistance between A/C control panel and air mix door actuator connector. Connector & terminal <i>(B239) No. 1 — (i88) No. 28:</i> <i>(B239) No. 2 — (i88) No. 27:</i> <i>(B239) No. 5 — (i88) No. 26:</i> <i>(B239) No. 6 — (i88) No. 25:</i>	Is there continuity?	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>	Repair or replace the open circuit of harness.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

L: DTC B14E4 AIR MIX DOOR ACTUATOR STEPPING MOTOR CIRCUIT SHORT-CIRCUIT (PASSENGER'S SEAT)

DTC DETECTING CONDITION:

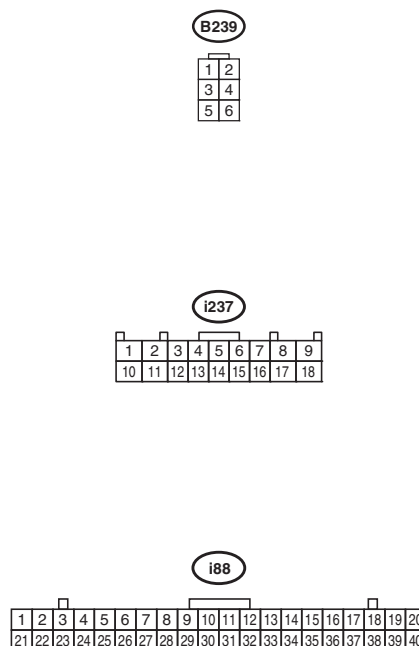
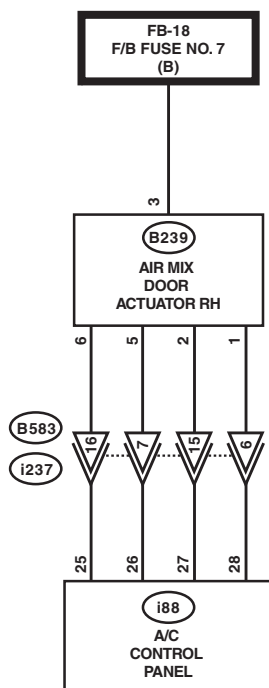
Air mix door actuator stepping motor circuit is shorted.

TROUBLE SYMPTOM:

Temperature cannot be adjusted.

WIRING DIAGRAM:

Air conditioning system <Ref. to WI-67, WIRING DIAGRAM, Air Conditioning System.>



AC-03243

Step	Check	Yes	No
1 CHECK CONNECTOR. 1) Check the condition of connector connection. 2) Read the DTC using Subaru Select Monitor.	Is B14E4 displayed?	Go to step 2.	Repair the poor contact of connector.
2 CHECK POWER SUPPLY OF AIR MIX DOOR ACTUATOR. 1) Turn the ignition switch to OFF. 2) Disconnect the air mix door actuator connector. 3) Turn the ignition switch to ON. 4) Measure the voltage between the air mix door actuator connector terminal and chassis ground. Connector & terminal (B239) No. 3 (+) — Chassis ground (—):	Is the voltage approx. 10 V or more?	Go to step 3.	Check the DC power supply circuit.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
3 CHECK AIR MIX DOOR ACTUATOR. 1) Turn the ignition switch to OFF. 2) Measure the resistance between air mix door actuator terminals using a tester. <i>Connector & terminal</i> <i>(B239) No. 3 — No. 1:</i> <i>(B239) No. 3 — No. 2:</i> <i>(B239) No. 3 — No. 5:</i> <i>(B239) No. 3 — No. 6:</i>	Is the resistance 80 — 100 Ω ?	Go to step 4.	Replace the actuator. <Ref. to AC-90, REMOVAL, Air Mix Door Actuator.>
4 CHECK HARNESS BETWEEN A/C CONTROL PANEL AND AIR MIX DOOR ACTUATOR. 1) Disconnect the A/C control panel connector. 2) Measure the voltage between air mix door actuator connector and chassis ground. <i>Connector & terminal</i> <i>(B239) No. 1 (+) — Chassis ground (-):</i> <i>(B239) No. 2 (+) — Chassis ground (-):</i> <i>(B239) No. 5 (+) — Chassis ground (-):</i> <i>(B239) No. 6 (+) — Chassis ground (-):</i>	Is there any voltage?	Repair or replace the short circuit of the harness.	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>



Diagnostic Procedure with Diagnostic Trouble Code (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

M: DTC B14E5 MODE DOOR ACTUATOR STEPPING MOTOR CIRCUIT WIRE BREAK

DTC DETECTING CONDITION:

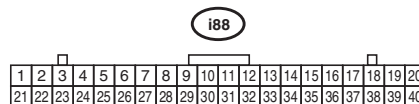
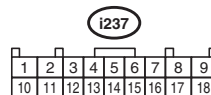
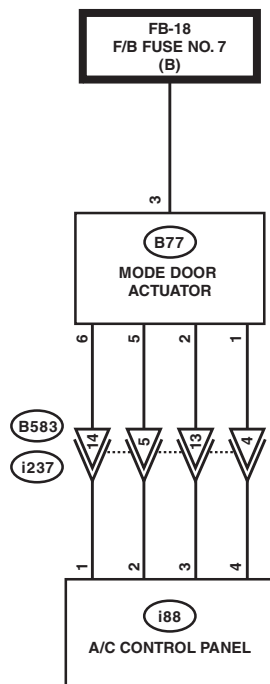
Mode door actuator stepping motor circuit is open.

TROUBLE SYMPTOM:

Vent does not change.

WIRING DIAGRAM:

Air conditioning system <Ref. to WI-67, WIRING DIAGRAM, Air Conditioning System.>



AC-03337

Step	Check	Yes	No
1 CHECK CONNECTOR. 1) Check the condition of connector connection. 2) Read the DTC using Subaru Select Monitor.	Is B14E5 displayed?	Go to step 2.	Repair the poor contact of connector.
2 CHECK ACTUATOR. 1) Turn the ignition switch to OFF. 2) Disconnect the mode door actuator connector. 3) Turn the ignition switch to ON. 4) Measure the voltage between the mode door actuator connector terminal and chassis ground. Connector & terminal (B77) No. 3 (+) — Chassis ground (-):	Is the voltage approx. 10 V or more?	Go to step 3.	Check the DC power supply circuit.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
3 CHECK AIR MIX DOOR ACTUATOR. 1) Turn the ignition switch to OFF. 2) Measure the resistance between mode door actuator terminals using a tester. <i>Connector & terminal</i> <i>(B77) No. 3 — No. 1:</i> <i>(B77) No. 3 — No. 2:</i> <i>(B77) No. 3 — No. 5:</i> <i>(B77) No. 3 — No. 6:</i>	Is the resistance 80 — 100 Ω ?	Go to step 4.	Replace the actuator. <Ref. to AC-88, REMOVAL, Mode Door Actuator.>
4 CHECK HARNESS BETWEEN A/C CONTROL PANEL AND MODE DOOR ACTUATOR. 1) Disconnect the A/C control panel connector. 2) Measure the resistance between A/C control panel and air mix door actuator connector. <i>Connector & terminal</i> <i>(B77) No. 1 — (i88) No. 4:</i> <i>(B77) No. 2 — (i88) No. 3:</i> <i>(B77) No. 5 — (i88) No. 2:</i> <i>(B77) No. 6 — (i88) No. 1:</i>	Is there continuity?	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>	Repair or replace the open circuit of harness.



Diagnostic Procedure with Diagnostic Trouble Code (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

N: DTC B14E6 MODE DOOR ACTUATOR STEPPING MOTOR CIRCUIT SHORT-CIRCUIT

DTC DETECTING CONDITION:

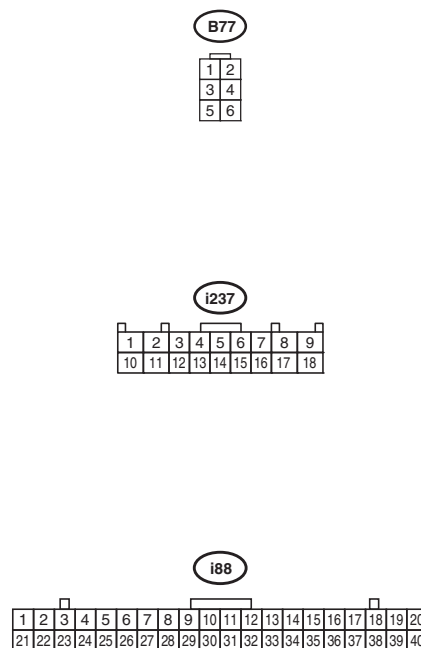
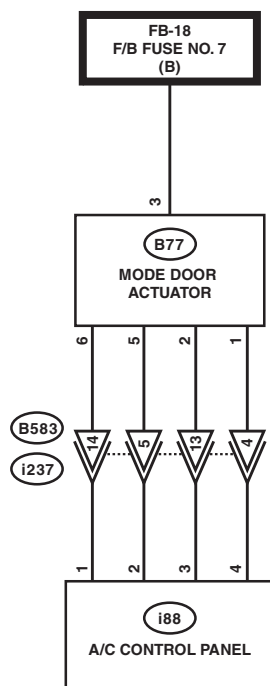
Mode door actuator stepping motor circuit is shorted.

TROUBLE SYMPTOM:

Vent does not change.

WIRING DIAGRAM:

Air conditioning system <Ref. to WI-67, WIRING DIAGRAM, Air Conditioning System.>



AC-03337

Step	Check	Yes	No	
1	CHECK CONNECTOR. 1) Check the condition of connector connection. 2) Read the DTC using Subaru Select Monitor.	Is B14E6 displayed?	Go to step 2.	Repair the poor contact of connector.
2	CHECK POWER SUPPLY FOR MODE DOOR ACTUATOR. 1) Turn the ignition switch to OFF. 2) Disconnect the mode door actuator connector. 3) Turn the ignition switch to ON. 4) Measure the voltage between the mode door actuator connector terminal and chassis ground. Connector & terminal (B77) No. 3 (+) — Chassis ground (–):	Is the voltage approx. 10 V or more?	Go to step 3.	Check the DC power supply circuit.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
3 CHECK MODE DOOR ACTUATOR. 1) Turn the ignition switch to OFF. 2) Measure the resistance between mode door actuator terminals using a tester. Connector & terminal (B77) No. 3 — No. 1: (B77) No. 3 — No. 2: (B77) No. 3 — No. 5: (B77) No. 3 — No. 6:	Is the resistance 80 — 100 Ω ?	Go to step 4.	Replace the actuator. <Ref. to AC-88, REMOVAL, Mode Door Actuator.>
4 CHECK HARNESS BETWEEN A/C CONTROL PANEL AND MODE DOOR ACTUATOR. 1) Disconnect the A/C control panel connector. 2) Measure the voltage between mode door actuator connector and chassis ground. Connector & terminal (B77) No. 1 (+) — Chassis ground (-): (B77) No. 2 (+) — Chassis ground (-): (B77) No. 5 (+) — Chassis ground (-): (B77) No. 6 (+) — Chassis ground (-):	Is there any voltage?	Repair or replace the short circuit of the harness.	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>



Diagnostic Procedure with Diagnostic Trouble Code (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

O: DTC B14E9 INTAKE DOOR ACTUATOR POTENTIOMETER CIRCUIT WIRE BREAK

DTC DETECTING CONDITION:

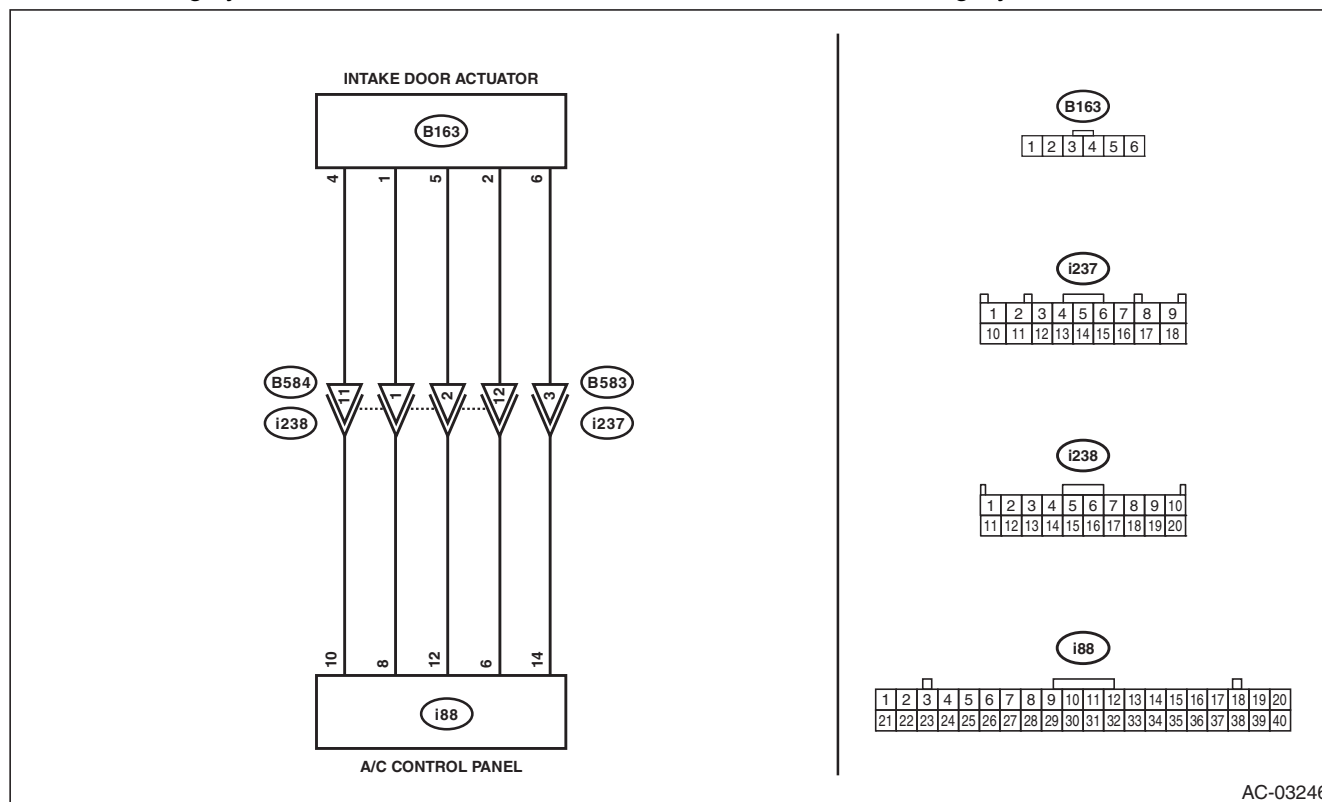
Intake door actuator potentiometer circuit is open.

TROUBLE SYMPTOM:

FRESH/RECIRC does not operate.

WIRING DIAGRAM:

Air conditioning system <Ref. to WI-67, WIRING DIAGRAM, Air Conditioning System.>



AC-03246

Step	Check	Yes	No
1	CHECK CONNECTOR. 1) Check the condition of connector connection. 2) Read the DTC using Subaru Select Monitor.	Go to step 2.	Repair the poor contact of connector.
2	CHECK HARNESS. 1) Turn the ignition switch to ON. 2) Using the tester, measure the voltage between terminals. Connector & terminal (B163) No. 4 (+) — No. 6 (-):	Go to step 3.	Repair or replace the open circuit of harness.
3	CHECK HARNESS. 1) Turn the ignition switch to OFF. 2) Using a tester, check continuity between terminals. Connector & terminal (B163) No. 1 — (i88) No. 8: (B163) No. 2 — (i88) No. 6: (B163) No. 4 — (i88) No. 10: (B163) No. 5 — (i88) No. 12: (B163) No. 6 — (i88) No. 14:	Go to step 4.	Repair or replace the open circuit of harness.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

	Step	Check	Yes	No
4	CHECK ACTUATOR. 1) Turn the ignition switch to ON. 2) Using the tester, measure the voltage between terminals. Connector & terminal (B163) No. 5 (+) — No. 6 (-):	Is the voltage 0.5 — 4.5 V?	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>	Go to step 5.
5	CHECK HARNESS. 1) Turn the ignition switch to OFF. 2) Using the tester, measure the resistance between terminals. Connector & terminal (B163) No. 4 — No. 5:	Is the resistance less than 1 Ω ?	Repair or replace the short circuit of the harness.	Replace the actuator. <Ref. to AC-83, REMOVAL, FRESH/RECIRC Door Actuator.>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

P: DTC B14EA INTAKE DOOR ACTUATOR POTENTIOMETER CIRCUIT SHORT-CIRCUIT

DTC DETECTING CONDITION:

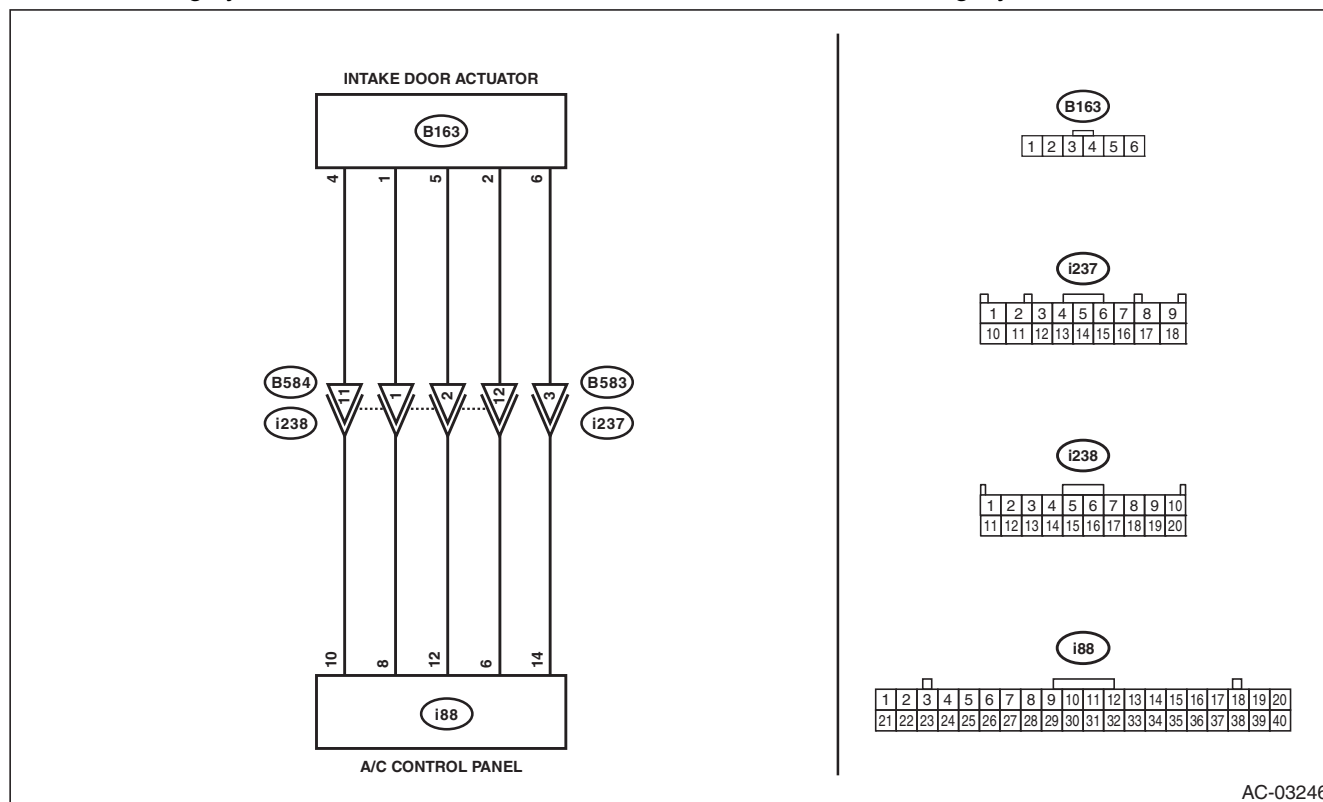
Intake door actuator potentiometer circuit is shorted.

TROUBLE SYMPTOM:

FRESH/RECIRC does not operate.

WIRING DIAGRAM:

Air conditioning system <Ref. to WI-67, WIRING DIAGRAM, Air Conditioning System.>



AC-03246

Step	Check	Yes	No
1 CHECK CONNECTOR. 1) Check the condition of connector connection. 2) Read the DTC using Subaru Select Monitor.	Is B14EA displayed?	Go to step 2.	Repair the poor contact of connector.
2 CHECK ACTUATOR. 1) Turn the ignition switch to ON. 2) Using the tester, measure the voltage between terminals. Connector & terminal (B163) No. 4 (+) — No. 6 (–):	Is the voltage 4.5 — 5.0 V?	Go to step 3.	Repair or replace the open circuit of harness.
3 CHECK HARNESS. 1) Turn the ignition switch to OFF. 2) Using a tester, check continuity between terminals. Connector & terminal (B163) No. 4 — (i88) No. 10: (B163) No. 5 — (i88) No. 12: (B163) No. 6 — (i88) No. 14:	Is there continuity?	Go to step 4.	Repair or replace the open circuit of harness.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

	Step	Check	Yes	No
4	CHECK ACTUATOR. 1) Turn the ignition switch to ON. 2) Using the tester, measure the voltage between terminals. Connector & terminal (B163) No. 5 (+) — No. 6 (-):	Is the voltage 0.5 — 4.5 V?	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>	Go to step 5.
5	CHECK HARNESS. 1) Turn the ignition switch to OFF. 2) Using the tester, measure the resistance between terminals. Connector & terminal (B163) No. 5 — No. 6:	Is the resistance less than 1 Ω ?	Repair or replace the short circuit of the harness.	Replace the actuator. <Ref. to AC-83, REMOVAL, FRESH/RECIRC Door Actuator.>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Q: DTC B14EB INTAKE DOOR ACTUATOR LOCK

DTC DETECTING CONDITION:

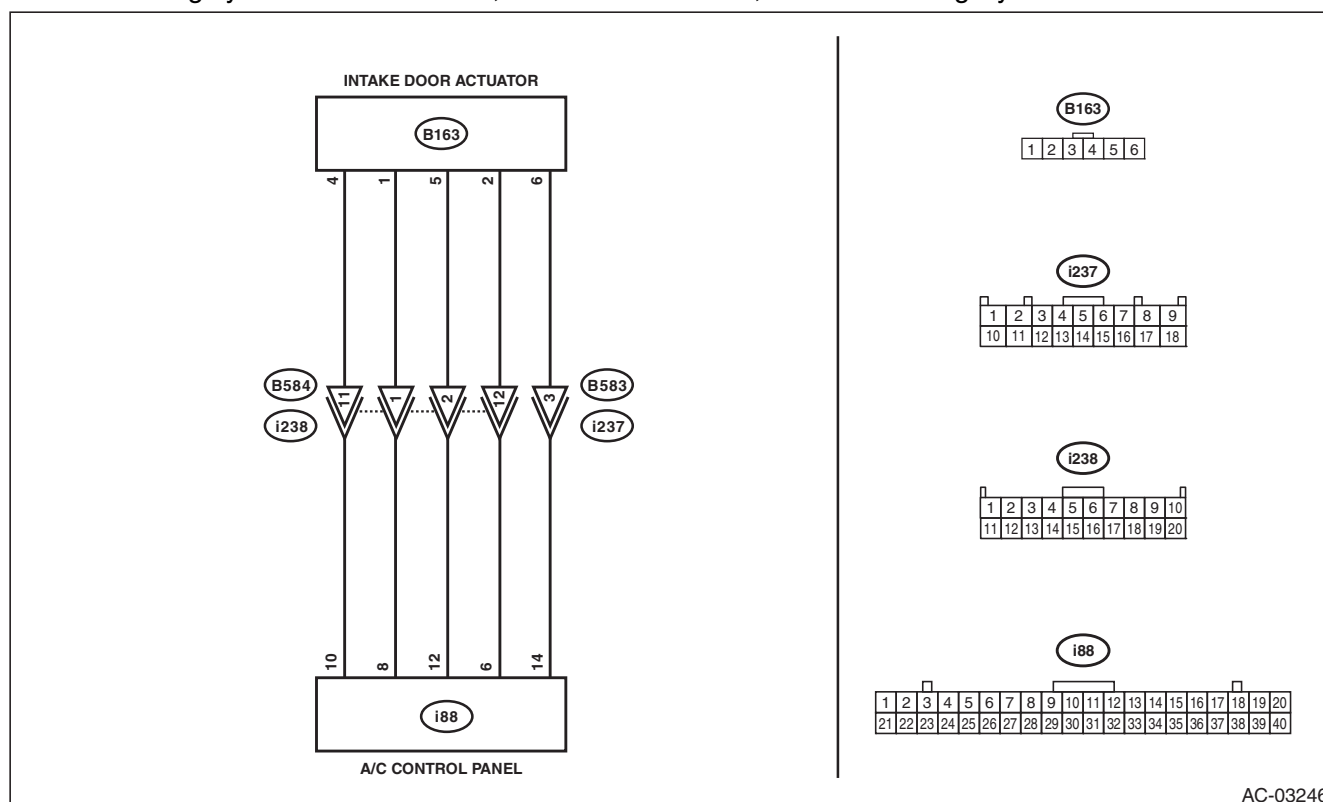
- Intake door actuator is locked.
- The potentiometer value of the actuator does not change.

TROUBLE SYMPTOM:

FRESH/RECIRC does not operate.

WIRING DIAGRAM:

Air conditioning system <Ref. to WI-67, WIRING DIAGRAM, Air Conditioning System.>



AC-03246

	Step	Check	Yes	No
1	CHECK CONNECTOR. 1) Check the condition of connector connection. 2) Read the DTC using Subaru Select Monitor.	Is B14EB displayed?	Go to step 2.	Repair the poor contact of connector.
2	CHECK CURRENT DATA. Using the Subaru Select Monitor, change the setting of “Fresh/Rec Air Dr Act Trgt Open Angle” from Air Conditioning Diagnosis and perform the active test.	Did the actuator move to the specified target opening angle?	Intake door actuator circuit is normal.	Go to step 3.
3	CHECK HARNESS. 1) Turn the ignition switch to ON. 2) Using the tester, measure the voltage between terminals. Connector & terminal (i176) No. 4 (+) — No. 6 (-):	Is the voltage 4.5 — 5.0 V?	Go to step 4.	Repair or replace the open circuit of harness.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
4 CHECK HARNESS. 1) Disconnect the connector from the A/C control panel. 2) Using a tester, check continuity between terminals. <i>Connector & terminal</i> <i>(i163) No. 1 — (i88) No. 8:</i> <i>(i163) No. 2 — (i88) No. 6:</i> <i>(i163) No. 4 — (i88) No. 10:</i> <i>(i163) No. 5 — (i88) No. 12:</i> <i>(i163) No. 6 — (i88) No. 14:</i>	Is there continuity?	Go to step 5.	Repair or replace the open circuit of harness.
5 CHECK INTAKE DOOR ACTUATOR. Check the intake door actuator parts.	Is the actuator normal?	Replace the A/C control panel. <Ref. to AC-48, REMOVAL, Control Panel.>	Replace the actuator. <Ref. to AC-83, REMOVAL, FRESH/RECIRC Door Actuator.>

R: DTC U0073 CONTROL MODULE COMMUNICATION BUS “A” OFF

Detected when defective CAN line is detected.

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

S: DTC U0100 LOST COMMUNICATION WITH ECM/PCM “A”

Detected when CAN data is not received from engine control module (ECM).

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

T: DTC U0101 LOST COMMUNICATION WITH TCM

Detected when CAN data is not received from TCM.

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

U: DTC U0122 LOST COMMUNICATION WITH VEHICLE DYNAMICS CONTROL MODULE

Detected when CAN data is not received from VDC.

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

V: DTC U0140 LOST COMMUNICATION WITH BODY CONTROL MODULE

This is detected when CAN signal is not received from BIU.

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

W: DTC U0155 LOST COMMUNICATION WITH INSTRUMENT PANEL CLUSTER (IPC) CONTROL MODULE

This is detected when CAN signal is not received from meter.

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

X: DTC U0401 INVALID DATA RECEIVED FROM ECM/PCM “A”

This is detected when CAN data from engine control module (ECM) is abnormal.

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>



Diagnostic Procedure with Diagnostic Trouble Code (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Y: DTC U0402 INVALID DATA RECEIVED FROM TCM

This is detected when CAN data from TCM is abnormal.

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

Z: DTC U0416 INVALID DATA RECEIVED FROM VEHICLE DYNAMICS CONTROL MODULE

This is detected when CAN data from VDC is abnormal.

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

AA:DTC U0422 INVALID DATA RECEIVED FROM BODY CONTROL MODULE

This is detected when CAN data from BIU is abnormal.

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

AB:DTC U0423 INVALID DATA RECEIVED FROM INSTRUMENT PANEL CLUSTER CONTROL MODULE

This is detected when CAN data from meter is abnormal.

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

