

General Description

LUBRICATION

1. General Description

A: SPECIFICATION

Lubrication method				Forced lubrication		
Oil pump	Pump type			Trochoid type		
	Number of teeth	Inner rotor		11		
		Outer rotor		12		
	Outer rotor diameter × Thickness			mm (in)		77 × 12 (3.03 × 0.47)
	Performance (Oil temperature 120°C (248°F))	600 r/min	Discharge pressure	kPa (kg/cm ² , psi)	40 (0.4, 5.8)	
			Discharge rate	L (US qt, Imp qt)/min	5.8 (6.1, 5.1) or more	
		6,000 r/min	Discharge pressure	kPa (kg/cm ² , psi)	323 (3.3, 46.8)	
			Discharge rate	L (US qt, Imp qt)/min	55 (58.1, 48.4) or more	
	Relief valve working pressure (2-step relief)	1st opening pressure		kPa (kg/cm ² , psi)	150 (1.5, 21.7)	
Main opening pressure		kPa (kg/cm ² , psi)	570 (5.8, 82.6)			
Oil filter	Filter type			Full-flow filter type		
	Filtration area	cm ² (sq in)	Outer diameter: 68 mm (2.68 in) (black)		1,100 (171)	
			Outer diameter: 67.4 mm (2.65 in) (blue)		867 (134.3)	
	By-pass valve opening pressure			kPa (kg/cm ² , psi)	160 (1.6, 23.2)	
	Outer diameter × Width	mm (in)	Outer diameter: 68 mm (2.68 in) (black)		68 × 85 (2.68 × 3.35)	
			Outer diameter: 67.4 mm (2.65 in) (blue)		67.4 × 87.1 (2.65 × 3.43)	
	Installation screw specifications			M 20 × 1.5		
Oil pressure switch	Type			Immersed contact point type		
	Operating voltage			12 V		
	Warning light operating pressure			kPa (kg/cm ² , psi)	14.7 (0.1, 2.1)	
	Proof pressure			kPa (kg/cm ² , psi)	981 (10, 142.2)	
Engine oil	Total capacity (at overhaul)			L (US qt, Imp qt)	5.7 (6.0, 5.0)	
	When replacing engine oil and oil filter			L (US qt, Imp qt)	4.8 (5.1, 4.2)	
	When replacing engine oil only			L (US qt, Imp qt)	4.6 (4.9, 4.0)	

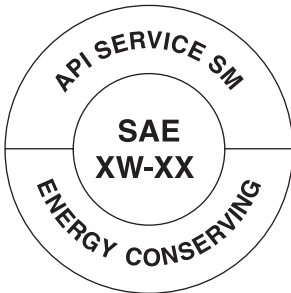

Specified oil:

CAUTION:

- Use 0W-20 (synthetic oil).
- It is acceptable to fill an engine with oil of another brand when replacing the oil, but make sure to use the following engine oil specified by Subaru.

NOTE:

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

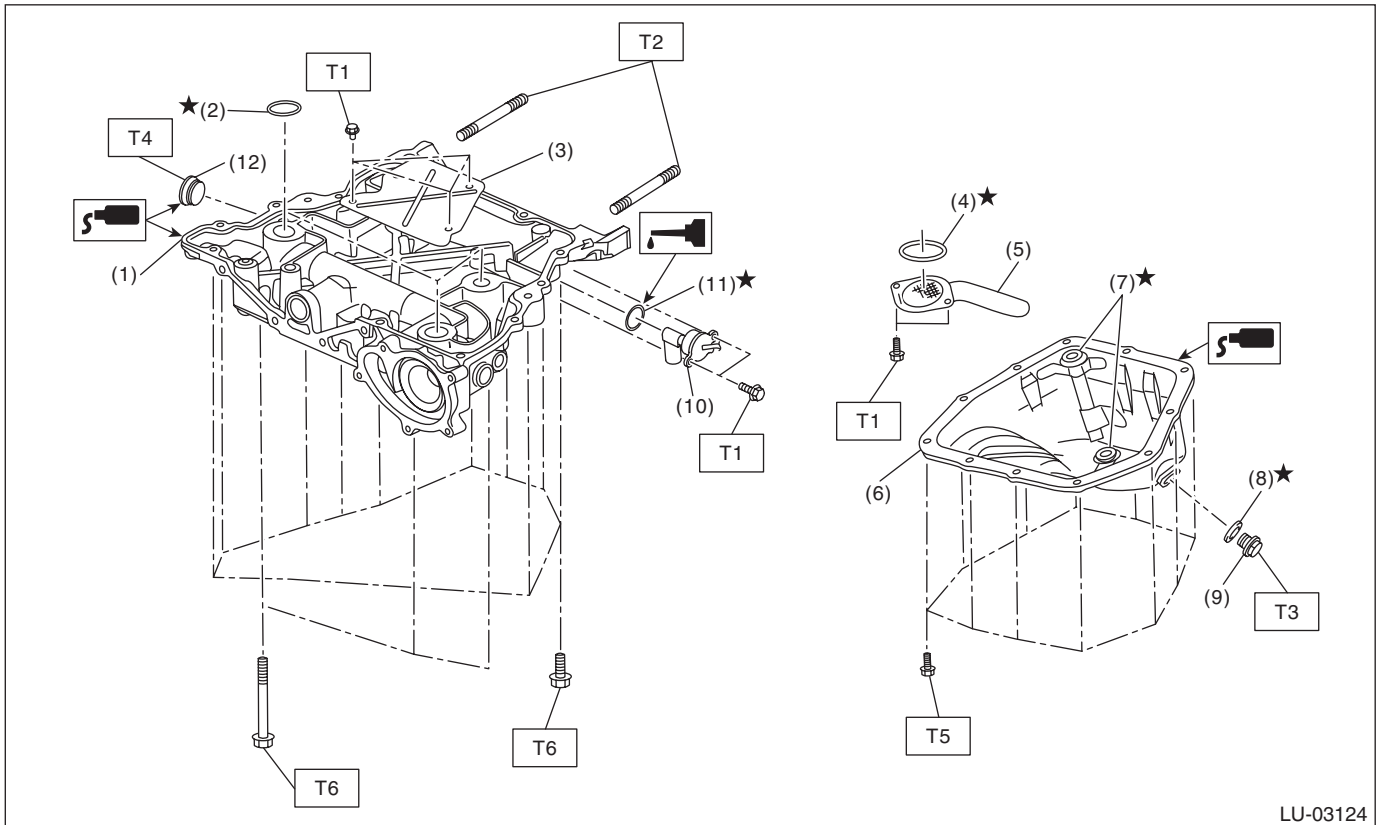
Engine oil standard		SAE viscosity No.
<div><p>RM-00076</p><p>Those with the API standard SM “Energy Conserving” or SN “Resource Conserving” logo.</p></div> <div>or</div> <div><p>RM-00002</p><p>Those with the ILSAC standard GF-4 or GF-5 “starburst mark” displayed on top of the container.</p></div>	0W-20 (synthetic oil)	

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B: COMPONENT

1. OIL PAN AND STRAINER



- | | |
|-------------------|-----------------------|
| (1) Oil pan upper | (7) Oil pan seal ring |
| (2) O-ring | (8) Drain plug gasket |
| (3) Baffle plate | (9) Drain plug |
| (4) O-ring | (10) Oil level switch |
| (5) Oil strainer | (11) O-ring |
| (6) Oil pan | (12) Plug |

Tightening torque: N·m (kgf-m, ft-lb)

T1: 6.4 (0.7, 4.7)

T2: 10 (1.0, 7.4)

T3: 41.7 (4.3, 30.8)

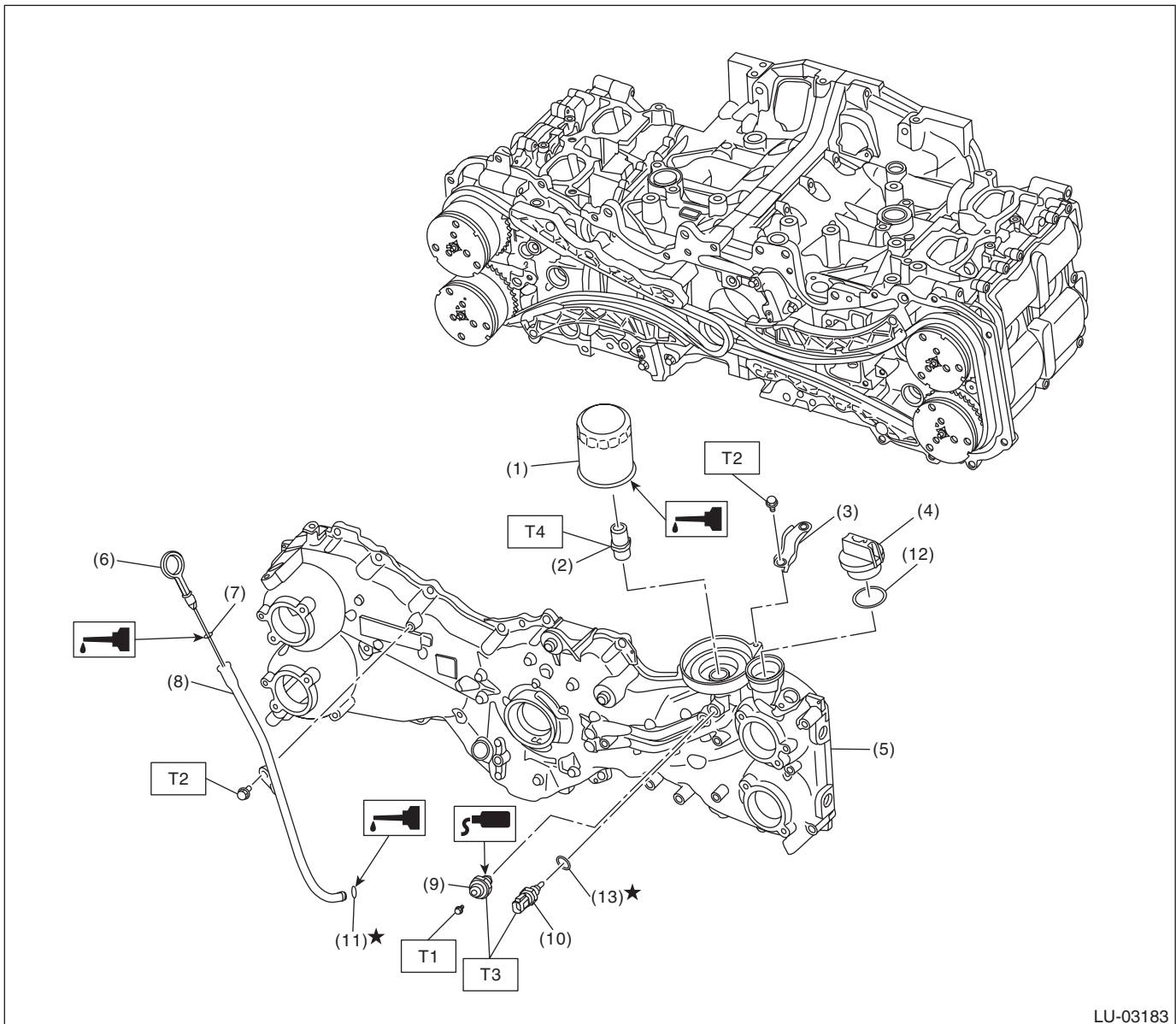
T4: 90 (9.2, 66.4)

T5: <Ref. to LU(H4DO(w/o HEV))-19, OIL PAN, INSTALLATION, Oil Pan and Strainer.>

T6: <Ref. to LU(H4DO(w/o HEV))-21, OIL PAN UPPER, INSTALLATION, Oil Pan and Strainer.>

2. OIL FILTER AND OIL LEVEL GAUGE

- Gasoline engine model



LU-03183

- | | |
|-------------------------|------------------------------------|
| (1) Oil filter | (8) Oil level gauge guide |
| (2) Oil pump union | (9) Oil pressure switch |
| (3) Generator cord stay | (10) Engine oil temperature sensor |
| (4) Oil filler cap | (11) O-ring |
| (5) Chain cover | (12) O-ring |
| (6) Oil level gauge | (13) Gasket |
| (7) O-ring | |

Tightening torque: N·m (kgf-m, ft-lb)

T1: 1.5 (0.2, 1.1)

T2: 6.4 (0.7, 4.7)

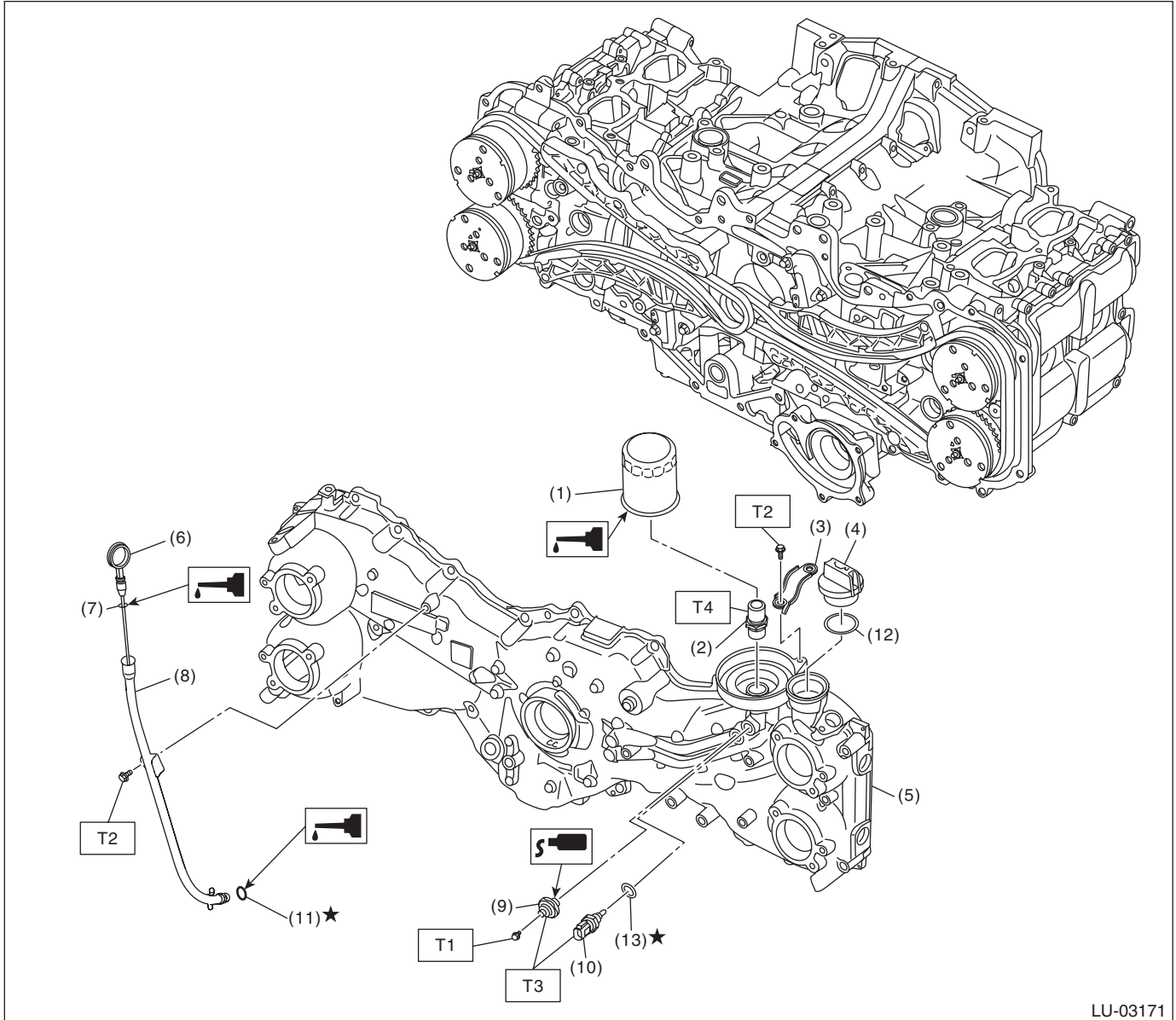
T3: 18 (1.8, 13.3)

T4: 45 (4.6, 33.2)

General Description

LUBRICATION

- HEV model



LU-03171

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|------------------------|------------------------------------|
| (1) Oil filter | (8) Oil level gauge guide |
| (2) Oil pump union | (9) Oil pressure switch |
| (3) Battery cable stay | (10) Engine oil temperature sensor |
| (4) Oil filler cap | (11) O-ring |
| (5) Chain cover | (12) O-ring |
| (6) Oil level gauge | (13) Gasket |
| (7) O-ring | |

Tightening torque: N-m (kgf-m, ft-lb)

T1: 1.5 (0.2, 1.1)

T2: 6.4 (0.7, 4.7)

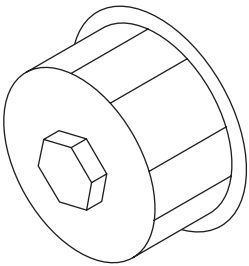
T3: 18 (1.8, 13.3)

T4: 45 (4.6, 33.2)

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 when performing work which oil possibly spills. If 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.
- 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.
- Follow all government and local regulations concerning disposal of refuse when disposing of oil.

D: PREPARATION TOOL**1. SPECIAL TOOL**

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST18332AA000	18332AA000	OIL FILTER WRENCH	Used for removing and installing oil filter (black). (Outer diameter: 68 mm (2.68 in)).

2. GENERAL TOOL

TOOL NAME	REMARKS
Oil filter wrench (65/67 mm 14 Flutes)	Used for removing and installing oil filter (Blue). (Outer diameter: 67.4 mm (2.65 in))
Circuit tester	Used for measuring resistance and voltage.