

GENERAL DESCRIPTION

Power Assisted System (Power Steering)

1. General Description S601001

A: SPECIFICATIONS S601001E49

Whole system	Minimum turning radius		5.1 m (16.7 ft)
	Steering angle (Inside-Outside)		37.4°±1.5° — 32.5°±1.5°
	Steering wheel diameter		385 mm (15.16 in)
	Overall gear ratio (Turns, lock to lock)		16.5 (3.2)
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 pump
	Output		7.2 cm ³ (0.439 cu in)/rev.
	Relief pressure		7,355 kPa (75 kg/cm ² , 1,067 psi)
	Hydraulic fluid control		Drooping in response to increased engine revolutions
	Hydraulic fluid		1,000 rpm: 7 ℓ (7.4 US qt, 6.2 Imp qt) 3,000 rpm: 5 ℓ (5.3 US qt, 4.4 Imp qt)
	Range of revolution		500 — 7,500 rpm
Working fluid (Power steering system)	Name		ATF DEXRON II, IIE or III
	Capacity	Oil tank	0.3 ℓ (0.3 US qt, 0.3 Imp qt)
		Total	0.7 ℓ (0.7 US qt, 0.6 Imp qt)
Steering wheel	Free play		17 mm (0.67 in)
Turning angle	Inner tire & wheel		37.4°±1.5°
	Outer tire & wheel		32.5°±1.5°
Steering shaft	Clearance between steering wheel and column cover		3.0 mm (0.118 in)
Steering gearbox (Power steering system)	Sliding resistance		304 N (31.0 kgf, 68.4 lb) or less
	Rack shaft play in radial direction	Right-turn steering	0.15 mm (0.0059 in) or less
		Left-turn steering	Horizontal movement: 0.15 mm (0.0059 in) or less Vertical movement: 0.15 mm (0.0059 in) or less
	Input shaft play	In radial direction	0.18 mm (0.0071 in) or less
		In axial direction	0.1 mm (0.004 in) or less
Turning resistance		Within 30 mm (1.18 in) from rack center in straight ahead position: Less than 11.18 N (1.14 kgf, 2.51 lb) Maximum allowable value: 12.7 N (1.3 kgf, 2.9 lb)	
Oil pump (Power steering system)	Pulley shaft	Radial play	0.4 mm (0.016 in) or less
		Axial play	0.9 mm (0.035 in) or less
	Pulley	Ditch deflection	1.0 mm (0.039 in) or less
		Resistance to rotation	9.22 N (0.94 kgf, 2.07 lb) or less
	Regular pressure		981 kPa (10 kg/cm ² , 142 psi) or less
Relief pressure		7,355 kPa (75 kg/cm ² , 1,067 psi)	
Steering wheel effort (Power steering system)	At standstill with engine idling on a concrete road		31.4 N (3.2 kgf, 7.1 lb) or less
	At standstill with engine stalled on a concrete road		294.2 N (30 kgf, 66.2 lb) or less

GENERAL DESCRIPTION

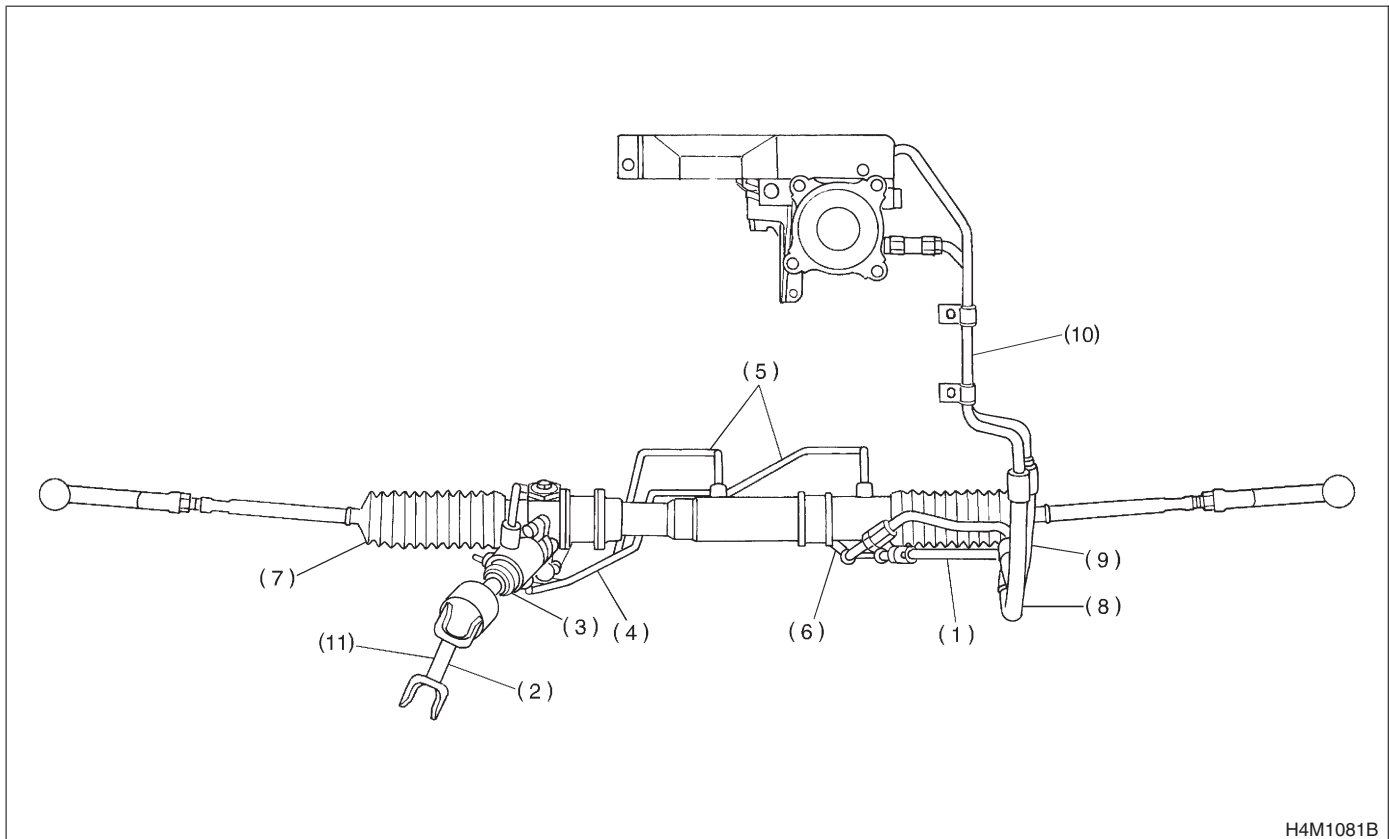
Power Assisted System (Power Steering)

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

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	15 mm (0.59 in)
(7) Exhaust pipe — Gearbox bolt	15 mm (0.59 in)
(8) Side frame — Hose A and B	15 mm (0.59 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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GENERAL DESCRIPTION

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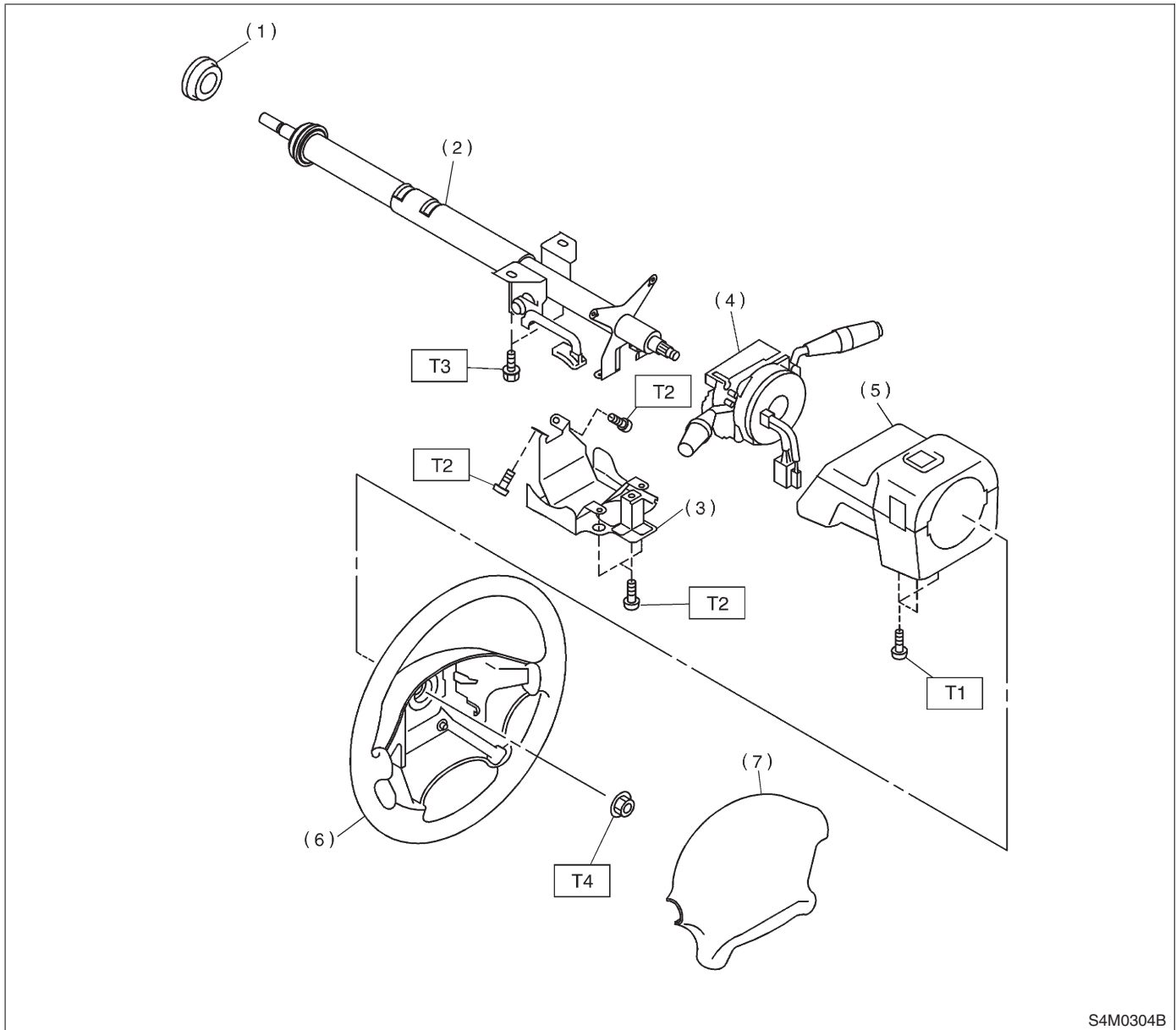
MEMO:

GENERAL DESCRIPTION

Power Assisted System (Power Steering)

B: COMPONENT S601001A05

1. STEERING WHEEL AND COLUMN S601001A0501



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

- (6) Steering wheel
- (7) Airbag module

Tightening torque: N·m (kgf·m, ft·lb)

T1: 1.2 (0.12, 0.9)

T2: 3.4 (0.35, 2.5)

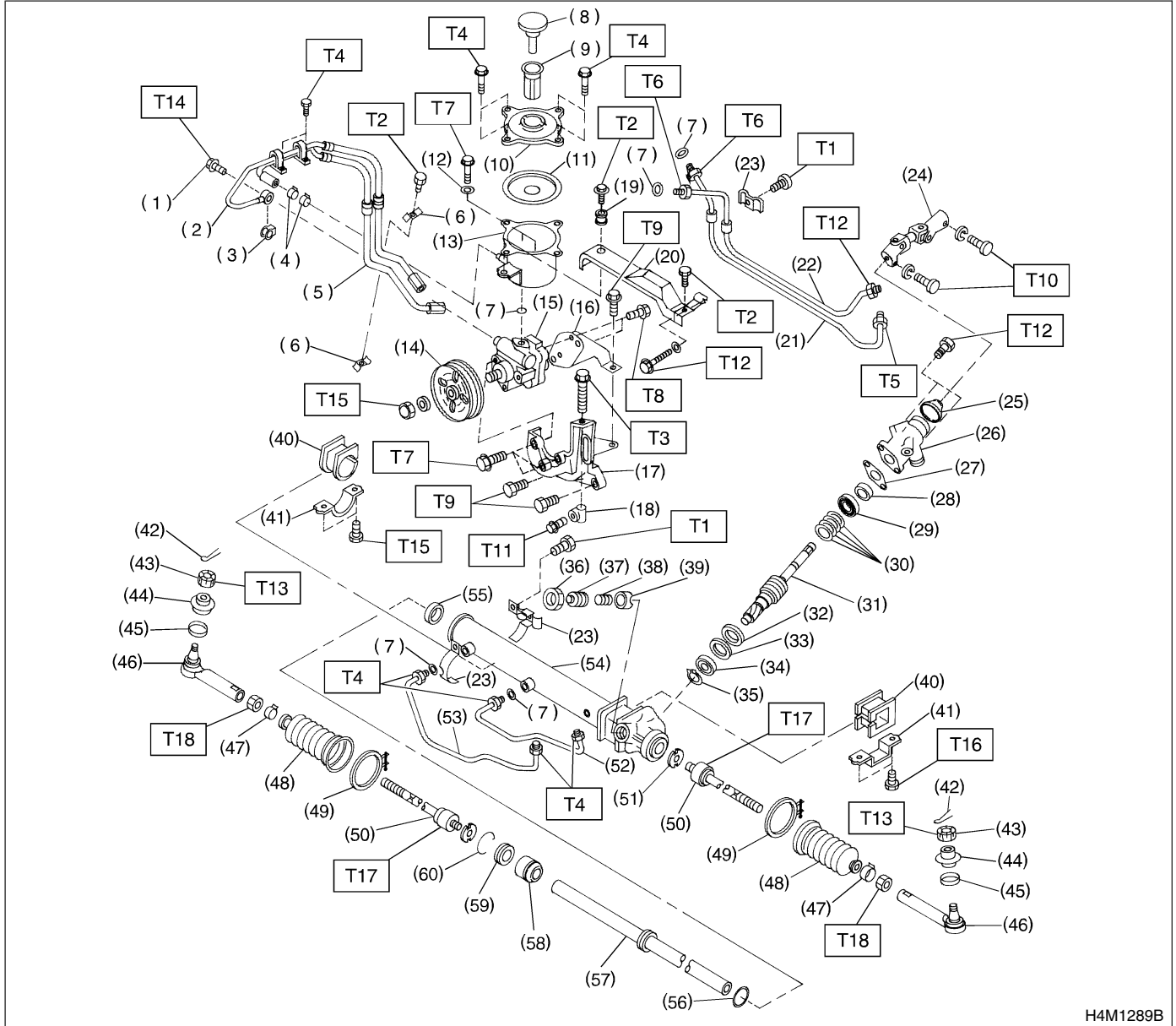
T3: 25 (2.5, 18.1)

T4: 44 (4.5, 32.5)

GENERAL DESCRIPTION

Power Assisted System (Power Steering)

2. POWER ASSISTED SYSTEM S601001A0502



H4M1289B

GENERAL DESCRIPTION

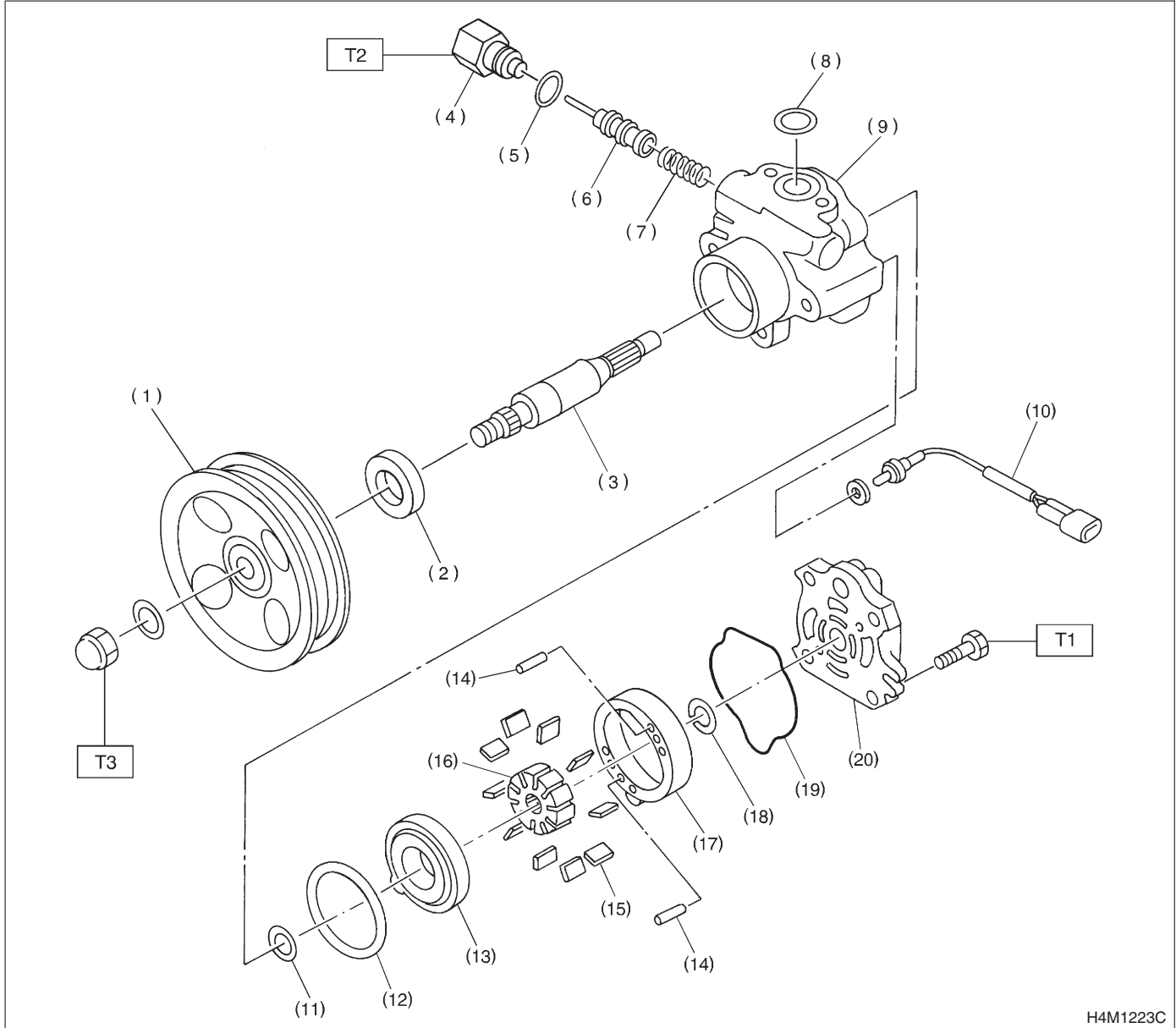
Power Assisted System (Power Steering)

(1) Eye bolt	(29) Special bearing	(57) Rack
(2) Pipe C	(30) Seal ring	(58) Rack bushing
(3) Gasket	(31) Pinion and valve ASSY	(59) Rack stopper
(4) Clip	(32) Oil seal	(60) Circlip
(5) Pipe D	(33) Back-up washer	
(6) Clamp E	(34) Ball bearing	<i>Tightening torque: N-m (kgf-m, ft-lb)</i>
(7) O-ring	(35) Snap ring	<i>T1: 6 (0.6, 4.3)</i>
(8) Cap	(36) Lock nut	<i>T2: 7.4 (0.75, 5.4)</i>
(9) Strainer	(37) Adjusting screw	<i>T3: 8 (0.8, 5.8)</i>
(10) Shell upper	(38) Spring	<i>T4: 13 (1.3, 9.4)</i>
(11) Baffle	(39) Sleeve	<i>T5: 15 (1.5, 10.8)</i>
(12) Seal washer	(40) Adapter	<i>T6: 15 (1.5, 10.8)</i>
(13) Shell lower	(41) Clamp	<i>T7: 18 (1.8, 13.0)</i>
(14) Pulley	(42) Cotter pin	<i>T8: 20.1 (2.05, 14.8)</i>
(15) Oil pump	(43) Castle nut	<i>T9: 22 (2.2, 15.9)</i>
(16) Stiffener	(44) Dust seal	<i>T10: 24 (2.4, 17.4)</i>
(17) Bracket	(45) Clip	<i>T11: 25 (2.5, 18.1)</i>
(18) Belt tension nut	(46) Tie-rod end	<i>T12: 25 (2.5, 18.1)</i>
(19) Bush	(47) Clip	<i>T13: 27.0 (2.75, 19.9)</i>
(20) Belt cover	(48) Boot	<i>T14: 39 (4.0, 28.9)</i>
(21) Pipe E	(49) Band	<i>T15: 52 (5.3, 38)</i>
(22) Pipe F	(50) Tie-rod	<i>T16: 59 (6.0, 43)</i>
(23) Clamp plate	(51) Lock washer	<i>T17: 78 (8.0, 58)</i>
(24) Universal joint	(52) Pipe B	<i>T18: 83 (8.5, 61.5)</i>
(25) Dust cover	(53) Pipe A	
(26) Valve housing	(54) Steering body	
(27) Gasket	(55) Oil seal	
(28) Oil seal	(56) Piston ring	

GENERAL DESCRIPTION

Power Assisted System (Power Steering)

3. OIL PUMP S601001A0503



H4M1223C

- (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

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)

C: CAUTION S601001A03

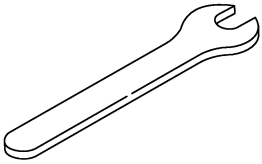
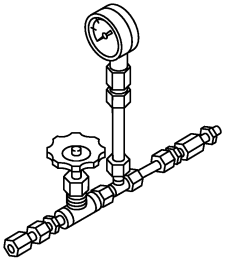
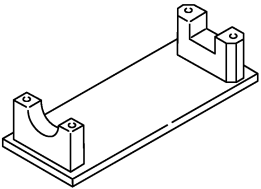
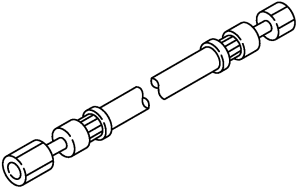
- Wear working clothing, including a cap, protective goggles, and protective shoes during operation.
- Remove contamination including dirt and corrosion before removal, installation or disassembly.
- Keep the disassembled parts in order and protect them from dust or dirt.
- Before removal, installation 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 vice, place cushioning material such as wood blocks, aluminum plate, or shop cloth between the part and the vice.

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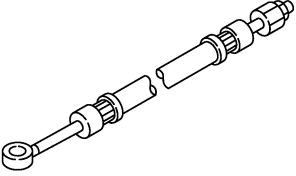
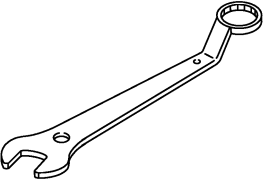
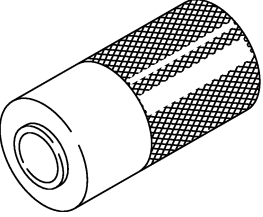
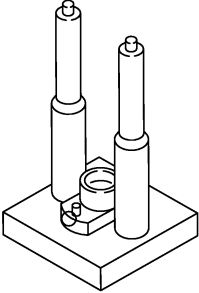
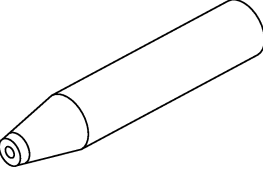
D: PREPARATION TOOL S601001A17

1. SPECIAL TOOL S601001A1701

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 <p>B4M2411</p>	925700000	WRENCH	<ul style="list-style-type: none"> Used for removing and installing tie-rod. Apply this tool to rack.
 <p>B4M2412</p>	925711000	PRESSURE GAUGE	Used for measuring oil pump pressure.
 <p>B4M2413</p>	926200000	STAND	Used when inspecting characteristic of gearbox assembly and disassembling it.
 <p>B4M2414</p>	34099AC010	ADAPTER HOSE A	Used with PRESSURE GAUGE (925711000).

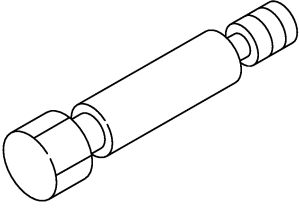
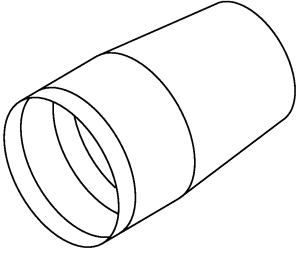
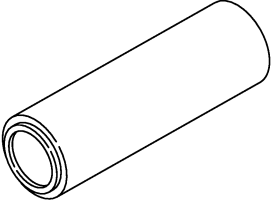
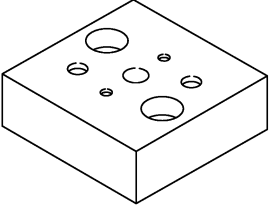
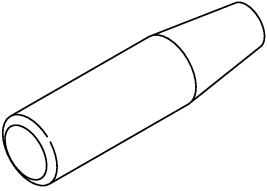
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ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 <p style="text-align: center;">B4M2415</p>	34099AC020	ADAPTER HOSE B	Used with PRESSURE GAUGE (925711000).
 <p style="text-align: center;">B4M2416</p>	926230000	SPANNER	<ul style="list-style-type: none"> ● For the lock nut when adjusting backlash of gearbox. ● Measurement of rotating resistance of gearbox assembly.
 <p style="text-align: center;">B4M2420</p>	927640000	INSTALLER B	Used for installing ball bearing into housing.
 <p style="text-align: center;">B4M2421</p>	926370000	INSTALLER A	<ul style="list-style-type: none"> ● Used for installing valve assembly into valve housing assembly. ● Used with STAND BASE (927630000).
 <p style="text-align: center;">B4M2422</p>	926390001	COVER & REMOVER ASSY	Used for assembling rack assembly.

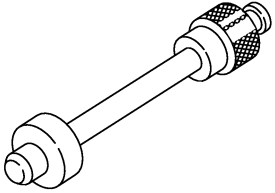
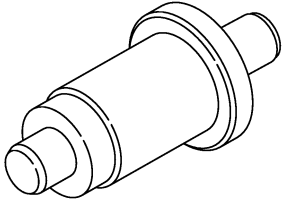
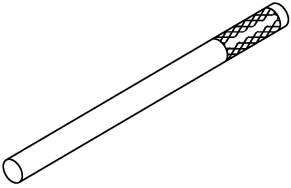
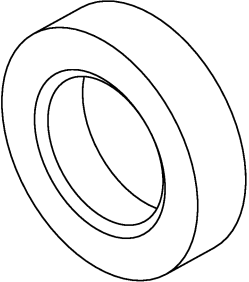
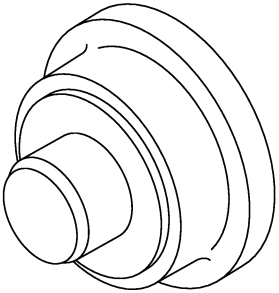
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ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 <p style="text-align: center;">B4M2424</p>	926400000	GUIDE	<ul style="list-style-type: none"> ● Right side of rack when installing rack bush. ● Used with GUIDE (927660000).
 <p style="text-align: center;">B4M2425</p>	927660000	GUIDE	<ul style="list-style-type: none"> ● Right side of rack when installing rack bush. ● Used with GUIDE (926400000).
 <p style="text-align: center;">B4M2426</p>	927620000	INSTALLER B	<ul style="list-style-type: none"> ● Used for installing oil seal of valve housing. ● Used with INSTALLER A (926360000).
 <p style="text-align: center;">B4M2427</p>	927630000	STAND BASE	Used for assembling power steering gearbox.
 <p style="text-align: center;">B4M2428</p>	926360000	INSTALLER A	<ul style="list-style-type: none"> ● Used as a guide to install oil seal. ● Used with INSTALLER B (927620000).

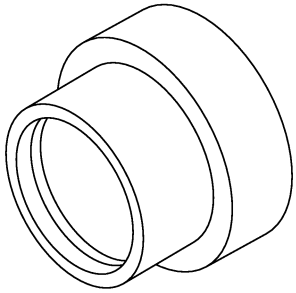
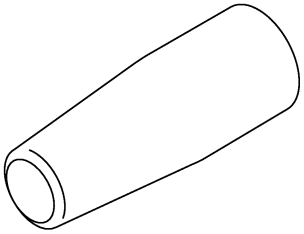
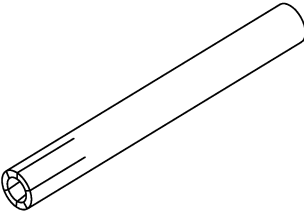
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ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 <p>B4M2429</p>	34099FA110	INSTALLER	Used for installing oil seal.
 <p>B4M2430</p>	927610000	INSTALLER	Used for installing valve housing oil seal.
 <p>B4M2432</p>	34199AE050	REMOVER OIL SEAL	Used for removing oil seal.
 <p>H4M1405</p>	34099FA130	INSTALLER SEAL	<ul style="list-style-type: none"> • Used for installing valve housing oil seal. • Used with INSTALLER AND REMOVER SEAL (34099FA120).
 <p>H4M1406</p>	34099AA000	INSTALLER	Used for installing oil seal and shaft of oil pump.

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 <p style="text-align: center;">H4M1407</p>	34099AA020	INSTALLER	Used for installing shaft of oil pump.
 <p style="text-align: center;">H4M1408</p>	34099AC030	INSTALLER A	<ul style="list-style-type: none"> ● Used for installing retaining ring. ● Used with INSTALLER B (34099AC040).
 <p style="text-align: center;">H4M1409</p>	34099AC040	INSTALLER B	<ul style="list-style-type: none"> ● Used for installing retaining ring. ● Used with INSTALLER A (34099AC030).

2. GENERAL TOOL S601001A1702

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.