

# IF THE **SHOE** FITS

Many of the risks associated with re-lining brake shoes are avoidable and BPW looks at some of the causes of these failures and offers some simple steps to minimise the risk.

The design of BPW's ECO Hub system allows for easy removal of the entire wheel/hub unit including the brake drum and bearings. Simply remove the hub cap and unscrew the hub bolt and the wheel/tyre/hub/drum unit can be removed in one single operation, allowing full access to the foundation brake.



1. Anchor retaining springs in position



2. To dismantle, the brake shoes are simply levered off.



3. The brake shoes are dismantled.



4. The new brake shoes are positioned and located with a soft hammer. Anchor retaining springs are re-fastened.

**T**o minimise costs, one of the common practices within workshops is to re-line brake shoes when it becomes time to replace linings. This practice can help reduce the repairer/service agent's parts bill, but if carried out incorrectly can result in significant longer term cost increases.

BPW's drum brake, ECO drum, is a culmination of over 110 years of braking expertise. It is designed to offer reliability, high performance, low life cycle costs and ease of maintenance. When the ECO drum is combined with the ECO Hub system it allows for quick and easy maintenance and servicing, as well as robustness.

### *Serious costs*

However, no matter how reliable your product is, a poorly re-lined shoe can be seriously costly: at best it will mean further trailer down-time as another replacement shoe/lining is required, and at worst it can mean a hot running brake, destroying the axle hub and tyre.

When a drum brake shoe is re-lined the process is typically to remove the old linings by punching out the old rivets, shot-blasting and re-painting the old shoe. A new lining can then be fitted with new rivets. When re-lining a shoe however it is important that both the new lining and the shoe are matched to ensure proper adhesion and braking performance. It is not uncommon for linings to become detached from the brake shoe for the following reasons:

- Poor cleaning of the brake shoe.
- Using the incorrect rivets.
- The brake shoe platform is deformed or damaged.

### *The simple steps to take to ensure cost effective re-lining are:*

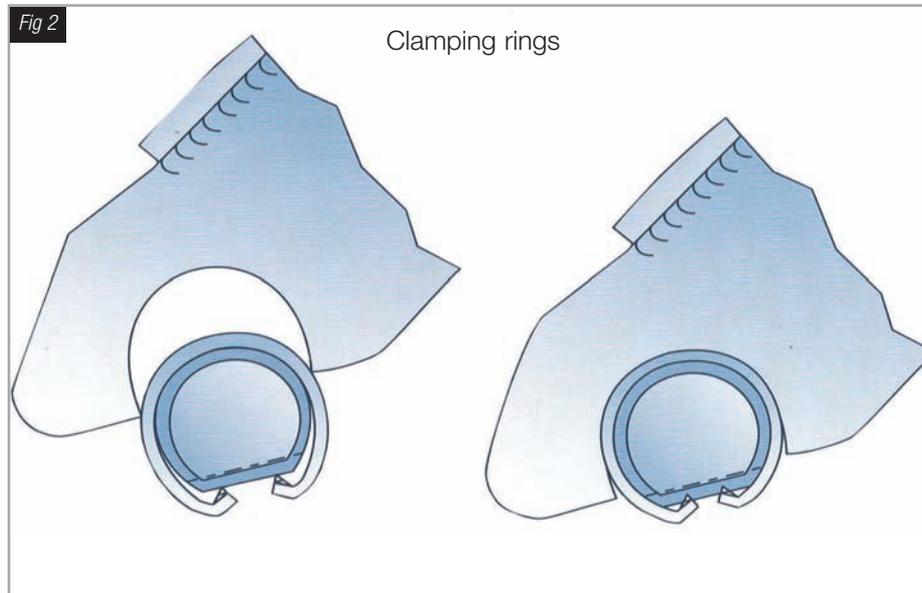
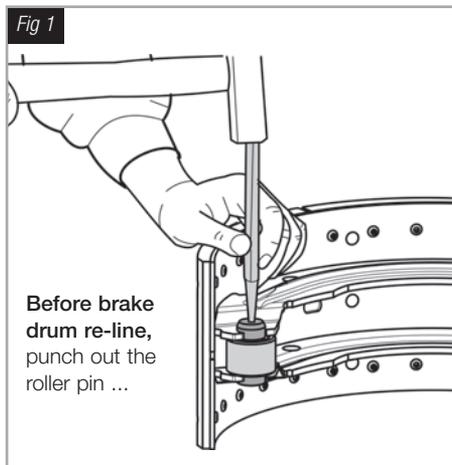
(A) Keep control of your shoes – invest in a new set of spare shoes to minimise downtime.

(B) Insist on your own shoes being re-lined. Marking your shoes with a company logo will ensure you receive your own shoes back, rather than someone else's 10 year old shoes!

(C) Remove the cam rollers from your shoes (**Fig 1**) before sending them for re-lining. This will prevent the rollers being damaged, painted or contaminated during shot blasting. When re-fitting the roller you must ensure that the cam roller bearing is greased prior to re-assembly (use *BPW's ECO Li grease for optimum results*).

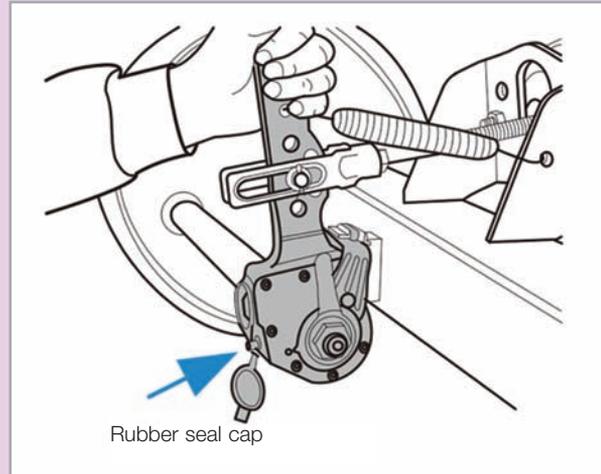
(D) Before you place the re-lined shoes back on the shelf, carry out a simple quality check. The **THREE** essentials are:

- (1) A part hollow **STEEL** rivet has been used to re-attach the brake lining.
- (2) Matched linings have been used. (All BPW linings are matched to the specific drum metallurgy and, along with the shoes, are marked with the BPW logo.)
- (3) Worn or damaged shoe eye. There should be no free play when re-fitting the brake shoe to the anchor pin. If the shoes are not a snug fit when re-assembling to the axle, then it is no good and could start vibrating, resulting in noisy brake applications. (See **Fig 2**).



### Checking operation of the slack adjuster

A play of at least 50mm with a lever length of 150mm must be available. Actuate the brake lever several times by hand. When this is done, automatic adjustment must take

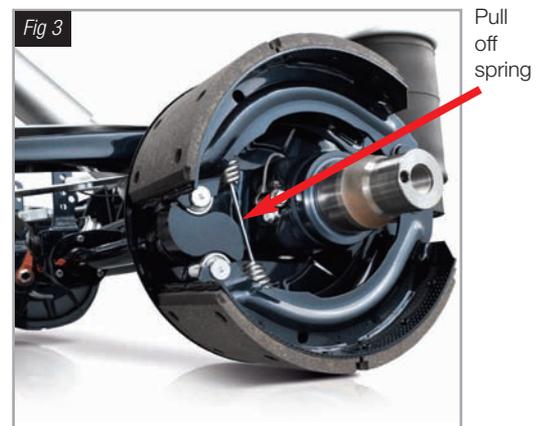


place smoothly. Engagement of the clutch coupling is audible and on the return stroke the adjustment screw turns slightly in a clockwise direction. Grease with BPW ECO-Li Plus.

### Brake adjustment

Set the freeplay by disengaging the clutch on the slack adjuster and turning clockwise until brake bind is achieved, proceed to turn 180° anti-clockwise to achieve between 0.7 – 1.0mm lining to drum clearance. Position the brake lining indicator in the vertical position and tighten the camshaft nut to 60 – 70Nm.

(E) When fitting newly lined shoes, **ALWAYS** replace the pull-off spring to ensure the shoe does not contact or drag against the brake drum. Check the tension of the “C” clip and replace if necessary. **DO NOT** grease the camshaft head as this needs the friction to work effectively. (See **Fig 3**).



(F) Don't forget to grease the camshaft bearings and automatic slack adjuster with BPW ECO Li Plus grease. Always re-fit the grease nipple and slack adjuster covers. The clevis pin should also be removed and greased.

Finally, refit the hub and drum assembly and adjust the brake for correct free play.