



INSTRUCTIONS AND REPAIR PARTS MANUAL

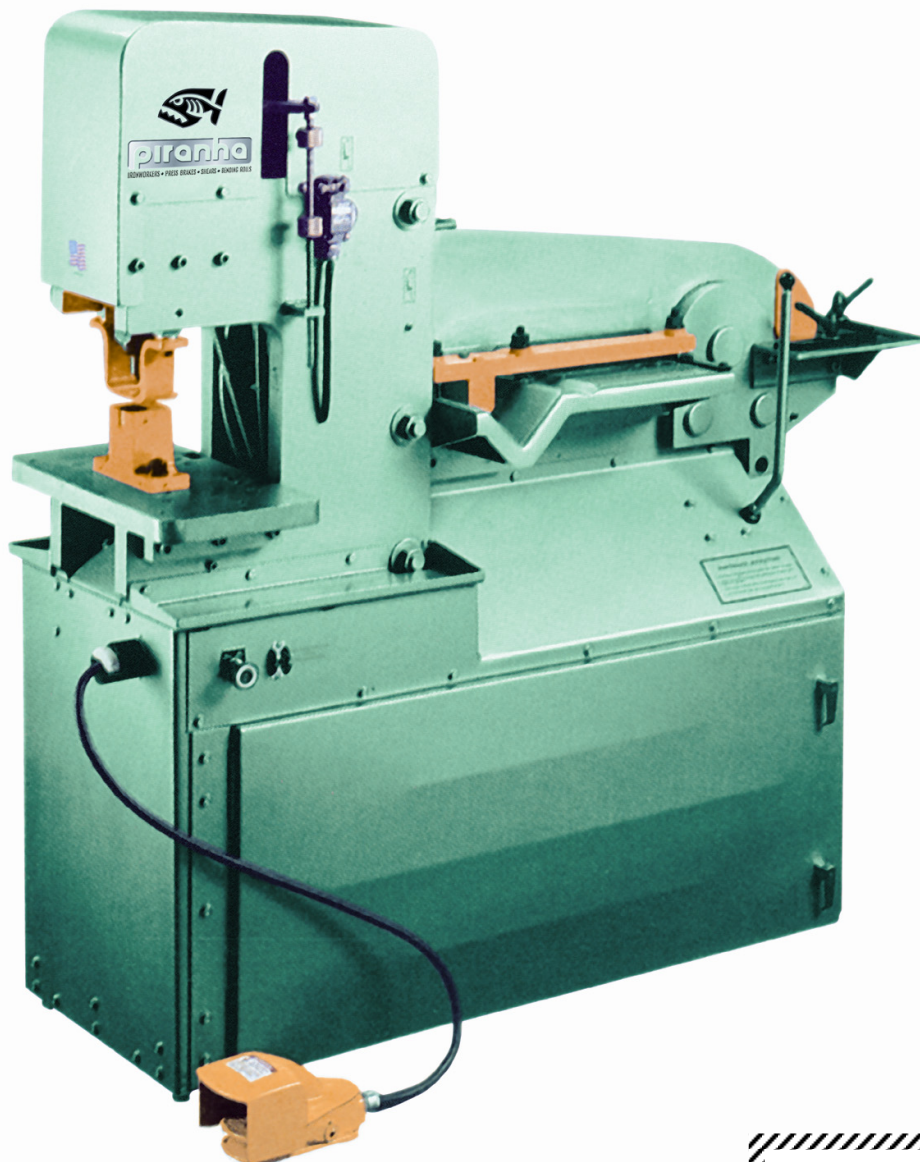


IRONWORKERS • PRESS BRAKES • SHEARS • BENDING ROLLS

PIRANHA

IRONWORKER MODEL NO. PII-35

Publication December, 2004



www.piranhafab.com
800-338-5471

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

FOREWORD

This manual has been prepared for those persons who will operate and maintain the Piranha. 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 a single operator only.

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 1/4" 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 the OFF position when changing tooling or performing maintenance work. Reference (page 20, figure B).

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

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.

MAINTENANCE

NOTE: Selector switch should be in the OFF position while maintenance checks are being performed.

HYDRAULIC FILTER ELEMENT

The hydraulic oil filter is a vital component of the hydraulic system as it filters impurities and foreign particles to avoid hydraulic component malfunctions. **CAUTION:** When the filter element is plugged, hydraulic fluid will by-pass the element allowing contamination to enter the hydraulic system. It is recommended that the filter element be changed every 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.

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.

P35 SERVICE LOGIC TREE

MACHINE LEAVES A BURR ON THE MATERIAL WHEN SHEARED

1. CHECK KNIFE CLEARANCES-.007" TO .010"

A. TABLE BOLTS MAY HAVE BECOME LOOSE ALLOWING SCALE AND CONTAMINATION BETWEEN THE TABLE AND MAIN BEAM

a. REMOVE AND CLEAN THE BEAM SEAT AND TABLE BACK

B. THE TABLE MAY HAVE PULLED AWAY FROM THE MAIN BEAM, STRETCHING THE BOLT THREADS IN THE MAIN BEAM CREATING HIGH SPOTS FOR THE TABLE TO SEAT AGAINST

a. REMOVE THE TABLE AND LIGHTLY SAND OR FILE THE MAIN BEAM WHERE THE TABLE SEATS AGAINST IT

C. KNIVES MAY HAVE BEEN SHARPENED

a. REPLACE WITH NEW KNIVES

b. SHIM TO RECOMMENDED CLEARANCES

D. DAMAGE MAY HAVE OCCURRED TO THE MACHINE MAIN BEAMS IF MATERIAL WAS NOT HELD DOWN DURING SHEAR OPERATION

a. SHIM TO RECOMMENDED CLEARANCES

b. REPLACE DAMAGED PARTS

2. KNIVES MAY BE DULL

A. REPLACE WITH NEW KNIVES

B. SHARPEN AND SHIM TO RECOMMENDED CLEARANCES

3. MATERIAL IS BEING CLAMPED SECURELY PRIOR TO SHEARING

A. CHECK HOLDDOWN ADJUSTMENT

P35 SERVICE LOGIC TREE

KNIFE BLADE EDGES CHIPPED BY MATERIAL

1. CHECK KNIFE CLEARANCES-.007" TO .010"

A. TABLE BOLTS MAY HAVE BECOME LOOSE ALLOWING SCALE AND CONTAMINATION BETWEEN THE TABLE AND MAIN BEAM

a. REMOVE AND CLEAN THE BEAM SEAT AND TABLE BACK

B. THE TABLE MAY HAVE PULLED AWAY FROM THE MAIN BEAM, STRETCHING THE BOLT THREADS IN THE MAIN BEAM CREATING HIGH SPOTS FOR THE TABLE TO SEAT AGAINST

a. REMOVE THE TABLE AND LIGHTLY SAND OR FILE THE MAIN BEAM WHERE THE TABLE SEATS AGAINST IT

C. KNIVES MAY HAVE BEEN SHARPENED

a. REPLACE WITH NEW KNIVES

b. SHIM TO RECOMMENDED CLEARANCES

D. DAMAGE MAY HAVE OCCURRED TO THE MACHINE MAIN BEAMS IF MATERIAL WAS NOT HELD DOWN DURING SHEAR OPERATION

a. SHIM TO RECOMMENDED CLEARANCES

b. REPLACE DAMAGED PARTS

2. KNIVES MAY BE DULL CREATING A PULLING EFFECT ON THE EDGES

A. REPLACE WITH NEW KNIVES

B. SHARPEN AND SHIM TO RECOMMENDED CLEARANCES

3. CHECK MATERIAL TENSILE STRENGTH. MACHINE IS RATED FOR MATERIAL WITH TENSILE STRENGTH OF 60,000 POUNDS PER SQUARE INCH

A. SPECIAL KNIVES MAY BE AVAILABLE. CONTACT THE FACTORY

4. MATERIAL MAY BE THICKER THAN THE RATED CAPACITIES CREATING A PULLING EFFECT ON THE EDGES

P35 SERVICE LOGIC TREE

MACHINE DOES NOT SEEM TO HAVE ENOUGH PRESSURE TO COPE OR NOTCH

FIRST INSTALL A PRESSURE GAUGE ON THE PUMP OUTLET FITTING AND OBTAIN THE WORKING PRESSURE BY BOTTOMING OUT THE CYLINDER IN THE SHEAR DOWN (CYLINDER EXTENSION) AND THE SHEAR UP (CYLINDER RETRACTION) POSITIONS. THE PRESSURE READING SHOULD BE 3500 PSI ON THE SHEAR DOWN AND 1250 PSI ON THE SHEAR UP.

IF THE PRESSURES ARE CORRECT, CHECK THE FOLLOWING:

1. THE TONNAGE RATING OF THE MATERIAL BEING COPEDED OR NOTCHED
2. TYPE OF MATERIAL BEING USED
 - A. MACHINE CAPACITIES ARE RATED ON MATERIAL WITH A TENSILE STRENGTH OF 60,000 POUNDS PER SQUARE INCH
 - B. TORCH CUTTING OF SOME MATERIALS INCREASE THEIR HARDNESS
3. ARE THE KNIVES SHARP

IF THE PRESSURES ARE INCORRECT, CHECK THE FOLLOWING:

1. IS THE PRESSURE GAUGE GIVING AN ACCURATE READING
2. REMOVE THE FOLLOWING HYDRAULIC VALVE CARTRIDGES IN THE FOLLOWING ORDER. INSPECT FOR CONTAMINATION OR VISUAL FAILURE. IF FAILURE IS NOT OBVIOUS, CLEAN AND REINSTALL. TRY MACHINE OPERATION AFTER EACH CARTRIDGE INSPECTION.
 - A. RPEC-FCN RELIEF VALVE IN RELIEF BLOCK ON PUMP
 - B. P1 RELIEF VALVE IN THE MANUAL CONTROL VALVE
3. CHECK MANUAL CONTROL VALVE ASSEMBLY
 - A. SPOOL STUCK IN THE CENTER POSITION
 - a. MANUALLY MOVE FROM END TO END
 - b. DISASSEMBLE, INSPECT, AND CLEAN
 - B. MANUAL CONTROL VALVE FAILURE
4. CHECK SHEAR END HYDRAULIC CYLINDER
 - A. INTERNAL BYPASS
 - B. PISTON/ROD FAILURE

P35 SERVICE LOGIC TREE

CYLINDER SEAL REPLACEMENT

PUNCH END CYLINDER

THIS PROCEDURE CAN BE DONE WITHOUT REMOVAL OF THE CYLINDER ASSEMBLY

1. REMOVE THE CABINET HOOD FROM THE MACHINE
2. REMOVE ALL TOOLING AND THE LIMIT SWITCH CLAMP FROM THE CYLINDER ROD
3. DRAIN ALL THE OIL FROM THE CYLINDER
4. UNSCREW THE SECURING NUTS FROM THE CYLINDER TIE BOLTS
5. REMOVE THE CYLINDER END CAP FROM THE CYLINDER TUBE
6. REMOVE THE CYLINDER TUBE FROM THE CYLINDER BEARING CAP
7. REMOVE THE PISTON/ROD ASSEMBLY FROM THE CYLINDER BEARING CAP
8. REMOVE ALL THE OLD SEALS AND BACKUP RINGS FROM THE PISTON AND END CAPS
9. CLEAN AND INSPECT ALL CYLINDER PARTS FOR DAMAGE. NICKS, DINGS, OR SCRATCHES ON THE ROD WILL CAUSE PREMATURE SEAL FAILURE
10. INSPECT THE PISTON/ROD ASSEMBLY. THE ROD SHOULD BE COMPLETELY SCREWED INTO THE PISTON AND THE THREADS LOCKED IN PLACE
11. USING CLEAN HYDRAULIC OIL, LUBRICATE ALL THE NEW SEALS AND INSTALL THEM IN THEIR RESPECTIVE GROOVES AND BORES. TAKE CARE NOT TO DAMAGE THE SEALS WHEN INSTALLING
12. USING CLEAN HYDRAULIC OIL, LUBRICATE THE ID OF THE TUBE AND THE OD OF THE PISTON/ROD ASSEMBLY
13. INSERT THE PISTON/ROD ASSEMBLY INTO THE BEARING CAP AND SLIDE COMPLETELY DOWN.
14. APPLY A HIGH QUALITY WATERPROOF GREASE ON EACH END OF THE CYLINDER TUBE. INSTALL THE CYLINDER TUBE OVER THE PISTON AND ONTO THE BEARING CAP
15. INSTALL THE END CAP OVER THE TIE BOLTS AND ONTO THE CYLINDER TUBE
16. MAKE SURE EVERYTHING IS LINED UP AND LIGHTLY TAP THE TOP OF THE END CAP TO SEAT ALL PARTS OF THE CYLINDER ASSEMBLY
17. INSTALL THE TIE BOLT NUTS AND TIGHTEN IN A STAR ROTATION. TORQUE TO 300 FT LBS.
18. CHECK ALL CONNECTIONS PRIOR MACHINE OPERATION
19. START THE MACHINE AND EXTEND AND RETRACT THE CYLINDER THREE TIMES. THIS WILL REMOVE THE AIR IN THE CYLINDER
20. EXTEND THE ROD COMPLETELY, USING THE MACHINE PRESSURE TO INSPECT FOR LEAKAGE

21. RETRACT THE ROD COMPLETELY, USING THE MACHINE PRESSURE TO INSPECT FOR LEAKAGE
22. INSTALL THE LIMIT SWITCH CLAMP TO IT'S ORIGINAL POSITION
23. REPLACE THE CABINET HOOD ON THE MACHINE

SHEAR END CYLINDER

THIS PROCEDURE CAN BE DONE WITHOUT REMOVAL OF THE CYLINDER ASSEMBLY

1. REMOVE THE CABINET HOOD FROM THE MACHINE
2. REMOVE THE HOSES FROM THE CYLINDER ASSEMBLY
3. DRAIN ALL THE OIL FROM THE CYLINDER
4. UNSCREW THE SECURING NUTS FROM THE CYLINDER TIE BOLTS
5. REMOVE THE CYLINDER END CAP FROM THE CYLINDER TUBE
6. REMOVE THE CYLINDER TUBE FROM THE CYLINDER TRUNNION CAP
7. REMOVE THE CLEVIS SET SCREW AND UNSCREW THE PISTON/ROD ASSEMBLY OUT OF THE CLEVIS
8. REMOVE THE PISTON/ROD ASSEMBLY FROM THE CYLINDER TRUNNION CAP
9. REMOVE ALL THE OLD SEALS AND BACKUP RINGS FROM THE PISTON AND END CAPS
10. CLEAN AND INSPECT ALL CYLINDER PARTS FOR DAMAGE. NICKS, DINGS, OR SCRATCHES ON THE ROD WILL CAUSE PREMATURE SEAL FAILURE
11. INSPECT THE PISTON/ROD ASSEMBLY. THE ROD SHOULD BE COMPLETELY SCREWED INTO THE PISTON AND THE THREADS LOCKED IN PLACE
12. USING CLEAN HYDRAULIC OIL, LUBRICATE ALL THE NEW SEALS AND INSTALL THEM IN THEIR RESPECTIVE GROOVES AND BORES. TAKE CARE NOT TO DAMAGE THE SEALS WHEN INSTALLING
13. USING CLEAN HYDRAULIC OIL, LUBRICATE THE ID OF THE TUBE AND THE OD OF THE PISTON/ROD ASSEMBLY
14. INSERT THE PISTON/ROD ASSEMBLY INTO THE TRUNNION CAP AND SLIDE COMPLETELY DOWN.
15. SCREW THE PISTON/ROD ASSEMBLY INTO THE CLEVIS UNTIL TIGHT, THEN SECURE WITH THE CLEVIS SET SCREW
16. APPLY A HIGH QUALITY WATERPROOF GREASE ON EACH END OF THE CYLINDER TUBE. INSTALL THE CYLINDER TUBE OVER THE PISTON AND ONTO THE TRUNNION CAP
17. INSTALL THE END CAP OVER THE TIE BOLTS AND ONTO THE CYLINDER TUBE
18. MAKE SURE EVERYTHING IS LINED UP AND LIGHTLY TAP THE TOP OF THE END CAP TO SEAT ALL PARTS OF THE CYLINDER ASSEMBLY
19. INSTALL THE TIE BOLT NUTS AND TIGHTEN IN A STAR ROTATION. TORQUE TO 300 FT LBS.

20. CHECK ALL CONNECTIONS PRIOR TO MACHINE OPERATION
21. START THE MACHINE AND EXTEND AND RETRACT THE CYLINDER THREE TIMES.
THIS WILL REMOVE THE AIR IN THE CYLINDER
22. EXTEND THE ROD COMPLETELY, USING THE MACHINE PRESSURE TO INSPECT
FOR LEAKAGE
23. RETRACT THE ROD COMPLETELY, USING THE MACHINE PRESSURE TO INSPECT
FOR LEAKAGE
24. REPLACE THE CABINET HOOD ON THE MACHINE

P35 SERVICE LOGIC TREE

HYDRAULIC FILTER ELEMENT REPLACEMENT

THE HYDRAULIC SYSTEM OF THE PIRANHA IS PROBABLY THE MOST CRITICAL AREA OF THE MACHINE. THE MAJORITY OF ALL SERVICE PROBLEMS WILL BE DUE TO A CONTAMINATED HYDRAULIC SYSTEM. THESE SERVICE PROBLEMS CAN BE MINIMIZED BY ROUTINE MAINTENANCE OF THE HYDRAULIC SYSTEM.

FILTER ELEMENT REPLACEMENT. IT IS RECOMMENDED TO REPLACE THE FILTER ELEMENT EVERY 3 MONTHS, MORE FREQUENT WITH A HEAVY WORK LOAD AND BAD ENVIRONMENT

1. THE FILTER HOUSING IS LOCATED ON THE TANK DOOR ON THE OFF-SIDE OF THE MACHINE.
2. WITH THE MACHINE TURNED OFF, REMOVE THE FILTER ELEMENT FROM THE FILTER HOUSING BY TURNING COUNTERCLOCKWISE
3. USING CLEAN HYDRAULIC OIL, LUBRICATE THE ORING OF THE ELEMENT
4. REPLACE THE FILTER ELEMENT ON THE FILTER HOUSING BY TURNING CLOCKWISE UNTIL TIGHT
5. START THE MACHINE AND INSPECT FOR LEAKAGE

INLET SCREEN CLEANING. IT IS RECOMMENDED TO CLEAN THE INLET SCREEN ONCE A YEAR, MORE FREQUENT WITH A HEAVY WORK LOAD AND BAD ENVIRONMENT

1. THE INLET SCREEN IS LOCATED ON THE TANK DOOR ON THE OFF-SIDE OF THE MACHINE
2. WITH THE MACHINE TURNED OFF, REMOVE THE HOSE AND FITTING FROM THE INLET SCREEN
3. REMOVE THE INLET SCREEN FROM THE TANK DOOR
4. CLEAN THE INLET SCREEN BY FLUSHING CLEAN SOLVENT AND LIGHTLY BLOWING AIR THROUGH IT BACKWARDS (THE OPPOSITE DIRECTION OF THE FLOW ARROW). DO THIS SEVERAL TIMES
5. CLEAN THE THREAD SEALANT FROM THE INLET SCREEN AND FITTING THREADS
6. PUT THREAD SEALANT ON THE FITTING THREADS. INSTALL THE INLET SCREEN BACK ON THE TANK DOOR AND THE FITTING AND HOSE BACK ON THE INLET SCREEN
7. START THE MACHINE AND INSPECT FOR LEAKAGE

P35 SERVICE LOGIC TREE

COMBO TABLE KNIFE ADJUSTMENT

1. RAISE THE UPPER BEAM TO IT'S FULL UP STROKE AND TURN THE MACHINE OFF
2. REMOVE THE HOLDDOWN ASSEMBLY
3. REMOVE THE LOWER KNIVES AND BOLTS
4. REMOVE THE COMBO TABLE
5. CLEAN THE LOWER BEAM SURFACE WHERE THE TABLE AND KNIVES SEAT. LIGHTLY SAND THE TABLE SEAT AREA TO REMOVE HIGH SPOTS
6. CLEAN THE TABLE AND KNIVES
7. INSTALL THE COMBO TABLE ON THE MACHINE WITH THE BOLTS LOOSE
8. SET THE KNIVES ON THE LOWER BEAM SEAT WITHOUT THE BOLTS
9. PUSH THE TABLE AGAINST THE BEAM. MOVE IT BACK AND FORTH UNTIL THE ANGLE KNIVES AND ANGLE SECTION OF THE COMBO TABLE ARE FLUSH THROUGHOUT THE ENTIRE "V" AREA AND THE PLATE SHEAR KNIFE IS FLUSH WITH THE TOP OF THE PLATE SHEAR SECTION OF THE TABLE
10. INSTALL AND TIGHTEN THE ANGLE KNIFE BOLTS, THEN THE PLATE SHEAR BOLTS. TORQUE THEM AT 70 FT LBS
11. TIGHTEN THE COMBO TABLE BOLTS. TORQUE THEM AT 210 FT LBS
12. INSTALL THE HOLDDOWN ASSEMBLY ON THE MACHINE
13. START THE MACHINE AND SLOWLY LOWER THE UPPER BEAM CHECKING UPPER KNIFE TO LOWER KNIFE CLEARANCE

P35 SERVICE LOGIC TREE

PUNCH END RAISES CORRECTLY, BUT WILL NOT LOWER OR LOWERS SLOWLY

SHEAR END RAISES CORRECTLY, BUT WILL NOT LOWER OR LOWERS SLOWLY

THE FIRST SECTION TROUBLE SHOOTS THE PUNCH END CYLINDER AND THE SECOND SECTION TROUBLE SHOOTS THE SHEAR END CYLINDER.

NOTE: THE HYDRAULIC SYSTEM OF THE PIRANHA IS PROBABLY THE MOST CRITICAL AREA OF THE MACHINE. THE MAJORITY OF ALL SERVICE PROBLEMS WILL BE DUE TO A CONTAMINATED HYDRAULIC SYSTEM. THESE SERVICE PROBLEMS CAN BE MINIMIZED BY ROUTINE MAINTENANCE OF THE HYDRAULIC SYSTEM.

FILTER ELEMENT REPLACEMENT. IT IS RECOMMENDED TO REPLACE THE FILTER ELEMENT EVERY 3 MONTHS, MORE FREQUENT WITH A HEAVY WORK LOAD AND BAD ENVIRONMENT

INLET SCREEN CLEANING. IT IS RECOMMENDED TO CLEAN THE INLET SCREEN ONCE A YEAR, MORE FREQUENT WITH A HEAVY WORK LOAD AND BAD ENVIRONMENT

PUNCH END

FIRST DETERMINE IF THE PROBLEM IS ELECTRICAL OR HYDRAULIC. DISCONNECT THE VALVE BODY WIRING HARNESS AND LOCATE THE MANUAL OVERRIDE BUTTONS ON THE REXROTH DIRECTIONAL CONTROL UNIT. DEPRESS EACH BUTTON INDIVIDUALLY TO SEE IF THE MACHINE WILL OPERATE (NOTE: THE OVERRIDE BUTTONS REQUIRE A LOT OF PRESSURE TO MOVE THE SPOOL). IF THE MACHINE OPERATES, THE PROBLEM IS ELECTRICAL. MOVE TO THE ELECTRICAL PROBLEM SECTION BELOW. IF THE MACHINE DOES NOT OPERATE, THE PROBLEM IS HYDRAULIC.

HYDRAULIC

1. REMOVE THE RPEC-FCN RELIEF VALVE IN THE RELIEF BLOCK ON THE PUMP AND INSPECT FOR CONTAMINATION OR VISUAL FAILURE. IF FAILURE IS NOT OBVIOUS, CLEAN AND REINSTALL.
2. CHECK MANUAL CONTROL VALVE ASSEMBLY
 - A. SPOOL STUCK IN THE CENTER POSITION
 - a. MANUALLY MOVE FROM END TO END
 - b. DISASSEMBLE, INSPECT, AND CLEAN
 - B. MANUAL CONTROL VALVE FAILURE
3. CHECK REXROTH DIRECTIONAL CONTROL
 - A. SPOOL STUCK IN THE CENTER POSITION
 - a. MANUALLY MOVE FROM END TO END
 - b. DISASSEMBLE, INSPECT, AND CLEAN
 - B. REXROTH DIRECTIONAL CONTROL MOUNTED INCORRECTLY TO THE VALVE BODY BLOCK
 - C. REXROTH DIRECTIONAL CONTROL FAILURE

4. CHECK PUNCH END HYDRAULIC CYLINDER

- A. INTERNAL BYPASS
- B. PISTON/ROD FAILURE

ELECTRICAL

USE THE WIRING DIAGRAM IN THE MACHINE MANUAL FOR REFERENCE.

1. CHECK THE INPUT SIDE OF THE FOOT PEDAL CONTACT BLOCK FOR CONTROL VOLTAGE (RED WIRE IN THE MACHINE MANUAL)

- A. ARE THE TERMINAL CONNECTIONS ON THE CONTACT BLOCKS TIGHT

2. CHECK THE OUTPUT SIDE OF THE FOOT PEDAL CONTACT BLOCK (WHITE WIRE) FOR CONTROL VOLTAGE

NOTE: CONTROL VOLTAGE INSPECTION FROM THIS POINT ON WILL BE DETERMINED BY THE FOOT PEDAL POSITION

THE FOOT PEDAL BLACK WIRE IS FOR THE PUNCH UP STROKE

THE FOOT PEDAL WHITE WIRE IS FOR THE PUNCH DOWN STROKE

- A. FOOT PEDAL ADJUSTMENT
- B. FOOT PEDAL CONTACT BLOCK FAILURE

3. CHECK CONTROL VOLTAGE ON THE "Y" TERMINAL OF THE FOOT PEDAL RECEPTACLE

- A. ARE THE TERMINAL CONNECTIONS ON THE RECEPTACLE, FOOT PEDAL PLUG, AND FOOT PEDAL CORD TIGHT
- B. FOOT PEDAL RECEPTACLE FAILURE
- C. FOOT PEDAL PLUG FAILURE
- D. FOOT PEDAL CORD DAMAGE

4. CHECK CONTROL VOLTAGE ON THE REXROTH DIRECTIONAL CONTROL PLUGS

- A. ARE THE TERMINAL CONNECTIONS ON FOOT PEDAL RECEPTACLE AND THE REXROTH DIRECTIONAL CONTROL PLUGS TIGHT

- B. CHECK THE LIMIT SWITCH

- a. REMOVE THE COVER AND CHECK CONTROL VOLTAGE ON THE INPUT WIRE (GREEN WIRE OR #1)

- b. ARE THE TERMINAL CONNECTIONS TIGHT

- c. LIMIT SWITCH FAILURE

5. CHECK REXROTH DIRECTIONAL CONTROL COIL

- A. IS THE COIL SECURED TO THE CENTER SECTION TIGHTLY
- B. REXROTH COIL FAILURE

SHEAR END

1. REMOVE THE FOLLOWING HYDRAULIC VALVE CARTRIDGES IN THE FOLLOWING ORDER. INSPECT FOR CONTAMINATION OR VISUAL FAILURE. IF FAILURE IS NOT OBVIOUS, CLEAN AND REINSTALL. TRY MACHINE OPERATION AFTER EACH CARTRIDGE INSPECTION.
 - A. RPEC-FCN RELIEF VALVE IN RELIEF BLOCK ON PUMP
 - B. P1 RELIEF VALVE IN THE MANUAL CONTROL VALVE
2. CHECK MANUAL CONTROL VALVE ASSEMBLY
 - A. SPOOL STUCK IN THE CENTER POSITION
 - a. MANUALLY MOVE FROM END TO END
 - b. DISASSEMBLE, INSPECT, AND CLEAN
 - B. MANUAL CONTROL VALVE FAILURE
3. CHECK SHEAR END HYDRAULIC CYLINDER
 - A. INTERNAL BYPASS
 - B. PISTON/ROD FAILURE

P35 SERVICE LOGIC TREE

MOTOR RUNS BUT PUNCH END OR SHEAR END WILL NOT OPERATE UP OR DOWN

THE FIRST SECTION TROUBLE SHOTS THE MACHINE MOTOR RUNNING, BUT THE PUNCH END WILL NOT OPERATE. THE SECOND SECTION TROUBLE SHOTS THE MACHINE MOTOR RUNNING, BUT THE SHEAR END WILL NOT OPERATE.

NOTE: THE HYDRAULIC SYSTEM OF THE PIRANHA IS PROBABLY THE MOST CRITICAL AREA OF THE MACHINE. THE MAJORITY OF ALL SERVICE PROBLEMS WILL BE DUE TO A CONTAMINATED HYDRAULIC SYSTEM. THESE SERVICE PROBLEMS CAN BE MINIMIZED BY ROUTINE MAINTENANCE OF THE HYDRAULIC SYSTEM.

FILTER ELEMENT REPLACEMENT. IT IS RECOMMENDED TO REPLACE THE FILTER ELEMENT EVERY 3 MONTHS, MORE FREQUENT WITH A HEAVY WORK LOAD AND BAD ENVIRONMENT

INLET SCREEN CLEANING. IT IS RECOMMENDED TO CLEAN THE INLET SCREEN ONCE A YEAR, MORE FREQUENT WITH A HEAVY WORK LOAD AND BAD ENVIRONMENT

PUNCH END WILL NOT OPERATE

FIRST DETERMINE IF THE PROBLEM IS ELECTRICAL OR HYDRAULIC. DISCONNECT THE VALVE BODY WIRING HARNESS AND LOCATE THE MANUAL OVERRIDE BUTTONS ON THE REXROTH DIRECTIONAL CONTROL UNIT. DEPRESS EACH BUTTON INDIVIDUALLY TO SEE IF THE MACHINE WILL OPERATE (NOTE: THE OVERRIDE BUTTONS REQUIRE A LOT OF PRESSURE TO MOVE THE SPOOL). IF THE MACHINE OPERATES, THE PROBLEM IS ELECTRICAL. MOVE TO THE ELECTRICAL PROBLEM SECTION BELOW. IF THE MACHINE DOES NOT OPERATE, THE PROBLEM IS HYDRAULIC.

HYDRAULIC

1. CHECK MOTOR ROTATION
2. CHECK MOTOR/PUMP COUPLING
 - A. CHECK THE RUBBER INSERT CONDITION
 - B. CHECK THAT THE COUPLINGS ARE TIGHT ON THE MOTOR AND PUMP SHAFTS
 - C. CHECK THE KEYS ON BOTH SHAFTS
3. CHECK THE SUCTION HOSE FROM THE TANK TO THE PUMP INLET
 - A. IS IT TIGHT
 - B. CHECK THE CONDITION (KINKED, DAMAGED, ETC)
4. CHECK THE HYDRAULIC FLUID LEVEL IN THE TANK
5. CHECK FOR PUMP FLOW
 - A. IF NO FLOW, CHECK PREVIOUS PROCEDURES AGAIN
 - B. PUMP FAILURE
6. CHECK REXROTH DIRECTIONAL CONTROL
 - A. SPOOL STUCK IN THE CENTER POSITION

- a. MANUALLY MOVE FROM END TO END
- b. DISASSEMBLE, INSPECT, AND CLEAN

B. REXROTH DIRECTIONAL CONTROL MOUNTED INCORRECTLY TO THE VALVE BODY BLOCK

C. REXROTH DIRECTIONAL CONTROL FAILURE

7. CHECK PUNCH END HYDRAULIC CYLINDER

- A. INTERNAL BYPASS
- B. PISTON/ROD FAILURE

ELECTRICAL

USE THE WIRING DIAGRAM IN THE MACHINE MANUAL FOR REFERENCE.

1. CHECK CONTROL VOLTAGE FROM THE OUTPUT SIDE OF THE FRONT ON/OFF BUTTON TO THE "Z" TERMINAL OF THE FOOT PEDAL RECEPTACLE

- A. ARE THE TERMINALS ON THE FRONT ON/OFF BUTTON AND RECEPTACLE TIGHT

2. CHECK THE INPUT SIDE OF THE FOOT PEDAL CONTACT BLOCKS FOR CONTROL VOLTAGE (RED WIRE IN THE MACHINE MANUAL)

- A. ARE THE TERMINAL CONNECTIONS ON THE RECEPTACLE, FOOT PEDAL PLUG, AND FOOT PEDAL CORD TIGHT
- B. FOOT PEDAL RECEPTACLE FAILURE
- C. FOOT PEDAL PLUG FAILURE
- D. FOOT PEDAL CORD DAMAGE

3. CHECK THE OUTPUT SIDE OF THE FOOT PEDAL CONTACT BLOCKS FOR CONTROL VOLTAGE

NOTE:

CONTROL VOLTAGE INSPECTION FROM THIS POINT ON WILL BE DETERMINED BY THE FOOT PEDAL POSITION

THE FOOT PEDAL BLACK WIRE IS FOR THE PUNCH UP STROKE

THE FOOT PEDAL WHITE WIRE IS FOR THE PUNCH DOWN STROKE

- A. FOOT PEDAL ADJUSTMENT
- B. FOOT PEDAL CONTACT BLOCK FAILURE

4. CHECK CONTROL VOLTAGE ON THE "Y" AND "X" TERMINALS OF THE FOOT PEDAL RECEPTACLE

- A. ARE THE TERMINAL CONNECTIONS ON THE RECEPTACLE, FOOT PEDAL PLUG, AND FOOT PEDAL CORD TIGHT

B. FOOT PEDAL RECEPTACLE FAILURE

C. FOOT PEDAL PLUG FAILURE

D. FOOT PEDAL CORD DAMAGE

5. CHECK CONTROL VOLTAGE ON THE REXROTH DIRECTIONAL CONTROL PLUGS

A. ARE THE TERMINAL CONNECTIONS ON FOOT PEDAL RECEPTACLE AND THE REXROTH DIRECTIONAL CONTROL PLUGS TIGHT

B. IF THE PUNCH END OPERATES DOWN, BUT NOT UP, CHECK THE FOOT PEDAL TOGGLE SWITCH

a. ARE THE TERMINAL CONNECTIONS TIGHT

b. TOGGLE SWITCH FAILURE

C. CHECK THE LIMIT SWITCH

a. REMOVE THE COVER AND CHECK CONTROL VOLTAGE ON THE TWO INPUT WIRES (FROM THE FOOT PEDAL RECEPTACLE)

b. ARE THE TERMINAL CONNECTIONS TIGHT

c. LIMIT SWITCH FAILURE

6. CHECK REXROTH DIRECTIONAL CONTROL COILS

A. ARE THE COILS SECURED TO THE CENTER SECTION TIGHTLY

B. REXROTH COIL FAILURE

SHEAR END WILL NOT OPERATE

1. CHECK MOTOR ROTATION

2. CHECK MOTOR/PUMP COUPLING

A. CHECK THE RUBBER INSERT CONDITION

B. CHECK THAT THE COUPLINGS ARE TIGHT ON THE MOTOR AND PUMP SHAFTS

C. CHECK THE KEYS ON BOTH SHAFTS

3. CHECK THE SUCTION HOSE FROM THE TANK TO THE PUMP INLET

A. IS IT TIGHT

B. CHECK THE CONDITION (KINKED, DAMAGED, ETC)

4. CHECK THE HYDRAULIC FLUID LEVEL IN THE TANK

5. CHECK FOR PUMP FLOW

A. IF NO FLOW, CHECK PREVIOUS PROCEDURES AGAIN

B. PUMP FAILURE

6. CHECK MANUAL CONTROL VALVE

A. SPOOL STUCK IN THE CENTER POSITION

a. MANUALLY MOVE FROM END TO END

b. DISASSEMBLE, INSPECT, AND CLEAN

c. MANUAL CONTROL VALVE FAILURE

7. CHECK SHEAR END HYDRAULIC CYLINDER

A. INTERNAL BYPASS

B. PISTON/ROD FAILURE

P35 SERVICE LOGIC TREE

MACHINE WILL NOT START

1. ARE BOTH ON/OFF BUTTONS PULLED OUT. (ei--BOTH BUTTONS NEED TO BE PULLED OUT TO START THE MACHINE, ONLY ONE NEEDS PUSHED IN TO SHUT THE MACHINE OFF)
2. IS THE INCOMING VOLTAGE THE SAME AS WHAT THE MACHINE IS WIRED FOR
3. CHECK INCOMING VOLTAGE TO THE BUILDING MAIN DISCONNECT BOX
4. CHECK MAIN DISCONNECT FUSES OR BREAKERS
 - A. ARE THE FUSES OR BREAKERS THE CORRECT SIZE
 - B. CHECK FUSE OR BREAKER CONDITION
 - C. ARE ALL CONNECTIONS TIGHT
5. CHECK VOLTAGE FROM THE MAIN DISCONNECT BOX TO THE INPUT SIDE OF THE MACHINE STARTER (L1, L2 AND L3)
 - A. IS THE POWER CORD THE CORRECT SIZE
 - B. CHECK POWER CORD AND/OR PLUG CONDITION
 - C. ARE ALL CONNECTIONS TIGHT
6. CHECK TRANSFORMER CONTROL (OUTPUT) VOLTAGE-SHOULD BE 120 VOLTS
 - A. CHECK INPUT VOLTAGE FROM STARTER-SHOULD BE THE SAME AS THE INCOMING VOLTAGE
 - B. ARE THE TRANSFORMER JUMPER BARS IN THE CORRECT LOCATION FOR THE INCOMING VOLTAGE (SEE THE MACHINE MANUAL OR PLATE ON THE TRANSFORMER)
 - C. CHECK THE TRANSFORMER FUSE
 - D. CHECK THAT THE TRANSFORMER WIRES, TERMINAL CONNECTIONS, AND FUSE BLOCK CONNECTIONS ARE TIGHT
 - E. TRANSFORMER FAILURE
7. CHECK CONTROL VOLTAGE CIRCUIT (USE THE WIRING DIAGRAM IN THE MACHINE MANUAL FOR REFERENCE)
 - A. CHECK CONTROL VOLTAGE FROM THE OUTPUT SIDE OF THE TRANSFORMER TO THE INPUT SIDE OF THE FRONT ON/OFF BUTTON
 - a. ARE THE TERMINAL CONNECTIONS ON THE ON/OFF BUTTON AND TRANSFORMER TIGHT
 - B. CHECK CONTROL VOLTAGE FROM THE INPUT SIDE TO THE OUTPUT SIDE OF THE FRONT ON/OFF BUTTON
 - a. IS THE ON/OFF BUTTON CONTACT BLOCK STUCK OPEN

- C. CHECK CONTROL VOLTAGE FROM THE OUTPUT SIDE OF THE FRONT ON/OFF BUTTON TO THE INPUT SIDE OF THE REAR ON/OFF BUTTON
 - a. ARE THE TERMINAL CONNECTIONS ON THE ON/OFF BUTTONS TIGHT
- D. CHECK CONTROL VOLTAGE FROM THE INPUT SIDE TO THE OUTPUT SIDE OF THE REAR ON/OFF BUTTON
 - a. IS THE ON/OFF BUTTON CONTACT BLOCK STUCK OPEN
- E. CHECK CONTROL VOLTAGE FROM THE OUTPUT SIDE OF THE REAR ON/OFF BUTTON TO THE COMMON TERMINAL ON THE MACHINE STARTER
 - a. ARE THE TERMINAL CONNECTIONS ON THE MACHINE STARTER AND ON/OFF BUTTON TIGHT
- 8. IS THE MACHINE STARTER COIL PULLING IN
 - A. CHECK THE JUMPER WIRE FROM THE OUTPUT SIDE (X1) OF THE TRANSFORMER TO THE MACHINE STARTER OVERLOAD BLOCK
 - a. ARE TERMINAL CONNECTIONS TIGHT
 - B. CHECK IF THE MACHINE STARTER OVERLOAD(S) IS KICKED OUT
 - a. PUSH STARTER RESET BUTTON
 - C. THE MACHINE STARTER OVERLOAD(S) WON'T STAY RESET
 - a. OVERLOAD(S) FAILURE
 - b. MACHINE STARTER OVERLOAD BLOCK FAILURE
 - D. IS THE MACHINE STARTER COIL STUCK
 - a. SPRAY WITH CONTACT CLEANER
 - b. DISASSEMBLE, INSPECT, AND CLEAN
 - c. MACHINE STARTER COIL BLOCK FAILURE
- 9. CHECK VOLTAGE ON THE OUTPUT SIDE OF THE MACHINE STARTER (T1, T2, AND T3) WITH THE ON/OFF BUTTONS PULLED
 - A. GO BACK TO STEP #9
- 10. CHECK VOLTAGE FROM THE OUTPUT SIDE OF THE MACHINE STARTER (T1, T2, AND T3) TO THE MOTOR
 - A. IS THE POWER CORD THE CORRECT SIZE
 - B. CHECK POWER CORD CONDITION
 - C. ARE ALL CONNECTIONS TIGHT
- 11. CHECK MOTOR WIRING (SEE MACHINE MANUAL OR PLATE ON MOTOR)
- 12. MOTOR FAILURE

P35 SERVICE LOGIC TREE

MACHINE HYDRAULICS OVERHEAT DURING USE

1. CHECK FLUID LEVEL IN THE RESERVOIR
2. INSUFFICIENT CONTROL VOLTAGE TO THE REXROTH DIRECTIONAL CONTROL COILS NOT ALLOWING THE REXROTH SPOOL TO MOVE COMPLETELY OVER CREATING AN OBSTRUCTION FOR THE HYDRAULIC FLUID
 - A. INSUFFICIENT INCOMING VOLTAGE TO THE MACHINE CREATING LOW CONTROL VOLTAGE OUT OF THE TRANSFORMER
 - B. ARE ALL TERMINALS AND CONNECTIONS IN THE CONTROL VOLTAGE CIRCUIT TIGHT
 - C. FAILING TRANSFORMER
3. INCORRECT USE OF THE MANUAL CONTROL VALVE. PARTIAL SPOOL MOVEMENT WILL CAUSE AN ORVICE SITUATION CREATING HEAT
4. CYLINDER(S) BOTTOMING OUT DURING RETRACTION AND/OR EXTENSION CAUSING HYDRAULIC FLUID TO BY-PASS OVER THE RELIEF VALVE
 - A. IMPROPER USE OF THE LIMIT SWITCH WITH THE FOOT PEDAL
 - B. IMPROPER USE OF THE MANUAL CONTROL VALVE
5. HEAT BUILD UP DUE TO A CONTAMINATED FILTER ELEMENT
 - A. REPLACE FILTER ELEMENT (REPLACE EVERY 3 MONTHS)
6. HEAT BUILD UP DUE TO A CONTAMINATED INLET SCREEN
 - A. CLEAN THE INLET SCREEN
7. ANY ORVICE TYPE SITUATION IN THE HYDRAULIC SYSTEM. THIS SYMPTOM WILL NORMALLY BE ASSOCIATED WITH MACHINE MALFUNCTION
 - A. CONTAMINATED VALVE IN THE HYDRAULIC VALVE BODY
 - B. RESTRICTED HOSE OR FITTING
 - C. KINKED HOSE

NOTE: THE HYDRAULIC SYSTEM OF THE PIRANHA IS PROBABLY THE MOST CRITICAL AREA OF THE MACHINE. THE MAJORITY OF ALL SERVICE PROBLEMS WILL BE DUE TO A CONTAMINATED HYDRAULIC SYSTEM. THESE SERVICE PROBLEMS CAN BE MINIMIZED BY ROUTINE MAINTENANCE OF THE HYDRAULIC SYSTEM.

FILTER ELEMENT REPLACEMENT. IT IS RECOMMENDED TO REPLACE THE FILTER ELEMENT EVERY 3 MONTHS, MORE FREQUENT WITH A HEAVY WORK LOAD AND BAD ENVIRONMENT

INLET SCREEN CLEANING. IT IS RECOMMENDED TO CLEAN THE INLET SCREEN ONCE A YEAR, MORE FREQUENT WITH A HEAVY WORK LOAD AND BAD ENVIRONMENT

P35 SERVICE LOGIC TREE

MACHINE DOES NOT SEEM TO HAVE ENOUGH PRESSURE TO PUNCH

FIRST INSTALL A PRESSURE GAUGE ON THE PUMP OUTLET FITTING AND OBTAIN THE WORKING PRESSURE BY BOTTOMING OUT THE CYLINDER IN THE PUNCH DOWN (CYLINDER EXTENSION) POSITION. THE PRESSURE READING SHOULD BE 3500 PSI. IF THE PRESSURES ARE CORRECT, CHECK THE FOLLOWING:

1. THE TONNAGE RATING OF THE HOLE BEING PUNCHED
2. TYPE OF MATERIAL BEING USED
 - A. MACHINE CAPACITIES ARE RATED ON MATERIAL WITH A TENSILE STRENGTH OF 60,000 POUNDS PER SQUARE INCH
 - B. TORCH CUTTING OF SOME MATERIALS INCREASE THEIR HARDNESS
3. PROPER PUNCH TO DIE CLEARANCE FOR THE MATERIAL THICKNESS BEING USED
4. IS THE PUNCH AND DIE PROPERLY SHARPENED
5. IS THE PUNCH AND DIE PROPERLY ALIGNED

IF THE PRESSURES ARE INCORRECT, CHECK THE FOLLOWING:

1. IS THE PRESSURE GAUGE GIVING AN ACCURATE READING
2. REMOVE THE RPEC-FCN RELIEF VALVE IN RELIEF BLOCK ON THE PUMP AND INSPECT FOR CONTAMINATION OR VISUAL FAILURE. IF FAILURE IS NOT OBVIOUS, CLEAN AND REINSTALL.
3. CHECK MANUAL CONTROL VALVE ASSEMBLY
 - A. SPOOL STUCK IN THE CENTER POSITION
 - a. MANUALLY MOVE FROM END TO END
 - b. DISASSEMBLE, INSPECT, AND CLEAN
 - B. MANUAL CONTROL VALVE FAILURE
4. CHECK REXROTH DIRECTIONAL CONTROL
 - A. SPOOL STUCK IN THE CENTER POSITION
 - a. MANUALLY MOVE FROM END TO END
 - b. DISASSEMBLE, INSPECT, AND CLEAN
 - B. REXROTH DIRECTIONAL CONTROL MOUNTED INCORRECTLY TO THE VALVE BODY BLOCK
 - C. REXROTH DIRECTIONAL CONTROL FAILURE
5. CHECK PUNCH END HYDRAULIC CYLINDER
 - A. INTERNAL BYPASS
 - B. PISTON/ROD FAILURE

NOTE: THE HYDRAULIC SYSTEM OF THE PIRANHA IS PROBABLY THE MOST CRITICAL AREA OF THE MACHINE. THE MAJORITY OF ALL SERVICE PROBLEMS WILL BE DUE TO A CONTAMINATED HYDRAULIC SYSTEM. THESE SERVICE PROBLEMS CAN BE MINIMIZED BY ROUTINE MAINTENANCE OF THE HYDRAULIC SYSTEM.

FILTER ELEMENT REPLACEMENT. IT IS RECOMMENDED TO REPLACE THE FILTER ELEMENT EVERY 3 MONTHS, MORE FREQUENT WITH A HEAVY WORK LOAD AND BAD ENVIRONMENT

INLET SCREEN CLEANING. IT IS RECOMMENDED TO CLEAN THE INLET SCREEN ONCE A YEAR, MORE FREQUENT WITH A HEAVY WORK LOAD AND BAD ENVIRONMENT

P35 SERVICE LOGIC TREE

PUNCH END LOWERS CORRECTLY, BUT WILL NOT RAISE OR RAISES SLOWLY

SHEAR END LOWERS CORRECTLY, BUT WILL NOT RAISE OR RAISES SLOWLY

THE FIRST SECTION TROUBLE SHOOTS THE PUNCH END CYLINDER AND THE SECOND SECTION TROUBLE SHOOTS THE SHEAR END CYLINDER.

NOTE: THE HYDRAULIC SYSTEM OF THE PIRANHA IS PROBABLY THE MOST CRITICAL AREA OF THE MACHINE. THE MAJORITY OF ALL SERVICE PROBLEMS WILL BE DUE TO A CONTAMINATED HYDRAULIC SYSTEM. THESE SERVICE PROBLEMS CAN BE MINIMIZED BY ROUTINE MAINTENANCE OF THE HYDRAULIC SYSTEM.

FILTER ELEMENT REPLACEMENT. IT IS RECOMMENDED TO REPLACE THE FILTER ELEMENT EVERY 3 MONTHS, MORE FREQUENT WITH A HEAVY WORK LOAD AND BAD ENVIRONMENT

INLET SCREEN CLEANING. IT IS RECOMMENDED TO CLEAN THE INLET SCREEN ONCE A YEAR, MORE FREQUENT WITH A HEAVY WORK LOAD AND BAD ENVIRONMENT

PUNCH END

FIRST DETERMINE IF THE PROBLEM IS ELECTRICAL OR HYDRAULIC. DISCONNECT THE VALVE BODY WIRING HARNESS AND LOCATE THE MANUAL OVERRIDE BUTTONS ON THE REXROTH DIRECTIONAL CONTROL UNIT. DEPRESS EACH BUTTON INDIVIDUALLY TO SEE IF THE MACHINE WILL OPERATE (NOTE: THE OVERRIDE BUTTONS REQUIRE A LOT OF PRESSURE TO MOVE THE SPOOL). IF THE MACHINE OPERATES, THE PROBLEM IS ELECTRICAL. MOVE TO THE ELECTRICAL PROBLEM SECTION BELOW. IF THE MACHINE DOES NOT OPERATE, THE PROBLEM IS HYDRAULIC.

HYDRAULIC

1. REMOVE THE RPEC-FCN RELIEF VALVE IN THE RELIEF BLOCK ON THE PUMP AND INSPECT FOR CONTAMINATION OR VISUAL FAILURE. IF FAILURE IS NOT OBVIOUS, CLEAN AND REINSTALL.
2. CHECK MANUAL CONTROL VALVE ASSEMBLY
 - A. SPOOL STUCK IN THE CENTER POSITION
 - a. MANUALLY MOVE FROM END TO END
 - b. DISASSEMBLE, INSPECT, AND CLEAN
 - B. MANUAL CONTROL VALVE FAILURE
3. CHECK REXROTH DIRECTIONAL CONTROL
 - A. SPOOL STUCK IN THE CENTER POSITION
 - a. MANUALLY MOVE FROM END TO END
 - b. DISASSEMBLE, INSPECT, AND CLEAN
 - B. REXROTH DIRECTIONAL CONTROL MOUNTED INCORRECTLY TO THE VALVE BODY BLOCK
 - C. REXROTH DIRECTIONAL CONTROL FAILURE

4. CHECK PUNCH END HYDRAULIC CYLINDER

- A. INTERNAL BYPASS
- B. PISTON/ROD FAILURE

ELECTRICAL

USE THE WIRING DIAGRAM IN THE MACHINE MANUAL FOR REFERENCE.

1. CHECK THE INPUT SIDE OF THE FOOT PEDAL CONTACT BLOCK FOR CONTROL VOLTAGE (GRAY JUMPER WIRE IN THE MACHINE MANUAL)

- A. ARE THE TERMINAL CONNECTIONS ON THE CONTACT BLOCKS TIGHT

2. CHECK THE OUTPUT SIDE OF THE FOOT PEDAL CONTACT BLOCK (BLACK WIRE) FOR CONTROL VOLTAGE

NOTE: CONTROL VOLTAGE INSPECTION FROM THIS POINT ON WILL BE DETERMINED BY THE FOOT PEDAL POSITION

THE FOOT PEDAL BLACK WIRE IS FOR THE PUNCH UP STROKE

THE FOOT PEDAL WHITE WIRE IS FOR THE PUNCH DOWN STROKE

- A. FOOT PEDAL ADJUSTMENT
- B. FOOT PEDAL CONTACT BLOCK FAILURE

3. CHECK CONTROL VOLTAGE ON THE "X" TERMINAL OF THE FOOT PEDAL RECEPTACLE

- A. ARE THE TERMINAL CONNECTIONS ON THE RECEPTACLE, FOOT PEDAL PLUG, AND FOOT PEDAL CORD TIGHT
- B. FOOT PEDAL RECEPTACLE FAILURE
- C. FOOT PEDAL PLUG FAILURE
- D. FOOT PEDAL CORD DAMAGE

4. CHECK CONTROL VOLTAGE ON THE REXROTH DIRECTIONAL CONTROL PLUGS

- A. ARE THE TERMINAL CONNECTIONS ON FOOT PEDAL RECEPTACLE, TOGGLE SWITCH, AND THE REXROTH DIRECTIONAL CONTROL PLUGS TIGHT
- B. CHECK THE FOOT PEDAL TOGGLE SWITCH
 - a. TOGGLE SWITCH FAILURE
- C. CHECK THE LIMIT SWITCH
 - a. REMOVE THE COVER AND CHECK CONTROL VOLTAGE ON THE INPUT WIRE (WHITE WIRE OR #5)
 - b. ARE THE TERMINAL CONNECTIONS TIGHT

c. LIMIT SWITCH FAILURE

5. CHECK REXROTH DIRECTIONAL CONTROL COIL

- A. IS THE COIL SECURED TO THE CENTER SECTION TIGHTLY
- B. REXROTH COIL FAILURE

SHEAR END

1. REMOVE THE FOLLOWING HYDRAULIC VALVE CARTRIDGES IN THE FOLLOWING ORDER. INSPECT FOR CONTAMINATION OR VISUAL FAILURE. IF FAILURE IS NOT OBVIOUS, CLEAN AND REINSTALL. TRY MACHINE OPERATION AFTER EACH CARTRIDGE INSPECTION.

- A. RPEC-FCN RELIEF VALVE IN RELIEF BLOCK ON PUMP
- B. P1 RELIEF VALVE IN THE MANUAL CONTROL VALVE

2. CHECK MANUAL CONTROL VALVE ASSEMBLY

- A. SPOOL STUCK IN THE CENTER POSITION
 - a. MANUALLY MOVE FROM END TO END
 - b. DISASSEMBLE, INSPECT, AND CLEAN
- B. MANUAL CONTROL VALVE FAILURE

3. CHECK SHEAR END HYDRAULIC CYLINDER

- A. INTERNAL BYPASS
- B. PISTON/ROD FAILURE

P35 SERVICE LOGIC TREE

MACHINE DOES NOT SEEM TO HAVE ENOUGH PRESSURE TO SHEAR

FIRST INSTALL A PRESSURE GAUGE ON THE PUMP OUTLET FITTING AND OBTAIN THE WORKING PRESSURE BY BOTTOMING OUT THE CYLINDER IN THE SHEAR DOWN (CYLINDER EXTENSION) AND THE SHEAR UP (CYLINDER RETRACTION) POSITIONS. THE PRESSURE READING SHOULD BE 3500 PSI ON THE SHEAR DOWN AND 1250 PSI ON THE SHEAR UP.

IF THE PRESSURES ARE CORRECT, CHECK THE FOLLOWING:

1. THE TONNAGE RATING OF THE MATERIAL BEING SHEARED
2. TYPE OF MATERIAL BEING USED
 - A. MACHINE CAPACITIES ARE RATED ON MATERIAL WITH A TENSILE STRENGTH OF 60,000 POUNDS PER SQUARE INCH
 - B. TORCH CUTTING OF SOME MATERIALS INCREASE THEIR HARDNESS
3. PROPER KNIFE CLEARANCES-.007" TO .010"

A. EXCESSIVE CLEARANCE WILL INCREASE TONNAGE NEEDED TO SHEAR

4. ARE THE KNIVES SHARP
5. IS THE MATERIAL BEING CLAMPED TIGHT BY THE HOLDDOWN

IF THE PRESSURES ARE INCORRECT, CHECK THE FOLLOWING:

1. IS THE PRESSURE GAUGE GIVING AN ACCURATE READING
1. REMOVE THE FOLLOWING HYDRAULIC VALVE CARTRIDGES IN THE FOLLOWING ORDER. INSPECT FOR CONTAMINATION OR VISUAL FAILURE. IF FAILURE IS NOT OBVIOUS, CLEAN AND REINSTALL. TRY MACHINE OPERATION AFTER EACH CARTRIDGE INSPECTION.
 - A. RPEC-FCN RELIEF VALVE IN RELIEF BLOCK ON PUMP
 - B. P1 RELIEF VALVE IN THE MANUAL CONTROL VALVE
2. CHECK MANUAL CONTROL VALVE ASSEMBLY
 - A. SPOOL STUCK IN THE CENTER POSITION
 - a. MANUALLY MOVE FROM END TO END
 - b. DISASSEMBLE, INSPECT, AND CLEAN
 - B. MANUAL CONTROL VALVE FAILURE
3. CHECK SHEAR END HYDRAULIC CYLINDER
 - A. INTERNAL BYPASS
 - B. PISTON/ROD FAILURE

P35 SERVICE LOGIC TREE

MOTOR STARTER OVERLOAD(S) KICK OUT

1. MACHINE OVERHEATING

- A. CHECK FLUID LEVEL IN THE RESERVOIR
- B. INSUFFICIENT CONTROL VOLTAGE TO THE REXROTH DIRECTIONAL CONTROL COILS NOT ALLOWING THE REXROTH SPOOL TO MOVE COMPLETELY OVER CREATING AN OBSTRUCTION FOR THE HYDRAULIC FLUID
 - a. INSUFFICIENT INCOMING VOLTAGE TO THE MACHINE CREATING LOW CONTROL VOLTAGE OUT OF THE TRANSFORMER
 - b. ARE ALL TERMINALS AND CONNECTIONS IN THE CONTROL VOLTAGE CIRCUIT TIGHT
 - c. FAILING TRANSFORMER
- C. INCORRECT USE OF THE MANUAL CONTROL VALVE. PARTIAL SPOOL MOVEMENT WILL CAUSE AN ORVICE SITUATION CREATING HEAT
- D. CYLINDER(S) BOTTOMING OUT DURING RETRACTION AND/OR EXTENSION CAUSING HYDRAULIC FLUID TO BY-PASS OVER THE RELIEF VALVE
 - a. IMPROPER USE OF THE LIMIT SWITCH WITH THE FOOT PEDAL
 - b. IMPROPER USE OF THE MANUAL CONTROL VALVE
- E. HEAT BUILD UP DUE TO A CONTAMINATED FILTER ELEMENT
 - a. REPLACE FILTER ELEMENT (REPLACE EVERY 3 MONTHS)
- F. HEAT BUILD UP DUE TO A CONTAMINATED INLET SCREEN
 - a. CLEAN THE INLET SCREEN
- G. ANY ORVICE TYPE SITUATION IN THE HYDRAULIC SYSTEM. THIS SYMPTOM WILL NORMALLY BE ASSOCIATED WITH MACHINE MALFUNCTION
 - a. CONTAMINATED VALVE IN THE HYDRAULIC VALVE BODY
 - b. RESTRICTED HOSE OR FITTING
 - c. KINKED HOSE

NOTE: THE HYDRAULIC SYSTEM OF THE PIRANHA IS PROBABLY THE MOST CRITICAL AREA OF THE MACHINE. THE MAJORITY OF ALL SERVICE PROBLEMS WILL BE DUE TO A CONTAMINATED HYDRAULIC SYSTEM. THESE SERVICE PROBLEMS CAN BE MINIMIZED BY ROUTINE MAINTENANCE OF THE HYDRAULIC SYSTEM.

FILTER ELEMENT REPLACEMENT. IT IS RECOMMENDED TO REPLACE THE FILTER ELEMENT EVERY 3 MONTHS, MORE FREQUENT WITH A HEAVY WORK LOAD AND BAD ENVIRONMENT

INLET SCREEN CLEANING. IT IS RECOMMENDED TO CLEAN THE INLET SCREEN ONCE A YEAR, MORE FREQUENT WITH A HEAVY WORK LOAD AND BAD ENVIRONMENT

- 2. IS THE CORRECT SIZE OF OVERLOADS BEING USED. REFER TO THE MACHINE MANUAL FOR THE CORRECT SIZE

3. OVERLOAD(S) FAILURE

4. MACHINE STARTER OVERLOAD BLOCK FAILURE

5. IS THE INCOMING VOLTAGE CORRECT

A. IS THE INCOMING VOLTAGE THE SAME AS WHAT THE MACHINE IS WIRED FOR

B. CHECK INCOMING VOLTAGE TO THE BUILDING MAIN DISCONNECT BOX

C. CHECK MAIN DISCONNECT FUSES OR BREAKERS

a. ARE THE FUSES OR BREAKERS THE CORRECT SIZE

b. CHECK FUSE OR BREAKER CONDITION

c. ARE ALL CONNECTIONS TIGHT

D. CHECK VOLTAGE FROM THE MAIN DISCONNECT BOX TO THE INPUT SIDE OF THE MACHINE STARTER (L1, L2 AND L3)

a. IS THE POWER CORD THE CORRECT SIZE

b. CHECK POWER CORD AND/OR PLUG CONDITION

c. ARE ALL CONNECTIONS TIGHT

6. CHECK VOLTAGE FROM THE OUTPUT SIDE OF THE MACHINE STARTER (T1, T2, AND T3) TO THE MOTOR

A. IS THE POWER CORD THE CORRECT SIZE

B. CHECK POWER CORD CONDITION

C. ARE ALL CONNECTIONS TIGHT

12. CHECK MOTOR WIRING (SEE MACHINE MANUAL OR PLATE ON MOTOR)

13. MOTOR FAILURE

NOTE: Do not punch a hole with a smaller diameter than the thickness of the material.

[illegible]

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. Voltmeter.

RECOMMENDED FASTENER TORQUE SPECIFICATIONS

Unless Otherwise Specified

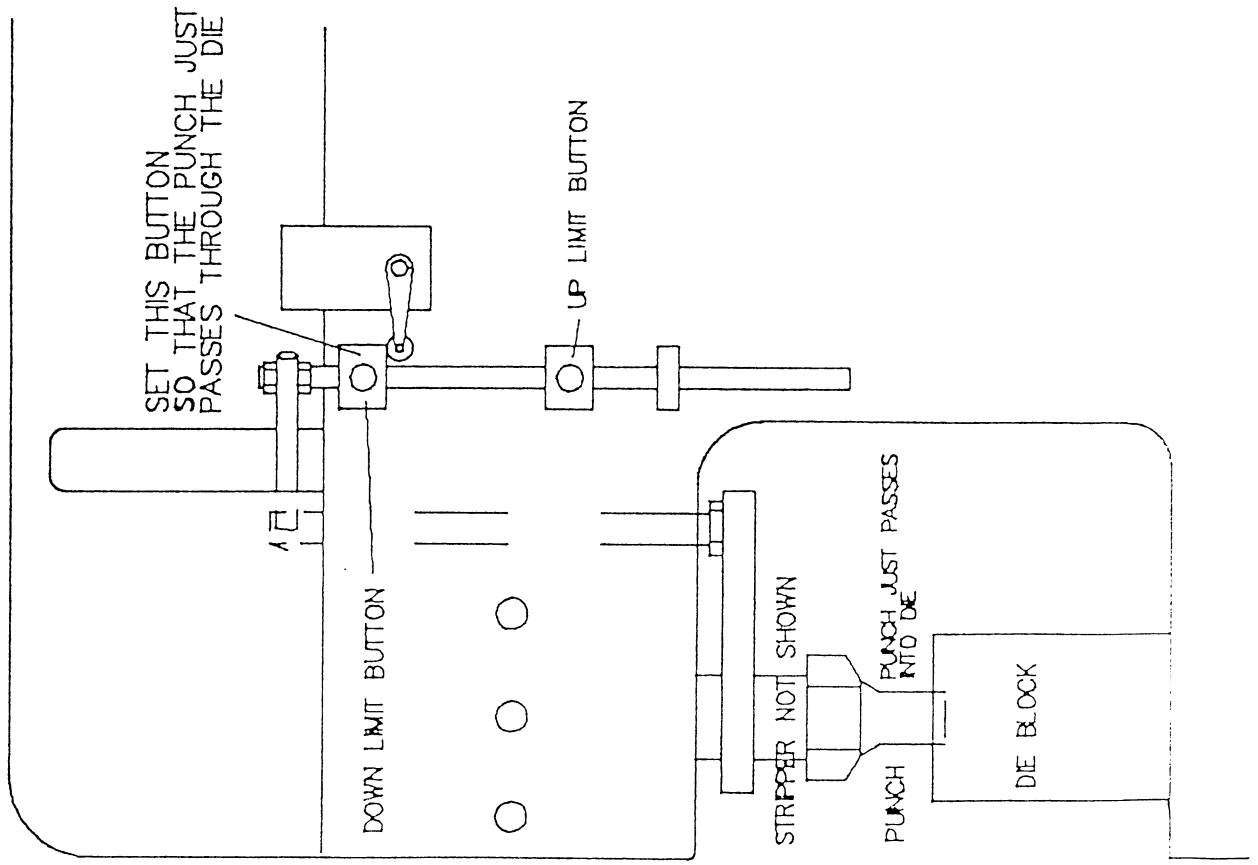
Bolt Size	Torque (Ft-Lbs)
3/8/16	45
7/16/14	70
1/2/13	100
5/8/11	210
3/4/10	375
Jam Nut	600

PUNCH & DIE CHART

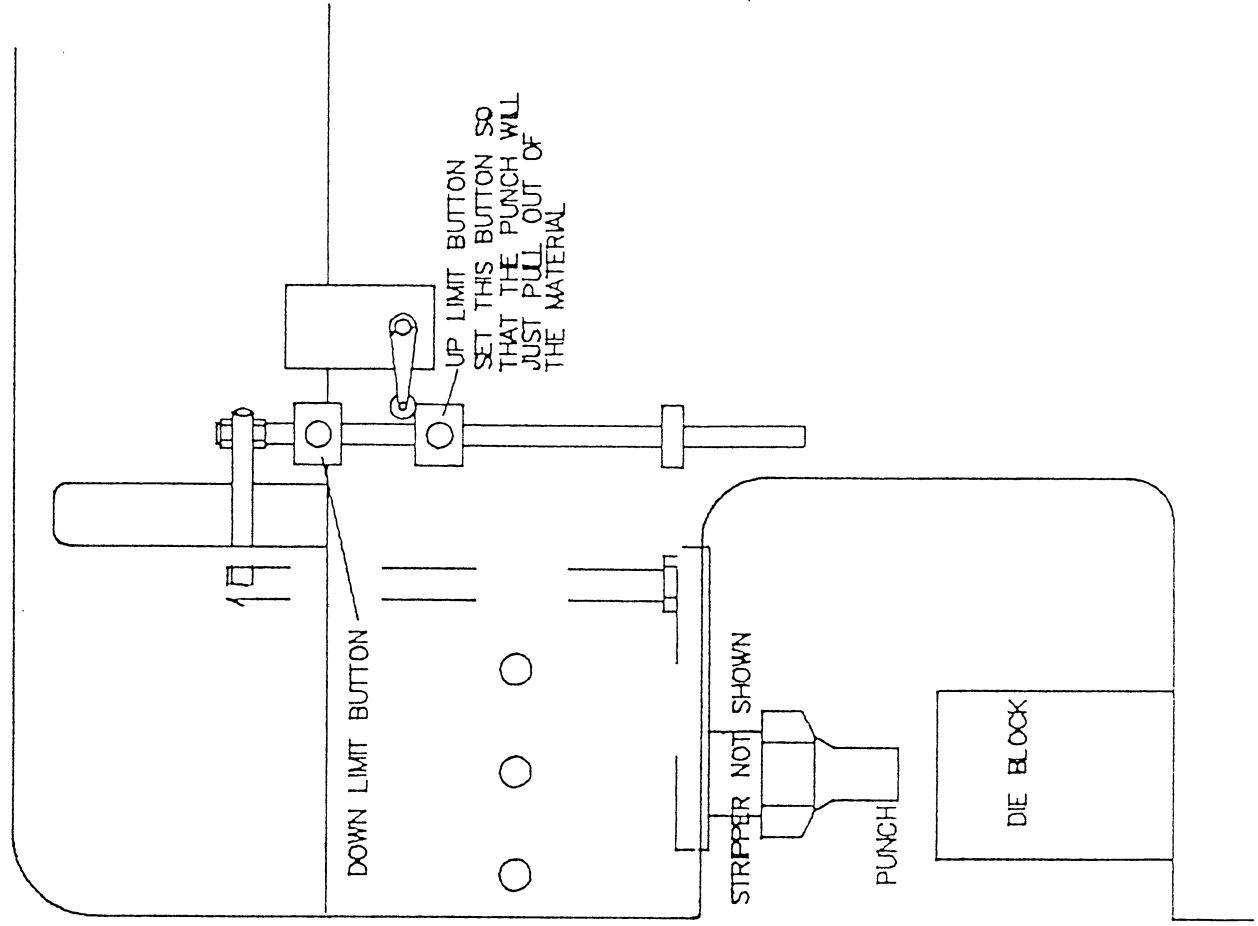
CLEARANCE CHART FOR STEEL

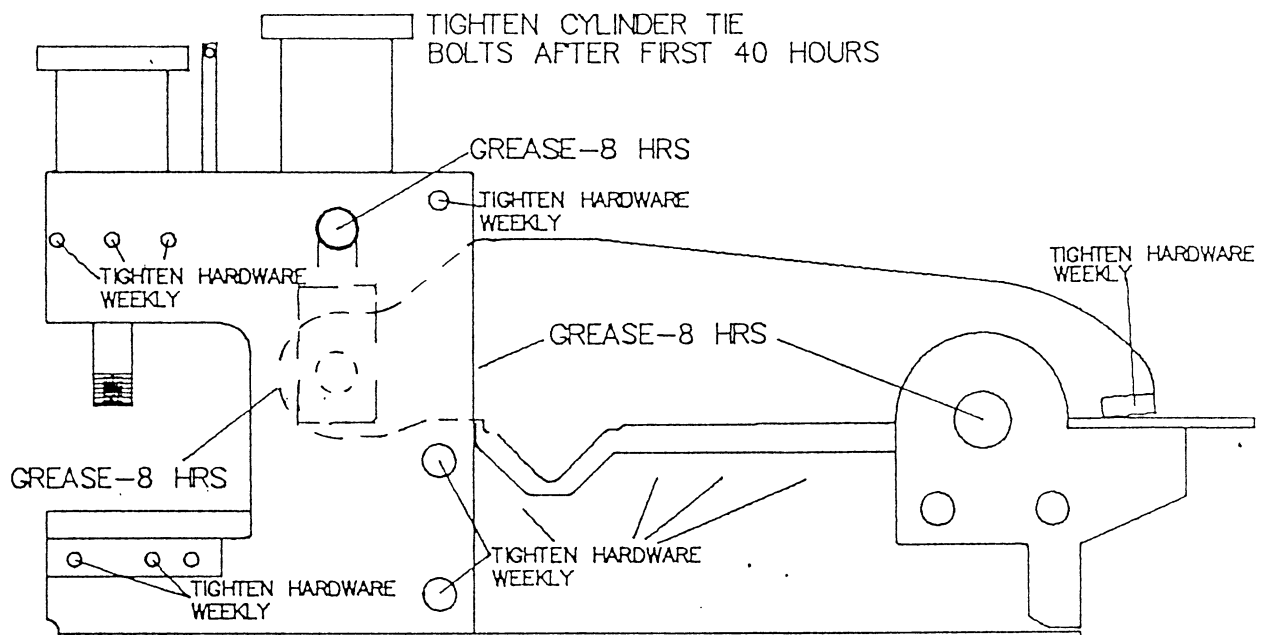
Gauge	Approx. Thickness	Clearance Add to Punch Size	Gauge	Approx. Thickness	Clearance Add to Punch Size
30	0.012	Slip fit	17	0.0538	0.005
29	0.0135	Slip fit	16	0.0598	0.005
28	0.0149	Slip fit	15	0.0673	0.007
27	0.0164	Slip fit	14	0.0747	0.007
26	0.0179	Slip fit	13	0.0897	0.01
25	0.0209	0.002	12	0.1046	0.01
24	0.0239	0.002	11	0.1196	0.01
23	0.0269	0.002	10	0.1345	1/64"
22	0.0299	0.003	9	0.1345	1/64"
21	0.0329	0.003	8	0.1644	1/64"
20	0.0359	0.003	7	0.1793	1/64"
19	0.0418	0.003	1/4 to 1/2" plate		1/32"
18	0.0478	0.005	1/2" plate and over		1/16"

SETTING DOWN LIMIT

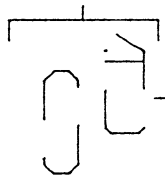


SETTING UP LIMIT





FILTERS MOUNTED ON
OIL TANK INSIDE CABINET



CHANGE SPIN ON FILTER
AFTER FIRST 8 HOURS
THEN 2 TIMES PER YEAR

CLEAN INLET SCREEN
EVERY 6 MONTHS

CHANGE OIL USING DTE LIGHT 10W HYDRAULIC OIL
EVERY YEAR, MORE OFTEN IN DIRTY ENVIRONMENT

P11-35
SHOWN WITH HOOD
OFF OF CYLINDERS

OPERATING INSTRUCTIONS

The Piranha ironworker comes pre-assembled and pre-wired, requiring only the addition of hydraulic fluid in the reservoir to approximately 3" below the top of tank and a power source from a disconnect to the electrical enclosure box located inside the machine.

The unit can be started and stopped by the push-pull button switches. Pull to start the machine, push to stop the machine.

PUNCH END OPERATION

The punch end is electrically controlled with a footswitch. (see figure "F") The footswitch is used by plugging the twist lock cap into the twist lock receptacle located at the front of the machine. It works in conjunction with the toggle switch and limit switch, both located on the upper front of the machine. The footswitch is a three position switch allowing hands free operation. By fully depressing the footswitch lever, ram movement is downward until the limit setting is met (see "F2") or by allowing the footswitch lever to elevate to the center position, ram movement will stop (see "F3"). Completion of the downward cycle is accomplished by depressing the footswitch lever again. The ram will move down, until the limit switch setting is met (see "F4"). Removing foot pressure from the footswitch entirely allows the ram to move upward until the limit switch setting is met, completing the upstroke cycle (see "F5").

To set the stroke using the limit switch, use the following procedure:

1. Turn the foot pedal toggle switch to the "off" position.
2. Plug in the footswitch.
3. Fully depress the footswitch lever allowing the ram to lower.
4. Move the top limit switch button to make contact with the limit switch and stop the ram at the desired "down" position.
5. Turn the toggle switch to the "on" position.
6. Allow the footswitch lever to elevate, raising the ram.
7. Move the lower limit switch button to make contact with the limit switch and stop the ram to the desired "up" position.

NOTE: When punching, bending or using any attachment on the punch end of the machine, set the upper and lower limit buttons to allow for ¼" maximum clearance between the bottom or 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" due to an incorrect limit setting can damage the tooling and/or the machine. Always have the limit switch stop installed on the limit switch rod during these types of applications.

SHEAR END OPERATION

The shear end is manually controlled with the operating handle at the rear, on-side of the machine. The shear station is operated by moving the handle towards the punch end of the machine, lowering the beam to shear the flat, angle and round bar. When the handle is released, it will return to the center position stopping beam movement instantly. Moving the handle towards the coper end of the machine raises the beam to release the material. The coper/notcher station is operated by moving the handle towards the coper end, lowering the coper knife to cope and notch. Releasing the handle stops beam movement instantly. Moving the handle towards the punch end raises the coper knife.

The shear end can also be operated with a foot control. Attaching the cable to the punch end of the bracket operated the shear station. Depressing the toe of the pedal lowers the beam to shear flat, angle and round bar. Removing foot pressure allows the pedal to center, stopping beam movement. Depressing the heel of the pedal raises the beam to release the material. Attaching the cable to the coper end of the bracket operates the coper/notcher station. Depressing the toe of the pedal lowers the coper knife to cope and notch. Removing foot pressure allows the pedal to center, stopping knife movement. Depressing the heel of the pedal raises the coper knife.

Note: There is no limit switch for this station of the machine.

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 bolt 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. Switch the foot pedal toggle switch to the "OFF" position.
8. Start the machine and plug the footswitch in. Depress the footswitch lever to lower the ram. Stop the ram movement when the punch is approximately 1/8" above the die.
9. 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.
10. Tighten the flanged nuts on the set screws to secure the die block firmly to the platen table.
11. Switch the foot pedal toggle switch to the "ON" position.
12. Allow the footswitch lever to elevate, raising the ram.
13. Rotate the stripper back into position and adjust to a maximum distance of 1/4" above the work material.
14. Set the limit switch buttons to control the length of the stroke.
15. Start operation.

BENDING ATTACHMENT ALIGNMENT

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

1. Turn the machine off with the ram in the up position and all the other tooling removed from the punch.
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.
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. Switch the foot pedal toggle switch to the "OFF" position.
8. Start the machine and plug in the foot pedal. Depress the footswitch lever to lower the ram. Stop the ram movement when the ram adapter is approximately 1/8" above the bending punch.
9. Align the bending punch to the ram adapter and carefully lower the ram into the bending punch collar until fully seated.
10. Rotate the complete bending attachment parallel to the front edge of the platen table and tighten the clamping bolt on the bending punch collar.
11. Secure the four wedge blocks to the platen table to position the bending die on the center line of the bending punch.
12. Set the limit switch buttons to control the length of the stroke and the degree of the bend (see the procedure previously listed).
13. 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 the machine.

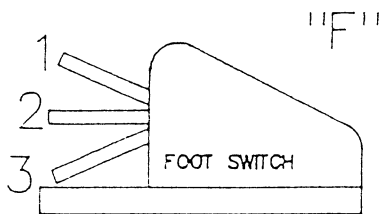
Replace the limit switch clamp in the original position when finished with the bending application.

Hold Down Assembly Adjustment

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

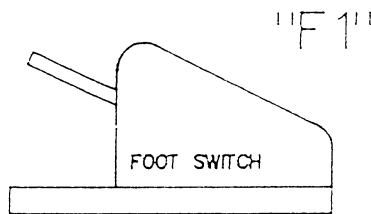
1. Raise the upper beam to its full upstroke limit.
2. Loosen the (3) 5/8" flanged nuts without removing them from the studs.
3. Insert material to be sheared under the hold down assembly.
4. Tighten the flanged nuts to allow 1/8" clearance between the hold down bar and material.

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

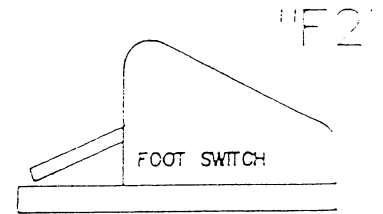


FOOT SWITCH LEVER POSITIONS

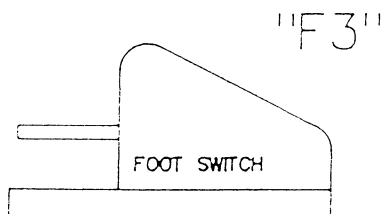
- 1) RAM MOVES UP
- 2) RAM IS STOPPED
- 3) RAM MOVES DOWN



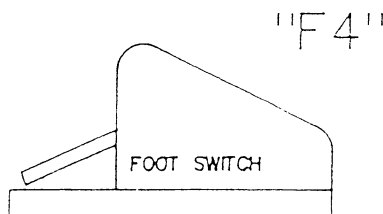
FOOT SWITCH LEVER
FULL UP POSITION
RAM ELEVATES
TO LIMIT SETTING



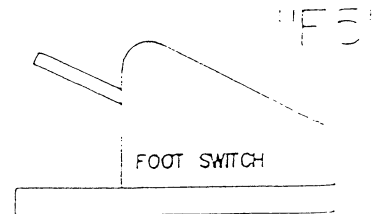
FOOT SWITCH LEVER
DEPRESSED PAST CENTER
RAM MOVES DOWN
TO LIMIT SETTING



FOOT SWITCH LEVER
NEUTRAL POSITION
RAM TRAVEL
IS HALTED



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



FOOT SWITCH LEVER
FULL UP POSITION
RAM ELEVATES
TO LIMIT SETTING

ORDERING REPAIR PARTS FOR A PIRANHA

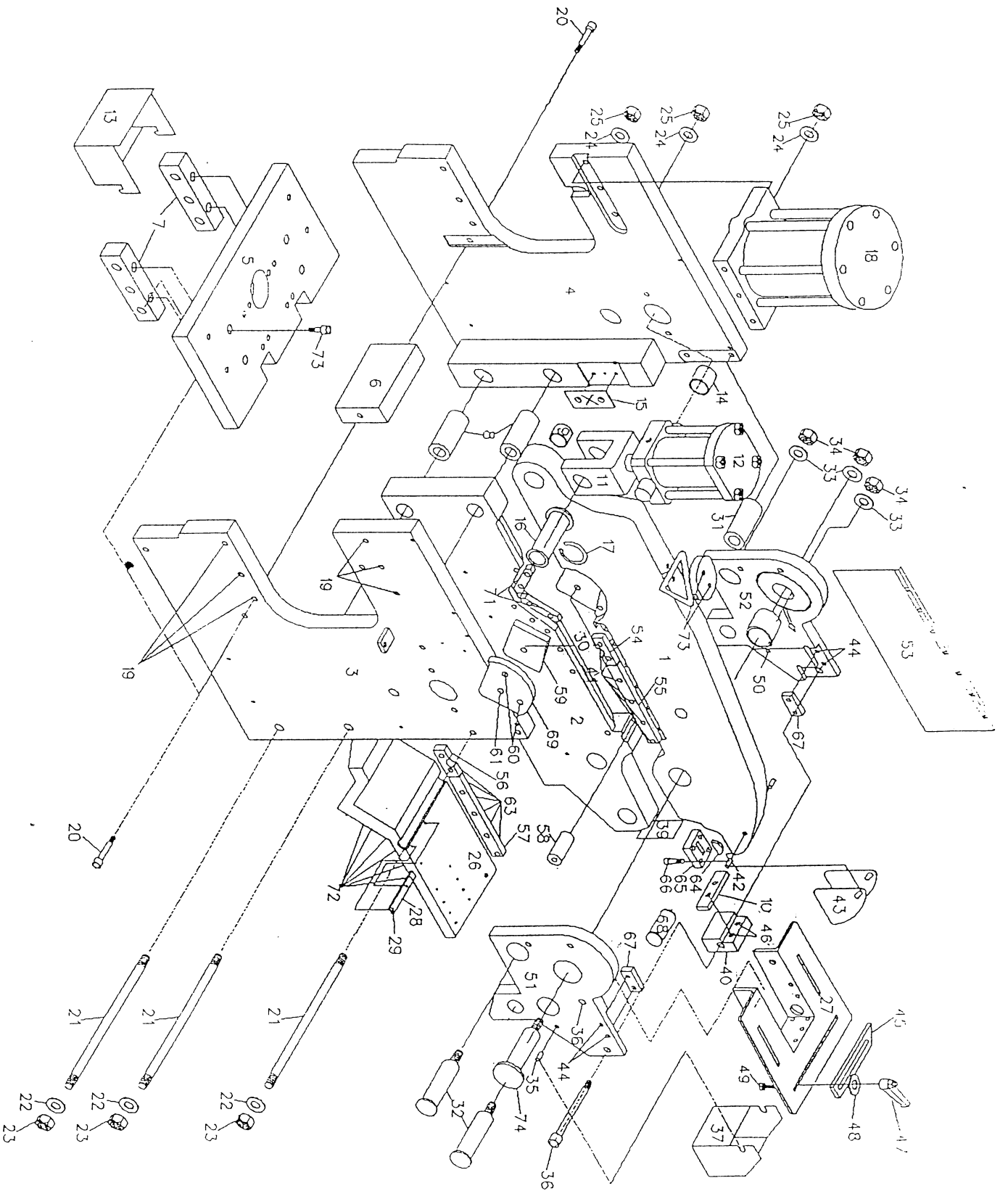
The following assembly parts lists are shown in four columns. In the first column are the index numbers of the parts illustrated. The second column contains the Mega Manufacturing part number, followed by the description in the third column. The last column shows the quantity of parts required for the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

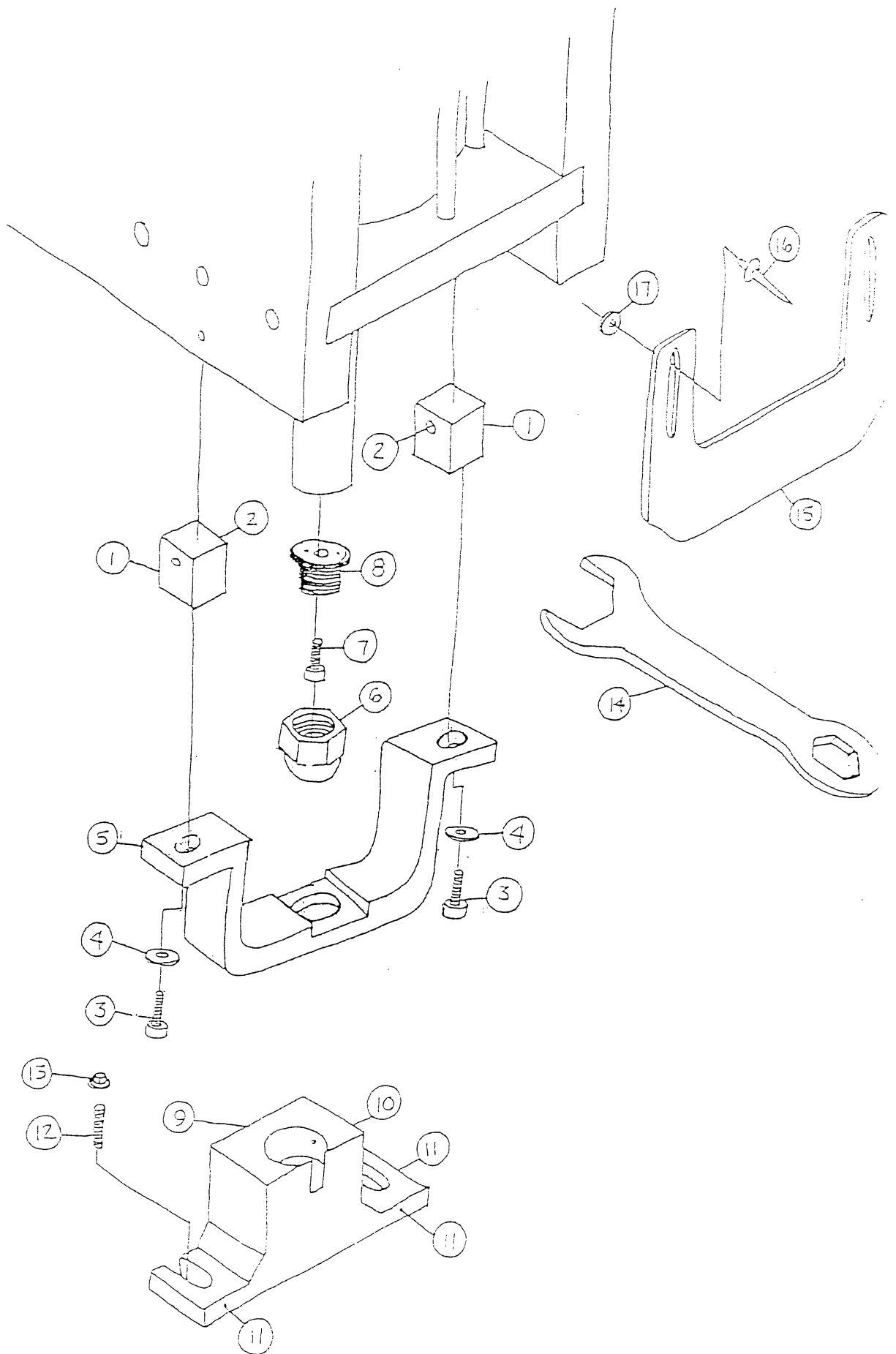
1. Give complete serial number of the machine. The machine serial number is stamped on the name plate and is located on the right hand side of the machine (when facing the punch end).
2. Give part number, description, and the quantity of parts that you require.
3. Specify each individual piece required. 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



PII35 BASIC UNIT

Figure And Index No.	Part Number	Description	Qty.
1	0272100	Upper Beam	1
2	0272101	Lower Beam assy	1
3	0272113	Support C-on side	1
4	0272114	Support C-off side	1
5	0272120	Platen Table	1
6	0272116	Support C Gusset	1
7	0272115	Platen support block	2
8	0272160	Press pin	2
9	0320168	Cylinder pin bushing	1
10	0220276	Lower coper end knife	1
11	0272152	Clevis	1
12	0272700	Rear Cylinder	1
13	0272143	Front chip bucket	1
14			
15	0272145	Bronze wear plate	1
16	0272164	Clevis pin	1
17	0521055	E-50 ST-PA rotor clip	2
18	0271700	Front Cylinder	1
19	0531086	1/2" x 1 3/4" SHCS	3
20	0531081	1/2" x 1 1/4" SHCS	2
21	0272156	1" x 12-1/2" thru bolt	3
22	0531305	1" black washer	3
23	0531260	1"-NF ND Hex nut GR8	3
24	0531305	1" black washer	3
25	0531260	1"-NF ND Hex nut GR8	3
26	0220122	Combo shear table	1
27	0220124	Coper Table Assy	1
28	0220140	Plate Shear Guide	1
29	0531000	1/4" x 1/2" SHCS	2
30	0220167	Angle knife bushing	1
31	0272155	Thru bolt spacer	1
32	0220160	Machine pin	2
33	0531303	1.535 ID x ODX.255 Washer	2
34	0531270	1 1/2" NF JN	2
35	0531352	1/2" x 1 1/2" roll pin	2
36	0531097	5/8" x 6 1/2" SHCS	1
37	0220143	Rear chip bucket	1
38	N/A	N/A	
39	0321409	Coper end filler plt	1
40	0220117	Coper end knife support	1
41	0531069	7/16" x 1 1/2" SHCS	6
42	0531351	3/8" x 1" roll pin	2
43	0220142	Coper guard assy.	1
44	0531069	7/16" x 1 1/2" SHCS	4
45	0330128	Coper Table Guide	3
46	0531071	7/16" x 2" SHCS	2
47	0531715	KP79 Handle *TF43K 1/2-13	3
48	0531307	1/2" flat plated washer	3
49	0531088	1/2" x 1 1/2" Carriage Bolt	3
50	0320170	Rear hing pin bushing	1
51	0220115	Coper Side Plate- On side	1
52	0220116	Coper Side Plate- Off side	1
53	0372415	Shear guard	1
54	0220270	Round bar blank	1
55	0220250	10" flat shear knife	1
56	0220270	Round bar blank	1
57	0220250	10" flat shear knife	1
58	0220154	Urethane Spacer	1
59	0220275	Upper angle knife	1
60	0531081	1/2" x 1 1/4" SHCS	2
61	0531090	5/8" x 1 3/4" SHCS	1
62	N/A	N/A	
63	0531071	7/16" x 2" SHCS	10
64	0531330	3/8" x 2 3/4" woodruff key	1
65	0220277	Upper coper knife	1
66	0531050	3/8-16" x 1 SHCS	4
67	0220278	Lower coper side knife	2
68	0220155	Black pipe spacer	1
69	0220146	Angle knife cover	1
70	N/A	N/A	
71	0220274	Lower angle knife	2
72	0531092	5/8-11" x 2 1/4" SHCS	9
73			
74	0220166	Rear hinge pin	1



PII35/SEPP35 PUNCH ASSEMBLY

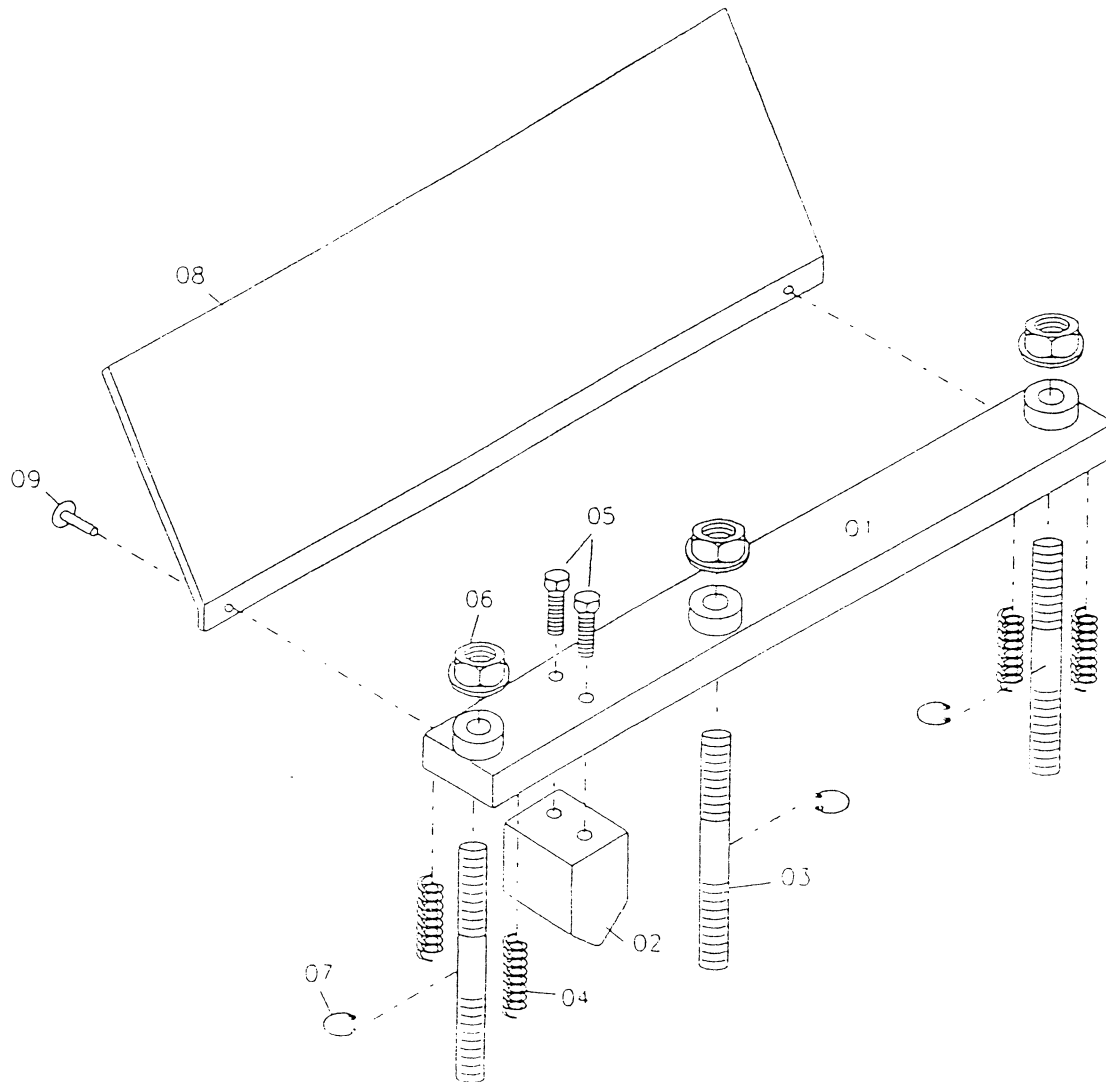
Figure And Index No.	Part Number	Description	Qty.
1	0272404	Stripper Mount Blocks	2
2	0531086	1/2" x 1 3/4" SHCS	2
3	0531081	1/2" x 1 1/4" SHCS	2
4	0531307	1/2" Flat Plated Washer	2
5	0272401	Stripper Assy	1
6	0272126	#37 Coupling Nut Fig.16	1
7	0531081	1/2" x 1 1/4" SHCS	1
8	0272125	Fig.16 Punch Stem	1
9	02304001	1 13/16" Die Block Fig.55	1
10	0531055	3/8" x 1/2" SSS	1
11	0531002	1/4" x 3/4" SSS	3
12	0531100	5/8" x 3" SSS	2
13	0531251	5/8" CL-4-Flanged Nut	2
14	0231410	2" Coupling Wrench	1
15	0380401	Punch Guard	1
16	0531012	Rivet	2
17	0531013	Punch Guard Spacer	2

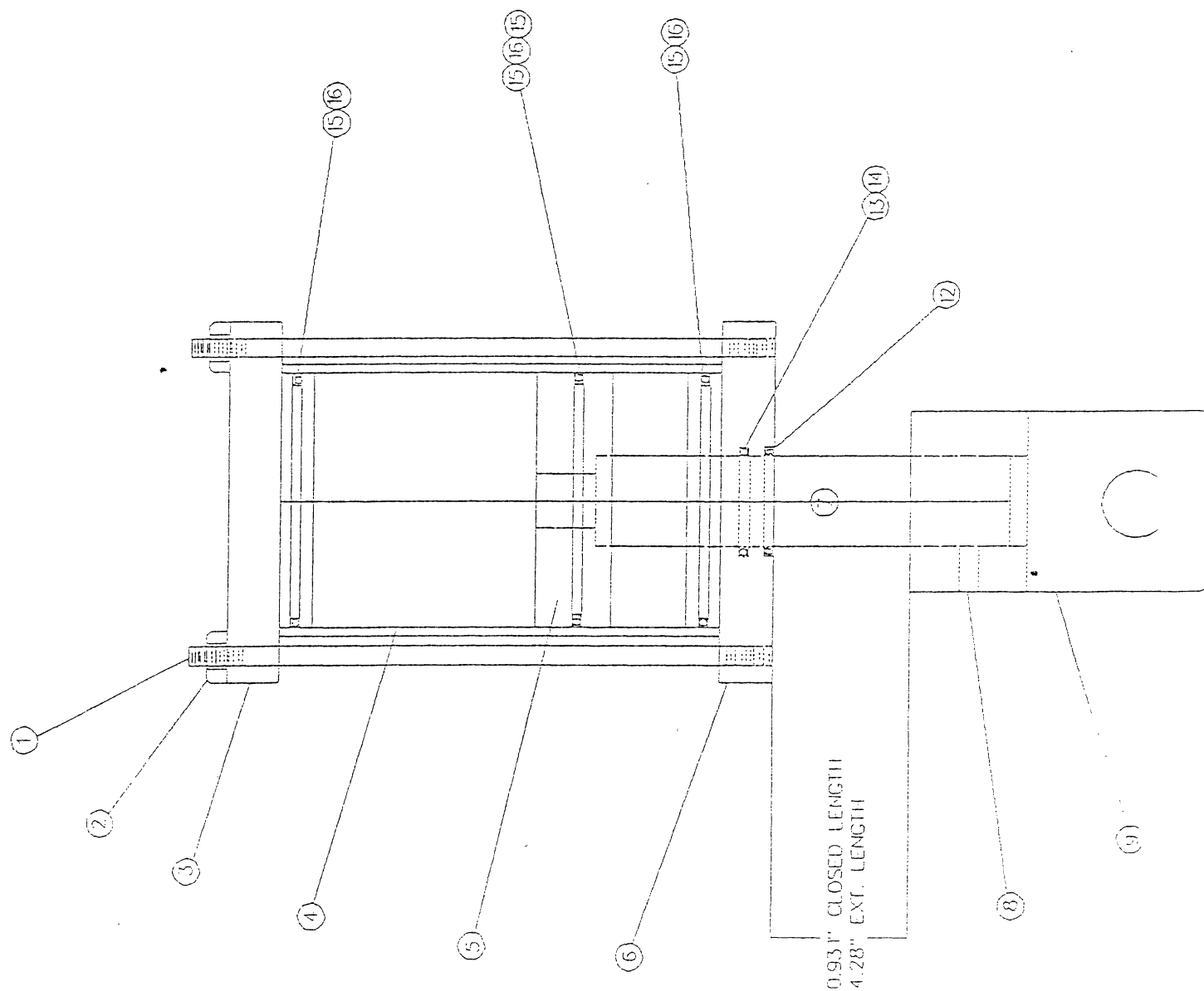
P35 HOLD DOWN ASSEMBLY

PART #0220200

Figure And Index No.	Part Number	Description	Qty.
RP - 1	0320200	Hold Down Bar	1
- 2	0320204	Angle Block-Hold Down	1
- 3	0320201	5/8 x 4 Stud W/Groove	3
- 4	0320208	Hold Down Springs	4
- 5	0521025	3/8 x 1 3/4 HHCS	2
- 6	0531251	5/8 CL-4-FLDG Nut	3
- 7	0520155	5133-50 Snap Ring	3
- 8	0220203	Hold Down Guard	1
- 9	0531012	AD612BS2F Rivet	2

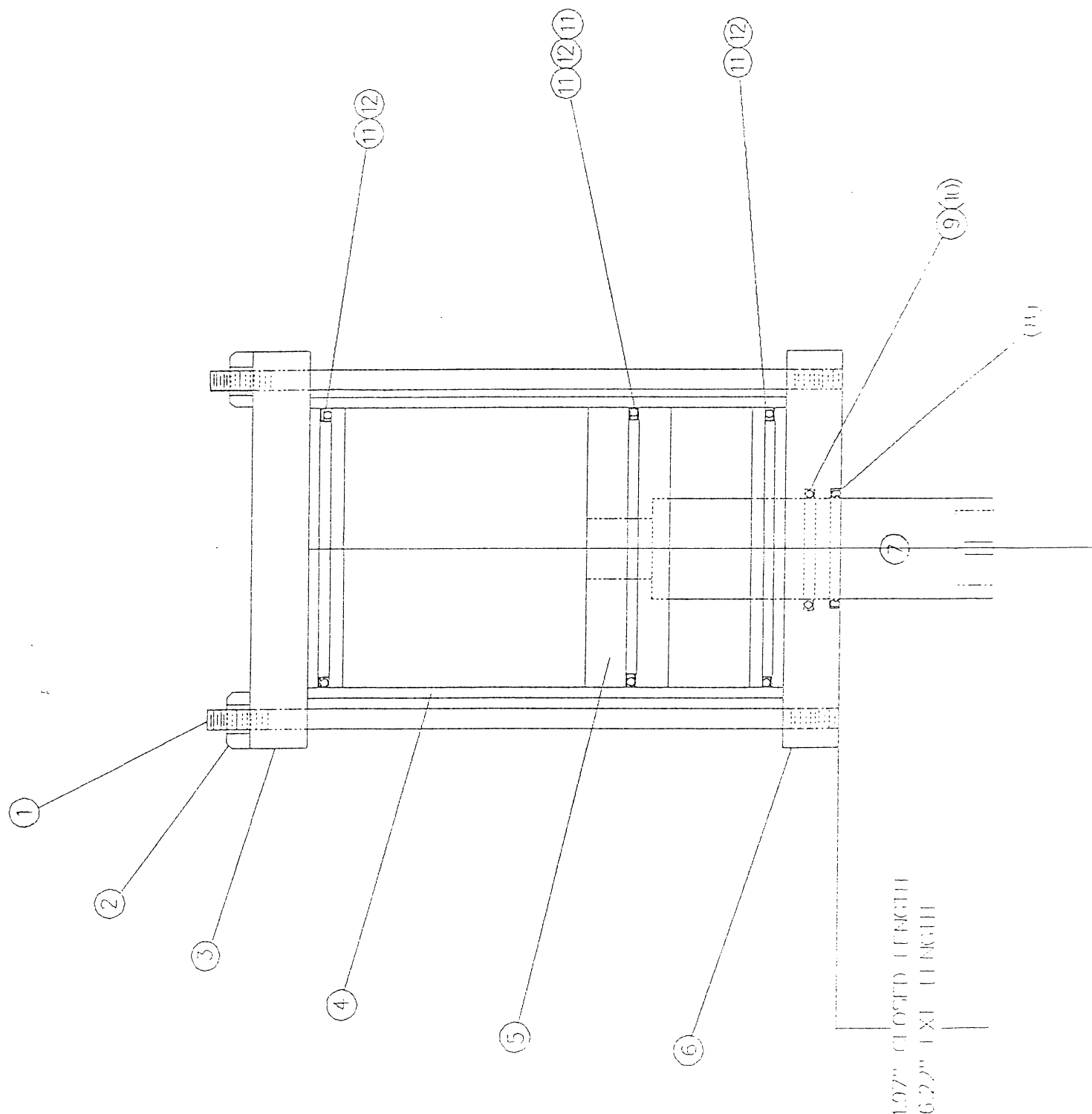
NOTE: Hold Down Assembly, #0220200 Includes Index Numbers 1, 2 & 5





**P35 FRONT CYLINDER ASSY.
0271700**

1	0371706	7/8" X 11 3/4" Front Cylinder Bolt	4
2	0571204	7/8" - 9 A325 Hex Nut	4
3	0371702	5" Cylinder End Cap	1
4	0371703	Front Tube S/P35	1
5	0371701	5" Cylinder Piston	1
6	0371704	5" Cyl. Shelf Cap, P/S35	1
7	0371705	Front Cyl. Piston Rod P35 - 10.375"	1
8	0571704	40389S National Seal	1
9	0571702	ARP-329 O-Ring	1
10	0571703	329 Backup Ring	1
11	0571700	ARP-425 O-Ring	4
12	0571701	425 Backup Ring	3

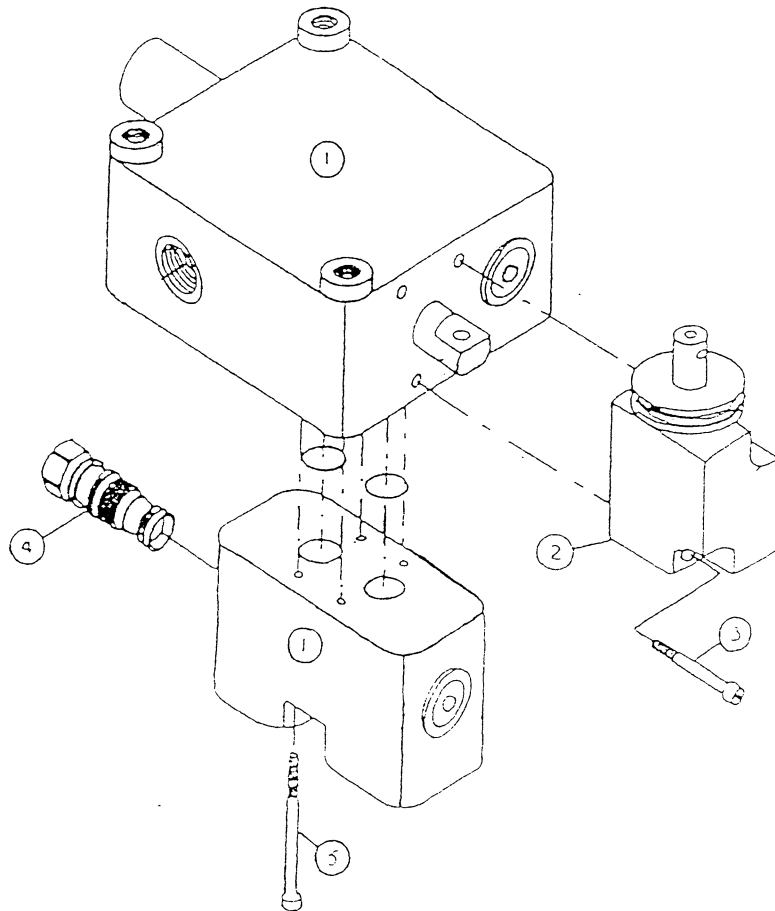


P35 Rear Cylinder Assy.
0272700

Figure And Index No.	Part Number	Description	Qty.
1	0372706	7/8" X 10 3/4" Rear Cylinder Tie	4
2	0571204	7/8"-9 A325 Hex Nut	4
3	0371702	5" Cylinder End Cap	1
4	0372703	Cylinder Tube	1
5	0371701	5" Cylinder Piston	1
6	0372704	5" Cylinder Trunnion Cap	1
7	0372705	Rear Cylinder Piston Rod	1
8	0531085	1/2"-13 X 1/2" SSS	1
9	0272152	Cylinder Clevis	1
10	0272164	Clevis Pin	1
11	0521055	E-50 ST-PA Rotor Clip	2
12	0571704	40389S National Seal	1
13	0571702	ARP 329 O-Ring	1
14	0571703	329 Backup Ring	1
15	0571701	425 Backup Ring	4
16	0571700	ARP 425 O-Ring	3

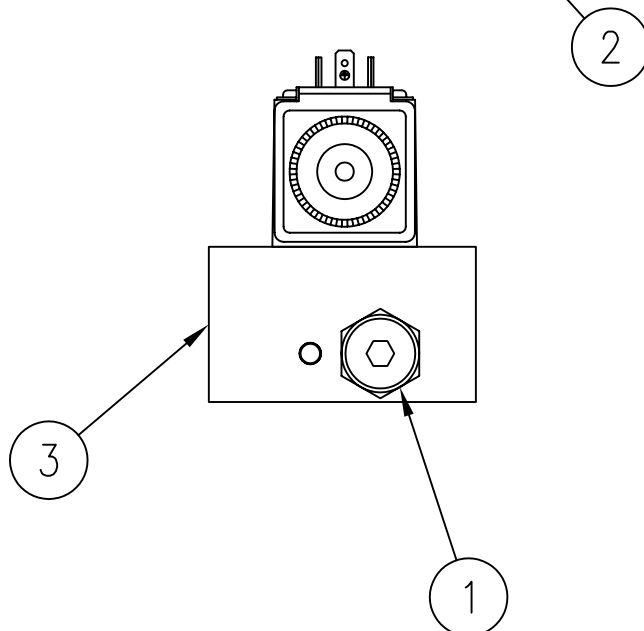
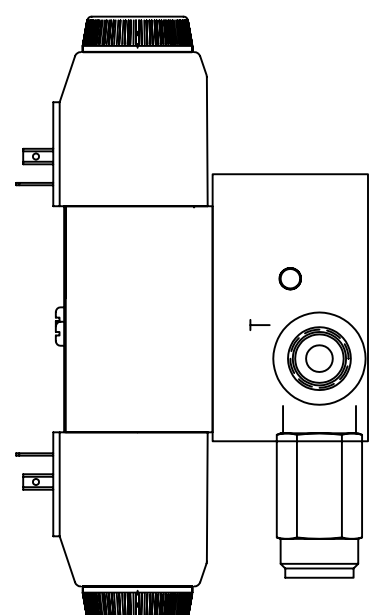
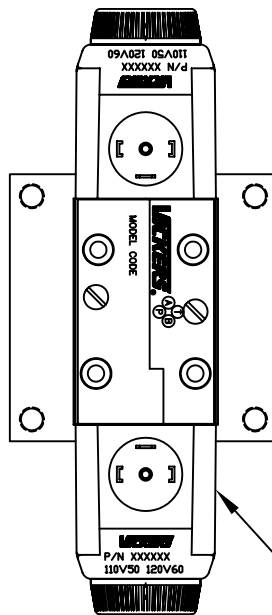
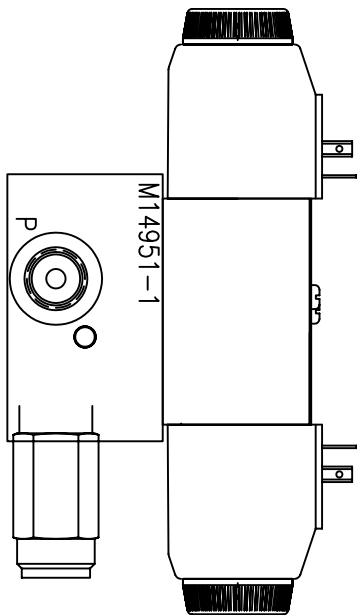
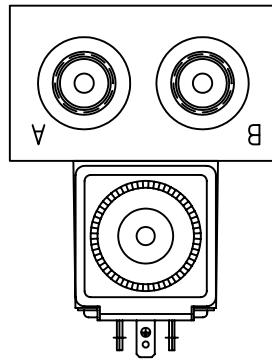
P II MANUAL VALVE ASSEMBLY PART #0272531

FIGURE AND INDEX NO.	PART NUMBER	DESCRIPTION	QTY
RP - 1	0571535	SD5 Valve	1
- 2	0571534	Cap Assembly	1
- 3		5 x 35 MM	2
- 4	0571531	P1 Cartridge	1
- 5	0571001	10-24 x 2 SHCS	4



VALVE BODY ASSEMBLY

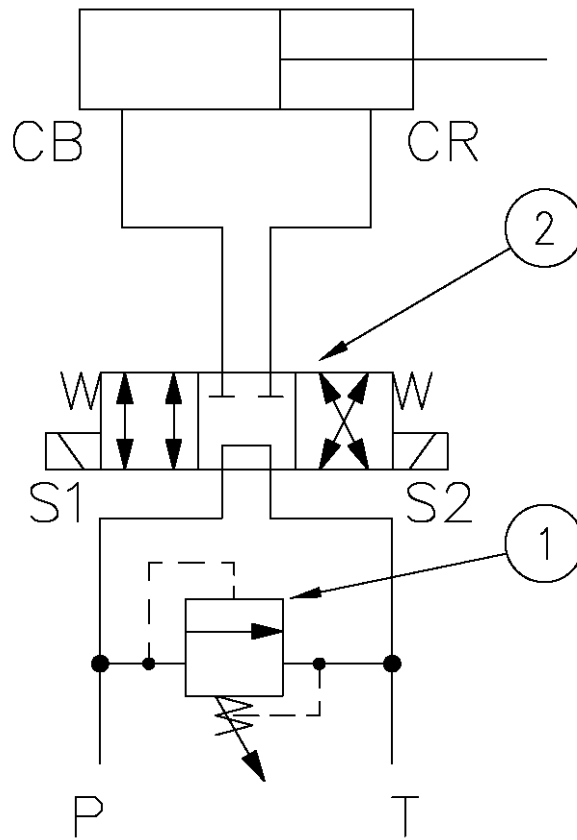
PART No. 0571568-1



VALVE BODY ASSEMBLY

PART # 0571568-1

Figure and Index No.	Part Number	Description	Qty.
RP-1	0571587-1	Pressure Relief Valve 46/35	1
-2	0531574-1	Directional Control Valve 4-way	1
-3	0571530-1	Valve Body	1

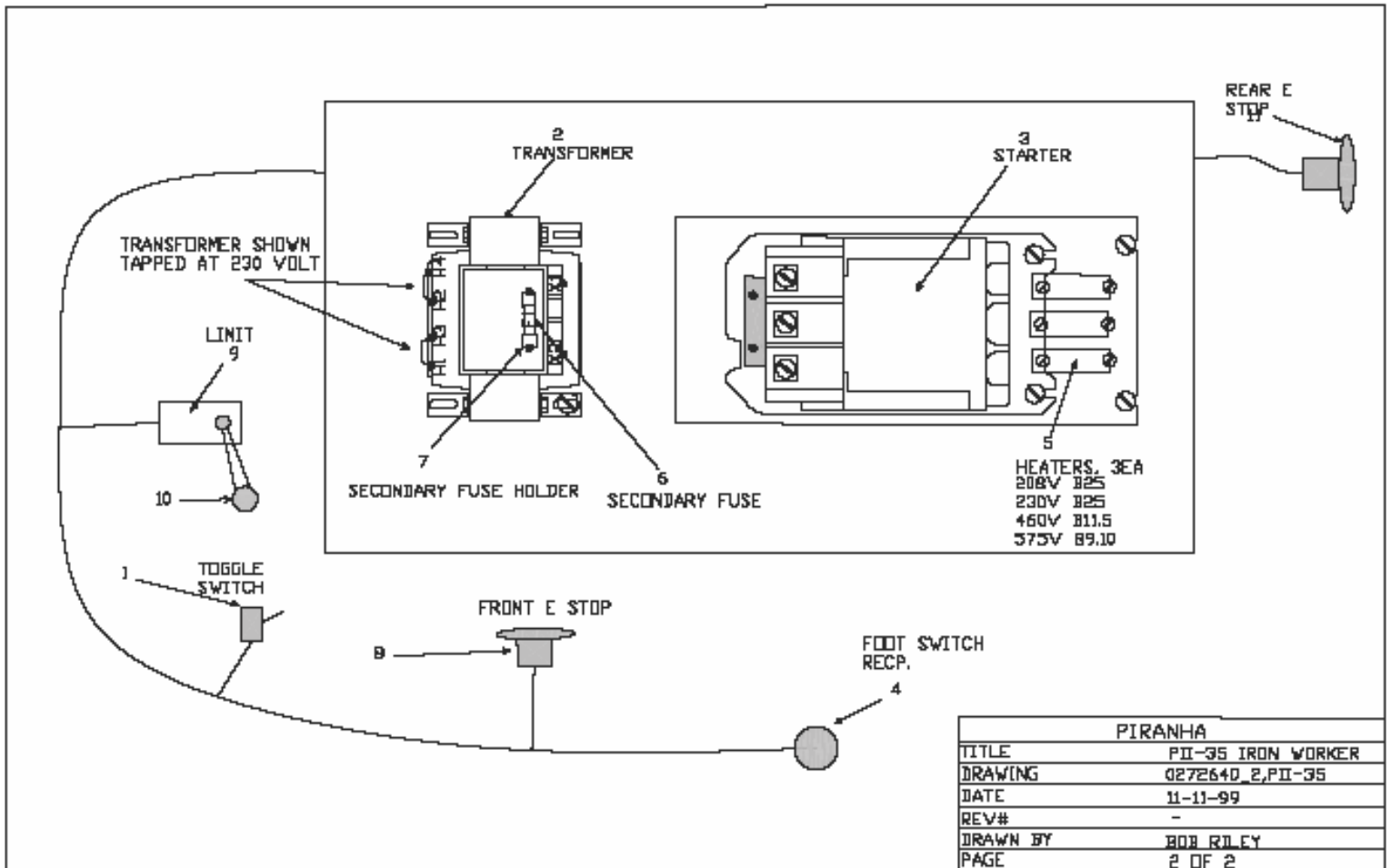


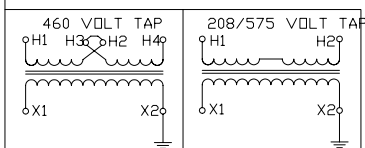
HYDRAULIC SCHEMATIC

PII35 ELECTRICAL ENCLOSURE

PART # 0272640

Figure and Index No.	Part Number	Description	Qty.
RP-1	0531619	Toggle Switch	1
-2	05216261	Transformer 220/440V	1
OR	05216281	Transformer 208V	1
OR	05216291	Transformer 600V	1
-3	0521641	Motor Starter	1
-4	0531618	Neutrix 4 Pole Receptacle	1
-5	0521616	B25 Heater Coils	3
OR	0521617	B11.5 Heater Coils	3
OR	0521618	B9.10 Heater Coils	3
-6	0521606	MDX 1.5 Fuse	1
-7	05316221	Fuse Holder	1
-8	05316121-1	Base and Contact	1
OR	0531643-1	Knob	1
-9	0581600-1	Limit Switch	1
-10	0581601	Lever Arm	1
-11	05316121-1	Base and Contact	1
OR	0531643-1	Knob	1

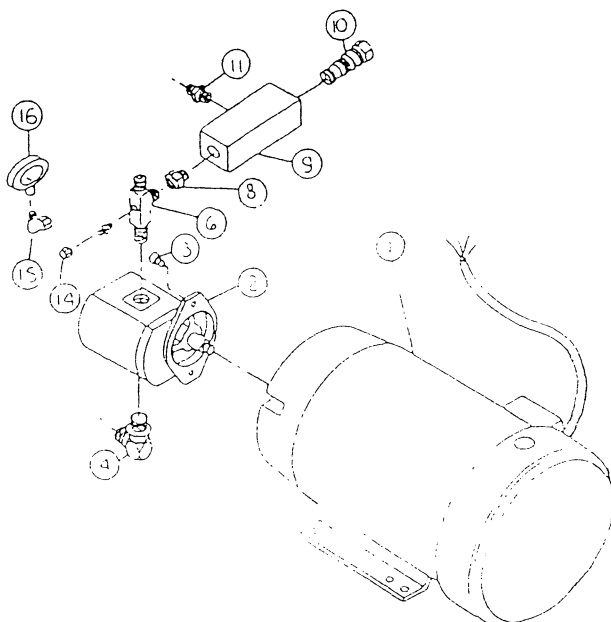


PAGE#

PII35 MOTOR ASSEMBLY

PART # 0272600

Figure And Index No.	Part Number	Description	Qty.
1	05216612	5 HP Motor 220/440 V (Hollow shaft)	1
OR	05216672	5 HP Motor 575 V (Hollow shaft)	1
OR	05216722	5 HP Motor Single Phase (Hollow shaft)	1
2	05715701	Pump	1
3	0531050	3/8" x 1" SHCS	2
4	0551510	6801-12-10 Fitting	1
5	N/A	N/A	
6	0571507	6851-10-10-10-6 Fitting	1
7	N/A	N/A	
8	0571543	6402-8-10 Fitting	1
9	0571533	Relief Block	1
10	0531562	RPEC-FCN Relief Valve	1
11	0571503	6400-6-8 Fitting	1
12	N/A	N/A	
13	N/A	N/A	
14	0541531	304-C-6 Cap	1
15	0531514	6503-6-4 Fitting	1
16	0541542	Pressure Gauge	1

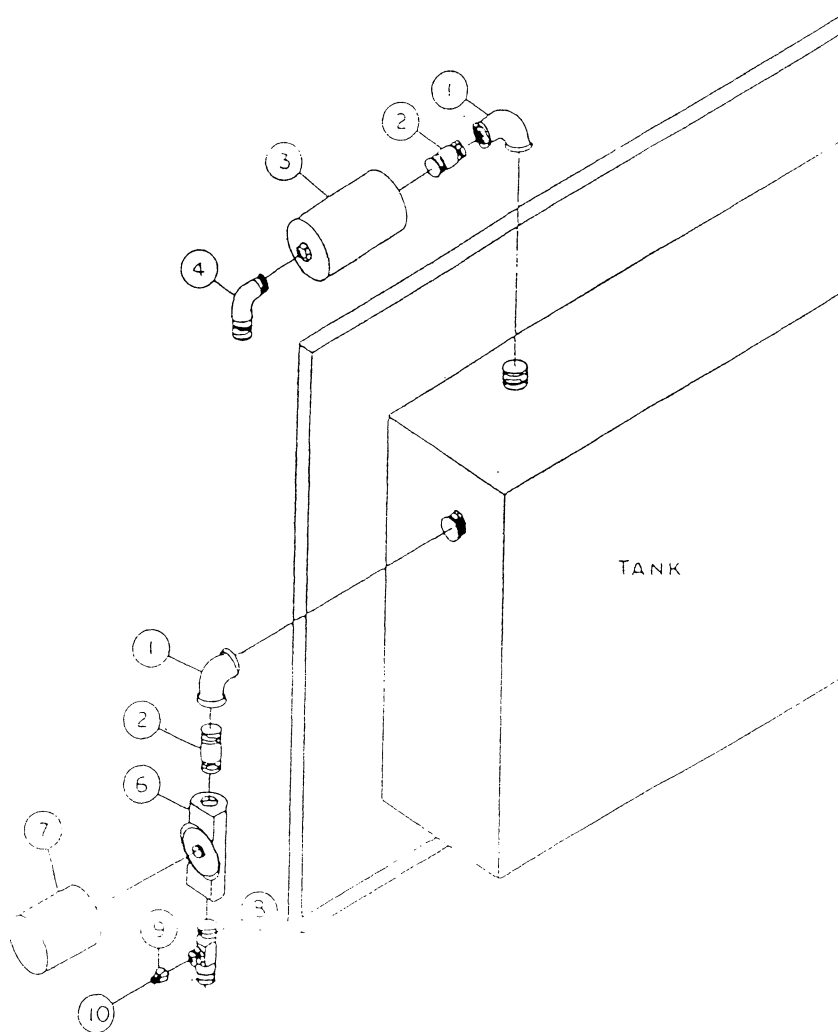


BALDOR 5HP MOTOR WIRING

LOW VOLTAGE			HIGH VOLTAGE			CANADIAN 550 V		
6	5	4	6	5	4	3	2	1
9	8	7	9	8	7	3	2	1
3	2	1	3	2	1	3	2	1
RED	WHT	BLK	RED	WHT	BLK	RED	WHT	BLK

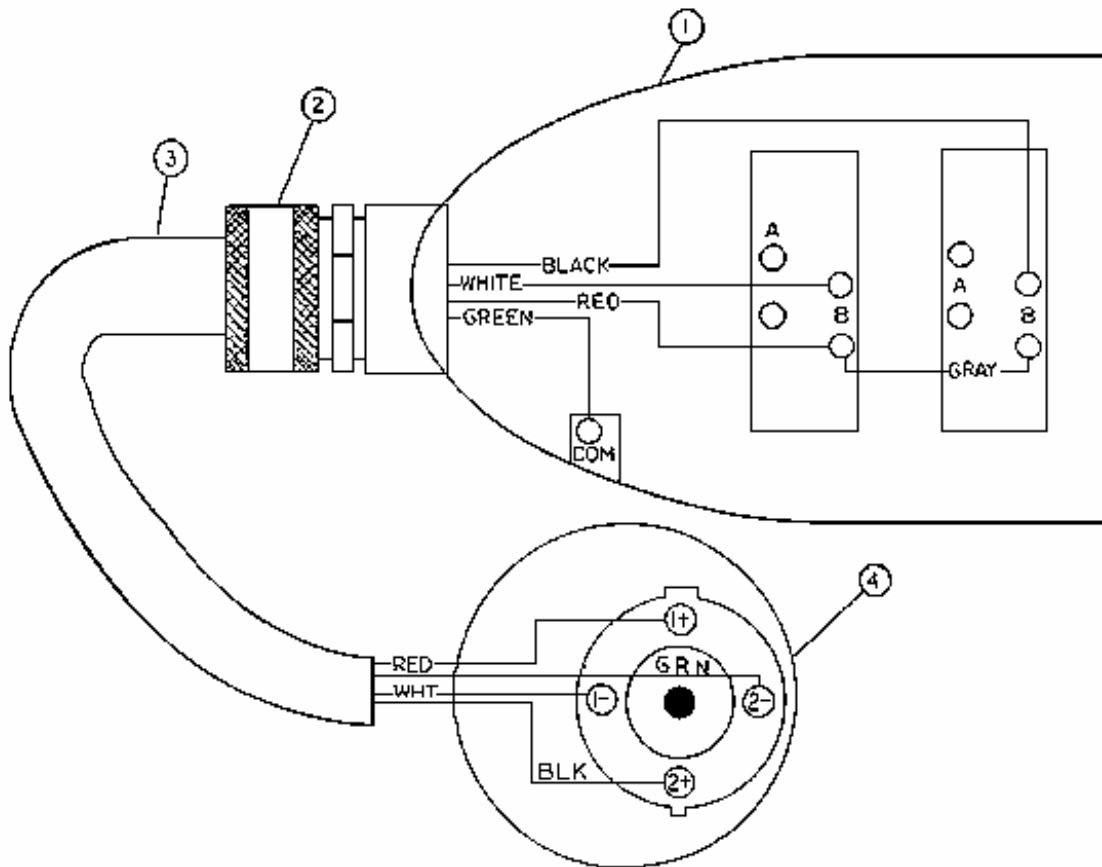
HYDRAULIC FILTER AND COMPONENTS

Figure And Index No.	Part Number	Description	Qty.
1	0571515	1" x 3/4" 90 Degree Pipe Elbow	2
2	0571516	3/4" Pipe Nipple	2
3	0571550	Inlet Screen	1
4	0541557	2501-12 Fitting	1
5	N/A	N/A	
6	0533514	Filter Housing	1
7	0533513	25 Micron Element	1
8	0571542	2605-12 Fitting	1
9	0571541	2406-12-6 Fitting	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	1
-4	0531617	4 Pole Plug	1

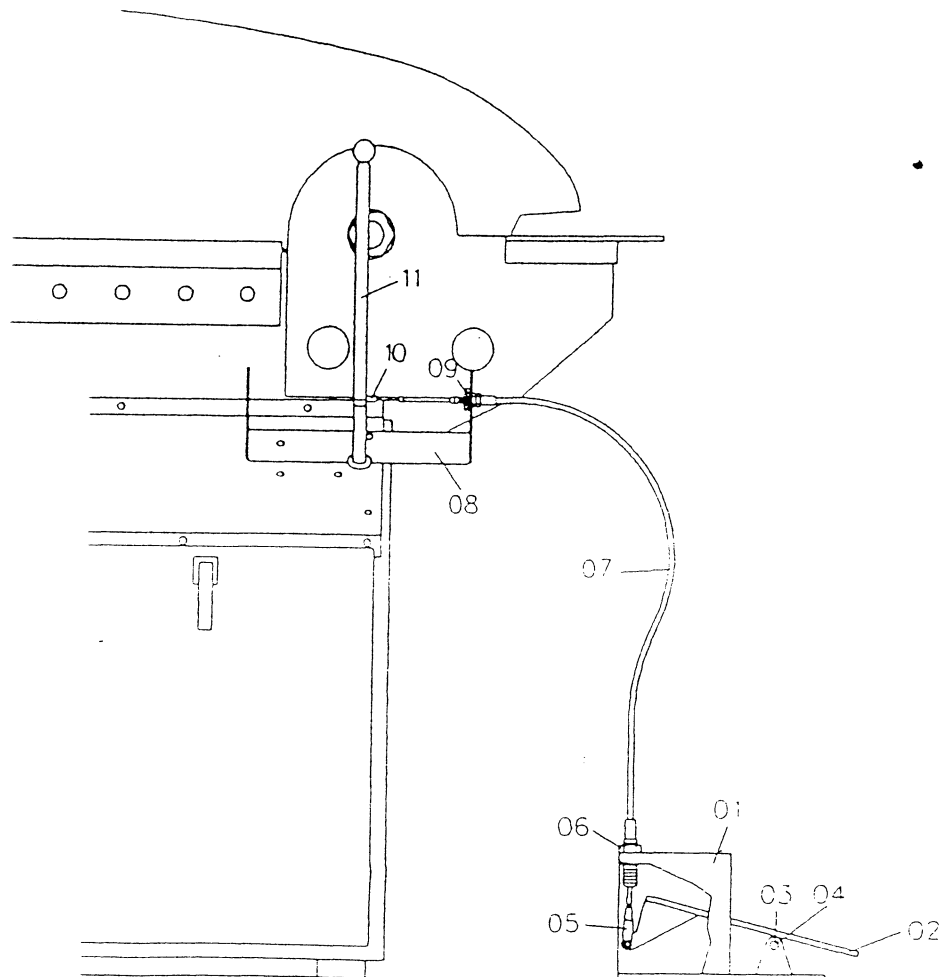


MECHANICAL FOOT SWITCH ASSEMBLY

OPTIONAL

PART # 4421500

Figure And Index No.	Part Number	Description	Qty.
-1	0376315	Foot Pedal Shield	1
-2	0376312	Foot Pedal	1
-3	0531212	3/8 Nylock HN	1
-4	0541112	1/2 x 3 1/4 SB	1
-5	0541711	Cable Clevis	1
-6	0531263	3/4 JN	1
-7	0541710	Control Cable	1
-8	0476318	Bracket	1
-9	0376311	5/8 Knurled Nut	1
-10	0541712	Cable Ball Joint	1
-11	0272800	Control Handle	1
	0521074	Plastic Handle (ball)	2
	0571005	8mm x 25mm X 1.25mm HH Bolt	2
	0571006	8mm Nut	2



KNIVES

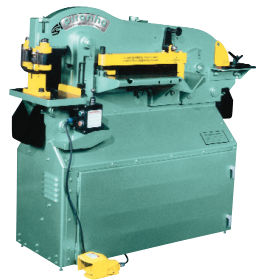
Index Number	Part Number	Description	Qty.
	0220250	Flat Shear Knives x 10"	2
	0220251	Flat Shear Knives x 13"	2
	0220252	1/4" Round Bar Knife	2
	0220253	3/8" Round Bar Knife	2
	0220254	1/2" Round Bar Knife	2
	0220255	5/8" Round Bar Knife	2
	0220256	3/4" Round Bar Knife	2
	0220257	7/8" Round Bar Knife	2
	0220258	1" Round Bar Knife	2
	0220259	1 1/8" Round Bar Knife	2
	0220260	1 1/4" Round Bar Knife	2
	0220261	1 3/8" Round Bar Knife	2
	0220262	1/2" Square Bar Knife	2
	0220263	5/8" Square Bar Knife	2
	0220264	3/4" Square Bar Knife	2
	0220265	7/8" Square Bar Knife	2
	0220266	1" Square Bar Knife	2
	0220270	Round Bar Knife Blank	2
	0220274	Lower Angle Knife	2
	0220275	Upper Angle Knife	1
	0220276	Lower Coper End Knife	1
	0220277	Upper Coper Knife	1
	0220278	Lower Coper Side Knife	2
	0531050	3/8" x 1" SHCS - Upper Coper	4
	0531069	7/16" x 1 1/2" SHCS - Lower Coper Side	2
	0531069	7/16" x 1 1/2" SHCS - Upper Shear	4
	0531069	7/16" x 1 1/2" SHCS - Upper Round Bar	2
	0531071	7/16" x 2" SHCS - Lower Coper End	2
	0531071	7/16" x 2" SHCS - Lower Shear	4
	0531071	7/16" x 2" SHCS - Lower Round Bar	2
	0531071	7/16" x 2" SHCS - Lower Angle	4
	0531330	Woodruff Key - Upper Coper Knife	1

[illegible]

Additional Fabricating Equipment



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"



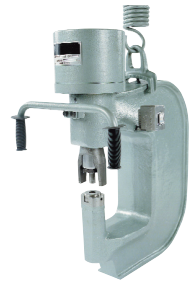
3 & 4 Roll
Manual/Hydraulic



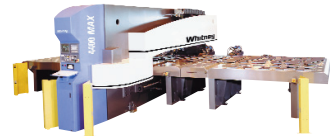
Section Bending Rolls

Whitney

The **Leader in Plate**
Technology



Portable Presses



Punch Plasmas



Plasma Tables

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