# Self-Cleaning Hermetic Cream Separators

**MRPX 314 HGV-74C**
**MRPX 318 HGV-74C**
**MRPX 418 HGV-74C**

Book No.: MR SO 1675E/7606

ALFA-LAVAL AB – S 147 00 TUMBA – SWEDEN

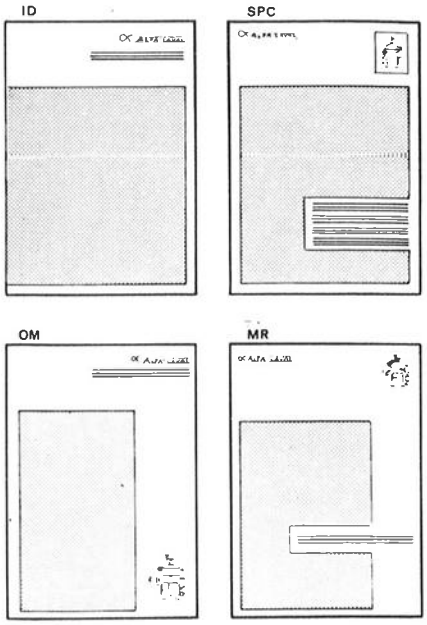
## CONTENTS

Vid beställning av publikationer ange:
publikationsbeteckning, maskintyp, tillverkningsnummer och spec.nr. eller prod. nr.

When ordering a manual state:
Manual name, machine type, manufacturing No. and specification No. or prod. No.

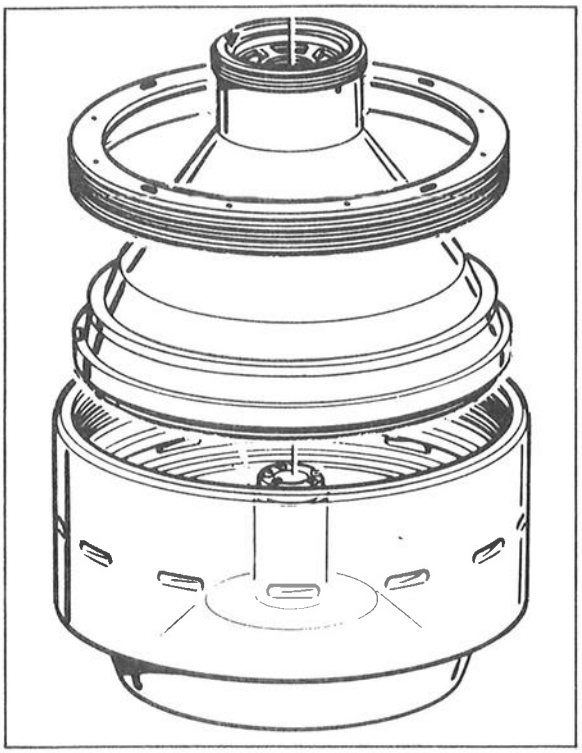
Bei Druckschriftbestellung anzugeben:
Bezeichnung der Druckschrift, Maschinentyp, Herstellungs-Nr. und Spez.-Nr. bzw. Prod. Nr.

Lors de commande des publications veuillez indiquer:
Dénomination de la publication, Type de machine, Numéro de fabrication et Numéro de la spécification ou Numéro de production.




| Publikation | | Innehåll | Avsedd för |
|---|---|---|---|
| **ID** | Installationsdata | Installation, måttuppgifter, tekn. data | Projektingenjörer. Konstruktörer. Installatörer. Driftsingenjörer |
| **OM** | Driftsinstruktion | Körning och daglig skötsel | Maskinskötare |
| **SPC** | Reservdelskatalog | Illustrerad reservdelsförteckning | Servicepersonal. Inköp |
| **MR** | Service- och underhållsbok | Översynsschema, demontering, montering, inställningsmått, reparation | Servicepersonal |
| **Manual** | | **Contents** | **Intended for** |
| **ID** | Installation Data | Installation, measurements, technical data | Project engineers. Design engineers. Fitters. Production engineers |
| **OM** | Operator's Manual | Operation and daily maintenance | Machine operator |
| **SPC** | Spare Parts Catalogue | Spare parts lists | Service personnel. Purchasing dept. |
| **MR** | Maintenance and Repair Manual | Maintenance schedule, disassembly, assembly, adjusting measurements, repair | Service personnel |
| **Druckschrift** | | **Inhalt** | **Beabsichtigt für** |
| **ID** | Installationsdaten | Installation, Massangaben, technische Daten | Planungsingenieure. Konstrukteure. Installateure. Betriebsingenieure |
| **OM** | Betriebsanleitung | Betrieb, tägliche Wartung | Maschinenwärter |
| **SPC** | Ersatzteilkatalog | Ersatzteilverzeichnis | Bedienungspersonal. Einkäufer |
| **MR** | Wartungs- und Instandsetzungsanleitung | Wartungsschema, Zerlegung, Zusammenbau, Einstellungsmasse, Instandsetzung | Bedienungspersonal |
| **Publication** | | **Contenu** | **Destiné aux** |
| **ID** | Particularités de l'installation | Installation, mesures, particularités techniques | Ingénieurs projeteurs. Constructeurs. Installateurs. Ingénieurs de service |
| **OM** | Instructions pour le fonctionnement | Opération et maintien quotidien | Opérateurs de machine |
| **SPC** | Liste de pièces de rechange | Listes de pièces de rechange | Personnel d'entretien. Service d'achats |
| **MR** | Manuel pour le service et l'entretien | Schema de revision, démontage, assemblage, mesures de réglage, reparation | Personnel d'entretien |

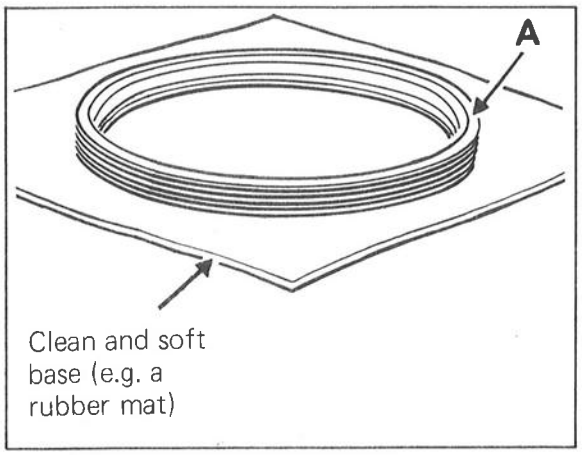
(Major Bowl Parts)



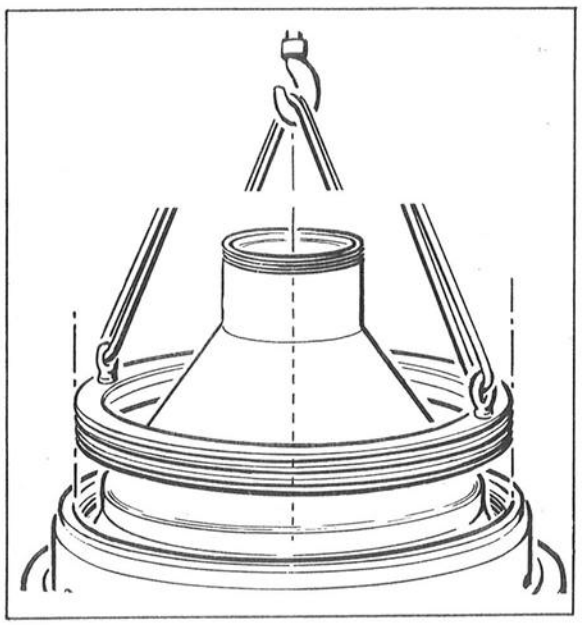
## Handling

Great forces are generated when a separator bowl rotates. Its parts must, therefore, be high-precision-made to ensure perfect relative fit. The size of the bowl parts may easily give the impression that they need not be handled with the care that is, in fact, essential where precision-made articles are concerned. Any carelessness in this respect will very likely result in seizure damage.

Besides, the risk of seizure will increase when two or more parts in contact with each other are made of stainless steel and not properly lubricated.




Handle all bowl parts very gently. Always put them on a **clean** and **soft** base. By way of example, the contact surface (A) of a lock ring provided with external thread should never rest on a dirty base. Scratches and dirt particles on contact and guiding surfaces as well as on threads must be avoided.



Use the lock ring lifting tools, if any. Even when the ring can be lifted by hand it may be difficult to put it gently on the bowl body. Denting may be the result if the ring thuds against the bowl body.

Align the hoisting device very exactly when assembling and disassembling. **Never** use a hoist that works jerkily.

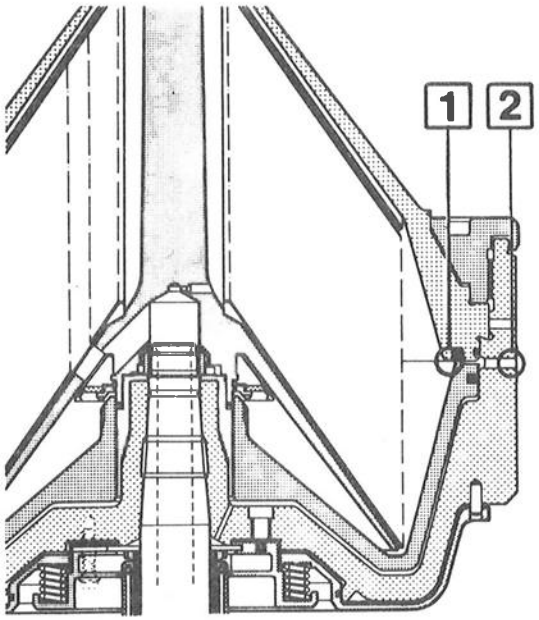
## EROSION

Erosion can occur for instance when particles suspended in the process liquid slide along a surface or strike against a surface while passing through the bowl.

Erosion is characterized, in the former case by burnished traces in the material, and in the latter case by dents and pits with a granular and shiny surface.

Erosion is intensified in some places by locally high flow rates.

MRPX HGV

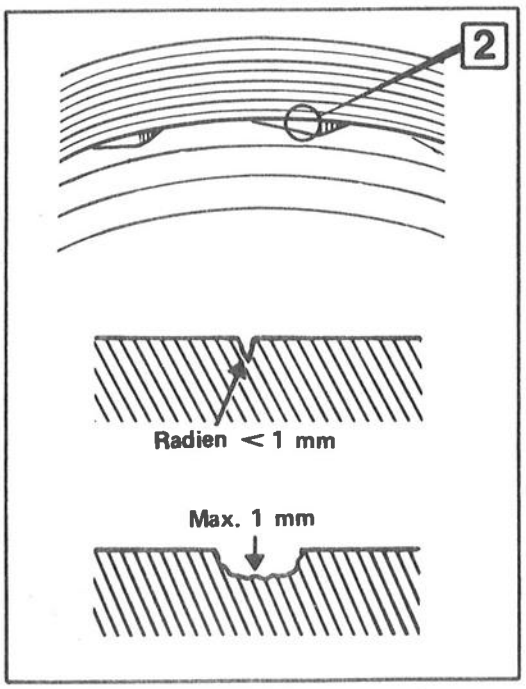



**Always observe carefully any signs of erosion damage.** It may deepen rapidly and weaken the bowl parts by reducing metal thickness.

Surfaces subjected to erosion are, by way of example,

1 the sealing edge of the sliding bowl bottom, and the seal ring in the bowl hood.

2 the bowl wall portions ("pillars") between the sediment ports in the bowl body.

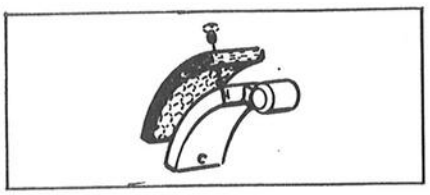



If one or more of the following observations are made on the said bowl wall portions (2), consult our representative:

- that the bottom radius of the erosion trace is less than 1 mm in the narrowest place, or that coarse scratches are present,
- that the largest depth of the trace exceeds 1 mm,
- that defects presumably caused by corrosion are present.

Valuable information on the nature of the damage can be given by photos, plaster impressions, and hammered-in lead.

(Cleaning)



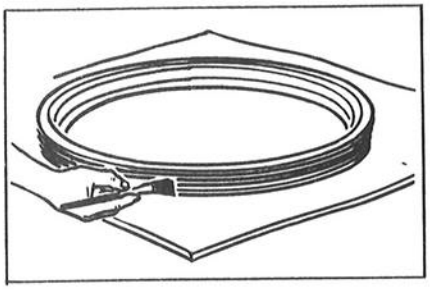
**Coupling Pads and Brake Lining**

To degrease pads or lining and the corresponding friction surfaces use a suitable degreasing agent.

**Other Parts**

Use white spirit, cleaning kerosene or an other solvent with equivalent properties.

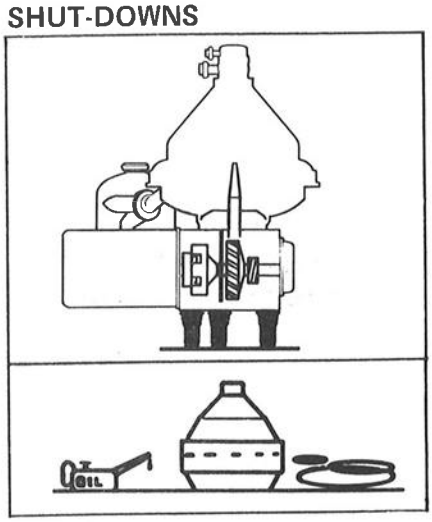
## LUBRICATION



Wipe and oil all parts after cleaning. Protect the parts against dust and dirt when not to be mounted at once.

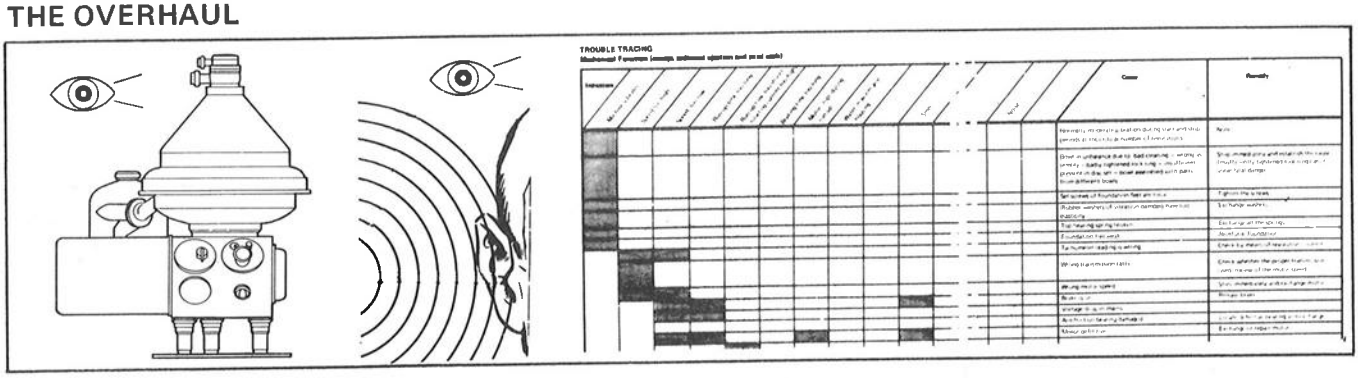
**Follow strictly the lubrication instructions given for the bowl lock ring joint.**

## SHUT-DOWNS



If the machine is shut down for some time, the bowl should not be left on the spindle, and its O-rings should be removed.

## BEFORE STARTING THE OVERHAUL

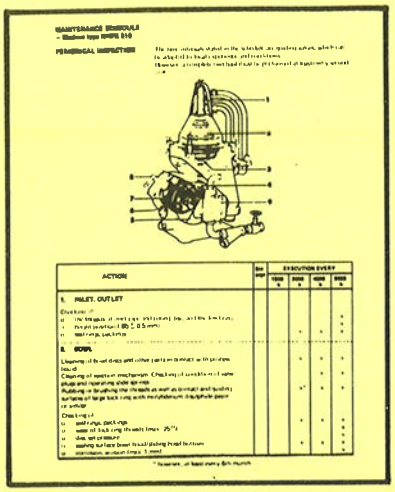


Try to form a conception of the machine action. The observations may be very useful when you have to decide whether a part should be replaced.

- o Note visible leakage.
- o Initiate some ejections and check the ejecting function.
- o Note symptoms which you regard as differing from normal machine running.

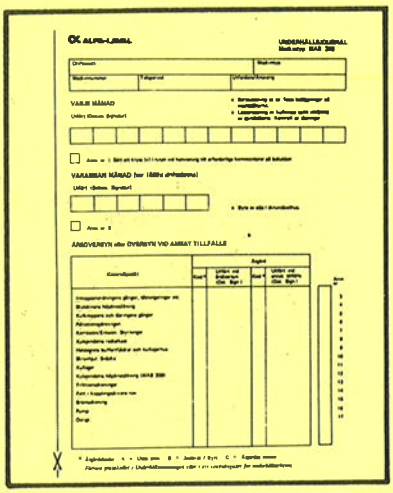
The trouble tracing schedules included in Operator's Manual "OM" may be of some help. However, the working experience gained from similar estimations will be the best aid.

## MAINTENANCE SCHEDULE



To facilitate systematic service, we have made up a maintenance schedule. The schedule specifies the various condition checks to be performed after certain periods of operation – see page 2:2.

## MAINTENANCE LOG

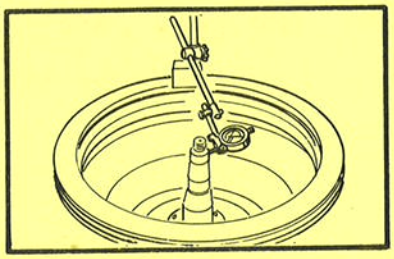


Keep a log of inspection and maintenance performed. Parts continually replaced should be given special consideration. The cause of repeated failures should be determined and corrected. Discuss your problems with our representative and, when necessary, request a visit.

Rate of corrosion and erosion should also be a part of this log. Note the extent of wear and date the log entries so that the rate of deterioration can be observed.

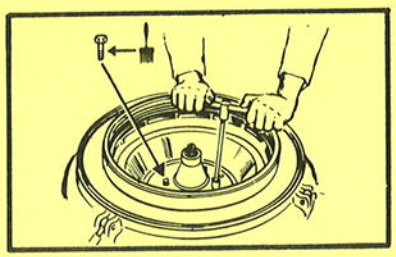
An example of a Maintenance Log with entries is found on page 2:6. Copies of the log are annexed at the end of this manual and can thus be used in your maintenance routine, if found compliant with local requirements.

## CHECKPOINTS



How to perform the various condition checks is explained under »Checkpoints» – see page 3:1.

## DISASSEMBLY ASSEMBLY



The identically named chapter beginning on page 4:1 describes how to disassemble and assemble the machine in the correct order by means of the proper tools.

- The chapter also indicates, at which stages of disassembly and assembly the various checks should be performed.

| ACTION | See page | EXECUTION EVERY 750 h | 1500 h | 3000 h | 9000 h |
|---|---|---|---|---|---|
| **3. BOWL** | | | | | |
| Checking of: | | | | | |
| o seal rings, gaskets | – | x | (x) | (x) | (x) |
| o disc set pressure | 3:3 | | | x | (x) |
| o wear of lock ring threads | 3:4 | | | | x |
| o seizure damage – lock ring joint | 3:5 | x | (x) | (x) | (x) |
| o sealing surface sliding bowl bottom/bowl hood (nylon ring: depression max. 1 mm) | 3:8 | x | (x) | (x) | (x) |
| o washing efficiency | – | x | (x) | (x) | (x) |
| o erosion | 1:9 | | | x | (x) |
| o bowl body nave/bowl spindle cone | 3:12 | x | (x) | (x) | (x) |
| Cleaning and checking of ejection mechanism nozzles, guiding surfaces, sealing surfaces and springs | 3:9 | x | (x) | (x) | (x) |
| Replacement of: | | | | | |
| o seal ring in top disc outlet pipe | 4:38 | x | (x) | (x) | (x) |
| o operating slide valve plugs | 3:11 | x | (x) | (x) | (x) |
| **4. OPERATING WATER DEVICE** | | | | | |
| Checking of operating water flow rate. Cleaning of ducts | 3:9 | x | (x) | (x) | (x) |
| Checking of height position – MRPX 314 = 243 ± 0.5 mm, MRPX 318/418 = 224 ± 0.5 mm | 3:20 | | | x | (x) |
| **5. BOWL SPINDLE (vertical driving device)** | | | | | |
| Checking of: | | | | | |
| o radial wobble (max. 0.05 mm) | 3:13 | | | x | (x) |
| o worm (teeth) | 3:15 | | | x | (x) |
| o worm (grooves receiving driver wings: wear max. 5-6 mm) | 3:15 | | | x | (x) |
| o driver (cone and wings, wing wear max. 2 mm) | 3:15 | | | x | (x) |
| o ball bearing housing (indentations max. 0.5 mm) | 3:14 | | | x | (x) |
| o springs | 3:14 | | | x | (x) |
| o buffers | 3:14 | | | x | (x) |
| Replacement of: | | | | | |
| o all bearings (6) in vertical driving device | – | | | x | (x) |
| o seal rings, gaskets | – | | | x | (x) |
| **6. WORM WHEEL SHAFT (horizontal driving device)** | | | | | |
| Checking of: | | | | | |
| o worm wheel shaft (contact corrosion) | – | | | x | (x) |
| o worm wheel (teeth) | 3:15 | | | x | (x) |
| o worm wheel (gear rim screws; tightening torque 4 Kpm) | 4:29 | | | x | (x) |
| o bearings (two) | – | | | x | (x) |
| o sealing washer – frame facing coupling chamber | 4:18 | | | x | (x) |
| Replacement of: | | | | | |
| o bearings (two) | – | | | | x |
| **7 COUPLING** | | | | | |
| Replacement of: | | | | | |
| o elastic plates (two) | 3:17 | | | x | (x) |
| Checking of: | | | | | |
| o axial play of elastic plates (2-5 mm) | 3:17 | | | x | (x) |

| ACTION | See page | EXECUTION EVERY 750 h | 1500 h | 3000 h | 9000 h |
|---|---|---|---|---|---|
| **8. BRAKE** | | | | | |
| Checking of: | | | | | |
| o lining (min. 2 mm to screw heads) | 3:18 | | | x | (x) |
| o brake shoe | 3:18 | | | x | (x) |
| o piston and cylinder (refers to pneumatic brake) | 3:18 | | | x | (x) |
| **9. TACHOMETER** | | | | | |
| Checking of: | | | | | |
| o functioning and protective glass of tachometer | 3:19 | | | x | (x) |
| o play between transmitter and gear (1.5 - 2.5 mm) – only for remote indication and if transmitter has been dislocated | 3:19 | | | x | (x) |
| **10. MOTOR** | | | | | |
| o Insulation test of motor | 3:19 | | | x | (x) |
| o Lubrication of motor | – | | | x | (x) |
| **11. WORM GEAR HOUSING** | | | | | |
| o Checking of cooling water flow rate: 100 lit/h approx. | – | | | x | (x) |
| o Oil change in worm gear housing every 1000 hours of operation – see also Lubrication Schedule in Operator's Manual "OM". | | | | | |
| Note: In a new installation or after replacement of gearing, change the oil after 300 hours of operation. | | | | | |
| o Checking of worm and worm wheel in connection with oil change | 3:15 | | | | |
| **12. FOUNDATION FEET** | | | | | |
| o Check that set screws of the feet are tightened | – | | | x | (x) |

Example →

Notes:

Note 1. Inlet carbon ring polished with abrasive cloth. Wear ring approved.

Note 2. Seal ring between sliding bowl bottom and bowl body nave defective. Ring replaced.

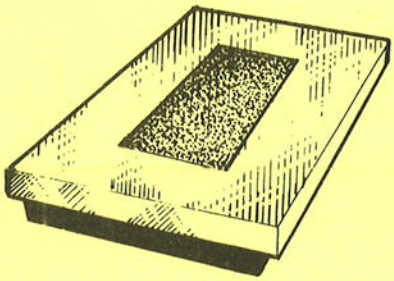
Note 3. Seal ring replaced.

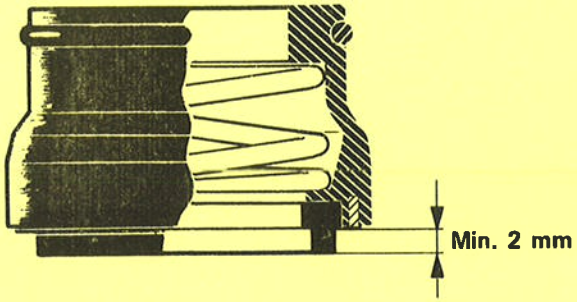
Note 4 Valve plugs replaced.

Machine test-run with water for about 1 hour. Partial and total ejections performed. No faults.

B.F.m

## Repairing the Sealing Surface of Carbon Ring

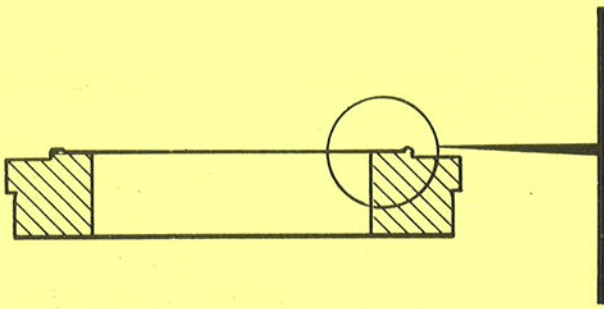


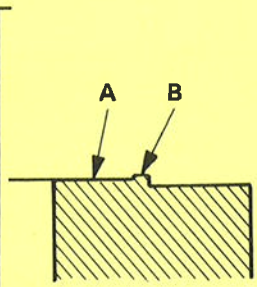


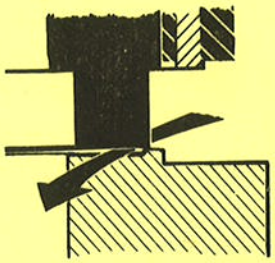

If the damage is not excessive, the sealing surface of the ring can be easily improved by polishing against an abrasive cloth (grain size 600) placed on a face plate or a high-class mirror glass.

**The sealing surface must be bright and perfectly smooth.**
At least 2 mm of the sealing portion of the ring should remain after repair.

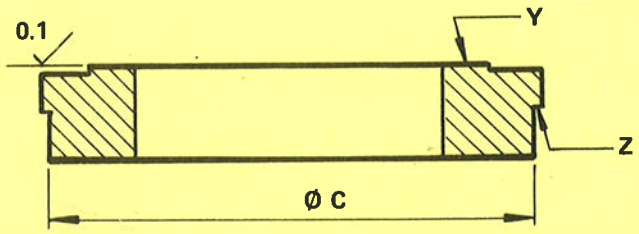
## Repairing the Sealing Surface of Wear ring





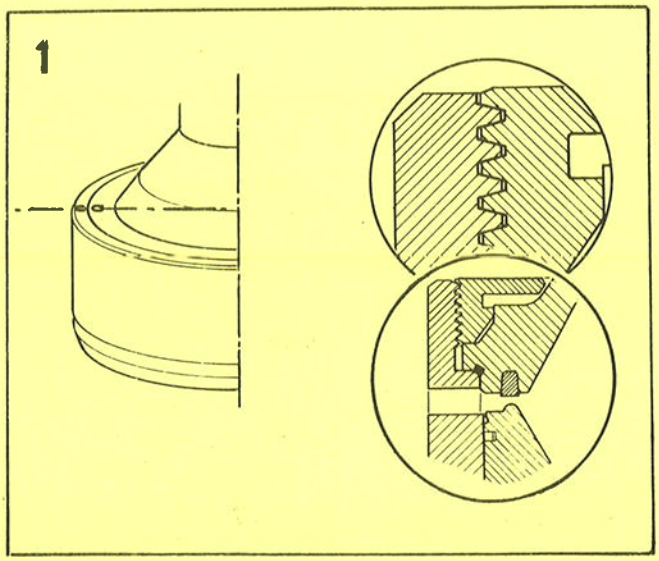
Characteristic of a defective wear ring is as a rule that the working portion of the sealing surface (A) is in good condition but worn down relative to the rest of the sealing surface (B). It can easily happen that the carbon ring comes to rest obliquely on the edge of (B), which will result in bad sealing.




Remove as little material as possible from the surface "Y" (max. 0.2 mm).
Highest permissible axial wobble at surface "Y" = 0.02 mm.
Axis of rotation to be set against surface "Z".
Max. profile depth after lapping – see figure

If the damage is not excessive the sealing surface can be reconditioned by turning in a lathe and subsequent polishing against an abrasive cloth (grain size 600) placed on a face plate. In certain cases polishing alone will do.
Carefully avoid deformations when setting up the part for machining. The best result is obtained by using a special setting-up device (fixture).
Careful indication measureing should be done against an intact portion of the surface to be machined.
**After repair the sealing surface should have a polished, bright finish perfectly free of appreciable traces.**

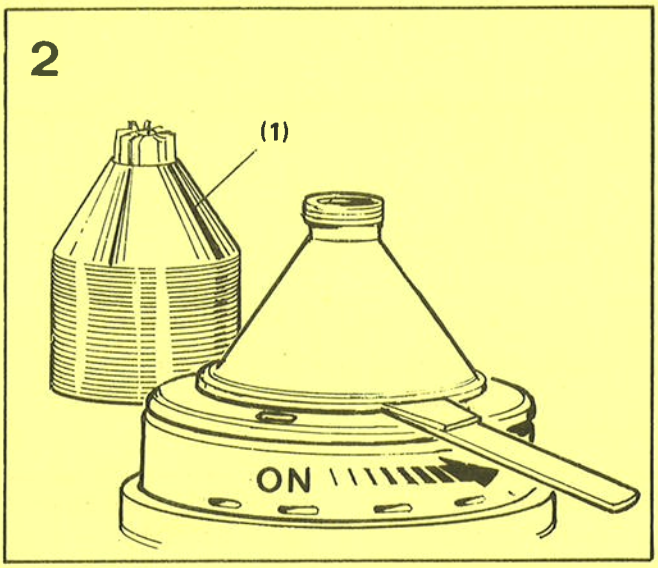
## THREADS OF LARGE LOCK RING AND BOWL BODY



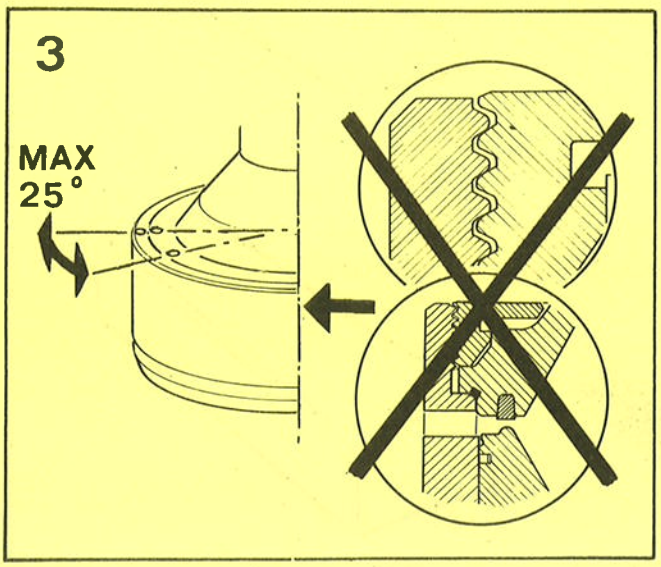

- Excessive wear of these threads can render the machine hazardous to personnel and plant

**Note!** Using the compressing tool for the disc set will reduce thread wear to a minimum.

1. In a new bowl, the alignment marks (Ø) on bowl body and lock ring should be right in front of each other. However in time, due to thread wear, the lock ring mark can be drawn past the other mark.




2. Check the thread condition by tightening the lock ring after removing the disc set (1).



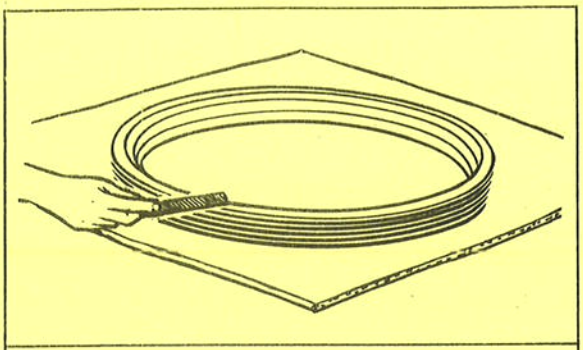

3. When mark Ø on lock ring can be drawn past the corresponding mark on bowl body by more than $25^{o}$ :

   contact our representative immediately.

**Note!**

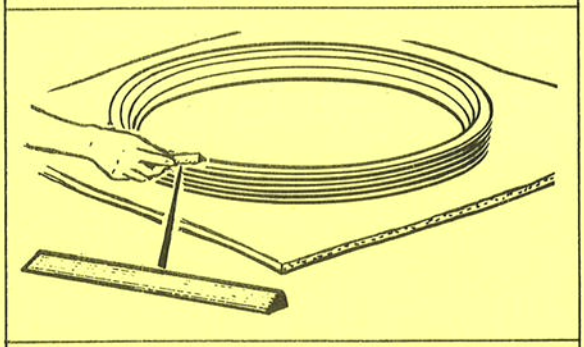
- If thread wear has been observed, mark bowl body at the new position of alignment mark on lock ring, e.g. by punching.

(Lock Ring Joint)

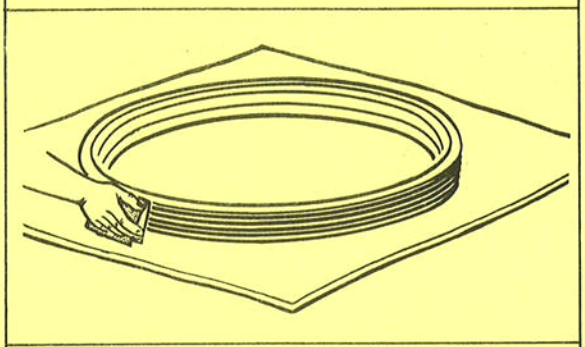


If the seizure damage is heavy, first use a fine- and single-cut file, but moderately. Otherwise the damage may get worse.

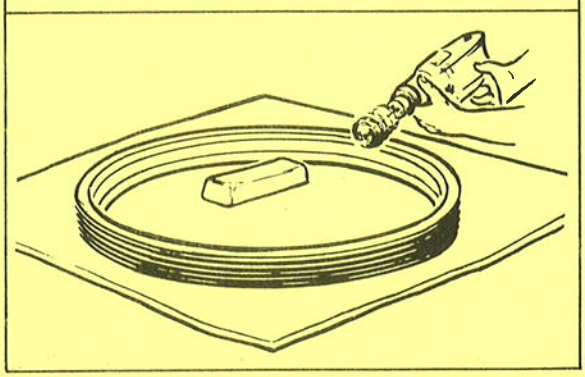
**When possible, avoid using the file!**



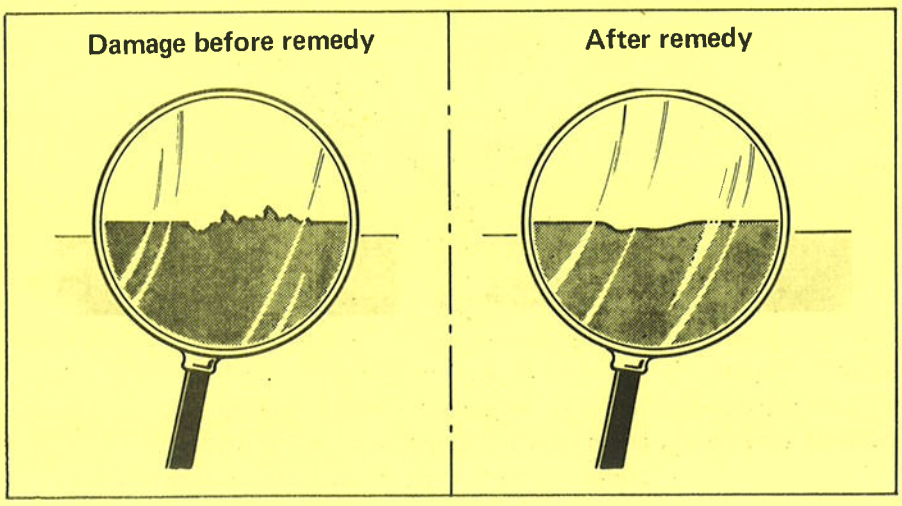
Then use a whetstone. The location of the damage decides which one of the above whetstones should be chosen.



A **fine-grain** emery cloth must be used if whetstones are not available.



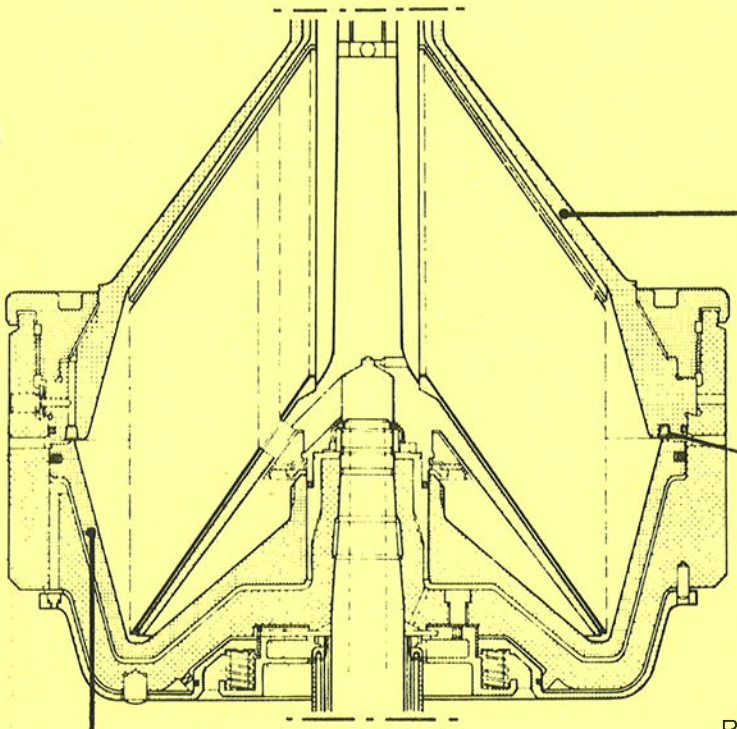
Accomplish the remedying by polishing the damaged spot with the fibre brushes and brush wax. It is recommended to polish the whole area where seizure damage might occur.



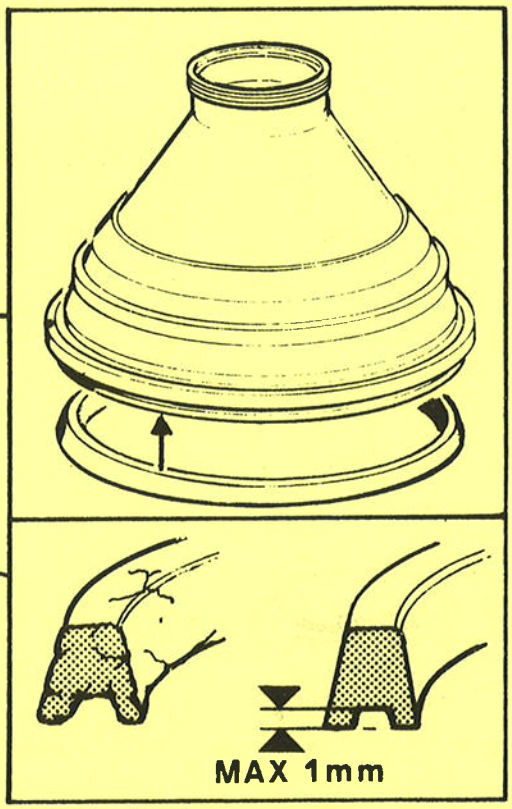

The least possible material removed, however so much, that no residues of the damage are left above the original surface, which smoothly joins the remedied spot.

## BOWL HOOD/SLIDING BOWL BOTTOM

- Poor sealing between the bowl hood seal ring and the sealing edge of the sliding bowl bottom will cause a leakage of process liquid from the bowl.

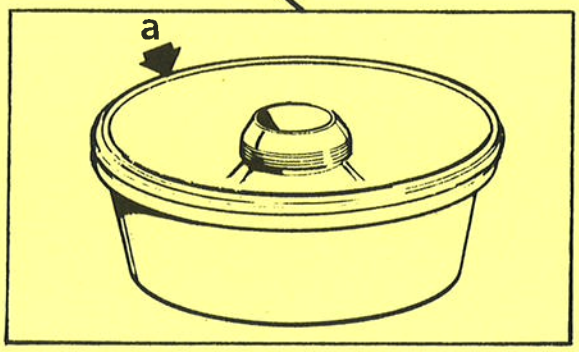


**Bowl hood**



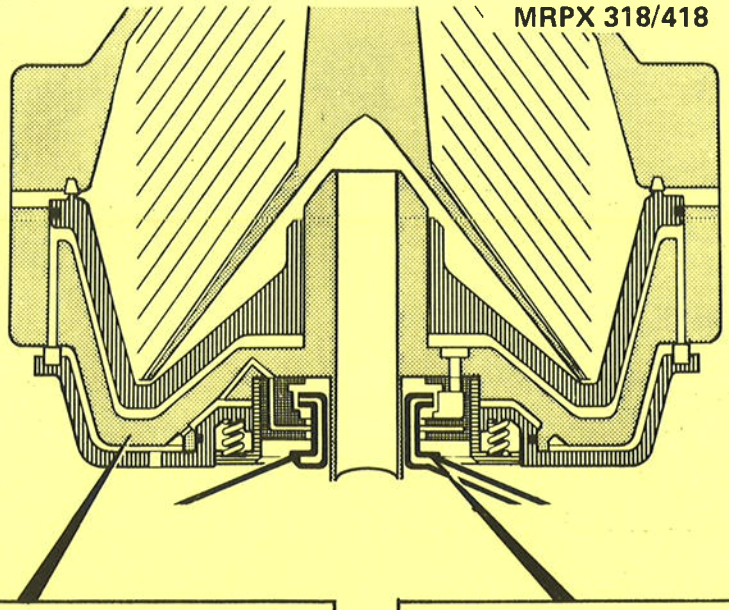

Replace the bowl hood seal ring if it has fissures or pores, deep scratches or indentations made by course solid particles.

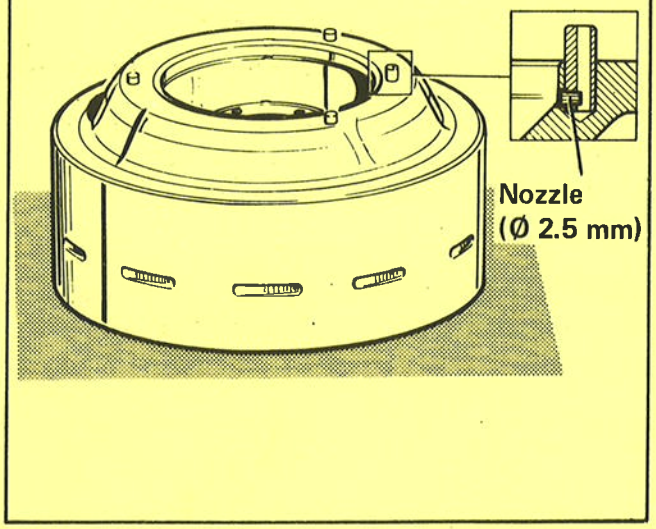
The ring should be replaced also when its sealing surface is depressed by more than 1 mm, even though acceptable in other respects.

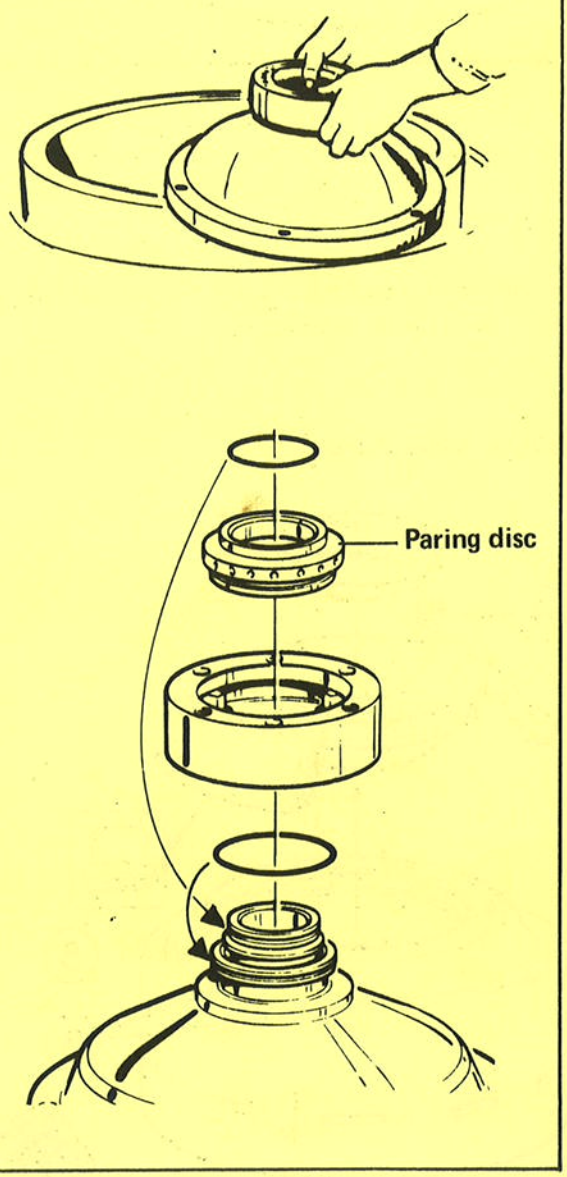


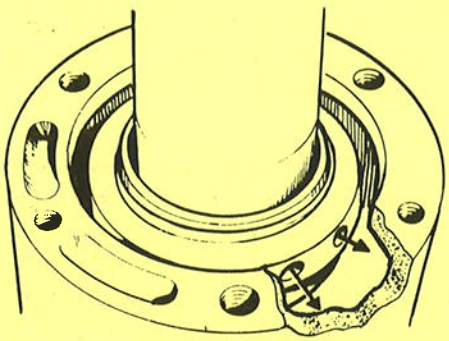

Also check the sealing edge (a) of the sliding bowl bottom. If damaged through corrosion or erosion or in other ways it can be rectified by turning in a lathe, provided that suitable equipment is available. Maximum permissible reduction of the original profile height: 0.5 mm.

(Ejection Mechanism)



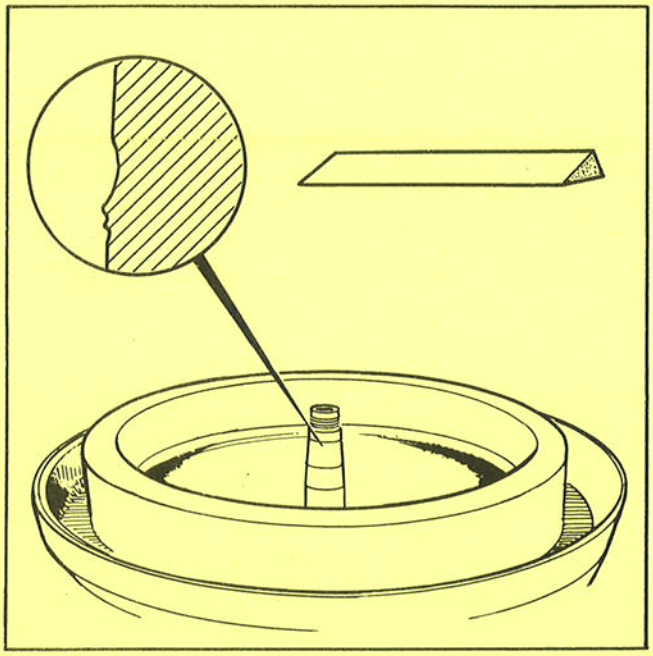



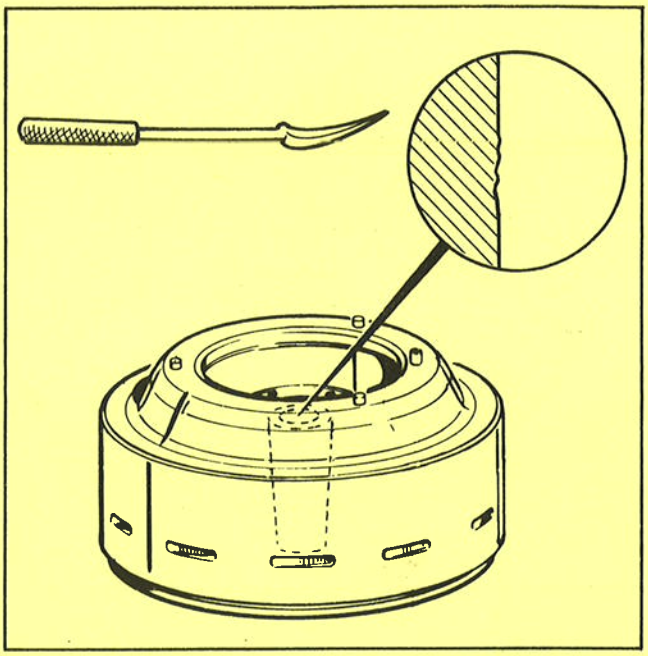
Rechecking of water flow:
see Operator's Manual – OM
(Trimming).

## BOWL BODY NAVE/ BOWL SPINDLE CONE

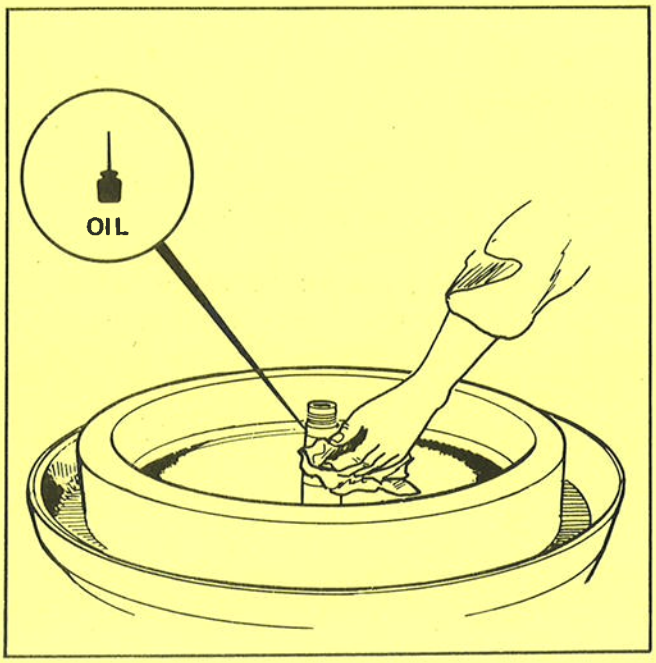


Clean spindle cone and bowl body nave with a suitable defatting agent. Remove any impact marks on nave and cone with a scraper, and an oil-stone respectively

o Impact marks and similar on the spindle cone and/or in the nave may cause bad bowl run.



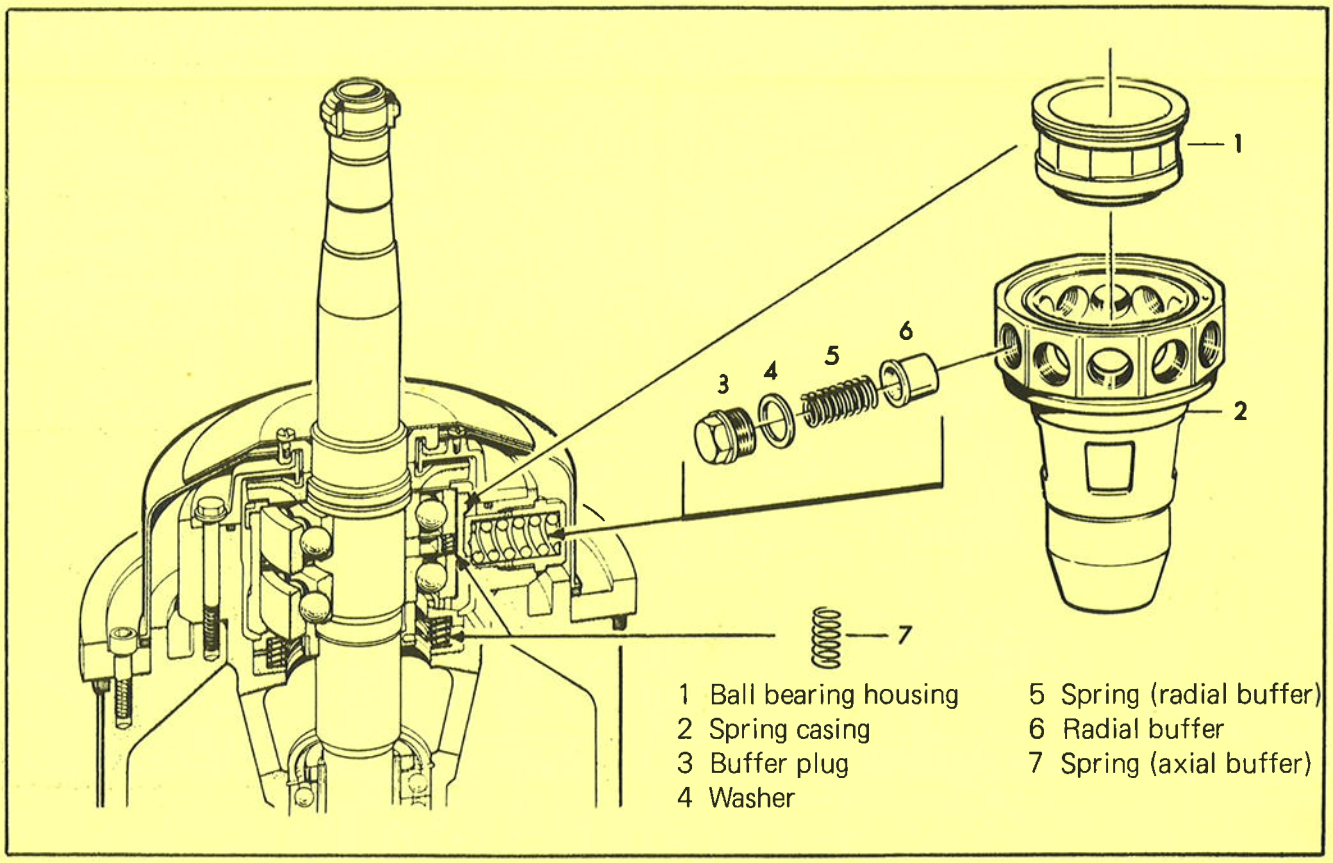
**Note! Always use the scraper with great care. The conicity must not be marred.**




Whenever fitting the bowl body on the spindle first lubricate the spindle cone and then wipe it with a clean cloth.

## TOP BEARING SPRINGS and BALL BEARING HOUSING

o Weakened or broken radial buffer springs as well as defective contact surfaces for the buffers on the ball bearing housing may give rise to machine vibration (rough bowl run).



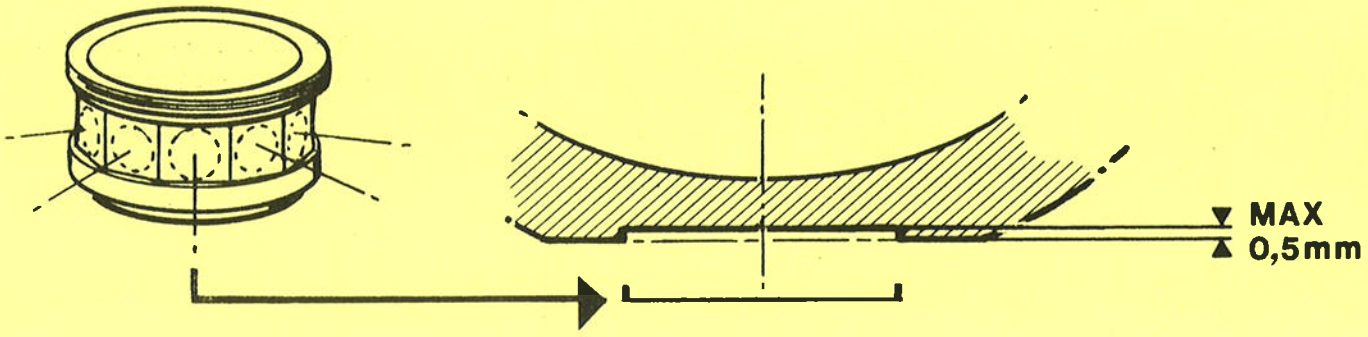

**Springs**

It is difficult to determine the condition (stiffness) of a spring without special testing equipment. So, an estimation of the spring condition must be based on the experience of the machine run before the overhaul.

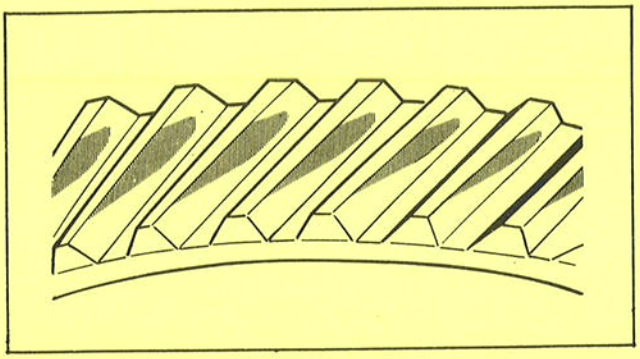
In case of sudden spring fracture, the complete set should be replaced even though only one spring is broken.

**Ball bearing housing**

Examine the contact surface of the buffers on the ball bearing housing. If defects (indentations deeper than 0.5 mm) are present, replace the housing as well as buffers and springs.



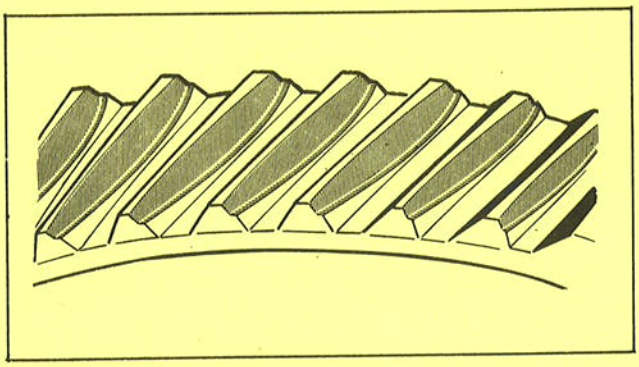
**Examples of various tooth appearances after operation**



### Satisfactory teeth

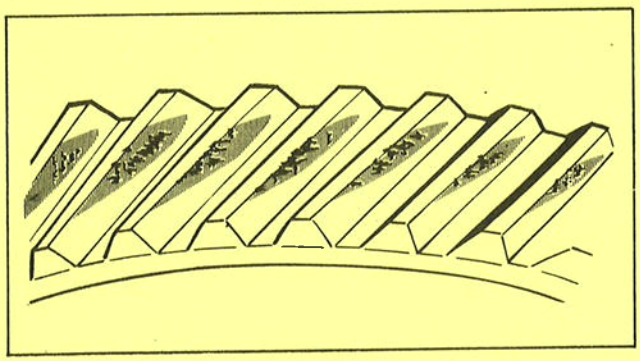
Uniform wear of contact surfaces. Surfaces are smooth.

Good contact surfaces will form on the teeth when the gearing is subjected only to moderate load during a running-in period.



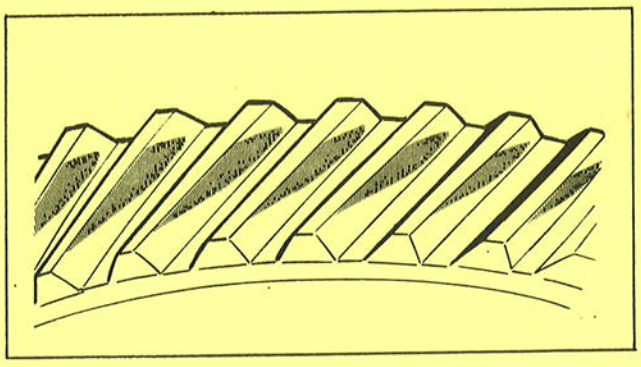
### Worn teeth

Tooth wear, sometimes occuring only on some of the teeth. If the wear has advanced as far as shown in the illustration, replace worm wheel and worm.



### Spalling

Small bits of the teeth have split off, so-called spalling. Generally due to excessive load or improper lubrication. Damage of this type need not necessitate immediate replacement, but careful checking at short intervals is imperative.

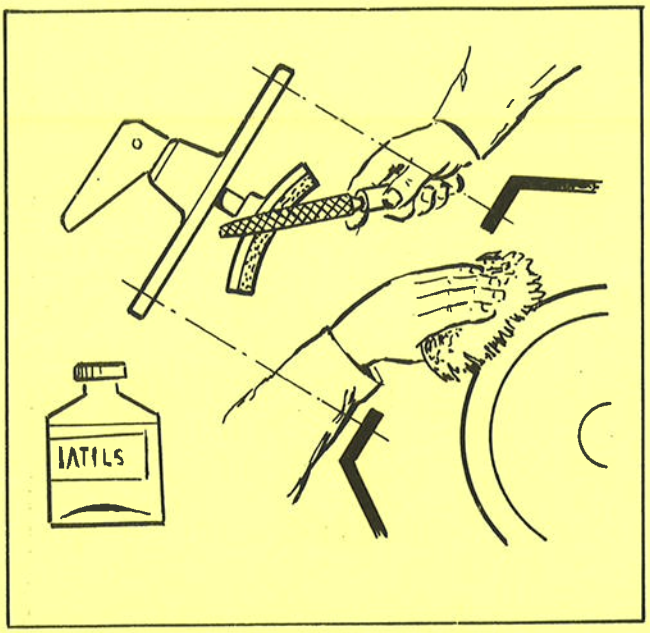


### Pitting

Small cavities in the teeth, so-called pitting. Can occur through excessive load or improper lubrication. Damage of this type need not necessitate immediate replacement, but careful checking at short intervals is imperative.

## Hand-Brake

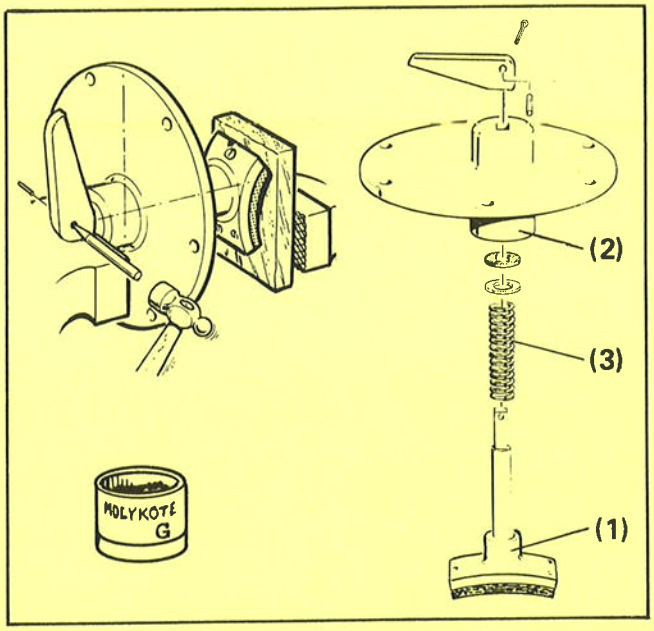
- A worn or oily lining will lengthen the braking period.




If oiliness is the only fault: clean the lining and the coupling drum with a suitable defatting agent.

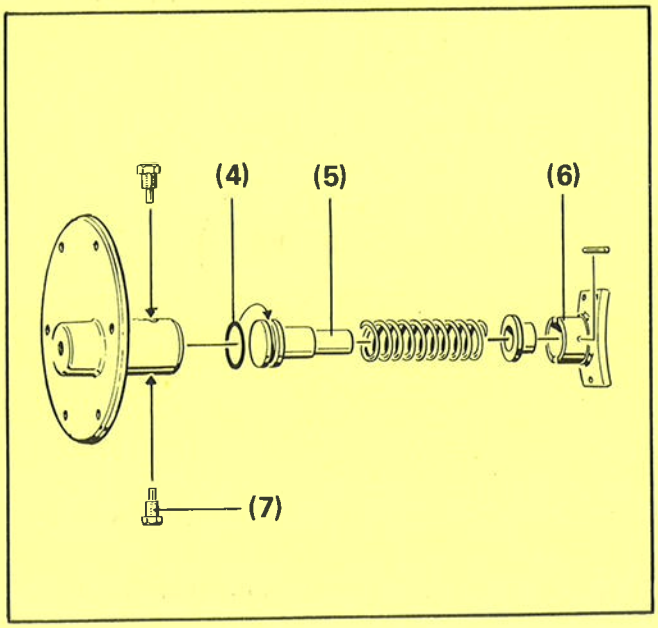
Roughen the friction surface of the lining with a coarse file.

- Formation of rust on the brake parts may cause the brake to jam.




Remove any rust from surface (1) of the brake shoe and the corresponding guiding surface in the cap (2). Rub the surfaces for instance with Molykote Paste G. Replace the spring (3) if it has lost its stiffness. Oil the spring when mounting.

## Pneumatic Brake




Check and treat as above. Furthermore inspect O-ring (4) as well as piston (5) and its cylinder. Rub the cylinder for instance with Molykote paste G.

**Note!** When assembling depress the brake shoe entirely in the brake cap before tightening set screws (7), otherwise the set screws may jam the brake shoe.
**Supply compressed air to check the brake function.**

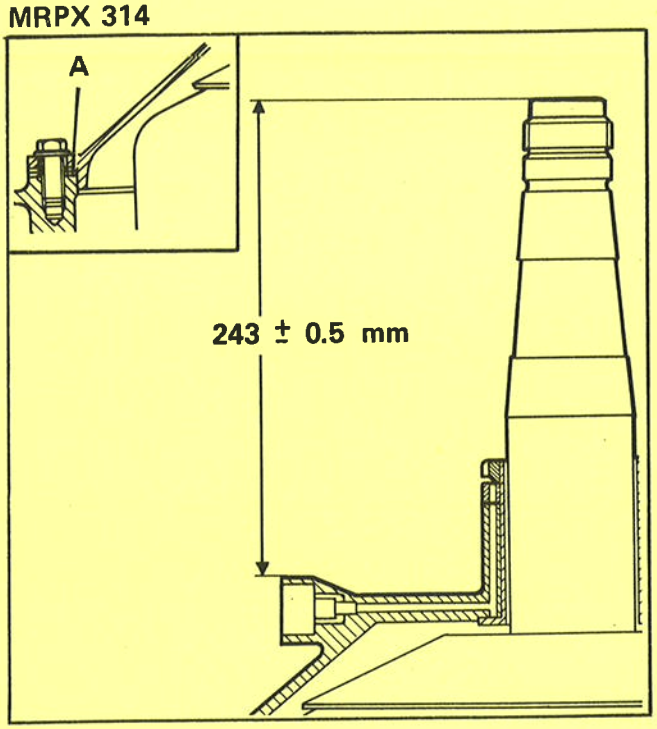
## HEIGHT POSITION

If the bowl is replaced or the bowl stripped, the height positions must be checked. Any adjustment is made by means of one or more height adjusting rings A.

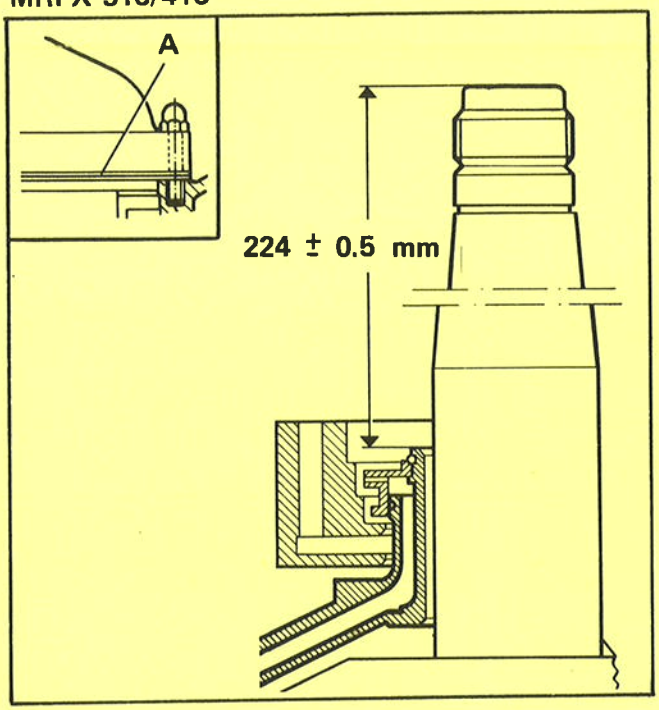
The tolerances are narrow, and it is important, therefore, that parts should be well cleaned and free of burrs.

**Operating Water Device**

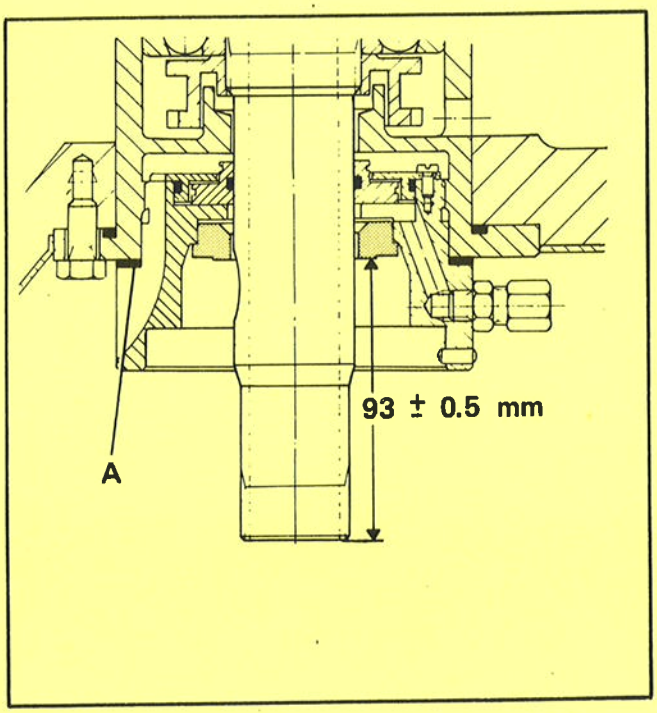
**MRPX 314**




**MRPX 318/418**




**Inlet**

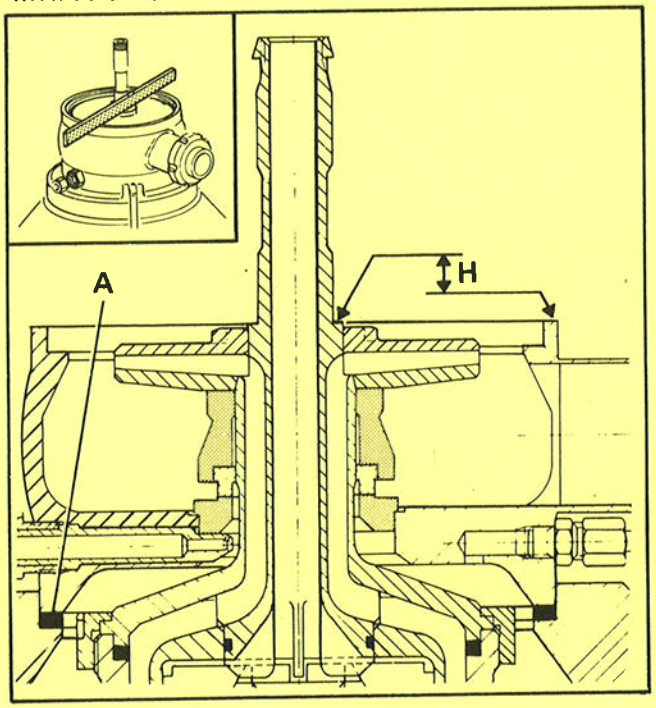



**Note!** Recheck the height position of operating water device and inlet by revolving the bowl spindle with bowl fitted in place. A scraping noise may be an indication of wrong positioning –readjust.

**Outlet**

MRPX 314: H = 0 ± 0.5 mm

MRPX 318/418: H = 3 ± 0.5 mm



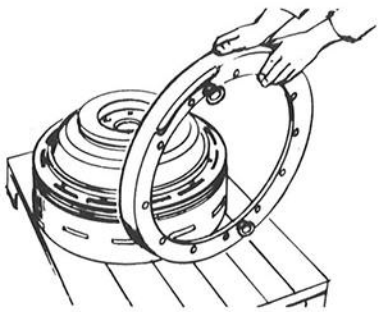

The height position of the outlet is checked in immediate connection with the start. Stop the machine immediately if a scraping noise occurs.

This chapter describes how to disassemble and assemble the machine in the correct order by means of the proper tools. **The relative positions of the parts appear from the machine drawings inserted at the end of the manual. Each part is illustrated and its part number is stated in the Spare Parts Catalogue.**

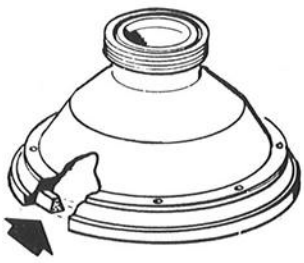
The symbol  appear here and there in text and illustrations. It refers to the page where description of the checking method/ recommendation is found.

## REMINDER

- Handle the parts with care. Protect them against damage, dust, and dirt. Make sure the parts are clean and free of burrs when mounting.



- Don't place parts directly on the floor. Use a clean rubber mat, fibreboard or a suitable pallet as base.



- Be specially careful of the bowl hood seal ring. It may easily get scratched if the hood is put down carelessly and on a dirty base.

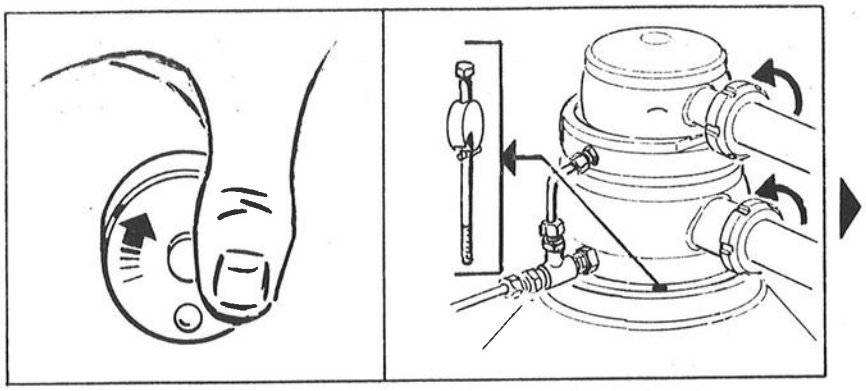
- Position the hoisting device very exactly when assembling and disassembling. **Never** use a hoisting device that works jerkily.

  An electrically operated hoist should have two speeds;
  1.5 metre/minute and 6 meters/minute approx.
  **The lower speed is used when lifting the parts out of the machine, and into it respectively.**

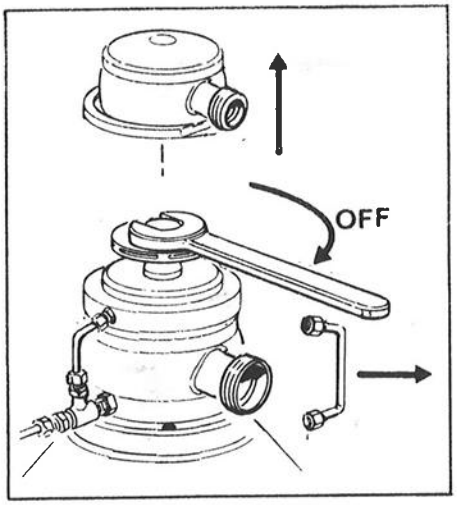
## REPLACEMENT OF OUTLET AXIAL SEALS (sealing element/wear ring)

page 3:1

### DISASSEMBLY



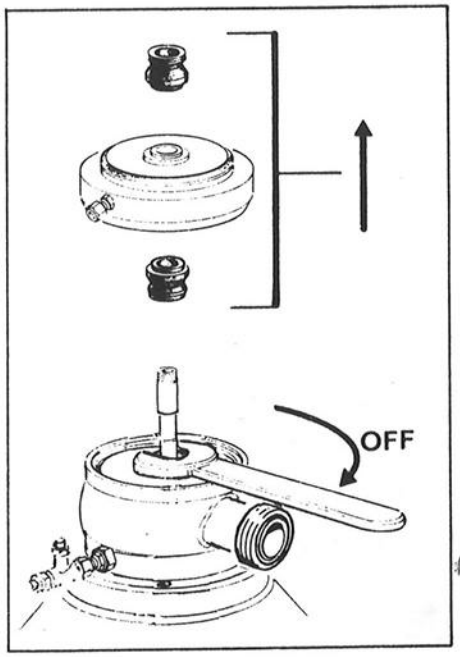
**Important!** Never start disassembly until bowl is stationary.



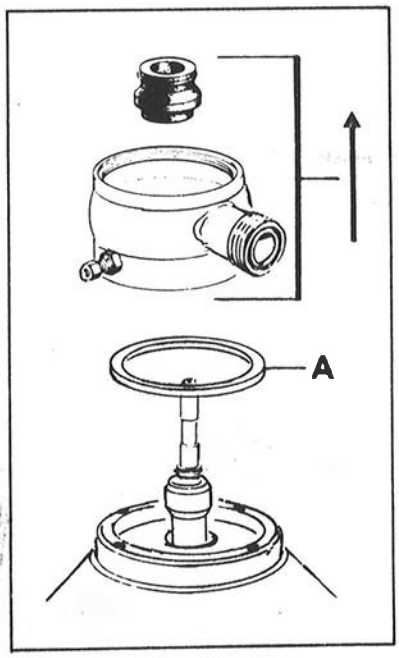

Upper impeller has left-hand thread and unscrews **clockwise.**

**Note!**

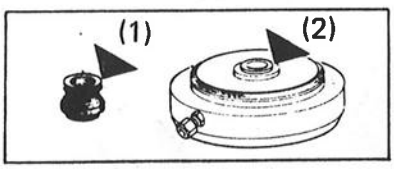
- Observe where the rubber bellows belong if they are to be reused after disassembly. Bellows of equal dimensions must not be confused, as their carbon rings are broken in against their "old" wear rings.
- The inside of a rubber bellows must in no circumstances be oiled to facilitate fitting (risk of slipping). Moisten the inside with water instead.




Lower impeller has left-hand thread and unscrews **clockwise.**




**A** = height adjusting ring




Replace sealing elements (1).

Check wear rings (2). When necessary replace them according to instructions on next page.

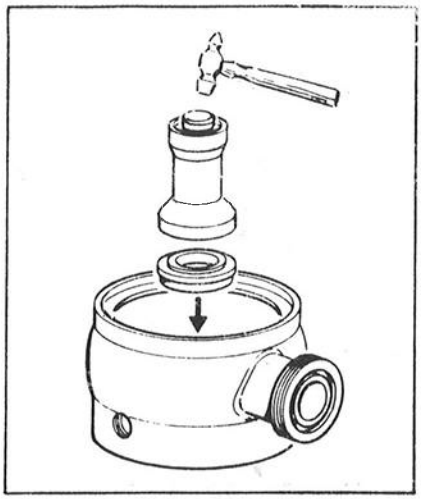
(Replacement of Wear Rings)

**Ring of Lower Outlet Housing**

Disassembly

Knock out the ring by means of a drift.

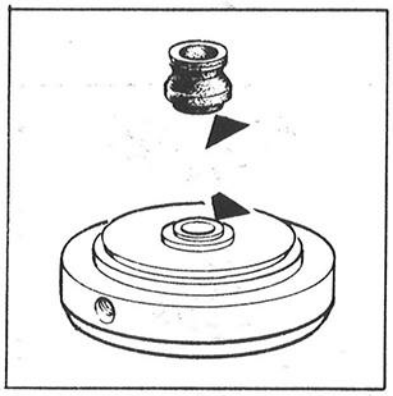
Assembly



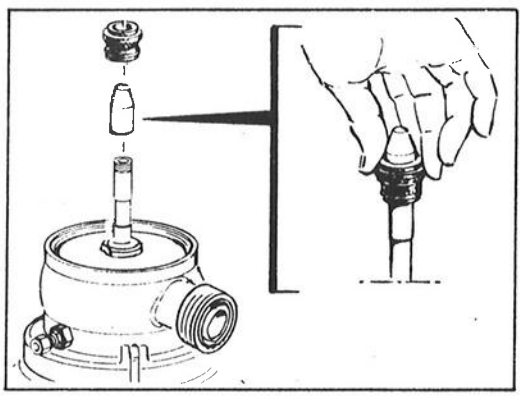
Knock the ring in place , using the mounting tool *.

**ASSEMBLY**

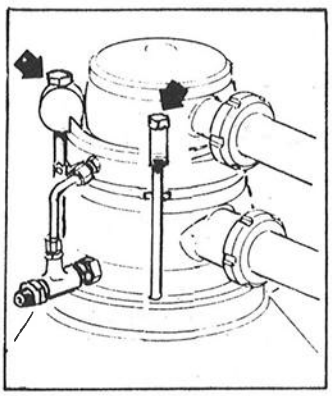
Assembly takes place in reverse dismantling order. Observe the following:



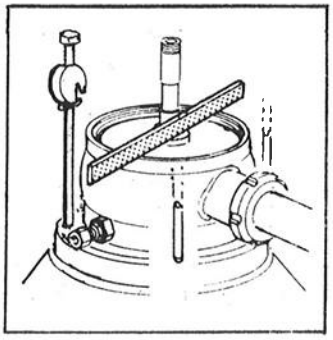
Make certain the axial seals are clean and have no defects. Lubricate the wearing surfaces with a few drops of castor oil.



Use the special sleeve from the tool set when mounting the two upper sealing elements.



Remember to tighten the hinged bolts firmly.



The height positon has been properly adjusted before delivery from the works. However, whenever the bowl spindle has been stripped or the bowl replaced, recheck the height position.

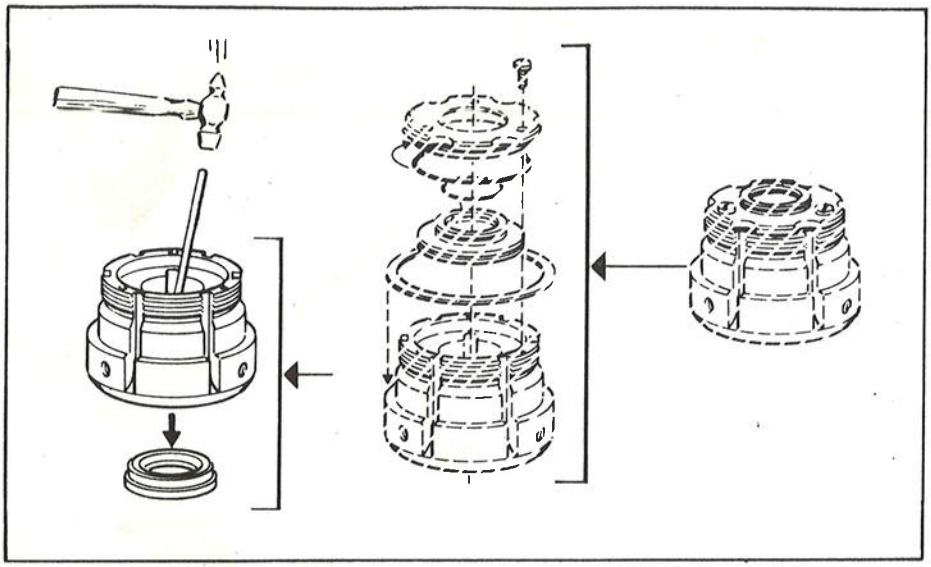
page 3:20.



* If the wear ring has clearance fit: seal with Loctite 221.

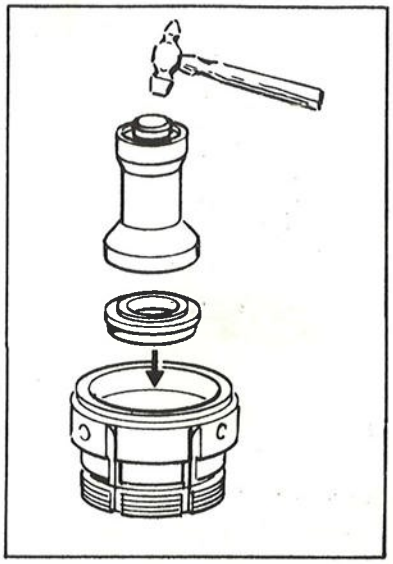
## REPLACEMENT OF WEAR RING

**Disassembly**



Knock out the ring by means of a drift.

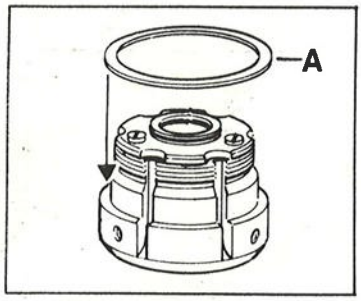
**Assembly**



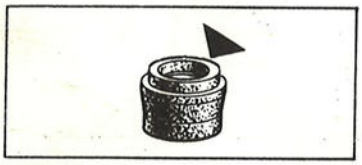
Knock the ring into place using the mounting tool *.

## ASSEMBLY

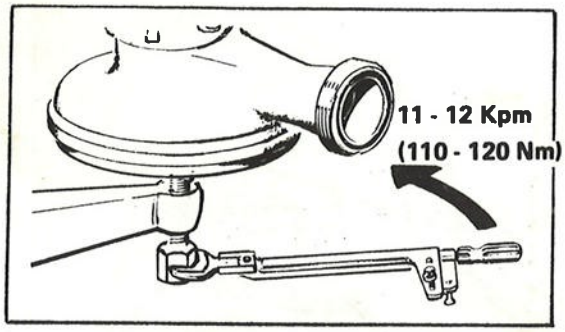
Assembly takes place in reverse dismantling order. Observe the following:




- The height position is properly adjusted before delivery from the works by means of one or more height adjusting rings (A). Accordingly, if the pump is disassembled for replacement of for instance wear ring, be sure to put in the same number of height adjusting rings as was originally provided.
- Whenever the bowl spindle has been stripped or the bowl replaced the height position must be rechecked.
  Height adjustment – page 3:20.

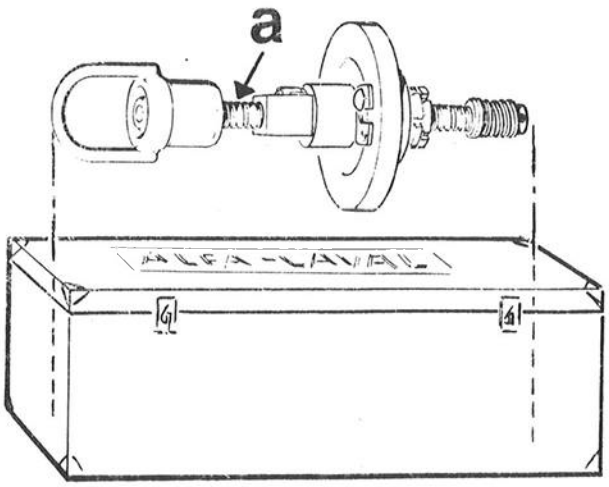


Make certain the wearing surface of sealing element and wear ring is clean and undamaged. Apply a few drops of castor oil to one of the surfaces.

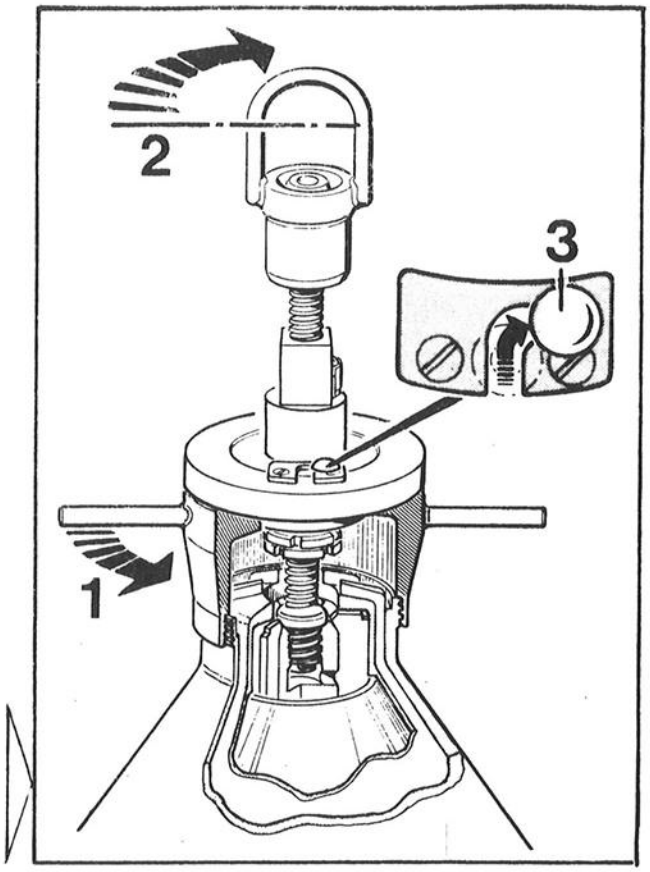



The central screw of the pump housing cover must not be tightened at a higher torque than that indicated in the figure.

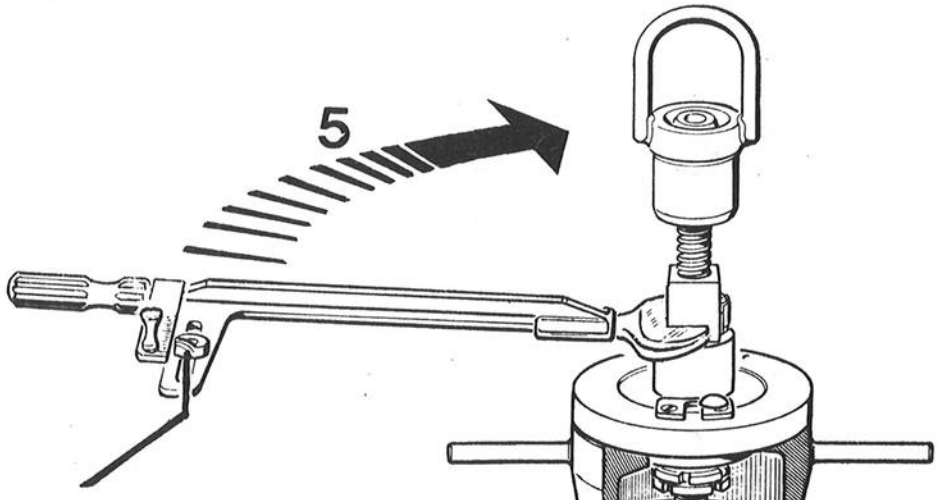
* If the wear ring has clearance fit: seal with Loctite 221.




a) Make certain the thread of the compression tool is free of dirt and is greased.

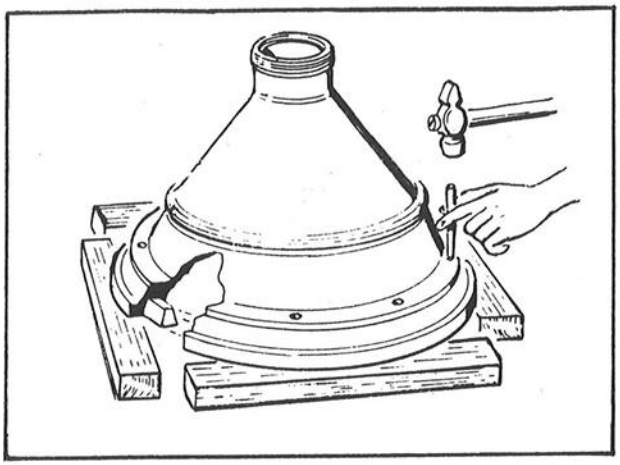


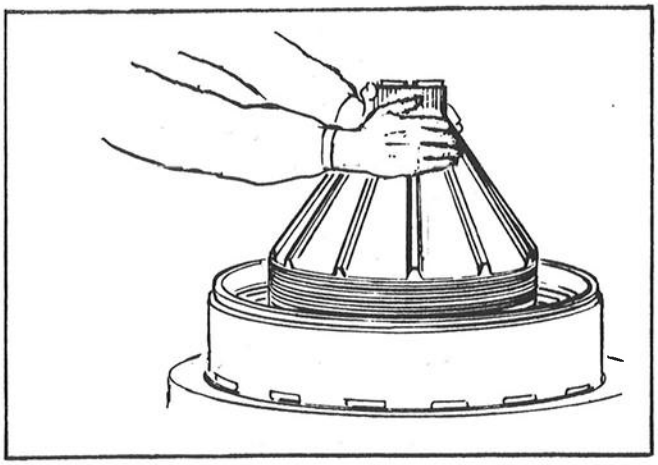

Before unscrewing the large lock ring neutralize the disc set pressure.

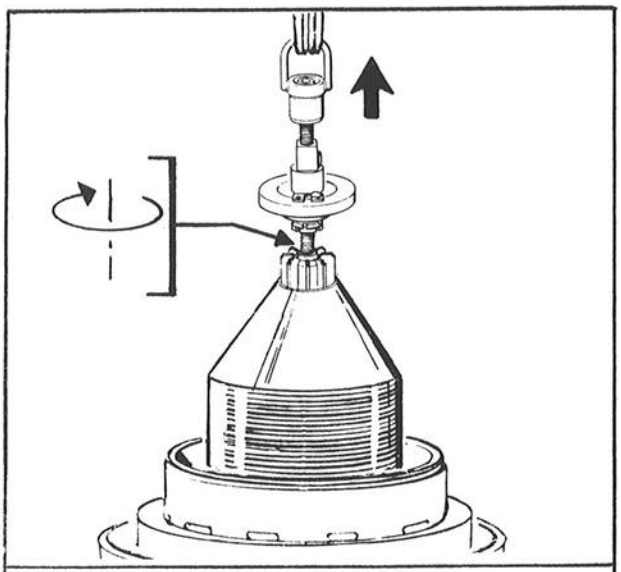


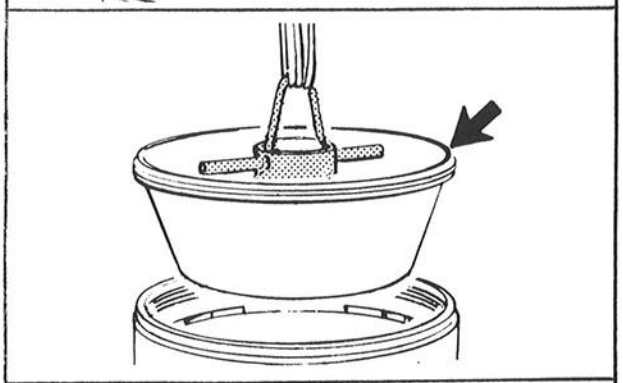

4 **MRPX 314: ca 7 KPM (70 Nm) ***
**MRPX 318/418: ca 11 KPM (110 Nm) ****

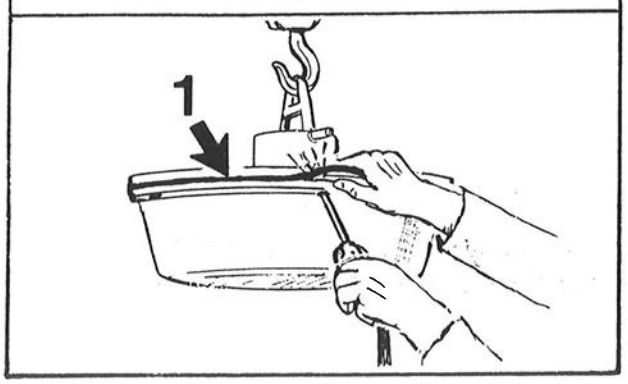
*) Gives a press force of 4000 KP (40 000 N) approx.
**) Gives a press force of 6000 KP (60 000 N) approx.











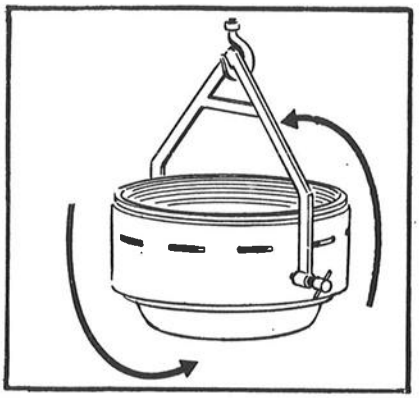

Check washing efficiency – see Operator's Manual "OM".

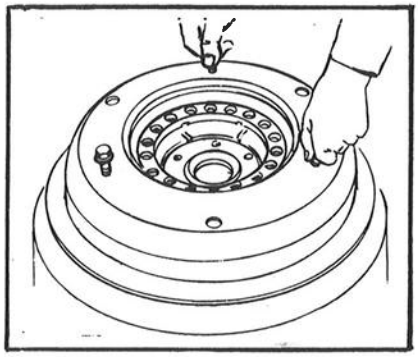
The sliding bowl bottom edge sealing against the bowl hood – page 3:8.
Erosion – page 1:10.

If seal ring (1) of sliding bowl bottom should be replaced and compressed air is available, inject compressed air through the hole on the underside. This vill press the ring out of the groove far enough to make it easily graspable.

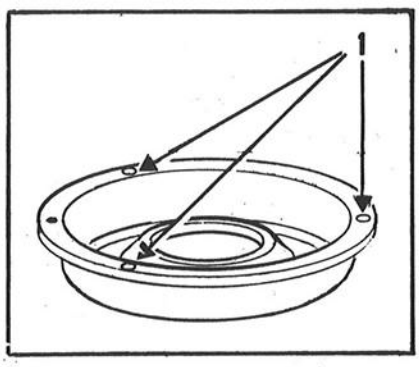
**MRPX 314 (Ejection Mechanism)**

– page 3:9

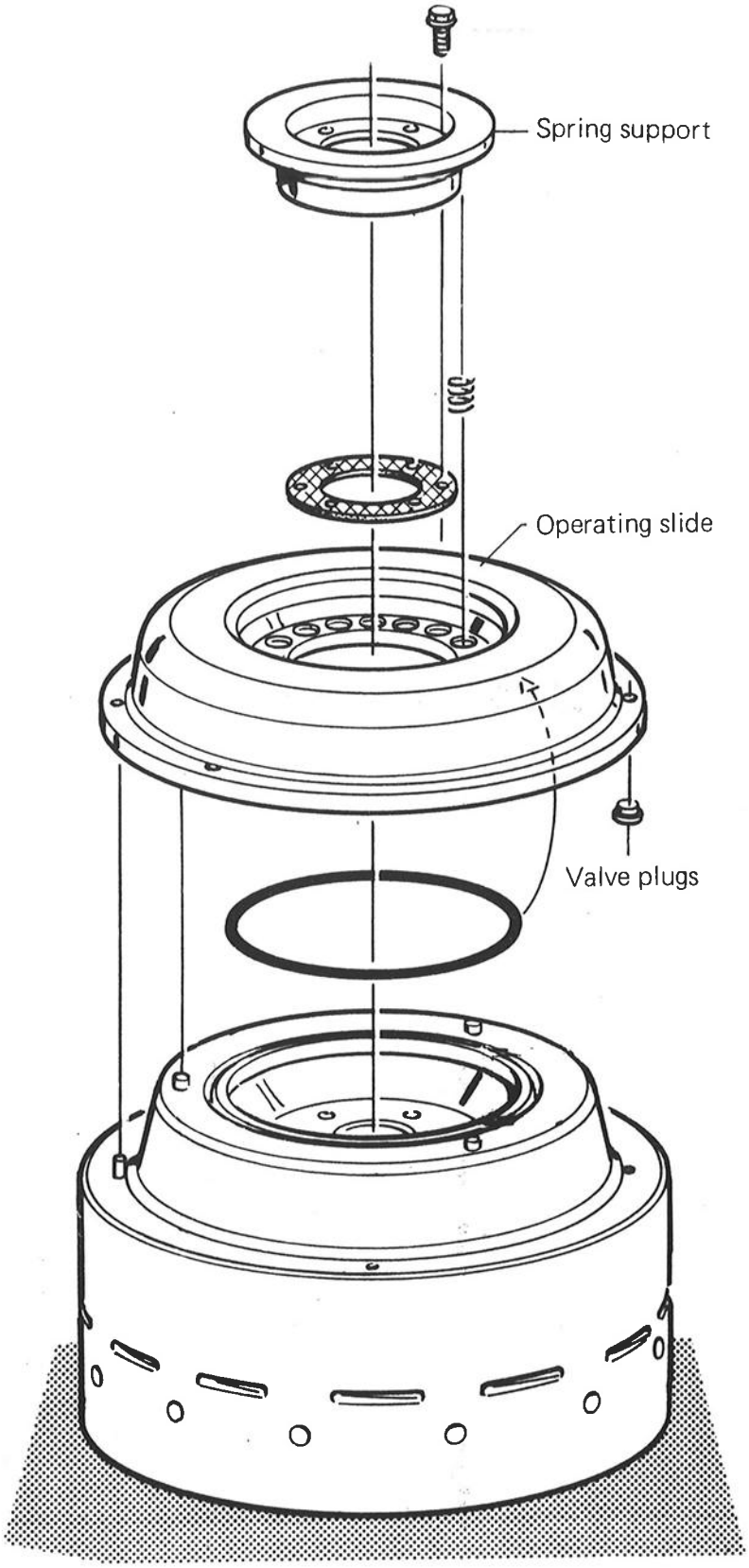




Loosen the operating slide using the screws of the spring support.

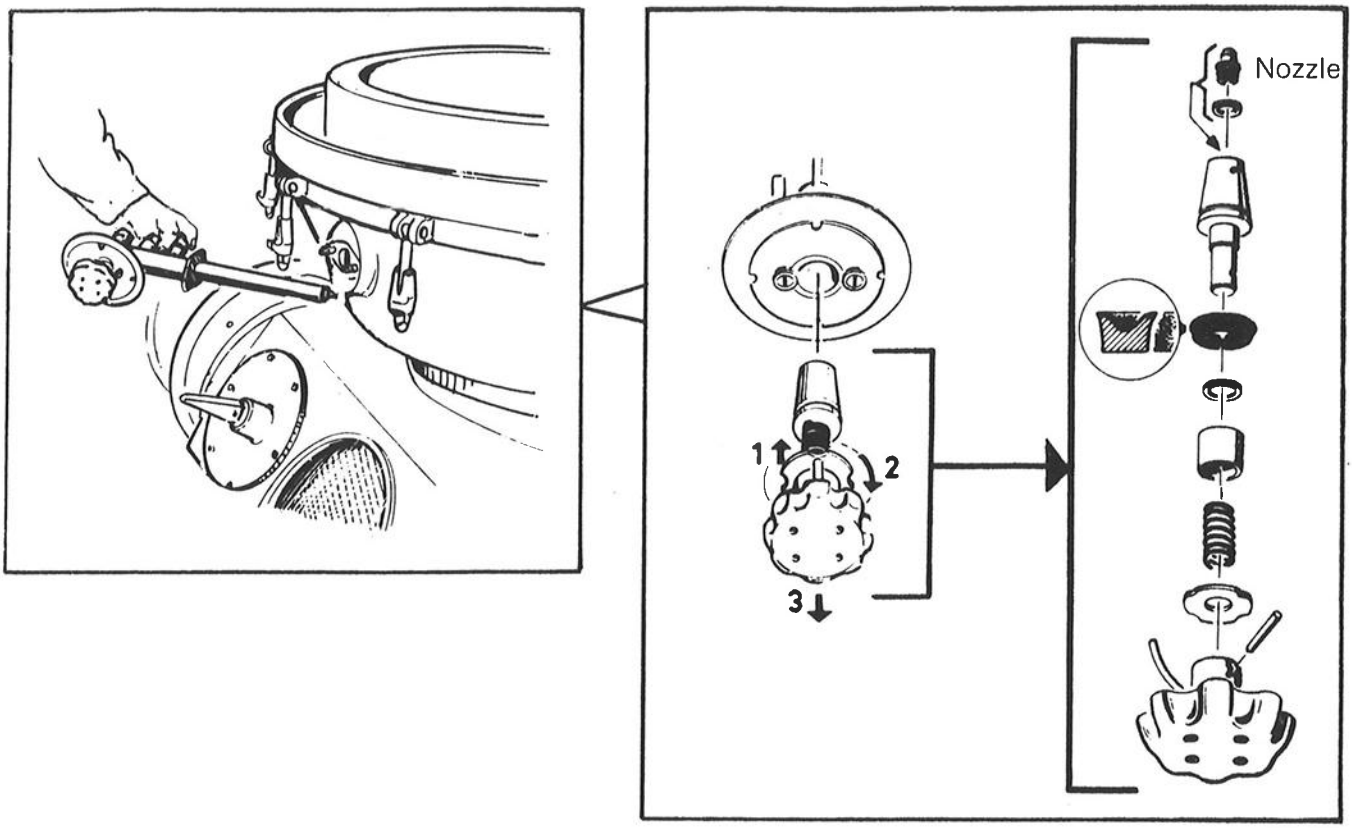


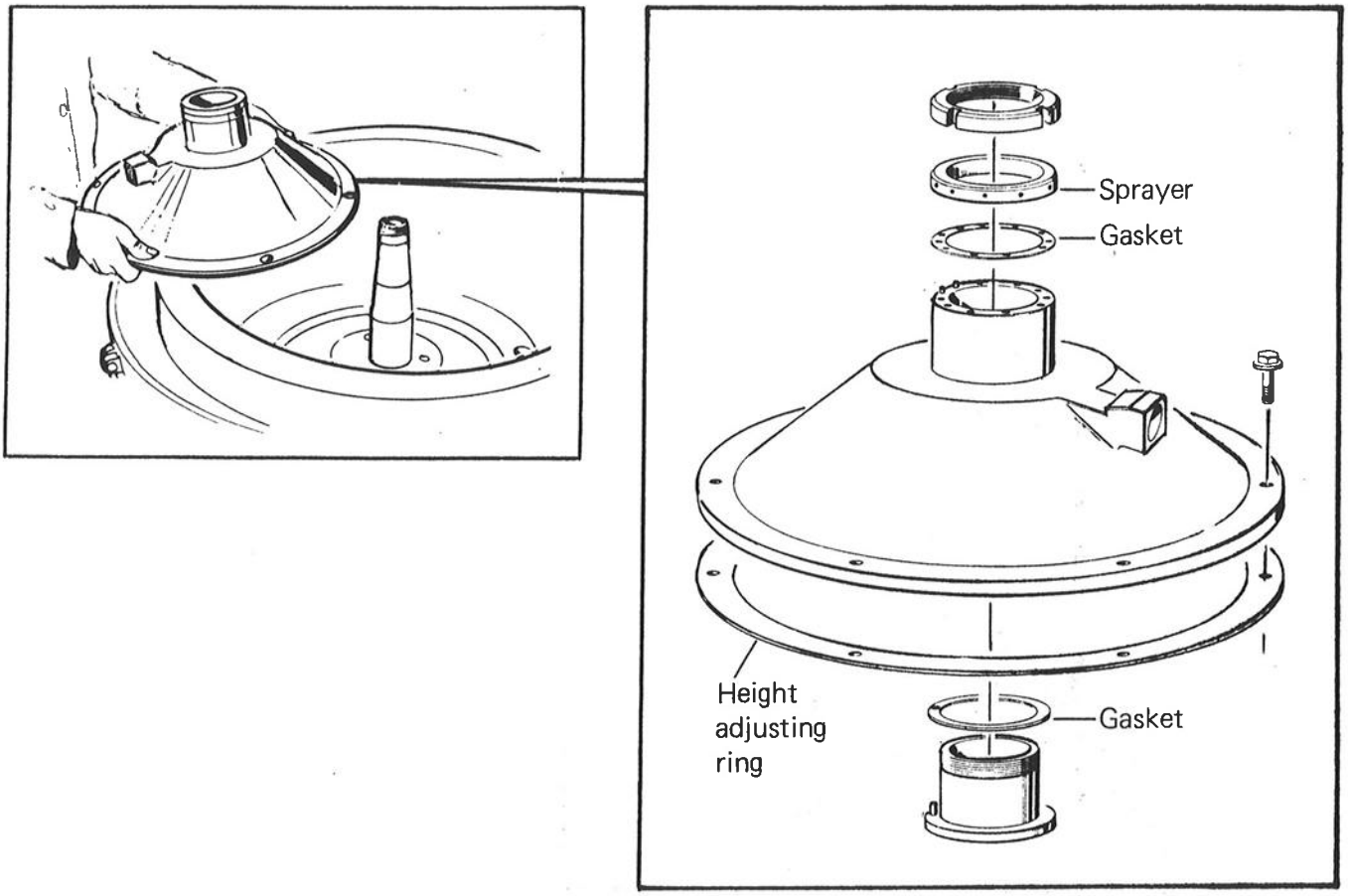
Put down the slide with screw plugs (1) facing upwards.

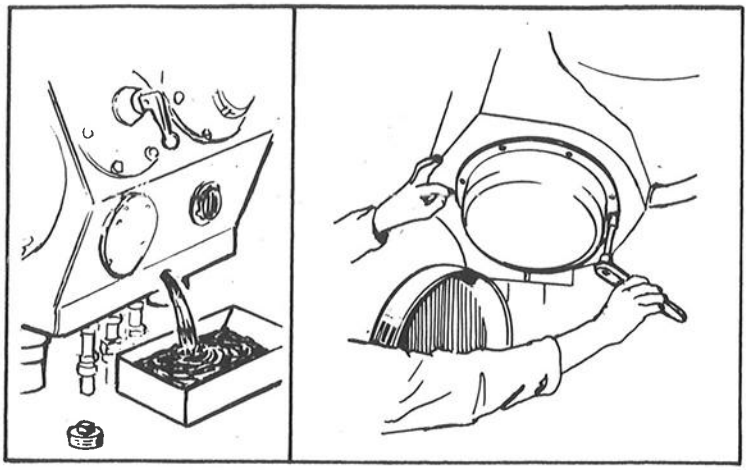


## MRPX 314 (Control Valve and Operating Water Distributor)

– page 3:9

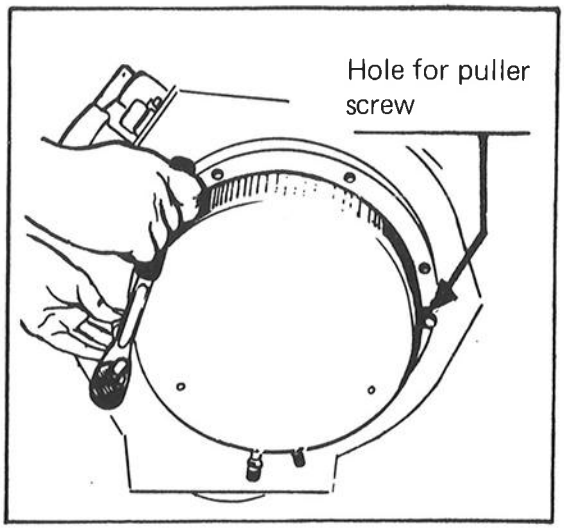


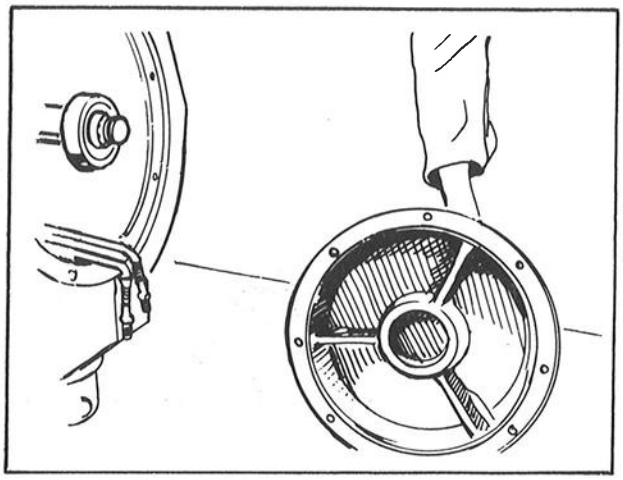


Drain off oil in worm gear housing.
**Note!** The oil may be hot.

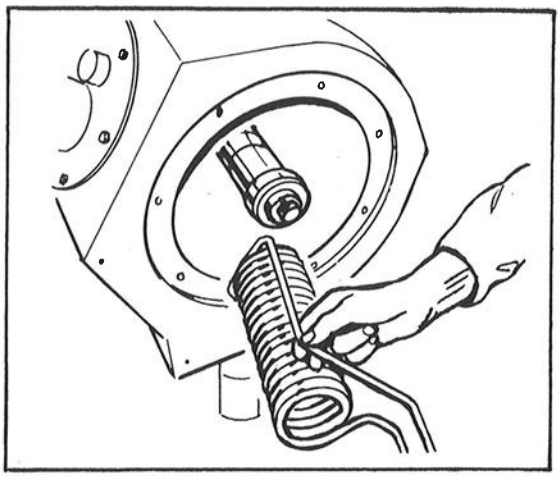
Radial wobble of bowl spindle – page 3:13

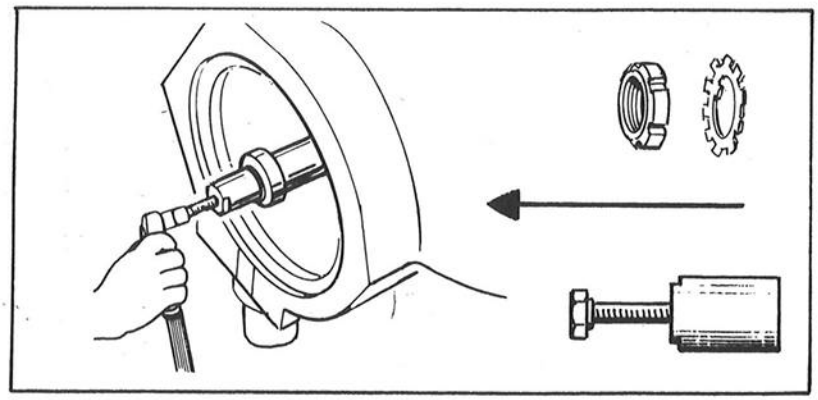


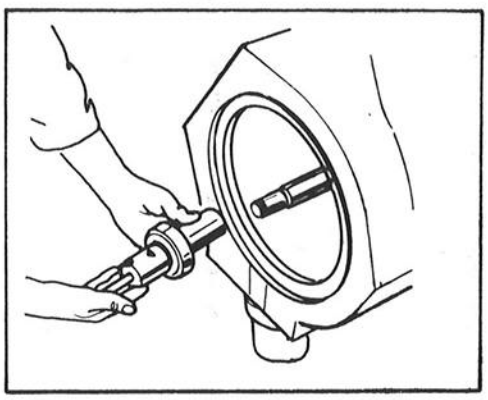

Ease off the bearing shield, using two of its screws.

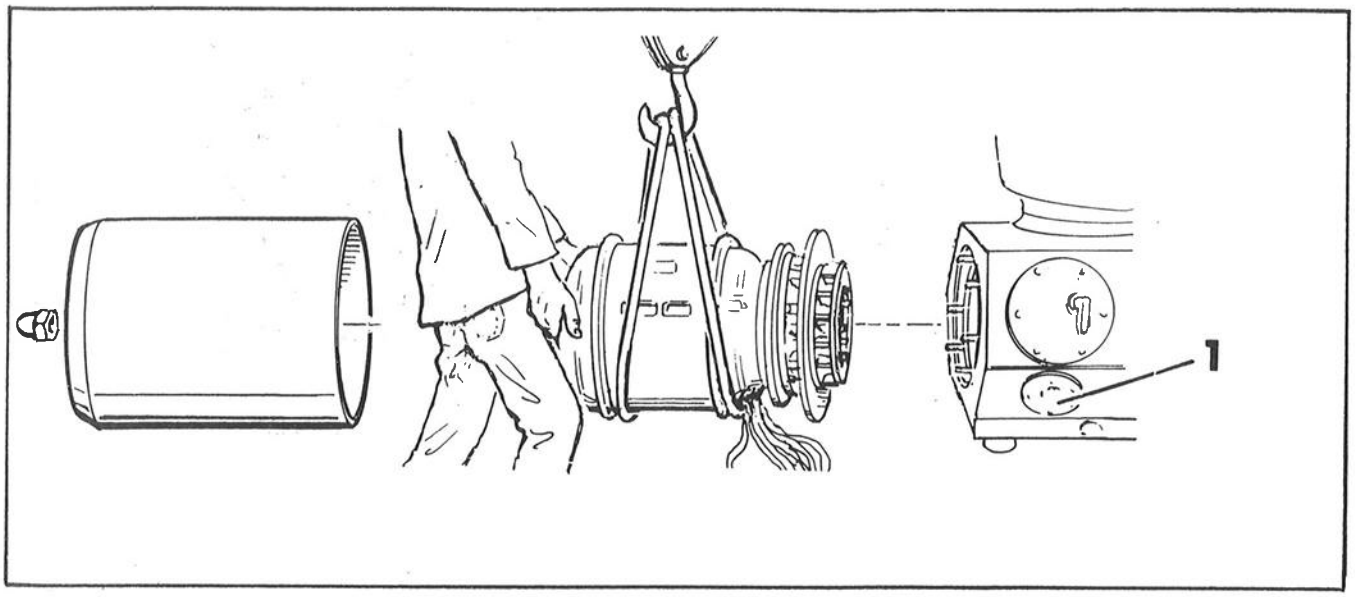


**Note!** Mind your feet. Shield is quite heavy.

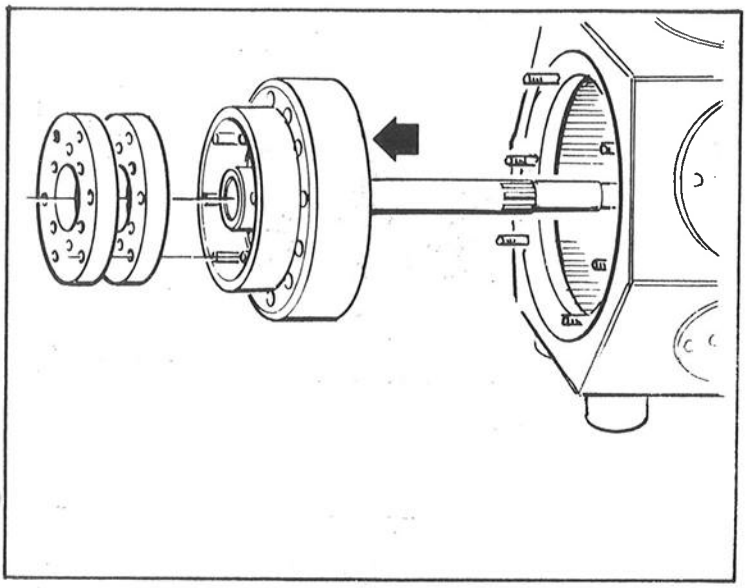




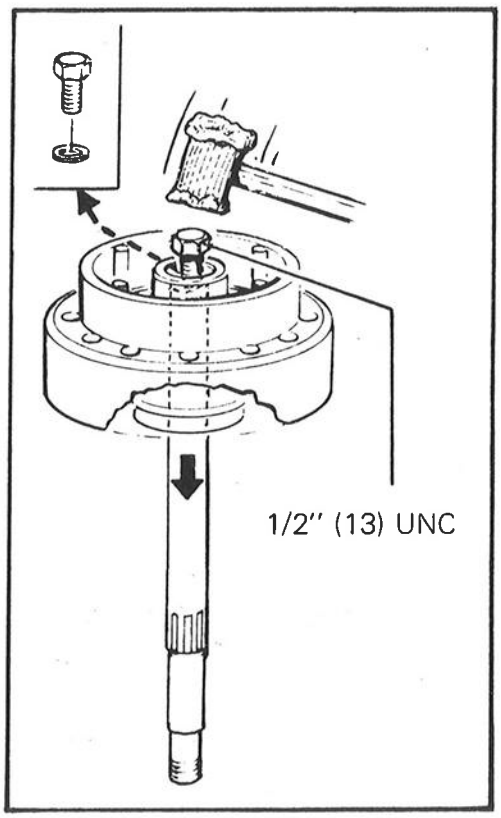




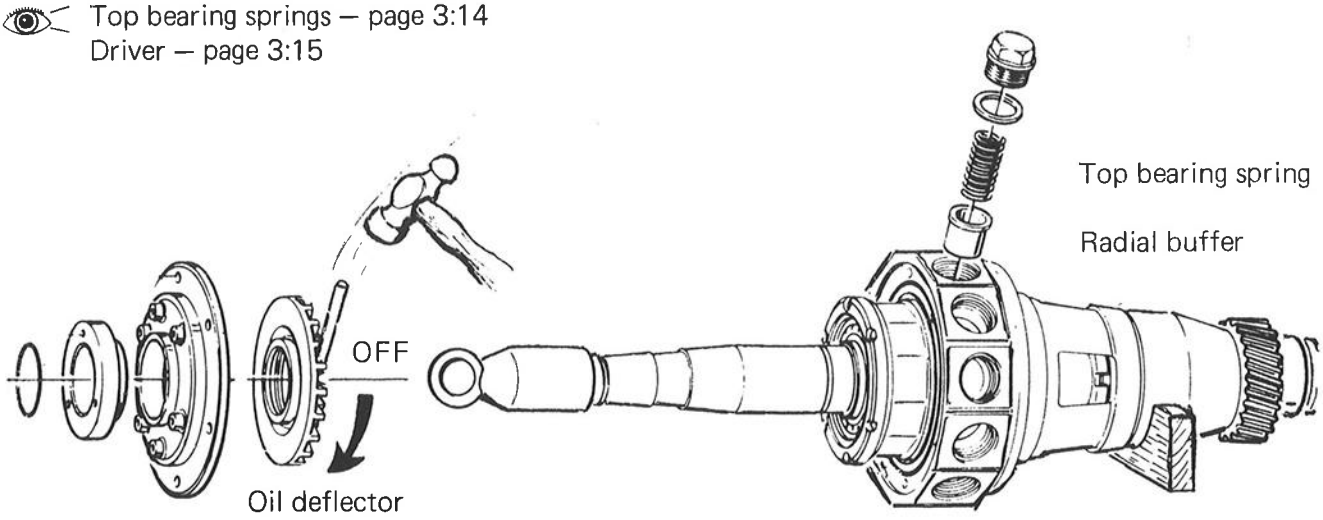

**Note!** Mark the cables before disconnecting

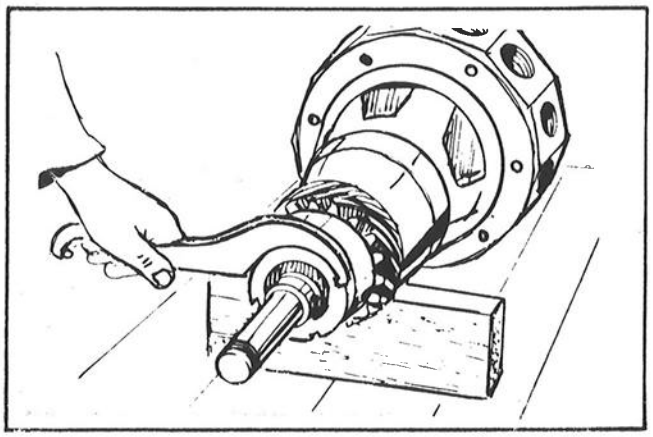


Elastic plates – page 3:17

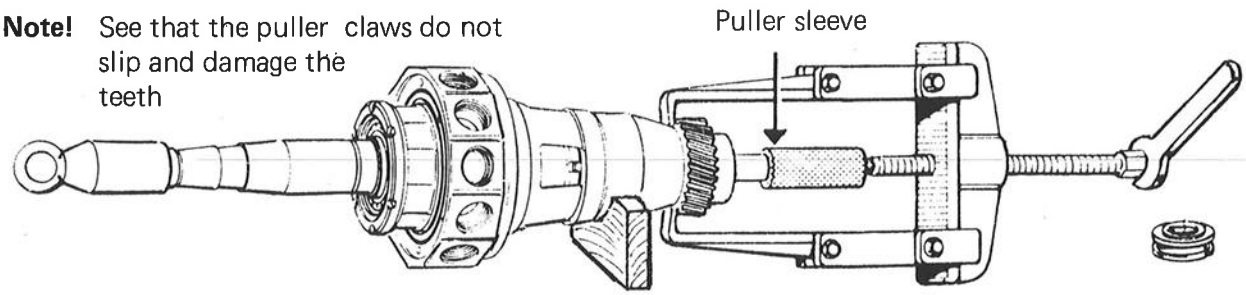


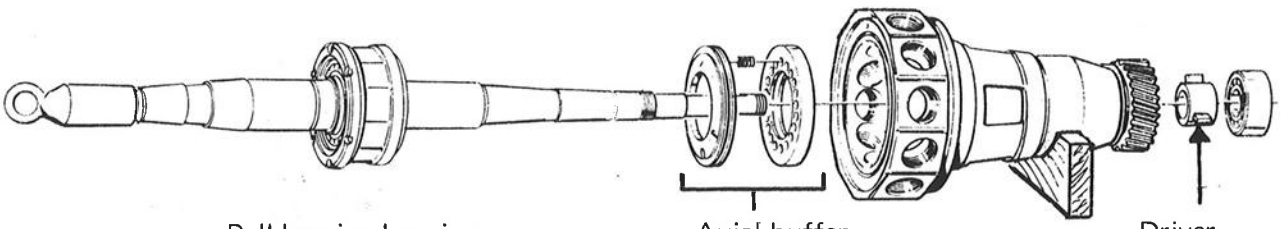
Top bearing springs – page 3:14
Driver – page 3:15



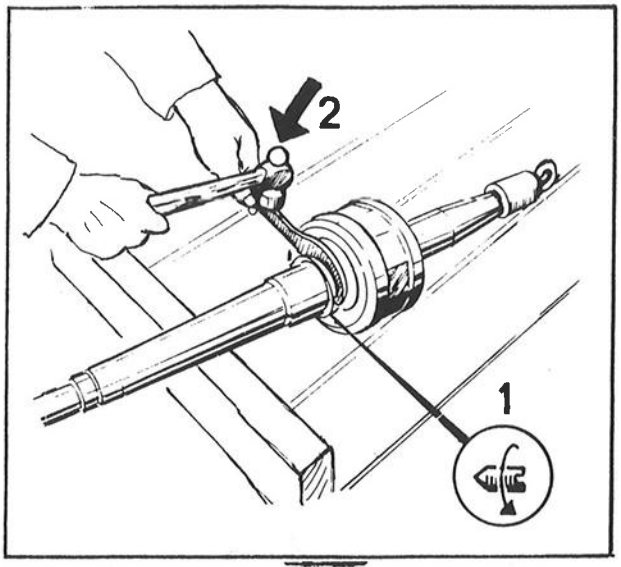
**Note!** See that the puller claws do not slip and damage the teeth

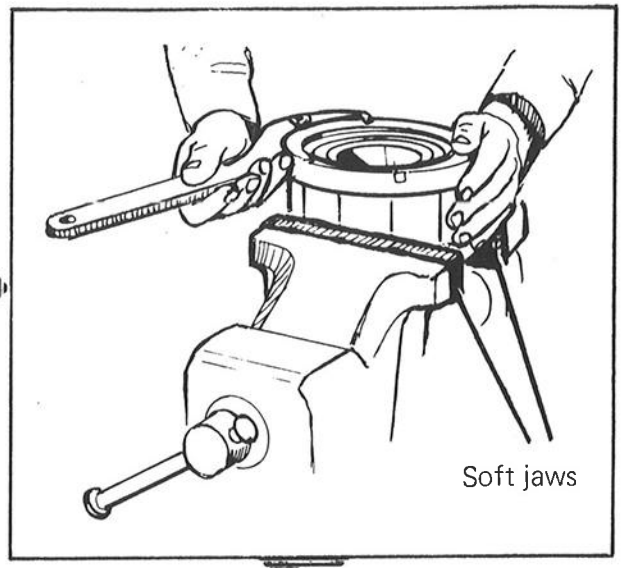


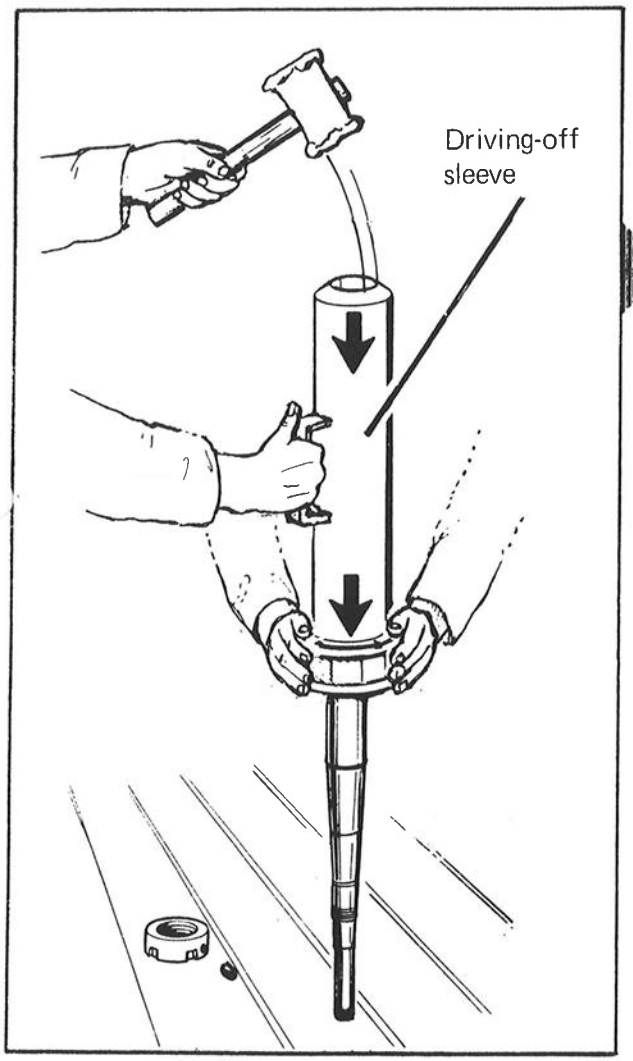



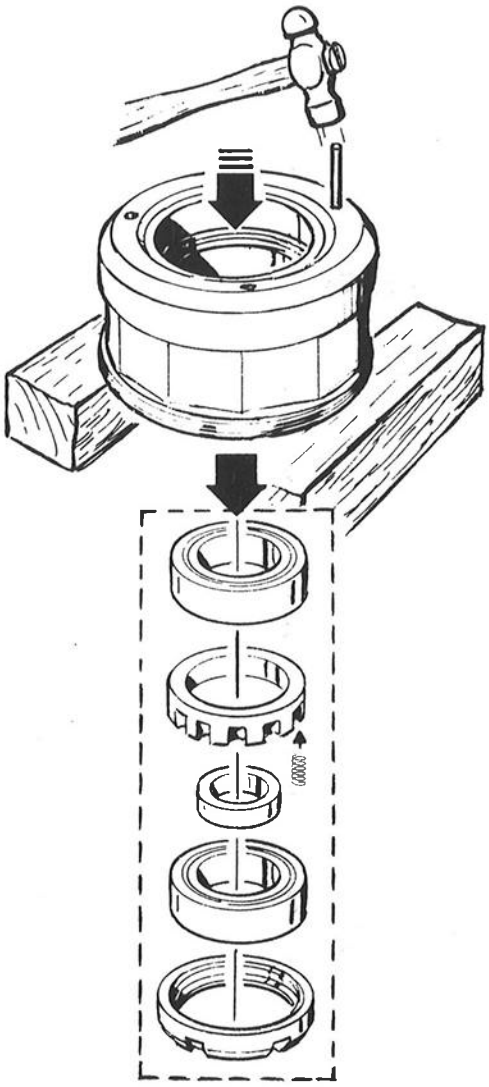
**Ball Bearing Housing**

— page 3:14

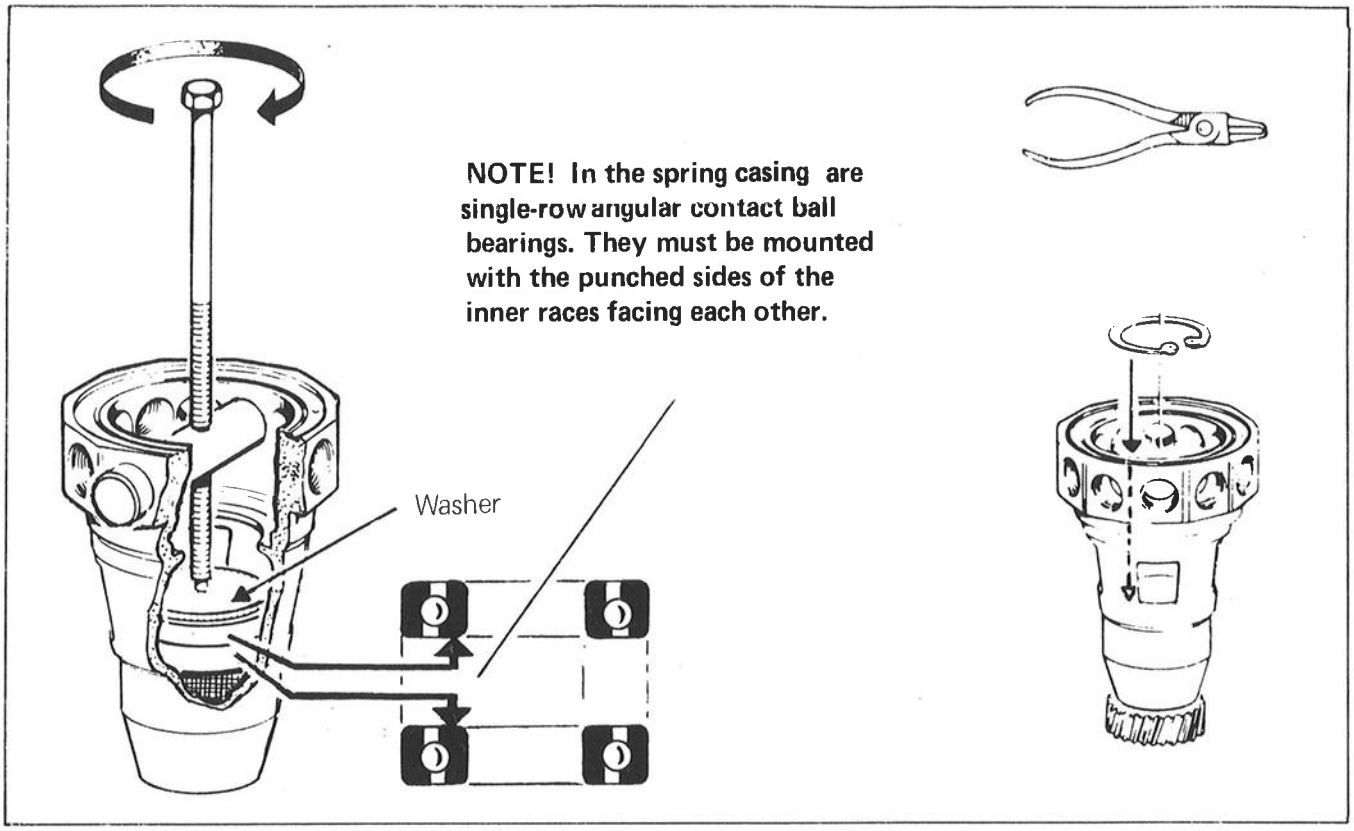


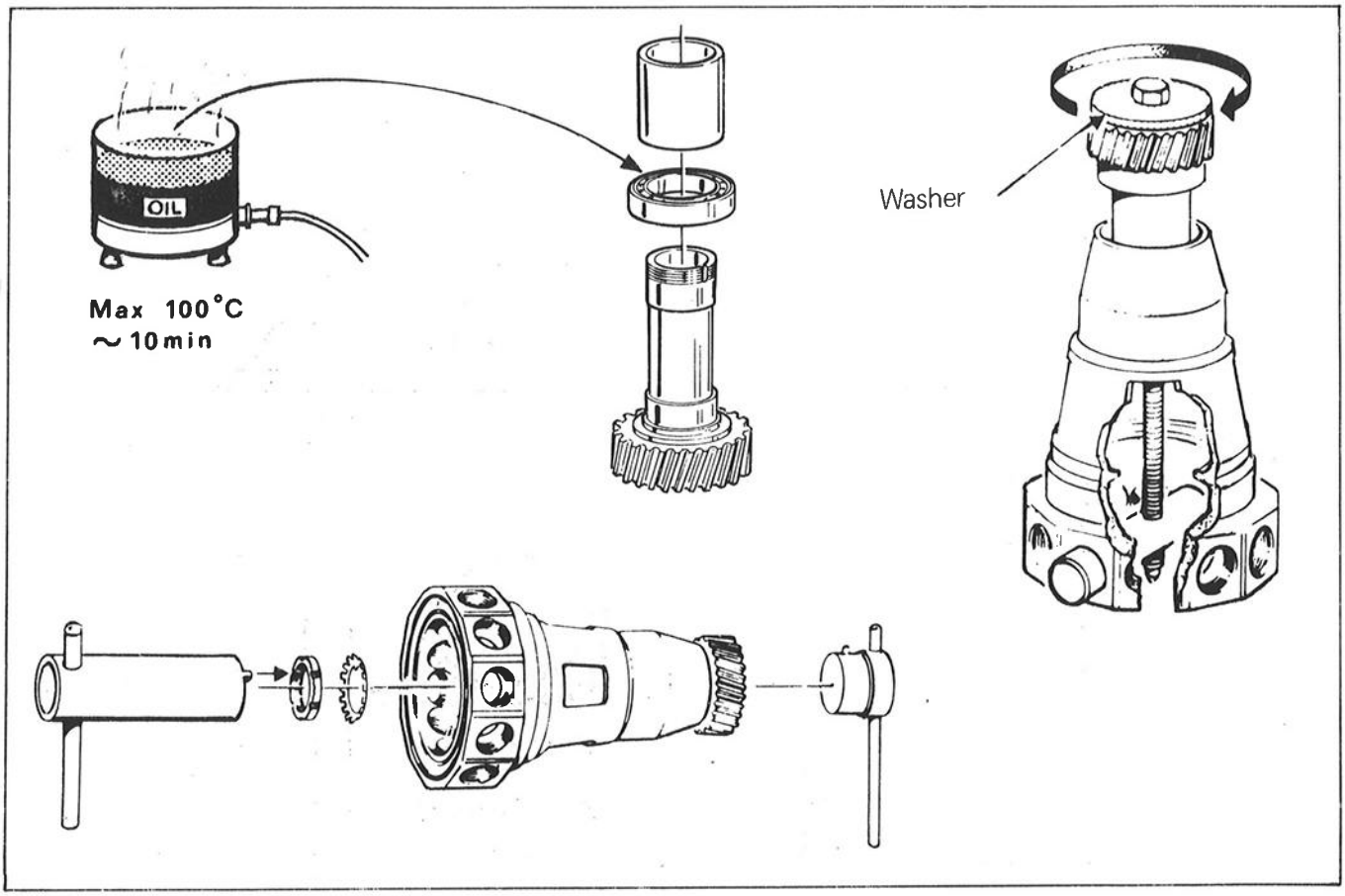



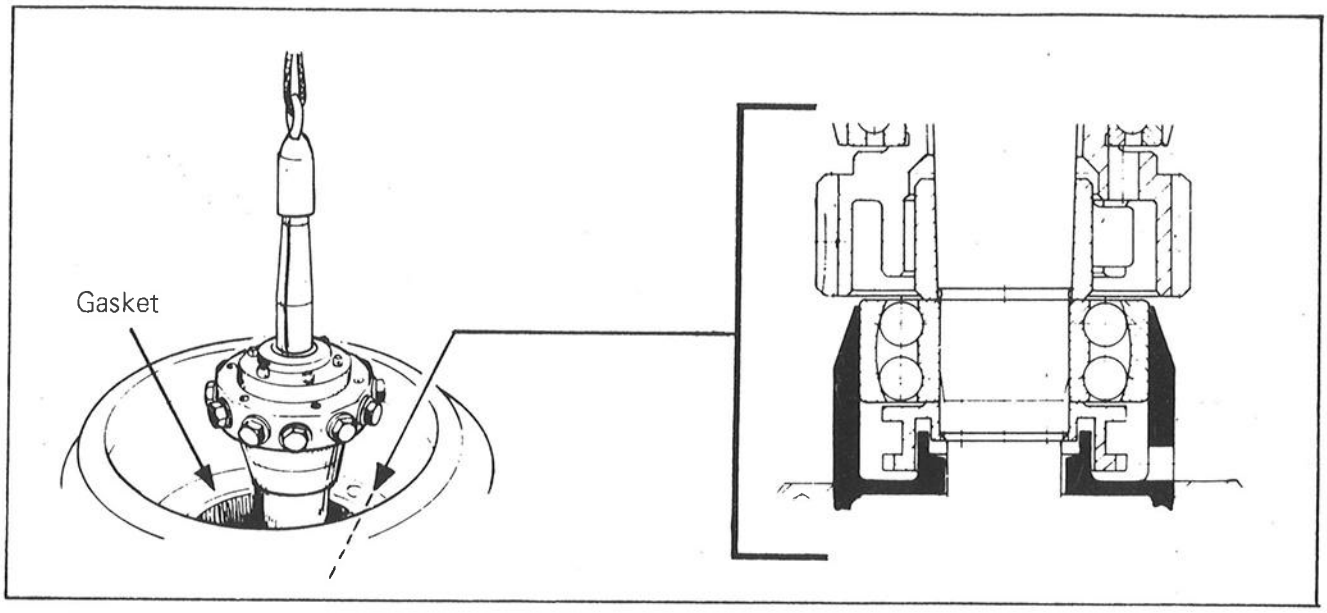



## Bearing of Spring Casing



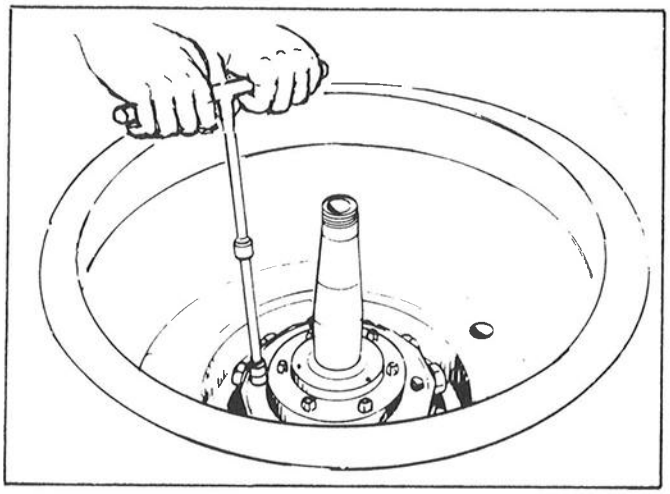

## Worm

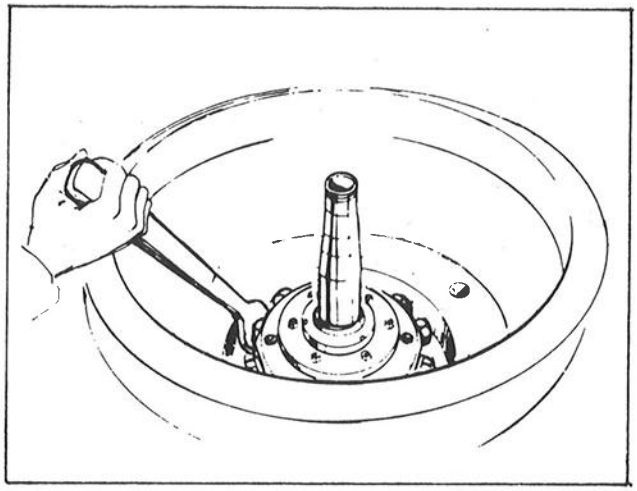




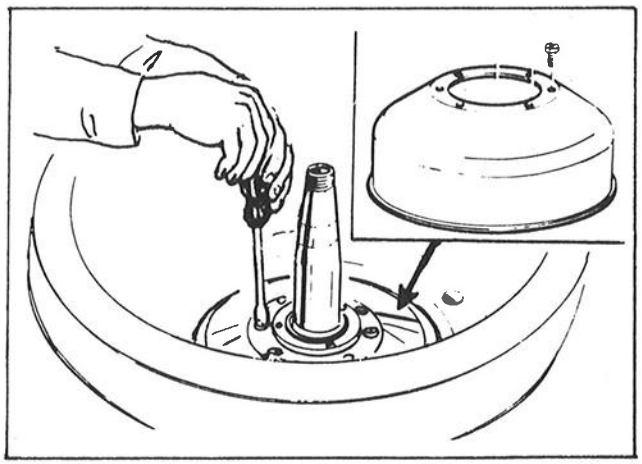

Lower the spindle gently.

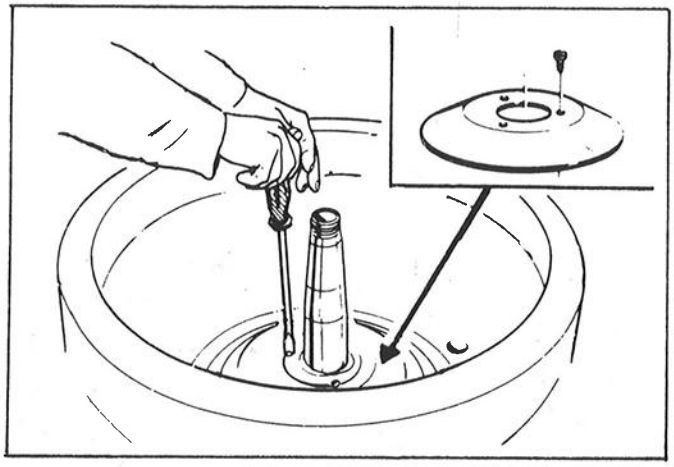
Lead the bearing into the bottom bushing. If it does not quite bottom in its seat, knock lightly on the spindle top with a tin hammer.

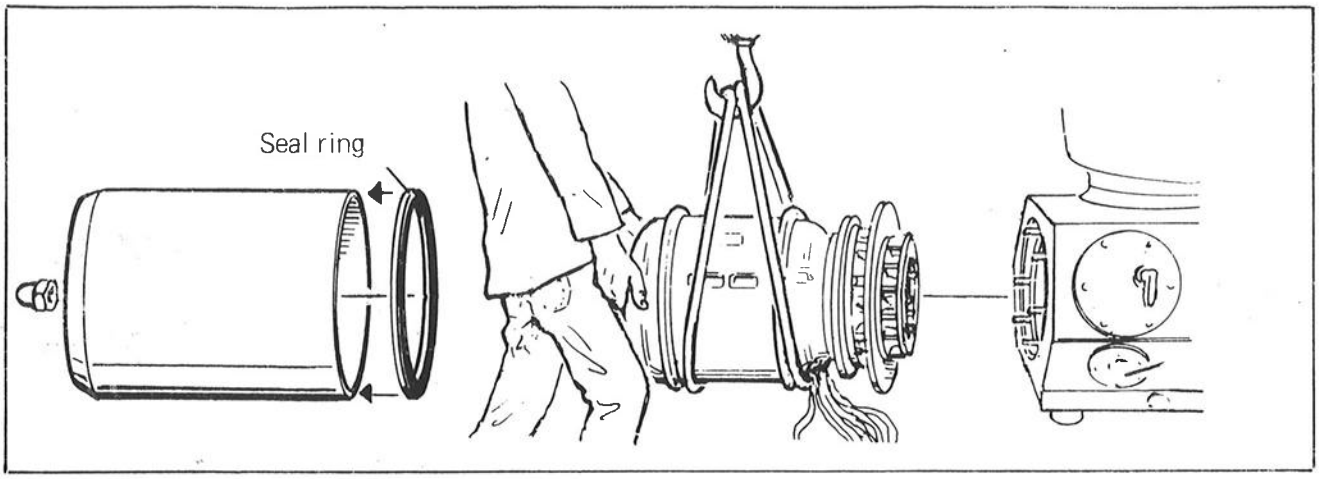




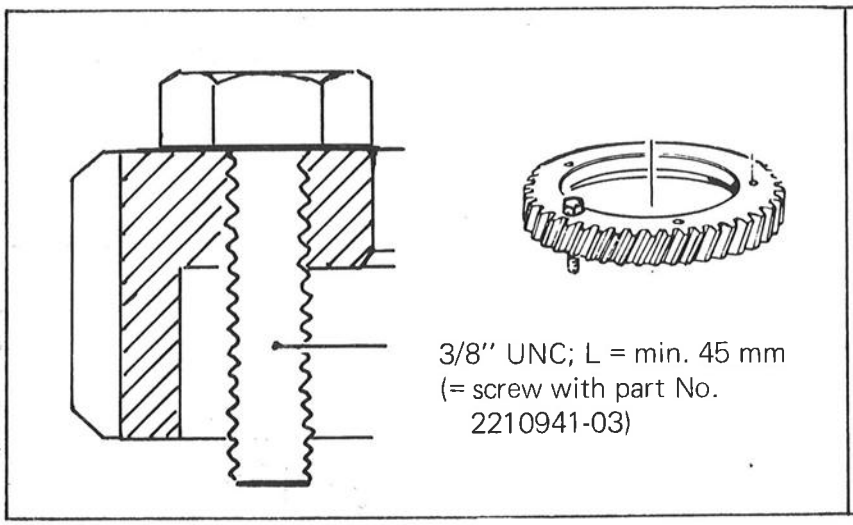
Tighten plugs, first **diametrically** and then **all around.** Tighten firmly.



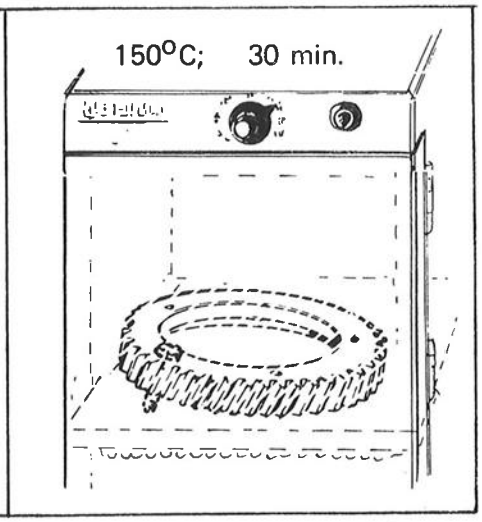




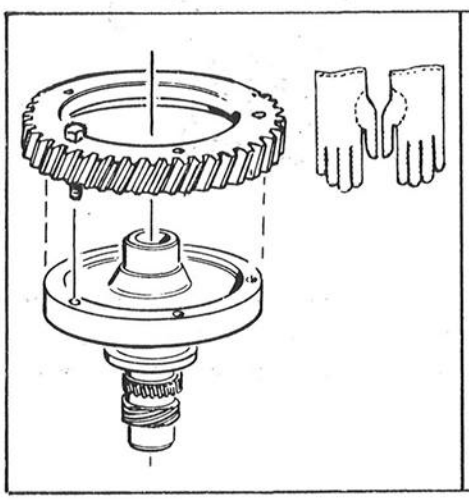

(Fitting the Gear Rim of Worm Wheel)



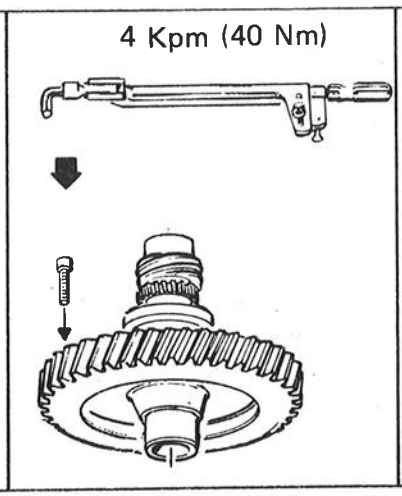

Fit one guide screw as above.



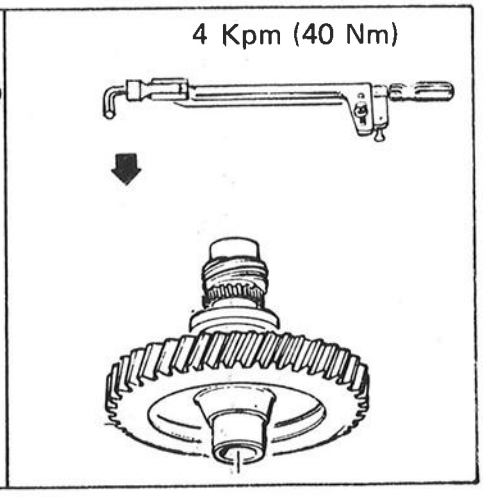

Heat gear rim in a heating cabinet.



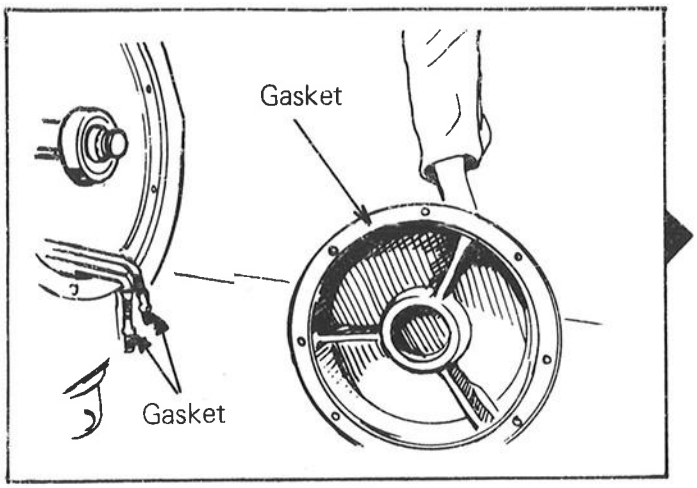
Fit rim on nave. Remove guide screw.

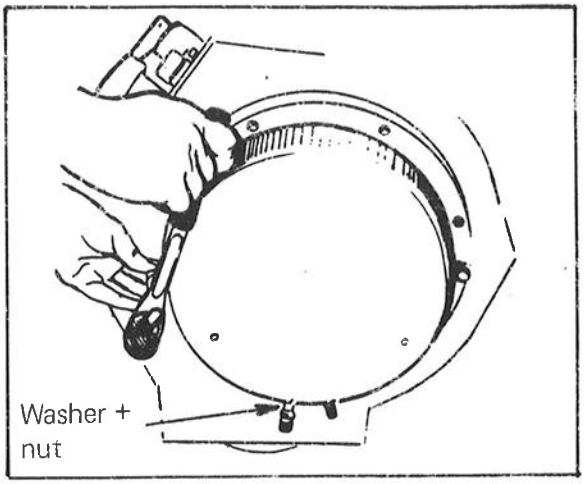



Tighten screws while rim is still warm.

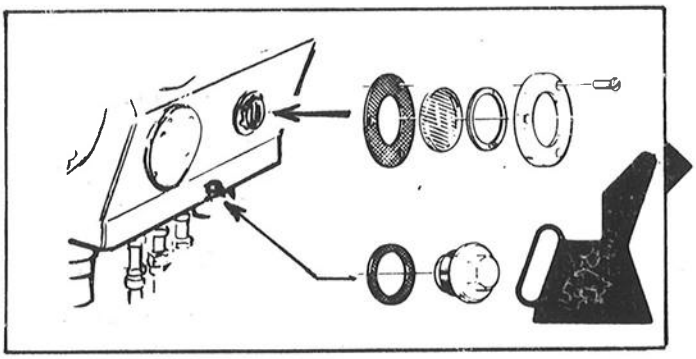


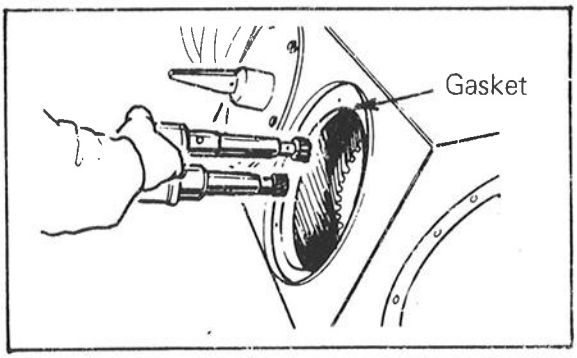

Check screw tightening when rim has cooled down.



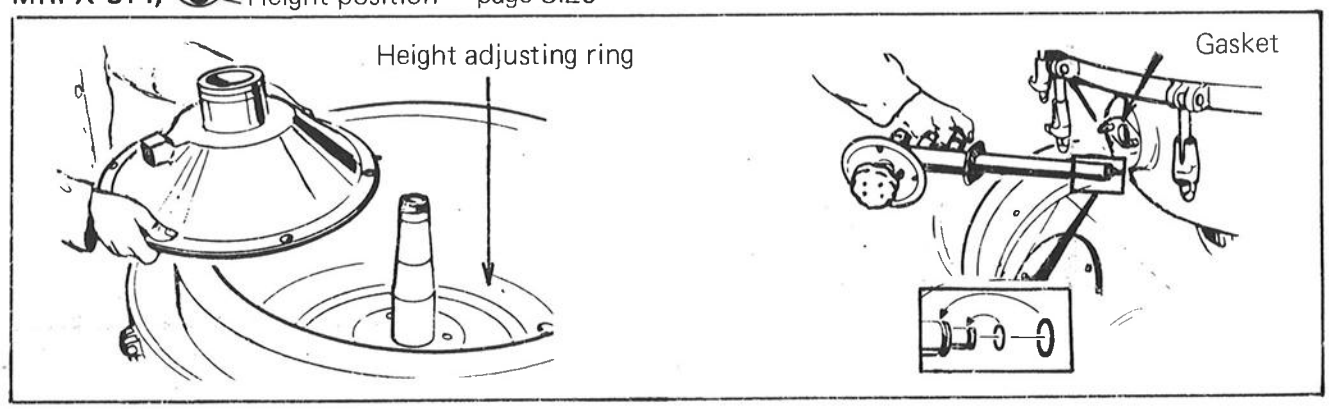

When necessary: press in the shield by tightening its screws.



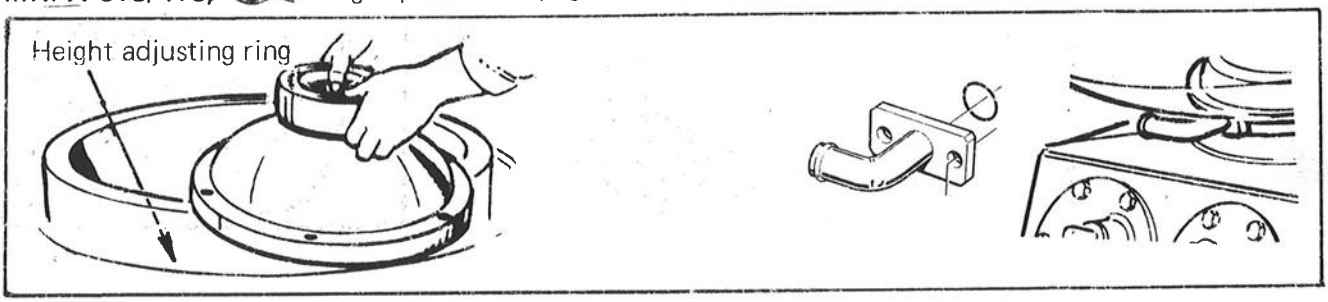



Supply oil – see Lubrication Schedule in "OM".

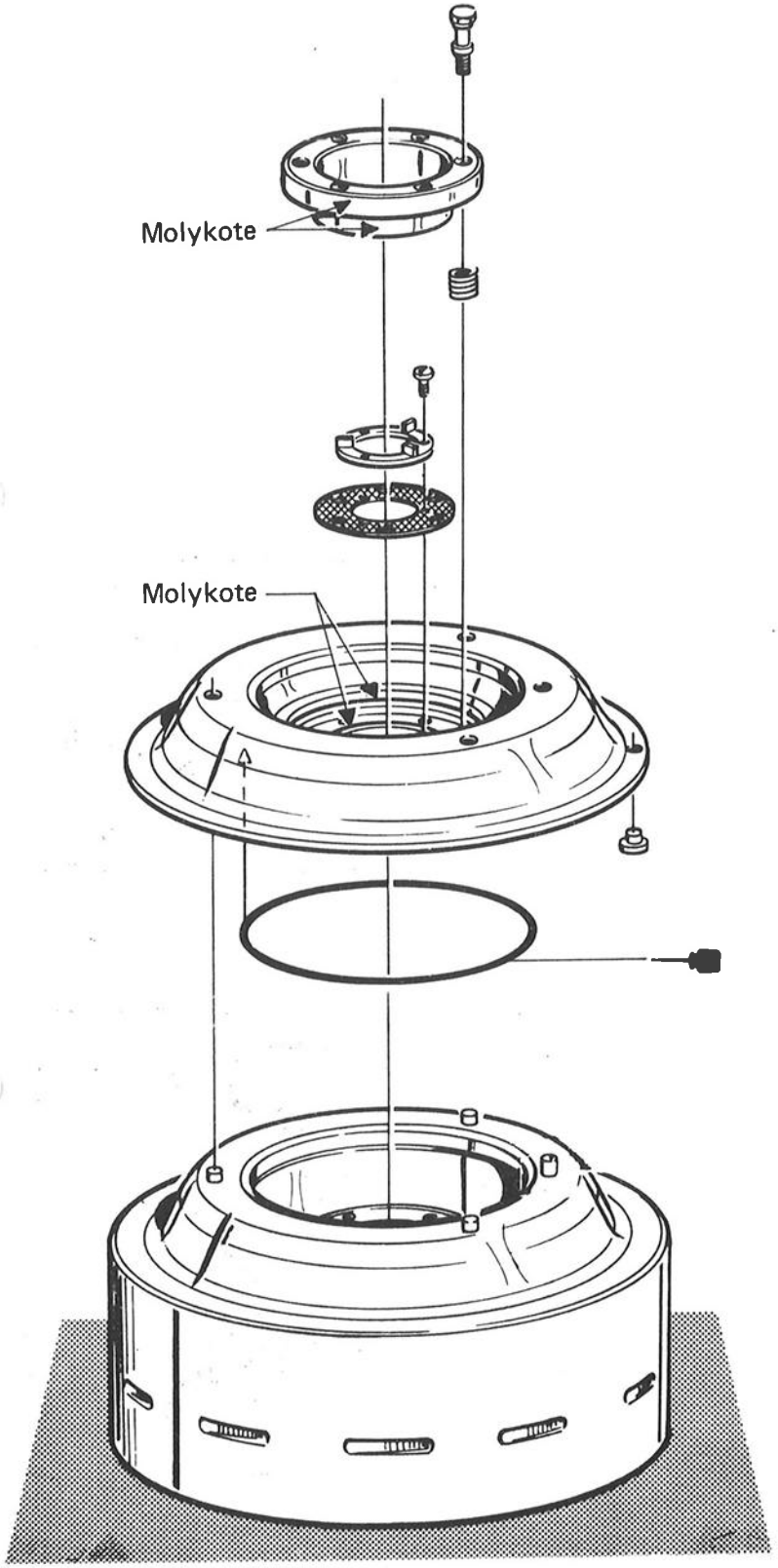
**MRPX 314;** Height position – page 3:20

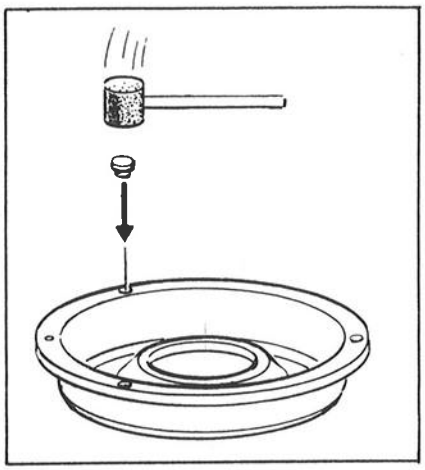



**MRPX 318/418;** Height position – page 3:20

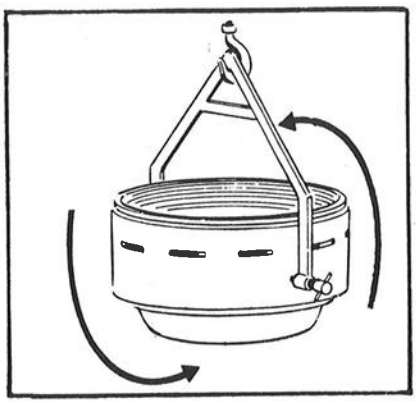


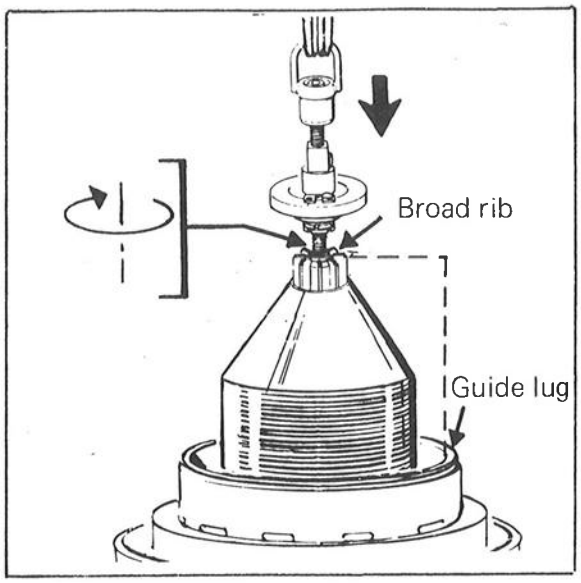
**MRPX 318/418** (Ejecting Mechanism)
– page 3:11

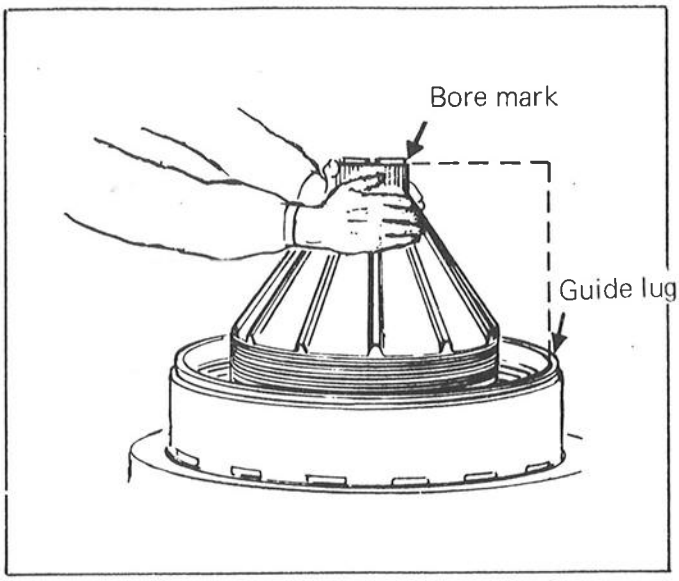


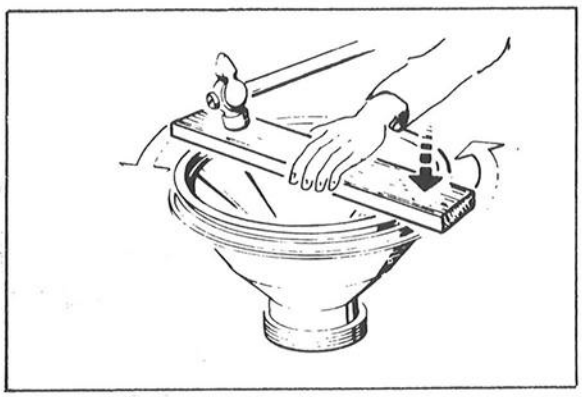
When inserting new plugs use a rubber hammer or the like so as not to damage the sealing surface.






Disc set pressure – page 3:3

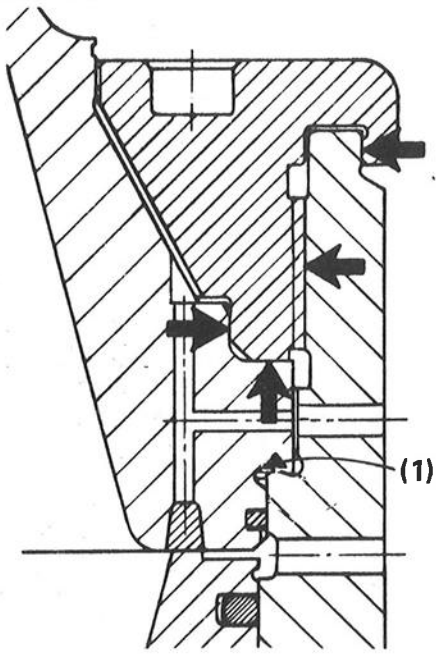


When fitting a new seal ring in bowl hood:

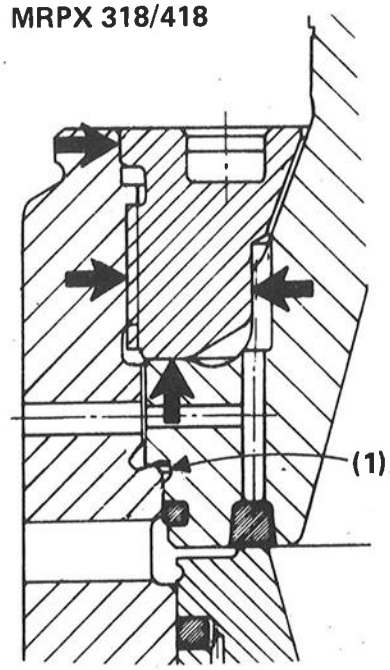
If a new seal ring of nylon (polyamide) proves too wide when mounted, this is due to absorption of moisture. It will recover correct dimensions after drying for about 24 hours at a temperature of $80^{o}$ - $90^{o}$ C. ($175^{o}$ - $195^{o}$ F).

If the ring is too narrow, put it in hot water, $70^{o}$- $80^{o}$ C ($160^{o}$ - $175^{o}$ F) for 5 minutes (approx.).

**MRPX 314**



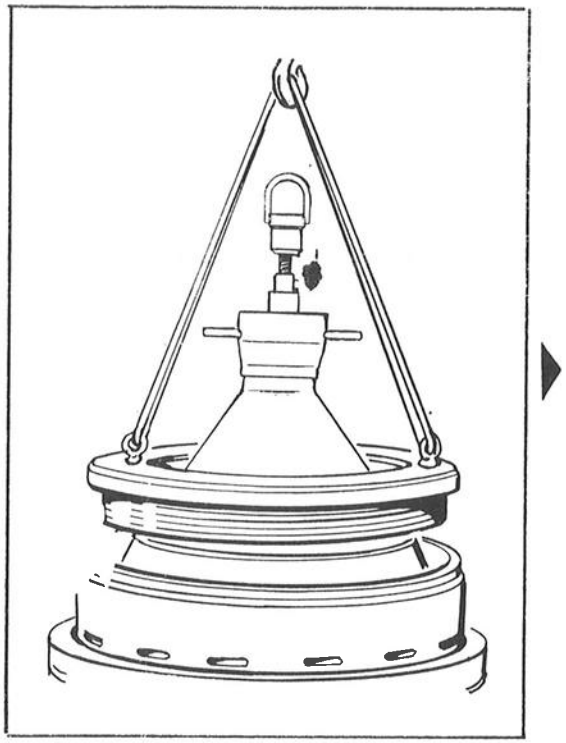

**MRPX 318/418**



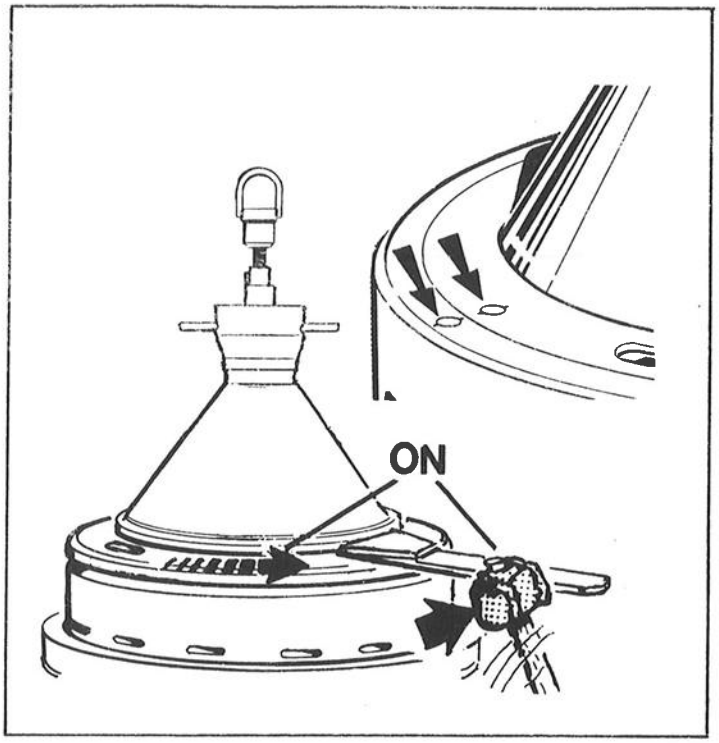

– page 3:5

Inspect and lubricate threads as well as contact and guiding surfaces (indicated by ➔ ).

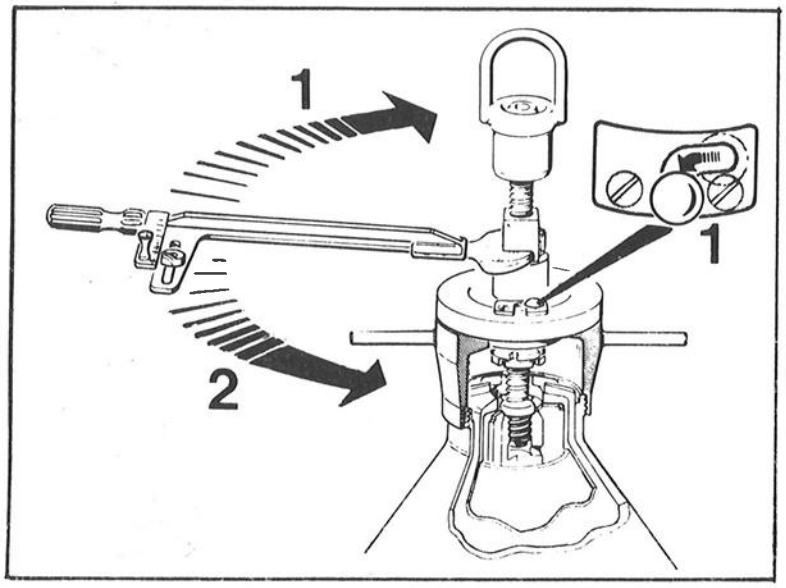
Make certain the surfaces (1) of the so-called dovetail slot are well cleaned.

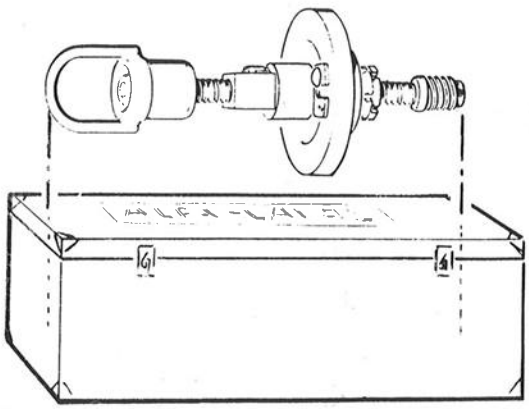


Lower the lock ring gently onto the bowl body.

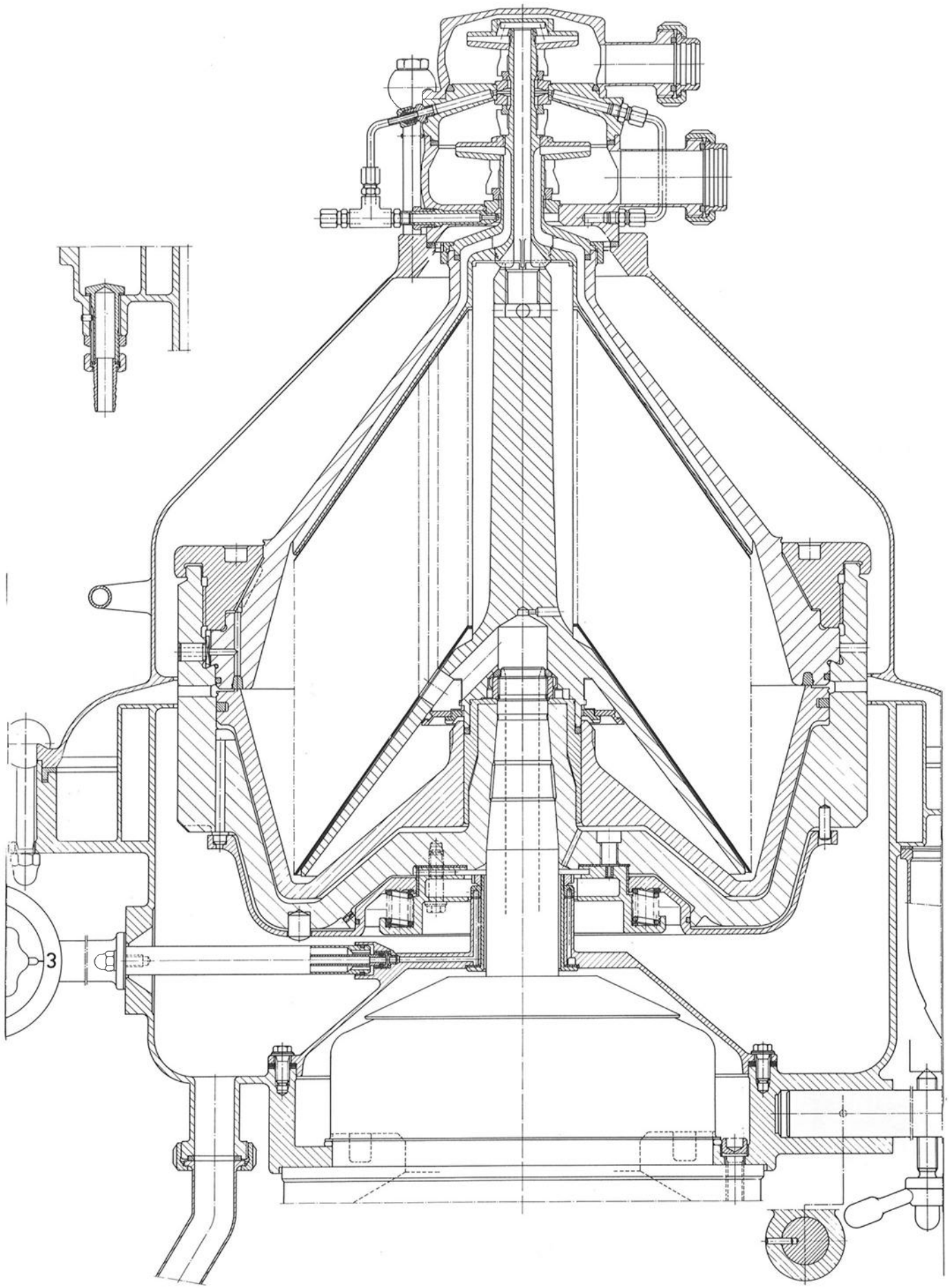



Screw on the lock ring quietly and without using force. Finally hit the spanner handle a few blows. The marks Ø on lock ring and bowl body should now be right in front of each other.
**Note!** If marks Ø are not aligned and the distance between them does not exceed 20 - 30 mm, the ring may be advanced by knocking lightly on the spanner handle until alignment is obtained.



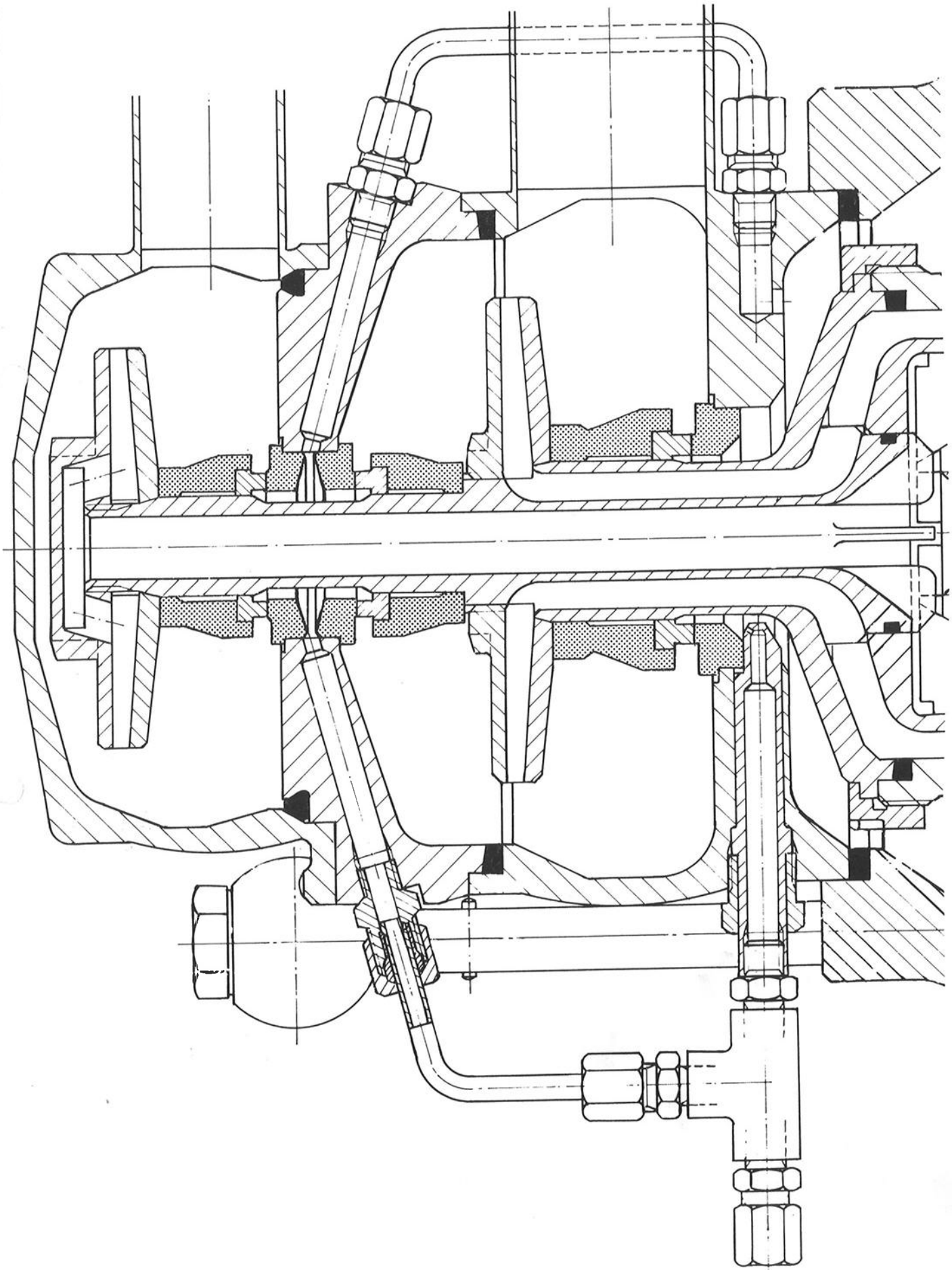



**MRPX 314 HGV-74C**



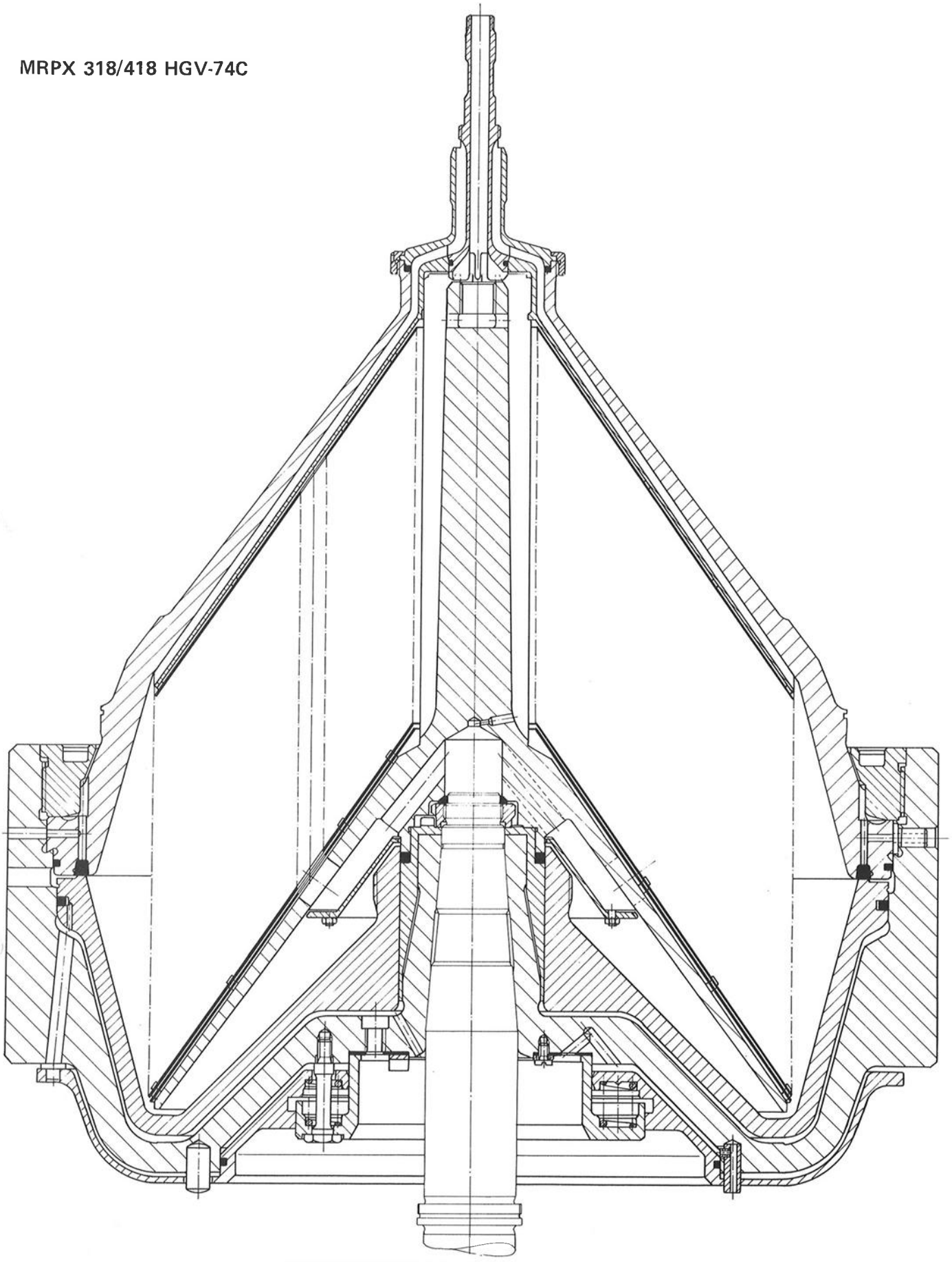

537919-Z

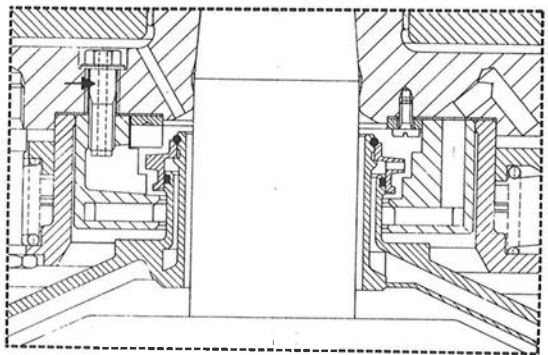
MRPX 314/318/418 HGV-74C



537919-ZA

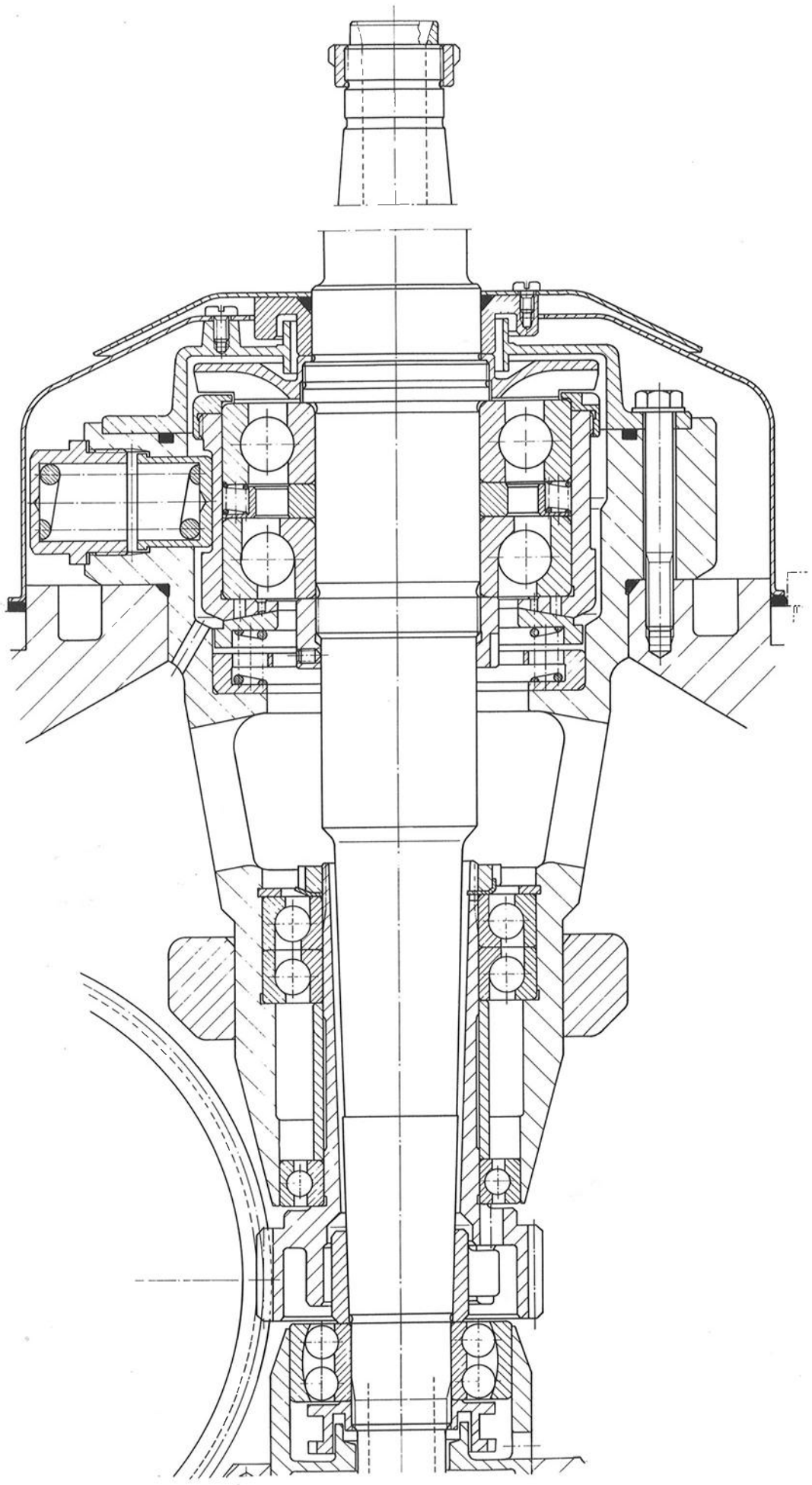
MRPX 318/418 HGV-74C



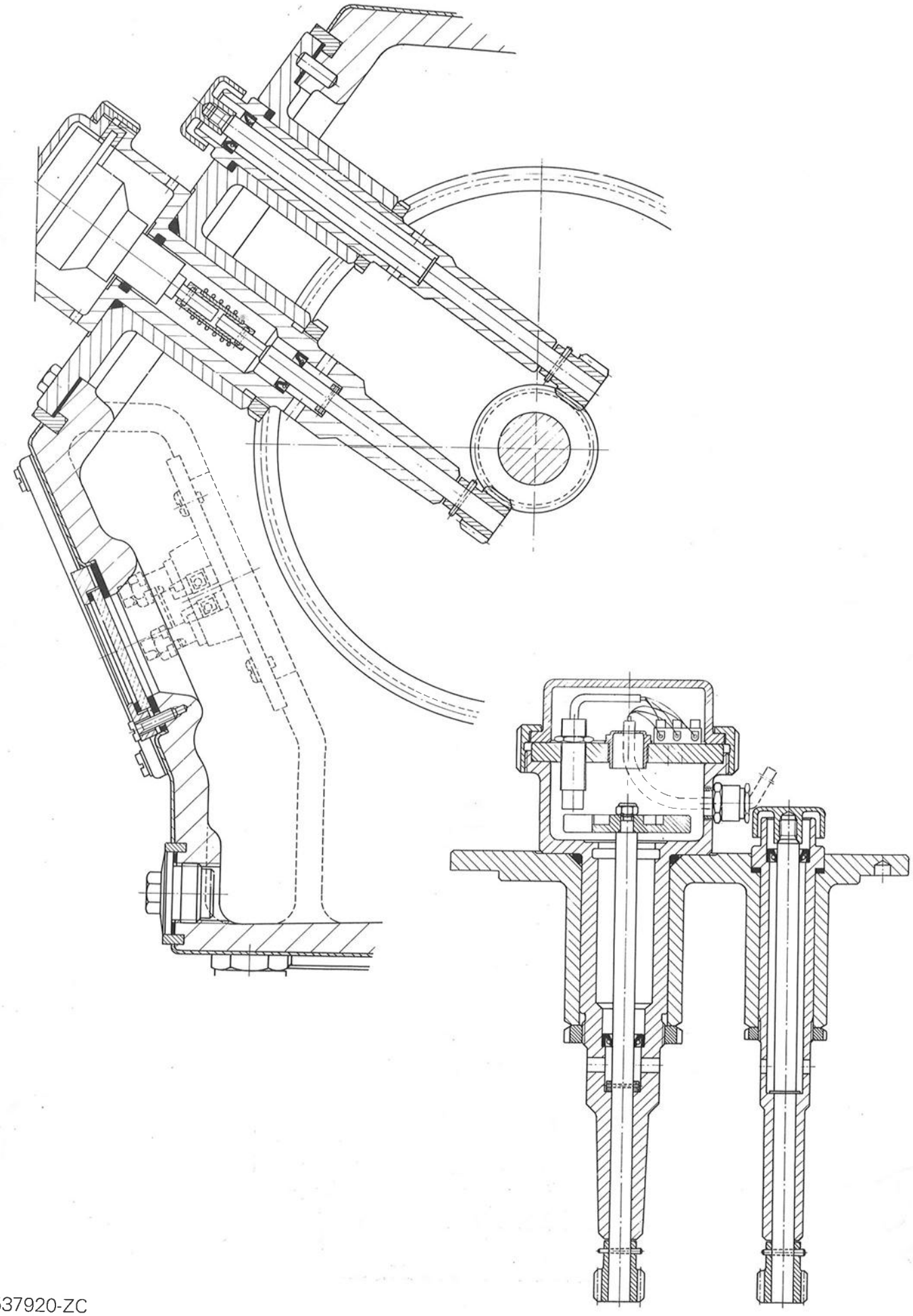


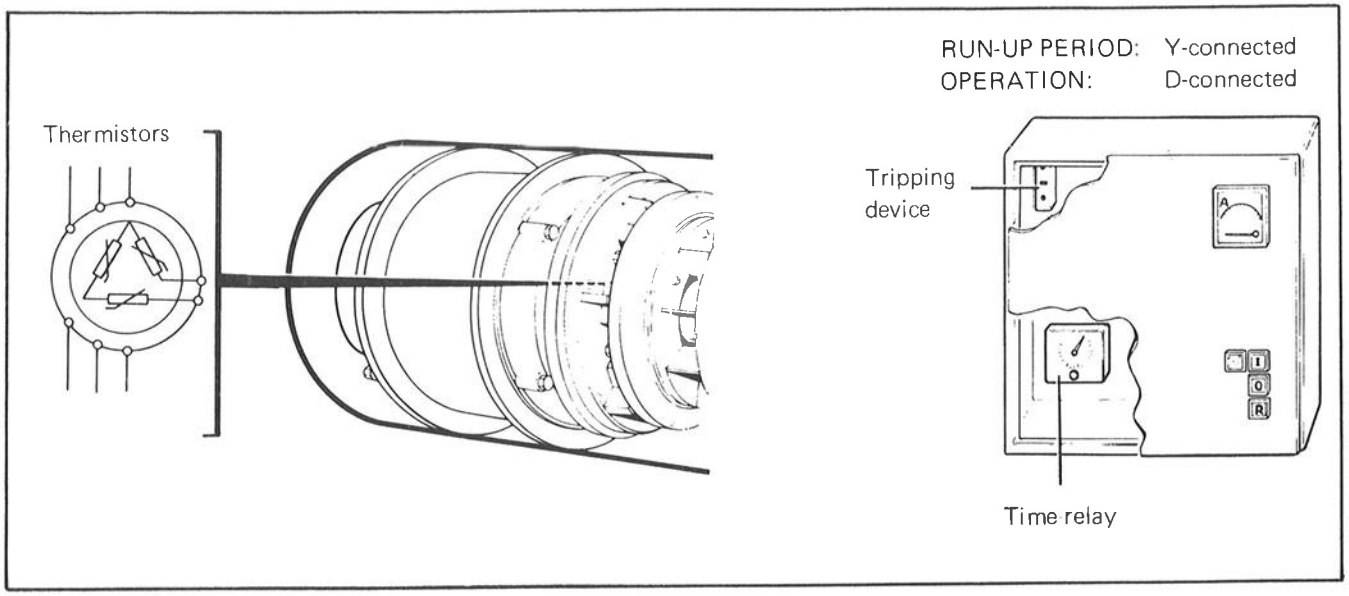
536295-Z

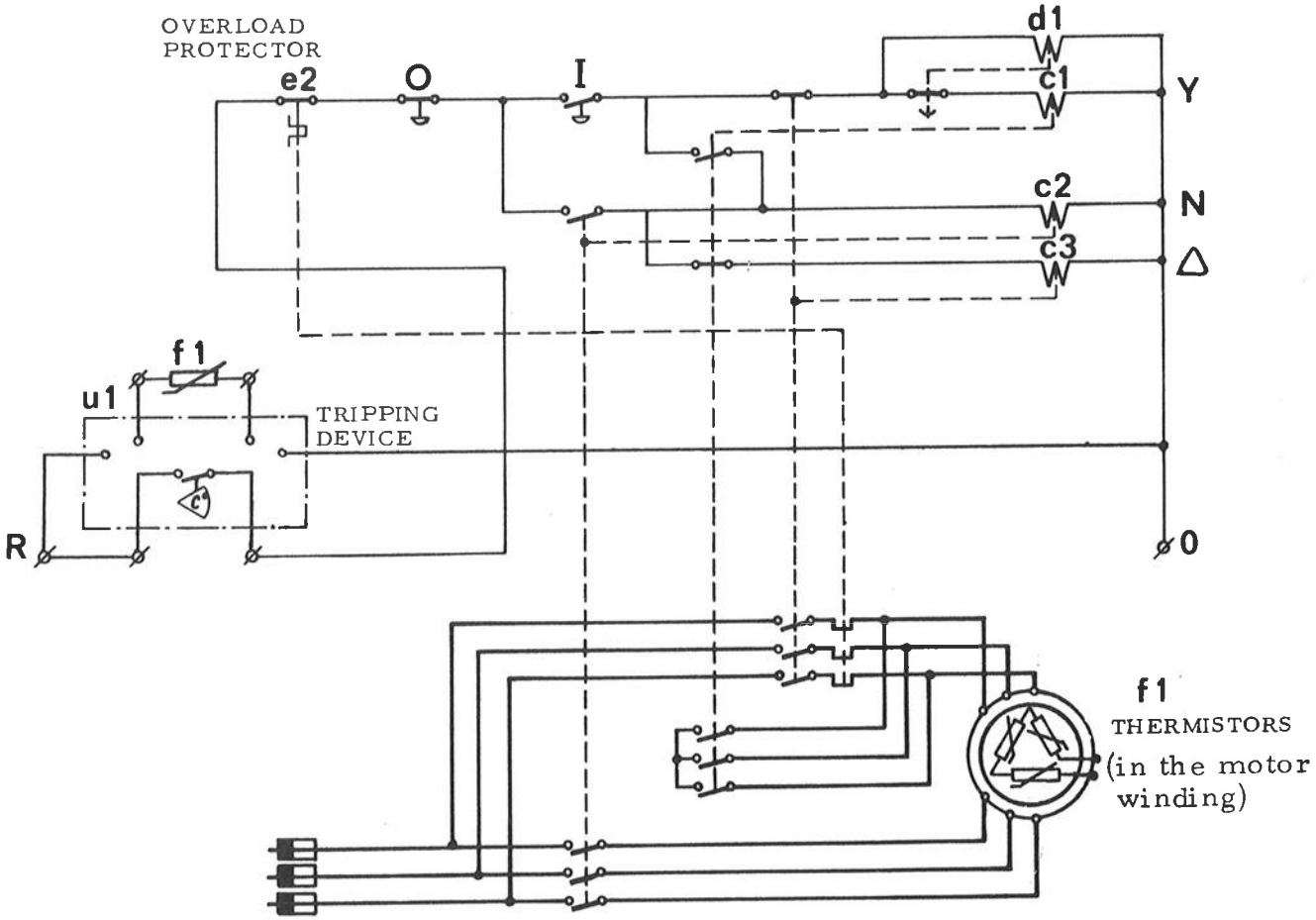
**MRPX 314/318/418 HGV-74C**



537920-ZA




RUN-UP PERIOD: Y-connected
OPERATION: D-connected
Thermistors
Tripping device
Time relay


OVERLOAD PROTECTOR
e2
O
I
d1
c1
Y
c2
N
c3
Δ
f1
u1
TRIPPING DEVICE
R
0
f1
THERMISTORS
(in the motor winding)

ALFA-LAVAL

# MAINTENANCE LOG
# MRPX 314/318/418 HGV-74C

| Place of operation | | Machine type |
|---|---|---|
| Manufac. No. | Process | Time for job: at a total of ..... operating hours / Job actually done after ..... operating hours |

Reason for job

Preventive ☐ 750 ☐ 1500 ☐ 3000 ☐ 9000

Other reason .....

| Job ordered by: | Date | Job done by: | Date |
|---|---|---|---|
| | | | |

| ACTION | EXECUTION EVERY 750 h | 1500 h | 3000 h | 9000 h |
|---|---|---|---|---|
| **1.2. INLET. OUTLET** | | | | |
| o Cleaning of cooling water ducts and nozzles | x | (x) | (x) | (x) |
| o Check on cooling water flow rate: 20 - 30 lit/h per seal | x | (x) | (x) | (x) |
| Checking of: | | | | |
| o impellers. threads | x | (x) | (x) | (x) |
| o seal rings, gaskets | x | (x) | (x) | (x) |
| o axial seals: rubber bellows with carbon ring, and wear ring | x | (x) | (x) | (x) |
| o washing efficiency | x | (x) | (x) | (x) |
| Replacement of: | | | | |
| o rubber bellows with carbon ring | | x | (x) | (x) |
| o wear ring | | | x | (x) |
| Checking of: | | | | |
| o Height position – inlet = 93 ± 0.5 mm; outlet MRPX 314 = 0 ± 0.5 mm; MRPX 318/418 = 3 ± 0.5 mm | | | x | (x) |
| **3. BOWL** | | | | |
| Checking of: | | | | |
| o seal rings, gaskets | x | (x) | (x) | (x) |
| o disc set pressure | | | x | (x) |
| o wear of lock ring threads | | | | x |
| o seizure damage – lock ring joint | x | (x) | (x) | (x) |
| o sealing surface sliding bowl bottom/bowl hood (nylon ring: depression max. 1 mm) | x | (x) | (x) | (x) |
| o washing efficiency | x | (x) | (x) | (x) |
| o erosion | | | x | (x) |
| o bowl body nave/bowl spindle cone | x | (x) | (x) | (x) |
| Cleaning and checking of ejection mechanism nozzles, guiding surfaces, sealing surfaces and springs | x | (x) | (x) | (x) |
| Replacement of: | | | | |
| o seal ring in top disc outlet pipe | x | (x) | (x) | (x) |
| o operating slide valve plugs | x | (x) | (x) | (x) |
| **4. OPERATING WATER DEVICE** | | | | |
| Checking of operating water flow rate. Cleaning of ducts | x | (x) | (x) | (x) |
| Checking of height position – MRPX 314 = 243 ± 0.5 mm, MRPX 318/418 = 224 ± 0.5 mm | | | x | (x) |

✓ = Approved  O = See note

Keep the log in the Maintenance and Repair Manual or in a central maintenance register.

Notes:

Notes: