

## GROUP 9 BOOM AND BUCKET CYLINDER

### 1. REMOVAL AND INSTALL

#### 1) BOOM CYLINDER

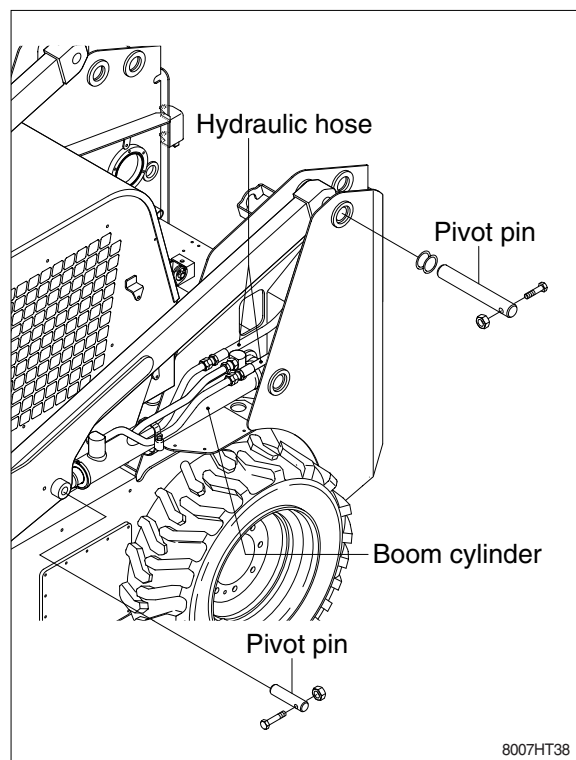
##### (1) Removal

▲ When the engine is running or the hydraulic system is full of pressure, do not tighten or repair hydraulic hose and fitting. The hydraulic line can be torn, which may cause dangerous accident.

- ① Shut off the engine and move control lever to drop the pressure inner the system.
- ② Put floor jack under the boom.
- ③ Keep boom in front situation.
- ④ Using floor jack, fix the boom position where cylinder rod pivot pin can be removed.
- ⑤ Remove rod end bolt and lock nut.
- ⑥ When removing pivot pin, put support under the boom cylinder to avoid drop cylinder.
- ⑦ Remove rod end pivot pin of boom.
- ※ **Before disassembling hydraulic fitting, clean the surroundings to avoid soiling hydraulic parts.**
- ⑧ Remove front and rear hose of boom cylinder. Insert cap to hose fitting and cover cap to cylinder port, too.
- ⑨ Loosen nut and bolt for fixing pivot pit under the cylinder.
- ⑩ Remove pivot pin.
- ⑪ Remove boom cylinder front equipment.
- ⑫ Lower boom and remove floor jack.

##### (2) Install

- ① Put cylinder to the equipment support.
- ② Keep cylinder end in line with pivot and hole in rear frame and boom.
- ③ Assemble pivot pin and tighten it with bolt and lock nut.
- ④ Remove cap of cylinder ports and hydraulic hose.
- ⑤ Assemble hydraulic hose to cylinder.



## 2) BUCKET CYLINDER

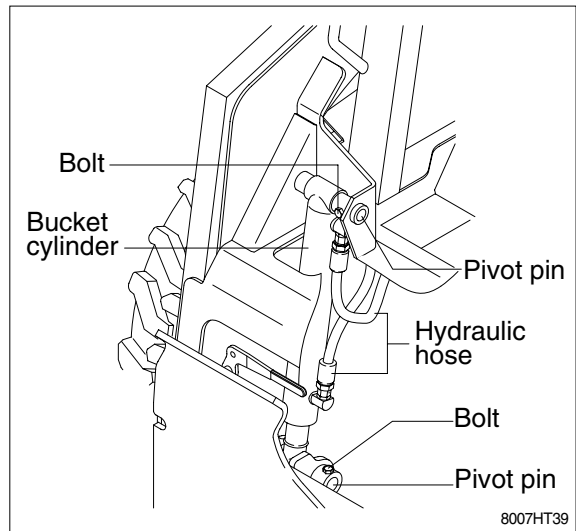
### (1) REMOVAL

**▲** When the engine is running or the hydraulic system is full of pressure, do not tighten or repair hydraulic hose and fitting. The hydraulic line can be torn, which may cause dangerous accident.

- ① After removing operation equipment by lowering boom, expand cylinder. For the detaching procedure of operation equipment, refer to page 4-12 of the operator's manual.
- ② Shut off the engine, operate control lever and do not let the pressure in hydraulic system be stuck.
- ③ Clean the work site.
- ④ Disassemble hydraulic hose in the front and back port of bucket cylinder and cover hose and cylinder port with cap to avoid alien.
- ⑤ Loosen rod end bolt and lock nut.
- ⑥ Disassemble rod end pivot pin from attachment holder.
- ⑦ Loosen tube end bolt and lock nut.
- ⑧ Disassemble tube end pivot pin from boom.
- ⑨ Remove bucket cylinder from equipment.

### 2) INSTALL

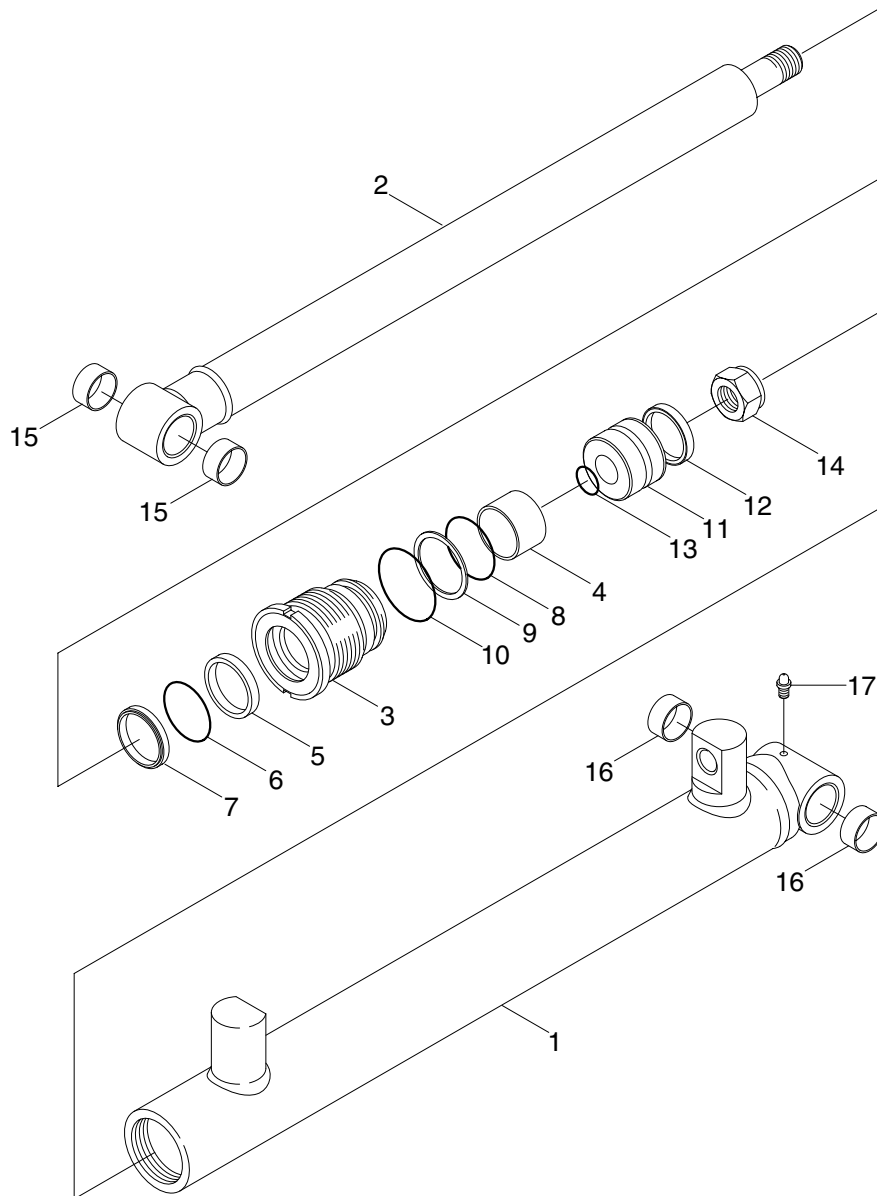
- (1) Put the both ends of cylinder in line with hole and pivot in boom and attachment holder.
- (2) Assemble pivot pin and assemble bolt and lock nut to the both sides of pin.
- (3) Remove cap of cylinder ports and hydraulic hose.
- (4) Assemble hydraulic hose to cylinder.



## 2. DISASSEMBLY AND ASSEMBLY

### 1) STRUCTURE

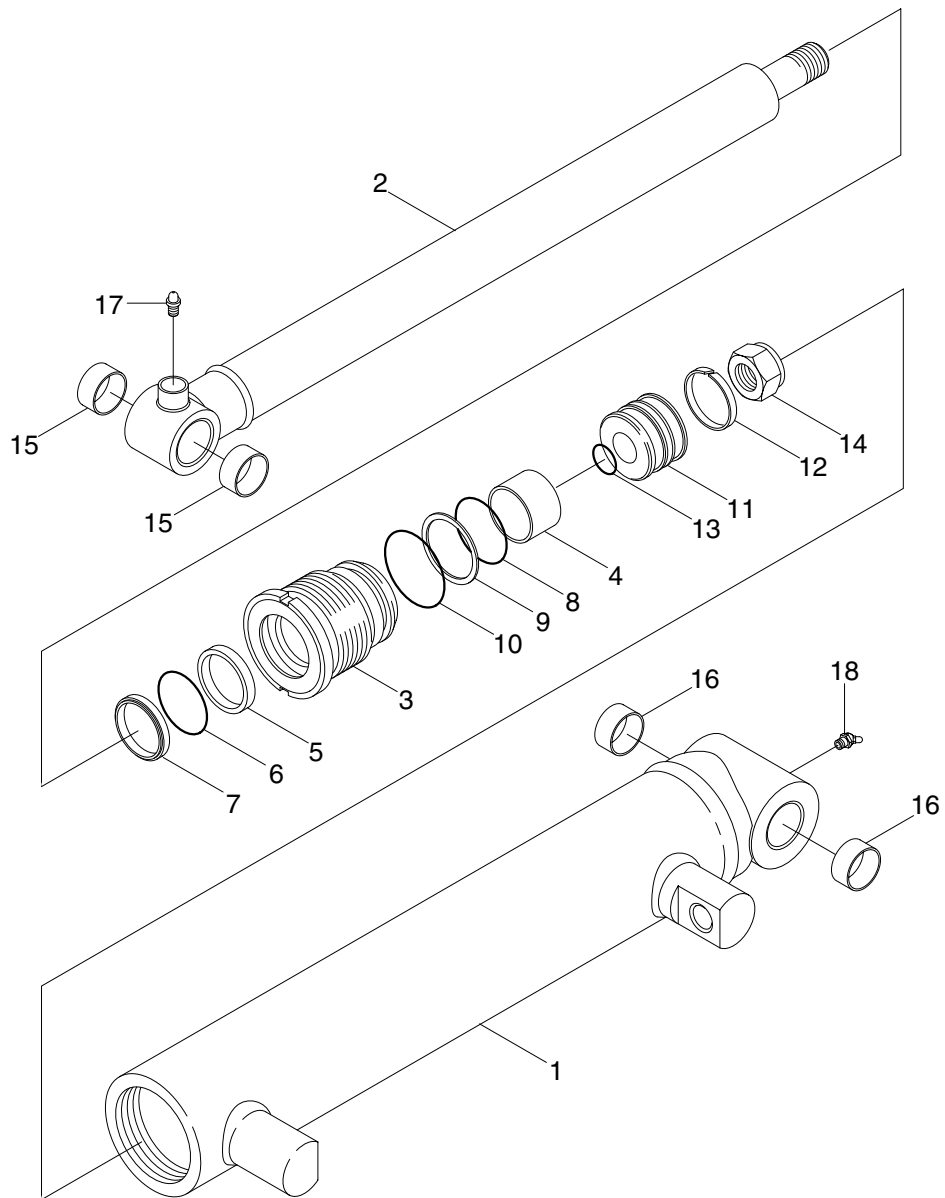
#### (1) Boom cylinder



- |   |              |    |              |    |               |
|---|--------------|----|--------------|----|---------------|
| 1 | Tube assy    | 7  | Dust wiper   | 13 | O-ring        |
| 2 | Rod assy     | 8  | O-ring       | 14 | Nylon nut     |
| 3 | Gland        | 9  | Back up ring | 15 | Du bushing    |
| 4 | Du-bushing   | 10 | O-ring       | 16 | Du bushing    |
| 5 | Rod seal     | 11 | Piston       | 17 | Grease nipple |
| 6 | Back up ring | 12 | Piston seal  |    |               |

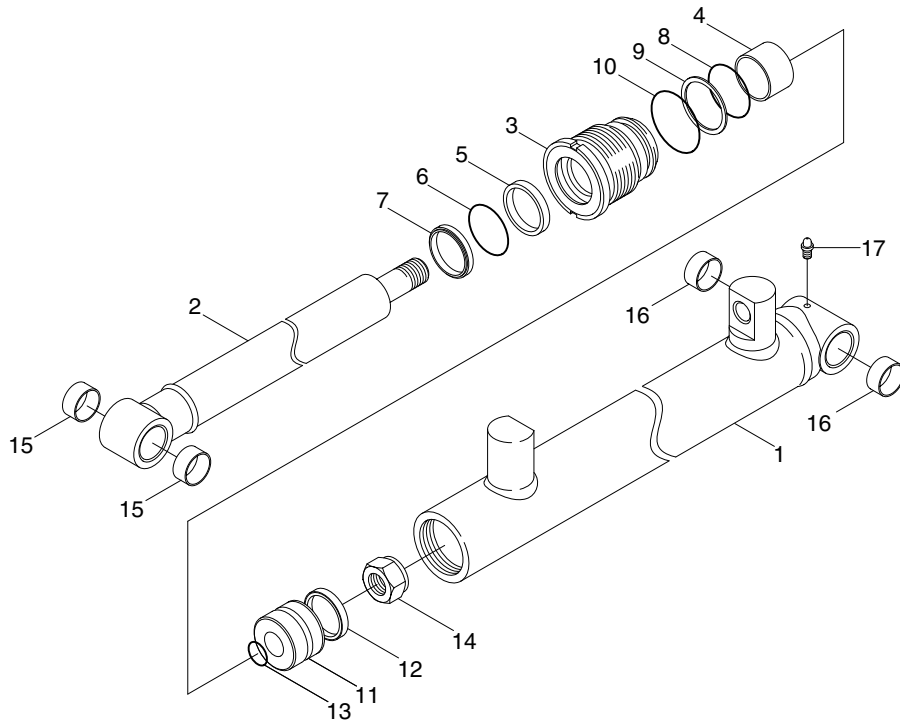
6507HT35

(2) Bucket cylinder



8007HT36

- |   |              |    |              |    |               |
|---|--------------|----|--------------|----|---------------|
| 1 | Tube assy    | 7  | Dust wiper   | 13 | O-ring        |
| 2 | Rod assy     | 8  | O-ring       | 14 | Nylon nut     |
| 3 | Gland        | 9  | Back up ring | 15 | Du bushing    |
| 4 | Du-bushing   | 10 | O-ring       | 16 | Du bushing    |
| 5 | Rod seal     | 11 | Piston       | 17 | Grease nipple |
| 6 | Back up ring | 12 | Piston seal  | 18 | Grease nipple |



6507HT37

## 2) Disassembly

※ This cylinder must be repaired in a clean area, otherwise dirt and grit will cause undue wear and may damage the hydraulic system. Wash and thoroughly clean outer portion of cylinder before repairs are made.

(1) Drain oil remaining in cylinder.

(2) Place the cylinder in a vise using brass jaws or wooden blocks to prevent tube damage.

※ Do not over tighten the vise or the cylinder shell will distort.

(3) Use a hook spanner to remove the gland and rod assembly from the tube.

※ Do not use a hammer and punch.

(4) Remove rod assembly from tube assembly.

(5) Remove nut(Use spanner) from rod assembly. (Boom : M27, Bucket : M24)

(6) Remove piston and gland from rod assembly.

(7) Remove wear ring, piston seal and O-ring from piston.

(8) Remove O-ring, rod seal, bushing and dust seal from gland.

(9) Thoroughly clean and inspect all parts.

## 3) Assembly

※ Assembly is performed in the process opposite to that of disassembly. Be sure to replace O-ring, dust seal, rod seal with new kits. (Coat all parts with clean hydraulic oil.)

※ Do not use screw drivers, pryer to assembly seals. Seal grooves are easily damaged.

(1) Fit O-ring, rod seal, bushing and dust seal to gland.

(2) Fit wear ring, piston seal and O-ring to piston.

(3) Fit piston and gland to rod assembly.

(4) Fit nut(Use spanner) to rod assembly. (Boom : M27, Bucket : M24)

(5) Fit rod assembly to tube assembly.

(6) Use a hook spanner to insert the gland and rod assembly into the tube.

※ Tightening torque

	Boom	Bucket
Gland	$60 \pm 6 \text{kgf} \cdot \text{m} (434 \pm 43 \text{lb} \cdot \text{ft})$	$60 \pm 6 \text{kgf} \cdot \text{m} (434 \pm 43 \text{lb} \cdot \text{ft})$
Nut	$59 \pm 6 \text{kgf} \cdot \text{m} (427 \pm 43 \text{lb} \cdot \text{ft})$	$40 \pm 4 \text{kgf} \cdot \text{m} (289 \pm 29 \text{lb} \cdot \text{ft})$