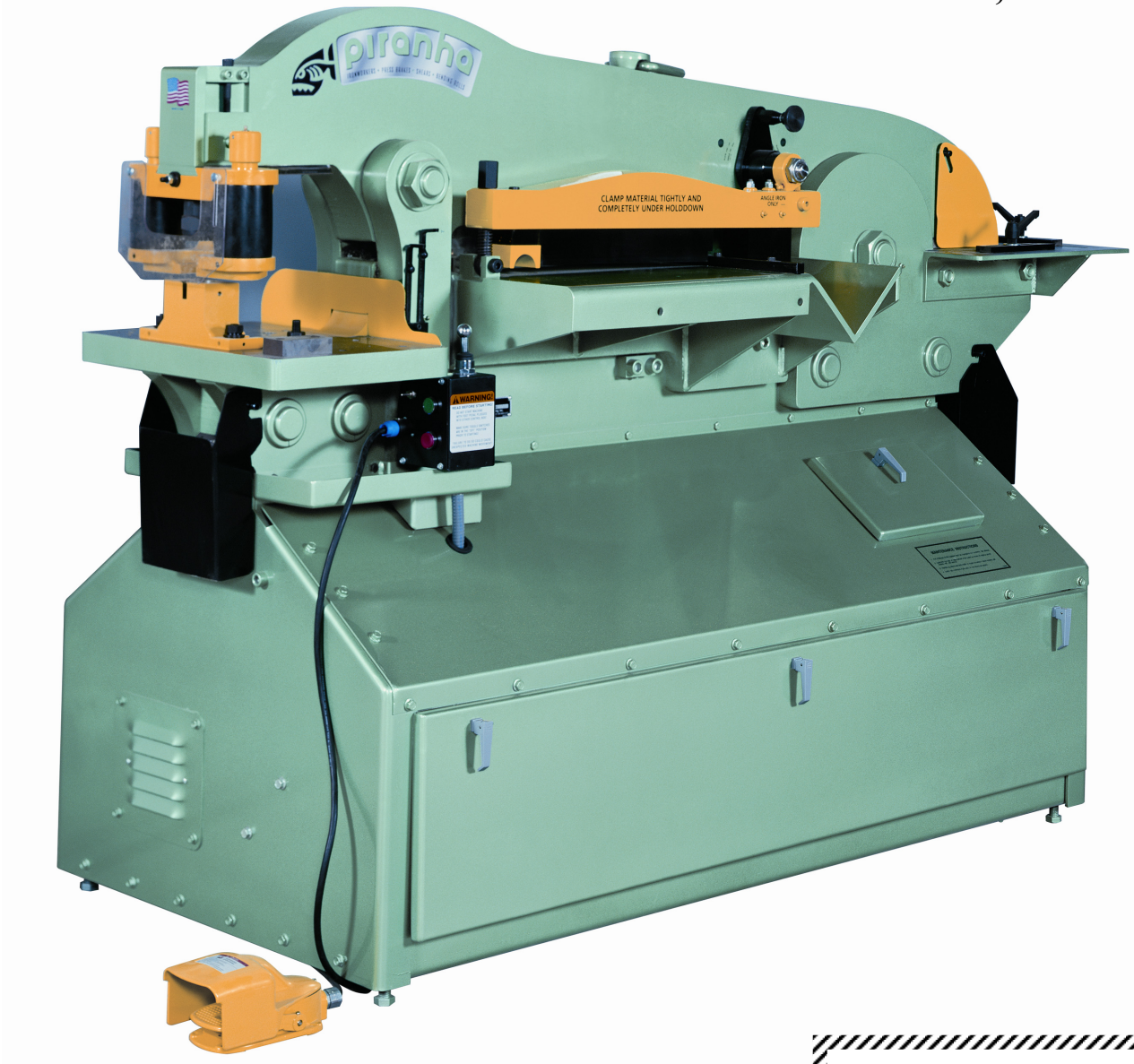
IRONWORKERS • PRESS BRAKES • SHEARS • BENDING ROLLS

INSTRUCTIONS AND REPAIR PARTS MANUAL FOR

PIRANHA

IRONWORKER MODEL NO. P-90

Publication December, 2004



For Serial Numbers P90-1805 to Current

www.piranhafab.com

800-338-5471

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

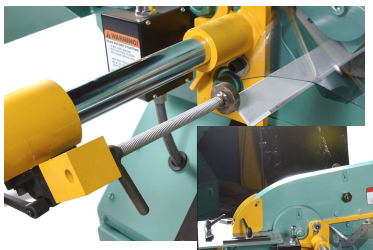
Piranha Optional Tooling

Enhance your Piranha's versatility!

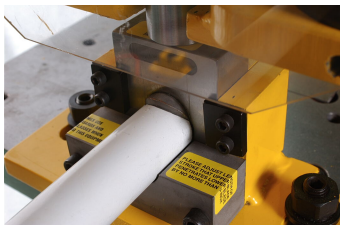

- **Oversize Punch Attachments**
  - **Expand your punching capacity up to 5"**



- **Quickset Gauging Tables**
  - **Allows you to quickly set up your punch end for multiple holes.**
  - **Includes an angle gauge bar to index off of the heel of your angle and a plate gauge bar which indexes off of the end of your plate.**
  - **Extensions are available in left and right hand styles in 5' and 10' lengths.**




- **Backgauges**
  - **Allows you to quickly set your machine up to repeat your shearing length by adding a mechanical backstop.**
  - **Backstop can be positioned in either the angle, flat bar or round bar section of the machine.**
  - **Available in lengths of 3', 6', 9' or 12'**
  - **An electronic version is also available, which cycles the machine automatically when material makes contact with the backgauge probe.**

- **Pipe Notching Attachment**
  - **Allows you to single notch Schedule 40 Pipe.**
  - **A must have for hand rail jobs.**
  - **Attaches to the punch end of the machine.**
  - **Notching dies available for ¾", 1", 1 ¼", 1 ½" and 2" Schedule 40 Pipe.**


- **Oversize Bending Attachments**
  - **Expand your bending capacity to 24" on most models.**
  - **Includes a 4-way die block for different thicknesses of material.**

INSTRUCTIONS
AND
REPAIR PARTS
MANUAL FOR

PIRANHA

IRONWORKER
MODEL NO. P-90

Publication December, 2005

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

FOREWORD

This manual has been prepared for those persons who will operate and maintain the Piranha. 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 on the basis of a standard unit arrangement. Differences between the unit 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 Mfg. will replace F.O.B. the factory, or refund the purchase price for any goods which are defective in materials and workmanship within 12 months of date of purchase, provided the buyer returns the warranty registration card within thirty (30) days of purchase date, and, at the seller's option, returns 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 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 view the operational video provided with the machine, and thoroughly understand this manual before starting any operation.

This machine is designed for use by one operator at a time.

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.

Adjust limit switches when punching or bending to allow ¼" maximum clearance between bottom of stripper foot or bending punch and top of the material. Contact the factory for limit switch adjustments on special tooling.

Turn selector switch to OFF position when changing tooling or performing maintenance work.

MEGA Manufacturing, Inc.

Electrical System Design/Manufacture:

The machines manufactured in Hutchinson, KS, 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 B11.5—Ironworkers, Construction, Care, and Use
ANSI B11.3—Power press brakes, Construction, Care, and Use
ANSI B11.4—Shears, Construction, Care, and Use

The ANSI B11 standards were developed to establish levels of responsibility for manufacturing safe products, installation, training, and use of 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 4th of 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 B11.5-1988, 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 owner/end user 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

PO Box 457
Hutchinson, KS 67504-0457
Phone: (800) 338-5471
Fax: (316) 669-8964

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. A quick change mounting assembly utilizing a split dovetail allows setup from punching to bending in less than one minute. The large platen has seventeen 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 work stations 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 ..... **15HP 230/460 volt 3 phase**
Hydraulic tank capacity ..... **25 gallons**
Hydraulic oil ..... **Mobile DTE 13 or equivalent ISO Grade 32 - Consult your local distributor for cross reference**

WORKING SURFACE

Platen ..... **14 1/2" x 21"**
Coping ..... **19" x 19"**

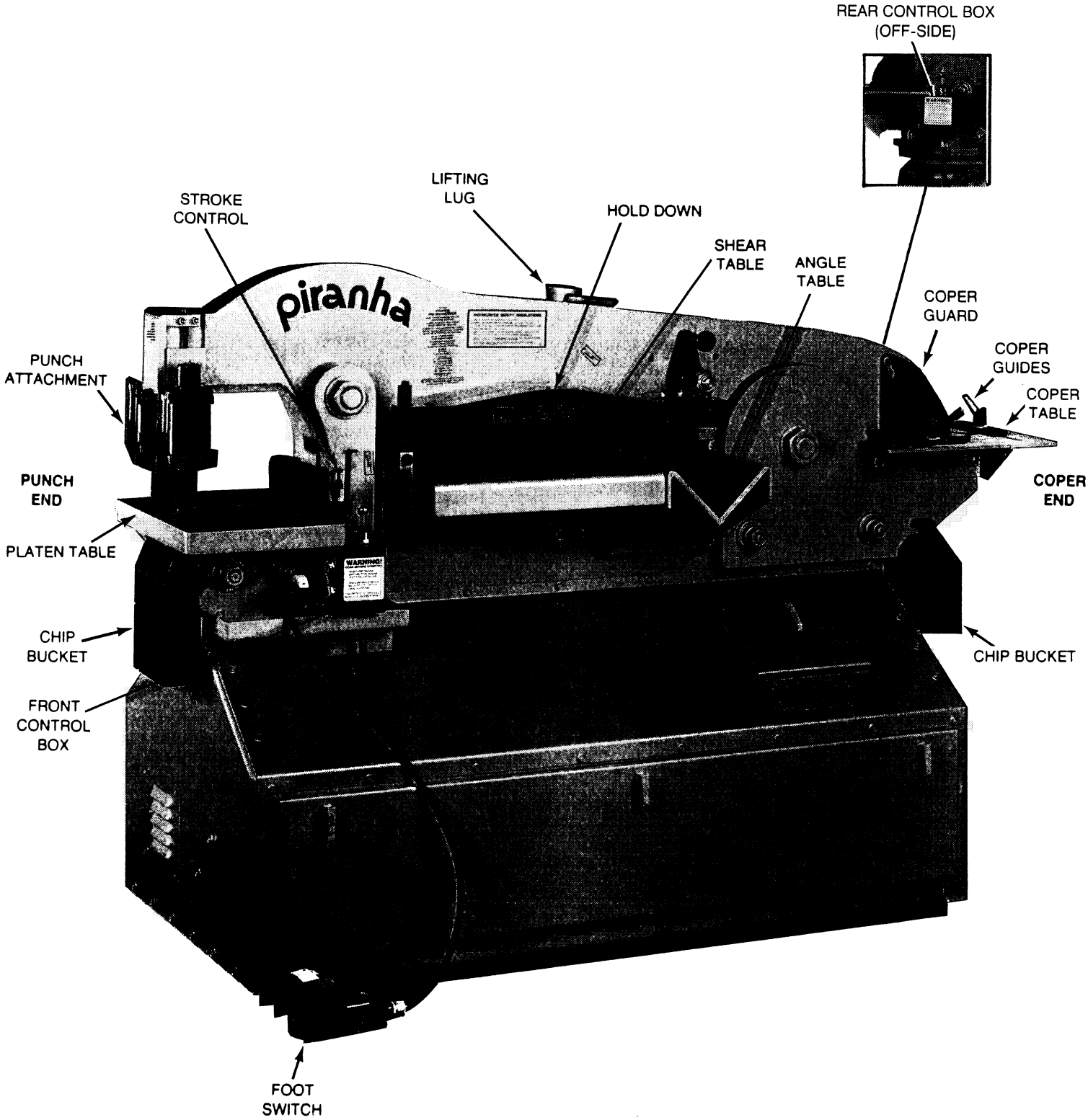
CAPACITIES

Punch ..... **Maximum 1 1/8" thru 1" thick material or 90 tons**
Bending ..... **Maximum 90 tons**
Punch End ..... **Maximum 90 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" x 6" x 3/8"**

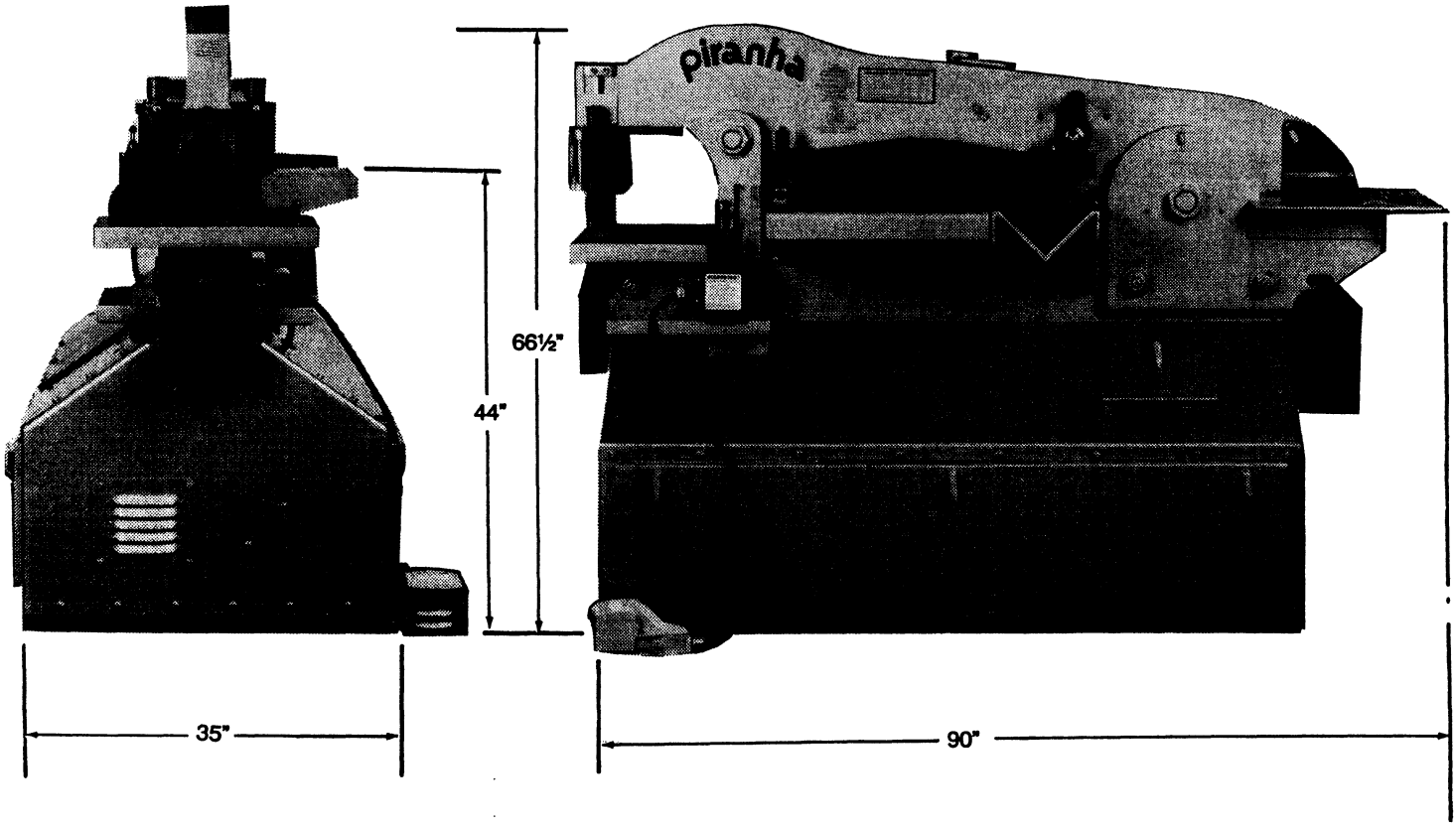
WEIGHT

Shipping Weight ..... **5800 lbs.**

FUNCTIONAL DIAGRAM



DIMENSIONAL DATA



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 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.

ASSEMBLY

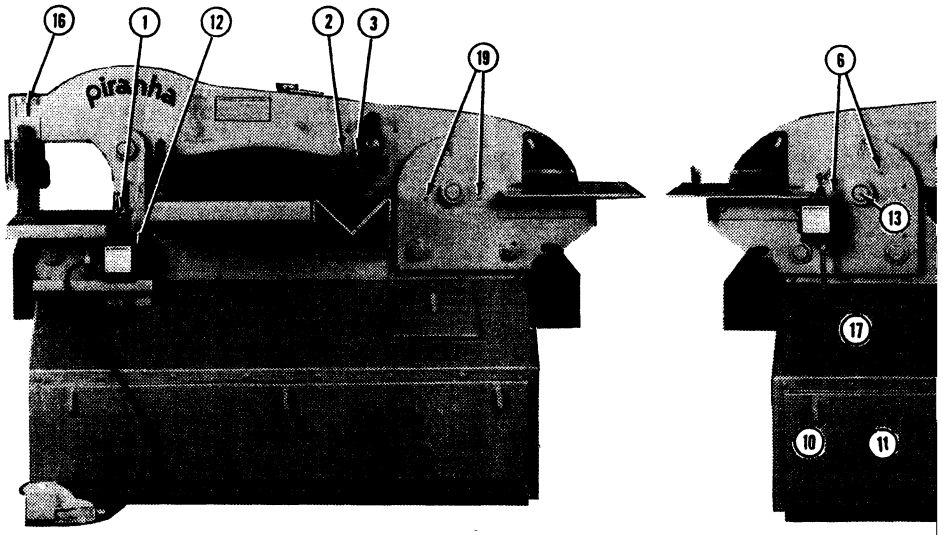
The Piranha is pre-assembled at the factory requiring only the addition of hydraulic oil and a power source.

LUBRICATION

GENERAL

The importance of correct lubrication cannot be over emphasized. the machine be operated without complying with the lubricatio publication.

LUBRICATION DIAGR



LUBRICATION CHAI

Station	Part Lubricated		Frequency	I
1	Upper Pull Arm On Side		Every 40 Hours	A
12	Lower Pull Arm On Side		Or Weekly With	U
14	Upper Pull Arm Off Side		Normal Use	A
5	Lower Pull Arm Off Side			E
4	Upper Pull Arm Hinge Pin			
19	Coper Side Plate On Side (2 Places)			
6	Coper Side Plate Off Side (2 Places)			
13	Rear Hinge Pin			
2	Angle Knife Bushing			
3	Hold Down Link			
15	Hold Down Bar (2 Places)			
18	Hold Down Pin			
16	Stripper Assembly (2 Places)			
7	Clevis Pin			
8	Lower Pull Arm Hinge Pin	Located		
9	Crank Arm Hinge Pin	Inside		
17	Cylinder Pin	The		
10	Drive Motor	Cabinet	Every 100-150	C
11	Drive Motor		Operating Hours	G

MAINTENANCE

NOTE: Selector switch should be in the OFF position while maintenance checks are being performed REF (page 21, figure B).

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.
REF (page RP18)

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.

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 RP22.

TROUBLE SHOOTING

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 can not 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.

PROBLEMS

P1 - Machine will not start

For possible cause, check:

1. **Selector switch. Must be turned to the control box you are starting the machine from.**
2. **Fuses at disconnect.**
3. **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. See page RP12.**
   - **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. See wiring diagram page RP12.**

P2 - Machine starts but will not operate

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

If the machine operates, the problem is electrical. Check:

1. **To determine if problem exists in the front control box only, the rear control box only, or in both control boxes.**
   - **A. If problem is isolated to one box only, check the internal wiring and wiring harness with disconnect plug for loose connection.**
   - **B. If the problem exists in both boxes, follow the remaining procedures.**
2. **The wiring connections in the electrical enclosure.**
3. **The valve body wiring harness, including the disconnect plugs, for loose connections.**
4. **The coils in the directional control valve.**

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

1. **To determine if the pump is developing flow. If not, check:**
   - **A. If motor rotation is correct.**
   - **B. If motor/pump coupling is tight on both shafts and the insert is not damaged.**
   - **C. That hydraulic suction line is tight.**
   - **D. Oil level.**
   - **E. For defective pump.**
2. **To determine if the spool in the directional control valve is stuck in the center position. If stuck, remove end caps of control valve and free the spool. Inspect for contamination.**

P3 - Punch end of machine will lower, but not raise or raises slowly

Determine if the problem is electrical or hydraulic, using the procedure in P2.
If electrical, use that guide to locate the problem. If hydraulic, check:

1. **CODA-XEN check valve (RP16-6). Remove cartridge and inspect for contamination.**
2. **RPEC-FCN relief valve (RP16-3). Remove cartridge and inspect for contamination.**
3. **RVCA-LAN relief valve (RP16-2). Remove cartridge and inspect for contamination.**
4. **Spool in directional control valve stuck. Remove end cap of control valve and free the spool. Inspect for contamination.**
5. **Cylinder for internal leak(RP19).**

P4 - Punch end of machine will raise, but not lower or lowers slowly.

Determine if problem is electrical or hydraulic, using the procedure in P2. If electrical, use that guide to locate the problem. If hydraulic, check:

1. **CKEB-XCN check valve (RP16-4). Remove cartridge and inspect for contamination.**
2. **RVCA-LAN relief valve (RP16-2). Remove cartridge and inspect for contamination.**
3. **CBCA-LHN counterbalance valve (RP16-5). Remove cartridge and inspect for contamination.**
4. **RPEC-FCN relief valve (RP16-3). Remove cartridge and inspect for contamination.**
5. **Spool in directional control valve stuck. Remove end cap of control valve and free the spool. Inspect for contamination.**
6. **Cylinder for internal leak (RP19).**

P5 - Machine does not seem to have enough pressure to punch.

Install the pressure gauge into the system. Then bottom out the punch end (cylinder extension). The pressure should read 2500 psi. The coper end bottom out (cylinder retraction) should read 1250 psi.

1. **If pressures are good, check:**
   - **A. Tonnage rating of hole to punch (page 15).**
   - **B. Type of material being punched. Machine capacities are rated on mild steel. Note: Torching some metals increase their hardness.**
   - **C. Proper punch to die clearance on material thickness (page 16).**
   - **D. If punch and die is properly sharpened.**
2. **If pressures are low, check:**
   - **A. Pressure gauge is giving accurate reading.**
   - **B. Machine is not operating in jog speed. Time both the fast mode and jog mode. If both modes are the same speed, remove and inspect the NC valve (RP16-7). Note: If the solenoid coil (RP16-8) is magnetized in all four joystick positions, there is an electrical problem. See P2 for trouble shooting procedure.**
   - **C. CODA-XEN check valve (RP16-6). Remove cartridge and inspect for contamination.**
   - **D. CKEB-XCN check valve (RP16-4). Remove cartridge and inspect for contamination.**
   - **E. RVCA-LAN relief valve (RP16-2). Remove cartridge and inspect for contamination.**
   - **F. Cylinder for internal leak (RP19).**

Note: Main relief valve operating pressure may need reset. Contact the factory for adjustment procedure.

P6 - Machine overheats

For possible cause, check:

1. **Fluid level in reservoir is low.**
2. **Low line voltage to transformer causing low control voltage to directional valve solenoid coils.**
3. **Improper use of limit switches when using footswitch, allowing cylinder to bottom out at retraction and extension. Thus causing hydraulic fluid to by-pass over relief valve, creating heat build up.**
4. **The use of the jog mode during production. Hydraulic fluid passing over the NC valve will create heat build up.**
5. **Any orifice type situation in the hydraulic system. Example: Contaminated cartridge valve, restricted or kinked hose, etc.**

P7 - Reset on motor starter kicks out

For possible cause, check:

1. **Internal overheating. See P6 for trouble shooting procedure.**
2. **Insure proper sized heater coils are being used (see wiring diagram Page RP12).**
3. **Line voltage.**
4. **Connections on motor cable loose at starter or motor.**

P8 - Edges on knife blade chipped by material

For possible cause, check:

1. **Knife clearance - .007" to .010". If not,:**
   - **A. Plate/angle table bolts may have become loose, allowing scale and contamination between table and beam. Remove table and clean.**
   - **B. Plate/angle table bolts may have stretched the threads in the beam. Remove table and sand beam surface flat.**
   - **C. Knives may have been ground. Shim to recommended clearance.**
2. **Knives dull creating a pulling effect on shearing edge.**
3. **Material may be too hard.**
4. **Material may be thicker than rated capacities.**

P9 - Machine leaves burr when shearing

For possible cause, check:

1. **Knife clearance - .007" to .010". If not, follow procedure in P8.**
2. **That knives are sharp.**
3. **That automatic hold down is clamping securely.**

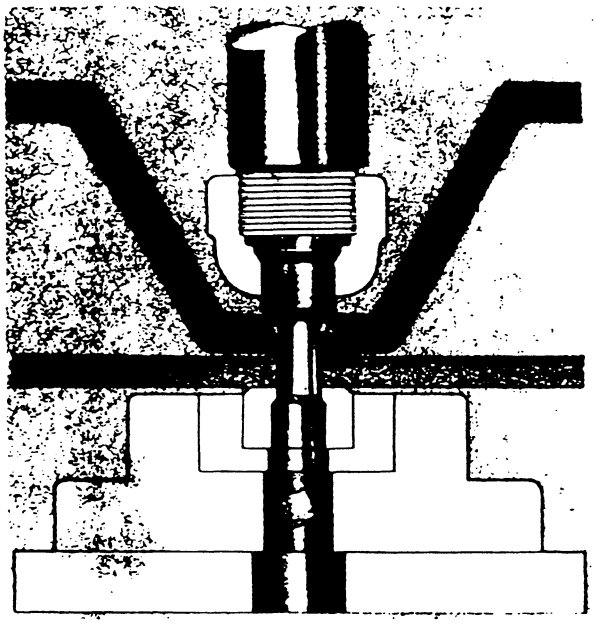
P10 - Bent or broken hold down swingbolt

For possible cause, check:

1. **Alignment of angle hold down block with the angle table. Must be square with table.**
2. **Spiral pins holding the guide pins to the angle block are possibly sheared.**
3. **Hold down link must move freely in the hold down bar.**
4. **Swingbolt moving freely in hold down bar.**
5. **Hold down locator plate in correct position for material thickness.**

   Locations: 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

TONS OF PRESSURE REQUIRED FOR PUNCHING MILD STEEL



This table shows the tons of pressure required for single punching mild steel derived by the formula: Tons of pressure required hole size × material thickness × constant 80 All figures shown are tons or percentages of tons For intermediate sizes interpolations can be made.

By use of the table, the tons of pressure required for multiple punching can also be figured.

Example: Can eight holes ⅛" round and two holes 1/16" round be punched in 16 gauge material on a 10 ton press? Yes
Tons pressure required for one hole ⅛" round in 16 ga. = 60 tons
Tons pressure required for one hole 1/16" round in 16 ga. = .90 tons
8 holes × .60 tons = 4.80 tons
2 holes × .90 tons = 1.80 tons } = 6.60 tons

Tons of pressure for punch sizes over 1" round can also be computed

Example: What pressure is required to punch a 2¼" round hole in ⅛" thick material? Since a 1" round hole in ⅛" thick material requires 70 tons pressure, a 2¼" round hole in ⅛" thick material requires 157.50 tons.

2.25 round hole × 70 tons = 157.50.

Stock Thickness	PUNCH SIZE														
	⅛	3/16	¼	5/16	⅜	7/16	½	9/16	⅝	11/16	¾	13/16	⅞	15/16	1"
26 ga. .0179	.18	.27	.36	.45	.54	.63	.72	.81	.90	.99	1.07	1.16	1.25	1.34	1.43
24 ga. .0239	.24	.36	.48	.60	.72	.84	.96	1.08	1.20	1.31	1.43	1.55	1.67	1.89	1.91
22 ga. .0299	.30	.45	.60	.75	.90	1.05	1.20	1.35	1.50	1.65	1.80	1.95	2.10	2.24	2.39
20 ga. .0359	.36	.54	.72	.90	1.08	1.26	1.44	1.62	1.80	1.98	2.15	2.33	2.51	2.69	2.87
18 ga. .0478	.48	.72	.96	1.20	1.43	1.67	1.91	2.15	2.39	2.63	2.87	3.11	3.34	3.58	3.82
16 ga. .0598	.60	.90	1.20	1.50	1.79	2.09	2.39	2.69	2.99	3.29	3.59	3.89	4.19	4.49	4.78
14 ga. .0747	.75	1.12	1.49	1.87	2.24	2.61	2.99	3.36	3.73	4.11	4.48	4.86	5.23	5.60	5.97
12 ga. .1046	1.05	1.57	2.09	2.62	3.14	3.66	4.18	4.71	5.23	5.75	6.28	6.80	7.32	7.85	8.57
10 ga. .1345		2.02	2.69	3.36	4.04	4.71	5.38	6.05	6.73	7.40	8.07	8.74	9.42	10.09	10.76
3/16 .187		2.81	3.74	4.68	5.61	6.55	7.48	8.42	9.35	10.29	11.22	12.16	13.09	14.03	14.96
¼ .250			5.00	6.25	7.50	8.75	10.00	11.25	12.50	13.75	15.00	16.25	17.50	18.75	20.00
⅜ .375					11.25	13.13	15.00	16.88	18.75	20.63	22.50	24.38	26.25	28.13	30.00
½ .500							20.00	22.50	25.00	27.50	30.00	32.50	35.00	37.50	40.00
⅝ .625									31.25	34.38	37.50	40.63	43.75	46.88	50.00
¾ .750											45.00	48.75	52.50	56.25	60.00
⅞ .875													61.25	65.63	70.00
1" 1.000															80.00

PRESSURES ABOVE ARE REDUCED BY SHEAR ON PUNCH END OR STAGGERING PUNCHES

TOOL LIST

The following tool list is only to be used as a guideline for performing maintenance and to assist you in trouble shooting your machine. Many of these items would already be included in your stockroom or a maintenance personnel tool box.

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. **Voltimeter.**

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 Nut	600

PUNCH & DIE CHART

CLEANCE CHART FOR STEEL

Gauge	Approx. Thickness	Clearance Add to Punch Size	Guage	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"

OPERATING INSTRUCTIONS

The Piranha Ironworker comes pre-assembled and pre-wired, requiring only the addition of hydraulic fluid in the reservoir to the mark on the fill cap dipstick and a power source from a disconnect to the electrical enclosure box located inside the cabinet.

The unit can be started and stopped by the push button operators located on the front cover of the control boxes on each end of the unit. (See Figure "A", Page 21) Control Box locations (see Figure "E", Page 21).

The electrical controls have a selector switch to determine which control box controls the unit. This safety feature is located on the rear cover of the front control box only. (see Figure "B", Page 21) The legend plate on the selector switch is printed "Front-Off-Rear". "Front" allows electrical control to the Front Box only. "Off" disconnects electrical control to both control boxes. "Rear" allows electrical control to the Rear Box only. The selector switch should be in the "Off" position when the machine is not being used, such as, changing tooling, maintenance work, etc. The machine can only be started from the control box selected via the selector switch. It can be stopped using either stop button.

The ironworker is hand controlled by a 5 position momentary joystick operator. When the joystick is released from any of the 4 positions, it will return to the neutral (center) position stopping machine movement instantly. The joysticks are located on top of the control box at each end of the machine (see Figure "E", Page 21).

The 4 controlling positions of the joystick are:

1. **Fast down (pulling the handle forward)**
2. **Fast up (pushing the handle away)**
3. **Jog down (pushing the handle to the right)**
4. **Jog up (pushing the handle to the left)**

See Figures "C" and "D", Page 21.

All directions in Figures "C" and "D" are determined by standing at either end and facing the machine. The jog speed in both positions is a slow speed for alignment of center punch marks and scribe lines for shearing. The fast cycle should be used for the work cycle.

The ironworker can also be controlled by a footswitch. (see Figure "F", Page 21) The footswitch is used by plugging the 4-pole twist lock cap into the 4-pole twist lock receptacle located in the front cover of either control box (see Figure "A", page 21) and switching the toggle switch (see Figure "A", Page 21) from the "off" position to the "on" position. The footswitch is a three-position switch allowing hands-free operation. By fully depressing the footswitch lever, machine movement is downward to limit setting. (See F2) By allowing the footswitch lever to elevate to the center position, machine movement stops. (See F3) Completion of downward cycle is accomplished by depressing footswitch lever again. Machine movement is down until limit setting is met. (See F4) Removing foot pressure from the switch entirely allows machine movement upward to limit setting, completing upstroke cycle. (See F5)

The footswitch is used in conjunction with the upstroke and downstroke limitswitches located on the machine side of the front control box only. (See Figure "C", Page 21) The front limitswitch (closest to the punch end and the lower switch of the two switches) controls the downstroke limit. The back switch (furthest from the punch end and the higher of the two switches) controls the upstroke limit. The limitswitches are activated by the limitswitch arms: Fig and Index No. RP4-60, shown on page no. RP4. To set the stroke using the limitswitch arms, use the following procedure:

1. **Plug in footswitch**
2. **Turn toggle switch to "On" position**
3. **Loosen thumbscrew on downstroke limitswitch arm.**
4. **Fully depress footswitch lever allowing beam to move downward**
5. **Slide limitswitch arm until contact with the downstroke switch stops beam movement at the desired lower limit**
6. **Tighten thumbscrew to hold limitswitch arm firmly in place**
7. **Loosen thumbscrew on upstroke limitswitch arm**
8. **Allow footswitch lever to elevate allowing beam to raise**
9. **Slide limitswitch arm until contact with the upstroke switch stops beam movement at the desired upper limit**
10. **Tighten thumbscrew to hold limitswitch arm firmly in place**

NOTE: When punching or using the bending attachment, set upper and lower limits to allow for ¼" 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.

NOTE: The downstroke limitswitch on the punch end controls the upstroke limit on the coper end. The upstroke limit is the only switch controlled from the rear control box footswitch control. The downstroke on the coper end would be controlled when the upper coper knife passes through the material and the operator allows the footswitch lever to fully elevate.

Punch Attachment Alignment

The alignment of the punch and die should be accomplished in the following manner:
(See Page RP2 and RP7 for visual reference)

1. **Slide the punch stripper assembly on the dovetail mounting shoe.**
2. **Tighten the locking shoe by turning the cap screw clockwise thus locking the stripper assembly firmly in place.**
3. **Remove the coupling nut from the punch stem using the coupling wrench.**
4. **Insert the punch in the coupling nut and tighten on the punch stem using the coupling wrench.**
5. **Insert the female die in the die block.**

6. Tighten the set screw against the female die.
7. Slide the die block around the set screws on the platen table. Do Not Tighten Flanged Nuts.
8. Switch the front control box toggle switch (See Figure "A", Page 21) to the off position and disconnect the foot switch from the receptacle.
9. Start the machine. Using the front control box joystick in the jog down mode (see Figure "C", Page 21), move the beam downward. Stop beam movement when the bottom of the stripper foot is approximately 1/8" above the die block.
10. Visually and by hand movement of the die block, align the punch and die. Jog down again slightly and align. Continue this procedure until the punch has passed through into the die.
11. Tighten flanged nuts on the set screws to hold the die block firmly to the platen table.
12. Set the limit switches to control the length of stroke (see procedures previously listed).
13. Start operation.

Bending Attachment Alignment

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

(See page RP2 and RP9 for visual reference.)

1. Slide the bending punch assembly on the dovetail mounting shoe. The front edge of the bending dovetail slide should be even with the mounting shoe
2. Tighten the locking shoe by turning the cap screw clockwise thus locking the bending punch assembly firmly in place.
3. Place the bending base holders on the platen table over the set screws. Do not tighten flanged nuts.
4. Place the 4-way bending die into the bending base holder with the proper width die opening on the top.
5. Switch the front control box toggle switch (See Figure "A", Page 21) to the off position and disconnect the foot switch from the receptacle.
6. Start the machine. Using the front control box joystick in the jog down mode (see Figure "C", Page 21), move the beam downward.
7. When contact between the bending punch and the bending die block opening is made, the bending die block will center itself.
8. Tighten flanged nuts on the set screws to hold the base assembly firmly to the platen.
9. Set the limit switches to control the length of stroke (see procedures previously listed).
10. Start operation.

Hold Down Assembly Adjustment

The adjustment on the hold down assembly (see page RP5) should be accomplished by the following manner:

1. **Raise the upper beam to its full upstroke limit.**
2. **Loosen the long hex head nut (RP6-7) without removing it from the swing bolt (RP6-5), 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 front control box joystick in the jog mode (see Figure "C", Page 21) 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.

Stripper Assembly Adjustment

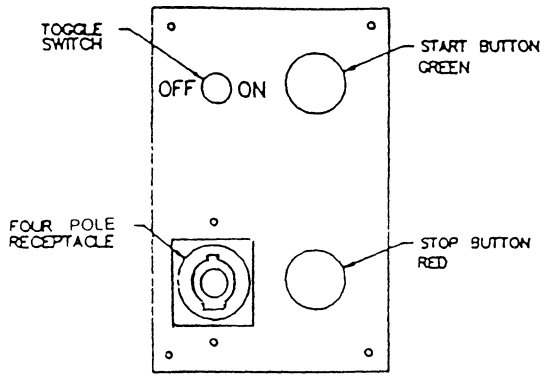
The adjustment of the stripper assembly to compensate for varying punch lengths should be accomplished in the following manner:
(see page RP7 for visual reference)

NOTE: The correct adjustment should have the tip of the punch 1/16" below the bottom of the stripper foot plate and the stripper foot plate level.

1. **Install the stripper assembly on the upper beam (see instructions previously listed as Punch Attachment Alignment).**
2. **Insert punch in the stripper assembly (see instructions previously listed).**
3. **Check the adjustment on the punch length.**
4. **If the tip of the punch extends more than 1/16" below the bottom of the stripper foot, adjustment is required.**
5. **Turn the two (2) guide pin adjusting caps counter clockwise until the tip of the punch extends 1/16" below the bottom of the stripper foot plate. The stripper foot plate MUST remain level or parallel to the work material. The punch tip should be able to line up on a center punch mark before the stripper foot plate engages the material.**
6. **If the tip of the punch does not extend 1/16" below the bottom of the stripper foot or if the stripper foot plate is not parallel with the work material, adjustment is required.**
7. **Follow the procedure listed in 5 above except turn the adjusting caps clockwise.**

NOTE: When all tooling changes are being made, the selector switch should be in the "OFF" position (Figure B, Page 21) until changes are completed.

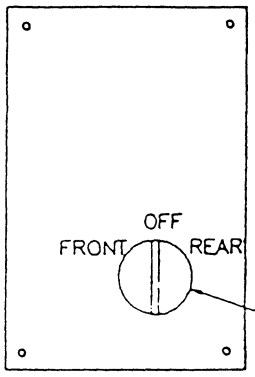
FIGURE "A"



– FRONT COVER –

FRONT AND REAR CONTROL BOXES

FIGURE "B"



NOTE: Turn selector switch to OFF position when performing maintenance or changing tooling.

– REAR COVER –

FRONT CONTROL BOX ONLY

FIGURE "E"

TOP VIEW
CONTROL BOX LOCATIONS

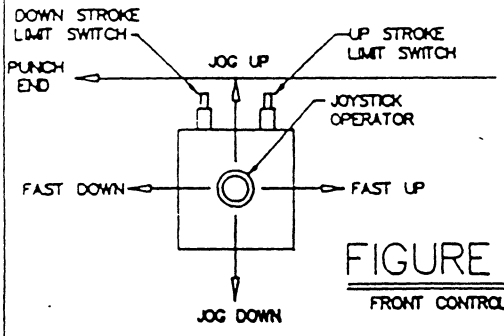
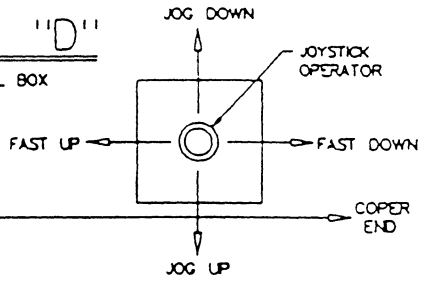


FIGURE "D"

REAR CONTROL BOX

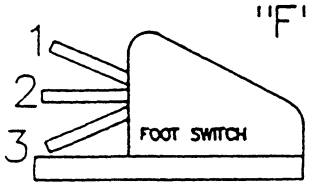


NOTE: Joystick center position is neutral

FIGURE "C"

FRONT CONTROL BOX

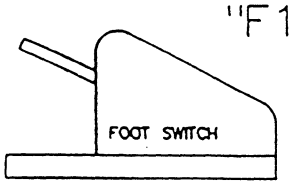
"F"



FOOT SWITCH LEVER POSITIONS

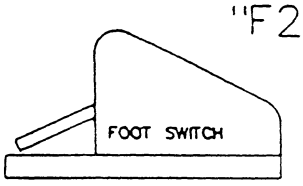
1) BEAM MOVES UP
2) BEAM IS STOPPED
3) BEAM MOVES DOWN

"F1"



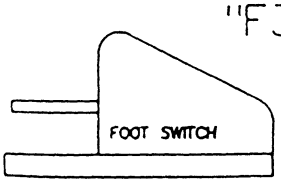
FOOT SWITCH LEVER
FULL UP POSITION
BEAM ELEVATES
TO LIMIT SETTING

"F2"



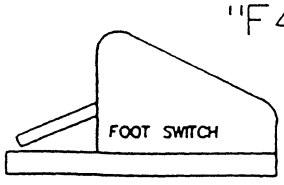
FOOT SWITCH LEVER
DEPRESSED PAST CENTER
BEAM MOVES DOWN
TO LIMIT SETTING

"F3"



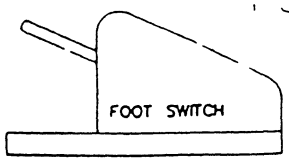
FOOT SWITCH LEVER
NEUTRAL POSITION
BEAM TRAVEL
IS HALTED

"F4"



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

"F5"



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 Mega Manufacturing 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. **Give complete serial number of the machine. The machine serial number is stamped on the name plate and is located on the right hand side of the machine, below the plate shear table (when facing the punch end).**

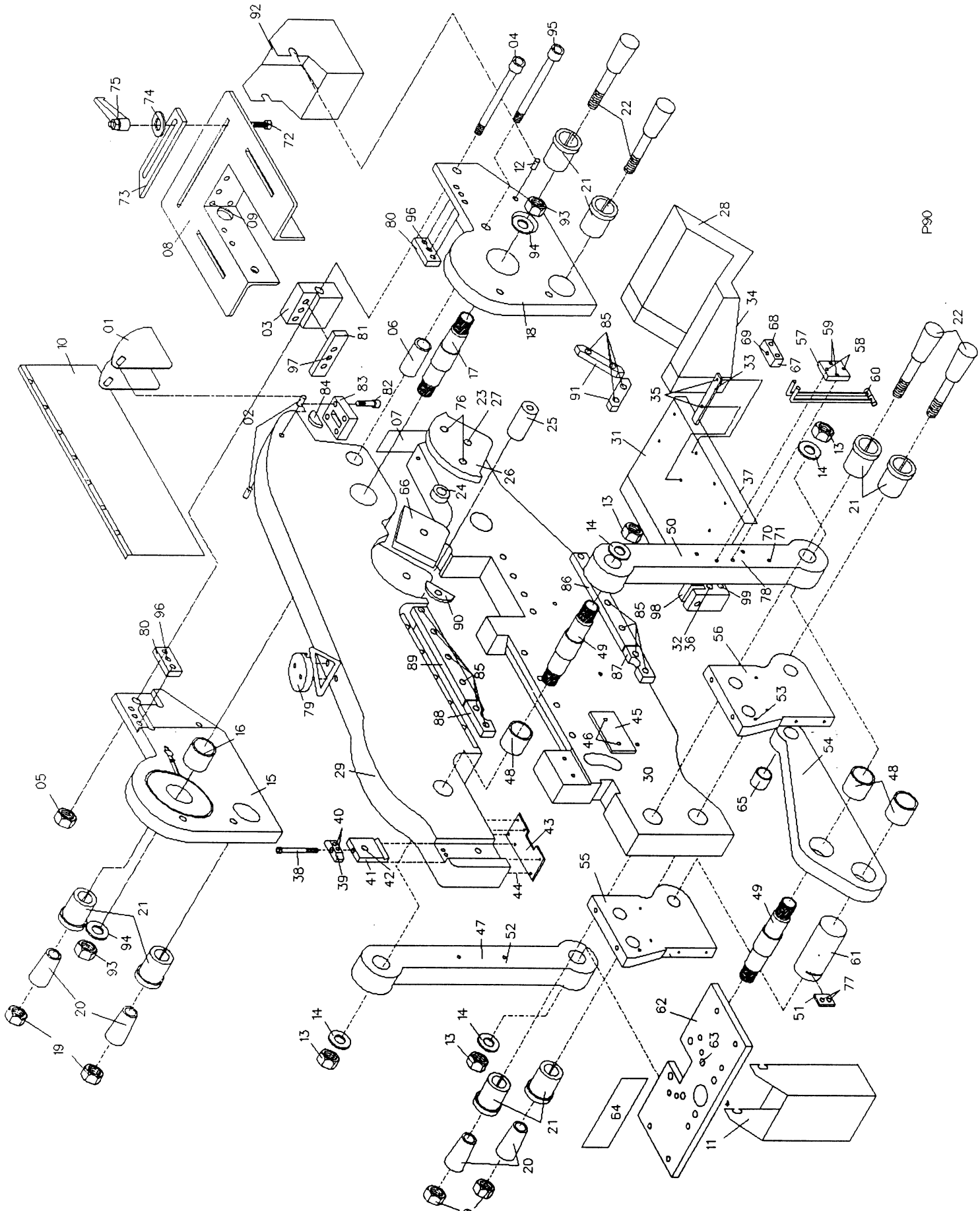
2. **Give part number, description, and the quantity of parts that you require.**

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, Emery, and Yellow Freight are most frequently used at Mega Manufacturing.**

ALWAYS GIVE COMPLETE SERIAL NUMBER

REPAIR PARTS ILLUSTRATIONS

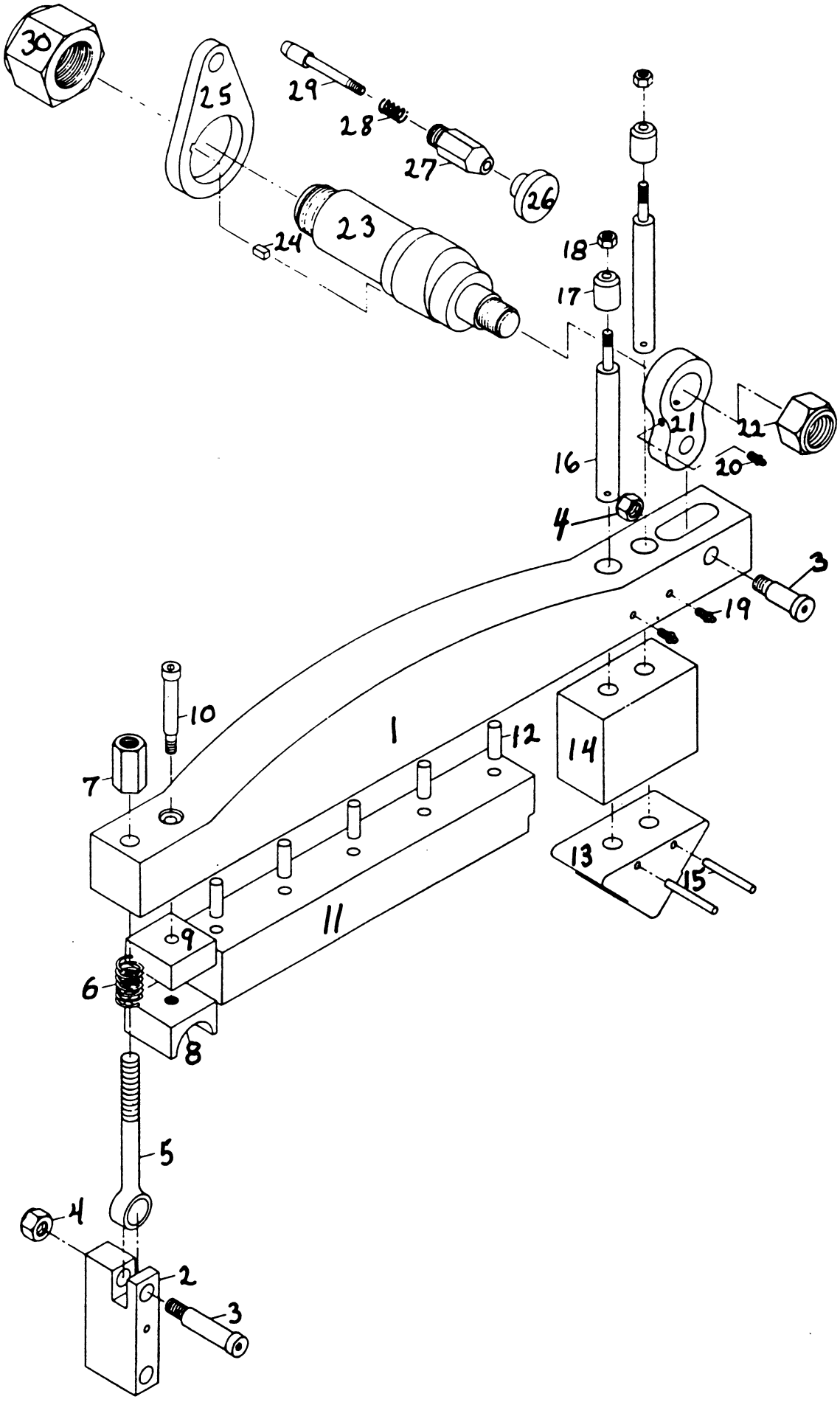

P90

P-90 BASIC UNIT

Figure And Index No.	Part Number	Description	Qty.
- 1	0240142	Coper Guard	1
- 2	0531352	1/2 x 1 1/2 Roll Pin	2
- 3	0240117	Coper End Knife Support	1
- 4	0541200	1" - 8 PTI x 9" HH GR-5	1
- 5	0581265	1" - 8 TPI Jam Nut	2
- 6	0240155	Black Pipe Spacer	1
- 7	0240144	Coper Dust Cover Plate	1
- 8	0240124	Coper Table Assy	1
- 9	0531080	1/2 x 1 SHCS	4
-10	0240415	Shear Guard Assy	1
-11	0240143	Punch chip Bucket	1
-12	0531352	1/2 x 1 1/2 Roll Pin	2
-13	0541250	2" - 12 Jam Nut	4
-14	0541303	2.035" ID x 4" OD x .255" Washer	4
-15	0240116	Coper Side Plate - Off Side	1
-16	0340170	Rear Hinge Pin Bushing	1
-17	0240166	Rear Hinge Pin	1
-18	0240115	Coper Side Plate - On Side	1
-19	0541215	1 1/8 - 12 HN	4
-20	0240163	Taper Pin Plug	4
-21	0240161	Taper Pin Split Bushing	8
-22	0240160	Taper Pin	4
-23	0531250	5/8" Nylock HN	1
-24	0240167	Angle Knife Bushing	1
-25	0240154	Urethans Spacer	1
-26	0240146	Angle Knife Cover	1
-27	0541165	3/4" x 3 3/4" SB	1
-28*	see #31	Combo Shear Table (item #28 & 31 are combined)	1
-29	0240100	Upper Beam Assy	1
-30	0240101	Lower Beam Assy	1
-31	0278122	Combo Shear Table	1
-32	0541115	1/2" - 13 X 5 1/2" shcs	1
-33	0240140	Plate Shear Guide	1
-34	0541155	3/4" - 10 x 2 3/4" SHCS	4
-35	0521023	3/8" x 1/2" SB	3
-36	0531216	1/2" Nylock NH	1
-37	0541155	3/4" - 10 x 2 3/4" SHCS	5
-38	0531084	1/2 x 4 SHCS	1
-39	0240130	Locking Shoe Bearing	1
-40	0531069	7/16" x 1 1/2" SHCS	2
-41	0240131	Locking Shoe	1
-42	0340189	Locking Shoe Bolt	1
-43	0240132	Mounting Foot	1
-44	0541090	7/16" - 14 x 1" SHCS	6
-45	0230145	Bronze wear Plate	1
-46	0531062	3/4" x 3/4" FHCS	2
-47	0340110	Pull Arm Bolt - Turned	1
-48	0340168	Crankarm/Pullarm Bushing	3
-49	0240165	Pull Arm Hinge Pin	2
-50	0240110	Pull Arm-On Side	1
-51	0240148	Crankarm Pin Lock Plate	1
-52	0240111	Pull Arm-Off Side	1
-53	0531352	1/2" x 1 1/2 Roll Pin	2

P-90 BASIC UNIT, CONTINUED

Figure And Index No.	Part Number	Description	Qty.
-54	0240112	Crankarm Assy	1
-55	0240114	Platen Support-Off Side	1
-56	0240113	Platen Support-On Side	1
-57	0240149	Micro Guide Block	1
-58	0531001	1/2" x 3/4" SHCS	2
-59	0531320	1/2" x 1/2" Thumbscrew	2
-60	0230153	Micro Switch Arm Assy	2
-61	0240164	Crankarm Hinge Pin	1
-62	0240120	Platen Table	1
-63	0531092	5/8" x 2 1/4" SHCS	4
-64	0341416	Platen Guard	1
-65	0340169	Cylinder/Clevis Pin Bushing	1
-66	0240275	Upper Angle Knife	1
-67	0240157	Shear Table Adjust Block	1
-68	0541150	3/4" - 10 x 1 3/4" SHCS	2
-69	0531087	1/2" x 2" SSS	1
-70	0531005	1/4" x 1/2" Button Head Cap Screw	1
-71	0581140	1/4" Hex Nut	1
-72	0531088	1/2" x 1 1/2" Carriage Bolt	3
-73	0330128	Coper Table Guide	3
-74	0531307	1/2" Flat Washer	3
-75	0531715	Jergens Handle	3
-76	0541130	5/8" - 11 x 3 3/4" HH GR2	2
-77	0531051	3/8" x 1 1/4" SHCS	2
-78	0541185	3/4" - 10 JN	1
-79	N/A	Lifting Lug	1
-80	0240278	Lower Coper Side Knife	2
-81	0240276	Lower Coper End Knife	1
-82	0531069	7/16" x 1 1/2" SHCS	6
-83	0240277	Upper Coper Knife	1
-84	0531330	3/8" x 2 3/4" T Woodruff Key	2
-85	0541100	1/2" - 13 x 2 3/4" SHCS	20
-86	0240250	16.625" Flat Shear Knife	1
-87	0240256	1 1/4" Round Bar Knife Tall	1
-88	2402561	1 1/4" Round Bar Knife Short	1
-89	0240250	16.625" Flat Shear Knife	1
-90	0240168	Angle Knife Blocks	2
-91	0240274	Lower Angle Knife	2
-92	0240145	Coper Chip Bucket	1
-93	0541275	2.250" - 12 JN HX Finish	2
-94	0541304	2.255" ID x 4" OD x .225" Washer	2
-95	0340121	Coper Table Bolt	1
-96	0531071	7/16" x 2" SCHS	6
-97	0541095	7/16" x 3" SHCS	3
-98	0240206	Swingbolt Block	1
-99	0541175	3/4" - 10 x 5 1/2" SHCS	1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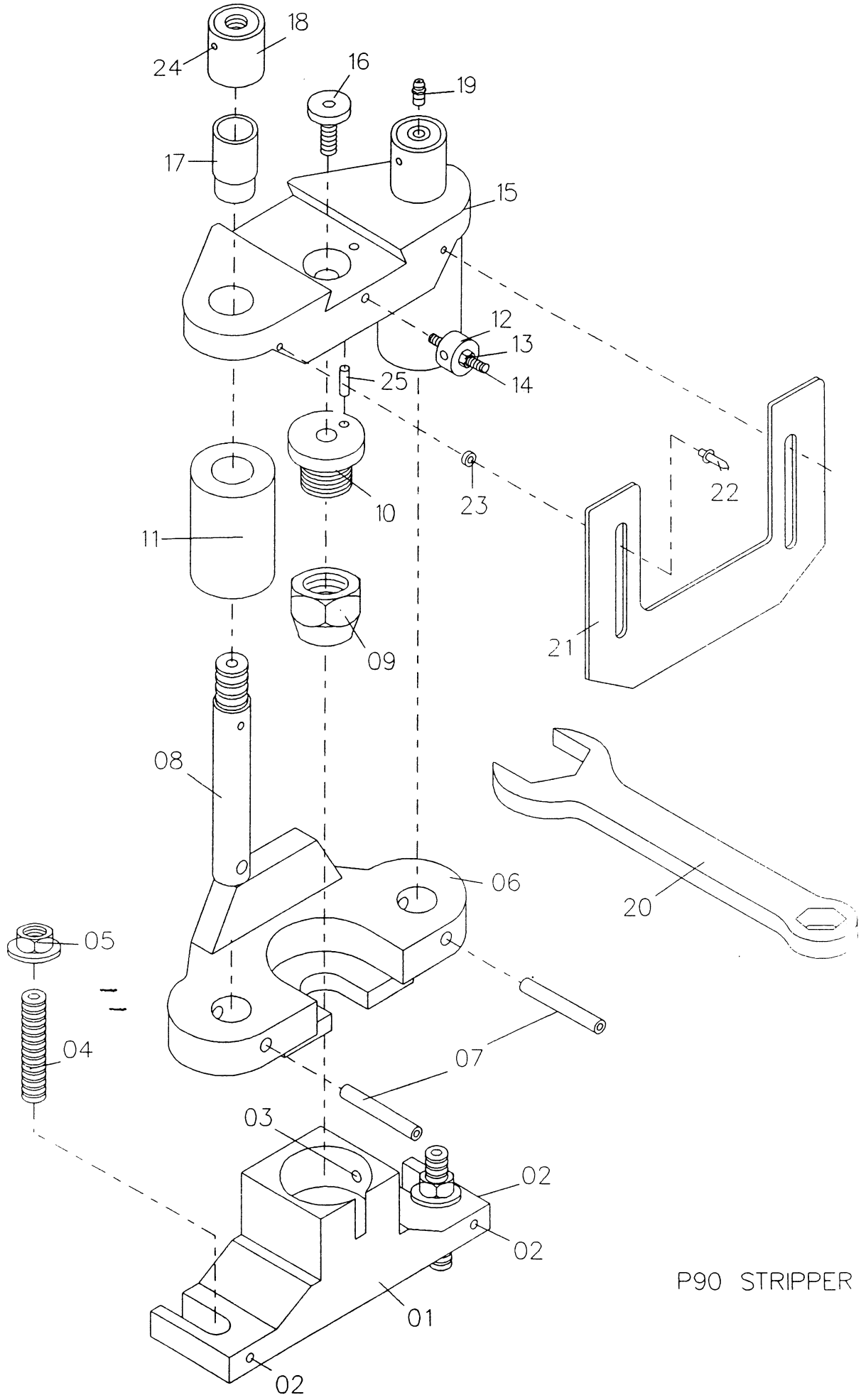
HOLD DOWN ASSEMBLY
PART #0240200

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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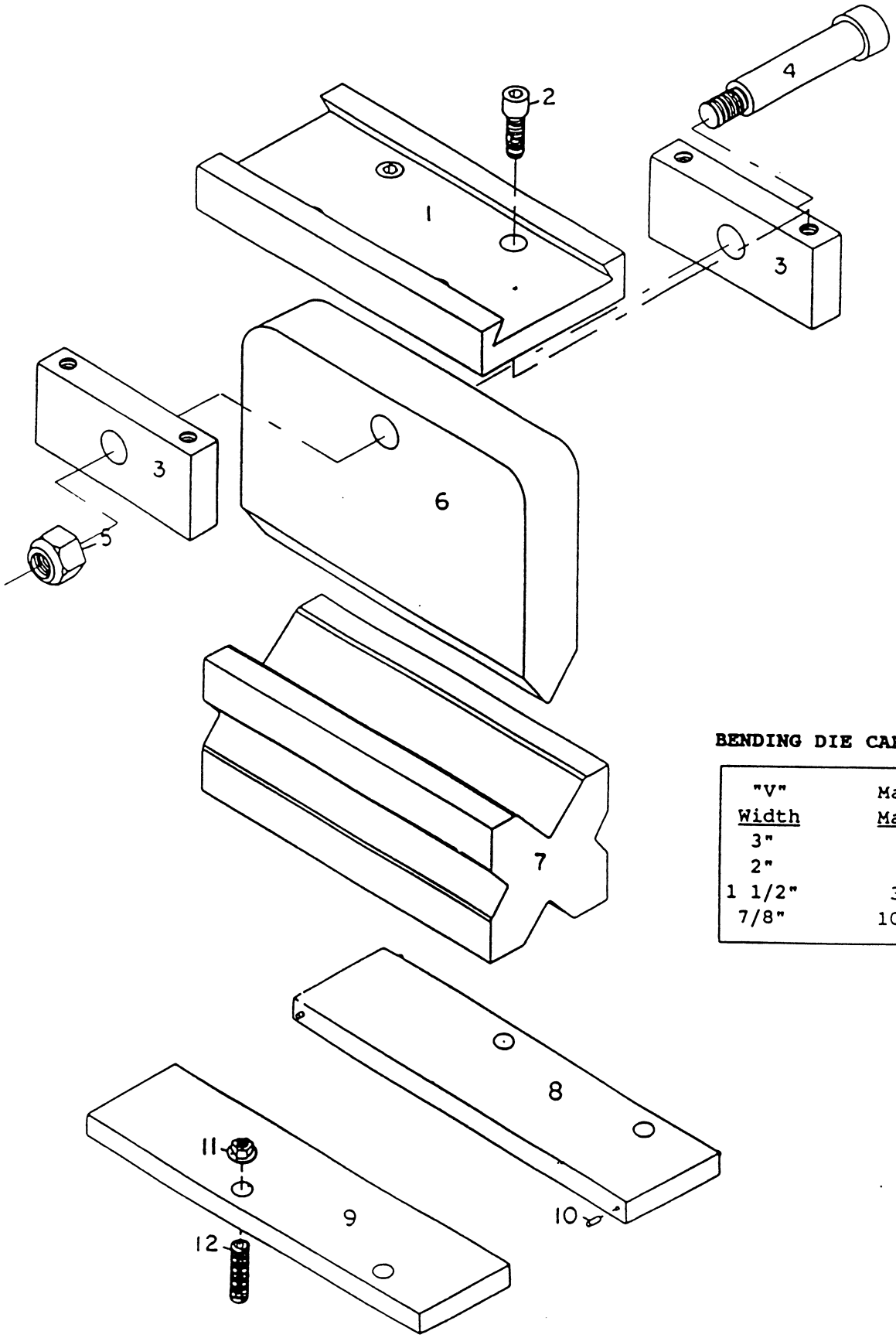
P90 STRIPPER

STRIPPER ASSEMBLY
PART # 0240401

Figure And Index No.	Part Number	Description	Qty.
- 1	0240400	Die Block	1
- 2	0531002	1/4" X 3/4" SSS	3
- 3	0541085	7/16" - 14 x 3/4" SSS	1
- 4	0541127	5/8" x 3 1/2" SSS	2
- 5	0531251	5/8" FLGD Nut	2
- 6	0340401	Stripper Foot Assembly	1
- 7	0531356	3/8" x 2 1/2" Spiral Pin	2
- 8	0340402	Stripper Guide Pin	2
- 9	0340406	C-58 Coupling Nut	1
-10	0340407	Fig. 26 Punch Stem	1
-11	0340403	Urethane Stripper Block	2
-12	0531211	3/8" Knurled Nut	1
-13	0531210	3/8" Hex Nut	1
-14	0531058	3/8" x 2" SSS	1
-15	0340404	Punch Dovetail Slide	1
-16	0541150	3/4" x 1 3/4" SHCS	1
-17	0340409	Stripper Guide Pin Slip Sleeve	2
-18	0340408	Stripper Guide Pin Adjusting Cap	2
-19	0531360	1610 Zerk	2
-20	0241410	Coupling Wrench	1
-21	0340400	Punch Guard	1
-22	0531012	Punch Guard Rivets	2
-23	0531013	Punch Guard Spacer	2
-24	0541045	W-17N Ball Plunger 1/4" - 20	2
-25	0531350	1/4" x 3/4" RP	1

NOTE: Punch Assembly, #240401 includes index numbers 6-19, 21-25.



BENDING DIE CAPACITIES

"V" Width	Maximum Material
3"	3/8"
2"	1/4"
1 1/2"	3/16"
7/8"	10 Gauge

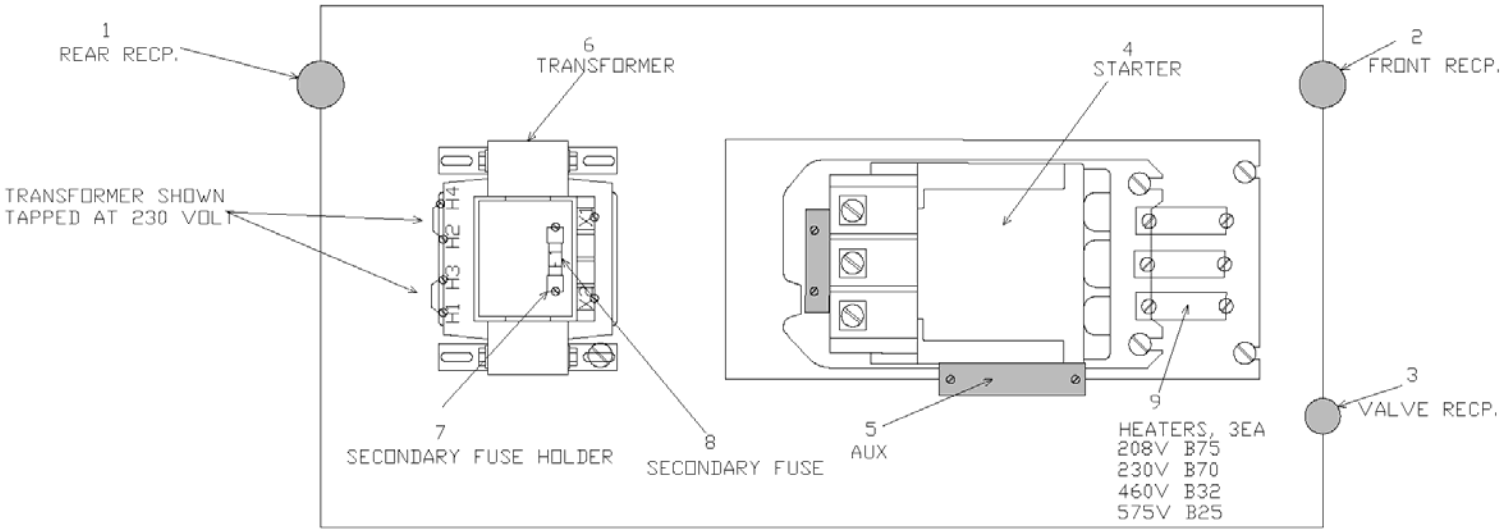
P-90 12" BENDING ASSEMBLY
PART # 4441648

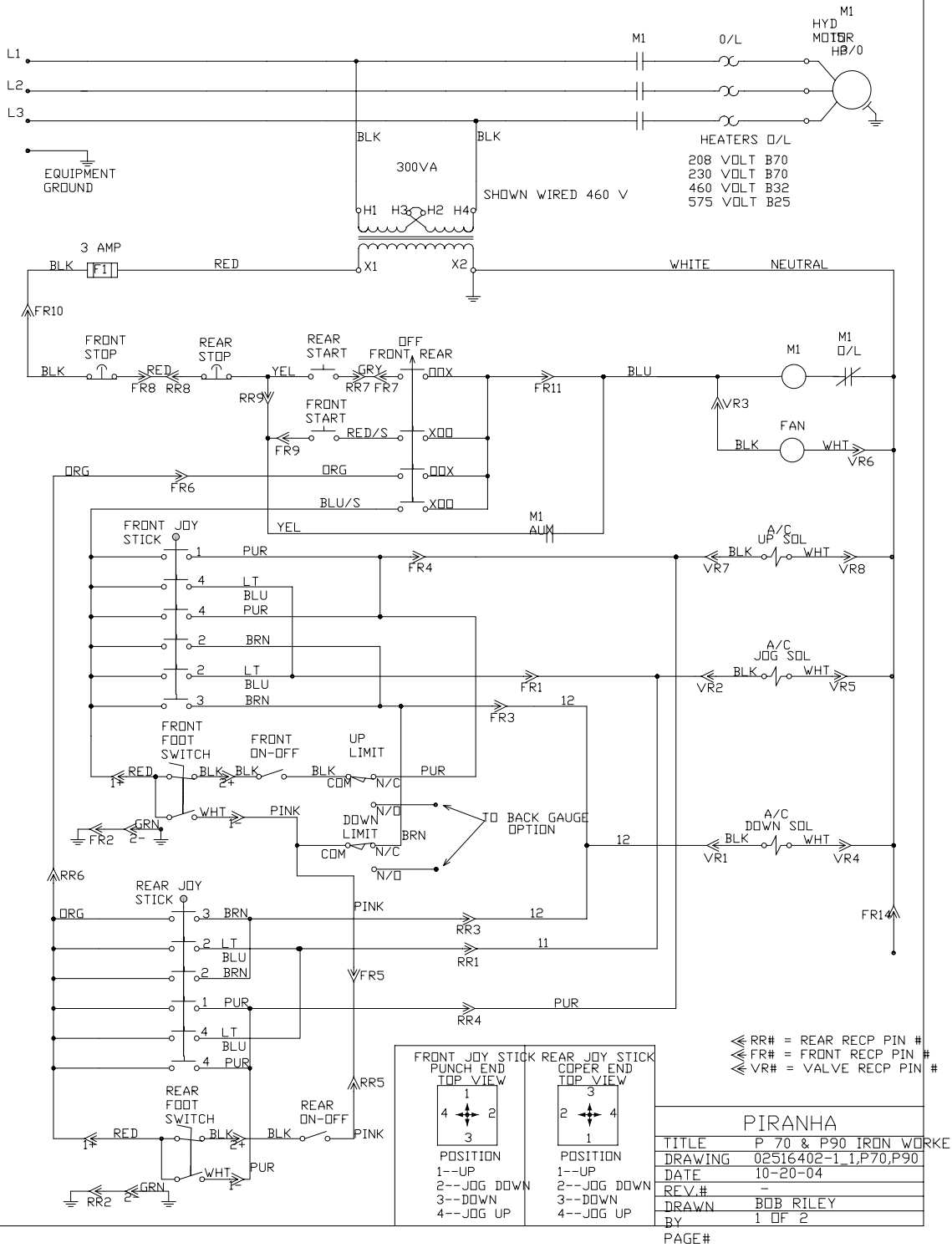
Figure And Index No.	Part Number	Description	Qty.
- 1	0340500	Bending Dovetail Slide	1
- 2	0531039	3/8" x 3/4" SHCS	4
- 3	0340501	Bending Side Plates	2
- 4	0531114	3/4" x 3" Shoulder Bolt	1
- 5	0531250	5/8" - 11 Nylock Nut	1
- 6	0340502	12" Bending Punch	1
- 7	0340503	12" 4 Way Bending Die	1
- 8	0340504	Die Holder w/ Pins	1
- 9	0340505	Die Holder w/o Pins	1
-10	0531351	3/8" x 1" Roll Pin	4
-11	0531251	5/8" FLGD Nut	4
-12	0541127	5/8" x 3 1/2" SSS	4

P70/90 ELECTRICAL ENCLOSURE ASSEMBLY

PART # 02516402-1

Figure And Index No.	Part Number	Description	Qty.
1	0521634	Rear Wiring Harness Receptacle	1
2	0521634	Front Wiring Harness Receptacle	1
3	0521636	Valve Body Harness Receptacle	1
4	0541641	Starter	1
5	T2253	Auxillary Contact	1
6	05416461	220 / 440 Vt Transformer	1
-OR	05416471	575 Vt Transformer	1
-OR	05416481	208 Vt Transformer	1
7	05416441	Fuse Block	1
8	0531606	MDX-3 Fuse	1
9	0541642	220 Vt Heater Coil B-70	3
-OR	0541643	440 Vt Heater Coil B-32	3
-OR	0521616	575 Vt Heater Coil B-25	3
Not Shown	03316512-1	Valve Body Wiring Harness	1





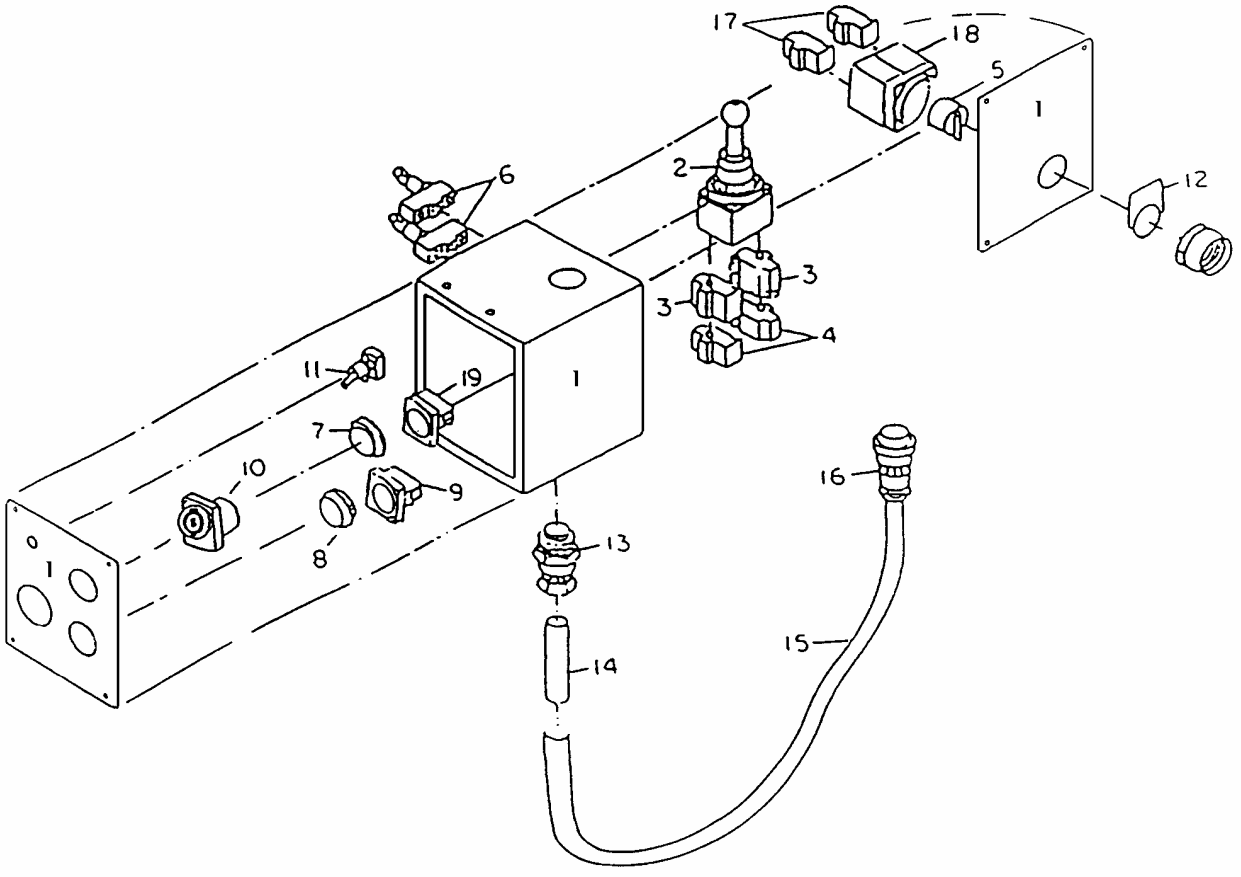
PIRANHA	
TITLE	P 70 & P90 IRON WORKER
DRAWING	02516402-1_1,P70,P90
DATE	10-20-04
REV.#	-
DRAWN BY	BOB RILEY
PAGE#	1 OF 2

FRONT BOX ASSEMBLY

PART # 02316292-1

Figure And Index No.	Part Number	Description	Qty.
RP -1	05316291	Front Control Box - With Covers	1
-2	0531608	Joystick 9001 K35	1
-3	0531609	KA-1 Contact Block	2
-4	0531644	KA-2 Contact Block	2
-5	05316451-1	Selector Switch ZB4BD3	1
-6	0531616	Microswitch	2
-7	05316101-1	Start Button ZB4BA3	1
-8	05316111-1	Stop Button ZB4BL4	1
-9	05316121-1	Contact Block w/base N.C. ZB4BZ102 (Contact # ZB4BE102)	1
-10	0531618	4 Pole Receptacle	1
-11	0531619	Toggle Switch	1
-12	05316461	Legend Plate, Front-Off-Rear, ZB2BY2002	1
-13	0531654	Liquid Tight Connector, 3/8"	1
-14	0531657	JIC Grey Conduit	1
-15		Flexguard	1
-16		Quick Disconnect Plug	1
-17	05316781-1	Contact Block ZB4BE101	2
-18	0531678-1	Mtg Base w/2 ea N.O. Contacts * ZB4BZ103	1
-19	0531696-1	Contact Block w/base ZB4BZ101 *	1

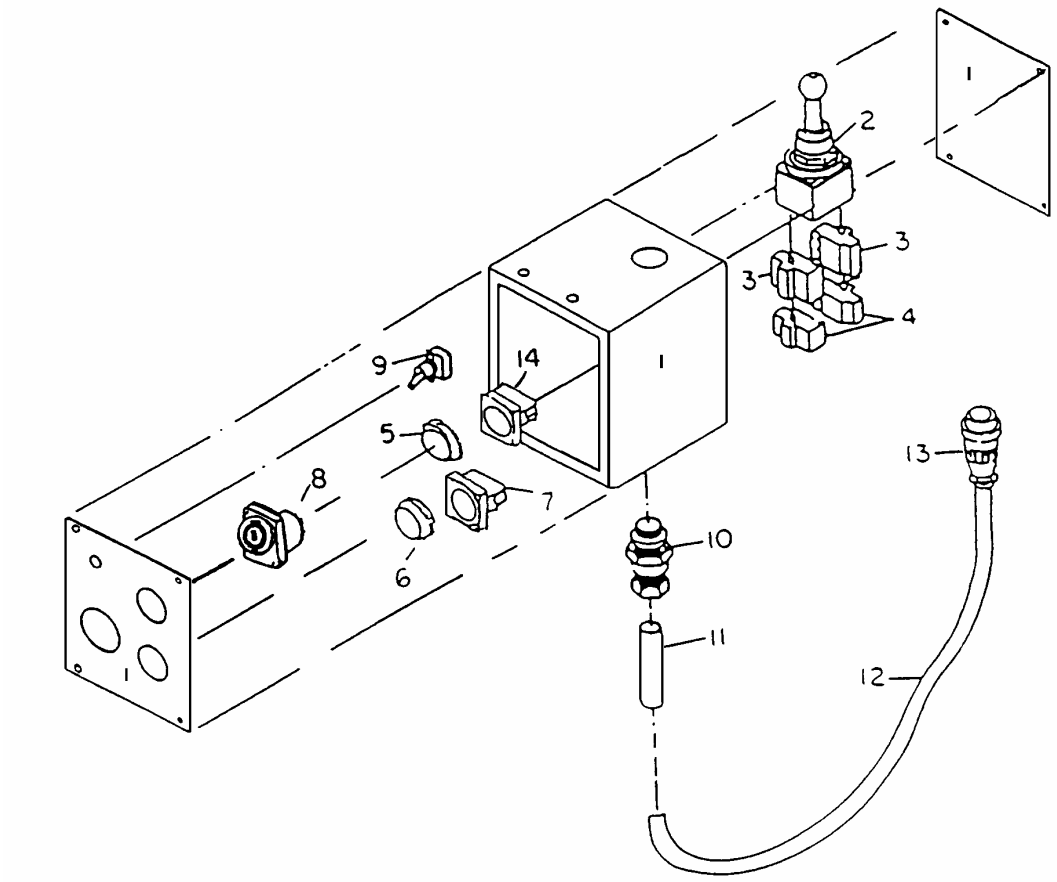
***** Replacement contacts for item # 18 requires 2 ea. # ZB4BE101, item # 19 requires 1 ea.



REAR BOX ASSEMBLY

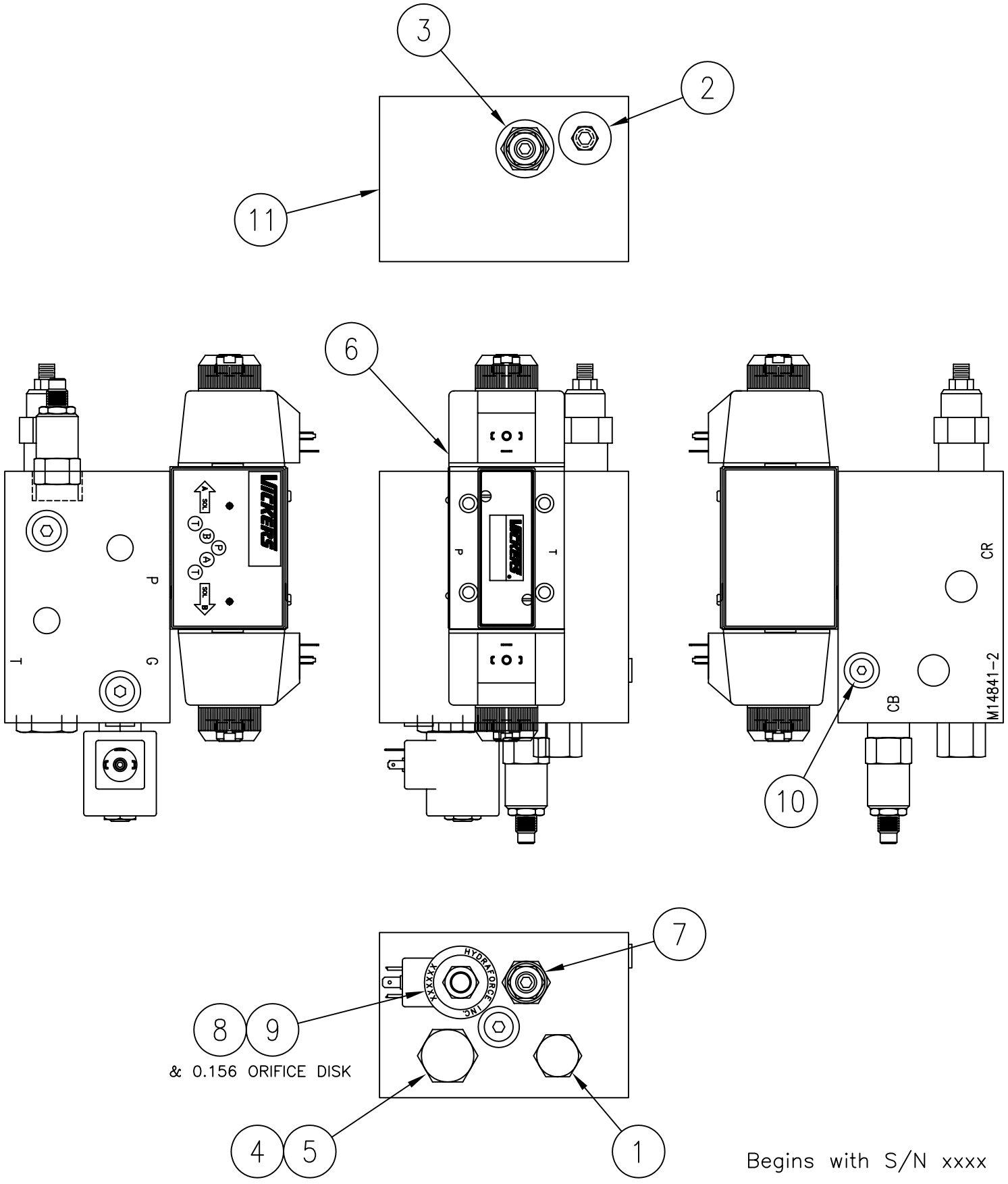
PART # 02316302-1

Figure And Index No.	Part Number	Description	Qty.
RP -1	05316301	Rear Control Box - With Covers	1
-2	0531608	Joystick 9001 K35	1
-3	0531609	KA-1 Contact Block	2
-4	0531644	KA-2 Contact Block	3
-5	05316101-1	Start Button ZB4BA3	1
-6	05316111-1	Stop Button ZB4BL4	1
-7	05316121-1	Contact Block w/base N.C. ZB4BZ102 (Contact # ZB4BE102)	1
-8	0531618	4 Pole Receptacle	1
-9	0531619	Toggle Switch	1
-10	0531654	Liquid Tight Connector 3/8"	1
-11	0531657	JIC Grey Conduit	1
-12		Flexguard	1
-13		Quick Disconnect Plug	1
-14	0531696-1	Contact Block w/base ZB4BZ101 (Contact # ZB4BE101)	1



VALVE BODY ASSEMBLY

PART No. 0251530-1

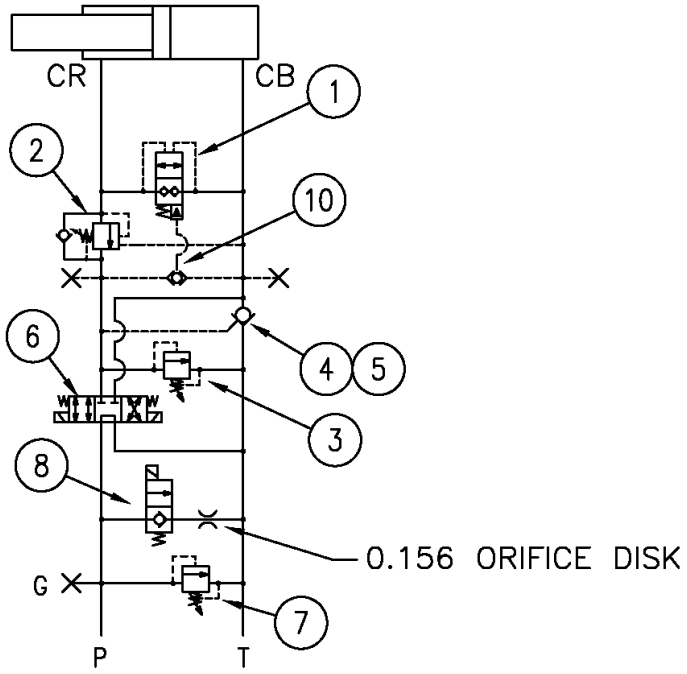


Begins with S/N xxxx

VALVE BODY ASSEMBLY

PART # 0251530-1

Figure And Index No.	Part Number	Description	Qty.
RP - 1	T3572	Pilot Valve 2-way	1
-2	T3570	Counterbalance Valve	1
-3	0531559-1	Pressure Relief Valve 35/12.5	1
-4	0551567-1	Check Valve	1
-5	0531558-1	Single Pilot Piston Valve	1
-6	0541568-1	Directional Control Valve 4-Way	1
-7	0551559-1	Pressure Relief Valve 35/26	1
-8	0551561-1	Solenoid Valve N.C.	1
-9	T3574	Solenoid Coil 115V AC	1
-10	0541535-1	Shuttle Valve	1
-11	0541530-1	Valve Body	1
-12	0351635	Valve Body Wiring Harness (not shown)	1



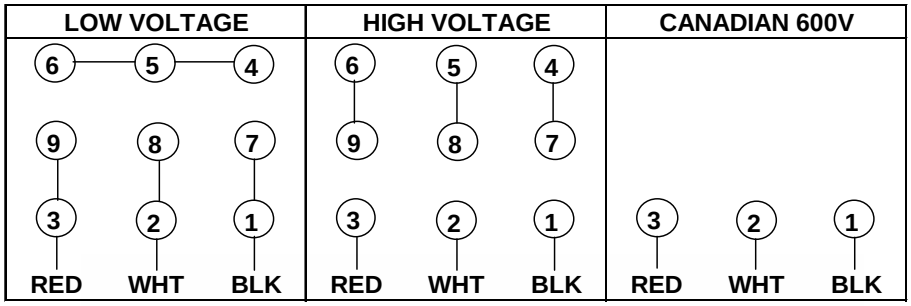
HYDRAULIC SCHEMATIC

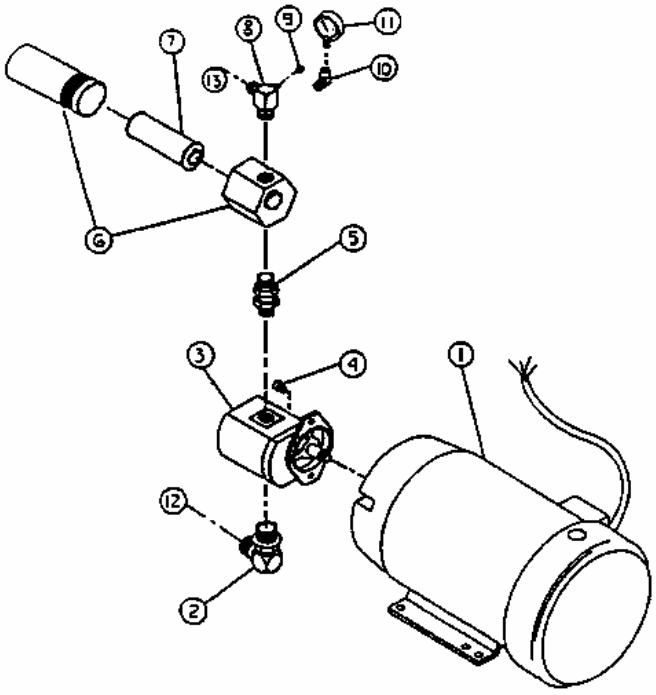
Begins with S/N xxxx

P70/90 MOTOR ASSEMBLY

PART #0251600-1

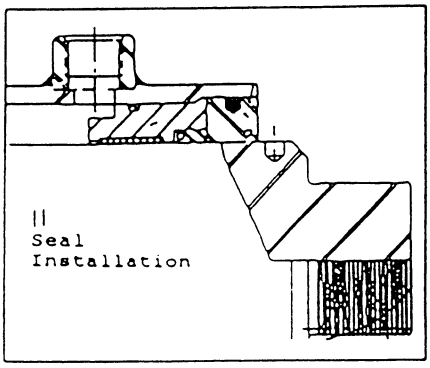
Figure And Index No.	Part Number	Description	Qty.
RP - 1	0551660-1	15 HP Motor 208/220/440V (Hollow Shaft)	1
-OR	0551665-1	15 HP Motor 575V (Hollow Shaft)	1
-2	0533539	6801-16 Hyd Fitting	1
-3	05915701-1	Hydraulic Pump	1
-4	0531081	1/2 x 1 1/4 SHCS	2
-5	0551511	6402-12-12 Hyd Fitting	1
AND 5	0551512	6400-12-12 Hyd Fitting	
-6	0521550-1	Filter Assy 4" Pall	1
-7	0521551-1	Filter Element 4" Pall	1
-8	0551507	6803-12 Hyd Fitting	1
-9	0541532	304-C-12 Hyd Fitting	1
-10	0541534	6503-12-4 Hyd Fitting	1
-11	0541542	Pressure Gauge PGD-25-5000S	1
-12	0551523	27" Hose To Tank	1
-13	0551521	55" Hose To Valve Body	1
-14	0351635	Valve Body Wiring Harness (not shown)	1

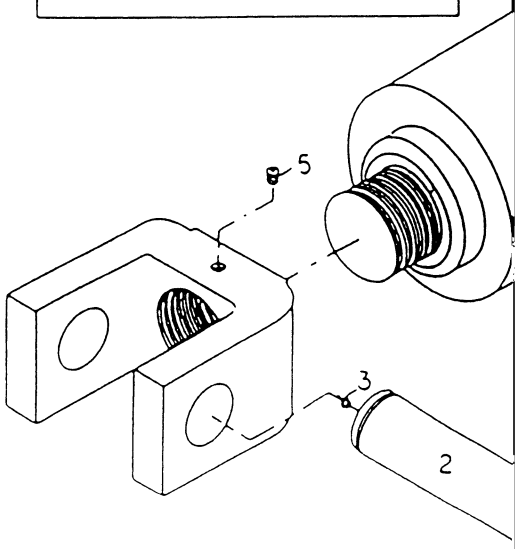




P90 (

Figure And Index No.	Part Number	D
- 1	0541503	C
- 2	0240171	C
- 3	0531360	1(
- 4	0240152	C
- 5	0531085	1/
- 6	0541310	5
- 7	0531531	6
- 8	0531538	6
- 9	0551521	5
-10	0551520	4(
-11	0541502	G

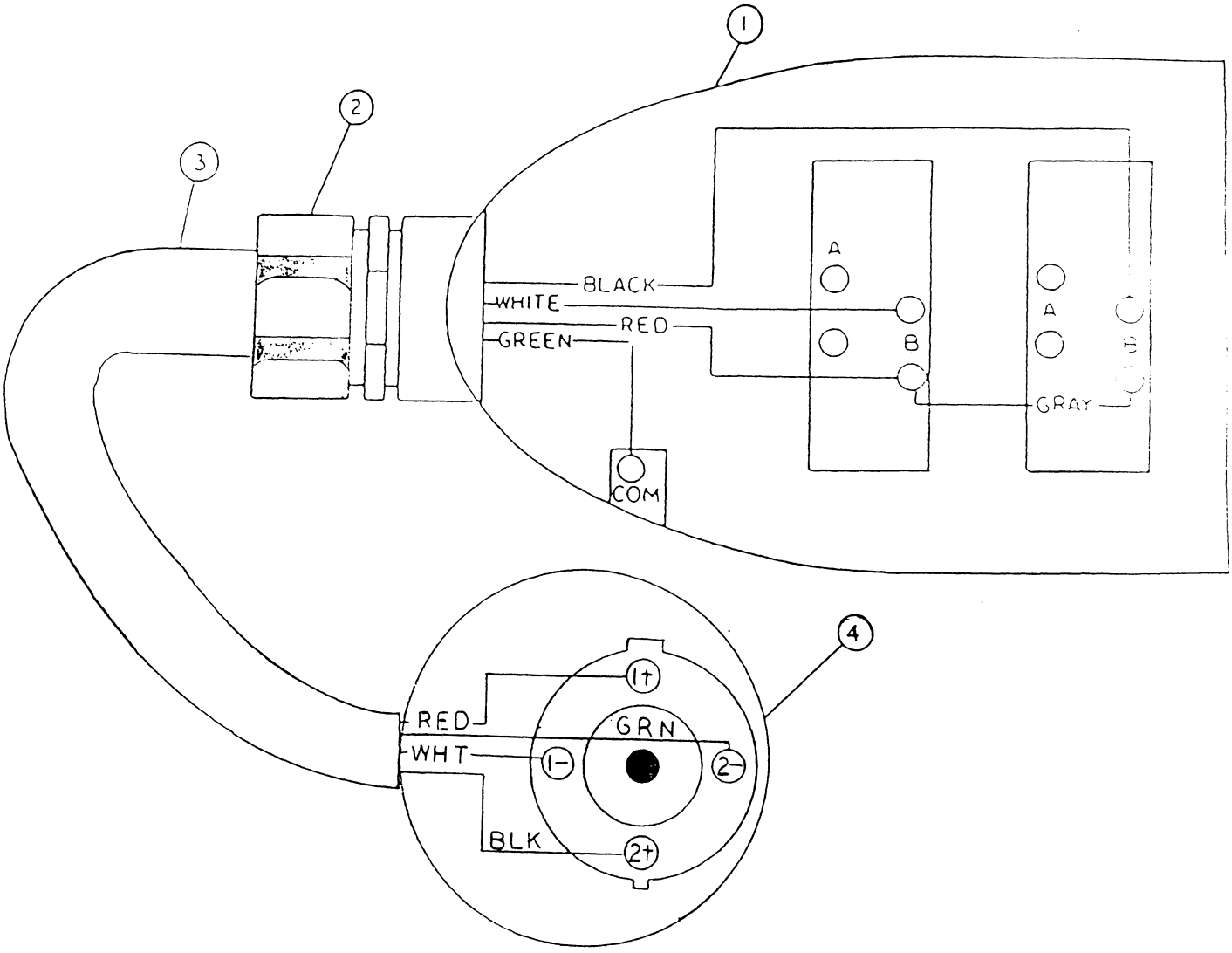




FOOT SWITCH ASSEMBLY
PART # 0231628

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

Note: Limit Switches in Foot Pedal are not a stock item, but can be obtained.



When ordering, include Serial Number and Parts Number RP-20

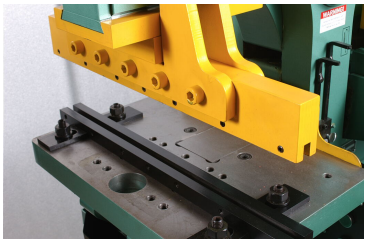
P90 KNIVES

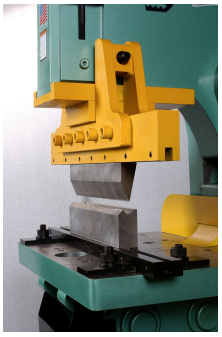
Figure And Index No.	Part Number	Description	Qty.
	0240250	16.625 Shear Knives	2
	0240251	20.5 Shear Knives	2
	2402631	1/2" Rd Bar Knife - Short	1
	0240263	1/2" Rd Bar Knife - Tall	1
	2402641	5/8" Rd Bar Knife - Short	1
	0240264	5/8" Rd Bar Knife - Tall	1
	2402521	3/4" Rd Bar Knife - Short	1
	0240252	3/4" Rd Bar Knife - Tall	1
	2402531	7/8" 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 - Tall	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 - Tall	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	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 Angle 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

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

Piranha Optional Tooling

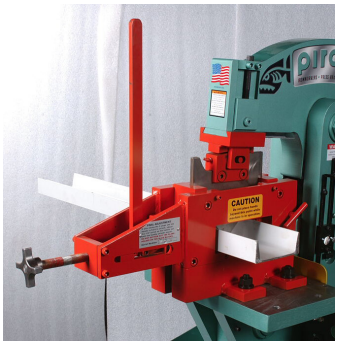
Enhance your Piranha's versatility!





- **Pressbrake Tooling Holders**
  - **Allows you to use pressbrake punches and dies in your ironworker for higher precision bending.**

- **Roller Feed Tables**
  - **Available in 5' lengths.**
  - **Includes rollers for angle and flat bar sections.**
  - **20" wide flat rollers and 6" angles.**

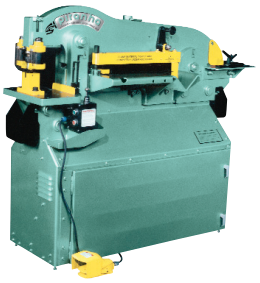


- **Channel Shear**
  - **Attaches to the punch end of the machine.**
  - **Removes a ½" slug for each cut.**
  - **Slug must be slid out the front of the channel shear after each cut.**
  - **A pinned slide block is adjusted to accommodate different widths of channel.**

- **Channel Die Block**
  - **Enables you to punch into the legs of channel and other structural shapes.**
  - **Mounts in place of your standard die block.**
  - **Still utilizes your urethane punch attachment.**
  - **Can be used in conjunction with offset dies to punch very near to the web of your material.**

Additional Fabricating Equipment

piranha



Single Operator Ironworkers
36 to 120 tons

Dual Operator Ironworkers
35 to 140 tons

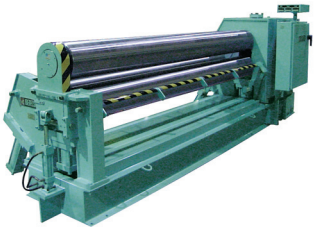
Punch Presses
35 to 140 tons

Press Brakes
25 to 500 tons

Precision Press Brakes
25 to 500 tons

Hydro-Mechanical Shears
1/4˝ to 1/2˝

BERTSCH

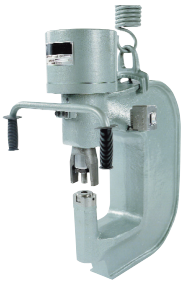


3 & 4 Roll
Manual/Hydraulic

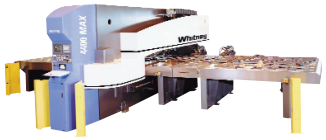
Section Bending Rolls

Whitney

The Leader in Plate Technology



Portable Presses



Punch Plasmas

Plasma Tables

800-338-5471

www.piranhafab.com