1. General Description

A: SPECIFICATION

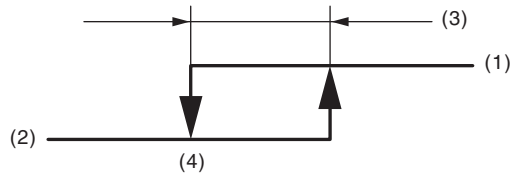
1. HEATER SYSTEM

Item		Specification	Condition
Heating capacity		5.2 kW (4,471 kcal/h, 17,743 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		340 m^3 (11,301 cu ft)/h	Heat mode (FRESH), FULL HOT at 12.5 V
Max air flow rate		550 m^3 (16,245 cu ft)/h	• Temperature control switch: FULL COLD • Blower fan speed: 6th position • Mode selector lever: RECIRC
Heater core size (height × length × width)		264 × 110 × 27 mm (10.4 × 4.33 × 1.06 in)	—
Blower motor	Type	Brush motor 260 W or less	12 V
	Fan type and size (diameter × width)	Sirocco fan type 165 × 70 mm (6.50 × 2.76 in)	—

2. A/C SYSTEM

- Single A/C model (front only)

Item			Specification
Type of air conditioner			Reheat air-mix type
Cooling capacity			6.2 kW (5,331 kcal/h, 21,154 BTU/h)
Refrigerant			HFC-134a (CH_2FCF_3) 20 — 22 oz (0.57 — 0.63 kg, 1.26 — 1.39 lb)
Compressor		Type	Inclined plate (SWASH PLATE), fixed capacity (10SR17), Temperature fuse
		Exhaust	177 cc (10.80 cu in)/rev
		Max. permissible speed	6,000 rpm
Magnet clutch		Type	Dry, single-disc type
		Power consumption	35 W
		Type of belt	V-belt 6 PK
		Pulley dia. (effective dia.)	115 mm (4.53 in)
		Pulley ratio	1.24
Condenser		Type	Corrugated fin (Sub cool type)
		Core face area	0.29 m^2 (3.122 sq ft)
		Core thickness	16 mm (0.63 in)
		Radiation area	7.65 m^2 (82.35 sq ft)
Receiver drier		Effective inner capacity	280 cm^3 (17.1 cu in)
Expansion valve		Type	Box time (external pressure equalizing type)
Evaporator		Type	Single tank
		Dimensions (W × H × T)	293.1 × 211 × 38 mm (11.54 × 8.31 × 1.50 in)
Blower fan		Fan type	Sirocco fan
		Outer diameter × width	165 × 70 mm (6.50 × 2.76 in)
		Power consumption	260 W
Condenser fan (Sub fan)		Motor type	Magnet
		Power consumption	200 W
		Fan outer diameter	320 mm (12.6 in)
Radiator fan (Main fan)		Motor type	Magnet
		Power consumption	200 W
		Fan outer diameter	320 mm (12.6 in)
Idling speed (A/C ON)		MPFI model	800±100 rpm
Triple switch (Pressure switch)	Low-pressure switch operating pressure	ON → OFF	196±20 kPa (2.00±0.20 kg/cm^2, 28.4±2.9 psi)
		OFF → ON	225^{+25}_{-29} kPa ($2.29^{+0.25}_{-0.30}$ kg/cm^2, $32.6^{+3.6}_{-4.2}$ psi)
	High-pressure switch operating pressure	ON → OFF	$3{,}140^{+50}_{-200}$ kPa ($32.02^{+0.51}_{-2.04}$ kg/cm^2, $455.4^{+7.25}_{-29.0}$ psi)
		OFF → ON	2,550±200 kPa (26.00±2.04 kg/cm^2, 369.8±29.0 psi)
	Middle-pressure switch operating pressure	ON → OFF	1,370±120 kPa (13.97±1.22 kg/cm^2, 198.65±17.35 psi)
		OFF → ON	1,770±80 kPa (18.05±0.82 kg/cm^2, 256.81±11.60 psi)

Item	Specification
Thermo-control amplifier working temperature (Evaporator outlet air)	 AC-00601 (1) ON (2) OFF (3) 1°C (33.8°F) (4) $1.5^{+8.0}$°C ($34.7^{+46.4}$°F)

- Dual A/C model (Front A/C and Rear cooler)

Item			Specification
Type of air conditioner		Front	Reheat air-mix type
		Rear	Cooler
Cooling capacity			7.2 kW (6,191 kcal/h, 24.56 BTU/h)
Refrigerant			HFC-134a (CH_2FCF_3) 30 — 32 oz (0.84 — 0.90 kg, 1.85 — 1.98 lb)
Compressor		Type	Inclined plate (SWASH PLATE), fixed capacity (10SR17), Temperature fuse
		Exhaust	177 cc (10.80 cu in)/rev
		Max. permissible speed	6,000 rpm
Magnet clutch		Type	Dry, single-disc type
		Power consumption	35 W
		Type of belt	V-belt 6 PK
		Pulley dia. (effective dia.)	115 mm (4.53 in)
		Pulley ratio	1.24
Condenser		Type	Corrugated fin (Sub cool type)
		Core face area	0.29 m^2 (3.122 sq ft)
		Core thickness	16 mm (0.63 in)
		Radiation area	7.65 m^2 (82.35 sq ft)
Receiver drier		Effective inner capacity	280 cc (17.1 cu in)
Expansion valve	Front	Type	Box time (external pressure equalizing type)
	Rear	Type	
Evaporator	Front	Type	Single tank
		Dimensions (W × H × T)	293.1 × 211 × 38 mm (11.54 × 8.31 × 1.50 in)
	Rear	Type	Single tank
		Dimensions (W × H × T)	132.1 × 181 × 38 mm (5.2 × 7.13 × 1.50 in)
Blower fan	Front	Fan type	Sirocco fan
		Outer diameter × width	165 × 70 mm (6.49 × 2.76 in)
		Power consumption	260 W
	Rear	Fan type	Sirocco fan
		Outer diameter × width	150 × 70 mm (5.91 × 2.76 in)
		Power consumption	150 W or less
Condenser fan (Sub fan)		Motor type	Magnet
		Power consumption	200 W
		Fan outer diameter	320 mm (12.6 in)
Radiator fan (Main fan)		Motor type	Magnet
		Power consumption	200 W
		Fan outer diameter	320 mm (12.6 in)
Idling speed (A/C ON)		MPFI model	800±100 rpm

<table>
<tr><th colspan="3">Item</th><th>Specification</th></tr>
<tr><td rowspan="6">Triple switch (Pressure switch)</td><td rowspan="2">Low-pressure switch operating pressure</td><td>ON → OFF</td><td>196±20 kPa
(2.00±0.20 kg/cm^2, 28.4±2.9 psi)</td></tr>
<tr><td>OFF → ON</td><td>225^{+25}_{-29} kPa
($2.29^{+0.25}_{-0.30}$ kg/cm^2, $32.6^{+3.6}_{-4.2}$ psi)</td></tr>
<tr><td rowspan="2">High-pressure switch operating pressure</td><td>ON → OFF</td><td>$3{,}140^{+50}_{-200}$ kPa
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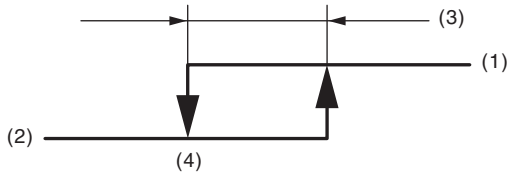
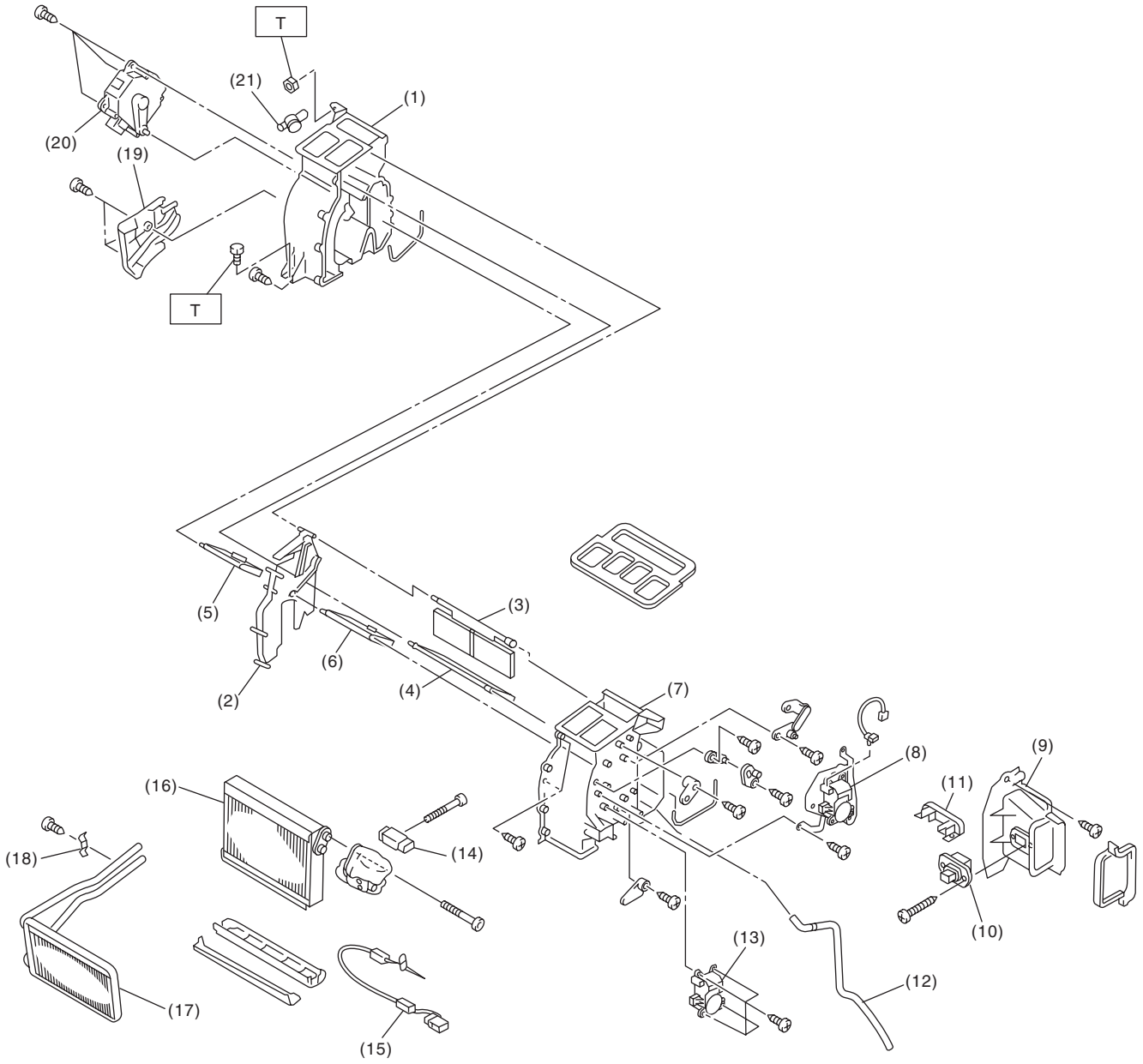
(13.97±1.22 kg/cm^2, 198.65±17.35 psi)</td></tr>
<tr><td>OFF → ON</td><td>1,770±80 kPa
(18.05±0.82 kg/cm^2, 256.81±11.60 psi)</td></tr>
<tr><td colspan="3">Thermo-control amplifier working temperature
(Evaporator outlet air)</td><td> 

AC-00601
(1) ON
(2) OFF
(3) 1°C (33.8°F)
(4) $1.5^{+0.8}$°C ($34.7^{+46.4}$°F)</td></tr>
</table>

B: COMPONENT

1. HEATER COOLING UNIT



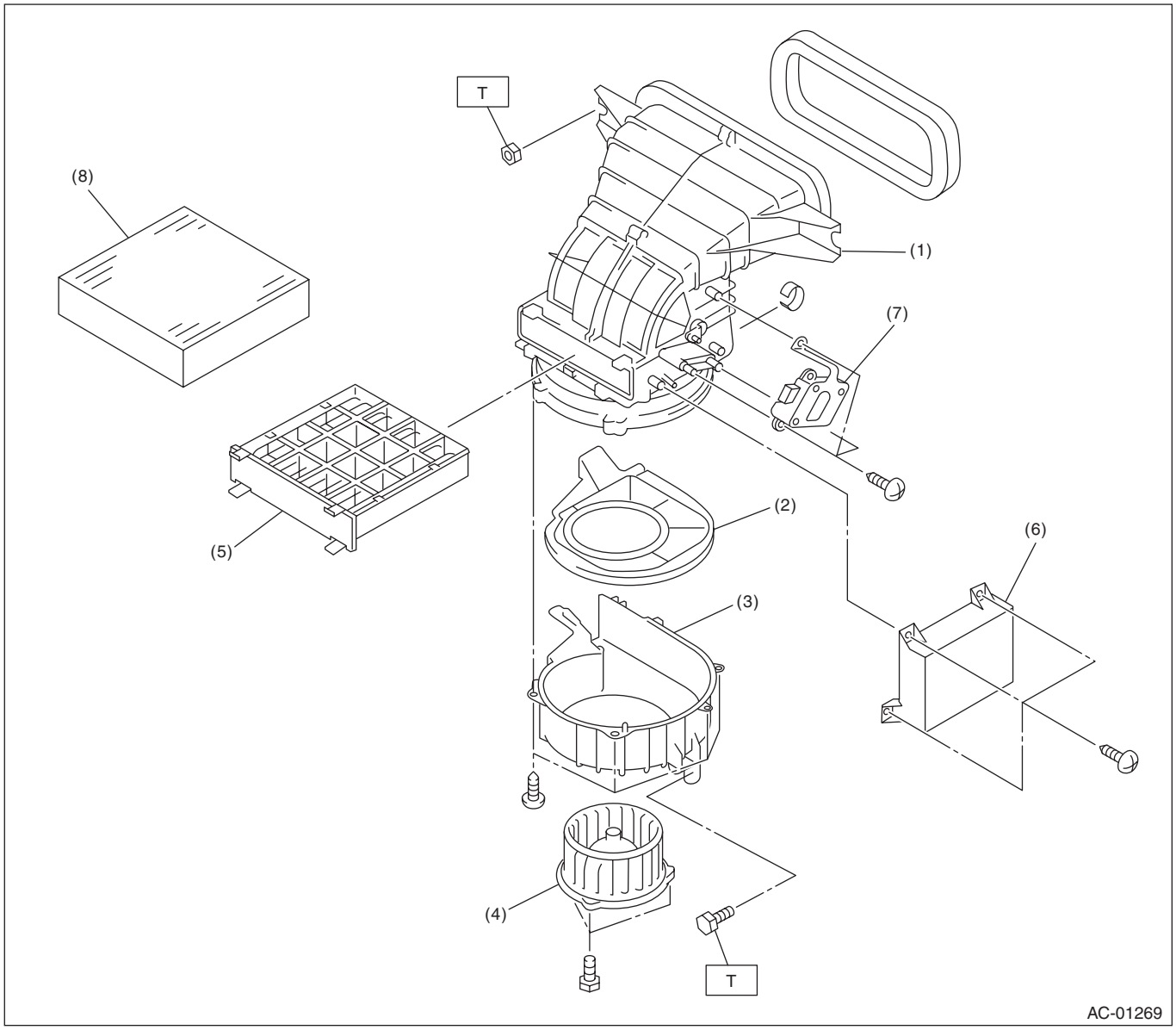
AC-01268

(1) Heater unit case LH
(2) Separator
(3) Mode door RR
(4) Mode door FR
(5) Air mix door LH
(6) Air mix door RH
(7) Heater unit case RH
(8) Mode door actuator
(9) Evaporator cover
(10) Power transistor
(11) Pipe cover
(12) Drain hose
(13) Air mix door actuator RH
(14) Expansion valve
(15) Evaporator sensor
(16) Evaporator
(17) Heater Core
(18) Heater pipe clamp
(19) Heater core cover
(20) Air mix door actuator LH
(21) Aspirator

Tightening torque:N·m (kgf-m, ft-lb)
T: 7.5 (0.76, 5.5)

2. BLOWER MOTOR UNIT

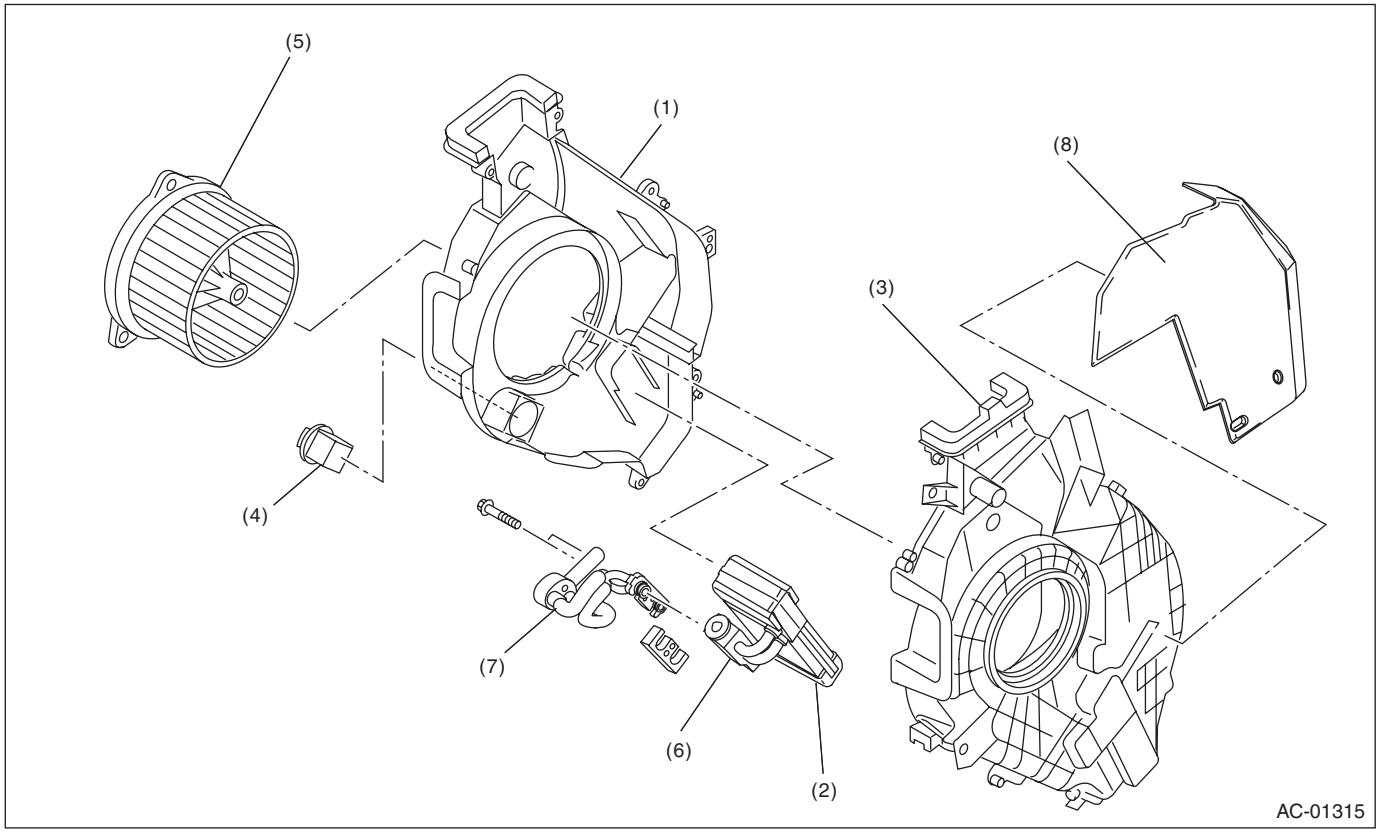
Front



(1) Upper case
(2) Blower plate
(3) Lower case
(4) Blower motor
(5) Filter cover
(6) Control unit (Auto A/C model)
(7) Intake door actuator
(8) Filter

Tightening torque:N·m (kgf-m, ft-lb)
T: 7.5 (0.76, 5.5)

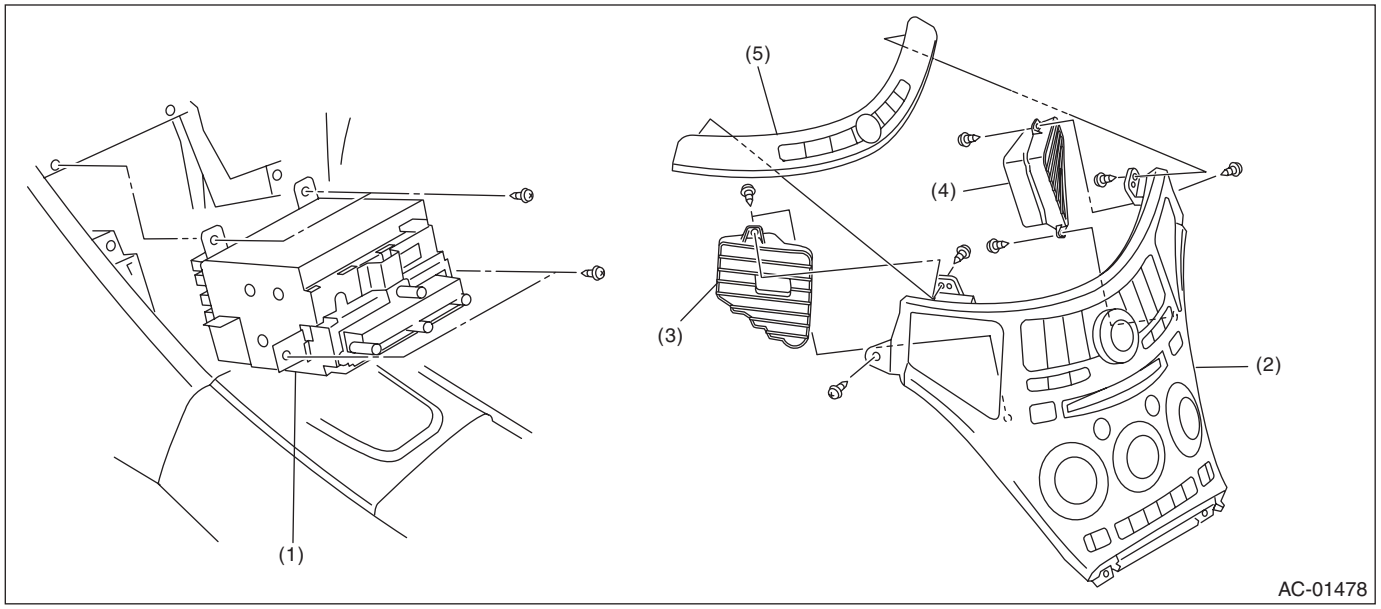
Rear



(1) Inner case
(2) Evaporator
(3) Outer case
(4) Blower resistor
(5) Blower motor
(6) Expansion valve
(7) Expansion tube
(8) Cover

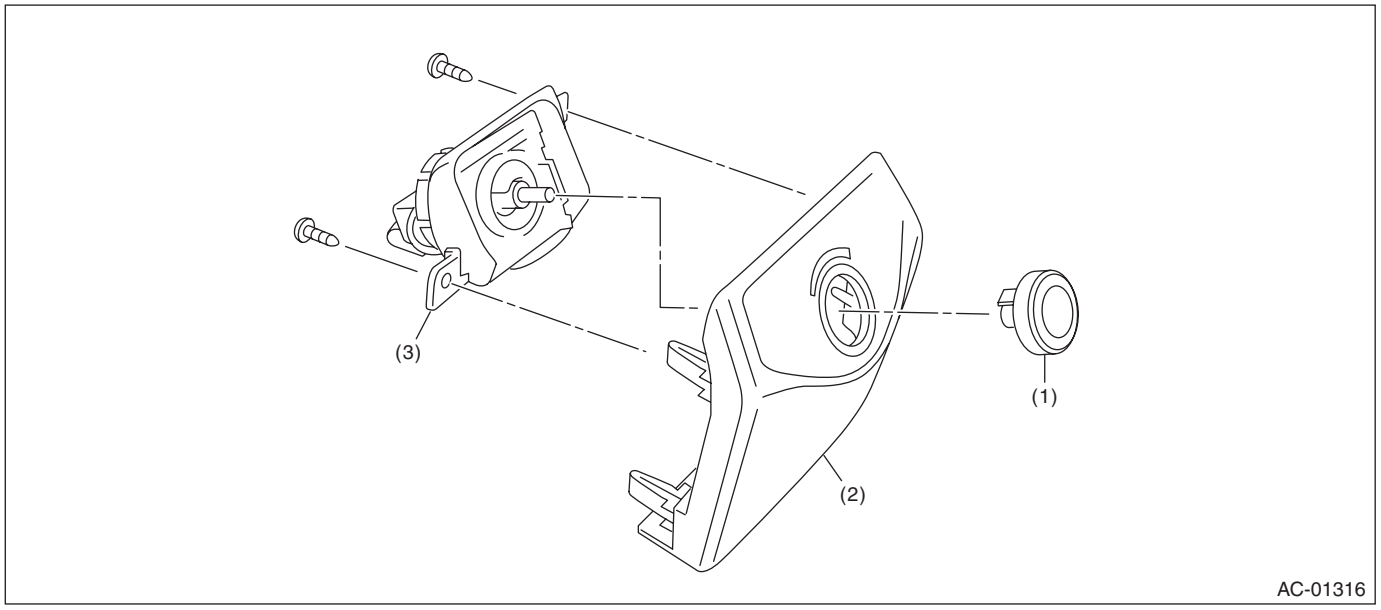
Tightening torque:N·m (kgf-m, ft-lb)
T: 7.5 (0.76, 5.5)

3. CONTROL PANEL



(1) Audio ASSY
(2) Control panel
(3) Center duct (RH)
(4) Center duct (LH)
(5) Navigation, MFD control switch

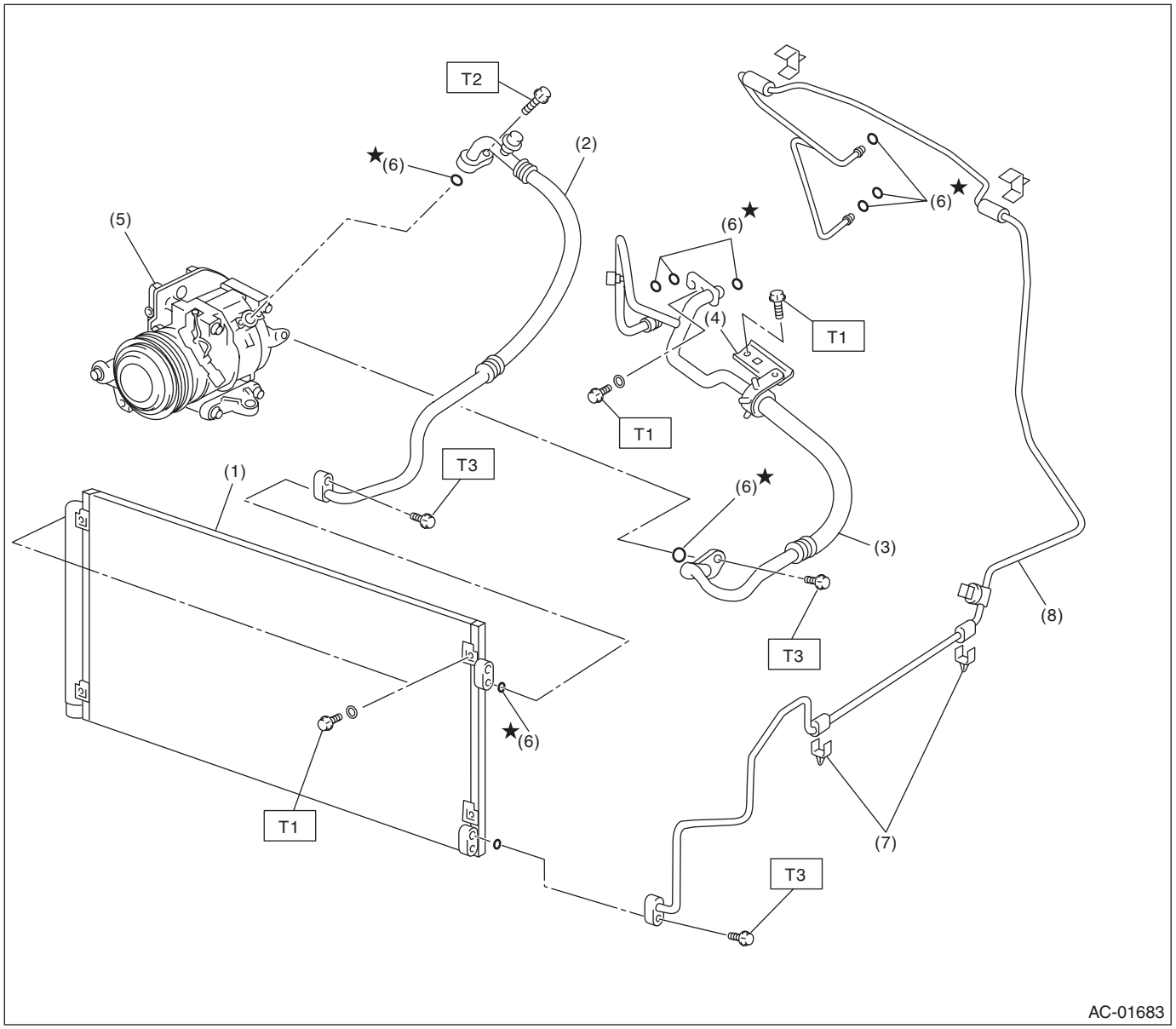
Rear cooler model



(1) Dial
(2) Control panel
(3) Blower switch

4. AIR CONDITIONING UNIT

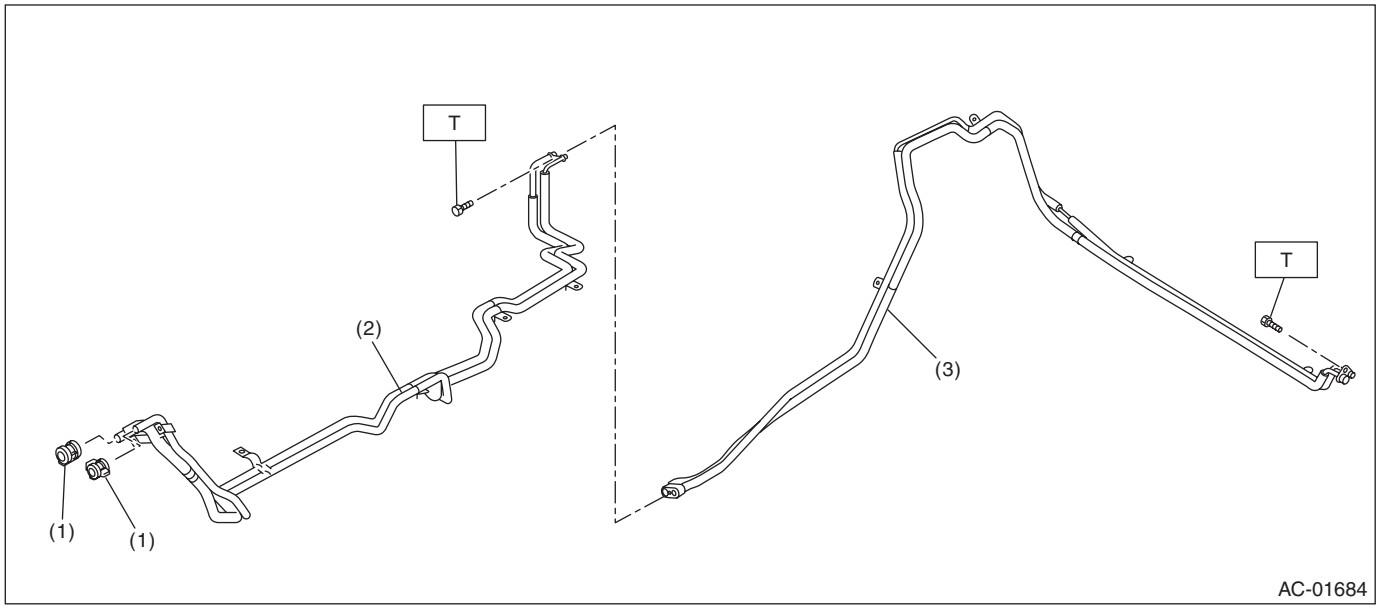
Front



(1)	Condenser	(5)	Compressor
(2)	Hose (High-pressure)	(6)	O-ring
(3)	Hose (Low-pressure)	(7)	Clamp
(4)	Bracket	(8)	Tube

Tightening torque:N·m (kgf-m, ft-lb)
T1: 7.5 (0.76, 5.5)
T2: 10 (1.0, 7.4)
T3: 5 (0.5, 3.7)

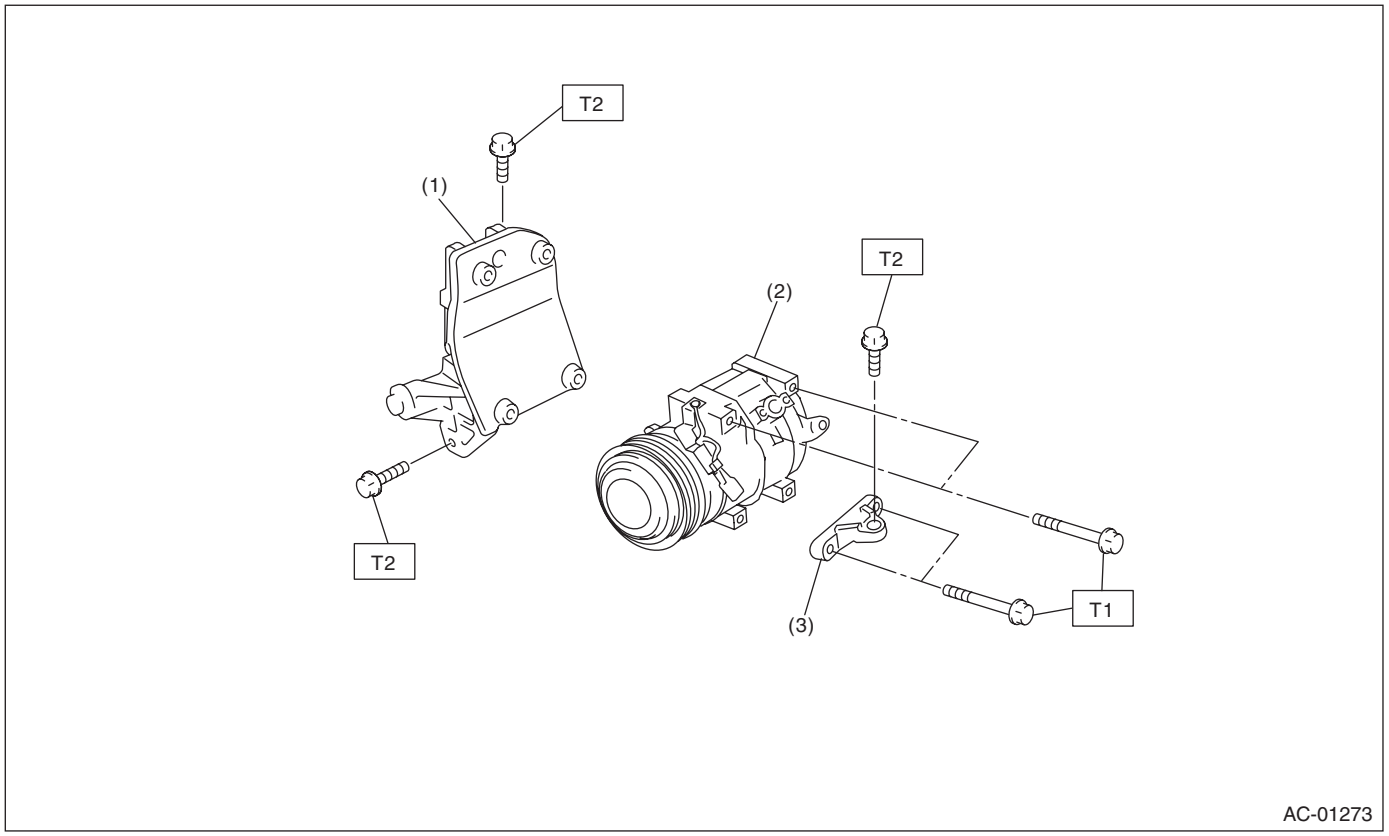
Rear



(1) Quick connector
(2) Front tube
(3) Rear tube

Tightening torque:N·m (kgf-m, ft-lb)
T: 7.5 (0.76, 5.5)

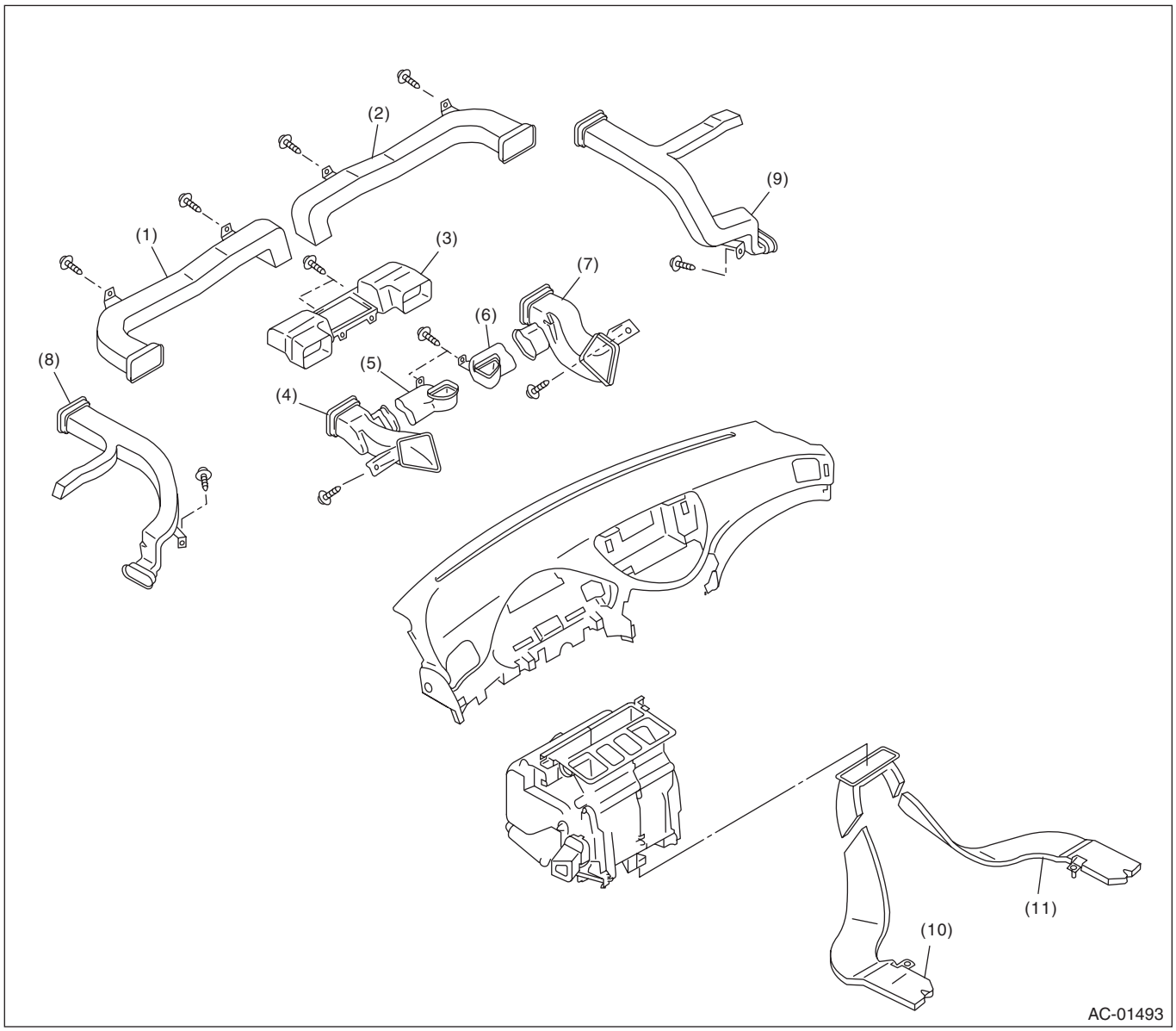
5. COMPRESSOR



(1) Compressor upper bracket
(2) Compressor
(3) Compressor lower bracket

Tightening torque:N·m (kgf-m, ft-lb)
T1: 26.5 (2.95, 21.3)
T2: 36 (3.7, 26.6)

6. HEATER DUCT

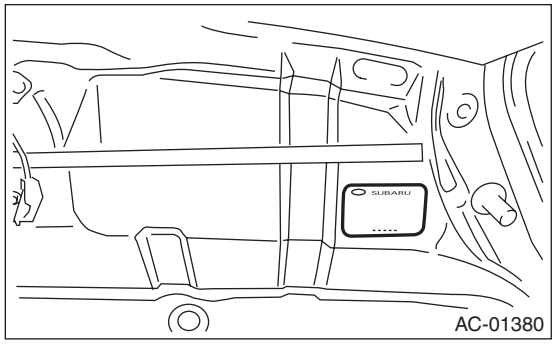


(1) Side ventilation duct (LH)
(2) Side ventilation duct (RH)
(3) Center ventilation duct
(4) Center duct (LH)
(5) Upper duct (LH)
(6) Upper duct (RH)
(7) Center duct (RH)
(8) Side defroster duct (LH)
(9) Side defroster duct (RH)
(10) Rear heater duct (LH)
(11) Rear heater duct (RH)

C: CAUTION

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 which A/C system is installed to the vehicle.



2. COMPRESSOR OIL

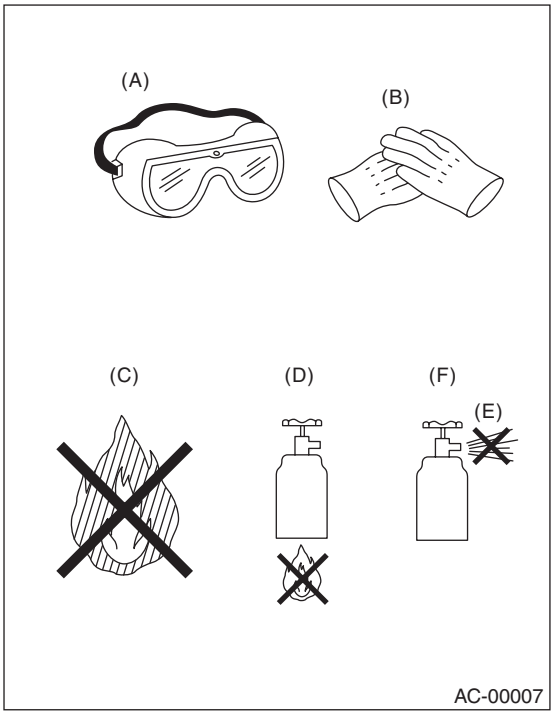
• HFC-134a compressor oil has no compatibility with that of CFC-12 system.
• Use only Denso Oil 8, the manufacturer-authorized compressor oil for the HFC-134a system.
• Do not mix multiple compressor oils.
If CFC-12 compressor oil is used in the HFC-134a A/C system, the compressor may become stuck due 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.

4. HANDLING OF REFRIGERANT

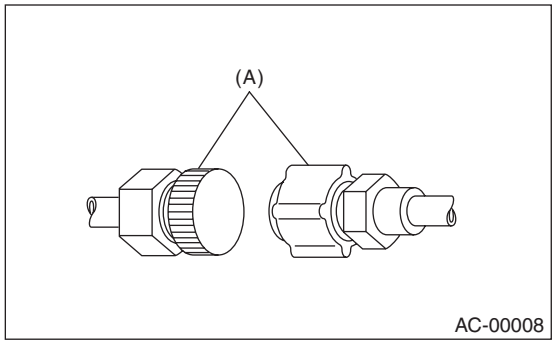
• The refrigerant boils at approx. –30°C (–22°F). When handling it, be sure to wear protective goggles and protective gloves. Direct contact of the refrigerant with skin may cause frostbite.
If the refrigerant gets into your eye, avoid rubbing your eyes with your hands. Wash your eye with plenty of water, 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 subject a service can to impacts. (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. High-pressure gas can 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) Avoid open flame
(D) No direct heat on container
(E) Do not discharge
(F) Loosen

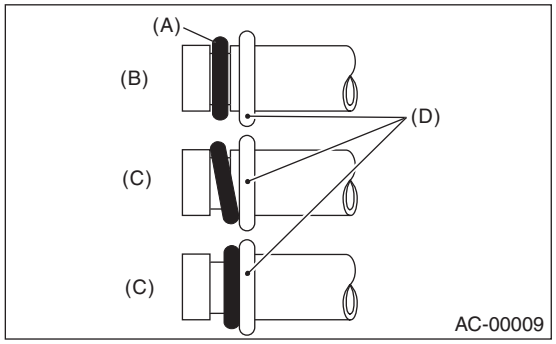
5. O-RING CONNECTIONS

- Always use a new O-ring.
- In order to keep the O-rings free of lint which can cause a refrigerant gas leak, perform operations without gloves and cloth.
- Apply compressor oil to O-rings to avoid sticking, before installation.
- Use a torque wrench to tighten the O-ring fittings. Over-tightening will cause damage to the O-ring and cause tube end distortion.
- If the work is interrupted before completing pipe connections, recap the tubes, components and fittings with a plug or tape to prevent foreign matter 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 a right angle to tube beads.

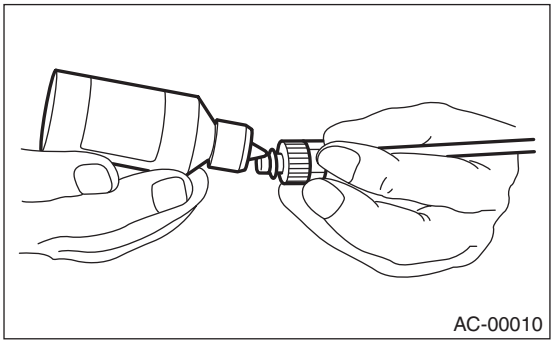


(A) O-ring
(B) OK
(C) NG
(D) Groove

- 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 grooves of the tube.



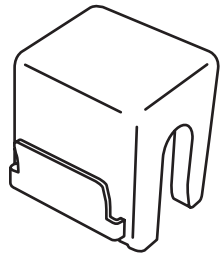
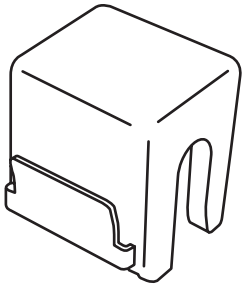
- After tightening, use a clean cloth to remove excess compressor oil from the connections and any oil which may have run on the vehicle body or other parts.
- If any leakage is suspected after tightening, do not tighten the connections further, but disconnect the connections, remove the O-rings, and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

D: PREPARATION 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 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

1. SPECIAL TOOL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST73499XA00A	73499XA00A	S/T REMOVER PD	Used to disconnect the connector for a quick joint type air conditioner piping (high pressure side).
 ST73499XA01A	73499XA01A	S/T REMOVER PS	Used to disconnect the connector for a quick joint type air conditioner piping (high pressure side).

2. GENERAL TOOL

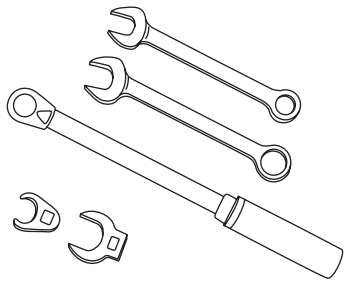
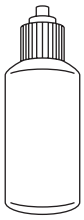
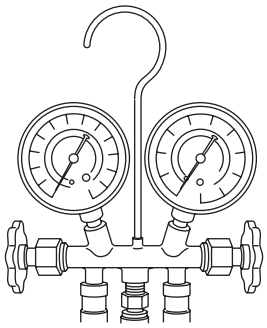
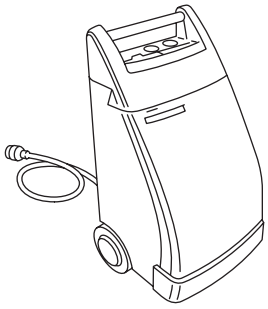
ILLUSTRATION	Name and Function
 AC-00213	Wrench Various **WRENCHES** will be required to service any A/C system. A 7 to 40 N·m (0.7 to 4.1 kg-m, 5 to 30 ft-lb) torque wrench and various crow-foot wrenches will be needed. Open end or flare nut wrenches will be needed to hold the tube and hose fittings.
 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 or drug store.
 AC-00013	Manifold gauge set A **MANIFOLD GAUGE SET** (with hoses) is available either from 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.

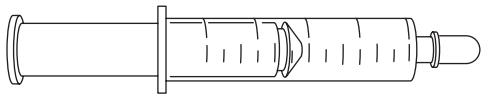
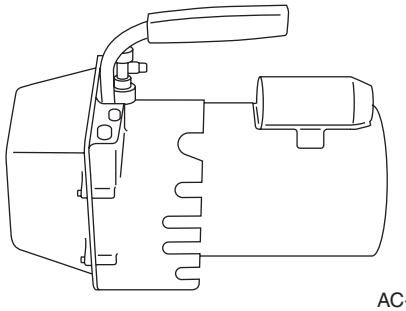
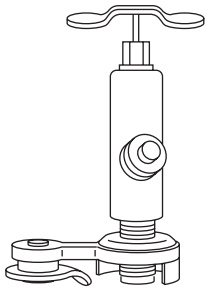
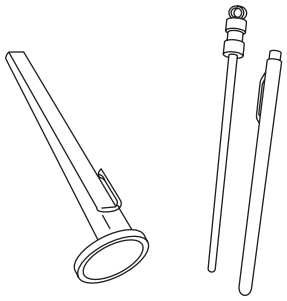
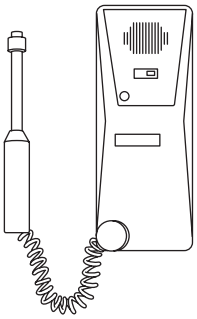
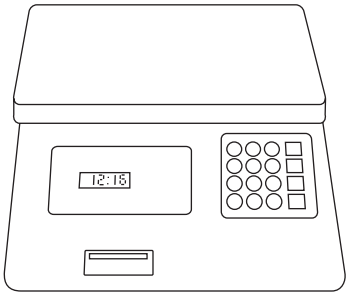
ILLUSTRATION	Name and Function
 AC-00015	Syringe A graduated plastic **SYRINGE** will be needed to add oil into the system again. A syringe can be available at a pharmacy or drug store.
 AC-00016	Vacuum pump A **VACUUM PUMP** is necessary (for a good working condition), and may be available either from a refrigerant supplier or an automotive equipment supplier.
 AC-00017	Can tap A **CAN TAP** for the 397 g (14 oz.) can is available from an automotive equipment supplier.
 AC-00018	Thermometer A pocket **THERMOMETER** is available either at a industrial hardware store or from a refrigerant supplier.
 AC-00019	Electronic leak detector An **ELECTRONIC LEAK DETECTOR** can be available either from a specialty tool supplier or an A/C equipment supplier.

ILLUSTRATION	Name and Function
 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.