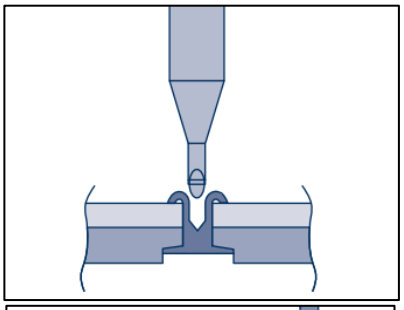
Riveting BPW brake shoes

When replacing brake linings on BPW axles, care must be taken that the correct rivets are used. The rivets used on BPW brake linings are semi-tubular, galvanized and 8 x 15mm (DIN 7338 B). Using the correct rivet ensures that brake lining is securely fitted to the brake shoe.

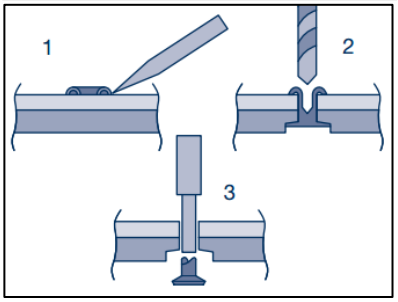
Process followed in riveting BPW brake shoes

Ideally rivets must always be pressed out using a hydraulic actuated riveting machine. The equipment must be suitable for the rivet diameter as the use of unsuitable rivet punches may damage the brake shoe

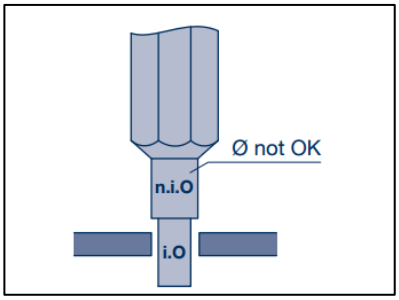


If no riveting machine is available the following procedure needs to be followed:

1. Shear off the closed head of the rivet with a chisel or
2. Remove the closed head using a 8.6mm diameter drill bit
3. Drive out the rivet with a punch

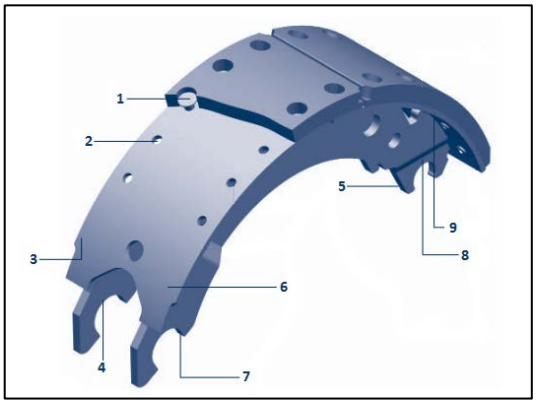


Inspect the diameter of the rivet hole using a rivet hole gauge. The diameter is not allowed to be more than 0.6 mm larger than rivet diameter (DIN 7513)

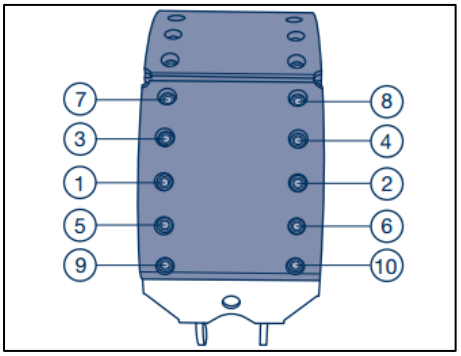


Once the lining has been removed the following needs to be inspected:

1. Inspect for loose rivets. Loose rivets indicate enlarged rivet holes or the incorrect rivet was used
2. Damage or deformation on the rivet hole
3. Damage on platform edge
4. Wear on shoe support
5. Deformation on shoe web
6. Corrosion, damage or deformation on platform area
7. Damage on shoe web end
8. Wear on shoe roller bearings
9. Cracks or corrosion in the weld seam



After the inspection insert all rivets and hold in position by crimping edges. Rivet the brake lining into place and take to follow the correct riveting order.



Rivet as shown from the inside out

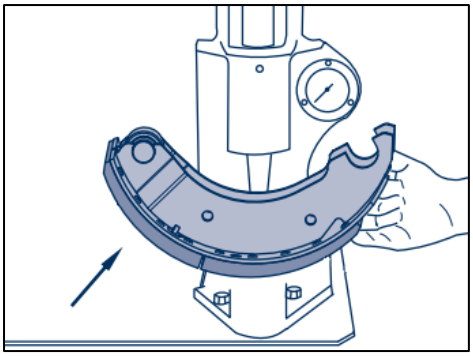
Riveting force: **21000 N** (20000 – 22000 N)

Rivets: Semi-tubular rivets, galvanized steel 8x15 mm meeting DIN 7338 B

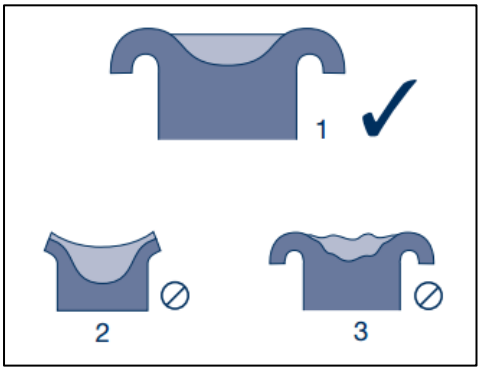
Note: With skimmed brake drums use corresponding oversize brake linings. The brake shoe must snugly fit on the platform, i.e. the platform must not be concave. The shoes must be carefully cleaned, e.g. by sandblasting or by means of a shoe grinding unit.

Series K (SN 360)

Note different lengths of brake lining segments. Assemble the short brake lining segment (see arrow) to the roller end.

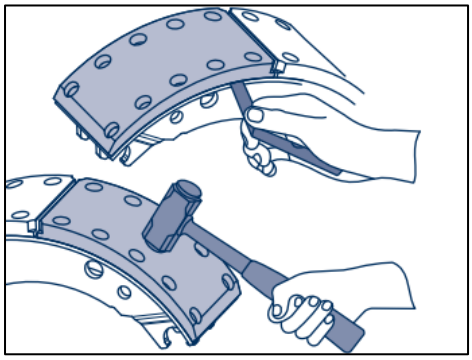


Once the brake lining has been riveted to the brake shoe the following checks need to be done in order to see if the riveting was correct



1. Rivet length correct, the hole inner wall and strength are correct
2. Rivet too short, no inner hole recess and poor closing head formation
3. Rivet too long, inadequate closing head, crack formation

A light tap with a hammer will determine whether the riveting is satisfactory or not. A dull thud indicates a loose lining. A high-pitched response indicates that the riveting is correct.



A feeler gauge can be used to check for cavities under the lining. A cavity of more than 0.15 mm beyond the first row of rivet holes can lead to noise problems

Finally, the linings should be checked for cracks in the area of the rivets which would indicate incorrect riveting