1. General Description

A: SPECIFICATION

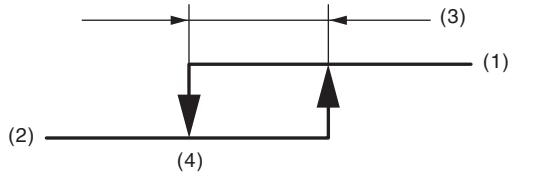
1. HEATER SYSTEM

Item		Specifications	Condition
Heating capacity		5.0 kW (4,299 kcal/h, 17,059 BTU/h) or more	• 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		290 m^3 (10,243 cu ft)/h	Heat mode (FRESH), FULL HOT at 12.5 V
Max air flow rate		480 m^3 (16,954 cu ft)/h	• Temperature control switch: FULL COLD • Blower fan speed: Auto A/C: 7th position Manual A/C: 4th position • Mode selector lever: RECIRC
Heater core size (height × length × width)		257.5 × 118.5 × 27 mm (10.1 × 4.67 × 1.06 in)	—
Blower motor	Type	Magnet motor 250 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

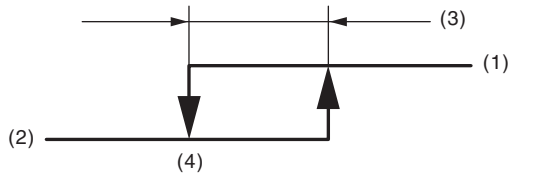
• Auto A/C model

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_2FCF_3) [0.5±0.03 kg (1.1±0.07 lb)]
Compressor	Type	Rotary fixed capacity (DVK-10R)
	Discharge	105 cc (6.41 cu in)/rev
	Max. permissible speed	7,700 rpm
Magnet clutch	Type	Dry, single-disc type
	Power consumption	38.8 W
	Type of belt	V-belt 4 PK
	Pulley dia. (effective dia.)	100 mm (3.9 in)
	Pulley ratio	1.32
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)
Receiver drier	Effective inner capacity	177 cm^3 (10.8 cu in)
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	250 W

Item			Specifications
Condenser fan (Sub fan)		Motor type	Magnet
		Power consumption	Non-turbo model: 90 W Turbo model: 120 W
		Fan outer diameter	Non-turbo model: 300 mm (11.8 in) Turbo model: 318.5 mm (12.5 in)
Radiator fan (Main fan)		Motor type	Magnet
		Power consumption	Non-turbo model: 90 W Turbo model: 120 W
		Fan outer diameter	Non-turbo model: 300 mm (11.8 in) Turbo model: 318.5 mm (12.5 in)
Idle speed		MPFI model	Turbo AT model (no load): 750±100 rpm Turbo AT model (A/C ON): 825±100 rpm Turbo MT model (no load): 750±100 rpm Turbo MT model (A/C ON): 800±100 rpm
Triple switch (Pressure switch)	Low-pressure switch operating pressure	ON → OFF	177±25 kPa (1.80±0.25 kgf/cm^2, 25.7±3.6 psi)
		OFF → ON	206±30 kPa (2.10±0.31 kgf/cm^2, 29.9±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)

- Manual A/C model

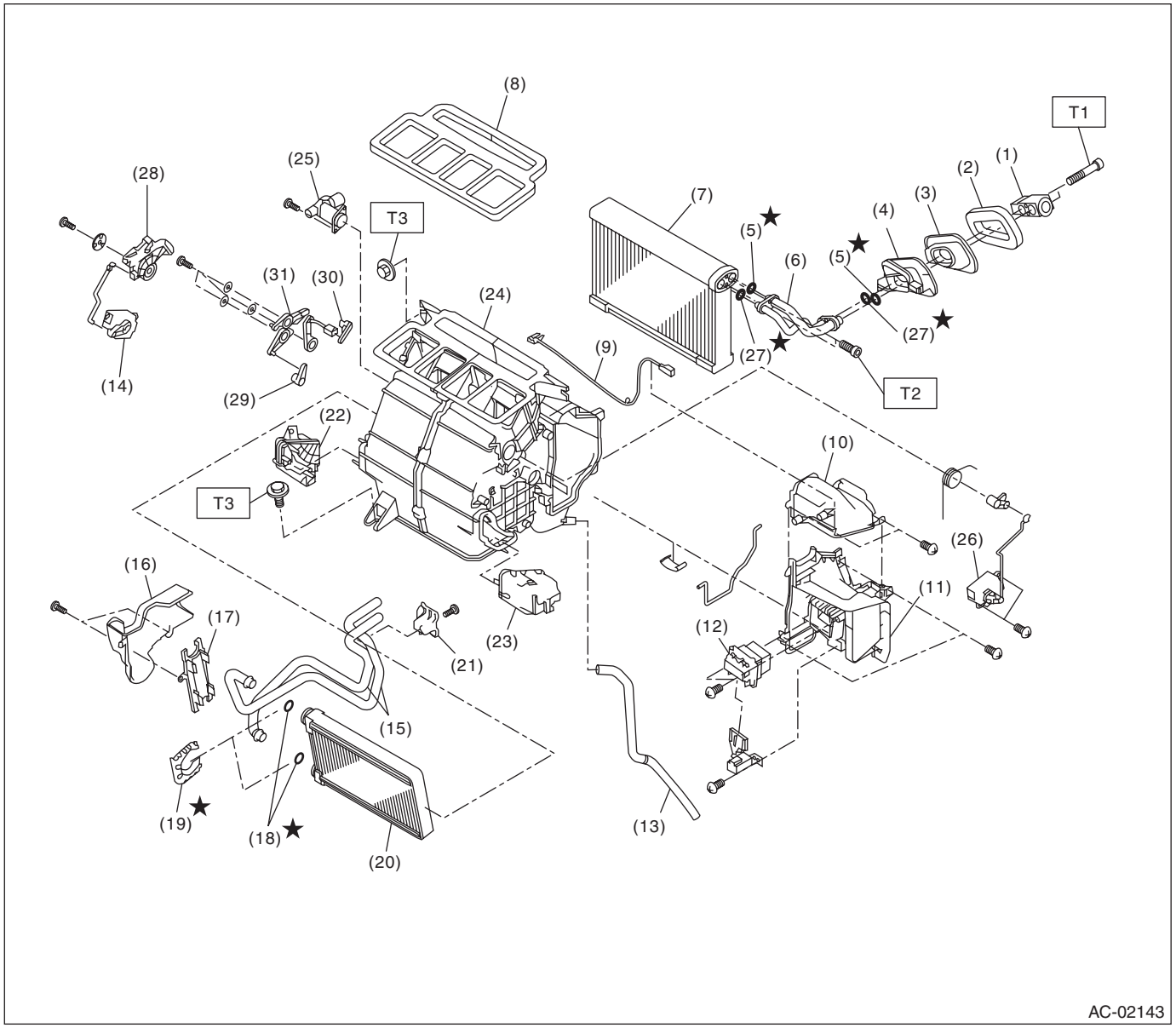
Item			Specifications
Type of air conditioner			Reheat air-mix type
Cooling capacity			5.0 kW (4,299 kcal/h, 17,059 BTU/h)
Refrigerant			HFC-134a (CH_2FCF_3) [0.5±0.03 kg (1.1±0.07 lb)]
Compressor		Type	Rotary fixed capacity (DVK-10R)
		Discharge	105 cc (6.41 cu in)/rev
		Max. permissible speed	7,700 rpm
Magnet clutch		Type	Dry, single-disc type
		Power consumption	38.8 W
		Type of belt	V-belt 4 PK
		Pulley dia. (effective dia.)	100 mm (3.9 in)
		Pulley ratio	1.32
Condenser		Type	Sub cool type
		Core face area	0.188 m^2 (2.002 sq ft)
		Core thickness	16 mm (48.44 in)
		Radiation area	4.5 m^2 (48.44 sq ft)
Receiver drier		Effective inner capacity	177 cm^3 (10.8 cu in)
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	250 W
Condenser fan (Sub fan)		Motor type	Magnet
		Power consumption	90 W
		Fan outer diameter	300 mm (11.8 in)
Radiator fan (Main fan)		Motor type	Magnet
		Power consumption	90 W
		Fan outer diameter	300 mm (11.8 in)
Idle speed		MPFI model	Non-turbo MT model (no load): 650±100 rpm Non-turbo MT model (A/C ON): 850±100 rpm Non-turbo AT model (no load): 700±100 rpm Non-turbo AT model (A/C ON): 850±100 rpm
Triple switch (Pressure switch)	Low-pressure switch operating pressure	ON → OFF	177±25 kPa (1.80±0.25 kgf/cm^2, 25.7±3.6 psi)
		OFF → ON	206±30 kPa (2.10±0.31 kgf/cm^2, 29.9±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)

Item	Specifications
Thermo-control amplifier operating 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)

B: COMPONENT

1. HEATER COOLING UNIT

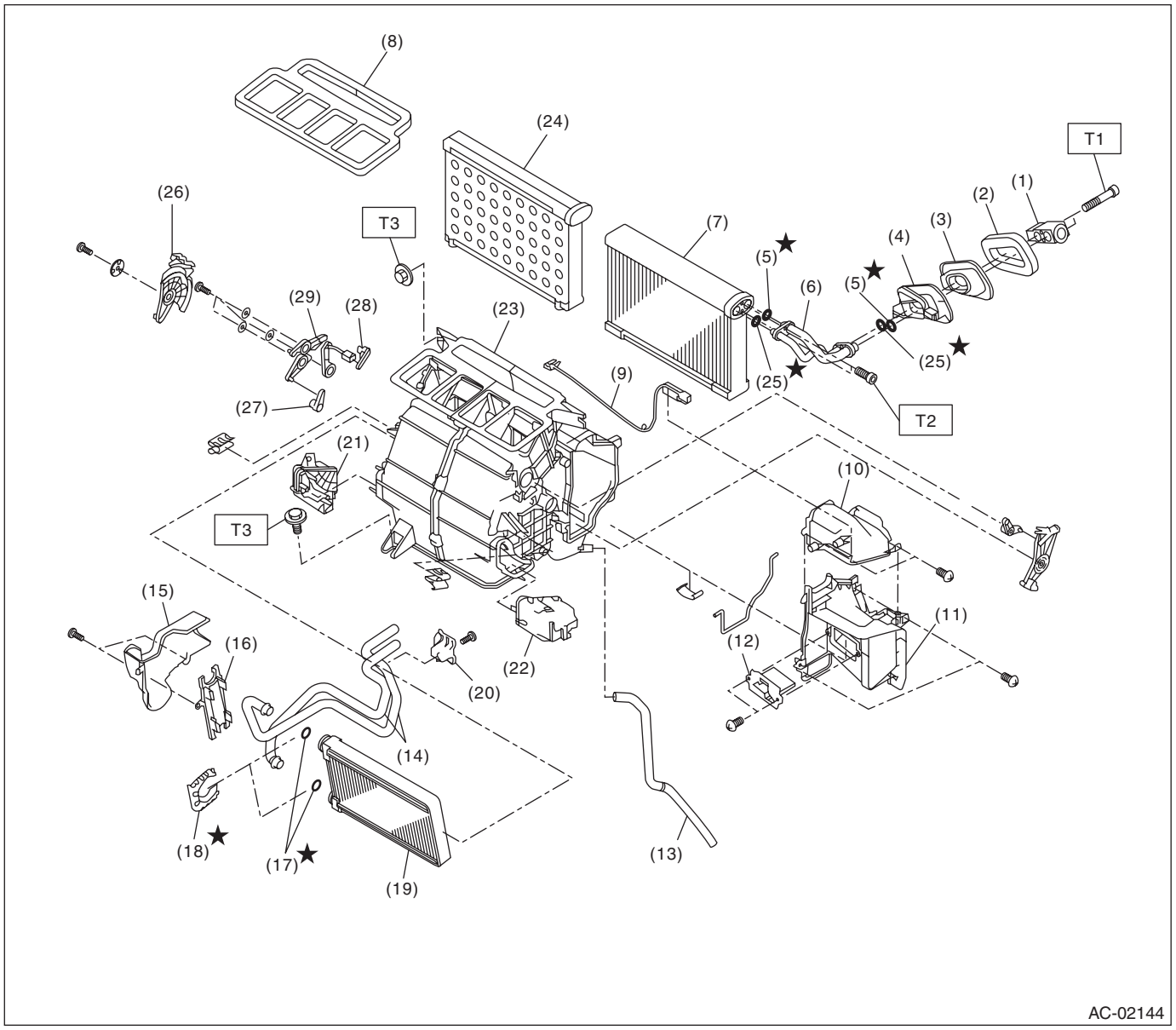
- Auto A/C model



(1) Expansion valve
(2) Gasket
(3) Grommet
(4) Case
(5) O-ring
(6) Evaporator pipe
(7) Evaporator
(8) Lining
(9) Evaporator sensor
(10) Evaporator pipe cover
(11) Evaporator cover
(12) Power transistor
(13) Drain hose
(14) Mode actuator
(15) Heater core pipe
(16) Heater pipe cover
(17) Heater core cover
(18) O-ring
(19) Clamp
(20) Heater core
(21) Pipe clamp
(22) Foot duct (LH)
(23) Foot duct (RH)
(24) Heater case
(25) Aspirator
(26) Air mix actuator
(27) O-ring
(28) Mode main lever
(29) Vent door link
(30) Defroster door link
(31) Mode link

Tightening torque: N·m (kgf-m, ft-lb)
T1: 5.0 (0.5, 3.7)
T2: 6.68 (0.7, 4.9)
T3: 7.5 (0.76, 5.5)

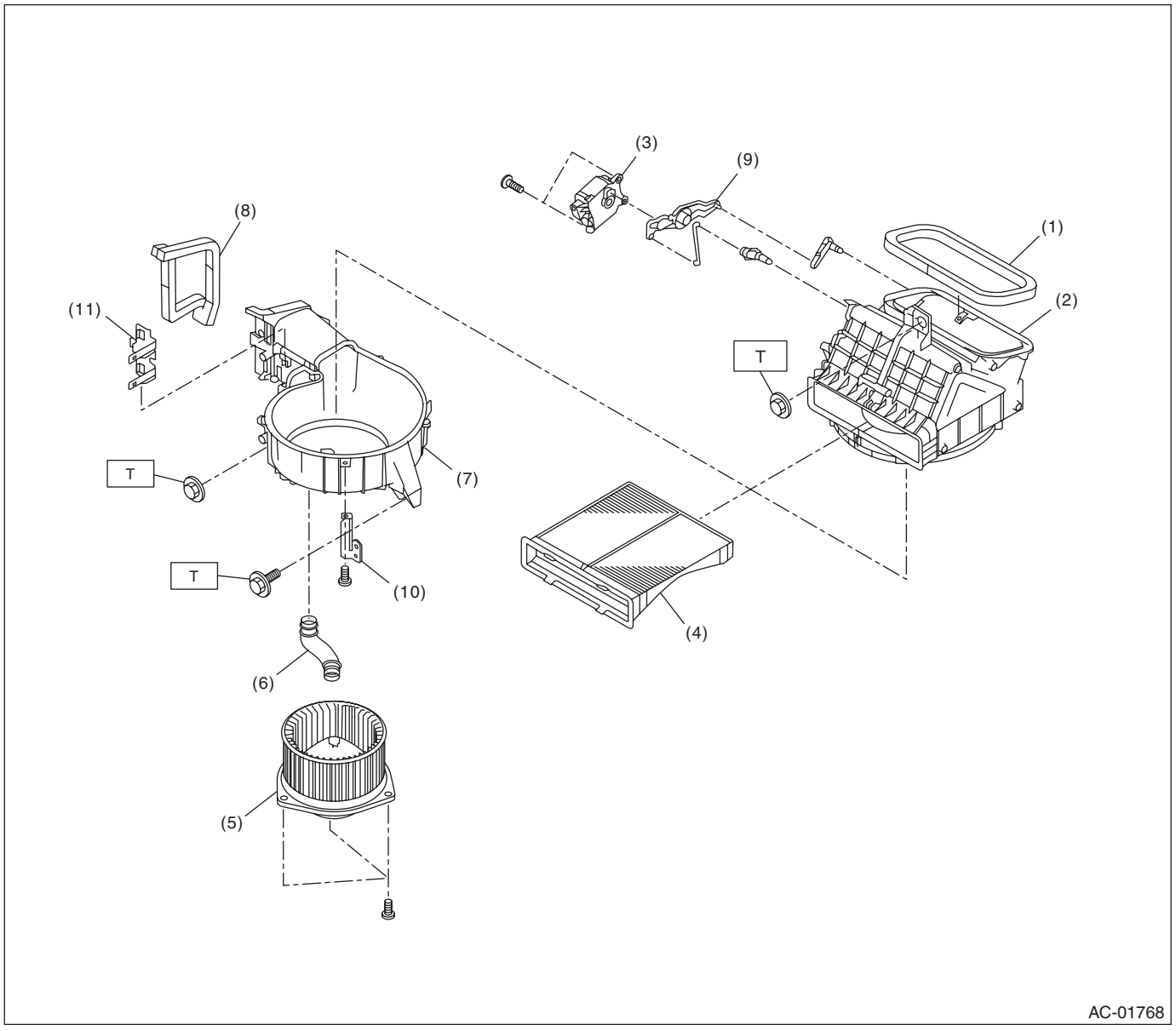
- Manual A/C model



(1) Expansion valve
(2) Gasket
(3) Grommet
(4) Case
(5) O-ring
(6) Evaporator pipe
(7) Evaporator
(8) Lining
(9) Thermostat
(10) Evaporator pipe cover
(11) Evaporator cover
(12) Resistor
(13) Drain hose
(14) Heater core pipe
(15) Heater pipe cover
(16) Heater core cover
(17) O-ring
(18) Clamp
(19) Heater core
(20) Pipe clamp
(21) Foot duct (LH)
(22) Foot duct (RH)
(23) Heater case
(24) Plate (Model without A/C)
(25) O-ring
(26) Mode main lever
(27) Vent door link
(28) Defroster door link
(29) Mode link

Tightening torque: N·m (kgf-m, ft-lb)	
T1:	*5.0 (0.5, 3.7)*
T2:	*6.68 (0.7, 4.9)*
T3:	*7.5 (0.76, 5.5)*

2. BLOWER MOTOR UNIT

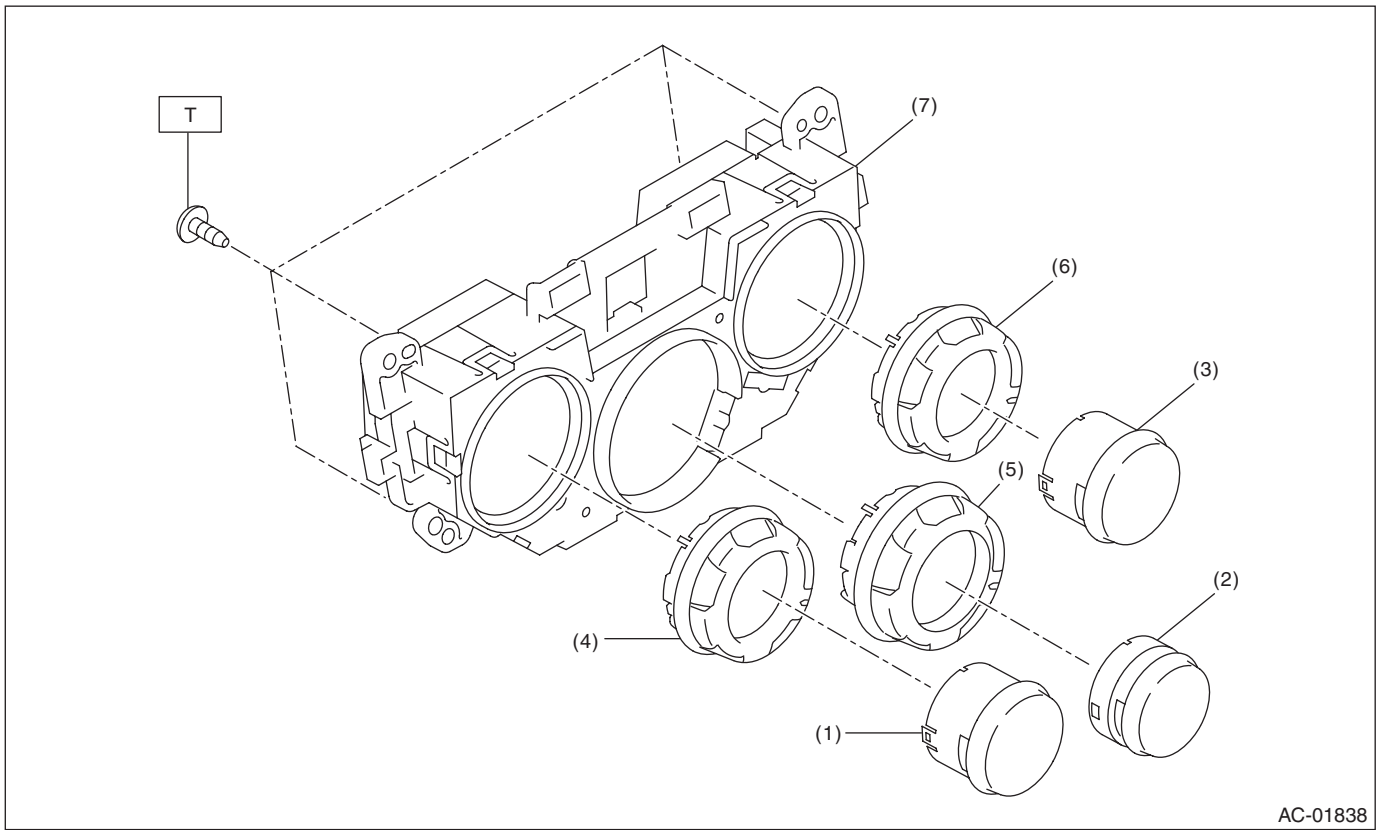


(1) Lining
(2) Upper case
(3) Intake door actuator
(4) Filter
(5) Blower motor ASSY
(6) Hose
(7) Lower case
(8) Lining
(9) Intake door link
(10) Relay bracket
(11) Relay holder bracket

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

3. CONTROL MODULE

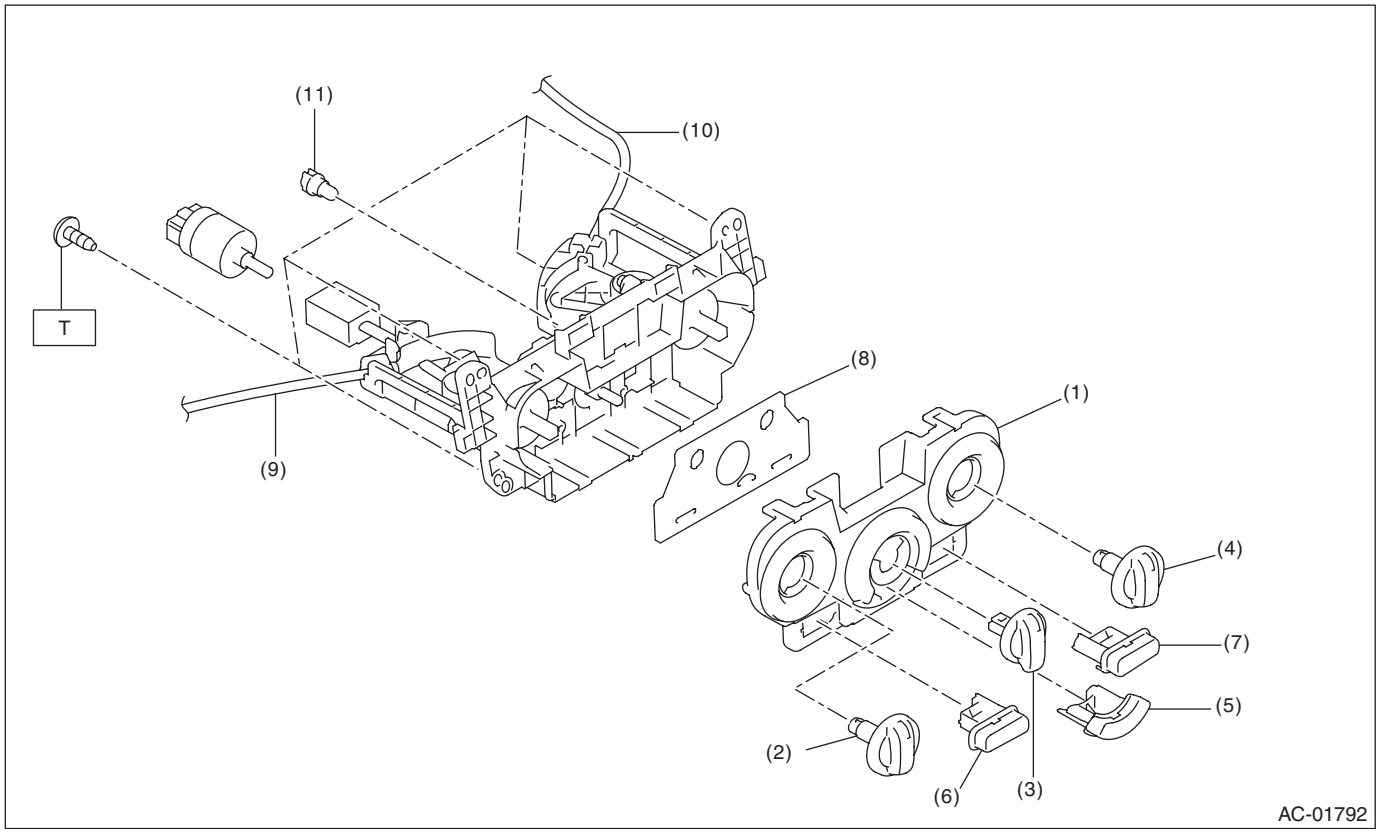
Auto A/C model



(1) FRESH/RECIRC switch
(2) Rear window defogger switch
(3) A/C switch
(4) Fan speed control dial
(5) Air flow control dial
(6) Temperature control dial
(7) Control case

Tightening torque: N·m (kgf-m, ft-lb)
T: 2 (0.2, 1.48)

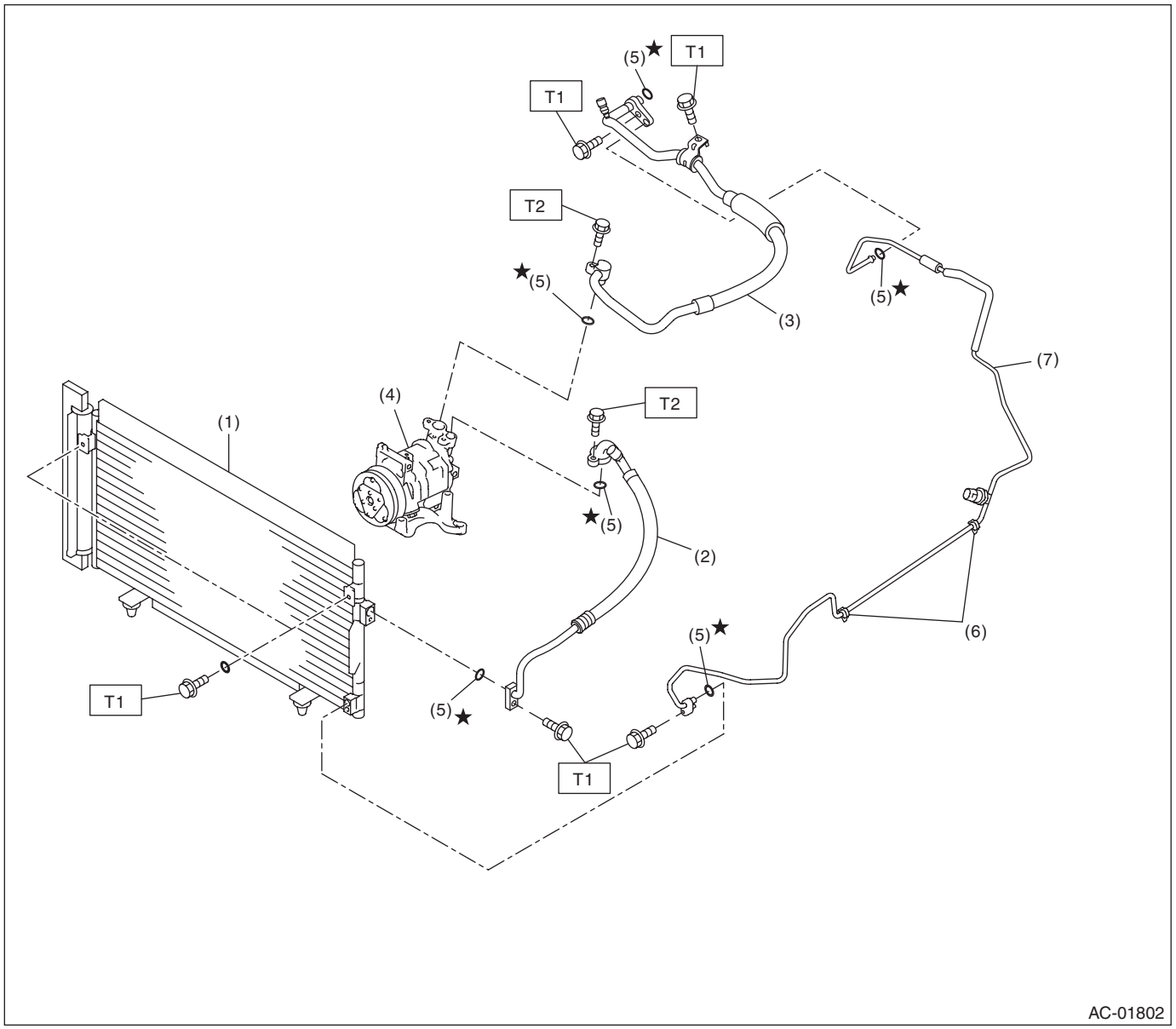
Manual A/C model



(1) Panel
(2) Air flow control dial
(3) Fan speed control dial
(4) Temperature control dial
(5) A/C switch
(6) Rear window defogger switch
(7) FRESH/RECIRC switch
(8) Switch board
(9) Air flow control cable
(10) Temperature control cable
(11) Valve

Tightening torque: N·m (kgf-m, ft-lb)
T: 2 (0.2, 1.48)

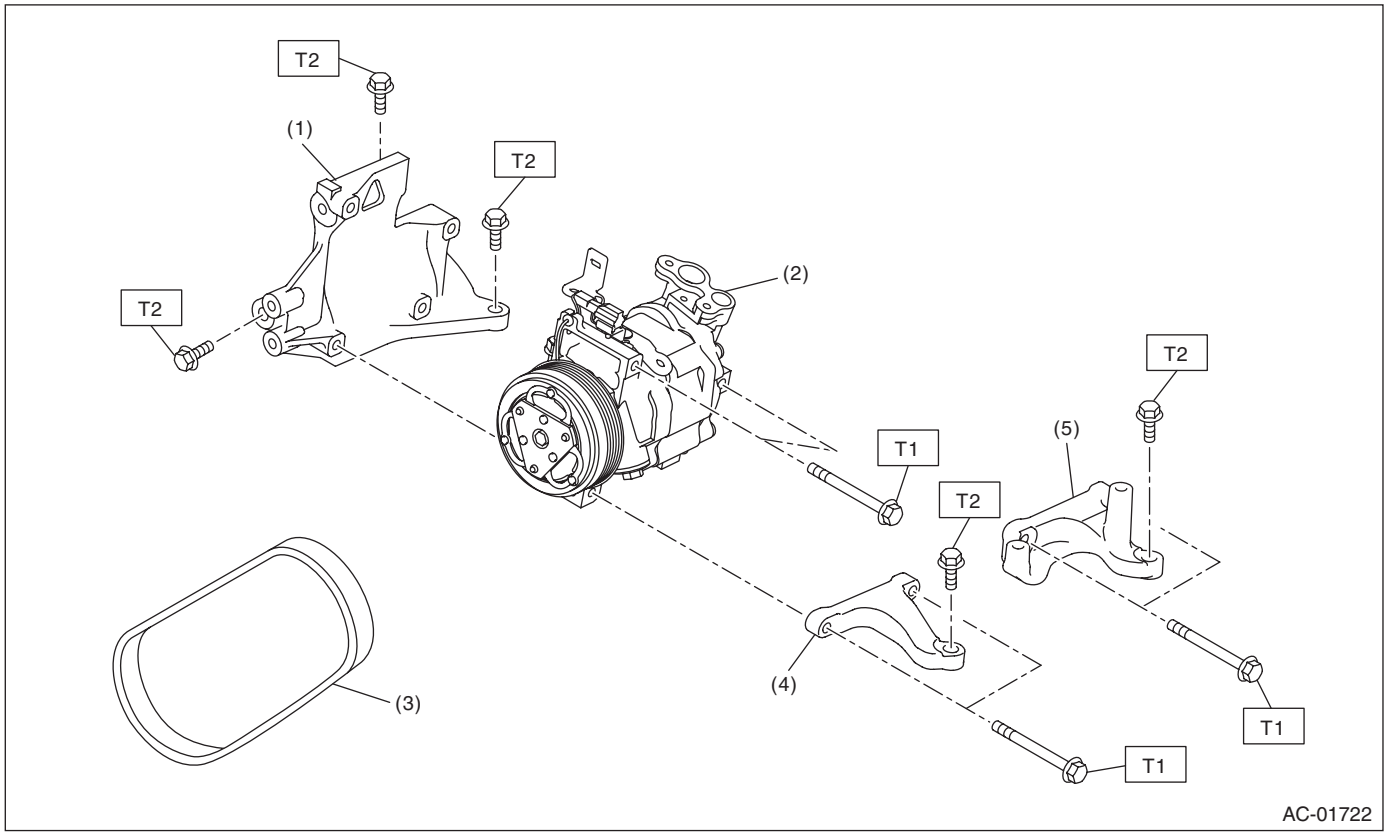
4. AIR CONDITIONING UNIT



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

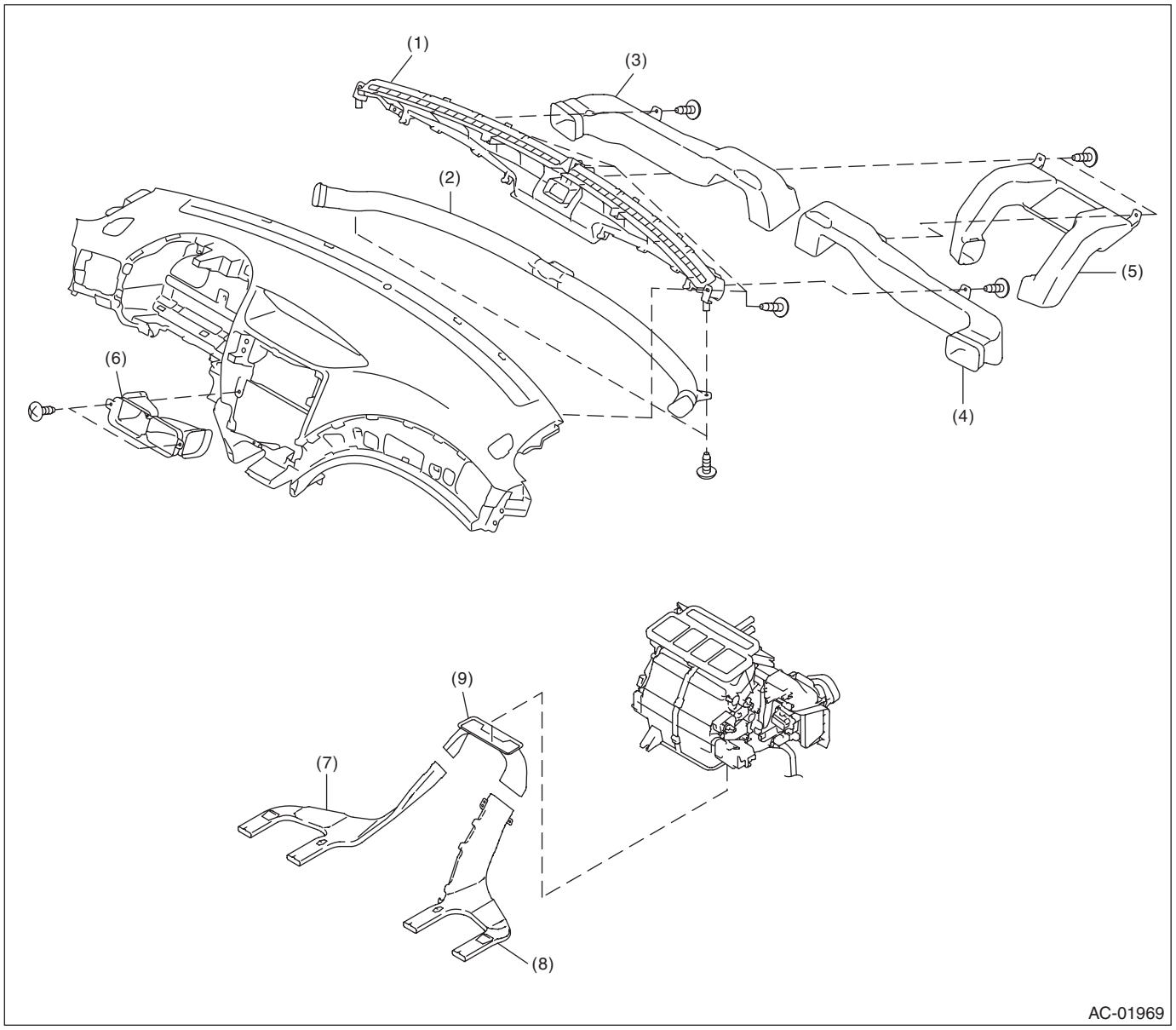
Tightening torque: N·m (kgf-m, ft-lb)
T1: 7.5 (0.76, 5.5)
T2: 10 (1.0, 7.4)

5. COMPRESSOR



(1)	Compressor bracket	(4)	Compressor bracket (non-turbo model)	***Tightening torque: N·m (kgf-m, ft-lb)***
(2)	Compressor	(5)	Compressor bracket (turbo model)	***T1: 26.5 (2.7, 19.5)***
(3)	V-belt			***T2: 36 (3.7, 26.6)***

6. HEATER DUCT

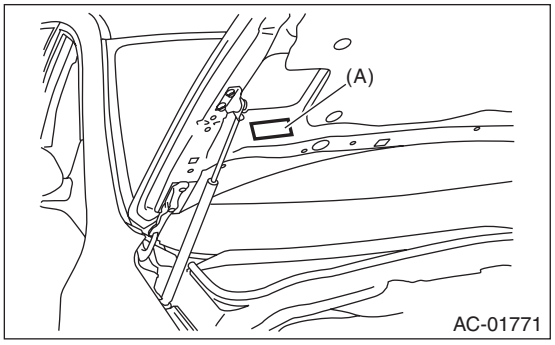


(1) Front defroster nozzle
(2) Side defroster duct
(3) Side vent duct (LH)
(4) Side vent duct (RH)
(5) Center vent duct
(6) Center vent duct front
(7) Rear heater duct (LH)
(8) Rear heater duct (RH)
(9) Rear heater duct center

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 A/C system which is installed to the vehicle.



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.

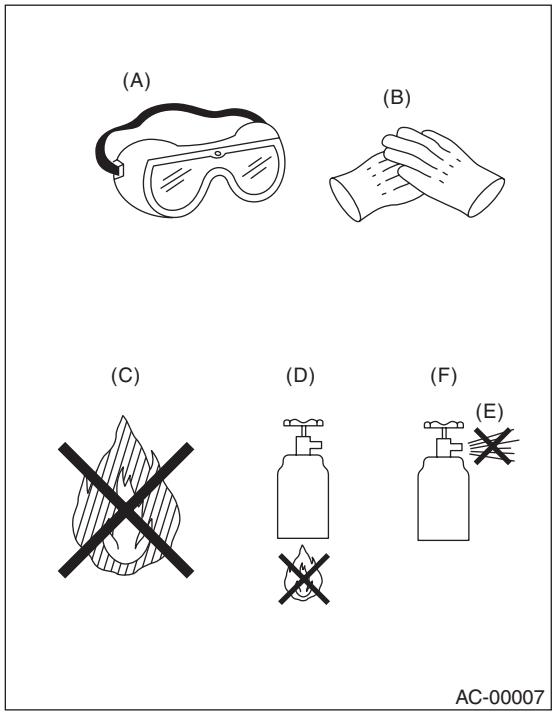
3. REFRIGERANT

• 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.

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.

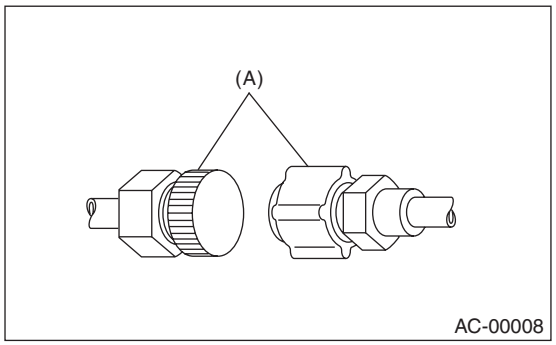
• In order to prevent global warming, avoid releasing HFC-134a into the atmosphere. Using a refrigerant recovery system, discharge and recycle the gas.



(A) Goggles
(B) Gloves
(C) Avoid open flame
(D) No direct heat on container
(E) Do not discharge
(F) Loosen

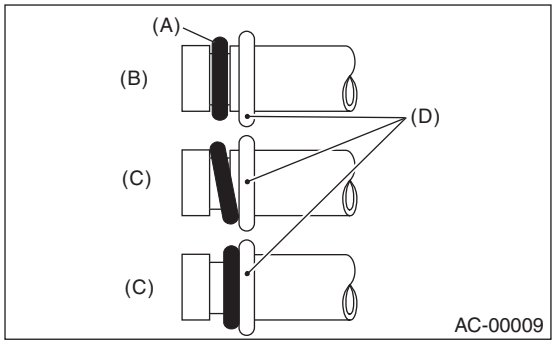
5. O-RING CONNECTIONS

• Always use a new O-ring.
• In order to keep the O-rings free of lint which 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.



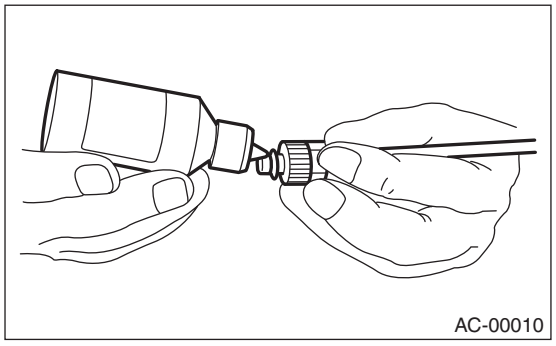
(A) Seal

• 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 straight against the pipe groove.



(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 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.

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 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

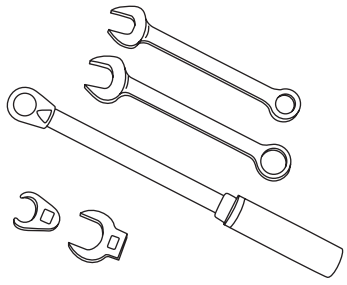
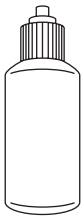
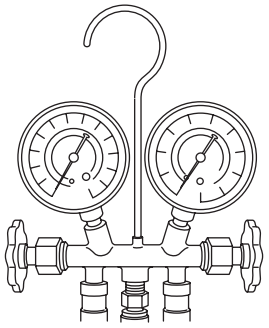
ILLUSTRATION	Name and Function
 AC-00213	Wrench Various **WRENCHES** will be required to service any A/C system.7 — 40 N·m (0.7 to 4.1 kgf-m, 5 to 30 ft-lb) torque wrench and various crow-foot wrenches will be needed. Open end or flare nut wrenches will be needed to hold the tube and hose fittings.
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

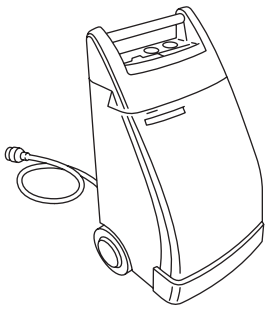
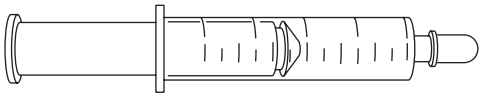
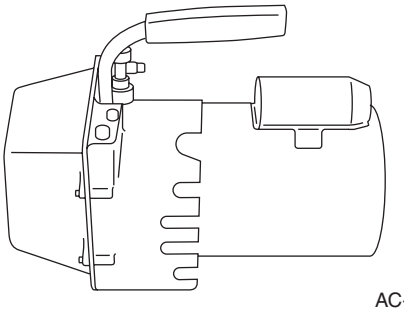
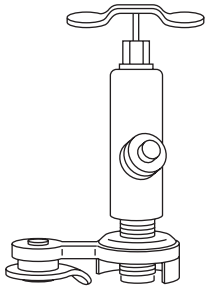
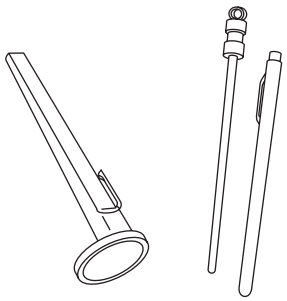
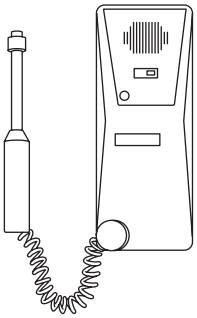
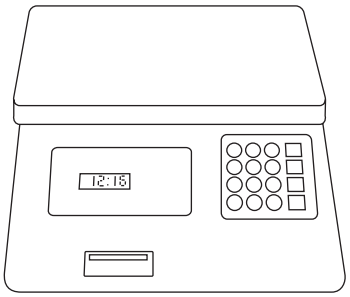
ILLUSTRATION	Name and Function
 AC-00014	Refrigerant recovery system A **REFRIGERANT RECOVERY SYSTEM** is used for the recovery and recycling of A/C system refrigerant after contaminants and moisture have been removed from the refrigerant.
 AC-00015	Syringe A graduated plastic **SYRINGE** will be needed 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.
 AC-00018	Thermometer A Pocket **THERMOMETER** is available at either a industrial hardware store or a refrigerant supplier.

ILLUSTRATION	Name and Function
 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.