

General Description

POWER ASSISTED SYSTEM (POWER STEERING)

1. General Description

A: SPECIFICATION

| Model | | | H4 non-turbo model | H6, H4 turbo model | | |
|--|--------------------------------|---------------------------------|--|--|--|--|
| Whole system | Minimum turning radius | | m (ft) | | | |
| | Steering angle | Inner wheel | 5.6 (18.4) 225/50R17 tire: 37.4°±1.5° 225/45R18 tire: 37.4°±1.5° 215/50R17 tire: 37.6°±1.5° 205/60R16 tire: 37.6°±1.5° 225/60R17 tire: 38.4°±1.5° 215/70R16 tire: 38.4°±1.5° | | | |
| | | Outer wheel | 225/50R17 tire: 33.0°±1.5° 225/45R18 tire: 33.0°±1.5° 215/50R17 tire: 33.3°±1.5° 205/60R16 tire: 33.3°±1.5° 225/60R17 tire: 34.1°±1.5° 215/70R16 tire: 34.1°±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 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 | 670 — 9,869 | | |
| Hydraulic oil (Power steering system) | Direction of rotation | | Clockwise | | | |
| | Capacity | 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) | 2 — 4 (0.08 — 0.16) | | |
| Steering gearbox (Power steering system) | Sliding resistance | | N (kgf, lbf) | 314 (32, 71) or less Difference between right and left sliding resistance: 20% | | |
| | Rack shaft play in the radial direction | Right-turn steering | | Horizontal play: 0.6 (0.024) or less Vertical play: 0.4 (0.016) or less | | |
| | | Left-turn steering | | 0.4 (0.016) or less | | |
| | Input shaft play | In radial direction | | 0.18 (0.0071) or less | | |
| | | In axial direction | | 0.27 (0.0106) or less | | |
| | Rotation resistance | | N (kgf, lbf) | Maximum allowable value: 13 (1.3, 2.9) or less Difference between right and left sliding resistance: 20% | | |
| Oil pump (Power steering system) | Pulley shaft | Radial play | | 0.2 (0.008) or less | | |
| | | Axial play | | 0.9 (0.035) or less | | |
| | Pulley | Ditch deflection | | 1.0 (0.039) or less | | |
| | | Rotation resistance | | 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 | | | 29.4 (3.0, 6.6) or less | | |
| | At standstill with engine stalled on paved road | | | 294.2 (30, 66.2) or less | | |

Recommended power steering fluid

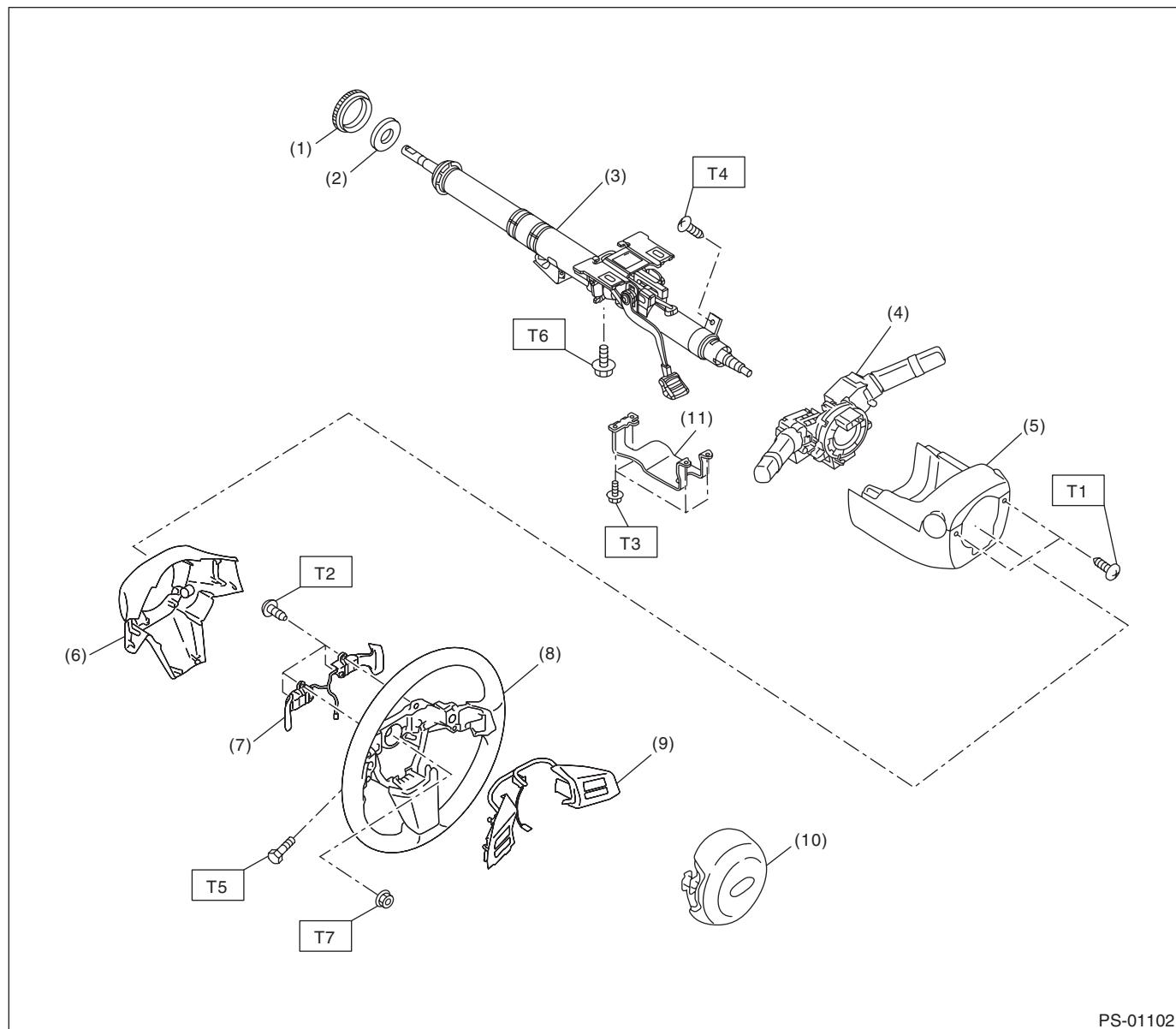
SUBARU ATF or DEXRON III

General Description

POWER ASSISTED SYSTEM (POWER STEERING)

B: COMPONENT

1. STEERING WHEEL AND COLUMN



- (1) Bushing
- (2) Insulator (CVT model)
- (3) Steering shaft
- (4) Steering roll connector
- (5) Column cover
- (6) Steering wheel lower cover

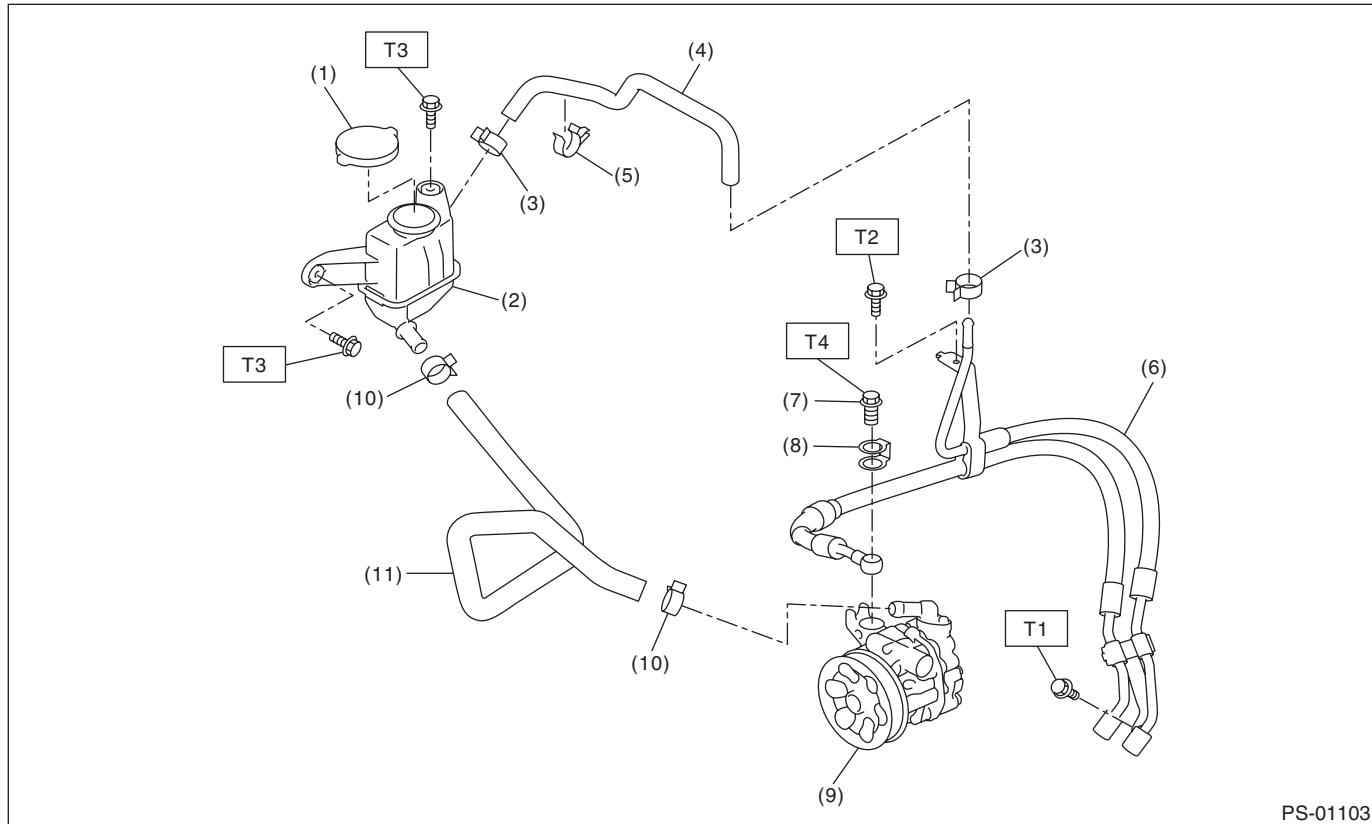
- (7) Paddle shift
- (8) Steering wheel
- (9) Switch
- (10) Airbag module
- (11) Knee protector

| Tightening torque: N·m (kgf·m, ft-lb) | |
|--|------------------------|
| T1: | 1.2 (0.12, 0.9) |
| T2: | 1.7 (0.17, 1.3) |
| T3: | 3.4 (0.35, 2.5) |
| T4: | 3.5 (0.36, 2.6) |
| T5: | 10 (1.02, 7.4) |
| T6: | 20 (2.04, 14.8) |
| T7: | 39 (3.98, 28.8) |

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POWER ASSISTED SYSTEM (POWER STEERING)

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)

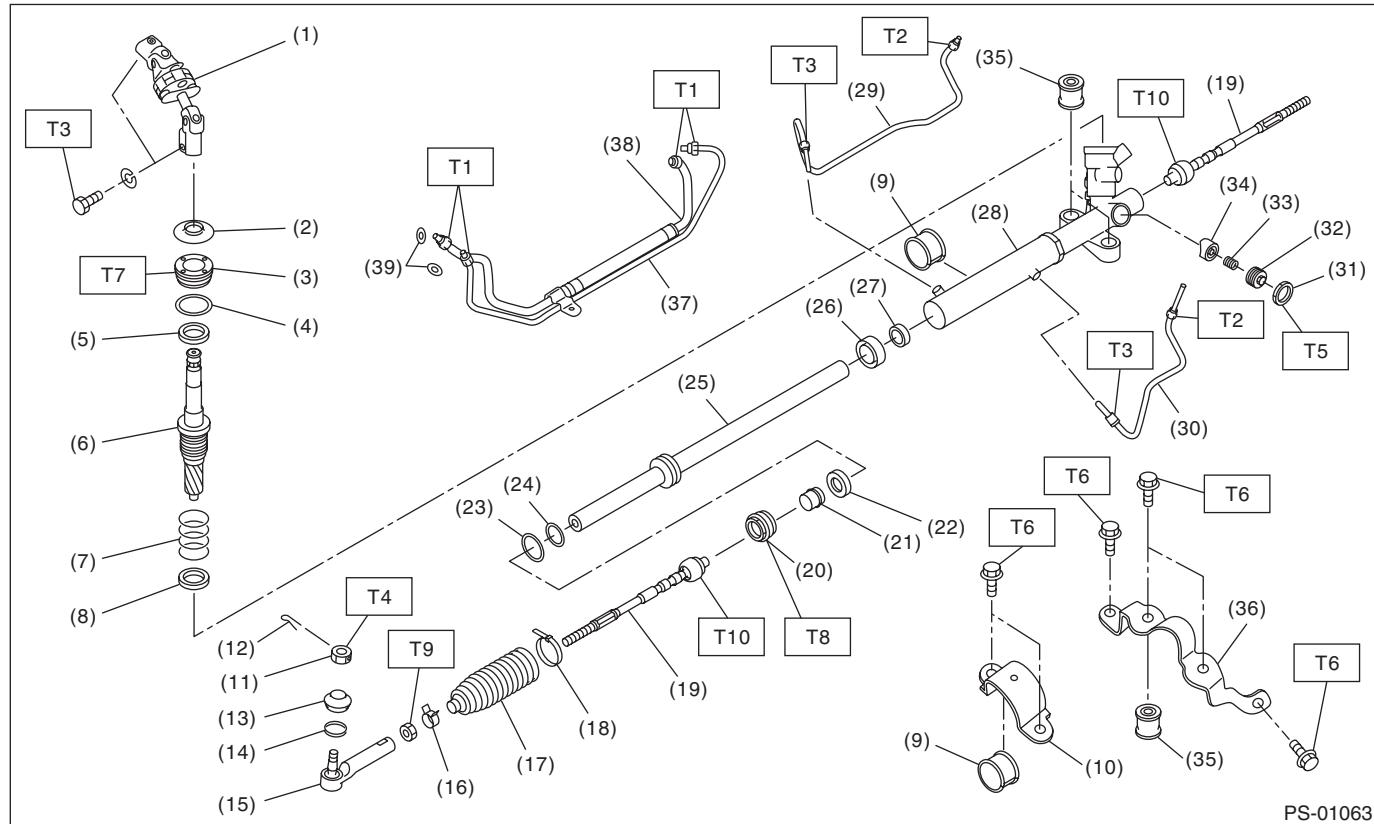
T3: 13 (1.33, 9.6)

T4: 40 (4.08, 29.5)

General Description

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3. STEERING GEARBOX



PS-01063

| | |
|---------------------|----------------------|
| (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: 60 (6.12, 44.3)

T7: 64 (6.53, 47.2)

T8: 75 (7.65, 55.3)

T9: 85 (8.67, 62.7)

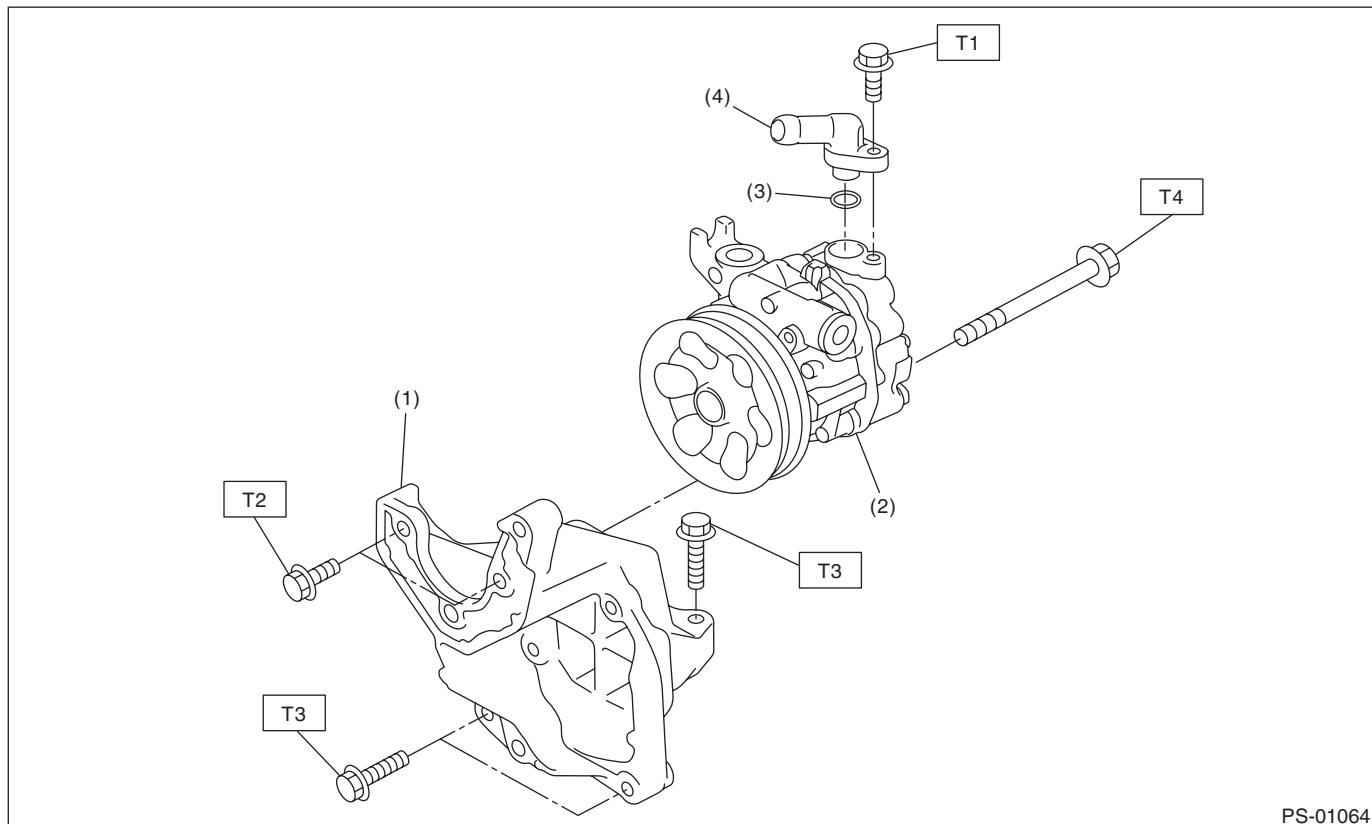
T10: 90 (9.18, 66.4)

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4. OIL PUMP

- H4 non-turbo model



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

Tightening torque:N·m (kgf·m, ft-lb)

T1: 10 (1.02, 7.4)

T2: 16 (1.63, 11.8)

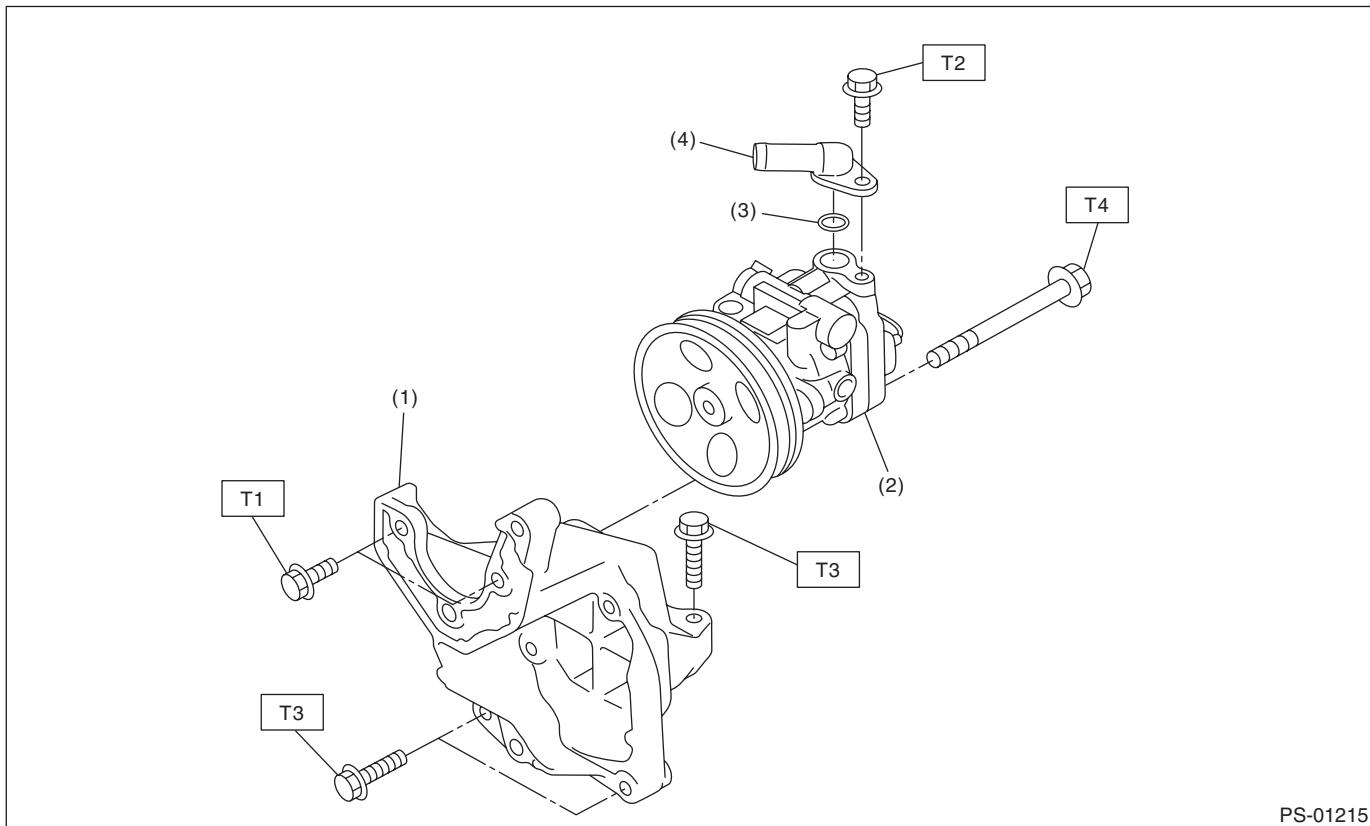
T3: 22 (2.24, 16.2)

T4: 36 (3.67, 26.6)

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- H4 turbo model



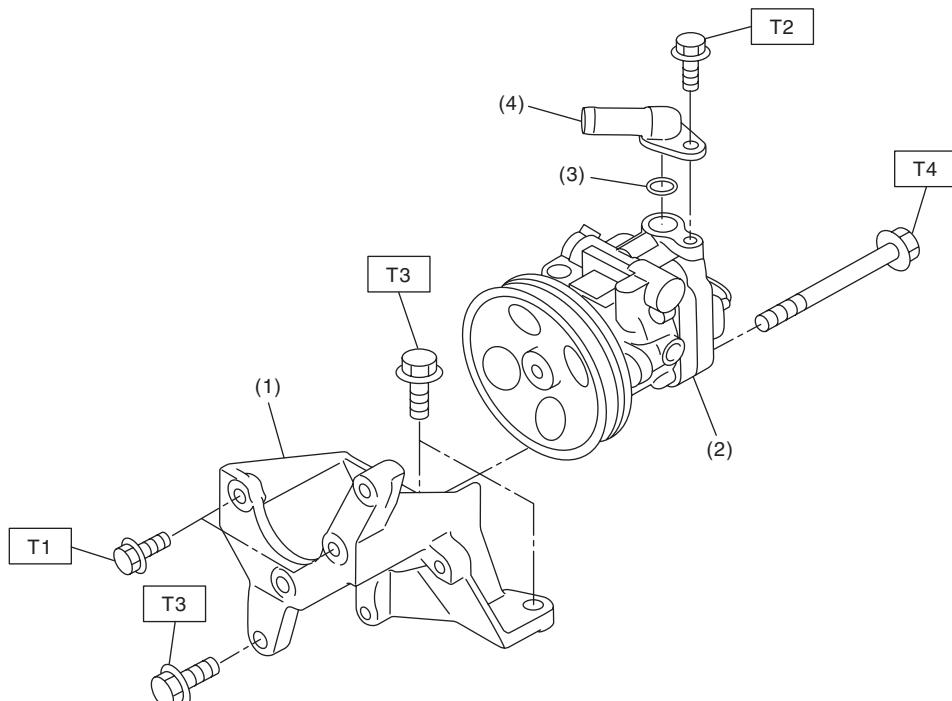
(1) Bracket
(2) Oil pump
(3) O-ring
(4) Joint

Tightening torque:N·m (kgf·m, ft-lb)
T1: 16 (1.63, 11.8)
T2: 21 (2.14, 15.5)
T3: 22 (2.24, 15.9)
T4: 36 (3.67, 26.6)

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- H6 model



PS-01065

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

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

C: CAUTION

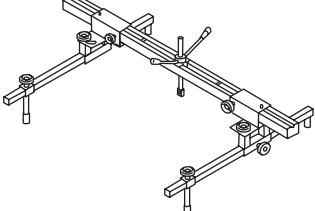
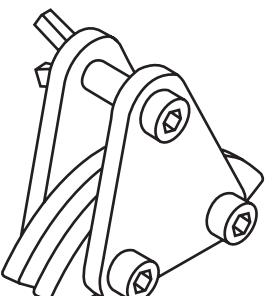
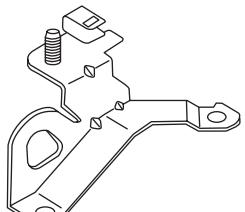
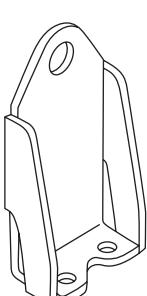
- Wear appropriate work clothing, including a cap, protective goggles and protective shoes when performing any work.
- Before removal, installation or disassembly, be sure to clarify the failure. Avoid unnecessary removal, installation, disassembly and replacement.
- Vehicle components are extremely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

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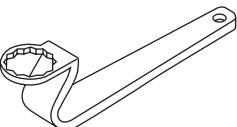
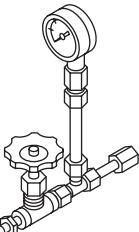
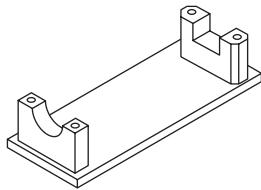
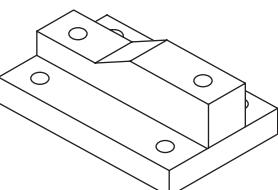
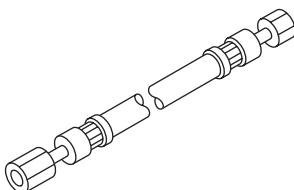
D: PREPARATION TOOL

1. SPECIAL TOOL

| ILLUSTRATION | TOOL NUMBER | DESCRIPTION | REMARKS |
|---|-------------------------------------|------------------------|--|
|  ST99099AJ000 | 99099AJ000 | ENGINE HANGER | <ul style="list-style-type: none">Used for hanging power unit.Used together with CHAIN BALANCER (99099AJ010). |
|  ST99099AJ010 | 99099AJ010 | CHAIN BALANCER | <ul style="list-style-type: none">Used for hanging power unit.Used together with ENGINE HANGER (99099AJ000). |
|  ST10004AA180 | 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 |
|  ST18360AA020 | 18360AA020 | HANGER | <ul style="list-style-type: none">Used for hanging power unit.For H6 model. |

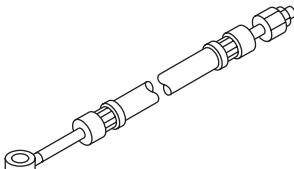
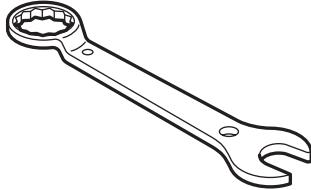
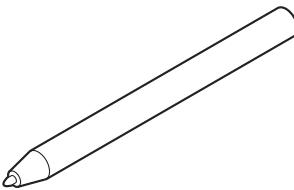
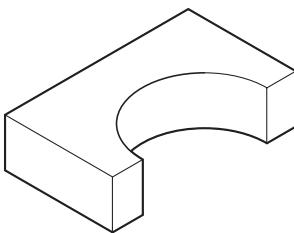
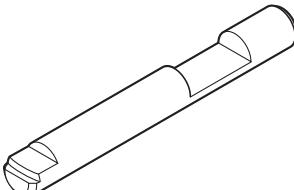
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| ILLUSTRATION | TOOL NUMBER | DESCRIPTION | REMARKS |
|---|-------------|-------------------------|--|
|  ST34199AJ000 | 34199AJ000 | SPECIAL TOOL CPS LHD | Used for adjusting the backlash of gearbox. (Lock nut side) |
|  ST-925711000 | 925711000 | PRESSURE GAUGE | Used for measuring oil pressure. |
|  ST-926200000 | 926200000 | STAND | <ul style="list-style-type: none"> Used when inspecting characteristic of gearbox assembly and disassembling it. Used together with BOSS D (34199AG000). |
|  ST34199AG000 | 34199AG000 | BOSS D | <ul style="list-style-type: none"> Used when inspecting characteristic of gearbox assembly and disassembling it. Used together with STAND (926200000). |
|  ST34099AC010 | 34099AC010 | ADAPTER HOSE A | Used together with PRESSURE GAUGE (925711000). |

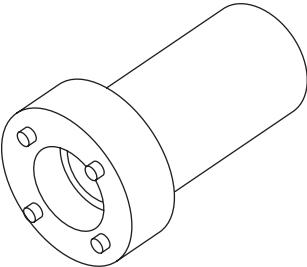
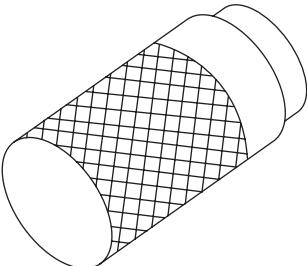
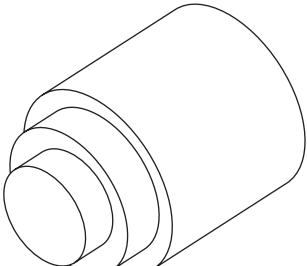
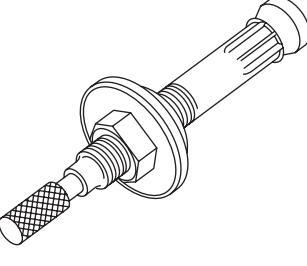
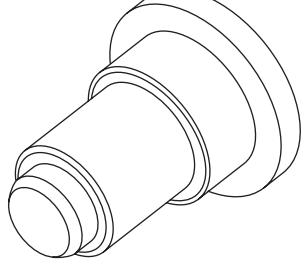
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| ILLUSTRATION | TOOL NUMBER | DESCRIPTION | REMARKS |
|---|-------------|----------------|--|
|  ST34099AC020 | 34099AC020 | ADAPTER HOSE B | Used together with PRESSURE GAUGE (925711000). |
|  ST34099PA100 | 34099PA100 | SPANNER | Used when measuring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

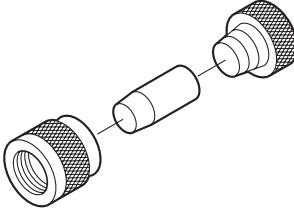
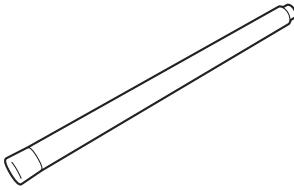
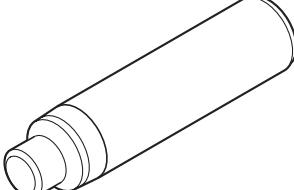
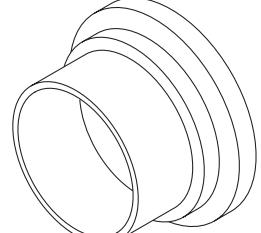
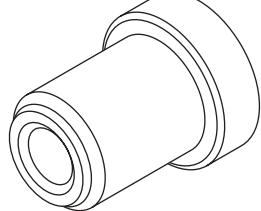
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|---|-------------|----------------------------|---|
|  ST34199AE090 | 34199AE090 | PLUG WRENCH | Used for removing the plug. |
|  ST34199AE100 | 34199AE100 | OIL SEAL PLUG REMOVER | Used for removing the oil seal plug. |
|  ST34199AE110 | 34199AE110 | OIL SEAL PLUG INSTALLER | Used for installing the oil seal plug. |
|  ST34199AE120 | 34199AE120 | GEARBOX OIL SEAL REMOVER | Used for removing the gearbox oil seal. |
|  ST34199AE130 | 34199AE130 | GEARBOX OIL SEAL INSTALLER | Used for installing the gearbox oil seal. |

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| ILLUSTRATION | TOOL NUMBER | DESCRIPTION | REMARKS |
|---|-------------|---------------------|---|
|  | 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 |
|  | 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. |
|  | 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 moreChain external width: 23.5 mm (0.93 in) or lessLoad 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. |