
MiTek[®]

SERVICE BULLETIN

Document ID:
SB259

Title:
Skewed Conveyor Automated Startup Conversion

Affected machinery: BLADE wood processing system

Distribution: Customers upon order

Applies to: All BLADE saws that utilize a skewed conveyor

CAUTION:

MiTek recommends printing this document in high resolution using color ink. Many of the graphics may be unclear and may create an unsafe condition if this recommendation is not followed.

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Purpose and Scope

This service bulletin instructs how to modify the skewed conveyor used with the BLADE wood processing system so that it will automatically turn on when any cutting is taking place.

This service bulletin also instructs how to install a new, taller end stop at the end of the skewed conveyor.

Both of these updates will help ensure that all cut boards are safely ejected from the skewed conveyor.

Overview

Parts Included

The parts included in this kit are shown in Table 1. Please make sure all parts and supplies are present before starting the procedure.

Table 1: Parts in SB259KIT

Quantity	Description	Part #
1	Timer	514115
1	Relay	519744
2	90-degree cable connector (1/2")	511502
2	Locknut (1/2")	511192
1	Auxiliary contact for ABB motor starter	509818
1	Auxiliary contact for GE motor starter	509709
20 ft	Cable 18g	508400
4 ft	White wire 16g	508006-09
4 ft	Blue wire 16g	508006-06
1/4 ft	Din Rail	146122
2	10-32-1/2" screws	341104
2	#10 lock washers	364026
2	#10 flat washers	365109
2	Terminal end stops	518192
1	Updated Skewed Conveyor End Stop	76096-501
1	Service bulletin document	SB259

If you have any questions, call MiTek Automation Support at 1-800-523-3380.



Supplies Needed

- Wire stripper
- Phillips screwdriver
- Flat-blade screwdriver
- Hole saw (7/8") or conduit knockout punch (1/2") to create hole in electrical enclosures

Procedure

Electrical Lockout/Tagout Procedure

 WARNING	
	<p>ELECTROCUTION HAZARD.</p> <p>All electrical work must be performed by a qualified electrician.</p> <p>Verify that all power to the machine has been turned off and follow approved lockout/tagout safety procedures before performing any maintenance.</p> <p>If it is absolutely necessary to troubleshoot an energized machine, follow NFPA 70E for proper procedures and personal protective equipment.</p>

1. Engage an E-stop on the machine.
2. Turn the machine's disconnect switch to the Off position. This is usually required to open the main electrical enclosure's door.
3. Shut the power to the machine off at the machine's power source, which is usually an electrical service entry panel on the facility wall. One example of a locked-out power source panel is shown in Figure 1.
4. Attach a lock and tag that meet OSHA requirements for lockout/tagout to the electrical service entry panel.

Figure 1: Lockout/Tagout on the Power Source Panel



Pneumatic or Hydraulic System Lockout/Tagout Procedure

	 WARNING
	<p>HIGH PRESSURE HAZARD.</p> <p>Bleed pneumatic lines before performing any maintenance on the system.</p> <p>Working on pressurized lines may cause injury.</p>

1. After lockout tagout of the electrical power, turn off or close the system's air shut-off valve and attach a lock and tag. See Figure 1.

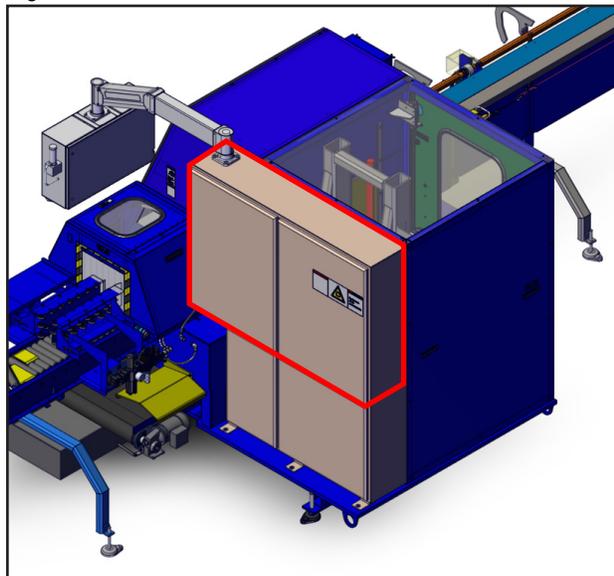
Converting the Skewed Conveyor for Automated Startup

	 WARNING
	<p>MOVING PARTS CAN CRUSH AND CUT.</p> <p>Always verify that power to the machine has been turned off and follow approved lockout/tagout procedures.</p>



1. Open the door to the top half of the BLADE main electrical enclosure. Use a multimeter to verify that the power is off.

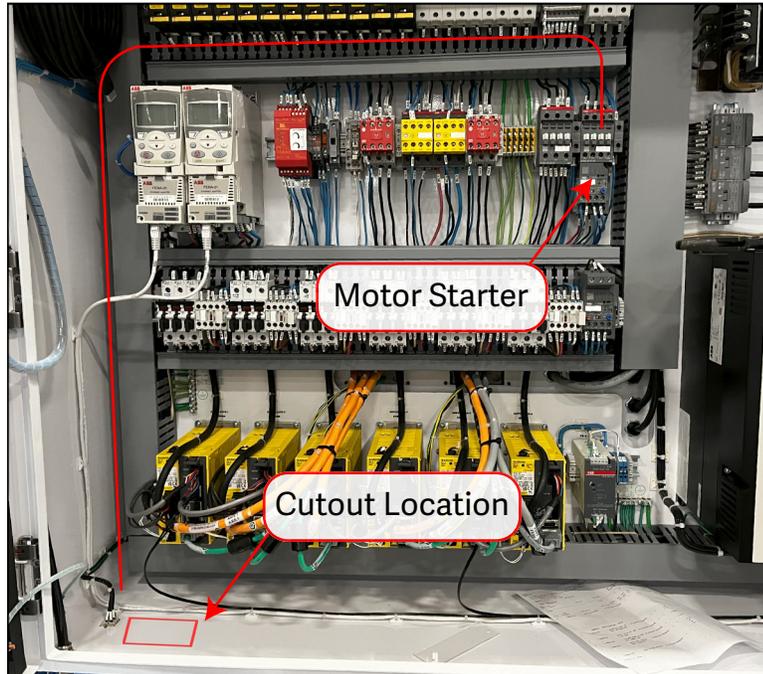
Figure 2: Main Electrical Enclosure Location



2. Making sure all wires inside the enclosure are clear, use the hole saw or conduit knockout punch to create a 1/2" hole for the supplied 20 foot cable in the approximate area of the enclosure called out in Figure 3.
 - Vacuum or remove all metal shavings that may be left behind in the enclosure after cutting is complete.

3. Fit one end of 20-ft cable through the 90-degree connector. Run the cable / connector through the recently cut hole, making sure you have enough loose cable to reach the motor starter (see Figure 3).

Figure 3: Main Electrical Enclosure Cutout Area and Cable Routing



4. Secure the cable connector from inside the enclosure with the 1/2" locknut. It should resemble the existing cable / connector shown in Figure 4.

Figure 4: 90-Degree Connector with Cable Example

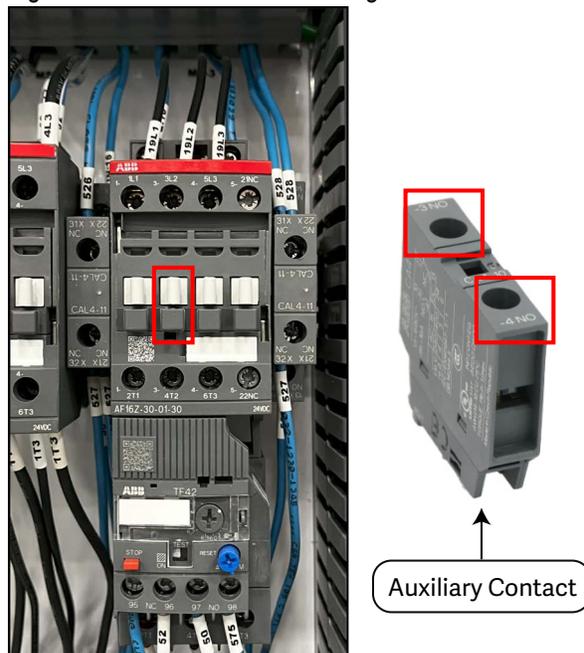


5. Depending on the build date of your machine, one of three motor starter configurations will be present:
 - a) For the **ABB configuration**, install the supplied auxiliary contact for ABB motor starter at the location shown in Figure 5 and gently pull it to ensure the connection is secure.

Then, from the 20-ft cable, connect the blue wire to 3 (top) and brown

wire to 4 (bottom) on the auxiliary contact. Bundle the extra wires together. Do not cut them.

Figure 5: ABB Motor Starter Configuration



- b) For the **GE-1 configuration**, an auxiliary contact is not required. From the 20-ft cable, connect the blue wire to terminal 43 (top) and brown wire to 44 (bottom) on the motor starter. Bundle the extra wires together. Do not cut them.

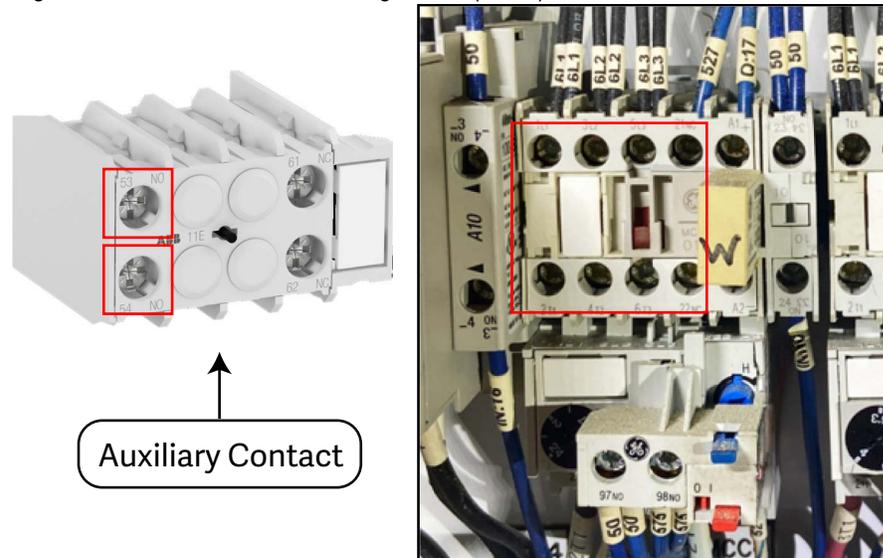
Figure 6: GE-1 Motor Starter Configuration (Newer)



- c) For the **GE-2 configuration**, install the auxiliary contact for GE motor starter at the location shown in Figure 7 and gently pull it to ensure the connection is secure.

Then, from the 20-ft cable, connect the blue wire to terminal 53 (top) and brown wire to 54 (bottom) on the motor starter.

Figure 7: GE-2 Motor Starter Configuration (Older)



6. Run the free end of the 20-ft cable from the BLADE main electrical enclosure to the skewed conveyor electrical enclosure using the routing shown in Figure 8.

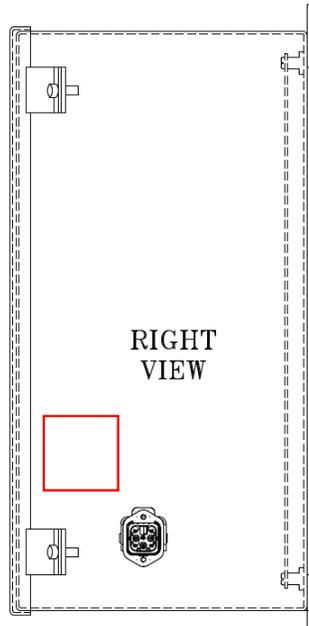
Figure 8: New Cable Routing



7. Open the door to the skewed conveyor electrical enclosure.

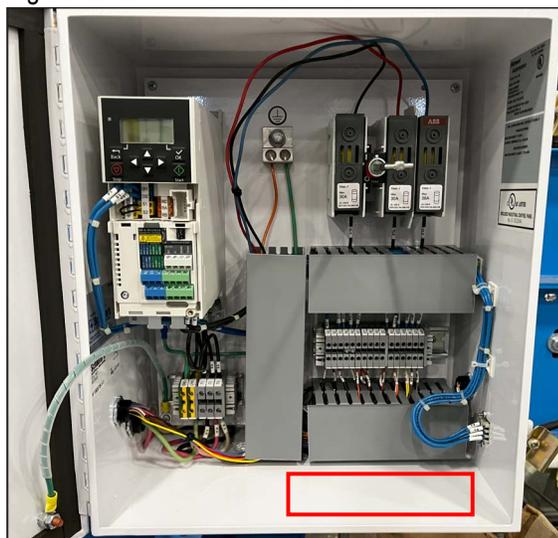
8. Making sure all wires inside the enclosure are clear, use the hole saw or conduit knockout punch to create a 1/2" hole in the skewed conveyor electrical enclosure in the approximate area called out in Figure 9.
 - Vacuum or remove all metal shavings that may be left behind in the enclosure after cutting is complete.

Figure 9: Skewed Conveyor Electrical Enclosure Cutout Area



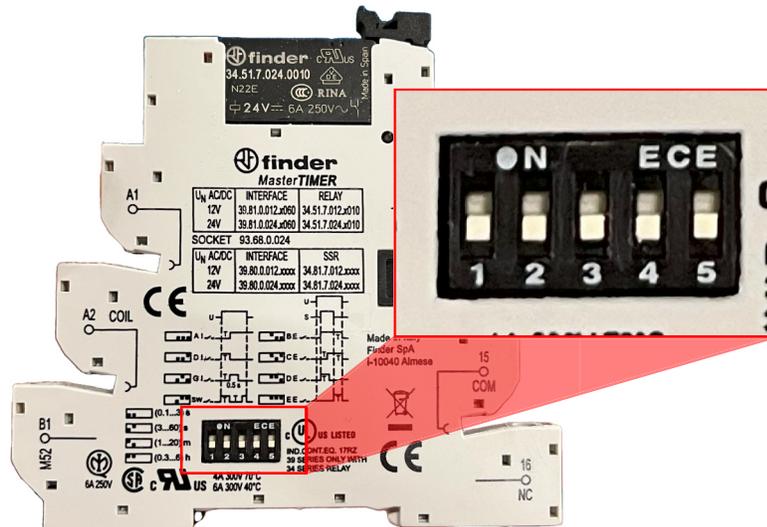
9. Fit the free end of 20-ft cable through the 90-degree connector. Run the cable / connector through the recently cut hole and secure it from inside the enclosure with the 1/2" locknut. It should resemble the cable / connector shown in Figure 4.
10. Install the supplied din rail on the bottom of the enclosure using the supplied screws and washers in the approximate area shown in Figure 10.

Figure 10: Din Rail Installation Area



11. Before connecting wires to the Timer, make sure that all DIP switches are configured in the down position as shown in Figure 11.

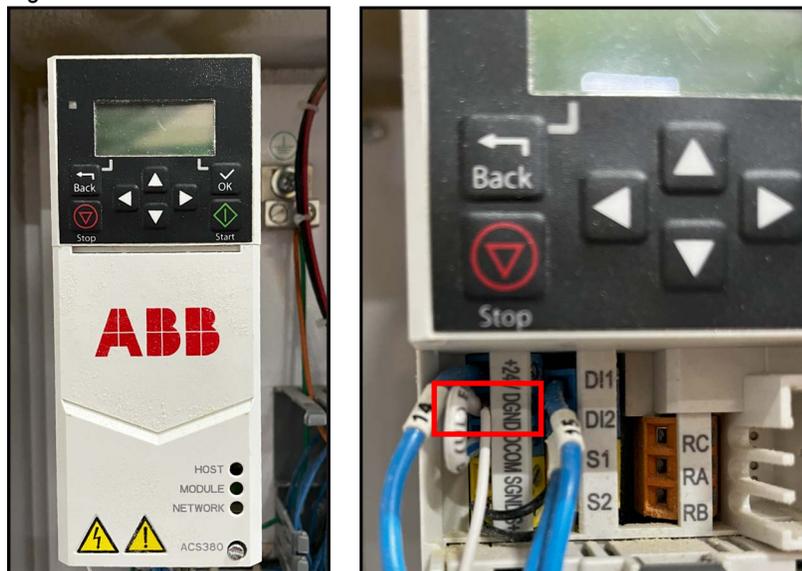
Figure 11: Timer DIP Switches in Down Position



12. Depending on the build date of your machine, one of two VFD configurations will be present. When running wires to the Relay and Timer, as instructed below, make sure to use enough length so they can be mounted to the bottom of the enclosure in a later step:

- **ABB VFD (newer):**
Remove front cover from the front of the VFD, and run the supplied white wire from DGND terminal on the VFD (Figure 12) to A2 on the Relay (Figure 14).
- Run supplied white wire from A2 on Relay to A2 on Timer (there should now be 2 white wires in A2 on the Relay)

Figure 12: DGND Terminal Location on ABB VFD



- **AB VFD (older):**
Run the supplied white wire from terminal 04 on the VFD (Figure 13) to A2 on the Relay (Figure 14).
- Run supplied white wire from A2 on Relay to A2 on Timer (there should now be 2 white wires in A2 on the Relay)

Figure 13: Terminal Location on AB VFD

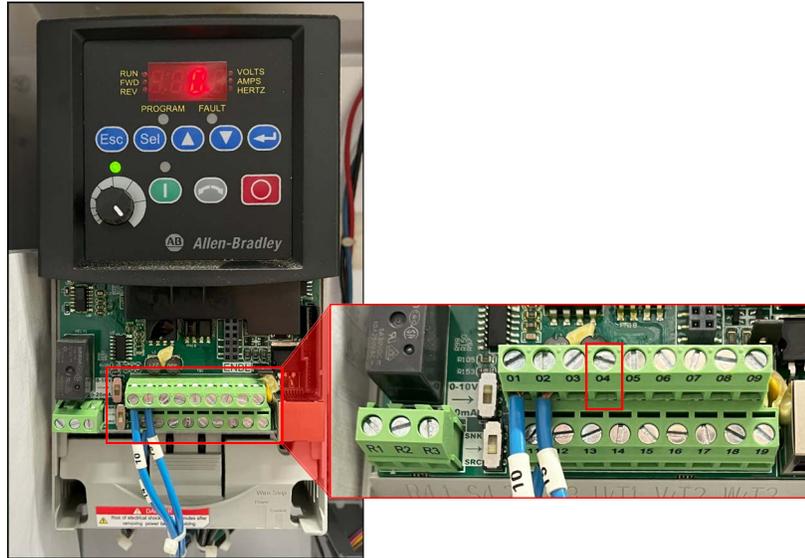
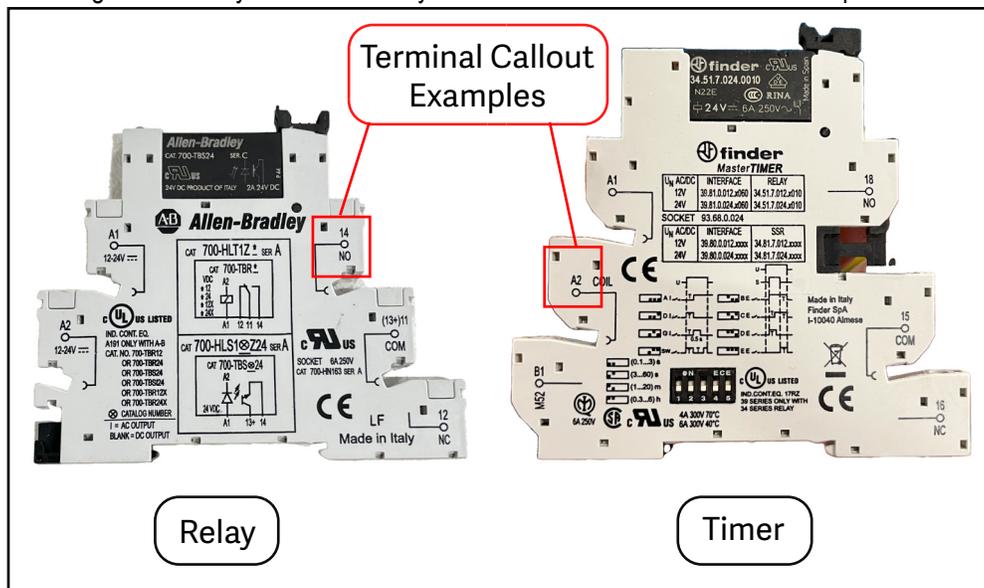


Figure 14: Relay Timer and Relay Terminal Block Terminal Callout Examples



13. Remove the brown wire from terminal block 10 bottom (see Figure 15) and connect it to A1 on Relay.

And run supplied blue wire from A1 on Relay to A1 on Timer

- There should now be 2 wires in A1 on Relay

Figure 15: Terminal Block in Skewed Conveyor Enclosure



14. From the 20-ft cable, connect the brown wire to the terminal block 14 bottom.

And run the supplied blue wire from 11 (COM) on Relay to terminal block 14 bottom.
 - There should now be 2 wires in terminal block 14 bottom
15. From the 20-ft cable, connect the blue wire to 15 (COM) on Timer.
16. Remove terminal block orange 15 bottom and connect to 15 (COM) on Timer.
17. Run supplied blue wire from 18 on Timer to 15 bottom on the terminal block.
18. Run supplied blue wire from 14 (NO) on Relay to terminal block 10 bottom.
19. Gently pull on all newly installed wires to test for a secure connection.
20. Attach the Relay and Timer to the new din rail and install the supplied end stops at each end of the rail.
21. Remove lockout/tagout devices and return power to the BLADE saw and the skewed conveyor.

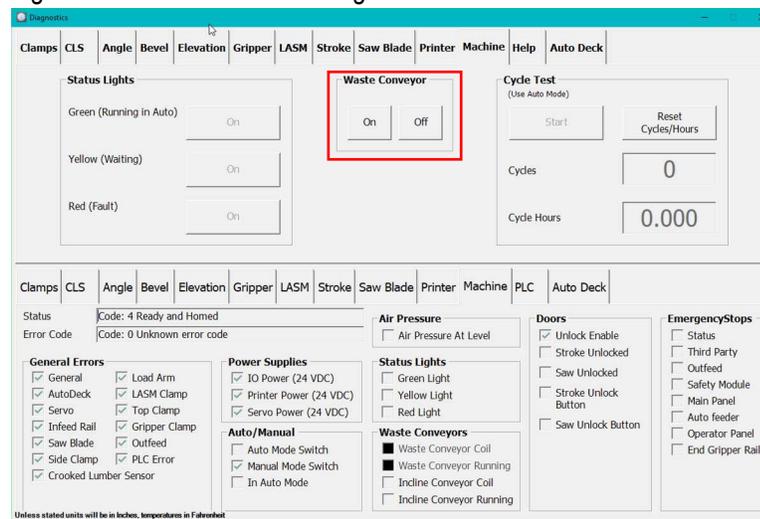
22. Carry out the following test to ensure the skewed conveyor has been successfully updated:
- Switch the skewed conveyor physical switch to the **START** position (the conveyor should start) and then switch it to the **STOP** position (the conveyor should stop). See Figure 16.

Figure 16: Skewed Conveyor Physical Controls



- On the machine operator interface, launch the BLADE software and go to **Diagnostics > Detailed Diagnostics > Machine** and select **On** to turn on the waste conveyor (see Figure 17). Both the waste conveyor and the skewed conveyor should start running.

Figure 17: Machine Detailed Diagnostics Screen



- Select **Off** and the waste conveyor should stop running while the skewed conveyor continues running.

- d) Move the skewed conveyor physical switch to the **STOP** position to stop the skewed conveyor.
- e) In the BLADE software, select **On** and (with both conveyors running) switch the skewed conveyor physical switch to the **STOP** position. The skewed conveyor should pause while the switch is in the stop position.
- f) With both conveyors running, select **On** in software and press the E-stop located on the skewed conveyor. Both conveyors should stop. Release the E-stop to resume normal operation.
- g) Repeat Step f with a different hardware E-stop.

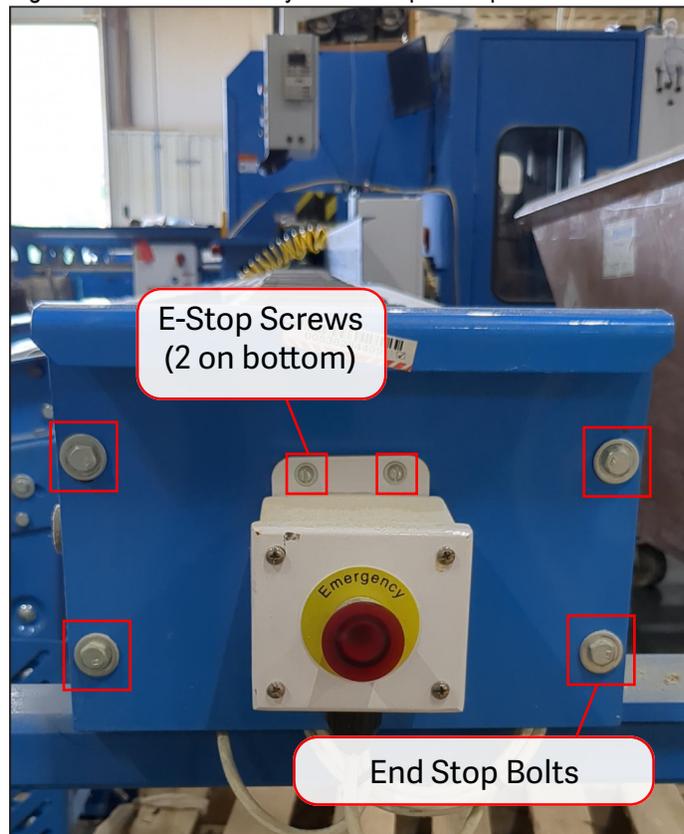
Installing the Updated Skewed Conveyor End Stop

As part of this upgrade process, we ask that you also install an updated skewed conveyor end stop. The new end stop is taller than the previous version and will help ensure all material is safely ejected from the skewed conveyor.



1. Lockout/tagout the machine.
2. Remove the 4 screws that secure the E-stop to the end of the skewed conveyor. Set aside screws for a later step. Do not disconnect the E-stop.

Figure 18: Skewed Conveyor End Stop Example



3. Remove the 4 bolts and locknuts that secure the existing end stop and remove the end stop. Set aside bolts and locknuts for a later step.

4. Use the existing bolts and locknuts to attach the updated end stop. Gently pull on the top of the end stop to test the security of the connection. Further tighten locknuts if necessary.
5. Reattach the E-stop using the screws removed in an earlier step. Make sure the E-stop cable connection is secure.
6. Discard the old end stop.
7. Return power to the machine and test the skewed conveyor E-stop functionality.

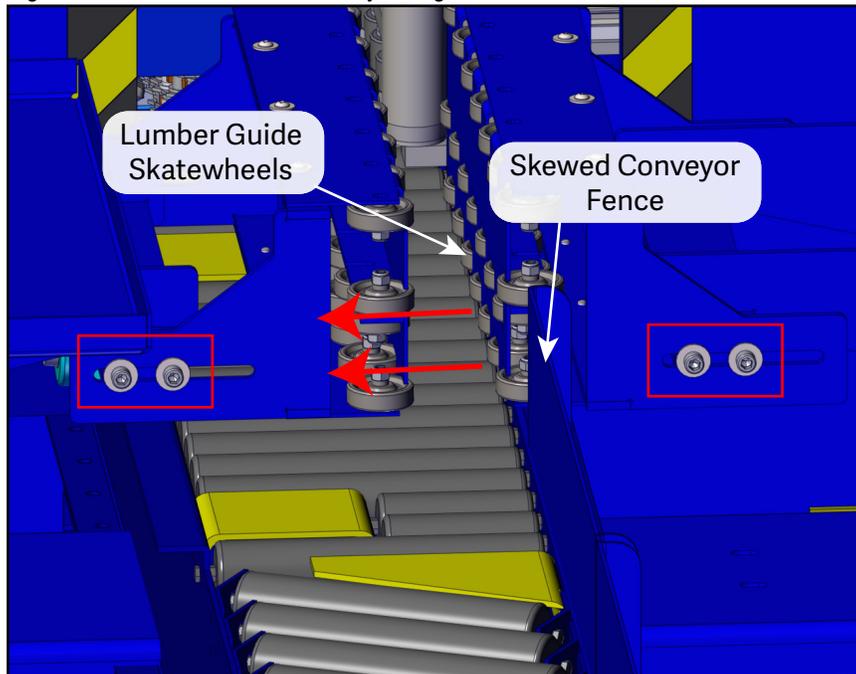
Checking the Skewed Conveyor Alignment

As part of this upgrade process, we also recommend checking the alignment of the lumber guide and skewed conveyor fence.

The skate-wheels on the Lumber Guide Assembly should be positioned slightly ahead of the fence on the skewed conveyor.

If the Lumber Guide skate-wheels are behind or too close to the fence, boards may not be consistently picked up by the skewed conveyor rollers. You can adjust the positioning of the skate-wheels by loosening the bolts on either side of the Lumber Guide.

Figure 19: Correct Skewed Conveyor Alignment.



END OF SERVICE BULLETIN