724 Robbins Road
Grand Haven, Michigan 49417
616-842-7110 Phone 800-937-3253
616-842-0859 Fax 800-846-3253
Web: www.dakecorp.com
E-mail: customerservice@dakecorp.com
technicalsupport@dakecorp.com

Dura Press Models

FORCE 40, 70 & 100

Dual voltage machines for 220 / 440 volts

Use and Maintenance Manual

Model No: _____

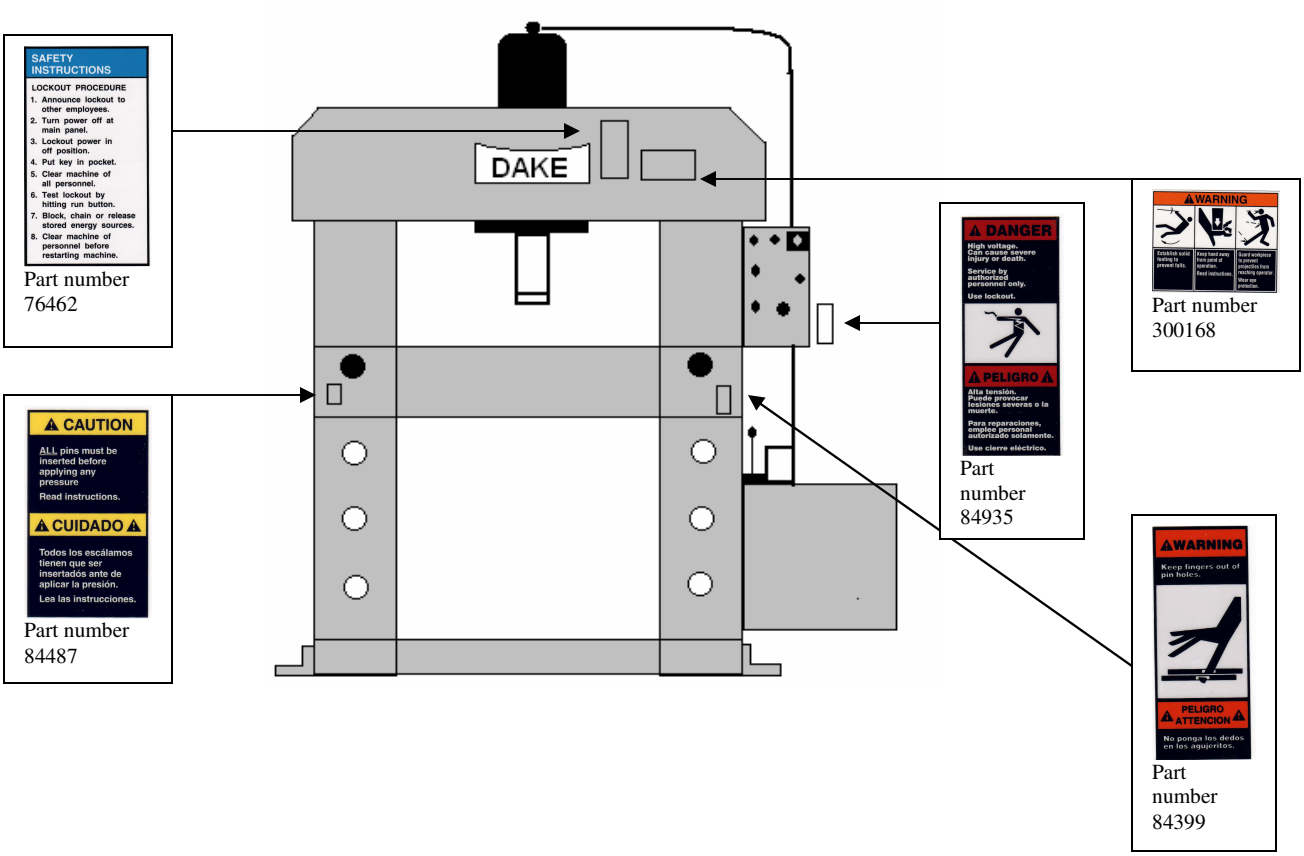
Serial No: _____

Model	Max Ton	Width between uprights	Width between table channels	Max. Ram travel	Max. Ram to table	Ram rapid advance	Ram pressing speed	Base (W x D)	Height	Weight
FORCE 40	40	35"	8"	19"	37"	68 ipm	7 ipm	63" x 27"	88"	880 lbs.
FORCE 70	70	35"	8"	19"	37"	42 ipm	4 ipm	63" x 27"	88"	1100 lbs.
FORCE 100	100	41"	10"	19"	39"	52 ipm	3 ipm	75" x 33"	90"	2200 lbs.

Maximum operating pressure for all models 280 bars
Sound pressure maximum 78,6 db

For the safety of the operator/owner it is your responsibility to review the follow warnings and safety labels located in this manual and on the machine. It is the responsibility of the operator/owner to understand these labels. If there are any questions regarding these labels call Dake at 1-800-937-3253.

Below is a diagram of where the safety labels are required.



If at any time these safety stickers need to be replaced or are missing lock out the machine and contact Dake immediately.

The operator and owner must read and understand all of the following warnings. It is the responsibility of the employer to check that the following warnings have been understood by the operator and maintenance personnel.

WARNING!!!!
Operator must never place hands in the area of the ram during pressing operations.

Do not use this press for pulling.

A machine not subject to maintenance and periodic structural inspection is a danger for the operator and the persons working near by.

It is strictly forbidden to tamper with, modify or elaborate parts of the machine that alter its regular operation.

During the phases of maintenance requiring guards to be removed, machine must be locked out according to local and state laws.

This press is designed for one operator.

All work requiring the piece to be pressed to be supported by the operator is forbidden.

It is strictly forbidden to press, cut, draw and do anything else with pieces whose dimensions or physical nature may explode or produce splinters.

DEFINITIONS

In this manual “right side”, “left side”, forwards, backwards, top and bottom refer to the operator situated in front of the press with the power unit to there right.

Press Identification

The press is fitted with a rating plate fixed in a visible manner on the front as shown in Fig. 1 item 1 on next page. The Dake part number and serial number on the front name plate shown in Fig. 1 item 2.

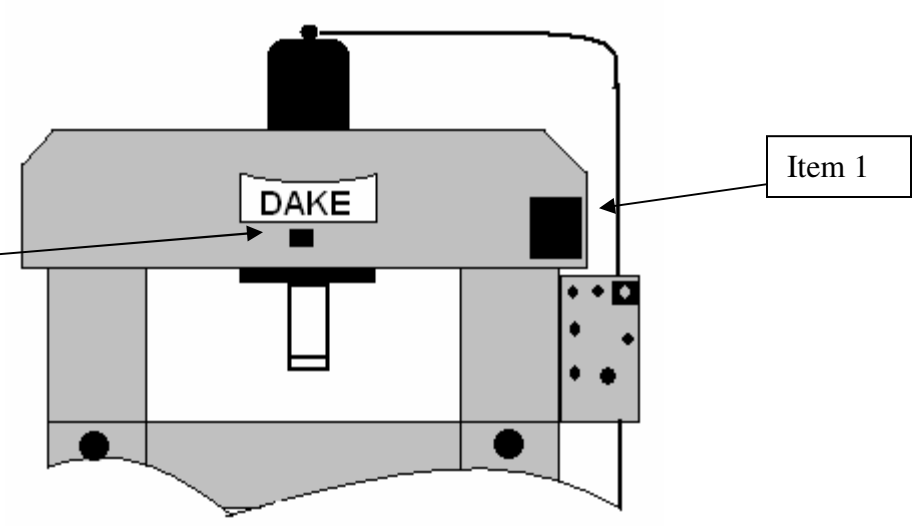


Fig. 1

Unpacking

The machine has shrink wrap on it and any accessories, spare part may be Packed in cardboard boxes and positioned on top of the work table.

To remove the packing, cut the plastic wrap, taking care not to damage the Machine or any part of it. Remove the accessories from the top of the work table, check the contents correspond to the order and to the accompanying documentation. Remove the lag bolts that hold the press to the skid.

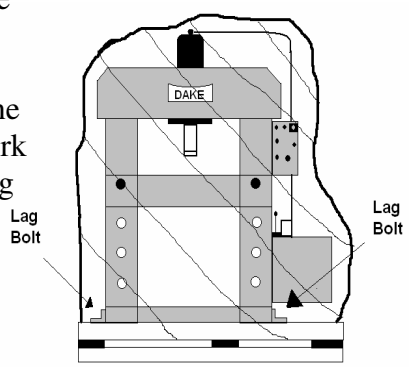


Fig. 3

Disposing of the packaging

The packing will have to be disposed of be the purchaser in compliance with the current regulations.

Claims shall not be accepted in the event of the goods not being in conformity with order or with the accompanying documents if they are not notified within five days of the date of receiving the goods.

Handling and transport and positioning

For handling the machine it is necessary to use special lifting equipment whose maximum lifting capacity must be no lower than the total weight of the press which can be found on page 2 of this manual.

Loading and unloading the machine

Use lifting straps are to be used to position as shown below in Fig 4.

WARNING!!!
Be sure the maximum capacity of each strap is greater than the total weight of the press.

Do not make sudden movements when transporting the machine.

The manufacturer is not responsible for damage to the machine while loading or unloading the press.

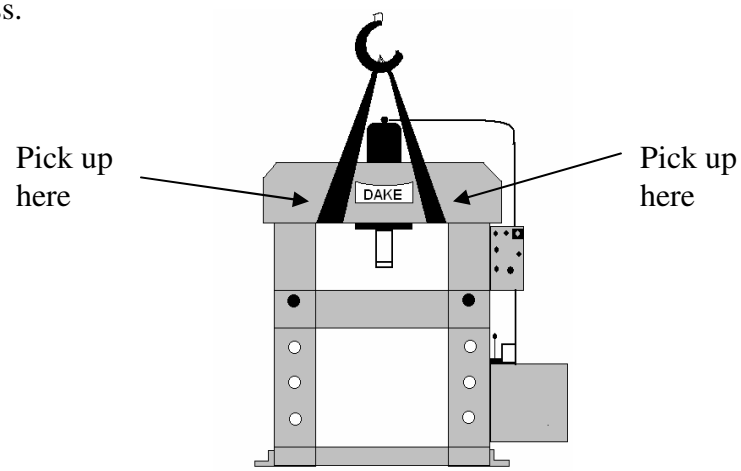


Fig. 4

Positioning the press

Simple precautions are necessary for correctly positioning the press always consider the safety aspect not only in relation to the work carried out with the press, but also to the dangers originated by the other machines in the workplace.

Do not position on unstable or unleveled floor.

Below in fig. 4 is the allowable distance from the wall, other machines or other objects.

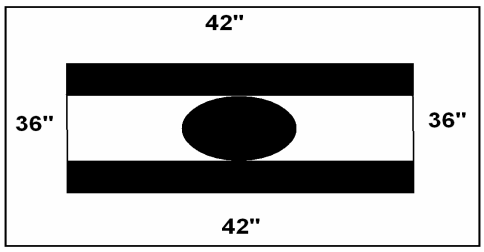


Fig. 4

Commissioning and Starting

Electrical connection

This machine is dual voltage 220 3 phase / 440 3 phase. The amp rating on these machines are 6.8 amps on 220 volt 3 phase and 3.4 amp on 220 volt 3 phase.

WARNING!!!
Only a certified electrician that follows local and state laws is authorized to perform any type of electrical connection on this machine. The electrical power supply voltage must be made in compliance with local and state laws.

For proper operation it is necessary to ensure constant voltage and it must not exceed or be lower than 5% of the rated value.

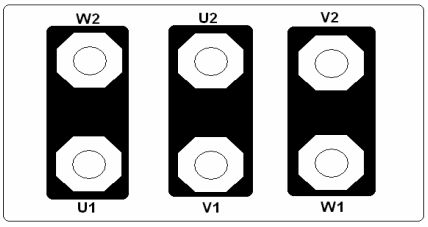
Before making any electrical connection confirm voltage rating of the machine. There is a black plastic box mounted on top of the reservoir.

WARNING!!!
Be sure there is no power to the machine before checking the following connections. It may be necessary to lock out the machine for proper power disconnection.

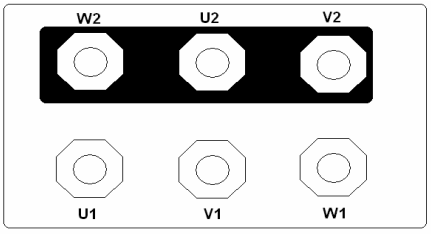
Remove the two mounting screws that hold this box in place. Under this box you will see one of the following possibilities in fig. 5. After confirming or changing this to the correct voltage mount the cover with the two screws. Now, open the electrical panel on the transformer be sure it is set for the correct output voltage.

Fig. 5

220 Volt connection



440 volt connections

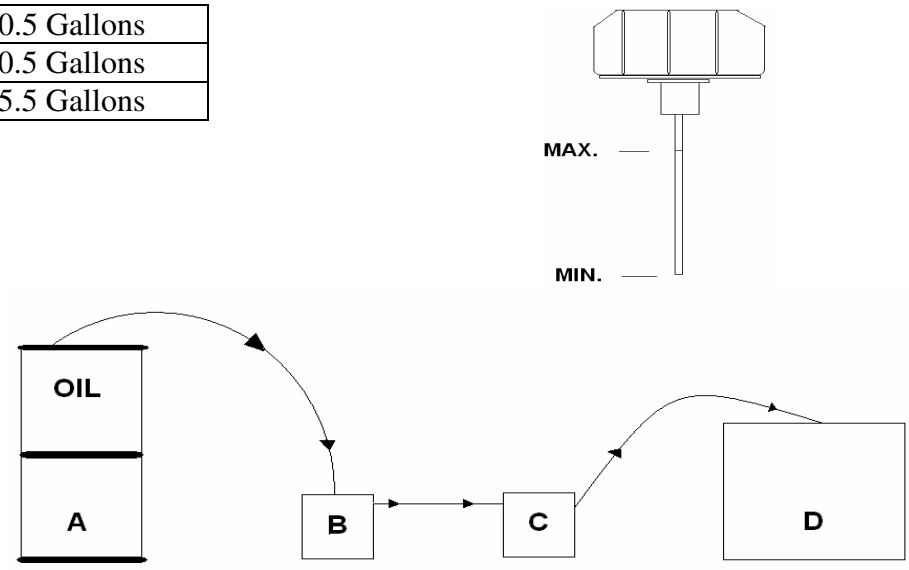


WARNING!!!
Any damage caused by a faulty electrical connection is not covered by warranty.

Filling the pumping unit
To fill the pumping unit, use exclusively the oils indicated in the table on the next page or equivalent. The environmental conditions must be considered before purchasing oil. To transfer the oil from the container to the tank use an external filter as shown in Fig. 6 in order to prevent the introduction of foreign material or liquids at the time of filling.

The amount of oil required for each model is described in the chart below.

40 Ton	10.5 Gallons
70 ton	10.5 Gallons
100 Ton	15.5 Gallons



A - Oil **B - Pump** **C - Filter** **D - Press Oil**

Fig. 6

Pump rotation

After making the electrical connections to the press it is necessary to make a visual check on the direction of rotation of the electric motor.

Before checking the direction of rotation of the pump, fill the reservoir with oil see Fig. 6

1. Unscrew the inspection cap.
2. Identify a reference point on the drive shaft.
3. Power up the motor for Max. 1-2 seconds.
4. Check that the rotation of the shaft coincides with that of the arrow shown on the top of the unit see Fig 7.
5. Screw down inspection cap.

If the motor rotates in the wrong direction:
See your electrician.

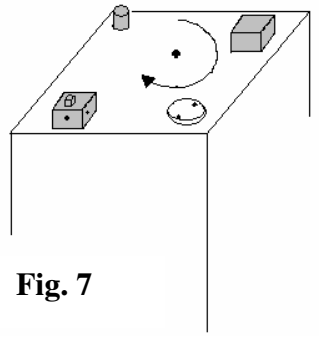


Fig. 7

Any damage caused by wrong electrical connection is not covered by warranty

	DTE Oil No. 24	DTE Oil No.26
Gravity	31	26
Maximum Pour	20°F.	20°F
Flash Point	395°F	400°F.
Viscosity @ 100°F.	145-160	290-310
Viscosity @ 130°F.	84.5	144
Viscosity @ 210°F.	44	53
Color	3 Max.	3.5 Max.
Viscosity Index	95 Min.	95 Min.
Also Passes ASTM Rust Test	Yes	Yes
Oiliness Additive	Yes	Yes
Competitive Oils Equivalent to above specifications		
Cities Service	Pacemaker Oil NO. XD 15	Pacemaker Oil No. XD30
Exxon Co.	Nuto H32	Nuto H68
Gulf Oil Co.	Harmony No. 43 AW	Harmony No. 54AW
Pure Oil Co.	Puropale Rx Anti Wear No. 150	Puropale Rx Anti Wear No. 300
Shell Oil	Tellus Oil No. 32	Tellus Oil No. 68
Sinclair Oil	Duro Oil AW16	Duro Oil AW31
Standard Oil	Rycon Indl Oil No. 15	Rycon Indl Oil No. 31
Sun Oil Co.	Sunvis No. 706 No. 816 WR	Sunvis No. 754 No. 831 WR
Sunray DX Oil Co.	No. 475 Diamond Roza L	No. 477 Diamond Roza H
Texaco	Rando Oil No. HD-32	Rando Oil No. HD-68

To obtain best results oil temperature should not exceed 140°F. When using DTE No. 26 as an Alternative for DTE No. 24 there might be a slight variation in the ram speeds.

First starting

After filling the reservoir through the fill cap it is necessary to prime the pump. Check that all the valves and distributors are in the rest position, at the time of starting do not operate any movement.

To obtain starting it may be necessary to press the reset button in the electrical panel.

WARNING!!!
This press is exclusively prepared to be used only by one operator.

To prime, jog the start button (electric motor). When the unit emits a dull sound with no jumps and the sound of the pump is constant. An uneven “tinny” noise indicates there is air in the pump.

The oil in the reservoir may fall on start up due to:

1. absorption of volume by the cylinder
2. Absorption of volume by the pumping unit.
3. Discharge of air bubbles remaining in the piping.

It is necessary to top off the level of oil bringing it up to the correct height, by checking the level gauge. The level should be about half way up the stick.

Operation

Before starting any operations make sure there are no other persons in the immediate vicinity of the machine.

It is strictly forbidden to pass under the work table.

To operate the cylinder, activate the master switch, and then operate the distributor lever Fig. 8.

Pulling - the lever toward the operator (Pos. 2) the piston rod lowers.

Pushing - the lever from the opposite side to the operator (Pos. 3) the piston rod will go up.

Releasing - the lever will return to the neutral position stopping the ram from moving (Pos. 1).

With the hand wheel positioned on the side of the distributors (Fig. 8 Pos. 4) it is possible to adjust the operating pressure continually and therefore the pressing force of the cylinder. The pressure gauge (Fig. 7 Pos. 5) allows displaying the pressure during the working phases. Adjustment of the maximum pressure must be made starting from the lower value and gradually increasing to reach the pressure necessary to perform the operation to be carried out.

Dake declines all liability for damage to things and/or persons caused by tampering with the pressure control valve fitted on the unit.

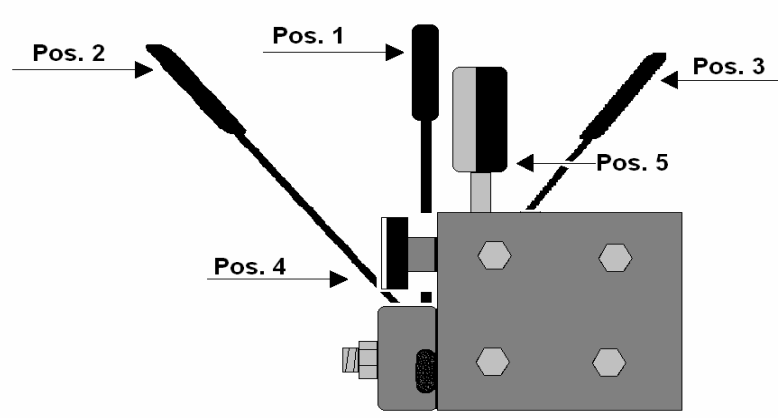


Fig. 8

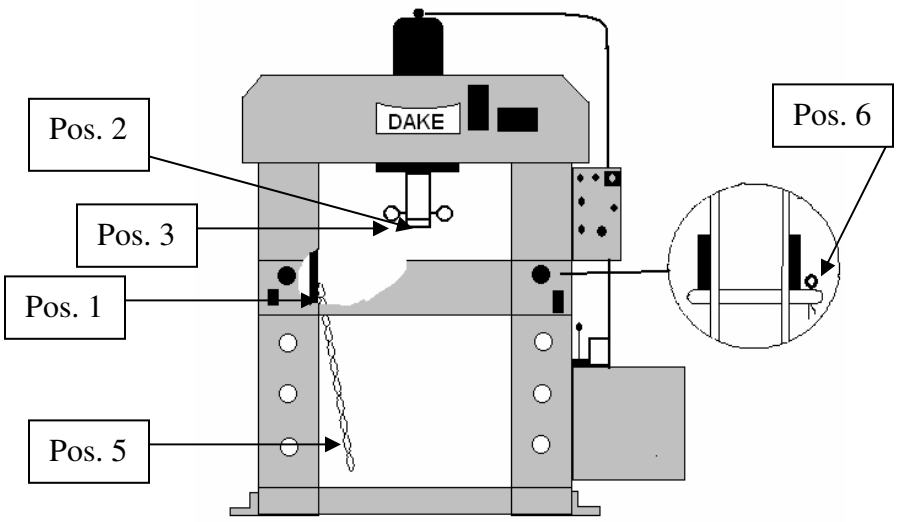
Work table height adjustment

To optimize the use of the press it is necessary to set the work table at a convenient height in relation to the operation to be carried out and to the equipment to be used.

Before proceeding to lift the mobile table, check that:

- The eyebolts fixed to the work table are fully tightened Pos. 01.
- The eyebolt support (nose piece) is properly screwed onto the cylinder ram (Pos. 2)
- The eyebolts fixed to the nose piece are fully tightened.

1. Hook the chains (Pos. 5) to the respective eyebolts and lift the cylinder ram until the chains are set under tension but, **do not lift the table**.
2. Check the chain connections to all eyebolts to ensure a safe secure connection.
3. When the connection is safe, lift the table just above the desired table height.
4. Take the split pins (Pos. 6) off the pins then remove the pins.
5. Insert the pins to the desired work table height pin location then, insert the split pins.
6. Slowly move the table down until it rests on the table pins.
7. Check to be sure the position and the assembly of the pins are correct.
8. Unhook the chains and leave them hang in a downward position (Pos. 5).



Operating Temperature

After the machine has been put into operation at full rate, check that the oil temperature does not exceed 140° F.

If the above described conditions are exceeded, check that the fluid used is not too viscous (replace with more suitable fluid).

Using the unit with temperatures above those indicated above automatically forfeits warranty.

Maintenance

Routine Maintenance operations must be carried out by authorized and trained personnel.

All maintenance or cleaning operations must be done with the machine properly locked out in accordance with OSHA regulations.

Below is a table with the normal times for maintenance work:

HOURS	CHECK OIL FILTER	CHECK OIL	CHANGE OIL	CHANGE OIL FILTER	CHANGE AIR FILTER
50	YES				
100				YES	
300	YES	YES			
500				YES	YES
1000		YES		YES	YES
1500	YES				YES
2000			YES	YES	YES

Changing the oil

The oil will have to be changed periodically every 2000 operating hours or at least once a year. Empty the unit tank by arranging a container of an adequate capacity to contain the quantity of oil to be removed under the drainage plug at the bottom of the tank.

Remember to tighten the plug before filling the tank.

Disposing of the oil will have to be done in conformity with local and state laws along with OSHA regulations. Hydraulic oil is considered special waste.

Filters

The filter must be frequently replaced during the first period of operation of the press and then at regular intervals of time to be defined according to the conditions of use and the environment where the machine is located.

It is recommended to change the filter after the first 100 hours of operation. After that approximately every 500-600 hours.

On this unit there are three filters:

- Oil outlet filter
- Oil inlet filter
- Air inlet filter

Replacing the filters will help give the pump, oil and generally all the moving components longer service life.

Failure to comply with the maintenance table in changing the filter will forfeit the warranty.

Malfunction	Origin	Remedy
Cylinder moves slow	Air in the pump. Air in the circuit Damaged cylinder gaskets Damaged or worn pump Sequence valve jammed Delivery oil line clogged or choked	Bleed the air Bleed the air Replace the gaskets Replace the pump Recondition seq. valve Check hydraulic lines
Piston will not move	Electric motor will not turn Piston gaskets completely Damaged Blocked distributor Damaged pump	Check motor Replace Recondition distributor Recondition or replace
Cylinder leaks oil	Head gaskets damaged or worn	Replace
Piston ram will not build pressure	Lack of pressure from pump Pressure control valve set low	Recondition pump Set valve
Pump Cavitation	Filter Suction clogged Fluid too viscous	Clean or replace Replace
Foam forms in the fluid	Fluid level too low Fluid unsuitable Fittings or joints let air in Air discharge in the circuit	Bring back up to correct level Replace with suitable fluid Replace or tighten fittings Discharge the remaining air from the system
Pumps	Worn or damaged	Recondition or replace
Pressure relief valves	Operating instability	Replace or recondition
Pumps deliver little or no oil	Pumps worn or damaged	Replace and recondition
Pump will not turn	Pump joint broken or undone	Check or replace
Unstable valves	Valve seat damaged Pressure not constant	Replace or recondition Check pump or pressure relief valve
Valve parts jammed	Dirty fluid	Drain off fluid clean system and components refill with clean and filtered fluid
Piston moves irregularly or will not move	Lack of pressure from the pump Pressure adjustment valve set low The translating cylinder is damaged Translating wheels or guides dirty or blocked	Recondition the pump Set the valve Check and recondition Clean or replace parts
Excessive wear on parts	Oil containing abrasives Insufficient lubrication High operating pressure Foreign bodies in the oil not held back by the filter	Replace the fluid Poor quality oil Lowe the setting of the pressure relief valve Insufficient filtering, replace the filters

Putting out of service

In the case of not operating for a long period it is necessary to disconnect the press from the sources of electrical power supply.

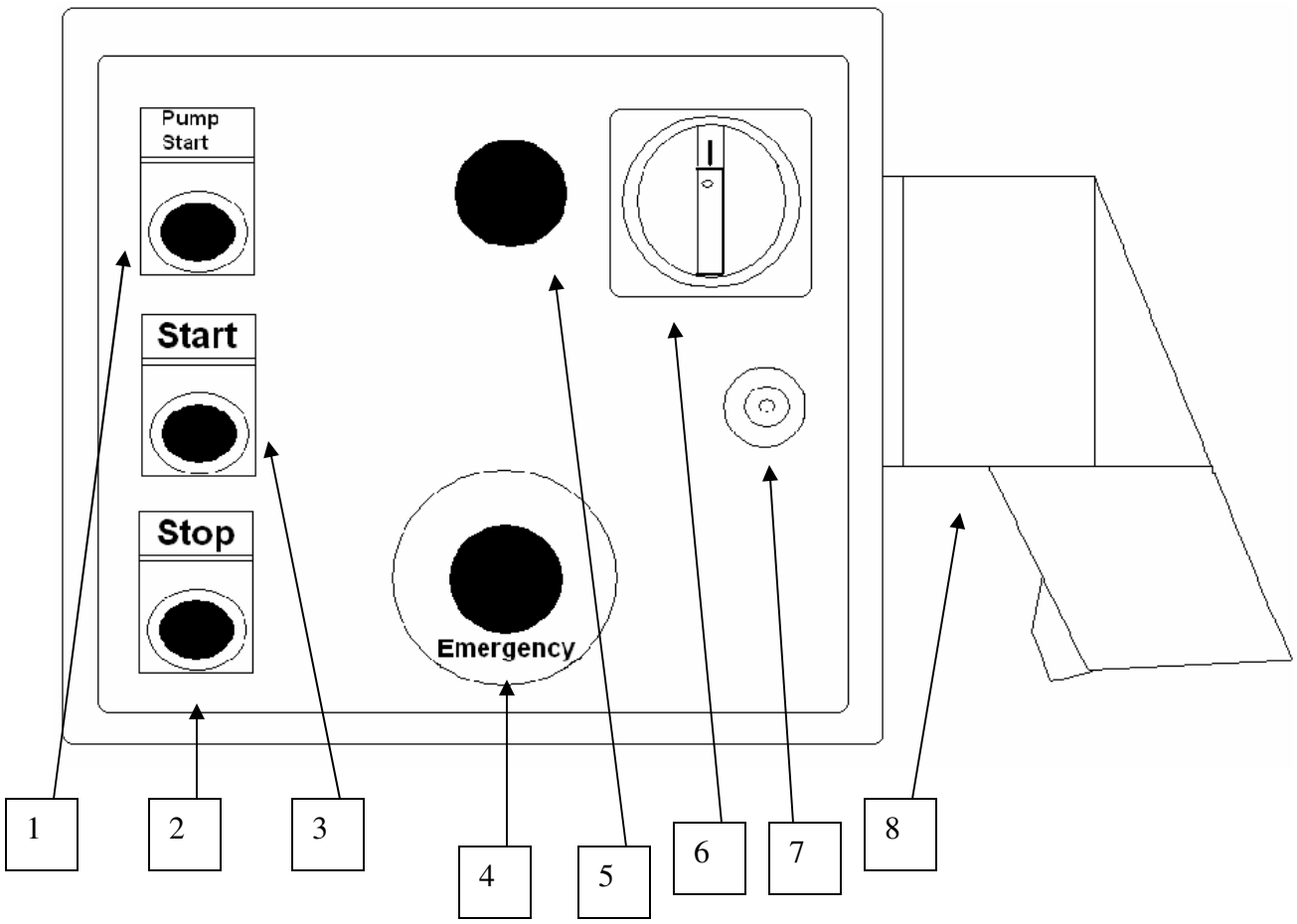
Empty the unit of oil and protect it suitably so there is no dust, moisture or other foreign bodies that can damage the parts of the unit.

Demolition and division of materials

If you are not going to use the machine any more, it is recommended to make it inoperative by removing the oil contained in the tank and eliminating the oil remaining in the cylinder, hydraulic lines, pump body and valves.

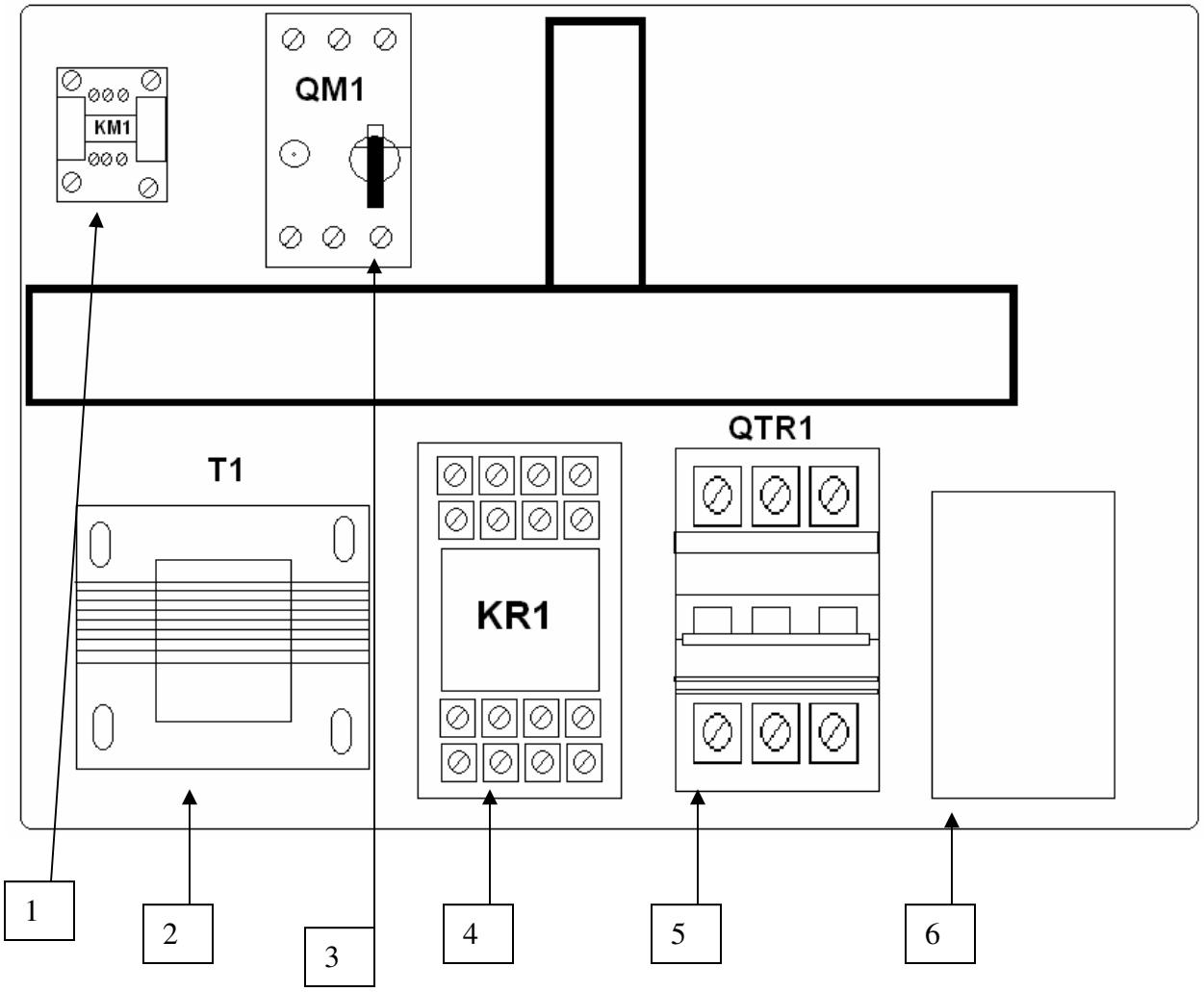
When going for demolition the press must be treated as special waste, it must therefore be split up into its homogeneous parts, these parts must be separately disposed of in conformity with local and state laws along with all OSHA regulations.

Electrical box Parts breakdown



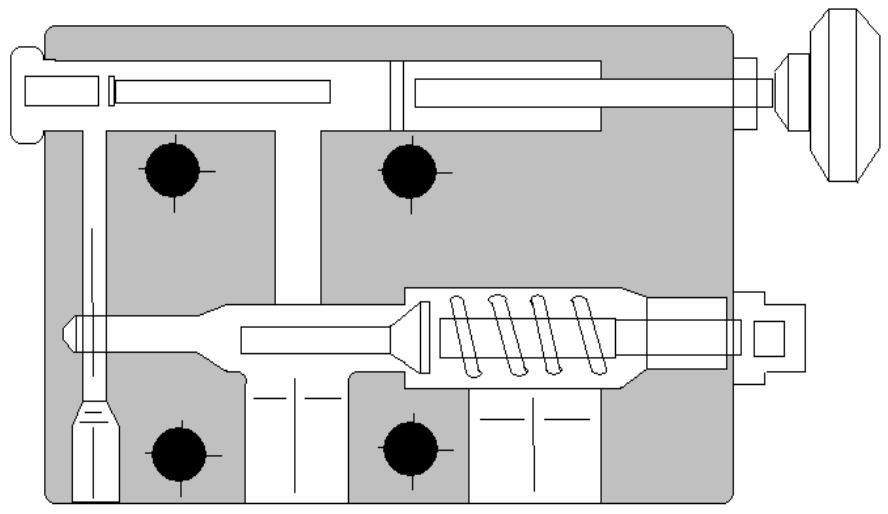
Item #	Part Name	Part number	Qty.
1	Pump Start button	716542	1
2	Stop button	716539	1
3	Start button	716556	1
4	Emergency button	300351	1
5	Power light	300298	1
6	Main power switch	80554L	1
7	Elect. Box lock	300628	1
7A	Door key	80511	
8	Female plug		1
N/A	Male plug	301547	1
N/A	Electrical box w/ all components	300387	1
N/A	Electrical box w/ no components	300389	1

Electrical box components parts



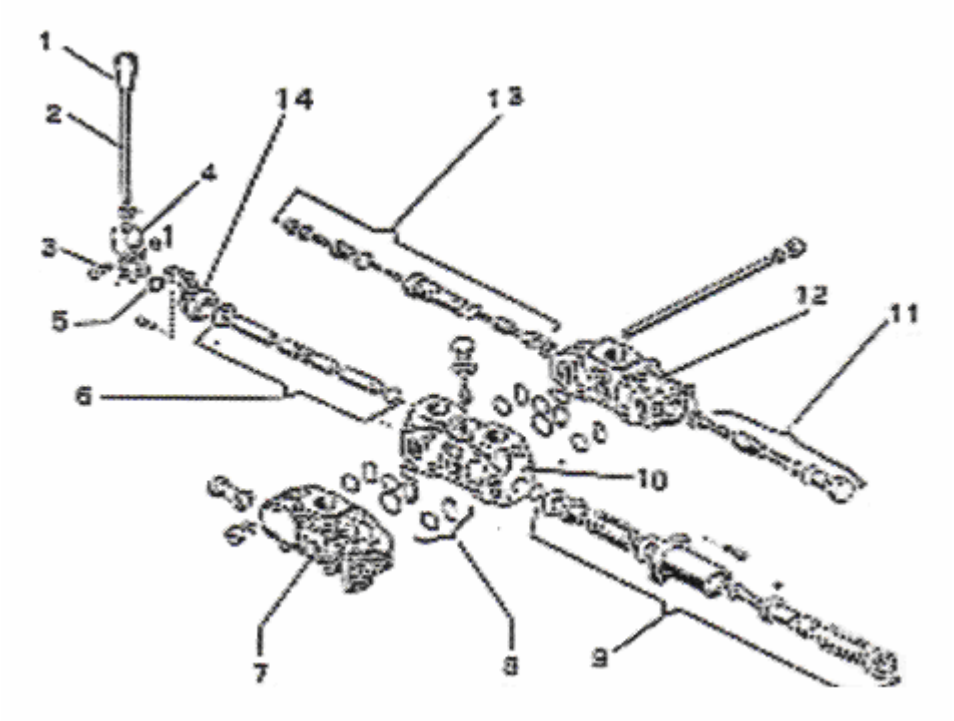
Item #	Part Name	40 Ton	70 Ton	100 Ton	Qty
1	Contactor				1
2	Transformer	300842	300842	300842	1
3	Overload 220 volt	302187	302187	302187	1
3	Overload 440 volt	302189	302189	302188	1
3A	N.O. contact block	302192	302192	302192	1
4	Relay	72300000	72300000	72300000	1
5	Fuse block	300843	300843	300843	1
5B	Fuse 2 amp	77523	77523	77523	3
6	Terminal block ground				2
6A	Terminal block black				3

2.6 Exchange valve



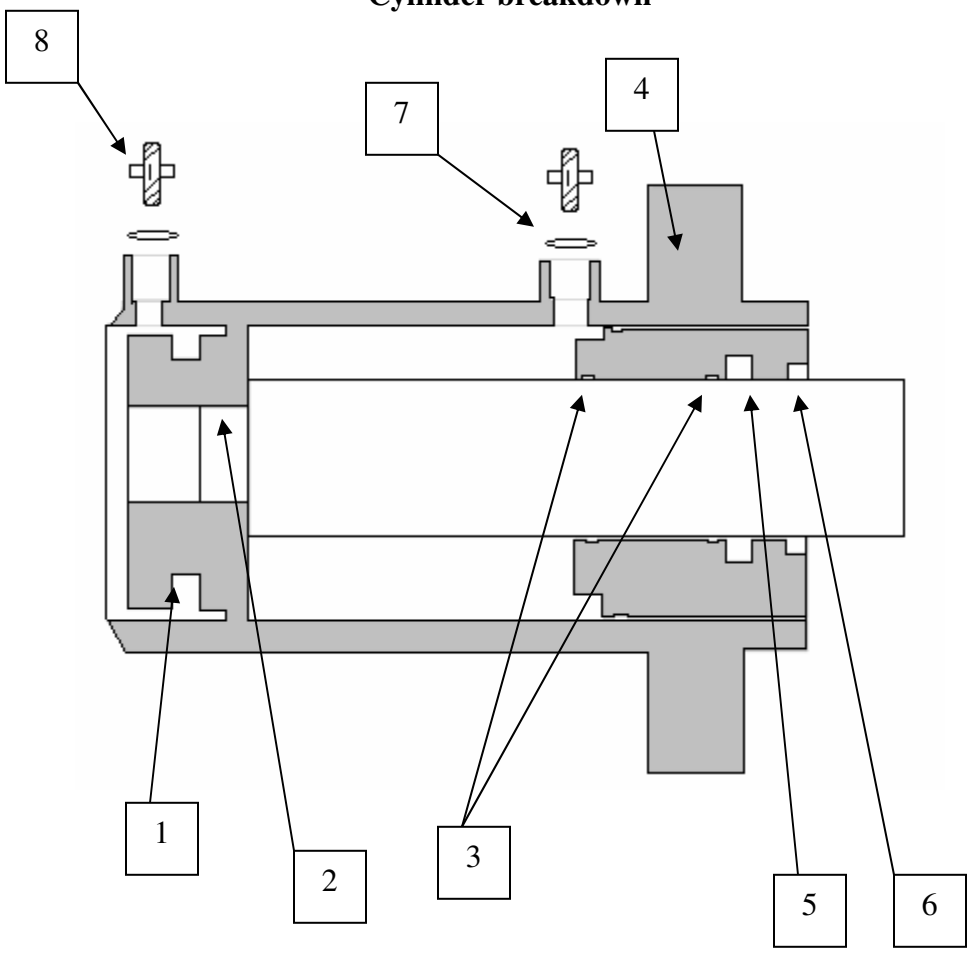
Item #	Part Name	Part # 40 Ton	Part # 70 Ton	Part # 100 Ton	Qty
1	Complete relief valve	300178	300178	300178	1
N/A	O-ring kit spring washer				1
N/A	Valve handle	301393	301393	301393	1

2.5 Distributor section



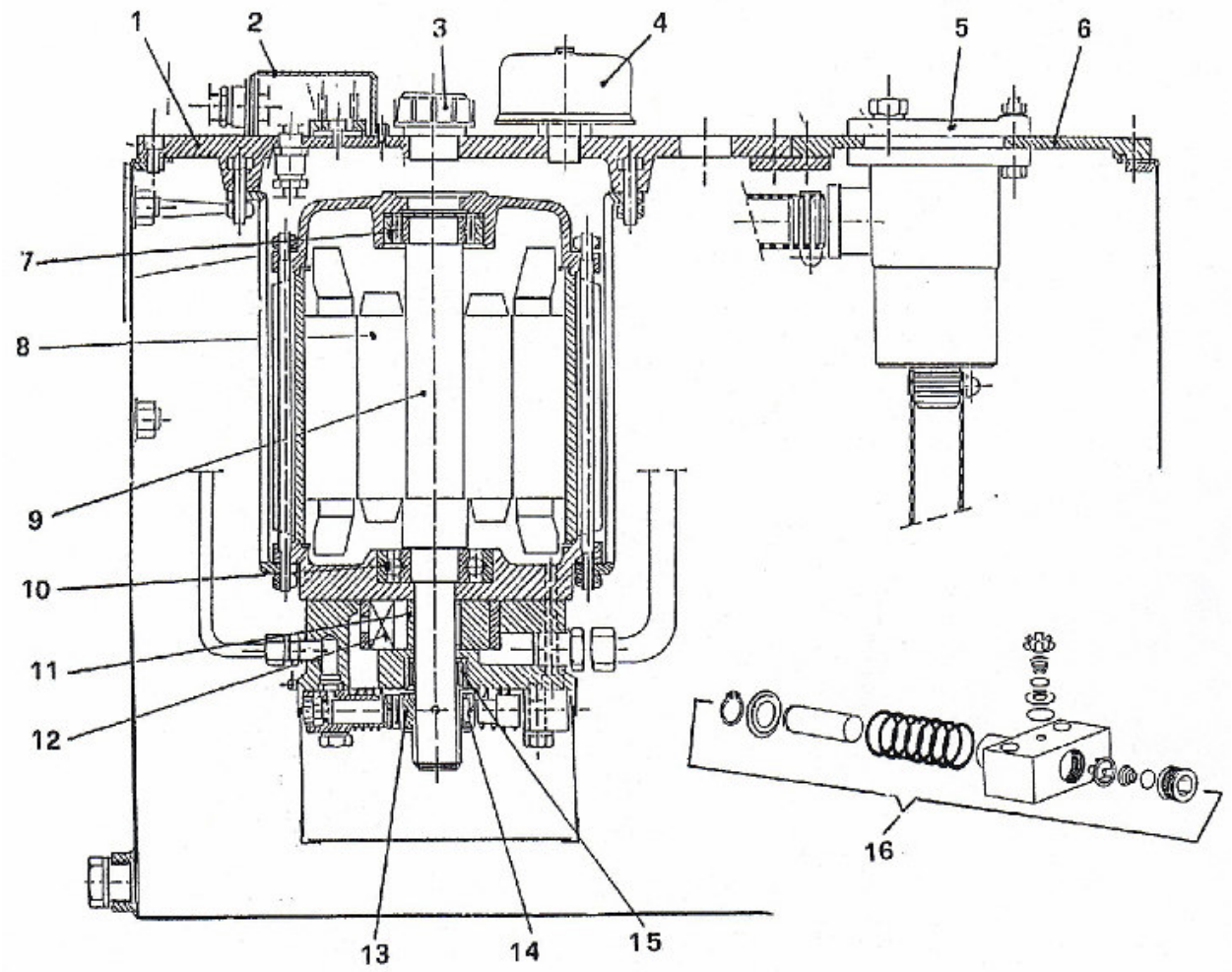
Item #	Part Name	Part number	Qty
N/A	Complete valve assembly	300179	1
1, 2, 3, 4, 5	Knob lever pin fork powder scraper	302211	1
6, 9, 10	Shaft group cap group main body	302210	1
Not shown	Relief valve	300852	1
7	Cover Body	302209	1
8	Gasket Set	300886	1
11, 12, 13	Back valve body entry collector body max valve	302208	1

Cylinder breakdown



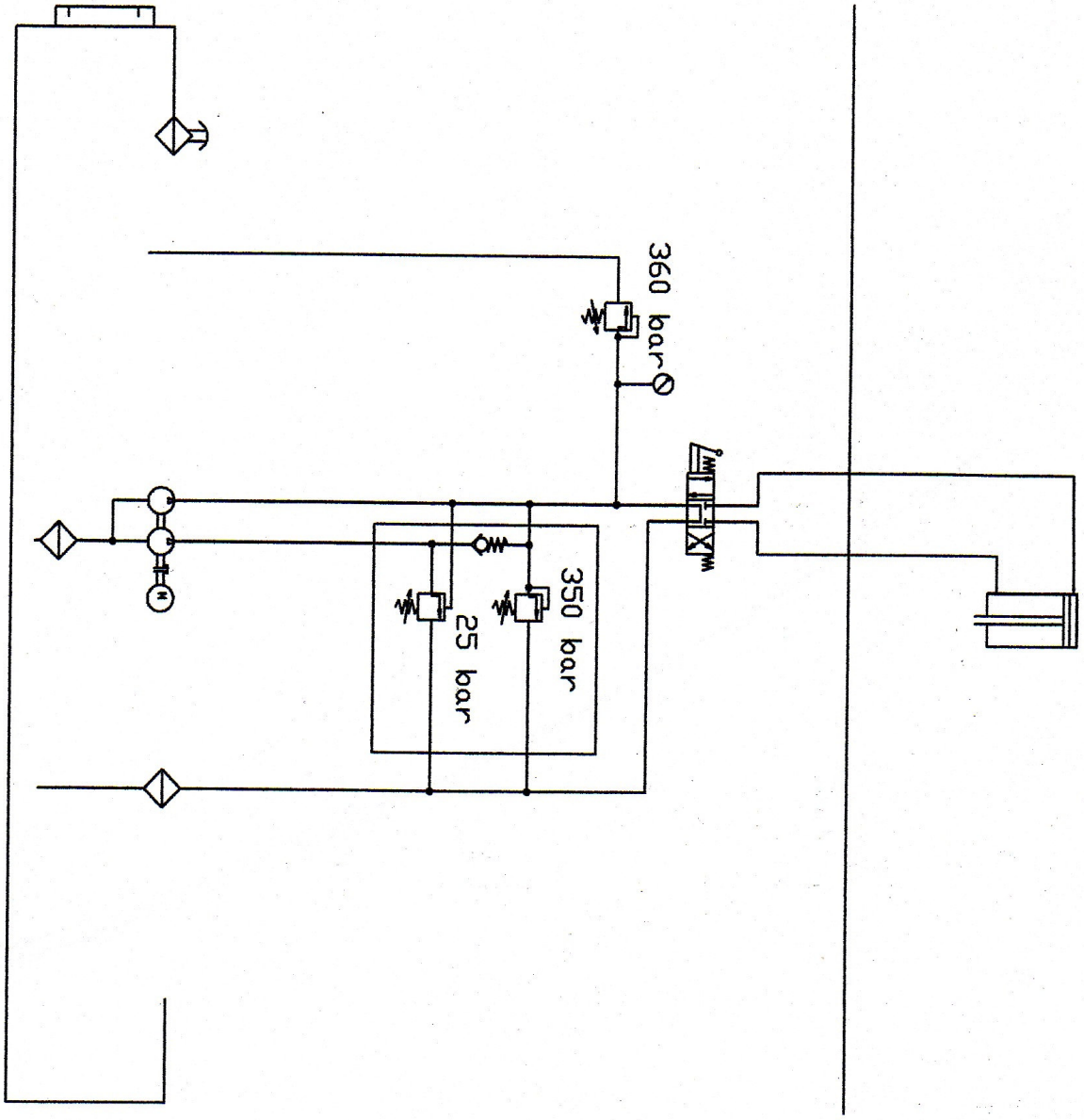
Item #	Part Name	Part# 40 Ton	Part# 70 Ton	Part# 100 Ton	Qty
1	Piston Gasket	300609	301195	301189	1
2	Piston 0-ring	300610	301196	301186	1
3	Head guide rings	300647	301197	301187	1
4	Head o-ring	300648	301198	301188	1
5	Head gasket	300649	301199	301185	1
6	Head scraper	300650	301200	301184	1
7	Washer	Washer comes with fitting			2
8	Hose fitting top	301390	301390	301390	2
8A	Hose fitting bottom	301390	301390	301390	2
	Complete cylinder	300698	300642	SS100C00	1
Not shown	Gauge	300359	300360		1
Not shown	Hydraulic hose B port	300382	300382		1
Not shown	Hydraulic hose A port	300383	300383		1

2.4 Hydraulic pumping unit

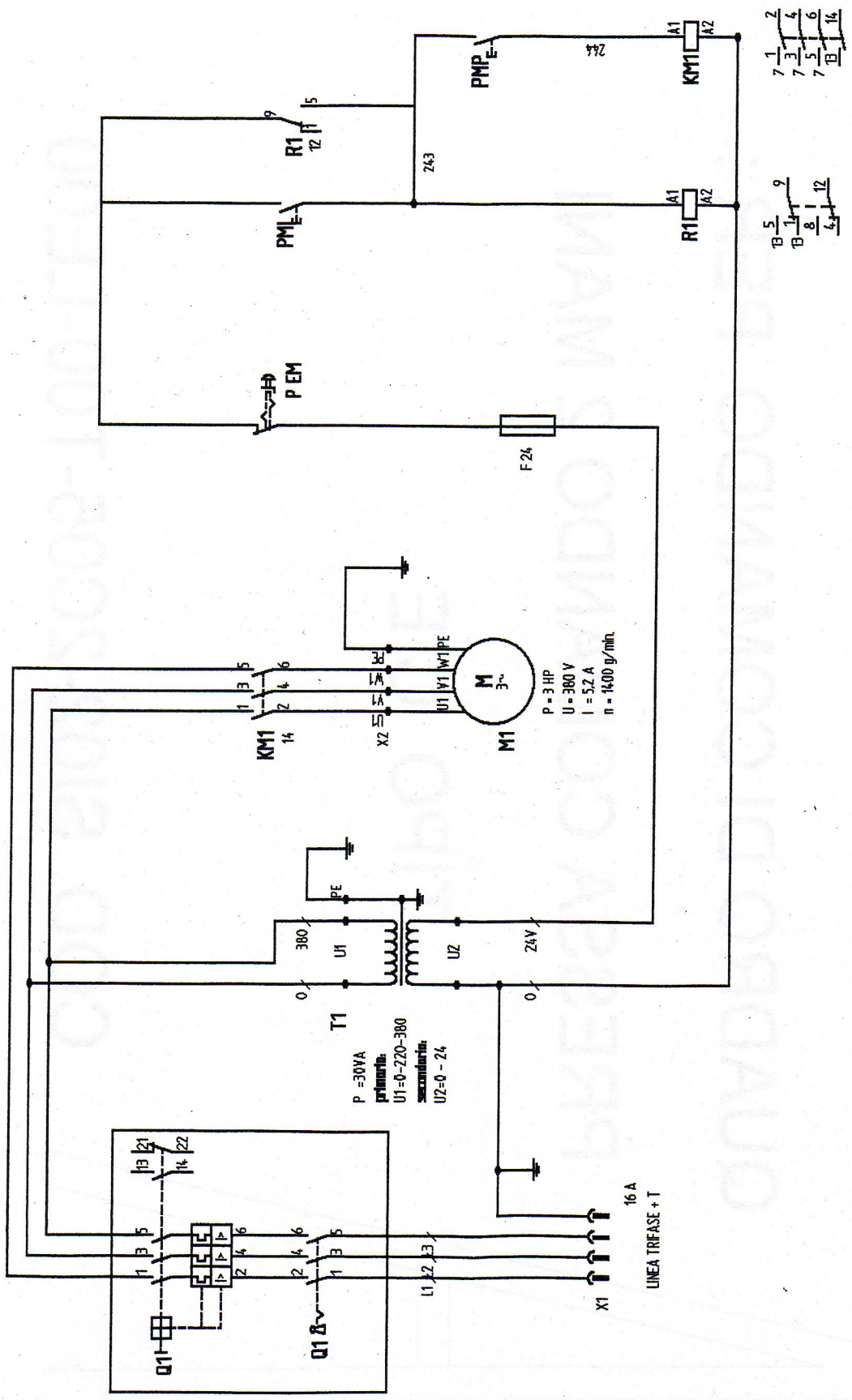


Item #	Part Name	Part # 40 Ton	Part# 70 Ton	Part # 100 Ton	Qty
1	Complete power unit	300633	300633	79937	1
1	Tank cover	301388	301388	301391	1
2	Electrical cover	300388	300388	300388	1
3	Fill cap	302055	302055	302055	1
4	Air filter	300391	300635	300224	1
5	Drain filter	300392	300392	300223	1
6					
7	Back motor bearing				1
*8	Motor rotor	301848	301848		1
*9	Driving shaft				1
8 9 11	Drive shaft assembly	302200	302200		
10	Front motor bearing				1
*11	Pump motor				1
12	Blade	302056	302056		1
13	Pumping bearing				1
14	Eccentric				1
15	Roller bearing				1
16	High pressure pump group	301115	301115	301115	2
N/A	Outlet filter / on bottom of pump	300393	300393	300394	1

Hydraulic diagram



Electrical schematic



Gauge Conversion
Force 40

Bore 120 mm = 4.73 =

40 Tons	**=**	**314 Bar**	**=**	**4555 PSI**
35 Tons	**=**	**275 Bar**	**=**	**3986 PSI**
30 Tons	**=**	**235 Bar**	**=**	**3416 PSI**
25 Tons	**=**	**196 Bar**	**=**	**2847 PSI**
20 Tons	**=**	**157 Bar**	**=**	**2277 PSI**
15 Tons	**=**	**117 Bar**	**=**	**1708PSI**
10 Tons	**=**	**78 Bar**	**=**	**1138 PSI**
5 Tons	**=**	**39 Bar**	**=**	**569 PSI**
1 Ton	**=**	**7.8 Bar**	**=**	**114 PSI**

DURA PRESS

Gauge Conversion
Force 70

Bore 160 mm = 6.299

70 Tons	=	299 Bar	=	4493 PSI
65 Tons	=	278 Bar	=	4172 PSI
60 Tons	=	256 Bar	=	3851 PSI
55 Tons	=	235 Bar	=	3530 PSI
50 Tons	=	214Bar	=	3209 PSI
45 Tons	=	192 Bar	=	2888 PSI
40 Tons	=	171 Bar	=	2567 PSI
35 Tons	=	150 Bar	=	2246 PSI
30 Tons	=	128 Bar	=	1925 PSI
25 Tons	=	110 Bar	=	1605 PSI
20 Tons	=	88 Bar	=	1284 PSI
15 Tons	=	66 Bar	=	963 PSI
10 Tons	=	44 Bar	=	642 PSI
5 Tons	=	22 Bar	=	321 PSI
1 Ton	=	4.4 Bar	=	64 PSI

DAKE

DURA PRESS

Gauge Conversion
Force 100

Bore 180 mm = 7.086 =

100 Tons	=	350 Bar	=	5074 PSI
95 Tons	=	332 Bar	=	4820 PSI
90 Tons	=	315 Bar	=	4566 PSI
85 Tons	=	297 Bar	=	4312 PSI
80 Tons	=	280 Bar	=	4058 PSI
75 Tons	=	262 Bar	=	3805 PSI
70 Tons	=	245 Bar	=	3551 PSI
65 Tons	=	227 Bar	=	3298 PSI
60 Tons	=	210 Bar	=	3044 PSI
55 Tons	=	192 Bar	=	2790 PSI
50 Tons	=	175 Bar	=	2536 PSI
45 Tons	=	157 Bar	=	2283 PSI
40 Tons	=	135 Bar	=	2028 PSI
35 Tons	=	122 Bar	=	1775 PSI
30 Tons	=	105 Bar	=	1522 PSI
25 Tons	=	87 Bar	=	1268 PSI
20 Tons	=	70 Bar	=	1014 PSI
15 Tons	=	52 Bar	=	761 PSI
10 Tons	=	35 Bar	=	507 PSI
5 Tons	=	17 Bar	=	253 PSI
1 Ton	=	3.4 Bar	=	50 PSI