# WHEEL BRAKE CYLINDER

### General

The wheel brake cylinders on the brake back plates serve to transmit pressure produced by the master cylinder equally to the brake shoes.

While the front wheel brake features two single-action wheel brake cylinders per wheel (Duplex), the brake pressure in the rear wheel brake is transmitted by a double-action wheel brake cylinder per wheel. Inner diameter of the wheel brake cylinder front and rear ¾" or 19.05 mm.

One end of the front wheel brake cylinder bore is closed. The cylinder body contains a piston, a rubber cup, a return spring and spring seat. In the rear wheel brake cylinder body (which is open on both ends) there are two pistons, two rubber caps and one stop spring with two spring seats. The stop spring (return spring) in conjunction with the spring seat serves to press the piston cups belonging to the respective piston against the cylinder wall. During braking action, the fluid from the master cylinder is pressed into the wheel brake cylinders, thus forcing the rubber cups and pistons outward, each piston bringing the brake shoe connected with it by a plunger to contact the brake drum.

Rubber caps over the plungers and wheel brake cylinder housings prevent dirt and moisture from entering.

When the brakes are released, the spring seats press the return spring together in the cylinder so that no space remains. Thereby the wheel brake cylinder can be perfectly ventilated.

Each wheel brake cylinder has a bleeder valve bore. The bleeder valve opening is situated so that it cannot be blocked by the cups. The function of the bleeder valve is to release air which may have entered the system. When replacing a wheel brake cylinder note the diameter of the cylinder bore (front and rear ¾" or 19.05 mm).

### Front Wheel Brake Cylinder

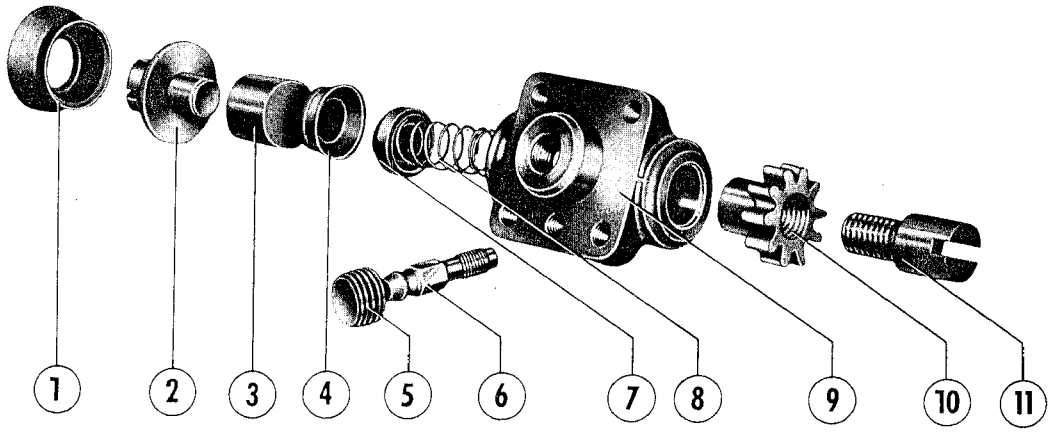


Fig. 10

① Boot
② Plunger
③ Piston
④ Rubber cup
⑤ Dust cap
⑥ Bleeder valve
⑦ Spring seat
⑧ Stop spring
⑨ Wheel brake cylinder housing
⑩ Adjusting nut
⑪ Adjusting screw

## Rear Wheel Brake Cylinder

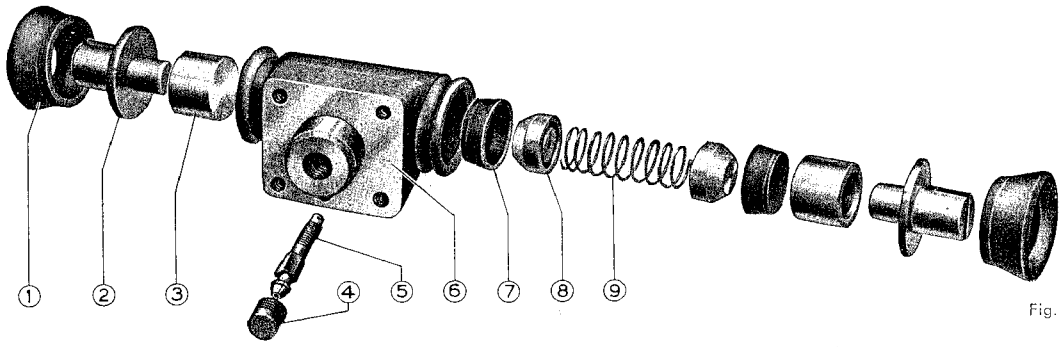


Fig. 11

① Boot
② Plunger
③ Piston
④ Dust cap
⑤ Bleeder valve
⑥ Wheel brake cyl. housing
⑦ Rubber cup
⑧ Spring seat
⑨ Stop spring

## Removing and Installing Front Wheel Brake Cylinder

**3 Ti**

Special tools: P 30, P 47

**Removal**

1. Jack up car, remove front wheel.
2. Remove brake drum (2 St).
3. Remove return springs, spring retainers, dowel pins and springs of brake shoes, remove brake shoes.
4. Clamp tool P 47 over plunger and adjusting screw of the wheel brake cylinder which is not exchanged.

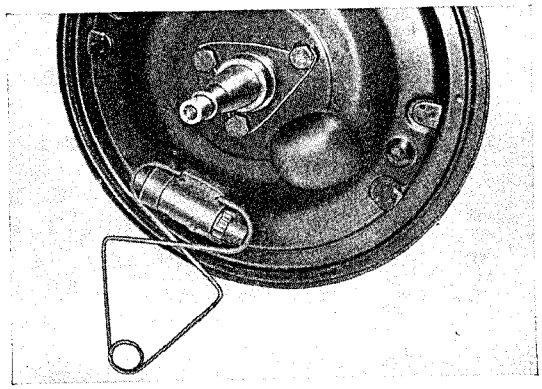

Fig. 12

5. Remove brake hose (6 Ti). Can be omitted for removal of upper wheel brake cylinder.
6. Loosen screwed connection of connecting line. Unscrew wheel brake cylinder.

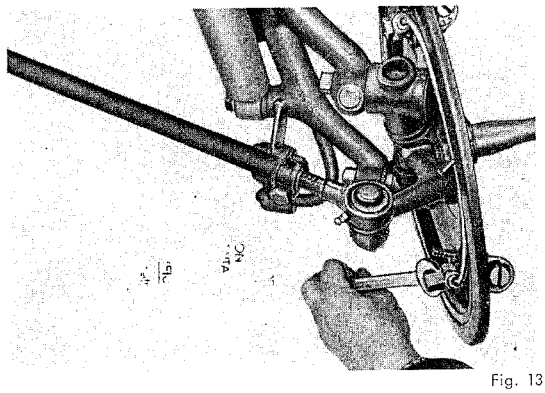

Fig. 13

**Installation**

The wheel brake cylinder is installed in reverse order, observing the following details:

1. Care must be taken to install the wheel brake cylinders in correct position, which means that the piston side must show in direction of the wheels driving forward. (When replacing, take care to use the correct size.)
2. The brake shoe must be installed so that the notch in the web faces the piston side of the wheel brake cylinder.
3. Refer to special instructions on repair work at the brake system (Page T 17).
4. Before installing brake drum, check oil seal and conical roller bearing for perefect condition.
5. Clean brake drum hub and bearing and pack with multi-purpose grease (approx. 1¾ ozs., see Lubrication Chart, Group S).
6. Adjust front wheel bearing as prescribed (4 St).
7. Adjust and bleed brakes (13 Ti). Remember dust cap on bleeder valve.

## Removing and Installing Rear Wheel Brake Cylinder

4 Ti

Special tools: P 30, P 36, if nec. P 36 a, P 42, P 44 and 44 a

### Removal

1. Jack up car, take off rear wheel.

2. Undo castle nut, pull off brake drum.

3. Remove both lower return springs, pressure springs with spring retainers and dowel pins of brake shoes.

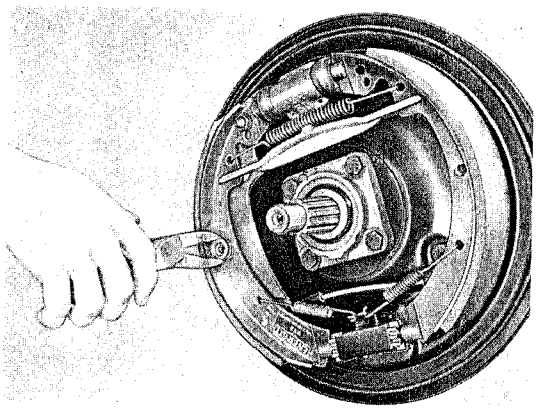

Fig. 14

4. Remove brake shoes with parking brake actuating lever, push rod and upper return spring and unhook parking brake cable.

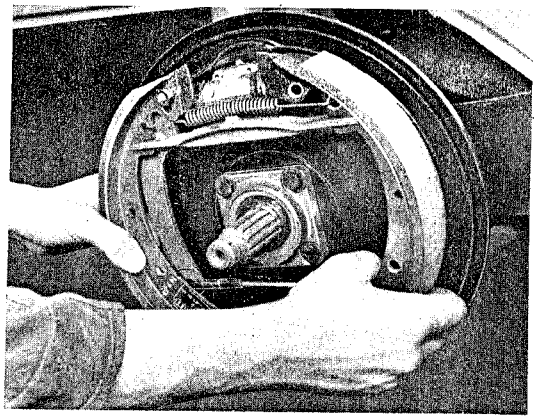

Fig. 15

5. Unscrew brake line and plug with bleeder dust cap.

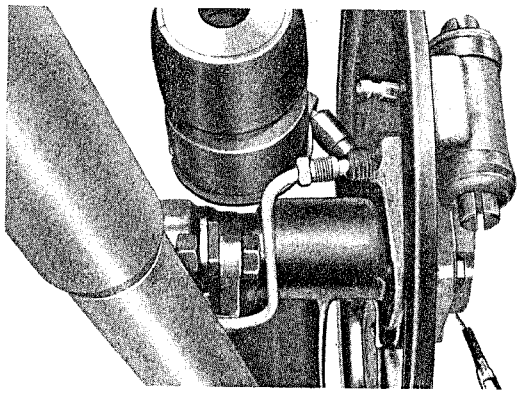

Fig. 16

6. Remove retaining screws of wheel brake cylinder and remove wheel brake cylinder.

### Installation

The wheel brake cylinder is installed in reverse order, observing the following points:

1. When replacing a wheel brake cylinder by a new one, take care to use the required size.

2. The notch in the web of each brake shoe points towards the wheel brake cylinder.

3. Refer to special instructions when doing repair work on the brake system (page T 17).

4. Install parking brake actuating lever and pressure rod in correct position.

5. Tighten castle nut for axle shaft with 50–55 mkg (360–370 lbs. ft.).

6. Adjust foot and parking brake. Bleed brake (13 Ti). Remember dust cap on bleeder valve.

## Reconditioning Wheel Brake Cylinder

**5 Ti**

**Disassembly**

1. Remove boots.

2. Take out plungers, pistons, piston cups, spring seats and stop spring.

3. Unscrew bleeder valve.

1. Use only spirit or brake fluid to clean all parts.

2. Check all parts for wear and damage. Replace worn parts.

3. The cleaned and dried pistons must move easily in the wheel brake cylinder in both directions. (Clearance between cylinder bore and piston max. .0102" = 0.26 mm.)

**Assembly**

The wheel brake cylinder is installed in reverse order, observing the following points:

4. Prior to assembly, the pistons, cylinder wall and piston cup should be coated with a very thin film of genuine Ate brake cylinder paste.