

## REPLACING THE IDLER SHAFT

### *Tools needed:*

- **Large flathead screw driver**
- **Large Phillips screw driver**
- **Medium flathead screw driver**
- **Medium Phillips screw driver**
- **Needle nose pliers**
- **Adjustable wrench**
- **5/32" Allen wrench**
- **3/32" Allen wrench**
- **30 weight oil**
- **Newspaper or heavy cardboard**

1. Turn off and unplug the Mark V.
2. Attach the sanding disk to the main spindle and rotate it away from you as you turn the control handle to fast. **DO NOT** force. This will take the tension off of the motor drive belt so that you may remove it from the motor pulley.
3. Remove the belt cover and secure out of your way to your left with tape or string. Slide the headstock and carriage to the right (toward the base mount) as far as they will go. Secure the headstock and the carriage locks.
4. Remove the drive belt from the motor pulley by gently sliding off one side of the belt and rotating the motor shaft so that the belt will ride off entirely.
5. Remove the nameplate assembly to expose the access hole located on opposite of the control handle.
  - ✓ **NOTE:** depending on the age of your unit this can be done by popping off with a flat head screwdriver or by removing the screw located at the bottom of the nameplate cover. Some older units did not have access holes and you may have to lower the motor pan assembly down on the bench tubes to have enough room to work on unit.
6. Fully extend the quill and lock into place. This will give you enough room to access the backside of the power switch.

7. Disconnect the wires from the on/off switch. Remember the wire color location for reinstallation later.

Please locate the description, which switch best fits the type of switch in your unit.

- Toggle type switches (A), special nut surrounding the outside of your toggle switch. Remove wires from the terminal connectors on the back of the switch.
  - Toggle type switch (B), with 9/16" hex nut. Remove wires from the terminal connectors on the back of the switch.
  - Red key type switch. Remove wires from the terminal connectors. DO NOT pull wires out of the backside of the switch.
8. Place newspaper or heavy cardboard on your bench tubes for protection. Remove the 5 screws that hold the motor pan to the casting and carefully lower the motor pan assembly down on your protected bench tubes. Have someone help you hold the motor pan assembly so that it will not fall and cause damage or possible injury.

### **REMOVE THE SPEED CHANGER MECHANISM**

9. Depress the leaf spring on the back of the quadrant and swing the retaining loop out of the way.
10. Use a 3/32" Allen wrench to remove the control handle.
11. Remove the 3 large screws which are now exposed and the entire Mechanism and now be removed from the casting for cleaning or replacement.

✓ \*\*\*Note the position of the small spring (504196) when removing the speed dial. \*\*\*

12. For newer units remove the screw that holds the idler shaft and Eccentric bushing in the casting. Loosen the bolt and nut located below the bushing at the split in the casting. For older units, remove the screw and washer that hold the idler shaft and eccentric bushing in the casting. Rotate the eccentric bushing counter clockwise until the slot is in the 6 o'clock position or between the slot openings in the casting. You will need to remove the Allen screw, clamping the eccentric bushing to the idler bearing. This screw is not visible anywhere else except through the split in the casting. Some other older units had keepers and not a screw/washer.
13. The idler shaft will now come out the front of the casting somewhat. Remove the small Allen screw that holds the eccentric bushing to the idler bearing.

14. Pull the eccentric bushing through the headstock casting and push the idler bearing into the headstock casting. The idler shaft and pulley can now be removed.

### **SEPARATING THE SHEAVE FROM THE IDLER SHAFT**

15. Slide the control sheave off the idler shaft. This is the sheave farthest away from the idler bearing.
16. With needle nose pliers remove the brass clip from the inside of the Poly-V or Gilmer sheave. This sheave name will vary depending on the age of the unit being worked on. The sheave will now slide off the idler shaft.
17. Remove the short key from the Idler shaft. There will be a small crook in the key.
18. Clean all removed parts with mineral spirits prior to reassembly on the new idler shaft/bearing assembly.

### **REASSEMBLE THE IDLER SHAFT**

19. To reassemble the Poly V or Gilmer sheave on the idler shaft first replace the retaining ring (504179) in the groove on the idler shaft.
20. Lay the short key in the keyway slot, crook down.
21. Butt the Poly V or Gilmer sheave up against the retaining ring.
22. Replace the brass shaft and place the control sheave back on the end of the idler shaft.
23. Oil the idler bearing shaft and place the Control sheave back on end of the Idler shaft.

### **REPLACING THE SHEAVE/SHAFT ASSEMBLY**

24. Run the idler bearing shaft through the belt and headstock casting.
25. Replace the eccentric bushing around the idler shaft bearing.
  - ✓ NOTE: For older units make sure that the setscrew in the bushing seats in the groove of the idler shaft bearing. Tighten the Allen screw making sure the eccentric bushing and idler bearing remain flush with the headstock casting.
26. Replace the washer and screw. For older units tighten the screw that clamps the eccentric bushing in the casting or replace the keepers.
27. Adjust the tension of the Gilmer or Poly V belt.

28. Adjust the Poly V/Gilmer belt tension by turning the eccentric bushing. ONLY snug down the bolt and DO NOT over tighten! For the Poly V the total deflection should be between the 1/8" to 1/4" when applying pressure from both sides of the belt.
29. Prior to start up you must put the unit at a "slow speed". Put the 12" sanding disk on the main spindle. Turn the disk toward you and the speed control dial down to slow at the same time. DO NOT force.
30. Perform a high-speed adjustment.