

How To Replace The Quill

Tools needed:

Old ice pick

5/32" Allen wrench

1. Turn off and unplug the Mark V.
2. Use the 5/32" Allen wrench to remove the set screw located on the top of the headstock casting. The screw hole may be filled in with putty or lead filler. To remove use ice pick or similarly pointed object. Be careful not to damage screw.
4. Fully extend the quill until it disengages from the pinion gear.
5. With the quill disengaged, pull it forward until it is completely removed from the headstock. DO NOT let go of the quill feed lever. Lock down the quill lock.

Replacement

6. While holding the quill feed lever unlock the quill lock. Push the quill back into the housing until the teeth engage on the pinion gear. Be sure that the key way on the top of quill is facing the top of the casting.
7. The quill will now retract into the casting.
8. Tighten down the set screw in the top of the casting only far enough that it prevents the quill from disengaging from the pinion gear. DO NOT over tighten, this will bind the quill.

How To Increase/Decrease Quill Tension

Tools needed:

5/32" Allen wrench

Old ice pick

1. Turn off and unplug the Mark V.
2. Use the 5/32" Allen wrench to remove the set screw located on the top of the headstock casting. The screw hole may be filled in with putty or lead filler. To remove use ice pick or similarly pointed object. Be careful not to damage screw.
4. Fully extend the quill until it disengages from the pinion gear.
5. With the quill disengaged, pull it forward until it is completely removed from the headstock. DO NOT let go of the quill feed lever. Lock down the quill lock.

Increasing Tension

- 6a. Unlock the quill lock and turn handle the same direction as you would to extend the quill. DO NOT over tighten, this could damage or break the quill spring. Lock quill lock.

Decreasing Tension

- 6b. Unlock the quill lock and turn handle the opposite direction as you would to extend the quill. DO NOT over loosen, this will prevent the quill from retracting properly. Lock quill lock.
7. While holding the quill feed lever unlock the quill lock. Push the quill back into the housing until the teeth engage on the pinion gear. Be sure that the key way on the top of quill is facing the top of the casting.
8. The quill will now retract into the casting.
9. Tighten down the set screw in the top of the casting only far enough that it prevents the quill from disengaging from the pinion gear. DO NOT over tighten, this will bind the quill.

How To Replace Spindle Bearing(s)

Tools needed:

Bearing Press
C - ring pliers
New bearing(s)

5/32" Allen wrench
Old ice pick

1. Turn off and unplug the Mark V. Secure the headstock and carriage locks.
2. Use ice pick and dig out the putty fill from the silver spindle knob.
3. Loosen exposed set screw and remove spindle knob.
4. Using C - ring pliers, remove the retaining ring. NOTE: Remember the position of the bevel on the retaining ring. The bevel goes away from the bearings. DO NOT lose washer under ring.
5. Pull out spindle from the quill housing.
6. Carefully remove the old bearing(s) making sure that you do not damage the spindle.
7. Press on the new bearing(s).
8. Replace spindle into the quill housing.
9. Replace the washer and seat the retaining ring into the quill housing with the bevel facing away from the bearing(s).
10. Replace the spindle knob and make sure that it is up tight against the quill housing. Tighten down the set screw.

How To Replace The Quill Spring

Tools needed:

5/32" Allen wrench

Pliers

6" piece of stiff wire OR

Small - flat screw driver

C - ring pliers

Old ice pick

Rubber hammer

A small button hook

Small - Phillips screw driver

1. Turn off and unplug the Mark V. 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 towards the base mount) as far as they will go. Secure the headstock and carriage locks.
2. 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 screw driver 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.
3. Use the 5/32" Allen wrench to remove the set screw located on the top of the headstock casting. The screw hole maybe filled in with putty or lead filler. To remove use ice pick or similarly pointed object. Be careful not to damage screw.
4. Fully extend the quill until it disengages from the pinion gear.
5. With the quill disengaged, pull it forward until it is completely removed from the headstock. DO NOT let go of the quill feed lever.
6. Manually unwind the quill feed lever to release any remaining tension on the quill return spring.
7. Remove the curved spring washer that is located under the quill lock. Then remove the feed stop handle and serrated washer located underneath it.
8. Remove the depth control dial, the second serrated washer, and flat washer.

9. Use the 5/32" Allen wrench to remove the set screw in the top of the boss in which the spring housing is located. The screw hole maybe filled in with putty or lead filler. To remove use ice pick or similarly pointed object. Be careful not to damage screw head.
10. Push the pinion shaft towards the quill lock handle side of the headstock and remove the quill feed sleeve. Continue to push on pinion shaft until the end is completely inside the headstock.
11. While tilting up slightly on the quill lock handle side of the pinion shaft, remove the pinion shaft from the headstock. This will prevent the cone shaped washer from falling off into the headstock.
12. Remove the retaining ring from the pinion shaft and remove the spring housing.
13. Mark the housing where the spring tab is so you know where to put the tab of the new spring. Remove the old spring from the spring housing. Grab the spring with a pair of pliers and pull out.
14. Place the new spring on the spring housing. Using a rubber hammer gently tap the spring into the housing. Tap over the new spring tab until it is almost flat with the housing.
15. Re-hook the spring to the shaft. With stiff wire create a small hook on one end or use a button hook. Loop hook through the hole located inside curl end of spring. Pull hole opening over the drive screw on the pinion shaft and turn the spring housing clockwise to attach securely. Replace the retaining ring.
16. Replace the cone shaped washer on the quill lock handle end of pinion shaft and put back into headstock. Look through the spring housing opening and feed the shaft into the headstock. Be sure that the washer goes between the ears and the interior side of the headstock casting.
17. Push the pinion shaft in until the spring housing seats properly. Make sure that the small notch on housing lines up with the set screw in boss part of the headstock.
18. Put the quill feed sleeve in from the front and turn until the key way in sleeve lines up with the key on the pinion shaft.
19. Tighten down the set screw located in the boss above the spring housing and make sure it is tight.

20. Replace the washers and depth control dial. The serrated washers should face towards the depth control dial. Replace the handles making sure you have them on the correct sides.
21. Wind the quill lever forward until the spring tension is at the desired strength. Approximately 2 or 3 complete turns.
22. Keeping tension on the spring reposition the quill so that the teeth engage with the pinion gear. The quill should now retract by itself. If not put 1 full turn more on the quill spring.
23. Tighten down the Allen screw in the top of headstock casting just far enough so that the quill will move freely but not come completely out of casting.
24. Replace belt cover and nameplate assembly.

How To Replace The Pinion Shaft

Tools needed:

5/32" Allen wrench

Pliers

6" piece of stiff wire OR

Small - flat screw driver

C - ring pliers

Old ice pick

Rubber hammer

A small button hook

Small - Phillips screw driver

1. Turn off and unplug the Mark V. 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 towards the base mount) as far as they will go. Secure the headstock and carriage locks.
2. 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 screw driver 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.
3. Use the 5/32" Allen wrench to remove the set screw located on the top of the headstock casting. The screw hole maybe filled in with putty or lead filler. To remove use ice pick or similarly pointed object. Be careful not to damage screw.
4. Fully extend the quill until it disengages from the pinion gear.
5. With the quill disengaged, pull it forward until it is completely removed from the headstock. DO NOT let go of the quill feed lever.
6. Manually unwind the quill feed lever to release any remaining tension on the quill return spring.
7. Remove the curved spring washer that is located under the quill lock. Then remove the feed stop handle and serrated washer located underneath it.
8. Remove the depth control dial, the second serrated washer, and flat washer.

9. Use the 5/32" Allen wrench to remove the set screw in the top of the boss in which the spring housing is located. The screw hole maybe filled in with putty or lead filler. To remove use ice pick or similarly pointed object. Be careful not to damage screw head.
10. Push the pinion shaft towards the quill lock handle side of the headstock and remove the quill feed sleeve. Continue to push on pinion shaft until the end is completely inside the headstock.
11. While tilting up slightly on the quill lock handle side of the pinion shaft, remove the pinion shaft from the headstock. This will prevent the cone shaped washer from falling off into the headstock.
12. Remove the retaining ring from the pinion shaft and remove the spring housing.
13. Mark the housing where the spring tab is so you know where to put the tab when replacing.

Replacing

14. Replace the cone shaped washer on the quill lock handle end of pinion shaft and put back into headstock. Look through the spring housing opening and feed the shaft into the headstock. Be sure that the washer goes between the ears and the interior side of the headstock casting.
15. Push the pinion shaft in until the spring housing seats properly. Make sure that the small notch on housing lines up with the set screw in boss part of the headstock.
16. Put the quill feed sleeve in from the front and turn until the key way in sleeve lines up with the key on the pinion shaft.
17. Tighten down the set screw located in the boss above the spring housing and make sure it is tight.
18. Replace the washers and depth control dial. The serrated washers should face towards the depth control dial. Replace the handles making sure you have them on the correct sides.
19. Wind the quill lever forward until the spring tension is at the desired strength. Approximately 2 or 3 complete turns. Keeping tension on the spring reposition the quill so that the teeth engage with the pinion gear. The quill should now retract by itself. If not put 1 full turn more on the quill spring

20. Tighten down the Allen screw in the top of headstock casting just far enough so that the quill will move freely but not come completely out of casting. Replace belt cover and nameplate assembly.