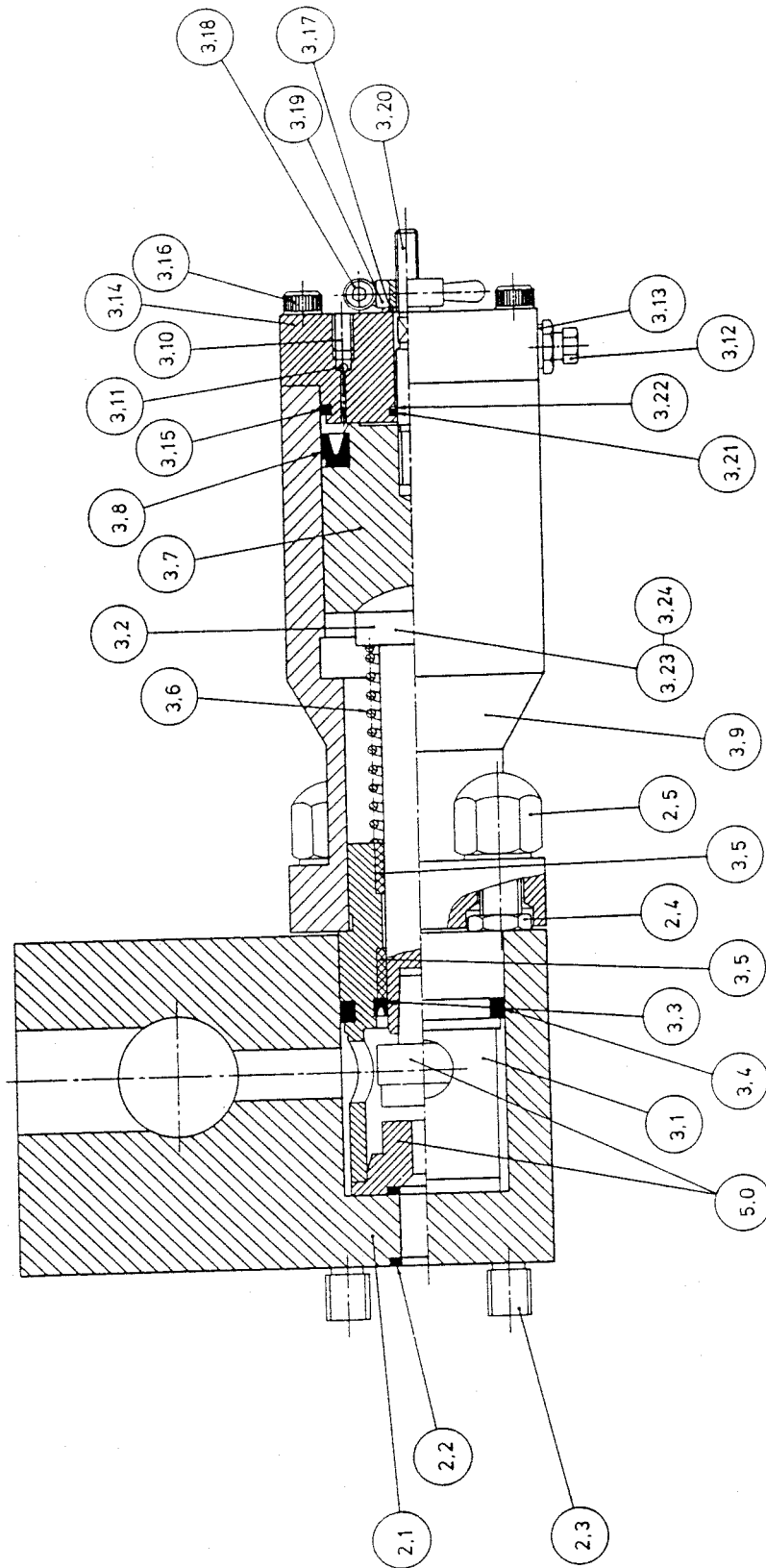


58.79

CYLINDERARRANGMENT  
 CYLINDER ARRANGEMENT  
 ZYLINDERANORDNUNG  
 DISPOSITIF DE CYLINDRES

	Dato	Sign.	Erstatter
Tegn.	21/8-87	OT	Nr.
Kontr.			714740
Appr.			



D.79

KONSOLARRANGEMENT  
 BRACKET UNIT  
 KONSOLEANORDNUNG  
 DISPOSITIF DE CONSOLE

	Dato	Sign.	Erstatter
Tegn.	23/6-87	OT	Nr.
Kontr.			71183
Appr.			

**RANNIE**

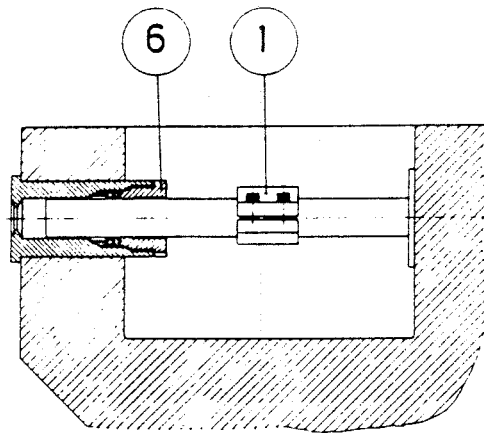
Rannie a/s  
 Roholmsvej 8  
 DK-2620 Albertslund

Erstattet af

2. The eccentric shaft is turned by means of the V-belt drive of the machine so that the piston is moved to front position, and the cylinder is then pressed out.
3. The cylinder can be taken out through the front of the base frame.

### MOUNTING OF CYLINDER

1. The cylinder is placed in the base frame.
2. The valve housing is mounted carefully on the studs in the base frame.
3. Tighten box nuts.

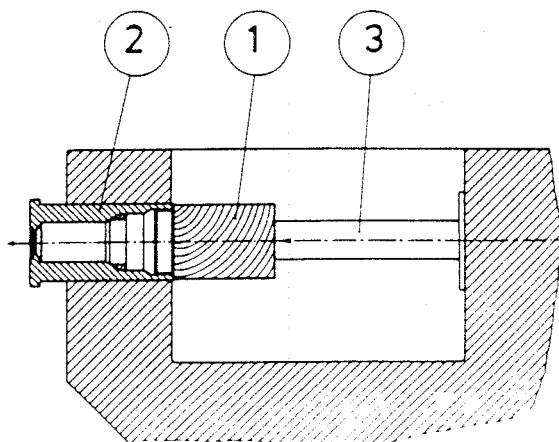


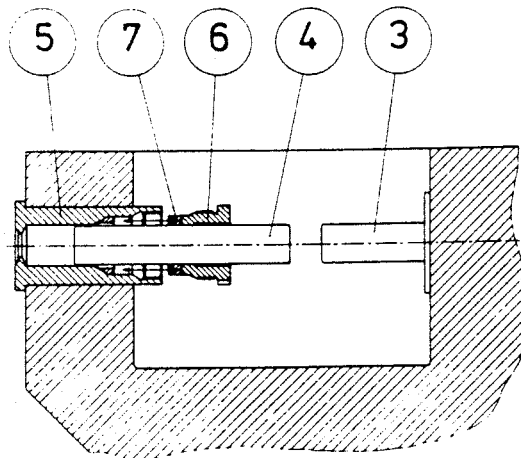
8. Piston coupling Pos.1 is fixed.
9. Packing ring Pos.6 is secured against WORKING LOOSE by striking a lead hammer against the shank of the hook spanner.
10. Mount irrigation system for cylinders.

### DISMOUNTING OF CYLINDER

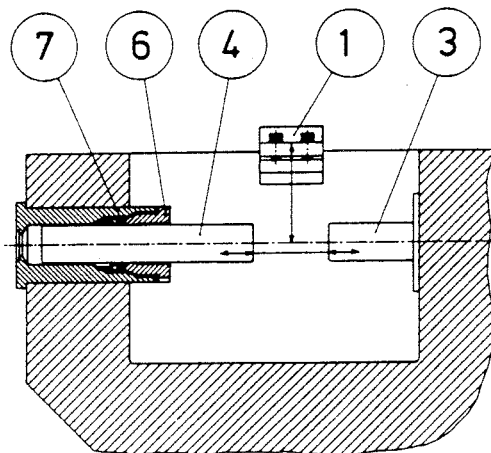
If it is necessary to dismount the cylinder proper from the base frame, the loose piston and the valve housing must be dismounted first.

1. Place a wooden block Pos.1 with the same diameter as the cylinder between cylinder Pos.2 and fixed piston Pos.3.





4. U-ring Pos.7 is pressed into position in cylinder Pos.5 by fixing of packing ring Pos.6.



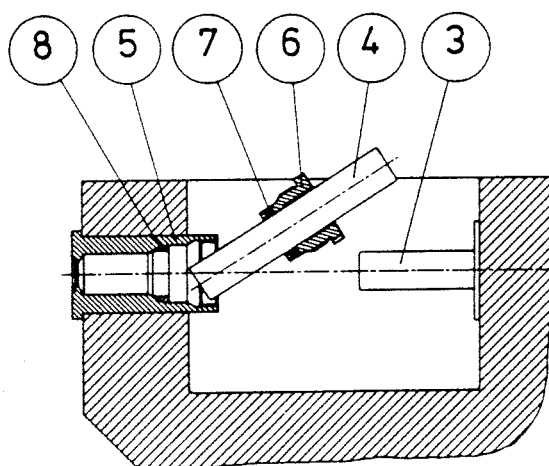
5. Piston coupling Pos.1 is placed on fixed piston Pos.3.
6. Fixed piston Pos.3 is moved to front position by means of the V-belt drive of the machine until in contact with loose piston Pos.4.

- REMEMBER!!** - that loose piston Pos.4 and fixed piston Pos.3 must be in contact before piston coupling Pos.1 is fixed.
- that piston coupling Pos.1 is placed at the marked groove, if any, on fixed piston Pos.3 before piston coupling Pos.1 is fixed.

**MOUNTING**

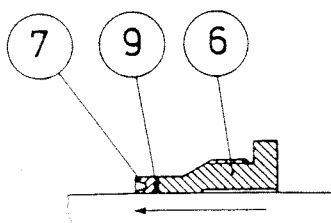
**REMEMBER!!** Lubricate the cylinder thread with Molycote grease before mounting.

1. Fixed piston Pos.3 is moved to rear position by means of the V-belt drive of the machine.
2. Neck ring Pos.8 is mounted in cylinder.



3. U-ring Pos.7 is placed together with packing ring Pos.6 on loose piston Pos.4 and moved into cylinder Pos.5.

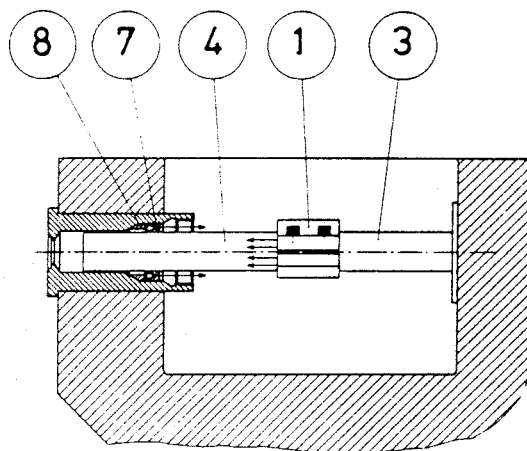
**REMEMBER!!** If U-ring Pos.7 has a back ring Pos.9, it **MUST** be ensured that it is placed correctly in U-ring Pos.7 and that the U-ring turns correctly.



**NOTE:**

If it is difficult to extract loose piston Pos.4 from the cylinder, it may be because the packing in the cylinder sticks. This state can be remedied by moving the homogenising valves in the homogenising bracket completely together. Packing ring Pos.6 must be dismantled. Loose piston Pos.4 is pulled back until it fetches up against the fixed piston.

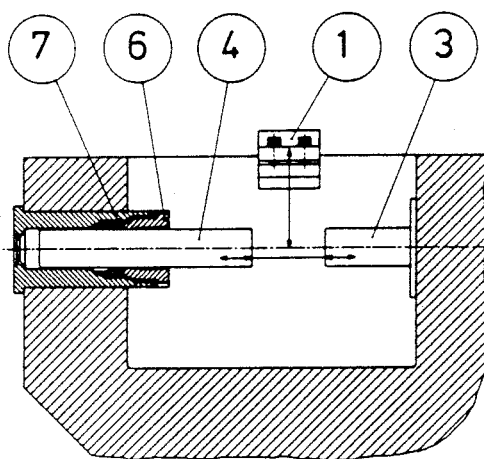
The eccentric shaft is turned by means of the V-belt drive of the machine so that the loose piston is moved into the cylinder. Because of the pressure thus created in the cylinder, the packing is pressed out.



9. If U-ring Pos.7 has not followed the loose piston, it can now be taken out together with neck ring Pos.8.

The U-ring is examined for wear and replaced if necessary.

3. Screws Pos.2 on piston coupling Pos.1 are unscrewed approx. 5 mm.
4. One screw on piston coupling Pos.1 is unscrewed completely, is screwed into the centre threaded hole and tightened so that the piston coupling is opened and remains loose.
5. The eccentric shaft is turned by means of the V-belt drive of the machine so that fixed piston Pos.3 is in rear position.



6. Remove piston coupling Pos.1.

**IMPORTANT!!** If the machine is provided with ceramic pistons Pos.4, they must be handled with great care. Ceramic pistons **MUST NOT** be subjected to blows.

7. Remove packing ring Pos.6.

8. Extract loose piston Pos.4 from the cylinder. U-ring Pos.7 will often come out with the piston.



## MAINTENANCE

### PISTON AND CYLINDER WITH A SINGLE U-RING

D.60 - .79 - 50.90 - 58.90 - 63.90

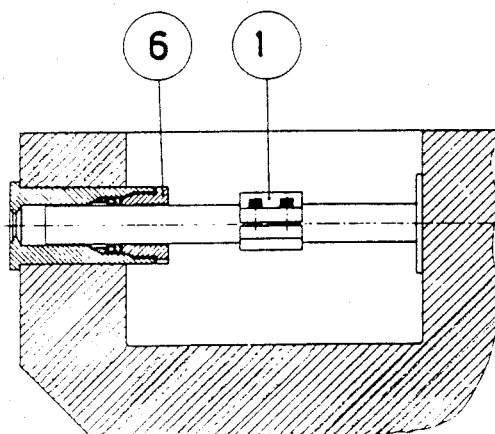
Dismounting of the piston is necessary for inspection and replacement of cylinder packing.

### DISMOUNTING

**REMEMBER!!** Always check that the power supply from the main panel is switched off, and that the main fuses are removed.

**IMPORTANT!!** Dismount only one cylinder at a time.

1. Dismount irrigation system for cylinders.
2. The eccentric shaft is turned by means of the V-belt drive of the machine so that piston coupling Pos.1 is in front position.



PERFORMANCE CHARACTERISTICS: HOMOGENISER

MAKE AND DESCRIPTION: RANNIE BLUE TOP HIGH PRESSURE HOMO  
4000 LTR PER HOUR 4000 PSI WORKING PRESSURE

CW SERIAL NO: M. 2540 - J.S. 2492

MANUFACTURER'S SERIAL NO: \_\_\_\_\_

CUSTOMER: HALDANE FOODS

DATE OF TEST: 26/6/96 TESTED BY: A. PATRICE

DURATION OF TEST: 6 Hours TESTED ON: WATER

OPERATING PRESSURE LB PSI	0	1500	2000	2200	2500	3000	4000
AMPERAGE	32.4	39.4	44	46	49	53	66
RPM OF LAYSHAFT	90	89	89	89	89	88	88
RPM OF MOTOR	500	497	496	475	495	494	492
OIL PSI	/	/	/	/	/	/	/

PISTON STROKE: \_\_\_\_\_

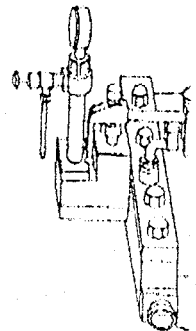
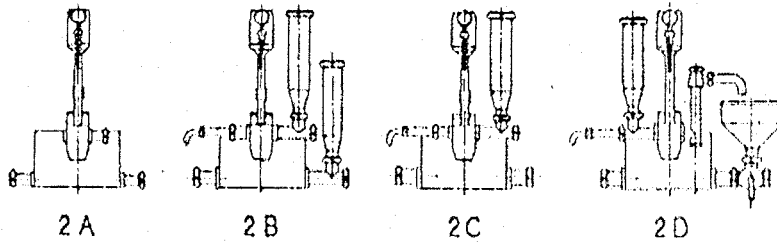
PISTON DIAMETER: 63mm

MOTOR SIZE: 37.5 KW RPM 490 AMPS 70

THROUGHPUT @ NO LOAD: 4080 LTR PER HOUR

THROUGHPUT @ DESIGN PRESSURE: 4000 LTR PER HOUR

PART	NO	PART	NO
VALVE BLOCK SEAL	M2540 - J2492		
PISTON HOUSING SEAL	" "		
TOP CAP GASKET	" "		
NUT RINGS	N63 - 101		



By-pass  
in the pipe  
system

If in the pipe installation there is a by-pass for the homogeniser, this can work without the three-way cock, the by-pass funnel, and the by-pass swing-cock, as shown in fig. 2A.

Initial  
cleaning

When erection has been completed, the homogeniser must be carefully cleaned, so as to ensure that all dust and plaster that may have penetrated into the machine during the erection, will be completely removed.

Oil-filling

Fill the eccentric sump with oil to the middle of the oil-level gauge, (centre of the eccentric shaft) which is arranged as the central end cover at the back of the homogeniser.

The following quantities of oil should be used.

For size 24-60	700-1000 l/h	18 litres
"	30-60 1300-2000 l/h	18 "
"	36-72 2000-3000 l/h	41 "
"	45-72 3500-5000 l/h	41 "

of one of the types of oil enumerated below:

- BP Energol ME 250-CR
- CALTEX Marine Oil 220 x (x grade 38x)
- CASTROL RD Oil nr.3
- ESSO Marmax 66
- GULF Marine Engine Oil 77
- MOBIL VOCO Engine Oil 1
- SHELL Nautilus Oil 69

The first oil should be renewed after 50 hours of service, and after this the oil should be renewed at least every 1000 hours.

**OPER**

Never let the homogeniser be destroyed. If the homogeniser is under pressure and heated, it should be destroyed.

Before operation, the homogeniser must be run and heated up to 618. Then proceed with the following steps:

1. Turn the three-way cock to the position of the by-pass.
  2. Turn the swing-cock to the position of the by-pass funnel (within 10 minutes).
  3. Relieve the pressure by opening the pressure gauge.
  4. Open the water supply for the homogeniser, thereby the homogeniser will be filled with water.
- It is of decisive importance that the water supply is not interrupted during the operation.
5. Start the homogeniser.
  6. Open the air valve. The homogeniser may be used.

APV RANNIE  
COPENHAGEN

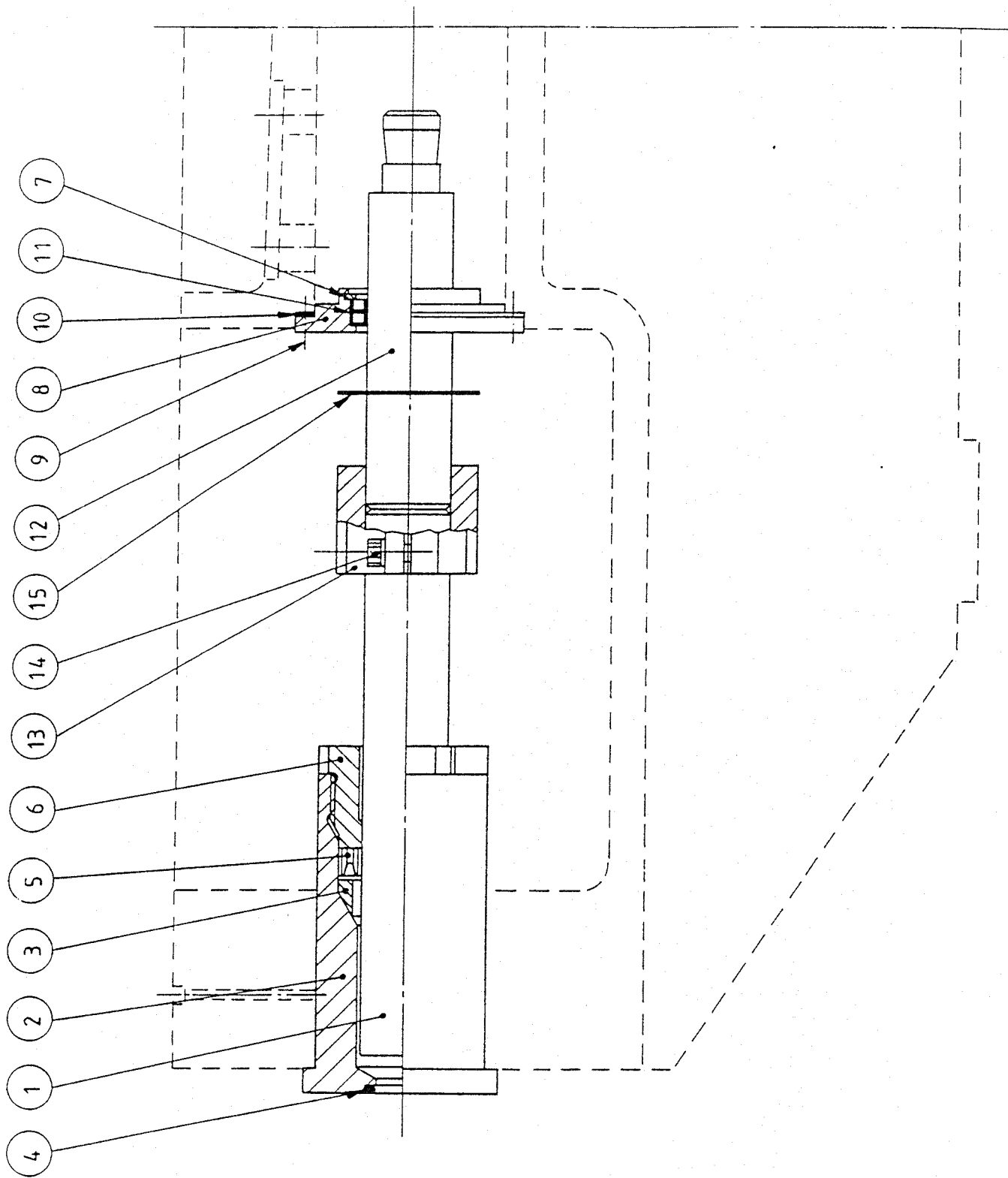
\*\*\*\* P A R T S L I S T \*\*\*\*

DATE: 17.02.89  
GROUP OF COMPONENTS: 013  
PAGE: 1

DRAWING NO  
714740

CYLINDER ARRANGEMENT

POS NO	ORDER NO	QUANTITY	DESCRIPTION
0001	106667	3,000	Piston
0002	110345	3,000	Cylinder
0003	108828	3,000	Neck ring
0004	000046	3,000	O-ring
0005	000151	3,000	Nut ring
0006	104935	3,000	Union nut
0007	000194	3,000	Locking ring
0008	109069	3,000	Crosshead cover
0009	000168	9,000	Cheese-head screw
0010	115139	3,000	Packing
0011	000118	6,000	Oil seal ring
0012	112295	3,000	Piston
0013	113476	3,000	Piston coupling
0014	000729	6,000	Cheese-head screw
0015	109801	3,000	Rubber sleeve
0098	714740V	1,000	SERVICE TOOLS
0099	714740P	1,000	SET OF PACKINGS



58.79

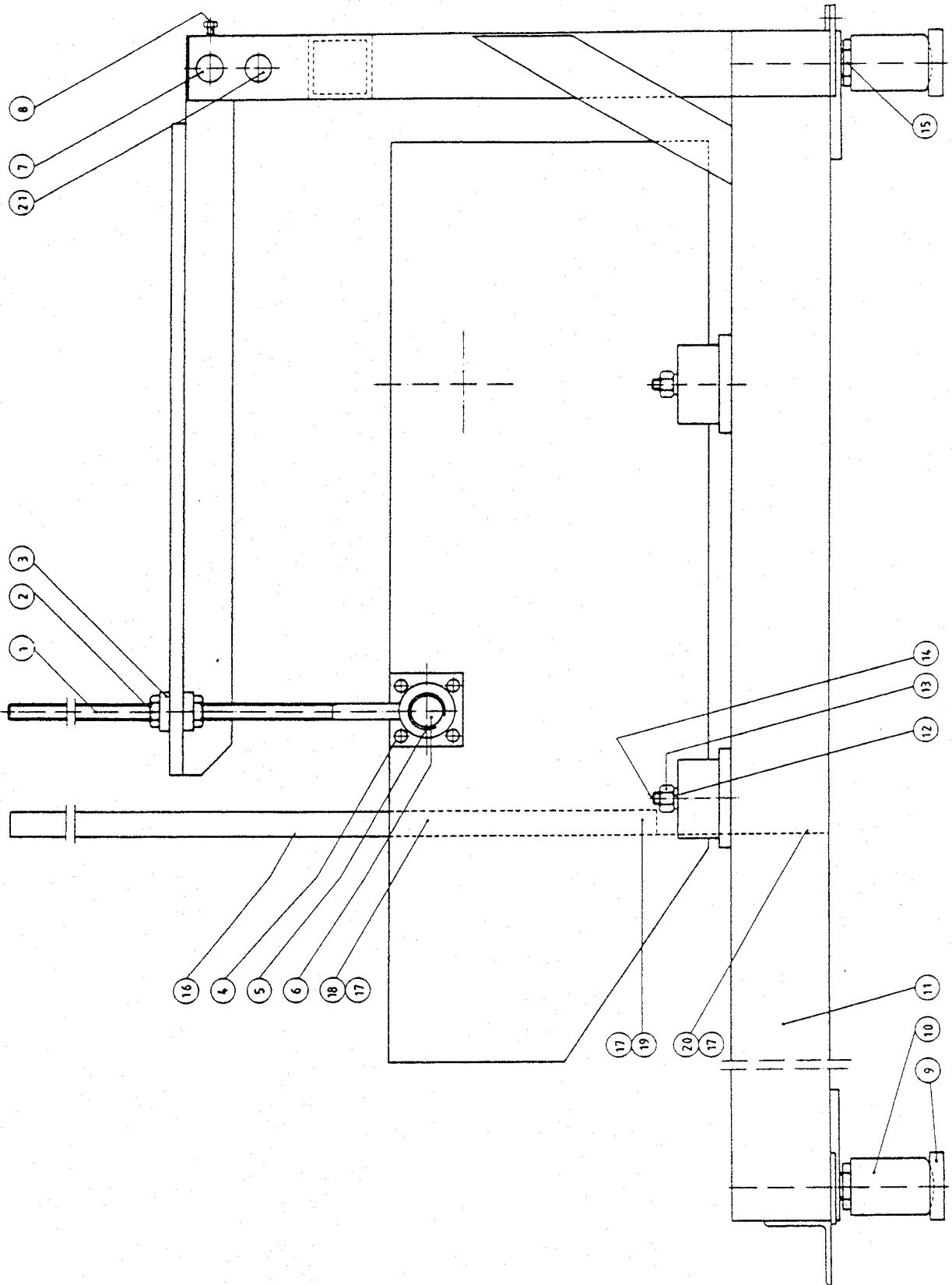
CYLINDERARRANGMENT  
 CYLINDER ARRANGEMENT  
 ZYLINDERANORDNUNG  
 DISPOSITIF DE CYLINDRES

	Dato	Sign.	Erstatter
Tegn.	21/8-87	OT	Nr.
Kontr.			714740
Appr.			

**RANIE**

Rannie a/s  
 Roholmsvej 8  
 DK-2620 Albertslund

Erstatter af



D.79 / D.79H

STEL  
FRAME  
RAHMEN  
BÂTI

	Dato	Sign.	Erstatter
Tegn.	17/8-87	OT	Nr.
Kontr.			71231!
Appr.			

**RANIE**

Rannie a/s  
Roholmsvej 8  
DK-2620 Albertslund  
Denmark

Erstattet af

APV RANNIE  
COPENHAGEN

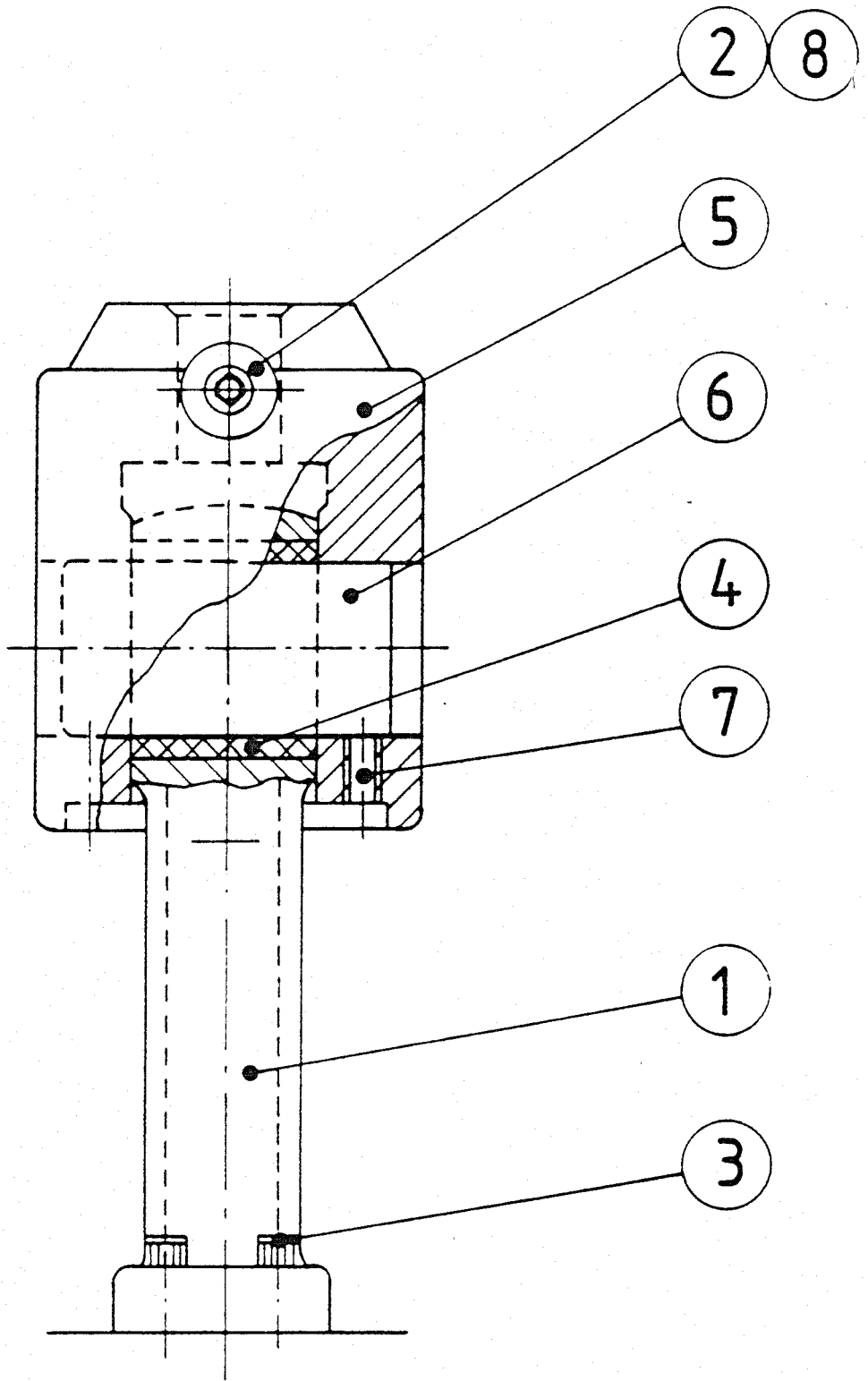
\*\*\*\* P A R T S L I S T \*\*\*\*

DATE: 17.02.89  
GROUP OF COMPONENTS: 046  
PAGE: 1

DRAWING NO  
712315

FRAME

POS NO	ORDER NO	QUANTITY	DESCRIPTION
0001	112316	2,000	Spindle
0002	106789	4,000	Adjusting nut
0003	106790	4,000	Disc
0004	000211	8,000	Cheese-head screw
0005	000361	2,000	Locking ring
0006	109714	2,000	Retainer
0007	112318	1,000	Shaft
0008	001016	2,000	Hexagon head screw
0009	104816	4,000	Supporting block
0010	109247	4,000	Foot
0011	112205	1,000	Frame
0012	001519	4,000	Disc
0013	001049	4,000	Nut
0014	111012	4,000	Stud
0015	000217	4,000	Lock nut
0016	112319	1,000	Belt guard
0017	000692	3,000	Flexible disc
0018	001071	1,000	Cheese-head screw
0019	001028	1,000	Cheese-head screw
0020	001309	1,000	Cheese-head screw
0021	001515	4,000	Plastic plug
0098	712315V	1,000	SERVICE TOOLS



D.79 / D.79H / D.80N / D.80H / D.120 / D.120H

KRYDSHOVEDARRANGEMENT  
 CROSSHEAD UNIT  
 KREUZKOPFEINHEIT  
 UNITÉ DE CROSSE

	Dato	Sign.	Erstatter
Tegn.	11/5-88	OT	Nr. 716401
Kontr.			
Appr.			

**RANIE**

Ranie a/s  
 Røholmsvej 8  
 DK-2620 Albertslund  
 Denmark

Erstatter af



APV RANNIE  
COPENHAGEN

\*\*\*\* P A R T S L I S T \*\*\*\*

DATE: 17.02.80  
GROUP OF COMPONENTS: 036  
PAGE: 1

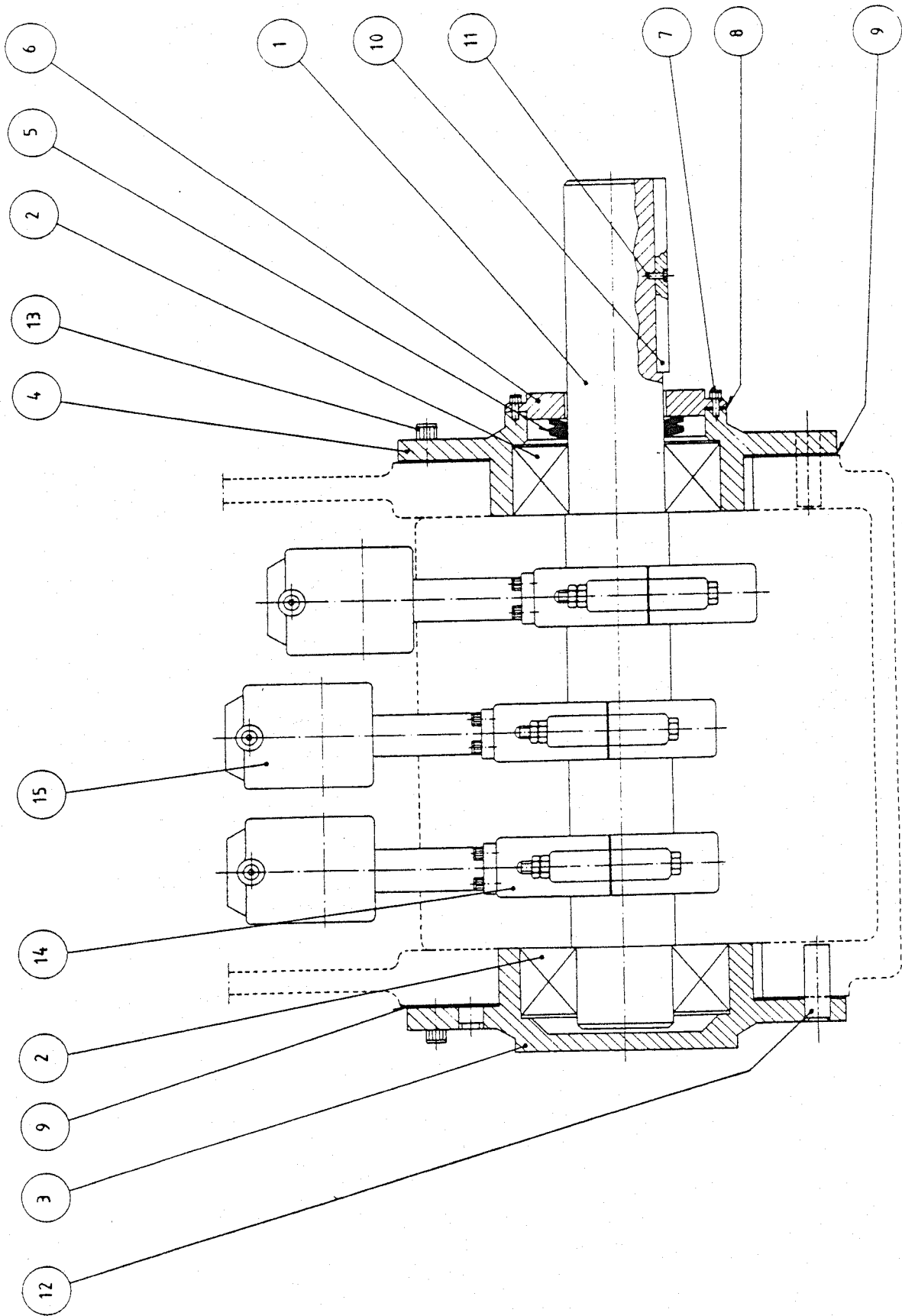
DRAWING NO  
716401

CROSSHEAD UNIT

---

POS NO	ORDER NO	QUANTITY	DESCRIPTION
0001	111327	1,000	Connecting rod
0002	001007	1,000	Pointed screw
0003	001010	4,000	Cheese-head screw
0004	103553	1,000	Bushing
0005	111301	1,000	Crosshead
0006	103552	1,000	Crosshead pin
0007	002697	2,000	Pointed screw
0008	001006	1,000	Pointed screw

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D.79 / D.79H

EXCENTRIK  
 ECCENTRIC  
 EXZENTRIK  
 EXCENTRIQUE

	Dato	Sign.	Erstatter
Tegn.	18/5-88	OT	Nr.
Kontr.			714651
Appr.			

**DANIE**

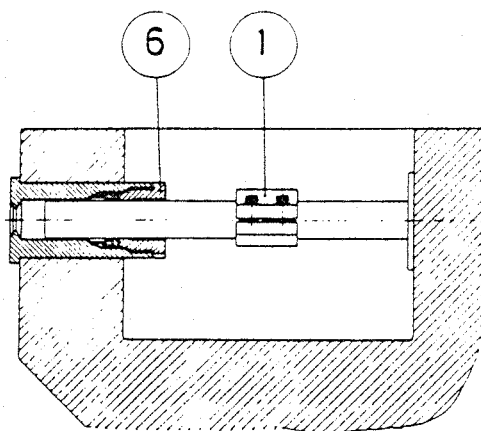
Rannie a/s  
 Røholmsvej 8  
 DK-2620 Albertslund

Erstattet af

2. The eccentric shaft is turned by means of the V-belt drive of the machine so that the piston is moved to front position, and the cylinder is then pressed out.
3. The cylinder can be taken out through the front of the base frame.

### MOUNTING OF CYLINDER

1. The cylinder is placed in the base frame.
2. The valve housing is mounted carefully on the studs in the base frame.
3. Tighten box nuts.

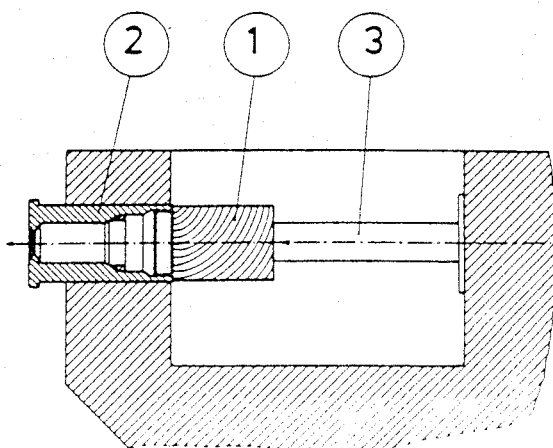


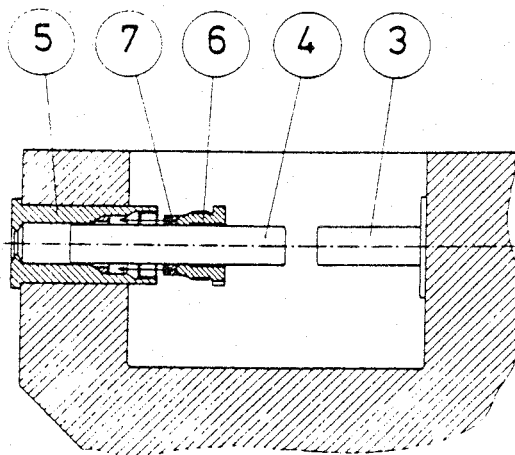
8. Piston coupling Pos.1 is fixed.
9. Packing ring Pos.6 is secured against WORKING LOOSE by striking a lead hammer against the shank of the hook spanner.
10. Mount irrigation system for cylinders.

### DISMOUNTING OF CYLINDER

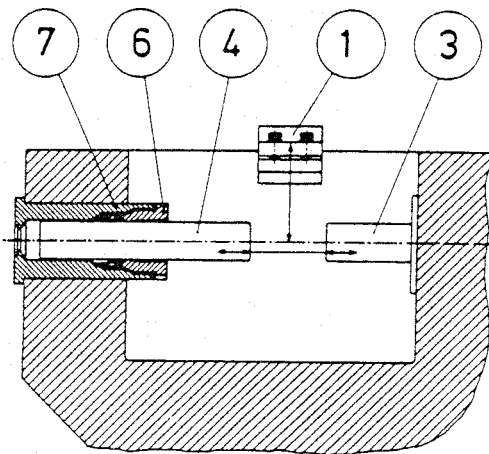
If it is necessary to dismount the cylinder proper from the base frame, the loose piston and the valve housing must be dismounted first.

1. Place a wooden block Pos.1 with the same diameter as the cylinder between cylinder Pos.2 and fixed piston Pos.3.





4. U-ring Pos.7 is pressed into position in cylinder Pos.5 by fixing of packing ring Pos.6.



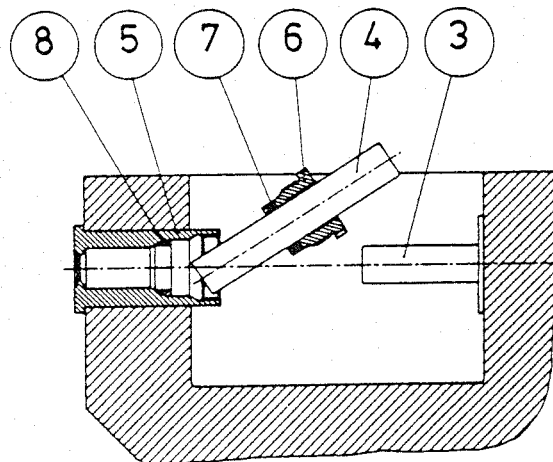
5. Piston coupling Pos.1 is placed on fixed piston Pos.3.
6. Fixed piston Pos.3 is moved to front position by means of the V-belt drive of the machine until in contact with loose piston Pos.4.

- REMEMBER!!** - that loose piston Pos.4 and fixed piston Pos.3 must be in contact before piston coupling Pos.1 is fixed.
- that piston coupling Pos.1 is placed at the marked groove, if any, on fixed piston Pos.3 before piston coupling Pos.1 is fixed.

MOUNTING

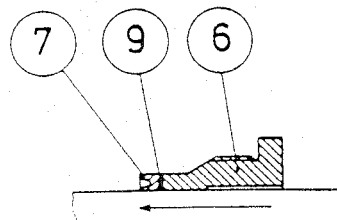
**REMEMBER!!** Lubricate the cylinder thread with Molycote grease before mounting.

1. Fixed piston Pos.3 is moved to rear position by means of the V-belt drive of the machine.
2. Neck ring Pos.8 is mounted in cylinder.



3. U-ring Pos.7 is placed together with packing ring Pos.6 on loose piston Pos.4 and moved into cylinder Pos.5.

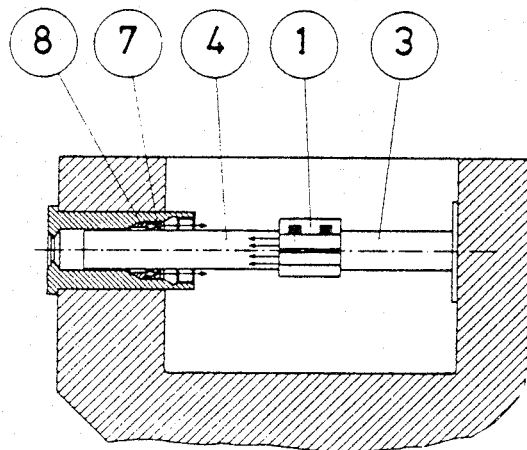
**REMEMBER!!** If U-ring Pos.7 has a back ring Pos.9, it **MUST** be ensured that it is placed correctly in U-ring Pos.7 and that the U-ring turns correctly.



**NOTE:**

If it is difficult to extract loose piston Pos.4 from the cylinder, it may be because the packing in the cylinder sticks. This state can be remedied by moving the homogenising valves in the homogenising bracket completely together. Packing ring Pos.6 must be dismantled. Loose piston Pos.4 is pulled back until it fetches up against the fixed piston.

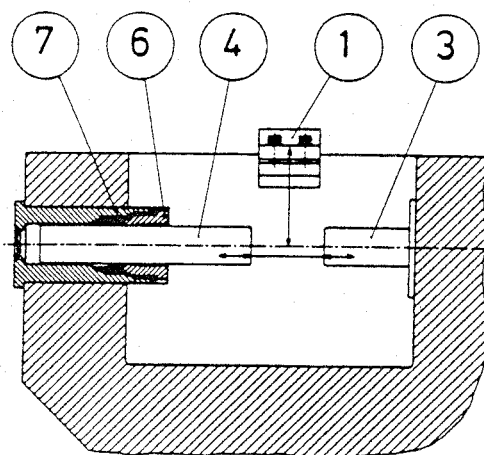
The eccentric shaft is turned by means of the V-belt drive of the machine so that the loose piston is moved into the cylinder. Because of the pressure thus created in the cylinder, the packing is pressed out.



9. If U-ring Pos.7 has not followed the loose piston, it can now be taken out together with neck ring Pos.8.

The U-ring is examined for wear and replaced if necessary.

3. Screws Pos.2 on piston coupling Pos.1 are unscrewed approx. 5 mm
4. One screw on piston coupling Pos.1 is unscrewed completely, is screwed into the centre threaded hole and tightened so that the piston coupling is opened and remains loose.
5. The eccentric shaft is turned by means of the V-belt drive of the machine so that fixed piston Pos.3 is in rear position.



6. Remove piston coupling Pos.1.

**IMPORTANT!!** If the machine is provided with ceramic pistons Pos.4, they must be handled with great care. Ceramic pistons **MUST NOT** be subjected to blows.

7. Remove packing ring Pos.6.
8. Extract loose piston Pos.4 from the cylinder. U-ring Pos.7 will often come out with the piston.



## MAINTENANCE

### PISTON AND CYLINDER WITH A SINGLE U-RING

D.60 - .79 - 50.90 - 58.90 - 63.90

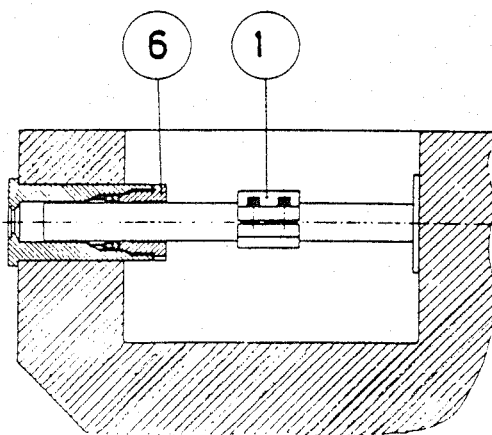
Dismounting of the piston is necessary for inspection and replacement of cylinder packing.

#### DISMOUNTING

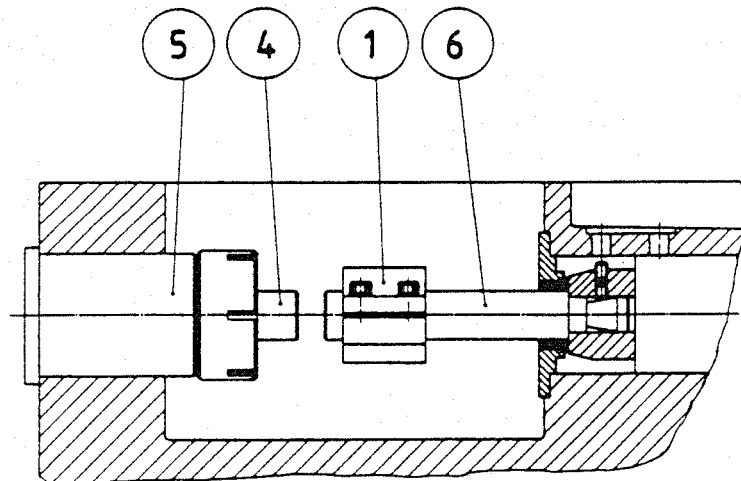
**REMEMBER!!** Always check that the power supply from the main panel is switched off, and that the main fuses are removed.

**IMPORTANT!!** Dismount only one cylinder at a time.

1. Dismount irrigation system for cylinders.
2. The eccentric shaft is turned by means of the V-belt drive of the machine so that piston coupling Pos.1 is in front position.

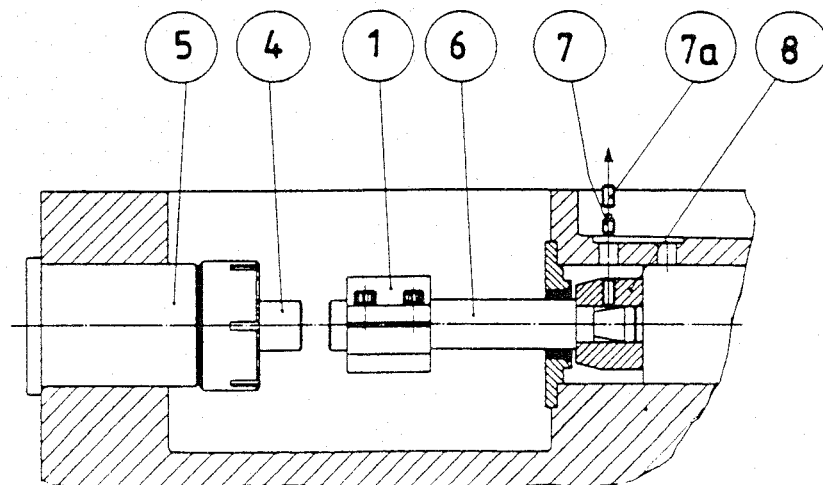


5. Piston Pos.4 contacted by the product is pushed fully forward into cylinder Pos.5.
6. Piston coupling Pos.1 is fixed to the fixed piston Pos.6 by unscrewing the centre screw and tightening the other one.



7. Fixed piston Pos.6 is moved to front position by means of the V-belt drive of the machine.
8. TYPES 22.51 - D.51H - D.60 - D.72

Remove hollow point screws Pos.7 fixing the fixed piston Pos.6 to crosshead Pos.8.



## MAINTENANCE

### CROSSHEAD, PISTON, AND CONNECTING ROD

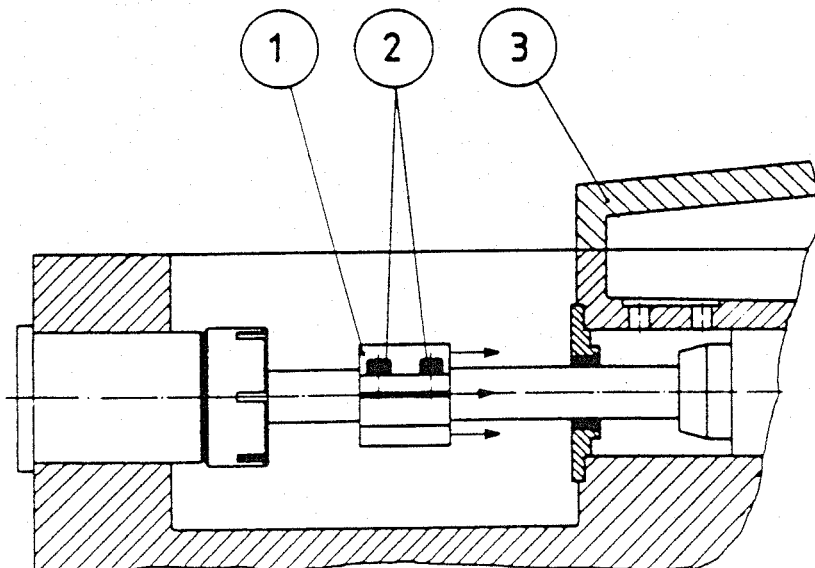
22.51 - D.51H - .60 - .72 - .79 - .79H - .80 - .80H - .90

Dismounting is necessary for inspection and replacement of fixed piston and oil seal ring.

**REMEMBER!!** Always check that the power supply from the main panel is switched off, and that the main fuses are removed.

### DISMOUNTING

1. The eccentric shaft is turned by means of the V-belt drive of the machine so that piston coupling Pos.1 is in rear position.
2. Remove cover Pos.3 over the eccentric sump.
3. Screws Pos.2 on piston coupling Pos.1 are unscrewed approx. 5 mm.



4. One screw Pos.2 on piston coupling Pos.1 is unscrewed completely, is screwed into the centre threaded hole and tightened so that the piston coupling is opened and remains loose.

January, 1988

**NOTE:** Spare parts lists covering the separate fields of the machine are contained in Section 11.- / SPARE PARTS LISTS

If problems arise outside the said fields, in connection with maintenance or during the daily operation, Rannie a/s should be contacted.

### **MACHINES WITH HYDRAULIC CONTROL SYSTEM**

#### **AFTER 3000 HOURS OF OPERATION**

Replace oil in hydraulic system by new clean oil. Oil change **MUST** be made with clean auxiliaries.

**REMEMBER!!** The filter cartridge should be replaced for the first time after 50 hours of operation. Then after every 6 months.

The filler screen should be replaced once a year.

- b. See that water does not penetrate into the eccentric sump, which can be seen by the oil changing from a brownish to a yellowish colour.

#### AFTER EVERY 500 - 1000 HOURS OF OPERATION

- a. Replace all valve springs. For dismounting and mounting of valve housing, see Section 6.5-.
- b. Inspect valve seats. Contact faces must be without marks/ traces of wear. Normally, small pits will form in the seat areas, which does not impair the pump function unless their number is so high that they are interconnected.

For renovation and grinding of seats, see Section 6.1-.

#### AFTER EVERY 2000 HOURS OF OPERATION

- a. Change oil in eccentric sump.  
For oil type, see Section 2.00.
- b. Before new oil is filled into the eccentric sump, it must be cleaned thoroughly with paraffin oil.

Besides the regular inspections and checks after the above periods, damage and destruction may occur in other places and require interference in the form of replacement of single parts. The cause of abnormal operation must always be found and remedied. If the cause can be referred to the following fields:

Crosshead, piston and connecting rod	Section 6.2
Cylinder and piston	Section 6.3
Valve housing	Section 6.5
Homogenising bracket	Section 6.7

a description of dismounting and mounting in these fields of the machine is attached hereto.

## MAINTENANCE

### AFTER THE FIRST 24 HOURS OF OPERATION

Check the V-belt tension. V-belts may only sag 15 mm per metre of free belt length.

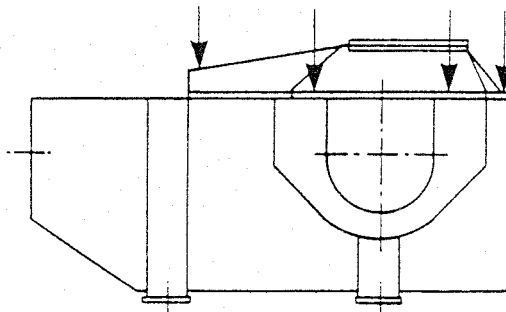
This check should then be made regularly.

### AFTER THE FIRST 250 HOURS OF OPERATION

Change the oil in the eccentric sump. Before new oil is filled into the eccentric sump, it must be cleaned thoroughly with paraffin oil.

### AFTER THE 1 MONTH OF OPERATION

Tighten screws in the cover of the eccentric sump (see drawing).



### AFTER EVERY 250 HOURS OF OPERATION

- a. If the machine has a homogenising bracket, the homogenising valve must be checked for wear. When the wear has reached such an extent that parts of the surface are damaged or the separate annular faces are worn through, the homogenising valve must be replaced.

For procedure, see Section 4.- / OPERATION AND SERVICE, paragraph "Checking the oil level".

- That cooling water is supplied from both the cylinders and the eccentric sump. This can be checked visually in the cylinder sump into which cooling water from the eccentric sump is also fed. Depending on the machine type, the cooling water flow can be checked electrically or visually.

For procedure, see Section 4.- / OPERATION AND SERVICE, paragraph "Checking the cooling water system".

If the machine has other electric equipment, it must be checked and tested. See Section 8.- / WIRING DIAGRAM.

### STARTING THE MACHINE

Prior to starting the machine with a product charge, it MUST always be tested with water in the system.

IMPORTANT!! Before this trial-run it MUST be checked that the system contains water.

NOTE: Additionally, the following points will have to be inspected and checked before start:

- 1) Rotate the large belt pulley on the eccentric shaft by hand and listen for any jarring sounds.

CHECK that the mounting screws have been TIGHTENED UP.

- 2) The necessary inlet pressure of cooling water (3-6 bar) must be present.

IMPORTANT!! 3) The manual or automatic pressure regulation in the homogenising system must ALWAYS leave the control system in the de-pressurized starting position.

- 4) The delivery side must NOT be shut off.

NOTE: This applies especially to machines without a homogenising bracket.

During the trial-start and trial-run with water in the machine, the following must be checked:

- That the belt pulley on the eccentric shaft rotates in the correct direction.  
The direction of rotation is marked by an arrow.
- That the correct inlet pressure is supplied to the machine.  
See Section 1.- / TECHNICAL DATA.
- For machines with a cabinet, model BLUE-TOP-PLUS, check the direction of rotation of the suction fan in the top cassette.  
The direction of rotation is marked by an arrow.
- That the eccentric sump contains the necessary amount of oil.  
Depending on the machine type, the oil level can be checked electrically or visually.