

# General Description

## COOLING

### 1. General Description

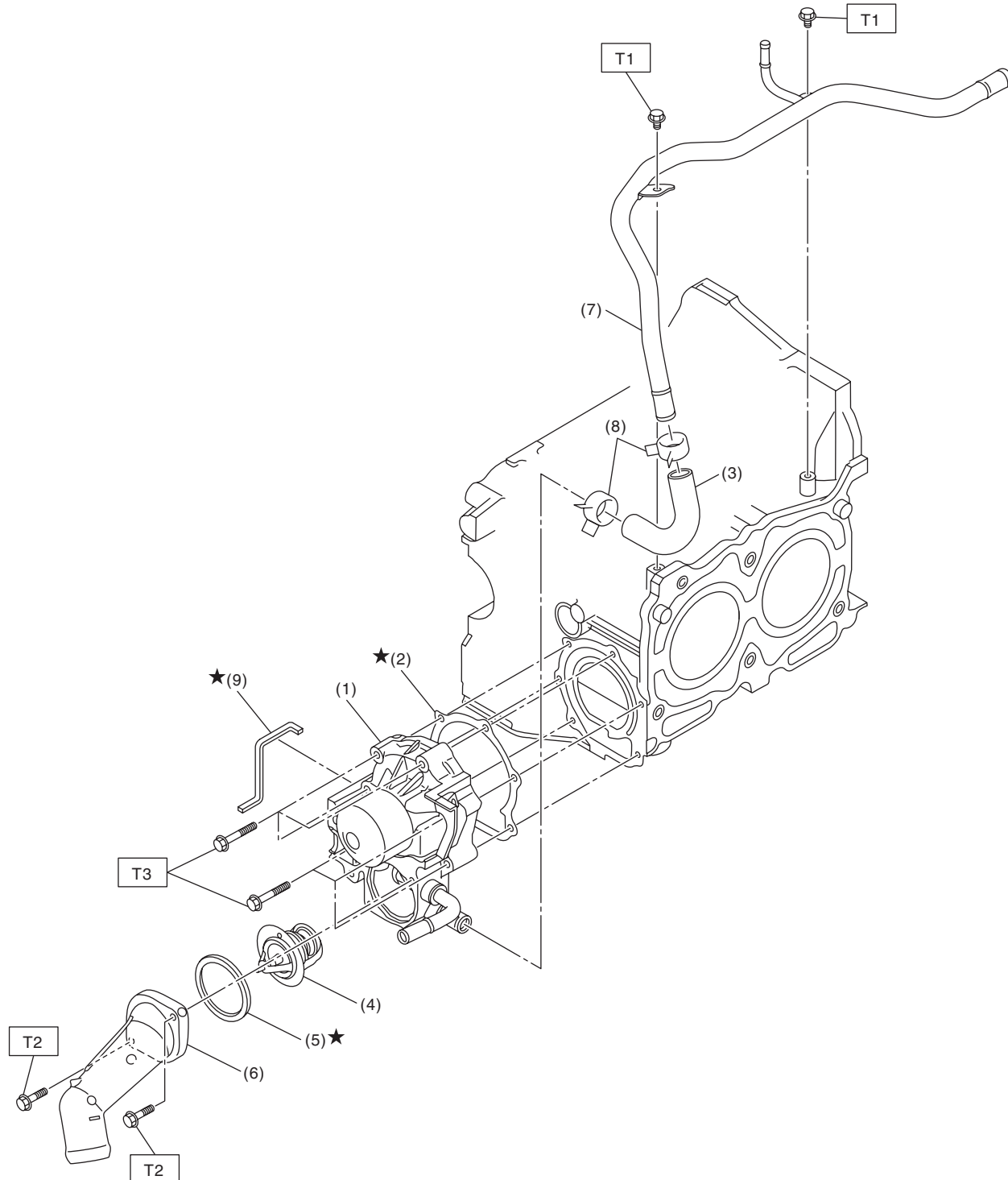
#### A: SPECIFICATION

Cooling system					Electric fan + Forced engine coolant circulation system	
Total engine coolant capacityℓ (US qt, Imp qt)					Approx. 6.6 (7.0, 5.8)	
Water pump	Type		Centrifugal impeller type			
	Discharge performance	Discharge rateℓ (US gal, Imp gal) /min.	200 (52.8, 44.0)			
		Pump speed — Discharge pressure		6,000 rpm — 225.4 kPa (23.0 mAq)		
		Engine coolant temperature		80°C (176°F)		
	Impeller diametermm (in)		76 (2.99)			
	Number of impeller vanes		8			
	Pump pulley diametermm (in)		60 (2.36)			
	Clearance between impeller and pump casemm (in)		Standard	0.5 — 1.5 (0.020 — 0.059)		
Thermostat	Type			Wax pellet type		
	Starting temperature to open			82 — 86°C (180 — 187°F)		
	Fully opens			91°C (196°F)		
	Valve liftmm (in)		9.0 (0.354) or more			
	Valve boremm (in)		35 (1.38)			
Radiator fan	Motor input	Main fanW		120		
		Sub fanW		120		
	Fan diameter / Blade	Main fan		320 mm (12.6 in)/5		
		Sub fan		320 mm (12.6 in)/7		
Radiator	Type			Down flow		
	Core dimensions	Width × Height × Thicknessmm (in)		687.4 × 340 × 16 (27.06 × 13.39 × 0.63)		
	Pressure range in which cap valve is openkPa (kg/cm², psi)	Positive pressure side	Standard	93 — 123 (0.95 — 1.25, 14 — 18)		
			Limit	83 (0.85, 12)		
		Negative pressure side	Standard	−1.0 — −4.9 (−0.01 — −0.05, −0.1 — −0.7)		
	Fins			Corrugated fin type		
Reservoir tank	Capacityℓ (US qt, Imp qt)			0.45 (0.48, 0.40)		

	Recommended materials	Item number	Alternative
Coolant	SUBARU SUPER COOLANT (Concentrated type)	—	—
	SUBARU SUPER COOLANT (Diluted type)	K0670Y0001	
Water for dilution	Distilled water	—	Soft water or tap water
Cooling system protective agent	Cooling system conditioner	SOA345001	—

## B: COMPONENT

### 1. WATER PUMP



CO-02572

- |                         |                        |
|-------------------------|------------------------|
| (1) Water pump ASSY     | (6) Thermostat cover   |
| (2) Gasket              | (7) Water by-pass pipe |
| (3) Heater by-pass hose | (8) Clip               |
| (4) Thermostat          | (9) Water pump sealing |
| (5) Gasket              |                        |

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

**T1: 6.4 (0.7, 4.7)**

**T2: 9 (0.9, 6.6)**

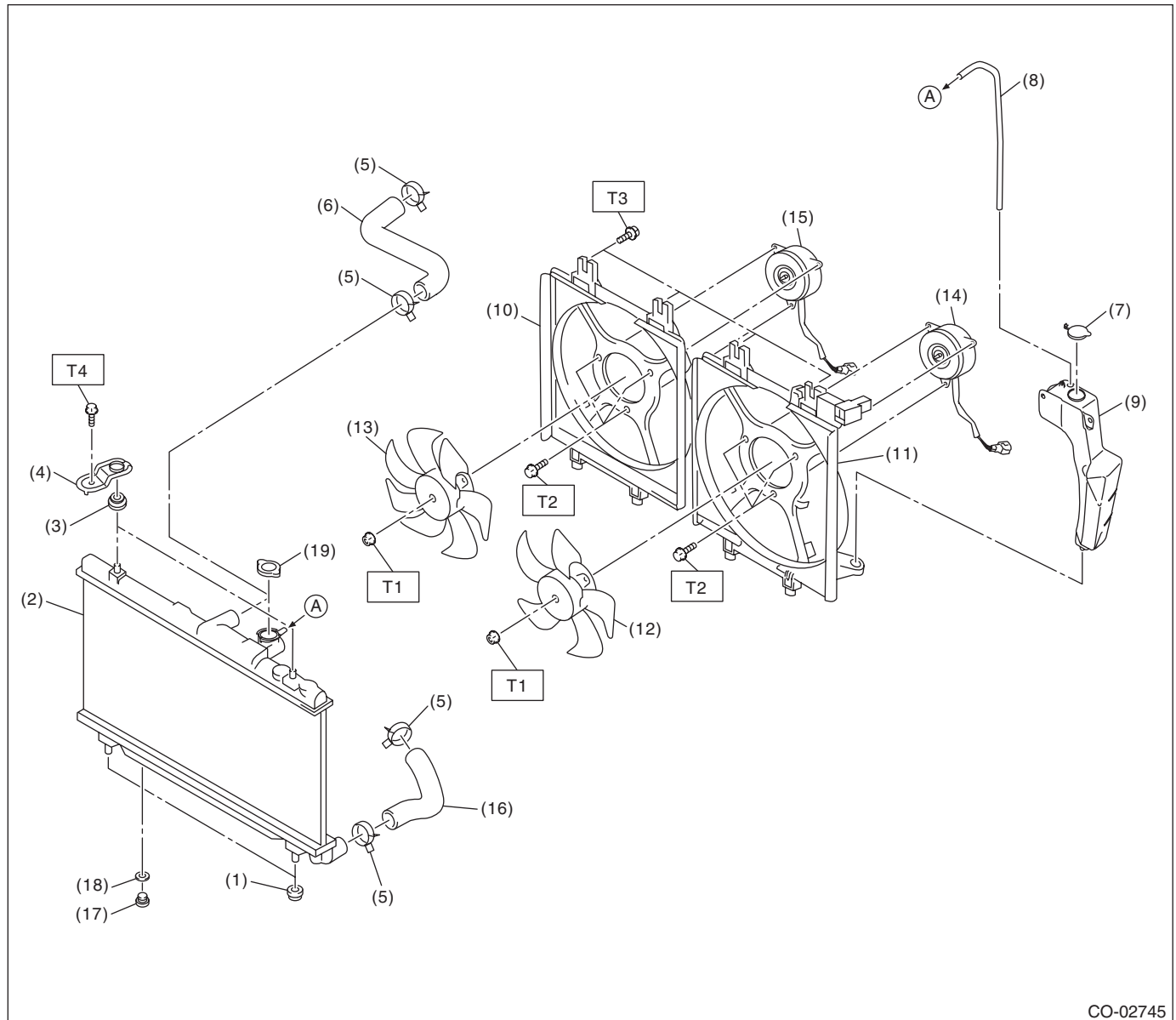
**T3: First 12 (1.2, 8.9)**

**Second 12 (1.2, 8.9)**

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### 2. RADIATOR AND RADIATOR FAN



CO-02745

- |                                       |                               |                   |
|---------------------------------------|-------------------------------|-------------------|
| (1) Radiator lower cushion            | (10) Radiator sub fan shroud  | (19) Radiator cap |
| (2) Radiator                          | (11) Radiator main fan shroud |                   |
| (3) Radiator upper cushion            | (12) Radiator main fan        |                   |
| (4) Radiator upper bracket            | (13) Radiator sub fan         |                   |
| (5) Clip                              | (14) Main fan motor           |                   |
| (6) Radiator inlet hose               | (15) Sub fan motor            |                   |
| (7) Engine coolant reservoir tank cap | (16) Radiator outlet hose     |                   |
| (8) Over flow hose                    | (17) Radiator drain plug      |                   |
| (9) Engine coolant reservoir tank     | (18) O-ring                   |                   |

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

***T1: 3.4 (0.3, 2.5)***

***T2: 5 (0.5, 3.7)***

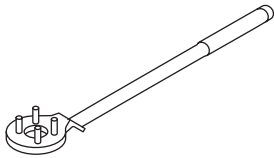
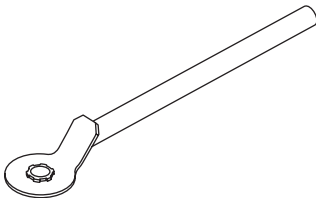
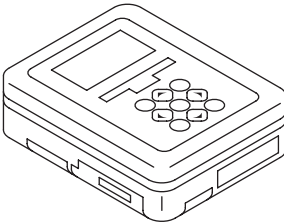
***T3: 7.5 (0.8, 5.5)***

***T4: 12 (1.2, 8.9)***

**C: CAUTION**

- Wear appropriate work clothing, including a cap, protective goggles and protective shoes when performing any work.
- Remove contamination including dirt and corrosion before removal, installation or disassembly.
- Keep the disassembled parts in order and protect them from dust and dirt.
- Before removal, installation or disassembly, be sure to clarify the failure. Avoid unnecessary removal, installation, disassembly and replacement.
- Vehicle components are extremely hot after driving. Be wary of receiving burns from heated parts.
- Be sure to tighten fasteners including bolts and nuts to the specified torque.
- Place shop jacks or rigid racks at the specified points.
- Before disconnecting connectors of sensors or units, be sure to disconnect the ground cable from battery.
- Prepare a container and cloth to prevent scattering of engine coolant when performing work where engine coolant can be spilled. If the fuel spills, wipe it off immediately to prevent from penetrating into floor or flowing out for environmental protection.
- Follow all government and local regulations concerning disposal of refuse when disposing engine coolant.

**D: PREPARATION TOOL****1. SPECIAL TOOL**

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST-499977100	499977100	CRANK PULLEY WRENCH	Used for removing and installing the crank pulley.
 ST-499977500	499977500	CAM SPROCKET WRENCH	Used for removing and installing intake cam sprocket and exhaust cam sprocket.
 ST1B022XU0	1B022XU0	SUBARU SELECT MONITOR III KIT	Used for troubleshooting the electrical system.

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### 2. GENERAL TOOL

TOOL NAME	REMARKS
Circuit tester	Used for measuring resistance and voltage.
Radiator cap tester	Used for checking radiator and radiator cap.