



FTR  
Maintenance  
and Parts  
Manual

# SQ-1 FLOOR TRUSS FINISH ROLLER

Operators Manual

## **FOREWORD**

**This manual explains the proper maintenance of Square 1 Design Floor Truss Finish Roller as well as the daily lubrication and periodic inspection procedures.** Please read this manual thoroughly even though you may already be familiar with other Square 1 Design equipment, because it contains the most current information about the Square 1 Design Floor Truss Finish Roller. This manual has been based on the standard Square 1 Design Floor Truss Finish Roller. If you have any questions on modifications to your equipment, please contact Square 1 Design., or your sales representative. Square 1 Design reserves the right to make any changes or modifications to this manual or its Floor Truss Finish Roller without giving notice and without incurring obligation.

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## **BEFORE INITIAL OPERATION**

- **Please read this manual thoroughly.** This will give you a complete understanding of a Square 1 Design Floor Truss Finish Roller and permit you to operate it correctly and safely.
- **Identify and inform ALL employees who will operate or be near the Square 1 Design equipment of ALL safety concerns in this manual and on the production floor.** It is very important from the employees, employers, and manufacturers standpoint that employee's safety comes above all else. The employer should make sure any employee who either operates or works near the equipment has been properly trained and given written notice of any and all safety concerns on the production floor.
- **Always perform pre-operation check and periodic maintenance.** This will help prevent sudden malfunctions (due to poorly maintained equipment), improve work efficiency, and help insure safe working conditions.

## **GENERAL DESCRIPTION**

The Square 1 Design Floor Truss Finish Roller is designed to be a continuously operating machine. It is designed to be used in conjunction with a conveyor system to increase the assembly speed of finished floor trusses. The standard Square 1 Design Floor Truss Finish Roller operates at a constant work speed of 119' per minute. The Square 1 Design Floor Truss Finish Roller's heavy design will allow it to finish press even the heaviest gauge plate quickly and easily.

The model # and serial #'s are located on the Inside of the Electrical Panel of the Square 1 Design Floor Truss Finish Roller. This information will be needed when contacting Square 1 Design & Manufacture Inc. for service information. Any information that is needed can be obtained by contacting your sales representative or:

## **SQUARE 1 DESIGN & MANUFACTURE, INC.**

**1 Clark Road  
Shelbyville, IN 46176  
Phone: +1-866-647-7771  
Fax: +1-866-646-5771  
[Sales@Square1Design.com](mailto:Sales@Square1Design.com)**

### **Mechanical Specifications**

**Speed: 119 FPM  
Weight: 1,500 lbs.  
Foot Print: 6' 3-3/16" L x 3' 4" W x 4' 5-1/2" H  
Available in 4', 6' and 8' Lengths**

## **OPERATION OF THE FLOOR TRUSS FINISH ROLLER**

The Square 1 Design Floor Truss Finish Roller is very simple to operate and maintain. Square 1 Design suggests that operation of the Square 1 Design equipment proceed in the following manner:

1. Everyone near the machine read the manual so general safety guidelines can be identified.
2. Everyone near the machine identify the safety devices and how they operate.
3. Perform daily, weekly and monthly safety and maintenance analysis.
4. Correct any problems before operation of the equipment.
5. Check the area before beginning to be certain no employees or obstacles are near the machine.
6. Once the machine is started check the safety device operation.

## **SAFETY AND MAINTENANCE**

- Employee safety is a key concern at Square 1 Design manufacturing and should also be at your production facility. It is important to stress safety concerns around any type of production equipment because serious injury can occur without the proper training and supervision.
- Square 1 Design suggests that any employee who will operate or work around this equipment be given the opportunity to read this manual and receive training from qualified personnel at your facility.
- With proper maintenance, the equipment and work area become safer. So, in accordance with common safety practices, proper maintenance is just as important. Square 1 Design has the following list of general safety and maintenance guidelines that should accompany any safety standards your company has established.

## **SAFETY GUIDELINES**

**1. Cleanliness:** The area surrounding the Square 1 Design Floor Truss Finish Rollers must be checked daily for any obstructions such as loose lumber or plates that could affect the normal operation of the machine.

**2. Operate new equipment with special caution:** People are sometimes overconfident that new equipment will work just like old equipment. This is not always true; a special caution should be taken around the Square 1 Design Floor Truss Finish Rollers.

**3. Proper equipment use:** The proper equipment should be worn by individuals working on or near the Square 1 Design Floor Truss Finish Rollers to prevent injury. Loose fitting clothing that can be caught in the machine or on a truss itself should **NOT** be worn. Gloves should **NOT** be worn. Safety glasses must be worn for the protection of the employees. Employees without the proper equipment should not be allowed near the Square 1 Design Floor Truss Finish Roller. It is management's responsibility to enforce these guidelines. It also becomes the employee's responsibility to make sure these guidelines are enforced.

**4. Retroreflective Sensors should be identified and proven to be in proper working order:** All employees who will be working on or near the Square 1 Design Floor Truss Finish Rollers should know how the safety features work. Each employee should also confirm the machine is operating properly. If any employee notices the equipment may be malfunctioning in any way, a supervisor is to be notified immediately. The power to the equipment is to be locked down until the problem can be rectified.

**5. Disconnect and lock out all power sources before any maintenance or repair is to take place:** It is important for the equipment's power to be disconnected and locked out to prevent an accidental start up, whether by another employee or workers error.

**6. Never stand between a Square 1 Design Floor Truss Finish Roller and a TRUSS!** This can result in injury or death. Be smart do not stand between the machine and the object it is getting ready to press.

**7. Follow the safety checklist every day:** The following checklist should be followed every day to ensure employee safety and a safe working environment.

## **SAFETY CHECKLIST**

### **Daily:**

- A. Check to make sure the machine stops properly when the retroreflective sensor are activated.
- B. Check for unusual noise, overheating, oil leaks or other unusual characteristics.
- C. Check the area surrounding the Square 1 Design Floor Truss Finish Roller for cleanliness.
- D. Perform daily maintenance
- E. Be sure area is clear of people when starting the machine.
- F. Check to be sure everyone around the Square 1 Design Floor Truss Finish Roller is wearing the proper equipment.

### **Weekly:**

- A. Check the bearings for wear.
- B. Visually inspect motor and gearbox for excessive dirt, heat, damage or dust.
- C. Check ventilation openings to assure they are not clogged by dirt or dust
- D. Check all bolts, nuts, and screws and tighten as needed.
- E. Check drive chain tension and tighten as required.
- F. Check oil level in the drive unit and add proper amount if necessary.
- G. Use compressed air to remove sawdust and dirt build-up on the system and around the bearings. \*

**\* Wear eye protection when using the compressed air.**

## **MAINTENANCE**

As mentioned earlier, keeping the Square 1 Design Floor Truss Finish Roller well maintained makes the work environment safer and allows reliable production for many years. Maintenance on the Square 1 Design Floor Truss Finish Roller consists of lubricating the machine and chain and tightening all nuts and bolts. The following maintenance schedule MUST be followed.

**Motor:**

The bearings require no additional lubricant throughout the life of the motor.

**Drive Unit:**

During the oil change process, the magnetic drain plug should be thoroughly cleaned and reinstalled to prevent leakage.

**Chain:**

Non-detergent petroleum base oil every 18 hours should be used.

**Grease Fittings:**

General-purpose grease should be used every 80-120 hours.

**Nuts & Bolts:**

All nuts and bolts must be checked and tightened before operation on the Square 1 Design Floor Truss Finish Roller.

## **GENERAL OPERATION**

Operating a Square 1 Design Floor Truss Finish Roller is a relatively simple job. The Square 1 Design Floor Truss Finish Rollers are designed to be continuous running machines. There are several adjustments that will be a part of daily operation. This section lists these adjustments as well as instructs the user on how to perform them. One thing that must **ALWAYS** be remembered is to:

### **DRIVE CHAIN ADJUSTMENT**

All models of the Square 1 Design Floor Truss Finish Rollers have a drive train on one side. All rollers are pre-set at Square 1 Design for a standard 2 x 4, and chain tension is pre-set. You may want to feel the tension in the chain when it arrives, so you know the correct tension of the chain.

- Adjustment is begun by removing the fasteners holding the lower guard on the motor side on. Remove cover to allow enough space to work free of any obstructions. Loosen the jam nut holding full thread bolts located behind the motor. Then break loose the 4 bolts holding the motor down to the motor mounting plate.
- The chain tension may then be adjusted by turning the full thread bolts clockwise to increase tension. (Do both bolts evenly) Turn the bolt counter clockwise to decrease tension. A little slack is desirable as it allows the chain links seat themselves on the sprocket teeth. This will reduce wear on the on the sprocket and bearings.
- After adjustment is complete, the bolts holding the motor to the mount must be tightened and the full thread bolts tightened back to the motor base to maintain proper tension. Reinstall the guard back over the motor side, along with fasteners.

## **ROLLER ADJUSTMENT**

The Square 1 Design Floor Truss Finish Rollers have up to 2" of total roller adjustment. The top roller is the only adjustable roller. The bottom roller remains stationary and is set to customer's specified height from the floor, unless ordered otherwise.

- To adjust the top roller height both top and bottom guards must be removed. The drive chain tension on the motor must be loosened or removed to allow plenty of slack in the drive chain. Care must be taken during upper roller adjustment to assure there is enough slack in the chain to allow full roller adjustment. Adjustment is achieved by adding or subtracting shim plates to desired height.
- To lower the top roller, loosen the fasteners holding the bearing assembly in place on both sides of the roll while securing the roll. Begin by removing shim plates located under the bearings evenly to lower each end of the roll. When the roll is at the correct height, tighten the fasteners holding up the bearings to lock the roll in place. Be mindful to always center the roll both vertically and side to side.
- To raise the top roller, loosen the fasteners holding the bearing assembly in place on both sides of the roll while securing the roll. Begin by adding shim plates located under the bearings evenly to lower each end of the roll. When the roll is at the correct height, tighten the fasteners holding up the bearings to lock the roll in place. Be mindful to always center the roll both vertically and side to side.
- Readjust the chain drive to the proper tension, reinstall guards, unlock the machine and test run the Square 1 Design Floor Truss Finish Roller.

**Note:** When adjusting the roller height, raise the roll so that a piece of the lumber you are going to use can be inserted between the rolls. Insert two pieces of the lumber in at each end of the roll. Now, lower the roll onto the lumber. When the lumber can be wiggled from side to side, but cannot be pulled out, the roll is at the correct height.

## **REPAIR AND REPLACEMENT**

In the case that a part of the machine is not working properly, this section lists how to remove and replace the correct part from the Square 1 Design Floor Truss Finish Roller. If parts are needed it is recommended that you contact Square 1 Design & Manufacture, Inc. at the address list on page 17.

### **ELECTRICAL**

The following sections cover the electrical portions of the Square 1 Design Floor Truss Finish Roller. The following sections cover the electrical portions of the Square 1 Design Floor Truss Finish Roller. Listed throughout this section contain a parts list and breakout of each item. Replacement parts are available as individual components or as complete units. Square 1 Design machines use SO multi-conductor cable with sealed fittings. Any repairs should be done using the same materials.

### **RETROREFLECTIVE SENSOR**

There are 2 Retroreflective Sensors on each machine. These are available through Square 1 Design & Manufacture, Inc. If they should ever need to be replaced contact Square 1 Design & Manufacture Inc. to make sure they are installed properly. Please contact Square 1 Design for the parts list, breakout, and schematic to determine the information needed.

#### **REMOVAL OF RETROREFLECTIVE SENSORS**

- The retroreflective sensors are set to work with the reflectors as an E-stop. Remove the screws, nuts, and lock washers holding the sensor to the mounting bracket. The cord grip to the electrical panel to remove the sensor.
- The wiring can now be disconnected, and a new switch can be installed using the schematic as a guide.
- Reverse the instructions to reinstall the retroreflective sensor. Set the position of the retroreflective sensor just above the bottom of the top roller and in line with the reflector.
- Test and make sure the retroreflective sensor is working before attempting to use the machine.

## **CONTROL PANEL**

This unit is available as a complete control panel, a starter, or component parts for starters. For a parts list, breakout, and schematic to determine the information needed.

### **REMOVAL ON THE CONTROL PANEL**

- To remove the control panel, first disconnect the wiring inside the box to all motors, switches, and input voltage. Remove the conduit locknuts inside and pull the conduit free from the panel.
- The control panel can now be removed by unfastening the 4 nuts and bolts mounting it to the mounting bracket.
- Reverse the procedure to install the panel.
- Refer to the schematic in provide in the electrical panel for the rewiring.
- Make sure the machine is operating correctly prior to running production.

### **STARTER REMOVAL**

- Remove the control panel from mounting bracket. The starter can now be removed from the panel by unfastening the screws holding it in place. If you desire to replace component parts refer to the parts listing and breakout for disassembly and the part number.
- Reverse the procedure to install the starter back into the control box.
- Reinstall the panel.
- Refer to the schematic provide in the electrical panel for the rewiring.
- Make sure the machine is operating correctly prior to running production.

### **SWITCH REMOVAL**

- All 3 switches (Stop, Foreword, & Reverse) can be replaced using the same procedures. First disconnect the wiring to the back of the switch inside the control box. Unscrew the ring bezel from the front of the switch. Remove the name plate and push the switch through the panel.
- Reverse the procedure for reinstalling the switch on the front panel. Be extra cautious the buttons match the direction the machine runs when reinstalling (The Stop button reads "Stop" etc.).
- Refer to the schematic in provide in the electrical panel when making the connections.
- Make sure the machine is operating correctly prior to running production.

## **MOTOR**

The motor is available as a complete unit or in component parts. Refer to the parts list breakouts, and schematics listed below to determine the information needed.

### **MOTOR REMOVAL**

- The motor may be removed and replaced unit or as components. Begin by disconnecting the electrical connections inside the connection box mounted on the side of the motor. This can be done by unscrewing 4 nuts holding the cover on the connection box. The connection box cover is connected to the panel via SO Cord. It can be set aside for reassemble. Remove the drive sprocket and the 4 bolts holding the motor to the mounting plate and carefully remove the motor from the plate.
- Reverse the procedure for reinstalling the motor the motor mounting plate. Refer to the schematic inside the cover of the motor to make the electrical connections. Make sure the machine runs properly before running the machine in production.

### **MECHANICAL**

The following section covers the mechanical portion of the Square 1 Design Floor Truss Finish Roller. Details listed throughout this section contain parts lists and breakouts of common replacement parts. Some replacement parts are available as individual components and other are available only as a complete unit. Contact Square 1 Design & Manufacture Inc. Or your sales representative for more information.

### **DRIVE ASSEMBLY**

The drive assembly contains several components that are available as replacements. The list provided below should give you all the information you need when repairing mechanical aspects of the Square 1 Design Floor Truss Finish Roller.

## **CHAIN REMOVAL**

- Remove the upper and lower guards by removing the fasteners.
- Locate the master link in the chain making sure it is in a location with easy access. Reduce the tension on the chain. Remove the master link by unsnapping the retaining clip and removing the link plate. Slide the master link out of the chain.
- Reverse the procedure to reassemble. Make sure the machine is operating correctly prior to running production.

## **MOTOR SPROCKET REMOVAL**

- Remove the lower guard by removing the fasteners.
- Remove the chain from the drive train assembly. Loosen the two setscrews. The sprocket can then be removed using the correct size puller. The sprocket will now slide off. It may be necessary to use the fine grade emery paper to remove any burrs from the shaft before reassembly.
- Reverse the procedure for reassemble. Make sure the machine is operating correctly prior to running production

## **ROLLER SPROCKET REMOVAL**

- Remove the upper and lower guards by removing the fasteners.
- Remove the chain from the drive train. While supporting the roll, loosen and remove the fasteners holding the bearings in place.
- Remove the roll from the Floor Truss Machine. Loosen the set screws holding the bearing in place and remove the bearing from the shaft.
- Loosen the set screws from the roller sprocket and slide off the end of the shaft. It may be necessary to use fine grade emery paper to remove burrs from the shaft before reassembly.
- Reverse the procedure before reassembly. Make sure the machine is operating correctly prior to running production.

## **IDLE SPROCKET REMOVAL**

- Remove the lower guard by removing the fasteners.
- Remove the chain from the drive train and loosen the set screws on both bearings on the sprocket shaft.
- Remove the 4 fasteners holding the bearings in place and remove the assembly from its weldment.
- To remove the sprocket, loosen the 2 set screws holding the bearing to the shaft, remove the bearing off the end of the shaft. Then loosen the set screws holding the sprocket in place. The shaft then may be pressed free from the housing. Care must be taken not to damage the shaft.
- If the shaft has worn through the body of the sprocket, the sprocket will also need to be replaced.
- Reverse the procedure for reassemble and grease prior to start up. Make sure the machine is operating correctly prior to running production.

## **ROLLERS**

The rollers and bushings are replaceable items. Refer to the parts list and breakouts to determine the replacement parts required.

## **TOP BEARING REMOVAL**

- Remove the upper and lower guards by removing the fasteners.
- Remove the chain from the drive train. While supporting the roll, loosen and remove the fasteners holding the bearings in place.
- Remove the chain from the drive train. Place slings around the roller and attach a crane or hoist of proper capacity and lift the roller from the unit.
- Remove the roll from the Floor Truss Machine. Loosen the set screws holding the bearing in place and remove the bearing from the shaft.
- Check the bearing housing for damage. If the bearing has worn through the housing it will have to be replaced.
- The sprocket can then be removed using the correct size puller. The sprocket will now slide off. It may be necessary to use the fine grade emery paper to remove any burrs from the shaft before reassembly.
- Check the shaft for burrs before reassembly.
- Reverse the procedure to reassemble and grease all fittings before start-up. Make sure the machine is operating correctly prior to running production.

## **TOP ROLLER REMOVAL**

- Remove the upper and lower guards by removing the fasteners.
- Remove the chain from the drive train. Place slings around the roller and attach a crane or hoist of proper capacity and lift the roller from the unit.
- While supporting the roll, loosen and remove the fasteners holding the bearings in place.
- Remove the roll from the Floor Truss Machine.
- Reverse the procedure to reassemble and grease all fittings before start-up. Make sure the machine is operating correctly prior to running production.

## **BOTTOM BEARING REMOVAL**

- Remove the upper and lower guards by removing the fasteners.
- Remove the chain from the drive train. Place slings around the roller and attach a crane or hoist of proper capacity and lift the roller from the unit.
- Remove the chain from the drive train. While supporting the roll, loosen and remove the fasteners holding the bearings in place.
- Remove the roll from the Floor Truss Machine. Loosen the set screws holding the bearing in place and remove the bearing from the shaft.
- Check the bearing housing for damage. If the bearing has worn through the housing it will have to be replaced.
- The sprocket can then be removed using the correct size puller. The sprocket will now slide off. It may be necessary to use the fine grade emery paper to remove any burrs from the shaft before reassembly.
- Check the shaft for burrs before reassembly.
- Reverse the procedure to reassemble and grease all fittings before start-up. Make sure the machine is operating correctly prior to running production.

## **BOTTOM ROLLER REMOVAL**

- Follow the directions to remove the bottom bearing blocks.
- Lift roll from the unit using the suspension equipment already holding the roll.
- Reverse the procedure to reassemble and grease all fittings before start-up.

## **ORDERING REPLACEMENT PARTS**

**Replacement parts can be ordered by calling, emailing, or faxing:**

### **SQUARE 1 DESIGN & MANUFACTURE, INC.**

**1 Clark Road**

**Shelbyville, IN 46176**

**Phone: +1-866-647-7771**

**Fax: +1-866-646-5771**

**[sales@square1design.com](mailto:sales@square1design.com)**

When ordering parts, you must include the part number of the replacement part and the serial and model #'s of your Square 1 Design Floor Truss Finish Roller.

## **WARRANTY**

Square 1 Design & Manufacture, Inc. warrants the equipment manufactured by it, to be free from defects in materials or workmanship for one (1) year from the date of delivery to the original purchaser. This is provided the equipment had been properly installed, operated, used, cared for, adjusted, cleaned and lubricated by the owner. All equipment claimed to be defective shall be returned to Square 1 Design & Manufacture, Inc. charges prepaid. All collect shipments will be refused. If upon inspection Square 1 Design & Manufacture Inc. determines to its satisfaction, that any part of the equipment is defective, Square 1 Design & Manufacture, Inc, at its option, correct the defect by repair or replacement. This warranty shall not apply if the original equipment had been altered or modified by any person other than Square 1 Design & Manufacture Inc. This Warranty shall not apply to starters, motors, gear reducers, or microswitches that are component parts of the equipment. Those separate component parts are governed by separate warranties of the respective component manufacturers, which warranties of the respective component manufacturers which warranties may be shorter than or longer than the one (1) year warranty granted by Square 1 Design & Manufacture, Inc. upon request by the owner. Any repairs are available from Square 1 Design & Manufacture Inc. upon request by owner. Any repair or replacement of such component parts shall be governed solely by manufacturer, and it shall be owner's responsibility to enforce any warranty claims directly with such component part manufacturer.

**EXCEPTION FOR THIS WARRANTY AS EXPRESSLY STATED, SQUARE 1 DESIGN & MANUFACTURE, INC. MAKES NO OTHER WARRANT EXPRESSED OR IMPLIED. ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS HEREBY DISCLAIMED.**

Square 1 Design & Manufacture Inc. shall not be liable for damages, direct, consequential, or incidental, or for delays, if such occur as a result of defects in material or workmanship.

## **SQUARE 1 DESIGN & MANUFACTURE INC.**

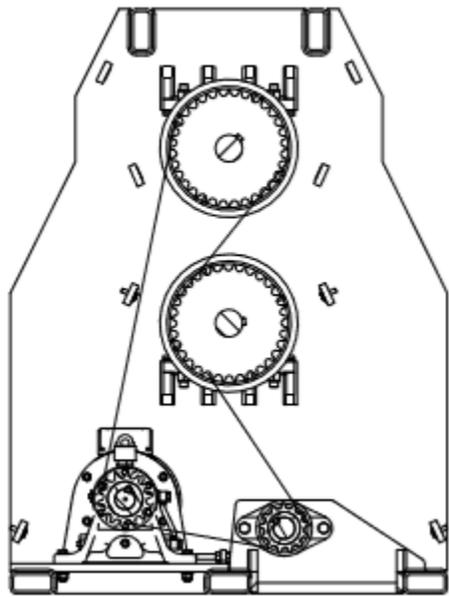
**PURCHASE DATE:** \_\_\_\_\_

**MODEL NUMBER:** \_\_\_\_\_

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

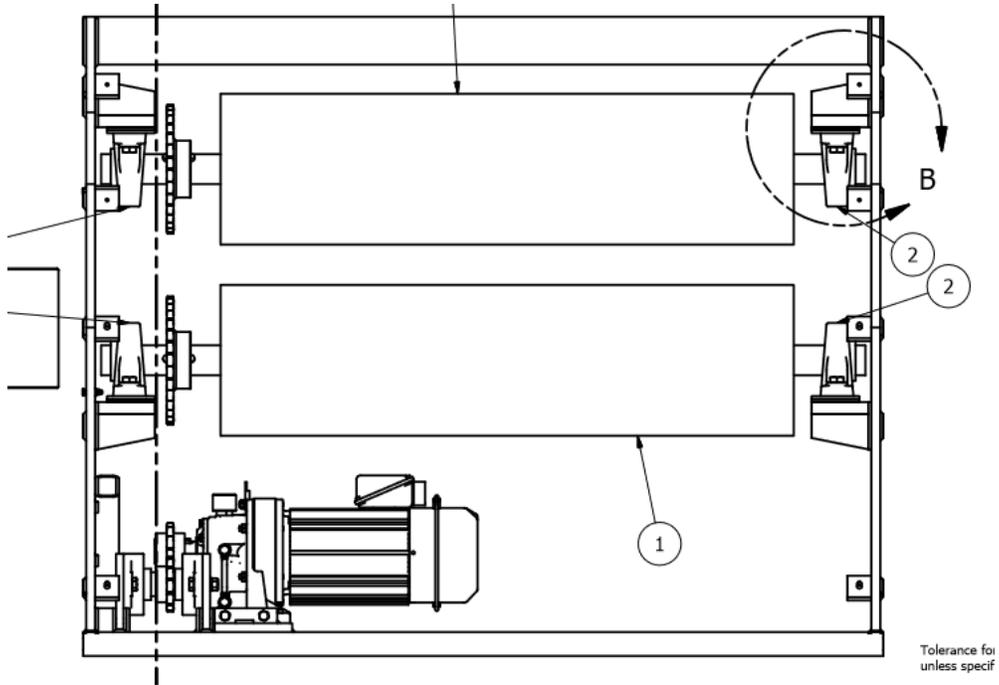
**ALWAYS DISCONNECT AND LOCK OUT ANY POWER SOURCES WHEN ADJUSTING OR REPAIRING ANY EQUIPMENT.**

**Detail A**



**Chain Routing**

**Detail B**

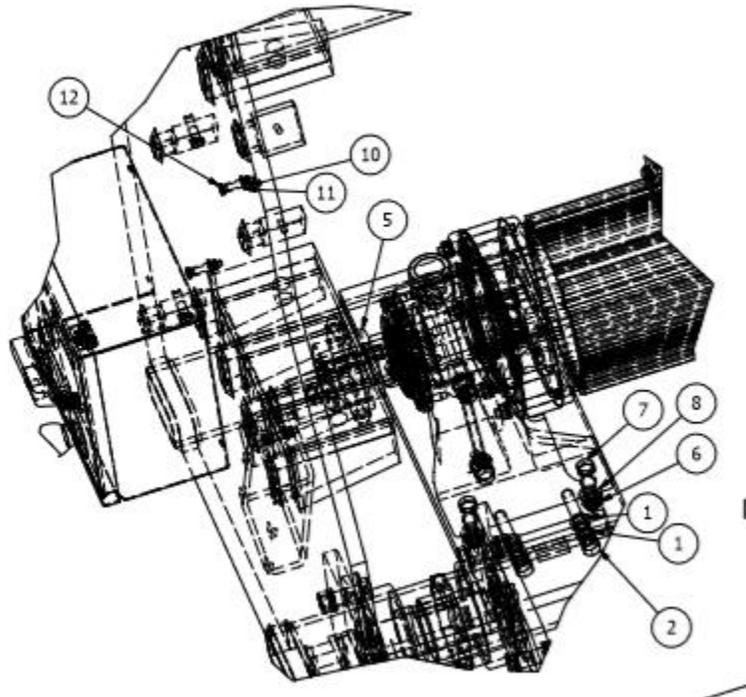


**FTFR Side View**

Tolerance for  
unless specif

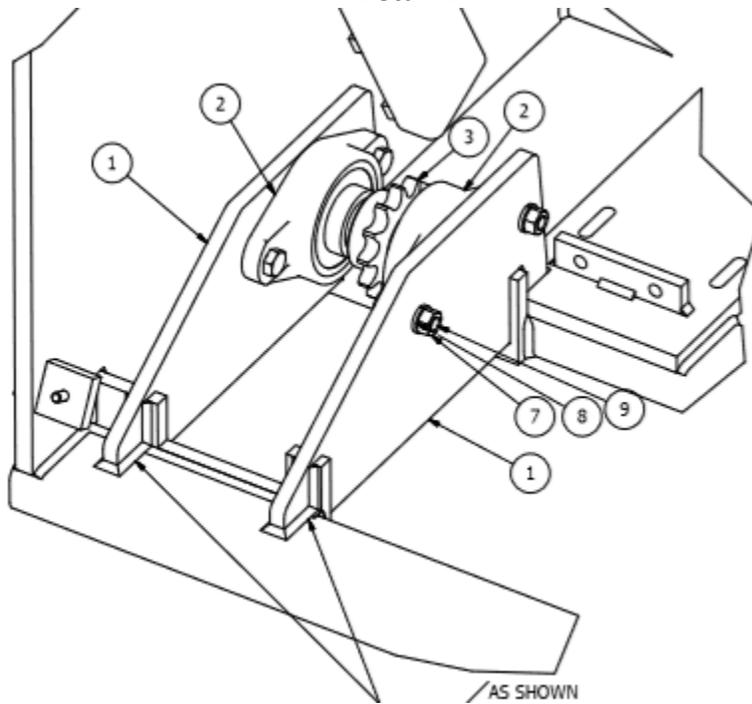
**ALWAYS DISCONNECT AND LOCK OUT ANY POWER SOURCES WHEN ADJUSTING OR REPAIRING ANY EQUIPMENT.**

**Detail C**



**Motor Assembly**

**Detail D**



**Idler Assembly**

## **Replacement Parts for Floor Truss Finish Roller**

<b>Part Number</b>	<b>Description</b>	<b>Location</b>
SPRO-0012	Sprocket on Roller	Detail B
BEAR-0008	Bearing on Roller	Detail B; Number 2
SPRO-0011	Sprocket on Motor	Detail C; Number 5
MOTOR-0020	Motor	Detail C; Number 4
SPRO-0010	Sprocket on Idler	Detail D; Number 3
BEAR-0007	Bearing on Idler	Detail D; Number 2
TR-03-0002-SM	Shaft for Idler	Detail D; Number 4
ELAC-0172	Retroreflective Sensor	Not Pictured
	Reflector for Photo Sensor	Not Pictured
CHAIN-0011	Chain	Not Pictured
CHAIN-0012	Chain Master Link	Not Pictured
CHAIN-0016	Chain Off Set Link	Not Pictured

**November 6, 2018**