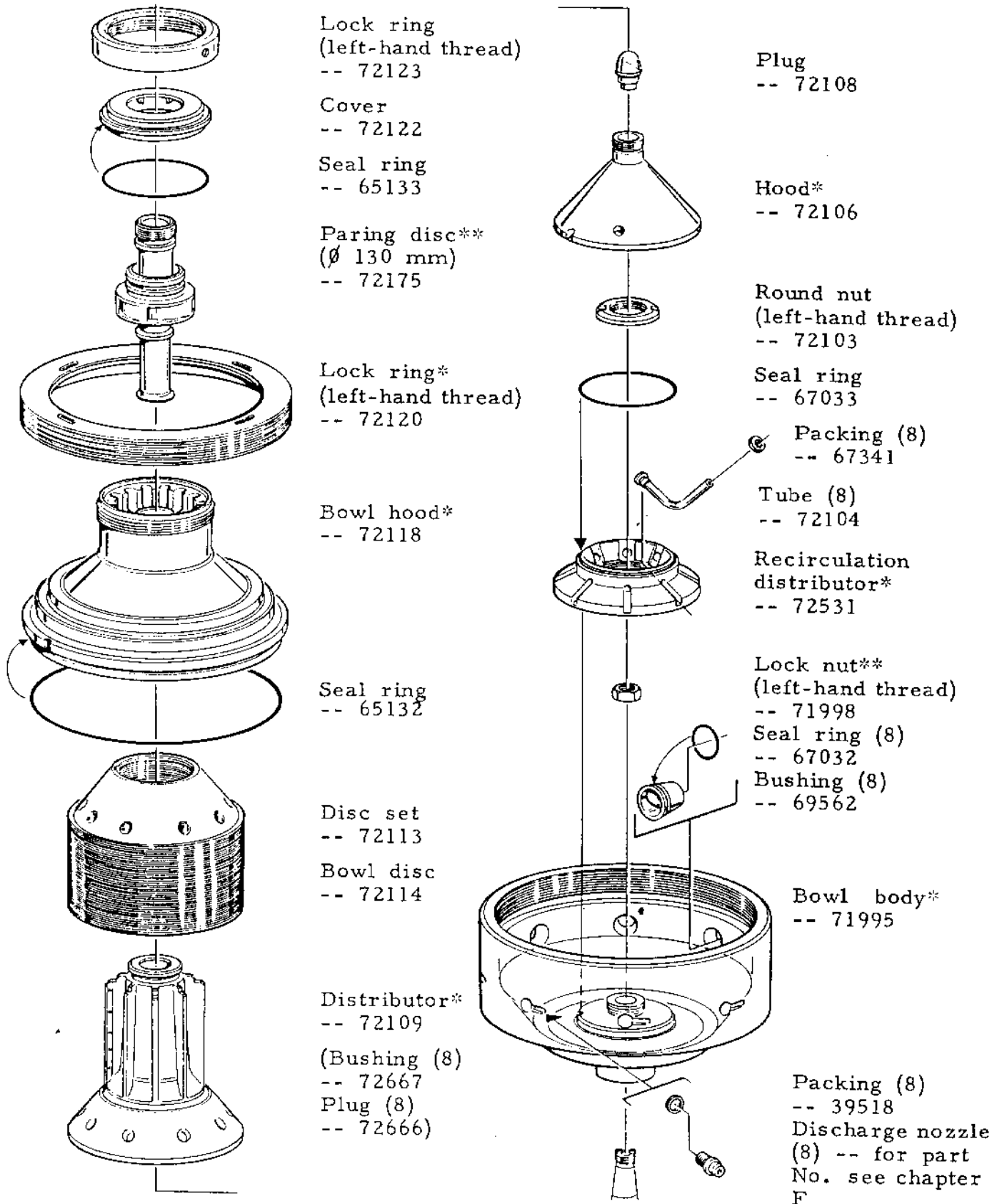


Hutchison-Hayes Separators, Inc.

Model TX 310S-30H Parts List With Diagrams

P.O. Box 2965 ♦ Houston, Texas 77252
3520 East Belt ♦ Houston, Texas 77015
(713) 455-9600 ♦ Fax (713) 455-7753

CLARIFIER BOWL -- 71992



* Exchange necessitates rebalancing - send in the COMPLETE bowl to an authorized ALFA-LAVAL representative.

** Not included in complete-unit number

DISMANTLING

The bowl must be at a standstill before dismantling commences.

:: Unscrew the nut for the paring disc clockwise (left-hand thread).

:: Loosen the hinged bolts and remove the outlet housing.

:: Open the frame hood and check that the pawl has engaged the hood by pulling the lever handle forwards.

ASSEMBLY

Check the height position of the paring disc before mounting the outlet housing - see chapter L.

Screw on the nut for the paring disc anti-clockwise.

Cap nut (3)
-- 536704-01

Clamping shoe (3)
-- 70279

Hinged bolt (3)
-- 69086

Pin (3)
-- 67783

Hinge pin (3)
-- 67789

Coupling nut
-- 190615

Cover disc
-- 190086

Seal ring
-- 32052

Seal ring
-- 14238

Inlet piece
-- 72183

Seal ring
-- 32052

Nut (left-hand thread)
-- 72181

Seal ring
-- 72182

Seal ring
-- 32052

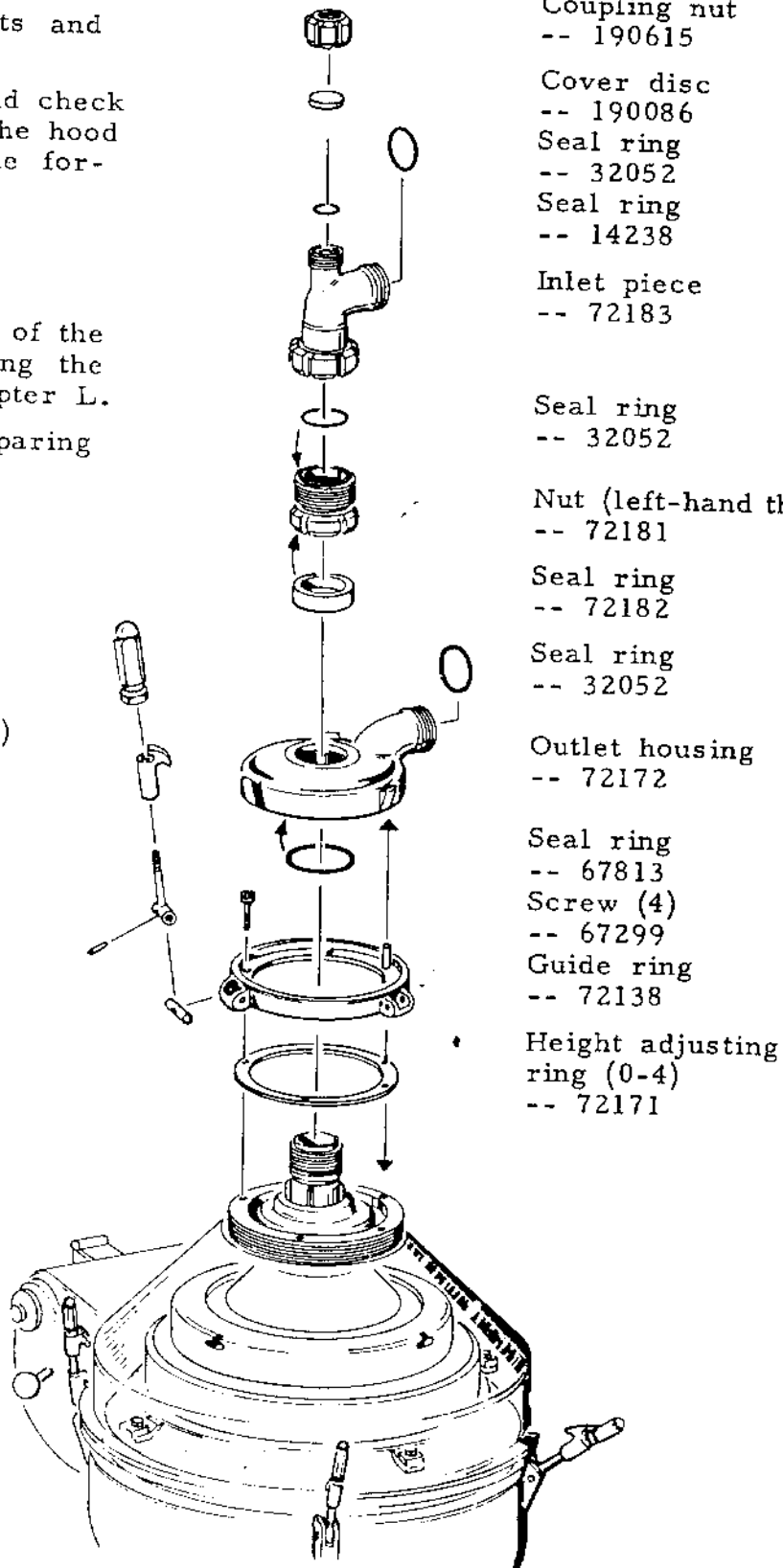
Outlet housing
-- 72172

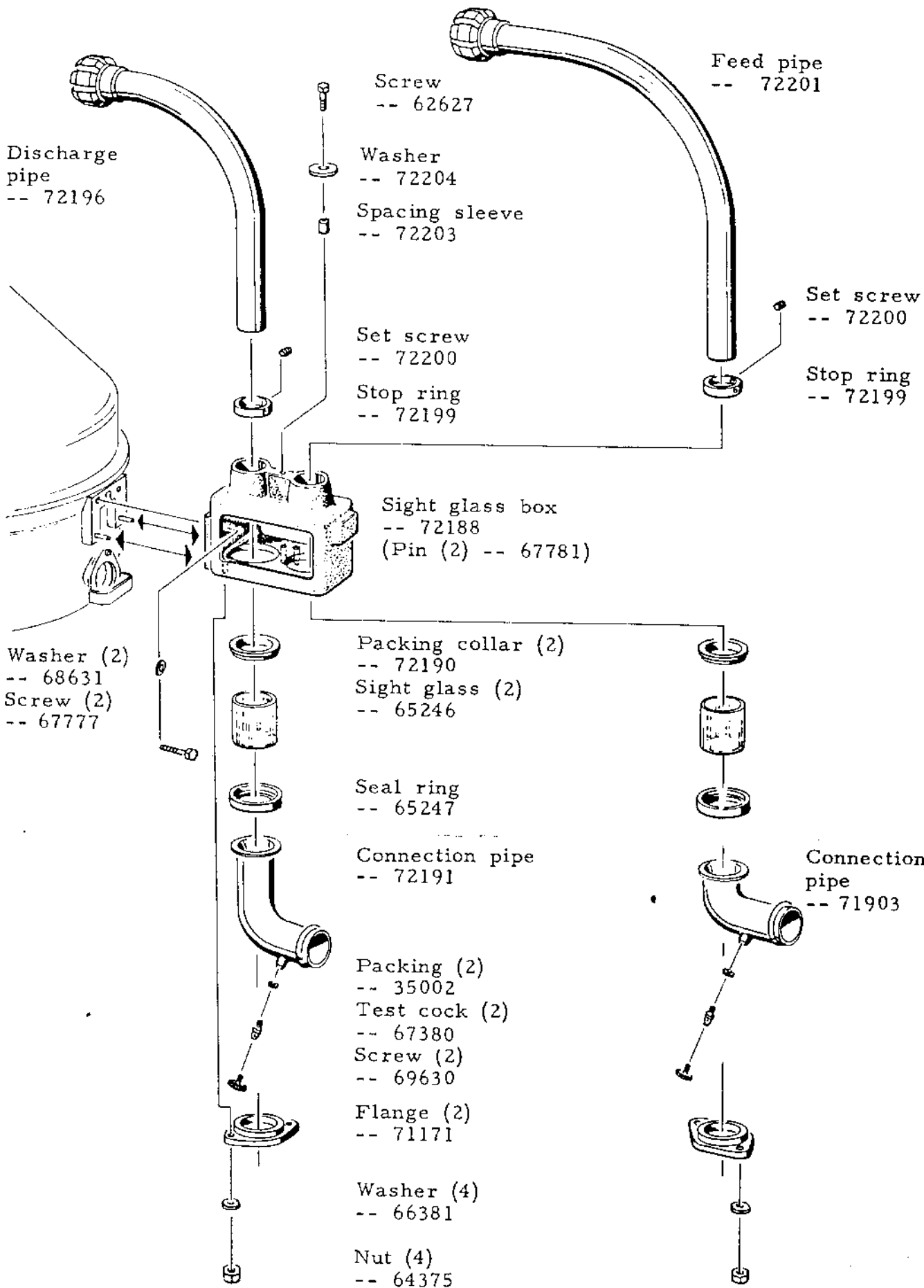
Seal ring
-- 67813

Screw (4)
-- 67299

Guide ring
-- 72138

Height adjusting ring (0-4)
-- 72171





FRAME HOOD. OUTLET PIECE

Nut (2) -- 65290

Holder -- 67621

Sight glass -- 67676

Seal ring -- 67677

Stud bolt (2) -- 67912

Screw (4) -- 72135

Frame hood
-- 71983

Set screw
-- 70773

Nut
-- 41380

Shield
-- 72132

Seal ring -- 67411

Nut (2)
-- 70772
Cap (2)
-- 65237

Screw
-- 72137
Hinge sleeve
-- 72136

Pawl
-- see chapter S

Stud bolt (2) -- 67780

Seal ring -- 65278

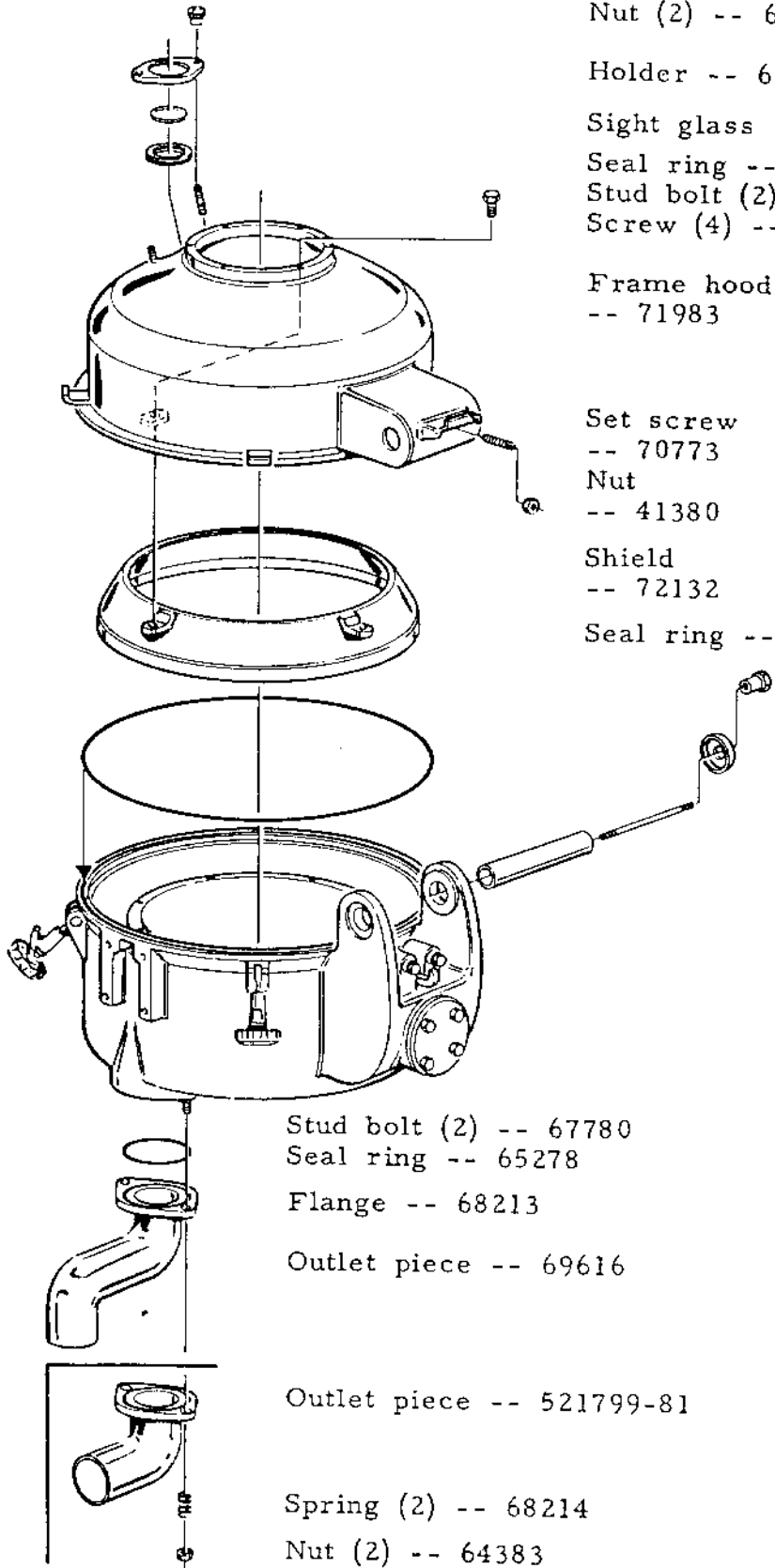
Flange -- 68213

Outlet piece -- 69616

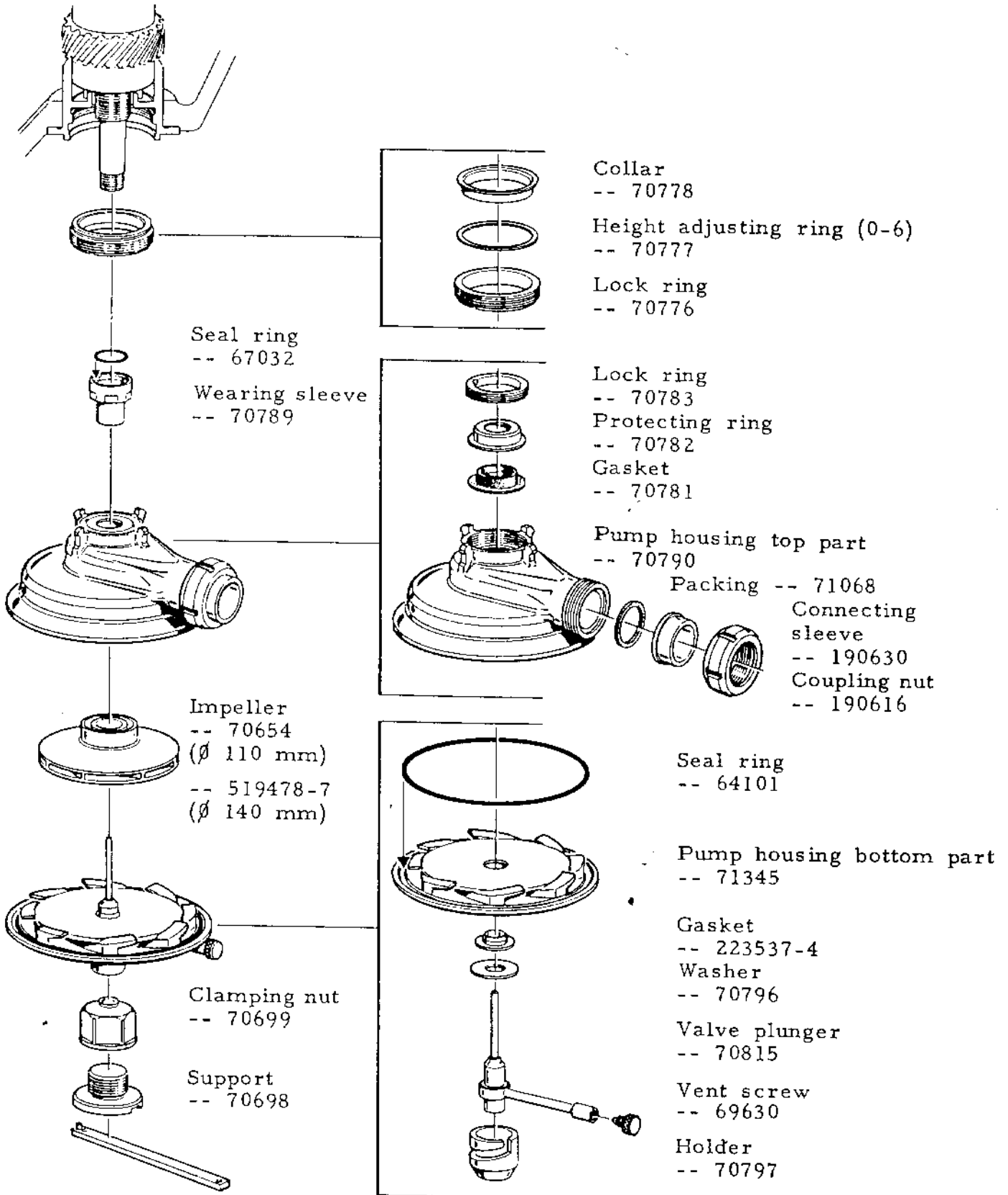
Outlet piece -- 521799-81

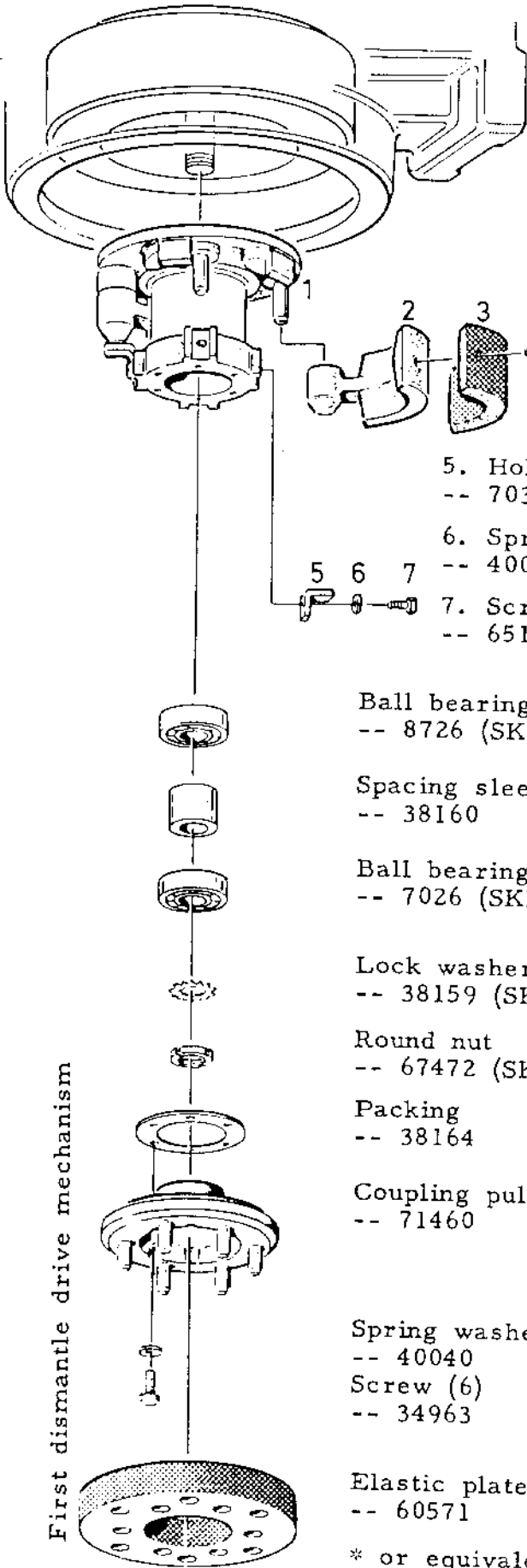
Spring (2) -- 68214

Nut (2) -- 64383



FEED PUMP for WASHING LIQUID





- 1. Nave
-- 70363
- 2. Friction block (4)
-- see chapter F
- 3. Pad (4)
-- 71098
- 4. Screw (16)
-- 8341
- 5. Holding bracket (4)
-- 70372
- 6. Spring washer (4)
-- 40040
- 7. Screw (4)
-- 65159

Ball bearing
-- 8726 (SKF 6206*)

Spacing sleeve
-- 38160

Ball bearing
-- 7026 (SKF 6305*)

Lock washer
-- 38159 (SKF MB 5)

Round nut
-- 67472 (SKF KM 5)

Packing
-- 38164

Coupling pulley
-- 71460

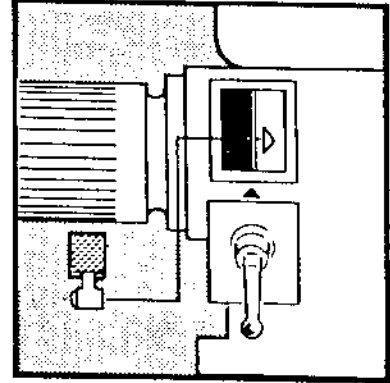
Spring washer (6)
-- 40040

Screw (6)
-- 34963

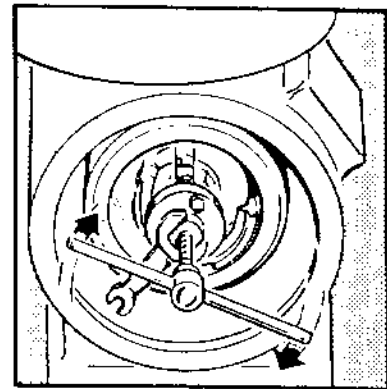
Elastic plate
-- 60571

* or equivalent bearing of other make.

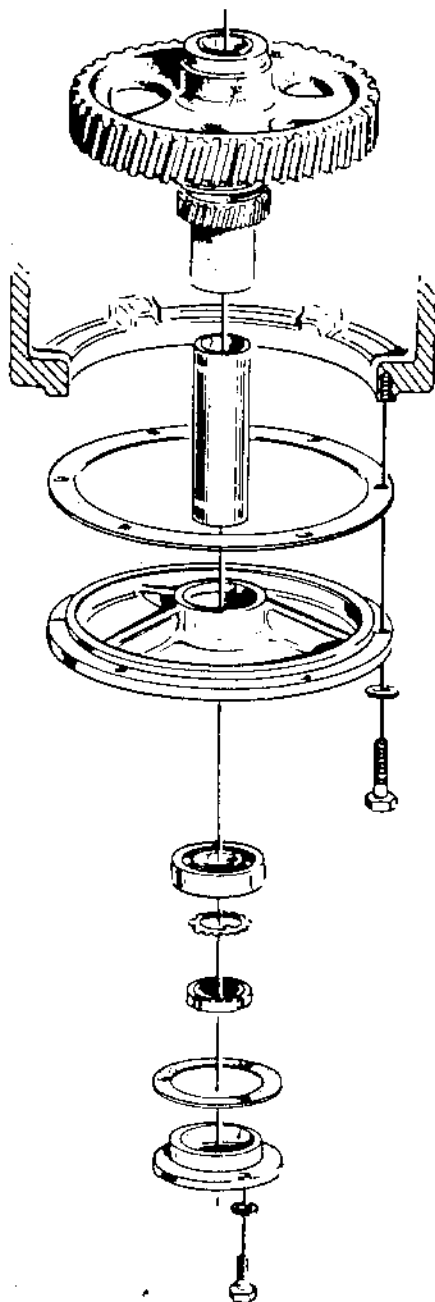
The friction blocks can be removed without the necessity of dismantling the rest of the clutch.



When the blocks are assembled they should move freely, and the holding brackets should be mounted so that they engage the groove in the nave and prevent the blocks from slipping off their pivots.



The illustration shows how the nave is eased off the shaft. To assemble, first fit the nave on the shaft and then the inner ball bearing. Pack one-third of the space about the spacing sleeve with ball bearing grease. Use the drive-on sleeve to drive the bearings into position.

PARTS IN WORM
GEAR HOUSING

Worm wheel
--for part number
see chapter F

Frame

Spacing sleeve
--70726

Packing
--37490

Bearing shield
-- 520347-02

Washer (6)
--66381

Screw (6)
--62627

Ball bearing
--6525 (SKF 6306)*

Lock washer
--37992 (SKF MB 6)

Round nut
--67473 (SKF-KM 6)

Packing
--11609

Ball bearing cover
--70697

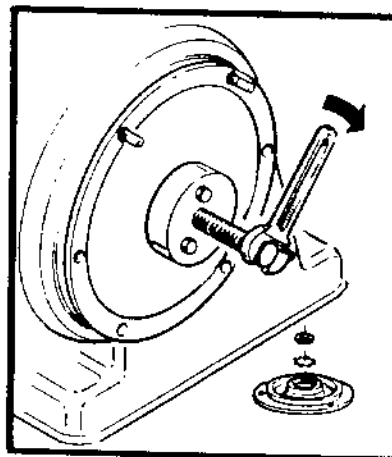
Washer (3)
--65451

Screw (3)
-- 2210942-38

DISMANTLING and
ASSEMBLY

For dismantling first re-
move all the screws in the
bearing shield and screw
the guide bolts (in set of
tools) into the two upper
holes of the shield.

After removal of ball
bearing cover, round nut
and lock washer fasten
the puller tool in the place
of the ball bearing cover.



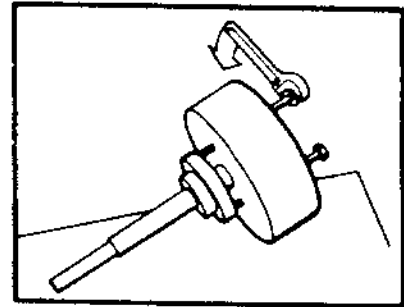
Tighten the screw of the
puller tool until the ball
bearing is detached from
the worm wheel shaft.
Fit the parts in the sequence
appearing from the figure.
Remember to lock the
round nut with the lock
washer.

*) or equivalent bearing of other make.

PARTS IN COUPLING HOUSING

DISMANTLING and
ASSEMBLY

After removal of the screws and nuts holding the protecting cover and the stop washer the worm wheel shaft can be taken out towards the motor side. Access to the screws is gained through the holes in the conveyor pulley. To remove the "fixed" ball bearing screw the jack screws into the tapped holes in the conveyor pulley and tighten them until the bearing is freed.



Conveyor pulley

Worm wheel shaft with
conveyor pulley, lock
washer and round nut
-- part number --
see chapter F.

Screw (3)
-- 65389

Protecting cover
-- 65171

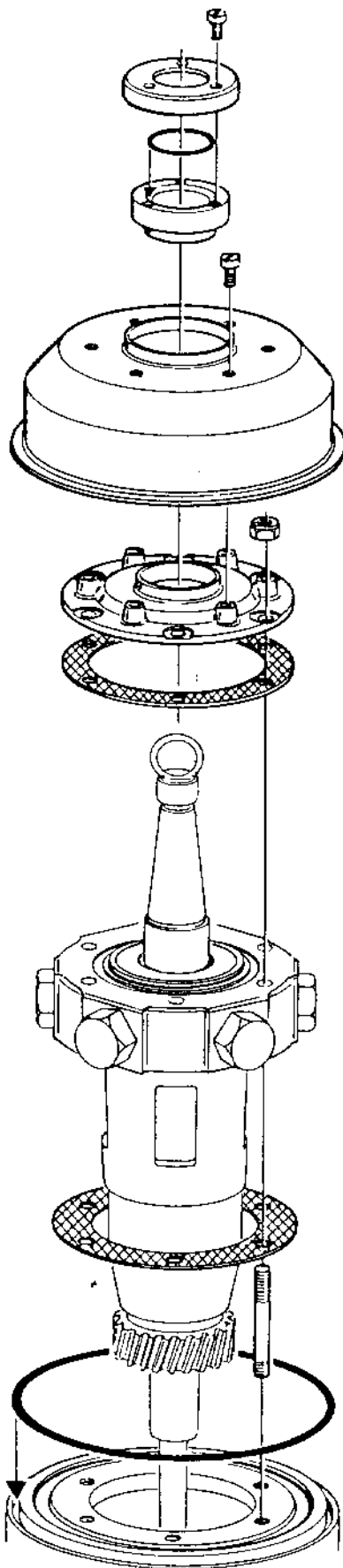
Packing
-- 65172

Ball bearing
-- 38092 (SKF 6308*)

Stop washer
-- 65386
Spring washer (3)
-- 40040
Nut (3)
-- 40036

When assembling heat the bearings in oil. Place the packing of the protecting cover so that one of its holes comes in line with the oil groove in the protecting cover.

* or equivalent bearing of other make.



Screw (3)
-- 11677
Top shield
-- 70355
Seal ring
-- 65201
Throw-off
collar
-- 70352
Screw (6)
-- 11677

Protecting
cap
-- 70349

Nut (6)
-- 70704
Cover
-- 524260-02
Packing
-- 70345

Lifting tool

Packing
-- 65192
Stud bolt (6)
-- 69849

Seal ring
-- 64104

DISMANTLING and MOUNTING of COMPLETE BOWL SPINDLE

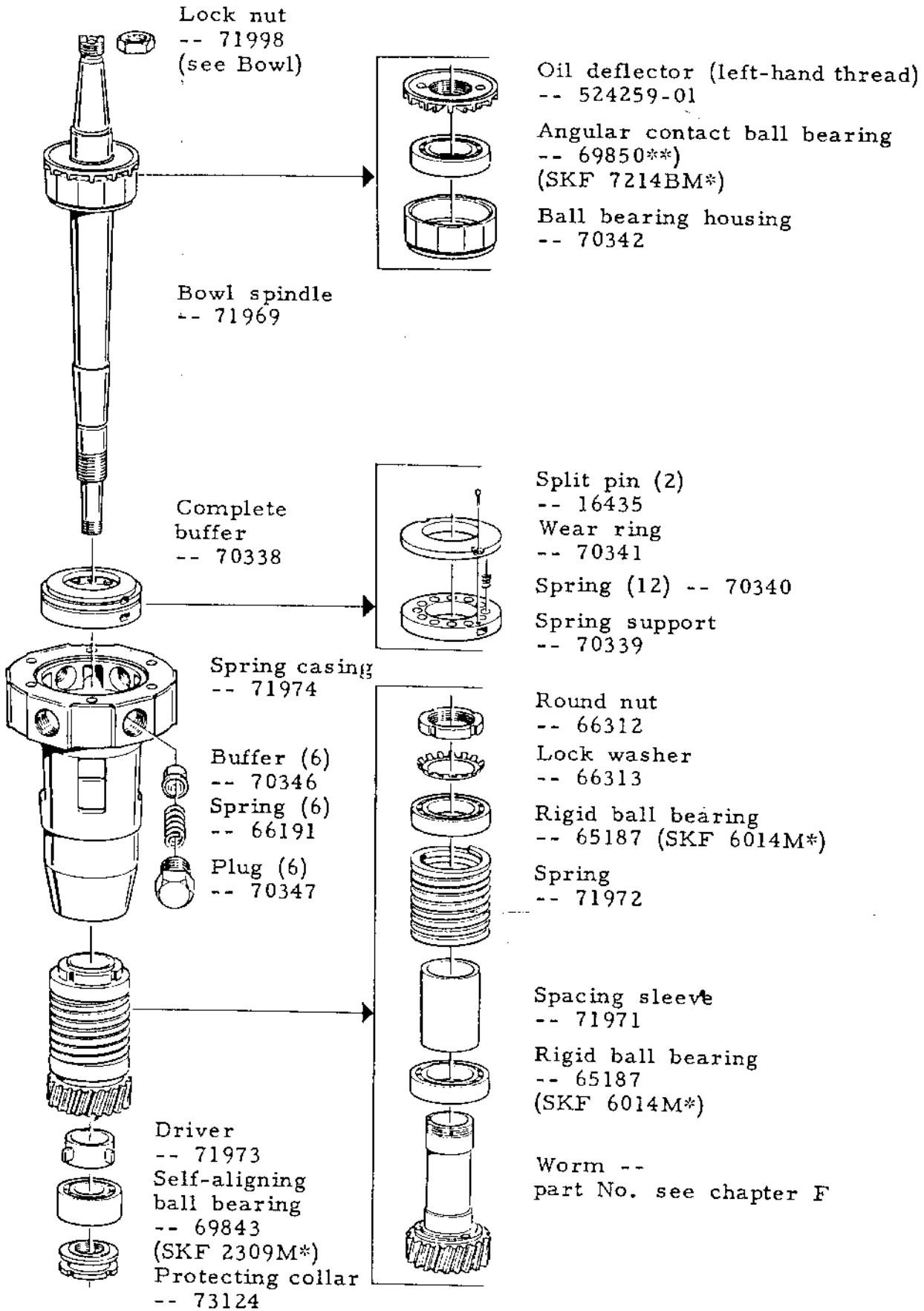
Bowl body, ventilation plate and feed pump must be removed to make the parts accessible for dismantling.

Pull of the throw-off collar and loosen the top bearing plugs while the bowl spindle is still in place in the frame. Before the bowl spindle can be lifted out of the frame the worm wheel must be displaced on the worm wheel shaft to disengage the worm - see worm wheel shaft.

When fitting the complete bowl spindle in the frame ascertain that the ball bearing of the worm engages the guide in the bottom bushing.

After mounting check that the bowl spindle turns when the worm wheel shaft is rotated.

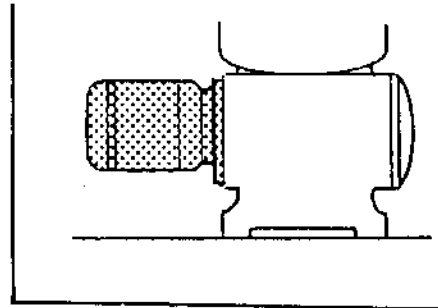
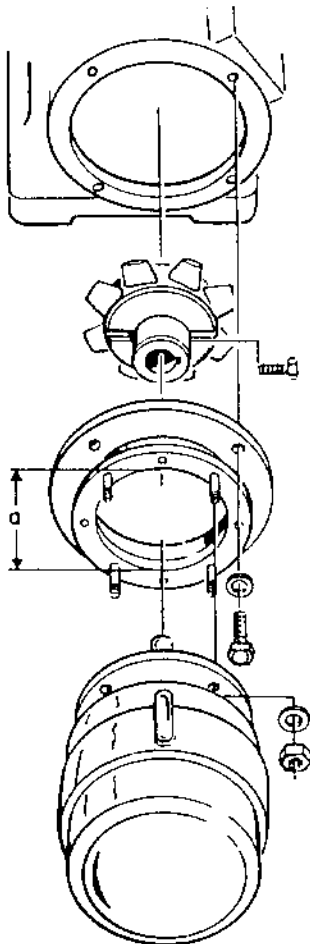
Check the height position of the ventilation plate - see chapter L.



*) or equivalent bearing of other make.

**) special instructions for fitting.

FLANGE MOTOR (drive "4")



Frame

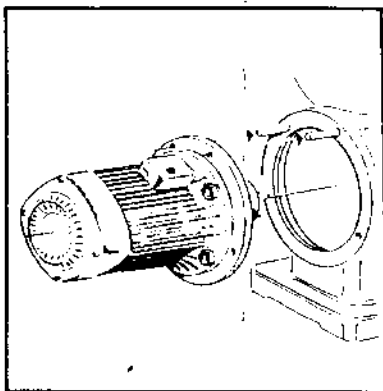
Coupling pulley*

-- 533507-80

Set screw

-- 2210941-18

	a = 250mm	a = 350 mm
Motor adapter	72670	67191
Stud bolt	70489 (4)	66765 (8)
Washer	70492 (8)	70492 (8)
Screw	65231 (8)	70494 (8)
Washer	70528 (4)	70490 (8)
Nut	70493 (4)	70493 (8)



Note that, as a rule, it is not necessary to loosen the motor and motor adapter from each other when mounting and dismounting.

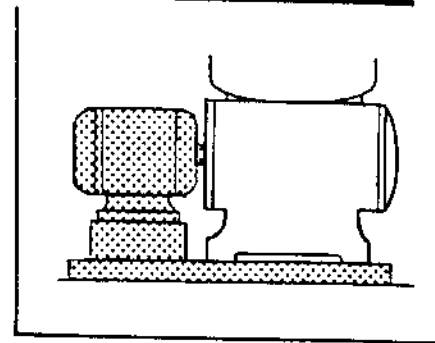
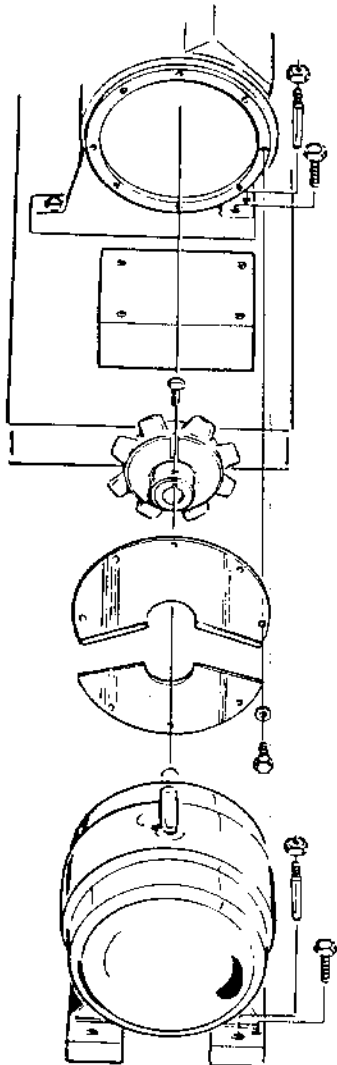
Push the elastic plate on to the pins in the coupling pulley of the separator.

Screw the two guide bolts (see chapter F) into the two upper, opposed screw holes in the frame flange. Hang the motor (with adapter attached) on the guide bolts and push it into correct position, fitting the pins of the coupling pulley into the holes in the elastic plate. Fasten the motor and replace the guide bolts by screws. Tighten the screws alternately and check that the motor adapter enters the seat in the frame.

When dismounting note that the electric cable must not be disconnected in the terminal block.

* When ordering - follow the instruction given in chapter A.

MOTOR ON FOUNDATION PLATE ("5"-drive)



Nut (2) -- 41330
Guide pin (2) -- 74797

Screw (4)
-- 73010

Foundation plate
-- 74302

Set screw
-- 2210941-18

Coupling pulley
-- 533507-83*

Shield
-- 61039

Washer (8) -- 70492
Screw (8) -- 67425

Motor

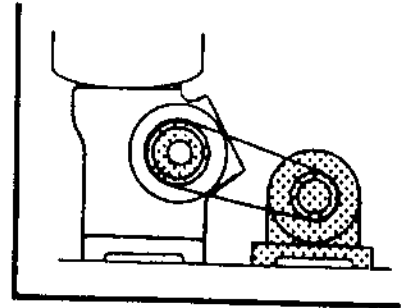
Mounting of motor

Motor and foundation plate are marked with the manufacturing number of the machine to which they belong. Note that they are mounted together when installing several machines at the same time. Push the elastic plate on to the pins of the machine coupling pulley.

Put the motor on the base blocks and push it into correct position, fitting the pins of the motor coupling pulley into the holes of the elastic plate. Fix the position of the motor with guide pins and fasten it with screws.

* When ordering -- follow the instructions given in chapter A.

V BELT GEAR (drive "7") -- 71986 (parts marked ** are not included in the complete-unit-number)



Frame

Coupling pulley** -- 72997

Set screw** -- 2210941-18

Bearing shield -- 65322

Washer** (8) -- 70492

Screw** (8) -- 65231

Ball bearing -- 38092
(SKF 6308*)

Shaft -- 65324

Flat key (2) -- 65325

Ball bearing -- 38092
(SKF 6308*)

Packing -- 65327

Ball bearing cover -- 65326

Spring washer (3) -- 40040

Screw (3) -- 34963

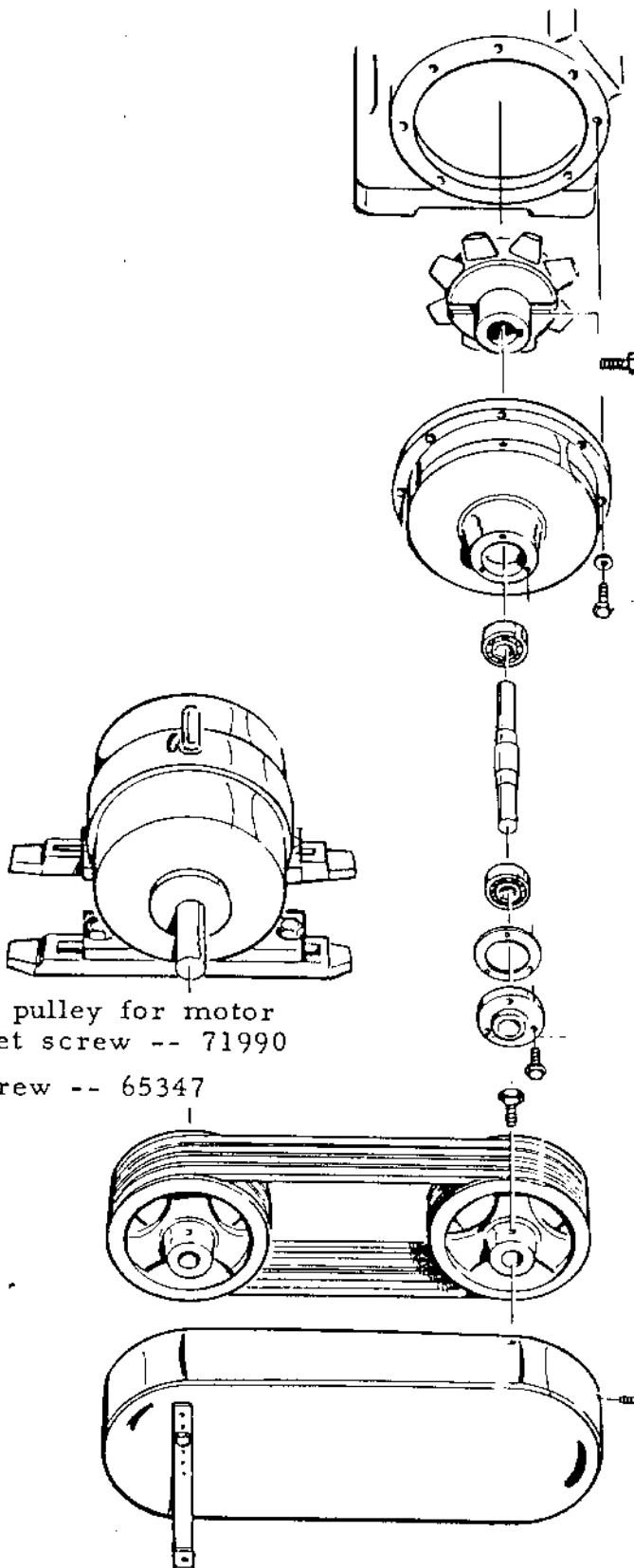
Set screw -- 65347

V belt** (6) -- 64498

V belt pulley -- 71987

Screw (2) -- 12172

Belt guard**-- 64477

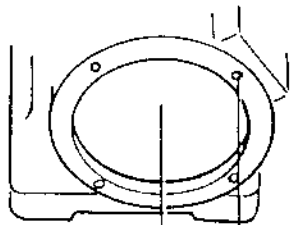
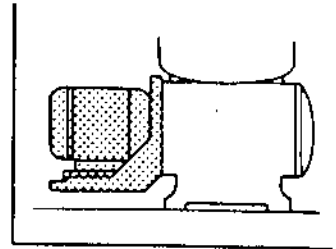


V belt pulley for motor
with set screw -- 71990

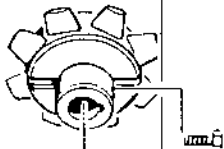
Set screw -- 65347

* or equivalent bearing of other make.

MOTOR on BRACKET (drive "9")



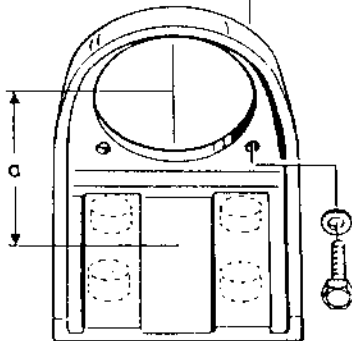
Frame



*Coupling pulley

Set screw
- 2210941-18

Nave lenght	
75 mm	115 mm
533507-80	533507-81



Motor bracket

Shaft height a	
230 mm	260 mm
37460	63720

Washer (5)
- 70492
Screw (5)
- 65231

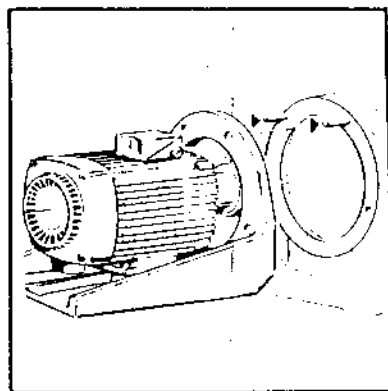
Motor and motor bracket are marked with the manufacturing number of the machine to which they belong. Make sure that they are mounted together when installing several machines at the same time.

Note that, as a rule, it is not necessary to loosen the motor and motor bracket from each other when mounting and dismounting.

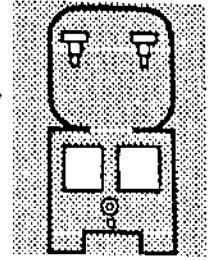
If the motor is not fastened to the bracket when delivered, put it on the base blocks, fix its position with the guide pins and fasten it with the screws.

Push the elastic plate on to the pins of the coupling pulley of the machine and screw the two guide bolts (see chapter F) into the two upper, opposed screw holes in the frame flange.

Hang the bracket with motor attached on the guide bolts and push it into correct position, fitting the pins of the motor coupling pulley into the holes in the elastic plate. Fasten the bracket and replace the guide bolts by screws. Tighten the screws alternately and check that the bracket enters the seat in the frame.



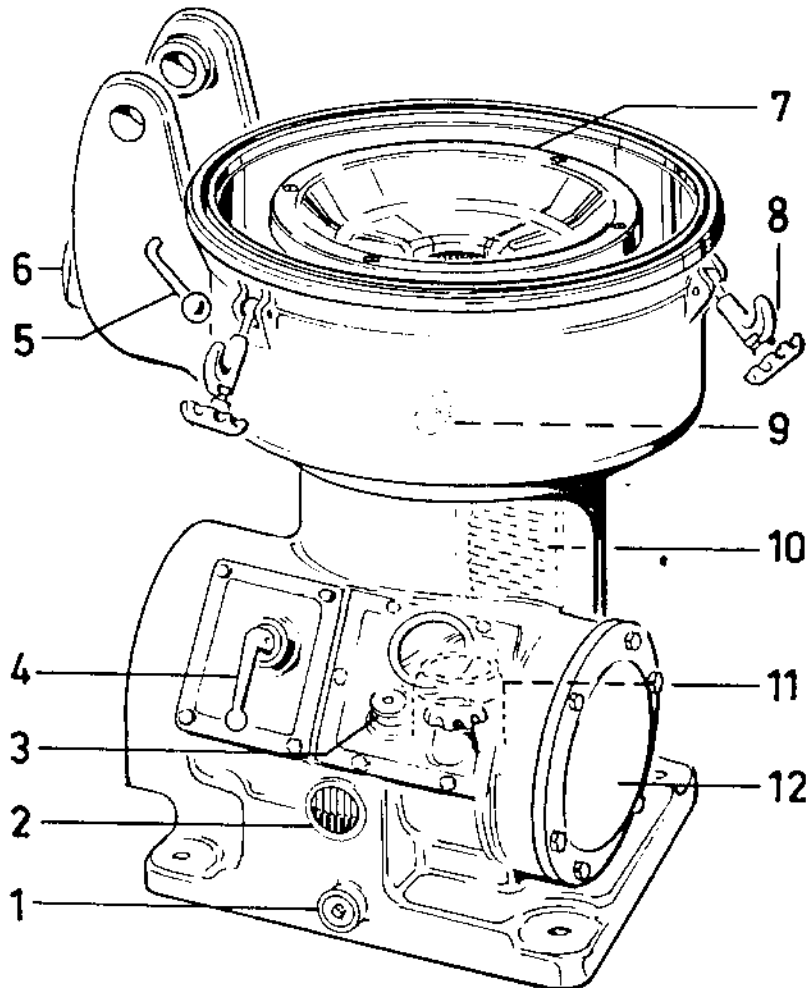
* When ordering - follow the instruction given in chapter A.



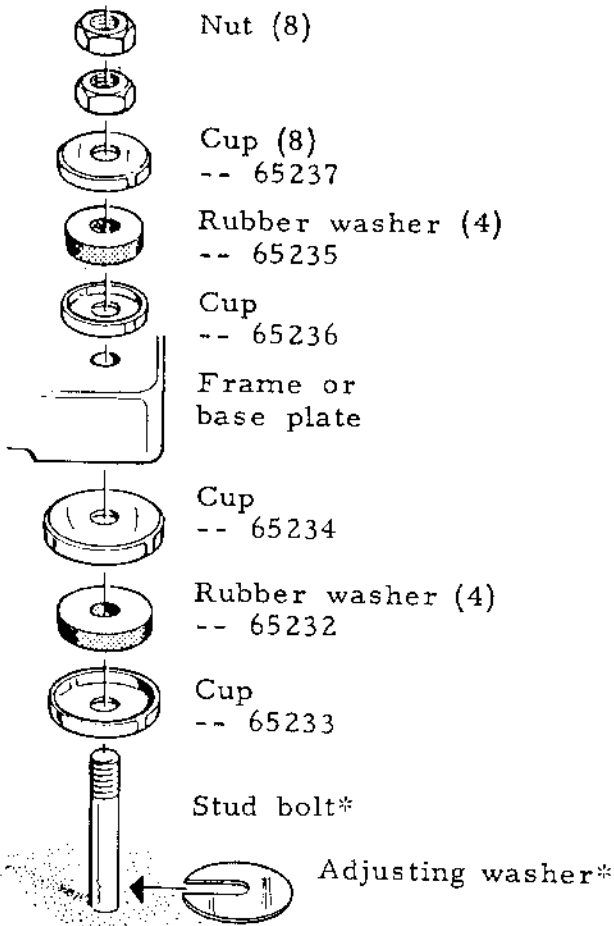
FRAME ERECTION

FRAME PARTS

1. Oil drain
2. Oil gauge glass
3. Revolution counter
4. Brake
5. Pawl. Buffer
6. Cover
7. Ventilation plate
8. Hinged bolt
9. Drain pipe
10. Grating
11. Bottom bearing housing
12. Frame cap

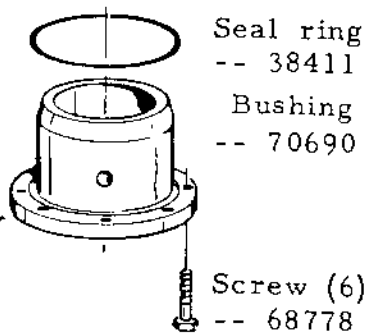


VIBRATION DAMPER (4)

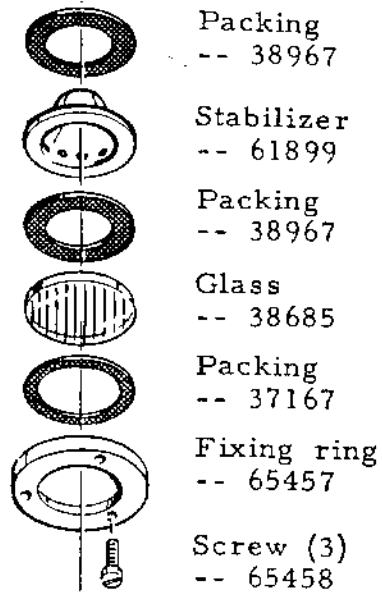


* Not included in delivery

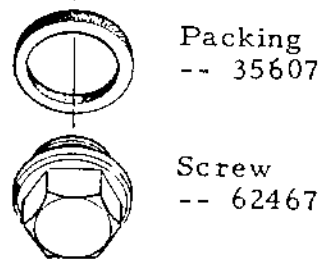
BOTTOM BEARING BUSHING



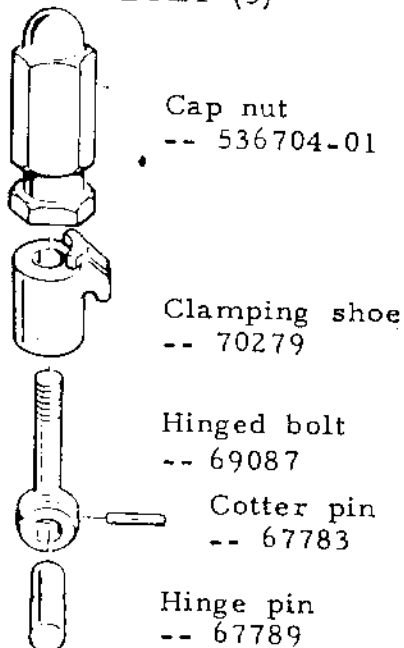
OIL GAUGE GLASS



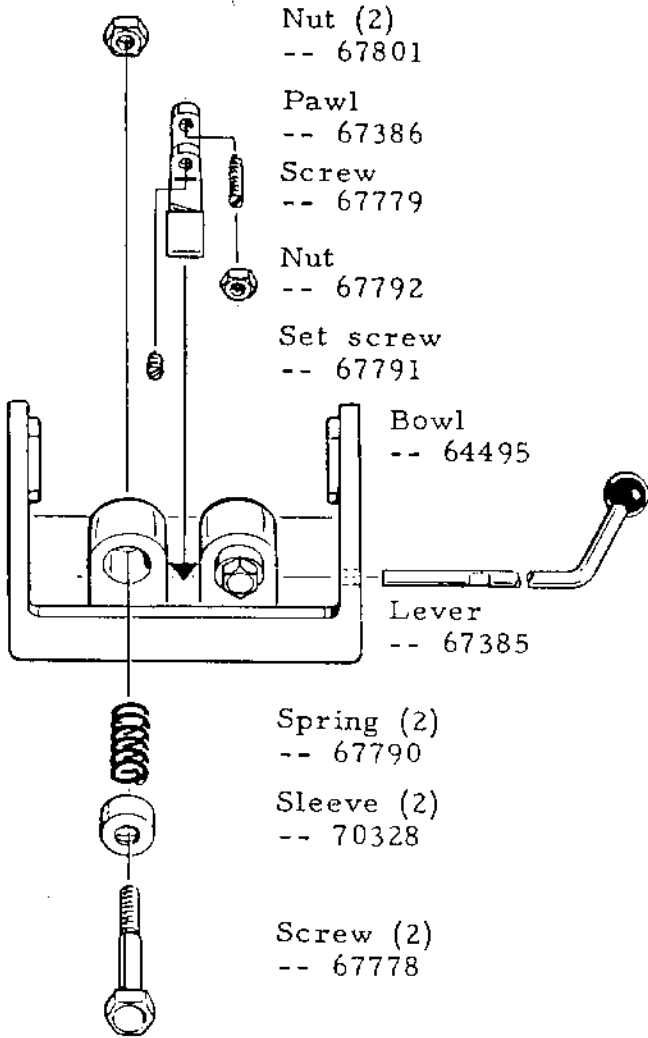
OIL DRAIN PLUG



HINGED BOLT (3)



PAWL. BUFFER



Nut (2)
-- 67801

Pawl
-- 67386

Screw
-- 67779

Nut
-- 67792

Set screw
-- 67791

Bowl
-- 64495

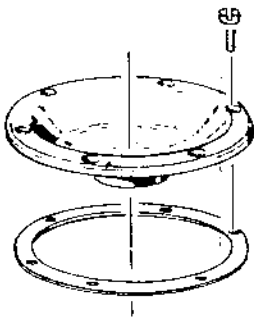
Lever
-- 67385

Spring (2)
-- 67790

Sleeve (2)
-- 70328

Screw (2)
-- 67778

VENTILATION PLATE

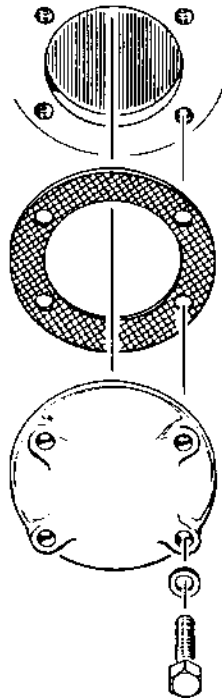


Screw (6)
-- 2211724-23

Plate
-- 71975

Height adjusting
ring (0-7)
-- 71976 (1 mm)
-- 527201-3 (0,5 mm)

COVER for VENT HOLE



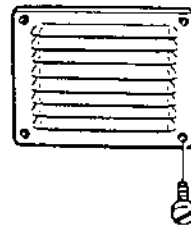
Packing
-- 67410

Cover
-- 67409

Washer (4)
-- 66381

Screw (4)
-- 65436

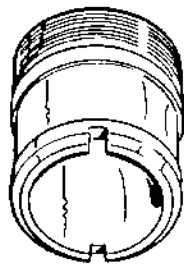
VENTILATION GRATING



Grating
-- 70700

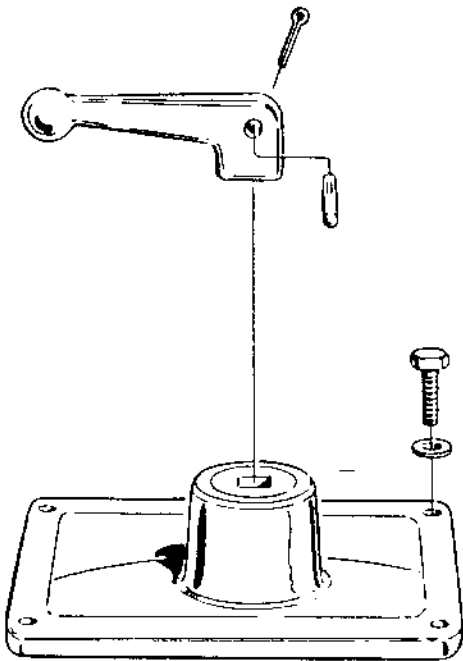
Screw (4)
-- 11677

DRAIN PIPE



Pipe
-- 65448

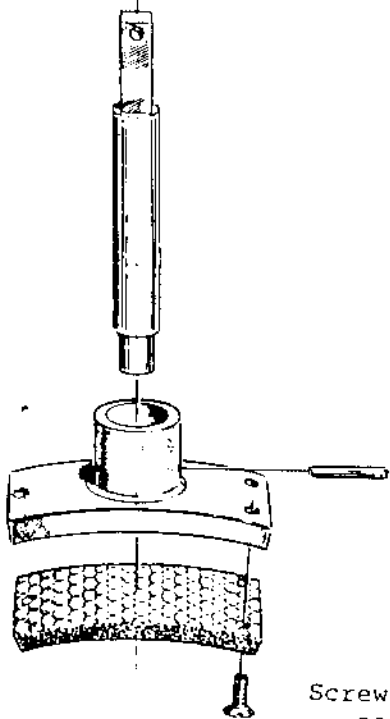
BRAKE -- 70692 (*-marked parts are not included in the complete-unit No.)



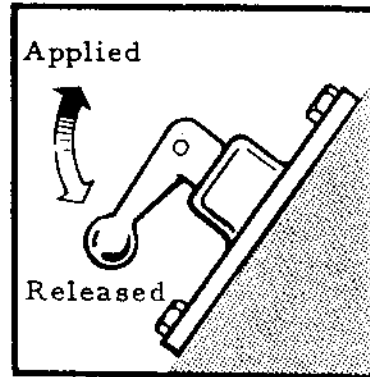
- Split pin
-- 8199
- Handle
--533513-1
- Pivot
-- 39098
- Screw (4)*
--2210942-38
- Washer (4)*
--65451
- Cap
--70693



- Spring
--70695

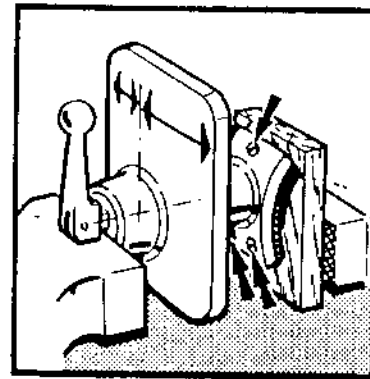


- Spindle
--65461
- Brake shoe, compl.
--537602-80
- Slotted pin
-- 67960
- Lining
-- 310637-84
- Screw (3)
-- 8341



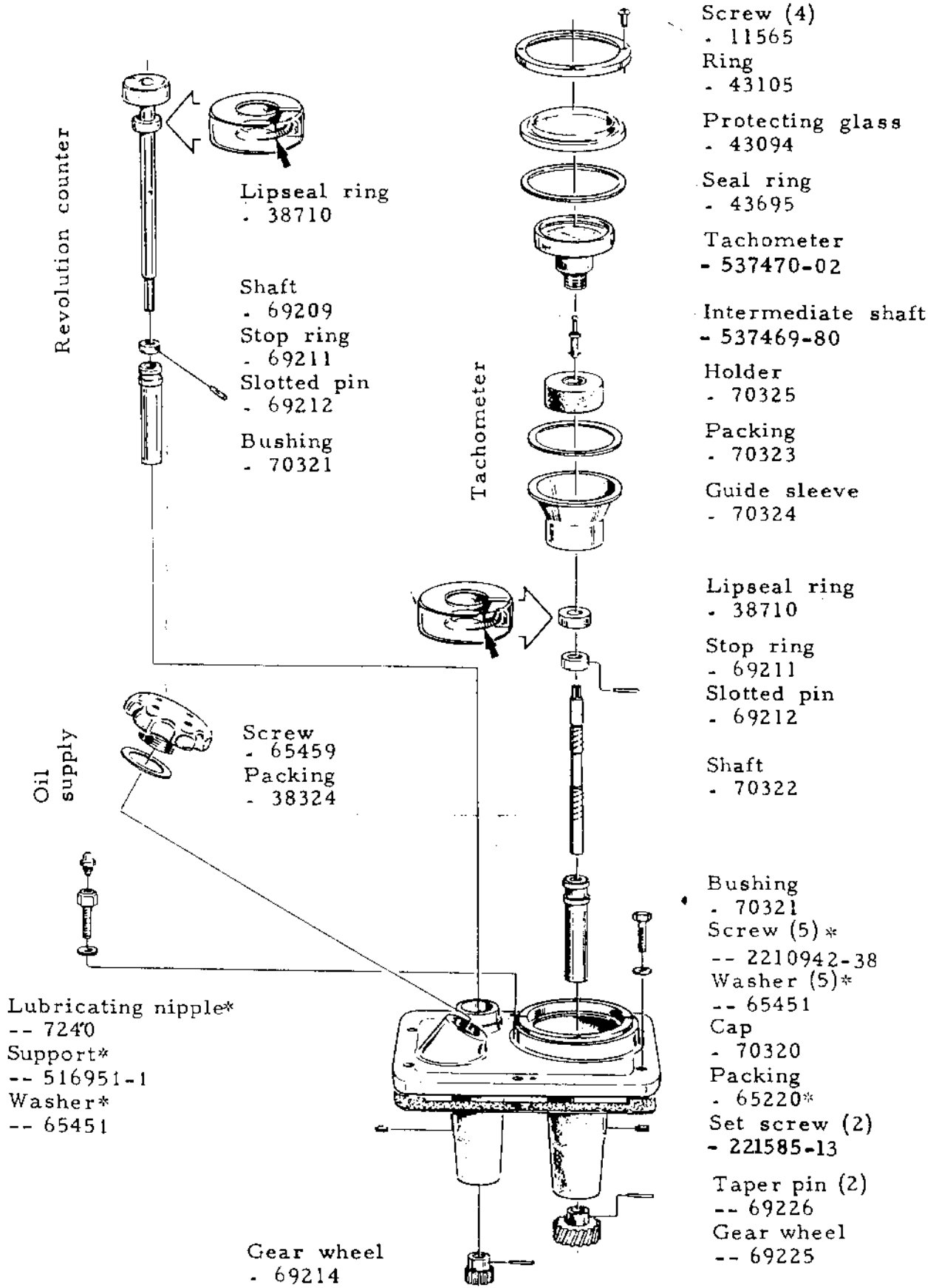
Exchange of lining
Release the brake and re-
move the cap. Exchange the
lining. Note that the screws
are slotted at both ends (use
an angle driver). Fasten the
cap to the machine with the
handle pointing downward.

Dismantling. Assem-
ling



Clamp the cap in a screw
vice, apply the brake, and
remove the handle. See that
cap, handle, and brake shoe
are turned as shown by the
arrows in the figure. Fasten
the cap to the machine with
the handle pointing downward.

REVOLUTION COUNTER and TACHOMETER . 519678-80 (*-marked parts are not included in the assembly number)



Revolution counter

Tachometer

Oil supply

Lubricating nipple*
-- 7240
Support*
-- 516951-1
Washer*
-- 65451

Lipseal ring
. 38710

Shaft
. 69209
Stop ring
. 69211
Slotted pin
. 69212

Bushing
. 70321

Screw
. 65459
Packing
. 38324

Gear wheel
. 69214

Screw (4)
. 11565
Ring
. 43105
Protecting glass
. 43094
Seal ring
. 43695
Tachometer
- 537470-02
Intermediate shaft
- 537469-80
Holder
. 70325
Packing
. 70323
Guide sleeve
. 70324

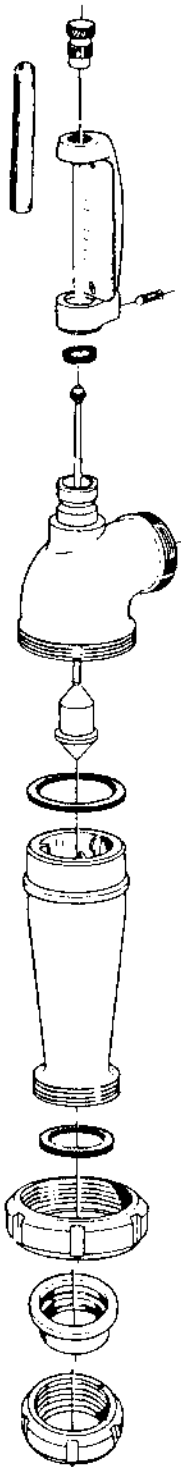
Lipseal ring
. 38710
Stop ring
. 69211
Slotted pin
. 69212

Shaft
. 70322

Bushing
. 70321
Screw (5)*
-- 2210942-38
Washer (5)*
-- 65451
Cap
. 70320
Packing
. 65220*
Set screw (2)
- 221585-13

Taper pin (2)
-- 69226
Gear wheel
-- 69225

FLOW METER of STAINLESS STEEL for 63,5 mm (2 1/2") EVEN PIPES* -- see table



- Tightening screw -- 71044
- Sight glass -- 71043
- Scale holder -- 71036
- Scale -- see table
- Screw for scale (2) -- 221226-1
- Stop screw -- 71037
- Sealing ring -- 71042
- Measuring rod, compl. -- 73954
- Coupling nut -- 190624
- Sleeve -- 190631
- Packing -- 190610
- Top part -- 72722
- Measuring body -- 72727
- Packing -- 72354
- Bottom part -- 72728
- Packing -- 190610
- Coupling nut -- 72729
- Sleeve -- 190631
- Coupling nut -- 190624

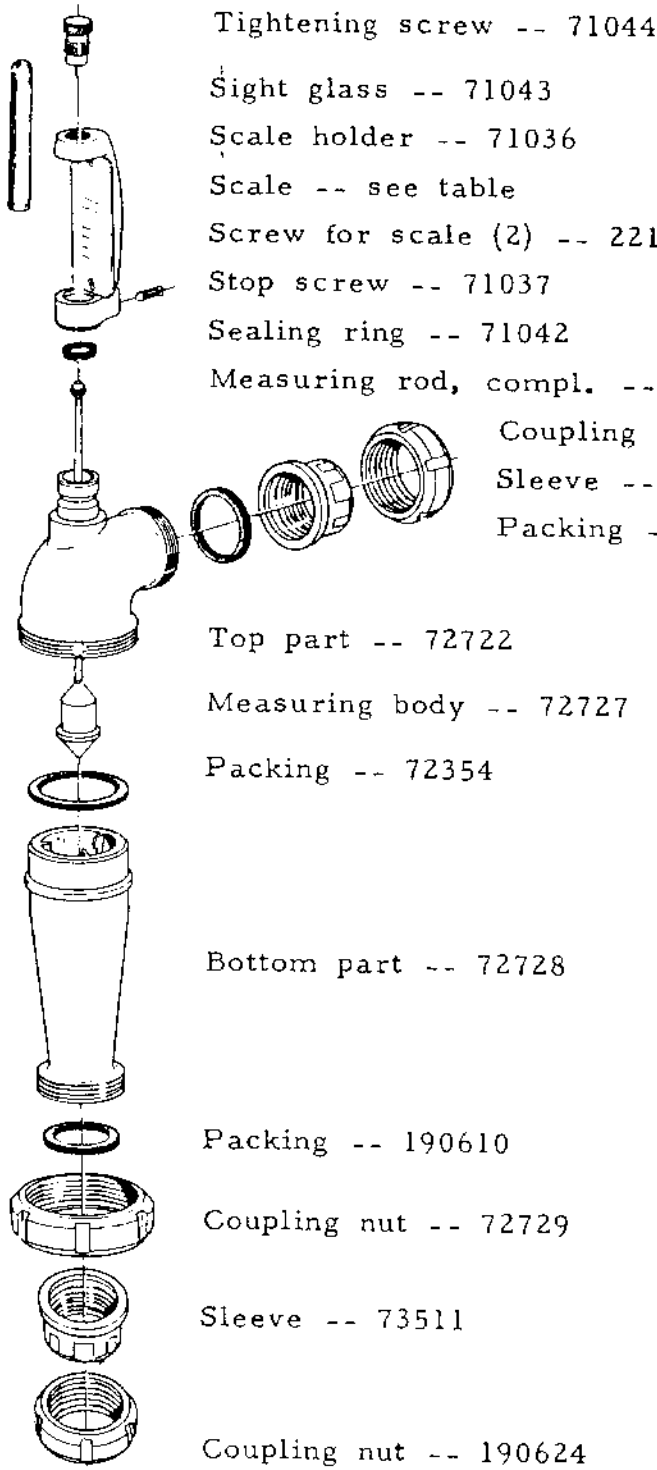
Scale		FLOW METER number
Liquid Spec. weight	Number	
1,00 - 1,10	72723	72721
1,10 - 1,25	73512	73506
1,20 - 1,35	73513	73507

Spare parts

- Packing (2) -- 190610
- Packing -- 72354
- Sight glass -- 71043
- Sealing ring -- 71042

* compare dimension drawing 421237 in chapter Installation

FLOW METER of STAINLESS STEEL for R 2" (BSP 2) THREADED PIPES*
 -- see table



- Tightening screw -- 71044
- Sight glass -- 71043
- Scale holder -- 71036
- Scale -- see table
- Screw for scale (2) -- 221226-1
- Stop screw -- 71037
- Sealing ring -- 71042
- Measuring rod, compl. -- 73954
- Coupling nut -- 190624
- Sleeve -- 73511
- Packing -- 190610

- Top part -- 72722
- Measuring body -- 72727
- Packing -- 72354
- Bottom part -- 72728

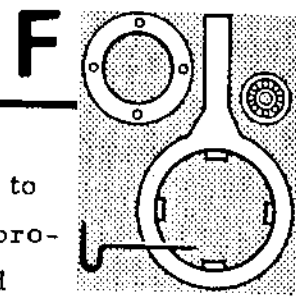
- Packing -- 190610
- Coupling nut -- 72729
- Sleeve -- 73511
- Coupling nut -- 190624

Liquid Spec. weight	Scale		FLOW METER number
	Number		
1,00 - 1,10	72723		73508
1,10 - 1,25	73512		73509
1,20 - 1,35	73513		73510

Spare parts

- Packing (2) -- 190610
- Packing -- 72354
- Sight glass -- 71043
- Sealing ring -- 71042

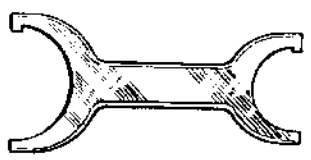
* compare dimension drawing 421237 in



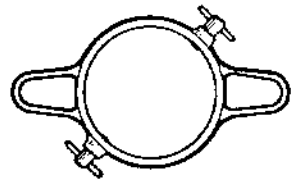
SET OF TOOLS

The special tools for the bowl are preferably hung up as close to the machine (or the cleaning place) as possible. If a tool is provided with left-hand thread or intended for a left-hand screwed joint, this has been specially pointed out in the dismantling and assembling instructions. Notification in this respect is not made where right-hand thread is concerned.

TOOLS for INLET.BOWL.OUTLET (chapter I)



Hook spanner for coupling nut -- 72208



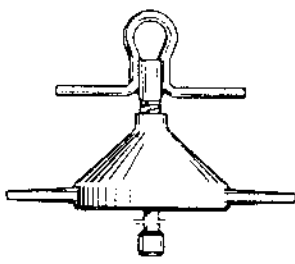
Spanner for small lock ring -- 65368



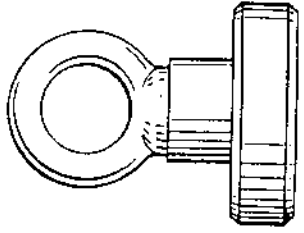
Spanner for large lock ring -- 71951



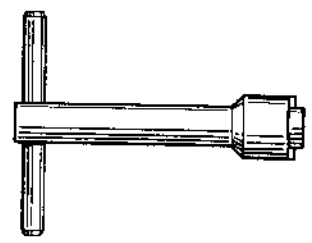
Tin hammer -- 64324



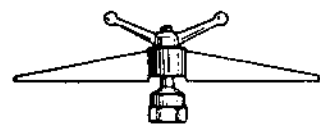
Lifting tool for bowl hood -- 72209



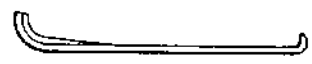
Lifting tool for distributor -- 72219



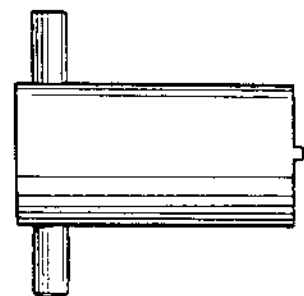
Pin spanner for plug and bushing for distributor -- 74411



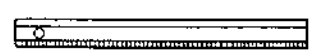
Lifting tool for hood -- 72950



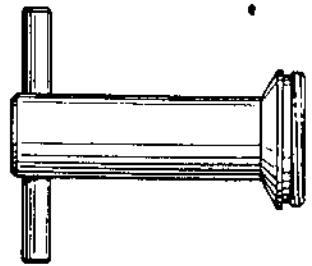
Extractor for recirculation tubes -- 67961



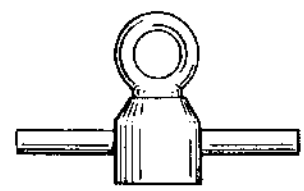
Pin spanner for round nut -- 67954



Socket wrench for lock nut -- 39683

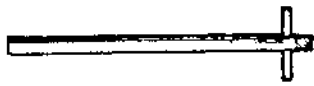


Lifting tool for recirculation distributor -- 73494

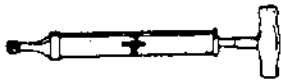


Lifting tool for bowl body -- 72213 (Thrust piece -- 72216)

TOOLS for INLET. OUTLET. BOWL



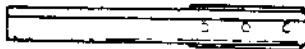
Socket wrench for discharge nozzle -- 8431



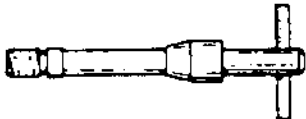
Syringe for discharge nozzle -- 65714



Cleaning needle for discharge nozzle -- 65711



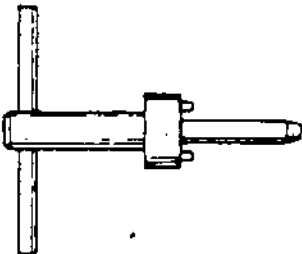
Sludge knife -- 32818



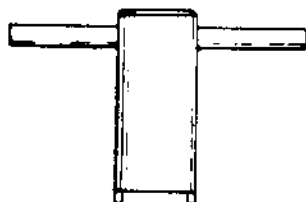
Lining-up tool for nozzle bushing -- 67957



Mounting tool for nozzle bushing -- 67947



Pin spanner for impeller -- 70856

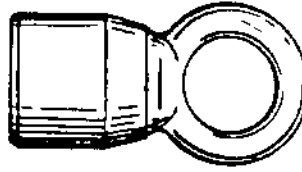


Socket wrench and pin spanner for wearing sleeve and lock ring -- 70834

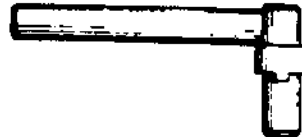


Pin spanner for lock ring -- 70852

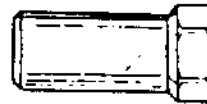
TOOLS for BOWL SPINDLE



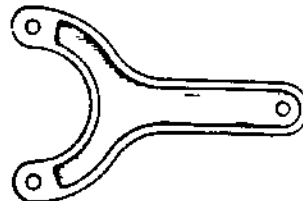
Lifting eye nut -- 72217



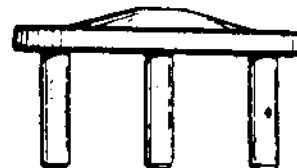
Pin spanner -- 72221



Nut for puller -- 70859



Pin spanner for oil deflector -- 70677

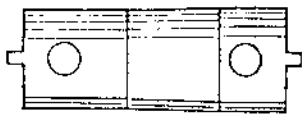


Driving-off tool for ball bearing of worm -- 72205

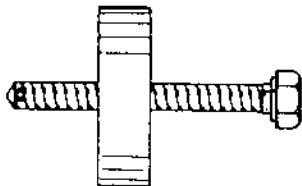


Pin spanner for round nut -- 66439

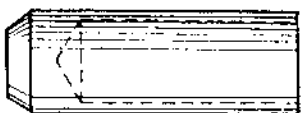
TOOLS for COUPLING and WORM
WHEEL SHAFT



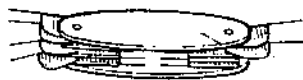
Pin spanner for
round nut
-- 72719



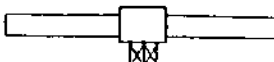
Puller for
coupling pulley
nave
-- 523249-80



Driving-on sleeve
for ball bearing
-- 65374



Internal gauges
set -- 72004



T-handle
-- 72243



Extension rod
-- 72244



Sockets:
9/16" -- 73376



21 mm -- 72246
24 mm -- 73085