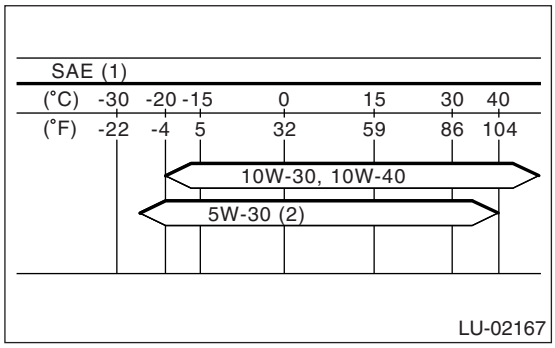
1. General Description

A: SPECIFICATION

Lubrication method				Forced lubrication
Oil pump	Pump type			Trochoid type
	Number of teeth	Inner rotor		9
		Outer rotor		10
	Outer rotor diameter × thickness			78 × 10 mm (3.07 × 0.39 in)
	Tip clearance between inner and outer rotors		Specification	0.04 — 0.14 mm (0.0016 — 0.0055 in)
			Limit	0.18 mm (0.0071 in)
	Side clearance between inner rotor and pump case		Specification	0.02 — 0.07 mm (0.0008 — 0.0028 in)
			Limit	0.12 mm (0.0047 in)
	Case clearance between outer rotor and pump case		Specification	0.10 — 0.175 mm (0.0039 — 0.0069 in)
			Limit	0.20 mm (0.0079 in)
	Performance (Oil temperature 80°C (176°F)	600 rpm	Discharge pressure	98 kPa (1.0 kgf/cm^2, 14 psi)
			Discharge rate	4.6 ℓ (4.9 US qt, 4.0 Imp qt)/min.
		5,000 rpm	Discharge pressure	294 kPa (3.0 kgf/cm^2, 43 psi)
			Discharge rate	47.0 ℓ (49.7 US qt, 41.4 Imp qt)/min.
	Relief valve working pressure			588 kPa (6.0 kgf/cm^2, 85 psi)
Oil filter	Filter type			Full-flow filter type
	Filtration area	Outer diameter: 68 mm (2.68 in)		800 cm^2 (124 sq in)
		Outer diameter: 65 mm (2.56 in)		470 cm^2 (73 sq in)
	By-pass valve opening pressure			160 kPa (1.63 kgf/cm^2, 23.2 psi)
	Outer diameter × width	Outer diameter: 68 mm (2.68 in)		68 × 65 mm (2.68 × 2.56 in)
		Outer diameter: 65 mm (2.56 in)		65 × 74.4 mm (2.56 × 2.93 in)
	Installation bolt specifications			M 20 × 1.5
Oil pressure switch	Type			Immersed contact point type
	Operating voltage — wattage			12 V — 3.4 W or less
	Warning light operating pressure			14.7 kPa (0.15 kgf/cm^2, 2.1 psi)
	Proof pressure			981 kPa (10 kgf/cm^2, 142 psi) or more
Engine oil	Capacity (at overhaul)	Non-turbo		4.8 ℓ (5.2 US qt, 4.3 Imp qt)
		Turbo		5.0 ℓ (5.4 US qt, 4.5 Imp qt)
	When replacing engine oil and oil filter	Non-turbo		AT: 4.3 ℓ (4.5 US qt, 3.8 Imp qt) MT: 4.2 ℓ (4.4 US qt, 3.7 Imp qt)
		Turbo		4.3 ℓ (4.5 US qt, 3.8 Imp qt)
	When replacing engine oil only	Non-turbo		4.0 ℓ (4.2 US qt, 3.5 Imp qt)
		Turbo		4.0 ℓ (4.2 US qt, 3.5 Imp qt)

Recommended oil:
Items having the API standard SL "Energy Conserving" logo
ILSAC standard GF-4 "starburst mark" displayed on container top.



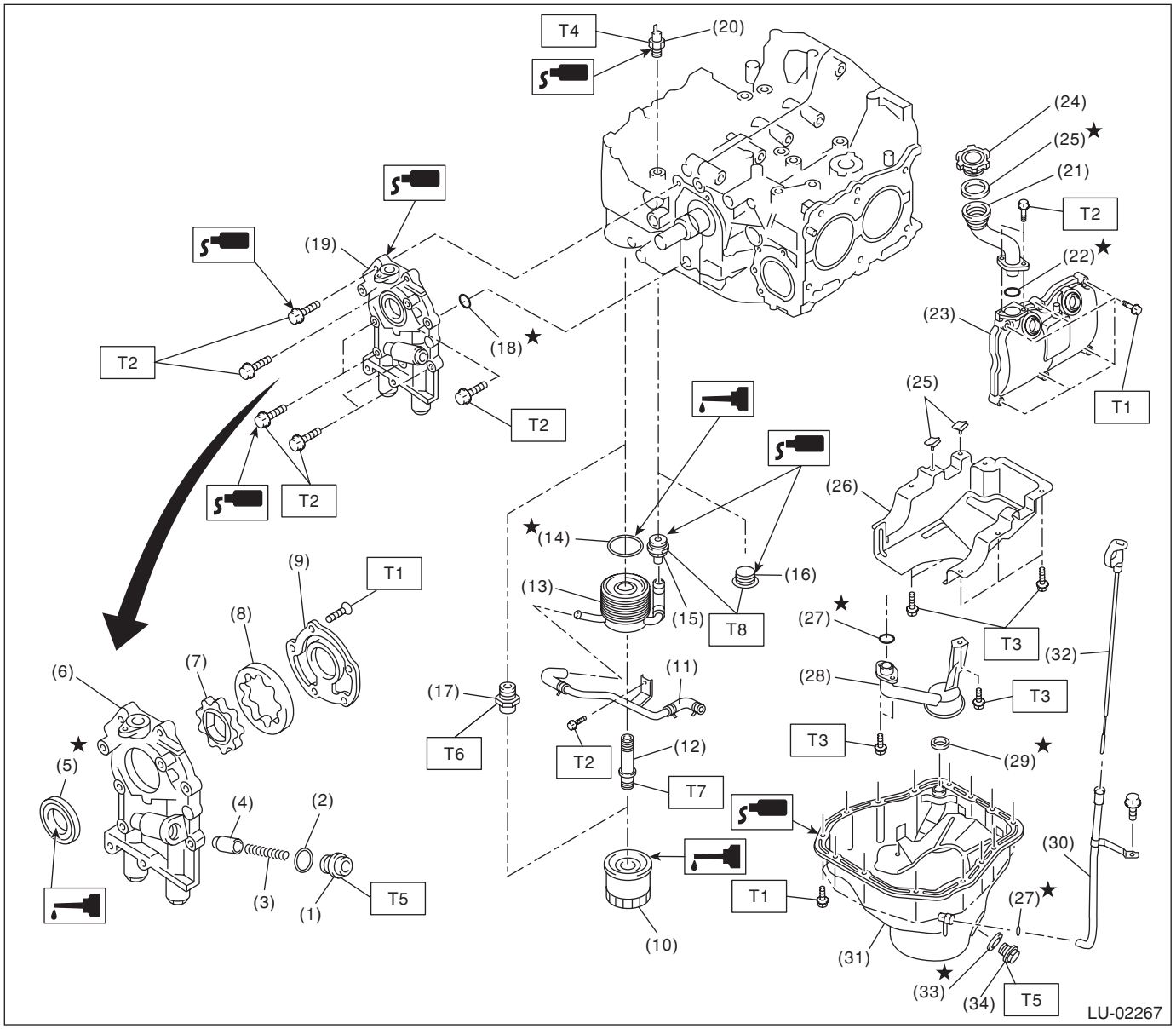
(1) SAE viscosity No. and applicable temperature
(2) Recommended

CAUTION:
It is acceptable to fill an engine with oil of another name when replacing oil, but use an API standard specified by Subaru or one that has SAE viscosity number.

NOTE:
Use an oil with the viscosity shown below if the vehicle is used in regions of high temperature, or in severe environments. API standard: SM or SL
SAE viscosity No.: 30, 40, 10W-50, 20W-40, 20W-50

B: COMPONENT

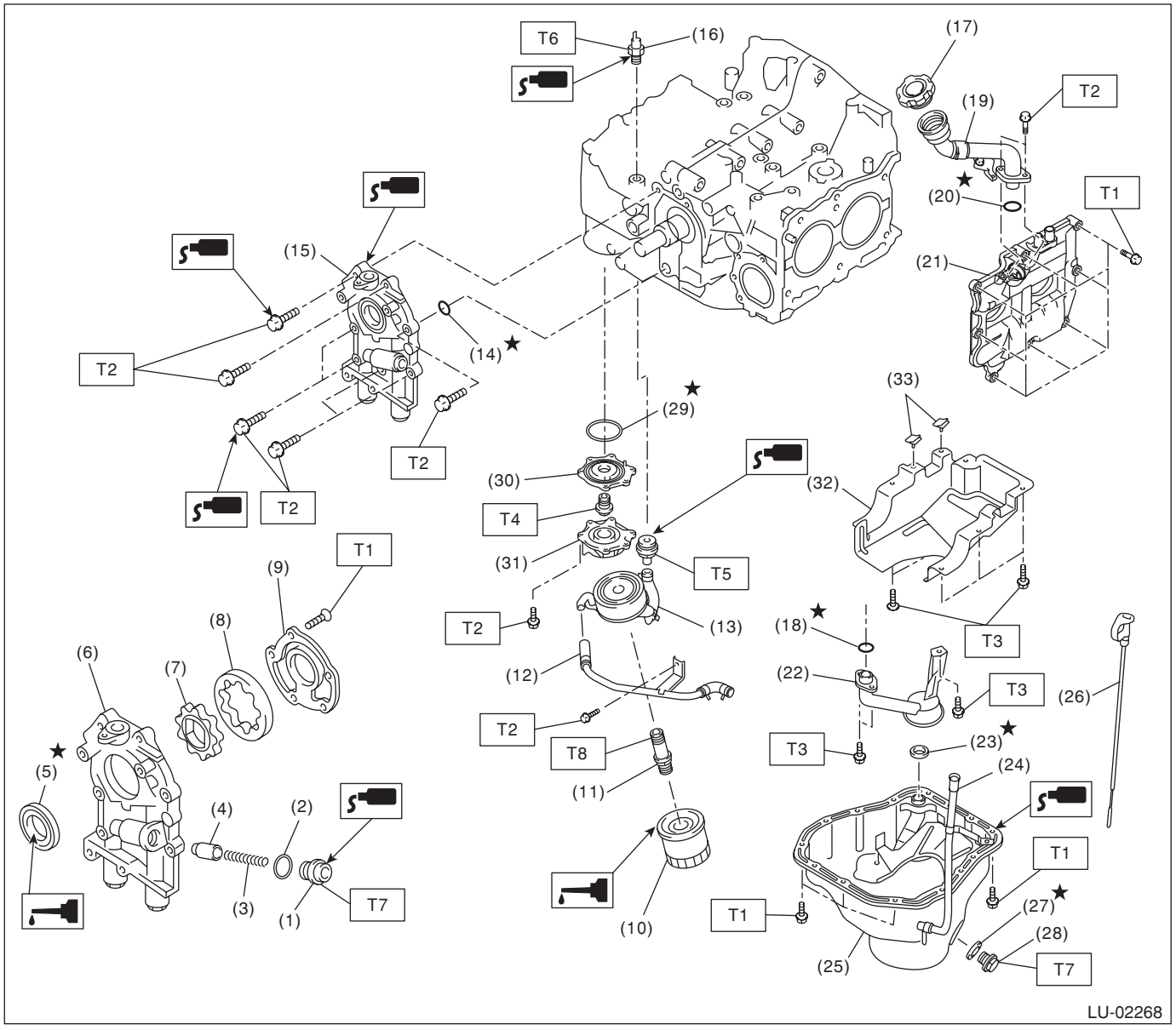
1. Non-turbo model



(1) Plug
(2) Gasket
(3) Relief valve spring
(4) Relief valve
(5) Oil seal
(6) Oil pump case
(7) Inner rotor
(8) Outer rotor
(9) Oil pump cover
(10) Oil filter
(11) Oil cooler pipe and hose ASSY (AT model)
(12) Connector (AT model)
(13) Oil cooler (AT model)
(14) O-ring (AT model)
(15) Nipple (AT model)
(16) Plug (MT model)
(17) Oil filter connector (MT model)
(18) O-ring
(19) Oil pump ASSY
(20) Oil pressure switch
(21) Oil filler duct
(22) O-ring
(23) Rocker cover
(24) Oil filler cap
(25) Seal
(26) Baffle plate
(27) O-ring
(28) Oil strainer
(29) Gasket
(30) Oil level gauge guide
(31) Oil pan
(32) Oil level gauge
(33) Metal gasket
(34) Drain plug

Tightening torque: N·m (kgf-m, ft-lb)
T1: 5 (0.5, 3.6)
T2: 6.4 (0.65, 4.7)
T3: 10 (1.0, 7.2)
T4: 25 (2.5, 18.1)
T5: 44 (4.5, 32.5)
T6: 45 (4.6, 33.2)
T7: 54 (5.5, 40)
T8: 69 (7.0, 51)
T9: 5.4 (0.55, 4.0)

2. Turbo model



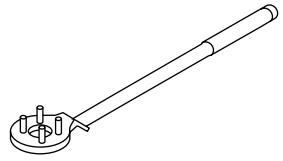
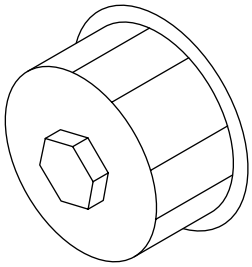
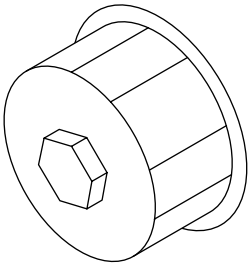
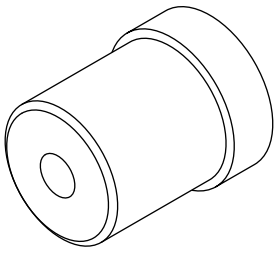
(1)	Plug	(16)	Oil pressure switch	(31)	Adapter (2)
(2)	Gasket	(17)	Oil filler cap	(32)	Baffle plate
(3)	Relief valve spring	(18)	O-ring	(33)	Seal
(4)	Relief valve	(19)	Oil filler duct	(34)	O-ring
(5)	Oil seal	(20)	O-ring		
(6)	Oil pump case	(21)	Rocker cover		
(7)	Inner rotor	(22)	Oil strainer		
(8)	Outer rotor	(23)	Gasket		
(9)	Oil pump cover	(24)	Oil level gauge guide		
(10)	Oil filter	(25)	Oil pan		
(11)	Oil cooler connector	(26)	Oil level gauge		
(12)	Water by-pass pipe	(27)	Metal gasket		
(13)	Oil cooler	(28)	Drain plug		
(14)	O-ring	(29)	Gasket		
(15)	Oil pump ASSY	(30)	Adapter (1)		

Tightening torque: N·m (kgf-m, ft-lb)	
T1:	*5 (0.5, 3.6)*
T2:	*6.4 (0.65, 4.7)*
T3:	*10 (1.0, 7.2)*
T4:	*45 (4.6, 33.2)*
T5:	*69 (7.0, 51)*
T6:	*25 (2.5, 18.1)*
T7:	*44 (4.5, 32.5)*
T8:	*54 (5.5, 40)*
T9:	*5.4 (0.55, 4.0)*

C: CAUTION

- Wear work clothing, including a cap, protective goggles and protective shoes during operation.
- 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.
- Be careful not to burn your hands, because each part on the vehicle is hot after running.
- 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.

D: PREPARATION TOOL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST-499977100	499977100	CRANK PULLEY WRENCH	Used for stopping rotation of crank pulley when loosening and tightening the crank pulley bolt.
 ST18332AA000	18332AA000	OIL FILTER WRENCH	Used for removing and installing oil filter. (Outer diameter 68 mm (2.68 in)
 ST18332AA010	18332AA010	OIL FILTER WRENCH	Used for removing and installing oil filter. (Outer diameter 65 mm (2.56 in)
 ST-499587100	499587100	OIL SEAL INSTALLER	Used for installing oil seal into oil pump.