

# General Description

## POWER ASSISTED SYSTEM (POWER STEERING)

### 1. General Description

#### A: SPECIFICATION

Model			Non-turbo model	WRX, WRX-S	WRX-SS
Whole system	Minimum turning radius m (ft)		5.3 (17.4)		5.4 (17.7)
	Steering angle	Inner wheel	OUTBACK: 37.9°±1.5° Except for OUTBACK: 37.8°±1.5°		37.2°±1.5°
		Outer wheel	OUTBACK: 33.5°±1.5° Except for OUTBACK: 33.4°±1.5°		32.9°±1.5°
	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		
	Type		Vane pump		
Pump (Power steering system)	Oil tank		Installed on body		
	Specific output	cm <sup>3</sup> (cu in)/rev.	7.2 (0.439)	8.5 (0.519)	
	Relief pressure	kPa (kgf/cm <sup>2</sup> , psi)	7,350 — 8,050 (75 — 82, 1,066 — 1,167)	8,100 — 8,800 (83 — 90, 1,174 — 1,276)	
	Hydraulic fluid control		Engine speed sensitive		
	Hydraulic fluid	ℓ (US qt, Imp qt)	1,000 rpm: 6.5 (6.9, 5.7) 3,000 rpm: 5 (5.3, 4.4)	1,000 rpm: 6.3 (6.7, 5.5) 3,000 rpm: 5.9 (6.2, 5.2)	
	RPM range rpm		680 — 9,800	680 — 9,600	
	Direction of rotation		Clockwise		
	Hydraulic oil (Power steering system)	Capacity ℓ (US qt, Imp qt)	Oil tank	0.2 (0.2, 0.2)	
Whole system			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 gear-box (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		
	Rotation resistance N (kgf, lbf)		Maximum allowable value: 11.3 (1.15, 2.54) or less Difference between right and left sliding resistance: 24%		
Oil pump (Power steering system)	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		

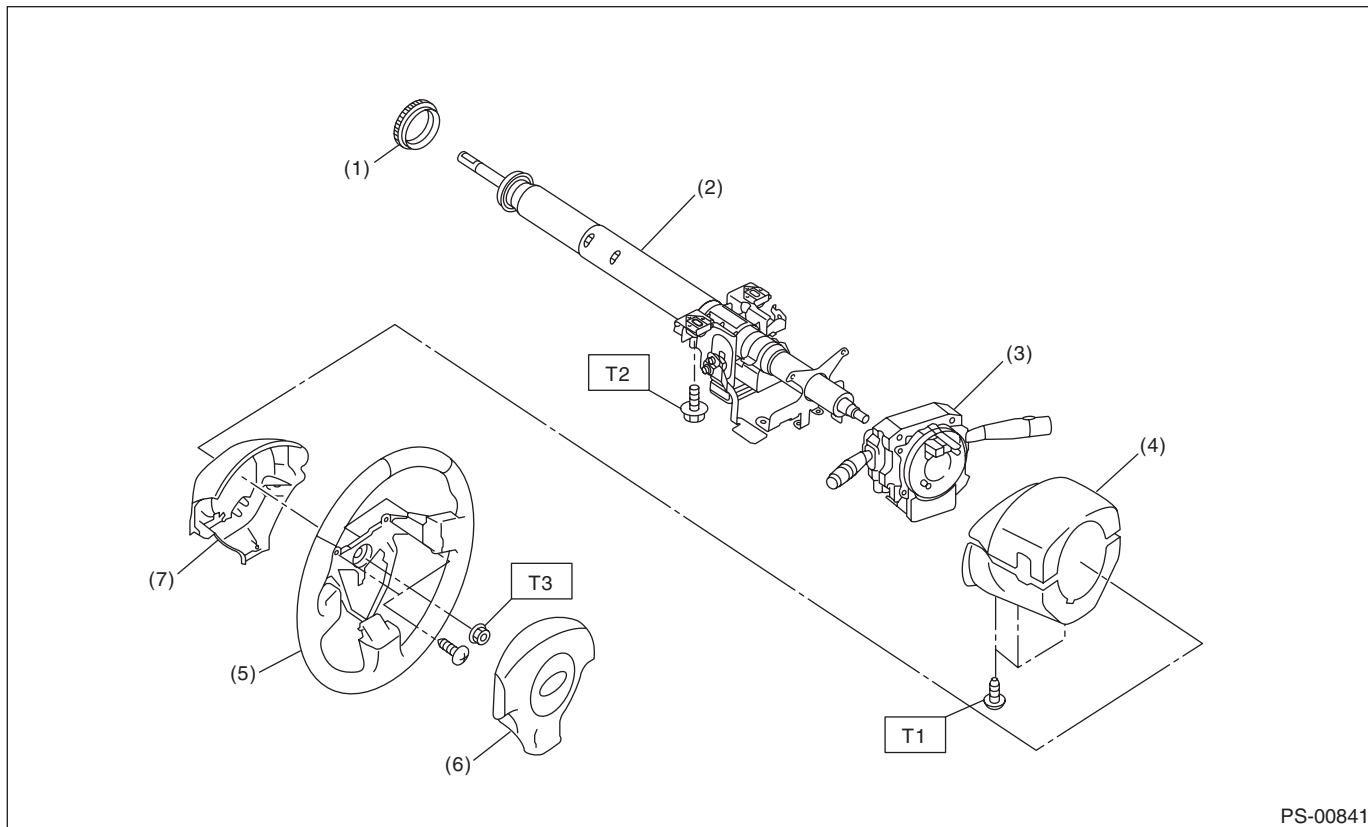
Recommended power steering fluid
SUBARU ATF or DEXRON III

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## B: COMPONENT

### 1. STEERING WHEEL AND COLUMN



- |                             |                                |
|-----------------------------|--------------------------------|
| (1) Bushing                 | (5) Steering wheel             |
| (2) Steering shaft          | (6) Airbag module              |
| (3) Steering roll connector | (7) Steering wheel lower cover |
| (4) Column cover            |                                |

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

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

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

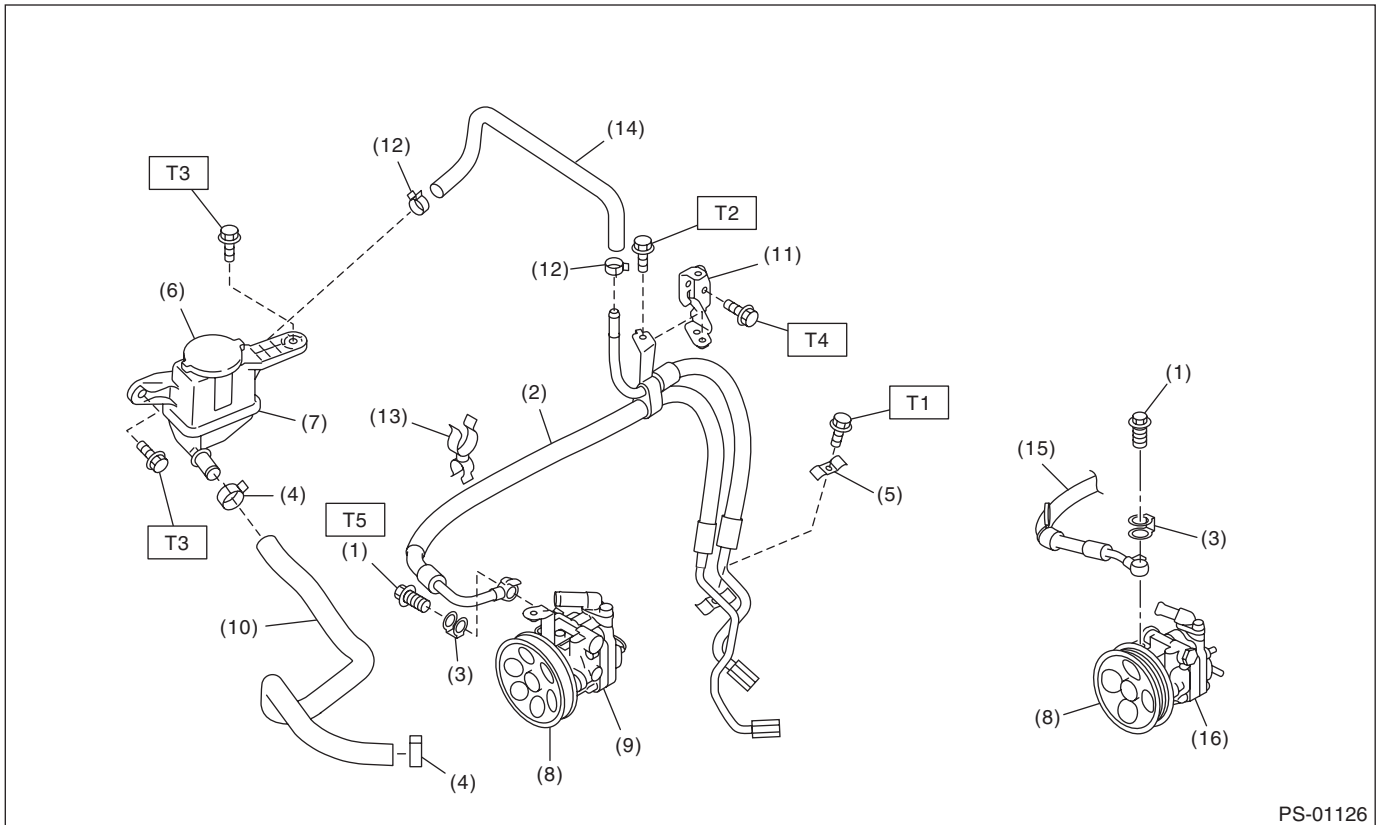
**T3: 39 (4.0, 28.8)**

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## POWER ASSISTED SYSTEM (POWER STEERING)

### 2. POWER ASSISTED SYSTEM

- Hose and tank



- |                        |                                 |
|------------------------|---------------------------------|
| (1) Eye bolt           | (9) Oil pump (turbo model)      |
| (2) Hose (turbo model) | (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) Hose (non-turbo model)     |
| (8) Pulley             | (16) Oil pump (non-turbo model) |

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

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

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

***T3: 13 (1.3, 9.6)***

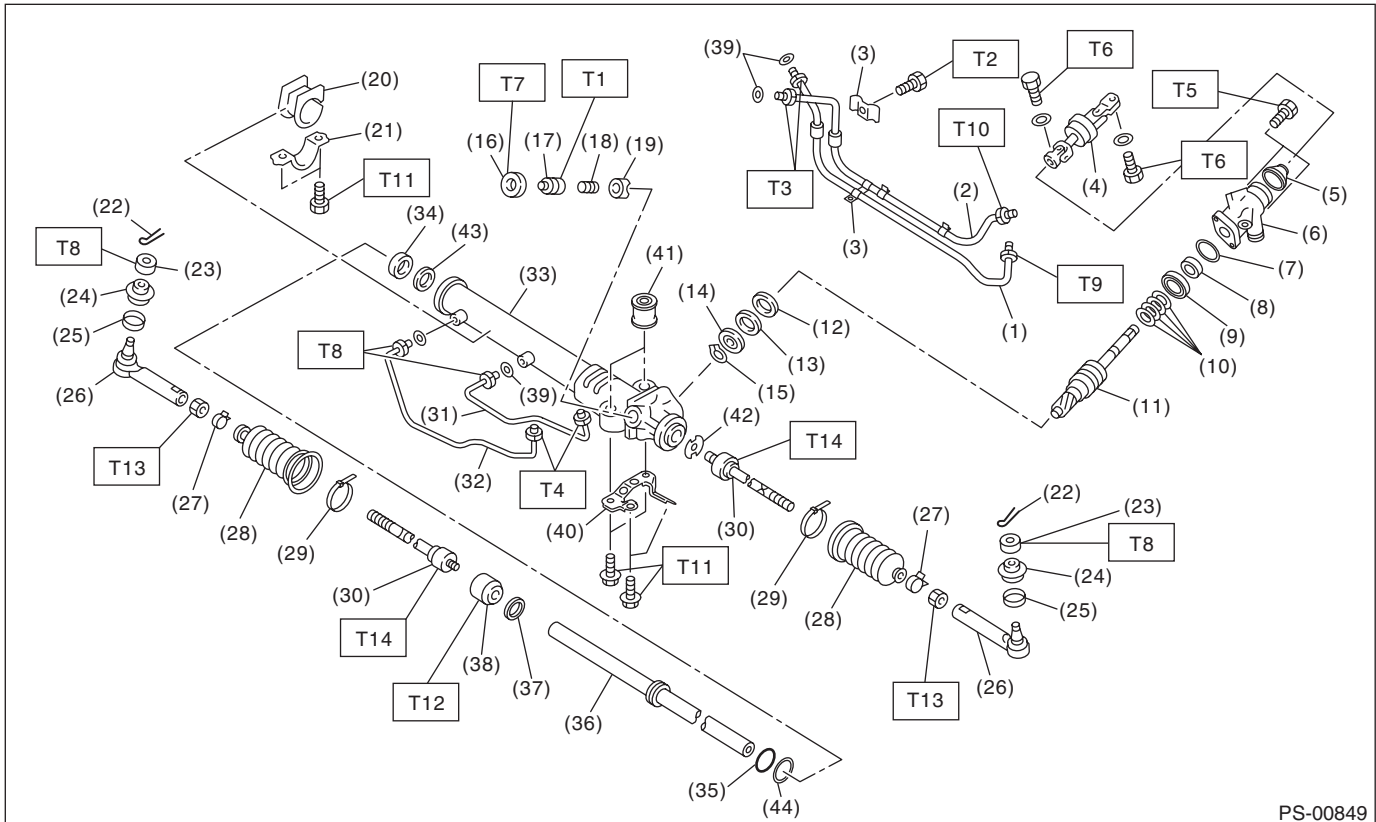
***T4: 18 (1.8, 13.3)***

***T5: 40 (4.1, 29.5)***

# General Description

## POWER ASSISTED SYSTEM (POWER STEERING)

### • Gearbox



PS-00849

(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	

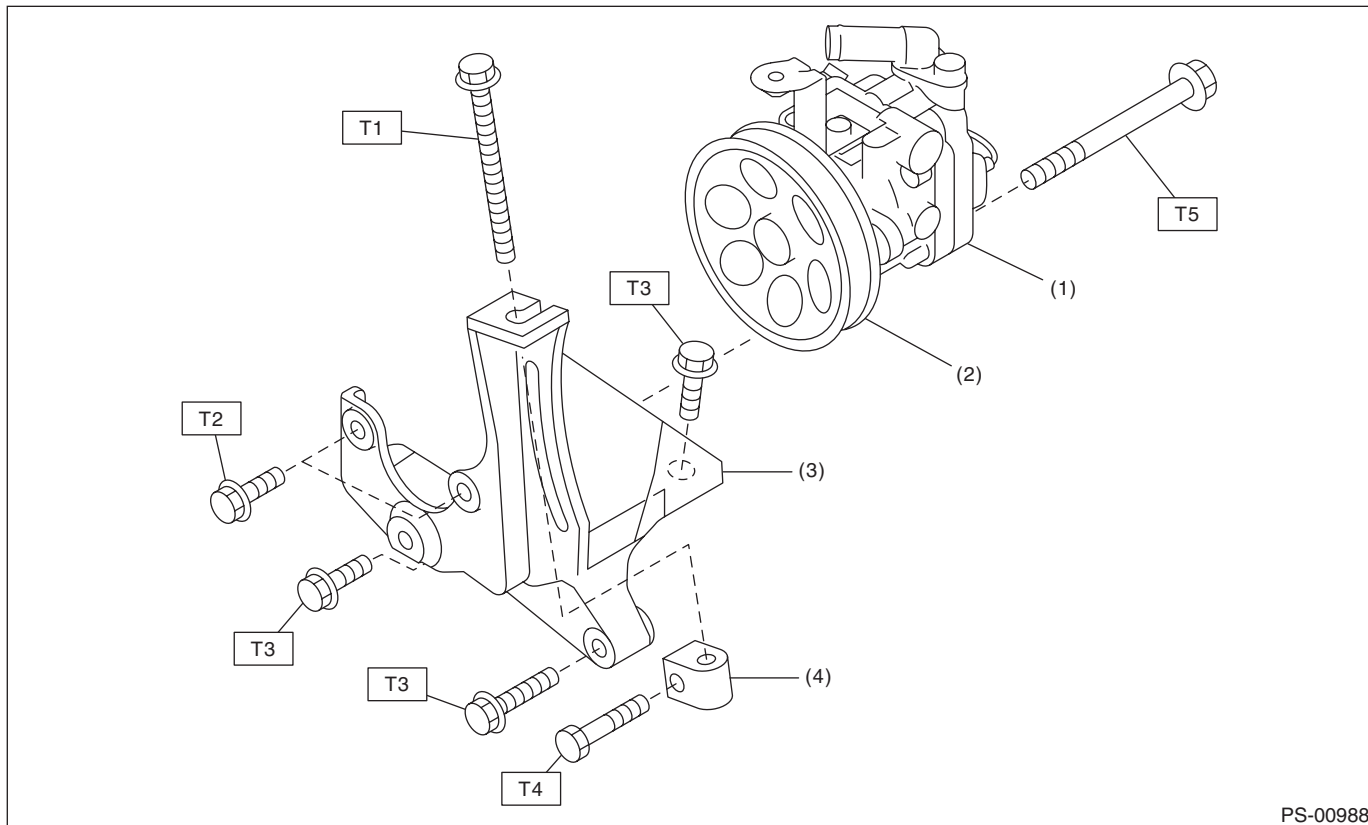
#### **Tightening torque:N-m (kgf-m, ft-lb)**

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

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### POWER ASSISTED SYSTEM (POWER STEERING)

#### 3. OIL PUMP



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

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**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) (non-turbo model)**

**48 (4.9, 35.4) (turbo model)**

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## General Description

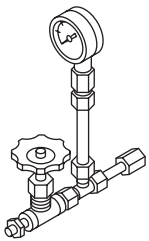
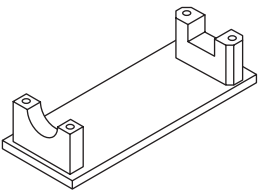
POWER ASSISTED SYSTEM (POWER STEERING)

### 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 the 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.

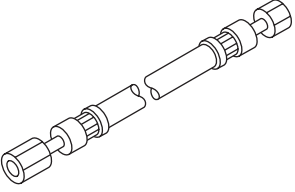
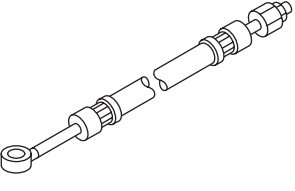
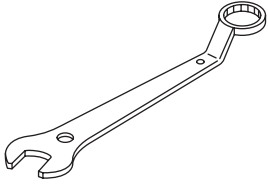
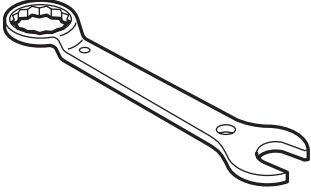
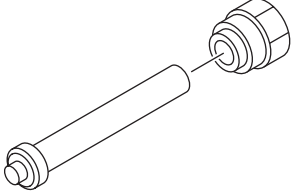
### D: PREPARATION TOOL

#### 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 gear-box assembly and disassembling it.</li><li>• Used together with BOSS D (34199AG000).</li></ul>

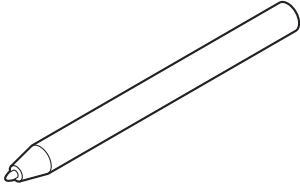
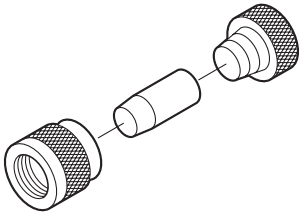
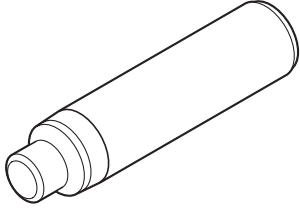
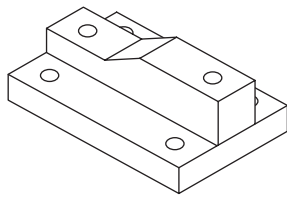
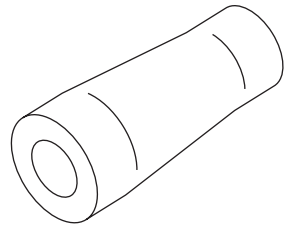
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### POWER ASSISTED SYSTEM (POWER STEERING)

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 <p style="text-align: center;">ST34099AC010</p>	34099AC010	ADAPTER HOSE A	Used together with PRESSURE GAUGE (925711000).
 <p style="text-align: center;">ST34099AC020</p>	34099AC020	ADAPTER HOSE B	Used together with PRESSURE GAUGE (925711000).
 <p style="text-align: center;">ST-926230000</p>	926230000	SPANNER	For the lock nut when adjusting backlash of gearbox.
 <p style="text-align: center;">ST34099PA100</p>	34099PA100	SPANNER	Used when measuring the rotating resistance of gearbox assembly.
 <p style="text-align: center;">ST-926420000</p>	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.

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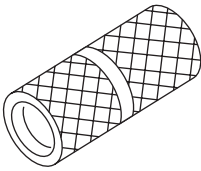
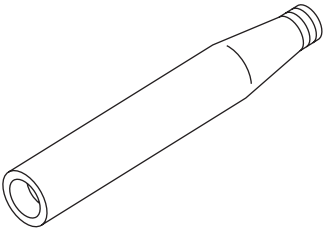
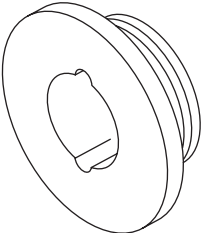
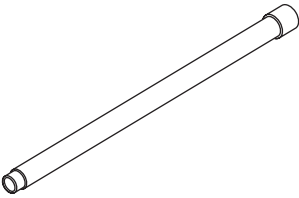
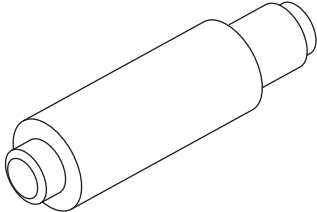
## POWER ASSISTED SYSTEM (POWER STEERING)

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST34099FA060	34099FA060	PUNCH HOLDER	Used for crimping.
 ST34199FE040	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>
 ST34199FE000	34199FE000	INSTALLER & REMOVER	Used for removing and installing the rack oil seal (outer and inner).
 ST34199AG000	34199AG000	BOSS D	<ul style="list-style-type: none"> <li>• Used when inspecting characteristic of gear-box assembly and disassembling it.</li> <li>• Used together with STAND (926200000).</li> </ul>
 ST34199AG040	34199AG040	GUIDE	Used for installing seal ring of rack.



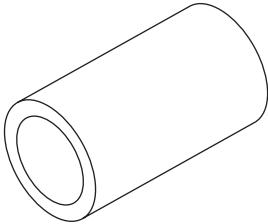
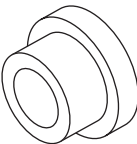
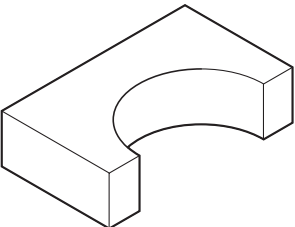
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ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 <p style="text-align: center;">ST34199AG070</p>	34199AG070	FORMER	Used for forming seal ring of pinion.
 <p style="text-align: center;">ST34199AG020</p>	34199AG020	GUIDE	Used for installing seal ring of pinion.
 <p style="text-align: center;">ST34199AG060</p>	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>
 <p style="text-align: center;">ST34099PA010</p>	34099PA010	OIL SEAL REMOVER	Used for removing oil seal.
 <p style="text-align: center;">ST34199AG090</p>	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>

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ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 <p>ST34199AG080</p>	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>
 <p>ST34199AG010</p>	34199AG010	INSTALLER	Used for pressing-fit oil seal of gearbox cylinder.
 <p>ST34199FE020</p>	34199FE020	BASE	Used for crimping.