Model BLUE-TOP

STANDARD: Type 50.79 – 70.79
Capacity 5.000 – 14.500 l/h. Max. Pressure 400 bar

HYPER: Type 30.79H – 40.79H
Capacity 1.200 – 4.200 l/h. Max. Pressure 1.000 bar

RANNIE

Homogeniser – High Pressure Pump

Homogeniser – High Pressure Pump

Fields of application:
The dairy, food, chemical, and pharmaceutical industries

STANDARD specifications:
Built for working pressures up to 400 bar. All parts in contact with the product are made of stainless steel. Sanitary design for cleaning in place (CIP). Solid valve housing and diaphragm pressure gauge. Single-stage manual homogenising system with the efficient RANNIE LW-homogenising valve. Sanitary cylinder sealing with U-ring sleeves. 3-A Sanitary Standards.
V-belt drive.

Cabinet:
The machine is enclosed in a cabinet of polished stainless steel without external screws and bolts, provided with a turquoise blue top cover of fibreglass and with adjustable stainless steel feet with nylon supporting discs. Pilot lamp for operation and push-button for start/stop fitted in the front panel.

Power supply:
Operating voltage 3 × 380 V A.C., 50 c/s

Pipe connections:
Inlet and outlet NOM 51

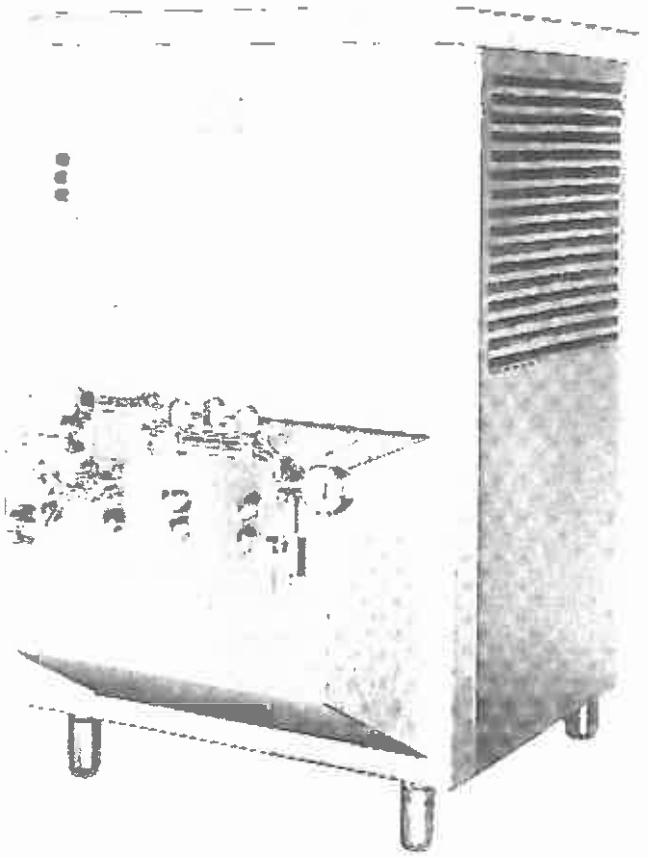
Tools:
Necessary special tools included

Spare parts:
One set of spare parts consisting of spare homogeniser valve, valve springs and packings included

HYPER specifications:
Built for working pressures up to 1.000 bar. All parts in contact with the product are made of special stainless steel. Sanitary design for cleaning in place (CIP). 3-part valve housing with interchangeable Stellite valve seats and ball valves. Special cylinder design with high pressure packings, closed water lubrication and ceramic pistons. Oilfree version equipped as specified for standard machines.

Additional equipment and Special design:
Standard additional equipment:
Totally enclosed fan cooled IEC-norm motor, consisting of motor starter, pulsation damper, pipe protection valve, safety valve; manual two-stage homogenising system, hydraulic single-stage homogenising system, 3-part valve housing with interchangeable valve seats and poppet or ball valves, cylinders with special packings, closed water lubrication and ceramic pistons, pressure transducer with digital display; automatic pressure control system with servo motor and controller, aseptic design.

Below options available:
Any other voltage and frequency; different types of motors and motor regulations for variable capacities, motor starter, product contacting parts and packings in special materials, explosion-proof execution; control and safety equipment in accordance with customer's or authorities' specifications, etc.



Homogenisator – Hochdruckpumpe

Einsatzgebiete:
Milchindustrie, Lebensmittelindustrie, chemische Industrie und pharmazeutische Industrie

STANDARD-Ausführung:
Konstruiert für einen Arbeitsdruck bis zu 400 bar. Alle produktberührten Teile sind aus rostfreiem Stahl hergestellt. Sanitäre Ausführung für Reinigung im CIP-Verfahren. Massiver Ventilgehäuseblock und Membranmanometer. Manuelles 1-Stufen-Homogenisiersystem mit RANNIE's effektivem LW-Homogenisierventil. Sanitäre Zylinderdichtung mit U-Ringsmanschetten. 3-A Sanitary Standards. Effektübertragung erfolgt durch Keilriemen getriebe.

Kabinett:
Die Maschine ist eingebaut in ein geschlossenes Kabinett aus geschliffenem rostfreiem Stahl, ohne aussen sichtbare Schraubensammlungen, mit Decke aus türkisblauem Glasfiber und mit einstellbaren Füssen aus rostfreiem Stahl mit Nylon-Unterlagsscheiben. Im Frontpanel ist eine Betriebskontrollampe montiert, sowie ein Start/Stop Druckknopfschalter.

Stromanschluss:
3 × 380 V Wechselstrom, 50 Hz

Rohranschluss:
Zu- und Abfluss NOM 51

Werkzeug:
Erforderliches Spezialwerkzeug wird mitgeliefert

Ersatzteile:
Ersatzhomogenisierventil, Ventilfedern und Packungen für den 1. Wechsel werden mitgeliefert

HYPER-Ausführung:
Konstruiert für einen Arbeitsdruck bis zu 1.000 bar. Alle produktberührten Teile sind aus speziellem rostfreiem Stahl hergestellt. Sanitäre Ausführung für Reinigung im CIP-Verfahren. 3-geteiltes Ventilgehäuse mit auswechselbaren Stellite-Ventilsitzen und -Kugelventilen. Spezielle Zylinderkonstruktion mit Hochdruckpackungen, geschlossener Wasserschmierung und keramischen Kolben. Ausführung im übrigen wie spezifiziert für Standardmaschinen.

Extraausrüstung und Spezialausführungen:
Standard-Extraausrüstung:
IEC Norm Motor, kapselgekühlt, bestehend aus Motorstarter; Pulsationsdämpfer; Rohrsicherungsventil; Sicherheitsventil; manuelles 2-Stufen Homogenisiersystem; hydraulisches 1-Stufen-Homogenisiersystem; 3-geteiltes Ventilgehäuse mit auswechselbaren Ventilsitzen und Teller- oder Kugelventilen, Zylinder mit Spezialpackungen, geschlossener Wasserschmierung und keramischen Kolben; Drucktransducer mit Digitalanzeige, automatisches Druckkontrollsystem mit Servo-Motor und Controller, aseptische Ausführung.

Folgende Spezialausführungen sind lieferbar:
Andere Spannungen und Periodenzahlen; verschiedene Motortypen und Motorregulierungen für variable Durchsatzleistungen; Motorstarter; produktberührte Teile und Packungen aus spezeilen Materialqualitäten; explosionssichere Ausführung; Kontroll- und Sicherheitsausrüstung in Konformität mit Kunden- oder Behördenvorschrift, usw.

Homogénéisateur – Pompe Haute Pression

Domaines d'utilisation:
Industries laitières, alimentaires, cosmétiques et pharmaceutiques

Spécifications STANDARD:
Construit pour des pressions jusqu'à 400 bars. Toutes les parties en contact avec le produit sont en acier inoxydable. Exécution sanitaire pour nettoyage CIP. Boîte de soupapes massive et manomètre à membrane. Dispositif d'homogénéisation manuel à un étage avec la tête d'homogénéisation efficace HV de RANNIE. Joint de cylindre sanitaire pour conformité aux 3-A Sanitary Standards. La transmission du mouvement s'effectue au moyen de courroies trapézoïdales.

Carrosserie:
L'appareil est enfermé dans une carrosserie en acier inoxydable, sans arêtes moulages de vis extérieures, avec couvercle en fibre de verre bleu translucide et avec pieds réglables en acier inoxydable. Roulettes en nylon. Sur le devant sont montés un interrupteur principal enclenché et une lampe témoin de marche.

Branchement:
Tension de fonctionnement 3 × 380 V C.A., 50 Hz

Raccords de tuyaux:
Admission et sortie NOM 51

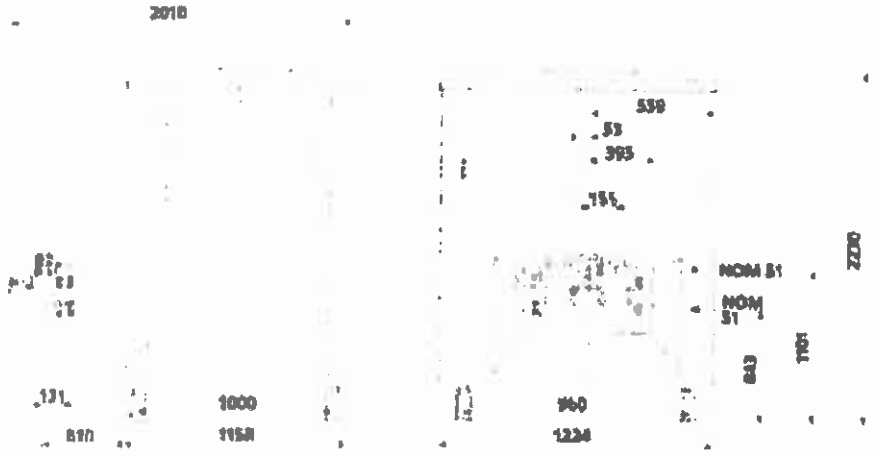
Outils:
Outillage spécial nécessaire à l'ouverture de l'appareil

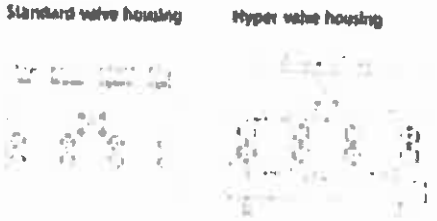
Pièces de rechange:
Une tête d'homogénéisation, des ressorts de soupapes et des joints pour le premier remplacement sont fournis avec l'homogénéisateur.

Spécifications HYPER:
Construit pour des pressions jusqu'à 1.000 bars. Toutes les parties en contact avec le produit sont en acier inoxydable spécial. Exécution sanitaire pour nettoyage CIP. Boîte de soupapes en 3 parties avec des sièges de soupapes interchangeables en stellite et des soupapes à bille. Construction du cylindre spéciale avec des joints à haute pression, lubrification fermée à l'eau et pistons céramiques. Spécifications restantes, comme l'appareil standard.

Equipement supplémentaire standard et exécutions spéciales:
Equipement supplémentaire standard:
Moteur aux normes CEI, fermé et refroidi par ventilateur, mais démarreur excl.; bouteille d'air tampon; soupape de sécurité des tuyauteries; soupape de sécurité; dispositif manuel d'homogénéisation à 2 étages, dispositif hydraulique d'homogénéisation à 1 étage, boîte de soupapes en 3 parties avec sièges interchangeables et vannes annulaires ou à bille, cylindres avec joints spéciaux, lubrification fermée à l'eau et pistons céramiques; transmetteur de pression avec lecture numérique, système automatique de contrôle de pression avec servo-moteur et contrôle, exécution asptique.

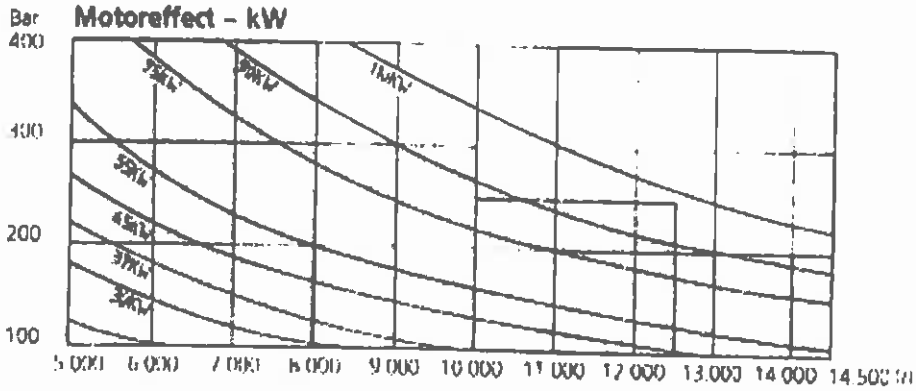
Exécutions spéciales possibles
Toute autre tension ou fréquence, types différents de moteurs et de réglage du moteur pour débits variables; démarreur du moteur, parties et joints entrant en contact avec le produit, en matériaux spéciaux, exécution anti-explosive, équipement de contrôle et de sécurité selon les spécifications du client ou des autorités, etc.





Standard Specifications

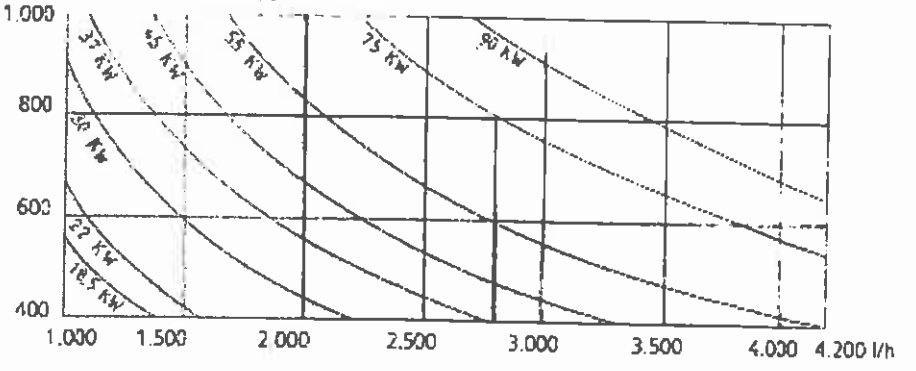
Type	Capacity l/h	Capacity pounds/h	Max. Pressure bar	Max. Pressure psi
50 79	5 000 – 8 000	11 000 – 17 600	400	5.800
46 79	8 000 – 10.000	17.600 – 22 000	300	4.350
63 79	10 000 – 12 500	22 000 – 27 500	250	3.625
70 79	12.500 – 14 500	27 500 – 31 900	200	2.900



Hyper Specifications

Type	Capacity l/h	Capacity pounds/h	Max. Pressure bar	Max. Pressure psi
30 79H	1 200 – 2 000	2 640 – 4 400	1 000	14 500
36 79H	2 000 – 2.800	4 400 – 6 160	800	11 600
40 79H	2.800 – 4.200	6 160 – 9.240	600	8 700

Net Weight : 3 000 kgs (inc. standard motor)
Gross Weight : 3.600 kgs (inc. standard motor)
Gross Volume : 9,6 m³



RANNIE

Homogeniser – High Pressure Pump

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RANNIE

Instruction

MOUNTING

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

1. The machine is levelled by means of the four adjustable legs and a spirit level, so that the machined surfaces of the valve housing are true to both spirit level and plumb-line.

REMEMBER!! When the machine has been levelled, the lock nuts on the adjustable feet are tightened.

2. The inlet pipe is fixed to the welding socket on the valve housing suction channel so that air pockets cannot form in the inlet pipe. The inlet pipe must have a downward gradient of 0.1% towards the inlet.

NOTE: Some machine types have a welding socket on both sides of the valve housing in order that supply may be effected from both sides of the valve housing. **Rannie** supplies the valve housing with a welding socket on both sides in order that the customer may decide the connection of such pipes.

3. The outlet pipe is fixed to the welding socket on the outlet channel of the homogenising bracket so that air pockets cannot form in the outlet pipe.

4. Shut-off valves or similar equipment must **NOT** be mounted in the outlet pipe as 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 check that all pipe connections and fittings in the cylinder sump have been tightened.

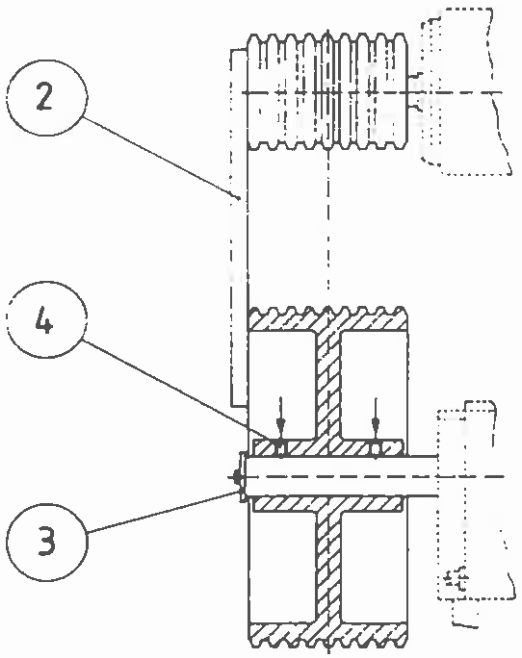
7.-Check the eccentric sump for impurities and clean it if necessary.

8. Motor supply:

MACHINES SUPPLIED WITH MOTOR

The motor, belt pulleys and belts of such machines are mounted and tested on **Rannie**'s test stand.

In the case of such a complete supply, the mounting screws Pos.1, retaining the large belt pulley to the eccentric shaft have been tightened in **Rannie**'s workshop.



MACHINES SUPPLIED WITHOUT MOTOR

The customer will supply the motor and mount it on the motor bracket.

The belt pulley is mounted on the motor shaft.

NOTE: **Rannie** has mounted the large belt pulley on the eccentric shaft, **BUT mounting screws Pos.1 have NOT been tigtened.**

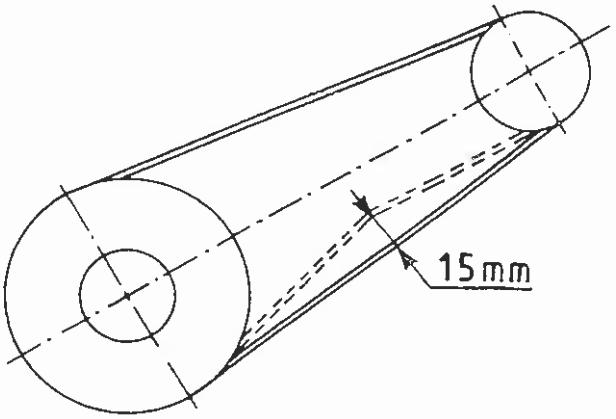
The two belt pulleys are aligned by means of straight edges Pos.2, until they are absolutely parallel.

When the belt pulleys are absolutely parallel, the mounting screws Pos.1 are tigtened.

CHECK that the mounting screws have been TIGHTENED.

Tighten belt stop Pos.3.

IMPORTANT: V-belts must only sag 15 mm per metre of free belt length.



9. If electrical equipment is included in the machine supply, it is to be mounted in compliance with the wiring diagrams. Se Section 8.- / WIRING DIAGRAM

NOTE: If the machine type is B-LP, BLUE-TOP or BLUE-TOP-PLUS, a copy of the wiring diagrams is supplied in a box inside the cabinet.

10. Fill with oil in the eccentric sump.
For quantity, see Section 1.- / TECHNICAL DATA.

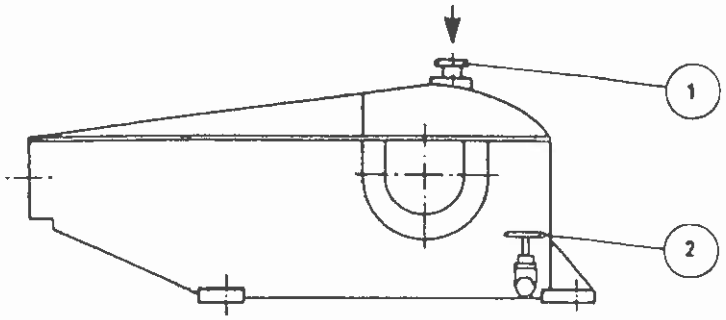
IMPORTANT!! ONLY oil types specified at the end of this section may be used.

In some places the individual oil types may have other names, and it is, therefore, recommended that the oil supplier should be contacted to ensure that the correct oil type is used.

MODEL BLUE-TOP-PLUS

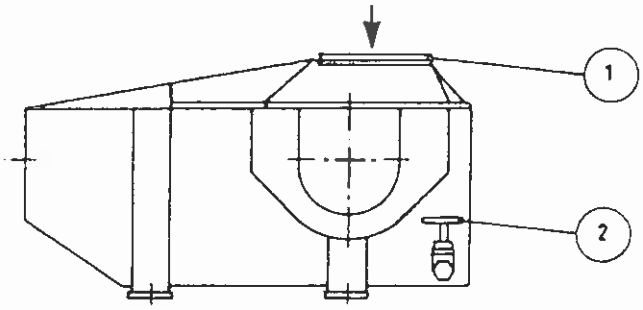
11. How to fill with oil depends on the size of the machine:

D.50 - .51 - .51H - .60 - .71



The air filter Pos.1 is removed and oil filled in.
Oil drainage takes place through Pos.2.

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



Lid Pos.1 and splash guard are removed and the oil filled in.
Oil drainage takes place through Pos.2.

12. Check that the oil quantity is correct:

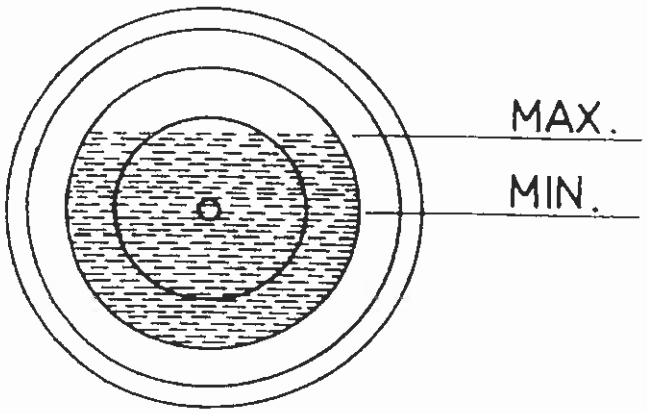
MACHINES WITH OIL DIPSTICK

Oil level should be between min. and max. on dipstick.

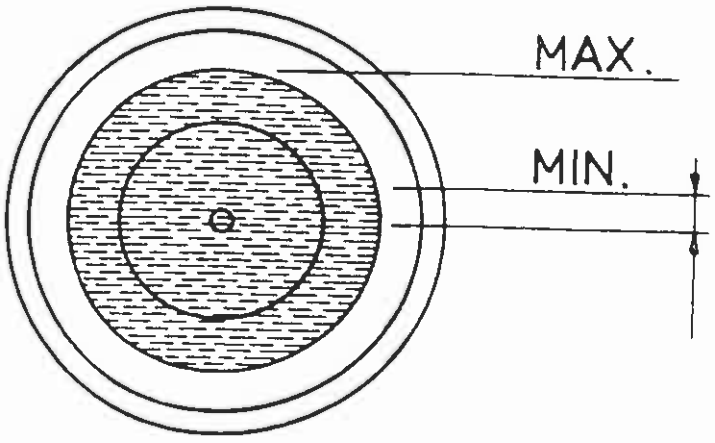
MACHINES WITH OIL-LEVEL GLASS

The oil level depends on the size of the machine:

D.50 - .51 - .60 - .72



D.51H - .79 - .79H - .80N - .80H



MACHINES WITH HYDRAULIC PRESSURE REGULATION

The hydraulic station is filled with oil. The oil-level glass must always be filled.
Volume, see Sektion 1.- / TECHNICAL DATA.

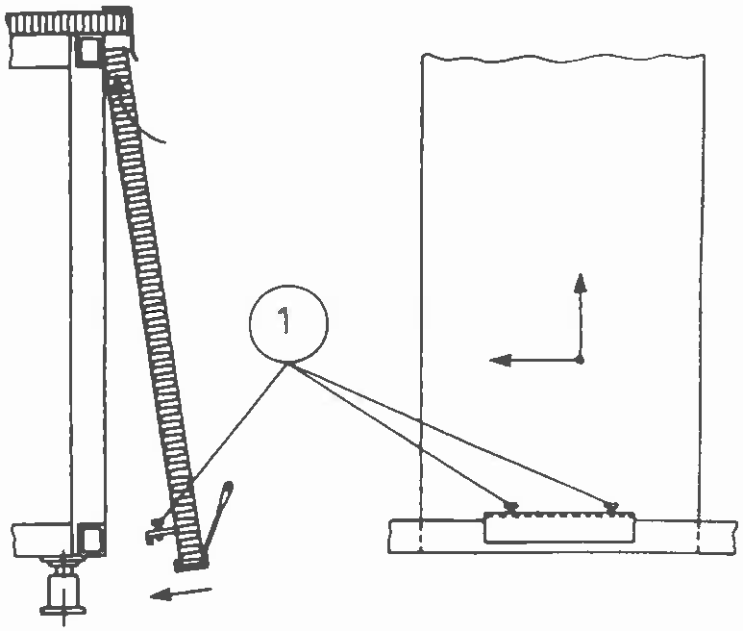
IMPORTANT!! **ONLY** oil types specified at the end of this section may be used.

RANNIE
Instruction

MODEL BLUE-TOP-PLUS

All side and top panels for these models are supplied in a separate box.

hen it has been checked that all parts of the machine is in complete order, the panels are removed from the box with caution and mounted on the frame.



The top panels are positioned and screwed on.

The side panels are mounted on the frame by means of a lifting hook.
The lifting hook is kept in the tool case.

An agle iron with two adjusting screws Pos.1 is mouted at the bottom of all side panels.

NOTE: The screws are supplied in a bag on the frame. All side panels are levelled by means of the adjusting screws Pos.1 until they are true to a plumb-line.

OIL TYPES

ALWAYS use one of below oil types, or equivalent type of oil comforming to the below specification, for **Rannie** 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
CALTEX	:	meropa 100 / RPM DELO 200
SHELL	:	RIMULA SAE 40
TEXACO	:	MEROPA 100 / URSATEX SAE 30
MOBIL	:	DTE 27

If a change is made to another oil type, the eccentric sump **MUST** be cleaned of oil 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 below oil types, or equivalent type, for the hydraulic pressure control:

BP	:	ENERGOL HLP 46 / ENERGOL SHF 46
SHELL	:	TELLUS OIL 46 / HYDROL DO 46
TEXACO	:	RANDO OIL HD B-46 / HYDRAULIC OIL HDW 46
MOBIL	:	DTE 25

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

RANNIE

Instruction

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.

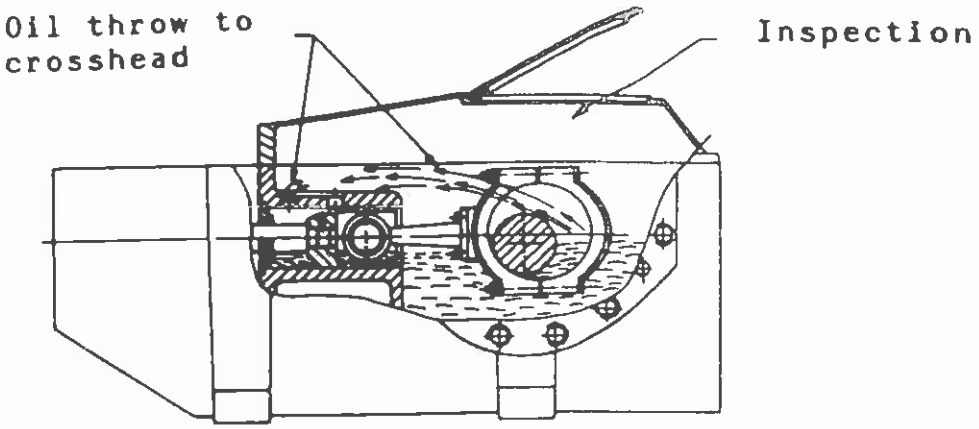
5. **CHECK OIL LEVEL IN ECCENTRIC SUMP**

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 eccen tric sump by means of oil level glass or dipstick.
If the oil level is too low, fill in oil up to the correc level in oil level glass or on dipstick.

MACHINES WITH VARIABLE AND SLOW SPEED

Check that the crosshead is lubricated at the slowest speed o the machine (see sketch). Inspection is carried out by demountin 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, an machine stops immediately.

MACHINES WITHOUT PILOT LAMP

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

b) **DIVIDED COOLING SYSTEM:** See that cylinders and pistons re ceive water and that water flows continuously into the cy linder sump from the pipe coming from the cooling coil i the eccentric sump.

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

RANNIE

Instruction

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

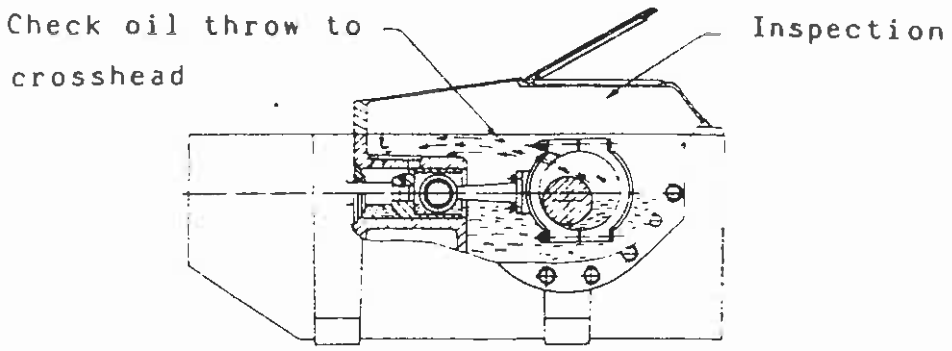
If "OIL-LEVEL" lamp lights during starting or operation, oil must be filled into eccentric sump until the lamp is extinguished.

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.

RANNIE

Instruction

FAULT LOCATION

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

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

The instructions are common to all machine types and give a lis 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 pane 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 lubri cating 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 befor restarting of the machine.

RANNIE

Instruction

MAINTENANCE

AFTER THE FIRST 24 HOURS OF OPERATION

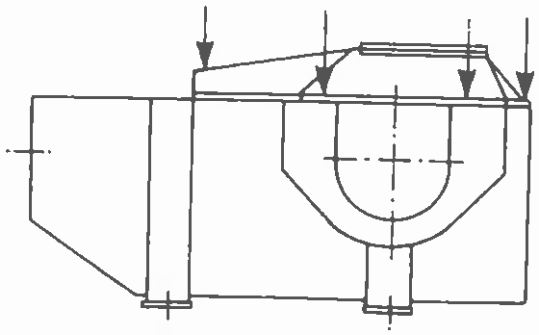
Check the V-belt tension. V-belts may only sag 15 mm per metre of free belt length.
This check should then be made regularly.

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 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.

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.

RANNIE

Instruction

MAINTENANCE

POPPET VALVE AND VALVE SEATS

VALVE HOUSINGS 22.51 - D.50 - .60 - .72 - .79 - .80

During inspection and maintenance of the valve housing, a distinction is made between small and large worn marks requiring different treatment.

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

NOTE: The numbers in the table apply to a new valve housing. The table states a B-max. dimension which is a machining measurement for renovation of the valve housing.

IMPORTANT!! When B-max. is reached, further milling or match grinding **MUST NOT** be carried out.

Where not otherwise stated, a new valve stop Pos.1 can be ordered from **Rannie a/s** (see table).

The length of the new valve stop is adapted so that the lift is observed again. See dimension B for delivery valve Pos.2.

After mounting of a new valve stop, new renovations of the valve housing can be made until B-max. is reached again.

To mill the valve seats, special-type milling cutters and auxiliary tools are to be used as specified in the following table.

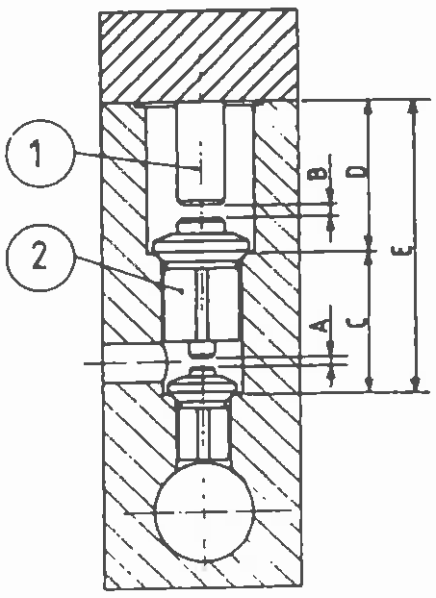
TABLE FOR RENOVATION OF VALVE HOUSING

TYPE OF MACH.	VALVE HOUSING					RENOVATION VALVE STOP POS.1		MACHINING		
	A	B	C	D	E	B-max.	DRAW.	CUTTER DRAW.	MORSE TAPER NO.	DRILL. MACHINE MAX. r.p.m.
D.50	1,5	1,45	17,5	29,5	47	3	12085	7973	2	50
12.50H	1,5	1,55	17,5	61,5	79	3	12086	11787	2	50
22.51	1,5	1,55	26	74,2	100,2	3		7979	3	30
D.60	3,75	2,75	57,5	66,5	124	5	12088	7974	4	22
D.72	3,5	4,25	62	65,5	127,5	6,5	*)	3227	4	19
D.79	6,0	4,95	70	70	154	8	*)	7978	4	14
D.80N	9,0	5,25	108,5	71,5	180	9,5	12091	11791	4	12

REPLACEMENT OF VALVE STOP POS.1

When ordering valve stop, drawing number MUST be stated.

NOTE: As regards machines with a valve stop marked *), the valve housing MUST be sent to RANNIE A/S when the B-max dimension is reached for replacement of valve stop.



REPAIR OF SMALL WORN MARKS

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

REPAIR OF LARGE WORN MARKS

If valves and valve seats are heavily worn, and milling is required, the following procedure must be adopted:

Cutter is ordered from **Rannie**. Order No.:see table.

1. Fix the valve housing in a horizontal boring and milling machine so that bore and drilling machine have the same centre line.

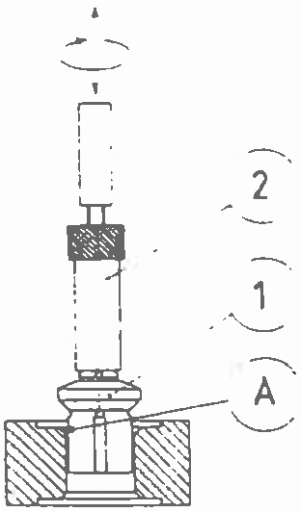
2. Manual feed is used together with cooling/cutting oil designed for the machining process. Material is removed from the valve seat until all grooves and traces of wear have been removed from the valve seat surfaces. When this has been done, the level stop is set on the horizontal boring and drilling machine, and the milling machine should work for approx. 30 sec. in this position in order to facilitate the subsequent necessary grinding.

3. The valves are turned off on the 45° conical surface until the surface is absolutely smooth and without worn marks.

MATCH GRINDING

After repair of **LARGE WORN MARKS**, as well as after removal of **SMALL WORN MARKS**, match grinding is to be done in the following way:

RANNIE
Instruction



1. Valve Pos.1 is fixed in valve removing tool Pos.2.

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

3. The valve is lovered to its respective position in the valve housing by means of valve removing tool Pos.2 and turned clockwise at a light pressure.

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

REMEBER!! Always clean valves and valve housing 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 fi
piston and oil seal ring.

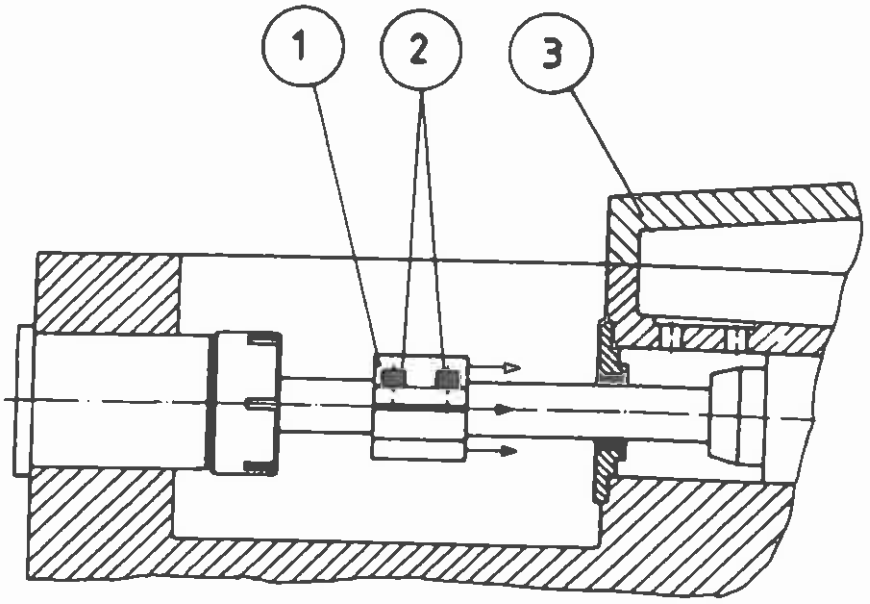
REMEMBER!! Always check that the power supply from the main pa
is switched off, and that the main fuses are remove

DISMOUNTING

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

2. Remove cover Pos.3 over the eccentric sump.

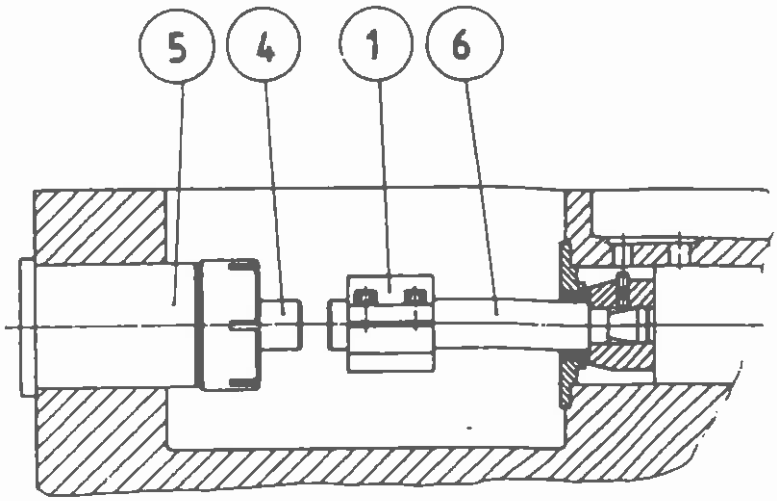
3. Screws Pos.2 on piston coupling Pos.1 are unscrewed appro
5 mm.



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

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

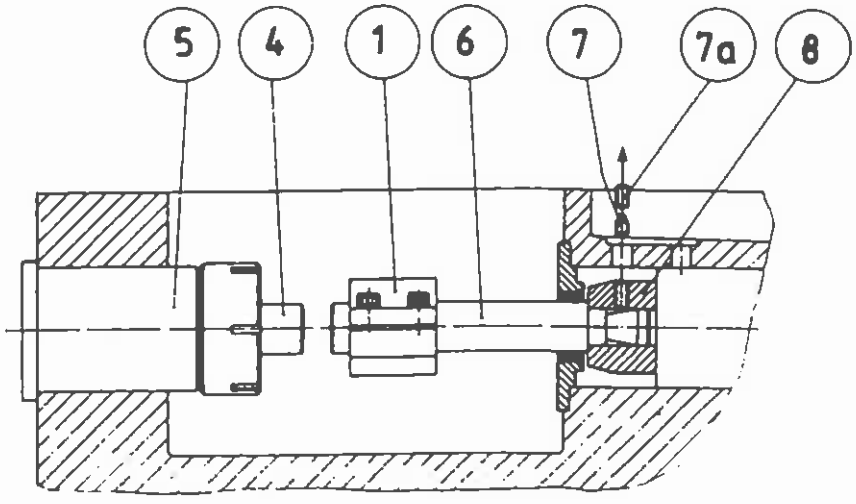
6. Piston coupling Pos.1 is fixed to the fixed piston Pos.6 by u
screwing the centre screw and tightening the other one.



7. Fixed piston Pos.6 is moved to front position by means of t
V-belt drive of the machine.

8. <u>TYPES 22.51 - D.51H - D.60 - D.72</u>

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



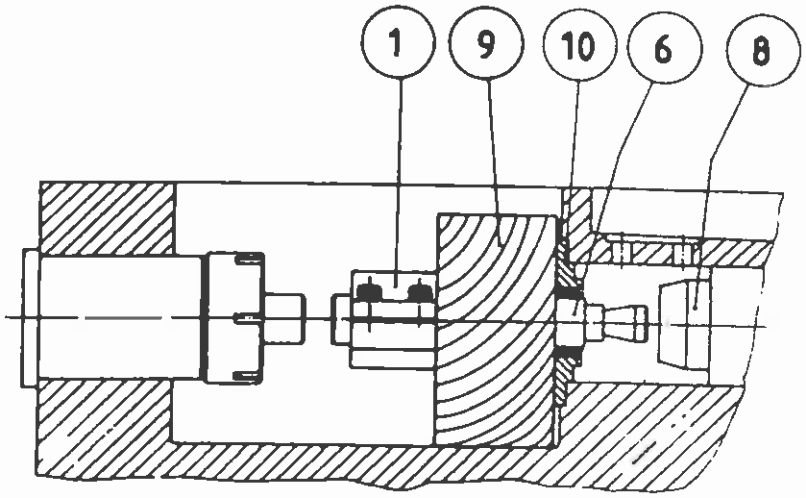
TYPES D.79 - D.79H - D.80 - D.80H - D.90

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

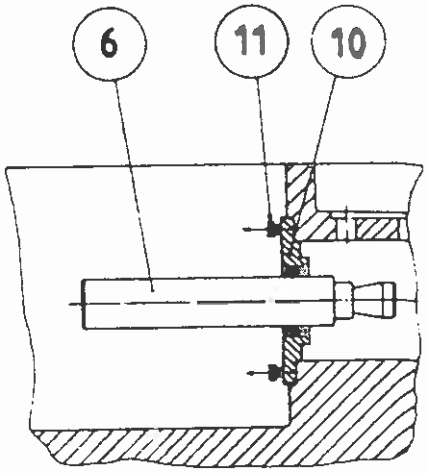
9. A wooden block Pos.9 (approx. 2 x 6 x 15 cm) is placed on bo
sides of fixed piston Pos.6, between piston coupling Pos.1 a
crosshead cover Pos.10.

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

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

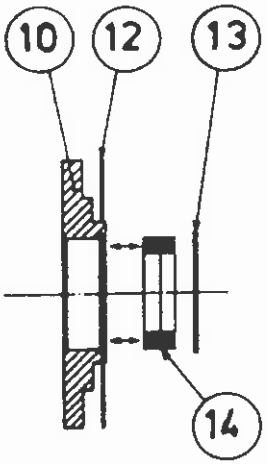


11. Crosshead cover Pos.10 with fixed piston Pos.6 is dismounted b
unscrewing screws Pos.11 which are then screwed into the tw
free threaded holes in the crosshead cover so that the crosshea
cover is forced out.



12. Crosshead cover Pos.10 and fixed piston Pos.6 are removed f
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.1

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

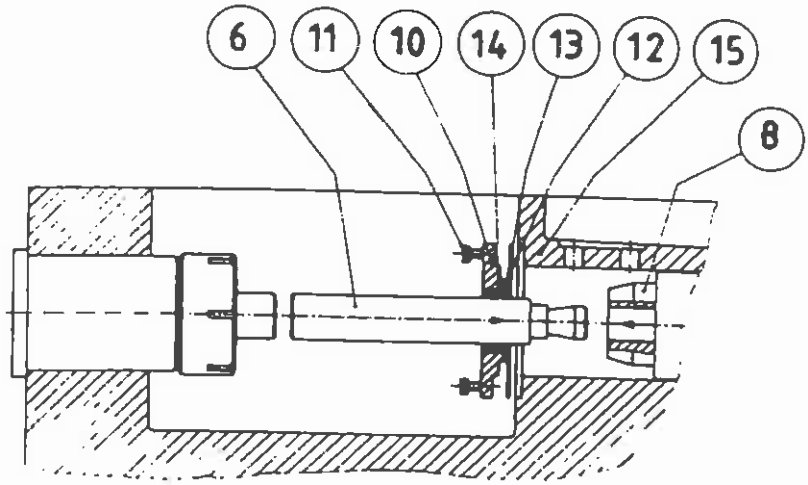
MOUNTING

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 t crosshead cover in order to avoid leakage.

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



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

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

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

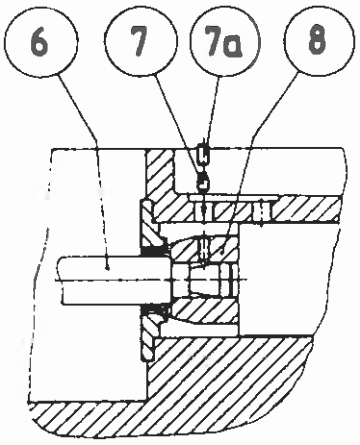
5. TYPES 22.51 - D.51H - D.60 - D.72

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

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

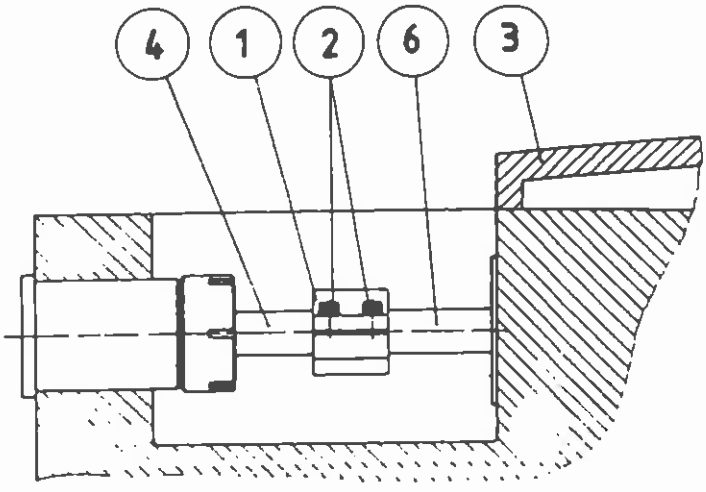
Insert and fix hollow point screw Pos.7 to crosshead Pos.8 that fixed piston Pos.6 is fixed to crosshead Pos.8.

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



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

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



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

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

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

RANNIE

Instruction

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 replac ment of cylinder packing.

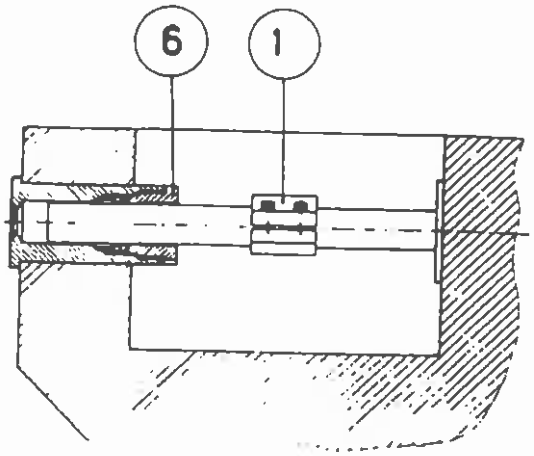
DISMOUNTING

REMEMBER!! Always check that the power supply from the main pan is switched off, and that the main fuses are remove

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

1. Dismount irrigation system for cylinders.

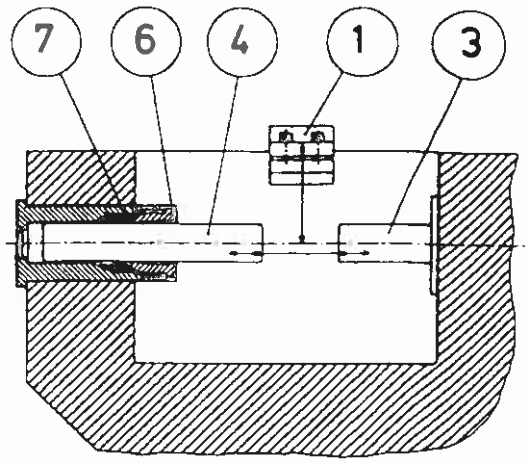
2. The eccentric shaft is turned by means of the V-belt drive o the machine so that piston coupling Pos.1 is in front position



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

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

5. The eccentric shaft is turned by means of the V-belt drive o the machine so that fixed piston Pos.3 is in rear position



6. Remove piston coupling Pos.1.

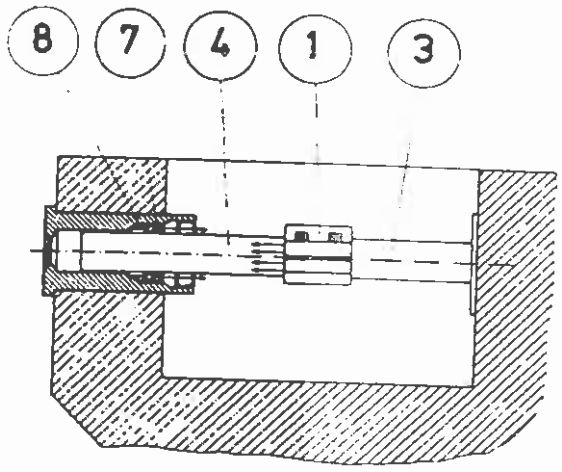
IMPORTANT!! If the machine is provided with ceramic pistons Pos. they must be handled with great care. Ceramic pistons **MUST NOT** be subjected to blows.

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.

NOTE: If it is difficult to extract loose piston Pos.4 fr the cylinder, it may be because the packing in the cy inder sticks. This state can be remedied by moving t homogenising valves in the homogenising bracket co pletely together. Packing ring Pos.6 must be dismount Loose piston Pos.4 is pulled back until it fetches against the fixed piston.

The eccentric shaft is turned by means of the V-be drive of the machine so that the loose piston is move into the cylinder. Because of the pressure thus creat 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.

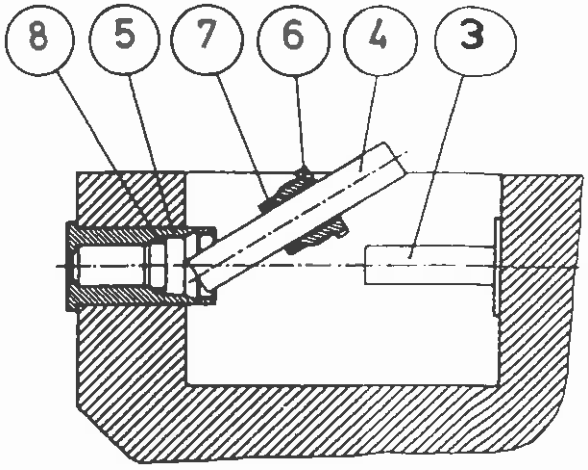
   The U-ring is examined for wear and replaced if necessary.

MOUNTING

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

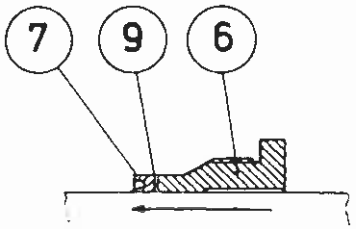
1. Fixed piston Pos.3 is moved to rear position by means of the V-belt drive of the machine.

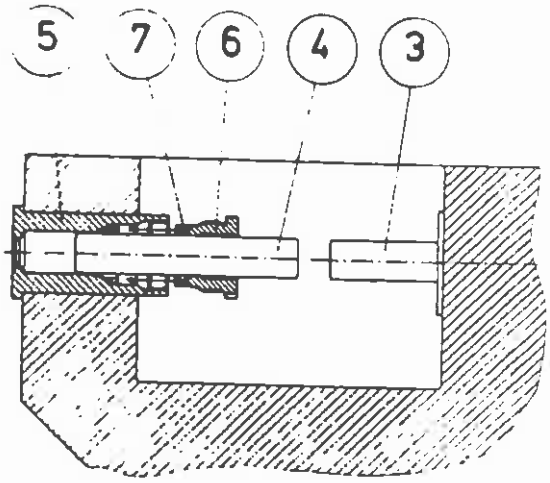
2. Neck ring Pos.8 is mounted in cylinder.



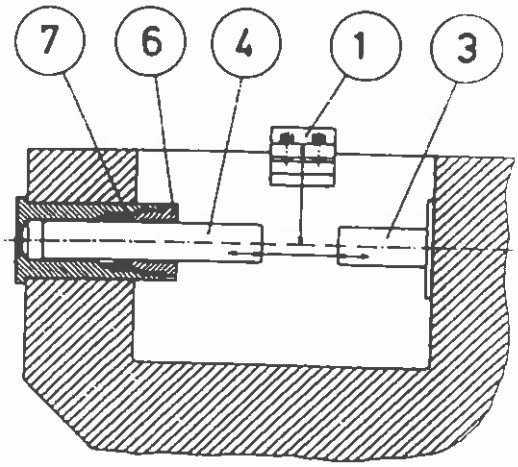
3. U-ring Pos.7 is placed together with packing ring Pos.6 on loose piston Pos.4 and moved into cylinder Pos.5.

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.





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

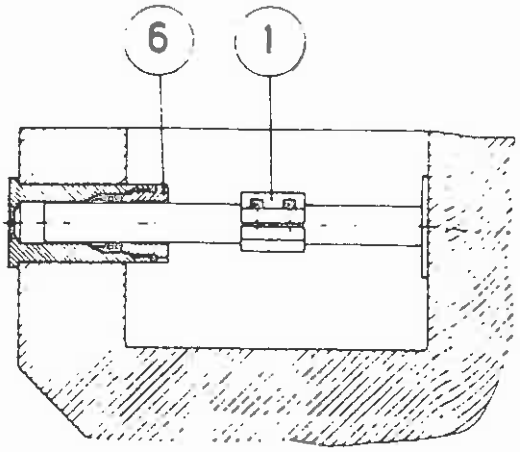


5. Piston coupling Pos.1 is placed on fixed piston Pos.3.

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.



8. Piston coupling Pos.1 is fixed.

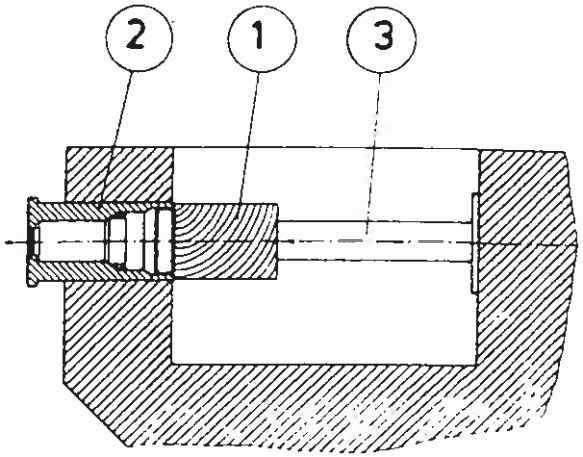
9. Packing ring Pos.6 is secured against WORKING LOOSE by strikin a lead hammer against the shank of the hook spanner.

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 cyl- inder between cylinder Pos.2 and fixed piston Pos.3.



2. The eccentric shaft is turned by means of the V-belt drive c the machine so that the piston is moved to front position, an the cylinder is then pressed out.

3. The cylinder can be taken out through the front of the bas frame.

MOUNTING OF CYLINDER

1. The cylinder is placed in the base frame.

2. The valve housing is mounted carefully on the studs in th base frame.

3. Tighten box nuts.

RANNIE

Instruction

MAINTENANCE

VALVE HOUSING WITH POPPET VALVES

D. 12.50 - 16.50 - 22.51 - .60 - .72 - .79 - .80

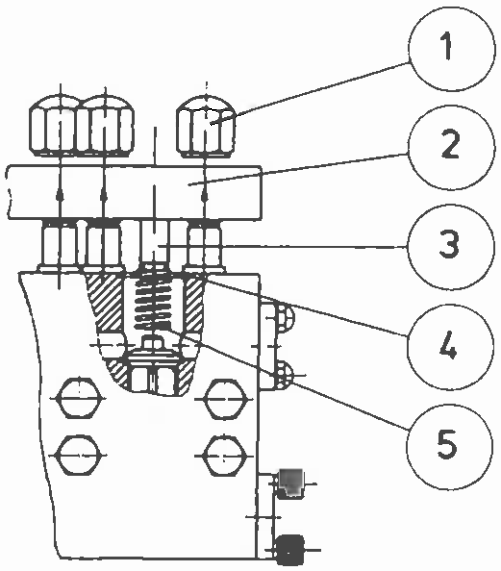
The valve housing must be dismounted for inspection and maintenance of poppet valves and valve seats.

DISMOUNTING

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

1. Remove box nuts Pos.1 on valve housing.

2. Remove cover Pos.2 of valve housing, with valve stop Pos.3.



3. Remove o-rings Pos.4 and delivery valve springs Pos.5 from the valve housing.

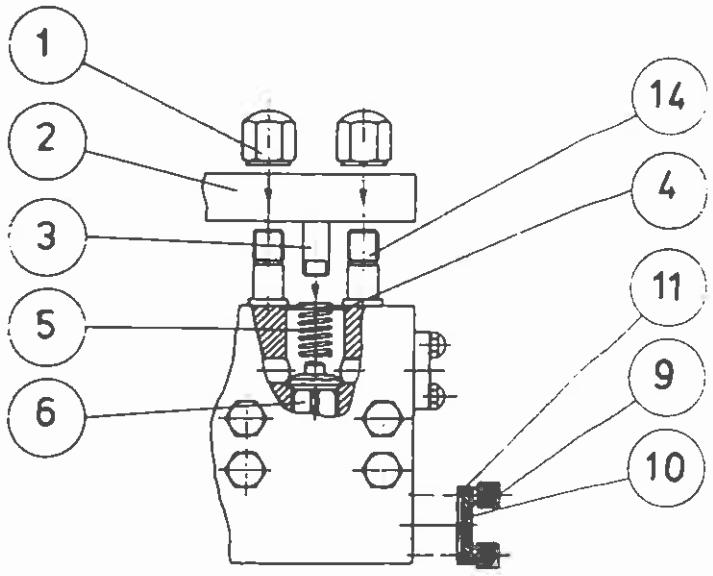
3. Delivery valve Pos.6 is placed in valve housing by means of valve removing tool.

4. Delivery valve spring Pos.5 is placed on top of delivery valve pos.6.

5. O-rings Pos.4 are placed in the valve housing.

6. If studs Pos.14 have been removed, they must be screwed in again.

7. Cover Pos.2 of the valve housing is lifted carefully into position.



REMEMBER!! Check that:

- valve stop Pos.3 is fixed to cover Pos.2.
  The valve stop is secured against working loose with LOCKTITE - activator 764 and adhesive 326.

- O-rings Pos.4 are placed correctly in valve housing so that they will not get caught when cover Pos.2 is mounted.

- delivery valve spring Pos.5 is placed correctly between valve stop Pos.3 and delivery valve Pos.6.

8. Box nuts Pos.1 are put on and tigtened.

IMPORTANT!! If a torque is stated for box nuts Pos.1, it MUST be observed.

10. Filter cartridge Pos.13 is mounted, and flange for filter cartridge Pos.10 with O-ring Pos.11 is fixed by means of thumb screw Pos.9.

SPARE PARTS SUMMARY

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

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

The spare parts lists contained in this section have a **GROUP OF COMPONENTS NUMBER**. This number corresponds to a **POSITION NUMBER** on the layout drawing in Section 1.-.

NOTE: A six-figure number added to the **POSITION NUMBER** means, that two or more components have the same **POSITION NUMBER**. The six-figure number refers to a spare parts list. This spare parts lists belongs to the **GROUP OF COMPONENTS** corresponding to the **POSITION NUMBER** on the layout drawing in Section 1.-.

SPARE PARTS ORDERING

1. The layout drawing in Section 1.- shows the component and the corresponding **POSITION NUMBER**.

2. Section 11.- contains the equivalent spare parts list and part assembly drawing.

3. The spare parts list and the part assembly drawing contain the necessary information for ordering of spare parts.

RANNIE
Instruction

IMPORTANT!! To order spare parts from Rannie, the following information **MUST ALWAYS** be given:

a. machine serial No.
(see Section 1.- - ORDER/SERIAL NO.)

b. description of component

c. order number of component

d. quantity required

See also schematic representation of spare parts ordering on page 3/3.

NOTE: If a complete set of packings is required for a certain component, an order should be issued for the ORDER NUMBER indicated against Pos. 0099 on the list of components.

The ORDER NUMBER is always ended by a P which also must be given when ordering.

Example: 713412P

Spare Part List Page	Stückliste Seite	Stykliste side : 7
Drawing No.	Zeichnung Nr.	Tegnings nr. : 12383
Cabinet	Kabinett	Kabinet
Maschin Type	Maschinentyp	Maskintype : BTP
Maschin size	Maschinengrösse	Maskinstørrelse : D.79

RANNIE
Maskinfabriken Rannie A/S
Roholmsvej 8, 2620 Albertslund
Danmark

Indgår i

OBJECT	GEGENSTAND	KOMPONENT	ITEM POS POS	PCS STCK STK	ORDER NO BEST. NO. BEST. NR.
Door	Tür	Dør	1	1	11103
Frame	Rahmen	Stel	2	1	11020
Cylinder screw	Zylinderschraube	Cylinderskrue	3	12	0206
Spring washer	Federscheibe	Fjederskive	4	20	0689
Pipe	Rohr	Rør	5	1	11022
Side panel	Seitenkassette	Sidekassette	6	1	11090
Side panel	Seitenkassette	Sidekassette	7	9	11089
"Pop"rivet	POP-Blindniet	Popnitte	8	1	
Strap	Bügel	Bøjle	9	2	11028
Strap	Bügel	Bøjle	10	1	11029
Cylinder screw	Zylinderschraube	Cylinderskrue	11	6	01009
Side panel	Seitenkassette	Sidekassette	12	1	11093
Door hinge	Türangel	Dørhængsel	13	2	9725
Door hinge	Türangel	Dørhængsel	14	1	9726-2
Door hinge	Türangel	Dørhængsel	15	1	9726-1
Door	Tür	Dør	16	1	11102
Instrument panel	Instrumentpaneel	Instrumentpanel	17	1	
Frame	Frame	Ramme	18	1	9775

Spare Part List Page	Stückliste Seite	Stykliste side : 7,1
Drawing No.	Zeichnung Nr.	Tegnings nr. : 12383
Cabinet	Kabinett	Kabinet
Maschin Type	Maschinentyp	Maskintype : BTP
Maschin size	Maschinengrösse	Maskinstørrelse : D.79

RANNIE
Maskinfabriken Rannie A/S
Roholmsvej 8, 2620 Albertslund
Danmark

Indgår i

OBJECT	GEGENSTAND	KOMPONENT	ITEM POS POS	PCS STCK STK	ORDER NO BEST. NO. BEST. NR.
Steel Wire	Drahtseil	Stålwire	19	2	0958
Cable clamp	Kabelklemme	Wirelås	20	4	01063
"Pop" rivet	POP-Blindniet	Popnitte	21	1	
Cylinder screw	Zylinderschraube	Cylinderskrue	22	6	0377
Spring washer	Federscheibe	Fjederskive	23	26	0693
Top edge angle	Oberkantwinkel	Topkantvinkel	24	1	11104
Rivet	Niet	Nitte	25	9	
Edge hinge	Kantenscharnier	Kanthængsel	26	3	0769
"Pop" rivet	POP-Blindniet	Popnitte	27	21	
Cylinder screw	Zylinderschraube	Cylinderskrue	28	8	0168
Spring washer	Federscheibe	Fjederskive	29	8	0692
Threaded Bushing	Gewindw Buchse	Gevindbøsning	30	6	01382
Elbow	Winkel	Vinkel	31	4	9718
Top casette	Obere Kassette	Topkassette	32	1	12387
Tpp casette	Obere kassette	Topkassette	33	1	11099
Fan mains	Ventilatornetz	Ventilatornet	34	1	11061
"Pop rivet	POP-Blindniet	Popnitte	35	4	

Spare Part List Page	Stückliste Seite	Stykliste side : 7,2
Drawing No.	Zeichnung Nr.	Tegnings nr. : 12383
Cabinet	Kabinett	Kabinet
Maschin Type	Maschinentyp	Maskintype : BTP
Maschin size	Maschinengrösse	Maskinstørrelse : D.79

RANNIE
Maskinfabriken Rannie A/S
Roholmsvej 8, 2620 Albertslund
Danmark

Indgår i

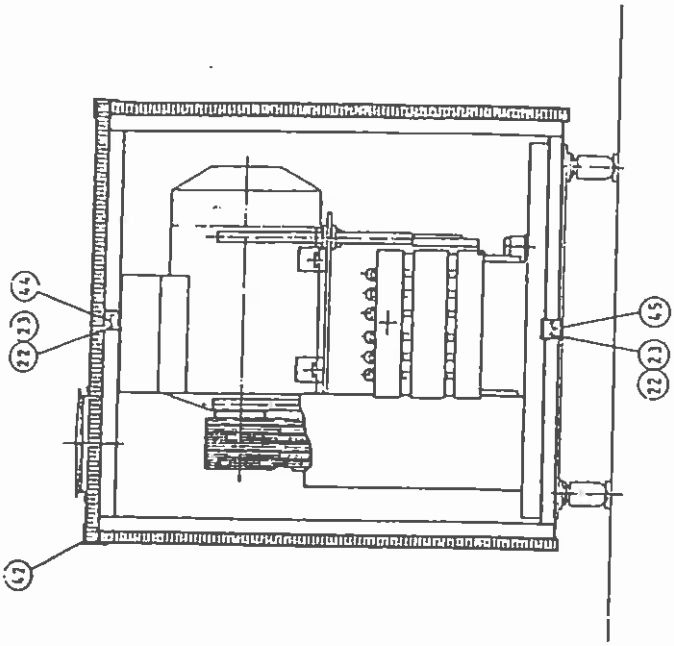
OBJECT	GEGENSTAND	KOMPONENT	ITEM POS POS	PCS STCK STK	ORDER NO. BEST. NO. BEST. NR.
Cylinder screw	Zylinderschraube	Cylinderskrue	37	6	0210
Washer	Scheibe	Skive	38	30	01144
Cylinder screw	Zylinderschraube	Cylinderskrue	39	4	01064
Slotted screw	Schlitzschraube	Kærvskrue	40	23	0182
Washer	Scheibe	Skive	41	24	01380
Top edge angle	Oberkantwinkel	Topkantvinkel	42	2	11105
Top edge angle	Oberkantwinkel	Topkantvinkel	43	1	11106
Fittings	Beschlag	Beslag	44	1	8875
Fittings	Beschlag	Beslag	45	1	8874
Top casette	Obere Kassette	Topkassette	46		
Fittings sleeve	Montagekragen	Montagekrave	47		
Top casette	Obere kassette	Topkassette	48		
Fan mains	Ventilatornetz	Ventilatornet	49		
Enlargement of top cover	Uberbau	Overbygning	50		
Packing	Packung	Pakning	51	1	0690
Nut	Mutter	Møtrik	52	14	01356
Cover	Deckel	Låge	53		
		Instrumentkasse	54		

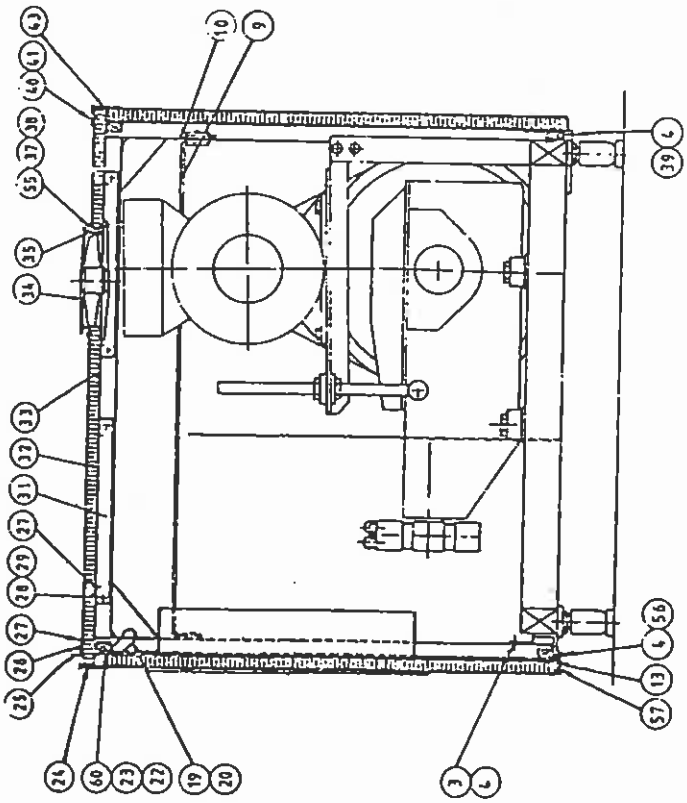
Spare Part List Page	Stückliste Seite	Stykliste side : 1,3
Drawing No.	Zeichnung Nr.	Tegnings nr. : 12383
Cabinet	Kabinett	Kabinet
Maschin Type	Maschinentyp	Maskintype : BTP
Maschin size	Maschinengrösse	Maskinstørrelse : D.79

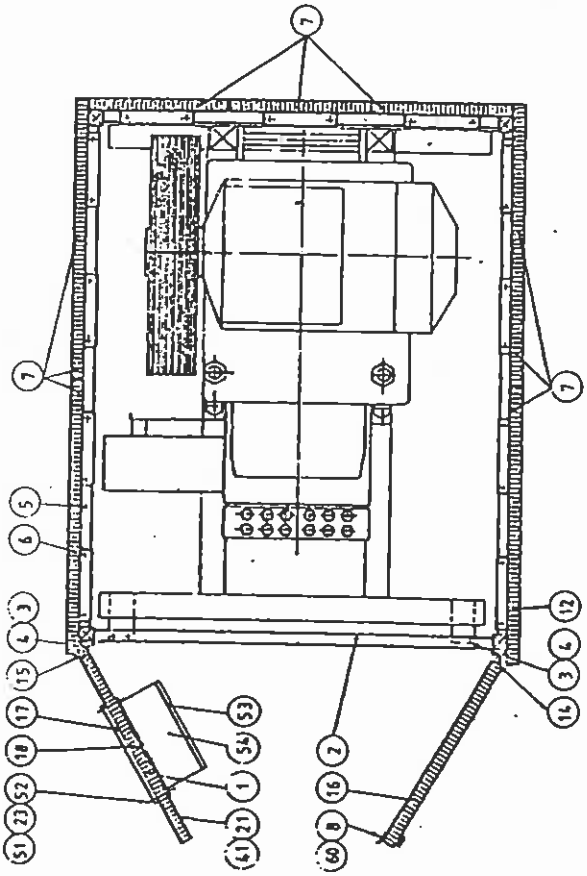
RANNIE
Maskinfabriken Rannie A/S
Roholmsvej 8, 2620 Albertslund
Danmark

Indgår i

OBJECT	GEGENSTAND	KOMPONENT	ITEM POS POS	PCS STCK STK	ORDER BEST. BEST.
Nut	Mutter	Møtrik	55	12	0952
Cylinder screw	Zylinder-schraube	Cylinder skrue	56	4	0362
Washer	Scheibe	Skive	57	2	0204
Cylinder screw	Zylinderschraube	Cylinderskrue	58	6	01020
"Pop rivet	Pop-Blindniet	Popnitte	59	4	
Washer	Scheibe	Skive	60	12	01381







RANNIE Maskinfabriken Rannie A/S	Roholmsvej 8, Albertslund Danmark		Erstatter:
TM D.79		Dato / Sign.	Nr. 12383
ABINET	Tegn.	17·4·84 KH	
	Kontr.		
	Appr.		Erstattet af:

OBJECT : Bottom Frame
GEGENSTAND: Exzentrikgehäuse
KOMPONENT : Bundramme

PAGE
SEITE:
SIDE:

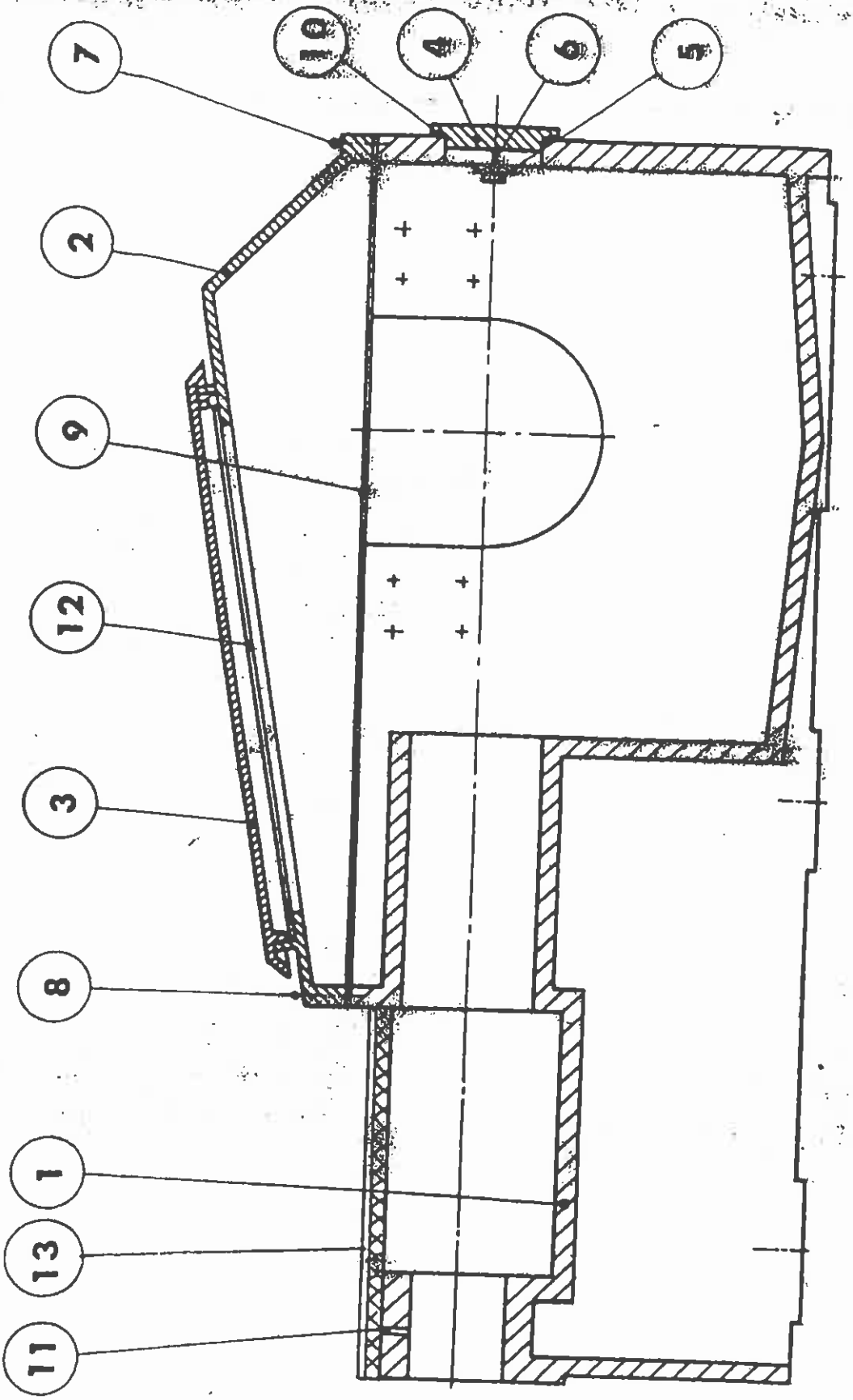
SERIAL NO.
FABR. NR. :
ORDRE NR.

DRAWING NO.
ZEICHNUNG NR. : 9841
TEGNING NR.

TYPE
MODELL :
MODEL

SPARE PART LIST NO.
STÜCKLISTE NR. :
STYKLISTE NR.

OBJECT	GEGENSTAND	KOMPONENT	ITEM POS POS	PCS STCK STK	ORDER NO. BEST. NO. BEST. NR.
Bottom frame	Exzentrikgehäuse	Bundramme	1	1	7531
Lid	Deckel	Låg	2	1	6478
Cover	Deckel	Dæksel	3	1	6475
End-cover	Schluss-deckel	Endedæksel	4	3	9455
Clamp	Spannstück	Spændestykke	5	1	2874
Hexagon - headed screw	Sechseckschraube	Sekskantskrue	6	3	o174
Cylinder screw	Zylinder Schraube	Cylinder skrue	7	12	o175
Cylinder screw	Zylinder Schraube	Cylinder skrue	8	4	o176
Packing	Packung	Pakning	9	1	o177
O-ring	O-Ring	O-ring	10	3	o74
Plug	Pfropfen	Prop	11	1	o178
Oil splashguard	Ölspritzplatte	Oliestænkplade	12	1	8231
Splashguard	Spritzplatte	Stænkplade	13	1	9723
			14		
			15		
			16		
			17		
			18		



A D.80 D.90							
amlingstegn.		Stk.	Genstand	Pos.	Model Nr.	Materiale	Raa Maal

MASKINFABRIKEN RAMME A/S

ROHOLMSVEJ 8 . DK-2620 ALBERTSLUND . DANMARK
TELEFON (02) 64 93 00 . TELEX 3 33 33

BUNDRAMME

Maalestok				
S	Tegnet	KJ	d. 9-1-79	Erstatning for: 8916
	Kontrolleret		d.	9841
	Godkendt		d.	Erstattet af:

OBJECT : Crosshead, Piston and Connecting Rod
GEGENSTAND: Kreuzkopf Kolben Pleuelstange
KOMPONENT : Krydshoved, stempel og plejlstang

PAGE
SEITE:
SIDE.

SERIAL NO.
FABR. NR. :
ORDRE NR.

DRAWING NO.
ZEICHNUNG NR. : 8907
TEGNING NR.

TYPE
MODELL :
MODEL

SPARE PART LIST NO.
STÜCKLISTE NR. :
STYKLISTE NR.

OBJECT	GEGENSTAND	KOMPONENT	ITEM POS POS	PCS STCK STK	ORDER NO. BEST. NO. BEST. NR.
Eccentric strap, rear half	Exzentrikbügel, hinten	Excentrikbøjle bag	1	3	7380
Eccentric strap, front half	Exzentrikbügel,, vorn	Excentrikbøjle, for	2	3	7380
Connecting rod	Pleuelstange	Plejlstang	3	3	3551
Gasket	Zwischenstück	Mellemlæg	4		
Lock bushing	Schliessbuchse	Låsebøsning	5		
Screw	Schraube	Skrue	6	6	1395-4
Nut	Mutter	Møtrik	7	6	0185
Counter nut	Gegenmutter	Kontramøtrik	8	6	0471
Cylinder screw	Zylinder Schraube	Cylinder skrue	9	6	0186
Cylinder screw	Zylinder schraube	Cylinder skrue	10	6	0186
Bushing	Buchse	Bøsning	11	3	3551
Crosshead	Kreuzkopf	Krydshoved	12	3	3550
Crosshead pin	Kreuzkopfzapfen	Krydspind	13	3	3552
Pointed screw	Reitstochschraube	Pinolskrue	14	6	0187
Pointed screw	Reitstockschraube	Pinolskrue	15	3	0188
Crosshead cover	Kreuzkopfdeckel	Krydshoveddæksel	16	3	9068
Cylinder screw	Zylinder Schraube	Cylinder skrue	17	9	0190

OBJECT :
GEGENSTAND:
KOMPONENT :

Crosshead, poston and Connecting Rod
Kreuzkopf, Kolben und Pleuelstange
Krydshoved, stempel og plejlstang

PAGE
SEITE:
SIDE

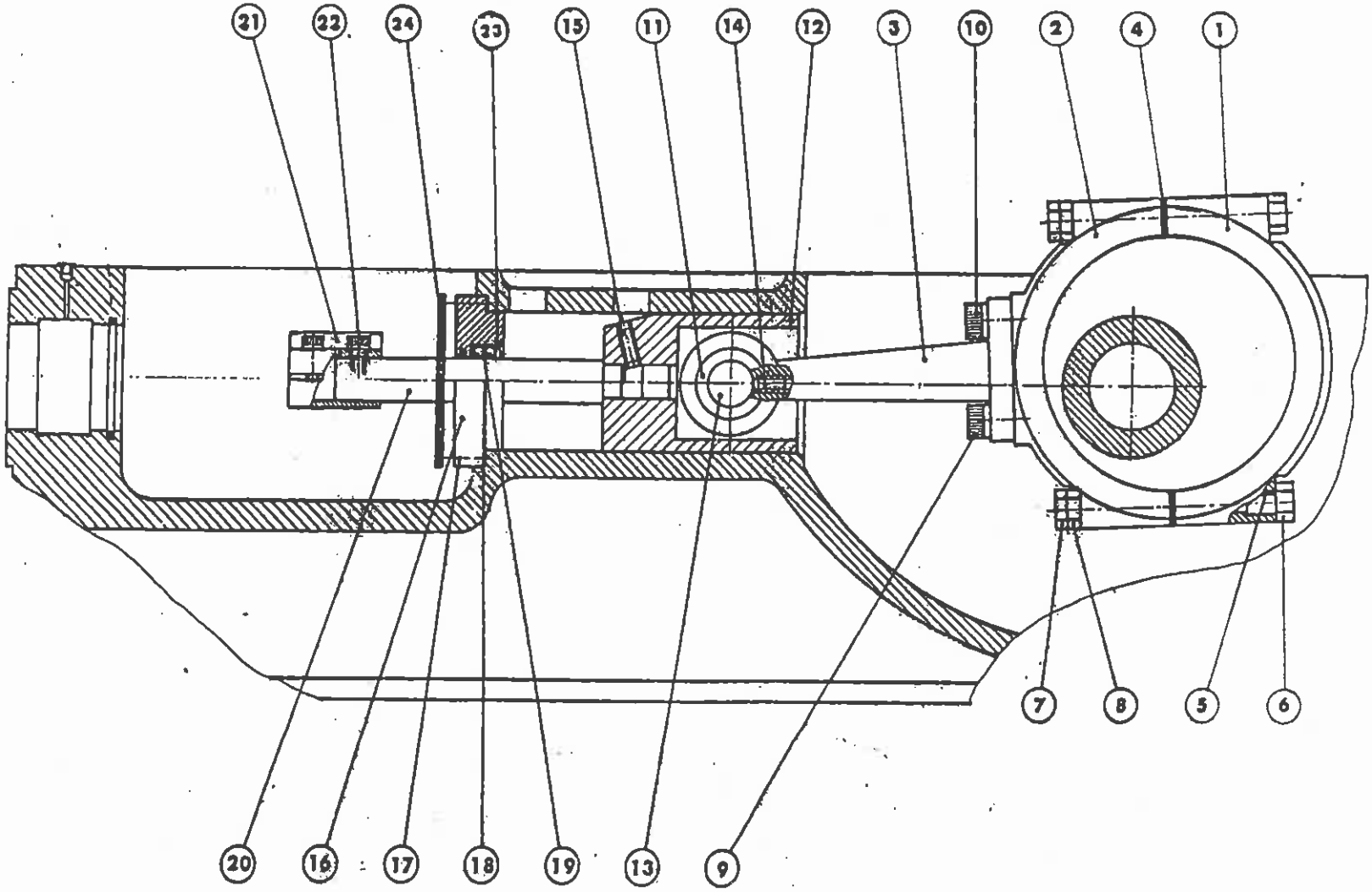
SERIAL NO.
FABR. NR. :
ORDRE NR.

DRAWING NO.
ZEICHNUNG NR. : 8907
TEGNING NR.

TYPE
MODELL :
MODEL

SPARE PART LIST NO.
STÜCKLISTE NR. :
STYKLISTE NR.

OBJECT	GEGENSTAND	KOMPONENT	ITEM POS POS	PCS STCK STK	ORDER NO. BEST. NO. BEST. NR.
Packing	Packung	Pakning	18	3	0191
Oil seal ring	Öldichtungsring	Olietætningsring	19	6	0117
Piston rod	Kolbenstange	Stempelstang	20	3	2554-2
Piston coupling	Kolbenkupplung	Stempelkobling	21	3	8669
Cylinder screw	Zylinder Schraube	Cylinder skrue	22	6	0192
Locking ring	Schlisssring	Låsring	23	3	0193
U-Ring	U-Ringsmanchet	Gummimanchet	24	3	9800



RANNIE	S	
BORDLÆGVEJ 8 ALBERTSLUND		
D 80 - 90		
KRYDSHOVED, STEMPEL-		8907

1-79.206

OBJECT :
GEGENSTAND:
KOMPONENT :

Eccentric Shaft
Exzentrikachse
Excentrikaksel

PAGE
SEITE:
SIDE

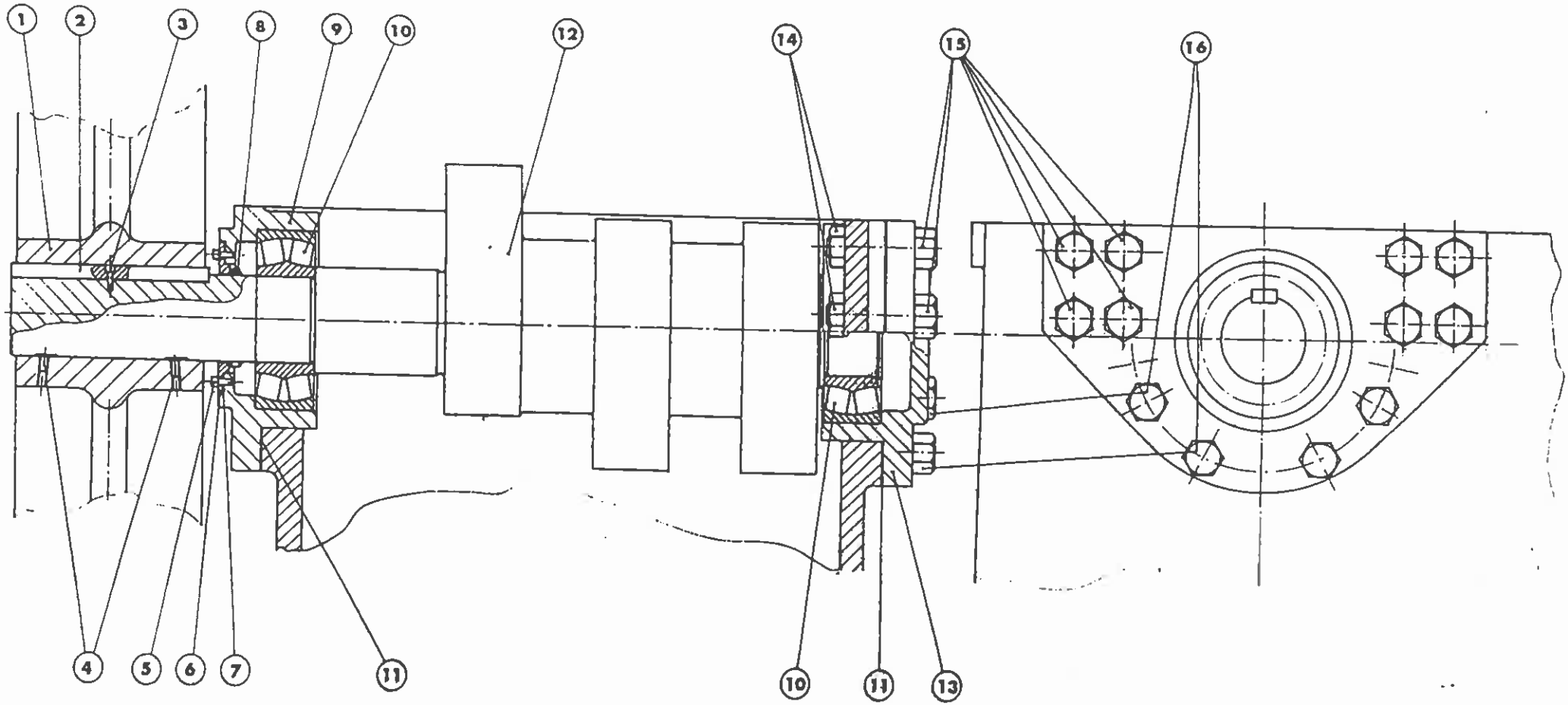
SERIAL NO.
FABR. NR. :
ORDRE NR.

DRAWING NO.
ZEICHNUNG NR. : 7952
TEGNING NR.

TYPE
MODELL
MODEL

SPARE PART LIST NO.
STÜCKLISTE NR.
STYKLISTE NR.

OBJECT	GEGENSTAND	KOMPONENT	ITEM POS POS	PCS STCK STK	ORDER NO BEST. NO. BEST. NR.
V-belt pulley	Keilriemenscheibe	Kileremskive	1	1	Page Seite Side 28
Tongue	Passfeder	Pasfeder	2	1	0195
Cylinder screw	Zylinder Schraube	Cylinder skrue	3	1	0183
Pointed screw	Reitstockschraube	Pinol skrue	4	2	0187
Cylinder screw	Zylinder Schraube	Cylinder skrue	5	6	0183
Cover	Deckel	Dæksel	6	1	5949
Packing	Packung	Pakning	7	1	0198
V-ring	V-Ring	V-ring	8	1	0199
Bearing cover	Lagerdeckel	Lejedæksel	9	1	7529
Roller bearing	Rollenlager	Rulleleje	10	2	0201
Packing	Packung	Pakning	11	2	0200
Eccentric shaft	Exzentrikachse	Excentrikaksel	12	1	7527
Bearing cover	Lagerdeckel	Lejedæksel	13	1	8277
Nut	Mutter	Møtrik	14	16	0202
Hexagon-headed screw	Sechseckschraube	Sekskantskrue	15	16	2756-1
Hexagon-headed screw	Sechseckschraube	Sekskantskrue	16	8	2756-2



RANNIE AKTIESELSKAB
RONDELMSVEJ 8 ALBERTSLUND

S

D . 80

EXCENTRUKAKSEL

7952

OBJECT :
GEGENSTAND:
KOMPONENT :

Frame
Rahmen
Stel

PAGE
SEITE:
SIDE

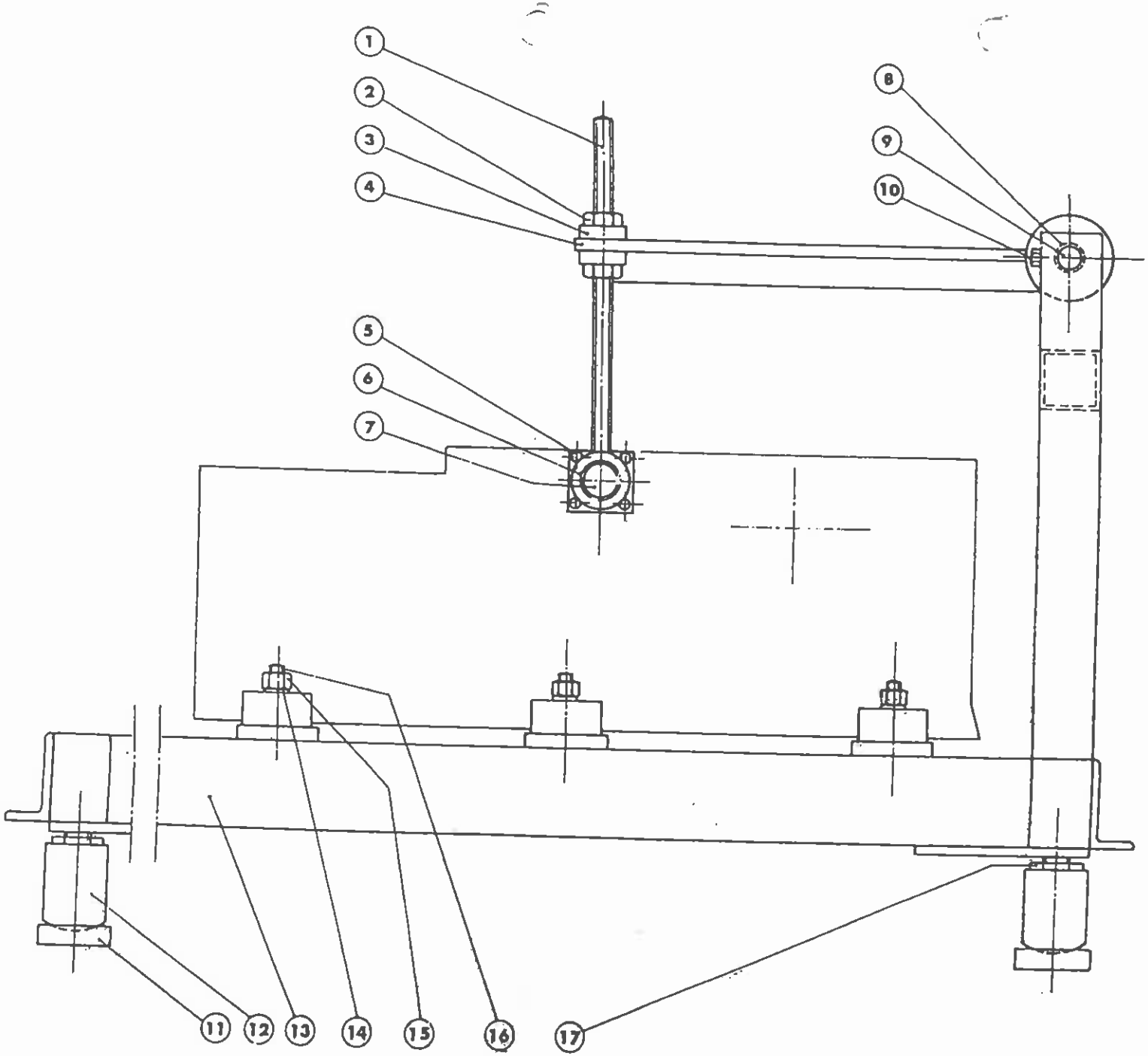
SERIAL NO.
FABR. NR. :
ORDRE NR.

DRAWING NO.
ZEICHNUNG NR.
TEGNING NR. : 8881

TYPE
MODELL :
MODEL

SPARE PART LIST NO.
STÜCKLISTE NR.
STYKLISTE NR. :

OBJECT	GEGENSTAND	KOMPONENT	ITEM POS POS	PCS STCK STK	ORDER NO BEST. NO BEST. NR.
Spindle	Spindel	Spindel	1	2	9715
Adjusting nut	Justiermutter	Justermøtrik	2	4	6789
Striker plate	Anlagescheibe	Anlægsskive	3	4	679o
Motor bracket	Motorkonlsole	Motorkonsol	4	1	8883
Cylinder screw	Zylinder Schraube	Cylinder skrue	5	8	o211
Locking ring	Schliessring	Låsering	6	2	o361
Retainer	Halter	Holder	7	2	9714
Slide seat	Gleitlager	Glide leje	8	2	o213
Shaft	Achse	Aksel	9	2	8882
Hexagon-headed screw	Sechseckschraube	Sekskantskrue	lo	1	o214
Supporting block	Untersatzklotz	Underlagsklods	11	4	4816
Leg	Bein	Ben	12	4	9247
Frame	Rahmen	Stel	13	1	8885
Disk	Scheibe	Skive	14	6	o215
Nut	Mutter	Møtrik	15	6	0202
Stud	Stiftschraube	Tapskrue	16	6	2156
Counter nut	Gegenmutter	Kontramøtrik	17	4	o217



RANNIE

RØHOLMSVEJ 8 ALBERTSLUND

S

D.80 M

STEL

8881

OBJECT :
GEGENSTAND:
KOMPONENT :

Oil Drain
Ölabzapfung
Olie aftapning

PAGE
SEITE:
SIDE :

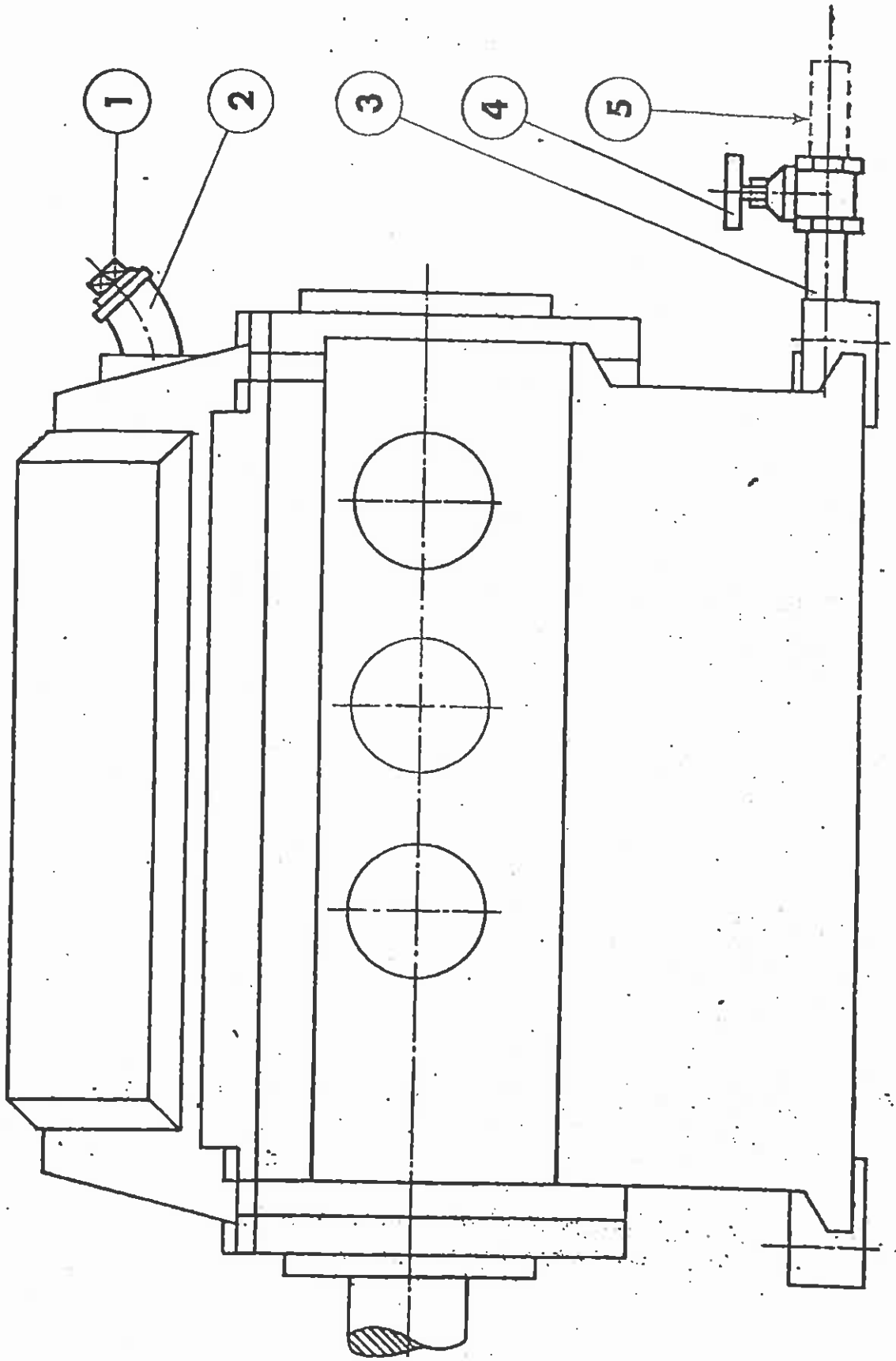
SERIAL NO.
FABR. NR. :
ORDRE NR.

DRAWING NO.
ZEICHNUNG NR. : 7966
TEGNING NR.

TYPE
MODELL :
MODEL

SPARE PART LIST NO.
STÜCKLISTE NR. :
STYKLISTE NR.

OBJECT	GEGENSTAND	KOMPONENT	ITEM POS POS	PCS STCK STK	ORDER NO BEST. NO BEST. NR
Drain plug	Pfropfen	Prop	1	1	0263
Angle	Winkel	Vinkel	2	1	0264
Nipple pipe	Nippel Rohr	Nippelrør	3	1	0265
Slide valve	Absperrschieber	Skydeventil	4	1	0266
Nipple pipe	Nippel Rohr	Nippelrør	5		0267



M-S D.80

Samlingstegn.		Stk.	Genstand	Pos.	Model Nr.	Materiale	Raa Maa

MASKINFABRIKEN RANNIE A/S
ROHOLMSVEJ 8 . DK-2620 ALBERTSLUND . DANMARK
TELEFON (02) 64 93 00 . TELEX 33333

OLIEAFTAPNING

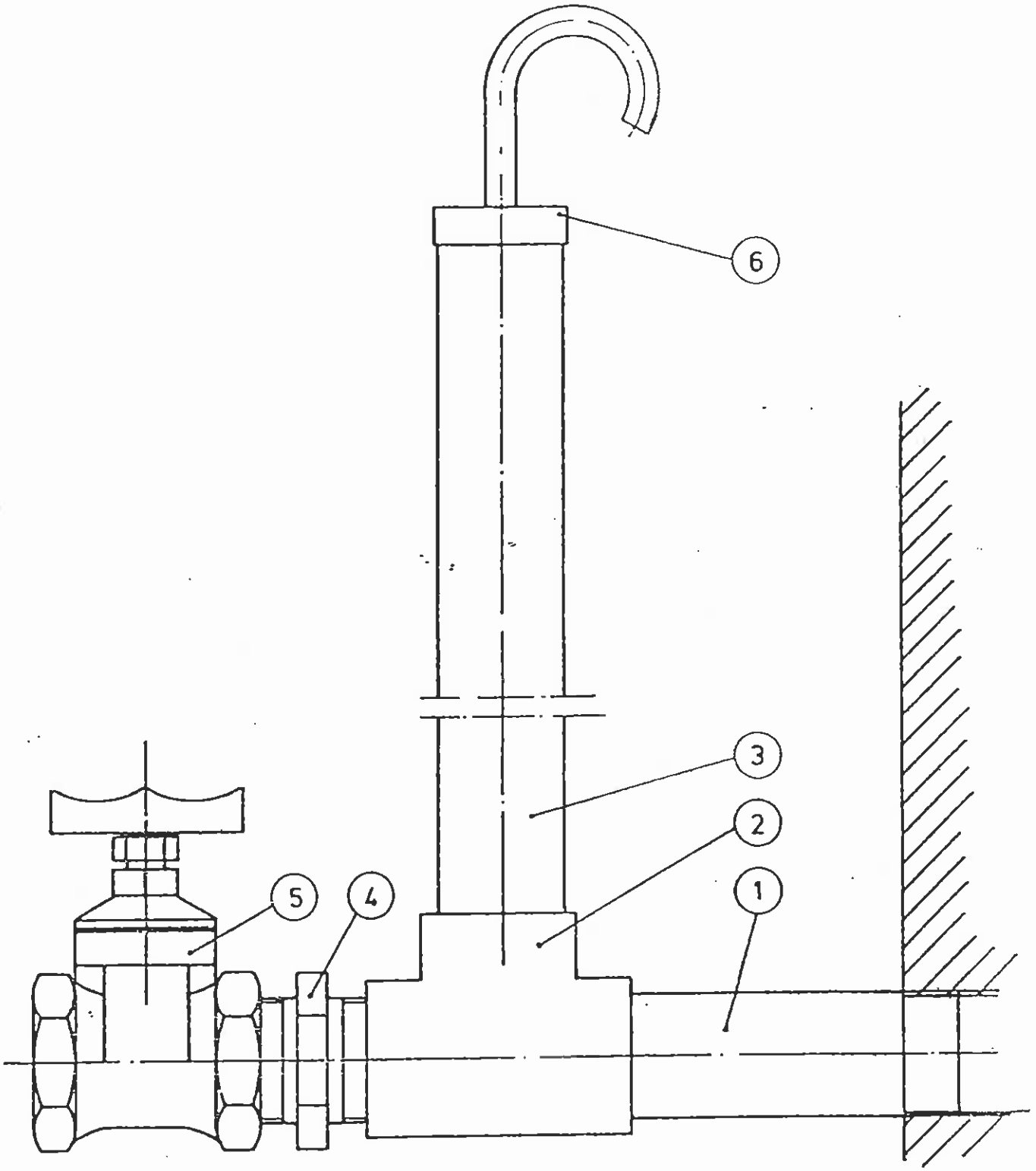
Maalestok				
	Tegnet	FTHW	d.	Erstatning for:
	Kontrolleret		d.	7966
	Godkendt		d.	Erstattet af:

Spare Part List Page	Stückliste Seite	Stykliste side :	11
Drawing No.	Zeichnung Nr.	Tegnings nr. :	12732
Oil Level Indicator	Ölstandsanzeiger	Olieniveaukontrol	
Maschin Type	Maschinentyp	Maskintype :	BTP
Maschin size	Maschinengrösse	Maskinstørrelse :	D.79

RANNIE
Maskinfabriken Rannie A/S
Roholmsvej 8, 2620 Albertslund
Danmark

Indgår i D.79 H

OBJECT	GEGENSTAND	KOMPONENT	ITEM POS POS	PCS STCK STK	ORDER NO. BEST. NO. BEST. NR.
Nipple Pipe	Nippel Rohr	Nippelrør	1	1	01459
T - Piece	T - Stück	T - Stykke	2	1	0506
Nipple Pipe	Nippel Rohr	Nippelrør	3	1	12681
Flange Nipple	Brustnippel	Brystnippel	4	1	0505
Slide Valve	Absperrscheiber	Skydeventil	5	1	0266
Oil Pin	Öl - Stift	Oliepind	6	1	11640



RANNIE Maskinfabriken Rannie A/S

Roholmsvej 8, Albertslund
Danmark

Erstatter:

Nr. 12732

BTP D.79 - D.79H

OLIENIVEAUKONTROL

	Dato	Sign.
Tegn.	19.12.84	OT/BR
Kontr.		

Erstattet af:

OBJECT : Motor, V-Belts & Belt Pulley
GEGENSTAND: Motor, Keilriemen & Keilriemenschreiben
KOMPONENT : Motor, kileremme & skiver

PAGE
SEITE:
SIDE

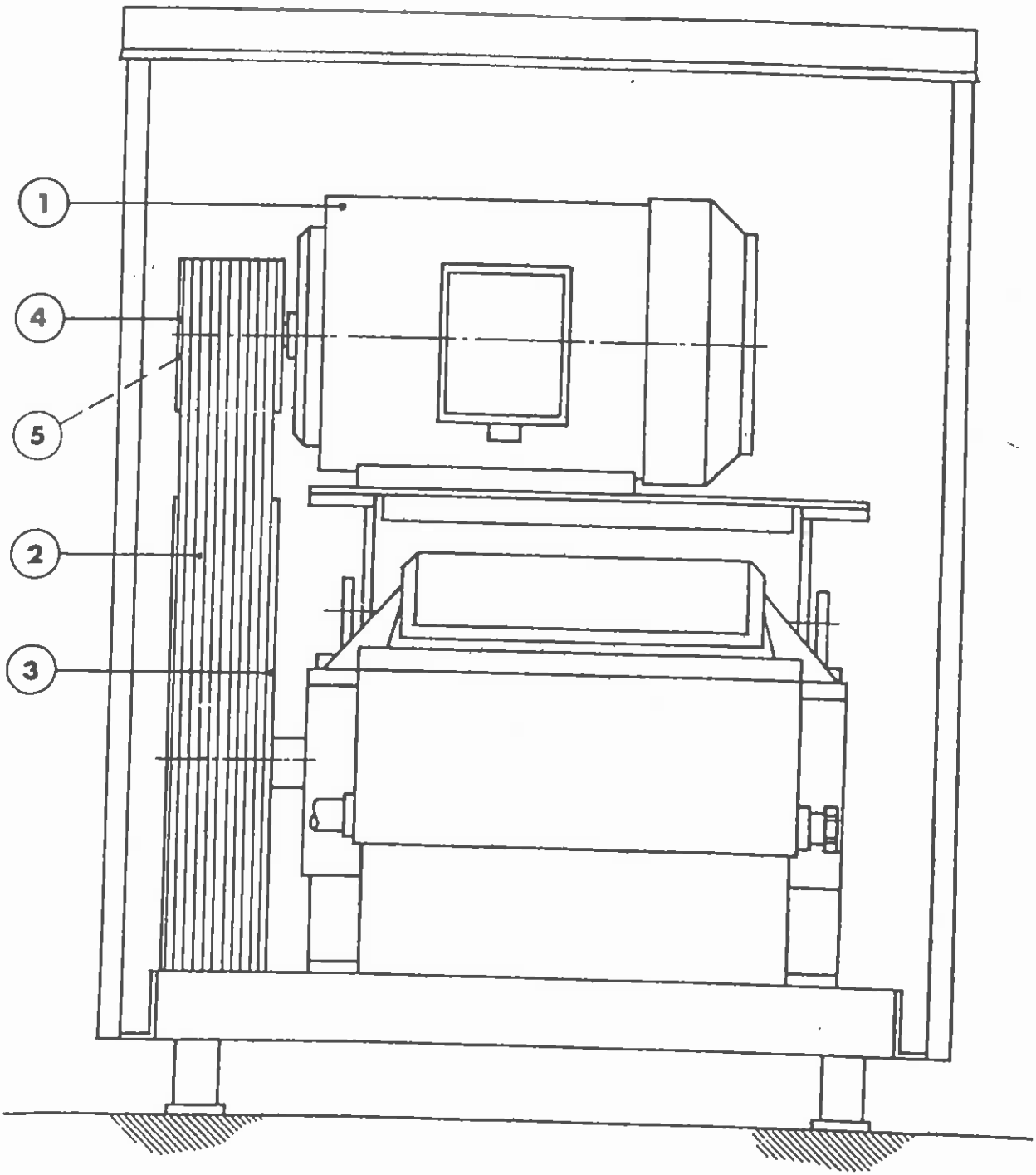
SERIAL NO.
FABR. NR. :
ORDRE NR.

DRAWING NO.
ZEICHNUNG NR. 9078
TEGNING NR.

TYPE
MODELL :
MODEL

SPARE PART LIST NO.
STÜCKLISTE NR. :
STYKLISTE NR.

OBJECT	GEGENSTAND	KOMPONENT	ITEM POS POS	PCS STCK STK	ORDER NO BEST. NO BEST. NR.
Motor	Motor	Motor	1	1	
V-belt	Keilriemen	Kilerem	2	11	SPB 335
Belt pulley	Keilriemenscheibe	Remskive	3	1	
Belt pulley	Keilriemenscheibe	Remskive	4	1	

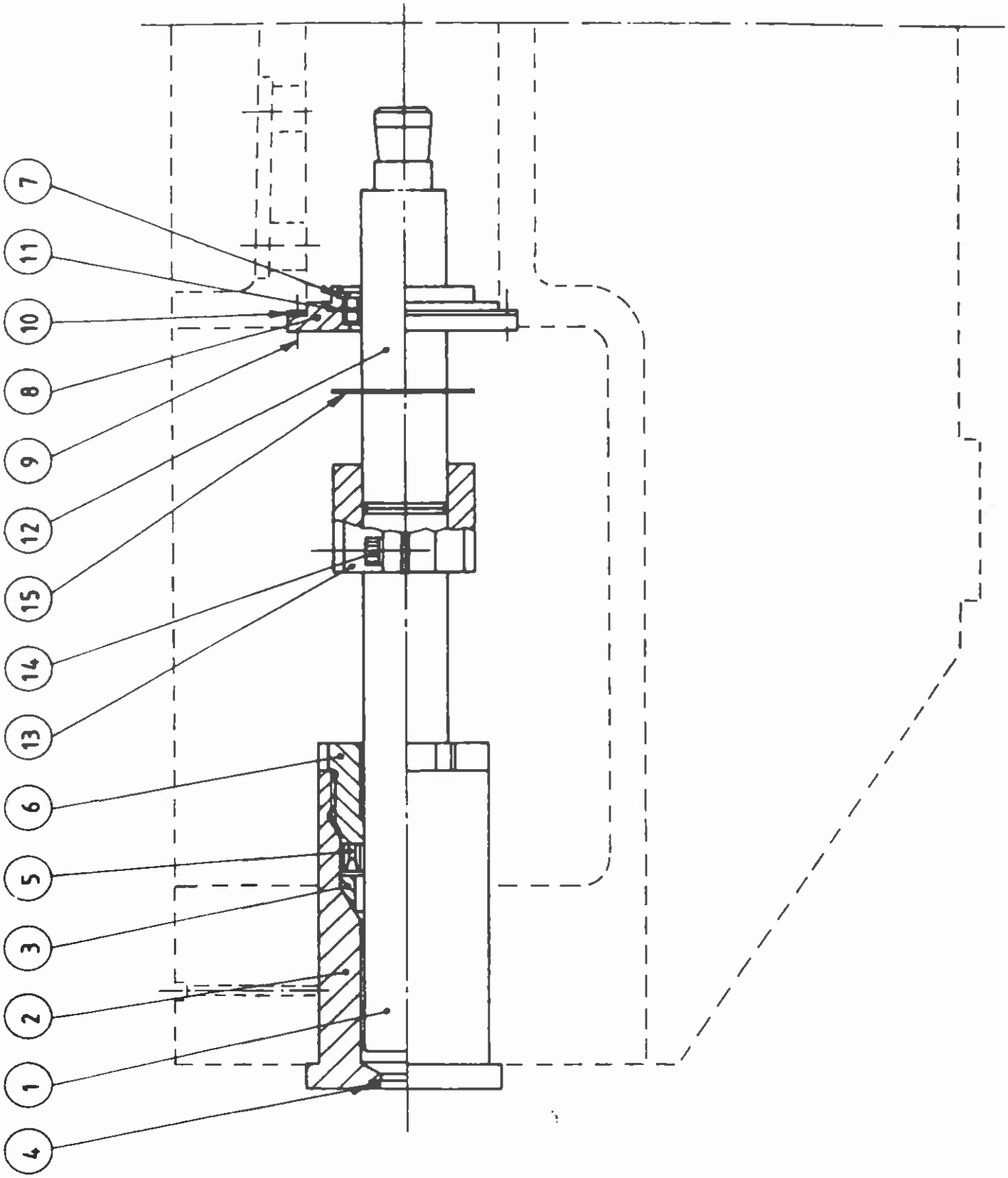


MASKINFABRIKEN RANNIE AKTIESELSKAB ROHOLMSVEJ 8 ALBERTSLUND	Maalestok 5	Fabr. Nr. Dato Tegn. af F.T.H.W Kont. af	
MILIEU	Samlingstegning	Erstatning for:	
MOTOR, KILEREMME & SKIVER		9078	

APV RANNIE AS **** P A R T S L I S T **** DATE: 18.05.
COPENHAGEN GROUP OF COMPONENTS: 013
PAGE: 1

DRAWING NO
716417 CYLINDER ARRANGEMENT

POS NO	ORDER NO	QUANTITY	DESCRIPTION
0001	112719	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	112103	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	716417V	1,000	SERVICE TOOLS
0099	716417P	1,000	SET OF PACKINGS



58.79

CYLINDERARRANGEMENT
CYLINDER ARRANGEMENT
ZYLINDERANORDNUNG
DISPOSITIF DE CYLINDRES

	Dato	Sign	Erstatter
Tegn.	4/5-88	KJ	Nr
Kontr			716417
Appr			

Erstattet af

RANNIE

Rannie a/s
Roholmsvej 8
DK-2620 Albertslund
Denmark

	Zeichnung Nr.	Stykliste side : 2 Tegnings nr. : 12737	
VALVE HOUSING	Ventilgehäuse	Ventilhus	
MASCHIN TYPE:	Maschinentyp	Maskintype : BTP-BT-INDUSTRY-HP	
MASCHIN SIZE:	Maschinengrösse	Maskinstørrelse : D.79	

RANNIE
Maskinfabriken Rannie A/S
Holmsvej 8, 2620 Albertslund
Danmark

Indgår i

OBJECT	GEGENSTAND	KOMPONENT	ITEM POS POS	PCS STCK STK	ORDER NO. BEST. NO. BEST. NR.
VALVE HOUSING	Ventilgehäuse	Ventilhus	1	1	12855
FLANGE	Flansch	Flange	2	1	9155
Box Nut	Kapselmutter	Kalotmøtrik	3	6	2262-1
stud	Stiftschraube	Tapskrue	4	6	2262-2
VALVE GUARD	Ventilstop	Ventilstop	5	3	10289
PRESSURE VALVE	Druckventil	Trykventil	6	3	7614
SPRING	Druckventilfeder	Trykventilfjeder	7	3	11379
SUCTION VALVE	Saugventil	Sugeventil	8	3	7615
SPRING	Saugventilfeder	Sugeventilfjeder	9	3	11381
SPRING	Saugventilfeder	Sugeventilfjeder	10	3	11380
O-RING	O-Ring	O-ring 62,2 x 3	11	3	055
stud	Stiftschraube	Tapskrue	12	8	7598
Box Nut	Kapselmutter	Kalotmøtrik	13	8	7599
FLANGE	Flansch	Flange	14	1	9490
tHUMB SCREW	Rändelschraube	Fingerskrue	15	2	9491
O-RING	O-Ring	O-ring 79,3 x 3	16	1	064
FILTER CARTIDGE	Filterpatrone	Filterpatron	17	1	9492
blind FLANGE	blind FLANSCH	blind FLANGE	18	1	7602

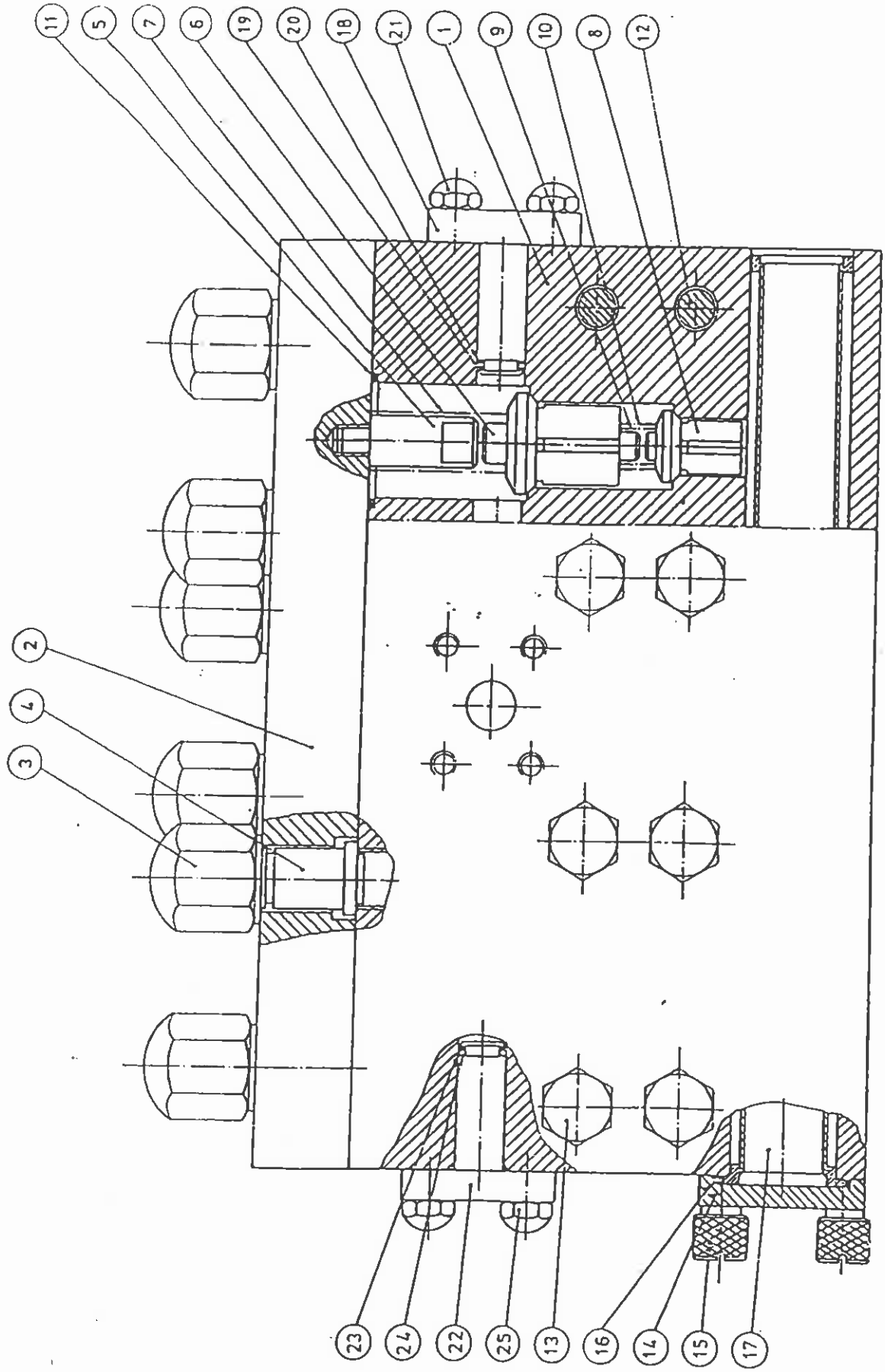
Spare Part List Page	Stückliste Seite	Stykliste side : 2,1
Drawing No.	Zeichnung Nr.	Tegnings nr. : 12737
Valve housing	Ventilgehäuse	Ventilhus
Maschin Type	Maschinentyp	Maskintype : BTP-BT-INDUSTRY-HP
Maschin size	Maschinengrösse	Maskinstorrelse : D.79

RANNIE

Maskinfabriken Rannie A/S
Roholmsvej 8, 2620 Albertslund
Danmark

Indgår i

OBJECT	GEGENSTAND	KOMPONENT	ITEM POS POS	PCS STCK STK	ORDER N BEST. NO BEST. NR
O-ring	O-Ring	O-ring	19	1	017
back ring	Backring	Backring	20	1	016
Hexagon-headed screw	Sechseckschraube	Sekskantskrue	21	4	318g
blind flange	Blindflansch	Blindflange	22	1	7602
O-ring	O-Ring	O-ring	23	1	017
back ring	Backring	Backring	24	1	0163
HExagon-headed screw	Sechseckschraube	Sekskantskrue	25	4	318g-1



RANNIE Maskinfabriken Rannie A/S

Roholmsvej 8, Albertslund
Danmark

Erstatter:

TP-BT-INDUSTRY-HP D.79

VENTILHUS MED OVERLIGGER

	Dato	Sign.
Tegn.	4.12.84	OT/BR
Kontr.		

Nr. 12737

Part List Page	Stückliste Seite	Stykliste side : 3
ng No.	Zeichnung Nr.	Tegnings nr. : 12339
Bottum frame	Exzentrikgehäuse	Bundramme
MASCHIN Type	Maschinentyp	Maskintype : BTP
MASCHIN size	Maschinengrösse	Maskinstørrelse : D.79

RANNIE
Maskinfabriken Rønnø A/S
Roholmsvej 8, 2620 Albertslund
Danmark

Indgår i D.79 H

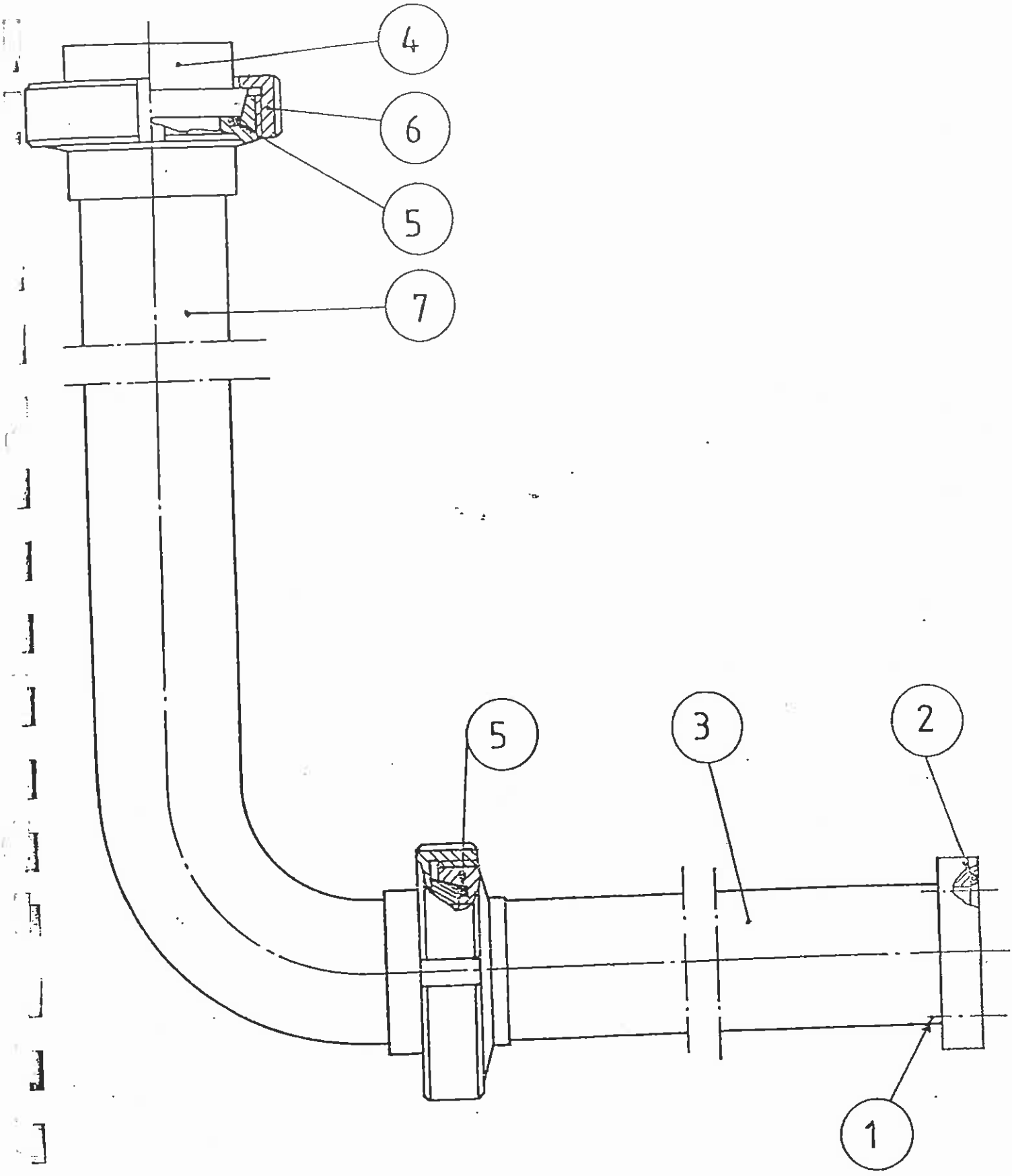
OBJECT	GEGENSTAND	KOMPONENT	ITEM POS POS	PCS STCK STK	ORDER NO BEST. NO. BEST. NR.
Bottum frame	Exzentrikgehäuse	Bundramme	1	1	12225
Lid	Deckel	Låg	2	1	12224
Lid	Deckel	Dæksel	3	1	12220
End Cover	Schluss-deckel	Endedæksel	4	2	9455
COVER	Spannstück	Spændestykke	5	1	12338
HEXAGON-headed SCREW	Sechseckschraube	Sekskantskrue	6	2	01016
cylinder screw	Zylinder schraube	Cylinderskrue	7	18	0459
PACKING	Packung	Pakning	8	1	0615
O-RING	O-Ring	O-ring 104 x 3	9	2	074
PLUG	Propfen	Prop	10	3	0178
cylinder screw	Zylinder Schraube	Cylinder skrue	11	4	01038
O-RING	O-Ring	O-ring 102 x 3	12	3	086
oil-splashguard	Ölspritzplatte	Oliestænkplade	13	1	12227

Spare Part List Page	Stückliste Seite	Stykliste side : 20
Drawing No.	Zeichnung Nr.	Tegnings nr. : 12309
Pipe connection outlet	Rohranschluss Ablauf	Rørtilslutning afgang
Maschin Type	Maschinentyp	Maskintype : BTP
Maschin size	Maschinengrösse	Maskinstørrelse : D.79

RANNIE
Maskinfabriken Rannie A/S
Roholmsvej 8, 2620 Albertslund
Danmark

Indgår i D.80 G

OBJECT	GEGENSTAND	KOMPONENT	ITEM POS POS	PCS STCK STK	ORDER NO. BEST. NO. BEST. NR.
Hexagon-headed screw	Sechseckschraube	Sekskantskrue	1	4	3189-2
O-ring	O-Ring	O-ring 49.5x3	2	1	042
Flange socket	Flangestutzen	Flangestuds	3	1	8940
Conical branch	Kegelstutzen	Keglestuds	4	1	0277
Packing	Packung	Pakning	5	2	01457
Union nut	Nutmutter	Omløber	6	1	01456
Autlet pipe	Ablaufrohr	Afgangsrør	7	1	12275



RANNIE Maskinfabriken Rannie A/S

Roholmsvej 8, Albertslund
Danmark

	Dato	Sign.
Tegn.	25·4·84	OT
Kontr.		

Erstatter:

Nr. 12309

BTM D.79 D.80 G

OBJECT :
GEGENSTAND:
KOMPONENT :

PAGE
SEITE: 1
SIDE

SERIAL NO.
FABR. NR. : 1-81.175
ORDRE NR.

DRAWING NO.
ZEICHNUNG NR.
TEGNING NR. : 10677

TYPE
MODELL :
MODEL

SPARE PART LIST NO.
STÜCKLISTE NR. : 1-81.175
STYKLISTE NR.

OBJECT	GEGENSTAND	KOMPONENT	ITEM POS POS	PCS STCK STK	ORDER NO. BEST. NO. BEST. NR.
Bracket	Konsole	Konsol	1	1	9341
O-ring	O-Ring	25,2 x 3 O-ring	2	1	025
O-ring	O-Ring	19,2 x 3 O-ring	3	2	018
Homogenising Head	Homogenisier-kopf	Homogeniserings-hoved	4	1	5599
Guide	Führung	Styr	5	1	8362
Spindle	Spindel	Spindel	6	1	8363
Packing	Nutring	25x35x5 Nutring	7	2	0109
O-ring	O-Ring	47,2 x 5,7 O-ring	8	2	040
Bushing	Buchse	stalen busje. Bøsning	9	2	8246
O-ring	O-Ring	29,2 x 3 O-ring	11	1	029
Slide ring	Gleitring	Glidering	12	1	0164
Spring ring	Klemmring	Springring	13	1	0165
Thrust bearing	Drucklager	Trykleje	14	1	0166
Threaded spindel	Gewindespindel	Gevindspindel	15	1	7957
Union nut	Nutmutter	Omløber	16	1	7844
Stop ring	Stop-Ring	Stopring	17	1	10388
Pointed screw	Reitstockschraube	Pinol skrue	18	2	0167

OBJECT :
GEGENSTAND:
KOMPONENT :

SERIAL NO. 1-81-175
FABR. NR.
ORDRE NR.

DRAWING NO. 10677
ZEICHNUNG NR.
TEGNING NR.

TYPE
MODELL
MODEL

SPARE PART LIST NO. 1-81-175
STÜCKLISTE NR.
STYKLISTE NR.

OBJECT	GEGENSTAND	KOMPONENT	ITEM POS POS	PCS STCK STK	ORDER NO. BEST. NO. BEST. NR.
Pressure control handle	Druckregulierungs-Handgriff	Trykreguleringshåndtag	19	1	8245
Cheese-head screw	Zylinderschraube	Cylinderskrue	20	1	01009
Box nut	Kapselmutter	Kalotmøtrik	21	4	3193-7
Flange	Flansch	Flange	22	1	8364
Nut	Mutter	Møtrik	23	4	8365
Stud	Stiftschraube	Tapskrue	24	4	8366
Homogenising Head	Homogenisier-kopf	Homogeniseringshoved	25	1	10.674
Guide	Führung	Styr	26	1	10.672
Spindle	Spindel	Spindel	27	1	116107 116109 ~~10.625~~
Spring	Feder	Fjeder	28	1	10.668
Counter nut	Gegenmutter	Kontramøtrik	29	2	10.627
Union nut	Nutmutter	Omløber	30	1	10.626
Flange	Flansch	Flange	31	1	9343
Hexagon-headed screw	Sechseckschraube	Sekskantskrue	32	4	6864
Screw	Schraube	Skrue	33	1	10.657
Counter nut	Gegenmutter	Kontramøtrik	34	1	01004
Disc	Scheibe	Brik	35	1	10.658
Disc spring	Teller Feder	Tallerkenfjeder	36	4	01005

OBJECT :
GEGENSTAND:
KOMPONENT :

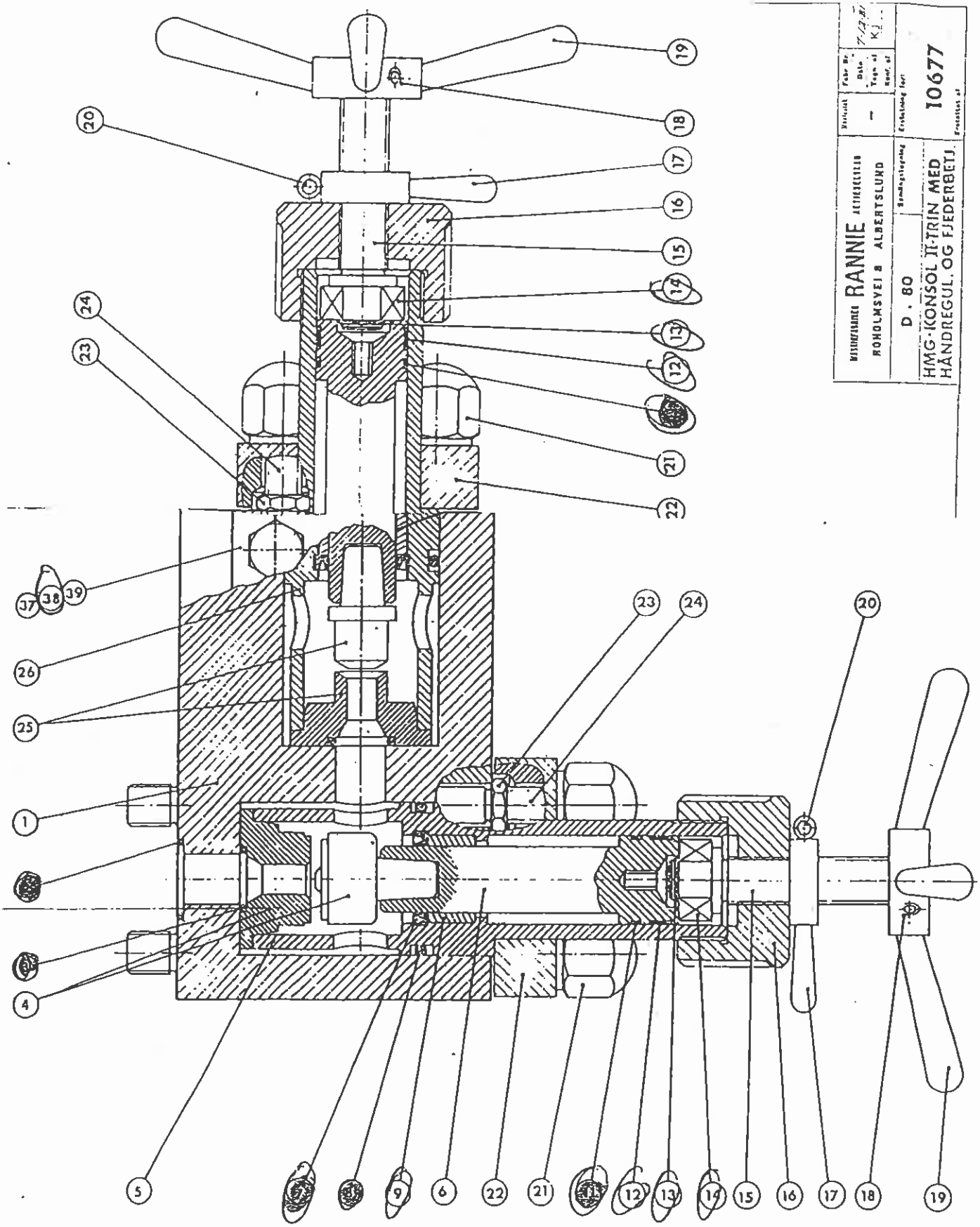
SERIAL NO. : 1-81.175
FABR. NR.
ORDRE NR.

DRAWING NO. : 10677
ZEICHNUNG NR.
TEGNING NR.

TYPE
MODELL :
MODEL

SPARE PART LIST NO. : 1-81.175
STÜCKLISTE NR.
STYKLISTE NR.

OBJECT	GEGENSTAND	KOMPONENT	ITEM POS POS	PCS STCK STK	ORDER NO. BEST. NO. BEST. NR.
Flange	Flansch	Flange	37		
O-ring	O-Ring	44,2 x 3,0 O-ring	38	1	075
Hexagon-headed screw	Sechseckschraube	Sekskantskrue	39		



RANNIE AKTIESELSKAB ROHOLMSVEJ 8 ALBERTSLUND	Revideret	Fabr. Nr. Dato Tegn. af Kontr. af	7-12-61 KJ
D. 80	Samlingstegning	Erstatter fort:	10677
HMG-KONSOL II-TRIN MED HÅNDREGUL. OG FJEDERBETJ.		Erstattet af	

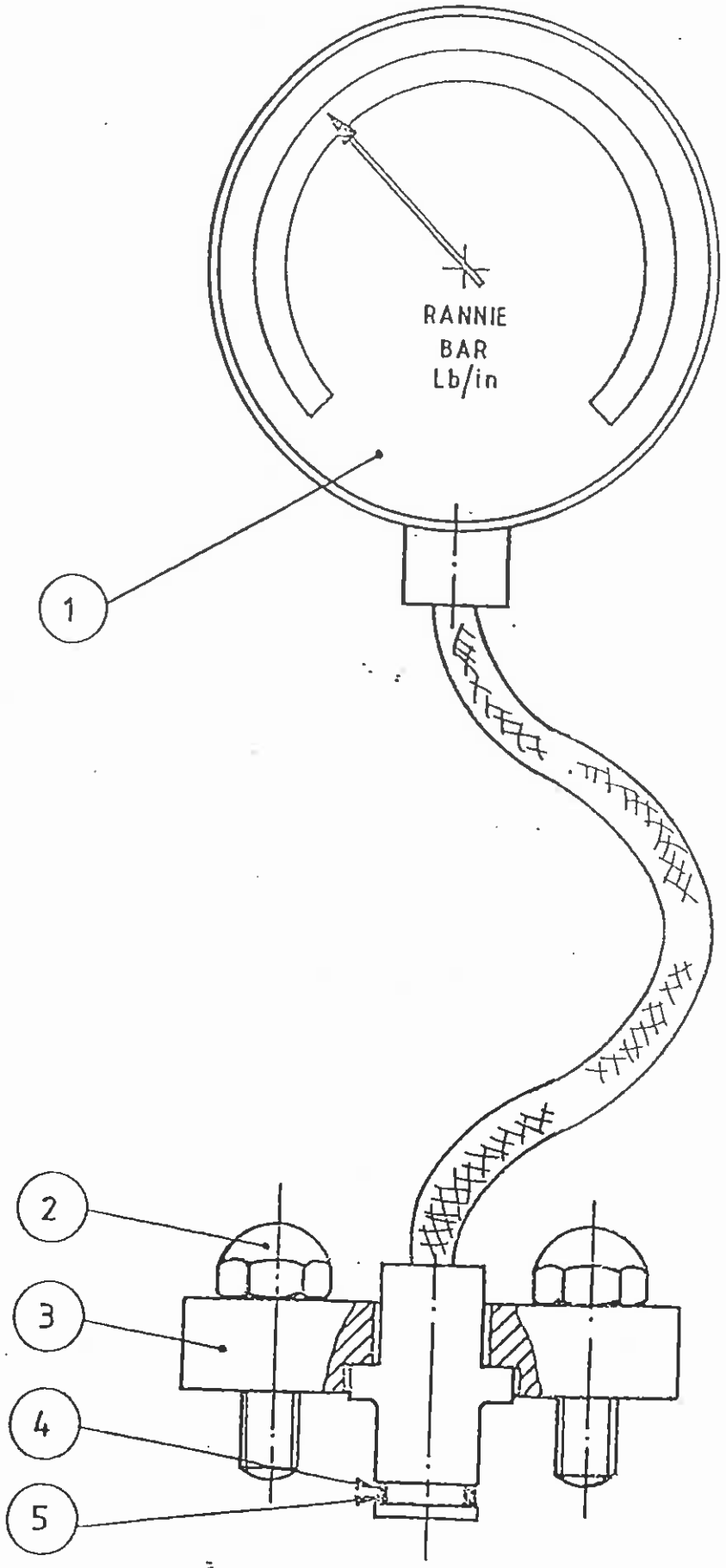
RANNIE AKTIESELSKAB ROHOLMSVEJ 8 ALBERTSLUND	Revideret	Fabr. Nr. Dato Tegn. af Kontr. af	7-12-61 KJ
D. 80	Samlingstegning	Erstatter fort:	10677
HMG-KONSOL II-TRIN MED HÅNDREGUL. OG FJEDERBETJ.		Erstattet af	

Spare part list page	Stücklíste Seite	Stykliste side : 13
Drawing No.	Zeichnung Nr.	Tegnings nr. : 11951
Pressure Gauge Arrangement	Manometer Arrangement	Manometer Arrangement
Maschin Type	Maschinentyp	Maskintype : BTP
Maschin size	Maschinengrösse	Maskinstørrelse : D.79

RANNIE
Maskinfabriken Rannie A/S
Roholmsvej 8, 2620 Albertslund
Danmark

Indgår i D.80N - D.80G

OBJECT	GEGENSTAND	KOMPONENT	ITEM POS POS	PCS STCK STK	ORDER NO. BEST. NO. BEST. NR.
Pressure gauge	Manometer	Manometer	1	1	01372
Hexagon-headed screw	Sechseckschraube	Sekskantskrue	2	4	3189-1
Flange	Flansch	Flange	3	1	11592
Backring	Backring	Backring.	4	1	01100
O-ring	O-Ring	O-ring 18,2 x 3	5	1	017



RANNIE Maskinfabriken Rannie A/S — Roholmsvej 8, Albertslund Danmark

Erstatter:

BT-BTM-SLOW-HP D.79 D.80G D.80N

MANOMETERARRANGEMENT M. KAPILARRØR

VENTILHUS

	Dato	Sign.
Tegn.	27.1.84	OT
Kontr.		
Appr.		

Nr. 11951

Erstattet af: