

# General Description

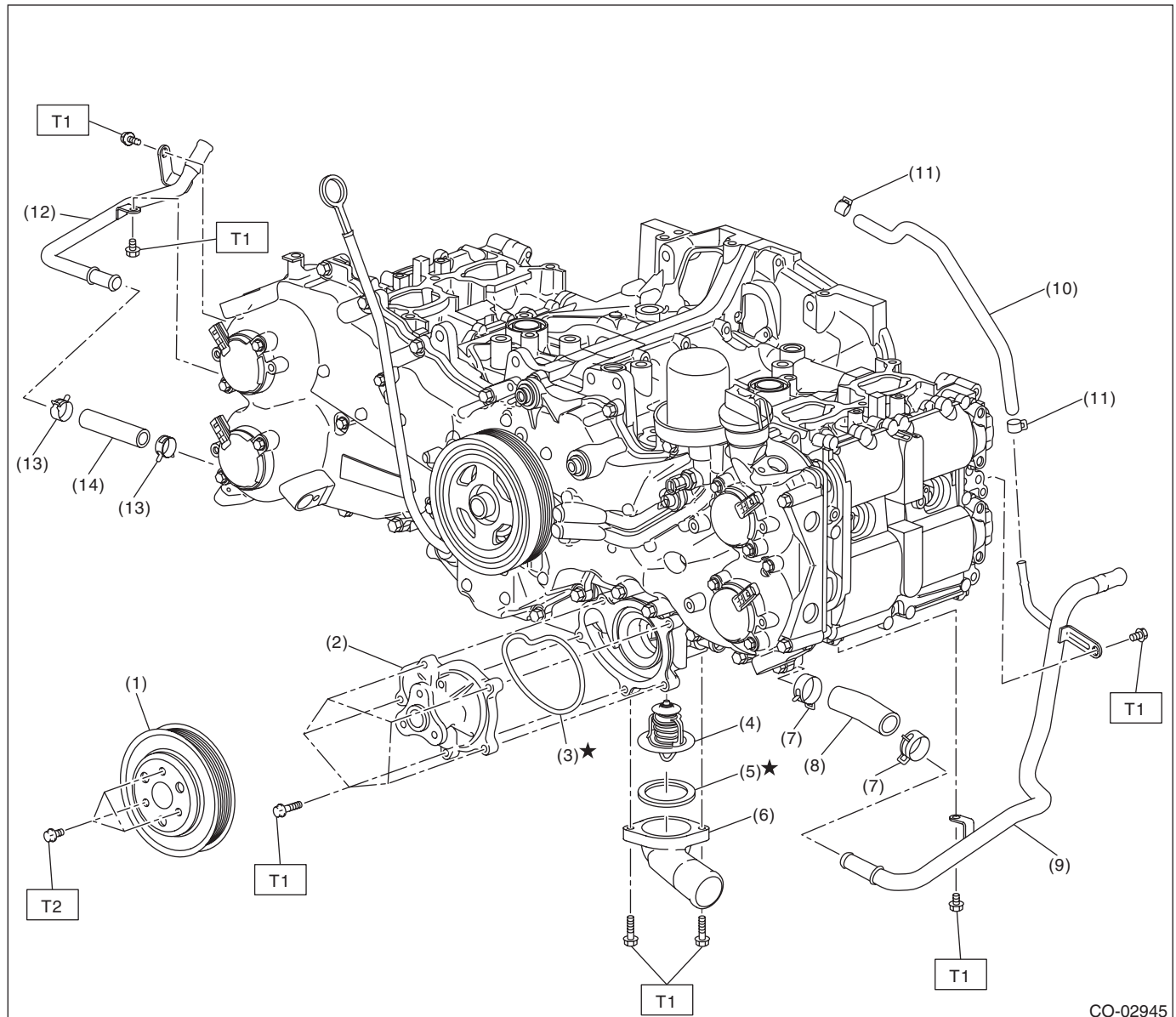
## COOLING

### 1. General Description

#### A: SPECIFICATION

Cooling system					Electric fan + Forced engine coolant circulation system	
Total engine coolant capacityℓ (US qt, Imp qt)			CVT model		Approx. 7.8 (8.2, 6.9)	
			MT model		Approx. 7.5 (7.9, 6.6)	
Water pump	Type				Centrifugal impeller type	
	Discharge performance	Discharge rateℓ (US gal, Imp gal) /min.			230 (60.8, 50.6)	
		Pump speed — Discharge pressure			6,600 rpm — 211.0 kPa (22 mAq)	
		Engine coolant temperature			80°C (176°F)	
	Impeller diametermm (in)			60 (2.36)		
	Number of impeller vanes			7		
	Pump pulley diametermm (in)			130 (5.12)		
Thermostat	Type				Wax pellet type	
	Starting temperature to open	Engine side			87 — 91°C (189 — 196°F)	
		ATF cooler (with warmer feature) side			48 — 52°C (118 — 126°F)	
	Fully opens	Engine side			98°C (208°F)	
		ATF cooler (with warmer feature) side			63°C (145°F)	
	Valve liftmm (in)	Engine side			8.0 (0.315) or more	
		ATF cooler (with warmer feature) side			6.0 (0.236) or more	
Valve boremm (in)			32 (1.26)			
Radiator fan	Motor input	Main fanW			120	
		Sub fanW			120	
	Fan diameter/ Blade	Main fan			318.5 mm (12.54 in)/9	
		Sub fan			318.5 mm (12.54 in)/11	
Radiator	Type				Down flow, pressure type	
	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/cm <sup>2</sup> , psi)	Positive pres- sure side	Standard	93 — 123 (0.95 — 1.25, 14 — 18)		
			Limit	83 (0.85, 12)		
		Negative pres- sure side	Standard	–1.0 to –4.9 or less (–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-02945

- |                       |                                |                                     |
|-----------------------|--------------------------------|-------------------------------------|
| (1) Water pump pulley | (7) Clip                       | (13) Clip (CVT model)               |
| (2) Water pump ASSY   | (8) Water pipe hose LH         | (14) Water pipe hose RH (CVT model) |
| (3) Gasket            | (9) Water pipe LH              |                                     |
| (4) Thermostat        | (10) Preheater hose            |                                     |
| (5) Gasket            | (11) Clip                      |                                     |
| (6) Thermostat cover  | (12) Water pipe RH (CVT model) |                                     |

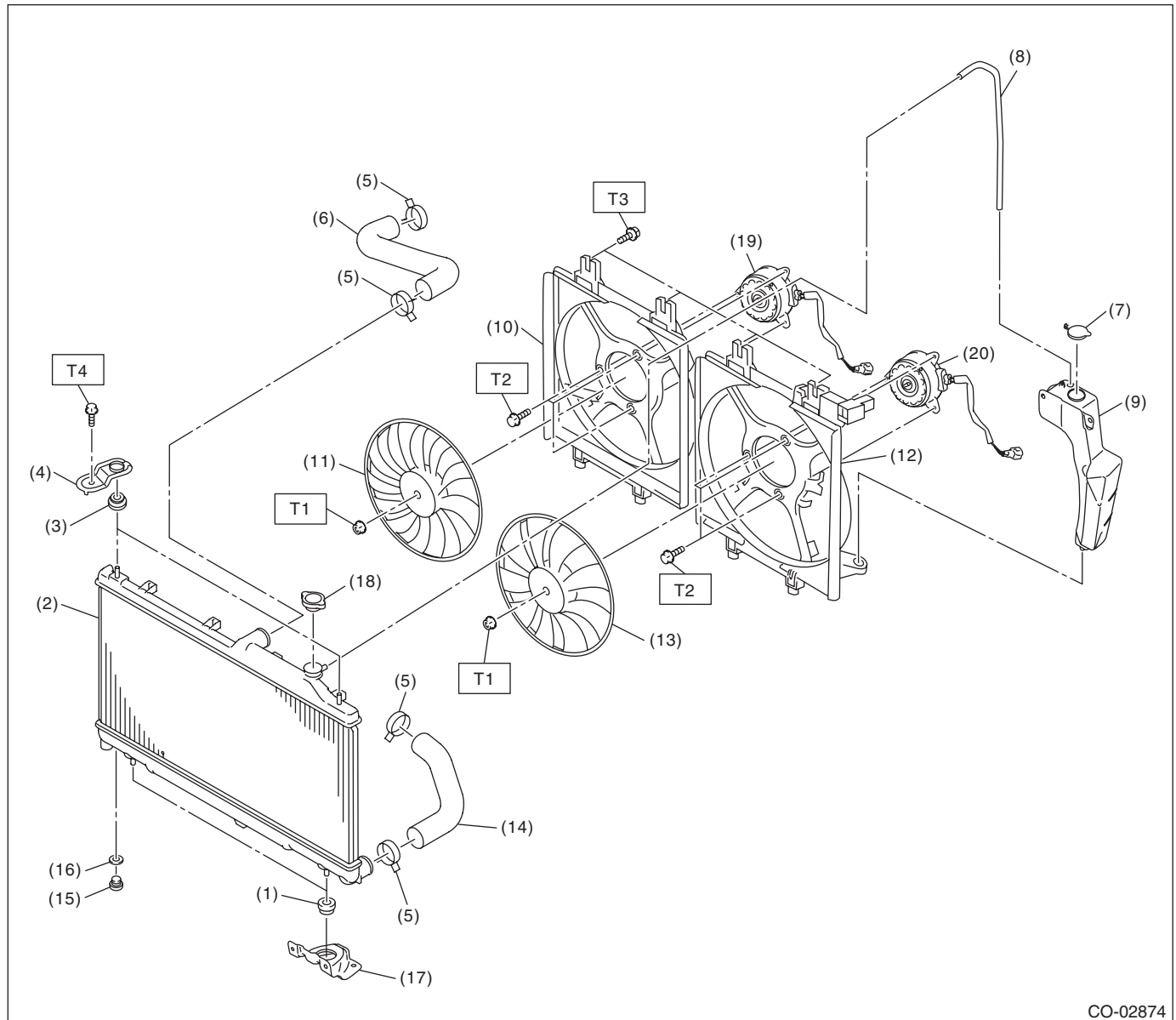
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**Tightening torque: N·m (kgf-m, ft-lb)**
**T1: 6.4 (0.7, 4.7)**
**T2: 14 (1.4, 10.3)**


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## COOLING

## 2. RADIATOR & RADIATOR FAN



- |                                       |                               |                                     |
|---------------------------------------|-------------------------------|-------------------------------------|
| (1) Radiator lower cushion            | (10) Radiator sub fan shroud  | (19) Sub fan motor                  |
| (2) Radiator                          | (11) Radiator sub fan         | (20) Main fan motor                 |
| (3) Radiator upper cushion            | (12) Radiator main fan shroud |                                     |
| (4) Radiator upper bracket            | (13) Radiator main fan        | <b><i>Tightening torque:N·m</i></b> |
| (5) Clip                              | (14) Radiator outlet hose     | <b><i>T1: 3.4 (0.3, 2.5)</i></b>    |
| (6) Radiator inlet hose               | (15) Radiator drain plug      | <b><i>T2: 4.41 (0.45, 3.2)</i></b>  |
| (7) Engine coolant reservoir tank cap | (16) O-ring                   | <b><i>T3: 7.5 (0.8, 5.5)</i></b>    |
| (8) Over flow hose                    | (17) Radiator lower bracket   | <b><i>T4: 12 (1.2, 8.9)</i></b>     |
| (9) Engine coolant reservoir tank     | (18) Radiator cap             |                                     |

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

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

**T2: 4.41 (0.45, 3.25)**

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

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

## C: CAUTION

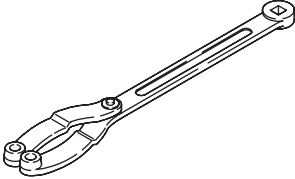
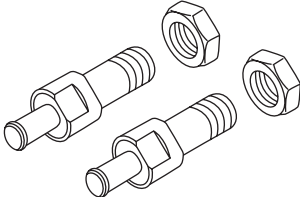
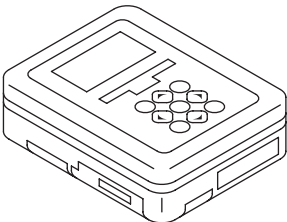
- Prior to starting work, pay special attention to the following:
  1. Always wear work clothes, a safety cap, protective shoes. Additionally, wear a helmet, protective goggles, etc. if necessary.
  2. Protect the vehicle using a seat cover, fender cover, etc.
  3. Prepare the service tools, clean cloth, containers to catch grease and oil, etc.
- Prepare a container and cloth to prevent scattering of engine coolant when performing work where engine coolant can be spilled. If the oil spills, wipe it off immediately to prevent from penetrating into floor or flowing out for environmental protection.
- Vehicle components are extremely hot immediately after driving. Be wary of receiving burns from heated parts.
- When performing a repair, identify the cause of trouble and avoid unnecessary removal, disassembly and replacement.
- Before disconnecting connectors of sensors or units, be sure to disconnect the ground cable from battery.
- Always use the jack-up point when the shop jacks or rigid racks are used to support the vehicle.
- Remove contamination including dirt and corrosion before removal, installation, disassembly or assembly.
- Keep the removed parts in order and protect them from dust and dirt.
- All removed parts, if to be reused, should be reinstalled in the original positions with attention to the correct directions, etc.
- Bolts, nuts and washers should be replaced with new parts as required.
- Be sure to tighten the fasteners including bolts and nuts to the specified torque.
- Follow all government and local regulations concerning disposal of refuse when disposing engine coolant.

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## COOLING

### D: PREPARATION TOOL

#### 1. SPECIAL TOOL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST18355AA000	18355AA000	PULLEY WRENCH	Used for removing and installing water pump pulley.
 ST18334AA030	18334AA030	PULLEY WRENCH PIN SET	Used for removing and installing water pump pulley.
 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 and voltage.
Radiator cap tester	Used for checking radiator and radiator cap.