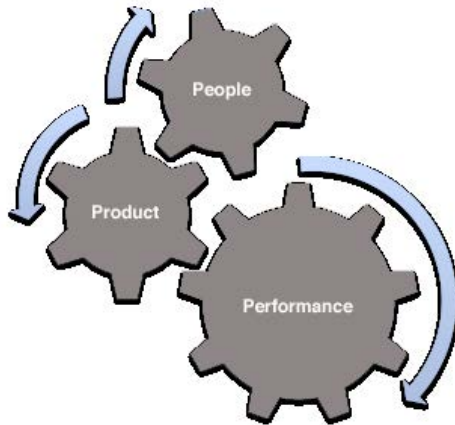




SERVICE MANUAL

81870
Steamroller 2
Lint Conditioner
(With 83900 Control)

U.S. Patent Number 7,591,048



SAMUEL JACKSON

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*We appreciate your business and hope you enjoy your
Samuel Jackson Steamroller 2 Lint Conditioner System*

This manual contains information on the installation, startup, and operation of your Steamroller 2 system. Included are sections on:

- Assembly and Installation
- Electrical Installation
- Startup and Adjustment
- Maintenance and Troubleshooting
- List of Suggested Spare Parts
- List of Major Components

IS STARTUP ASSISTANCE PROVIDED?

Startup and inspection service is provided in most locations for your new Samuel Jackson Steamroller 2 Lint Conditioner System free of charge by Samuel Jackson, Inc. Please contact us to make arrangements or for questions regarding startup services.

In the future when you require service, technical support, or parts please contact us by phone, fax, or the internet. Our engineers and service people are available to assist you in obtaining the best performance from your Samuel Jackson, Inc. products.

Again, thanks for choosing a Samuel Jackson Steamroller 2 Lint Conditioner System

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Warning



READ THIS CAREFULLY BEFORE OPERATING THIS SAMUEL JACKSON PRODUCT!

The Samuel Jackson product line consists of sophisticated technology capable of greatly enhancing a gin's productivity and efficiency. Improper use of these products could adversely affect those very same factors and potentially cause injury to gin personnel. For this reason, we include an extensive manual with every product. These manuals outline the proper and safe operating procedure for their respective product. **Do not operate any Samuel Jackson product without first reading the entire manual and all accompanying information.**

Sometimes there are updates added at the customer's discretion to products already in the field. We always refer customers to our website, www.samjackson.com for the latest product information. The latest manual can be downloaded or printed from the website free of charge. In addition to printed literature, the website includes training videos on several popular products. When available, these videos are highly recommended for viewing before operating a respective product. If you do not have internet access, give us a call and we will gladly send you the latest product information.

Please consult the gin safety administrator to help identify all hazards and become knowledgeable regarding all necessary personal protective equipment prior to any service work being performed on the machines. This is particularly important during the installation phase. Safe access must be available at all times before service is started.

DANGER: Please read and understand all the warnings below before operating or maintaining a Samuel Jackson product. If you do not understand, call Samuel Jackson at 806-795-5218 before proceeding. Failure to do so could result in injury or even death. (Si usted no entiende, llame a Samuel Jackson al +1-806-795-5218 antes de proceder. La falta de hacerlo podría causar lesión o muerte.)

Electrical.

Most Samuel Jackson products use supply voltage between 110 and 480 volts AC. These levels are considered high voltage and are extremely dangerous.

Access Doors.

Samuel Jackson products have access doors for added convenience of product maintenance. Access doors must not be opened while the equipment is in operation. Access doors should also remain closed while any connected equipment such as a fan or conveyor is in operation.

Moving Parts.

Many Samuel Jackson products have moving or rotating parts. These parts could form pinch points or grab loose clothing or jewelry. Do not reach across or into any product while in operation.

Do not work on any Samuel Jackson product without first following OSHA Lockout/Tagout procedures. Confirmation by a licensed electrician that there is no electricity present is highly recommended. We recommend using a Samuel Jackson Authorized Technician for all work Samuel Jackson products. Additional safety information is located throughout this manual and should be read carefully before operating this Samuel Jackson product. If you have any questions about how to properly operate a Samuel Jackson product, please call +1-806-795-5218 before proceeding.

How does the Steamroller 2 work?

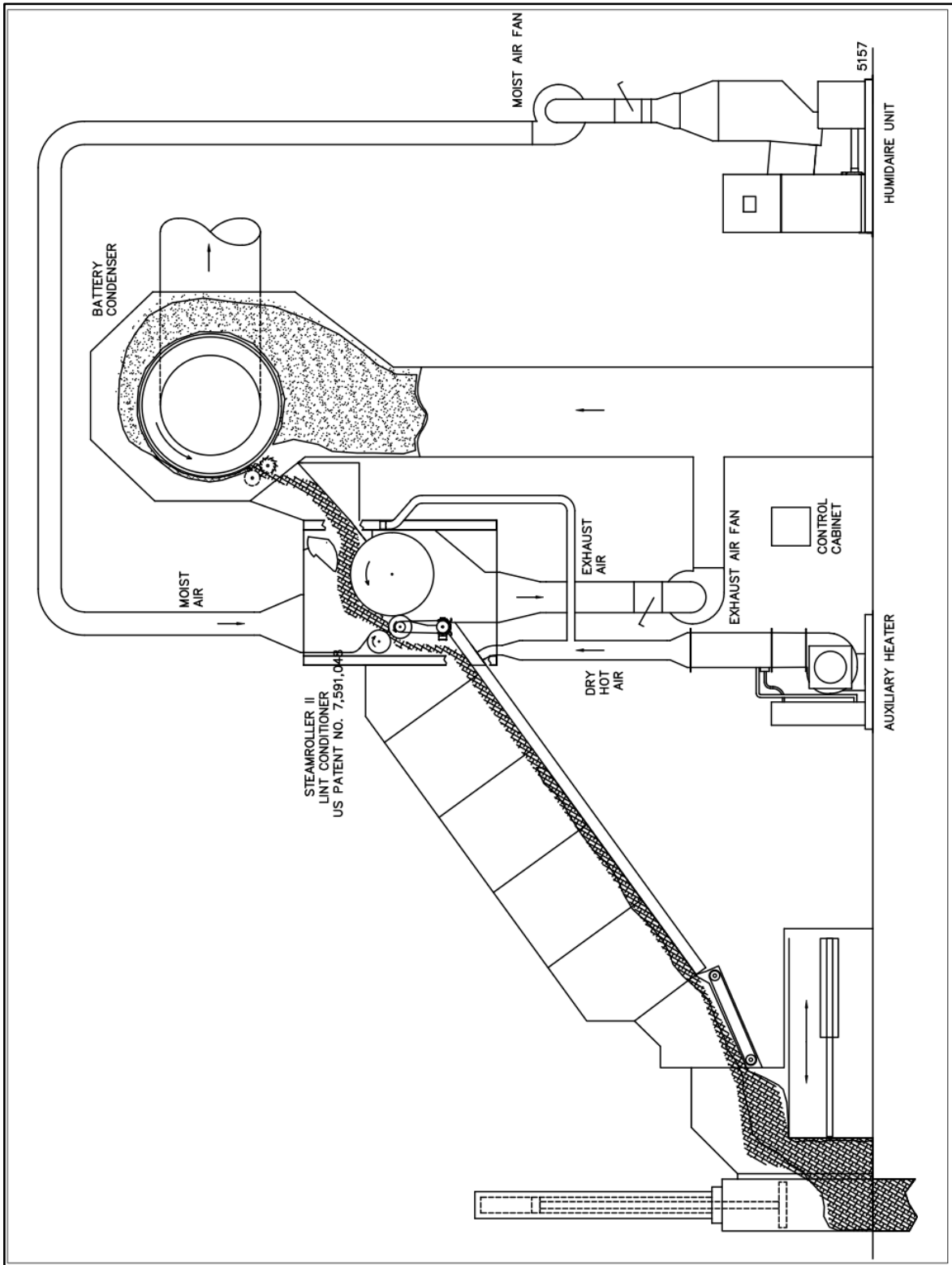
The Steamroller 2 is positioned between the battery condenser and the lint slide. A typical layout view is shown on the next page. After the cotton comes out of the battery condenser, it is fed into the Steamroller by a large, rotating perforated screen drum. The cotton enters the Steamroller on top of the rotating perforated drum in an “overshot” fashion. Moist air from a Humidaire Unit enters the plenum chamber at the top of the Steamroller. This moist air passes down through the batt of cotton. All of the moist air is forced evenly through the batt, resulting in a uniformly moisturized batt of cotton. Two rollers doff the cotton off the perforated screen drum and compress the cotton into a thin batt of conditioned cotton as it exits the Steamroller. The used air from this process is evacuated from the bottom of the Steamroller and typically added to the air in the lint flue riser.

Seals at the entrance and exit of the Steamroller reduce cold air leakage. With little cold air leakage, the temperature inside the Steamroller remains the same as the temperature of the moist air. The result is less condensation and fewer problems associated with condensation.

Due to the ability to add high amounts of moisture, the moist air generator must have fast-responding, but stable temperature control. For this reason, every Steamroller 2 Lint Conditioning System uses a PLC-controlled Samuel Jackson Humidaire Unit to generate moist air. Using this Humidaire Unit is a key element in achieving consistent moisture levels.

Each gin has a different layout and each gin manager has different concerns. The Steamroller System is not a one size fits all solution. To address these differences, every system is carefully designed to meet the requirements of each installation.

Steamroller 2 Diagram



Startup & Adjustments

A Samuel Jackson technician will normally commission the new Steamroller system. The following adjustments will be made at that time in the following order. It may become necessary for the gin personnel to make adjustments from time to time using these same guidelines.

Moist Air Volume

- Start moist air fan (No. 30 size centrifugal fan recommended, 1200 fan RPM, 10 HP motor). Start Steamroller exhaust air fan (No. 30 centrifugal fan recommended, 1900 fan RPM, 15 HP motor). Verify that motor amperages are okay.
- Adjust moist air volume for 2200 to 2500 CFM using the slide gate valve. For 12 inch diameter pipe, Velocity Pressure (Vp) should measure 0.5 to 0.6 inches water column (inches w.c.).

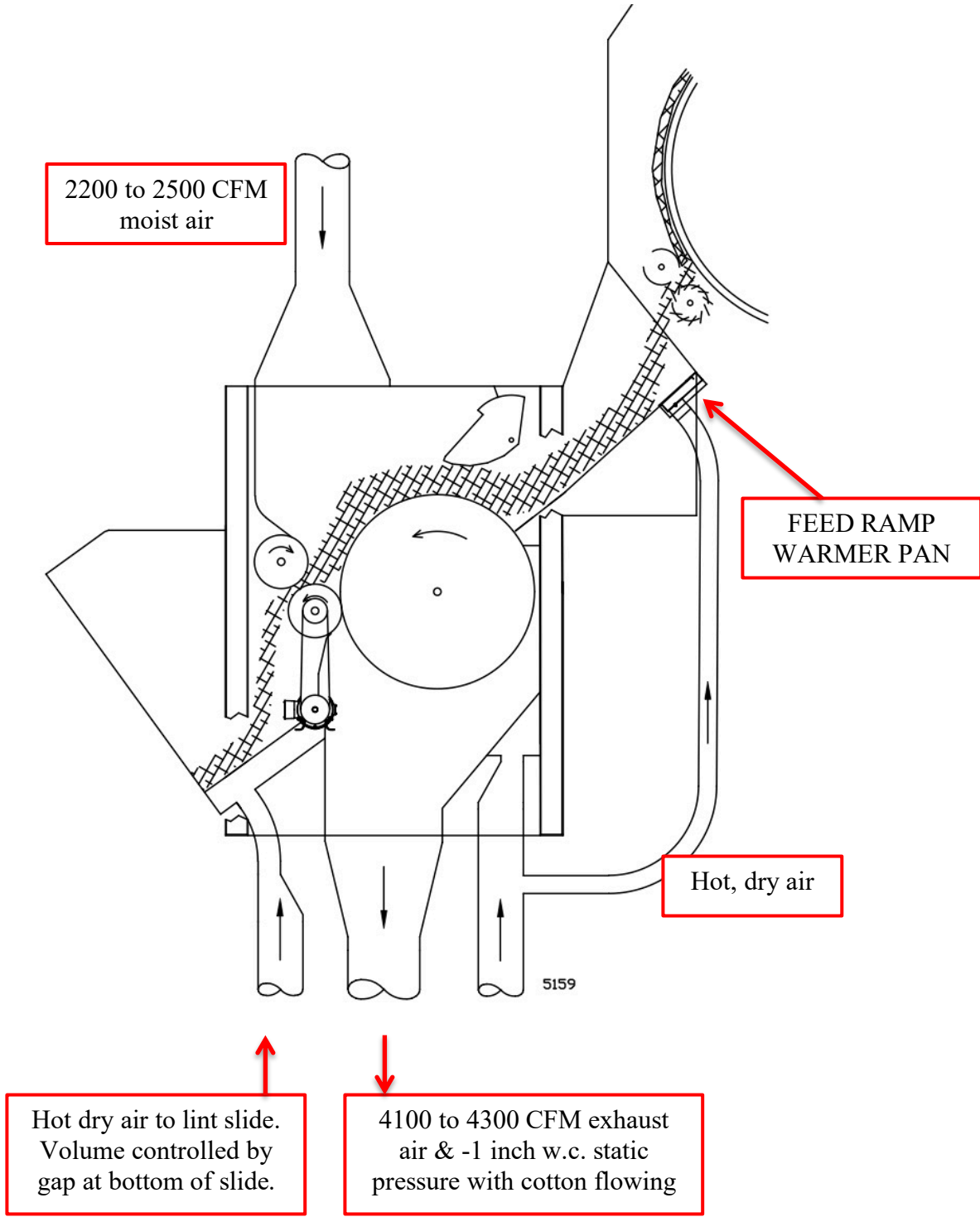
Steamroller Exhaust Air Volume

- With both fans running, adjust exhaust air volume from Steamroller to 4100 to 4300 CFM with the slide gate valve in the 16 diameter line. For 16 inch diameter pipe, Vp should be 0.55 to 0.6 inches w.c.
- Recheck moist air volumes and fine tune slide gate valve adjustments.
- Once cotton is flowing through the Steamroller, check the static pressure in the exhaust air pipe immediately after the transition to round pipe under the Steamroller. Normally, this pressure should be -1 to -2 inch w.c. at this point. Adjust the exhaust slide gate some if the static pressure is not within this range. Opening the slide gate will move the static pressure from -1 to -2 inch w.c.
- Mark valve positions and pin slide gates in place.

Dry Hot Air Volume

An auxiliary heater should be used as a source of dry hot air to keep the lint slide and feed ramp warm and to warm the sides of the Steamroller. Set the total combined hot air volume for about 1,500 CFM and the setpoint temperature for 180 degrees F. Measure the velocity of the air when the burner is off.

- Adjust slide gate on air entry to Feed Ramp Warmer Pan so that some hot air is coming out of louver on top of Feed Ramp. This small amount of air keeps the Feed Ramp warm and helps convey the cotton down the ramp into the Steamroller. Further adjustment may be required when cotton is present. The air should not be so great as to disturb the batt.
- Adjust slide on bottom of false bottom of lint slide where a little of the dry hot air can escape keeping air flowing through the false bottom to warm the slide. Normally, a gap of 3/8 inch across the width of the slide is sufficient.

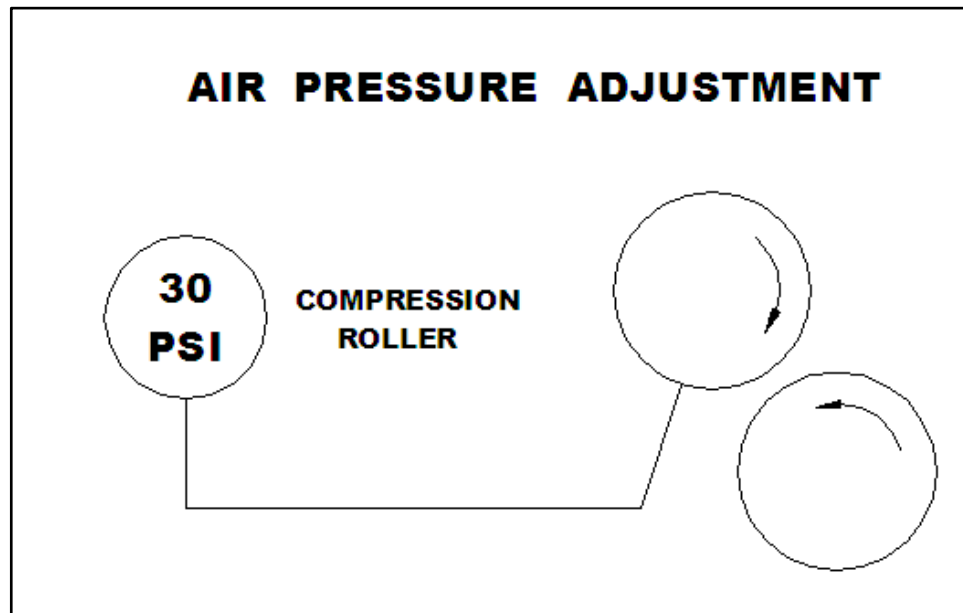


Air Cylinder Pressure Adjustments

Two Air Cylinders are located under the link arms supporting the Compression Roller. The cylinders exert a constant upward force on the link arms to control squeezing action on the lint batt passing between the compression and doffer rollers. Maintaining proper air pressure to these Air Cylinders is important. Adjust the PRECISION AIR REGULATOR on the PNEUMATIC CONTROL PANEL to the following pressure:

- 30 psi for two cylinders under the Compression Roller

For best air pressure adjustment, back regulator screw fully out dropping the pressure to 0 psi before turning in for final air pressure. Tighten locking nut on regulator after final adjustment.

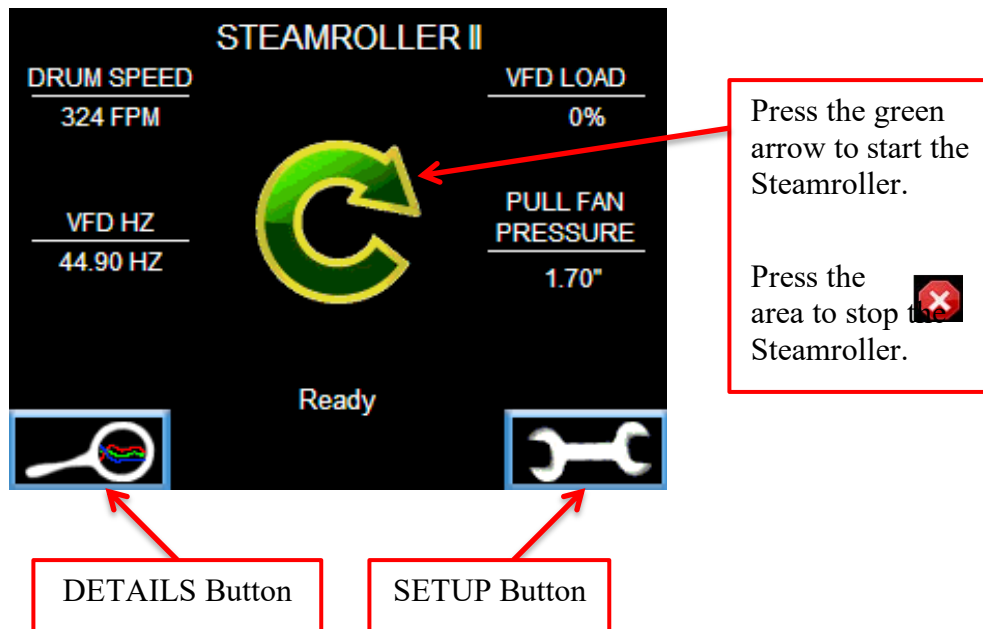


83900 Steamroller Control

The Steamroller control uses a Color Touch Panel mounted in the control cabinet door for the operator interface for control setup and troubleshooting. Normal start/stop operation of the Steamroller is done with a remote signal from the main gin console.

For Moisture Mirror 3X and 4X users, remote access is also available from the Moisture Mirror screen at the main gin console. Communication to the optional Moisture Mirror is provided with CAT5 cable to network connections.

The home screen is shown below.



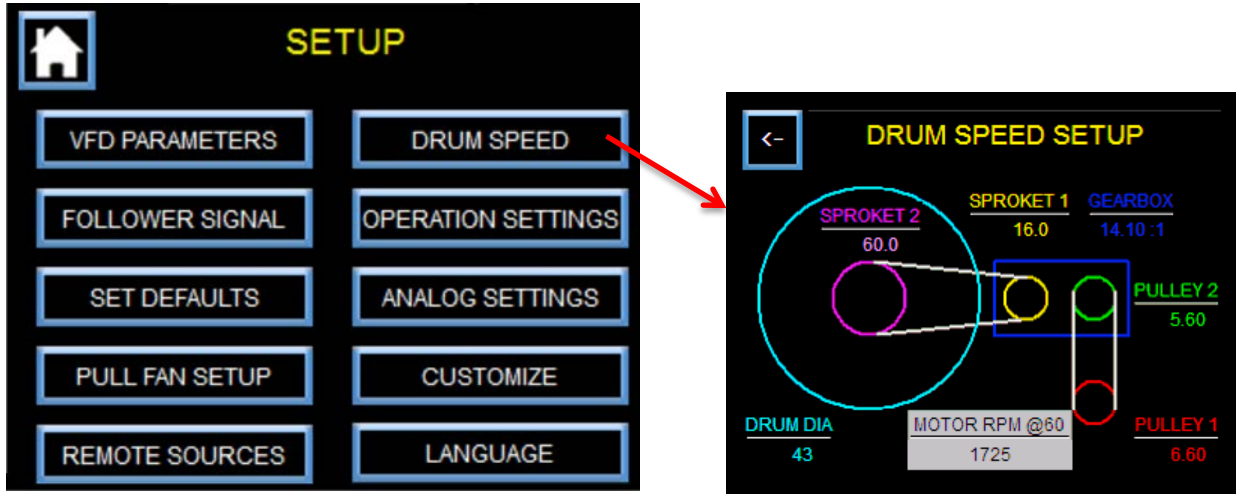
Check Drive Rotation

- Check for proper 3 phase voltage to Steamroller power disconnect at the 83900 Steamroller Control Cabinet.
- Check that all personnel and tools are clear of the Steamroller. Start Steamroller from the Color Touch Panel at the control cabinet by pressing the green arrow on the home screen. **Immediately** check Steamroller rotation. If rotation is wrong, reverse two of the 3 phase wires between the Variable Frequency Drive VFD and motor. Reversing 3 phase wires before the VFD will have no effect.



SETUP button

With the Steamroller off, press the SETUP wrench button. The default password is 1234. The SETUP screen will be shown. Now press the DRUM SPEED button and the DRUM SPEED SETUP screen will appear with the default settings for the Steamroller 2 as shown here.



Press the ← button to go back to the SETUP screen.

Setting Speed Control Method

There are two methods available for controlling the surface speed of the Steamroller Screen Drum. The Steamroller will either run at a constant speed or will follow the speed changes of the battery condenser. The Screen Drum surface speed must be set 3 to 5% faster than the surface speed of the battery condenser screen drum for good batt drafting action. Press the OPERATION SETTINGS button on the SETUP screen.

The image shows the 'OPERATION SETTINGS' screen with a back arrow in the top left and a title 'OPERATION SETTINGS' in yellow. It has four main settings: 'CONDENSER TYPE' set to 'FIXED SPEED', 'CONDENSER SPEED' set to '309 fpm', 'SPEED RATIO' set to '1.05', and 'CURRENT STEAMROLLER TARGET' set to '324 FPM'. Three red callout boxes with arrows point to these settings: the first points to 'FIXED SPEED' and says 'Press this button area to toggle between “FIXED SPEED” and “VARIABLE SPEED”.'; the second points to '309 fpm' and says 'For “FIXED SPEED”, measure the surface speed of the condenser drum and key in the speed in feet per minute (fpm) here.'; the third points to '1.05' and says '1.05 is a good speed ratio to start with for 5% faster speed.'

If the battery condenser does not change speed, select FIXED SPEED (default). Select VARIABLE SPEED when the battery condenser uses a variable frequency drive to change speed. For the VARIABLE SPEED control method to work, the drive must provide a follower speed control signal for the Steamroller control. Refer to the *External Electrical Connections* diagram in this manual for acceptable mA and VDC follower speed control signals.



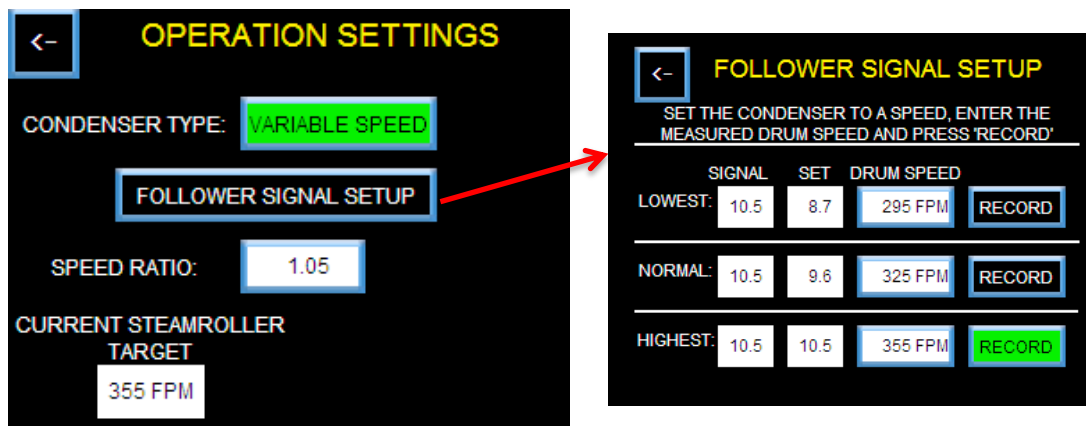
Condenser drum surface speeds should be kept between 250 and 425 feet per minute for maximum Steamroller performance. Measure the condenser drum surface speed with a surface wheel on your tachometer.



A digital tachometer with a surface wheel provides an easy way to measure surface speed in feet per minute.

When selecting VARIABLE SPEED for CONDENSER TYPE, the following screen will appear. Press FOLLOWER SIGNAL SETUP button to show the screen for establishing the speed tracking trend for variable speed control.

Run the condenser at the lowest speed setting. Measure the condenser drum surface speed and key this in for DRUM SPEED for lowest setting. The converted 4-20mA VDC signal measured from the condenser variable frequency drive will be shown. Press the RECORD button to record the signal and drum speed. The RECORD button will momentarily turn green. Repeat these steps for the normal (midrange) and high speeds.



Press the ← button until the SETUP screen is shown.

The rest of the SETUP screen choices are described below.

VFD PARAMETERS

The custom parameters for the AC TECH MC1000 series VFD are accessed and written to the Variable Frequency Drive VFD here. These settings are unique for the Samuel Jackson Part No. 20822 and 20904 VFD's. Consult with the Samuel Jackson factory before making any changes to the default drive parameters.

SET DEFAULTS

Resetting factory default parameters for both the PLC and the VFD are accessible here.

PULL FAN SETUP (Optional)

Maintaining a constant suction on the exhaust of the Steamroller 2 is desirable for optimal Steamroller performance. The Steamroller control can monitor the static pressure in the pipe directly after the Steamroller exhaust outlet. The control provides a 4-20mA VDC signal to an optional VFD on the exhaust air fan motor to automatically control the fan's speed maintaining the desired static pressure as operating conditions change. Part No. 23775 Static Pressure Probe and 23537 Pressure Transmitter are required from the factory.

The screenshot shows the 'PULL FAN CONTROL' setup screen. It features a back arrow in the top left corner. The screen is divided into two main sections: 'CALIBRATION' and 'CONTROL'. The 'CALIBRATION' section includes 'SENSOR HIGH' (5.00), 'SENSOR LOW' (0.00), and 'SENSOR OFFSET' (0.00). The 'CONTROL' section includes 'SETPOINT' (1.50), 'DEADBAND' (0.10), 'STEP SIZE' (5), and 'STEP TIME' (0.1s). Two red callout boxes provide additional information: one on the left explains the calibration settings for a 0-5 inch water column range transmitter, and one on the right explains the SETPOINT (Target) setting, noting it is normally between 1 and 2.

CALIBRATION		SETPOINT	DEADBAND
SENSOR HIGH	SENSOR LOW	1.50	0.10
5.00	0.00		
SENSOR OFFSET		STEP SIZE	STEP TIME
0.00		5	0.1s

REMOTE SOURCES

This is part of the optional PULL FAN SETUP. The exhaust air static pressure signal can be direct wire connected to the Steamroller control panel. This is a LOCAL Pull Pressure Source.

If the Samuel Jackson *AIR TOOLS* product is installed with a static pressure sensor in the Steamroller exhaust air, then the Pull Pressure Source is AIRTOOLS and the corresponding *AIR TOOLS* COLLECTOR # and CHANNEL # are entered so the static pressure information is obtained over the network. This communication requires a CAT5 cable connection from the Network Switch in the Steamroller Control Cabinet to the Network Switch that the Air Tools is connected to.

If the control panel does not sense a connection to a pressure transmitter via either a direct wire connection or through the *AIR TOOLS* network, then the control assumes that this option is not in place.

ANALOG SETTINGS

Adjustments to the FILTER on the analog input channels are made here. The default is a filter of 50.

CUSTOMIZE

A unique password can be set here. The password is a number between 0 and 9999. The default is 1234.

A unique name for the Steamroller can be entered here. If the control panel is connected to a Moisture Mirror 3X or 4X, this name will be shown on the Mirror network.

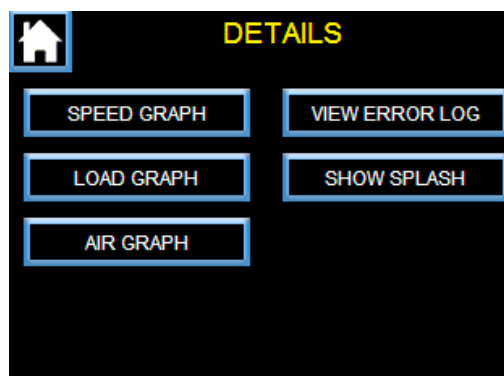
The time and date are set here. The hour is shown in 24 hour format. The time and date are used to time and date stamp when an ERROR occurs.

LANGUAGE

You can select the Touch Screen language here.

DETAILS button

On the home screen, press the DETAILS magnifying glass button. The DETAILS screen shown below will appear. The DETAILS are often used to help troubleshoot problems. Press the home picture button to go to the home screen.

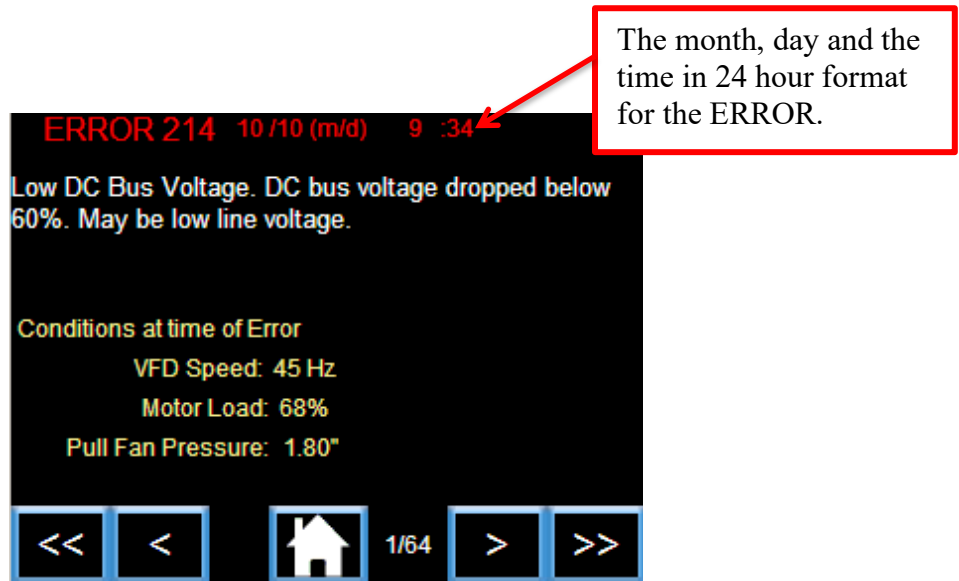


SPEED GRAPH shows the operating hertz (HZ) for the Steamroller over time. The HZ represents speed.

LOAD GRAPH shows the load of the Steamroller motor over time.

AIR GRAPH shows the static pressure of the exhaust air pulling on the Steamroller if the PULL FAN SETUP option is in place.

VIEW ERROR LOG shows the last 64 errors. A typical ERROR log is shown below. Press the arrow buttons to maneuver through the logs. The double arrows will jump 10 logs at a time. Press the home button to go to home screen.



SHOW SPLASH momentarily shows the splash screen with the software version for the PLC and Color Touch Panel.

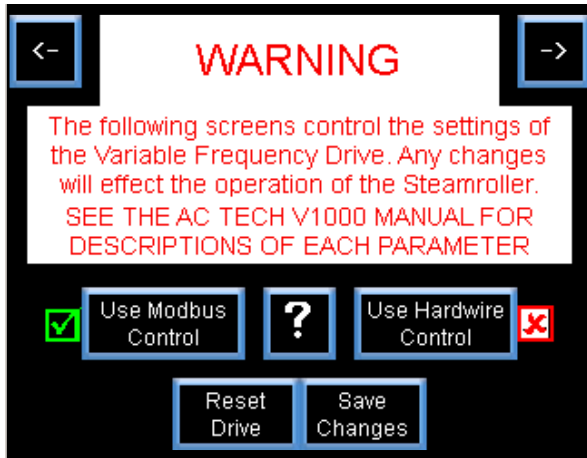
CHANGING DRIVE COMMUNICATIONS

Serial Communications

The Steamroller 2 ships with serial communications enabled between the VFD and the PLC. This allows for more information about the drives status to be known by the PLC and allows for the PLC to program all parameters in the VFD automatically. The following VFD parameters MUST be set in order for the PLC to communicate with the VFD.

SERIAL: W/O TIMER

If serial communications are working properly, all other parameters can be set by going to the “VFD Parameters” settings page, selecting the button on the left that says “Use Modbus Control” and pressing “Save Changes.” A green check indicates that the setting is already selected and applied to the drive.



Analog Communications

Steamroller 2's may be configured to use analog communications between the PLC and drive instead of serial communications. This method reduces the specific drive information available but is easier to trouble-shoot.

For Steamroller 2's manufactured *before* May 2016, the wiring from the control panel to the drive and the drive parameters must be changed. Refer to electrical schematic CA20690D at the end of this manual and follow the Drive Parameter and Electrical Wiring Instructions below to enable analog communications.

For Steamroller 2's manufactured *after* May 2016, the control panel is already wired as needed. If serial communications are working, this mode of operation can be enabled in the same manner as seen under "Serial Communications" above. If they are not working, the drive settings will have to be entered into the VFD by hand by following the Drive Parameter Instructions below.

Drive Parameter Instructions (for all Steamroller 2's)

MANUAL: 0-10VDC

CONTROL: REMOTE

TB5A Min: 20 (Set to match overall Min Hz)

TB5A Max: 60 (Set to match overall Max Hz)

TB13A: 4-20mA

RELAY: RUN

Electrical Wiring Instructions (for units built before May 2016)

Speed Signal

1. Connect terminal 2 on the Drive to terminal block 61 on the panel.
2. Connect terminal 5B on the Drive to terminal block 60 on the panel.

DC Inputs

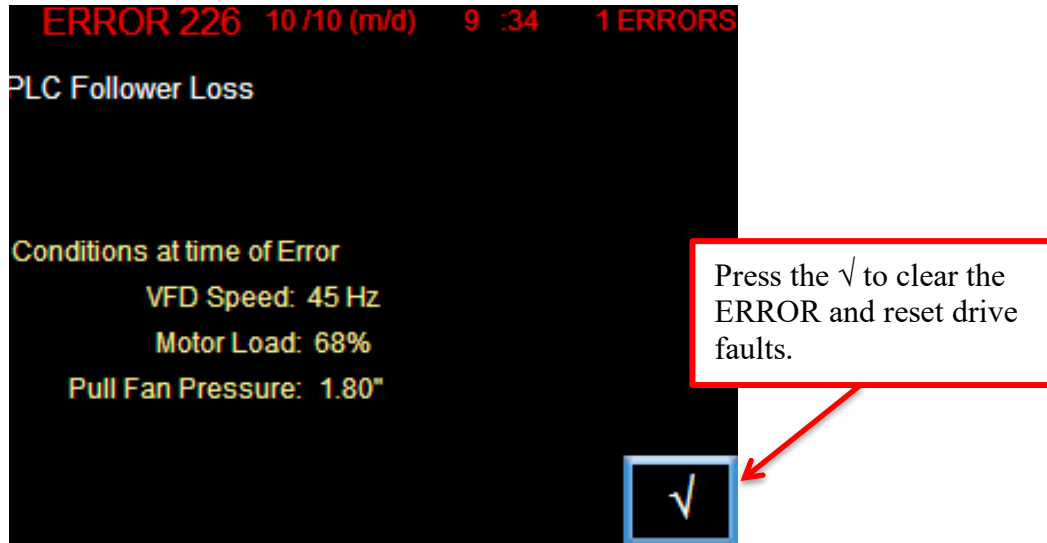
3. Connect terminal 16 on the Drive directly to terminal X2 on the PLC.
4. Connect terminal 17 on the Drive to terminal block 30 on the panel.

Relay Outputs

5. Connect terminal 1 on the Drive directly to terminal Y10 on the PLC.
6. Connect terminal 13A on the Drive to terminal 12A on the Drive.
7. Connect terminal 12A on the Drive to terminal 2 on the Drive.
8. Connect terminal 2 on the Drive to terminal C2 on the PLC (When you are finished, there will be 2 wires connected to terminal 2 on the Drive).

ERROR List & Explanations

When an ERROR occurs with either the Variable Frequency Drive VFD or Programmable Logic Control PLC, the Color Touch Panel will display the ERROR. Below is an example of what an ERROR screen will look like.



For some ERRORS an abbreviated cause and possible remedy are also shown. Additional information for the possible causes of a VFD fault can be found in the AC TECH MC1000 series manual. The fault will also be displayed on the drive's LCD display. Pressing the √ button will clear the ERROR from the screen and power cycle the drive to clear a drive fault.

ERROR 210

Output Transistor Fault. Output current exceeded 200% of drive rating. Check for phase to ground short or phase to phase short.

ERROR 211

High DC Bus Voltage. Can be caused by high line voltage or an overhauling load.

ERROR 212

High Drive Temperature. Ambient temperature too high. Provide cooling for VFD.

ERROR 213

Thermal Overload. Output current rating exceeded for too long. Problem with motor and/or driven equipment.

ERROR 214

Low DC Bus Voltage. Low line voltage.

ERROR 215

DC Brake Error. Check that connections from VFD circuit board to DC Brake Resistor are firmly in place.

ERROR 216

Analog Signal to Control VFD Loss. Not an expected fault with serial communications used for this control setup.

ERROR 217

Dynamic Brake Overload. The dynamic brake has sensed a resistor overload. The dynamic brake duty cycle is too high causing the resistors to overheat.

ERROR 220

Power Sag. Erratic supply voltage leading to control board voltage below tolerance. Contact factory for more details as a factory reset using Parameter 65-PROGRAM will be necessary for clearing this VFD fault.

ERROR 221

Control Fault. New software has been installed that is different from the previous version. Contact factory for more details as a factory reset using Parameter 65-PROGRAM will be necessary for clearing this VFD fault.

ERROR 222

Language Fault. Selected language EEPROM not present.

ERROR 223

External Fault. Not an expected fault with serial communications used with this control setup.

ERROR 224

Internal Error 16. The VFD's micro-processor has sensed a problem. Electrical noise on control wiring or a defective micro-processor can cause this fault.

ERROR 225

Power Transient Fault. Low line voltage. AC power supply dipped or sagged.

ERROR 226

PLC Follower Loss. In OPERATION SETTINGS, if Condenser Type is set to VARIABLE SPEED, the PLC expects to receive an analog signal from the battery condenser VFD for following the condenser drum speed. This analog signal is not present.

ERROR 227

Serial Communication ERROR. Check that the serial communication connections are in place from Port 2 on the PLC to terminals RXA, TXB and 2 on the VFD. Check condition of the serial communication cable. Check that no jumper wires are in place on other terminals on the small circuit board adjoining the RXA and TXB terminal strip.

ERROR 230

Exhaust fan VFD has reached maximum allowed speed with the static exhaust air pressure not being achieved. Check for screen drum hairing or a blockage in the exhaust air piping. This is an optional control feature.

Cleaning & Maintenance

CAUTION

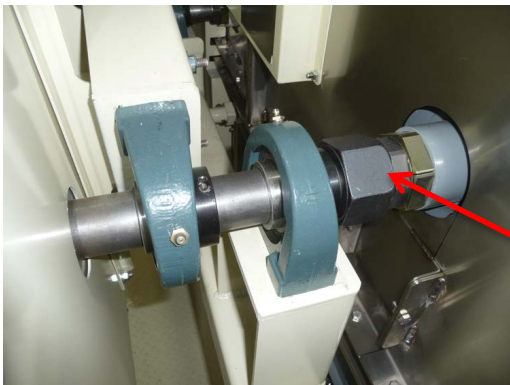
Using a Cylinder Block for Safety

Steamroller operators will find it helpful to use the Air Cylinders to lift the Compression Roller up for cleaning and maintenance. ***IT IS EXTREMELY IMPORTANT TO POSITION THE CYLINDER SAFETY BLOCK OVER ONE OF THE EXTENDED CYLINDER RODS FOR SAFETY.*** Two Cylinder Blocks with clip pins are provided. One Cylinder Block in place on one Air Cylinder is sufficient to support the roller.

CYLINDER BLOCK
WITH CLIP PIN



To maintain maximum performance from the Steamroller System, a cleaning schedule is recommended. Steamrollers operating on stripper harvested cotton normally require more frequent cleaning than Steamrollers operating on picker harvested cotton. Each gin develops its own cleaning schedule based on experience.



SHAFT SAVER NUTS

Use wrench on the Shaft Saver Nuts on Drum Shaft when turning drum by hand to prevent wrench damage to shafts.

DANGER

POWER SHOULD BE DISCONNECTED AND LOCKED OUT BEFORE CLEANING OR PERFORMING MAINTENANCE ON STEAMROLLER. STEAMROLLER STARTS AUTOMATICALLY.

Cleaning Screen Drum Surface

A thin matt of lint (hairing) will eventually form on the screen. Enough of this matt will block air flow and reduce performance. Check in *TROUBLESHOOTING* section for ways to reduce formation of this matt. Clean off with a brush.



If cleaning of lint matt off Screen Drum is required, do so immediately after shut down. Damp lint is easier to remove from the screen.

Cleaning Screen Drum Inside

Some of the pin and leaf trash pulled by exhaust air through holes into inside of screen drum will remain inside the drum and build up reducing the flow of exhaust air through screen drum. Periodically open up an end of the screen drum by removing one of the drum end covers and clean out.



**DRUM END COVER
shown removed for
access to inside of
SCREEN DRUM.**

Cleaning Drum Warmer Flashing Area

The DRUM WARMER FLASHING provides a seal between the chamber for dry hot air and the exhaust air. This flashing directs the dry hot air through the screen just before the screen is exposed to the incoming batt of cotton. Drying and warming the screen helps reduce hairing of lint on the screen.



Remove this panel under the feed apron to expose the DRUM WARMER

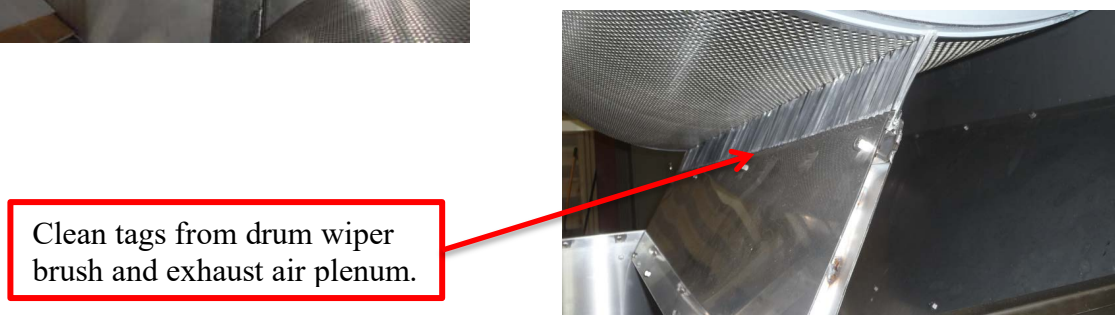
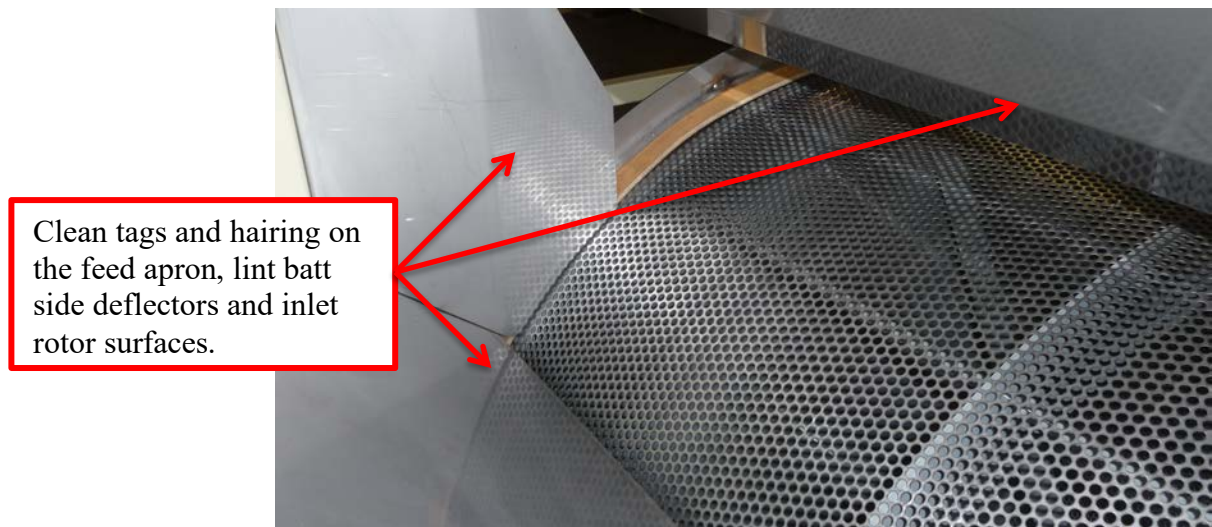
Check for cotton and trash buildup here. Also check condition of DRUM WARMER FLASHING.



Cleaning Feed Apron and Upper and Lower Plenum Chambers

Clean off tags and hairing that form on the feed apron, lint batt side deflectors and cotton inlet rotor. Keeping tags and hairing off surfaces where the batt flows reduces friction for the batt as it passes through the Steamroller. See *TROUBLESHOOTING* section for suggestions on minimizing hairing buildup in these areas.

Clean out tags that form on the moist air spoilers in the upper plenum chamber and on the drum wiper brush in the lower exhaust air plenum chamber. Reducing the buildup of tags lessens the places for a fire to burn and damage flashings and windows in the event of a lint fire passing through the Steamroller.



Cleaning Doffing Area Between Screen Drum and Doffer Roller

Wipe lint buildup away from the housing in the doffing area. Keeping the housing in this area warm will reduce lint buildup here. Maintaining the DRUM FLASHINGS and DRUM END WIPER BLOCKS will keep this area cleaner and free from wad buildup.

Check the doffing area for lint and wad buildup



Check DRUM FLASHINGS for worn or warped flashings in this area.

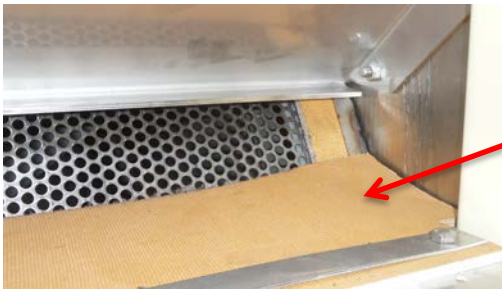
This pan directs dry hot air along housing in doffing area. Open access panel to check for wads that will block air flow. Hot air exits pan through hole in housing near the access panel.



Drum Flashing Replacement

Right and left hand DRUM FLASHING ASSEMBLIES seal the ends of the drum from cotton and air moving along the ends of the drum from upper moist air plenum to lower exhaust plenum. Lint buildup on the ends of the Drum Screen can cause formation of lint wads. Over time, the flashings will become worn and warped and require replacement. A spare set of DRUM FLASHING ASSEMBLIES (Part Numbers 23038B and 23039B) should be kept on hand at all times for quick replacement.

Step 1
Notched end goes toward inlet side. Feed flashing through window as shown here.



Step 2
Be sure that the DRUM FLASHING goes under the DRUM WARMER FLASHING as shown here.

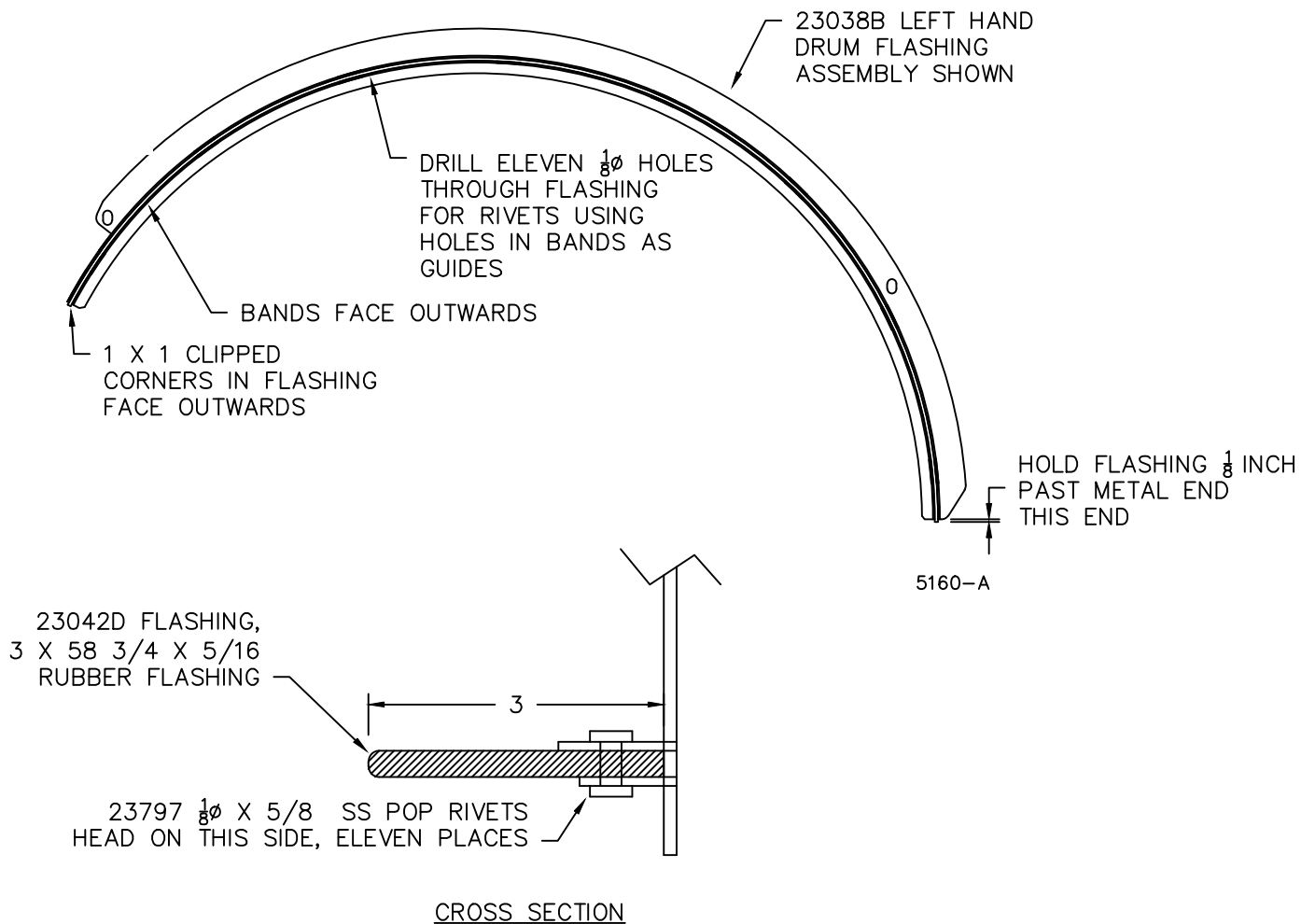
Step 3
Push flashing down so flashing is in contact with outer ring on Drum Screen. Do not force flashing to rub tightly on drum.



Step 4
Two 3/8 UNC X 1 inch bolts secure the flashing to the housing. Slots in the flashings allow vertical adjustment of flashing to Drum Screen.

Refurbishing Drum Flashing Assemblies

The set of stainless steel drum flashing frames can be reused by replacing the flashing strips as long as the frames are not bent. See the *Suggested Spare Parts* section for the part numbers to order for the flashing and stainless steel pop rivets. Replacement details are shown below.



Drum End Wiper Blocks

Periodically check the condition of the DRUM END WIPER BLOCKS. There are two of these blocks positioned on each end of the Screen Drum. The blocks rotate with the drum and help prevent the formation of wads between the ends of the Screen Drum and the housing.

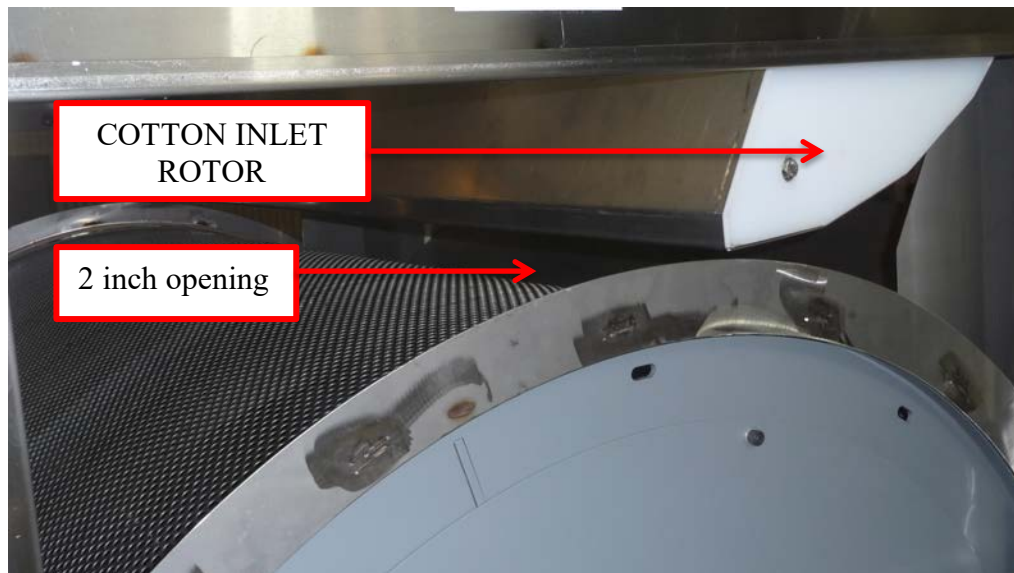


Replace the DRUM END WIPER BLOCKS when the edges are no longer sharp. Observe the order of the metal shims when removing the old blocks.

Cotton Inlet Rotor Adjustment

Cotton enters the Steamroller 2 under the floating COTTON INLET ROTOR. The cotton batt nudges the tip of the rotor upward to enter the moist air plenum section where moisture is applied to the cotton. Because the moist air is under a slight positive pressure in the moist air plenum, the COTTON INLET ROTOR acts as an air seal allowing cotton in and keeping the moist air in. A set of weights suspended on a cable acts as a counter-balance to keep a fairly constant downward pressure of the rotor tip against the cotton regardless of batt thickness.

The opening between the tip of the rotor and the Screen Drum has been adjusted at the factory for about 2 inches. If this opening needs to be adjusted, loosen the weight anchor bracket and slide the bracket up or down to give the desired opening. Cotton should enter easily under the rotor tip and minimal moist air should leak out.

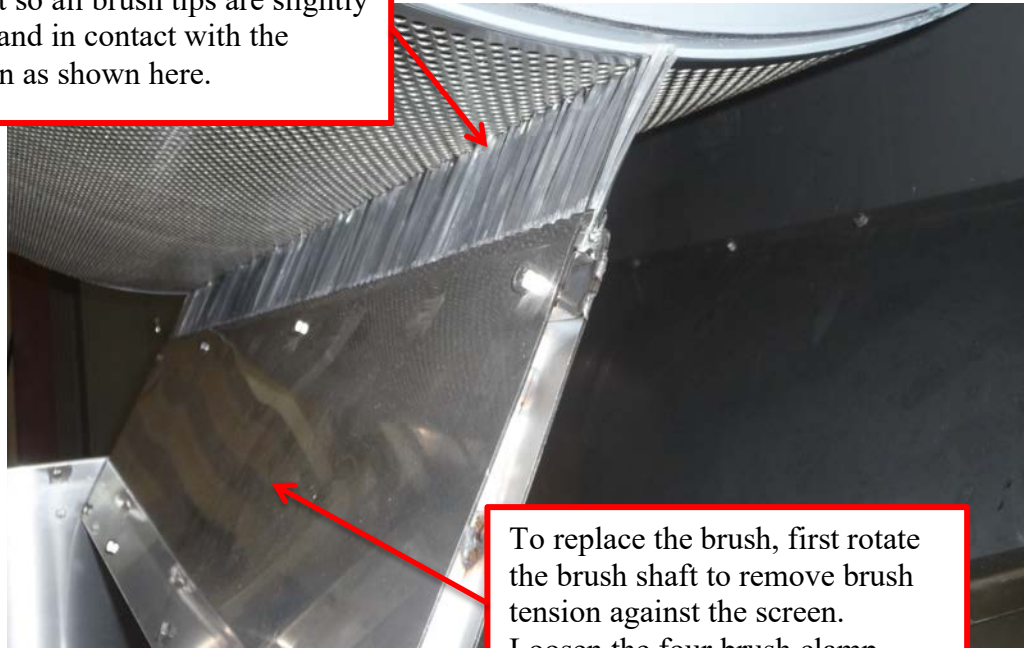


Slots in Weight Anchor Bracket allow adjustment of rotor tip to screen clearance.

Drum Wiper Brush Adjustment and Replacement

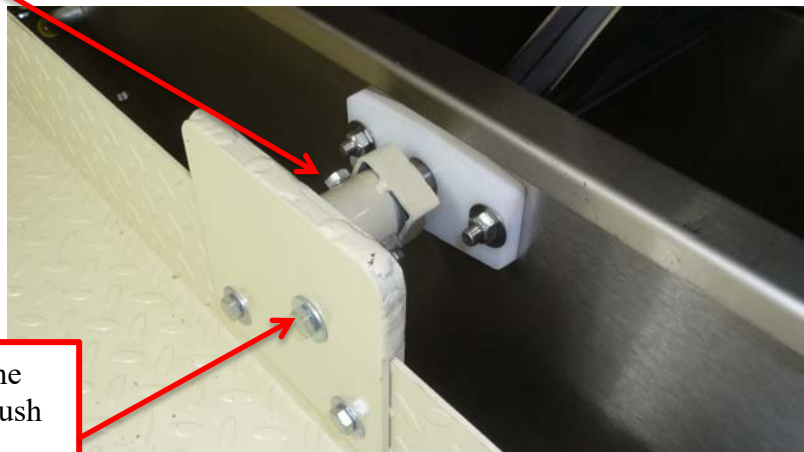
The stiff bristles of the DRUM WIPER BRUSH lightly brush the rotating Screen Drum surface to help minimize formation of lint hairing. The brush is located in the exhaust air plenum so lint fly that is brushed off the drum is swept away in the exhaust air.

DRUM WIPER BRUSH should be set so all brush tips are slightly bent and in contact with the screen as shown here.



To replace the brush, first rotate the brush shaft to remove brush tension against the screen. Loosen the four brush clamp bolts then slip the old brush out of the clamps.

Tension Adjustor

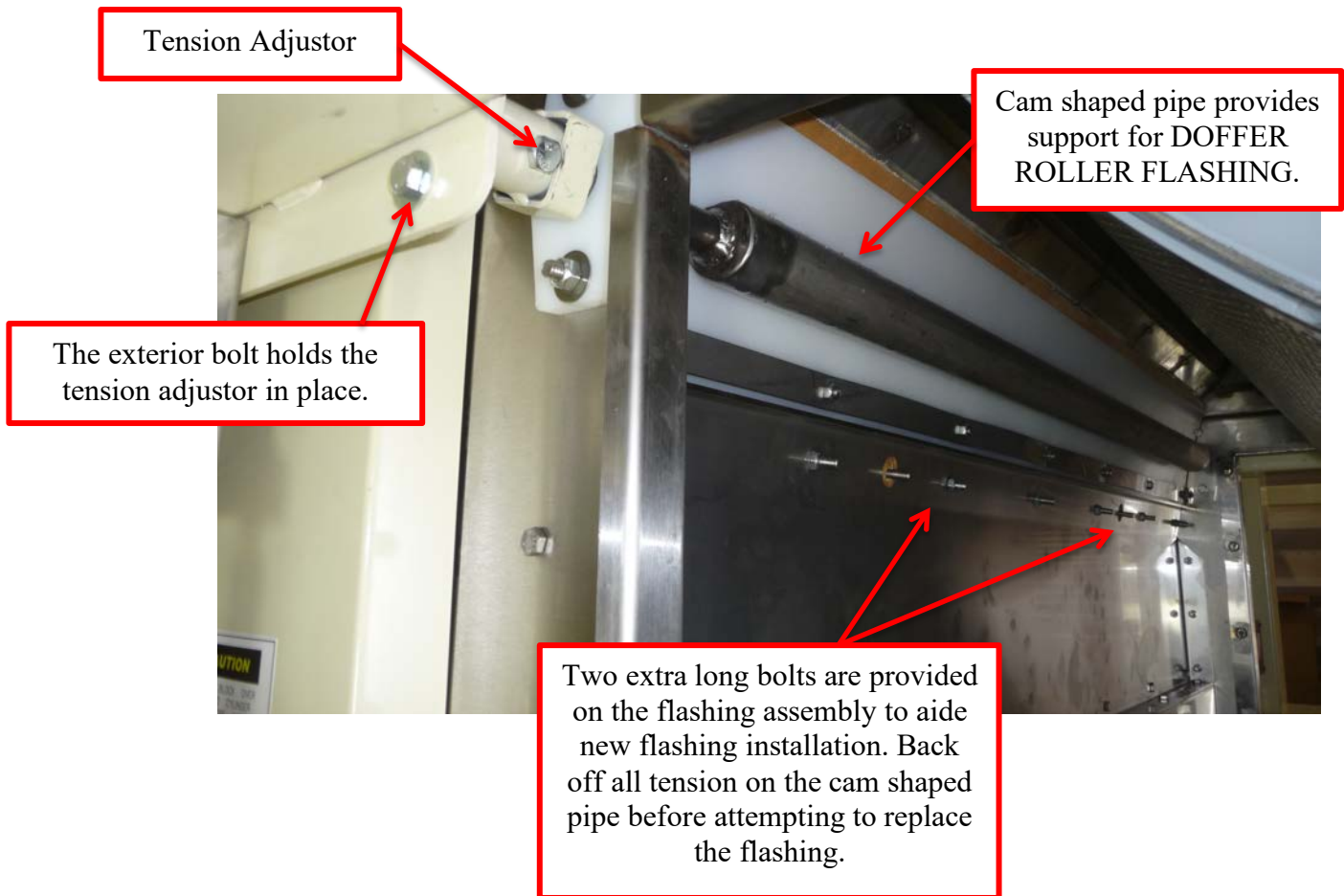


Loosen this bolt then turn the tension adjustor until the brush is snug against the screen. Retighten the bolt.

Doffer Roller Flashing Adjustment and Replacement

Because the exhaust plenum is under negative (suction) pressure, lint exiting the Steamroller can also be pulled into the exhaust plenum. It is critical to adjust the DOFFER ROLLER FLASHING to ride snugly against the Doffer Roller at all times. This minimizes air leakage into the exhaust plenum, keeping it cleaner.

Loosen the exterior bolt, as labled in the diagram below, then turn the tension adjustor to the desired tightness. The tension adjustor rotates the cam shaped pipe to adjust the flashing tension. After tightening (or loosening) the tension adjustor, retighten the exterior bolt to hold the tension adjustor in place.



Replacing Roller End Washers

When the ROLLER END WASHERS become worn, gaps between the housing and the ends of the rollers will allow formation of lint wads. Removable roller housing panels allow access to the ends of the rollers for washer replacement after bearings and sprockets are removed.



Removable roller housing panels

Removable Hot Air Pans



Roller housing panels shown removed allowing access to the ROLLER END WASHERS.

Screen Drum to Doffer Roller Separation

The separation between the Screen Drum and the Doffer Roller was checked and set at the factory and should require no further adjustment unless the bearings are replaced. Separation is set to about 1/8 inch. Minimal separation (without contact) improves lint doffing. *Any contact between the Screen Drum and the Doffer Roller will result in premature failure of the Screen.*

1/8 inch clearance is ideal between Doffer Roller flights and Screen.



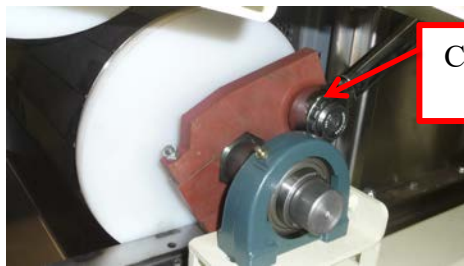
Loosen bearing bolts and use jack screws to adjust clearance.

Torque Settings - Keyless Bushings, Sprocket Bushings & Sheave Bushings

Shown below are recommended torque settings for keyless shaft bushings, QD sprocket and sheave bushing bolts. These torque settings were used at the factory during Steamroller assembly and adjustment.

IMPORTANT!

Tightening the KEYLESS BUSHINGS to the proper torque (3300 in-lb, 275 ft-lb) is extremely important. If shifting of the Screen Drum, Compression Roller or Doffer Roller within the Steamroller housing is required, avoid loosening the Keyless Bushings. It is better to loosen the bearing set collars and shift the shaft through collars for adjustment. Check chain sprockets for chain alignment. A special 2 ¼ inch crowfoot wrench, Part No. 20732, is available from the factory for use in tightening the Keyless Bushings (does not include the torque wrench).



CROWFOOT WRENCH,
PART No. 20732

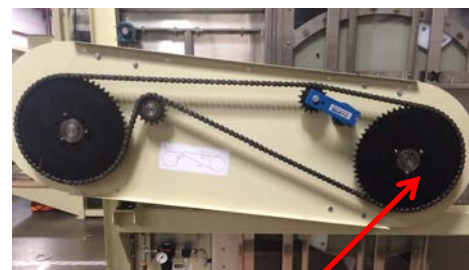


3300 in-lb for
KEYLESS BUSHING



108 in-lb for SDS
bushing on SPEED
REDUCER and
MOTOR SHEAVES

*Drive guards removed for
illustration – do not operate
without guards in place.*

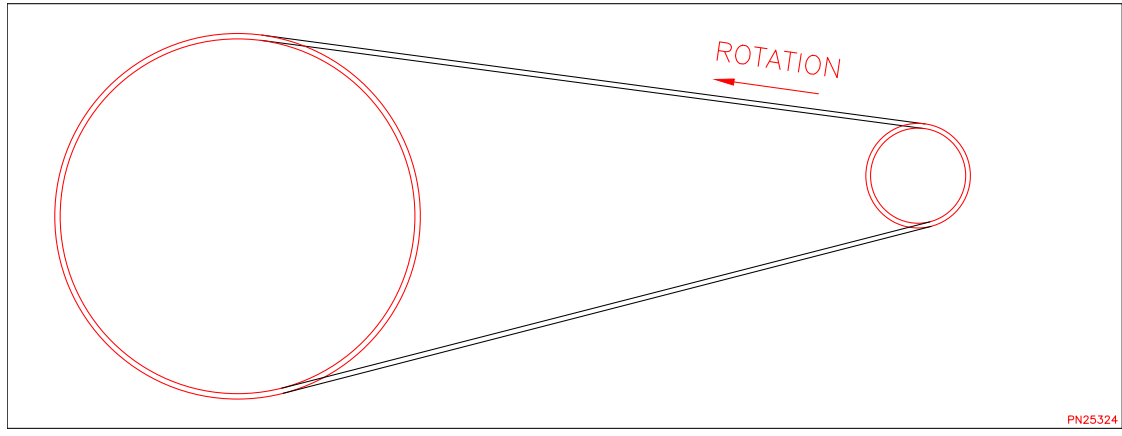


360 in-lb for SF bushing
on SPROCKET –
60 TOOTH, NO. 6

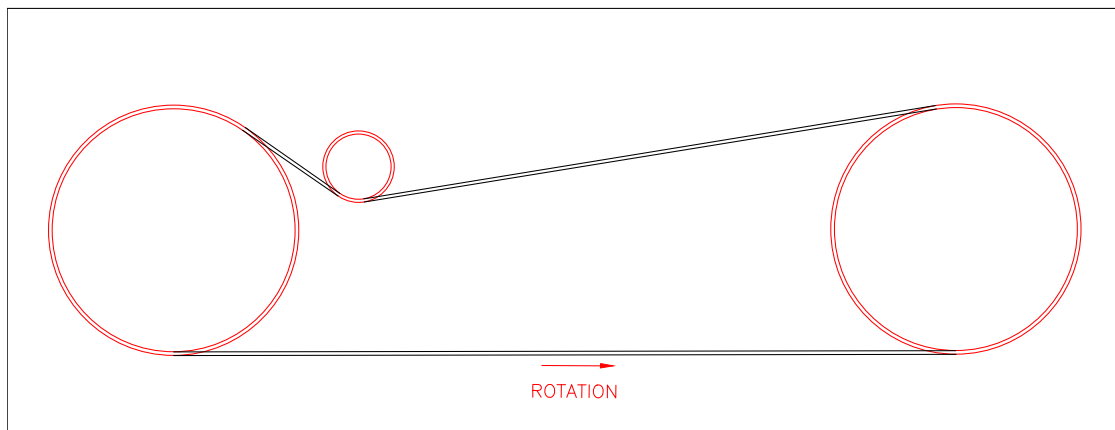
Chain Routing

For Steamroller 2s manufactured **before May, 2016**, the proper chain routing is as follows:

Motor Side:

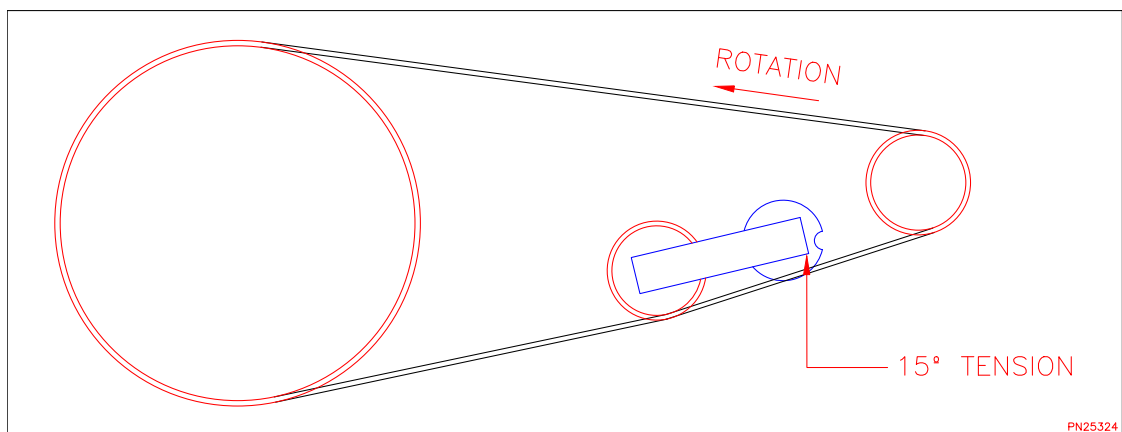


Driven Side:

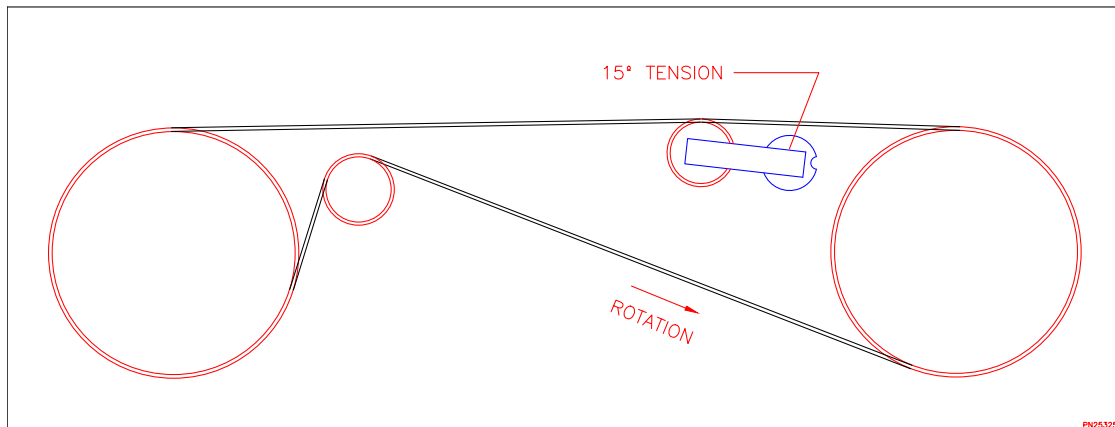


For Steamroller 2s manufactured **after May, 2016**, use the following routing:

Motor Side:



Driven Side:

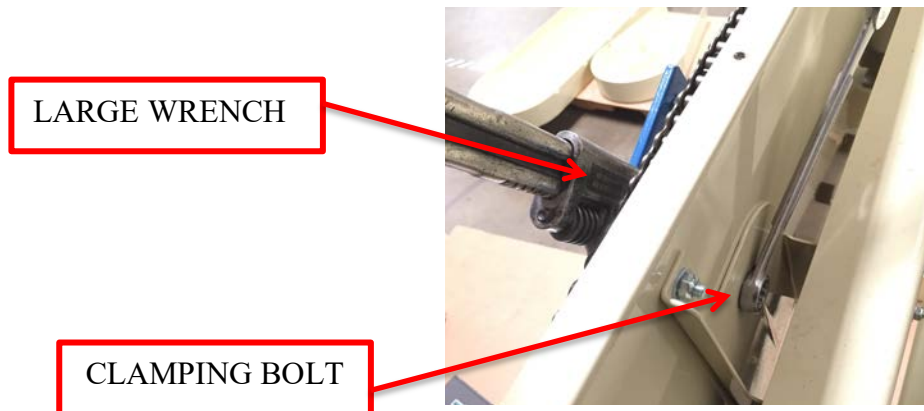


Note: A retrofit kit is available to convert an earlier Steamroller 2 chain drive to the late-model arrangement. Consult the factory for details.

Chain Tension

An elastomeric tensioner on each side of the unit maintains proper chain tension. Initial tension is 15° and may require periodic adjustment to maintain proper tension as the chains wear.

To adjust the tension, place a large wrench on the square section on the front of the tensioner and loosen the clamping bolt on the back. Turn the large wrench to set the desired 15° tension and hold in place while tightening up the clamping bolt.



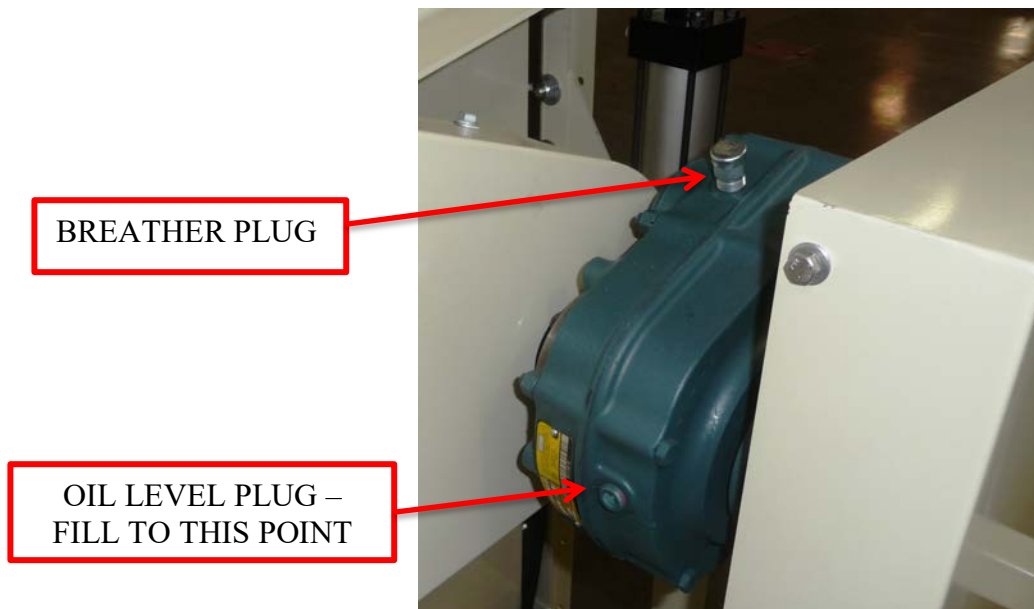


Lubrication

- *Speed Reducer*

Proper lubrication is essential to the performance and life of the Speed Reducer. Proper lubrication consists of:

1. Use of the proper type and viscosity of oil.
2. Maintenance of the correct oil level for the mounting position used.
3. Too much oil will cause overheating and too little will result in gear failure.
4. Drain, flush and refill at the required intervals.



The DODGE Torque-Arm Speed Reducer is filled at the factory with MOBILGEAR 630 oil (Samuel Jackson Part No. 22055). If another type of oil is used, the Speed Reducer should be drained and flushed with kerosene to avoid any compatibility problems between the MOBILGEAR 630 and the new oil. Contact the Samuel Jackson factory for the list of other oil types recommended by DODGE. Oil changes are recommended every 2500 hours for normal operating conditions.

- ***Motor***

Use CHEVRON OIL CO. SRI Number 2 (Samuel Jackson Part No. 20616) for motor bearing lubrication. Lubricate motor bearing every 1000 hours.

- ***Bearings***

Use a No. 2 Lithium base grease (Part No. 20616) or equivalent. For a typical Steamroller running 24 hours per day with all shaft speeds under 250 RPM, lubricate every 10 weeks. *Do not over-grease.* A small amount of lubrication at frequent intervals is preferable to a large amount at infrequent intervals.

One quart of oil (Part No. 22055) and one tube of bearing lubricant (Part No. 20616) are supplied with each new Steamroller.

Troubleshooting

Once the Steamroller System is started and adjusted properly, most future problems result from not maintaining a cleaning schedule. Cleaning schedules are unique to each gin and affected by whether the cotton is stripper or picker harvested. Once a cleaning schedule is developed that results in minimum problems, stick with it. Following are some problems that may occur with solutions.

SYMPTOMS

Cotton batt is pulled apart between condenser and Steamroller. Conditioned cotton batt exiting Steamroller is broken and intermittent.

Cotton batt ribbons (bunches) up between condenser and Steamroller. Eventually, the Steamroller chokes.

Cotton batt will not start into Steamroller.

SOLUTIONS

Reduce Steamroller speed ratio. See *Setting Speed Control* section to reduce draft.

Condenser drum may be turning too fast for a good batt of cotton even at full gin capacity. Keep condenser surface speed below 425 feet per minute.

Increase Steamroller speed ratio. See *Setting Speed Control* section to increase draft.

If increasing speed ratio does not eliminate problem, increase dry hot air flow to Feed Ramp to help convey cotton toward Steamroller.

Condenser drum may be turning too slow resulting in a very thick, slow moving batt. Keep condenser drum surface speed above 250 feet per minute.

Check that the Cotton Inlet Rotor is adjusted correctly. Refer to *Cotton Inlet Rotor Adjustment* section of this manual.

Refer to *Cleaning and Maintenance* section for cleaning tips.

Check that Feed Apron slide from condenser to Steamroller is free from tags, lint hairing and is smooth.

Check that very little moist air is escaping up Feed Ramp where cotton enters Steamroller. If air is coming up here and the Cotton Inlet Rotor is adjusted correctly, check for blockage in exhaust air pipe or fan. A little extra exhaust air pull may be required.

Increase the air flow to the FEED RAMP WARMER PAN.

SYMPTOMS

Moist air is escaping up Feed Apron and Ramp. Apron and Ramp feel damp and a thin layer of cotton (hairing) forms on these surfaces increasing friction.

Screen Drum hairs over.

Wads form on ends of Screen Drum or Rollers.

SOLUTIONS

Check that Steamroller exhaust air pipe is clear.

Check that all Steamroller clean-out doors are closed and flashings are in good shape.

Check slide gate valve positions on moist air and exhaust air pipes. If valves have been moved, re-check air flows. See *Startup & Adjustments* section for air flow settings.

Check for severe hairing of Screen Drum blocking exhaust air flow.

Re-check surface speeds of condenser drum and Steamroller Screen Drum. Screen Drum surface speed should be only 3 to 5% faster than condenser drum surface speed. A higher speed difference can cause hairing.

Check that the Roller Flashings are sealing well onto both the doffer and compression rollers. Outside air that leaks in between the roller and the flashing will cool the drum screen resulting in moisture condensing in the screen. This will lead to hairing.

If adequate moisture levels are obtained in bales, try raising the Humidaire Unit air temperature. The greater the difference between air and water temperatures, the lower the relative humidity and less moisture. Refer to Humidaire Unit Manual for more information on setting air and water temperatures.

Check condition of the Drum Warmer Flashing and that the air pathways are free.

Check condition of Drum Flashing Assemblies and replace if worn or warped.

Check condition of Roller End Washers and replace if worn.

Check condition of Drum End Wiper Blocks and replace if worn.

Check that dry hot air is flowing through the hot air pans on the sides of the housing and into the housing ends of the Screen Drum. Wads in the pan can block the flow of hot air.

Suggested Spare Parts

Following is a list of suggested spare parts to keep on hand. If desired, one part number may be used to purchase all items listed in the table. (Part Number: 81705)

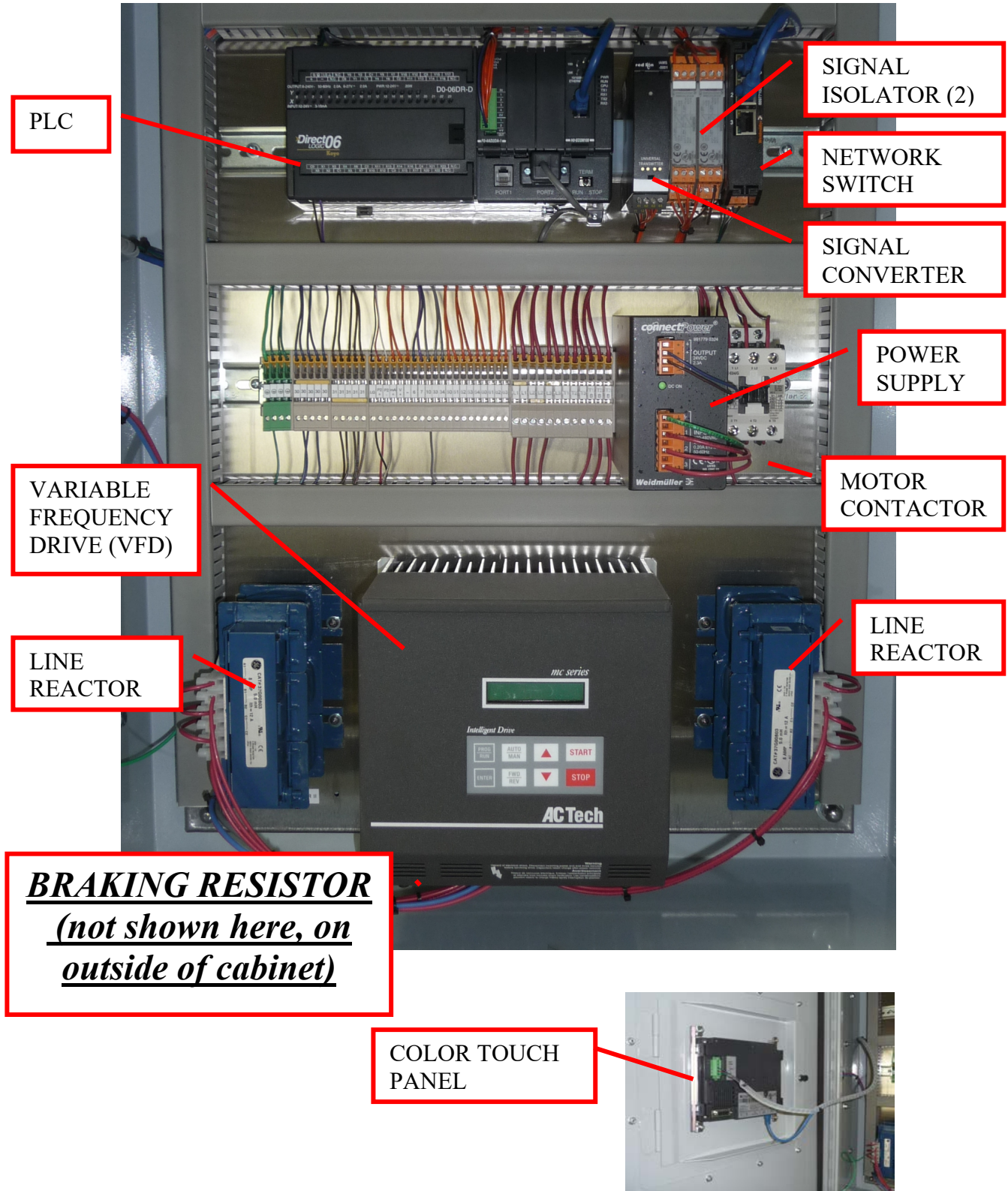
Quantity	Part Number	Description
4	22440A	1 INCH BORE TB-SXR-100 TAPPED BASE PILLOW BLOCK BEARING
4	25600B	TAPPED BASE PILLOW BLOCK BEARING, 1 3/4 INCH BORE
2	20690	KEYLESS BUSHING, 1 3/4 INCH BORE
1	22445	5 HP MOTOR
1	22696	SF 1 INCH BORE QD BUSHING
1	22697	2B 6.6 SDS COMB QD SHEAVE
1	22699	2B 5.6 SDS COMB QD SHEAVE
2	22700	BX 68 BELT
4	23640	DOFFER ROLLER END W ASHER, 1/2 INCH - BLACK DELRIN
2	23258A	DRUM END UHMW WIPER BLOCK
1	23038B	*DRUM FLASHING ASSEMBLY - LEFT HAND
1	23039B	*DRUM FLASHING ASSEMBLY - RIGHT HAND
4	23034A	PLASTIC GLASS ACCESS PANEL
72	15917	1/4 SS LOCK W ASHER
56	15749	1/4 UNC X 1/2 ROUND HEAD SLOTTED STOVE BOLT, SS
16	15803	1/4 UNC X 5/8 ROUND HEAD SLOTTED STOVE BOLT, SS
1	23218	AIR SKIRT
2	23023B	ROLLER FLASHING ASSEMBLY
1	22544B	DRUM WARMER FLASHING
1	22615	INLET ROTOR FLASHING
1	22549B	FRONT FLASHING STRIP
1	19127	PRESSURE GAGE 0-60 PSI
1	20240	PRECISION AIR REGULATOR
1	23067	DRUM WIPER BRUSH
2	22903A	UHMW BEARING FOR 1 DIA SHAFT

*Metal frames of the 23038B and 23039B Drum Flashing Assemblies may be reused and refurbished with new 23042D Belt Flashings and 23797 Stainless Steel Rivets. See the Refurbishing Drum Flashing Assemblies section for details.

Steamroller Components

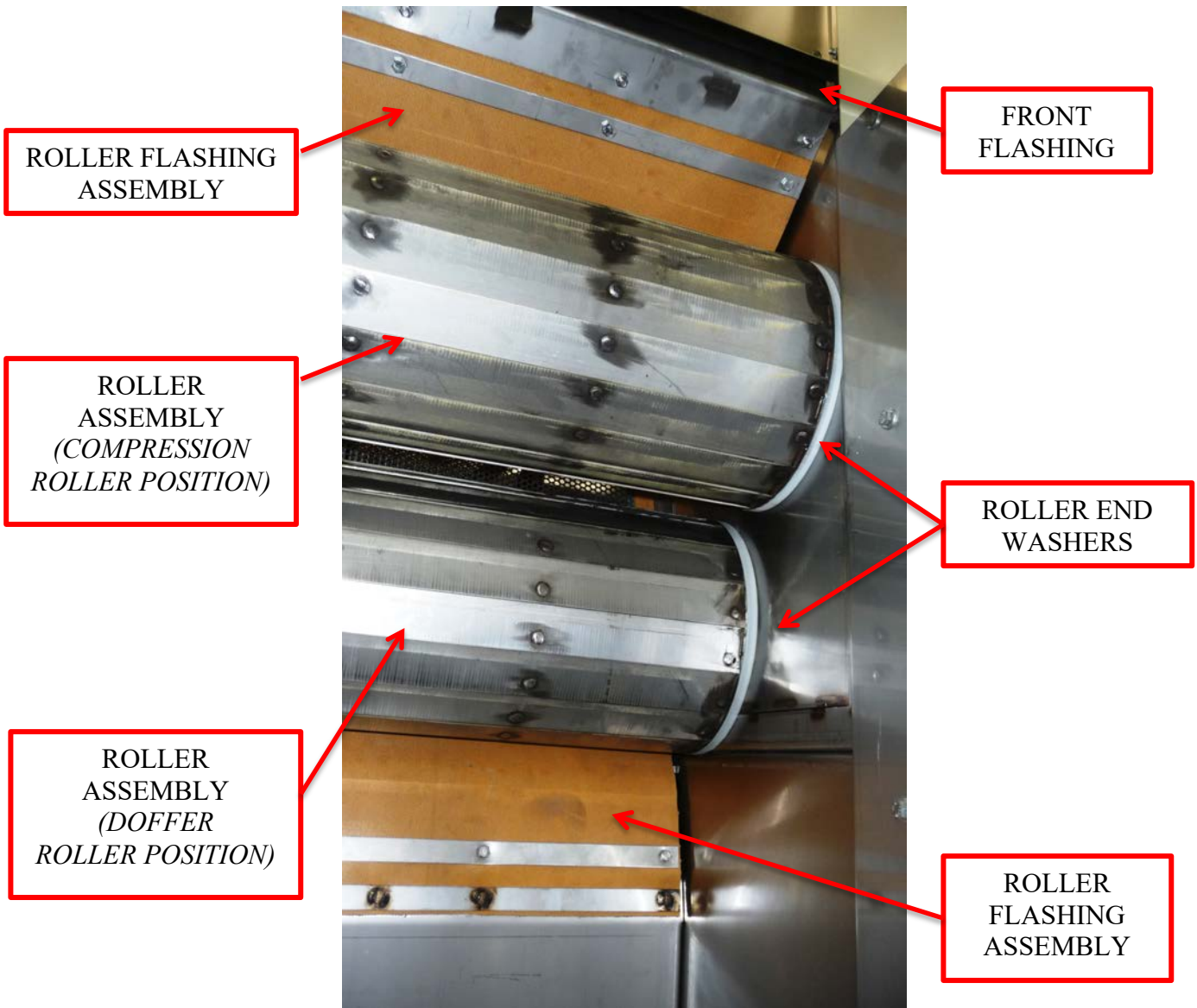
83900 Control Cabinet

(Refer to Component List for part numbers and descriptions.)



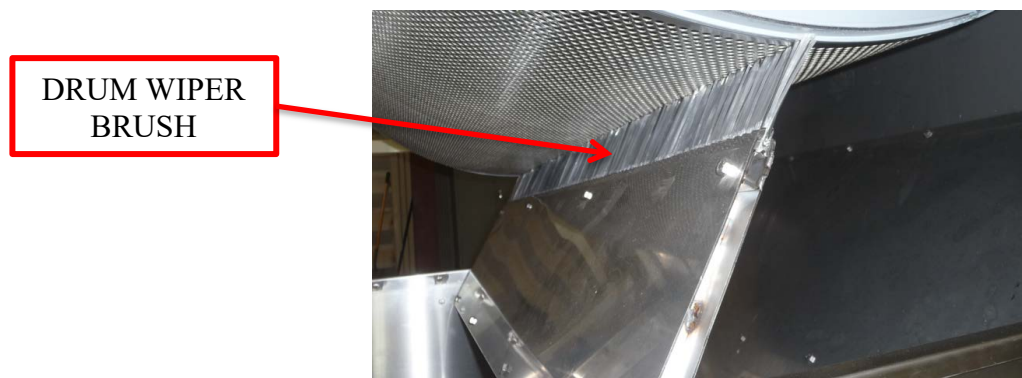
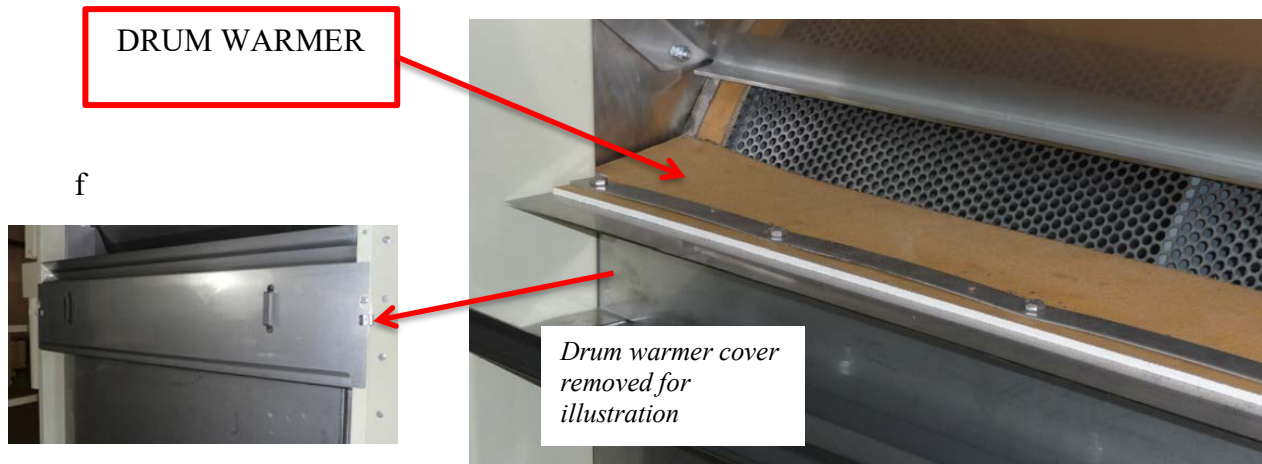
Compression and Doffer Rollers, Roller Flashings and End Washers

(Refer to Component List for part numbers and descriptions.)



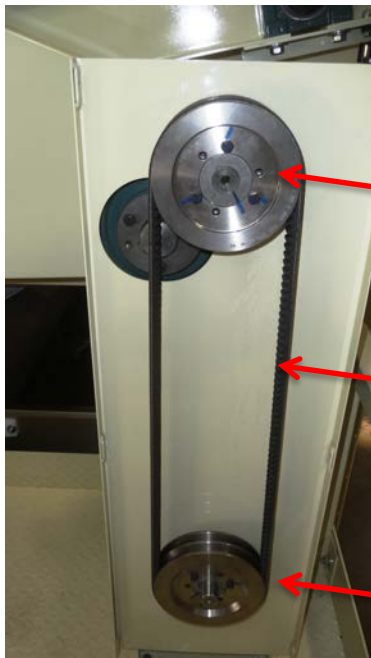
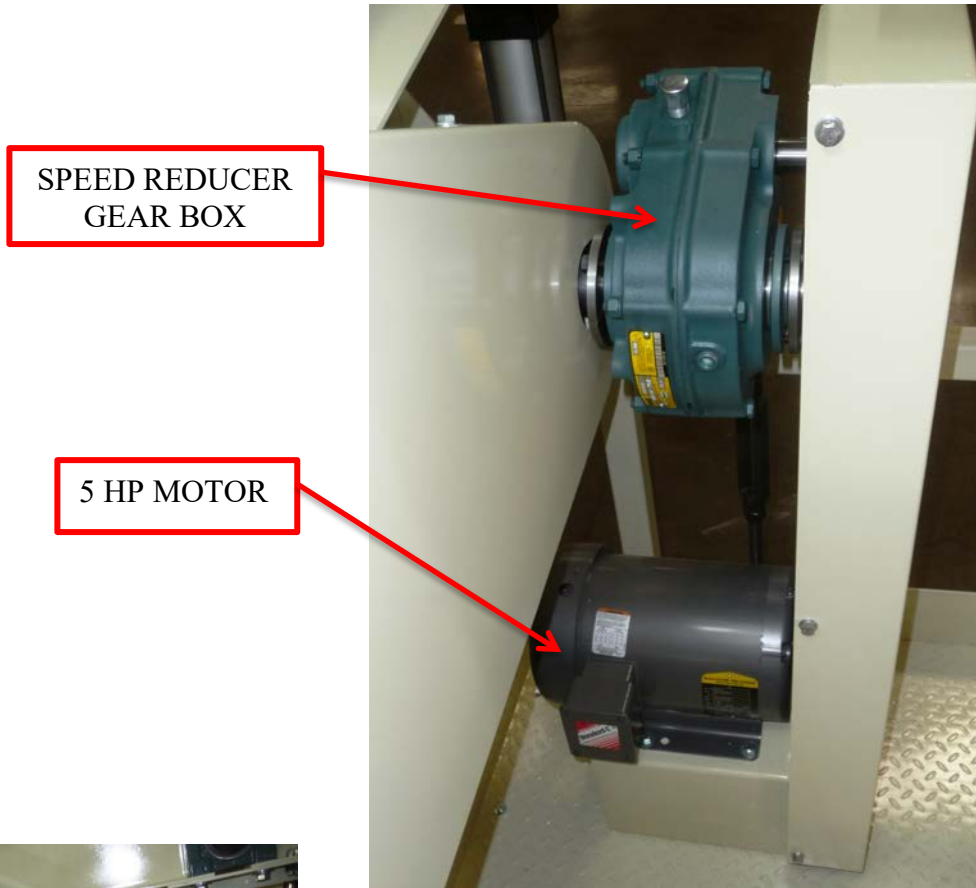
Drum Warmer and Inlet Rotor Flashings and Drum Wiper Brush

(Refer to Component List for part numbers and descriptions)



Drive Train

(Refer to Component List for part numbers and descriptions)



SPEED REDUCER SHEAVE, 2B 5.6

V-BELTS, BX 68

MOTOR SHEAVE, 2B 6.6

Drive guard removed for illustration – do not operate without guard in place.

Pneumatics

(Refer to Component List for part numbers and descriptions)

AIR PRESSURE GAGE

PRECISION AIR
REGULATOR

COMPRESSED
AIR FILTER

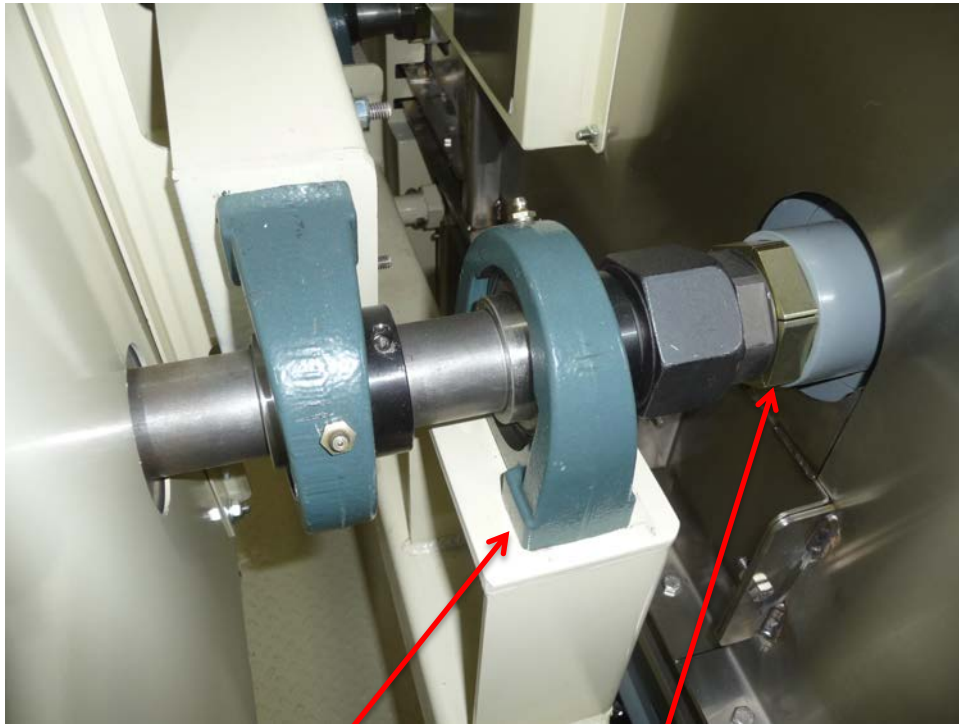


CYLINDER SAFETY
BLOCK WITH CLIP IN

AIR CYLINDER

Bearings and Keyless Bushings

(Refer to Component List for part numbers and descriptions)



BEARING
1 3/4 INCH BORE

KEYLESS BUSHING
1 3/4 INCH BORE

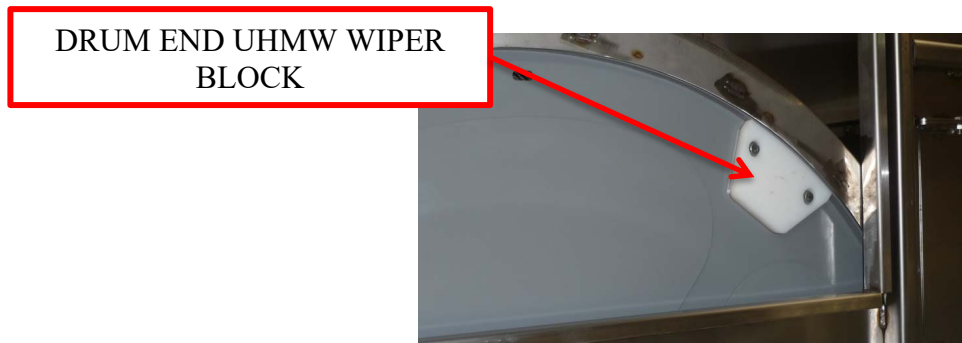
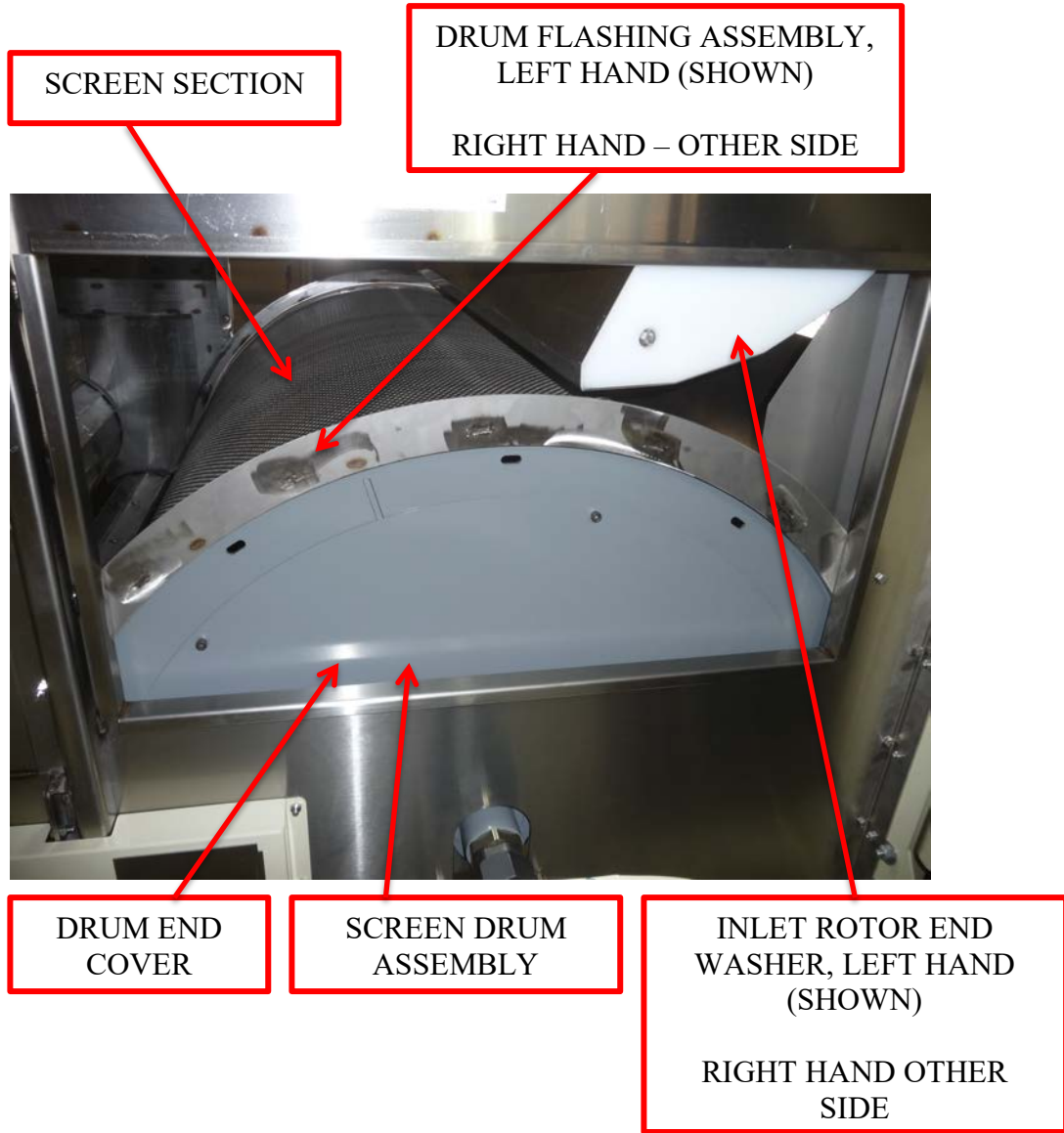
COMPRESSION ROLLER SHAFT

BEARING – 1 INCH BORE



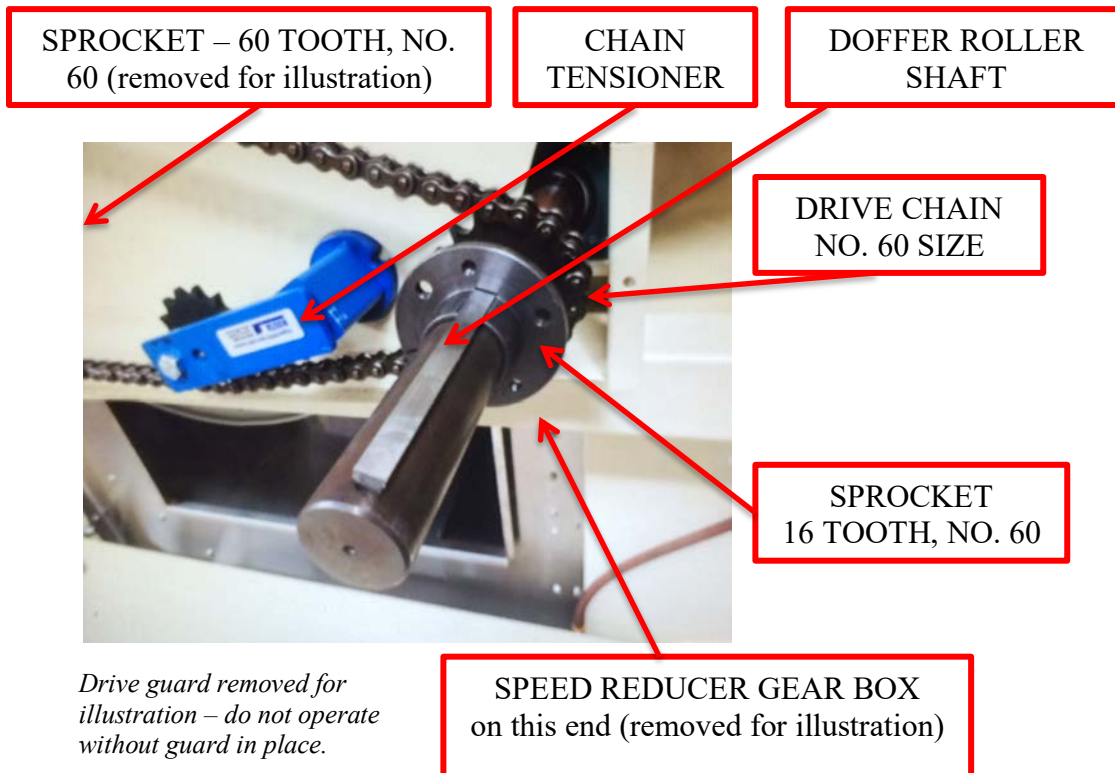
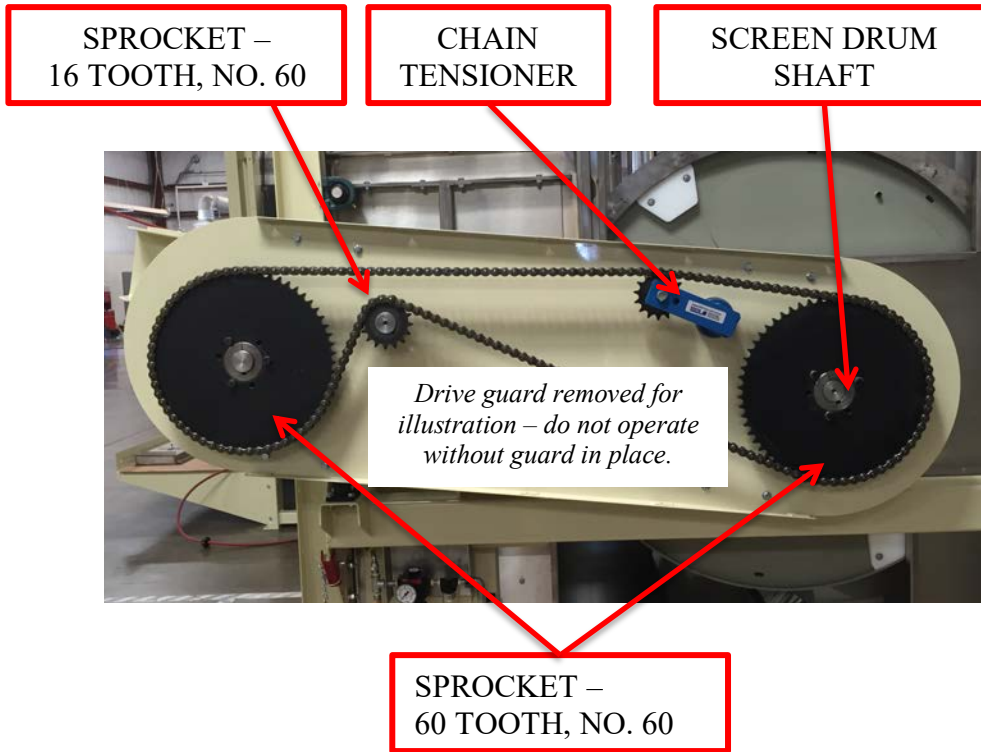
Screen Drum, Screens and Drum Flashings

(Refer to Component List for part numbers and descriptions)



Drives and Shafts

(Refer to Component List for part numbers and descriptions)



Access Doors and Inlet Rotor Air Skirt

(Refer to Component List for part numbers and descriptions)

ACCESS DOOR ASSEMBLY
WITH WINDOW



PLASTIC GLASS ACCESS PANEL



INLET ROTOR AIR
SKIRT

Steamroller 2 Component List

<u>PART NAME, NUMBER, MFR'S TYPE</u>	<u>LOCATION</u>
ACCESS DOOR ASSEMBLY WITH WINDOW 23030, SJI	BODY
AIR CYLINDER 20015A, 2 ½ BORE X 4 STROKE	BODY
AIR PRESSURE GAGE 19127, 0-60 PSI	AIR PANEL
BEARING – 1 INCH BORE 22440A, TB-SXR-100	VARIOUS
BEARING – 1 ¾ INCH BORE 25600B, TB-SXR-112	SHAFTS
BRAKING RESISTOR (FOR VFD) 20894, 250 OHM, 240 WATT	CONTROL CABINET
CHAIN TENSIONER 25276, ROSTA SE 27 TENSIONER	SHAFTS
COLOR TOUCH PANEL 22044A, EA7-T6CL-R-6IN	CONTROL CABINET DOOR
COMPRESSED AIR FILTER 13593A, F07-200-MITA	AIR PANEL
COMPRESSION ROLLER SHAFT 22499B, 1 3/4 INCH DIAMETER X 83 1/2, SJI	COMPRESSION ROLLER
CYLINDER SAFETY BLOCK WITH CLIP PIN 20078, SJI	BODY
DOFFER ROLLER SHAFT 22500A, 1 3/4 INCH DIAMETER X 87 LENGTH, SJI	DOFFER ROLLER
DRIVE CHAIN 15683, NO. 60 RIVETED CHAIN	SHAFTS
DRUM END COVER 19724, SJI	SCREEN DRUM
DRUM END UHMW WIPER BLOCK 23258A, SJI	DRUM END
DRUM FLASHING ASSEMBLY, LEFT HAND 23038B, SJI	BODY
DRUM FLASHING ASSEMBLY, RIGHT HAND 23039B, SJI	BODY

<u>PART NAME, NUMBER, MFR'S TYPE</u>	<u>LOCATION</u>
DRUM WARMER FLASHING 22544B, 6 X 55 ½	BODY
DRUM WIPER BRUSH 23067, SJI	BODY
5 HP MOTOR 22445, M3615T, 184T FRAME	DRIVE TRAIN
FRONT FLASHING 22549B, 4 ½ X 55 1/2	BODY
INLET ROTOR END WASHER 22607B, LEFT HAND, SJI 23278, RIGHT HAND, SJI	BODY
INLET ROTOR OUTSIDE FLASHING 22615, 2 X 55 ½	BODY
INLET ROTOR AIR SKIRT 23218, 6 X 55 1/2	BODY
KEYLESS BUSHING, 1 ¾ INCH BORE 20690, 6202480	SCREEN DRUM & ROLLERS
LINE REACTOR 21155, 37G 00803	CONTROL CABINET
MOTOR CONTACTOR 21613, SC-E04G-24VDC	CONTROL CABINET
MOTOR SHEAVE 22697, 2B 6.6 SDS	DRIVE TRAIN
NETWORK SWITCH 23702A, IE-SW5-WAVE	CONTROL CABINET
PLASTIC GLASS ACCESS PANEL 23034, SJI	ACCESS DOOR
PLC (PROGRAMMABLE LOGIC CONTROL) COMPRISED OF: PLC BASE, 21563, D0-06DR-D-DL06 BATTERY, 19857, D2-BAT-1 ANALOG IN/OUT CARD, 21566, F0-4AD2DA-1 ECOM CARD, 21567A, H0-ECOM100	CONTROL CABINET
POWER SUPPLY 21570, 3 PHASE VAC TO 24VDC	CONTROL CABINET
PRECISION AIR REGULATOR 20240, P16-02-H00	AIR PANEL

<u>PART NAME, NUMBER, MFR'S TYPE</u>	<u>LOCATION</u>
ROLLER ASSEMBLY – COMPRESSION ROLLER POSITION 23022, SJI	BODY
ROLLER ASSEMBLY – DOFFER ROLLER POSITION 23022, SJI	BODY
ROLLER END WASHERS 23640, ½ INCH DELRIN	BODY
ROLLER FLASHING ASSEMBLY 23023B, SJI	BODY
SCREEN DRUM ASSEMBLY 19755A, SJI	SCREEN DRUM
SCREEN DRUM SHAFT 22498C, 1 3/4 INCH DIAMETER X 86 LENGTH, SJI	SCREEN DRUM
SCREEN SECTION 20684, SJI	SCREEN DRUM
SIGNAL CONVERTER 23550, IAMS0001	CONTROL CABINET
SIGNAL ISOLATOR, 2 CHANNEL FOR 4-20mA 21218, 8463580000, LOOP POWERED	CONTROL CABINET
SPEED REDUCER GEAR BOX 22441, TXT215T, 14.10 RATIO	DRIVE TRAIN
SPEED REDUCER SHEAVE 22699, 2B 5.6 SDS	DRIVE TRAIN
SPROCKET – 60 TOOTH, NO. 60 15678, 60 SF 60	BODY
SPROCKET – 16 TOOTH, NO. 60 15672, 60BS16H	BODY
VARIABLE FREQUENCY DRIVE (VFD) 20822, M1551BJ (460VAC, 50/60 HZ) 20904, M1450BJ (380-415VAC, 50/60 HZ)	CONTROL CABINET
V-BELTS 22700, BX 68	DRIVE TRAIN

Assembly & Installation

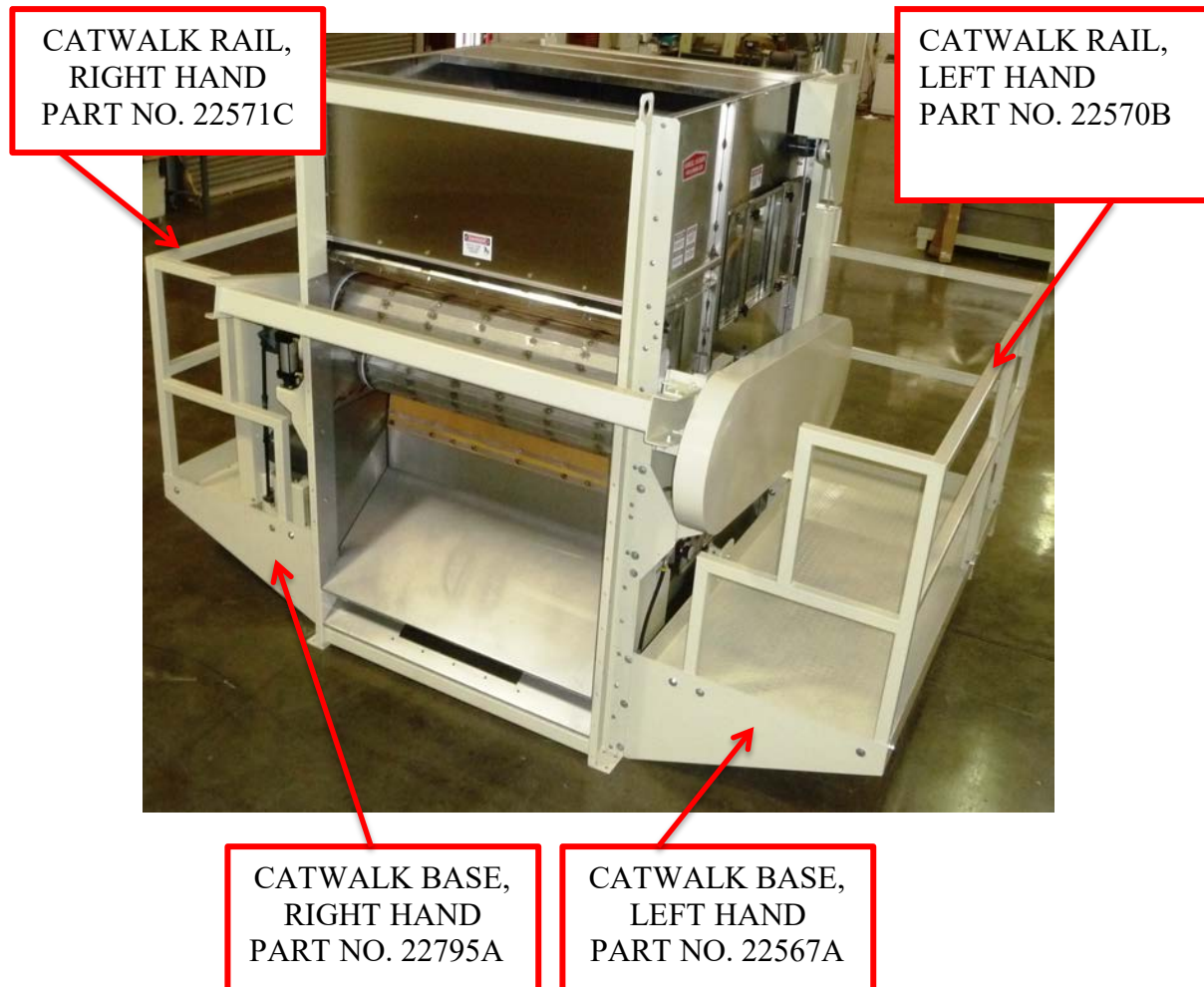
Please take extra precaution and follow all safety rules when gin modifications and equipment installations are occurring.

After taking delivery of the Steamroller System, please take a moment to familiarize yourself with the major parts of the system. The system should arrive with a comprehensive shipping list identifying all the boxes, skids, pallets, etc. The custom lower steel support structure, custom lint slide, sheet metal pipe, fittings and fans may be supplied with the order at the gin's request. The major parts are:

- 81710 STEAMROLLER 2 LINT CONDITIONER ASSEMBLY
- MOTOR, SPEED REDUCER, DRIVES AND MOTOR BASE WITH DRIVE GUARD
These items may be shipped pre-assembled on right hand side catwalk, or may be packed in a carton depending on method of shipping.
- LEFT, RIGHT AND REAR CATWALK BASES AND SAFETY RAILS.
The left and right catwalks and rails may be shipped assembled on machine depending on method of shipping.
- 83900 STEAMROLLER CONTROL CABINET
- FEED RAMP WARMER PAN
- * LINT SLIDE PIECES (if supplied)
- * LOWER STEEL SUPPORT STRUCTURE ASSEMBLY (if supplied)
- * 12 INCH HOT AIR PIPE, 12 INCH MOIST AIR PIPE, 16 INCH EXHAUST PIPE (if supplied)
- * NO. 30 CENTRIFUGAL FAN, 10 HP MOTOR, FOR MOIST AIR (if supplied)
- * NO. 30 CENTRIFUGAL FAN, 15 HP MOTOR, FOR AIR (if supplied)
- *** These required items are only supplied if ordered, otherwise they must be supplied by others.**

Assembly of Catwalks and Motor Base

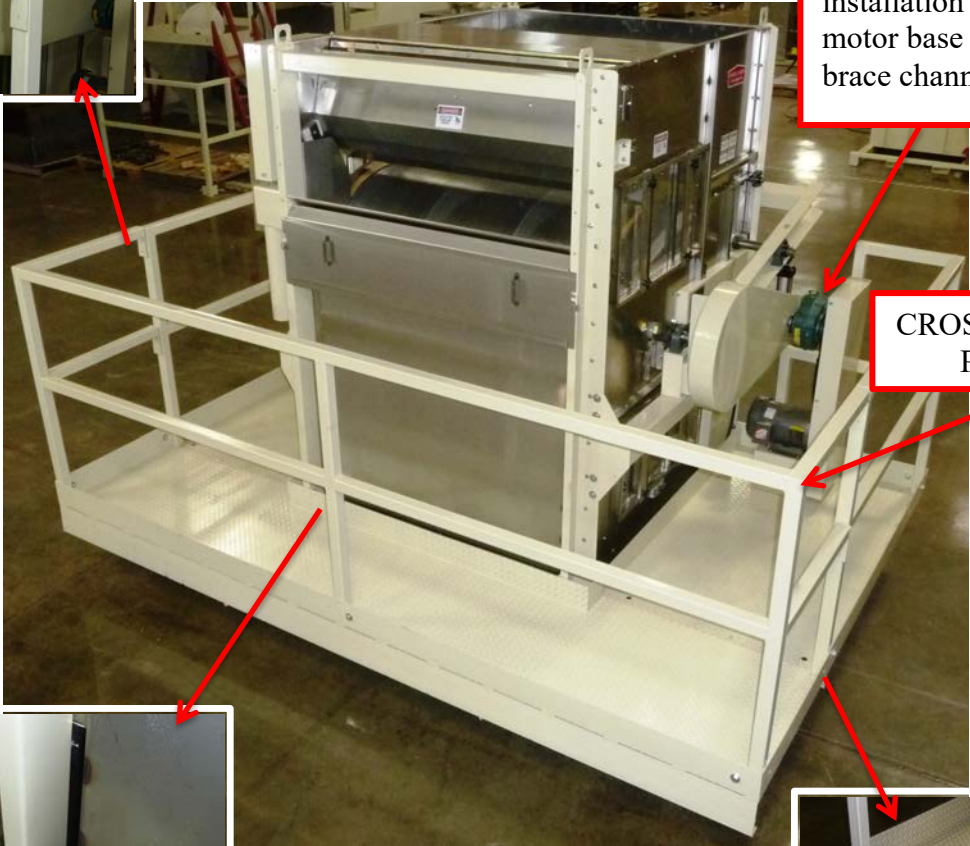
Refer to following pictures for assembly of catwalk bases and catwalk rails. The left and right side catwalks and rails may come pre-assembled on the Steamroller depending on shipping method.



Align handrails then drill matching 3/8 inch holes through 2 X 2 rail tubing. Use 5/16 UNC X 3 bolts with washers and lock nuts.



See next page for installation of motor base and brace channels.



CROSS CATWALK RAIL, PART NO. 23293



Use 1/2 UNC X 1 1/4 bolts with washers and lock nuts here and for connecting rails to bases.

Use 3/8 UNC X 1 1/4 bolts with washers and lock nuts here.



DRIVE GUARD,
PART NO. 22729

SPEED REDUCER
TORQUE-ARM SCREW

See *DRIVE TRAIN*
components page for
drive pulley details.

MOTOR BASE,
PART NO. 22727



BRACE CHANNELS,
PART NO. 22724 go under
catwalk

Use 5/16 UNC X 1 bolts,
washers and lock nuts.

Installation of Steamroller, Lint Slide and Piping

Custom installation drawings are supplied by Samuel Jackson, Incorporated and/or the sheet metal supplier for installation of the Steamroller, lint slide, placement of the fans and Humidaire Unit.



The lower lint slide section should have the angle flange connecting the lint slide to the press pusher/charger cabinet lightly tack welded onto the slide walls. The tack welds are easily broken if minor adjustments need to be made to the overall length of the slide. Weld angle flange to side walls after completing assembly.

Match-up of Steamroller Catwalks to Battery Condenser Catwalks and Ladders

The gin is responsible for providing the match-up and connections between the battery condenser catwalks and the catwalks provided with the Steamroller. In some instances, the installers will need to make slight modifications to the Steamroller's Catwalk Rails. Battery condenser access ladders may also require relocation to facilitate the installation.

Compressed Air Supply

A source of compressed air is required to operate the air cylinders that support the Compression Roller. The required volume of compressed air is small. The required minimum pressure is 100 psi (6.8 bars). Use a 3/8" steel line to connect air to the pneumatic control panel located on the Steamroller's left side.

Electrical Connections

Refer to the *EXTERNAL ELECTRICAL CONNECTIONS* CA20695A for standard installations.



Locate the 83900 STEAMROLLER CONTROL CABINET on one of the lower legs of the lower structural steel support assembly. This will keep the 3 phase electrical leads between the CONTROL CABINET and the MOTOR/SPEED REDUCER under 50 feet to avoid potential Variable Frequency Drive (VFD) and motor problems.

Electrical Power Requirements

- **3 PHASE POWER.** (480VAC 60HZ, 415VAC 50HZ, 380VAC 50HZ normal voltages and frequencies). 30 amp breaker. Connect power to non-fusible disconnect supplied on side of 20225B Control Cabinet. Consult factory if different voltage is available (i.e. 230VAC 50/60HZ). If 230VAC is used, a different Variable Frequency Drive is required and a different Motor Contactor (MC) (Part No. 20279) is required. For 480VAC, part No. 20822 Variable Frequency Drive is used. For 380-415VAC, part No. 20904 Variable Frequency Drive is used.
- **24VDC POWER.** A *POWER SUPPLY* is supplied in the Control Cabinet to provide 24VDC power for the PLC and the Motor Contactor (MC). The 3 phase power supplies power to the *POWER SUPPLY*.

Steamroller Speed Control

A Variable Frequency Drive (VFD) is supplied with each Steamroller system to allow a fine offset match of the surface speed of the Steamroller's Screen Drum to the battery condenser screen drum. At system commissioning, this speed matching will be set.

In gins where the battery condenser's drum speed is adjustable (whether through a speed potentiometer or an automatic scheme based on number of gin stands operating), the Steamroller's VFD must be able to track this speed change. The battery condenser's variable frequency drive must provide a suitable output control signal based on output frequency for the Steamroller to follow. Terminals for the speed signal are shown on the *EXTERNAL ELECTRICAL CONNECTIONS* diagram CA20695A. Suitable types of speed reference signals are shown on this diagram.

Start/Stop Control of the Steamroller

The installing electrician is responsible for providing a “dry contact” to terminals 6 and 7 shown as “STEAMROLLER RUN” on the *EXTERNAL ELECTRICAL CONNECTIONS* diagram. Some gins prefer to have the Steamroller automatically start when the battery condenser starts. The “dry contact” may come from interposing a relay from the battery condenser run light or using a set of normally open auxiliary contacts on the battery condenser motor starter. The Steamroller should start a few seconds before the condenser to be able to clear cotton that may come from the condenser at startup.

Run Indicator Signal

A “STEAMROLLER RUN STATUS” signal is provided for optional use to indicate that the Steamroller is running. The Steamroller’s PLC maintains a “dry contact” closure between terminals 33 and 34 while the VFD is reporting to the PLC that it is in run mode. Use of this signal is encouraged to minimize lint system chokes if the Steamroller stops due to a VFD fault.



Some gins treat the RUN INDICATOR signal the same as the low air pressure switch signal on the lint flue riser. If the Steamroller stops running, all the gin stand breasts come out and cotton feed is stopped.

Moist Air Thermocouple

A moist air thermocouple (Part No. 16900C or 21708, blue threads, with 8 inch probe) is supplied with the Humidaire Unit. For Steamroller systems, locate this thermocouple in the 12 inch diameter moist air pipe just before the transition at the top of the Steamroller’s moist air plenum chamber.

The thermocouple connection wire can be run with other sensitive wires but not with power wires. Refer to the Humidaire Unit’s service manual for additional wiring information.

External Electrical Connections for Steamroller 2

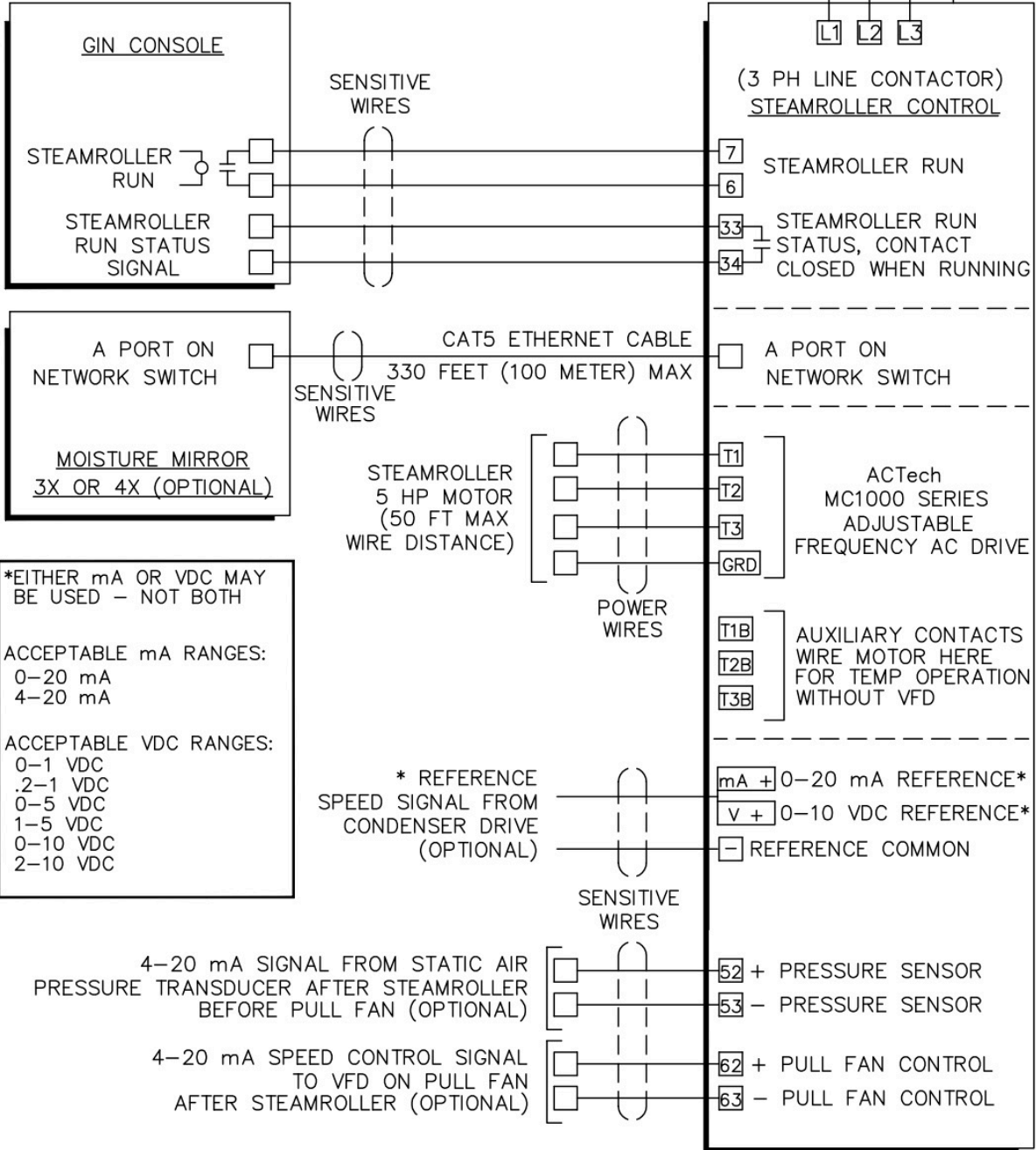
EXTERNAL ELECTRICAL CONNECTIONS FOR SAMUEL JACKSON STEAMROLLER 83900 CONTROL PANEL

CA20695A
7-11

NOTE: RUN POWER WIRES AND SENSITIVE WIRES IN SEPARATE CONDUITS.

SUGGESTED LOCATION FOR STEAMROLLER CONTROL CABINET IS ON LOWER STEAMROLLER SUPPORT LEG.

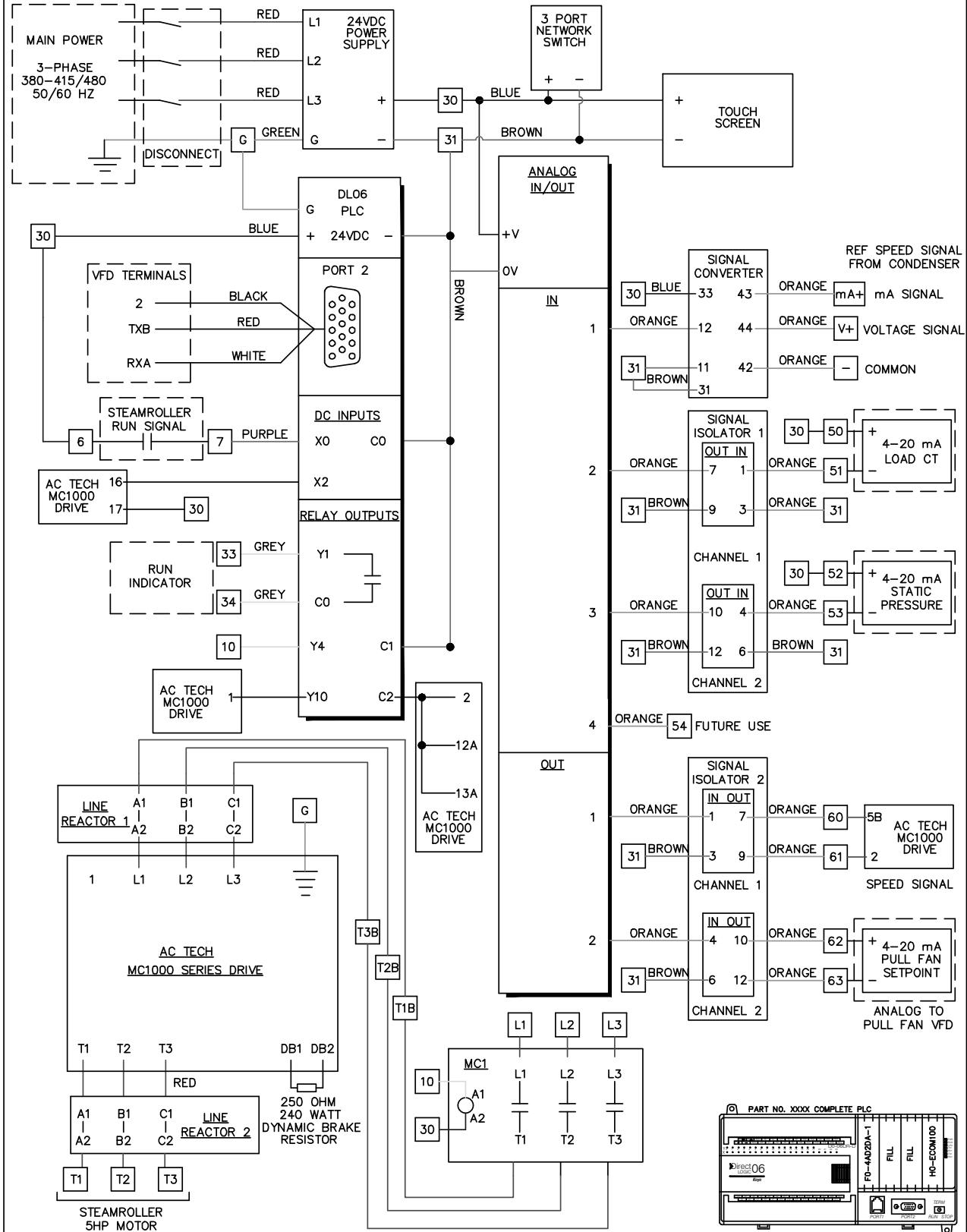
3-PHASE POWER DISCONNECT
380-415/480 VAC, 50/60 HZ, 30 AMP



Electrical Schematic for 83900 Control Panel

ELECTRICAL SCHEMATIC FOR STEAMROLLER 83900 CONTROL PANEL

CA20690F
4-18



Warranty and Safety Notices

LIMITED WARRANTY

SAMUEL JACKSON, INCORPORATED

For Commercial and Industrial Customers of Samuel Jackson Moisture Control Products

SAMUEL JACKSON, INCORPORATED ("Sam Jackson") warrants to its customers who purchase Sam Jackson products that its equipment is free from defects in material and workmanship under normal use and service for 12 months from the date of shipment from its Lubbock, Texas factory.

THIS WARRANTY DOES NOT EXTEND TO EQUIPMENT SUBJECTED TO MISUSE, NEGLIGENCE OR ACCIDENT. NOR DOES THIS WARRANTY APPLY UNLESS THE PRODUCT COVERED BY IT IS PROPERLY INSTALLED BY A QUALIFIED, COMPETENT TECHNICIAN, WHO IS LICENSED WHERE STATE AND LOCAL CODES REQUIRE, AND WHO IS EXPERIENCED IN MAKING SUCH INSTALLATIONS.

Equipment, which is defective in material or workmanship and within the warranty period, will be repaired or replaced, at Sam Jackson's option, in order to facilitate proper operation.

THIS WARRANTY IS LIMITED TO THE PRECISE TERMS SET FORTH ABOVE, AND PROVIDES EXCLUSIVE REMEDIES EXPRESSLY IN LIEU OF ALL OTHER REMEDIES, AND IN PARTICULAR THERE SHALL BE EXCLUDED THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT WILL SAM JACKSON BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGE OF ANY NATURE.

Sam Jackson neither assumes nor authorizes any person to assume for Sam Jackson any other liability or obligation in connection with the sale of this equipment, Sam Jackson's liability and Customer's exclusive remedy being limited to repair or replacement as set forth above.

SAMUEL JACKSON, INCORPORATED
3900 Upland Avenue Lubbock, Texas 79407

IMPORTANT!

The following notice affects your warranty.

Electrical Controls and Your Safety

Your new Sam Jackson product may be equipped with electrical controls, or designed to interact with controls on a related Sam Jackson product.

In the event that local, state, federal or other specified safety compliance is required, we will consider modifications to meet the particular requirements. Implementation of alternative safety devices may incur additional charges. No warranty of compliance with a particular standard is made in the absence of specific reference to it in our quotation.

If you modify, or permit others to modify, these controls without specific written permission from Sam Jackson, Inc. the warranty on your product will be void and there is a possibility of serious damage to machinery, damage to product, serious injury to personnel, or death. The modifier of the controls assumes all liability for these consequences.

Samuel Jackson, Incorporated
3900 Upland Avenue
Lubbock, Texas 79407
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