INSTRUCTIONS AND REPAIR PARTS MANUAL FOR

PIRANHA

PUNCH
MODEL NUMBER
SEP 120

Publication: June, 2015

For Serial Numbers
SEP 120-569 to Current
Models w/Serial Changes

www.megafab.com
800-338-5471

Be sure to register your model and serial number to receive Piranha Service and Product Updates.

FOREWORD

This manual has been prepared for those persons who will operate and maintain the Piranha Ironworker. It is important that all persons responsible for the care and operation of this equipment read and understand the information presented in this publication.

The illustrations and instructions on the following pages were the most recent available at the time of publication and selection of this material was made based on a standard machine arrangement. Differences between the machine you received and the views contained in this manual are the result of design improvement and / or the addition of optional accessories specified on your order.

WARRANTY

Mega Manufacturing will replace (F.O.B. our factory), or refund the purchase price for any goods which are defective in materials and workmanship within 12 months of date of purchase. The buyer must return the warranty registration card within thirty-(30) days of the purchase date, and at the seller's option, return the defective materials freight and delivery prepaid to the seller, which shall be the buyer's sole remedy for defective materials. Seller shall not be liable to purchaser or any other person for consequential or incidental damages. Hydraulic and electrical components are subject to their respective manufacturer's warranties. This warranty does not apply to machines and / or components, which have been altered in any way, or subjected to abusive or abnormal use, inadequate maintenance, and lubrication, or to use beyond seller’s recommended capacities and specifications. Seller shall not be liable under any circumstances for labor costs expended on such goods or consequential damages. Seller shall not be liable to purchaser or any other person for loss or damage directly or indirectly arising from the use of the goods, or from any other cause. No employee, agent, officer, or seller is authorized to make oral representations or warranty of fitness or to waive any of the foregoing terms of sale and none shall be binding on the seller

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Refer to second section of this manual for information on repair parts breakdown and ordering repair parts.

SAFETY PRECAUTIONS

The operator of this machine should view the operational video provided with the machine, and thoroughly understand this manual before starting any operation.

This machine was designed for use by a single operator only.

Wear eye protection at all times.

Use the proper voltage outlet for your machine.

Make sure that all guards and cover shields are down before starting machine.

CAUTION: *Do not remove guards.*

Keep hands off working tables and out of the path of moving parts during operation. Remove all material from the tables except for the work piece.

Remove all tooling from the punch end before starting shearing or coping operations.

Make sure that all tooling is properly held in position before starting any operation.

The area around the machine should be well lighted, dry, and as free from obstructions as possible.

All maintenance and repair work should be performed by a person familiar with this publication.

At the end of the working day, the operator should turn the power off to the machine.

Adjust limit switches when punching or bending to allow 1/4" maximum clearance between bottom of the stripper foot or bending punch and the top of the material. Contact the factory for limit switch adjustments on special tooling.

Turn machine to the "OFF" position when changing tooling or performing maintenance work.

INTRODUCTION

The Piranha SEP 120 Single End Punch is a compact hydraulic powered machine that punches with an advantage of a 21.5” Throat Depth. The compact size requires minimal floor space and the integral lifting lug provides instant portability and the unit arrives fully assembled, requiring only the addition of hydraulic oil and electrical power to become fully operational. . The large platen has 5/8-11 tapped holes giving a wide base for increased flexibility of attachment sizes. The workstation is located approximately 44" off the floor for ease of operation. Two limit switch stops allow for setting minimum stroke lengths for maximum production, but will allow for the full 2” of stroke if required. Full stroke cycle times requires just 5.5 seconds.

The first part of this manual provides operations and maintenance instructions, including a section on troubleshooting various problems that may occur. The second part of this manual provides repair parts information and a complete parts list with their respective part numbers.

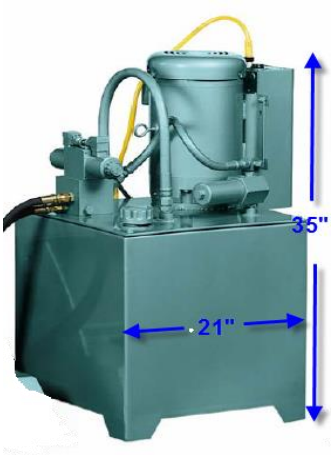
Proper understanding and application of the information and procedures given in this manual will aid in establishing a preventative maintenance program and, provide assistance for correcting malfunctions that may occur in the machine. The repair parts list provides information for parts procurement as well as assembly breakdowns to aid in disassembly and re-assembly for repair part installation.

MACHINE SPECIFICATIONS

HYDRAULIC SYSTEM	
Drive Motor	10HP 230 / 460 Volt / 3 Phase
Hydraulic Tank Capacity	30-40 Gallons
Hydraulic Oil	AW-32 or Equivalent (ISO Grade 32) Consult your local distributor for a cross reference
WORKING SURFACE	
Platen Table	10" x 23"
CAPACITIES	
Punch	Maximum 1-1/2" Thru 1" thick material or 120 Tons
WEIGHT	
Shipping Weight	
Punch	3350 lbs.
Power Unit	350 lbs.
Total Weight	3700 lbs.

Functional Diagram

Dimensional Data



INSTALLATION

Location

For the best overall performance, install the Piranha in a location that is clean and well lighted. Provide sufficient space in all directions to allow for the material lengths of the work pieces to be processed by the Piranha.

Foundation

To maintain the accurate alignment built into the Piranha, and to prevent undue stress on the moving parts under a load, the Piranha should be placed on a stable base or floor adequately constructed to withstand the unit weight.

Wiring

The Piranha is shipped totally wired through the electrical enclosure box. It has been left to the owner's discretion whether to wire direct to an electrical disconnect, or to install a cord and plug for mobility of the Piranha.

> **CAUTION:** Compare machine wiring to input voltage *prior* to connecting power. Only connect the specified voltage to the machine.

Lifting

The lifting lug on the Piranha is an integral part of the machine. Use a device with adequate lifting capacity to handle the Piranha.

> **CAUTION:** The unit is exceptionally **top heavy**! Lifting from the underside of the machine may cause damage to the cabinet structure.

Assembly

The Piranha is pre-assembled at the factory. The only requirements are the addition of hydraulic oil and electrical power.

LUBRICATION

GENERAL

The importance of correct lubrication cannot be over emphasized. Under no circumstances should the machine be operated without complying with the lubrication requirements set forth in this publication.

LUBRICATION DIAGRAM

LUBRICATION CHART

Station	Part Lubricated	Frequency	Instructions	Lubrication Type
1	Cross Shaft (on and off side)	Every 40 hours or weekly with normal use	Apply With Grease Gun Until Grease Appears Around Edge Of Parts	Mobile MP Or Any Multi-Purpose Grease
2	Step Shaft (on and off side 2 places)			
3	Punch Stem (on and off side)			
4	Clevis Pin			
5	Drive Motor On Power Unit	One Shot Per Year		Multi-Purpose Grease

MAINTENANCE

NOTE: The Machine should be in the "OFF" position while maintenance checks are being performed.

HYDRAULIC FILTER ELEMENT

The hydraulic oil filter is a vital component of the hydraulic system as it filters impurities and foreign particles to avoid hydraulic component malfunctions.

CAUTION: When the filter element is plugged, hydraulic fluid will by-pass the element, allowing contamination to enter the hydraulic system. It is recommended that the filter element be changed every three-(3) months, depending on workload and environmental conditions. One extra element is furnished with the basic unit. This element should be installed after the first 40 hours of use. The filter housing is mounted inside the access door on the machine. Reference: Repair Parts List for reordering instructions and the item number.

FASTENERS AND CONNECTIONS

The efficiency and accuracy of the Piranha is dependent upon proper alignment of all parts. Alignment can only be achieved by keeping the fasteners tight. Check all bolts and nuts for tightness every 40 hours of operation, or when lubricating the machine. Unless specified in parts illustrations, torque socket head bolts to the specifications in the table on Page 13.

Check all hydraulic hose and fitting connections for tightness when lubricating the machine. We recommend you use Loctite hydraulic sealant or an equivalent product on all connectors.

Check to insure the hydraulic cylinder clevis is screwed tight on the piston rod each time machine is lubricated.

HYDRAULIC OIL LEVEL

Your Piranha ironworker is equipped with a dipstick indicator on the fill cap located inside the access door. The dipstick is marked to help maintain proper fluid level. This should be checked as part of your normal maintenance cycle.

NOTE: We recommend that you implement a weekly maintenance program to inspect and lubricate your Piranha.

TROUBLESHOOTING

The following material is a trouble-shooting guide to be followed by maintenance personnel should a problem occur with your machine. Many of these problems can be solved in your shop by following a step-by-step procedure for isolating the deficiency. If the deficiency cannot be isolated and corrected in your shop, any information regarding your effort to isolate the area should be related to the service technician at Mega Manufacturing, Inc. to assist him in finding a solution. These efforts will assure restoring your machine to full operational status with the minimum amount of downtime.

POTENTIAL PROBLEMS AND SOLUTIONS

P1 - MACHINE WILL NOT START

1. Check that Emergency Stop is not depressed.
2. Check fuses at disconnect.
3. Check voltage to motor starter.
4. Transformer control voltage (Output - 120 V). If not, check:
    A. Transformer fuse. If blown, inspect circuit for a ground short.
    B. Incoming voltage to input side of transformer is correct and the jumper bars are in the correct location.
    C. All wire and fuse holder connections are tight.
    D. Possible faulty transformer.
5. Control circuit from transformer to front and rear control boxes to motor starter coil. (Reference Wiring Diagram).

P2 - MACHINE STARTS BUT WILL NOT OPERATE

Determine if the problem is electrical or hydraulic by using the manual override buttons located on the Vickers directional valve top and bottom sides.

If the machine operates, the problem is electrical. Follow the procedure below:

1. Determine if problem exists Foot Pedal or Joystick or both.
    A. If problem is isolated to only one check the wiring and wiring harness with for component that does not work.
    B. If the problem exists in both, follow the remaining procedures.
2. Check wiring connections in the electrical enclosure.

3. Check the valve body wiring harness, including the disconnect plugs, for loose connections.

4. Check coils in the directional control valve.

If the machine does not operate on manual override, the problem is hydraulic.

1. Check to determine if the pump is developing flow. If not:

   A. See if motor rotation is correct.

   B. Check motor / pump coupling (in models prior to S/N SEP120-480) for tightness on both shafts; and also check that insert is not damaged.

   C. Check hydraulic suction line for tightness.

   D. Check Oil level.

   E. If the above checks out okay, the pump may be defective

2. Check to determine if the spool in the directional control valve is stuck in the center position. If the valve is stuck, remove the end caps of the control valve and free the spool. Inspect for contamination.

P3 - MACHINE OVERHEATS

1. Check if fluid level in reservoir is low.

2. Check for low line voltage to transformer, causing low control voltage to directional valve solenoid coils.

3. Determine if limit switches are set improperly when using footswitch, allowing cylinder to bottom out at retraction and extension. This may cause hydraulic fluid to by-pass over relief valve, creating heat buildup.

4. If jog mode is used during production, hydraulic fluid may pass over the NC valve and create heat buildup.

5. Check for restrictions in the hydraulic system. Example: Contaminated cartridge valve, restricted or kinked hose, etc.

P4 - RESET ON MOTOR STARTER KICKS OUT

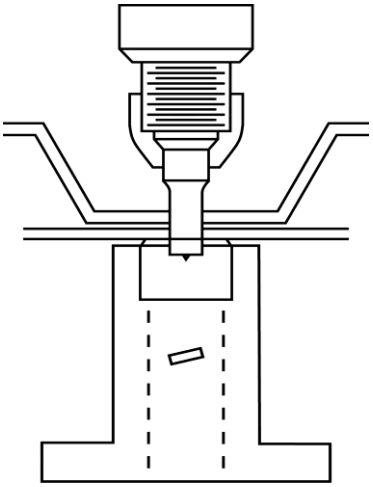
1. Internal overheating. Refer to P3, above, for troubleshooting procedure.

2. Insure proper sized heater coils are being used. (Reference the wiring diagram).

3. Check for proper line voltage.

4. Check for loose connections on motor cable at starter or motor.

TONNAGE REQUIRED FOR PUNCHING HOLES IN MILD STEEL



This table shows the tons of force required for punching round holes in mild steel derived by the formula:
Force = hole diameter x material thickness x constant 80.
All figures shown are in U.S. tons.
For holes larger than 1 inch, the punching force can be calculated per the following example:
What pressure is required to punch a 2-1/4" round hole in 7/8" thick material?
Since a 1" round hole in 7/8" thick material requires 70 tons of pressure, multiply this 70 tons x 2.25 = 157.50
NOTE: Do not punch a hole with a smaller diameter than the thickness of the material

Material Thickness	Punch Size														
	1/8	3/16	1/4	5/16	3/8	7/16	1/2	9/16	5/8	11/16	3/4	13/16	7/8	15/16	1
3/32	1	1	2	2	3	3	4	4	5	5	5	6	7	7	8
1/8	1	2	3	3	4	4	5	6	6	7	8	8	9	9	10
3/16		3	4	5	6	7	8	9	9	10	11	12	13	14	15
1/4			5	6	8	9	10	11	13	14	15	16	18	19	20
5/16				8	9	11	13	14	16	17	19	20	22	23	25
3/8					11	13	15	17	19	21	23	24	26	28	30
7/16						15	18	20	22	24	26	28	30	33	35
1/2							20	23	25	28	30	33	35	38	40
9/16								26	28	30	34	36	40	42	45
5/8									31	34	38	41	44	47	50
11/16										38	41	44	48	51	55
3/4											45	49	53	56	60
13/16												53	57	61	65
7/8													61	66	70
15/16														71	75
1															80

MAINTENANCE TOOLS LIST

The following tools are required for performing maintenance and to assist you in troubleshooting your machine:

1. Grease gun with a flexible connection.
2. Open end wrenches - 3/4" thru 1-1/4".
3. Adjustable wrench – 1-1/2" thru 2-1/4" opening.
4. Allen wrenches - 3/16" thru 5/8".
5. Screwdrivers - miscellaneous sizes.
6. Voltmeter.

RECOMMENDED FASTENER TORQUE SPECIFICATIONS

(Unless Otherwise Specified)

Bolt Size	Torque (Ft-Lbs)
3/8-16	45
7/16-14	70
1/2-13	100
5/8-11	210
3/4-10	375

DIE CLEARANCE CHART FOR STEEL

Gauge	Decimal Thickness	Die Clearance (Add to Punch Size)
13 thru 11	0.089 – 0.125”	0.01”
10 thru 7	0.126 – 0.190”	1/64” (0.016”)
Over 7 thru 1/2" Plate	0.191 – 0.500”	1/32" (0.032”)
Over 1/2” Plate	Over 0.500”	1/16" (0.063”)

Operating Instructions

The Piranha 120 Ton Single End Punch comes pre-assembled requiring only the addition of hydraulic fluid to the power unit and the attachment of the two hydraulic hoes from the power unit to the cylinder connections on the lower back end of the Punch/C-Frame unit. The connections are marked with “A” and “B” and correspond with the “CA Port” and “CB Port” markings on the hydraulic valve block. The unit is pre-wired requiring only power from a disconnect to the Electrical Enclosure located on the Power Unit and the attachment of the 6’ Remote Chord from the top of the Electrical Enclosure to the receptacle on the lower back end of the Punch/C-Frame Unit between the hydraulic cylinder connections.

The punch can only be started from the Electrical Enclosure Start Button, but has two Stop Buttons; one located on the Electrical Enclosure and the other on the Joystick side of the Punch/C-Frame Unit. The machined can be operated either by hand with the Joystick Controller (located on the right had side of the Punch/C-Frame Unit) or by the Foot Switch. The Joystick is a 5 position momentary switch allowing for fast up and down or jog speed (slow with limited pressure) up and down. The Joystick has a neutral center position and returns to center when released. The Foot Switch is used by plugging in the small twist lock plug into the receptacle located on the right had side of the Punch/C-Frame and switching the Toggle Switch from the “off” position to the “on” position.

Footswitch Operation

The Punch can also be controlled by a footswitch (reference Figure "F"). The footswitch is used by plugging the 4-pole twist lock cap into the 4-pole twist lock receptacle located on the right side of the Punch/C-Frame, and switching the toggle switch from the "OFF" position to the "ON" position.

The footswitch is a three-(3) position switch allowing hands-free operation.

- By fully depressing the footswitch lever, machine movement is downward to limit setting (reference Figure F2).
- By allowing the footswitch lever to elevate to the center position, machine movement stops (reference Figure F3).

- Completion of downward cycle is accomplished by depressing footswitch lever again. Machine movement is down until limit setting is met (reference Figure F4).
- Removing foot pressure from the switch entirely allows machine movement upward to limit setting, completing upstroke cycle (reference Figure F5).

The footswitch is used in conjunction with the upstroke and down stroke limit switch located on the machine right side in the side panel.

1) Plug in footswitch.

2) Turn toggle switch to "ON" position.

3) Loosen thumbscrew on down stroke limit-stop.

4) Fully depress footswitch lever allowing beam to move downward.

5) Slide limit stop until contact with the down stroke switch stops punch movement at the desired lower limit.

6) Tighten thumbscrew to hold limit switch arm firmly in place.

7) Loosen thumbscrew on upstroke limit-stop.

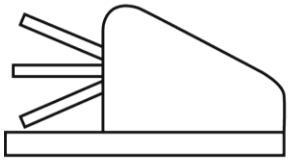
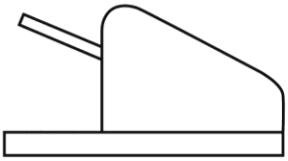
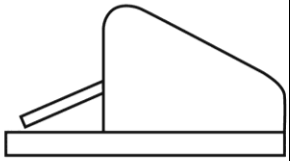
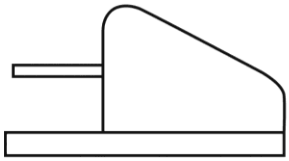
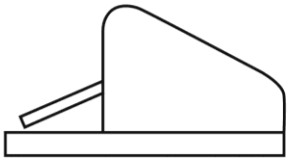
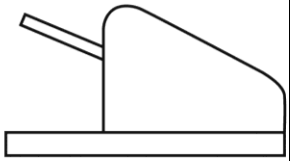
8) Allow footswitch lever to elevate allowing punch to rise.

9) Slide limit stop until contact with the upstroke switch stops punch movement at the desired upper limit.

10) Tighten thumbscrew to hold limit switch arm firmly in place.

NOTE: When punching or using the bending attachment, set upper and lower limits to allow for 1/4" maximum clearance between the bottom of the punch and the top of the work material. The setting will change when the work material thickness changes.

Figure “F”

"F" 	"F1" 	"F2" 
Foot Switch Lever Positions 1) Beam Moves Up 2) Beam is Stopped 3) Beam Moves Down	Foot Switch Lever Full Up Position Beam Elevates To Limit Setting	Foot Switch Lever Depressed Past Center Beam Moves Down To Limit Setting
"F3" 	"F4" 	"F5" 
Foot Switch Lever Neutral Position Beam Travel Is Halted	Foot Switch Lever Depressed Past Center Beam Moves Down To Limit Setting	Foot Switch Lever Full Up Position Beam Elevates To Limit Setting

ORDERING REPAIR PARTS FOR A PIRANHA

The following assembly parts lists are shown in four columns. In the first column are the index numbers of the parts illustrated. The second column contains the Mega Manufacturing part number, followed by the description in the third column. The last column shows the quantity of parts required for the assembly.

Electrical wiring diagrams and hydraulic diagrams are shown with the Piranha part numbers. Some of these items shall be considered as an assembly and only one part number will be given, even though they are comprised of component parts.

You will receive quicker service when ordering repair parts by adhering to the following procedure.

1. Provide the complete serial number of the machine. The machine serial number is stamped on the nameplate and is located on the right hand side of the machine (when facing the punch end).

2. Provide part number, description, and the quantity of parts that you require.

3. Specify each individual piece required. Do NOT use the term "complete assembly".

4. Specify how and where to ship. Define the method of transportation desired. UPS, Old Dominion, and FedEx Freight, are the most frequently used carriers at Mega Manufacturing.

ALWAYS PROVIDE THE COMPLETE SERIAL NUMBER
FOR PARTS AND SERVICE

Standards Compliance

Electrical System Design/Manufacture:
The machines manufactured in Rockford, Illinois, USA are furnished with electrical / electronic products that are UL (Underwriter's Laboratory) approved. These components have the UL numbers printed or stamped on them and can be easily traced to the point of manufacture. In addition, all of the machines meet the current "Ontario Hydro" electrical code for proper manufacture of the electrical circuits.

Hydraulic System Design/Manufacture:
Hydraulic components used in Piranha machines are approved by NFPA (National Fluid Power Association), and those approval numbers can be traced through the manufacturer's part numbers.

ANSI/OSHA Compliance:
Mega Manufacturing meets the current ANSI construction standards for manufacturing of ironworkers, press brakes, and shears:

ANSI Bll.5 - Ironworkers, Construction, Care, and Use
ANSI Bll.3 - Power press brakes, Construction, Care, and Use
ANSI Bll.4 - Shears, Construction, Care, and Use

The ANSI B11 standards were developed to establish levels of responsibility for manufacturing safe products, and for installing, training, and using these products. The levels of responsibility are fairly evenly distributed between the manufacturer, the owner/end-user of the equipment, and the operator. Specific guarding requirements are, in general, assigned to the owner/end-user of the equipment.

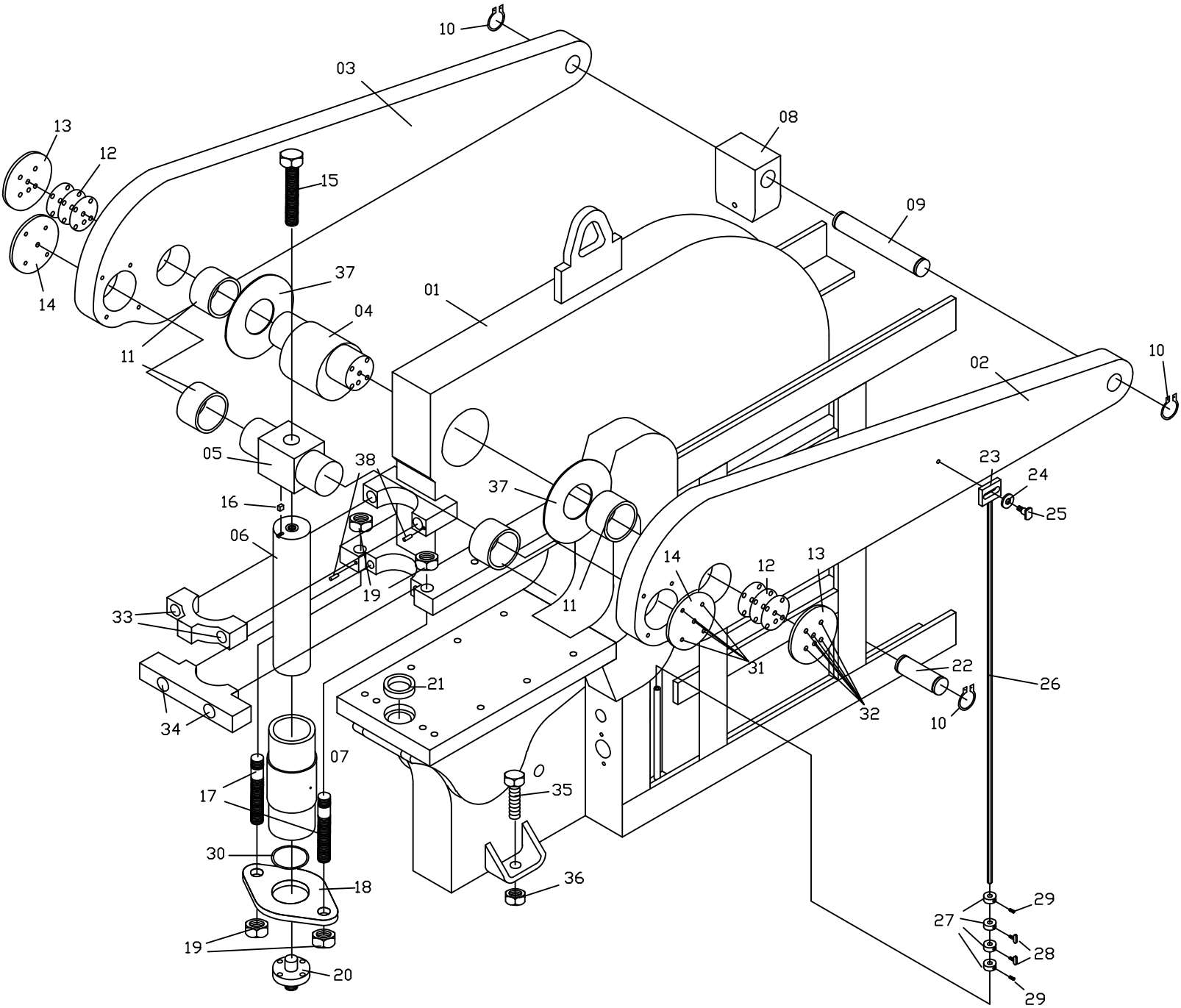
With specific reference to Ironworkers, OSHA (Occupational Safety and Health Administration) made a ruling on March 4, 1991 - under their standard number 1910.212, specific to the OSHA Machine Guarding Standard 29 CFR 1910.212(a)(1). This ruling is stated verbatim below:

> "If an employer provides an iron worker machine (at his or her workplace), which is manufactured in compliance with the safety requirements specified in ANSI B 11.5-1988, and the guarding is maintained as required; then that employer meets OSHA's machine guarding requirements for that machine."

Please understand that this ruling places the primary burden of responsibility for maintenance of guarding on the owner/end-user of the equipment. Inherent in this requirement is the responsibility of the owners/end-users of the equipment to develop and maintain guarding specific to their application for the equipment. These ANSI safety requirements may be acquired from:

American National Standard Institute 1430 Broadway
New York, New York 10018 Telephone (212) 354-3300

Basic Unit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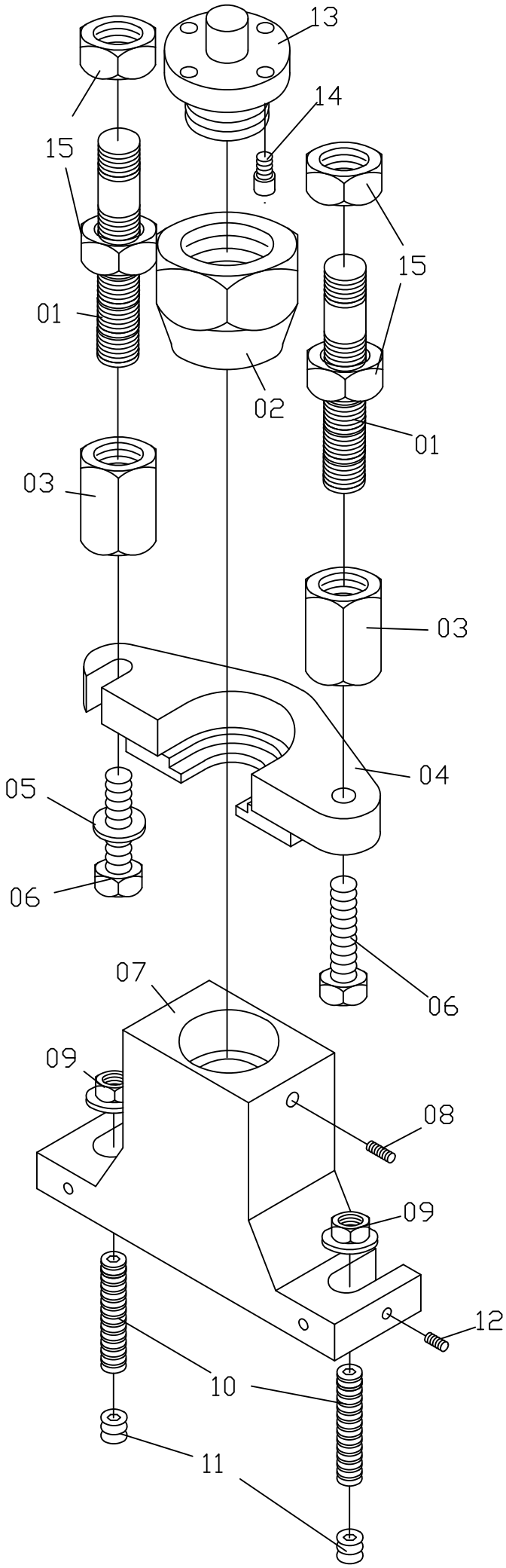
SEP-120 Basic Unit

Figure and Index No.	Old part #	New part #	Description	Qty.
RP -1	0280100	0280100	C-Frame Weldment	1
-2	0380150	0280150	Lever Arm On Side	1
-3	0380151	0280151	Lever Arm Off Side	1
-4	0280170	0280170	Step Shaft	1
-5	0280172	0280172	Cross Shaft **(Note see part change info below)**	1
-6	0280173	0280173	Punch Stem **(Note see part change info below)**	1
-7	0280179	0280179	Stem Bushing	1
-8	2801801	0280180	Clevis **(Note changed at serial # 277 use new # after serial # 277)**	1
-9	2801781	0280178	Clevis Pin **(Note changed at serial # 277 use new # after serial # 277)**	1
-10	0531340	0581370	Snap Rings **(Note chaged at serial # 277 use new # after serial # 277 for Clevis Pin Only) Use old part # for Cylinder Pin**	4
-11	0380200	0380200	Lever Arm Bushings	4
-12	N/A	N/A	Spacer Shims **(Currentyly use washers in production thickness varies)**	Varies
-13	0280175	0280175	Step Shaft Cover	2
-14	0280174	0280174	Cross Shaft Cover	2
-15	0531113	0581120	**Bolt (Old part 1"X4-1/2" NF) (New part 1-1/4"-12X5") Changed at #266**	1
-16	0280182	0280182	Punch Stem Key	1
-17	0280402	0280402	Stripper Stud	2
-18	0580177	0280177	Plate Stem Seal	1
-19	0581265	0581265	1"-8 Jam Nut	4
-20	0280185	0280185	Punch Stem Adapter	1
-21	0280187	0280187	Platen Filler Ring	1
-22	0230172	02301721	Cylinder Pin **(Note changed at serial # 469 use new # after serial # 469)**	1
-23	0281609	0281609	Microswitch Operator Rod Assembly	1
-24	0531307	0531307	1/2" Flat Washer	1
-25	0531083	0531083	1/2" X 1/2" Shoulder Bolt	1
-26	**See**	**See**	**See RP-23 PART MUST BE ORDERED AS COMPLETE ASSY.**	N/A
-27	0381611	0381611	Microswitch Stop	4
-28	0531350	0531320	1/4"-20 X 1/2" Thumbscrew	2
-29	0531802	0531802	1/4"-20 x 3/4" SSS	2
-30	0581610	0581610	O-Ring ARP234	1
-31	0531050	0531050	3/8 X 1" SHCS **(Used on all 4 Cover Plates)**	16
-32	0531306	0531306	3/8" Lock Washer **(Used on all 4 Cover Plates)**	16
-33	0581114	0581114	3/4 x 3-1/4" SHCS	2
-34	0581114	0581114	3/4 x 3-1/4" SHCS	2
-35	0581119	0581119	3/4" X 2" HHCS	6
-36	0531255	0531255	3/4" Nylock HN	6
-37	0280176	0280176	Aluminum Washer	2
-38	N/A	N/A	Dowl Pin	2

Notes:

RP-5 & RP-6 Part # on the cross shaft did not change, but holes size did. Old style OBSOLETE. Must verify bolt size.
New parts will take 1-1/4" old style will be 1". Must change all parts together if they have not been updated prior.
Inspection required to determine if all part need replaced 0280172, 0280173, and 0581120 bolt.

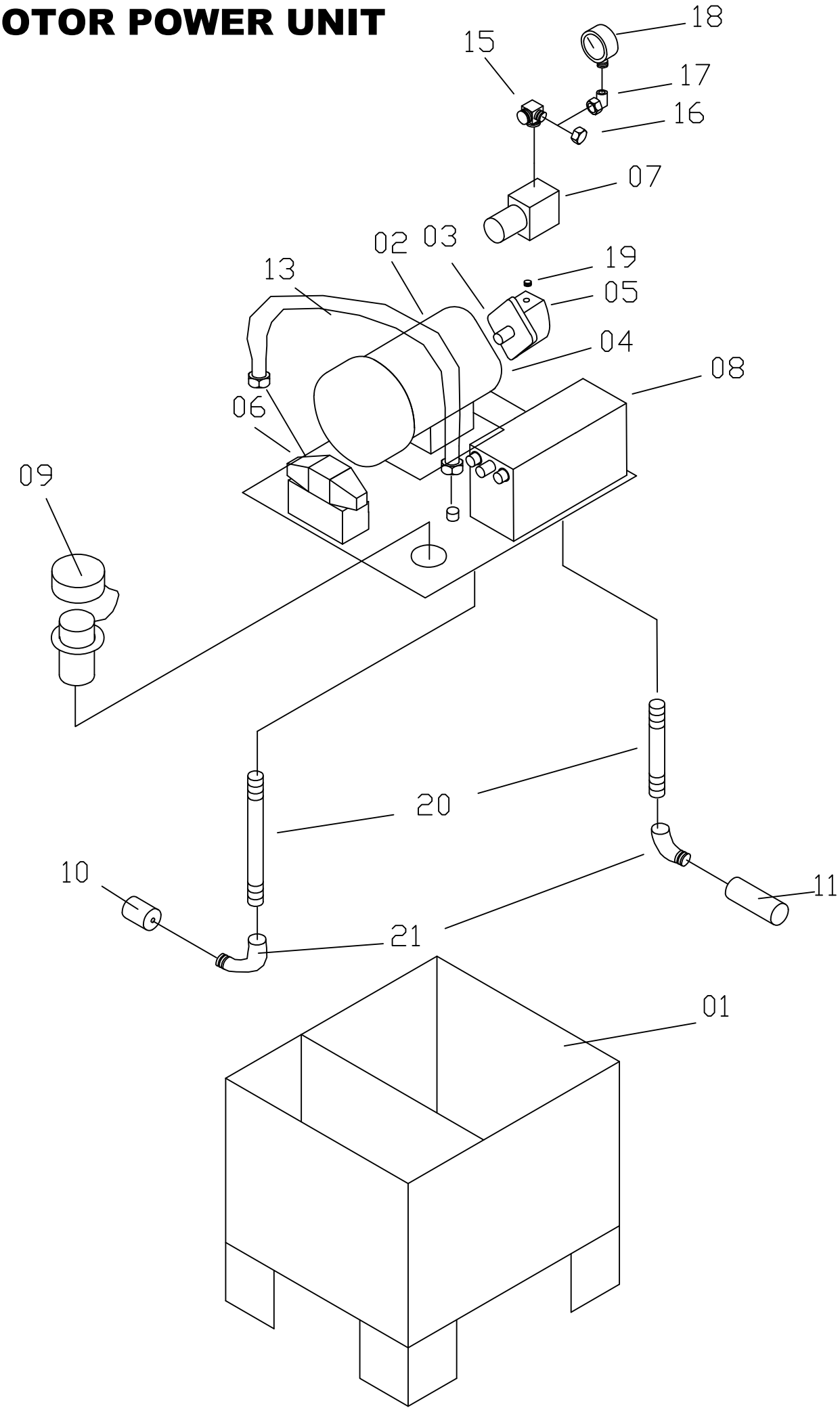
Stripper Assy



STRIPPER ASSEMBLY SEP-120

Figure and Index No.	Part #	Description	Qty.
RP -1	0280402	Stripper Stud	2
-2	0340406	C-58 Coupling Nut	1
-3	0581266	CL-6-CN Coupling Nut	2
-4	0280401	Heavy Duty Stripper	1
-5	0531307	1/2" Flat Washer	1
-6	0581108	1/2" X 2-1/4" HH Bolt Grade 5	2
-7	0280400	Die Block	1
-8	0531005	3/8" X 1/2" SSS	1
-9	0531251	CL-4-FN Flange Nut	2
-10	0531100	5/8" X 3" SSS	2
-11	0581109	5/8" X 1/2" SSS	2
-12	0531002	1/4" X 3/4" SSS	3
-13	0280185	Punch Stem Adapter	1
-14	0581116	3/8-24 X 1 SHCS	4
-15	0581265	1" NC Jam Nut	4

MOTOR POWER UNIT



Motor Power Unit SEP-120

Figure and Index No.	Part #	Description	Qty.
RP -1	N/A	Reservoir Tank	1
-2	0531600	10HP Motor 220/440V Shafted **(Note used from SEP-120 001-480)**	1
OR	05316612	10HP Motor 220/440V 5/8" Hollow Shaft **(Note used from SEP-120 481-Current)**	OR
OR	0531665	10HP Motor 575V Shafted **(Note used from SEP-120 001-480)**	OR
OR	05316652	10HP Motor 575V 5/8" Hollow Shaft **(Note used from SEP-120 481-Current)**	OR
OR	0531670	10HP Motor 220V Single Phase **(Note used from SEP-120 001-480)**	OR
OR	05316702	10HP Motor 220V Single Phase **(Note used from SEP-120 481-Current)**	OR
-3	3 Parts	Pump/Motor Coupling	
	0531663	Pump Lovejoy Coupling Half 11/16" **(Note used from SEP-120 001-439 replacement part only use 0521664 if replacing pump to 0531596-2)**	1
	0521663	Pump Lovejoy Coupling Half 3/4" **(Note used from SEP-120 440-480 replacement part only use 0521664 if replacing pump to 0531596-2)**	OR
	0521664	Pump Lovejoy Coupling Half 5/8" **(Note use if replacing pump with 0531596-2)**	OR
	0531662	Motor Lovejoy Coupling Half 1-3/8" **(Note used from SEP-120 001-480)**	1
	0531664	Lovejoy Rubber Insert **(Note used from SEP-120 001-480)**	1
-4	0531571	Pump/Motor Adapter **(Note used from SEP-120 001-480)**	1
-5	0531570	Hydraulic Pump **(Note used from SEP-120 001-439 replace with 0531596-2 and 0521664)**	1
	0531569	Hydraulic Pump **OBSOLETE (Note used from SEP-120 441-480 replace with 0531596-2 and 0521664)**	OR
	0531596-2	Hydraulic Pump **(Note used from SEP-120 481-Current)**	OR
-6	0381530	Valve Body Assembly **(Note used for SEP-120 569-CURRENT)**	1
-7	N/A	Filter Housing **(Note used from SEP-120 001-119) OBSOLETE**	1
	0521550	Filter Housing **(Note used from SEP-120 120-566) OBSOLETE**	OR
	0521550-1	Filter Housing **(Note used from SEP-120 567-604) OBSOLETE**	OR
	0521550-2	Filter Housing **(Note used from SEP-120 605-CURRENT)**	OR
	0531551	Filter Element **(Note used from SEP-120 001-119)**	1
	0521551	Filter Element **(Note used from SEP-120 120-566)**	OR
	0521551-1	Filter Element **(Note used from SEP-120 567-604)**	OR
	0521551-2	Filter Element **(Note used from SEP-120 605-CURRENT)**	OR
-8	0281640	Electrical Enclosure **(Note used from SEP-120 001-516 Approximate)**	1
	02816402	Electrical Enclosure **(Note used from SEP-120 517-575 Approximate)**	OR
	02816402-1	Electrical Enclosure **(Note used from SEP-120 576-Current Approximate)**	OR
-9	0531402	Fill Cap	1
-10	0581552	Diffuser DFD-60	1
-11	0581553	Suction Strainer SHE-1-100	1
-12	0531543	32" Hose **(Not Shown)**	1
-13	0581510	12" Hose **(Note used from SEP-120 001-480)**	1
OR	0581502	24" Hose **(Note used from SEP-120 481-Current)**	OR
-14	0581502	24" Hose **(Note used from SEP-120 481-Current Not Shown)**	1
-15	0531508	6801-10-12LP JM6 Hydraulic Fitting **(Note used from SEP-120 120-CURRENT)**	1
-16	0541531	304 -C-6 Hydraulic Fitting **(Note used from SEP-120 120-CURRENT)**	1
-17	0541531	6503-6-4 Hydraulic Fitting **(Note used from SEP-120 120-CURRENT)**	1
-18	0541542	Pressure Gauge	1
-19	0531515-1	6403-10-12 NW0 Hydraulic Fitting **(Note used from SEP-120 481-Current)**	1
-20	0581516	1 X 13-1/2" Pipe Nipple	2
-21	0581514	1" Black Pipe Street ELL	2

Notes: Prior to Serial # 481 design change on assembly and location of components on the power unit.

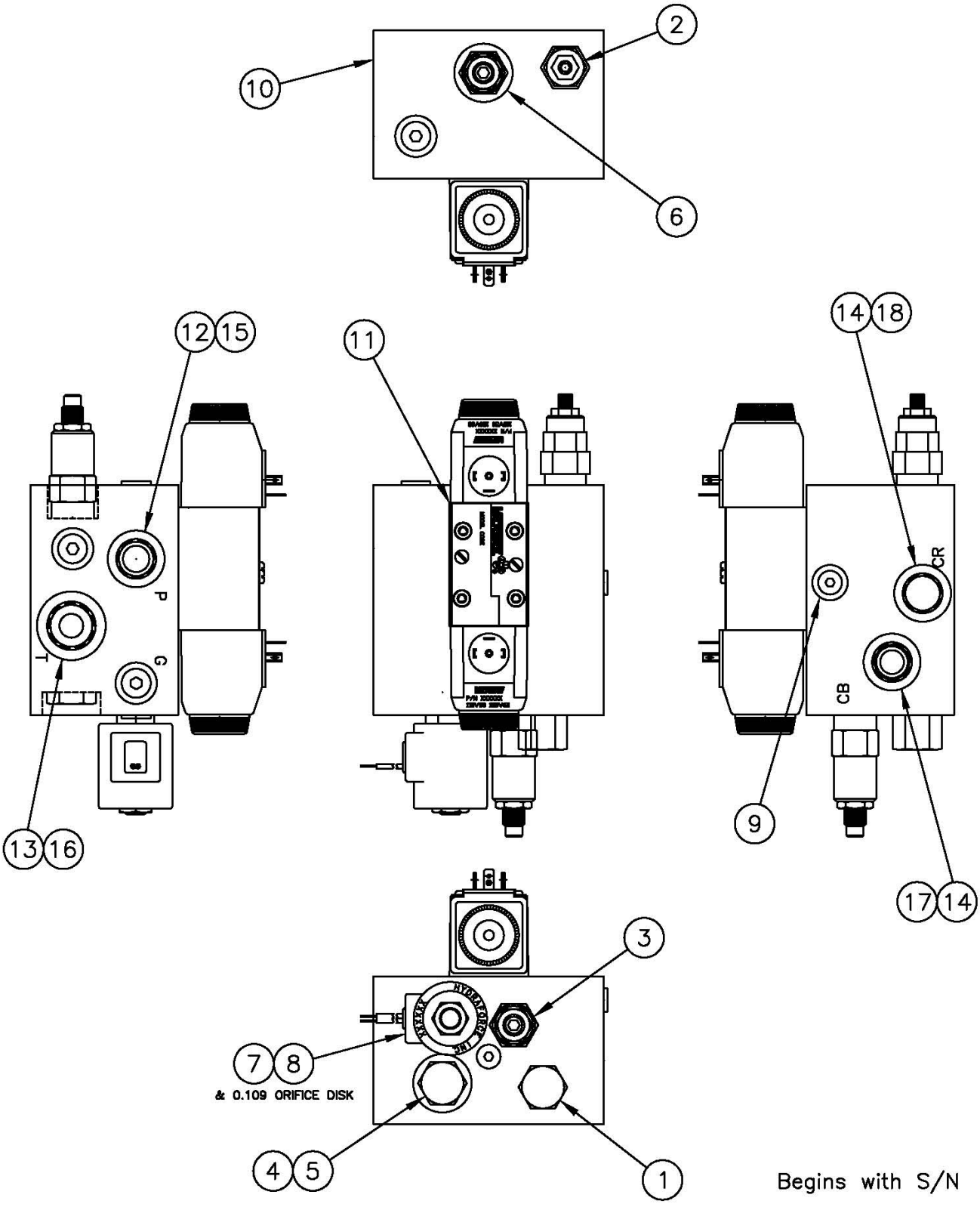
NOT PICTURED

For visual reference of Filters Elements visit http://www.megafab.com/Service_IW.html (Parts and Ironworker Filter List)

Serial # ranges are Approximate!

VALVE BODY ASSEMBLY

PART No. 0231530-2

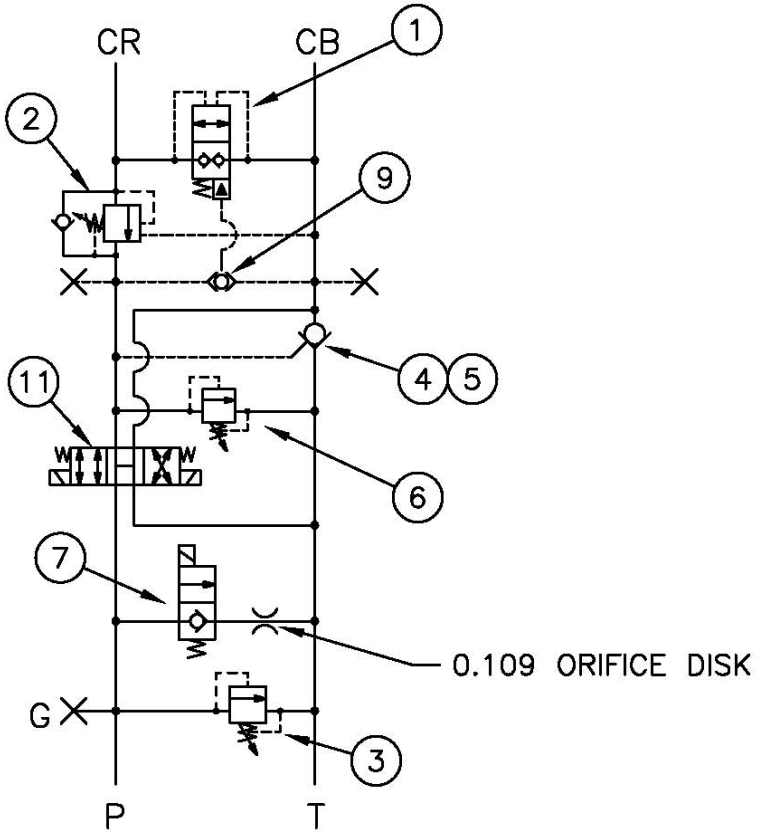


Begins with S/N

VALVE BODY ASSEMBLY

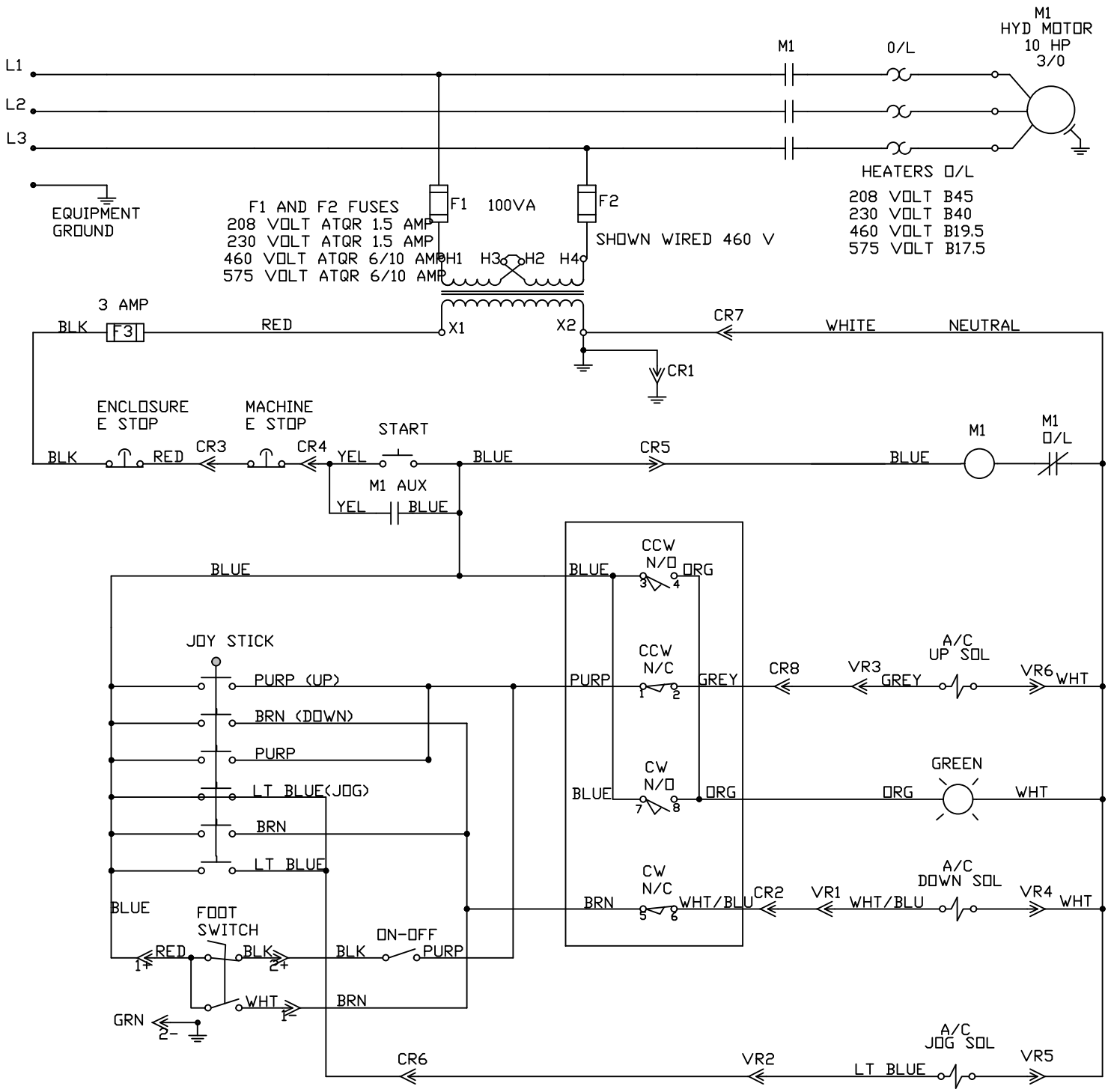
PART # 0231530-2

Figure And Index No.	Part Number	Description	Qty.
RP - 1	T3572	Pilot Valve 2-way	1
-2	0551566-1	Counterbalance Valve	1
-3	0551559-1	Pressure Relief Valve 35/26	1
-4	0531567-1	Check Valve	1
-5	0531566-1	Single Pilot Piston Valve	1
-6	0531562-1	Pressure Relief Valve 25/12	1
-7	0551561-1	Solenoid Valve (N.C.)	1
-8	T3574	115V AC Solenoid Coil	2
-9	0541535-1	Shuttle Valve	1
-10	0531530-1	Valve Body	4
-11	0531574-1	Directional Control Valve 4-way	1
-12	0581503	6801-10 Fitting	1
-13	0531531	6801-12 Fitting	1
-14	0531509	6802-10 Fitting	2
-15	0571532	32" Hose To Filter Assy	1
-16	0531543	32" Hose To Tank	1
-17	0531522	75" Hose To Cylinder	1
-18	0531521	50" Hose To Cylinder	1
-19	03316512-2	Valve Body Wiring Harness (not shown)	1



HYDRAULIC SCHEMATIC

Begins with S/N

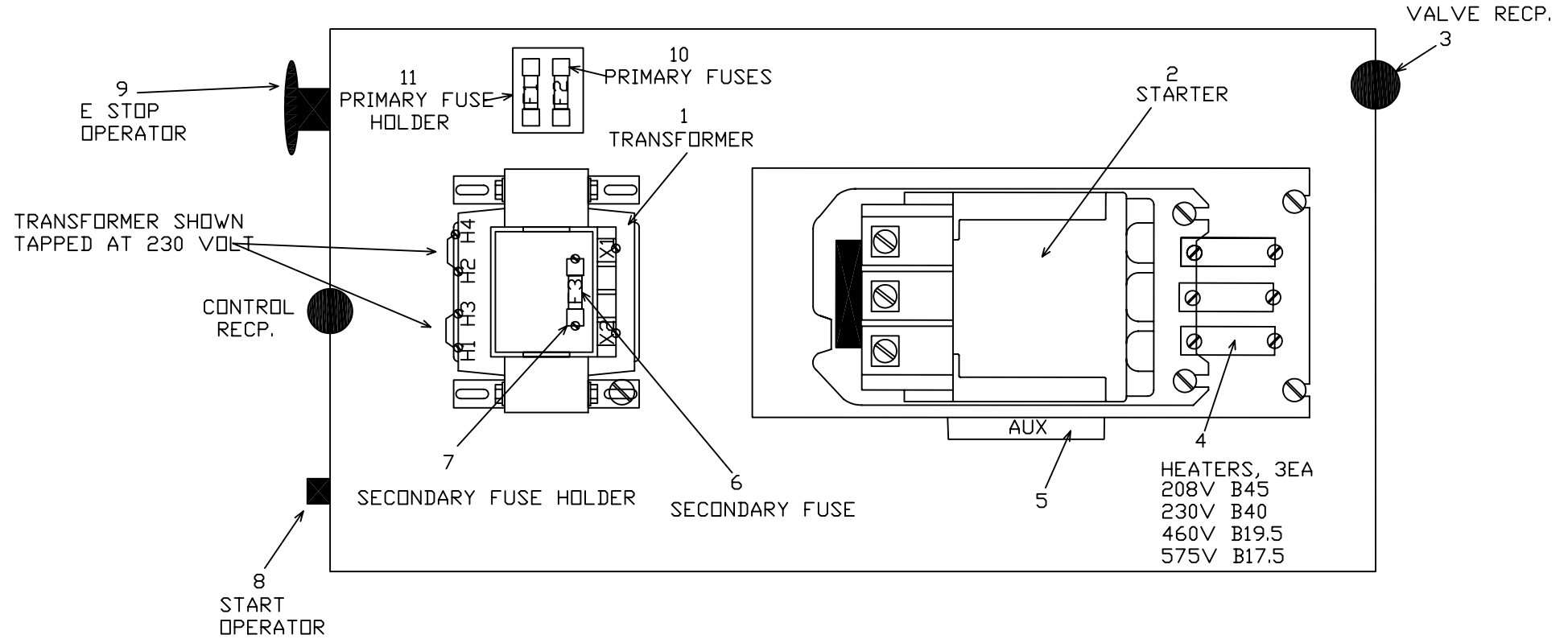


NOTE
- VR # = VALVE RECP. PIN #
- CR # = CONTROL RECP. PIN #

FLUID TEC VALVES

PIRANHA	
TITLE	SEP120 IRON WORKER
DRAWING	02816402-1_1REVA,SEP120
DATE	1-28-08
REV.#	A
DRAWN BY	BOB RILEY
PAGE#	1 OF 2

SEP-120 ELECT. ENCLOSURE



Electrical Enclosure Assembly SEP-120

Figure and Index No.	Part #	Description	Qty.
RP -1	05316261	220 / 440 Volt Transformer **(Used after Serial # 461 old part OBSOLETE)**	1
OR	05316271	575 Volt Transformer **(Used after Serial # 461 old part OBSOLETE)**	1
OR	05316281	208 Volt Transformer **(Used after Serial # 461 old part OBSOLETE)**	1
-2	0531641	Starter	1
-3	0521636	Valve Body Harness Receptacle	
-4	0531639	220 Volt Heater Coil B-40	3
OR	0531634	440 Volt Heater Coil B-19.5	3
OR	0531635	575 Volt Heater Coil B-17.5	3
-5	T2253	Auxiliary Contact	1
-6	0531606	MDX3 Fuse	1
-7	05316221	Secondary Fuse Holder **(Used after Serial # 461 old part OBSOLETE)**	1
-8	05316101-1	Start Button **(Used after serial # 558 22MM Style)**	1
AND	0531696-1	Contact Block w/base ZB4BZ101 **(Used after serial # 558 22MM Style)**	1
-9	0531643-1	Emergency Stop Button **(Used after serial # 558 22MM Style)**	1
AND	05316121-1	Contact Block w/base **(Used after serial # 558 22MM Style)**	1
-10	T0771	208 / 230 Volt Fuse ATQR 1.5	2
OR	T0794	440 / 575 Volt Fuse ATQR 6/10	2
-11	N/A	Primary Fuse Holder	1

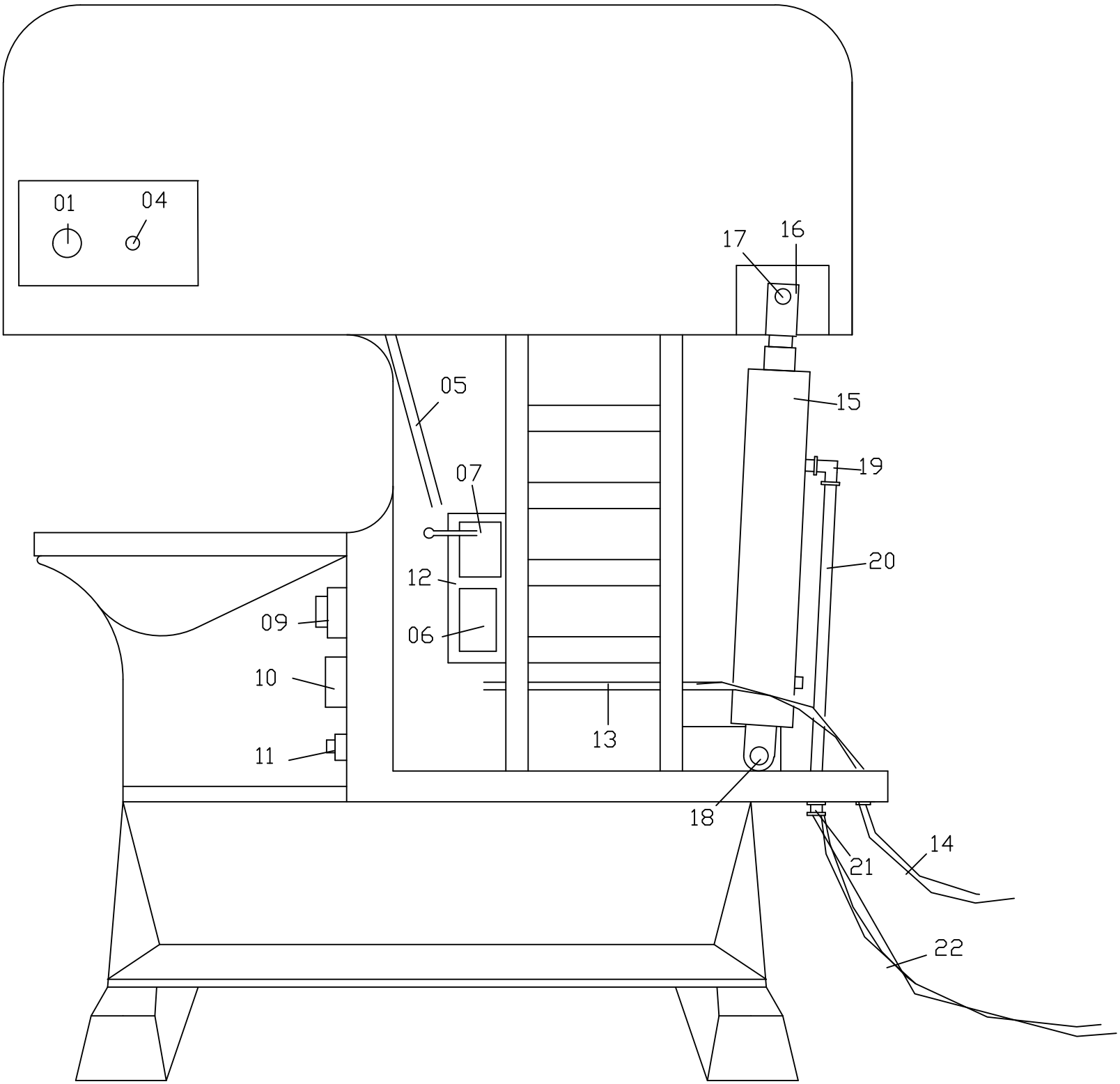
Notes:

For part # 05316261, 05316271 and 05316281 you must order 05316221 if serial # is prior to SEP-120 461

For Figure and Index No. 8 and 9 parts must be changed complete. Old parts available consult Service.

Serial # ranges are Approximate!

ELECTRICAL AND HYDRAULIC



Electrical and Hydraulic SEP-120

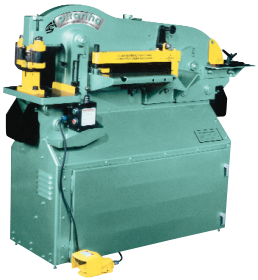
Figure and Index No.	Old part #	New part #	Description	Qty.
RP -1	0531608	0531608-1	Joystick	1
-2	0531609	0531609	KA-1 Contact Blocks **(Note now supplied with Joystick # 0531608-1)**	2
-3	0531644	0531644	KA-2 Contact Blocks **(Note now supplied with Joystick # 0531608-1)**	2
-4	0531619	0531619	Toggle Switch	1
-5	0581602	05816022	Joystick Wiring Harness **(Note changed at serial # 518 use new # from serial # 518 up) This part also includes items 1 thru 4**	1
-6	0581608	05816082	Terminal Strip wiring harness **(Note changed at serial # 518 use new # from serial # 518 up)**	1
-7	0531600	0581600-1	Limit Switch **(Note use newest part # on all machines)**	1
-8	0531612	05316121-1	Contact Block Stop Button **(Note see part change info below)**	1
-9	0531611	05316111-1	Stop Button **(Note see part change info below)**	1
-10	0531647	0531618	Foot Pedal Recepticle **(Note changed at serial # 457 use new # from serial # 457 up)**	1
-11	See below	See below	Limit Switch Light	1
	0581645	0581645	Lamp Socket	1
	0581646	0581646	Lamp	1
	0581647	0581647	Green Lens	1
-12	0281607	0281607	Terminal Block Wiring Harness **(Note includes items 6 thru 11)**	1
-13	0281605	02816052	7 Prong 4' Chord **(Note changed at serial # 518 use new # from serial # 518 up)**	1
-14	0581606	05816062	Remote Chord 6' **(Note changed at serial # 518 use new # from serial # 518 up)**	1
-15	0531503	05315031	Cylinder **(Note changed at serial # 469 use new # from serial # 469 up)**	1
-16	2801801	0280180	Clevis **(Note changed at serial # 277 use new # after serial # 277)**	1
-17	2801781	0280178	Clevis Pin **(Note changed at serial # 277 use new # after serial # 277)**	1
-18	0230172	02301721	Cylinder Pin **(Note changed at serial # 469 use new # after serial # 469)**	1
-19	0581503	0581503	6801-10 Hydraulic Fitting	2
-20	0581502	0581502	24" Hose	2
-21	0581504	0581504	2700-LN-10 Hydraulic Fitting	2
-22	0531522	0531522	75" Hose	2

Notes: RP-8 and RP-9 changed at serial # 478 approximate, old parts are available for replacement parts orders. New parts will need to be changed complete together on any machine after # 478 or contact serivce with questions.

Additional Fabricating Equipment

piranha

Dual Operator Ironworkers
35 to 140 tons



Single Operator Ironworkers
36 to 120 tons

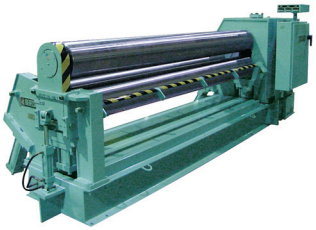
Punch Presses
35 to 140 tons

Press Brakes
25 to 500 tons

Precision Press Brakes
25 to 500 tons

Hydro-Mechanical Shears
1/4˝ to 1/2˝

BERTSCH

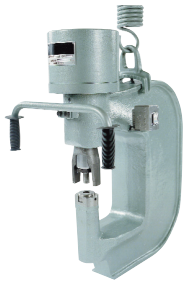


3 & 4 Roll
Manual/Hydraulic

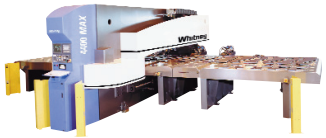
Section Bending Rolls

Whitney

The Leader in Plate Technology



Portable Presses



Punch Plasmas

Plasma Tables

800-338-5471

www.piranhafab.com