OIL TYPES

ALWAYS use one of the below oil types, or an equivalent type of oil that conforms to the below specification, for *Rannie's* machines:

First class industrial gear oil, viscosity 100-150 cSt, at 40°C,
or
First class motor oil API, classification SF/CC SAE 30-40

ECCENTRIC SUMP

BP	:	HLP 100	/	VANELLUS SAE 40
STATOIL	:	HYDRAWAY HM 100	/	
SHELL	:	TELLUS OIL S100	/	RIMULA SAE 40
TEXACO	:	MEROPA 100	/	URSATEX SAE 30
MOBIL	:	DTE 27		
CASTROL	:	HYSPIN AWS 100	/	RX SUPER 15W/40 or CRD 30
ESSO	:	NUTO H 100	/	

2.00
6/6
November, 1992

If a change is made to another oil type, the eccentric sump *MUST* be cleaned of all oil.
As regards the oil volume to be filled into the machine, reference is made to Section 1.- / TECHNICAL DATA.

HYDRAULIC SYSTEM

ALWAYS use one of the below oil types, or equivalent type, for the hydraulic pressure control:

BP	:	ENERGOL HLP 46	/	ENERGOL SHF 46
STATOIL	:	HYDRAWAY HV 46	/	
SHELL	:	TELLUS OIL 46	/	HYDROL DO 46
TEXACO	:	RANDO OIL HD 46	/	HYDRAULIC OIL HDW 46
MOBIL	:	DTE 25		
CASTROL	:	HYSPIN AWS 46	/	HYSPIN AWH 46 or VARIO HDX
ESSO	:	UNIVIS N 46	/	

For oil volume to be filled into the hydraulic system, see Section 1.- / TECHNICAL DATA.

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VALVE HOUSING
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SECTION 9.-: PRESSURE CONTROL SYSTEM

SECTION 10.-: SAFETY SYSTEM

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SECTION 12.-: TOOL CASE

TECHNICAL DATA

HOMOGENISER

SERIAL/ORDER NO.:	1-87.205
MODEL:	BT
TYPE:	100.80

MUST be stated when contacting **RANNIE**.

PRODUCT: MILK

CAPACITY: 20457 l/h

HOMOGENISING PRESSURE (MAX.): 120 bar

INLET PRESSURE : 1,5-8 bar

COOLING WATER VOLUME: 200 l/h

OIL VOLUME: ECCENTRIC SUMP, approx.: 103,0/106,5 l

HYDRAULIC SYSTEM : - l

(for oil types, see Section 2.-)

CONTROL VOLTAGE : 240 V 50 Hz

OPERATING VOLTAGE: 415 V 50 Hz

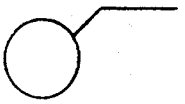
MOTOR RATING : 90 kW 980 r.p.m.

WEIGHT (Homogeniser without motor) approx.: 3800 kg

Section 1.1- contains a key diagram showing the individual components included in the homogeniser, indicated by means of positions with position numbers.

POSITIONS MARKED 

The position number indicates the group of components mentioned in Section 11.-, LIST OF SPARE PARTS, describing the spare parts list of the component.

POSITIONS MARKED 

These position numbers mean that there are two or more positions with identical position numbers in the same group of components. To distinguish between components with identical position numbers a drawing number is indicated in connection with the position number.

POSITIONS MARKED 

Indicate sizes and positions of connections to the machine. These are described later in this section and are shown on the key diagram in Section 1.1-.

TECHNICAL DESCRIPTION

RANNIE's high pressure homogeniser is a positive piston pump with direct drive from an electric motor whose power is transmitted to the pistons through an eccentric shaft.

(1) HOMOGENISING BRACKET

The homogenising valve builds up the necessary homogenising pressure via manual or automatic control.

(13) CYLINDER ARRANGEMENT

– Carry a closely limited product volume through the valve housing.

(30) **VALVE HOUSING**

The suction and delivery valves control the product flow from a lower to a higher pressure level.

◯ **ECCENTRIC UNIT**

Convert the rotary motion of the eccentric shaft into a straight reciprocating motion which is transmitted to the piston in the cylinder via the piston coupling.

OTHER COMPONENTS ◯ - ◯

See previous pages and key diagram, Section 1.1-.

CONNECTIONS

△1 **COOLING WATER INLET**

Cools the oil in the eccentric sump as well as the cylinders in the cylinder sump.

△2 **COOLING WATER OUTLET**

Outlet for cooling water from the cylinder sump.

△3 **OIL DRAINAGE**

Oil drainage from the eccentric sump.

INSTALLATION

In order to ensure correct installation of the machine and to avoid damage, the below procedure must be adopted:

1. Using a spirit level, the machine is aligned by adjustment of the 4 feet so that the machined faces of the valve housing are both plumb and levelied up.

2. The inlet pipe is connected to the valve housing so that air pockets are not formed, since any unintentional mixing of air into the product is harmful to machine and product. The inlet pipe must have a downward gradient of 0.1% towards the inlet.

3. The discharge pipe is mounted on the homogenising bracket so that air pockets are not formed.

4. Shut-off valves or similar equipment must **NOT** be mounted in the outlet pipe since the machine is a positive piston pump.

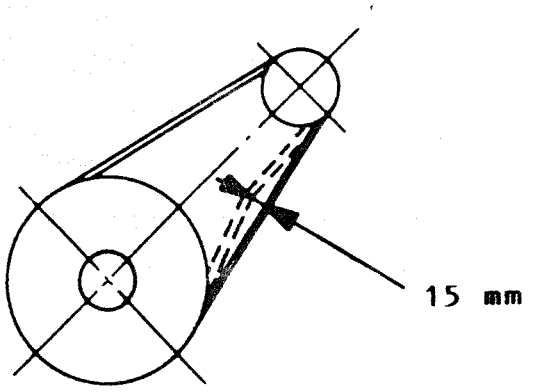
5. The pistons in the cylinder sump must be cleaned of any impurities. Check whether packing nipple/union nut and piston couplings are tightened.

6. Connect the cooling water pipe and see that all pipe connectors in the cylinder sump have been tightened.

7. Check the eccentric sump for impurities and clean it if necessary.

8. Mount the motor.

9. Attach and tighten V-belts. See that V-belt pulleys are flush. V-belts must only sag 15 mm per metre of free belt length.



10. Wiring to be installed in compliance with wiring diagrams. See Section 8.-.

11. Fill oil into machine.
For oil types, see Section 2.-, page 4.

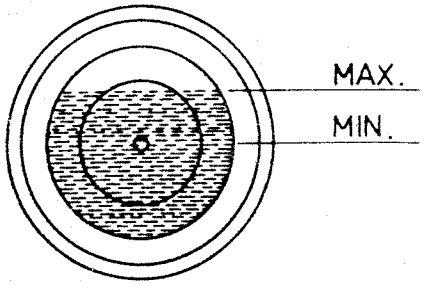
MACHINES WITH OIL DIPSTICK

Fill in oil until level is between min. and max. on dipstick.

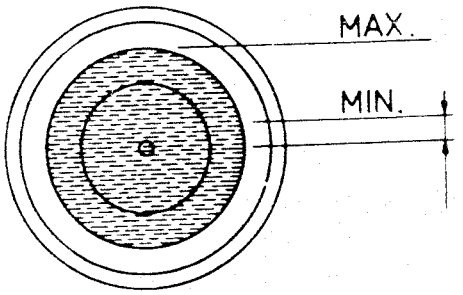
MACHINES WITH OIL-LEVEL GLASS

Fill in oil until level can be read on oil-level glass; see picture.

MACHINES TYPE D.50 - .60 - .72



MACHINES TYPE D.51H - .79 - .80 - .79H - .80H



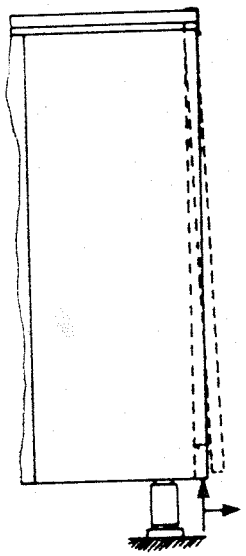
MACHINES WITH HYDRAULIC PRESSURE REGULATION

Oil is filled into hydraulic station. Oil level approx. 150 mm on dipstick.

12. Mount cover over eccentric sump.

13. **MACHINES MODEL BLUE-TOP-PLUS**

Mount side panels on cabinet.



14. **MACHINES MODEL INDUSTRY**

Fit the belt guard.

OIL TYPES

One of the below oil types should be used:

CENTURY OIL

ECCENTRIC SUMP CENTRAULIC A.F.100

BP	ENERGOL ME - CC - 220 or VANELLUS SAE 40
ESSO	STERMAR 220 or ESSO PLUS MOTOR OIL SAE 40
GULF	MARINE OIL 77 or GULFLUBE MOTOR OIL XHD 40 or UNI-G SAE 40
SHELL	STROMBUS OIL L 320
TEXACO	MEROPA 150 or URSATEX SAE 40
MOBIL	DTE 27

The oil types are emulsifiable with water.

If a change is made to another oil type, the eccentric sump **MUST** be cleaned of old oil.

As regards the oil volume to be filled into the machine, reference is made to Section 1.-, - technical data.

HYDRAULIC SYSTEM

If the machine has hydraulic pressure regulation, one of the below oil types can be used:

BP	ENERGOL HLP 46 or ENERGOL SHF 46
ESSO	NUTO H 46
GULF	HARMONY 46 AW
SHELL	TELLUS OIL 46 or HYDROL DO 46
TEXACO	RANDO OIL HD B-46 or HYDRAULIC OIL HDW 46
MOBIL	DTE 25

CENTURY OIL PWLB.

For oil volume to be filled into hydraulic system, see Section 1.-, techical data.

STARTING THE MACHINE

ALWAYS CHECK BEFORE START:

MACHINES WITH CONTROL SYSTEM

- that the manual or automatic pressure regulation always has the control system in starting position, with the system de-pressurized.

MACHINES WITHOUT CONTROL SYSTEM

- that they are not shut off on the delivery side.

1. The machine is started by activation of the starting switch "MAIN-MOTOR".

2. Check that the necessary inlet pressure is available to the machine. See Section 1.-, technical data.

3. Check that the motor belt pulley rotates in the correct direction. Direction of rotation is marked by an arrow.

4. Check direction of rotation of suction fan in top panel section of machines with a cabinet. Direction of rotation is marked by an arrow.

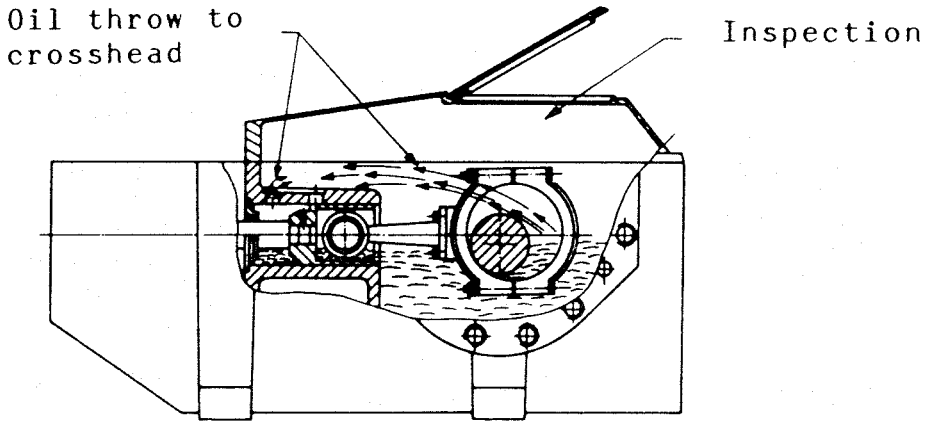
5. **CHECK OIL LEVEL IN ECCENTRIC SUMP**

MACHINES WITH "OIL LEVEL" PILOT LAMP: The lamp on the front panel is off when the oil level is normal in the eccentric sump.
If the pilot lamp lights, the oil level is too low in the eccentric sump. Fill in oil until lamp is extinguished.
If the machine has an oil dipstick, check that the oil level is between min. and max.

MACHINES WITHOUT PILOT LAMP: Check the oil level in the eccentric sump by means of oil level glass or dipstick.
If the oil level is too low, fill in oil up to the correct level in oil level glass or on dipstick.

MACHINES WITH VARIABLE AND SLOW SPEED

Check that the crosshead is lubricated at the slowest speed of the machine (see sketch). Inspection is carried out by demounting venting plate for eccentric sump.



6. CHECK COOLING WATER SUPPLY TO MACHINE

MACHINES WITH "WATER-FLOW" PILOT LAMP: The lamp on the front panel lights when cooling water flows.
The pilot lamp does not light during water supply failure, and machine stops immediately.

MACHINES WITHOUT PILOT LAMP

a) **UNDIVIDED COOLING SYSTEM:** See that cylinders and pistons receive water, and that there is always water in the cylinder sump.

b) **DIVIDED COOLING SYSTEM:** See that cylinders and pistons receive water and that water flows continuously into the cylinder sump from the pipe coming from the cooling coil in the eccentric sump.

7. If any other electrical equipment is fitted on the machine, it must be checked and tested. See also Section 8.-.

OPERATION AND ATTENDANCE

Regular inspection should be carried out during daily operation in order to avoid unnecessary stoppage.

All signal lamps should be examined regularly to ensure that irregularities do not exist.

1. Daily operation of the machine is started by activating switch "ON-MAIN-MOTOR".
   Pilot lamp "MAIN-MOTOR" lights during operation.

NOTE: If air pockets occur in the valve housing during starting, they can be removed by opening the rinsing valve.

If a rinsing valve is not fitted on the machine, homogenising must not be started until the machine runs smoothly.

2. LAB - INDUSTRY TYPE D.51H

Rannie supplies a standard valve housing, i.e. soft valve springs on the delivery valves and no valve springs on the suction valves.

The set of spares contains a set of hard valve springs for mounting on suction and delivery valves for treatment of highly viscous products requiring a high pressure for the closing of the valves

NOTE: Operating with hard valve springs requires a pre-feeding pressure of min. 2 bar.

3. MACHINES WITH "OIL-LEVEL" PILOT LAMP

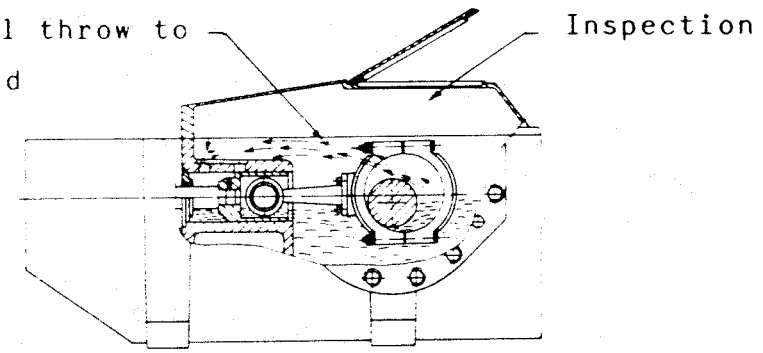
If "OIL-LEVEL" lamp lights during starting or operation, oil must be filled into eccentric sump until the lamp is extinguished.

In machines with oil dipstick, see that oil level is between min. and max.

MACHINES WITHOUT OIL-LEVEL" PILOT LAMP

Oil level glass or oil dipstick **MUST** be checked regularly to see if refilling is required.

NOTE: If machine runs at variable or slow speed (approx. 125 r.p.m.), it **MUST** be checked regularly that the crosshead is oiled during operation. (See sketch).



4. CHECK COOLING WATER SYSTEM

a) If the "WATER-FLOW" pilot lamp on the front panel does **NOT** light, it should be checked at once, e.g. by adjusting the regulating valve until the pilot lamp lights. If it still does not light, **STOP** the machine and locate the fault.

b) In machines without pilot lamp the water supply must be checked visually at regular intervals, by seeing whether water flows to the cylinder sump continuously. If this is not so, a check **MUST** be made at once. If it takes time, the machine **MUST** be stopped.

5. See that product does not leak out at the pistons since this is an indication of defective packings in the cylinder.

6. Read the pressure gauge. Irregular deflections are usually due to air in the system or abnormal valve function.

7. Check the associated values of homogenising pressure and current drawn by motor. The values must be constant. The homogenising valve should be examined in the event of major deviations.

FAULT LOCATION

Faults in the machine may have many different causes, and it will always be necessary to look out for irregularities in the machine.

The below table shows what the cause may be if the machine does not start when "ON-MAIN-MOTOR" is pressed, or the irregularities which may cause a lamp to indicate fault during operation.

The instructions are common to all machine types and give a list of the pilot lamps with which a machine may be equipped.

ALWAYS CHECK that control voltage is supplied to the machine.

A - STARTING, WHEN CONTROL VOLTAGE HAS BEEN CUT OFF:

Machine does not start	Cause
No light in "OIL-LEVEL"	- If LED on relay d5 on panel does not light, oil level in eccentric sump is too low.

B - STARTING, DAILY OPERATION

Machine does not start when "ON-MAIN-MOTOR" is pressed	Cause
No light in "OIL-FLOW"	- Too little oil flow in lubricating system. Oil pump has stopped for machine type D.90.
No light in "WATER-FLOW"	- Too little water flow in cooling system.

"AIR-TEMP" lights	- Too high temperature in cabinet.
"OIL-TEMP" lights	- Too high oil temperature in eccentric sump. (If temperature exceeds 65°C, machine does not start).
If the above is in order, and machines still does not start	- Emergency switch activated.

C - DURING OPERATION

Lamps which may indicate faults during operation	**Cause**
"OIL-FLOW" extinguished	- Too little oil flow in lubricating system. Oil pump has stopped for machine type D.90.
"WATER-FLOW" extinguished	- Too little water flow in cooling system.
"AIR-TEMP" lights	- Too high temperature in cabinet.
"OIL-TEMP" lights	- Too high temperature in eccentric sump. (If temperature exceeds 65°C, main motor stops automatically).

"OVERLOAD-OIL-PUMP" lights	- Thermal relay for oil pump has dropped out.
"OIL-LEVEL" lights	- Too little oil in eccentric sump.
"SAFETY-HIGH-PRESSURE" (Lamp on panel at relay)	- Too high pressure in system.

MACHINE WITH ROTARY FLASH

The lamp is activated as soon as fault occurs in one of the above fields.

REMEMBER: If irregularities or jarring sounds occur during operation, the machine **MUST** be stopped and these irregularities and sounds be localized and corrected before restarting of the machine.

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 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 extend that parts of the surface are damaged or the separate annular faces are worn through, the homogenising valve must be replaced.

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.

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!! That the filter cartridge should be replaced for the first time after 50 hours' operation. Then after every 500 hours' operation. For oil type, see Section 2.00.

Spare parts lists for the separate fields is contained in Section 11.00.

If the cause lies outside the said fields, Rannie A/S should be contacted.

MAINTENANCE

POPPET VALVE AND VALVE SEATS

THREE-PART VALVE HOUSING D.60 - .72 - .79 - .79H - .80 - .80H - .90

During inspection and maintenance of the poppet valves in a three-part valve housing, a distinction is made between small and large worn marks.

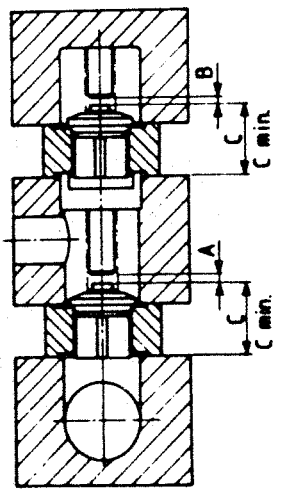
The following table contains a list of three-part types of valve housing, with details of poppet valve positions and lifts as well as dimensions specified for renovation.

NOTE: The numbers in the table apply to a new three-part valve housing. The table states a C-min. which is a machining measurement for renovation of the poppet valve.

IMPORTANT!! When C-min. is reached, the poppet valve **MUST NOT** be subjected to further grinding.
When C-min. is reached the valve seat **CAN** be turned through 180° (if this has not been done already) and be used again .

TABLE FOR RENOVATION OF POPPET VALVE

MACHINE TYPE	POPPET VALVE			RENOVATION MEASUREMENT C-min.
	A	B	C	
24-30.60	2.25	2.25	58.4	57.0
36-45.72	3.75	3.75	58.4	57.0
50-63.79	4.65	4.95	62.4	61.0
63-85.80	9.65	4.95	62.4	61.0
50-70.90	9.65	4.95	62.4	61.0



REPAIR OF SMALL WORN MARKS

Removed by match grinding.
See **MATCH GRINDING**

REPAIR OF LARGE WORN MARKS

If poppet valve and valve seat are heavily worn, and turning off is required, the following procedure must be adopted:

1. The poppet valve is turned off on the 45° conical surface until the surface is absolutely smooth and without worn marks.

2. The valve seat is turned off on the 45° conical surface until the surface is absolutely smooth and without work marks.

NOTE: If the valve seat has been used on **ONE SIDE ONLY**, it can be turned through 180° and used again.

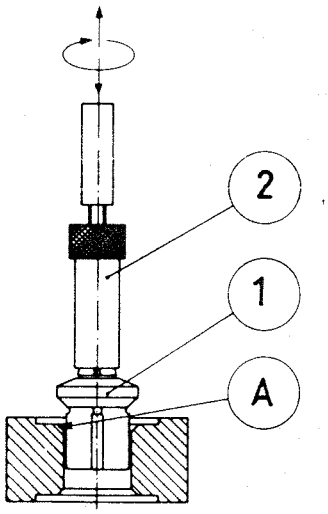
IMPORTANT!! When large worn marks are to be repaired, it must **ALWAYS** be ensured that the renovation measurement C-min. is still kept after the repair.

MATCH GRINDING

Match grinding of the poppet valves is carried out as follows:

1. A suitable amount of abrasive compund is placed on the valve seat contact face marked A. (Fine powdered Carborundum 180, grain size, suspended in acid-free oil).

2. Poppet valve Pos.1 is fixed in valve removing tool Pos.2. Valve removing tool is kept in tool case.



2. The poppet valve is lowered to the valve seat and turned clockwise at a light pressure.

Match grinding is continued until poppet valve and valve seat has complete contact on the entire contact face.

REMEMBER!! Always clean poppet valve and valve seat of all traces of abrasive compound.

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.

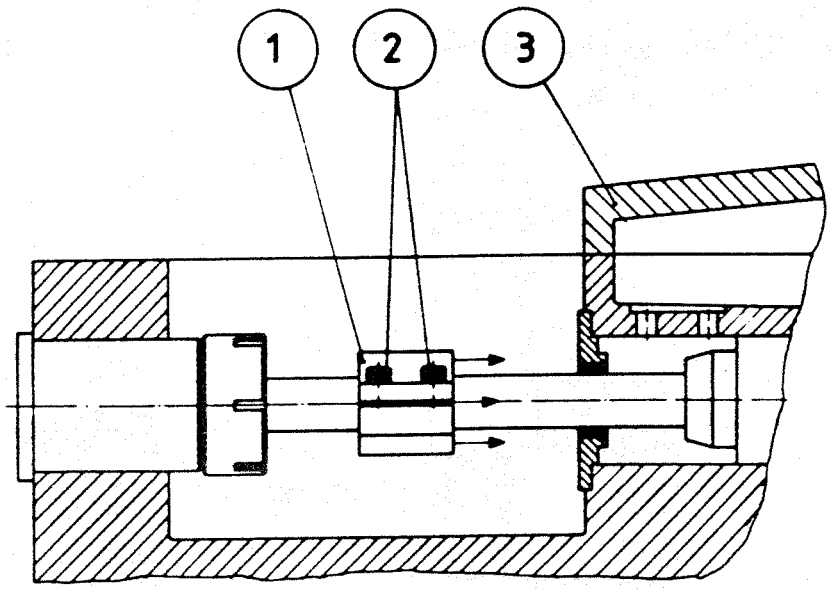
REMEMBER!! Always check that the power supply from the main panel is switched off, and that the main fuses are removed.

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.

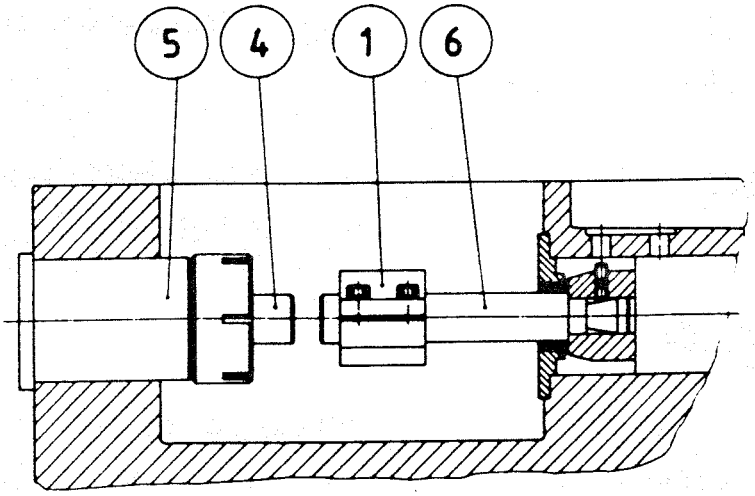
3. Screws Pos.2 on piston coupling Pos.1 are unscrewed approx. 5 mm.



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.

5. Piston Pos.4 contacted by the product is pushed fully forward into cylinder Pos.5.

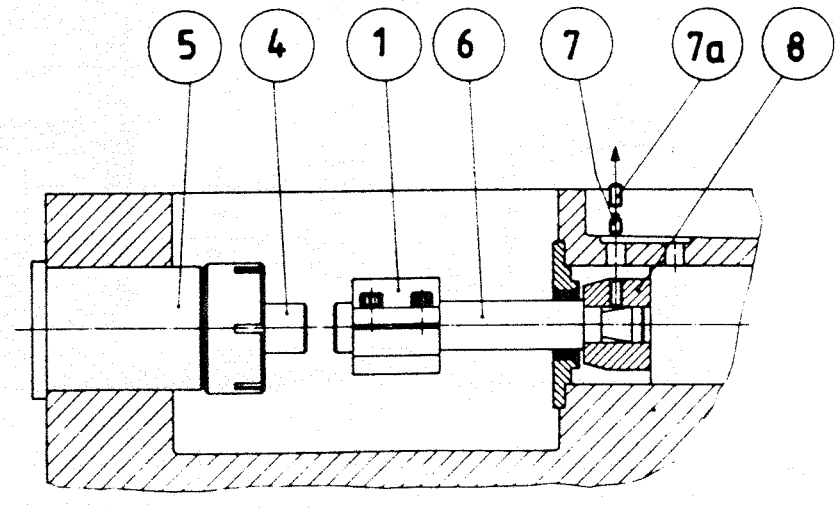
6. Piston coupling Pos.1 is fixed to the fixed piston Pos.6 by unscrewing the centre screw and tightening the other one.



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.



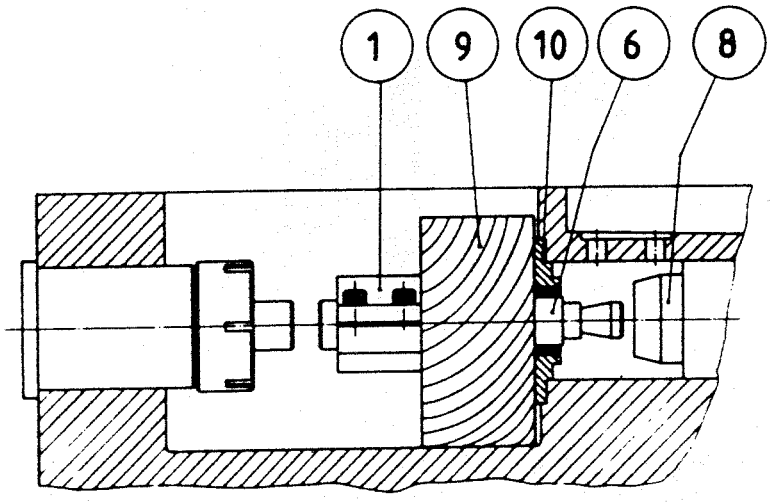
TYPES D.79 - D.79H - D.80 - D.80H - D.90

Remove fixing screw Pos.7a which locks hollow point screw Pos.7. The hollow point screw Pos.7., which fixes the fixed piston Pos.6 to crosshead Pos.8, can then be removed.

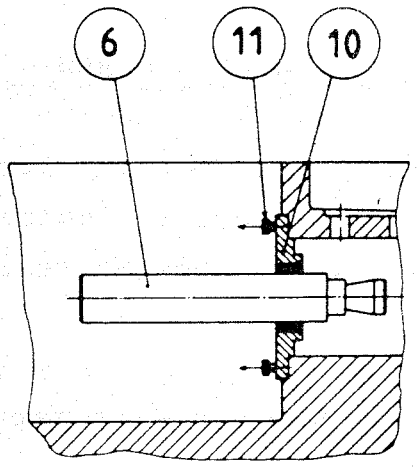
9. A wooden block Pos.9 (approx. 2 x 6 x 15 cm) is placed on both sides of fixed piston Pos.6, between piston coupling Pos.1 and crosshead cover Pos.10.

NOTE: If fixed piston Pos.6 of the machine is cylindrical without recess, the piston coupling Pos.1 can be pushed up to crosshead cover Pos.10 and fixed.

10. Crosshead Pos.8 is moved back by means of the V-belt drive of the machine so that fixed piston Pos.6 is extracted from crosshead Pos.8.

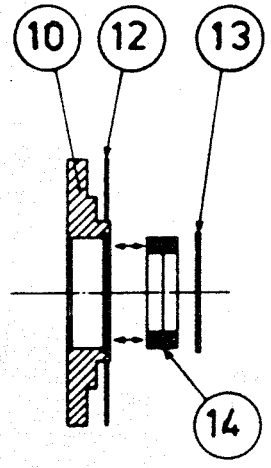


11. Crosshead cover Pos.10 with fixed piston Pos.6 is dismounted by unscrewing screws Pos.11 which are then screwed into the two free threaded holes in the crosshead cover so that the crosshead cover is forced out.



12. Crosshead cover Pos.10 and fixed piston Pos.6 are removed for separation.

13. Packing Pos.12 is dismounted from crosshead cover Pos.10.



14. Locking ring Pos.13, if any, is removed.

15. Oil seal ring Pos.14 is forced out of crosshead cover Pos.10.

The separate component parts are examined for wear, and all damaged or worn parts are replaced.

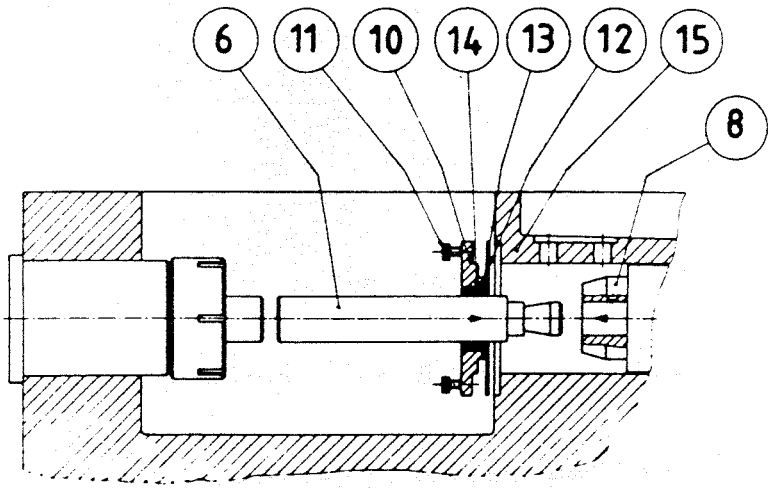
MOUNTING

1. Oil seal ring Pos.14 is pressed into crosshead cover Pos.10.

NOTE: Locking ring Pos.13, if any, is mounted.

IMPORTANT!! The oil seal ring **MUST** be oiled before mounting. The oil seal ring **MUST** be absolutely straight in the crosshead cover in order to avoid leakage.

2. Crosshead cover Pos.10 and packing Pos.12 are mounted on fixed piston Pos.6 and placed in base frame Pos.15.



3. Crosshead Pos.8 is moved to front position by means of the V-belt drive of the machine, and fixed piston Pos.6 is pushed into crosshead Pos.8.

4. Crosshead cover Pos.10 is fixed to base frame Pos.15 by means of screws Pos.11..

REMEMBER!! Check before fixing of hollow point screws Pos.7 and Pos.7a that fixed piston Pos.6 is bottomed completely in crosshead Pos.8.

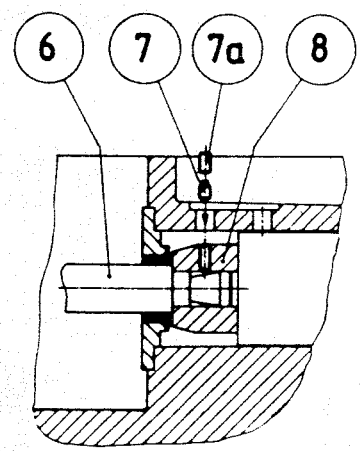
5. **TYPES 22.51 - D.51H - D.60 - D.72**

Insert and fix hollow point screw Pos.7 to crosshead Pos.8 so that fixed piston Pos.6 is fixed to crosshead Pos.8.

TYPES D.79 - D.79H - D.80 - D.80H - D.90

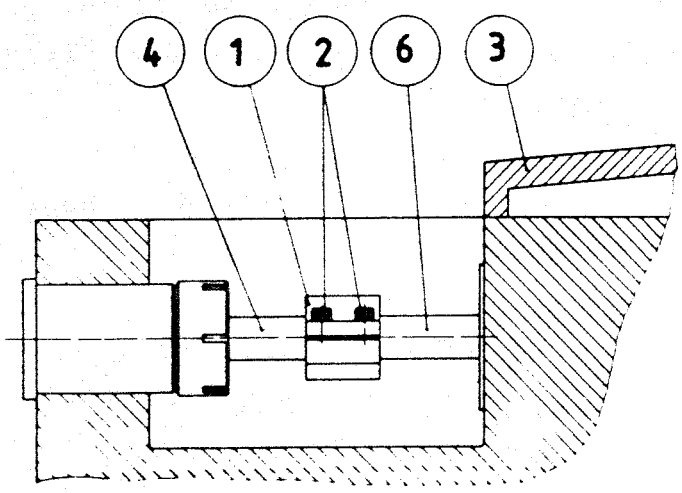
Insert and fix hollow point screw Pos.7 to crosshead Pos.8 so that fixed piston Pos.6 is fixed to crosshead Pos.8.

Fixing screw Pos.7a is mounted for locking of hollow point screw Pos.7.



6. Cover Pos.3 is mounted over eccentric sump.

7. Piston coupling Pos.1 is placed loosely on fixed piston Pos.6.



8. Piston Pos.4 touched by the product is moved up to fixed piston Pos.6, and piston coupling Pos.1 is placed over the joint between the two pistons.

NOTE: Some fixed pistons Pos.6 have a small groove showing from where piston coupling Pos.1 is to be mounted.

9. The two screws Pos.2 on piston coupling Pos.1 are tightened.

MAINTENANCE

PISTON AND CYLINDER WITH A SINGLE U-RING

D .72 - .80 - 70.90

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

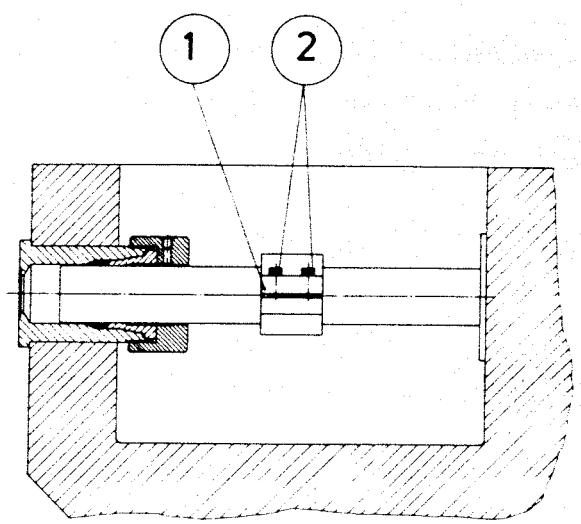
DISMOUNTING

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 cooling and irrigation system for cylinders.

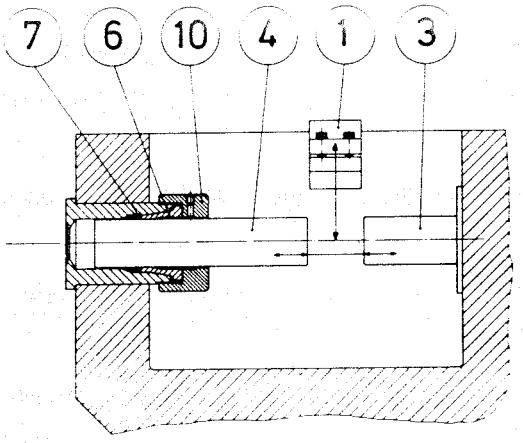
2. The eccentric shaft is turned by means of the V-belt drive of the machine so that piston coupling Pos.1 is in front position.



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.

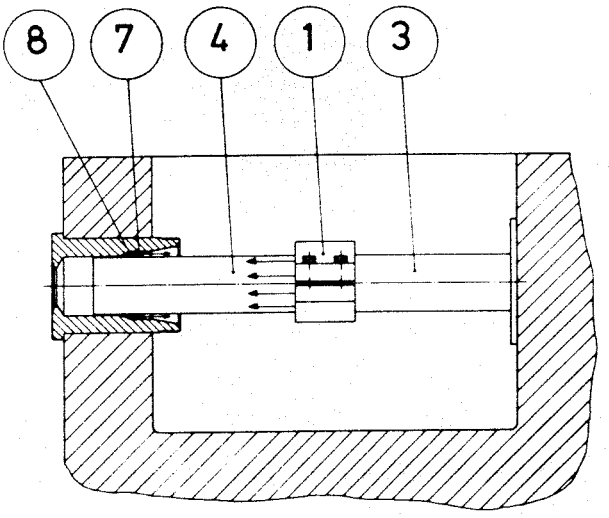
IMPORTANT!! If the machine is provided with ceramic pistons Pos.4, they must be handled with great care. Ceramic pistons **MUST NOT** be subjected to blows.

7. Remove union nut Pos.10 and packing ring Pos.6.

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

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. Union nut Pos.10 and packing ring Pos.6 must be dismounted. 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.

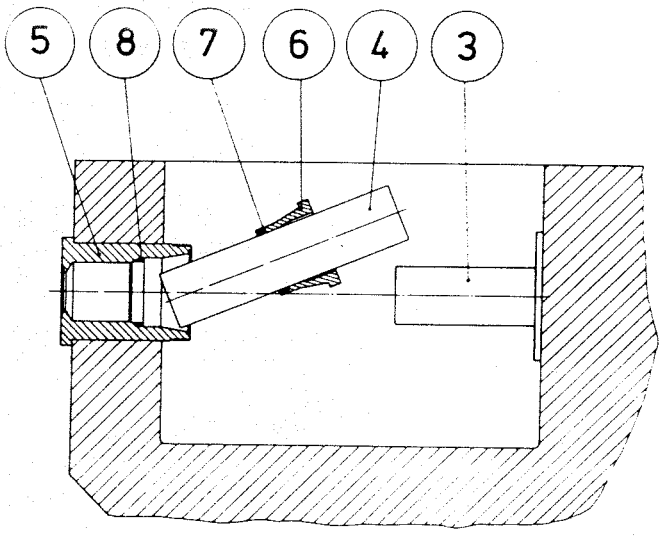
   The U-ring is examined for wear and replaced if necessary.

MOUNTING

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

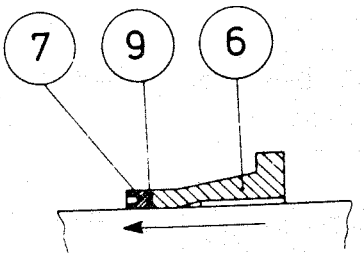
1. Fixed piston Pos.3 is moved to rear position by means of the V-belt drive of the machine.

2. Neck ring Pos.8 is mounted in cylinder.

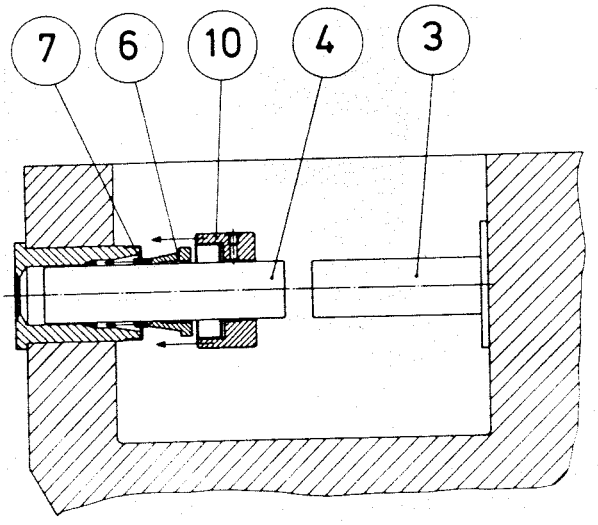


3. U-ring Pos.7 is placed together with packing ring Pos.6 on loc piston Pos.4 and moved into cylinder Pos.5.

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.



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



5. Union nut Pos.10 is mounted.

MACHINES WITH CLOSED COOLING SYSTEM

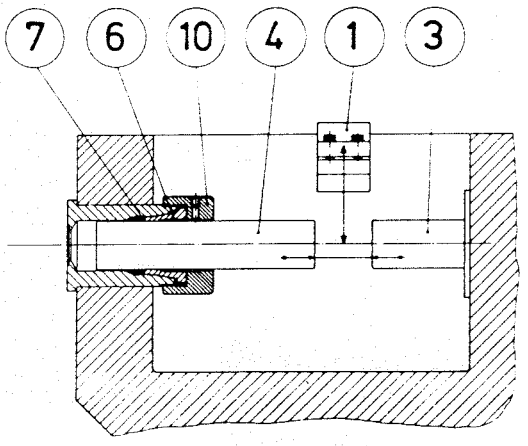
Union nut Pos.10 is bottomed on the cylinder. Union nut and cylinder are then turned so that mark and inlet opening for cooling are in the required position.

6. Piston coupling Pos.1 is placed on fixed piston Pos.3.

7. 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.



8. Piston coupling Pos.1 is fixed.

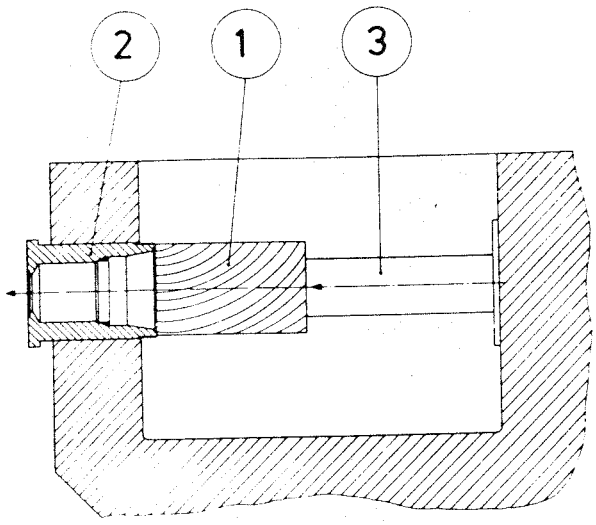
9. Union nut Pos.10 is secured against WORKING LOOSE by striking a lead hammer against the shank of the hook spanner.

10. Mount cooling and 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.



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.

MAINTENANCE

THREE-PART VALVE HOUSING WITH POPPET VALVES

D .60 - .72 - .79 - .80 - .90

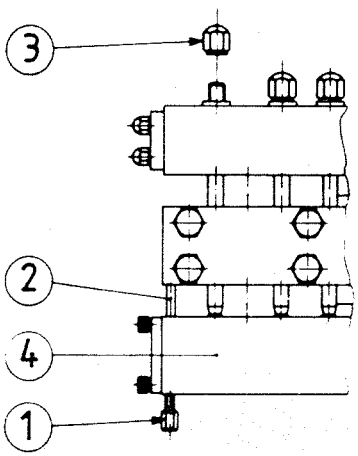
The valve housing must be dismounted for inspection and maintenance of poppet valves and valve seats.

DISMOUNTING

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

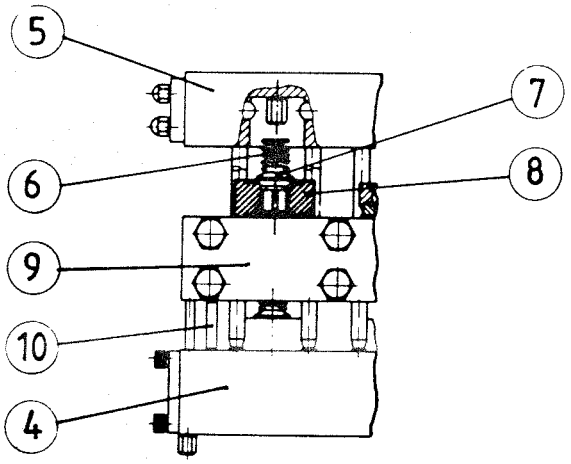
1. Box nuts Pos.1 are screwed down 10 mm on stud Pos.2.

2. Box nuts Pos.3 are unscrewed so that bottom part Pos.4 of valve housing rests on box nuts Pos.1.



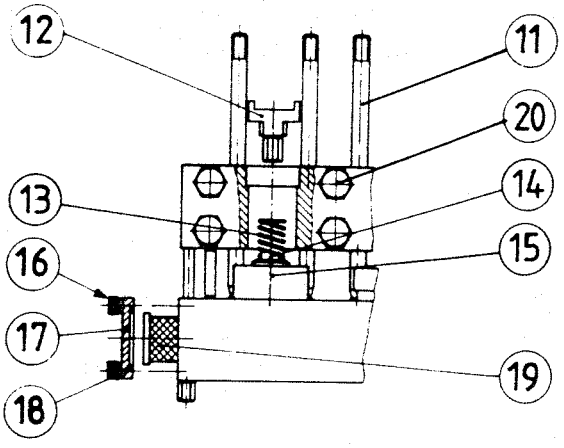
3. Top part Pos.5 of valve housing is lifted away cautiously and delivery valve spring Pos.6 can be removed.

4. Poppet valve Pos.7 on delivery side and valve seat Pos.8 are removed for inspection.



5. A distance block Pos.10 is placed at either end between intermediate part Pos.9 and bottom part Pos.4, of valve housing, and box nuts Pos.1 are tightened.
Distance blocks are kept in tool case.

6. A stud setter is used to loosen and remove one of the foremost studs Pos.11 at each valve on the suction side.
Stud setter is kept in tool case.



7. Valve stop Pos.12 and suction valve spring Pos.13 are removed from intermediate part Pos.9 of valve housing.

8. Poppet valve Pos.14 on suction side and valve seat Pos.15 are removed for inspection.

9. Thumb screws Pos.16 are unscrewed, and flange for filter cartridge Pos.17 and O-ring Pos.18 are removed.

10. Filter cartridge Pos.19 is taken out for cleaning.

NOTE: **For inspection and maintenance of poppet valve and valve seats, see Section 6.12.**

If the valve housing is to be dismounted from the base frame, the following procedure can be adopted:

Box nuts Pos.20 are unscrewed and the valve housing is lifted carefully over the studs in the base frame.

MOUNTING

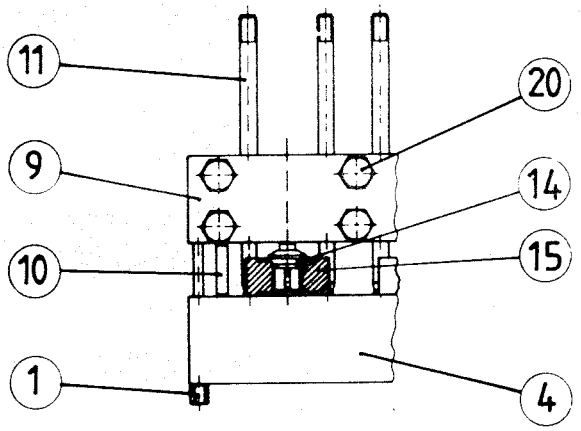
REMEMBER!! All O-rings **MUST** be replaced before mounting.

IF THE VALVE HOUSING HAS been dismounted from the base frame, it must first be assembled in accordance with the mounting instructions; the assembled valve housing is then lifted carefully into position on the studs in the base frame and fixed by means of box nuts Pos.20.

IMPORTANT!! If part assembly drawing for THREE-PART VALVE HOUSING, Section 11.-, states a torque for box nuts Pos. 20, this **MUST** be observed.

1. Poppet valve Pos.14 on suction side is mounted in valve seat Pos.15 and placed on bottom part Pos. 4 of valve housing.

2. The dismounted studs Pos.11 are screwed into bottom part Pos.4 of valve housing and tightened by means of a stud setter.



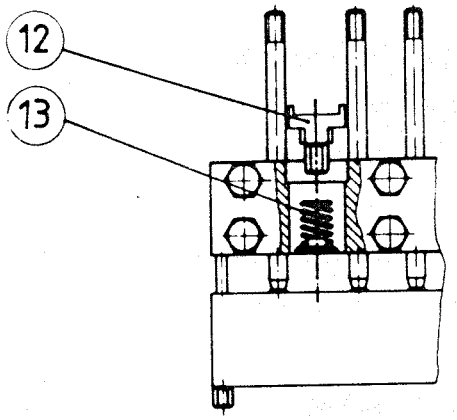
3. Slacken box nuts Pos.1 and remove distance blocks Pos.10.

4. Valve seat with poppet valve is fixed between intermediate part Pos.9 and bottom part Pos.4 of valve housing by means of box nuts Pos.1.

5. Valve stop Pos.12, with suction valve spring Pos.13, is mounted in intermediate part Pos.9 of valve housing.

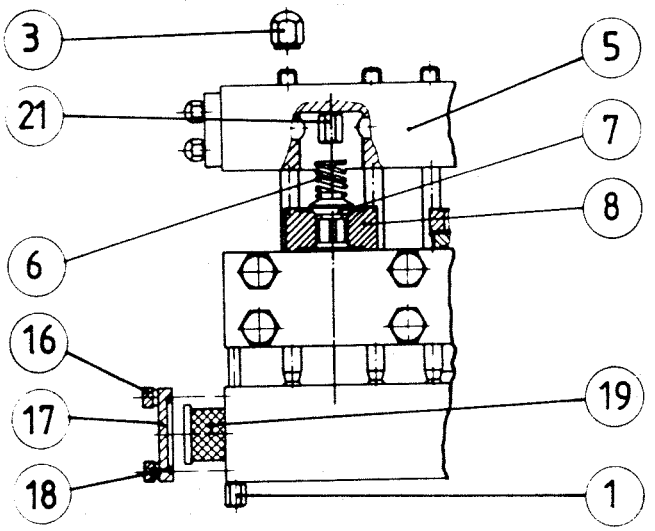
NOTE: Valve stop Pos.12 consists of two parts screwed into each other.

REMEMBER!! Check before mounting that the valve stop is screwed completely together. The parts are secured against working loose with LOCKTITE - activator 764 and adhesive 326.



6. Poppet valve Pos.7 on delivery side is mounted in valve seat Pos.8 and placed on intermediate part Pos.9 of valve housing.

7. Valve stop Pos.21 is mounted in top part Pos.5 of valve housing with pipe wrench.
Pipe wrench is kept in tool case.



REMEMBER!! Check before mounting that valve stop Pos.21 is fixed to top part Pos.5 of valve housing.
The valve stop is secured against working loose with LOCKTITE - activator 764 and adhesive 326.

8. Top part Pos.5 of valve housing, with valve stop Pos.21 and delivery valve spring Pos.6, is lifted carefully into position on delivery valve seat Pos.8.

IMPORTANT!! It must be avoided that delivery valve spring Pos.6 moves or gets caught during mounting of top part Pos.5.

9. Box nuts Pos.3 are tightened.

IMPORTANT!! If part assembly drawing for THREE-PART VALVE HOUSING, Section 11,-, states a torque for box nuts Pos.20 th**MUST** be observed.

10. Box nuts Pos.1 are re-tightened.

11. Filter cartridge Pos.19 is mounted. Flange for filter cartridge Pos.17 with O-ring Pos.18 is fixed by means of thumb screws Pos.16.

MAINTENANCE

I-STAGE HOMOGENISING BRACKET WITH HYDRAULIC CONTROL

D.79 - .80 - .80H - .90

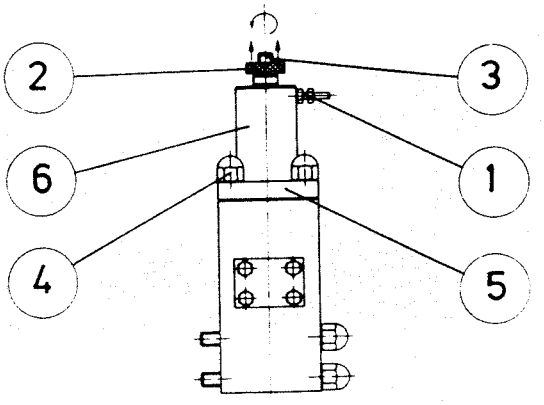
The homogenising bracket must be dismounted for inspection and maintenance of the homogenising valve.

DISMOUNTING

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

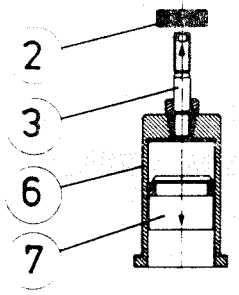
1. Hydraulic oil hose Pos.1 is dismounted and stop ring Pos.2 is turned halfway back on threaded spindle Pos.3.

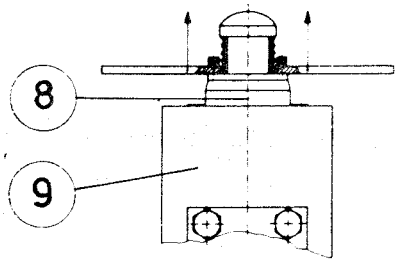
2. Box nuts Pos.4 are unscrewed and flange Pos.5 can then be removed.



3. Hydraulic cylinder Pos.6 is removed for separation.

4. Stopring Pos.2 is screwed off threaded spindle Pos.3 whereafter hydraulic piston Pos.7 can be taken out of hydraulic cylinder Pos.6 for inspection.



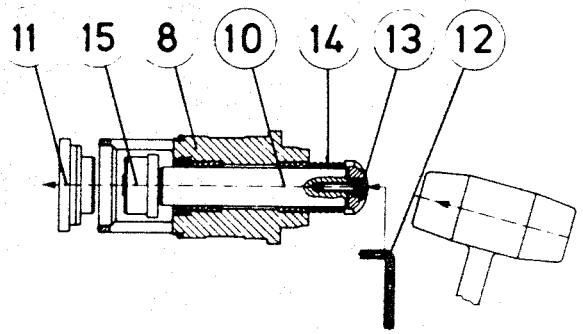


5. Guide Pos.8 is removed from homogenising bracket Pos.9 by means of guide extractor.
   Guide extractor is kept in tool case.

NOTE: To check the homogenising valve it has to be removed from guide Pos.8.

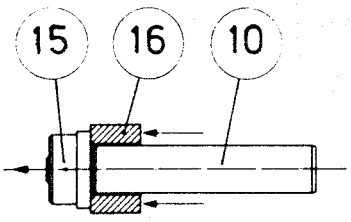
2. Light blows with a rubber hammer against spindle Pos.10 make it possible to push bottom part Pos.11 of homogenising valve out of guide Pos.8.

1. Allen screw Pos.13 is unscrewed with Allen key Pos.12 whereafter head of spindle Pos.10 can be removed.



3. Hydraulic spring Pos.14 is removed.

4. Spindle Pos.10 with top part Pos.15 of homogenising valve is pushed out through guide Pos.8. by hand.

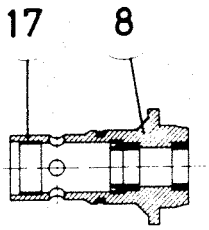


5. Puller Pos.16 is placed over spindle Pos.10 on top part Pos.15 of homogenising valve.
   Puller is kept in tool case.

6. A light blow on puller Pos.16 loosens top part Pos.15 of homogenising valve from spindle Pos.10.

TYPE D.80H

If an impact ring Pos.17 is mounted in guide Pos.8, it must be removed for inspection.

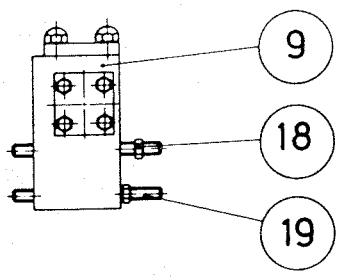


If the homogenising bracket is to be removed from the valve housing, the following procedure is adopted:

TYPE D.79

1. Nuts Pos.18 are unscrewed and homogenising bracket Pos.9 can be removed.

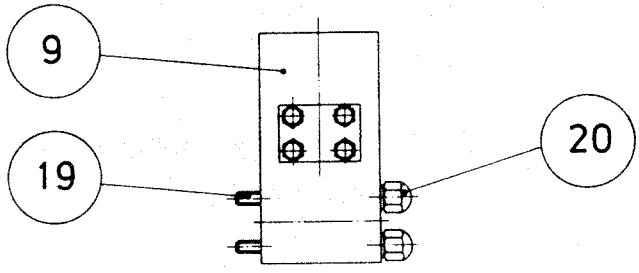
2. Studs Pos.19 are unscrewed by means of a stud setter.
   Stud setter is kept in tool case.



TYPES D.80 - .80H - .90

1. Box nuts Pos.20 are unscrewed and homogenising bracket Pos.9 can be removed.

2. Studs Pos.19 are unscrewed by means of a stud setter.
   Stud setter is kept in tool case.



MOUNTING

REMEMBER!! **ALL** defective packings **MUST** be renewed before mounting.

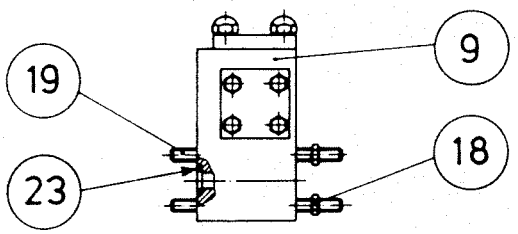
All packings are renewed **every time** the homogenising bracket is dismounted.

If the homogenising bracket has been removed from the valve housing, it has to be mounted first.

TYPE D.79

1. Studs Pos.19 are inserted and tightened with stud setter.

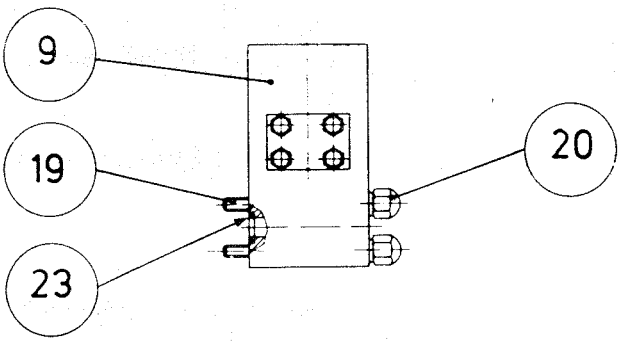
2. Homogenising bracket Pos.9, with O-ring Pos.23, is mounted and secured with nuts Pos.18.



TYPES D.80 - .80H - .90

1. Studs Pos.19 are inserted and tightened with stud setter.

2. Homogenising bracket Pos.9, with O-ring Pos.23, is mounted and secured with box nuts Pos.20.

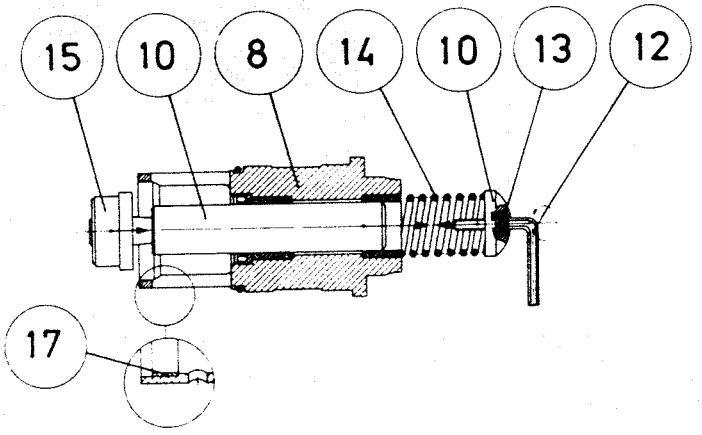


NOTE: If part assembly drawing for HOMOGENISING BRACKET, Section 11.-, indicates a torque for box nuts Pos.20, this **MUST** be observed.

TYPES D.79 - .80 - .80H - .90

1. Top part Pos.15 of homogenising valve is fixed in spindle Pos.10 by exertion of a light pressure.

2. Spindle Pos.10 is pressed through guide Pos.8, and hydraulic spring Pos.14 is inserted before spindle head Pos.10 is mounted.



3. Spindle head Pos.10 is secured with Allen screw Pos.13 which is tightened with Allen key Pos.12.

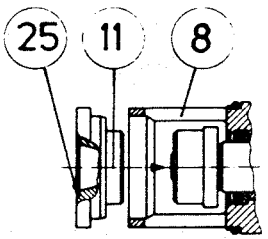
TYPE D.80H

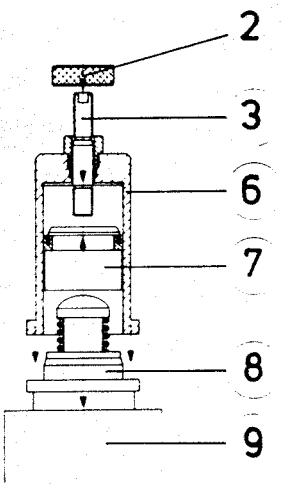
If an impact ring Pos.17 is inserted in guide Pos.8 it **MUST** be mounted.

TYPES D.79 - .80 - .80H - .90

1. Bottom part Pos.11 of homogenising valve is fixed in guide Pos.8 by exertion of a light pressure, and O-ring Pos.25 is placed.

2. The assembled guide Pos.8 is bottomed by hand in homogenising bracket Pos.9.





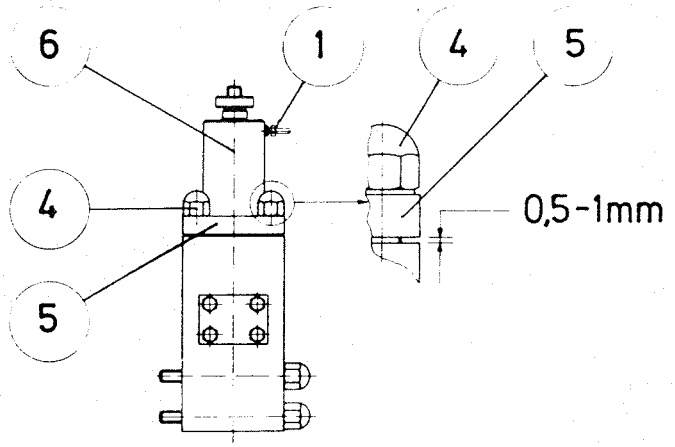
3. Hydraulic piston Pos.7 with threaded spindle Pos.3 is mounted in hydraulic cylinder Pos.6 and secured with stop ring Pos.2 which is screwed halfway down on threaded spindle Pos.3.

NOTE: Stop ring Pos.2 **MUST NEVER** be screwed more than halfway down on threaded spindle Pos.3

Adjustment is carried out during start, see Section 9.1, CONTROL SYSTEM.

4. Hydraulic cylinder Pos.6 is lowered on to guide Pos.8 together with flange Pos.5.

5. Box nuts Pos.4 are mounted and tightened.



IMPORTANT!! When box nuts Pos.4 are tightened, it must be ensured that the slot between flange and homogenising bracket is **ALWAYS** the same all the way round.

- there **MUST ALWAYS** be a slot in order to ensure the necessary tightening pressure between homogenising valve and homogenising bracket.
- tightening of box nuts Pos.4 **MUST** be done diagonally until a uniform tightening torque is obtained.
- the slot **MUST** be from 0.5 - 1 mm.

NOTE: If part assembly drawing for HOMOGENISING BRACKET, Section 11.-, indicates a torque for box nuts Pos.4, this **MUST** be observed.

6. Hydraulic oil hose Pos.1 is mounted.

CLEANING

The best possible result is obtained when the cleaning is started immediately after production is finished.

The machine **MUST** be completely relieved of pressure during the cleaning process, enabling the CIP pump to rinse out valve housing, etc.

NOTE: It is necessary that the detergent has a flow velocity of approx. 3 m/sec.

The cleaning process (CIP) must be adapted to the product, but could be as follows:

1. **PREWASHING** with hot water, approx. 40°C, for approx. 8 minutes.
2. **CIRCULATION** of hot detergent, approx. 75°C, e.g. 1% NAOH, for at least 20 min., whereafter the detergent is to be washed out.
3. **REWASHING** for approx. 5 minutes with hot water.
4. **DISINFECTION** with hot water, min. 90°C, or steam.
5. **DESCALING** on the inner surfaces is done by application of a diluted nitric acid solution, approx. 1% conc. Rewash with water for at least 10 minutes after the treatment.

If the machine is equipped with safety valve or rinsing valve, these are opened to brief passage of detergent and washing water.

IMPORTANT!! Any inlet filter mounted in the suction duct or before the machine **MUST** be inspected and cleaned regularly.

WIRING DIAGRAM

If the machine is equipped with a control box, a control panel or some other form of connection box, this section will describe such equipment, in the form of a wiring diagram and parts list showing the interconnections of the individual electrical components.

RANNIE A/S
COPENHAGEN

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

DATE: 16.09.87
GROUP OF COMPONENTS: 037

DRAWING NO
715921

START/STOP LAMPE 240V/50HZ BT

POS NO	ORDER NO	QUANTITY	DESCRIPTION
	001137	1,000	El-box
	002155	7,000	Terminal
	002158	2,000	Terminal
0010	001610	1,000	Fuse terminal
0011	001613	1,000	Fuse
0012	001611	1,000	End plate
1010	001127	1,000	Pushbutton body
1011	001124	1,000	Pushbutton head
1020	001126	1,000	Adjusting knob body
1021	001123	1,000	Pushbutton head
1180	001352	1,000	Pilot light body
1181	001121	1,000	Pilot light lens
1280	000936	1,000	Coil
1281	000791	1,000	Plug

RANNIE A/S
COPENHAGEN

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

DATE: 16.09.87
GROUP OF COMPONENTS: 037

DRAWING NO
715922

HY-STATION MAN. 415/240V 50HZ

POS NO	ORDER NO	QUANTITY	DESCRIPTION
	001610	3,000	Fuse terminal
	001611	3,000	End plate
	001613	3,000	Fuse
	002155	10,000	Terminal
	002158	2,000	Terminal
3310	001127	1,000	Pushbutton body
3311	001124	1,000	Pushbutton head
3320	001126	1,000	Adjusting knob body
3321	001123	1,000	Pushbutton head
3370	001764	1,000	Thermal protection relay
3380	002368	1,000	Contactor
3580	001352	1,000	Pilot light body
3581	001121	1,000	Pilot light lens

RANNIE A/S
COPENHAGEN

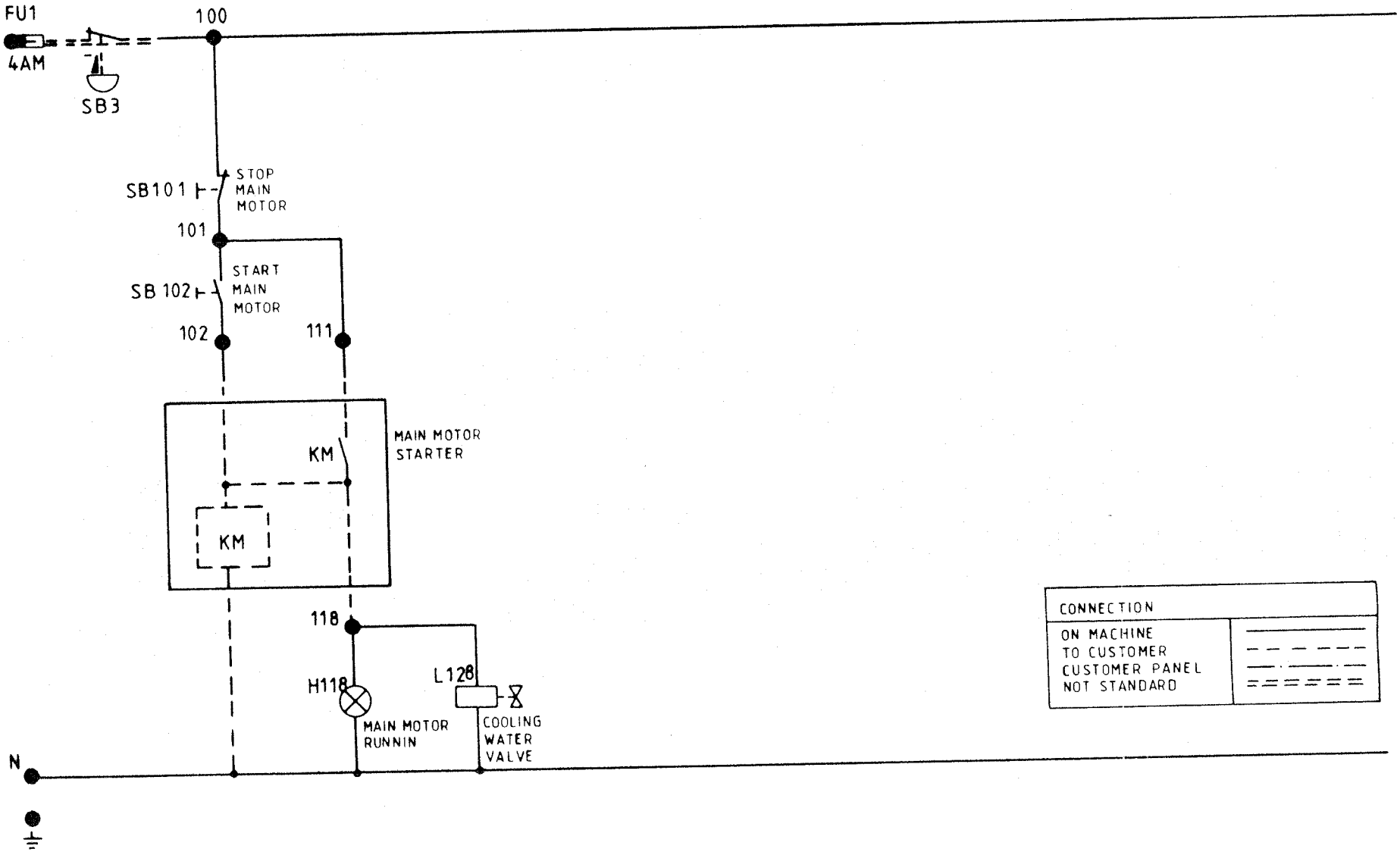
**** P A R T S L I S T ****

DATE: 16.09.87
GROUP OF COMPONENTS: 037

DRAWING NO
715923

HY-STATION MANUEL BT 100.80

POS NO	ORDER NO	QUANTITY	DESCRIPTION
0001	715921	1,000	START/STOP LAMPE 240V/50HZ BT
0002	715922	1,000	HY-STATION MAN. 415/240V 50HZ
0003	112595	1,000	AFSKÆRMNING,EL-KOMP D.080,HY-.



Dato | Sign. | Ændringer

RANNIE
Maskinfabrikken Rannie A/S
Roholmsvej 8, Albertslund
Danmark

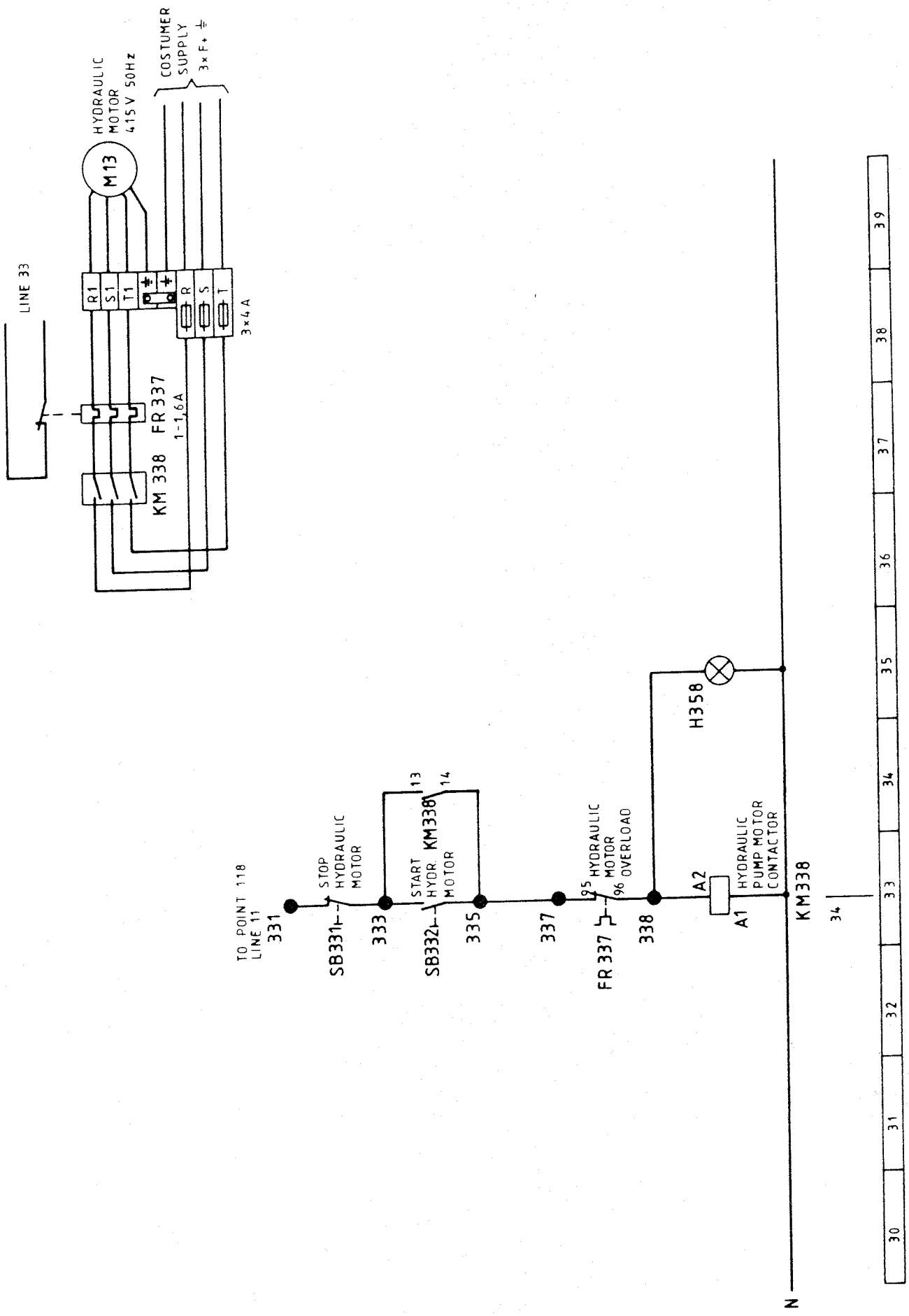
DIAGRAM
START STOP LAMP
240 V, 50 Hz, BT

Appr	Kontr	Tegn.	Dato
		H2·8·87	

Erstatter

Erstattet af

Nr. 715921



Dato	Sign	Ændringer

RANNIE Maskinfabriken Rannie A/S

Roholmsvej 8, Albertslund Danmark

DIAGRAM

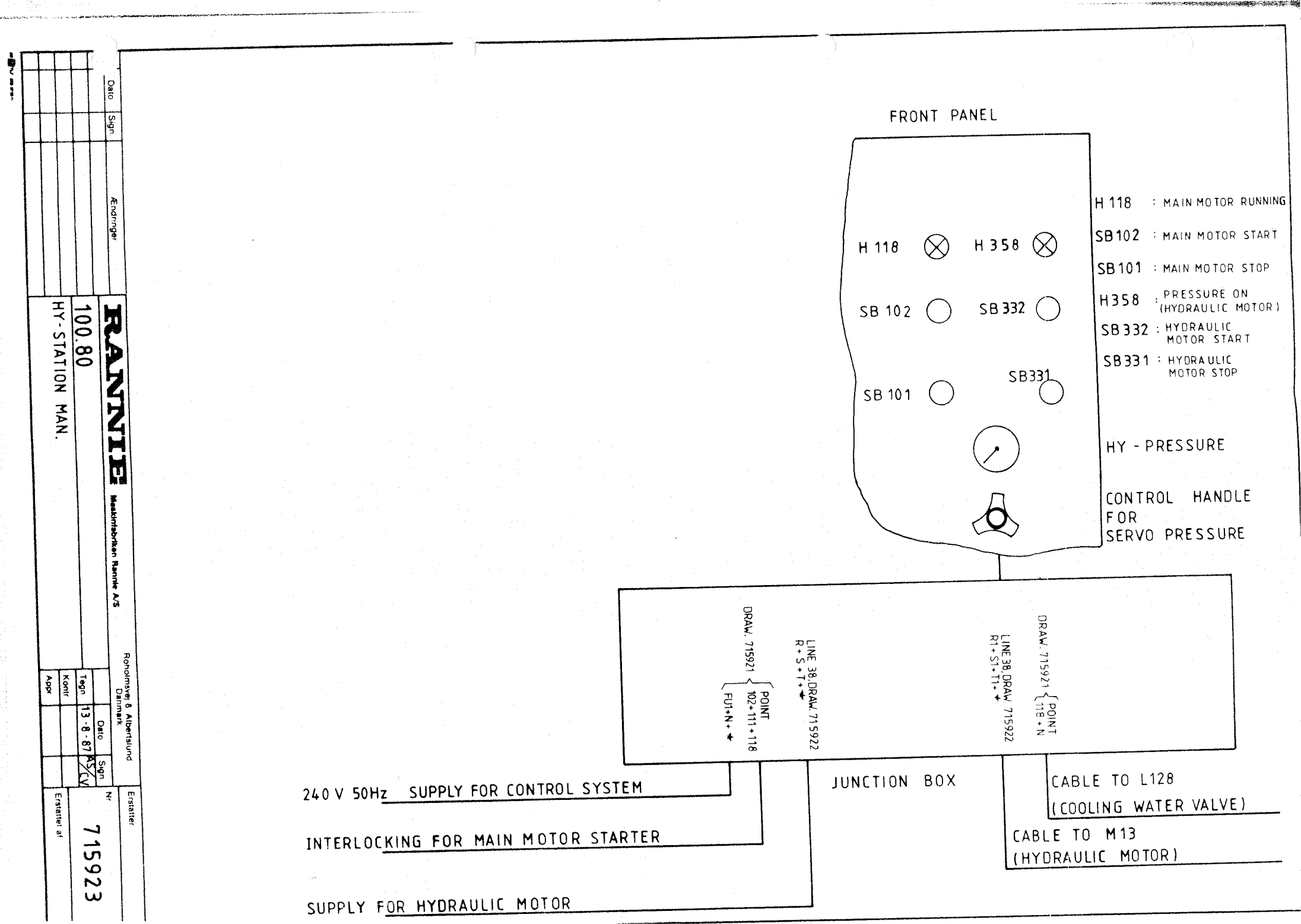
HY-STATION 415 V, 50 Hz, MANUEL START, STOP, LAMP, 240 V 50 Hz

	Dato	Sign
Tegn.	13-8-86	AS/CV
Kontr		
Appr		

Erstatter

Nr 715922

Erstattet af



Dato | Sign. | Ændringer

RANNE Maskinfabrikken Rønnike A/S
Rønholmsvej 8, Albertslund Danmark

HY-STATION MAN.

100.80

	Tegn	Dato	Sign
Appr			
Kontr			
	13-8-87		AS/CV

Erstatter

Erstattet af

Nr 715923

RANNIE A/S
COPENHAGEN

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

DATE: 19.08.87
GROUP OF COMPONENTS: 037
PAGE: 1

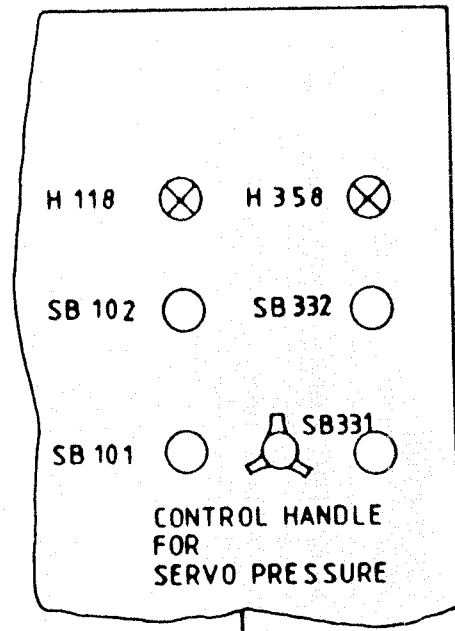
DRAWING NO
715923

HY-STATION MANUEL BT 100.80

POS NO	ORDER NO	QUANTITY	DESCRIPTION
0001	715921	1,000	START/STOP LAMPE 240V/50HZ BT
0002	715922	1,000	HY-STATION MAN. 415/240V 50HZ

These parts list were replaced by the corrected version supplied by Rannie on 29/09/87.

FRONT PANEL



H 118 : MAIN MOTOR RUNNING
SB102 : MAIN MOTOR START
SB101 : MAIN MOTOR STOP
H358 : PRESSURE ON (HYDRAULIC MOTOR)
SB332 : HYDRAULIC MOTOR START
SB331 : HYDRAULIC MOTOR STOP

240 V 50Hz SUPPLY FOR CONTROL SYSTEM

INTERLOCKING FOR MAIN MOTOR STARTER

SUPPLY FOR HYDRAULIC MOTOR

JUNCTION BOX

CABLE TO 128
(COOLING WATER VALVE)

CABLE TO M13
(HYDRAULIC MOTOR)

HY-STATION MAN.

100.80

RANNIE

Rønnomsvej 6 Allerslund Danmark

Tegn. H3-8-87

Nr 715923

DRAWING NO
715922

HY-STATION MAN. 415/240V 50HZ

POS NO	ORDER NO	QUANTITY	DESCRIPTION
	001610	3,000	Fuse terminal
	001611	3,000	End plate
	001613	3,000	Fuse
	002150	2,000	KONTAKTOR 7.5KW 24V 50-60HZ
	002155	10,000	Terminal
3310	001127	1,000	Pushbutton body
3311	001124	1,000	Pushbutton head
3320	001126	1,000	Adjusting knob body
3321	001123	1,000	Pushbutton head
3370	001764	1,000	Thermal protection relay
3380	002368	1,000	Contactor
3580	001352	1,000	Pilot light body
3581	001121	1,000	Pilot light lens

Ersatter:	Rønnomsvej 8 Albertslund Danmark	RANNIE Maskinfabrikken Rønnie A/S			Ændringer	Dato	Sign
Ersatter af:		DIAGRAM					
		HY-STATION 415 V, 50 Hz, MANUEL START, STOP, LAMP, 240 V 50 Hz					
		Kontr.					
		Tegn.	13-8-86				
		Appr.					
Nr. 715922			Dato	Sign			

RANNIE A/S
COPENHAGEN

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

DATE: 19.08.87
GROUP OF COMPONENTS: 037

DRAWING NO
715921

START/STOP LAMPE 240V/50HZ BT

POS NO	ORDER NO	QUANTITY	DESCRIPTION
	001137	1,000	El-box
	002150	2,000	KONTAKTOR 7.5KW 24V 50-60HZ
	002155	7,000	Terminal
0010	001610	1,000	Fuse terminal
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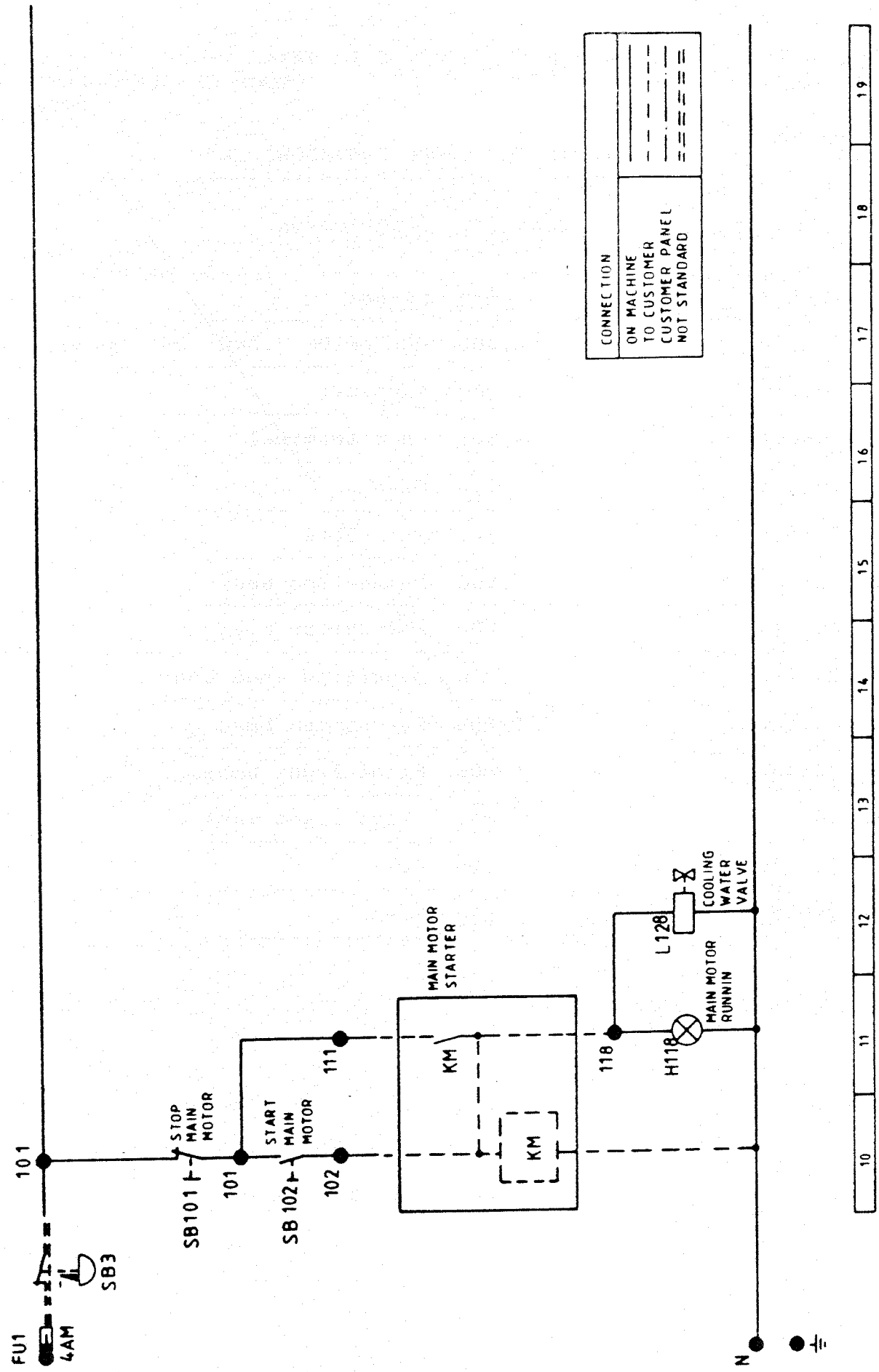
0012	001611	1,000	End plate
1010	001127	1,000	Pushbutton body
1011	001124	1,000	Pushbutton head
1020	001126	1,000	Adjusting knob body
1021	001123	1,000	Pushbutton head
1180	001352	1,000	Pilot light body
1181	001121	1,000	Pilot light lens
1280	000936	1,000	Coil
1281	000791	1,000	Plug



	Dato	Sign	Ændringer

RANNIE Maskinfabrikken Rannie A/S
Rønnomsvej 8 Albertslund
Danmark

DIAGRAM

START STOP LAMP
240 V. 50 Hz. BT

	Dato	Sign
Tegn	12-8-87	
Kontr		
Appr		

Erstatter

Nr 7 15921

Erstatter af

CONTROL SYSTEM

FOR I-STAGE WITH HYDRAULIC OPERATION

The hydraulic pressure regulation consists of a hydraulic station which, via a pressure control valve, generates a power which makes the homogenising valve move.

The following procedure must be adopted for starting and operation of the hydraulic control system.

IMPORTANT!! The hydraulic pressure control system must not be put into operation until the product circulates through the machine.

ADJUSTMENT OF MECHANICAL STOP

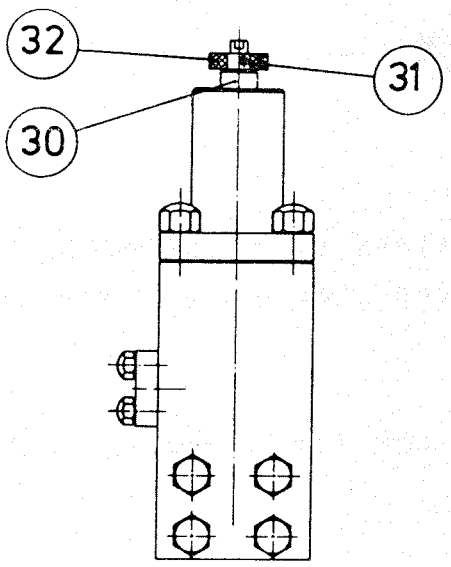
The mechanical stop ensures that the top and bottom parts of the homogenising valve do not close completely in the event of air or product failure to the homogeniser.

IMPORTANT!! Be always aware of sudden pressure increases in the valve housing because of air or product failure.

REMEMBER!! The mechanical stop **MUST** be adjusted whenever the homogenising valve is changed or the hydraulic pressure is changed at the hydraulic station.

The mechanical stop is adjusted as follows:

CHECK that procuct is circulating through the machine.



1. Screw Pos.31 is loosened on stop ring Pos.32 which is screwed all the way back.

2. The machine is set to the required homogenising pressure ± 25 bar. For procedure, see STARTING OF HYDRAULIC SYSTEM

3. Screw stop ring Pos.32 down to stop Pos.30.

4. Tighten screw Pos.31 so that stop ring Pos.32 cannot move.

STARTING OF HYDRAULIC SYSTEM

NOTE: The hydraulic system is always factory-set by RANNIE so that the homogenising pressure specified in the customer's order can always be obtained.

If a homogenising pressure higher than the pressure set at the factory is required, it can be obtained by changing the oil pressure in the hydraulic system.

REMEMBER!! Check with RANNIE first that the machine can resist a higher homogenising pressure before changes are made.

Setting of a higher homogenising pressure is done as follows:

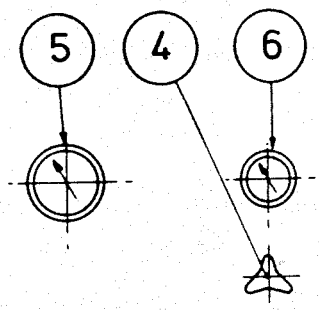
REMEMBER!! The mechanical stop must have been screwed all the way back.

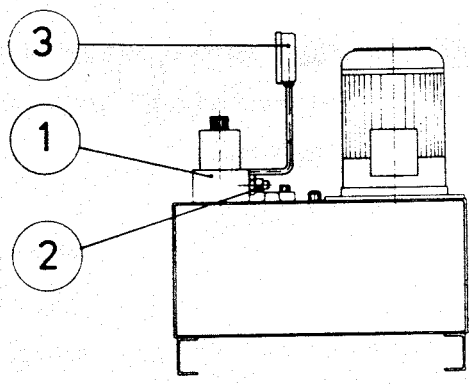
1. Activate the starter switch "HMG-PRESS" on the front panel. The homogeniser and the motor of the hydraulic station will start.

2. Reduction valve Pos.1 is subjected to a higher pressure (oil pressure) by tightening screw Pos.2.

   The oil pressure can be read on pressure gauge Pos.3.

3. Pressure reduction valve Pos.4 on the front panel is activated until the homogenising pressure required is reached on pressure gauge Pos.5 on the front panel.





4. Together with the setting of the homogenising pressure required pressure gauge Pos.6 on the front panel reads the necessary oil pressure of the hydraulic station.

5. Screw Pos.2 on reduction valve Pos.1 is set so that pressure gauge Pos.3 reads a pressure which is 3-5 bar higher than the necessary oil pressure on pressure gauge Pos.6.

MACHINES WITH RINSING VALVE

If the machine has a rinsing valve, air pockets may form in the system. The rinsing valve must be opened when half the homogenising pressure is reached and closed only when product is coming through the valve.

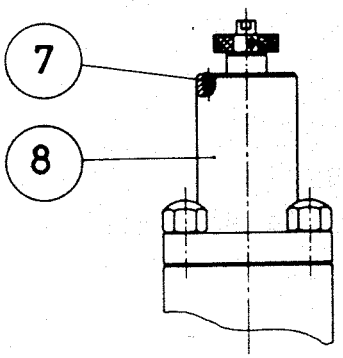
MACHINES WITHOUT RINSING VALVE

If the machine has no rinsing valve, the homogenising pressure must not be set until the machine runs smoothly.

REMEMBER!! The mechanical stop must be screwed all the way back.

IMPORTANT!! The above starting procedure for setting of the homogenising pressure **MUST** be observed for safety reasons.

NOTE:



Whenever the machine is started after checking or replacement of the homogenising valve in the homogenising bracket after the hydraulic system has been dismounted, the system **MUST** be vented on the hydraulic cylinder.

Using an Allen key, the Allen screw Pos.7 on hydraulic cylinder Pos.8 is loosened. When oil without air bubbles appear at the screw, the Allen screw Pos.7 is tightened again.

DAILY STARTING AT PRESET HOMOGENISING PRESSURE

At daily starting when the homogenising pressure has been set in compliance with the described method, starting must be carried out as follows:

Starter switch "HMG-PRESS" on the control panel is activated. The homogeniser itself will develop the preset pressure.

REMEMBER!! Also at this setting of the homogenising pressure it must be taken into consideration that there may be air in the system.

INTERRUPTION OF HOMOGENISING PROCESS

Can be done by activating the stop switch "HMG-PRESS" on the control panel.

NOTE: If the "MAIN-MOTOR" stop switch is activated, the hydraulic system will stop automatically at the same time.

For **DISMOUNTING** and **MOUNTING** of homogenising bracket, see Section 6.7-.

SAFETY SYSTEM

SPRING LOADED SAFETY VALVE

The safety valve is a spring loaded ball valve opening at an overpressure in valve housing and homogenising bracket during operation.

NOTE: The safety valve only protects against overpressure which can damage the machine.

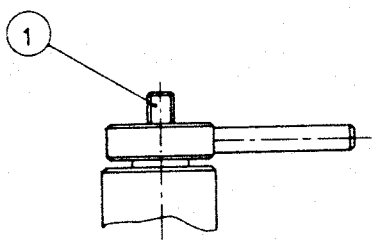
IMPORTANT!! RANNIE has factory-set the safety valve for a fixed pressure adapted to the maximum operating pressure required by the customer.

DURING OPERATION

The safety valve will be closed when the machine operates at the specified operating pressure.

If the safety valve leaks slightly during operation, it may be due to a slight leak in the seat. It can be remedied by deforming the seat as follows:

Light blows on spindle Pos.1 are given with a plastic hammer.



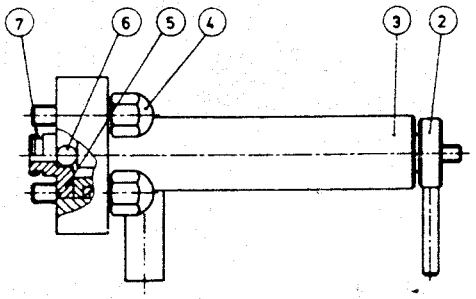
If the safety valve continues to leak, inspection will be necessary, possibly succeeded by replacement of valve seat and valve ball.

DISMOUNTING

1. Air escape handle Pos.2 is screwed against spring housing Pos.3.

2. Hexagon head screw/box nut Pos.4 is unscrewed, whereafter the safety valve can be removed for inspection and/or cleaning.

3. Valve seat Pos.5 and valve ball Pos.6 are inspected. If worn and scratched, the damaged part **MUST** be replaced.



MOUNTING

1. Valve seat Pos.5 is mounted.

   CHECK that O-ring Pos.7 is undamaged. Defective O-rings **MUST ALWAYS** be replaced.

2. The safety valve is mounted.

   CHECK that valve ball Pos.6 is placed correctly.

3. Hexagon head screw/box nut Pos.4 is screwed on and tightened.

4. Air escape handle Pos.2 is unscrewed through 2-3 revolutions.

The safety valve is now ready for use.

SPARE PARTS SUMMARY

This section contains parts lists and part assembly drawings of all components of the machine.

SPARE PARTS ORDERING

Section 1.- contains a layout drawing of the machine where all components are shown by a **POSITION NUMBER**.

This **POSITION NUMBER** can be re-traced in this section, **"SPARE PARTS SUMMARY"**, as it corresponds to the **PARTS LIST PAGE NUMBER.**

To order spare parts, the following information **MUST** always be given:

1. Machine serial No. (RANNIE's order No.)

2. Component

3. No. of component

4. Quantity required

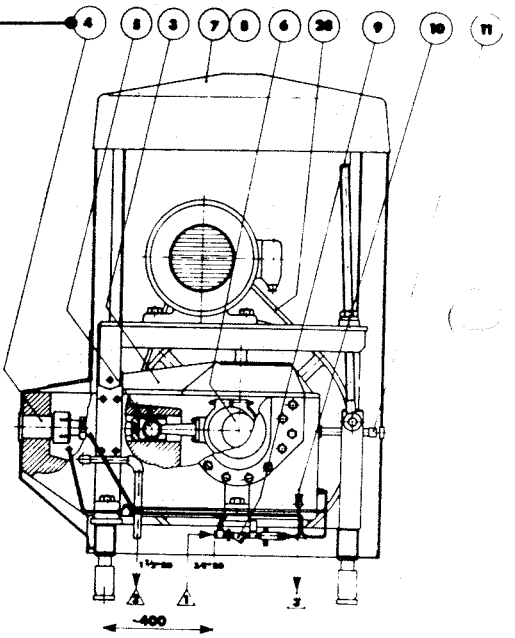
EXAMPLE: 1. for HOMOGENISER serial No. 1-85.421
2. Two PISTONS No. 6667

See also schematic representation of spare parts ordering on page 2/2.

EXAMPLE OF SPARE PARTS ORDERING

1. SERIAL NUMBER

SECTION 1.-

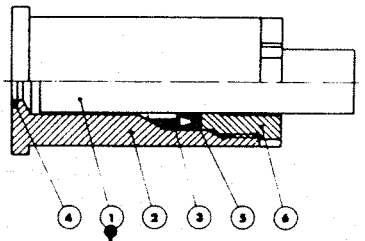


SECTION 11.00

Spare Part List Page / Stückliste Seite		Stykliste side : 4
Drawing No. / Zeichnung Nr.		Tegninge nr. : 12696
Cylinder and Piston	Zylinder und Kolben	Cylinder og Stempel
Maschin Type / Maschinentyp		Maskintype : BTP-BT-INDUSTRY-HP
Maschin size / Maschinengröße		Maskinstørrelse : 58.79
RANNIE Maskinfabrikken Rønnede A/S Rønnevænget 8, 2630 Albertslund Danmark		Indgår i :

OBJECT	GEGENSTAND	KOMPONENT	ITEM POS POS	PCS STCK STK	ORDER NO BEST. NO BEST. NR
Piston	Kolben	Stempel	1	3	6667
Cylinder	Zylinder	Cylinder	2	3	10345
Neck ring	Bodenring	Bundring	3	3	8828
O-ring	O-Ring	O-ring	4	3	046
Nut ring	Nutring	Nutring	5	3	0151
Packing	Stopfbuchse	Pakningspel	6	3	4935

SECTION 11.00



RANNIE
BTP-BT-INDUSTRY-HP 58.79
CYLINDER
12696

OBJECT	GEGENSTAND	KOMPONENT	ITEM POS POS	PCS STCK STK	ORDER NO. BEST. NO BEST. NR.
Piston	Kolben	Stempel	1	3	6667

2 PISTONS NO. 6667

2.

RANNIE A/S
COPENHAGEN

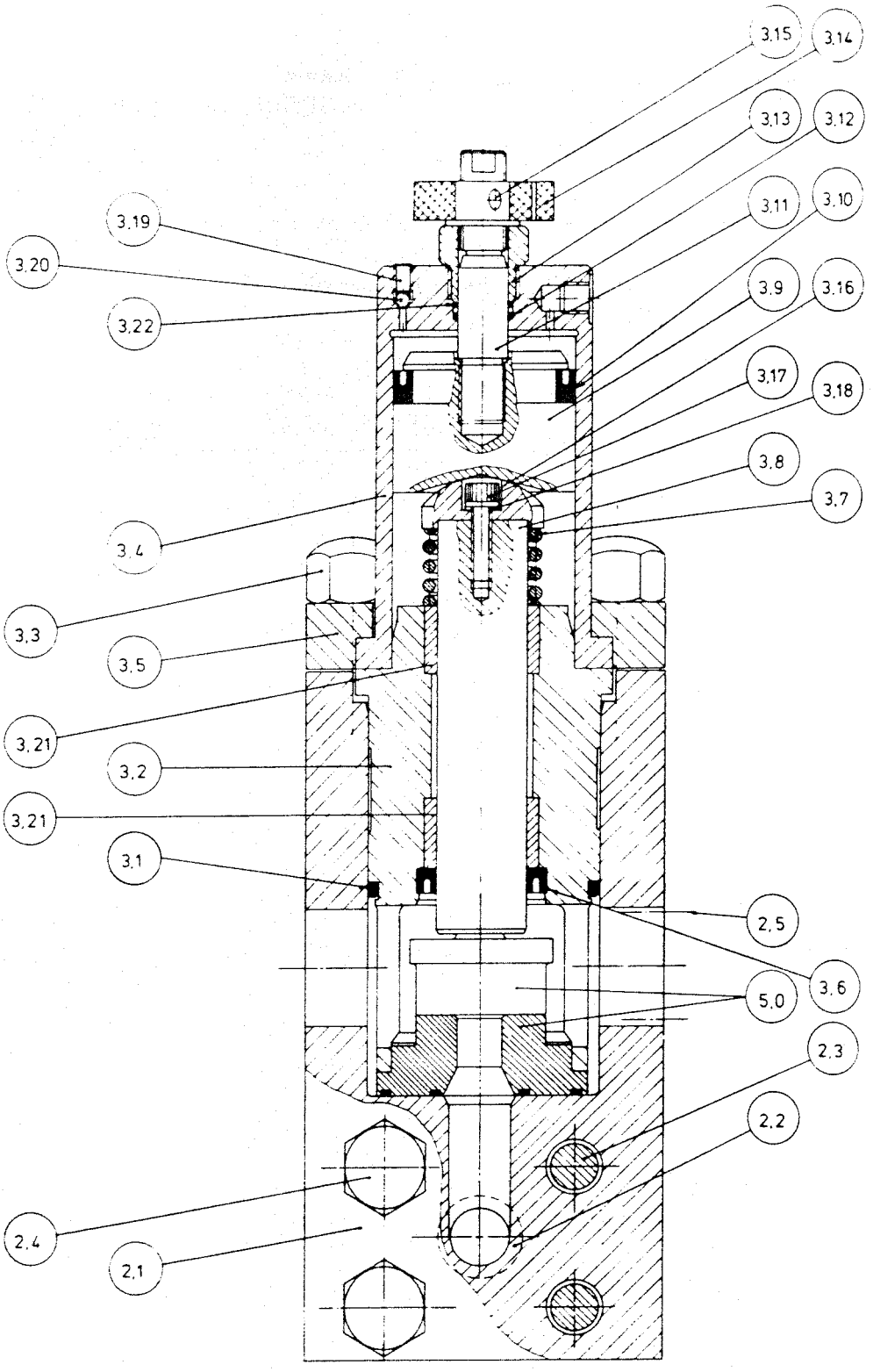
**** P A R T S L I S T ****

DATE: 19.08.87
GROUP OF COMPONENTS: 001

DRAWING NO
713343

BRACKET UNIT

POS NO	ORDER NO	QUANTITY	DESCRIPTION
0002	714098	1,000	BRACKET
0003	714105	1,000	INTERNAL UNIT FOR BRACKET



70.79 / 63 - 85.80N / 50 - 58.90

KONSOLARRANGEMENT
BRACKET UNIT
KONSOLEANORDNUNG
DISPOSITIF DE CONSOLE

	Dato	Sign.	Erstatter
Tegn.	29/6-87	OT	Nr.
Kontr.			713343
Appr.			

RANNIE

Rannie a/s
Roholmsvej 8
DK-2620 Albertslund
Denmark

Erstattet af

RANNIE A/S
COPENHAGEN

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

DATE: 19.08.87
GROUP OF COMPONENTS: 002

DRAWING NO
714098

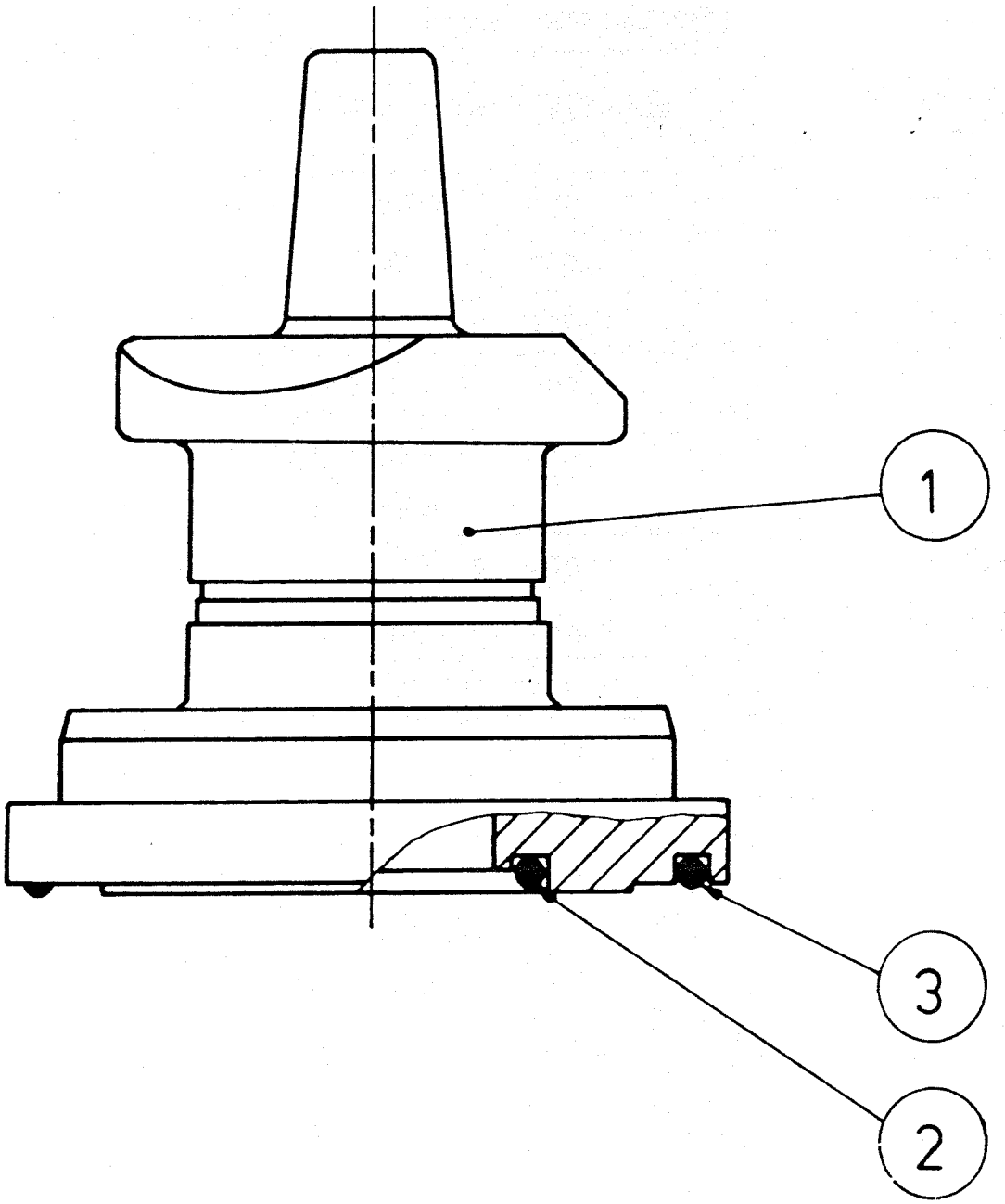
BRACKET

POS NO	ORDER NO	QUANTITY	DESCRIPTION
0001	111844	1,000	Bracket
0002	000034	1,000	O-ring
0003	111346	4,000	Stud
0004	108385	4,000	Box nut
0005	001129	4,000	Platic plug
0099	714098P	1,000	SET OF PACKINGS

RANNIE A/S **** P A R T S L I S T **** DATE: 19.08.87
COPENHAGEN GROUP OF COMPONENTS: 003
PAGE: 1

DRAWING NO
714105 INTERNAL UNIT FOR BRACKET

POS NO	ORDER NO	QUANTITY	DESCRIPTION
0001	000065	1,000	O-ring
0002	113011	1,000	Guide
0003	107085	4,000	Hexagon head screw
0004	111455	1,000	Cylinder
0005	111463	1,000	Flange
0006	000145	1,000	Nut ring
0007	111540	1,000	Spring
0008	111511	1,000	Spindle
0009	111457	1,000	Piston
0010	000146	1,000	Nut ring
0011	111458	1,000	Spindle
0012	001193	1,000	O-ring
0013	113342	1,000	Bushing
0014	111460	1,000	Stop ring
0015	001194	1,000	Cheese-head screw
0016	111510	1,000	Spindle
0017	001064	1,000	Cheese-head screw
0018	000689	1,000	Flexible disc
0019	001033	1,000	Pointed screw
0020	000170	1,000	Ball
0021	108449	2,000	Bushing
0022	000163	1,000	Back ring
0099	714105P	1,000	SET OF PACKINGS



70.79 / D.80N / D.90

OMOGENISERINGSVENTIL
OMOGENISING VALVE
OMOGENISIERVENTIL
OUPAPE D'HOMOGÉNÉSATION

	Dato	Sign.	Erstatter
Tegn.	20/7-87	OT	Nr. 714530
Kontr.			
Appr.			

RANNIE

Rannie a/s
Roholmsvej 8
DK-2620 Albertslund
Denmark

Erstattet af

RANNIE A/S **** P A R T S L I S T **** DATE: 19.08.97
COPENHAGEN GROUP OF COMPONENTS: 005
PAGE: 1

DRAWING NO
714530 HOMOGENISING VALVE

POS NO	ORDER NO	QUANTITY	DESCRIPTION
0001	112987	1,000	Homogenising valve
0002	000033	1,000	O-ring
0003	000058	1,000	O-ring
0099	714530P	1,000	SET OF PACKINGS
	714530		HOMOGENISING VALVE
0001	112987	1,000	Homogenising valve
0002	000033	1,000	O-ring
0003	000058	1,000	O-ring
0099	714530P	1,000	SET OF PACKINGS

RANNIE A/S
COPENHAGEN

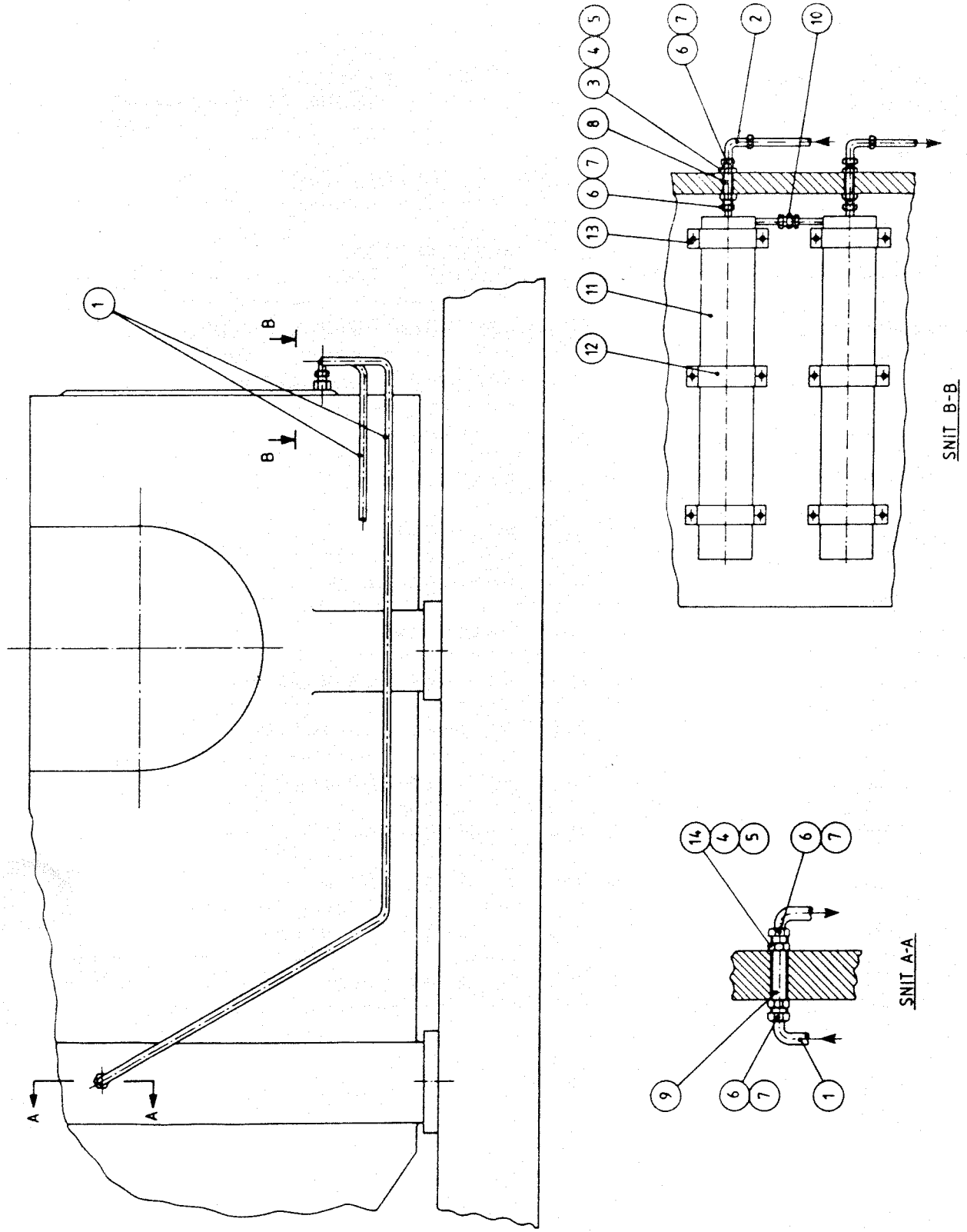
**** P A R T S L I S T ****

DATE: 19.08.87
GROUP OF COMPONENTS: 009

DRAWING NO
715213

COOLING SYSTEM, ECCENTRIC SUMP

POS NO	ORDER NO	QUANTITY	DESCRIPTION
0001	203443	1,500	RØR Ø8/6 KOBBER BLØDT
0002	000678	2,000	Screwed connection
0003	001970	2,000	Packing
0004	000680	3,000	Disc
0005	000231	3,000	Lock nut
0006	000230	6,000	Sealing ring
0007	000232	6,000	Union nut
0008	111549	2,000	Screwed connection
0009	113389	1,000	Screwed connection
0010	000233	1,000	Screwed connection
0011	106985	2,000	Cooling coil
0012	111121	6,000	Fitting strap
0013	001585	12,000	Cheese-head screw
0014	000172	1,000	Packing washer



D.79 / D.80N

KØLESYSTEM, EXCENTRIKGRAV
COOLING SYSTEM, ECCENTRIC SUMP
KÜHLVORRICHTUNG, EXZENTRIKGRABEN
SYSTÈME DE REFROIDISSEMENT, CARTER D'EXCENTRIQUE

	Dato	Sign.	Erstatter
Tegn.	3/7-87	OT	Nr.
Kontr.			715217
Appr.			

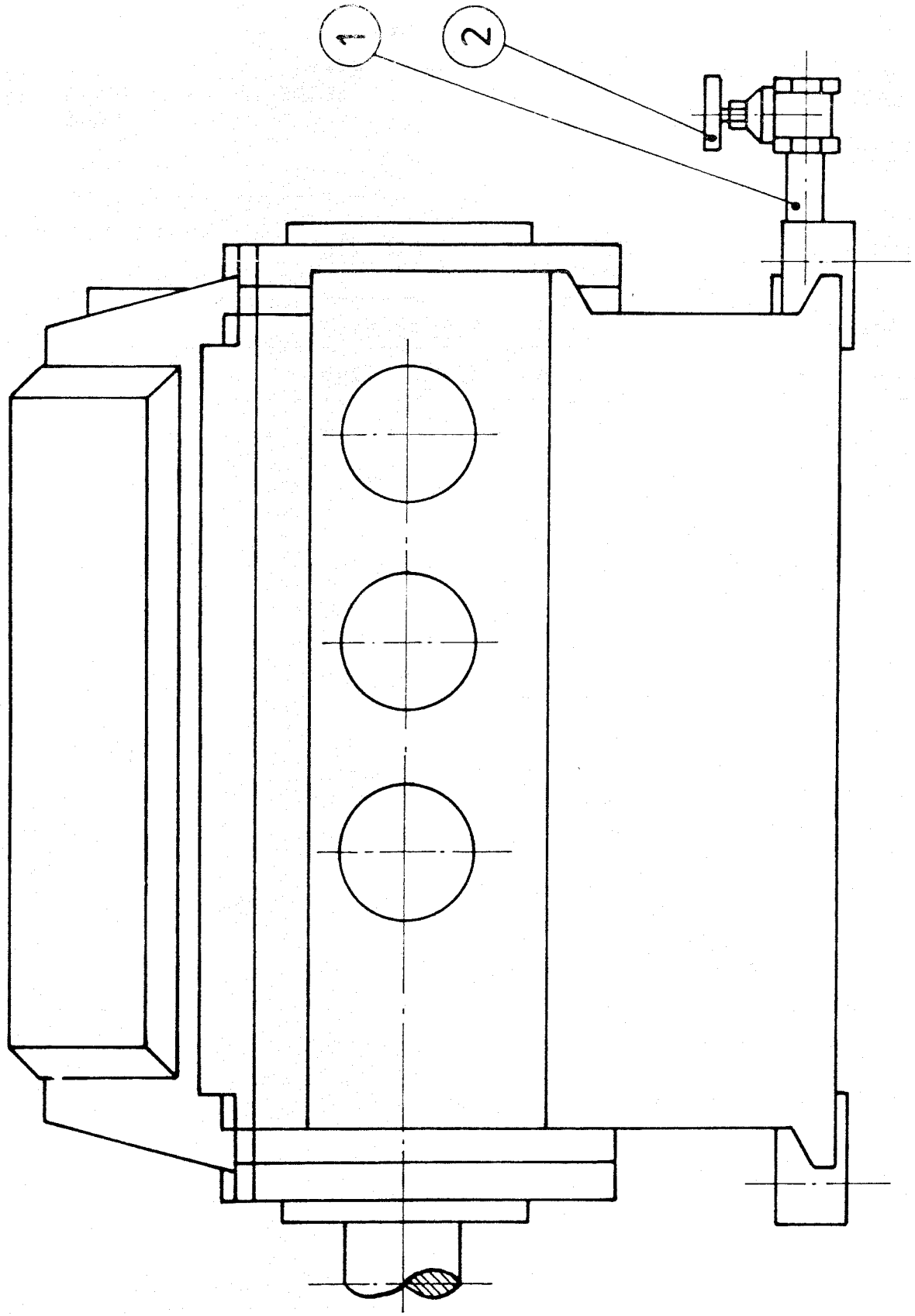
Erstattet af

Rannie a/s
Roholmsvej 8
DK-2620 Albertslund
Denmark

RANNIE A/S **** P A R T S L I S T **** DATE: 19.08.87
COPENHAGEN GROUP OF COMPONENTS: 010
PAGE: 1

DRAWING NO
710795 OIL DRAIN

POS NO	ORDER NO	QUANTITY	DESCRIPTION
0001	113387	1,000	Nipple pipe
0002	000266	1,000	Slide valve



D.80N / 100.80N / 120.80 / D.80H

OLIEAFTAPNING
OIL DRAIN
ÖLABZAPFVORRICHTUNG
SOUTIRAGE D'HUILE

	Dato	Sign.	Erstatter
Tegn.	20/7-87	OT	Nr.
Kontr.			71079
Appr.			

Erstattet af

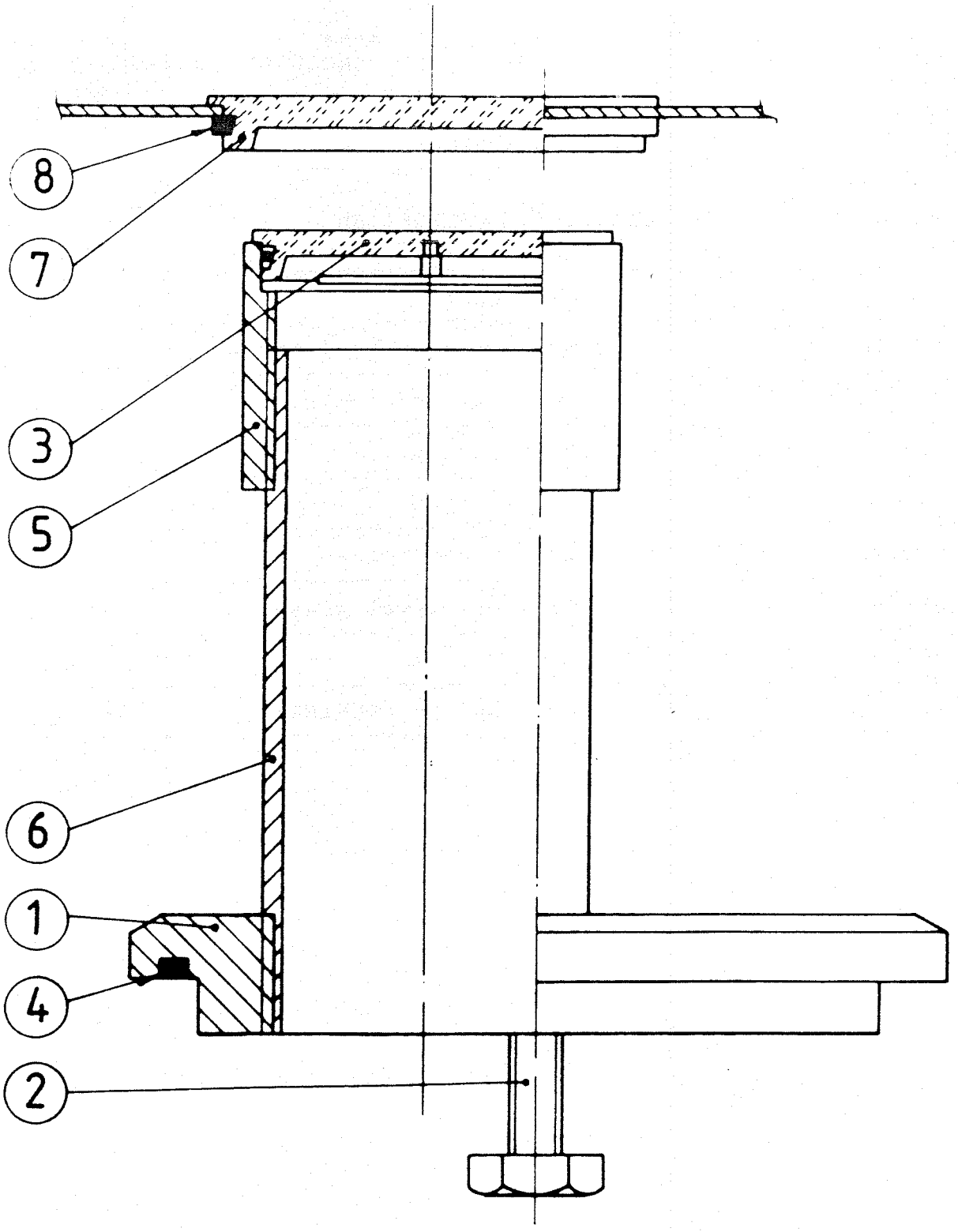
RANNIE

Rannie a/s
Roholmsvej 8
DK-2620 Albertslund
Denmark

RANNIE A/S **** P A R T S L I S T **** DATE: 19.08.87
COPENHAGEN GROUP OF COMPONENTS: 011
PAGE: 1

DRAWING NO
715193 OIL LEVEL INDICATOR

POS NO	ORDER NO	QUANTITY	DESCRIPTION
0001	112342	1,000	Cover
0002	001016	2,000	Hexagon head screw
0003	000636	1,000	Oil-level glass
0004	000074	1,000	O-ring
0005	107439	1,000	Socket
0006	115192	1,000	Nipple pipe
0007	000687	1,000	Oil-level glass
0008	000052	1,000	O-ring
0099	715193P	1,000	SET OF PACKINGS



D.80N / 120.80 / D.80H

LIESTANDSVISER
IL LEVEL INDICATOR
LSTANDSVORRICHTUNG
NDICATOR DE NIVEAU D'HUILE

	Dato	Sign.	Erstatter
Tegn.	3/7-87	OT	Nr.
Kontr.			715193
Appr.			

Erstattet af

Rannie a/s
Roholmsvej 8
DK-2620 Albertslund

RANNIE A/S
COPENHAGEN

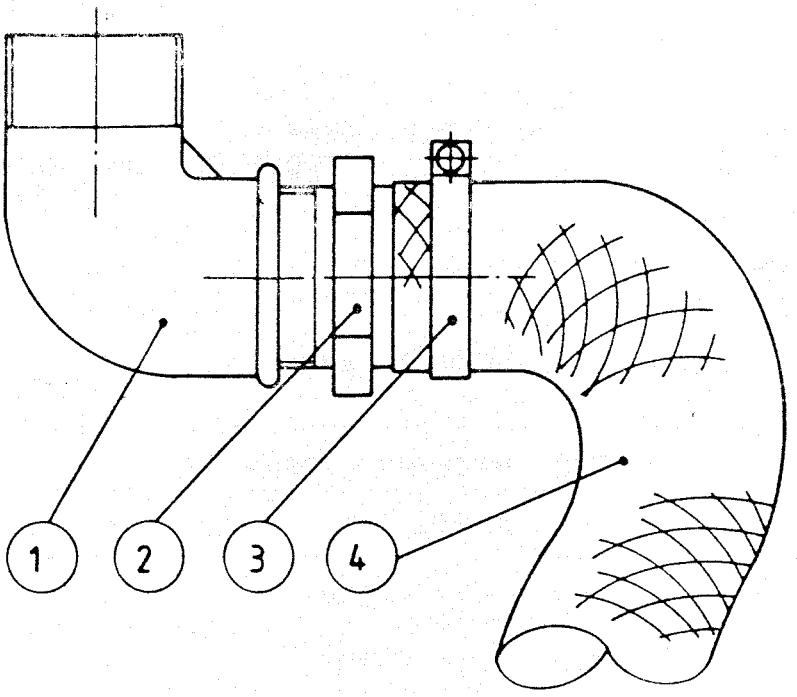
**** P A R T S L I S T ****

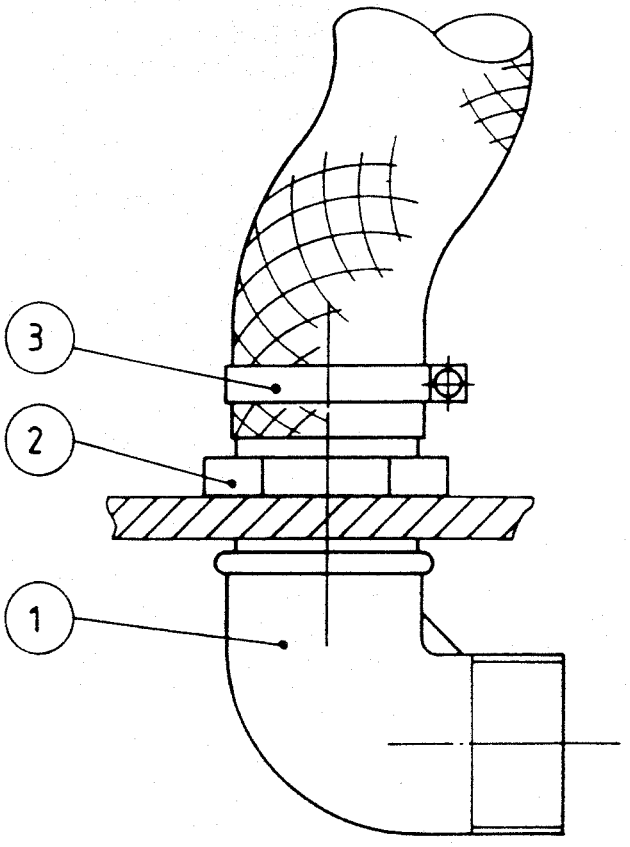
DATE: 19.08.87
GROUP OF COMPONENTS: 012

DRAWING NO
714679

OUTLET

POS NO	ORDER NO	QUANTITY	DESCRIPTION
0001	002026	1,000	Hexagon nipple
0002	002025	1,000	Angle
0002	002027	1,000	Hose clamp
0003	002027	2,000	Hose clamp
0004	205161	0,500	Hose
0005	000366	2,000	Lock nut
0006	115900	1,000	Nipple pipe
0007	002403	1,000	Angle





D.80N / 120.80 / D.80H

AFLØB
OUTLET
AUSLAUFANORDNUNG
SORTIE

	Dato	Sign.	Erstatter
Tegn.	21/7-87	OT	Nr.
Kontr.			71467(
Appr.			

RANNIE

Rannie a/s
Roholmsvej 8
DK-2620 Albertslund
Denmark

Erstattet af

RANNIE A/S
COPENHAGEN

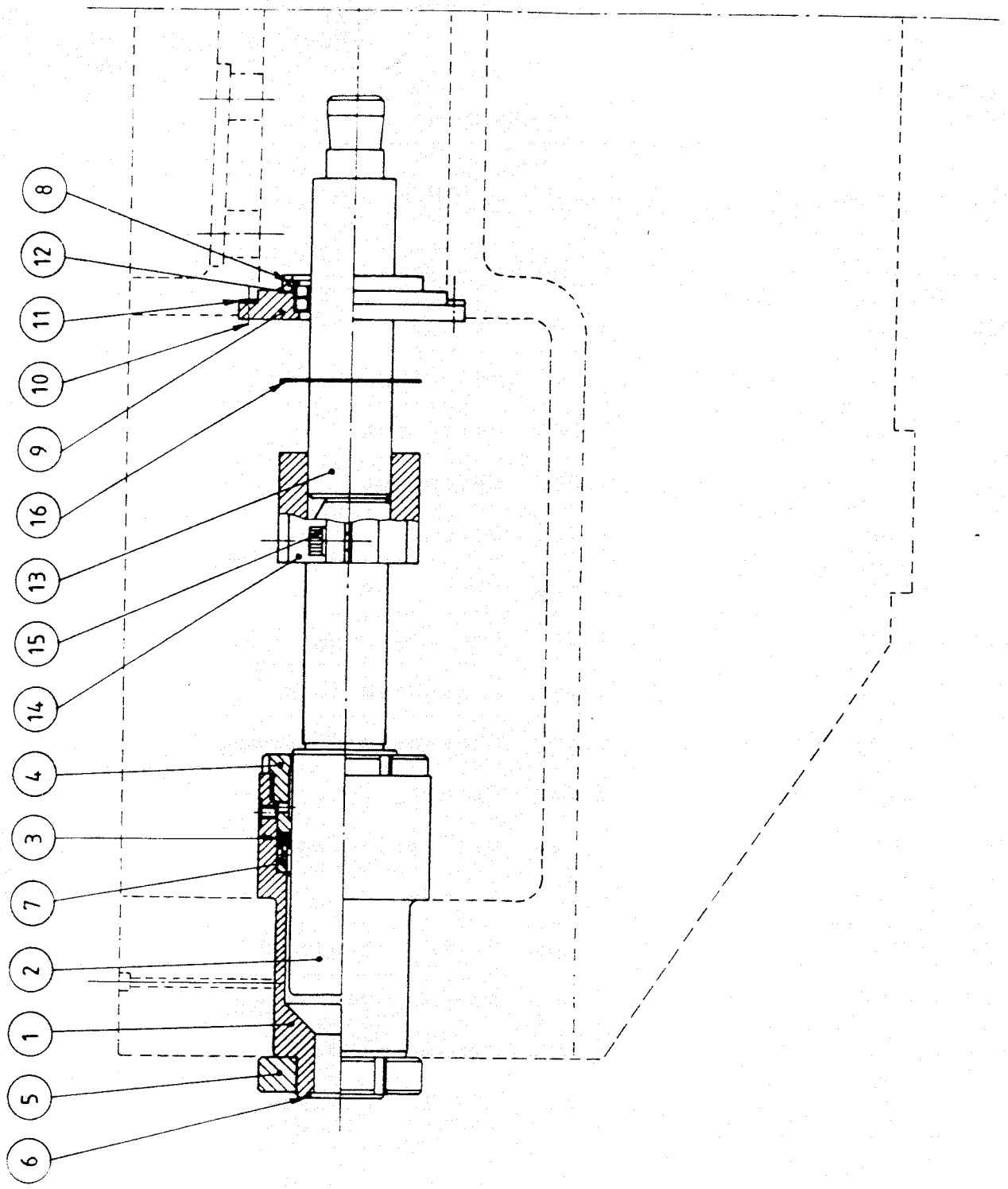
**** P A R T S L I S T ****

DATE: 19.08.87
GROUP OF COMPONENTS: 013

DRAWING NO
714756

CYLINDER ARRANGEMENT

POS NO	ORDER NO	QUANTITY	DESCRIPTION
0001	112906	3,000	Cylinder
0002	112925	3,000	Piston
0003	001587	3,000	Nut ring
0004	112926	3,000	Union nut
0005	112927	3,000	Union nut
0006	000046	3,000	O-ring
0007	112928	3,000	Neck ring
0008	000827	3,000	Locking ring
0009	109070	3,000	Crosshead cover
0010	000168	9,000	Cheese-head screw
0011	115139	3,000	Packing
0012	000119	6,000	Oil seal ring
0013	111013	3,000	Piston
0014	113477	3,000	Piston coupling
0015	000729	6,000	Cheese-head screw
0016	109802	3,000	Rubber sleeve
0099	714756P	1,000	SET OF PACKINGS



100.80N

CYLINDERARRANGEMENT
CYLINDER ARRANGEMENT
ZYLINDERANORDNUNG
DISPOSITIF DE CYLINDRES

	Dato	Sign.	Erstatter
Tegn.	19/8-87	OT	Nr.
Kontr.			714756
Appr.			

Erstattet af

RANNIE

Rannie a/s
Roholmsvej 8
DK-2620 Albertslund
Denmark

RANNIE A/S
COPENHAGEN

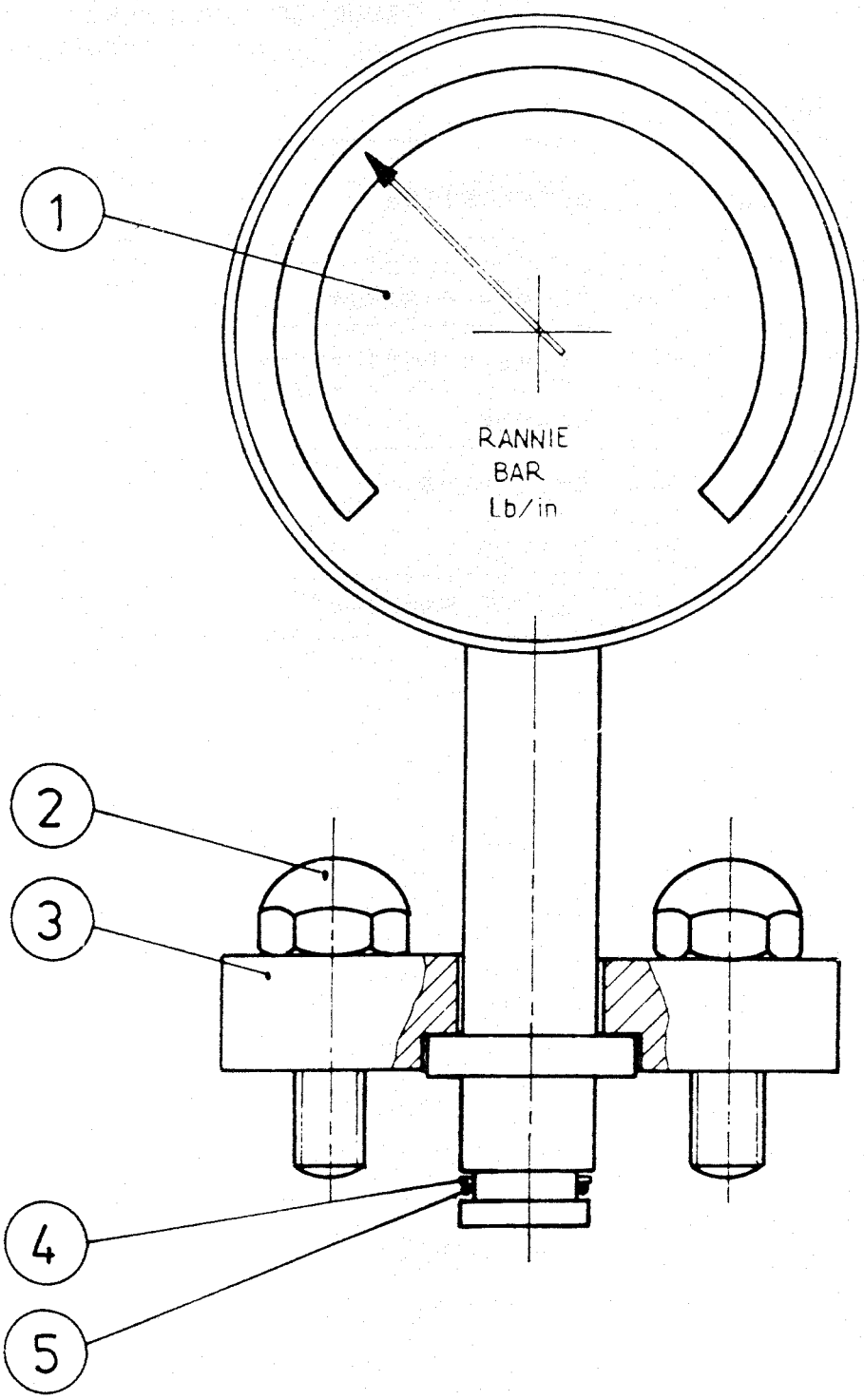
**** P A R T S L I S T ****

DATE: 19.08.87
GROUP OF COMPONENTS: 014

DRAWING NO
715906

PRESSURE INDICATON

POS NO	ORDER NO	QUANTITY	DESCRIPTION
0001	001569	1,000	Pressure gauge
0002	103189-1	4,000	Hexagon head screw
0003	111592	1,000	Flange
0004	001100	1,000	Back ring
0005	000017	1,000	O-ring
)099	715906P	1,000	SET OF PACKINGS



D.79 / D.80N

TRYKINDIKERING
PRESSURE INDICATION
DRUCKANZEIGE
INDICATION DE PRESSION

	Dato	Sign.	Erstatter
Tegn.	18/8-87	OT	Nr.
Kontr.			715906(
Appr.			

RANNIE

Rannie a/s
Roholmsvej 8
DK-2620 Albertslund
Denmark

Erstattet af

RANNIE A/S
COPENHAGEN

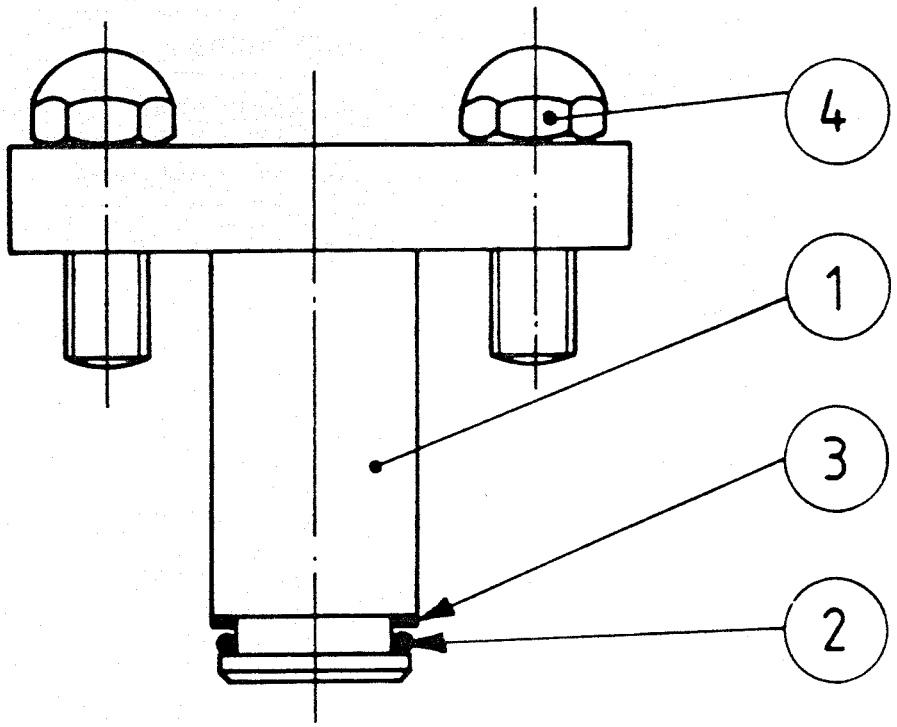
**** P A R T S L I S T ****

DATE: 19.08.87
GROUP OF COMPONENTS: 018

DRAWING NO
714171

BLIND FLANGE

POS NO	ORDER NO	QUANTITY	DESCRIPTION
0001	111888	1,000	Flange with plug
0002	000017	1,000	O-ring
0003	001100	1,000	Back ring
0004	103189-2	4,000	Hexagon head screw
0099	714171P	1,000	SET OF PACKINGS



70.79 / D.80N / D.90

BLINDFLANGE
BLIND FLANGE
BLINDFLANSCH
BRIDE D'OBTURATION

	Dato	Sign	Erstatter
Tegn.	23/7-87	OT	Nr.
Kontr.			714171
Appr.			

RANNIE

Rannie a/s
Roholmsvej 8
DK-2620 Albertslund
Denmark

Erstattet af

RANNIE A/S
OPENHAGEN

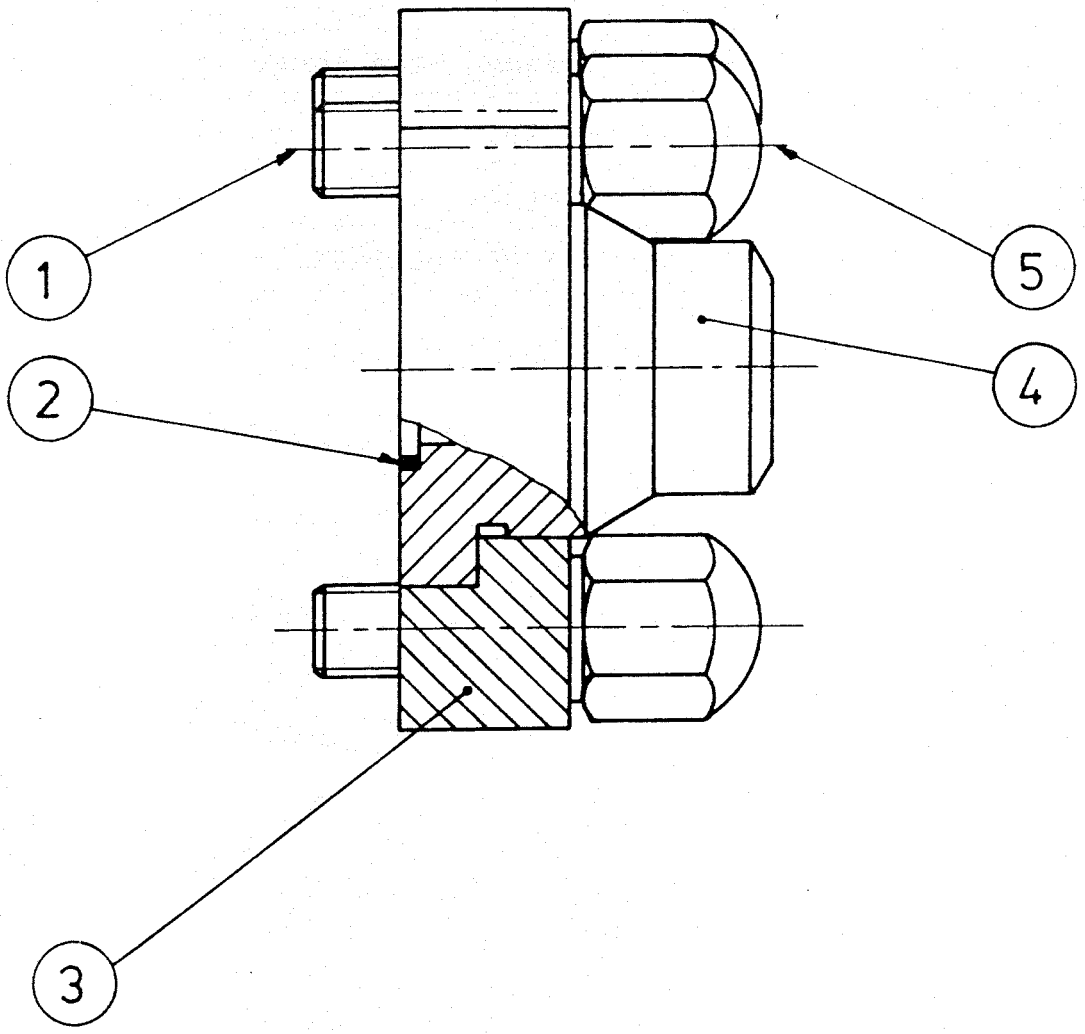
**** P A R T S L I S T ****

DATE: 19.08.87
GROUP OF COMPONENTS: 020
PAGE: 1

DRAWING NO
713108

PIPE CONNECTION

POS NO	ORDER NO	QUANTITY	DESCRIPTION
0001	103189-2	4,000	Hexagon head screw
0002	000067	1,000	O-ring
0003	113154	1,000	Pipe branch
0099	713108P	1,000	SET OF PACKINGS



22.51 / D.60 / 30-52.72

RØRTILSLUTNING
PIPE CONNECTION
ROHRANSCHLUSS
RACCORDEMENT DE TUYAU

	Dato	Sign.	Erstatter
Tegn.	18/8-87	OT	Nr. 71510
Kontr.			
Appr.			

RANNIE

Rannie a/s
Roholmsvej 8
DK-2620 Albertslund
Denmark

Erstattet af

RANNIE A/S
COPENHAGEN

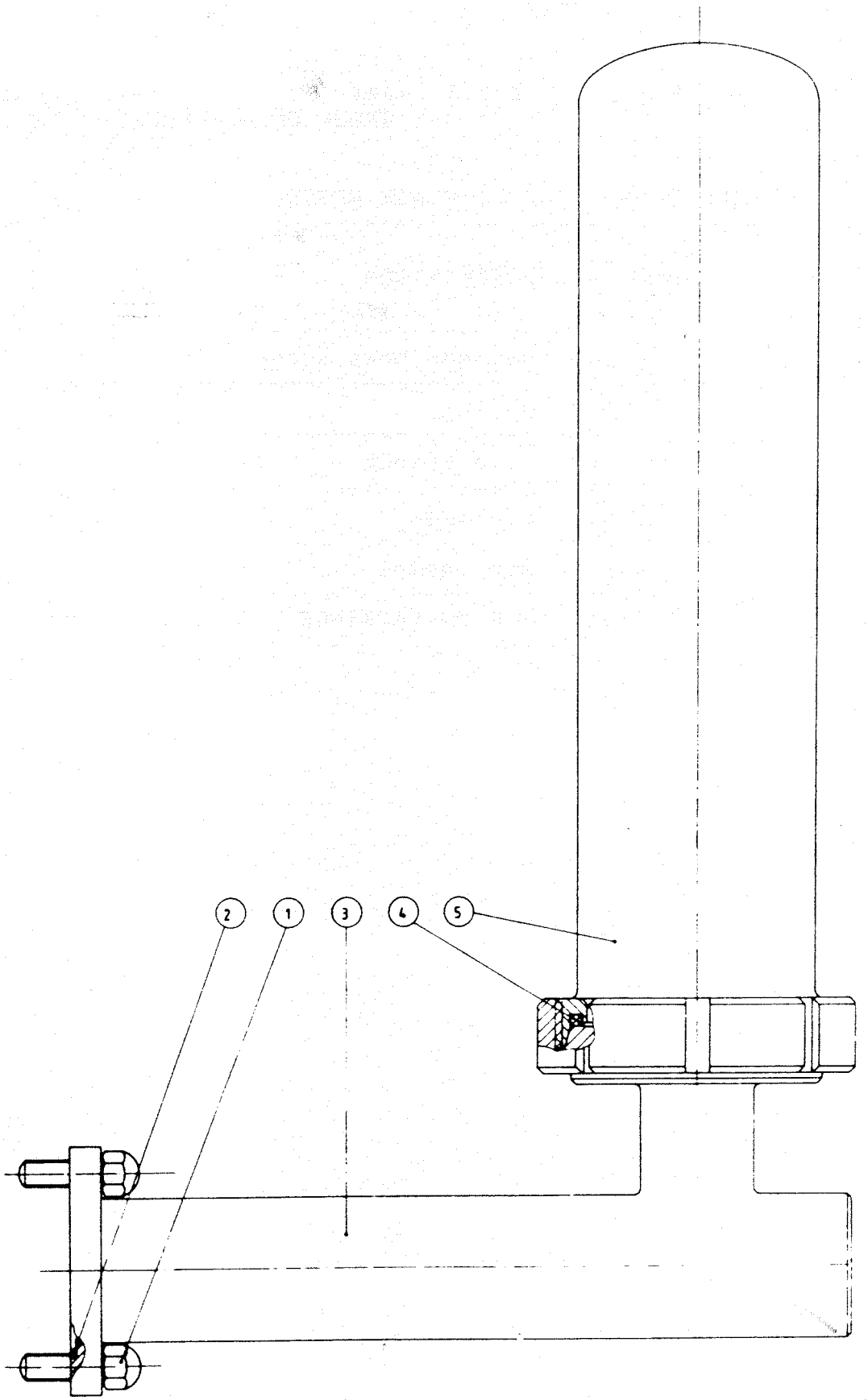
**** P A R T S L I S T ****

DATE: 19.08.87
GROUP OF COMPONENTS: 023

DRAWING NO
713225

FIPE CONNECTION WITH AIR WESSEL

POS NO	ORDER NO	QUANTITY	DESCRIPTION
0001	103189-2	4,000	Hexagon head screw
0002	000067	1,000	O-ring
0003	113224	1,000	Pipe branch
0004	000287	1,000	Packing
0005	113216	1,000	Air vessel
0099	713225P	1,000	SET OF PACKINGS



63-100.80N

ØRTILSLUTNING MED VINDKEDEL
IPE CONNECTION WITH AIR WESSEL
OHRANSCHLUSS MIT WINDKESSEL
ACCORDEMENT DE TUYAU AVEC BOUTEILLE D'AIR

	Dato	Sign	Erstatter
Tegn.	18/8-87	OT	Nr. 713225
Kontr.			
Appr.			

Erstattet af

RANNIE

Rannie a/s
Roholmsvej 8
DK-2620 Albertslund
Denmark

RANNIE A/S
COPENHAGEN

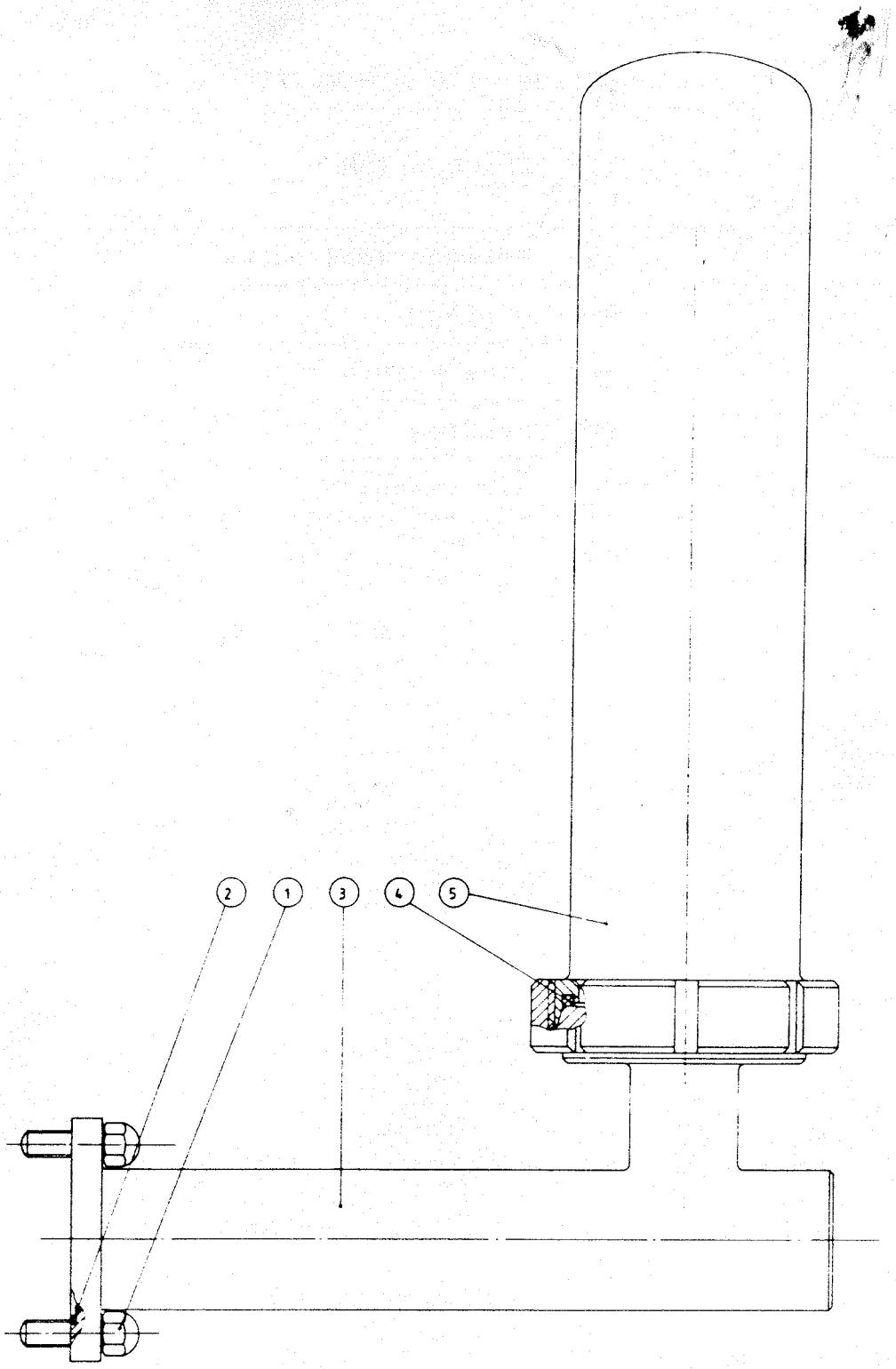
**** P A R T S L I S T ****

DATE: 19.08.87
GROUP OF COMPONENTS: 023

DRAWING NO
713233

PIPE CONNECTION WITH AIR WESSEL

POS NO	ORDER NO	QUANTITY	DESCRIPTION
0001	103189-2	4,000	Hexagon head screw
0002	000041	1,000	O-ring
0003	113232	1,000	Pipe branch
0004	000287	1,000	Packing
0005	108728	1,000	Air Vessel



D.72 / D.79 / D.90

RTILSLUTNING MED VINDKEDEL
PE CONNECTION WITH AIR WESSEL
HRANSCHLUSS MIT WINDKESSEL
CCORDEMENT DE TUYAU AVEC BOUTEILLE D'AIR

	Dato	Sign.	Erstatter
Tegn.	17/8-87	OT	Nr. 713233
Kontr.			
Appr.			

RANNIE

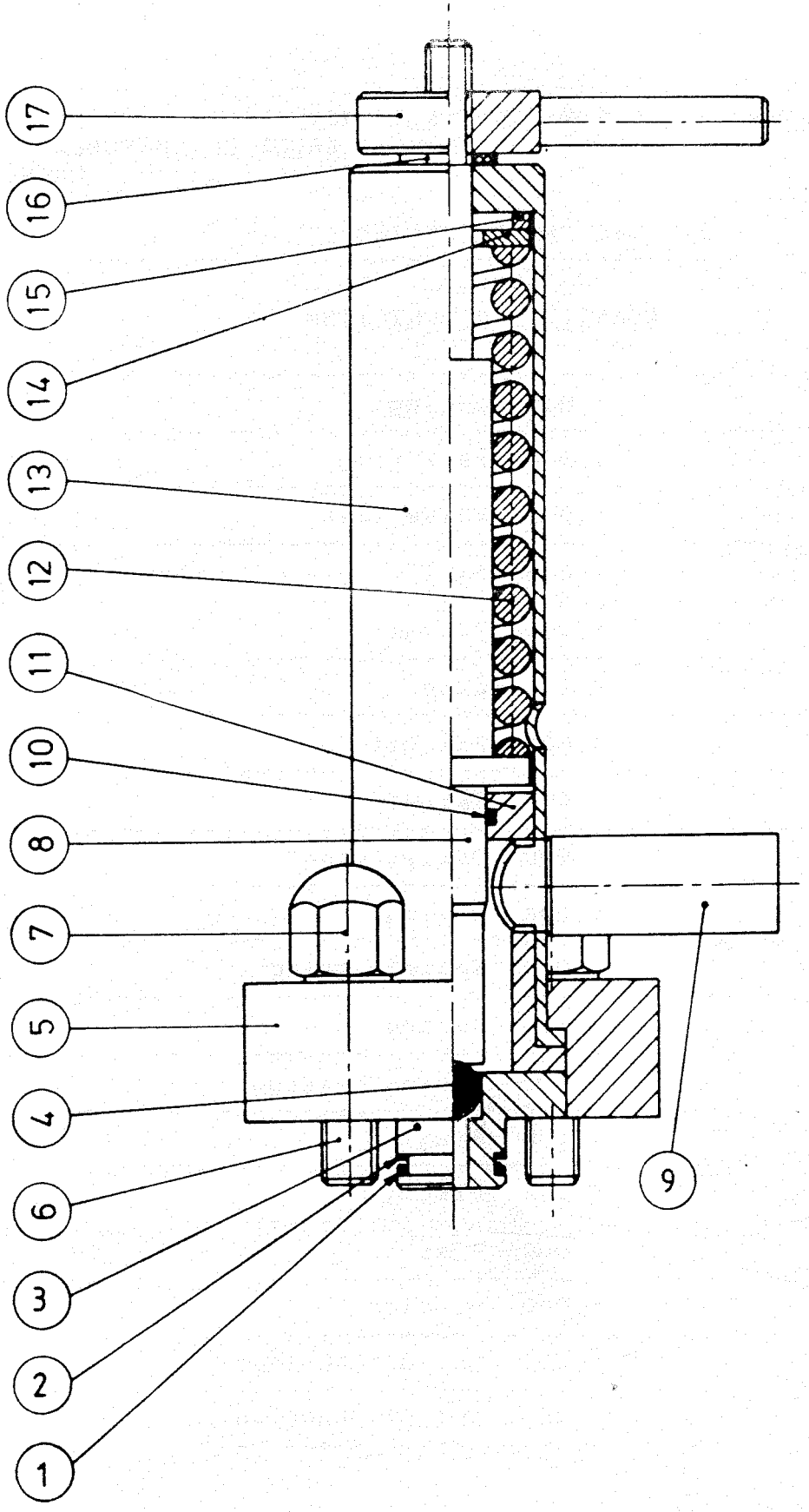
Rannie a/s
Roholmsvej 8
DK-2620 Albertslund
Denmark

Erstattet af

RANNIE A/S **** P A R T S L I S T **** DATE: 19.08.87
COPENHAGEN GROUP OF COMPONENTS: 028
PAGE: 1

DRAWING NO
713511 PRESSURE SAFETY SYSTEM

POS NO	ORDER NO	QUANTITY	DESCRIPTION
0001	000034	1,000	O-ring
0002	000612	1,000	Back ring
0003	[redacted]X	1,000	Valve seat 113514 ✓
0004	001572 ✓	1,000	Ball 001572 ✓
0005	113071	1,000	Flange
0006	111774	4,000	Stud
0007	102750-2	4,000	Box nut
0008	113068	1,000	Spindle
0009	113289	1,000	Outlet pipe
0010	000012	1,000	O-ring
0011	113067	1,000	Spindle guide
0012	111490	1,000	Spring
0013	113072	1,000	[redacted]pring housing
0014	113177	1,000	Ring
0015	001633	1,000	Disc
0016	001634	1,000	Disc
0017	113066	1,000	Handle
0099	713511P	1,000	SET OF PACKINGS
0100	713511R	1,000	SET OF SPAREPARTS



100.80N

	Dato	Sign.	Erstatter
Tegn.	24/7-87	OT	Nr.
Kontr.			713511
Appr.			

TRYKSIKKERHEDSSYSTEM
PRESSURE SAFETY SYSTEM
DRUCKSICHERUNGSSYSTEM
DISPOSITIF DE SÛRETÉ DE PRESSION

Erstattet af

RANNIE
Rannie a/s
Roholmsvej 8
DK-2620 Albertslund
Denmark

RANNIE A/S
COPENHAGEN

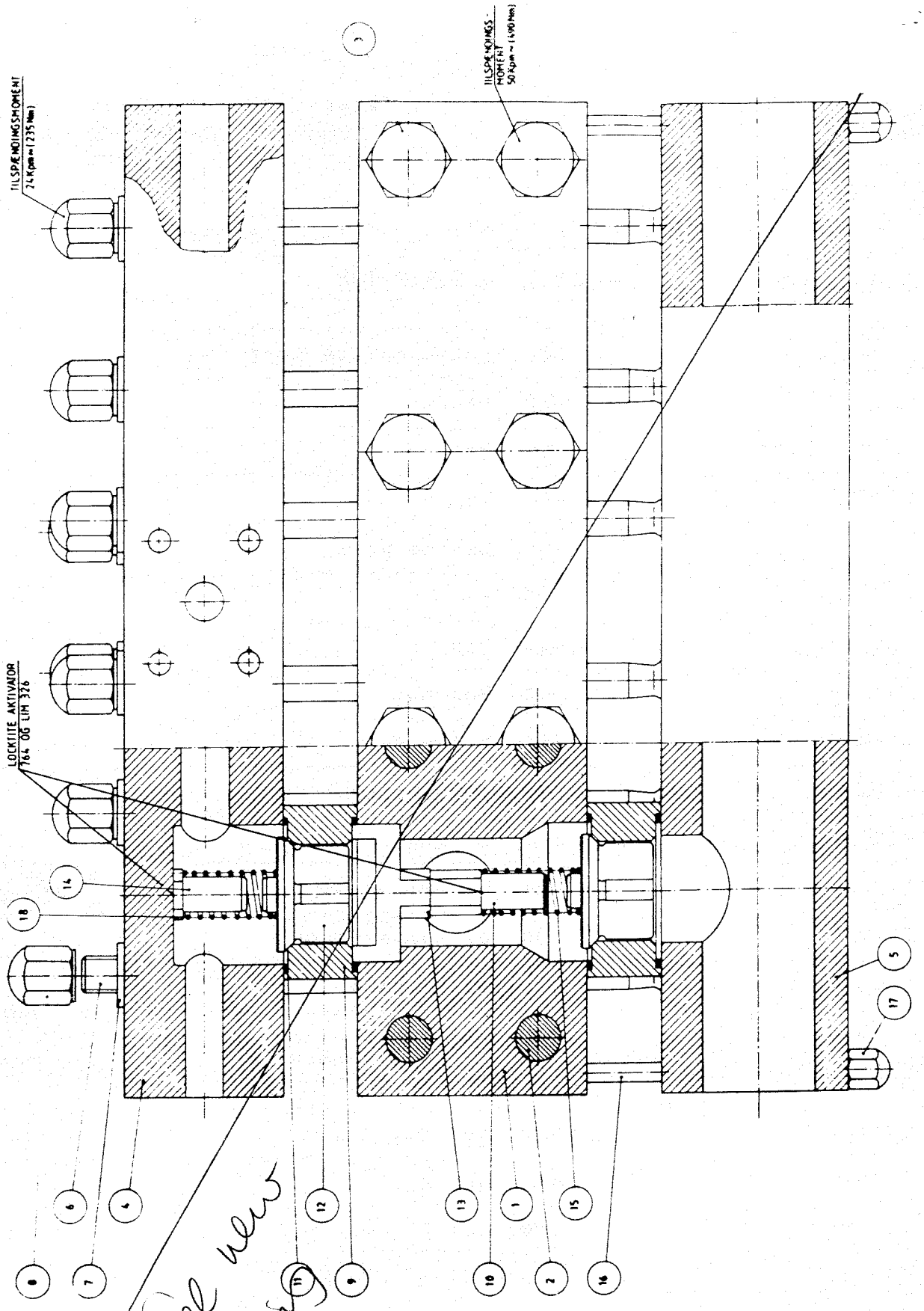
**** P A R T S L I S T ****

DATE: 19.08.87
GROUP OF COMPONENTS: 030

DRAWING NO
714605

VALVE HOUSING

POS NO	ORDER NO	QUANTITY	DESCRIPTION
0001	112904	1,000	Intermediate part
0002	112913	8,000	Stud
0003	102262-2	8,000	Box nut
0004	112905	1,000	Top part
0005	111310	1,000	Bottom part
0006	111307	12,000	Stud
0007	000869	12,000	Disc
0008	107622	12,000	Box nut
0009	112829	6,000	Valve seat
0010	111357	3,000	Valve stop
0011	000087	12,000	O-ring
0012	112762	6,000	Poppet valve
0013	112907	3,000	Distance piece
0014	115888	3,000	Valve stop
0015	111375	6,000	Spring
0016	110261	2,000	Stud
0017	102750-2	2,000	Box nut
0018	111379	3,000	Spring
0099	714605P	1,000	SET OF PACKINGS
0100	714605R	1,000	SET OF SPAREPARTS



See new drawing sent 20/10/87.

100.80N

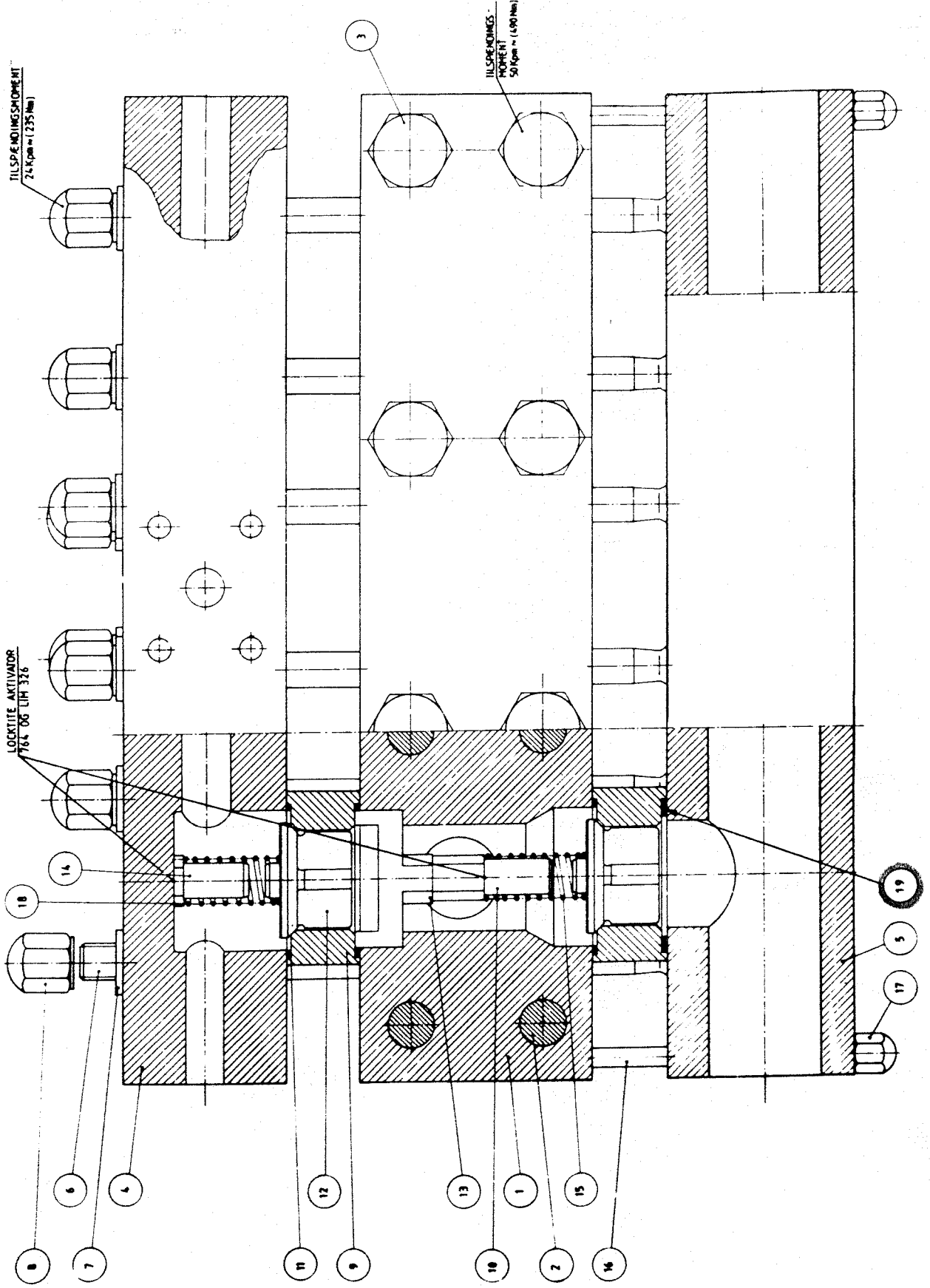
VENTILHUS
VALVE HOUSING
VENTILGEHÄUSE
CORPS DE SOUPAPE

	Dato	Sign.	Erstatter
Tegn.	1/8-87	OT	Nr. 714605
Kontr.			
Appr.			

Erstattet af

RANNIE

Rannie a/s
Roholmsvej 8
DK-2620 Albertslund
Denmark



100.80N

VENTILHUS
VALVE HOUSING
VENTILGEHÄUSE
CORPS DE SOUPAPE

	Dato	Sign.	Erstatter
Tegn.	9/9-87	OT	Nr.
Kontr.			714605
Appr.			

Erstattet af

RANNIE
Rannie a/s
Roholmsvej 8
DK-2620 Albertslund
Denmark

RANNIE

Silkeborg Limited
415 Oakshott Place Walton Summit
Bamber Bridge Preston PR5 8AT
ENGLAND

Att.: Mr. J.M. Kirkbright

Rannie a/s
Roholmsvej 8
DK-2620 Albertslund
Denmark

Akts.-reg. nr. 7779
Gods/Goods:
Glostrup station

Telefon: +45 2 64 93 00
Telex: 3 33 33
Telefax: +45 2 64 03 30
Telegramadr.: Rannieverk

Bank: Den Danske Bank,
Glostrup afdeling
Giro/Post cheque: 1 00 35 69

Deres/Your ref.:

Vor/Our ref.: HE/JLi

Dato/Date: 12.10.87

Re: Unigate Sutton

O-rings replaced by the flat type (pos. 19)

Packings and documentation will be sent.

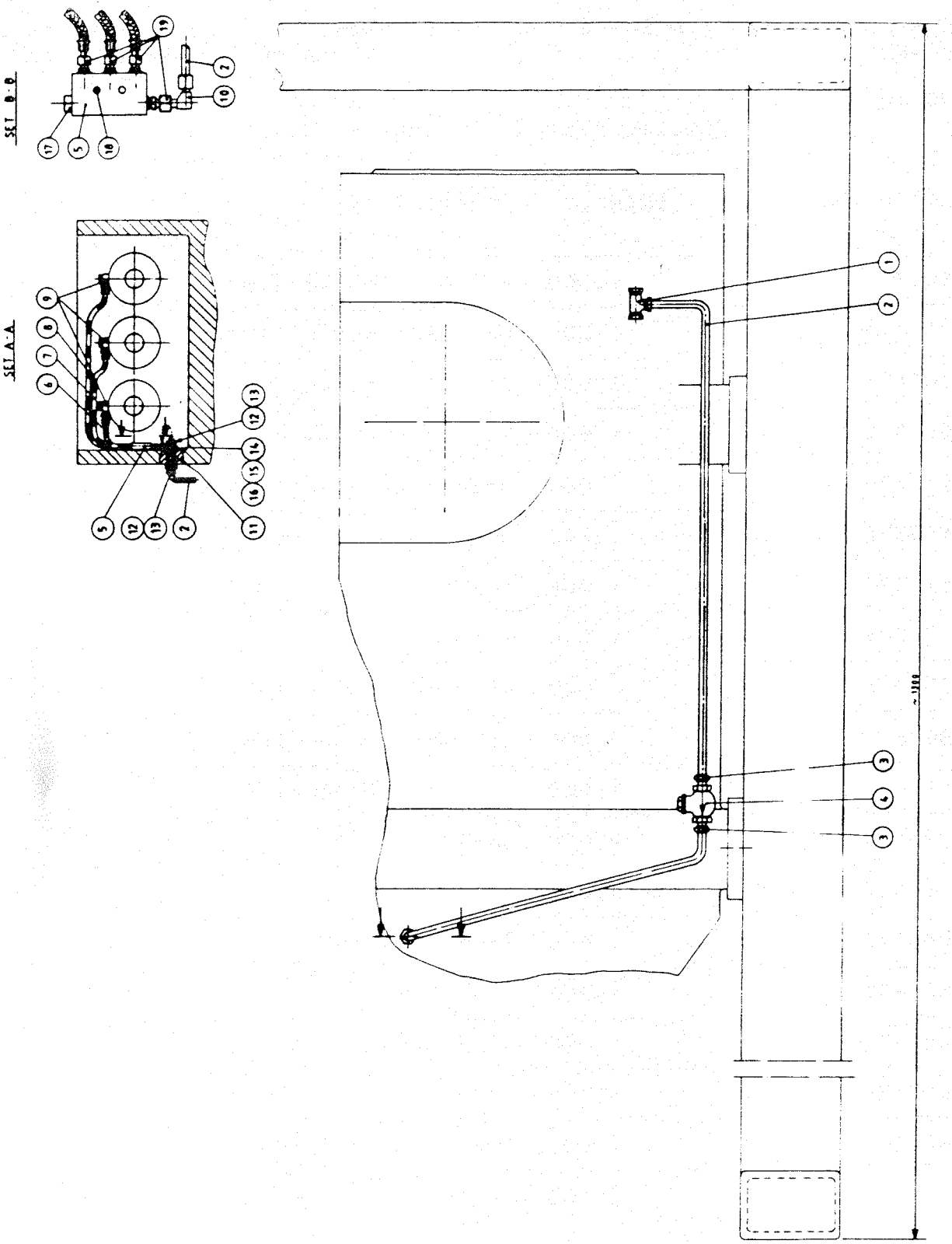
16 OCT 1987
JMK

Fremsendes uden følgebrev/Forwarded without covering letter

I henhold til aftale With reference to agreement	Til Deres orientering For information
I henhold til Deres brev With reference to your letter	Retur med tak Returned with thanks
Kommentar udbedes Please comment	Ønskes retur Please return

Med venlig hilsen/Yours faithfully

H. Enevoldsen



100.80N

ØLESYSTEM, CYLINDER OOLING SYSTEM, CYLINDER ÜHL[illegible]RRICHTUNG, ZYLINDER YSTÈME DE REFROIDISSEMENT, CYLINDRE	Dato	Sign.	Erstatter
	Tegn. 27/7-87	OT	Nr. 714891
	Kontr.		
	Appr.		

RANNIE

Rannie a/s
Roholmsvej 8
DK-2620 Albertslund
Denmark

Erstattet af

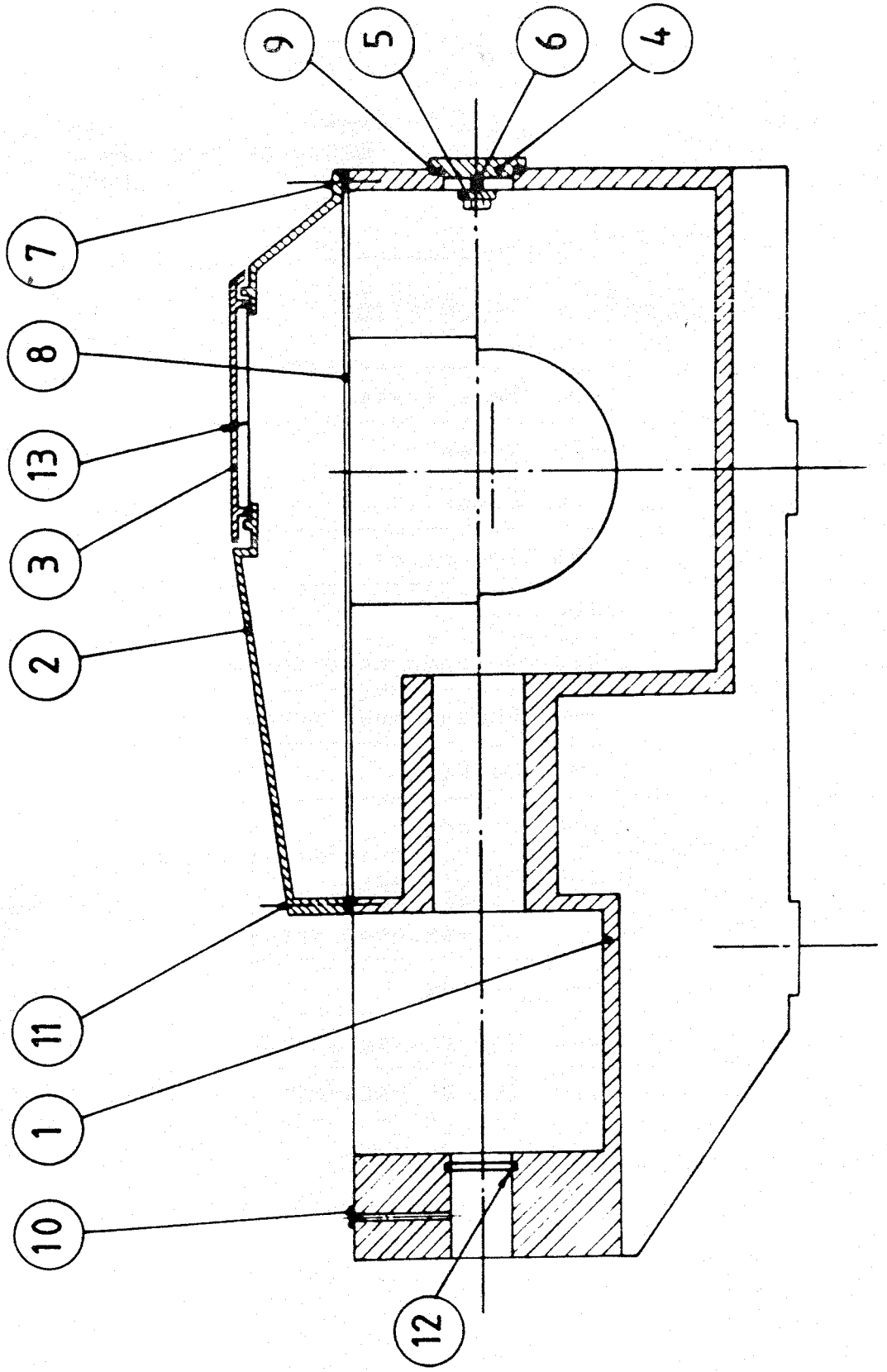
DRAWING NO
714891 COOLING SYSTEM, CYLINDER

POS NO	ORDER NO	QUANTITY	DESCRIPTION
0001	001342	1,000	Screwed connection
0002	203443	1,500	RØR Ø8/6 KOBBER BLØDT
0003	000478	2,000	Screwed connection
0004	001312	1,000	Non-return valve
0005	113372	1,000	Hose distrubution box
0006	113375	1,000	Hose
0007	113376	1,000	Hose
0008	113377	1,000	Hose
0009	002016	3,000	Screwed connection
0010	000678	2,000	Screwed connection
0011	111549	1,000	Screwed connection
0012	000230	2,000	Sealing ring
0013	000232	2,000	Union nut
0014	000172	1,000	Packing washer
0015	000680	1,000	Disc
0016	000231	1,000	Lock nut
0017	001576	1,000	Plug
0018	000847	2,000	Cheese-head screw
0019	001641	4,000	Screwed connection

RANNIE A/S **** P A R T S L I S T **** DATE: 19.08.87
COPENHAGEN GROUP OF COMPONENTS: 033
PAGE: 1

DRAWING NO
713170 BASE FRAME

POS NO	ORDER NO	QUANTITY	DESCRIPTION
0001	111002	1,000	Base frame
0002	111043	1,000	Cover
0003	111044	1,000	Cover
0004	109455	2,000	End cover
0005	113132	2,000	Rail
0006	001016	2,000	Hexagon head screw
0007	000207	16,000	Cheese-head screw
0008	115177	1,000	Packing
0009	000074	2,000	O-ring
0010	000178	3,000	Platic plug
0011	001038	4,000	Cheese-head screw
0012	001184	3,000	O-ring
0013	111450	1,000	Oil-splash guard
0099	713170P	1,000	SET OF PACKINGS



D.80N / 120.80 / D.80H

	Dato	Sign.	Erstatter
Tegn.	27/7-87	OT	Nr.
Kontr.			713170
Appr.			

UNDRAMME
ASE FRAME
XCENTRIKGHÄUSE
ADRE DE FONDATION

RANNIE

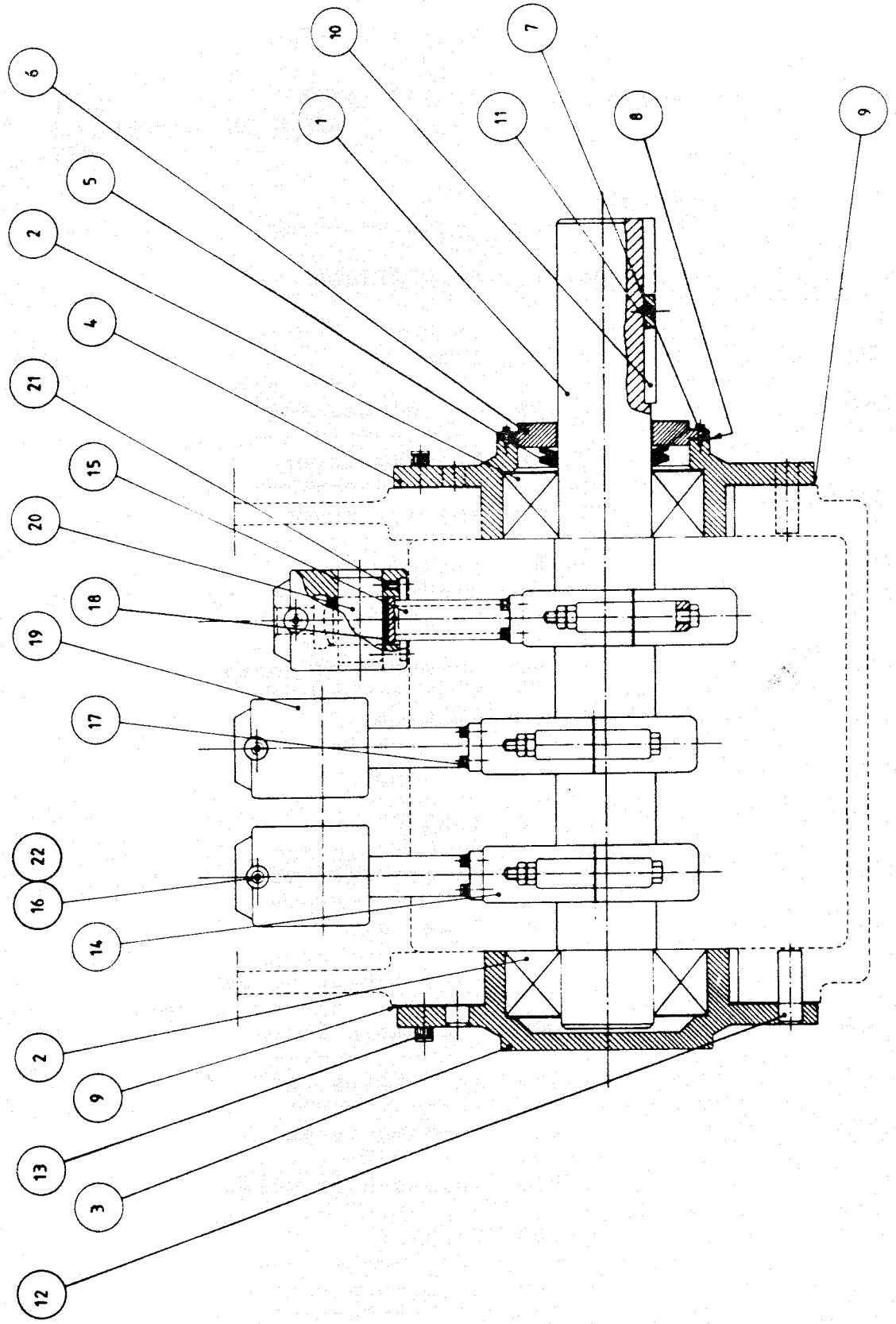
Rannie a/s
Roholmsvej 8
DK-2620 Albertslund
Denmark

Erstattet af

RANNIE A/S **** P A R T S L I S T **** DATE: 19.08.87
COPENHAGEN GROUP OF COMPONENTS: 036
PAGE: 1

DRAWING NO
714672 ECCENTRIC

POS NO	ORDER NO	QUANTITY	DESCRIPTION
0001	111300	1,000	Crank
0002	001099	2,000	Roller bearing
0003	111011	1,000	Bearing cover
0004	111010	1,000	Bearing cover
0005	000621	1,000	V-ring
0006	111108	1,000	Cover
0007	001028	8,000	Cheese-head screw
0008	115166	1,000	Packing
0009	113781	2,000	Packing
0010	114671	1,000	Tongue
0011	001020	1,000	Cheese-head screw
0012	111007	8,000	Taper pin
0013	001107	16,000	Cheese-head screw
0014	111329	3,000	Eccentric strap
0015	111327	3,000	Connecting rod
0016	001007	3,000	Pointed screw
0017	001010	12,000	Cheese-head screw
0018	103553	3,000	Bushing
0019	111301	3,000	Crosshead
0020	103552	3,000	Crosshead pin
0021	001008	6,000	Pointed screw
0022	001006	3,000	Pointed screw
0099	714672P	1,000	SET OF PACKINGS



D.80N / 120.80 / D.80H

EXCENTRIK
ECCENTRIC
EXCENTRIK
EXCENTRIQUE

	Dato	Sign.	Erstatter
Tegn.	27/7-87	OI	Nr.
Kontr.			71467
Appr.			

Erstattet af

RANNIE

Rannie a/s
Roholmsvej 8
DK-2620 Albertslund
Denmark

RANNIE A/S
COPENHAGEN

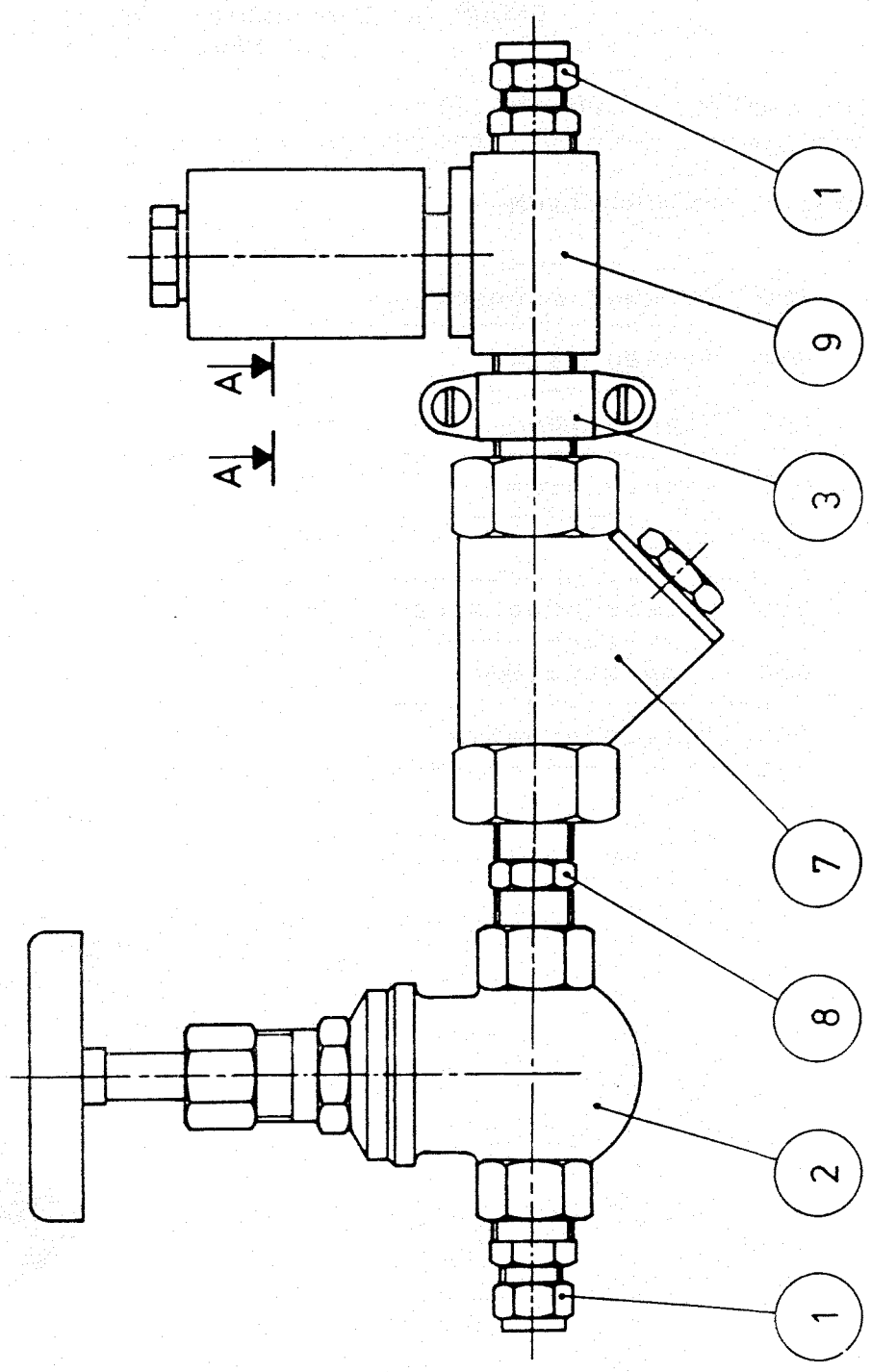
**** P A R T S L I S T ****

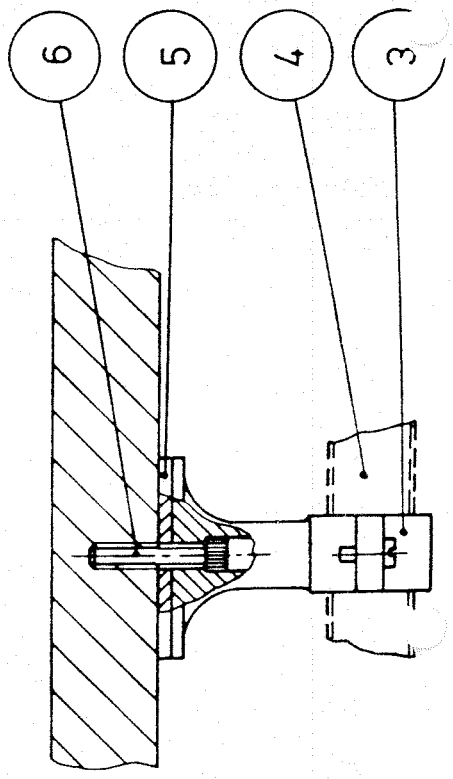
DATE: 19.08.87
GROUP OF COMPONENTS: 043

DRAWING NO
715237

ELECTRIC CONTROL - COOLING SYSTEM

POS NO	ORDER NO	QUANTITY	DESCRIPTION
0001	000475	2,000	Screwed connection
0002	000227	1,000	Seated valve
0003	000961	2,000	Pipe holder
0004	000913	2,000	Nipple pipe
0005	000472	2,000	Disc
0006	001194	2,000	Cheese-head screw
0007	000225	1,000	Trap strainer
0008	000938	1,000	Solenoid valve





Snit A-A

ELSTYRING - KØLESYSTEM
ELECTRIC CONTROL - COOLING SYSTEM
EL-STEURUNG - KÜHLSYSTEM
COMMANDE ÉLECTRIQUE - SYSTÈME DE REFROIDISSEMENT

	Dato	Sign.	Erstatter
Tegn.	29/7-87	OT	Nr.
Kontr.			715237
Appr.			

Erstattet af

Rannie a/s
Roholmsvej 8
DK-2620 Albertslund
Denmark

RANNIE A/S
COPENHAGEN

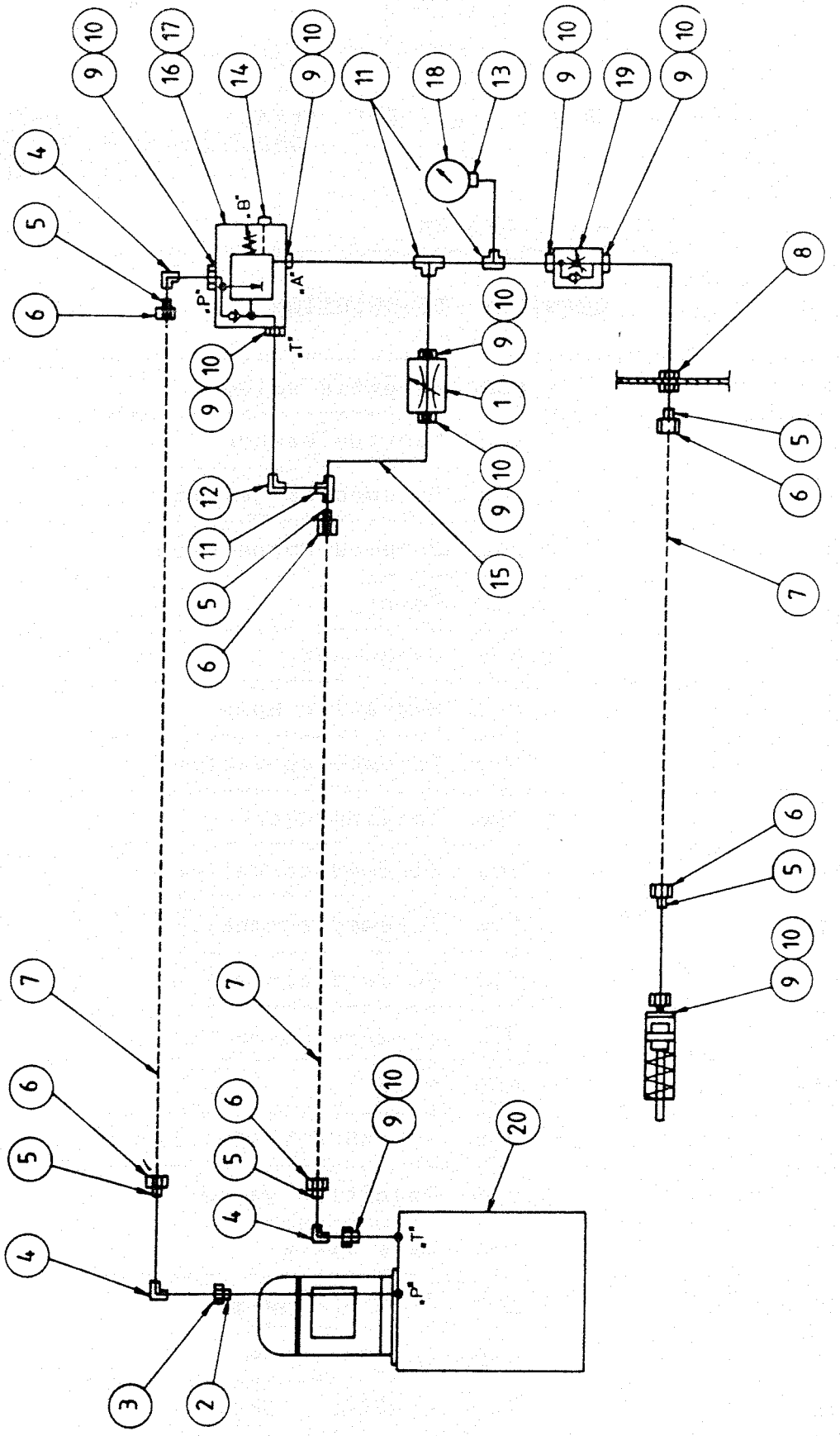
**** P A R T S L I S T ****

DATE: 19.08.87
GROUP OF COMPONENTS: 044

DRAWING NO
715849

HYDRAULIC SYSTEM

POS NO	ORDER NO	QUANTITY	DESCRIPTION
0001	001774	1,000	Throttle valve
0002	001367	1,000	Packing washer
0003	001180	1,000	Screwed connection
0004	000349	3,000	Screwed connection
0005	001362	6,000	Point
0006	001359	6,000	Union nut
0007	205166	4,500	Hydraulic hose
0008	000604	1,000	Screwed connection
0009	000172	9,000	Packing washer
0010	000171	9,000	Screwed connection
0011	000351	3,000	Screwed connection
0012	001361	1,000	Screwed connection
0013	000352	1,000	Screwed connection
0014	000353	1,000	Plug
0015	203001	1500,000	RØR Ø8/6 1.4301 SØML. BLANKT
0016	000346	1,000	Reduction valve
0017	001178	1,000	Base plate
0018	000344	1,000	Pressure gauge
0019	001776	1,000	Contra valve
0020	715848	1,000	HYDRAULIC SYSTEM



YDRAULIKSYSTEM
YDRAULIC SYSTEM
YDRAULIKANORDNUNG
ISPOSITIF D'HYDRAULIQUE

	Dato	Sign	Erstatter
Tegn.	19/8-87	OT	Nr.
Kontr.			715849
Appr.			

RANNIE

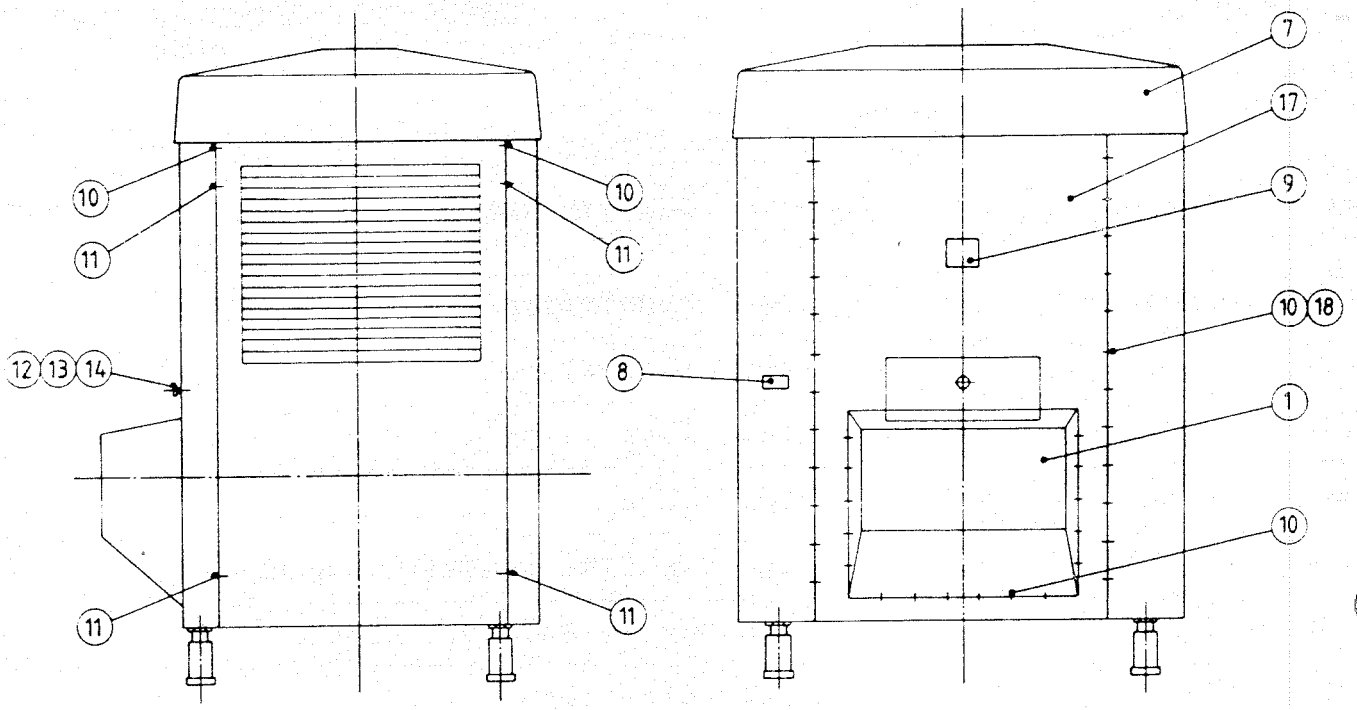
Rannie a/s
Roholmsvej 8
DK-2620 Albertslund
Denmark

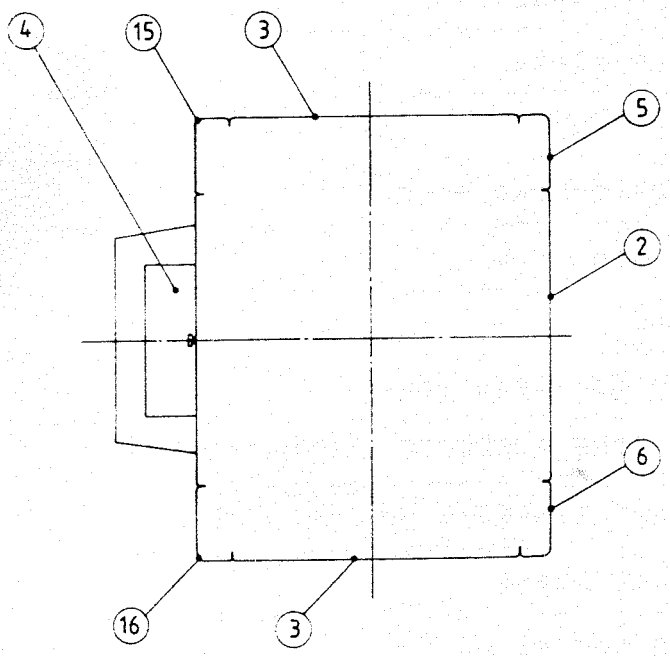
Erstattet af

RANNIE A/S **** P A R T S L I S T **** DATE: 19.08.87
COPENHAGEN GROUP OF COMPONENTS: 045
PAGE: 1

DRAWING NO
715074 CABINET

POS NO	ORDER NO	QUANTITY	DESCRIPTION
0001	112594	1,000	FRONTKASSE
0002	112590	1,000	Back plate
0003	112592	2,000	Side plate
0004	113015	1,000	Cover
0005	112585	1,000	VENSTRE BAGERSTE HJØRNESTOLPE
0006	112584	1,000	HØJRE BAGERSTE HJØRNESTOLPE
0007	112593	1,000	Blue top
0008	000733	1,000	Name plate
0009	001368	1,000	Name plate
0010	001045	47,000	Lock nut
0011	000168	12,000	Cheese-head screw
0012	113661	1,000	Handle
0013	000405	1,000	Disc
0014	000922	1,000	Hexagon head screw
0015	115076	1,000	VENSTRE FORRESTE HJØRNESTOLPE
0016	112586	1,000	HØJRE FORRESTE HJØRNESTOLPE
0017	112591	1,000	Front plate
0018	001499	26,000	Slotted screw





D.80N / D.80H

KABINET
CABINET
KABINETT
ARMOIRE

	Dato	Sign.	Erstatter
Tegn.	17/8-87	OT	Nr. 715074
Kontr.			
Appr.			

Erstattet af

RANNIE

Rannie a/s
Roholmsvej 8
DK-2620 Albertslund
Denmark

RANNIE A/S
COPENHAGEN

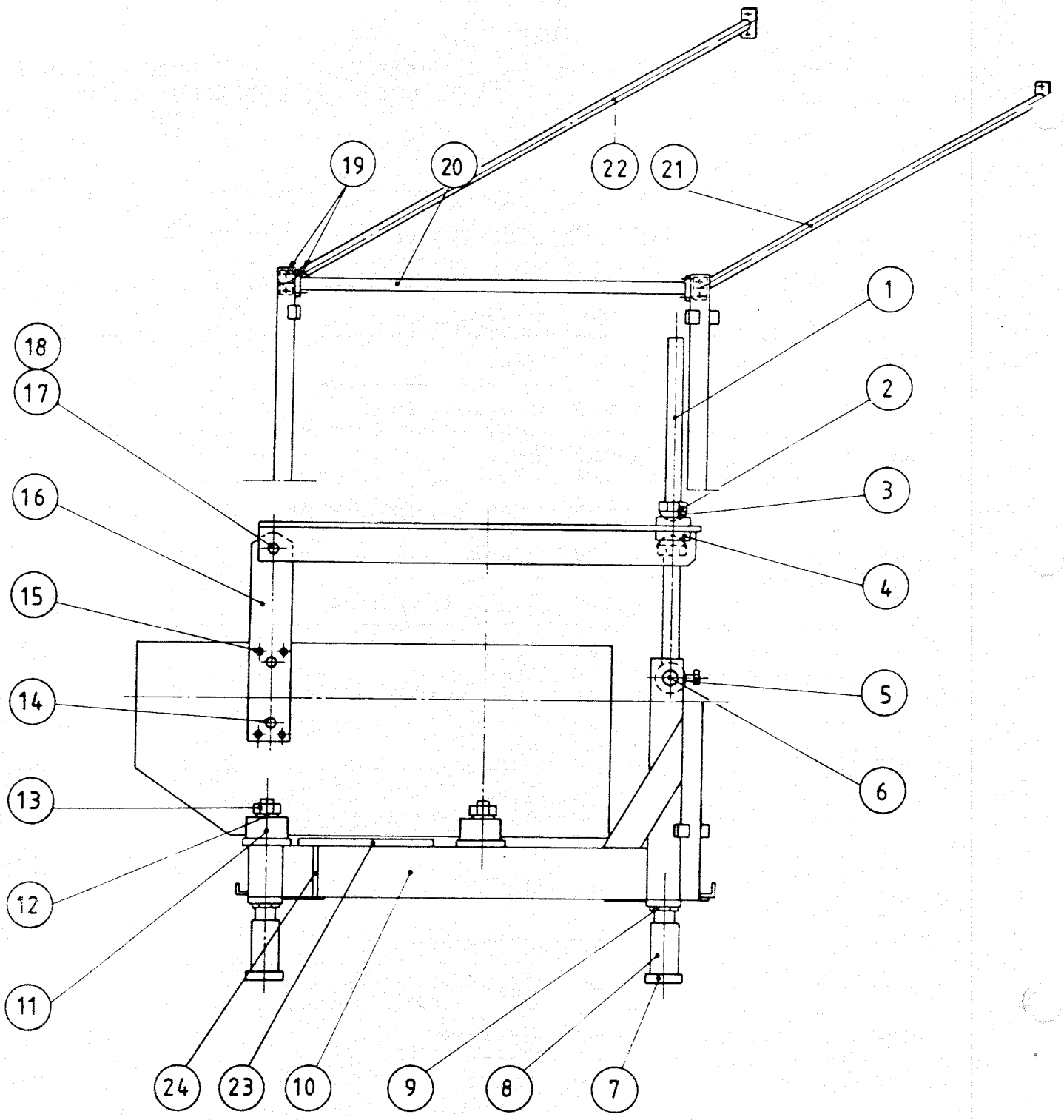
**** P A R T S L I S T ****

DATE: 19.08.87
GROUP OF COMPONENTS: 046

DRAWING NO
714928

FRAME

POS NO	ORDER NO	QUANTITY	DESCRIPTION
0001	112577	2,000	Spindle
0002	001088	4,000	Nut
0003	111154	4,000	Sperical disc
0004	111052	4,000	Disc
0005	001016	1,000	Hexagon head screw
0006	112579	1,000	Shaft
0007	104816	4,000	Supporting block
0008	109247	4,000	Foot
0009	000217	4,000	Lock nut
0010	112589	1,000	Frame
0011	111012	4,000	Stud
0012	001053	4,000	Disc
0013	001049	4,000	Nut
0014	001052	4,000	Guide pin
0015	001509	8,000	Cheese-head screw
0016	112580	2,000	Retainer
0017	111147	2,000	Shaft
0018	001048	2,000	Guide pin
0019	000544	16,000	Hexagon head screw
0020	112578	2,000	Column
0021	113852	1,000	Column
0022	113853	1,000	Column



D.80N / D.80H

STEL
FRAME
RAHMEN
BÂTI

	Dato	Sign.	Erstatter
Tegn.	17/8-87	OT	Nr.
Kontr.			714928
Appr.			

Erstattet af

RANNIE

Rannie a/s
Roholmsvej 8
DK-2620 Albertslund
Denmark

TOOL CASE

The tool case is a blue plastic case supplied with all new machines and containing the necessary auxiliary tools for the daily maintenance of the machine.

Besides, the tool case contains a set of spare parts consisting of packings and springs for the valve housing, as well as a homogenising valve if the machine is provided with a homogenising bracket.

The individual subsections under Section 6.- **MAINTENANCE** specify the different auxiliary tools contained in the tool case.

All auxiliary tools supplied with the machine have a **POSITION NO.** and an **ORDER NO.** and are described on the following parts list.

POSITION NO.: To be used for identification of the individual tool in the picture on page 2/2.

ORDER NO.: To be used for ordering of a new auxiliary tool.

The following details are to be stated in the order:

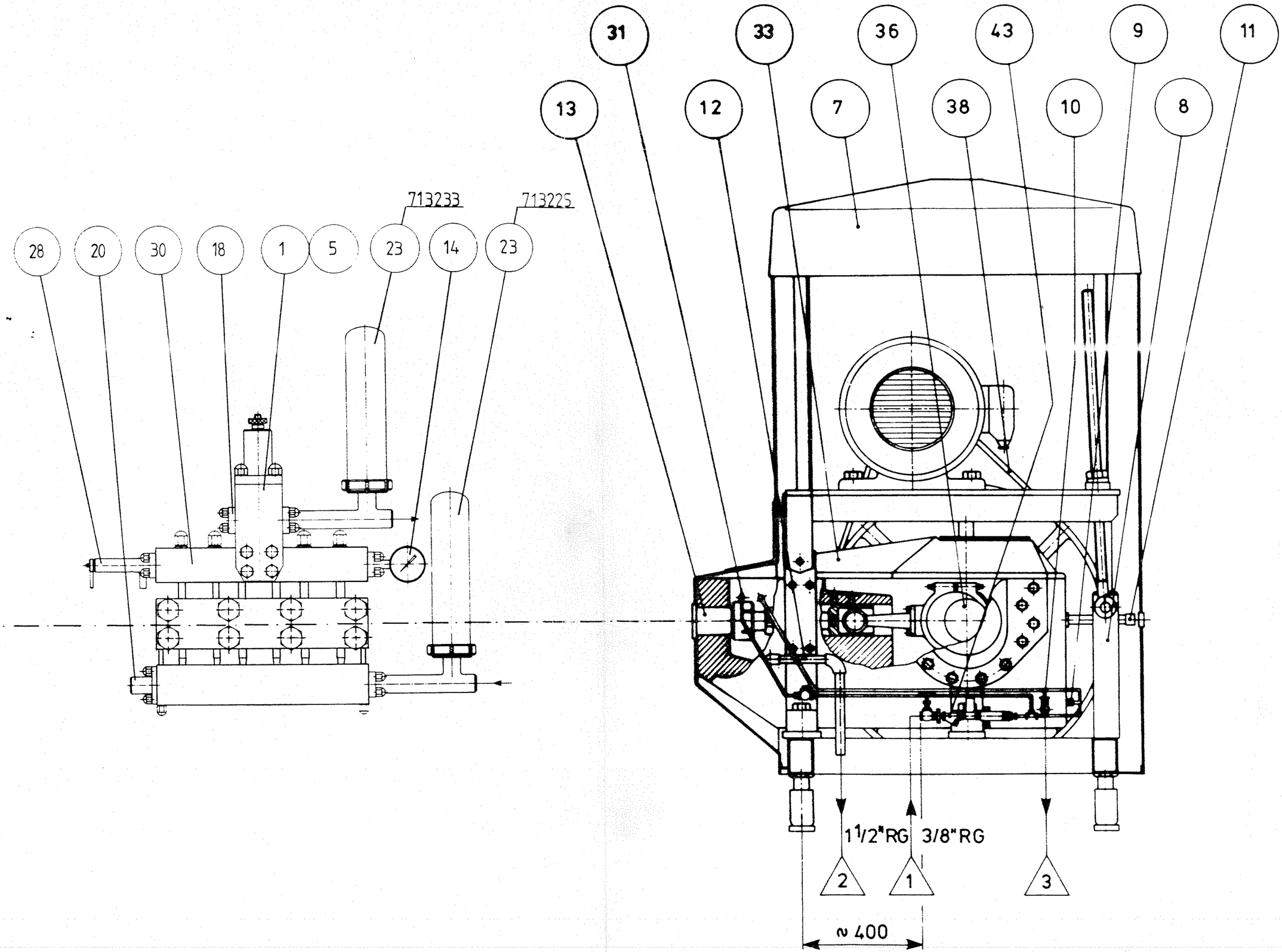
1) Machine SERIAL/ORDER NO. - contained in Section 1.-

2) MODEL and TYPE - contained in Section 1.-

3) To be used for TOOL CASE

4) ORDER NO. - contained in Section 12.- (parts list)

Example: 1-85.214/BLUE-TOP-PLUS 75.80/TOOL CASE/01617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