

# Equipment Manual



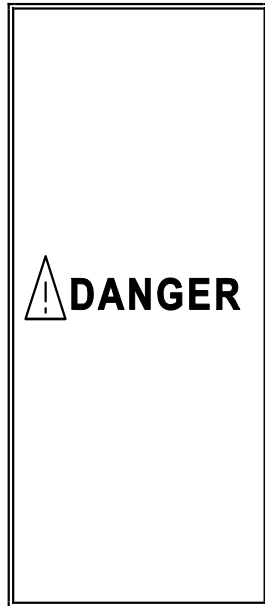
## ***ULTRA-PRESS™ 16/18/20***

**Modular Truss Presses  
150-Ton**

# **ULTRA-PRESS™ 16/18/20**

## **150-Ton Modular Truss Press\***

\*Some information in this document also applies to the 100-ton press, but further documentation is required.



**ALL OPERATORS WORKING ON OR NEAR THE ULTRA-PRESS MUST READ AND UNDERSTAND THIS MANUAL PRIOR TO STARTING THE PRESS.**

**THIS MACHINE IS INTENDED ONLY FOR THE COMMERCIAL PRODUCTION OF WOODEN ROOF TRUSSES AND THEREFORE CAN POTENTIALLY CAUSE SERIOUS OR EVEN FATAL INJURY:**

- **IF USED BY UNTRAINED PERSONNEL**
- **IF MODIFIED FROM ITS ORIGINAL DESIGN**
- **IF NON-AUTHORIZED PARTS ARE USED**
- **IF IT IS NOT MAINTAINED PROPERLY.**

**THIS MANUAL MUST ALWAYS BE AVAILABLE TO THE MACHINE OPERATORS AND MAINTENANCE PERSONNEL.**

PACIFIC AUTOMATION LTD.  
MiTek Industries, Inc.  
301 Fountain Lakes Industrial Drive  
St. Charles, MO 63303  
800-523-3380  
www.mii.com

Patents may apply.

Copyright © 2009 MiTek®. All rights reserved.  
Patents may apply.

PN 001110  
Revision: B  
Revised: 30 August 2009  
Revised By: R. Tucker  
Approved By: G. Pritchett

PN 001110 Rev. B  
Effectivity: MiTek's design beginning in 2009.

**Contents**

INTRODUCTION ..... 7

    EMPLOYEE TRAINING ..... 7

    DISCLAIMER ..... 8

    MACHINE INTRODUCTION ..... 11

SAFETY ..... 15

    SAFETY ALERT SYMBOLS ..... 15

    YOUR SAFETY RESPONSIBILITIES ..... 16

    SAFETY COMPONENTS ..... 18

    ULTRA-PRESS - SPECIFIC HAZARDS ..... 21

    EMERGENCY STOP PROCEDURE ..... 24

    CONTROL PANEL ..... 25

    SAFETY RULES ..... 26

    LOCKOUT/TAGOUT ..... 29

        LOCKOUT/TAGOUT GUIDELINES ..... 29

        ELECTRICAL LOCKOUT/TAGOUT PROCEDURES ..... 30

        HYDRAULIC SYSTEM LOCKOUT/TAGOUT PROCEDURE ..... 31

        PNEUMATIC SYSTEM LOCKOUT/TAGOUT PROCEDURE ..... 32

    TROUBLESHOOTING WITH AN ENERGIZED MACHINE ..... 32

    PERSONAL PROTECTIVE EQUIPMENT ..... 33

    SAFETY DECAL INSTALLATION ..... 34

    CORPORATE HEALTH & SAFETY POLICY ..... 36

    SAMPLE INCIDENT REPORT ..... 38

INSTALLATION ..... 39

    UNLOADING THE PRESS ..... 39

    GENERAL INSTALLATION REQUIREMENTS ..... 41

    INSTALLATION TOOLS ..... 42

    INSTALLATION INSTRUCTIONS ..... 44

OPERATION ..... 49

    OPERATING SAFETY ..... 49

CONTROL DESCRIPTION .....	51
OPERATING PROCEDURES .....	58
MAINTENANCE.....	65
WARNING TO MAINTENANCE PERSONNEL .....	65
SERVICE RULES .....	66
RECOMMENDED BASIC MAINTENANCE TOOLS .....	67
HPU GRAPHICS.....	68
HPU GRAPHICS.....	69
ULTRA-PRESS MAINTENANCE SCHEDULE SUMMARY .....	70
MAINTENANCE SCHEDULE IN DETAIL .....	72
1. DAILY MAINTENANCE .....	72
GENERAL INSPECTION.....	72
LUBRICATION.....	79
2. EVERY THREE MONTHS OR 500 HOURS.....	82
CLEAN AND INSPECT.....	82
3. EVERY 12 MONTHS OR 2,000 HOURS .....	84
a) CHANGE THE HYDRAULIC UNIT RETURN LINE FILTER ELEMENT .....	84
b) HYDRAULIC OIL CHANGE .....	85
c) SLIDER TABLE DRIVE SHAFT BEARING .....	86
d) MAIN ENCLOSURE ELECTRICAL COMPONENTS .....	88
MACHINE ADJUSTMENTS* .....	89
1. LIMIT SWITCH ADJUSTMENTS .....	89
OPEN HEIGHT (UP LIMIT SWITCH) .....	90
SLIDER TABLE A OR B—OUT POSITION.....	91
SLIDER TABLE A OR B—IN POSITION.....	93
2. SLIDER TABLE SPEED ADJUSTMENT .....	95
3. PLATEN DOWN SPEED .....	96
4. NORMAL WORKING PRESSURE ADJUSTMENT .....	96
ADJUSTING THE PRESSURE SWITCH .....	97
5. COMPLETE HYDRAULIC PRESSURE & HPU * .....	98
PRESSURE SETTINGS .....	100

MACHINE SPECS ..... 101

    ULTRA-PRESS MECHANICAL PRESS SPECIFICATIONS ..... 101

    ELECTRICAL SPECIFICATIONS ..... 102

    OIL SPECIFICATIONS ..... 102

TORQUE SPECIFICATIONS ..... 103

MACHINERY IDENTIFICATION..... 104



## INTRODUCTION

### EMPLOYEE TRAINING

All personnel who will be operating and/or maintaining the machine must read and **clearly understand all safety, operating and maintenance information presented in this manual.**

Do not operate or allow anyone else to operate, use, maintain or repair this equipment until such information has been reviewed.

Make periodic reviews of SAFETY and OPERATION a standard practice for all of your equipment. **An untrained operator is unqualified to operate this machine** and can cause serious injury to himself and other workers.

A sign-off sheet is provided for your record keeping to show that all personnel who will be working with the equipment have read and understood the information in the Operator's Manual and have been instructed in the operation and maintenance of the equipment.

**If you have any questions regarding the operation, maintenance or potential hazards of this machine, please call the factory immediately.**

## DISCLAIMER

**NOTE: This manual supersedes all other manuals. Please discard earlier versions.**

This manual has been prepared by Pacific Automation Ltd. for reference and use in establishing routine operating and maintenance procedures for the safe and efficient use of this machine under most conditions. Technical advice is available free of charge from Pacific Automation on any problem which exceeds the scope of this manual. All pages inside this manual are sequentially numbered. Any pages intentionally left blank for future expansion are marked as such.

Pacific Automation Ltd. has exercised reasonable care and diligence to present accurate, clear and complete information and instructions regarding the techniques for maintaining and servicing this particular Pacific Automation Ltd. machine. However, despite the care and effort taken in preparing this Service Manual, Pacific Automation Ltd. makes no warranties that:

- a) The Service Manual or any explanations, illustrations, information, techniques or tools described herein are either accurate, complete or correct as applied to a specific Pacific Automation Ltd. machine; or
- b) Any repairs or service of a particular unit will result in properly functioning Pacific Automation Ltd. machines.

Pacific Automation Ltd. could not possibly anticipate every circumstance that might involve a hazard. For that reason, warnings in the manual and warnings on tags and decals affixed to the machinery are not all-inclusive. If you intend to handle, operate or service the unit by a procedure or method not specifically recommended by the manufacturer, first make sure that such a procedure or method will not render this equipment unsafe or pose a threat to you and others. Read this manual carefully and become familiar with your machine. Know its applications, its limitations and any hazards involved.

Pacific Automation, from time to time and without notice, may change or upgrade the required design specifications for any particular component. Always contact the factory before replacing components.



Pacific Automation Ltd. does not have control over the installation, use or maintenance; therefore, **you are responsible for the safe operation and maintenance of your machine.**

- a) All operators working on or near this machine must read and understand this manual prior to using the machine.
- b) All maintenance personnel must be experienced in the operation of this machinery as well as industrial equipment maintenance.
- c) Electrical service work must be performed by a licensed electrician only.
- d) This manual must always be available to the operating and maintenance personnel.

It is the **responsibility of the mechanic** performing the maintenance or service on a particular machine to:

- c) Inspect the machine for abnormal wear and damage;
- d) Choose a procedure which will not endanger his/her safety, the safety of others, the equipment, or the safe operation of the machine; and
- e) Fully inspect and test the machine and the hydraulic and electrical systems to ensure that the service to the machine has been properly performed and that the machine, hydraulic and electric systems will function properly.

If inspection or testing reveals evidence of abnormal wear or damage to the machine or if you encounter circumstances not covered in the Service Manual - **STOP - consult the factory. Do not try to repair or service a machine which has been damaged or includes any part that shows excessive wear unless the damaged and worn parts are replaced with original replacement and service parts and the machine is restored to the current specifications of Pacific Automation Ltd.**

**NO MODIFICATION OF THE EQUIPMENT SHALL BE MADE WITHOUT EXPRESS WRITTEN APPROVAL OF PACIFIC AUTOMATION LTD.**

## MACHINE INTRODUCTION

### 1. GENERAL

The sole purpose of the Ultra-Press Modular Truss Press is to build wooden trusses. It is to be used in an industrial application only, by personnel specifically trained and experienced in the production of engineered wooden roof trusses. Caution should be taken not to exceed the pressing capacity, height or width limitations of the press. (See Specifications Section.)

The Ultra-Press Modular Truss Press is intended for the commercial production of wooden roof trusses only and therefore can potentially cause serious or even fatal injury: if used carelessly or improperly; if the machine is modified from its original design; if non-authorized parts are used in the repair or maintenance; or if it is not maintained in proper working order.

See the installation drawings for proper machine placement and associated safety requirements.

### 2. METHOD OF OPERATION

The Ultra-Press Modular Truss Press consists of a stationary press head with a sliding table located on each side. A truss is laid out on each table. The individual table then slides the whole truss under the press head. This initiates the pressing cycle. When the press head starts to move back up, the slider table returns to the “out” position. The truss is then removed and a new truss can be laid out. The opposite slider table works in a similar manner.

### 3. MACHINE LIMITATIONS

The Ultra-Press Modular Truss Press is designed to be used with dimensional softwood lumber with a nominal thickness of 1½".

All finished trusses must be inspected to confirm the proper placement and seating of the connector plates and to ensure the truss has maintained its proper configuration. Truss failure will cause personal injury, death and property damage. Particular attention must be

paid to ensure the connector plates are fully and properly seated. Refer to governing national standards agency for specific regulations for wooden truss construction.

The truss must be constructed exactly in accordance with all details of the approved engineered truss drawing and to current industry assembly standards. Any of the following conditions may result in the improper seating of the connector plates which will reduce the holding capacity and the strength of the truss:

- a) Exceeding the limitation of connector plates (size and quantity) which can be properly embedded at one time;
- b) Using lumber components of different thicknesses will result in the connector plates not being properly seated into the thinner boards;
- c) The truss components may need to be securely fastened, stapled or nailed to each other to prevent separation or movement during the pressing operation;
- d) If the pressing force of the machine is set or used incorrectly for any given truss configuration:
  - the connector plates will not be seated properly if the pressing force is too low;
  - the lumber may be damaged if the pressing force is set too high or “Boost” force is used when not required.
- e) The lumber must be of the specified species, grade, and moisture content, as per the engineered truss drawing.

#### **4. EXPERIENCE REQUIRED TO OPERATE MACHINE**

This machine is to be used in an industrial application only and operated by trained, experienced personnel.

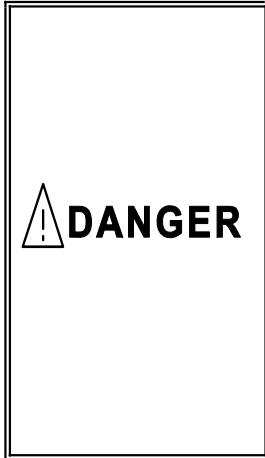
While every effort had been made to make the controls and operation of this machine as simple as possible, workers must still be attentive, diligent and practice common sense.

It is your responsibility to ensure all persons operating, servicing or working near this machine have read and understood this manual.

In addition to reading the manual, the operators must be trained by someone experienced in the actual use of this machine. You would not allow an inexperienced person to operate a motor vehicle after only reading the manual. Do not let an inexperienced operator work on or near this machine.

If you have any questions regarding the operation, maintenance or potential hazards of this

machine, please call the factory immediately.



**ALL OPERATORS MUST READ AND UNDERSTAND THIS MANUAL PRIOR TO STARTING THE MACHINE.**

**DO NOT ALLOW ANYTHING OTHER THAN WOOD TRUSS COMPONENTS AND METAL CONNECTOR PLATES TO BE PRESSED WITH THIS MACHINE.**

**STAND CLEAR OF ALL MOVING PARTS WHILE THE MACHINE IS OPERATING.**

**HANDS AND ARMS MUST NEVER BE INSERTED IN THE PRESSING AREAS FOR ANY REASON AT ANY TIME.**

**NEVER PRESS ANY OBJECT, INCLUDING WOOD, IF IT IS THICKER THAN THE TRUSS BEING PRESSED. SERIOUS DAMAGE COULD OCCUR TO THE PRESS AND POSSIBLY RESULT IN PERSONNEL INJURY.**



## SAFETY

### SAFETY ALERT SYMBOLS

This Safety Alert symbol means:

**ATTENTION!**

**BECOME ALERT!**

**YOUR SAFETY IS AT RISK!**



The Safety Alert symbol identifies important safety messages on the machine and in the manual. When you see this symbol be alert to the possibility of personal injury or death. Follow the instructions in the safety message.

#### Why is safety important to you?

- Accidents Disable and Kill
- Accidents Cost
- Accidents Can Be Avoided

 **DANGER**

**! CAUTION**

#### SIGNAL WORDS:

Note the use of the signal words DANGER and CAUTION with the safety messages.

The appropriate signal word for each message has been selected using the following guidelines:

An immediate and specific hazard which WILL result in severe personal injury or death if the proper precautions are not taken.

Unsafe practices which COULD result in personal injury and /or damage to machinery if proper precautions are not taken.

## YOUR SAFETY RESPONSIBILITIES

### READ AND FOLLOW SAFETY INSTRUCTIONS!

This machine is intended only for the commercial production of wooden trusses and therefore can potentially cause serious or even fatal injury:

- if used carelessly or improperly;
- if the machine is modified from its original design
- if non-authorized parts are used in the repair or maintenance; or
- if it is not maintained in proper working order.

Pacific Automation Ltd. does not have any control over the installation, use or maintenance; therefore, **you are responsible for the safe operation and maintenance of your machine.**

**You** must ensure that anyone who is going to install, operate, work around, or maintain this machine is familiar with the installation, operating and maintenance procedures and related safety information contained in this manual.

Remember, **you** are the key to safety. Good safety practices not only protect you but also the people around you. Make these practices a working part of your safety program (see section Corporate Health & Safety Policy). Be certain that **everyone** operating this equipment is familiar with the recommended operating and maintenance procedures and follows all the safety precautions. Accidents can be prevented. Do not risk injury or death by ignoring good safety practices.

The most important safety device on this equipment is a **safe** operator. It is the operator's responsibility to read and understand **all** Safety and Operating instructions in the manual and to follow them.

**All accidents can be avoided.**



A person who has not read and understood all operating and safety instructions and who has not been trained in the operating procedures is not qualified to operate the machine. **An untrained operator exposes himself and bystanders to possible serious injury or death.**

Machinery must be installed, operated and maintained in accordance with governing occupational safety regulations. (OSHA {USA}, OHSA {CDN}, etc.)

If you have any questions regarding the operation, maintenance or potential hazards of this machine, please call the factory immediately.

## **SAFETY COMPONENTS**

### **1. “ON” INDICATOR WARNING LIGHT**

The “On” indicator light mounted on the main electrical control panel is energized when the Ultra-Press is running. This provides the operators with a visual indication that the machine is running.

Never assume the machine is not running without first physically checking.

### **2. “EMERGENCY STOP” BUTTON ON REMOTE STATIONS**

An “Emergency Stop” button is mounted on each of the two remote control stations. Depressing this button will shut off the control power to the machine, stopping the hydraulic power pack. All functions of the machine will halt.

### **3. “EMERGENCY STOP” BUTTON ON THE MAIN CONTROL PANEL**

An “Emergency Stop” button is mounted on the main control panel. Depressing this button will shut off the control power to the machine, stopping the hydraulic power pack. All functions of the machine will halt.

### **4. “OFF/ON” KEY SWITCH ON REMOTE CONTROL STATIONS**

A key switch is located on each of the two remote-control stations. Turn the switch to the “Off” position and remove the key to prevent the accidental starting of the automatic pressing cycle for that particular slider table. Shut off the slider tables when not in use.

### **5. “OFF/ON” KEY SWITCH ON MAIN CONTROL PANEL**

A key switch is located on the main control panel. Turn the switch to the “Off” position and remove the key to shut off the control power to prevent the machine from being started. Always shut off the machine when setting up either truss jig.

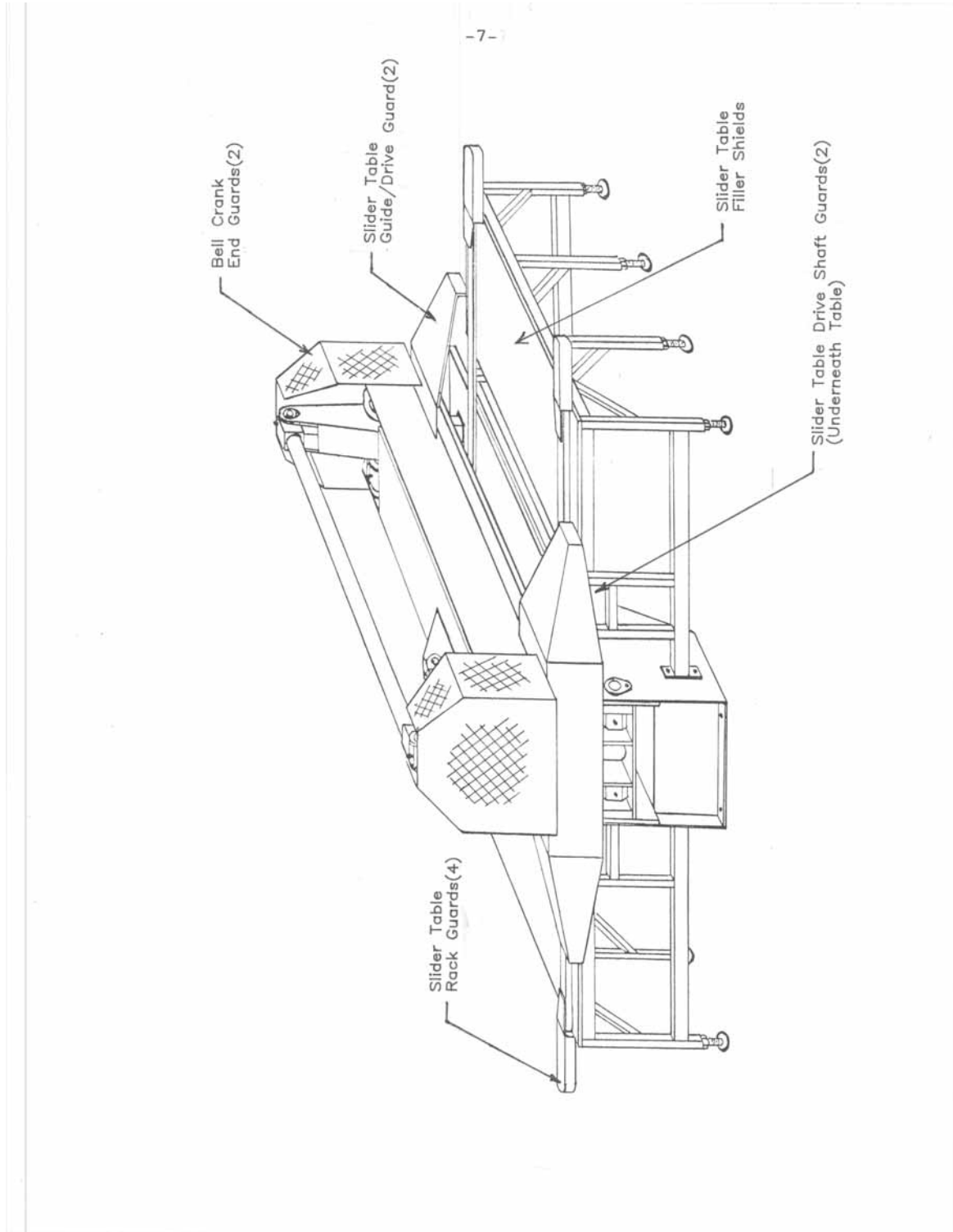
## 6. “RETURN” BUTTON ON REMOTE CONTROL STATIONS

The “Return” button interrupts the automatic pressing cycle and returns the slider table to the “Out” position. In the event that a connector plate or board moves as the slider table starts inward, **do not reach for** the moving component. Simply depress the “Return” button and the truss will come back to the “Out” position without being pressed.

## 8. SAFETY DECALS AND WARNINGS

The safety decals and warnings are an integral component of the machinery safety and therefore must be legible and properly situated at all times. (See Safety Section - Decal Installation.)

GUARD DRAWING



## ULTRA-PRESS - SPECIFIC HAZARDS

The following hazards and possible areas of misuse are listed, in order that specific precautions may be taken.

### 1. ELECTRICAL SHOCK HAZARD

The machine contains high voltage in several locations which can cause serious personal injury or death if the electrical conductors or components are touched or mechanically damaged.

Keep all electrical enclosures padlocked and allow only licensed electricians to perform electrical service work and troubleshooting.

Typical high voltage locations are:

- a) Circuit breaker boxes and disconnect switches
- b) Motor starters
- c) Control transformers
- d) Control and motor fuses
- e) Electrical motors

(See “Electrical System Safety” for precautions.)

### 2. PINCH POINT HAZARD

#### a) Main Pressing Platens

Never reach into the truss press openings for any reason, at any time. Contact with the pressing platens will cause serious injury or death.

Do not climb onto slider tables without first completely locking out power and immobilizing the machinery.

Do not operate the machine unless all of the guards are in place.

**b) Truss Slider Table and Guide Mechanism**

It takes a large force to move the slider table in and out of the press head. Keep hands clear of the slider table and guiding mechanism. Position the remote-control stations three or four feet away from the machine, so that the operator must be clear of the moving components in order to start the pressing cycle.

**c) Truss Slider Table Drive Mechanism**

Each slider table is powered by a hydraulic motor and drive shaft. Do not climb or reach under the slider table with the power on.

Do not operate the machine unless all of the guards are in place.

**d) Main Pressing Linkage**

Contact with the main pressing linkage will cause serious personal injury or death. Do not reach behind guards.

Do not operate the machine unless all of the guards are in place.

**3. TRUSS COMPONENT FAILURE - FLYING DEBRIS**

The Ultra-Press is designed to press steel connector plates into dimensional softwood lumber only. Foreign objects, or lumber which is too thick, may shatter and disintegrate during pressing and cause serious personal injury or death.

Do not allow any component with a thickness greater than the pressing height to enter the pressing platens.

Do not use cheater plates on the truss.

**4. ELECTRICAL FIRE HAZARD**

All electrical machinery is subject to overheating and possible fire if the machinery is continually overloaded or if the electrical connections are allowed to work loose. If the machine repeatedly trips the overloads or blows fuses, have an electrician inspect the circuit. On machinery subject to vibrations, have an electrician periodically inspect the wiring to ensure all electrical connections are tight.

## 5. HYDRAULIC OIL HAZARD

Hydraulic oil possesses two potential hazards:

- a) High-pressure hydraulic oil easily punctures skin causing serious injury, gangrene or death;
- b) Hydraulic oil is generally hot enough to cause severe burns.

Do not operate the machine with damaged hoses or components, or at pressures above recommended levels which may cause the hoses or components to fail. (See Safety Section - Hydraulic System Safety.) Do not operate the machine if the hydraulic oil temperature is exceeding the maximum allowed levels. (See Specifications Section - Hydraulic Oil Specifications.)

## 6. GENERAL WORKPLACE HAZARDS

Keep work area clean and free of slipping and tripping hazards such as oil leakage, sawdust, scrap lumber, loose connector plates, etc.

## 7. PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

All workers should use the appropriate safety equipment to protect their eyes, head, feet and hearing. (See Safety Section - Personal Protective Equipment.)

## 8. NOISE AND VIBRATION

The Ultra-Press and its hydraulic power unit produce noise levels in excess of 85 dB. This exceeds the allowable 8-hour exposure level and, therefore, the appropriate hearing protection must be worn by personnel working on or around the machine.

## 9. WORKPLACE HAZARDOUS MATERIAL INFORMATION SYSTEM (WHMIS)

Material safety data sheets are located in the Specifications Section for the following materials:

- Hydraulic Oil

## EMERGENCY STOP PROCEDURE

**The Ultra-Press can be stopped by various means.**

**Stopping the electric motor and pump will stop the movement of the press.**

### 1. IN THE “MANUAL” MODE:

- a) Release any travel button (i.e., Up, Down, In, Out) which is depressed on the main enclosure to stop machine movement;
- b) Depress the “Emergency Stop” button located on the main enclosure to stop the electric motor and pump;
- c) Depress the “Emergency Stop” button located on either remote-control station, to stop the electric motor and pump.
- d) Turn the “Control Power” key switch located on the main enclosure to the “Off” position;
- e) Turn the circuit breaker or disconnect switch feeding the machine to the “Off” position.

### 2. IN THE “AUTOMATIC CYCLE” MODE:

- a) Depress the “Emergency Stop” button located on either remote-control station, to stop the electric motor and pump.
- b) Depress the Emergency Stop button located on the main enclosure to stop the electric motor and pump;
- c) Turn the “Control Power” key switch located on the main enclosure to the “Off” position;
- d) Turn the circuit breaker or disconnect switch feeding the machine to the “Off” position.



# CONTROL PANEL

## Main Control Panel



## Remote Control Station



## SAFETY RULES

Because it is impossible to anticipate every circumstance that might involve a hazard, the safety information provided in this equipment manual and on the machine is not all-inclusive. If this machine is operated or serviced using a procedure not specifically recommended by the manufacturer, the procedure shall be approved by a professional engineer to ensure it will not render the equipment unsafe. Use extreme caution and common sense at all times!

### Know Your Equipment

- Read this manual completely before using or maintaining the equipment. Do not operate this machine unless you have a thorough knowledge of the controls, safety devices, emergency stops, and operating procedures outlined in this manual.
- Read and follow all safety notes. Failure to comply with these instructions may result in economic loss, property damage, and/or personal injury including death.
- Refer to the lockout/tagout guidelines on the following pages to safely perform maintenance and troubleshooting of this equipment.
- Observe and obey all safety labels. Replace worn labels immediately.
- Use this equipment solely for the purpose described in this manual.
- Only qualified personnel should attempt to operate or perform maintenance on this equipment. “Qualified personnel” is defined as:

...a person or persons who, by possession of a recognized degree or certificate of professional training, or who, by extensive knowledge, training, or experience, has successfully demonstrated the ability to solve problems relating to the subject matter and work—ANSI B30.2-1983

...one who has skills and knowledge related to the construction and operation of the electrical equipment and installations and has received safety training on the hazards involved—NEC 2002 Handbook

### Personal Safety

- Always wear safety glasses and hearing protection in an industrial environment.
- Utilize a filtering facepiece (dust mask) when working near sawdust.
- Wear proper clothing and appropriate personal protective equipment (e.g., safety glasses and hearing protection.) Do not wear loose clothing or jewelry. Confine long hair by tying it back.
- Use caution when lifting heavy parts or material.

### **Installing the Equipment**

- Follow installation instructions completely.

### **Lockout/Tagout**

- Before performing maintenance on the pneumatic or hydraulic systems, bleed the lines to eliminate pressure.
- Lockout/tagout all energized systems before performing maintenance on them. Refer to the Lockout/Tagout Guidelines section on page xii.

### **Keeping a Safe Environment**

- Keep children away. All visitors should be kept a safe distance from the work area. Hazards may not be apparent to individuals unfamiliar with the machine.
- Keep work areas well lit.
- Keep the work area clean and free of any trip or slip hazards.
- Do not use the equipment in damp or wet locations, or expose it to rain or snow.
- Operating and Maintaining the Equipment
- Ensure that all people, tools, and foreign objects are clear of the restricted zones before operating this equipment. The restricted zones are shown on page xvii.
- Perform safety tests to ensure all E-stops are working properly before operating the equipment at the initial startup, after performing any maintenance, and in accordance with the maintenance schedule.
- In case of machine malfunction, stop the machine immediately using an E-stop and report the malfunction to a supervisor.
- Never leave the machine running unattended. Turn the power off! Do not leave the machine until all parts have come to a complete stop and all electrical power has been shut off.
- Check for worn or damaged parts regularly. Repair or replace them immediately.
- Keep the hydraulic, pneumatic, and electrical systems in good working order at all times. Repair leaks and loose connections immediately. Never exceed the recommended pressure or electrical power.
- Check that all safety devices are in working order before each shift starts. All protective guards and safety devices must be in place before and during use of the machine. Never disconnect or bypass any safety device or electrical interlock.
- Periodically inspect the quality of the finished product.

### **Electrical Safety**

- Do not use any liquids in the interior of electrical cabinets.
- When using solvents on and around the machine, remove power to the machine to eliminate the chance of sparking, resulting in explosion or fire. Wear a respirator approved for use with solvents. Wear protective clothing, gloves, and safety glasses.

## LOCKOUT/TAGOUT

### ***LOCKOUT/TAGOUT GUIDELINES***

All lockout/tagout guidelines must be met according to OSHA 29 CFR 1910.147. A specific procedure should be included in your company's energy control program. This manual is not intended to replace your company's de-energizing or lockout/tagout procedure required by OSHA, but merely to provide general guidance.

The term "lockout," as used in this manual, means placing a lockout device on any and all energy sources to ensure that the energy isolating device and the equipment being controlled cannot be re-energized or operated until the lockout device is removed. The photos on the next page show where the electrical disconnects are located for this machine.

- Energy sources include electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.
- In the case of electrical energy sources, the main power and control power to the machinery must be turned off and physically locked in the "off" position.
- A lockout device is usually a keyed padlock.
- If more than one person is working in a restricted zone, use a group lockout device that will allow each person to use a lock that can be removed only by the person performing the maintenance.

"Tagout" means that a prominent warning is securely fastened to an energy-isolating device to indicate that the equipment shall not be operated.

## ***ELECTRICAL LOCKOUT/TAGOUT PROCEDURES***

### **When Working on a Machine Outside the Machine's Main Electrical Enclosure**



If working on the electrical transmission line to the machine, follow the next procedure instead.

Before performing maintenance on any machine with electrical power, lockout/tagout the machine properly. When working on a machine outside of the machine's main electrical enclosure, not including work on the electrical transmission line to the machine, follow your company's approved lockout/tagout procedures which should include, but are not limited to the steps here.



# **DANGER**

1. Engage an E-stop on the machine.
2. Turn the disconnect switch handle to the "off" position.

### **ELECTROCUTION HAZARD.**

When the disconnect switch is off, there is still live power within the disconnect switch's enclosure. Always turn off power at the building's power source to the equipment before opening this electrical enclosure!

3. Attach a lock and tag that meet OSHA requirements for lockout/tagout.
4. Restrain or de-energize all pneumatic components, hydraulic components, and other parts that could have live or stored power.

**When Working on a Machine Inside the Machine's Main Electrical Enclosure or in the Electrical Transmission Line to the Machine**

Before opening the main electrical enclosure, or attempting to repair or replace an electrical transmission line to the machine, lockout/tagout the machine properly. Follow your company's approved lockout/tagout procedures which should include, but are not limited to the steps here.

1. Engage an E-stop on the machine.
2. Shut the power to the machine off at the machine's power source which is usually an electrical service entry panel on the facility wall. One example of a locked-out power source panel is shown in Figure 2-2.
3. Attach a lock and tag that meets OSHA requirements for lockout/tagout.
4. Open the door to the enclosure in which you need access, and using a multimeter, verify that the power is off.

***HYDRAULIC SYSTEM LOCKOUT/TAGOUT PROCEDURE*****When Lockout/Tagout is Not Required**

If working on components other than the hydraulic system, but that requires you to be near the vicinity of movable hydraulic components, you must, at a minimum, physically restrain the hydraulic components from moving. If this is not possible, lockout/tagout the entire hydraulic system.

**When Lockout/Tagout is Required**

Before attempting repair or maintenance on a hydraulic line or component, lockout/tagout the machine properly. Follow your company's approved lockout/tagout procedures.

## **PNEUMATIC SYSTEM LOCKOUT/TAGOUT PROCEDURE**

### **When Lockout/Tagout is Not Required**

If working on components other than the pneumatic system, but that requires you to be near the vicinity of movable pneumatic components, you must, at a minimum, physically restrain the pneumatic components from moving. If this is not possible, lockout/tagout the entire pneumatic system.

### **When Lockout/Tagout is Required**

Before attempting repair or maintenance on a pneumatic line or component, lockout/ tagout the machine properly. Follow your company's approved lockout/tagout procedures.

## **TROUBLESHOOTING WITH AN ENERGIZED MACHINE**

Only a qualified electrician, using the personal protective equipment and following the procedures recommended in NFPA 70E should ever attempt service or repair of or near an energized area or component of the machine.

Whenever maintenance is performed while the equipment is electrically energized, there is a potential electric arc flash hazard. Refer to NFPA 70E for the personal protective equipment required when working with electrically energized components. Pneumatic and hydraulic components may move unexpectedly if not de-energized. Physically restrain any components capable of movement when working on or near those components.



**ALL OPERATORS WHO ARE TO USE THIS PRESS MUST FAMILIARIZE THEMSELVES WITH THIS MANUAL AND FULLY UNDERSTAND THE OPERATION OF THE PRESS PRIOR TO STARTING IT.**

**TO REDUCE THE POSSIBILITY OF INJURY, PAY SPECIAL ATTENTION TO AND FOLLOW ALL SAFETY PRECAUTIONS MENTIONED IN THIS MANUAL.**



## PERSONAL PROTECTIVE EQUIPMENT

It is recommended that all operators working on or near this machinery are equipped with the following protective equipment or equipped as outlined in the governing Occupational Health and Safety Act.

### 1. CLOTHING

If there is a possibility that the worker's or workers' clothing might come in contact with moving parts of machinery, the worker should:

- a) Wear close-fitting clothes;
- b) Confine or cut short head and facial hair;
- c) Avoid wearing dangling neckwear, jewellery or other similar items.

### 2. EYE PROTECTION

As the construction and handling of wooden trusses involves the use of hammers, pneumatic nailers, saws, presses, hydraulic and pneumatic machinery, etc., it is recommended that all workers wear proper fitting, appropriate and approved eye or face protectors.

### 3. FOOT PROTECTION

The construction and handling of wooden trusses involves the movement of heavy components. It is recommended that all workers wear appropriate and approved protective footwear.

### 4. HEARING PROTECTION

As the construction and handling of wooden trusses involves the use of hammers, pneumatic nailers, saws, hydraulic and pneumatic machinery, it is recommended that all workers wear appropriate and approved hearing protection. The noise created by operating this machinery exceeds the allowable long-term exposure limits. Please consult your local safety expert for recommendations on your particular installation.

### 5. HEAD PROTECTION

If workers are exposed to the danger of injury to the head, those workers should wear appropriate and approved protective headwear.

## SAFETY DECAL INSTALLATION

**NOTE:** The safety decals and warnings are an integral component of the machinery safety and therefore must be legible and properly situated at all times.

Pacific Automation Ltd. could not possibly anticipate every circumstance that might involve a hazard. For that reason, warnings in the manual and warnings on tags and decals affixed to the machinery are not all-inclusive. If you intend to handle, operate or service the unit by a procedure or method not specifically recommended by the manufacturer, first make sure that such a procedure or method will not render this equipment unsafe or pose a threat to you and others.

Read this manual carefully and become familiar with your machine. Know its applications, its limitations and any hazards involved.



### IDENTIFICATION OF KNOWN SAFETY HAZARDS

**AN EMPLOYER SHALL ENSURE THAT A KNOWN SAFETY HAZARD WHICH:**

- A) CANNOT BE READILY CONTROLLED OR ELIMINATED,  
AND
- B) HAS THE POTENTIAL FOR CAUSING SERIOUS INJURY,

IS IDENTIFIED AND BROUGHT TO THE ATTENTION OF WORKERS WHO MAY BE EXPOSED TO THE HAZARD.

## **1. GENERAL AND INSTALLATION**

- a) Keep safety decals and signs clean and legible at all times.
- b) Replace safety decals if destroyed, missing, painted over or unreadable.
- c) If a part of the machine is replaced that carries a safety decal, apply a new decal immediately.
- d) Safety decals or signs are available from the manufacturer (see Safety Decal List).

## **2. HOW TO INSTALL SAFETY DECALS**

- a) Be sure that the installation area is clean and dry.
- b) Decide on the exact position before you remove the backing paper (see diagram).
- c) Remove the smallest portion of the split backing paper.
- d) Place the sign in position and slowly peel back the remaining paper, smoothing the sign as it is applied.
- e) Small air pockets can be smoothed out or pricked with a pin.

## **CORPORATE HEALTH & SAFETY POLICY**

It is strongly recommended that every company set up a Health & Safety Policy to protect the staff, company property, other workers, and the general public which may enter company premises. Management as well as employees at every level must be responsible and accountable for the company's Health & Safety performance.

Typical components of a Corporate Health & Safety Policy are:

### **1. TRAINING PROGRAMS**

New employees should be provided with:

- a) Training and safe operating procedures for each specific job and machine use;
- b) Statement of Corporate General Safety Practices;
- c) Statement of Corporate Enforcement Policy to comply with governing Occupational Health & Safety Regulations;
- d) Copy of the Emergency Response Plan;
- e) Access to the Corporate Health & Safety Manual and Material Safety Data Sheets;
- f) Locations of first aid boxes and fire extinguishers.

### **2. HAZARD IDENTIFICATION AND CONTROL INFORMATION**

Identification of any potential hazard and methods of control for all areas of the plant, work procedures and machinery.

### **3. EMERGENCY RESPONSE PLAN**

Written procedures detailing the appropriate emergency response for a variety of injuries, accidents, fire and evacuation, hospitals and emergency numbers.

### **4. INCIDENT INVESTIGATION**

Written reports filled out by the foreman or lead hand detailing all incidents of injury or of potential injury. These reports will then be acted upon by the plant manager and safety committee to see how safety can be improved.

### **5. WORK SITE INSPECTION CHECKLIST REPORTS**

A monthly inspection of the work area and machinery by the production workers to confirm the proper use of safety devices, equipment and procedures and to identify any new or potential safety hazards.

### **6. MONTHLY SAFETY MEETING**

A meeting between management, foremen, lead hands, maintenance and production personnel to review safety incidents and inspections and to devise methods of control.

**7. LIST OF INDIVIDUALS WITH CURRENT FIRST AID TRAINING**


## SAMPLE INCIDENT REPORT

Date and Time of Incident: \_\_\_\_\_

Location of Incident: \_\_\_\_\_

Date Reported: \_\_\_\_\_ Reported by: \_\_\_\_\_ Reported to: \_\_\_\_\_

Were there any injuries? \_\_\_\_\_ Name of injured person: \_\_\_\_\_

What were the injuries? \_\_\_\_\_

Was First Aid administered? (by whom) \_\_\_\_\_

Was further medical treatment required? (where) \_\_\_\_\_

Was there any damage to equipment or property? (describe) \_\_\_\_\_

Description of Incident: \_\_\_\_\_

### INVESTIGATION

Was immediate medical treatment required? (by whom) \_\_\_\_\_

Was medical treatment needed at a later date? (by whom) \_\_\_\_\_

Length of time individual was on compensation (if any) \_\_\_\_\_

Cost of equipment or property damage: \_\_\_\_\_

Cause of incident: \_\_\_\_\_

Recommendation to prevent recurrence: \_\_\_\_\_

## INSTALLATION

### UNLOADING THE PRESS

USE ONLY A PROFESSIONAL CRANE COMPANY SPECIALIZING IN MOVING HEAVY MACHINERY TO LIFT THE MACHINE HEAD.



**DANGER**

USE A FORKLIFT OF SUFFICIENT CAPACITY TO LIFT SLIDER TABLES AND HYDRAULIC POWER PACK.

	ULTRA-PRESS		
	16 ft.	18 ft.	20 ft.
Head only	25,900 lbs	31,200 lbs	33,600 lbs
Slider Tables (pair)	5,350 lbs	5,850 lbs	6,270 lbs
Hydraulic Power Pack (100 gal)	1,750 lbs	1,750 lbs	1,750 lbs
Ultra-Press 150:      Head Weight 46,500 lbs.      Tables Weight 7,500 lbs.			

1. Place chains or wire rope slings under the bottom pressing platen about the centre of the machine.

**DANGER**

IF THE UPPER PRESS PLATEN MOVES DURING THE LIFTING PROCESS, OIL MAY SQUIRT OUT OF THE HYDRAULIC CYLINDER. STAND CLEAR OF THE HYDRAULIC CYLINDER.

**! CAUTION**

BE SURE CHAINS OR CRANE BOOM DOES NOT DAMAGE THE PRESSING LINKAGE TRANSFER BAR.

2. Slowly raise the machine 12" off the truck bed.
3. Drive the truck away from under the machine.
4. Lower the machine close to the ground.
5. Move the machine into the desired position inside the shop.



Unloading Ultra-Press With Mobile Crane (25 Ton Capacity)



## GENERAL INSTALLATION REQUIREMENTS

### 1. MACHINERY LOCATION

The Ultra-Press is typically located inside the building and perpendicular to a wall. Locate the press head control end at least 75" away from the wall.

Place the hydraulic power pack between the machine head and the wall and oriented as shown in the installation drawing.

### 2. INSTALLED WORKING HEIGHT

The Ultra-Press has a standard working height of 36 inches.

### 3. PROTECTION FROM THE ENVIRONMENT

The Ultra-Press should be located inside a totally enclosed building. It must be protected from rain, snow, dust, and temperature extremes. The hydraulic oil in the power pack must be selected to match the local ambient temperature.

### 4. CONCRETE FOUNDATIONS

The Ultra-Press is a freestanding machine. It can be placed on a structurally sound, level, industrial-rated reinforced concrete floor. Due to the vibration generated during the pressing cycle, some users prefer to install the Ultra-Press on its own isolated concrete pad. A typical isolation pad would be the footprint of the machine (i.e., 15 ft. x 20 ft.). The pad would be level with the existing floor and be between one and two feet thick with reinforcing steel. The Ultra-Press is typically not bolted down.

### 5. ELECTRICAL POWER

The customer must have a permanent electrical power service brought to the machine which meets the voltage and amperage requirements listed on the machine nameplate.

- a) Typically, a disconnect switch (not supplied) must be mounted on the wall within easy access of and visible to machinery operators. This disconnect switch can be padlocked in the "Off" position to lock out the machine when required.
- b) The main power is brought to the control end of the machine using a rigid steel conduit.

It is connected directly to the main electrical enclosure on the end of the machine.

- c) Permanently wire the electrical motor to the main electrical enclosure using rigid steel conduits.
- d) Permanently wire the hydraulic control valves and heat exchanger motor to the main electrical enclosure using rigid steel conduits.
- e) The two remote control stations and limit switches are pre-wired and only require to be bolted on.
- f) Place a walkover cover over the hydraulic hoses and electrical conduits between the machine and the power pack.

**NOTE: All electrical work must be performed by a qualified electrician and must conform to national and local electrical codes.**

## INSTALLATION TOOLS

### MACHINE: ULTRA-PRESS

110 gallons (English) of approved hydraulic fluid

1 - ½" Socket Set <sup>3</sup>/<sub>8</sub>" to 1¼"

1 - 16" Crescent Wrench

1 - 24" Crescent Wrench

1 - 16" Pipe Wrench

1 - Hex Key Set <sup>1</sup>/<sub>16</sub>" to <sup>3</sup>/<sub>8</sub>"

1 - Hex Key Socket Set <sup>1</sup>/<sub>16</sub>" to <sup>3</sup>/<sub>8</sub>"

1 - Combination Wrench Set <sup>3</sup>/<sub>8</sub>" to 2"

1 - Pair Combination Pliers

1 - Pry Bar

1 - Screwdriver Set

- 1 - Hammer
- 1 - Torque Wrench 150 ft. lbs.
- 1 - Grease Gun
- 1 - Tape Measure
- 1 - OHM/Volts Meter
- 1 - Angle Grinder and Discs
- 1 - Loctite #242 (Serviceable)
- 1 - Loctite #262 (Permanent)
- 1 - Electrical Tape
- 1 - Teflon Pipe Tape
- 1 - Ear Protectors
- 1 - Safety Glasses
- 1 - Work Gloves
- 1 - Straight Edge
- 1 - Level
- 1 - String Line
- 2 - Hydraulic Bottle Jacks

## INSTALLATION INSTRUCTIONS

The Ultra-Press is always initially installed by the factory. If it needs to be relocated, the following is a general installation procedure for a 16 ft. Ultra-Press:

1. Prepare the floor where the machine is to be located. If a special isolating pad is installed, allow sufficient time for it to cure. The floor must be level.
2. Mark the exact location on the floor where the pressing head will sit. (See Installation Drawing.)
3. Using a crane of sufficient capacity, lift the pressing head into position. (See Unloading Instructions for lifting procedure.) **NOTE: The machine must be level.**
4. Concrete anchor bolts can be placed at each end of the machine to keep it from 'walking' or 'rocking'. It is not advisable to fully tighten these bolts, as the flexing of the machine will pull them out of the floor.
5. Position power pack on the control power end of the machine and offset it to Slider Table A side. (See Installation Drawing.)
6. Position Slider Tables A and B nearby. (The slider tables are tack-welded together for shipping purposes.)
7. Remove the installation material box from behind the hinged electrical mounting plate.
8. Mount the main electrical control panel to the hinged mounting plate on the end of the machine. Use four  $\frac{3}{8}$ " x  $\frac{3}{4}$ "-long bolts.
9. Position the "B" In Limit Switch #4 at the opposite end of the machine. Clamp the flexible conduit to the side of the machine with EMT clamps. (The holes are pre drilled and tapped.)
10. Install the **Up** Limit Switch #5, flexible conduit, and clamps.
11. Remove the slider table bolts from the lower platen. (There are nine  $\frac{1}{2}$ " x 1"-long bolts on the underneath edge of the 2" plate. There are four  $\frac{1}{2}$ " x  $1\frac{1}{4}$ "-long bolts on the lower mounting pads.)
12. Cut the temporary welds joining Slider Tables A and B apart with an angle grinder. Remove the two temporary legs on each slider table.

- Using a forklift, lift Slider Table A (at its centre) into place against the “A” side of the pressing head.

**NOTE: Slider table drive motors are located on the control power end of the machine.**

- Bolt the table to the head using the nine  $\frac{1}{2}$ " x 1"-long diameter bolts and lock washers. Do not tighten bolts completely until all are in place.
- Using a level, level the table by adjusting the four outside legs. Use a  $1\frac{1}{8}$ " wrench and a 12" pipe wrench to adjust the legs and tighten the jam nuts.
- Bolt the two horizontal table frame members to the mounting pads, using four  $\frac{1}{2}$ " x  $1\frac{1}{4}$ " long bolts.
- Finish tightening the eleven top and four bottom bolts holding each table to the pressing head.
- Using a 4 ft. straight edge, ensure that the top surfaces of the tables are absolutely flush with the lower platen.
- Repeat Items 11 through 18 for Slider Table B.
- The slider table must sit square on the table frame. Count the number of teeth from the end of each rack to the drive gear on each side of Slider Table A. There must be the same number of teeth for the table to be square. Move one end of the slider table, if required.
- Repeat ‘squaring’ process for Slider Table B.
- Place guiding assembly on each side of the slider tables.
- NOTE: Guide bars are marked and are not interchangeable.**
- Each guide bar assembly is temporarily bolted together for shipping purposes. Remove the fourteen  $\frac{1}{2}$ " temporary nuts from each guide bar assembly.
- Slide each guide bar assembly under the top platen and into position.
- Using a  $\frac{5}{16}$ " hex key socket, re-install  $\frac{1}{2}$ " x  $1\frac{3}{4}$ " flat socket head bolts (14 per side).
- Mount Limit Switches #1 (“A” **Out**), #2 (“A” **In**), and #3 (“B” **Out**).
- Bolt the limit switch guards over Limit Switches #2 and #4. (Two  $\frac{1}{2}$ " x  $1\frac{1}{4}$ "-long bolts

on each guard.)

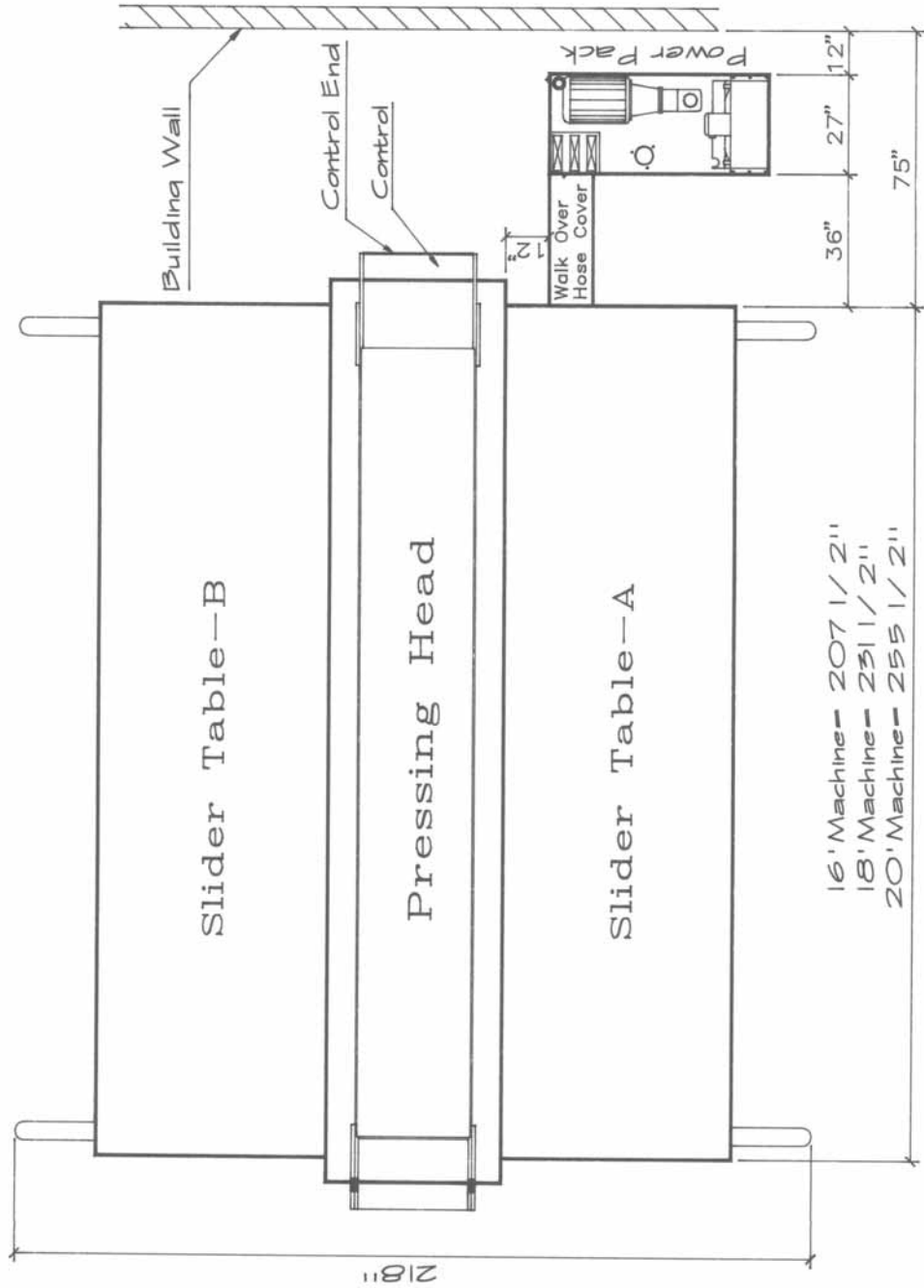
29. Bolt the two slider table guide/drive guards in place using four ½" x 1¼"-long bolts each.

**NOTE: The guard for the control power end has cutouts for the slider table drive motors.**

29. Bolt bellcrank end guards in place, using four ¾" x 1"-long bolts.
30. Connect the two pressing cylinder hoses. Hoses must be supported by the clamping mechanism on the side of the pressing head. (Hoses are labeled to prevent reversal.)
31. Connect slider table drive-motor hoses. (Hoses are labeled to prevent reversal.)
- Slider Table A has short hoses, marked Ports A & B;
  - Slider Table B has long hoses, marked Ports A & B.
32. Have a qualified electrician wire the press according to the national and local electrical codes.
- a) Typically, a disconnect switch (not supplied) must be mounted on the wall within easy access of and visible to machinery operators. This disconnect switch can be padlocked in the "Off" position to lock out the machine when required.
  - b) The main power is brought to the control end of the machine using a rigid steel conduit. It is connected directly to the main electrical enclosure on the end of the machine.
- NOTE: The rigid steel electrical conduit between the pressing head and the hydraulic power pack may be run on the floor alongside the hydraulic hoses. (Please check local codes.)**
- c) Permanently wire the electrical motor to the main electrical enclosure using rigid steel conduits.
  - d) Permanently wire the valve and fan motor feed from the terminal strip in the main electrical enclosure to the junction box on the power pack.
  - e) Permanently wire the 24 VDC pressure switch wiring from the terminal strip in the main electrical enclosure to the junction box on the power pack.
  - f) Fabricate a cover to protect the hoses and rigid conduit on the floor.
33. Mount the two remote-control stations on the pedestals.

- 
34. After the machine has been wired, follow the start-up procedure:
- a) Switch machine to “**Manual A**” mode.
  - b) While someone watches the back of the electric motor, briefly start the machine (5 to 10 seconds) then shut it off. The fan on the motor should be rotating clockwise. The direction of rotation is also marked on the pump and can be viewed at the inspection cover on the motor/pump bell housing.  
  
If the electric motor is turning in the wrong direction, have the electrician reverse two of the three motor phases.
  - c) Restart the machine. The pump should be running steadily, not bubbling or gurgling.
  - d) Depress the **In** button. Slider Table A should move **In**. If it tries to move **Out**, have the electrician reverse the two coil wires in the Slider Table A valve.
  - e) Switch the machine to “**Manual B**” and repeat the procedure with Slider Table B.
  - f) Depress the **Down** button. The pressing platen should move **Down**. If it tries to go **Up**, have the electrician reverse the coil wires in the pressing valve.
  - g) Test the operation of each limit switch. The limit switches should stop the travel of the slider tables and the **Up** movement of the pressing platen.
  - h) With the machine functioning properly, adjust the travel on each of the five limit switches. (See Adjustment Section.)
  - i) Switch the machine to “Automatic” and test the automatic pressing cycles. (See Operating Section for instructions.)
35. Install the four slider table rack guards (two ½” x 1” long bolts per guard).
36. Open the louvers on the heat exchanger.
37. Grease the slider table guides. (See Maintenance Section.)
38. Adjust slider table speed. (See Machine Adjustment Section.)

\*ULTRAPRESS\* - Installation Drawing





## OPERATION

### OPERATING SAFETY



**ALL OPERATORS WHO ARE TO USE THIS PRESS MUST FAMILIARIZE THEMSELVES WITH THIS MANUAL AND FULLY UNDERSTAND THE OPERATION OF THE PRESS PRIOR TO STARTING IT.**

**TO REDUCE THE POSSIBILITY OF INJURY, PAY SPECIAL ATTENTION TO AND FOLLOW ALL SAFETY PRECAUTIONS MENTIONED IN THIS MANUAL.**

**Only trained personnel should operate** or be in the vicinity of the press.

**Observe and obey all warning decals** on press and all precautions mentioned in manual.

**Always be aware of all human movement** around the press. **Ensure your co-workers are clear of the press** and standing at a safe distance from it **prior to starting it.**

**Never stand on any part** of the press or slider table.

**Keep hands clear** of pressing surface, sliding tables, linkage, hydraulic components and other moving parts.

**Never insert hands** or arms into the pressing areas for any reason at any time.

**Never wear loose-fitting clothing** while operating the machine.

**Do not operate the press if any safety guards are removed.**

**Never operate** or work near this machine **while under influence of drugs or alcohol.**

**Do not operate** the press if the hydraulic pressure or temperature exceeds the allowable levels.

**Never operate the machine with broken or cracked hydraulic hoses** or electrical conductors.  
Serious personal injury may result.

**Perform a general inspection of press at the start of each shift.** Check for loose fasteners, hoses, wires, foreign objects on or about the machine, oil leaks, cracks in welds, etc. Complete necessary repairs **before** starting the machine. If in doubt, phone the factory.

**Never press anything but wooden trusses and metal connector plates** with the press. Other objects may shatter if pressed, injuring personnel with flying debris.

**Turn off power to the machine before setting up the jigg**ing on the table.

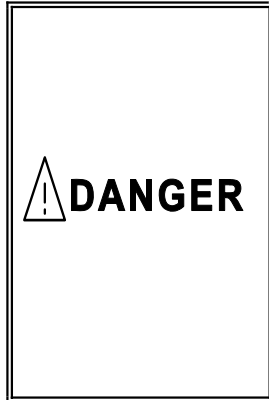
**Always disconnect and lock out the power** to the machine before making any mechanical or electrical adjustments or maintenance.

**Use only a qualified electrician** to perform electrical installation and service work.

**Keep electrical enclosures and boxes secured with padlocks.**

Do not leave the press running unattended. **Turn off the power when not in use and remove the key** to prevent unauthorized use.

## CONTROL DESCRIPTION



ALL OPERATORS WORKING ON OR NEAR THE ULTRA-PRESS MUST READ AND UNDERSTAND THIS MANUAL PRIOR TO STARTING THE MACHINE.

THIS MACHINE IS INTENDED ONLY FOR THE COMMERCIAL PRODUCTION OF WOODEN ROOF TRUSSES AND THEREFORE CAN POTENTIALLY CAUSE SERIOUS OR EVEN FATAL INJURY:

IF USED CARELESSLY OR IMPROPERLY

IF THE MACHINE IS MODIFIED FROM ITS ORIGINAL DESIGN

IF UNAUTHORIZED PARTS ARE USED IN REPAIR OR MAINTENANCE

IF IT IS NOT MAINTAINED IN PROPER WORKING ORDER

### 1. DESCRIPTION OF CONTROL PANELS

There is **one main control panel** on the end of the machine head, and there are two remote stations. The main control panel is where the machine power can be switched **On** or **Off** and the hydraulic pack can be **started** or **stopped**. Also at the main control panel is the **Manual/Automatic** selector switch. All **manual** pressing functions such as **Up, Down, In** and **Out** must be done at the main control panel. Typically, the main control panel is used for fabricating the first few trusses of a new set-up and for adjustments and maintenance.

The **two remote stations** are mounted on movable pedestals which can be located at a convenient place around the press. This allows the operators to minimize their travel distance between the truss set up and machine controls. From the remote stations, the operators can operate the press in the **automatic mode only**. By depressing the “Cycle Start” button, the **In, Down, Up** and **Out** cycles are performed automatically. An “Emergency Stop” button on the remote stations will stop the machine at any point during the pressing cycle. Also located on each remote station, but not on the main control panel, is a “Boost” button. The “Boost” feature has a duty cycle and is used only for the seating of large connector plates.

## MAIN CONTROL PANEL - DESCRIPTION OF SWITCHES



## 2. MAIN CONTROL PANEL - DESCRIPTION OF SWITCHES

a) **“Start” Button**

Press this button to turn on electrical control power and start the electric motor and pump.

b) **“Emergency Stop” Button** (Push/Pull Button)

Press this button to turn off the electrical control power and to shut off the electric motor.

**NOTE:** The “Stop” button will shut off the hydraulic powerpack, stopping all machine functions. This button must be pulled out in order to start the machine.

c) **“Control Power” Key Switch**

This switch turns the control power on and off. Turn the key to the right to allow the control

circuit to be started. Turn the key to the left and **remove** it to prevent accidental or unauthorized use of the machine.

**NOTE:** This switch controls only the control circuit power. Be sure to shut off and lock out the main electrical power feeding the machine before opening the electrical enclosure.

Only a qualified electrician should perform any electrical work.

d) **“Manual A / Auto / Manual B” Selector Switch**

This switch controls the manual and automatic cycle mode.

- i) With the selector switch set to “Manual A” position, the “Up”, “Down”, “In” and “Out” buttons are energized. Activating the “In” button will move left Slider Table A under the pressing platen. Activating the “Out” button will move Slider Table A outwards. The “Up” and “Down” buttons control the pressing platen **Up** and **Down** movement.

**NOTE:** Remote stations are deactivated in Manual mode.

- ii) With the selector switch in the **centre** position, the machine is in the **Automatic** mode. The machine is now controlled by the A and B Remote Control Stations and will go through a pressing cycle automatically.

**NOTE:** In the Automatic mode the “Up”, “Down”, “In” and “Out” buttons are inoperative but the “Emergency Stop” and “Control Power” key switch still function.

- iii) With the selector switch set to **Manual B** position, the “Up”, “Down”, “In” and “Out” buttons are energized. Activating the “In” button will move Slider Table B under the platen. Activating the “Out” button will move right Slider Table B out. The “Up” and “Down” buttons control the pressing platen up and down movements.

e) **“Up” Button**

Depressing and holding this button in either the **Manual A** or **Manual B** mode will raise the pressing platen to its uppermost position. The maximum **Up** position is controlled by the “Up” limit switch.

f) **“Down” Button**

Depressing and holding this button in either the “Manual A” or “Manual B” position will lower the pressing platen to its **Down** (pressing) position.

**g) “In” Button**

Depressing and holding this button will move the corresponding slider table under the pressing platen. The maximum **In** position is controlled by a limit switch.

- With the selector switch set to “Manual A” position, Slider Table A will move inwards.
- With the selector switch set to “Manual B” position, Slider Table B will move inwards.

**NOTE:** Ensure the pressing platen is in **Up** position before moving the slider table. Move the table completely under the pressing platen before pressing a truss.

**h) “Out” Button**

Depressing and holding this button will move the corresponding slider table from under the pressing platen to its outermost position. The maximum **Out** position is controlled by a limit switch.

- With the selector switch set to “Manual A” position, Slider Table A will move from under the pressing platen to its outermost position.
- With the selector switch set to “Manual B” position, Slider Table B will move from underneath the pressing platen to its outermost position.

**NOTE:** Ensure pressing platen is in the **Up** position before moving slider table.

**i) “On” Light**

This light is on when the control power is on.

### 3. REMOTE CONTROL STATIONS “A” AND “B”



There is one remote control station located on each side of the machine. Remote A will control Slider Table A and press head. Remote B will control Slider Table B and press head.

#### a) “Emergency Stop” Button (Push/Pull Buttons)

Push in to shut off the control power to the machine, stopping the hydraulic power pack. All functions of the machine will halt. Switch to **Manual** mode to restart the machine at the main control enclosure. Return the slider tables to the **Out** position and the platen to the **Up** position before setting the machine to the **Automatic** mode.

#### **TIP**

The Mode switch must be in **MANUAL** before the machine can be restarted.

#### b) “On/Off” Key Switch

Turn the key to the “Off” position to disable remote control station and remove it to prevent the accidental or unauthorized starting of the automatic pressing cycle.

**NOTE:** The key switch turns off the “Automatic Pressing Cycle” function only on the same side as the remote control.

- Remote Station A key switch turns off side A cycle only
- Remote Station B key switch turns off side B cycle only



**ALTHOUGH ONE SLIDER TABLE IS SHUT OFF, THE OPPOSITE SLIDER TABLE AND PRESSING HEAD MAY STILL BE OPERATIONAL.**

**ALWAYS OFF THE MAIN POWER TO THE MACHINE BEFORE SETTING UP A NEW TRUSS ON THE JIG, NOT JUST THE POWER TO THE ONE SLIDER TABLE.**

**CONTACT WITH THE MOVING PRESSING PLATEN OR SLIDER TABLE MAY CAUSE SERIOUS PERSONAL INJURY OR DEATH.**

**c) “Cycle Start” Button and “Wait” Light**

Depressing the “Cycle Start” button starts the automatic pressing cycle for that corresponding side of the machine:

- The slider table travels inward to the **In** position.
- The pressing platen goes **Down** until the preset pressure is reached.
- The pressing platen moves to its **Up** position.
- The slider table returns to its **Out** position.

Ultra-Presses from Serial Number PA-418 using Program #V12/88, will not start the automatic pressing cycle unless the opposite slider table and pressing platen are in the **Home** positions, i.e., **Out** position and **Up** position.

The “Wait” light will illuminate when the “Cycle Start” button is depressed, indicating that either the opposite slider table or pressing platen is not in the **Home** position. Turn the “Auto/Manual” selector switch to the appropriate position and, using the manual control buttons, raise the pressing platen and return the slider table to **Out**.

Ultra-Presses prior to Serial Number PA-418 will require that the operators check to ensure the pressing platen is **Up** and the opposite slider table is **Out** before the initial activation of the automatic pressing cycle.

While Slider Table A is in the automatic pressing cycle, the red “Wait” light is turned on at Remote Control Station B. The B side must wait for the A pressing cycle to be completed before activating their “Cycle Start” button.





THE MACHINE WILL START IMMEDIATELY INTO THE AUTOMATIC PRESSING MODE BY ACTIVATING THIS BUTTON. READ "OPERATING SAFETY" INSTRUCTIONS BEFORE ACTIVATING.

d) **"Return" Button**

In Manual Mode, the Return button returns the selected Slider Table to the "Out" position and the press head to the "Up" position. It does not function during Auto Cycle.

e) **"Boost Force" Pressing Cycle and Duty Cycle**

The Ultra-Press has a two-stage pressing function. The "normal" pressing function, generating between 48 and 72 tons of pressing force, should be used on most trusses.

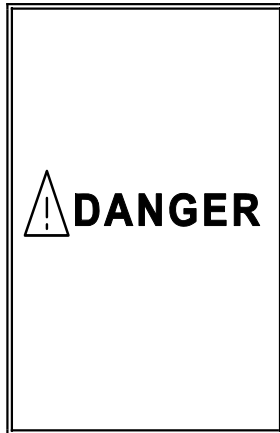
The "Boost" feature, which raises the pressing force to the maximum of 100 tons, should be used only to seat large connector plates which will not be properly seated using the "normal" pressing function.

The "Boost" feature should be used **only** when required, as it will cause premature wear on the machine and hydraulic components.

The Ultra-Press is designed with the following pressing duty cycle:

- 90% of all pressing must use the Normal Pressing Cycle
- 10% of all pressing only can use the Boost Pressing Cycle
- To activate the "Boost" feature, first depress the "Cycle Start" button then depress the "Boost Force" button once as the slider table moves **In**.

## OPERATING PROCEDURES



**READ THE “OPERATING SAFETY” SECTION BEFORE OPERATING THE ULTRA-PRESS.**

**ALWAYS KNOW WHERE YOUR CO-WORKERS ARE BEFORE STARTING THE PRESS.**

**ONLY TRAINED PERSONNEL ARE TO OPERATE THE MACHINE.**

**CHECK THE SLIDER TABLES FOR FOREIGN OBJECTS PRIOR TO STARTING THE PRESS.**

**NEVER OPERATE THE MACHINE WITH THE SAFETY SHIELDS REMOVED.**

**DO NO USE “CHEATER PLATES” OR OTHER OBJECTS TO INCREASE OR CONCENTRATE THE PRESSING LOAD.**

**NEVER OPERATE THE MACHINE WITH CRACKED OR BROKEN HYDRAULIC HOSES.**

### 1. SETTING UP TRUSS JIGGING

- a) Turn the machine off at the main control panel. Remove the keys to prevent accidental starting.



**DO NOT SET UP ONE JIG TABLE WHILE THE OTHER SLIDER TABLE IS IN USE. SERIOUS PERSONAL INJURY OR DEATH MAY RESULT.**

- b) Set up the truss template on the slider table or use conventional jiggling methods.
- c) Place backing angles on each bottom chord joint (heels, splices, etc.). Be sure there is sufficient room for the truss overhang to clear the machine head and the slider table limit switches.
- d) Align the backing angles with a string line and secure.
- e) Set up the truss components or pre-built truss onto the slider table(s).



- f) Locate clamps at each joint. Be sure that clamps are positioned to fully close the joints.
- g) Place bobbins and stops at web and other locations, to align and locate truss components.
- h) Place the appropriate connector plates at the proper locations, as shown in the engineered truss drawing.
- i) Ensure there are no foreign objects, such as hammers, on the table and that the machine is clear of objects and personnel.

## 2. MANUAL OPERATION AT THE MAIN CONTROL PANEL

**NOTE:** When setting up a new truss configuration, it is advisable to run the first few trusses on Manual mode, to ensure truss and jiggging travel freely.

- a) Pull out the “Emergency Stop” button on the main control panel.
- b) Turn the key switch to the **On** position.
- c) Switch the “Auto/Manual” selector to “Manual” for the appropriate side. (A or B)
- d) Press the “Start” button on the main enclosure to start the main hydraulic power pack.

 **DANGER**

**ENSURE THAT YOUR COWORKERS ARE CLEAR OF THE PRESS AND STANDING AT A SAFE DISTANCE FROM IT PRIOR TO STARTING IT.**

- e) Depress the “Up” button, to ensure that the pressing platen is in the fully **Up** position.
- f) Check to ensure that the opposite slider table is in the **Out** position.
- g) Depress and hold the “In” button until slider table runs completely under the press head and stops at the **In** position.

**! CAUTION**

**ENSURE THE SLIDER TABLE RUNS SMOOTHLY AND THAT THE TRUSS OR JIG HARDWARE DOES NOT HIT THE LIMIT SWITCHES.**

- h) Depress and hold the “Down” button to press the truss.
  - i) Depress and hold the “Up” button until the platen returns to its **Up** position.
  - j) Depress and hold the “Out” button to return the slider table to the **Out** position.
- k) Check each finished truss to ensure all connector plates are properly located and seated into the lumber.

If most of the connector plates are not fully seated, try using the “Boost” pressing cycle to increase the pressing force. Depress the “Boost” button momentarily after the “Cycle Start” button has been activated.

If the connector plates are properly seated, continue to use the “Boost” pressing cycle for that particular truss configuration.

**NOTE:** The “Boost” function has a 10% daily duty cycle. Exceeding this duty cycle will cause premature wear of the machine and hydraulic components.

- If the connector plates still do not properly seat, see Trouble Shooting Section.
- ii) If only one connector plate is not seated, check the height of the jig plate and lumber

thickness.

- iii) If the lumber is being crushed or cracked, the pressing force may be too great. (See Trouble Shooting Section.)
- iv) If the connector plates have moved out of position before pressing, it may be necessary to slow down the slider table **In** speed. (See Adjustment Section.)
- l) Run several trusses in the **Manual** mode before switching to **Automatic**.
- m) Switch the “Auto/Manual” selector to **Automatic** so that the machine can be controlled by the remote control stations.
- n) Set up the other jig table in a similar way.



Ultra-Press with Finished Truss

OPERATING PROCEDURE Continued from previous page

## 2. AUTOMATIC OPERATION AT THE REMOTE CONTROL STATION

**NOTE:** The machine must be set in the **Automatic** mode in order to use the two remote control stations. The “**Emergency Stop**” button on each remote control will function in both the **Automatic** and **Manual** modes.

- a) Assemble the truss in the jig, as per the instructions in the **Manual** operation section.
- b) Check to ensure that the slider tables are in the **Out** position and the pressing platen is in the **Up** position (**Home** positions). Use the manual controls to move them to the **Home** positions.
- c) Turn the “Auto/Manual” selector switch to **Automatic**.

<b>! CAUTION</b>
------------------

**THE PRESSING PLATEN MAY AUTOMATICALLY RETURN TO THE UP POSITION WHEN THE MACHINE IS SET TO AUTOMATIC.**

- d) Turn the key switch on the appropriate remote control station to “On” position.
- e) Depress “Cycle Start” button to the initiate automatic pressing cycle. The slider table will go **In**, the machine will press and return to the **Up** position, the slider table will return automatically. The “Wait” light will illuminate when the “Cycle Start” button is depressed, if the machine is not in the **Home** position.



**STAND CLEAR OF THE PRESS AND SLIDER TABLES WHEN THEY ARE MOVING. POSITION THE REMOTE-CONTROL STATIONS 3 OR 4 FEET AWAY FROM THE MACHINE SO THAT THE OPERATOR MUST STAND CLEAR OF THE PRESS.**

**SHOULD THE PRESSING CYCLE HAVE TO BE INTERRUPTED FOR ANY REASON, THIS CAN BE DONE USING THE “EMERGENCY STOP” BUTTON**

**IN CASE OF EMERGENCY, OR AS REQUIRED, DEPRESS ANY OF THE THREE “EMERGENCY STOP” BUTTONS. THIS WILL TURN OFF THE CONTROL POWER AND THE HYDRAULIC PUMP, STOPPING ALL MACHINE FUNCTIONS. THE MACHINE MUST BE RE-STARTED ON THE MAIN ENCLOSURE.**

- f) Remove the completed truss.
- g) Check each finished truss to ensure all connector plates are properly located and seated into the lumber.
- i) If most of the connector plates are not fully seated, try using the “Boost” pressing cycle to increase the pressing force. Depress the “Boost” button momentarily after the “Cycle Start” button has been activated.

- If the connector plates are properly seated, continue to use the “Boost” pressing cycle for that particular truss configuration.

**NOTE:** The “Boost” function has a 10% daily duty cycle. Exceeding this duty cycle will cause premature wear of the machine and hydraulic components.

- If the connector plates still do not properly seat, see Trouble Shooting Section.

- ii) If only one connector plate is not seated, check the height of the jig plate and lumber thickness.
  - iii) If the lumber is being crushed or cracked, the pressing force may be too great. (See Trouble Shooting Section.)
  - iv) If the connector plates have moved out of position before pressing, it may be necessary to slow down the slide table **In** speed. (See Adjustment Section.)
- h) Repeat a) to f).





## MAINTENANCE

### WARNING TO MAINTENANCE PERSONNEL

Detailed descriptions of standard workshop procedures, safety principles, and service operations are not included in this manual. Although this manual contains some warnings and cautions against specific service methods which could cause personal injury or damage to the machine, it does not cover all conceivable ways of service which might be done or the possibility of hazardous consequences of each conceivable way. If you intend to handle, operate or service the unit by a procedure or method not specifically recommended by the manufacturer, first make sure that such a procedure or method will not render this equipment unsafe or pose a threat to you and others.

It is the **responsibility of the mechanic** performing the maintenance or service on a particular machine to:

- a) Inspect the machine for abnormal wear and damage;
- b) Choose a procedure which will not endanger his/her safety, the safety of others, the equipment, or the safe operation of the machine; and
- c) Fully inspect and test the machine and the hydraulic and electrical systems to ensure that the service to the machine has been properly performed and that the machine, hydraulic and electric systems will function properly.



**THIS MACHINE CONTAINS HIGH VOLTAGE ELECTRICITY WHICH MAY CAUSE SERIOUS PERSONAL INJURY OR DEATH. (SEE SAFETY SECTION - ELECTRICAL SYSTEM SAFETY, FOR DETAILS.)**



**THIS MACHINE UTILIZES A HIGH-PRESSURE HYDRAULIC SYSTEM, WHICH MAY CAUSE SERIOUS PERSONAL INJURY OR DEATH. (SEE SAFETY SECTION - HYDRAULIC SAFETY, FOR DETAILS.)**

## SERVICE RULES

1. Use only genuine Pacific Automation parts or Pacific Automation recommended parts and lubricants, or their equivalents. Parts that do not meet Pacific Automation's current design specifications may fail causing serious personal injury or death.
2. Pacific Automation, from time to time and without notice, may change or upgrade the required design specifications for any particular component. Always contact the factory before replacing components.
3. If inspection or testing reveals evidence of abnormal wear or damage to the machine or if you encounter circumstances not covered in the Service Manual - **STOP** - consult the factory. Do not try to repair or service a machine which has been damaged or includes any part that shows excessive wear unless the damaged and worn parts are replaced with original replacement and service parts and the machine is restored to the current specifications of Pacific Automation Ltd.
4. Use the correct tools and procedures to avoid damage and incorrect assembly.
5. Always install new gaskets, O-rings, cotter pins, etc., and place adhesive on bolts if required.
6. Torque bolts and fasteners to the correct specifications.
7. Clean parts in a nonflammable or high flash point solvent only.
8. Lubricate any sliding surfaces before assembly.
9. Most of the pressing linkage is composed of high carbon, heat-treated steel. Do not attempt to cold straighten, hot straighten, bend, or weld these components, as they may fail under load causing serious personal injury or death.
10. After re-assembly, check all parts for proper installation and operation before putting the machine back into service.
11. Pacific Automation will, from time to time, mail out service bulletins and updates for this machine. Follow the service bulletins and updates accordingly and file them in this service manual.

MiTek extends close technical cooperation and assistance. If a problem occurs which you cannot solve, please call the factory for assistance.

## RECOMMENDED BASIC MAINTENANCE TOOLS

### MACHINE: ULTRA PRESS

<ul style="list-style-type: none"> <li>1 - ½" Socket Set <sup>3</sup>/<sub>8</sub>" to 1¼"</li> <li>1 - 16" Crescent Wrench</li> <li>1 - 24" Crescent Wrench</li> <li>1 - 16" Pipe Wrench</li> <li>1 - Hex Key Set <sup>1</sup>/<sub>16</sub>" to <sup>3</sup>/<sub>8</sub>"</li> <li>1 - Hex Key Socket Set <sup>1</sup>/<sub>16</sub>" to <sup>3</sup>/<sub>8</sub>"</li> <li>1 - Combination Wrench Set <sup>3</sup>/<sub>8</sub>" to 2"</li> <li>1 - Pair Combination Pliers</li> <li>1 - Pry Bar</li> <li>1 - Screwdriver Set</li> <li>1 - Hammer</li> <li>1 - Torque Wrench 150 ft. lbs.</li> <li>1 - Grease Gun (Air Powered)</li> <li>1 - Grease Gun (Hand Operated)</li> <li>1 - Tape Measure</li> <li>1 - OHM/Volts Meter</li> <li>1 - Angle Grinder</li> <li>1 - Locktite #242 (Serviceable)</li> <li>1 - Locktite #262 (Permanent)</li> <li>1 - Electrical Tape</li> <li>1 - Teflon Pipe Tape</li> </ul>	<ul style="list-style-type: none"> <li>1 - Anti-Seize Compound</li> <li>1 - Ear Protectors</li> <li>1 - Safety Glasses</li> <li>1 - Work Gloves</li> <li>1 - Straight Edge</li> <li>1 - Level</li> <li>1 - String Line</li> <li>2 - Hydraulic Bottle Jacks</li> <li>1 - Set of Punches</li> <li>1 - 6" Vernier Caliper</li> <li>1 - Three-Square File</li> <li>1 - Stopwatch</li> <li>1 - Oxy/Acetylene Torch *</li> <li>1 - Propane Torch *</li> <li>1 - Slide Hammer *</li> <li>1 - 350°F Tempilstik *</li> <li>1 - 400°F Tempilstik *</li> <li>1 - 450°F Tempilstik *</li> <li>1 - Inside Micrometer *</li> <li>1 - Outside Micrometer *</li> <li>1 - Welder and Accessories *</li> </ul> <p>* <b>Specialty Tools</b></p>
--	--

## HPU GRAPHICS

HPU as of 2009



## HPU GRAPHICS

HPU as of 2009



## ULTRA-PRESS MAINTENANCE SCHEDULE SUMMARY

DAILY		
<b>General Inspection</b>		
a)	Loose Fasteners	Inspect
b)	Pin Locking Bolts and Lock Nuts	Inspect / Tighten
c)	Unusual Noises	Inspect
d)	Cleaning Machine	Clean
e)	Loose Connector Plates	Inspect / Clean
f)	Oil Leakage	Inspect
g)	Hydraulic Oil Level	Inspect
h)	Hydraulic Oil Temperature	Inspect
i)	Hydraulic Hoses	Inspect
<b>Manual Lubrication</b>		
a)	Grease blocks on top of press head	2 locations
b)	Grease blocks on both ends of press head for lower connecting rods	2 locations
c)	Slider Table Guides (4 Guides)2/guide	Grease 8 locations
d)	Slider Table Plastic Wear Pads1 set/table	Silicon spray as needed

<b>2. EVERY 3 MONTHS OR 500 HRS</b>		
a)	Electric Motor Vents and Fins	Clean
b)	Heat Exchanger Fins	Clean
c)	Oil Filter By-Pass Gauge	Check reading
d)	Weld Inspection	Inspect
e)	Initial Oil Filter Change	Change at 6 months
<b>3. EVERY 12 MONTHS OR 2,000 HRS</b>		
a)	In-Tank Filter Element Change	Replace every 2000 hrs, or sooner if gauge indicates
b)	Canister-Style Hydraulic Filter Element Change	Replace
c)	Hydraulic Oil Change	Replace
d)	Slider Table Drive Shaft Bearing	Inspect / Grease 4 locations
e)	Main Enclosure Electrical Components	Inspect

## MAINTENANCE SCHEDULE IN DETAIL

### 1. DAILY MAINTENANCE

#### **GENERAL INSPECTION**

A daily inspection of the entire machine should be done to locate any loose fasteners, hoses, wires or foreign objects on or about the machine, or oil leaks, cracks in welds, and broken or cracked hydraulic hoses. **Any problem should be corrected immediately.**



**READ “HYDRAULIC SYSTEM SAFETY” BEFORE PERFORMING ANY MAINTENANCE.**

**NEVER OPERATE THE MACHINE IF ANY HYDRAULIC HOSES ARE CRACKED OR BROKEN. SERIOUS PERSONAL INJURY COULD RESULT.**

**NEVER PERFORM ANY MAINTENANCE TO THE MACHINE WITHOUT FIRST DISCONNECTING THE ELECTRICAL POWER AND LOCKING IT OUT.**

**MAINTENANCE SHOULD BE PERFORMED ONLY BY TRAINED PERSONNEL.**

**THE HYDRAULIC OIL IN THE TANK AND THE VARIOUS COMPONENTS CAN REACH A TEMPERATURE OF 180°F ( 82°C). AT THIS TEMPERATURE CONTACT WITH THE OIL WILL CAUSE SERIOUS BURNS. DO NOT PERFORM ANY SERVICE WORK WITHOUT FIRST ALLOWING THE OIL AND CORRESPONDING COMPONENTS TO COOL DOWN TO LESS THAN 100°F ( 38°C ).**



**a) Loose Fasteners**

Visually inspect the machine for loose fasteners. Re-tighten any found. (See Specifications Section for Torque Specifications.)

**b) Pin Locking Bolts and Lock Nuts**

Vibration from pressing and hose surging may work some fasteners loose. Check the following items to ensure they are tight:

- Lock nuts on relief valve, adjuster and unloading-valve adjuster.
- Lock nuts on the slider table speed-control adjuster.
- Pin locking bolts holding press linkage pins in place. If any pin locking bolt is loose, remove the bolt, apply Loctite #262 to the threads, and re-tighten.

**c) Unusual Noises**

The Ultra Press should run smoothly and quietly. Unusual noises could indicate:

- Clicking noises as the slider table first starts would indicate too much clearance between the drive gear and the rack.
- Clunking or banging noises as the slider table moves could indicate worn or misaligned drive gears.
- If the slider table bangs in one location only, it is usually caused by a connector plate stuck to the bottom of the table.
- The pressing linkage should move smoothly. It should make noise only during the final pressing operation.
- Gurgling or bubbling sounds from the hydraulic power pack would indicate that the pump is cavitating (sucking air).
- A high-pitched squealing from the power pack would indicate an incorrect setting of the relief valve.

**d) Cleaning Machine**

Use a damp rag to wipe dust and dirt off the machine. Do not use solvents on painted surfaces. Safety decals must be kept legible at all times. Keep area around the machine free of scrap lumber, connector plates, sawdust, oil, grease, etc.

**e) Loose Connector Plates**

Connector plates sometimes fall off the truss jig and into the slider table mechanism. A trough is built into the stationary table for these loose connector plates to fall into. Connector plates which become embedded in the slider table plastic wear pads must be removed immediately. Follow these steps to remove the connector plates from the trough:

- Turn machine to “**Manual A**”
- Start the machine
- Depress the **In** button and run Slider Table A all the way in
- Shut off press and lock out
- Carefully climb onto stationary table and remove the connector plates from the trough
- Carefully climb off the table, restart the machine and bring Slider Table A to the **Out** position
- Repeat procedure with Slider Table B.

**f) Oil Leakage**

**READ THE HYDRAULIC WARNING SHEET IN THE SAFETY SECTION OF THIS MANUAL BEFORE LOOKING FOR OR CORRECTING ANY HYDRAULIC LEAKS. HIGH-PRESSURE OIL EASILY PUNCTURES SKIN CAUSING SERIOUS INJURY OR DEATH.**

Hydraulic oil leaks are most often due to loosened hydraulic fittings, damaged seals in

components, or damaged hoses. If oil appears in excess anywhere on the press, find the source and have a qualified hydraulics person correct it immediately. Clean up any oil on the press or on the floor, as it is a safety hazard. If the leak persists, report it to the factory or a qualified hydraulics person immediately.

If the machine runs over 170°F (76°C), the hydraulic seals and hoses will harden and rapidly deteriorate, causing frequent leaks.

**g) Hydraulic Oil Level**

The hydraulic oil level can also be read on the sight temperature gauge. When the oil is hot, oil level should be at the “high” level. If level is low, replenish with a **high quality, anti-wear hydraulic oil** of the correct weight. (See Specifications Section for Oil Specifications.)



Oil Level / Temperature Gauge

### h) Hydraulic Oil Temperature

The oil temperature can be read on the level/ temperature gauge which is mounted on the side of the tank. Working temperatures for hydraulic machinery are typically between 90°F - 170°F (32°C - 76°C).

The life of the oil, the seals in the hydraulic components, and the hoses are greatly affected by the oil operating temperature. As the temperature increases, the seals and hoses will harden. This will lead to frequent leaks from the O-ring connections and a higher risk of hydraulic hose failure. Ideally, the hydraulic system should operate at temperatures between 120°F - 140°F (49°C - 60°C) for maximum life. In hot climates where the ambient temperature is over 100°F (38°C), the oil tank may not be able to radiate enough heat. If the machine is operating at temperatures above 170°F (76°C), it would be advisable to install a heat exchanger into the hydraulic system, if not already equipped. Improperly adjusted relief valves and speed control valves are also a major source of heat generation. (See Adjustments Section.)

<b>OIL TEMPERATURE GUIDE</b>		
0°F to 32°F	(-18°C to 0°C)	Do not start the machine (an auxiliary oil heater is required)
32°F	(0°C)	Minimum start-up temperature for AW-68 oil
100°F to 120°F	(38°C to 49°C)	Oil is warming up as machine is being used
120°F to 140°F	(49°C to 60°C)	Ideal operating temperature for hydraulic components
160°F to 180°F	(71°C to 82°C)	Machine is running hot Heat exchanger is recommended Seal failure greatly increases Oil should be changed every six months
180°F	(82°C)	Maximum operating temperature of AW-68 oil
180°F to 220°F	(82°C to 104°C)	Expect frequent leaks due to seal failure Oil will start to turn to sludge in the bottom of the tank Pumps, motors and valve will wear out due to a breakdown of the oil's lubricating properties

**NOTE: Do not use the machine if the oil temperature is not between the minimum and maximum operating temperatures for the grade of oil being used. Severe damage to the hydraulic components will occur. (See Specification Section.)**

i) **Hydraulic Hoses**

Sudden surges of hydraulic pressure cause hoses to flex during operation of the press. This action can wear or puncture a hose if it is rubbed against a sharp edge. If a hose has been damaged, have the hose replaced immediately by a qualified hydraulics person. Hoses routed around sharp edges should be clamped in hose supports to prevent wear.

Heat causes hoses to deteriorate. Any hose which exhibits a lack of flexibility, or cracks in the outer casing, must be replaced. (See Specifications Section - Hose Specifications.)



**NEVER OPERATE THE PRESS WITH DAMAGED HOSES, SEVERE PERSONAL INJURY MAY RESULT.**

**USE ONLY HOSES WITH THE CORRECT PRESSURE RATING.**



**THE HYDRAULIC OIL IN THE TANK AND THE VARIOUS COMPONENTS CAN REACH A TEMPERATURE OF 180°F (82°C). AT THIS TEMPERATURE, CONTACT WITH THE OIL WILL CAUSE SERIOUS BURNS. DO NOT PERFORM ANY SERVICE WORK WITHOUT FIRST ALLOWING THE OIL AND CORRESPONDING COMPONENTS TO COOL DOWN TO LESS THAN 100°F ( 38°C ).**



Pressing Cylinder Hose Supports

## LUBRICATION

The linkage of the press utilizes many bronze bushings which must be kept well lubricated. They must be **greased daily** with an extreme-pressure grease such as Esso Unirex EP2 Grease or an equivalent product. **Failure to do so can cause binding and serious damage to your press and will void the warranty.**

Brass shavings around the linkage pins and broken pin locks indicate insufficient greasing.

The grease fitting locations are shown in the following pictures. Using a hand or air powered grease gun, pump four to six strokes into each grease fitting. Wipe off excess.



### **DANGER**

**THE FOLLOWING MUST BE GREASED DAILY TO PREVENT PREMATURE MACHINE WEAR AND COMPONENT FAILURE LEADING TO POSSIBLE PERSONAL INJURY.**

**LOCK OUT POWER AND IMMOBILIZE THE MACHINE BEFORE GREASING.**

There are four (4) grease blocks on the press and 4 grease fittings on each table. Refer to the photographs for locations.

- This grease block is found on top of the press head, at both ends.



- This grease block is found at both ends of the press head and lubricate the lower connecting rods.





- There are four slider table guides, one located on each edge of the table. Each guide has two grease fittings on it, for a total of eight (8) grease fittings on the tables. These must be greased daily with an extreme-pressure grease to ensure smooth operation. If the slider table slows down, it probably needs greasing.



- Slider Table Plastic Wear Pads: Plastic wear pads are bolted to the underside of each slider table. They are generally slippery enough not to require lubrication. If additional lubrication is required, use a silicon-based spray lubricant as it will not attract sawdust.
- Slider Table Drive Gear and Rack: Do not apply any lubricant to the drive gear and rack assembly.

## 2. EVERY THREE MONTHS OR 500 HOURS

### ***CLEAN AND INSPECT***

a) **Electric Motor Vents and Fins**

Using compressed air, blow off any sawdust which has accumulated on the electric motor vents and fins.

b) **Heat Exchanger Fins**

Using compressed air, blow off any sawdust which has accumulated on the heat exchanger fins.

c) **Oil Filter By-Pass Gauge**

With the machine idling and the oil at operating temperature, check the oil filter by-pass gauge mounted on the oil filter housing. If the by-pass gauge reads more than 20 psi (into the red zone), it is time to replace the filter element. (See Maintenance Section - 12-Month Maintenance.)



Oil  
Filter  
By-

d) **Weld Inspection**

Over the life of the machine, some of the highly stressed welds may develop fatigue cracks. To prevent further damage, they must be repaired before the crack

progresses. Visually inspect the major welds on the pressing platens and linkage. Any cracks that are found should be repaired immediately.

Many components are manufactured with high-strength T1 steel and require special welding techniques. Call the factory for welding procedures.

e) **Initial Oil Filter Change**

The oil filter should be changed after the first six months of operation. (See Maintenance Section - 12 Month Maintenance.)

### **3. EVERY 12 MONTHS OR 2,000 HOURS**

#### **a) CHANGE THE HYDRAULIC UNIT RETURN LINE FILTER ELEMENT**

The hydraulic oil filter is designed to filter out harmful particles from the hydraulic system. On the filter, there is an indicator gauge showing the amount of oil bypassing the internal filter element. If the indicator reads more than 20 psi (into the red zone), it is time to replace the filter element.

**NOTE: The oil must be at operating temperature before taking the reading.**

Regardless of the indicator, the filter element must be **replaced after the first six months of press operation and then annually** when the hydraulic oil is changed.

#### **For Machines Built in 2009 or Later, the Following Filter Procedures Apply**

Filter element part #: Schroeder KZ10

To replace the filter element, follow these steps:

- i) Allow the machine to cool down to room temperature. Turn off and lock out the main power to the machine. (See Safety Section - Lock-Out Procedure.)
- ii) Clean off the top of the hydraulic tank near the oil filter, to prevent dirt and sawdust from falling into the tank.
- iii) Remove the three bolts on top of the filter housing.
- iv) Lift off the filter cover and spring.
- v) Lift out the old filter element and place it in a container.
- vi) Set the new element into the filter housing.
- vii) Replace the spring and filter cover.
- viii) Replace the three  $\frac{5}{16}$ " diameter cover bolts and torque to 19 ft.lb.
- ix) Start the machine and check for leaks.
- x) Dispose of filter elements and rags in a safe, approved manner.

**b) HYDRAULIC OIL CHANGE**

The Ultra-Press requires a complete hydraulic oil and filter change annually, or every 2,000 hours of operation. Hydraulic oil does not get dirty like automotive oil, but heat causes the hydraulic oil to break down and the additives wear out. Although the oil may still look clean, it will not provide adequate lubrication of the hydraulic components. Changing the oil regularly will prolong the life of the hydraulic system.

There are two different styles of hydraulic tanks used in the Ultra-Press. Machines before Serial Number PA-353 use a low style 90-gallon tank. Machines from Serial Number PA-354 use a high style 100-gallon tank with a built-in heat exchanger.

**Items Required:**

90 or 100 gallons of Hydraulic Oil (see Specifications Section for Oil Requirements)	Air-Powered Oil Pump
Containers large enough to hold 100 gallons of oil	Socket Set
Trouble Light	Screwdriver Set
Solvent or Varsol	Clean Rags

The procedure to change the hydraulic oil follows:

- i) Check the oil temperature on the sight gauge. Allow the oil temperature to cool down to room temperature. Turn off and lock out the main power to the machine. (See Safety Section - Lock-Out Procedure.)
  - ii) Clean off the hydraulic tank, especially around the filter, inspection cover, and filler/breather.
  - iii) Loosen and remove the screws holding the filler/breather screen, taking care not to lose them or to damage the gasket.
  - iv) Place the oil pump directly into the filler/breather hole.
  - v) Pump the oil into the empty bucket.
  - vi) Remove the inspection cover and gasket.
    - On 90 gallon tanks, the inspection cover is on the top.
    - On 100 gallon tanks, the inspection cover is on the end.
  - vii) Using rag dampened with a solvent, clean out any dirt or sludge inside the tank. Look specifically for metallic or foreign particles. These must not be allowed to travel through the hydraulic system. Report any suspicious findings to Pacific Automation Ltd.
  - viii) Replace the inspection cover and gasket.
  - ix) Refill with approved hydraulic oil. **Use a high grade, anti-wear hydraulic oil.** (See Oil Specifications.)
  - x) Replace the filler/breather screen and mounting flange.
- NOTE: Hydraulic oil will expand when warm. First, fill oil to below the “High” level on sight gauge. Top oil level off after oil has circulated in the hydraulic system and has been allowed to warm up.**
- xi) Dispose of used oil and rags in a safe, approved manner.

**c) SLIDER TABLE DRIVE SHAFT BEARING**

There are four pillow block bearings on the Ultra-Press. One bearing is located at

each end of the two drive shafts. Grease the four bearings with a general-duty grease. The fittings are located on the bearing housings.

- i) Clean off the grease fitting with a rag, to remove any dirt.
- ii) Using a hand-powered grease gun, displace one or two strokes of grease into the bearing only.

**! CAUTION**

GREASE SPARINGLY. OVER GREASING WILL DAMAGE SEALS ALLOWING DIRT TO ENTER, CAUSING BEARING FAILURE.

**TOTALLY FILLING THE BEARING CAVITY WITH GREASE WILL CAUSE THE BEARING TO OVERHEAT, LEADING TO FAILURE.**



Drive Shaft Bearing

**d) MAIN ENCLOSURE ELECTRICAL COMPONENTS**

Over a period of time, vibration may cause some of the electrical screws to work loose. Any evidence of heat, such as discoloured insulation on a wire or component, would indicate that connection is loose. Left alone, a loose connection will get hot enough to melt the wires and components and possibly start a fire.



**HIGH VOLTAGE LOCATED INSIDE THE PANELS AND THROUGHOUT THE MACHINE CAN CAUSE SERIOUS INJURY OR DEATH IF CONTACTED. ONLY QUALIFIED ELECTRICIANS MUST BE ALLOWED TO PERFORM ELECTRICAL SERVICES.**

- i) Turn off and lock out the main power to the machine. (See Safety Section - Lock-Out Procedure.)
- ii) Check each screw on the electrical components and terminal strips to ensure that they are tight.

Pay particular attention to the high-voltage terminal screws on the top and bottom of the magnetic starters and overload blocks. If any of these screws work loose, the connection will arc and overheat. This may burn the wire and terminals.

Refer to the electrical panel photo at the end of the manual for component locations.



## MACHINE ADJUSTMENTS\*

### 1. LIMIT SWITCH ADJUSTMENTS

There are five limit switches on the Ultra-Press. More information can be found on the electrical drawings. These limit switches control the travel of the platen and slider tables. They must be set in the correct position to prevent the machine from over running the “Stop” positions and damaging the mechanical components.

The limit switch arms can be knocked out of position if they are accidentally hit by a board.



**TURN OFF AND LOCK OUT THE MAIN ELECTRICAL POWER WHEN PERFORMING MACHINE ADJUSTMENTS, TO PREVENT SERIOUS PERSONAL INJURY.**

**THE HYDRAULIC OIL IN THE TANK AND THE VARIOUS COMPONENTS CAN REACH A TEMPERATURE OF 180°F (82°C). AT THIS TEMPERATURE CONTACT WITH THE OIL WILL CAUSE SERIOUS BURNS. DO NOT PERFORM ANY SERVICE WORK WITHOUT FIRST ALLOWING THE OIL AND CORRESPONDING COMPONENTS TO COOL DOWN TO LESS THAN 100°F ( 38°C ).**

**Items Required:**

Socket Set

Hex Key Set

Screwdriver Set

Combination Wrench  
Set

Limit Switch Control Functions 2009 and Later (See Diagram for machines prior to 2009)

Limit Switch #1	Slider Table A	- <b>In</b> Position
Limit Switch #2	Slider Table A	- <b>Out</b> Position
Limit Switch #3	Slider Table B	- <b>In</b> Position
Limit Switch #4	Slider Table B	- <b>Out</b> Position
Limit Switch #5	Open Height	- <b>Up</b> Limit Switch

### **OPEN HEIGHT (UP LIMIT SWITCH)**

This limit switch controls the “open height” of the press - the distance from the top of the table surface to the bottom of the pressing platen. The “open height” should be set at a position for easy clearing of lumber and loose connector plates, i.e., for 2"x3" and 2"x4" lumber, set it at approximately 3". If the machine is set to the maximum “open height,” the cycle time will be slightly longer.

The “open height” is set by moving the stop block up or down.

- To increase the “open height”: move the block downward.
- To decrease the “open height”: move the block upward.

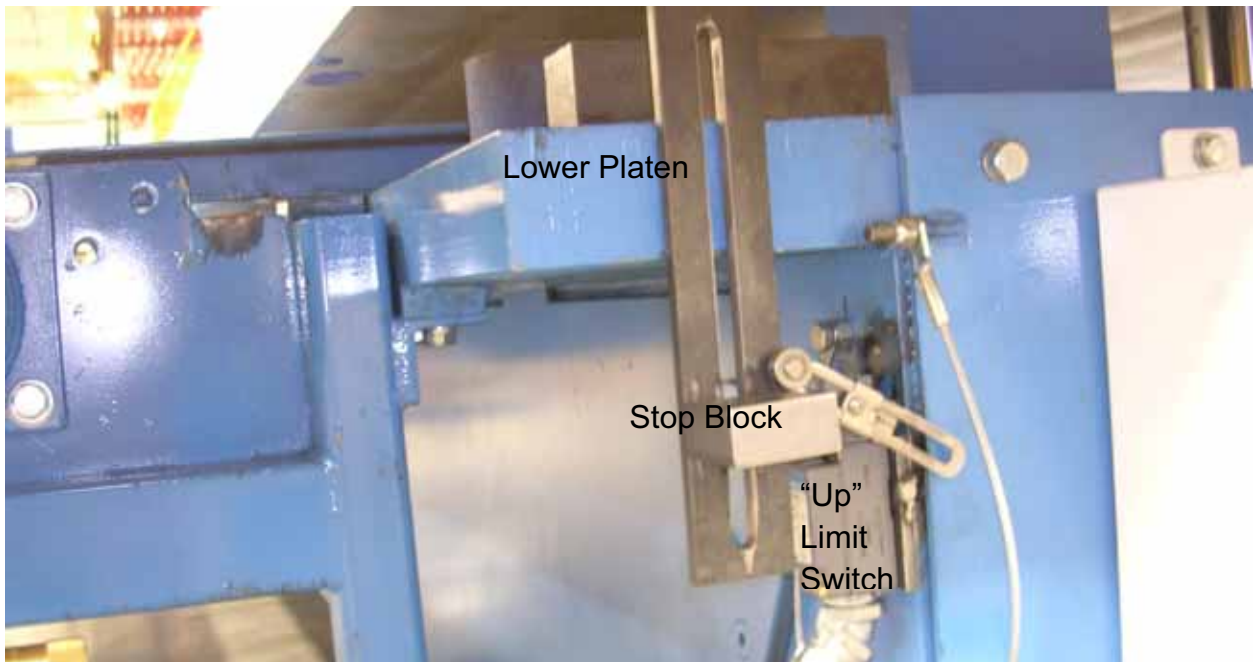
Open Height Adjustment Procedure:

- i) Turn off and lock out the main power to the machine. (See Safety Section - Lock-Out Procedure.)
- ii) Measure the “open height” with the machine in the **Up** position.
- iii) Loosen the adjusting bolt on the stop block.
  - If the “open height” needs to be increased by  $\frac{1}{2}$ ", for example, lower the stop block  $\frac{1}{2}$ " from its original position.
  - To decrease the “open height” by  $\frac{1}{2}$ ", raise the stop block  $\frac{1}{2}$ ".
- iv) Tighten the adjusting bolt on the stop block. The stop block must contact the bottom of the limit switch arm in the **Up** position.
- v) Start the machine and cycle. The platen will now stop at the new height.

**CAUTION:** The “Up” limit switch must shut off the Up travel or the hydraulic system will remain under pressure.



**DO NOT ADJUST THE POSITION OF THE STOP BLOCK WITH THE MACHINE RUNNING. THE MACHINE WILL MOVE AUTOMATICALLY CAUSING SERIOUS PERSONAL INJURY.**

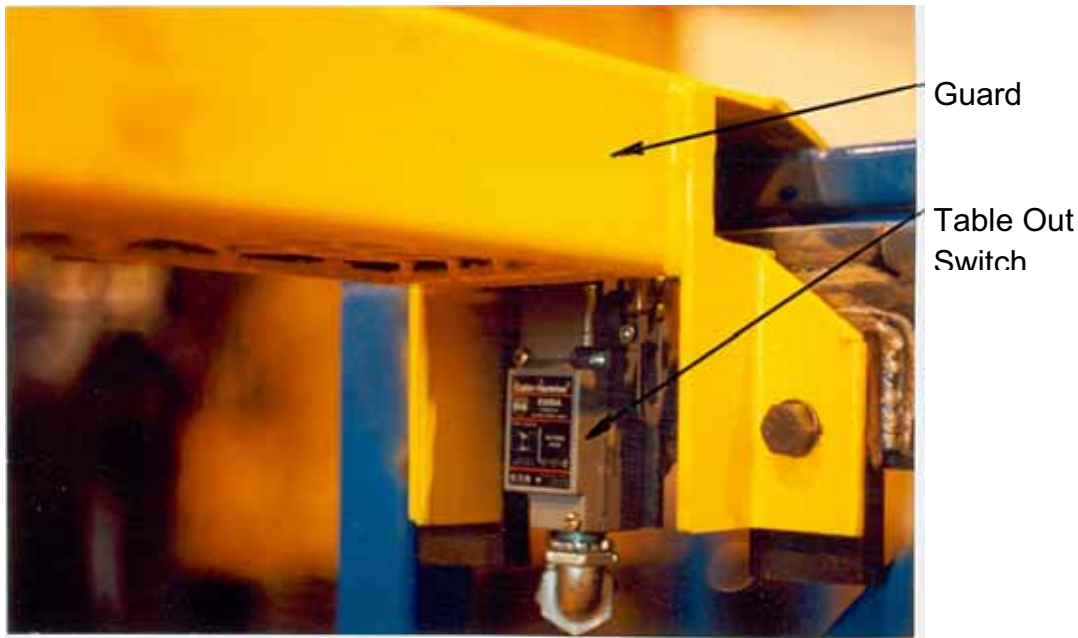


### ***SLIDER TABLE A OR B—OUT POSITION***

The “Out” limit switches are used to stop the slider table in its **Out** position. In this position, the edge of the slider table will be approximately flush with the edge of the main table frame.

Adjustment Procedure:

- i) Switch the machine into the **Manual** mode and use the “In” and “Out” buttons to jog the slider table until it is inset about 1" from being flush with the edge of the main table platform.



ii) Turn off and lock out the main power to the machine. (See Safety Section - Lock-Out Procedure.)

iii) Remove slider table rack guard.

iv) Using a hex key, loosen the clamping nut on the limit switch arm.

v) Hold the arm roller against the table **Out** stop block.

vi) Using a straight screwdriver in the end of the limit switch stem, slowly rotate the stem away from the table until you hear it actuate (click) at approximately 15° of rotation.

vii) Tighten the clamping nut with the stem in this position.

viii) Restart the machine and cycle. Observe the **Out** stopping position. The slider table should stop flush with the edge of the main table frame. Readjust, if necessary, by repeating the procedure. Adjust the other slider table, if necessary. The machine will respond slightly slower when the hydraulic oil is cold. Care must be taken not to position the limit switch arm where the stop block will overrun it.

ix) Re-install slider table rack guards.

## **SLIDER TABLE A OR B—IN POSITION**

The “In” limit switches are used to stop the slider table when it is centered under the platen.

Adjustment Procedure:

- i) Switch the machine to **Manual** mode and use the “In” and “Out” buttons to centre the slider table under the top pressing platen. Approximately 2” should extend out on either side of the platen.

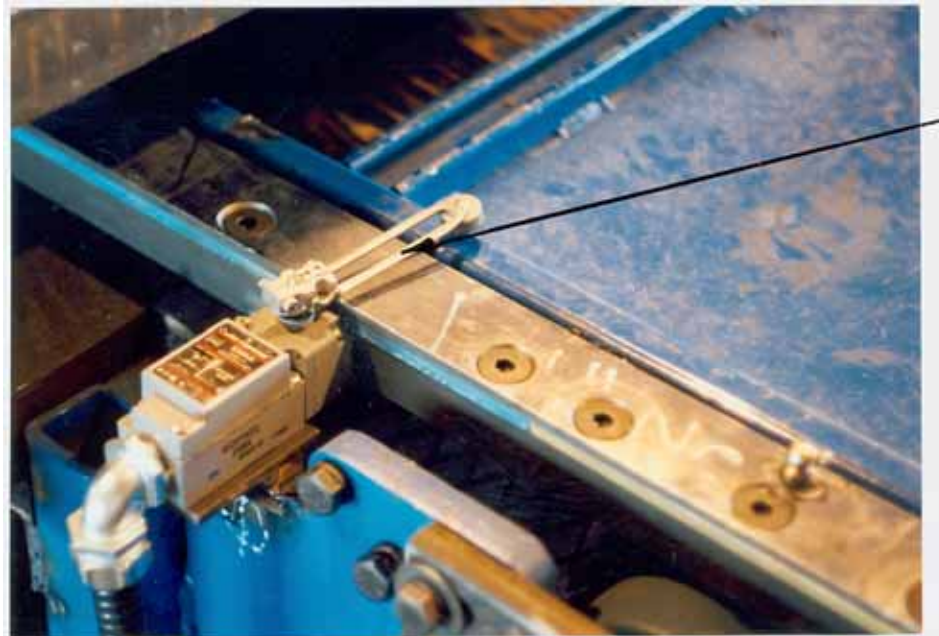


Table  
In

- ii) Turn off and lock out the main power to the machine. (See Safety Section - Lock-Out Procedure.)

- iii) Remove the drive/guide bar.

- iv) The limit switch stopping Slider Table A is on the B side of machine, and for Slider Table B, it's on the A side of the machine. Using a hex key, loosen the clamping nut on the “In” limit switch arm.

- v) Hold the arm roller against the **In** stop block.

vi) Using a straight screwdriver in the end of the limit switch stem, slowly rotate the stem clockwise (away from the table) until you hear it actuate (click). Approximately 15° of rotation is required.

vii) Tighten the clamping nut with the stem in this position.

viii) Restart the machine and cycle. Observe the **In** stopping position. Readjust, if necessary, by repeating the procedure. Adjust the other slider table, if necessary. The machine will respond slightly slower when the hydraulic oil is cold. Care must be taken not to position the limit switch arm in where the stop block will overrun it.

ix) Re-install the drive/guide guards.

## 2. SLIDER TABLE SPEED ADJUSTMENT

Slider Table A and B have independent adjustable **In** and **Out** speeds.

- The **correct In speed** setting will allow the slider table to move inward and stop smoothly without having the connector plates falling from the lumber. Typical time range is 2 to 3 seconds.
- The **correct Out speed** setting will allow the slider table to return smoothly and quickly to the **Out** position without overrunning the **Out** limit switch. Typical time range is 1½ to 2 seconds.

Typically the **Out** speed can be set slightly faster than the **In** speed. Total cycle time is usually around 7 seconds. Shorter cycle times will cause premature wear on the slider table drive system, pressing linkage, and on the hydraulic valves.

**! CAUTION**

**RUNNING THE SLIDER TABLES TOO SLOWLY (MORE THAN 4 SECONDS IN OR 4 SECONDS OUT) MAY CAUSE THE MACHINE TO OVERHEAT.**

**Items Required:**

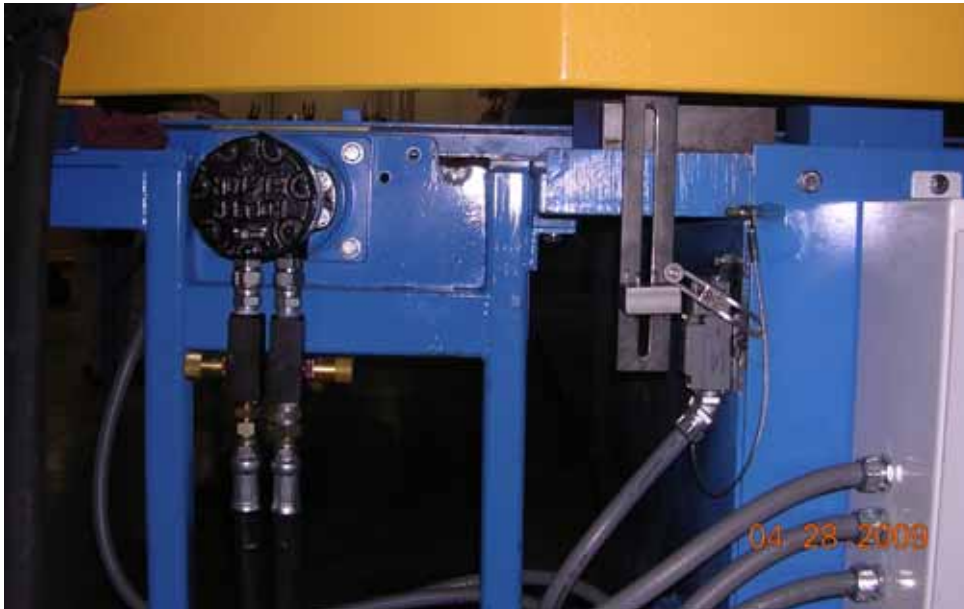
Combination Wrench Set

Hex Key Set

Stopwatch

**To adjust the slider table travel speed controls:**

- a) Adjust the flow control valve located on the hydraulic line entering the appropriate hydraulic motor. Each table has one hydraulic motor mounted to it. One adjusting stem controls the **In** travel, the other controls the **Out** travel.



### 3. PLATEN DOWN SPEED

There is no adjustment for the speed of the platen on machines built in 2009 or later. Refer to revision A manual for adjustments prior to 2009.

### 4. NORMAL WORKING PRESSURE ADJUSTMENT

The “normal” or “working” pressure is the pressure at which the machine will operate during a pressing cycle. This pressure is factory set at 1600 psi, but can be easily adjusted to suit your pressing requirement. The adjustable range is from 1200 psi to 1800 psi.

The normal working pressure should be set at a level high enough to seat the connector plates on the majority of the truss. The few trusses with larger connecting plates can be pressed using the “Boost” function.

This two-stage system allows the machine to operate at a lower pressure (tonnage) most of the time, which will prolong its life span.

**Pressure Settings Table**

<b>Normal Working Pressure Setting</b>	<b>Machine Pressing Force Machines Built Prior to 2009</b>	<b>Machine Pressing Force Machines Built in 2009 or Later 150-Ton Press</b>
1200 psi	48 tons	101 tons
1400 psi	56 tons	117 tons
1600 psi (Factory Setting)	64 tons	134 tons
1800 psi	72 tons	151 tons

Screwdriver Set



## ADJUSTING THE PRESSURE SWITCH



- a) To adjust the “working” pressure setting, remove the protective cap on the pressure switch side marked “Normal” or “Working”.
- b) Using a screwdriver, turn the adjusting screw **Out** (counter-clockwise) to increase the pressure, or **In** (clockwise) to reduce the pressure.

The scale located on the corresponding side of the pressure switch will indicate the pressure setting.

- c) Replace the protective cap.

Do **not** adjust the “Boost” screw setting.

Do not set the “Normal” pressure switch below 1200 psi or above 1800 psi.

## 5. COMPLETE HYDRAULIC PRESSURE & HPU \*

\*Machines Built Prior to 2009 Only??



**DO NOT ADJUST THE PRESSURE SWITCH OR ANY VALVE INDIVIDUALLY. THE HYDRAULIC POWER PACK COMPONENTS MUST BE SET IN THE FOLLOWING SPECIFIC ORDER.**

**THE EXCEPTION IS ADJUSTING THE WORKING PRESSURE RANGE USING THE WORKING PRESSURE SCREW ON THE PRESSURE SWITCH. (SEE NORMAL WORKING PRESSURE ADJUSTMENT.)**

Start the procedure with the machine turned off and the slider tables in the **Out** position and the platen in the **Up** position.

If the 90 gallon hydraulic power unit is located under a slider table, it may be easier to access it if it is pulled out. Use a forklift to lift and remove it, being extremely careful not to damage the hoses, electrical wiring or other components. If the adjustments are being performed with the power unit located under the slider table, use caution to avoid the table drive mechanism and be aware of the low headroom.

- a) Place two 2"x 4" by 4' lengths of wood, one on either side of Slider Table A, to act as an even pressing surface.

**NOTE:** The following adjustments are performed at the hydraulic power unit.



**THE HYDRAULIC OIL IN THE TANK AND THE VARIOUS COMPONENTS CAN REACH A TEMPERATURE OF 180°F (82°C). AT THIS TEMPERATURE CONTACT WITH THE OIL WILL CAUSE SERIOUS BURNS. DO NOT PERFORM ANY SERVICE WORK WITHOUT FIRST ALLOWING THE OIL AND CORRESPONDING COMPONENTS TO COOL DOWN TO LESS THAN 100°F ( 38°C ).**

**Items Required:**

Combination Wrench  
Set

Hex Key  
Set

Screwdriver  
Set

- b) Using a wrench, loosen the locknuts on the threaded stems of both the relief valve and the unloading valve.
- c) Using a hex key, turn the relief valve two full turns outwards (counter-clockwise).
- d) Using a hex key, turn unloading valve four to six turns outwards (counter-clockwise).
- e) With a screwdriver, remove the protective steel caps covering the two adjusting screws on the pressure switch.
  - f) Using a flat screwdriver, turn both of the adjusting screws outward (counter-clockwise) until the pressure-indicating scales read 2600 psi. The two pressure-indicating scales are located on each side of the pressure switch.
- g) Start the machine and switch to **Automatic** mode.
- h) At Remote Station A, press the “Cycle Start” button. Slider Table A will run **In** and the press head will come **Down** and stop in the **Down** position.

**Steps “i” and “j” set the “unloading” pressure of the hydraulic system.**

- i) Using a hex key, turn the relief valve stem (vertically mounted valve) until the pressure gauge reads **1000 psi**. Turn the stem clockwise to increase pressure; counter-clockwise to decrease pressure.

**NOTE:** If, during the pressing cycle, the electric motor slows down or trips the overloads on the Automatic Cycle (while the platen is travelling **Up** and the slider table is travelling **Out** simultaneously), the unloading pressure is set too high. In this case, set the unloading pressure to 800 psi instead of 1000 psi.

- j) Using a hex key, slowly turn **In** (clockwise) the unloading valve stem (horizontally mounted valve) until you hear the motor/pump labor, then back off counter-clockwise a ¼ turn. Tighten the locknut without moving the stem position. This sets the unloading pressure.

**Steps “k” and “l” set the “normal” working pressure or normal pressing force.**

- k) Using a hex key slowly turn the relief valve stem **In** (clockwise) until the pressure gauge reads between 1200 and 1800 psi. The normal working pressure should be set at a pressure high enough to fully seat the connector plates on an average truss. Trusses with a larger number (area) of connector plates can be pressed using the “Boost” system. Using excessively high pressure settings will damage the truss components and reduce machine life. The working pressure **must not** exceed 1800 psi.

Refer to the Pressure Settings Table on page 96 for recommended pressure settings.

l) Using a screwdriver, turn **In** (clockwise) the normal working pressure side of the pressure switch until the platen goes into the **Up** mode. The slider table will return out. This completes the setting of the normal working pressure.

**Steps “m” through “p” set the “Boost” pressure or maximum pressing force.**

m) On Remote Station A, simultaneously depress the “Cycle Start” and “Boost” buttons. The slider table should run **In** and the platen should come **Down** and remain in the **Down** position with the pressure gauge reading the working pressure setting (i.e., 1200 to 1800 psi).

n) Using a hex key, slowly turn **In** (clockwise) the stem on the relief valve until the pressure reads 2200 psi on the gauge. The “Boost” pressure is factory set at 2200 psi. The “Boost” pressure can be set to 2500 psi in some circumstances. Please consult the factory.

o) Using a flat screwdriver, slowly turn **In** (clockwise) the “Boost” screw on the pressure switch until the platen goes into the **Up** mode.

p) Go back to the relief valve and, using a hex key, turn it in (clockwise) ¼ of a turn. This completes the setting of the “Boost” hydraulic pressure. Tighten the locknut on the relief valve without moving its setting.

q) Replace the two steel caps on the pressure switch adjusting screws.

## PRESSURE SETTINGS

<b>DO NOT EXCEED THE FOLLOWING PRESSURES for all 150-Ton Presses:</b>	
UNLOADING VALVE SETTING	1000 psi on machines built prior to 2009. 1200 psi on machines built in 2009 or later.
NORMAL WORKING PRESSURE (Factory Setting)	1600 psi
NORMAL WORKING PRESSURE SETTING	1200 - 1800 psi
BOOST PRESSURE - FACTORY SETTING	2200 psi
MAXIMUM BOOST PRESSURE SETTING	2500 psi
MAXIMUM SYSTEM PRESSURE	2500 psi

## MACHINE SPECS

### ULTRA-PRESS MECHANICAL PRESS SPECIFICATIONS

	ULTRA PRESS		
	16'	18'	20'
Width of Machine with Double Tables	14' 6"	14' 6"	14' 6"
Length of Head	18' 6"	20' 6"	22' 6"
Weight of Head Only (prior to 2009)	25,900 lbs	31,200 lbs	33,600 lbs
Weight of Machine (prior to 2009)	33,000 lbs	38,800 lbs	41,600 lbs
Total Shipping Weight in 2009			56,000 lbs
Working Depth of Table	4'	4'	4'
Working Length of Table	16'	18'	20'
Working Height of Table	36"	36"	36"
Pressing Cycle	6 to 7 seconds (approximately)		
Pressing Capacity	150 tons		
Pressing Height: Typical	1" to 6"		
Working Pressure Factory Setting	1600 psi		
Working Pressure	1200 to 1800 psi		
Boost Pressure - Factory Setting @ 10% Duty Cycle	2200 psi		
Maximum Boost Pressure	2500 psi		
Maximum System Pressure	2500 psi		
Electric Motor	20 HP		

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

## ELECTRICAL SPECIFICATIONS

3-Phase

Electric Motor: 20 hp

Control Circuit: 120 VAC and 24 VDC

Voltage: 208/230/460/575 VAC

Total Load: 110/100/50/40 Amps

## OIL SPECIFICATIONS

### Recommended for Machines Built in 2009 or Later:

Refer to Recommended Hydraulic Fluid for hydraulic fluid specifications. The ISO type is not listed because it is dependent on the operating temperature. Discuss these specs with your hydraulic fluid supplier to choose a fluid that's right for your environment.

**Table 1-1: Recommended Hydraulic Fluid for Machines Built in 2009 or Later**

Description	High-grade, anti-wear	
Recommended viscosity range*	13-54 cSt (70-250 SUS)	
Maximum allowable viscosity	860 cSt (3980 SUS)	
Temperature	During Operation	80-158° F
	Maximum	14-158° F
Reservoir capacity	100 English gallons	
Capacity of hydraulic lines	Approx. 10 English gallons	

*\*If operating outside of the recommended temperature range, select a hydraulic fluid that will operate at the proper SUS range for your temperatures.*

**! CAUTION**

**THE HYDRAULIC OIL IN THE TANK AND THE VARIOUS COMPONENTS CAN REACH A TEMPERATURE OF 180°F (82°C). AT THIS TEMPERATURE, CONTACT WITH THE OIL WILL CAUSE SERIOUS BURNS. DO NOT PERFORM ANY SERVICE WORK WITHOUT FIRST ALLOWING THE OIL AND CORRESPONDING COMPONENTS TO COOL DOWN TO LESS THAN 100°F (38°C).**

## TORQUE SPECIFICATIONS

### CHECKING BOLT TORQUE

The table shown below shows the correct torque values for various bolts and cap screws. Tighten all bolts to the torques specified in the chart unless otherwise noted. Check the tightness of bolts periodically, using the Bolt Torque Chart as a guide. Replace hardware with the same strength of bolt.

### GENERAL TORQUE SPECIFICATIONS

BOLT DIAMETER	SAE 2		SAE 5		SAE 8	
	N.m	(lb-ft)	N.m.	(lb-ft)	N.m	(lb-ft)
1/4"	8	6	12	9	17	12
5/16"	13	10	25	19	36	27
3/8"	27	20	45	33	63	45
7/16"	41	30	72	53	100	75
1/2"	82	61	45	110	80	155
9/16"	95	70	155	115	220	165
5/8"	128	95	215	160	305	220
3/4"	225	165	390	290	540	400
7/8"	230	170	570	420	880	650
1"	345	225	850	630	1320	970

Slider Table Valve Mounting Bolts - 9 to 11 ft. lbs.

Pressing Valve Mounting Bolts - 50 to 60 ft. lbs.

6" x 14" Hydraulic Cylinder Tie Rods - 525 ft. lbs.

## MACHINERY IDENTIFICATION

A machine identification label is affixed to the main frame of the machine. This label lists the model type, serial number, manufacturing date and the electrical requirements.

Please refer to machine model and serial number when calling the factory.

### NAMEPLATE INFORMATION

**This is the identification plate specific to the machine. It lists the name of the machine, serial number, date of manufacture and electrical information: voltage, amperage and auxiliary voltage.**

Sample from Machine Built Prior to 2009

<b>PACIFIC AUTOMATION</b>	
MODEL _____	
SERIAL # _____	
VOLTS _____	AMPS _____
DATE _____	AUX. _____
MADE IN CANADA	



## Drawing Set

Hydraulic Schematic and Part Numbers	31005-502
Electrical Schematic and Part Numbers	90747
Mechanical Assembly	31001-501
Table Assembly	31100-501
Bell Crank Assembly	31026
Transfer Bar Assembly	31035-501

# Ultra-Press 16/18/20

001110 Rev. B