

APR-XL REPLACEMENT OF VACUUM TUBE (NEW PRO)

Required tools:

7/64" hex allen key

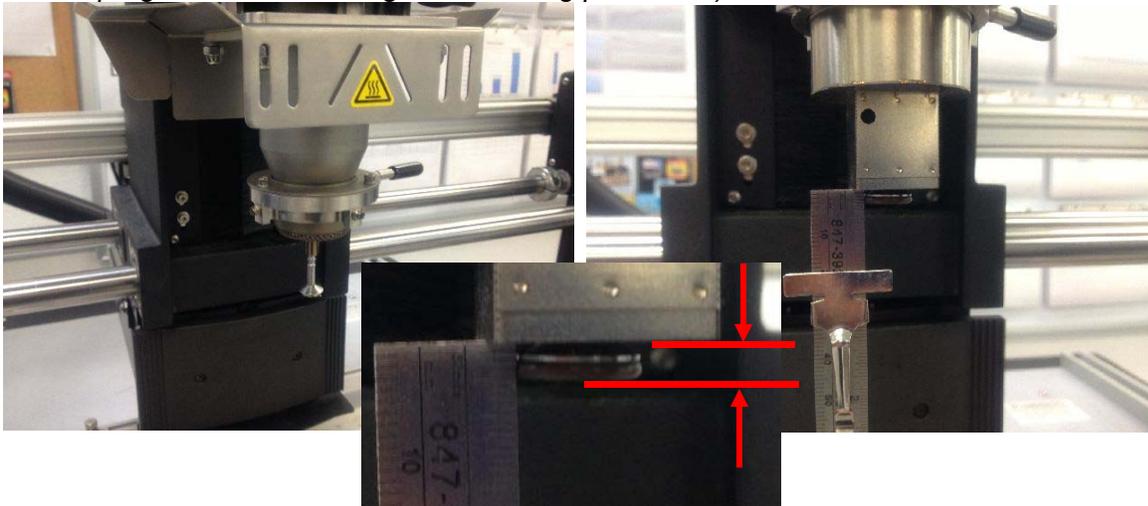
3/32" hex allen key

2.5mm hex allen key

5/64" open end wrench

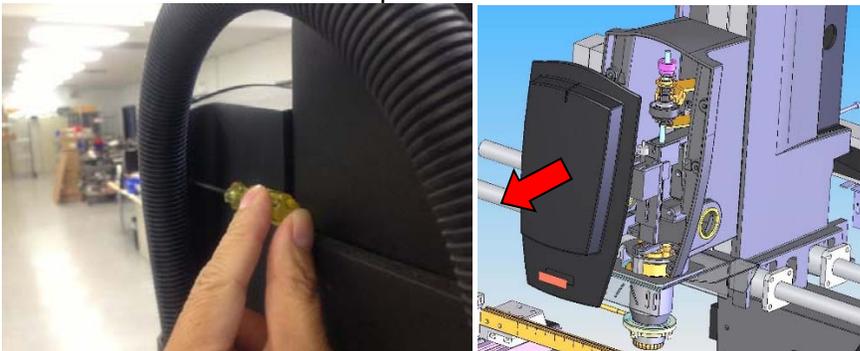
Record original vac tube position

1. Install VNZ vacuum cup into vac tube end (fully inserted)
2. Install NZA nozzle into nozzle ring
3. Use a spacer OR record distance between bottom edge of NZA nozzle to bottom of the vacuum cup (original factory setting is 1/8" or 0.13" from bottom edge of nozzle to bottom of VNZ vac cup)
4. Remove NZA nozzle and VNZ vac cup
This is the reference to re-install vacuum tube in original position and will relate to programmed head heights in existing processes)



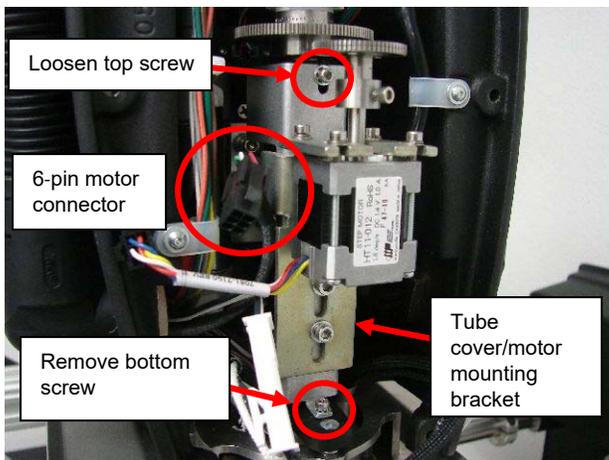
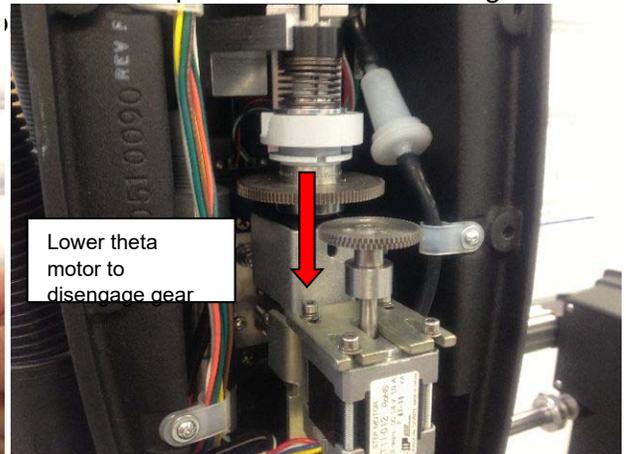
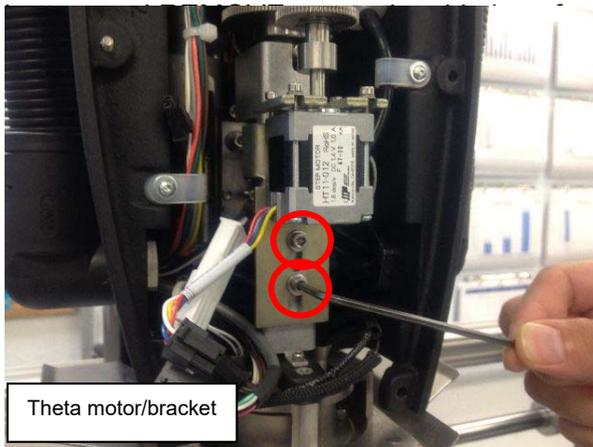
Remove head face cover

5. The head should be at the HOME position at top. This procedure can be performed with machine OFF as long as head is at the topmost position.
6. Remove 6x screws rear of head face cover
7. Disconnect head cover 2-pin wire harness and remove head cover



Remove the motor, tube cover/motor mounting bracket

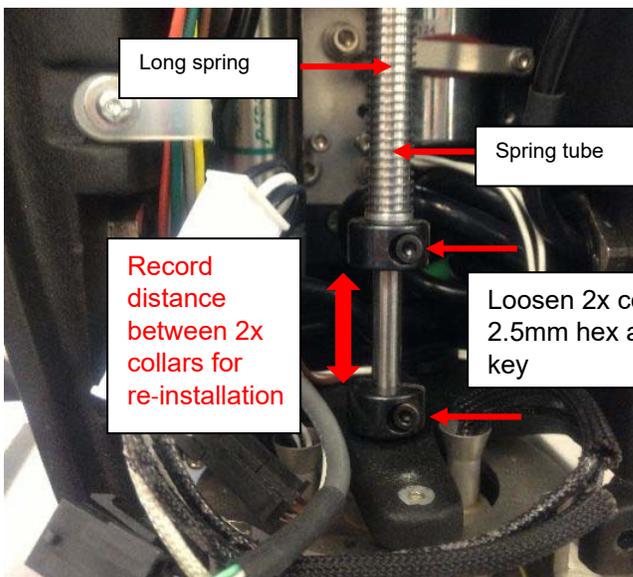
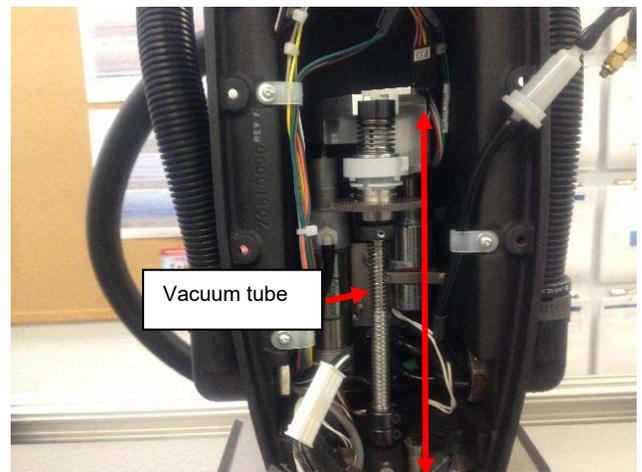
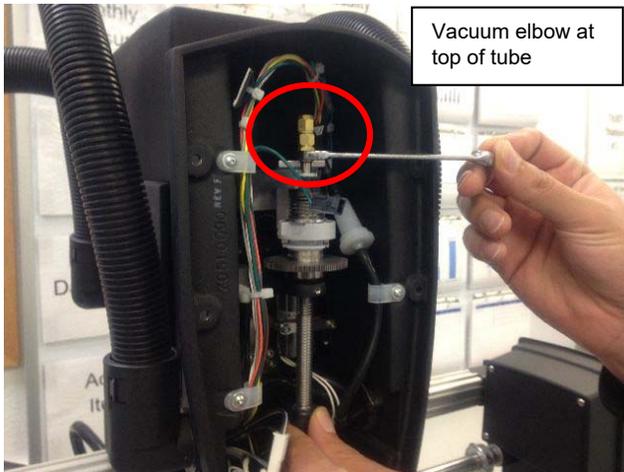
8. The theta motor/gear is located in front of the vacuum tube
9. Disconnect 4-pin theta motor connector
10. Loosen 2x motor mounting screws; allow theta motor to slide down and disengage from large spur gear
11. Loosen top screw for theta motor holding bracket
12. Remove bottom screw for theta motor holding bracket and 'pivot' theta motor/holding bracket from



REMOVE VACUUM TUBE

13. The vacuum tube assembly is now visible
14. Remove vacuum elbow fitting at the top of the vac tube
(if necessary, hold one of the lower collars for stability but DO NOT use pliers on the collars or tube)
15. Measure the distance between the 2x collars for reference during re-installation
16. Loosen 2x collars on vacuum tube (2.5mm hex allen key); allow top collar to slide down on top of bottom collar
17. Hold the bottom end of the vacuum tube

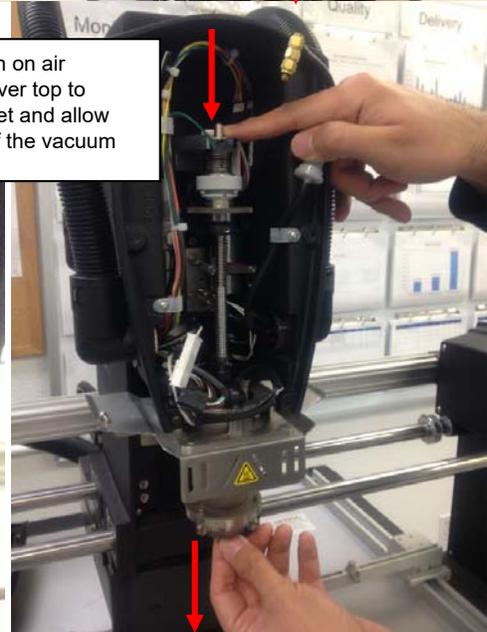
18. Carefully press down on air cylinder lever to compress grey collet spring and put the vac tube into 'free' position; remove vac tube from collet (slide out from bottom)
19. Carefully left head upward slightly (this will be necessary to remove the length of the vac tube)
20. Remove the entire vacuum tube thru the bottom of the heater head
21. The grey collet spring can be left installed as long as it is not disturbed
IMPORTANT! KEEP COLLET SPRING UNDER TOP BRACKET TO AVOID IT POPPING OUT!
22. Inspect the remaining lower assy parts inside head (2x collars, long spring, spring tube)

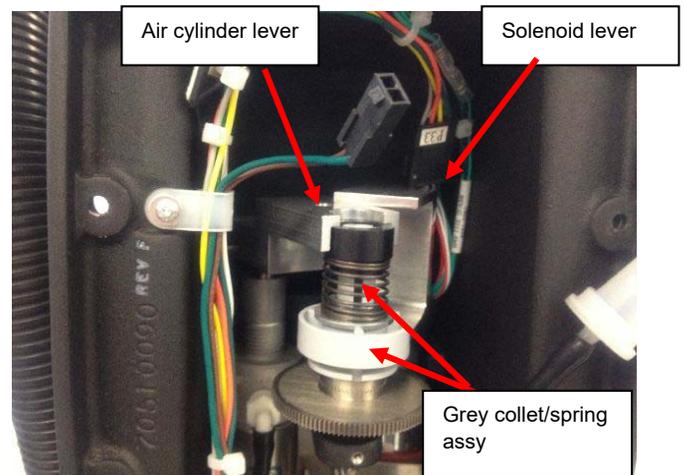
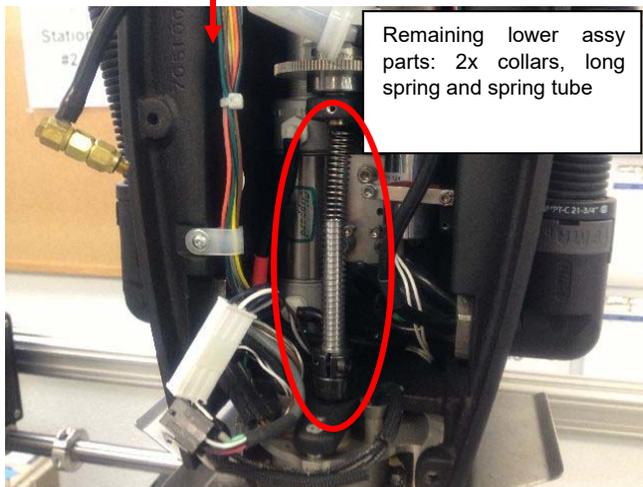
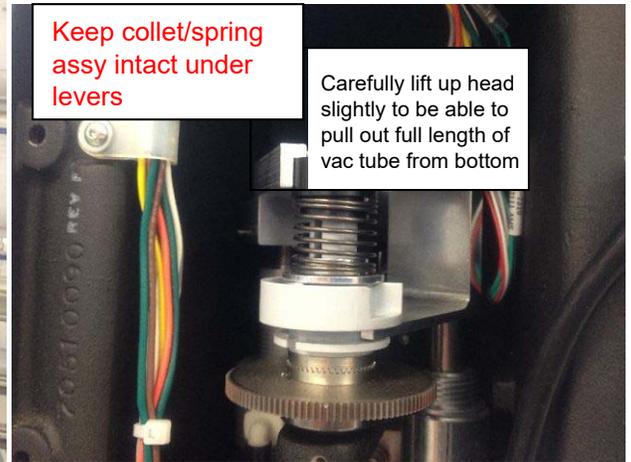
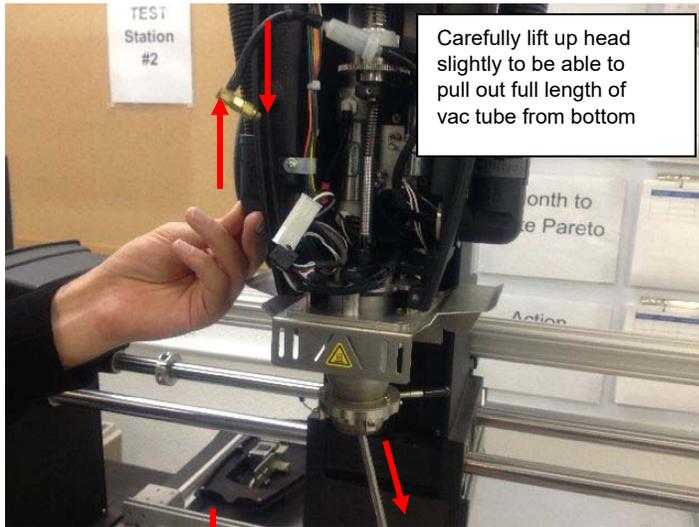


Push down on air cylinder lever top to 'open' collet and allow removal of the vacuum tube

Record distance between 2x collars for re-installation

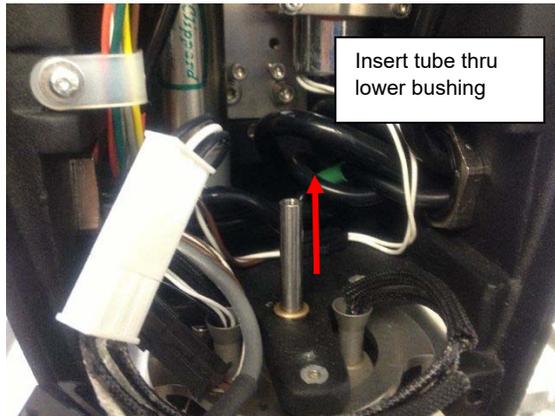
Loosen 2x collars 2.5mm hex allen key



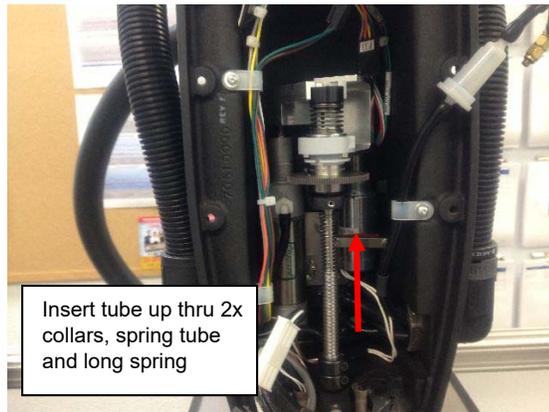


INSTALL NEW VACUUM TUBE

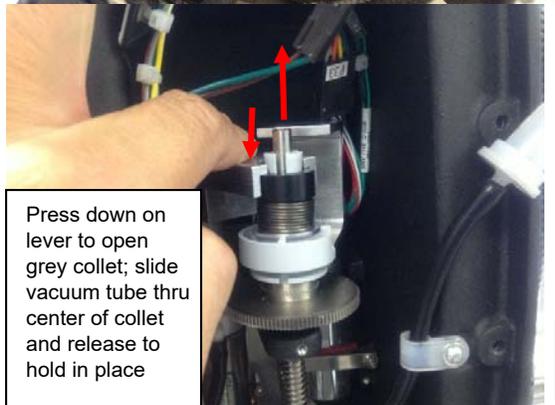
23. Carefully lift head slightly upward and insert vacuum tube into bottom hole of heater head assembly →
24. Carefully slide vac tube upward thru bottom bushing
25. Slide vacuum tube up and through the center holes of the 2x collars (note the screw heads on the collars should face same direction)
26. Continue sliding vacuum tube upward through spring tube and lower long spring
27. Continue sliding vac tube upward and into upper bushing (just below large gear)
28. Carefully press down on air cylinder lever to compress collet spring and open grey collet fingers
29. Continue to slide vac tube upward and thru center of collet
30. Release air cylinder lever; vac tube should now be held in place by collet



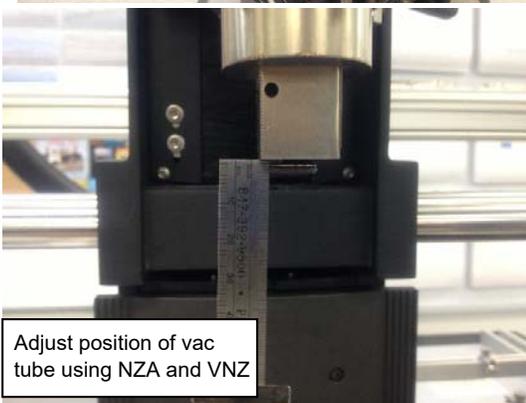
Insert tube thru lower bushing



Insert tube up thru 2x collars, spring tube and long spring



Press down on lever to open grey collet; slide vacuum tube thru center of collet and release to hold in place

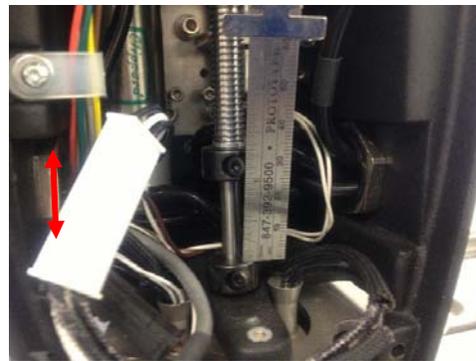


Adjust position of vac tube using NZA and VNZ

POSITION VACUUM TUBE

31. Install VNZ vacuum cup into vac tube end (fully inserted)
32. Install NZA nozzle into nozzle ring
33. Use ruler (or marked block) and original measured distance between bottom of nozzle edge and bottom of vac cup (factory set distance is approx. 1/8" or 0.13")
34. Press down on air cylinder lever to position vacuum tube/cup at the meas. distance
35. Tighten bottom collar screw to hold vac tube in place (**DO NOT OVERTIGHTEN! SEE BELOW MSG**)
36. Slide top collar upward. Use previous recording of collar distance and reference. Factory set distance between bottom and top collars should be 15/16"-1.0"
37. Tighten top collar screw

IMPORTANT!!! DO NOT OVER-TIGHTEN COLLAR SCREWS OR THIS MAY BEND THE VACUUM TUBE!!!



38. Re-install vacuum elbow fitting at the top of the vac tube and tighten (DO NOT OVERTIGHTEN!) (if necessary, hold one of the lower collars for stability but DO NOT use pliers on the collars or tube) DO NOT OVERTIGHTEN VAC ELBOW FITTING OR MIGHT DAMAGE O-RING SEAL

REINSTALL theta motor, tube cover/motor mounting bracket & head face cover

39. Re-install rear vac tube cover/theta motor mounting bracket/theta motor (2x screws)
(theta motor is still in lower position with theta gear disengaged)
40. Theta Leave the 2x screws loosened for now
41. The theta motor gear is composed of 2x 'stacked' anti-backlash gears
42. Turn the 2x gears opposite directions until about 1/2 the rotational distance (NOT the full rotation/tension)
43. Engage theta motor gears to the large gear; tighten 2x theta motor screws to hold in place
44. Connect theta motor 6-pin connector to wire harness

