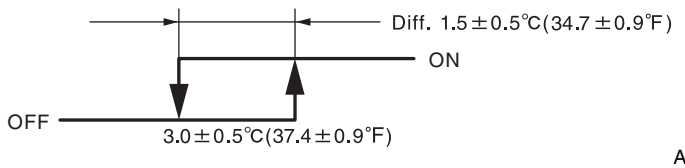
1. General Description

A: SPECIFICATIONS

1. HEATER SYSTEM

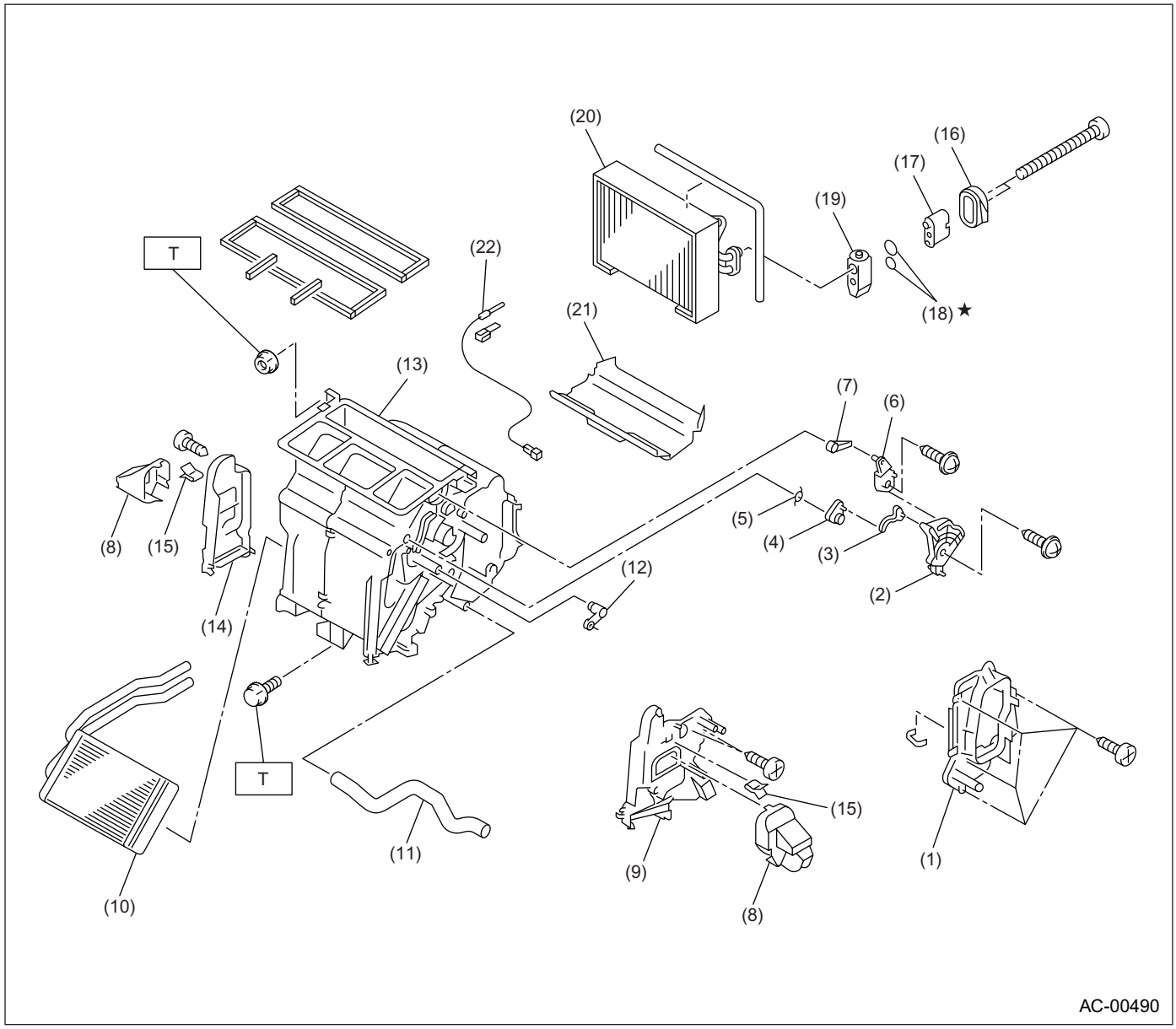
Item		Specifications	Condition
Heating capacity		5.0 kW (4,300 kcal/h, 17,062 BTU/h) or more	• Mode selector switch: HEAT • Temperature control switch: FULL HOT • Temperature difference between hot water and inlet air: 65°C (149°F) • Hot water flow rate: 360 ℓ (95.1 US gal, 79.2 Imp gal)/h
Air flow rate		280 m^3 (9,888 cu ft)/h	Heat mode (FRESH), FULL HOT at 12.5 V
Max air flow rate		450 m^3 (15,892 cu ft)/h	• Temperature control switch: FULL COLD • Blower fan speed: 4th position • Mode selector lever: RECIRC
Heater core size (height × length × width)		163.9 × 200 × 25.0 mm (6.45 × 7.87 × 0.984 in)	—
Blower motor	Type	Magnet motor 200 W or less	at 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			5.1 kW (4,385 kcal/h, 17,402 BTU/h)
Refrigerant			HFC-134a (CH_2FCF_3) [0.5±0.05 kg (0.99±0.11 lb)]
Compressor		Type	Vane rotary, fix volume (CR-14)
		Discharge	144 cm^3 (8.79 cu in)/rev
		Max. permissible speed	7,000 rpm
Magnet clutch		Type	Dry, single-disc type
		Power consumption	47 W
		Type of belt	V-Ribbed 4 PK
		Pulley dia. (effective dia.)	125 mm (4.92 in)
		Pulley ratio	1.064
Condenser		Type	Corrugated fin (Sub cool type)
		Core face area	0.21 m^2 (2.26 sq ft)
		Core thickness	16 mm (0.63 in)
		Radiation area	5.34 m^2 (57.5 sq ft)
Receiver drier		Effective inner capacity	250 cm^3 (15.26 cu in)
Expansion valve		Type	Internal equalizing
Evaporator		Type	Single tank
		Dimensions (W × H × T)	255 × 200 × 48 mm (10 × 7.87 × 1.89 in)
Blower fan		Fan type	Sirocco fan
		Outer diameter × width	150 × 75 mm (5.91 × 2.95 in)
		Power consumption	200 W at 12 V
Condenser fan (Sub fan)		Motor type	Magnet
		Power consumption	70 W at 12 V
		Fan outer diameter	320 mm (12.6 in)
Radiator fan (Main fan)		Motor type	Magnet
		Power consumption	70 W at 12 V
		Fan outer diameter	320 mm (12.6 in)
Idling speed (A/C ON)		MPFI model	850±100 rpm
Dual switch (Pressure switch)	Low-pressure switch operating pressure	ON → OFF	278±29 kPa (2.83±0.3 kg/cm^2, 40.3±4.2 psi)
		OFF → ON	$287^{+39}/_{-25}$ kPa ($2.9^{+0.4}/_{-0.25}$ kg/cm^2, $42^{+5.7}/_{-3.6}$ psi)
	High-pressure switch operating pressure	ON → OFF	2,800±100 kPa (29±1 kg/cm^2, 406±15 psi)
		DIFF	600±200 kPa (6.12±2 kg/cm^2, 87±29 psi)
Thermo control amplifier working temperature (Evaporator outlet air)			 AC-00489

B: COMPONENT

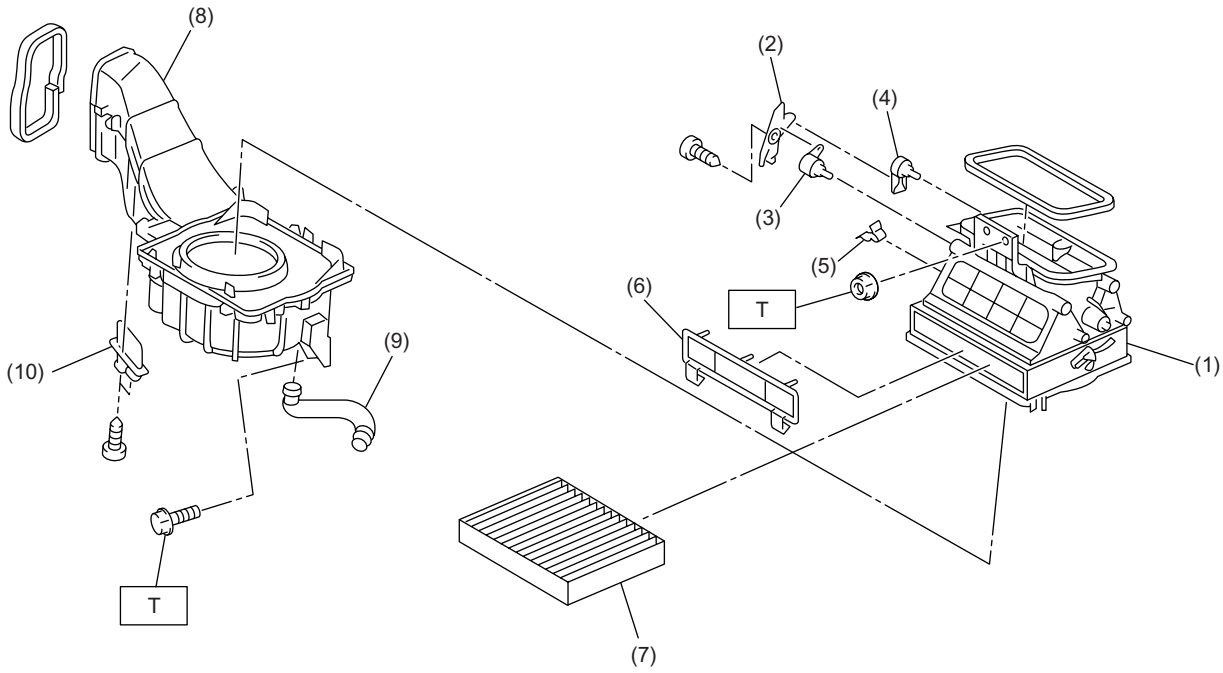
1. HEATER COOLING UNIT



(1) Unit cover
(2) Side link
(3) Mode acutuator lever
(4) Foot lever
(5) Spring
(6) Mode acutuator link
(7) Defroster lever
(8) Foot nozzle
(9) Unit duct cover
(10) Heater core
(11) Drain hose
(12) Mix acutuator lever
(13) Unit assembly
(14) Foot duct
(15) Clip
(16) Packing
(17) Cooling unit block
(18) O-ring
(19) Expansion valve
(20) Evaporator
(21) Evaporator cover
(22) Thermistor

Tightening torque: N·m (kgf-m, ft-lb)
T: 7.35 (0.750, 5.421)

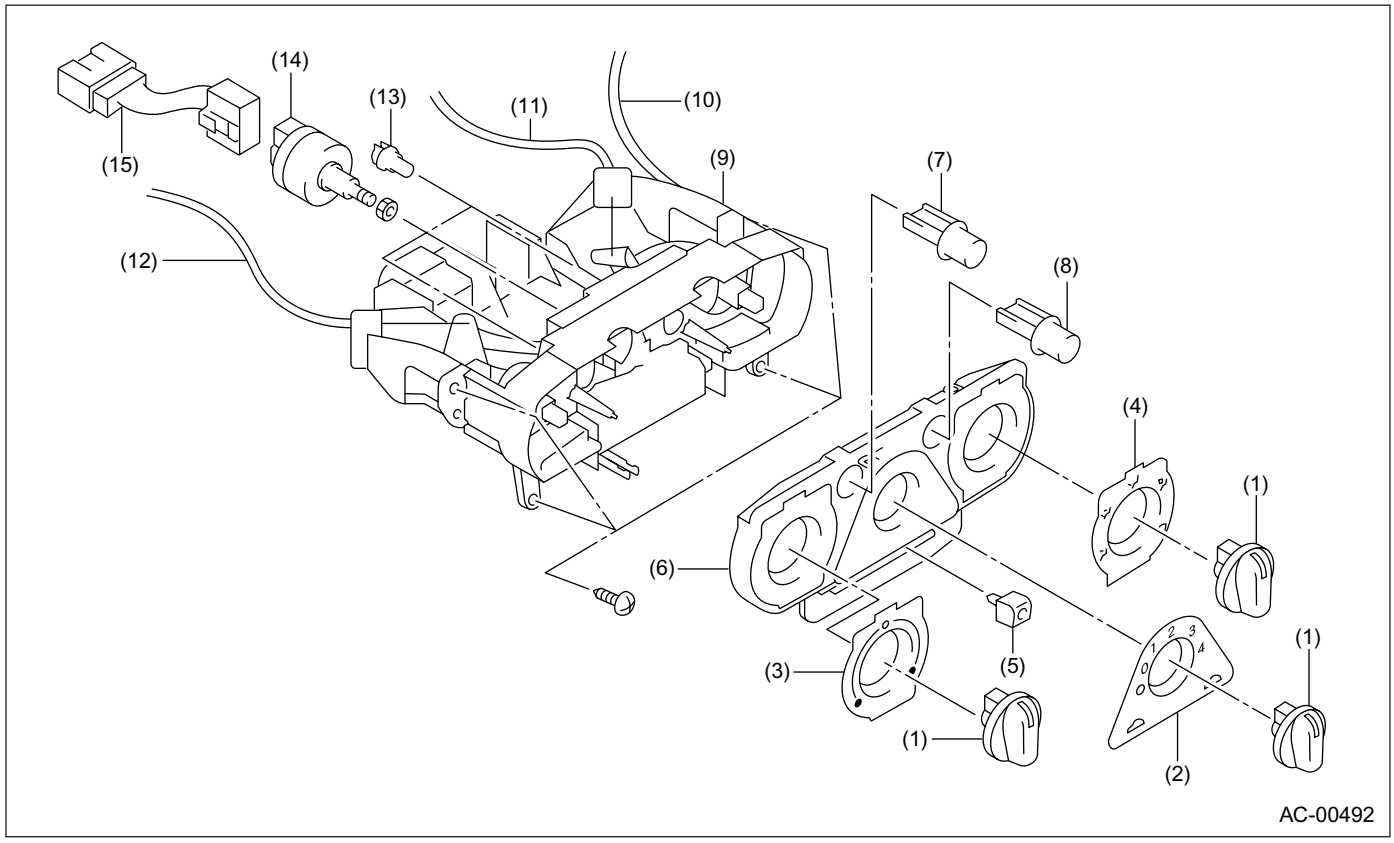
2. BLOWER MOTOR UNIT



(1) Upper case
(2) Blower link
(3) Blower link lever A
(4) Blower link lever B
(5) Clip
(6) Filter cover
(7) Filter
(8) Blower motor assembly
(9) Hose
(10) Blower resistor

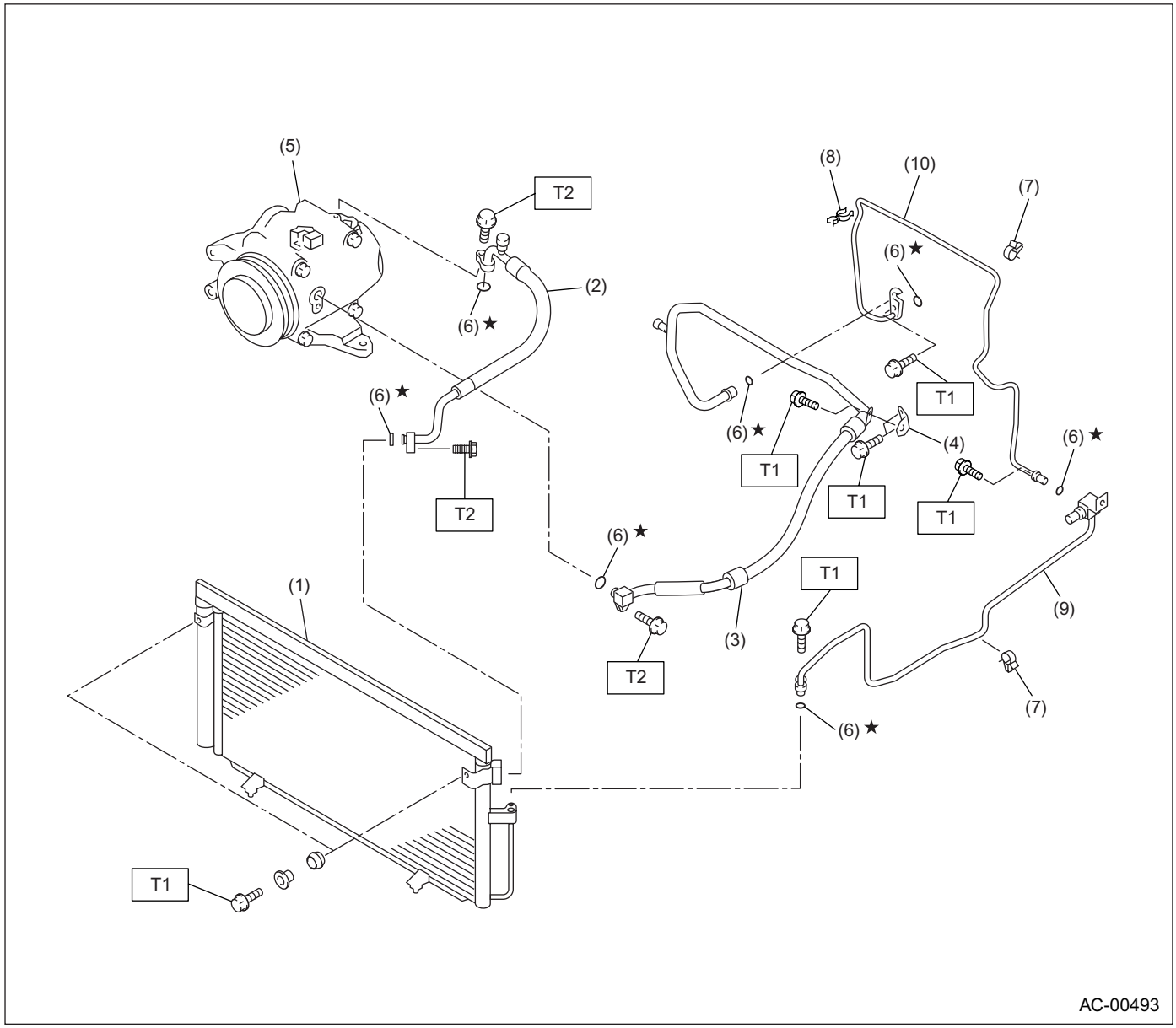
Tightening torque: N·m (kgf-m, ft-lb)
T: 7.35 (0.750, 5.421)

3. CONTROL UNIT



(1)	Dial	(6)	Heater control panel	(11)	Mode cable
(2)	Fan control plate	(7)	Air conditioner knob	(12)	Temperature cable
(3)	Temperature control plate	(8)	Plug knob	(13)	Bulb
(4)	Mode control plate	(9)	Heater control base	(14)	Fan switch ASSY
(5)	Heater control knob	(10)	Intake cable	(15)	Harness

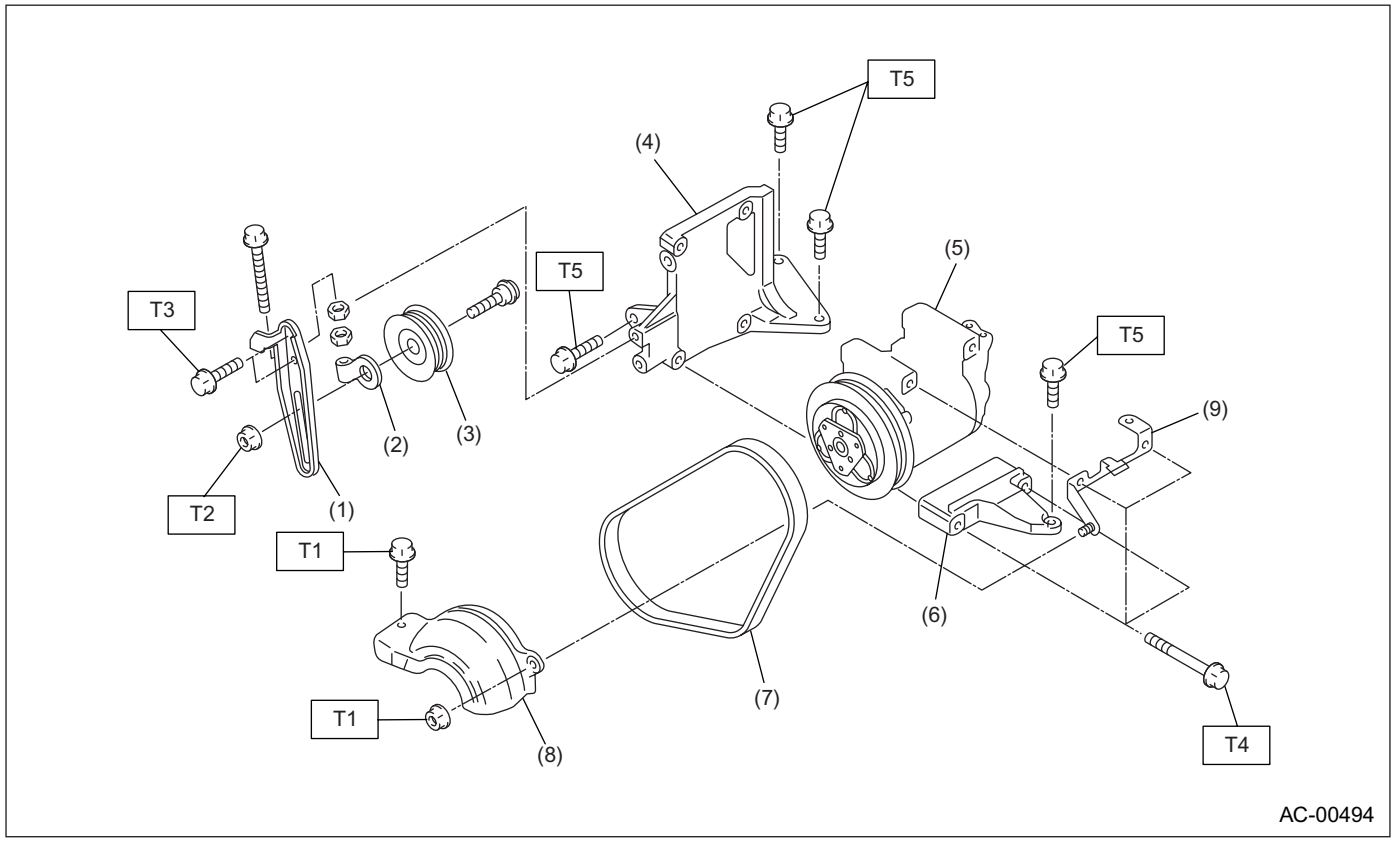
4. AIR CONDITIONING UNIT



(1)	Condenser	(6)	O-ring
(2)	Hose (High-pressure)	(7)	Clamp A
(3)	Hose (Low-pressure)	(8)	Clamp B
(4)	Bracket	(9)	Tube (To condenser)
(5)	Compressor	(10)	Tube (To evaporator)

Tightening torque: N·m (kgf-m, ft-lb)
T1: 7.4 (0.75, 5.4)
T2: 15 (1.5, 10.8)

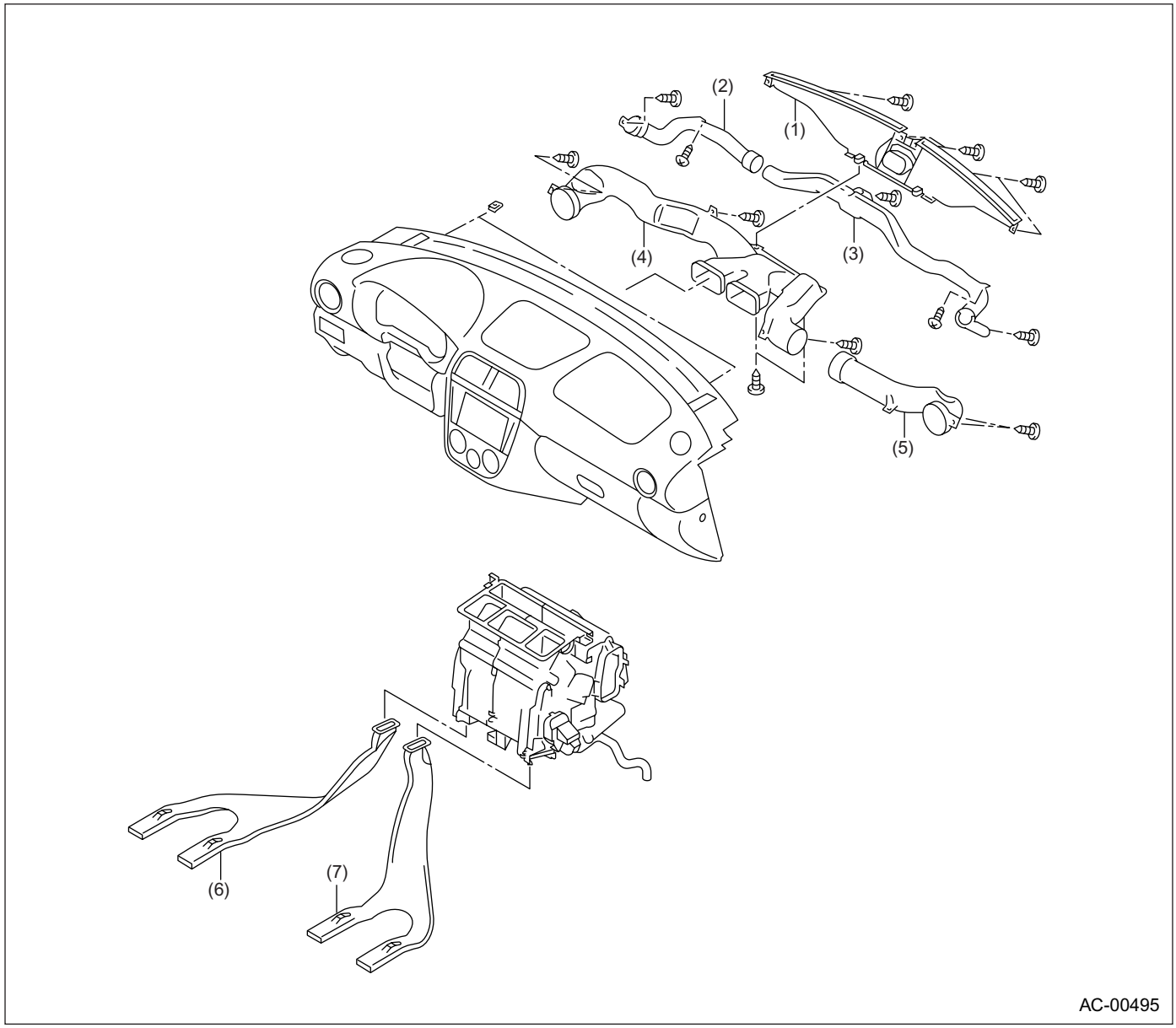
5. COMPRESSOR



(1) Idler pulley bracket
(2) Idler pulley adjuster
(3) Idler pulley
(4) Compressor bracket upper
(5) Compressor
(6) Compressor bracket lower
(7) V-belt
(8) Compressor belt cover

Tightening torque: N·m (kgf-m, ft-lb)
T1: 7.4 (0.75, 5.4)
T2: 22.6 (2.3, 16.6)
T3: 23.0 (2.35, 17.0)
T4: 28.9 (2.95, 21.3)
T5: 35 (3.6, 26)

6. HEATER DUCT

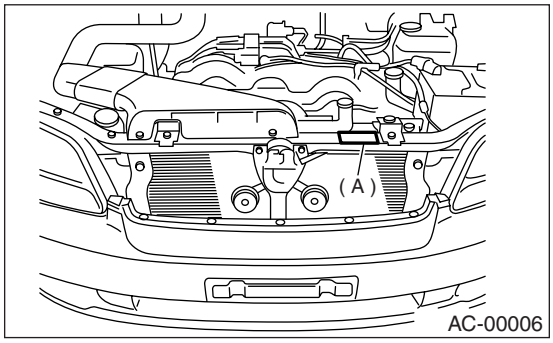


(1) Front defroster nozzle
(2) Side defroster duct (LH)
(3) Side defroster duct (RH)
(4) Side ventilation duct (LH)
(5) Side ventilation duct (RH)
(6) Rear heater duct (LH)
(7) Rear heater duct (RH)

C: CAUTION

1. HFC-134A A/C SYSTEM

• Unlike the old conventional HFC-12 system components, the cooling system components for the HFC-134a system such as the refrigerant and compressor oil are incompatible.
• Vehicles with the HFC-134a system can be identified by the label “A” attached to the vehicle.
Before maintenance, check which A/C system is installed in the vehicle.



2. COMPRESSOR OIL

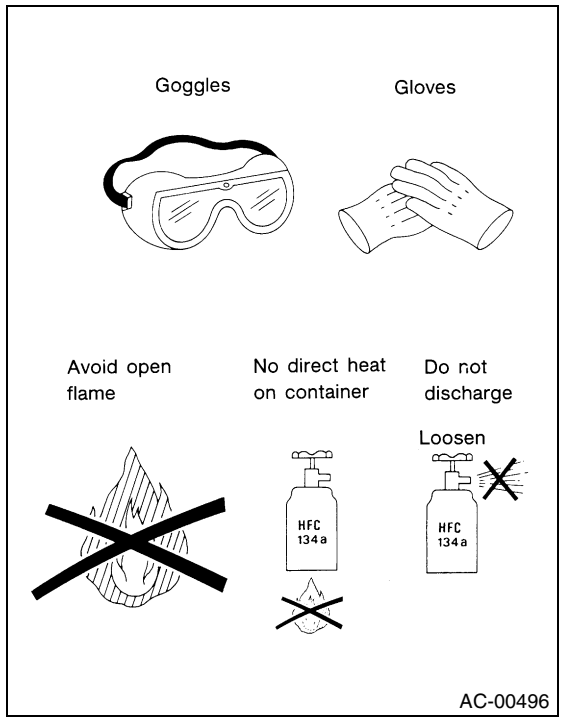
• HFC-134a compressor oil has no compatibility with that for R12 system.
• Use only the manufacturer-authorized compressor oil for the HFC-134a system; only use DH-PR.
• Do not mix multiple compressor oils.
If HFC-12 compressor oil is used in a HFC-134a A/C system, the compressor may become stuck due 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 HFC-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 the atmosphere using a plug or tape. In order to avoid moisture, store the oil in a container with its cap tightly closed.

3. REFRIGERANT

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

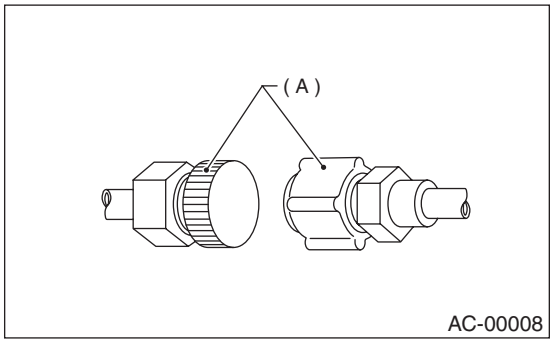
4. HANDLING OF REFRIGERANT

• The refrigerant boils at approx. –30°C (–22°F). When handling it, be sure to wear safety 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 hot water in 40°C (104°F) max.
• 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 the manifold gauge. The high-pressure gas will back-flow resulting in an explosion of the can.
• The refrigerant is non-toxic and harmless under normal operating circumstance, but it may change to phosgene (a noxious fume) under open flames or high temperatures (caused by a cigarette or heater).
• Provide good ventilation and do not work in a closed area.
• Never perform a gas leak test using a halide torch-type leak tester.
• In order to avoid destroying the ozone layer, prevent HFC-134a from being released into the atmosphere. Using a refrigerant recovery system, discharge and reuse it.



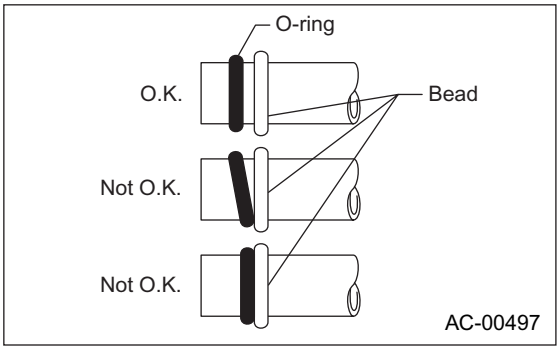
5. O-RING CONNECTIONS

- Use new O-rings.
- In order to keep the O-rings free of lint which will cause a refrigerant gas leak, perform operations without gloves and shop towels.
- Apply the compressor oil to the O-rings to avoid sticking, then install them.
- Use a torque wrench to tighten the O-ring fittings: Over-tightening will damage the O-ring and tube end distortion.
- If the operation is interrupted before completing a pipe connection, recap the tubes, components, and fittings with a plug or tape to prevent contamination from entering.



(A) Seal

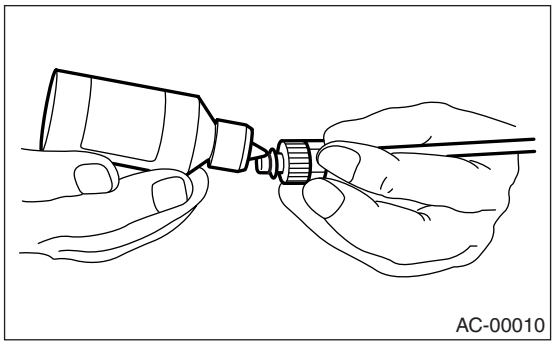
- Visually check the surfaces and mating surfaces of O-rings, threads, and connecting points. If a failure is found, replace the applicable parts.
- Install the O-rings at right angle to the tube beads.



- Use the oil specified in the service manual to lubricate the O-rings.

Apply the oil to the top and sides of the O-rings before installation.

Apply the oil to the area including the O-rings and tube beads.



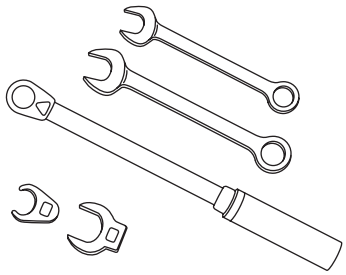
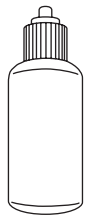
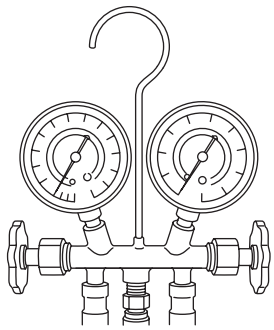
- After tightening, use a clean shop towel to remove excess oil from the connections and any oil which may have run on the vehicle body or other parts.
- If any leakage is suspected after tightening, do not retighten the connections, Disconnect the connections, remove the O-rings, and check the O-rings, threads, and connections.

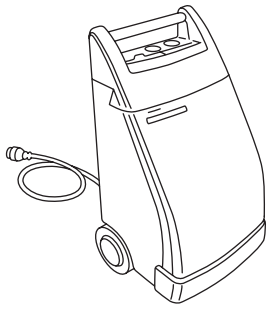
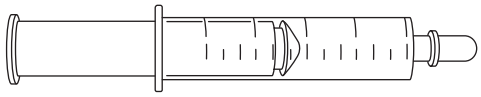
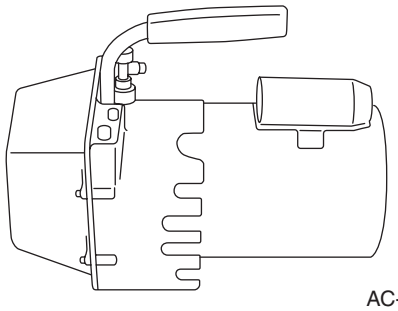
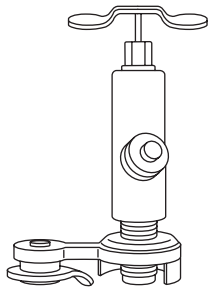
D: PREPARATION TOOL

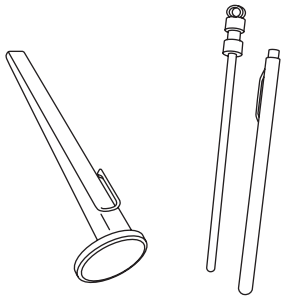
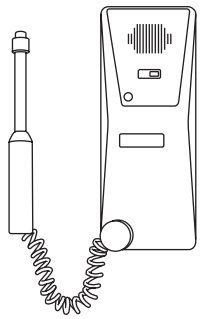
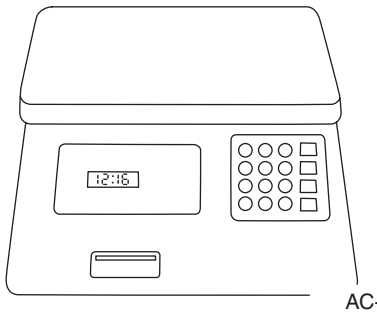
CAUTION:
When working on vehicles with the HFC-134a system, only use HFC-134a specified tools and parts. Do not mix with CFC-12 tools and parts. If HFC-134a and CFC-12 refrigerant or compressor oil is mixed, poor lubrication will result and the compressor itself may be destroyed.

In order to help prevent mixing HFC-134a and CFC-12 parts and liquid, the tool and screw type and the type of service 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

Tools and Equipment	Description
Wrench Various **WRENCHES** will be required to service any A/C system. A 7 to 40 N·m (0.7 to 4.1 kg-m, 5 to 30 ft-lb) torque wrench with various crowfoot wrenches will be needed. Open end or flare nut wrenches will be needed for back-up on the tube and hose fittings.	 AC-00213
Applicator bottle A small **APPLICATOR BOTTLE** is recommended to apply refrigerant oil to the various parts. They can be obtained at a hardware or drug store.	 AC-00012
Manifold gauge set A **MANIFOLD GAUGE SET** (with hoses) can be obtained from either a commercial refrigeration supply house or from an auto shop equipment supplier.	 AC-00013

Tools and Equipment	Description
Refrigerant recovery system A **REFRIGERANT RECOVERY SYSTEM** is used for the recovery and reuse of A/C system refrigerant after contaminants and moisture have been removed from the refrigerant.	 AC-00014
Syringe A graduated plastic **SYRINGE** will be needed to add oil back into the system. The syringe can be found at a pharmacy or drug store.	 AC-00015
Vacuum pump A **VACUUM PUMP** (in good working condition) is necessary, and may be obtained from either a commercial refrigeration supply house or an automotive equipment supplier.	 AC-00016
Can tap A **CAN TAP** for the 397 g (14 oz) can is available from an auto supply store.	 AC-00017

Tools and Equipment	Description
Thermometer Pocket **THERMOMETERS** are available from either industrial hardware store or commercial refrigeration supply houses.	 AC-00018
Electronic leak detector An **ELECTRONIC LEAK DETECTOR** can be obtained from either a specialty tool supply or an A/C equipment supplier.	 AC-00019
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.	 AC-00020