

GENERAL DESCRIPTION

Brake

1. General Description S405001

A: SPECIFICATIONS S405001E49

	Engine (cc)	2200	
	Driving system	AWD	
		Without ABS	With ABS
Front brake	Type	Disc (Floating type, ventilated)	
	Effective disc diameter	210 mm (8.27 in)	
	Disc thickness × outer diameter	24 × 260 mm (0.94 × 10.24 in)	
	Effective cylinder diameter	57.15 mm (2.2500 in)	
	Pad dimensions (length × width × thickness)	112.4 × 44.3 × 11.0 mm (4.43 × 1.744 × 0.433 in)	
	Clearance adjustment	Automatic adjustment	
Rear brake	Type	Drum (Leading-trailing type)	
	Effective drum diameter	228.6 mm (9 in)	
	Effective cylinder diameter	19.05 mm (0.7500 in)	
	Lining dimensions (length × width × thickness)	218.8 × 35.0 × 4.1 mm (8.61 × 1.378 × 0.161 in)	
	Clearance adjustment	Automatic adjustment	
Master cylinder	Type	Tandem	
	Effective diameter	23.81 mm (0.9374 in)	25.40 mm (1 in)
	Reservoir type	Sealed type	
	Brake fluid reservoir capacity	205 cm ³ (12.51 cu in)	
Brake booster	Type	Vacuum suspended	
	Effective diameter	230 mm (9.06 in)	180 + 205 mm (7.09 + 8.07 in)
Proportioning valve	Split point	2,942 kPa (30.0 kg/cm ² , 427 psi)	
	Reducing ratio	0.4	
Brake line		Dual circuit system	
Brake fluid CAUTION: ● Avoid mixing brake fluid of different brands to prevent the fluid performance from degrading. ● When brake fluid is supplemented, be careful not to allow any dust into the reservoir. ● Use fresh DOT3 or 4 brake fluid when replacing or refilling the fluid.		FMVSS No. 116, DOT3 or DOT4	

NOTE:

Refer to “PB” section for parking brake SPECIFICATIONS.

GENERAL DESCRIPTION

Brake

	Engine (cc)	2500
	Driving system	AWD
		With ABS
Front brake	Type	Disc (Floating type, ventilated)
	Effective disc diameter	228 mm (8.98 in)
	Disc thickness × Outer diameter	24 × 277 mm (0.94 × 10.91 in)
	Effective cylinder diameter	42.8 mm (1.685 in) × 2
	Pad dimensions (length × width × thickness)	112.3 × 50.0 × 11.0 mm (4.42 × 1.969 × 0.433 in)
	Clearance adjustment	Automatic adjustment
Rear brake	Type	Disc (Floating type)
	Effective disc diameter	230 mm (9.06 in)
	Disc thickness × Outer diameter	10 × 266 mm (0.39 × 10.47 in)
	Effective cylinder diameter	38.1 mm (1.500 in)
	Pad dimensions (length × width × thickness)	92.4 × 33.7 × 10.0 mm (3.638 × 1.327 × 0.394 in)
	Clearance adjustment	Automatic adjustment
Master cylinder	Type	Tandem
	Effective diameter	25.40 mm (1 in)
	Reservoir type	Sealed type
	Brake fluid reservoir capacity	205 cm ³ (12.51 cu in)
Brake booster	Type	Vacuum suspended
	Effective diameter	180 + 205 mm (7.09 + 8.07 in)
Proportioning valve	Split point	2,942 kPa (30.0 kg/cm ² , 427 psi)
	Reducing ratio	0.4
Brake line		Dual circuit system
Brake fluid CAUTION: ● Avoid mixing brake fluid of different brands to prevent the fluid performance from degrading. ● When brake fluid is supplemented, be careful not to allow any dust into the reservoir. ● Use fresh DOT3 or 4 brake fluid when replacing or refilling the fluid.		FMVSS No. 116, DOT3 or DOT4

NOTE:

Refer to “PB” section for parking brake SPECIFICATIONS.

GENERAL DESCRIPTION

Brake

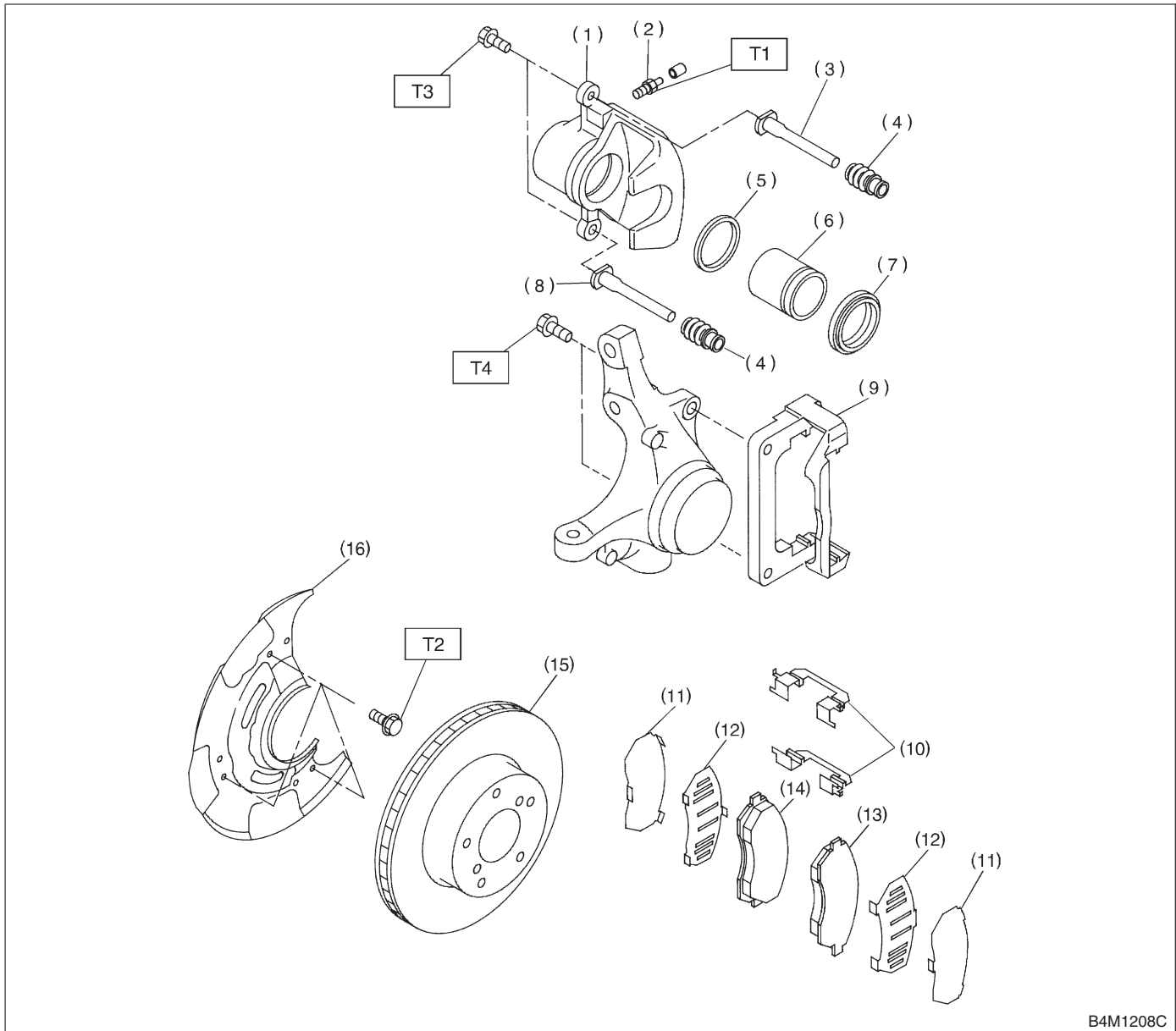
ITEM		STANDARD	SERVICE LIMIT
Front brake	Pad thickness (including back metal)	17 mm (0.67 in)	7.5 mm (0.295 in)
	Disc thickness	24 mm (0.94 in)	22 mm (0.87 in)
	Disc runout	—	0.075 mm (0.0030 in)
Rear brake (Disc type)	Pad thickness (including back metal)	15 mm (0.59 in)	6.5 mm (0.256 in)
	Disc thickness	10 mm (0.39 in)	8.5 mm (0.335 in)
	Disc runout	—	0.1 mm (0.004 in)
Rear brake (Drum type)	Inside diameter	228.6 mm (9 in)	230.6 mm (9.08 in)
	Lining thickness	4.1 mm (0.161 in)	1.5 mm (0.059 in)
Rear brake (Disc type parking)	Inside diameter	170 mm (6.69 in)	171 mm (6.73 in)
	Lining thickness	3.2 mm (0.126 in)	1.5 mm (0.059 in)

			Without ABS	With ABS
Brake booster	Brake fluid pressure without engine running	Brake pedal force	Fluid pressure	
		147 N (15 kgf, 33 lb)	785 kPa (8 kg/cm ² , 114 psi)	588 kPa (6 kg/cm ² , 85 psi)
	Brake fluid pressure with engine running and vacuum at 66.7 kPa (500 mmHg, 19.69 inHg)	294 N (30 kgf, 66 lb)	2,158 kPa (22 kg/cm ² , 313 psi)	1,863 kPa (19 kg/cm ² , 270 psi)
		147 N (15 kgf, 33 lb)	5,492 kPa (56 kg/cm ² , 796 psi)	5,394 kPa (55 kg/cm ² , 782 psi)
		294 N (30 kgf, 66 lb)	8,434 kPa (86 kg/cm ² , 1,223 psi)	9,219 kPa (94 kg/cm ² , 1,337 psi)

Brake pedal	Free play	1 — 3 mm (0.04 — 0.12 in) [Depress brake pedal pad with a force of less than 10 N (1 kgf, 2 lb).]
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B: COMPONENT S405001A05

1. 14 inch TYPE S405001A0501



B4M1208C

- | | |
|-----------------------|--------------------|
| (1) Caliper body | (9) Support |
| (2) Air bleeder screw | (10) Pad clip |
| (3) Guide pin (Green) | (11) Outer shim |
| (4) Pin boot | (12) Inner shim |
| (5) Piston seal | (13) Pad (Outside) |
| (6) Piston | (14) Pad (Inside) |
| (7) Piston boot | (15) Disc rotor |
| (8) Lock pin (Yellow) | (16) Disc cover |

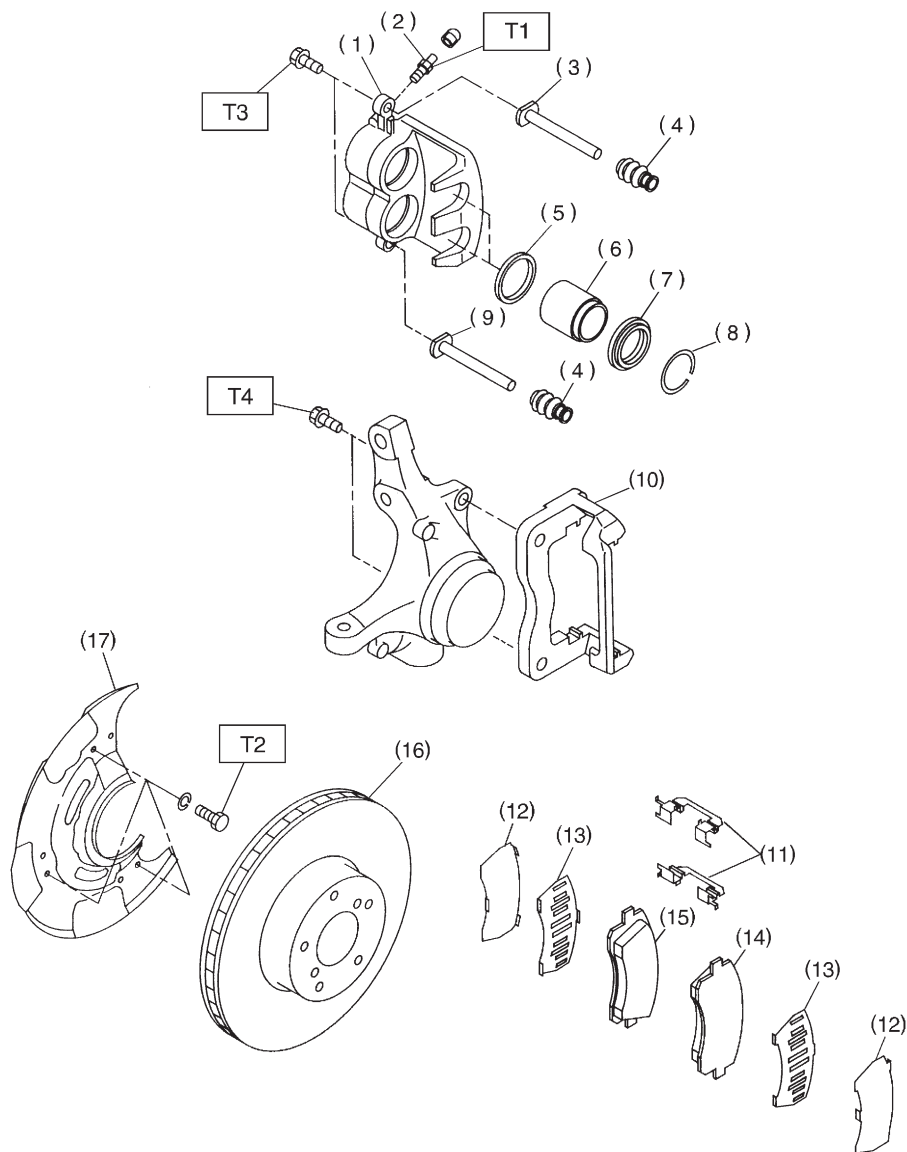
Tightening torque: N·m (kgf-m, ft-lb)

T1: 8 (0.8, 5.8)

T2: 18 (1.8, 13.0)

T3: 37 (3.8, 27.5)

T4: 78 (8.0, 58)

2. 15 inch AND 16 inch TYPE S405001A0502

B4M1151C

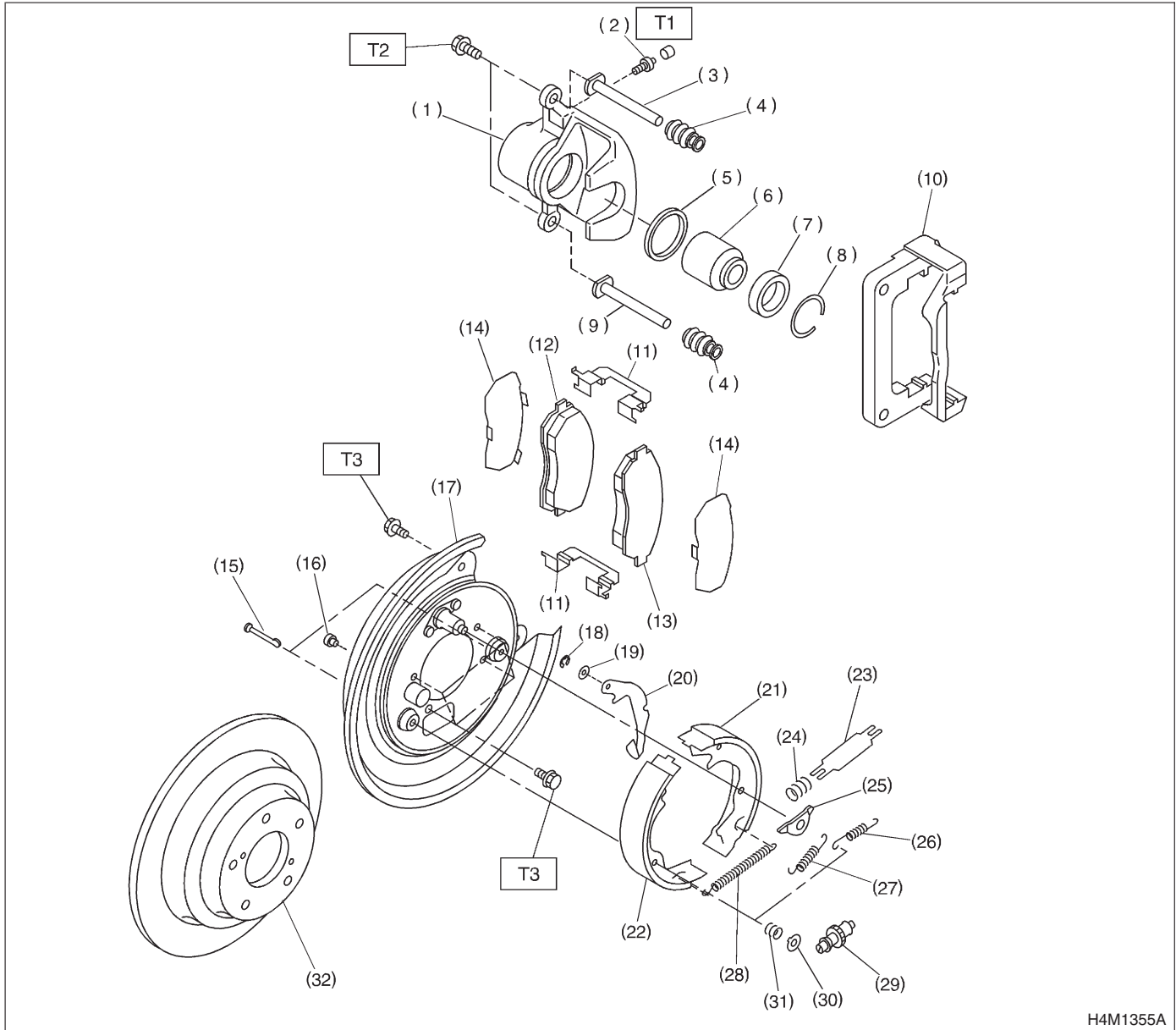
- (1) Caliper body
- (2) Air bleeder screw
- (3) Guide pin (Green)
- (4) Pin boot
- (5) Piston seal
- (6) Piston
- (7) Piston boot
- (8) Boot ring

- (9) Lock pin (Yellow)
- (10) Support
- (11) Pad clip
- (12) Outer shim
- (13) Inner shim
- (14) Pad (Outside)
- (15) Pad (Inside)
- (16) Disc rotor

- (17) Disc cover

Tightening torque: N·m (kgf-m, ft-lb)
T1: 8 (0.8, 5.8)**T2: 18 (1.8, 13.0)****T3: 37 (3.8, 27.5)****T4: 78 (8.0, 58)**

3. REAR DISC BRAKE S405001A0503



H4M1355A

- | | | |
|-----------------------|-------------------------------------|---------------------------------|
| (1) Caliper body | (14) Shim | (27) Primary shoe return spring |
| (2) Air bleeder screw | (15) Shoe hold-down pin | (28) Adjusting spring |
| (3) Guide pin (Green) | (16) Cover | (29) Adjuster |
| (4) Pin boot | (17) Back plate | (30) Shoe hold-down cup |
| (5) Piston seal | (18) Retainer | (31) Shoe hold-down spring |
| (6) Piston | (19) Spring washer | (32) Disc rotor |
| (7) Piston boot | (20) Parking brake lever | |
| (8) Boot ring | (21) Parking brake shoe (Secondary) | |
| (9) Lock pin (Yellow) | (22) Parking brake shoe (Primary) | |
| (10) Support | (23) Strut | |
| (11) Pad clip | (24) Strut shoe spring | |
| (12) Inner pad | (25) Shoe guide plate | |
| (13) Outer pad | (26) Secondary shoe return spring | |

Tightening torque: N·m (kgf-m, ft-lb)

T1: 8 (0.8, 5.8)

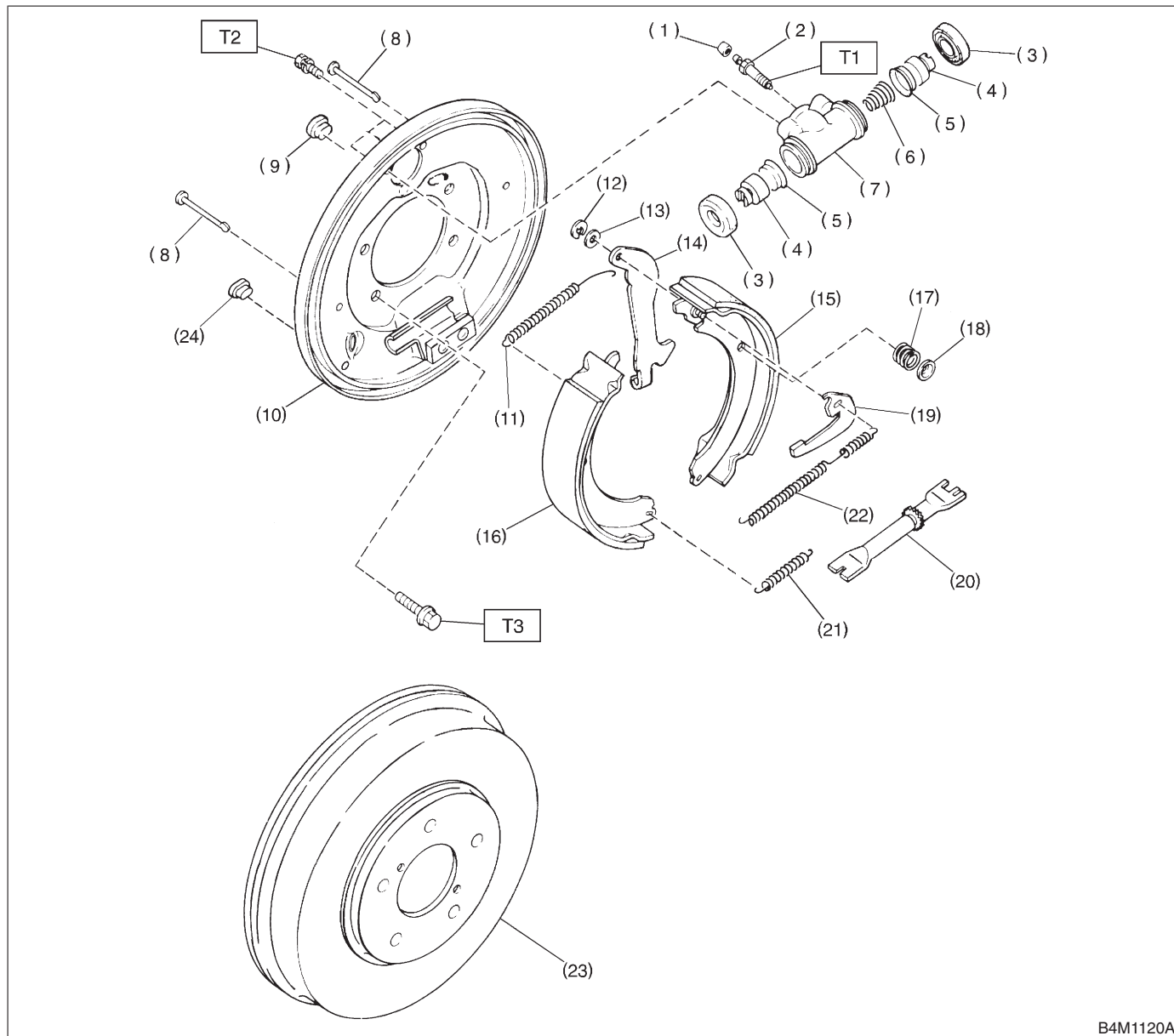
T2: 39 (4.0, 28.9)

T3: 52 (5.3, 38.3)

GENERAL DESCRIPTION

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4. REAR DRUM BRAKE S405001A0504



B4M1120A

- | | | |
|-------------------------|-------------------------------|-------------------------------|
| (1) Air bleeder cap | (11) Upper shoe return spring | (21) Lower shoe return spring |
| (2) Air bleeder screw | (12) Retainer | (22) Adjusting spring |
| (3) Boot | (13) Washer | (23) Drum |
| (4) Piston | (14) Parking brake lever | (24) Plug |
| (5) Cup | (15) Brake shoe (Trailing) | |
| (6) Spring | (16) Brake shoe (Leading) | |
| (7) Wheel cylinder body | (17) Shoe hold-down spring | |
| (8) Pin | (18) Cup | |
| (9) Plug | (19) Adjusting lever | |
| (10) Back plate | (20) Adjuster | |

Tightening torque: N·m (kgf-m, ft-lb)

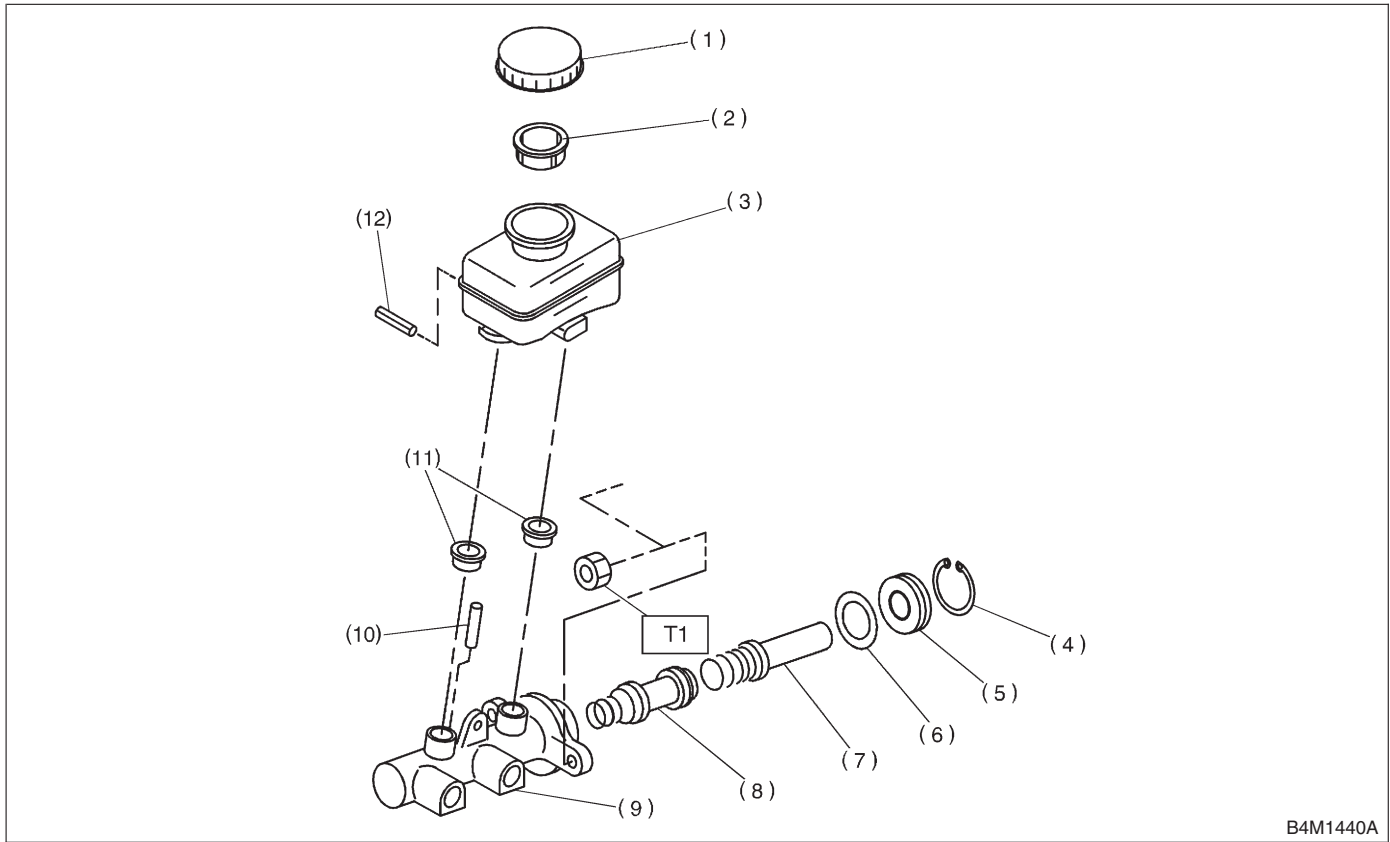
T1: 8 (0.8, 5.8)

T2: 10 (1.0, 7.2)

T3: 52 (5.3, 38.3)

5. MASTER CYLINDER S405001A0505

● With ABS vehicles



B4M1440A

- | | | |
|--------------------|----------------------|-----------|
| (1) Cap | (6) Plate | (11) Seal |
| (2) Filter | (7) Primary piston | (12) Pin |
| (3) Reservoir tank | (8) Secondary piston | |
| (4) C-ring | (9) Cylinder body | |
| (5) Guide ASSY | (10) Cylinder pin | |

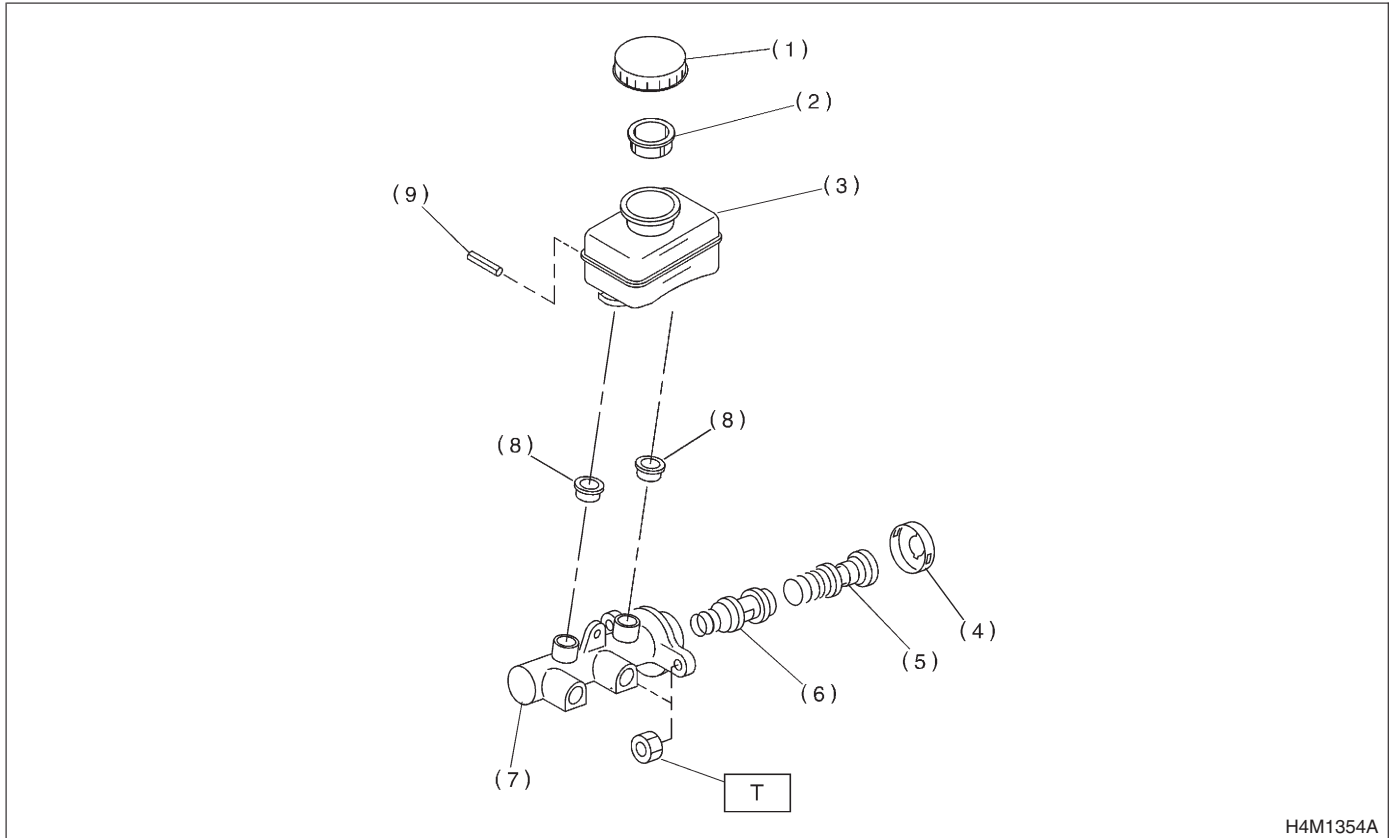
Tightening torque: N·m (kgf-m, ft-lb)

T1: 14 (1.4, 10.1)

GENERAL DESCRIPTION

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● Without ABS vehicles



- (1) Cap
- (2) Filter
- (3) Reservoir tank
- (4) Piston retainer

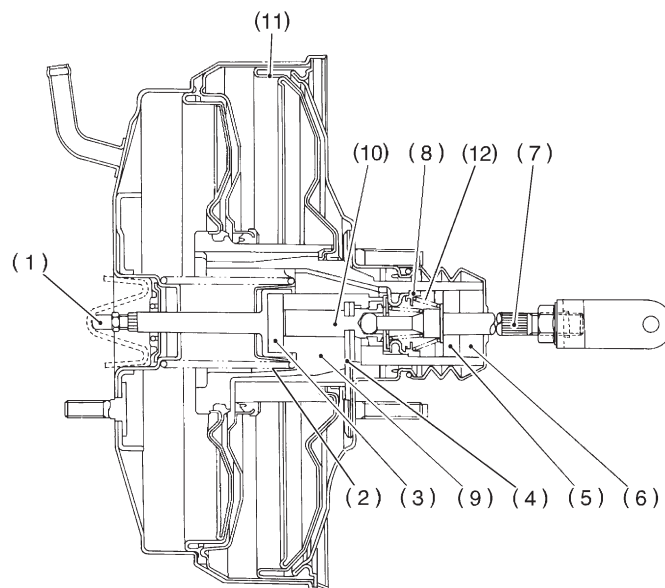
- (5) Primary piston
- (6) Secondary piston
- (7) Cylinder body
- (8) Seal

- (9) Pin

Tightening torque: N·m (kgf-m, ft-lb)
T1: 14 (1.4, 10.1)

6. BRAKE BOOSTER S405001A0507

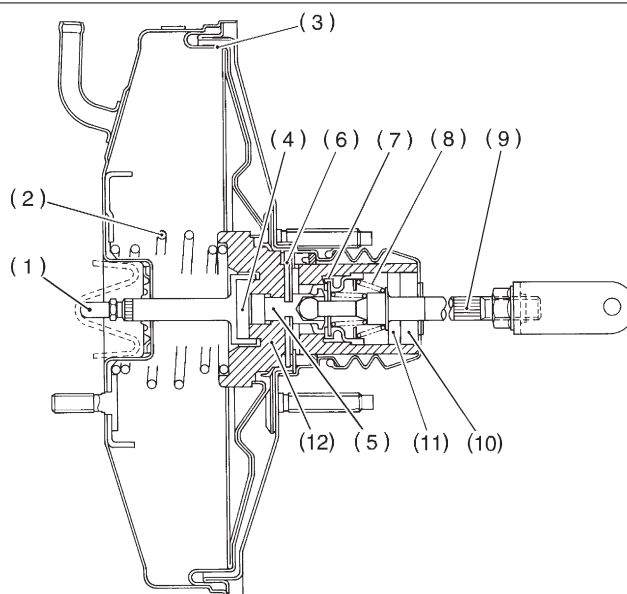
● Models with ABS



B4M1121A

- | | | |
|-------------------|-------------------|--------------------------|
| (1) Push rod | (5) Filter | (9) Valve body |
| (2) Return spring | (6) Silencer | (10) Plunger valve |
| (3) Reaction disc | (7) Operating rod | (11) Diaphragm plate |
| (4) Key | (8) Poppet valve | (12) Valve return spring |

● Models without ABS



B4M1122A

- | | | |
|---------------------|-------------------------|-------------------|
| (1) Push rod | (5) Plunger valve | (9) Operating rod |
| (2) Return spring | (6) Key | (10) Silencer |
| (3) Diaphragm plate | (7) Poppet valve | (11) Filter |
| (4) Reaction disc | (8) Valve return spring | (12) Valve body |

- **2200 cc Model**



- | | | |
|------------------------------|-------------------------|---|
| (1) Accelerator pedal | (14) Pedal bracket | (27) Clutch cable clamp |
| (2) Bushing | (15) Stop light switch | (28) Clutch cable |
| (3) Holder | (16) Brake pedal | (29) Mass damper |
| (4) Accelerator bracket | (17) Spacer | (30) Clutch switch (Starter interlock) |
| (5) Stopper | (18) Snap pin | |
| (6) Clip | (19) Brake pedal pad | <i>Tightening torque: N·m (kgf·m, ft·lb)</i> |
| (7) Accelerator spring | (20) Clevis pin | <i>T1: 5.9 (0.60, 4.3)</i> |
| (8) Accelerator pedal spring | (21) Brake pedal spring | <i>T2: 8 (0.8, 5.8)</i> |
| (9) Spring pin | (22) Washer | <i>T3: 18 (1.8, 13.0)</i> |
| (10) Accelerator pedal pad | (23) Clutch pedal pad | <i>T4: 29 (3.0, 21.7)</i> |
| (11) Accelerator stopper | (24) Clutch pedal | |
| (12) Clip | (25) Bushing assist | |
| (13) Accelerator plate | (26) Spring assist | |

Tightening torque: N·m (kgf-m, ft-lb)

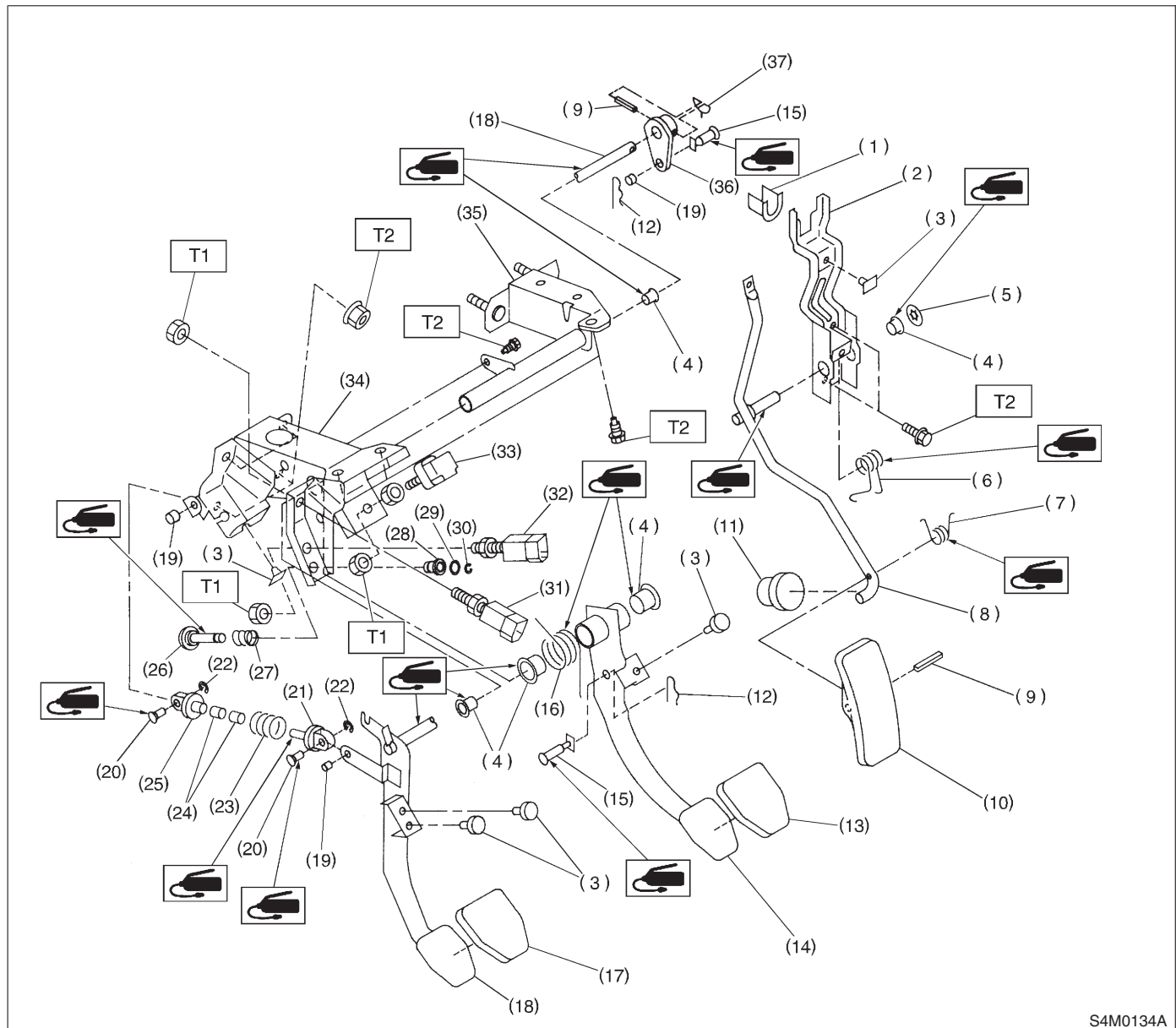
T1: 5.9 (0.60, 4.3)

T2: 8 (0.8, 5.8)

T3: 18 (1.8, 13.0)

T4: 29 (3.0, 21.7)

● 2500 cc Model



S4M0134A

- | | | |
|------------------------------|-------------------------|--|
| (1) Holder | (16) Brake pedal spring | (31) Clutch switch (Starter interlock) |
| (2) Accelerator bracket | (17) Clutch pedal pad | (32) Clutch switch (With cruise control) |
| (3) Stopper | (18) Clutch pedal | (33) Stop light switch |
| (4) Bushing | (19) Bushing C | (34) Pedal bracket |
| (5) Clip | (20) Clutch clevis pin | (35) Clutch master cylinder bracket |
| (6) Accelerator spring | (21) Assist rod A | (36) Lever |
| (7) Accelerator pedal spring | (22) Clip | (37) Lock wire |
| (8) Accelerator pedal | (23) Assist spring | |
| (9) Spring pin | (24) Assist bushing | |
| (10) Accelerator pedal pad | (25) Assist rod B | |
| (11) Accelerator stopper | (26) Rod S | |
| (12) Snap pin | (27) Spring S | |
| (13) Brake pedal pad | (28) Bushing S | |
| (14) Brake pedal | (29) O-ring | |
| (15) Clevis pin | (30) Clip | |

Tightening torque: N·m (kgf-m, ft-lb)

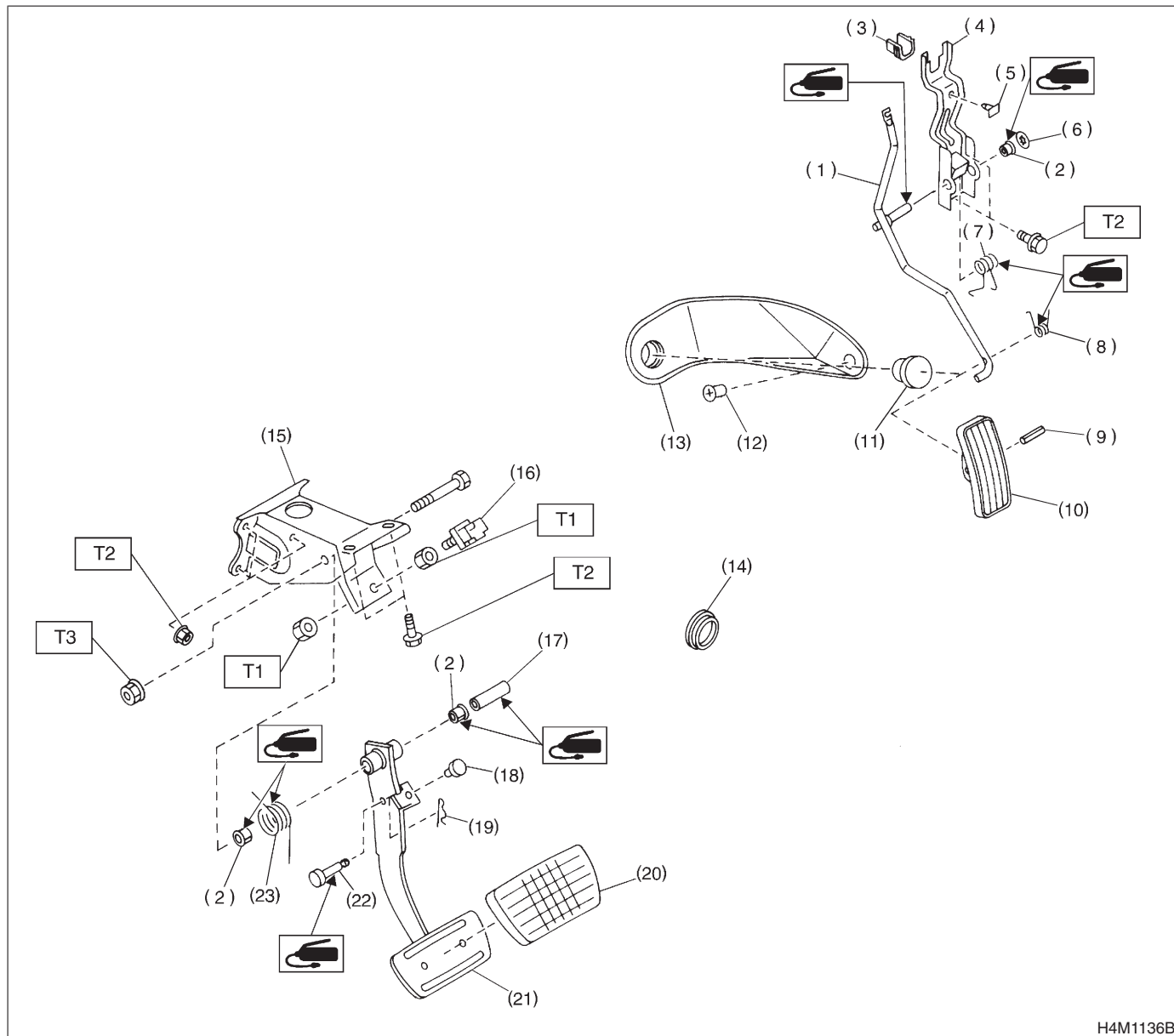
T1: 8 (0.8, 5.8)

T2: 18 (1.8, 13.0)

GENERAL DESCRIPTION

Brake

8. BRAKE PEDAL FOR AT MODEL S405001A0509



- (1) Accelerator pedal
- (2) Bushing
- (3) Holder
- (4) Accelerator bracket
- (5) Stopper
- (6) Clip
- (7) Accelerator spring
- (8) Accelerator pedal spring
- (9) Spring pin
- (10) Accelerator pedal

- (11) Accelerator stopper
- (12) Clip
- (13) Accelerator plate
- (14) Plug
- (15) Pedal bracket
- (16) Stop light switch
- (17) Spacer
- (18) Stopper
- (19) Snap pin
- (20) Brake pedal pad

- (21) Brake pedal
- (22) Clevis pin
- (23) Brake pedal spring

Tightening torque: N·m (kgf-m, ft-lb)

T1: 8 (0.8, 5.8)

T2: 18 (1.8, 13.0)

T3: 29 (3.0, 21.7)

C: CAUTION S405001A03

- 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 in the vehicle is hot after running.
- Use SUBARU genuine grease etc. or the equivalent. Do not mix 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 grease onto sliding or revolution surfaces before installation.
- Before installing O-rings or snap rings, apply sufficient amount of grease 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.
- Do not put fluid on body. If the body is tainted, wash away with water.

1. SPECIAL TOOL *S405001A1703*

2. GENERAL TOOL S405001A1704

BR-16