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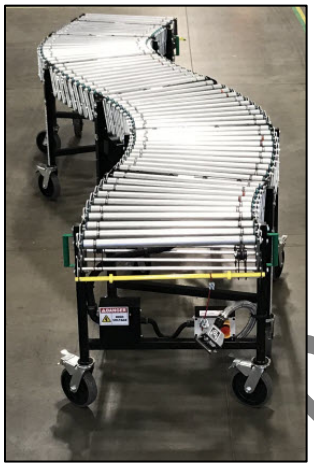
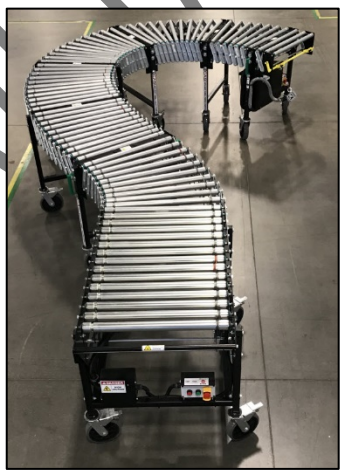
Agility Flexible Powered Conveyor Service Manual





Standard AFLEX Conveyor

AFLEX Conveyor with End Loading Module (ELM)

Contacts

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Revision Log

Date	Revised By	Rev Level	Sections Revised
1/17/2020	Linda Halverson	1	Original document preliminary first draft for review
10/6/2020	Dave Mauney	A	Modified drive card programming procedure to 2020 only option

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1 Safety

For safe operation of the CASI (Cornerstone Automation, LLC) AFLEX conveyor, read and understand the entirety of this CASI AFLEX Operator Manual prior to operating the conveyor system.

Should the end-user (or one its designees) operate this conveyor in a manner for which it is not designed or change the conveyor system rate, process, physical dimensions/layout from original factory settings, such configuration could possibly lead to decreased reliability or possible injury, and may void factory warranty.

IMPORTANT NOTICE: Unplug pigtail from Halo module before servicing the AFLEX conveyors!

1.1 General Safety

- Do not leave the CASI AFLEX conveyor running unmonitored.
- Personnel operating the conveyor must be properly trained in its use, including the proper sequence of starting and stopping the conveyor and the correct loading and unloading methods.
- Use the handles on each side of the conveyor, at both ends, to move, expand and compact the AFLEX conveyor. While doing so, keep hands clear of the frame's sidebars to avoid pinch point injury.
- Keep hands, long hair, loose clothing and jewelry away from moving conveyor parts and rollers.
- Do not exceed recommended maximum conveyor load capacity.
- Before starting the conveyor, be sure no unwanted boxes, or other items are on the conveyor rollers.
- Do not operate the conveyor with damaged or broken parts.
- All operation and basic preventive maintenance should be performed by trained and competent individuals.
- To avoid risk of electric shock, do not operate the conveyor with a cover of an electrical box removed. Do not operate conveyor in a rainy and/or leaking environment.
- Only qualified and trained technicians and maintenance personnel should perform service and/or repair work on the conveyor.

1.2 Safety Precautions and Warnings

Table 1 – Safety Precautions, Warnings and Safety Labels

Be sure to observe all safety procedures and all other WARNINGS, CAUTIONS, and IMPORTANT NOTICES prior to operating, troubleshooting, or maintaining this conveyor.
Be sure to observe all safety warning labels and tags:    CASI 30359    CASI 23292 (4” x 2”)    CASI 46146 (3” x 1-1/2”)    CASI 45264

2 Emergency Stop (E-Stop) System

The **Emergency Stop (E-Stop) System** uses **Emergency Stop (E-Stop) Buttons** to activate the safety circuit. Pushing an E-Stop button causes conveyor components, including drive roller pully assemblies, drive cards, and photoelectric sensors (photoeyes) to halt.

When an emergency stop (E-Stop) button is pressed, all power is removed from the conveyor operational components, however, the light stays on. This is accomplished by de-energizing the safety relay. The safety relay in turn opens its contacts. The opening of these contacts removes power from the electrical boxes.

A **Designated Person** should check the emergency stop (E-Stop) buttons for proper operation, physical damage, button looseness, and excessive environmental contamination. This should take place on a periodic schedule determined by the user, based on the severity of the operating environment and the frequency of switch actuations. Adjust, repair, or replace components as needed. If inspection reveals contamination on the switch, thoroughly clean the switch and eliminate the cause of the contamination. Replace the switch and/or appropriate components when any parts or assemblies are damaged, broken, deformed, or badly worn; or if the electrical/mechanical specifications (for the environment and operating conditions) have been exceeded. **Always test the control system for proper functioning** under machine control conditions after performing maintenance, replacing the emergency stop device, or replacing any component of the device.

CASI recommends the end user conduct a risk assessment and risk reduction analysis (see ISO 12100 or ANSI B11.0) to determine the appropriate frequency for E-Stop system checks. In lieu of the assessment and analysis, test each component before start of each production day. Refer to the E-Stop System Check Procedure for the process to check the E-Stop system.

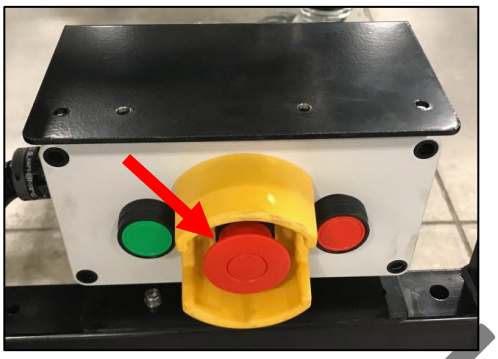


Figure 1 - Emergency Stop (E-Stop) Button

2.1 Emergency Stop Reset Procedure

For immediate conveyor shut down, push a red E-Stop button to completely turn off the conveyor. **This function should only be used in an actual emergency or when adding additional AFLEX conveyors to the system.** After resolving the issue that triggered the necessity of the E-Stop or completing the addition of an AFLEX conveyor to the system, follow these steps for mechanical operation to resume.:

1. Pull the **E-Stop** button out to release the E-stop.
2. Press the green **Start** button on the electrical control panel box.

2.2 E-Stop System Check Procedure

Follow these steps to check the Emergency Stop (E-Stop) system:

1. Press an E-Stop button.
2. Verify that **all** mechanical functionality stops on the conveyor.
3. Reset the E-Stop by pulling the red mushroom pushbutton out.
4. Press the green **Start** button on the electrical control box.

2.3 Restart Routine after an E-Stop

1. Resolve the issue that triggered the necessity of the E-Stop.
2. Reset the E-Stop device that was triggered.
3. Press the green **Start** button on the electrical control box.

2.4 Shutting Down the AFLEX Conveyor

1. Press the conveyor's red **STOP** button on the conveyor electrical control box to stop the conveyor (only one red E-Stop button on the AFLEX needs to be pressed).
2. Power down (turn ***OFF***) all associated equipment and/or turn ***OFF*** disconnects according to current plant procedures and practices.

3 Standard Product Specifications

Conveyor Lengths [First to last roller center distance]:

	Compressed	*Expanded*
With ELM zone	172.5”	317.5”
Without ELM zone	116”	235.5”

	Between Frame 1.5” Rollers	*Between Frame 1.9” Rollers*
Conveyor Bed width	29.25”	29.25”
Product height	36” (from ground)	36” (from ground)
Load capacity Per Linear Foot	100 lbs.	100 lbs.
Roller spacing	1.5” ≤ 4”	3” (fixed)
Roller:		
Diameter	1.5”	1.9”
Tube	16 Gauge	16 Gauge
Bearings	Precision	Precision
Speed	0-120 FPM	0-120 FPM
Maximum Transfer Rate	30 Boxes per minute	30 Boxes per minute
Product:		
Minimum box size	6” X 6”	6” X 6”
Maximum box size	24” X 48”	24” X 48”
Cartons to have flat rigid bottoms with weight evenly distributed within carton		
Caster:		
Diameter	8”	8”
Material	Zinc plated body, rubber tread, polyolefin wheel core	Zinc plated body, rubber tread, polyolefin wheel core
Swivel lock	Available	Available
Motion lock	Available	Available
O-rings:		
Diameter	.1875”	.1875”

Material	Polyurethane	Polyurethane

Special Features

Constant tension O-rings

Gapping capability (creates gaps between transported product)

Auto configure IP address (allows mixed configuration of multiple sections of AFLEX together)
On-board telemetry capability (motor temperature, motor faults, photo eye blocked)
Automatic sleep function
Two speed product gap reduction (Used mainly at the beginning of the loading process to utilize downstream space on the AFLEX and allow the loader room to quickly load more items)

Electrical Specification

Voltage	120 VAC
Maximum Current	9.87 Amps
Rating	UL 508A
Connectors	
Infeed end	Phoenix Female
Outfeed end	Phoenix Male
Bus	
Power	20 Amp AC
Data	Ethernet CAT 5e
Safety	Category 1

Environmental Specifications

Temperature	0° C to 40° C
Humidity	10% to 90% RH non-condensing
Rating	IP54
	Protected against dust and ingress
	Protected against water splashed for 5 minutes

Noise Levels

Rating at conveyor bed (approx.)	70 dB
Rating at conveyor bed (approx.)	60 dB

4 Application Guidelines

The CASI AFLEX is a patented intelligent flexible conveyor, with unique kinematics and built-in features that make this the gold standard for flexible conveyors. This conveyor is ideal for use and storage in areas where space is at a premium. The fully stretched length is twice the length of the fully compressed conveyor. The flexibility in length allows this conveyor to be deployed in applications where the distance between product loading and unloading point is not constant. The AFLEX conveyor also has the ability to curve around tight corners with an approximate turning radius of 30". The AFLEX conveyor is capable of conveying boxes varying in sizes, from 6" X 6" up to 24" X 48" with a load carrying capacity of 100 lbs/linear foot. The conveyor has the capability to achieve Zero Pressure Accumulation (ZPA) due to the built-in logic. Also due to the ethernet enabled inter-conveyor communication, the conveyors can auto address their IP addresses which allows the operator with flexibility to connect the conveyors in a random order. The conveyors are provided with latches that are capable of compensating for unevenness in the supporting floor. This ensures a smooth product transfer going from one conveyor section to the other. The AFLEX conveyors are best suited for applications in the warehousing industry in areas such as shipping, receiving and product sorting. However, the versatility of the AFLEX conveyor makes it ideal for applications in any industry where space is at a premium and a smooth and fast product transfer from one area to another is desired.

5 Mechanical Operation

Before attempting to operate the AFLEX conveyor, the operator must familiarize himself/herself with other equipment that constitutes the FAST system (Halo scanner and Tee sorter modules), in order to ensure safe and efficient operation of the system.

Step 1: Before attempting to connect the AFLEX conveyor to the FAST system, the Halo scanner and the Tee sorters must be connected mechanically and electrically as shown in Figure 2. The yellow light at the infeed end of the Halo flashes, as shown in **Figure 2**.

Step 2: Once connected, double click the SolidView software application icon on the touch screen all-in-one computer mounted on the side of the Halo scanner, as shown in **Figure 3**.

Step 3: Once the account login credentials have been entered, the startup screen displays, as shown in **Figure 4**.

Figure 2 - Halo Scanner Connected to Tee Sorter

Figure 3 - FAST SolidView Software Icon on Halo Scanner

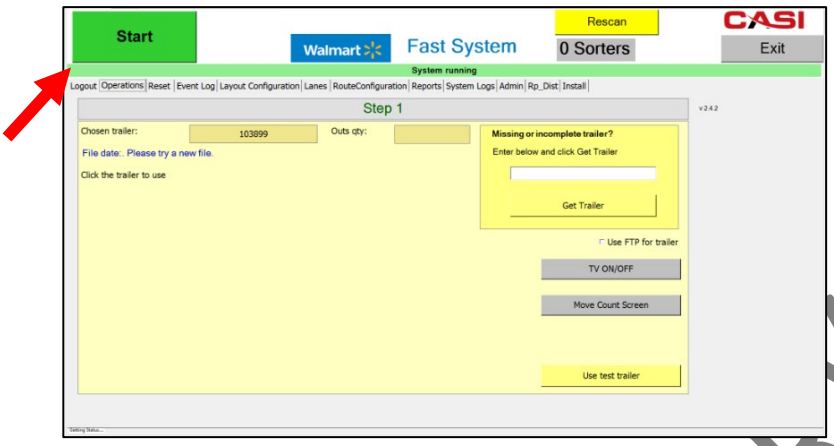


Figure 4 - SolidView Startup Screen

Step 4: Click the '**Start**' button on startup screen of SolidView. The Halo scanner sounds a voice message stating '***System Scanning'***. Wait for this step to complete – normally the Halo voice message will state '***Scan Complete'***. The light on the infeed end of the Halo scanner flashes yellow. Next, the Halo scanner sounds a voice message stating '***System Reconfiguring'***. Wait for this step to complete. The light on the infeed end of Halo scanner flashes yellow. Once reconfiguration is complete, the Halo scanner sounds a voice message stating '***Reconfiguration complete'***. The system will sound a voice message of '***System Ready'***. This entire configuration process can take 1-2 minutes depending on how many sortation modules are connected.

Step 5: Wheel the AFLEX with ELM conveyor into position in-line with the Halo scanner as seen in **Figure 5**.

Figure 5 - Move AFLEX Conveyor in Line with Halo Scanner

Step 6: Make mechanical and electrical connection at AFLEX conveyor and Halo scanner junction, as shown in **Figure 6**.

- Use latch to connect AFLEX conveyor to Halo scanner.
- Plug in the AFLEX conveyor pigtail with Phoenix Male connector to the Phoenix Female connector on the Halo scanner.

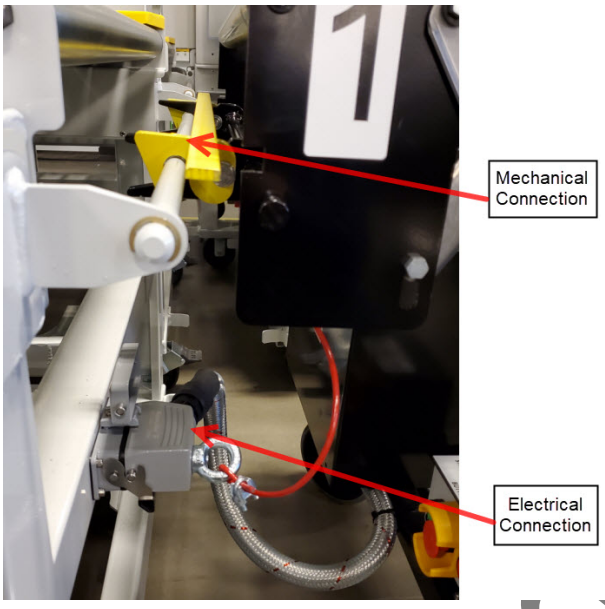


Figure 6 - Electrical and Mechanical Connections

Figure 7 - AFLEX Conveyor Startup

The system voice will announce '***Scanning System***'; '***Scan Complete***'; '***Reconfiguring System***'; repeat '***Reconfiguring System***' several times, then '***Reconfiguring Complete***' and finally '***System Ready***'.

The flashing green light turns to solid green. Ensure the E-Stop buttons on the AFLEX conveyor have been reset. Wait 8-10 seconds then press the green '**Start**' button located at the upstream end of the AFLEX conveyor as shown in **Figure 7**. Initially all the zones of the AFLEX conveyor will run for a few seconds. Then, only the ELM zone on the AFLEX with ELM conveyor continues to run while the other zones stop running. This indicates that the AFLEX conveyor is ready for operation.

Step 7: Pull the AFLEX conveyor into position such that the ELM section is closest to the operator that is loading product on to the conveyor. Lock the ELM zone in place by engaging the locks on the casters. Load boxes with barcode labels facing up (facing the ceiling) or in whichever direction the barcode scanner is located. If required, pull the AFLEX conveyor into position by grabbing the green handles on the side of

the conveyor. Do not grab rollers or scissor pieces to move the conveyor into position. When conveyor has been stretched to its maximum length, but boxes are still more than an arm's length away, then add another AFLEX conveyor by following **Steps 8 and 9**, below.

Step 8: Press the E-Stop button on the ELM zone of the AFLEX with ELM conveyor. Disconnect the AFLEX conveyor and Halo scanner, both electrically and mechanically. Move the AFLEX with ELM conveyor out of the way. Connect a 2nd AFLEX conveyor (with no ELM) to the Halo scanner, both electrically and mechanically by following the process as explained in **Steps 5 and 6** above.

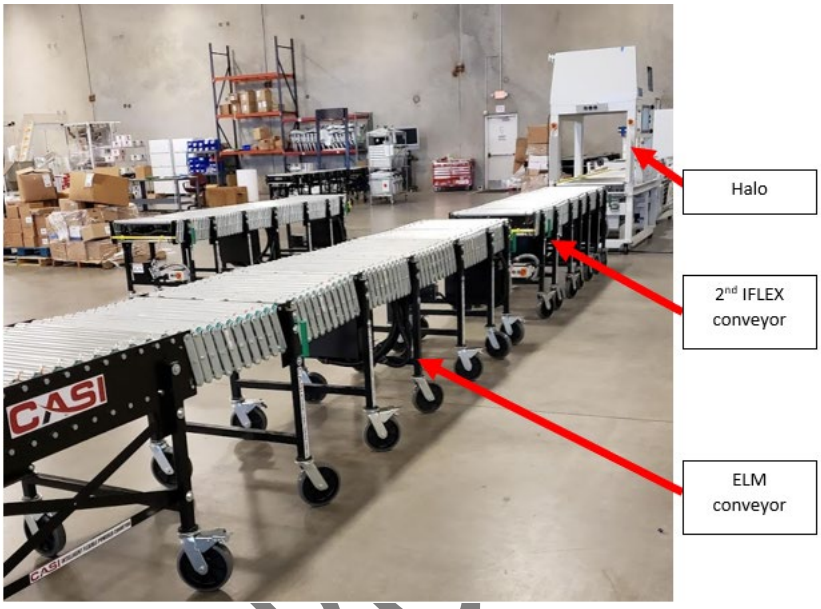


Figure 8 - Introduction of 2nd AFLEX Conveyor Between Halo and AFLEX with ELM Conveyor

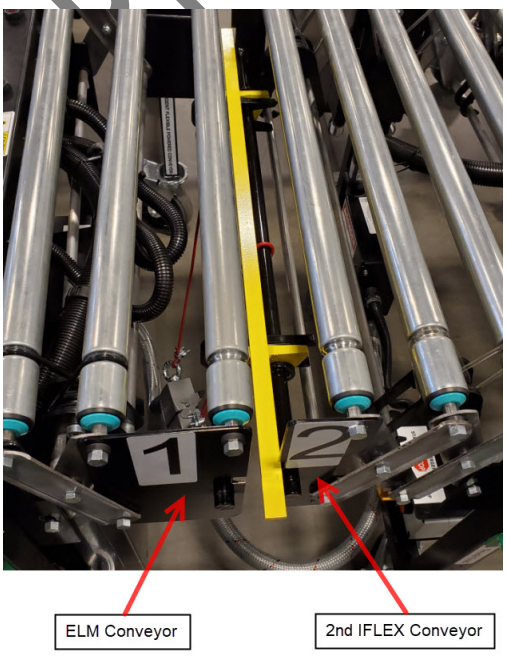


Figure 9 - Connection Between AFLEX Conveyors

Step 9: Connect AFLEX with ELM conveyor to the 2nd AFLEX conveyor (which is now connected to the Halo) Error! Reference source not found.. Reset the E-Stop button on the AFLEX with ELM conveyor. Wait for flashing yellow light on Halo to turn solid green. The system voice will announce '***Scanning System***'; '***Scan Complete***'; '***Reconfiguring System***'; repeat '***Reconfiguring System***' several times, then '***Reconfiguring Complete***' and finally '***System Ready***'.

Note: If the configuration process fails, press any AFLEX E-Stop button and release/reset it. This will trigger the steps announced by the system voice - '***Scanning System***'; '***Scan Complete***'; '***Reconfiguring System***'; repeat '***Reconfiguring System***' several times, then '***Reconfiguring Complete***' and finally '***System Ready***'.

Press the green '**Start**' button on the AFLEX with ELM conveyor. Do NOT press Start before the '***System Ready***' message is announced.

Step 10: Pull the AFLEX with ELM conveyor into position such that the ELM section is closest to the operator that is loading product onto the conveyor. Lock the ELM zone in place by engaging the locks on the casters. Load boxes with barcode labels facing up (facing the ceiling). When both conveyors have been stretched to their maximum length, but boxes are still more than an arm's length away, then add the 3rd AFLEX conveyor by following the process as explained in **Steps 11 and 12** below.

Step 11: Move the AFLEX with ELM conveyor and 2nd AFLEX conveyor out of the way. Connect a 3rd AFLEX conveyor (with no ELM) to the Halo scanner, both electrically and mechanically by following the process as explained in **Step 6** above. Connect the 2nd AFLEX conveyor to the 3rd AFLEX (which is now connected to the Halo). Release E-Stop on the AFLEX with ELM conveyor. Wait for flashing yellow light on the Halo scanner to turn solid green. The system voice will announce '***Scanning System***'; '***Scan Complete***'; '***Reconfiguring System***'; repeat '***Reconfiguring System***' several times, then '***Reconfiguring Complete***' and finally '***System Ready***'.

Note: If the configuration process fails, press any AFLEX E-Stop button and release/reset it. This will trigger the steps announced by the system voice - '***Scanning System***'; '***Scan Complete***'; '***Reconfiguring System***'; repeat '***Reconfiguring System***' several times, then '***Reconfiguring Complete***' and finally '***System Ready***'.

Press green '**Start**' button on the AFLEX with ELM conveyor. Do NOT press Start before the '***System Ready***' message is announced.

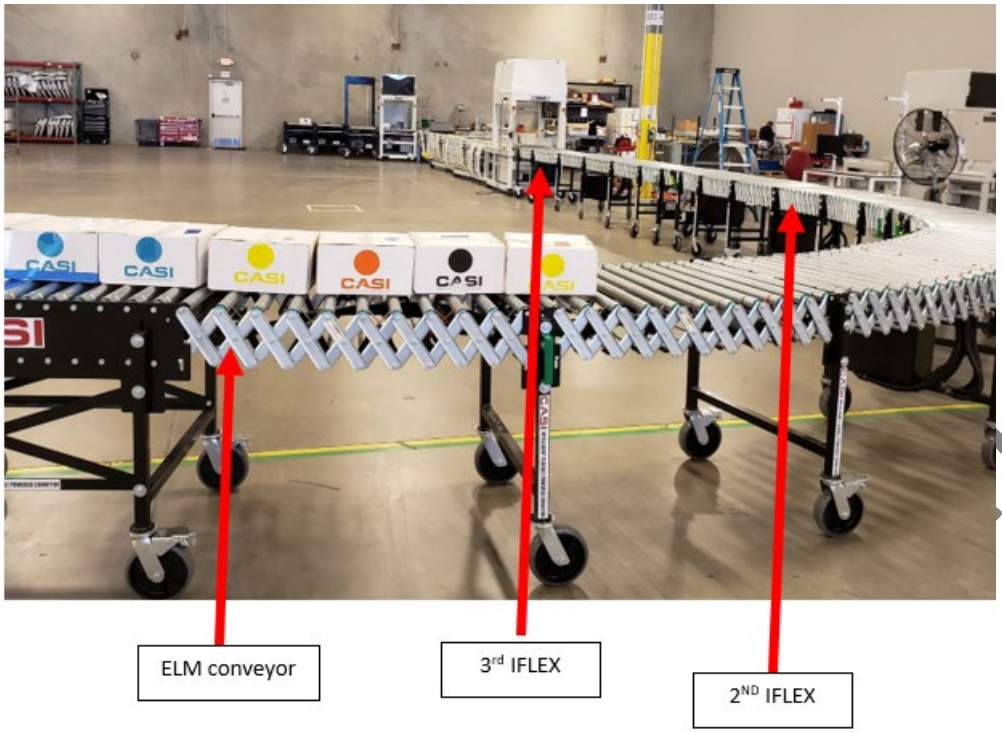


Figure 10 - Complete AFLEX Conveyor System Connected to Halo Scanner

Step 12: Pull the AFLEX into position such that the ELM section is closest to the operator that is loading product on to the conveyor. Lock the ELM zone in place by engaging the locks on the casters. Load boxes with barcode labels facing up (facing the ceiling) or whichever direction the barcode scanner is located.

If any **E-Stop** button is pressed for any reason, after it is cleared or released, wait about 5-6 seconds to press any green **Start** button on the AFLEX to start them back up.

6 Starting System – Quick Reference & Reconfigure Troubleshooting

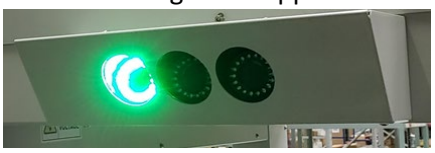
Follow these steps for system start up and to troubleshoot when system doesn't reconfigure properly.

6.1 START UP

Follow these steps for system start up:

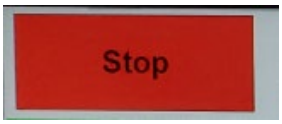
1. Press START on Halo HMI

   a. YELLOW light will flash for 15 seconds
      i. Rollers will move accordingly to system initialization procedure
      ii. System will announce "SYSTEM READY"
   b. Solid GREEN light will appear



2. Press START button on ELM section

   a. If won't start,
      i. Check for plugs connection
      ii. E-Stop status (if pressed in, release)
      - If E-Stop on AFLEX was pushed, release it
         a. Stop Halo



            i. NO lights
         b. Press E-Stop on Halo and clear Halo and Sorter line

i. Solid RED light

c. Release E-Stop on Halo
   i. NO lights
d. System will announce “INITIALIZING SYSTEM”
   i. YELLOW light will flash throughout this procedure (Approximately 60 seconds)

e. System will announce “SYSTEM READY”, then “CONFIGURATION IS COMPLETE”
   i. NO lights
f. Repeat from Step 1

6.2 Adding or Changing an AFLEX Conveyor

Follow these steps to add or change an AFLEX conveyor:

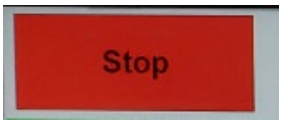
1. Press STOP button on ELM conveyor section

a. Solid GREEN light

2. Wait sorter line is empty

a. Solid GREEN light

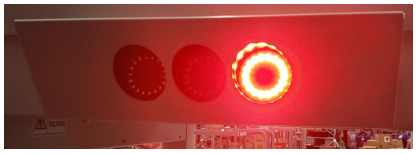
3. Press STOP button on Halo HMI



a. NO light

4. Press E-Stop on Halo and clear Halo and Sorter line.

a. Solid RED light
b. Solid red light on E-Stop button



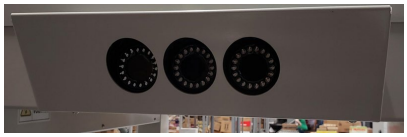
c. System will announce “E-Stop PUSHED”

5. Add the next AFLEX conveyor
   a. Make all mechanical and electrical connections.
   b. Release the Estop button till all connections were done.

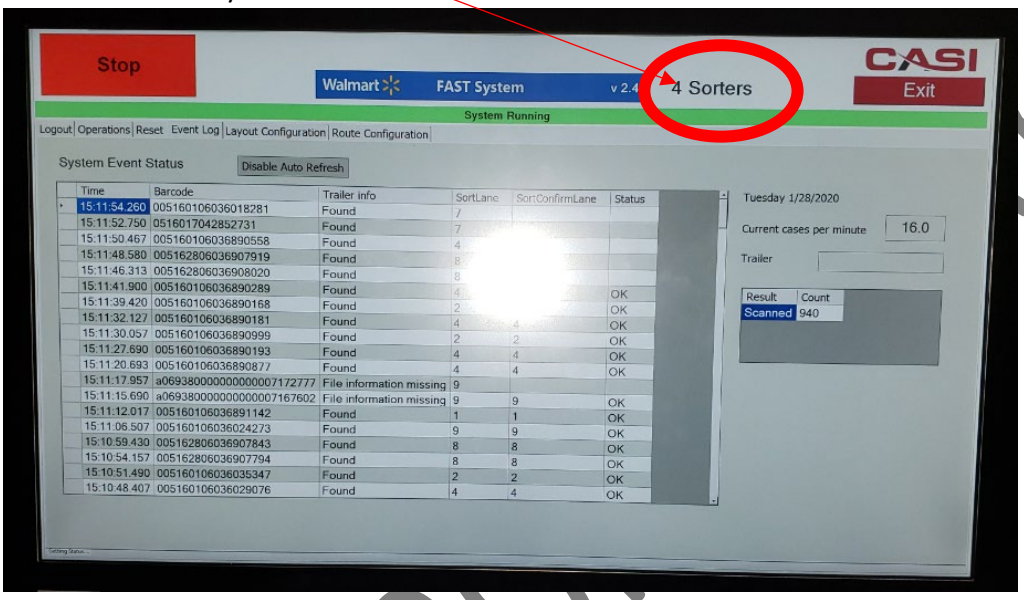
6. Release E-Stop on Halo
   a. NO lights
   b. NO lights on E-Stop button

7. System will announce “INITIALIZING SYSTEM”
   a. YELLOW light will flash throughout this procedure (Approximately 60 seconds)

8. System will announce “CONFIGURATION IS COMPLETE”
   a. NO lights



9. System will announce “SYSTEM READY”
    a. NO lights
10. Check if the number of Sorters reported from the Halo HMI correspond to the actual Sorter connected to the system.



    a. If NOT go back to Step 4
    b. If YES, move go to Step 10

11. Press START on Halo HMI

    a. YELLOW light will flash for 15 seconds
        i. Rollers will move accordingly to system initialization procedure
        ii. System will announce “SYSTEM READY”
    b. Solid GREEN light will appear

12. Press START button on ELM section

7 Parts Replacement

You MUST remove power to the conveyor(s) before servicing or replacing parts on the AFLEX conveyors. Disconnect the pigtail on the AFLEX conveyor closest to the Halo.

Test to verify that power has been removed by pressing the green **Start** button on an AFLEX conveyor and waving your hand above a photoeye. The conveyor should **NOT** start.

IMPORTANT NOTICE: Unplug pigtail from Halo module before servicing the AFLEX conveyors!

Figure 11 – Pigtail Cable Assembly

Figure 12 – Pigtail Connector

Figure 13 – Connector on Halo Module

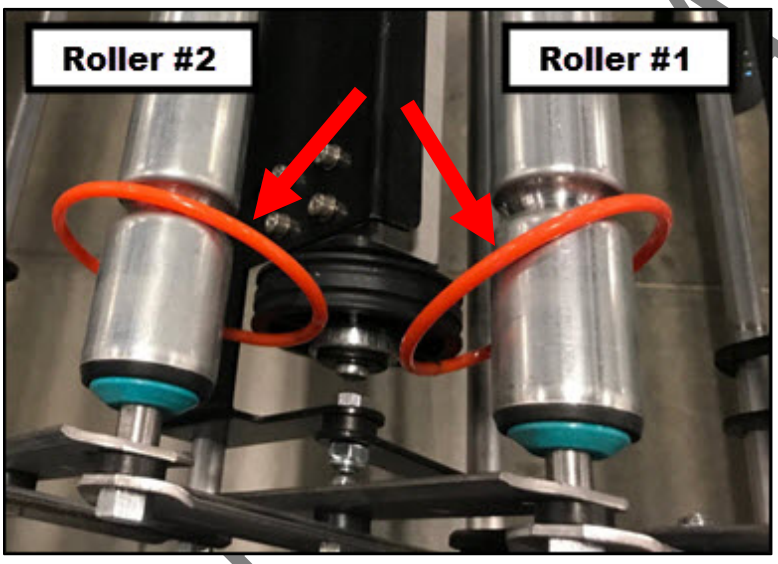
7.1 Drive Motor and Pulley Assembly Replacement Procedure

There are 2 methods to remove and replace the drive motor and pulley assembly. One involves getting up underneath the conveyor to remove the cover of the housing and gain access to the drive motor and pulley assembly. The other method involves pulling the complete housing assembly out from under the side of the conveyor to access the drive motor and pulley assembly.

7.1.1 Removing Drive Motor and Pulley Assembly – Method One

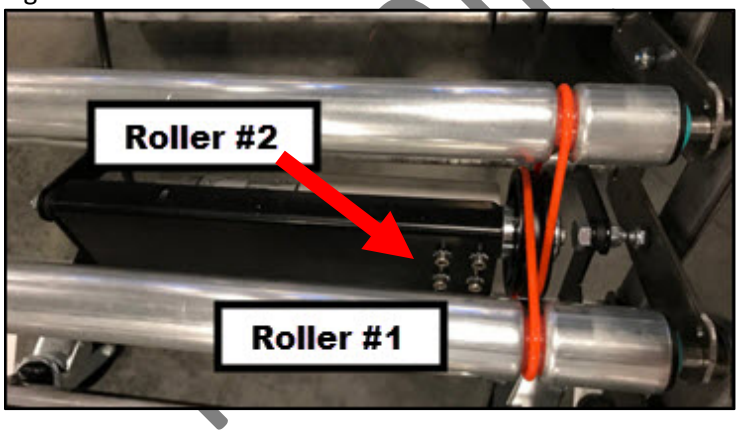
Follow these steps to remove the **Drive Motor and Pulley Assembly**.

1. Rollers are stair-stepped; there are (2) rollers connected by (2) orange O-rings, with the drive roller and pulley assembly mounted underneath them. Remove these (2) O-rings from the drive pulley assembly by sliding them off the pulley.



2. From underneath the conveyor, access the drive motor and pulley assembly by removing (2) bolts on the housing cover (one on each side). Remove the cover and set aside.
3. Disconnect drive motor connector.

4. From the top of the conveyor, remove drive roller and pulley assembly by removing the (4) M5 bolts on the housing.



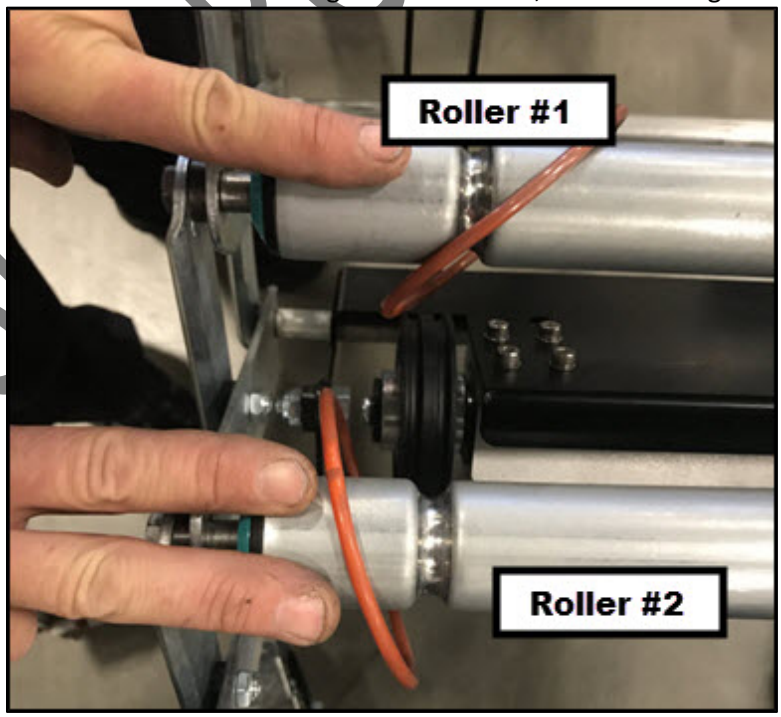
5. Remove drive roller and pulley assembly from housing.
6. Remove the bolt at the end of the Drive Motor and Pulley Assembly, in the center of the pulley.

7. Remove the pulley and set aside.

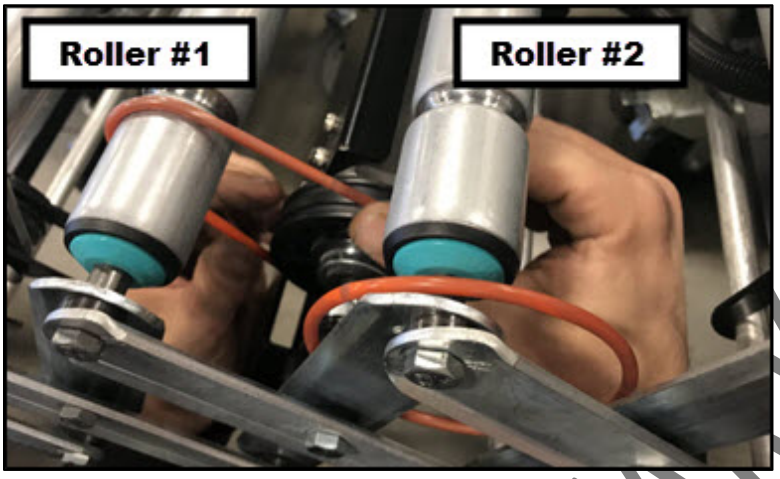
7.1.2 Replacing Drive Motor and Pulley Assembly – Method One

1. Place the pulley at end of the new drive motor with the bolt in the center of the pulley and secure and tighten the bolt.
2. Place the drive motor and pulley assembly into the housing.
3. Reinsert bolts on housing and tighten.
4. Connect drive motor connector. **Note:** Make sure ground wire remains grounded to housing cover.

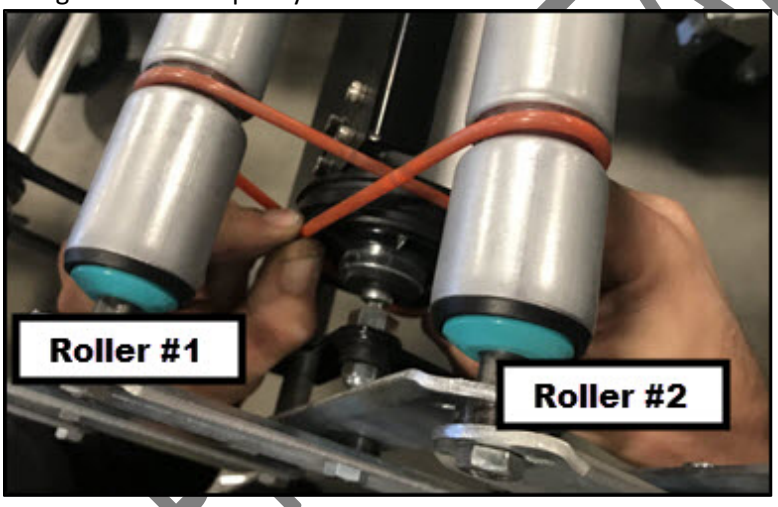
5. Identify #1 and #2 rollers and O-rings. **Note:** Orange O-rings must **NOT** cross each other. #1 roller is longer on the end than #2 roller. #1 O-ring is mounted first, then #2 O-ring.



6. Slide #1 orange O-ring over inside pulley.



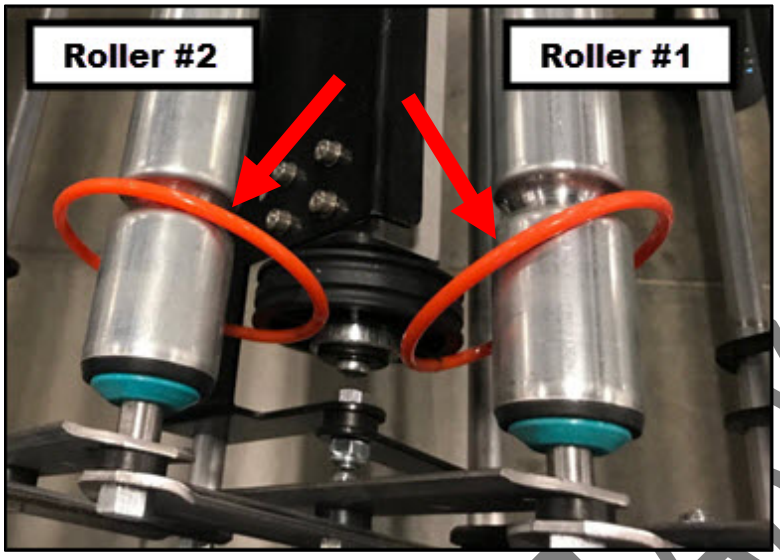
7. Slide #2 orange O-ring over outside pulley.



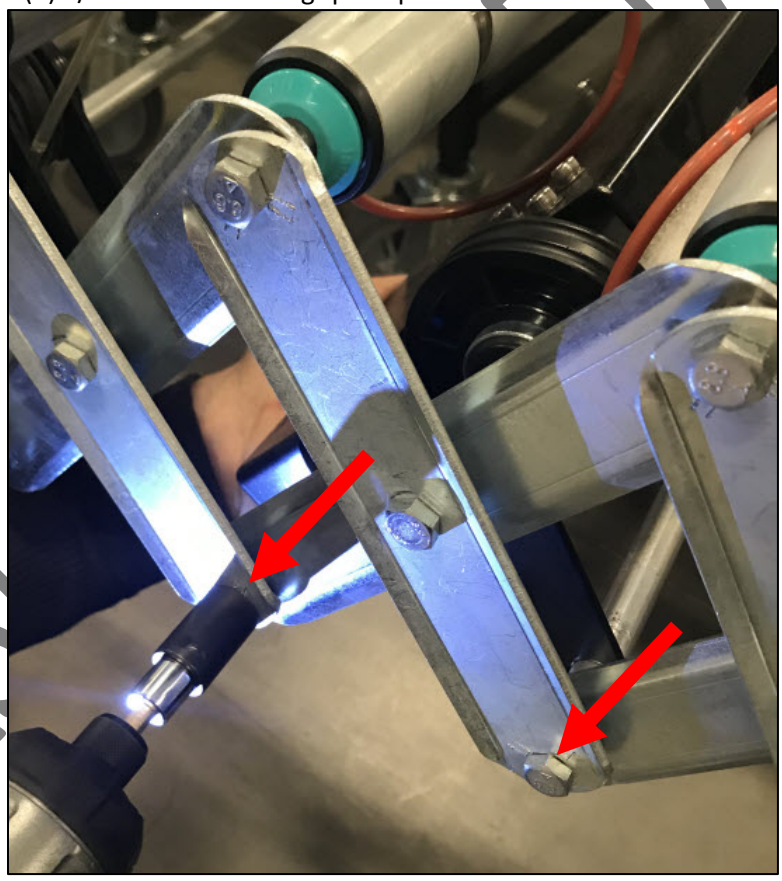
7.1.3 Removing Drive Motor and Pulley Assembly – Method Two

Follow these steps to remove the **Drive Motor and Pulley Assembly**.

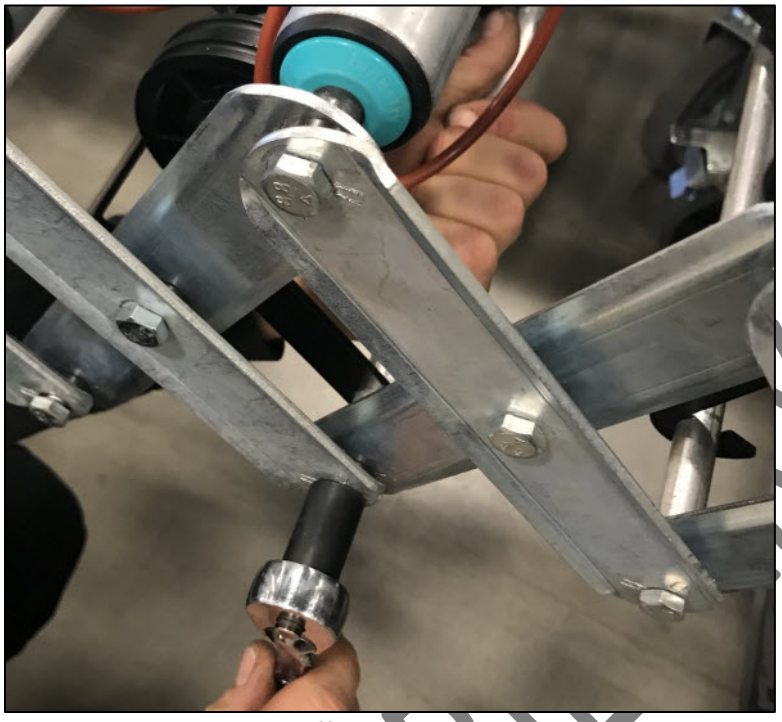
1. Rollers are stair-stepped; there are (2) rollers connected by (2) orange O-rings, with the drive roller and pulley assembly mounted under them. Remove these (2) O-rings from the drive pulley assembly by sliding them off the pulley.



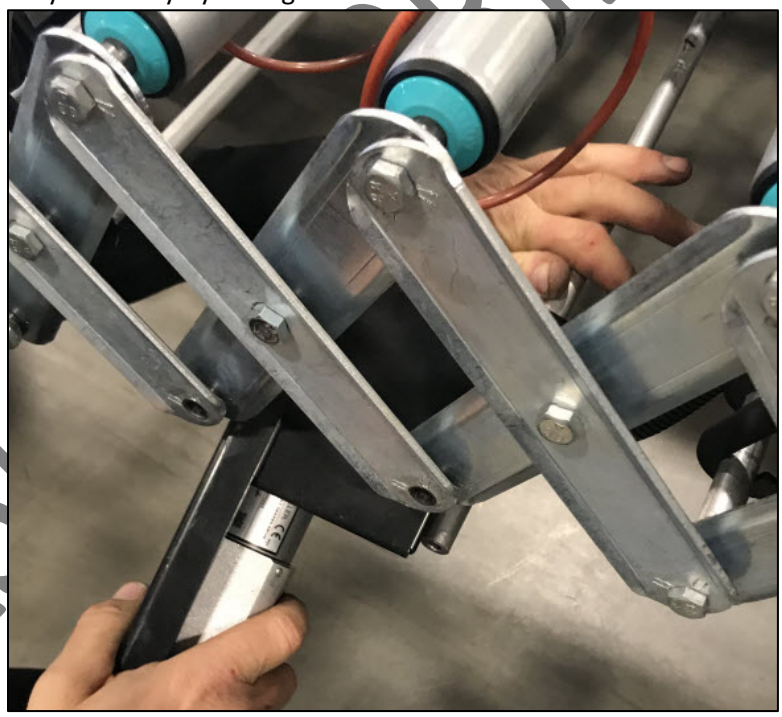
2. Unscrew bottom (2) 1/2” bolts. Use vice grips or pliers to hold the bar behind the frame.



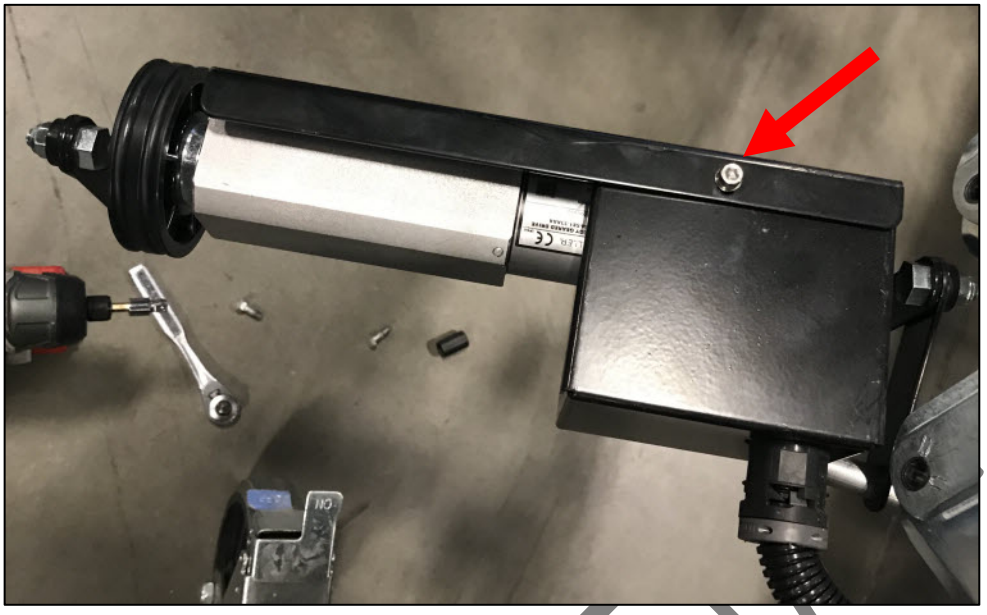
3. Remove bolts. Use vice grips or pliers to hold the bar behind the frame.



4. Remove drive pulley assembly by sliding off the bar.



5. Remove (2) bolts on box cover that houses the drive pulley and motor assembly (one shown here, the other on the opposite side).



6. Remove cover.

7. Disconnect drive motor connector.

8. To remove drive roller, remove the (4) M5 bolts on the bottom of the housing.

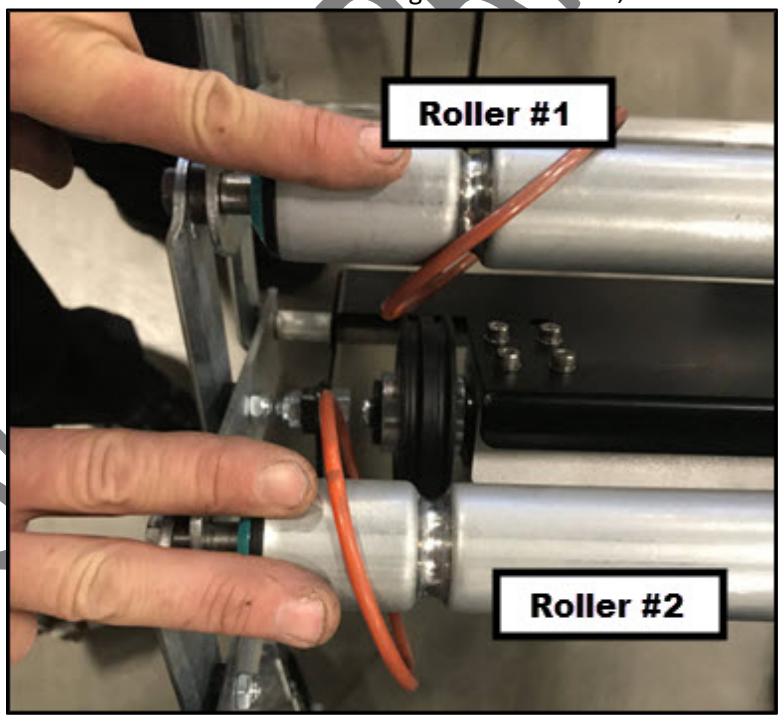
9. Remove drive roller.

7.1.4 Replacing Drive Roller and Pulley Assembly – Method Two

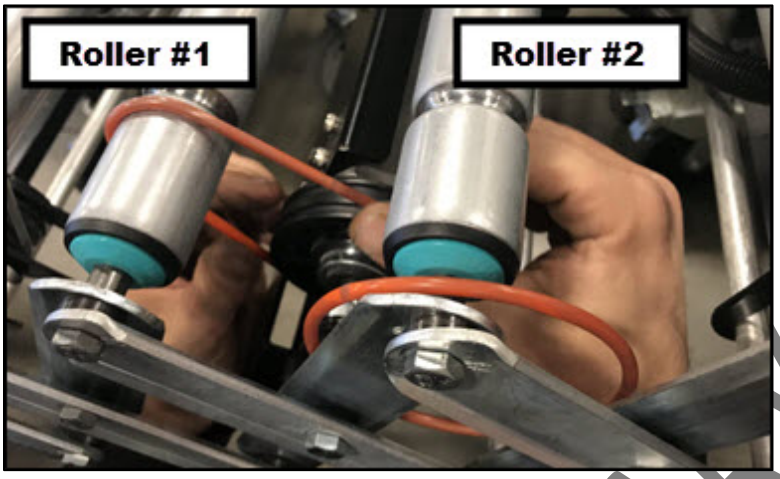
Follow these steps to replace the **Drive Roller and Pulley Assembly**.

1. Place drive roller and pulley assembly into housing.
2. Reinsert the (4) M5 bolts on housing and tighten.
3. Connect drive motor connector. **Note:** Make sure ground wire remains grounded to housing cover.

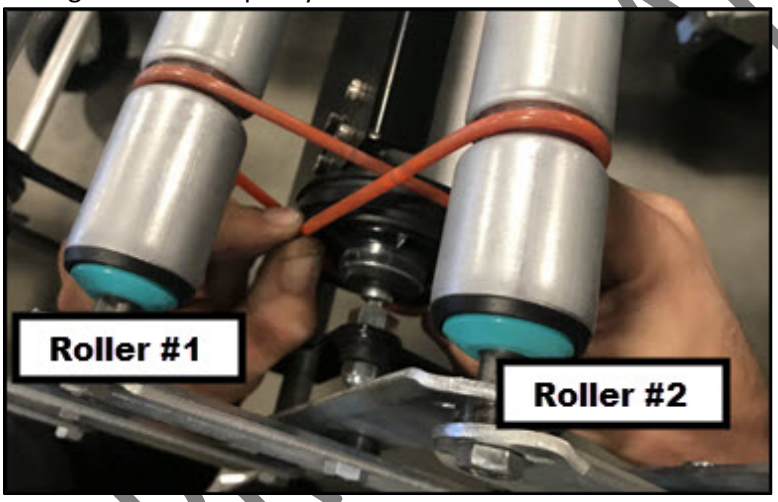
4. Slide assembly onto the two bars. **Note:** Conduit connection must be above the bar.
5. Slide assembly mounting brackets onto bar.
6. Insert bolts but do not tighten.
7. Identify #1 and #2 rollers and O-rings. **Note:** Orange O-rings must **NOT** cross each other. #1 roller is longer on the end than #2 roller. #1 O-ring is mounted first, then #2 O-ring.



8. Slide #1 orange O-ring over inside pulley.



9. Slide #2 orange O-ring over outside pulley.



10. Tighten bolts. Use vice grips or pliers to hold the bar behind the frame.
11. Test by hand rolling back and forth to assure there is no binding and O-rings and rollers turn smoothly.

7.2 Pulley Replacement Procedure

7.2.1 Removing a Pulley

Follow these steps to remove a **Pulley**.

1. Using either Removing Drive Motor and Pulley Assembly Method One or Removing Drive Motor and Pulley Assembly Method Two, remove the Drive Motor and Pulley Assembly.
2. Remove the bolt at the end of the Drive Motor and Pulley Assembly, in the center of the pulley.

3. Remove the pulley.

7.2.2 Replacing a Pulley

Follow these steps to replace the **Pulley**.

1. Place the new pulley at the end of the drive motor.
2. Replace the bolt at the end of the Drive Motor and Pulley Assembly, in the center of the pulley.

3. Using either Replacing Drive Motor and Pulley Assembly Method One or Replacing Drive Motor and Pulley Assembly Method Two, replace the Drive Motor and Pulley Assembly.

7.3 Photoeye Bar Replacement Procedure

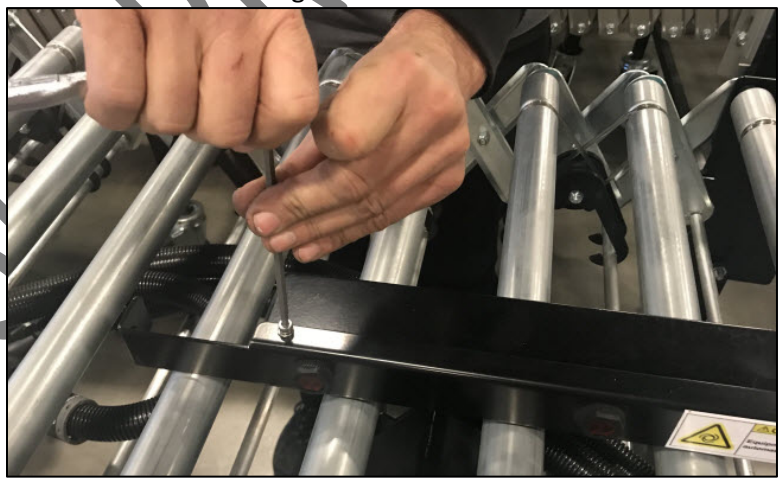
7.3.1 Removing a Photoeye Bar

Follow these steps to remove a **Photoeye Bar**.

1. Remove the M5 bolt on each end of the photoeye bar.

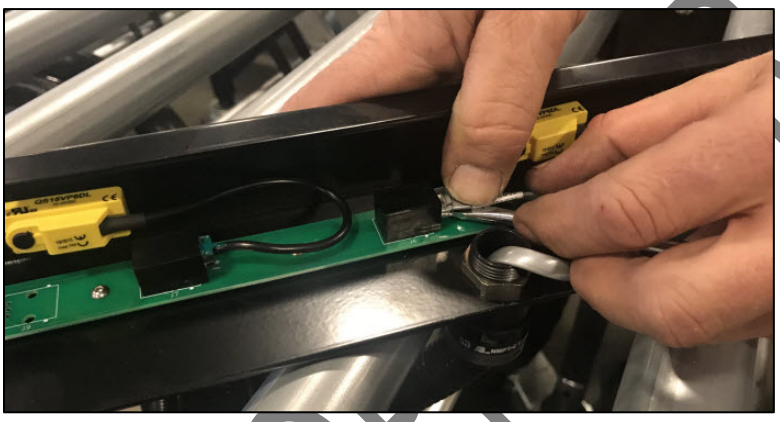
2. Lift and remove photoeye bar.

3. Remove (2) bolts on the bracket housing cover.



4. Remove cover.

5. Unclip the main RJ11 connector. A flathead screwdriver is useful to push the clip up so that the connector can be removed.



6. Using pliers and small screwdriver, unlock the conduit by holding the base (item 1) with the pliers, inserting the small screwdriver into the hole (item 2) and using it to turn the connector counterclockwise.
7. Carefully thread the RJ11 connector (item 3) through the hole in the photoeye bar bracket.
8. Reset the conduit lock (item 4) by inserting the screwdriver and turning the grey collar clockwise until it stops.

7.3.2 Replacing a Photoeye Bar

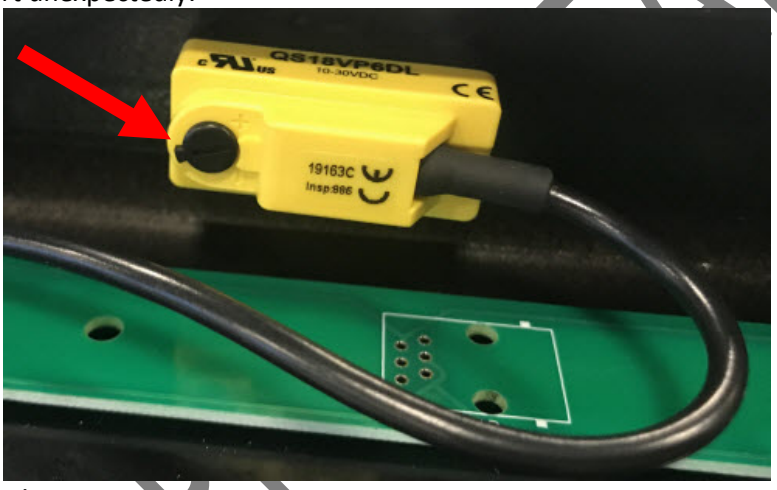
Follow these steps to replace a **Photoeye Bar**.

1. Thread the RJ11 connector up through the hole in the photoeye bar bracket.

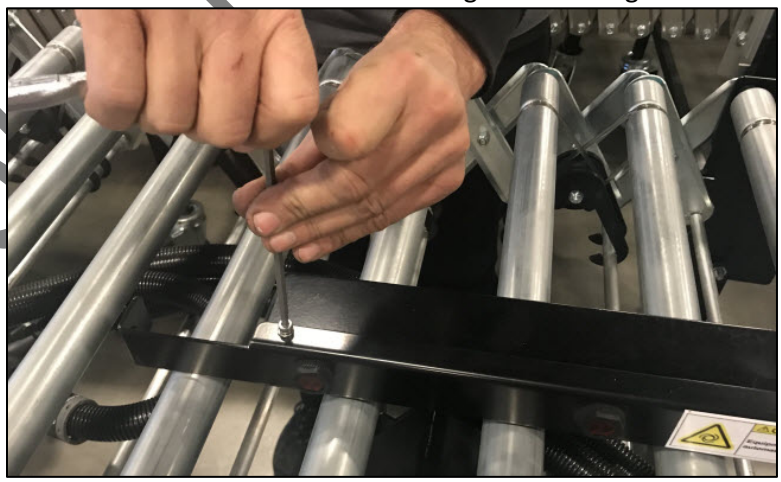
2. Change the conduit base setting to **lock**.

3. Insert the conduit into the base and push up until you hear an audible click.

4. Connect the RJ11 connector.
5. Check that all photoeyes are set in the 11:30 position (on a clock). If set too high, the photoeye can pick up movement outside the frame of the conveyor, which can cause the section of the conveyor to start unexpectedly.



6. Replace the housing cover.
7. Insert the (2) button head bolts on the bracket housing cover and tighten.



8. Put the photoeye bar back in place between the rollers. **Note:** The photoeye bar is tilted forward (toward the truck end). Tilt the photoeye bar until it can't go any further.

9. While holding the photoeye bar tilted in place, insert and tighten the M5 bolt on each end of the photoeye bar.

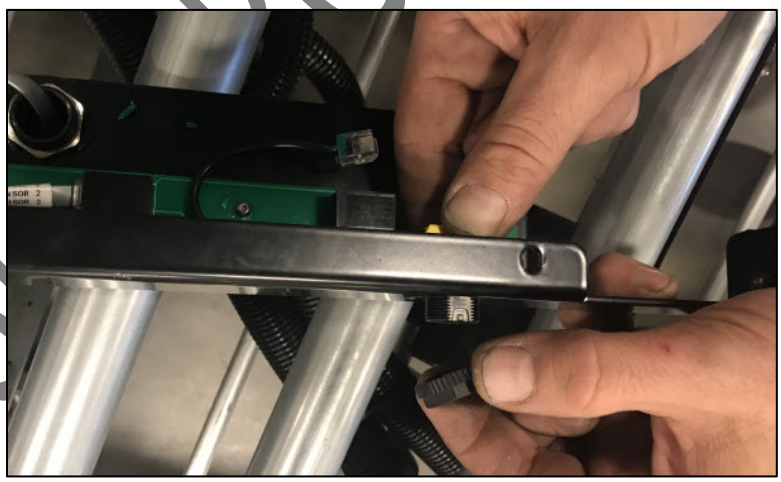
7.4 Photoeye Replacement Procedure

If a Photoeye stops working, but the remaining (3) Photoeyes on that Photoeye Bar are functioning properly, you can replace the non-working Photoeye.

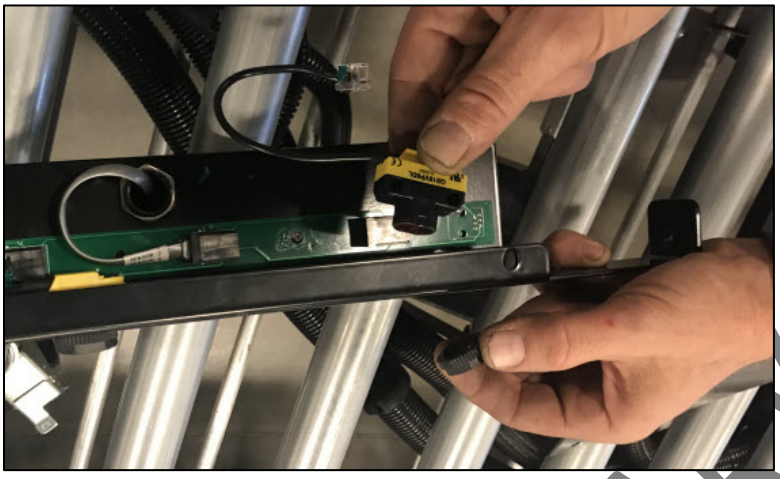
7.4.1 Removing the Photoeye

Follow these steps to remove a **Photoeye** from a Photoeye Bar.

1. Follow the steps for Removing a Photoeye Bar.
2. Disconnect the RJ11 connector.
3. Unscrew and remove the threaded nut on the front side of the bracket.



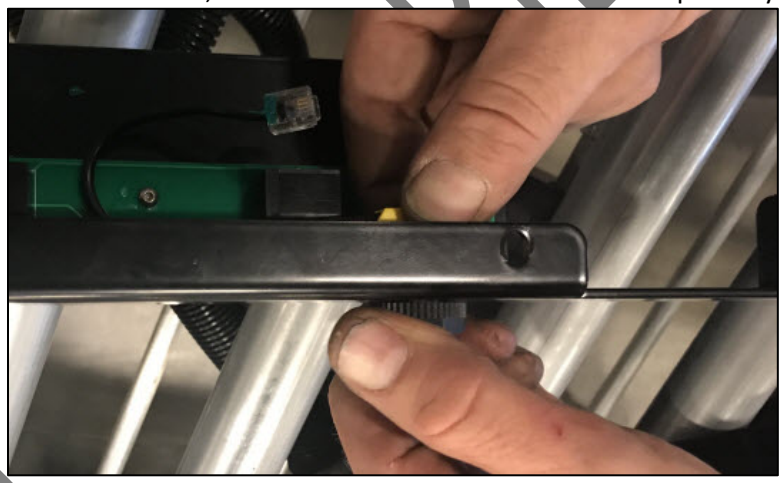
4. Remove photoeye.



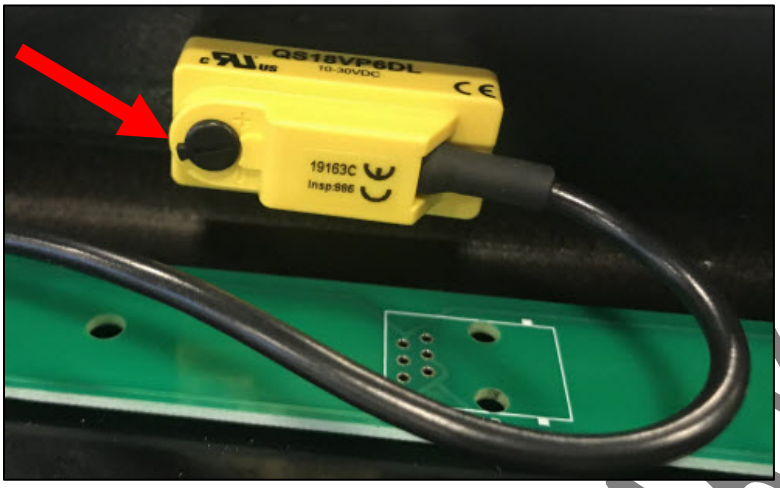
7.4.2 REPLACING THE PHOTOEYE

Follow these steps to replace a **Photoeye** onto a Photoeye Bar.

1. On the new photoeye, unscrew the threaded nut on the front of the photoeye.
2. From the back of the bracket, place the photoeye in the hole in the bracket.
3. On the front side of the bracket, screw the threaded nut back onto the photoeye.



4. Set the photoeye to the 11:30 position (on a clock). Set too high, the photoeye can pick up movement outside the frame of the conveyor, which can cause the section of the conveyor to start unexpectedly.



5. Connect the RJ11 connector.
6. Apply a small amount of liquid electrical tape to the top of the connector.
7. To reinstall the photoeye bar, follow the steps for Replacing a Photoeye Bar.

7.5 Roller Replacement Procedure

Note: Rollers are stair-stepped (O-rings link two rollers together). Replacing one roller requires you to temporarily remove (2) O-rings from that roller.

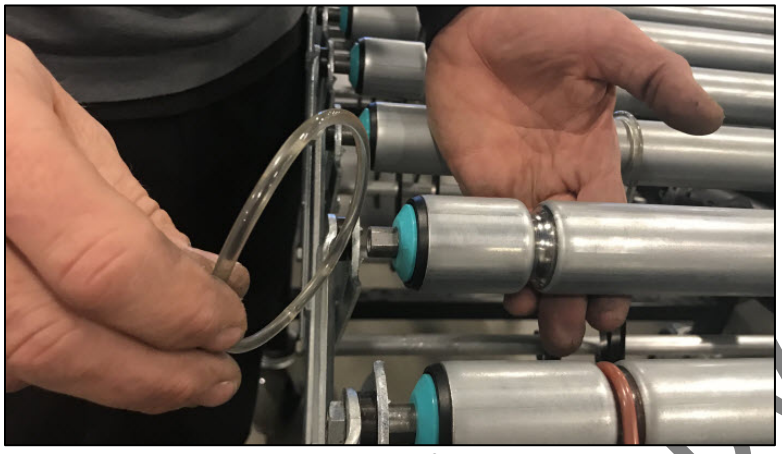
7.5.1 Removing a Roller

Follow these steps to remove a **Roller**.

1. Push the tensioner down to unhook the tensioner hooks from the bars/shafts down below. Once the (4) hooks are free, the O-rings will have no tension on them.

2. Remove bolt from one end of roller. Use a 7/16” wrench as a backup on the other side of the frame.

3. Lift end of roller and remove the O-ring from the roller.



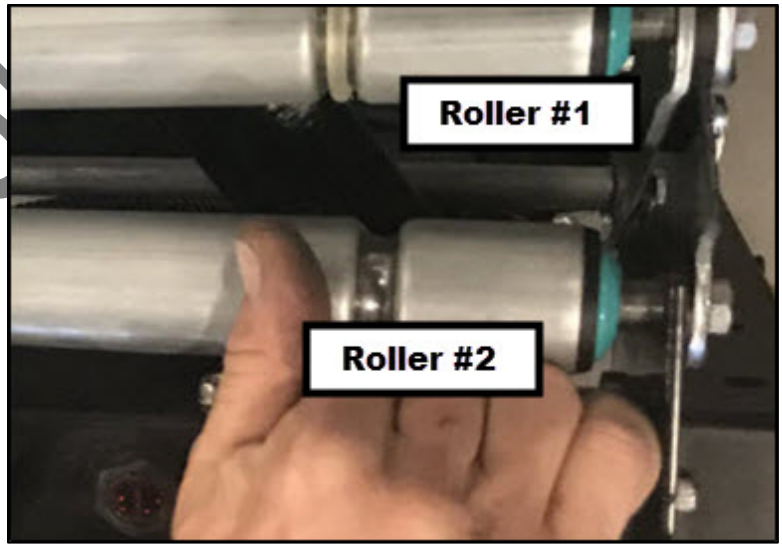
4. Repeat steps 1 through 3 on the other end of the roller. Set aside O-ring.
5. Lift up and remover roller.

7.5.2 Replacing a Roller

Follow these steps to replace a **Roller**.

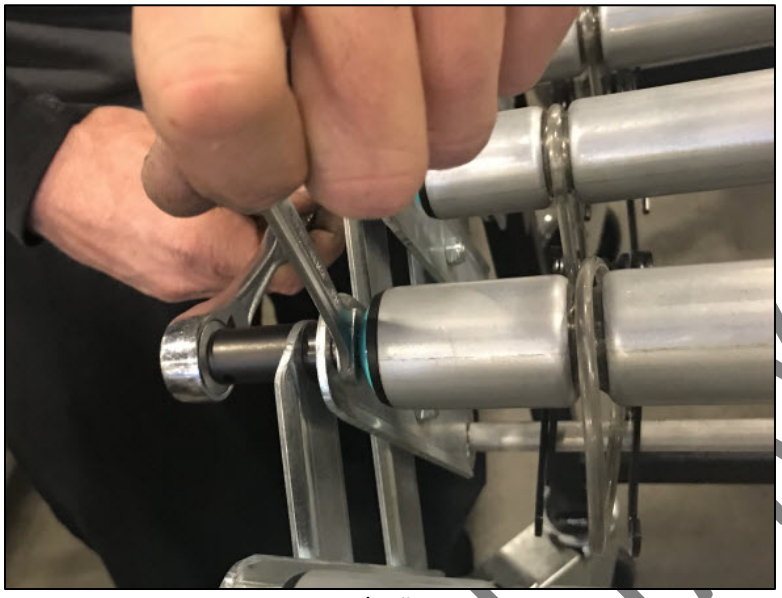
1. There should be (2) O-rings on the roller (one for each end).

2. Align one end of roller with the hole in the frame. Note: Since the rollers are stair-stepped, the belts are staggered from one another. The belt groove of one roller should be offset from the belt groove in the next roller. If the roller is inserted the wrong way, with the belts attached, the O-rings will jump.



3. Insert bolt but don't tighten down.
4. Align the other end of roller with the hole in the frame.

5. Insert bolt and tighten, using a 7/16” wrench as a backup on the other side of the frame.

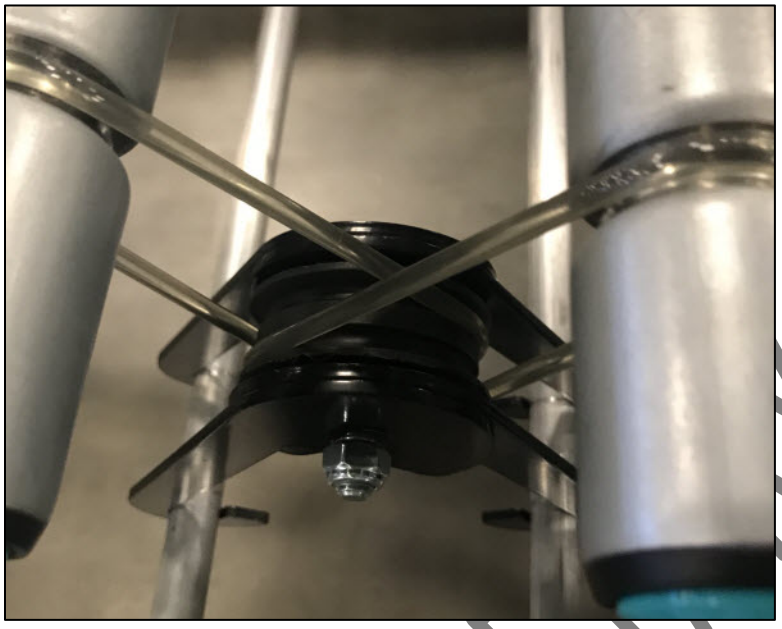


6. Tighten the bolt on the other side, using a 7/16” wrench as a backup on the other side of the frame.
7. Push down on tensioner on one side.

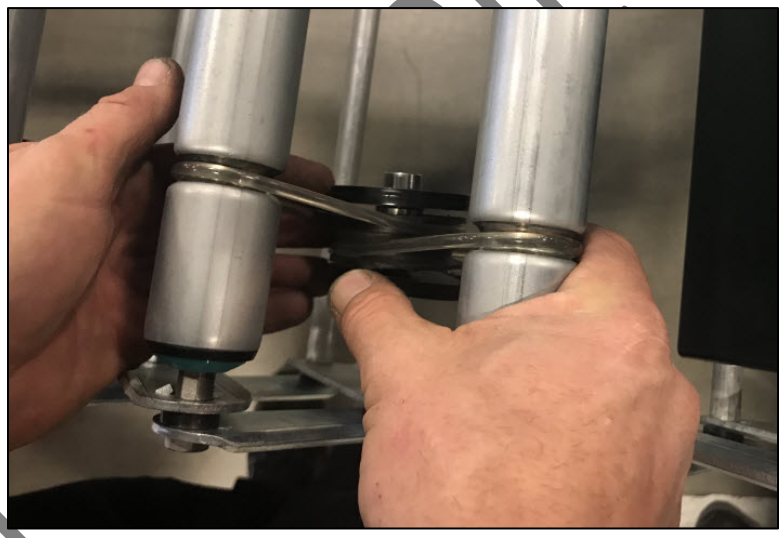
8. Ensure the O-rings are not crossed.
9. Place the inside O-ring onto the inside pulley. **Note:** The inside O-ring is on the roller with the longer end.

10. Place the outside O-ring onto the outside pulley. **Note:** The outside O-ring is on the roller with the shorter end.
11. Push down on tensioner and hook one side.

12. Push down on tensioner again and hook the other side.



13. Test by hand rolling back and forth to assure there is no binding and O-rings and rollers turn smoothly.



14. Repeat steps 7 through 13 for the other end of the roller.

7.6 O-Ring Replacement Procedure

7.6.1 Removing an O-Ring

Follow these steps to remove an **O-ring**.

1. Push down on the tensioner and remove the damaged O-ring from the pulley.

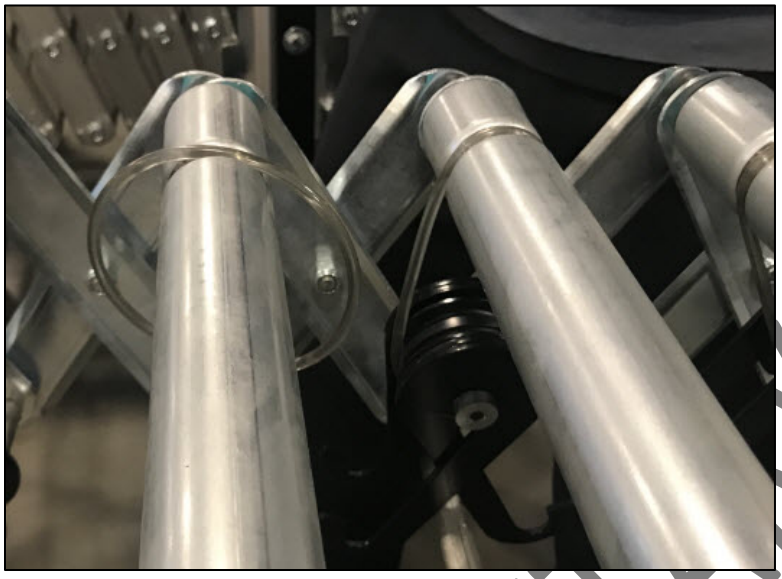
2. Remove the bolt from the roller with the O-ring to be replaced. Use a 7/16” wrench as a backup on the other side of the frame.

3. Lift the end of the roller up and remove the damaged O-ring.

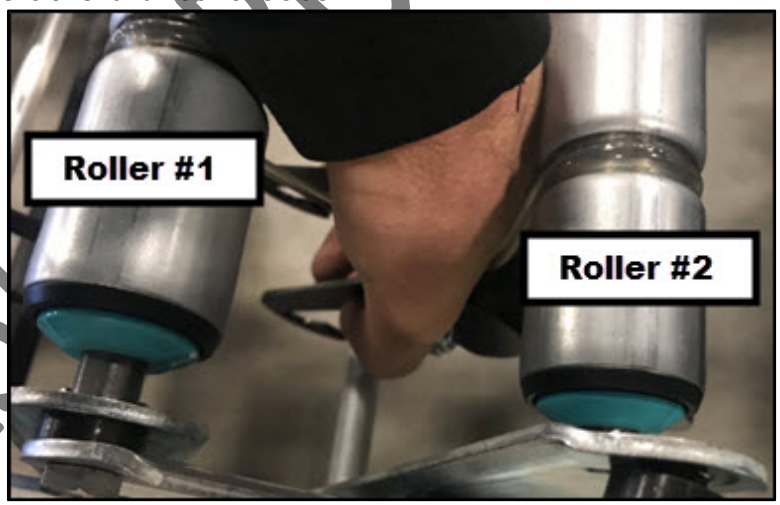
7.6.2 Replacing an O-Ring

Follow these steps to replace an **O-ring**.

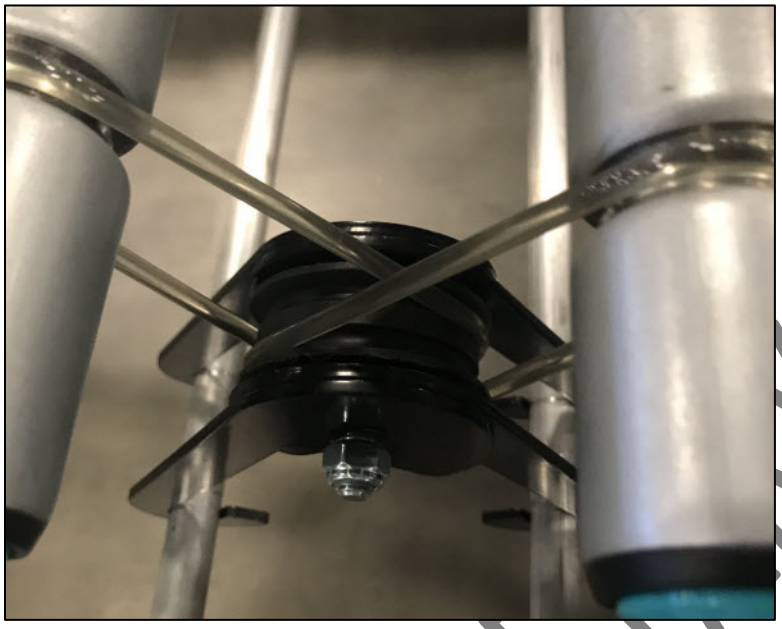
1. Place a new O-ring on the roller.



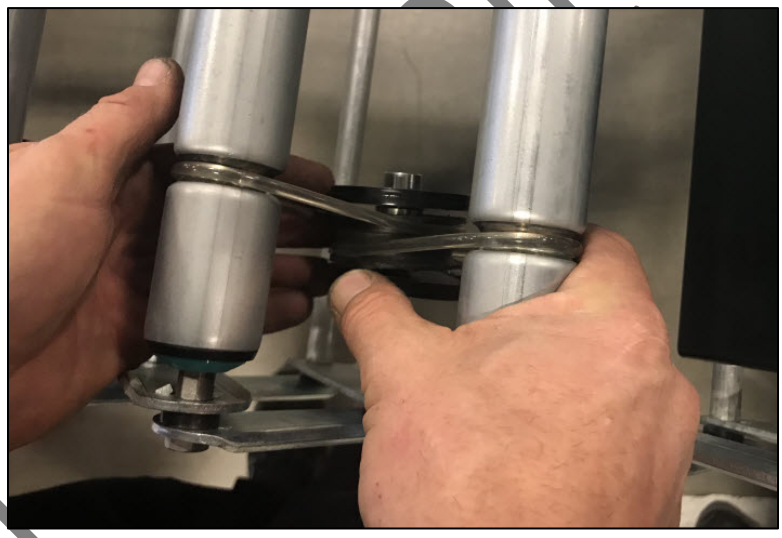
2. Align the roller and replace the bolt, but do not tighten.
3. Push down on the tensioner to place the O-ring on the pulley.
4. Tighten the bolt.
5. Push down on tensioner on one side.
6. Ensure the O-rings are not crossed.
7. Insert the inside O-ring onto the inside pulley. **Note:** The inside O-ring is on the roller with the longer end, in reference to the O-ring groove on the pulley (Roller #1).
8. Insert the outside O-ring onto the outside pulley. **Note:** The outside O-ring is on the roller with the shorter end, in reference to the O-ring groove on the pulley (Roller #2).
9. Push down on tensioner and hook one side.



10. Push down on tensioner again and hook the other side.



11. Test by hand rolling back and forth to assure there is no binding and O-rings and rollers turn smoothly.



7.7 Caster Replacement Procedure

7.7.1 Removing a Caster

Follow these steps to remove a **Caster**.

1. Using a floor jack, raise the end of conveyor that has the damaged caster.

2. Using the specialized tool or channel lock, loosen the caster by the notched spindle until it turns easily.

3. Finish unscrewing by hand until the caster is removed.

7.7.2 Replacing a Caster

Follow these steps to replace a **Caster**.

1. Apply Loctite Blue 242 to the bolt end of the caster.
2. Put the caster in place on the conveyor frame.
3. By hand, screw the caster clockwise until it's snug.

4. Using the specialized tool or channel lock, tighten to secure.

5. Lower and remove the floor jack.

7.8 Drive Card Replacement Procedure

There are (4) drive cards on the AFLEX Conveyor with ELM and (3) drive cards on the standard AFLEX Conveyor. Each drive card runs 2 zones on the AFLEX conveyor, except for the last zone on the AFLEX with ELM, which runs just the 7th zone. Zones are numbered starting with number 1 from the upstream end of the AFLEX conveyor to the downstream end.

The drive cards are labeled '1,2', '3,4', '5,6'. On the AFLEX conveyor with the ELM, the 4th drive card runs the 7th zone, which is the last zone downstream.

Each card has the following:

- Power (24v DC)
- Left and right sensor control
- Left and right motor control
- Left and right module network status

7.8.1 Removing a Drive Card

Follow these steps to remove a **Drive Card**.

1. Remove the cover of the center electrical box, by unscrewing (4) M4 screws.

2. Unhook the wiring to the drive card being replaced.

3. There are (3) tabs on the back of the cards that hold them onto the back wall of the electrical box housing. There are (2) tabs on one side near the corners and (1) tab in the center of the Ethernet port. Use a flat head screwdriver on one of the corners to pop out the card.

7.8.2 Replacing a Drive Card

Note: Replacement drive cards are not programmed. Once you have installed the new drive card, refer to Programming a Drive Card.

Follow these steps to replace a **Drive Card**.

1. Mount the new drive card by hooking the (3) tabs on the back of the card on the slots on the back wall of the electrical box housing.

2. Before rewiring, check the ferrule on each of the wires. If it's damaged, the ferrule needs to be replaced. If the wire is too short to be trimmed and a new ferrule applied, then the wire needs to be replaced. **Note:** Be sure to place the wire to the left of the screw, so that when you turn the screw clockwise to tighten, the ferrule wraps over the screw. If you place it to the right of the screw and turn it clockwise to tighten, the ferrule can fall out.
3. Replace the cover of the center electrical box, being careful not to crimp any wires between the box and the cover.
4. Reinsert and tighten the (4) M4 screws.

7.9 PROGRAMMING A DRIVE CARD

Replacement drive cards are not programmed. A laptop and internet access are required to program a drive card.

To program a Conveylinx drive card, follow these procedures to Configure-Program for new Conveylinx cards in an existent system, for either:

- Option A (AFLEX 2020 Autoconfiguring)

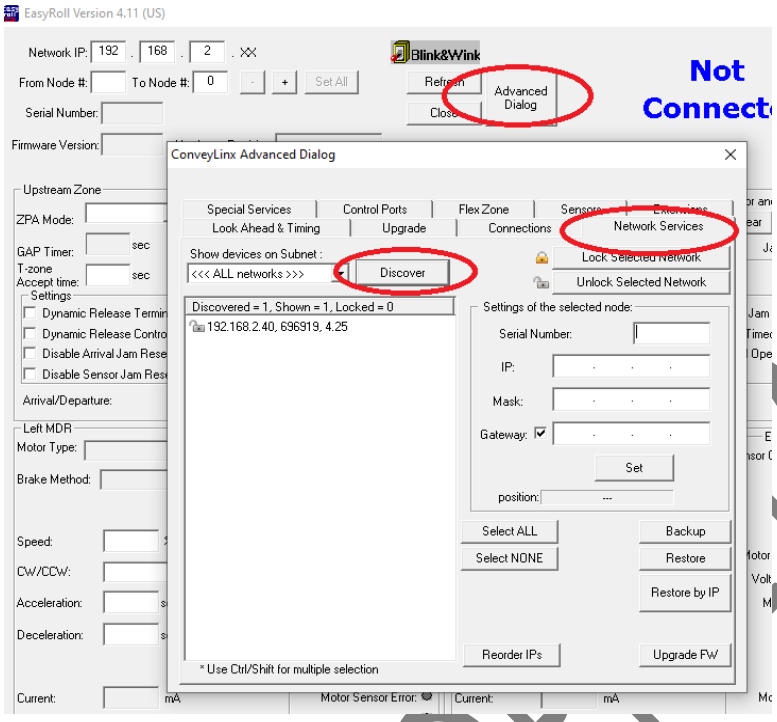
7.9.1 OPTION A: (AFLEX 2020 AUTOCONFIGURING)

This option is to use when HALO is doing the autoconfiguration **upstream (AFLEX Conveyors)** and **downstream (Sorters)**, which is called **mode 2**, the IP address is assigned to the AFLEX conveyor from the HALO starting always from ELM section 192.168.2.20, this means if you have only ELM section connected you will have 192.168.2.20 to 192.168.2.23 (4 cards), if 2nd section is connected the IP assigned will be 192.168.2.24 to 192.168.2.26 (3 cards) and 3rd section will be 192.168.2.27 to 192.168.2.29 (3 cards), all IP, upstream and downstream connections assignments are done by a program on HALO, when an E-stop is pushed and released on HALO.

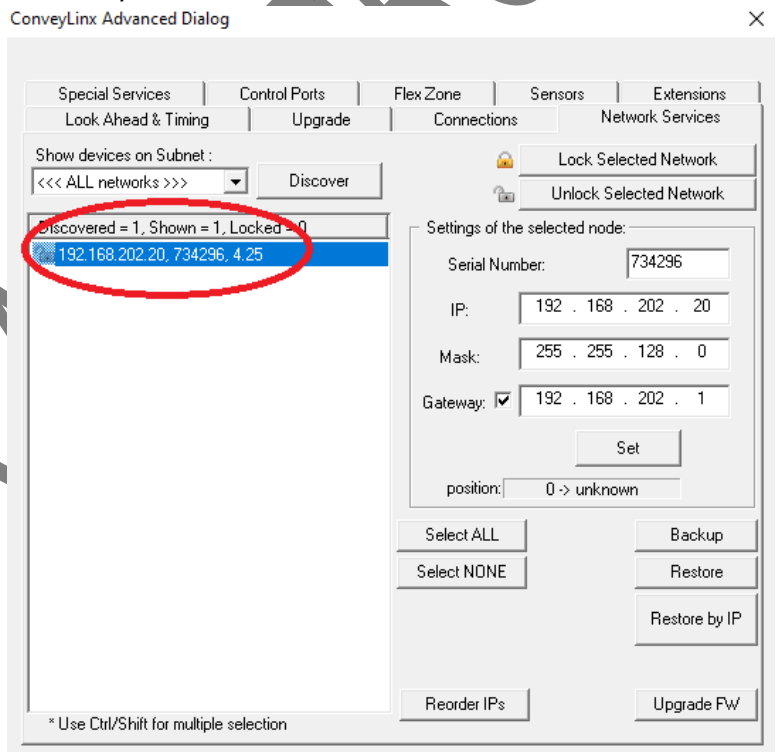
So, to install a new card, you need to assign the IP with **3rd octet = 2**, **Mask= 255.255.248.0**, **gateway = 192.168.25.1** (**Step d**), the autoconfiguration from HALO takes care for actual IP and upstream and downstream connections.

1. Open the central junction box, uninstall damaged card, place new card, do not connect motors and sensor yet (motors will move when power the conveyor), plug power connector to the card.
2. **Push the E-stop on HALO.** (do not release it until all installation and configuration is done)
3. Connect conveyor to the HALO.

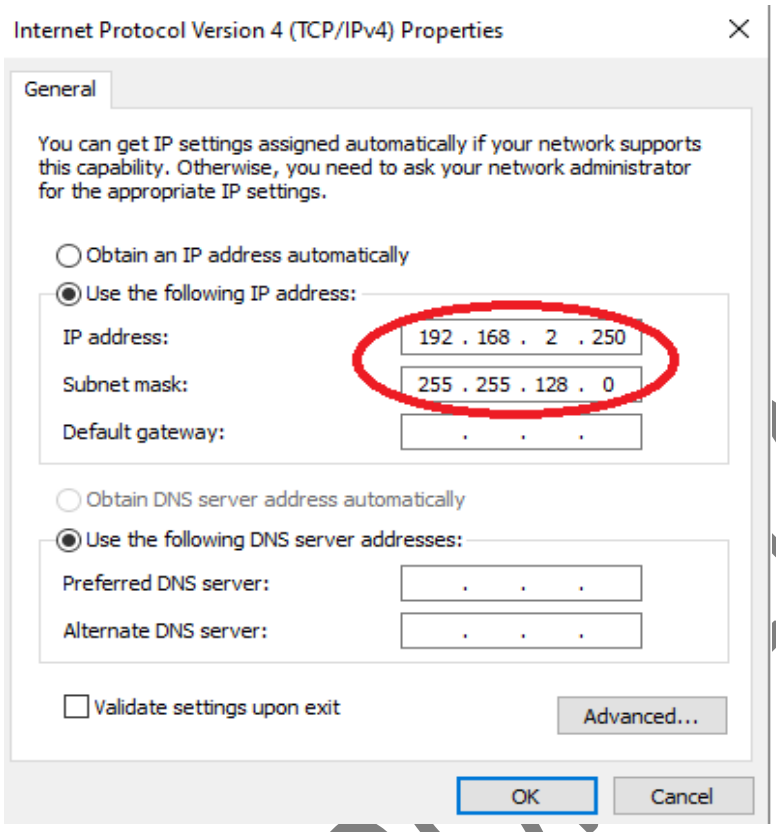
4. Connect your ethernet cable (from laptop) to the Conveylinx card, left or right link.
   a. Open EasyRoll, go to **Advance dialog/Network Services/Discover.**



   b. As Conveylinx card is new, it has the default IP: **192.168.202.20**



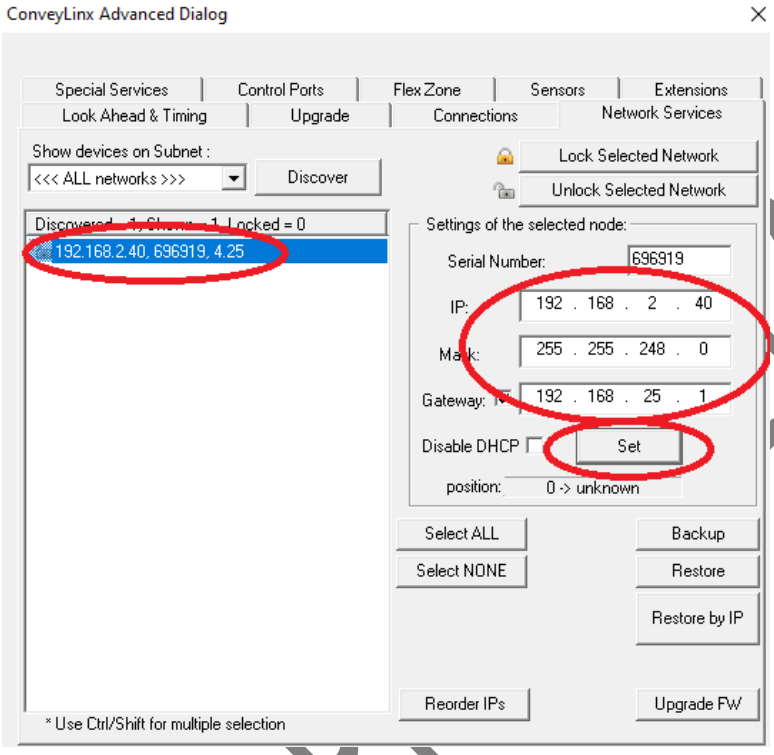
c. Change your network settings in your laptop to connect on card, PE: **192.168.2.250** and subnet mask as **244.255.128.0**



d. Double click on IP to have access to change 3rd octet, subnet mask and gateway.

- Change as follows:
- IP: **192.168.2.**40
- Mask: **255.255.248.0**
- Gateway: **192.168.25.1**

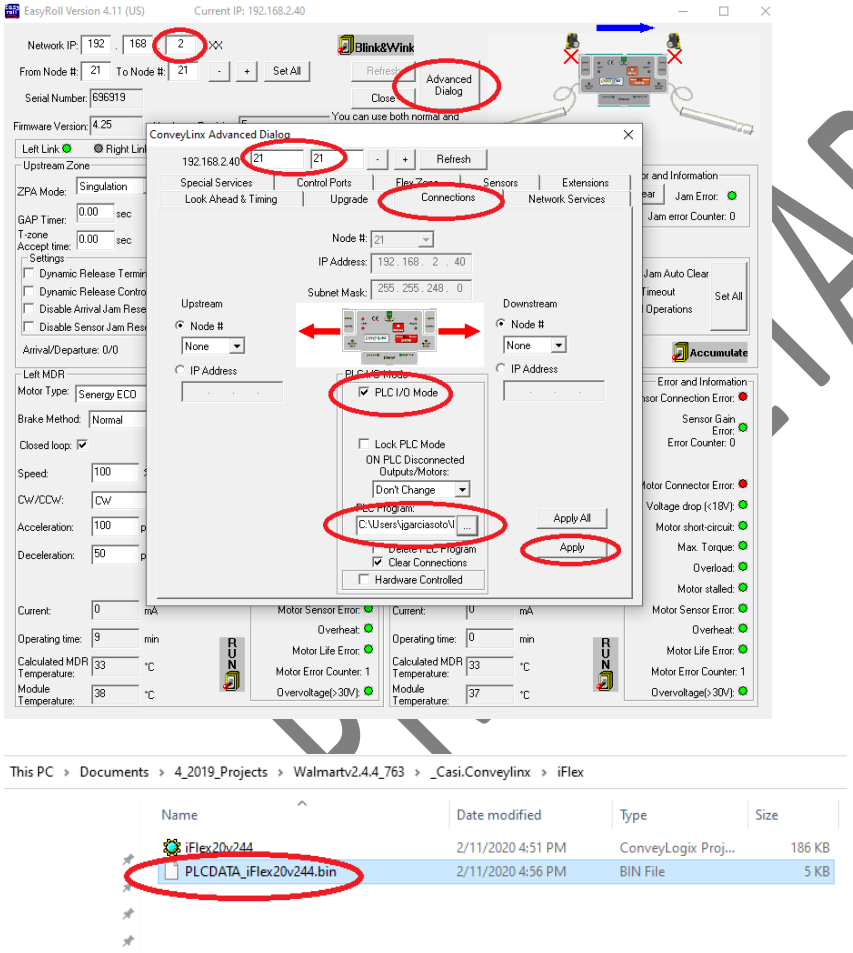
Then click on **SET** button



IMPORTANT NOTE: Please be sure the 3rd octet, Mask and Gateway are exacly like this to ensure the autoconfiguration works from HALO.

e. Download the correspondent program PE: *PLCDATA_iFlex20v244.bin*

- Go to EasyRoll
- Type Node network IP 3rd octet =2
- Click on **Advanced Dialog**
- Select Node **21** (as the sample using IP 192.168.2.40)
- Select **Connections** Tab/check **PLC/IO mode**
- Click on PLC Program (select the location of the file in your laptop…), double click on it.



5. Then click on **Apply** button

6. Now unplug your ethernet cable and connect ethernet cables Left link and Right link as the original card.
7. Connect motors and sensors as the original card.
8. Add the jumper to the upstream phoenix connector or use all 3 sections to make the autoconfiguration.
9. **Release HALO E-stop button** to trigger the autoconfiguration.
   Wait for configuration complete or done (light will be blinking yellow and speaker will announce "**E-stop push" … "Initializing system"** then **"Reconfiguration is Complete"**), 45 sec to 1 min approx.
   At this time the card will have the correspondent IP address, upstream and downstream connections as required.

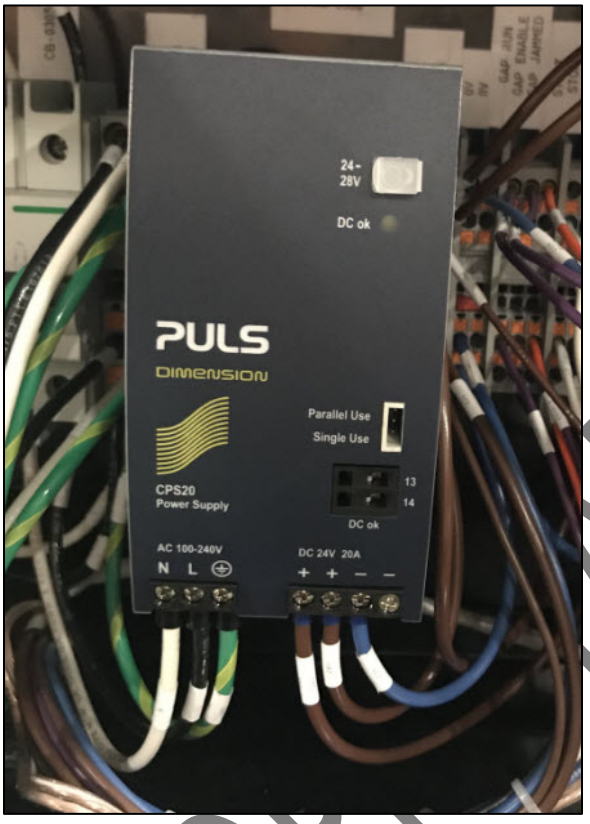
7.10 Power Supply Replacement Procedure

7.10.1 Removing a Power Supply

Follow these steps to remove a **Power Supply**.

1. Remove the cover from the downstream electrical box, by removing (4) M4 screws.

2. Disconnect the wiring coming out of the bottom of the power supply. All are labeled.
    a. White wire connected to **N** (neutral)
    b. Black wire connected to **L** (line)
    c. Green wire connected to **Ground** (symbol)
    d. (2) brown wires connected to '**+**'
    e. (1) blue wire connected to the left '**-**' (the right '**-**' is not used)

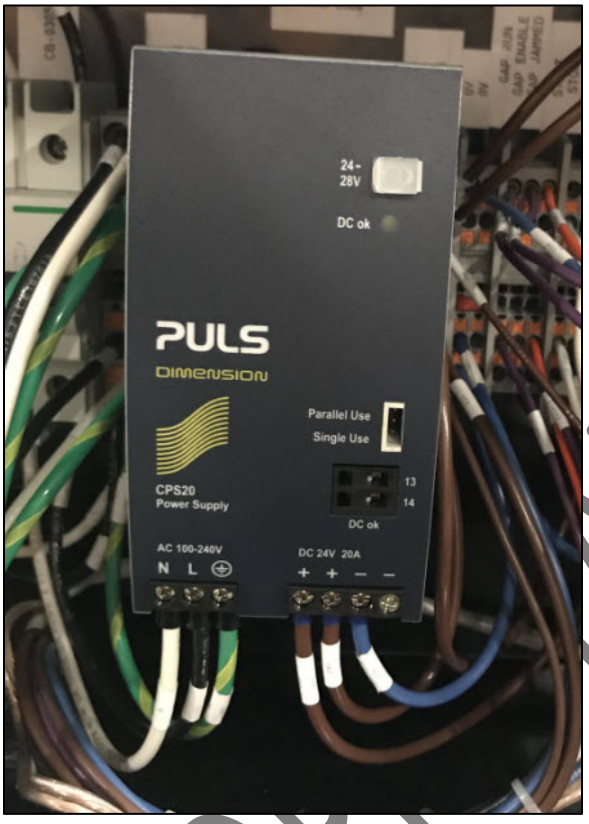


3. Use a flat head screwdriver to pop out the tab on the bottom toward the back of the power supply, that holds the power supply in place.

7.10.2 Replacing a Power Supply

Follow these steps to replace a **Power Supply**.

1. Seat the new power supply in place by pushing and locking the tab(s) onto the back wall of the electrical box.
2. Rewire all (5) wires, being careful to wire correctly. All are labeled. Before rewiring, check the ferrule on each of the wires. If it's damaged, the ferrule needs to be replaced. If the wire is too short to be trimmed and a new ferrule applied, then the wire needs to be replaced. **Note:** Be sure to place the wire to the left of the screw, so that when you turn the screw clockwise to tighten, the ferrule wraps over the screw. If you place it to the right of the screw and turn it clockwise to tighten, the ferrule can fall out.
    a. White wire connected to **N** (neutral)
    b. Black wire connected to **L** (line)
    c. Green wire connected to **Ground** (symbol)
    d. (2) brown wires connected to '**+**'
    e. (1) blue wire connected to the left '-' (the right '-' is not used)



3. Replace the cover of the downstream electrical box, being careful not to crimp any wires between the box and the cover.
4. Reinsert and tighten the (4) M4 screws.

7.11 LED Light Replacement Procedure

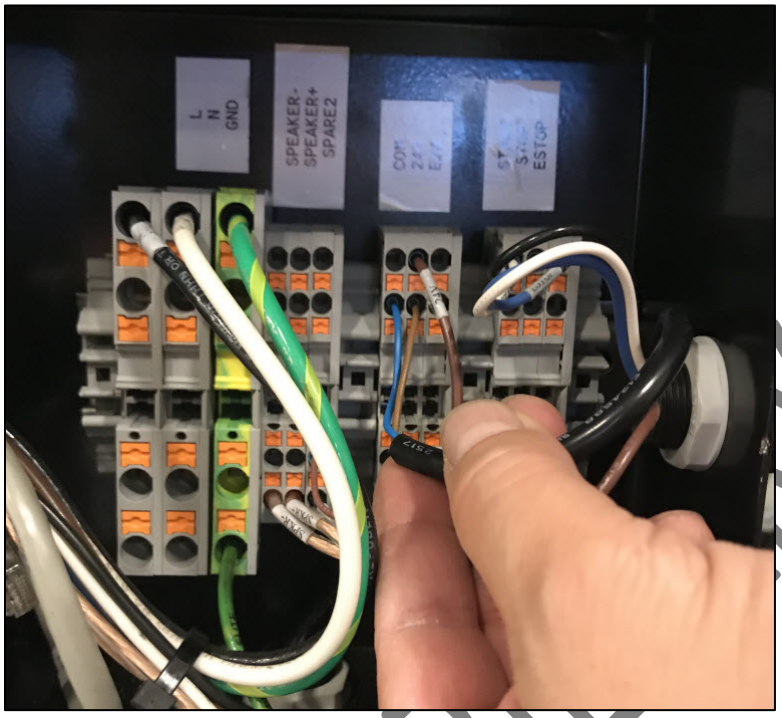
The **LED Light** is mounted under the conveyor rollers in the ELM section of the AFLEX Conveyor with ELM.

7.11.1 Removing the LED Light

Follow these steps to remove the **LED Light** from underneath the ELM section of the AFLEX Conveyor with ELM.

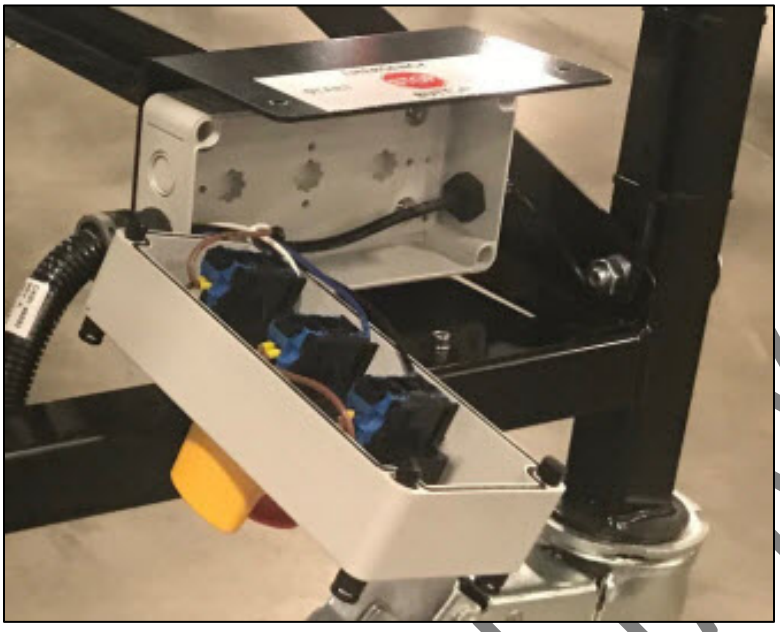
1. Remove the cover of the upstream electrical box, by unscrewing (4) M4 screws.

2. Disconnect the wire for the LED light.



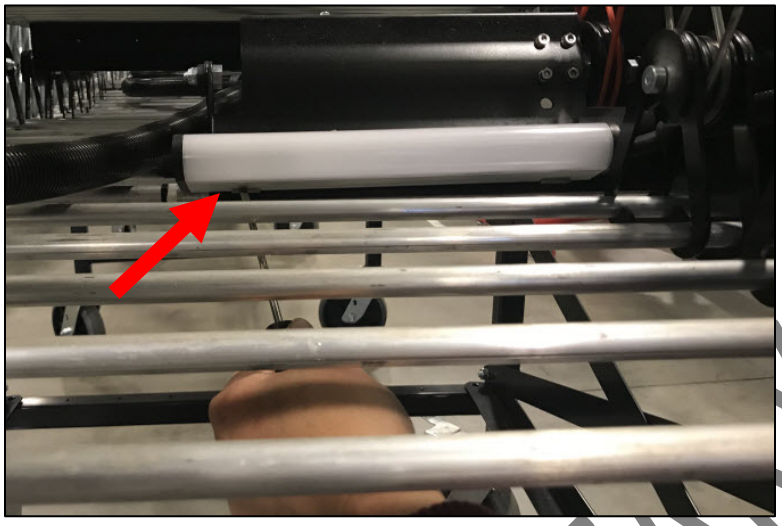
3. Remove the cover of the upstream control box, by loosening the (4) screws.

4. Remove the front of the control box. The LED light wiring enters the right side of the control box, lies along the bottom, and exits the left side of the control box by being routed inside the conduit that leads to the upstream electrical box.



5. Cut the cable ties on the LED light wiring along the frame and down the leg of the conveyor. **Note:** The yellow lines in this figure indicate the routing of the LED lighting along the frame and down the leg of the ELM conveyor.

6. Remove the LED light by popping the tabs under the light, using a flat head screwdriver.

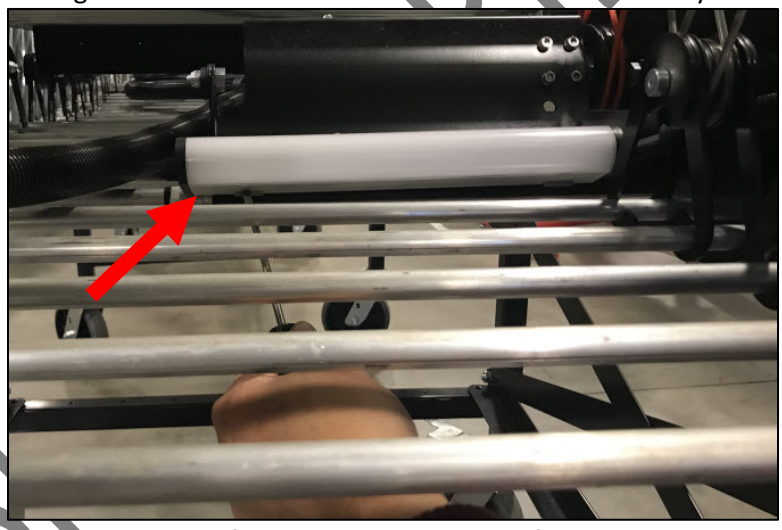


7. Remove the LED light.

7.11.2 Replacing the LED Light

Follow these steps to replace the **LED Light** underneath the ELM section of the AFLEX Conveyor with ELM.

1. Mount the new LED light underneath the ELM section of the AFLEX Conveyor with ELM.



2. Run the LED Light wiring along the frame and down the leg of the conveyor and hold in place with cable ties.
3. Run the LED Light wiring across the bottom of the upstream control box.
4. Run the LED Light wiring through the conduit coming out of the left side of the control box and into the upstream electrical box.
5. Before rewiring, check the ferrule on each of the wires. If it's damaged, the ferrule needs to be replaced. If the wire is too short to be trimmed and a new ferrule applied, then the wire needs to be replaced. **Note:** Be sure to place the wire to the left of the screw, so that when you turn the screw clockwise to tighten, the ferrule wraps over the screw. If you place it to the right of the screw and turn it clockwise to tighten, the ferrule can fall out.
6. Cable tie the conduit to the frame of the ELM section of the AFLEX Conveyor with ELM.
7. Replace the cover of the upstream electrical box, being careful not to crimp any wires between the box and the cover.
8. Reinsert and tighten the (4) M4 screws.

9. Replace the cover of the control box, being careful not to crimp any wires between the box and the cover.

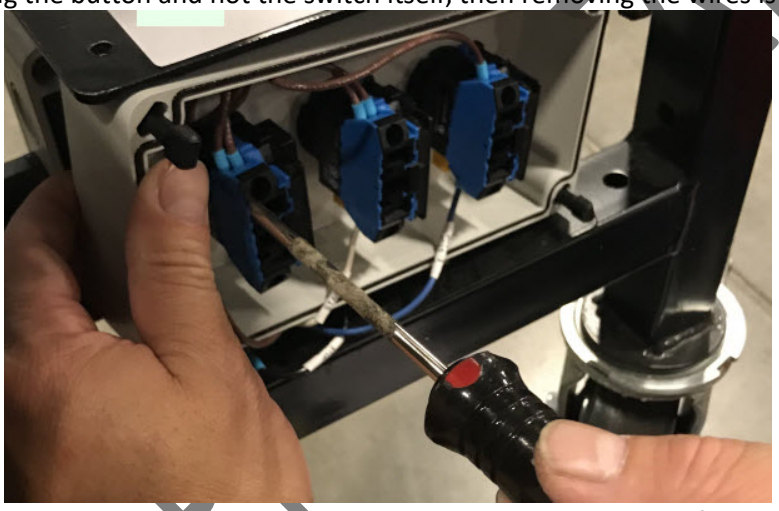
7.12 Start or Stop Button Replacement Procedure

There are **Start** and **Start** buttons on both the upstream and downstream control boxes of all AFLEX Conveyors.

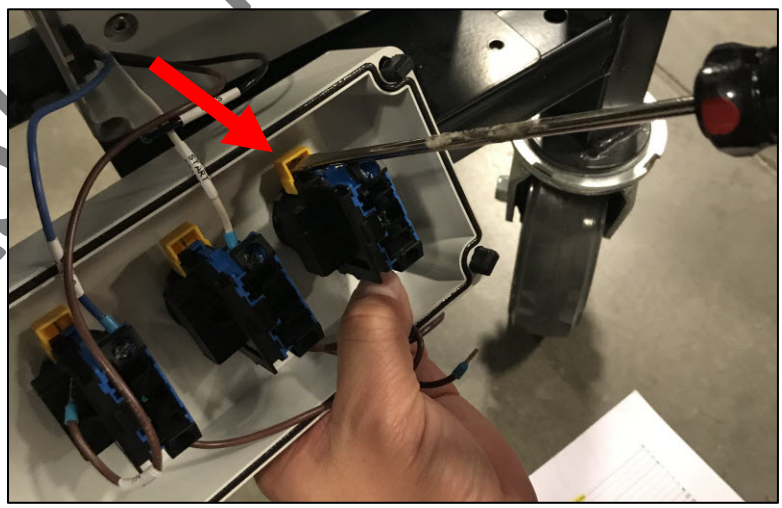
7.12.1 Removing a Start or Stop Button

Follow these steps to remove a **Start** or **Stop** button.

1. Open the control box that has the broken or non-functioning button, by using a flat head screwdriver to unscrew the (4) black plastic bolts.
2. Using a small Phillips screwdriver, unhook the (2) wires on the button to be replaced. **Note:** If you are just replacing the button and not the switch itself, then removing the wires is not necessary.

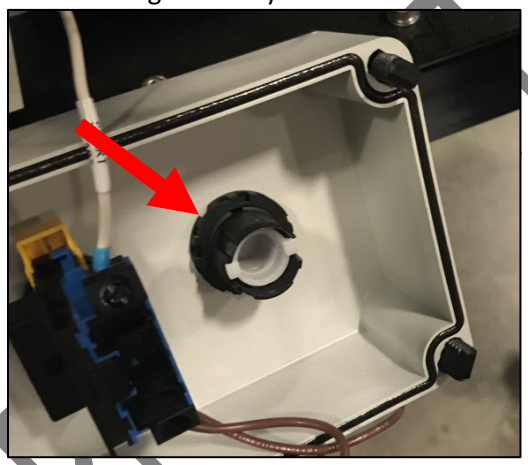


3. Using a flat head screwdriver, remove the yellow tab by sliding it up away from the blue housing.



4. Rotate the silver lock counterclockwise.

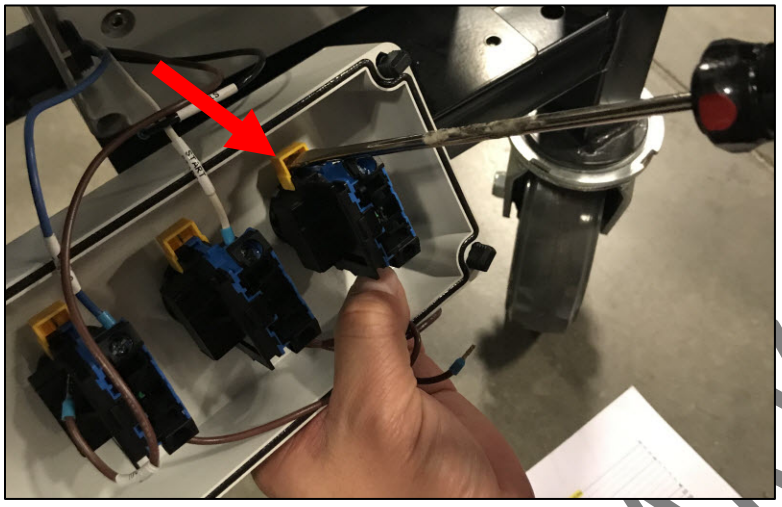
5. Remove the blue and black button housing assembly.
6. If the red or green button itself is broken, remove the nut holding the button in place, otherwise you can just replace the button housing assembly.



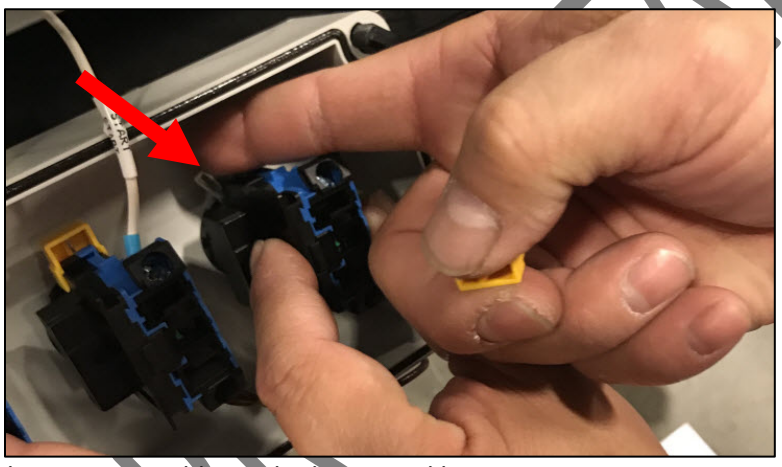
7.12.2 Replacing a Start or Stop Button

Follow these steps to replace a **Start** or **Stop** button.

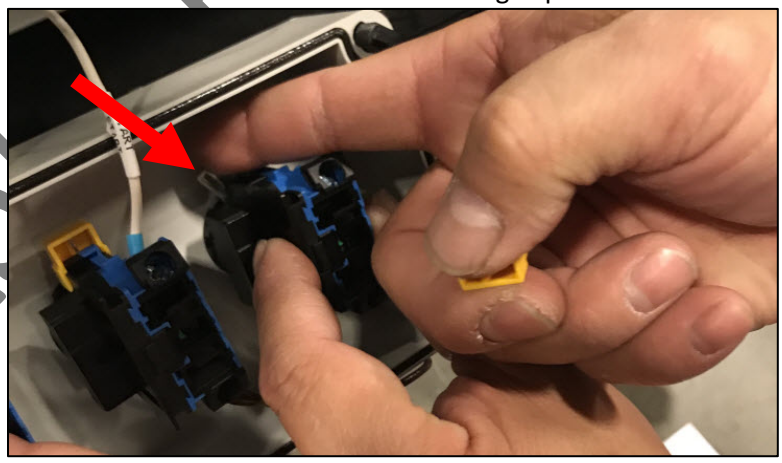
1. If the red or green button itself is being replaced, unscrew the nut holding the button to the blue and black button housing, otherwise skip this step.
2. Before rewiring, check the ferrule on each of the wires. If it's damaged, the ferrule needs to be replaced. If the wire is too short to be trimmed and a new ferrule applied, then the wire needs to be replaced. **Note:** Be sure to place the wire to the left of the screw, so that when you turn the screw clockwise to tighten, the ferrule wraps over the screw. If you place it to the right of the screw and turn it clockwise to tighten, the ferrule can fall out.
3. Attach the (2) wires to the new button housing and tighten screws, using a small Phillips head screwdriver.
4. Remove the yellow tab and set aside.



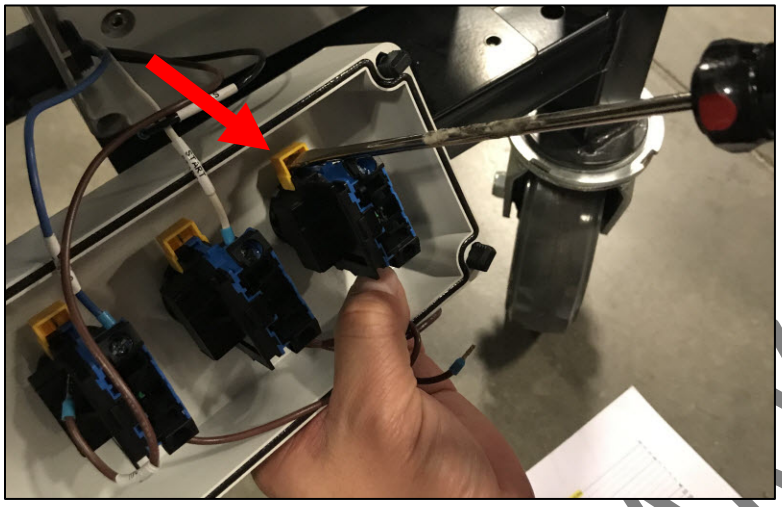
5. Slide the silver piece counterclockwise.



6. Seat the button housing assembly inside the control box.
7. Rotate the silver lock clockwise to lock the button housing in place.



8. Replace the yellow tab.



9. Replace the cover of the control box, being careful not to crimp any wires between the box and the cover.
10. Using a flat head screwdriver, reattach the cover by tightening the (4) M4 bolts.

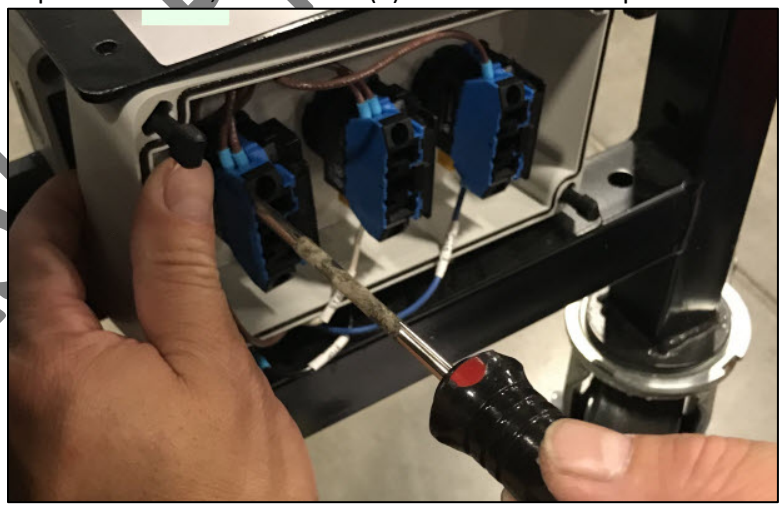
7.13 E-Stop (Emergency Stop) Button Replacement Procedure

There are **E-Stop (Emergency Stop)** buttons on both the upstream and downstream control boxes of all AFLEX Conveyors.

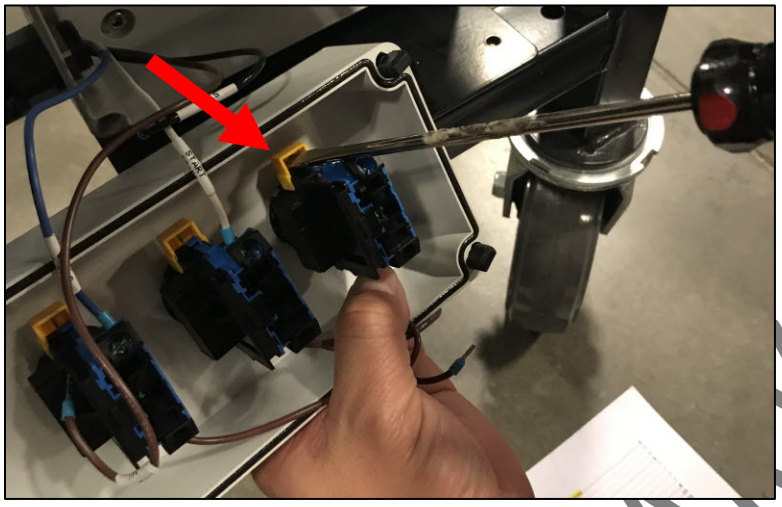
7.13.1 Removing an E-Stop (Emergency Stop) Button

Follow these steps to remove an **E-Stop (Emergency Stop)** button.

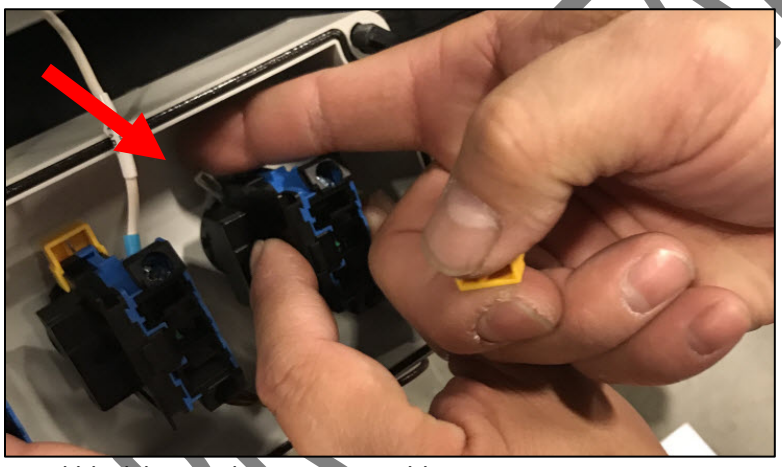
1. Open the control box that has the broken or non-functioning E-stop button, by using a flat head screwdriver to unscrew the (4) M4 bolts.
2. Using a small Phillips screwdriver, unhook the (2) wires on the E-stop button.



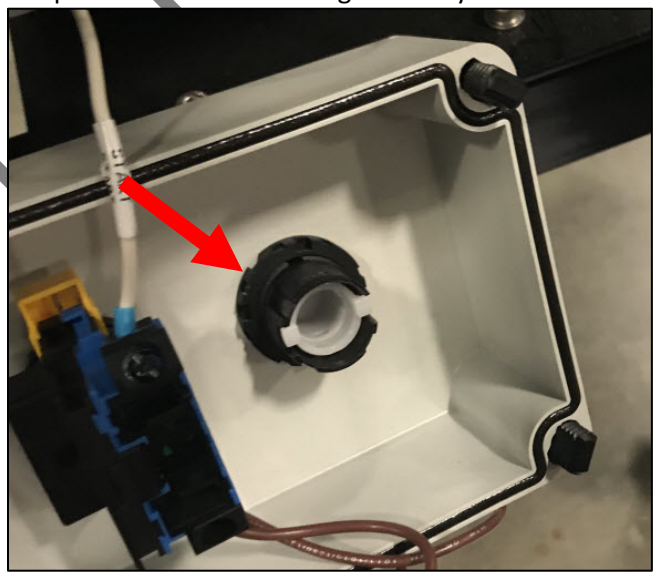
3. Using a flat head screwdriver, remove the yellow tab by sliding it up away from the blue housing.



4. Slide the silver piece counterclockwise.



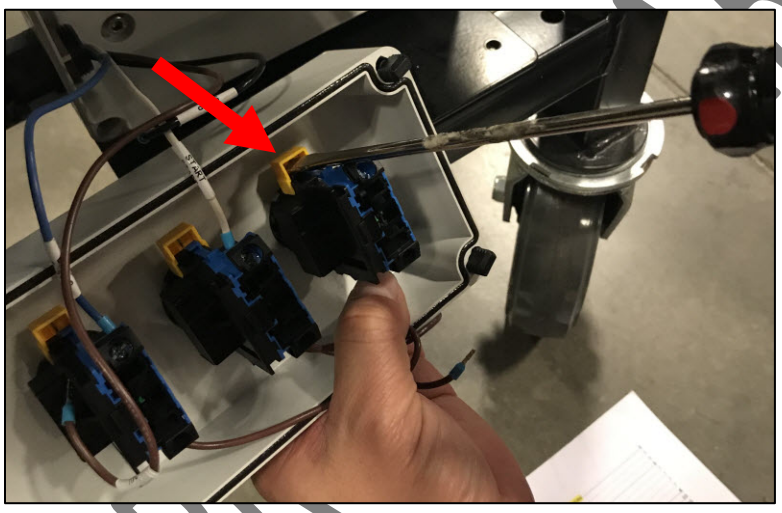
5. Remove the blue and black button housing assembly.
6. If the E-stop mushroom pushbutton itself is broken, remove the nut holding the button in place, otherwise you can just replace the button housing assembly.



7.13.2 Replacing an E-Stop (Emergency Stop) Button

Follow these steps to replace an **E-Stop (Emergency Stop)** button.

1. If the E-stop mushroom pushbutton itself is being replaced, unscrew the nut holding the button to the button housing, otherwise skip this step.
2. Before rewiring, check the ferrule on each of the wires. If it's damaged, the ferrule needs to be replaced. If the wire is too short to be trimmed and a new ferrule applied, then the wire needs to be replaced. **Note:** Be sure to place the wire to the left of the screw, so that when you turn the screw clockwise to tighten, the ferrule wraps over the screw. If you place it to the right of the screw and turn it clockwise to tighten, the ferrule can fall out.
3. Attach the (2) wires to the new E-stop button housing and tighten screws, , using a No. 2 Phillips head screwdriver.
4. Remove the yellow tab and set aside.



5. Rotate the silver lock counterclockwise.

6. Seat the button housing assembly inside the control box.
7. Slide the silver piece clockwise to lock the button housing in place.
8. Replace the yellow tab.
9. Replace the cover of the control box, being careful not to crimp any wires between the box and the cover.
10. Using a flat head screwdriver, reattach the cover by tightening the (4) black plastic bolts.

8 Mechanical Parts

The table on the following pages lists all mechanical parts called out on the mechanical exploded view drawings in this section.

For electrical components, refer to the Electrical Schematics section at the end of this service manual.

Table 2 – Mechanical Parts List

Item	CASI Part Number	Description
1	701	WASHER, FLAT, M5 X 10 X 0.9, 18-8 SS
2	704	WASHER, FLAT, M6, 6.4 ID, 12 OD, 18-8 SS
3	705	SCREW, SHCS, M6 X 1.0 X 12, FULL THRD, 18-8 SS
4	720	SCREW, SHCS, M5 X 0.8 X 12, FULL THRD, 18-8 SS
5	1355	DIN RAIL, SLOTTED, M35 X 2000 WEIDMULLER: 0514570000
6	1548	Wire, UL 1015, 12 AWG, 65 Strands, 600V, Tinned Copper, PVC, Brown
7	1549	Wire, UL 1015, 12 AWG, 65 Strands, 600V, Tinned Copper, PVC, Blue
8	2702	Idec, Relay Base, 2Pdt EE-CTL-REL-2702
9	3549	SCREW, SHCS, M4 X 0.7 X 14, FULL THRD, 18-8 SS
10	3604	SCREW, SHCS, M5 X 0.8 X 55, PARTIAL THRD, 18-8 SS
11	4096	SCREW, PHPS, M5 X 0.8 X 8, NO GRD, 18-8 SS, FULL THRD
12	4209	HEX NUT, NYLOCK, M4 X 0.7, 18-8 SS
13	4210	NUT, HEX, NYLOCK, M5 X 0.8, 8 W, 5 H, 18-8 SS
14	4211	NUT, HEX, NYLOCK, M6 X 1, 10 W, 6 H, 18-8 SS
15	5095	NUT, HEX, Keps Nut, M5X0.8Mm, Zinc Plated
16	6132	Wire, 18 AWG, BROWN, UL 1015, 18 AWG, 16 Strands, 600V, Tinned Copper, PVC 1,000ft Roll
17	6133	Wire, 18 AWG, BLUE, UL 1015, 18 AWG, 16 Strands, 600V, Tinned Copper, PVC
18	6134	Wire, 18 AWG, BLACK, UL 1015, 18 AWG, 16 Strands, 600V, Tinned Copper, PVC
19	6135	Wire, 18 AWG, WHITE, UL 1015, 18 AWG, 16 Strands, 600V, Tinned Copper, PVC
20	8994	Relay,2Pdt, Idec, 24Vdc

21	15180	LOCK NUT, PG 9 CORD GRIP
22	15849	Breakout Module, RJ-12 to Terminals, Amplified, 200MA Output Current, 24VDC, w/8" 6-Cond. Cable, INSIGHT AUTO
23	20290	Cover, E-Stop Shroud, 22 mm
24	21098	Circuit Breaker; Mag; Hndl; Cur-Rtg 10A; DIN Rail; 2 Pole; Vol-Rtg 240/125VAC/VDC; C-curve, UL-489
25	21143	O-RING, ROLLER, 7/32" X 9.180, HE HT BLACK 88A
26	21723	TERMINAL BLOCK, END STOP BRACKET, PHOENIX CONTACT
27	22146	CONNECTOR, CAT 5E INLINE COUPLER TYPE KEYSTONE JACK, RJ45 RECEPTACLE, BLACK
28	23292	LABEL, SAFETY, EQUIPMENT STARTS AUTOMATICALY, 4.00" x 2", YELLOW CAUTION
29	24964	Terminal block, feed through 4 connections, 2.5-quattro clipline, 26-12AWG, PHOENIX CONTACT
30	24966	Terminal Block, separator, feed through 4 connections, 2.5-quattro clipline FOR 12 awg TERM BLOCKS
31	25012	Terminal, Ring Tongue, 12-10 Awg, Yellow, Stud Sz 10
32	25449	FERRULE, 12 AWG, GRAY
33	26546	Modular Telephone Cable, 12", 6-Cond, RJ12 Straight Through, 6P6C, 1-6 pinout
34	26783	Bridge for Terminal block, 2 Positions plug in, 2.5-quattro clipline
35	28106	CABLE, CAT 5E ETHERNET, 6" 24AWG 350MHz UTP Bare Copper, WHITE
36	28944	WIRE, THHN COPPER 10 AWG, STRANDED, 600V, GREEN/YELLOW STRIPE
37	30359	LABEL, SAFETY, HIGH VOLTAGE, EUROPEAN STANDARD, 5" X 3 1/2"
38	36398	MOTOR, GEARED, PGD024-SE1-33 AAA, 33:1 SPEED RATIO, CONVEYLINX
39	37840	CONTROLLER, UL CERTIFIED, DRIVE CONTROL CARD, CONVEYLINX
40	38088	CABLE, CAT5e, Shielded, 1FT Patch, Gray
41	40113	Cord Grip Kit, PG 9, with Matching Nut, Black
42	41484	Ferrule, 10 awg, YELLOW, Single Insulated Wire Ferrule, 12mm length
43	41710	Ferrule, 18 AWG Yellow, 10mm Length Sold in bags of 500
44	41985	Wire, 18 AWG, WHITE/ BLUE, UL 1015, 18 AWG, 16 Strands, 600V, Tinned Copper, PVC

45	42267	Wire, 18 AWG, WHITE/RED, UL 1015, 18 AWG, 16 Strands, 600V, Tinned Copper, PVC
46	42268	Wire, 18 AWG, ORANGE, UL 1015, 18 AWG, 16 Strands, 600V, Tinned Copper, PVC
47	42269	Wire, 18 AWG, PURPLE, UL 1015, 18 AWG, 16 Strands, 600V, Tinned Copper, PVC
48	42282	HC-M-05-PT-F; PT Spring contact insert module; female 5 positions MKII
49	42283	HC-M-RJ45-08-GC-F/F; RJ45 Contact insert module, socket
50	42284	HC-M-02-AT-F-10 Contact insert module; female 2 positions, 40A; 1000V, Axial screw MKII
51	42288	HC-M-B16-MF-B; Module carrier frame, 4 slots. MKII
52	42494	Terminal block, feed-through; Push-in connection, number of connections: 4, cross section:0.5 mm² - 10 mm², AWG: 20 - 8 gray, PT6
53	42495	End cover, length: 90.5 mm, width: 2.2 mm, height: 36 mm, color: gray, PT6 quad
54	42497	Ground Terminal block, Push-in connection, number of connections: 4, cross section:0.5 mm² - 10 mm², AWG: 20 - 8, width: 8.2 mm, color: green-yellow, PT-6
55	43055	Ferrule, 10 AWG, Single Insulated, 9mm length; BLACK,, PACK OF 100
56	43731	Power Supply, 24 VDC, 20 Amp, SLIM PROFILE 100-240 VAC INPUT
57	44077	WIRE, THHN 10 AWG, BLACK 19 STRAND, 600V, PVC/NYLON
58	44078	WIRE, THHN 10 AWG, WHITE 19 STRAND, 600V, PVC/NYLON
59	44933	WL32 led light bar 285mm without pushbutton
60	45093	Connector RJ11 6P4C Male to 4 Pin Screw Terminal Connector
61	45126	HDC enclosures, Size: 6, Protection degree: IP65, Coupling housing, End-locking clamp, Standard, Size of cable entries: M 25
62	45127	HDC enclosures, Size: 6, Protection degree: IP65, Cable entry from side, Plug housing, End-locking clamp, (AFLEX Downstream Plug Housing)
63	45200	CLAMP, TUBE, 1 PIECE, NW29
64	45203	ELBOW, MALE, IP66, PA6, 3/4" NPT-NW23
65	45205	LOCK NUT, MOLTEC, 3/4" NPT-N04
66	45264	LABEL, WARNING, PINCH POINT, 3" x 1"

67	45283	Sensor, Diffuse,600 mm range;10 -30 V dc, Complementary Solid State PNP Output, 150mm /6" Cable-w/RJ11 Connector
68	45297	Cable, Cat5e Ethernet Bulk - Stranded, 350Mhz, STP, CM, Pure Bare Copper Wire, 24AWG, Gray
69	45480	RIVET, DOMED, 3/16, .236 TO .335 GRIP, STEEL, ZINC PLATE
70	45486	Push Button Switch Station Box 3 hole TWTADE/Red Green Momentary Push Button Switch 440V 10A 1NC 1NO,Red Mushroom Emergency Stop 1NC 1NO
71	45524	PART, BRACKET, MOTOR COVER, AFLEX
72	45526	PART, BRACKET, MOTOR MOUNT, AFLEX
73	45529	CONDUIT, PA6, NW17, CSA FINE BLACK TUBING, 50 Meter/164ft ROLL
74	45531	PART, EE BOX, AFLEX
75	45532	FITTING, KMS STRAIGHT MALE THREAD FITTING,IP66, NPT1/2 -NW17 k6-M-S-17N02
76	45539	CONDUIT, EXTERNAL METAL BRAID COVERED CONDUIT,50 Meter/164 ft ROLL PMB-FL23.50
77	45541	FITTING, MOLTEC, BRS M25 STRAIN RELIEF WITH METAL THREAD, NW 23, CABLE RANGE 17
78	45562	NAMEPLATE, AFLEX-100 ETL, STD 508A
79	45584	SAFETY COLOR APPLIED LABEL, BRIGHT GREEN, SAFE TO TOUCH; 3" X 1.5"
80	45607	PART, BRACKET, SENSOR MOUNT, AFLEX
81	45623	PART, COVER, SENSOR MOUNT, AFLEX
82	45625	PART, BRACKET, TERMINAL BOX, AFLEX
83	45626	PART, COVER, TERMINAL BOX, AFLEX
84	45870	CONDUIT ACCESSORY, BRASS NICKEL PLATED RING FOR METAL BRAIDED CONDUIT PMBR-23
85	45880	PART, BRACKET, E-STOP MOUNT, AFLEX
86	45933	NAMEPLATE, AFLEX-150 ETL, STD 508A
87	45956	LABEL, WHITE, 'A', 2" X 2", MATCH COLOR AND LETTER
88	45957	LABEL, BLACK, 'B', 2" X 2", MATCH COLOR AND LETTER
89	45968	LABEL, AFLEX CONVEYORS, TRUCK END, ARROW UP, 1" X 4"
90	45969	LABEL, AFLEX CONVEYORS, TRUCK END, ARROW DOWN, 1" X 4"

91	45970	LABEL, AFLEX CONVEYORS, SORTER END, ARROW UP, 1" X 4"
92	45971	LABEL, AFLEX CONVEYORS, SORTER END, ARROW DOWN, 1" X 4"
93	46135	ASSY, PCB, PHOTOEYE, AFLEX
94	46146	LABEL, SAFETY, EQUIPMENT STARTS AUTOMATICALLY, 3" X 1 1/2"
95	46196	LOCK NUT, MOLTEC, LN STANDARD METAL, NPT 1/2
96	46227	BELT, O-RING, ORANGE
97	46228	BELT, IDLER, CLEAR O-Ring, 1.5 AND 1.9 INCH ROLLER CONVEYOR
98	46304	PART, ENCLOSURE, JUNCTION BOX, CENTRALIZED, AFLEX
99	46308	ROLLER, IDLER, 1.900" OD, 29.000 BF, 2 STD GRV (ELM)
100	46309	ROLLER, IDLER, 1.500" OD, 29.000 BF, DIA 1/2 END, 2 STD GRV
101	46310	ASSY, PULLEY, IDLER, AFLEX
102	46315	ASSY, AFLEX DRIVE MOTOR WITH PULLEY MOUNTED
103	46410	ASSY, AFLEX, UPSTREAM CABLE CONNECTOR
104	46411	ASSY, AFLEX, DOWN STREAM CABLE CONNECTOR
105	46502	LABEL, CASI AFLEX FULL LABEL, INTELLIGENT FLEXIBLE POWERED CONVEYOR, 17" X 3 1/2"
106	46503	LABEL, CASI AFLEX LONG LABEL, INTELLIGENT FLEXIBLE POWERED CONVEYOR, 16" X 1 1/8"
107	46513	ASSY, AFLEX, MAIN CONDUIT WIRE HARNESS
108	46520	ASSY, AFLEX, ZONE 1,2 CONDUIT WIRE HARNESS
109	46521	ASSY, AFLEX, ZONE 3,4 CONDUIT WIRE HARNESS
110	46522	ASSY, AFLEX, ZONE 5,6 CONDUIT WIRE HARNESS
111	46523	ASSY, ELM AFLEX, MAIN CONDUIT WIRE HARNESS
112	46524	ASSY, ELM AFLEX, ZONE ELM,1,2 CONDUIT WIRE HARNESS
113	46560	CASTER, SWIVEL, DIA 8 INCH W/ BRAKE, ZINC PLATED STEEL BODY, RUBBER TREAD, POLYOLEFIN WHEEL CORE
114	46561	CASTER, SWIVEL, DIA 8 INCH W/O BRAKE, ZINC PLATED STEEL BODY, RUBBER TREAD, POLYOLEFIN WHEEL CORE
115	46579	ASSY, ELM AFLEX, ZONE 5,6 CONDUIT WIRE HARNESS
116	46588	CLAMP, HOSE, NYLON, MAX 0.608 in

117	46591	ASSY, AFLEX, PUSH BUTTON BOX UPSTREAM
118	46593	ASSY, AFLEX, PUSH BUTTON BOX DOWNSTREAM
119	46595	WASHER, REDUCING FOR CONDUIT, 3/4 IN X 1/2 IN, GALVANIZED STEEL
120	46608	LABEL, AFLEX COMBINATION SAFETY LABEL, START - E-STOP - STOP, 5" X 2"
121	46647	LABEL, AFLEX WITH ELM CENTER CONTROL BOX I/O IDENTIFICATION
122	46648	LABEL, AFLEX CENTER DRIVE CONTROL BOX I/O IDENTIFICATION
123	46649	LABEL, AFLEX DOWNSTREAM EE BOX I/O IDENTIFICATION
124	46650	LABEL, AFLEX UPSTREAM JUNCTION BOX I/O IDENTIFICATION
125	46651	LABEL, AFLEX ELM UPSTREAM JUNCTION BOX I/O IDENTIFICATION
126	46659	PART, WELDMENT, UPSTREAM HANDLE BAR, AFLEX
127	46669	CLAMP, RUBBER INSULATED CABLE CLAMP, 1/2 INCH
128	46672	PART, WELDMENT, LATCH MOUNT, AFLEX
129	46673	PART, WELDMENT, LATCH, AFLEX
130	46678	Steel Knock Out Seals, 3/4 in
131	46697	RIVET, 3/16 AVDELMATE SSLMS SERIES SYEEL/STEEL/STEEL
132	46698	RIVET, 3/16 KLAMP-TITE BAPK SERIES ALUMINUM/ALUMINUM
133	46699	RIVET, 1/4 AVEX 1661 SERIES, ALUMINUM/STEEL
134	46742	PART, COVER, EE BOX, AFLEX
135	46743	PART, BACK PANEL, EE BOX, AFLEX
136	46745	PART, COVER, CONTROL BOX, DRIVE CARD, AFLEX
137	46746	PART, BACK PANEL, CONTROL BOX, DRIVE CARD, AFLEX
138	46778	ASSY, X-BAR, AFLEX
139	46780	SCREW, SHOULDER, M8 X 1.25 X 22, 8 X 11, AFLEX
140	46781	SPACER, SHOULDER, AFLEX
141	46782	BAR, SPREADER, ALUMINUM, AFLEX
142	46783	LEG FRAME, AFLEX
143	46784	SCREW, M10 X 1.5 X 60, AFLEX
144	46785	WASHER, FLAT, OVERSIZED, 0.5” ID X 1.25” OD, AFLEX
145	46786	WASHER, LOCK, M10, AFLEX

146	46787	NUT, M10, AFLEX
147	46789	LEG FRAME, ELM, AFLEX

8.1 Drive Motor and Pulley Assembly Mounting

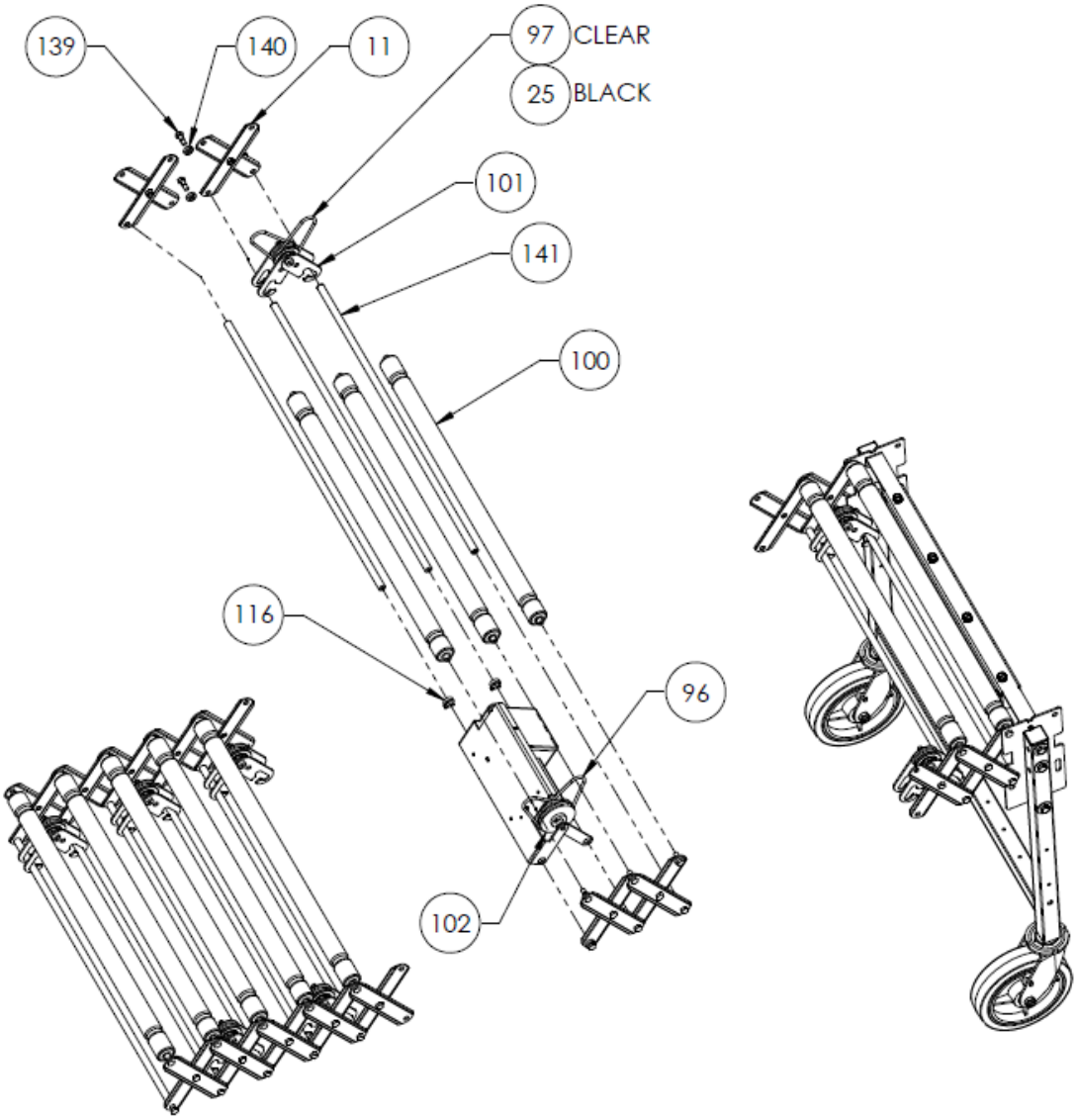


Figure 14 – Drive Motor and Pulley Assembly Mounting

8.2 LEG SET MOUNTING

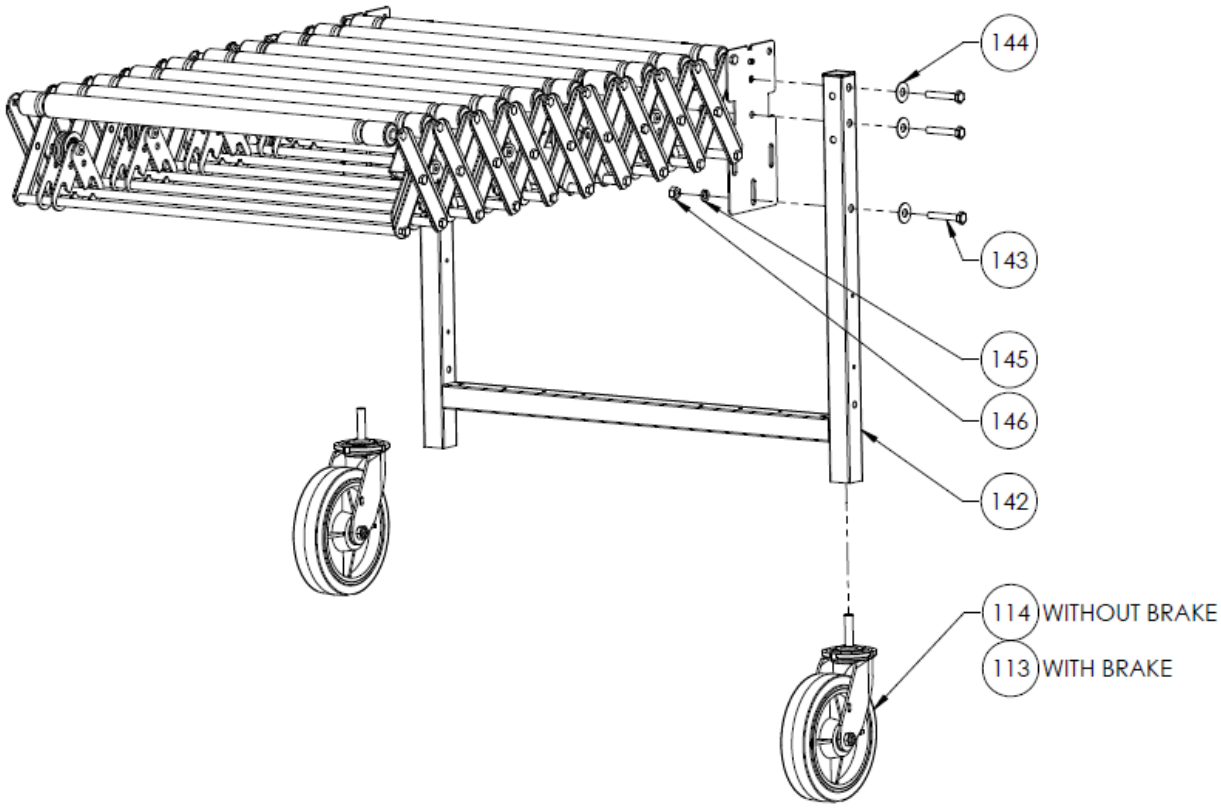


Figure 15 - Leg Set Mounting

8.3 DRIVE MOTOR AND PULLEY ASSEMBLY

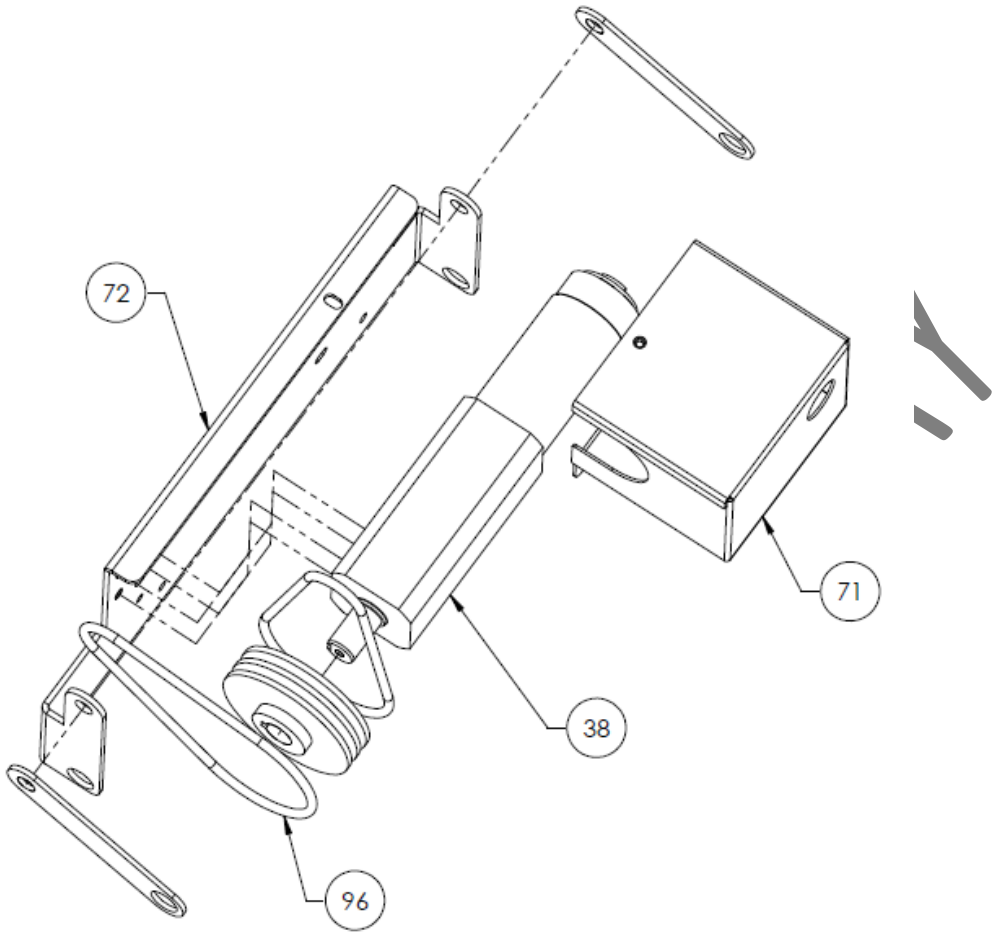


Figure 16 - Drive Motor and Pulley Assembly

8.4 PHOTOEYE BAR AND PHOTOEYES ASSEMBLY

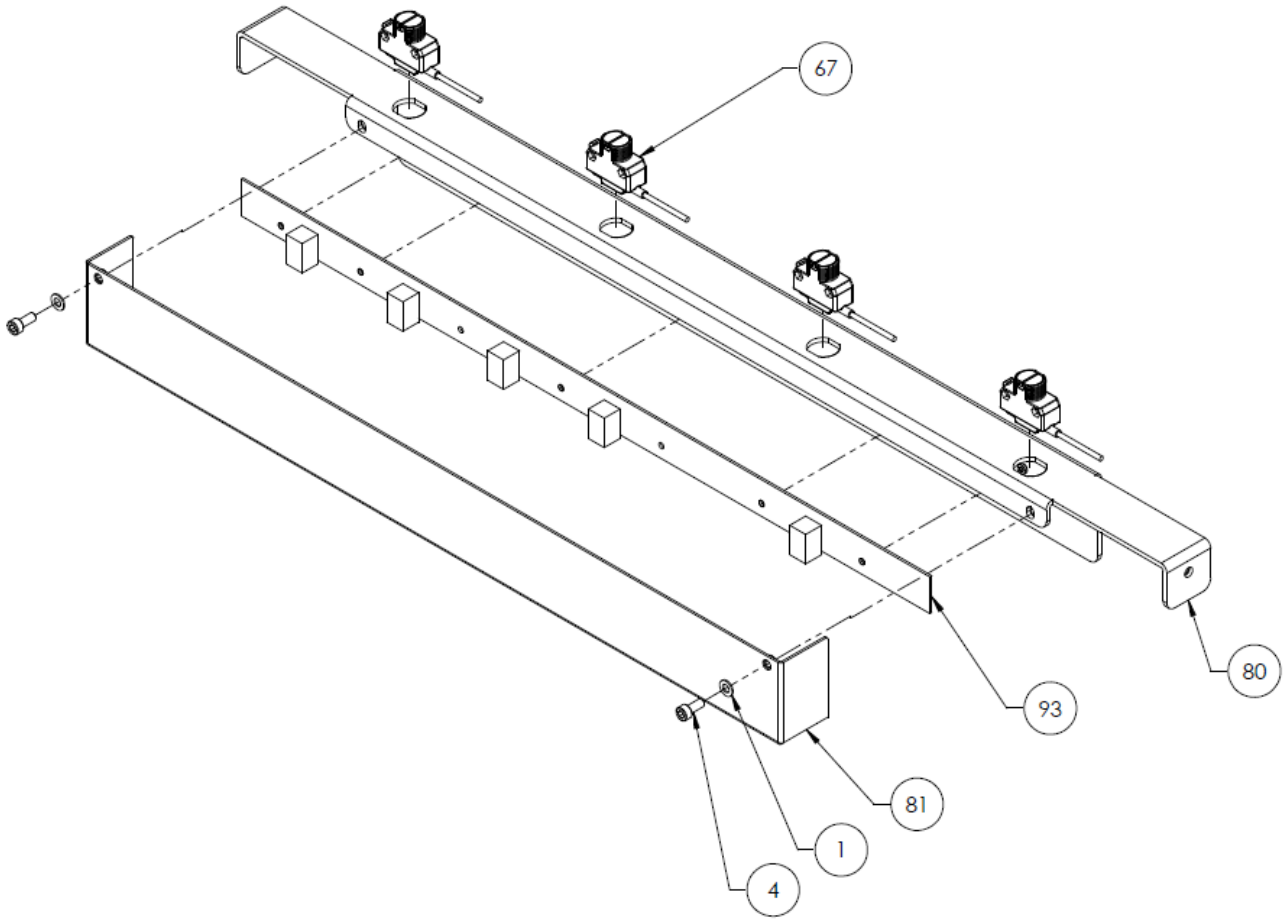


Figure 17 – Photoeye Bar and Photoeyes Assembly

8.5 AFLEX WITH ELM DRIVE MOTOR AND PULLEY ASSEMBLY MOUNTING

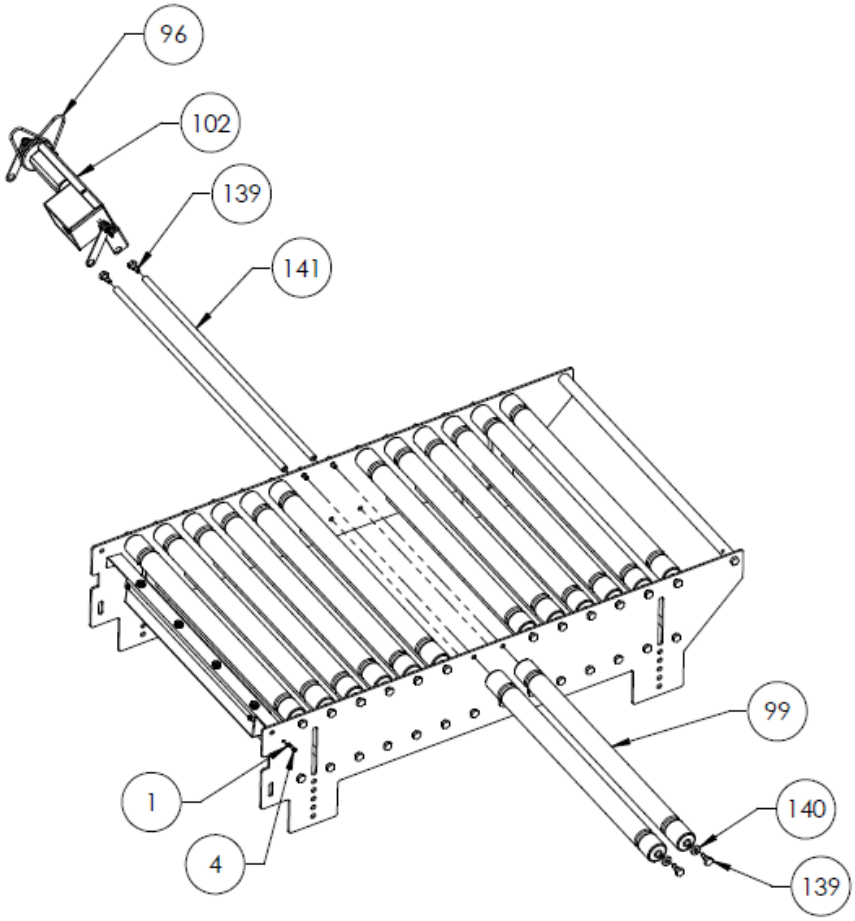


Figure 18 – AFLEX with ELM Drive Motor and Pulley Assembly Mounting

8.6 AFLEX WITH ELM LEG SET MOUNTING

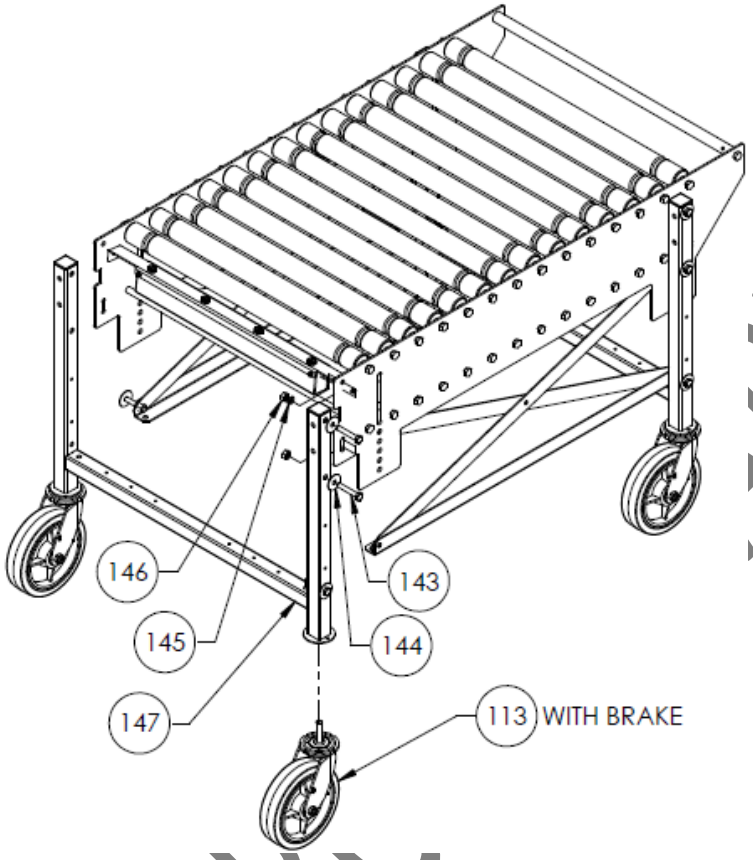


Figure 19 - ELM Leg Set Mounting

8.7 AFLEX WITH ELM UPSTREAM ELECTRICAL BOX AND CONTROL BOX MOUNTING

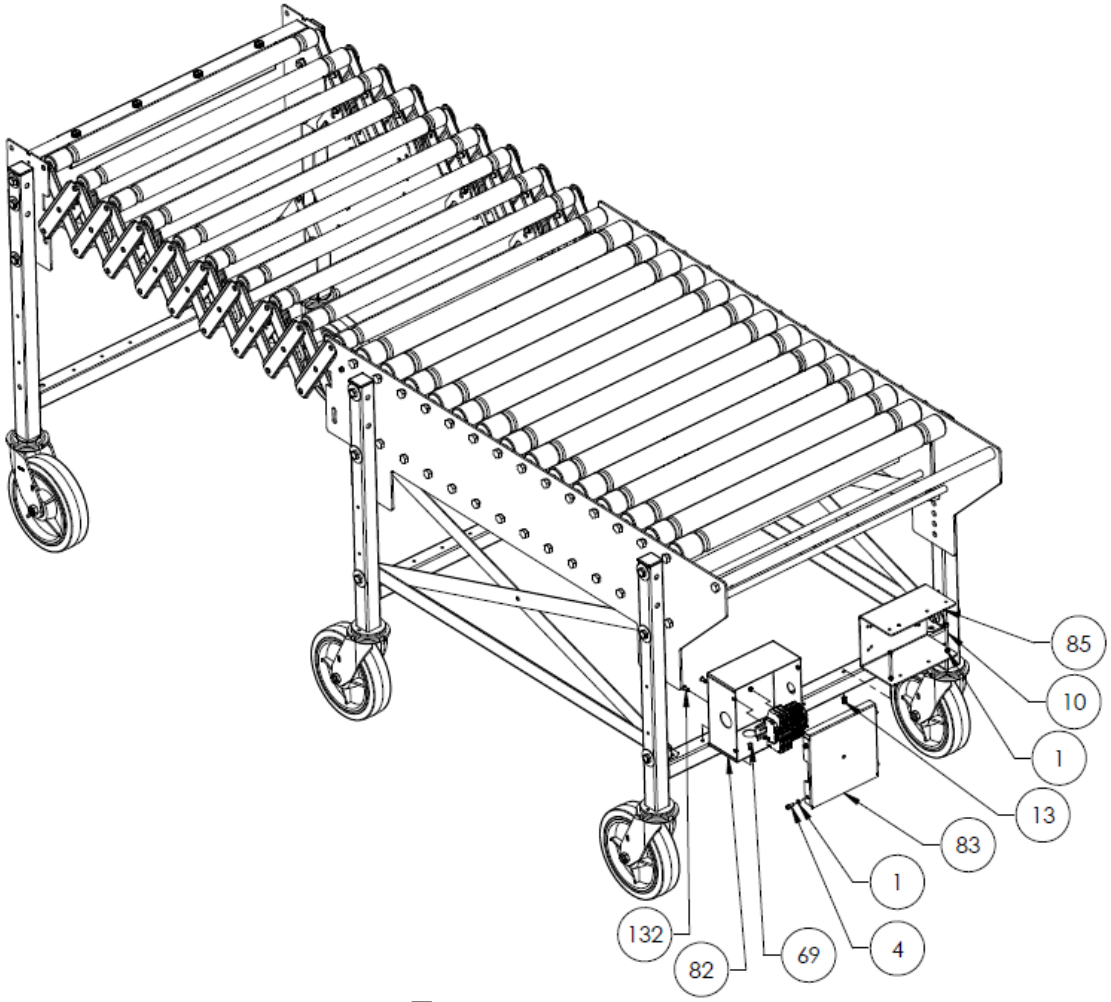


Figure 20 – AFLEX with ELM Upstream Electrical Box and Control Box Mounting

8.8 AFLEX Conveyor and Downstream Electrical Box and Control Box Mounting

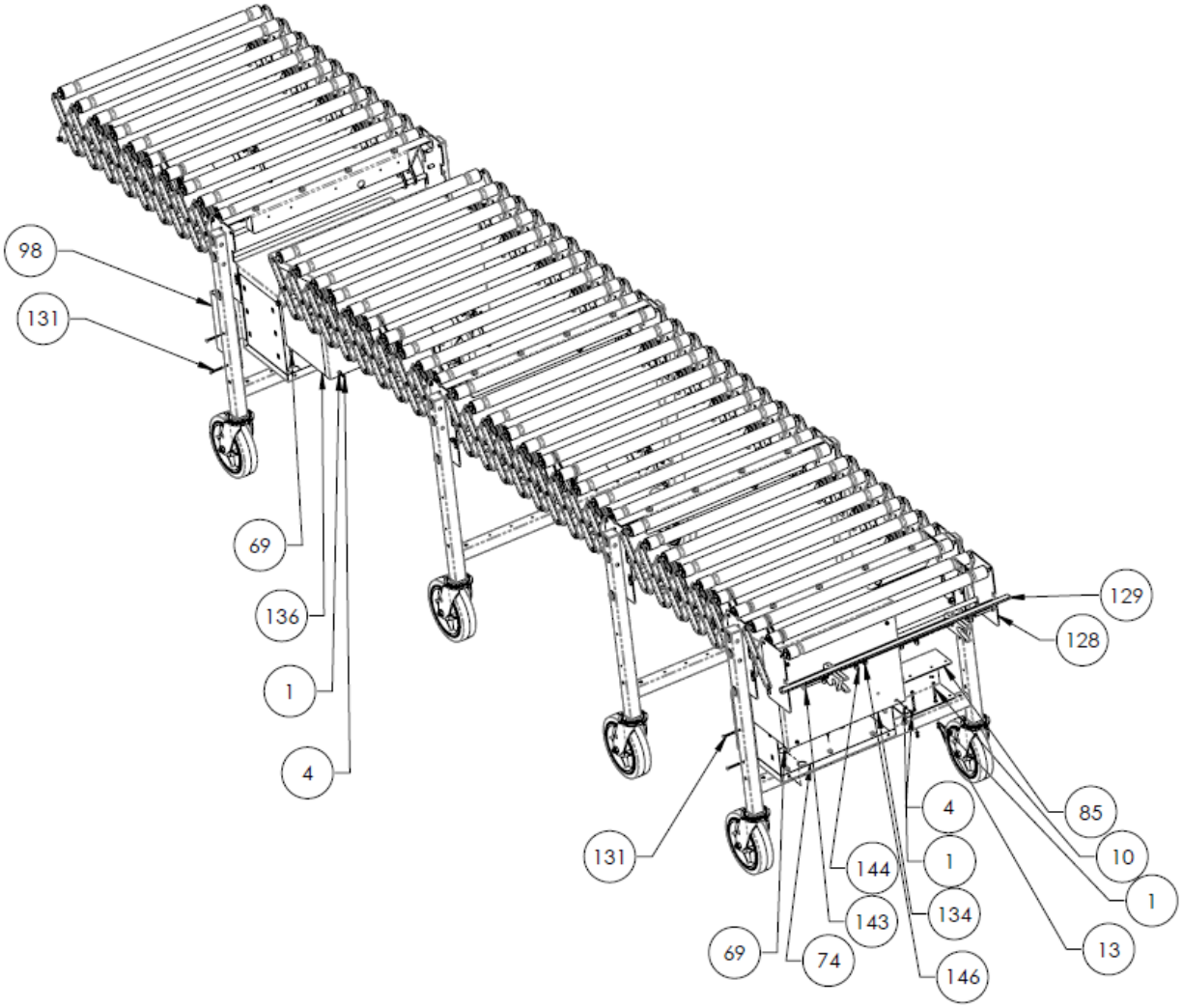


Figure 21 – AFLEX Conveyor and Downstream Electrical Box and Control Box Mounting

8.9 AFLEX Conveyor and Upstream Electrical Box and Control Box Mounting

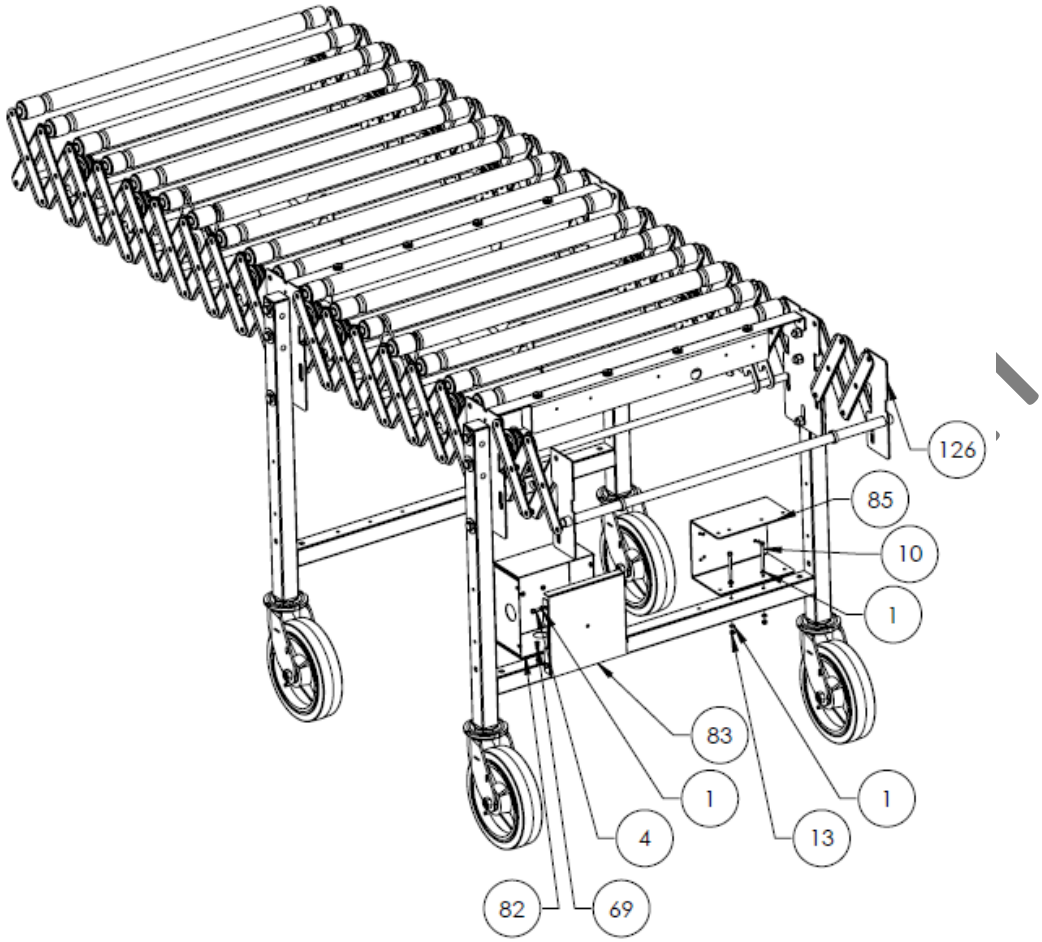


Figure 22 – AFLEX Conveyor and Upstream Electrical Box and Control Box Mounting

9 Recommended Spare Parts List

The following table lists the recommended spare parts and quantities that CASI recommends having on hand for potential repairs of the AFLEX Conveyors.

Table 3 – Recommended Spare Parts List

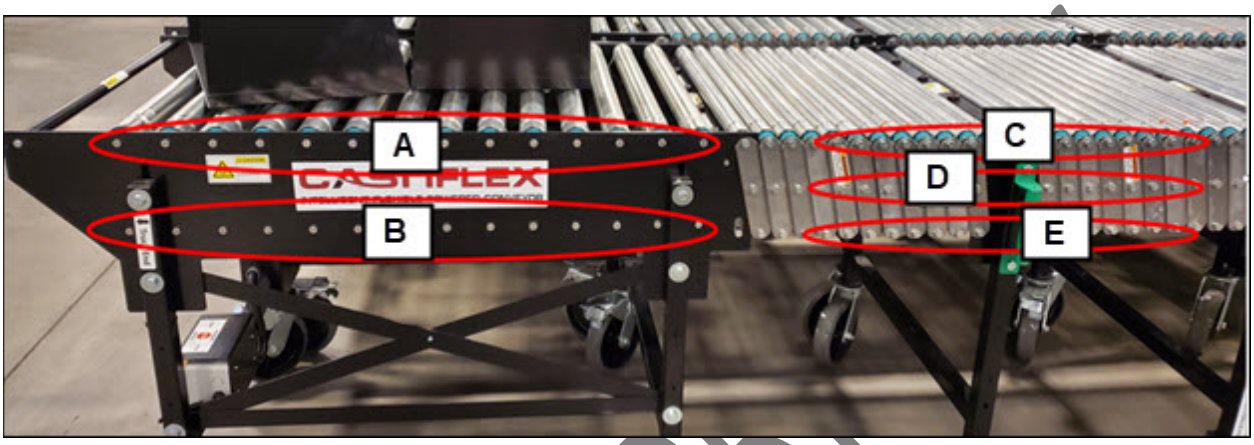
Item	CASI Part Number	Description	Recommended QTY
1	37840	CONTROLLER, UL CERTIFIED, DRIVE CONTROL CARD, CONVEYLINX	1
2	46227	BELT, DRIVE, O-Ring, Orange	3
3	46228	BELT, IDLER, CLEAR O-Ring, 1.5 AND 1.9 INCH ROLLER CONVEYOR	5
4	21143	O-RING, ROLLER, 7/32" X 9.180, HE HT BLACK 88A	2
5	46308	ROLLER, IDLER, 1.900" OD, 29.000 BF, 2 STD GRV **(ELM)**	1
6	46309	ROLLER, IDLER, 1.500" OD, 29.000 BF, DIA 1/2 END, 2 STD GRV	1
7	36398	MOTOR, GEARED, PGD024-SE1-33 AAA, 33:1 SPEED RATIO, CONVEYLINX	1
8	46310	ASSY, PULLEY, IDLER, AFLEX	1
9	46315	ASSY, AFLEX DRIVE MOTOR WITH PULLEY MOUNTED	1
10	45283	Sensor, Diffused, 600mm Range, PNP Output, 6" Cable-w/RJ11 Connector	1
11	46135	ASSY, PCB, PHOTOEYE, AFLEX	1
12	15849	Breakout Module, RJ-12 to Terminals, Amplified, 200MA Output Current, 24VDC, w/8" 6-Cond. Cable	1
13	44933	WL32 led light bar 285mm without pushbutton **(ELM section)**	1
14	43731	Power Supply, 24 VDC, 20 Amp, SLIM PROFILE 100-240 VAC INPUT	1
15	45486	Push Button Switch Station Box 3 hole TWTADE/Red, Green Momentary Push Button Switch 440V 10A 1NC 1NO,Red Mushroom Emergency Stop	1
16	45126	HDC enclosures, Size: 6, Protection degree: IP65, Coupling housing, End-locking clamp, Standard, **(AFLEX Upstream Plug Housing)**	1

Item	CASI Part Number	Description	Recommended QTY
17	45127	HDC enclosures, Size: 6, Protection degree: IP65, Cable entry from side, Plug housing, End-locking clamp, **(AFLEX Downstream Plug Housing)**	1
18	45541	FITTING, MOLTEC, BRS M25 STRAIN RELIEF WITH METAL THREAD, NW 23, CABLE RANGE 17 **(45547 Lock Nut)**	1
19	46560	CASTER, SWIVEL, DIA 8 INCH W/ BRAKE, ZINC PLATED STEEL BODY, RUBBER TREAD, POLYOLEFIN WHEEL CORE	1
20	46561	CASTER, SWIVEL, DIA 8 INCH W/O BRAKE, ZINC PLATED STEEL BODY, RUBBER TREAD, POLYOLEFIN WHEEL CORE	1
21	46659	UPSTREAM HANDLEBAR	1
22	46672	LATCH MOUNT	1
23	46673	LATCH	1

10 Preventive Maintenance

The following tables describe the suggested preventive maintenance for the CASI AFLEX conveyor, on a **D**aily, **W**eekly, **M**onthly, and **Q**uarterly basis.

10.1 Critical Bolt Tightening Preventive Maintenance



Description	Frequency			
	D	W	M	Q
Perform a daily visual inspection of all bolts on both sides of the AFLEX ELM and conveyors and tighten as needed. • A – Top bolts on both sides of ELM • B – Bottom bolts on both sides of ELM • C – Top bolts on both sides of conveyors • D – Center bolts on both sides of conveyors • E – Bottom bolts on both sides of conveyors	X			
Tighten ALL bolts along both sides of the AFLEX conveyors on a weekly basis. • A – Top bolts on both sides of ELM • B – Bottom bolts on both sides of ELM • C – Top bolts on both sides of conveyors • D – Center bolts on both sides of conveyors • E – Bottom bolts on both sides of conveyors		X		
Torque to		X		
Loctite Blue 242		X		

10.2 CLEANING

Table 4 - General AFLEX Cleaning Schedule

Description	Frequency			
	D	W	M	Q
Wipe down conveyor rollers and photoeye bars with alcohol wipes.	X			
Wipe photoeyes with a dry cloth. If there is build up on them, use an alcohol wipe.	X			
Vacuum debris off conveyor and conveyor parts to ensure conveyor is free of dust and debris which could interfere with normal operation.		X		
Complete wipe down of entire conveyor, including frame.			X	

10.3 GENERAL MECHANICAL PREVENTIVE MAINTENANCE

Table 5 – General Mechanical Preventive Maintenance Schedule

Item	Description	Frequency			
		D	W	M	Q
Roller Motors	Ensure the Motor Roller fasteners are tight.		X		
Conveyor Visual Inspection	Perform visual inspection for broken or damaged components.	X			
Hardware Checks	1. Ensure all nuts and bolts are tight. 2. Ensure belts are snug and do not slip. 3. Ensure Idler rollers are free spinning. 4. Check Roller motors for visible damage.			X	
Casters	Tighten casters.			X	

10.4 GENERAL ELECTRICAL PREVENTIVE MAINTENANCE

Table 6 – General Electrical Preventive Maintenance Schedule

Item	Description	Frequency

		D	W	M	Q
Emergency Stop Circuit	Check the functionality of all Emergency Stop (E-Stop) buttons.	X			
Photoeyes	Verify photoeyes are functioning with these steps: 1. Hold your hand over one photoeye. Section of conveyor should start to run. 2. Remove hand. Section of conveyor will stop. 3. Repeat Steps 1 and 2 for all other photoeyes on that bar. If one photoeye fails, that photoeye bar fails and conveyor section will fail to run.	X			
	Clean photoeye lenses and reflectors with a dry cloth to remove dust or an alcohol wipe if needed for any build up.		X		
Electrical Connections	Ensure all electrical connections, such as Phoenix connectors and RJ45 connectors are in place and fully connected. Inspect for damage and replace as needed.		X		
Flex Conduit	Ensure any/all flex conduit is free of nicks, cuts, or abrasions.		X		
Connector	Conduct daily and weekly walkthroughs of the conveyor. Look for any damage on housing, connecting surface, harness, missing hardware. Repair before use.	X			

10.5 General Conveyor Preventive Maintenance

Table 7 – General Conveyors Preventive Maintenance Schedule

Item	Description	Frequency			
		D	W	M	Q
Motor Drive Cards	Check looseness or backlash of bolts/screws. Tighten them, if necessary.		X		
	Check the drive card leads for visible damage.			X	
	Ensure the screws of the drive cards are still tight and that the cables are still laid properly and connected to the terminals.	Annually			
	Dust and dirt in combination with humidity may bridge the electric circuit. Regularly blow off dust and dirt by using low compressed air.	As needed			
Roller O-rings	Inspect for wear, replace as necessary.			X	
Entire Conveyor	Conduct daily and weekly walkthroughs of the conveyor. Look for any abnormal action of conveyor, unusual noises, loosened bolts, loosened casters, etc. Repair before use.	X	X		

11 Troubleshooting Guide

11.1 DISCLAIMER

- Risk of electric shock, pinch point injury, among other injuries, could occur if the conveyor is operated or maintenance work is performed in an unsafe manner. Care should be taken at all times when working with moving, rotating, and electrically energized machinery.
- All operation and maintenance should be performed by trained and competent individuals.
- Personnel operating the conveyor must be properly trained in its use, including the proper sequence of starting and stopping the conveyor and the correct loading and unloading methods.
- Use the handles on each side of the conveyor, at both ends, to move, expand and compact the AFLEX conveyor. While doing so, keep hands clear of the frame's sidebars to avoid pinch point injury.
- Keep hands, long hair, loose clothing and jewelry away from moving conveyor parts and rollers.
- Do not exceed recommended maximum conveyor load capacity.
- Before starting the conveyor, be sure no unwanted boxes, or other items are on the conveyor rollers.
- Do not operate the conveyor with damaged or broken parts.
- All operation and basic preventive maintenance should be performed by trained and competent individuals.
- To avoid risk of electric shock, do not operate the conveyor with a cover of an electrical box removed.
- Only qualified and trained technicians and maintenance personnel should perform service and/or repair work on the conveyor.
- If this first level troubleshooting does not return the conveyor to operation, CASI technical support is available.

CASI Technical Support 800-930-3788

11.2 General Troubleshooting

The Troubleshooting Guide is intended to assist operators in resolving issues while operating the CASI AFLEX conveyor. Written in an "if-then" style, each problem identified during the installation and start-up of the conveyor is included.

The following tables serve as reference for common issues. For issues not listed, call CASI Technical Support.

Table 8 – General Troubleshooting

Problem	Correction
Clearing a jammed product	Ensure equipment is stopped (wait at least 5 seconds to make sure the equipment does not auto start). • Assess the situation to best determine the cause of product jam. • Clear jammed materials. • Check for damage or loose pieces of product that might later free up and block or re-jam components. • Boxes without rigid flat bottoms may not convey.
Number of sorters displayed on PC doesn't match the sorters connected to the system	• Check all connectors for mechanic and electric connection. If a damaged connector is found, contact service. • Press E-Stop on Halo module and release it. The red light should light up. If problem persist, contact service.
Halo E-Stop doesn't light up when pressed	• If system goes in E-Stop mode, meaning red light on the E-stop button does not come on, but E-Stop error message displays, the LED light inside the E-Stop button could be broken. Replace E-stop button. • If system doesn't go in E-Stop mode, meaning red light on the Halo doesn't come on and E-Stop error message doesn't display, check physical button and wiring connections for integrity/continuity malfunction (an electrician is required)
System doesn't sort sending all items to lane 9	• Check if proper trailer # is set on the OPERATIONS tab menu. • Check if the item assigned and confirmed lane on the EVENT LOG tab menu is correct. • Check photo eyes. • Restart PC.
System sorting in the wrong lane	• Check if proper trailer # is set on the XXXX tab menu. • Check if the item assigned and confirmed lane on the EVENT LOG tab menu is correct. • Restart PC.
HMI won't upload the trailer	• Check number on trailer • Make sure system is connected to and can see the Network.

	• Restart PC.

11.3 CONVEYORS TROUBLESHOOTING

Table 9 – General Conveyor Troubleshooting

Issue	Correction
No Zones on the conveyor will run	• Ensure all connections are plugged properly. • Ensure power supply is properly connected. Check for loose connections and repair or replace any loose or damaged power supplies. • Check sensor bar for amber light. • If no light contact service.
Individual zone will not run	• Check if the driving O-Ring for that section is missing/damaged, or out of the driving pulley. Check if motor still has proper clamps that prevents sliding issue. Replace with proper colored O-Ring and clamps as needed. • Check all drive motor and pully assemblies on affected conveyor section. Replace any drive motor and pully assemblies, as necessary. • Check all connections on the drive card for any loose or disconnected wires. Repair or replace any wires or connectors, as necessary. • Check all drive cards in affected conveyor section. Replace any defective drive cards as necessary.
	• Ensure photoeye cable is fully connected to drive card. Inspect cable for cuts or abrasions. Repair or replace as necessary. • Ensure photoeye is seated into circuit board. • Ensure there is no debris or foreign object interfering with the operation of each photoeye.
	• Hold your hand over one photoeye. That section of conveyor should start to run. • Remove hand. Section of conveyor should stop. • Repeat Steps 1 and 2 for all other photoeyes on that photoeye bar. If one photoeye fails, that photoeye bar fails, and conveyor section will fail to run.
A zone will not start after accumulation	• Ensure O-rings are not stretched, worn or cut. Replace any and all defective O-rings. • Ensure O-rings are not binding on the pulleys. • Ensure the pulleys are not binding.
A zone (other than the first section on ELM), stays on at all time	• Check all drive cards in affected conveyor section. Replace any defective drive cards as necessary.

Issue	Correction
	• Check all connections on the drive card for any loose or disconnected wires. Repair or replace any wire or connectors, as necessary. • Check all roller motors in affected conveyor section. Replace any defective roller motors, as necessary. • Check to see if the driving O-Ring for that section is missing/damaged, or out of the driving pulley. Check if motor still has proper clamps that prevents sliding issue. Replace with proper colored O-Ring and clamps as needed.
Conveyor(s) will not start after green button is pushed	• Ensure Halo module is set and ready for start with solid green light on display. • Check if there are any E-Stop buttons pressed on the conveyor(s). • Check on another zone of conveyor if the start button works there. • Check plug connectors to assure they are well inserted, and if there is any loosened pin or housing damage.
Shiny ring-lines are visible on roller(s) surface	• Check the electrical conduit if gets in contact with rollers while the conveyor is compressed. • Using zip-tie secure and pull conduit away from rollers while the conveyor is compressed.
Boxes do not enter the Halo section and accumulate on conveyor(s)	• Check if Halo is in Start mode. • Check if green solid lights is displayed on Halo module. • Check conveyor photoeye for proper functionality. • Ensure photoeye cable is fully connected to drive card. Inspect cable for cuts or abrasions. Repair or replace as necessary. • Ensure photoeye is seated into circuit board. • Ensure there is no debris or foreign object interfering with the operation of each photoeye.

12 Warranty

CASI's solutions come with a 1-year warranty from date of installation, provided installation occurs within three months of the ship date. This includes all parts and labor as well as unlimited email, web-based, and on-site support (with the exception of travel expenses) during normal business hours. On-site support is provided as needed, or when online or remote support cannot resolve the issue. After one year from installation, unless the support agreement is renewed, CASI standard hourly support rates apply. CASI standard support guarantees a four-hour response time by phone within the hours of 9:00 AM to 5:00 PM US central standard time Monday through Friday.

13 Electrical Schematics

CASI Assy Number	Drawing Title
22739, REV. H	AFLEX GAPPING MODE, VER. B
22739, REV. H	ELM AFLEX GAPPING MODE, VER. B
46410, REV. F	CABLE ASSEMBLY, AFLEX UPSTREAM
46411, REV. F	CABLE ASSEMBLY, AFLEX DOWNSTREAM
46513, REV. E	CABLE ASSEMBLY, AFLEX, MAIN CONDUIT WIRE HARNESS
46520, REV. C	CABLE ASSEMBLY, AFLEX, ZONE 1&2, CONDUIT WIRE HARNESS
46521, REV. D	CABLE ASSEMBLY, AFLEX ZONE 3&4, CONDUIT WIRE HARNESS
46522, REV. C	CABLE ASSEMBLY, AFLEX ZONE 5&6, CONDUIT WIRE HARNESS
46523, REV. E	CABLE ASSEMBLY, ELM AFLEX, MAIN CONDUIT WIRE HARNESS
46524, REV. C	CABLE ASSEMBLY, ELM AFLEX, ZONE 1&2 WIRE HARNESS
46579, REV. C	CABLE ASSEMBLY, ELM AFLEX, ZONE 5&6 WIRE HARNESS
46524, REV. C	CABLE ASSEMBLY, ELM AFLEX, ZONE 1&2 WIRE HARNESS
46585, REV. D	CABLE ASSEMBLY, DOWNSTREAM BOX, INTERNAL WIRES
46591, REV. A	CABLE ASSEMBLY, UPSTREAM PUSHBUTTON
46593, REV. A	CABLE ASSEMBLY, DOWNSTREAM PUSHBUTTON
46614, REV. C	CABLE ASSEMBLY, AFLEX, CONTROL BOX, INTERNAL WIRES
46615, REV. C	CABLE ASSEMBLY, ELM AFLEX, CONTROL BOX, INTERNAL WIRES
46889 REV. A	CABLE ASSEMBLY, AFLEX, UPSTREAM BOX INTERNAL WIRES

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