

Repair Manual Rotator G/H and Swing damper MPB



Indexator AB, Box 11, S-922 21 Vindeln, Sweden
Tel +46 933 148 00, Fax +46 933 148 99
www.indexator.se sales@indexator.se
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Important!
Read through the manual carefully and
understand the content before starting
the repair work.

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General

This repair manual is intended for all markets and because of this also presents alternative equipment. Please disregard those sections that do not correspond with your equipment.

We continuously attempt to improve our products and reserves the right to make design alterations without introducing these on supplied products.

We also reserve the right to change data and equipment without advanced notification. The same applies to maintenance and other service measures.

The manual contains instructions how you repair and maintain your slewing damper and rotator to give a long life and trouble free operation. Read through the manual carefully and understand the contents before starting to repair the rotator or slewing damper. A careless or incorrect approach can result in serious or even fatal injury.

This concerns the replacement of all critical parts

Only personnel with knowledge of Indexator's products may carry out servicing. Contact qualified personnel when major reconditioning is necessary.

Always state the manufacturing and serial numbers when ordering spare parts or with questions about servicing. These numbers are punched on the top section of the rotator.

Safety

National safety regulations

Over and above the recommendations in this book, each nation (state) has its own safety regulations. Should the recommendations deviate from your country's regulations, you are obliged to observe the national regulations.

Personal safety equipment

Use the protection equipment required for the task (protective shoes, gloves, protective glasses, etc). It is advisable to wear gloves to protect the skin from oils, grease and other materials dangerous to health.

Swing damper

The images in this repair manual show the double swing damper MPB 2-100/45. In principle the instructions apply to all MPB swing dampers, double as well as single.

When repairing a swing damper it is a good idea to have an exploded view close at hand.

Main components of the swing damper

1. Top brake disk
2. Top brake set
3. Link
4. Bottom brake unit
5. Studs and spring assembly

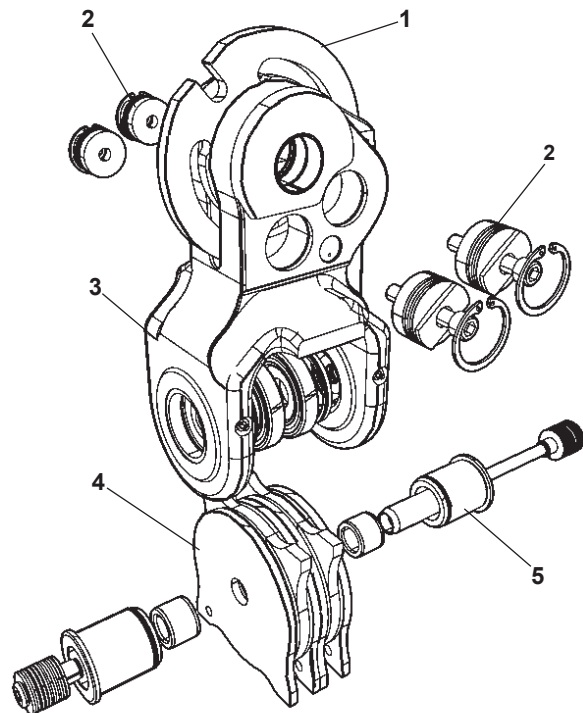


Fig 1

Dismantling the MPB swing damper from the rotator G/H

Figure 1

1. Dismantle the two adjuster screws, one on each side.
2. Press out the centre tube from brake unit using for example a screwdriver.
3. All the brake linings/brake discs can now be dismantled from the link/rotator.

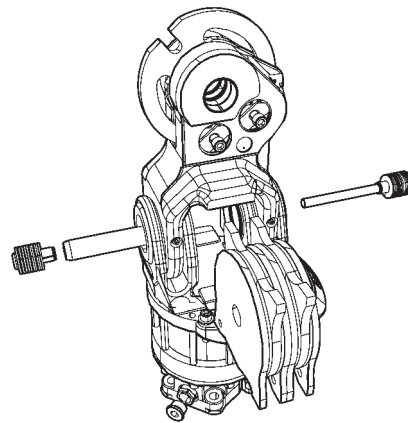
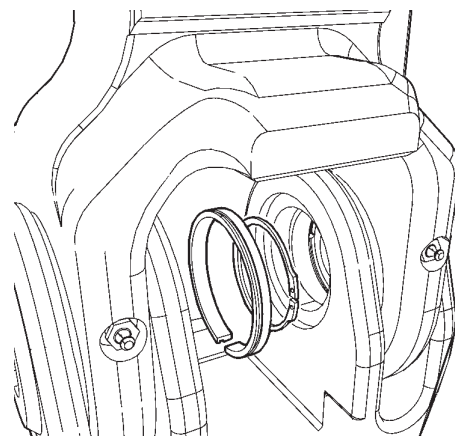


Fig 2

Figure 2

1. Pry out both the clamping rings with a screwdriver.
2. Loosen the circlip located inside the clamping ring with a pair of circlip pliers.
3. Remove the studs. The bushes inside the studs also come out.
4. The link can now be released from the rotator.

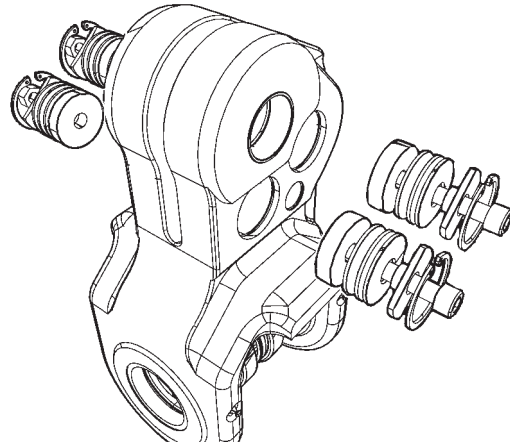


Dismantling the swing damper's top brake

Figure 3

1. Loosen the lock nuts on the brake set.
2. Loosen the screw from the flange nut.
3. Dismantle the circlips and lift out all the brake components from the link.
4. Dismantle the upper brake disc from the link.

Fig 3

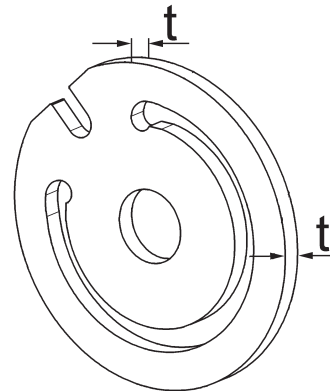


Replacing and maintenance of the top brake components



Important!
The brake linings must be replaced in time so that the steel disc bonded to the lining does not begin to wear/damage the brake disc.

1. Clean all component parts.
2. Complete bolted joints should be inspected and replaced regularly. Recommended to be changed when replacing the brake lining.
3. For reasons of safety and to obtain maximum braking effect, the brake disc should be replaced when the thickness (t) varies by more than 1.0 mm, See the figure.
(Also see the User Manual).



Inspection and maintenance of the link

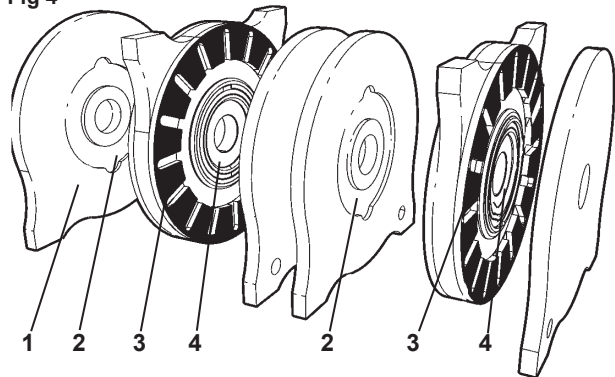
1. Clean the link and check for any crack formation in the castings. Should any cracks be discovered, the complete link must be replaced with a new link.
2. Replacement of the bushes in the upper and lower stud-holes should be done regularly to prevent play on the link's stud-holes.
3. Make sure the bushings are fitted correctly and check that the necessary lubrication holes are there and face the corresponding holes in the link.

Replacing and maintenance of the bottom brake components

Figure 4

1. Clean all component parts.
2. When the brake can no longer be adjusted to give sufficient braking torque, the brake linings (3) should be replaced with new linings.
3. Inspect the brake discs (1) and their contact surfaces against the brake linings. In the event of heavy wear to this surface the brake discs should be replaced.
4. The ball-bearings (4) should be adjusted to increase the life of the brake linings. Turn the ball-bearings inner race a complete turn after every 2000 hours of operation.
5. Note the brake disc's cut-out (2) so that it faces the right way during assembly.
6. Check for wear to the studs, centre tube and other parts before installation.

Fig 4



Replacing the ball bearings in the bottom brake

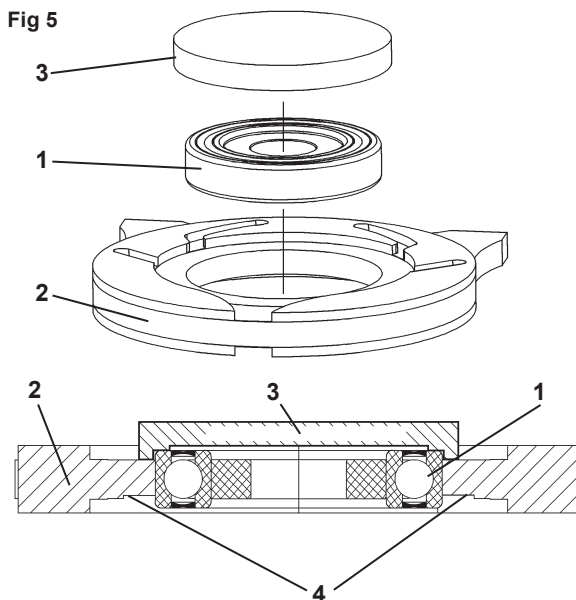
Figure 5

1. Press out the damaged bearing (1) from the brake lining (2). (Do not use the assembly tool).
2. Place the brake lining on a flat surface with the slot side (4) downwards.
3. Press in the new, complete bearing in the brake-lining with the help of the assembly tool (3).



Important! It is important that the assembly tool is used when the new bearing is pushed in so that the new bearing is not damaged and that assembly is correct.

Fig 5



Assembling the swing damper's top brake

Figure 6

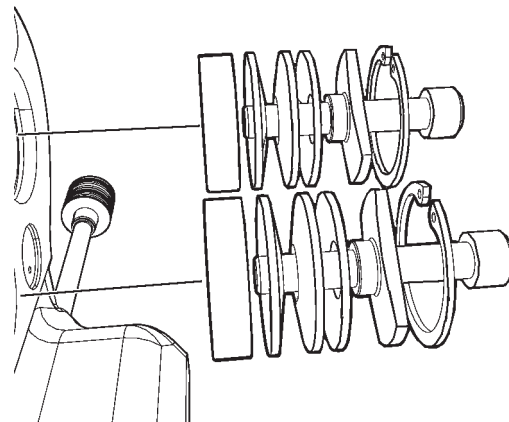
1. Place the upper brake disc in position in the link.
2. Fit the brake units.
3. NOTE: Make sure that the cup springs are fitted the right way round (dishing turned the right way).
4. Fit all circlips.
5. Tighten the bolted joint



Important!
Maximum tightening torque for the bolted joint: 30 Nm. Higher tightening torque causes increased wear and an impaired life span/safety.

6. Fit the lock nuts.

Fig 6

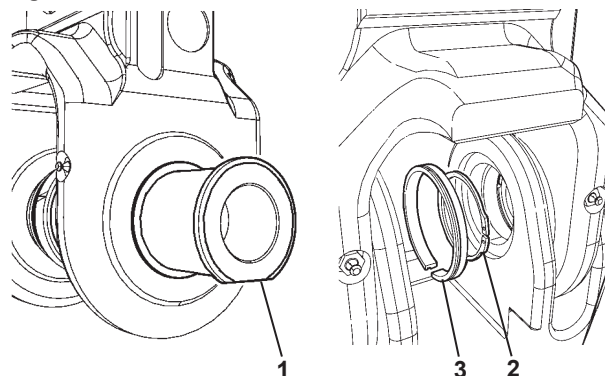


Assembling the swing damper MPB with rotator G/H

Figure 7

1. Place the swing damper in position so that both studs can be fitted.
2. Lubricate the studs both internally and externally with copper paste. Now fit the studs in the stud-holes with the guide face (1) downwards.
3. Fit the circlips (2) and secure these with clamping rings (3) with the groove upwards.

Fig 7



Assembling the brake unit MPB

Figure 8

1. Place brake discs so that the stop lugs are turned towards the rotator.
2. The brake linings are fitted with the stop lugs (3) opposite the link.

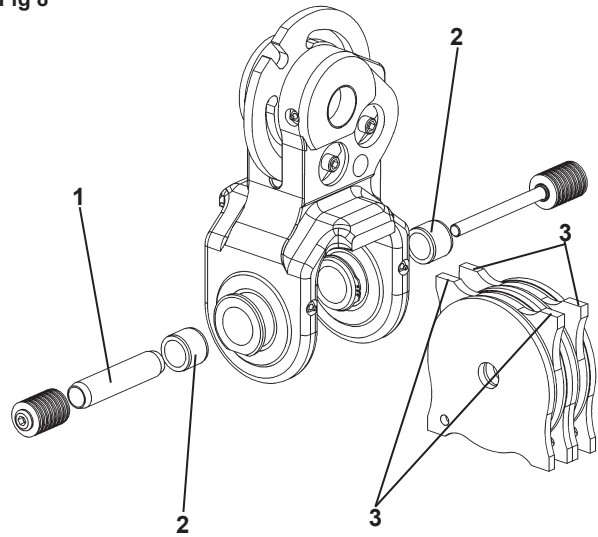


Incorrect assembly of these parts can cause damage to the rotator/link.

3. Lubricate the bushes (2) both internally and externally and the centre tube (1) externally with copper paste.
4. Fit the bushes from each direction and then the centre tube to the centre of the brake unit.
5. Fit the adjuster screws. Recommended braking torque is reached when the adjuster screws are tightened until they stop, however maximum 60 Nm.

The brake can easily be adjusted by loosening the adjuster screws' tightening torque until the required brake torque is obtained.

Fig 8



General maintenance of the swing damper

- Lubricate the swing damper's bearings (grease nipples) after every 50 hours.
- Lubricate the bushes and centre tube with copper-paste after every 1000 hours.
- Adjust the brake as required according to the instruction.
- Check continuously for any crack formation on the link.
- Check that no abnormal play has occurred on the link's bearing. Difference greater than 1.0 mm to be rectified.
- There is a risk of impaired braking effect with leakage from the hydraulics or the like. This can be rectified by cleaning the brake discs.

Rotator

The images in this repair manual show the rotator model G121. In principle the instructions apply to all other G models and the H rotor models.

When repairing a rotor and slewing damper it is a good idea to have an exploded view close at hand.

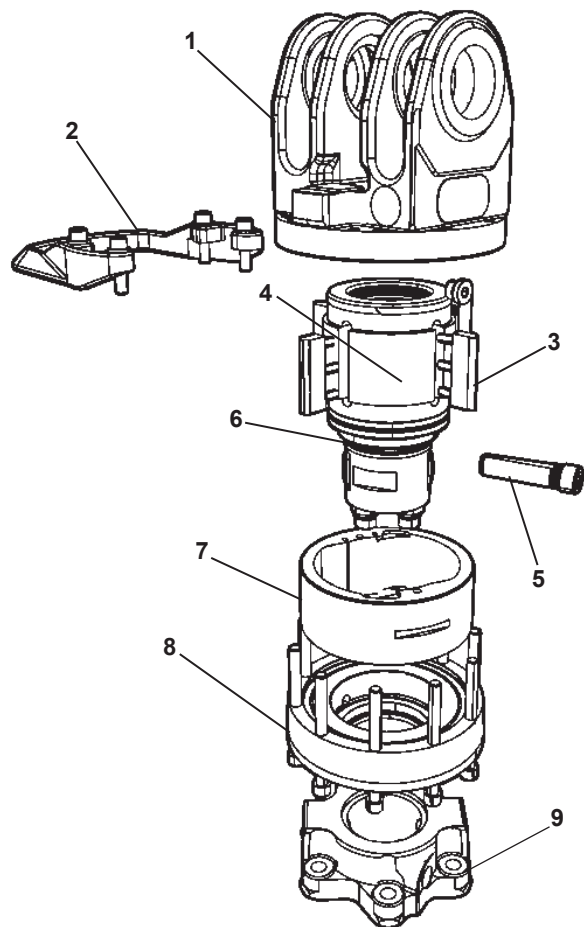
Cleanliness/life span

We recommend that rotators fitted on harvesters are serviced after every 2000 hours of operation. Replacing the complete axial bearing.

Main components of the rotator

The rotator consists of the following main components. The components appear later in this repair manual.

1. Upper stator half
2. Nipple guard
3. Vane, springs
4. Rotator shaft
5. Key, cup spring, locking screws
6. Set of seals
7. Stator ring
8. Lower stator half
9. Lower link



To increase the life of the rotator

1. Inspect and clean the magnetic plug after every 1000 hours.
2. Run the rotator as set out below every 40 hours or at the end of each shift.
 - On rotators with unlimited rotation, run the rotator at least 10 clockwise revolutions.
 - On rotators with limited rotation, run the rotator against the rotation stop or grip an object and run the rotator's right-hand function for at least 3 minutes.
3. The clamping joint and locking screws in the rotator's lower link should be retightened after every 250 hours.

Dismantling

Figure 1

1. Dismantle the rotator from the slewing damper.
2. Clamp the rotator firmly in a vice. The rotator is dismantled while upside down.
3. Dismantle the nipple guard and nipples.

Fig 1

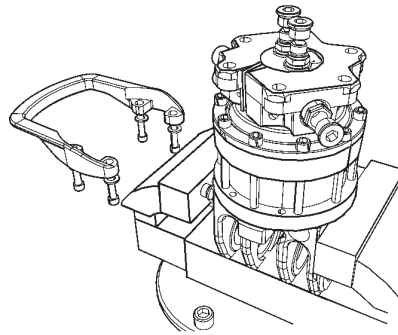


Figure 2

1. Dismantle the locking screw using an allen key, 14 mm.
2. Lift out the cup springs.
3. Loosen the clamping joint's M20 bolts.

Fig 2

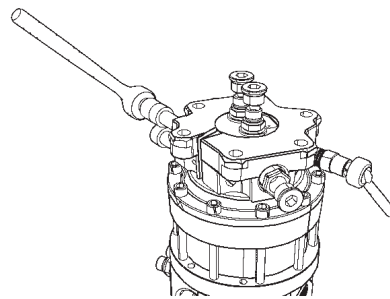


Figure 3

1. Place a cold chisel in the slot on the lower link.
2. Knock out the key with the help of e.g. a screwdriver.
NOTE: Exercise care not to damage the shaft when hitting the key.
3. Dismantle the radial connections and nipples.

Fig 3

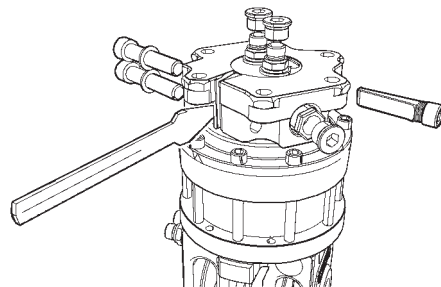


Figure 4

1. Lift off the link.

Fig 4

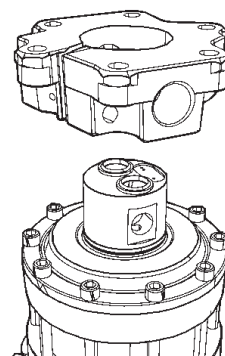


Figure 5

1. Lift off the scraper/dust seal.
2. Loosen the bolted joint on the lower stator half.
3. Dismantle, with the help of a suitable tool, the lower stator half from its guide edges.

Fig 5

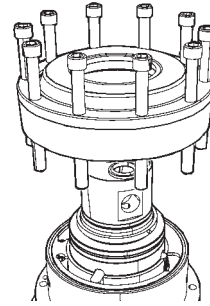


Figure 6

1. Lift off the axial seals, shims and axial bearing.
2. Ease, using a suitable tool, the stator ring from its guide edges without lifting it off completely.

Fig 6

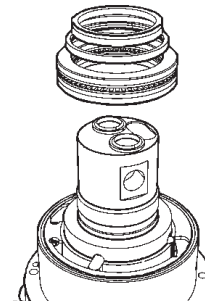


Figure 7

1. Carefully lift up the stator ring a little, so that the tool that presses together the vanes can be fitted.
NOTE: Use tool part no. 3100 351. Order from Indexator.
2. Fit the tool.
3. Make sure that the spring-loaded vanes are kept in their inner position.
4. Lift off the stator ring.
5. Take care of the two restrictor discs located on the stator ring.
6. Carefully loosen the vane compactor.

Fig 7

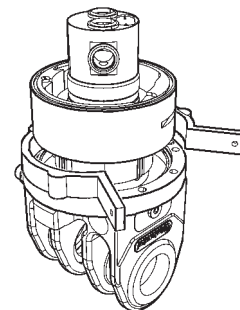


Figure 8

1. Lift out the vanes and vane springs.

Fig 8

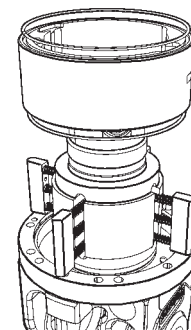


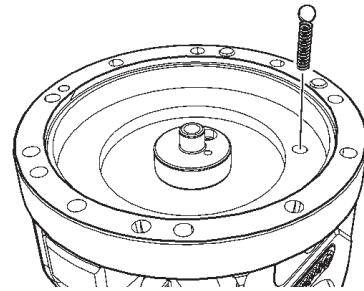
Figure 9

1. Loosen the plug in the upper stator half so that any vacuum is released and lift up the shaft out of the upper stator half.
2. Catch the non return valves (ball and spring) so they do not disappear.
3. Dismantle all the seals in the swivel using a suitable tool.
NOTE: Exercise care so that the seal surfaces are not damaged.



Important!
Carefully clean all component parts. If possible machine wash and blow down all parts using compressed air.

Fig 9



Assembly/Testing

Figure 10

1. Make sure that the spacer washer is fitted as illustrated, with its small bevel upwards on the stud (upper stator). See figure 10.1
2. Fitting new seals in the swivel. The easiest way to fit the glide rings is by carefully bending them into a kidney like shape. See figure 10.2.
NOTE: It is important that all seals are placed according to the assembly instructions in the set of seals.
3. Fit the non return valves (ball and spring).
See figure 9.

Fig 10.1

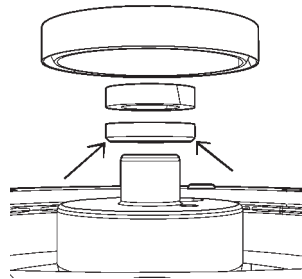


Fig 10.2

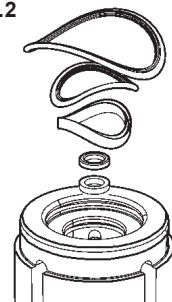


Figure 11

1. Oil in the rotor shaft
2. Fit the shaft and a new O-ring.

Fig 11

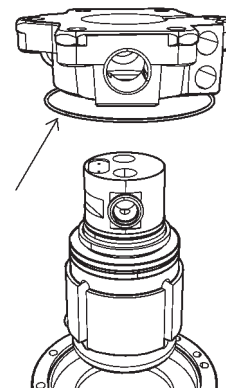


Figure 12

1. Fit the springs and vanes.
 2. Ensure that the vane springs locate in the spring seatings.
 3. Fit the vanes one after the other and press them into the slots on the rotor shaft at the same time as the tool is turned.
- NOTE: Use tool part no. 3100 351. Order from Indexator.

Fig 12

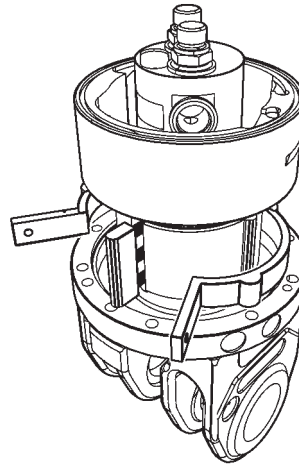


Figure 13

1. Oil in the inside of the stator ring.
2. Check that the O-ring in the upper stator half is located in the intended slot.
3. Check that the guide pin on the upper stator half aligns in the correct hole in the stator ring.
4. Carefully knock the stator ring down with the help of a rubber mallet.

Fig 13

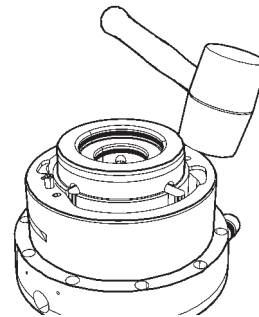


Figure 14

1. Clean the restrictor discs and refit on the stator ring.

Fig 14

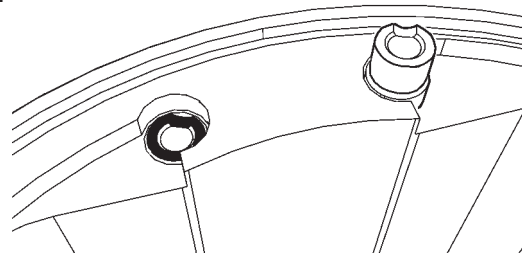


Figure 15

NOTE! Study the axial bearing carefully. A new complete axial bearing must be fitted with the least suspicion of material release on the bearing discs.

1. Fit the axial bearing on the rotor shaft
2. Oil in a new O-ring and fit on the stator ring.
3. Fit the shims.
4. Fit the axial seals on the rotor shaft. Oil in the seals and the opposite surfaces on the shaft.
5. Dismantle and clean the magnetic plug carefully. Reassemble the plug with 35 Nm.

Fig 15

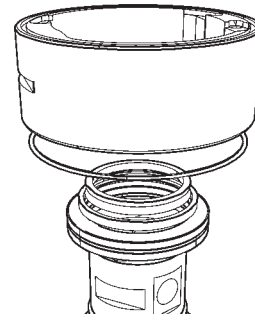


Figure 16

1. Fit the lower stator half.
 2. Tighten the bolts with a torque of 120 Nm, tightened crosswise. Check that the shims and axial bearing do not become unseated when the lower stator half is fitted.
- NOTE: When the shaft, stator ring, upper/lower stator halves or axial bearing are replaced the shim thickness must be checked carefully.

Fig 16

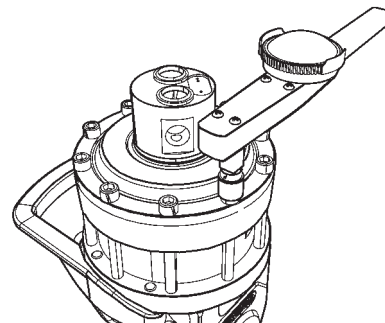
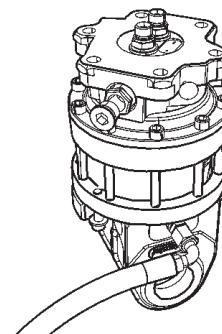


Figure 17

1. Dismantle the plug on the upper stator half and fit a test nipple part no. 5016 526. (If it is not possible to test the right shim thickness with a hydraulic pressure, see the description on the next page.)
2. Connect en Portopower or a hydraulic unit to the test nipple.
3. Pump up the pressure to 200 bar.

Fig 17



Inspection of the shim thickness without the help of hydraulic pressure

1. Fit a suitable shim.
2. Tighten the bolted joint.
3. Rotate the shaft using a suitable tool.
4. A thicker shim should be fitted with too little resistance when the rotation check is performed.
4. A thinner shim should be fitted with a rigid shaft. Use a micrometer to measure the different thicknesses of the shims.
5. Try to rotate the shaft again. When the correct shim thickness has been fitted, resume assembly.
NOTE: Apply corrosion protection such as Dinitrol grease or the like on the shaft and lower stator half.

Figure 18

1. Rotate the shaft using a suitable tool. It must be possible to rotate the shaft at both 0 and 200 bar.

Fig 18

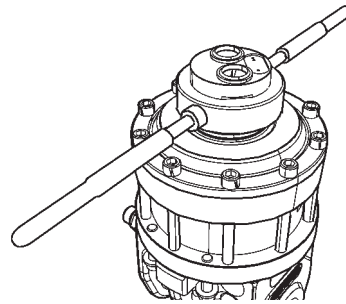


Figure 19

1. If the shaft cannot be rotated, the shim thickness must be changed as set out below.
Rigid at 200 bar: Change to a thicker shim.
Rigid at 0 bar: Change to a thinner shim.

Fig 19

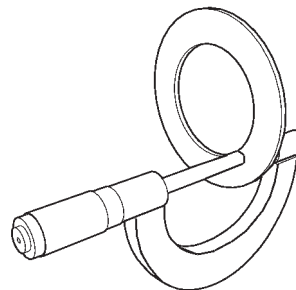


Figure 20

1. Fit the scraper/dust seal.

Fig 20

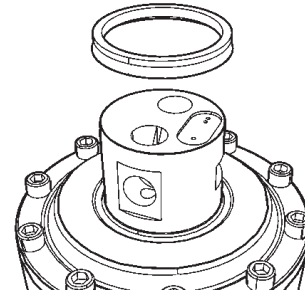


Figure 21

1. Fit the lower link so that the keyway on the shaft aligns with the corresponding slot in the lower link.
2. The key is fitted first in the groove only by hand force to position the lower link correctly.
3. Now fit the clamping joint's two M20 bolts. Use a calibrated torque wrench to make sure the clamping joint's torque is adjusted to 600 Nm
5. Fit any nipples or plugs in the radial outputs.

Fig 21

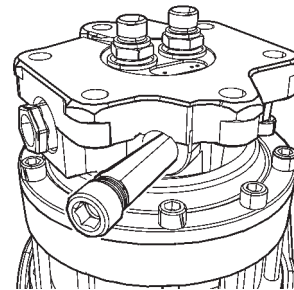


Figure 22

1. Fit the cup springs (back against back/front against front) and use medium Loctite on the locking screw. Tighten the locking screw to a torque of 120 Nm.
2. Fit the nipples or plugs.
3. Reassemble the nipple guard.

Fig 22

