

# IMPORTANT!

Please read this before performing any maintenance or service work to this equipment!

## WARNING

**If you have not read the Operation and Maintenance Manual and feel you were not properly trained DO NOT ATTEMPT TO OPERATE THIS MACHINE. Serious injury or death may result!**

In order to ensure the safety of your employees, contract maintenance personnel, and yourself it is very important to “Lock Out & Tag Out” this equipment before performing any maintenance or service work on it. Depending on the equipment there will be areas that need to be addressed with Lock Out / Tag Out procedures

- Electric
- Pneumatic

In each of the above areas it is necessary to ensure that it is impossible activate any input to the equipment while it is being worked on. There are a number of ways to accomplish this in each area. Due to this, each individual company should determine what system will work best for them and ensure that each employee strictly adheres to it. If you have any questions on how to start a Lock Out / Tag Out program, you can contact your State Department of Labor office and they would be happy to provide you with information and sources for materials.

## WARNING

**Maintenance is to be performed by trained personnel and while the machine is in a safe state to perform any maintenance. Machine must be in a safe state prior to any maintenance.**

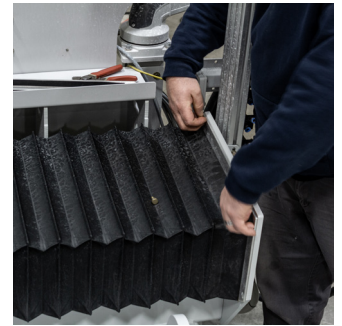
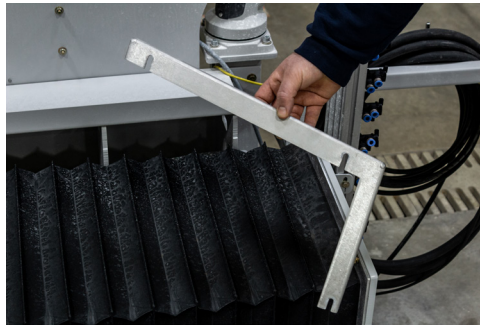
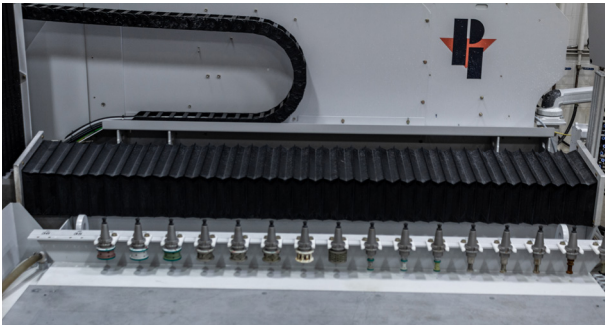
## Description:

A how-to guide on replacing the bellows covers for a Titan 4000 series machine.

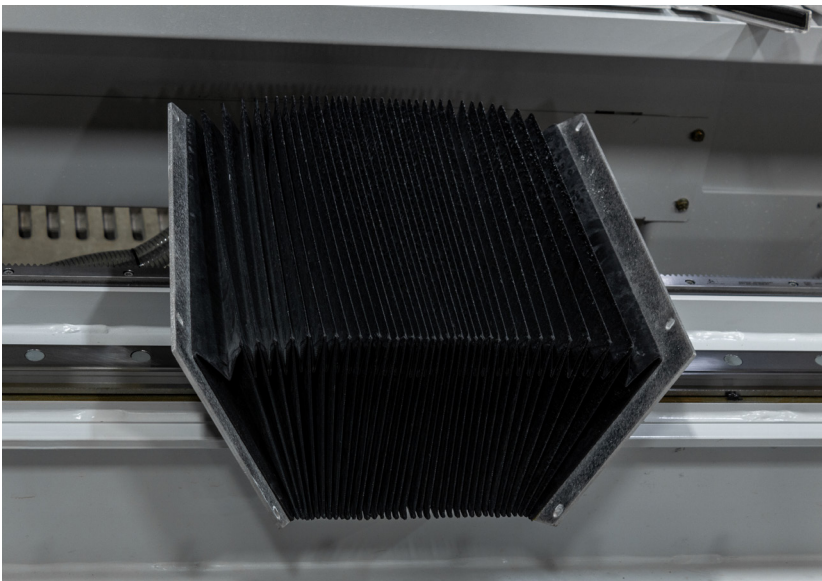
## Tools and supplies:

- Shop rags
- Pliers
- $\frac{7}{16}$  socket wrench

1. Turn off the air at the source and machine.
2. Pull the bellows clip retainer out, then up to remove it.
3. Unscrew the 4 thumb screws attaching the bellows cover.
4. Repeat steps 1-2 for the other end.

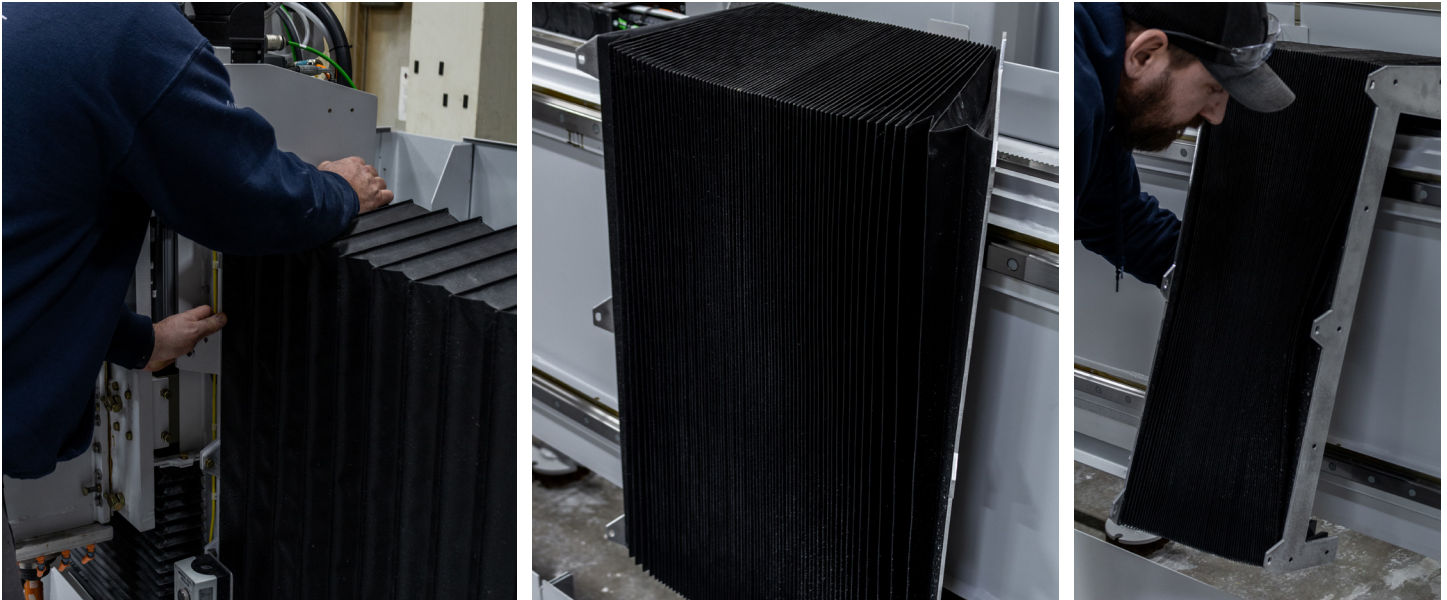


5. Collapse the bellows; lift from the outside edge, then slide it off the notch.



6. Repeat this for the other gantry bellows cover.

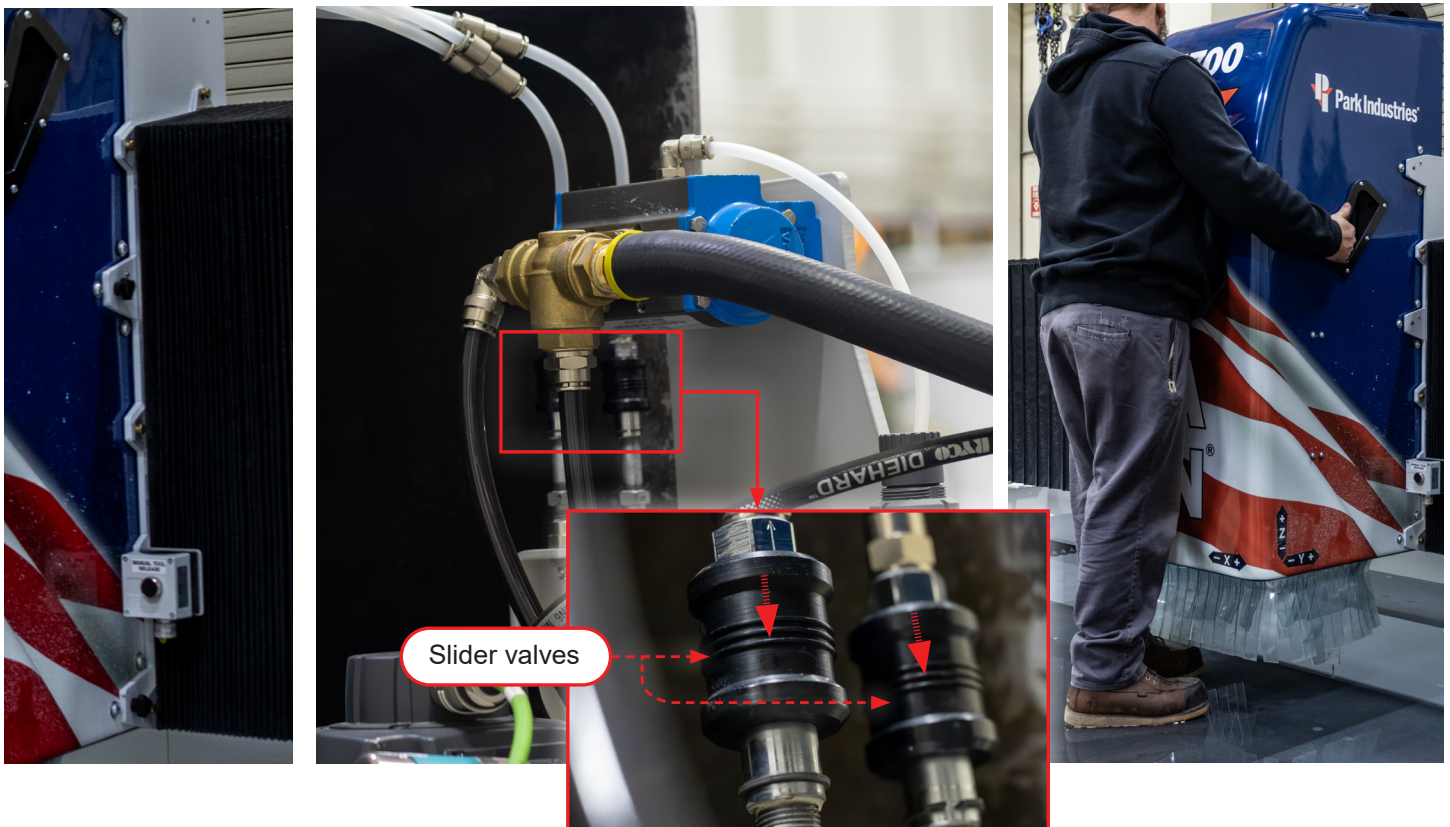
7. Unscrew the 4 thumb screws attaching the bridge bellows. Do this for both sides.
8. Collapse the bellows, then grab them from the bottom and pull out and up to remove them from the rails.
9. Repeat this for the bridge bellows cover on the other side of the cross-travel assembly.



10. Unscrew the 6 three-point hand knobs securing the shroud.
11. Disconnect the air hoses to the water skirt: grab the 2 black slider valves, pull down, and remove the hoses from their connector.

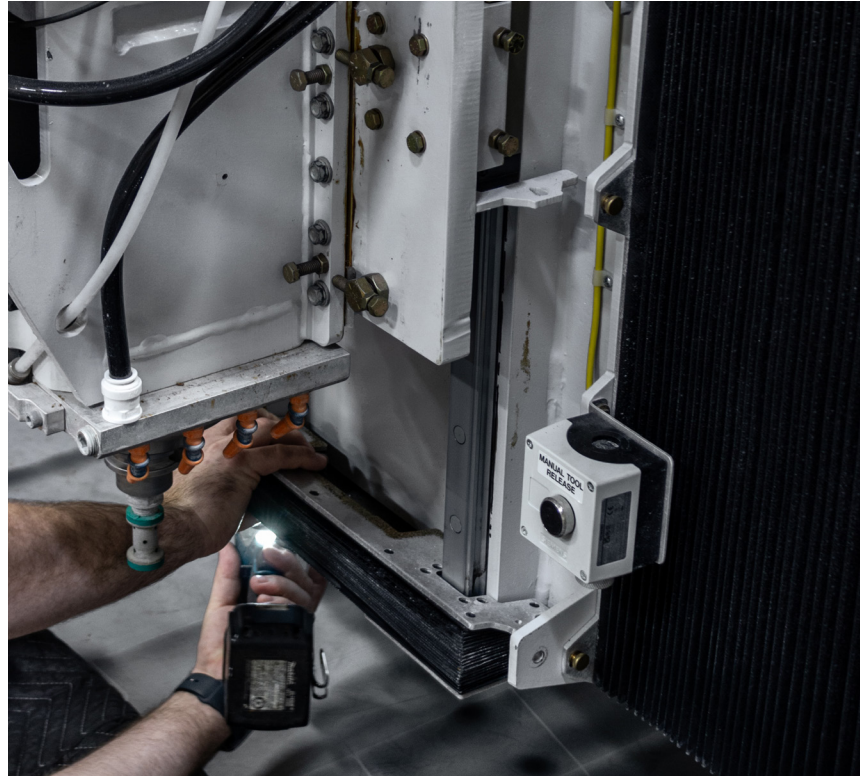
**Note:** mark the hoses with tape to record their placement.

12. Grasp both handles, lift, and pullback to remove the shroud.



13. For the Z-Travel bellows cover, remove the 2 thumb screws from the top flange.
14. Use a socket wrench to unscrew the 2 bolts from the bottom flange.
15. Collapse, then pull out and away to remove the Z bellows cover.

**Note:** examine the rails and gear rack for wear and tear (i.e. rust, or pitting on the rails, and broken or chipped teeth on the gear rack, etc.).



16. Turn on the air at the source and machine.
17. Check all bellow way covers for rips, tears and holes. If any are found replace immediately to help prevent. Premature wear and rusting of the linear ways. Gently remove any stone pieces and heavy mud buildup. Avoid intense cleaning as this may cause damage and misplacement for proper motion.