

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	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°	
		Outer wheel	P225/50R17 tire: 33.0°±1.5° P225/45R18 tire: 33.0°±1.5° P215/50R17 tire: 33.3°±1.5° P205/60R16 tire: 33.3°±1.5° P225/60R17 tire: 34.1°±1.5° P215/70R16 tire: 34.1°±1.5°	
	Steering wheel diameter	mm (in)		
	Lock-to-lock revolution number	OUTBACK: 3.2 Except for OUTBACK: 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.	8.5 (0.519)	8.5 (0.519)
	Relief pressure	kPa (kgf/cm ² , 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	0.2 (0.2, 0.2)	
		Whole system	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 gear-box (Power steering system)	Sliding resistance	N (kgf, lbf)	375 (38.2, 84) 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: 17 (1.7, 3.8) or less Difference between right and left sliding resistance: 20%	
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)	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	

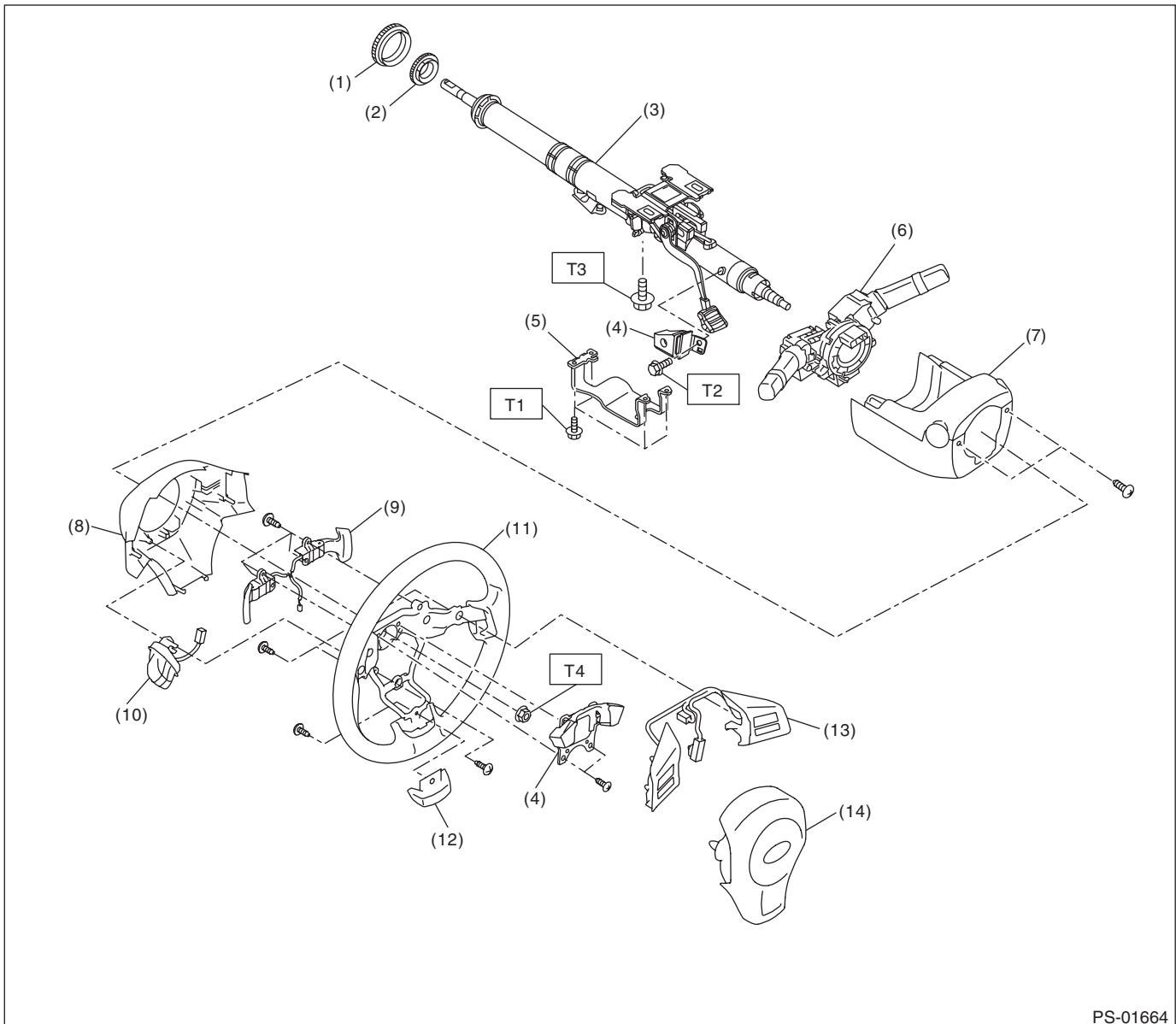
Recommended power steering fluid	SUBARU PS fluid or DEXRON III
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General Description

POWER ASSISTED SYSTEM (POWER STEERING)

B: COMPONENT

1. STEERING WHEEL AND COLUMN



PS-01664

- | | |
|-----------------------------|--------------------------------|
| (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) Cover steering |
| (6) Steering roll connector | (13) Switch |
| (7) Column cover | (14) Airbag module |

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

T1: 3.4 (0.35, 2.5)

T2: 7.5 (0.76, 5.5)

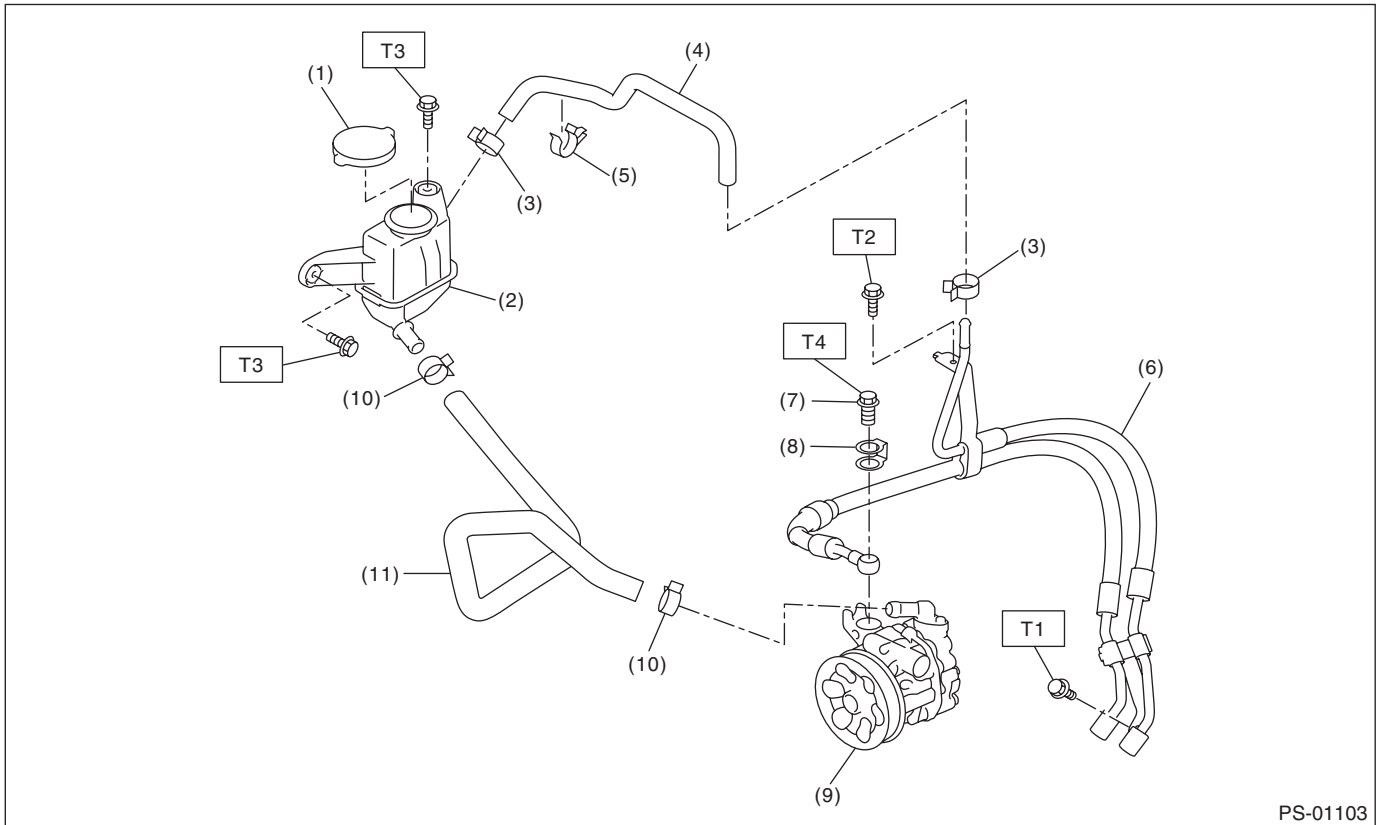
T3: 20 (2.04, 14.8)

T4: 39 (3.98, 28.8)

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2. HOSE AND TANK



PS-01103

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|--------------------|--------------------|
| (1) Cap | (7) Eyebolt |
| (2) Reservoir tank | (8) Eyebolt 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)

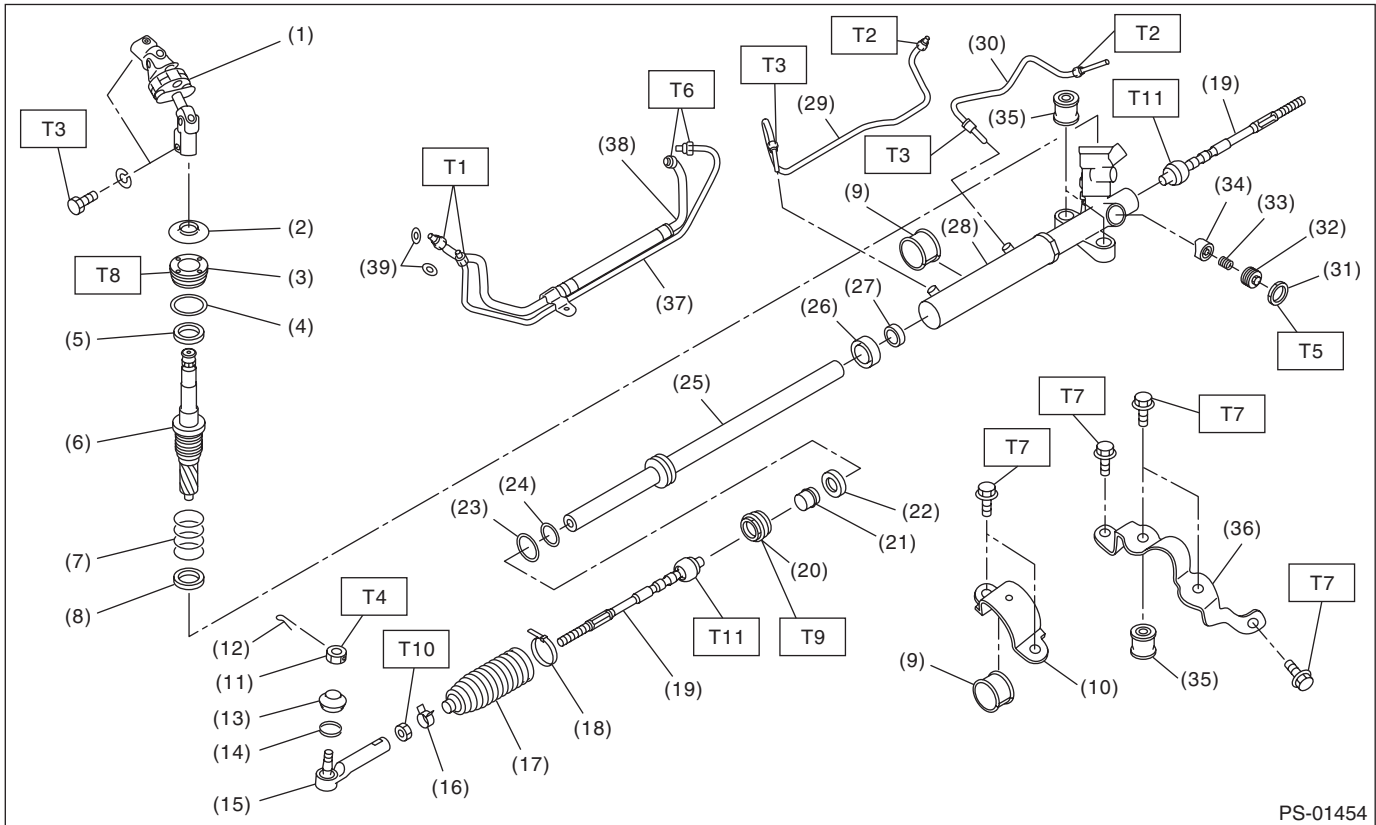
T3: 13 (1.33, 9.6)

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 | (37) Feed pipe |
| (2) Dust cover | (20) Holder | (38) Return pipe |
| (3) Plug | (21) Bushing | (39) O-ring |
| (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 | |

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)

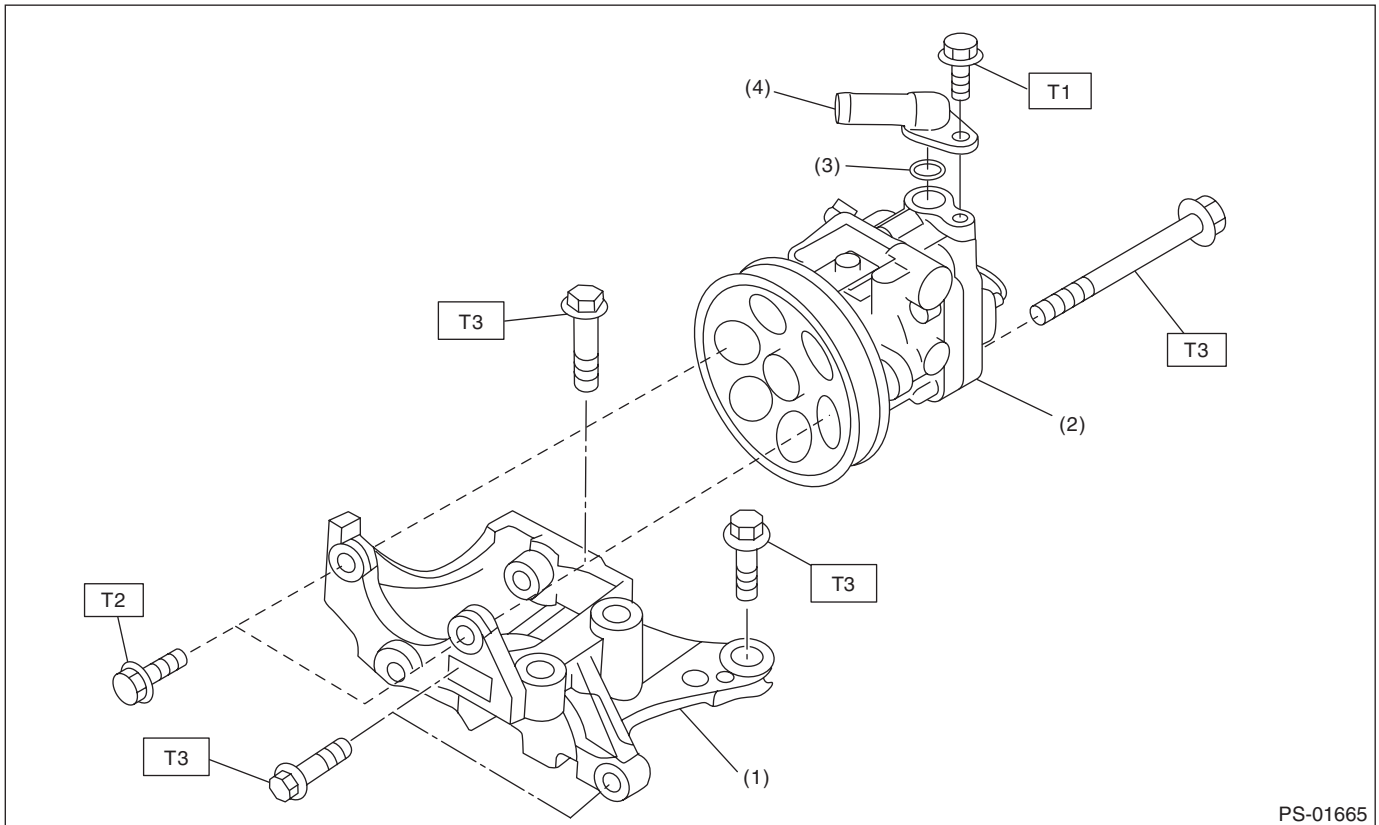
T11: 90 (9.18, 66.4)

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4. OIL PUMP

- H4 model



PS-01665

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

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

T1: 11 (1.12, 8.1)

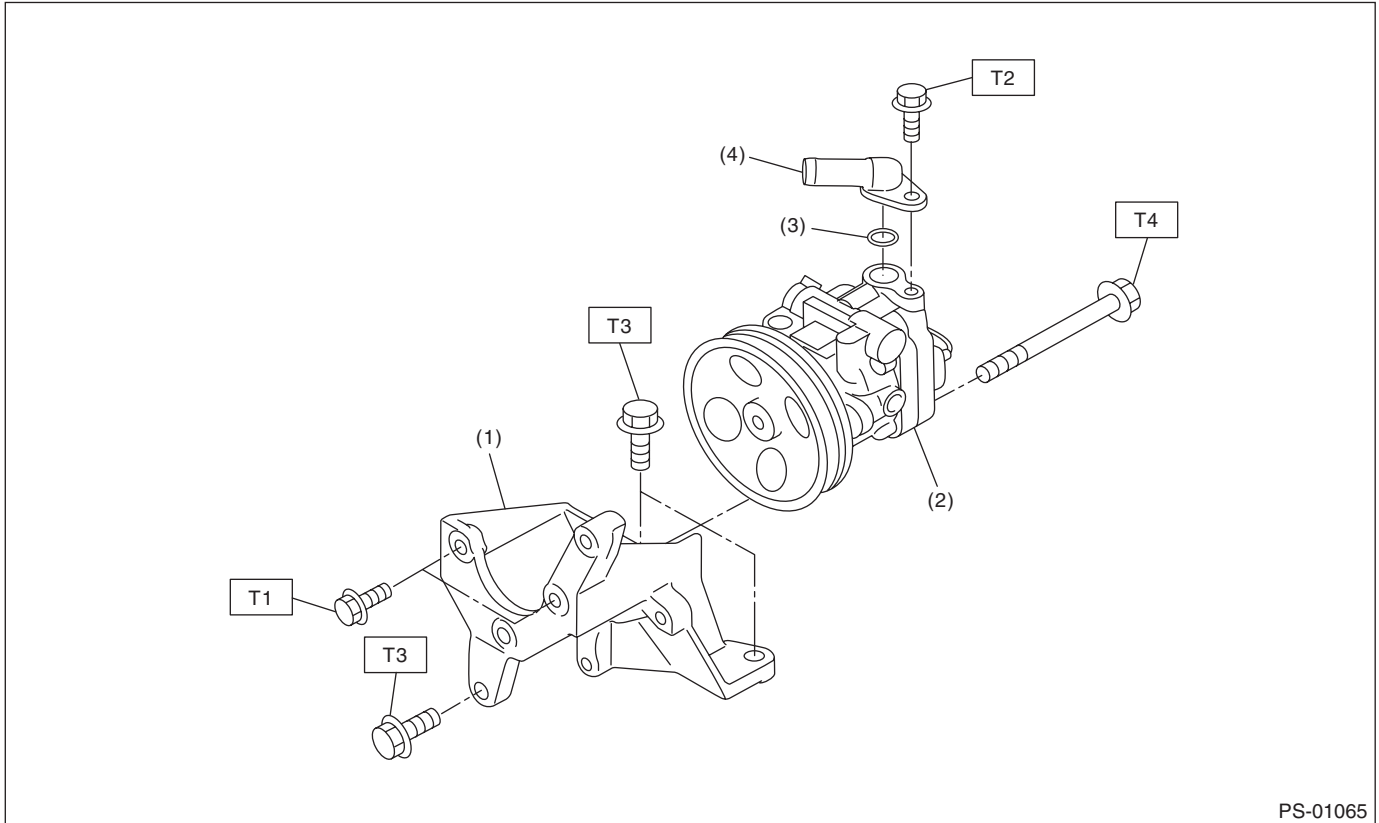
T2: 16 (1.63, 11.8)

T3: 36 (3.67, 26.6)

General Description

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- H6 model



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

Tightening torque: N·m (kgf·m, ft·lb)

T1: 16 (1.63, 11.8)

T2: 21 (2.14, 15.5)

T3: 33 (3.36, 24.3)

T4: 36 (3.67, 26.6)

C: CAUTION

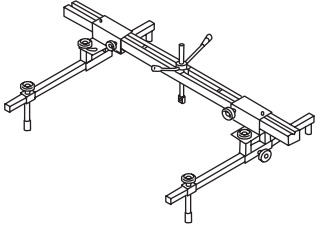
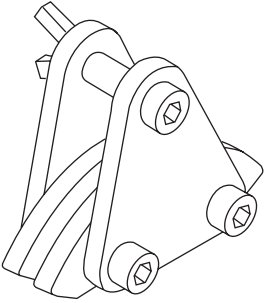
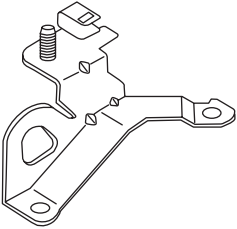
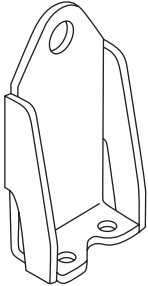
- Wear appropriate work clothing, including a helmet, protective goggles and protective shoes when performing any work.
- Before removal, installation or disassembly, be sure to clarify the failure. Avoid unnecessary removal, installation, disassembly and replacement.
- Vehicle components are extremely 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).>

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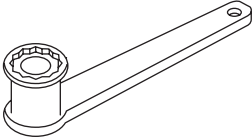
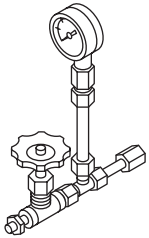
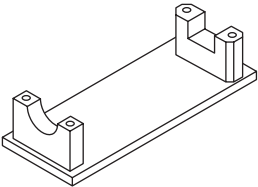
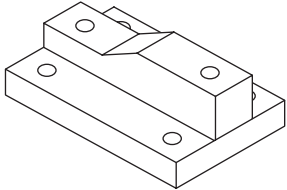
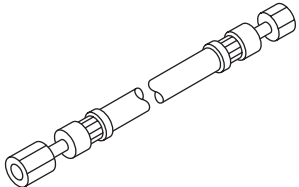
D: PREPARATION TOOL

1. SPECIAL TOOL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 <p>ST99099AJ000</p>	99099AJ000	ENGINE HANGER	<ul style="list-style-type: none"> Used for hanging power unit. Used together with CHAIN BALANCER (99099AJ010).
 <p>ST99099AJ010</p>	99099AJ010	CHAIN BALANCER	<ul style="list-style-type: none"> Used for hanging power unit. Used together with ENGINE HANGER (99099AJ000).
 <p>ST10004AA180</p>	10004AA180 (SUBARU genuine part)	HANGER CP ENGINE RR	<ul style="list-style-type: none"> Used for hanging power unit. For H4 non-turbo model. SUBARU genuine part
 <p>ST18360AA020</p>	18360AA020	HANGER	<ul style="list-style-type: none"> Used for hanging power unit. For H6 model.

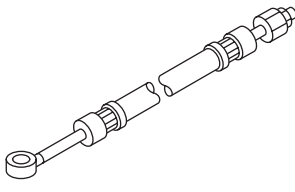
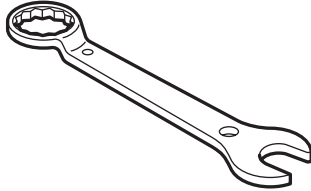
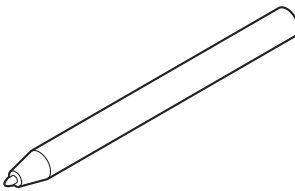
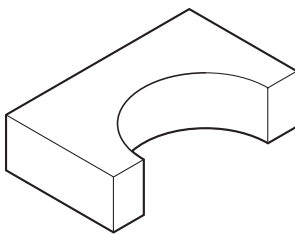
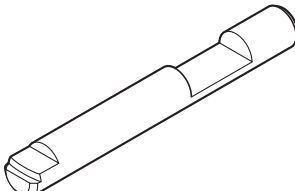
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ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 <p style="text-align: center;">ST34199AJ060</p>	34199AJ060	SPECIAL TOOL CPS	Used for adjusting the backlash of gearbox. (Lock nut side)
 <p style="text-align: center;">ST-925711000</p>	925711000	PRESSURE GAUGE	Used for measuring oil 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 together with BOSS D (34199AG000).
 <p style="text-align: center;">ST34199AG000</p>	34199AG000	BOSS D	<ul style="list-style-type: none"> • Used when inspecting characteristic of gear-box assembly and disassembling it. • Used together with STAND (926200000).
 <p style="text-align: center;">ST34099AC010</p>	34099AC010	ADAPTER HOSE A	Used together with PRESSURE GAUGE (925711000).

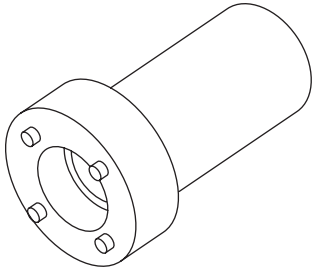
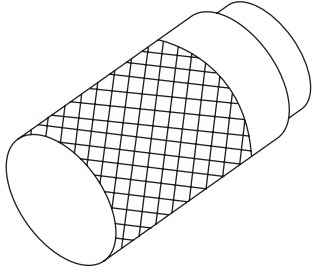
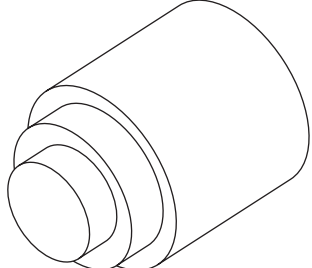
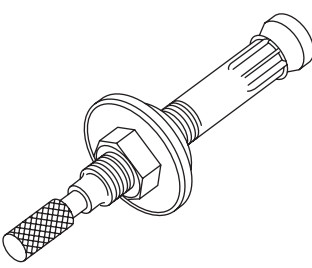
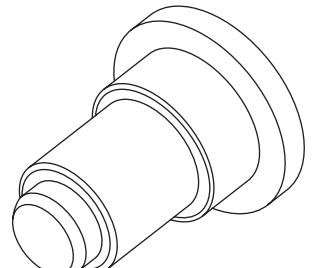
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ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 <p>ST34099AC020</p>	34099AC020	ADAPTER HOSE B	Used together with PRESSURE GAUGE (925711000).
 <p>ST34099PA100</p>	34099PA100	SPANNER	Used when measuring the rotational resistance of gearbox assembly.
 <p>ST34099FA060</p>	34099FA060	PUNCH HOLDER	Used for crimping.
 <p>ST34199FE020</p>	34199FE020	BASE	Used for crimping.
 <p>ST34099FA080</p>	34099FA080	PUNCH	Used for removing crimps.

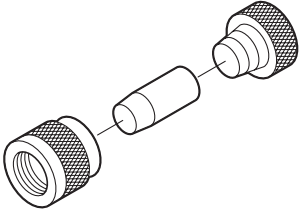
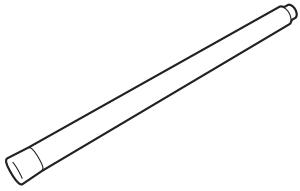
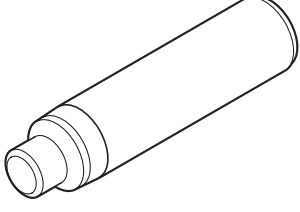
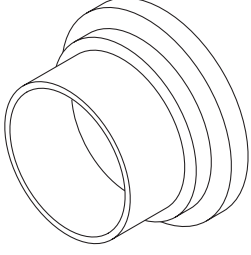
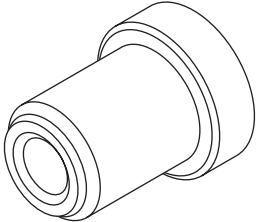
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 <p style="text-align: center;">ST34199AE090</p>	34199AE090	PLUG WRENCH	Used for removing the plug.
 <p style="text-align: center;">ST34199AE100</p>	34199AE100	OIL SEAL PLUG REMOVER	Used for removing the oil seal plug.
 <p style="text-align: center;">ST34199AE110</p>	34199AE110	OIL SEAL PLUG INSTALLER	Used for installing the oil seal plug.
 <p style="text-align: center;">ST34199AE120</p>	34199AE120	GEARBOX OIL SEAL REMOVER	Used for removing the gearbox oil seal.
 <p style="text-align: center;">ST34199AE130</p>	34199AE130	GEARBOX OIL SEAL INSTALLER	Used for installing the gearbox oil seal.

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 <p>ST34199FE040</p>	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
 <p>ST34199FE010</p>	34199FE010	REMOVER	Used for removing the back-up ring and oil seal.
 <p>ST34199FE000</p>	34199FE000	INSTALLER & REMOVER	Used for removing and installing the rack oil seal (outer and inner).
 <p>ST34199FE050</p>	34199FE050	GUIDE	Used for installing the rack and seal into housing assembly.
 <p>ST34199FE060</p>	34199FE060	INSTALLER	Used for installing the rack oil seal (outer).

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2. GENERAL TOOL

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