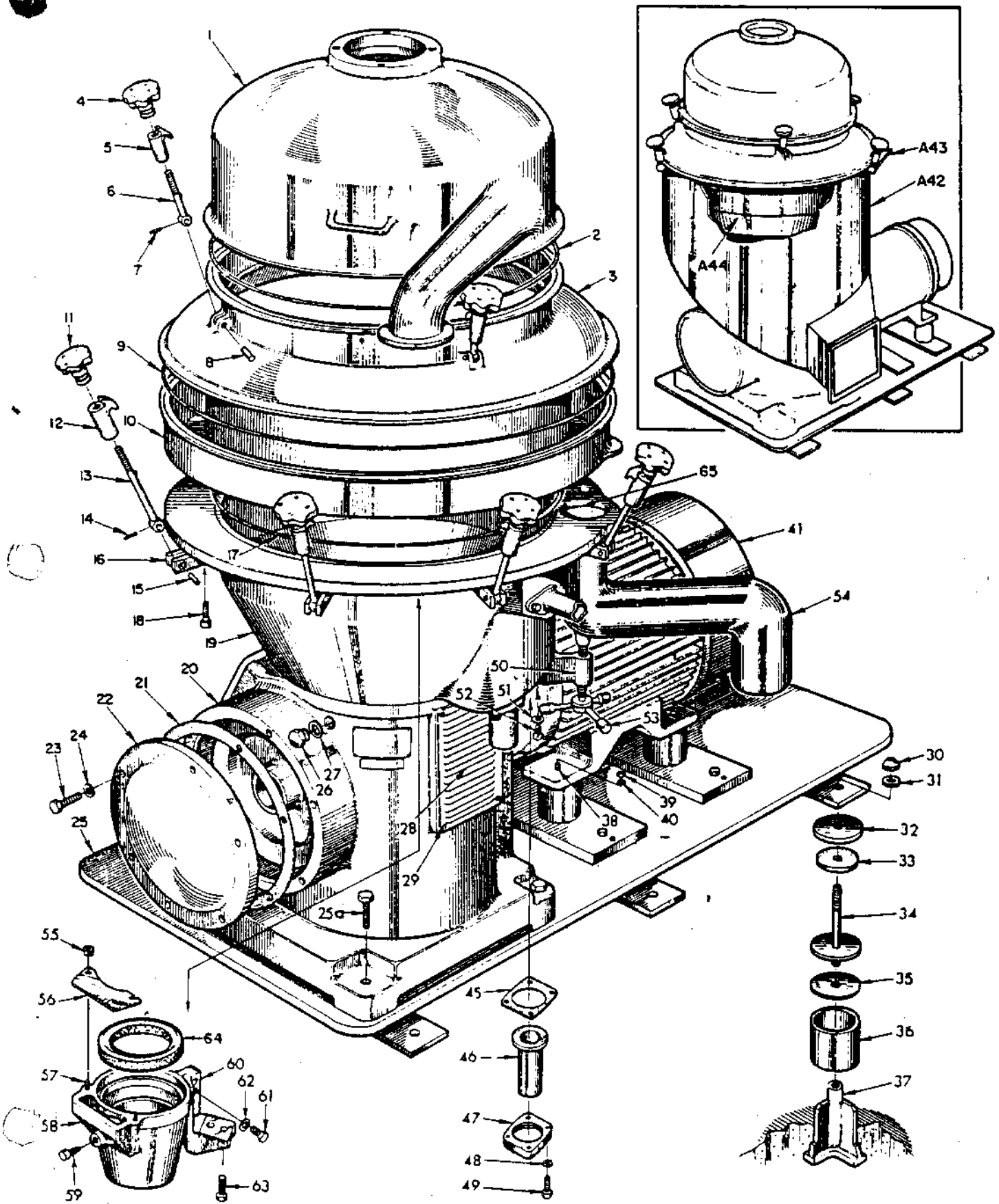


Hutchison-Hayes Separators, Inc.

Model AFPX 213 Parts List With Diagrams

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

MAIN ASSEMBLY



MAIN ASSEMBLY

PARTS LIST

KEY NO.	PART NO.	PART NAME	QUANTITY
	99139177	Frame Cover	1
1	8701608-80	Frame Cover (special flange)	1
2	99137311	Rubber Ring (HYCAR)	1
3	99139160	Top Shell	1
4	99139173	Handwheel	4
5	99139188	Cover Clamp	4
6	99139123	Cover Clamp Stud	4
7	99139420	Groove Pin	4
8	99139434	Hinge Pin	4
9	99139268	Rubber Ring	1
*10		Bottom Cover	
11	99137428	Handwheel	8
12	99138459	Cover Clamp Lug	8
*13	99139121	Cover Clamp Stud	
14	99139118	Cross Pin	8
15	99139119	Hinge Pin	8
16	99139216	Clamp Lug	8
17	99139267	Rubber Ring	
18	99139097	Screw	
*19	99139215	Frame Top	
20	99139043	Frame Bottom	1
21	99137216	Gasket	1
22	99139222	Worm Wheel Housing Cap	1
23	99139100	Screw	6
24	99138514	Washer	6
25	99139200	Base	1
25A	8000023-01	Screw	4
26	99139364	Screw Plug	1
27	99139147	Gasket	1
28	99139297	Louver	1
29	99139084	Screw	6
30	99139349	Cap Nut	6
31	99139111	Upper Base Cushion	6
32	99139116	Lower Base Cushion Cap	6
33	99139112	Lower Base Cushion	6
34	99139453	Anchor Stud	6
35	99139115	Height Adj. Washer	(as req'd.)
36	99139136	Spacer Sleeve	6
37	99139226	Anchor Foot	6
38	99138837	Motor Stud	4
39	99132309	Nut	4

* Not used with deep sludge cover

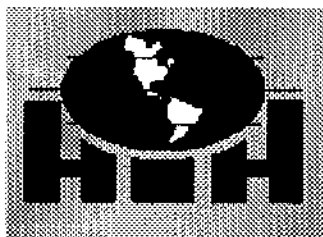
PARTS LIST CONTINUED ON PAGE 83

MAIN ASSEMBLY

PARTS LIST CONTINUED

KEY NO.	PART NO.	PART NAME	QUANTITY
40	99110753	Lock Washer	4
41		Motor	1
42	8702846-80	Deep Sludge Cover	1
43	99139463	Cover Clamp Stud	8
44	8700644-81	Inner Shell	1
	99139275	Rubber Ring, Inner Shell	1
	99139376	Screw, Inner Shell to Bottom Cover	8
	99133529	Lock Washer	8
45	99139138	Gasket	*1
46	99139438	Vent Tube	*1
47	99139441	Flange	*1
48	8700519-01	Washer	*4
49	99139088	Screw	*4
50	99139388	Bracket	*4
51	99110330	Washer	*4
52	99139106	Screw	*4
53	99139397	Screw Clamp	*1
54	99139437	Discharge Bend	*1
55	99139269	Knurled Nut	*2
56	99139259	Chamber Cover	*1
57	99139282	Stud	*2
58	99139245	Discharge Chamber	*1
59	99139260	Sampling Cock Screw	*1
60	99139253	Bracket	*1
61	99139398	Screw	*2
62	99140143	Washer	*2
63	99139097	Screw	*2
64	99139812	Seal Ring	1
65	99139350	Seal Ring	1

* Not used with deep sludge cover.

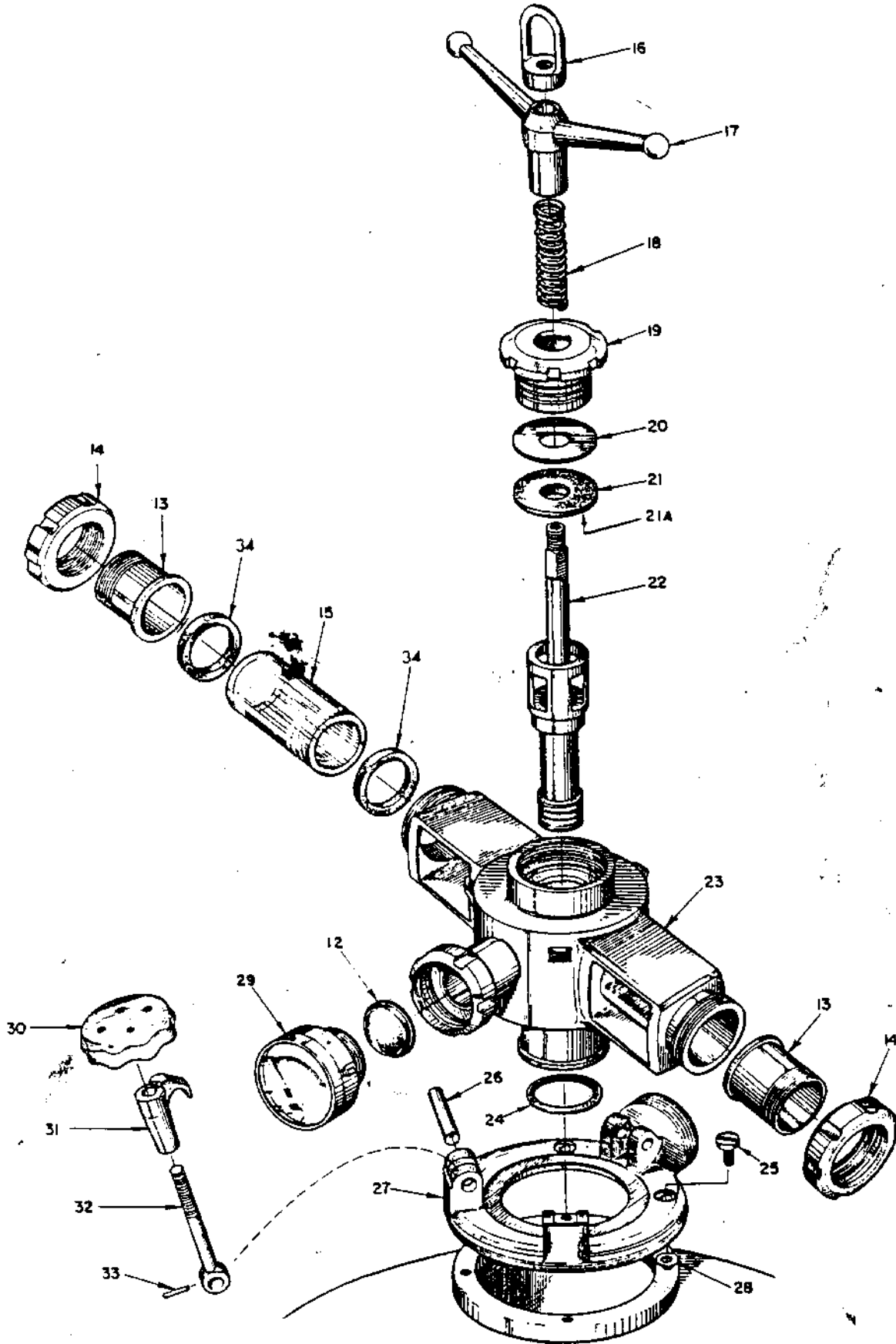


Hutchison-Hayes Separators, Inc.

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

INLET AND OUTLET DEVICE



INLET AND OUTLET DEVICE

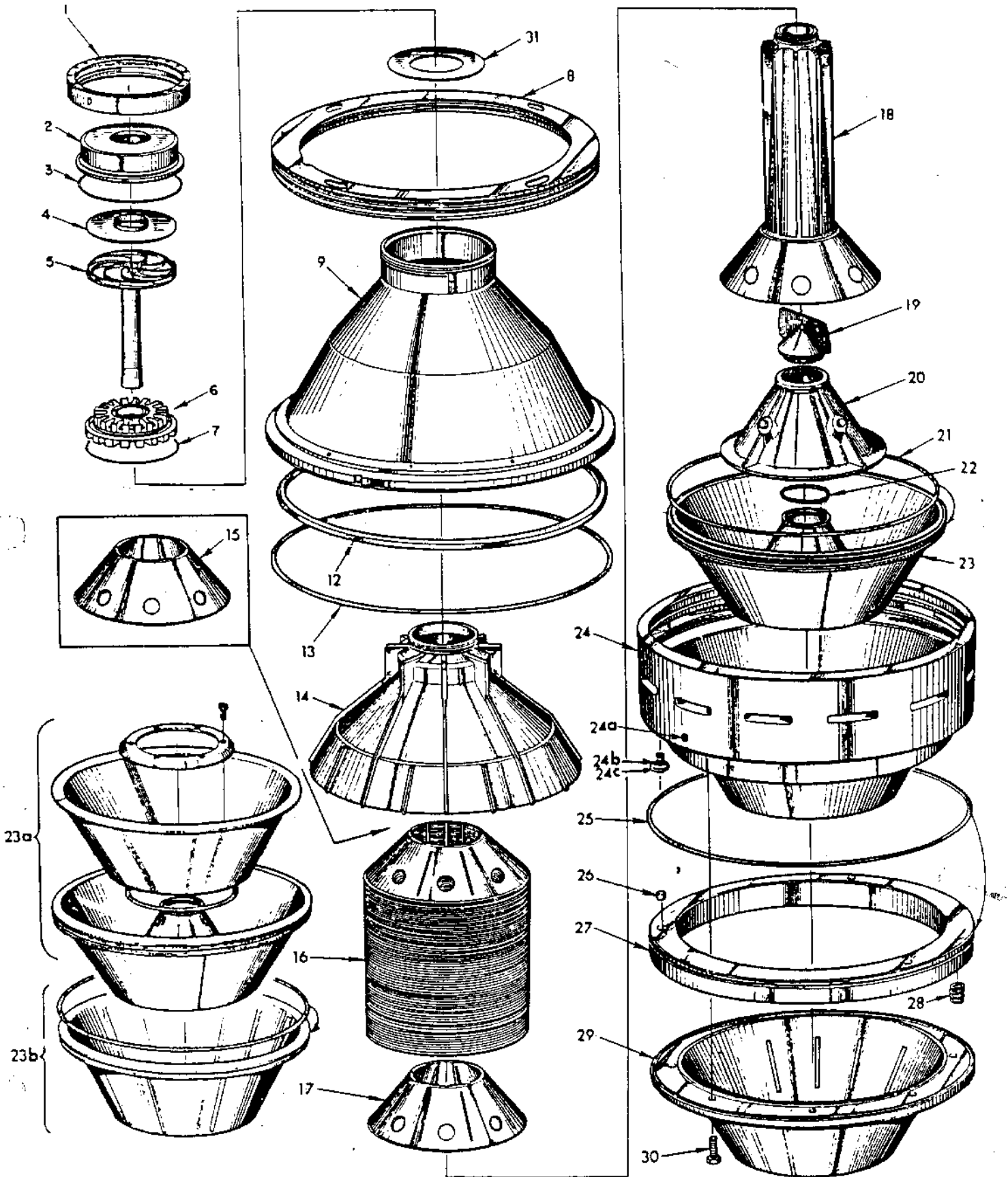
PARTS LIST

KEY NO.	PART NO.	PART NAME	QUANTITY
12	99139273	Rubber Membrane	1
13	99139484	Adapter Ferrule	2
14	99139382	Coupling Nut	2
15	99139235	Sight Glass	2
16	99139194	Lifting Eye	1
17	99139205	Handwheel	1
18	99139459	Spring	1
19	99139460	Cap Nut	1
20	99139458	Seal Washer	1
21	99139455	Seal	1
21A	99139456	Spring	1
22	8700785-01	Feed Tube	1
23	99139391	Inlet and Outlet Connect. Housing	1
24	99139272	Rubber Ring	1
25	99139094	Screw	4
26	99139124	Hinge Pin	3
27	99139238	Guide Ring	1
28	99139140	Height Adjusting Ring	(as re
29	99139239	Pressure Gauge	1
30	99139173	Handwheel	3
31	99139188	Clamping Lug	3
32	99139123	Clamping Stud	3
33	99139420	Cross Pin	3
34	99139365	Gasket	4
	99139888	Hose (Comp.)	2

SEE PAGE 102 FOR REGULATING VALVE

SEPARATOR BOWL WITH PARING DEVICE

COMPLETE OR PARTIAL DISCHARGE



SEPARATOR BOWL WITH PARING DEVICE

COMPLETE OR PARTIAL DISCHARGE

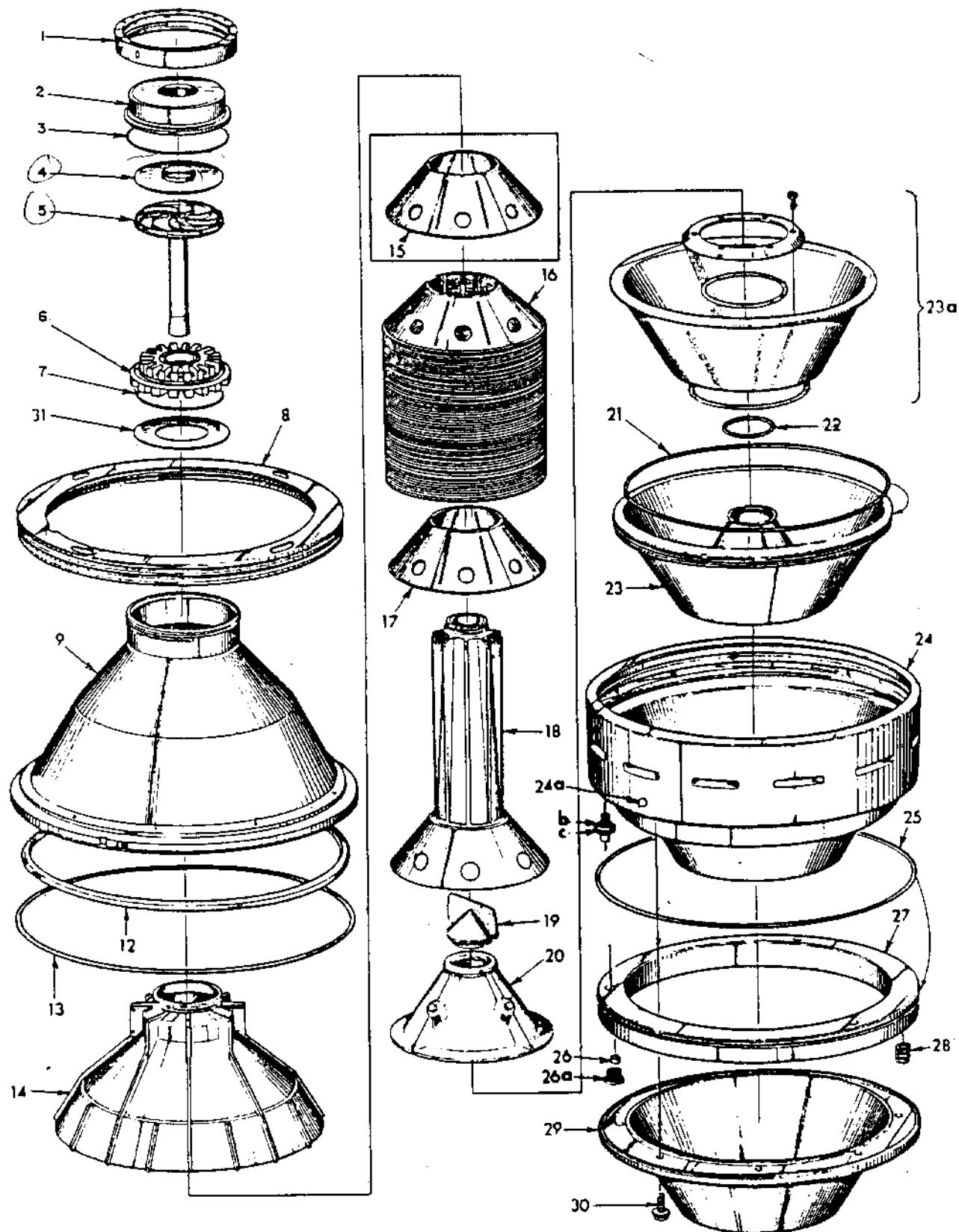
PARTS LIST

<u>REF.</u>	<u>PART NO.</u>	<u>QTY.</u>	<u>PART NAME</u>
1	99139014	1	Coupling Nut
2	99139291	1	Paring Chamber Top
3	99139144	1	Gasket
4	99139290	1	Paring Disc Top
5	99139476	1	Paring Disc Bottom
6	99139266	1	Paring Chamber Bottom
7	99139144	1	Gasket
* 8		1	Coupling Ring
* 9		1	Bowl Top
12	99139026	1	Seal Ring (Zytel #101)
13	99139275	1	Rubber Ring (Hycar)
14		1	Top Disc
15	8700449-01	(as req'd)	Fill-in Disc
16	99139206	131	Intermediate Disc (Caulk .031")
17	99139208	1	Bottom Disc (.031" caulks)
*18		1	Tubular Shaft
19	99139654	1	Spindle Cap Nut
*20		1	Tubular Shaft Cone
21	99139276	1	Rubber Ring (Hycar)
22	99139277	1	Rubber Ring (Hycar)
*23		1	Sliding Bowl Bottom
23A (optional)	99139085	6	Screw
	99139898	1	Lock Ring
	8700523-01	1	Rubber Ring (Hycar)
	99139816	1	Rubber Ring (Hycar)
	520559-01	1	Lining
23B (optional)	99139275	1	Rubber Ring
	99139538	1	Level Control Ring
*24		1	Bowl Shell
24A	99139524	1	Nozzle (3 mm)
24B	8700560-04	3	Rubber Ring
24C	8701731-01	3	Valve Seat
25	525643-02	1	Rubber Ring (Hycar)
26	99139176	3	Valve Plug
*27		1	Operating Slide
28	99139408	18	Springs
*29		1	Spring Support
30	99139039	8	Screw
31			Discharge Ring (see page 103)

***IMPORTANT** - The bowl of this separator is balanced as a complete unit. If bowl top, bowl shell, tubular shaft and the large coupling ring require repair or replacement, the entire bowl must be sent to Alfa-Laval. All other compon can normally be replaced or repaired in the field.

SEPARATOR BOWL WITH PARING DEVICE

VARIABLE DISCHARGE



SEPARATOR BOWL WITH PARING DEVICE

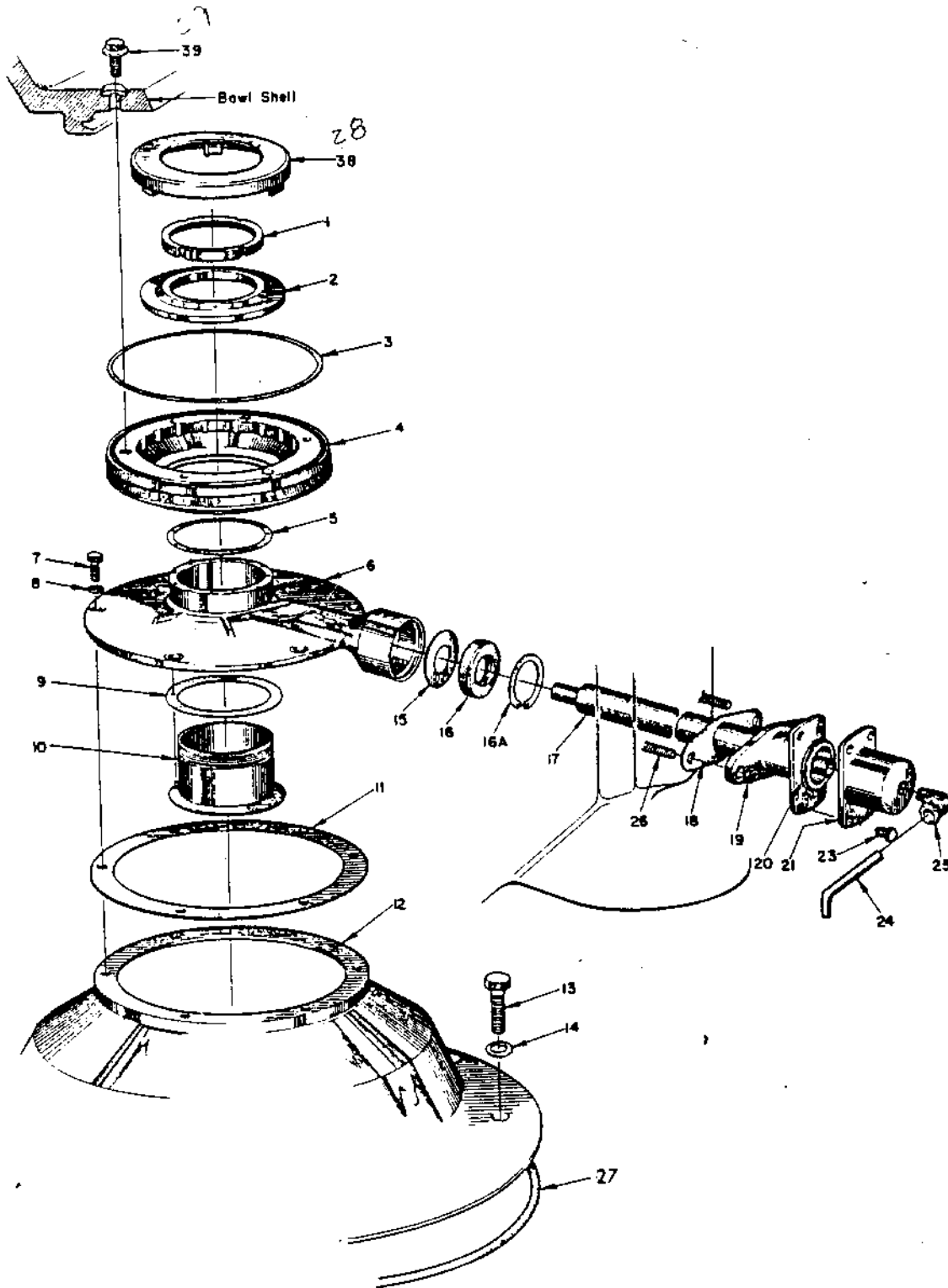
VARIABLE DISCHARGE

PARTS LIST

<u>REF.</u>	<u>PART NO.</u>	<u>QTY.</u>	<u>PART NAME</u>
1	99139014	1	Coupling Nut
2	99139291	1	Paring Chamber Top
3	99139144	1	Upper Gasket
4	99139290	1	Paring Disc-Top
5	99139476	1	Paring Disc-Bottom
6	99139266	1	Paring Chamber Bottom
7	99139144	1	Lower Gasket
* 8		1	Coupling Ring
* 9		1	Bowl Top
12	99139026	1	Seal Ring
13	99139275	1	Outer Rubber Ring (HYCAR)
*14		1	Top Disc
15	8700449-01	(as req'd)	Fill-in Disc
16	99139206	131	Intermediate Disc (.031" Caulks)
17	99139208	1	Bottom Disc (.031" Caulks)
*18		1	Tubular Shaft
19	99139654	1	Spindle Cap Nut
*20		1	Tubular Shaft Cone
21	99139276	1	Outer Rubber Ring (HYCAR)
22	99139277	1	Inner Rubber Ring (HYCAR)
*23			Sliding Bowl Bottom
23A (optional)	99139085	6	Screw
	99139898	1	Lock Ring
	8700523-01	1	Rubber Ring
	99139816	1	Rubber Ring (Hycar)
	520559-01	1	Lining
*24		1	Bowl Shell
24A	99139524	1	Nozzle (3 mm)
24B	8700560-04	3	Rubber Ring
24C	8700223-01	3	Valve Seat
25	525643-02	1	Rubber Ring (HYCAR)
26	518549-03	3	Valve Plug
26A	8700224-01	3	Valve Plug Holder
27		1	Operating Slide
28	99139408	18	Spring
*29		1	Spring Support
30	99139039	8	Screw
31			Discharge Ring (see page 103)

***IMPORTANT** - The bowl of this separator is balanced as a complete unit. If bowl top, bowl shell, tubular shaft and the large coupling ring require repair or replacement, the entire bowl must be sent to Alfa-Laval. All other components can normally be replaced or repaired in the field.

OPERATING WATER PARTS

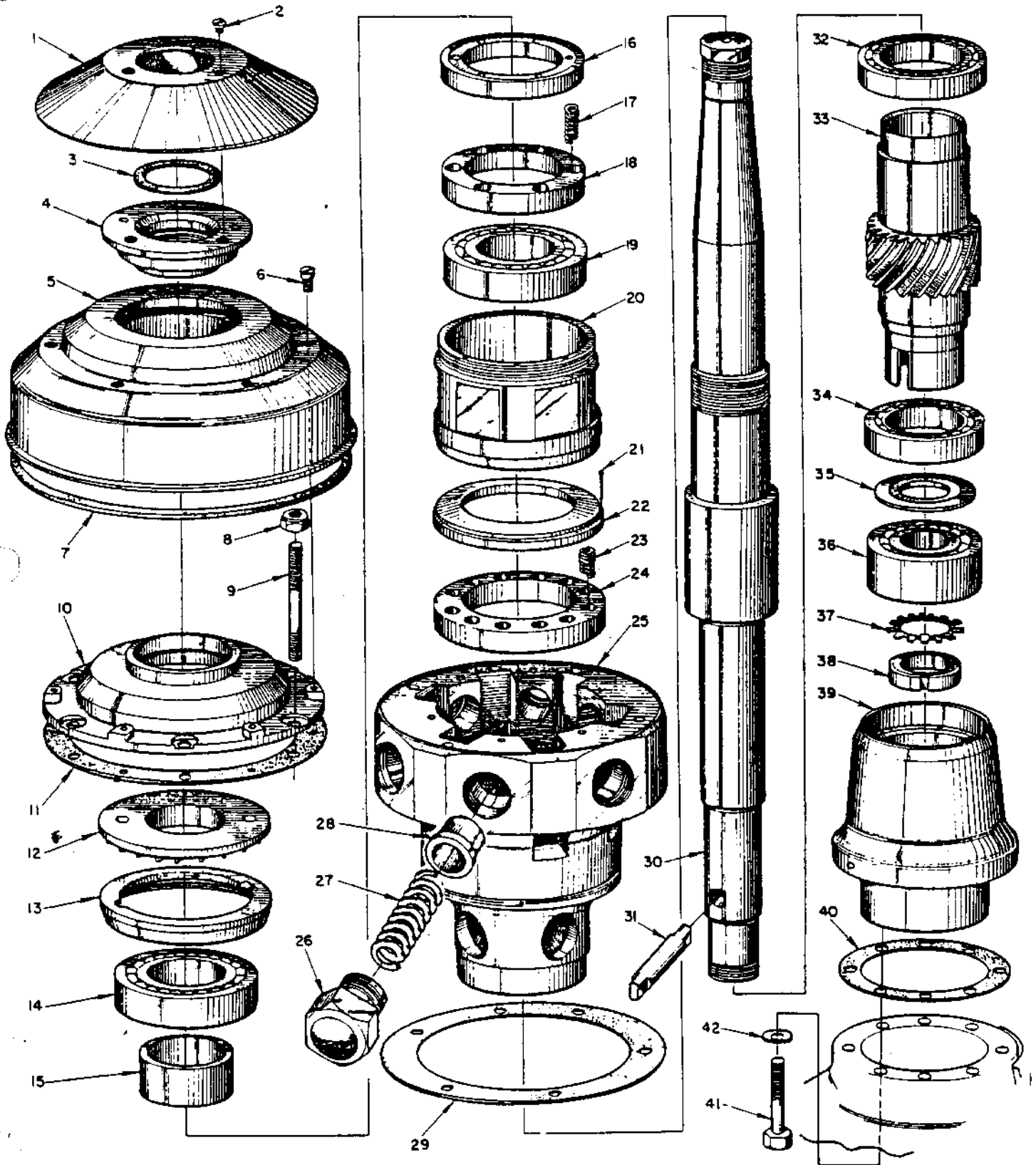


OPERATING WATER PARTS

PARTS LIST

KEY NO.	PART NO.	PART NAME	QUANTITY
1	99139137	Nut	1
2	99139466	Paring Disc	1
3	99139283	Rubber Ring (HYCAR)	1
4	99139279	Distribution Ring	1
5	99139363	Gasket	1
6	99139399	Distribution Cover	1
7	99132310	Screw	6
8	99139148	Washer	6
9	99139362	Gasket	1
10	99139202	Sleeve	1
11	99139473	Height Adjusting Ring	(as req'd.)
12	99139231	Top Bearing Cover	1
13	99139090	Screw	6
14	99139148	Washer	6
15	99139352	Guide Ring	1
16	99139274	Seal Ring	1
16A	99139354	Snap Ring	1
17	99139250	Water Inlet Connection (for shallow sludge cover)	1
	99139249	Water Inlet Connection (for deep sludge cover)	1
18	99120376	Gasket	1
19	99139108	Nut	2
20	99135333	Rubber Ring (BUTYL)	1
21	99137917	End Cap	1
23	99130037	Screw	4
24	99139536	Drain Tube	1
25	99112182	Elbow	1
26	99139095	Stud	2
27	99139271	Rubber Ring	1
28	8700282-80	Collar	1
29	99139039	Screw	3

VERTICAL DRIVE

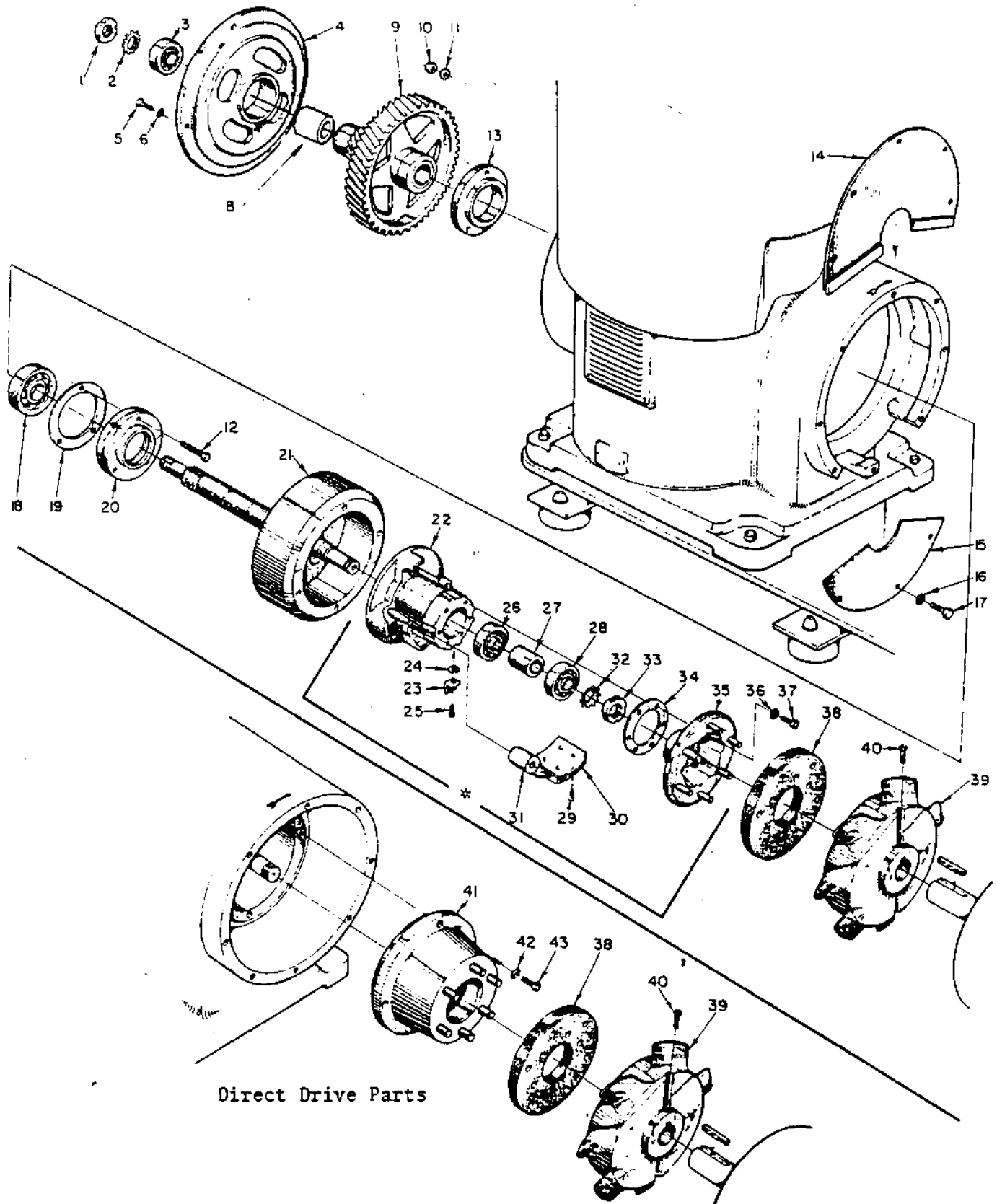


VERTICAL DRIVE

PARTS LIST

KEY NO.	PART NO.	PART NAME	QUANTITY
1	99139223	Throw-off Plate	1
√ 2	99139086	Screw	3
3	99139270	Rubber Ring (HYCAR)	1
4	99139288	Protecting Cover	1
5	8700220-80	Drip Shield (Comp.)	1
6	99139085	Screw	6
7	99138567	Rubber Ring (HYCAR)	1
8	99139109	Nut	6
9	99139101	Stud	6
10	99139444	Top Bearing Plate Cover	1
11	99136502	Gasket	1
12	99139406	Oil Fan	1
13	99139292	Lock Ring	1
14	99138507	Ball Bearing, Upper	1
15	99138425	Spacer Sleeve	1
16	99139046	Spring Holder	1
17	99138509	Spring	6
18	99139046	Spring Holder	1
19	99137326	Ball Bearing, Lower	1
20	99139293	Ball Bearing Housing	1
21	99136448	Cotter Pin	2
22	99139224	Wear Ring	1
23	99136446	Spring	12
24	99139229	Spring Support	1
25	99139281	Top Bearing Plate	1
26	99136454	Top Bearing Buffer Screw	6
27	99136453	Top Bearing Spring	6
28	99136452	Top Bearing Buffer	6
29	99136502	Gasket	1
30	99139040	Bowl Spindle	1
31	99139443	Drive Pin	1
32	99139242	Quill Ball Bearings, Upper	1
33	99139069	Worm Quill	1
34	99137328	Quill Ball Bearing, Lower	1
35	99139127	Cover Plate	1
36	99137423	Spindle Ball Bearing	1
37	99122756	Ball Bearing Lock Washer	1
38	99139417	Ball Bearing Lock Nut	1
39	99139221	Step Bearing	1
40	99139359	Gasket	1
41	99139098	Screw	8
42	99109611	Washer	8

HORIZONTAL DRIVE



Direct Drive Parts

* NOT USED WITH DIRECT DRIVE

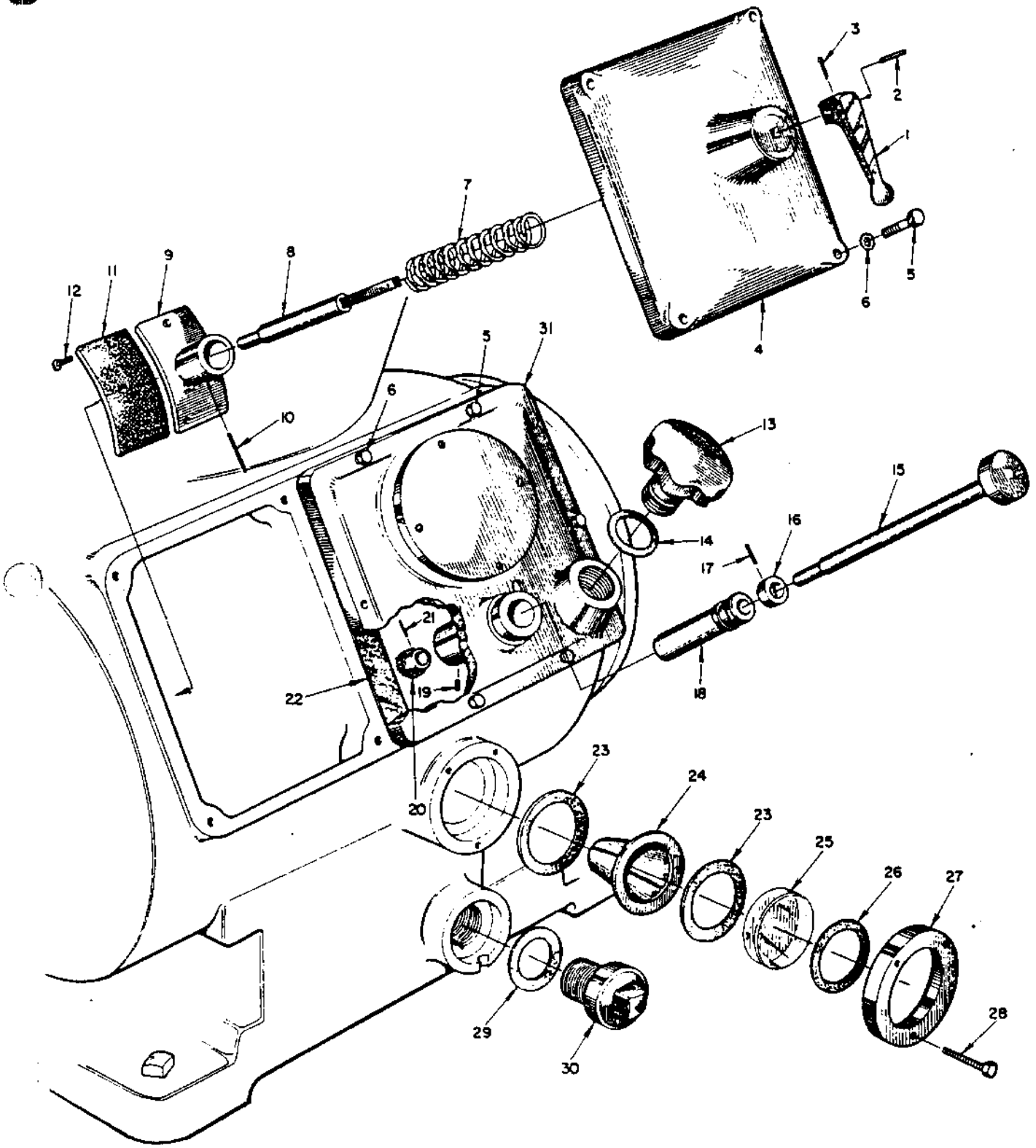
HORIZONTAL DRIVE

PARTS LIST

KEY NO.	PART NO.	PART NAME	QUANTITY
1	99139423	Lock Nut	1
2	99114602	Lock Washer	1
3	99137524	Ball Bearing Worm Wheel Shaft	1
4	99139287	End Shield	1
5	99139099	Screw	4
6	99109611	Washer	4
8	8200501-01	Sleeve	
9	8701178-01	Worm Wheel	1
10	99139107	Nut	3
11	99106478	Washer	3
12	99139091	Screw	3
13	99137287	Inner Cap	1
14	99139448	Clutch Cover Plate, Upper	1
15	99139449	Clutch Cover Plate, Lower	1
16	99109611	Washer	8
17	99139102	Screw	8
18	8701444-08	Ball Bearing	1
19	99139446	Gasket	1
20	99137283	Outer Cap	1
21	99139445	Worm Wheel Shaft and Friction Clutch Housing	1
22	99137292	Friction Clutch Hub	1
23	99137203	Friction Weight Stop	4
24	99106478	Lock Washer	4
25	99137206	Screw	4
26	8701444-07	Ball Bearing - Inner - Clutch Hub	1
27	99137210	Sleeve	1
28	8701444-06	Ball Bearing - Outer - Clutch Hub	1
29	99137231	Screw	16
30	99139410	Lining	4
31	99139380	Friction Clutch Weight	4
32	99114564	Lock Washer	1
33	99139418	Lock Nut	1
34	99137207	Gasket	1
35	99137286	Clutch End Coupling	1
36	99106478	Washer	6
37	99139092	Screw	6
38	99137215	Rubber Cushion	1
39	99139378	Motor End Coupling	1
40	99139375	Set Screw	1
41	99139593	Adapter	1
42	99106478	Washer	4
43	99139092	Screw	4

* NOT USED WITH DIRECT DRIVE

FRAME PARTS



FRAME PARTS

PARTS LIST

KEY NO.	PART NO.	PART NAME	QUANTITY
1	99138485	Brake Handle	1
2	99139122	Pin	1
3	99104528	Cotter Pin	1
4	99139392	Brake Mounting Plate	1
5	99139088	Screw	10
6	8700519-01	Washer	10
7	99137441	Brake Spring	1
* 8	99139120	Brake Stem	1
* 9	99139357	Brake Shoe	1
*10	99139419	Pin	1
*11	99139358	Lining	1
*12	99137231	Screw	3
13	99139429	Oil Filler Cap	1
14	99139146	Gasket	1
15	99139427	Speed Indicator Shaft (Comp.)	1
16	99137228	Stop Collar	1
17	99139407	Groove Pin	1
18	99139149	Sleeve	1
19	99139087	Stop Screw	1
20	99139428	Pinion	1
21	99139411	Taper Pin	1
22	99139361	Gasket	1
23	99139360	Gasket	2
24	99139280	Stabilizer	1
25	99136496	Sight Glass	1
26	99139367	Gasket	1
27	99139394	Retaining Ring	1
28	99139083	Screw	3
29	99130253	Gasket	1
30	99139426	Plug	1
31	99139393	Plate	1

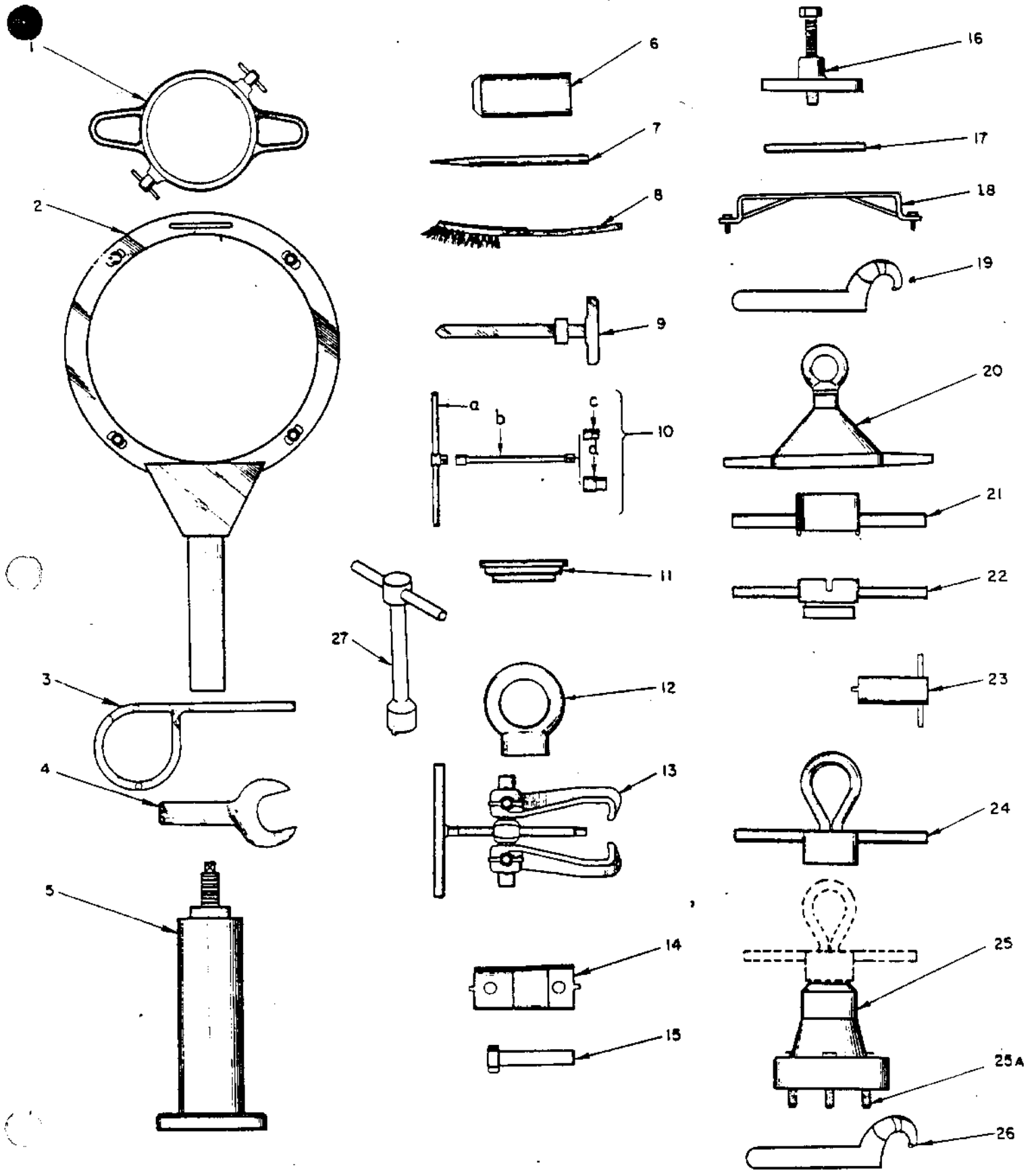
LUBRICATING OIL

Use only Alfa-Laval Centrifuge Gear Oil
as specified for the following H.P.:

15 H.P. and Over (Orange Label)
5 gal. can - Part No. 8701027-80

* Included in Brake Shoe (complete), Part No. 99139356

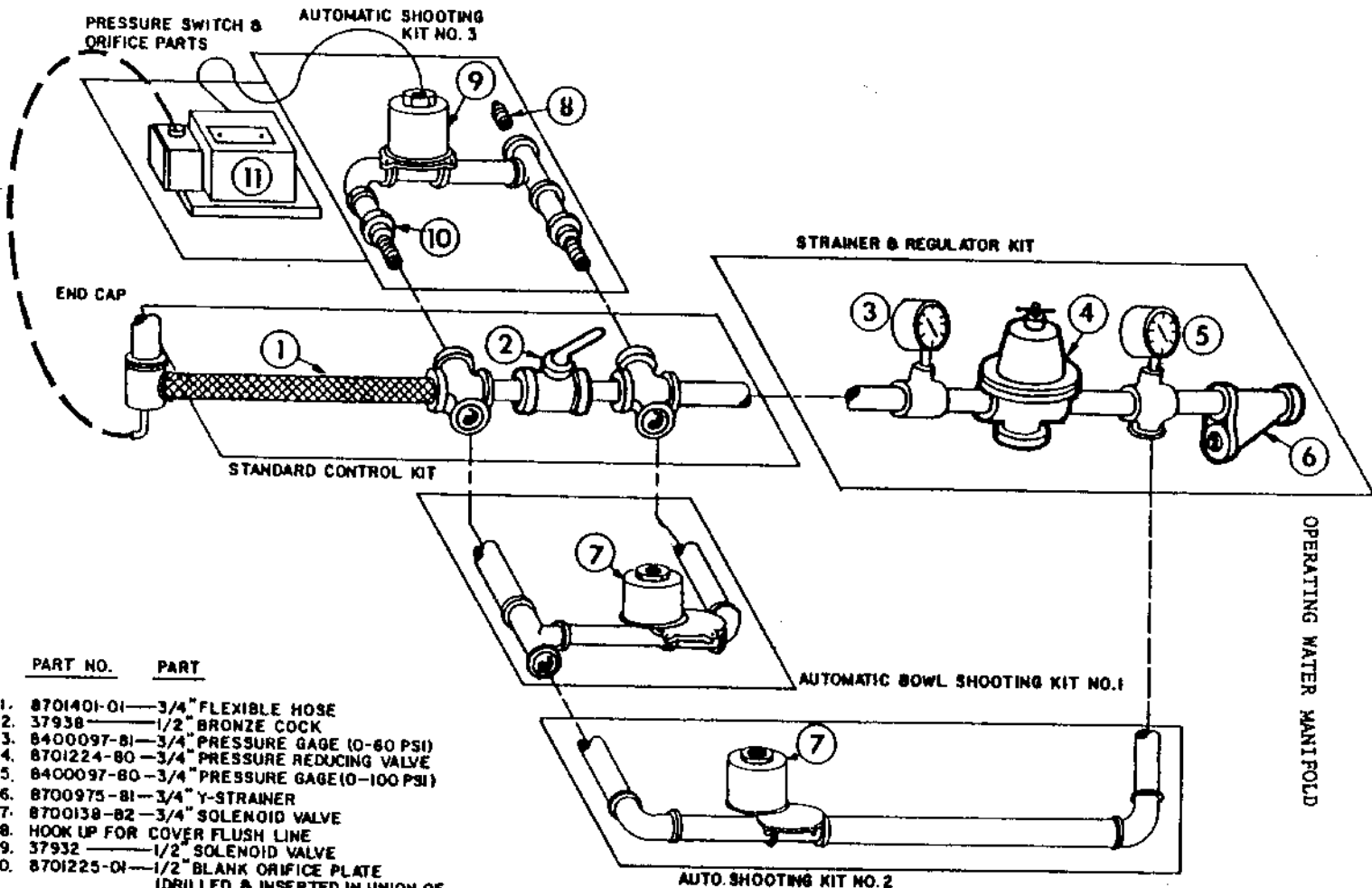
TOOLS



TOOLS

PARTS LIST

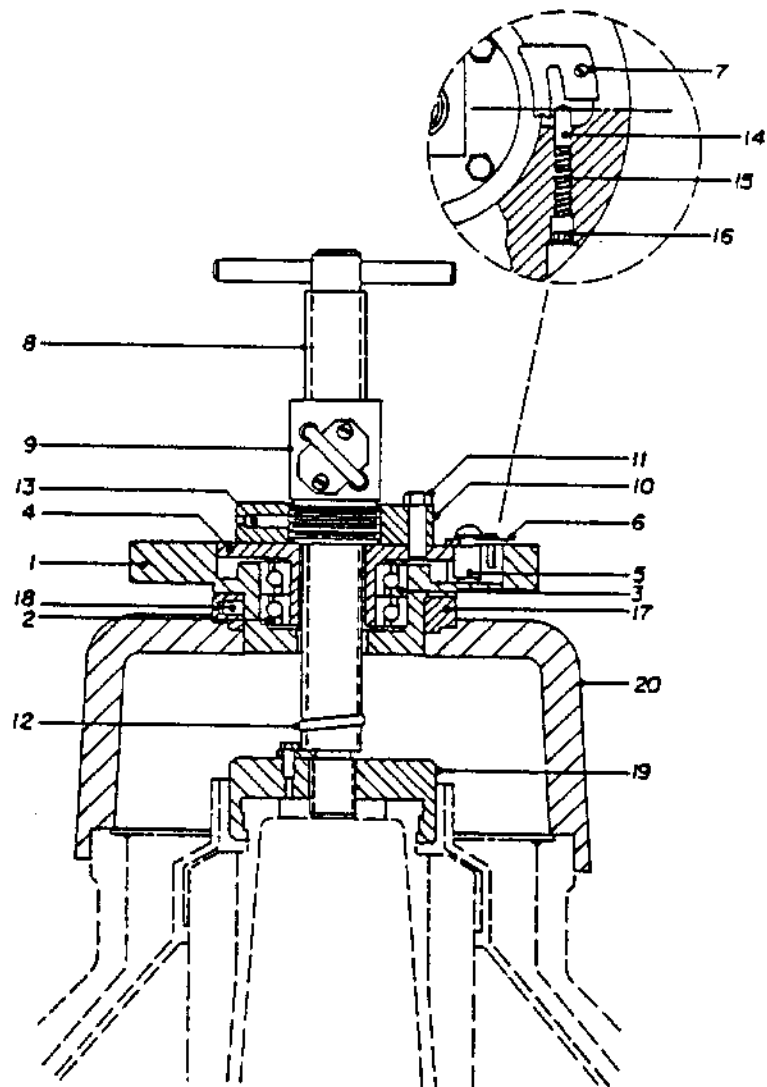
KEY NO.	PART NO.	PART NAME
1	99139526	Bowl Top Coupling Nut Wrench
2	99139403	Coupling Ring Wrench
3	99138433	Ball Bearing Lock Ring, Oil Fan and Protecting Cover Wrench
4	99138548	Top Bearing Buffer Wrench
5	99139495	Top Ball Bearing Extractor
6	99137469	Clutch Ball Bearing Mounting Tool (Clutch driven only)
7	99138543	Punch
8	8300636-01	Bowl Brush
9	99139519	Operating Paring Disc Height Adjustment Templet
10a	99139500	Socket Handle
10b	99139501	Socket Extension
10c	99139486	Socket, 15 mm (19/32")
10d	99139487	Socket, 21 mm (13/16")
11	99139532	Clamp Plate - Pull Worm Quill Ball Bearing
12	99139515	Bowl Spindle Lifter
13	8700477-80	Ball Bearing Extractor
14	99138544	Worm Wheel and Clutch Ball Bearing Lock Nut Wrench
15	99139533	Worm Wheel Shaft Ball Bearing Jack Screw
16	99139055	Friction Clutch Hub Extractor
17	99139537	Bowl Top Seal Ring Drive Out Pin
18	8701155-80	Level Control Ring Lifter
19	99139541	Inlet and Outlet Connection Adjustment Hook Spanner
20	99139918	Bowl Top Lifter
21	99139517	Sliding Bowl Bottom Lifter
22	99139657	Tubular Shaft Cone Lifter and Spindle Cap Nut Wrench
23	99139424	Wrench for Inner Nut of Regulating Valve
24	99139507	Tubular Shaft Lifter
25	99139498	Bowl Shell Lifter
25A	99139514	Screw
26	99139483	Ball Bearing Lock Nut Hook Spanner
27	8700226-80	Wrench (Variable discharge only)



PART NO. PART

- 1. 8701401-01—3/4" FLEXIBLE HOSE
- 2. 37938—1/2" BRONZE COCK
- 3. 8400097-81—3/4" PRESSURE GAGE (0-60 PSI)
- 4. 8701224-80—3/4" PRESSURE REDUCING VALVE
- 5. 8400097-80—3/4" PRESSURE GAGE (0-100 PSI)
- 6. 8700975-81—3/4" Y-STRAINER
- 7. 8700138-82—3/4" SOLENOID VALVE
- 8. HOOK UP FOR COVER FLUSH LINE
- 9. 37932—1/2" SOLENOID VALVE
- 10. 8701225-01—1/2" BLANK ORIFICE PLATE
(DRILLED & INSERTED IN UNION OF
KIT NO.3 WHEN REQUIRED)
- 11. 8050381-80—PRESSURE SWITCH

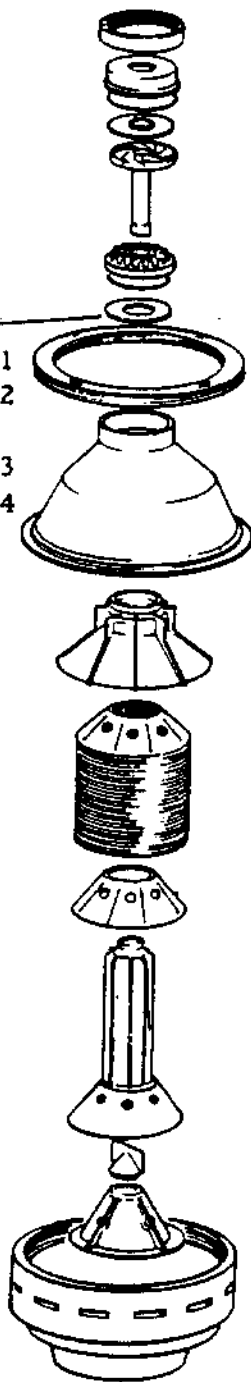
OPERATING WATER MANIFOLD



<u>ITEM</u>	<u>QTY</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	1	8707202-01	Bearing Housing
2	1	8701444-10	Ball Bearing
3	1	8701444-10	Ball Bearing
4	1	8707204-01	Hub
5	1	536791-01	Roller
6	1	8707203-01	Lock Washer
7	2	8700562-07	Machine Screw
8	1	8703364-80	Power Screw
9	1	8703365-80	Power Nut
10	1	8703366-01	Mounting Flange
11	4	99131011	Screw
12	1	8703447-01	Hose Clamp
13	1	8700564-09	Set Screw
14	1	64416	Cylindrical Pin
15	1	226211-02	Spring
16	1	221581-12	Set Screw
17	1	8703380-01	Insert
18	1	52212	Set Screw
19	1	8703377-80	Tubular Shaft Adapter-
20	1	8703379-01	Bowl Top Adapter
		8707596-80	Disc Stack Compressor Complete (Items 1-20)
		8707586-80	Disc Stack Compressor (Items 1-16)

Discharge Ring

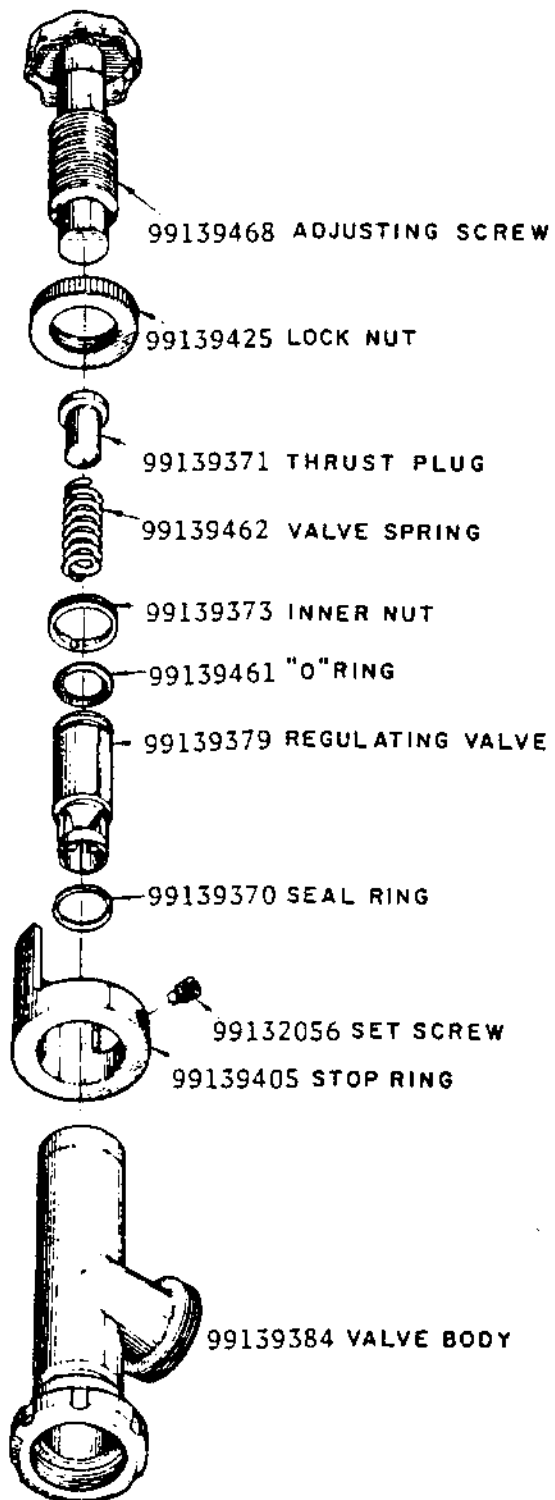
- 103. dia. 99139028
- 140. dia. 8701102-01
- 145. dia. 8701102-02
- 150. dia. 99139036
- 155. dia. 8701102-03
- 160. dia. 8701002-04



REGULATING VALVES

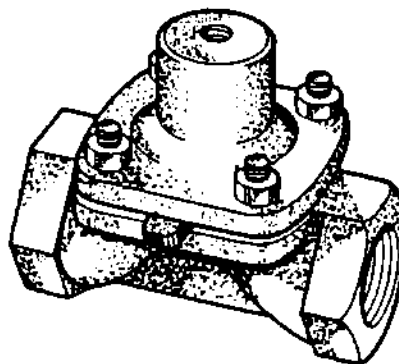
SUPPLIED WHEN SO ORDERED

MANUAL



99139469 VALVE COMPLETE

AUTOMATIC



AIR OPERATED DIAPHRAGM VALVE
WITH BUTYL DIAPHRAGM

PART NO.

8702052-80	1" N.P.T.
8702052-81	1½" N.P.T.
8702052-82	2" N.P.T.
8702052-83	1½" N.P.T. WITH CLAMP TYPE FITTING
8702052-84	2" WITH CLAMP TYPE FITTINGS

Recommended Spare Parts List

<u>Part No.</u>	<u>Part Name</u>	<u>Qty.</u>	<u>Page No.</u>
99137311	Rubber Ring	1	81
99139268	Rubber Ring	1	81
99139267	Rubber Ring	1	81
99137216	Gasket	1	81
99139147	Gasket	1	81
99139111	Upper Base Cushion	6	81
99139116	Lower Base Cushion	6	81
99139112	Lower Base Cushion	6	81
99139275	Rubber Ring	1	83
99139138	Gasket	1	83
99139273	Rubber Membrane	1	85
99139455	Seal	1	85
99139272	Rubber Ring	1	85
99139239	Pressure Gauge	1	85
99139365	Gasket	4	85
99139144	Rubber Ring	1	87
99139278	Rubber Ring	1	87
8700523-01	Rubber Ring	1	87
99139816	Rubber Ring	1	87
99139275	Rubber Ring	1	87
99139026	Seal Ring	1	87
99139275	Rubber Ring	1	87
99139206	Intermediate Disc	1	87
99139276	Rubber Ring	1	87
99139277	Rubber Ring	1	87
8700560-04	Rubber Ring	3	87
525643-02	Rubber Ring	1	87
99139176	Valve Plug	3	87
99139408	Springs	18	87
99139144	Rubber Ring	1	89
99139278	Rubber Ring	1	89
99139026	Seal Ring	1	89
99139275	Outer Rubber Ring	1	89
99139206	Intermediate Disc	1	89
8700523-01	Rubber Ring	1	89
99139816	Rubber Ring	1	89
99139276	Outer Rubber Ring	1	89
99132977	Inner Rubber Ring	1	89
8700560-04	Rubber Ring	3	89
525643-02	Rubber Ring	1	89
99139408	Spring	18	89
8700225-01	Valve Plug	3	89
99139283	Rubber Ring	1	91
99139363	Gasket	1	91
99139362	Gasket	1	91
99139274	Seal Ring	1	91
99120376	Gasket	1	91

99135333	Rubber Ring	1	91
99139271	Rubber Ring	1	91
99139270	Ru-ber Ring	1	93
99138567	Rubber Ring	1	93
99136502	Gasket	1	93
99138507	Ball Bearing, Upper	1	93
99137326	Ball Bearing, Lower	1	93
99136502	Gasket	1	93
99139242	Quill-Ball Bearings, Upper	1	93
99137328	Quill-Ball Bearings, Lower	1	93
99139359	Gasket	1	93
99137524	Ball Bearing	1	95
8701444-08	Ball Bearing	1	95
99139446	Gasket	1	95
8701444-07	Clutch Hub Ball Brg., Inner	1	95
8701444-06	Clutch Hub Ball Brg., Outer	1	95
99139410	Lining	4	95
99137207	Gasket	1	95
99137215	Rubber Cushion	1	95
99139358	Lining	1	97
99139146	Gasket	1	97
99139361	Gasket	1	97
99139360	Gasket	2	97
99139367	Gasket	1	97
99130253	Gasket	1	97