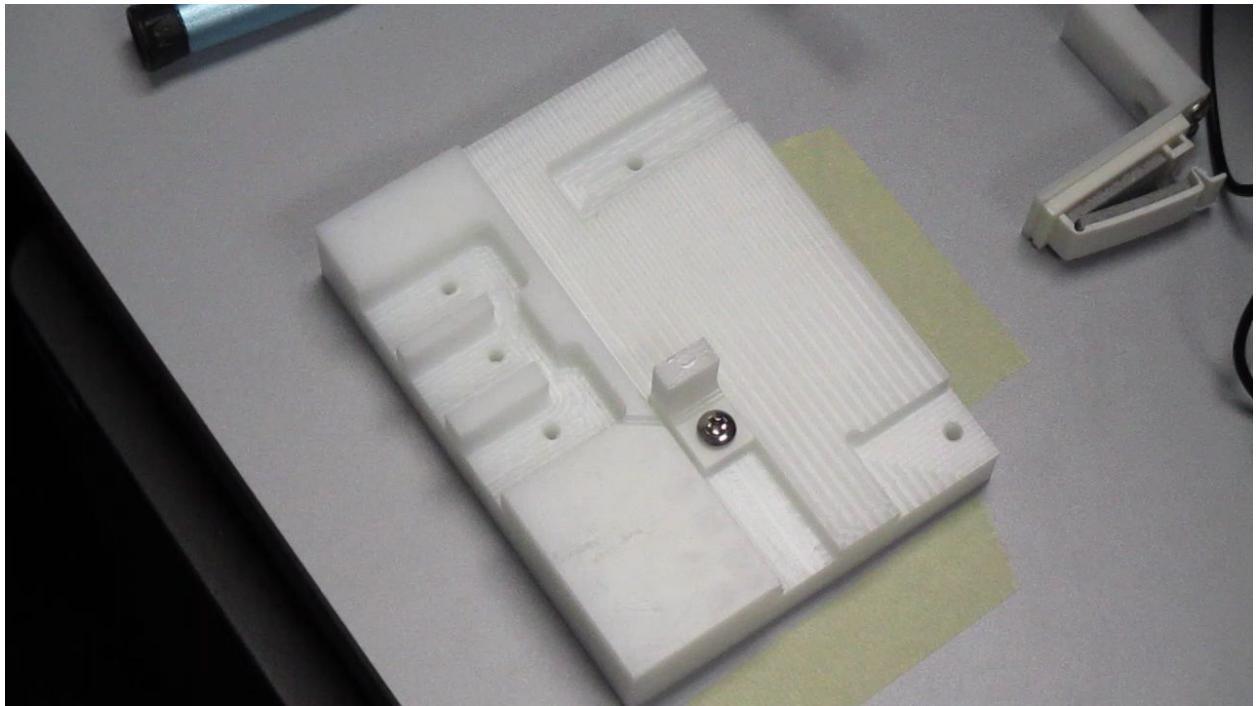


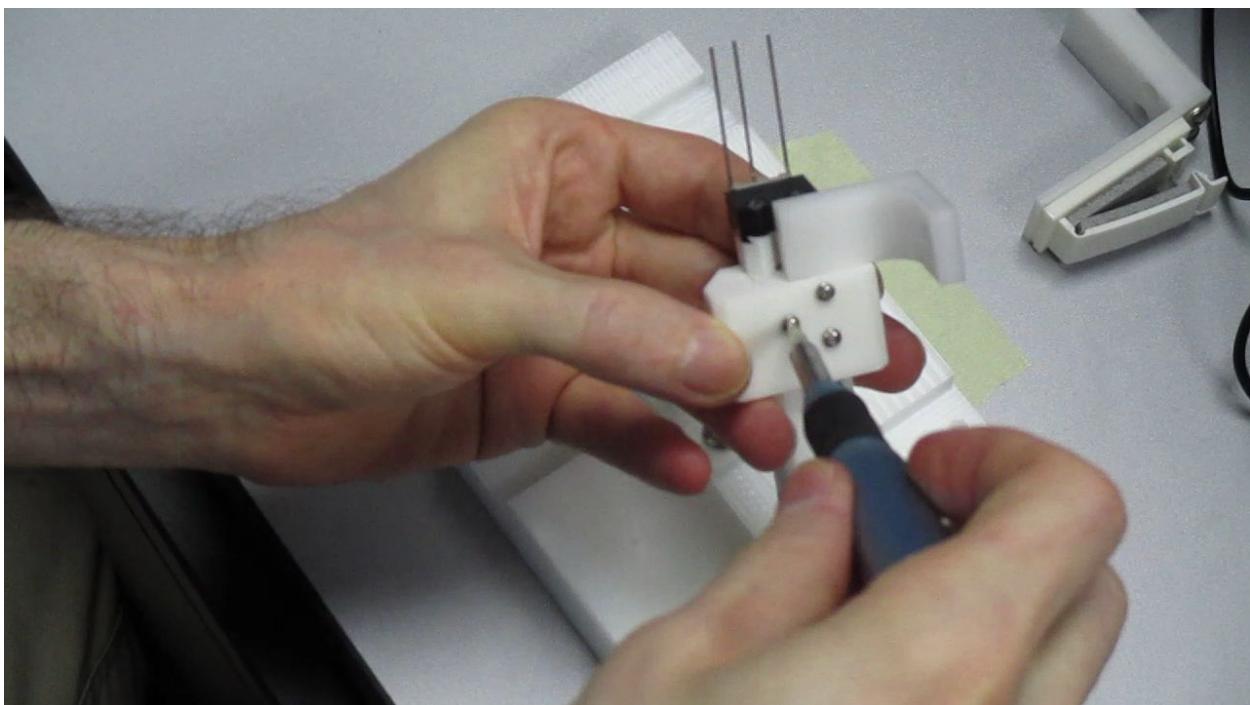
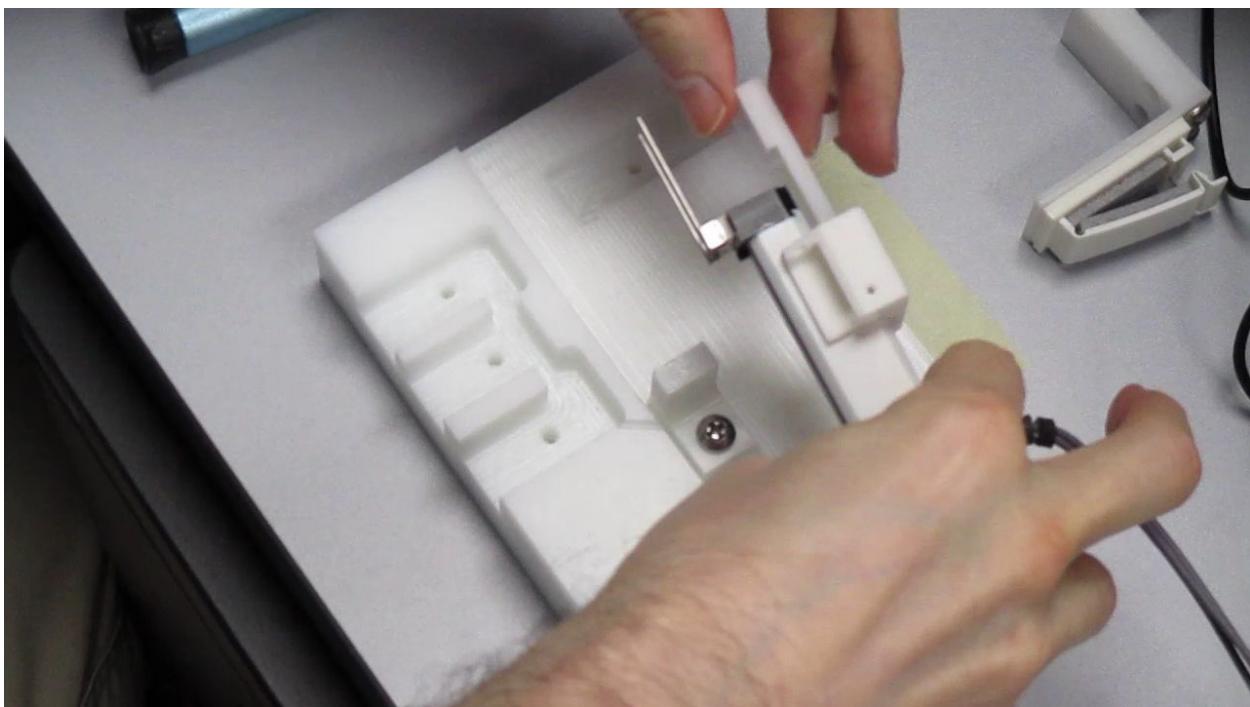
Loading Atlas Probes Into the v2c Triad Drives

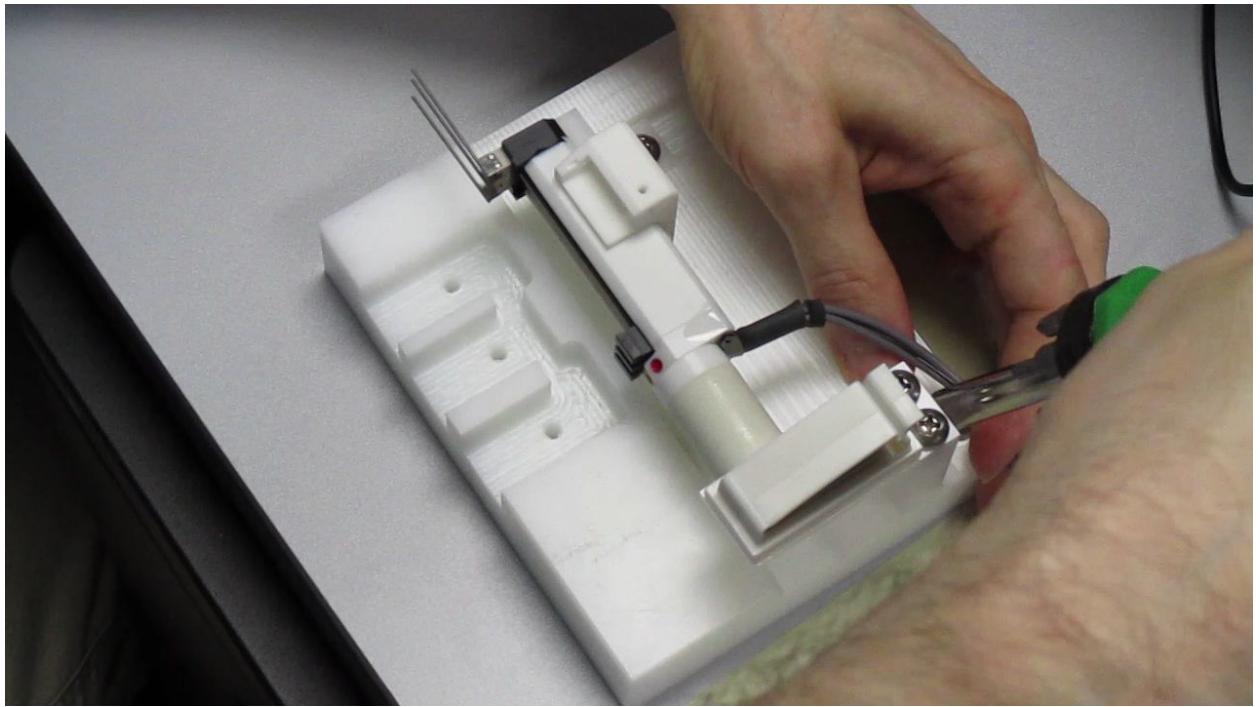
Christopher Thomas - 2020 May 11

1. Remove the cable shelf assembly and the Triad mounting post from the “first and second probe” base plate.

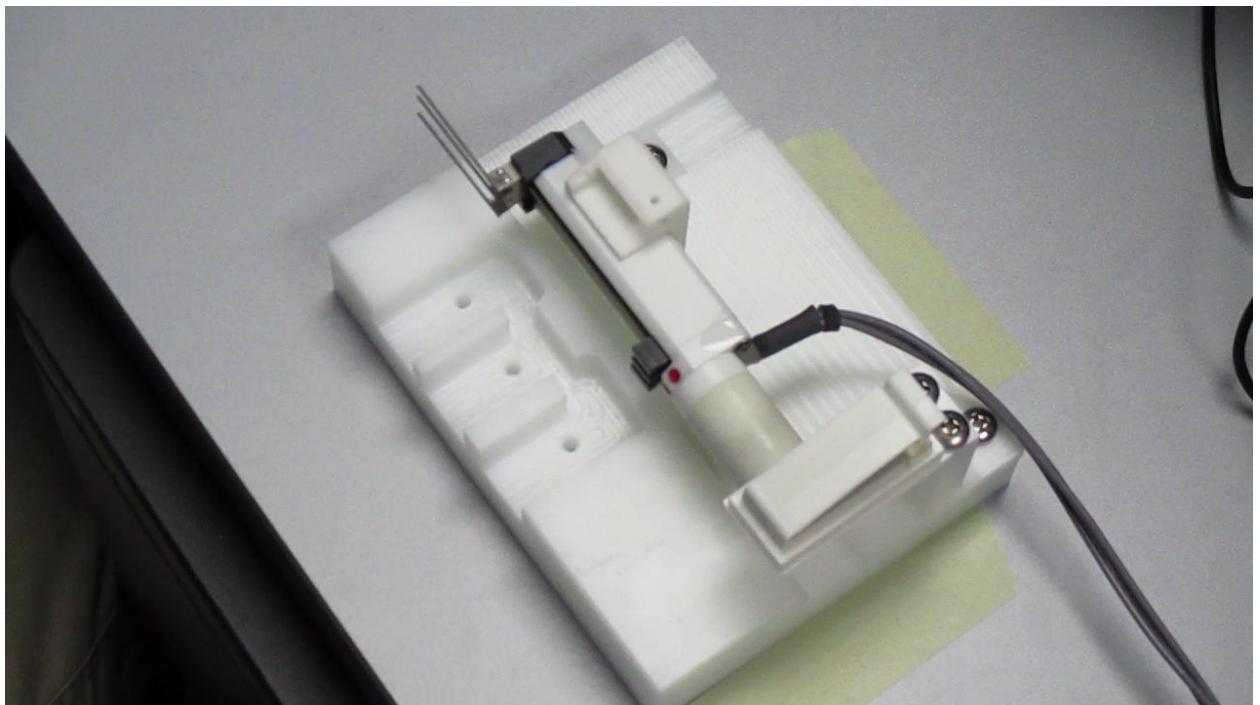


2. Insert the Triad drive on to the mounting post, install the mounting post on to the base plate, and then reinstall the cable shelf assembly on the base plate.

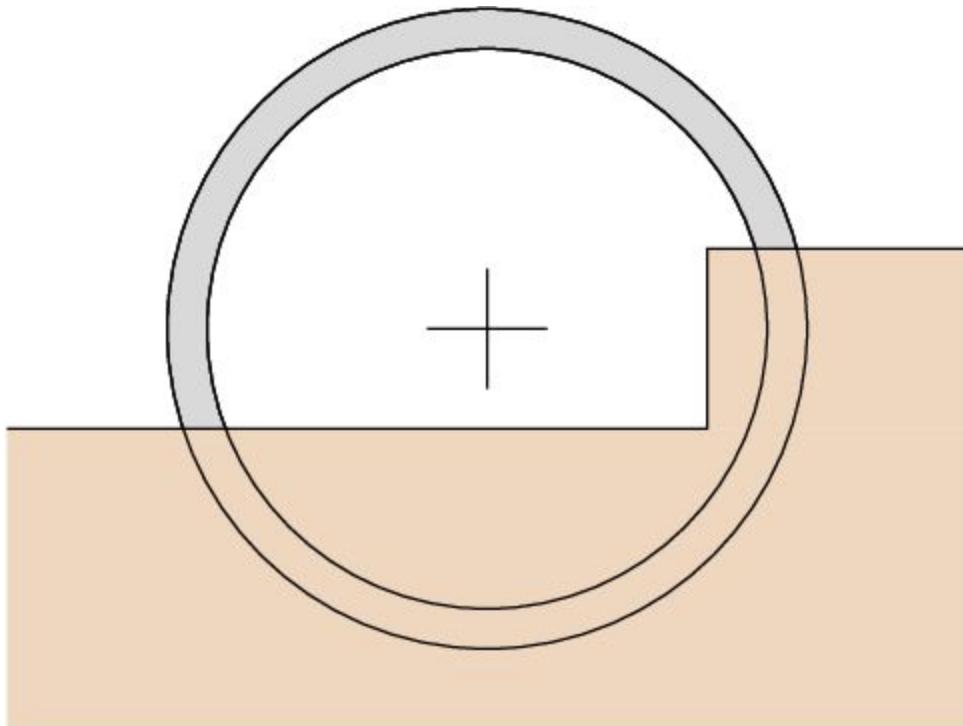




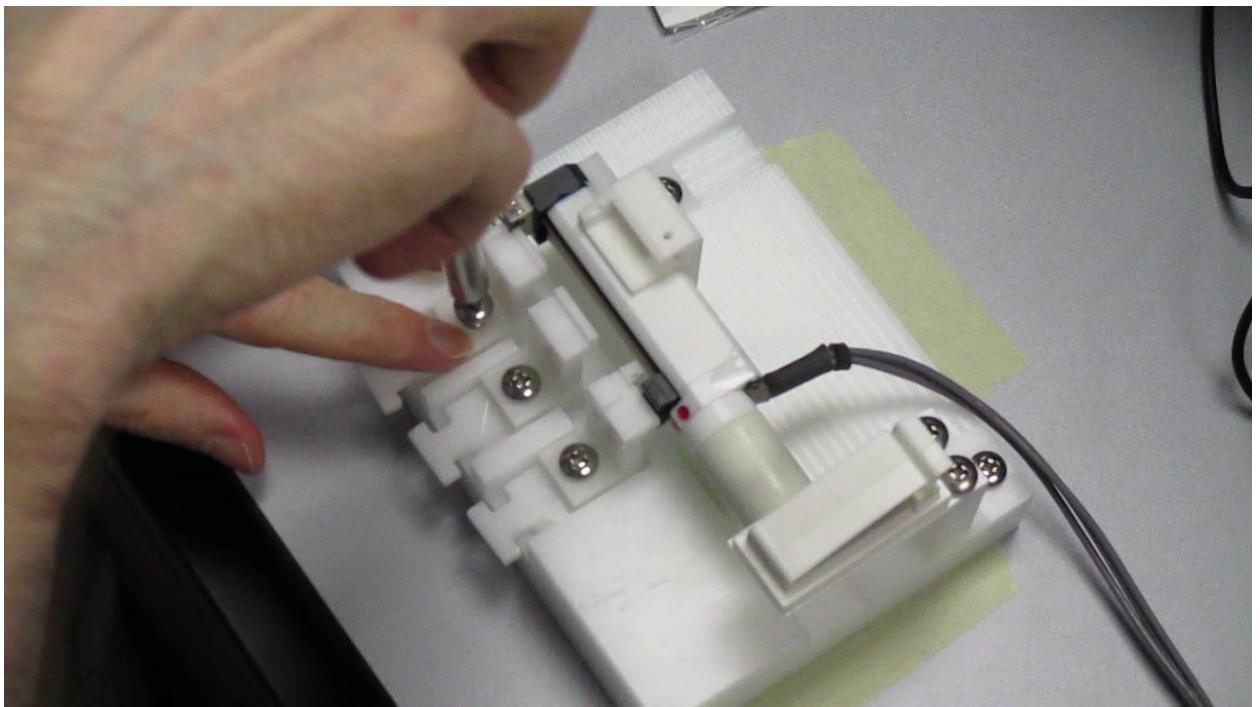
3. Move Triad arms to their topmost positions.



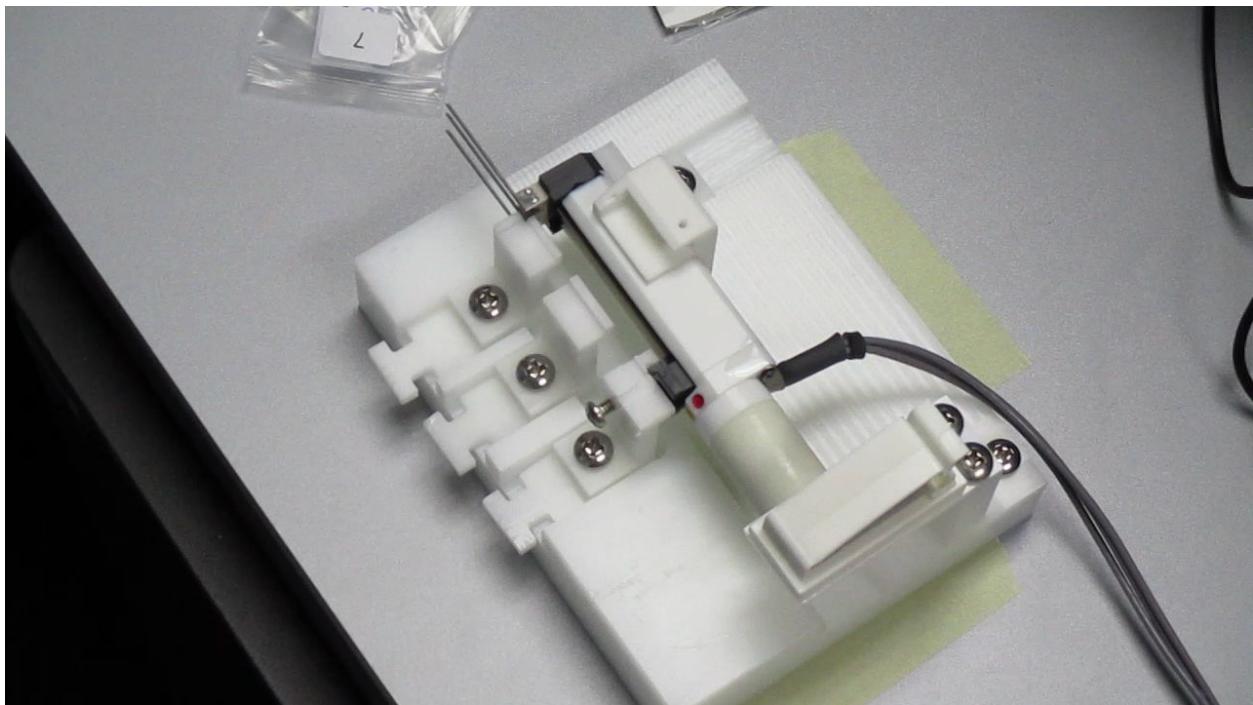
4. Install the “first” cannula jig, using shims to adjust the height. Verify positioning with a loupe.



5. Install the “first” middle jig and the “first” probe jig. The probe jig should start flush-right (to give it space to move left). Install the thin flex clip screw, but not the clip itself, in the probe jig.

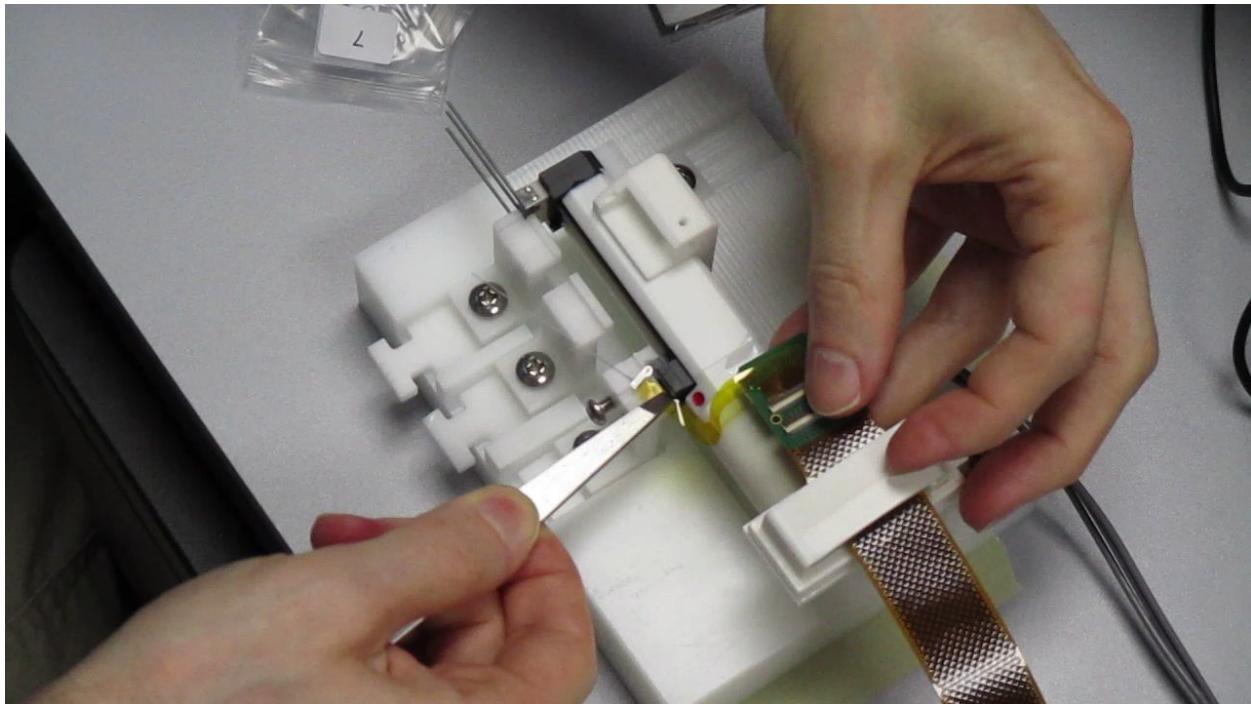


6. Move the middle Triad arm down to register with the probe jig. Verify that the arm is seated on the jig shelf (**FIXME** - For the interim version, verify that the top surfaces are flush). Adjust this by changing shims.

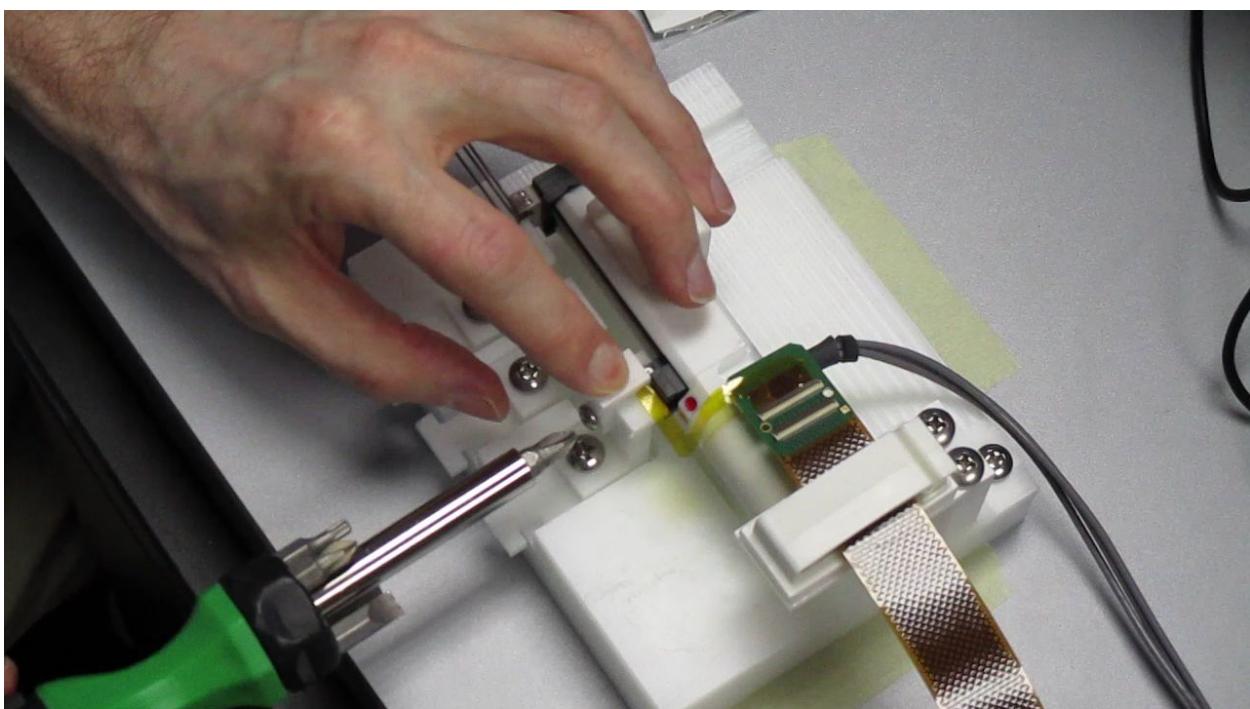
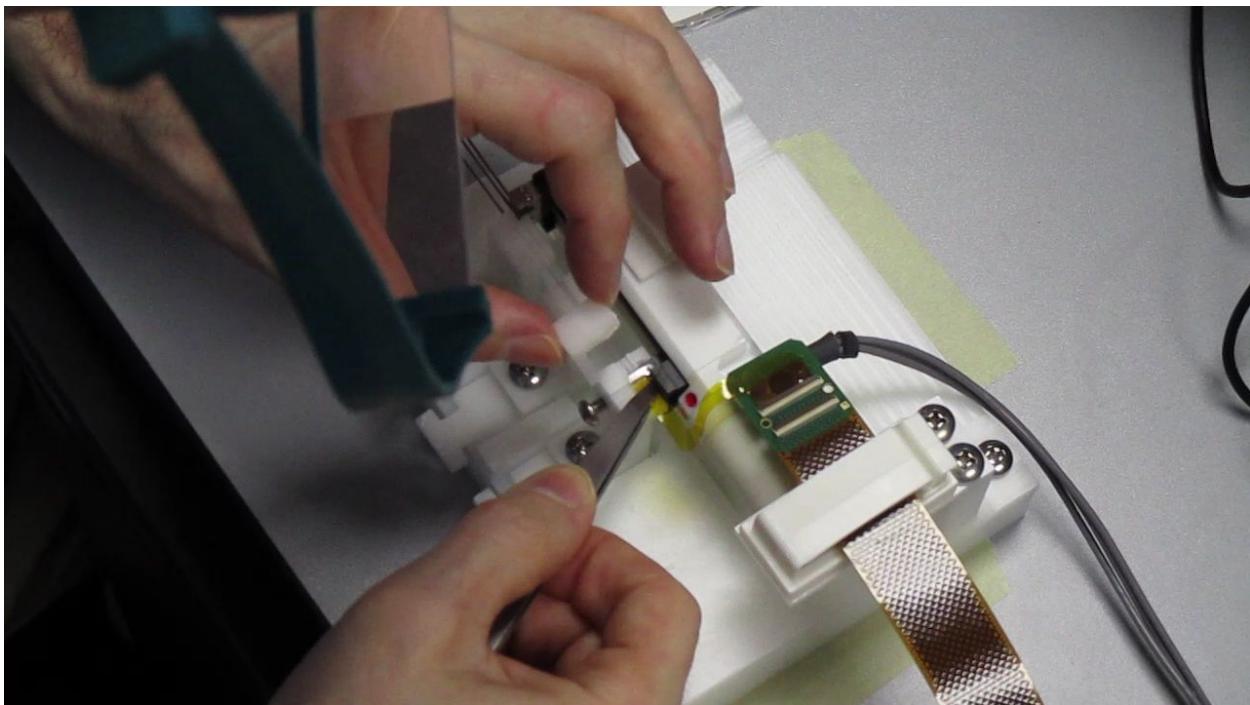


7. Shim the middle jig with the same shims used in the cannula jig or probe jig (whichever is higher).

8. Open the heavy flex clip. Holding the probe assembly's thin flex using forceps and heavy flex using your hand, position the probe near its loading position (stay above and slightly away from the Triad drive so that no probe contact occurs). Close the heavy flex clip to secure the heavy flex.



9. Transfer the forceps to your dominant hand, and place the probe across the middle and probe jigs, adjusting it to its loading position. Install the thin flex clip by placing it, pressing down on it by hand, and tightening its screw with the other hand.

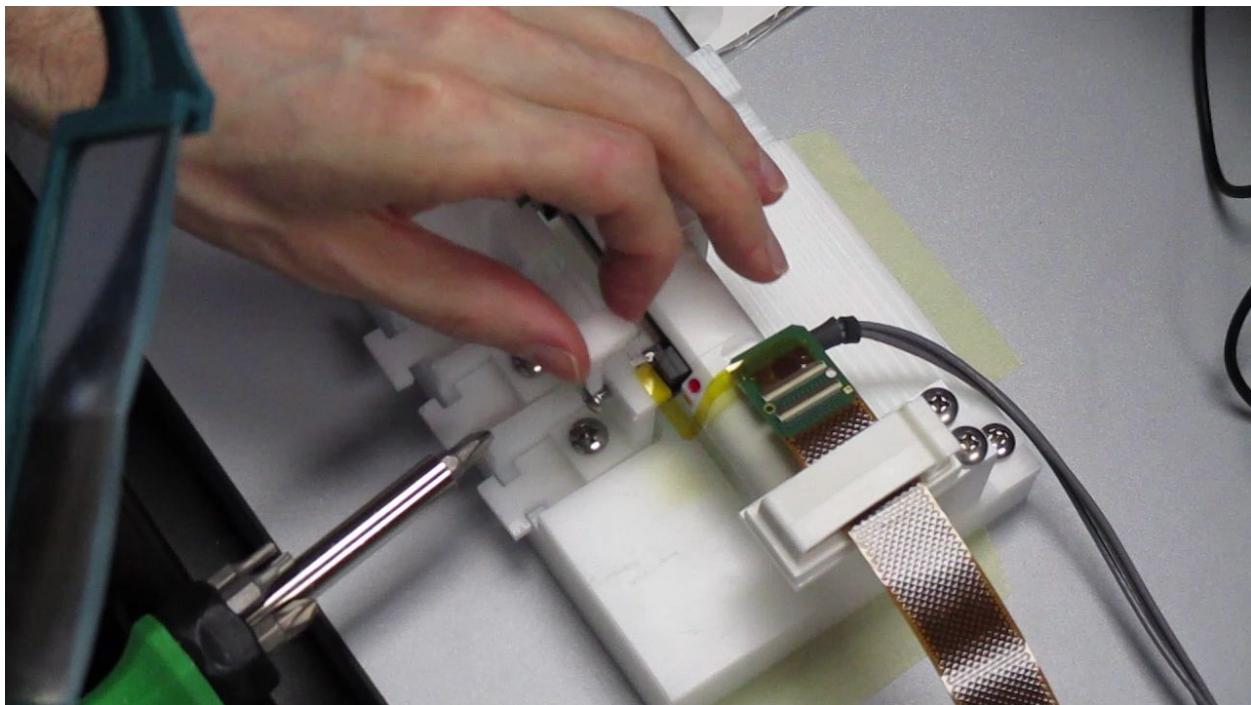


10. Visually inspect the probe shuttle using the loupe, verifying that it overlaps the mounting hole. Make small adjustments to the shuttle's position if necessary by slightly loosening the thin flex retaining clip and moving the thin flex.
11. Rotate the entire mounting assembly so that you can see the shuttle and the mounting hole and easily access both with fine-point forceps.
12. Hold a M0.5 screw in the forceps with your non-dominant hand, position its tip in the mounting hole, and turn it two full turns using a miniature screwdriver in your dominant hand. The idea is to have it engage with the threads so that you can let go with the forceps.



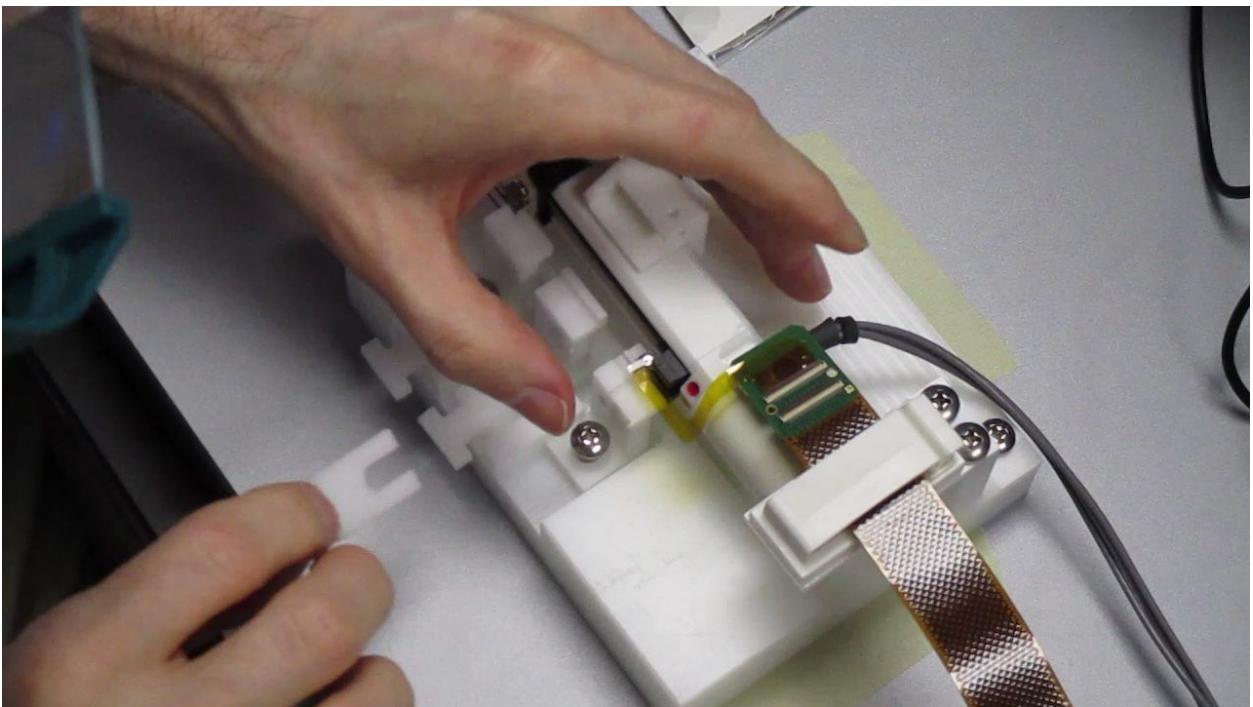
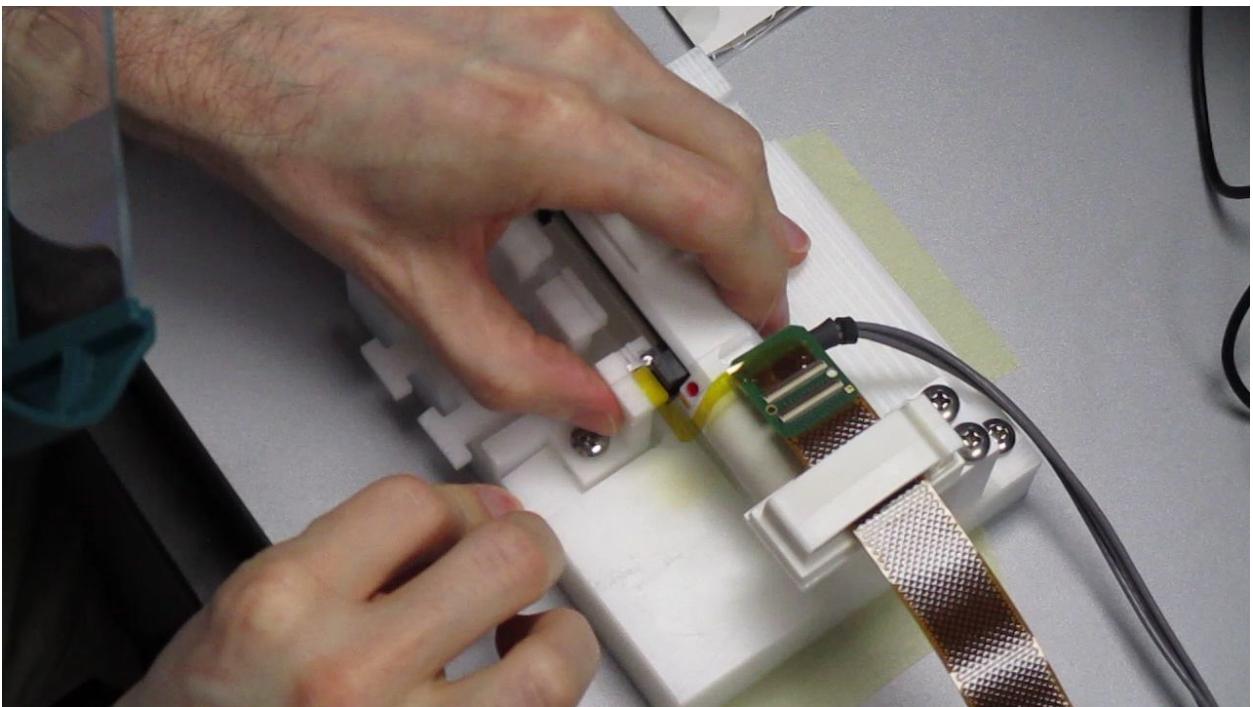
13. Use your fingertips or fingernails on your non-dominant hand to stabilize the screwdriver while fully driving the screw. After reaching its limiting position, back it off by half a turn to allow the probe shuttle to slide and pivot.

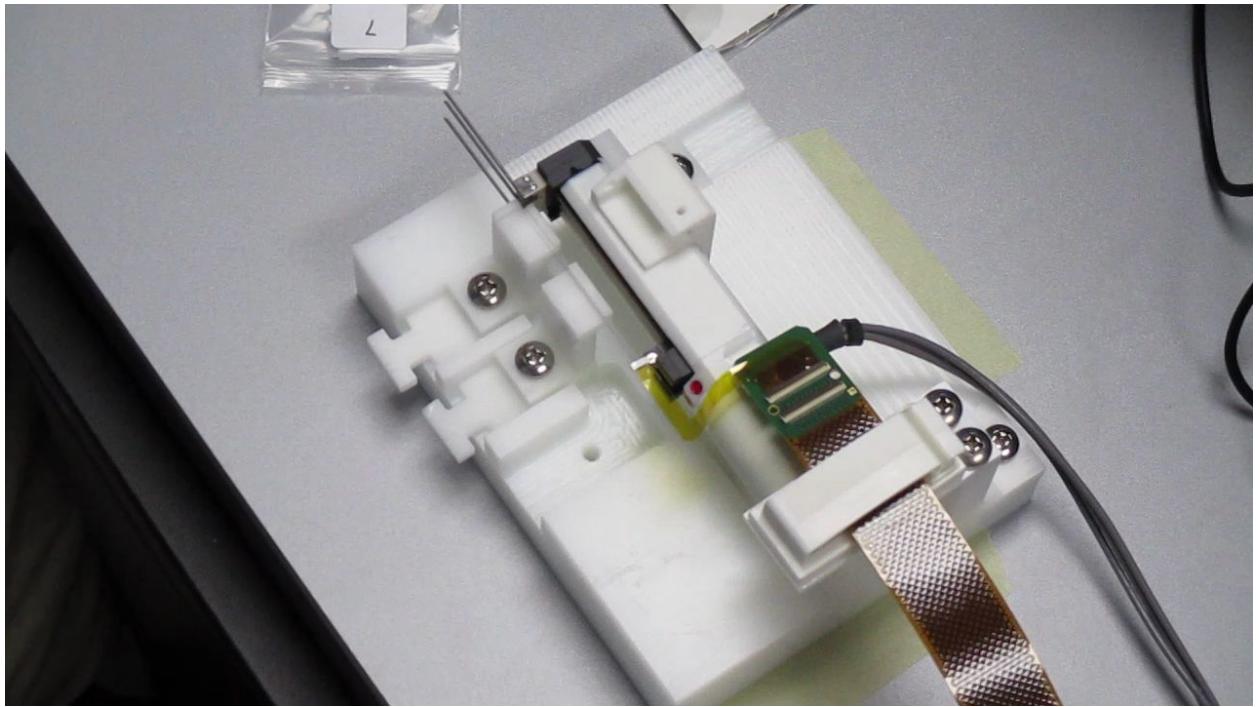
14. Undo and remove the thin flex retaining clip. Also remove the screw that held it.



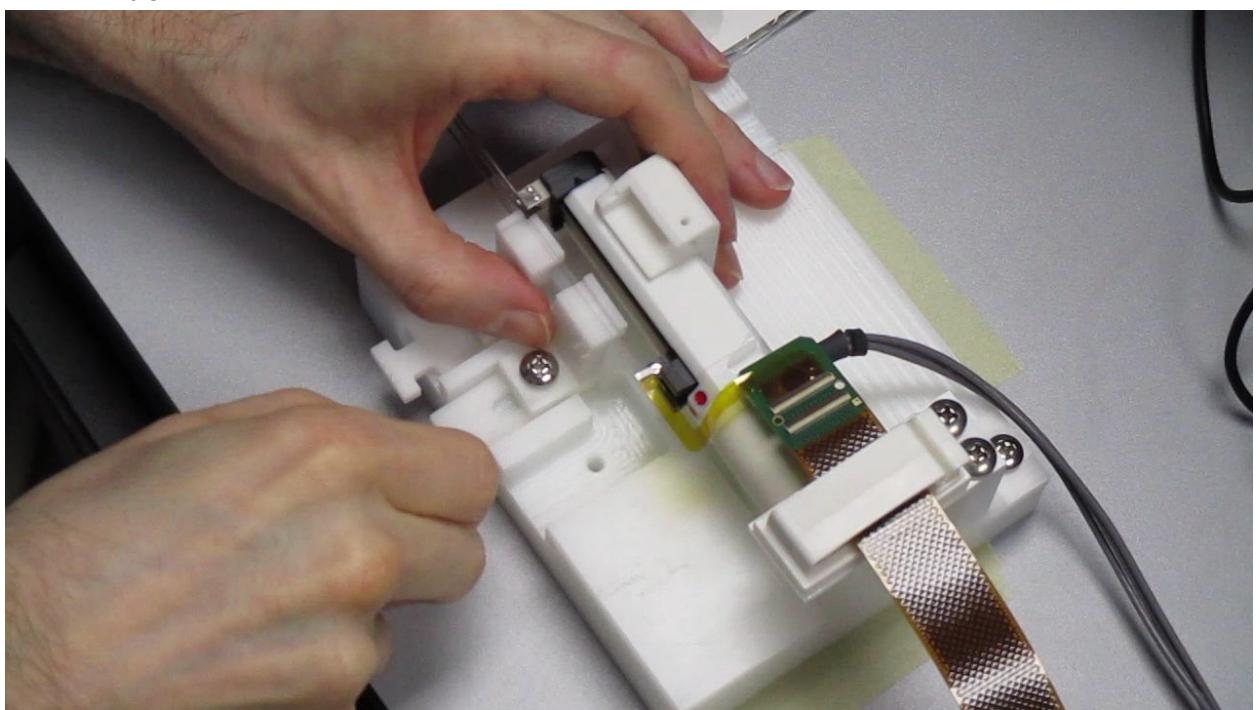
15. Pressing the probe mounting jig towards the Triad drive, remove its mounting screw. Remove the probe jig shims, allowing the jig to drop while continuing to press it towards the drive (so that it does not contact any part of the probe). When the jig has dropped, remove it.

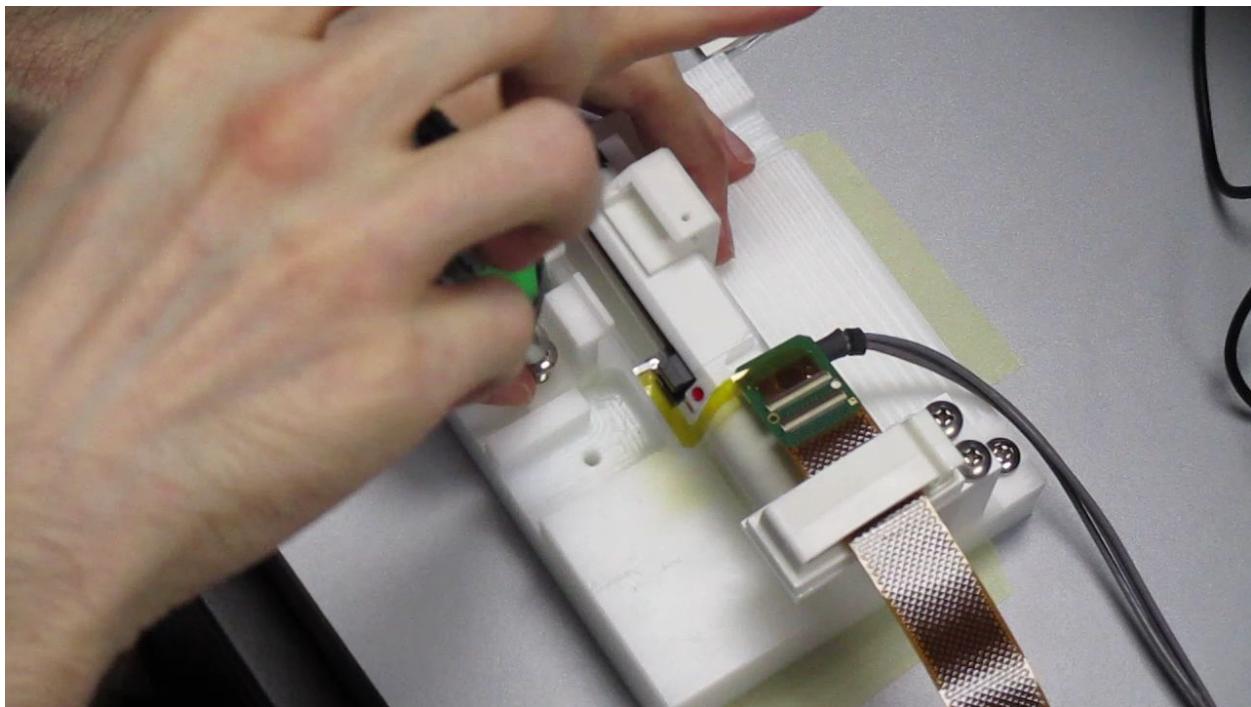




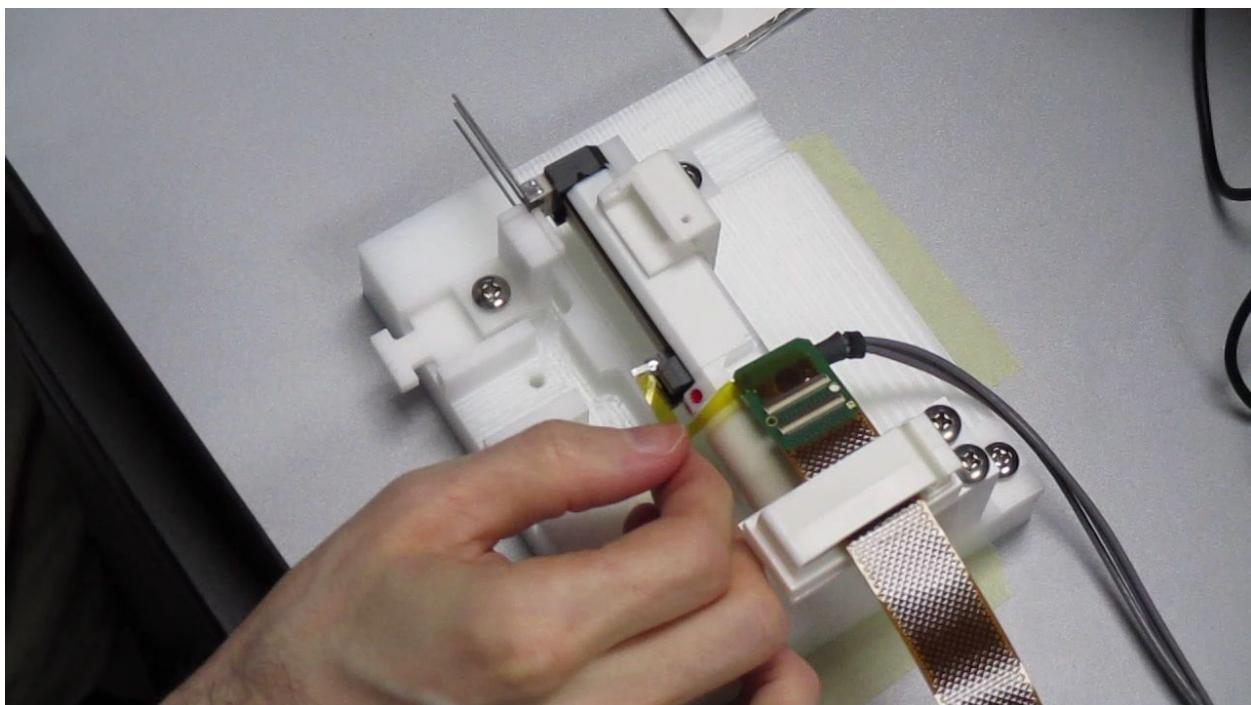


16. Advance the probe until it overlaps the cannula jig.
17. Press the middle jig towards the Triad drive, and remove it in the same manner as with the probe jig.

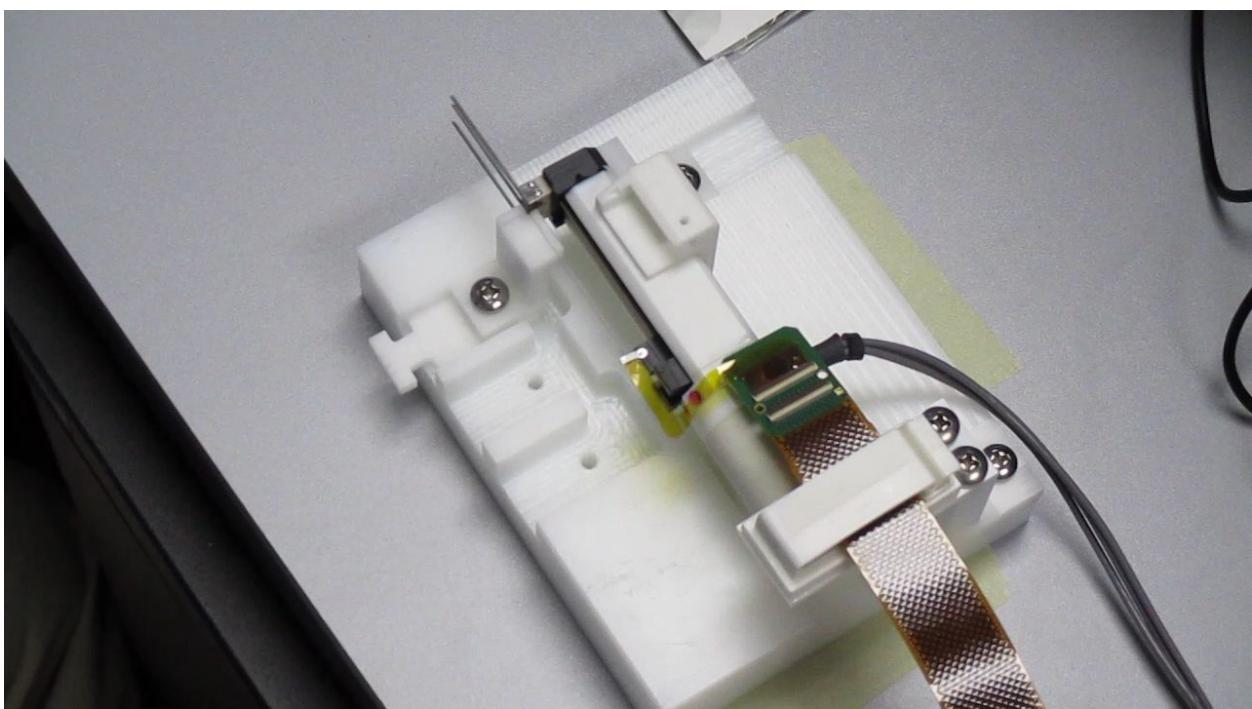
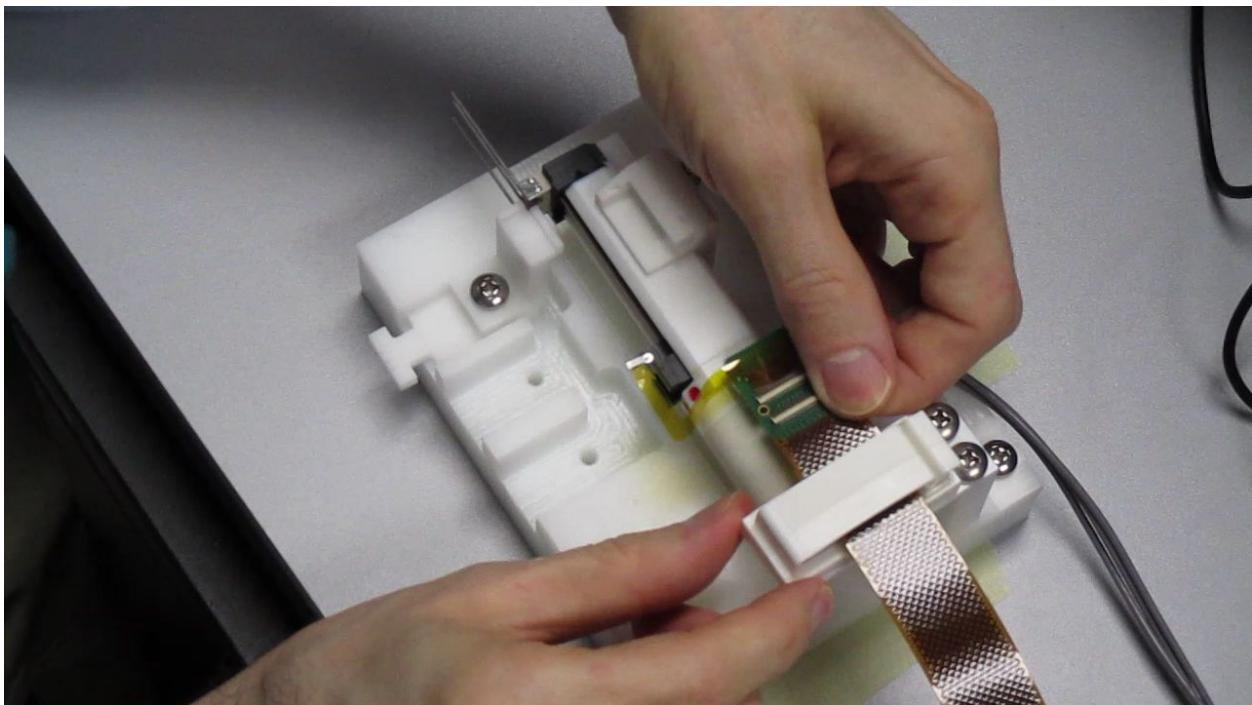


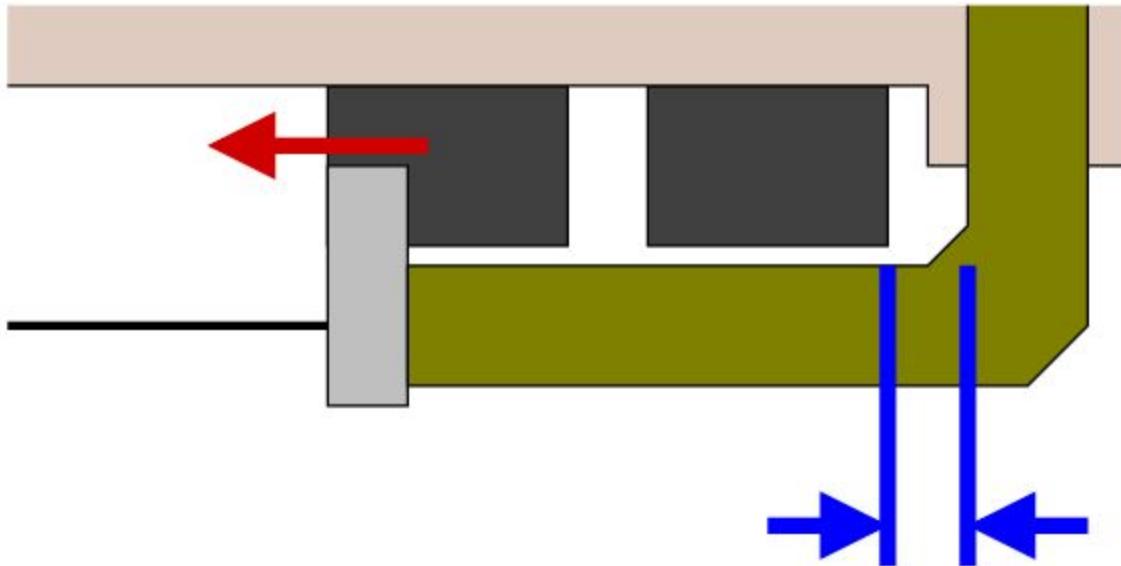


18. Align the probe with the registration surfaces on the cannula jig by applying gentle pressure to the thin flex, shuttle, and if necessary upper part of the probe shank. Use the loupe to verify that the probe is registered with the cannula.

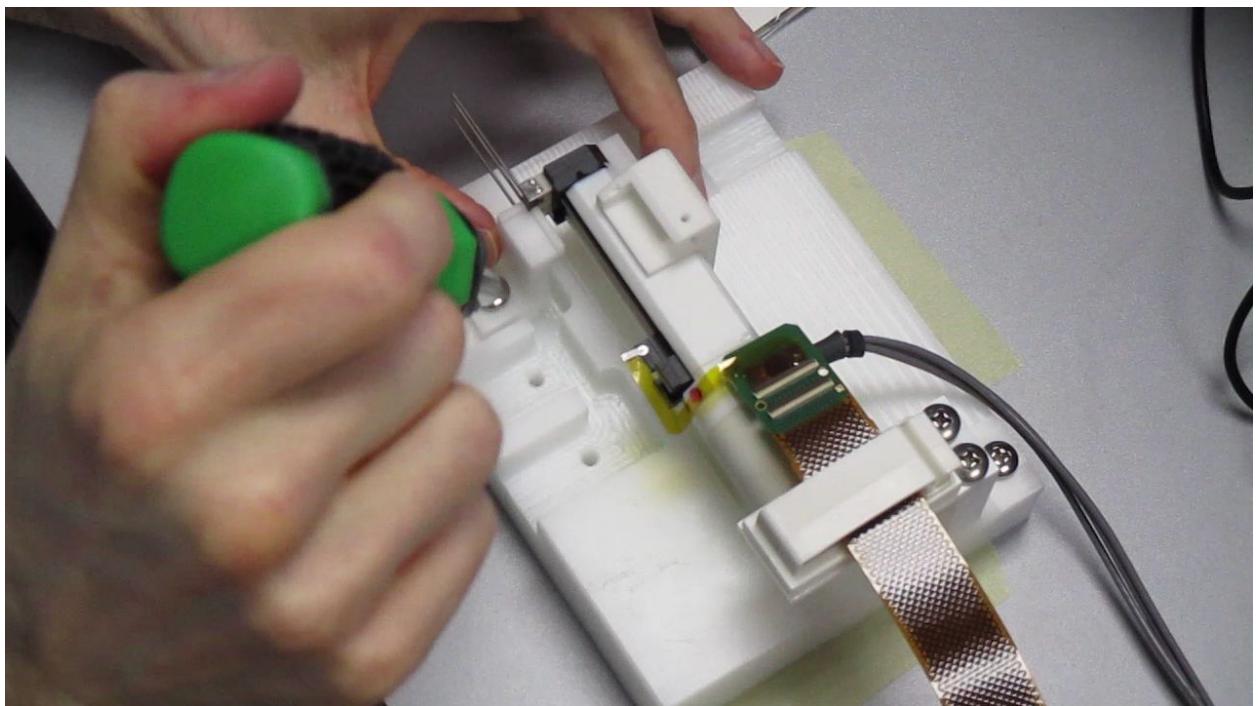


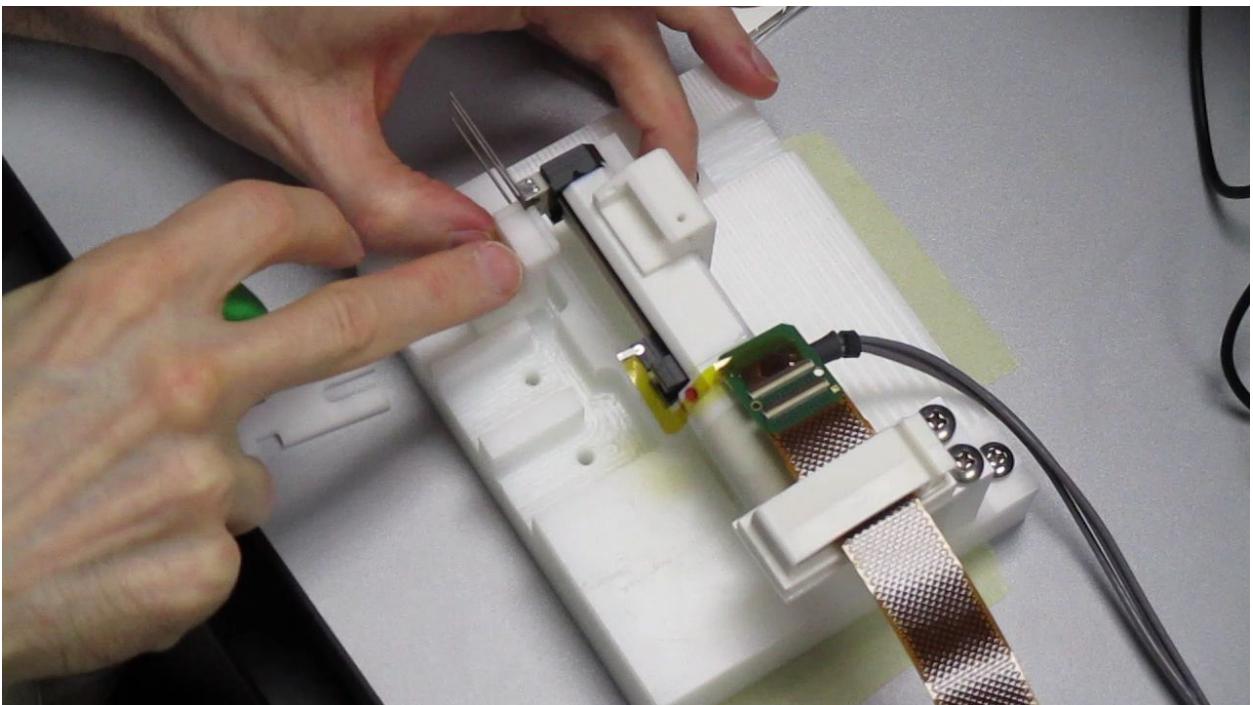
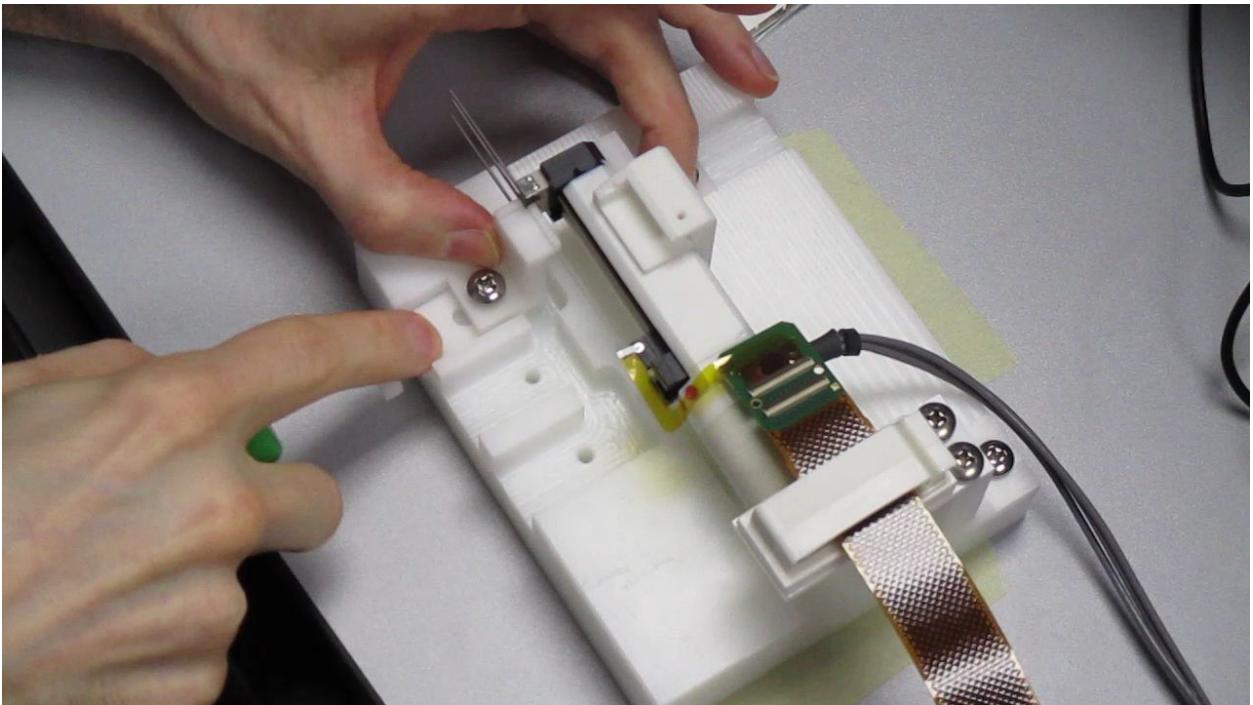
19. Advance the probe tip into the cannula. Hand-feed the heavy flex cable through the (closed) heavy flex clip as necessary during this process. The desired stopping point is before the thin flex of the middle probe would interfere with loading the next probe.

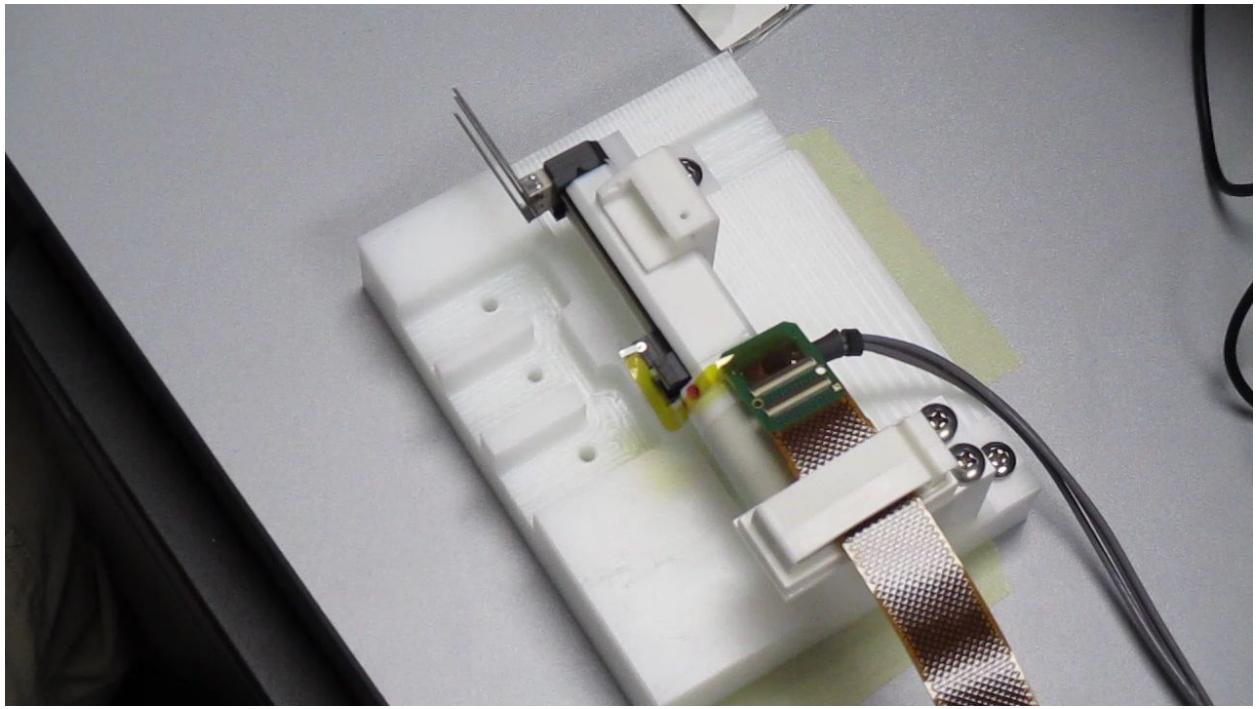




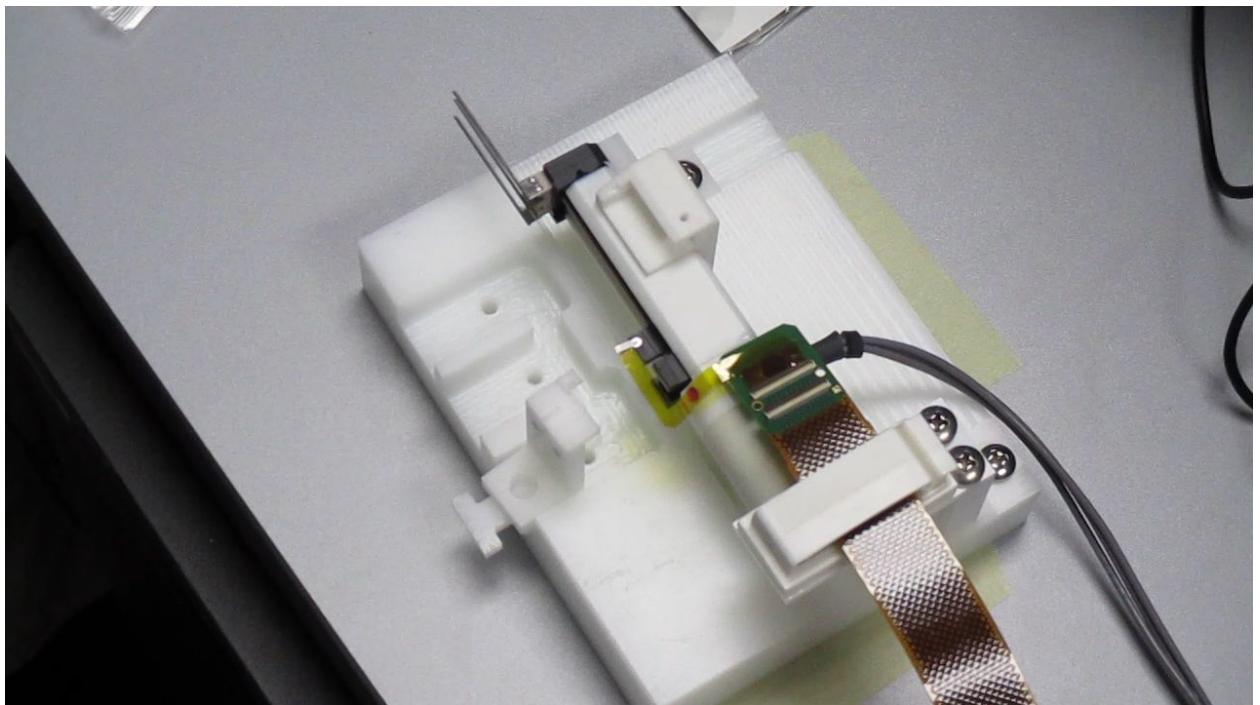
20. Press the cannula jig towards the Triad drive, and remove it in the same manner as with the previous two jigs.



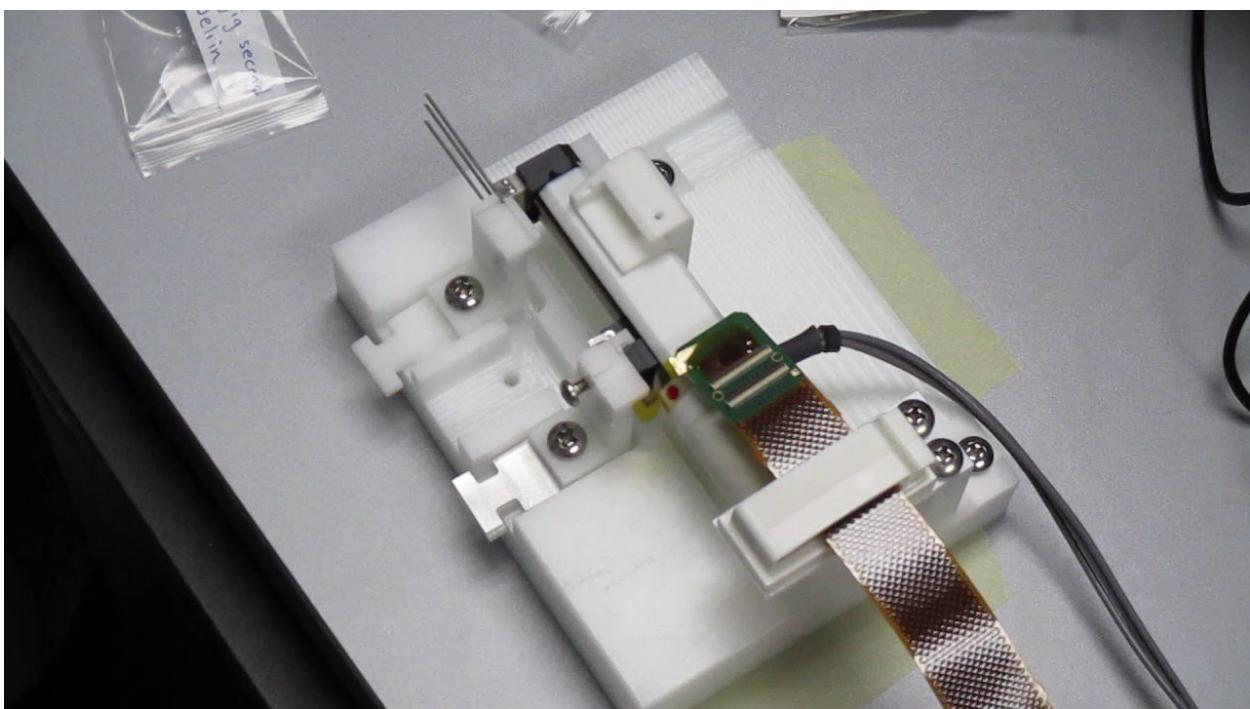
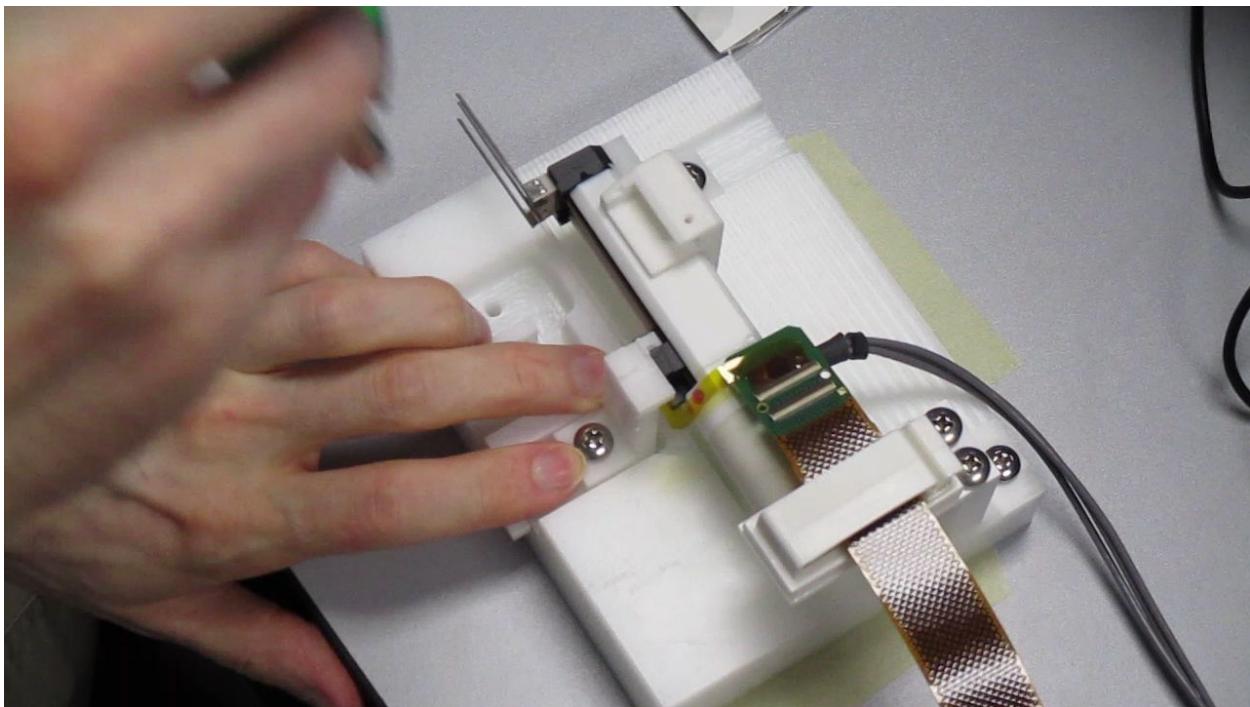




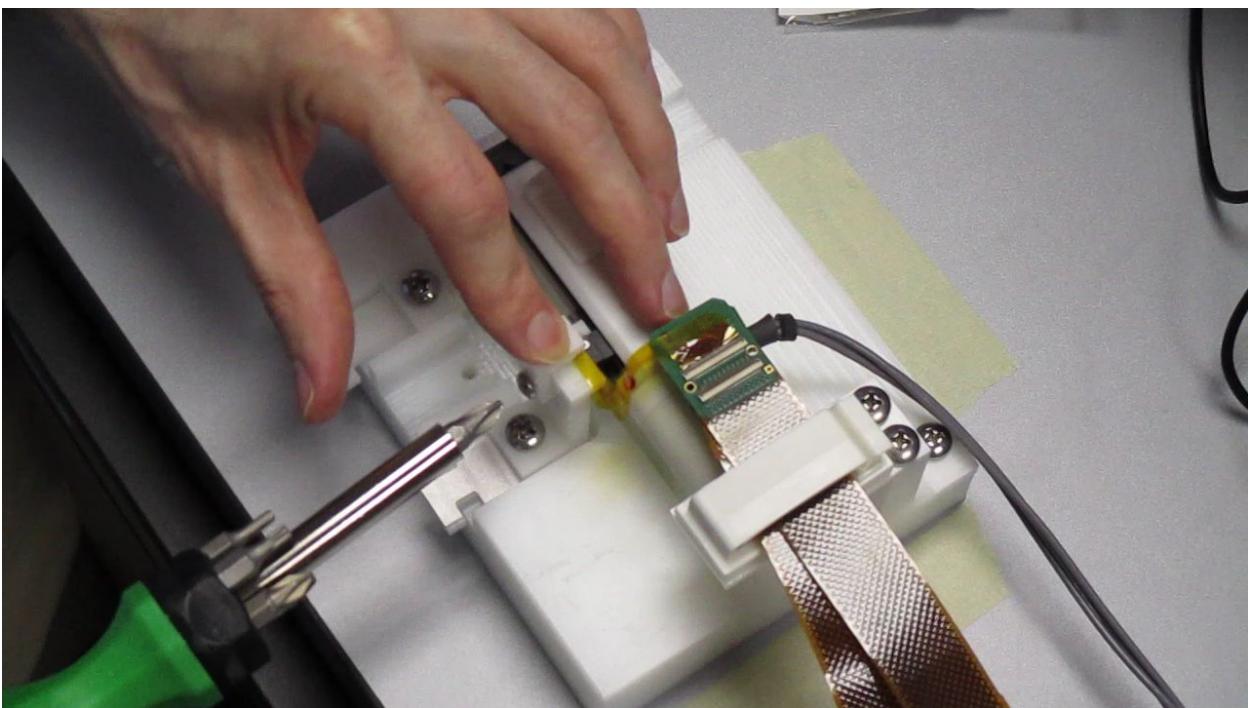
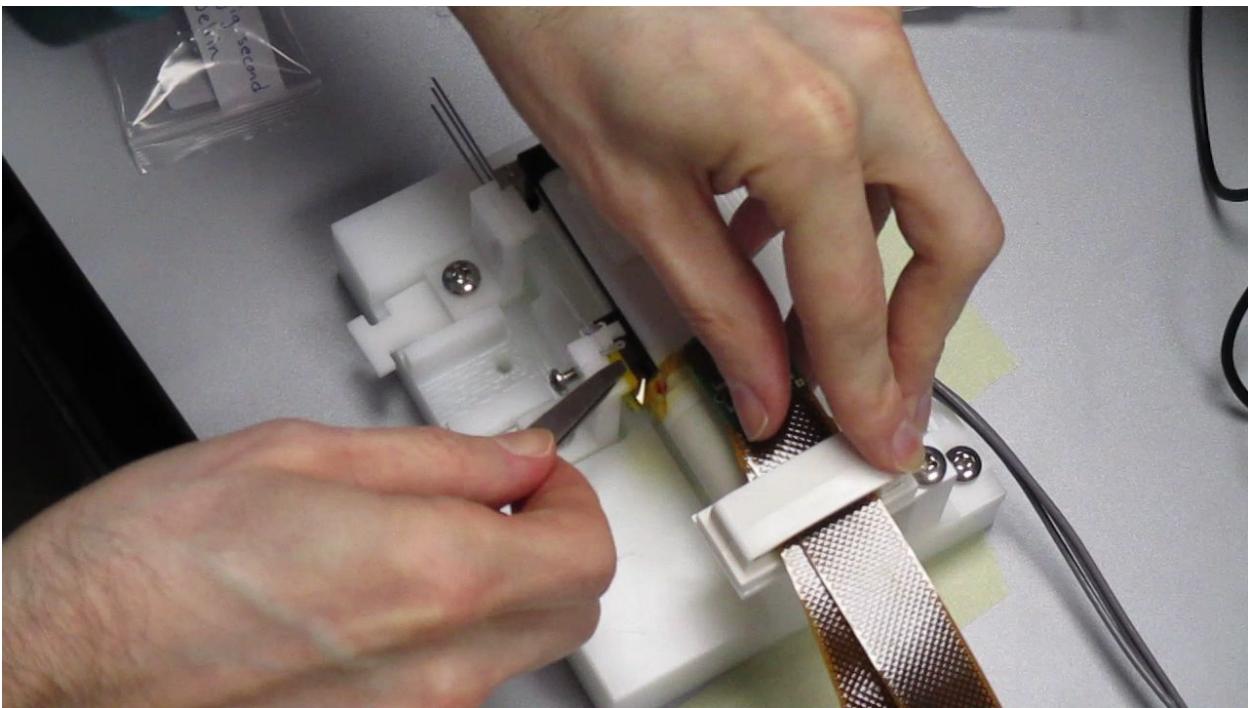
21. Seat the “second” cannula jig in the same manner as the first. Seat the “second” probe jig. **Omit the “second” middle jig.**



22. Advance the upper arm of the Triad drive until it contacts the second probe jig. This arm should be to the left of the first probe's thin flex, ensuring no mechanical conflict between the two flex cables after loading.



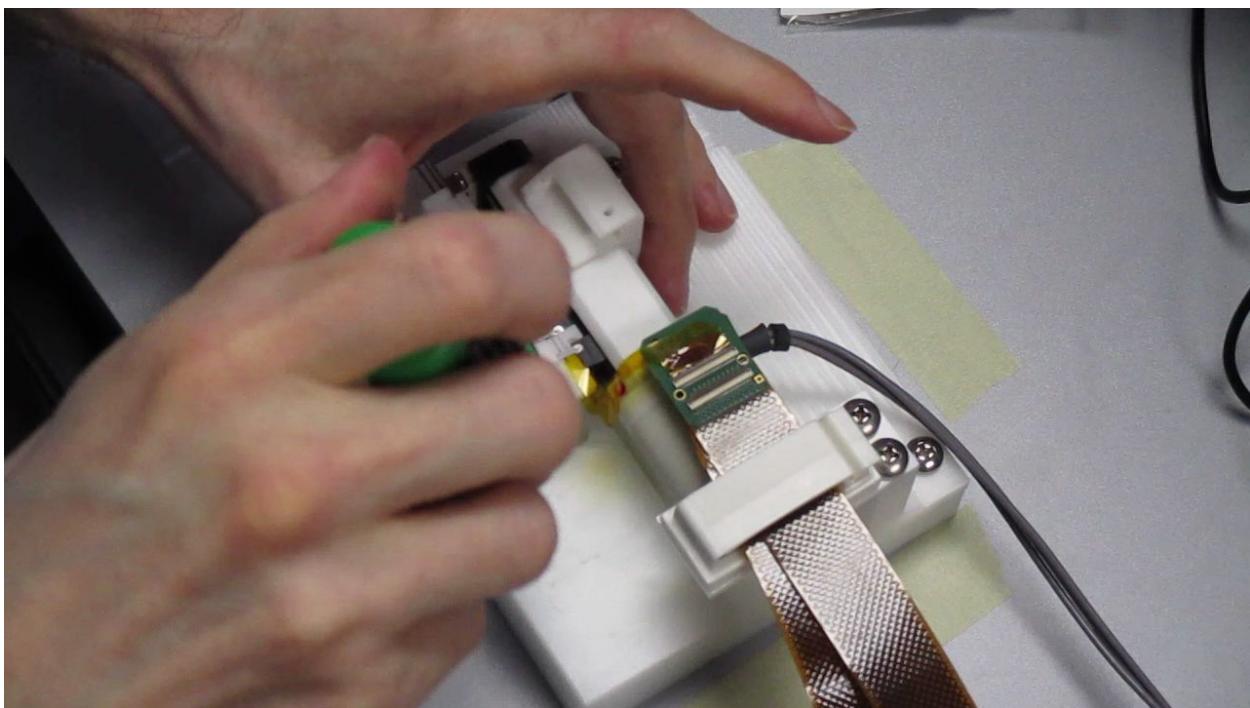
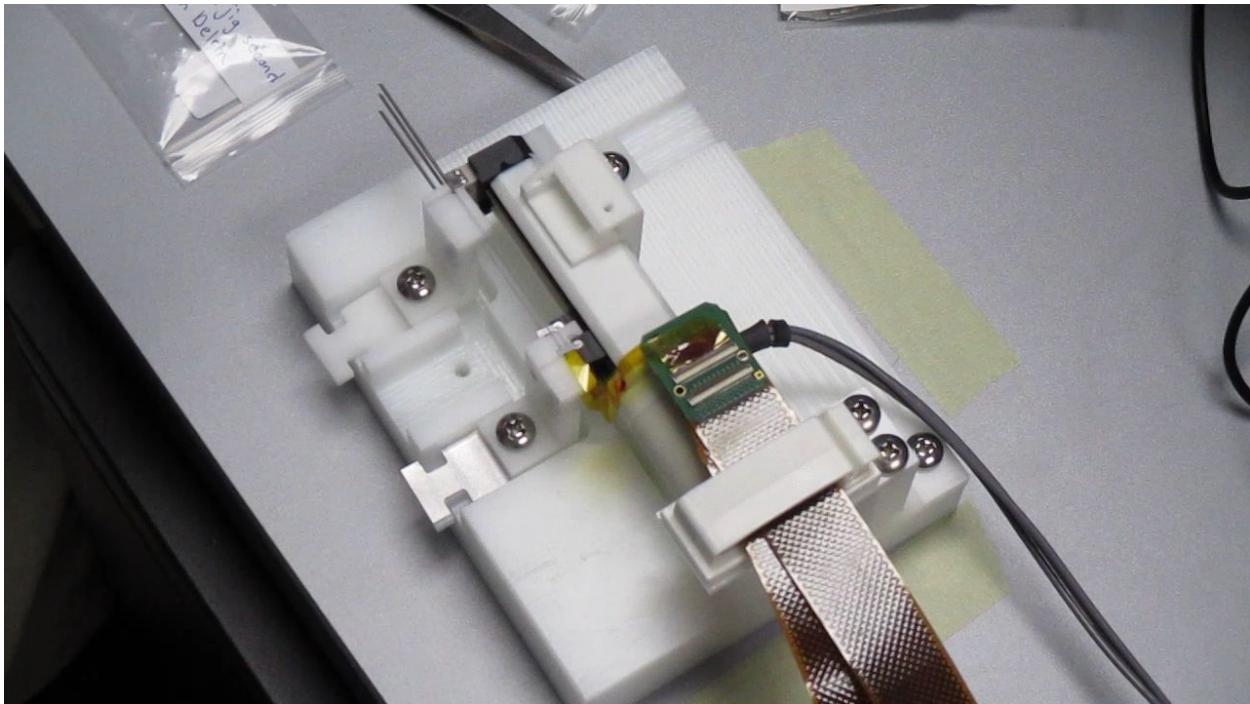
23. Position the second probe in the same manner as the first probe (holding it by the thin flex near the probe, securing the heavy flex, manipulating it into position, then securing the shuttle and thin flex). **NOTE** - The position of the arms should result in the second probe's tip being in a safe position over the cannula jig. If this is not the case, adjust the positions of the two arms until the probe may be safely positioned.

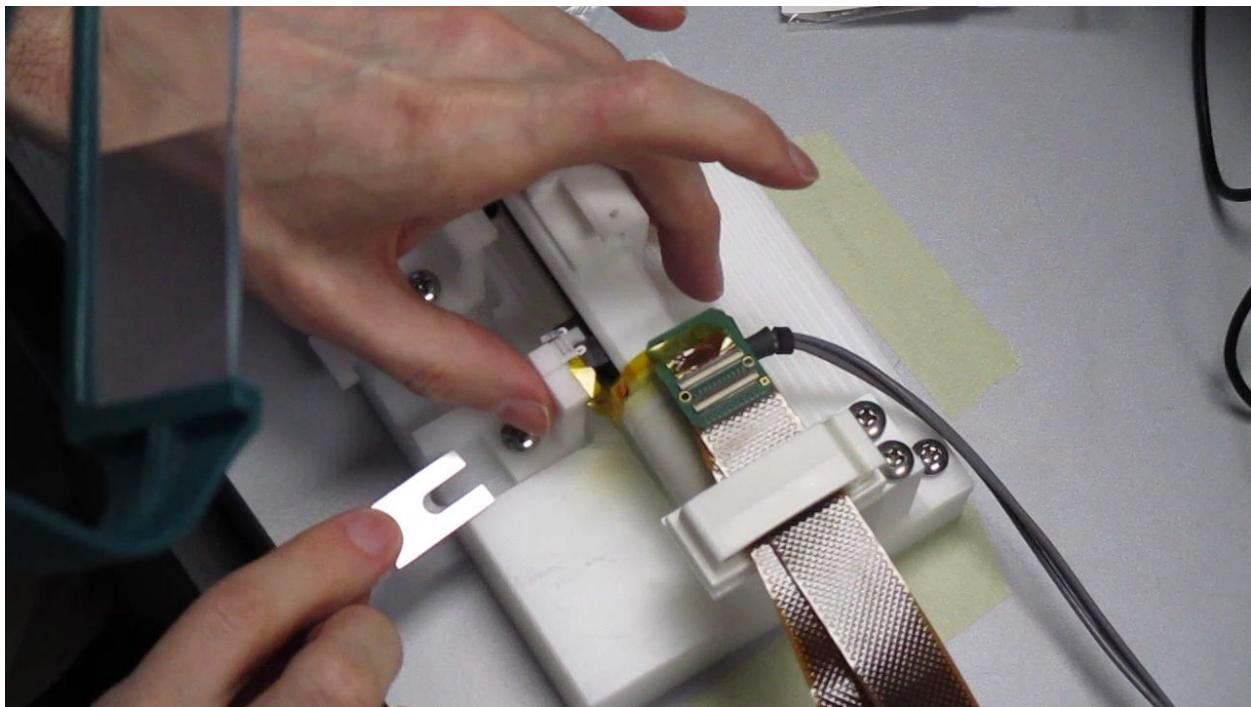
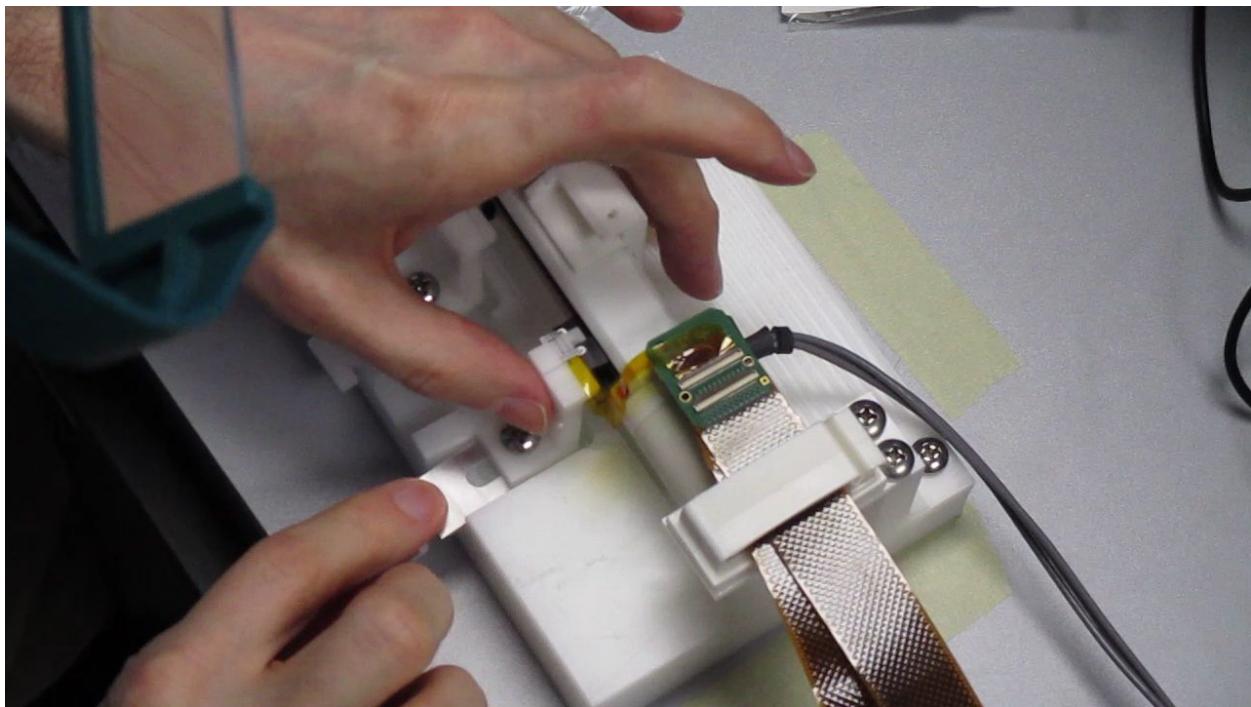


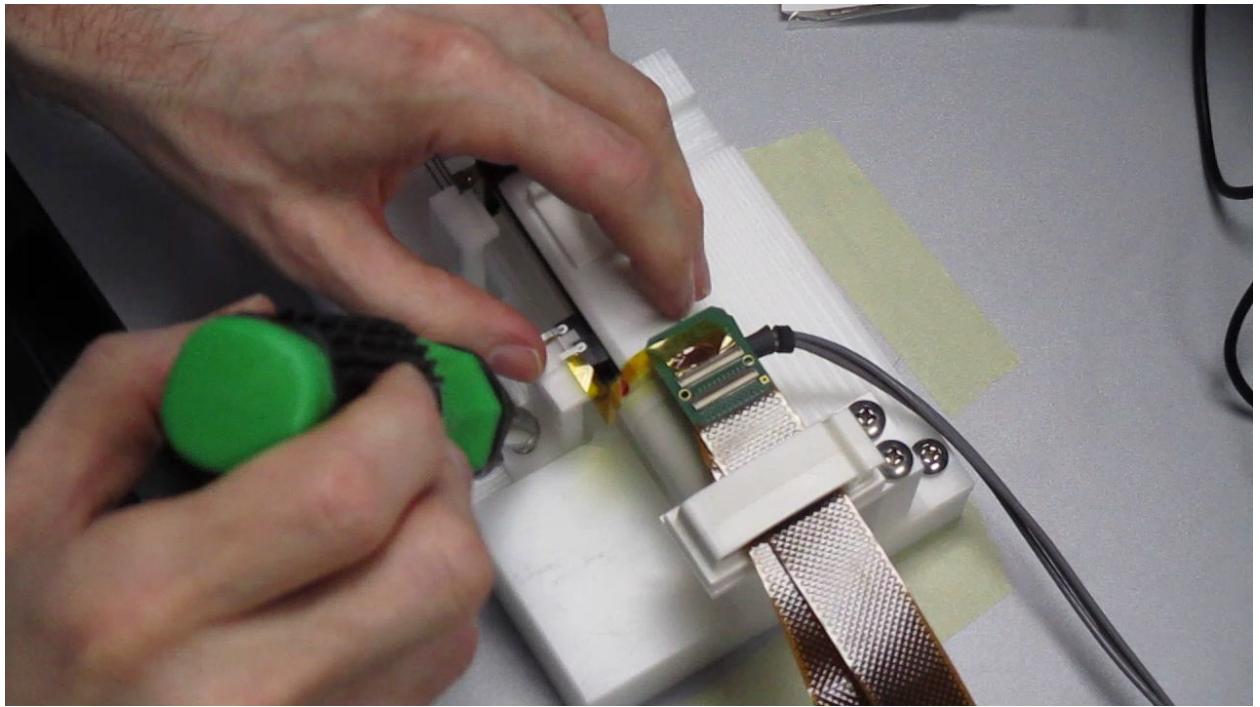
24. Install the second probe's screw in the same manner as the first probe (rotating the jig assembly to a convenient position, holding the screw during the first two turns, advancing the screw, then backing off half a turn).



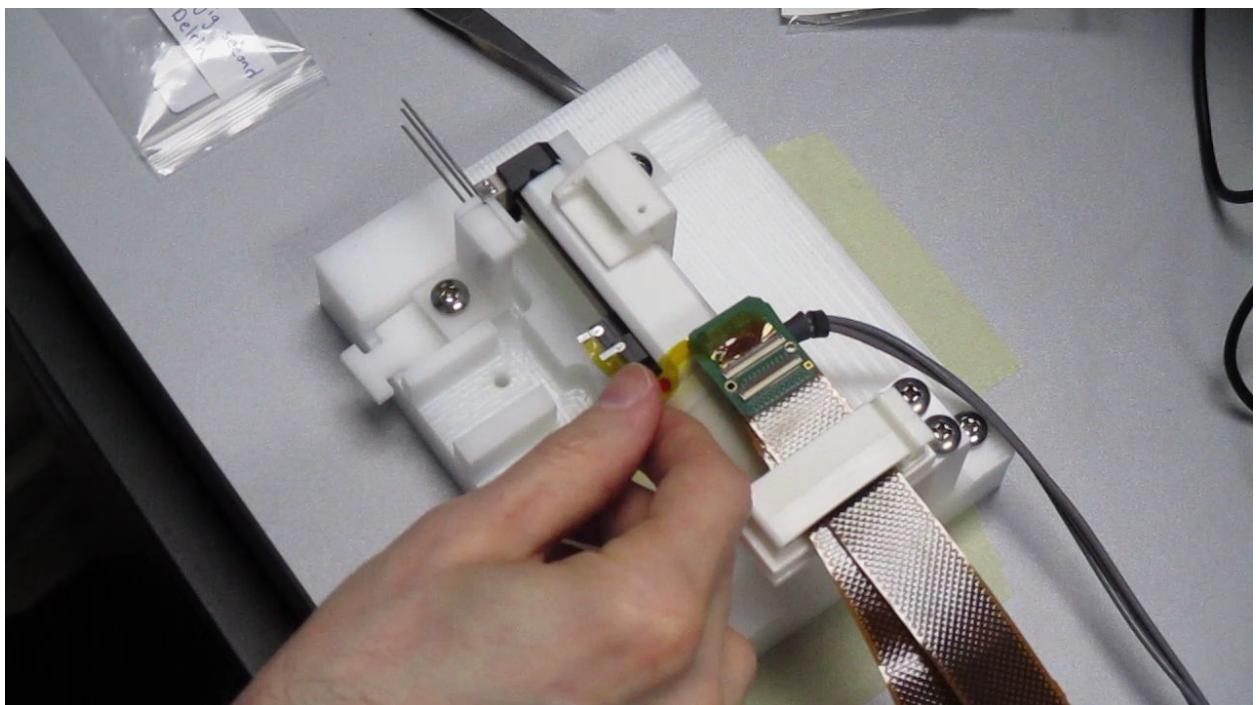
25. Remove the thin flex retaining clip and its screw from the probe jig. Press the probe jig towards the Triad drive, and remove it in the same manner as with the first probe jig. Take care that it doesn't apply undue force to the first probe's thin flex when it drops (a small amount of contact can be tolerated).



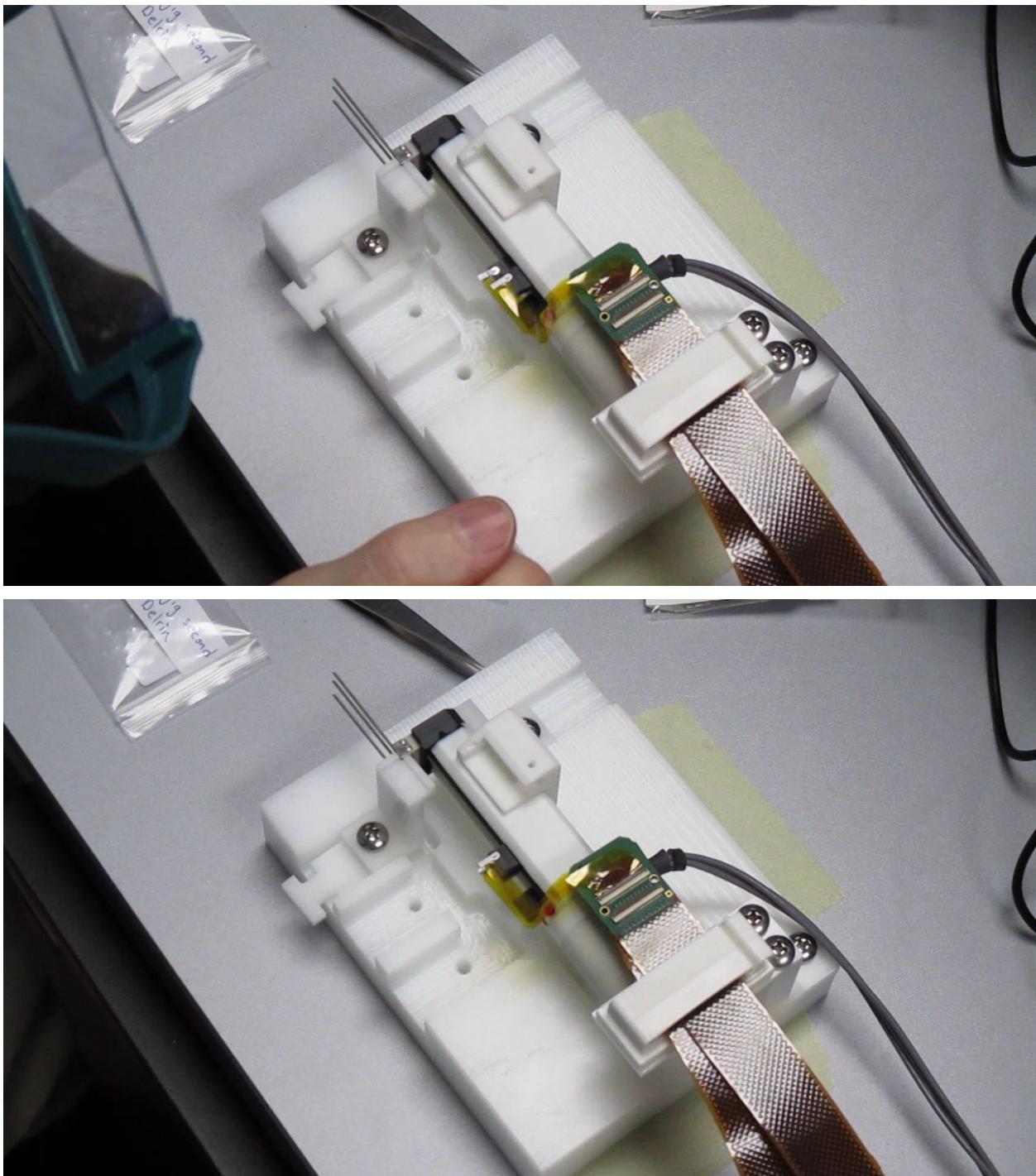




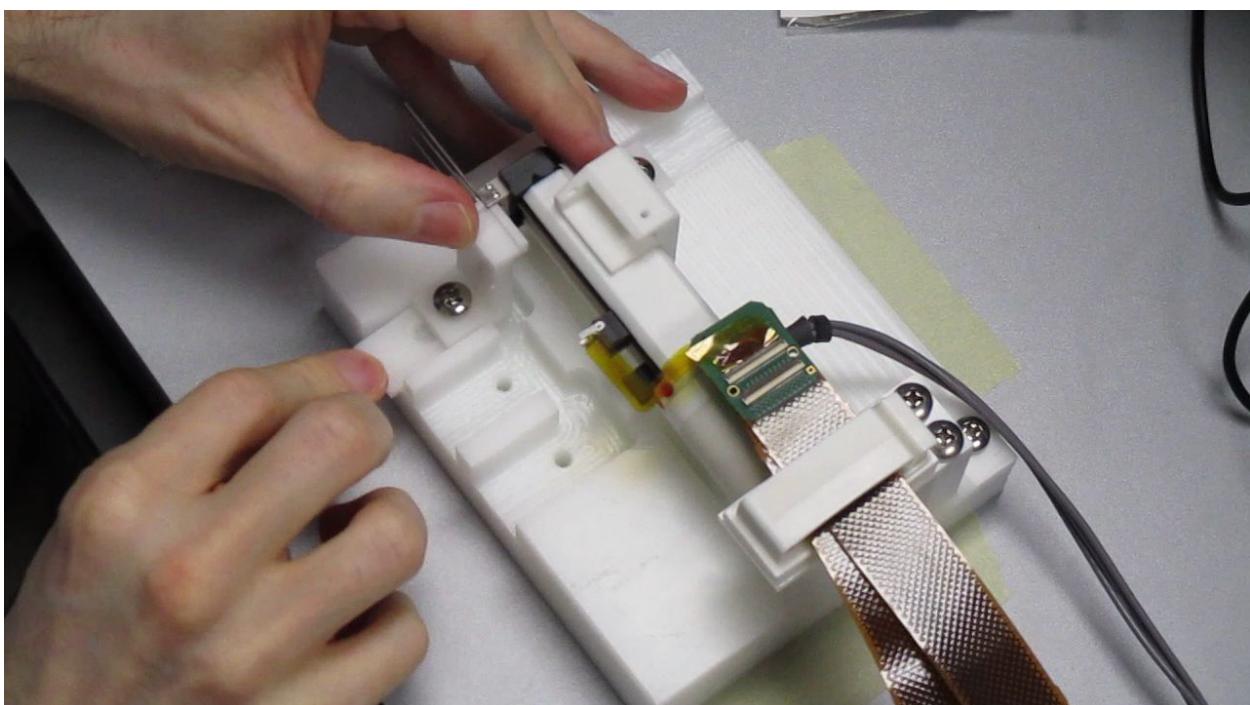
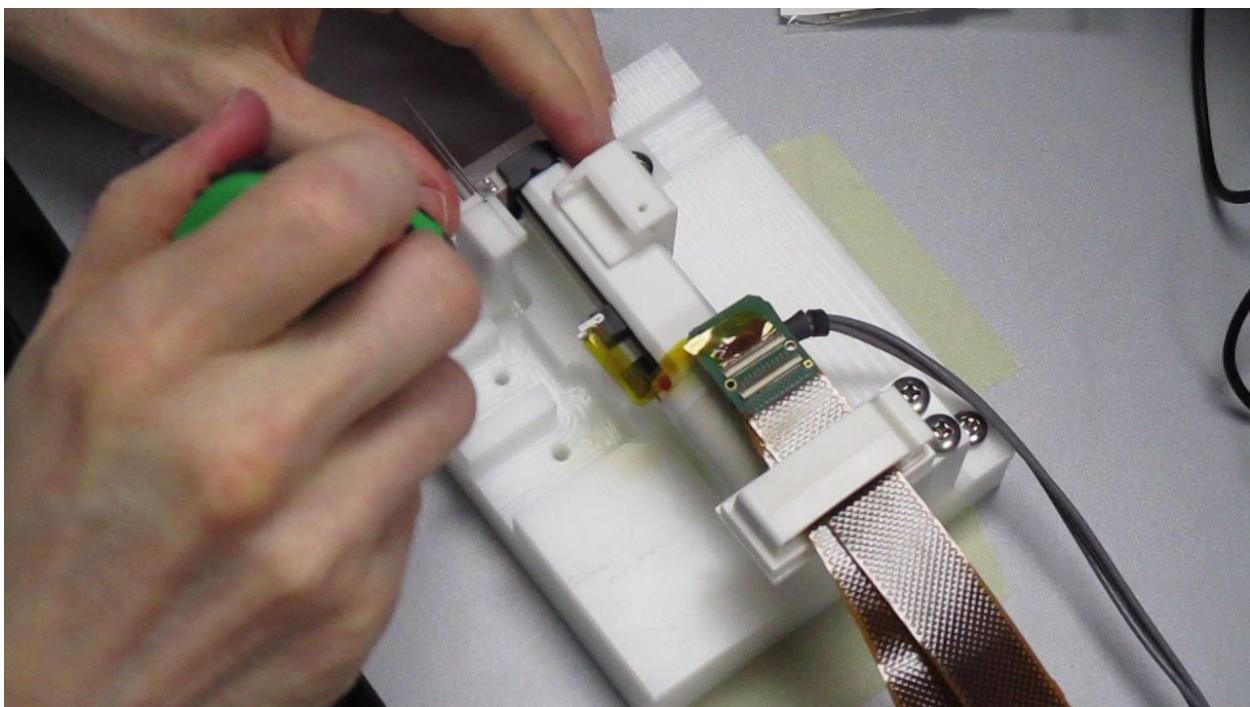
26. Register the second probe with the second cannula jig, using a loupe to verify that it will cleanly enter its cannula.

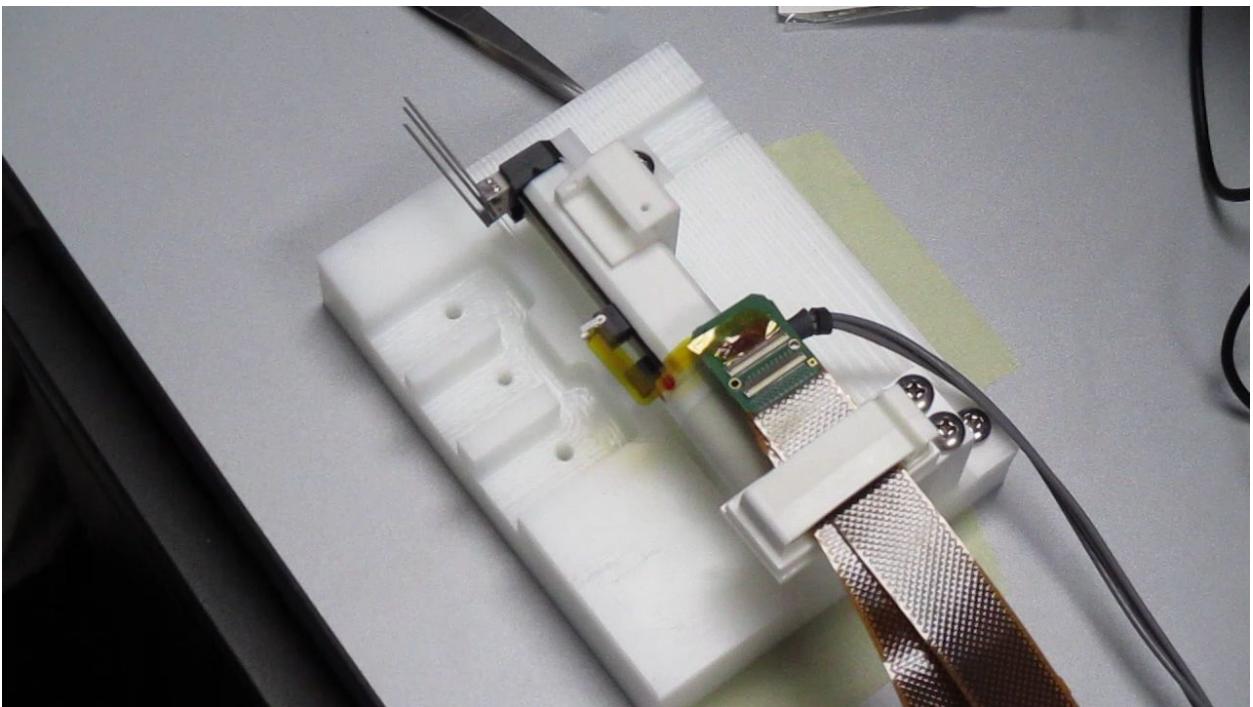
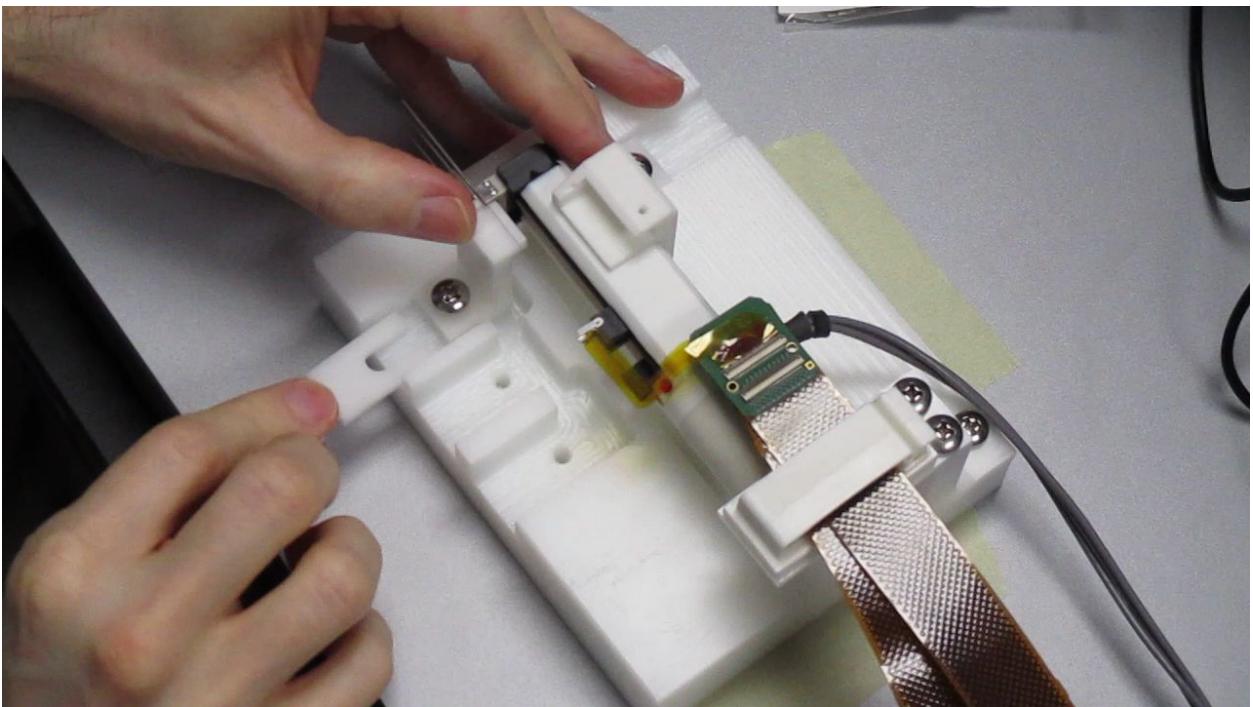


27. Advance the second probe into the cannula, stopping when its arm is aligned with the arm holding the first probe. Feed the second probe's heavy flex through the (closed) clip as necessary, taking care not to unduly perturb the first probe's heavy flex.

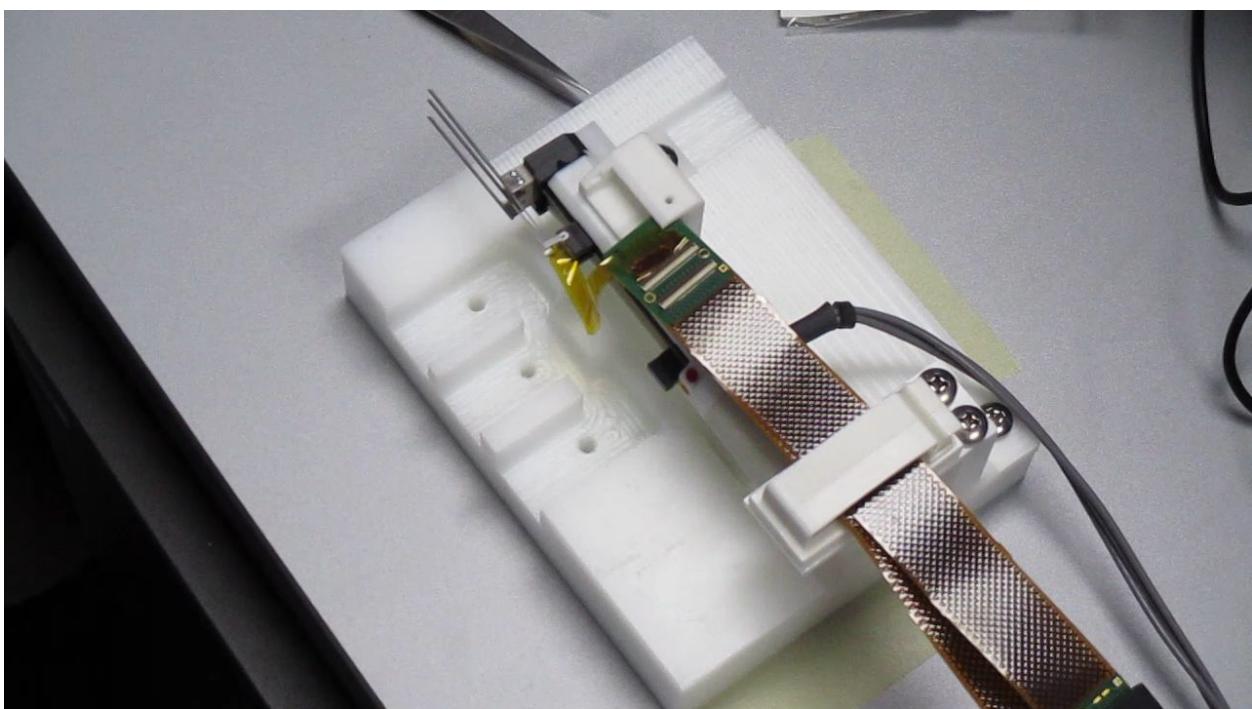
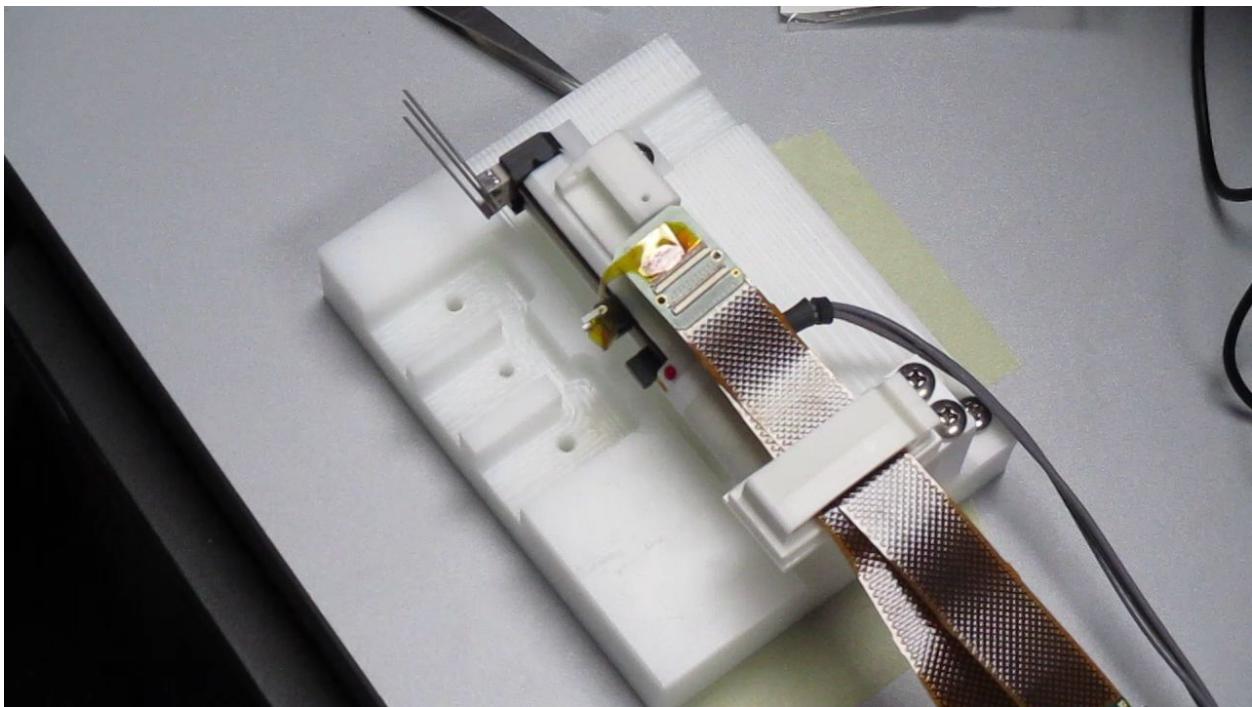


28. Press the cannula jig towards the Triad drive, and remove it in the same manner as with the previous jig. Take care that it does not disturb the first probe.

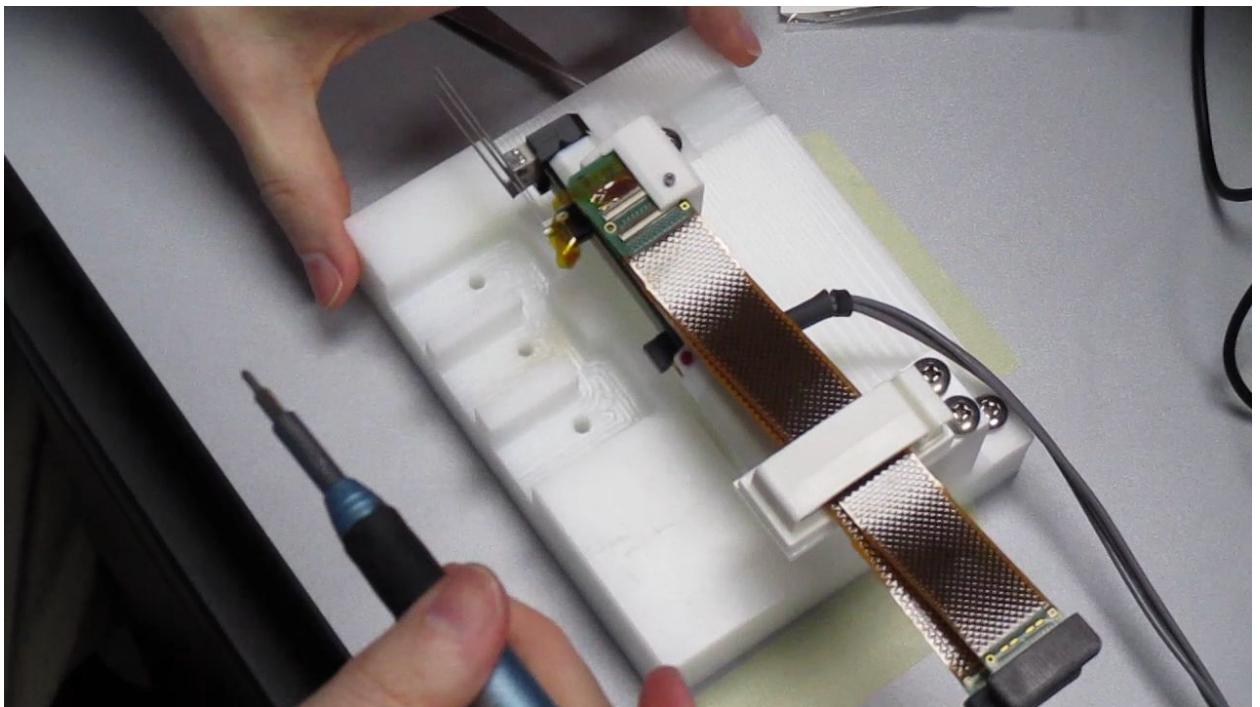




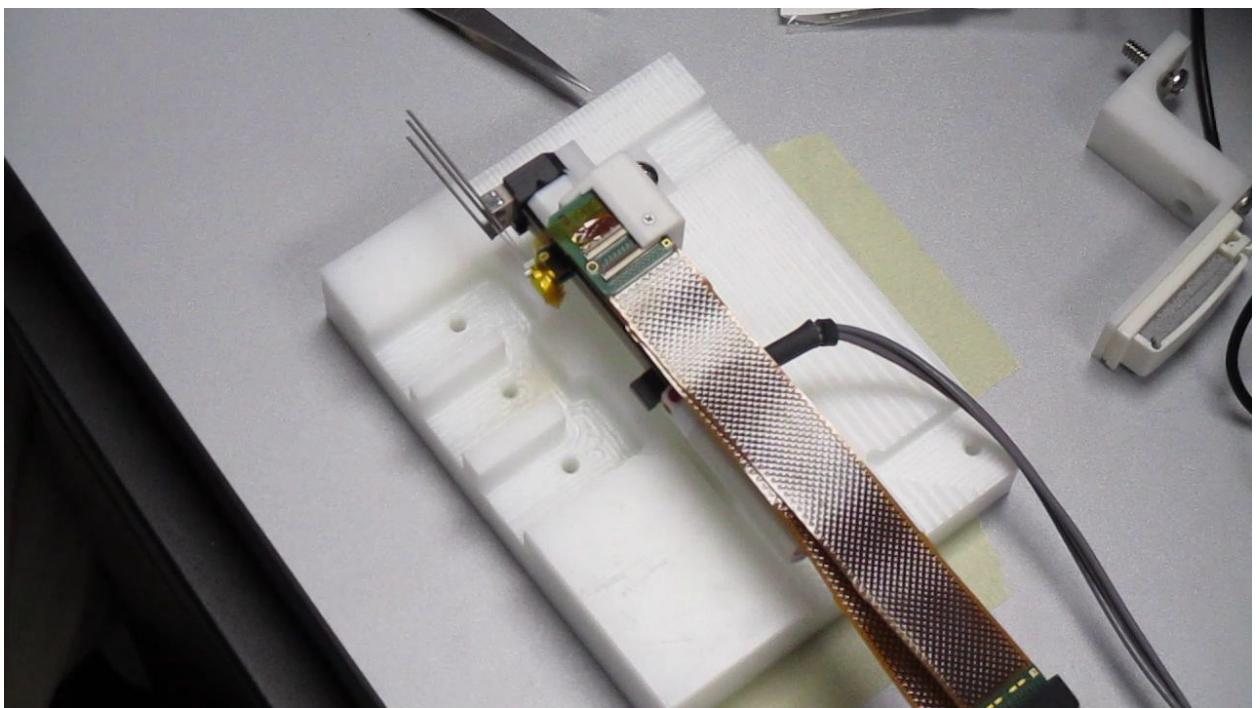
29. Advance both probes into their respective cannulae, feeding both heavy flex cables as necessary. Stop when the tips of both probes become visible, and withdraw the probes 2mm past the point where the tips are no longer visible (to protect them from damage).

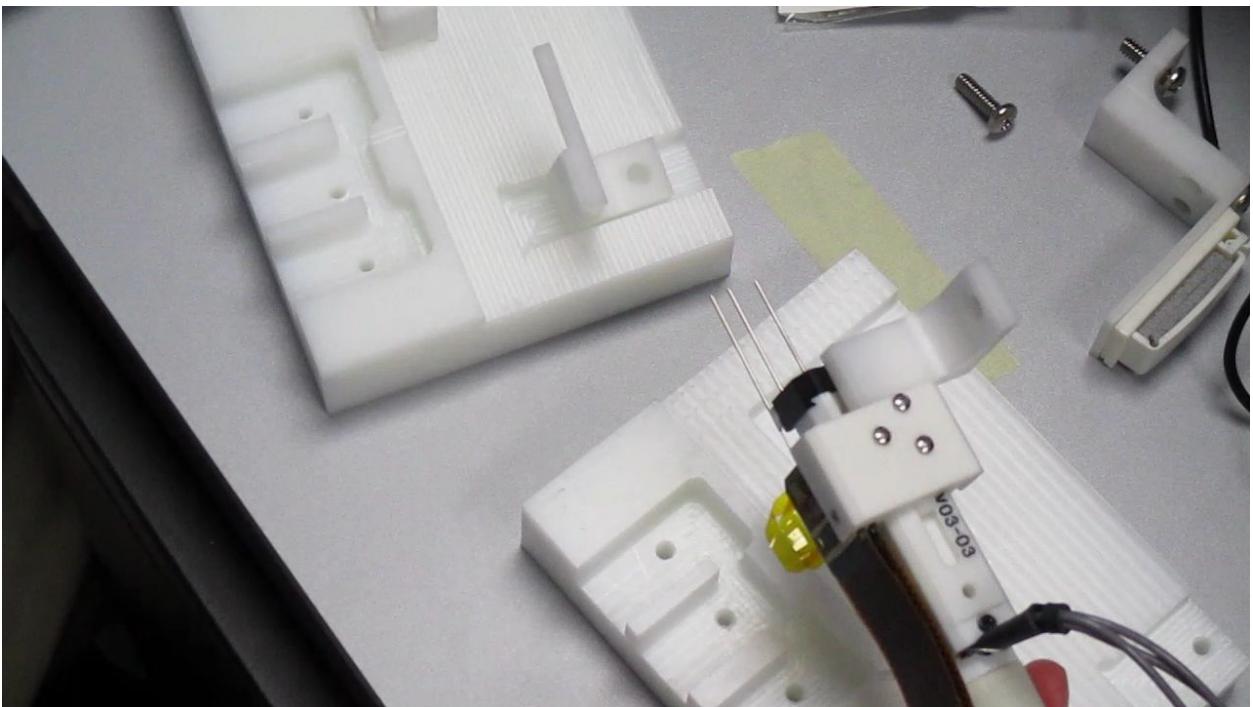
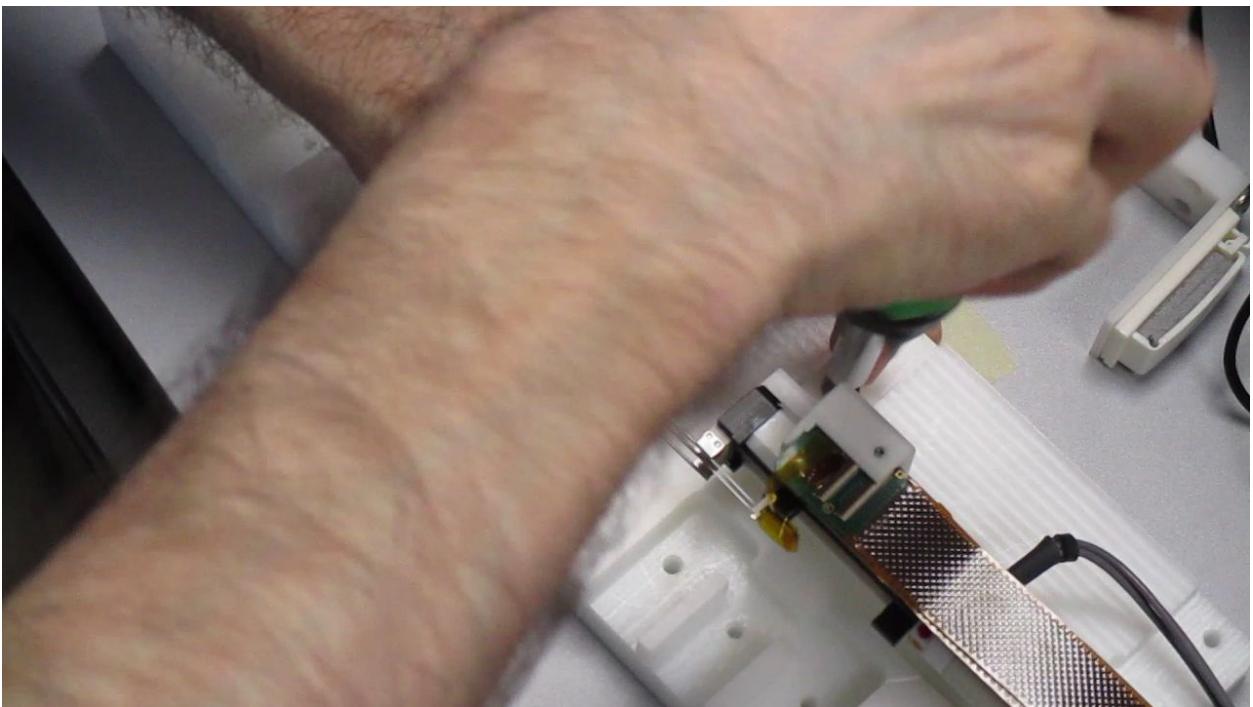


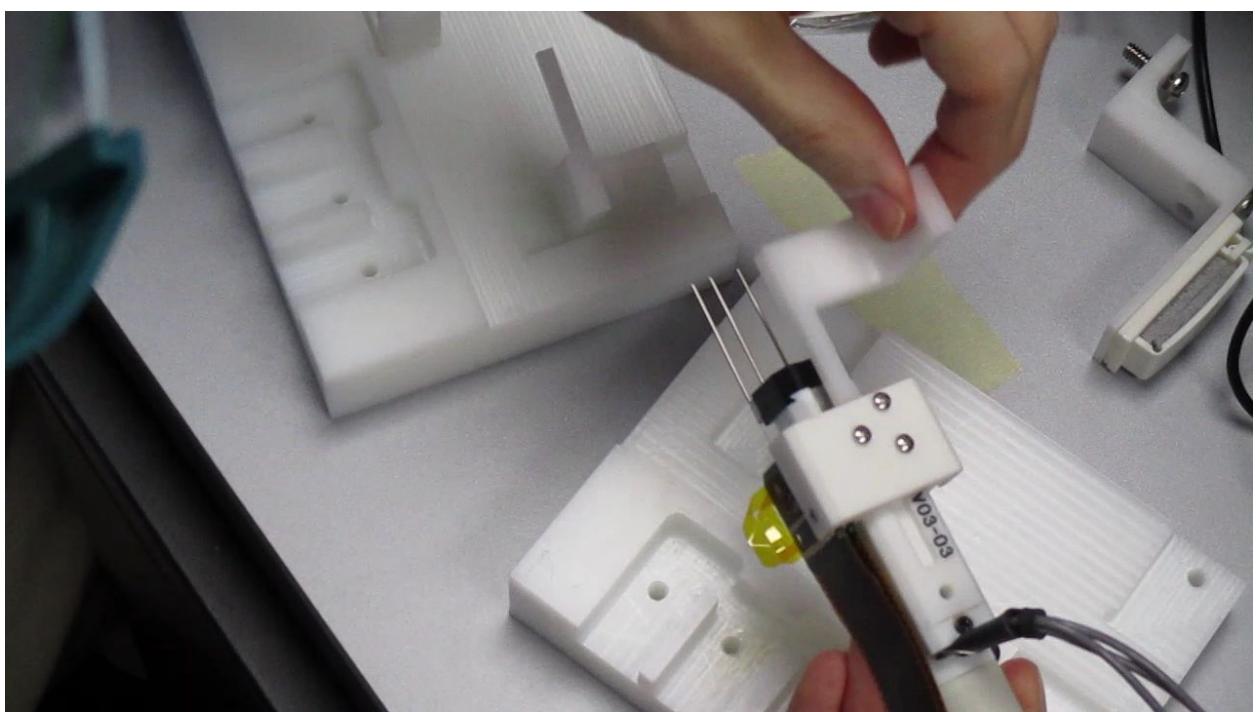
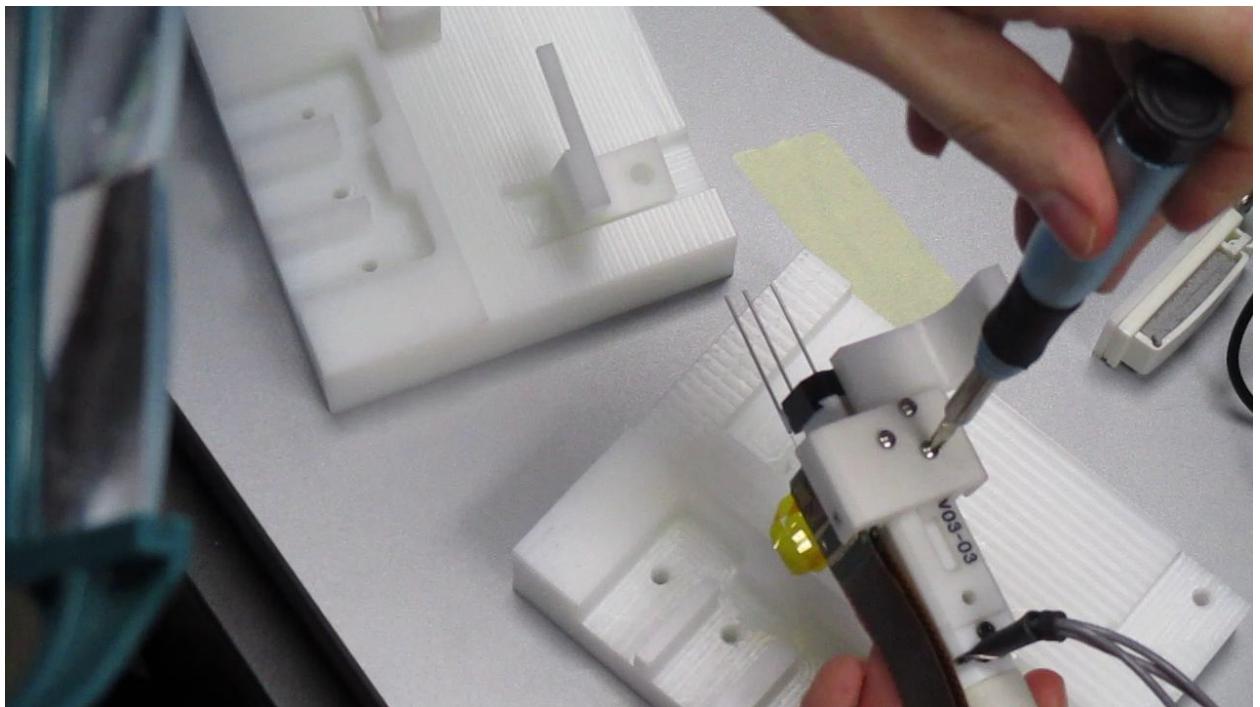
30. Install the heavy flex cables in their slots in the cable mount, advancing the heavy flex cables through their retaining clip as needed. When the cables have been screwed into their mount, the heavy flex clip may be opened.



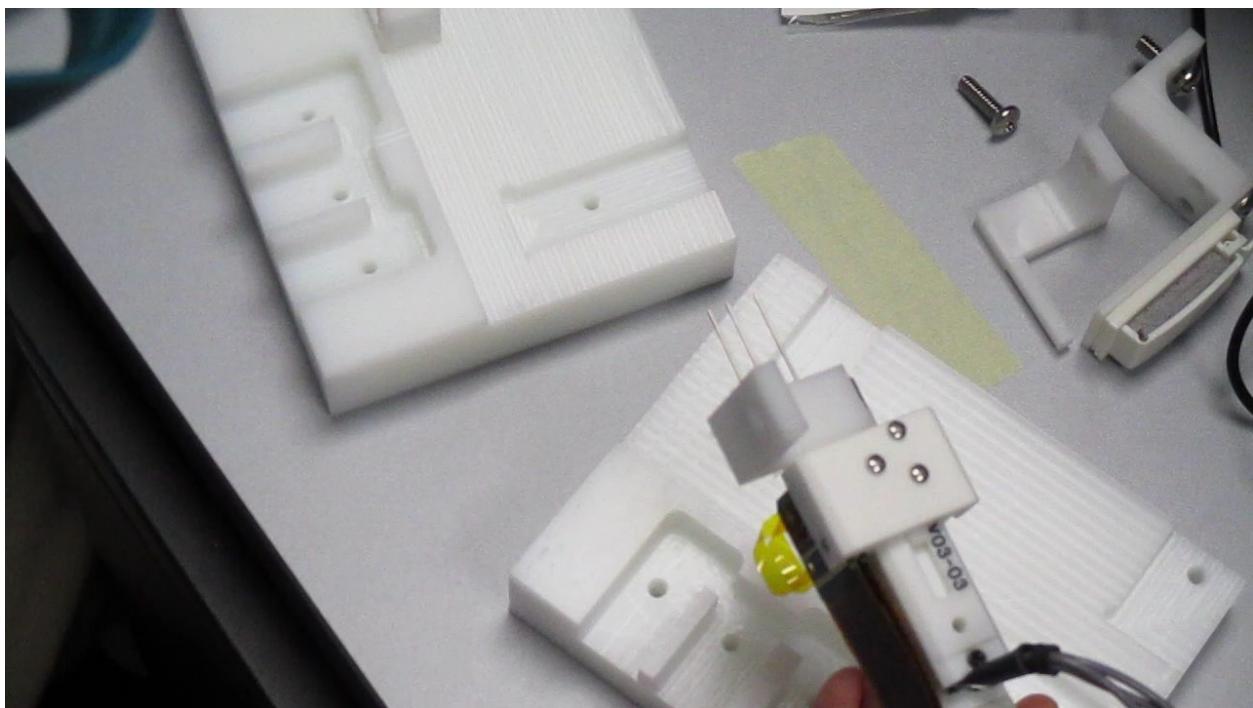
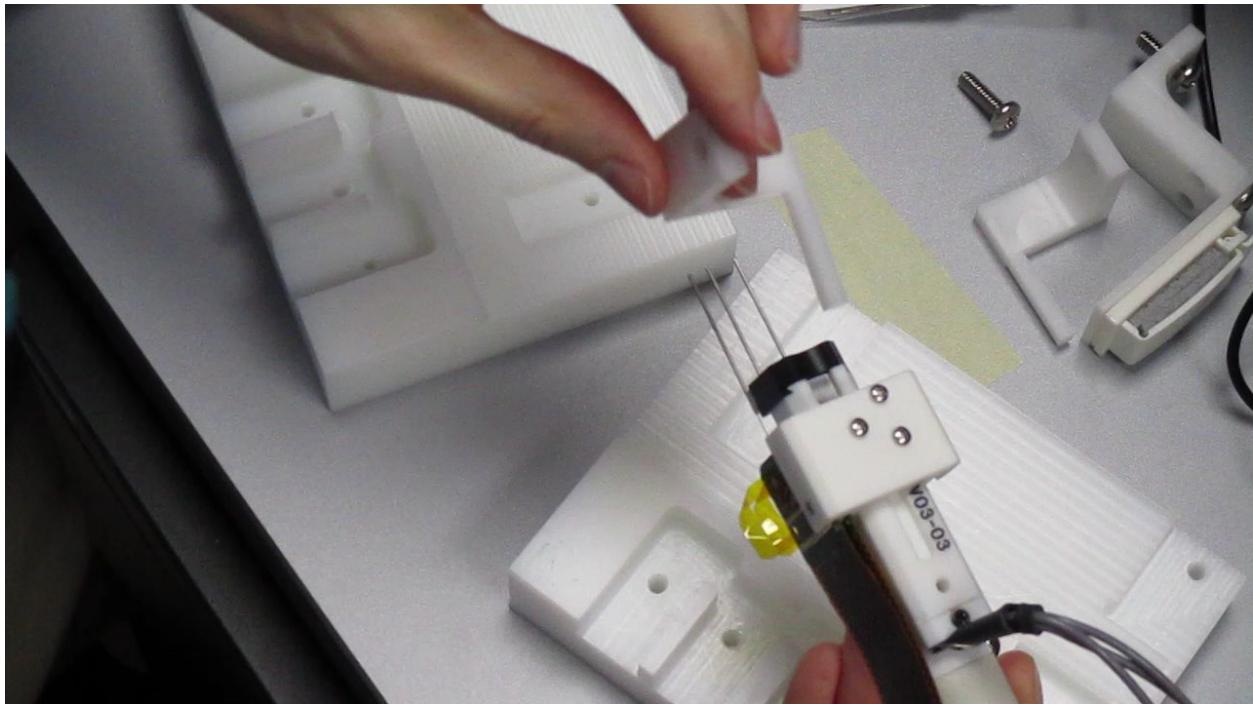
31. Unscrew and remove the heavy flex clip assembly. Unscrew the Triad mounting post, and pick up the Triad drive. Loosen the clip mounting screws slightly, and remove the mounting post from the Triad drive.

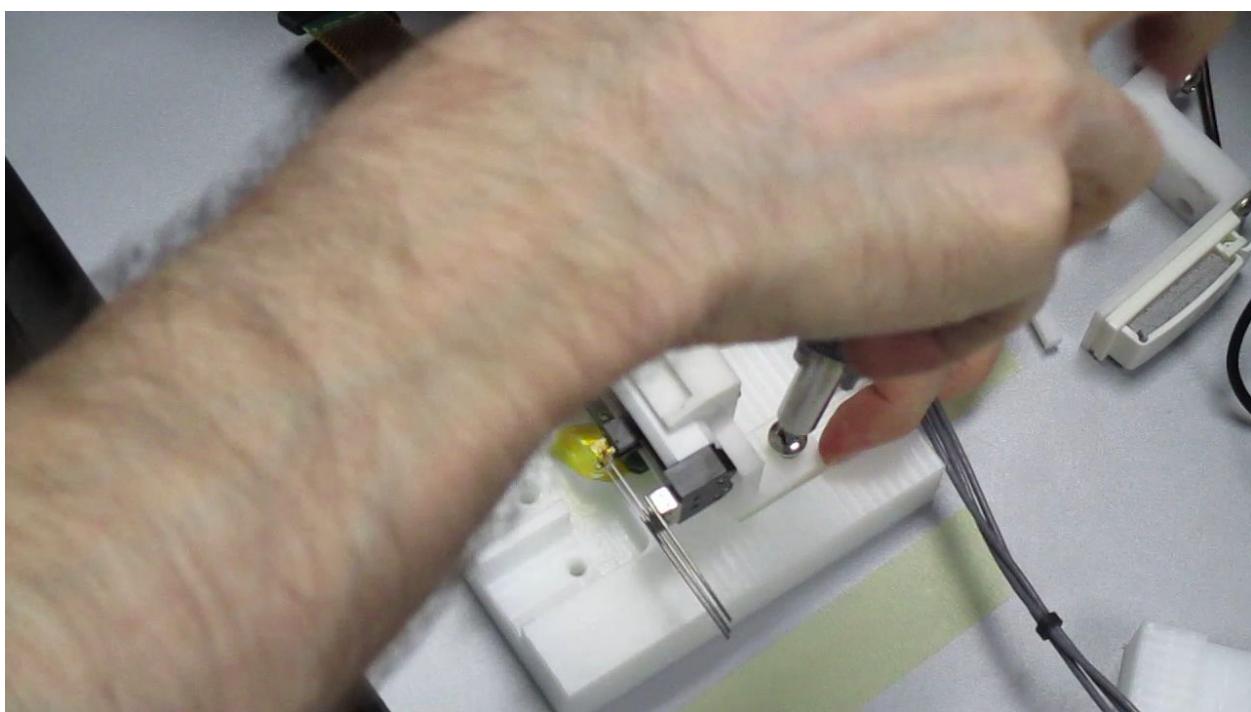
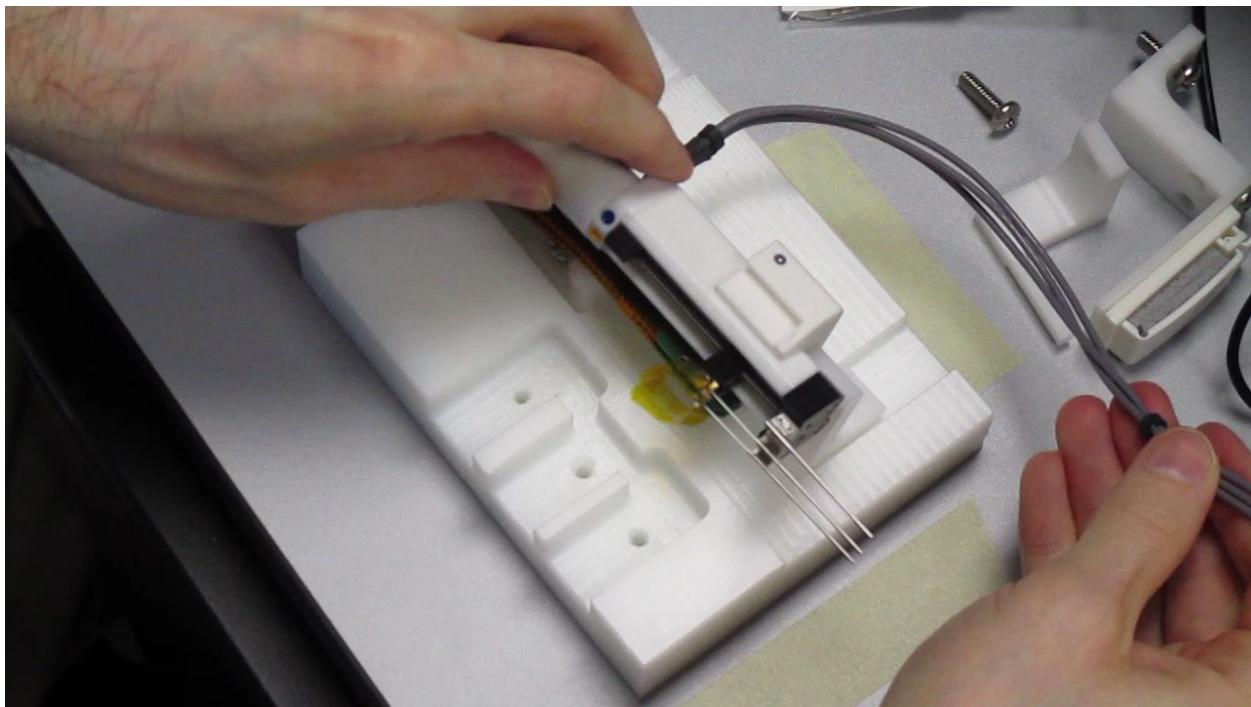


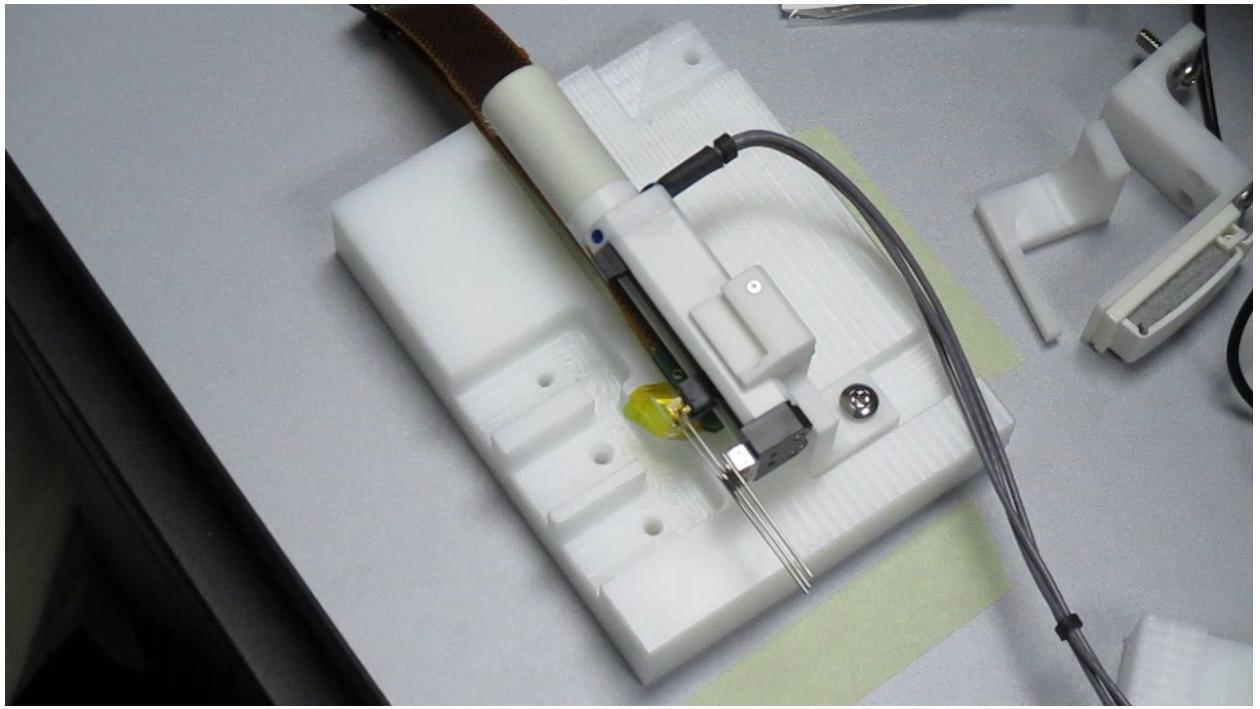




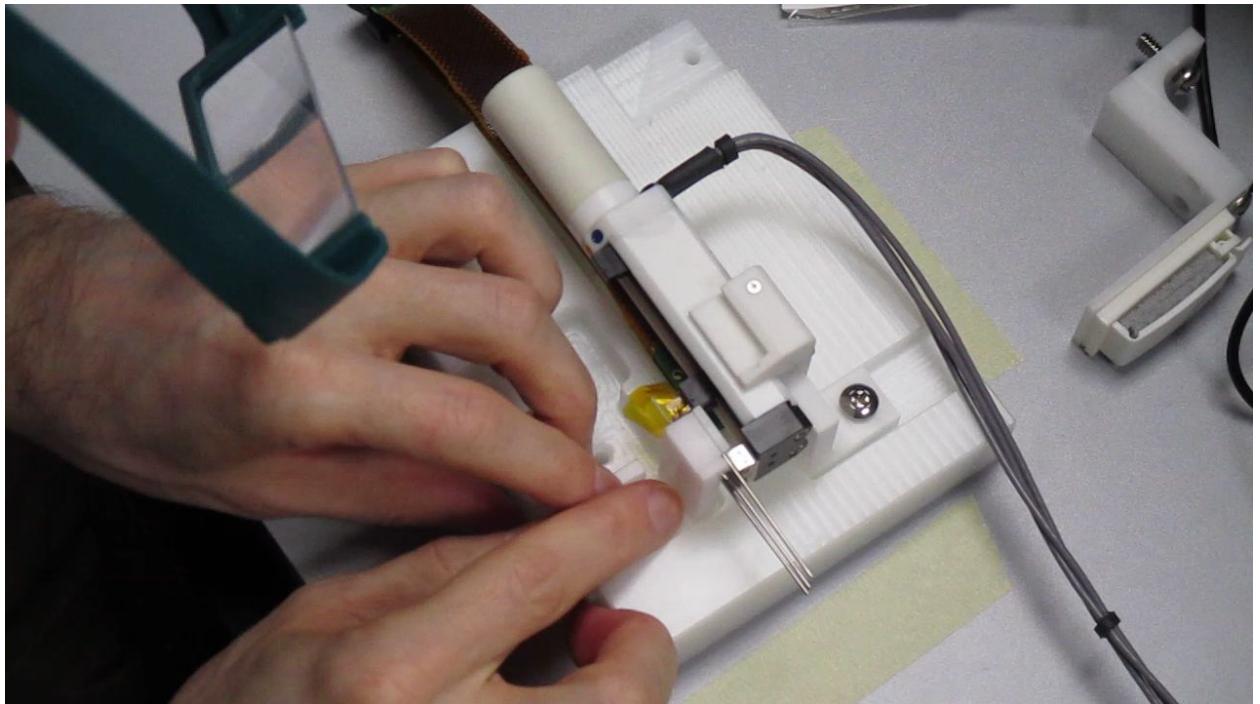
32. Remove the heavy flex clip assembly and mounting post from the “third probe” base plate. Install the Triad drive on the mounting post, install the mounting post on the “third probe” base plate, and then install the heavy flex clip assembly on the “third probe” base plate.

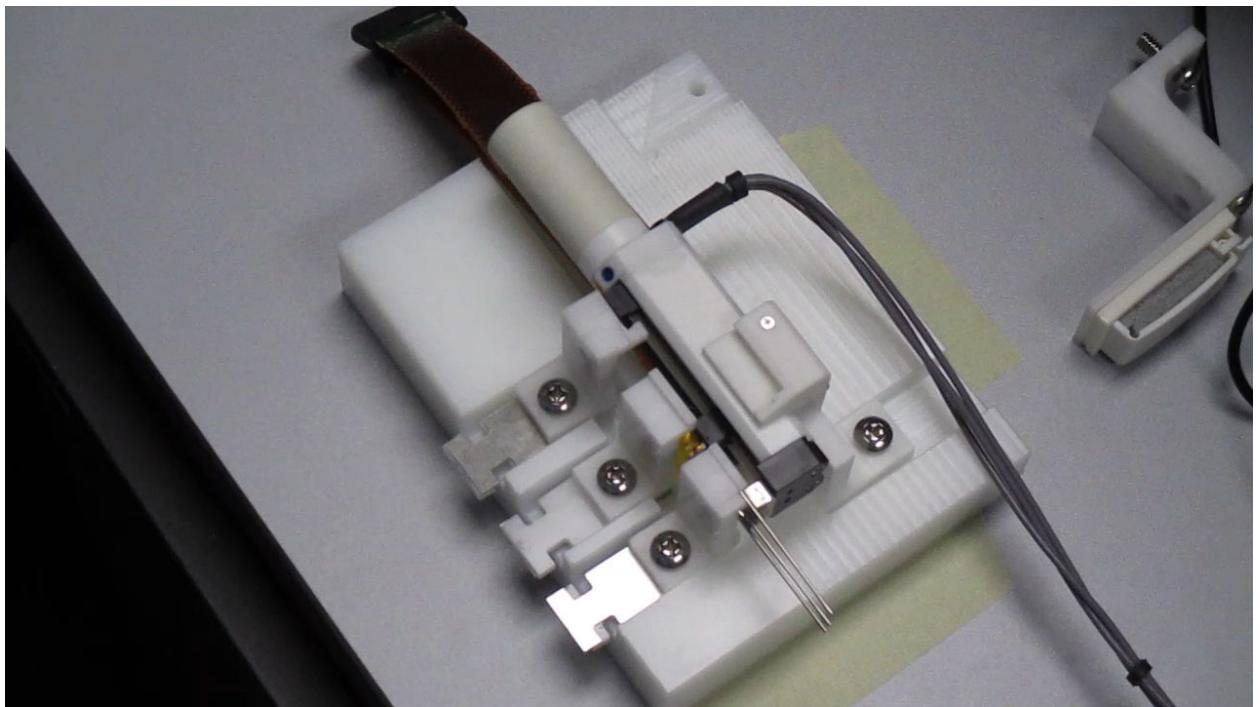
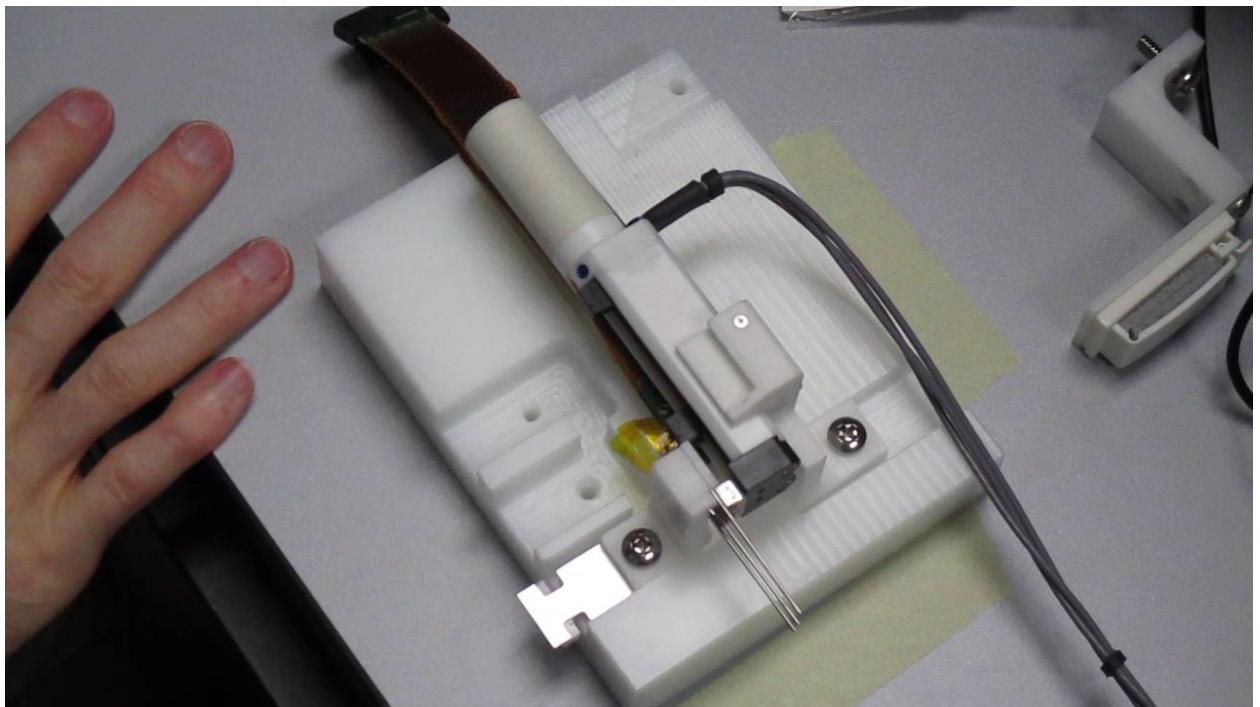




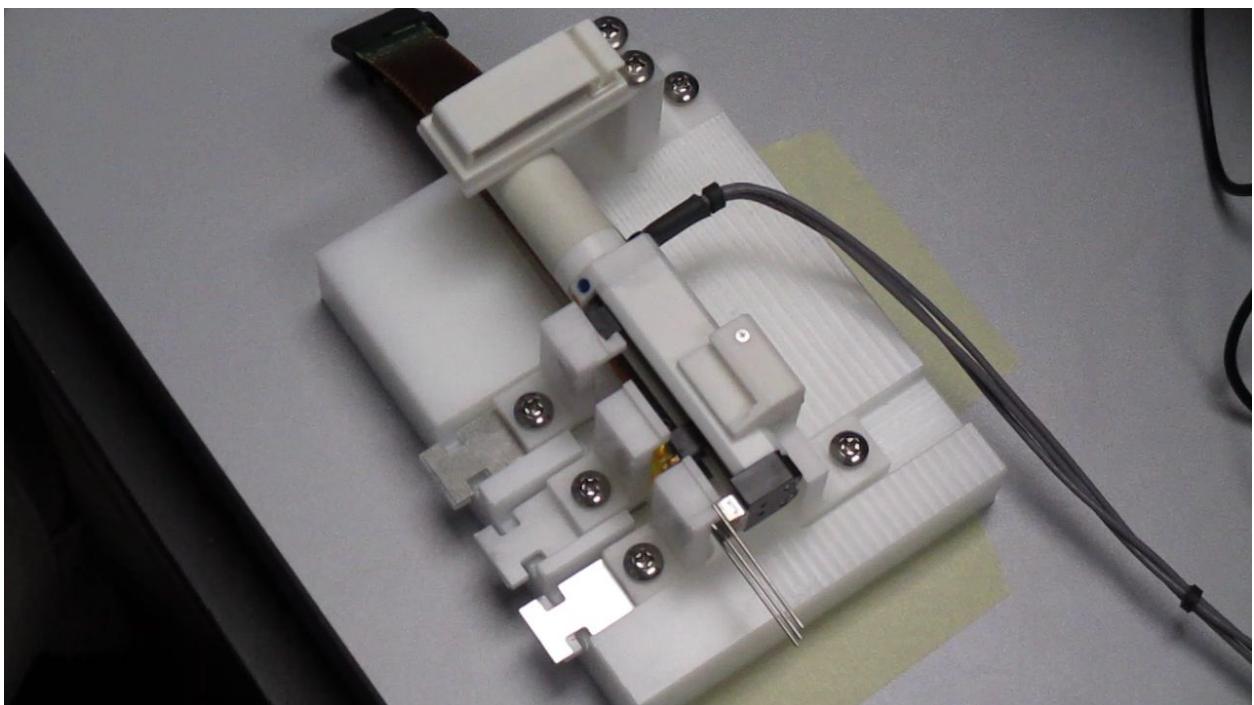
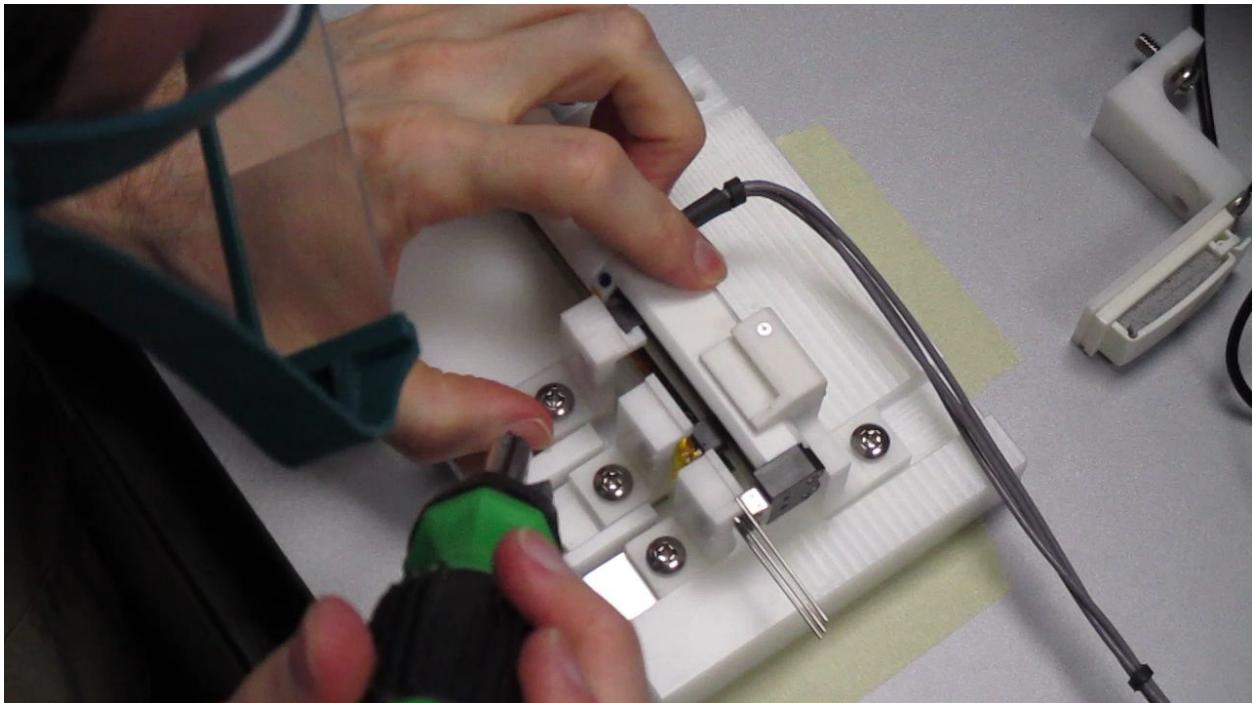


33. Install the “third” cannula jig, middle jig, and probe jig as with previous probes. The probe jig should start off flush left. **Optionally omit the “middle” jig.** It’s less likely to conflict with the first probe than the second “middle” jig, but may still do so.

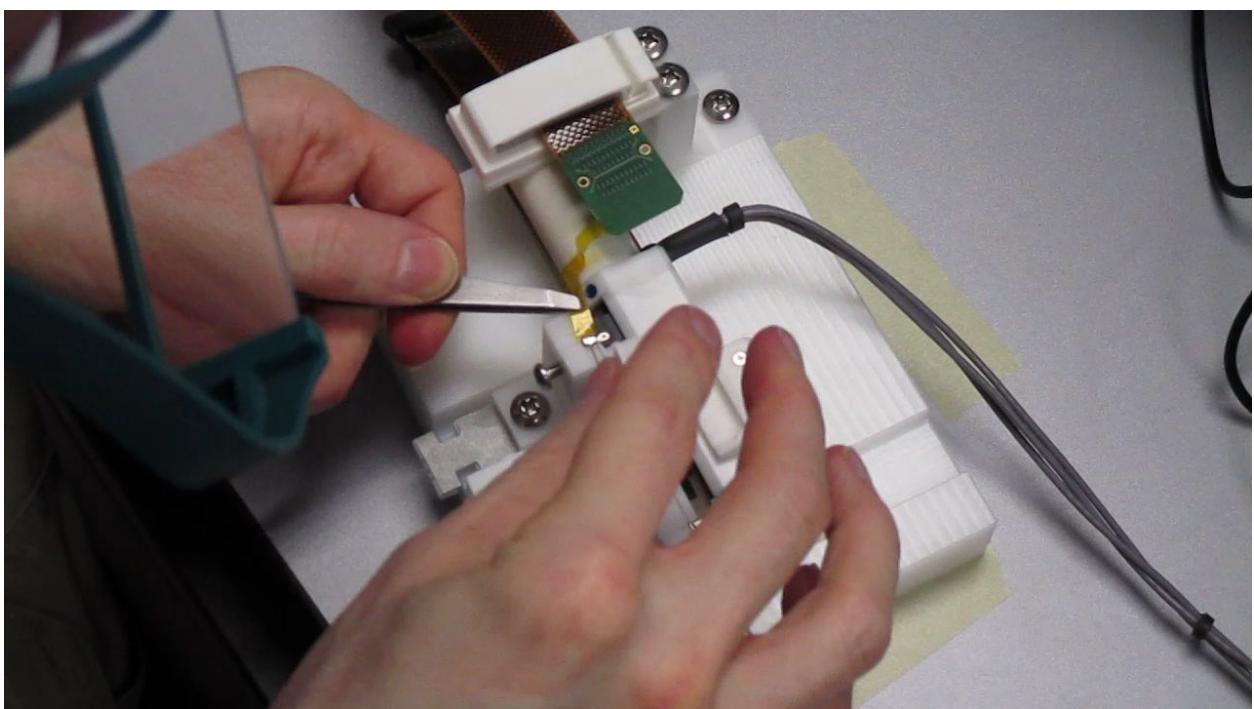
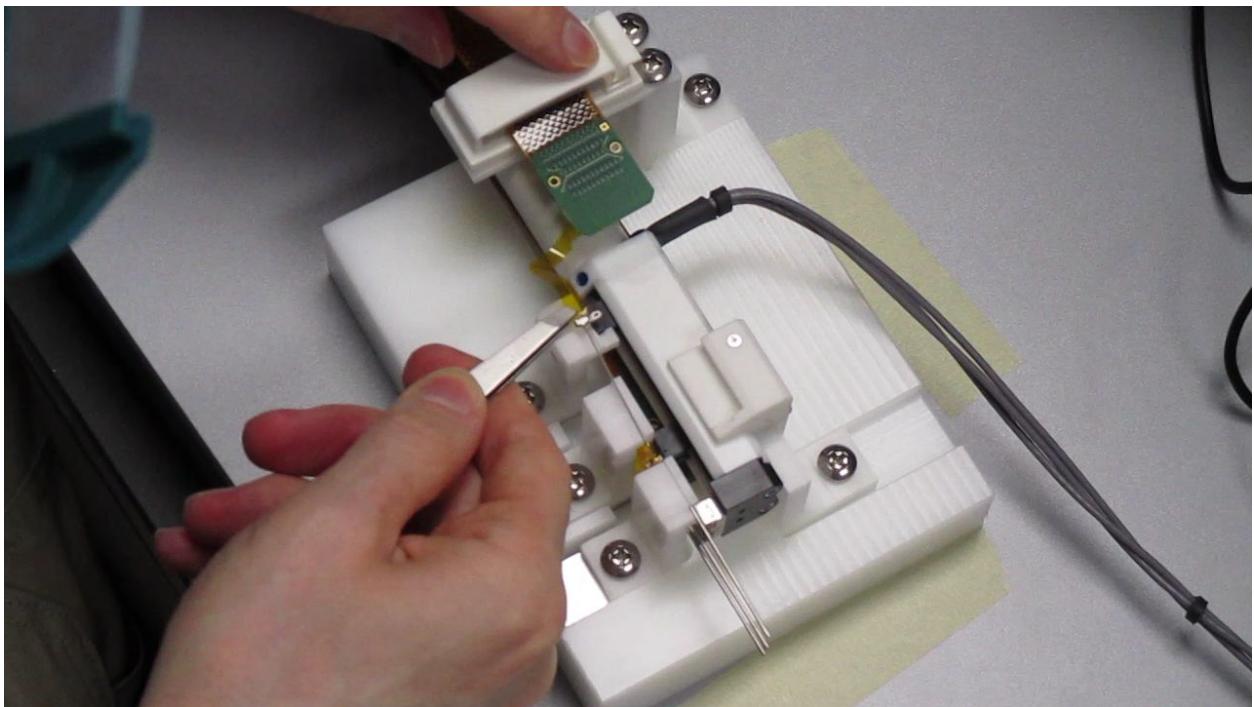


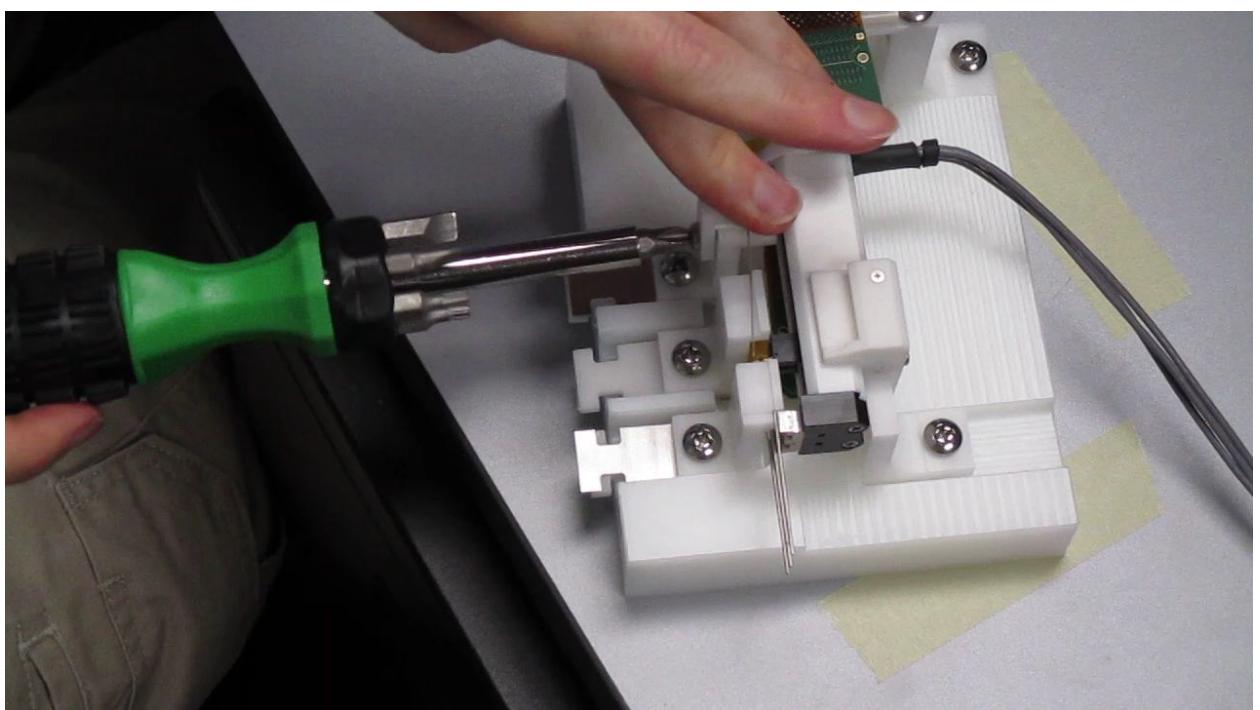
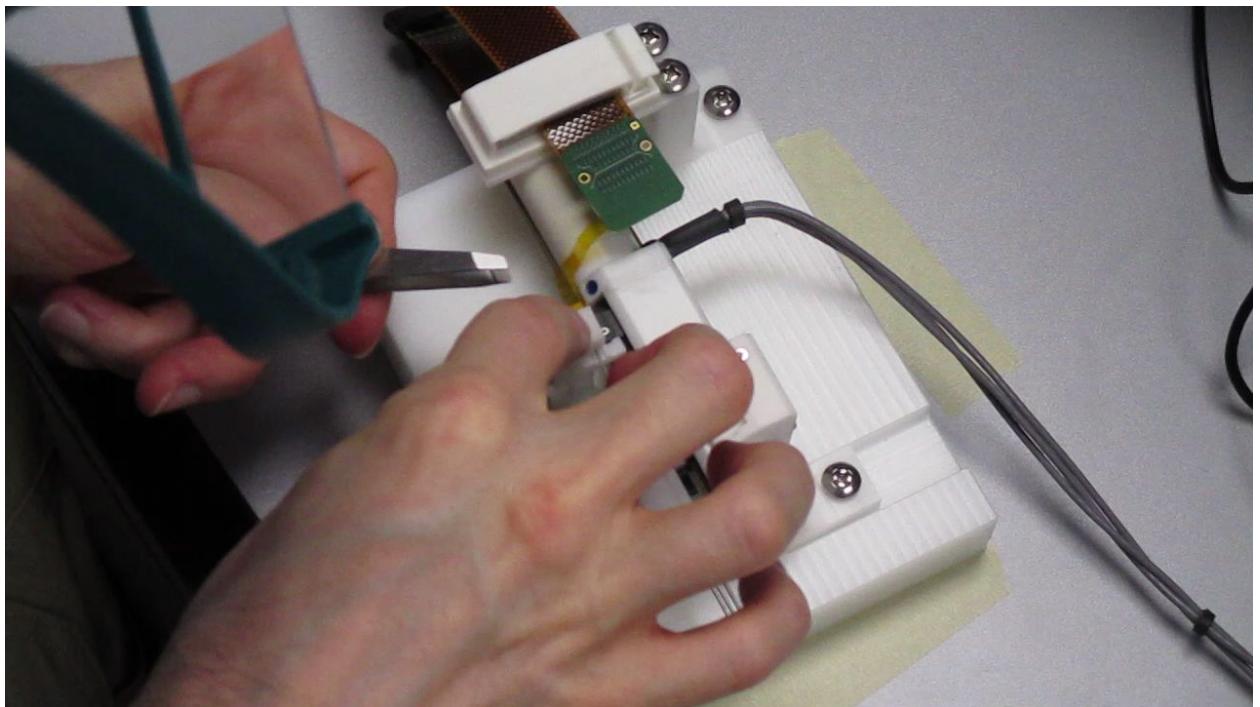


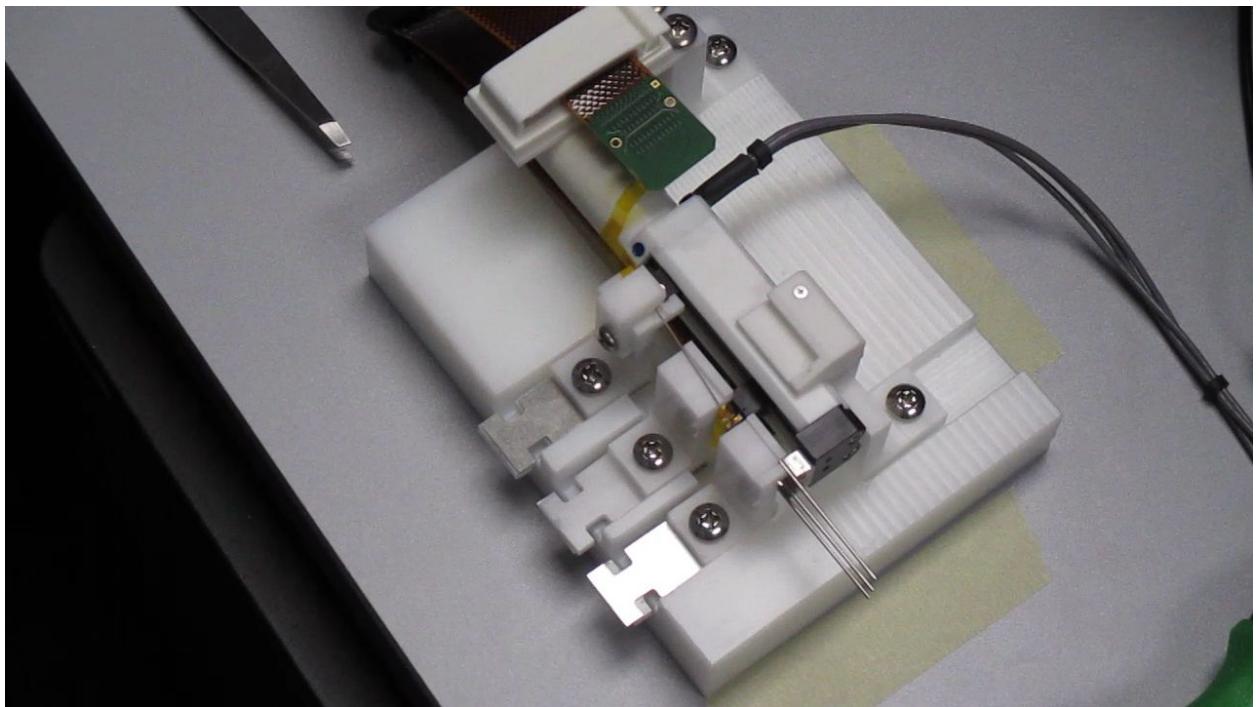
34. Advance the last arm until it contacts the probe jig. Adjust shims for the probe jig and middle jig as in previous steps.



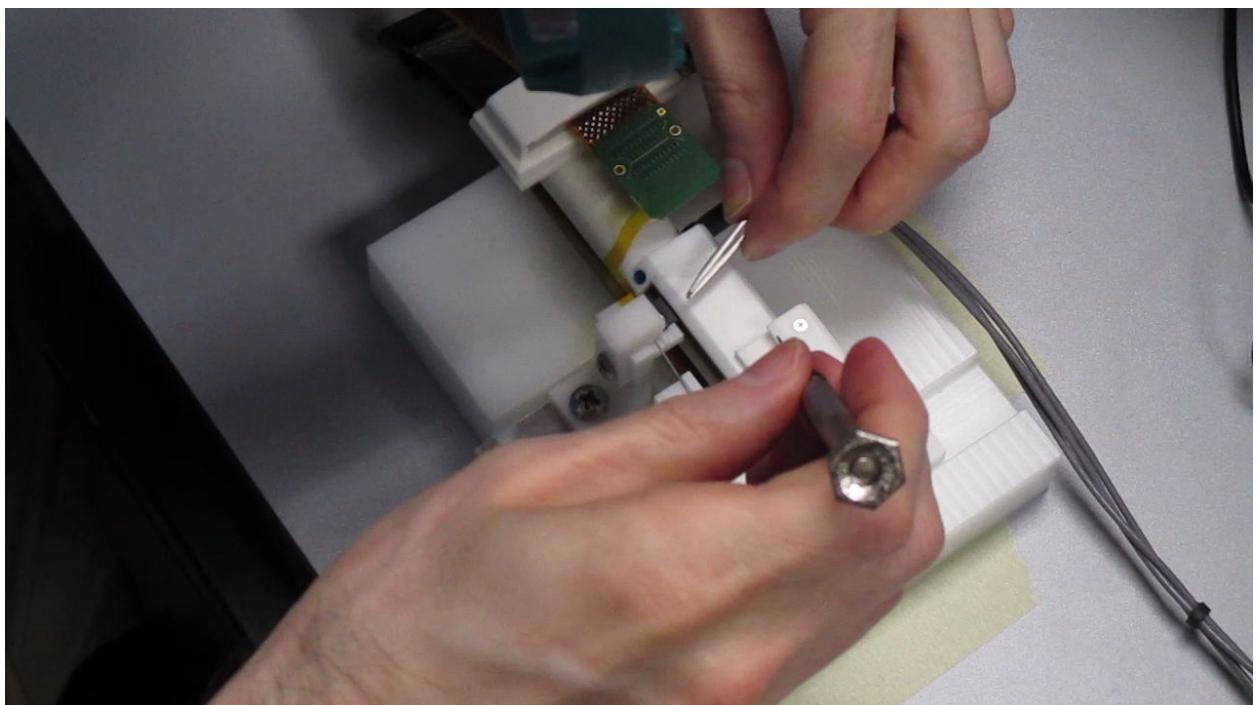
35. Position the third probe in the same manner as with previous probes (holding it by the thin flex just above the probe, securing the heavy flex, adjusting position, and securing the shuttle and thin flex).

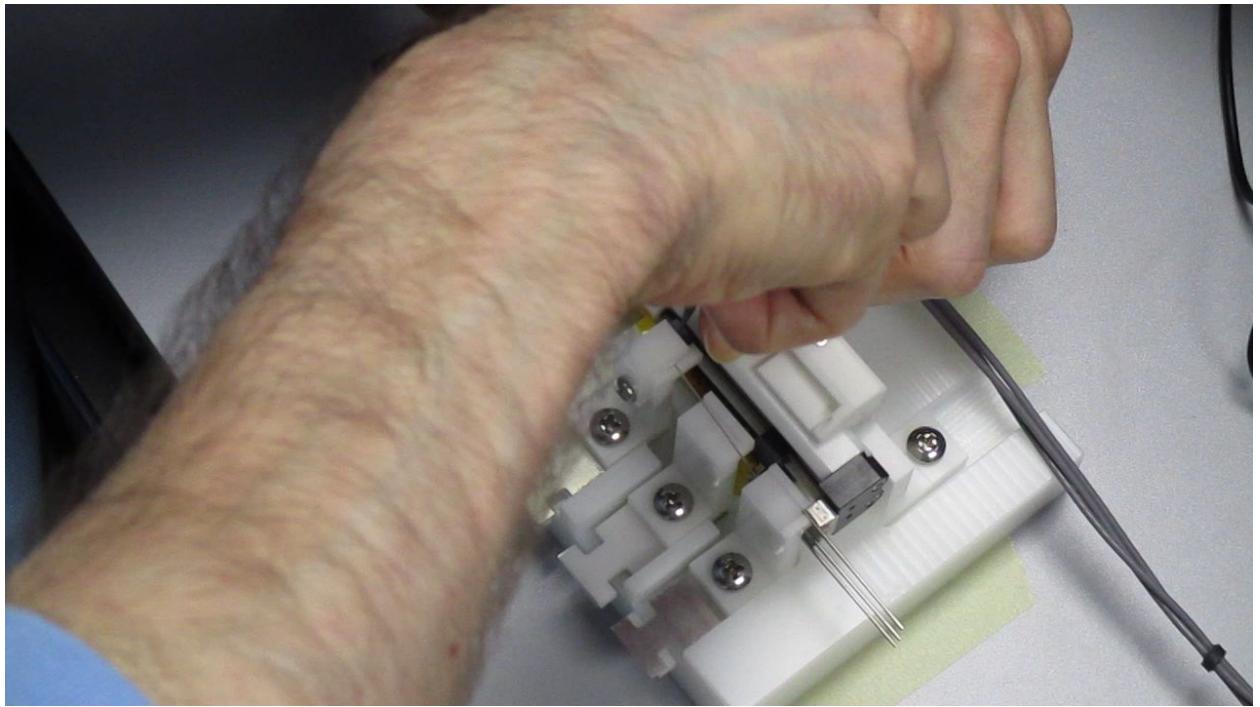




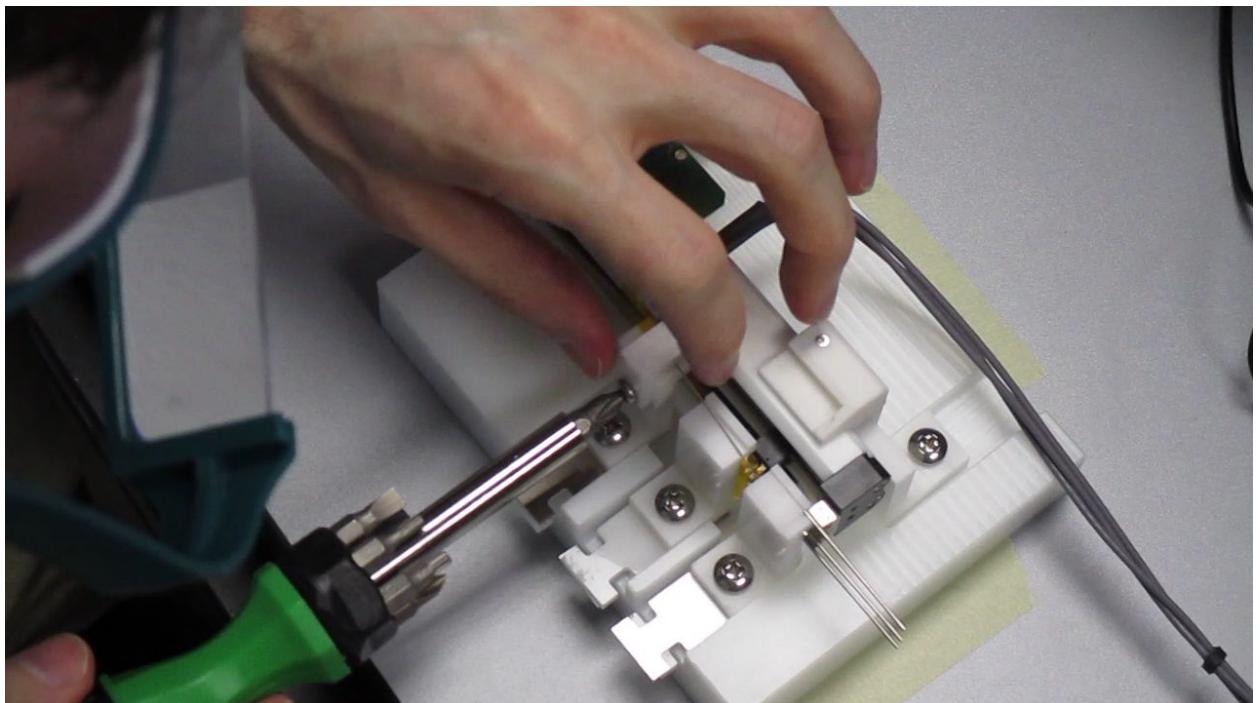


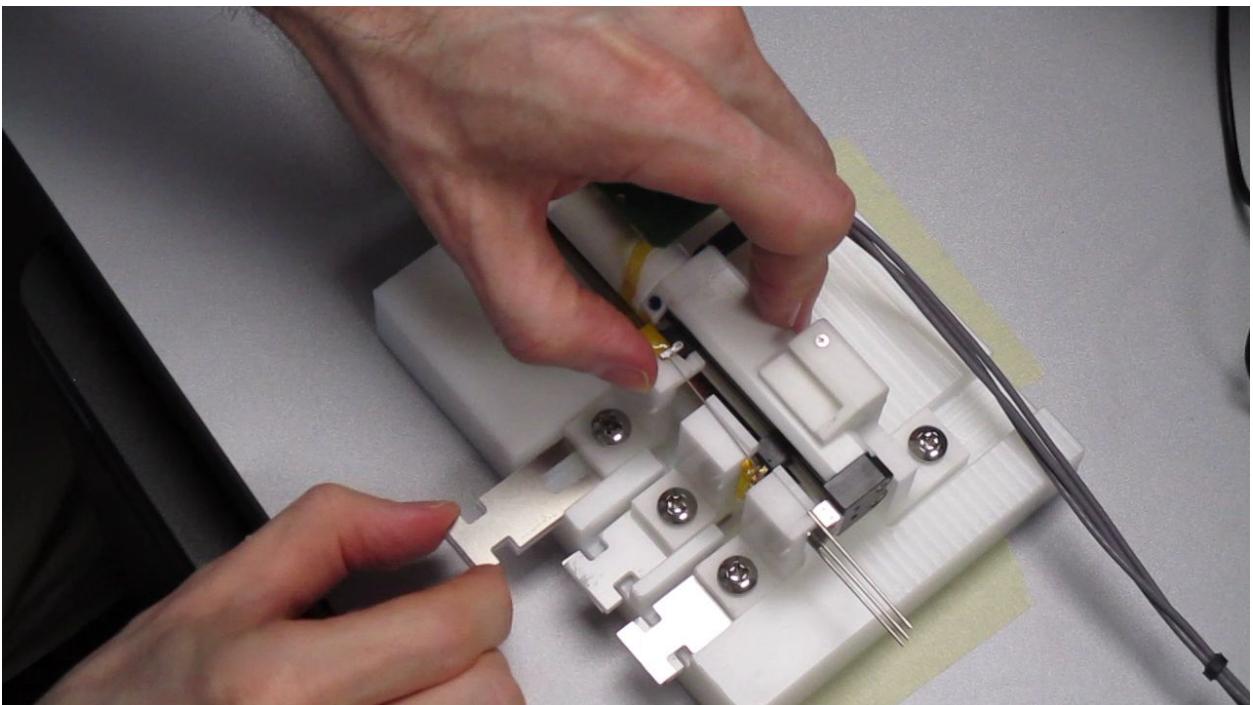
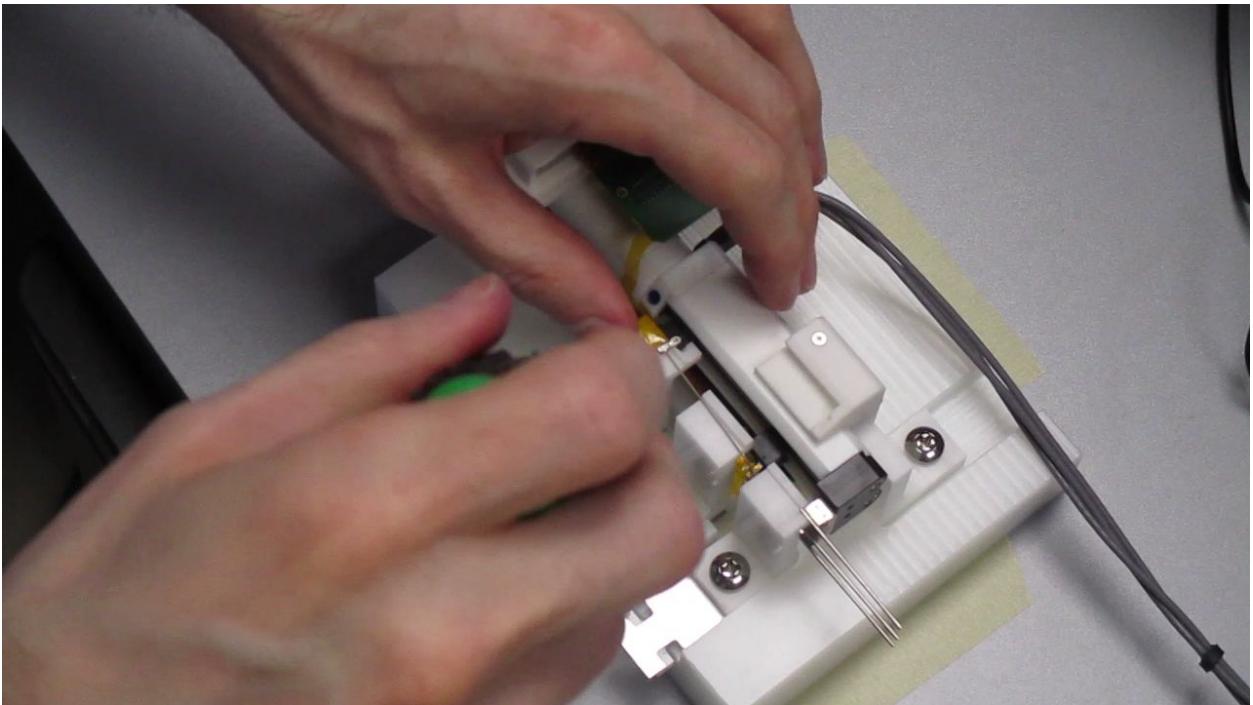
36. Install the third probe's screw in the same manner as with previous probes. Make sure that it's backed off half a turn to allow movement.

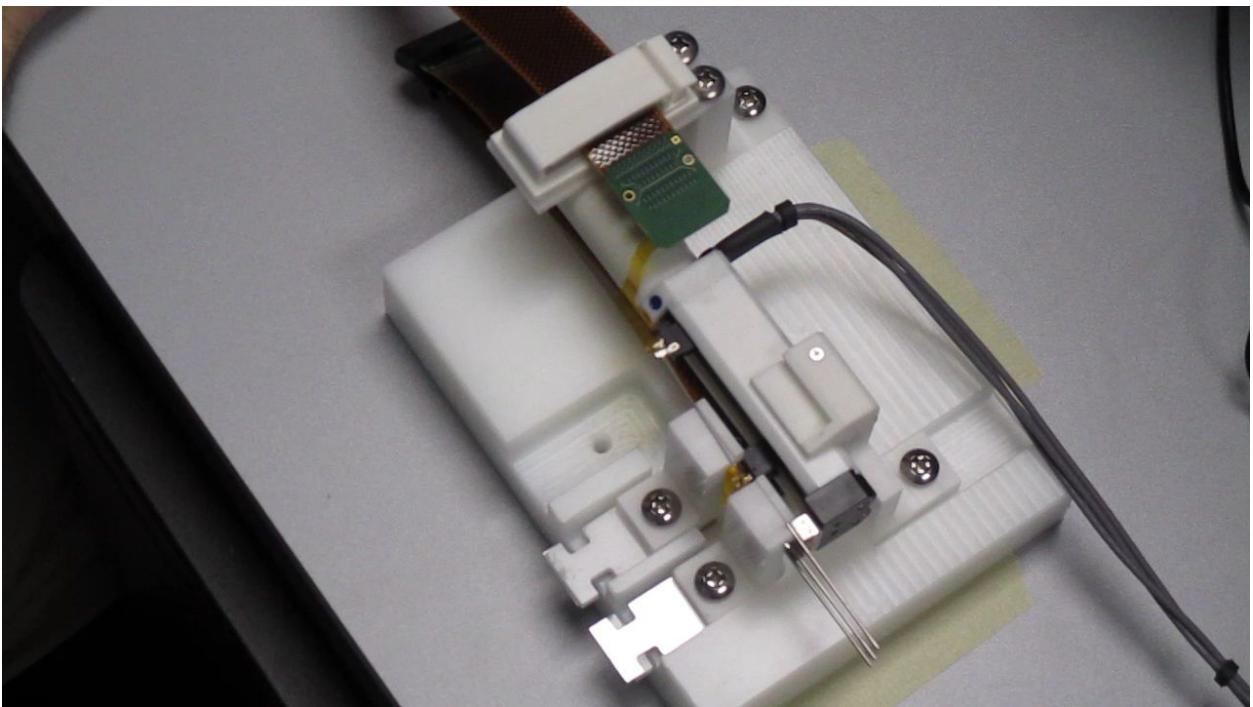
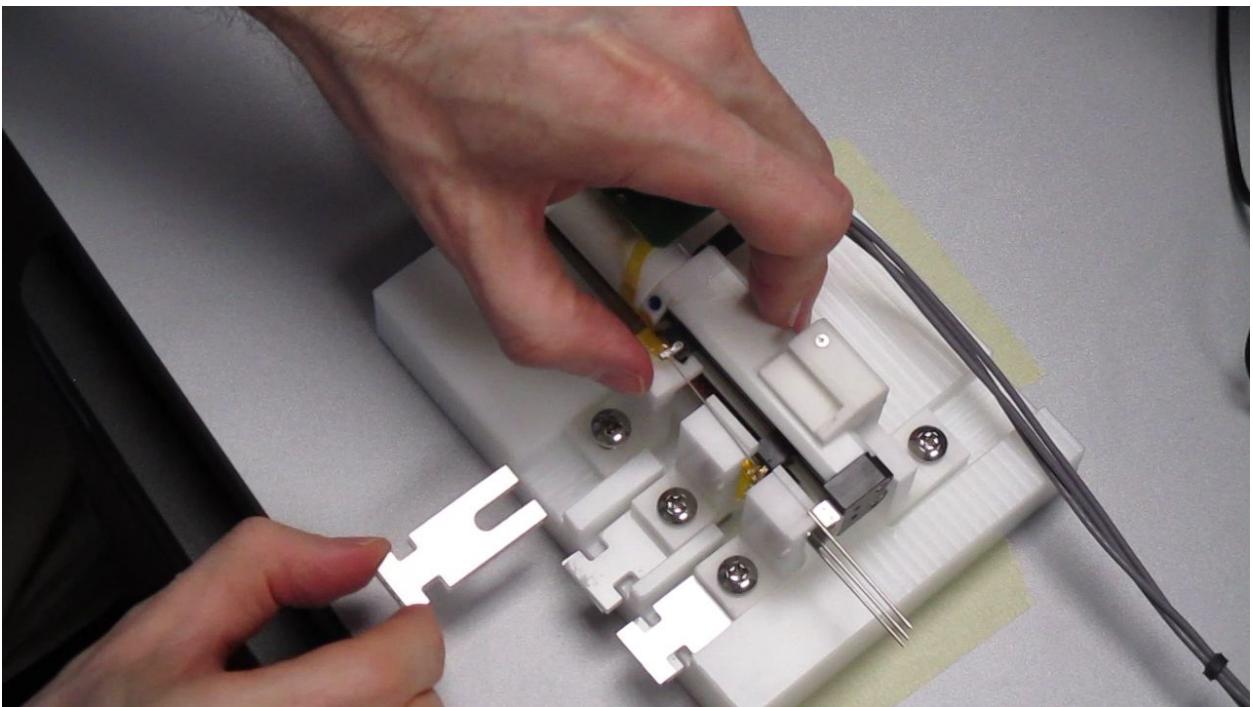




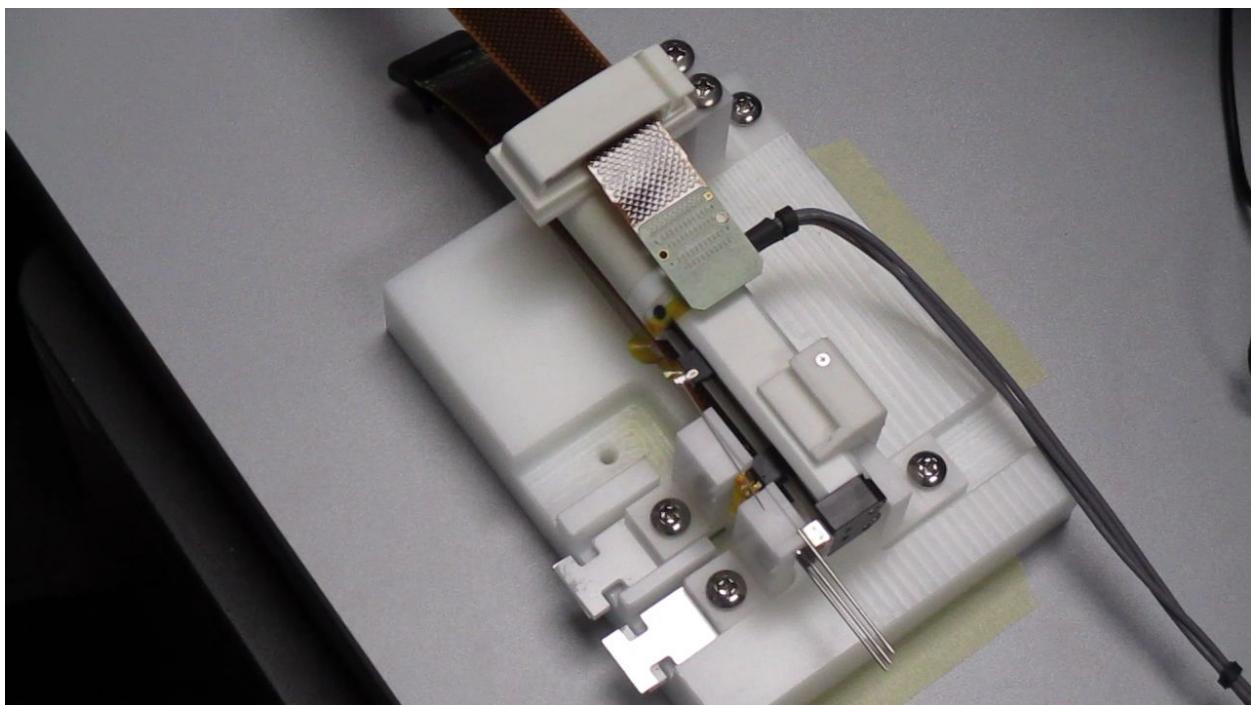
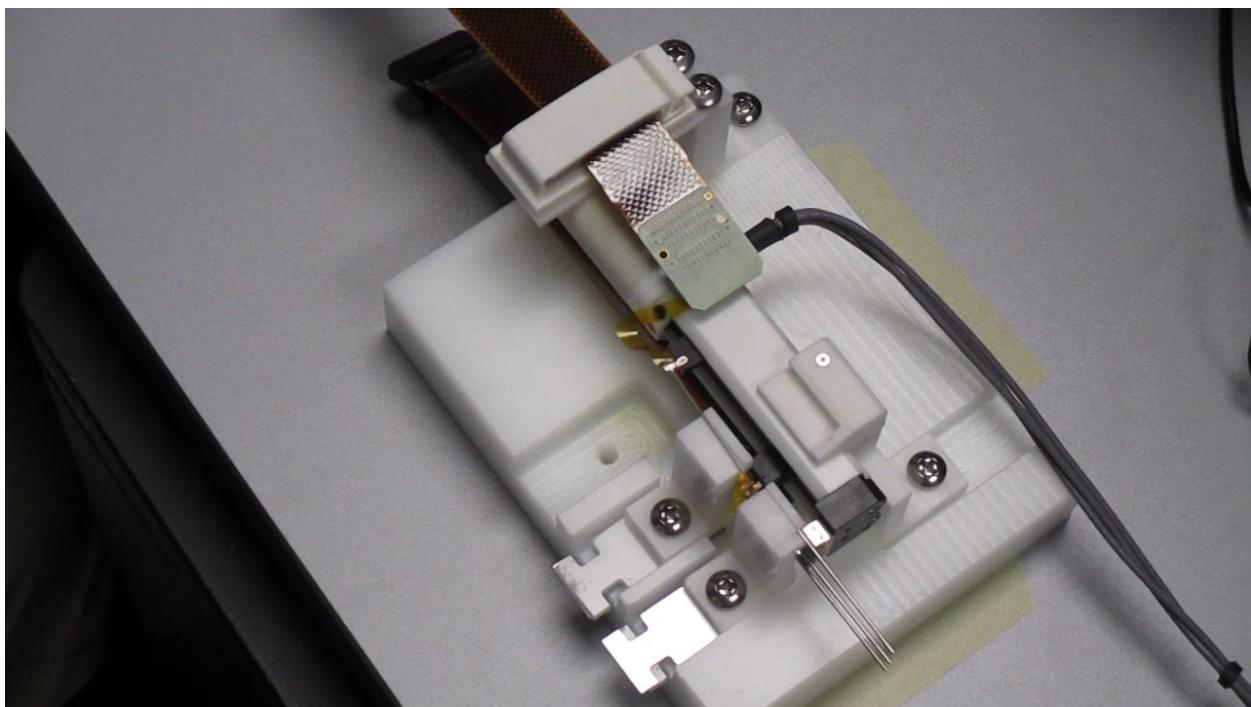
37. Remove the thin flex clip and its screw from the probe jig. Press the probe jig towards the Triad drive, and remove it in the same manner as with previous probes.



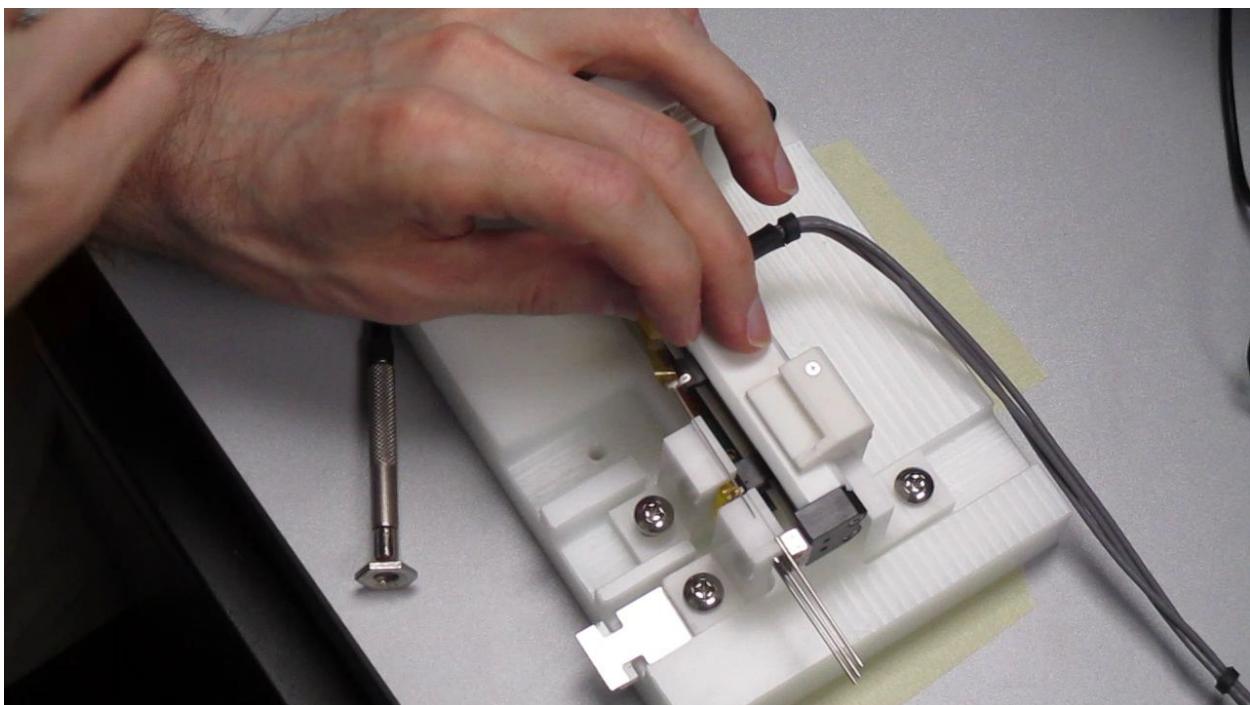


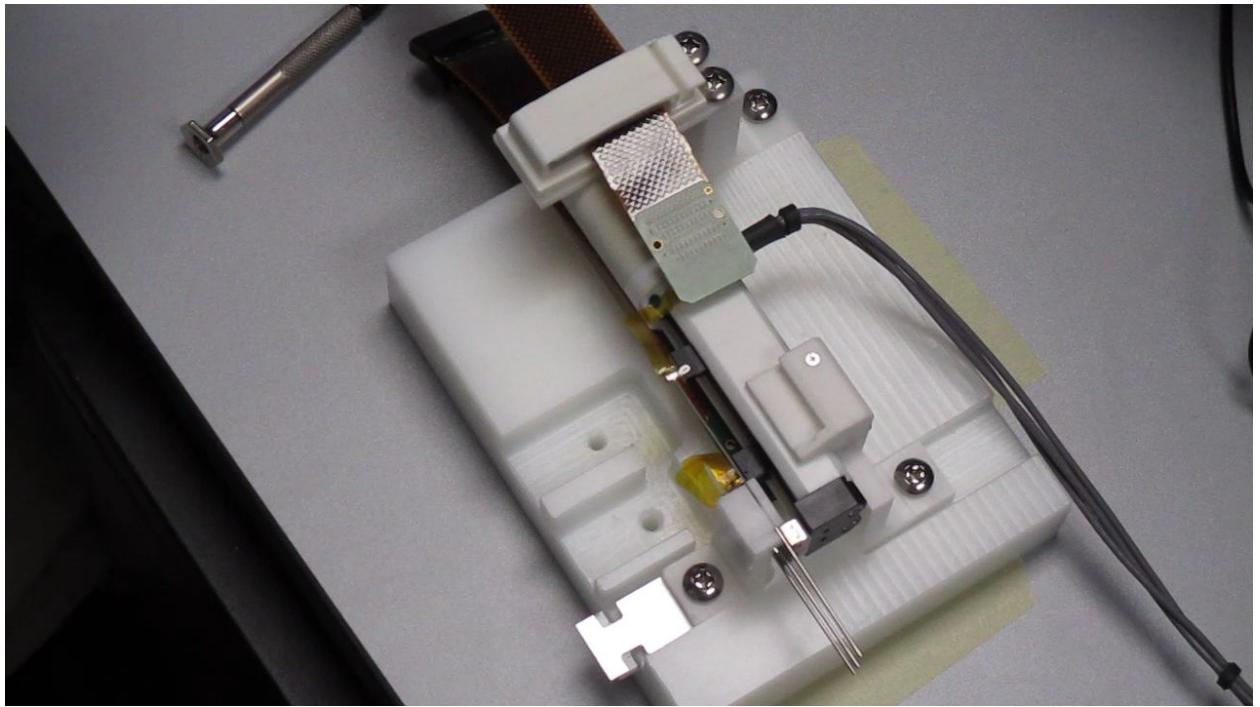


38. Advance the probe until it is over the cannula jig, feeding its heavy flex through the (closed) clip as needed.

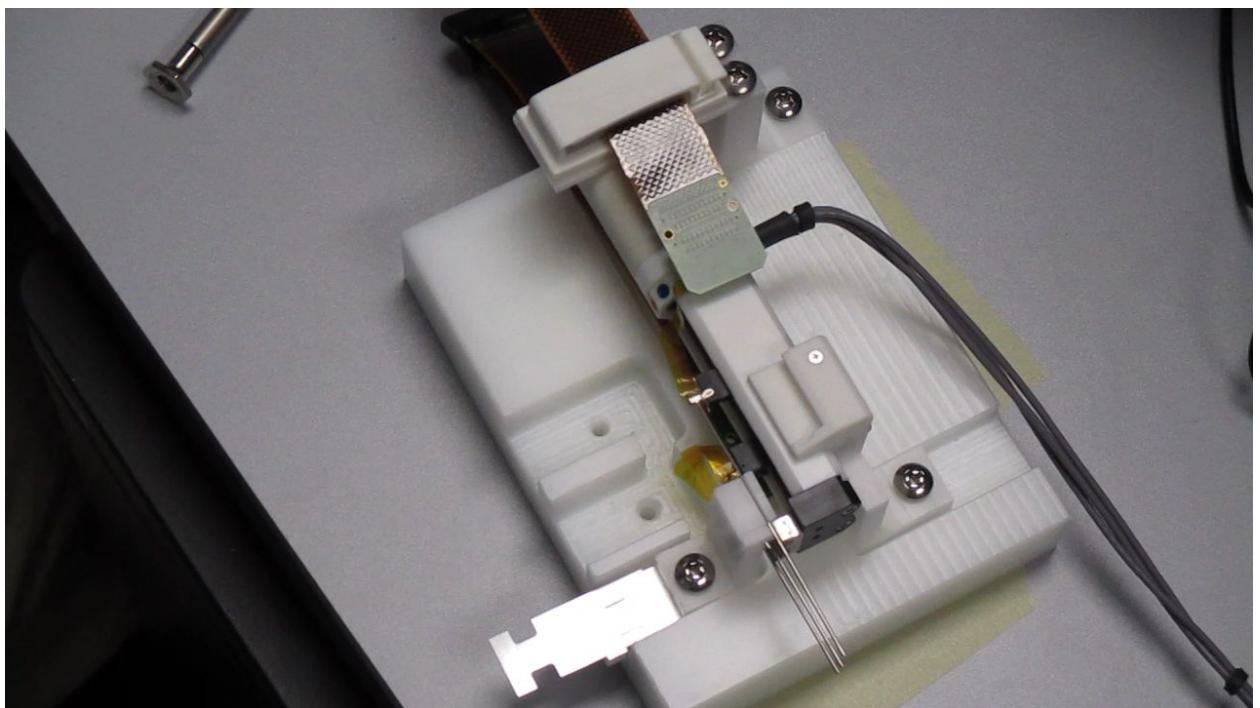


39. Press the middle jig towards the Triad drive, and remove it in the same manner as previous jigs. Take care that it does not come anywhere near the middle probe. **NOTE - It may be best to omit the middle jig**, as it is difficult to prevent it from striking the first probe.



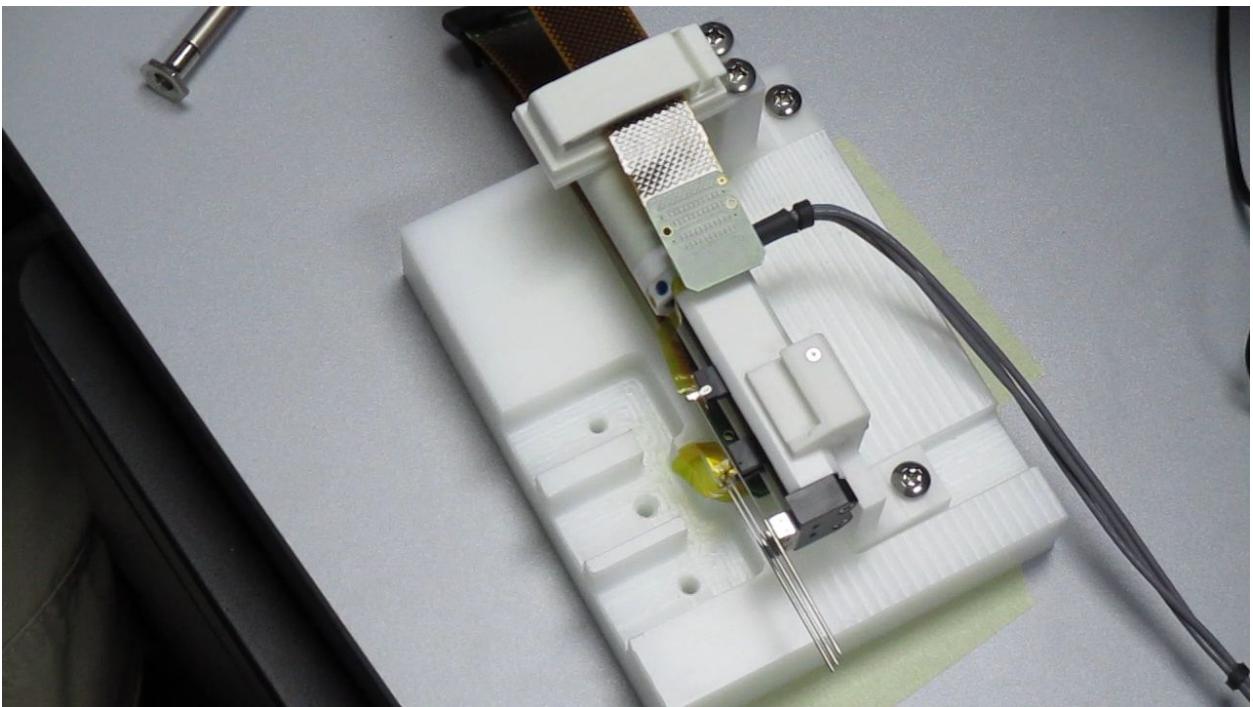
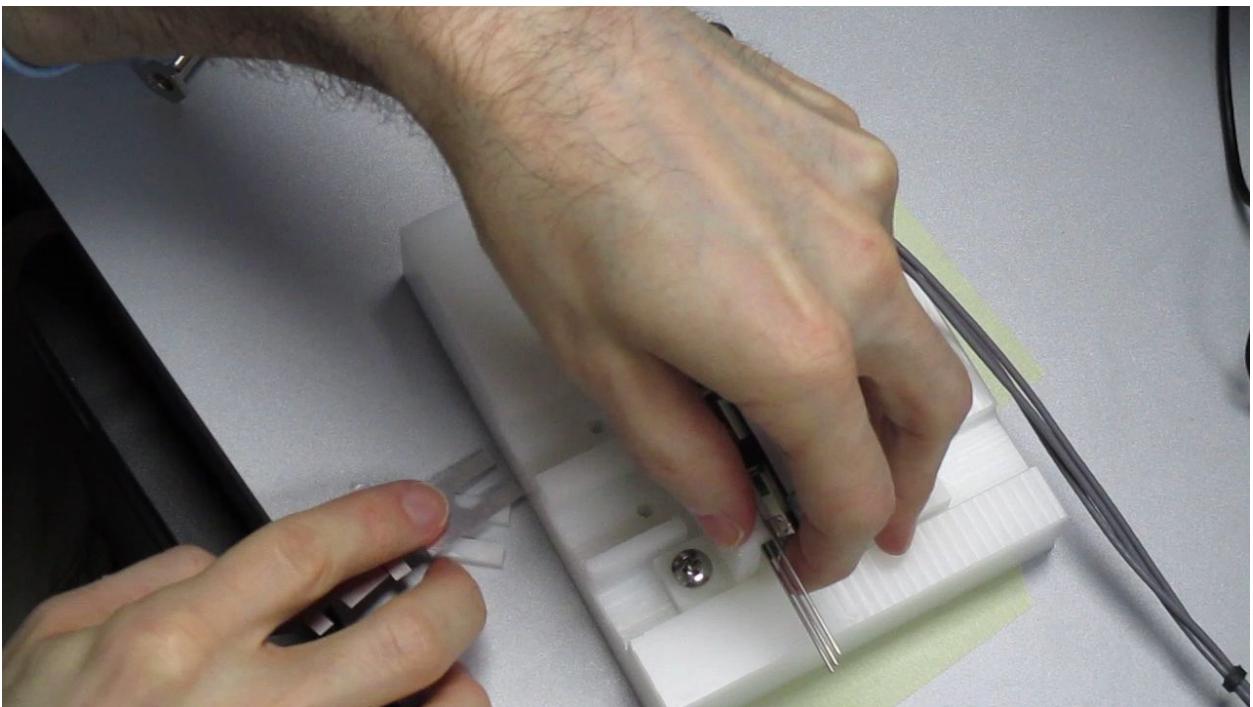


40. Align the third probe with its cannula in the same manner as with previous probes. Advance it into the cannula, feeding the heavy flex as needed. The desired stopping point is at least 4mm into the cannula, so that lateral forces will cause the shank rather than the contact-loaded tip to touch the side of the cannula.

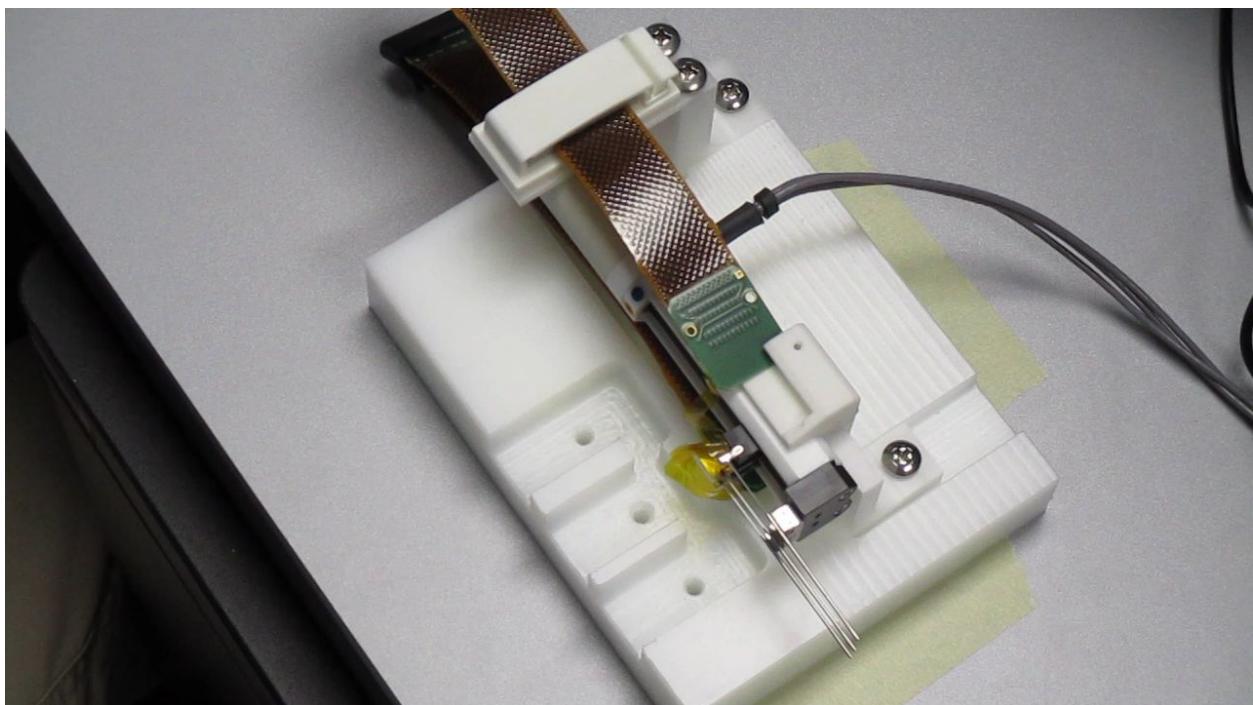
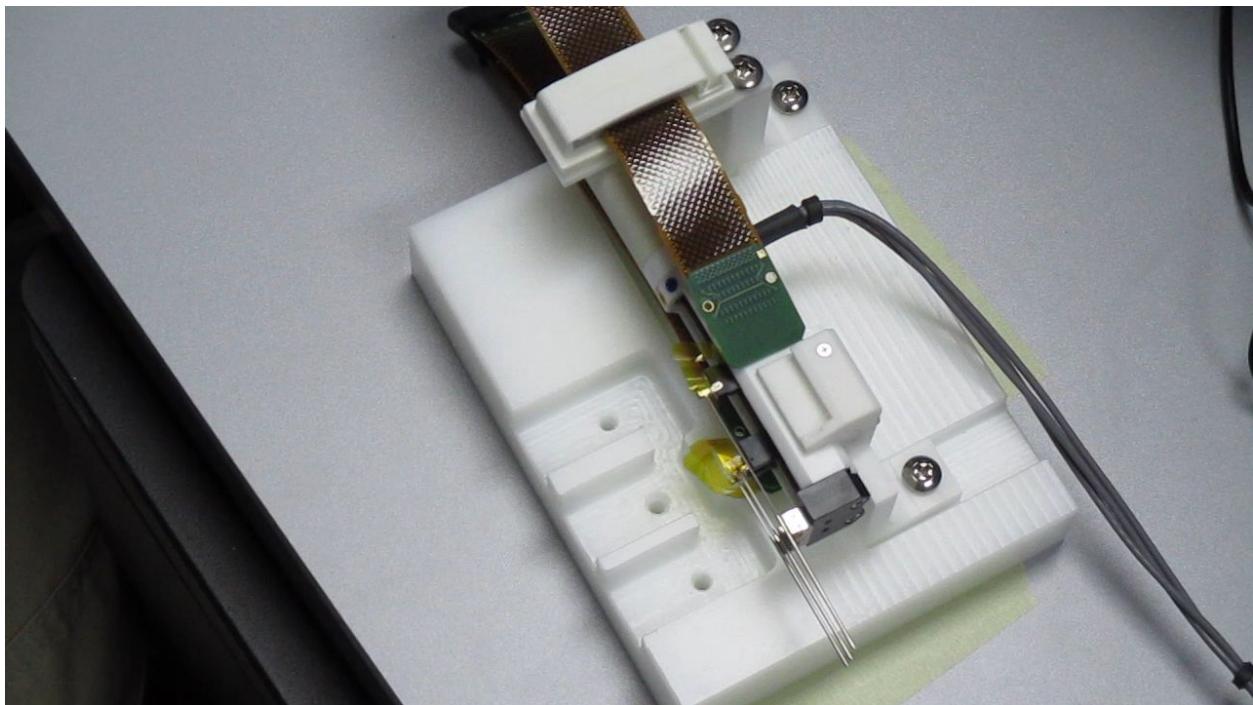


41. Press the cannula jig towards the Triad drive, and remove it in the same manner as previous jigs.

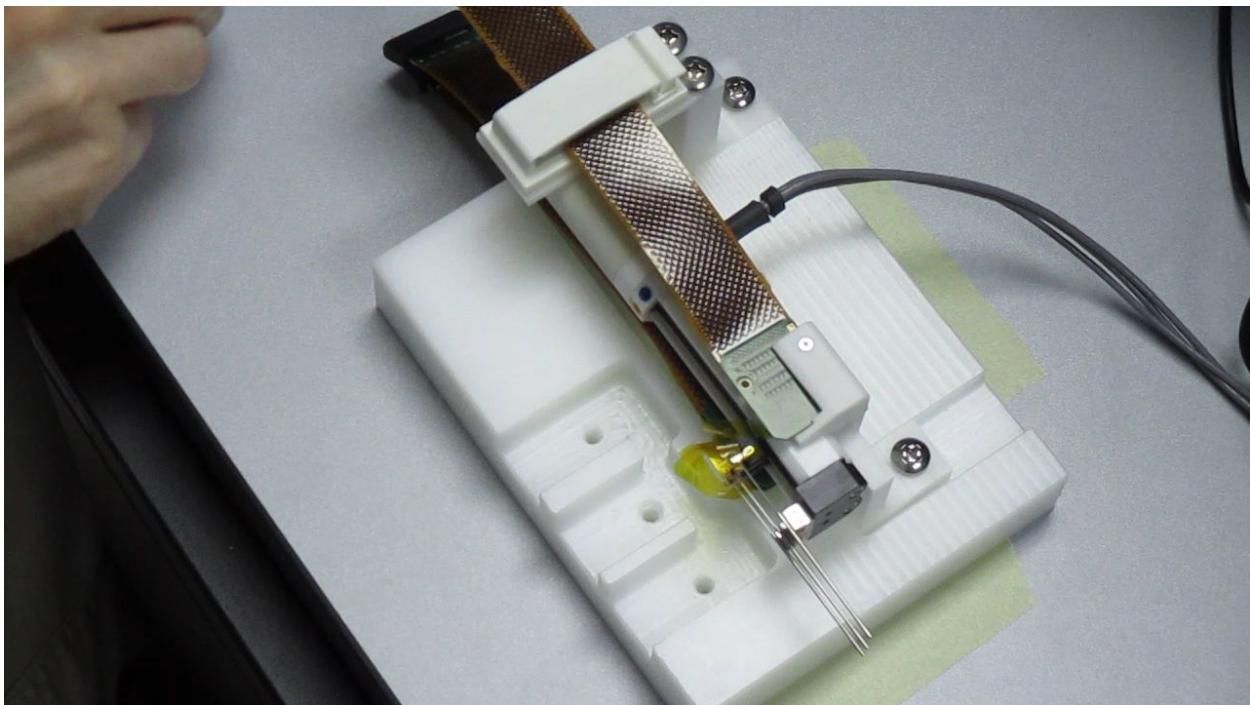




42. Advance the third probe until its tip is visible, feeding the heavy flex cable as needed. Withdraw the third probe 2mm past the point where its tip ceases to be visible.



43. Install the third probe's heavy flex in the cable mount.



44. Un-clip the heavy flex, remove the heavy flex assembly, unscrew the Triad mounting post from the base plate, pick up the Triad drive, and remove the Triad mounting post from the Triad drive. The drive is now loaded.

