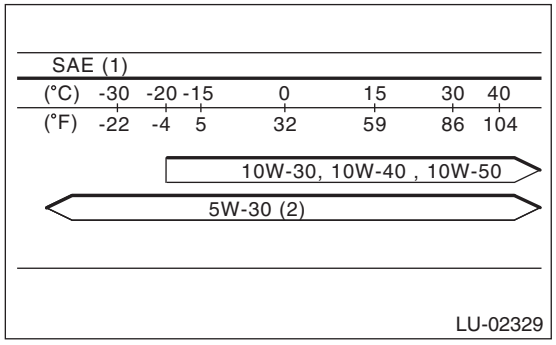
1. General Description

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	Turbo or non-turbo (U6 model)		78 × 10 mm (3.07 × 0.39 in)
		Non-turbo (U5 model)		76 × 10 mm (2.99 × 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. or more
		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. or more
	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)			5.0 ℓ (5.4 US qt, 4.5 Imp qt)
	When replacing engine oil and oil filter			4.2 ℓ (4.4 US qt, 3.7 Imp qt)
	When replacing engine oil only			4.0 ℓ (4.2 US qt, 3.5 Imp qt)

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



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

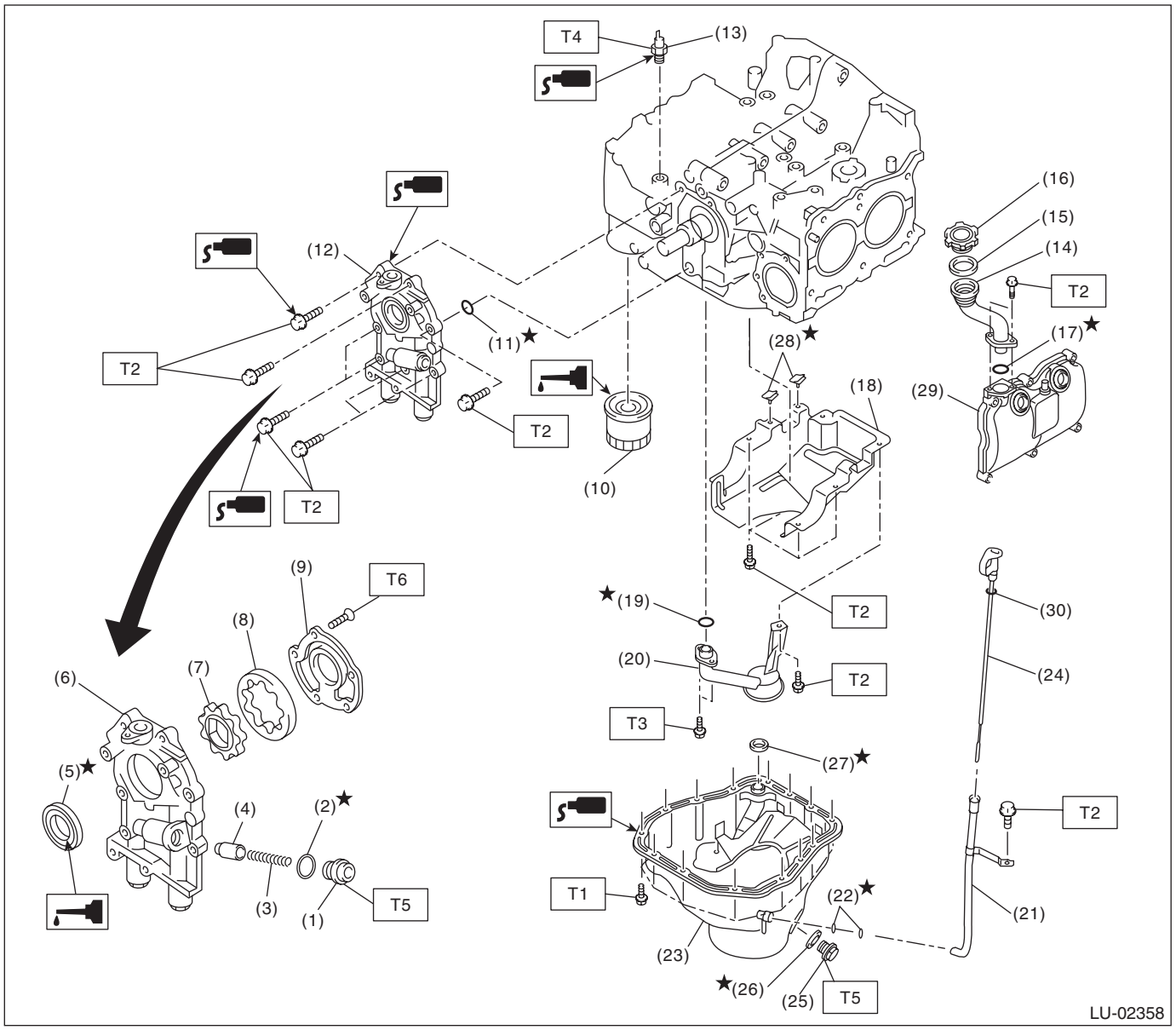
The proper viscosity oil helps the engine maintain its ideal temperature, and cranking speed increased by reducing viscosity friction in hot condition.

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

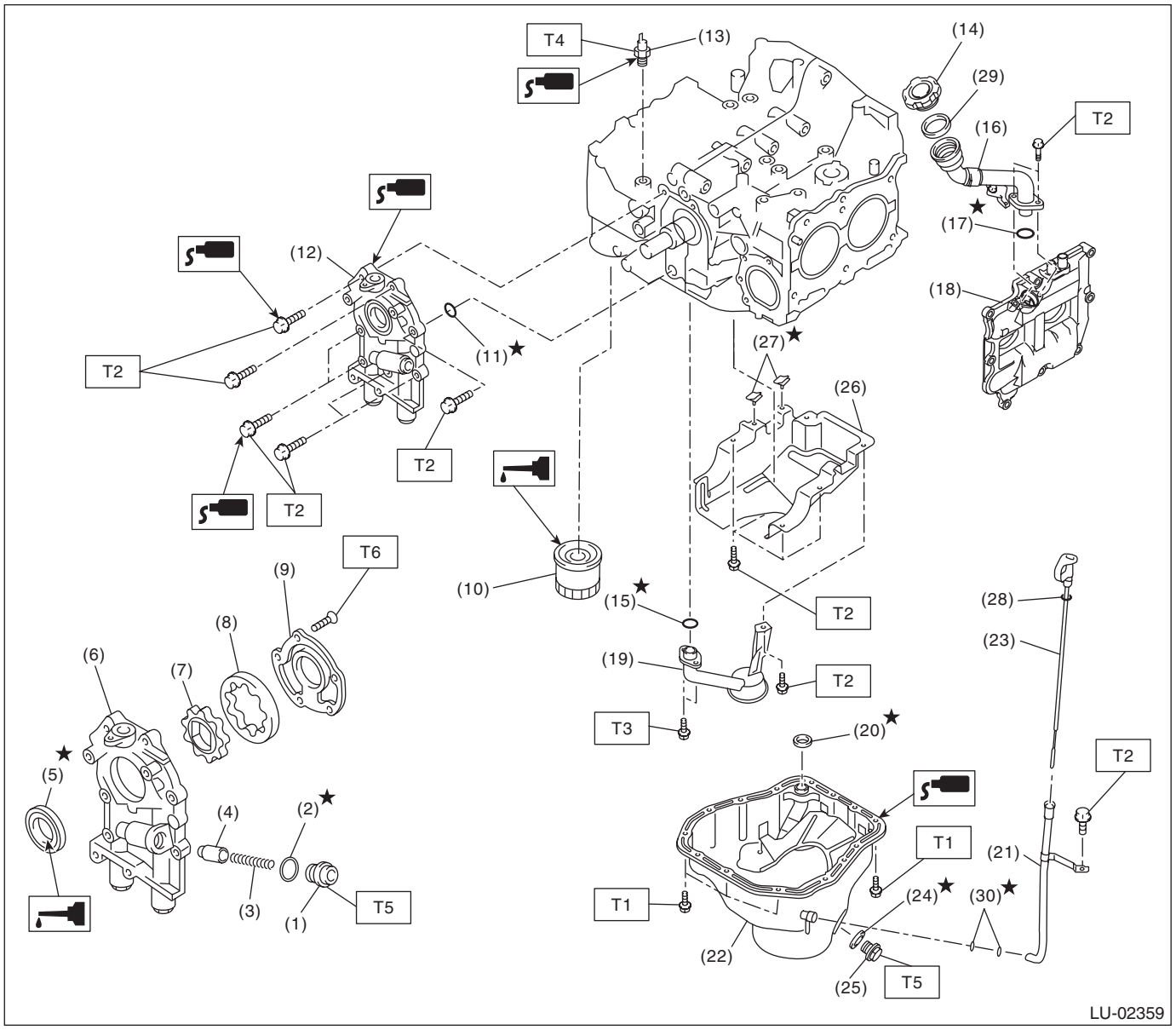
1. NON-TURBO MODEL



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

Tightening torque:N·m (kgf-m, ft-lb)
T1: 5 (0.5, 3.7)
T2: 6.4 (0.65, 4.7)
T3: 10 (1.0, 7.2)
T4: 25 (2.5, 18.4)
T5: 44 (4.5, 32.5)
T6: 5.4 (0.55, 4.0)

2. TURBO MODEL



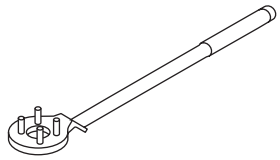
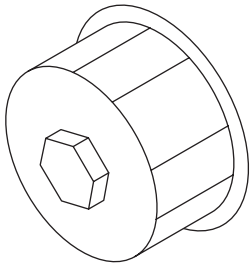
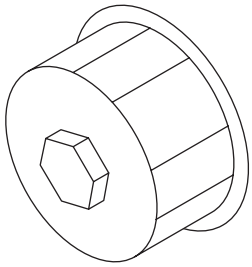
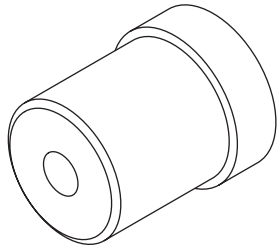
(1) Plug
(2) Gasket
(3) Relief valve spring
(4) Relief valve
(5) Front oil seal
(6) Oil pump case
(7) Inner rotor
(8) Outer rotor
(9) Oil pump cover
(10) Oil filter
(11) O-ring
(12) Oil pump ASSY
(13) Oil pressure switch
(14) Oil filler cap
(15) O-ring
(16) Oil filler duct
(17) O-ring
(18) Rocker cover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

Tightening torque:N·m (kgf-m, ft-lb)
T1: 5 (0.5, 3.7)
T2: 6.4 (0.65, 4.7)
T3: 10 (1.0, 7.2)
T4: 25 (2.5, 18.4)
T5: 44 (4.5, 32.5)
T6: 5.4 (0.55, 4.0)

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 the battery.
• If the engine oil is spilt over exhaust pipe or the under cover, wipe it off with cloth to avoid emitting smoke or causing a fire.

D: PREPARATION TOOL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST-499977100	499977100	CRANK PULLEY WRENCH	Used to stop rotation of the crank pulley when loosening or tightening crank pulley bolts.
 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.