

Operation Manual



*Auto Roll*TM Finish Press

Operation Manual

*Auto Roll*TM Finish Press



U.S. and other patents pending.

*Manual applies to U.S. and
International equipment.*

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Legal Notice

Patents

Made and sold under one or more of the following patents:

U.S. 4,986,052	U.S. 5,837,014	U.S. 6,219,975
U.S. 5,385,339	U.S. 5,854,747	U.S. 6,260,263
U.S. 5,493,834	U.S. 5,873,567	U.S. 6,317,980
U.S. 5,568,862,	U.S. 5,884,448	U.S. 6,389,762
U.S. 5,630,697	U.S. 5,885,731	U.S. 6,401,422
U.S. 5,636,494	U.S. 5,906,264	U.S. 6,412,246
U.S. 5,638,658	U.S. 5,934,866	U.S. 6,418,601
U.S. 5,640,832	U.S. 5,947,460	U.S. 6,539,615
U.S. 5,655,399	U.S. 5,987,828	U.S. 6,666,367
U.S. 5,678,395	U.S. 5,996,303	U.S. 6,702,269
U.S. 5,702,095	U.S. 6,048,165	U.S. 6,758,022
U.S. 5,707,204	U.S. 6,112,968	U.S. 6,817,392
U.S. 5,735,087	U.S. 6,134,775	U.S. 6,834,470
U.S. 5,810,341	U.S. 6,170,688	U.S. 6,907,820
U.S. 5,819,412	U.S. 6,205,637	Other patents may apply
U.S. 5,833,222	U.S. 6,212,849	

Return Goods Policy

Return goods cannot be accepted without prior authorization and are subject to a restocking charge. The Seller certifies the articles specified herein were produced in compliance with all provisions of the Fair Labor Standards Act of 1938, as amended, including Section 12.—Rev. 6/98

Reporting Errors and Recommending Improvements

To report errors or recommend improvements to this manual, please complete the Document Evaluation Form in the appendices. Mail or fax the form to:

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Notice of Change

Use this page to record Service Bulletins and Notices that you receive to keep your manual updated.

Auto Roll™ **Finish Press**

Service Bulletin or Notice #	Dated	Title

Safety (English)



For safety information in another language, contact your sales representative.

Safety Indicators: Signal Words

The following signal words and colors are used throughout this document to indicate safety hazards. Pay careful attention when you see them. The level of severity differs for each signal word and color.

Signal words are accompanied by graphics showing what personnel should or should not do. The graphics are called safety symbols and are defined on page 13, but more specific text is provided every time a graphic is used throughout the manual. Everyone near the machine must be trained on how to read these safety indicators.

Failure to comply with the instructions accompanying each signal word may result in property damage, personal injury, or even death. Personnel must follow all safety procedures and practices to ensure the safest possible operation of this equipment. However, at no time is this document a substitute for common sense. Personnel must ensure that the work environment is safe and free of distractions.

DANGER

Indicates an imminently hazardous situation which, if not avoided, is likely to result in death or serious injury.

WARNING

Indicates a potentially hazardous situation which, if not avoided, may result in death or serious injury.

CAUTION

When CAUTION is used **with** the safety alert symbol shown here, it indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

When CAUTION is used **without** the safety alert symbol shown here, it indicates a potentially hazardous situation which may result in equipment damage.

NOTICE

Calls attention to information that is significant to understanding the operation at hand.

ENVIRONMENTAL

Applies to conditions that may affect the environment but do not have an immediate, direct effect on personnel or equipment.

General Equipment 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 face piece (dust mask) when working near sawdust.
- Wear proper clothing and appropriate personal protective equipment. 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.
- This equipment is not for use in a residential area.

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 4.

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 11.
- 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 power off! Do not leave 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.
- Only qualified maintenance personnel shall remove or install safety devices.
- 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 procedure on page 7.

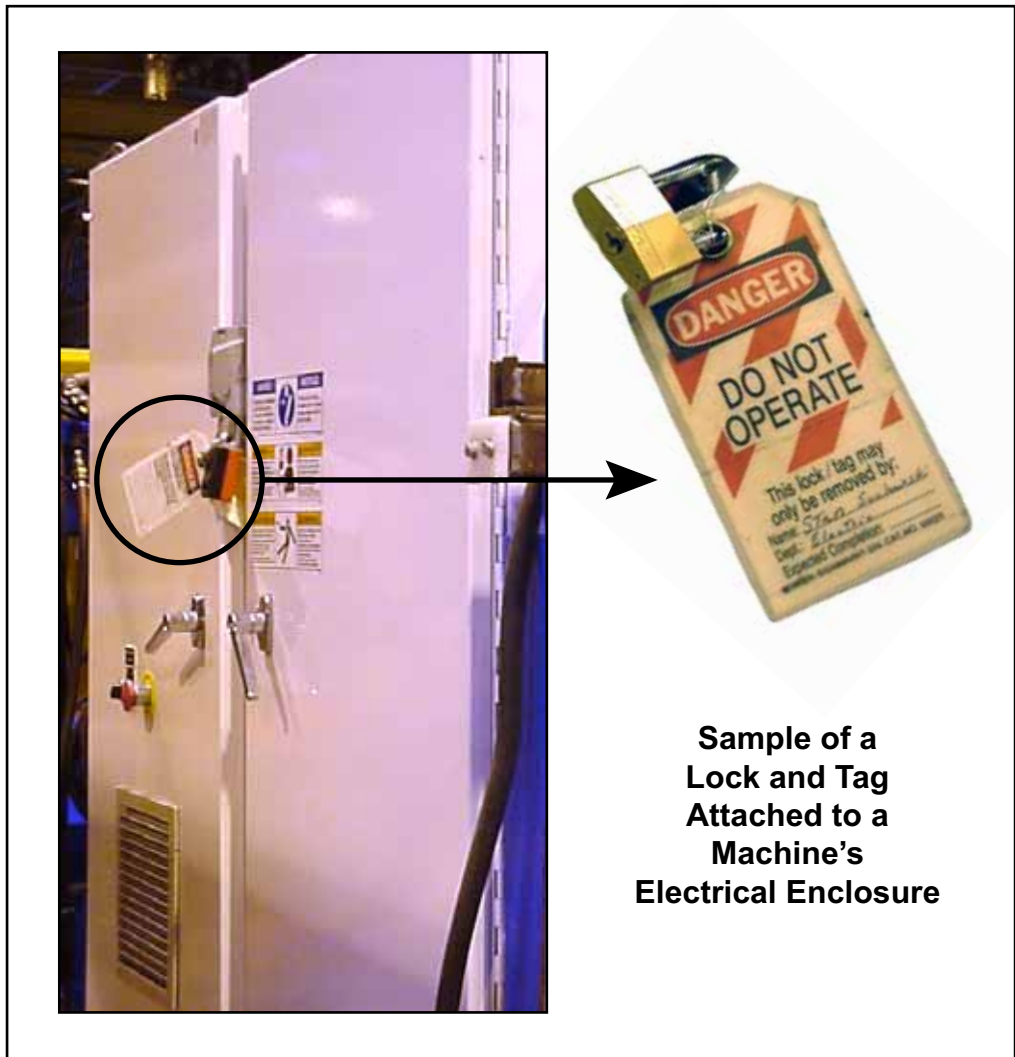
Before performing maintenance on any machine with electrical power, lockout/tagout the machine properly. When working on a machine outside of the machine's main electrical enclosure, not including work on the electrical transmission line to the machine, follow your company's approved lockout/tagout procedures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

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

	 WARNING
	<p>ELECTROCUTION HAZARD.</p> <p>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!</p>

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.

Figure 2-1: Sample of a Lockout/Tagout Mechanism on an Electrical Enclosure



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.

Figure 2-2: Sample of a Lockout/Tagout Mechanism on a Power Source Panel





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.

Safety Test

	 WARNING
	<p>CRUSH HAZARD.</p> <p>Perform the safety tests described before operating the equipment at the initial startup, after performing any maintenance, and in accordance with the maintenance schedule.</p> <p>Do not operate the press if any safety device or indicator is not functioning correctly.</p>

The test procedure **MUST** be performed by qualified personnel at startup and after ANY maintenance, adjustment, or modification. Testing ensures that the safety system and machine control system work together to properly stop the machine.

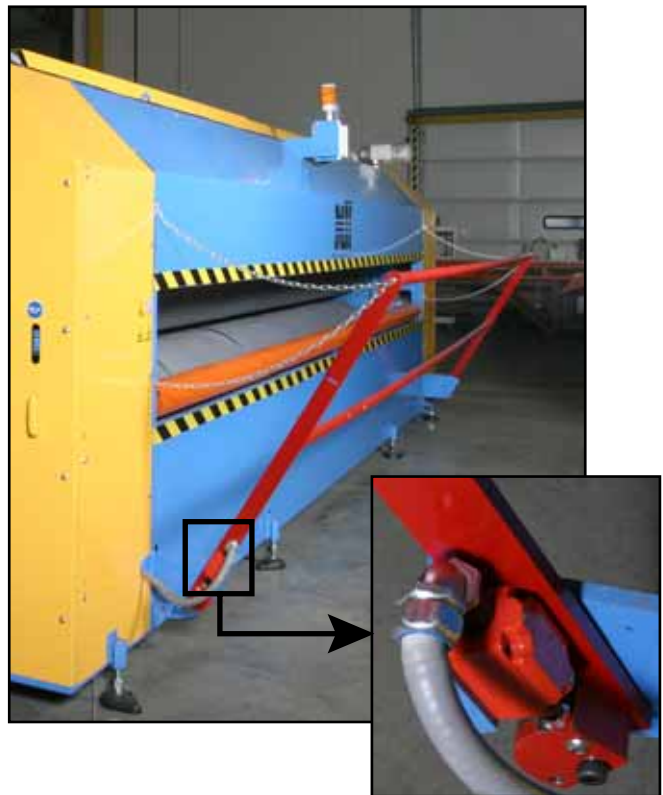
Pushbar Test

	 WARNING
	<p>CRUSH OR CUT HAZARD.</p> <p>Do not stand directly in front of or behind the machine when conducting these tests. Follow this procedure exactly as described.</p>

The pushbars must be tested daily to ensure that they turn off the finish press.

1. Press the **START** button to turn on the control power.
2. Press and release the **FWD** button to start the rollers turning.
3. Activate the pushbar using a board or long pusher to push it toward the machine.
4. Check the following items, and correct them if necessary:
 - a) Make sure the machine shuts down.
 - b) Make sure the pushbar travels freely until it touches the sheet metal shielding of the *Auto Roll*.
5. Repeat the procedure on the second pushbar.
6. Correct any failures before operating the equipment.

Figure 2-3: Pushbar and Limit Switch



E-Stop Pushbutton Test

1. Press the START button to turn on the control power.
2. Press and release the FWD button to start the rollers turning.
3. Press the E-stop pushbutton.
4. Ensure the machine shuts down.
5. Repeat the procedure on any additional or interlocked E-stop pushbuttons.
6. Correct any failures before operating the equipment.

E-Stops on Interlocked Equipment

If any other remote or interlocked E-stops exist, test them daily.



Communication Tests

1. Inspect the beacon light to ensure it is on when the machine is running in forward or reverse.
2. Ensure the warning horn is working during each of these situations. It should emit sound when:
 - a) The FWD button is pressed (stops after 3 seconds)
 - b) The REV button is pressed (continuously)
 - c) When a truss enters the machine in forward (stops after 3 seconds).
 - d) When a truss enters the machine in reverse (stops after 3 seconds).
3. Correct any failures before operating the equipment.

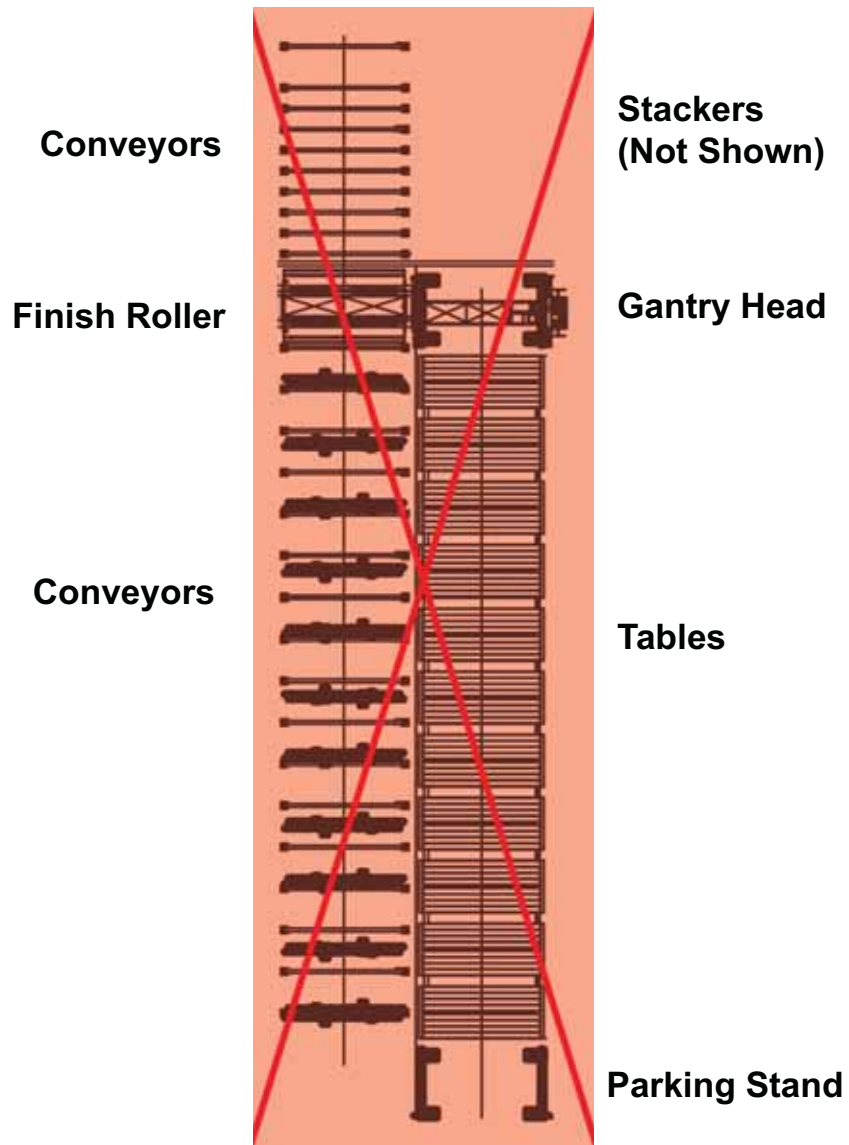
Inspecting Guards

Check that all guards are securely in place before operating equipment.

Restricted Zone

	 DANGER
	<p>Stay out of the restricted zone when equipment is in use. Serious injury or death may result if personnel are in the restricted zone.</p> <p>Always look for personnel in the restricted zone before operating equipment.</p>

Know the Restricted Zone



Marking the Restricted Zone








The restricted zone must be marked so everyone near the equipment can clearly see the area where danger may exist.









- PN** MiTek offers Restricted Zone Tape that is easy to apply and has text in English and Spanish. Some equipment comes with restricted zone tape. If your machine did not come with restricted zone tape, you may order it from MiTek Machinery Division Customer Service, part number SB181.








Instructions for where and how to apply restricted zone tape can be found in the *Installation* chapter in the Installation Manual or by ordering Service Bulletin Kit 181 (part number SB181).








Safety Symbol Definitions








The safety symbols shown in this section can be found throughout the manual to indicate hazards that are related to this equipment. All personnel expected to operate or maintain this equipment should become familiar with these safety symbols and what they mean.







	<p>This is the Electrical Hazard Symbol. It indicates that there are dangerous high voltages present inside the enclosure of this product. To reduce the risk of fire or electric shock, do not attempt to open the enclosure or gain access to areas where you are not instructed to do so. Refer servicing to qualified service personnel only.</p>
	<p>This is the user caution symbol. It indicates a condition where damage to the equipment resulting in injury to the operator could occur if operational procedures are not followed. To reduce the risk of damage or injury, refer to accompanying documents, follow all steps or procedures as instructed.</p>
	<p>Power sources - This product should be operated only from the type of source indicated on the manufacturer's identification label. Installation should be in compliance with applicable sections of the national electric code. Consult your local building code before installing.</p>
	<p>Operation of this equipment may result in flying debris and excessive noise. To reduce the risk of injury, wear only approved PPE.</p>
 	<p>Crush hazard! Keep hands clear.</p>
	<p>Keep hands away from moving parts.</p>



	<p>Do not use sling equipment rated for less than 15,000 lb/6,803 kg when lifting this equipment.</p>
	<p>Crush hazard from above</p>
	<p>Trip hazard! Pay attention when walking in this area.</p>
  	<p>Keep hands and body clear.</p>
	<p>Warning! 2-man lift required to safely move this equipment. Refer to Installation Manual.</p>
	<p>Warning! 3-man lift required to safely move this equipment. Refer to Installation Manual.</p>

    	<p>The operation of this equipment requires the use of PPE. Do not operate without wearing required protective clothing.</p>
 	<p>Refer to manual- After installation, read the user's guide carefully before operating. Follow all operating and other instructions carefully.</p>

	<p>Circuits are live -lockout/tagout the upstream disconnecting means prior to opening for service.</p>
	<p>Lockout in a de-energized state</p>
  	<p>Lift Point - In order to reduce the likelihood of damage to the equipment, use only the lift points indicated in the manual.</p>
	<p>Read all safety warnings and instructions before proceeding.</p>
	<p>No lifting point. Do NOT lift here.</p>

	<p>STOP! Do not enter. There is an unsafe scenario that could occur if you enter or touch this area.</p>
	<p>Hazardous moving parts are located behind this access panel. Do not operate this equipment without all guards and covers in place.</p>
 	<p>Do not place containers with liquids such as coffee, water, sodas, etc. on this unit.</p> <p>Do not operate this equipment in a wet environment.</p> <p>Do not expose to water</p>
	<p>Use of fork lift equipment when moving this equipment will result in serious equipment damage. Refer to installation procedures.</p>
	<p>Do not use non-approved lubricants in this machine.</p>
	<p>Do not operate without guards and covers in place</p>

	<p>Do not weld</p>
	<p>Do not discard into municipal waste stream</p>
	<p>oil drop</p>
	<p>Do not use compressed air inside the electrical enclosures! It may force contaminants into the electrical connections. Use a vacuum to clean inside electrical enclosures.</p>
	<p>Automatic cycle - MII PN 691373 This label is used to refer to AUTO when using the MAN/AUTO selector switch</p>
	<p>Manual Control - MII PN 691374 This label is used to refer to MANUAL when using the MAN/AUTO selector switch</p>

	<p>Off for part of the equipment - MII PN 691372</p> <p>This label is used to refer to OFF when using the ON/OFF selector switch</p> <p>The label is used to denote that when the selector switch is OFF part of the equipment is still energized. Only the 120V control wiring is OFF.</p>
	<p>On for part of the equipment - MII PN 691371</p> <p>This label is used to refer to ON when using the ON/OFF selector switch</p> <p>The label is used to denote that when the selector switch is ON, the switch is controlling the part of the electrical circuit. It is the counterpart to the above symbol.</p>

Declarations of Conformity for CE Compliance



EU DECLARATION OF CONFORMITY WITH COUNCIL DIRECTIVE 2006/42/EC CE DECLARATION DE CONFORMITE AVEC DIRECTIVE 2006/42/EC	
Date of Issue:	20 JAN 2010
Directive:	Machinery Safety Directive, 2006/42/EC
Conforming Machinery:	Auto Roll™ Model No: 30650-501-400V S/N: As Stamped on Nameplate
Manufacturer:	MiTek Industries, Inc. 301 Fountain Lakes Industrial Drive St. Charles, MO 63301 USA
Authorized Representative	Syd Griffiths Managing Director Europe MiTek Industries Limited MiTek House Grazebrook Industrial Park Peartree Lane Dudley, West Midlands DY2 0XW England Ph: (44) 1384 451400
Harmonised Standards Referenced or Applied:	BS EN 12100-1:2003, BS EN 12100-2:2003, BS EN 13857:2008, BS EN ISO 13850:2008, BS EN 60204-1:2006, BS EN ISO 14121-1:2007, BS EN 349:1993+A1:2008, BS EN 953:1997 +A1:2009, BS EN 1037:1995+A1:2008, BS EN 60529:1992. BS EN 614-1:2006+A1:2009
Specifications with which Conformity is Declared:	Essential Health and Safety Requirements of Annex 1 of the Machinery Directive
We hereby certify that the machinery described above conforms with the essential health and safety requirements of Council Directive 2006/42/EC on the approximation of the laws of the Member States relating to the safety of machinery.	
Signed:	
Signatory:	Printed Name Manish Kanjee Title Engineering Manager Company Name MiTek Industries, Inc.
Technical File Reference Number	SF10773A1.MII



Notes Concerning Harmonized Standards Referenced or applied:

BS EN ISO 12100-1:2003	Safety of machinery. Basic concepts, general principles for design.
BS EN ISO 12100-2:2003	Safety of machinery - Basic concepts, general principles for design - Part 2: Technical principles - /A1
BS EN 60204-1:2006	Safety of machinery. Electrical equipment of machines. General requirements.
BS EN ISO 13857:2008	Safety of machinery. Safety distances to prevent hazard zones being reached by upper and lower limbs.
BS EN 349:1993+A1:2008	Safety of machinery. Minimum gaps to avoid crushing of parts of the human body.
BS EN 953:1997 +A1:2009	Safety of machinery. Guards. General requirements for the design and construction of fixed and movable guards.
BS EN 1037:1995+A1:2008	Safety of machinery. Prevention of unexpected start-up
EN ISO 13850:2007	Safety of machinery — Emergency stop — Principles for design.
BS EN 60529:1992	Specification for degrees of protection provided by Enclosures (IP Code).
BS EN ISO 14121-1:2007	Safety of Machinery – Risk Assessment – Part 1: Principles
BS EN 614-1:2006+A1:2009	Safety of machinery — Ergonomic design principles —. Part 1: Terminology and general principles

Declaration of Noise Emission



Declaration of Noise Emission

The MiTek[®] Industries, Inc. Model 30650-501-400V Auto Roll[™] noise emission levels per ISO EN 11202 are as follows:

Work place noise level (Idle)	51.7 dB (A)
Auto Roll [™] Work place noise level (Work Cycle)	69.6 dB (A)

Ambient Correction Factor K3A calculated according to ISO EN 11204 Appendix A.	4 dB (A)
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Difference between extraneous background noise and normal operation: $\Delta = 17.9$ dB (A)
Measurements were made at a height of 1.5 m and 1 m from the machine.

The difference between the extraneous noise level and the sound intensity level at each measuring point is > 6 dB (A)

The figures quoted are emission levels and are not necessarily safe working levels. While there is a correlation between the emission and exposure levels this cannot be used reliably to determine whether or not further precautions are required.

Factors that influence the actual level of exposure of the workforce include characteristics of the work room, the other sources of noise, etc. such as the number of machines and other adjacent processes. Also, the permissible level of exposure can vary from country to country.

This information, however, will enable the user of the machine to make a better evaluation of the hazard and risk.





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USA



Purpose of Chapter

This chapter explains how to navigate through the equipment manual and how to contact MiTek.

Introduction to the Manual

 WARNING	
	<p>Read this manual completely before using this equipment!</p> <p>Do not operate this machine until you have a thorough understanding of all controls, safety devices, emergency stops, and operating procedures outlined in this manual.</p> <p>All hazard instructions must be read and observed. Failure to do so may result in economic loss, property damage, and/or personal injury.</p> <p>This manual must always be available to personnel operating and maintaining this equipment.</p>

Purpose and Scope of This Equipment Manual

In order for this equipment manual to be useful, the manual must be kept in a location where operators and maintenance personnel have easy access to it. The equipment manual is structured so the Operation Manual can be kept at the machine and the Maintenance and Installation Manual can be kept somewhere accessible to maintenance personnel only.

This manual addresses the most recent versions of the equipment as of the creation or revision date on the title page. For earlier revisions, contact MiTek Machinery Division Customer Service. The part number is listed on the title page, but the revision you require depends on the date your equipment was manufactured.

This manual can be a valuable tool for training.

- The *General Information* chapter in the Operation Manual contains information on truss terminology and provides basic information about the equipment.
- The Operation Manual teaches operators how to efficiently operate the machine.

- The Maintenance Manual is written specifically for maintenance personnel.
- The appendices provide valuable training materials and technical information to keep your equipment running.

Understanding This Manual

The Equipment Manual (Manual Set)

This equipment manual is a set of three (3) books. The part number for the entire set is 001113 Rev. A. The manuals listed in Table 1-1 are all part of the equipment manual (also called the manual set).

The page numbers include a prefix so it is clear in which book a page can be found when using cross-references. The Safety and Introduction sections have their own prefix because they are found in all three books.

Table 1-1: Manual Set

Manual Title	Page # Prefix	Description	Part #
Book 1: Operation Manual	OP	Includes operation procedures and defines the control user interface	001113-OP
Book 2: Maintenance Manual	MT	Includes preventive maintenance, repair maintenance, troubleshooting, parts list, drawing set list, and glossary	001113-MT
Book 3: Installation Manual	IN	Includes requirements prior to installation, installation procedures, and startup procedures.	001113-IN

Review the table of contents to understand the structure of the chapters and appendices.







The Drawing Set

The drawing set is included with this manual set. A list of the drawings can be found in the Maintenance Manual. The actual drawings are either in a separate 11x17 book or in the back of the Maintenance Manual.

Navigation

The graphics in Table 1-2 are used throughout the manual to quickly communicate a specific type of information.

Table 1-2: Navigational Tools Used Throughout the Manual

Graphic	Explanation
Important safety note!	
	Indicates that you must lockout/tagout at the disconnect switch located on the equipment using approved methods described in OSHA 29 CFR 1910.147 and/or local regulations before continuing with the procedure.
	Indicates tools required before beginning a procedure.
	Gives additional information to the steps or text.
	Indicates how to get to or from the item discussed.
	Refers reader to another section, table, graphic, or drawing for further explanation.
	<i>It's a hyperlink!</i> Indicates that the part number is listed in the <i>Parts List</i> appendix. If viewing the Maintenance Manual on CD-ROM, click the icon to see the part number in the appendix.

Web Site

Visit the MiTek Web site at www.mii.com for up-to-date information on all MiTek equipment. View the latest revision of this manual and all Service Bulletins, or order parts on-line through our *eStore*™.

Contacting Us

For technical assistance or to order parts, contact the Machinery Division Customer Service Department using one of the methods listed in Figure 1-1.

Figure 1-1: Contacting MiTek

MiTek Machinery Division
Customer Service Department
301 Fountain Lakes Industrial Drive
St. Charles, MO 63301

Parts Orders (with part number)
eStore™ at <http://estore.mii.com>
E-mail: mitekparts@mii.com

Web Site
www.mii.com/machinery

Technical Assistance
Phone: 800-523-3380
Fax: 636-328-9218



Purpose of Chapter

This chapter provides an overview of the equipment and the means to identify it.

Introduction to the Equipment

Purpose of the Equipment

The *Auto Roll* finish press is intended to complete the plate embedment process in roof and/or floor trusses.

Description of the Equipment

The *Auto Roll* finish press is a 24-in. diameter finish press with manual controls that, in the second stage of a gantry truss fabrication system, completes the connector plate embedment process. The gantry system fabricates wooden trusses with a two-stage connector plate embedment process. In the first stage, a traveling gantry head performs the initial plate embedment by seating the connector plates into the wood fiber.

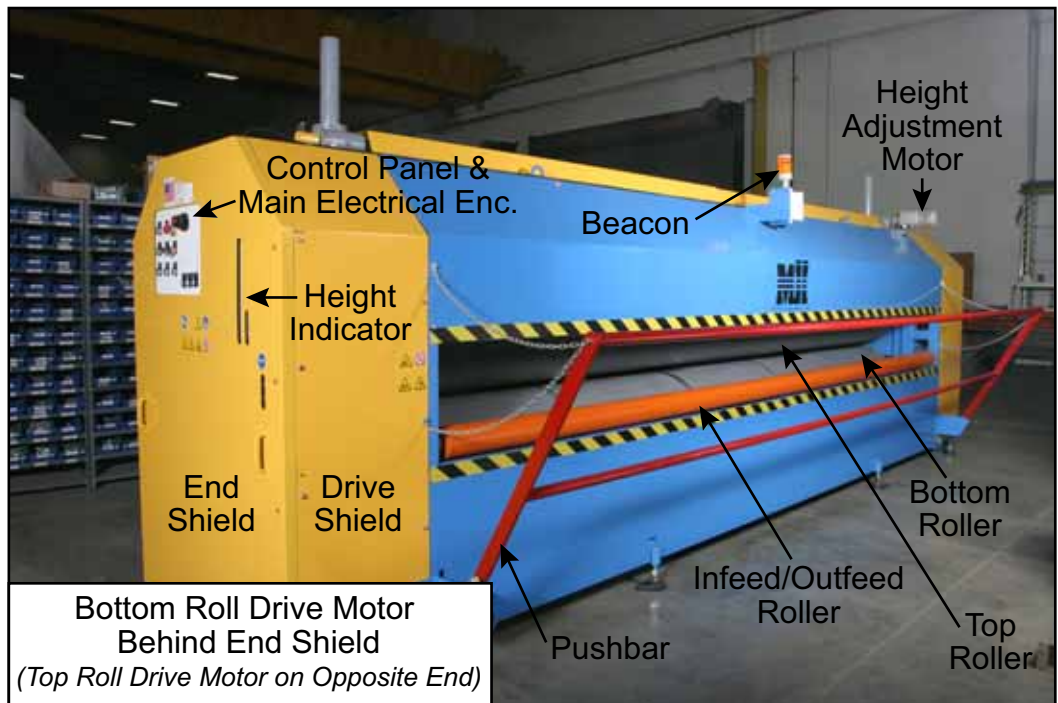
This machine is intended to be used within a gantry truss production system to receive trusses conveyed from a set of spaced conveyor rollers, and NEVER TO RECEIVE TRUSSES HAND-FED INTO IT. Safety systems are designed with the expectation that they will not be intentionally disabled or avoided. Employers and their workers have been warned to stay out from between the conveyor rollers and the area near the *Auto Roll* Finish Press during production to avoid injuries.

Figure 2-1 shows an *Auto Roll* Finish Press. Refer to the Maintenance chapter for more detailed graphics.

Safety Compliance of the Equipment

Equipment shipped to a U.S. destination is compliant with NFPA 79, NEC 2009, and the applicable OSHA regulations. Equipment shipped internationally is compliant with CE regulations listed on page SAFETY-20 and CSA regulations. This manual covers both the U.S. and the international versions.

Figure 2-1: Auto Roll Finish Press



System Identification

Table 2-1 lists the models available for this equipment and the part numbers that identify each model.

Table 2-1: Available Models

System Description	Part #
16' With Power Adjust	30650-501-400V

Technical Specifications

General Specifications

Table 2-2: General Specifications

General	16-ft w/ Power Adjust
Speed (press capacity)	119 feet per minute (6 meters/sec.)
Direction	Forward and reverse
Height adjustment between rollers	1-3/16" to 8"
Roller diameter	24" nominal (609.6 mm)
Roller wall thickness	1" (25.4 mm)
Baffles per roller	4
Shaft diameter	4"
Bearing size	3-7/16"
Horsepower & speed of roller motors	one 5-hp motor for each roller
Horsepower & speed for power adjust motor	1 hp
Chain drive	#80 roller chain
Maximum board thickness (height) as it enters machine	approx. 7" (178 mm)
Maximum width (truss height)	16' (48 cm)
Maximum length of board or truss	unlimited for machine, dependent on plant configuration
Weight of System Components	approx. 15,000 lb
Dimensions of Equipment	245" L x 105" W x 90" H 6.2 m x 2.7 m x 2.28 m
Electrical Specifications	
Voltage	400 VAC
FLA plus control amperage	18.7 amps
Equipment disconnect protection	25 amps
Cycles (frequency)	50 Hz
Phases	3

Environmental, Transportation, Handling Specs

Operating Temperature

This equipment will operate correctly in its intended ambient, between 41 degrees and 104 degrees Fahrenheit (between +5 degrees and +40 degrees Celsius).

Relative Humidity

This equipment will operate correctly within an environment at 50% RH, 104 degrees Fahrenheit (+40 degrees Celsius). Higher RH may be allowed at lower temperatures.


Measures shall be taken by the Purchaser to avoid the harmful effects of occasional condensation.

Altitude

This equipment will operate correctly up to 3280 feet (1000 meters) above mean sea level.

Transportation and Storage

This equipment will withstand, or has been protected against, transportation and storage temperatures between -13 degrees and 131 degrees Fahrenheit (between -25 degrees and +55 degrees Celsius) and for short periods up to 158 degrees Fahrenheit (+70 degrees Celsius). It has been packaged to prevent damage from the effects of normal humidity, vibration and shock.

	ENVIRONMENTAL
	<p>Do not discard machinery into municipal waste stream.</p>



Shipping Procedures

The *Auto Roll* finish press ships completely assembled and ready to connect to power. Note the following exceptions:

- Pushbars (2) are tied up against the machine.
- Barrier guards (4) are shipped loose.

Place the *Auto Roll* finish press on the truck or in the container using one of the methods described in page IN-35 in the Installation Manual.

The machine must be tarped and strapped to the truck or container.

All equipment is covered with tarps or inside a container to prevent direct contact with moisture.

Truss Terminology

Table 2-3: Truss Terminology

Length Types	Height Types	
Overall length	H1	Board height
Centerline length	H2	Centerline height
Top length	H3	Centerline height
Bottom length	H4	Centerline height

Figure 2-2: Terminology Diagram

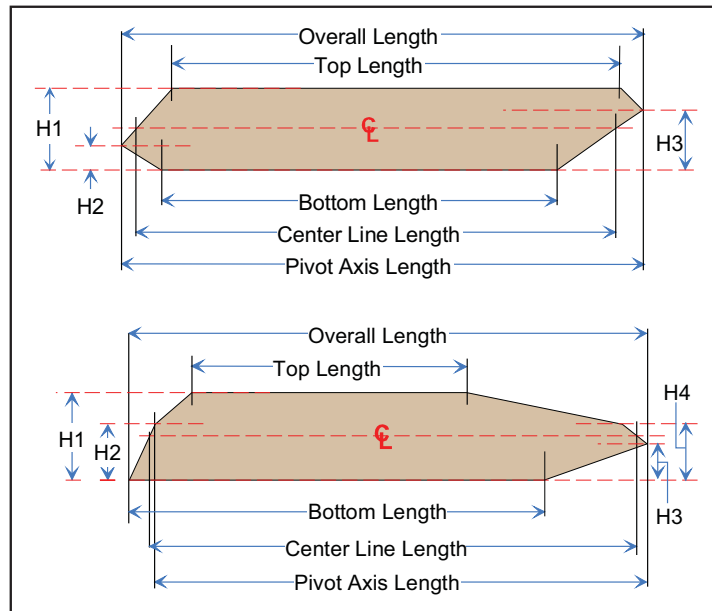
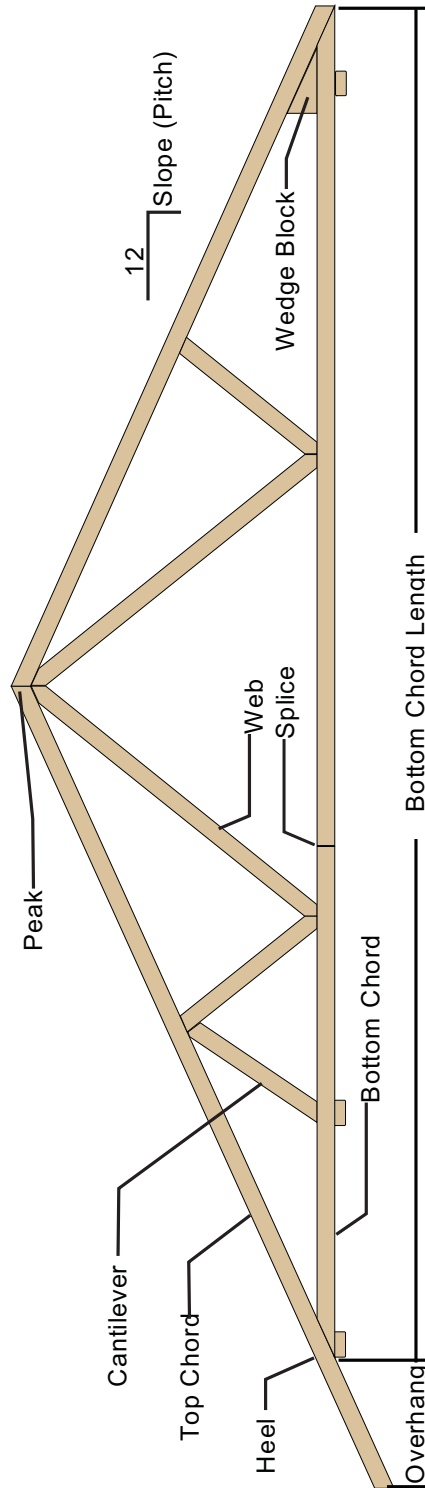


Figure 2-3: Parts of a Truss







Purpose of Chapter


This chapter describes the operating mechanisms on this equipment and the procedure to operate it in most circumstances.





Before You Begin





Safety Operating Notes

	 WARNING
	<p>ELECTROCUTION, CRUSH, AND CUT HAZARDS!</p> <p>Read this section AND the safety section in the preliminary pages before operating or maintaining this equipment.</p> <p>Do not operate this machine until you have a thorough understanding of all controls, safety devices, E-stops, and operating procedures outlined in this manual.</p> <p>Read and observe all warnings. Failure to do so may result in economic loss, property damage, and/or personal injury.</p> <p>This manual must always be available to personnel operating and maintaining this equipment.</p>

	 WARNING
	<p>CRUSH AND CUT HAZARD.</p> <p>Before turning on the equipment, make sure that all personnel and equipment are out of the restricted zone (see page SAFETY-11).</p>

	 WARNING
	<p>Do not operate the machine unless the pushbars, E-stops, and all safety devices are functioning properly.</p>

 CAUTION	
  	<p>The operation of this equipment requires the use of PPE.</p> <p>Do not operate without wearing required protective clothing.</p>

 WARNING	
  	<p>This machine is intended for the commercial production of wooden roof trusses only and therefore can potentially cause serious or even fatal injury.</p> <p>Personnel must have job specific training.</p> <p>The machine must be installed as recommended and all safety devices must be in working order.</p>



Manual Brake Levers

Each brakemotor has a manual brake lever for emergency use. If an obstruction is caught in the roller:

1. Activate an E-stop and lockout/tagout
2. Pull the manual brake lever to manually roll the rollers and remove the obstruction.

Figure 3-1: Typical Manual Brake Lever



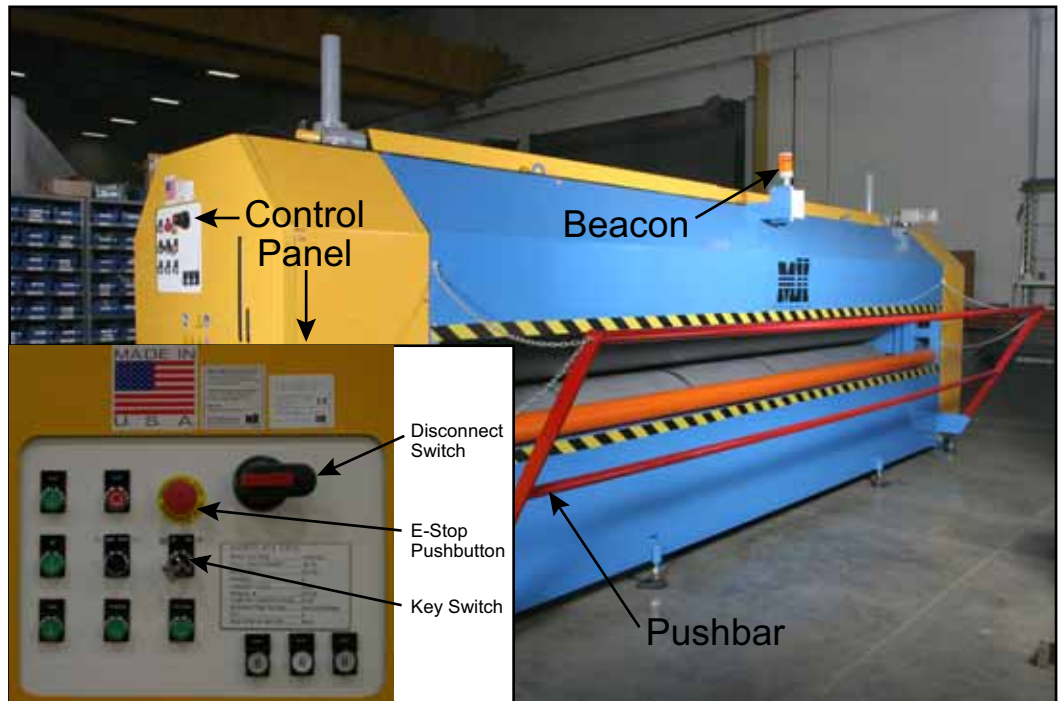
Stopping the Machine

A STOP button is provided to stop the rollers from moving. Do not use the E-stops as a standard stopping method during the operation procedure. Overuse might cause certain components to wear faster.

Emergency stops (E-stops) are provided for quick stopping under various conditions. E-stops immediately cease electrical power transmitting to the control circuit. The only control power existing at the machine after an E-stop is actuated is the power to the photoeyes, PLC inputs, and control transformer. Utilize any of the E-stops on this machine to cease power, which will stop all motion and de-energize PLC outputs.

Note the different types of E-stops and their locations shown in Figure 3-2. Each is described further in subsequent text.

Figure 3-2: E-Stop Locations and Devices for Safe Operation



E-Stop Pushbutton

A typical E-stop pushbutton is shown in Figure 3-3. To activate a pushbutton, push the red button in. To release an E-stop pushbutton, pull straight up on the pushbutton. It will return to its extended position.

After an E-Stop has been activated, the START button must be pressed before the machine can operate again.

Figure 3-3: E-Stop Pushbutton





Pushbars

A pushbar is located on each side of the machine. When pushed in (toward the machine), it depresses the plunger roller on the limit switch and activates the e-stop circuit. To restart the machine, return the pushbar to its extended position.

After an E-Stop has been activated, the START button must be pressed before the machine can operate again.

Disconnect Switch

Figure 3-2 shows the location of the disconnect switch that controls the main power supplied from that switch to the rest of the machine. Turning the disconnect handle to the ON position allows power to flow through the disconnect switch into the rest of the machine. Turn the disconnect handle to the OFF position to stop the flow of power at the disconnect switch. The disconnect handle should be turned off when the machine is not in use. Lockout/tagout the machine at the disconnect switch when working on the machine outside of the main electrical enclosure.

	 WARNING
	ELECTRICAL HAZARD! When the disconnect switch is off, there is still live power to the disconnect switch's enclosure. Always turn off power at the main power source before opening electrical enclosure!

Starting the Machine

Refer to page OP-46 for operating instructions.

Overview of Operation Features

Pressing Height Power-Adjust Feature

The pressing height power-adjust feature allows the operator to easily raise and lower the top roller to adjust the space between rollers. This must be done when changing board thicknesses.

The pressing height will automatically adjust in Auto Mode when receiving the information from another piece of equipment.

Communication Features

1. A truss detection sensor and horn exists to notify personnel upstream and downstream from the finish press that a truss may be moving toward them. The horn sounds in these instances:
 - When the rollers are told to move in the forward direction, the horn sounds before the rollers move.
 - When the rollers are told to move the reverse direction, the horn sounds while the REV button is pressed.
 - When a board or truss has entered the machine.
2. A beacon light on top of the machine illuminates when the finish press rollers are turning in either direction.
3. A feedback relay monitors errors (using the relay) or E-stop status (using a contact point). If utilizing this feature, the customer must supply and install a user interface.

Ability to Interlock With Other Equipment

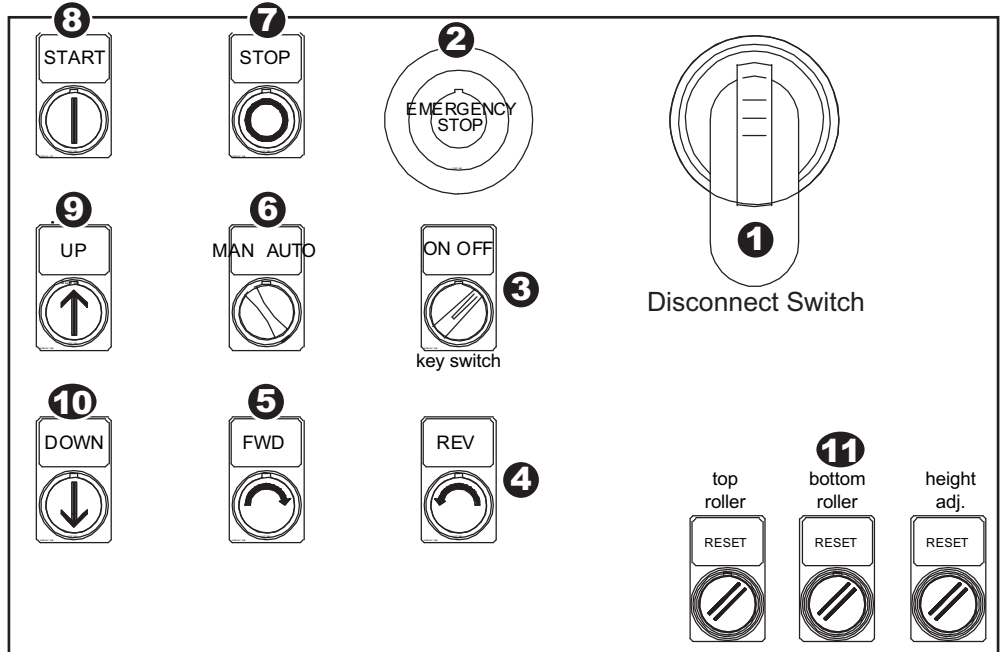
Provisions have been made in the electrical design to allow the *Auto Roll* to be interlocked with stackers to have traffic control capabilities. The customer must supply the additional relay needed.

Operator Control Interface

Figure 3-4: Location of Control Panel



Figure 3-5: Overview of Control Mechanisms



Control Panel Buttons

1. Disconnect Switch

This disconnect switch turns the main power on and off. See page OP-37 for more information.

2. EMERGENCY STOP Pushbutton

Press the EMERGENCY STOP button to stop all machine motion. All Emergency Stop buttons must be in the out position and properly functioning in order for the machine to be started. See page OP-36 for more information.

3. ON/OFF

Key switch that turns the control power on or off. This switch should be off when the machine is not in use.

4. REV Button

Press and hold the REV (reverse) button to start the rollers in a direction to feed the truss from the normal outfeed side back toward the normal infeed side of the press. The beacon flashes to indicate the machine is running.

5. FWD Button

Press and release the FWD (forward) button to start the rollers in a direction to feed the truss from the front to the back of the press. The beacon flashes to indicate the machine is running.

6. MAN/AUTO Selector Switch

In Manual Mode, use the UP/DOWN buttons to adjust the height of the top roller. In Auto Mode, the height adjustment occurs automatically from information supplied by other equipment, if this capability was set up at installation.

7. STOP Button

Press the STOP button to stop the forward direction of the finish press.

8. START Button

Depress the START button to enable the safety circuit.

NOTE: Both pushbars must be in the extended position and the EMERGENCY STOP pushbutton must be in the out position for the machine to be started.

9. UP Button

Depress and hold the UP button to raise the top roller, i.e., increase the pressing height.

10. DOWN Button

Depress and hold the DOWN button to lower the top roller, i.e., decrease the pressing height.



11. RESET Buttons (3)

In the event that the height adjustment motor or finish press drive motors have overloaded and a protective overload device is tripped, press the appropriate RESET button to reset the overload device.

12. Pressing Height Indicator

The pointer on the scale shows the distance between the two rollers (pressing height.)

Adjusting the Pressing Height

 CAUTION	
	<p>Before testing or running the finish press, double check that the pressing height is set to the same thickness as the lumber to be used.</p> <p>Do not allow anything other than wood truss components and metal connector plates to be pressed with this machine. Other objects may shatter, injuring personnel with flying debris. Wear appropriate PPE.</p>

Maximum and Minimum Height Limitations

The pressing height (opening between rollers) can be adjusted from 1-3/16 in. to 8 in. The height indicator (scale) is located on the end shield at the operator end of the machine. Maximum UP and DOWN limit switches controls the maximum travel of the top roller. Refer to page MT-53 in the Maintenance Manual to adjust the maximum UP or DOWN limit switches.

Auto vs. Manual Modes

A selector switch on the control panel sets the mode, which controls how the machine accepts the pressing height information. When in Auto Mode, the *Auto Roll* responds to the height command from the first-stage Press or other integrated assembly equipment.

Changing the Pressing Height in MANUAL Mode



Refer to Figure 3-5 to see the location of controls.

The pressing height can be adjusted with the rollers running or still.

1. Ensure that there is no lumber between the rollers.
2. Ensure the following is true:
 - a) The disconnect switch for the *Auto Roll* is in the ON position.
 - b) The E-stop pushbutton and both pushbars are in their extended positions.
 - c) The key switch is in the ON position.
3. Press and release the START button.
4. Turn the MAN/AUTO selector switch to the MAN position.
5. Press and hold the UP or DOWN button to raise or lower the top roller.
6. Watch the pointer on the pressing height indicator, and release the button when the pointer reaches the required height marking.

7. Ensure that no component of the truss is higher than the current press height setting as it may damage the machine and the truss.
8. Check that all personnel are clear of the press and conveyors, then press the FWD button to start the rollers moving in the forward direction.
9. Perform a sample pressing to ensure the connector plates are properly seated. Use a piece of lumber of the same size as the new truss, together with connector plates.
10. Re-adjust the pressing height if the connector plates are not properly seated.
 - The connector plates will not be seated properly if set too high (loose).
 - The lumber may be damaged if set too low (tight).

Changing the Pressing Height in AUTO Mode

Adjusting the Prox (Proximity) Switches

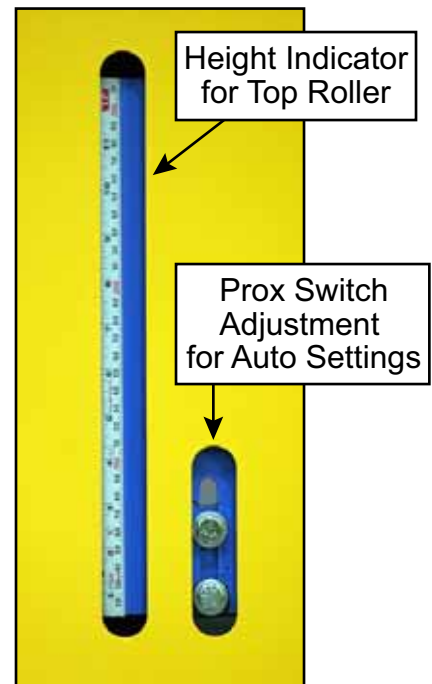


Refer to Figure 3-5 to see the location of controls.

The rollers can not run in reverse while machine is in Auto Mode.

1. Determine the two heights needed for the day's production (lumber thickness as it goes through the finish press).
2. Ensure that there is no lumber between the rollers.
3. Locate the prox switch adjustment bracket on the operator's end. It is shown in Figure 3-6.
4. Loosen the screws and move each of the two prox switches to the desired location. The location must be measured manually.
5. Tighten the screws to secure both prox switches.

Figure 3-6: On Operator's End





Moving the Top Roller Into Position in Auto Mode

1. Ensure the following is true:
 - a) The disconnect switch for the *Auto Roll* is in the ON position.
 - b) The E-stop pushbutton and both pushbars are in their extended positions.
 - c) The key switch is in the ON position.
 - d) The prox switches are set at the correct heights.
2. Press and release the *START* button.
3. Turn the *MAN/AUTO* selector switch to the *AUTO* position.
4. Press and release the *FWD* button.
 - a) When the *FWD* button is released, the top roller begins moving downward to establish its position by finding a limit switch.
 - b) The PLC reads the integrated equipment's signal and moves the roller to the appropriate height.



The time between pressing height signals is set at 15 seconds at the factory. Adjust this time by turning the potentiometer (Pot switch) labeled "0" on the PLC. Turning clockwise increases the wait time.

See page OP-51 for details on how the equipment communicates with each other and how the program handles wait time between pressing height signals.

	 WARNING
	<p>CRUSH OR CUT HAZARD!</p> <p>Before turning on the equipment, ensure that all personnel and equipment are clear.</p>

5. Perform a sample pressing to ensure the connector plates are properly seated. Use a piece of lumber of the same size as the new truss, together with connector plates.
6. Inspect the connector plates to determine if they are embedded properly.



- The plates will not be completely embedded is roller is too high (loose).
- The lumber may be damaged if roller is set too low (tight)


7. The roller height may need to be slightly adjusted. It can be done in Auto Mode or Manual Mode, but the prox switch(es) must be moved either way.



Using Auto Mode is the most accurate way to make slight adjustments, but the method used depends on your integrated equipment. The method described here uses Manual Mode.

If making the adjustments in Manual Mode:

- a) Switch to Manual Mode by turning the selector switch to MAN.
- b) Move the top roller up or down using the arrow buttons.
- c) Switch back to Auto Mode by turning the selector switch to AUTO. The roller will not automatically reposition itself in this scenario, for this truss only. It will resume automatic positioning at the next signal.
- d) Move the prox switches to newly adjusted height.

NOTICE	
	<p>Press the STOP button or activate an E-stop to stop the top roller's vertical motion.</p> <p>If any of the following actions occur during positioning of the top roller, the positioning motion will stop.</p> <ul style="list-style-type: none"> • If an E-stop is activated • If the selector switch is turned to MAN • If the STOP button is pressed

Operating Instructions

Operating Overview





The *Auto Roll* finish press can be used in different ways to achieve your goals, but different safety concerns must be addressed in each scenario. Determine which scenario best fits your application of the machine, and abide by all guidelines given for that scenario.

This machine is intended to be used to receive trusses automatically conveyed from a set of spaced conveyor rollers or gravity-fed conveyor, and **NEVER TO RECEIVE TRUSSES HAND-FED INTO IT**. Safety systems are designed with the expectation that they will not be intentionally disabled or avoided. Stay out from between the conveyor rollers and the area near the finish press during production to avoid injuries.

  	<p style="text-align: center;"> WARNING</p> <p>Only competent, experienced personnel with job specific training who have read and understood this manual are to operate or work near this machine.</p> <p>Do not allow anything other than wood truss components and metal connector plates to be pressed with this machine. Other objects if pressed may shatter, causing serious personal injury.</p> <p>Never stand inside a truss or any place where you could be trapped between a moving truss and a stationary object.</p> <p>Ensure that E-stops, pushbars, guards, and all safety devices are functioning properly.</p>
	<p style="text-align: center;"> WARNING</p> <p>CRUSH AND CUT HAZARD.</p> <p>Before turning on the equipment, make sure that all personnel and equipment are clear.</p>
	<p style="text-align: center;">NOTICE</p> <p>The finish press is equipped with brake motors and is designed to be operated in continuous manner. Do not start and stop the finish press repetitively as it will overheat the motors and the brake units.</p>

Operating Procedure




These instructions will slightly differ if the customer has chosen to interlock the finish press with other equipment. These instructions assume the finish press is being used with a side-eject table ejection system. Any other configuration requires additional safety procedures and devices. It is the responsibility of the end-user to evaluate and determine the final operating procedure and safety efforts required.

 WARNING	
	<p>CRUSH OR CUT HAZARD!</p> <p>Stand clear of the truss and truss ejectors as they are being raised or lowered.</p> <p>Never touch the truss after it enters the finish press.</p>
	<p>Ensure that the truss is lined up straight with the machine before it enters the finish roller. A crooked truss may result in flying debris.</p> <p>Never touch or go near the truss as it enters the finish press.</p>
	<p>Do not operate without a conveyor system on the infeed side that is capable of holding the longest truss made.</p>




Refer to Figure 3-5 to see the location of controls.

1. Refer to your primary press, table, and ejection system manuals for instructions on how to assemble, press, and remove the truss from the table line.
2. Turn the conveyor system leading to the *Auto Roll* off until the *Auto Roll* is ready to press.
3. Place the truss on the conveyor system.
4. Ensure the following is true:
 - a) The disconnect switch for the *Auto Roll* is in the ON position.
 - b) The E-stop pushbutton and both pushbars are in their extended positions.
 - c) The key switch is in the ON position.
5. Adjust the height of the top roller (pressing height) by following the steps on page OP-42. Follow the instructions for either Manual Mode or Auto Mode.

	 DANGER
 	<p>CRUSH HAZARD! ROTATING PARTS.</p> <p>Never stand directly in front of or behind the finish press. Trusses enter and exit with great force.</p> <p>Never place hand near moving rollers.</p> <p>Always look on both sides of the finish press for personnel or obstructions before starting motion.</p>

6. Check that:
 - a) All downstream truss receivers are in the Down position
 - b) The truss is sitting square on the conveyor.
7. Press FWD to begin the rollers turning forward (from infeed side to outfeed side).

The horn emits a sound for approximately 3 seconds, the top and bottom rollers rotate in the forward direction, and the beacon light flashes.

	NOTICE
	<p>If the truss is crooked and appears that it may hit the side of the press or anything else, depress an E-stop button immediately.</p>

8. Turn the conveyor system on and allow the truss to be fed into the finish press.
9. Press the STOP button on the control panel to stop the rollers from turning.
10. If you must back the truss out of the machine:
 - a) Look for personnel or barriers upstream before reversing.
 - b) Press REV so the truss backs out off the machine.
 - c) Re-align the truss.
 - d) Look for personnel or barriers downstream before starting machine.
 - e) Start the finish press in forward motion for normal operation.
11. At the end of the work day, turn the key switch and the disconnect switch to the OFF position to prevent accidental starting or unauthorized use of the machine.

Restarting the Machine After a Temporary Stop

1. If an E-stop was activated, return it to its original position:
 - Pull an E-stop pushbutton out
 - Move a pushbar to its extended position (pull it away from the machine frame)
2. Press and release the START button.

Inspecting the Finished Trusses

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 and state agencies for specific regulations and standards for wooden truss construction.

Check each finished truss to ensure all connector plates are properly seated into the lumber.

- If all of the connector plate is not fully seated, the distance between the main rollers may need to be reduced by lowering the top roller.
- If the lumber is being crushed or cracked, the distance between the main rollers may be too small and the top roller may need to be raised.
- Refer to specifications on page OP-29 for machine pressing limitations.
- Consult your connector plate supply company to ensure the connector plates are suitable for single-stage or two-stage rolling application, as you intend to use them.

Understanding Communication With Integrated Equipment

Two way communication between the *Auto Roll* and integrated equipment allows automatic pressing height adjustment to occur in Auto Mode. This is an overview of how it works.

Integrated Equipment Signals to the *Auto Roll*

Signal Definitions for Integrated Equipment

The press or integrated equipment signals to the *Auto Roll* PLC communicating to what height the top roller should move. The input signals are defined in Table 3-1, but all of these positions can be changed by adjusting the appropriate prox switch or limit switch.

Table 3-1: Input Signal Definitions

CR2	CR1	Definition	Switch ID
0	0	Error, the top roller moves down to the Max DOWN position	LS4
0	1	38 mm*	PRS1
1	0	51 mm*	PRS2
1	1	Clear, the top roller will move to the Max UP position	LS3

* Can be changed by using Pot switch 0 on PLC

Signal Wait Time

There is a time lapse (wait time) between signals from the integrated equipment in certain scenarios. The setup of the integrated equipment determines what triggers the signal to be sent to the *Auto Roll* finish press (at the start of the first-stage pressing cycle, end of the first-stage pressing cycle, etc.)

The wait time is set at the factory to be 15 seconds. Adjust the wait time using the Pot 0 switch on the PLC. The Pot 0 switch has a maximum range of 3/4 turn. The range in time is 0 to 50 seconds.

- Turn the Pot 0 switch clockwise to increase the wait time.
- Turn the Pot 0 switch counterclockwise to decrease the wait time.

To understand when and how the wait time applies, refer to the sequence of events in Table 3-2 on page OP-52.

Table 3-2: Sequence of Events for Signal From Integrated Equipment

1	First truss is pressed	Signal is sent to <i>Auto Roll</i> to adjust height	Wait time applies, then <i>Auto Roll</i> adjusts height
2	Additional trusses are pressed at that same height	no signal	no adjustment
OR	OR	OR	OR
2	Second height required for new set of trusses	Second signal sent to <i>Auto Roll</i> to adjust height	Wait time applies, then <i>Auto Roll</i> adjusts height

Auto Roll Signals to the Integrated Equipment

Signal Description

The CR3 relay can be used to signal its status to integrated equipment. There are two (2) sets of normally open/normally closed contacts available.

Typical signal use includes:

- *Auto Roll* is ready
- *Auto Roll* is not ready

Conditions for Signal

The *Auto Roll's* CR3 relay energizes to send the signal if all of the following conditions are met:

- No E-stop condition.
- All motor overloads are working.
- Top and bottom rollers are running.
- AUTO/MAN selector switch is in AUTO position.
- Top roller is not in vertical motion.
- Top roller is at commanded position.
- No truss is passing through the rollers.

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