

GENERAL DESCRIPTION

POWER ASSISTED SYSTEM (POWER STEERING)

1. General Description

A: SPECIFICATIONS

Item		Designation	
Whole system	Minimum turning radius	m (ft) 5.3 (17.4)	
	Steering angle (Inside-Outside)	36°25'— 32°00'	
	Steering wheel diameter	mm (in) 385 (15.16)	
	Maximum rotation	3.0	
Gearbox	Type	Rack and pinion, Integral	
	Backlash	0 (Automatically adjustable)	
	Valve (Power steering system)	Rotary valve	
Pump (Power steering system)	Type	Vane pump	
	Oil tank	Installed on body	
	Output	cm ³ (cu in)/rev. 7.2 (0.439)	
	Relief pressure	kPa (kg/cm ² , psi) 7,650 — 8,340 (78 — 85, 1,110 — 1,210)	
	Hydraulic fluid control	Dropping in response to increased engine revolutions	
	Hydraulic fluid	ℓ (US qt, Imp qt)/min 1,000 rpm: 7 (7.4, 6.2) 3,000 rpm: 5 (5.3, 4.4)	
	Range of revolution	rpm 700 — 9,000	
Revolving direction	Clockwise (Viewed from pulley side)		
Working fluid (Power steering system)	Name	ATF DEXRON III or equivalent	
	Capacity	ℓ (US qt, Imp qt)	
		Oil tank	0.3 (0.3, 0.3)
Total	0.7 (0.7, 0.6)		
Steering wheel	Free play	mm (in) 17 (0.67)	
Turning angle	Inner tire & wheel	36°25'±1°30'	
	Outer tire & wheel	32°00'±1°30'	
Steering shaft	Clearance between steering wheel and column cover	mm (in) 3.0 (0.118)	
Steering gearbox (Power steering system)	Sliding resistance	N (kgf, lb) 400 (40.8, 89.9) or less	
	Rack shaft play in radial direction	Right-turn steering	mm (in) 0.19 (0.0075) or less
		Left-turn steering	mm (in) Horizontal movement: 0.15 (0.0059) or less Vertical movement: 0.3 (0.012) or less
	Input shaft play	In radial direction	mm (in) 0.18 (0.0071) or less
		In axial direction	mm (in) 0.5 (0.020) or less
	Turning resistance	N (kgf, lb) Maximum allowable value: Less than 9.33 (0.95, 2.10) Difference between right and left sliding resistance: Less than 20%	
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
		Resistance to rotation	N (kgf, lb) 9.22 (0.94, 2.07) or less
	Regular pressure	kPa (kg/cm ² , psi) 981 (10, 142) or less	
Steering wheel effort (Power steering system)	At standstill with engine idling on a concrete road	N (kgf, lb) 31.4 (3.2, 7.1) or less	
	At standstill with engine stalled on a concrete road	N (kgf, lb) 294.2 (30, 66.2) or less	

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Recommended power steering fluid	Manufacturer
ATF DEXRON III or equivalent	B.P.
	CALTEX
	CASTROL
	MOBIL
	SHELL
	TEXACO

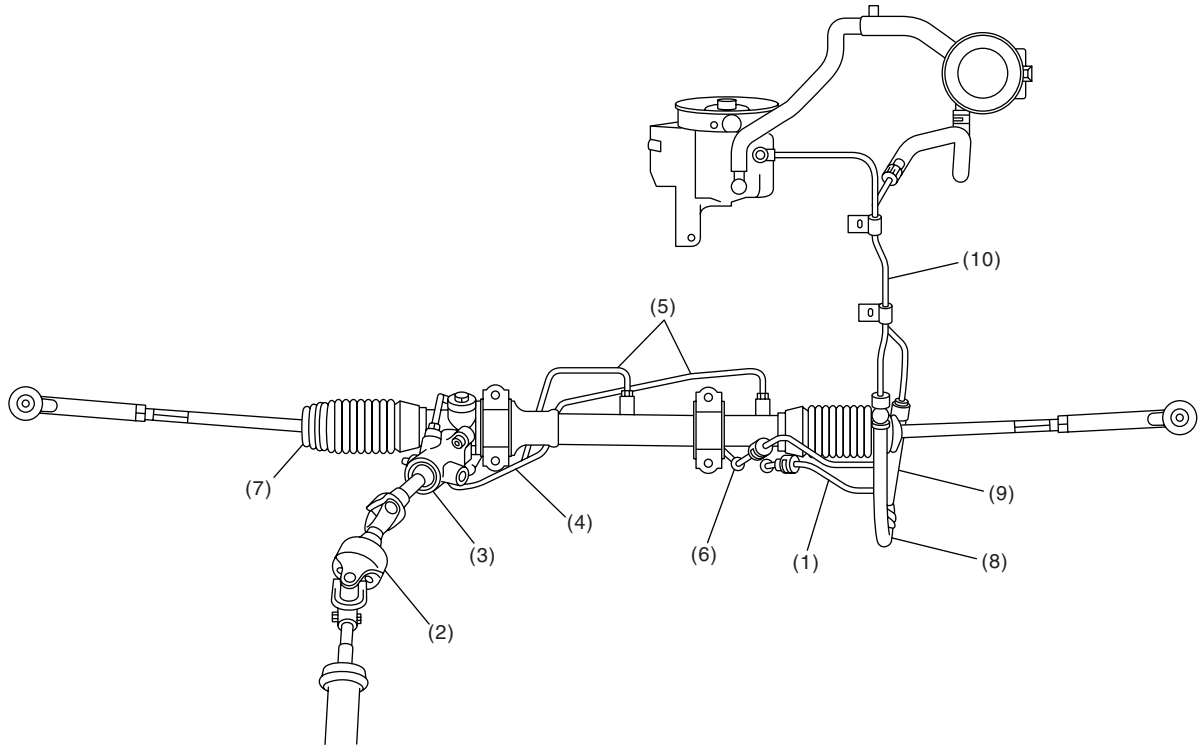
NOTE:

This table lists various clearances that must be correctly adjusted to ensure the normal vehicle driving without interfering noise, or any other faults.

Location	Minimum allowance
(1) Crossmember — Pipe	5 mm (0.20 in)
(2) DOJ — Shaft or joint	14 mm (0.55 in)
(3) DOJ — Valve housing	11 mm (0.43 in)
(4) Pipe — Pipe	2 mm (0.08 in)
(5) Stabilizer — Pipe	5 mm (0.20 in)
(6) Exhaust pipe — Pipe	11 mm (0.43 in)
(7) Exhaust pipe — Gearbox bolt	15 mm (0.59 in)
(8) Side frame — Hose A and B	10 mm (0.39 in)
(9) Cruise control pump — Hose A and B	15 mm (0.59 in)
(10) Pipe portion of hose A — Pipe portion of hose B	1.5 mm (0.059 in)

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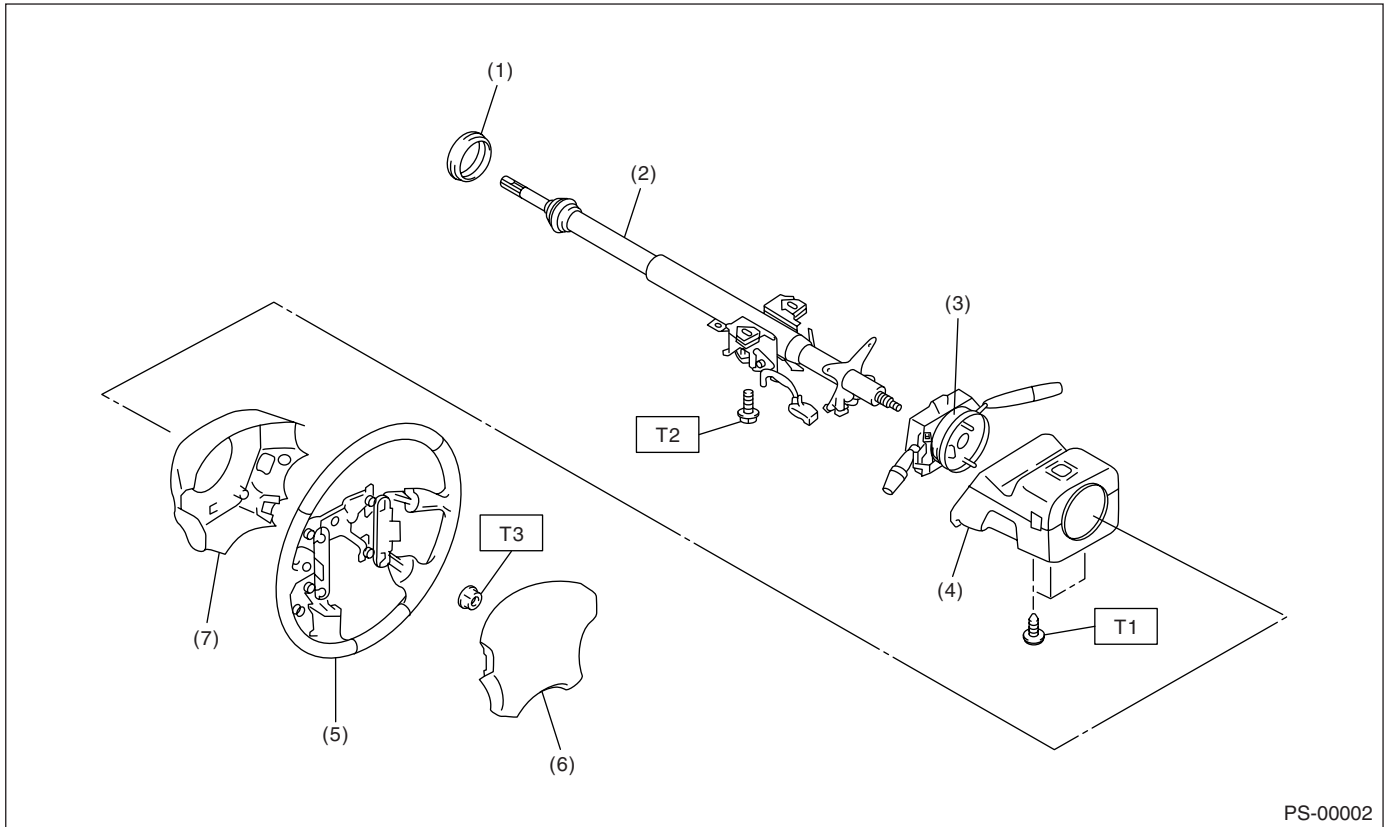
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B: COMPONENT

1. STEERING WHEEL AND COLUMN



PS-00002

- | | |
|-----------------------------|--------------------------------|
| (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)

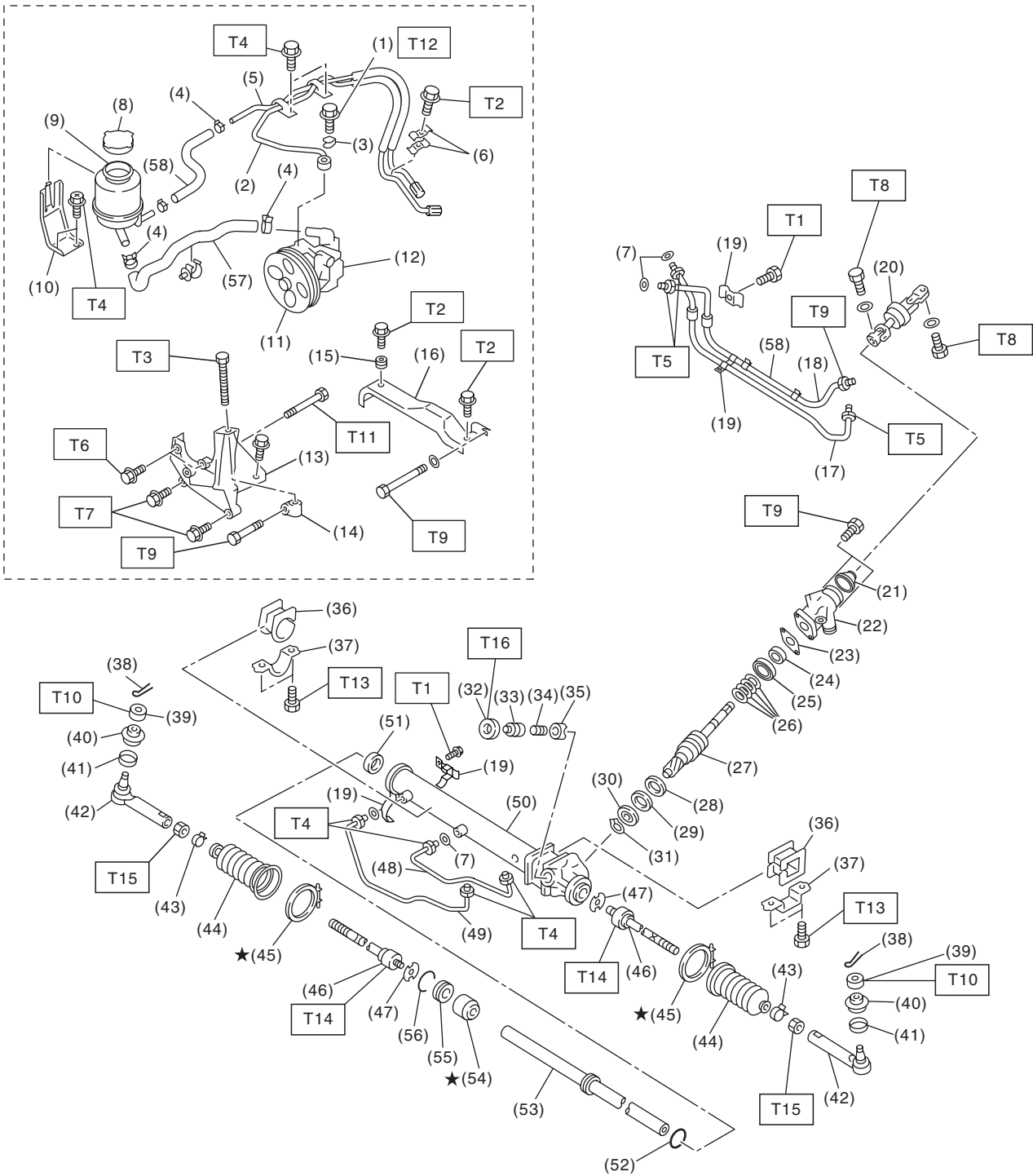
T2: 25 (2.5, 18.1)

T3: 45 (4.6, 33.2)

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2. POWER ASSISTED SYSTEM



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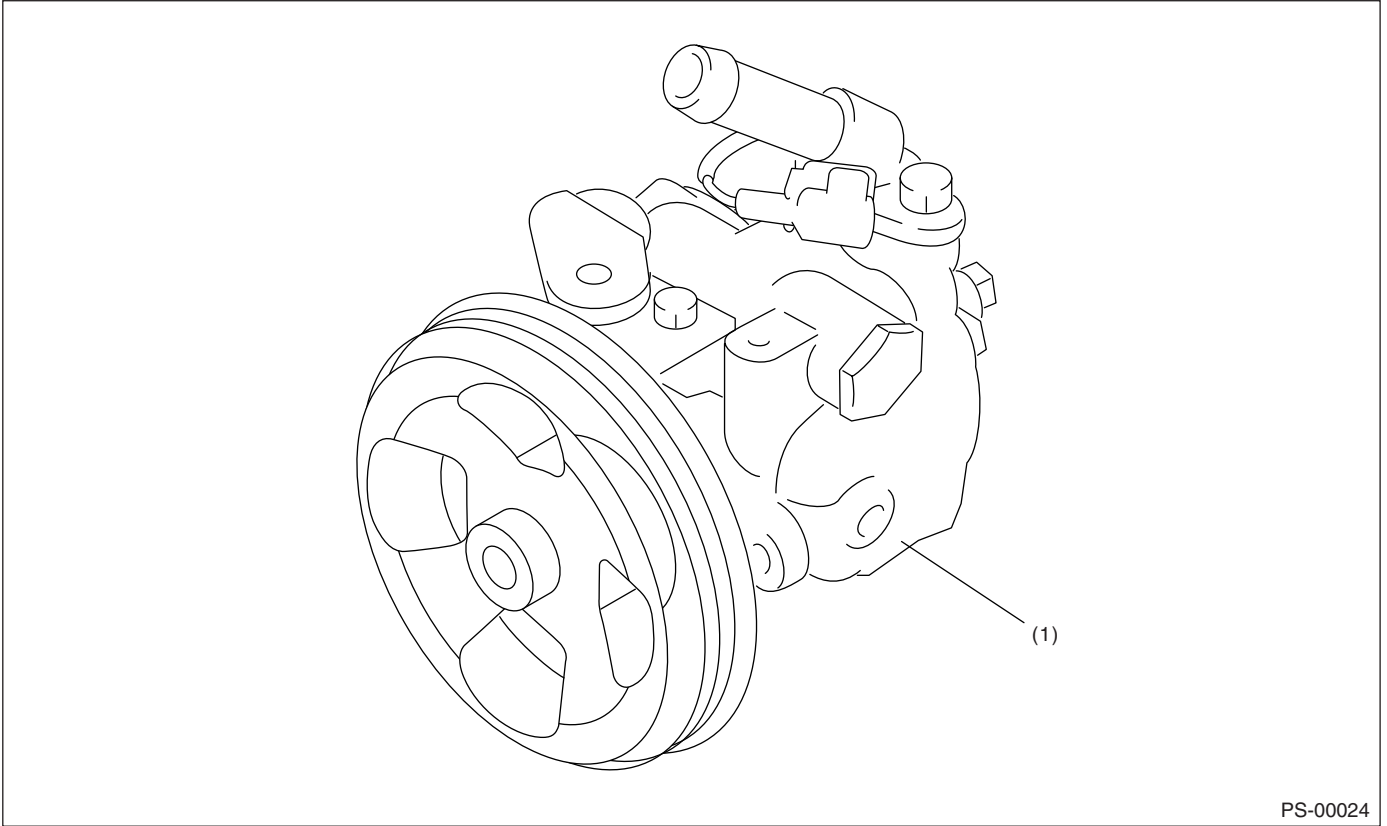
POWER ASSISTED SYSTEM (POWER STEERING)

(1) Eye bolt	(27) Pinion and valve ASSY	(52) Piston ring
(2) Pipe C	(28) Oil seal	(53) Rack
(3) Gasket	(29) Back-up washer	(54) Rack bushing
(4) Clip	(30) Ball bearing	(55) Rack stopper
(5) Pipe D	(31) Snap ring	(56) Circlip
(6) Clamp E	(32) Lock nut	(57) Suction hose
(7) O-ring	(33) Adjusting screw	(58) Hose
(8) Cap	(34) Spring	
(9) Reservoir tank	(35) Sleeve	
(10) Reservoir tank bracket	(36) Adapter	<hr/> Tightening torque: N-m (kgf-m, ft-lb)
(11) Pulley	(37) Clamp	T1: 6 (0.6, 4.3)
(12) Oil pump	(38) Cotter pin	T2: 7.4 (0.75, 5.4)
(13) Bracket	(39) Castle nut	T3: 8 (0.8, 5.8)
(14) Belt tension nut	(40) Dust cover	T4: 13 (1.3, 9.4)
(15) Bush	(41) Clip	T5: 15 (1.5, 10.8)
(16) Belt cover	(42) Tie-rod end	T6: 15.7 (1.6, 11.6)
(17) Pipe E	(43) Clip	T7: 22 (2.2, 15.9)
(18) Pipe F	(44) Boot	T8: 24 (2.4, 17.4)
(19) Clamp plate	(45) Boot band	T9: 25 (2.5, 18.1)
(20) Universal joint	(46) Tie-rod	T10: 27 (2.75, 19.9)
(21) Dust cover	(47) Lock washer	T11: 37.3 (3.8, 27.5)
(22) Valve housing	(48) Pipe B	T12: 39 (4.0, 28.9)
(23) Gasket	(49) Pipe A	T13: 59 (6.0, 43.4)
(24) Oil seal	(50) Steering body	T14: 78 (8.0, 57.9)
(25) Ball bearing	(51) Oil seal	T15: 83 (8.5, 61.5)
(26) Seal ring		T16: 39 (4.0, 28.9)

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3. OIL PUMP



(1) Power steering oil pump ASSY

PS-00024

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C: CAUTION

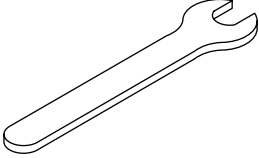
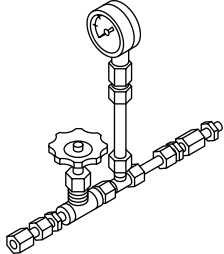
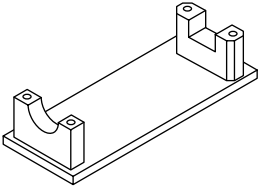
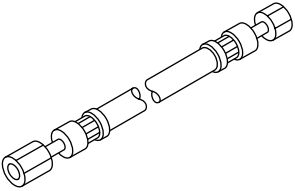
- Wear working clothing, including a cap, protective goggles, and protective shoes during operation.
- Remove contamination including dirt and corrosion before removal, installation or disassembly.
- Keep the disassembled parts in order and protect them from dust or dirt.
- Before removal, installation 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 on the vehicle is hot after running.
- Use SUBARU genuine power steering fluid, grease etc. or the equivalent. Do not mix fluid, grease etc. with that of another grade or from other manufacturers.
- Be sure to tighten fasteners including bolts and nuts to the specified torque.
- Place shop jacks or safety stands at the specified points.
- Apply power steering fluid onto sliding or revolution surfaces before installation.
- Before installing O-rings or snap rings, apply sufficient amount of gear oil to avoid damage and deformation.
- Before securing a part on a vise, place cushioning material such as wood blocks, aluminum plate, or shop cloth between the part and the vise.

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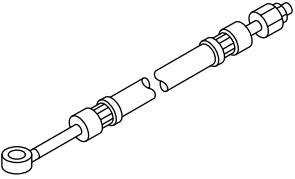
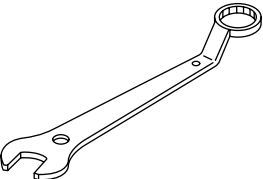
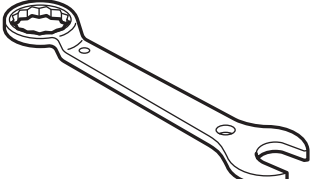
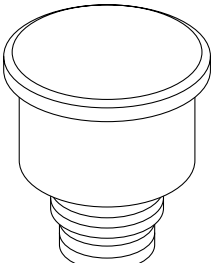
D: PREPARATION TOOL

1. SPECIAL TOOLS

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST-925700000	925700000	WRENCH	<ul style="list-style-type: none">Used for removing and installing tie-rod.Apply this tool to rack.
 ST-925711000	925711000	PRESSURE GAUGE	Used for measuring oil pump pressure.
 ST-926200000	926200000	STAND	Used for disassembling gearbox assembly and inspecting characteristic of it.
 ST34099AC010	34099AC010	ADAPTER HOSE A	Used with PRESSURE GAUGE (925711000).

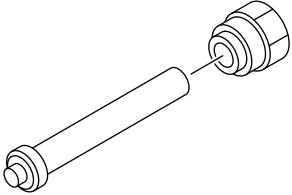
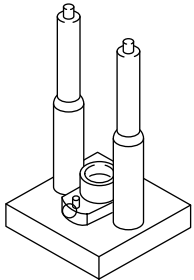
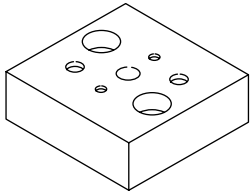
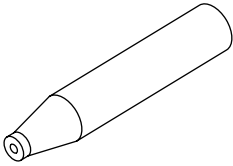
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ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 <p style="text-align: center;">ST34099AC020</p>	34099AC020	ADAPTER HOSE B	Used with PRESSURE GAUGE (925711000).
 <p style="text-align: center;">ST-926230000</p>	926230000	SPANNER	For the lock nut when adjusting backlash of gear-box.
 <p style="text-align: center;">ST34099PA100</p>	34099PA100	SPANNER	Used for measurement of rotating resistance of gearbox assembly.
 <p style="text-align: center;">ST34199AE040</p>	34199AE040	OIL CHARGE GUIDE	Used for charging power steering fluid.

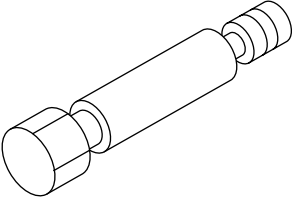
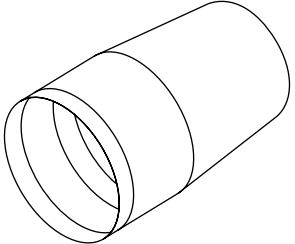
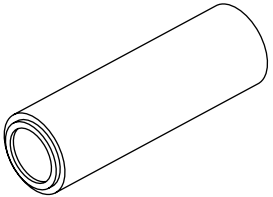
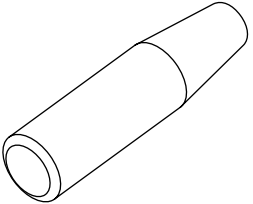
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ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 <p style="text-align: center;">ST-926420000</p>	926420000	PLUG	When oil leaks from pinion side of gearbox assembly, remove pipe B from valve housing, attach this tool and check oil leaking points.
 <p style="text-align: center;">ST-926370000</p>	926370000	INSTALLER A	<ul style="list-style-type: none"> • Used for installing valve assembly into valve housing assembly. • Used with STAND BASE (34099FA100).
 <p style="text-align: center;">ST34099FA100</p>	34099FA100	STAND BASE	Used for assembling gearbox assembly.
 <p style="text-align: center;">ST-926390001</p>	926390001	COVER & REMOVER ASSY	Used for assembling rack assembly.

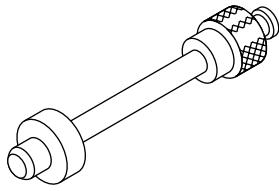
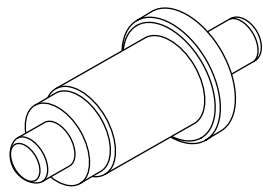
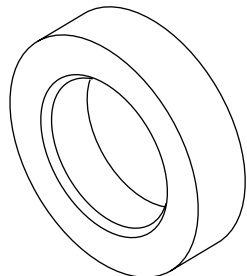
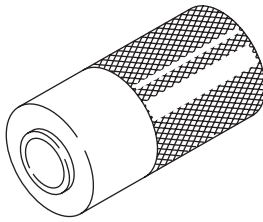
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ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 <p style="text-align: center;">ST-926400000</p>	926400000	GUIDE	<ul style="list-style-type: none"> • Right side of rack when installing rack bush. • Used with GUIDE (927660000).
 <p style="text-align: center;">ST-927660000</p>	927660000	GUIDE	<ul style="list-style-type: none"> • Right side of rack when installing rack bush. • Used with GUIDE (926400000).
 <p style="text-align: center;">ST-927620000</p>	927620000	INSTALLER B	<ul style="list-style-type: none"> • Used for installing oil seal of valve housing. • Used with INSTALLER A (926360000).
 <p style="text-align: center;">ST-926360000</p>	926360000	INSTALLER A	<ul style="list-style-type: none"> • Used as a guide to install oil seal. • Used with INSTALLER B (927620000).

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 <p style="text-align: center;">ST34099FA110</p>	34099FA110	OIL SEAL INSTALLER & REMOVER	Used for installing oil seal.
 <p style="text-align: center;">ST34099FA120</p>	34099FA120	SEAL INSTALLER & REMOVER	<ul style="list-style-type: none"> • Used for installing valve housing oil seal. • Used with INSTALLER SEAL. (34099FA130) • Used for installing valve housing ball bearing. • Used for removing oil seal and ball bearing from valve housing.
 <p style="text-align: center;">ST34099FA130</p>	34099FA130	INSTALLER SEAL	<ul style="list-style-type: none"> • Used for installing valve housing oil seal. • Used with INSTALLER AND REMOVER SEAL (34099FA120).
 <p style="text-align: center;">ST-927640000</p>	927640000	INSTALLER B	Used for installing ball bearing to housing.

2. GENERAL PURPOSE TOOLS

TOOL NAME	REMARKS
Spring scale	Used for measuring tightening torque.
Snap ring pliers	Used for removing and installing snap ring.
Dial gauge	Used for measuring steering gearbox.
Band clamp pliers	Used for caulking boot band.