

General Description

POWER ASSISTED SYSTEM (POWER STEERING)

1. General Description

A: SPECIFICATION

Model			STI model	Except for STI model
Whole system	Minimum turning radius		m (ft)	
	Steering angle	Inner wheel	5.5 (18)	
		Outer wheel	36.6°±1.5°	
	Steering wheel diameter		mm (in)	
Lock-to-lock revolution number		375 (14.76)		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		cm ³ (cu in)/rev.	
	Relief pressure		kPa (kgf/cm ² , psi)	8.5 (0.519)
			(85 — 92, 1,203 — 1,305)	8,100 — 8,800 (83 — 90, 1,174 — 1,276)
	Hydraulic fluid control		Engine speed sensitive	
	Hydraulic fluid		1,000 rpm: 7.5 (7.9, 6.6) 3,000 rpm: 7.3 (7.7, 6.4)	1,000 rpm: 6.3 (6.7, 5.5) 3,000 rpm: 5.9 (6.2, 5.2)
Hydraulic oil (Power steering system)	RPM range		rpm	
	Direction of rotation		680 — 9,600	
	Capacity L (US qt, Imp qt)	Oil tank	Clockwise	
		Whole system	0.2 (0.2, 0.2) 0.7 (0.7, 0.6)	

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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)	Sliding resistance	N (kgf, lbf)	343 (35, 77) or less Difference between right and left sliding resistance: 20% or less
	Rack shaft play in the radial direction	Right-turn steering mm (in)	0.12 (0.005) or less
		Left-turn steering mm (in)	Horizontal direction: 0.15 (0.006) or less Vertical direction: 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
	Rotational resistance	N (kgf, lbf)	Maximum allowable value: 13.7 (1.40, 3.08) or less Difference between right and left sliding resistance: 24%
Oil pump (Power steering system)	Pulley shaft	Radial play mm (in)	0.2 (0.008) or less
		Axial play mm (in)	0.9 (0.035) or less
	Pulley	Ditch deflection mm (in)	1.0 (0.039) or less
		Rotational resistance N (kgf, lbf)	9.22 (0.94, 2.07) or less
	Regular pressure (unloaded)	kPa (kgf/cm ² , psi)	981 (10, 142) or less
Steering wheel effort (Power steering system)	At standstill with engine idling on paved road	N (kgf, lbf)	34 (3.5, 7.6) or less
	At standstill with engine stalled on paved road	N (kgf, lbf)	294.2 (30, 66.1) or less

Recommended power steering fluid

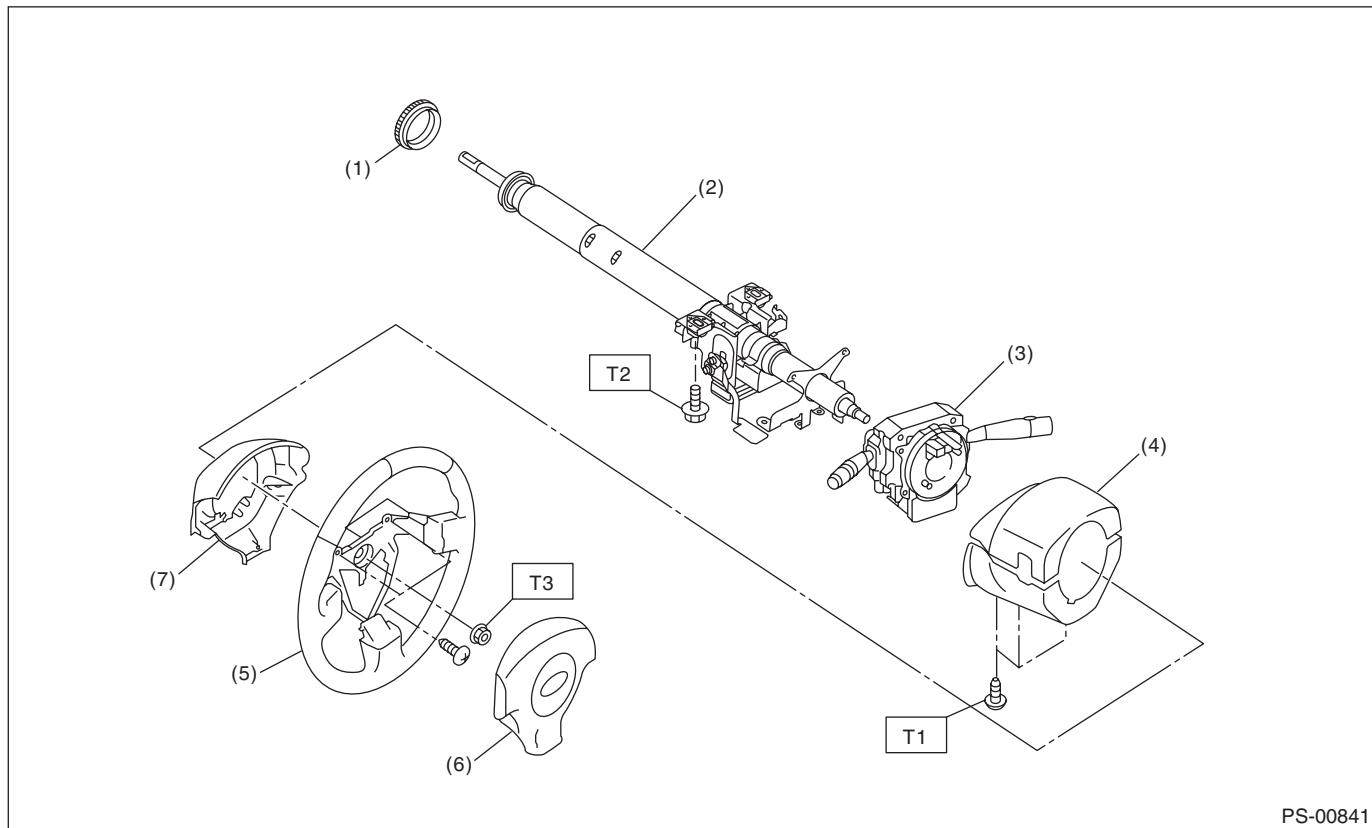
SUBARU ATF or DEXRON III

General Description

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B: COMPONENT

1. STEERING WHEEL AND COLUMN



- (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)

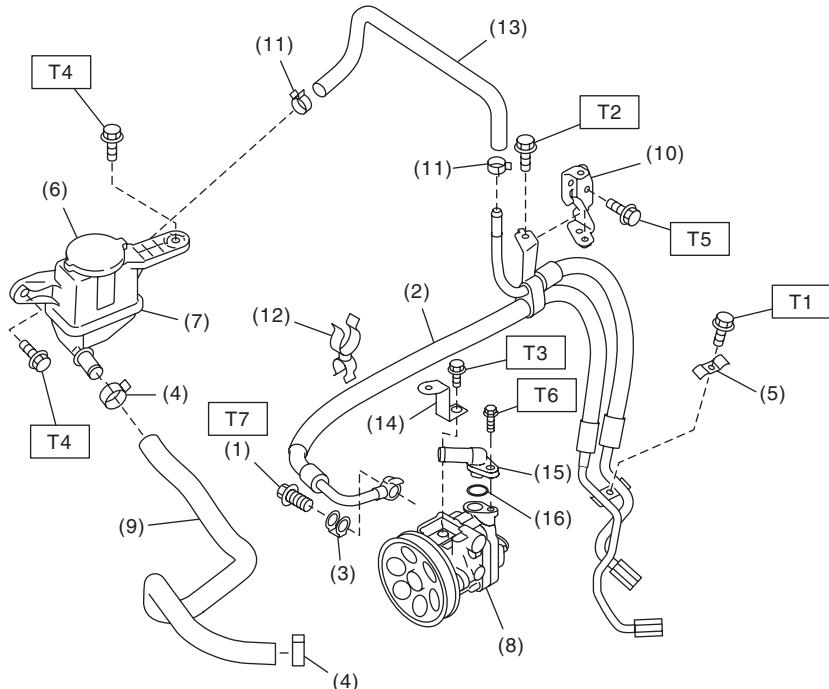
T3: 39 (4.0, 28.8)

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2. POWER ASSISTED SYSTEM

- Hose and tank



PS-01678

(1)	Eyebolt	(9)	Suction hose
(2)	Hose	(10)	Hose bracket
(3)	Eyebolt gasket	(11)	Clip
(4)	Clip	(12)	Clip
(5)	Clamp E	(13)	Return hose
(6)	Cap	(14)	Belt cover bracket
(7)	Reservoir tank	(15)	Suction connector
(8)	Oil pump	(16)	O-ring

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)

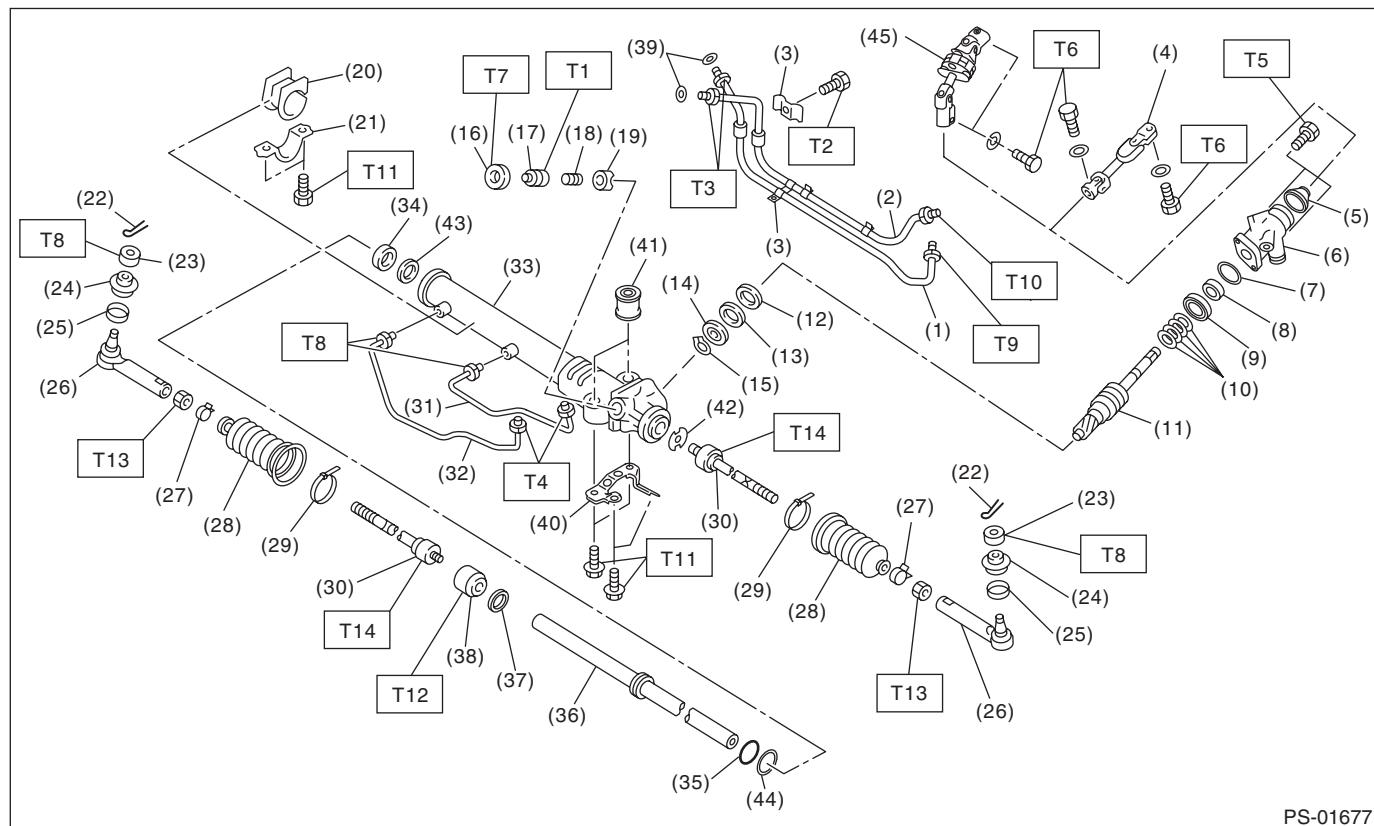
T6: 21 (2.1, 15.5)

T7: 40 (4.1, 29.5)

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• Gearbox



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(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 ring
(4) Universal joint (STI model)	(24) Dust cover	(44) O-ring
(5) Dust seal	(25) Clip	(45) Universal joint (except for STI model)
(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 seal 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)

T1: Tighten to 5.9 (0.6, 4.4), and loosen by 20 degrees.

T2: 9 (0.9, 6.6)

T3: 15 (1.5, 11.1)

T4: 17 (1.7, 12.5)

T5: 20 (2.0, 14.8)

T6: 24 (2.4, 17.7)

T7: 25 (2.5, 18.4)

T8: 27 (2.8, 19.9)

T9: 37 (3.8, 27.3)

T10: 29 (3.0, 21.4)

T11: 60 (6.1, 44.3)

T12: 70 (7.1, 51.6)

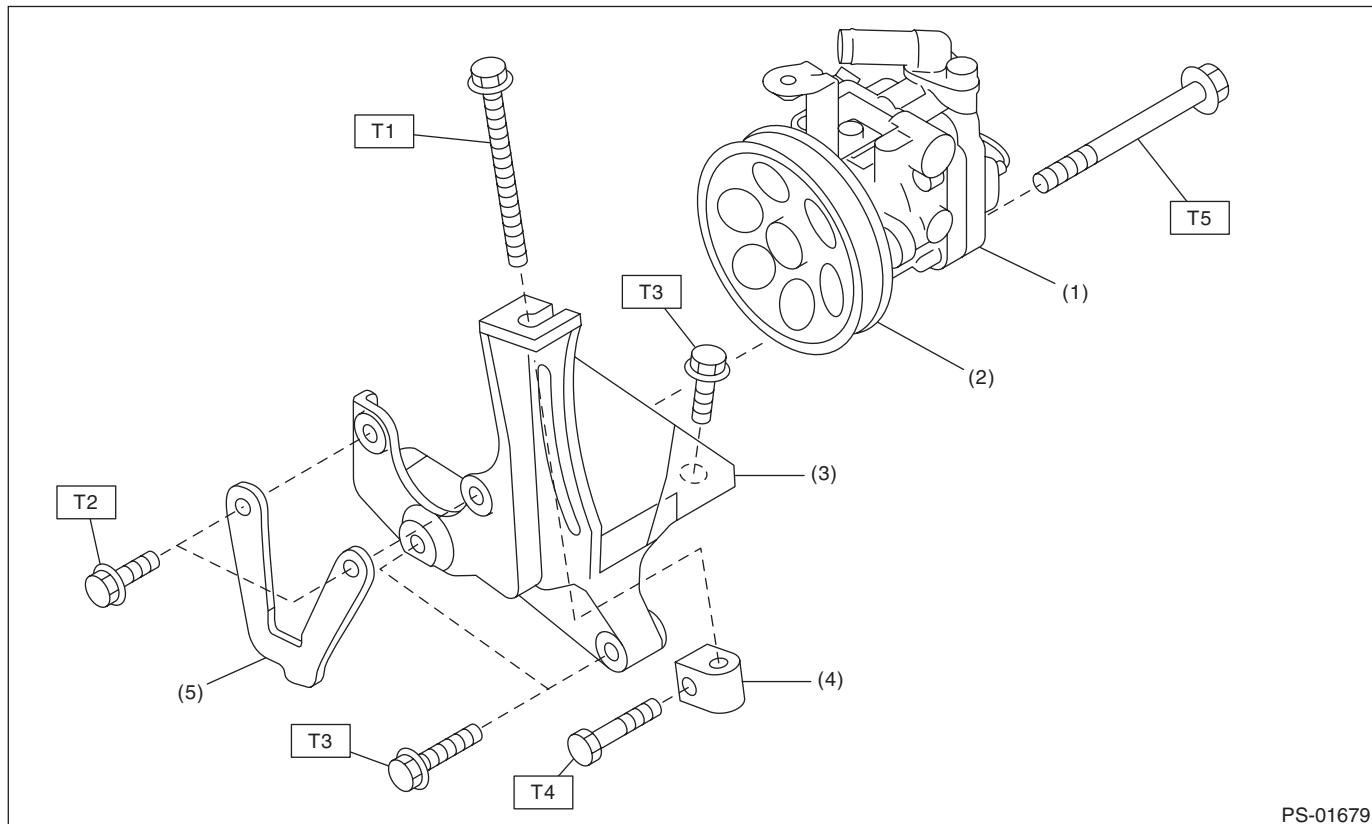
T13: 85 (8.7, 62.7)

T14: 93 (9.5, 68.6)

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3. OIL PUMP



PS-01679

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

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: 48 (4.9, 35.4)***

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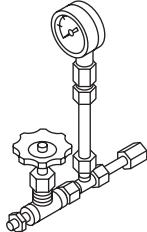
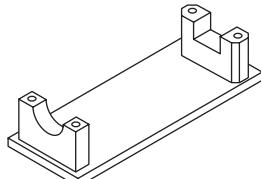
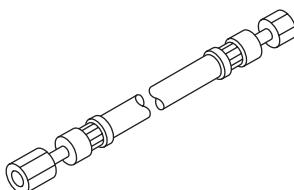
POWER ASSISTED SYSTEM (POWER STEERING)

C: CAUTION

- Wear appropriate work clothing, including a helmet, 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.

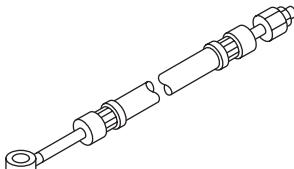
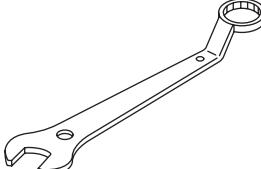
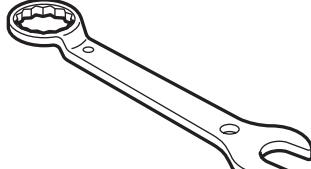
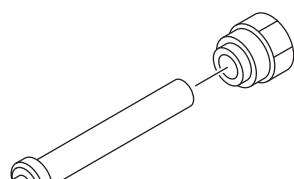
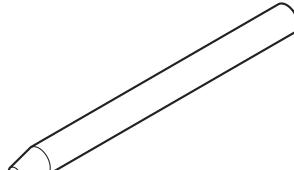
D: PREPARATION TOOL

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">• Used when inspecting characteristic of gearbox assembly and disassembling it.• Used together with BOSS D (34199AG000).
 ST34099AC010	34099AC010	ADAPTER HOSE A	Used together with PRESSURE GAUGE (925711000).

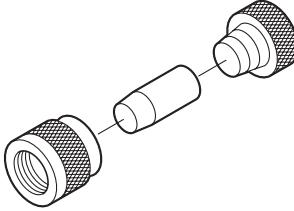
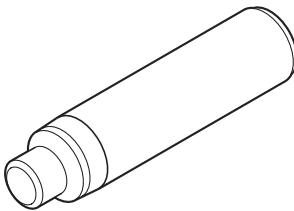
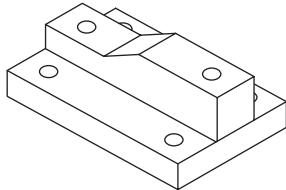
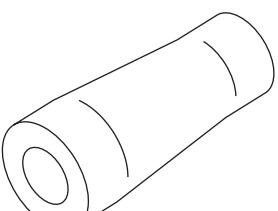
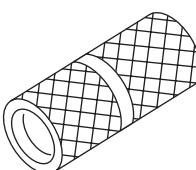
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 ST34099AC020	34099AC020	ADAPTER HOSE B	Used together with PRESSURE GAUGE (925711000).
 ST-926230000	926230000	SPANNER	For the lock nut when adjusting backlash of gearbox.
 ST34099PA100	34099PA100	SPANNER	Used when measuring the rotating resistance 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.

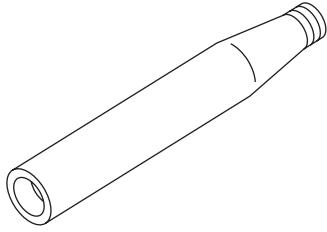
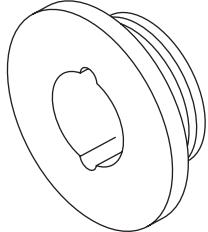
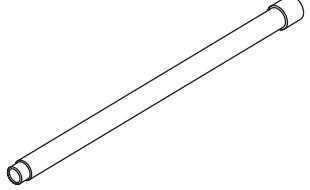
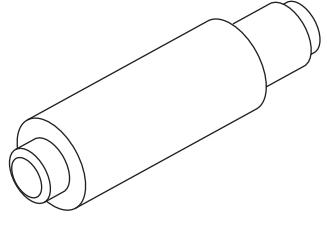
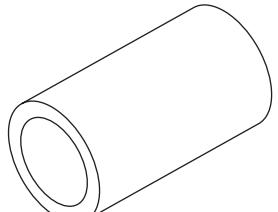
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ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST34199FE040	34199FE040	INSTALLER A, B, C	<ul style="list-style-type: none"> Used for installing the oil seal to the rack assembly. • INSTALLER A: 34199FE070 • INSTALLER B: 34199FE080 • INSTALLER C: 34199FE090
 ST34199XA030	34199XA030	INSTALLER & REMOVER	Used for removing and installing the rack oil seal (outer and inner).
 ST34199AG000	34199AG000	BOSS D	<ul style="list-style-type: none"> Used when inspecting characteristic of gearbox assembly and disassembling it. Used together with STAND (926200000).
 ST34199AG040	34199AG040	GUIDE	Used for installing seal ring of rack.
 ST34199AG070	34199AG070	FORMER	Used for forming seal ring of pinion.

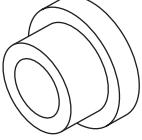
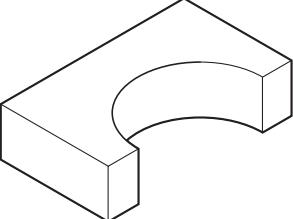
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	34199AG020	GUIDE	Used for installing seal ring of pinion.
	34199AG060	GUIDE G (26)	<ul style="list-style-type: none"> Used for forming seal ring of rack. Used together with FORMER PISTON (34199AG080).
	34099PA010	OIL SEAL REMOVER	Used for removing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

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 ST34199AG010	34199AG010	INSTALLER	Used for pressing-fit oil seal of gearbox cylinder.
 ST34199FE020	34199FE020	BASE	Used for crimping.