

5.2. Preventative Maintenance Schedule



Due to varying operating conditions, the procedures listed in this section may have to be performed more or less frequently. You may be required to adjust intervals according to your production environment and machine's performance.

What To Do:	When To Do It:			
	Daily	Weekly	Monthly	Every 6 Months*
Perform Walk Around Safety Inspection	X			
Clean External Surfaces	X			
Check EMERGENCY STOP Button For Proper Operation	X			
Drain Air Filter Bowl	X			
Inspect Shrink Tunnel	X			
Inspect Film Feed Drive Rollers		X		
Clean Photo-Eyes		X		
Inspect Conveyor belts		X		
Grease Zerk Fittings			X	
Lubricate Overwrap Chain			X	
Inspect Tunnel Curtains for Damage			X	
Replace Air Filter Element				X
Inspect Heater Coils				X

Table 5-1 - Preventative Maintenance Schedule

5.3. Lubrication

5.3.1. Chain Lubrication & Care

Proper lubrication is critical in achieving the maximum wear life of any roller chain. As the chain articulates around the sprockets, the pin and bushing wear. This wearing causes the elongation, or “stretch”, in the chain. Lubrication of these surfaces through proper lube application can greatly increase the wear life of the chain.

Recommended Lubricants

Ambient temperature: 20-40 F - SUS Viscosity 100 F of 200-400, SAE Engine oil of 20 Weight, SAE Gear Oil 80 W, ISO 46 or 68, and AGMA lubrication 1 or 2.

Ambient temperature: 40-100 F - SUS Viscosity 400-650, SAE Engine oil of 30 Weight, SAE Gear Oil 85 W, ISO 100, and AGMA lubrication 3.

Ambient Temperature 100-120 F - SUS Viscosity 650-950, SAE Engine oil of 40 Weight, SAE Gear Oil 90, ISO 150, and AGMA lubrication 4.

Ambient Temperature 120-140 F - SUS Viscosity 950-1450, SAE Engine oil of 50 Weight, SAE Gear Oil 90, ISO 220, and AGMA lubrication 5.

5.3.2. Bearing Lubrication & Care

Food Grade

LUBRIPLATE SFL-2 is a **synthetic multi-purpose food-grade grease**, which can be used throughout most modern food processing plants for most all grease lubrication requirements. This product has an approximate operating temperature range of -25 to 400°F. (white in color).

Non-Food Grade

MULTIPLEX RED #2 **lithium complex grease** developed for the lubrication of automotive and industrial equipment operating under heavy loads and at moderate to high temperatures. It is particularly recommended for use in applications that are too severe or require higher performance than provided by conventional extreme-pressure lithium greases.

These are just brands, there are many other comparable brands which can be used on industrial equipment use in secondary packaging.

They only need to be comparable in temperature range, viscosity, and application (food grade or not).

5.3.3. Daily Maintenance

The following tasks should be performed on a daily basis to ensure optimal operation, safety and machine life.



The following procedures should only be performed after the machine has been turned off, allowed to cool down, and the air pressure has been released. Be sure to follow your company's lockout/tagout procedures and all other safety procedures. Always wear safety glasses and other required protective equipment at all times. Failure to do so may result in severe injury or death.

- **Daily Safety Inspection:** Make sure all areas in and around the machine are clear of any debris or obstacles. Check underneath and around the machine for any hardware that may have come loose. Have a qualified technician replace any missing parts. Check all of the basic settings of the machine including: the seal jaw opening, seal jaw pressure, seal bar temperature setting, etc. Run the machine and listen carefully for any unusual noises. Watch for any unusual motion. Stop the machine immediately and have a qualified technician diagnose and repair any problems with the machine.
- **Clean External Surfaces:** Clean in and around the machine with a soft rag and warm soapy water. Wipe down and dry machine. Do not use any abrasive or flammable solvents.
- **Check E-Stop Buttons:** Check the operation of all safety features including cover safeties, E-Stops, etc.
- **Inspect Shrink Tunnel:** Check tunnel for film buildup and function of tunnel light. Remove melted film and replace tunnel light as needed.
- **Drain Air Filter Bowl:** Empty any water that has accumulated in the air filter drainage bowl. Make sure air is connected and machine is on but not running. Turn the drain plug at the bottom of the air cylinder 1/4 turn and let water drain out. Turn plug back 1/4 turn to stop flow and wipe up expelled water.

5.3.4. Weekly Maintenance

The following tasks should be performed on a weekly basis to ensure optimal operation, safety and machine life.

- **Inspect Film Feed System and Drive Rollers:** Remove covers and check chain tension and alignment. Inspect sprockets for wear and make sure they are secure with keys in place. Make sure all fasteners are tight and that all mechanical linkage components are secure. Inspect all rollers. Make sure they are properly located and secure. Check roller bearings and perform maintenance as needed.
- **Inspect Conveyor Belts:** Check the traveling belt for proper tracking. There are two adjustment bolts underneath the exit assembly. Inspect inverter, belts, and transfer plates. Make sure they are level to each other. Check the tension of the side seal belt as well as the traveling belt. Check belts for excessive wear. Adjust as necessary.
- **Clean Photo-Eyes:** To clean the photo eye spray a small amount of window cleaner on it and wipe it clean with a cleaning wipe.

5.3.5. Monthly Maintenance

The following tasks should be performed on a monthly basis to ensure optimal operation, safety and machine life.

- **Lubricate Zerk Fittings and Drive Chains:** Inspect and lubricate all sprockets, bearings, lubrication ports and chains.
- **Clean:** Excessive grease and debris in and around any moving parts of the machine (See Lubrication Schedule for recommended lubricants).
- **Inspect Tunnel Curtains for Damage:** The tunnel curtains should be checked for signs of excessive wear or damage.

5.3.6. Every 6 Months

The following tasks should be performed on a monthly basis to ensure optimal operation, safety and machine life.

- **Inspect Heater Coils:** Inspect the heater coils for damage or broken coils, insulators and connecting straps.
- **Replace Air Filter Element:** Replace the machine's air filter element.

5.4. Preventative Maintenance Procedures



The following procedures should only be performed after the machine has been turned off, allowed to cool down, and the air pressure has been released. Be sure to follow your company's lockout/tagout procedures and all other safety procedures. Always wear safety glasses and other required protective equipment at all times. Failure to do so may result in severe injury or death.

5.4.1. Daily Maintenance Procedures

Walk Around Safety Inspection

At the beginning of each day, do a daily safety inspection of the machine and its surrounding area. Pick up any trash or obstacles around the machine. Wipe up any grease or spills.

Clean External Surfaces

Use cleaning wipes and warm soapy water to clean external surfaces of the machine.

Check Emergency Stop Button

1. With the machine cycling, press the **EMERGENCY STOP** button.
2. The machine should stop immediately.
3. Pull button back up and press **CYCLE STOP/RESET** button to reset.

Draining Air Filter Bowl

1. Make sure that air is connected to machine and machine is turned on but not running.
2. Turn drain plug 1/4 turn and let water drain out.
3. Turn drain plug back 1/4 turn to stop air flow.
4. Wipe up expelled water.

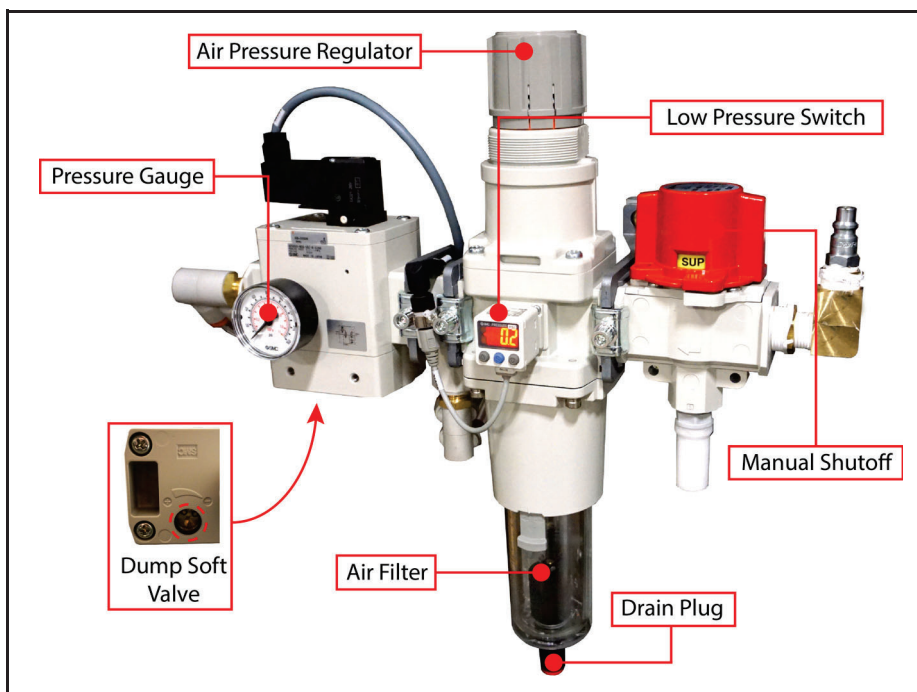


Figure 5-1 - Pneumatic Controls

Inspecting Shrink Tunnel

1. Turn off machine's main disconnect switch and apply LOTO. Let shrink tunnel cool to room temperature.
2. Inspect inside of shrink tunnel as shown below. Remove any foreign objects or melted film.
3. Turn main disconnect switch back on.

5.4.2. Weekly Maintenance



The following procedures should only be performed after the machine has been turned off, allowed to cool down, and the air pressure has been released. Be sure to follow your company's lockout/tagout procedures and all other safety procedures. Always wear safety glasses and other required protective equipment at all times. Failure to do so may result in severe injury or death.

Inspecting Film Feed Drive Rollers

1. Turn off machine's main disconnect switch and apply LOTO.
2. Lift acceleration conveyor up and latch into place with hooks.
3. Inspect drive rollers. Remove any dirt, objects or melted film.
4. Lower conveyor.
5. Turn main disconnect switch back on.

Cleaning Photo Eyes

1. Turn off machine's main disconnect switch and apply LOTO.
2. Spray a small amount of window cleaning solution to the face of each photo-eye (See Illustrated Parts List chapter for a map of photo-eyes) and dry photo-eye with a soft cloth.
3. Turn main disconnect switch back on.

5.4.3. Monthly Maintenance



The following procedures should only be performed after the machine has been turned off, allowed to cool down, and the air pressure has been released. Be sure to follow your company's lockout/tagout procedures and all other safety procedures. Always wear safety glasses and other required protective equipment at all times. Failure to do so may result in severe injury or death.

Inspecting Conveyor Belts

1. Turn off machine's main disconnect switch and apply LOTO.
2. Inspect conveyor belts. Remove any dirt, objects or melted film.
3. Turn main disconnect switch back on.

Greasing Zerk Fittings

1. Turn off machine's main disconnect switch and apply LOTO.
2. Apply one pump of grease to each fitting on grease manifolds. Read label next to manifold for special instructions
3. Wipe up excess grease.

Lubricating Overwrap Chain

1. Turn off machine's main disconnect switch and apply LOTO.
2. Lightly but thoroughly apply oil to chains (1 in Figure 4) with brush.
3. Wipe up excess or spilled oil.
4. Reattach cover and turn main disconnect switch back on.

Inspecting Tunnel Curtains

1. Turn main disconnect switch off and apply LOTO.
2. Check tunnel curtains for any damage or tearing. Replace as required.
3. Turn main disconnect switch back on.

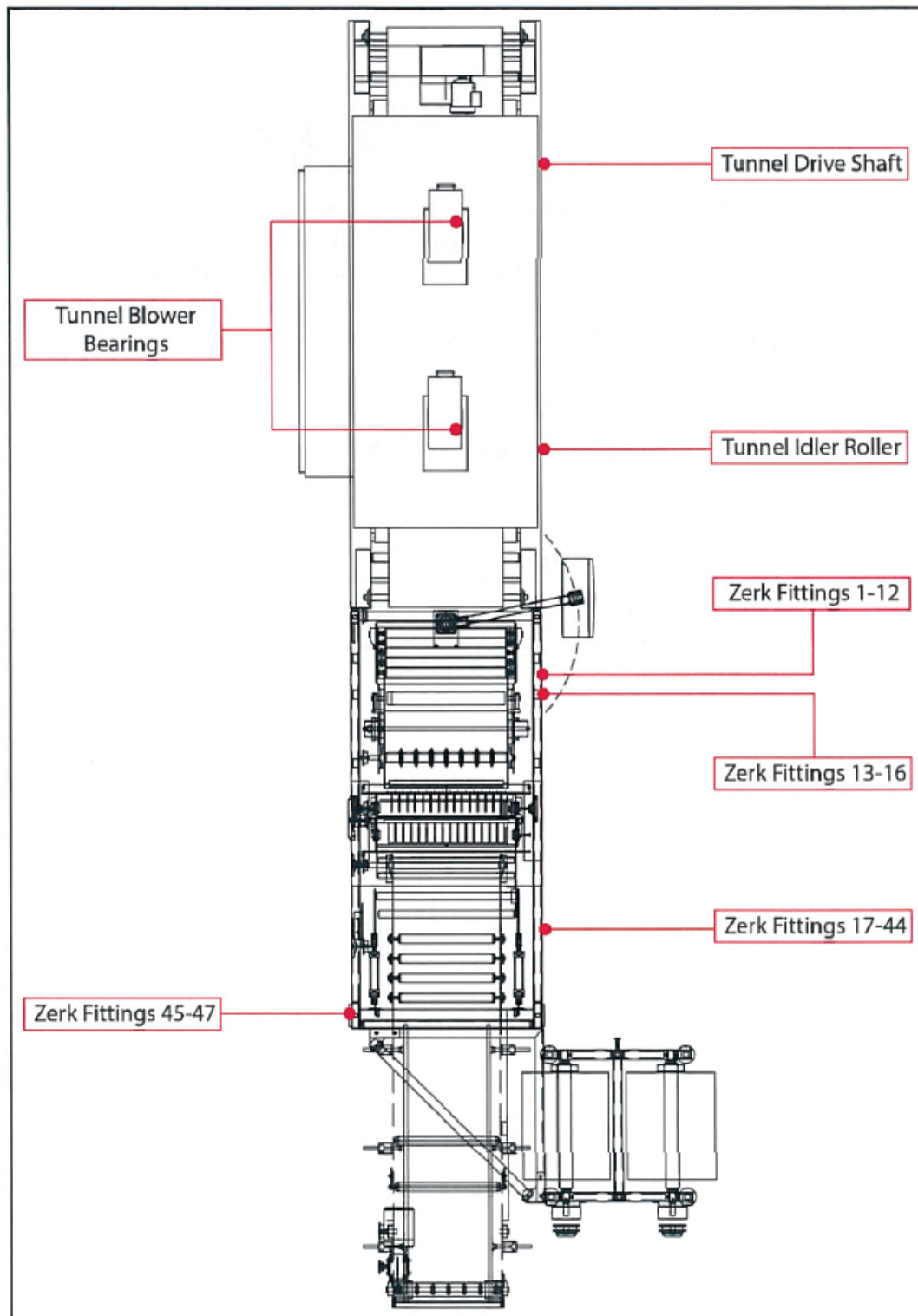


Figure 5-2 - Lubrication Points

5.4.4. Every 6 Months



The following procedures should only be performed after the machine has been turned off, allowed to cool down, and the air pressure has been released. Be sure to follow your company's lockout/tagout procedures and all other safety procedures. Always wear safety glasses and other required protective equipment at all times. Failure to do so may result in severe injury or death.

Replace Air Filter Element

Part Required:

- Numatics EKF32B 5 Micron Filter Element

1. Turn off main shutoff valve by turning it counterclockwise.
2. Press down on tab.



Figure 5-3 - Tab

3. Still pressing on tab, turn bowl so that tab aligns with mark.



Figure 5-4 - Turning Bowl

4. Pull bowl off of filter body.



Figure 5-5 - Removing Bowl

5. Unscrew baffle and pull filter element off of filter body.

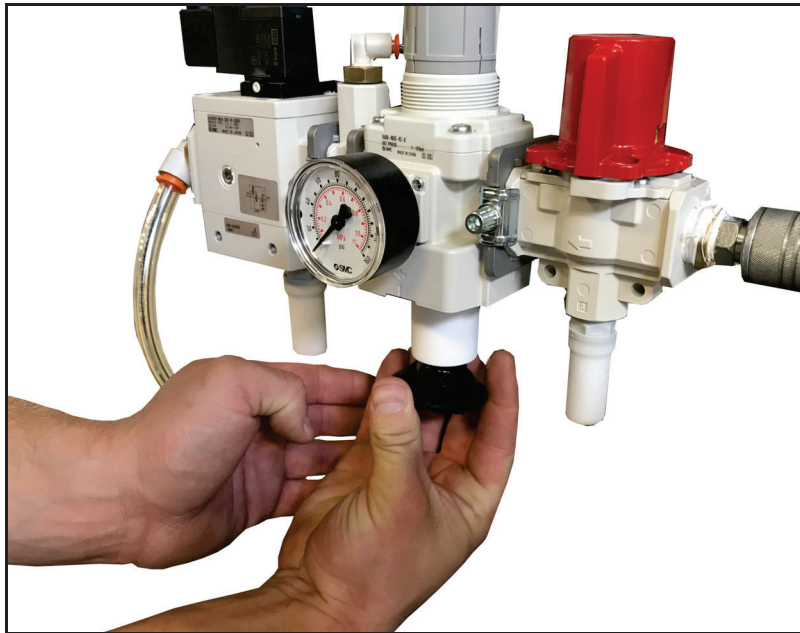


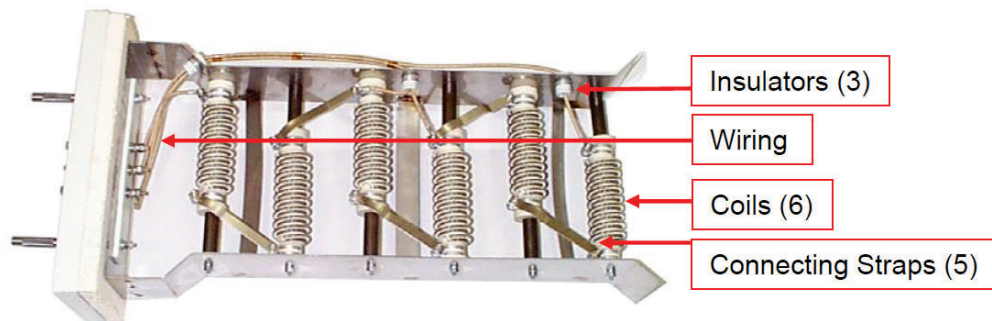
Figure 5-6 - Removing Filter Element

6. Reverse step to reassemble.

Inspecting Heater Coils



The following procedures should only be performed after the machine has been turned off, allowed to cool down, and the air pressure has been released. Be sure to follow your company's lockout/tagout procedures and all other safety procedures. Always wear safety glasses and other required protective equipment at all times. Failure to do so may result in severe injury or death.



1. Turn off machine's main disconnect switch.
2. Unscrew nut and remove bracket.
3. Unscrew electrical nuts.
4. Slide element assembly out.
5. Inspect the heater element tray. Inspect for damaged or broken coils, insulators and connecting straps. Be sure that the heater coils do not touch any other part of the heater element tray.
6. Examine the wiring to ensure that no wires are loose or damaged. Damaged parts of the heater element tray must be replaced to maximize shrink tunnel efficiency.



The heater element coils may appear to have expanded from their normal size. This is normal. Expanded coils are adequate for use if there is not damage to the coil.

7. Reverse steps to reassemble.

5.5. Corrective Maintenance



Corrective maintenance should only be performed by qualified maintenance technicians and should only be performed after the machine has been turned off, allowed to cool down, and the air pressure has been released. Be sure to follow your company's lockout/tagout procedures and all other safety procedures. Always wear safety glasses and other required protective equipment at all times. Failure to do so may result in severe injury or death.

Qualified maintenance personnel should always perform corrective maintenance.

5.5.1. Film Rack Assembly

Inspect film roller bearings. Alignment of film shaft with the brake shaft is important. The brake housing can be adjusted to compensate for most wear. If needed, replace friction facings and/or bearing and o-ring seals.

5.5.2. Air Cylinders

Air cylinders are pre lubricated/sealed at the manufacturer's factory for extensive maintenance free life. However, if an air cylinder appears sluggish or oil is migrating past its seals, the air cylinder should be replaced. Contact SupportPro for repair kits; see chapter 10 for contact information.

5.5.3. Roller Chain

When connecting or disconnecting chain:

- Always disconnect and lockout electrical power.
- Wear eye and face protection when grinding pin ends or driving pins out of links with a punch and hammer. Chain pins, which are case hardened, may chip when struck with tools.
- Support the chain to prevent uncontrolled movement of chain and parts.
- If chain length is to be altered, use of a chain vise or detaching tool is recommended. Tools should be in good condition and properly used.

5.5.4. Drive and Blower Motors

The drive motors selected for your machine are virtually maintenance free. If failure occurs, verify replacement motor rotates in the same direction (blower motor rotation is shown on pulley housing).

5.5.5. Knife Blades

Notched Knife Blades

By removing teeth from the knife in a few strategic locations, small sections of the film are not cut. These small sections then serve to pull the leading edge of the cut film into the second set of pinch rollers with no slack and no wrinkling of the film.

The small uncut sections between sheets of film are easily broken by the overwrap flight bar as it wraps the film around the product. In the even that the trays of product are too light to hold the leading end of the film in place under the product, experiment with smaller notches in the knife. Film that is thicker than 2 mil does not normally need a notch in the knife.

Standard or notched knife blades may be purchased from SupportPro. For notched blades, please specify right/left/or center notched blades.

Grinding Knife Blades

The notches are typically located about 1" to 2" in from the edge of the film. When film widths varying by more than 2" are to be used on the same machine, the knife notches will need to be relocated when changing product.

Grind the teeth using a standard bench grinder with a wheel of 60 grit or greater, trued to sharp square edges. Remove precisely three full teeth plus the half tooth on one end of the blade. Grind down at least 1/8" past the root of the tooth and grind a radius at the new root to eliminate all sharp edges at the root.

This will result in right and left handed notched blades. Perform this process in small steps, cooling the blade in water between steps to prevent losing temper of ungrounded portions of the blade. If you damage the point of the adjacent tooth, discard that blade and get a new one.

To test the effectiveness of the notched knife blades, cycle the film feed with the film feed one cycle push button. The dispensed sheet of film should still be attached to the following sheet at points corresponding to the notches.

Replacing Knife Blades



Corrective maintenance should only be performed by qualified maintenance technicians and should only be performed after the machine has been turned off, allowed to cool down, and the air pressure has been released. Be sure to follow your company's lockout/tagout procedures and all other safety procedures. Always wear safety glasses and other required protective equipment at all times. Failure to do so may result in severe injury or death.

To avoid possible injury to hands, use extreme care when working around the acceleration conveyor while it is in its lifted position. Make certain the conveyor is fully latched in its raised position before starting work. Do NOT touch the knife blades, they are extremely sharp and hazardous.

1. Disconnect and perform the lockout/tagout procedure. Follow company guidelines.
2. Lift and secure or latch the cover to expose the film feed assembly.
3. Using a 1/8" hex key, remove the old knives
4. Install new blade portions with their back edge against the stop. Secure bladed portions with hex nuts.
5. Replace the cover to its home position; remove lockout and supply electrical power to machine.
6. With guard doors closed, use *film feed one cycle* push button to rotate the knife shaft once to ensure proper clearance.
7. Check blades for any burrs; replace blades as needed.

5.5.6. Pinch Roller Adjustment



Corrective maintenance should only be performed by qualified maintenance technicians and should only be performed after the machine has been turned off, allowed to cool down, and the air pressure has been released. Be sure to follow your company's lockout/tagout procedures and all other safety procedures. Always wear safety glasses and other required protective equipment at all times. Failure to do so may result in severe injury or death.

To avoid possible injury to hands, use extreme care when working around the acceleration conveyor while it is in its lifted position. Make certain the conveyor is fully latched in its raised position before starting work. Do NOT touch the knife blades, they are extremely sharp and hazardous.

Refer to the film feed assembly drawing when performing this procedure.

1. Disconnect and perform the lockout/tagout procedure. Follow company guidelines.
2. Lift and latch that acceleration conveyor.
3. Turn the set screw clockwise until the compression spring is fully compressed.
4. Turn the set screw counterclockwise one half turn.
5. Repeat the adjustment on the opposite side of the pinch roller.
6. Lower the acceleration conveyor.
7. Start the machine and check the tension. Repeat procedure if required.

5.5.7. Tunnel Belt



Corrective maintenance should only be performed by qualified maintenance technicians and should only be performed after the machine has been turned off, allowed to cool down, and the air pressure has been released. Be sure to follow your company's lockout/tagout procedures and all other safety procedures. Always wear safety glasses and other required protective equipment at all times. Failure to do so may result in severe injury or death.

To replace the tunnel belt, feed the belt through the unit noting the proper direction of travel indicated by the tag attached to the belt. Bring the right and left hand spirals together, and connect with a crimp rod supplied with the belt. Right hand spirals are wound clockwise. Left hand spirals are wound counterclockwise.

Trim the connector rod back to the edge of the belt. Weld or silver solder the rod to the end of the spiral in a fashion similar to the finish on the rest of the belt.

Do not bend connector rods into belt unless the belt pitch can be maintained. Spirals are required to bottom out on the crimped connector rods in order to match the sprockets.

Be sure the wrap of the belt around the sprockets is less than 180 degrees angle but more than 120 degrees angle. This action allows maximum drive with smooth engagement and release characteristics from the sprockets.

This is a low tension system. Counter tension is not normally required.

However, these require careful installation. The clamping collar must be held tight to the bearing inner arc and not be allowed to twist while its clamp screw is tightened. If the collar is not square to the shaft when it is installed, it will come loose in service.

5.6. Tunnel Blower Maintenance



Corrective maintenance should only be performed by qualified maintenance technicians and should only be performed after the machine has been turned off, allowed to cool down, and the air pressure has been released. Be sure to follow your company's lockout/tagout procedures and all other safety procedures. Always wear safety glasses and other required protective equipment at all times. Failure to do so may result in severe injury or death.

5.6.1. Overview

The purpose of this document is to provide and explain the procedures necessary for performing various preventative maintenance procedures on the standard tunnel blower assembly.

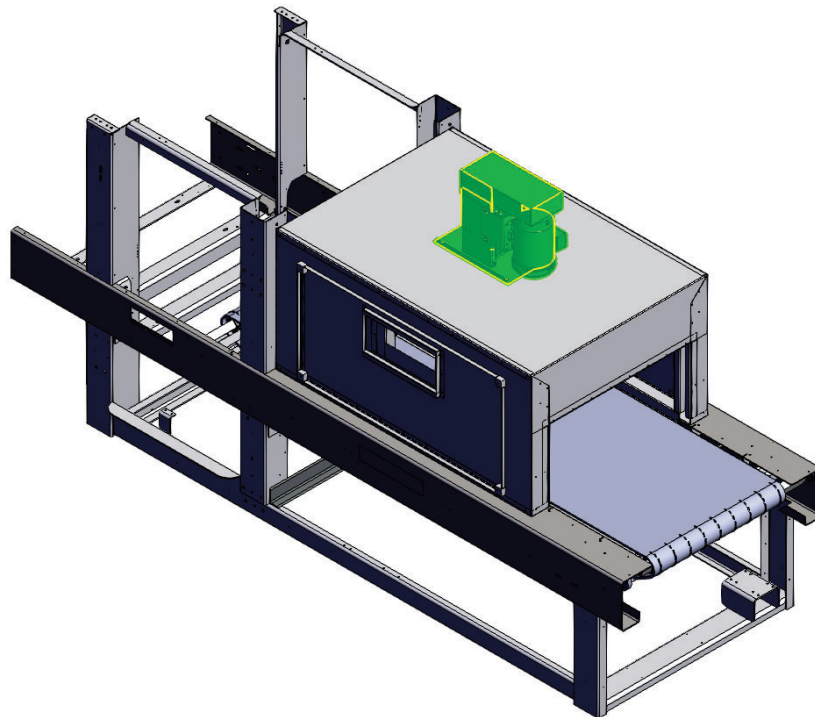


Figure 5-7 - Tunnel Blower Location (Example)

5.6.2. Corrective Maintenance Procedures

Tunnel Blower Bearing Replacement

The following procedures explain the process for replacing the four bolt flange bearings on the tunnel plower shaft. For a complete parts list, please see the corresponding assembly drawing in the “Illustrated Parts List” chapter of your Operation and Maintenance Manual.



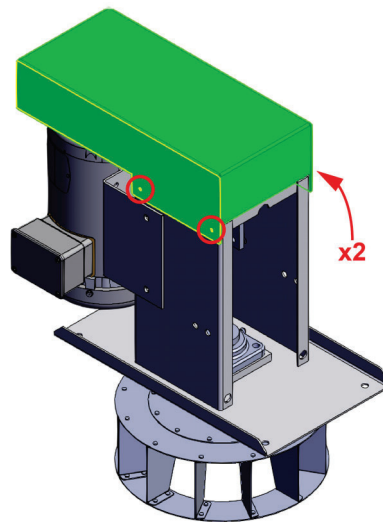
THE FOLLOWING PROCEDURES SHOULD ONLY BE PERFORMED AFTER THE MACHINE HAS BEEN TURNED OFF, ALLOWED TO COOL DOWN, THE AIR PRESSURE HAS BEEN RELEASED AND YOUR COMPANY’S LOCKOUT/TAGOUT PROCEDURES HAVE BEEN APPLIED. ALWAYS WEAR SAFETY GLASSES AND OTHER REQUIRED PROTECTIVE EQUIPMENT AT ALL TIMES. BE SURE TO FOLLOW ALL OTHER COMPANY SAFETY POLICIES. FAILURE TO DO SO MAY RESULT IN SEVERE INJURY OR DEATH.

Parts Required

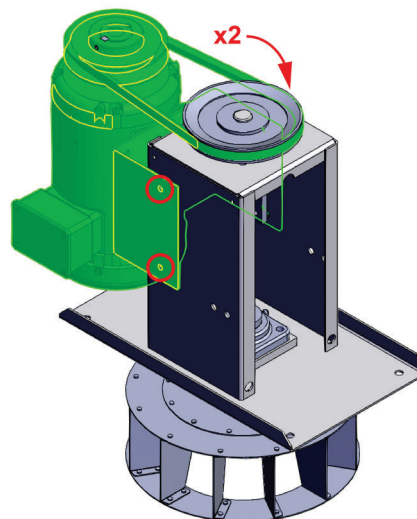
- Open-end or socket wrenches (5/16, 3/8, 1/2, 9/16)
- Hex Key (5/32)
- Torx Wrench (T25)
- Hammer
- 1/2” to 3/4” brass rod

Procedure

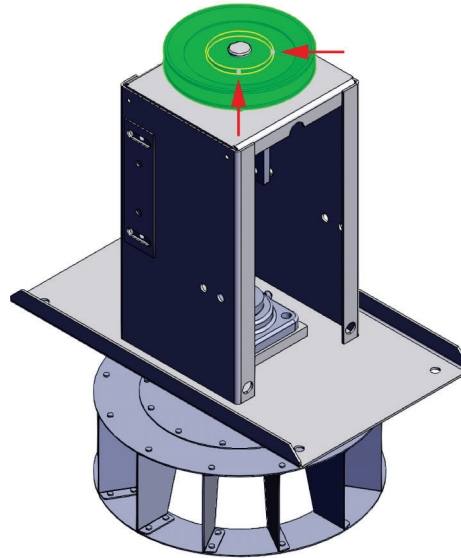
1. Disconnect and lockout electrical power to the tunnel. Be sure to follow all of your company's required safety procedures.
2. Allow the shrink tunnel components to cool down to room temperature. This can take 30 minutes or more.
3. Using a 7/16" wrench, remove the four bolts securing the v-belt guard to the tower weldment and remove the guard.



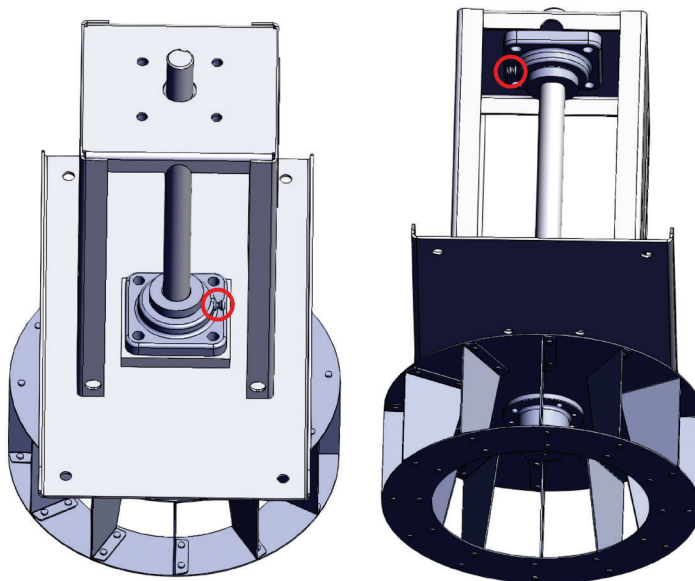
4. Using a 1/2" wrench, remove the four bolts securing the motor-mounting bracket to the tower weldment and remove the bracket, the v-belt and the motor.



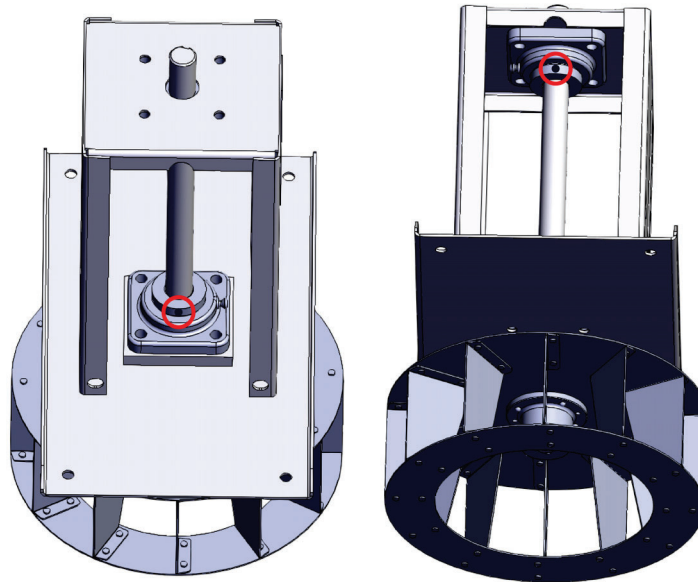
5. Using a 5/32" hex key, loosen the setscrews securing the blower impeller shaft pulley and remove the pulley and key stock from the impeller shaft.



6. Using 5/16" and 3/8" wrenches, remove the central lubrication lines from the bearing grease fittings.

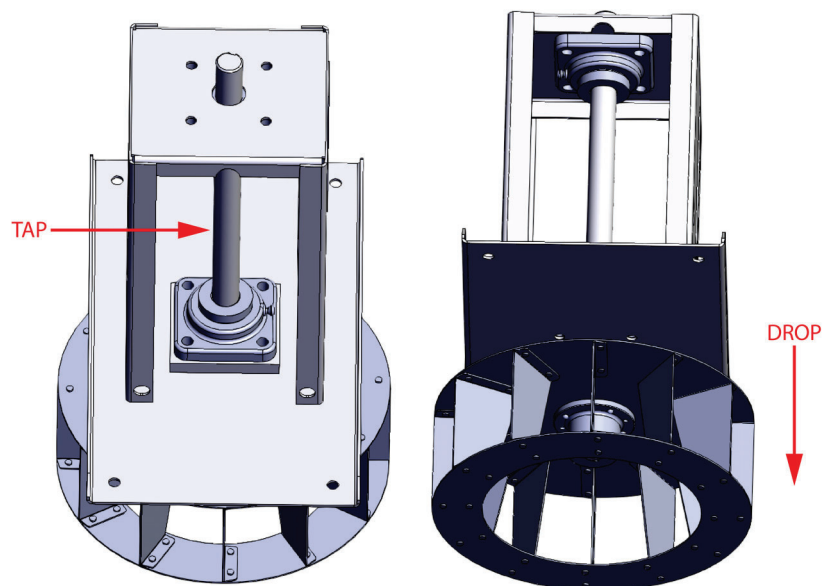


7. Using a T25 torx wrench, loosen the bolts in the Skwezloc fittings on each of the 4-hole flanged bearings and loosen the fitting from the impeller shaft.

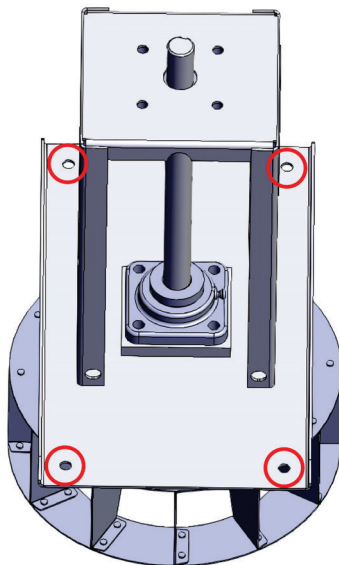


Do not use excessive force when separating bearings from shaft. This could cause the shaft to drop with excessive force and cause damage.

8. If the impeller shaft does not freely move up and down after loosening the Skwezloc fittings, use the hammer and the brass rod (as a punch) and tap with moderate force on the top of the shaft until it drops all the way down.



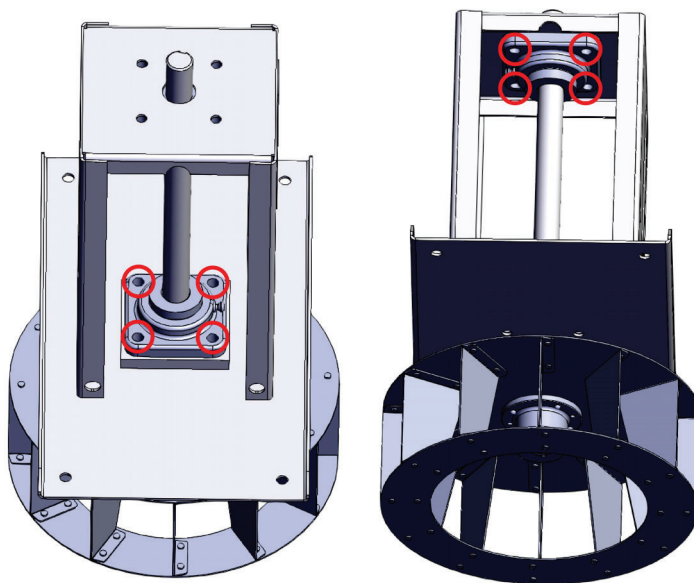
9. Using a 9/16" wrench, remove the four nuts securing the tower weldment to the tunnel.



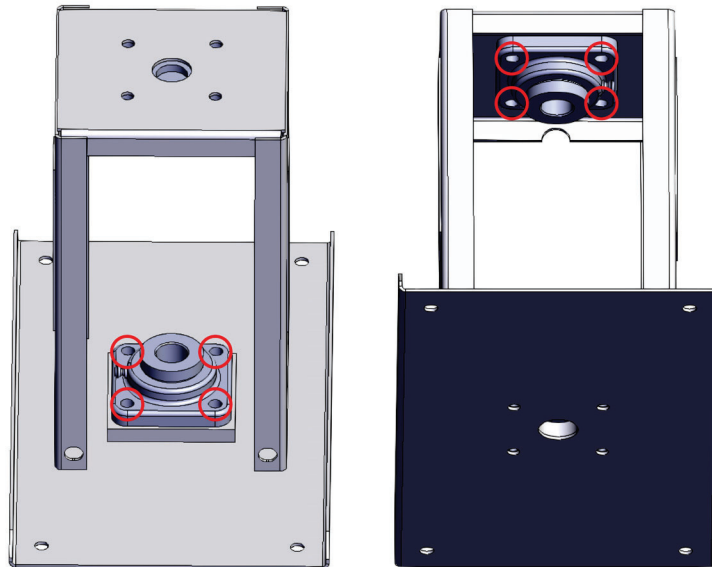
NOTICE

Note the orientation of the tower weldment for reinstallation later.

10. Using a 9/16" wrench, loosen (but not remove) the four bolts securing each of the 4-hole flange bearing to the tower weldment and then lift the tower weldment and slide the weldment with the bearings off the impeller shaft.



11. Remove the four bolts securing the 4-hole flange bearings to the tower weldment and discard the worn bearings.



12. Inspect and clean the impeller shaft. Be especially aware of areas where the pulley setscrew and bearings contact the shaft. If the impeller shaft is severely scored or damaged, it should be replaced. See "Tunnel Blower Impeller and Shaft Replacement" section for procedure.
13. Loosely install new 4-hole flange bearings to the tower weldment.
14. Reinstall the tower weldment with bearings by sliding the bearings onto the impeller shaft and fitting the weldment over the studs on top of the tunnel. Be sure to install the Skwezloc fittings on the impeller shaft between the bearings.
15. Reinstall and tighten the tower weldment nuts to the tunnel studs.
16. Tighten the bearings to the tower weldment. Make sure the impeller shaft moves freely up and down through the bearings. There should be 3/4" to 1" of play.
17. Slide the impeller shaft up and down through the bearings and mark the highest and lowest points of travel on the shaft.
18. Position the impeller shaft so it is centered between the marks and tighten the bolt on each of the two Skwezloc fittings.
19. Reinstall the lubrication fittings.

20. Loosely reinstall the motor mounting bracket with motor.
21. Reinstall the pulley with the key stock on the impeller shaft, making sure it lines up with the motor pulley, and tighten the setscrews.
22. Reinstall the v-belt. When installing the v-belt, place a moderate amount of tension on the belt while tightening the motor mounting brackets to the tower weldment.
23. Reinstall the v-belt guard and tighten the bolts.

Tunnel Blower Impeller Fan and Shaft Replacement

The following procedures explain the process for replacing impeller fan and impeller shaft on the tunnel blower. For a complete parts list, please see the corresponding assembly drawing in the “Illustrated Parts List” chapter of your Operation and Maintenance Manual.



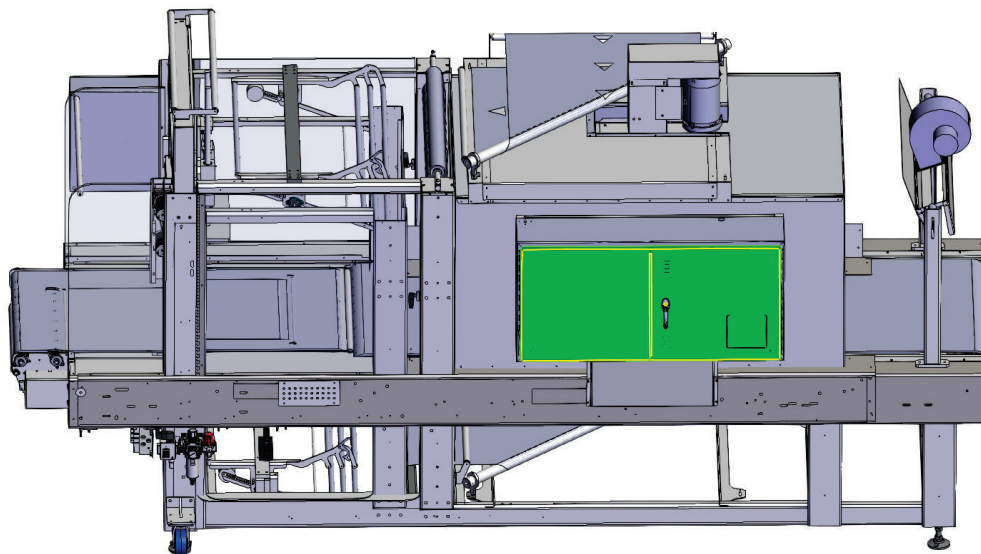
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Parts Required

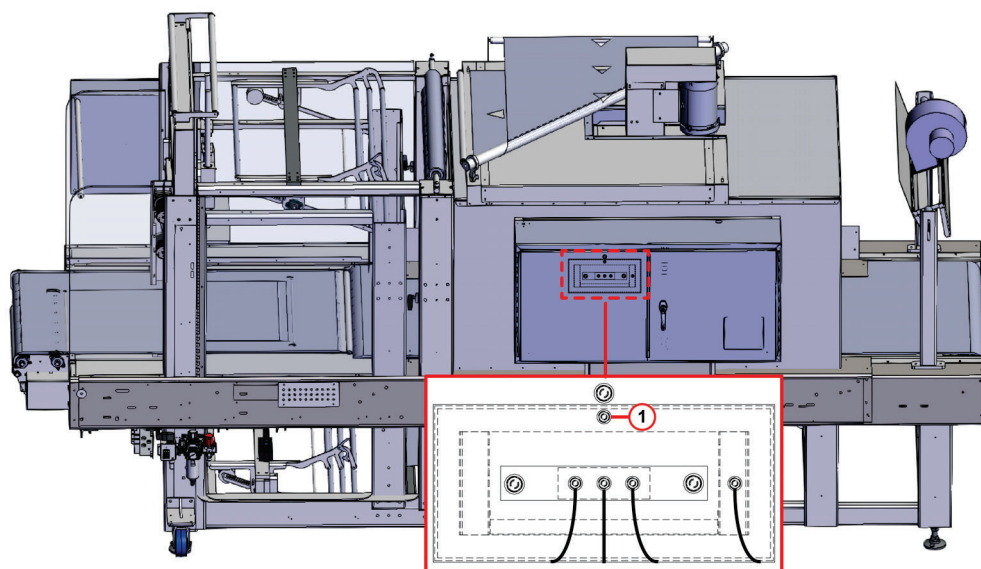
- Open-end or socket wrenches (5/16”, 3/8”, 1/2”, 9/16”)
- Hex Key (1/8”, 5/32”)
- Torx Wrench (T25)
- Hammer
- 1/2” to 3/4” brass rod

Procedure

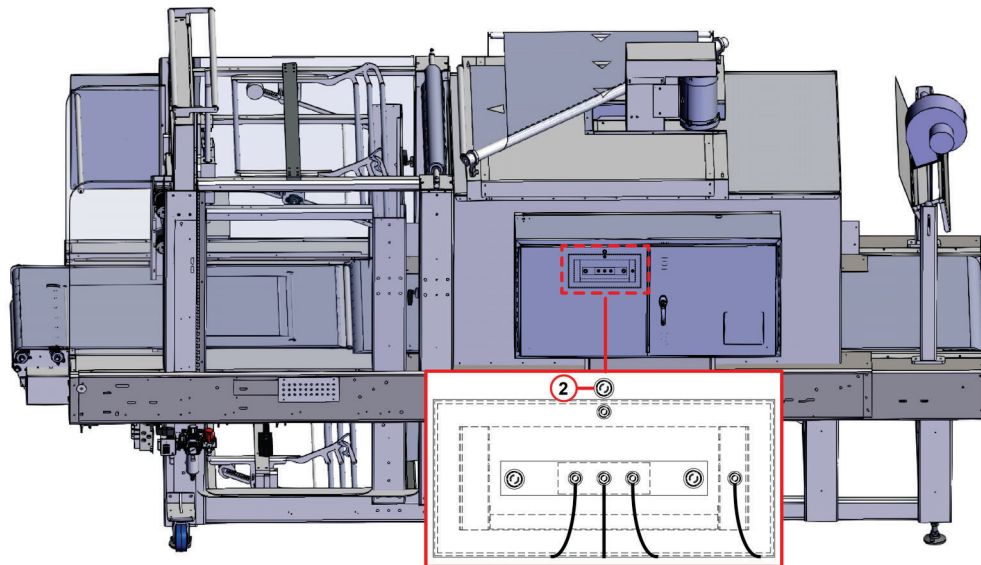
1. Disconnect and lockout electrical power to the tunnel. Be sure to follow all of your company's required safety procedures.
2. Allow the shrink tunnel components to cool down to room temperature. This can take 30 minutes or more.
3. Open the electrical cabinet doors to access interior panel and heater element.



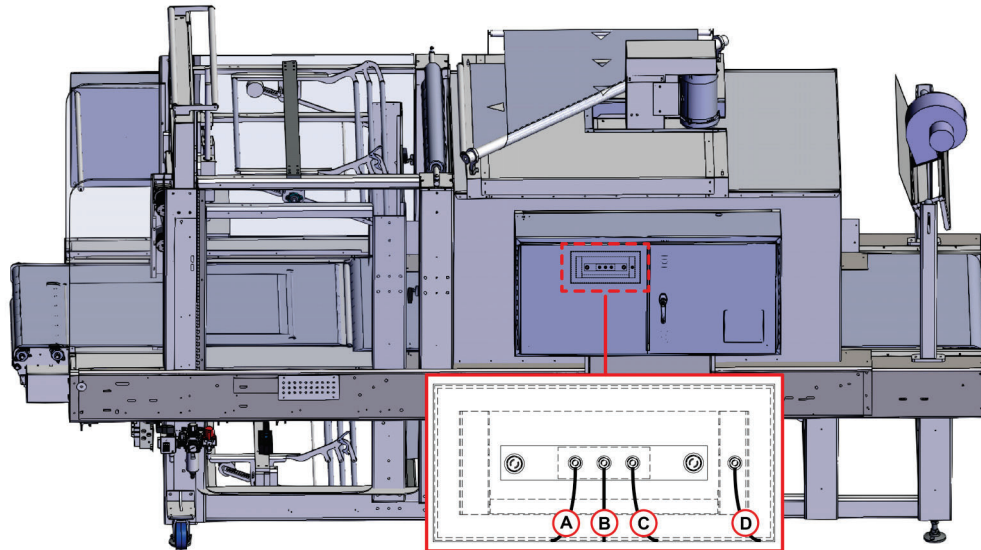
4. Using a 1/8" hex key remove the bolt (1) that secures the associated heater element cover in place.



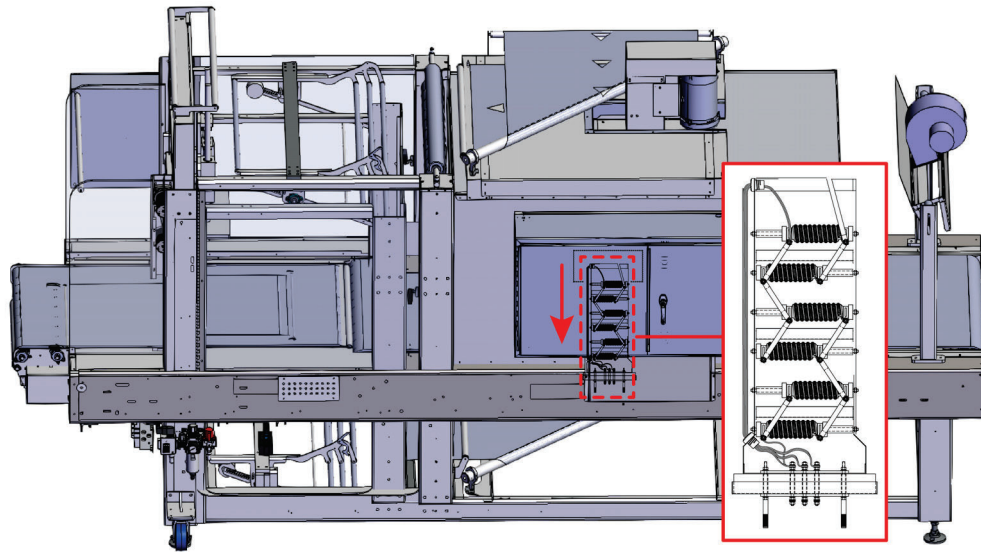
5. Using a 1/2 wrench, remove the nut that securing the associated heater element retaining bracket in place.



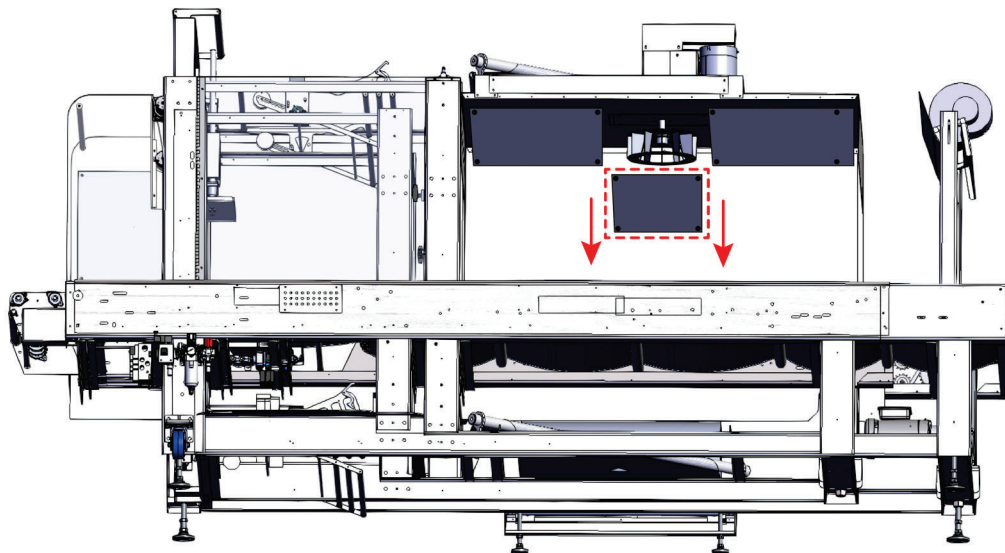
6. Using a 7/16 wrench, disconnect the machine wires (A,B,C) and the ground wire (D).



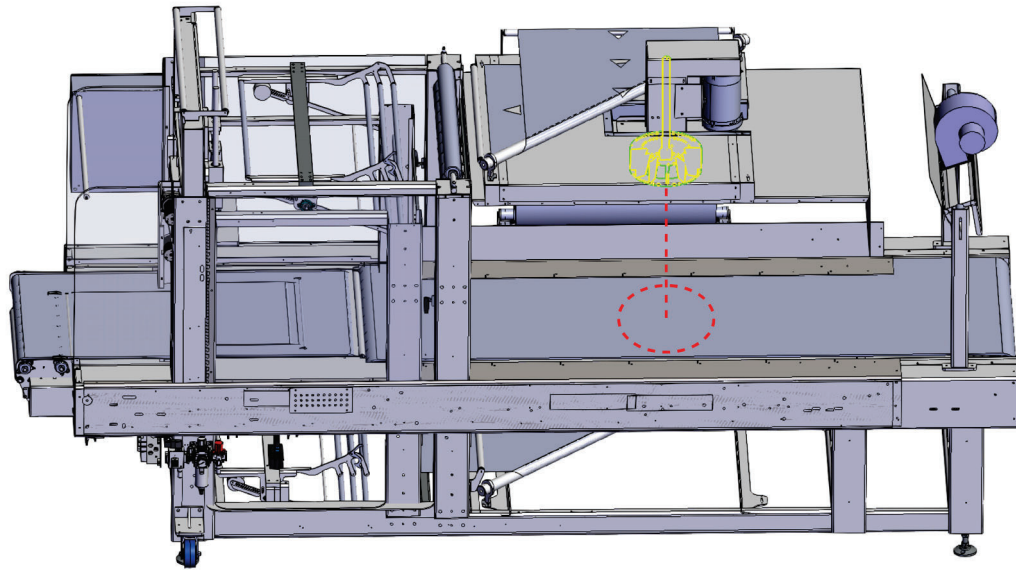
7. Slide the heater element tray out of the machine.



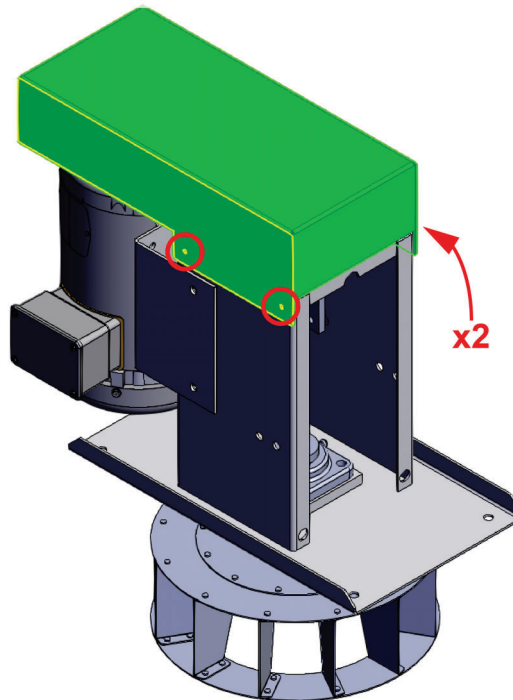
8. Inside the tunnel, remove the sheet metal plate located directly below the impeller shaft.



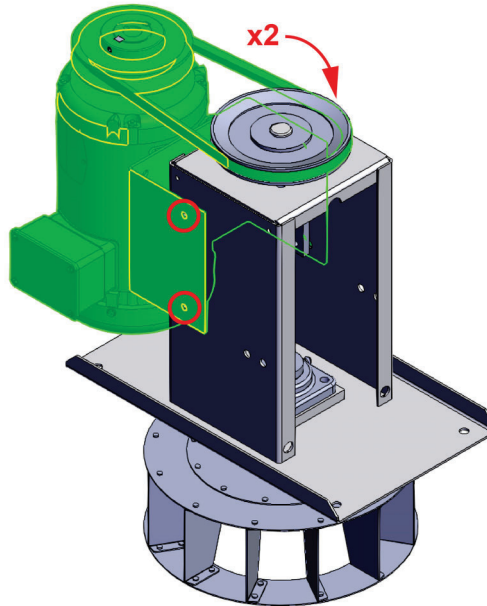
9. Exit the tunnel and place cushioning material on the tunnel belt immediately below the impeller to protect the belt when the impeller shaft is dropped onto it.



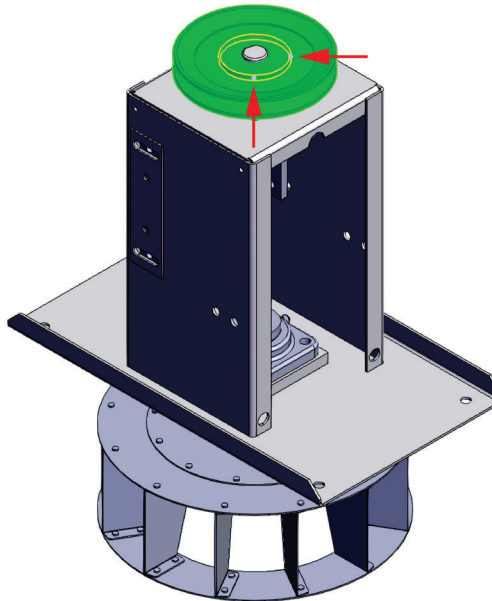
10. Using a 7/16" wrench, remove the four bolts securing the v-belt guard to the tower weldment and remove the guard.



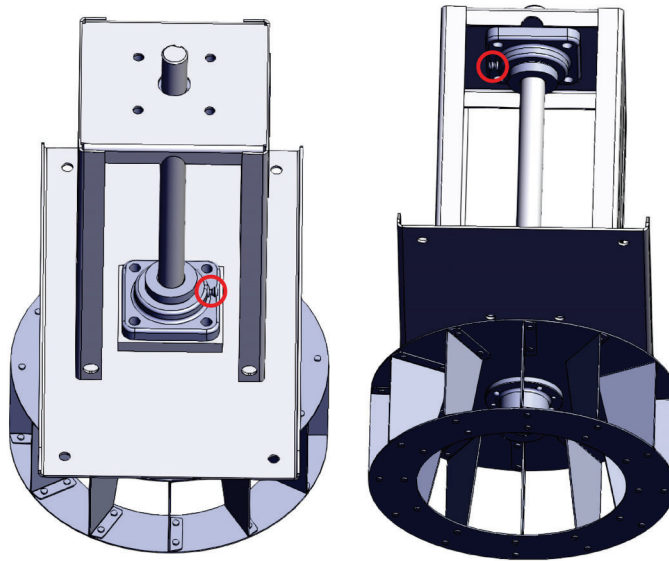
11. Using a 1/2" wrench, remove the four bolts securing the motor mounting bracket to the tower weldment and remove the bracket, the v-belt and the motor.



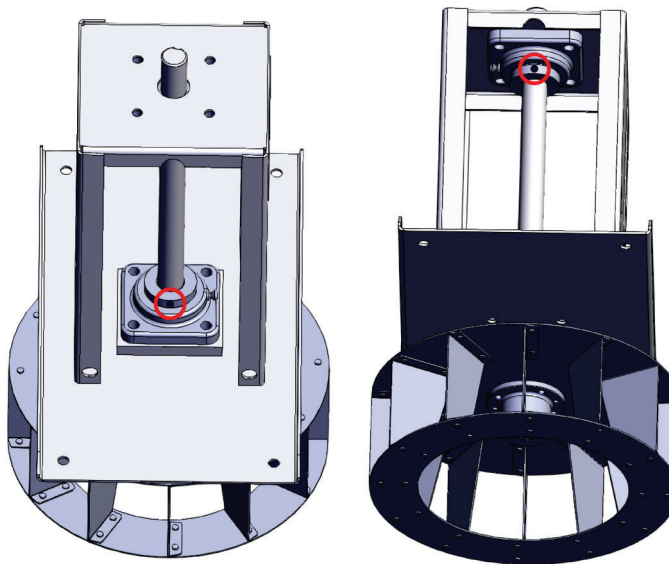
12. Using a 5/32" hex key, loosen the setscrews securing the plower impeller shaft pulley and remove the pulley and key stock from the impeller shaft.



13. Using 5/16 and 3/8" wrenches, remove the central lubrication lines from the bearing grease fittings.



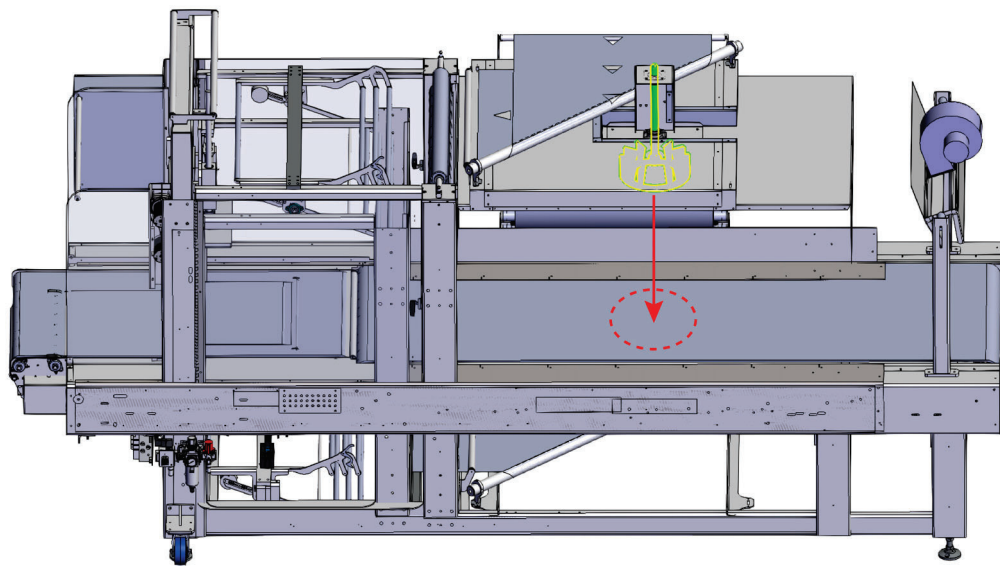
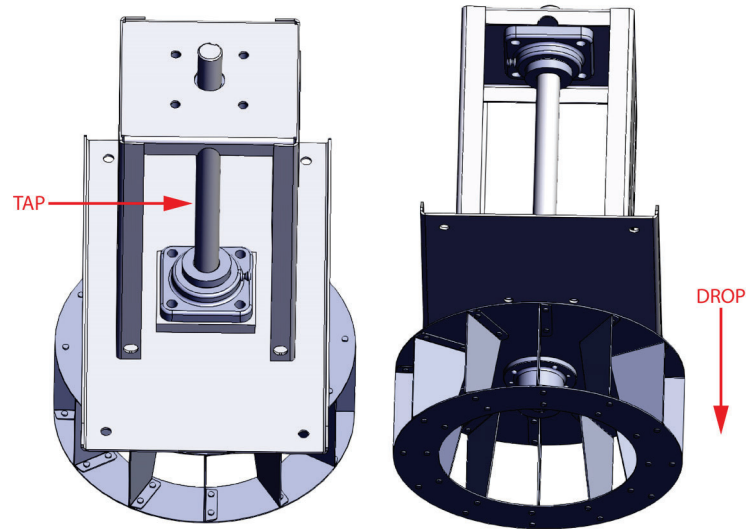
14. Using a T25 torx wrench, loosen the bolts in the Skwezloc fittings on each of the 4-hole flanged bearings and loosen the fitting from the impeller shaft.



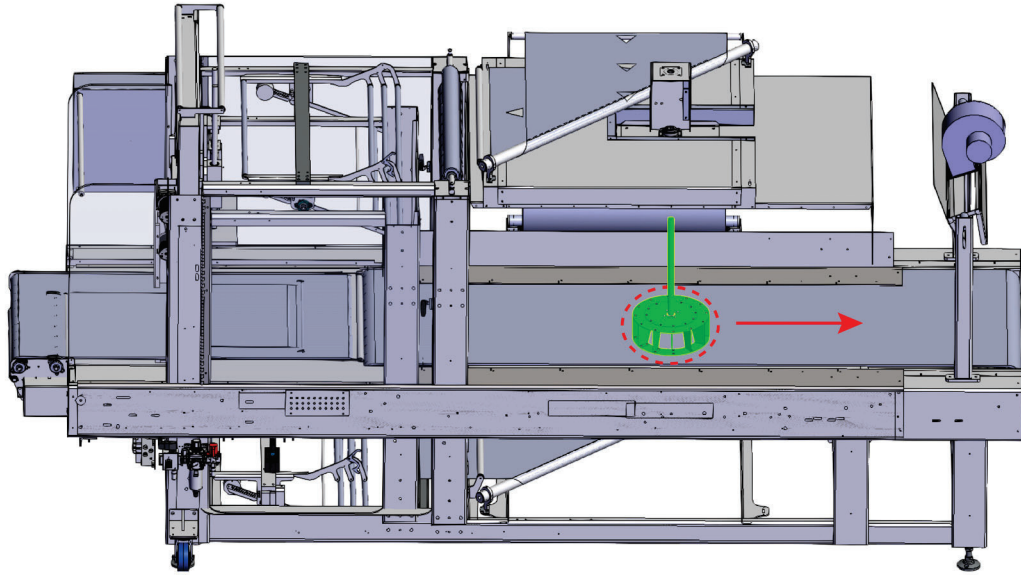
WARNING

Do not use excessive force when separating bearings from shaft. This could cause the shaft to drop with excessive force and cause damage.

15. If the impeller shaft does not freely move up and down after loosening the Skwezloc fittings, use the hammer and brass rod (as a punch) and tap with moderate force until the shaft drops all the way down onto the cushioning on the tunnel belt.



16. Carefully remove the impeller shaft from the tunnel.



17. Inspect the impeller shaft and bearings for wear and diagnose the cause of the shaft damage.
18. Install the new impeller and shaft up through the tunnel and through the 4-hole flange bearings and Skwezloc fittings.
19. Slide the impeller shaft up until it stops and temporarily tighten one of the Skwezloc fitting bolts to prevent the impeller and shaft from dropping down into the tunnel again. Inside the tunnel, reinstall the sheet metal previously removed below the impeller.
20. Reinstall the heater element tray.
21. Loosen the bolt on the Skwezloc fitting and allow the impeller shaft to drop down onto the sheet metal inside tunnel.
22. Slide the impeller shaft up and down through the bearings, marking the highest and lowest points of travel on the shaft.
23. Position the impeller shaft so it is centered between the marks and tighten the bolt in each of the Skwezloc fittings.
24. Reinstall the lubrications lines to the fittings.
25. Loosely reinstall the motor mounting bracket and motor.

26. Reinstall the pulley with the key stock on the impeller shaft, making sure it lines up with the motor pulleys, and tighten the setscrews.
27. Reinstall the v-belt. when installing the v-belt, place a moderate amount of tension on the belt while tightening the motor mounting brackets to the tower weldment.
28. Reinstall the v-belt guard and tighten the bolts.