



# HORIZONTAL PRESS HP20T

## OPERATIONS MANUAL

SERIAL NUMBER: \_\_\_\_\_



ORIGINAL INSTRUCTIONS - HP20T

## 1 GENERAL

- Declarations of Conformity
- Company Profile
- Warranty
- Machine Identification
- Declaration of E.C. Compliance
- Operator and Supervisor Information
- Signal Word Definition
- Signal Word Panel
- Operational Precautions
- Machine Operations

## 6 HYDRAULIC POWER SOURCES

- Powering with an Edwards Ironworker
- Powering with an Edwards Porta-Power


## 8 OPERATIONS DIAGRAM

## 9 SETUP

## 10 PRESS OPERATION

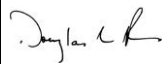
## 12 TROUBLESHOOTING

## DECLARATIONS OF CONFORMITY

EU DECLARATION OF CONFORMITY WITH COUNCIL DIRECTIVE 2006/42/EC	
Date of Issue:	01/11/2013
Directive:	Machinery Safety Directive 2006/42/EC Electromagnetic Compatibility Directive 2004/108/EEC Low Voltage Directive 2006/95/ES
Conforming Machinery:	Model: Horizontal Press HP20T Type: Hydraulic Accessory Serial Number: Refer to Title Page
Manufacturer:	Edwards Manufacturing Company 1107 Sykes Street Albert Lea, MN 56007, USA
Person Authorized to compile the Technical File Established in the EU	Julian Smith and Melanie Smith – Directors Alpha Punch & Machinery Ltd Unit 7 Binder Industrial Park Eland Road Denaby, Doncaster DN12 4HA UK Tel: 011-441709866083 Fax: 011-441709866356
Harmonised Standards Referenced or Applied:	EN 13857:2008, EN ISO 13850:2008, EN 60204-1:2006+A1:2009/AC 2010, EN 12100:2010, EN 349:1993+A1:2008, EN 953:1997+A1:2009, EN 1037:1995+A1:2008, EN 614-1:2006+A1:2009, EN ISO 4413:2010, BS EN 13849-1:2006
Specifications with which Conformity is Declared:	Essential Health and Safety Requirements of Annex 1 of the Machinery Directive
We hereby certify that the machinery described above conforms with the essential health and safety requirements of Council Directive 2006/42/EC on the approximation of the laws of the Member States relating to the safety of machinery.	
Signed:	
Signatory:	Printed Name : Douglas L. Friend Title: Chief Operating Officer
Technical File Reference Number	SF11987A1.EMC

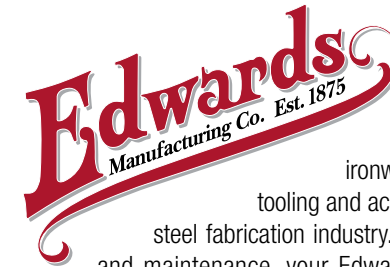
Notes Concerning Harmonized Standards Referenced or applied:	
EN ISO 13857:2008	Safety of machinery. Safety distances to prevent hazard zones being reached by upper and lower limbs.
EN ISO 13850:2007	Safety of machinery — Emergency stop — Principles for design
EN 60204-1:2006+A1:2009/AC 2010	Safety of machinery. Electrical equipment of machines. General requirements.
EN 349:1993+A1:2008	Safety of machinery. Minimum gaps to avoid crushing of parts of the human body.
EN 953:1997 +A1:2009	Safety of machinery. Guards. General requirements for the design and construction of fixed and movable guards.
EN 1037:1995+A1:2008	Safety of machinery. Prevention of unexpected start-up
EN 12100:2010	Safety of Machinery – General Principles for design – Risk Assessment and risk reduction.
EN 614-1:2006+A1:2009	Safety of machinery — Ergonomic design principles — Part 1: Terminology and general principles.
EN ISO 4413:2010	Hydraulic fluid power - General rules and safety requirements for systems and their components
BS EN 13849-1:2006	Safety of machinery. Safety related parts of control systems. General principles for design

DECLARATION OF NOISE EMISSION Sound Pressure and Sound Levels per EN ISO 1102		
Date of Issue:	01/11/2013	
Machinery:	Model: Horizontal Press HP20T Type: Hydraulic Accessory Serial Number: Refer to Title Page	
	Operating	Idle
L <sub>pa</sub> (Operator Position)	84 dB (A)	43 dB (A)
L <sub>pa</sub> (Bystander Position)	81 dB (A)	41 dB (A)
Peak C-weighted instantaneous SPL in the Operator's position L <sub>pCpeak</sub>	95 dB (C)	---
Sound power emitted where the equivalent continuous A-weighted SPL exceeds 80 dB (A).	8.4 Bel	---
The average difference between the extraneous noise level and the sound intensity level at each measuring point is:	L <sub>pa</sub> Δ = 41 dB (A)	
Ambient Correction Factor K3A calculated according to EN ISO 11204 Appendix A.	4 dB (A)	
Measurements were made at a height of 1.5 m and 1 m from the Operator Position and all four sides of the equipment.		
The figures quoted are emission levels and are not necessarily safe working levels. While there is a correlation between the emission and exposure levels this cannot be used reliably to determine whether or not further precautions are required.		
Factors that influence the actual level of exposure of the workforce include characteristics of the work room, the other sources of noise, etc. such as the number of machines and other adjacent processes. Also, the permissible level of exposure can vary from country to country.		
This information, however, will enable the user of the machine to make a better evaluation of the hazard and risk.		
Edwards Manufacturing Company 1107 Sykes Street Albert Lea, MN 56007 USA		

Declaration of Conformity with ANSI / ISO / NFPA / OSHA Standards relating to the Manufacture of Ironworking Machinery	
Date of Issue:	12/05/2013
Applicable Standards:	ANSI / ISO / NFPA / OSHA
Conforming Machinery:	Model: Horizontal Press HP20T Type: Hydraulic Accessory Serial Number: Refer to Title Page
Manufacturer:	Edwards Manufacturing Company 1107 Sykes Street Albert Lea, MN 56007, USA
Harmonised Standards Referenced or Applied:	ANSI B11.05, ANSI B11.0, ANSI B11.19, ANSI / ASSE Z244.1, ANSI Z535.2, ANSI Z535.3, ANSI Z535.4, ANSI Z535.5, ANSI / ISO 12100, ISO 13849-1, NFPA 79, OSHA1910.147, OSHA1910.212, OSHA1910.219
We hereby certify that the machinery described above conforms with the essential health and safety requirements of Council Directive 2006/42/EC on the approximation of the laws of the Member States relating to the safety of machinery.	
Signed:	
Signatory:	Printed Name : Douglas L. Friend Title: Chief Operating Officer
Technical File Reference Number	SF11987A1.EMC

Notes Concerning Harmonized Standards Referenced or applied:	
ANSI B11.05 1988 (R2008)	Ironworkers - Safety Requirements for Construction, Care and Use
ANSI B11.0 2010	Safety of Machinery - General requirements and Risk Assessment
ANSI B11.19	Performance Criteria for Safeguarding
ANSI / ASSE Z244.1 2003 (R2008)	Control of Hazardous Energy - Lockout / Tagout and Alternate Methods
ANSI Z535.2 2011	Environmental and Facility Safety Signs
ANSI Z535.3 2011	Criteria for Safety Symbols
ANSI Z535.4 2011	Product Safety Signs and Labels
ANSI Z535.6 2011	Product Safety Information in Product Manuals, Instructions, and Other Collateral Materials
ANSI / ISO 12100	Safety of Machinery - General Principles for design - Risk Assessment and risk reduction.
ISO 13849-1	Safety of machinery. Safety related parts of control systems. General principles for design.
NFPA 79 2012	Electrical Standards for Industrial Machinery
OSHA1910.147 1989	The Control of Hazardous Energy (Lockout / Tagout)
OSHA1910.212 1971	General Requirements for all Machines
OSHA1910.219 1971	Mechanical Power Transmission Apparatus

## COMPANY PROFILE



Edwards Manufacturing Company manufactures a full line of high quality, low maintenance hydraulic ironworking machines, associated tooling and accessories that are used in the steel fabrication industry. With proper operation, care, and maintenance, your Edwards Ironworker or Hydraulic Accessory Tool will provide years of safe, trouble-free service. Please take time to study this Operator's Manual carefully to fully understand Ironworker and Hydraulic Accessory Tool safety procedures, set-up, operation, care, maintenance, troubleshooting and warranty coverage prior to putting the machine into production. Any questions not answered within this manual can be directed to your local Edwards Ironworker dealer or factory representative.

### Contact the factory:

**EDWARDS MANUFACTURING COMPANY**  
1107 Sykes Street  
Albert Lea, MN 56007  
507 373 8206 PHONE  
507 373 9433 FAX  
[www.edwardsironworkers.com](http://www.edwardsironworkers.com)

*General Questions:*  
[sales@edwardsmfg.us](mailto:sales@edwardsmfg.us)

*Service Questions:*  
[service@edwardsmfg.us](mailto:service@edwardsmfg.us)

### Contact your dealer:

## WARRANTY

Edwards Manufacturing Company will, within one (1) year of date of original purchase (proof of purchase required), replace F.O.B. the factory, any goods, excluding punches, dies and shear blades, which are defective in materials or workmanship provided that the buyer return the defective goods, freight pre-paid, to the seller, which shall be the buyer's sole and exclusive remedy for the defective goods. Hydraulic components are subject to their manufacturer's warranty.

Edwards Manufacturing Company will, within thirty (30) days of date of original purchase (proof of purchase required), replace F.O.B. the factory, any punches, dies and/or shear blades, which are defective in materials or workmanship.

This warranty does not apply to machines and/or components which have been altered, changed or modified in any way, or subjected to abusive and abnormal use, inadequate maintenance and lubrication, or subjected to use beyond seller recommended capacities and specifications. Edwards Manufacturing Company shall not be liable for labor costs expended on such goods or consequential damages. Edwards Manufacturing Company shall not be liable to the purchaser or any other person for loss, down-time, or damage directly or indirectly arising from the use of the goods or from any other cause. No officer, employee, or agent of Edwards Manufacturing Company is authorized to make any oral representations or warranty of fitness or to waive any of the foregoing terms and none shall be binding on Edwards Manufacturing Company.

## MACHINE IDENTIFICATION

Your Edwards HP20T Horizontal Press has been serialized for quality control, product traceability and warranty enforcement. Please refer to the aluminum identification tag with engraved serial number, electrical and power specifications when ordering parts or filing a warranty claim.

## OPERATOR AND SUPERVISOR INFORMATION

This is one of four manuals supplied with your machine.

- Installation Manual
- Safety Instructions Manual
- Operations Manual
- Maintenance Manual

**READ ALL MANUALS BEFORE OPERATING MACHINERY.** Operating machinery before reading and understanding the contents of all four manuals greatly increases the risk of injury.

Each of the four machine manuals describe 'best practices' in handling, installing, operating and maintaining your machine. The contents of each manual is subject to change without notice due to improvements in the machinery or changes in National or International standards.

**All rights reserved. Reproduction of this manual in any form, in whole or in part, is not permitted without the written consent of Edwards Manufacturing Company.**

Keep all manuals close to the machine to allow for easy reference when necessary.

Provide operators with sufficient training and education in the basic functions of the machine prior to machine operation.

Do not allow for operation of the machine by unqualified personnel. Edwards Manufacturing Company is not liable for accidents arising from unskilled, untrained operation.

Do not modify or change the machine without written authorization from Edwards Manufacturing Company. Unauthorized modification to a machine may result in serious operator injury, machine damage and will void your machine warranty.

Never leave a powered machine unattended. Turn machinery **OFF** before walking away.

This machine is manufactured for use by able bodied and able minded operators only. Never operate machinery when tired or under the influence of drugs or alcohol.

Do not resell, relocate or export to a destination other than to the original point of sale. Edwards has designed this machine to meet the standards of the original receiving country and is not liable for meeting any governing body or performance standards beyond those of the original receiving country.

## SIGNAL WORD DEFINITION

 **DANGER**

Indicates a hazardous situation that, if not avoided, will result in death or serious injury.

 **WARNING**

Indicates a hazardous situation that, if not avoided, could result in death or serious injury.

 **CAUTION**

Indicates a hazardous situation that, if not avoided, could result in mild or moderate injury.

**NOTICE**

Indicates information considered important, but not hazard related.

## SIGNAL WORD PANEL ON MACHINE

 **DANGER**

Critical machine safety information is identified on signal word labels. Labels are attached adjacent to the potentially hazardous locations of the machine. Reference the Safety Instruction Manual for additional information regarding the potentially hazardous condition identified on the label.

**Review ALL labels on the machinery, reference the operational precautions and safe operations sections within this manual before any operation activity is initiated.**

**Failure to read and understand the signal word labels affixed to the machinery may result in operator death or injury.**

## OPERATIONAL PRECAUTIONS

 **DANGER**

Reasonable, common sense safety precautions should be observed when operating the Ironworker or Hydraulic Accessory Tool. The following precautions are described in order of their hazard.

### Electrical Hazard

Dangerous high voltages are present inside the electrical enclosure of this product. Only qualified, authorized, maintenance or service personnel should gain access to the electrical panel.

### Lockout Power

Danger, circuits are live. Lockout / tagout upstream power source before any maintenance activity is performed.

### Shear / Crush Hazard

Moving parts can cut and crush. Keep hands clear when servicing and maintaining the Ironworker or Hydraulic Accessory Tool.

### Hydraulic Fluid Hazard

Hydraulic hoses are under pressure. Pressurized fluid can pierce skin and cause severe injury. To avoid physical hazard, always wear personal protective equipment when servicing / maintaining the Ironworker or Hydraulic Accessory Tool.

### Do Not Operate With Guard Removed

Physical barriers and guards have been designed and installed to protect operator and maintenance personnel from moving parts that can pinch, cut and crush. If it is necessary to remove guarding when servicing your Hydraulic Accessory Tool, immediately replace guards after service and prior to power being restored to the machinery.

### Refer to Manuals

For safe installation, operation and maintenance of the machine, read:

- Installation Manual
- Safety Instructions Manual
- Operations Manual
- Maintenance Manual

### Wear Personal Protective Equipment

To avoid physical hazard wear protective eyewear, clothing, gloves, footwear, head-gear and hearing protection.

## MACHINE OPERATIONS

 **DANGER**

Edwards Hydraulic HP20T machinery is capable of many cold forming or pressing functions. This manual outlines the basic functions associated with typical Horizontal Press operations and is neither intended to create a comprehensive list of, nor describe every operation possible with this versatile tool. **Horizontal Press operations are dangerous and require extreme care and caution in the preparation of the material being worked, the press set-up and the pressing operation.** Please refer to the following setup, safe operation and press operation sections for an understanding of the potential hazards present in any horizontal pressing operation.

With 20 Tons of force, the Edwards HP20T features robust engineering and construction and is designed for years of heavy duty service when powered by an Edwards Ironworker or Porta Power portable hydraulic unit. Please refer to all Edwards power source manuals as well as the Safety, Installation, Operation and Maintenance Manuals of the HP20T prior to operation of the machinery.

# HYDRAULIC POWER SOURCES



Hydraulic Accessory Tool Controls



Ironworker Hydraulic Accessory Package

## WARNING

Your Edwards Horizontal Press is factory assembled and tested for optimum performance when powered by Edwards Manufacturing Company rated hydraulic power supplies.

The Horizontal Press is powered by either an Edwards Ironworker with the factory installed Hydraulic Accessory Control Package or an Edwards Porta-Power, 5hp, 3000psi, portable power unit.

**ALTERNATE POWER SOURCES ARE NOT RECOMMENDED AND MAY COMPROMISE MACHINE OPERATION, MACHINE HYDRAULIC WARRANTY AND OPERATOR SAFETY.**

Follow electrical connection installation instructions for power supply as set forth within the Installation Manual of the Edwards Ironworker or Porta-Power.

### Powering with an Edwards Ironworker

Power selection controls are located adjacent to the starter on the feed side of the machine. Hydraulic quick connections and accessory controls are located on the drop-off side or end cap of the machine.

With the Ironworker power off, install Horizontal Press hoses, power and control:

- Install the Horizontal Press male and female accessory hydraulic hoses to the ironworker male and female quick-connect hydraulic fittings. Both fittings have a detent ball setting that must be aligned to couple and uncouple hoses.
- Remove the safety cap at the push button port. Attach the Horizontal Press hand control male mil. spec. control cable to the female mil. spec. accessory control port at your Ironworkers Hydraulic Accessory package. Attach the yellow limit switch cable to the limit switch port of the ironworker. Attach the yellow Auxiliary cable to the Aux Light port on the ironworker.

**With all Ironworker and Horizontal Press stations clear of hands, tools, tooling, material or debris, power up the Ironworker by depressing the green button on the starter box.**

With the power on, your Ironworker machine will return to a neutral position.

Turn the 3-position switch on the front of the machine case to the Accessory position. This operation disables the Ironworker and switches control to the accessory hand control.

Test the Horizontal Press operation by depressing the OUT control button. Once depressed, the cylinder will extend. Releasing pressure on the OUT control button will stop the cylinder. Test the Horizontal Press operation by depressing the IN control button. Once depressed, the cylinder will be retracted back into the cylinder enclosure. Releasing pressure on the IN control button will stop the cylinder.

Test the digital encoder and limit switches by rotating the scale hand crank.

Depress the red e-stop button to kill power at the Ironworker. To reset power, twist the e-stop button and push start button at the Ironworker.

When disconnecting your Horizontal press, simply reverse procedure. **Replace the safety cap at the push button port to restore power to your Ironworker.**



Edwards Porta-Power

### Powering with an Edwards Porta-Power

Your Edwards Porta-Power 5hp / 3000psi / Portable Power Unit will power all your Edwards Hydraulic Accessories.

Follow electrical connection installation instructions as set forth within these sections of the Installation Manual:

With the Edwards Porta-Power off, install accessory hoses, power and control:

- Install the male and female Horizontal Press hydraulic hoses to the Porta-Power male and female quick connect hydraulic fittings adjacent to the starterbox. Both fittings have a detent ball setting that must be aligned to couple and uncouple hoses.
- Remove the safety cap at the push button port. Attach the Horizontal Press hand control, male mil. spec. control cable to the female mil. spec. accessory push button port on the Porta-Power case. Attach the yellow limit switch cable to the limit switch port of the ironworker. Attach the yellow Auxiliary cable to the Aux Light port on the ironworker. Attach the Horizontal Press hand control, male mil. spec. control cable to the female mil. spec. accessory push button port on the Porta-Power case.

**With all Ironworker and Horizontal Press stations clear of hands, tools, tooling, material or debris, power up the Porta-Power by depressing the green button on the starter box.**

With the power on, your Horizontal Press is in a neutral position.

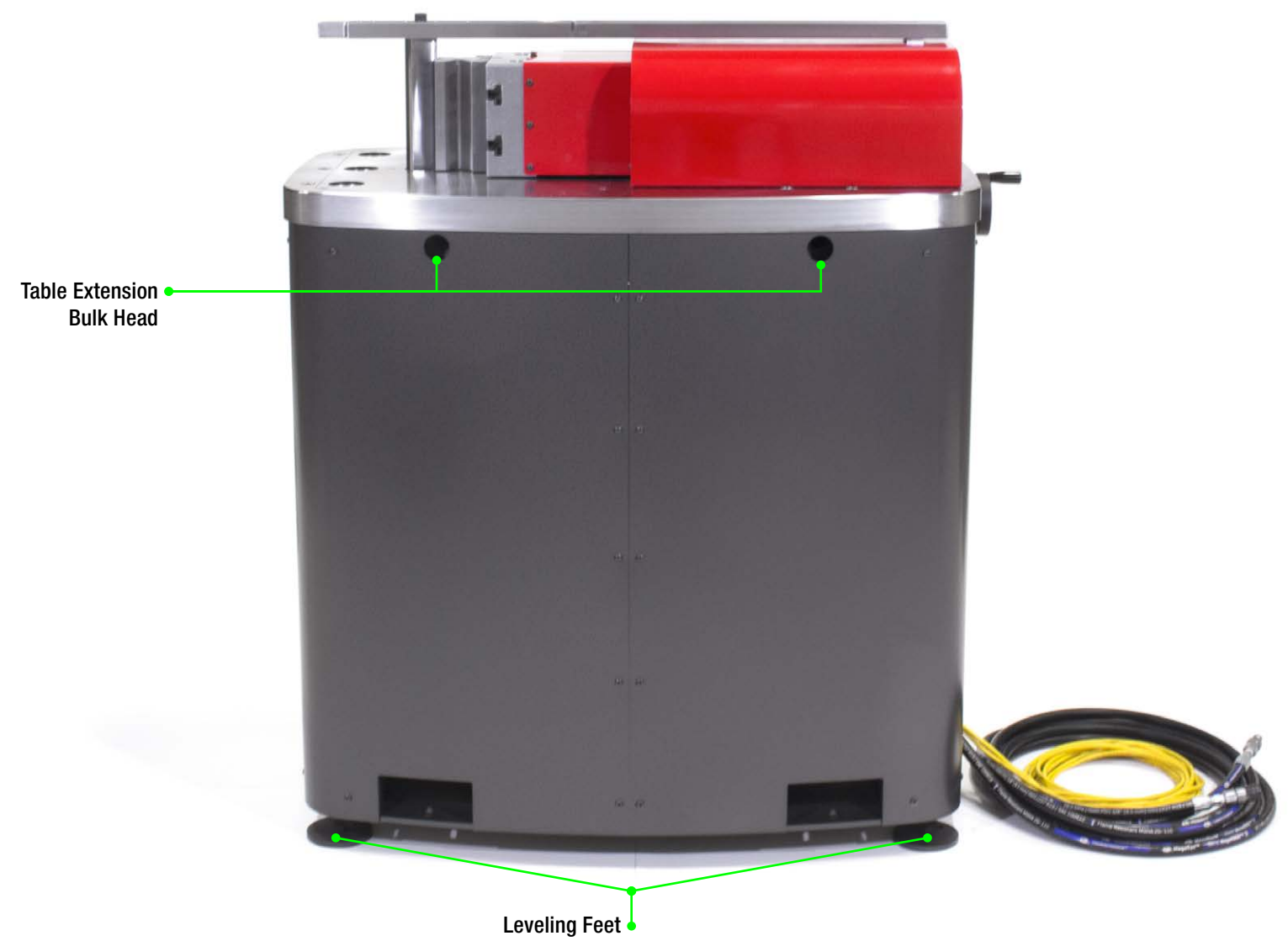
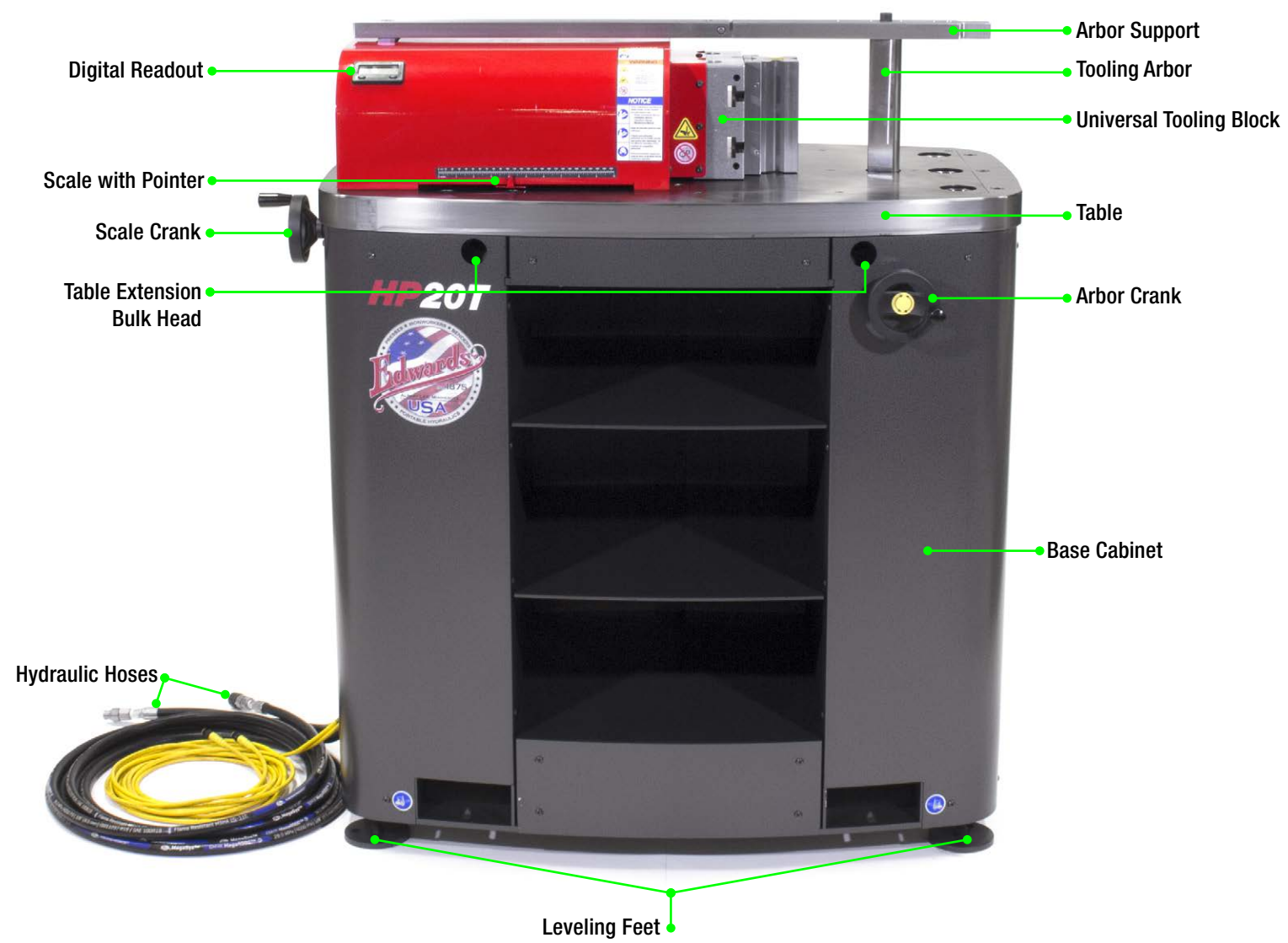
Test the Horizontal Press operation by depressing the OUT control button. Once depressed, the cylinder will extend. Releasing pressure on the OUT control button will stop the cylinder. Test the Horizontal Press operation by depressing the IN control button. Once depressed, the cylinder will be retracted back into the cylinder enclosure. Releasing pressure on the IN control button will stop the cylinder.

Test the digital encoder and limit switches by rotating the scale crank.

Depress the red e-stop button on the hand control to kill power at the Porta Power. To reset power, twist the e-stop button and push start button at Porta Power.

When disconnecting your Horizontal press, simply reverse procedure. **Replace the safety cap at the push button port to restore power to your Porta Power.**

# HORIZONTAL PRESS OPERATIONS DIAGRAM



# SETUP

## WARNING

Your HP20T has been factory tested and setup to immediately “plug and play” with your Edwards Ironworker Hydraulic Accessory Pack or Porta Power, portable hydraulic unit.

The Press is constructed of six basic assemblies: the base cabinet, the table, the hydraulic cylinder enclosure, measuring system, tooling block and arbor support.

### Base cabinet

Beyond providing tooling storage, the base cabinet of the HP20T accommodates leveling and height adjustment of up to 2". Adjust for additional table height by rotating the leveling feet clockwise or counterclockwise and following instructions for hard-mounting the machinery to the floor. The base cabinet also houses the digital encoder / auto-stop adjustment, tool squaring function and extension table bulkheads.

### Table

The HP20T working surface is a solid plate of machined A36 steel. The surface is ground and machined to allow for the installation of the 20Ton hydraulic ram, measuring hardware, hardened bushings and the tooling steel wear plate. The wear plate is S7 tool steel and has been ground flush with the prime table surface. Both the prime table and wear plate are protected with a surface applied rust inhibitor which will require maintenance over time to prevent rust and corrosion. The 24" x 42" table may be enlarged by adding table extensions to the table bulkheads located in the base cabinet.



### Hydraulic Cylinder

The HP20T is powered by either your Edwards Ironworker or Edwards Porta Power, 3000psi portable hydraulic power source. The 20' umbilical hosing and quick connect hardware supply hydraulic power to the hydraulic cylinder within the HP20T. The HP20T cylinder features a 2.25" ram for tooling stability, 20 tons of pressure and a 10" maximum stroke. Cylinder stroke is manipulated with a simple hand-wheel and measured with a roller encoder and digital readout at the table surface accurate to 0.01".

### Measuring System

The HP20T features a roller encoder driven measuring system. Hand crank activated, the measuring system moves a proximity switch and marker along a graduated scale. The proximity switch controls cylinder stroke and can be located anywhere along the graduated scale allowing for up to 10" of stroke travel. The digital readout provides for fine adjustment to 0.01".



When the machine is first received the limit scale will be set to 0, this will stop the ram from extending. To extend the cylinder rotate the scale hand crank. The cylinder will extend as far as the pointer and scale indicate. The digital readout can help with seeing precise measurements, and can also be reset with a face button.

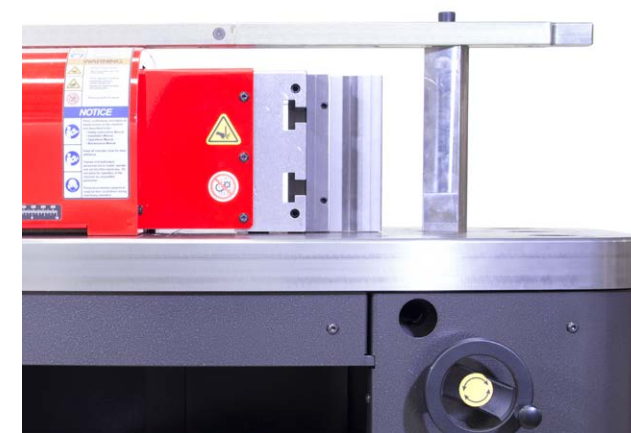
### Tooling Block

The tooling block of the HP20T is fixed to the ram of the cylinder. The machined surface features horizontal T-slots for custom tooling applications and a vertical slot for standard 6" brake tooling. Tooling fixes to the vertical slot with 4 set-screws. The tooling block slides on two, adjustable gib-pins recessed into the machined surface. The gib-pins provide leveling and bearing surfaces that will wear over time. Periodically adjust the gib-pins to ensure the ram is parallel to the table surface.



### Arbor Support

The arbor support is a hinged steel bar that, when attached to the tooling arbor, rigidly supports the arbor and eliminates a potential cantilever tooling failure. THE ARBOR SUPPORT STRUCTURE IS REQUIRED TO BE ENGAGED IN ALL STANDARD PRESSING OPERATIONS.



# PRESS OPERATION

## WARNING

- For Operator safety, wear personal protective equipment, clear the work zone of any tooling or debris prior to powering the machinery on.
- Perform press inspection.
- Perform workpiece inspection.
- Turn power source on.
- Retract ram, install press tooling.
- Adjust tooling as necessary to achieve the shortest ram travel.
- Safely load, position and support workpiece.
- Align and secure tooling to the tooling block.
- Carefully, slowly, extend ram and tooling to meet press site. Preload the workpiece and observe workpiece support and tooling alignment. Observe the preloaded condition from multiple angles to assure that the press tooling is in alignment with the ram and workpiece. If unstable, reverse ram, reset workpiece and re-align press tooling.
- Gradually build pressure to complete the press operation.
- Retract the ram to relieve hydraulic pressure following the press operation.

# TROUBLESHOOTING

## **WARNING**

Quality parts are dependent upon conscientious setup, operation and maintenance of your Horizontal Press. Physically review your Horizontal Press prior to any operation. Confirm all static components are tight in the assembly. Confirm all moving components are free of obstruction. Confirm all tooling and assemblies are properly seated within the assembly.

<b>Problem</b>	<b>Solution</b>
<b>Horizontal Press Inoperable</b>	<p>Check accessory control switch</p> <p>Check shop press male 4-pin power cable is connected to female limit switch port.</p> <p>Check hand control Mil Spec male power cable is connected to female Mil Spec control port</p> <p>Note: Auto Cut port will NOT power the Horizontal Press accessory.</p>
<b>Rough cylinder operation</b>	<p>Check Hydraulic fluid levels of power source.</p> <p>Check hoses for correct installation.</p>



# IRONWORKERS

P.O. Box 166, ALBERT LEA, MN 56007 800-373-8206 [WWW.EDWARDSIRONWORKERS.COM](http://WWW.EDWARDSIRONWORKERS.COM)