

## Data

Caliper	Teves M 38	Bendix (Bx) FB 38
Housing dia.	37.99 38.03	
Piston dia.	37.98 37.95	
Shaft width for brake shoes	62 + 0.15	

## Lubricant

ATE-brake cylinder paste

## Special Tools

Impact puller	115 589 14 33 00
Puller	116 589 04 33 00
Piston resetting pliers	111 589 07 37 00
Holding device for piston	self-made according to Fig. 5
Clamping device for piston	self-made according to Fig. 7
Piston gauge	001 589 30 21 00
Piston rotating pliers	000 589 36 37 00
Installation tool for dust cap Teves	self-made according to Fig. 17 and 18
Installation device for heat shield Teves	000 589 49 63 00
Plate for installation device for heat shield Bendix (Bx)	self-made according to Fig. 21

## Conventional Tools

Open double-box wrench SW 9 x 11 e.g. made by Hazet, order No. 612

## Note

**Do not separate the two halves of the caliper since the fastening bolts are tightened to a definite torque by manufacturer.**

## Removal

- 1 Remove brake shoes (42.0–160).
- 2 Force dust cap (9) from housing by means of screwdriver (Fig. 1 and 2).



Fig. 1  
Teves-version  
2 Piston  
3 Dust cap

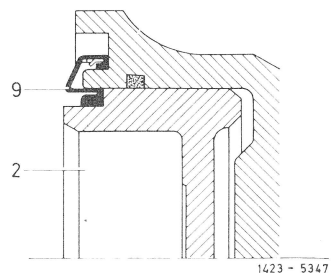
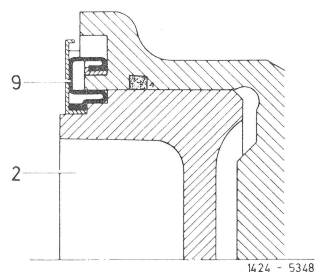


Fig. 2  
Bendix (Bx)-version  
2 Piston  
9 Dust cap



3 Hold one piston (2) by means of piston resetting pliers (018). Then remove opposite piston with compressed air of approx. 0.5 bar overpressure (0.5 atü) (Fig. 3).

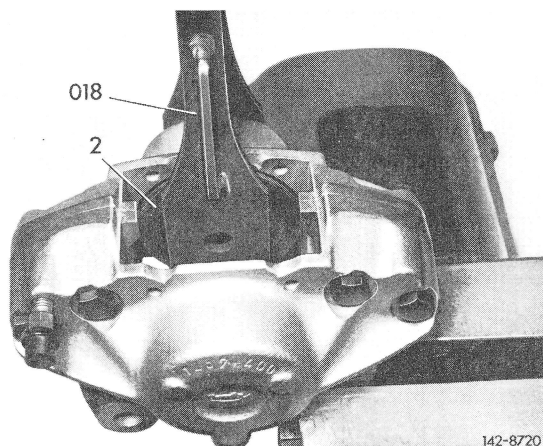


Fig. 3  
2 Piston with heat shield  
018 Piston resetting pliers

4 A piston rusted to the caliper bore cannot be forced out with compressed air, since the pressure required to release the piston would have to be very high. Proceed by holding the piston which is still moving with holding fixture (23) in caliper (Fig. 4). On Bendix (Bx)-caliper, remove both heat shields from piston first. Then release stuck piston (2) by means of a master cylinder and force out of bore.

**Note:** Holding fixture (23), is self-made according to dimensions shown in Fig. 5.

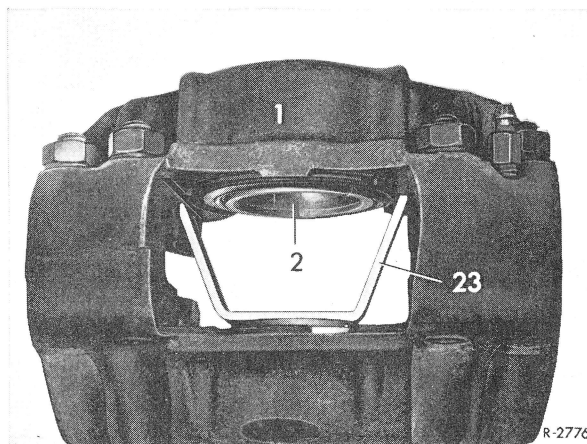


Fig. 4  
1 Caliper 2 Piston 23 Holding fixture

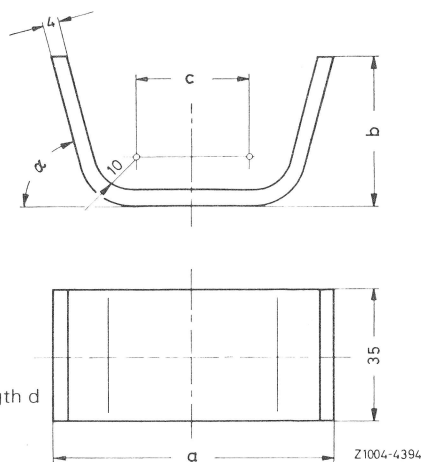


Fig. 5  
Holding fixture  
a = 60 c = 22 α = 79°  
b = 37 d = 107

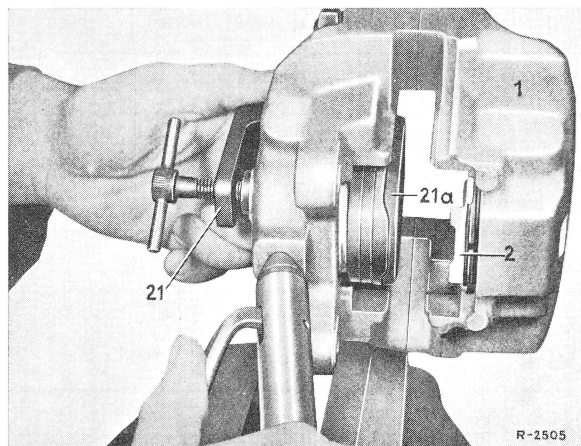


Fig. 6  
1 Caliper 21 Clamping device  
2 Piston 21a Rubber plate

**5** Position clamping fixture (21) in caliper (1) in such a manner that the rubber plate seals the bore. Then press second piston out of caliper (Fig. 6).

**Note:** The clamping fixture (21) is self-made according to dimensions shown in Fig. 7. **The steel and rubber plate may have a diameter of 50 mm only.** (75 mm dia. applies to front wheel caliper).

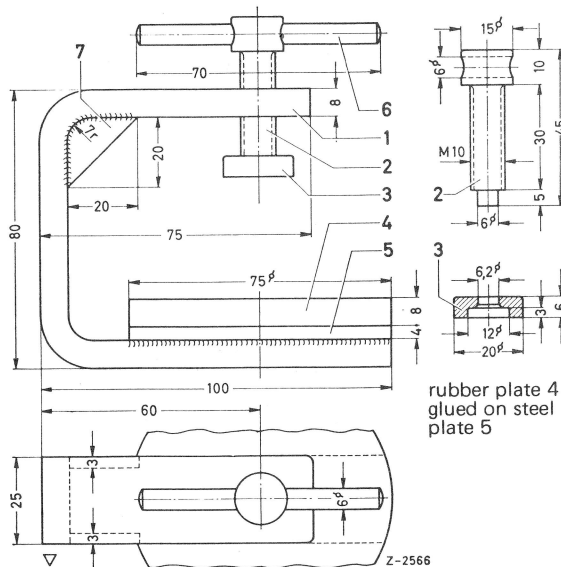


Fig. 7  
Clamping fixture

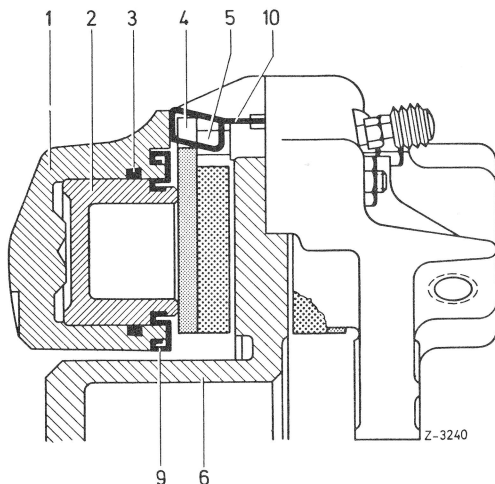


Fig. 8  
Teves-version

- |               |                 |
|---------------|-----------------|
| 1 Caliper     | 5 Holding pin   |
| 2 Piston      | 6 Brake disc    |
| 3 Piston seal | 9 Dust cap      |
| 4 Brake shoe  | 10 Cross spring |

**6** Remove piston seal (3) from grooves of cylinder bores (Fig. 8 and 9).

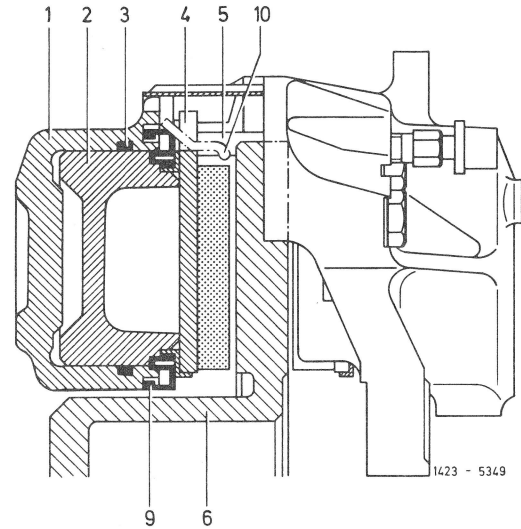


Fig. 9  
Bendix (Bx)-version

- |               |                            |
|---------------|----------------------------|
| 1 Caliper     | 5 Holding pin              |
| 2 Piston      | 6 Brake disc               |
| 3 Piston seal | 9 Dust cap                 |
| 4 Brake shoe  | 10 Spring for brake lining |

### Inspection and Repair

**7** Remove deposits on piston with a soft brass wire brush or a rough cleaning cloth. **Do not** work on piston with polishing or emery cloth, since this might damage the chrome-plated surface. Replace piston if chrome surface is damaged.

**8** Check cylinder bores of caliper for wear. Replace complete caliper if bores are scored or rusted. Remove minor rust spots in bore with polishing cloth, heavier rust spots in front of piston seal groove with fine emery paper (380 to 500 grain).

### Installation

**9** Rub new piston seal (3) lightly with ATE-brake cylinder paste and insert into groove of cylinder bores (Fig. 10).

**10** Insert piston into bores of caliper. Then check position of piston in caliper with piston gauge (019) (Fig. 12).

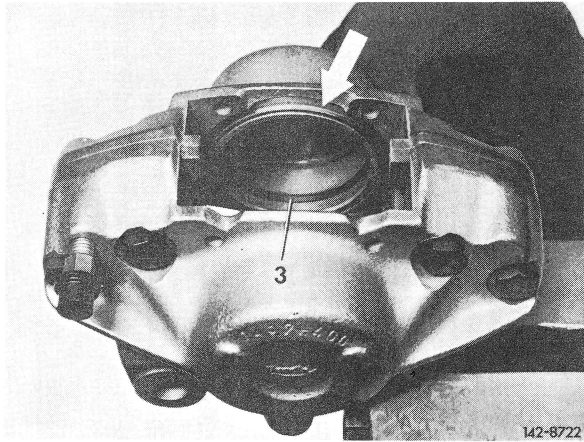


Fig. 10  
3 Piston seal

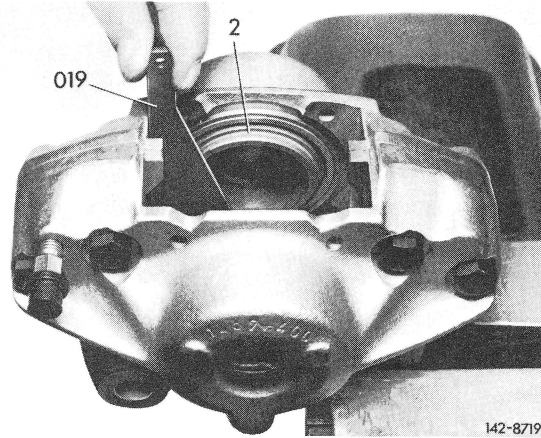


Fig. 12  
2 Piston  
019 Piston gauge

**Note:** When repairing Bendix (Bx)-caliper, watch out for rigid and perfect seat of pressed-on ring (refer to arrow Fig. 10).

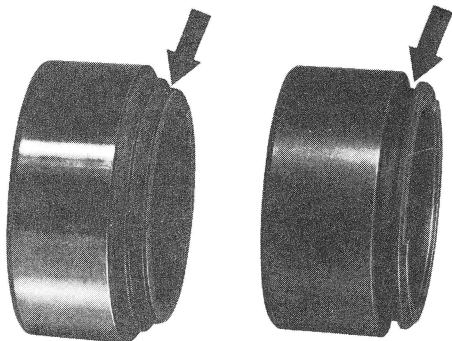


Fig. 11  
Left: Bendix (Bx)-piston version  
Right: Teves-piston version

**Note:** When installing piston, observe different piston versions (Fig. 11).

**11** If required, move piston into correct position with piston rotating pliers (020) (Fig. 13).

**Caution!** To reduce tendency toward squealing, caliper piston is provided with an elevation. When braking, this elevation causes one-sided contact of brake shoes. Elevation on piston of caliper for diagonal swing axle must be on top (Fig. 14).

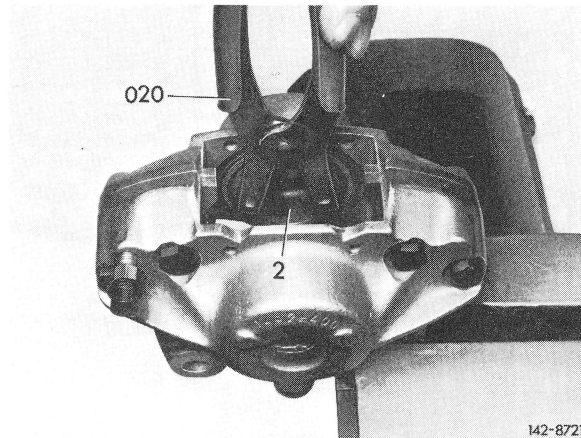


Fig. 13  
2 Piston  
020 Rotating piston pliers

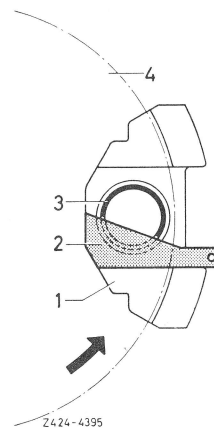


Fig. 14  
Piston position diagonal swing axle  
1 Caliper  
2 Piston gauge  
3 Piston  
4 Brake disc

On caliper for diagonal swing axle with starting torque compensation, elevation on piston must be below (Fig. 15).



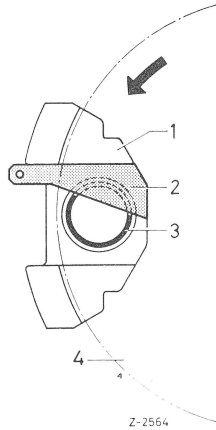


Fig. 15

Piston position diagonal swing axle with starting torque compensation

- |                |              |
|----------------|--------------|
| 1 Caliper      | 3 Piston     |
| 2 Piston gauge | 4 Brake disc |

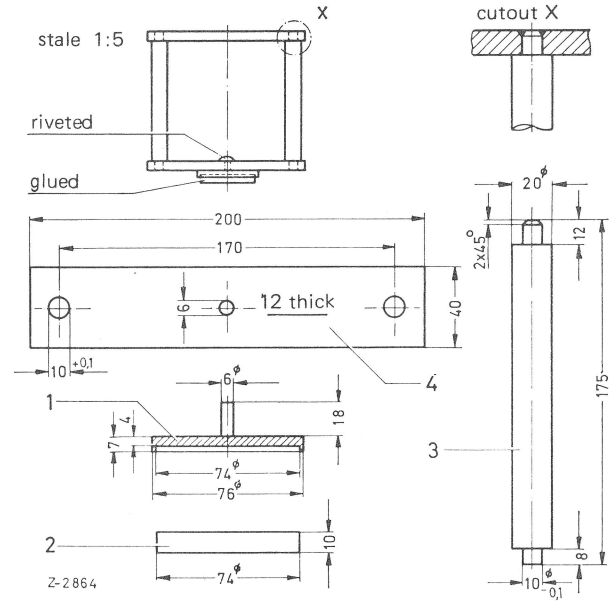


Fig. 17

- |                  |                   |
|------------------|-------------------|
| 1 Pressure plate | 3 Connecting bolt |
| 2 Rubber plate   | 4 Clamp           |

**12** On Teves-caliper, position dust cap (9) against flange of caliper (Fig. 1).

**13** Place pressure plate (25) on dust cap (2b) and force dust cap on flange of caliper at approx. 300 Nm (30 kpm) pressure using installation tool (26) as well as a hand press (Fig. 16).

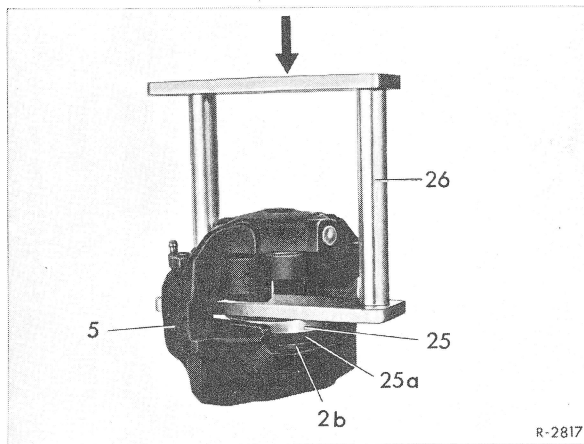


Fig. 16

- |                   |                      |
|-------------------|----------------------|
| 2b Dust cap       | 25a Rubber plate     |
| 5 Caliper         | 26 Installation tool |
| 25 Pressure plate |                      |

**Note:** Installation tool is self-made according to dimensions shown in Fig. 17, pressure plate and rubber plate according to dimensions shown in Fig. 18.

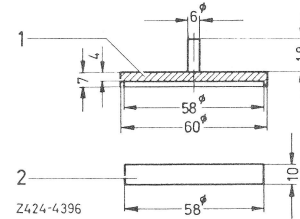


Fig. 18

- |                  |                |
|------------------|----------------|
| 1 Pressure plate | 2 Rubber plate |
|------------------|----------------|

**14** On Bendix (Bx)-caliper, attach dust cap to flange on caliper (Fig. 19).

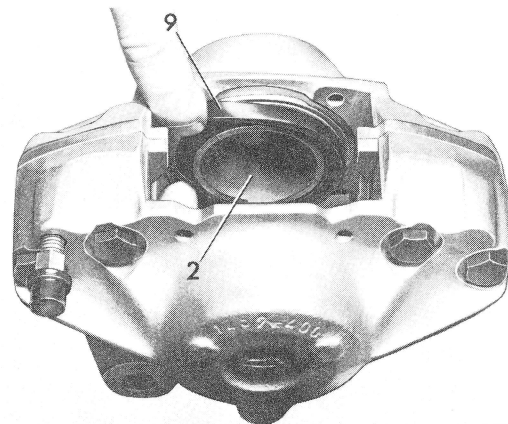


Fig. 19

- |          |            |
|----------|------------|
| 2 Piston | 9 Dust cap |
|----------|------------|

# 42.0 Replacement of Piston Seal on Rear Axle Caliper

**15** On Bendix (Bx)-caliper, insert heat shield (7) into piston in such a manner that recess in shield fits accurately into elevation of piston (Fig. 20).

**Note:** The rear wheel caliper made by Teves has no heat shield.

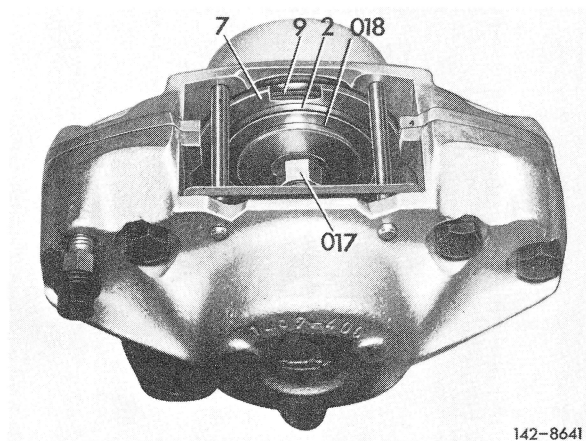


Fig. 20

2 Piston  
7 Heat shield  
9 Dust cap

017 Device  
018 Plate

**16** Place plate (018) on piston, then insert device (017) into caliper and press heat shield (7) into piston (Fig. 20).

**Note:** Plate is self-made according to dimensions shown in Fig. 21.

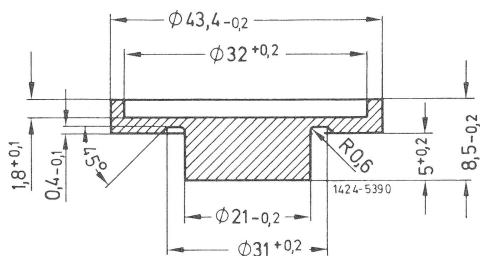


Fig. 21

**17** Install brake shoes (42.0-160).