

# General Description

POWER ASSISTED SYSTEM (POWER STEERING)

## 1. General Description

### A: SPECIFICATION

Model			H4 model	H6 model		
Whole system	Minimum turning radius		m (ft)			
	Steering angle	Inner wheel	5.6 (18.4)			
		Outer wheel	P225/50R17 tire: 37.4°±1.5° P225/45R18 tire: 37.4°±1.5° P215/50R17 tire: 37.6°±1.5° P205/60R16 tire: 37.6°±1.5° P225/60R17 tire: 38.4°±1.5° P215/70R16 tire: 38.4°±1.5°			
	Steering wheel diameter		mm (in)			
	Lock-to-lock revolution number		OUTBACK: 3.2 Except for OUTBACK: 2.8			
	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 <sup>3</sup> (cu in)/rev.	8.5 (0.519)	8.5 (0.519)		
	Relief pressure	kPa (kgf/cm <sup>2</sup> , psi)	8,300 — 9,000 (85 — 92, 1,203 — 1,305)	8,900 — 9,600 (91 — 98, 1,290 — 1,392)		
	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: 5.3 (5.6, 4.7)	1,000 rpm: 6.8 (7.2, 6) 3,000 rpm: 5.8 (6.1, 5.1)		
	RPM range	rpm	500 — 9,600	645 — 9,675		
	Direction of rotation	Clockwise				
Hydraulic oil (Power steering system)	Capacity L (US qt, Imp qt)	Oil tank 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)	4 — 6 (0.16 — 0.24)
Steering gearbox (Power steering system)	Sliding resistance	N (kgf, lbf)	650 (66.2, 146) or less Difference between right and left sliding resistance: 20%
	Rack shaft play in the radial direction	Right-turn steering mm (in)	Horizontal play: 0.6 (0.024) or less Vertical play: 0.4 (0.016) or less
		Left-turn steering mm (in)	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
	Rotational resistance	N (kgf, lbf)	Maximum allowable value: 30 (3.1, 6.7) or less Difference between right and left sliding resistance: 20%
	Pulley shaft	Radial play mm (in)	0.2 (0.008) or less
Oil pump (Power steering system)		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 <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

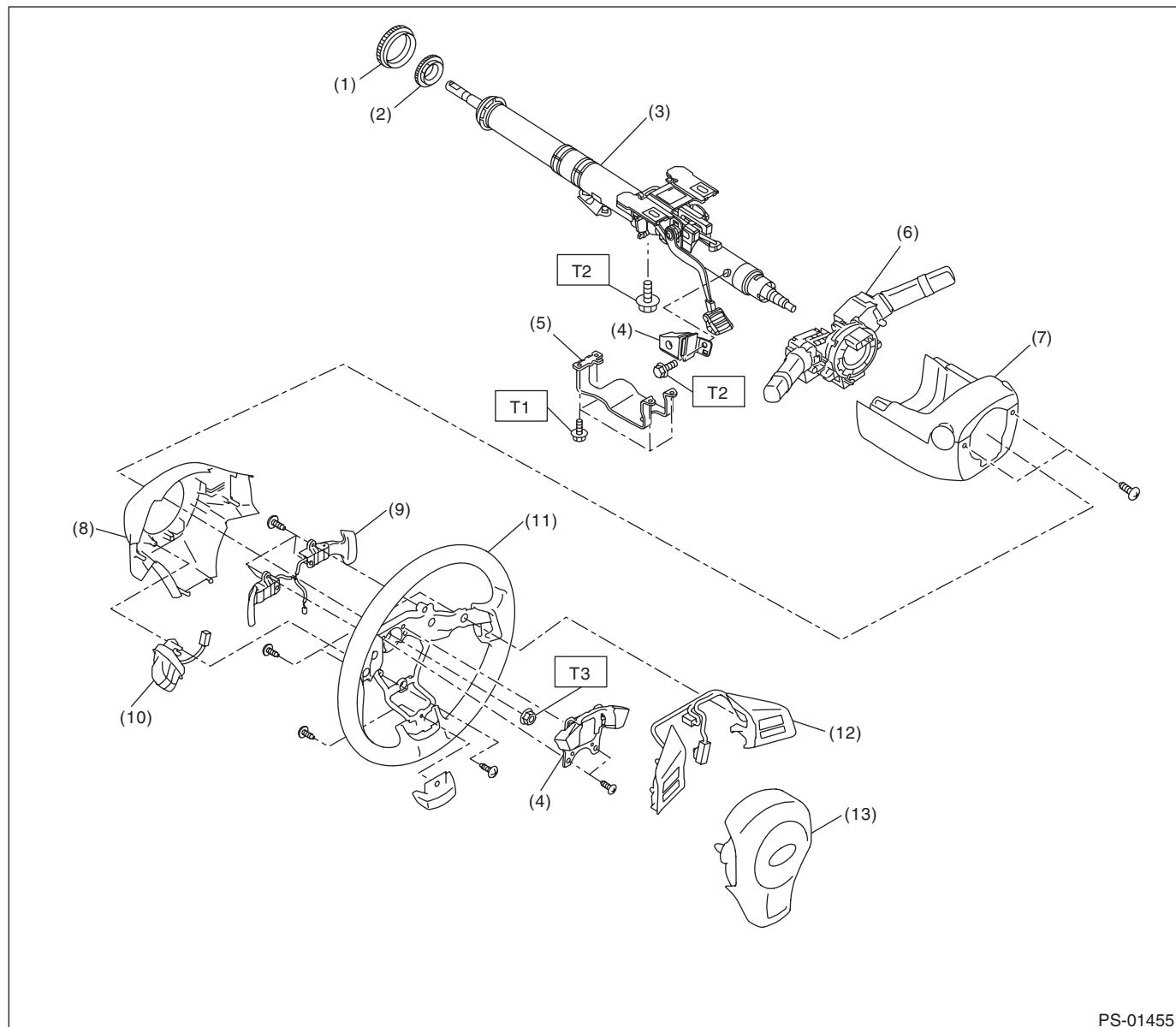
SUBARU PS fluid or DEXRON III

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### B: COMPONENT

#### 1. STEERING WHEEL AND COLUMN



PS-01455

(1) Bushing	(8) Steering wheel lower cover
(2) Insulator (CVT model)	(9) Paddle shift
(3) Steering shaft	(10) Steering switch
(4) Dynamic damper	(11) Steering wheel
(5) Knee protector	(12) Switch
(6) Steering roll connector	(13) Airbag module
(7) Column cover	

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

***T1: 3.4 (0.35, 2.5)***

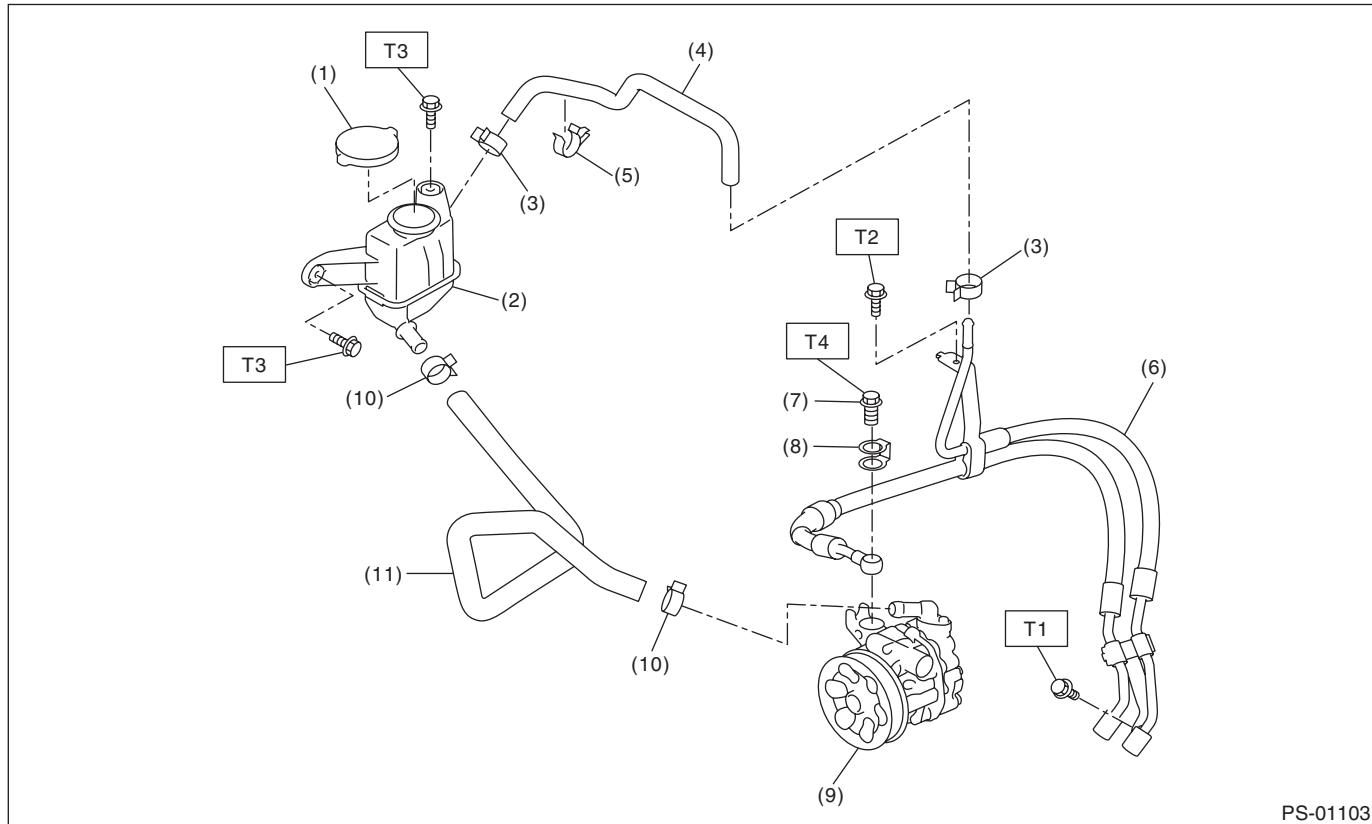
***T2: 20 (2.04, 14.8)***

***T3: 39 (3.98, 28.8)***

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## 2. HOSE AND TANK



(1) Cap	(7) Eye bolt
(2) Reservoir tank	(8) Eye bolt gasket
(3) Clip	(9) Oil pump
(4) Return hose	(10) Clip
(5) Clip	(11) Suction hose
(6) Hose ASSY	

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

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

**T2: 10 (1.02, 7.4)**

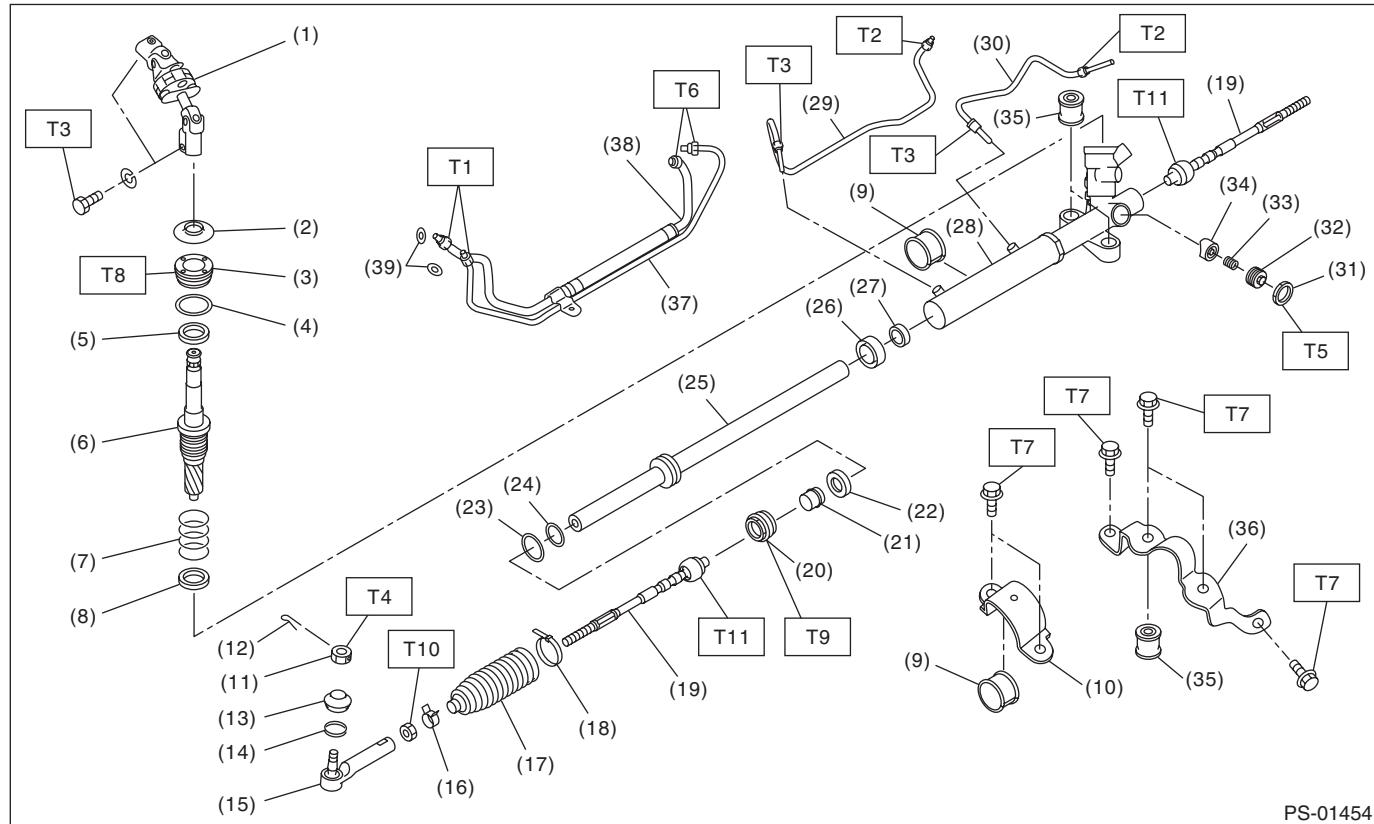
**T3: 13 (1.33, 9.6)**

**T4: 40 (4.08, 29.5)**

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## POWER ASSISTED SYSTEM (POWER STEERING)

### 3. STEERING GEARBOX



PS-01454

(1) Universal joint	(19) Tie-rod
(2) Dust cover	(20) Holder
(3) Plug	(21) Bushing
(4) O-ring	(22) Oil seal
(5) Oil seal	(23) Seal ring
(6) Control valve	(24) O-ring
(7) Seal ring	(25) Rack
(8) Oil seal	(26) Oil seal
(9) Adapter	(27) Back-up ring
(10) Clamp	(28) Steering body
(11) Castle nut	(29) Pipe A
(12) Cotter pin	(30) Pipe B
(13) Dust seal	(31) Lock nut
(14) Clip	(32) Adjusting screw
(15) Tie-rod end	(33) Spring
(16) Clip	(34) Sleeve
(17) Boot	(35) Bushing
(18) Band	(36) Stiffener

(37) Feed pipe

(38) Return pipe

(39) O-ring

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

T1: 15 (1.53, 11.1)

T2: 20 (2.04, 14.8)

T3: 24 (2.45, 17.7)

T4: 27 (2.75, 19.9)

T5: 39 (3.98, 28.8)

T6: 45 (4.59, 33.2)

T7: 60 (6.12, 44.3)

T8: 64 (6.53, 47.2)

T9: 75 (7.65, 55.3)

T10: 85 (8.67, 62.7)

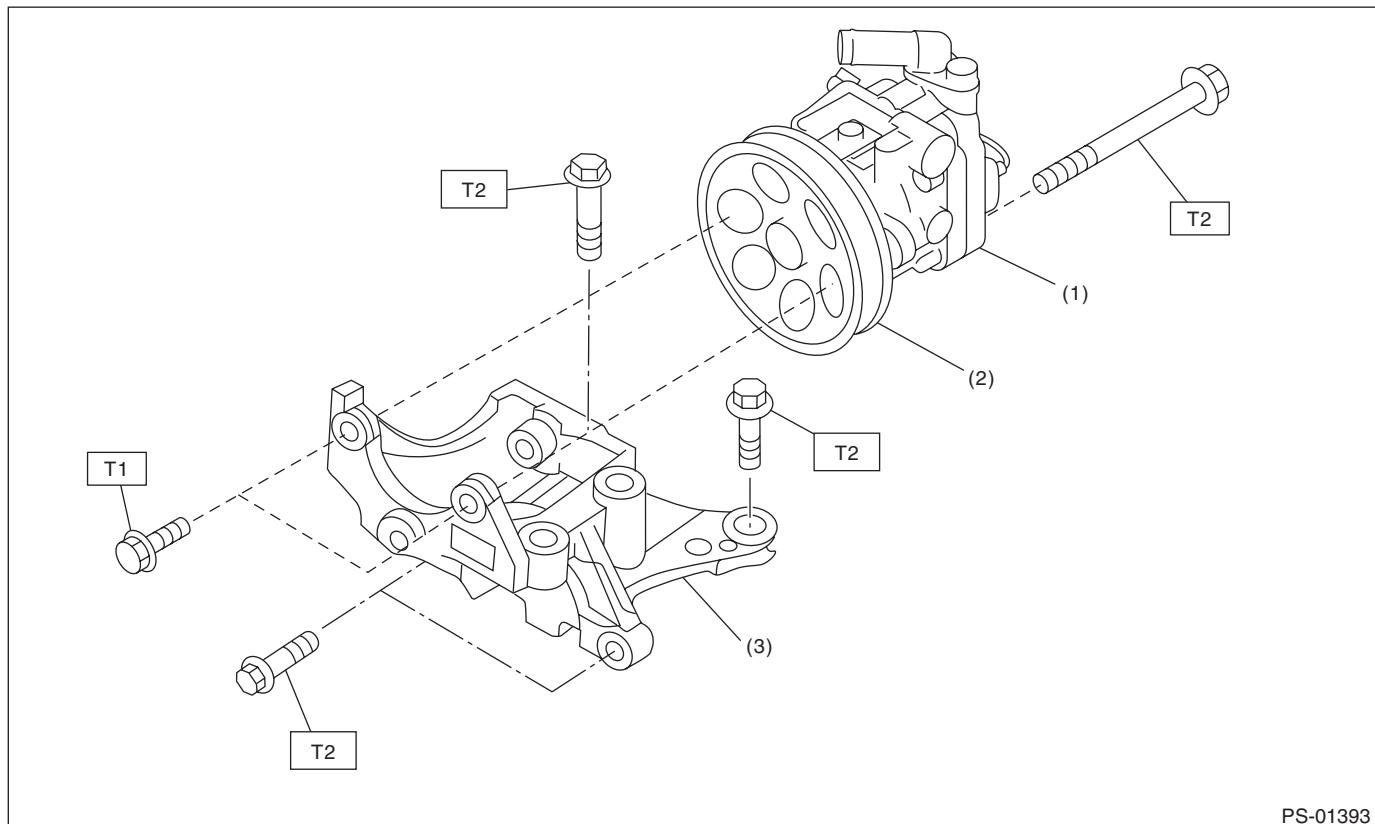
T11: 90 (9.18, 66.4)

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#### 4. OIL PUMP

- H4 model



PS-01393

(1) Pump - power steering  
(2) Pulley

(3) Bracket

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

**T1: 16 (1.63, 11.8)**

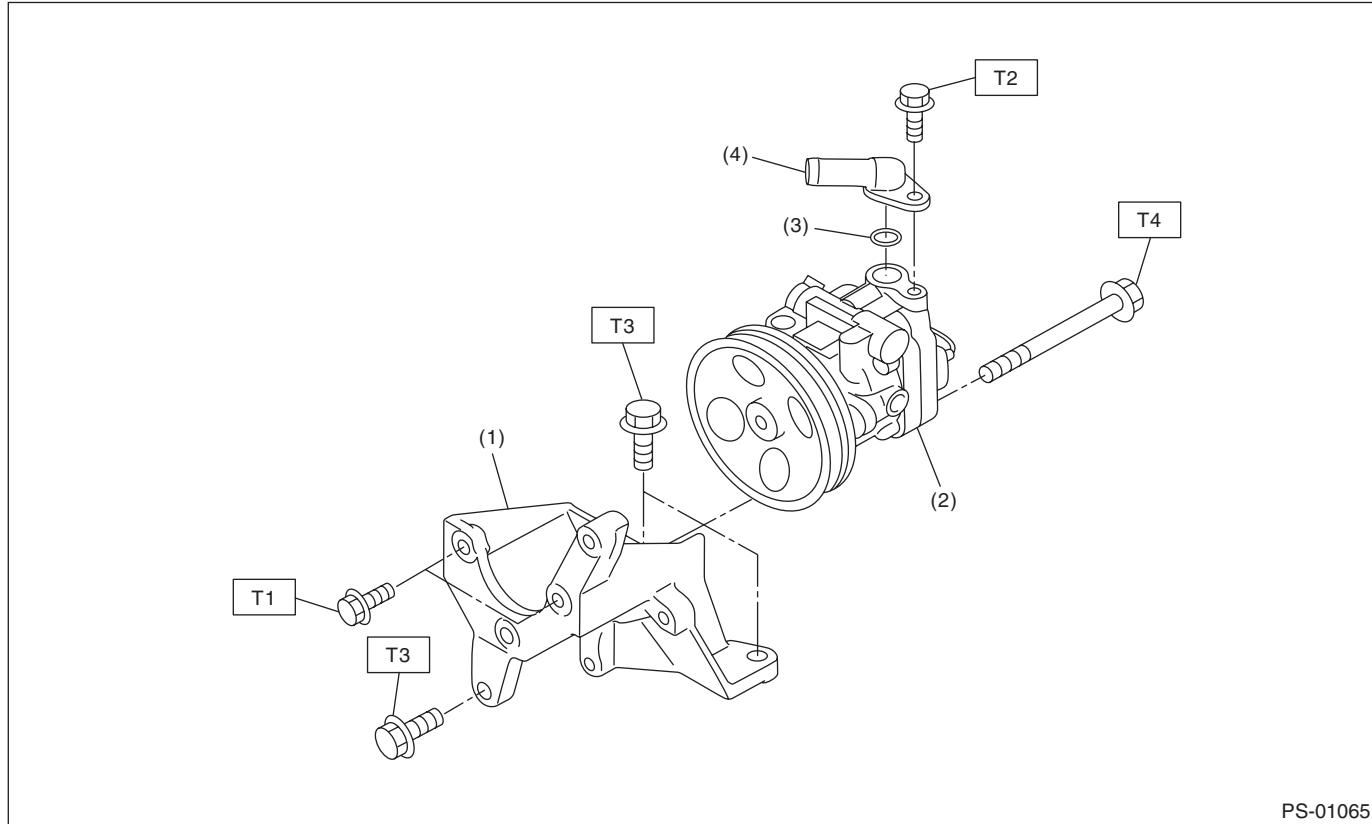
**T2: 36 (3.67, 26.6)**

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# General Description

## POWER ASSISTED SYSTEM (POWER STEERING)

- H6 model



(1) Bracket  
(2) Oil pump  
(3) O-ring  
(4) Joint

<b>Tightening torque: N·m (kgf·m, ft-lb)</b>	
<b>T1:</b>	<b>16 (1.63, 11.8)</b>
<b>T2:</b>	<b>21 (2.14, 15.5)</b>
<b>T3:</b>	<b>33 (3.36, 24.3)</b>
<b>T4:</b>	<b>36 (3.67, 26.6)</b>

# General Description

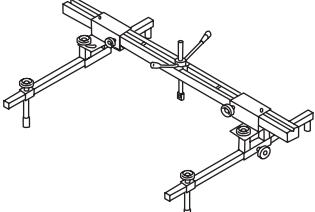
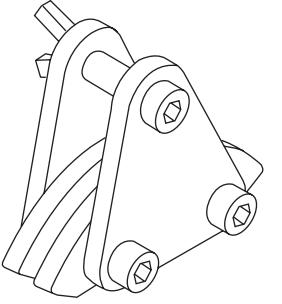
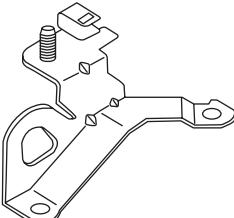
## POWER ASSISTED SYSTEM (POWER STEERING)

### 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 grease and oil of Subaru genuine or the equivalent products. Do not mix them 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.
- If the steering wheel and steering angle sensor are removed, perform the 0 point setting mode for the steering angle sensor. <Ref. to VDC-20, ADJUSTMENT, VDC Control Module and Hydraulic Control Unit (VDCCM&H/U).>

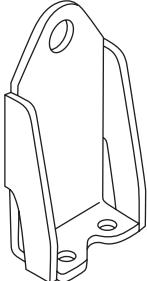
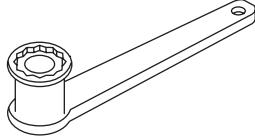
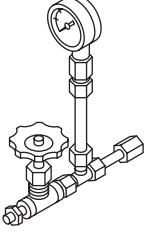
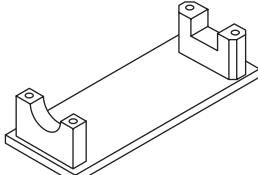
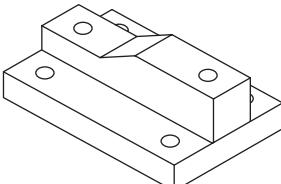
### D: PREPARATION TOOL

#### 1. SPECIAL TOOL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST99099AJ000	99099AJ000	ENGINE HANGER	<ul style="list-style-type: none"><li>• Used for hanging power unit.</li><li>• Used together with CHAIN BALANCER (99099AJ010).</li></ul>
 ST99099AJ010	99099AJ010	CHAIN BALANCER	<ul style="list-style-type: none"><li>• Used for hanging power unit.</li><li>• Used together with ENGINE HANGER (99099AJ000).</li></ul>
 ST10004AA180	10004AA180 (SUBARU genuine part)	HANGER CP ENGINE RR	<ul style="list-style-type: none"><li>• Used for hanging power unit.</li><li>• For H4 non-turbo model.</li><li>• SUBARU genuine part</li></ul>

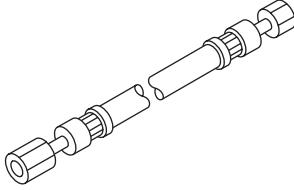
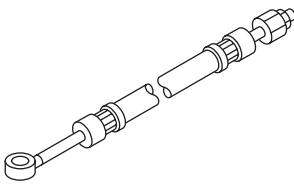
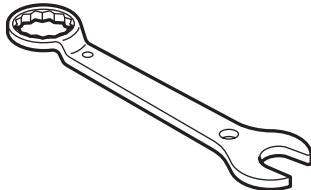
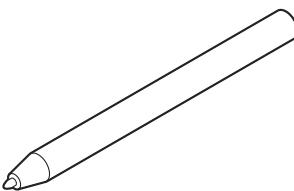
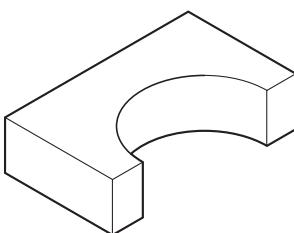
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ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
	18360AA020	HANGER	<ul style="list-style-type: none"> <li>Used for hanging power unit.</li> <li>For H6 model.</li> </ul>
	34199AJ060	SPECIAL TOOL CPS	Used for adjusting the backlash of gearbox. (Lock nut side)
	925711000	PRESSURE GAUGE	Used for measuring oil pressure.
	926200000	STAND	<ul style="list-style-type: none"> <li>Used when inspecting characteristic of gearbox assembly and disassembling it.</li> <li>Used together with BOSS D (34199AG000).</li> </ul>
	34199AG000	BOSS D	<ul style="list-style-type: none"> <li>Used when inspecting characteristic of gearbox assembly and disassembling it.</li> <li>Used together with STAND (926200000).</li> </ul>

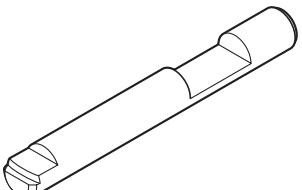
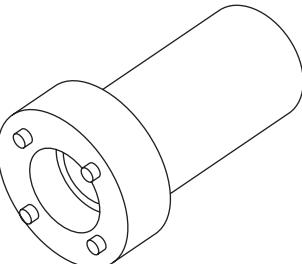
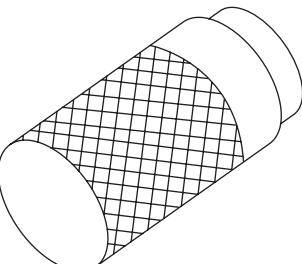
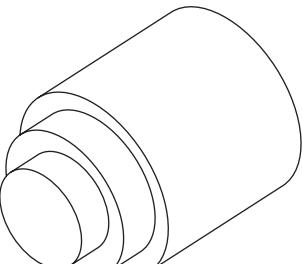
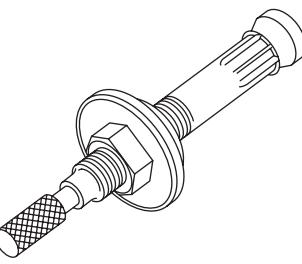
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ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST34099AC010	34099AC010	ADAPTER HOSE A	Used together with PRESSURE GAUGE (925711000).
 ST34099AC020	34099AC020	ADAPTER HOSE B	Used together with PRESSURE GAUGE (925711000).
 ST34099PA100	34099PA100	SPANNER	Used when measuring the rotational resistance of gearbox assembly.
 ST34099FA060	34099FA060	PUNCH HOLDER	Used for crimping.
 ST34199FE020	34199FE020	BASE	Used for crimping.

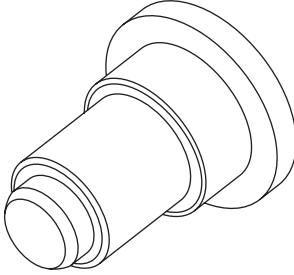
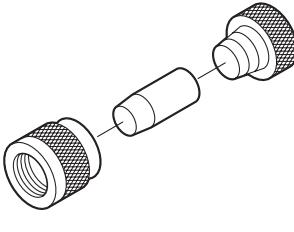
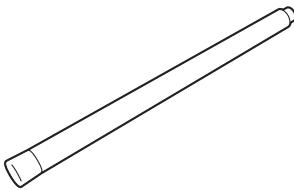
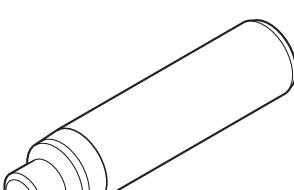
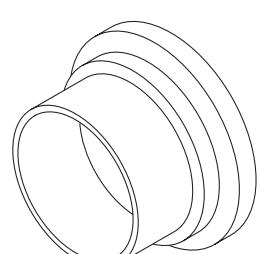
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ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST34099FA080	34099FA080	PUNCH	Used for removing crimps.
 ST34199AE090	34199AE090	PLUG WRENCH	Used for removing the plug.
 ST34199AE100	34199AE100	OIL SEAL PLUG REMOVER	Used for removing the oil seal plug.
 ST34199AE110	34199AE110	OIL SEAL PLUG INSTALLER	Used for installing the oil seal plug.
 ST34199AE120	34199AE120	GEARBOX OIL SEAL REMOVER	Used for removing the gearbox oil seal.

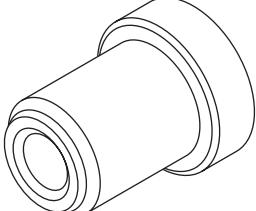
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ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
	34199AE130	GEARBOX OIL SEAL INSTALLER	Used for installing the gearbox oil seal.
	34199FE040	INSTALLER A, B, C	<ul style="list-style-type: none"> <li>Used for installing the oil seal to the rack assembly.</li> <li>INSTALLER A: 34199FE070</li> <li>INSTALLER B: 34199FE080</li> <li>INSTALLER C: 34199FE090</li> </ul>
	34199FE010	REMOVER	Used for removing the back-up ring and oil seal.
	34199FE000	INSTALLER & REMOVER	Used for removing and installing the rack oil seal (outer and inner).
	34199FE050	GUIDE	Used for installing the rack and seal into housing assembly.

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ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST34199FE060	34199FE060	INSTALLER	Used for installing the rack oil seal (outer).

## 2. GENERAL TOOL

TOOL NAME	REMARKS
Chain sling	<ul style="list-style-type: none"><li>Used for hanging power unit.</li><li>Diameter: 6 mm (0.24 in) or 6.3 mm (0.25 in)</li><li>Length: 0.8 — 1 m (2.6 — 3.3 ft)</li><li>Chain inner width: 8.5 mm (0.33 in) or more</li><li>Chain external width: 23.5 mm (0.93 in) or less</li><li>Load capacity: 1.2 t (2646 lb) or more</li></ul>
Shackle	<ul style="list-style-type: none"><li>Two units used for hanging power unit.</li><li>Attached to both end of chain sling and connected to engine hook.</li><li>Load capacity: 250 kg (551 lb) or more</li></ul>
Sling belt	<ul style="list-style-type: none"><li>Used to remove and install the cradle.</li><li>Width: 35 — 40 mm (1.38 — 1.57 in)</li><li>Length: 2 m (6.6 ft)</li><li>Load capacity: 1 t (2205 lb) or more</li></ul>
Shackle	<ul style="list-style-type: none"><li>Used to remove and install the cradle.</li><li>Load capacity: 500 kg (1103 lb) or more</li></ul>
Steering wheel puller	Used for removing the steering wheel.