

## GENERAL DESCRIPTION

### BRAKE

## 1. General Description

### A: SPECIFICATIONS

|  | Size   | 15 inch type                                      | 16 inch type   |                  |  |  |
|--|--|---|--|------------------|--|--|
|  |  |   | Non-TURBO  | With TURBO model |  |  |
| Type   |  | Disc (Floating type, ventilated)                  |  |                  |  |  |
| Front disc<br>brake  | Effective disc diameter                        | 228 mm (8.98 in)                                  | 244 mm (9.76 in)   |                  |  |  |
|  | Disc thickness × Outer diameter                | 24 × 277 mm<br>(0.94 × 10.91 in)                  | 24 × 294 mm (0.94 × 11.57 in)  |                  |  |  |
|  | Effective cylinder diameter                    | 42.8 mm (1.685 in) × 2                            |  |                  |  |  |
|  | Pad dimensions<br>(length × width × thickness) | 117.8 × 50.5 × 11.0 mm (4.638 × 1.988 × 0.433 in) |  |                  |  |  |
|  | Clearance adjustment                           | Automatic adjustment                              |  |                  |  |  |
|  | Type   | Disc (Floating type)                              |  |                  |  |  |
| Rear disc<br>brake   | Effective disc diameter                        | 254 mm (10.0 in)                                  |  |                  |  |  |
|  | Disc thickness × Outer diameter                | 10 × 290 mm (0.39 × 11.42 in)                     |  |                  |  |  |
|  | Effective cylinder diameter                    | 38.1 mm (1.500 in)                                |  |                  |  |  |
|  | Pad dimensions<br>(length × width × thickness) | 82.4 × 33.7 × 9.0 mm (3.244 × 1.327 × 0.354 in)   |  |                  |  |  |
|  | Clearance adjustment                           | Automatic adjustment                              |  |                  |  |  |
|  | Type   | Tandem  |  |                  |  |  |
| Master cyl-<br>inder   | Effective diameter                             | 26.99 mm (17/16 in)                               |  | 25.4 mm (1 in)   |  |  |
|  | Reservoir type                                 | Sealed type                                       |  |                  |  |  |
|  | Brake fluid reservoir capacity                 | 205 cm <sup>3</sup> (12.51 cu in)                 |  |                  |  |  |
| Brake<br>booster   | Type   | Vacuum suspended                                  |  |                  |  |  |
|  | Effective diameter                             | 205 + 230 mm (8.07 + 9.06 in)                     |  |                  |  |  |
| Proportion-<br>ing valve   | Split point                                    | 2,942 kPa<br>(30 kg/cm <sup>2</sup> , 427 psi)    | 3,678 kPa (without VDC)<br>(37.5 kg/cm <sup>2</sup> , 533 psi)<br>2,942 kPa (without VDC)<br>(30 kg/cm <sup>2</sup> , 427 psi) |                  |  |  |
|  | Reducing ratio                                 | 0.3   |  |                  |  |  |
| Brake line   |  | Dual circuit system                               |  |                  |  |  |
| Brake fluid<br><b>CAUTION:</b> <ul style="list-style-type: none"><li>• Avoid mixing brake fluid of different brands to prevent the fluid performance from degrading.</li><li>• When brake fluid is supplemented, be careful not to allow any dust into the reservoir.</li><li>• Use fresh DOT3 or 4 brake fluid when replacing or refilling the fluid.</li></ul> |  | FMVSS No. 116, DOT3 or DOT4                       |  |                  |  |  |

#### NOTE:

Refer to "PB section" for parking brake SPECIFICATIONS.

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| ITEM          |   | STANDARD                             | SERVICE LIMIT        |
|---------------|---|--------------------------------------|----------------------|
| Front brake   | Pad thickness<br>(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    | Pad thickness<br>(including back metal) | 14 mm (0.55 in)                      | 6.5 mm (0.256 in)    |
|               | Disc thickness                          | 10 mm (0.39 in)                      | 8.5 mm (0.335 in)    |
|               | Disc runout                             | —                                    | 0.070 mm (0.0028 in) |
| Parking brake | 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)    |
|               | Lever stroke                            | 7 to 8 notches/196 N (20 kgf, 44 lb) |                      |

|               |  | Brake pedal force     | Fluid pressure                                |              |
|---------------|--|-----------------------|---|--------------|
|               |  |                       | 15 inch type                                  | 16 inch type |
| Brake booster | Brake fluid pressure without engine running  | 147 N (15 kgf, 33 lb) | 588 kPa (6 kg/cm <sup>2</sup> , 85 psi)       |              |
|               |  | 294 N (30 kgf, 66 lb) | 1,569 kPa (16 kg/cm <sup>2</sup> , 228 psi)   |              |
|               | Brake fluid pressure with engine running and vacuum at 66.7 kPa (500 mmHg, 19.69 inHg) | 147 N (15 kgf, 33 lb) | 6,178 kPa (63 kg/cm <sup>2</sup> , 896 psi)   |              |
|               |  | 294 N (30 kgf, 66 lb) | 9,709 kPa (99 kg/cm <sup>2</sup> , 1,408 psi) |              |

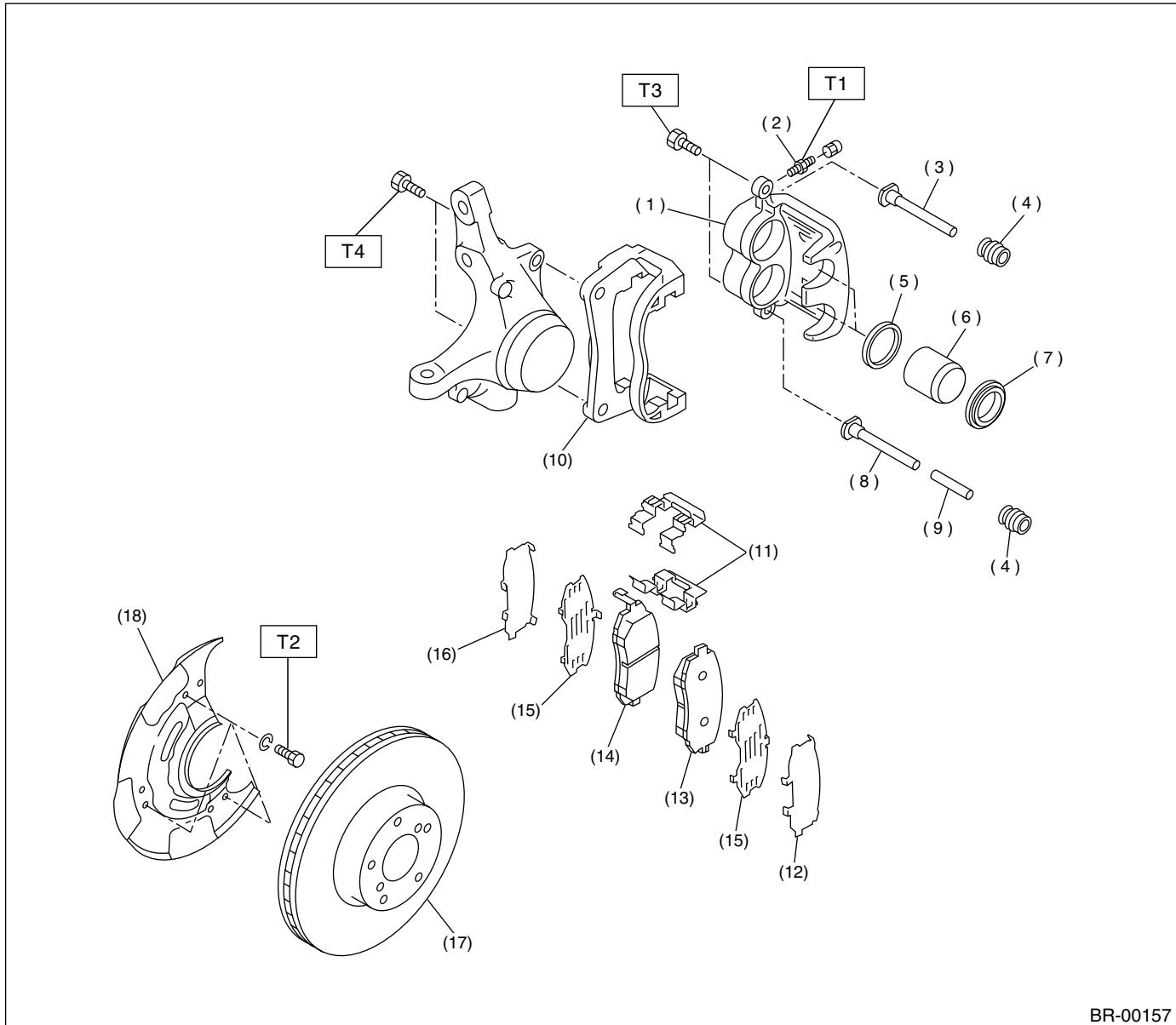
|             |           |  |
|-------------|-----------|--|
| Brake pedal | Free play | 1 — 3 mm (0.04 — 0.12 in)<br>[Depress brake pedal pad with a force of less than 10 N (1 kgf, 2 lb).] |
|-------------|-----------|--|

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## BRAKE

### B: COMPONENT

#### 1. FRONT DISC BRAKE



BR-00157

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

- (17) Disc rotor
- (18) Disc cover

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#### **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)**

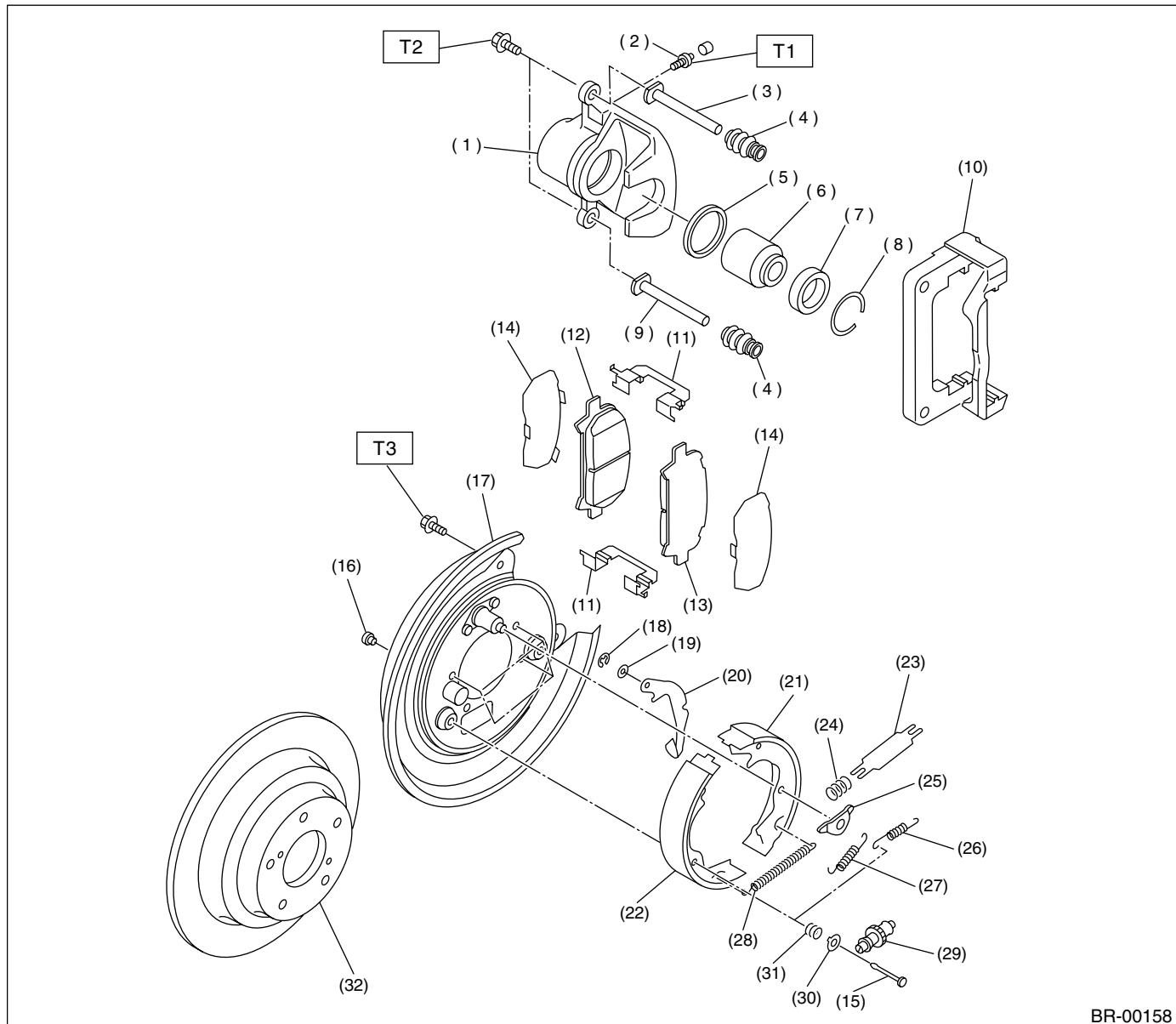
**T4: 80 (8.2, 59)**

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# GENERAL DESCRIPTION

BRAKE

## 2. REAR DISC BRAKE



BR-00158

|                       |                                     |                                 |
|-----------------------|-------------------------------------|---------------------------------|
| (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)**

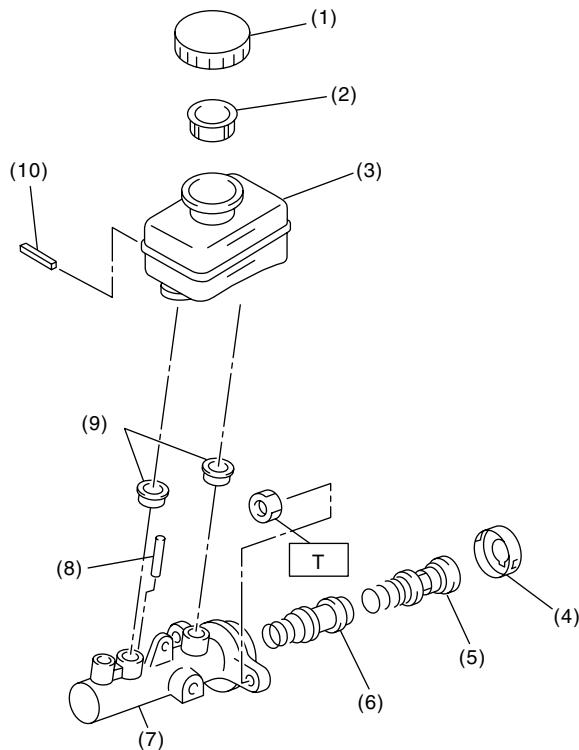
**T3: 52 (5.3, 38.3)**

## GENERAL DESCRIPTION

### BRAKE

#### 3. MASTER CYLINDER

- Models without VDC



BR-00153

|                     |                             |
|---------------------|-----------------------------|
| (1) Cap             | (6) Secondary piston        |
| (2) Filter          | (7) Cylinder body           |
| (3) Reservoir tank  | (8) Cylinder pin (With ABS) |
| (4) Piston retainer | (9) Seal                    |
| (5) Primary piston  | (10) Pin                    |

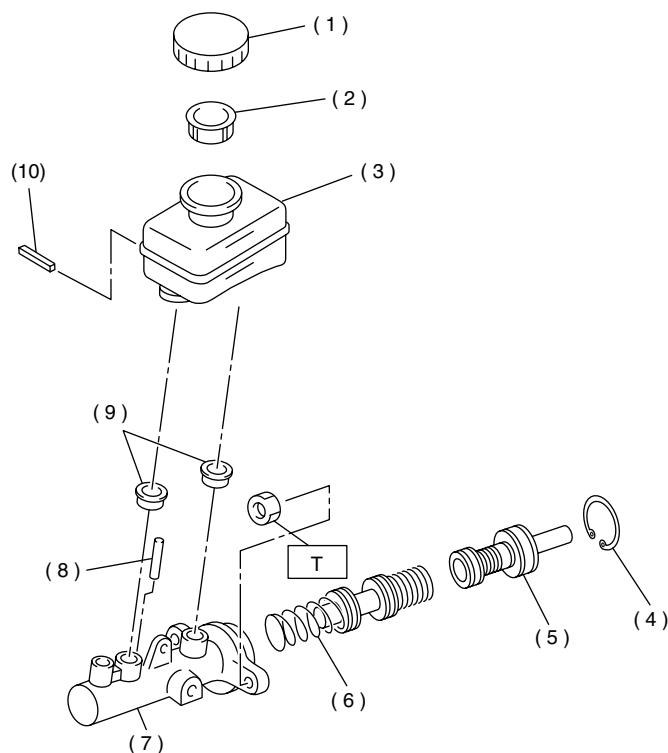
**Tightening torque: N·m (kgf·m, ft·lb)**

**T: 14 (1.4, 10.1)**

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- Model with VDC



BR-00361

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

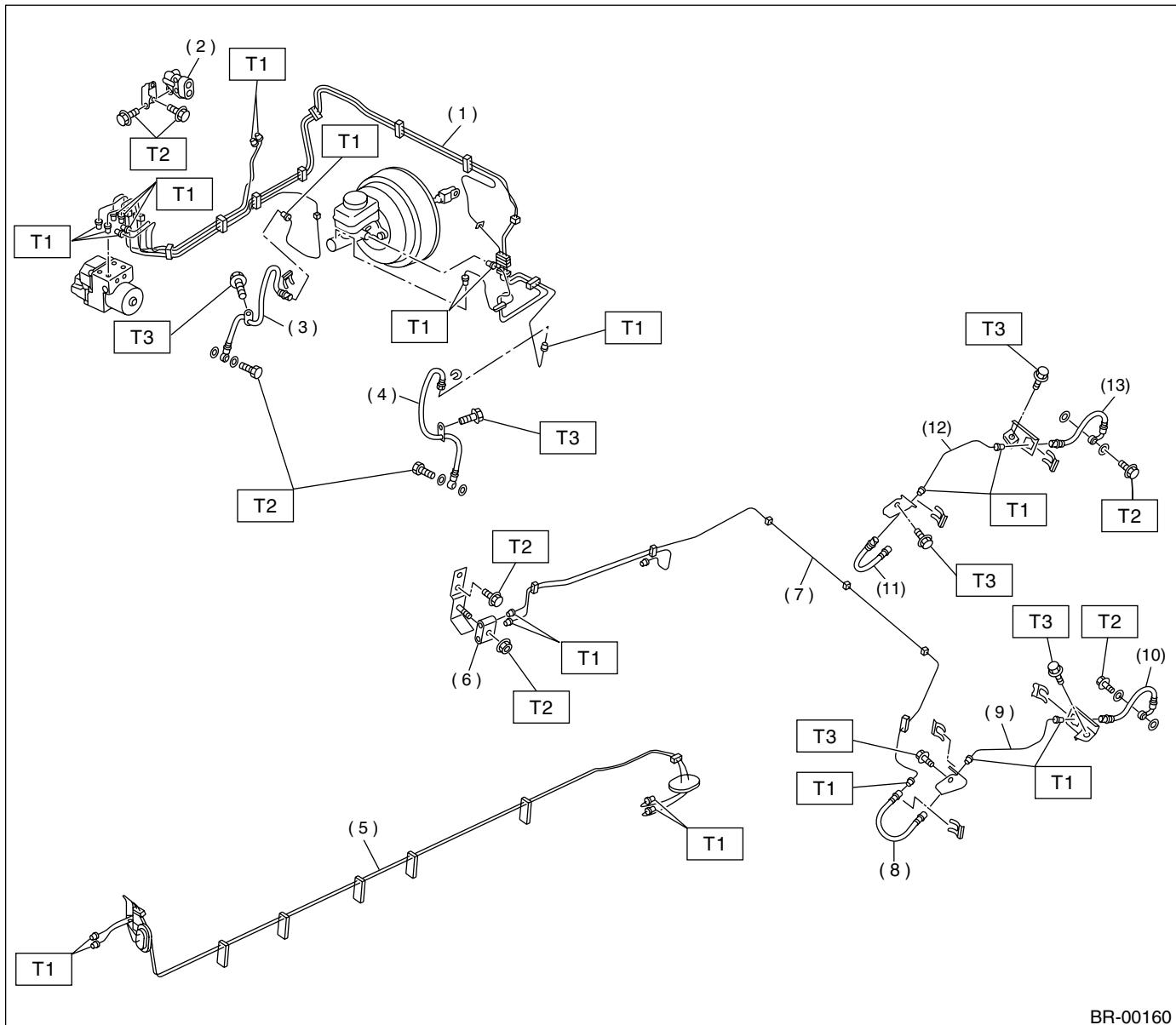
***Tightening torque: N·m (kgf·m, ft-lb)***

***T: 14 (1.4, 10.1)***

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### 4. BRAKE PIPES AND HOSE



|                                |                              |                              |
|--------------------------------|------------------------------|------------------------------|
| (1) Front brake pipe assembly  | (7) Rear brake pipe assembly | (13) Rear brake hose rear RH |
| (2) Proportioning valve        | (8) Rear brake hose LH       |                              |
| (3) Front brake hose RH        | (9) Rear brake pipe LH       |                              |
| (4) Front brake hose LH        | (10) Rear brake hose rear LH |                              |
| (5) Center brake pipe assembly | (11) Rear brake hose RH      |                              |
| (6) Two-way connector          | (12) Rear brake pipe RH      |                              |

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

**T1: 15 (1.5, 10.8)**

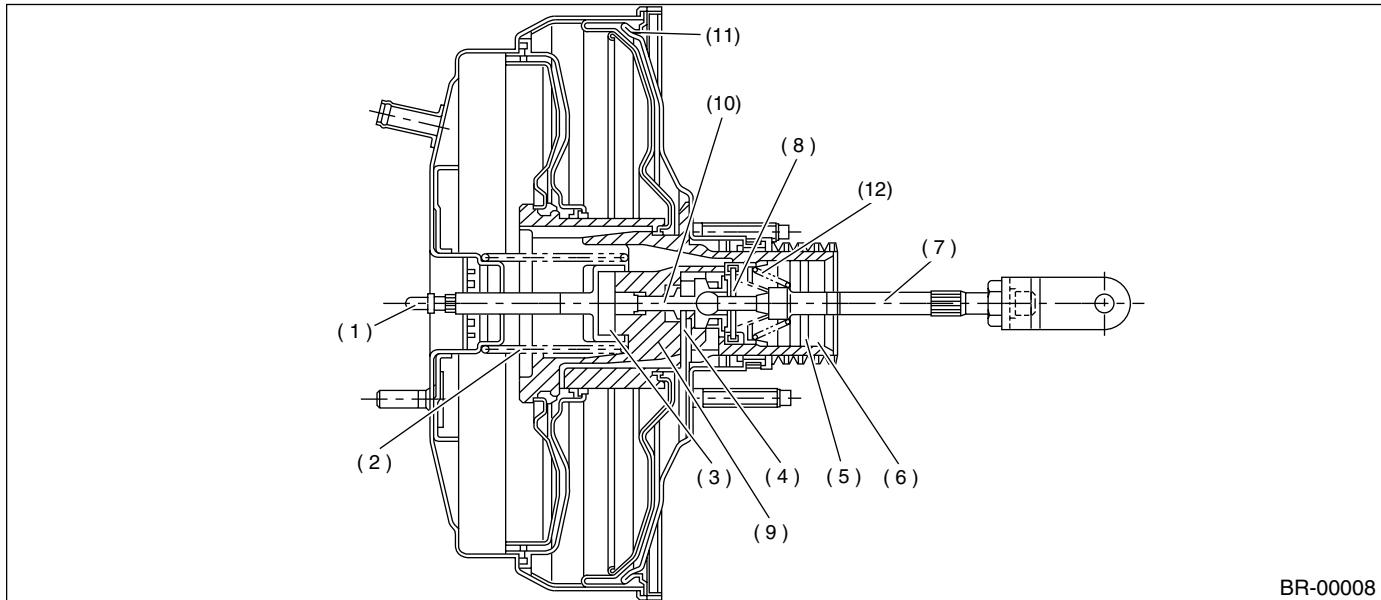
**T2: 18 (1.8, 13.0)**

**T3: 33 (3.3, 23.8)**

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## 5. BRAKE BOOSTER



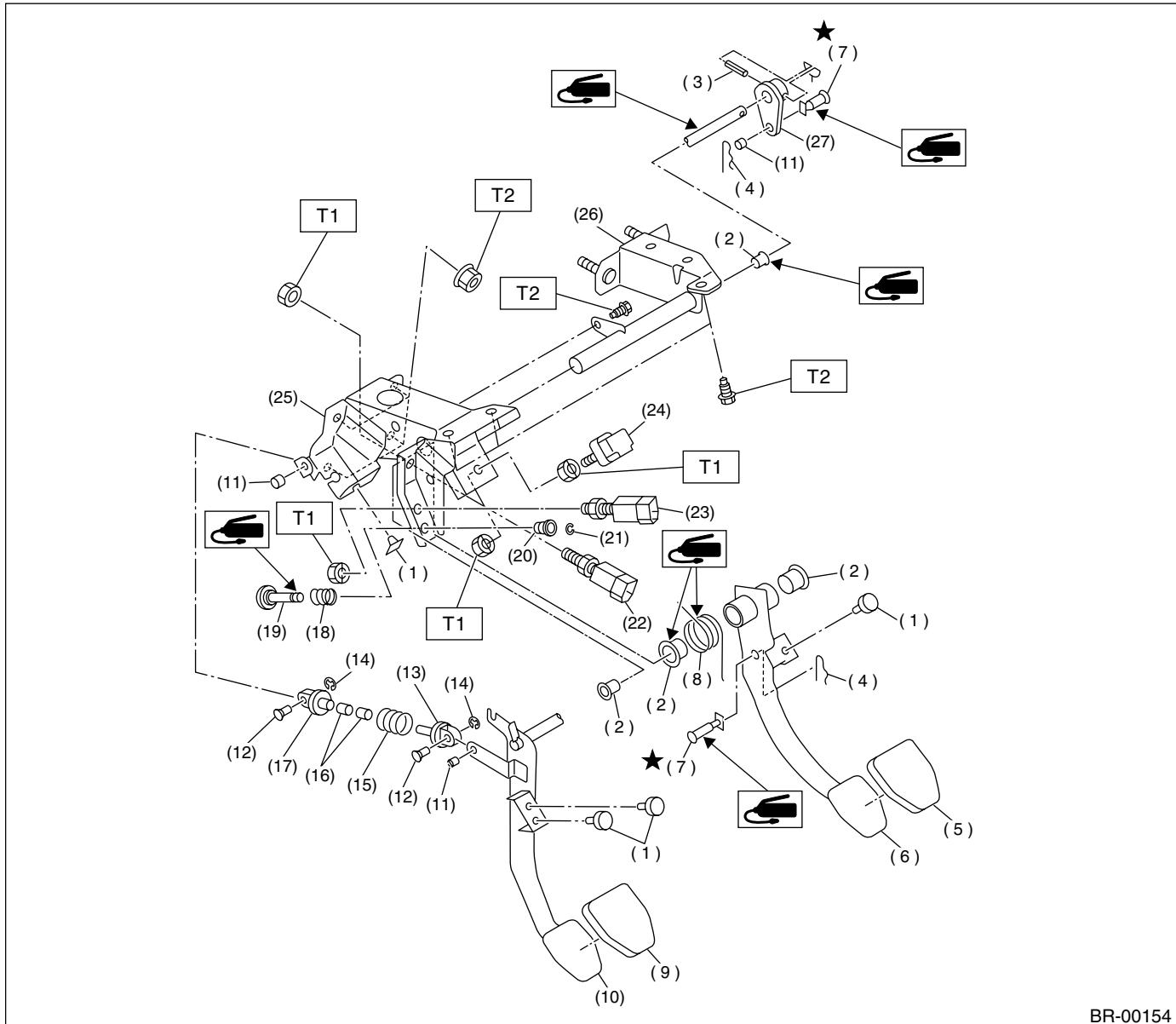
BR-00008

|                   |                   |                          |
|-------------------|-------------------|--------------------------|
| (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 |

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### 6. BRAKE PEDAL FOR MT MODEL



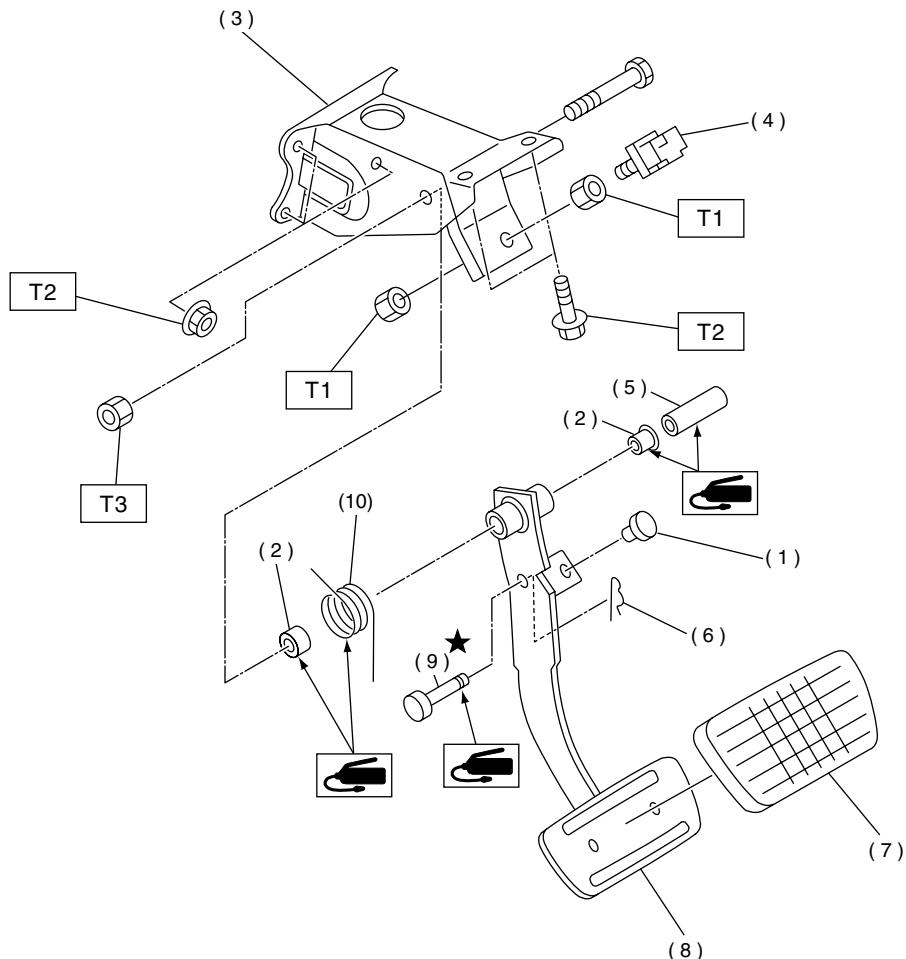
BR-00154

|                        |  |  |
|------------------------|--|--|
| (1) Stopper            | (12) Clutch clevis pin                 | (23) Clutch switch (With cruise control)     |
| (2) Bushing            | (13) Assist rod A                      | (24) Stop light switch                       |
| (3) Spring pin         | (14) Clip                              | (25) Pedal bracket                           |
| (4) Snap pin           | (15) Assist spring                     | (26) Clutch master cylinder bracket          |
| (5) Brake pedal pad    | (16) Assist bushing                    | (27) Lever                                   |
| (6) Brake pedal        | (17) Assist rod B                      |  |
| (7) Clevis pin         | (18) Spring S                          | <b>Tightening torque: N·m (kgf·m, ft·lb)</b> |
| (8) Brake pedal spring | (19) Rod S                             | <b>T1: 8 (0.8, 5.8)</b>                      |
| (9) Clutch pedal pad   | (20) Bushing S                         | <b>T2: 18 (1.8, 13.0)</b>                    |
| (10) Clutch pedal      | (21) Clip                              |  |
| (11) Bushing C         | (22) Clutch switch (Starter interlock) |  |

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## 7. BRAKE PEDAL FOR AT MODEL



BR-00162

|                       |                         |
|-----------------------|-------------------------|
| (1) Stopper           | (7) Brake pedal pad     |
| (2) Bushing           | (8) Brake pedal         |
| (3) Pedal bracket     | (9) Clevis pin          |
| (4) Stop light switch | (10) Brake pedal spring |
| (5) Spacer            |                         |
| (6) Snap pin          |                         |

**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)**

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#### C: CAUTION

- 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 revolving 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 vise, place cushioning material such as wood blocks, aluminum plate, or shop cloth between the part and the vise.
- Do not put fluid on body. If the body is tainted, wash away with water.

#### D: PREPARATION TOOL

##### 1. GENERAL PURPOSE TOOLS

| TOOL NAME        | REMARKS                                     |
|------------------|---|
| Snap Ring Pliers | Used for removing and installing snap ring. |