

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)	
	Side clearance between inner rotor and pump case		Standard 0.02 — 0.07 mm (0.0008 — 0.0028 in)	
	Case clearance between outer rotor and pump case		Standard 0.10 — 0.175 mm (0.0039 — 0.0069 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 pressure 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)		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:

Those with an API standard SM “Energy Conserving” logo.

ILSAC standard GF-4 “starburst mark” displayed on container top.

SAE (1)							
(°C)	-30	-20	-15	0	15	30	40
(°F)	-22	-4	5	32	59	86	104

10W-30, 10W-40, 10W-50

5W-30 (2)

LU-02329

- (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.

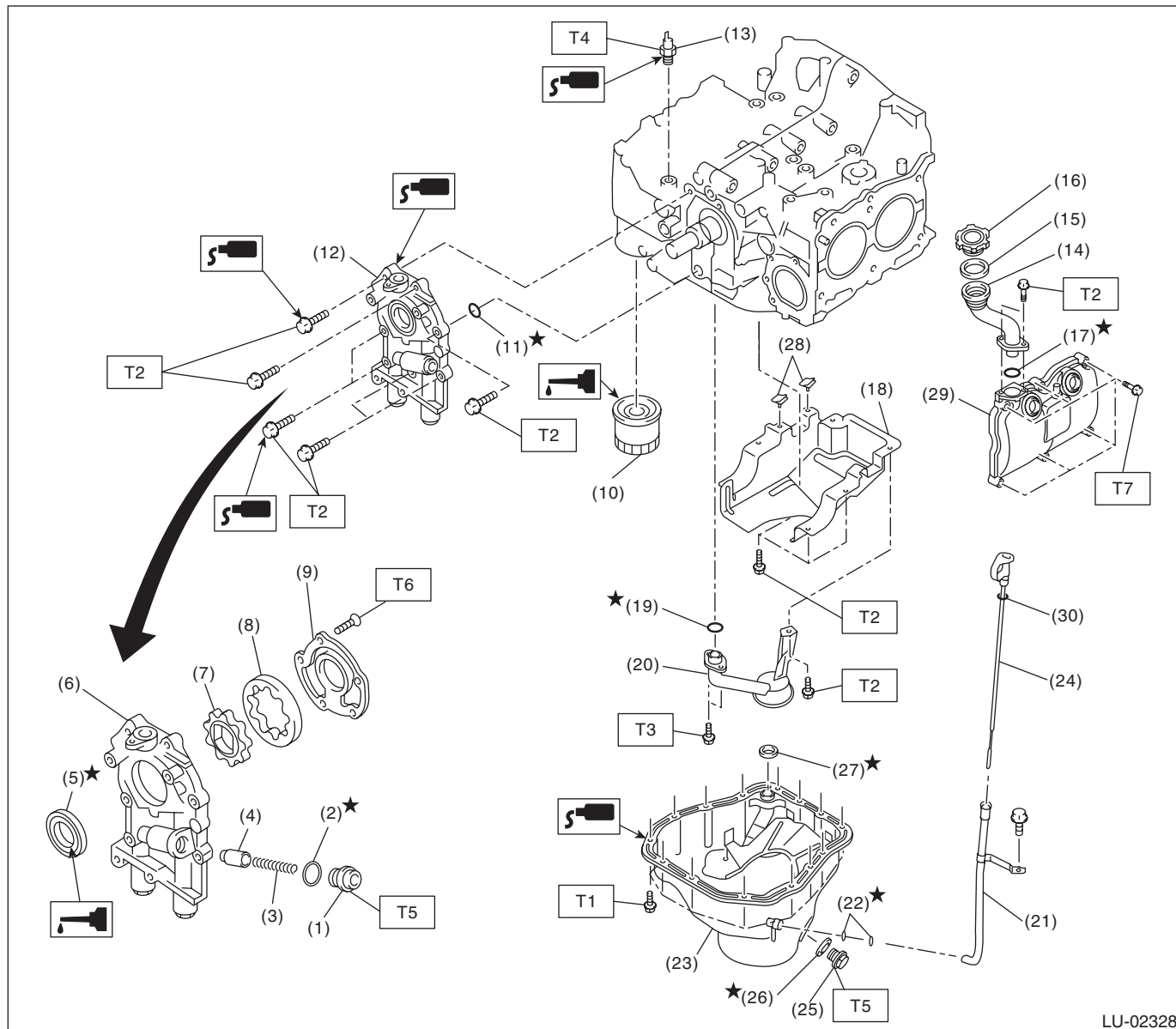
NOTE:

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

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B: COMPONENT



LU-02328

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

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: 5.4 (0.55, 4.0)

**T7: <Ref. to ME(H4SO)-52, INSTAL-
LATION, Camshaft.>**

LU(H4SO)-4

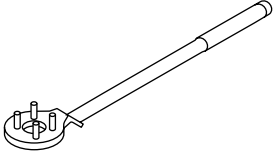
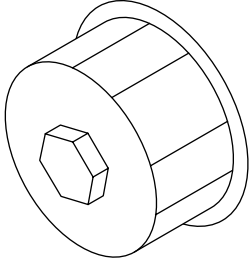
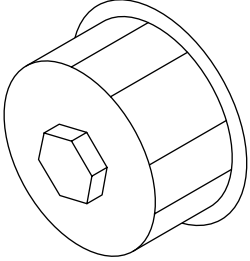
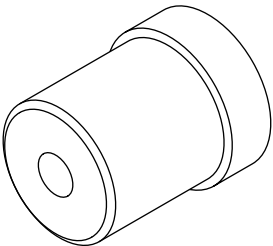
C: CAUTION

- 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.

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D: PREPARATION TOOL

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