CENTRIFUGAL SEPARATOR MOD. CN 50 (CN 100)

The data within parenthesis are referred to CN 100

Serial number.....

Electric motor: Voltage.....Volt.

Frequency.....Hz.

MACHINERY WORLD

Spacers No.....

For outlet unit (Table 8 and 9)

I N D E X

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ELECTRICAL SUPPLY

. Direct Starter 44

. Star/Delta Starter 45

1. IMPORTANT NOTE

SEPARATORS IN THE CN SERIES ARE DESIGNED FOR TREATING FLUIDS SUCH AS WHEY, MILK, CREAM AND BUTTERMILK.
THEY MAY NOT BE USED FOR OTHER PRODUCTS WITHOUT THE EXPRESS AUTHORISATION OF **"FRAU S.p.A."**

THESE HIGH SPEED ROTARY MACHINES ARE CONSTRUCTED USING TOP GRADE MATERIALS AND THE MOST UP-TO-DATE TECHNOLOGY, AND THEY ARE SUBJECT TO STRICT CHECKS.

THUS, THEY GUARANTEE MAXIMUM RELIABILITY AND SAFETY PROVIDED THAT THE INSTRUCTIONS IN THIS OPERATING AND MAINTENANCE MANUAL ARE STRICTLY COMPLIED WITH.

HOWEVER, TO ENSURE THAT THE SEPARATOR IS ALWAYS 100% EFFICIENCY IT IS ADVISABLE TO GET OUR SPECIALISED TECHNICAL PERSONNEL TO CHECK THE MACHINE AT LEAST ONCE A YEAR.

DO NOT CARRY OUT ANY OPERATIONS ON THE SEPARATOR WHEN THE BOWL IS IN OPERATION! WAIT AND CHECK THAT IT IS ABSOLUTELY STATIONARY.

Before starting the separator, always check that:

- The bowl is correctly assembled: the locking ring should be fully tightened and the "0" references should coincide.
- The cover is firmly fixed to the base.
- The discharge assembly is locked to the cover.
- The brake is disengaged: the brake wheel should be fully screwed in.
- The oil level is just above the half-way mark on the indicator.
- The bowl is full of water.

Handle mechanical parts (in particular the bowl components) with care so as not to damage them.

- Avoid impacts and loads on rigid parts: always rest components on wooden or rubber supports.
- Do not use hammers or similar tools: only use the spanners supplied.
- Do not apply excess force between the components: ensu

re that the components to be coupled are perfectly clean.
- Always use the diaphragm compression spanner for opening and closing the base ring: this facilitates the operation and avoids the possibility of seizure.
- Under no circumstances must welding be carried out.
- Do not overheat components using a flame or other methods.
- Avoid lubricating the base-vertical shaft assembly: carefully clean the ends of the shaft and the corresponding seating in the base before assembling.

Maintain the correct compression on the diaphragm column: add one or more of the spare diaphragms supplied (Chapter 6 "Use of diaphragm compression spanner" pag. 16).

Carry out periodic checks to ascertain whether there is any water in the oil sump: slowly unscrew the drain plug and drain any water which is present.

Under no circumstances jets must be used when flushing the top inside of the base, since the flushing liquid may penetrate the oil sump.
This section must generally be cleaned using a wet rag or sponge.

If possible, immediately after the working clean the bowl using detergent without chlorine.

Under no circumstances must the bowl be left dirty when the separator is shut down for a prolonged period: each part of the bowl must be carefully cleaned and dried, and it must be left in a dry place.

Check that the machine is correctly earthed, and carry out periodic checks to ensure that the hearth connection is sound.

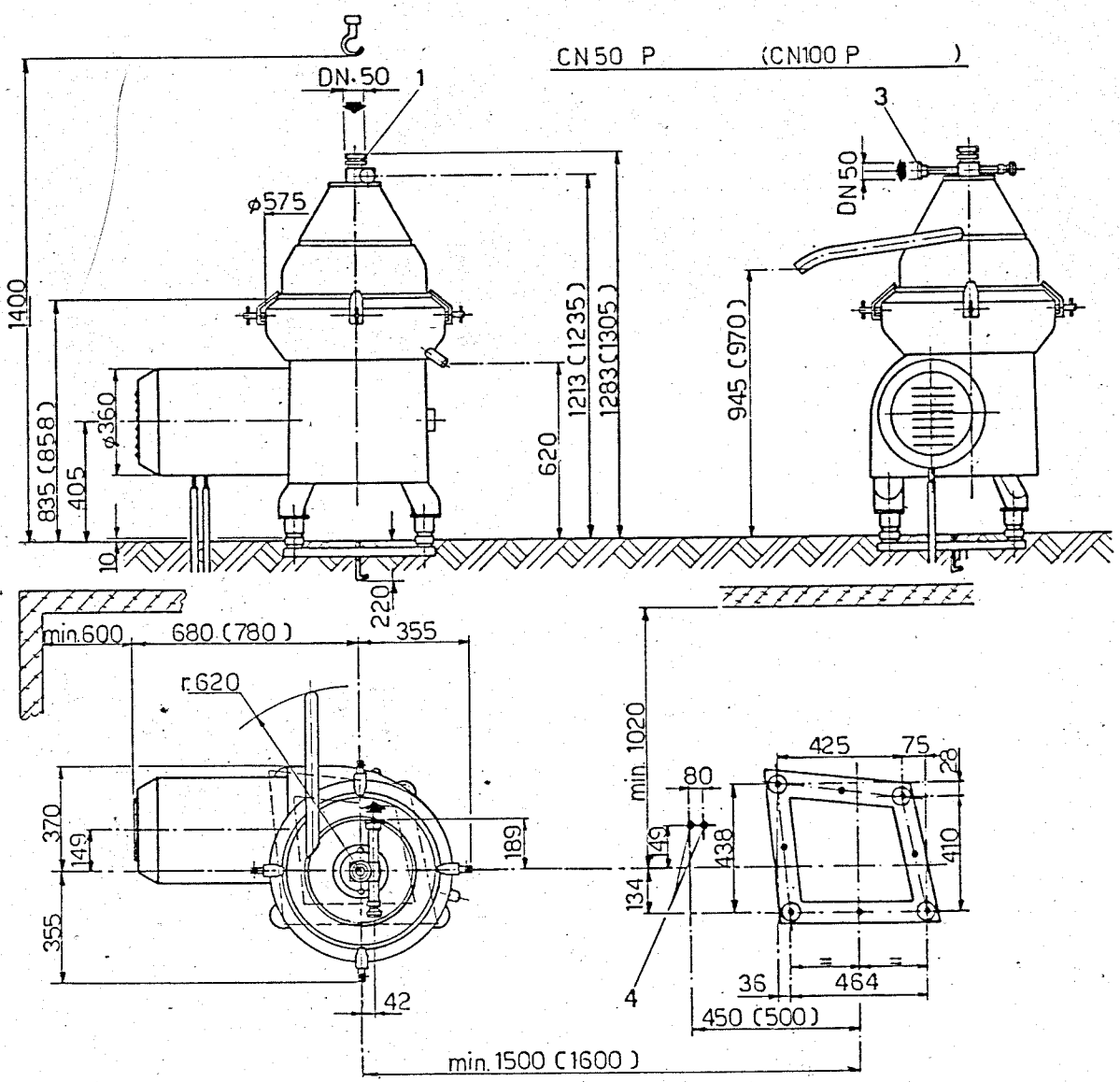
Decant or filter the product to be treated in order to ensure optimum separator performance.

When any operating faults occur, carefully read the chapter entitled "Operating Faults: causes and remedies" on page 73 before carrying out any operation.

MAIN DIMENSIONS AND TECHNICAL SPECIFICATIONS

CENTRIFUGAL SEPARATORS TYPE CN 50/P - CN 100/P

4 -	ELECTRICAL CABLE	
2 -	PRODUCT OUTLET	: MAX. 5 BAR
1 -	PRODUCT INLET	: MAX. 0,6 BAR
	CAPACITY OF SLUDGE CHAMBER	: LT. 9 (13,2) TYPE P
	CAPACITY OF BOWL	: LT. 15 (21)
	WEIGHT OF BOWL	: KG. 192 (235)
	WEIGHT OF COMPLETE SEPARATOR	: KG. 820 (895)
	GROSS WEIGHT WHEN PACKED	: KG. 1.050 (1.125)
	PACKING CASE MEASUREMENTS	: MM. 1300X1000X900
	MOTOR RATING	: KW. 9 (15)
	BOWL SPEED	: 6.500 REVS/MIN.



4 — CAVI ELETTRICI MOTORE

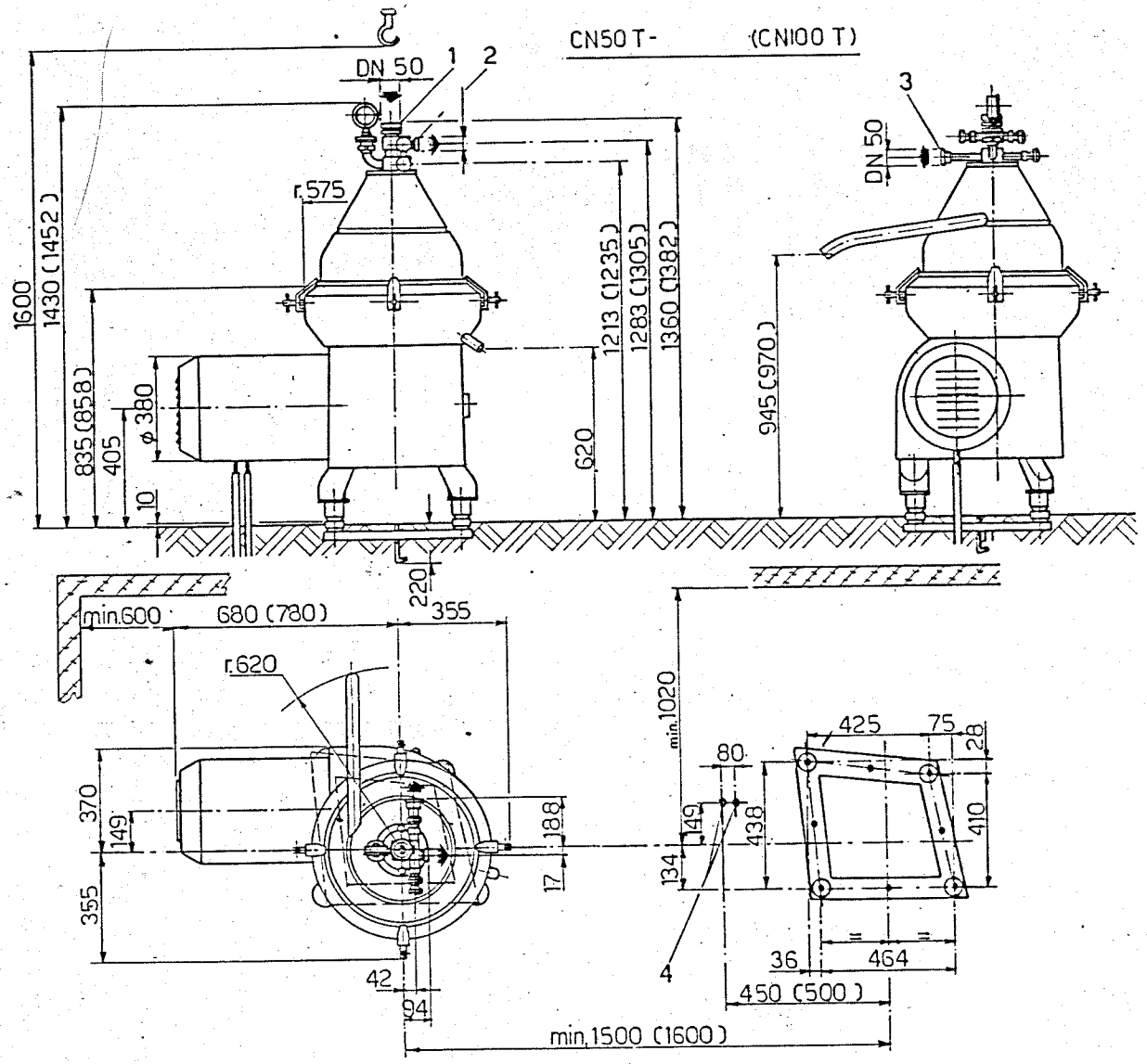
2 — USCITA PRODOTTO	max	5 bar
1 — ENTRATA PRODOTTO	max	0,6 bar
CAPACITA CAMERA FANGHI	litri	9 (13,2)
CAPACITA TAMBURO	litri	15 (21)
PESO TAMBURO	Kg.	192 (235)
PESO SEPARATORE COMPLETO	Kg.	820 (895)
PESO LORDO IMBALLATO	Kg.	1050 (1125)
MISURE CASSA IMBALLAGGIO		1300x1000x900
ROTAZIONE TAMBURO	Giri/min.	6500
POTENZA MOTORE (4 POLI)	KW.	9 (15)

MAIN DIMENSIONS AND TECHNICAL SPECIFICATIONS

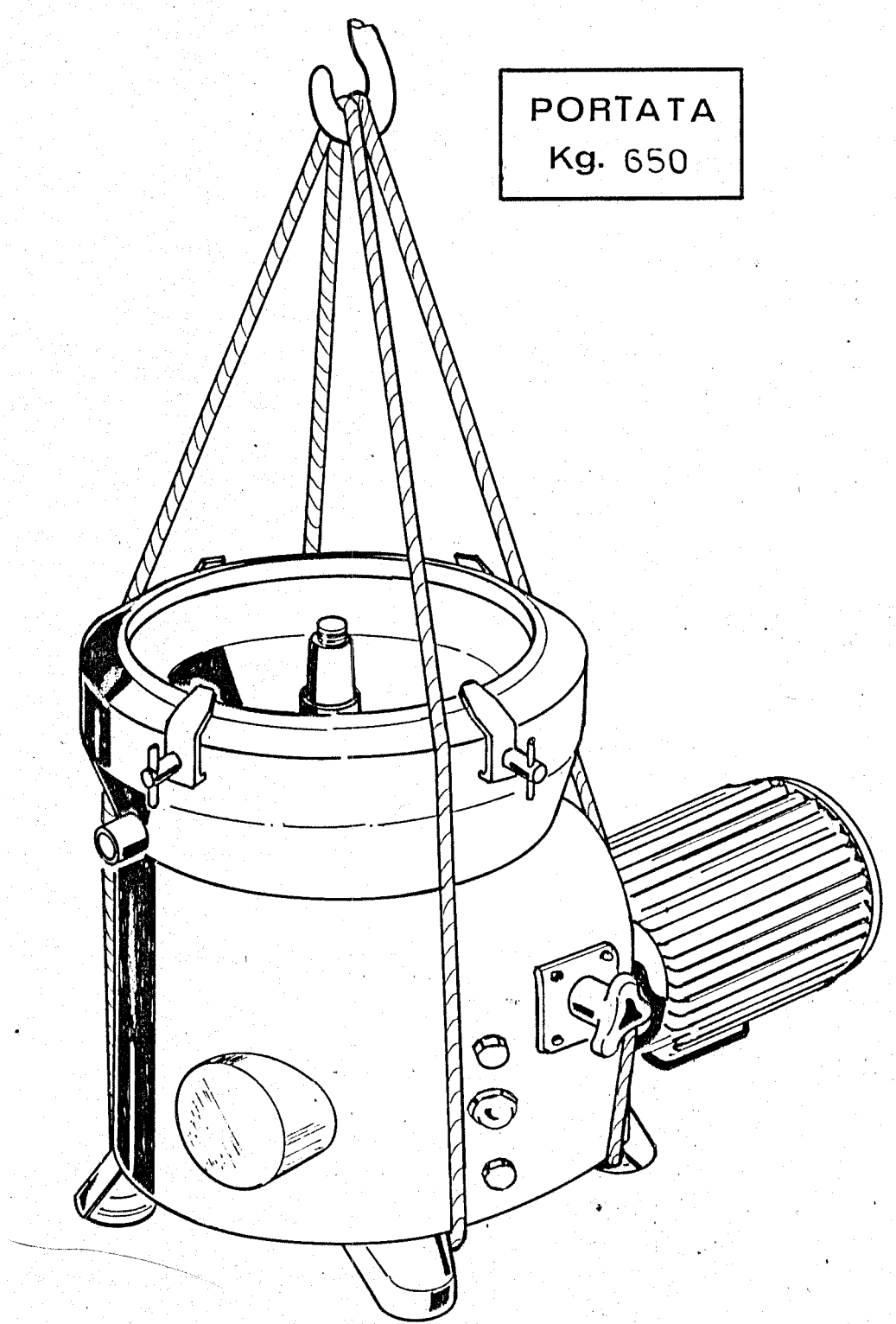
TYPE CN 50/I - CN 100/I

CENTRIFUGAL SEPARATORS

4 -	ELECTRICAL CABLES	
3 -	CREAM OUTLET	: MAX. 5 BAR
2 -	PRODUCT OUTLET	: MAX. 5 BAR
1 -	PRODUCT INLET	: MAX. 0,4 BAR
	CAPACITY OF SLUDGE CHAMBER	: LT. 5,3 (6,9
	CAPACITY OF BOWL	: LT. 15 (21)
	WEIGHT OF BOWL	: KG. 192 (235)
	WEIGHT OF COMPLETE SEPARATOR	: KG. 820 (895)
	GROSS WEIGHT WHEN PACKED	: KG. 1.050 (1.125)
	PACKING CASE MEASUREMENTS	: MM. 1300X1000X900
	BOWL SPEED	: 6.500 REVS./MIN.
	MOTOR RATING	: KW. 9 (15)



4	— CAVI ELETTRICI MOTORE	
3	— USCITA CREMA	max. 5 bar
2	— USCITA PRODOTTO	max. 5 bar
1	— ENTRATA PRODOTTO	max. 0,6 bar
	CAPACITA CAMERA FANGHI	litri 5,3 (6,9)
	CAPACITA TAMBURO	litri 15 (21)
	PESO TAMBURO	Kg. 192 (235)
	PESO SEPARATORE COMPLETO	Kg. 820 (895)
	PESO LORDO IMBALLATO	Kg. 1050 (1125)
	MISURE CASSA IMBALLAGGIO	1300x1000x900
	ROTAZIONE TAMBURO	Giri/min. 6500
	POTENZA MOTORE (4 POLI)	KW. 9 (15)


PORTATA
Kg. 650

2. INSTALLATION

2.1 Transporting the separator (Fig. 1)

The separator is suspended from the hoist as shown in the diagrm.

2.2 Fixing foundation plate (Fig. 2)

Comply with the measurements shown in table 1 and 2 of the section "Main dimensions and specification" on page 6 and 7.

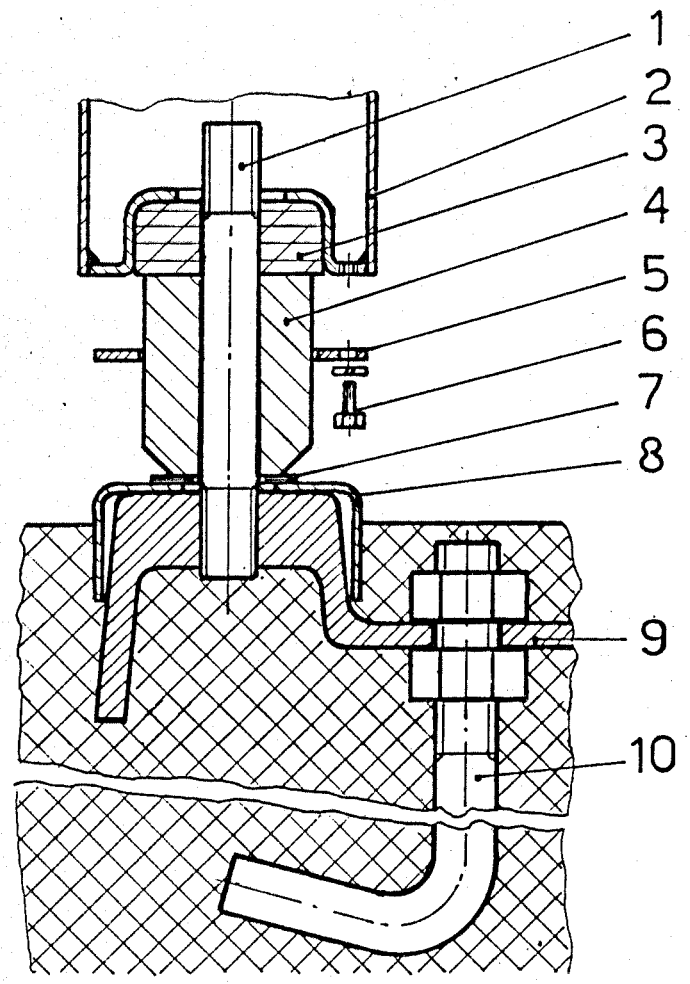
Sequence of operations to be carried out:

- Fix the four anchor bolts 10 to the plate 9
- Fully tighten the stud bolts 1
- Insert the caps 8
- Proceed with the concrete casting
- Checks that the caps 8 are resting on the plate 9
- level the plate by resting the level gauge on the caps.

2.3 Fixing the base (Fig. 3)

Sequence of operations to be carried out:

- Thread the feet 4 on to the stud bolts 1
- Place the washers 5 on the feed 4
- Position the vibration dampers 3
- Rest the base 2 on the dampers so that they enter their seatings.
- Check that the assembly is level by resting the level gauge on the top of the base.
- If necessary level the assembly using the washers 7 supplied.
- Tighten the first nut 12 but do not compress the damper.
- Use the second nut 11 to lock the first.
- Fix the washer 5 using the screws 6.


1
2
3
4
5
6
7
8
9
10

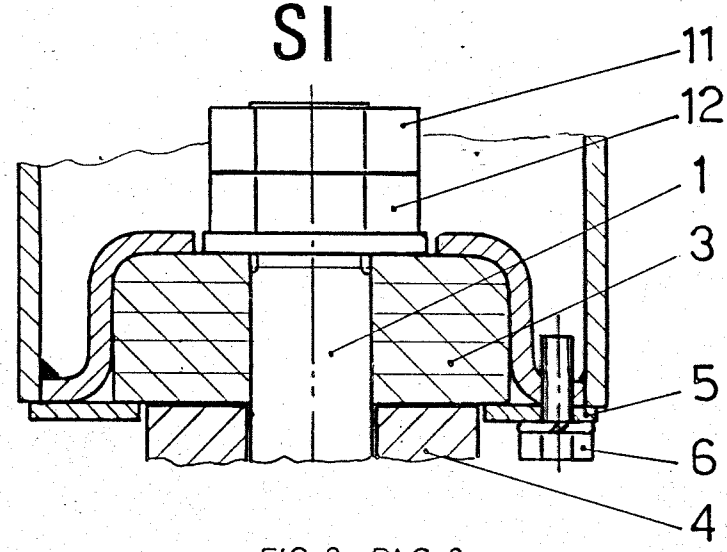


FIG. 3 - PAG. 8c

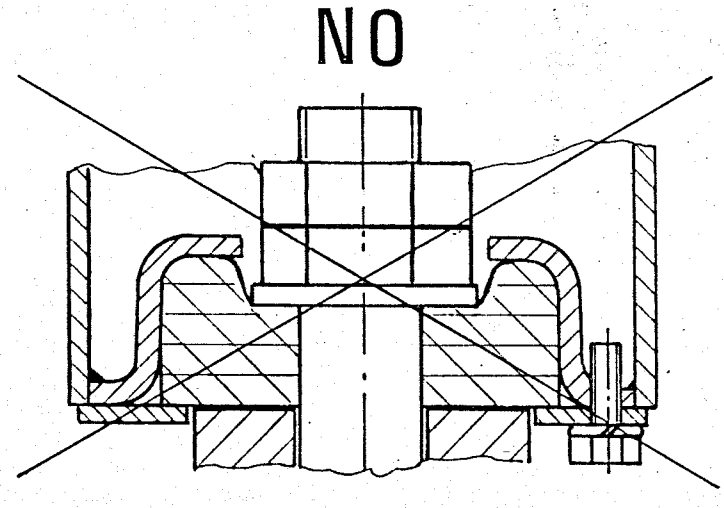


FIG. 4 - PAG. 8c

3. ASSEMBLING BOWL AND ACCESSORIES

3.1 Assembling bowl

Carry out the assembly sequence from 1 on wards (table 3 on page 11).

Note:

- Carefully clean the base conical seat 1 and the bottom end of the vertical shaft, but under no circumstances use lubricating products.
  After to have placed the bottom on the shaft prevent the rotation using the check pins (section 7 "Use of check pin" on page 17).
- Follow the progressive numeration of the diaphragm
- Always use the appropriate diaphram compression spanner for tightening and unscrewing the base ring (see chapter 6 "Use of diaphragm compression spanner" on page 16).
- Position correctly all the gaskets.
- After the assembling, unscrew the check pins checking that the bowl rotates freely.
- The "O" identifications on the corresponding components must coincide.
- Left-hands threads are used throughout.
- Smear seizure preventive grease on the threads.
- Carefully clean coupled parts and the gaskets seatings.

3.2 Assembling the cover

The cover can be fixed, using the check pins and the brakets, in all the possible positions (see chapter 7 "Use of check pins" on page 17).

3.3 Assembling the discharge assembly

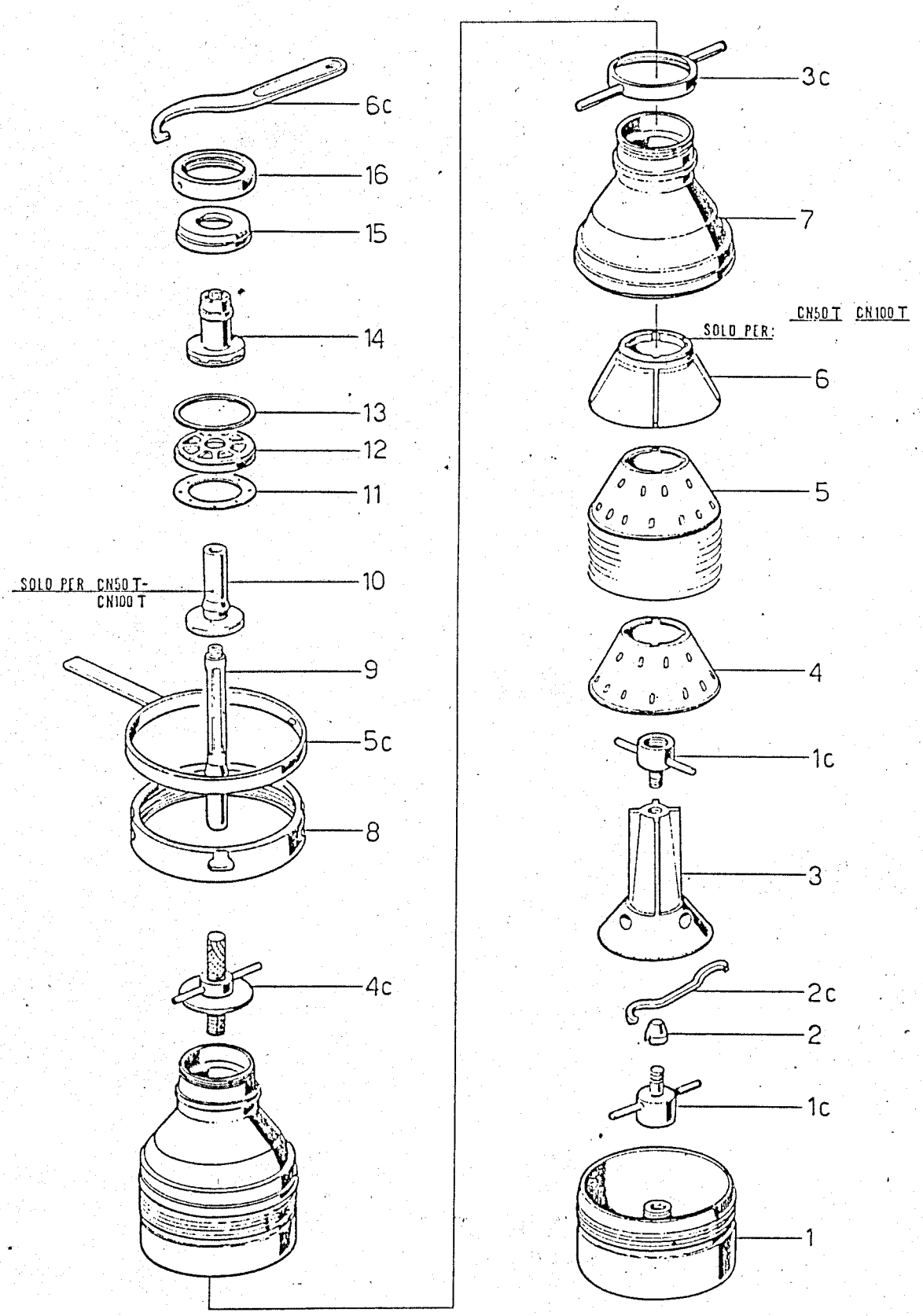
Carry out the assembly sequence from 1 onwards (table 4 pag. 12 Fig. 5 and 6)

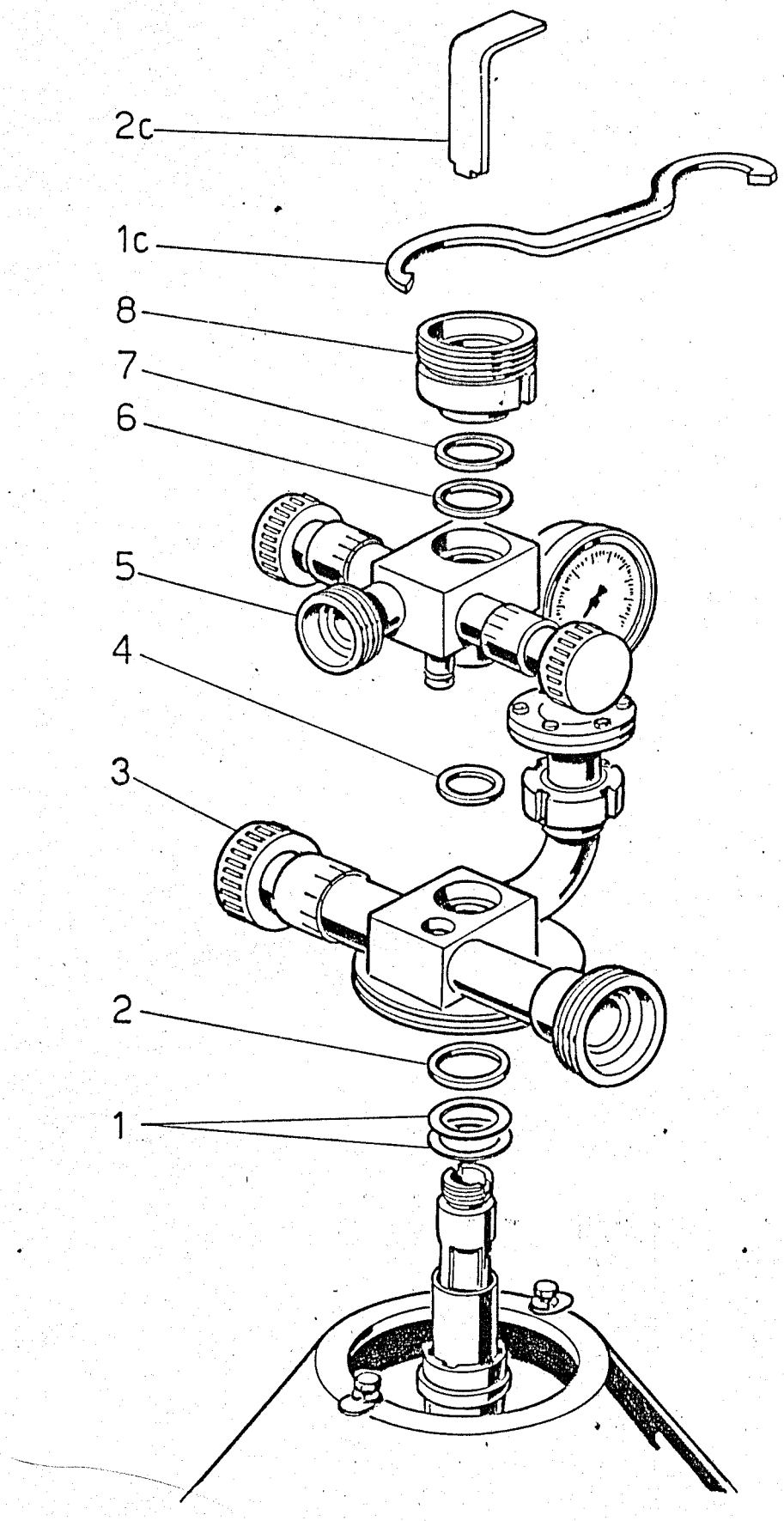
The pumps must have a vertical clearance of 3 to 4 mm. (see section 10 "Adjustement of pump clearance" on page 71).

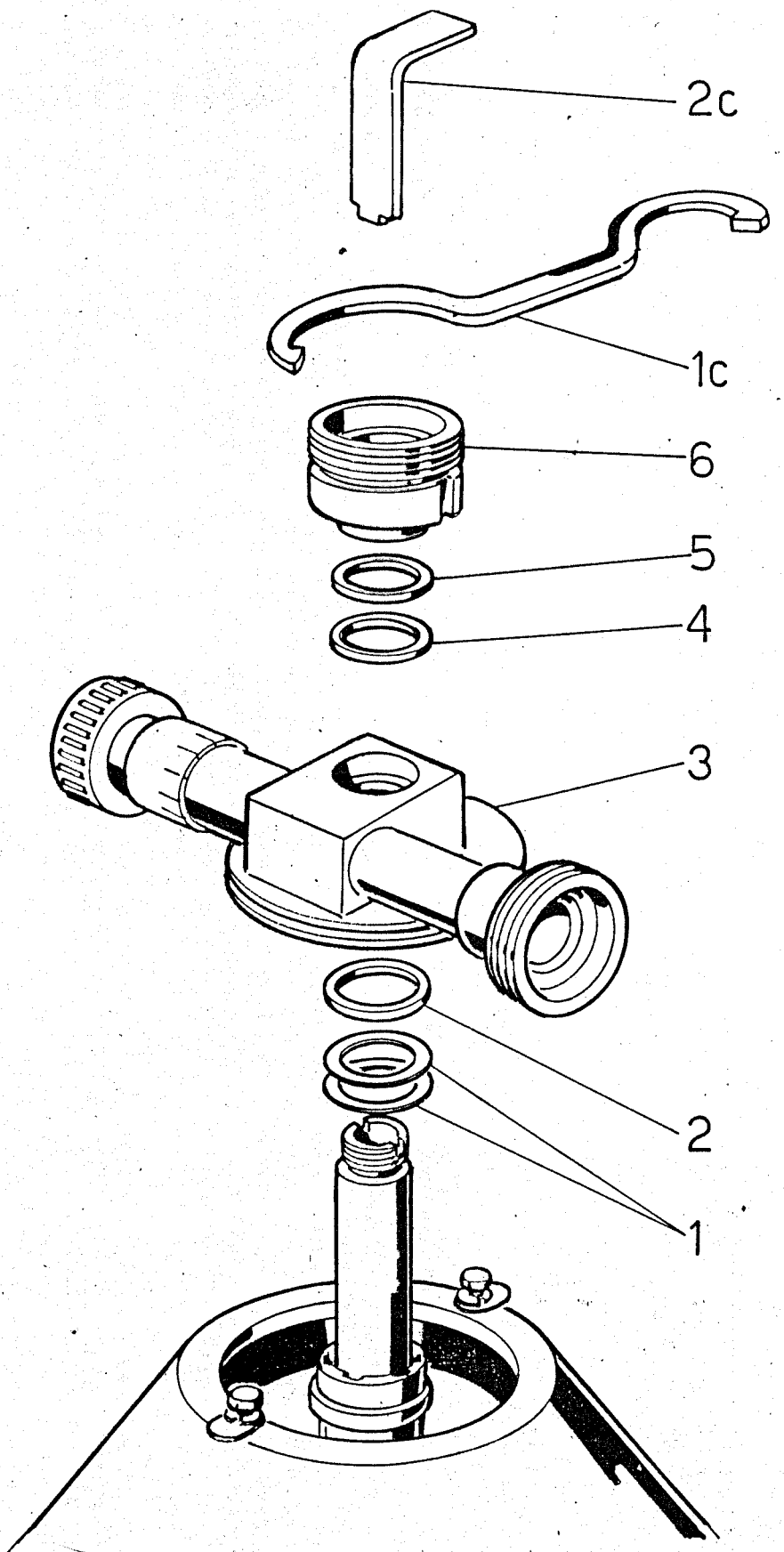
This adjusting is operated at our factory by fitting some nylon spacers down the skim pump gasket. See their required number at page 1.

Always check the esact number.

If the case, add spacers supplied as ancillary equipment of machine.


6c
16
15
14
13
12
11
SOLO PER CN50T-CN100T
10
9
5c
8
4c
3c
7
CN50T CN100T
SOLO PER:
6
5
4
1c
3
2c
2
1c
1


2c
1c
8
7
6
5
4
3
2
1


2c
1c
6
5
4
3
2
1

4. SEPARATOR START - UP

Before starting the separator, check that:

- The bowl is correctly assembled: the lock rings must be fully tightened, and the "O" references must coincide.
- The cover is firmly fixed to the base.
- The discharge assembly is locked to the cover.
- The discharge assembly locknut is fully tightened.
- The brake is disengaged: the brake wheel must be fully screwed in.
- The oil level is just above the half way mark on the indicator.
- The bowl is full of water.

4.1 Adjusting the capacity

Starting the separator, at the operating speed (i.e. 6.500 revs./min.) starting the feeding with water adjusting the thin regulator A, so that the bowl is under pressure (in the T type, the two regulator B and C must be fully closed) and the manometer must state 4 bar abt. (table 5).

Adjust the flow rate valve or the washer positioned on the feeding line so that a can of 50 lts. is filled in the minimum time stated in the table.

TABLE 1.:

FUNZIONE	CAPACITY	TIME (sec.)
Separating milk	6.000 (10.000)	30" (18")
Separating whey	9.000 (15.000)	20" (12")
Standardizing milk	10.000 (15.000)	18" (12")
Cleaning milk	10.000 (15.000)	18" (12")

THE DATA WITHIN PARENTHESIS ARE REFERRED TO THE CN 100

5. ADJUSTING DISCHARGE ASSEMBLY

- Check that, for every function, the nominal flow exceeded that stated on table 1 on page 13.
- Each operation must be carry out in step, waiting a few minutes after each adjustement in order to permit the cream density to change.
- When the machine has been set up, it is advisable to make a note of the position of the various regulators.

5.1 Separating milk or whey using type CN 50/T (CN 100/T) table 5 fig. 7.

- Set the discharge assembly as follows:

  . Regulator C fully closed.
  . Regulator B partially closed.

- Use the regulator A to set the pressure to 4 bar.
- Use regulator B to obtain the required cream density.

5.2 Standardizing milk using type CN 50/T (CN 100) table 5 fig. 7.

- Set the discharge assembly as follows:

  . Regulator B partially closed.
  . Regulator C partially closed.

- Use regulator A to set the pressure to 4 bar aht.
- Use regulator B to obtain the required cream density and quantity.
- Screw in regulator C if the cream is too fluid, unscrew if the cream is too dense.

Remember that:

- When C is unscrewed, both the flow rate and density of the cream are reduced.
- When B is unscrewed, the flow rate of the cream is increased and the density is reduced, when it is screwed in, the reverse occur.

5.3 Cleaning milk using type CN 50/T (CN 100/T) table 5 fig. 7.

- Set the discharge assembly as follows:

  . Regulator B fully closed.
  . Regulator C fully open

- Use regulator A to set the pressure to the maximum possible level (i.e. 4 + - 5 bar).

5.4 Cleaning milk using type CN 50/P (CN 100/P) table 5 fig. 8.

- Use regulator A until comes out of the cover syphon.

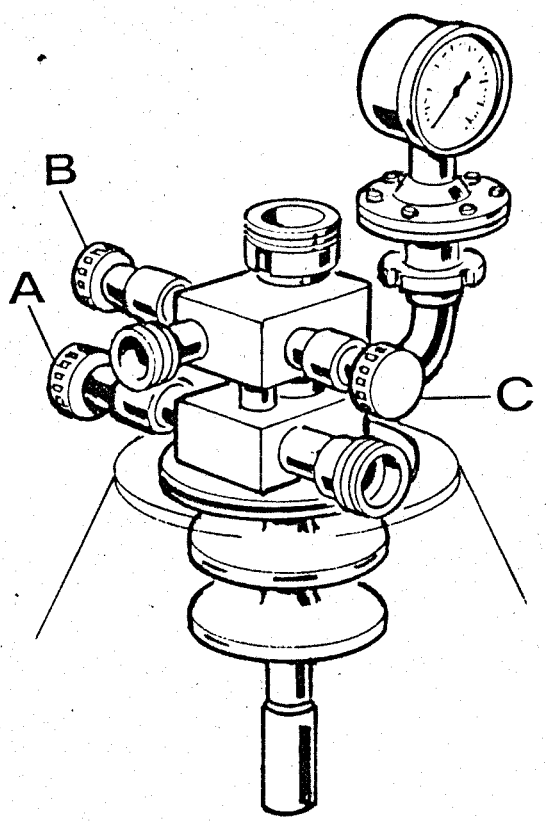


FIG. 7 TAV. 5 - PAG 15

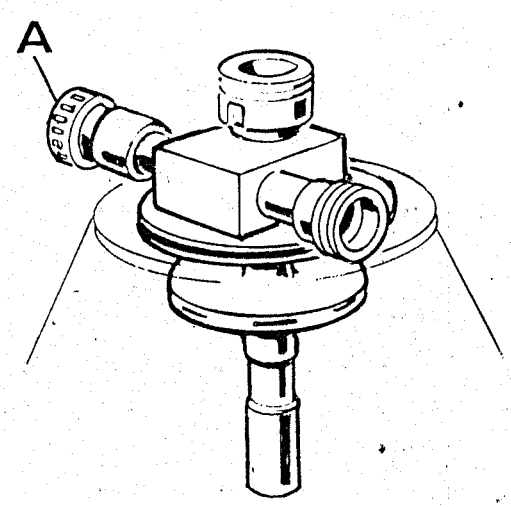
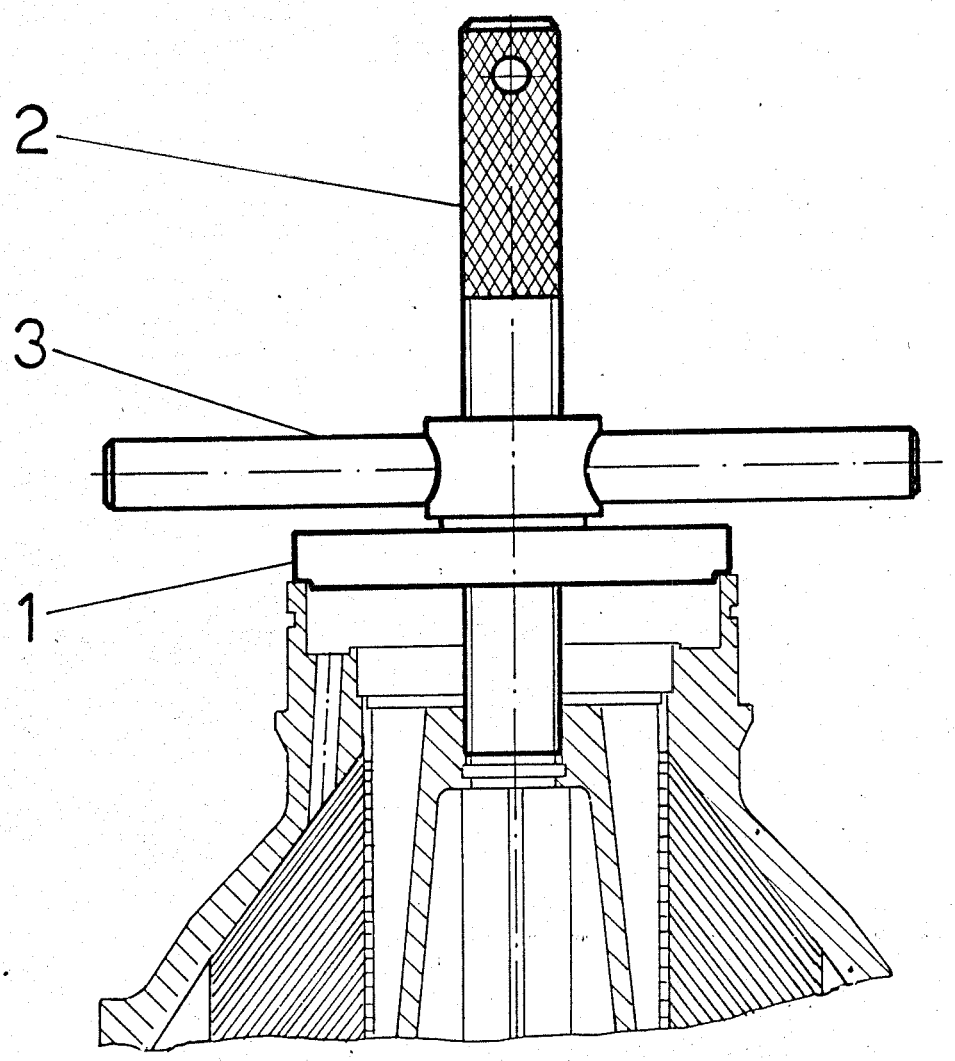


FIG. 8 TAV. 5 - PAG. 15


2
3
1

7. USING THE CHECK PINS (Fig. 10 and 11).

The check pins prevent the bowl rotation in the assembling and dismantling operations and secure the cover 5 to the base 3 with the bracket 2.

This system granted that, with cover locked, the pins are sufficiently extracted so that do not prevent the bowl regular rotation.

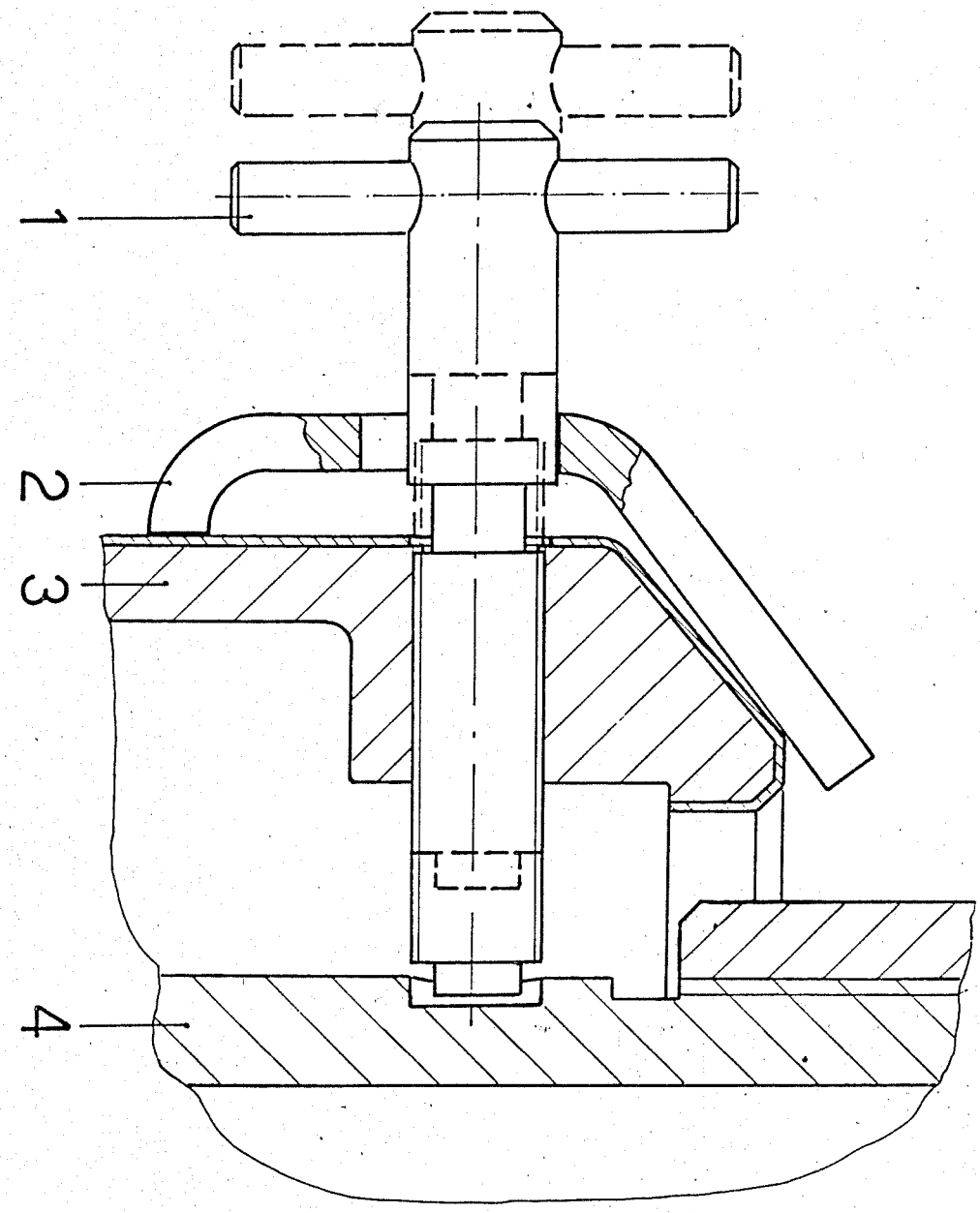
7.1 Locking the bowl (Fig. 10)

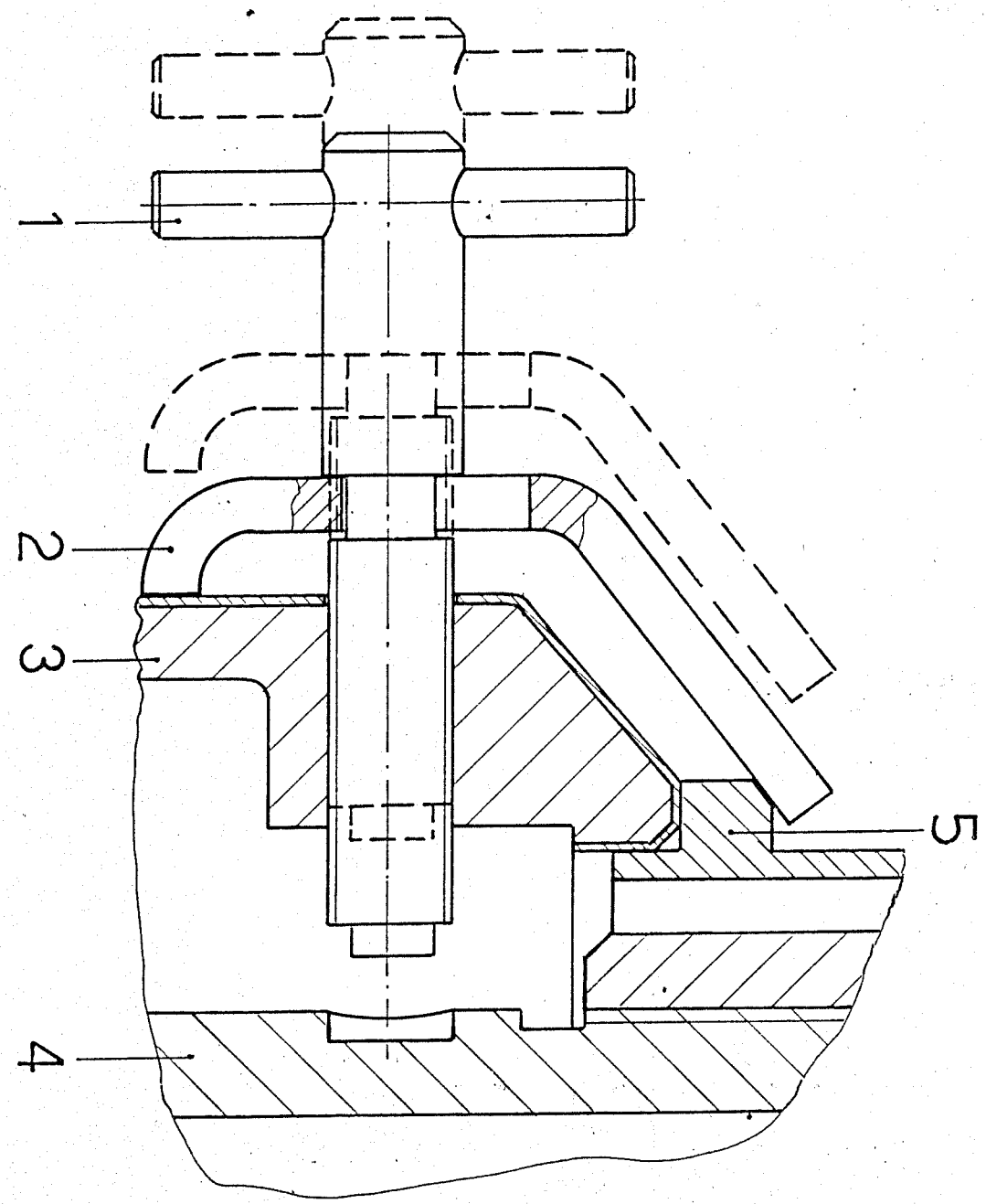
- Rest the bracket 2 on the base in a vertical position.
- Screw the pin 1 so that it enter in one of the four notches on the bottom 4, making attention to do not apply excees of force on the same.
- Do not fully screw the check pins.

The check pins regular position must allow a little oscillation of the bottom (pins clearance on the bottom notch).

7.2 Locking the cover (Fig. 11)

- Unscrew the pins 1 on checking that the bowl is free to rotate.
- Assembly the cover 5.
- Hoist the bracket 2 in a vertical position, so that the pin 1 groove enter the same.
- Rest the bracket 2 on the cover edge by screwing the pin 1.
- Fully tighten.


1
2
3
4


1
2
3
4
5

8. LUBRICATION

8.1 Lubricating the separator

- The separator is despatched with no oil in the gearbox.

- As soon as the gearbox has been installed, fill it via plug A using the oil supplied. The oil must go just above the half way mark on indicator B (i.e. a contents of approximately 4,5 litres).

- REPLACE OIL AFTER 3 (Three) MONTHS FOR THE FIRST TIME - AFTERON ALWAYS EVERY 6 (Six) MONTHS
- USE THE FOLLOWING O I L :

  O I L FRAU O.G.30 - TYPE
  Of our supply.

  VERY IMPORTANT :

  THIS OIL TYPE HAS ABSOLUTELY NOT TO BE MIXED TO OTHER TYPES OF OILS - IVEN NOT TO RESIDUES OF OTHER OILS -
  THEREFORE A DEEP CLEANING OF CENTRIFUGE IS ALWAYS NECESSARY BEFORE USING SAID OIL.

  During operation, the oil level will drop slightly, but will be always visible on indicator B.

- From time to time, unscrew plug C and drain any water present in the gearbox. This operation must be carry out before starting the equipment to ensure that water is separated from the oil.

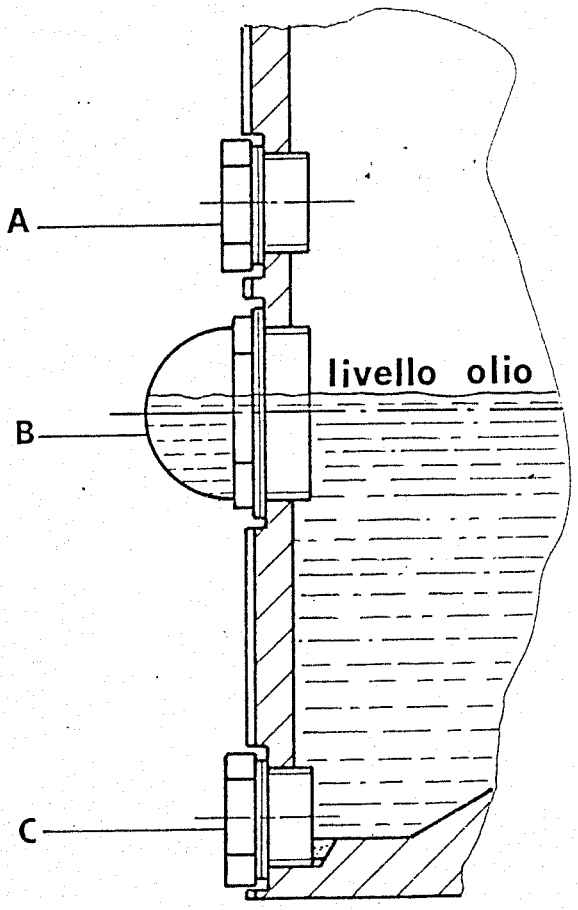
- Every 2 or 3 oil changes, flush the gearbox as follows:

  . Remove the drum.
  . Add 0,4 litres of Mobisol A or equivalent detergent oil to the oil which is already present in the gearbox.
  . Operate the separator for approximately 3 hours (without the bowl).
  . Discharge of the oil misture from the gearbox completely.
  . Refill with the recommended oil until the level is just above the half way mark on the indicator.

8.2 Lubrication after a prolonged shut-down

When the separator has been stored or shut down for a prolonged period, the flexible support bearing (top bearing) must be manually lubricated using a little oil before start-up.

To carry out this operation, it is necessary to remove the collar cover 11030 by unscrewing the screws 11012, remove the labyrinth 11060 and inject oil around the shaft (table 11 on page 39).


A
livello olio
B
C

9. TRANSMISSION

The vertical shaft assembly may be dismantled without affecting the horizontal shaft assembly and vice-versa.

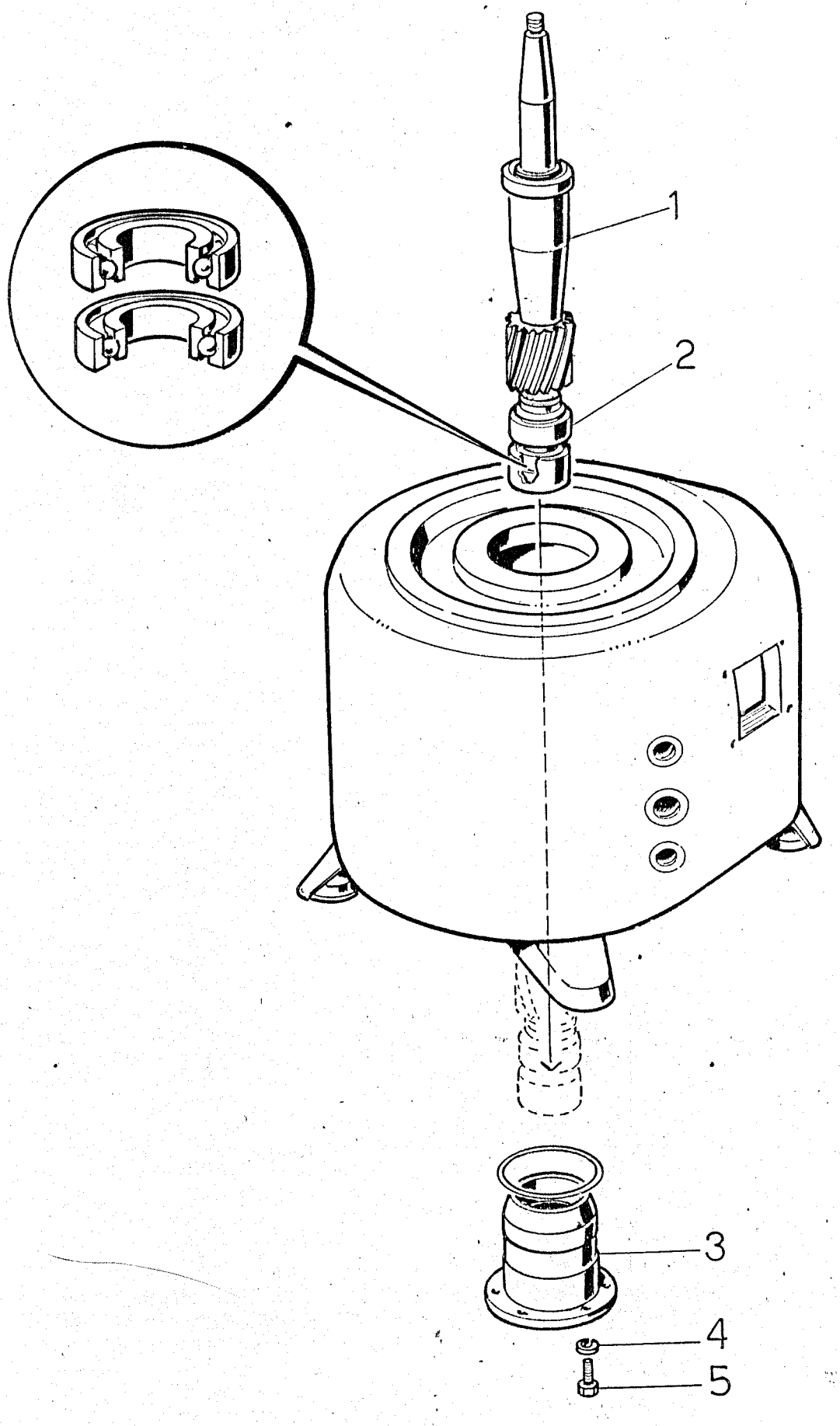
9.1 Dismantling the vertical shaft assembly
(figure 13, table 11 on page 39)

Carry out the following sequence of operations:

- Carry out the dismantling sequence from n. 11010 to 11090.
- Remove the complete flexible support (collar 11130 and items fixed to the collar). To achieve this, pull the support upwards by the collar nuts 11170 while tapping the vertical shaft with a plastic hammer.
- Remove the three screws 5 and the corresponding washers 4.
- Tighten the two screws 5 in the threaded holes of bush 3 in order to remove it from the base.
- Remove the vertical shaft 1 from the bush 3.
- Remove the shaft from the base.

9.2 Assembling the vertical shaft assembly
(figure 13, table 11 on page 39)

- Assemble all items from n. 11100 to 11240 on the shaft 1, apart from the flexible support assembly from n. 11120 to 11170.
- Assemble items 11250, 11260 and 11270 on the bush 3.
- Insert the vertical shaft 1 in the base so that it protrudes below (dotted line in figure 13)
- Thread the bush 3 on to the vertical shaft by guiding the bearing 2.
- Insert the bush 3 and secure it using the screws and the corresponding spring washers.
- Assemble the flexible support assembly on the base.
- Assemble items n. 11090 to 11010.


1
2
3
4
5

9.3 Dismantling the clutch and horizontal shaft assembly

- Remove the motor guard and brake by unscrewing the appropriate screws (table 10 on page 37).
- Remove the motor 10 and shoes supports 13 by unscrewing the screws 9 (fig. 14).
- Remove the flange 11 by unscrewing the screws 12.
- Remove the horizontal shaft assembly by unscrewing the screws A (insert the spanner in the holes of the clutch bowl) (figure 15).

To support the assembly, screw a threated tube M 14 to the centre of clutch bowl.

9.4 Assembling the clutch and the horizontal shaft assembly

- Reverse the sequence shown in paragraph 12.3

9.5 Centrifugal clutch

The centrifugal clutch is amply sized and thus requires no maintenance for a considerably period.

However, it is good practice to carry out a check atleast once a year, and to clean the clutch bowl and shoes using emery cloth.

When the shoes 14 are ressembled, they must be correctly orientated as shown in figure 16 (n. 2 shoes opposed for CN 50 and n. 4 for CN 100).

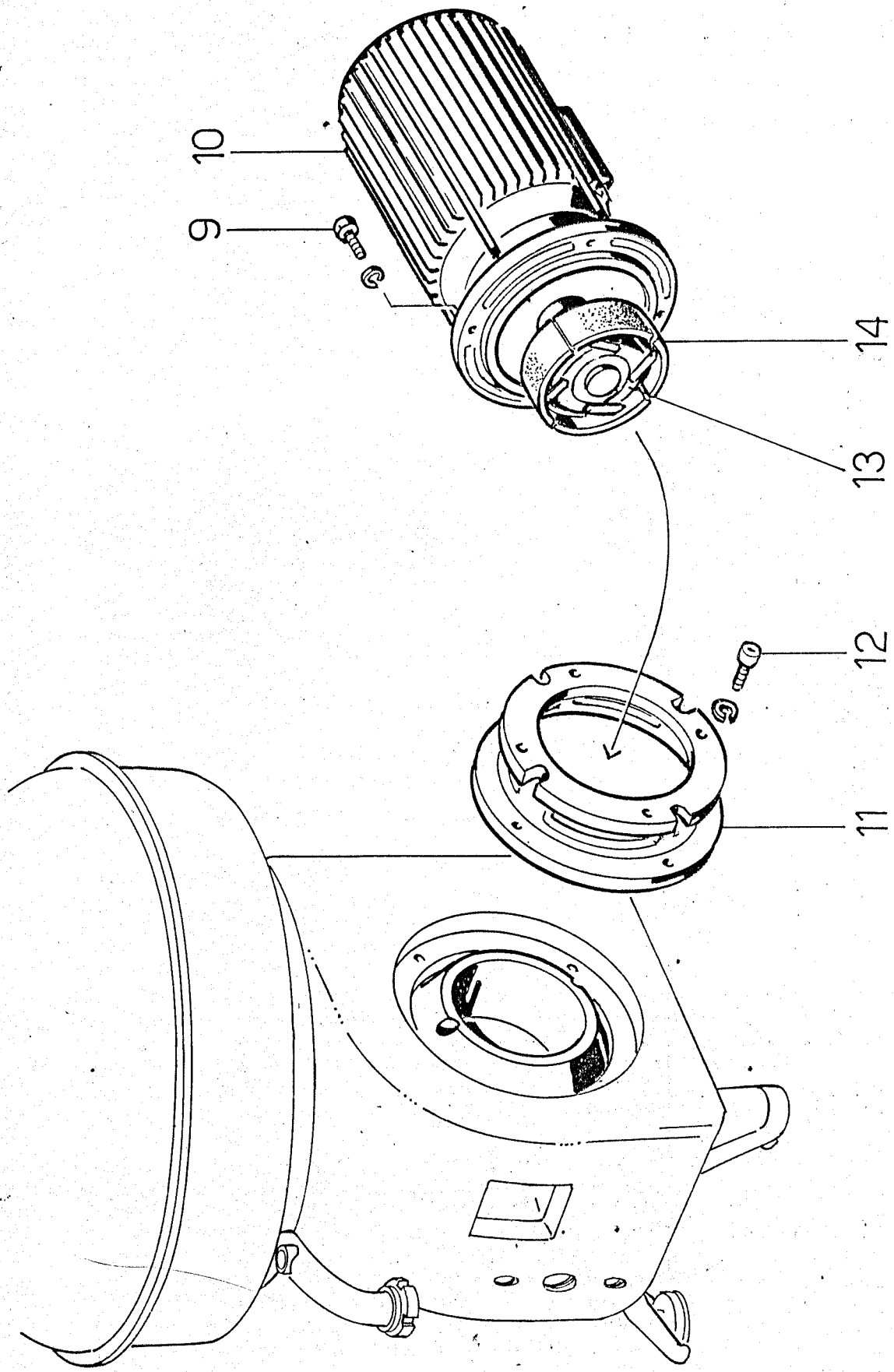
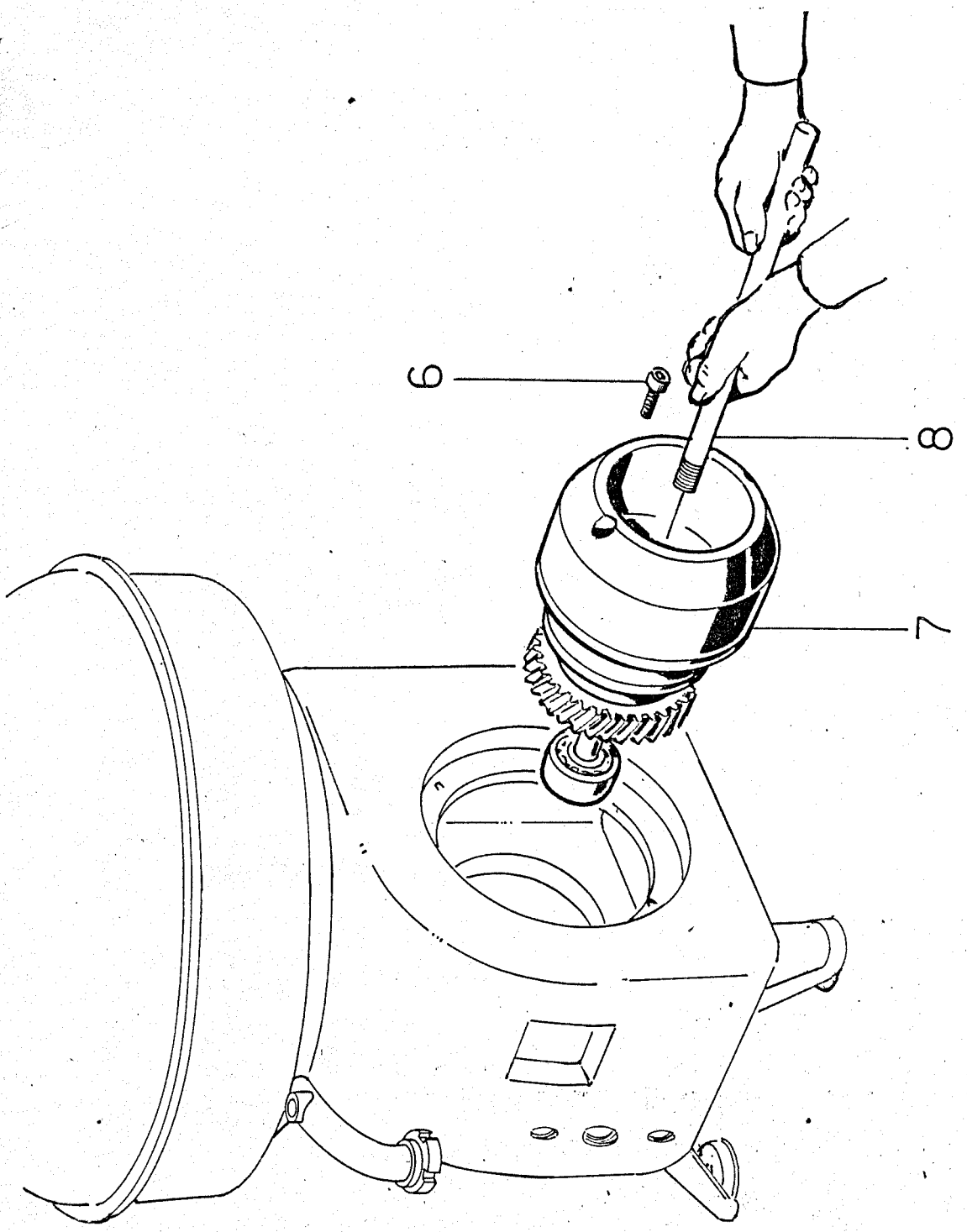
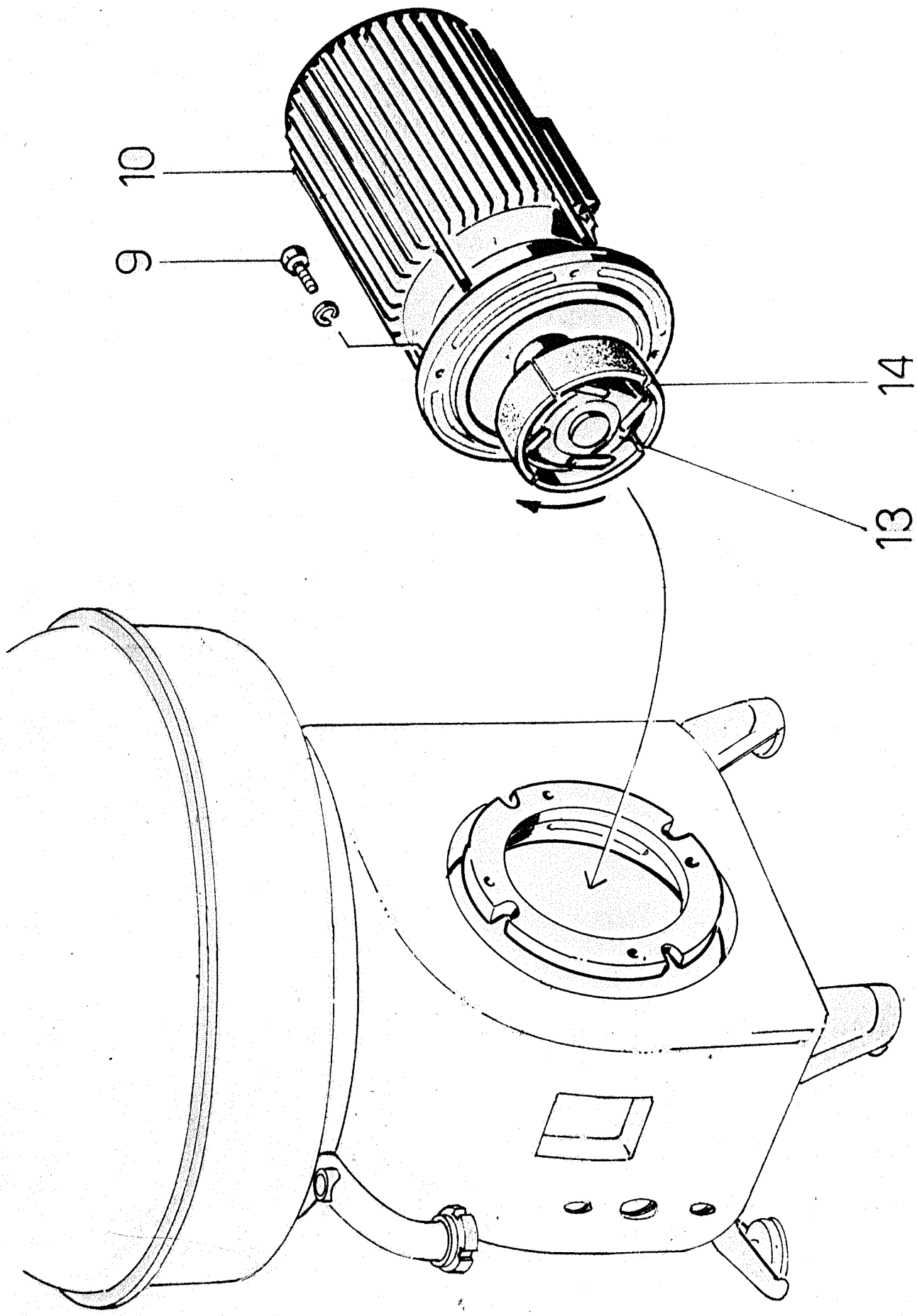

10
9
14
13
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11

FIG.15 - PAG.20 b




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14
13

10. ADJUSTING THE PUMPS CLEARANCE

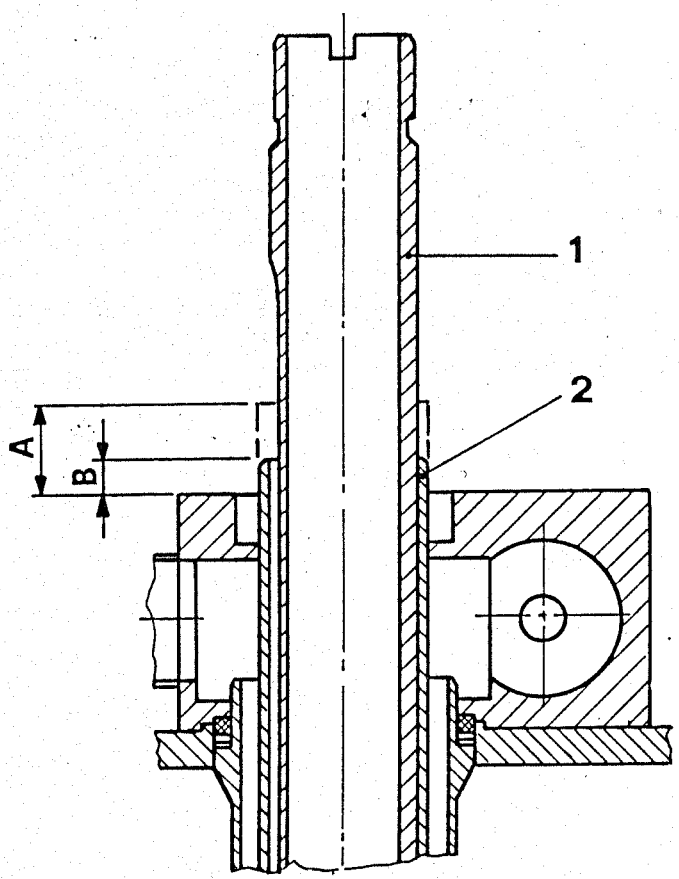
The pumps are secured to the cover by a locknut.
They must have a vertical clearance of 3 to 4 mm. with respect to the bowl. The adjustement is carried out at our works, by fitting some nylon spacers down the skim pump gasket.
See their required number at page 1.

When the vertical shaft is dismantled, and special maintenance is doing, it will be necessary to restore the correct pump clearance by varying, if the case, the fitted spacers quantity. (It is advisable to revise the number written at page 1.)

The centrifuge is equipped with two supplementary spacers.

The sequence of operations:

- Assemble the bowl, with the pumps, the cover, the skim distributor.
- Push down the cream pump (the skim pump when P model).
- Measure the B distance.
- Draw up the feeding sleeve.
- Measure the A distance.
- The difference between A and B must be from 3 to 4 mm.
- If the difference between A and B, is inferior to 3 mm., remove some spacers.
- If the difference between A and B, is superior to 4 mm., add some spacers.


1
2
A
B

PROBLEMS: - Abnormal vibration during operation.

CAUSES : - The bowl has not been correctly assembled.
- Components from various separators have been interchanged.
- The diaphrams have been blended.

REMEDIES: - Assemble the bowl correctly.
- Position the diaphram following the progressive numeration.

PROBLEMS: - Abnormal vibration during operation (continued)

CAUSES : - The diaphragm column compression is inadequate.
- The bowl has been damaged during assembly or disassembly.
- The elastic support is damaged.
- The bearings are worn.
- The gears are in a poor condition.

In the first istance check the causes:

- Lack of oil, or oil too fluid.
- The components take on a bluish hue.
- Water in the oil, the base drainage is blocked or a jet of water has been used when flushing the top inside the base.
- Sludge in the oil, the gearbox has not been cleaned as prescribed.

REMEDIES: - Add one ormore diphragms supplied.
- Do not make anythings.
- Send the bowl to our works or call in our technician for a check.
- Do not overheat with flame or weld, the bowl is manufactured in special stainless steel.
- Replace the elastic support.
- Replace the bearings.
- The self-aligning bearing on table 11 must be suitable for high speed, with brass cage.
- Replace worn components, carefully clean the gearbox and replace the oil.

PROBLEMS: - Leakage of product from the cover syphon.

CAUSES : - Pressure too high.
- The bowl gasket 06030 and 06050 (table 6 on page 29) and n. 07030 and 07050 (table 7 on page 31) are worn or incorrectly positioned.
- The discharge assembly gasket n. 08170 (table 8 on page 33) and n. 09090 (table 9 on page 35) is worn.

REMEDIES: - Unscrew the thin fluid regulator
- Correctly position or replace the gaskets.
- Replace the gasket

PROBLEMS: - Leakage of product from the base drain pipe.

CAUSES : - The gasket n. 06080 (table 6 on page 29) and n. 07080 (table 7 on page 31) is worn or incorrectly positioned.

REMEDIES: - Correctly position the gasket lengthening a little it or replace it.

PROBLEMS: - Inadequate separating (more than 0,05% of thick fluid in the thin fluid).

CAUSES : - The gaskets 06050 and 06090 (table 6 on page 29) are worn or incorrectly positioned.
- Temperature of the whey or milk is too high or too low.
- Flow rate too high.
- Orifices in cover or in item 12 (table 3 on page 11) are blocked.
- Regulator C (table 5 on page 15) is not fully cloese.
- The regulator C gasket n. 08090-b (table 8 on page 33) is worn.

REMEDIES: - Position the gasket correctly or replace them.
- Ideal temperature 35 + - 40.C., however it is possible to skim from 20.C. to 60.C. approx.
- Reduce the flow rate to admissible values (table 1 on page 6)
- Open the orifices.
- Close to valve fully.
- Replace the gasket.

PROBLEMS: - Cream with foam or thin fluid with foam.

CAUSES : - Infiltration of air in the product at the separator inlet.
- Incorrect setting of regulator A and B (table 5 on page 15)
- The pressure shown on the pressure gauge is too high.

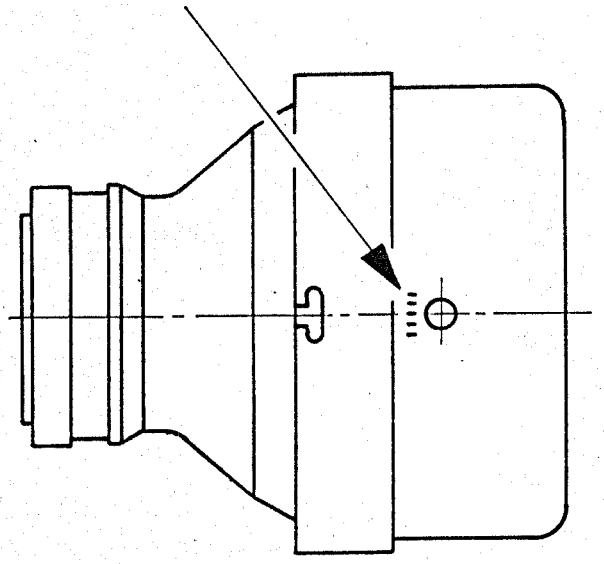
REMEDIES: - Check that all unions in the feed line include gaskets and are fully closed.
- Check them internally.
- Check that the pump is not sucking air from the seal.
- Check that the pump only sucks when there is a head.
- Increase the pressure by closing the regulator A and consequently B in order to maintain the cream density.
- Check that all unions in the feed line include gaskets and are fully closed.
- Check them internally.
- Check that the pump is not sucking air from the seal.
- Check that the pump only sucks when there is a head.
- Close regulator A so that milk drips slightly from the cover pipe.

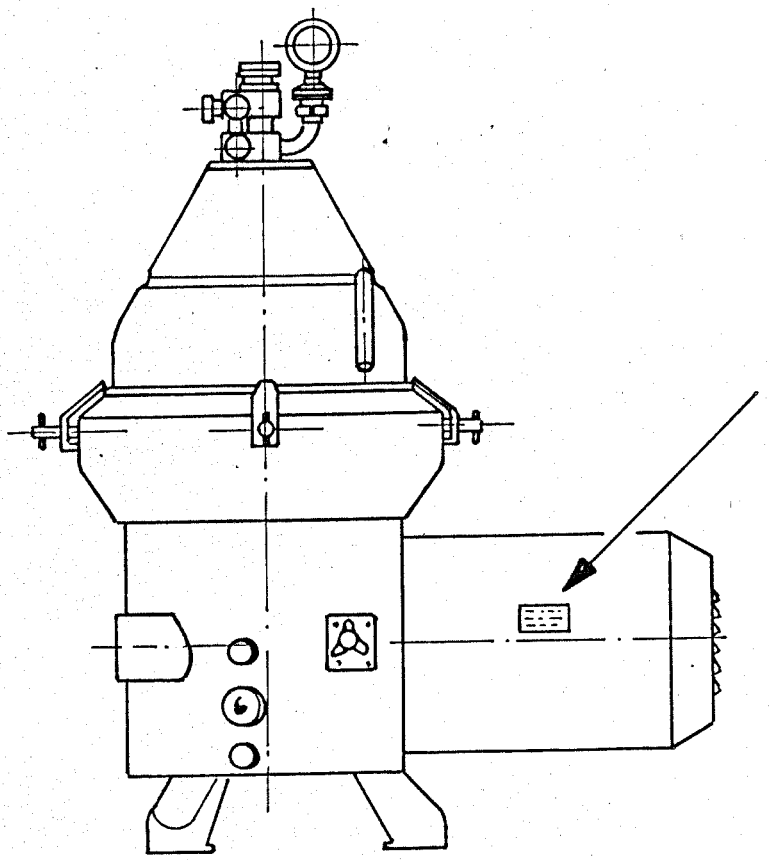
12. LIST OF SPARE PARTS

When spares are ordered, it is essential to specify the following:

- the separator type and serial number
- the name and the of the item to be ordered.

DRAWINGS SHOWING THE POSITION OF THE SEPARATOR TYPE AND SERIAL NUMBER

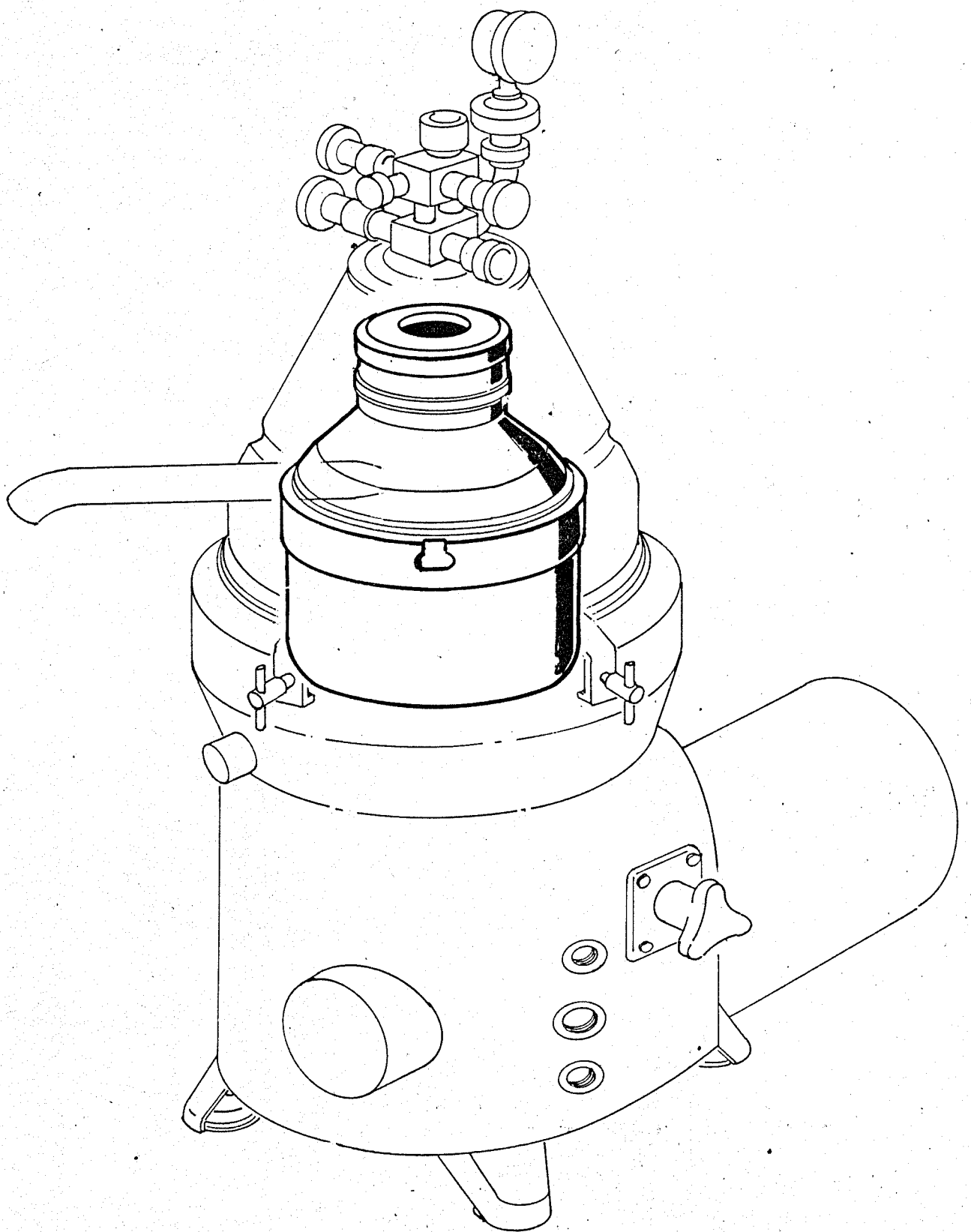




CN 50/T CN 100/T

Art.	No. Pezzi No. Pieces No. Pieces No. Piecas	Gruppo tamburo Bowl assembly Pieces du bol Grupo del tambor
06010	1	Anello del cappello Small lock ring Anneau de fermeture du bol Anillo de la tapa
06020	1	Coperchio alettato Finned flat Couvercle avec ailettes Tapa con aletas
06030	1	Guarnizione al setto divisore Baffle rubber ring Joint au plateau de division Reten del disco divisor
06040	1	Setto divisore Baffle Plateau de division Disco divisor
06050	1	Guarnizione superiore al cappello Upper ring bowl top Joint superieur au chapeau Reten superior de la tapa
06061	1	Anello del fondo Large lock ring Anneau de fermeture du fond Anillo del fondo
06070	1	Cappello Bowl top Chapeau de bol Tapa
06080	1	Guarnizione al cappello Rubber ring bowl top Joint au chapeau Reten de la tapa

			CN 50/T CN 100/T
06090		1	Guarnizione OR al disco separatore Packing separating disc Joint a' l'assiette separatrice Reten al disco separador
06100		1	Disco separatore Separating disc Assiette separatrice Disco separador
06110	(145)	105	Diaframma intermedio Intermediate disc Assiette Disco intermedio
06120		1	Diaframma di fondo Bottom disc Assiette inferieure Primero disco
06130		1	Distributore Distributor Distributeur Suporte porta discos
06140		1	Fondo Bowl shell Fond de bol Fondo

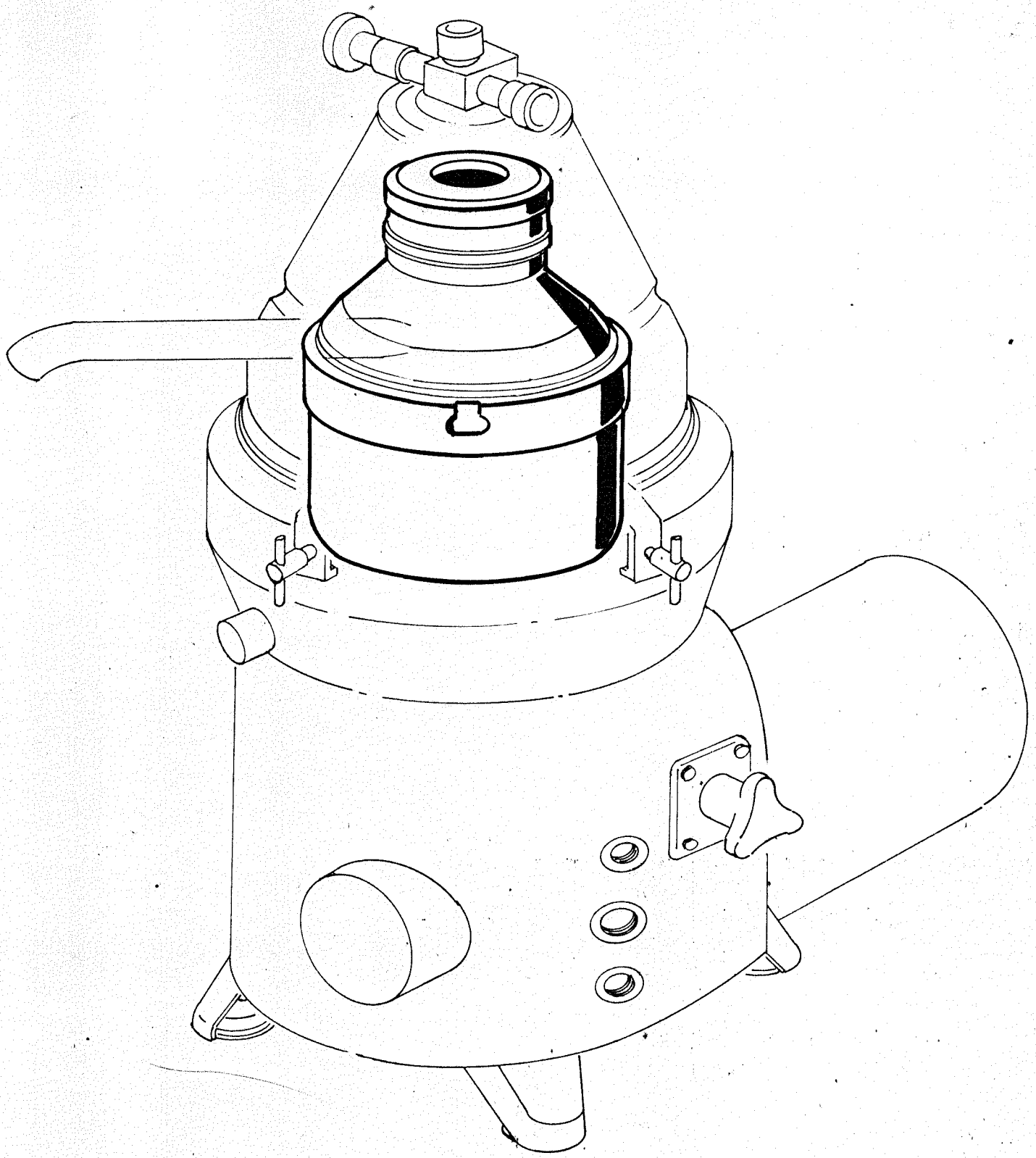


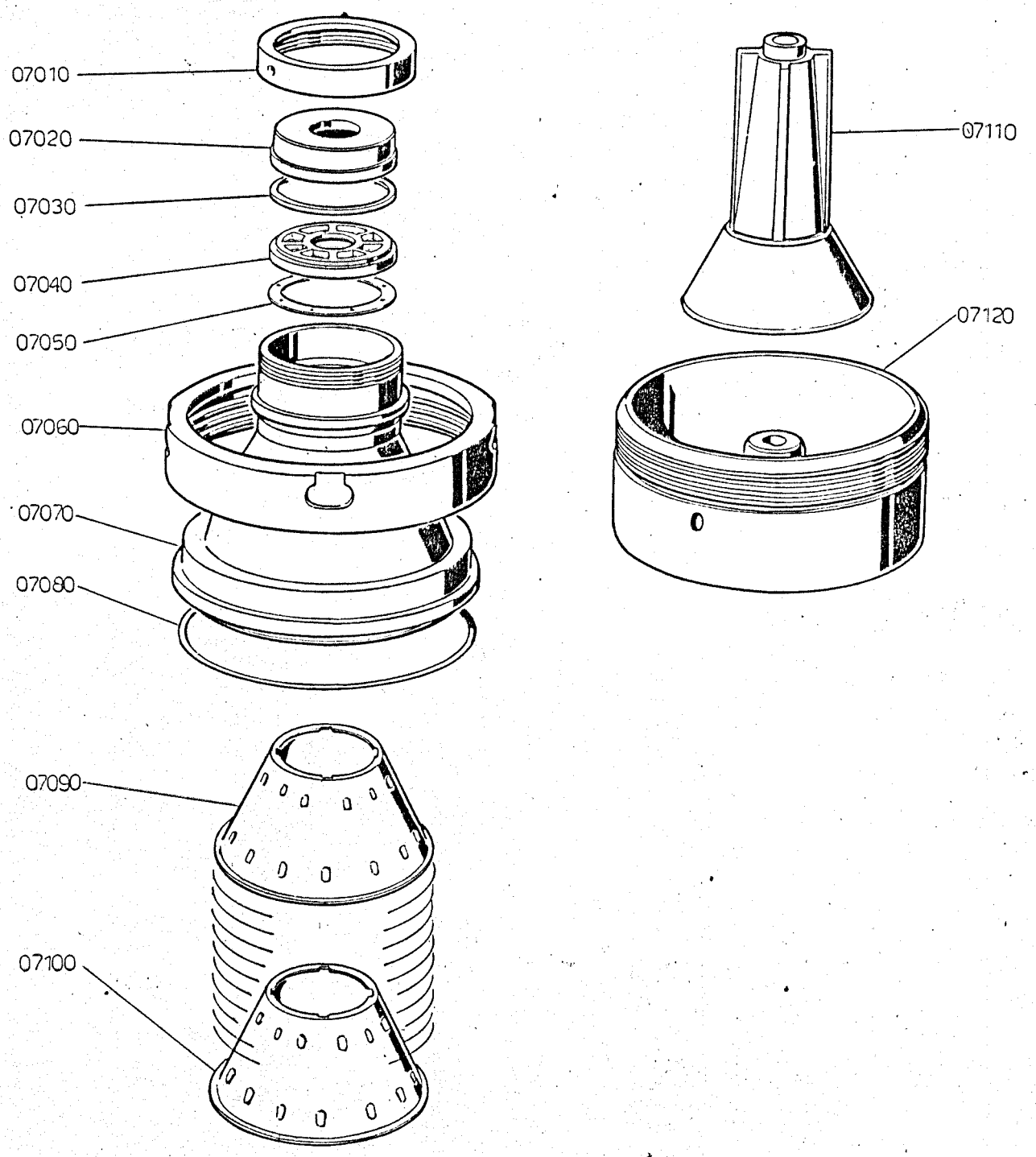
Segue

CN 50/P CN 100/P

Art.	No. Pezzi No. Pieces No. Pieces No. Piecas	Gruppo tamburo Bowl assembly Pieces du bol Grupo del tambor
07010	1	Anello del cappello Small lock ring Anneau de fermeture du bol Anillo de la tapa
07020	1	Coperchio alettato Finned flat Couvercle avec ailettes Tapa con aletas
07030	1	Guarnizione al setto divisore Baffle rubber ring Joint au plateau de division Reten al disco divisor
07040	1	Setto divisore Baffle Plateau de division Disco divisor
07050	1	Guarnizione superiore al cappello Upper ring bowl top Joint superieur au chapeau Reten superior de la tapa
07061	1	Anello del fondo Large lock ring Anneau du fermeture du bol Anillo de base
07070	1	Cappello Bowl top Chapeau du bol Tapa
07080	1	Guarnizione al cappello Rubber ring bowl top Joint au chapeau Empaquetadora de la tapa

			CN 50/P CN 100/P
07090	(138)	114	Diaframma intermedio Intermediate disc Assiette Disco intermedio
07100		1	Diaframma di fondo Bottom disc Assiette inferieur Primiero disc
07110		1	Distributore Distributor Distributeur Suporte porta discos
07120		1	Fondo Bowl shell Fond de bol Fondo



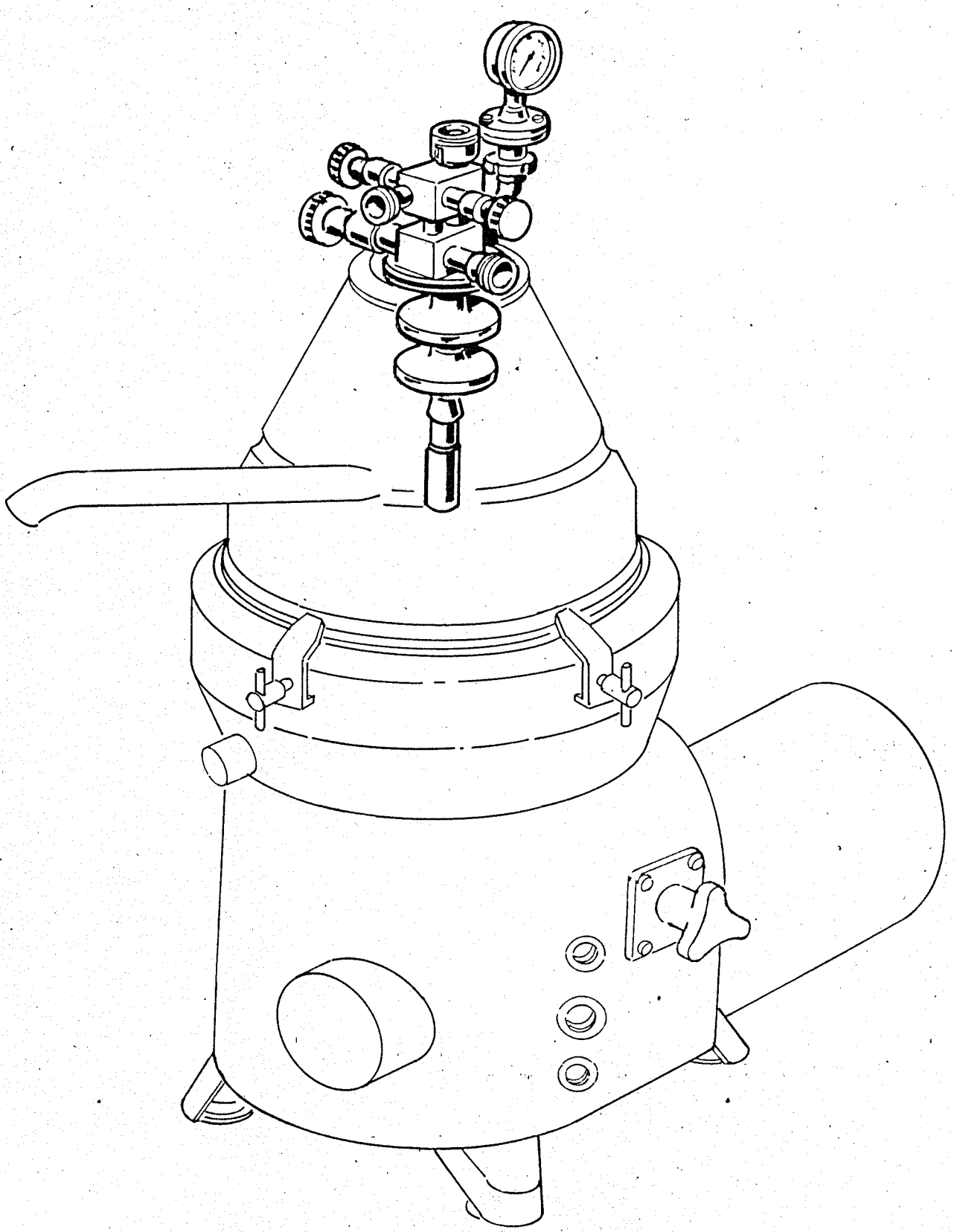

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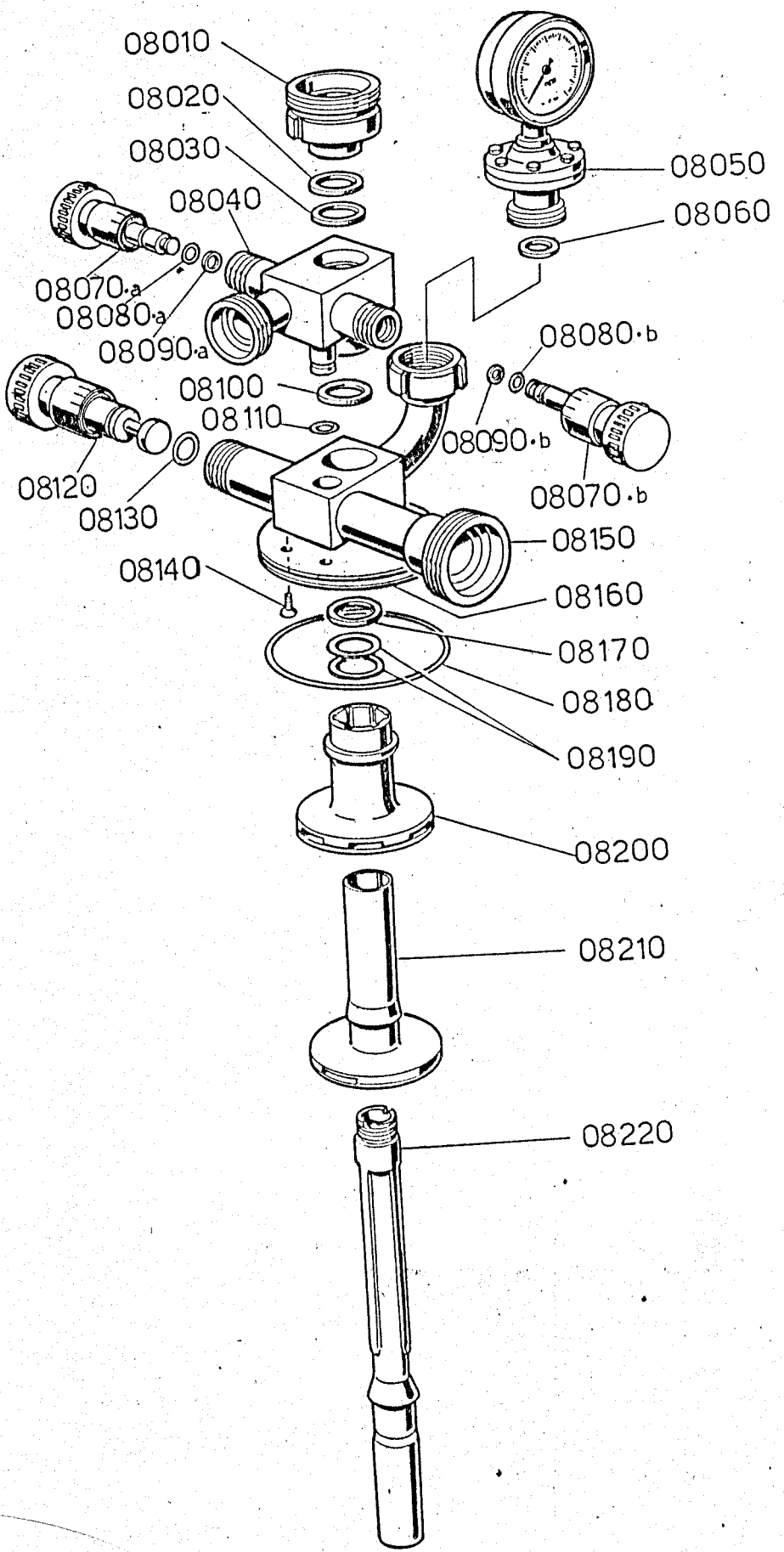
CN 50/T CN 100/T

Art.	No. Pezzi No. Pieces No. Pieces No. Piecas	Gruppo apparato di deflusso Discharge assembly Groupe de sortie Grupo aparato de salida
08010	1	Dado di bloccaggio Coupling lock nut Couplement filete' Tuerca de entrada
08020	1	Anello premiguarnizione Packing ring Anneau du joint Anillo
08030	1	Guarnizione superiore al distributore crema Upper ring cream distributor Joint superieur au distributeur Reten superior del distribudo de la nata
08040	1	Distributore crema Cream distributor Distributeri de la creme Distribudor de la nata
08050	1	Manometro Manometer Manometre Manometro
08060	1	Guarnizione al manometro Manometer packing Joint au manometre Reten del manometro
08070-a	1	Otturatore crema Cream micrometric valve Vanne micrometrique de la creme Grifo regulador de la nata
08070-b	1	Otturatore di titolazione Standardizing micrometric valve Vanne micrometrique de tritage Grifo regulador standardisado

08080-a	1	Guarnizione OR otturatore crema Packing OR crema micrometric valve Joint OR de la vanne micrometric de la creme Reten OR del grifo regulador de la nata
08080-b	1	Guarnizione OR otturatore di titolazione Packing OR standardizing micrometric valve Joint OR de la vanne micrometric de tritage Reten OR del grifo regulador de standardisacion
08090-a	1	Guarnizione otturatore crema Packing crema micrometric valve Joint de la vanne micrometric de la creme Reten del grifo regulador de la nata
08090-b	1	Guarnizione otturatore di titolazione Packing standardizing micrometric valve Joint de la vanne micrometric de tritage Reten del grifo regulador de standardisacion
08100	1	Guarnizione superiore distributore magro Packing skim distributor Joint superieur au distributeur du petit lait Reten superior distribudor desnatada
08110	1	Guarnizione OR distributore crema Packing OR cream distributor Joint OR distributeur de la creme Reten del grifo distribudor de la nata
08120	1	Otturatore magro Skim micrometric valve Vanne micrometric du petit lait Grifo regulador desnatada
08130	1	Guarnizione OR otturatore magro Packing OR skim micrometric valve Joint OR vanne micrometric du petit lait Reten del grifo regulador desnatada
08140	4	Vite alla piastra di supporto Support plate screw Vis a' la plaque de support Tornillo a la placas de supporte

08150	1	Distributore magro Skim distributor Distributeur du petit lait Distribudor desnatada
08160	1	Piastra di supporto Support plate Plaque de support Placas de suporte
08170	1	Guarnizione inferiore al distributore magro Lower packing skim distributor Joint inferieur au distributeur au petit Reten inferior distribudor desnatada
08180	1	Guarnizione OR alla piastra di supporto Support plate packing OR Joint OR a' la plaque de support Reten de la placa de support
08190		Distanziali Spacers Entretoises Anillos distanciadores
08200	1	Pompa magro Skim pump Pompe du petit lait Bomba desnatada
08210	1	Pompa crema Cream pump Pompe de la creme Boma de la nata
08220	1	Canotto di alimentazione Feeding pipe Manchon d'alimentation Bomba de alimentacion



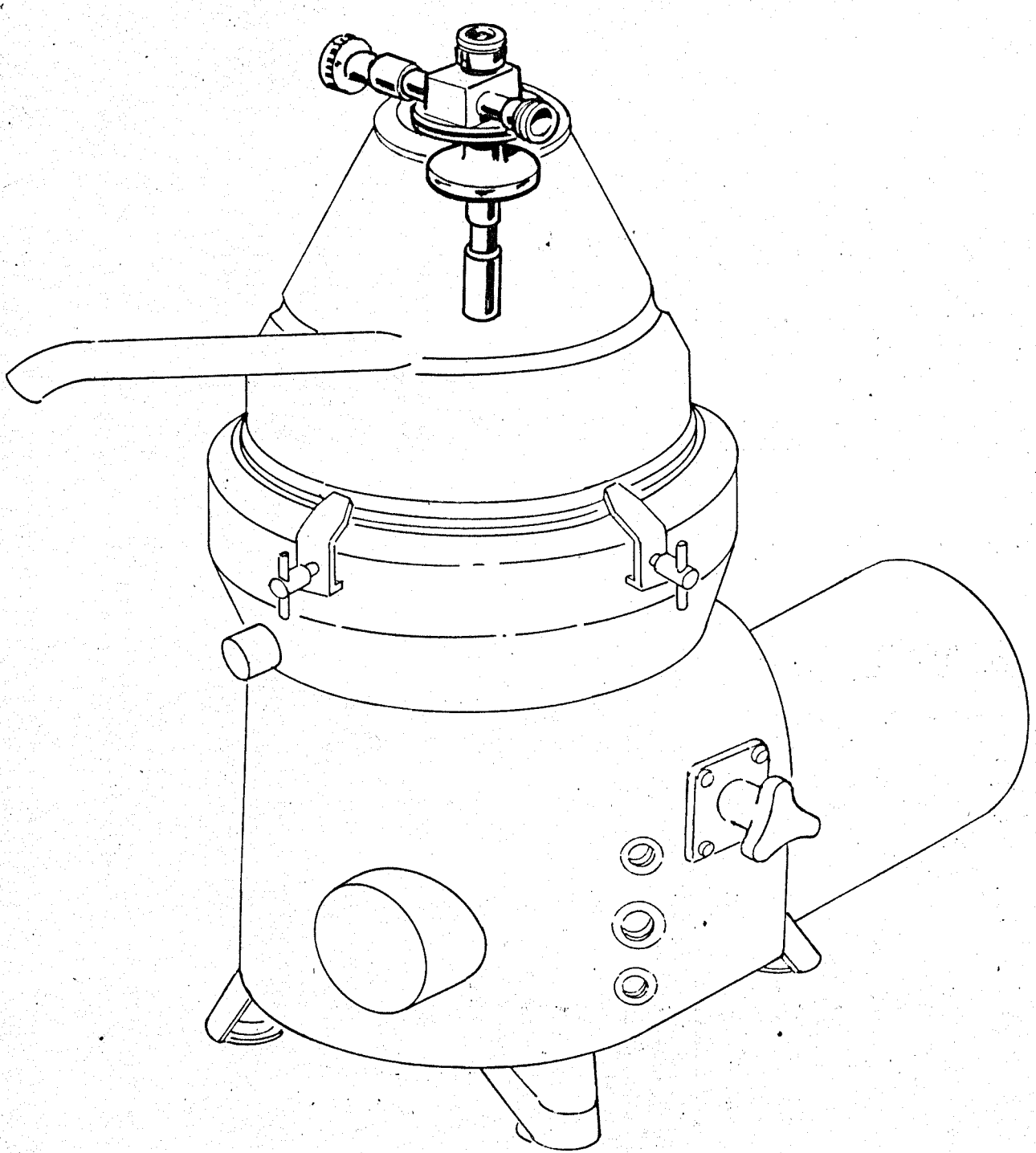

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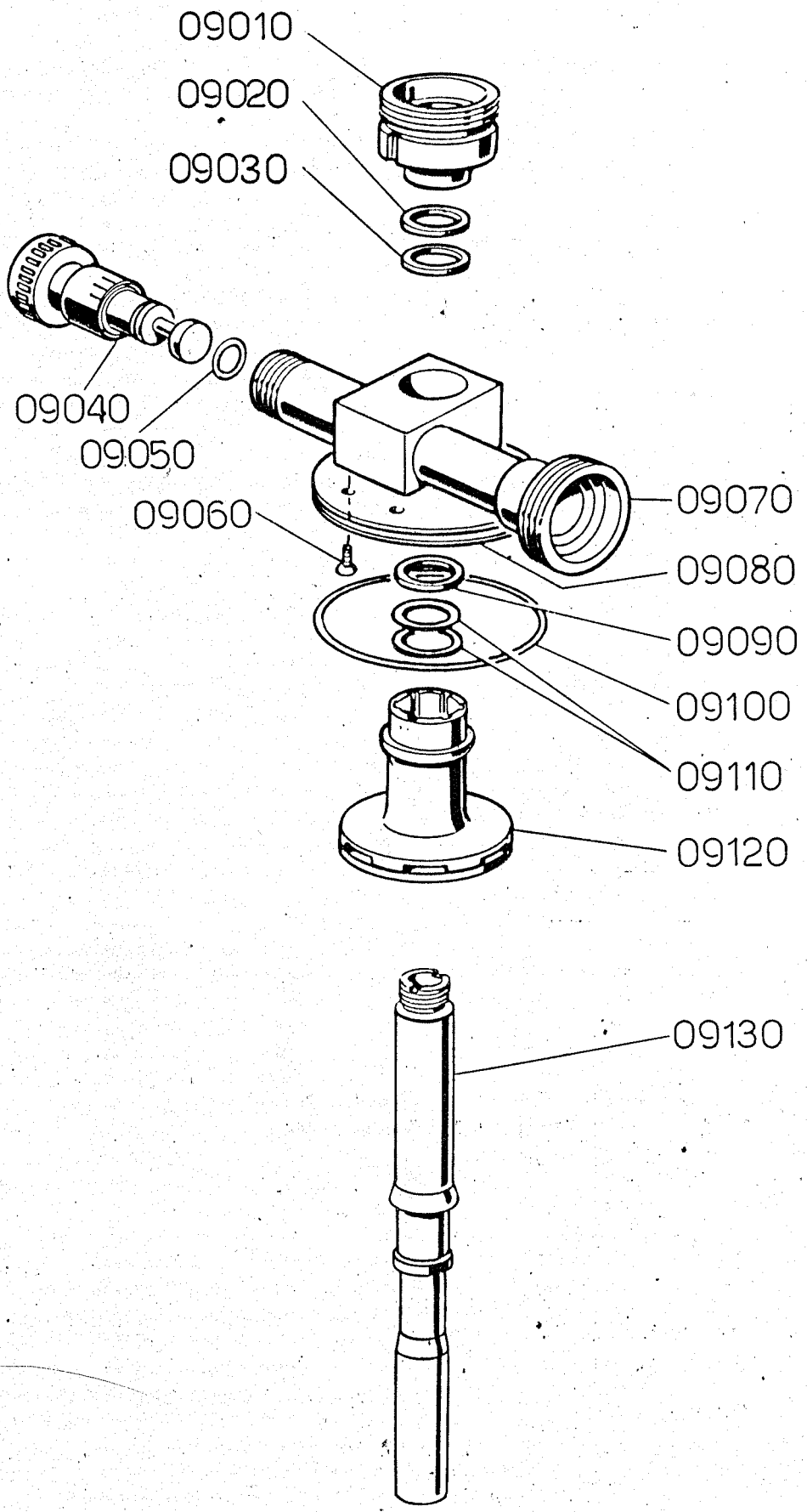
Segue

CN 50/P

Art.	No. Pezzi No. Pieces No. Pieces No. Piecas	Gruppo apparato di deflusso Discharge assembly Groupe de sortie Grupo aparato de salida
09010	1	Dado di bloccaggio Coupling lock nut Ecrou de raccord Tuerca de entrada
09020	1	Anello premiguarnizione Packing ring Anneau du joint Anillo
09030	1	Guarnizione superiore distributore magro Upper packing skim distributor Joint superieur au distributeur du petit lait Reten superior distribudor desnatada
09040	1	Otturatore magro Skim micrometric valve Vanne micrometrique du petit lait Grifo regulador desnatada
09050	1	Guarnizione OR otturatore magro Skim micrometric valve packing Joint OR a' la vanne micrometrique du petit lait Reten del grifo regolador desnatada
09060	4	Vite alla piastra di supporto Support plate screw Vis a' la plaque de support Tornillo a la placa de suporte
09070	1	Distributore magro Skim distributor Distributeur du petit lait Distribudor desnatada.

09080	1	Piastra di supporto Support plate Plaque de support Placa de suporte
09090	1	Guarnizione inferiore distributore magro Lower packing skim distributor Joint inferieur du distributeur du petit lait Reten inferior distribudor desnatada
09100	1	Guarnizione OR alla piastra di supporto Support plate packing OR Joint OR a' la plaque de support Reten OR a la placa de suporte
09110		Distanziali Spacers Entretoises Anillos distanciadores
09120	1	Pompa magro Skim pump Pompe du petit lait Bomba desnatada
09130	1	Canotto di alimentazione Feeding sleeve Tube d'alimentation Tubo de alimentacion




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CN 50 CN 100

Art.	No. Pezzi No. Pieces No. Pieces No. Piecas	Gruppo basamento Base assembly Pieces de la base Grupo de la base
10010	2	Vite al coperchio Cover screw Vis au couvercle Tornillo a la covertura
10020	2	Rosetta elastica al coperchio Cover split washer Rondelle elastique au couvercle Arandela glover a la covertura
10030	2	Rondella al coperchio Cover washer Rondelle au couvercle Arandela plana a la covert
10040	1	Coperchio Cover Couvercle Covertura
10050	1	Basamento Frame Bati La base
10060	1	Protezione motore Motor protection Protection du moteur Tapa de motor
10070-a	1	Rosetta elastica alla protezione motore Motor protection split washer Rondelle elastique de protection du moteur Arandela glover de la tapa de motor
10070-b	4	Rosetta elastica al supporto freno Brake support split washer Rondelle elastique au frein Arandela glover del freno

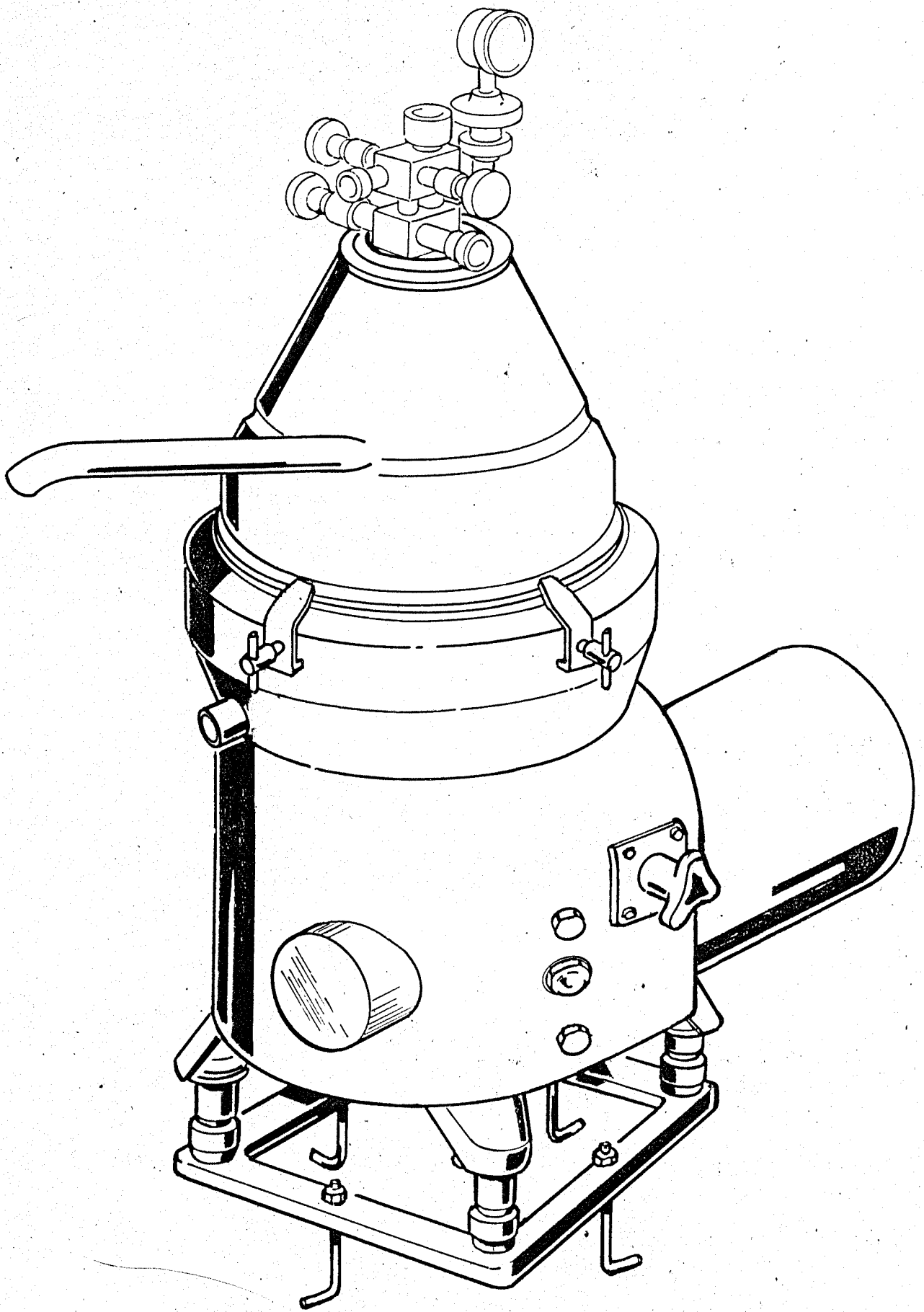
CN 50 CN 100

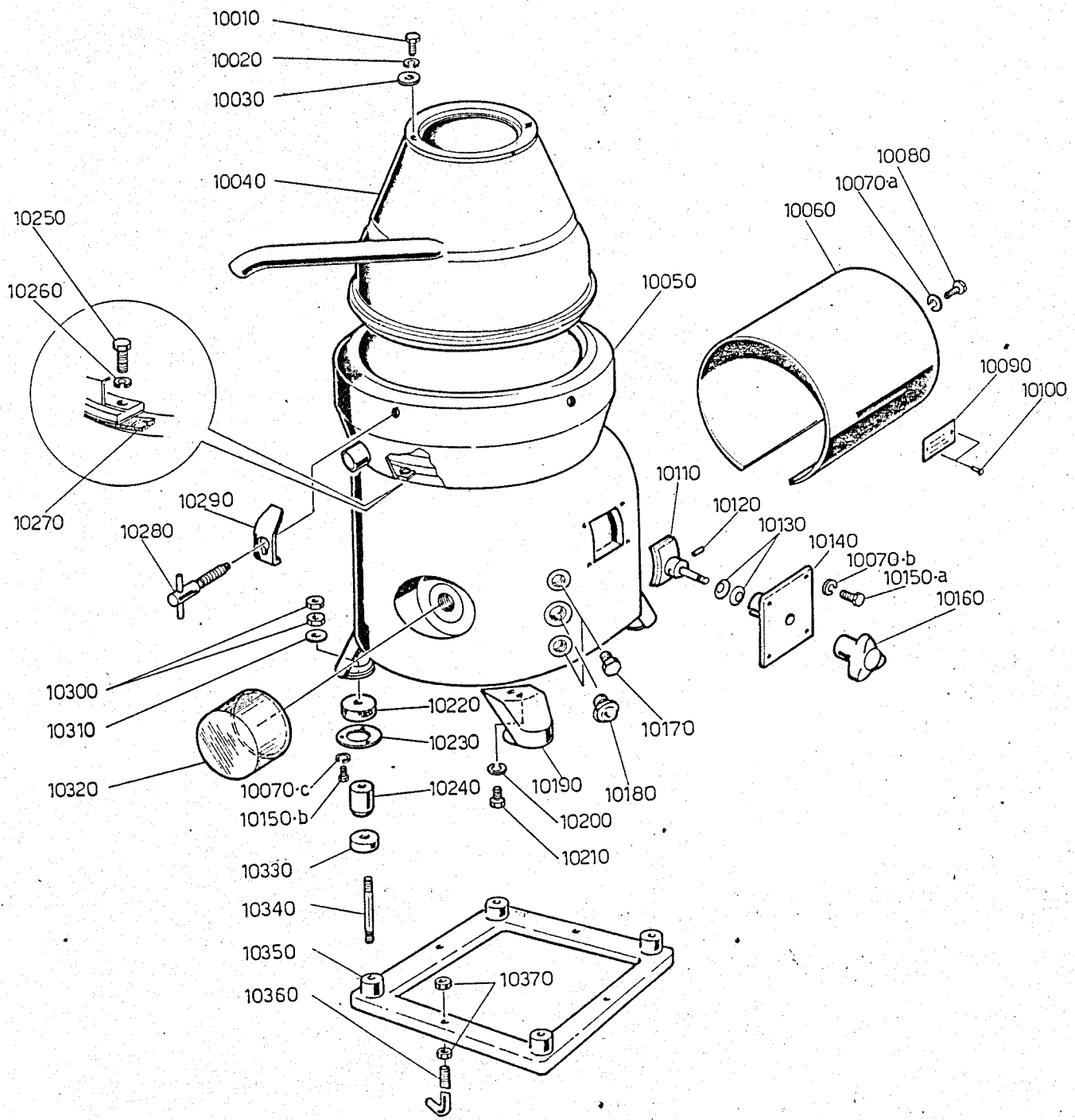
10070-c	12	Rosetta elastica alla rodella ammortizzatore Shock absorber split washer Rondelle elastique ammortisatrice Arandela glover amortijatrice
10080	1	Vite fissaggio protezione motore Motor protection fixing screw Vis de fixage de la protection du moteur Tornillo a la tapa de motor
10090	1	Targhetta di identificazione Data plate Plaquette d'identification Placa de datos
10100	7	Rivetto a strappo Rivet Rivet Rimace
10110	1	Ceppo freno Brake shoe Sabot de frein Porta ferodo
10120	1	Spina al freno Brake pin Goupille au frein Passador al freno
10130	10	Molla al freno Brake spring Ressort du frein Muelle del freno
10140	1	Supporto al freno Brake support Support du frein Suporte del freno
10150-a	4	Vite fissaggio supporto freno Support brake fixing screw Vis de fixage au support du frein Tornillo de fijacion soporte del freno

		CN 50 CN 100
10150-b	12	Vite alla rondella ammortizzatore Shock absorber washer screw Vis a' la rondella ammortisatrice Tornillo de l'arandela del amortijatrice
10160	1	Volantino freno Brake handwheel Voalnt a' main du frein Volante del freno
10170	7	Tappo olio Oil plug Bouchon de l'huile Tapon de aceite
10180	1	Spia olio Oil level Niveau de l'huile Nivel de aceite
10190	4	Gamba Leg Jambe Pata
10200	8	Rosetta elastica alla gamba Leg split washer Rondelle elastique a' la jambe Arandela glover a la pata
10210	8	Vite fissaggio gamba Leg fixing screw Vis de fixage a la jambe Tornillo de fijaacion de la pata
10220	4	Ammortizzatore Shock absorber Amortisseur Amortijador
10230	4	Rondella di fermo ammortizzatore Vibration damper washer Rondelle de serrage ammortisseur Arandela de parada amortiguador
10240	4	Piede Feet Pied Pie

		CN 50 CN 100
10250	4	Vite fissaggio stampato al basamento Base fixing screw Vis de fixage a la base Tornillo de fijacion del impreso an la base
10260	4	Rosetta elastica stampato al basamento Base spring washer Rondelle elastique a la base Arandela elastica del impreso en la base
10270	1	Guarnizione stampato al basamento Base joint Gasket a la base Empaque tadura del impreso en la base
10280	4	Perno di bloccaggio Lock screw Vis d'enrayement Perno de fijacion
10290	4	Staffa di bloccaggio Locking bracket Ftrier Abrazadera de fijacion
10300	8	Dado al prigioniero Stud bolt nut Ecrou au goujon de fondation Tuerca prisionera
10310	4	Rondella al prigioniero Stud bolt washer Rondelle au goujon de fondation Arandela del prisionero
10320	1	Riparo al tachimetro Tachometer protection Protection du tachymetre Proteccion del taquimetro
10330	4	Calotta Cap Chapeau Tapa

		CN 50 CN 100
10340	4	Prigioniero Bolt Tige filetee' Tornillo prisoniero
10350	1	Piastra di fondazione Foundation frame Cadre de fondation Pieza de fijazion
10360	4	Ancoraggio Foundation stud Boulon de fondation Tornillo de fijacion
10370	8	Dado all'ancoraggio Foundation stud nut Ecrou de fondation Tuerca de fijacion




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10090
10100
10110
10120
10130
10140
10070·b
10150·a
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10170
10180
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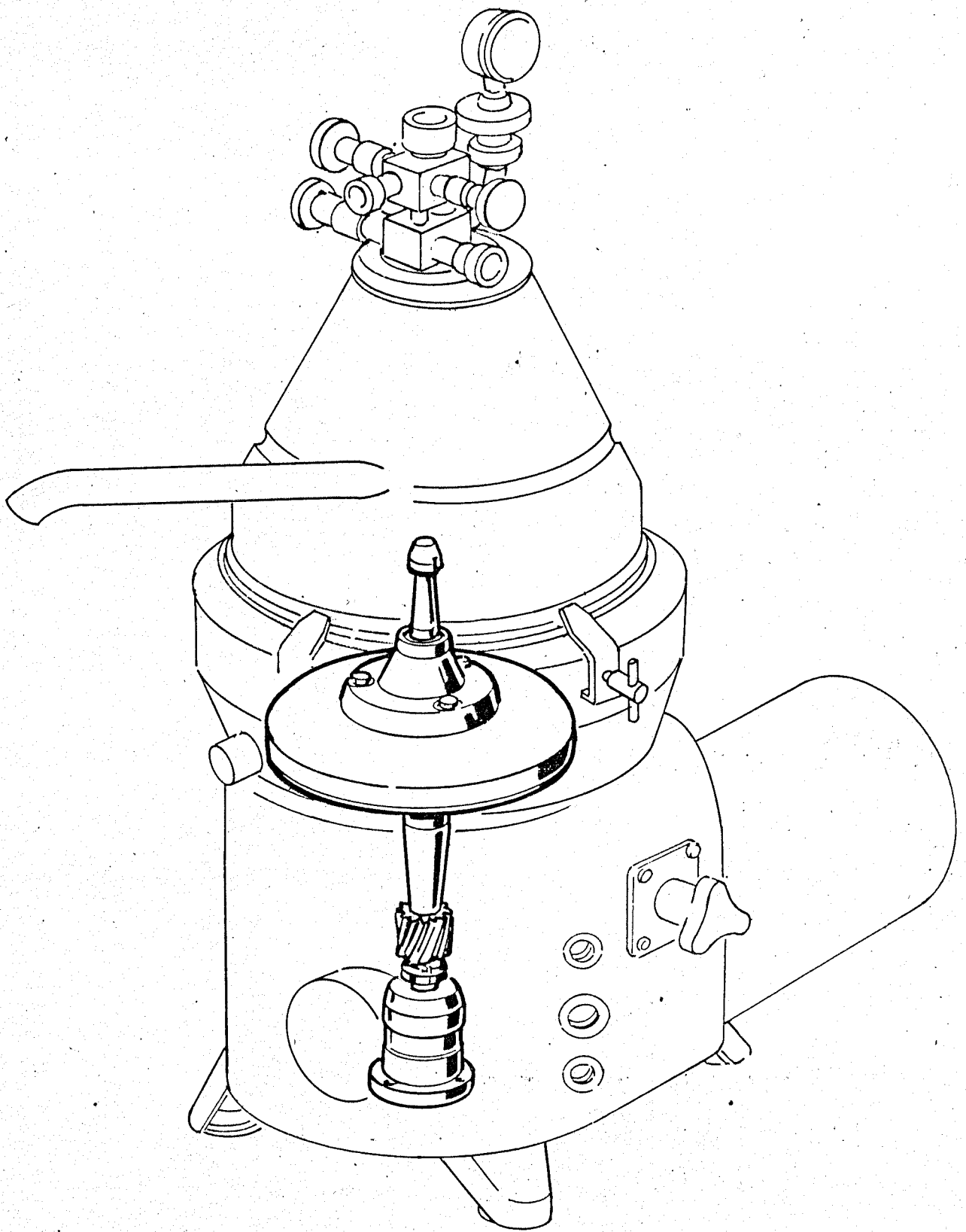
Art.	No. Pezzi No. Pieces No. Pieces No. Piecas	Gruppo albero verticale Vertical shaft assembly Arbre vertical Grupo eje vertical
11010	3	Vite al coprigabbia del collare Collar cage cover screw Vis protection de la cage du collier Tornillo del cubre jaula del collar
11020	3	Rosetta elastica al coprigabbia del collare Collar cage cover spring washer Rondelle elastique a la protection de la cage du collier Arandela elastica del cubrejaula del collar
11030	1	Coprigabbia del collare Collar cage cover Protection de la cage du collier Protection de la cage du collier Cubrejaula del collar
11040	1	Dado bloccaggio fondo Spindle nut Ecrou de l'arbre Tuerca del eje
11050	1	Guarnizione al coprigabbia del collare Collar cage cover gasket Joint a la protection de la cage du collier Empaquetadura del cubre jaula del collar
11060	1	Labirinto Labyrinth labyrinthe Laberinto
11070	1	Coperchio alla gabbia del collare Collar cage cover Couvercle a la cage du collier Tapa de la jaula del collar

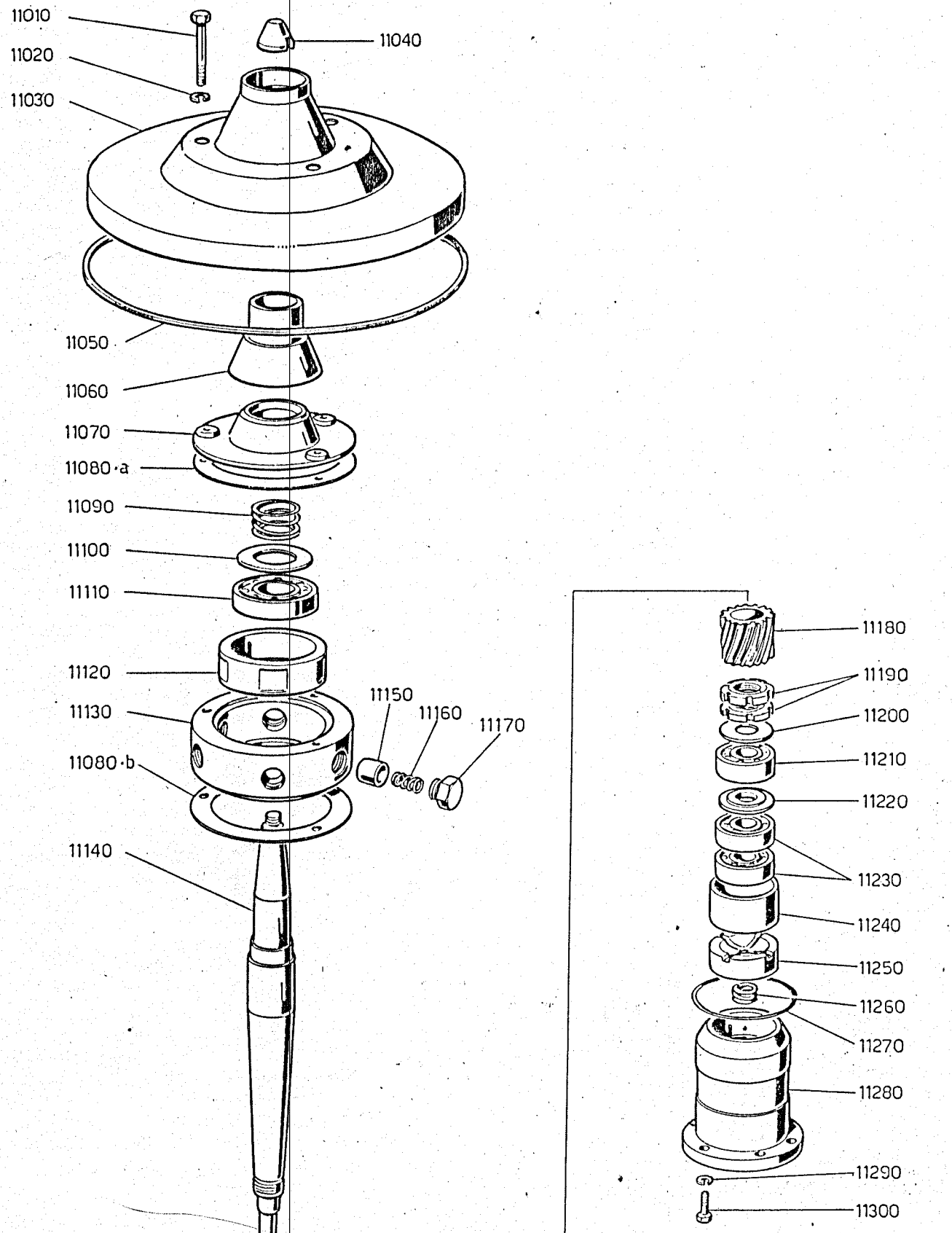
		CN 50 CN 100
11080-a	1	Guarnizione superiore alla gabbia del collare Collar cage top gasket Joint superieur a la cage du collier Empaquetadura sup. de la jaula del collar.
11080-b	1	Guarnizione inferiore alla gabbia del collare Collar cage bottom gasket Joint inferieur a la cage du collier Empaquetadura inf. de la jaula del collar
11090	1	Molla del labirinto Labyrinth spring Ressort du labyrinthe Muelle do laberinte
11100	1	Schermo al cuscinetto del collare Collar bearing protection Bague de protection du collier Arandela de proteccion do collar
11110	1	Cuscinetto del collare Collar ball bearing Roulement a' billes du collier Cojinete do collar
11120	1	Anello alla gabbia del collare Collar cage ring Anneau a la cage du collier Anillo de la jaula del collar
11130	1	Gabbia del collare Collar cage Cage du collier Jaula do collar
11140	1	Albero verticale Vertical spindle Arbre vertical Eje vertical
11150	6	Pistoncino del collare Collar piston Piston du collier Piston do collar

		CN 50 CN 100
11160	6	Molla del collare Collar spring Ressort du collier Muelle do collar
11170	6	Dado del collare Collar nut Ecrou du collier Dado do collar
11180	1	Vite senza fine Worm screw Vis sans fim Tornillo sin fin
11190	2	Ghiera Slotted lock nut Ecrou Virola
11200	1	Schermo al cuscinetto orientabile Bearing protection Bague de protection Arandela de protecion
11210	1	Cuscinetto orientabile Ball bearing Roulement a' billes Cojinete
11220	1	Distanziale Spacing ring Bague de distance Distanciador
11230	2	Cuscinetto reggispinta Thrust bearing Roulement a' billes Cojinete
11240	1	Bussola reggispinta Bearing bush Boftier de pression Porta cojinete
11250	1	Supporto reggispinta Thrust bearing support Support de la crapaudine Suporte de eje

CN 50 CN 100

11260	1	Molla al supporto reggispinta Thrust bearing spring Ressort de la butee a billes Resorte del soporte de tope
11270	1	Guarnizione OR alla bussola di fondo Bottom bush OR packing Joint OR de la boftier de la crapaudine Reten OR do suporte de base
11280	1	Bussola di fondo Bottom bush Boftier de la crapaudine Suporte de base
11290	3	Rosetta elastica alla bussola di fondo Bottom bush split washer Rondelle elastique de la boftier de la crapaudine Arandela glover do suporte de base
11300	3	Vite alla bussola di fondo Bottom bush screw Vis a' la boftier de la crapaudine Tornillo do suporte de base




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Segue

CN 50 CN 100

Art.	No. Pezzi No. Pieces No. Pieces No. Piecas	Gruppo trasmissione orizzontale Horizontal transmission assembly Pieces horizontales du mechanisme Grupo de transmission horizontal
12010	4 (8)	Anello elastico d'arresto al ceppo frizione Clutch shoe circlip Anneau elastique de serrage au sabot d'embrayage Anillo elastico de detencion de la zapata del embrague
12020	2 (4)	Ceppo frizione Clutch shoe Sabot d'embrayage Zapata del embrague
12030	2 (4)	Perno al ceppo frizione Clutch shoe screw Vis au sabot d'embrayage Perno de la zapata del embrague
12040	1	Vite di fermo mozzo portaceppi Shoe holder boss screw Vis de serrage au bossage support de sabot Tornillo de detencion del perno portazapatas
12050	1	Supporto motore Motor support Support du moteur Suporte do motor
12060	1	Linguetta Key Cle' Chaveta
12070-a	4	Rosetta elastica al motore Motor split washer Rondelle elastique du moteur Arandela glover do motor

CN 50 - CN 100

12070-b	4	Rosetta elastica al supporto del motore Split washer to the motor support Rondelle elastique au support du moteur Arandela glover suporte do motor
12080	4	Vite fissaggio motore Motor fixing screw Vis de fixage du moteur Tornillo de fijacion del motor
12090	1	Molla alla frizione Clutch spring Ressort d'embrayage Resorte del embrague
12100	1	Elemento elastico Elastic element Element elastique Elemento elastico
12110	1	Mozzo portaceppi Shoe holder boss Bossage support de sabot Perno del porta zapatas
12120	4	Vite al portaceppi Screw for shoe holder Vis au support de sabot Tornillo del portazapatas
12130	4	Vite fissaggio supporto motore Motor holder fixing screw Vis de fixage support du moteur Tornillo de fijacion del soporte del motor.
12140	1	Distanziale al motore Motor spacers Entretoises du moteur Distanciadores del motor
12150	1	Motore Motor Moteur Motor

Segue

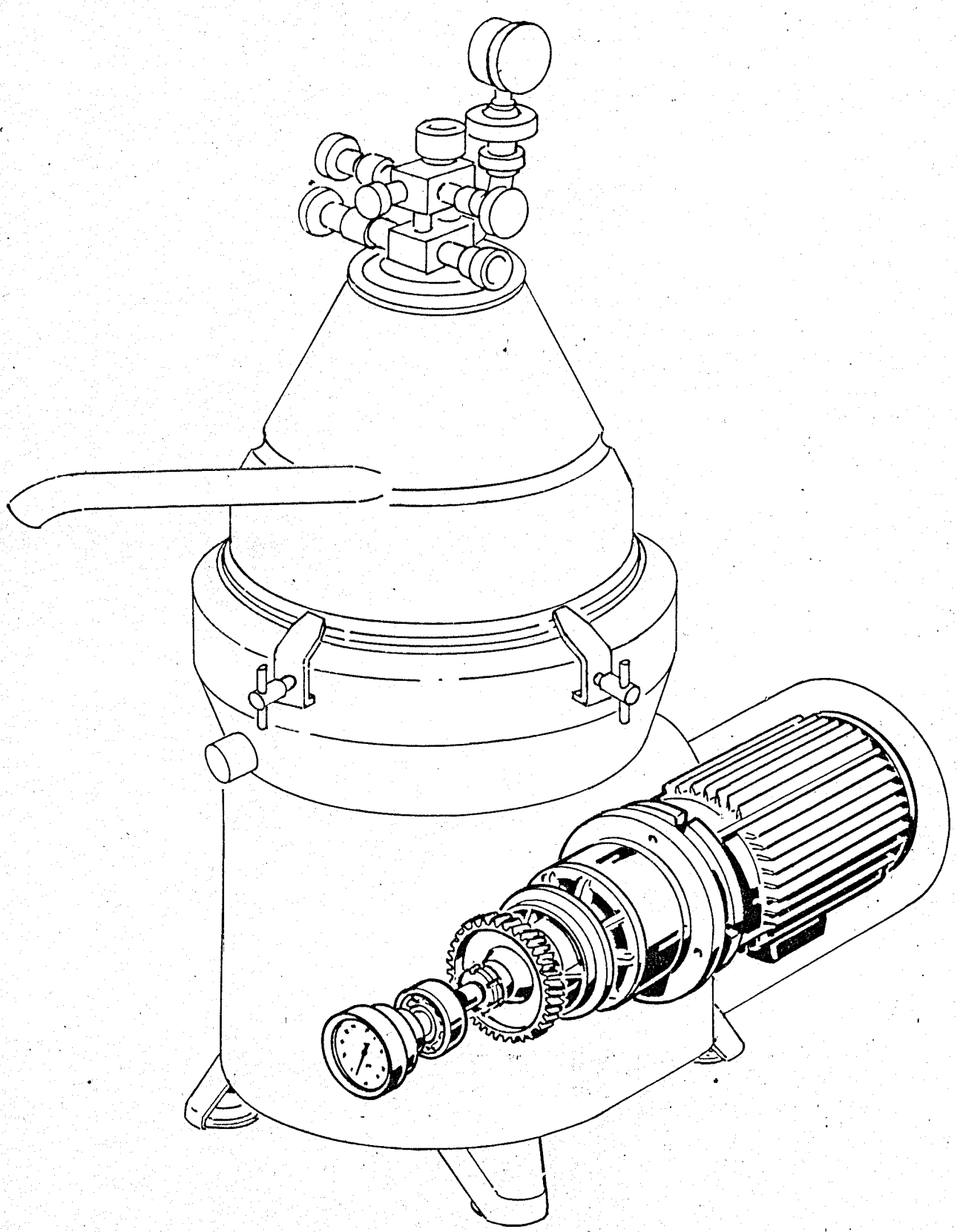
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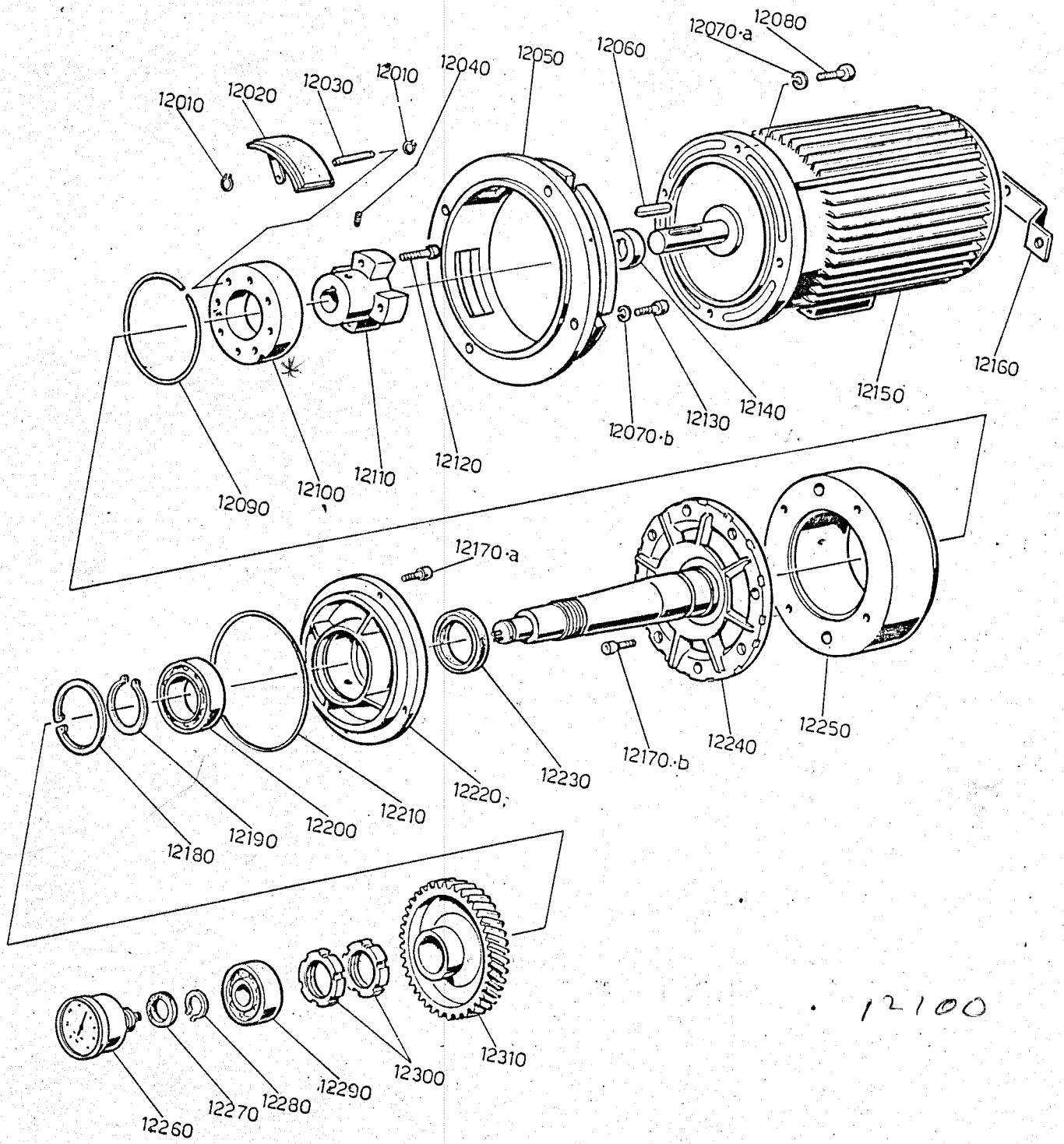
12160	1	Staffa Bracket Console Abrazadera
12170-a	4	Vite fissaggio supporto albero orizzontale Fixing screw of horizontal shaft support Vis de fixage du support arbre horizontal Tornillo de fijacio del suporte eje horizontal
12170-b	4	Vite all'albero orizzontale Horizontal shaft screw Vis a l'arbre horizontal Tornillo del eje horizontal
12180	1	Anello elastico d'arresto supporto albero orizzontale Horizontal shaft spring ring Anneau elastique suport arbre horizontal
12190	1	Anello elastico d'arresto cuscinetto supporto albero orizzontale Horizontal shaft support bearing spring ring Anneau elastique de fixage roulement a bille support arbre horizontal Anillo elastico de detencion del suporte eje horizontal
12200	1	Cuscinetto supporto albero orizzontale Horizontal shaft support bearing Roulement a billes au support arbre horizontal Cojinete del soporte del eje horizontal
12210	1	Guarnizione OR supporto albero orizzontale Horizontal shaft support O ring Joint OR au support de l'arbre horizontal Empaquetadura OR del soporte del eje horizontal

CN 50 CN 100

12220	1	Supporto albero orizzontale Horizontal shaft support Support arbre horizontal Soporte del eje horizontal
12230	1	Anello di tenuta olio Sealing ring Anneau d'etancheite' Anillo de fieltro
12240	1	Albero orizzontale Horizontal shaft Arbre horizontal Eje horizontal
12250	1	Tamburo frizione Clutch wheel Tambour d'embrayage Tambor de friccion
12260	1	Tachimetro Tachometer Tachymetre Tacometro
12270	1	Guarnizione al tachimetro Tachometer packing (felt) Joint de feutre au tachymetre Anillo de fieltro do tacometro
12280	1	Anello elastico d'arresto cuscinetto al basamento Base bearing circlip Anneau de serrage roulement a billes de la base Anillo elastico de detencion del cojinete de base
12290	1	Cuscinetto al basamento Base ball bearing Roulement a' billes de la base Cojinete de la base
12300	2	Ghiera Slotted lock nut Ferrou Virola

			CN 50	CN 100
12310	1	Ruota elicoidale Ring gear Engranaje Corona		




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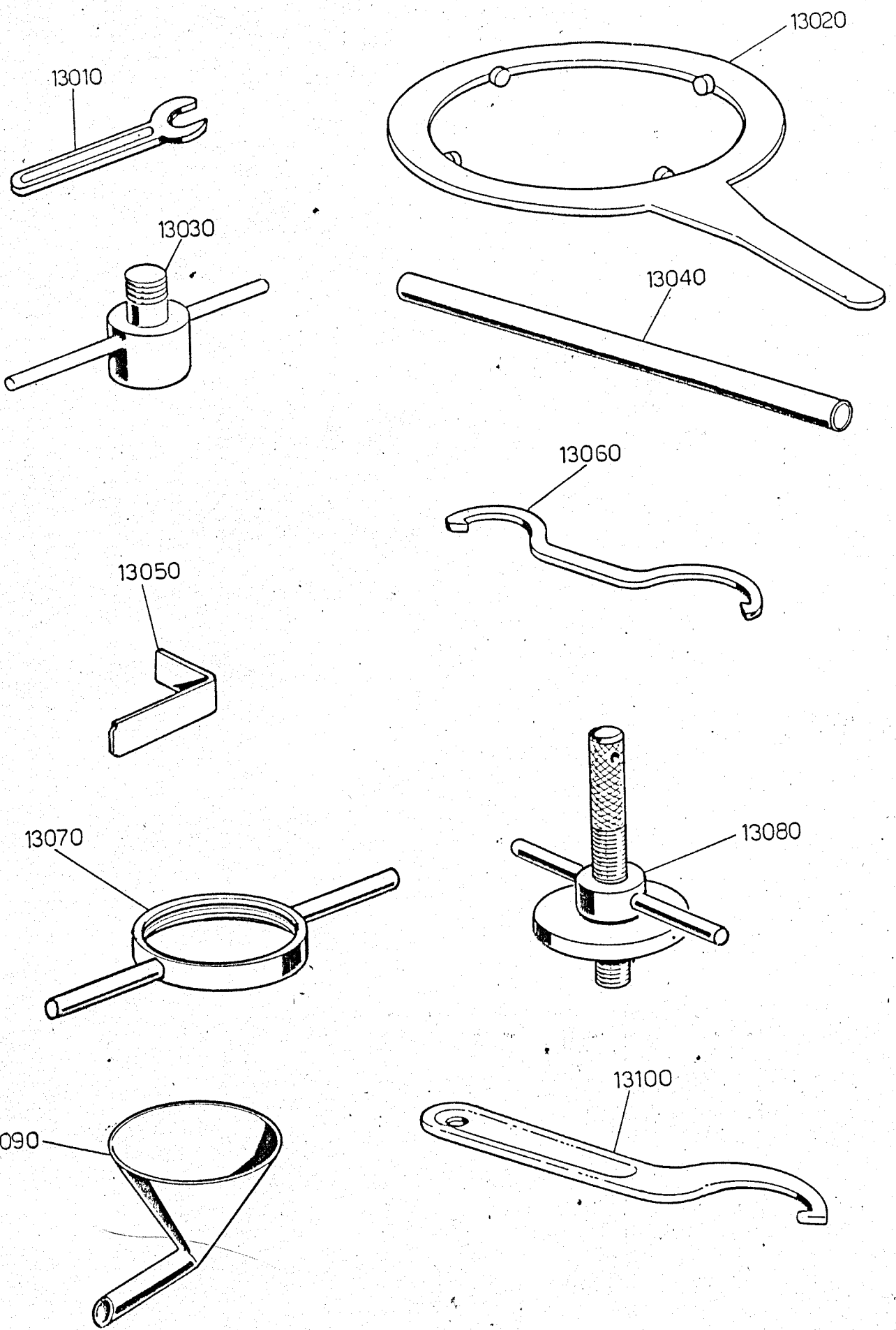
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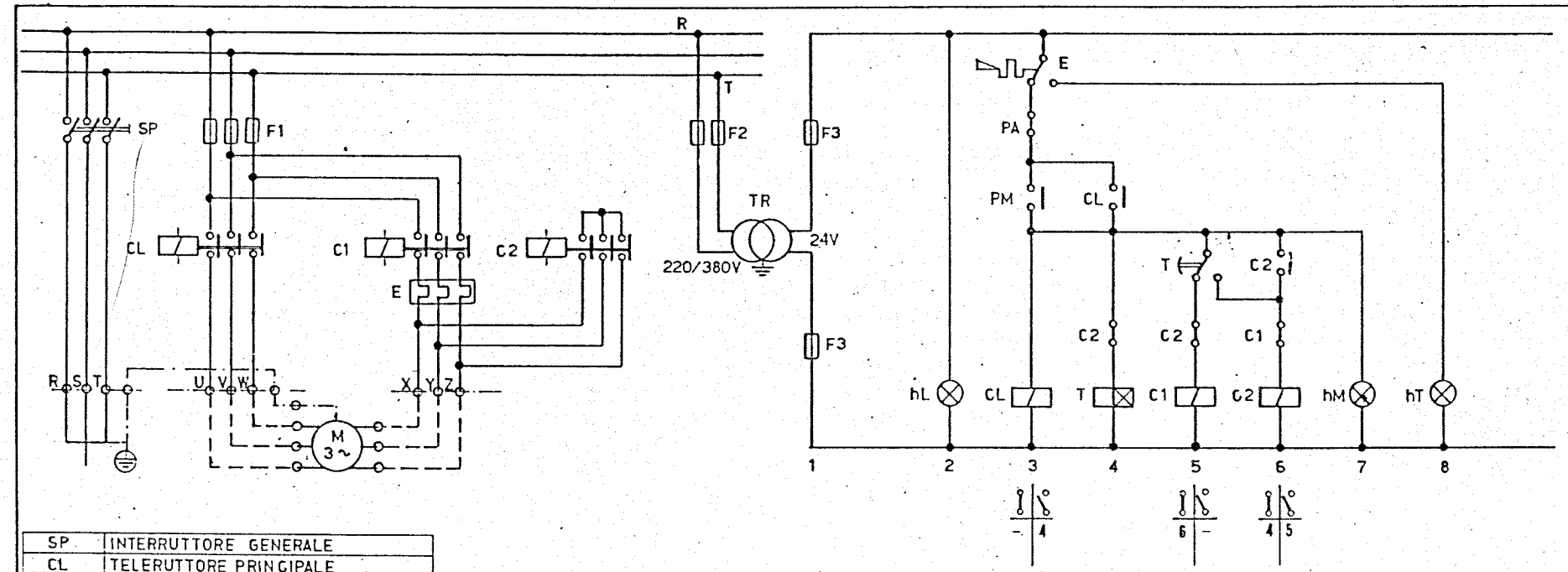
CN 50 CN 100

Art.	No. Pezzi No. Pieces No. Pieces No. Piecas	Gruppo chiavi di servizio Service tools Outils de service Grupo llaves de servigio
13010	1	Chiave fissa per viti teste esagone A.C. 17 S-17 screw wrench Cle' vis six pans S-17 Llave figa S-17
13020	1	Chiave anello del fondo Bowl shell wrench Cle' anulaire pour grand anneau Llave de anillo del fondo
13030	1	Chiave sollevamento fondo e distributore Lifting tool for bowl body Dispositif de demontage fond de bol et distributeur Llave estractora del fondo y del suporte porta discos
13040	1	Tubo di prolunga per chiave Spanner extension piece Tuyau prolongation des clefs Tubo de prolongacion de llave
13050	1	Chiave canotto di alimentazione Tool for feeding sleeve Cle' pour tube d'alimentation Llave tubo de alimentacion
13060	1	Chiave per bocchettoni Double ended hook wrench Cle' double a' corchet Llave por tuercas estriada
13070	1	Chiave sollevamento cappello Cover lifting spanner Clef soulevement chapeau Llave comprime discos
13080	1	Chiave pressadiaframmi Compressing tool for disc set Dispositif de compression des assiettes Llave comprimio los discos

Segue

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13090	1	Imbuto olio Oil funnel Entonnoir de l'huile Embudo por aceite
13100	1	Chiave anello del cappello Bowl top hook wrench Cle' a' crochet du chapeau Llave anillo de la tapa


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SP	INTERRUTTORE GENERALE
CL	TELERUTTORE PRINCIPALE
C1	" STELLA
C2	" TRIANGOLO
E	RELE' TERMICO
TR	TRASFORMATORE
PA	PULSANTE ARRESTO MOTORE
PM	" MARCIA "
hL	LAMPADA LINEA
T	TEMPORIZZATORE
hM	LAMPADA MARCIA MOTORE
hT	" TERMICO "
F1	FUSIBILI MOTORE
F2	" ENTRATA TRASFORMATORE
F3	" USCITA "

POTENZA KW	4		7,5		15		18,5	
TENSIONE	220V	380V	220V	380V	220V	380V	220V	380V
F1	25A	16A	35A	25A	63A	50A	100A	63A
F2	1,5A	1,5A	1,5A	1,5A	1,5A	1,5A	1,5A	1,5A
F3	2,5A	2,5A	2,5A	2,5A	2,5A	2,5A	2,5A	2,5A

Denominazione AVVIAMENTO STELLA-TRIANGOLO

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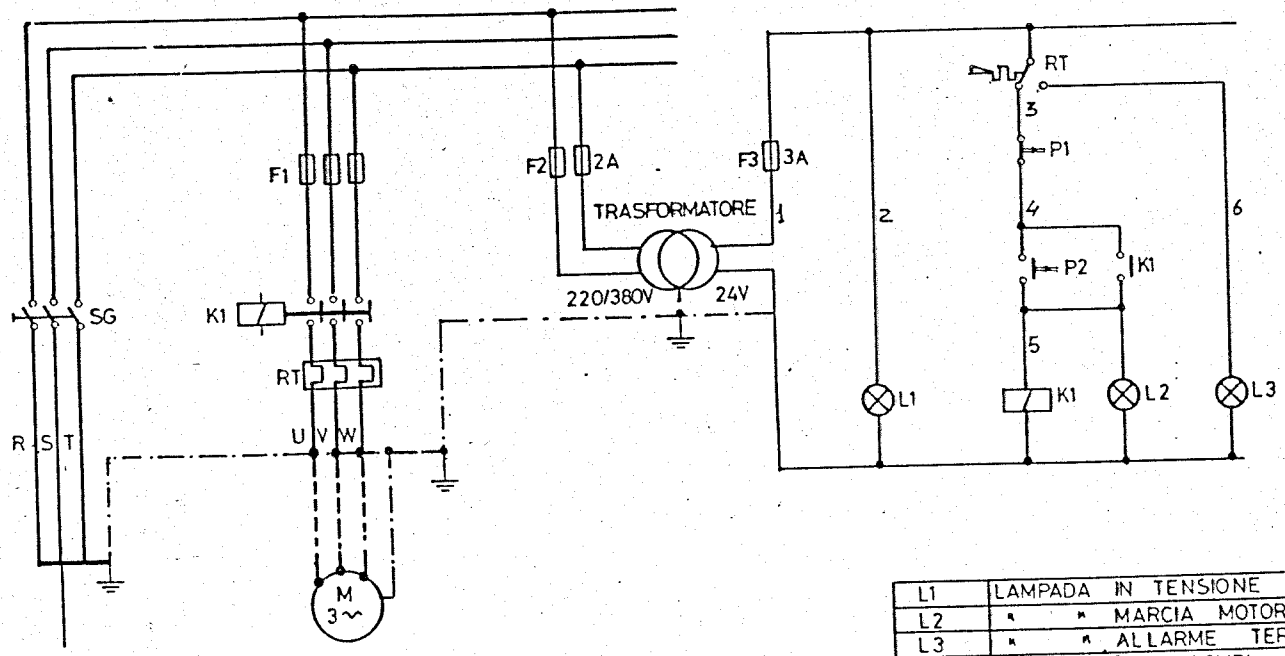
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foglio 1/2

NUOVA Frau S.p.A.

sostituisce

sostituito



L1	LAMPADA IN TENSIONE
L2	" " MARCIA MOTORE
L3	" " ALLARME TERMICO
K1	TELERUTTORE POMPA
RT	RELE TERMICO

POTENZA KW	4					
TENSIONE V	220.	380				
F1	35	25				
F2	2	2				
F3	3	3				

Denominazione AVVIAMENTO DIRETTO

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Dis

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foglio 2/2

NUOVA Frau S.p.A.

sostituisce

sostituito:

Data | Firma | EMO | Rif | Descrizione della modifica