

Installation of Axis Belt

Before performing any service on the machine tool make sure to read and understand the procedure prior to making the repair. Follow all applicable safety rules and guidelines. Do not operate any machine that is in an unsafe condition.

Applies to: General Products

Version: 1.0

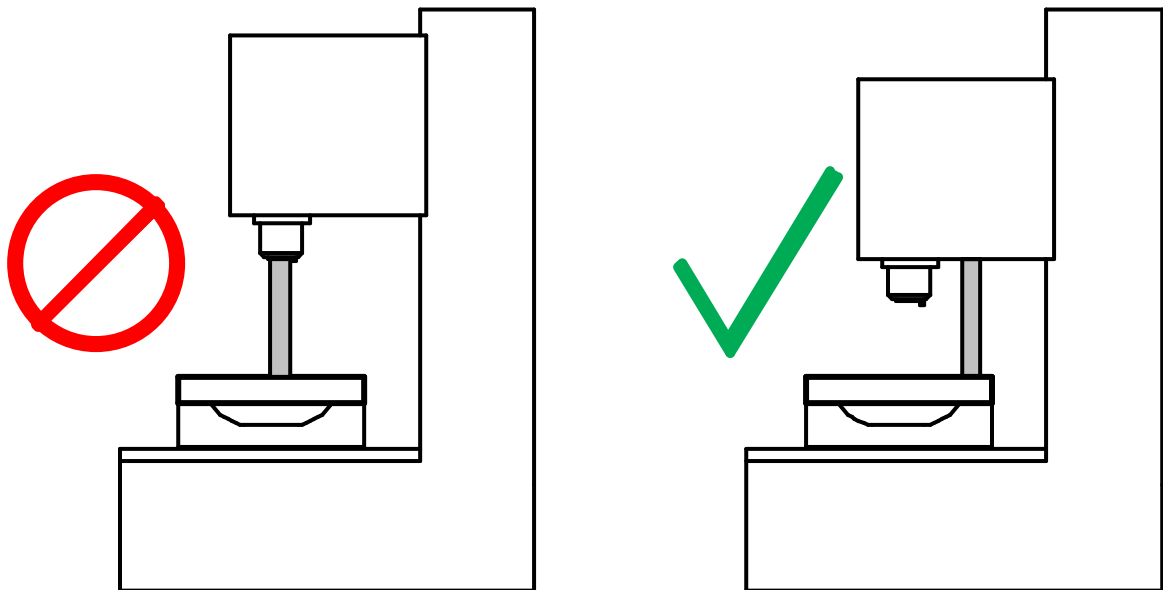
This procedure covers the installation of an axis belt on general Milltronics CNC products. Consult the mechanical manual for specifics relating to belt access on each model.

Tools:

Belt replacement should require no special tools. Basic hand tools including Allen wrenches (metric or standard as required by machine model) will be needed.

Procedure:

1. If replacing a belt on a vertical axis support that axis with blocking to prevent it from falling when the belt is removed. A sturdy piece of wood can be used for this purpose. DO NOT place blocking directly against the nose of a spindle.



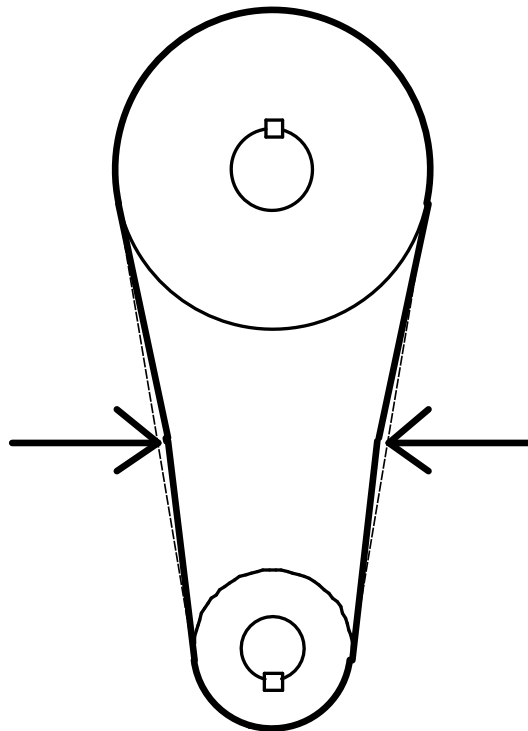
2. Emergency stop the machine and power it down.
3. Remove sheet metal as needed to access the belt.
4. Loosen the bolts holding the motor in the machine frame.

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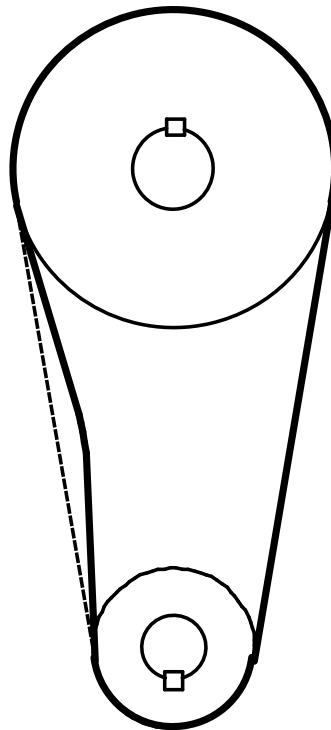
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5. Remove the old axis belt and replace it with the new one.
6. Tension the belt accordingly and tighten the axis motor. Caution: Excessive tension of belt may cause increased noise in axis and possible premature motor bearing failure
 - a. Typical non-vertical axis belts should be tightened so that belt deflects approximately 1/8 of an inch when light to moderate pressure is applied. Often axis motor weight is sufficient force to supply this tension.



- b. Vertical axes should be tightened so that the tension on both sides is as even as practical. Counterweighted vertical axes may still be able to follow the 1/8 of an inch guideline. A non-counterweighted vertical axis may require more tension to avoid slack in the “down” side of the belt.

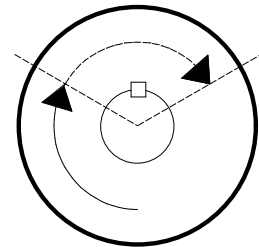
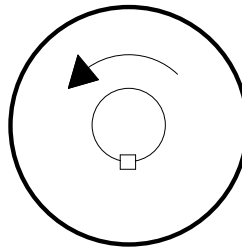
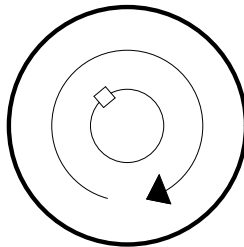


Sign of loose belt on vertical axis

7. Ensure that the motor is secured by checking and tightening all of the bolts holding the motor in the casting.
8. Turn on the machine. Enable the drives when control is fully booted.

9. Home the machine observing the MOTOR pulley on the axis the belt was changed. The motion of the pulley should follow the three step sequence below:

- | | | |
|---|--|---|
| 1. | 2. | 3. |
| Motor will spin at rapid speed until the home switch is contacted | Motor will reverse direction and slowly turn until the home switch is released | Motor will spin forward at slowest speed until the encoder marker is found. Should be 1/3 to 2/3 of a turn. |



(Actual rotation direction may be opposite from these diagrams)

10. The motor should complete step 3 turning in between 1/3 to 2/3 of a turn. If it does NOT:
- Emergency stop the machine and power it down.
 - Loosen the axis belt (blocking the axis as necessary) and turn the motor pulley approximately 1/3 of a turn. Reinstall the axis belt per previous instructions.
 - If the axis has a brake motor and cannot be rotated the ball screw may be rotated instead.
11. Turn on the machine. Enable the drives when control is fully booted.
12. Perform the homing sequence again carefully observing step 3. If motor completes step 3 within 1/3 to 2/3 of a turn continue on. If NOT repeat the previous steps 10 and 11 until this is achieved.
13. Replace all sheet metal and way covers after proper homing of the axis is established.

14. Move the axis through full travel using the hand wheel or jog mode to insure axis can move through its full travel. The axis should stop without hitting the limit switches or displaying the error 450 (Centurion 1,5,6,7, 7200 CNC) or 1450 (8200 CNC).

If the machine CANNOT move full travel consult the area service representative or the manufacturer for further instruction.

15. Check and adjust any parameters that may be affected by changing the belt.
- a. View the setup parameter "Home Position" in the axis section. A zero value in this parameter will require no further action. If this parameter has a non-zero value for the affected axis it will require adjustment.
 - b. Machines with a tool changer will require adjustment to the "Tool Change" position parameter for any axes involved in the tool change process. This includes but is not limited to: Z axis on vertical mills, Y axis on horizontal mills, Y and Z axis on bridge type mills. Consult the area service representative or the manufacturer for further instruction.
 - c. Reset any work coordinates or tool offsets for the affected axis.

Procedure Complete

Document History

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