

General Description

POWER ASSISTED SYSTEM (POWER STEERING)

1. General Description

A: SPECIFICATION

Model		OUTBACK Except for 3.0 R	OUTBACK 3.0 R
Whole system	Minimum turning radius	m (ft) 5.4 (17.8)	
	Steering angle	Inner wheel	Except for OUTBACK: 37.2°±1.5°, OUTBACK: 38.0°±1.5°
		Outer wheel	Except for OUTBACK: 33.0°±1.5°, OUTBACK: 33.7°±1.5°
	Steering wheel diameter	mm (in) 375 (14.76)	
Lock to lock turn		Except for 2.5 GT: 3.2, 2.5 GT: 2.8	
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	
	Specific output	cm ³ (cu in)/rev. 8.5 (0.519)	9.6 (0.586)
	Relief pressure	kPa (kg/cm ² , psi) 7,350 — 8,036 (75 — 82, 1,067 — 1,165)	8,300 — 9,000 (85 — 92, 1,204 — 1,305)
	Hydraulic fluid control	Dropping in response to increased engine revolutions	
	Hydraulic fluid	ℓ (US qt, Imp qt) 1,000 rpm: 6.15 (6.5, 5.4) 3,000 rpm: 5.5 (5.8, 4.8)	1,000 rpm: 6.5 (6.9, 5.7) 3,000 rpm: 5.5 (5.8, 4.8)
	Range of revolution	rpm 680 — 9,600	
Revolving direction		Clockwise	
Working fluid (Power steering system)	Fluid	ATF DEXRON III or equivalent	
	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 steering wheel and column cover	mm (in)	3.0 (0.12)
Steering gearbox (Power steering system)	Sliding resistance	N (kgf, lb)	314 (32, 71) or less Difference between right and left sliding resistance: Less than 20%
	Rack shaft play in radial direction	Right-turn steering	mm (in) 0.3 (0.012) or less
		Left-turn steering	mm (in) Horizontal movement: 0.6 (0.024) or less Vertical movement: 0.4 (0.016) or less
	Input shaft play	In radial direction	mm (in) 0.18 (0.0071) or less
		In axial direction	mm (in) 0.27 (0.0106) or less
Resistance to rotation	N (kgf, lb)	Maximum allowable value: 10.5 (1.07, 2.36) or less 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 (Unloaded)	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)	29.4 (3.0, 6.6) or less
	At standstill with engine stalled on a concrete road	N (kgf, lb)	294.2 (30, 66.2) or less

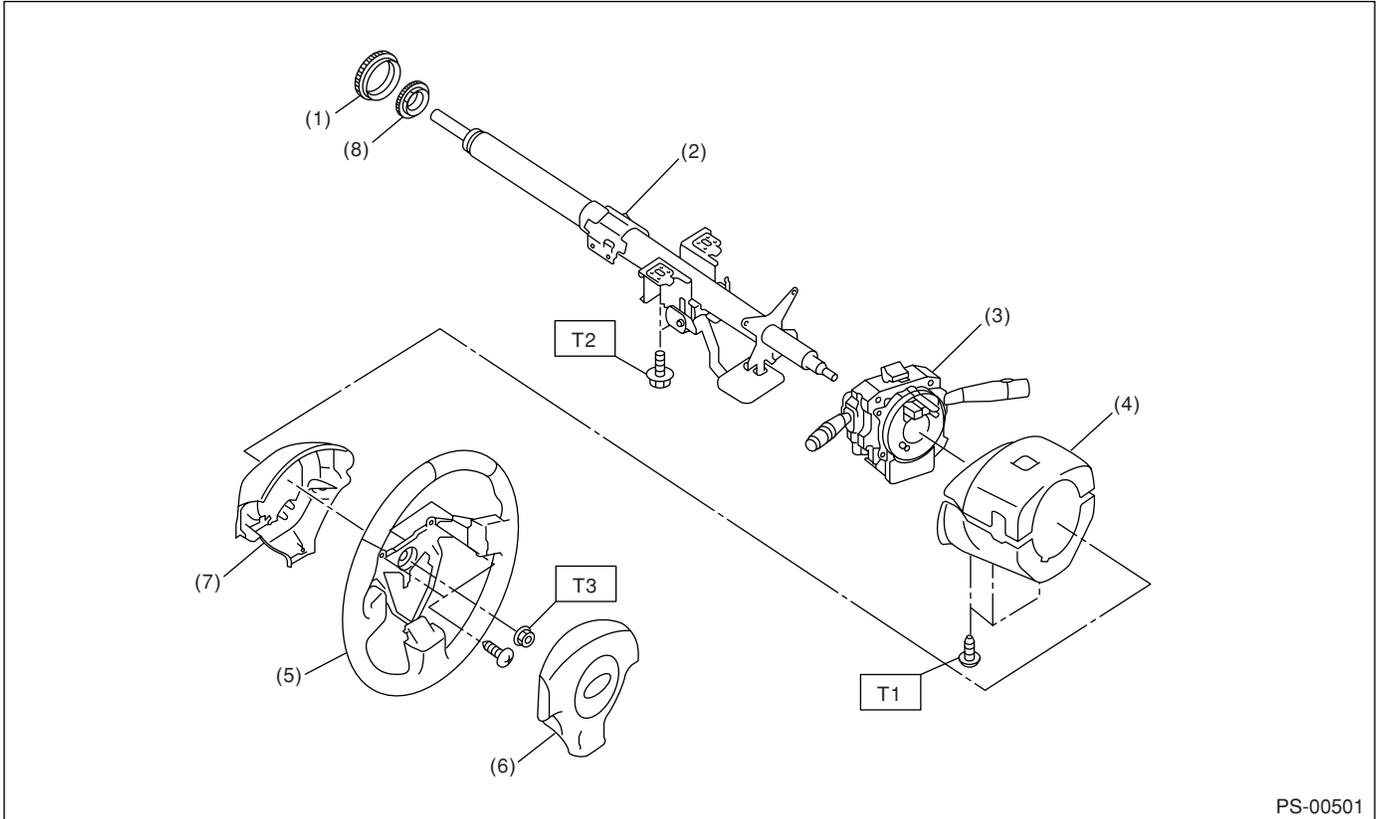
General Description

POWER ASSISTED SYSTEM (POWER STEERING)

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

B: COMPONENT

1. STEERING WHEEL AND COLUMN



PS-00501

- | | |
|-----------------------------|--------------------------------|
| (1) Bushing | (5) Steering wheel |
| (2) Steering shaft | (6) Airbag module |
| (3) Steering roll connector | (7) Steering wheel lower cover |
| (4) Column cover | (8) Insulator |

Tightening torque: N·m (kgf·m, ft·lb)

T1: 1.2 (0.12, 0.9)

T2: 25 (2.5, 18.1)

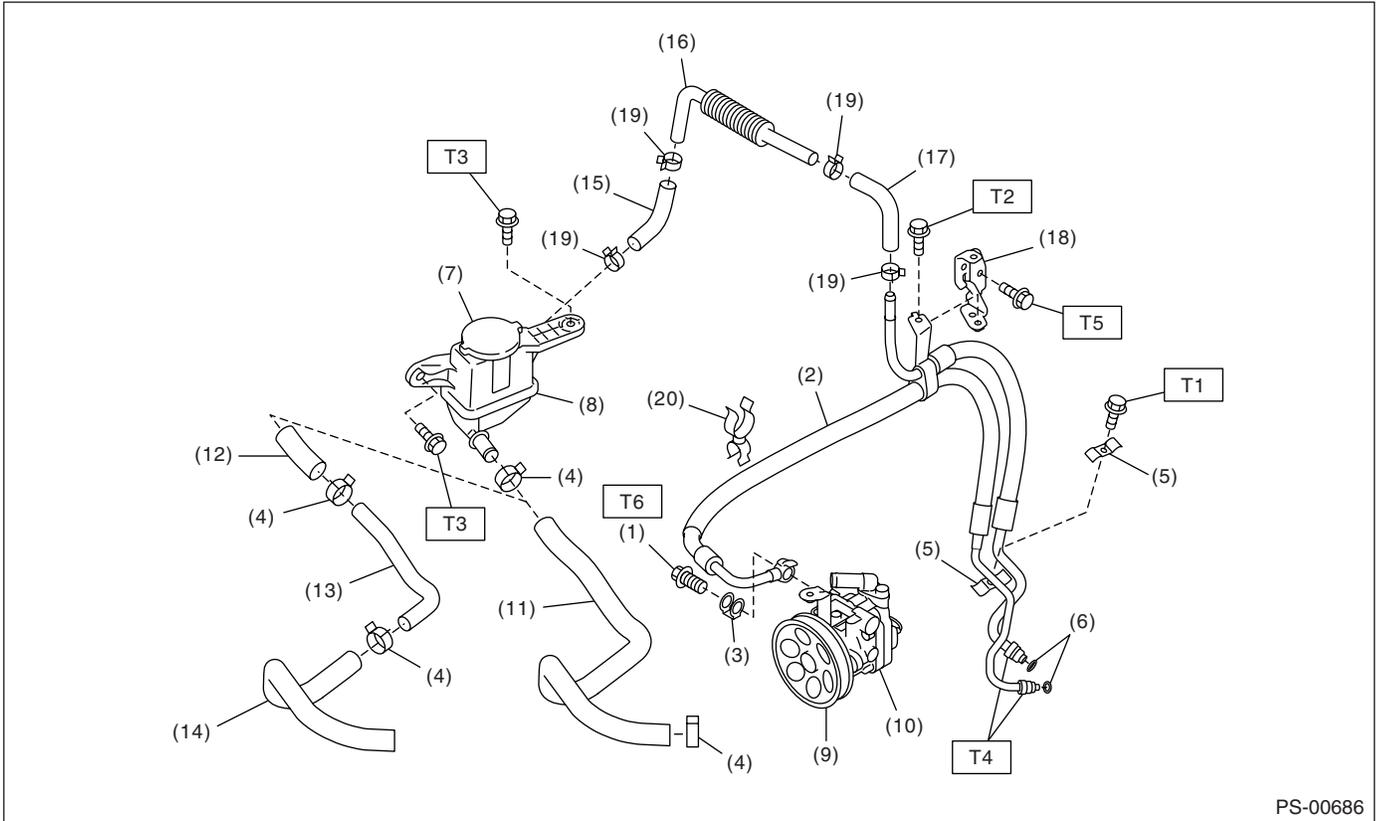
T3: 45 (4.6, 33.2)

General Description

POWER ASSISTED SYSTEM (POWER STEERING)

2. POWER ASSISTED SYSTEM

- Hose and tank (H4 model)



PS-00686

- | | |
|---------------------|-------------------------------------|
| (1) Eye bolt | (11) Suction hose (Non-turbo model) |
| (2) Hose | (12) Suction hose (Turbo model) |
| (3) Eye bolt gasket | (13) Suction hose (Turbo model) |
| (4) Clip | (14) Suction hose (Turbo model) |
| (5) Clamp E | (15) Return hose |
| (6) O-ring | (16) Oil cooler |
| (7) Cap | (17) Return hose |
| (8) Reservoir tank | (18) Hose bracket |
| (9) Pulley | (19) Clip |
| (10) Oil pump | (20) Clip |

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

T1: 7.4 (0.75, 5.4)

T2: 10 (1.02, 7.4)

T3: 13 (1.32, 9.6)

T4: 15 (1.5, 10.8)

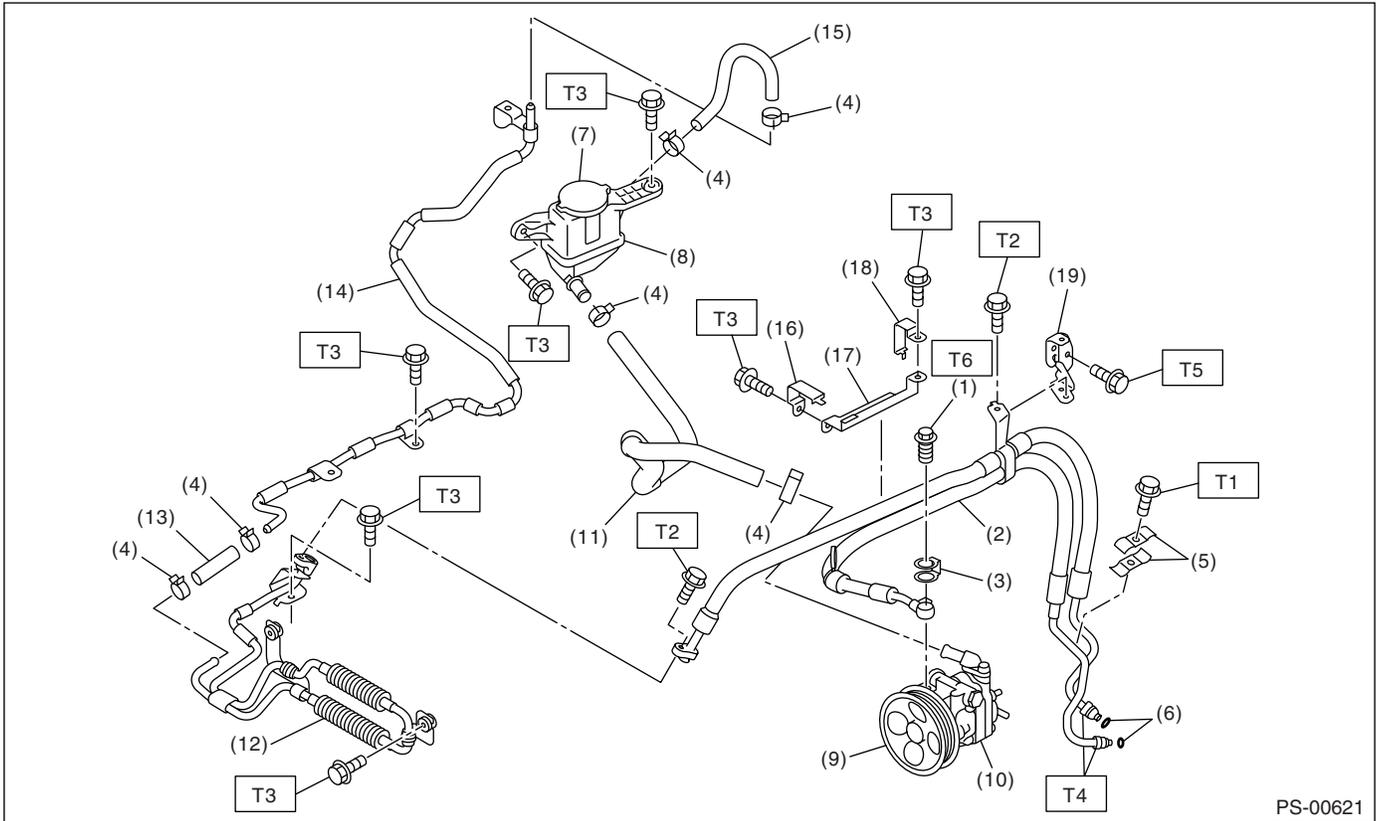
T5: 18 (1.84, 13.3)

T6: 39 (3.98, 28.8)

General Description

POWER ASSISTED SYSTEM (POWER STEERING)

- Hose and tank (H6 model)



PS-00621

- | | | |
|---------------------|---------------------|---------------------|
| (1) Eye bolt | (10) Oil pump | (19) Hose bracket D |
| (2) Hose | (11) Suction hose | |
| (3) Eye bolt gasket | (12) Cooler pipe | |
| (4) Clip | (13) Return hose | |
| (5) Clamp E | (14) Return hose | |
| (6) O-ring | (15) Return hose | |
| (7) Cap | (16) Hose bracket A | |
| (8) Reservoir tank | (17) Hose bracket B | |
| (9) Pulley | (18) Hose bracket C | |

Tightening torque: N·m (kgf·m, ft·lb)

T1: 7.4 (0.75, 5.4)

T2: 10 (1.02, 7.4)

T3: 13 (1.32, 9.6)

T4: 15 (1.5, 10.8)

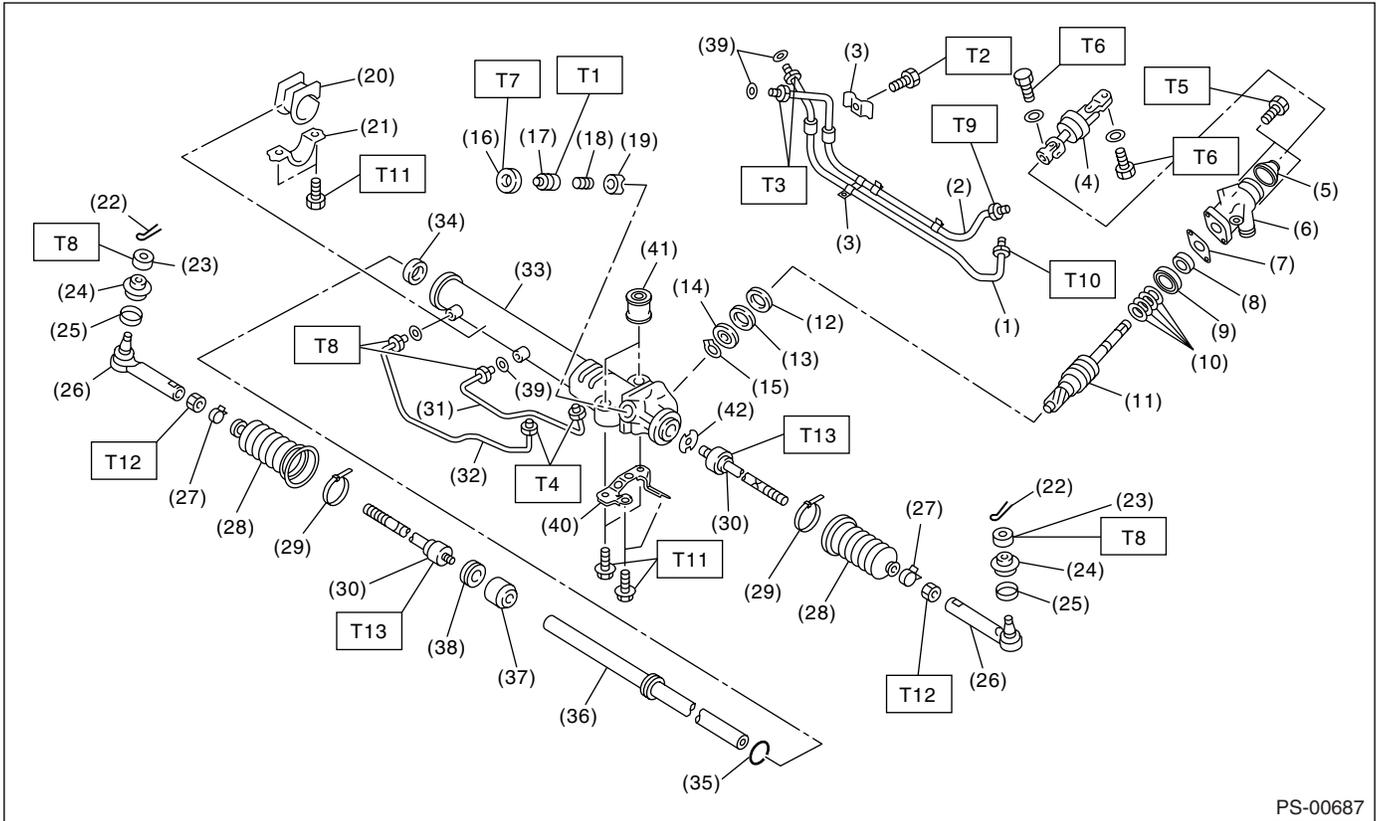
T5: 18 (1.84, 13.3)

T6: 39 (3.98, 28.8)

General Description

POWER ASSISTED SYSTEM (POWER STEERING)

• Gearbox



PS-00687

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

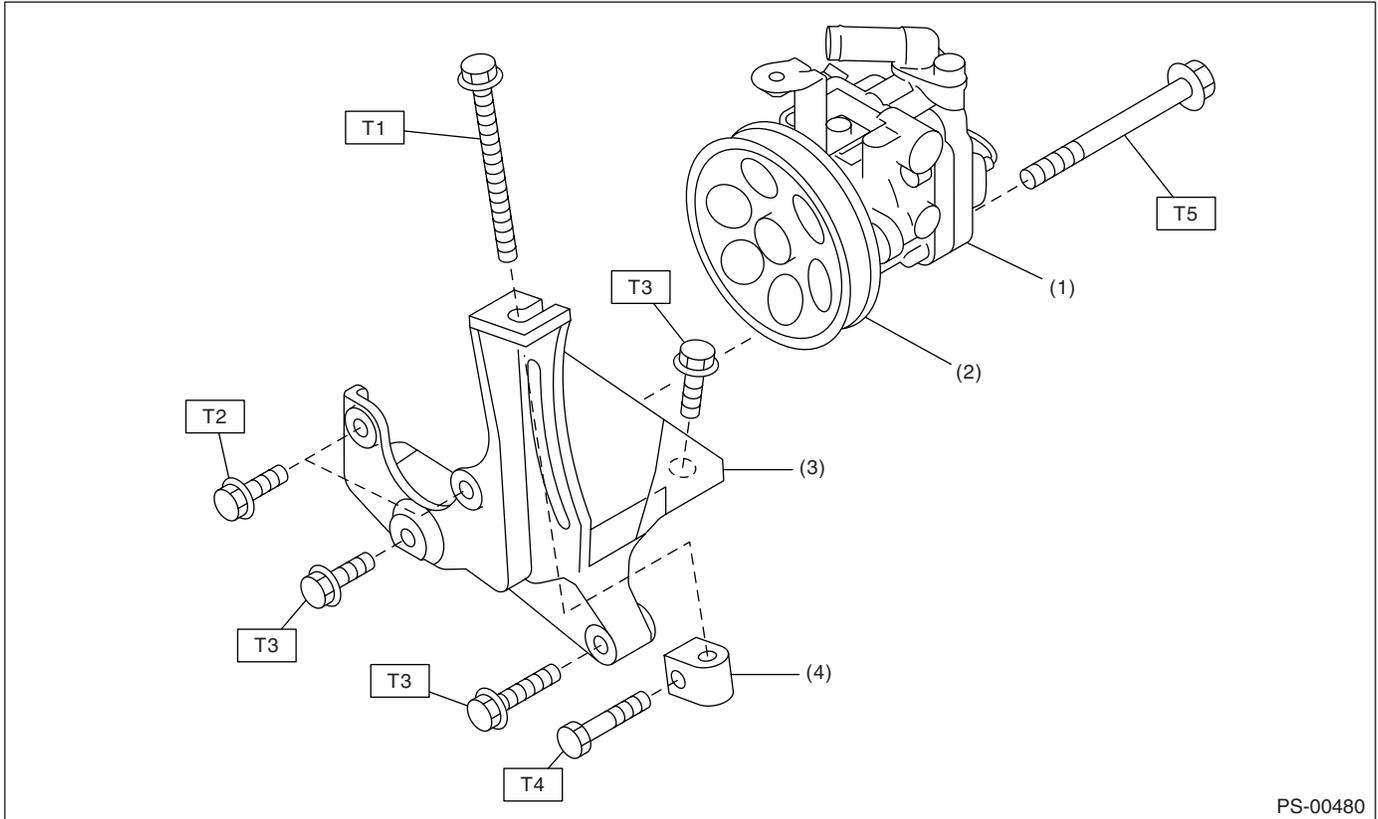
Tightening torque: N-m (kgf-m, ft-lb)

T1: 3.9 (0.4, 2.9)
T2: 10 (1.02, 7.4)
T3: 15 (1.5, 10.8)
T4: 17 (1.7, 12.5)
T5: 20 (2.0, 14.8)
T6: 24 (2.4, 17.4)
T7: 25 (2.5, 18.1)
T8: 27 (2.75, 19.9)
T9: 29 (3.0, 21.4)
T10: 37 (3.8, 27.3)
T11: 60 (6.1, 44.1)
T12: 85 (8.7, 62.7)
T13: 90 (9.1, 65.8)

General Description

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, 5.8)

T2: 15.7 (1.6, 11.6)

T3: 22 (2.2, 15.9)

T4: 25 (2.5, 18.1)

T5: 37.3 (3.8, 27.5)

General Description

POWER ASSISTED SYSTEM (POWER STEERING)

C: CAUTION

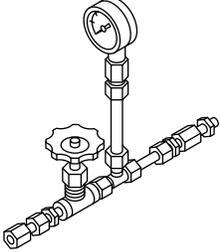
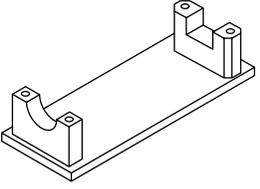
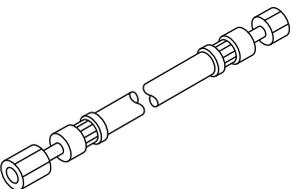
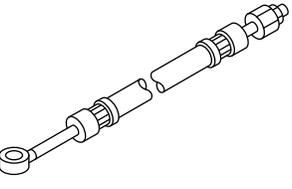
- Wear work clothing, including a cap, protective goggles and protective shoes during operation.
- Before removal, installation or disassembly, be sure to clarify the failure. Avoid unnecessary removal, installation, disassembly and replacement.
- Be careful not to burn yourself, because each part on 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 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.

General Description

POWER ASSISTED SYSTEM (POWER STEERING)

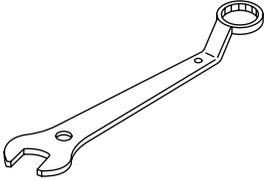
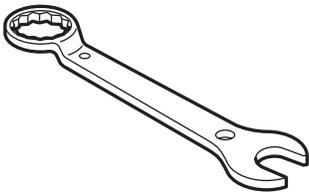
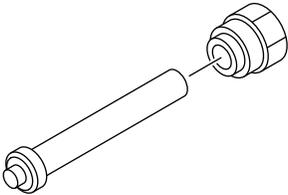
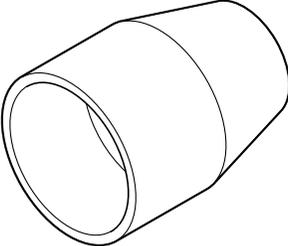
D: PREPARATION TOOL

1. SPECIAL TOOL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 <p style="text-align: center;">ST-925711000</p>	925711000	PRESSURE GAUGE	Used for measuring oil pump pressure.
 <p style="text-align: center;">ST-926200000</p>	926200000	STAND	<ul style="list-style-type: none"> • Used when inspecting characteristic of gear-box assembly and disassembling it. • Used with BOSS D (34199AG000).
 <p style="text-align: center;">ST34099AC010</p>	34099AC010	ADAPTER HOSE A	Used with PRESSURE GAUGE (925711000).
 <p style="text-align: center;">ST34099AC020</p>	34099AC020	ADAPTER HOSE B	Used with PRESSURE GAUGE (925711000).

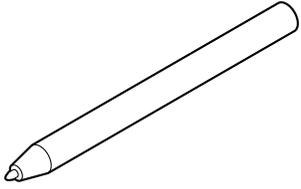
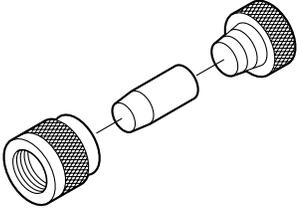
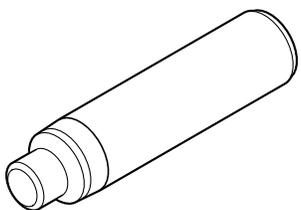
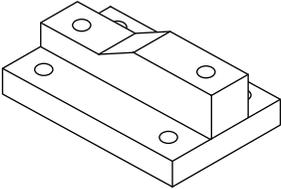
General Description

POWER ASSISTED SYSTEM (POWER STEERING)

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 <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.
 <p style="text-align: center;">ST-926250000</p>	926250000	GUIDE	Used for installing holder assembly into rack housing.

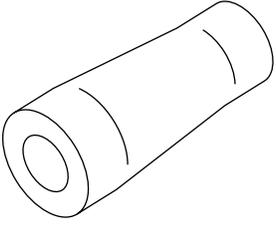
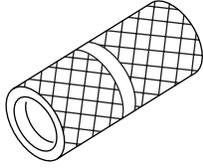
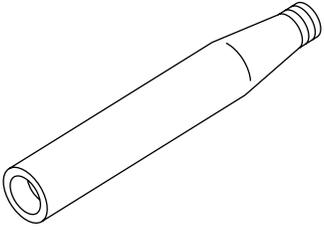
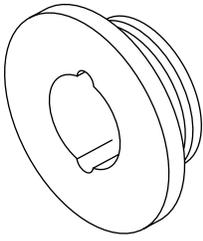
General Description

POWER ASSISTED SYSTEM (POWER STEERING)

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 <p style="text-align: center;">ST34099FA060</p>	<p style="text-align: center;">34099FA060</p>	<p>PUNCH HOLDER</p>	<p>Used for caulking.</p>
 <p style="text-align: center;">ST-927490000</p>	<p style="text-align: center;">927490000</p>	<p>INSTALLER A, B, C</p>	<p>Used for installing oil seal to rack assembly.</p>
 <p style="text-align: center;">ST34099FA030</p>	<p style="text-align: center;">34099FA030</p>	<p>INSTALLER & REMOVER</p>	<p>Used for removing and installing rack oil seal (outer & inner).</p>
 <p style="text-align: center;">ST34199AG000</p>	<p style="text-align: center;">34199AG000</p>	<p>BOSS D</p>	<ul style="list-style-type: none"> • Used for inspecting characteristic of gearbox assembly and disassembling it. • Used with STAND (926200000).

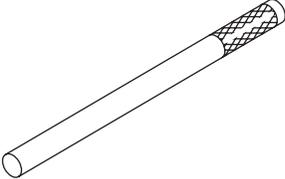
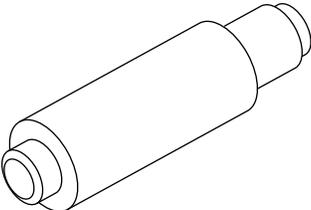
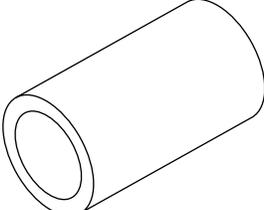
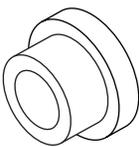
General Description

POWER ASSISTED SYSTEM (POWER STEERING)

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 <p style="text-align: center;">ST34199AG030</p>	<p style="text-align: center;">34199AG030</p>	<p style="text-align: center;">GUIDE</p>	<p>Used for installing seal ring of rack.</p>
 <p style="text-align: center;">ST34199AG070</p>	<p style="text-align: center;">34199AG070</p>	<p style="text-align: center;">FORMER</p>	<p>Used for forming seal ring of pinion.</p>
 <p style="text-align: center;">ST34199AG020</p>	<p style="text-align: center;">34199AG020</p>	<p style="text-align: center;">GUIDE</p>	<p>Used for installing seal ring of pinion.</p>
 <p style="text-align: center;">ST34199AG050</p>	<p style="text-align: center;">34199AG050</p>	<p style="text-align: center;">GUIDE G (24)</p>	<ul style="list-style-type: none"> • Used for forming seal ring of rack. • Used with FORMER PISTON (34199AG080).

General Description

POWER ASSISTED SYSTEM (POWER STEERING)

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 <p style="text-align: center;">ST34199AE050</p>	<p style="text-align: center;">34199AE050</p>	<p>OIL SEAL REMOVER</p>	<p>Used for removing oil seal.</p>
 <p style="text-align: center;">ST34199AG090</p>	<p style="text-align: center;">34199AG090</p>	<p>INSTALLER & REMOVER</p>	<ul style="list-style-type: none"> • Used for installing oil seal of valve housing. • Used with SEAL INSTALLER (34099FA130). • Used for installing ball bearing of valve housing. • Used for removing oil seal and ball bearing from valve housing.
 <p style="text-align: center;">ST34199AG080</p>	<p style="text-align: center;">34199AG080</p>	<p>FORMER PISTON</p>	<ul style="list-style-type: none"> • Used for forming seal of rack. • Used with GUIDE G (24) (34199AG050).
 <p style="text-align: center;">ST34199AG010</p>	<p style="text-align: center;">34199AG010</p>	<p>INSTALLER</p>	<p>Used for press-fitting oil seal of gearbox cylinder.</p>