INSTRUCTIONS
AND
REPAIR PARTS MANUAL

piranha

IRONWORKERS • PRESS BRAKES • SHEARS • BENDING ROLLS

PIRANHA

IRONWORKER
MODEL NO. PII-140
Publication July 2019

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

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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

Piranha / MegaFab 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.

Safety Precautions

The operator of this machine should thoroughly understand this manual before starting any operation.

Wear eye protection at all times.

Use the proper voltage outlet for your machine.

Assure that all guards and cover shields are down before starting machine. CAUTION: Do not remove guards.

Keep hands off working tables and out of path of moving parts during operation.

Remove all material from the tables except what you are using.

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

Assure all tooling is properly held in position before starting any operation.

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

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.

Set punched stroke controls to allow ¼" maximum clearance between bottom of stripper foot or bending punch and top of the material. Contact the factory for proper stroke adjustments on special tooling.

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

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:

Piranha 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
https://www.ansi.org/

Introduction

The Piranha Ironworker is a compact hydraulic powered unit that provides you several important advantages surpassing most other ironworkers in today's market, and offering, for your shop, a one stop ironworking center. It shears, punches, bends, notches, and copes; all in a low silhouette, efficiently designed unit resulting in minimal floor space requirements. The integral lifting lug provides instant portability and the unit arrives fully assembled at your shop requiring only the addition of hydraulic oil and a power source to become fully operational. The large platen has eighteen 5/8 - 11 tapped holes giving a wide base for increased flexibility of attachment sizes. The shearing operation features an adjustable automatic hold down allowing the operator to clamp the work piece with a slight initial adjustment All workstations are located approximately 44" off the floor for ease of operation.

The first part of this manual provides maintenance instructions including an introduction, dimension and function drawings, lubrication instructions and a section on trouble shooting various problems which may occur. The second part of this manual provides repair parts information and a complete list of parts and 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 and assembly breakdowns to aid in disassembly and assembly for repair part installation.

Machine Specifications

Hydraulic System

Drive Motor……..20HP 230/460 volt 3 phase
Hydraulic tank capacity……..…40 gallons
Hydraulic oil……..… Mobile DTE 13 or equivalent ISO Grade 32-Consult your local distributor for cross reference

Working Surface

Platen…… ……16”×36”
Coping…….19”×20”

Capacities

Punch……Maximum 1 3/4" thru 1" thick material or 140 tons
Bending……..…….……Maximum 140 tons
Punch End……..……..……..Maximum 140 tons
Bar……..……....2" round or 1 3/8" square
Plate…….....3/4" x 18" or 20.5" width w/opt. knives
Angle……..……...6" x 6" x 5/8" with 4 radius knife
Coper-Notcher…….....4”x6”x3/8”

Weight

Shipping Weight.....11300lbs

Installation

Location
For the best overall performance, install the Piranha in a location which is clean and well lighted. Provide sufficient space in all directions to allow for material lengths of the workpieces 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 load, the Piranha should be placed on a stable base or floor adequately constructed to withstand the unit weight. Use the leveling bolts provided.

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 a disconnect or to install a cord and plug for mobility of the Piranha. CAUTION: Compare machine wiring to input voltage prior to connecting power.

Lifting
The lifting lug system on the Piranha is an integral part of the machine. Use a device with adequate lifting capacity to handle the Piranha. CAUTION: Unit is extremely top heavy!!! Lifting from the underside of the machine may cause damage to the cabinet structure.

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
Jam Nuts	600

Punch & Die Chart

CLEARANCE CHART FOR STEEL

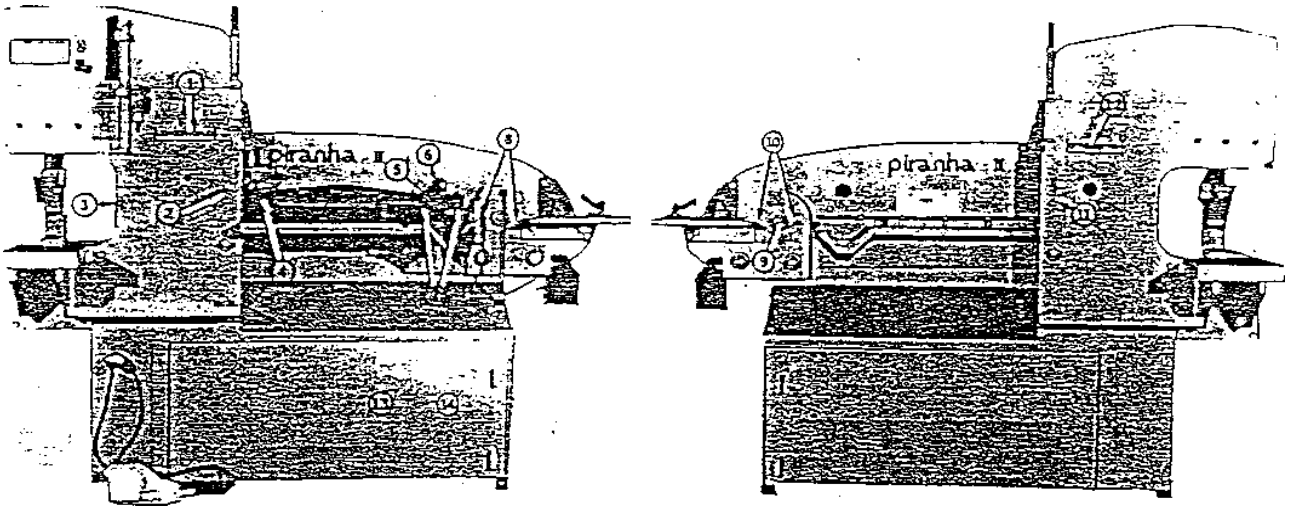
Gauge	Approx. Thickness	Clearance Add to Punch Size	Gauge	Approx. Thickness	Clearance Add to Punch Size
30	.0120	Slip fit	17	.0538	.005
29	.0135	Slip fit	16	.0598	.005
28	.0149	Slip fit	15	.0673	.007
27	.0164	Slip fit	14	.0747	.007
26	.0179	Slip fit	13	.0897	.010
25	.0209	.002	12	.1046	.010
24	.0239	.002	11	.1196	.010
23	.0269	.002	10	.1345	1/64"
22	.0299	.003	9	.1345	1/64"
21	.0329	.003	8	.1644	1/64"
20	.0359	.003	7	.1793	1/64"
19	.0418	.003	1/4 to 1/2" plate	-	1/32"
18	.0478	.005	1/2" plate and over	-	1/16"

Lubrication

General

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

Lubrication Diagram



Lubrication Chart

Station	Part Lubricated		Frequency	Instructions	Type Lube
1 12 2 11 8 10 7 4 5 6 3	Trunion Pin - On Side Trunion Pin - Off Side Gib -- On Side Gib - Off Side Coper Side Plate-On Side (2 Places) Coper Side Plate-Off Side (2 Places) Angle Guide Pins (2 Places) Hold Down Shaft Angle Knife Bushing Hold Down Link Cylinder Clevis		Every .40 Hours Or Weekly With Normal Use	Apply Grease Gun Until Grease Appears Around Edge of Parts	Mobile HB Or Any Multi- Purpose Grease
9	Rear Hinge Pin Drive Motor Drive Motor	 Located Inside The Cabinet	 Every 100-150 Operating Hour	 One Shot From Grease Gun	 Multi purpose Grease

ADDENDUM TO OPERATOR's MANUAL PII-110, PII-140, SEPP-140

Limit switch controls:

Of the two limit switch buttons, the lower of the two (the button on the bottom part of the threaded rod) activates the UP TRAVEL limit switch. When the UP LIMIT SWITCH is made, the UP GREEN LIGHT will come on, showing the user that the machine is at the top of stroke.

Of the two limit switch buttons, the higher of the two (the button on the top part of the threaded rod) activates the DOWN TRAVEL limit switch. When the DOWN LIMIT SWITCH is made, the DOWN GREEN LIGHT will come on, showing the user that the machine is at bottom of stroke.

This machine is equipped with a HARD LIMIT SWITCH that is permanently wired to allow only enough down stroke of the machine to pass a figure 26 punch into a figure 62 die using the standard punch holder and die block. There is more down stroke available ONLY FOR USE WITH SPECIAL TOOLING. To access the extra down stroke, the supervisor must use a key to switch the HARD LIMIT switch to the OFF position. This switch is mounted on the electrical enclosure. When the supervisor turns this switch OFF, the RED LIGHT on the operator's panel will light, WARNING the user that the HARD LIMIT has been bypassed. The DOWN TRAVEL limit will work normally and allow full adjustment throughout the additional down stroke of the machine, but the RED LIGHT will be ON at all times that the HARD LIMIT has been turned OFF. This feature will allow for more DOWN TRAVEL of the machine, but it must be used with care and MUST ONLY BE USED FOR SPECIAL TOOLING. The HARD LIMIT key switch should NEVER be turned OFF when using the standard punch and die setup.

THIS KEYSWITCH AND LABEL WILL BE INSTALLED ON THE ELECTRICAL ENCLOSURE FOR THE MACHINE. The HARD LIMIT toggle switch used now will be REPLACED by an On/Off switch with a key.

Hard Limit

Warning !!!
Keyswitch in the OFF position will BYPASS the hard limit switch to allow more DOWN TRAVEL of the punch and make the HARD LIMIT BYPASS RED LIGHT COME ON. Use ONLY with special tooling and consult owner's manual for proper use.

On Off

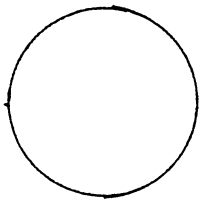
KEYSWITCH

THIS LIGHT AND LABEL WILL BE INSTALLED ON THE FRONT PANEL OF THE MACHINE
The RED LIGHT will be in the same position as the existing RESET button and light.

Hard Limit Bypass

WARNING!!!!
When the red light is ON the HARD LIMIT SWITCH for PUNCH DOWN travel is BYPASSED. For use with SPECIAL TOOLING ONLY!! THIS LIGHT SHOULD NEVER BE ON when using the standard punch and die setup. Consult OWNER's Manual.

Red Light



MAINTENANCE

NOTE: The machine should be shut OFF 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 3 months, depending on work load 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. See repair parts list for reordering instructions and the part 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 and hinge pin jam nuts to the specifications in the table on page 16.

Check all hydraulic hose and fitting connections for tightness when lubricating the machine. Use of Loctite hydraulic sealant or equivalent is recommended on all connectors.

Note: Tighten the cylinder tie bolts after the first 40 hours use.

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

HYDRAULIC OIL LEVEL

The Piranha 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: It is recommended to implement a weekly maintenance program to inspect and lubricate your Piranha. A service record chart is provided in this manual on page

OPERATING INSTRUCTIONS

The Piranha ironworker comes pre-assembled and pre-wired, requiring only the addition of a power source from a disconnect to the electrical enclosure box located inside the cabinet. The Punch and Shear/Coper work stations on dual operator Piranha models can operate independently of each other. The dual operation design allows for one operator on the punch end and a second on the shear/coper end. Never allow two (2) operators to use the Shear/Coper station at the same time or never exceed the rated capacities of the machine.

The unit can be started and stopped by the push-pull button switches located at the upper front of the machine and the rear control box. Pull to start the machine, push to stop the machine. Both switches must be pulled out to start the machine. Either switch will stop the machine by pushing it in. Note: Proper positioning of the foot control ON/OFF selector switch and JOG/RUN selector switch located at the punch end controls is required upon startup. The ON/OFF should be in the "off" position, the JOG/RUN in the "jog" position.

The ironworker is hand controlled by a 3 position momentary joystick operator. When the joystick is released from any position, it will return to the neutral (center) position stopping the machine movement instantly. The joysticks are located at the upper right side of the punch end (facing machine) and at the rear control box near coper notcher area (material feed side).

The 2 controlling positions of the joystick are:
Punch end

1. Up (pushing the handle up)
2. Down (pulling the handle down)

Rear control box (with JOG/RUN selector switch at punch controls area in "run" position)

1. Shear section Up (pushing the handle to the Shear/Coper end)
2. Shear section Down (pulling the handle to the Punch end)

The ironworker can also be controlled by a remote foot control. (see figure "F") The remote foot control is used by plugging the 4-pole plug into the 4-pole receptacle located at the lower front of the machine (Punch end) and at the rear control box (Shear/Coper end). It works in conjunction with the ON/OFF selector switch located on the upper front of the machine (Punch end), and at the rear control box (ShearCoper). The remote foot control is a three position switch allowing hands free operation. By fully depressing the remote foot control lever, ram movement is downward until the stroke limit setting is met (see "F2") or by allowing the remote foot control lever to elevate to the center position, ram movement will stop (see "F3"). Completion of the downward cycle is accomplished by depressing the remote foot control lever again. The ram will move down until the stroke limit setting is met (see "F4"). Removing foot pressure from the foot control entirely allows the ram to move upward until the stroke limit setting is met, completing the upstroke cycle (see "F5").

PUNCH END OPERATION

To set the punch stroke, use the following procedure:

1. Turn the remote foot control ON/OFF selector switch to the "off" position.
2. Turn the JOG/RUN selector switch to the "jog" position.
3. Plug in the remote foot control.
4. Activate the punch end joystick (pull downward) to lower the ram to the desired "down" setting.
5. Move the top limit switch button to make contact with the limit switch and stop the ram at the desired "down" position.
6. Activate the punch end joystick (pull upward) to raise the ram to the desired "up" setting.
7. Move the lower limit switch button to make contact with the limit switch and stop the ram at the desired "up" position.
8. Turn the JOG/RUN selector switch to the "run" position.
9. Turn the remote foot control ON/OFF selector switch to the "on" position.
10. Fully depress the remote foot control lever allowing the ram to lower.
11. Allow the remote foot control lever to elevate, raising the ram.

NOTE: When punching, bending, or using any attachment on the punch end of the machine, the upper and lower limit settings should allow for 1/4" maximum clearance between the bottom of the upper tooling and the work material. The setting will change when the work material thickness changes.

Allowing the upper tooling to raise into the machine "C" frame area due to an incorrect stroke limit control setting, can damage the tooling and/or the machine. Always check the stroke limit settings before installing tooling.

PUNCH ATTACHMENT ALIGNMENT

The alignment of the punch and die should be accomplished in the following manner:

1. Turn the machine off.
2. Locate the slotted mounting hole on the stripper. Loosen the nut on the stripper stud and rotate the stripper out of the way.
3. Remove the coupling nut from the punch stem using the coupling wrench.
4. Insert the punch into the coupling nut and tighten onto the punch stem using the coupling wrench.
5. Insert the die into the die block. Tighten the set screw against the die. Be sure the die ID is larger than the punch OD by at least 10% of the material thickness.
6. Slide the die block around the set screws on the platen table. Do not tighten the flanged nuts.

7. Start the machine and plug the remote foot control in. With the remote foot control ON/OFF selector switch in the "off" position, and the JOG/RUN selector switch in the "jog" position, lower the ram using the punch end joystick. Stop the ram movement when the punch is approximately 1/8" above the die.
8. Visually and by hand movement of the die block, align the punch and die. Move the ram down again until the punch has passed through into the die, 1/8" maximum.
9. Tighten the flanged nuts on the set screws to secure the die block firmly to the platen table.
10. Set the limit switch buttons to control the length of the stroke "up" and "down" (see procedure previously listed in Punch End operation)
11. Turn the JOG/RUN selector switch to the "run" position.
12. Turn the remote foot control ON/Off selector switch to the "on" position.
13. Depress the remote foot control lever allowing ram to lower to "down" setting.
14. Allow the remote foot control lever to elevate allowing the ram to raise to the "up" setting.
15. Rotate the stripper back into position and adjust, using the nuts on the stripper studs,to a maximum distance of 1/4" above the work material.
16. Recheck the "up" and "down" stroke settings to make sure the punch coupling nut will not come in contact with the bottom of the material stripper. If the coupling nut does contact the bottom of the stripper foot, adjust the stripper assembly up, using the stripper stud nuts, and reset the lower limit setting.
17. Start operation.

SHEAR END OPERATION

The shearing section of the Piranha contains workstations to shear round or square bar, flat bar and angle iron. It can be operated with either the joystick or remote foot control from the REAR CONTROL BOX only. The foot control is used in conjunction with the upstroke and down stroke limit switches located near the rear control box. On the backside of the rear control box is the ON/OFF selector switch for activating these limit switches. The front limit adjusting screw (closest to the punch end) controls the beam's upward movement. The back adjusting screw (furthest from the punch end) controls the beam's downward movement. Adjust each limit switch setting by loosening the lock nut and adjusting the knurled screw to obtain the desired stroke. To set the beam stroke for shearing flat, angle , and round bar using the limit switch stops, use the following procedure:

1. Plug in foot switch at rear control box.
2. Turn the JOG/RUN selector switch to the "run" position.
3. Turn OFF/ON selector switch to "on" position.
4. Turn SHEAR/COPER selector switch to "shear" position.
5. Loosen the down stroke limit stop locking nut and turn the knurled knob to the desired setting.
6. Fully depress foot switch lever allowing beam to move downward.
7. Adjust limit switch stop until contact with the beam down stroke switch stops beam movement at the desired lower limit.

8. Tighten locking nut to hold limit switch stop firmly in place.
9. Loosen the upstroke limit stop locking nut and turn the knurled screw to the desired setting.
10. Allow foot switch lever to elevate allowing beam to raise.
11. Adjust upstroke limit switch stop until contact with the beam upstroke switch stops beam movement at the desired upper limit.
12. Tighten locking nut to hold limit switch stop firmly in place.
13. Start operation.

To set the beam stroke for the coper/notcher section, follow the same procedure as above except in number 3. Turn the SHEAR/COPER selector switch to "coper" position.

NOTE: The limit switch closest to the punch end controls the down stroke limit on the coper end. The upstroke on the coper end is controlled by the limit switch closest to the coper end.

Hold Down Assembly Adjustment

The adjustment on the hold down assembly should be accomplished by the following manner:

1. Raise the upper beam to its full upstroke limit.
2. Loosen the long hex head nut without removing it from the swing raising the holddown assembly.
3. Assure the hold down bar has raised until it is directly under the long nut.
4. Insert material to be sheared under the hold down assembly.
5. Tighten the long hex head nut to allow for approximately 1/8" clearance between the bottom of the shear urethane and the top of the material to be sheared. The material should move freely and not be held by the hold down assembly at this point.
6. Lower the beam using the rear control box joystick until the hold down assembly firmly clamps the material. Note: The hold down assembly must firmly clamp the material before the shear knives engage the material surface.
7. If the foot switch is to be used during the operation, adjust the limit switches to control the length of stroke (see procedures previously listed).

NOTE: Do Not Attempt to shear any material that will not be held by the hold down assembly.

3 Position Holddown Settings vs Material thickness:

Locator hole nearest punch end - 3/8 " thick and less
Locator hole center position - 3/8" to 5/8" thick
Locator hole nearest the coper end - 5/8" to 1" thick

BENDING ATTACHMENT ALIGNMENT

The alignment of the bending punch and bending die should be accomplished in the following manner (see Bending Attachments – Optional Tooling page for visual reference):

1. Turn the machine off with the ram in the up position and all other tooling removed from the punch end.
2. Bolt the ram adapter onto the ram.
3. Loosen the bolt on the limit switch clamp and raise to 3 1/8" above the ram adapter. Tighten the bolt.
4. Install the limit switch stop on the limit switch rod between the lower limit button and the lower roll pin. Position the button against the limit switch stop (page RP-).
5. Place the bending die on the platen table directly under the punch ram. Do not secure it yet.
6. Place the bending punch in the top "V" groove of the bending die. Visually align the bending punch to the punch stem.
7. Turn the remote foot control ON/OFF selector switch to the "OFF" position.
8. Turn the JOG/RUN selector switch to the "jog" position.
9. Start the machine and activate the punch end joystick (pull downward) to lower the ram. Stop the ram movement when the ram adapter is approximately 1/8" above the bending punch.
10. Align the bending punch to the ram adaptor and carefully lower the ram into the bending punch collar until fully seated.
11. Rotate the complete bending attachment parallel to the front edge of the platen table and tighten the clamping bolt on the bending punch collar.
12. Secure the four wedge blocks to the platen table to position the bending die on the center line of the bending punch.
13. Set the limit switch buttons to control the length of the stroke and the degree of the bend (see the procedure previously listed).
14. Turn the foot pedal toggle switch to the "ON" position and start the operation.

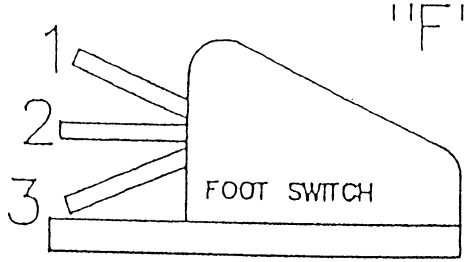
NOTE: Do not remove the limit switch stop while the bending attachment is installed.

Set the limit switch button to allow for 1/4" maximum clearance between the bottom of the bending punch and the work material.

Always center the work material under the punch ram. Side loading will damage the tooling and/or machine.

Replace the limit switch clamp in the original position when finished with the bending application.

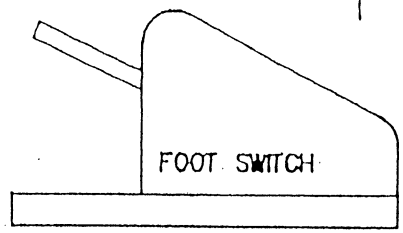
"F"



FOOT SWITCH LEVER POSITIONS

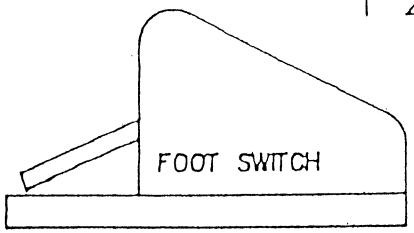
1) RAM MOVES UP
2) RAM IS STOPPED
3) RAM MOVES DOWN

"F1"



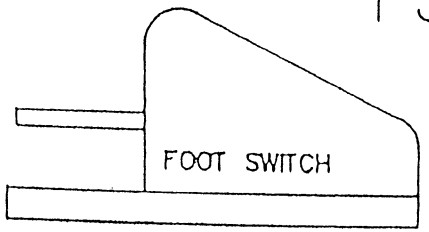
FOOT SWITCH LEVER
FULL UP POSITION
RAM ELEVATES
TO LIMIT SETTING

"F2"



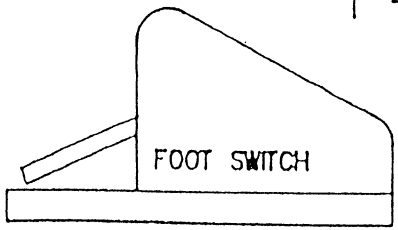
FOOT SWITCH LEVER
DEPRESSED PAST CENTER
RAM MOVES DOWN
TO LIMIT SETTING

"F3"



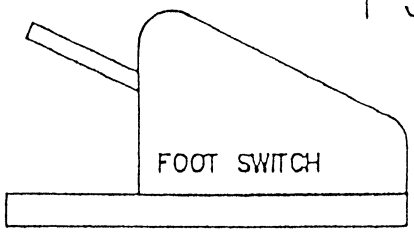
FOOT SWITCH LEVER
NEUTRAL POSITION
RAM TRAVEL
IS HALTED

"F4"



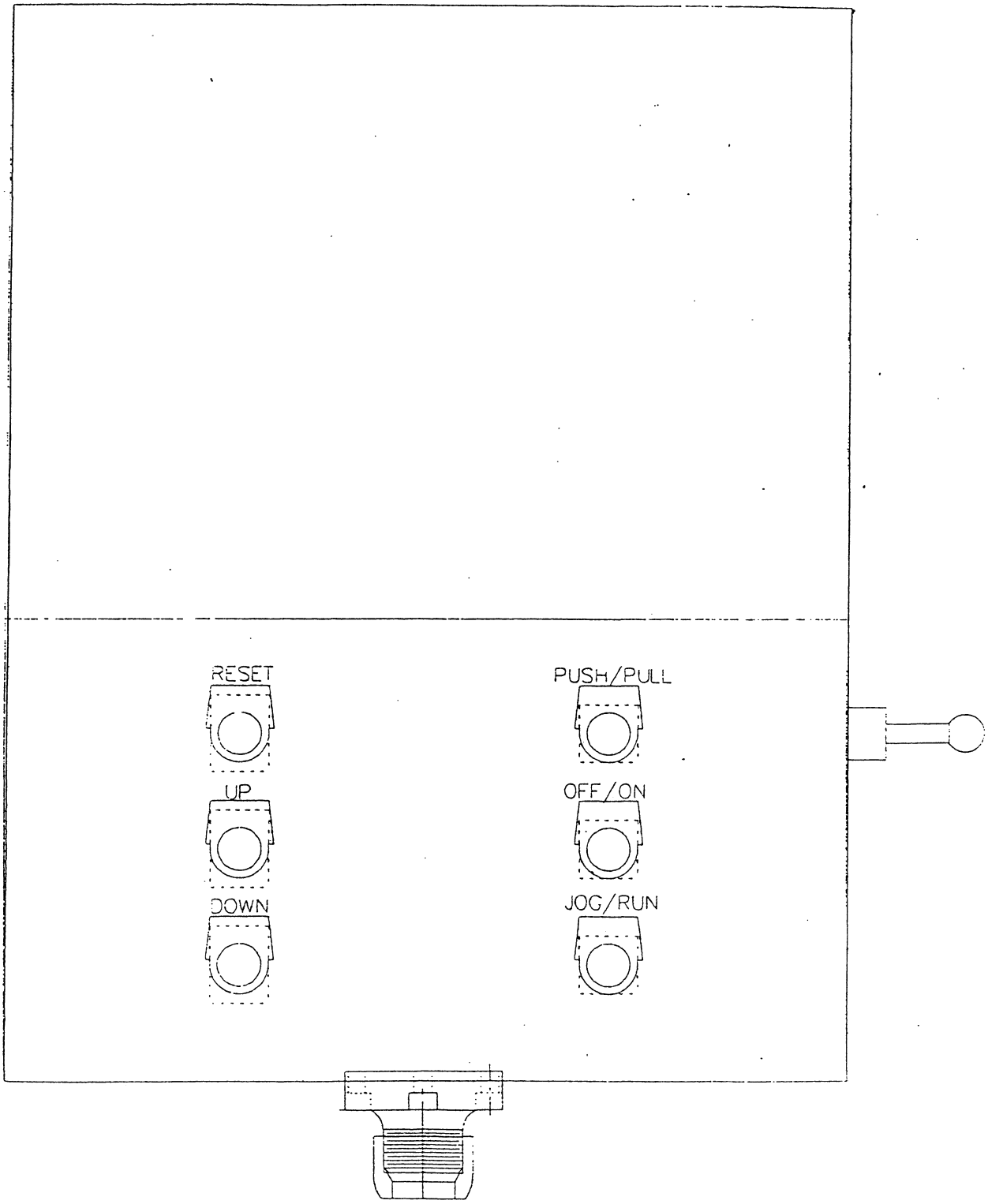
FOOT SWITCH LEVER
DEPRESSED PAST CENTER
RAM MOVES DOWN
TO LIMIT SETTING

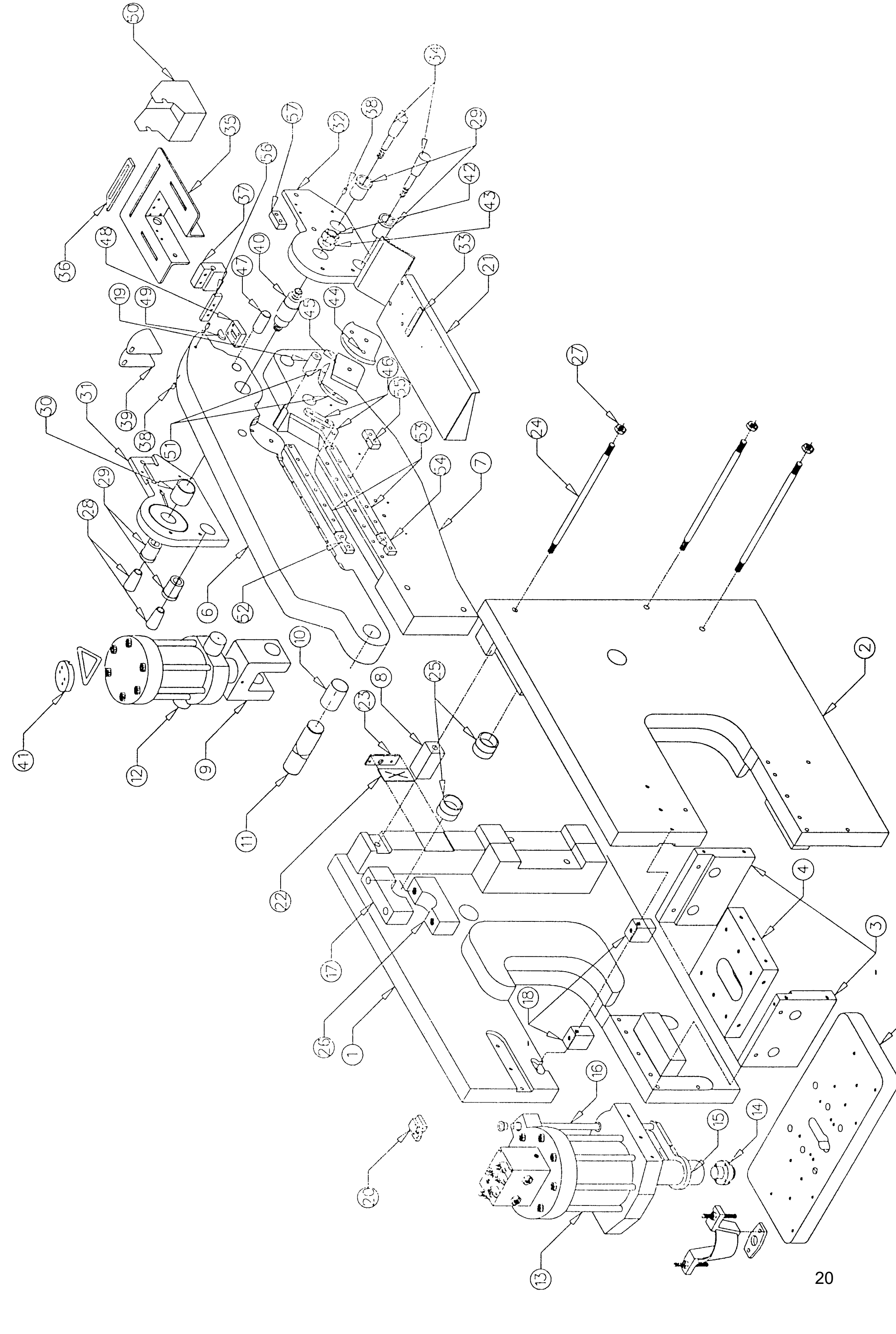
"F5"



FOOT SWITCH LEVER
FULL UP POSITION
RAM ELEVATES
TO LIMIT SETTING

PUNCH CONTROLS

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PII 140 BASIC UNIT

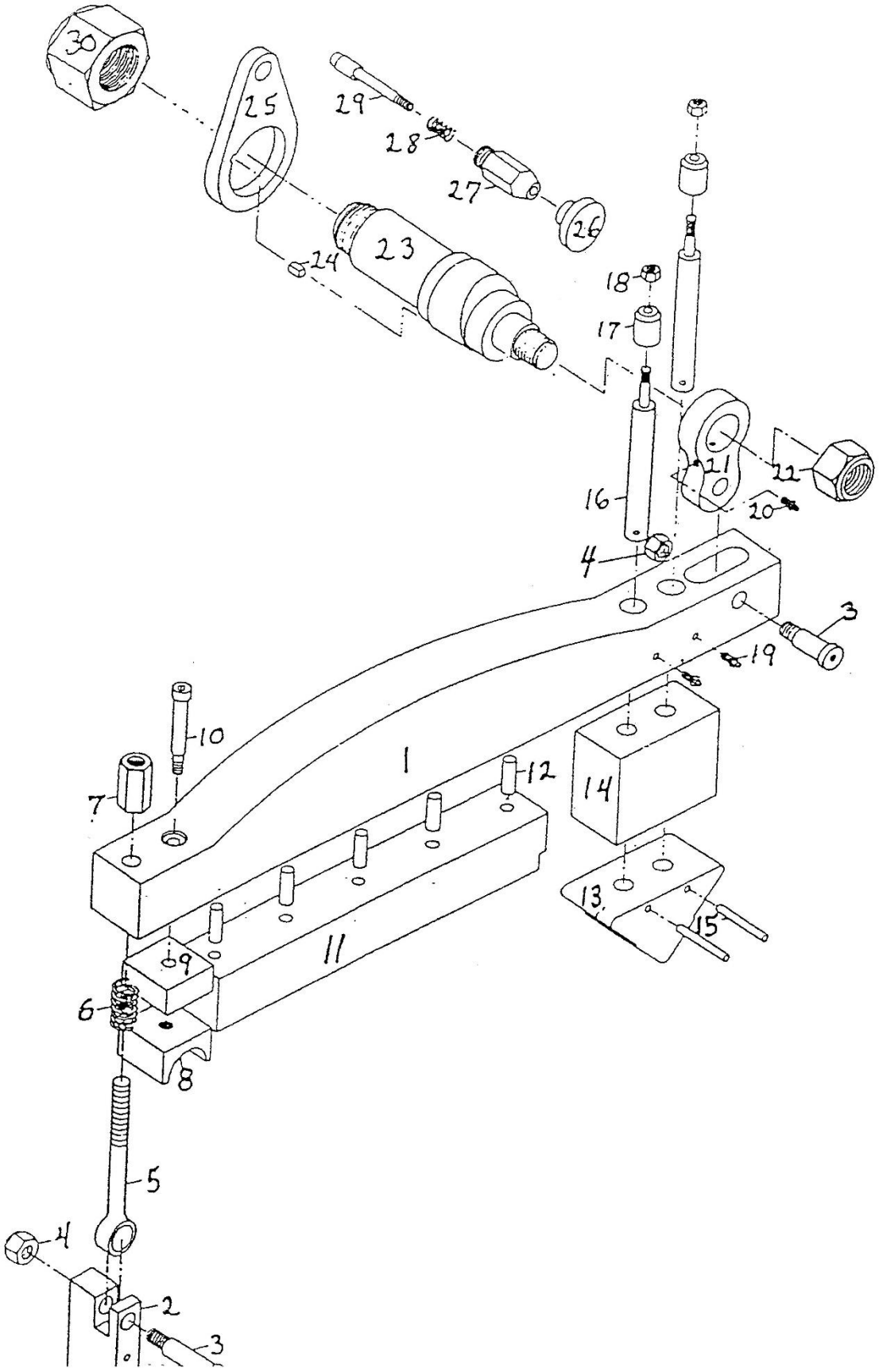
Figure and Index No.	Part Number	Description	Qty
RP-1	0278114	P140 Support C Frame-Offside	1
-2	0278113	P140 Support C Frame-Onside	1
-3	0278117	Gusset C Frame, Front and Rear	2
-4	0278115	Platen Support Block	1
-5	0278120	Platen Table	1
-6	0278100	Upper Beam Assy	1
-7	0278101	Lower Beam Assy	1
-8	0378401	Spacer Block	1
-9	0278152	PII 140 Cylinder Clevis	1
-10	0378168	PII 140 Clevis Bushing	1
-11	0278164	Cylinder Clevis Pin	1
-12	0278710	7" Rear Cylinder Assy	1
-13	0278700-1	10" Front Cylinder Assy	1
-14	0278125	PII 140 Fig 26 Punch Stem	1
-15	0278157	Limit Switch Clamp	1
-16	0278677	Limit Switch Rod	1
-17	0278718	Upper Pillow Block	2
-18	0278404	Stripper Mount Block	2
-19	0240154	Urethane Spacer	1
-20	0278260	Hard Limit Switch Mount	1
-21	0278122	Combo Table	1
-22	0278145	Bronze Wear Plate	1

PII 140 BASIC UNIT, CONTINUED

Figure and Index No.	Part Number	Description	Qty
-23	0278146	Bronze Wear Plate Cartridge	1
-24	0278156	C-Frame Thru Bolt 23 ¼	3
-25	0278707	Cylinder Trunion Bushing	2
-26	0278717	Lower Pillow Block	2
-27	0531260	1"-14 NF Hex Nut	6
-28	0240163	Taper Pin Plug	2
-29	0240161	Taper Pin Split Bushing	4
-30	0340170	Rear Hinge Pin Bushing	1
-31	0240116	Coper Side Plate Offside	1
-32	0278116	Coper Side Plate Onside	1
-33	0240140	Plate Shear Guide	1
-34	0240160	Taper Pin	2
-35	N/A	Coper Table Assy	1
-36	0330128	Coper Table Guide	3
-37	0240117	Coper End Knife Support	1
-38	0531352	½ X 1 ½ Roll Pin	2
-39	0240142	Coper Guard Assy	1
-40	0240166	Rear Hinge Pin	1
-41	0541400	CL-120-HR Hoist Ring	1
-42	0541275	2 ¼-12 JN	2
-43	0541304	2.255 ID X 4" OD X .255 Washer	2

PII 140 BASIC UNIT, CONTINUED

Figure and Index No.	Part Number	Description	Qty
-44	0240146	Angle Knife Cover	1
-45	0240275	Upper Angle Knife	1
-46	0240274	Lower Angle Knife	2
-47	0240155	Pipe Spacer	1
-48	0240277	Upper Coper Knife	1
-49	0531330	3/8 X 2 ¾ T Woodruff Key	2
-50	0240145	Coper Chip Bucket	1
-51	0240168	Angle Knife Block	2
-52	2402561	1 ¼ Round Bar Knife Short	1
-53	0240250	16.625" Flat Shear Knife	2
-54	0240256	1 ¼ Round Bar Knife Tall	1
-55	0240157	Shear Table Adjust Block	1
-56	0240276	Lower Coper End Knife	1
-57	0240278	Lower Coper Side Knife	2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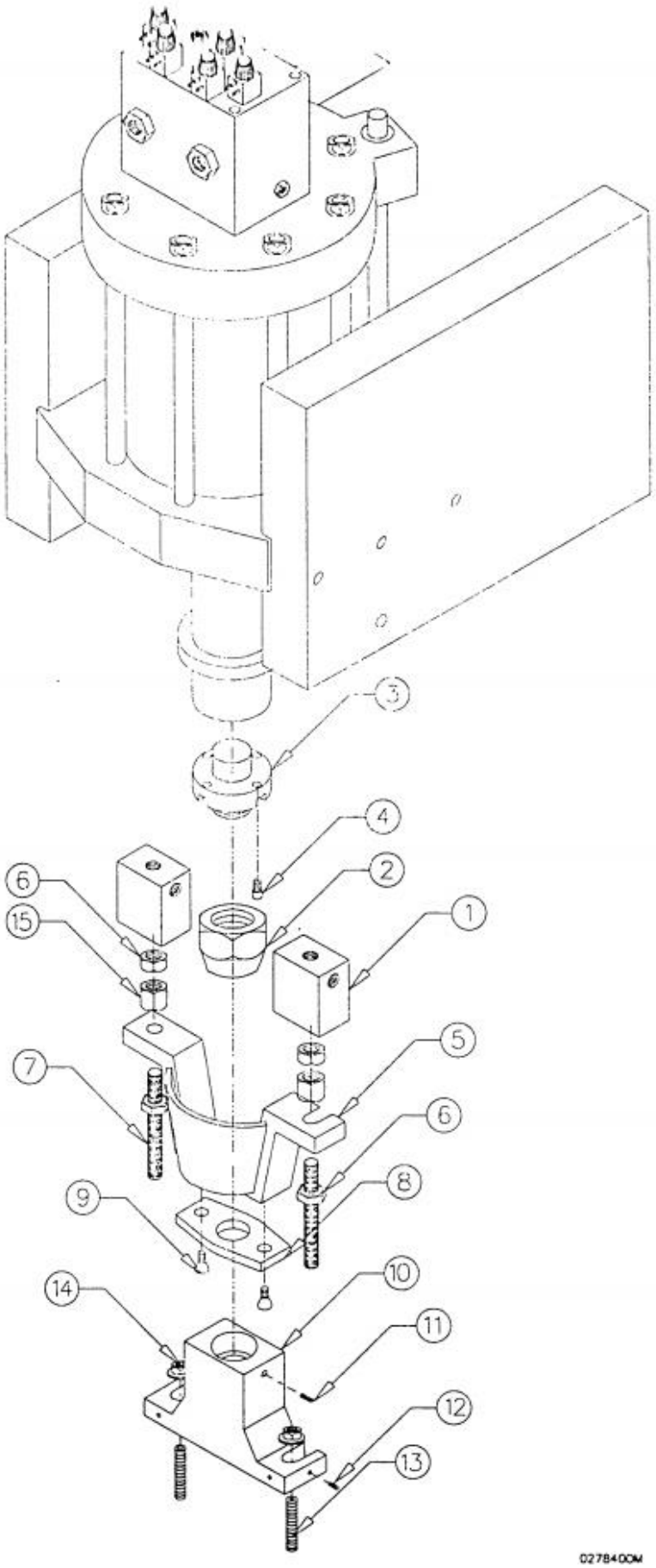
HOLD DOWN ASSEMBLY
PART #0240200

Figure And Index No.	Part Number	Description	Qty.
- 1	0340200	Hold Down Bar	1
- 2	0240206	Swingbolt Block	1
- 3	0541160	3/4" x 2 3/4" SB	2
- 4	0531250	5/8" Nylock Nut	2
- 5	0541395	3/4 x 7 CL-76 Swingbolt	1
- 6	0340217	Swingbolt Spring	1
- 7	0541396	CL-4 Coupling Nut	1
- 8	0340205	Round Bar Block	1
- 9	0340209	Round Bar Urethane	1
-10	0541112	1/2" x 3 1/2" SB	1
-11	0340207	Shear Urethane	1
-12	0531352	1/2" x 1 1/2" Roll Pin	5
-13	0340204	Angle Block	1
-14	0340208	Angle Urethane	1
-15	0541062	5/16" x 2 1/2" Spiral Pin	2
-16	0340203	Angle Guide Pin	2
-17	0340211	Angle Guide Pin Sleeve	2
-18	0531212	3/8" Nylock Nut	2
-19	0531360	1610 B Zerk	2
-20	0531363	1637 B Zerk	1
-21	0340202	Hold Down Link	1
-22	0541225	1 1/4" Nylock Jam Nut	1
-23	0240201	Hold Down Pin	1
-24	0340215	Hold Down Pin Key	1
-25	0340214	Locator Plate	1
-26	0541393	Locator Pin Knob	1
-27	0340213	Locator Pin Housing	1
-28	0340216	Locator Pin Spring	1
-29	0340212	Locator Pin	1
-30	0541250	2" - 12 Jam Nut	1

NOTE: Hold Down Assembly #0240200 includes index numbers 1,3 (1 ea.),4 (1 ea.) & 8 thru 21.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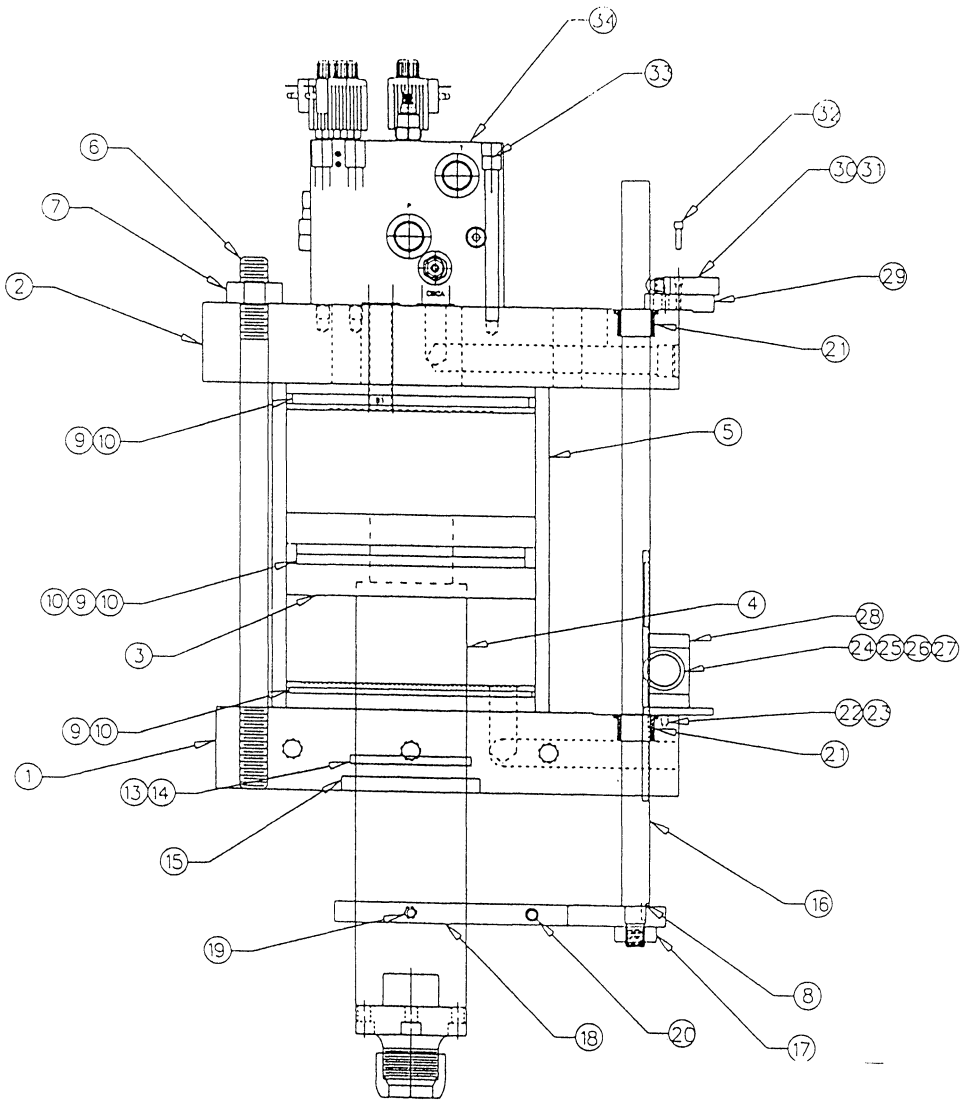
PII 140 PUNCH ASSEMBLY

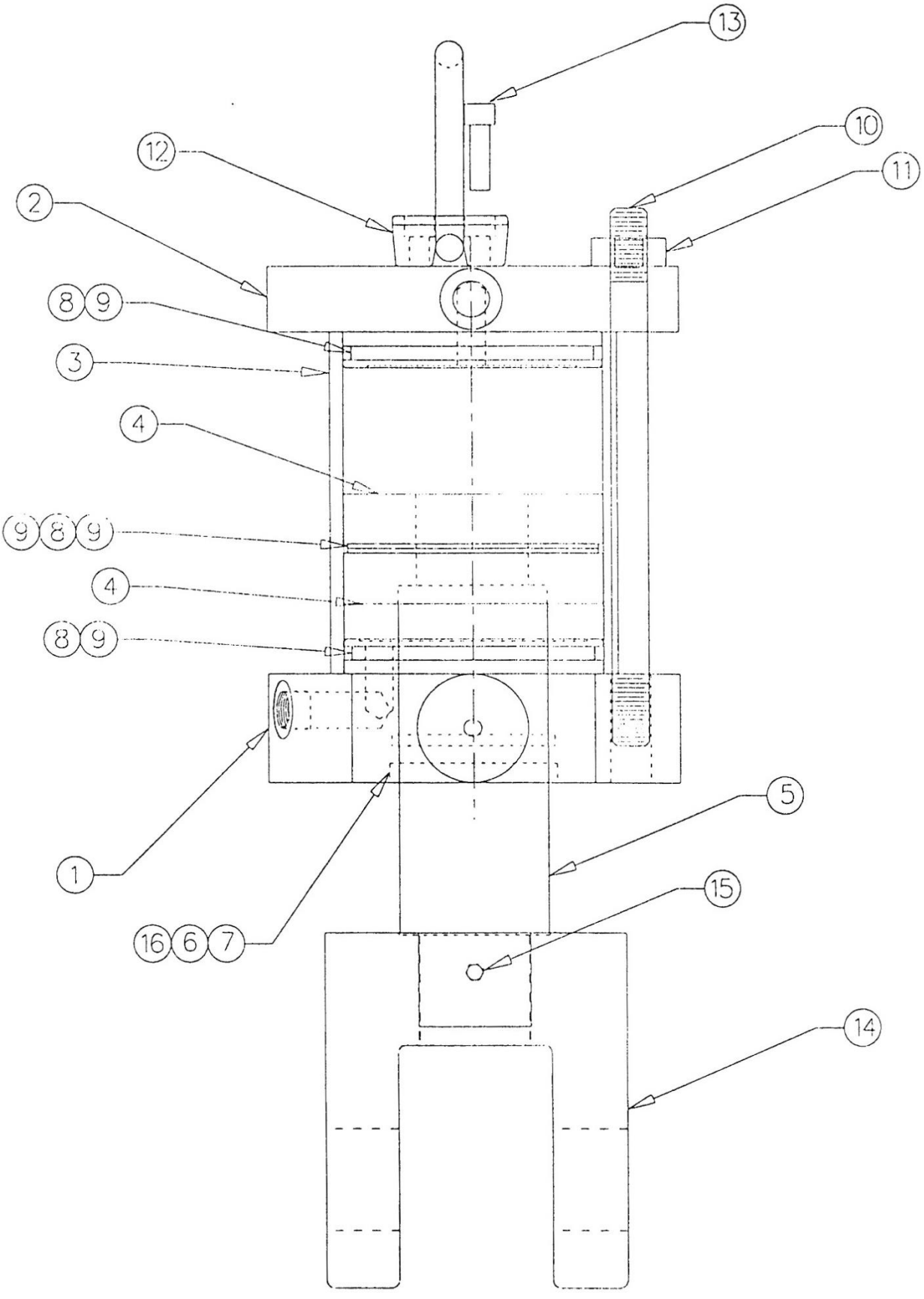
Figure And Index No.	Part Number	Description	Qty
RP-1	0278404	Stripper Mount Blocks	2
-2	0276126	# 45 Coupling Nut	1
-3	0278125	Fig 26 Punch Stem	1
-4	0531070	7/16 x 1 ¾ SHCS	4
-5	0276401	Stripper Assy	1
-6	0541182	¾ HN	4
-7	0276405	Stripper Studs	2
-8	0278405	Punch Stripper Plate	1
-9	0531063	3/8 x 1 FHCS	2
-10	0280400	Punch Die Block	1
-11	0531055	3/8 x ½ SSS	1
-12	0531002	¼ x ¾ SSS	3
-13	0541127	5/8 x 3 ½ SSS	2
-14	0531251	5/8 Flanged Nut	2
-15	0541396	¾ CL-4-CN	2
Not Pictured	0541410	Coupling Wrench	1

PII-140 FRONT CYLINDER ASSY



PII-140 Front Cylinder Assembly
Part # 0278700-1

Figure And Index No.	Part Number	Description	Qty.
1	0378704	PII 140 10" Cylinder Bearing Cap	1
2	03787021	PII 140 10" Cylinder Top Cap	1
3	03787011	PII 140 10" Cylinder Piston	1
4	0378705	PII 140 Front Cylinder Rod	1
5	0378703	PII 140 Cylinder Tube	1
6	0378706	PII 140 10" Cylinder Tie Bolts	8
7	0531260	1"-14 NF ND Hex Nut	8
8	0278266	1/4" Sq Keystock (1?2" Long)	1
9	0591709	10" OD Buna O-Ring 448	2
10	0591710	10" OD Buna Backup Ring 448	2
AND	0591712	10" Polypak Seal Cylinder Piston	1
	REPLACES The 2 # 10's and 1 # 9 on the Cylinder Piston 03757011		
11	N/A	N/A	N/A
12	N/A	N/A	N/A
13	0591703	4.375" OD Buna N O-Ring 345	1
14	0591704	4.375" OD Buna N Backup Ring 345	1
15	0591711	4" Piston Rod Seal 327215	1
16	0278677	Limit Switch Rod **Current Production**	1
OR	0278158	Limit Switch Rod For Encoder	OR
17	0591090	3/4"-16 Jam Nut	1
18	0278157	Limit Switch Clamp	1
19	0531085	1/2-13 x 1/2" SSS	1
20	0531081	1/2-13 x 1 1/4" SHCS	1
21	0591370	Limit Switch Rod Guide Bushing	2
	22-28 No Longer Used on Current Production Models		
22	0531000	1/4-20 x 1/2" SHCS	2
23	0531006	1/4" x 1 1/2" Dowel Pin	2
24	05915901	Kep 250 Encoder	1
25	0591005	M3.5 x 8 mm Screw	3
26	0278263	Encoder Spur Gear Assy	1
27	0591003	#6-32 x 1/4" SSS	2
28	02781591	Limit Switch Encoder Mount Brk't	1
29	0278260	Limit Switch Mount	1
30	0278632	Limit Switch With Cable	1
OR	0591636	Limit Switch **ONLY**	OR
31	0591008	10-24 X 3/4" RHCS	2
32	0531001	1/4-20 X 3/4" SHCS	2
33	0591075	1/2-13 x 4 1/2" SHCS	4
34	05915341	Valve Body Assembly	1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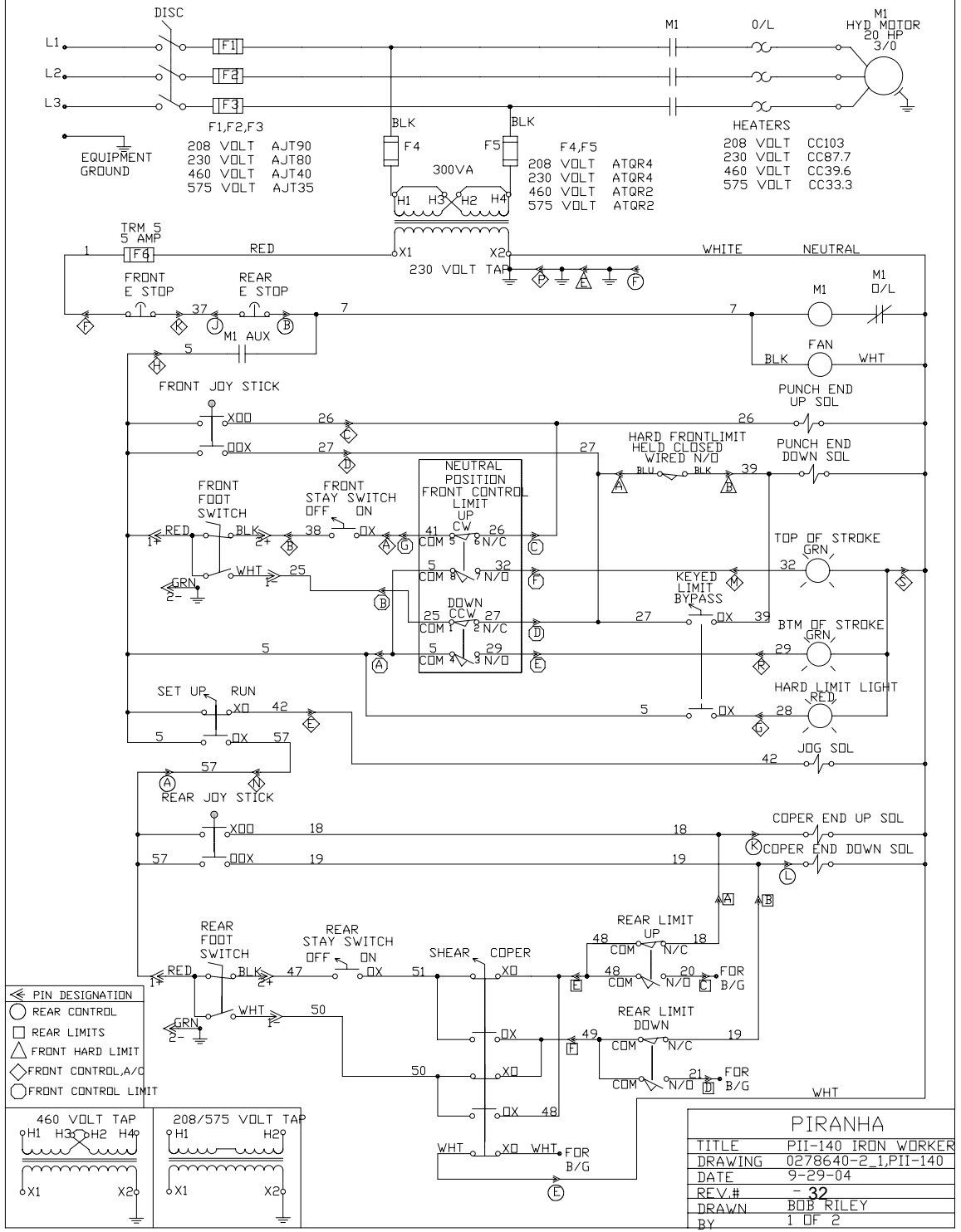
PII 140 REAR CYLINDER ASSEMBLY
PART # 0278710

Figure and Index No.	Part Number	Description	Qty
RP-1	0378714	7" Cylinder Trunion	1
-2	0378712	7" Cylinder End Cap	1
-3	0378713	7" Trunion Cylinder Tube	1
-4	0378711	7" Cylinder Piston	1
-5	0378715	7" Cylinder Piston Rod	1
-6	0591703	ARP345 O-Ring 4.375"	1
-7	0591704	4.375" OD X 4" ID Back Up	1
-8	0591707	ARP439 O-Ring 7"	3
-9	0591708	439 Backup Ring 7"	4
-10	0378716	7" Cylinder Tie Bolts 14-3/4"	6
-11	0531260	1"-14 NF Hex Nut	6
-12	0541400	CL-120-HR Hoist Ring	1
-13	0531086	½ X 1 ¾ SHCS	4
-14	0278152	PII 140 Cylinder Clevis	1
-15	0531085	½ -13 X ½ SSS	1
-16	0591711	4" Piston Rod Seal 327215	1
Not pictured	0531531	6801-12 Hyd Fitting	2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L1
L2
L3
F1
F2
F3
M1
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230 VOLT AJT80
460 VOLT AJT40
575 VOLT AJT35
EQUIPMENT GROUND
BLK
F4
F5
BLK
300VA
H1 H3 H2 H4
F4,F5
208 VOLT ATQR4
230 VOLT ATQR4
460 VOLT ATQR2
575 VOLT ATQR2
HEATERS
208 VOLT CC103
230 VOLT CC87.7
460 VOLT CC39.6
575 VOLT CC33.3
TRM 5
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F6
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X1
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230 VOLT TAP
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REAR E STOP
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FRONT JOY STICK
PUNCH END UP SOL
HARD FRONTLIMIT HELD CLOSED WIRED N/O
PUNCH END DOWN SOL
FRONT FOOT SWITCH
FRONT STAY SWITCH OFF ON
NEUTRAL POSITION FRONT CONTROL LIMIT
UP CW
DOWN CCW
COM N/C N/O
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GRN
KEYED LIMIT BYPASS
BTM OF STROKE
SET UP RUN
HARD LIMIT LIGHT
RED
JOG SOL
REAR JOY STICK
COPER END UP SOL
COPER END DOWN SOL
REAR FOOT SWITCH
REAR STAY SWITCH OFF ON
SHEAR
COPER
REAR LIMIT UP
REAR LIMIT DOWN
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FRONT CONTROL LIMIT
460 VOLT TAP
H1 H3 H2 H4
X1 X2
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X1 X2
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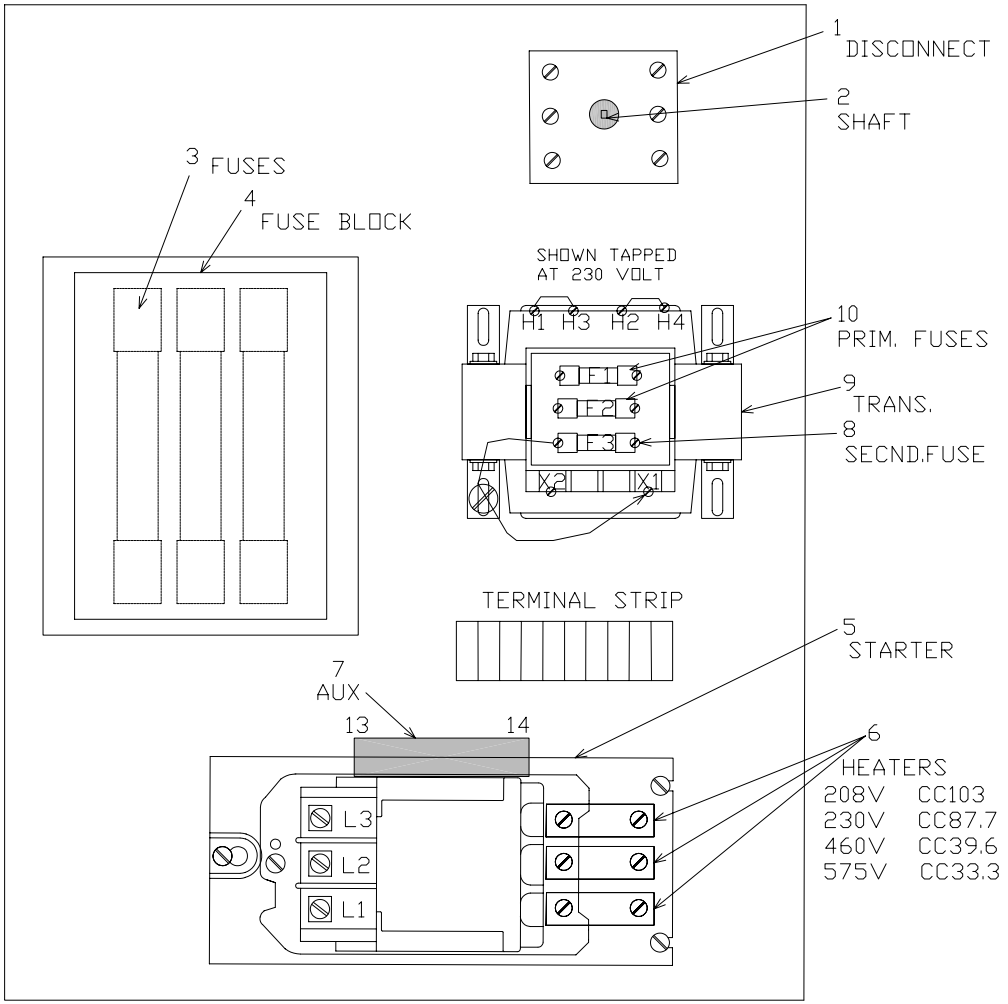
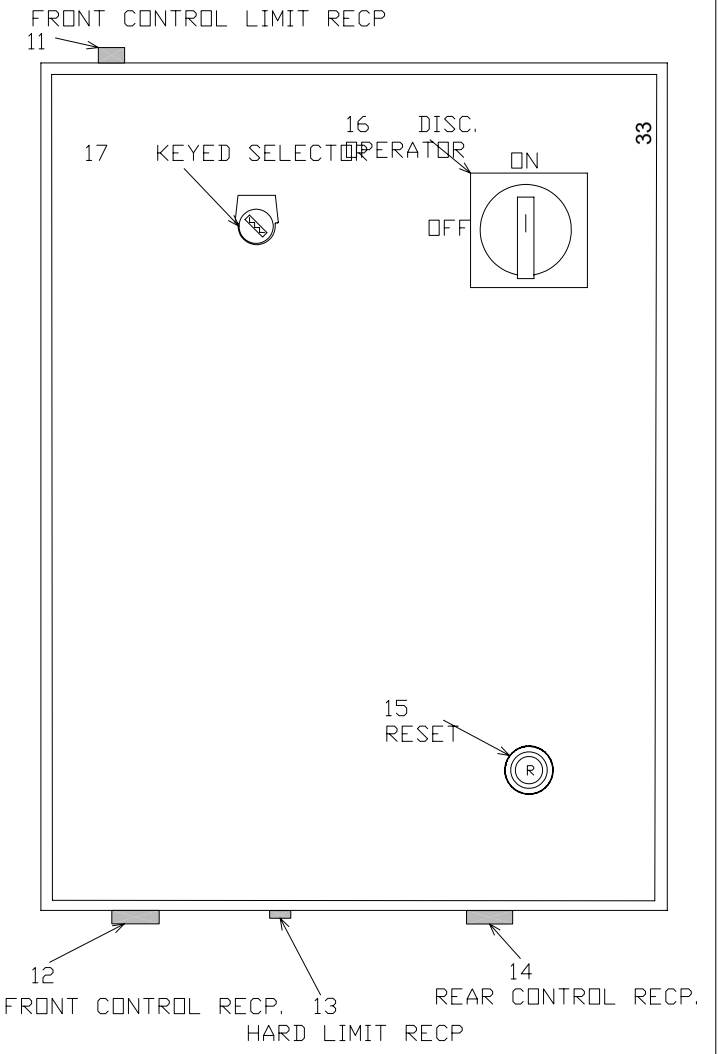
TITLE PII-140 IRON WORKER
DRAWING 0278640-2_1,PII-140
DATE 9-29-04
REV.# -
DRAWN BOB RILEY
BY 1 OF 2
PAGE# 32

ENCLOSURE BACK PLATE



ENCLOSURE DOOR



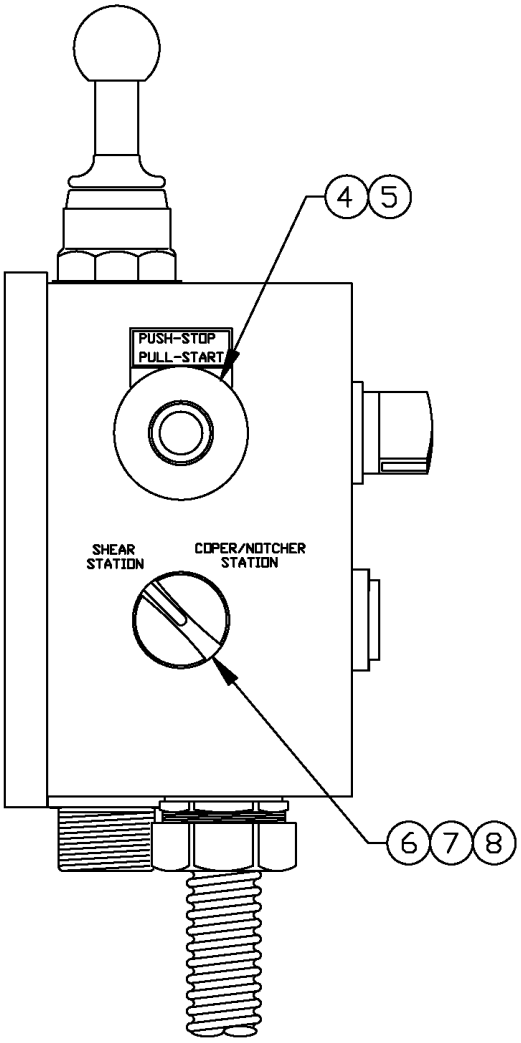
PIRANHA	
TITLE	PII-140 IRON WORKER
DRAWING	0278640-2_2,PII-140
DATE	9-29-04
REV#	-
DRAWN BY	BOB RILEY
PAGE	2 OF 2

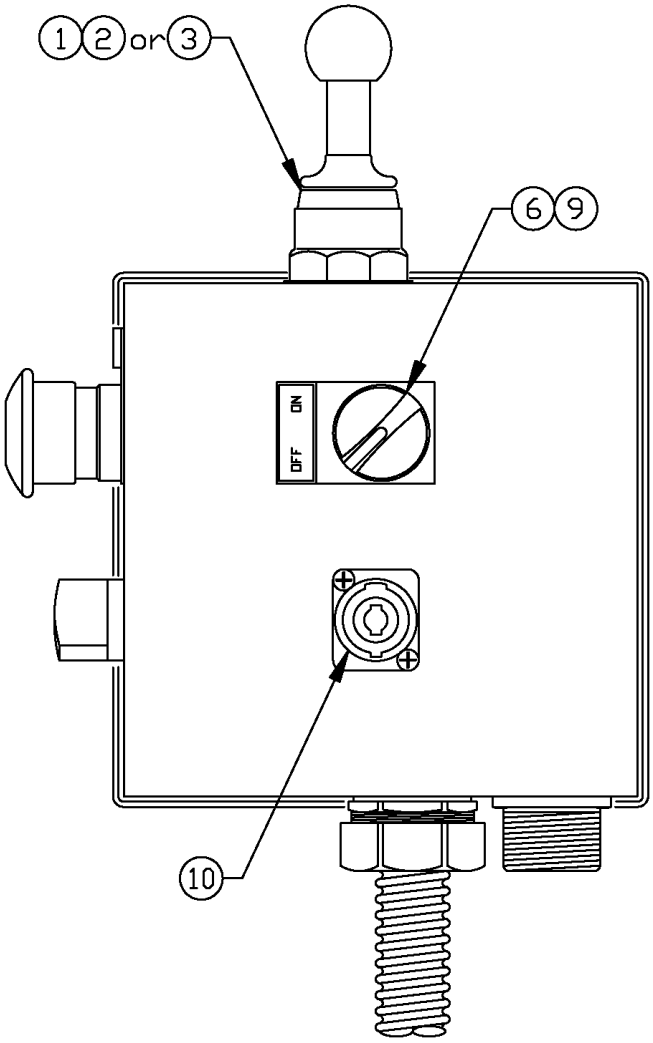
PII140 ELECTRICAL ENCLOSURE
PART # 0278640-2

Figure and Index No.	Part Number	Description	Qty.
RP-1	0591602	Disconnect	1
-2	T0727	Disconnect Shaft	1
-3	T0781	Fuse Motor Short Circuit 208V	3
OR	T0780	Fuse Motor Short Circuit 230V	3
OR	T0777	Fuse Motor Short Circuit 460V	3
OR		Fuse Motor Short Circuit 575V	3
-4	T0784	Fuse Block Motor Short Circuit 208/230V	1
OR	T0782	Fuse Block Motor Short Circuit 460/575V	1
-5	T0729	Motor Starter, All Voltages	1
-6	T0786	Heater Coils 208V 3 Phase	3
OR	T0788	Heater Coils 230V 3 Phase	3
OR	T0785	Heater Coils 460V 3 Phase	3
OR	T0787	Heater Coils 575V 3 Phase	3
-7	T0731	Starter Aux. Contact	1
-8	0531714	Secondary Fuse All Voltages	1
-9	0541638	Transformer 208V	1
OR	05416491	Transformer 230/460V	1
OR	0541639	Transformer 575V	1
-10	T0768	Primary Fuse, 208/230V	2
OR	T0767	Primary Fuse, 460/575V	2
-11	N/A	Front Control Limit Receptacle	1
-12	N/A	Front Control Receptacle	1
-13	N/A	Hard Limit Receptacle	1
-14	N/A	Rear Control Receptacle	1
-15	0531686-1	Reset Button	1
-16	0531604	Disconnect Operator	1
-17	0531694-1	Keyed Selector Switch	1

PII REAR BOX ASSEMBLY
PART #0278630-1

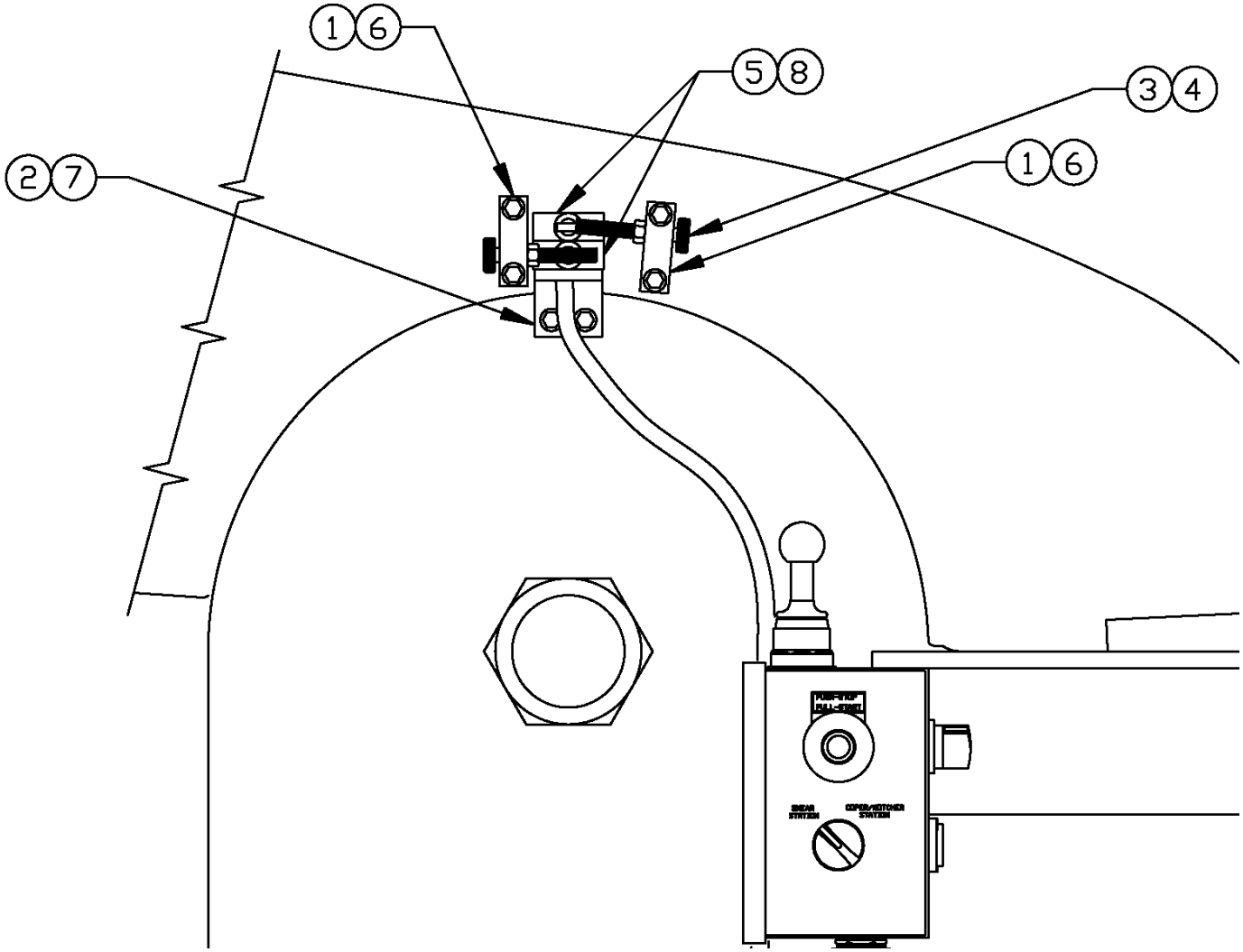
Figure and Index No.	Part Number	Description	Qty.
RP-1	0591608	Joystick	1
-2	0531644	Contact Block	2
-3	0591608-1	Joystick Assy. (W/Contact Blocks)	1
-4	0531643-1	Push Pull Button	1
-5	05316121-1	Contact Block with Base N.C.	1
-6	0531695-1	Selector Switch 2-Position	1
-7	0531678-1	Mounting Base with 2-N.O. Contacts	1
-8	0591596-1	Contact Block N.C.	3
-9	0531696-1	Contact Block with Base N.O.	1
-10	0531618	4 Pole Receptacle	1





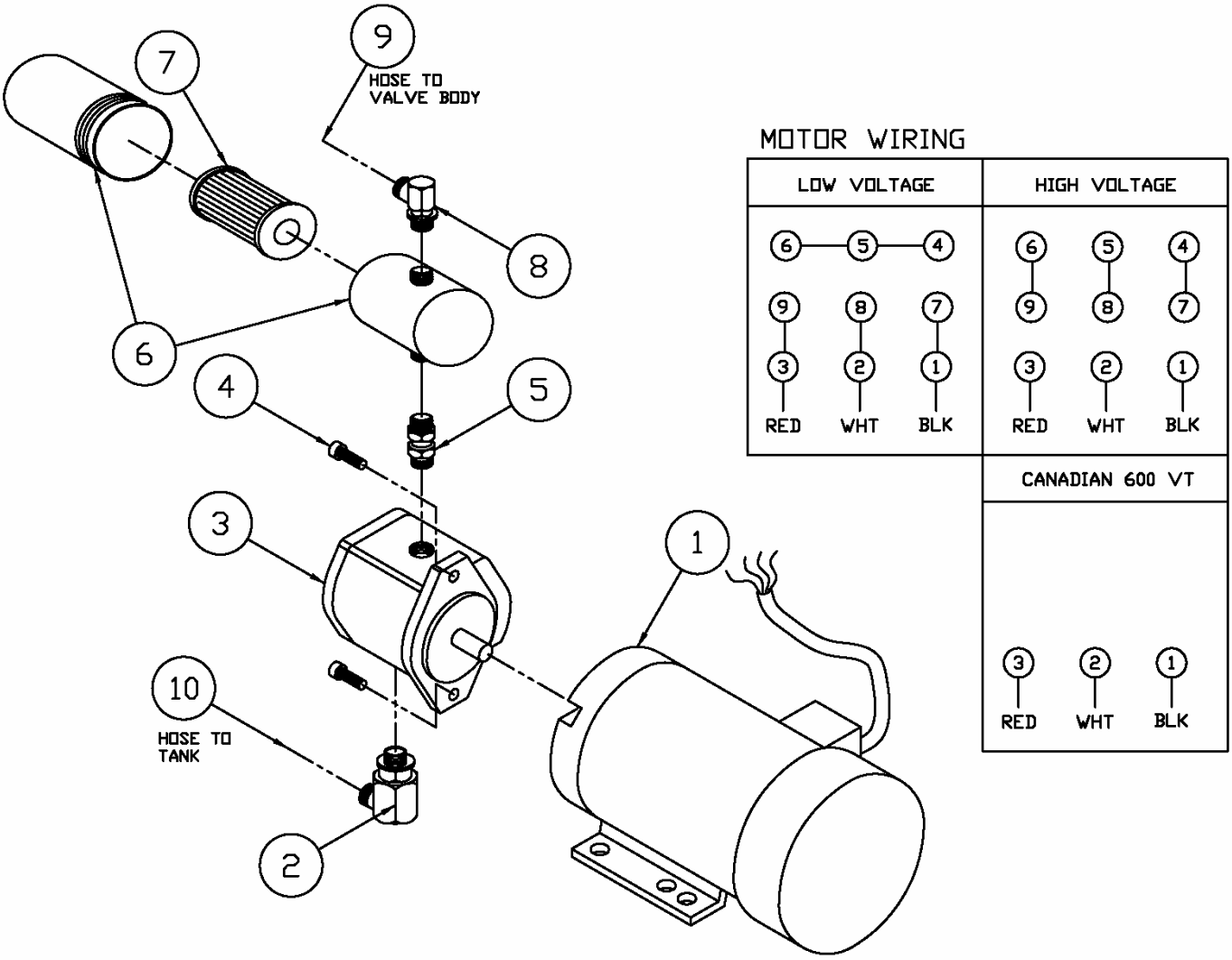
PII REAR LIMIT SWITCH ASSEMBLY

Figure and Index No.	Part Number	Description	Qty.
RP-1	0278153	PII110/140 Rear Limit Switch Adjusting Block	2
OR	0276151	PII65/88 Rear Limit Switch Adjusting Block	2
-2	0278154	PII Rear Limit Switch Mounting Bracket	1
-3	0541060	5/16” Knurled Head Screw	2
-4	0541025	5/16” Hex Nut	2
-5	0531615	Limit Switch	2
-6	0531022	5/16” x 2” SHCS	4
-7	0531039	3/8” x 3/4” SHCS	2
-8	0278635	Rear Limit Switch Box Assy. (Includes Box, Limit Switches and Cable)	1



PII140 MOTOR, PUMP AND FILTER ASSY
PART # 0278600-1

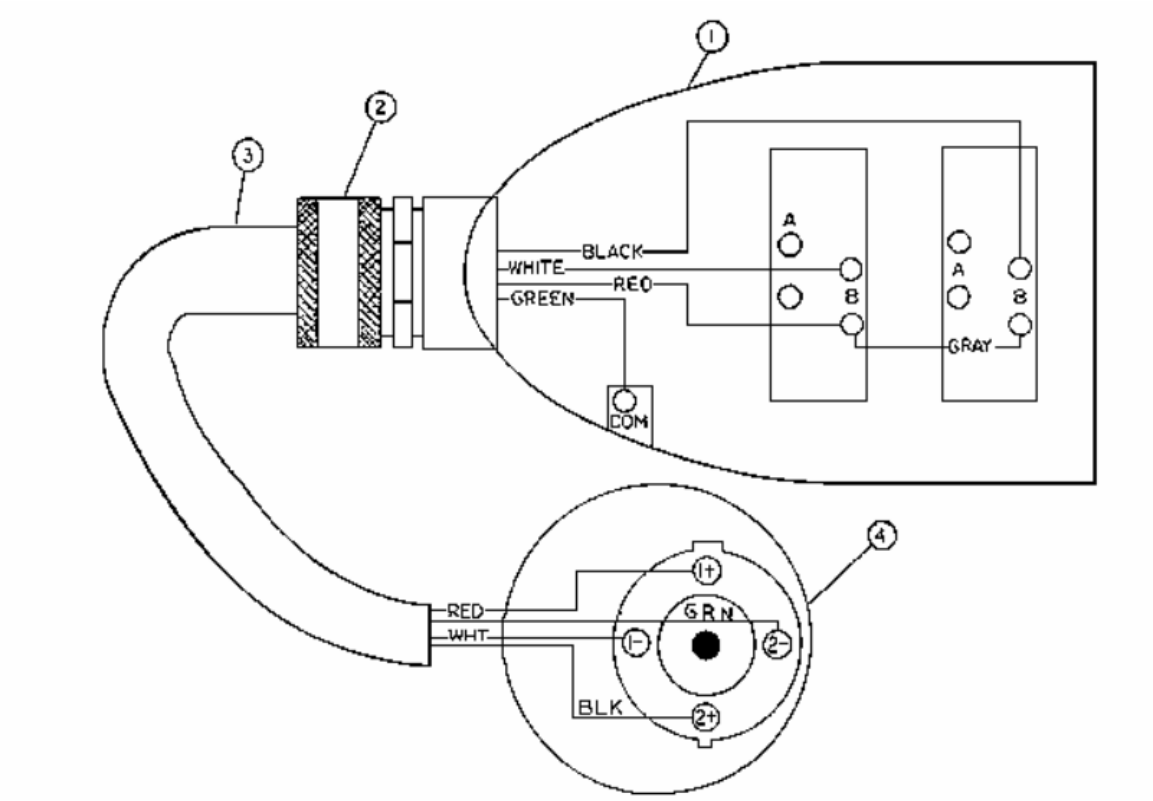
Figure and Index No.	Part Number	Description	Qty.
-1	0571660-1	20 HP Motor 220/440V (Hollow Shaft)	1
OR	0571662-1	20 HP Motor 208V (Hollow Shaft)	1
OR	0571665-1	20 HP Motor 575V (Hollow Shaft)	1
-2	0533539	Hyd. Fitting 6801-16	1
-3	05915701-1	Hydraulic Pump	1
-4	0531081	½" x 1 ¼" SHCS	2
-5	0551511	6402-12-12 Hyd. Fitting	1
AND	0591506	6400-12-12 Hyd Fitting	1
-6	0591550-1	Filter Assy. 8" Pall	1
-7	0591551-1	Filter Element 8" Pall	1
-8	0531676	6801-16-12 Hyd. Fitting	1
-9	0591520	Hose to Valve Body 120"	1
-10	0551523	Hose to Tank 30"	1



Foot Switch Assembly

Part# 0231628

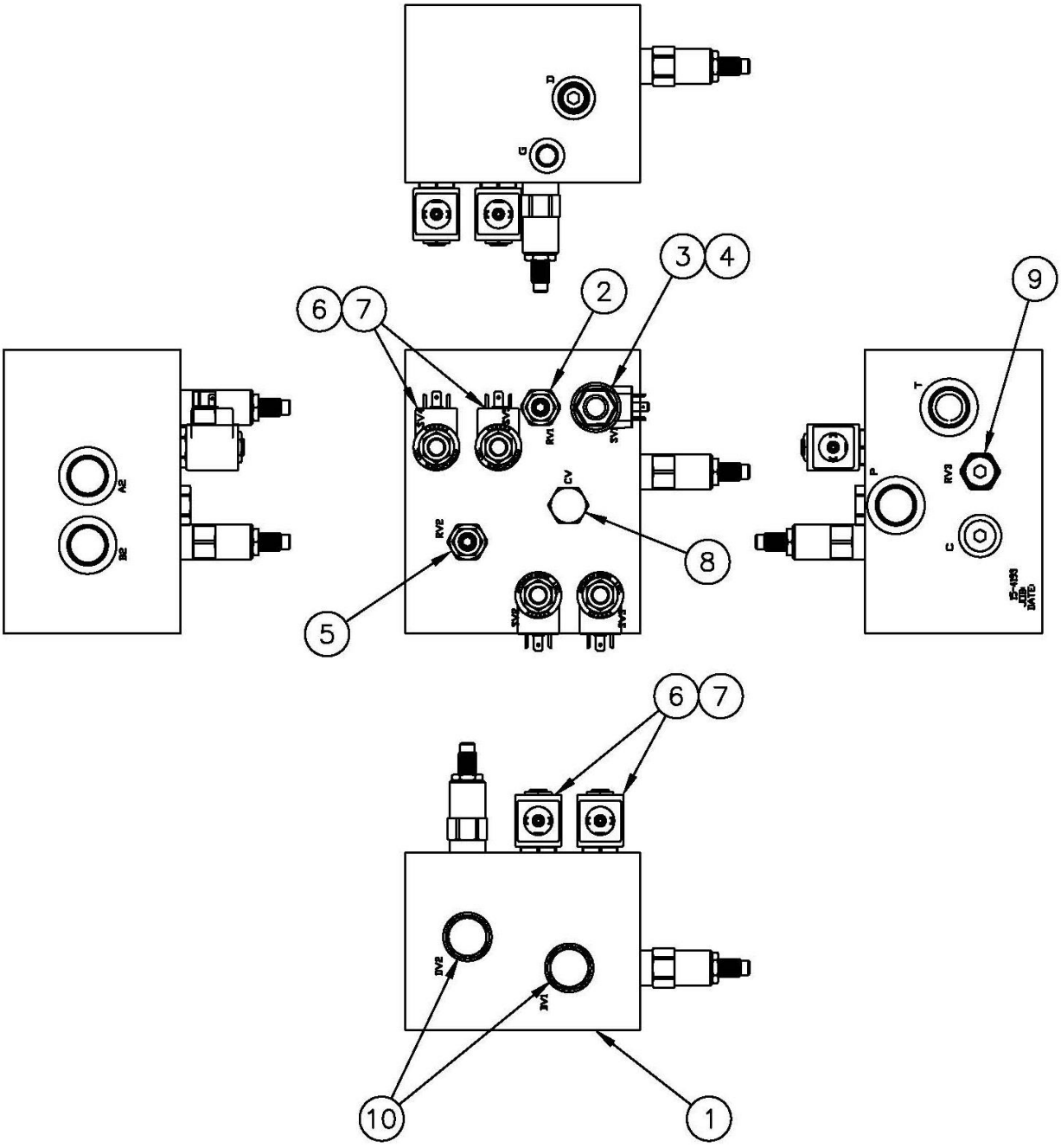
Figure and Index No.	Part Number	Description	Qty.
RP-1	0531655	Foot Switch	1
-2	0531636	Cord Grip	1
-3	0531637	16-4 SEO Cord	
-4	0531617	4 Pole Plug	1



Valve Body Assembly Illustrated

Part No. 05915341 -1

New Style Valve Shown Please contact customer service for more information.

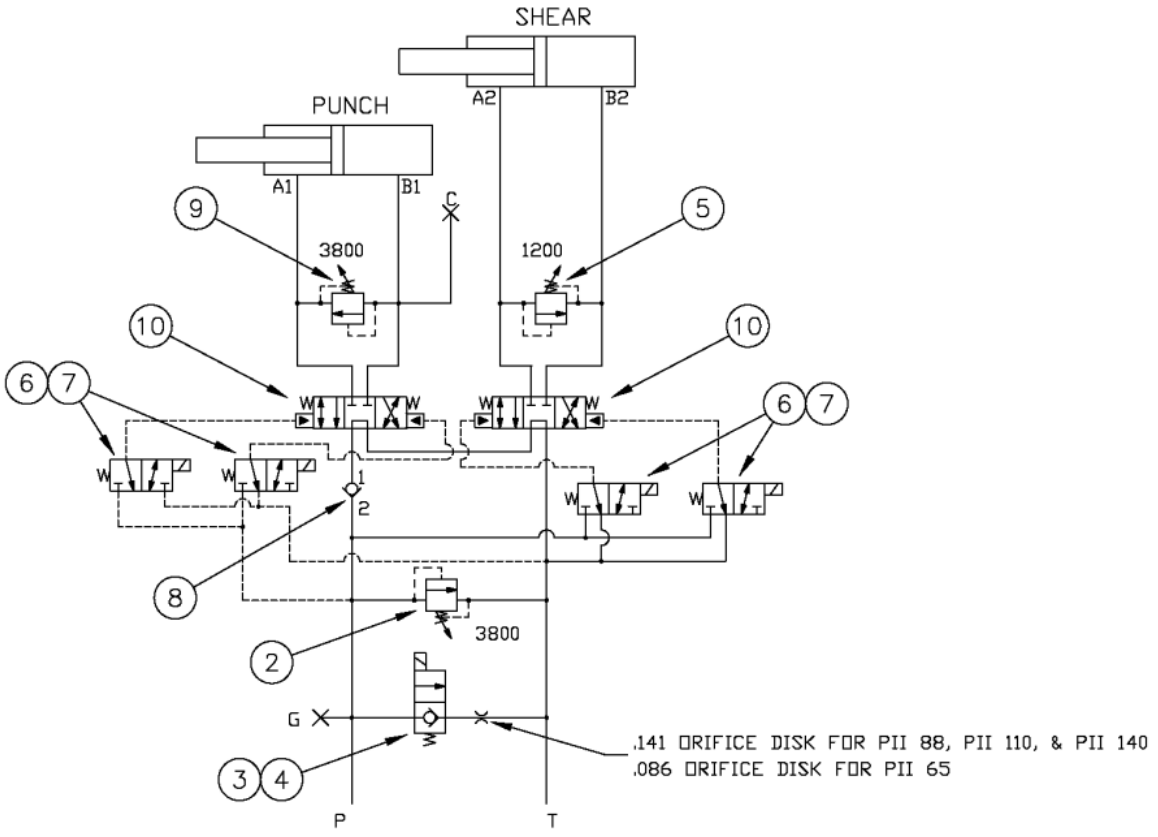


Valve Body Assembly Part Numbers

Part # 05915341-1

New Style Valve Shown New style will have 2 valves in the front and 2 in the back. Old style will have all 4 valves on the front. Please contact customer service for more information.

Figure and Index No.	Part Number	Description	Qty.
RP-1	0591534	Valve Body	1
-2	T3581	Pressure Relief Valve 50/38	1
-3	0591540-1	Solenoid Valve Normally Closed	1
-4	0591541-1	115V AC Solenoid Coil	1
-5	0591538-1	Pressure Relief Valve 25/12	1
-6	0591539-1	Solenoid Valve	4
-7	05915342	115V AC Solenoid Coil	4
-8	0591546	Cavity Plug	1
-9	T3581	Pressure Relief Valve 50/38	1
-10	0591536	Directional Valve Cartridge	2



HYDRAULIC SCHEMATIC

Begins with S/N xxxx

PII 140 Knives

Figure and Index No.	Part Number	Description	Qty.
	0240250	16.625 Shear Knives	2
	0240251	20.5 Shear Knives	2
	2402631	1/2" Rd Bar Knife - Short	1
	0240263	1/2" Rd Bar Knife – Tall	1
	2402641	5/8" Rd Bar Knife - Short	1
	0240264	5/3" Rd Bar Knife - Tall	1
	2402521	3/4" Rd Bar Knife - Short	1
	0240252	3/4" Rd Bar Knife - Tall	1
	2402531	7/3" Rd Bar Knife - Short	1
	0240253	7/8" Rd Bar Knife - Tall	1
	2402541	1 " Rd Bar Knife - Short	1
	0240254	1 " Rd Bar Knife - Tall	1
	2402551	1 1/8" Rd Bar Knife - Short	1
	0240255	1 1/8" Rd Bar Knife - Tall	1
	2402561	1 1/4" Rd Bar Knife - Short	1
	0240256	1 1/4" Rd Bar Knife - Tail	1
	2402571	1 3/8" Rd Bar Knife - Short	1
	0240257	1 3/8" Rd Bar Knife - Tall	1
	2402581	1 1/2" Rd Bar Knife - Short	1
	0240258	1 1/2" Rd Bar Knife - Tall	1
	2402591	1 5/8" Rd Bar Knife - Short	1
	0240259	1 5/8" Rd Bar Knife - Tall	1
	2402601	1 3/4" Rd Bar Knife - Short	1
	0240260	1 3/4" Rd Bar Knife - Tall	1
	2402611	1 7/8" Rd Bar Knife - Short	1
	0240261	1 7/8" Rd Bar Knife - Tall	1
	2402621	2" Rd Bar Knife - Short	1
	0240262	2" Rd Bar Knife - Tall	1
	2402821	1/2" Sq Bar Knife - Short	1
	0240282	1/2" Sq Bar Knife - Tall	1
	2402831	5/8" Sq Bar Knife - Short	1
	0240283	5/8" Sq Bar Knife - Tail	1
	2402841	3/4" Sq Bar Knife - Short	1
	0240284	3/4" Sq Bar Knife - Tall	1
	2402851	7/8" Sq Bar Knife - Short	1
	0240285	7/8" Sq Bar Knife - Tall	1
	2402861	1" Sq Bar Knife - Short	1
	0240286	1" Sq Bar Knife - Tall	1
	2402871	1 1/8" Sq Bar Knife - Short	1

	0240287	1 1/8" Sq Bar Knife - Tall	1
	2402881	1 1/4" Sq Bar Knife - Short	1
	0240288	1 1/4" Sq Bar Knife - Tall	1
	2402891	1 3/8" Sq Bar Knife - Short	1
	0240289	1 3/8" Sq Bar Knife - Tall	1
	0240270	Round Bar Blank	1
	0240274	1 Lower Angle Knives	2
	0240275	Upper -Angle Knife	1
	0240276	Lower Coper End Knife	1
	0240278	Lower Coper Side Knives	2
	0240277	Upper Coper Knife	1
	0541100	1/2" x 2 3/4" SHCS Shear & Lower Angie Knives	20
	0531069	7/16" x 1 1/2" SHCS, Upper Coper	6
	0531330	Woodruff Key, Upper Coper	2
	0531071	7/16" x 2" SHCS Lower Coper Side Knives	6
	0541095	7/16" x 3" SHCS Lower Coper End Knife	3

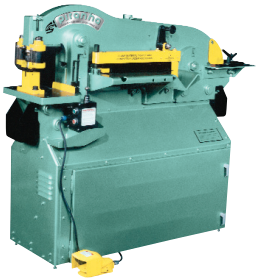
When ordering, includes serial numbers and part number.

Date
Lubrication
Knife And Table Bolts
Machine And Cabinet Bolts
Hydraulic Connections
Oil Level And/Or Change
Oil Filter
Knife Edges
Remarks

Additional Fabricating Equipment

piranha

Dual Operator Ironworkers
35 to 140 tons



Single Operator Ironworkers
36 to 120 tons

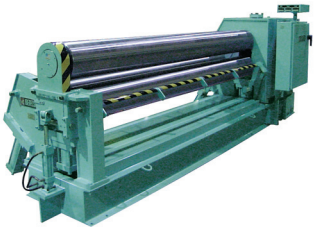
Punch Presses
35 to 140 tons

Press Brakes
25 to 500 tons

Precision Press Brakes
25 to 500 tons

Hydro-Mechanical Shears
1/4˝ to 1/2˝

BERTSCH

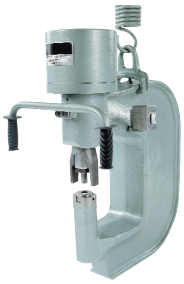


3 & 4 Roll
Manual/Hydraulic

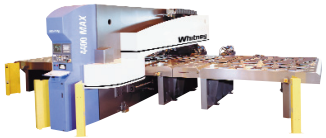
Section Bending Rolls

Whitney

The Leader in Plate Technology



Portable Presses



Punch Plasmas

Plasma Tables