
PACCAR & DEALER
TMC
Technical &
Maintenance
Conference

Ian Thomson
BPW Transpec

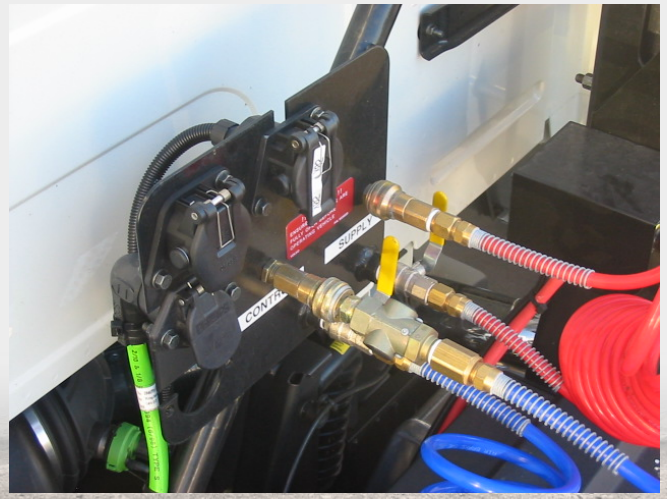
Brushing up on Brake Maintenance

Safety Critical Brake Maintenance items

- Make sure you look at both ends of the system.
- Brake couplings are in the middle.
- Compressor, Air supply and Foot pedal are at the start of stopping.
- Brake linings and drums/rotors tyres to road are at the end!
- So we should take some time to look through some of these areas as well as brake set up!!

Brake connectors

- Polarised so that you cant mix supply (red line) and control (blue line) Bayonet, Gladhand and Duomatic.



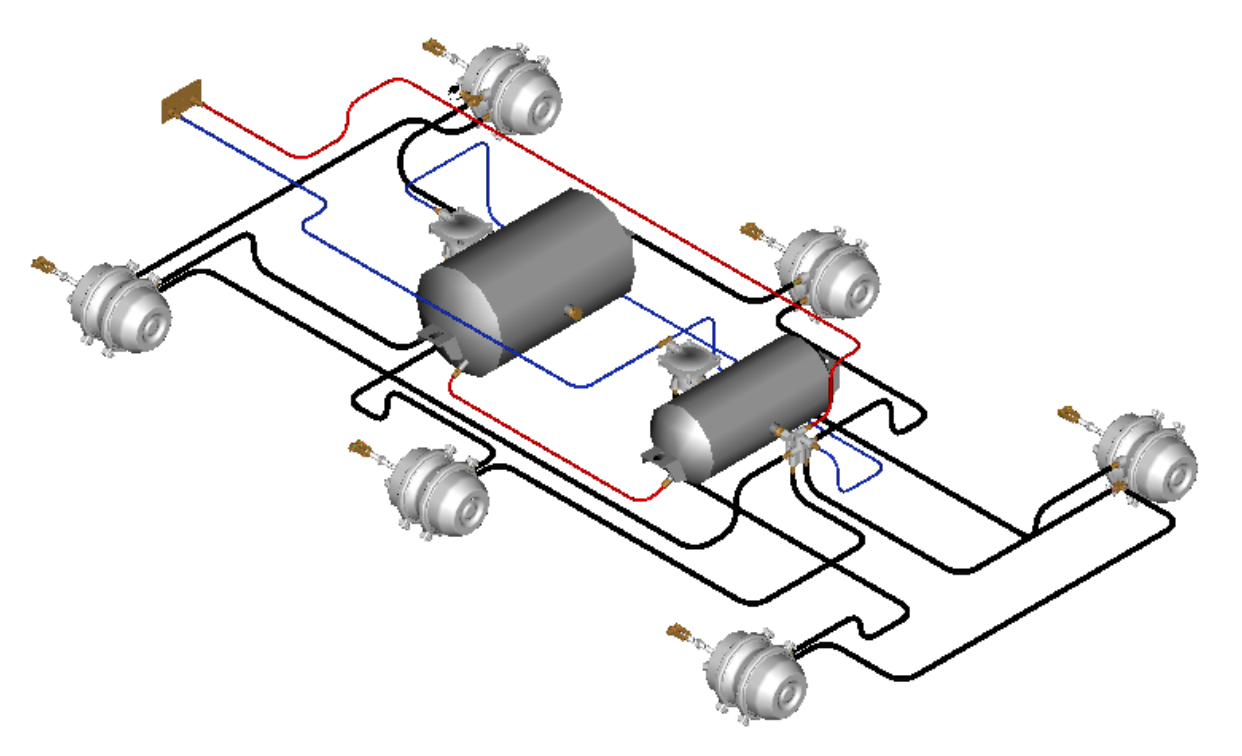
Contamination

Contamination as a cause of failure:

- Valves fail with time due to wear and contamination;
- Valve seats take on a permanent set and may no longer seal;
- Valves take in contamination from the air supply and either don’t seal properly or may become sticky.
- Contamination can often be carry over oil and water from the air supply.

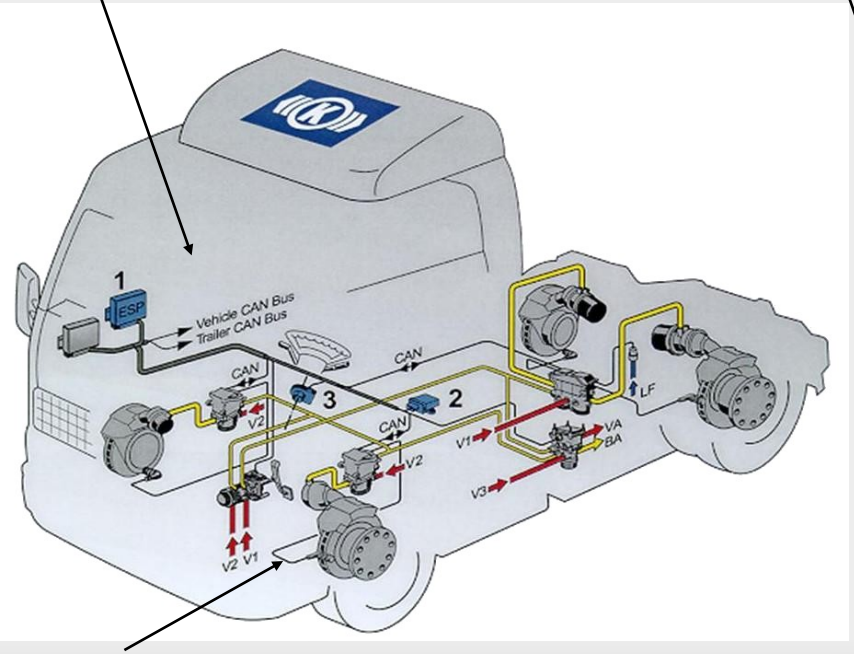
PACCAR & DEALER
TMC
Technical & Maintenance Conference

Typical Pneumatic Control System



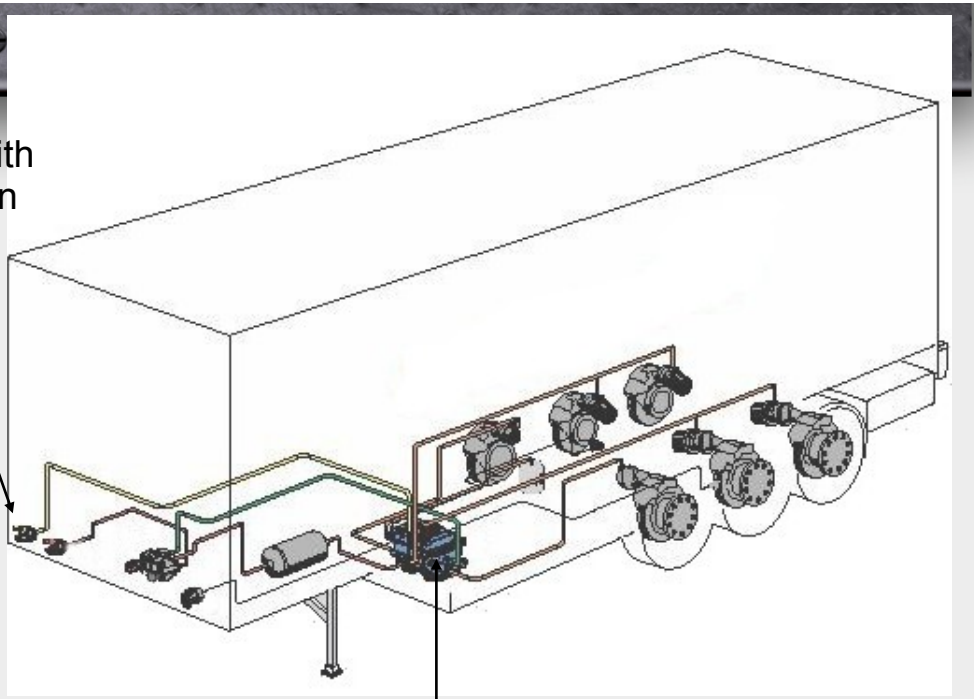
PACCAR & DEALER TMC Technical & Maintenance Conference

Electronic Control Unit (ECU)



Foot brake module

EBS Kits with filters shown

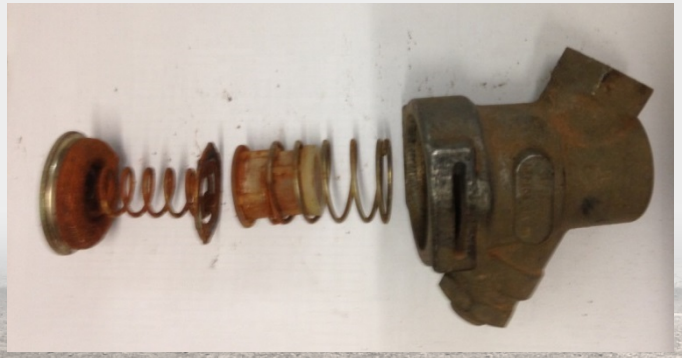


Trailer control module (TCM)

PACCAR & DEALER TMC Technical & Maintenance Conference

Brake Supply line filter strainer

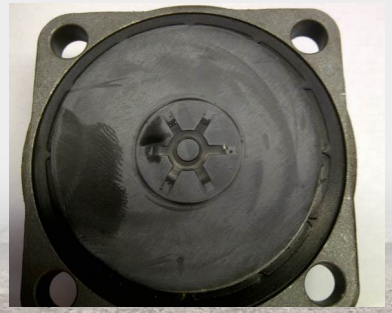
- With EBS we typically fit a filter strainer: contamination is then limited
- without the filter all the debris shown would be passing into the brake valves!!!
- 80-140µm

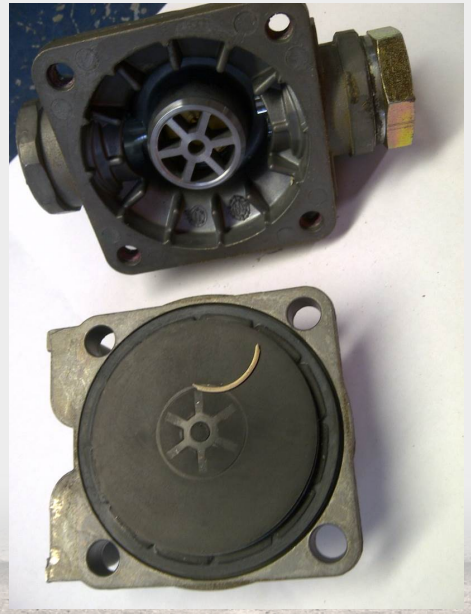


PACCAR & DEALER TMC Technical & Maintenance Conference

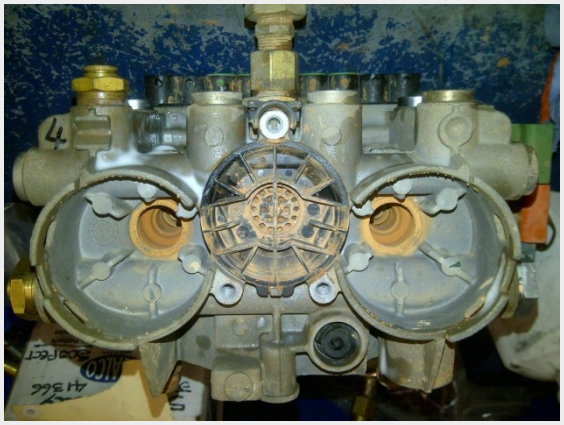
Examples of contamination

- Teflon sealing tape (Left) Hardened sealing compound (Right)
- Both prevented valves from sealing properly.





Contamination: example in EBS Valves



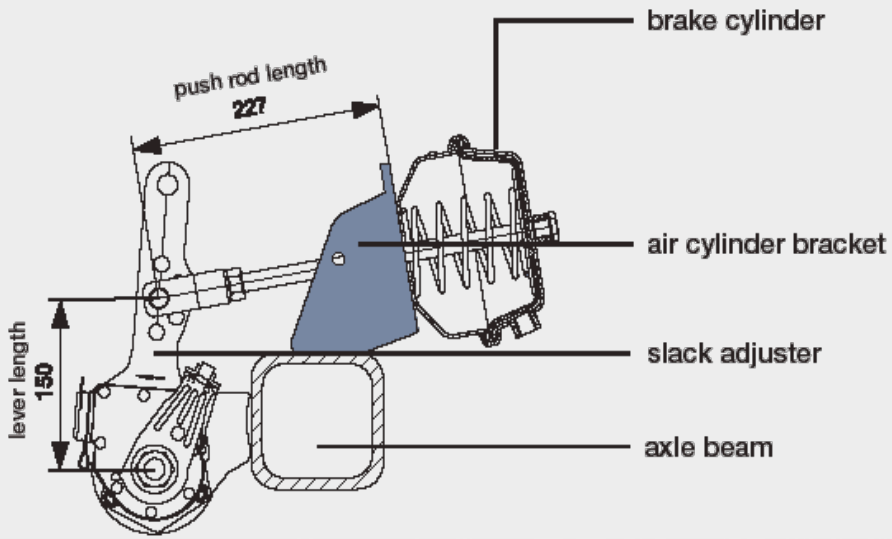
- Bottom of EBS Valve with exhaust filters removed.
- Left shows typical high oil carry over into EBS Valve
- Right shows same oil carry over in combination with high dust environment.
- (Both valves are serviceable if you check this in time!!!)

PACCAR & DEALER TMC Technical & Maintenance Conference

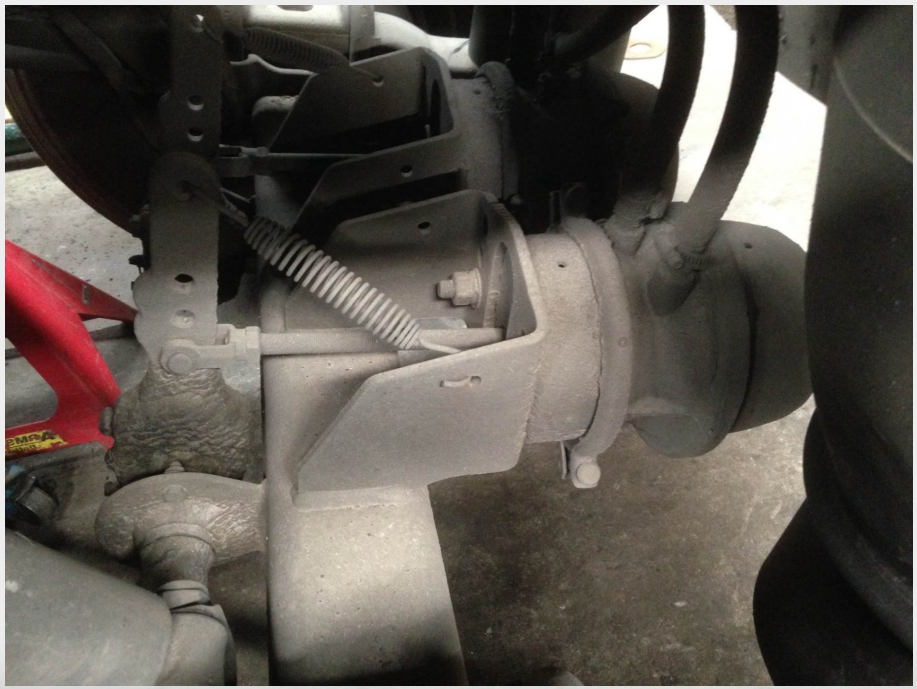
Maintenance items

- Check your truck air supply: is it dry is it clean.
- Check the couplings
- Drain Air Tanks
- Check filters periodically
- Recommend minimum system check at 3 months or 40,000 kilometres

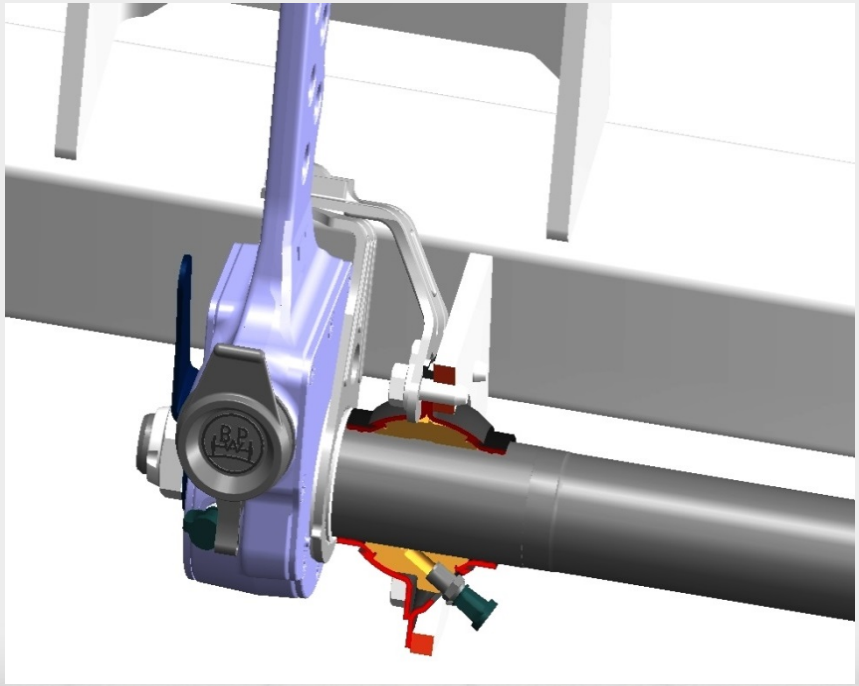
BPW Drum Brake Booster Installation



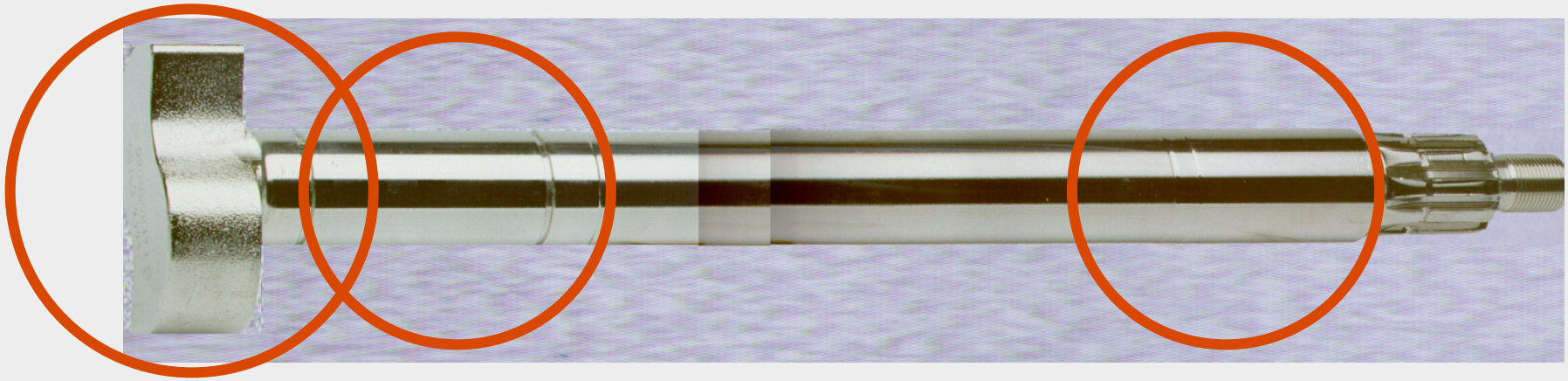
Drum Brake booster set up



Slack Adjuster and Support Bearing



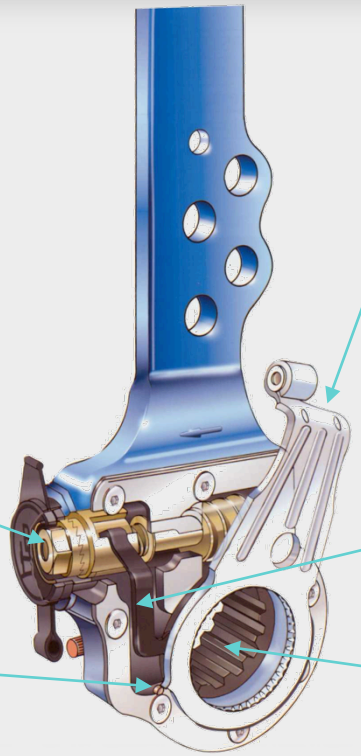
BPW S-Cams



- **KTL Coated for superior rust prevention**
- **High torsional stiffness for superior brake performance**
- **Hardened bearing surfaces**

PACCAR & DEALER TMC Technical & Maintenance Conference

Function BPW Automatic Slack Adjuster



Reaction arm

Adjusting Screw

Adjustment Arm

Setting Indicator

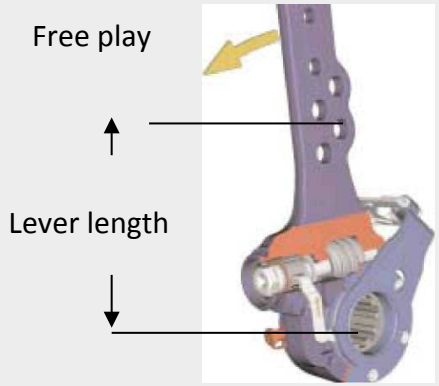
Splines

PACCAR & DEALER TMC Technical & Maintenance Conference

Brake Adjustment

The brake threshold is overcome when the automatic slack adjuster is operated.
The brake lining is brought into contact with the brake drum.
The adjustment lever moves up turning the sleeve.

Brake application



Free play pulled by hand

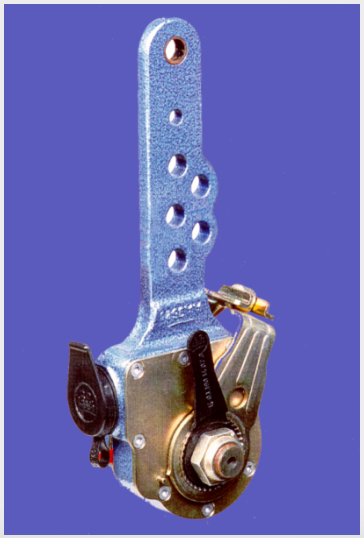
10 to 15 % of lever length

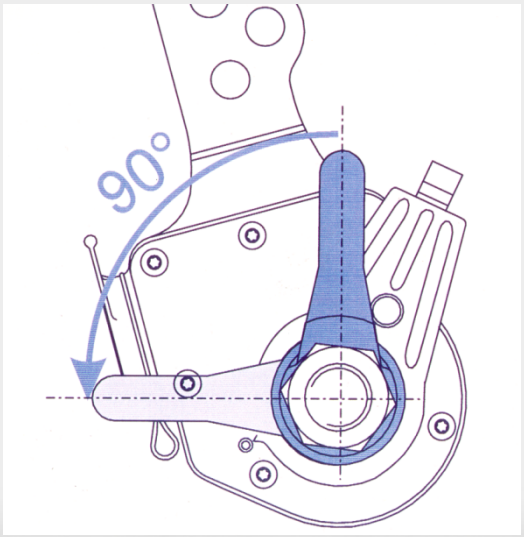
approx 15-22mm on a 150 slack length

PACCAR & DEALER TMC Technical & Maintenance Conference

Wear Indicator

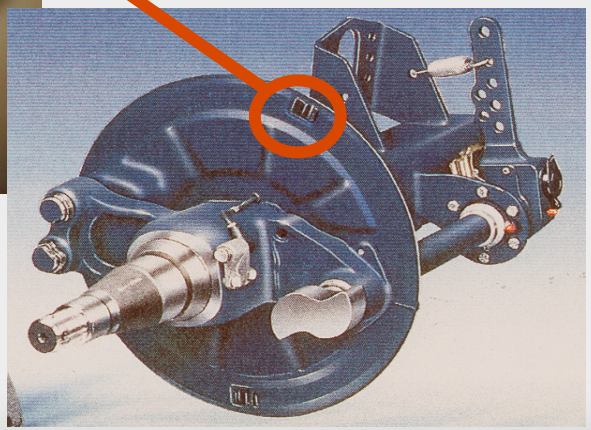
When new – set at vertical up before adjusting

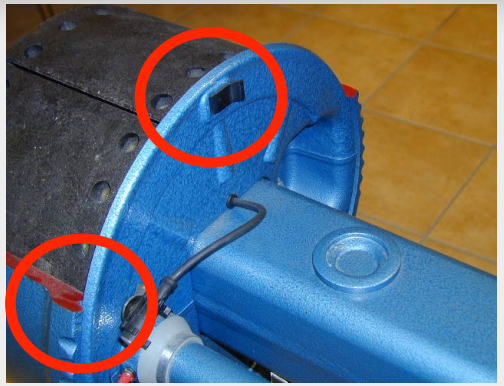




PACCAR & DEALER TMC Technical & Maintenance Conference

Break Wear Indicator





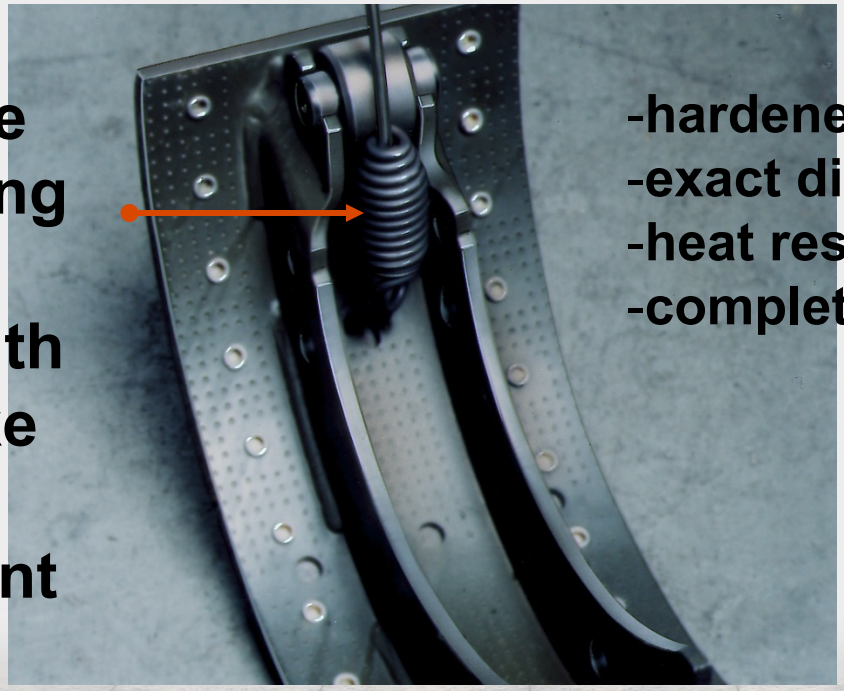
Heat kills linings but dirt

kills linings twice as fast.

PACCAR & DEALER TMC Technical & Maintenance Conference

Double Action Retraction Spring

Main brake return spring must be replaced with every brake lining replacement



-hardened Bearing Surfaces
-exact dimensioned
-heat resistant prime coating
-completely stress relieved

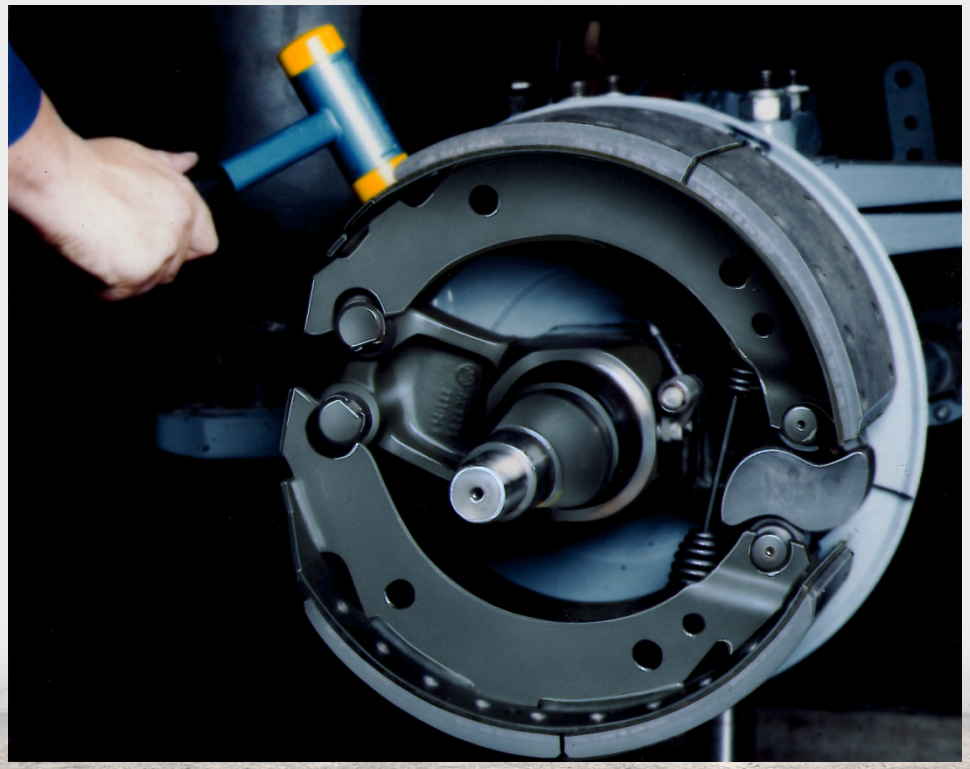
PACCAR & DEALER TMC Technical & Maintenance Conference

Copper Slip Lube Point

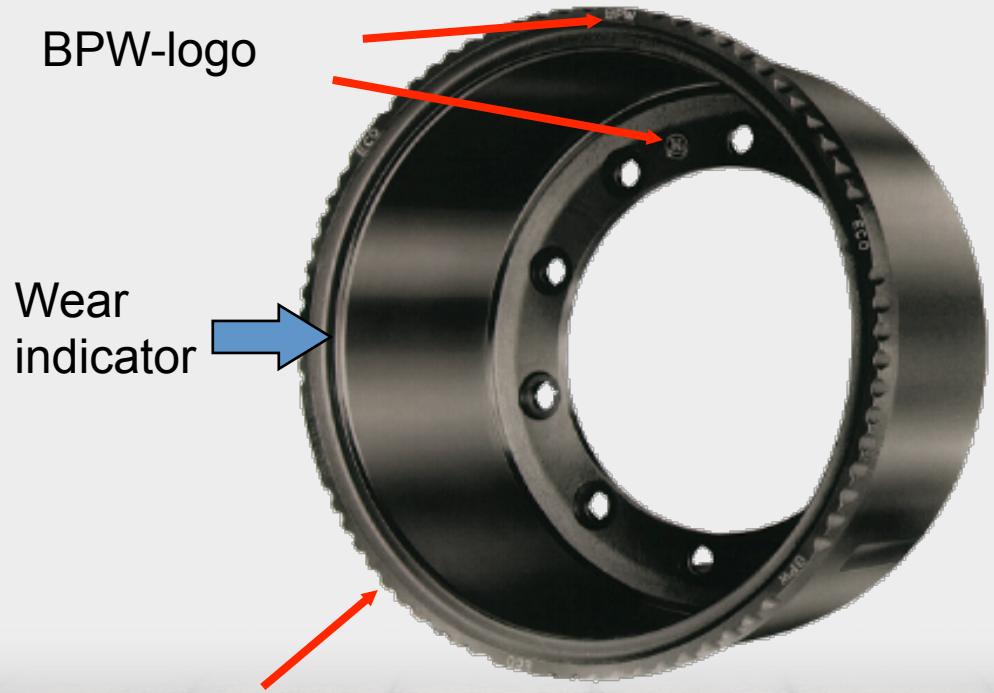
Drum and shoe Life

- Depending on conditions and duty shoe life varies:
- Make sure brake set up is mechanically/pneumatically sound and contact and application pressures suit you fleet.
- Simplest test just requires simple workshop equipment and 3 people!!!

Mounting of Brake Shoes



BPW – Brake Drum



PACCAR & DEALER TMC Technical & Maintenance Conference

Wear indicator – ECO Brake Drum

Max. skimming size
N series = 303 mm
K series= 363 mm
H series= 424 mm

N max dia 304mm
K max dia 364mm
H max dis 425.5mm

Non-genuine or out of spec parts!

- Drums may expand too much and or fail under extreme heat.
- Expansion of the drum can cause the booster to run out of stroke and you lose brake force!!!!!
- Drums beyond wear limit or that are of poor quality/design may not be able to dissipate heat of braking.
- Poor or no dust covers can allow abrasive debris into drum shoe area. Greatly reducing life and or potential causing failure.

PACCAR & DEALER TMC Technical & Maintenance Conference

Heat damage = Drum being elongated

PACCAR & DEALER TMC Technical & Maintenance Conference

Example of non-genuine drum failure

Keep an eye on what is going on!