

General Description

LUBRICATION

1. General Description

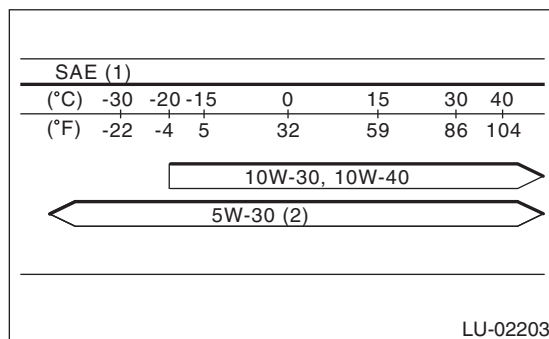
A: SPECIFICATION

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	Standard	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	Standard	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	Standard	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 screw specifications			M 20 × 1.5
Oil pres- sure switch	Type		Immersed contact point type
	Operating voltage — number of watts		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)		4.8 ℓ (5.2 US qt, 4.3 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:

Those with an 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

CAUTION:

It is acceptable to fill an engine with oil of another brand when replacing the oil, but make sure to use an oil with an API standard and SAE viscosity number specified by Subaru.

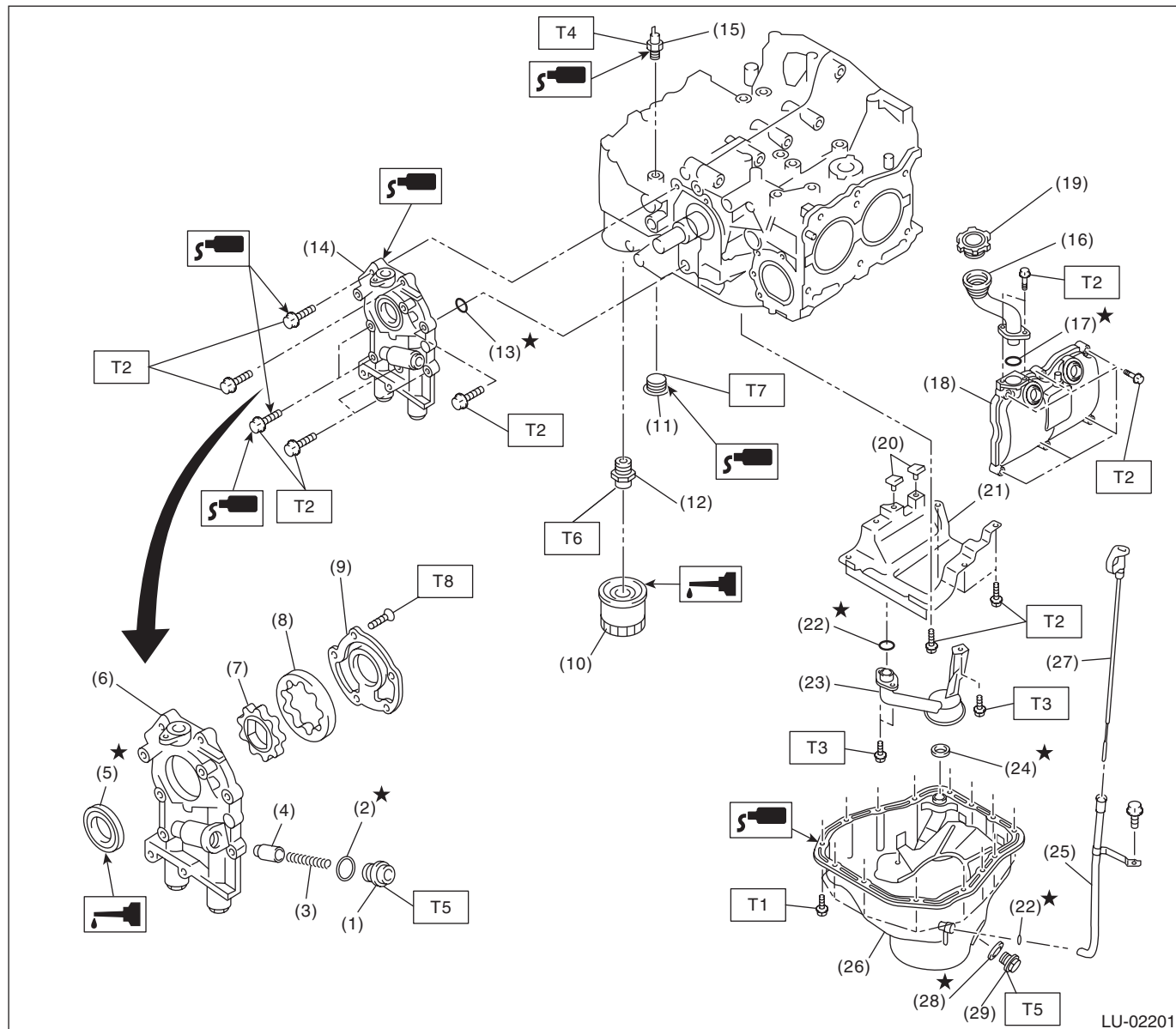
NOTE:

If the vehicle is used in regions with high temperatures or in other severe environments, use oil with the viscosities shown below.

API standard: SM or SL

SAE viscosity No.: 30, 40, 10W-50, 20W-40, 20W-50

B: COMPONENT



LU-02201

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

- | |
|----------------------|
| (27) Oil level gauge |
| (28) Metal gasket |
| (29) 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, 18.4)
T5: 44 (4.5, 32.5)
T6: 45 (4.6, 33.2)
T7: 70 (7.1, 51.6)
T8: 5.4 (0.55, 4.0)

General Description

LUBRICATION

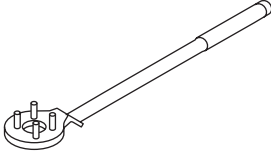
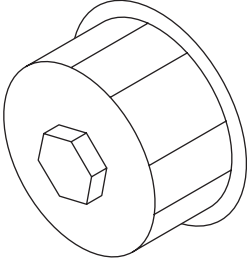
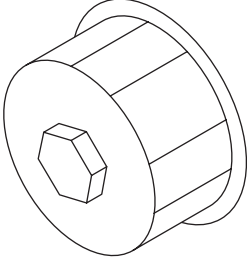
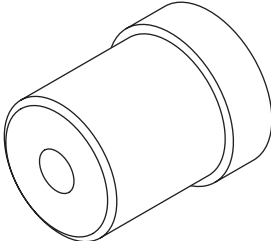
C: CAUTION

- 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.
- 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 the battery.

General Description

LUBRICATION

D: PREPARATION TOOL

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