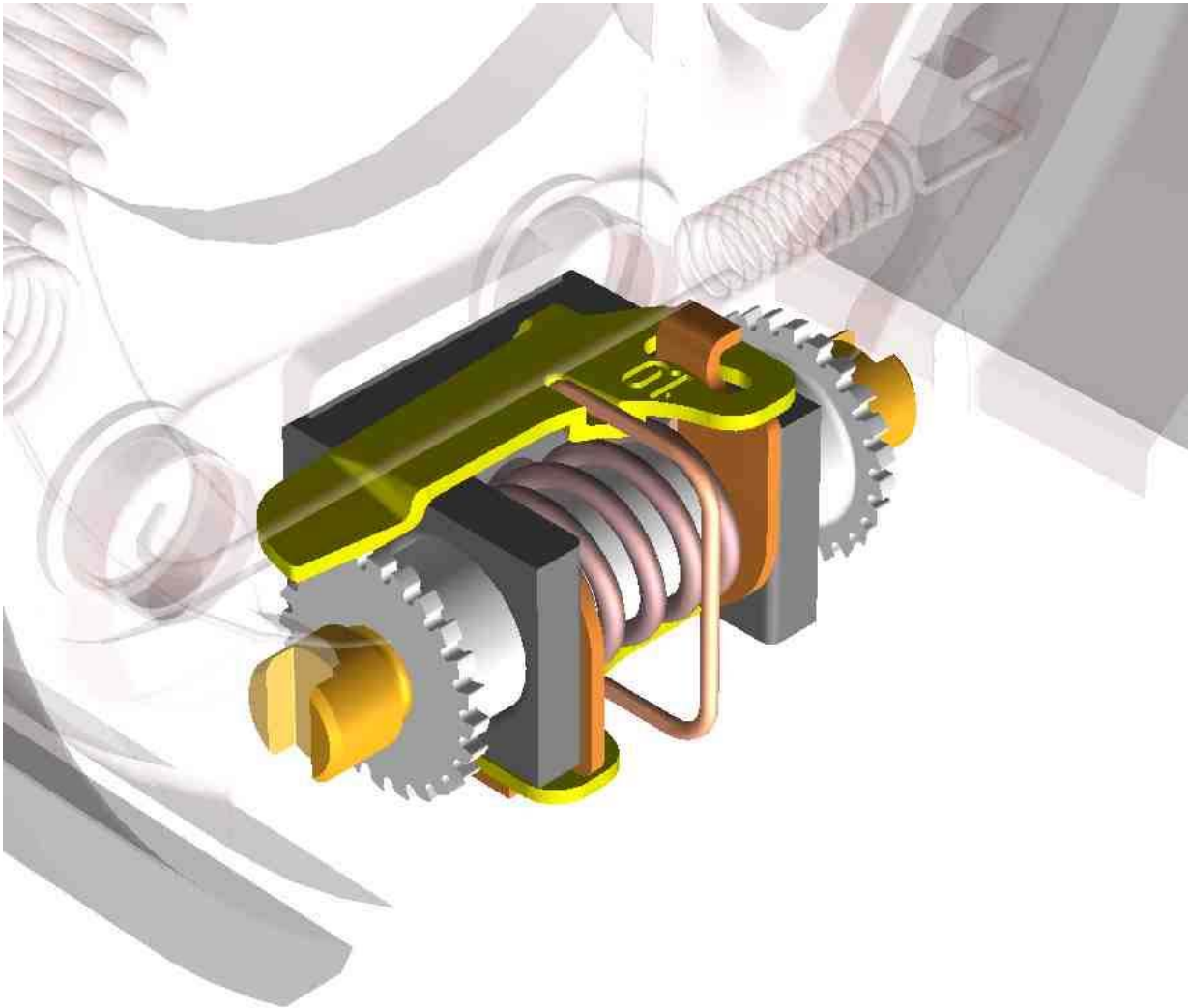


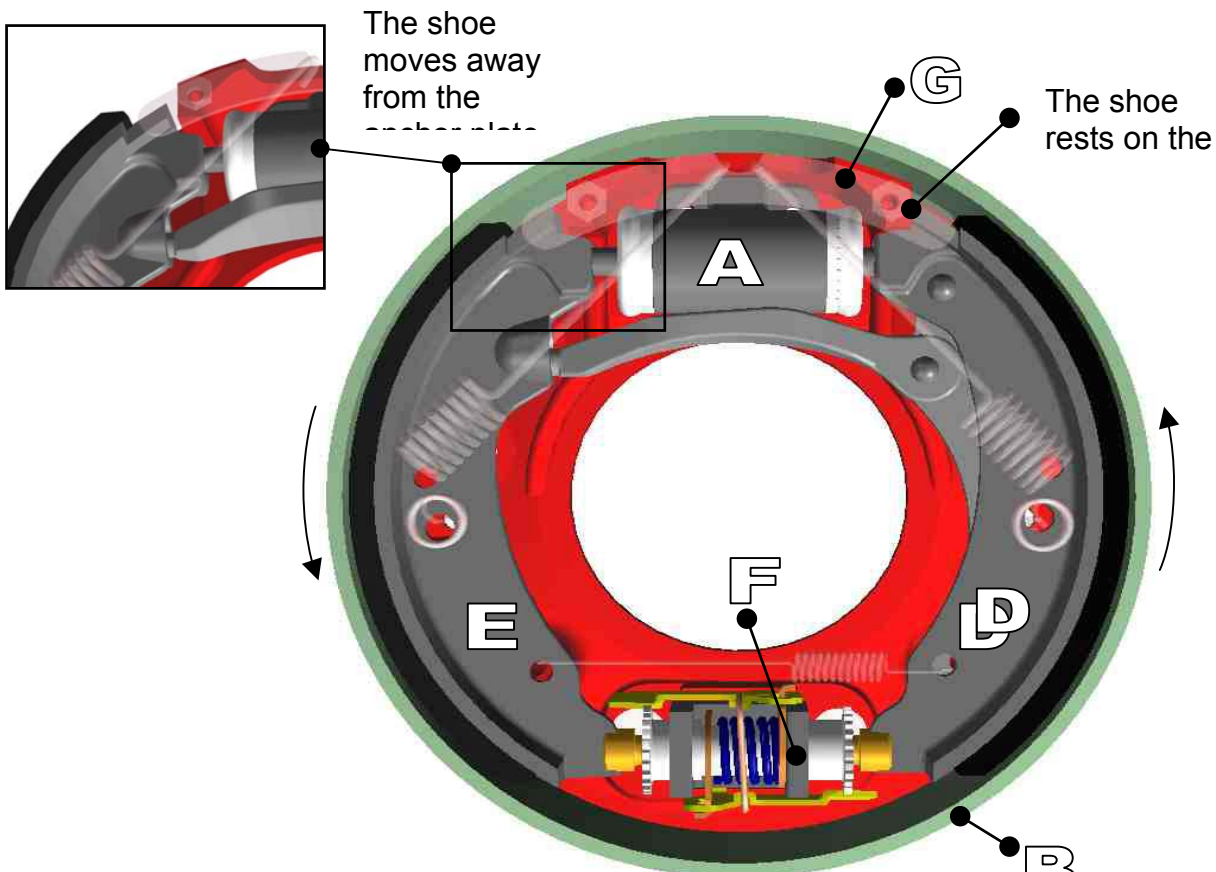
KNOTT Hydraulic Servo Drum Brakes with Automatic Adjustment



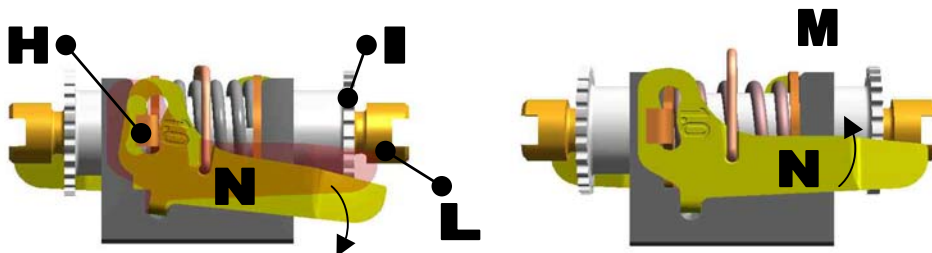
How does the **KNOTT** Automatic Adjuster Work?



Adjustment occurs independently in both directions of drum rotation.



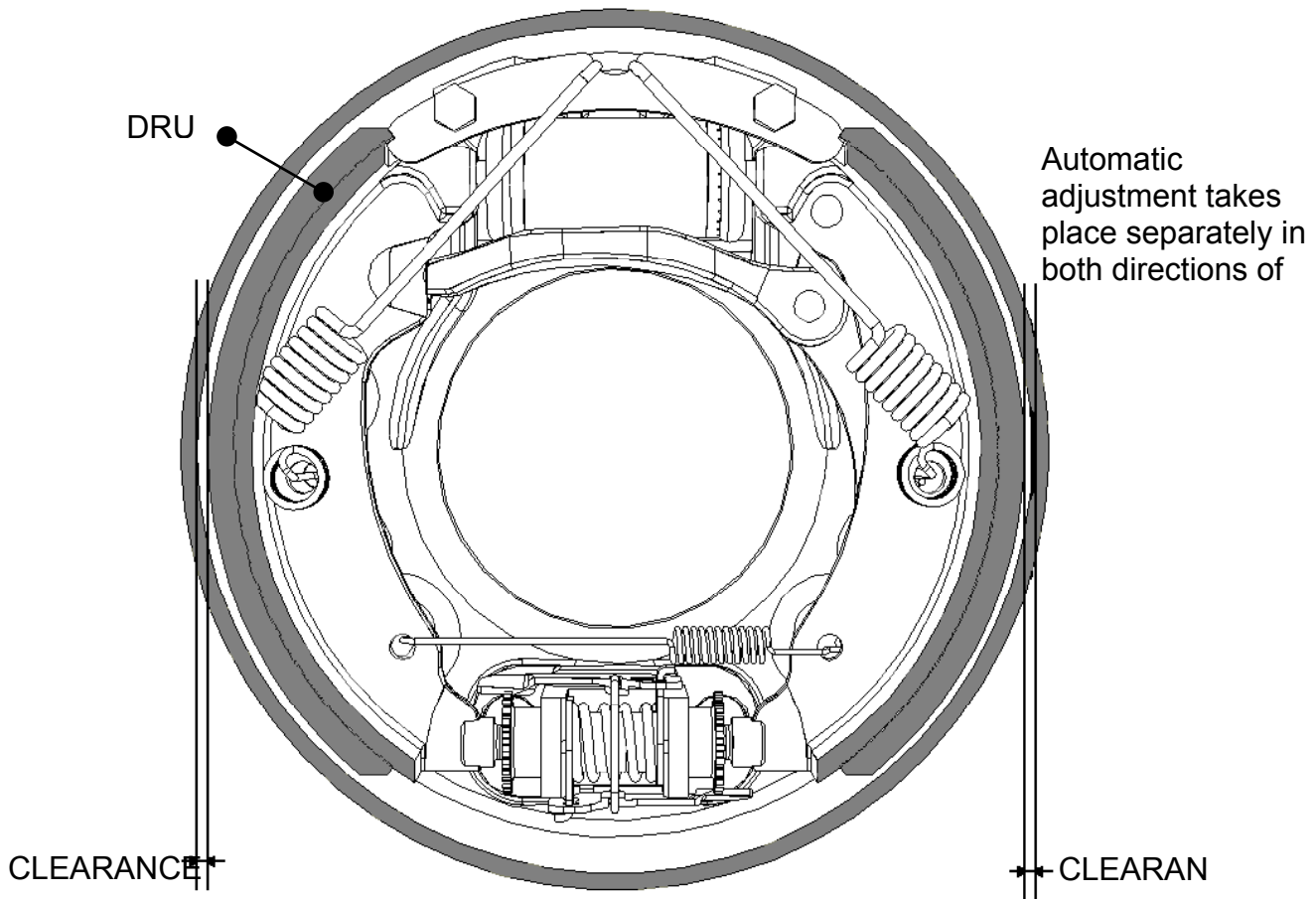
By applying pressure to the wheel cylinder (A), the rotation of the drum (B) imposes the rotation of the brake shoes (D) & (E) in the same direction by axial slipping the moving parts of the adjuster (F) until they rest on the top of the anchor plate (G).



Applying . . .

Releasing pressure from the

Element (H) drives the lever (N) downwards until it picks up a tooth of the toothed wheel (I). On releasing the brake, the force of spring (M) in the adjuster, plus the force of the shoe return springs via element (H) drives the lever (N) upwards, making the bushing with the toothed wheel (I) rotate by 1 tooth. Slack is taken in via the thread between (I) and (L) and the brakes are thereby readjusted.



A specific clearance is necessary between the shoes and the drum for the adjuster to function.

If the initial clearance is TOO SMALL, the adjuster will not function until the necessary clearance is achieved.

PLEASE NOTE

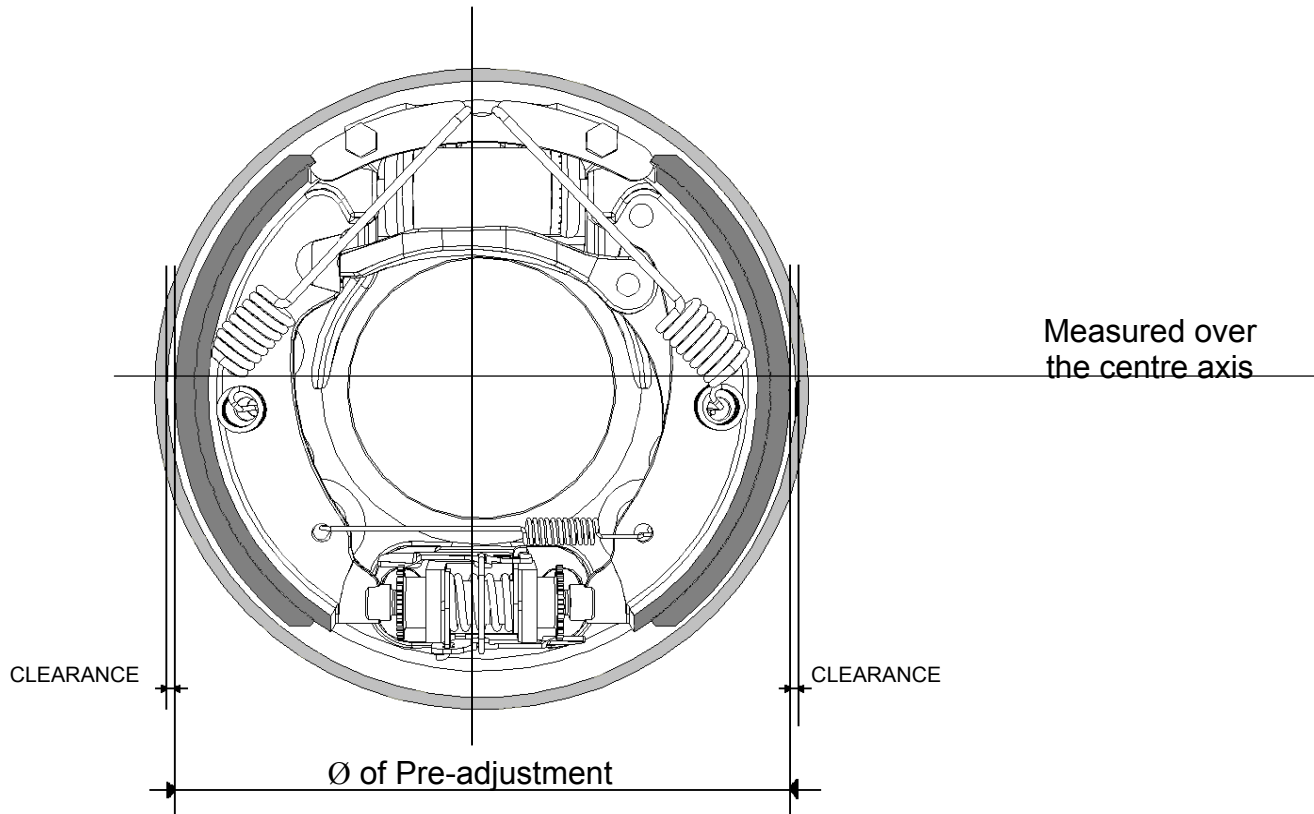
Prior to the clearance increasing to a point where the adjuster will readjust, the driver may notice a slight increase in pedal travel.

If the initial clearance is TOO GREAT, the adjuster will start functioning immediately and will bring the brake into adjustment after braking a few times in each direction.

PLEASE NOTE

Excessive clearance may damage the adjuster.

Theoretic brake diameters after presetting.

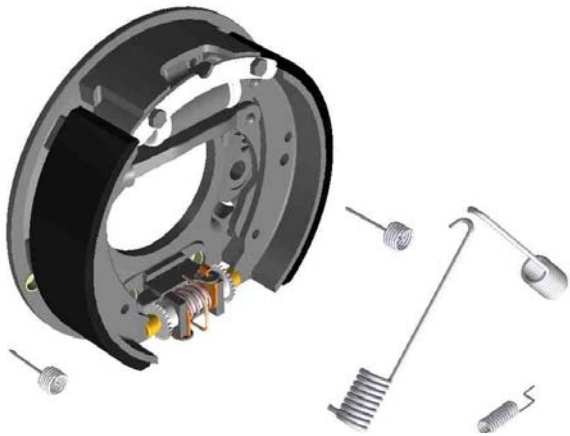


The adjuster will maintain a preset diameter, dependent upon:

- Brake size
- Type of adjuster
- Activation pressure applied
- Elasticity & stability of drum
- Temperatures reached

Brake Size		Preset Diameter
170 x 40	idr – servo	169.2 - 0.2
200 x 40	“ “	199 - 0.4
203 x 40/60	“ “	201.8 +/- 0.2
230 x 50	“ “	228.7 +/- 0.2
245 x 60	“ “	243.6 +/- 0.3
250 x 45/55	“ “	248.6 +/- 0.3
270 x 60	“ “	268.6 +/- 0.3
300 x 55	“ “	298.5 +/- 0.3
315 x 80	“ “	313.5 + 0.7 - 0.3
325 x 80	“ “	323.5 +/- 0.4
400 x 80	“ “	398.4 +/- 0.4

Fitting the Brake to the Axle ⁽¹⁾



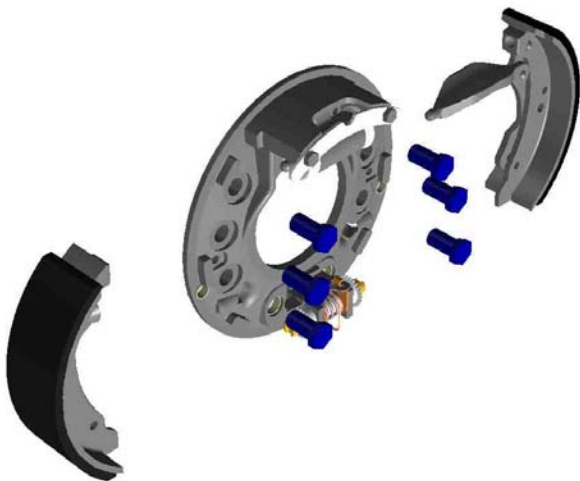
Unhook the springs with suitable tools.

WARNING

Springs **MUST NOT** be damaged.

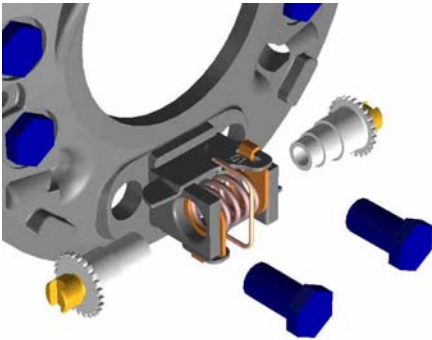
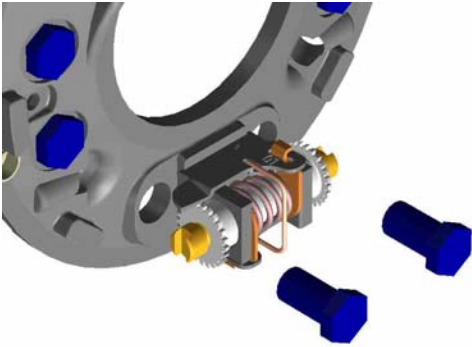


Remove the brake shoes

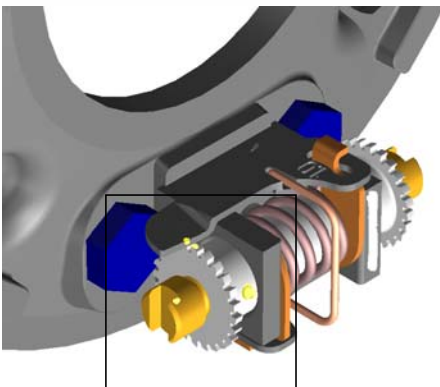


Mount the backplate to the axle, then refit the shoes and brake cable (if applicable).

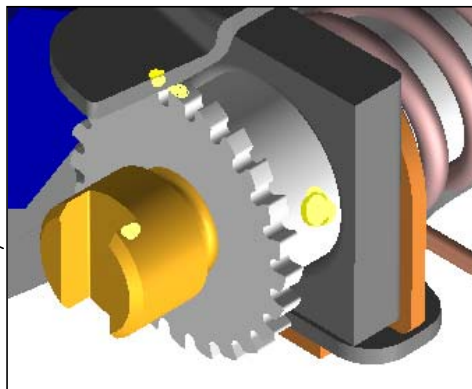
Fitting the Brake to the Axle. (II)



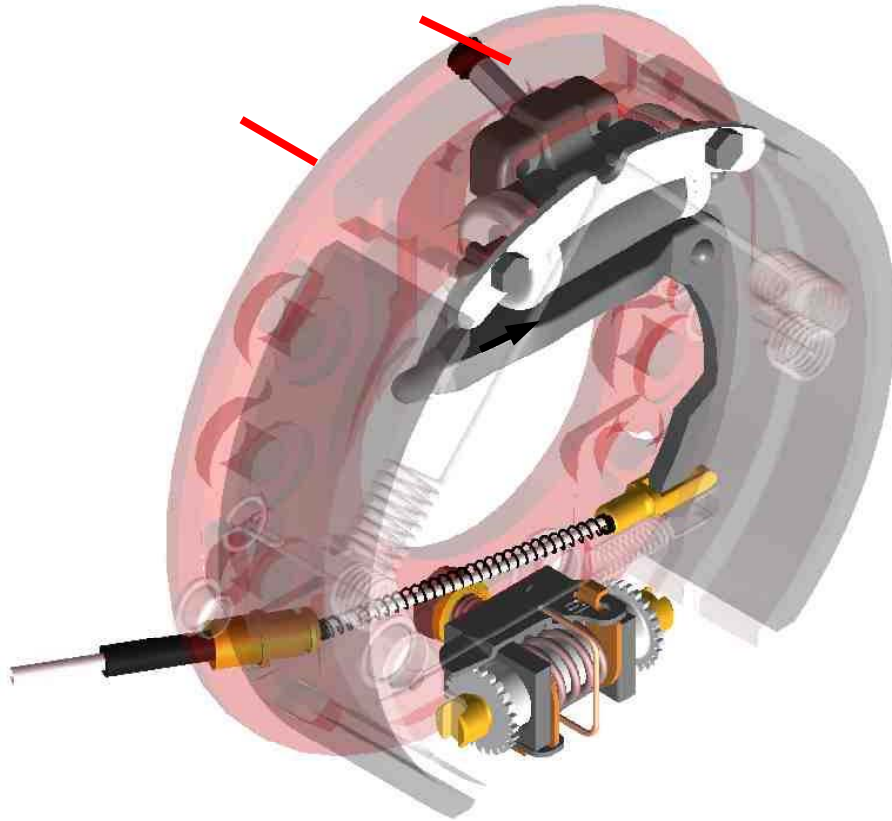
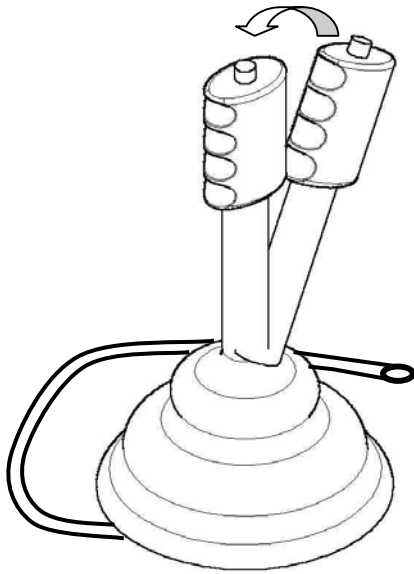
If necessary remove the two toothed wheel assemblies with the adjuster bolts.



After inserting the fixing screws, refit the toothed wheels. Care must be taken to ensure that these are reassembled in the same position, using the yellow dots for reference.

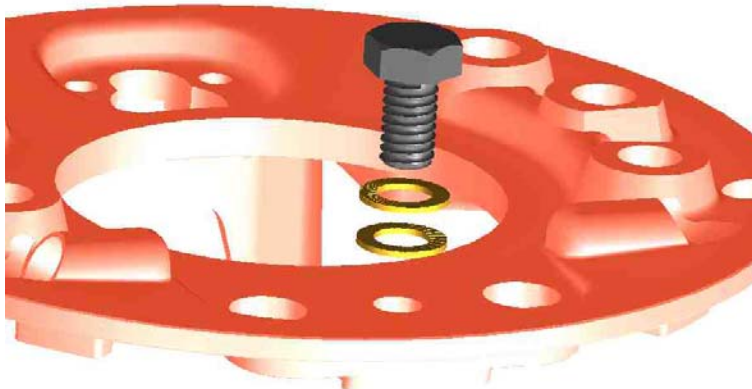


Mechanical Parking.

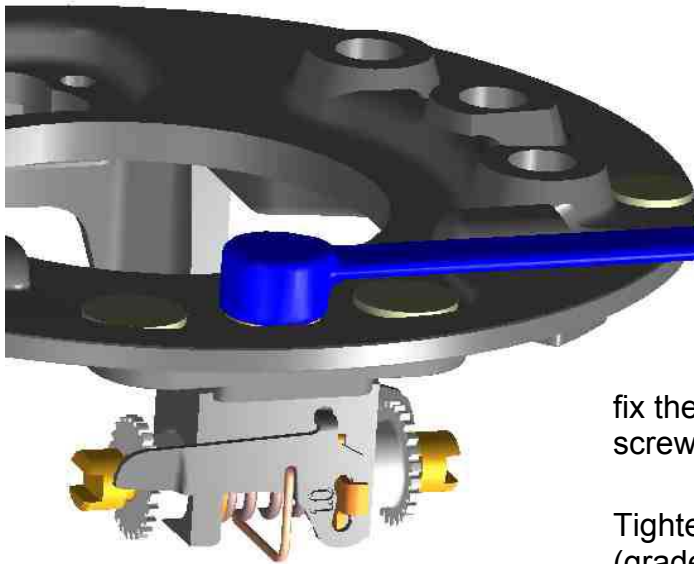
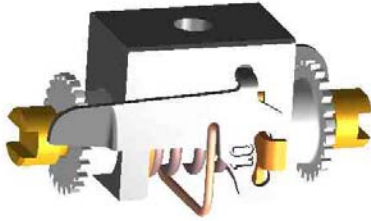


Check that, when releasing the handbrake, the lever inside the brake returns to the rest position, so that the shoes at the end near the wheel cylinder are resting completely on the anchor plate.

PLEASE NOTE : If this is not the case, the brake cable is pre- tensioned and will cause the adjuster to malfunction.



USE ONLY KNOTT-APPROVED FASTENING SCREWS AND WASHERS



Torque Wrench



fix the adjuster to the backplate by tightening the screws to the following torques:

Tightening torques for hexagonal-headed screws (grade 8.8)

Brake size	Screw Type	Torque (Nm)
200x40 203x40/60 230x50 245x60 300x55	M12	90 +10
315x80 325x80	M14	120 +20

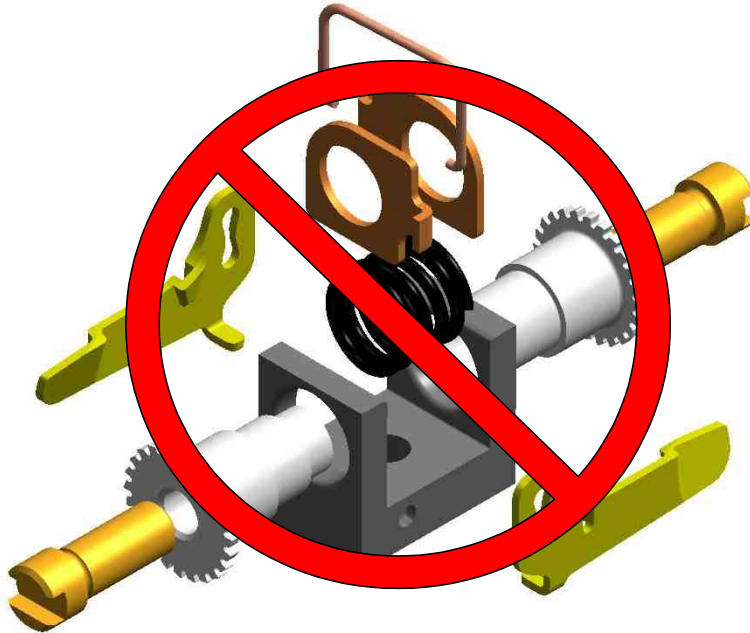
Use **ONLY**
KNOTT
ORIGINAL SPARES



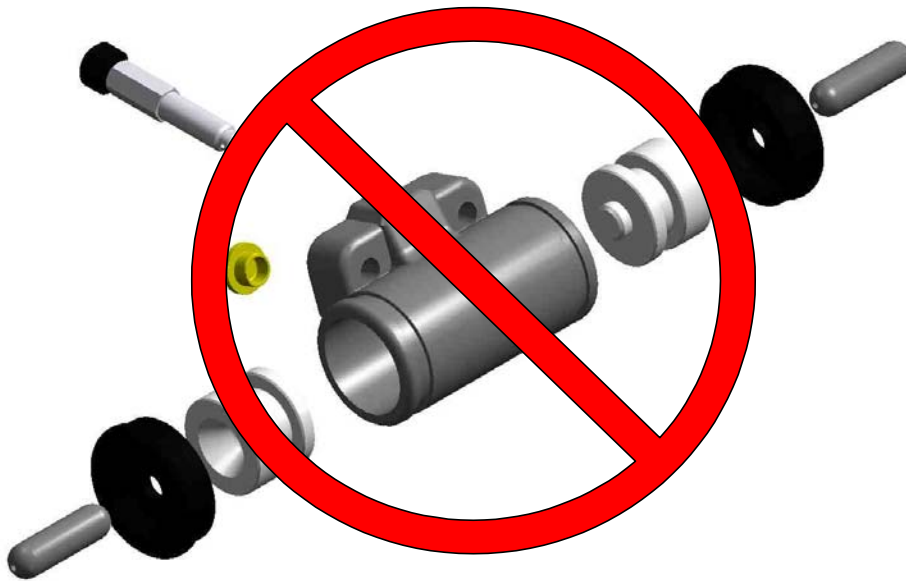
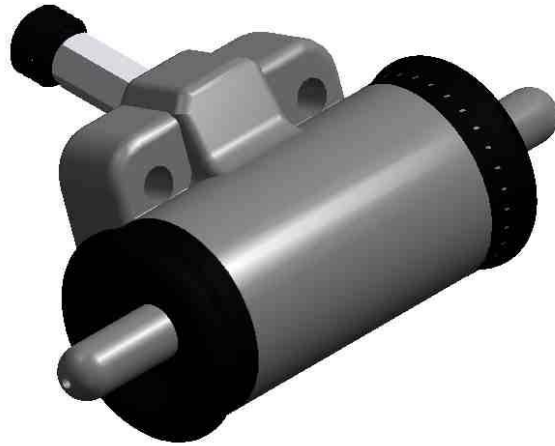
ATTENTION! THESE ARE SAFETY-RELATED COMPONENTS.

KNOTT ACCEPTS NO LIABILITY FOR THE USE OF NON-APPROVED SPARE PARTS

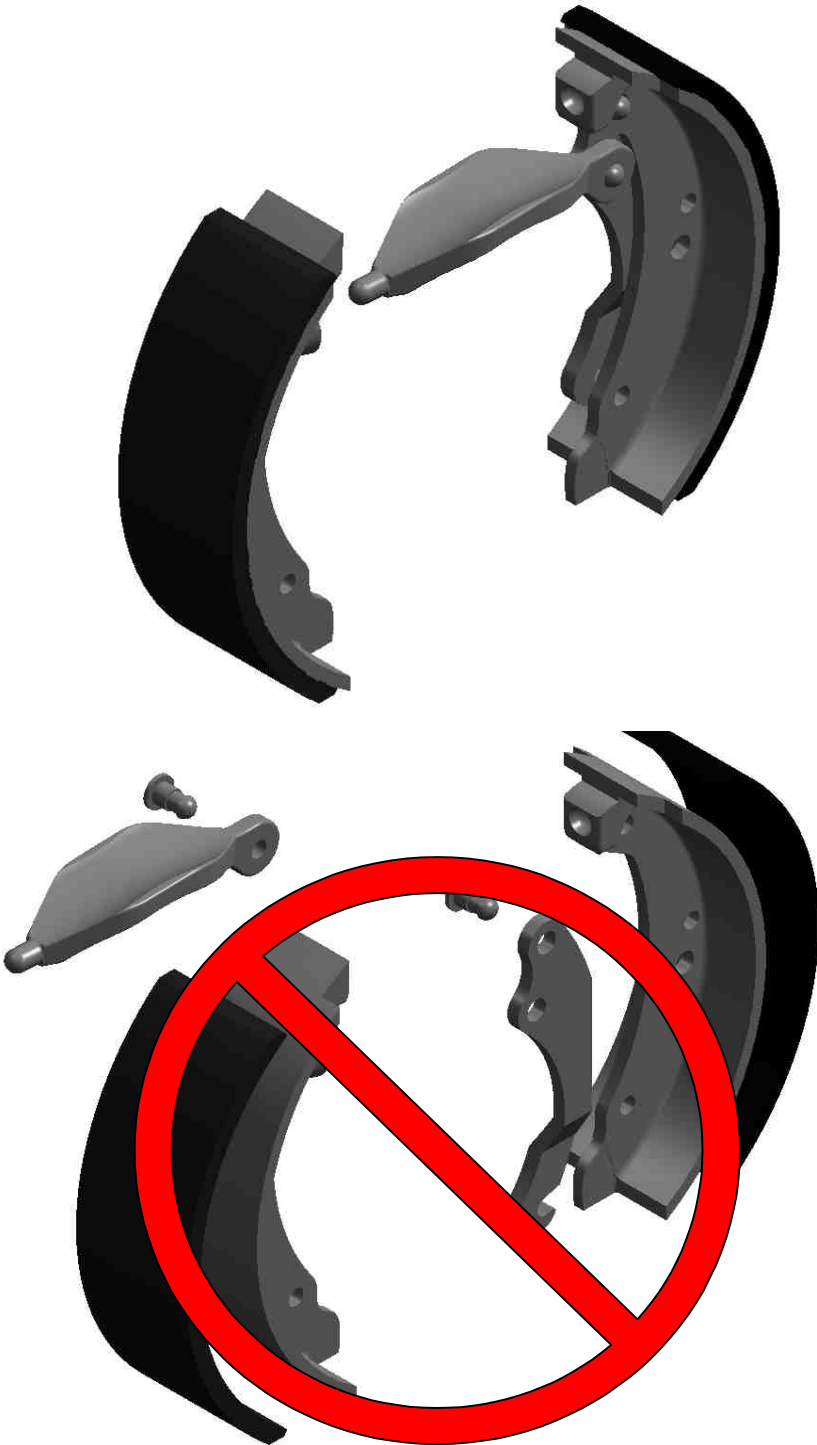
Replace **ONLY** the COMPLETE
ADJUSTER



Replace **ONLY** the complete wheel cylinder.



Replace **ONLY** the complete
brake shoes.



Technical Information 25/82

Functional Characteristics and Maintenance Instructions

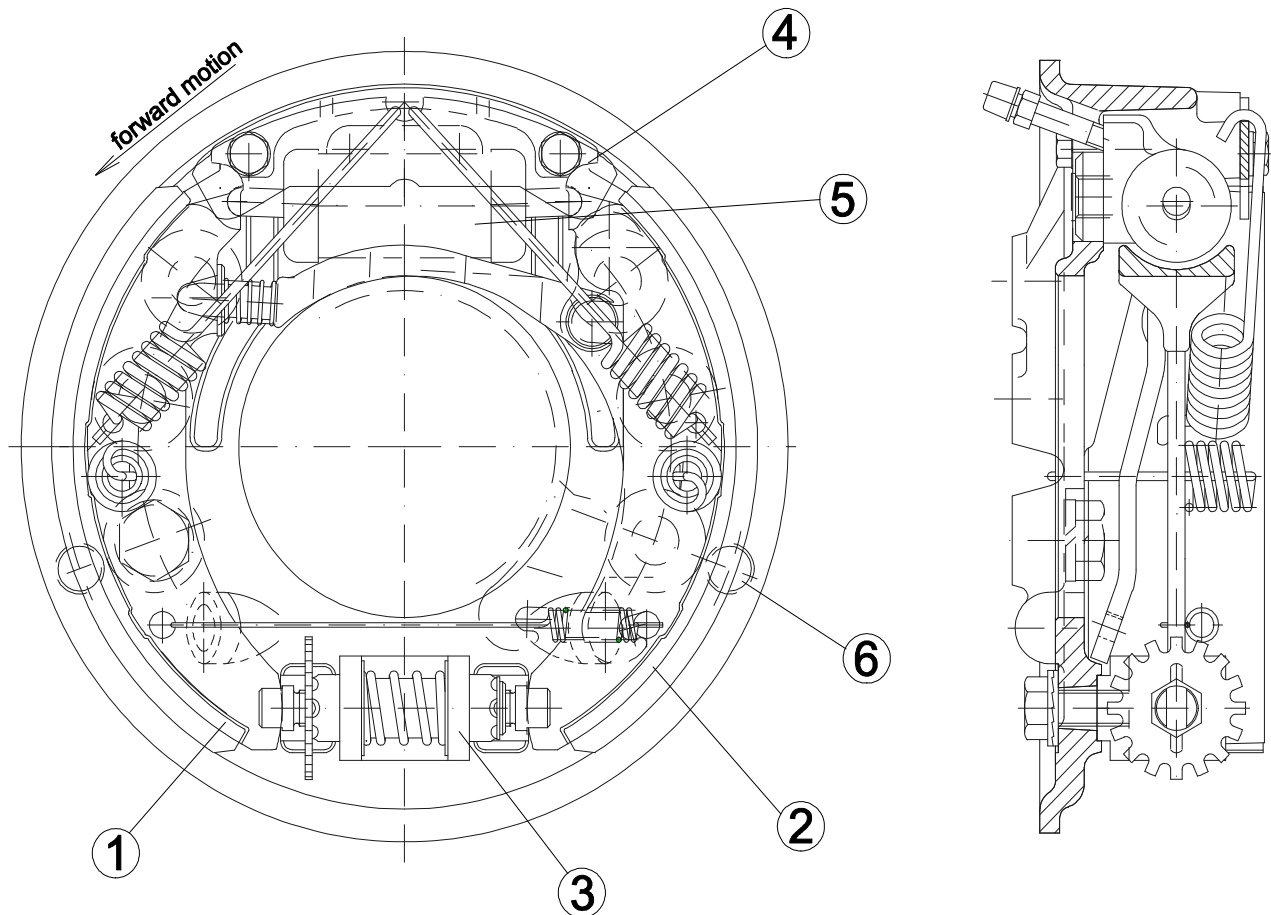
Hydraulic-Servo-Brakes

1. Function of the hydraulic servo brake


The function of this brake is based on the fact that on operating the wheel cylinder, two brake shoes are pressed against the drum, whereat one brake shoe (primary brake shoe) is taken in the direction of rotation of the brake drum, and the second brake shoe (secondary brake shoe) aligned by the lower floating support is blocked against a fixed point at the top of the brake anchor plate, or the wheel cylinder ↺.

By the supplementary force of the primary shoe, the so-called “self-energization” (servo effect) of the brake is generated.

The braking efficiency is almost the same in both directions.



2. Setting device

The lower floating support  is in most cases designed as a setting device, and either a mechanical or an automatic type may be used.

Caution: For maintenance or setting it is necessary to pay attention to, and correspond with, the special Knott instructions.

3. Wheel cylinder

The pressure produced by the brake operation is transferred to the brake shoes by means of the wheel cylinder pistons.

3.1 Maintenance:

With every periodical brake check it is necessary to check the wheel cylinder and connecting parts for leakage.

3.2 Repair instructions:

After having dismantled the cylinder, all individual parts, as well as the casing itself, have to be thoroughly visually controlled.

For the renewal of individual parts, repair sets can be provided, whereby we strongly recommend that you exchange these sets completely and not partially.

Use only methylated spirits to clean the cylinder and its individual parts. Never use mineral oil containing cleaning agents.

At reassembly, it is necessary to pay attention to the right sequence of the individual parts, and to use a suitable assembly paste or liquid.

When the visual control shows deficiencies in the casing such as rust scars, grooves, or other damage, then the wheel cylinder must be exchanged completely. The same can only be purchased from the manufacturer of the vehicle or the brake under specification of the order number.

After having finished the work on the hydraulic installation, check the level of the brake fluid in the reservoir, refill if necessary and finally bleed the main and wheel cylinders thoroughly according to the instructions of the manufacturer of the vehicle.

4. Brake shoes

4.1 Maintenance and Inspection

Properly speaking, the brake shoes need no maintenance. They should only be checked for damaged parts, and for the free movement of the parking brake mechanism.

The thickness of the linings has to be checked by sight control through the wear checking hole at regular intervals, depending on the use of the vehicle, but at least twice a year.

When the remaining lining thickness is small, these intervals have to be shortened correspondingly in order to avoid greater damage to the brake and drum.

Since, depending on the use of the brake, the linings are glued or riveted, it is necessary to pay attention to the different thickness remaining.

Riveted brake linings: Remaining thickness 1,0 - 1,5 mm over the rivet head at the thinnest point of the lining.

Glued brake linings: Remaining thickness min. 2,0 mm at the thinnest point of the lining.

The brake lining has to be replaced according to the following instructions when these thickness have been attained.

4.2 Repair and exchange of the brake shoes

The brake linings and shoes have to be replaced or exchange in the case of soiling, unequal wear, insufficient braking power or after having attained the minimum remaining thickness.

Caution: In order to avoid unequal braking behaviour it is necessary in all cases to replace all the brake shoes and linings of an axle.

Riveted linings may be riveted and unriveted by suitably equipped workshops according to the general regulations.

Important! Original Knott replacement linings must be used in all cases for this purpose.

There will be no guarantee for the brake and its function when using other spare parts.

In the case of glued linings the renewal can only be done by exchanging the brake shoes.

Note: For replacement an original Knott spare part will be delivered ready for mounting! The same will be delivered under specification of the order number of the manufacturer of the vehicle or the brake.

Important! There is no guarantee on the brake when using other parts or gluing new linings to the shoes.

After the installation of new brake shoes or after a repair the brake has to be correctly set according to Knott instructions.

5. Brake drum

The brake drum can be machined out according to the instructions of the manufacturer when checking reveals deeper grooves in the running surface of the drum. Should there be no instructions then refer to the following table, taking the wall thickness into consideration.

Max. admissible machining out measurement for brake drums.

brake size	drum Ø (mm) (when new)	max. machining out Ø (mm)
180 x 40	180,0	181,0
200 x 40	200,0	201,5
203 x 40 and 60	203,0	204,5
230 x 50	230,0	231,5
245 x 60	245,0	246,5
250 x 40 and 60	250,0	252,0
267 x 64	267,0	269,0
270 x 60 and 64	270,0	272,0
315 x 80	315,0	317,0
325 x 80	325,0	327,5
350 x 60	350,0	352,5
400 x 80 and 120	400,0	402,5
432 x 102	432	435

Attention is to be paid to the fact that both brake drums of an axle must always be machined out to the same measurement.

Caution: For machined out brake drums it is necessary to use overthick linings.

6. General information

It is a matter of course that ascertained deficiencies or damage of parts not mentioned here, have to be repaired or replaced by original Knott spare parts. Missing specifications or more detailed instructions are to be demanded from the vehicle or brake manufacturer.