



RoofTracker II™

Roof Truss Roller Press, Tables and Jigging

August 2015

Equipment

Introduction to the Equipment

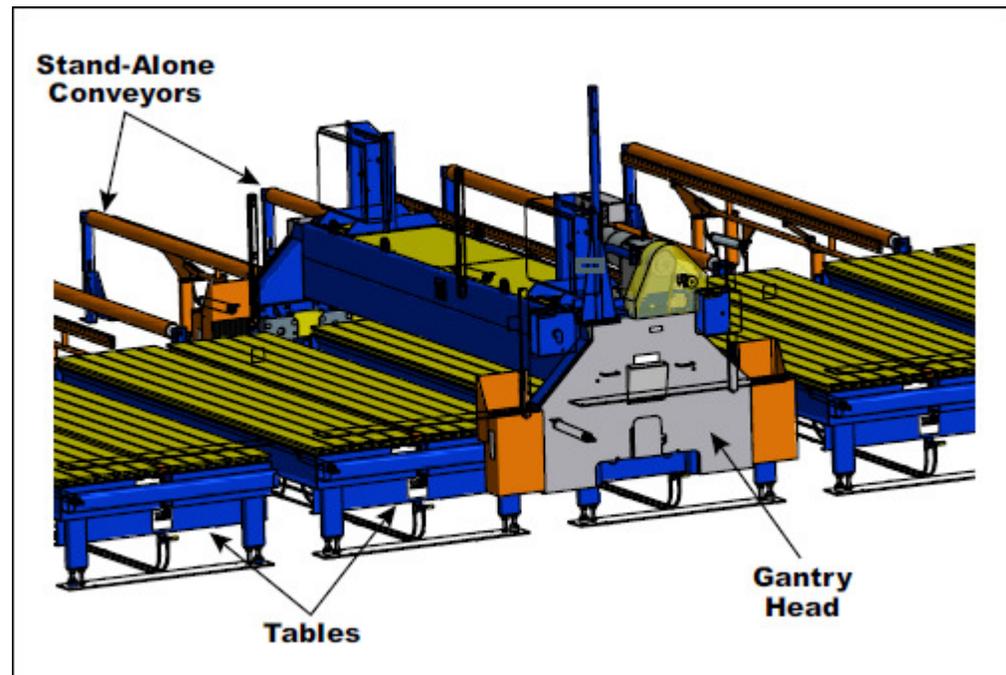
Purpose:

The primary function of the *RoofTracker II*™ roof truss roller press system is to press MiTek® connector plates into roof trusses to connect roof truss components.

Overview

The *RoofTracker II* roof truss roller press system consists of a gantry head, which houses the roller that causes the initial embedment of the connector plates; a set of tables that holds and supports the truss and gantry head; a Stand-Alone Conveyor system; and a Finish Roller that completes the plate embedment process. The system components can be seen in image below.

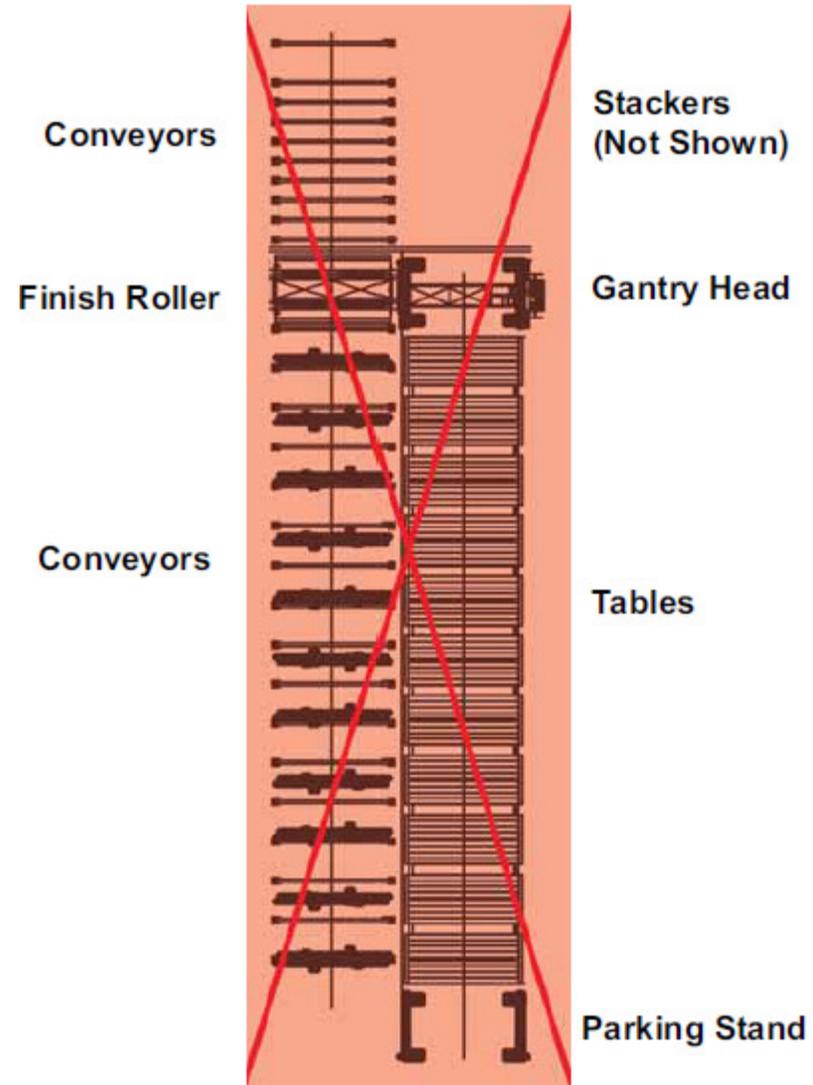
NOTE: Throughout this training, the term *RoofTracker press* is used to refer to the entire system.



Equipment

Restricted Zone

Know the Restricted Zone

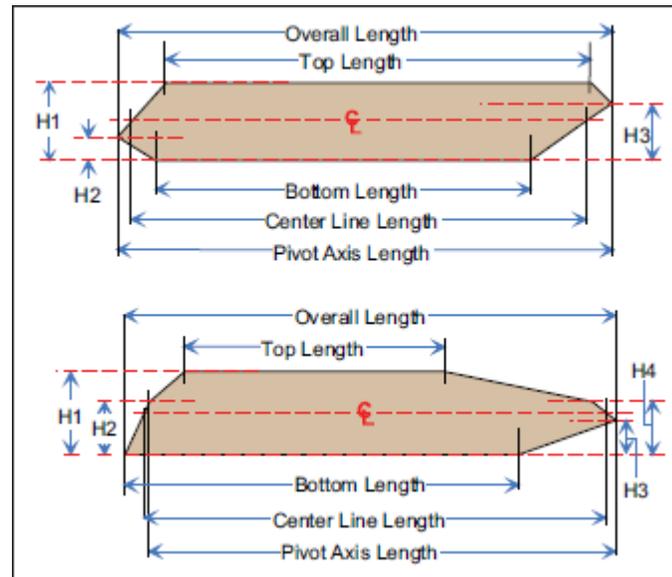


Truss Terminology

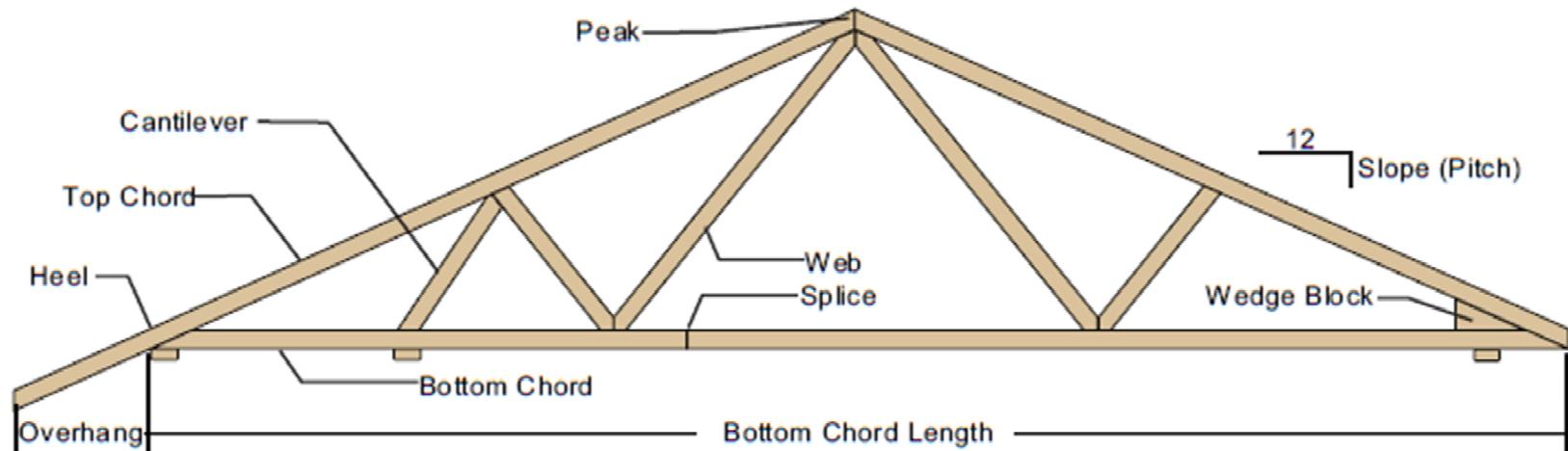
Truss Terminology

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

Terminology Diagram



Parts of a Truss



Important Notes

Do not allow the gantry head to sit in one place for a long period of time after installing it on the table and parking stand assembly. This may cause flat spots to form on the polyurethane wheels.

Move the gantry head at least every three (3) days to prolong the life of the wheels.

DANGER	
	<p>Read the Operators 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 the Operators Manual.</p> <p>All warnings must be read and observed. Failure to do so may result in economic loss, property damage and/or personal injury.</p> <p>The Operators Manual must always be available to personnel Operating and maintaining this equipment.</p>

DANGER	
	<p>Before turning on the machine, make sure that all personnel and equipment are clear.</p>

Operating Procedures

Stopping the Machine

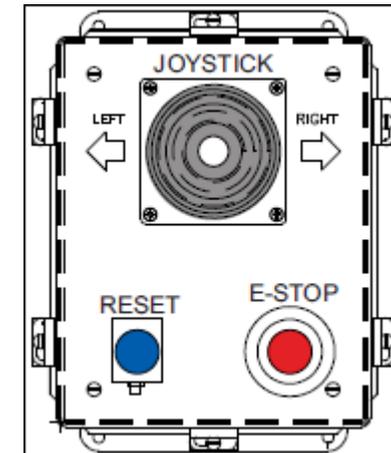
Stopping During Normal Operation

To significantly increase the life of machine components (such as brake pad, bearing, chain, wheels, motor, etc.), follow these guidelines when stopping the gantry head during normal operation:

- To stop the gantry head during normal operation, release the joystick and let the gantry head coast to a stop. Do not use the E-stop for routine stopping as this will cause unnecessary wear on components.
- To park the gantry head on the parking stands, release the joystick with sufficient time for the gantry head to stop. Do not allow the parking stand flag to break the light beam as this will imitate an E-stop and cause unnecessary wear on components.

Emergency Stop

Push the red emergency stop (E-stop) button next to the joystick to cease power transmitting to the control circuit and stop motion of the gantry head. To resume operation after an E-stop, pull up on the pushbutton so it returns to its raised position. The location of the E-stop button on the joystick control panel is shown here. When an E-stop pushbutton is pressed, the center is illuminated in red.



WARNING	
	<p>CRUSH HAZARD.</p> <p>The light bars are for detection of personnel and equipment in a restricted area. It is not for the detection of hands and feet.</p>

Operating Procedures

Stopping the Machine (cont)

Light Curtains

Operation of the light curtains is discussed later in this chapter. To stop the machine using the light curtains, a solid object must pass through the light beam, interrupting the transmission of the beam between the transmitter bar and receiver bar.

Laser Scanner

The laser scanner is provided only if the equipment has the optional High Bottom-Chord Platform that is at the same height as the table tops. In this instance, a safety device scans the predetermined safety zone to ensure that the platform does not come into contact with other people who may be inside the restricted zone area. The gantry head will stop if a solid object passes through the scanner's light beam inside the scanner's safety zone.

Bumpers

The machine will stop when something causes a bumper to retract. A bumper is located on each corner of the gantry head to provide additional safety control. The gantry head bumpers automatically reset themselves when fully extended.

If your machine has a Top-Chord platform (optional item) or a High Bottom-Chord platform, the bumpers have been removed on the end with the platform.

Light Curtain and Bumper



WARNING	
	<p>CRUSH HAZARD.</p> <p>The light bars are for detection of personnel and equipment entering a restricted area. It is not for the detection of hands and fingers only.</p>

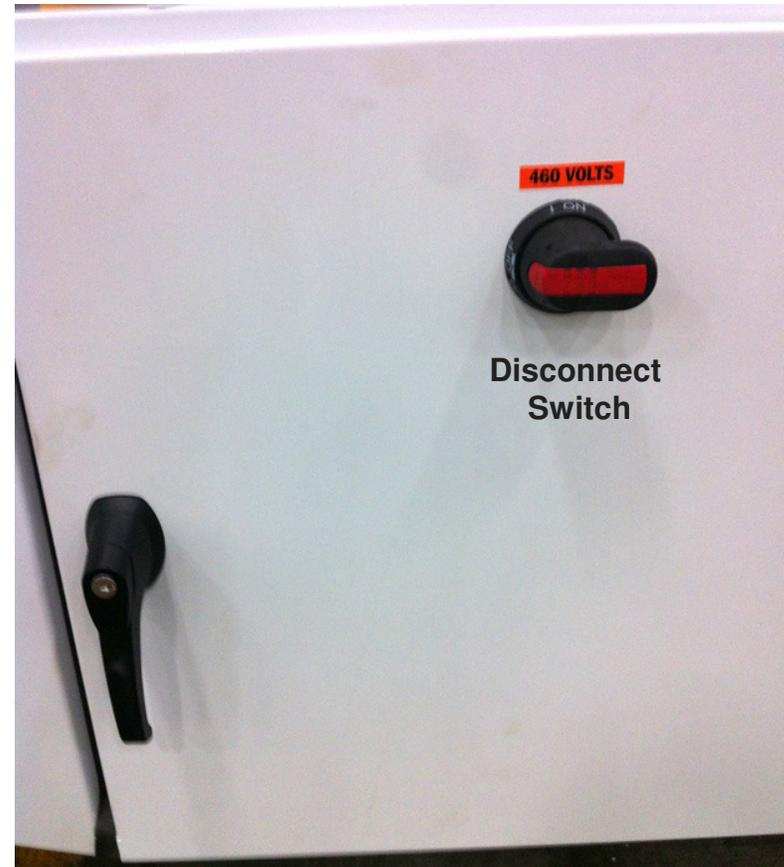
Operating Procedures

Stopping the Machine (cont)

Disconnect Switch

The disconnect switch is located on the main electrical enclosure. See the image shown here.

Turning the disconnect switch to the ON (vertical) position supplies electrical power to the entire machine. To remove power to the machine, turn the disconnect handle to the OFF (horizontal) position. The disconnect switch should always be turned off when the machine is not in use.



Operating Procedures

Indicators

Light Stack

There is a light stack located on top of the gantry head. It has 4 different beacon lights that visually show the status of the machine. See the image shown here.

For solutions to faults, refer to the appropriate component section.

1. Red indicates an E-stop is actuated.
2. Amber (yellow) indicates the gantry head is in motion, either direction.
3. Blue **blinks** when warning that the drive chain's motion is **nearing** an unsafe condition.

NOTE: The light is **solid** blue when the drive chain is in an unsafe condition which could affect stopping capabilities

4. Red: Indicates a VFD fault.

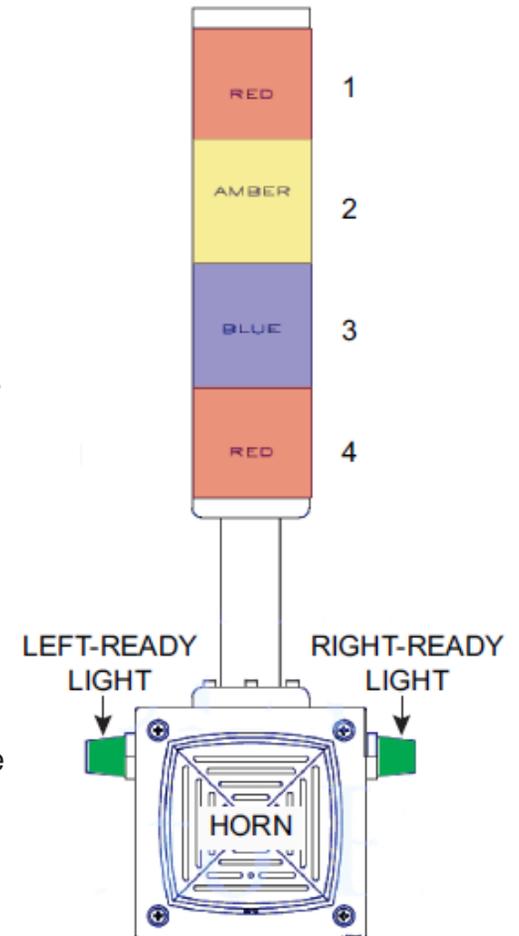
Ready Indicator Lights

The two lights on either side of the horn are the "Ready" indicator lights. If the gantry is ready to move in that direction, the appropriate light stays illuminated. If one or both of those lights are off, the gantry cannot move in that direction. Begin by checking for other faults, or a barrier blocking the light beam.

Horn

The horn sounds for a few seconds prior to machine movement. When the horn stops, the gantry head will begin motion. The beacon remains blinking while the gantry head is moving.

Indicators on Light Stack and Horn Assembly



Operating Procedures

Indicators (cont)

Hour-Meter

An hour-meter is located on the main enclosure. See Figure 5-4. It records the number of operating hours, which is the time the gantry head is in motion. Refer to this meter to determine a maintenance schedule.

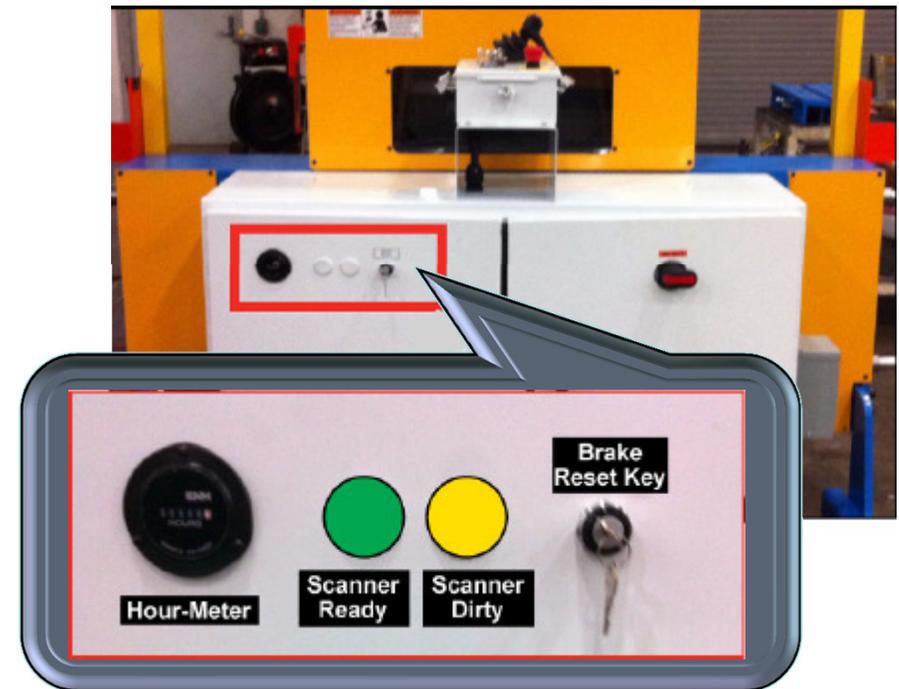
Safety Controller Indicator Lights

The safety controller ensures that the safety features on this machine are working properly. It is located in the main electrical enclosure. Indicator lights on the front of the safety controller unit communicate the Operating Mode and errors that may occur. Refer to page 64 for more information.

Laser Scanner Indicator Lights

There are 2 lights or light covers on the front of the main electrical enclosure, shown here. For machines equipped with a laser scanner under a table-top-high operator's platform, these lights illuminate to show when the laser scanner is ready, or when it is dirty and needs to be cleaned. For machines that do not have a laser scanner, the light covers are present on the front of the main electrical enclosure, but the lights are not connected to power and will not be used unless a laser scanner is installed later.

Indicators on Front of Main Enclosure



NOTE: There are additional indicator lights on the laser scanner itself. For more information about the laser scanner, refer to Laser Scanner section of the RoofTracker II Operators Manual.

Operating Procedures

Operator Control Interface Mechanisms

Getting Familiar With the Operation

Your *RoofTracker II* press is operated by a joystick. The joystick is mounted on a panel attached to the gantry head called the operator control station (or operator station).

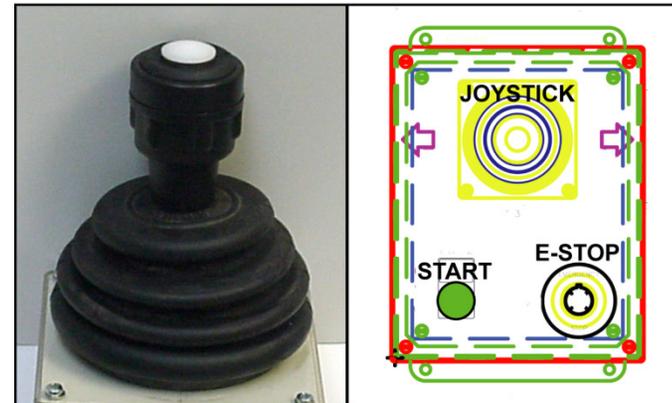
A platform is attached to the gantry head for the operator to stand on.

Reset

The blue RESET button enables all safety monitoring devices. The operator must press RESET before the directional indicator lights will come on.

The RESET button shall be pressed and released for the gantry head to work. If the RESET button is continually held in, the gantry head will coast to a stop.

Joystick and Control Panel



Operating Procedures

Operator Control Interface Mechanisms (cont)

Joystick

To operate the equipment with a joystick, press the blue RESET button on the operator control station. Then, press and hold the white button on the joystick handle while pushing the handle in the direction the gantry head should move.

NOTE: The operator must keep the white button on the joystick depressed for movement to continue.

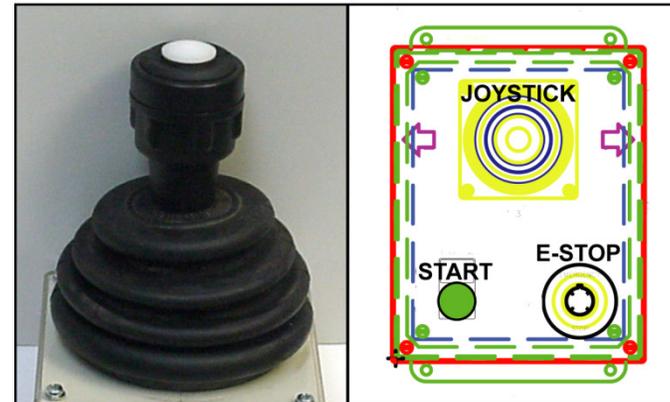
To stop motion, release the white button on the joystick handle. The gantry head decelerates and comes to a complete stop.

Operator Platform

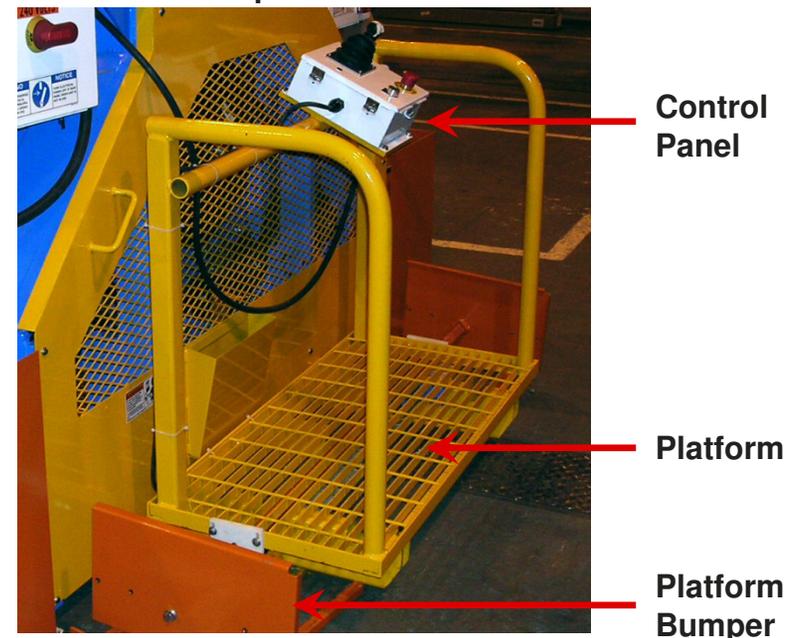
The operator platform is a required feature for a gantry using a joystick operator control interface. It is a raised platform that the operator(s) stands on, allowing the operator(s) to ride along with the gantry head as it travels.

The standard platform is located on the bottom-chord side of the table line.

Joystick and Control Panel



Standard Operator Platform



Operating Procedures

Operator Control Interface Mechanisms (cont)

Getting to Know Your Pendant Control Station (optional)

The pendant control station is an optional operator control interface that is shown here.

It is a hand-held device connected to the machine by a cable. There are four (4) pushbuttons on the pendant.

Start

The green START button enables all safety monitoring devices. The operator must press START before the directional indicator lights will come on.

Directional Buttons

When the directional indicator lights on the electrical enclosure are lit, press and hold one of the black directional buttons on the pendant to begin movement of the gantry head.

On 1-enclosure systems, the buttons read RIGHT and LEFT.

The REVERSE and FORWARD buttons are on 2-enclosure systems. Reverse is toward the right when facing the disconnect switch and forward is to the left.



NOTE: When you release a directional button, the gantry head decelerates and eventually comes to a complete stop.

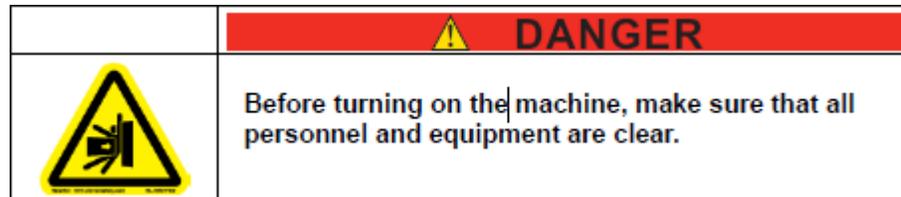


Operating Procedures

Normal Operating Conditions

Operating Under Normal Conditions

1. Turn the disconnect handle to the ON (vertical) position.
2. Set up the truss configuration and jiggling. Refer to the *Setting Up for Operation—Jiggling* section of this manual.
3. Verify the following:
 - a) No fault lights are lit on the light stack.
 - b) Both of the Ready indicator lights are lit.
 - c) Safety detection zones are clear and all safety devices are in normal operating condition.



4. Press and release the RESET button.
5. Move the gantry head in the desired direction:
 - a) Press and hold the white button on top of the joystick.
 - b) Push or pull the joystick in the direction the gantry head should move.
 - c) Release the white button or the joystick to bring the gantry head to a gradual stop.

Operating Procedures

Normal Operating Conditions (cont)

6. Remove the truss from the table and place it on the Stand-Alone Conveyors.
 - a) For systems **without** ejectors, manually slide the truss over onto the conveyors.
 - b) For systems using pneumatic ejectors and receivers:
 - 1) Remove all slider pads and ensure the gantry head is not parked on top of an ejector.
 - 2) Turn the setup's pilot valve handle. Refer to the *Pneumatics Operation* section for more detail.
 - With end-eject systems (or side-eject that is not an auto-eject), manually push the truss from the ejectors to the receivers or conveyor.
 - With an auto-eject system, the truss will slide onto the Stand- Alone Conveyors automatically.
 - 3) Turn the setup's pilot valve handle back to its original position.
7. Repeat the steps above for the next truss.

NOTE: Move the gantry head at least every three (3) days to prolong the life of the wheels. Sitting in one place may cause flat spots to form on the polyurethane wheels.

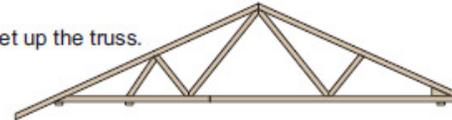
Operating Procedures

Normal Operating Conditions (cont)

1 Turn on the disconnect switch.



2 Set up the truss.



3 Verify that the path is clear.

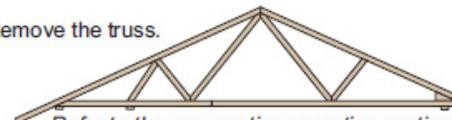
4 Press and hold the button while pushing the joystick to the left or right to start movement.



5 Release the button and/or joystick to stop movement.

6 Remove slider pads and verify gantry is clear of ejectors.

7 Remove the truss.

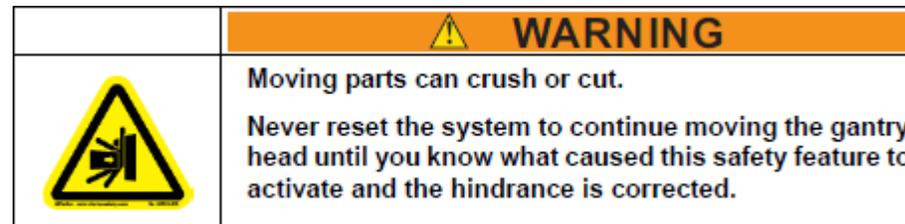


Refer to the pneumatics operation section for details.

Operating Procedures

Restarting Operation

If the machine stopped because you released the joystick, both Ready indicator lights should still be on. You can continue motion in either direction by pressing the joystick button and moving the joystick in the direction the gantry should go.



If the machine stopped because a safety device was activated, remove the barrier and reset the system by following the procedure below. When the light beam or bumper experiences an interference on one side of the gantry head, the gantry head can still be operated in the opposite direction.

1. Remove the barrier that was detected by the light beam or bumper. To move the gantry head in the opposite direction:
 - a) Press and hold the white button on top of the joystick.
 - b) Push or pull the joystick in the direction the gantry head should move.
 - c) Release the white button or the joystick to stop the gantry head's travel. The deceleration stop feature is suspended until the system is reset by pressing the RESET button.
2. Press and release the RESET button.

Verify that the two Ready indicator lights (on the horn) are illuminated.
If they are not, there is a physical barrier or electrical problem.

3. Resume operation as normal.

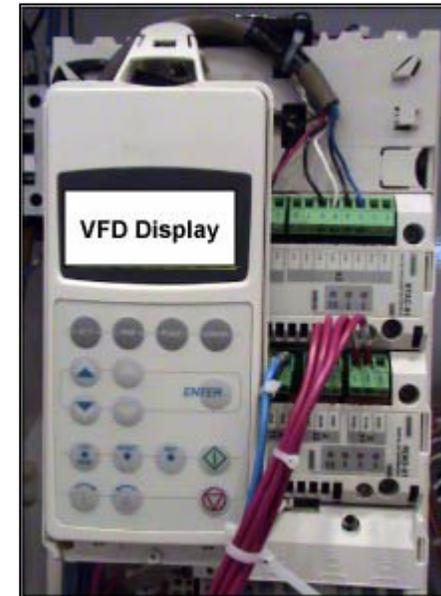
Safety Features

VFD and Brakes

The VFD (variable frequency drive) is inside the VFD enclosure. It is the enclosure to the right of a bottom-chord operator platform. If the VFD experiences a fault, a fault description will appear on the VFD display, but the beacon stack may also provide clues.

NOTE: Maintenance personnel should refer to the VFD and Encoder section of the Operators Manual for help with the faults.

NOTE: The fault that needs to be understood by operators is the **Motion Fault**.



Motion Faults

When a drive chain's motion is nearing an unsafe condition, the blue beacon on the light stack **flashes** to notify the operator that this matter should be addressed as soon as possible. If this happens:

1. Contact your maintenance department to schedule the necessary maintenance.
2. Press the RESET button on the operator control station.
3. Continue operating the machine as normal until the problem is fixed.

Safety Features

VFD and Brakes (cont)

Motion Faults (cont)

When a drive chain's motion indicates the machine is in an unsafe condition, the blue beacon on the light stack illuminates **solid blue** and the machine will not operate. If this happens:

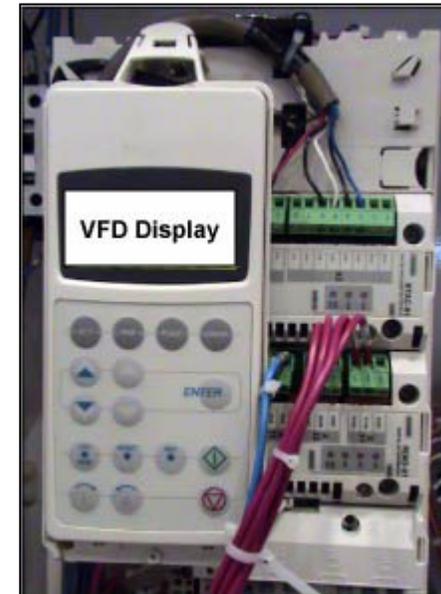
1. Contact your maintenance department to determine the problem.
2. Refer to the maintenance information.

NOTE: The maximum safe stopping distance in an emergency stop situation is 11-1/2 inches.

NOTE: The air gap in the brake motor may need to be adjusted as the brake pad wears down. The air gap does not affect the stopping distance, but a worn brake pad will burn up the motor.

Other VFD Faults

For other VFD faults, refer to your electrical schematic for VFD settings and jumper details. All VFD faults are explained in the VFD manual from the VFD manufacturer. The VFD manual was provided when your equipment was purchased and installed.



Safety Features

Bumpers and Safety Controllers

Bumpers

The bumpers located on the corners of the gantry head provide additional safety control. One is shown here. When a bumper collapses, it passes in front of the light curtain and causes the machine to stop its motion in the direction associated with the collapsed bumper. The rotation of the roller also stops at this time.

	 DANGER
	Tampering with or modifying the safety bumpers or light curtains can result in property damage, serious injury, or death.

Safety Controller

The safety controller ensures that all safety features on this machine are working properly. It should not require any additional operation, outside of the normal operating procedures. If the machine will not operate, the safety controller is a good place to start troubleshooting.

Scanner (optional)

Some machines are equipped with an optional laser scanner. It is an optical safety sensor that determines the location of objects in the pre-determined zone. It does so by emitting a laser light, which is reflected back to it, so no additional receiver is required.

	 WARNING
	Never adjust the angle or location of the laser scanner. If the laser scanner's bracket becomes bent or damaged, it must be fixed before operating the machine.



Safety Features

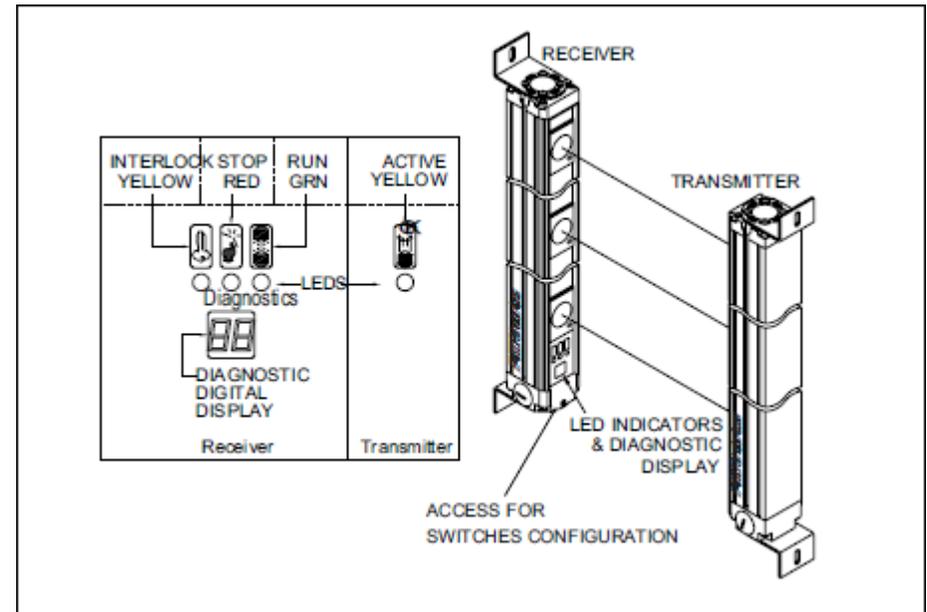
Light Curtains

Light curtains are presence-sensing devices designed to guard personnel working around moving machinery. *RoofTracker II* presses use a two-beam light curtain set on both sides of the gantry head.

A light curtain set consists of a receiver bar and a transmitter bar. The diagram shown here is a typical light curtain system. Although this diagram shows a three-beam light curtain set, the concept and indicators are the same.

When a beam between the two bars is broken, the machine will stop its motion in the direction associated with the interrupted light curtain set. The rotation of the roller also stops at this time. Once the interruption has been removed, the operator must press the RESET button and the directional button to restart the machine. When a light beam interruption occurs, the gantry head is still able to move in the opposite direction.

DANGER	
	<p>This safety device is intended for detection of personnel and equipment entering a hazardous area and not for the detection of hands and fingers.</p> <p>Tampering with or modifying the light bars or safety bumpers can result in property damage, serious injury, or death.</p>



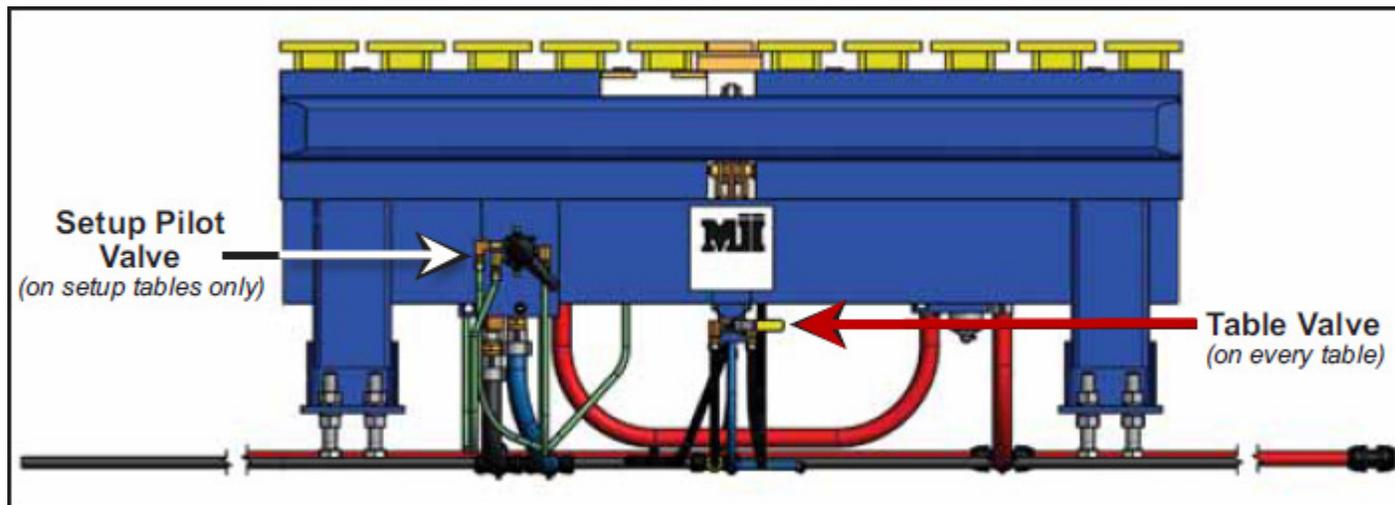
Tables

Operator Control Interface

The pneumatic system controls the ejectors on the tables and the receiver stands. The entire length of tables can be controlled by any one pilot valve if all ball valves are open, or each setup can be operated independently. You can remove any table from the setup by turning off the table valve.

Refer to your gantry head or *MatchPoint* manual for information on operating gantries or automated jigg.

This image shows the setup pilot valve that controls the ejectors and receivers, and explains how the position of the valve will affect the ejectors and receivers.

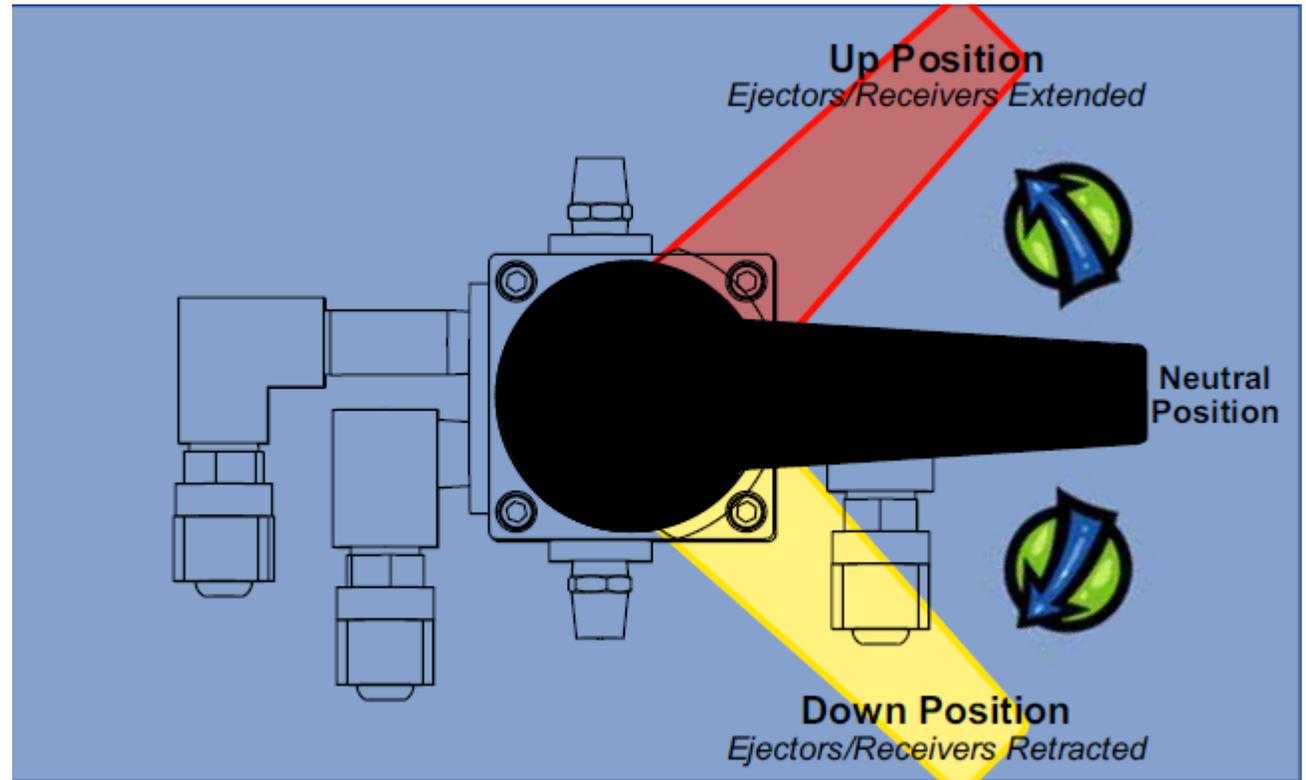


See the next page for and overview of the Control Mechanisms

Tables

Operator Control Interface (cont)

Control Mechanisms



Functions of Control Mechanisms

Pilot Valve Position	Function
Up	Ejectors and receivers extend
Neutral	Default position
Down	Ejectors and receivers retract

Tables

Operating the Tables

1. Set up the truss configuration and jiggling. Refer to the *Setting Up for Operation—Manual Jiggling* section of this manual.
2. Refer to your gantry manual for gantry operation.
3. When you are finished pressing the truss, remove the truss from the table and place it on the Stand-Alone Conveyors.
 - a) For systems without ejectors, manually lift or slide the truss over onto the conveyors.
 - b) For systems using pneumatic ejectors and receivers, refer to the *Pneumatics Operation* section.

WARNING	
	<p>CRUSH AND CUT HAZARD.</p> <p>Before turning on the equipment, make sure that all personnel and equipment are clear.</p>

Tables

Operating the Transfer Rollers

Operating the Transfer Rollers (Auto-Eject, High-Slope, and Long Throw Systems)

The transfer rollers will operate continuously once they are turned on.

1. Turn on power to the transfer rollers. The power switch is located in the transfer roller control box, usually next to the control box for your Stand-Alone Conveyor system.
2. Use the FORWARD/REVERSE button to start the motion of the transfer rollers.
3. When you are finished using the transfer rollers, use the STOP button to stop the motion of the transfer rollers.

WARNING	
	CRUSH AND CUT HAZARD. Before turning on the equipment, make sure that all personnel and equipment are clear.

Tables

Pneumatics Operation

Operating the Entire Pneumatic System as One System

After the connector plates have been pressed into the truss:

1. Remove ALL slider pads from the tables.
2. Ensure the ball valves between each setup on the 22-mm tubing are open.
3. Ensure all table valves are open.
4. Ensure all pilot valves are in the neutral position.
5. Actuate any pilot valve by turning the handle to the up position.
 - a) The ejectors will lift the truss off the table.
 - b) On side-eject systems, the receivers will also raise.
6. Remove the truss from the tables.
 - a) On side-eject and tall side-eject systems, someone must push or pull the truss from the ejectors onto the receivers.
 - b) On auto-eject, high-slope auto-eject, and long throw systems, the truss will slide over the transfer rollers and onto the conveyors.
 - c) On end-eject systems, push or pull the truss across the pop-up rollers to transfer the truss to the end of the table line and onto the conveyors.



Tables

Pneumatics Operation (cont)

7. Turn the handle (on the pilot valve previously actuated) to the down position.
 - a) The ejectors will retract into the table.
 - b) On side-eject systems, the receivers will retract and place the truss onto the conveyors.
8. If building another truss, return the handle to the neutral position so any pilot valve in the system can be used.

NOTE: All pilot valves must be in the neutral or down position for a setup to operate.

Tables

Pneumatics Operation (cont)

Operating Two or More Setups Independently of Each Other

1. Close the ball valve(s) on the 22-mm tube that is between the setups that are to be controlled independently of each other.
2. Ensure all table valves are open on the tables involved.
3. Actuate the setup pilot valve by turning the handle to the up position.
 - a) The ejectors will lift the truss off the table.
 - b) On side-eject systems, the receiver will also raise.
4. Remove the truss from the tables.
 - a) On side-eject systems, someone must push or pull the truss from the ejectors onto the receivers.
 - b) On auto-eject systems, the truss will slide over the transfer rollers and onto the conveyors.
5. Turn the handle (on the pilot valve previously actuated) to the down position.
 - a) The ejectors will retract into the table.
 - b) On side-eject systems, the receivers will retract and place the truss onto the conveyors.
6. If building another truss, return the handle to the neutral position so any pilot valve in the system can be used.

Tables

Pneumatics Operation (cont)

Removing a Table From a Cycle:

1. Close the table valve on the table or tables not involved in this cycle.
2. Continue to operate the rest of the setup as normal.

To Auto-Eject, High-Slope Auto-Eject and Long Throw Customers:

The transfer rollers are part of the operating equipment, but have no pneumatic functions. They constantly run while power is on. The rollers grab the truss as it slides off the auto-ejector and place it onto the conveyors.

Setting Up for Operation - Manual Jigging

Introduction to Jigging

To set up each truss configuration, jigging must be used. The jigging instructions are found here for manual jigging.

Refer to your *MatchPoint* manual for information on *MatchPoint* automated jigging.

NOTE: MiTek is unable to provide support for jigging other than *MatchPoint* automated jigging or manual jigging purchased from MiTek.

Your jigging has a Standard Stop Set containing the basic components for an assembly line workstation for approximately four to six tables (30-45 ft of assembly line length).

In addition to the Standard Stop Set, you will also need a fixture set.

- a) Use the Slotted Fixture Set with slotted-top tables that do not use a laser projection system,
- b) Use a Laser Jigging Fixture Set with systems that use a laser projection system.

See the next 2 pages for images of Pucks for Standard Stop Set and Straight Stop for Slotted Fixture Set

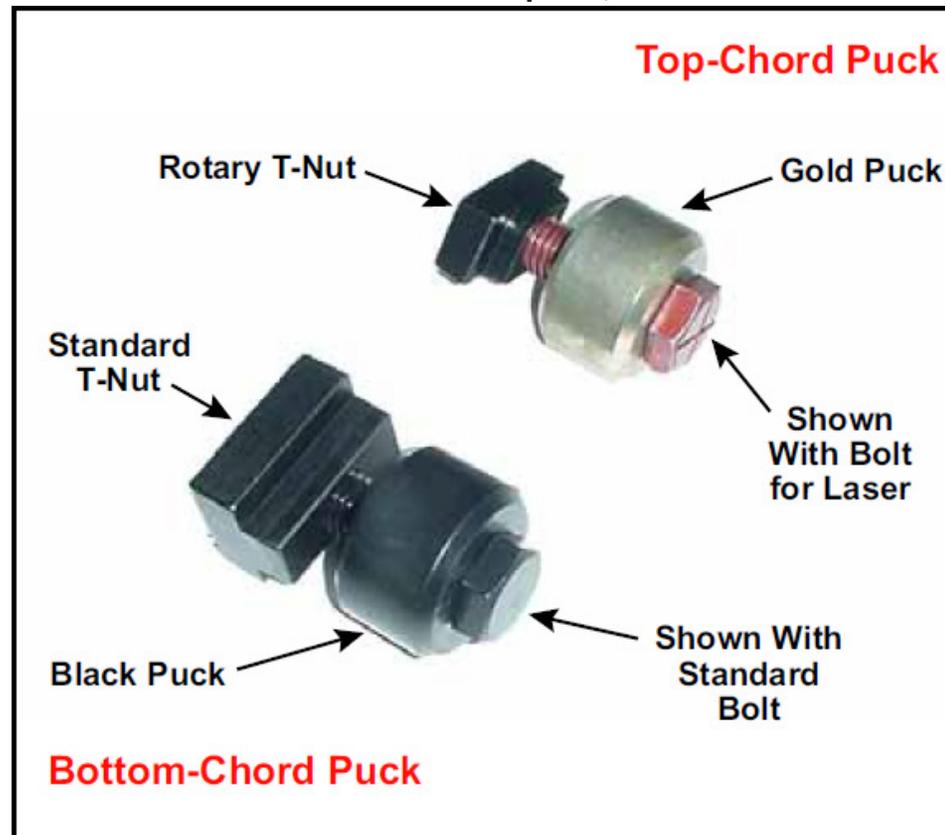
You can add to your jigging collection at any time by contacting MiTek Customer Service. There is also a replacement kit available for slotted-top tables that includes the most common parts that need to be replaced periodically to keep your jigging in good operating condition.

- ✓ Additional information can be found in the instruction booklets that shipped with each set.
- ✓ Refer to the *Replacement Parts* appendix of the Operations Manual for the replacement kit part number.
- ✓ Refer to the *Maintenance* chapter of the Operations Manual for preventive maintenance tips.

Setting Up for Operation - Manual Jigging

Introduction to Jigging (cont)

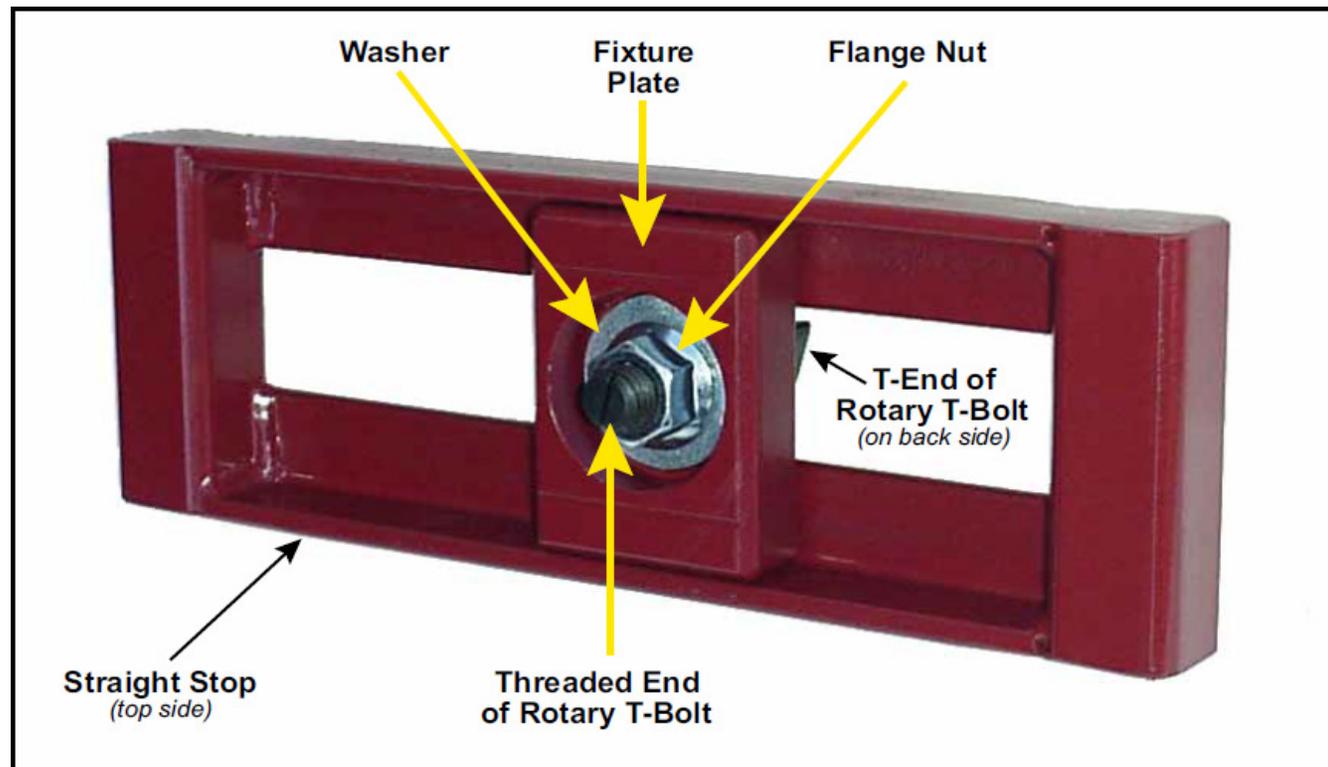
Pucks for Standard Stop Set, Assembled



Setting Up for Operation - Manual Jigging

Introduction to Jigging (cont)

Straight Stop for Slotted Fixture Set, Assembled



Setting Up for Operation - Manual Jigging

Slider Pad

The slider pad is designed to cover parts of the ejector slot so that plates can be embedded into the lumber over the ejector slot if required. You must insert a slider pad under the lumber to guarantee complete embedment of the plate.

1. Slide the pad into the ejector slot from either end of the table. The top surface of the slider pad should be even with the top of the table as shown here.
2. Arrange the slider pad so it is located directly under the connector plate location.
3. To remove the slider pad, slide it completely out of the ejector slot.

CAUTION

Remove slider pads before actuating ejector!

Inserting a Slider Pad into an Ejector Slot



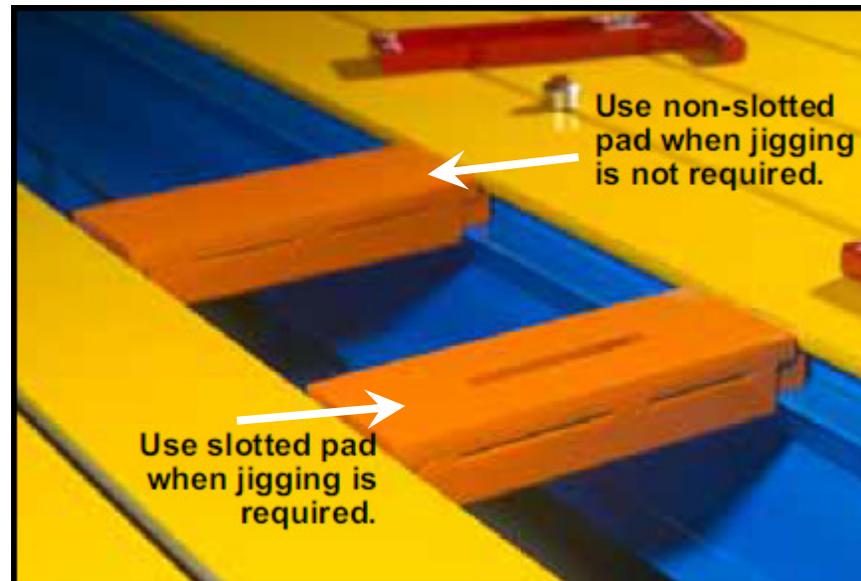
Setting Up for Operation - Manual Jigging

Aisle Pads

The aisle pads are designed enable plate embedment into truss lumber as it crosses the walk-through aisle between the tables if a connector plate must be embedded at that point. You must insert an aisle pad under the lumber to guarantee complete embedment of the plate.

1. Slide the aisle pad between two tables from either end of the tables. The aisle pad's flanges should be resting on the lip of each table as shown in this image.
2. Arrange the aisle pad so it is located directly under the connector plate location.
3. To remove the aisle pad, slide the pad out from between the tables.

Two Types of Aisle Pads



Quiz

- Throughout this training, the term **RoofTracker press** is used to refer to?
 - The press
 - The tables
 - The entire system
 - None of the above
- The disconnect switch is located where?
 - The press
 - The main electrical enclosure
 - Each table
 - The operators position
- What is the light color and status of the light stack when the drive chain is in an unsafe condition?
 - Yellow, Solid
 - Red, Blinking
 - Yellow Blinking
 - Blue, Solid
- For movement to continue the operator must do what to the joystick white button?
 - Depress and release
 - Click twice and release
 - Depress and hold down
 - Click twice and hold down
- The fault that needs to be understood by operators is the motion fault?
 - True
 - False
- What is the maximum safe stopping distance in an emergency stop situation?
 - 11 ½"
 - 12 ½ "
 - 13 ½"
 - 14 ½"
- Light curtains are presence-sensing devices designed to guard personnel working around moving machinery?
 - T
 - F
- All pilot valves must be in what position for a setup to operate?
 - Up
 - Down
 - Neutral
 - Any position will work
- Slider pads are designed to protect workers from ejectors?
 - True
 - False
- Aisle pads are designed to enable plate embedment at walk-throughs?
 - True
 - False