

# GENERAL DESCRIPTION

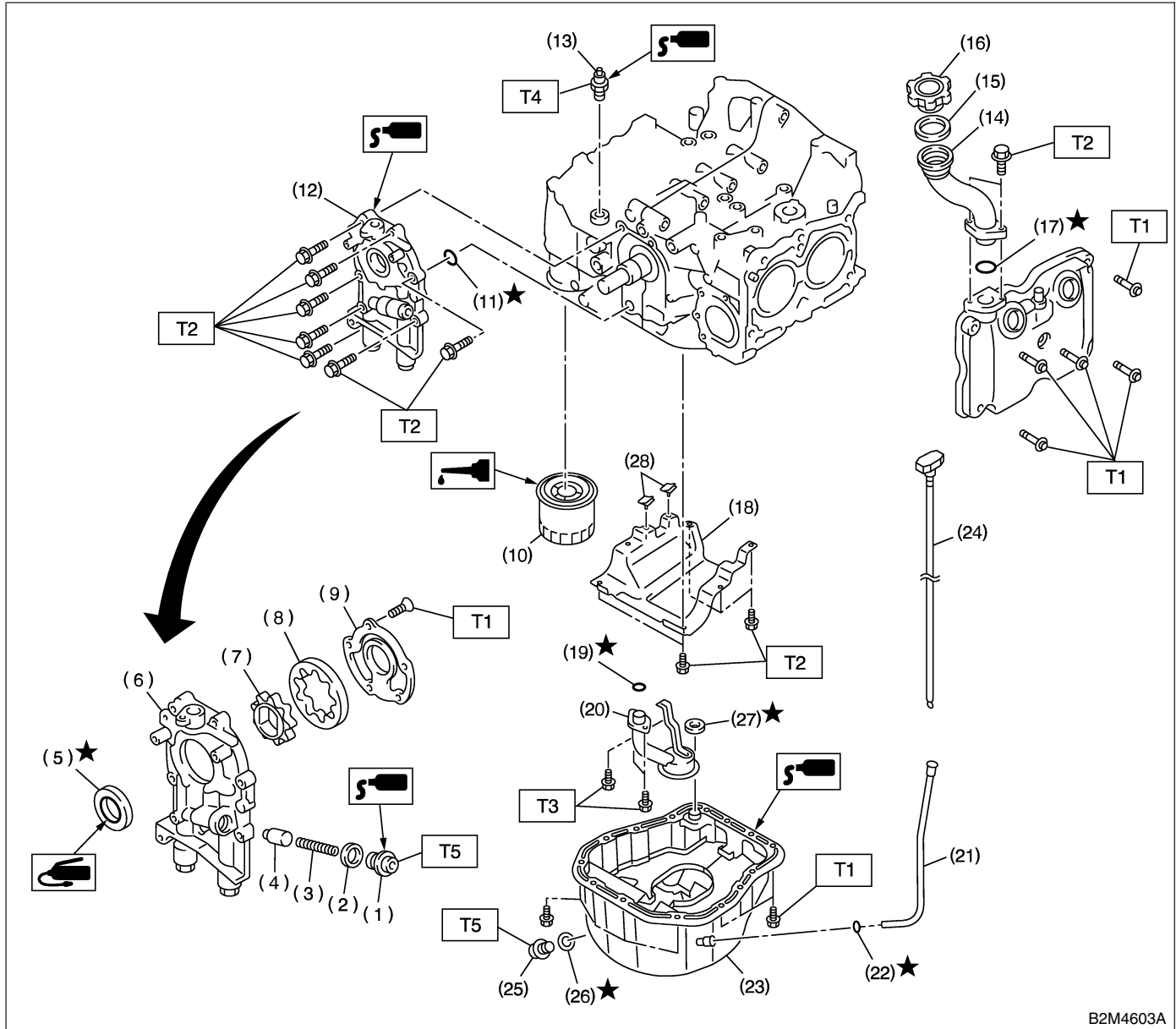
Lubrication

## 1. General Description S178001

### A: SPECIFICATIONS S178001E49

Lubrication method				Forced lubrication	
Oil pump	Pump type			Trochoid type	
	Number of teeth	Inner rotor		9	
		Outer rotor		10	
	Outer rotor diameter × thickness			78 × 7 mm (3.07 × 0.28 in)	
	Tip clearance between inner and outer rotor			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)
Capacity at 80°C (176°F)	600 rpm	Discharge	- pressure	98 kPa (1.0 kg/cm <sup>2</sup> , 14 psi)	
			- quantity	3.2 ℓ (3.4 US qt, 2.8 Imp qt)/min.	
	5,000 rpm	Discharge	- pressure	294 kPa (3.0 kg/cm <sup>2</sup> , 43 psi)	
			- quantity	32.6 ℓ (8.61 US gal, 7.17 Imp gal)/min.	
Relief valve operation pressure				490 kPa (5.0 kg/cm <sup>2</sup> , 71 psi)	
Oil filter	Type			Full-flow filter type	
	Filtration area			910 cm <sup>2</sup> (141 sq in)	
	By-pass valve opening pressure			157 kPa (1.6 kg/cm <sup>2</sup> , 23 psi)	
	Outer diameter × width			80 × 75 mm (3.15 × 2.95 in)	
	Oil filter to engine thread size			M 20 × 1.5	
Relief valve (on rocker shaft) operation pressure				69 kPa (0.7kg/cm <sup>2</sup> , 10 psi)	
Oil pressure switch	Type			Immersed contact point type	
	Working voltage — wattage			12 V — 3.4 W or less	
	Warning light activation pressure			14.7 kPa (0.15 kg/cm <sup>2</sup> , 2.1 psi)	
	Proof pressure			More than 981 kPa (10 kg/cm <sup>2</sup> , 142 psi)	
Oil capacity	Upper level			4.0 ℓ (4.2 US qt, 3.5 Imp qt)	
	Lower level			3.0 ℓ (3.2 US qt, 2.6 Imp qt)	

## B: COMPONENT S178001A05



B2M4603A

- (1) Plug
- (2) Washer
- (3) Relief valve spring
- (4) Relief valve
- (5) 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) O-ring
- (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) Metal gasket
- (27) Gasket
- (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, 33)**

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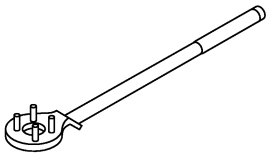
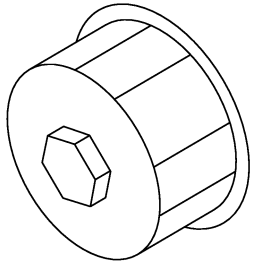
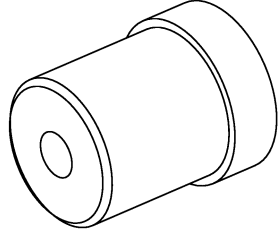
Lubrication

## C: CAUTION S178001A03

- Wear working clothing, including a cap, protective goggles, and protective shoes during operation.
- Remove contamination including dirt and corrosion before removal, installation or disassembly.
- Keep the disassembled parts in order and protect them from dust or 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 in the vehicle is hot after running.
- Be sure to tighten fasteners including bolts and nuts to the specified torque.
- Place shop jacks or safety stands at the specified points.
- Before disconnecting electrical connectors of sensors or units, be sure to disconnect ground cable from battery.

## D: PREPARATION TOOL S178001A17

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 <p style="text-align: center;">B2M3870</p>	499977100	CRANKSHAFT PULLEY WRENCH	Used for stopping rotation of crankshaft pulley when loosening and tightening crankshaft pulley bolt.
 <p style="text-align: center;">B2M3872</p>	498547000	OIL FILTER WRENCH	Used for removing and installing oil filter.
 <p style="text-align: center;">B2M3875</p>	499587100	OIL SEAL INSTALLER	Used for installing oil pump oil seal.