

GENERAL DESCRIPTION

POWER ASSISTED SYSTEM (POWER STEERING)

1. General Description

A: SPECIFICATIONS

Model	Non-TURBO		TURBO
	Others	Sedan and OUTBACK	
Whole system	Minimum turning radius m (ft)	5.1 (16.7)	5.4 (17.7)
	Steering angle (Inside-Outside)	36°55' — 31°35'	34°05' — 29°35'
	Steering wheel diameter mm (in)	385 (15.16)	
	Overall gear ratio (Turns, lock to lock Gear box)	3.22	3.02
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.	7.8 (0.476)	7.2 (0.439)
	Relief pressure kPa (kg/cm ² , psi)	7,164 — 7,840 (73 — 80, 1,040 — 1,165)	7,350 — 8,036 (75 — 82, 1,067 — 1,165)
	Hydraulic fluid control	Dropping in response to increased engine revolutions	
	Hydraulic fluid ℥ (US qt, Imp qt)	1,000 rpm: 7 (7.4, 6.2) 3,000 rpm: 5 (5.3, 4.4)	7.5 (7.9, 6.6) ¹ 7 (7.4, 6.2) ²
	Range of revolution rpm	700 — 9,000	
	Revolving direction	Clockwise	
Working fluid (Power steering system)	Name	ATF DEXRON III	
	Capacity ℥ (US qt, Imp qt)	Oil tank	0.3 (0.3, 0.3)
		Total	0.7 (0.7, 0.6)

*1: With maximum load.

*2: With no load.

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Steering wheel	Free play		mm (in)	17 (0.67)
Turning angle	Inner tire & wheel		TURBO, OUTBACK, Non-TURBO sedan	34°05'±1.5°
	other			36°55'±1.5°
Steering shaft	Outer tire & wheel		TURBO, OUTBACK, Non-TURBO sedan	29°35'±1.5°
	other			31°35'±1.5°
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)	340 (35, 76) or less
	Rack shaft play in radial direction	Right-turn steering		0.19 (0.0075) or less
		Left-turn steering		Horizontal movement: 0.15 (0.0059) or less Vertical movement: 0.3 (0.012) or less
	Input shaft play	In radial direction		0.18 (0.0071) or less
		In axial direction		0.5 (0.020) or less
	Turning resistance		N (kgf, lb)	Maximum allowable value: 12 (1.2, 2.7)
Oil pump (Power steering system)	Pulley shaft	Radial play		0.4 (0.016) or less
		Axial play	Non-TURBO	0.4 (0.016) or less
			TURBO	0.8 (0.031) or less
	Pulley	Ditch deflection		1.0 (0.039) or less
		Resistance to rotation		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)	Relief pressure	Non-TURBO		7,355 (75, 1,067)
		TURBO		7,845 (80, 1,138)
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

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

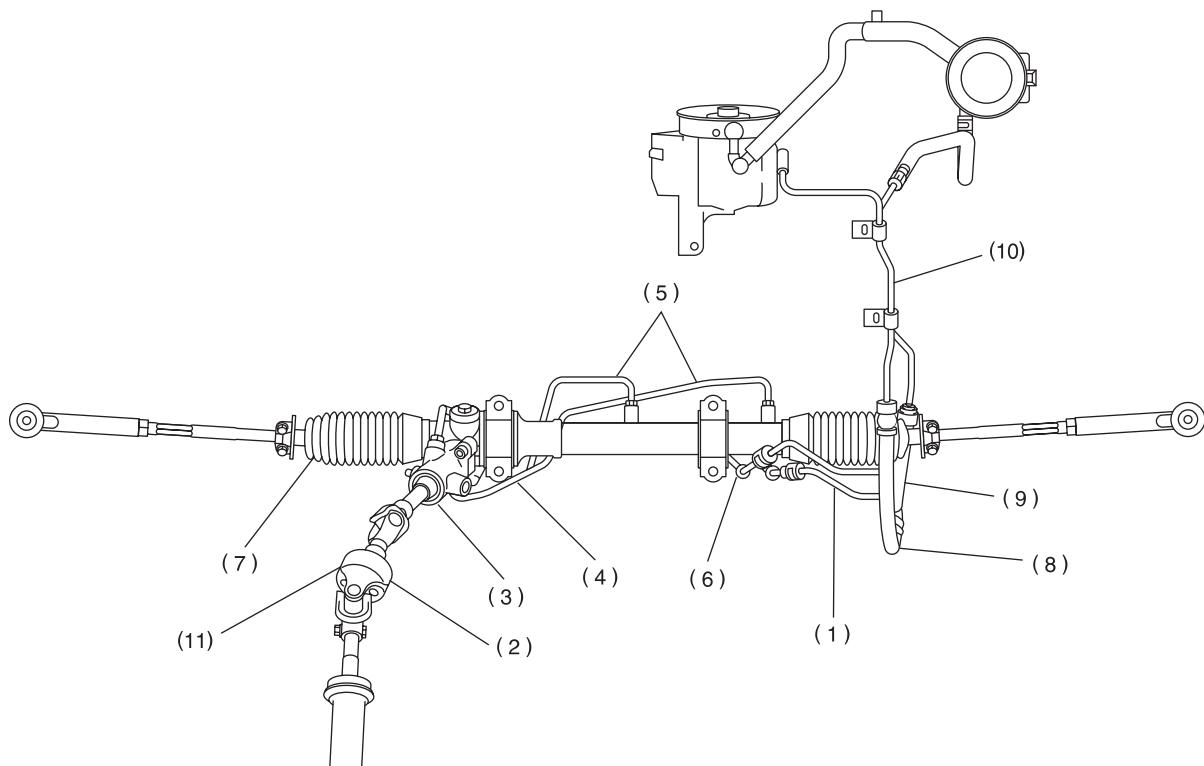
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CAUTION:

This table lists various clearances that must be correctly adjusted to ensure 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)
(11) AT cooling hose — Joint	20 mm (0.79 in)

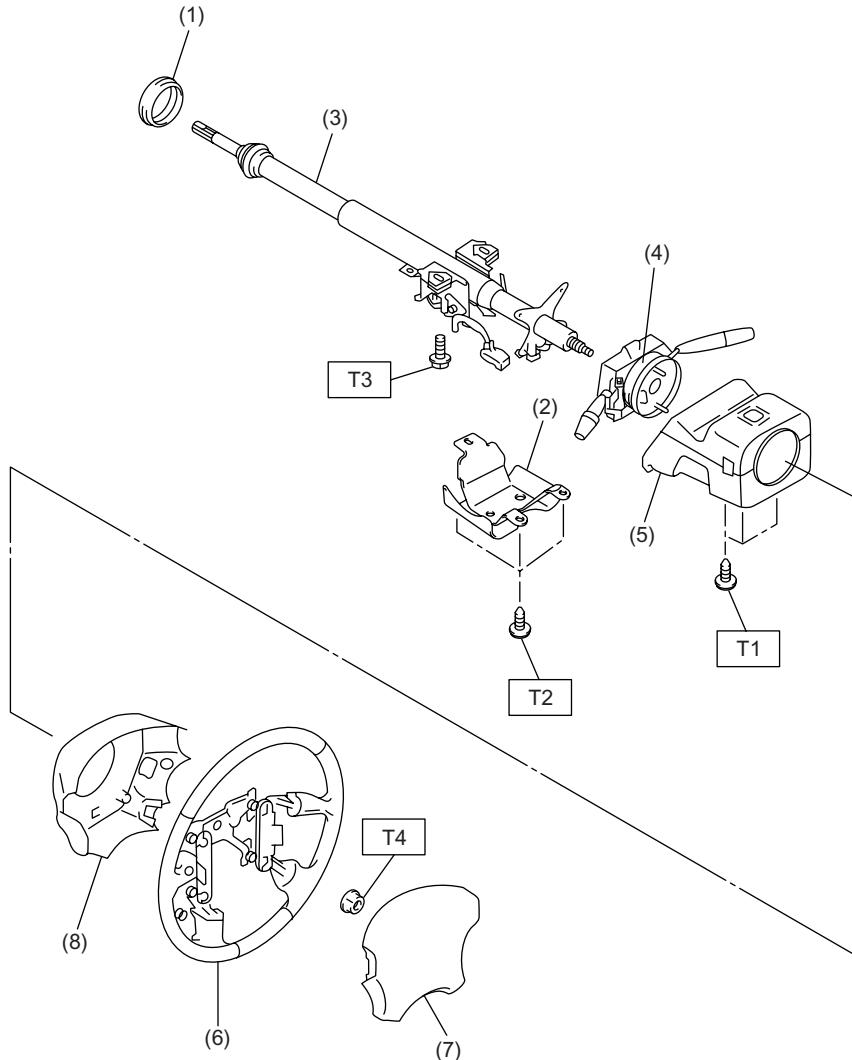


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POWER ASSISTED SYSTEM (POWER STEERING)

B: COMPONENT

1. STEERING WHEEL AND COLUMN



PS-00356

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

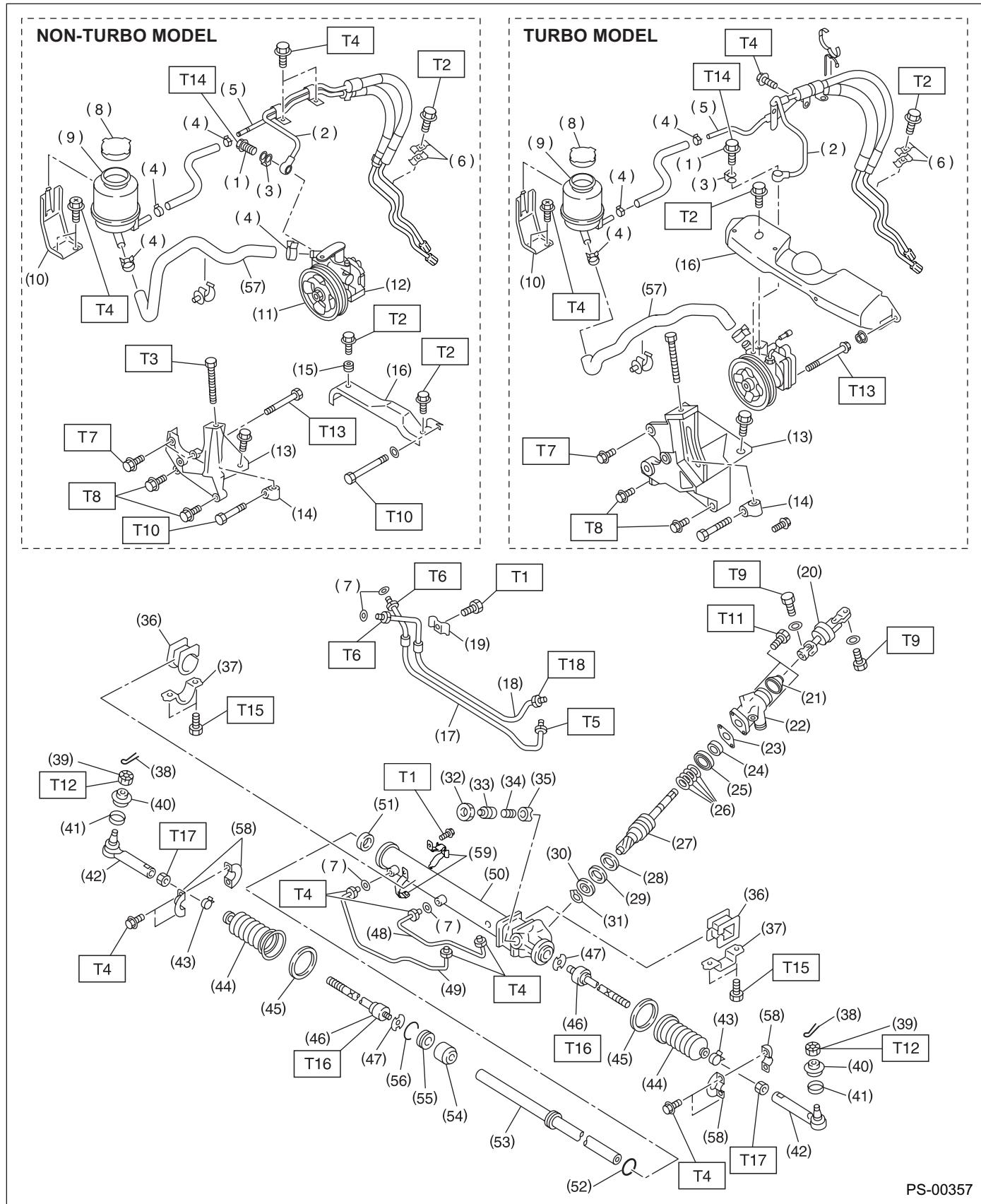
- (6) Steering wheel
- (7) Airbag module
- (8) Lower steering wheel cover

Tightening torque: N·m (kgf·m, ft-lb)
T1: 1.2 (0.12, 0.9)
T2: 3.4 (0.35, 2.5)
T3: 25 (2.5, 18.1)
T4: 44 (4.5, 32.5)

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2. POWER ASSISTED SYSTEM



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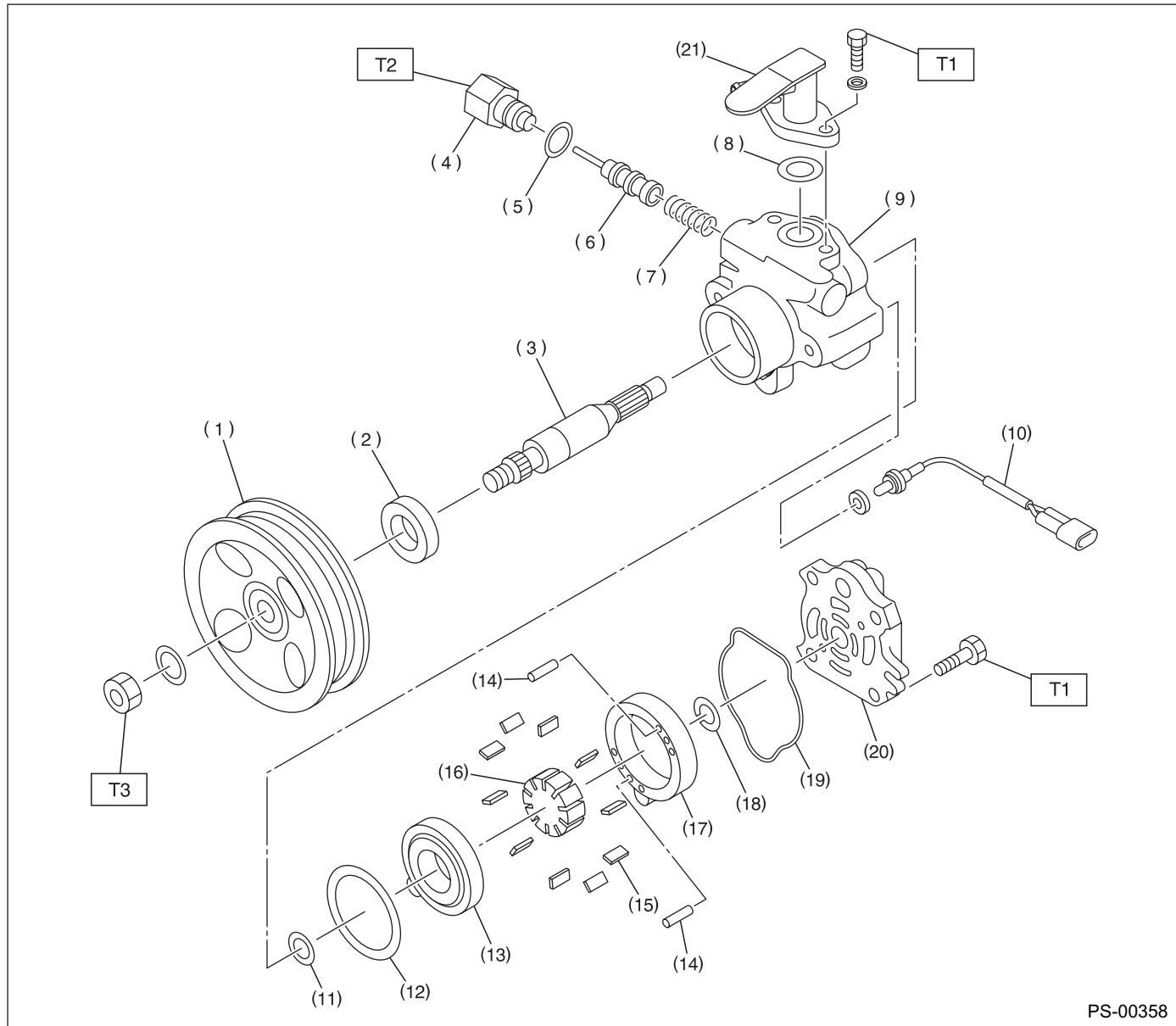
(1) Eye bolt	(27) Pinion and valve ASSY	(53) Rack
(2) Pipe C	(28) Oil seal	(54) Rack bushing
(3) Gasket	(29) Back-up washer	(55) Rack stopper
(4) Clip	(30) Ball bearing	(56) Circlip
(5) Pipe D	(31) Snap ring	(57) Suction hose
(6) Clamp E	(32) Lock nut	(58) Tie-rod end plate
(7) O-ring	(33) Adjusting screw	(59) Clamp plate
(8) Cap	(34) Spring	
(9) Reservoir tank	(35) Sleeve	
(10) Reservoir tank bracket	(36) Adapter	
(11) Pulley	(37) Clamp	Tightening torque: N·m (kgf·m, ft·lb)
(12) Oil pump	(38) Cotter pin	T1: 6 (0.6, 4.3)
(13) Bracket	(39) Castle nut	T2: 7.4 (0.75, 5.4)
(14) Belt tension nut	(40) Dust cover	T3: 8 (0.8, 5.8)
(15) Bush	(41) Clip	T4: 13 (1.3, 9.4)
(16) Belt cover	(42) Tie-rod end	T5: 15 (1.5, 10.8)
(17) Pipe E	(43) Clip	T6: 15 (1.5, 10.8)
(18) Pipe F	(44) Boot	T7: 15.7 (1.6, 11.6)
(19) Clamp plate	(45) Band	T8: 22 (2.2, 15.9)
(20) Universal joint	(46) Tie-rod	T9: 24 (2.4, 17.4)
(21) Dust seal	(47) Lock washer	T10: 25 (2.5, 18.1)
(22) Valve housing	(48) Pipe B	T11: 25 (2.5, 18.1)
(23) Gasket	(49) Pipe A	T12: 27 (2.75, 19.9)
(24) Oil seal	(50) Steering body	T13: 37.3 (3.8, 27.5)
(25) Ball bearing	(51) Oil seal	T14: 39 (4.0, 28.9)
(26) Seal ring	(52) Piston ring	T15: 59 (6.0, 43)
		T16: 78 (8.0, 58)
		T17: 83 (8.5, 61.5)
		T18: 25 (2.5, 18.1)

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3. OIL PUMP

NON-TURBO MODEL



- (1) Pulley
- (2) Oil seal
- (3) Shaft
- (4) Connector
- (5) O-ring
- (6) Spool valve
- (7) Spring
- (8) O-ring
- (9) Front casing

- (10) Pressure switch
- (11) O-ring
- (12) O-ring
- (13) Pressure plate
- (14) Straight pin
- (15) Vane
- (16) Rotor
- (17) Cam ring
- (18) Retaining ring

- (19) O-ring
- (20) Rear cover
- (21) Suction connector

Tightening torque: N·m (kgf·m, ft·lb)

T1: 21 (2.14, 15.5)

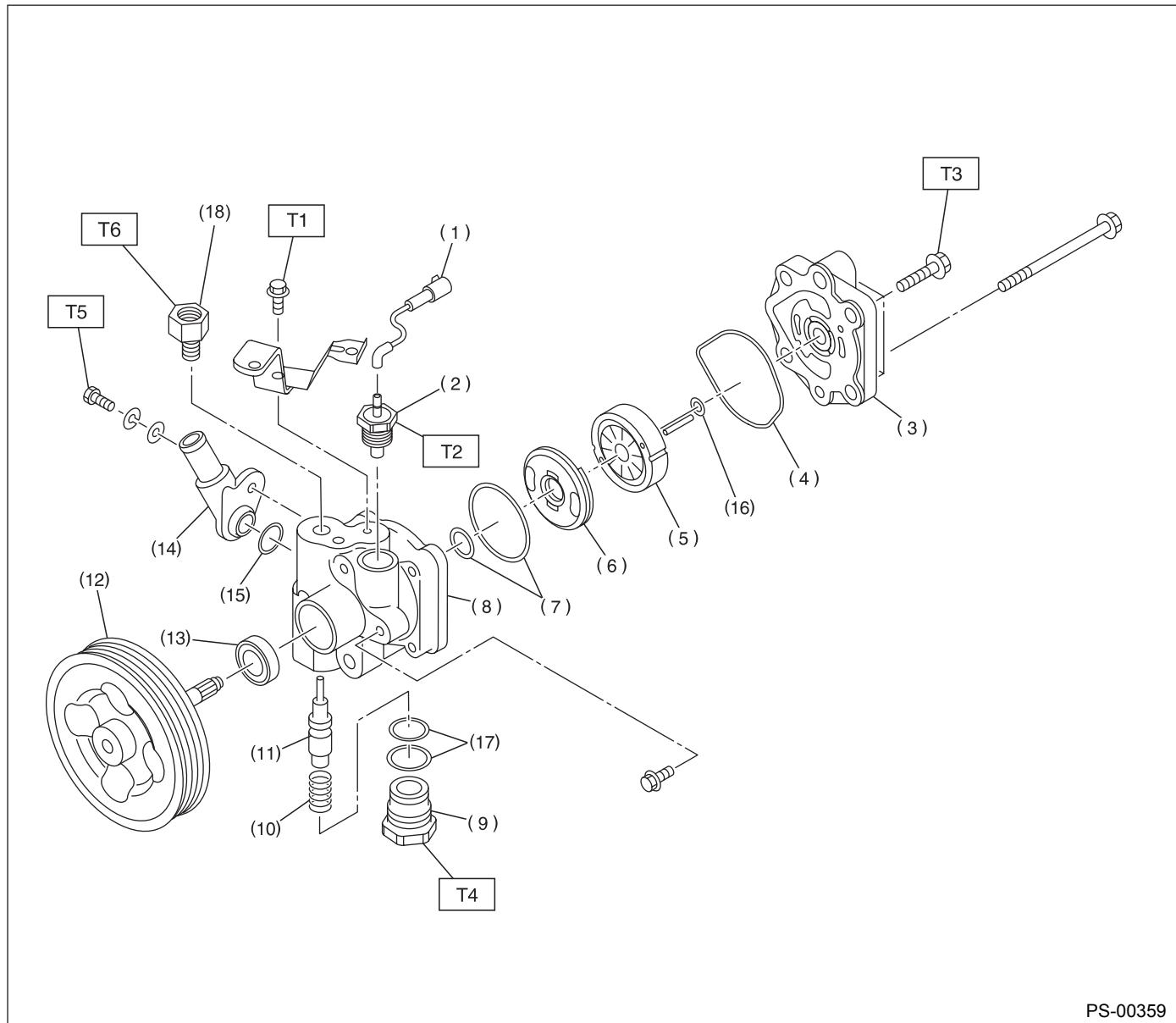
T2: 49 (5.0, 36.2)

T3: 52 (5.3, 38)

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TURBO MODEL



PS-00359

(1) Lead wire	(10) Flow control spring
(2) Pump switch	(11) Flow control valve
(3) Rear cover	(12) Pulley
(4) O-ring	(13) Oil seal
(5) Cam	(14) Suction connector
(6) Pressure plate	(15) O-ring
(7) O-ring	(16) Retaining ring
(8) Front casing	(17) O-ring
(9) Energy saving valve	(18) Connector

Tightening torque: N·m (kgf·m, ft-lb)

T1: 9.8 (1.0, 7.2)
T2: 27 (2.75, 19.9)
T3: 27.4 (2.8, 20.3)
T4: 59 (6.0, 43)
T5: 11.8 (1.2, 8.7)
T6: 49 (5.0, 36.2)

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C: CAUTION

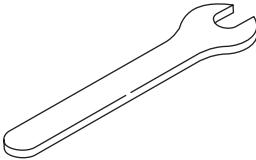
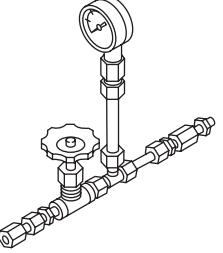
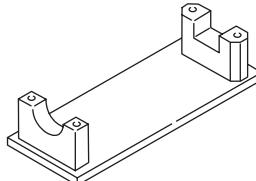
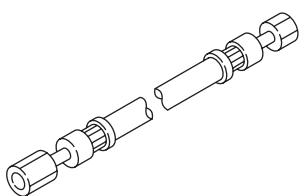
- Wear working clothing, including a cap, protective goggles, and protective shoes during operation.
- Remove contamination including dirt and corrosion before removal, installation or disassembly.
- Keep the disassembled parts in order and protect them from dust or dirt.
- Before removal, installation 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 steering fluid, grease etc. or the equivalent. Do not mix steering 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 steering fluid onto sliding or revolution surfaces before installation.
- Before installing O-rings or snap rings, apply sufficient amount of steering fluid 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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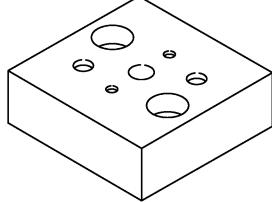
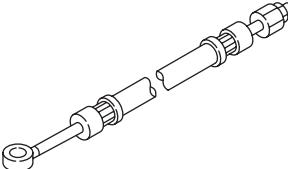
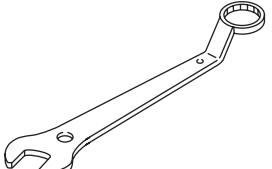
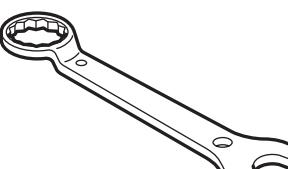
D: PREPARATION TOOL

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 when inspecting characteristic of gearbox assembly and disassembling it.
 ST34099AC010	34099AC010	ADAPTER HOSE A	Used with PRESSURE GAUGE (925711000).

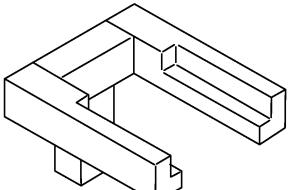
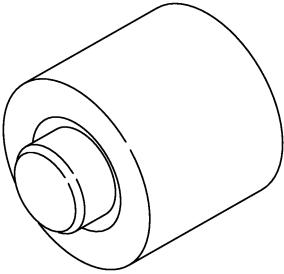
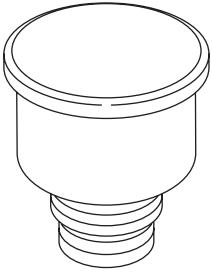
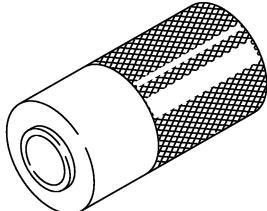
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ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
	34099FA100	STAND BASE	<ul style="list-style-type: none"> Used for assembling power steering gearbox. For LHD model.
	34099AC020	ADAPTER HOSE B	Used with PRESSURE GAUGE (925711000).
	926230000	SPANNER	<ul style="list-style-type: none"> For the lock nut when adjusting backlash of gearbox.
	34099PA100	SPANNER	<ul style="list-style-type: none"> Measurement of rotating resistance of gearbox assembly.

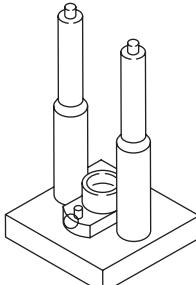
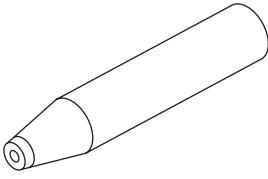
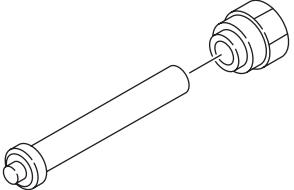
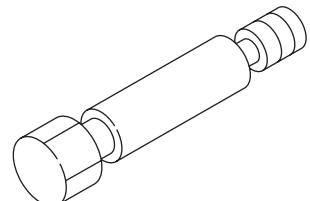
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ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST34199AE020	34199AE020	MOUNT	<ul style="list-style-type: none">Used for disassembling oil pump.For TURBO model.
 ST34199AE030	34199AE030	INSTALLER	Used for installing oil seal into oil pump.
 ST34199AE040	34199AE040	OIL CHARGE GUIDE	Used for charging power steering oil.
 ST-927640000	927640000	INSTALLER B	Used for installing ball bearing into housing.

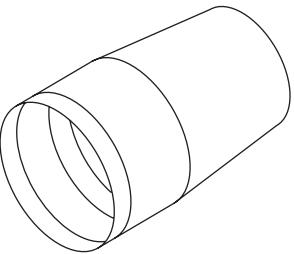
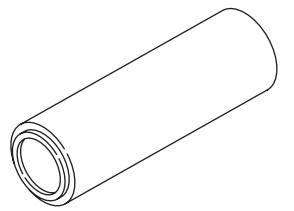
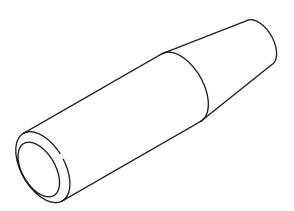
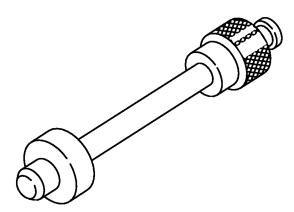
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ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST-926370000	926370000	INSTALLER A	<ul style="list-style-type: none"> Used for installing valve assembly into valve housing assembly. Used with STAND BASE (927630000).
 ST-926390001	926390001	COVER & REMOVER ASSY	<ul style="list-style-type: none"> Used for assembling rack assembly.
 ST-926420000	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.
 ST-926400000	926400000	GUIDE	<ul style="list-style-type: none"> Right side of rack when installing rack bush. Used with GUIDE (927660000).

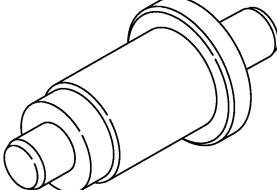
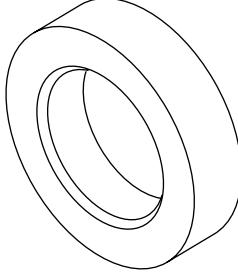
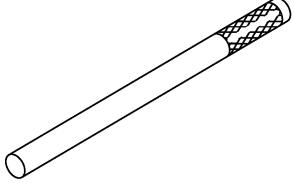
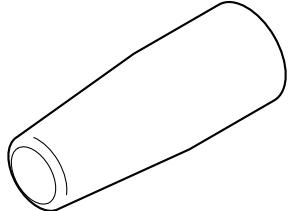
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 ST-927660000	927660000	GUIDE	<ul style="list-style-type: none">Right side of rack when installing rack bush.Used with GUIDE (926400000).
 ST-927620000	927620000	INSTALLER B	<ul style="list-style-type: none">Used for installing oil seal of valve housing.Used with INSTALLER A (926360000).
 ST-926360000	926360000	INSTALLER A	<ul style="list-style-type: none">Used as a guide to install oil seal.Used with INSTALLER B (927620000).
 ST34099FA110	34099FA110	INSTALLER	Used for installing oil seal.

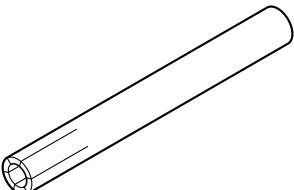
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ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
	34099FA120	INSTALLER AND REMOVER SEAL	Used for installing and removing valve housing oil seal.
	34099FA130	INSTALLER SEAL	<ul style="list-style-type: none"> Used for installing valve housing oil seal. Used with INSTALLER AND REMOVER SEAL (34099FA120).
	34199AE050	REMOVER OIL SEAL	Used for removing back-up ring and oil seal.
	34099AC030	INSTALLER A	<ul style="list-style-type: none"> Used for installing retaining ring. Used with INSTALLER B (34099AC040). For non-turbo model.

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ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST34099AC040	34099AC040	INSTALLER B	<ul style="list-style-type: none">Used for installing retaining ring.Used with INSTALLER A (34099AC030).For non-turbo model.

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.