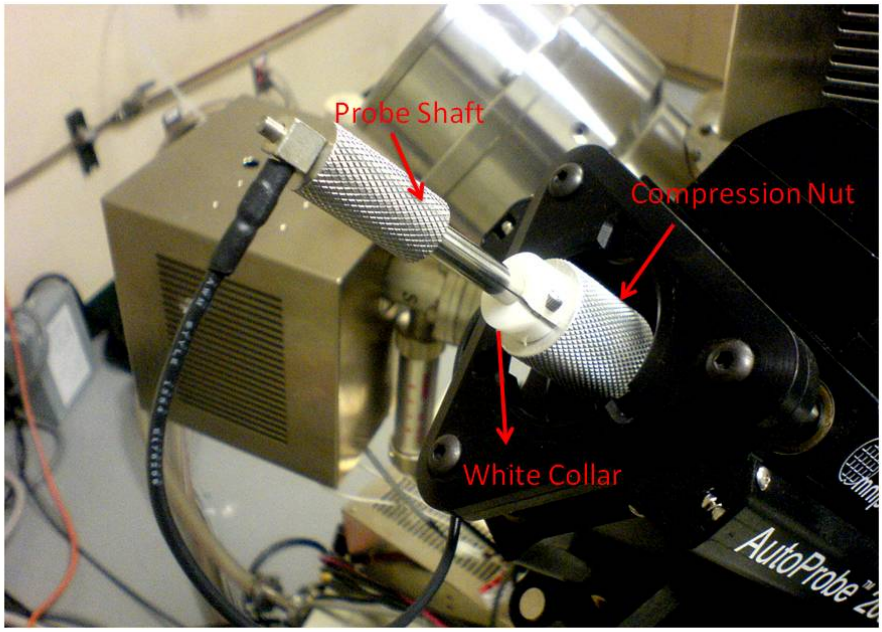
JEOL 4500 Operating Instructions
Omniprobe Tip Exchange

1. Bring the probe to “Park” position.
2. Loose four screws on the main chamber door.
3. Press and hold “Main EVAC” on the front panel to vent the sample chamber.
4. Remove the plastic protective cover of the probe shaft.

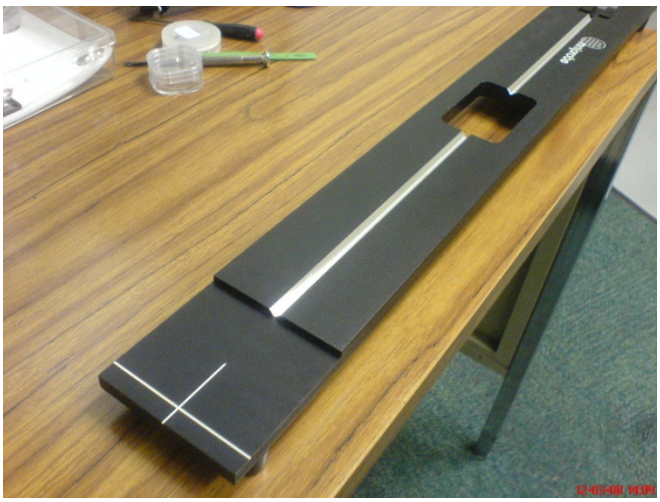


5. Unplug the electrical connection at the end of the probe shaft.
6. Unscrew the compression nut.

7. Slide the probe shaft out far enough to let the shaft guide inserted.

Shaft Guide

8. Use the shaft guide to slide the tip out completely.
9. Place the probe shaft on the tip alignment tool.



10. Adjust the position of the black block so that the tip of the probe is just above the cross mark. (The white collar should touch the end of the block.)

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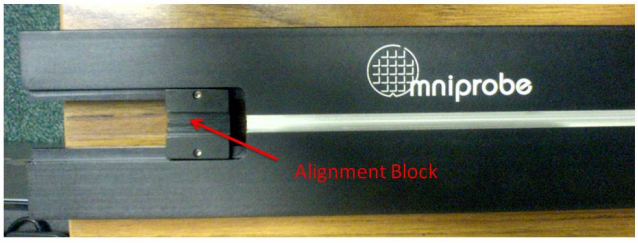

11. Release the set screw which fixes the probe in the shaft.
12. Carefully remove the used tip using tweezers.
13. Insert a new tip into the shaft. Use the cross mark as a reference point so that the tip is fully inserted.
14. Tighten the set screw.
15. Carefully slide the probe shaft back to the sample chamber using the shaft guide. (**Caution**: do not crash the probe tip.)
16. Remove the shaft guide and insert the probe shaft further in.
17. Tighten the compression nut to secure the o-ring.
18. Reconnect the electrical connection cable of the shaft.
19. Press and hold “Main EVAC” button to evacuate the sample chamber.
20. When the pumping is finished, turn on e-beam and ion-beam.
21. Retract the probe.
22. Insert any sample and perform fine-z adjustment and column coincidence alignment.
23. Lower the sample stage so that the tip will not hit anything.
24. Perform homing calibration for X, Y & Z.
25. Insert the probe tip.
26. Perform stage calibration according to the on-screen instruction.
27. If you see “PORT” showing on the screen, click on “port” button. Then this button will switch to “STAGE”.

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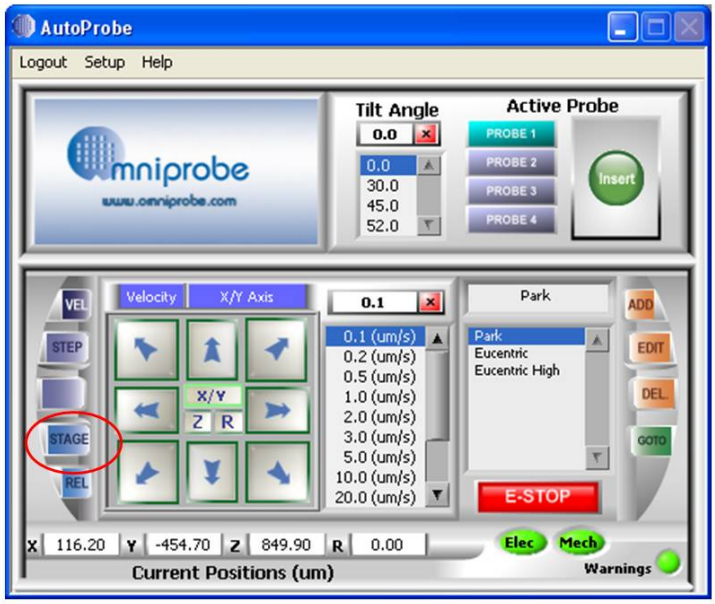

28. To turn on the crosshair in SEM and FIB windows, open column coincidence alignment setting tab.
29. In SEM view, focus and center the probe tip using only X/Y stage adjustment buttons.
30. In FIB view, focus and center the probe tip using Z adjustment buttons. (Click “view” button if you can’t locate the tip in FIB.)
31. Repeat 27 and 28 several times until the tip is centered in both SEM and FIB views.
32. Right click on “Eucentric position” and hit “Edit” to save current position.
33. Move Z up from “Eucentric position” by 300 microns. X and Y coordinates should stay the same. Save this position as “Eucentric high position”.
34. Move Z up from “Eucentric position” by 1000 microns. X and Y coordinates should stay the same. Save this position as “Park” position.