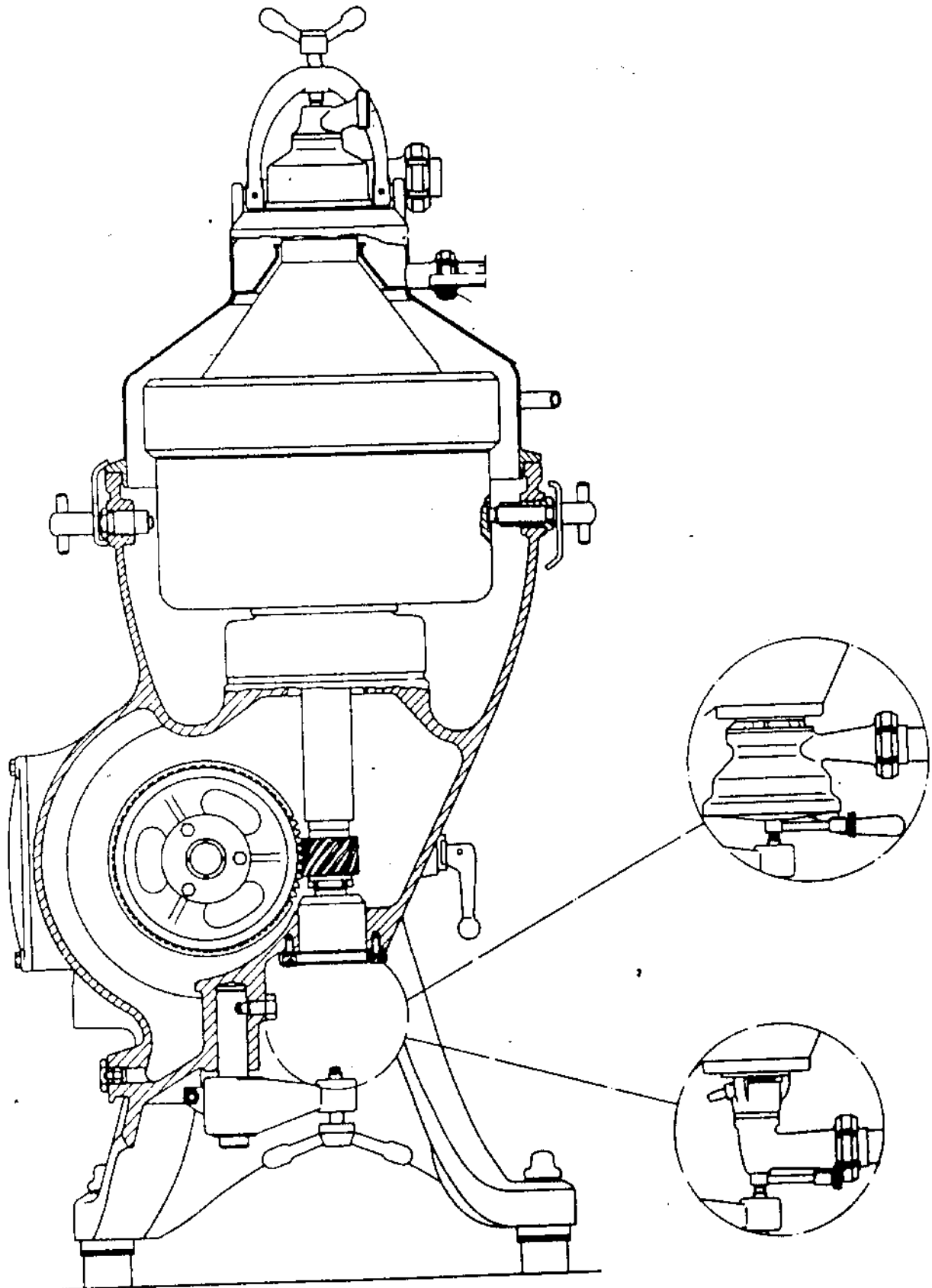
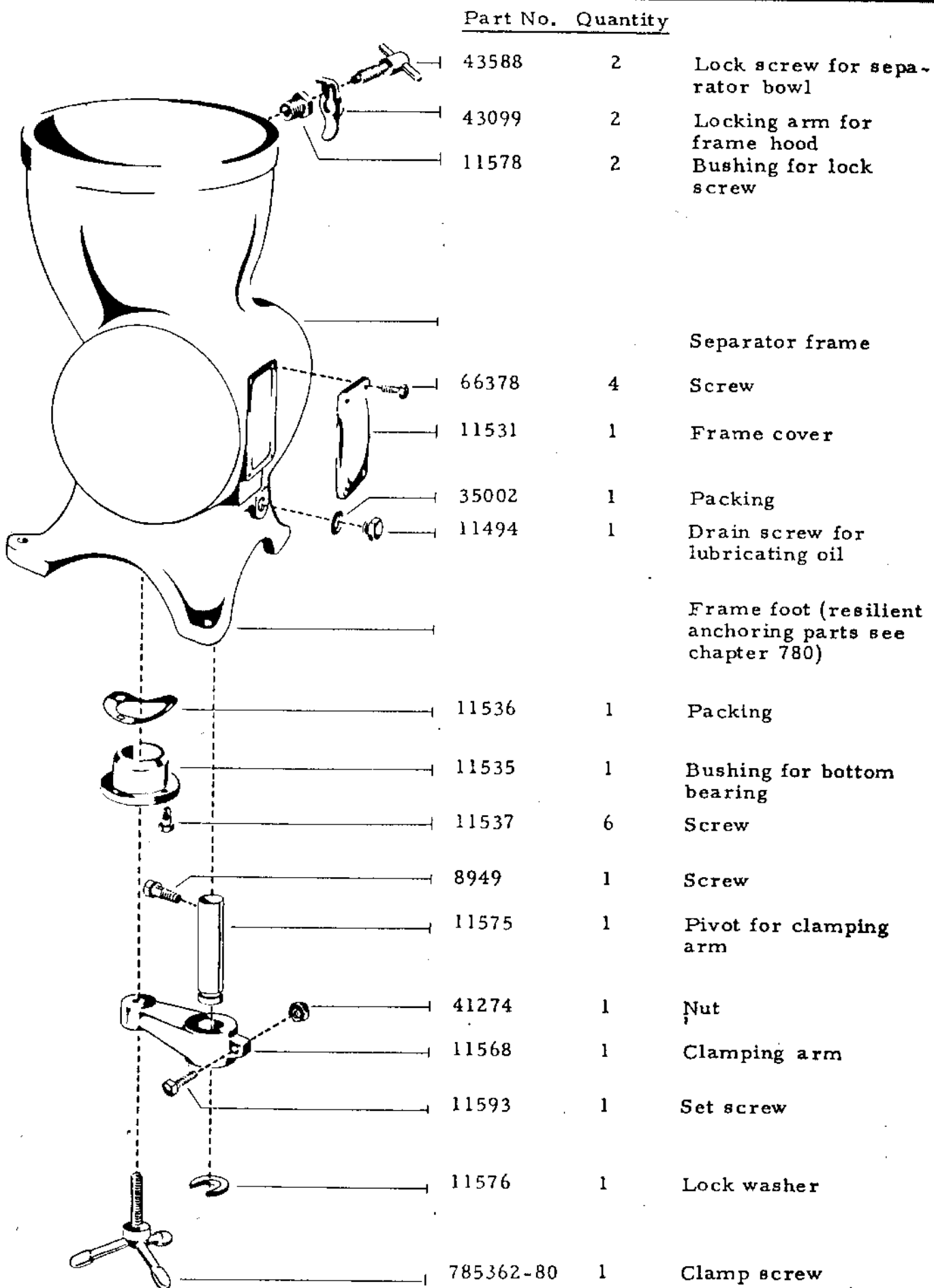


Hutchison-Hayes Separators, Inc.

Model BPM 209-70H-11 Parts List With Diagrams

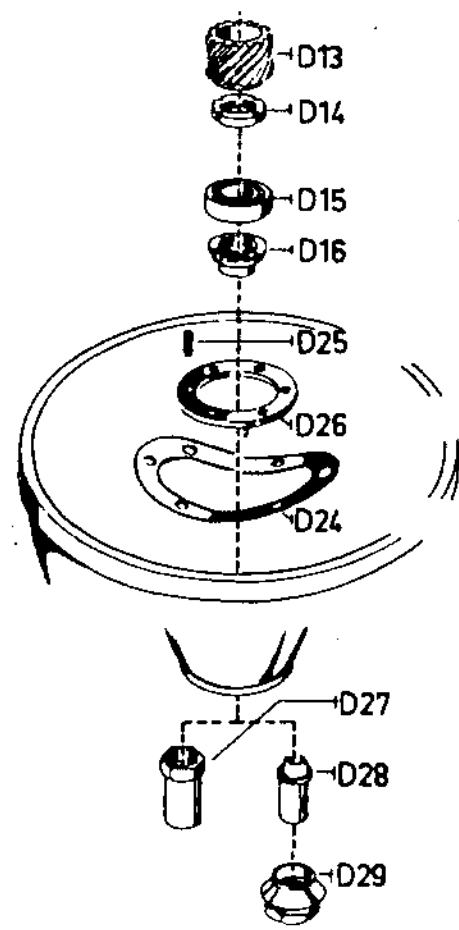
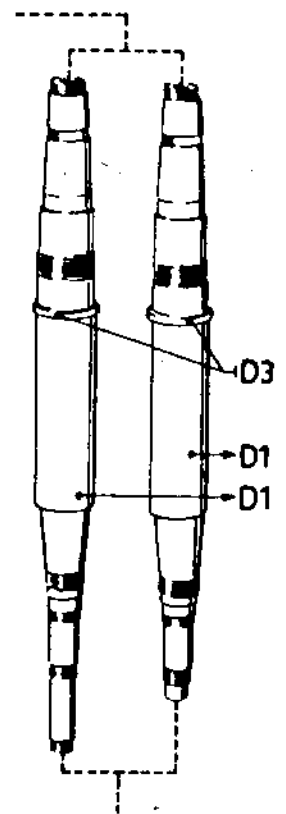
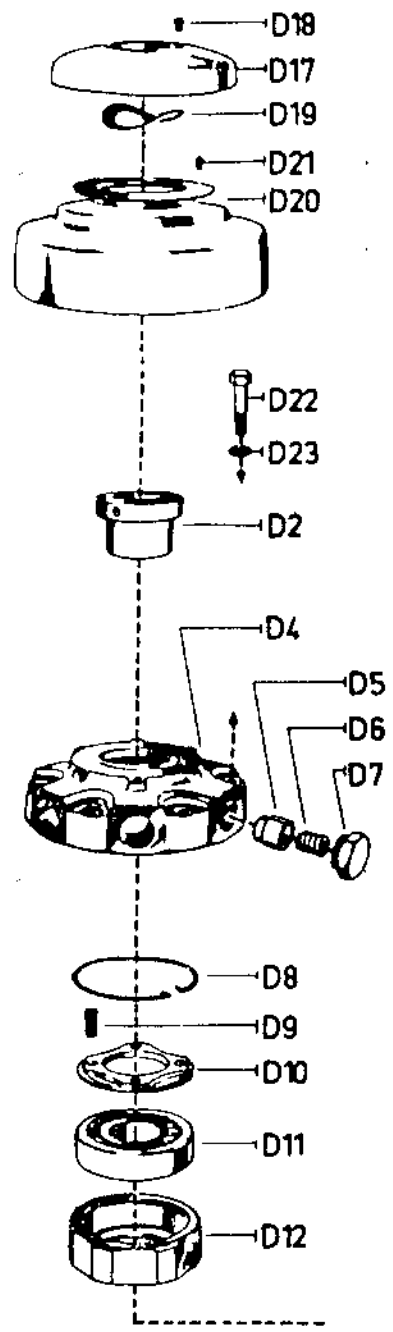
P.O. Box 2965 ♦ Houston, Texas 77252
3520 East Belt ♦ Houston, Texas 77015
(713) 455-9600 ♦ Fax (713) 455-7753





Part No. Quantity

| | | |
|-----------|---|--|
| 43588 | 2 | Lock screw for separator bowl |
| 43099 | 2 | Locking arm for frame hood |
| 11578 | 2 | Bushing for lock screw |
| | | Separator frame |
| 66378 | 4 | Screw |
| 11531 | 1 | Frame cover |
| 35002 | 1 | Packing |
| 11494 | 1 | Drain screw for lubricating oil |
| | | Frame foot (resilient anchoring parts see chapter 780) |
| 11536 | 1 | Packing |
| 11535 | 1 | Bushing for bottom bearing |
| 11537 | 6 | Screw |
| 8949 | 1 | Screw |
| 11575 | 1 | Pivot for clamping arm |
| 41274 | 1 | Nut |
| 11568 | 1 | Clamping arm |
| 11593 | 1 | Set screw |
| 11576 | 1 | Lock washer |
| 785362-80 | 1 | Clamp screw |



| Letter- ing | Part number | Quan- tity |
|----------------|----------------|---------------|
|----------------|----------------|---------------|

| | | | |
|----|-----------|---|----------------------------|
| D1 | see table | 1 | Bowl spindle |
| | | | With built-in feed pump |
| | | | 785822-01 |
| | | | Without built-in feed pump |
| | | | 11601 |

| | | | |
|-----|--------|---|--------------------------------------|
| D2 | 11526 | 1 | Lock nut for ball bearing D11 |
| D3 | 9883 | 1 | Stop ring |
| D4 | 11524 | 1 | Spring casing |
| D5 | 10593 | 6 | Buffer |
| D6 | 31366 | 6 | Spring |
| D7 | 11525 | 6 | Screw plug |
| D8 | 9878 | 1 | Elastic ring for protecting disc D10 |
| D9 | 9699 | 4 | Stop spring |
| D10 | 10795 | 1 | Protecting disc for ball bearing D11 |
| D11 | 9876x) | 1 | Ball bearing for top bearing |
| D12 | 9880 | 1 | Ball bearing sleeve |

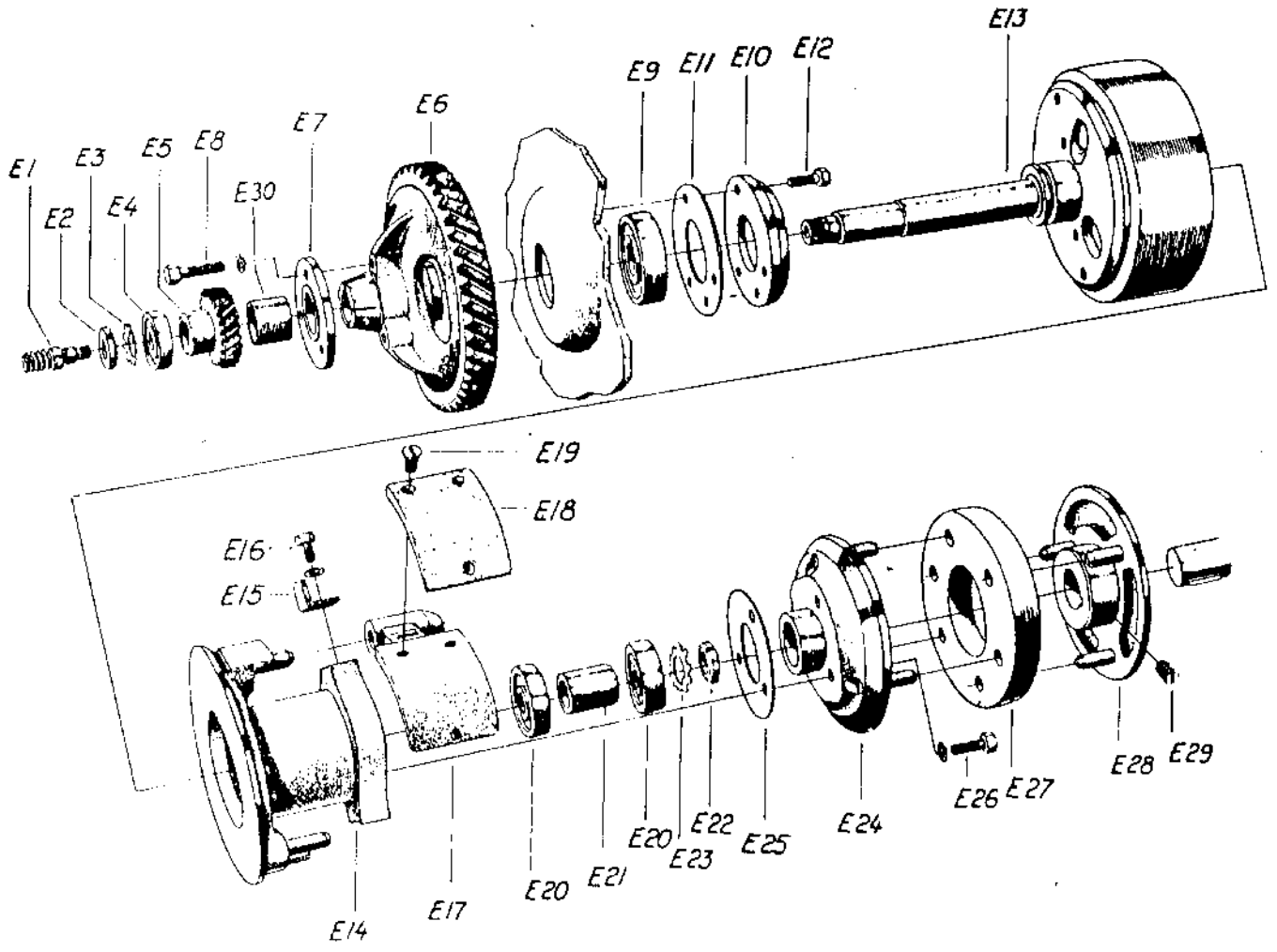
| A. C. | | D. C. |
|--------|--------|-------|
| 50 C/S | 60 C/S | |
| 11521 | 11737 | 11521 |

| | | | |
|-----|-----------|---|--|
| D13 | see table | 1 | Worm |
| D14 | 11522 | 1 | Round nut for worm |
| D15 | 11464 | 1 | Ball bearing for bottom bearing |
| D16 | 11523 | 1 | Lock nut for ball bearing D15 |
| D17 | 11482 | 1 | Top shield |
| D18 | 46026 | 4 | Screw for top shield |
| D19 | 11529 | 1 | Packing for top shield |
| D20 | 11485 | 1 | Protecting cap for top bearing |
| D21 | 46026 | 6 | Screw for protecting cap |
| D22 | 64740 | 6 | Screw for top bearing |
| D23 | 41381 | 6 | Spring washer for screw D22 |
| D24 | 11528 | 1 | Packing for top bearing |
| D25 | 9699 | 6 | Supporting spring |
| D26 | 11527 | 1 | Guide ring for supporting spring |
| D27 | 11530 | 1 | Wear sleeve, for separator with built-in feed pump |

For separator without built-in feed pump:

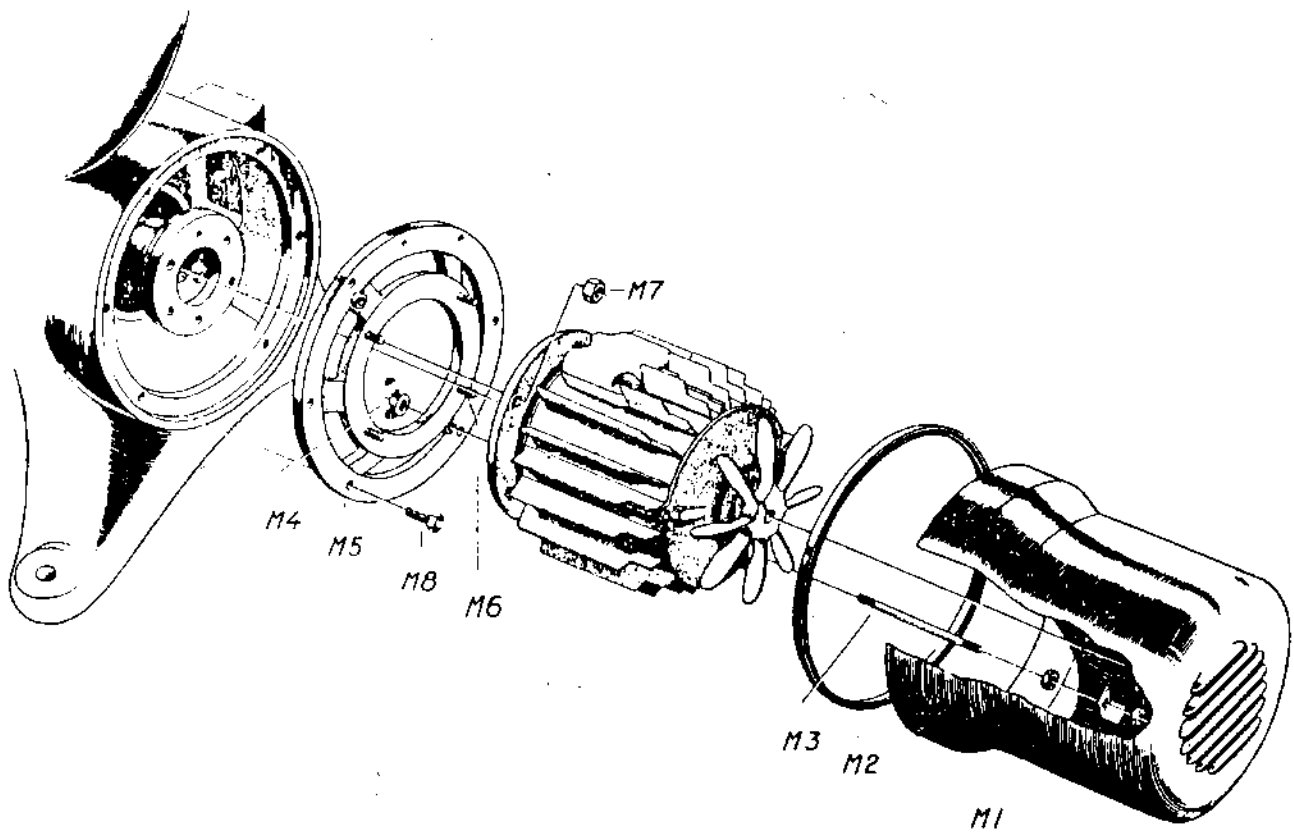
| | | | |
|-----|-------|---|---------------------------|
| D28 | 9697 | 1 | Inlet sleeve |
| D29 | 11690 | 1 | Lock nut for inlet sleeve |

x) Special design - can be ordered only from an authorized DE LAVAL representative.



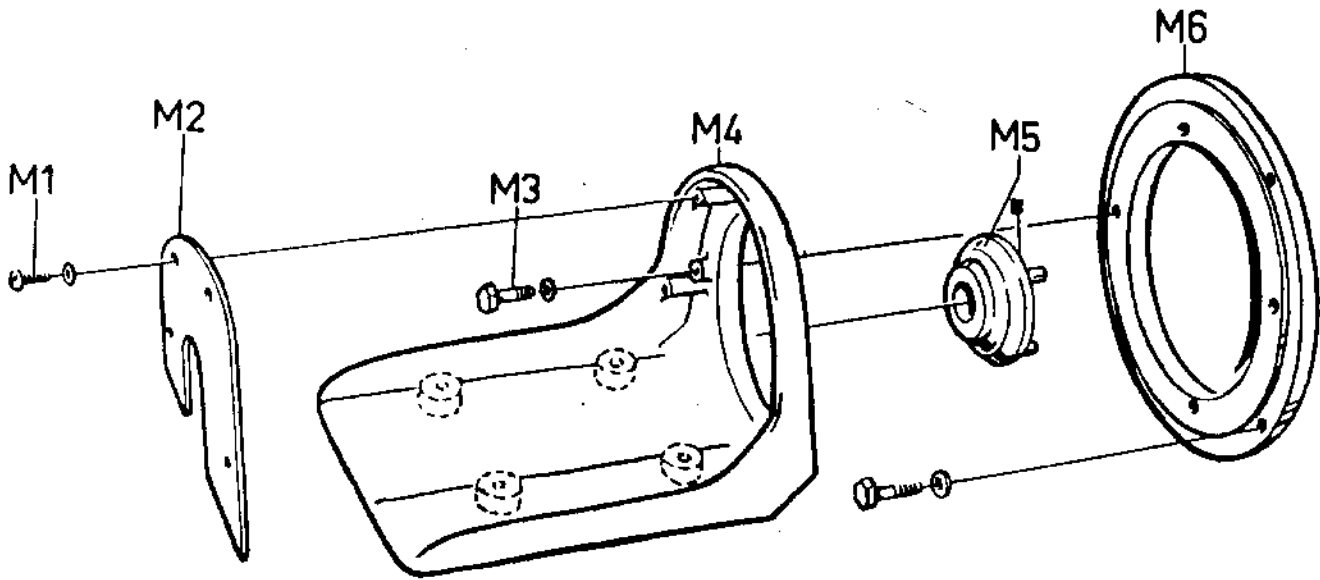
| Letter- ing | Part number | Quan- tity | | | | | | | | | | | | | | | |
|--|----------------|---------------|---|-------|--|-------|--------|--------|-------|-------|-------|-------|------|-------|-----|------|-----|
| E1 | 11545 | 1 | Worm gear for revolution counter | | | | | | | | | | | | | | |
| E2 | 38682 | 1 | Round nut with lock washer E3 | | | | | | | | | | | | | | |
| E3 | 38159 | 1 | Lock washer | | | | | | | | | | | | | | |
| E4 | 11455 | 1 | Ball bearing, loose | | | | | | | | | | | | | | |
| E5 | 11548 | 1 | Gear wheel for tachometer | | | | | | | | | | | | | | |
| <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2">A. C.</th> <th rowspan="2">D. C.</th> </tr> <tr> <th>50 C/S</th> <th>60 C/S</th> </tr> </thead> <tbody> <tr> <td>11539</td> <td>11736</td> <td>11539</td> </tr> </tbody> </table> | | | | A. C. | | D. C. | 50 C/S | 60 C/S | 11539 | 11736 | 11539 | | | | | | |
| A. C. | | D. C. | | | | | | | | | | | | | | | |
| 50 C/S | 60 C/S | | | | | | | | | | | | | | | | |
| 11539 | 11736 | 11539 | | | | | | | | | | | | | | | |
| E6 | see table | 1 | Worm wheel | | | | | | | | | | | | | | |
| E7 | 11540 | 1 | Lock ring for worm wheel | | | | | | | | | | | | | | |
| E8 | 32957 | 3 | Screw for lock ring | | | | | | | | | | | | | | |
| - | 9488 | 3 | Spring washer for lock ring | | | | | | | | | | | | | | |
| E9 | 6611 | 1 | Ball bearing, fixed | | | | | | | | | | | | | | |
| E10 | 11546 | 1 | Protecting cover for ball bearing E9 | | | | | | | | | | | | | | |
| E11 | 11547 | 1 | Packing for protecting cover | | | | | | | | | | | | | | |
| E12 | 34963 | 3 | Screw for protecting cover | | | | | | | | | | | | | | |
| E13 | 11541 | 1 | Worm wheel shaft with conveyor pulley and round nuts E2 and E22 | | | | | | | | | | | | | | |
| E14 | 11504 | 1 | Nave for coupling pulley E24 | | | | | | | | | | | | | | |
| E15 | 65157 | 2 | Holding bracket, with screw E16 and spring washer | | | | | | | | | | | | | | |
| E16 | 65159 | 2 | Screw for holding bracket | | | | | | | | | | | | | | |
| - | 40040 | 2 | Washer for holding bracket | | | | | | | | | | | | | | |
| <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2">A. C.</th> <th rowspan="2">D. C.</th> </tr> <tr> <th>50 C/S</th> <th>60 C/S</th> </tr> </thead> <tbody> <tr> <td>11510</td> <td>11783</td> <td>11510</td> </tr> <tr> <td>65397</td> <td>8956</td> <td>65397</td> </tr> <tr> <td>six</td> <td>four</td> <td>six</td> </tr> </tbody> </table> | | | | A. C. | | D. C. | 50 C/S | 60 C/S | 11510 | 11783 | 11510 | 65397 | 8956 | 65397 | six | four | six |
| A. C. | | D. C. | | | | | | | | | | | | | | | |
| 50 C/S | 60 C/S | | | | | | | | | | | | | | | | |
| 11510 | 11783 | 11510 | | | | | | | | | | | | | | | |
| 65397 | 8956 | 65397 | | | | | | | | | | | | | | | |
| six | four | six | | | | | | | | | | | | | | | |
| E17 | see table | pair | Friction blocks | | | | | | | | | | | | | | |
| E18 | see table | 2 | Pad (with screws) | | | | | | | | | | | | | | |
| E19 | 8341 | see table | Screw for pad | | | | | | | | | | | | | | |
| E20 | 11455 | 2 | Ball bearing for nave E14 | | | | | | | | | | | | | | |
| E21 | 11506 | 1 | Spacing sleeve for ball bearing E20 | | | | | | | | | | | | | | |
| E22 | 38682 | 1 | Round nut, with lock washer, for ball bearing E20 | | | | | | | | | | | | | | |
| E23 | 38159 | 1 | Lock washer | | | | | | | | | | | | | | |
| E24 | 11507 | 1 | Coupling pulley for worm wheel shaft | | | | | | | | | | | | | | |
| E25 | 11509 | 1 | Packing for coupling pulley E24 | | | | | | | | | | | | | | |
| E26 | 34963 | 3 | Screw for coupling pulley E24 | | | | | | | | | | | | | | |
| - | 9488 | 3 | Spring washer | | | | | | | | | | | | | | |
| E27 | 36121 | 1 | Elastic plate | | | | | | | | | | | | | | |
| E28 | 11516 | 1 | Coupling pulley, with set screw, for motor shaft | | | | | | | | | | | | | | |
| E29 | 34939 | 1 | Set screw | | | | | | | | | | | | | | |
| E30 | 43583 | 1 | Spacing sleeve for worm wheel shaft | | | | | | | | | | | | | | |

DIRECT DRIVE - flange motor



| Letter- ing | Part number | Quan- tity | |
|----------------|----------------|---------------|-----------------------------|
| M1 | see table | 1 | Motor hood |
| M2 | 11591 | 1 | Sealing strip for hood |
| M3 | 11567 | 2 | Stud bolt for hood |
| | 41274 | 4 | Nut for stud bolt M3 |
| M4 | 40834 | 2 | Wing nut for stud bolt M3 |
| M5 | 11533 | 1 | Motor adapter, complete |
| M6 | 22141 | 4 | Stud bolt for motor adapter |
| M7 | 39824 | 4 | Nut for stud bolt M6 |
| M8 | 34963 | 6 | Screw for motor adapter |

| Length | | No. |
|--------|-----|-------|
| inch. | mm | |
| 15 3/8 | 390 | 11488 |
| 17 1/8 | 435 | 11489 |

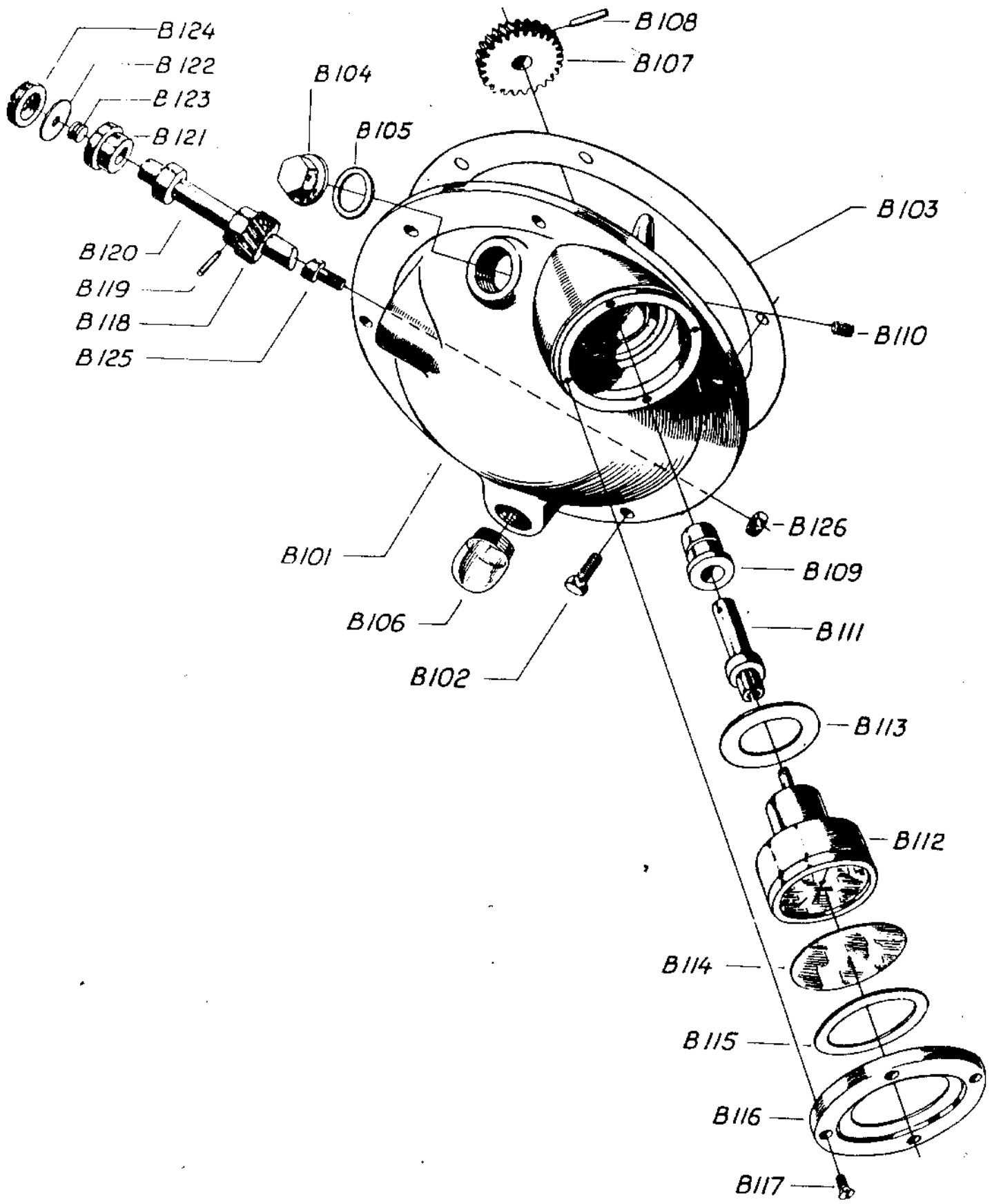


DIRECT DRIVE - MOTOR ON BRACKET

| Letter- ing | Part number | Quan- tity |
|----------------|----------------|---------------|
|----------------|----------------|---------------|

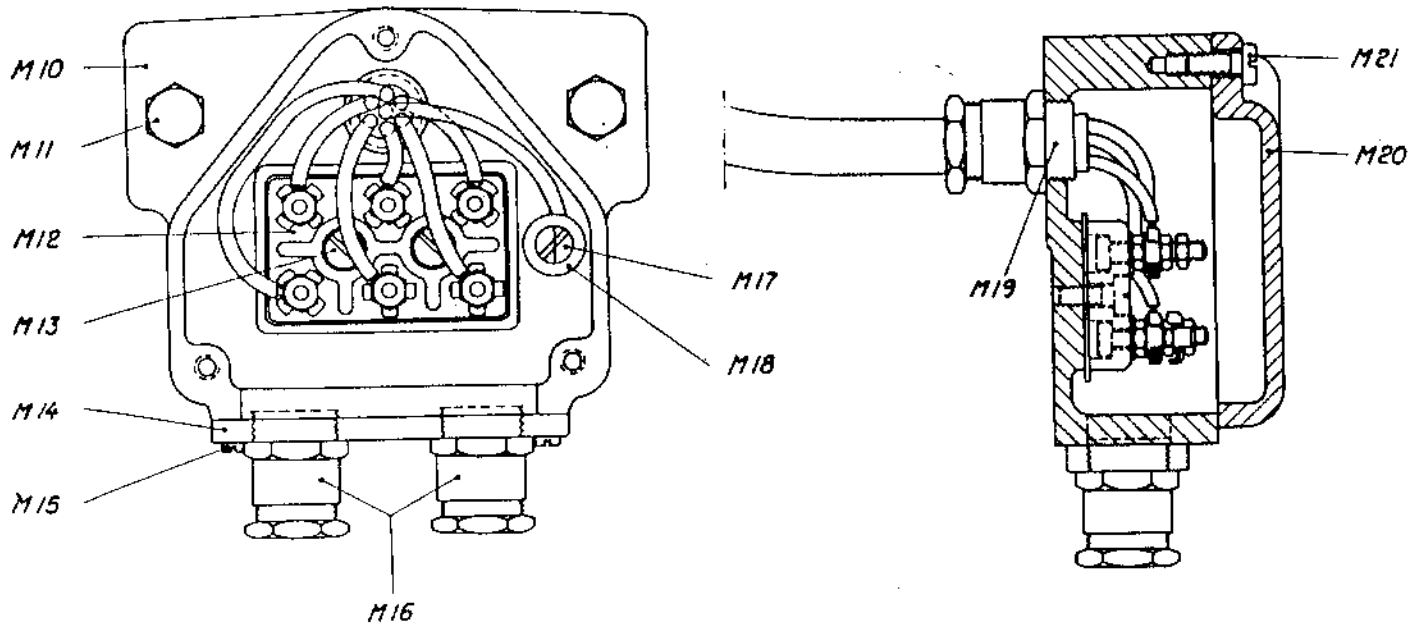
| | | | |
|----|-----------|---|-----------------------|
| M4 | see table | 1 | Motor bracket |
| M1 | see table | 4 | Screw |
| - | see table | 3 | Washer |
| M2 | see table | 4 | Protecting shield |
| M3 | see table | 3 | Screw |
| - | see table | 4 | Washer |
| M6 | 74297 | 1 | Motor bracket adapter |
| - | 34963 | 6 | Screw for M6 |
| - | 20758 | 6 | Washer for screw |

| Height to shaft center | | |
|------------------------|----------------|----------------|
| 146 mm | 175 mm | 210 mm |
| 62029 | 36215 | 60473 |
| 2194 | 2194 | 2194 |
| 223101- -48 | 223101- -48 | 223101- -48 |
| 62030 | 36311 | 36311 |
| 65193 | 65231 | 65231 |
| 70492 | 70492 | 70492 |



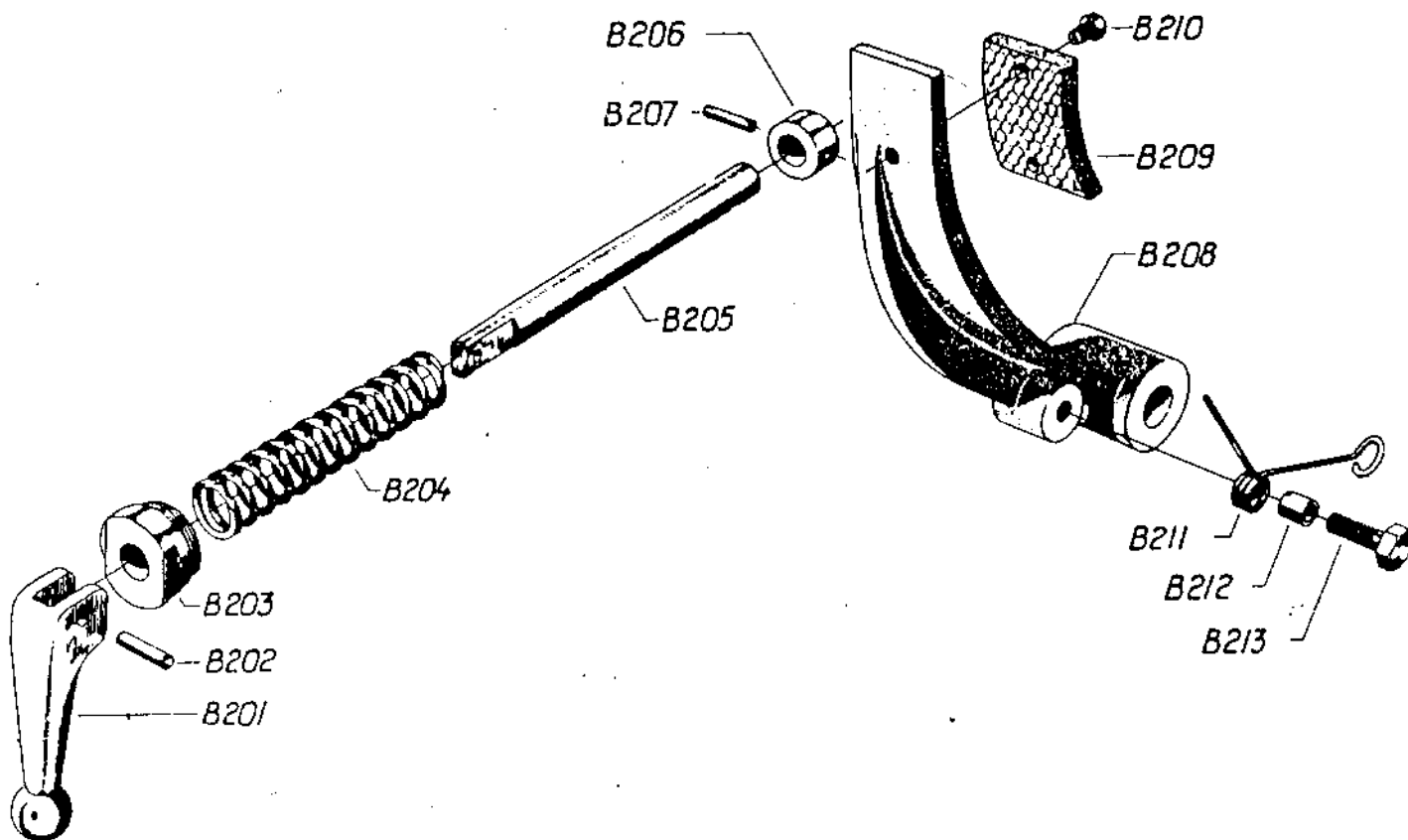
COVER FOR GEAR HOUSING,
WITH CONTROL MEANS**ALFA-LAVAL**

| Letter- ing | Part number | Quan- tity | |
|----------------|----------------|---------------|--------------------------------------|
| B101 | 11549 | 1 | Cover |
| B102 | 66378 | 8 | Screw |
| B103 | 11566 | 1 | Packing |
| B104 | 65293 | 1 | Screw plug for oil filling hole |
| B105 | 33787 | 1 | Packing for screw plug |
| B106 | 11493 | 1 | Gauge glass for lubricating oil |
| B107 | 11562 | 1 | Gear wheel, with pin, for tachometer |
| B108 | 12526 | 1 | Pin for B107 |
| B109 | 11559 | 1 | Bushing for B111 |
| B110 | 60655 | 1 | Stop screw for B109 |
| B111 | 11560 | 1 | Tachometer shaft |
| B112 | 8866 | 1 | Tachometer |
| - | 9491 | 1 | Glass for B112 |
| B113 | 11564 | 1 | Packing for B112 |
| B114 | 73204 | 1 | Protecting glass |
| B115 | 8068 | 1 | Packing |
| B116 | 8066 | 1 | Lock ring for B112 |
| B117 | 11565 | 4 | Screw for B116 |
| B118-120 | 11551 | | Revolution counter shaft, complete |
| B118 | 11553 | 1 | Gear wheel with pin |
| B119 | 63796 | 1 | Pin for gear wheel |
| B120 | 11552 | 1 | Shaft |
| B121 | 11555 | 1 | Bushing for B120 |
| B122 | 11556 | 1 | Packing for B120 |
| B123 | 11557 | 1 | Push-button for revolution counter |
| B124 | 11558 | 1 | Lock ring for revolution counter |
| B125 | 11550 | 1 | Plug for revolution counter |
| B126 | 22164 | 1 | Nut for plug |



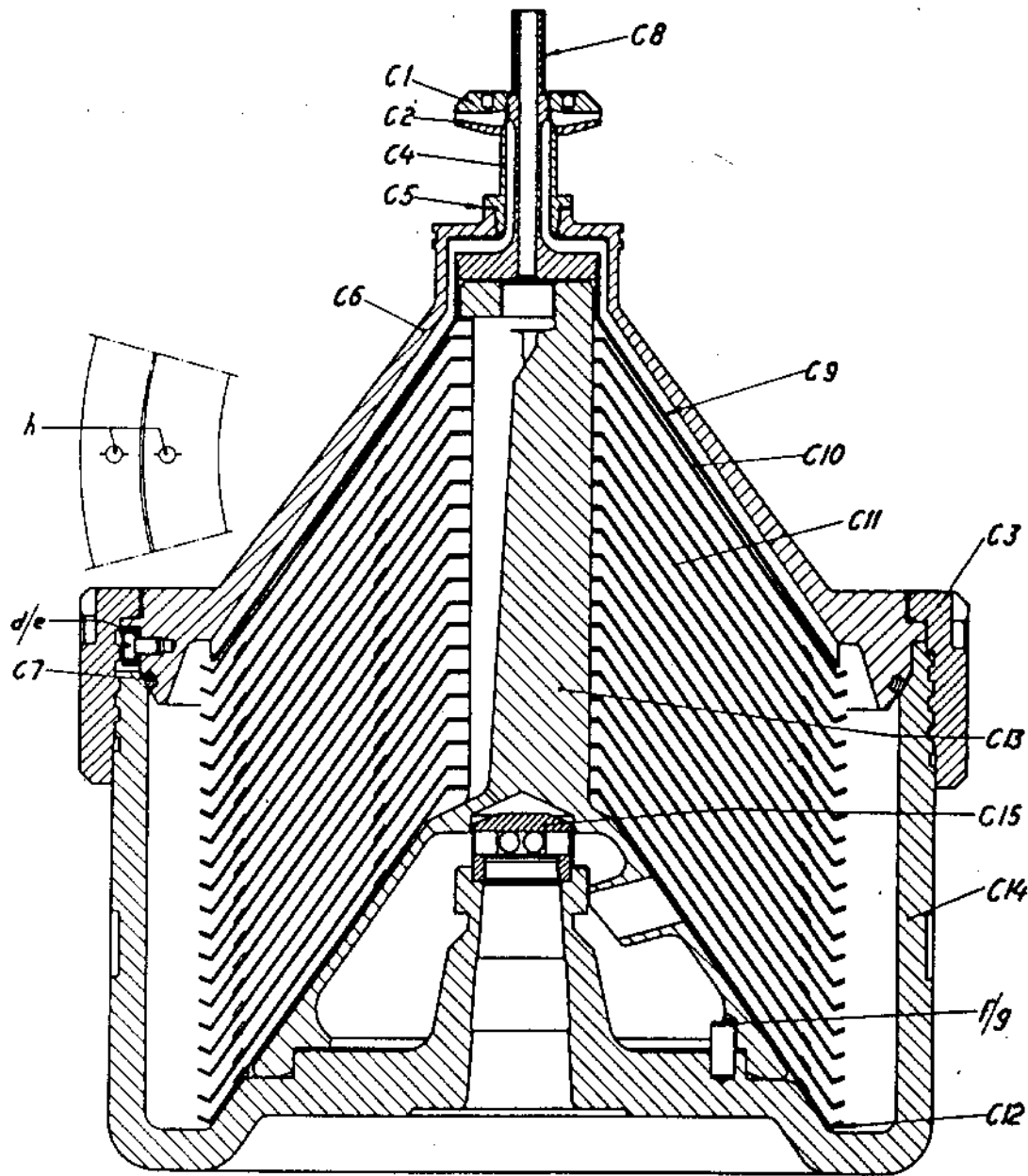
| Letter- ing | Part number | Quan- tity |
|----------------|----------------|---------------|
|----------------|----------------|---------------|

| | | | |
|-----|-------|---|--|
| | 11952 | | Connection box for cable, complete, including parts M10, M12-M21 |
| M10 | 11621 | 1 | Connection box |
| M11 | 66378 | 2 | Screw for connection box |
| M12 | 11623 | 1 | Terminal block |
| M13 | 16483 | 2 | Screw for terminal block |
| M14 | o | 1 | Tube flange |
| M15 | 66442 | 4 | Screw for tube flange |
| M16 | o | 2 | Sealing sleeve |
| M17 | 14655 | 1 | Grounding screw |
| M18 | 11622 | 1 | Washer for grounding screw |
| M19 | o | 1 | Sealing sleeve |
| M20 | 11624 | 1 | Cover for connection box |
| M21 | 16483 | 3 | Screw for cover |



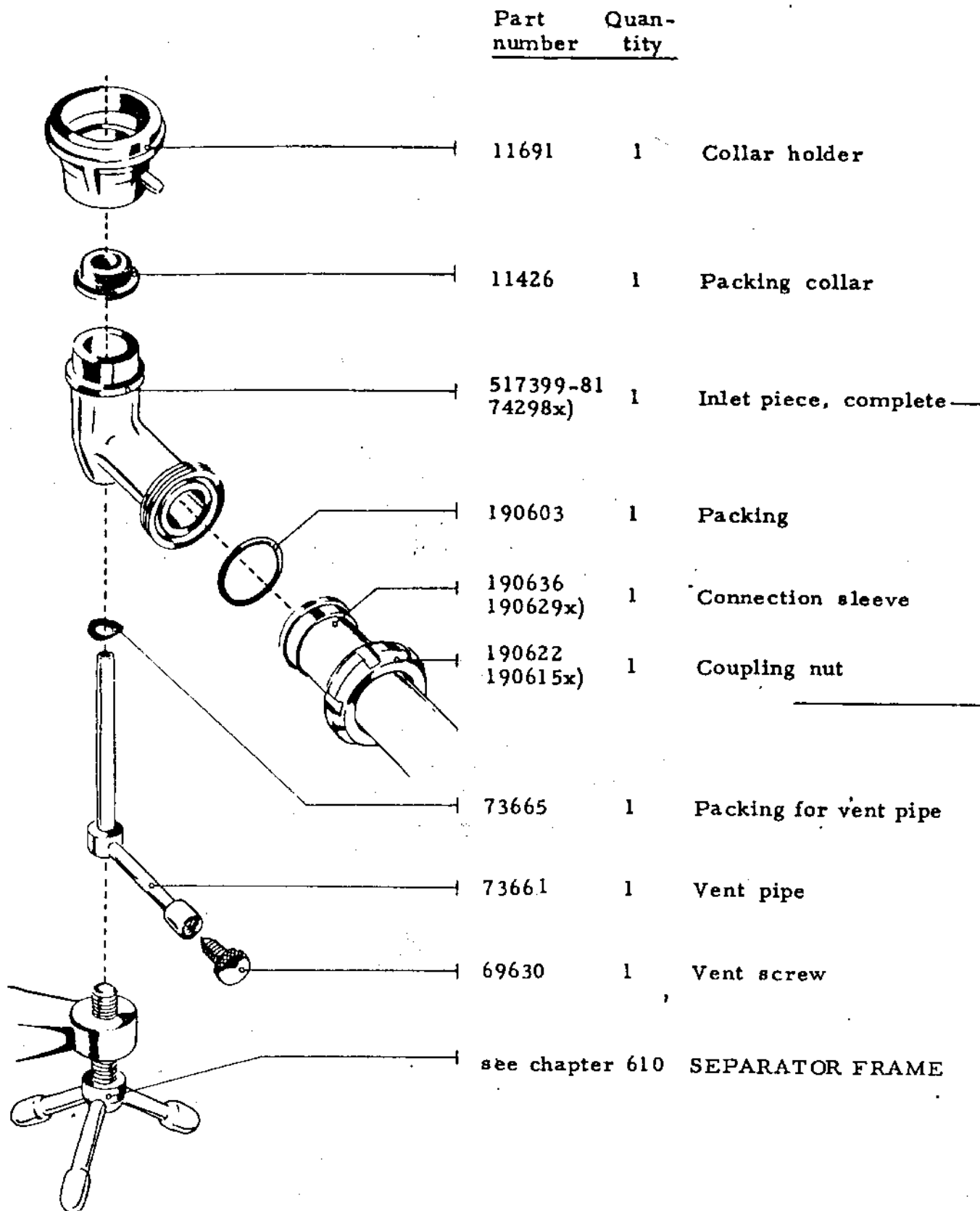
| Letter- ing | Part number | Quan- tity |
|----------------|----------------|---------------|
|----------------|----------------|---------------|

| | | | |
|----------|-------|---|-------------------------------|
| B201-207 | 11499 | | Operating means for brake |
| B201 | 67609 | 1 | Brake handle |
| B202 | 11532 | 1 | Pin for B201 |
| B203 | 11503 | 1 | Guide plug for brake spindle |
| B204 | 39096 | 1 | Spring for brake spindle |
| B205 | 11500 | 1 | Brake spindle |
| B206 | 11501 | 1 | Collar for brake spindle |
| B207 | 11502 | 1 | Pin for collar |
| B208-213 | 11495 | | Brake shoe, complete |
| B208 | 11496 | 1 | Brake shoe |
| B209 | 66548 | 1 | Lining for brake, with screws |
| B210 | 8341 | 2 | Screw for B208 |
| B211 | 11497 | 1 | Stop spring |
| B212 | 11498 | 1 | Spacing sleeve for B213 |
| B213 | 40965 | 1 | Screw for stop spring |

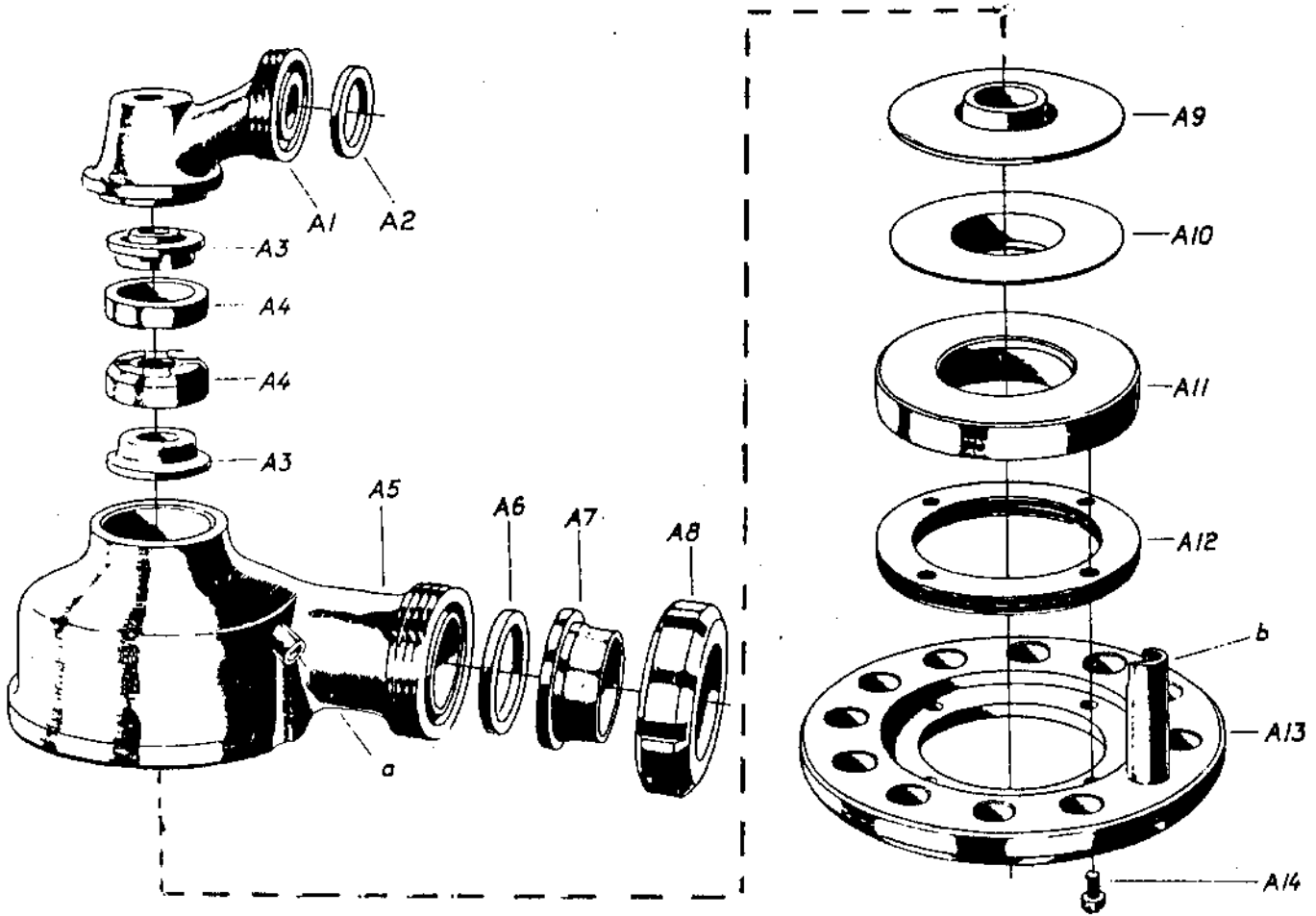


| Letter- ing | Part number | Quan- tity | | Letter- ing | Part number | Quan- tity | |
|----------------|----------------|---------------|------------------------|----------------|----------------|---------------|-------------|
| C1 | 11815 | 1 | Top part of pump wheel | C7 | 43764 | 1 | Rubber ring |
| C2 | 11814 | 1 | Pump wheel | C8 | 9728 | 1 | Wear sleeve |
| C3 | ** | 1 | Lock ring | C9 | 785149-80 | 1 | Top disc |
| C4 | 11742 | 1 | Outlet sleeve | C10-12 | 9867 | | Bowl disc |
| C5 | 9733 | 1 | Packing | C13 | ** | 1 | Distributor |
| C6 | ** | 1 | Bowl hood | C14 | ** | 1 | Bowl body |
| | | | | C15 | 11951 | 1 | Cap nut |

**) Exchange makes rebalancing necessary
 - send in the COMPLETE bowl to an
 authorized ALFA-LAVAL/DE LAVAL
 representative.



x) For INLET OF STAINLESS STEEL - supplied on SPECIAL REQUEST.

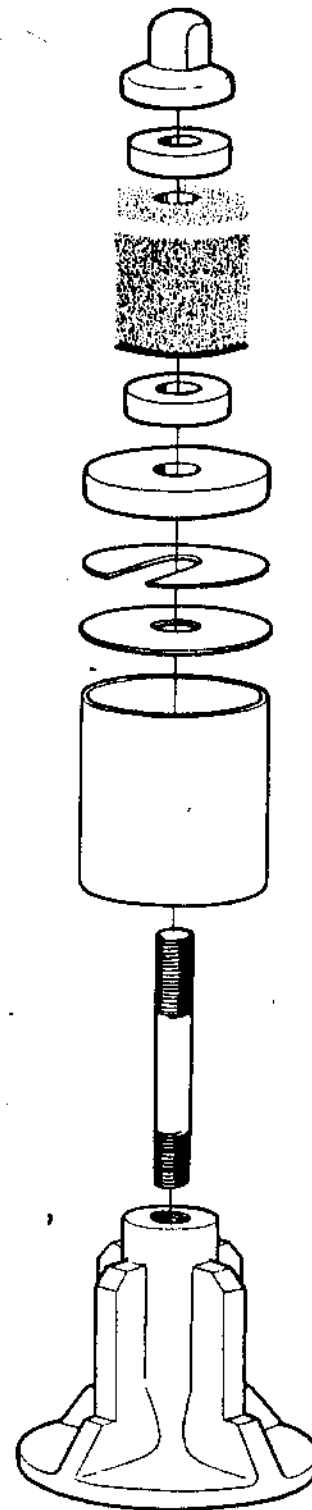


| Letter- ing | Part number | Quan- tity | |
|----------------|----------------|---------------|----------------------------------|
| A1 | 11682 | 1 | Outlet piece, upper |
| A2 | 190601 | 1 | Rubber ring |
| A3 | 11426 | 2 | Packing collar |
| A4 | 11425 | 2 | Spacing ring for packing collars |
| A5 | 11679 | 1 | Outlet piece (incl. A6, A7, A8) |
| A6 | 190603 | 1 | Rubber ring |
| A7 | 190636 | 1 | Connecting sleeve |
| A8 | 190622 | 1 | Coupling nut |
| A9 | 11595 | 1 | Packing collar |
| A10 | 11678 | 1 | Cup |
| A11 | 11676 | 1 | Guide ring |
| A12 | 11675 | 1-3 | Height adjusting ring |
| A13 | 11672 | 1 | Bottom ring |
| A14 | 11677 | 4 | Screw |

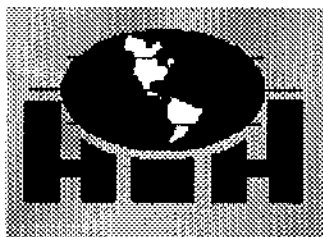
a Drain pipe in lower outlet piece
 b Drain pipe in bottom ring

Part number Quan-
 tity

| | | |
|-------|---|----------------------|
| 11669 | 3 | Cup nut |
| 11668 | 3 | Small rubber cushion |
| 11668 | 3 | Small rubber cushion |
| 11667 | 3 | Large rubber cushion |
| 11666 | 6 | Spacing washer |
| 11665 | 3 | Steel washer |
| 11664 | 3 | Sleeve |
| 11663 | 3 | Anchor screw |
| 11662 | 3 | Anchoring foot |



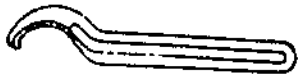
| <u>Part number</u> | <u>Quantity</u> | |
|--|-----------------|---------------------------------------|
| DRIVING DEVICE, HORIZONTAL | | |
| <u>Separator equipped for drive from a 60 C/S supply</u> | | |
| 8956 | 2 | Pad for friction block |
| 8341 | 4 | Screw for friction pad |
| <u>Separator equipped for drive from a 50 C/S or D.C. supply</u> | | |
| 65397 | 2 | Pad for friction block |
| 8341 | 6 | Screw for friction pad |
| BOWL | | |
| 9867 | 1 | Bowl disc |
| 43764 | 1 | Rubber ring |
| 11742 | 1 | Outlet sleeve |
| 9733 | 1 | Packing for outlet sleeve |
| INLET | | |
| 73665 | 2 | Packing for vent pipe |
| 190603 | 1 | Packing for inlet piece |
| 11426 | 4 | Packing collar for inlet piece |
| <u>Separator with feed pump</u> | | |
| 30856 | 1 | Rubber ring for pump housing cover |
| 11530 | 1 | Wear sleeve |
| 11595 | 4 | Packing collar |
| <u>Separator without feed pump</u> | | |
| 9697 | 1 | Inlet sleeve |
| OUTLET | | |
| 785951-01 | 2 | Height adjusting ring |
| 11678 | 1 | Cup for packing collar |
| 11595 | 4 | Packing collar for lower outlet piece |
| 190603 | 1 | Packing for outlet piece |
| 11426 | 8 | Packing collar for upper outlet piece |
| 518859-80 | 1 | Paint for retouches |



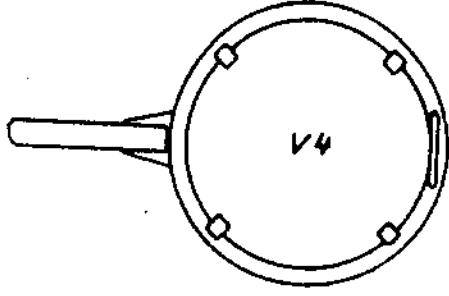
Hutchison-Hayes Separators, Inc.

This is a Spacer Page

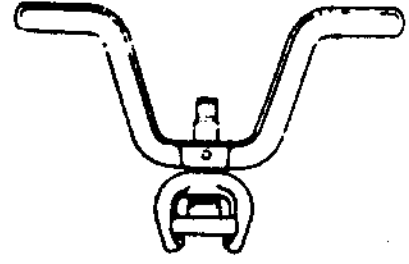
P.O. Box 2965 ♦ Houston, Texas 77252
3520 East Belt ♦ Houston, Texas 77015
(713) 455-9600 ♦ Fax (713) 455-7753



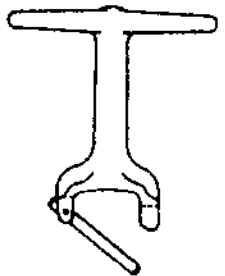
V1



V4



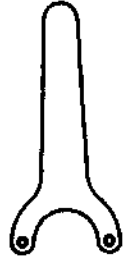
V5



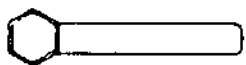
V6



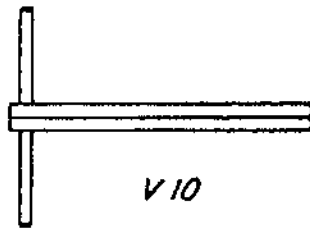
V7



V8



V9



V10



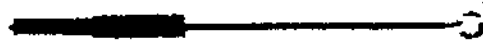
V11



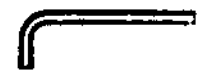
V12



V13



V14



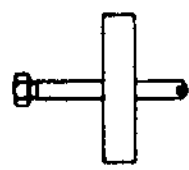
V15



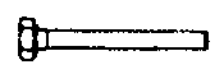
V16



V17



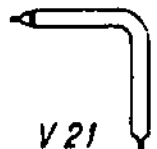
V18



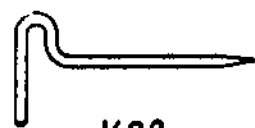
V19



V20



V21



V22



V23

| Letter- ing | Part number | |
|--------------------------------------|----------------|--|
| BOWL AND PIPE CONNECTIONS | | |
| V1 | 11782 | Hook spanner 1" - 1 1/2" (25 & 38 mm) |
| V4 | 9139 | Spanner for bowl lock ring |
| V5 | 11418 | Lifting tool for distributor and bowl body |
| V6 | 11415 | Spanner for cap nut |
| V7 | 20315 | Brush for top disc |
| V8 | 3574 | Pin spanner for discharge pump |
| - | 9900 | Drying stand for distributor |
| - | 9894 | Drying stand for bowl discs |
| BOWL SPINDLE | | |
| V9 | 11653 | Socket wrench 1 7/16" (36 mm) |
| V10 | 11647 | Socket wrench 9/16" (15 mm) |
| V11 | 39033 | Hook spanner 2 1/16" (52 mm) |
| V12 | 11738 | Protecting sleeve for bowl spindle |
| V13 | 66988 | Hook spanner 3 1/4" (82 mm) |
| V14 | 9689 | Brush for bowl spindle |
| V15 | 66416 | Hexagonal hole wrench 5/16" (8 mm) |
| WORM WHEEL SHAFT AND COUPLING | | |
| V16 | 11649 | Guide bolt (2 in number) for motor adapter |
| V17 | 62522 | Pin spanner 1 1/2" (38 mm) |
| V18 | 11645 | Puller tool for nave |
| V19 | 65389 | Jack screw (2 in number) for ball bearing |
| V20 | 2279 | Drift |
| V21 | 8594 | Screw driver, small |
| V22 | 14486 | Screw driver, large |
| V23 | 8432 | Screw spanner, 7/8" - 1 7/32" (23 & 31 mm) |