

# General Description

## POWER ASSISTED SYSTEM (POWER STEERING)

### 1. General Description

#### A: SPECIFICATION

Whole system	Minimum turning radius		m (ft)	5.3 (17.4)
	Steering angle		Inner wheel	OUTBACK: $37.9^\circ \pm 1.5^\circ$ Except for OUTBACK: $37.8^\circ \pm 1.5^\circ$
			Outer wheel	OUTBACK: $33.5^\circ \pm 1.5^\circ$ Except for OUTBACK: $33.4^\circ \pm 1.5^\circ$
	Steering wheel diameter		mm (in)	375 (14.76)
Whole gear ratio (Turn, from lock to lock. Gearbox)				
		2.8		
Gearbox	Type		Rack and Pinion, Integral	
	Backlash		0 (Automatic adjusting)	
	Valve (Power steering system)		Rotary valve	
Pump (Power steering system)	Type		Vane pump	
	Oil tank		Installed on body	
	Specific output		$\text{cm}^3$ (cu in)/rev.	
			7.2 (0.439)	
	Relief pressure		kPa (kgf/cm <sup>2</sup> , psi)	
			7,350 — 8,050 (75 — 82, 1,066 — 1,167)	
	Hydraulic fluid control		Engine speed sensitive	
	Hydraulic fluid		$\ell$ (US qt, Imp qt)	
1,000 rpm: 6.3 (6.7, 5.5) 3,000 rpm: 5.9 (6.2, 5.2)				
RPM range		rpm		680 — 9,800
Direction of rotation				
Hydraulic oil (Power steering system)	Capacity		Oil tank	
	$\ell$ (US qt, Imp qt)		Whole system	
		0.2 (0.2, 0.2)		0.7 (0.7, 0.6)

Steering wheel	Free play		mm (in)	17 (0.67)
Steering shaft	Clearance between the steering wheel and column cover		mm (in)	2 — 4 (0.08 — 0.16)
Steering gearbox (Power steering system)	Rack shaft play in the radial direction	Right-turn steering	mm (in)	0.12 (0.005) or less
		Left-turn steering	mm (in)	0.3 (0.012) or less
	Input shaft play	In radial direction	mm (in)	0.26 (0.01) or less
		In axial direction	mm (in)	Without play
Oil pump (Power steering system)	Rotation resistance		N (kgf, lbf)	Maximum allowable value: 11.3 (1.15, 2.54) or less Difference between right and left sliding resistance: 24%
	Pulley shaft	Radial play	mm (in)	0.4 (0.016) or less
		Axial play	mm (in)	0.9 (0.035) or less
	Pulley	Ditch deflection	mm (in)	1.0 (0.039) or less
		Rotation resistance	N (kgf, lbf)	9.22 (0.94, 2.07) or less
Regular pressure (Unloaded)		kPa (kgf/cm <sup>2</sup> , psi)		981 (10, 142) or less
Steering wheel effort (Power steering system)	At standstill with engine idling on paved road		N (kgf, lbf)	29.4 (3.0, 6.6) or less
	At standstill with engine stalled on paved road		N (kgf, lbf)	294.2 (30, 66.2) or less

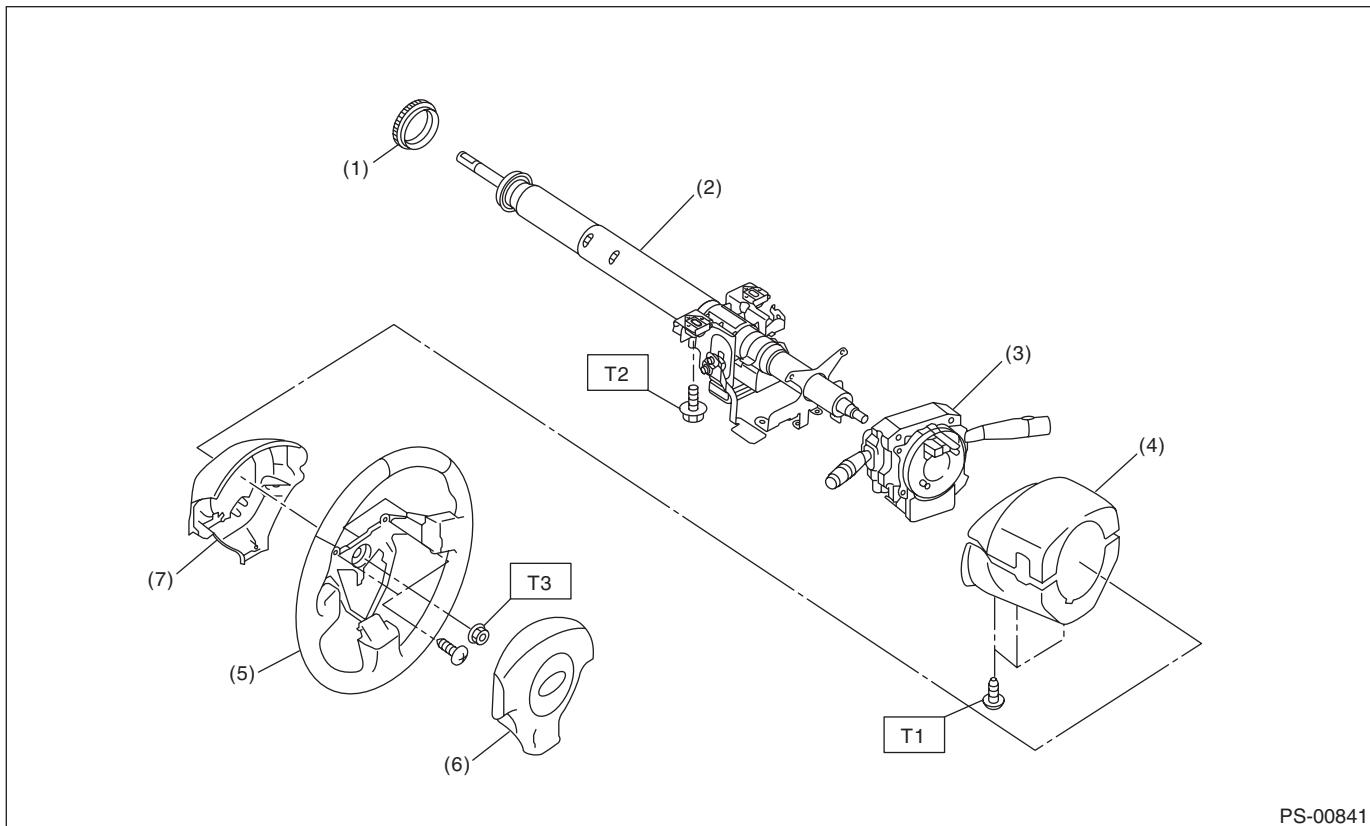
Recommended power steering fluid
SUBARU genuine power steering fluid or ATF DEXRON III

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## B: COMPONENT

### 1. STEERING WHEEL AND COLUMN



PS-00841

- (1) Bushing
- (2) Steering shaft
- (3) Steering roll connector
- (4) Column cover

- (5) Steering wheel
- (6) Airbag module
- (7) Steering wheel lower cover

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

**T1: 1.2 (0.12, 0.9)**

**T2: 20 (2.0, 14.8)**

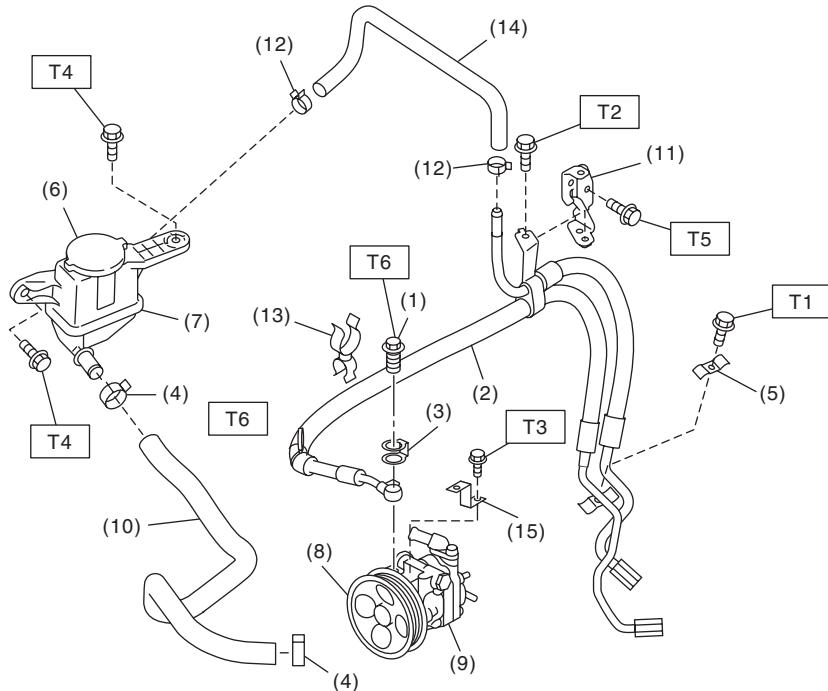
**T3: 39 (4.0, 28.8)**

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### 2. POWER ASSISTED SYSTEM

- Hose and tank



PS-01208

(1) Eye bolt	(9) Oil pump
(2) Hose	(10) Suction hose
(3) Eye bolt gasket	(11) Hose bracket
(4) Clip	(12) Clip
(5) Clamp E	(13) Clip
(6) Cap	(14) Return hose
(7) Reservoir tank	(15) Belt cover bracket
(8) Pulley	

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

**T1: 7.5 (0.76, 5.5)**

**T2: 10 (1.0, 7.4)**

**T3: 11 (1.1, 8.1)**

**T4: 13 (1.3, 9.6)**

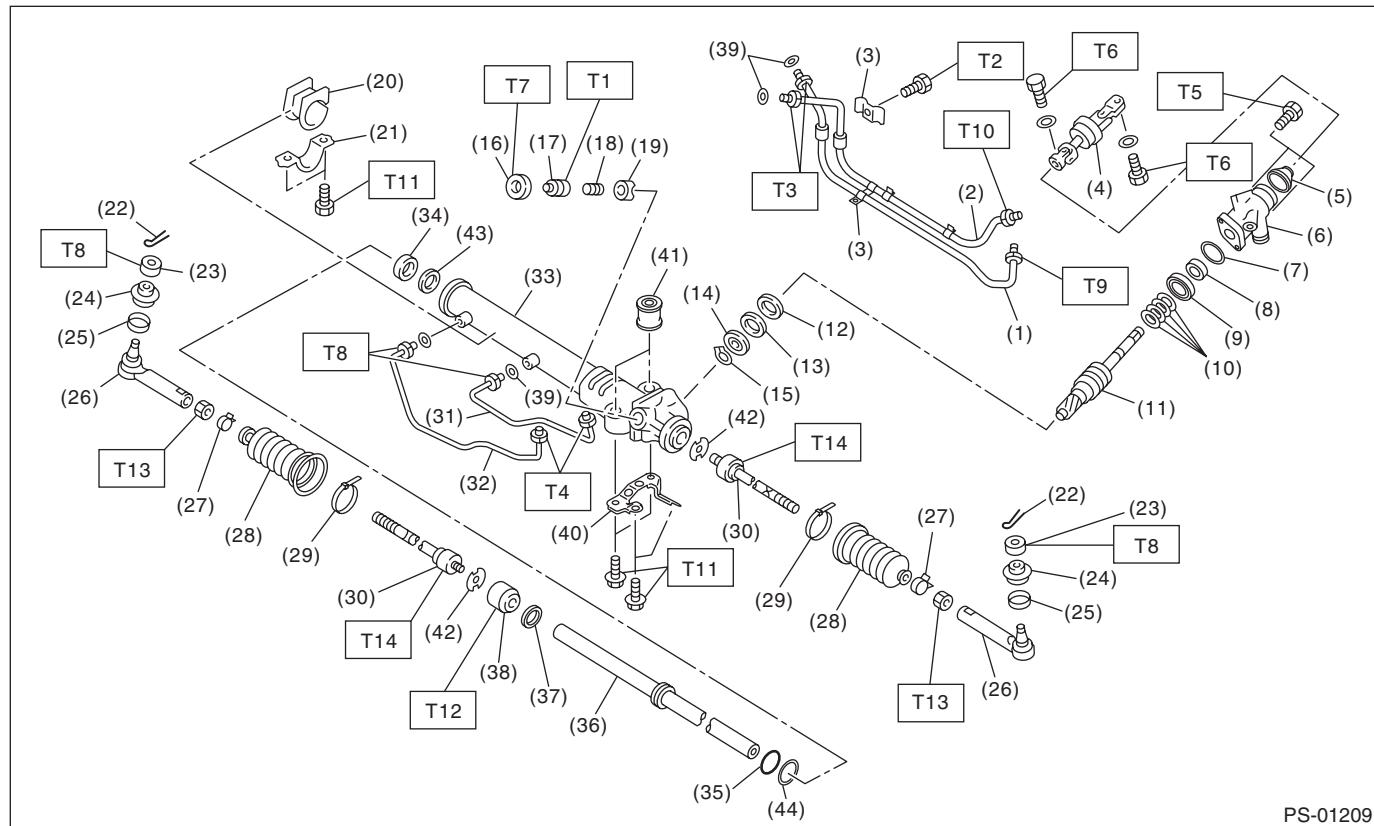
**T5: 18 (1.8, 13.3)**

**T6: 40 (4.1, 29.5)**

# General Description

## POWER ASSISTED SYSTEM (POWER STEERING)

- Gearbox



PS-01209

(1) Feed pipe	(21) Clamp	(41) Bushing
(2) Return pipe	(22) Cotter pin	(42) Lock washer
(3) Clamp plate	(23) Castle nut	(43) Back-up washer
(4) Universal joint	(24) Dust cover	(44) O-ring
(5) Dust seal	(25) Clip	
(6) Valve housing	(26) Tie-rod end	
(7) O-ring	(27) Clip	
(8) Oil seal	(28) Boot	
(9) Bushing	(29) Band	
(10) Seal ring	(30) Tie-rod	
(11) Pinion & valve ASSY	(31) Pipe B	
(12) Oil seal	(32) Pipe A	
(13) Back-up washer	(33) Steering body	
(14) Ball bearing	(34) Oil seal	
(15) Snap ring	(35) Piston ring	
(16) Lock nut	(36) Rack	
(17) Adjusting screw	(37) Oil seal	
(18) Spring	(38) Holder	
(19) Sleeve	(39) O-ring	
(20) Adapter	(40) Stiffener	

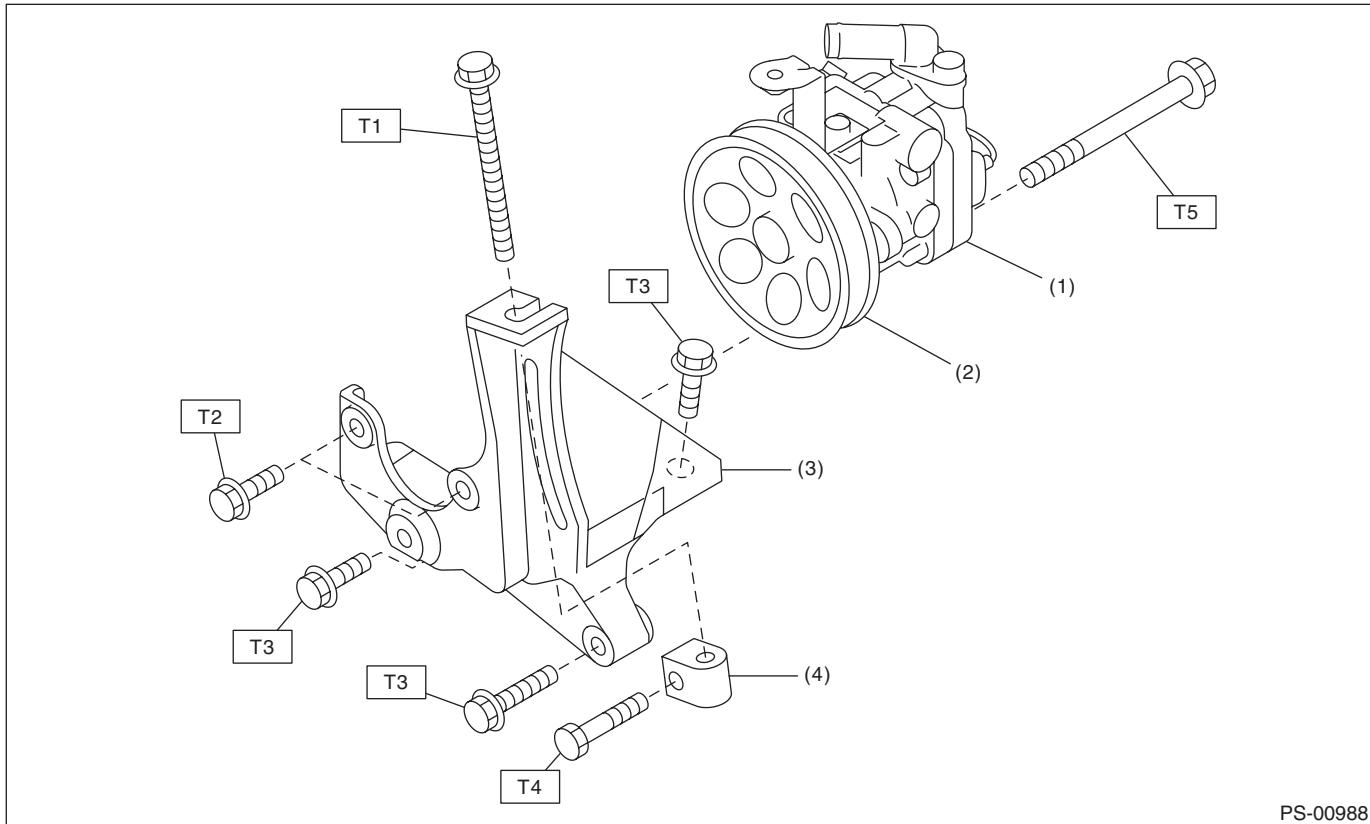
### Tightening torque:N·m (kgf·m, ft·lb)

<b>T1:</b> 3.9 (0.4, 2.9)
<b>T2:</b> 10 (1.0, 7.4)
<b>T3:</b> 15 (1.5, 11.1)
<b>T4:</b> 17 (1.7, 12.5)
<b>T5:</b> 20 (2.0, 14.8)
<b>T6:</b> 24 (2.4, 17.7)
<b>T7:</b> 25 (2.5, 18.4)
<b>T8:</b> 27 (2.8, 19.9)
<b>T9:</b> 37 (3.8, 27.3)
<b>T10:</b> 29 (3.0, 21.4)
<b>T11:</b> 60 (6.1, 44.3)
<b>T12:</b> 70 (7.1, 51.6)
<b>T13:</b> 85 (8.7, 62.7)
<b>T14:</b> 90 (9.2, 66.4)

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## POWER ASSISTED SYSTEM (POWER STEERING)

### 3. OIL PUMP



- (1) Oil pump
- (2) Pulley
- (3) Bracket
- (4) Belt tension nut

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

***T1: 8 (0.8, 5.9)***

***T2: 16 (1.6, 11.8)***

***T3: 22 (2.2, 16.2)***

***T4: 25 (2.5, 18.4)***

***T5: 36 (3.7, 26.6)***

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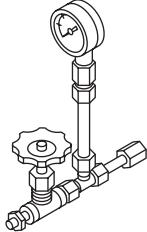
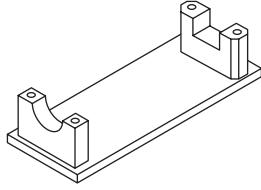
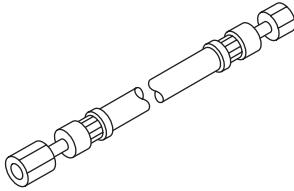
POWER ASSISTED SYSTEM (POWER STEERING)

### C: CAUTION

- Wear appropriate work clothing, including a cap, protective goggles and protective shoes when performing any work.
- Before removal, installation or disassembly, be sure to clarify the failure. Avoid unnecessary removal, installation, disassembly and replacement.
- Vehicle components are extremely hot after driving. Be wary of receiving burns from heated parts.
- Use SUBARU genuine power steering fluid, grease etc. or equivalent. Do not mix fluid, grease etc. of different grades or manufacturers.
- Be sure to tighten fasteners including bolts and nuts to the specified torque.
- Place shop jacks or rigid racks at the specified points.
- Before securing a part on a vise, place cushioning material such as wooden blocks, aluminum plate or cloth between the part and the vise.

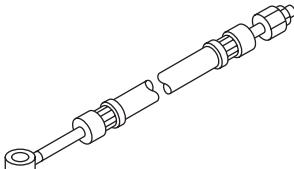
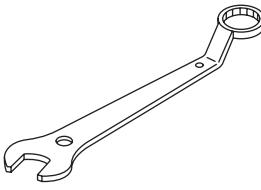
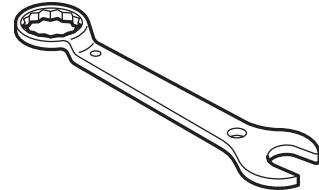
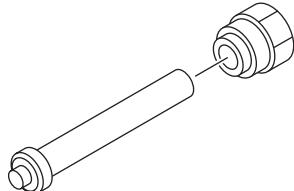
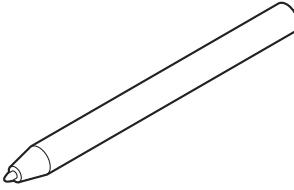
### D: PREPARATION TOOL

#### 1. SPECIAL TOOL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST-925711000	925711000	PRESSURE GAUGE	Used for measuring oil pressure.
 ST-926200000	926200000	STAND	<ul style="list-style-type: none"><li>• Used when inspecting characteristic of gearbox assembly and disassembling it.</li><li>• Used together with BOSS D (34199AG000).</li></ul>
 ST34099AC010	34099AC010	ADAPTER HOSE A	Used together with PRESSURE GAUGE (925711000).

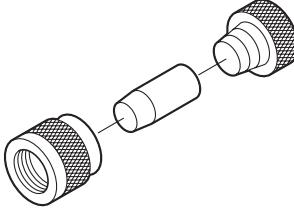
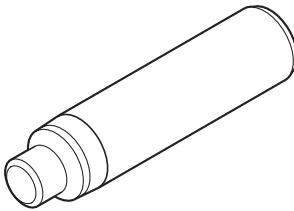
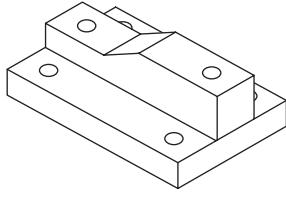
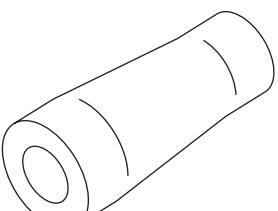
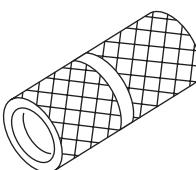
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ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST34099AC020	34099AC020	ADAPTER HOSE B	Used together with PRESSURE GAUGE (925711000).
 ST-926230000	926230000	SPANNER	For the lock nut when adjusting backlash of gearbox.
 ST34099PA100	34099PA100	SPANNER	Used when measuring the rotating resistance of gearbox assembly.
 ST-926420000	926420000	PLUG	When fluid leaks from pinion side of gearbox assembly, remove pipe B from valve housing, attach this tool and check fluid leaking points.
 ST34099FA060	34099FA060	PUNCH HOLDER	Used for crimping.

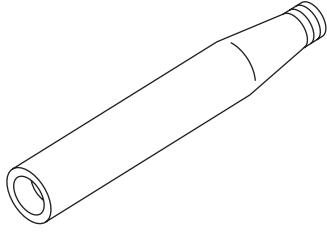
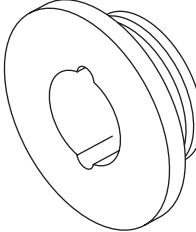
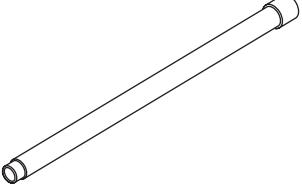
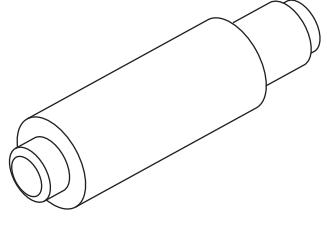
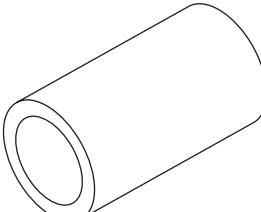
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ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
	34199FE040	INSTALLER A, B, C	<ul style="list-style-type: none"> <li>Used for installing the oil seal to the rack assembly.</li> <li>• INSTALLER A: 34199FE070</li> <li>• INSTALLER B: 34199FE080</li> <li>• INSTALLER C: 34199FE090</li> </ul>
	34199FE000	INSTALLER & REMOVER	Used for removing and installing the rack oil seal (outer and inner).
	34199AG000	BOSS D	<ul style="list-style-type: none"> <li>Used when inspecting characteristic of gearbox assembly and disassembling it.</li> <li>Used together with STAND (926200000).</li> </ul>
	34199AG040	GUIDE	Used for installing seal ring of rack.
	34199AG070	FORMER	Used for forming seal ring of pinion.

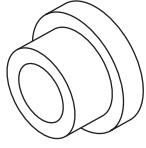
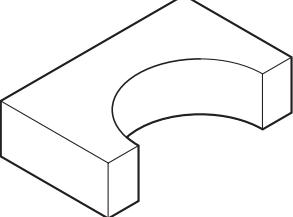
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	34199AG020	GUIDE	Used for installing seal ring of pinion.
	34199AG060	GUIDE G (26)	<ul style="list-style-type: none"> <li>Used for forming seal ring of rack.</li> <li>Used together with FORMER PISTON (34199AG080).</li> </ul>
	34099PA010	OIL SEAL REMOVER	Used for removing oil seal.
	34199AG090	INSTALLER & REMOVER	<ul style="list-style-type: none"> <li>Used for installing oil seal of valve housing.</li> <li>Used together with SEAL INSTALLER (34099FA130).</li> <li>Used for installing ball bearing of valve housing.</li> <li>Used for removing oil seal and ball bearing from valve housing.</li> </ul>
	34199AG080	FORMER PISTON	<ul style="list-style-type: none"> <li>Used for forming seal ring of rack.</li> <li>Used together with GUIDE G (26) (34199AG060).</li> </ul>

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ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST34199AG010	34199AG010	INSTALLER	Used for pressing-fit oil seal of gearbox cylinder.
 ST34199FE020	34199FE020	BASE	Used for crimping.