1. General Description

A: SPECIFICATION

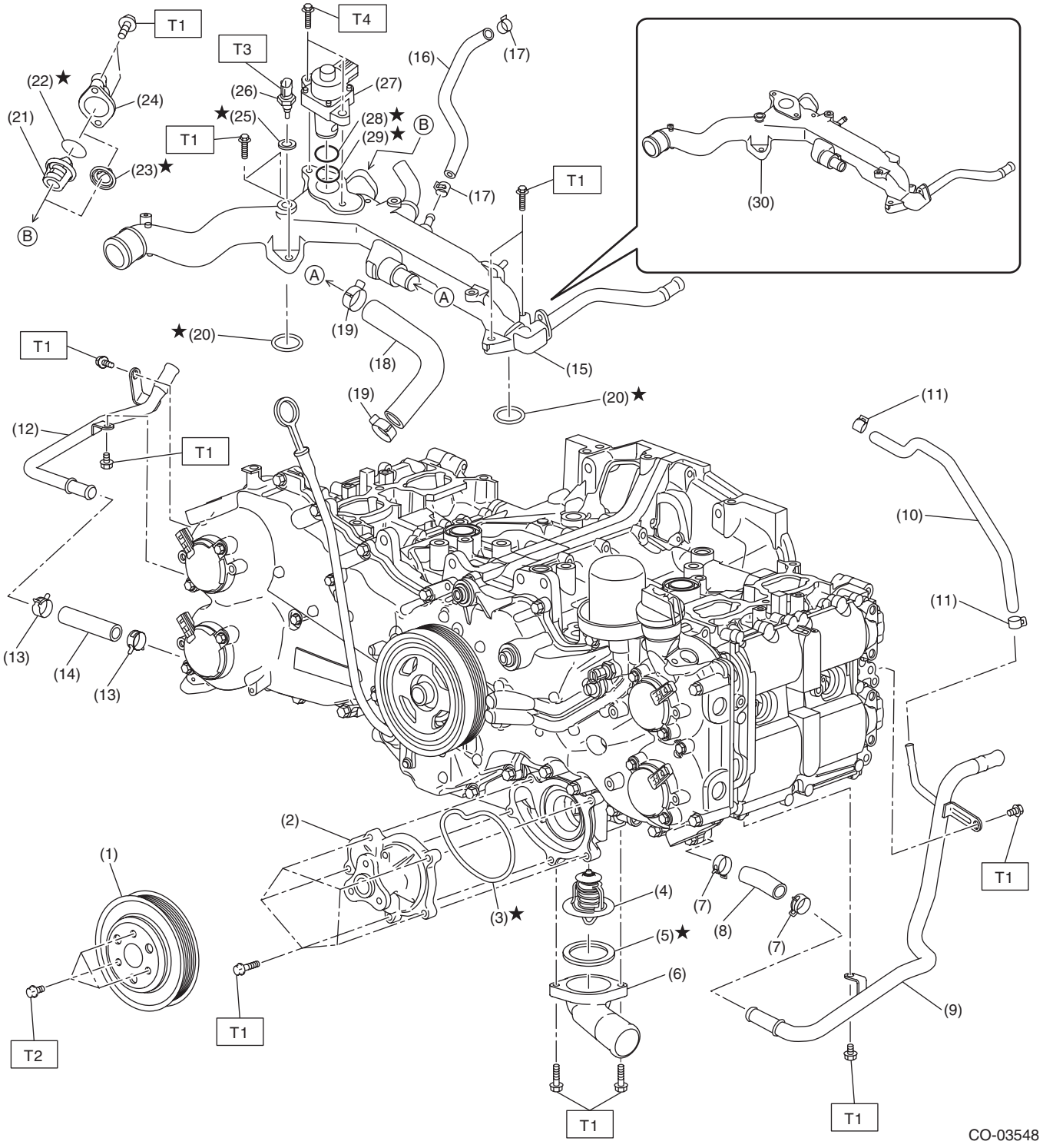
Cooling system					Electric fan + Forced engine coolant circulation system
Total engine coolant capacity L (US qt, Imp qt)		Gasoline engine model		CVT model	Approx. 8.4 (8.9, 7.4)
				MT model	Approx. 8.0 (8.5, 7.0)
		HEV model			Approx. 8.2 (8.7, 7.2)
Water pump	Type				Centrifugal impeller type
	Discharge performance	Discharge rate L (US gal, Imp gal)/min			230 (60.8, 50.6)
		Pump speed — Discharge pressure			6,600 r/min — 211.0 kPa (22 mAq)
		Engine coolant temperature			80°C (176°F)
	Impeller diameter mm (in)				60 (2.36)
	Number of impeller vanes				7
	Pump pulley diameter mm (in)	Gasoline engine model			130 (5.12)
		HEV model			143 (5.63)
Thermostat	Type				Wax pellet type
	Starting temperature to open	Engine side	Gasoline engine model		90 — 94°C (194 — 201°F)
			HEV model		87 — 91°C (189 — 196°F)
		CVTF cooler (with warmer feature) side (CVT model)			48 — 52°C (118 — 126°F)
	Fully opens	Engine side	Gasoline engine model		100°C (212°F)
			HEV model		98°C (208°F)
		CVTF cooler (with warmer feature) side (CVT model)			63°C (145°F)
	Valve lift mm (in)	Engine side			8.0 (0.315) or more
		CVTF cooler (with warmer feature) side (CVT model)			6.0 (0.236) or more
	Valve opening size mm (in)	Engine side			32 (1.26)
		CVTF cooler (with warmer feature) side (CVT model)			22 (0.87)
Radiator fan	Motor input	Main fan W			120
		Sub fan W			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 × Thickness mm (in)			687.4 × 340 × 16 (27.06 × 13.39 × 0.63)
	Pressure range in which cap valve is open kPa (kg/cm^2, psi)		Positive pressure side	Standard	93 — 123 (0.95 — 1.25, 14 — 18)
				Limit	83 (0.85, 12)
			Negative pressure side	Standard	–1.0 to –4.9 or less (–0.01 — –0.05, –0.1 — –0.7)
	Fins				Corrugated fin type
Reservoir tank	Capacity L (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

- Gasoline engine model

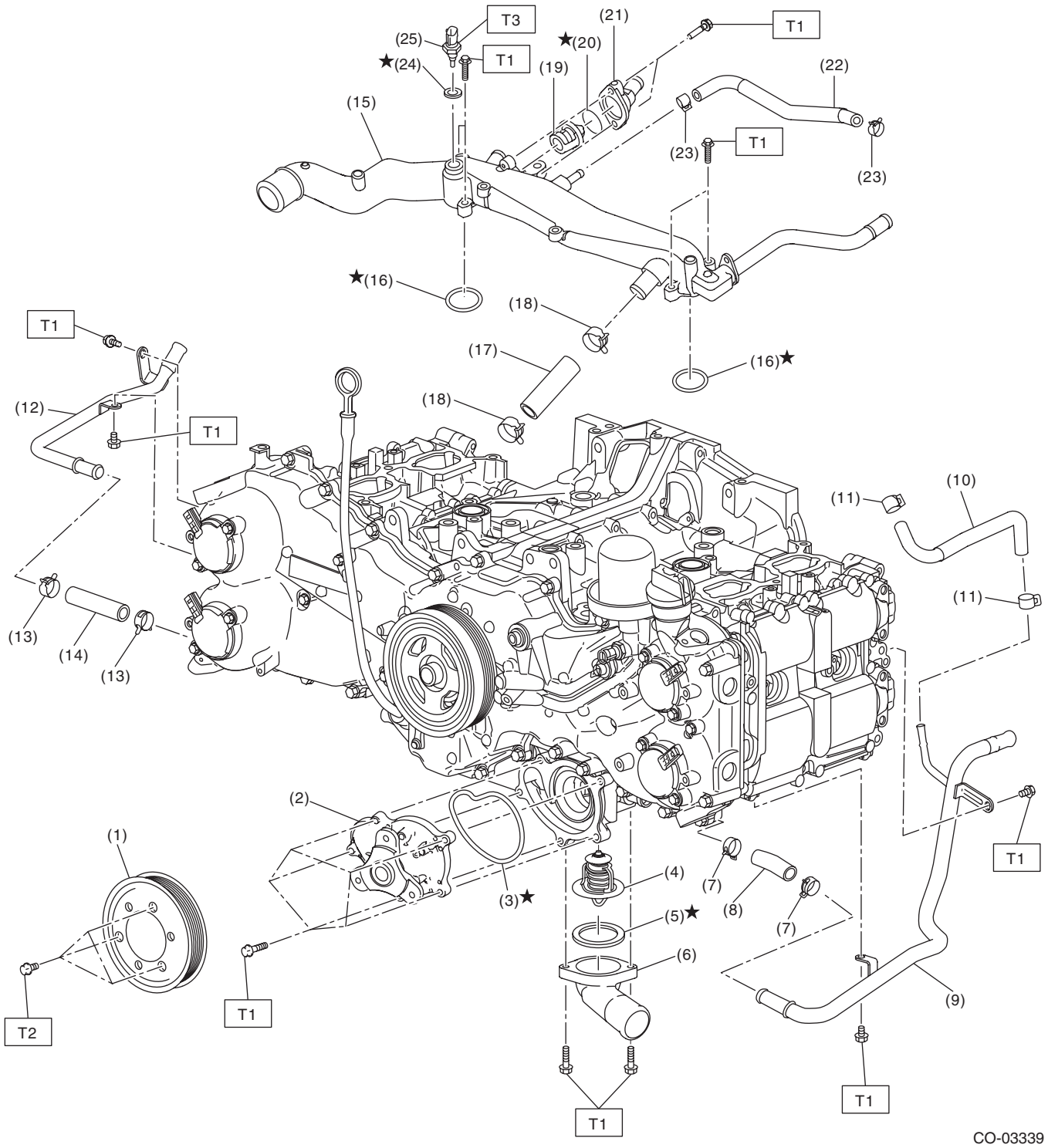


(1) Water pump pulley
(2) Water pump ASSY
(3) Gasket
(4) Thermostat (engine side)
(5) Gasket (engine side)
(6) Thermostat cover (engine side)
(7) Clip
(8) Water pipe hose LH
(9) Water pipe LH
(10) Preheater hose
(11) Clip
(12) Water pipe RH (CVT model)
(13) Clip (CVT model)
(14) Water pipe hose RH (CVT model)
(15) Water pipe ASSY (CVT model)
(16) Preheater hose A
(17) Clip
(18) Preheater hose B
(19) Clip
(20) O-ring
(21) Thermostat (CVTF cooler (with warmer feature) side)
(22) Gasket (CVTF cooler (with warmer feature) side)
(23) Gasket (MT model)
(24) Thermostat cover (CVTF cooler (with warmer feature) side)
(25) Gasket
(26) Engine coolant temperature sensor
(27) EGR control valve
(28) O-ring
(29) Gasket
(30) Water pipe ASSY (MT model)

Tightening torque: N·m (kgf-m, ft-lb)

T1: 6.4 (0.7, 4.7)
T2: 14 (1.4, 10.3)
T3: 18 (1.8, 13.3)
T4: 22 (2.2, 16.2)

- HEV model


T3
(25)
T1
★(24)
(21)
T1
★(20)
(19)
(22)
(15)
(23)
T1
(23)
★(16)
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T1
(17)
(16)★
(18)
(12)
T1
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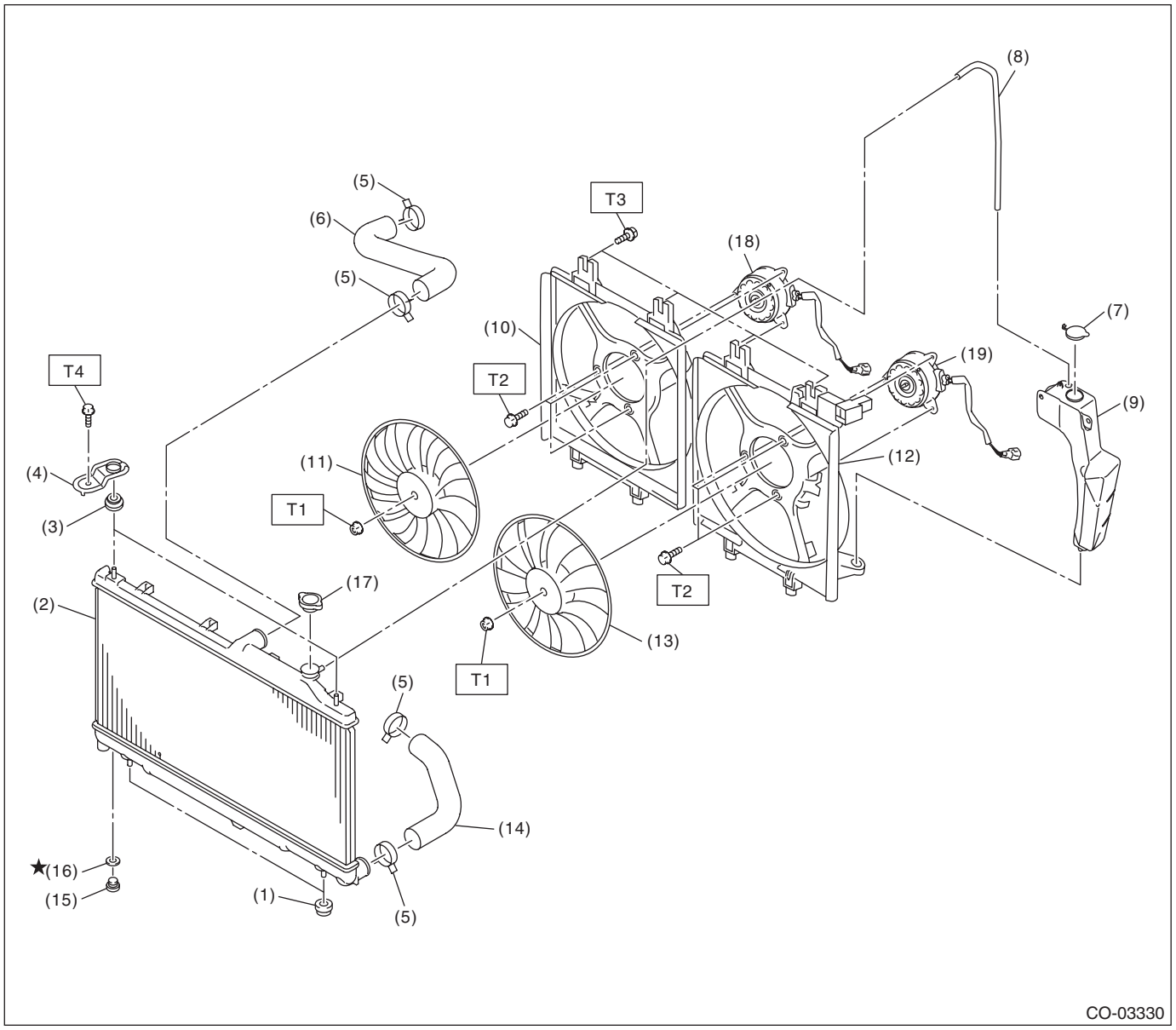
(11)
(13)
(14)
(13)
(2)
(1)
(4)
(7)
T1
(3)★
(8)
(5)★
(7)
(6)
(9)
T2
T1
T1
T1
CO-03339

(1) Water pump pulley
(2) Water pump ASSY
(3) Gasket
(4) Thermostat (engine side)
(5) Gasket (engine side)
(6) Thermostat cover (engine side)
(7) Clip
(8) Water pipe hose LH
(9) Water pipe LH
(10) Preheater hose
(11) Clip
(12) Water pipe RH
(13) Clip
(14) Water pipe hose RH
(15) Water pipe ASSY
(16) O-ring
(17) Preheater hose B
(18) Clip
(19) Thermostat (CVTF cooler (with warmer feature) side)
(20) Gasket (CVTF cooler (with warmer feature) side)
(21) Thermostat cover (CVTF cooler (with warmer feature) side)
(22) Preheater hose A
(23) Clip
(24) Gasket
(25) Engine coolant temperature sensor

Tightening torque: N·m (kgf-m, ft-lb)

T1: 6.4 (0.7, 4.7)
T2: 14 (1.4, 10.3)
T3: 18 (1.8, 13.3)

2. RADIATOR & RADIATOR FAN



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

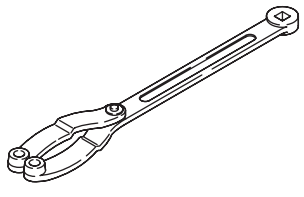
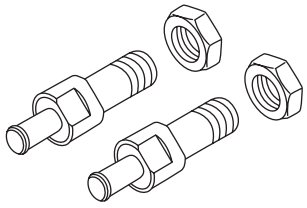
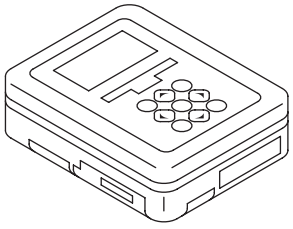
Tightening torque: N·m (kgf-m, ft-lb)
T1: 3.4 (0.3, 2.5)
T2: 4.41 (0.45, 3.25)
T3: 7.5 (0.8, 5.5)
T4: 12 (1.2, 8.9)

C: CAUTION

- Prior to starting work, pay special attention to the following:
  1. Always wear work clothes, a work cap, and 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.

D: PREPARATION TOOL

1. SPECIAL TOOL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST18355AA000	18355AA000	PULLEY WRENCH	• Used for removing and installing water pump pulley. • Used with PULLEY WRENCH PIN SET (18334AA030).
 ST18334AA030	18334AA030	PULLEY WRENCH PIN SET	• Used for removing and installing water pump pulley. • Used together with PULLEY WRENCH (18355AA000).
 ST1B022XU0	1B022XU0	SUBARU SELECT MONITOR III KIT	Used for setting of each function and trouble-shooting for electrical system. NOTE: For detailed operation procedures of Subaru Select Monitor III, refer to “PC application help for Subaru Select Monitor”.

2. GENERAL TOOL

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