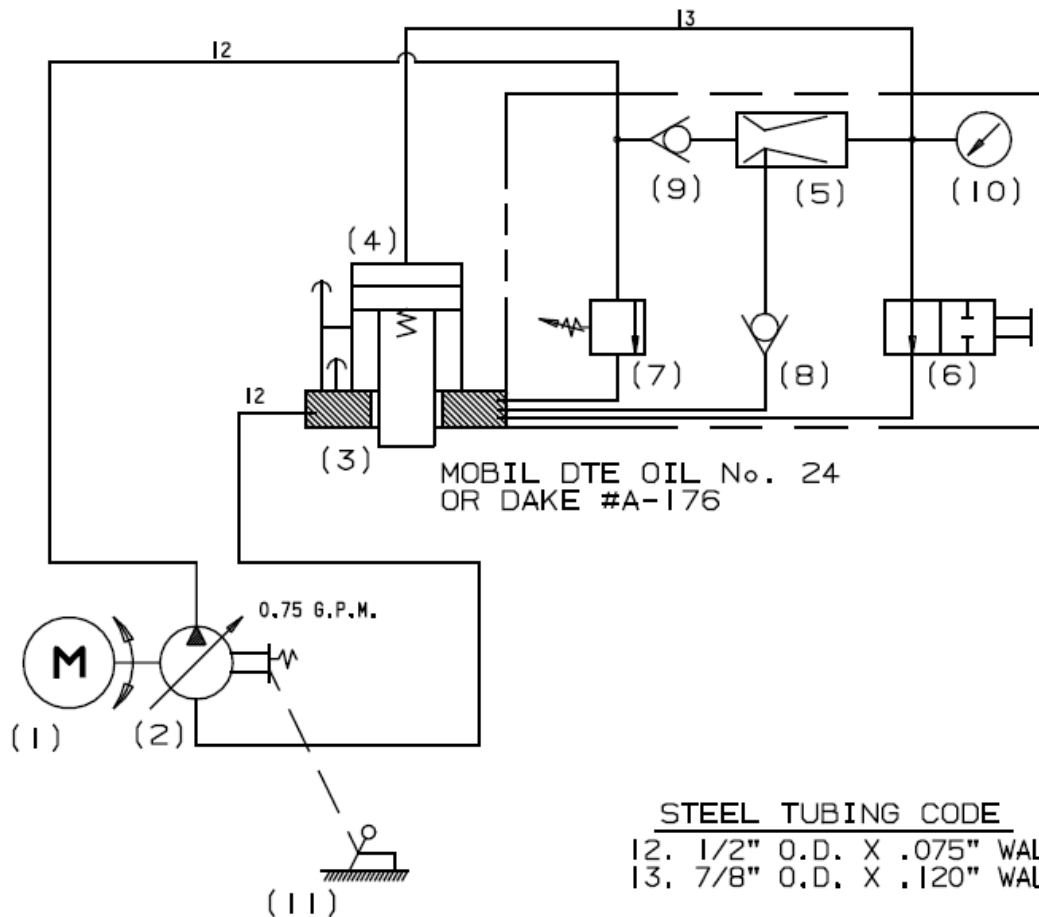


HYDRAULIC DIAGRAM



Drawing #9351036

1	Motor	2 H.P.
2	Pump	950101
3	Reservoir Assembly	716869P
4	Workhead 220V	905076-2
	Workhead 440V	905076-4
5	Eductor Assembly	
	Nozzle	1287
	Eductor Body	2241
6	Release Valve Assem.	
	Ball Valve	1936
	Release Valve Rod	2257
7	Relief Valve Assem.	
	Valve Seat	891
	Ball Valve	918
	Spring	893
	Adjusting Screw	2237

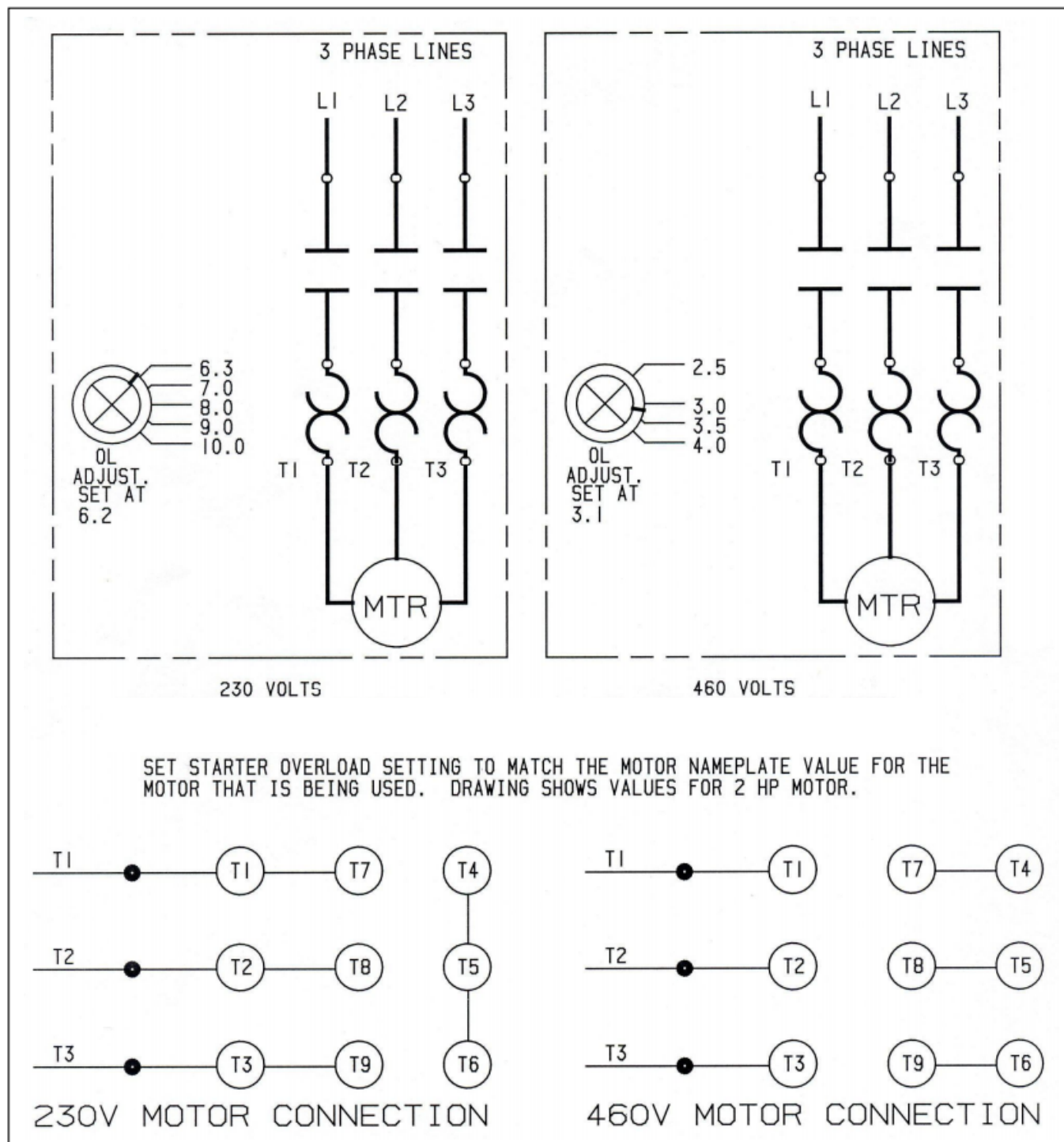
8	Intake Check Valve Assem.	
	Ball Valve	586
	Valve Retainer	1953
9	Check Valve Assem	
	Ball Valve	586
	Spring	579
	Seat	1300
10	Gauge	71272
11	Control Rod Assem.	
	Control Handle	27433
	Control Rod	27621

Sequence of Operation:

1. Press Idle – Dake Elec-draulic presses are operated through lever (11) after turning the electric motor switch to “ON”. This lever operated through its range provides ram speeds from zero to the maximum rated pressing speed of the press. This is done entirely within the pump (2) and does not require a variable speed electric motor.
2. Advance – When release valve (6) is closed, the fluid flows through the manifold and check valve (9) to the eductor (5). As the oil passes through the restricted orifice of the eductor (5). It “picks up” oil through the check valve (8), giving rapid advance.
3. Pressing – When the ram meets resistance, check valve (8) closes and maximum pressure can be built.
4. Return – When pressing is completed and lever (11) is returned to zero speed, check valve (9) closes and holds the hydraulic fluid above the ram until it is released back to the reservoir (3) by opening the release valve (6). The ram spring then returns the ram to its up position. In doing this the ram exerts a pressure on the oil and returns it to the reservoir through the open release valve (6).

The relief valve (7) will automatically by-pass the oil back to the reservoir (3) when the oil pressure exceeds system pressure. Check valve (9) holds pressure in the cylinder (4) when relief valve (7) is open. The relief valve (7) is made so the pressure can be reduced to 1/2 its normal operating pressure. By-pass hole in cylinder wall limits travel of ram and protects press from breakage.

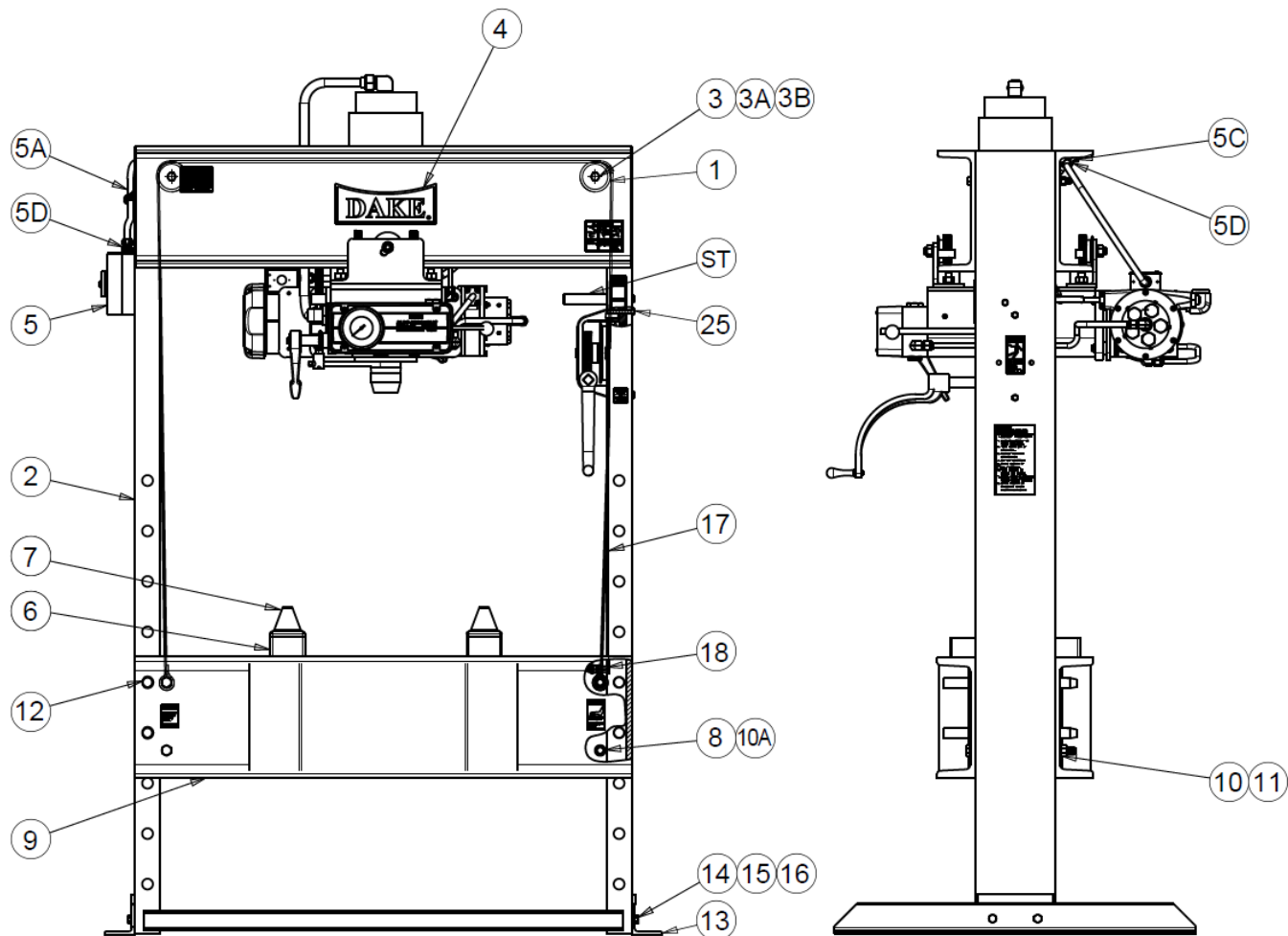
ELECTRICAL DIAGRAMS



Drawing # 33720S1

EXPLODED VIEWS & PARTS LISTS

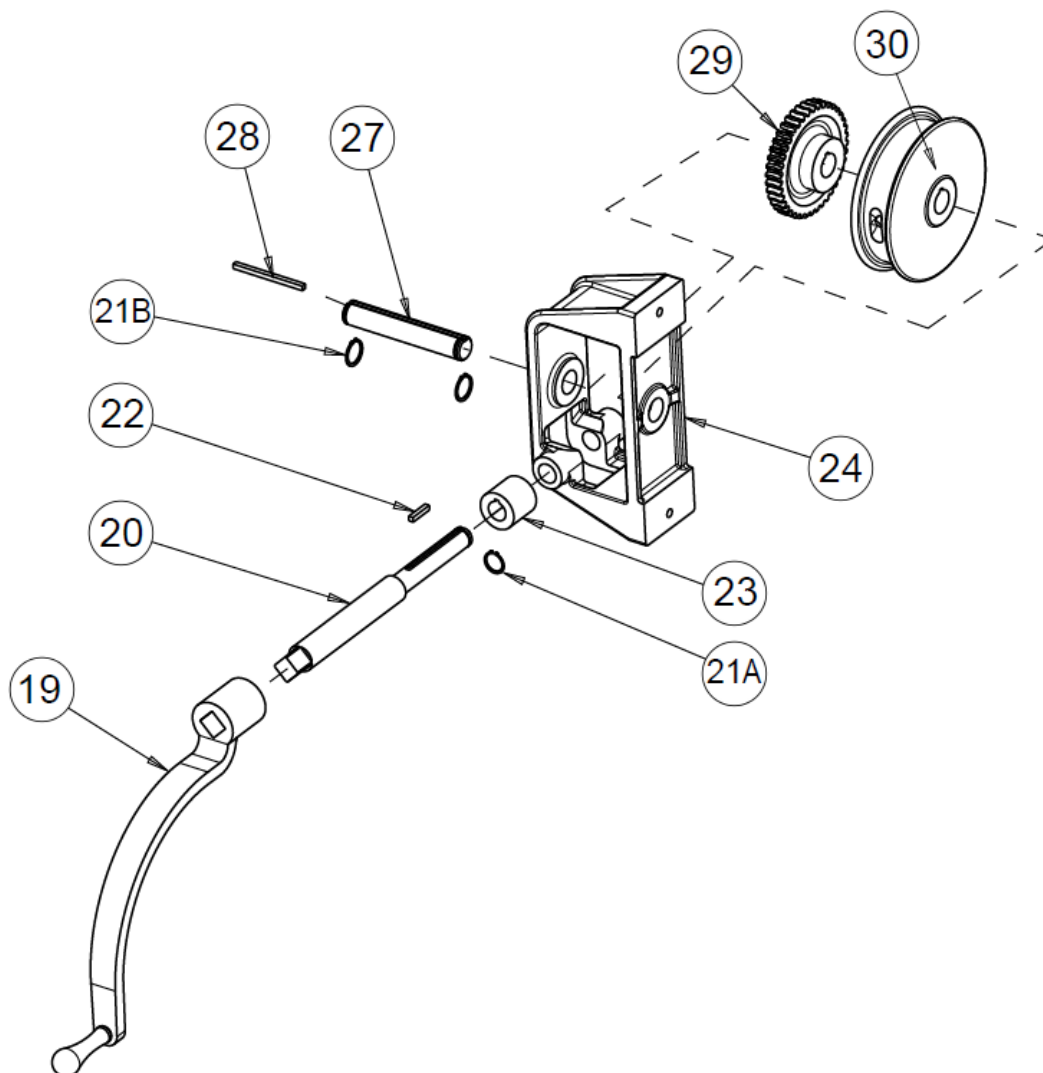
FRAME ASSEMBLY



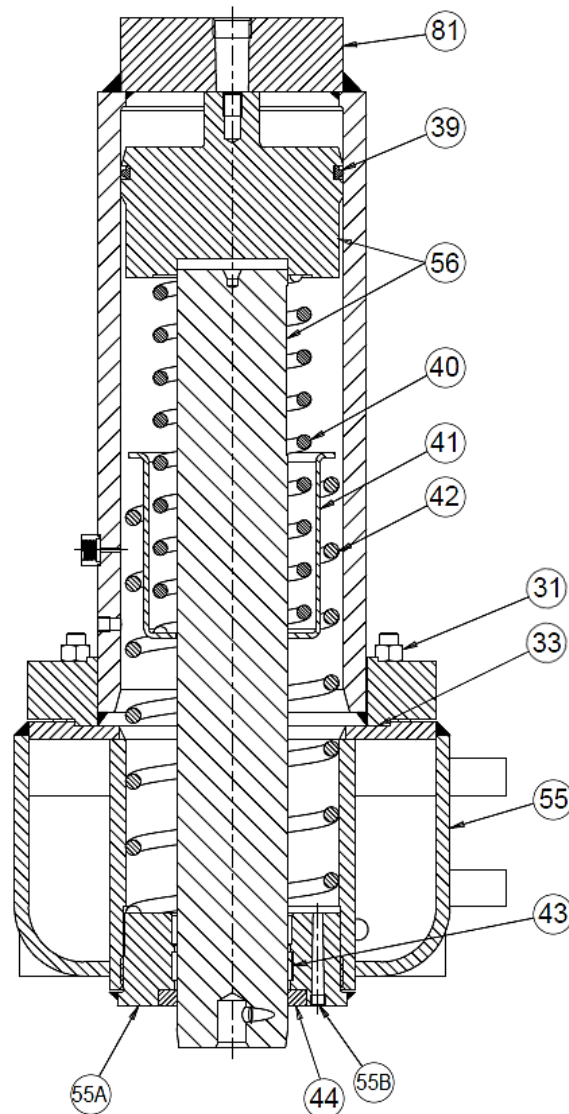
<u>Item</u>	<u>Part Name</u>	<u>Part No.</u>	<u>Qty</u>
1	Pulley	727	2
2	Frame	701152	1
3	Hex Cap Screw (3/8"-16 x 8-1/2")	43361	2
3A	Lock Washer (3/8")	75151	2
3B	Hex Nut (3/8"-16)	303387	2
4	Name Plate	81003	1
5	Starter Enclosure 220V (Used with 302187 or 302189)	302062	1
5	Starter Enclosure 440V (Used with 304090)	303979	1
5*	Starter/Motor Protection 6.3-10Amp 220V	302187	1
5*	Starter/Motor Protection 2.5-4.0Amp 440V	304090	1
5A	Connector with Cord	75151	1
5B	Clamp	303387	3
5C	Screw Clamp	43867	3

5D	Connector (3/8")	41200-01	2
6	Table Plate	702A	2
7	V-Block	336	2
8	Table Spacer	86488	4
9	Table Channel	2243	2
10	Lock Washer (5/8")	43648	4
10A	Bolt (5/8"-11 x 9-1/2")	79983	4
11	Hex Nut (5/8"-11)	43917	4
12	Table Pin	2256	4
12A	Retaining Ring	43982	4
13	Base Angle	566	2
14	Hex Head Bolt (1/2"-13 x 1-1/2")	43349	4
15	Lock Washer (1/2")	43647	6
16	Hex Nut (1/2"-13)	43916	4
17	Cable	45953	1
18	Cable Clamp	991	4
25	Hex Cap Screw (3/8"-16 x 2-1/2")	43335	2
ST	Workhead Travel Stop	62536	1

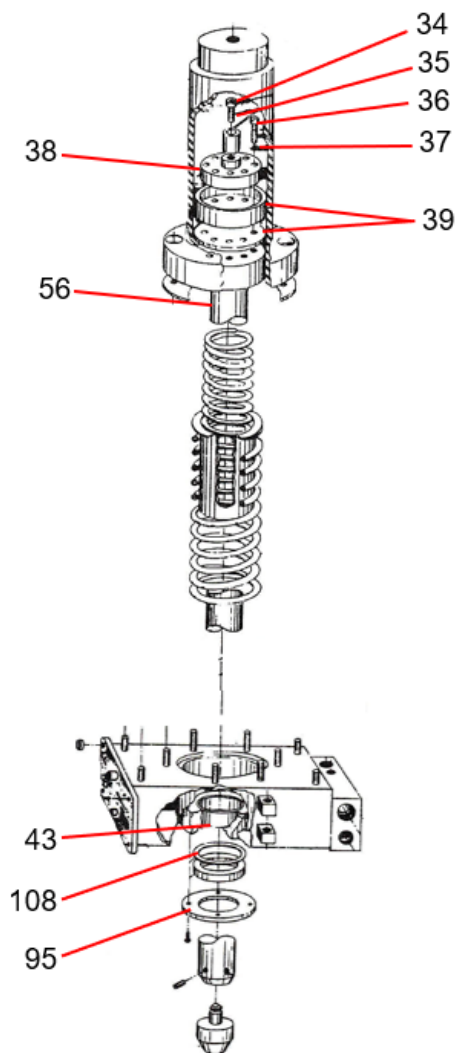
TABLE HOIST ASSEMBLY



<u>Item No.</u>	<u>Part Name</u>	<u>Part No.</u>	<u>Qty</u>
19	Crank Assembly	701653	1
20	Worm Shaft	7530	1
21A	Retaining Ring	43992	1
21B	Retaining Ring	27437	2
22	Key	47364	1
23	Worm	385	1
24	Hoist Frame	725	1
27	Drum Shaft	724	1
28	Drum Key	737	1
29	Worm Gear	736	1
30	Cable Drum	723	1
-	Table Hoist Assembly	701677-S	1



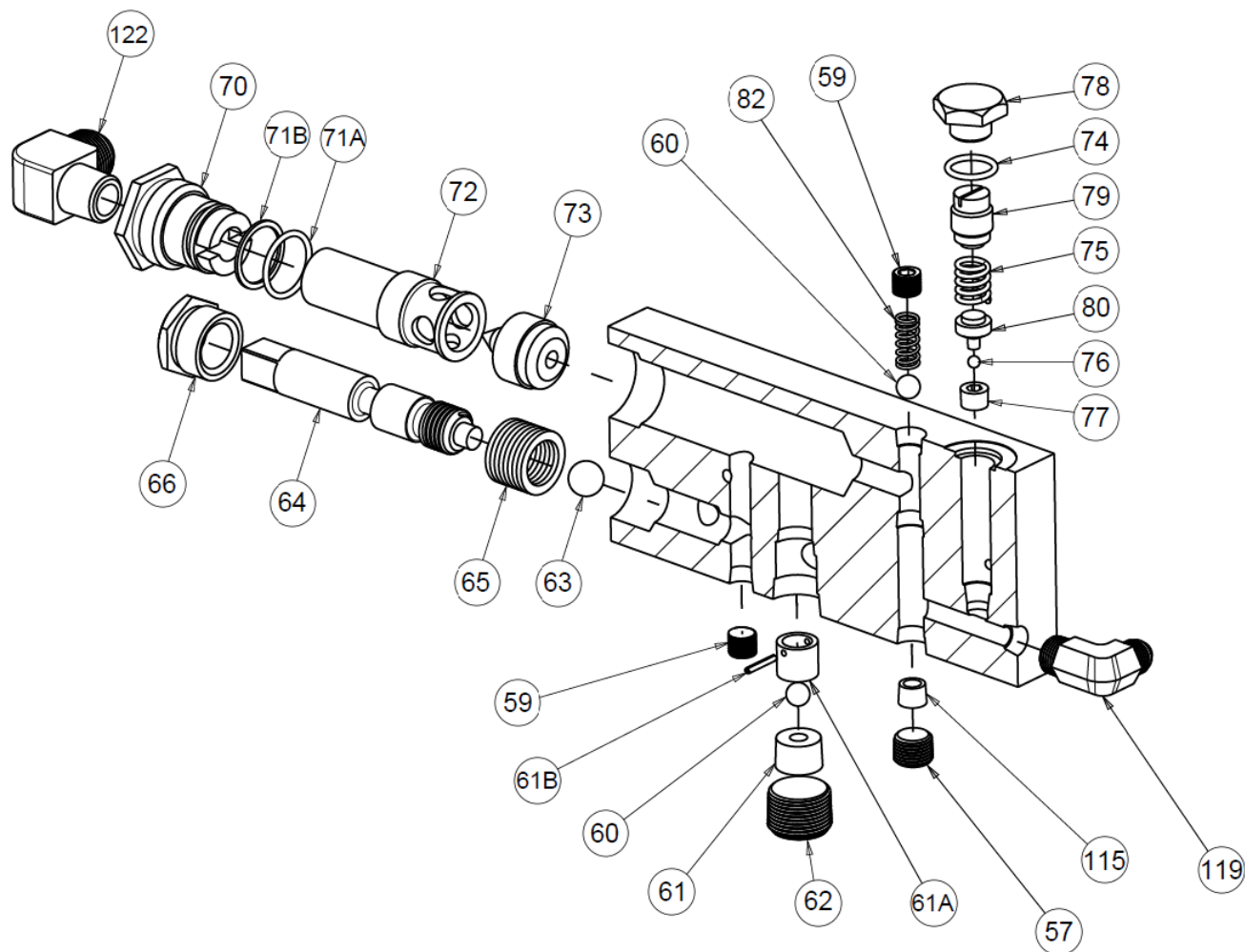
<u>Item No.</u>	<u>Part Name</u>	<u>Part No.</u>	<u>Qty</u>
31	Hex Nut (1/2" - 13)	43916	4
33	Cylinder Gasket	9777	1
39	T-Ring - Serial No. > 192523	17942	1
40	Ram Spring (Small)	2231	1
41	Spring Spacer	2233	1
42	Ram Spring (Large)	2232	1
43	Wear Ring	76807	1
44	Oil Seal	6021	1
55	Reservoir Assembly	716869P	1
55A	Piston Guide	87112	1
55B	Pipe Plug (1/8" NPTF)	589	1
56	Piston Assembly - Serial No. > 192523	716227	1
81	Cylinder	2213	1
-	Cylinder Repair Kit (Includes items: 33, 39, 44, 60, 63, 65, 71A, 71B, 74, 76 & 108)	706555	-



* For presses with serial numbers lower than 192522 or made before 1992 refer to the exploded view and parts list on this page for accurate part information. All other parts that are not listed below are the same for all the 75-ton Elec-draulic l's and can be found in this manual. *

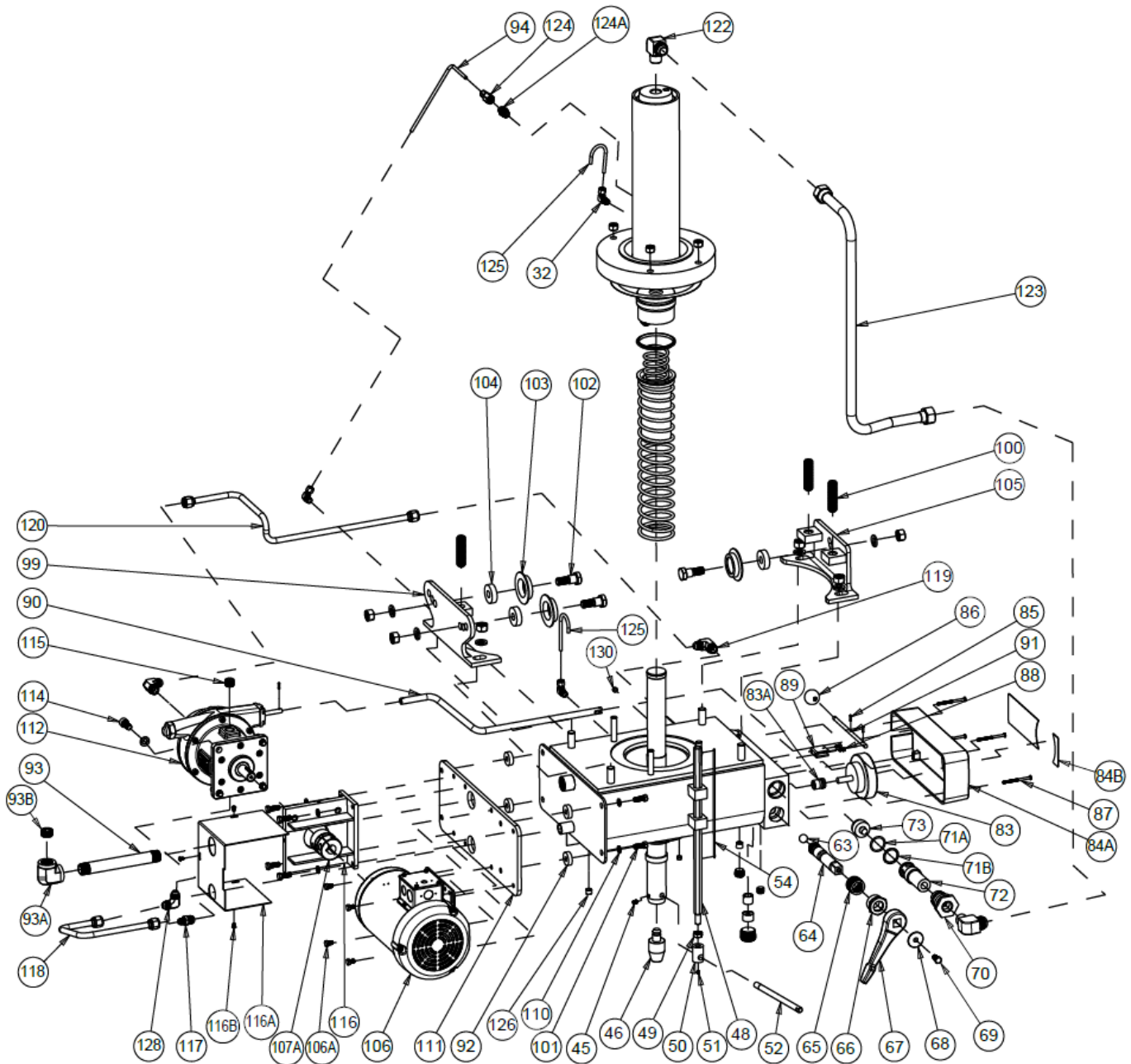
<u>Item No.</u>	<u>Part Name</u>	<u>Part No.</u>	<u>Qty</u>
34	Socket Cap Screw (1/2"-13 x 1-1/2")	43471	8
35	Piston Bumper	2221	1
36	Hex Head Screw (3/8"-16 x 1-3/4")	43332	8
37	Lock washer (3/8")	43645	8
38	Supporting Ring	2222	1
39	Leather Cup	706	1
43	Piston Bushing	2229	1
56	Piston Assembly	701403	1
95	Retaining Plate	6514	1
108	Gasket	6518	1
-	Cylinder Repair Kit (Includes items: 33, 39, 44, 60, 63, 65, 71A, 71B, 74, 76 & 108)	706555	-

EDUCTOR BLOCK ASSEMBLY



<u>Item No.</u>	<u>Part Name</u>	<u>Part No.</u>	<u>Qty</u>
57	Check Valve Seat	1300	1
59	Pipe Plug (3/8")	588	2
60	Ball Valve (Ø 1/2")	586	2
61	Relief Valve Seat	1301	1
61A	Valve Guide	10752	1
61B	Roll Pin	44333	1
62	Socket Head Pipe Plug (1" NPTF)	44282	1
63	Ball Valve (Ø 3/4")	1936	1
64	Release Valve Rod	2257	1
65	Valve Rod Packing	1937	1
66	Packing Nut	1931	1
70	Eductor Bushing	1288	1
71A	O-Ring (1-1/2" OD x 1-1/4" ID x 1/8")	916	1
71B	Back-Up Washer	11223	1
72	Eductor Body	2241	1

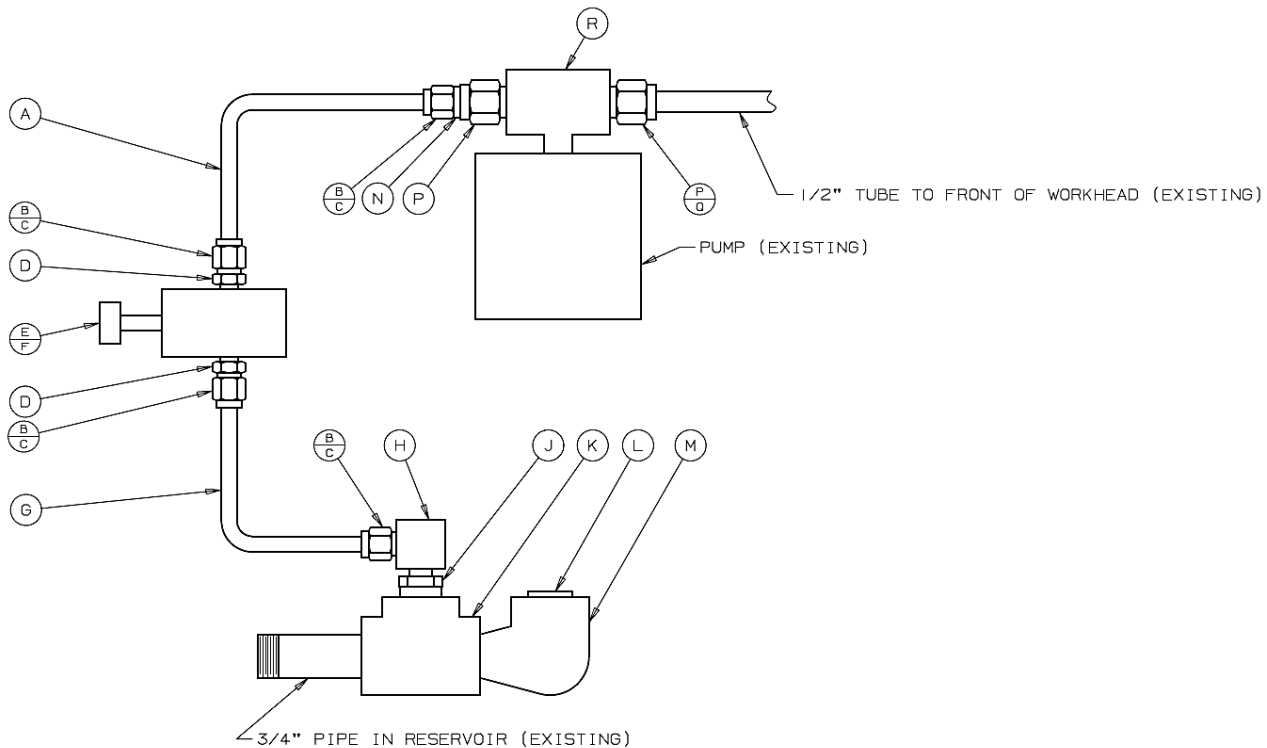
73	Eductor Nozzle	1287	1
74	O-Ring (1-1/8" OD x 7/8" ID x 1/8")	3965	1
75	Relief Valve Spring	893	1
76	Ball Valve (Ø 1/4")	918	1
77	Relief Valve Seat	897	1
78	Valve Cap Nut	2236	1
79	Relief Valve Adjusting Screw	2237	1
80	Ball Retainer	892	1
82	Check Valve Spring	579	1
115	Pipe Plug (1/2" NPTF)	596	1
119	Tube Elbow (1/2" x 3/8" NPTF)	1252	1
122	Tube Elbow (7/8" x 3/4" NPTF)	1944	1
-	Cylinder Repair Kit (Includes items: 33, 39, 44, 60, 63, 65, 71A, 71B, 74, 76 & 108)	706555	-



<u>Item No.</u>	<u>Part Name</u>	<u>Part No.</u>	<u>Qty</u>
32	Tube Fitting – Compression Elbow (1/4" x 1/8" NPTF)	19576	1
45	Set Screw (5/16")	43575	1
46	Nose Piece	701708	1
48	Stroke Indicator Rod	2260	1
49	Hex Jam Nut (1/2"-13)	43940	1
50	Stroke Indicator Rod Nut	2259	1
51	Socket Set Screw (1/4"-20 x 1/4")	43558	1

52	Stroke Indicator Support Stud	2258	1
54	Stroke Indicator Scale	2261	1
63	Ball Valve	1936	1
64	Release Valve Rod	2257	1
65	Valve Rod Packing Washer	1937	8
66	Valve Rod Packing Nut	1931	1
67	Release Valve Handle	2230A	1
68	Spindle Washer	348	1
69	Hex Cap Screw (3/8"-16 x 3/4")	43324	1
70	Eductor Valve Bushing	1288	1
71A	O-Ring (1-1/2" OD x 1-1/4" ID x 1/8")	916	1
71B	Back-Up Washer	11223	1
72	Eductor Body	2241	1
73	Eductor Nozzle	1287	1
83	Gauge	71272	1
83A	Special Gauge Bushing	81384	1
84A	Control Panel (New Style 4")	80744	1
84A	Control Panel (Old Style 3-1/2")	27618	-
84B	Control Panel Decal	27620	1
85	Roll Pin	28524	3
86	Control Handle Knob	27879	1
87	Machine Screw (#10-24 x 1/4")	300248	4
88	Socket Cap Screw (#10-24 x 3/8")	43396	2
89	Control Handle Mounting Bracket	27622	1
90	Control Rod	27621	1
91	Control Handle	27433	1
92	Washer	2248	4
93	Pipe Nipple (3/4" x 8")	44205	1
93A	Elbow Pipe Fitting (3/4" NPTF)	74017	1
93B	Pipe Plug (3/4" NPTF)	1745	1
94	Tubing (1/4" OD x 20 Gauge Wall)	6038	1
99	Rear Roller Bracket	9472	1
100	Set Screw (3/4"-10 x 3")	43616	3
101	Screw (3/8"-16 x 1")	43328	8
102	Roller Screw	1297A	3
103	Flanged Roller	2244	3
104	Ball Bearing	6023	3
105	Front Roller Bracket	9473	1
106	Motor	29744	1
106A	Screw (5/16"-18 x 1/2")	43313	4
107A	Coupling	28498	1
110	Lock Washer (3/8")	43645	8
111	Pump & Motor Base	25915	1
112	Hydraulic Piston Pump	950101	1
114	Hex Cap Screw (1/2"-13 x 1")	43469	4
115	Pipe Plug (1/2" NPTF)	589	2
116	Pump Support	25916	1

116A	Coupling Cover	36912	1
116B	Self-Tapping Screw (#10-24 x 3/8")	43881	3
117	Straight Tube Fitting (1/2" x 3/8" NPTF)	1251	1
118	Tube Assembly	705921	1
119	Tube Fitting – Elbow (1/2" x 3/8" NPTF)	1252	2
120	Tube Assembly	701160	1
122	Elbow Tube Fitting (7/8" x 3/4" NPTF)	1944	2
123	Tube Assembly	701164	1
124	Tube Fitting – Compression Straight (1/4" x 1/8" NPTF)	597	1
124A	Pipe Reducer Bushing	1100	1
125	Tubing (1/4" OD x 24 Gauge Wall)	6038	2
126	Pipe Plug (1/4" NPTF)	1567	1
128	Tube Fitting – Elbow (1/2" x 1/2" NPTF)	17999	1
130	Pipe Plug (1/8")	589	1
-	V-Nose Piece	701712	1
-	Complete Workhead Assembly (Specify Voltage)	905076	-



Optional Relief Valve 713510			
Item	Part Name	Part No.	Qty
A&G	Tubing, Hydraulic (3/8")	45923	30"
B	Nut (3/8-37°)	51452	4
C	Fitting (3/8" Inch Sleeve, SAE 6)	51453	4
D	Fitting, Straight O-Ring (3/8" SAE 4-6)	20727	2
E	Relief Valve	61789	11
F	Screw, Hex Cap (1/4-20 x 1-3/4)	43308	4
H	Fitting, Elbow (3/8 x 1/4 NPTF)	1248	1
J	Reducer Bushing (3/4 x 1/4)	733	1
K	Pipe Tee	1742	1
L	Pipe Plug (3/4 NPTF)	1745	1
M	Fitting, Pipe Street Elbow	1740	1
N	Fitting, Tube End Reducer (SAE 8-6)	46615	2
P	Fitting, Tube Nut (1/2-37 Deg. Flare Style "B")	46614	2
Q	Fitting, Tube (1/2" Flare Sleeve, Inch Sleeve SAE 8)	51454	1
R	Fitting, Male Branch Tee (1/2 X 3/8 NPTF)	18249	1
	Relief Valve Assembly - Includes items A-N & R	713510	-

Please contact factory for current prices.

ORDERING INFORMATION

Parts are available for direct purchase from Dake or through a distributor. When placing a parts order, you will need to provide the part number, name of part, and model number. All parts shipped F.O.B. Factory in Grand Haven, MI.

INSTRUCTIONS AND PARTS LIST FOR MODEL 50-101

3/4 GPM Hydraulic Pump Variable Volume – Step Control

DESCRIPTION

This unit is a five-piston axial type piston pump designed for heavy-duty industrial application up to 6000 psi continuous and 8000 psi intermittent. The pump should be coupled directly to the driving source and can be rotated in either direction.

TYPICAL VARIABLE VOLUME CONTROLS

- A) Stem Control – with control stem out (return spring), output delivery is zero gpm – pushing in on the control stem increases pump delivery from zero to the maximum gpm.
- B) Knob Control – with the control knob adjusted out (counterclockwise rotation), output delivery is zero gpm – turning the control knob clockwise increases pump delivery from zero to the maximum gpm.
- C) Pressure Compensated – circuit operating pressure is controlled by setting the compensator valve mounted on the pump. Turning the knob clockwise increases circuit pressure, counterclockwise decreases circuit pressure. Output delivery of the pump at zero circuit pressure is maximum gpm – when circuit pressure reaches the setting of the compensator valve pump output automatically decreases to supply the exact flow rate required by the system.

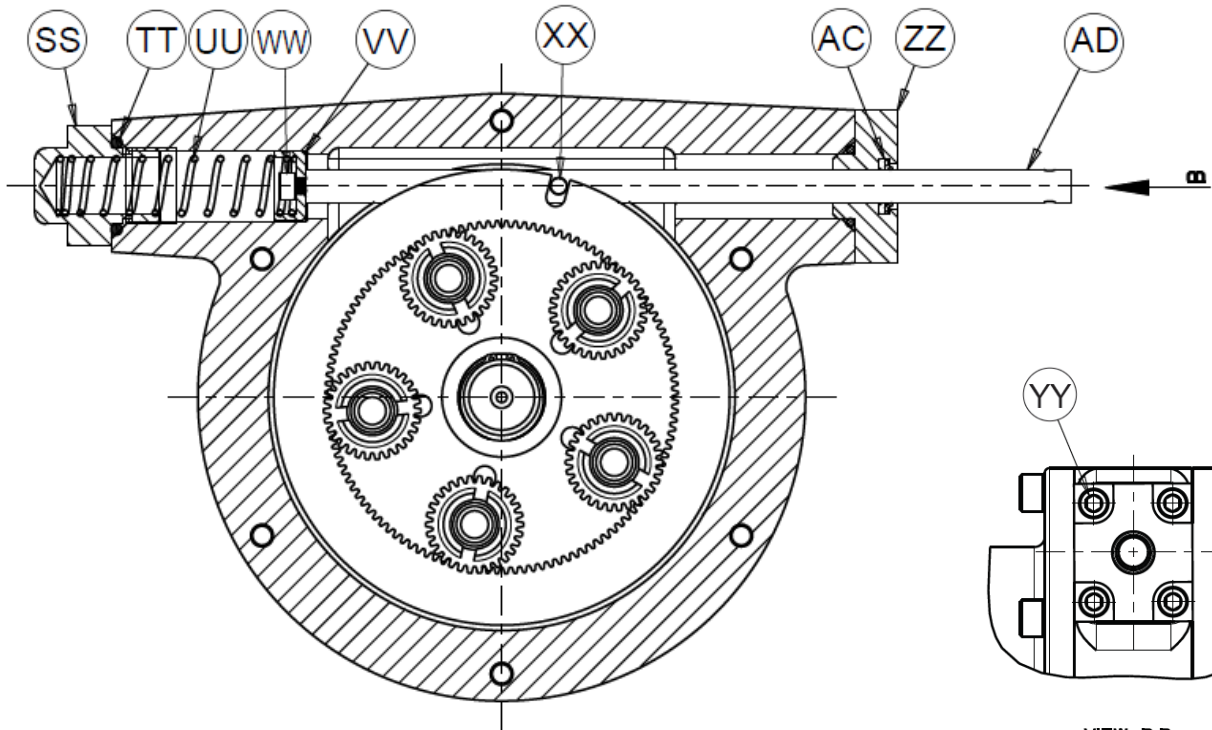
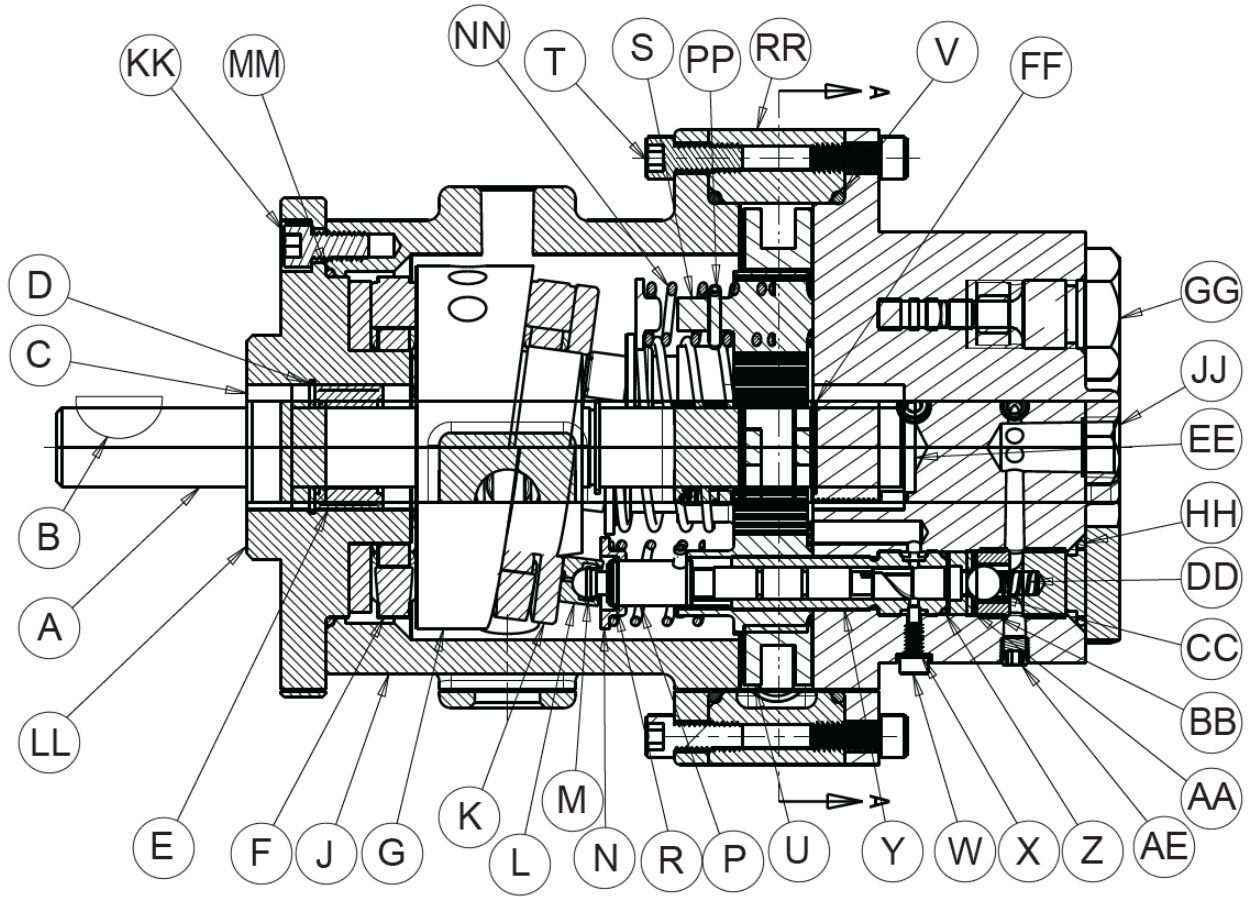
INSTALLATION

- 1) Rotation – Pump shaft rotation can be in either direction.
- 2) Shaft Alignment & Pump Mounting – The alignment of the pump and motor is critical, having a direct relation to pump bearing, shaft seal and coupling life.
- 3) Fluid Connections – Pressure and intake line piping should correspond to port size to keep fluid velocities in an acceptable range. Do not bush down to a smaller size.
- 4) Safety Valves – The high-pressure line must have a relief valve close to the high-pressure outlet to prevent damage to the pump. In a circuit using the pressure compensated pump, the relief valve should be set several hundred psi above the compensator pressure to minimize transient pressures due to compensator overtravel.
- 5) Filtration – Cleanliness of fluid and components is of extreme importance in high-pressure hydraulic circuits. A suction strainer of 140 microns or less and a twice pump capacity should be used in the pump inlet line.

MAINTENANCE

- A) Minor Repairs – Minor repairs are considered those that do not involve total disassembly of the pump. External leaks around the pump, for example, can usually be eliminated by tightening screws and/or fittings around the leakage area. Replacement of leaking shaft or O-ring seals is a minor repair that can be done in the field. The Dake service manual should be consulted for the necessary part numbers.
- B) Major Repairs – Major field repairs can be accomplished in an emergency; however, it is recommended that the Dake factory be contacted for necessary assistance. Dake pumps are built to give long-term dependable service. If they should eventually require overhaul, factory rebuilding is recommended when possible since disassembly and assembly can damage many parts. This minimizes replacements with net savings to the user. Trained Dake personnel with complete rebuilding and testing facilities permit rapid overhaul and testing, resulting in minimal downtime for the customer as well as the added advantage of complete factory testing after repair.

SYMPTOM	CAUSE	SOLUTION
Inadequate or no flow from pump	Inlet line is above fluid level	Check fluid level and provide adequate fluid to fill entire system
	Air in suction pump	Check for loose inlet line connections
	Pump not primed	Fill pump cast with Mobil DTE 24 or equivalent and run until pump picks up prime
	Broken drive shaft or coupling or loose coupling	Replace broken parts and tighten setscrews in coupling
	Oil viscosity is too high	Use proper viscosity fluid for operating temperature conditions
	Dirty or clogged oil suction filter	Clean filter and check at least once a month
	Broken piston return spring (item NN) or check valve spring (item DD)	Replace broken parts and reassemble
Pump will not build pressure	Loose check valve seat retainers (items BB)	Retighten loose parts, use thread-locker when retightening
	System relief valve stuck open	Check valve for contamination
Pump is running hot	System relief valve constantly spilling	Check relief valve setting and work cycle
	Duty cycle excessively at high pressure	Install oil cooler on fluid reservoir
Noisy pump or system	Air in system	Bleed all circuit trapped areas
	Pump cavitation	Check for restriction in pump inlet or for loose fittings in inlet line
	Coupling misaligned	Realign couplings
	Broken piston return spring (item NN)	Replace broken parts and reassemble
	Loose piston shoe (item L)	Replace with new parts (items L & M)
Pump will not prime or loses prime	Loose cylinder locking screws (items W)	Tighten screws
	Worn or damaged shaft seals (items C or AC)	Replace with new parts
	Faulty O-ring (items V, MM, TT, or AB)	Replace with new parts
	Air in suction	Check for loose fittings and tighten



SECTION A-A

VIEW B-B

<u>Item No.</u>	<u>Part Name</u>	<u>Part No.</u>	<u>Qty</u>
A	Pump Shaft	25110	1
B	Woodruff Key 608	300449	2
C	Oil Seal	26184	2
D	Retaining Ring – Truarc	27468	1
E	McGill Roller Bearing MR-14	26186	2
F	Rollway Thrust Bearing T618	26185	1
G	Wobble Plate	25200	1
J	Pump Body	25109	1
K	Rollway Thrust Bearing T619	26187	1
L	Piston Shoe	25117A	5
M	National Retaining Ring	26188	5
N	Spring Retainer	25116A	5
P	Piston	25114	5
R	National Retaining Ring	27751	5
S	Piston Rotating Gear	25115	5
T	Socket Head Cap Screw (5/16"-18 x 3/4")	43433	12
U	Control Gear	25120	1
V	O-Ring (5-3/8" ID x 5-5/8" OD)	26183	2
W	Cylinder Locking Screw	25121	5
X	Metallic Screw	26629	5
Y	Cylinder	25113	5
Z	O-Ring (9/16" ID x 11/16")	26564	5
AA	Valve Seat	25122A	5
BB	Seat Retainer	25123A	5
CC	Check Valve Ball	1222	5
DD	Check Valve Spring	25126	5
EE	Thrust Washer	27439	1
FF	Truarc Retaining Ring	27437	2
GG	Pump End Cap	25124	5
HH	O-Ring (3/4" ID x 15/16" OD)	3966	5
JJ	Pump Head	25111	1
KK	Socket Head Cap Screw (5/16"-18 x 5/8")	43432	6
LL	Flange	27424	1
MM	O-Ring (3-3/4" ID x 3-15/16")	27438	1
NN	Piston Spring	25119	5
PP	Spiral Pin (1/8" x 7/8")	28688	5
RR	Center Pump Body	26181	1
SS	Control End Cap	27440	1
TT	O-Ring (7/8" ID x 1-1/8")	3965	1
UU	Spring	27441	1
VV	Control Rod End Spacer	25132	1
WW	Socket Head Cap Screw (10-24 x 3/8")	43397	1
XX	Control Pin	25131	1
YY	Socket Head Cap Screw (1/4"-20 x 1/2")	43412	4
ZZ	End Cap	25129	1
AB	O-Ring (3/4" ID x 15/16")	3966	1
AC	Oil Seal	26573	1
AD	Control Rod	25912	1
AE	Pipe Plug (1/16" NPTF)	44276	5
-	Label	26190	1
-	Drive Screws for Label	43573	2
Pump Repair Kit – Includes Items: B, C, V, Z, HH, MM, TT, AC, & AD		712740	-