

Replacement and Resurfacing of Brake Linings

Job No.

42 — 11

A. Replacement of Brake Linings

1. If the brake linings are worn down to a thickness of approx. 1.5 mm they must be replaced.
In our workshops the brake linings are bonded to the brake shoes without riveting in a special process under pressure and at a temperature of 160—180° C. To make sure that the bonding is completely satisfactory a small corner is cut off every brake lining to make a shearing test. The bonding of the brake linings requires much experience and expert knowledge and is not possible with the equipment available in repair shops.
For this reason only brake linings bonded to brake shoes are supplied by way of exchange.

2. If in countries outside Germany it should be difficult to import brake shoe assemblies it is possible to use special linings that can be riveted to the brake shoes. Completely remove the old lining, together with the cement, from the brake shoes (grind off the lining or, if necessary, chisel or file it off).

After the surface of the brake shoes has been thoroughly cleaned of all traces of cement the brake linings and the brake shoes must be drilled according to the drillhole diagram below (Fig. 42 — 11/1). If the brake linings are already provided with rivet holes the drillhole pattern is transferred to the brake shoes and holes are drilled accordingly.

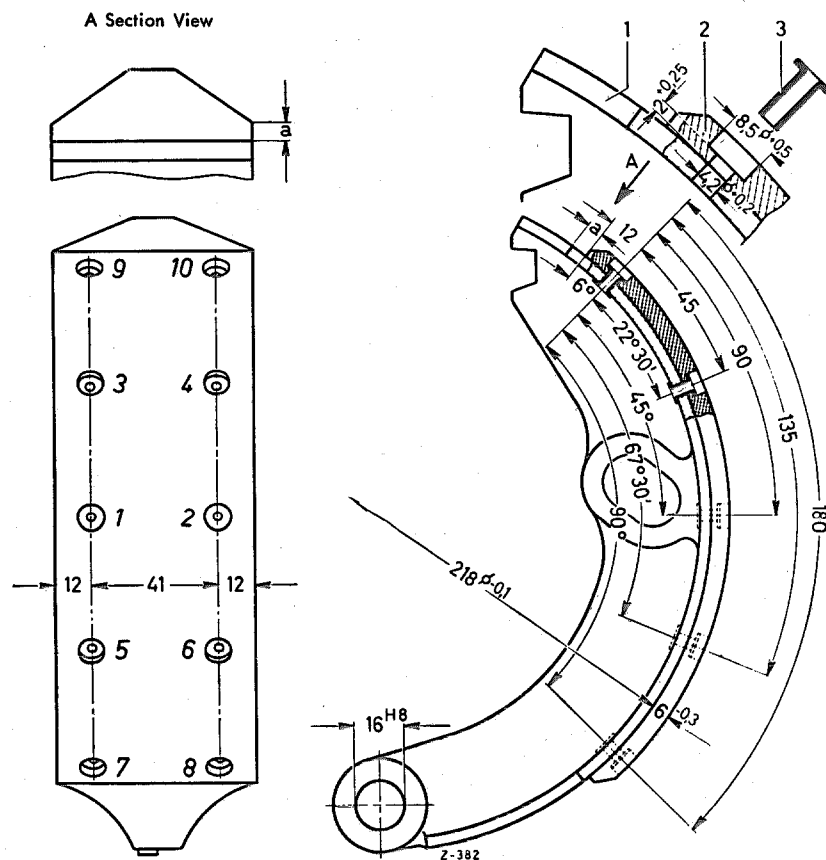


Fig. 42 — 11/1

B Brake shoe
C Brake lining
D Tubular rivet part No. 183 990 02 95

a = Distance between brake lining and toe edge
at rear brake shoe = 2 mm
at front brake shoe = 4 mm

Coat the brake shoe surface with sealing compound and rivet the brake lining to the shoe by means of tubular rivet (3) part No. 183 990 02.

The riveting sequence is shown in Fig. 42 — 11/1. Start in the middle of the lining at 1, then install rivets 2, 3 etc. This procedure is necessary in order to make sure that the brake lining snugly fits the whole surface of the brake shoe.

Approved brake lining makes are regularly listed in our Service Bulletins.

B. Reconditioning Brake Linings

The brake linings must be reconditioned if the surface shows glazed spots or signs of overheating or if, after a certain mileage, the wear pattern of the linings is still unsatisfactory. To produce a good wear pattern the brake linings can be milled or ground as usual, or the brakes can be worn in with the help of sand-blasted brake drums. The brake drums should be sand-blasted with medium grain (sand or steel balls). The brake should be worn in on a trial run by carefully braking several times. After the trial run, hone the brake drums and thoroughly clean the brake with compressed air. Then check the wear pattern. For wearing in the brakes it is advisable to use a special set of sand-blasted brake drums which is used exclusively for this purpose. After the wearing-in procedure, the brake drums of the car are reinstalled.

When reconditioning the brake linings with the brake lining miller proceed as follows:

1. Firmly depress the brake pedal several times to make sure that the brake shoes are readjusted.
Then remove the road wheels and pull off the drums.

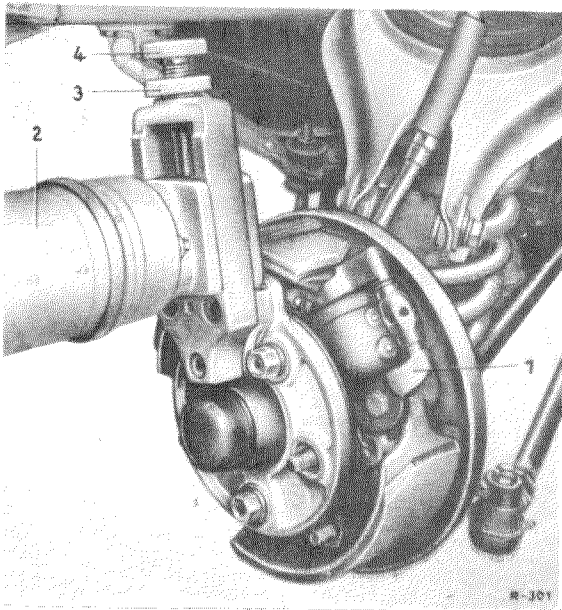


Fig. 42 — 11/2

- 1 Clamp 180 589 01 63
- 2 Brake Lining Miller 000 589 03 66
- 3 Locking nut
- 4 Adjusting screw

2. On the front axle install two Clamps (1) 180 589 01 63 on the two brake shoes by means of the hexagon screw of the anchor pin (Fig. 42 — 11/2).
 3. Adjust the pressure screw on the clamps in such a way that they just rest against the brake shoe without moving the brake shoe outward.
 4. Install the Brake Lining Miller 000 589 03 66 on the wheel hub and fasten with three wheel nuts (see Fig. 42 — 11/2).
- Note:** Install the Cutter 180 589 00 51 in such a way that it does not touch the brake anchor plate.
5. After loosening the locking nut (3) adjust the miller by turning the adjusting screw (4) in such a way that the cutter just touches the highest spot on the brake lining (see Fig. 42 — 11/2).

Then tighten the locking nut (3), holding the adjusting screw (4) steady to prevent an alteration in the adjustment made.

6. Then move the miller over the brake shoe contrary to the rotation of the cutter, readjusting the brake shoe from time to time by turning the pressure screw of the clamp.

Caution: To achieve satisfactory results, the brake shoe must be readjusted in such a way that very little stock is removed at a time, since otherwise the cutter may be deflected and the brake lining may become conical. Before starting the milling operation it is advisable to remove glazed spots on the lining surface with a file.

7. The milling operation is completed when the surface is perfectly smooth all round the circumference of the brake shoe.

Note:

- a) The brake lining cannot be milled without the specified clamp, since otherwise the cutter would overcome the resistance of the automatic adjustment and press the brake shoe inward.
- b) As described above, the brake lining miller should be adjusted to the diameter of the brake shoe with the shoe in its released position.

During the milling operation, only the brake shoe should be adjusted; the adjustment of the brake lining miller must not be changed.

- c) The front wheel hub must not have excessive clearances since otherwise proper milling work is impossible. If necessary, the wheel hub bearings must be readjusted before the work is started (see Job No. 33 — 4).
- d) By adjusting the brake lining miller to the diameter of the brake shoe in its released position, the brake shoe is milled down to

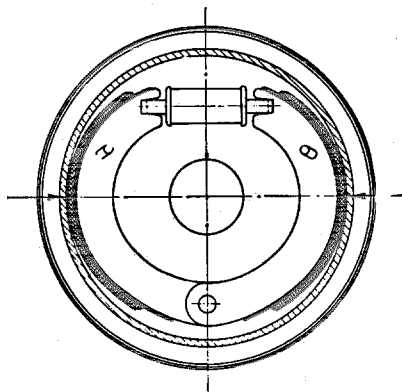


Fig. 42 — 11/3

a diameter which is about 1.5 mm smaller than the internal diameter of the brake drum.

This results in smooth braking action because the center part of the brake shoes make contact first (Fig. 42 — 11/4).

- e) On the front axle, each brake shoe must be milled individually because of the presence of the two clamps.
8. To recondition the rear wheel brake linings, attach the Clamp (1) 180 589 02 63 to the rear brake anchor plate (Fig. 42 — 11/4).

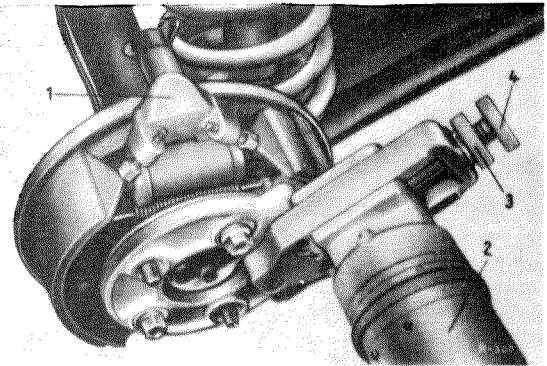


Fig. 42 — 11/4

- 1 Clamp 180 589 02 63
- 2 Brake Lining Miller 000 589 03 66
- 3 Locking nut
- 4 Adjusting screw

9. Again adjust the pressure screws of the clamp in such a way that they just rest against the brake shoes without moving the brake shoes outward.
10. Install the brake lining miller on the rear axle shaft and fasten with three wheel nuts (see Fig. 42 — 11/4)
11. Then adjust the brake lining miller to the diameter of the brake shoes. Before making this adjustment, back out the adjusting screw 1/8 turn. Then lock it with the locking nut (3).

Note: Since the shoe-to-drum clearance at the rear wheel brake is 1.0 mm the brake lining miller must be backed out 1/8 turn in order to ensure that the brake shoes are again milled to a diameter which is 1.5 mm smaller than the inside diameter of the brake drum.

12. Mill the brake shoes by making the necessary adjustments as in the case of the front wheel brake. **Once adjusted, the adjustment of the brake lining miller must not be changed.**

13. Remove the brake lining miller and lay the edges of the brake lining with a file.

14. Give the brake lining toe a **slight chamfer** over a length of about 15 mm.

Note: The chamfer on the brake shoes must not be excessive since that would unnecessarily reduce the effective braking area. The purpose of the slight chamfer is to prevent the brake shoes from locking.