

# General Description

## LUBRICATION

### 1. General Description

#### A: SPECIFICATION

Lubrication method			Forced lubrication		
Oil pump	Pump type		Trochoid type		
	Number of teeth	Inner rotor	7		
		Outer rotor	8		
	Outer rotor diameter × thickness		mm (in)	76 × 30.2 (2.99 × 1.19)	
	Performance (Oil temperature 80°C (176°F))	600 rpm	Discharge pressure	kPa (kgf/cm <sup>2</sup> , psi)	98 (1.0, 14)
			Discharge rate	L (US qt, Imp qt)/min.	5.0 (5.3, 4.4) or more
6,000 rpm		Discharge pressure	kPa (kgf/cm <sup>2</sup> , psi)	392 (4.0, 57)	
		Discharge rate	L (US qt, Imp qt)/min.	82.8 (87.5, 72.9) or more	
Oil filter	Filter type		Full-flow filter type		
	Filtration area		cm <sup>2</sup> (sq in)	1,300 (201.5)	
	By-pass valve opening pressure		kPa (kgf/cm <sup>2</sup> , psi)	160 (1.63, 23.2)	
	Outer diameter × width		mm (in)	80 × 75 (3.15 × 2.95)	
	Installation screw specifications			M 20 × 1.5	
Oil pressure switch	Type		Immersed contact point type		
	Operating voltage — power consumption		12 V — 3.4 W or less		
	Warning light operating pressure		kPa (kgf/cm <sup>2</sup> , psi)	14.7 (0.15, 2.1)	
	Proof pressure		kPa (kgf/cm <sup>2</sup> , psi)	980 (10.0, 142) or more	
Engine oil	Total capacity (at overhaul)		L (US qt, Imp qt)	7.8 (8.2, 6.9)	
	When replacing engine oil and oil filter		L (US qt, Imp qt)	6.5 (6.9, 5.7)	
	When replacing engine oil only		L (US qt, Imp qt)	6.3 (6.7, 5.5)	

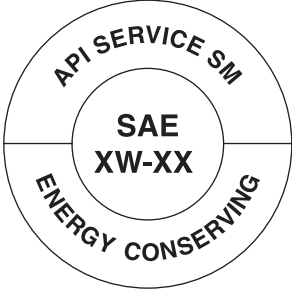

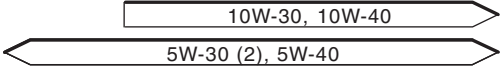
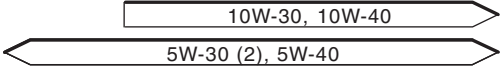
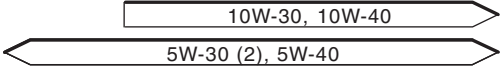
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**Recommended oil:**

**CAUTION:**

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.

<p>Engine oil standard</p>	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>RM-00076</p> <p>Those with the API standard SM “Energy Conserving” or SN “Resource Conserving” logo.</p> </div> <div style="text-align: center;"> <p>or</p>  <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> </div>																												
<p>SAE viscosity No.</p>	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="7">SAE (1)</th> </tr> <tr> <th>(°C)</th> <th>-30</th> <th>-20</th> <th>-15</th> <th>0</th> <th>15</th> <th>30 40</th> </tr> <tr> <th>(°F)</th> <th>-22</th> <th>-4</th> <th>5</th> <th>32</th> <th>59</th> <th>86 104</th> </tr> </thead> <tbody> <tr> <td colspan="7" style="text-align: center;">  </td> </tr> </tbody> </table> <p style="text-align: right;">LU-03021</p> <p>(1) SAE viscosity No. and applicable temperature (2) Recommended</p>	SAE (1)							(°C)	-30	-20	-15	0	15	30 40	(°F)	-22	-4	5	32	59	86 104							
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**NOTE:**

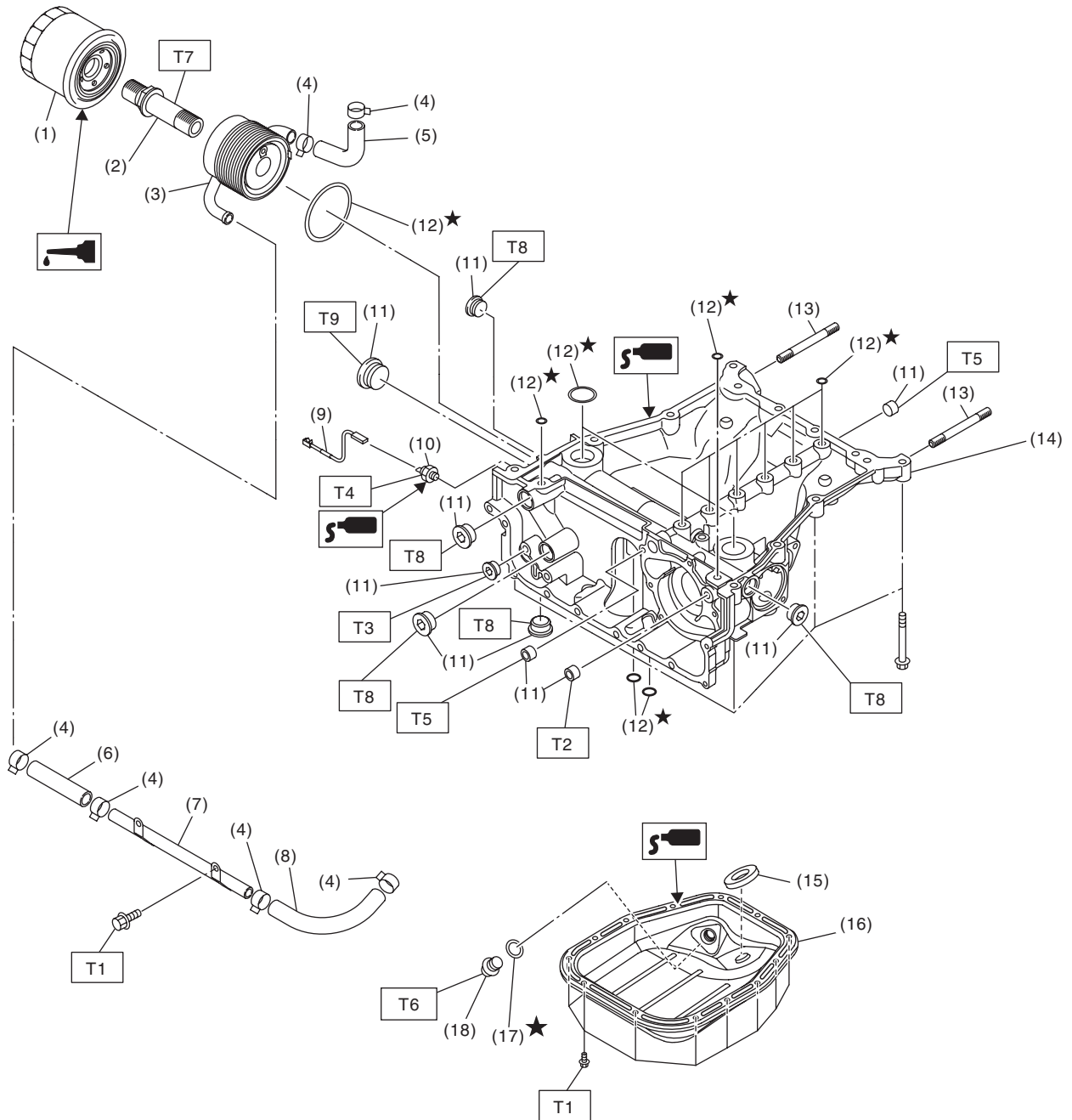
The proper viscosity oil helps the engine maintain its ideal temperature, and cranking speed increased by reducing viscosity friction in hot condition.

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## B: COMPONENT

### 1. OIL PAN UPPER, OIL COOLER, OIL FILTER



LU-02689

LU(H6DO)-4

# General Description

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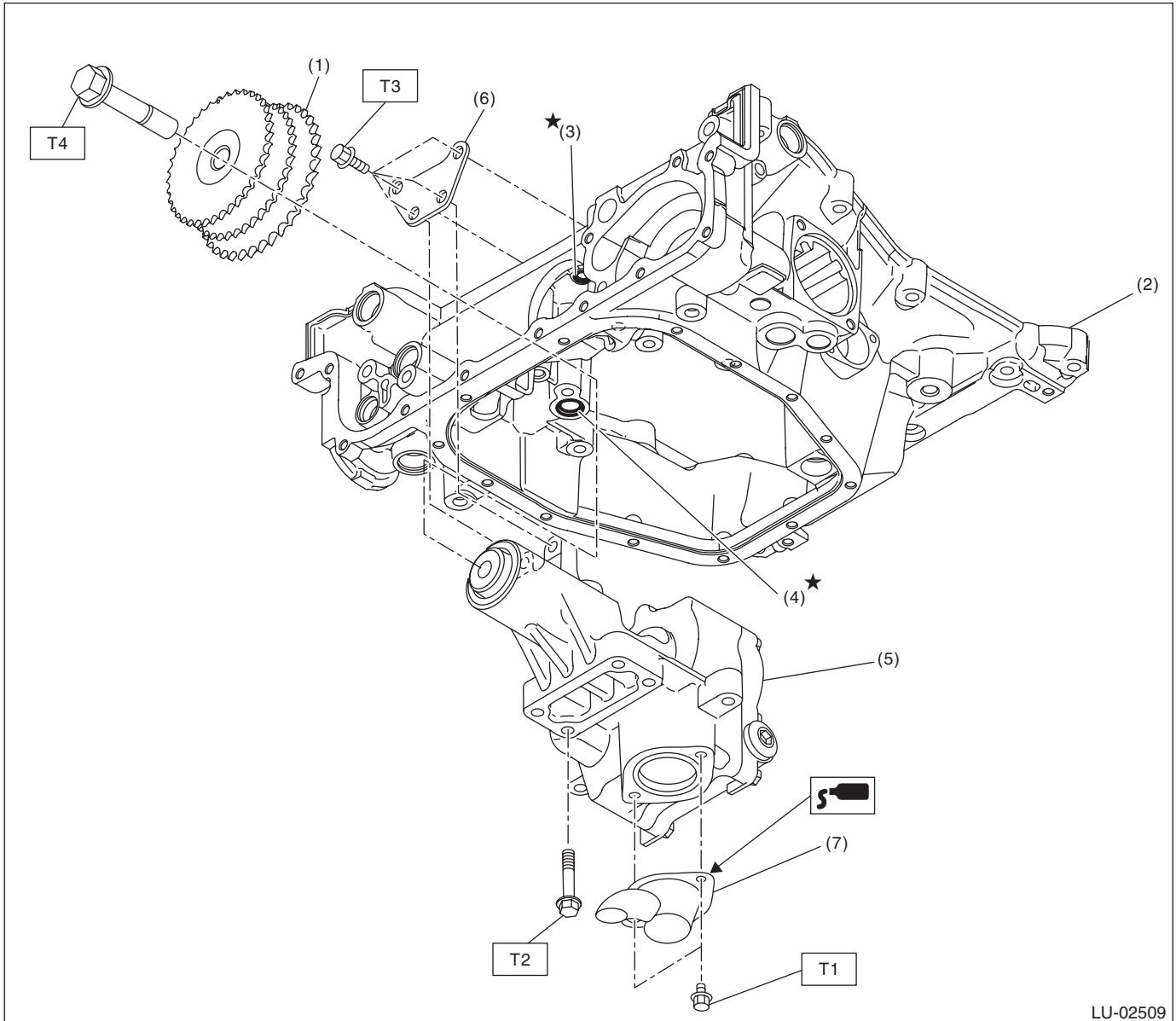
(1) Oil filter	(10) Oil pressure switch	<b><i>Tightening torque: N·m (kgf-m, ft-lb)</i></b>
(2) Oil cooler connector	(11) Plug	<b><i>T1: 6.4 (0.7, 4.7)</i></b>
(3) Oil cooler	(12) O-ring	<b><i>T2: 17 (1.7, 12.5)</i></b>
(4) Clip	(13) Stud bolt	<b><i>T3: 23 (2.3, 17.0)</i></b>
(5) Water hose	(14) Oil pan upper	<b><i>T4: 25 (2.5, 18.4)</i></b>
(6) Water hose	(15) Oil pan magnet	<b><i>T5: 34 (3.5, 25.1)</i></b>
(7) Engine oil cooler water pipe	(16) Oil pan lower	<b><i>T6: 44 (4.5, 32.5)</i></b>
(8) Water hose	(17) Gasket	<b><i>T7: 54 (5.5, 39.8)</i></b>
(9) Oil pressure switch harness	(18) Drain plug	<b><i>T8: 60 (6.1, 44.3)</i></b>
		<b><i>T9: 90 (9.2, 66.4)</i></b>

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# General Description

## LUBRICATION

### 2. OIL PUMP



- |                    |               |
|--------------------|---------------|
| (1) Idler sprocket | (5) Oil pump  |
| (2) Oil pan upper  | (6) Stiffener |
| (3) O-ring         | (7) Strainer  |
| (4) O-ring         |               |

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

**T1: 6.4 (0.7, 4.7)**

**T2: 13 (1.3, 9.6)**

**T3: 24 (2.4, 17.7)**

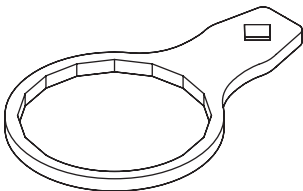
**T4: 120 (12.2, 88.5)**

## C: CAUTION

- Prior to starting work, pay special attention to the following:
  1. Always wear work clothes, a safety cap, 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
 <p style="text-align: center; font-size: small;">ST18332AA020</p>	18332AA020	OIL FILTER WRENCH	Used for removing and installing oil filter.

### 2. GENERAL TOOL

TOOL NAME	REMARKS
Circuit tester	Used for measuring resistance and voltage.