

**MiTek**



**FLOOR TRUSS STACKER  
AND TRUSS RECEIVER STAND**

**OPERATING AND MAINTENANCE  
MANUAL**

**Prepared For:**

**COMPANY:**

**MODEL NO:**

**SERIAL NO:**

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Revised by: R. Tucker

**PROPRIETARY NOTICE**

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## **WARNING**



**READ AND BECOME FAMILIAR WITH  
THESE INSTRUCTIONS BEFORE USING  
THIS MACHINE.**

## INTRODUCTION

This manual is prepared for the customer's information and use in establishing routine operational and maintenance procedures for optimum efficiency, production, and safety in the operation of the **MiTek**<sup>®</sup> Floor Stacker.

This machinery is designed, engineered and precision manufactured by **MiTek**<sup>®</sup>, using skilled craftsmen and materials. Given proper care, the equipment should reward the user with many years of productive service.

*At various places throughout the text of this manual, safety instructions are given concerning the use of equipment and machinery. Such safety instructions are marked by this Safety Alert Symbol:*



*Please pay special attention to instructions identified by this symbol. Failure to comply with these instructions may result in economic loss, personal property damage, and/or serious personal injury.*

### WARNING: PERSONAL INJURY HAZARD



This manual must always be available to the operator, and the operator must become thoroughly familiar with the manual before operating this equipment. No one should be authorized to operate the Floor Stacker before reading and comprehending Section 4 - Operation.

This manual contains sufficient information for proper operation and maintenance under most conditions. However, certain operating environments (e.g., extremely hot or dusty environments, etc.) may necessitate other maintenance or maintenance at more frequent intervals.

## PURPOSE

The **MiTek**<sup>®</sup> Floor Truss Stacker System is designed to optimize floor space by stacking wood trusses in line.

# **SECTION 1**

## **DESCRIPTION**

## I. GENERAL

- A. **The Floor Stacker** System consists of a **MiTek®** Floor Stacker, truss receiving stands, powered conveyor, and electrification systems.
- B. **The Floor Stacker** System will stack floor trusses onto receiving stands. A floor truss will be conveyed to the stacker and a manually adjusted (for length of truss) bridge target will stop the truss in the correct location and activate the stacking cycle. The stacking cycle begins with the stacker in the “lowered” position. The stacker will lift the first truss in the cycle to an elevated position that allows the truss to roll down the stacker arms, stopping against a fixed stop. The stacker will return to the “lowered” position and wait for the next truss. When the next truss is in position (if a third truss is to be stacked), the stacker will repeat the above sequence. When the trusses are in position, the stacker will rotate approximately 98°, to the “raised” position, lifting trusses and placing them on the receiver stands. The stacker will hesitate approximately one second and return to the “lowered” position. The cycle will be repeated until the required trusses are stacked.
- C. **The Floor Stacker** is available with different control options. These include a mechanical Bridge or Pop-Up Target and a photoelectric Scanner Eye Target. These control devices may be used separately or combined, depending upon the system layout.

The Bridge Target is mounted on angle track, which straddles the exit conveyor and functions as a physical locating control device. The Pop-Up Target operates in a similar manner but is located on a pad underneath of the exit conveyor. When a Target is activated, it sends a signal to the Floor Stacker to stack the truss.

The Scanner Eye Target is also mounted on angle track, which straddles the exit conveyor. The photoelectric Scanner Eye Target transmits a light beam that, when broken, will send a signal to the Floor Stacker to stack the truss.

- D. **The Truss Receiver Stands** support and stack trusses one, two, or three high. When pressure is applied by the Floor Stacker, the receiver stands automatically index for each truss.
- E. Refer to separate manuals for operating instructions and details on the Stand-Alone Conveyor, Bridge Target, Pop-Up Target, and the Scanner Eye Target.

## **SECTION 2**

## **SPECIFICATIONS**



<b>Specifications for the Floor Stacker</b>	
<b>STACKER CAPACITY</b>	
Cycle Time	40 seconds
Minimum Truss Height	9.25"
Maximum Truss Height	24"
Minimum Truss Length	120" (10')
Maximum Truss Length	480" (40')
Minimum Width of Stack	3.5"
Maximum Width of Stack	48"
Minimum Weight	N/A
Maximum Weight	1200 lbs.
Maximum Number of Trusses on Arms	
	Single Truss: (1) 24" (24")
	Double Stack: (2) 24" (48")
	Triple Stack: (3) 16" (48")

<b>MOTORS - ELECTRIC<sup>1,2</sup></b>	<b>1200 lb. STACKER</b>
Horsepower Rating	2 HP
RPM Input	1740 RPM
RPM Output	10.6 RPM
Gearbox Ratio	165:1
Voltage	208/230/460
Amperage	6.1/6.1/3.0
Cycles	60 Hz
Phase	3
Frame	F-90L

<sup>1</sup> Standard motors are furnished unless otherwise specified by customer. Non-standard motors are subject to additional cost.

<sup>2</sup> Standard motors are furnished with an FB-2A Brake.

# **SECTION 3**

# **INSTALLATION**

# I. PRE-DELIVERY PREPARATIONS

NOTE: Careful attention to and execution of each of the pre-delivery items will prevent delays and ensure a proper installation.

## A. Space (General Layout)

The customer's responsibility is to provide adequate space for the installation, operation, and protection of the Floor Stacker System. Physical space requirements are as follows:

Floor Stacker: 15' wide x 23' long  
Stand-Alone Conveyor: 4' wide x length of system

Space requirements will vary per installation, dependent upon system length and components ordered. Additional space should be provided for safe operation and maintenance, freedom of movement, and free flow of materials.

MiTek® can provide help to the customer in plant layout and space utilization, if requested. Refer to your unique layout provided by MiTek for this equipment.

### Concrete Specifications

A level and structurally proper concrete slab must be provided for proper anchoring of the Floor Stacker System. The slab should be designed and installed in accordance with local building code requirements.

<b>Under This Machine</b>	<b>Min. Depth</b>	<b>Min. Width</b>	<b>Min. Length</b>	<b>Min. Strength</b>
Stacker	18"	See layout.	See layout.	3000 PSI
Receiver Stands	18"	See layout.	See layout.	3000 PSI
Stand-Alone Conveyors	6"	14" to 18"	See layout.	3000 PSI

## B. Electrical Requirements

A temporary and permanent power service shall be arranged for by the customer at their expense. A 110 Volt, 20 AMP temporary power service line shall be run to lengthwise mid-point at one side of the concrete slab. It shall have a fused disconnect switch and three (3) grounded plug-in outlets provided for power tool connections.



**WARNING: ELECTROCUTION HAZARD**

All electrical work shall be done by a certified electrician and shall conform to all regulating codes.

Run a 15 HP minimum power supply through a fused disconnect switch and to within hookup distance of stacker connections.

Customer shall pre-check voltage in their locality and notify **MiTek**<sup>®</sup> of the type of power available so that, if necessary, revisions to motors, etc., may be made before shipment.

Machine should be installed in a well-lit area for proper operation, periodic maintenance, and safety.

The Floor Stacker is pre-wired, where all wires terminate at the motor and limit switches on the machine. The control panel is also pre-wired and contains terminal strips that are numbered to match the terminals at the motor and limit switches on the Floor Stacker. However, the Floor Stacker will require wiring between the motor and the limit switches to the control panel, and it will require an interfacing between the Floor Stacker control panel and the Stand-Alone Conveyor control panel.

## B. Electrical Requirements (continued)

**Due to electrical code differences throughout the country, the customer will supply the conduit and related material required for this connection between the control panel and the machine.**



### **WARNING: PERSONAL INJURY HAZARD**

The control panel must be in a location where the truss line operators are able to see the flow of trusses and stacker operation when stacking a truss.

Disconnects for the stacker and conveyor control panels are not included. The disconnect size is dependent on the voltage and will vary from system to system. The AMPs drawn by the components determines the disconnect size. **Your local electrician will need to verify the AMP and disconnect size** (refer to "Specifications, Section 2 for motor horsepower). Components are rated for 230 and 460 Volts as "standard" and 208 Volts as an option. The stackers and panels will be supplied to match each option.

## C. Mechanical Requirements

The Floor Stacker and Stand-Alone Conveyors will be supplied complete with all mechanical components. The stackers are independent units that will be set in place and anchored. The conveyors require simple assembly and anchoring in place. All fasteners, anchor bolts, and anchoring epoxy resin will be supplied by **MiTek®**.

If an existing conveyor is used with the stacker, modifications may be required and need to be addressed early in the project. The Scanner Eye Target mounts may also require modification to fit the conveyor.

## II. INSTALLATION

### A. Unloading

It is the customer's responsibility to provide equipment and labor for unloading, uncrating, and placement of the Floor Stacker System and components. Extreme caution must be exercised to avoid damage or misalignment during handling. Do not apply any pressure on any of the moving parts or fittings. A small forklift will be required for installation and unloading.

### B. Insurance

Before work can begin, the customer must have in force insurance for worker's compensation and general liability applicable to the installation work.

### C. Assembly

Assembly and installation of the complete Floor Stacker System will be supervised by a skilled **MiTek**<sup>®</sup> representative. They will supervise layout, dimensioning, lining, leveling, connecting, assembling, and complete installation of the units. They will make pre-operational checks and final adjustments as needed and instruct personnel in the proper operation and maintenance of the equipment.

**MiTek**<sup>®</sup> recognizes that this installation is disruptive of the customer's normal output schedule by the requisition of personnel and the normal curiosity of other employees that are not involved. It is for this reason that we request the most efficient people for this assignment. These people will do their work quickly, efficiently, and with the quality that the customer deserves. The end result is a fine system that will operate with a minimum of problems and yield the highest profit per hour of usage.

#### D. **Equipment**

One small forklift and an operator will be required for unloading and moving the Floor Stacker System and components to the installation site.

A hammer drill or core drill with a 1 1/8" diameter bit capable of a 14" drilling depth will be required for the installation of the Floor Stacker anchoring rods.

If there are any questions, please contact your **MiTek**<sup>®</sup> sales representative.

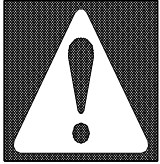
## SECTION 4

### OPERATION



**WARNING: PERSONAL INJURY HAZARD**  
**ONE SHOULD BE AUTHORIZED TO OPERATE A  
FLOOR TRUSS STACKER SYSTEM BEFORE  
THOROUGHLY READING AND COMPREHENDING  
THIS SECTION.**





### **WARNING: PERSONAL INJURY HAZARD**

The operator must be in a location where all moving components are clearly visible and must not start any sequence until all personnel is clearly out of any area where contact with moving parts is possible.

## **I. CONTROLS**

Each Floor Stacker has a **POWER ON** and an **EMERGENCY STOP** push button located on the control panel.

A PLC will control the system. The system will have the ability to stack one, two, or three trusses at a time, in either manual or automatic mode. In manual mode, an operator will control the stacking function and determine the quantity of trusses stacked. In automatic mode, an operator will select the quantity of trusses to be stacked at a time on the stacker arms and in total on the receiver stands. The PLC will control the cycle.

## **II. SYSTEM STARTUP AND OPERATION**

- A. Position Receiver Stands into the home position. (The home position is where the receiver arm is approximately 1½" back from the edge closest to the conveyor - in a position already indexed back to receive the first truss.) If the receiver is not in the home position, turn the receiver crank shaft until the desired position is obtained.
- B. Set the Target (Bridge, Scanner Eye, or Pop-Up) location. The target should be set so the truss is centered on the receiver stands.
- C. Turn on all disconnects.
- D. Select Manual (See Section III) or Automatic mode (See Section IV).



Once the stacker is placed in automatic mode, it will remain in automatic mode until the Emergency Stop Button is pressed. If the cycle is interrupted, the system must be restarted and the cycle finished manually.

In manual mode, each movement must be fully completed before the Floor Stacker will execute the next movement.



When an **EMERGENCY STOP** is pressed, it will stop all motion by removing power to all motors. This means the system must be restarted before any of the controls will be operational.

### III. MANUAL MODE

- A. Follow steps in Section II “System Startup and Operation.”
- B. When the truss has reached the target, press the “Raise” button. Once the Floor Stacker arms begin to raise, the powered Stand-Alone Conveyor rollers will shut off. The “raised” and “lowered” limit switches will stop the stacker rotation, preventing the stacker from over-riding the predetermined stopping locations. The bridge target can be manually positioned to physically locate the truss in position, but it will not activate the stacking cycle.
- C. Once the raise operation is complete, press the “Lower” button until the Floor Stacker arms have returned to the “lowered” position below the Stand-Alone Conveyor rollers.

## IV. AUTOMATIC MODE

- A. Follow steps in Section II “System Startup and Operation.”
- B. The bridge target will be manually positioned to locate the truss in the correct position to be stacked as symmetrically as possible on the receiver stands. The truss will roll along the powered conveyor and contact the target, stopping the forward motion. The target will activate the stacking cycle and the stacker will rotate as required to stack the truss. Depending on the quantity of trusses to be stacked, the stacker will either rotate approximately 30° and return to the “lowered” position, or rotate approximately 98° to the “raised” position. A one or two second pause in the “raised” position will allow the truss/trusses to be positioned on the receiver stands and “bond” with the stack. The Receiver Stands will automatically index back as pressure is applied by the Floor Stacker arms. The stacker arms will then return to the “lowered” position and power will be restored to the conveyor rollers.

## V. SAFETY

MiTek® Floor Stacker System is equipped with emergency stop controls. The operator must become familiar with the location and operation of these devices.



### **WARNING: PERSONAL INJURY HAZARD**

Never operate the conveyor without all guards in place and operational. Never disconnect or paint over warning note labels. If labels become deteriorated or damaged, request new ones through our Customer Service Department.

Only qualified personnel should attempt to perform any repair and/or maintenance. Compliance with minimum recommendations outlined through this manual is essential.

# SECTION 5

## MAINTENANCE



**WARNING: PERSONAL INJURY HAZARD**

**ONLY QUALIFIED PERSONNEL SHOULD ATTEMPT  
TO PERFORM ANY REPAIR AND/OR MAINTENANCE.**

## **I. MAINTENANCE**

Proper maintenance is essential for dependable performance of the **MiTek**<sup>®</sup> Floor Stacker System. With today's high production schedules and the prohibitive cost of downtime, it is vital that a company establish an effective maintenance program. A slight expense incurred in carrying out a planned maintenance program is regained many times over in operating income. Although the Floor Stacker System requires a minimum of maintenance, it is important that all checks, adjustments, and lubrication procedures and schedules be strictly adhered to. The following minimum preventive maintenance guides are listed. Certain operating environment or conditions necessitate additional maintenance at more frequent intervals.

### **A. General**

#### **1. Clean Machine**

Typically, the Floor Stacker System is located outside and will require very little routine cleaning maintenance; however, chain paths and pivot points should be checked regularly and be kept free of foreign material which could prohibit movement.

### **B. Lubrication**

#### **1. General**

Parts requiring lubrication should be serviced according to the lubrication chart. Service life and efficiency of gears, bearings, etc., are affected by the type of lubrication used, frequency of application, oxidation, and contamination of lubricant. Improved performance will be obtained by periodic lubrication in accordance with this manual's recommendation.

#### **2. Bearing Lubrication**

More bearing failures are caused by dirt being introduced during greasing than from insufficient grease. Before beginning oiling or greasing, remove all dirt and old lubricant from

2. Bearing Lubrication (Continued)

area around filler plugs and grease fittings. Filler plugs should not be removed or grease fitting connections made, until cleaning is finished. After lubrication is completed, surplus oil and grease may be removed with the use of a grease solvent.

3. Chain Lubrication

Manual application with a brush is recommended along the upper edges of the plates so oil can reach the important gap between chain side plates.

4. Gear Oil Specifications

Use AGMA Oil Grade 4 or 3 for temperatures from 50 degrees F to 125 degrees F. For temperatures from 15 degrees F to 60 degrees F use AGMA Oil Grade 2 or 3.

**The following typical oils meet AGMA recommendations**

Manufacturer	AGMA Oil Grade			
	2	3	4	5
Amoco	American Indus. #31	American Indus. #51	American Indus. #75	American Indus. #75
Arco	Duro S-315	Duro S-465	Duro S-700	Duro S-1000
Chevron	GST Oil 68	GST Oil 100	AW Mach. Oil EP Grade 150	AW Mach. Oil EP Grade 220
Citgo	Pacemaker 30	Pacemaker 60	Pacemaker 80	_____
Exxon	Teresstic 68	Teresstic 100	Teresstic 150	Nuto 220
Gulf	Harmony 68	Harmony 90	Harmony 150d	Harmony 220
Keystone	543	49 Light	432	1790
Mobile	D.T.E. Heavy Medium	D.T.E. Heavy	D.T.E. Extra Heavy	D.T.E. BB
Shell	Turbo 33	Turbo 41	Turbo 69	Tellus 71
Sunoco	Sunvis 31	Sunvis 51	Sunvis 75	Sunvis 99
Texaco	Regal RO-68	Regal RO-100	Regal RO-150	Regal RO-220

### C. Electric Motor

Periodically inspect your electric motor for excessive dirt, friction, or vibration. Dust may be blown from inaccessible locations using compressed air. Keep the ventilator openings clear to allow free passage of air.



#### **WARNING: PERSONAL INJURY HAZARD**

To avoid eye injuries, always wear safety glasses when using compressed air.

### D. Chain Tension Adjustments

#### 1. General

Systematically inspect all chains for appropriate chain tension. Chains which are too loose may cause a jerking motion, excess chain noise, or may slip off of their sprockets causing the chain to jam or other damage. However, chains which are too tight may cause the chain to break or wear problems.

#### 2. Drive Chain Tension




#### **WARNING: PERSONAL INJURY HAZARD**

**Turn Off Power and Lock Out Main Control Panel** of the Floor Stacker Before Adjusting the Drive Chain.

Both drive chains on the Floor Stacker may be adjusted. To determine chain tension, grasp chain midway between the sprockets and lift. Correct chain tension will have between  $\frac{1}{2}$ " –  $\frac{3}{4}$ " play in the chain. If adjustment is required, loosen the four mounting plate(s) bolts and turn the jack screw in the correct direction until the desired tension is achieved. Tighten the four mounting plate(s) bolts to lock in place.

### 3. Receiver Stand Chain Tension

	<b>WARNING: PERSONAL INJURY HAZARD</b>
<b>Turn Off Power and Lock Out Main Control Panel</b> of the Floor Stacker Before Performing Any Adjustment to the Receiver Stand chains.	

The top receiver stand chain should have a minimum amount of play (less than 1/2") to maintain alignment of the vertical arms. To adjust the chain tension, loosen and tighten nuts until the desired tension is achieved. Tighten nuts to lock in place.

#### E. Receiver Stand Torque Limiter

Dependent upon weather conditions and product wear, the torque limiter may require adjustment. If the receiver stands are not indexing far enough, loosen the torque limiter (less torque) by loosening the cap screws and the set screw. Next, back off the adjusting nut one to seven spline notches, as required. Retighten the set screw and the cap screws. Likewise, if the receiver stands are indexing too far, more resistance from the torque limiter is needed. To apply more torque, use procedure above, but move adjusting nut in the opposite direction.

#### F. PLC Adjustments

1. For AB Micrologix PLC (used prior to 2022)

The timers are adjustable by the potentiometers on the front of the PLC.

- Top timer controls the raise time.
- Bottom timer controls the length of time it pauses.

2. For Emerson IC200 PLC (used as of 2022)

There are no potentiometer switches (trim knobs) on the Emerson IC200 PLC. Speed can be adjusted by modifying the PLC code. Contact Automation Support for assistance. As of 2022, more information is found on the schematic 90086 rev. M.



## Floor Stacker System & Truss Receiver Stand Lubrication Chart

Item	Areas to be Lubricated	Lubricant	Mfr's No. & Grade	Hours of Operation						
				8	16	40	200	500	1,000	
1	Electric Motor	(see Note)	Impact Grease		(See Note)					X
2	Roller Chain	Oil: Manual lubrication applied by brush or spray every month.	Roller Chain Lube			X				
3	Babbitted Pillow Block Bearing (6 total)	Grease	Lithium Based - NLGI No. 2				X			
4	Cam Follower	Grease	Lithium Based - NLGI No. 2				X			
5	Gear Box (See Caution)! Upon delivery, Do not operate unit until the oil level has been checked.	Oil: Drain fluid and refill unit after first 120 hours of operation.	Use oil recommended by the manufacturer in the enclosed instruction manual				X			
							Every (6) Months			

Note: Motor is equipped with double-shield ball bearings with sufficient grease for normal operations. Where motor is used regularly in dirty, wet, or corrosive atmosphere, it is advisable to add 1/4 ounce of grease per bearing every 1,000 hours of operation.

Caution: Injection of excess grease under pressure into sealed bearings may rupture seals.

General Note: Movement of grease through bearings can be checked visually by the appearance of grease at the ends of the bearings. Old grease should be forced out with shot of new grease.

## TROUBLESHOOTING GUIDE

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
Reducer/gearbox overheating	<ul style="list-style-type: none"> <li>· Improper lubrication</li> <li>· Insufficient oil</li> <li>· Too much oil causes churning - excessive heat generated by fluid friction of churning oil</li> <li>· Wrong grade of oil</li> </ul>	<ul style="list-style-type: none"> <li>· Check oil level</li> <li>· Flush and refill to proper oil level with grade specified on reducer name plate</li> </ul>
Noise and vibration in reducer/gearbox	<ul style="list-style-type: none"> <li>· Loose mounting bolts</li> <li>· Insufficient oil - low oil level reduces muffling effect of oil</li> <li>· Failed bearings - wear of bearings can be caused by dirt in oil</li> <li>· Loose parts</li> </ul>	<ul style="list-style-type: none"> <li>· Check mounting bolts and lock washers and tighten</li> <li>· Check oil level</li> <li>· Flush and clean reducer and replace oil</li> <li>· Replace reducer or worn bearings</li> <li>· Inspect reducer for broken parts, loose bolts and nuts</li> <li>· Check keys for proper fit</li> </ul>
Oil leakage	<ul style="list-style-type: none"> <li>· Excessive oil</li> </ul>	<ul style="list-style-type: none"> <li>· Check oil level and drain to proper level</li> </ul>

## **Reports and Research**

To benefit fully from maintenance experience, a good system of reports and records is essential. These reports and records, if analyzed frequently, will indicate areas, which require special attention, as well as recurring troubles, which may be anticipated and corrected before breakdown occurs. Records should include:

- The date detected and description of the symptoms.
- A description of the preliminary investigation and the conclusions drawn.
- The date of and the corrective action taken, replacement parts required and length of downtime.
- A record of when fluid is added or changed, filters replaced or strainer cleaned.

# **SECTION 6**

## **DRAWINGS**

**PARTS**

**USE IDENTICAL REPLACEMENT PARTS ONLY**

## **I. GENERAL**

This portion of the manual has been arranged and grouped in sections to facilitate locating the needed part. In some cases, it may be helpful to provide the serial number of the machine to identify the correct part: however, this is not always mandatory. After the desired part has been located, inform the **MiTek®** Customer Service Department of the required part name, number, and quantity desired.

### **PARTS**

**USE IDENTICAL REPLACEMENT PARTS ONLY**