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INSTRUMENTS & SYSTEMS DIVISION
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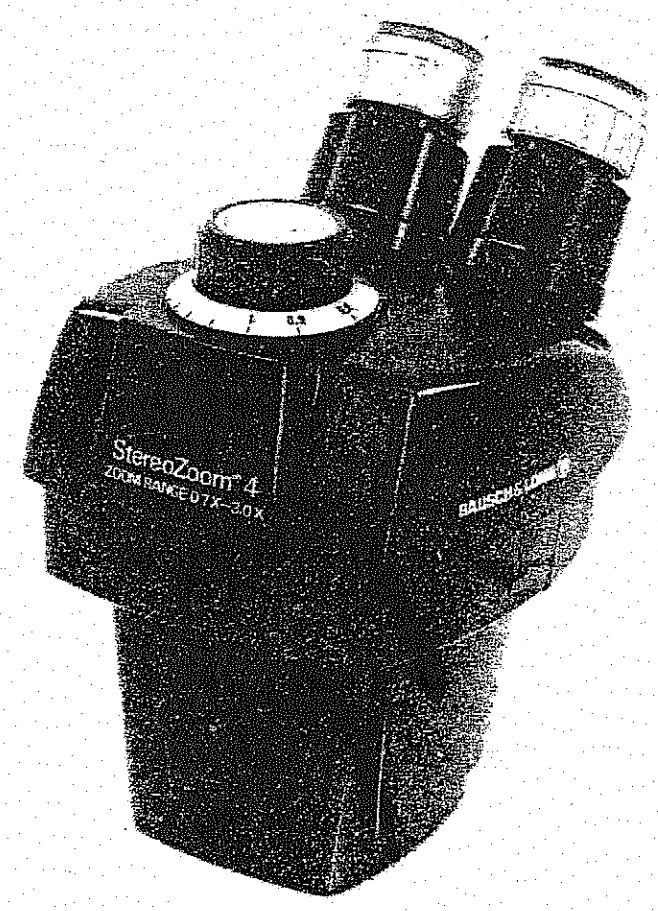
StereoZoom® Pod

OVERHAUL MANUAL



The following is the procedure for a complete overhaul of the StereoZoom® Microscope

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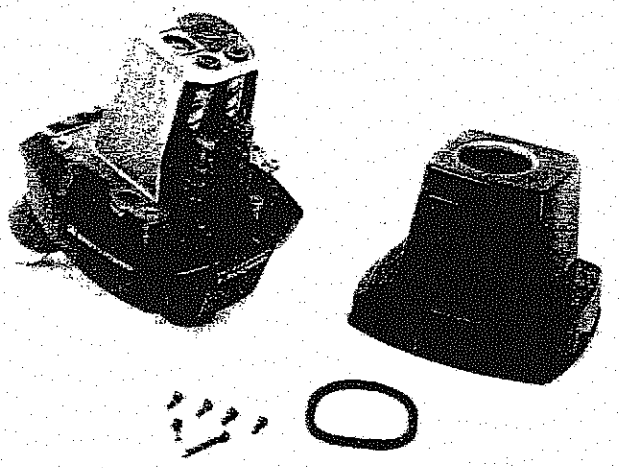
TOOLS NEEDED TO SERVICE STEREOZOOM 31-26-94 MICROSCOPES

1. Resolution Target T43234
2. 15X Eyepiece
3. 20X Eyepiece (31-05-63)
4. Centering Eyepiece (T34138)
5. Crossline Slide (311695-000)
6. Modified Objective Cover
7. Work Screws
8. Darkfield Stop.(315701-000)
9. H-121935 Eyepiece Adapter (old style)
10. H-142974 Eyepiece Adapter (new style)
11. Cap Pin Gage
12. (2) Open End Wrench 11/32 Mod.
13. Modified Eyepiece Adapter
14. Screwdriver (small)
15. Grease Brush
16. Silver Pick
17. Loupe
18. Work Knob for Zoom
19. Magnalube-G
20. 1/16" Allen Wrench
21. Screwdriver (large)
22. Soft Clean Cloth
23. Lens Paper
24. Lens Cleaning Solvent
25. Q-tips
26. C-S Hypo-Tube Cement (watch crystal)
27. Adapter Retainer Wrench (T37136-H)
28. 050" Allen Wrench
29. Tweezers
30. Clyptal
31. Tube Molykote FS-1292 Grease
32. Stage Micrometer (813438-021)

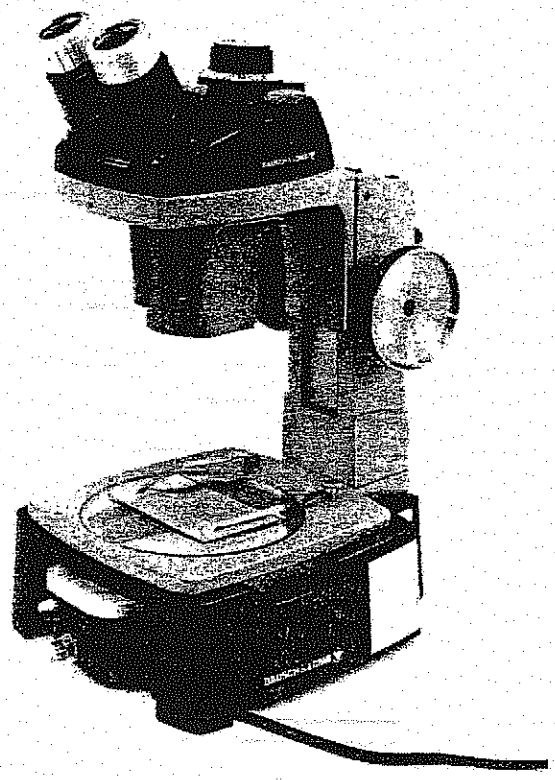


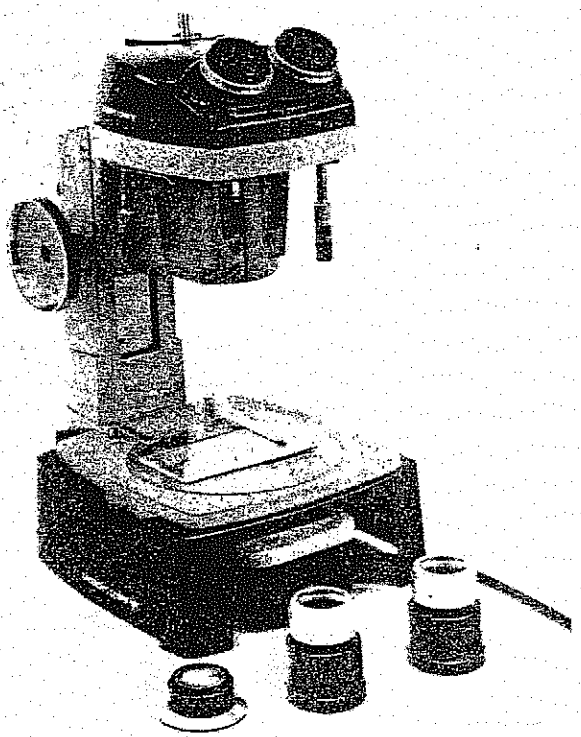
Remove the Objective Cover and Cover Gasket. The Objective Cover is attached with six screws.

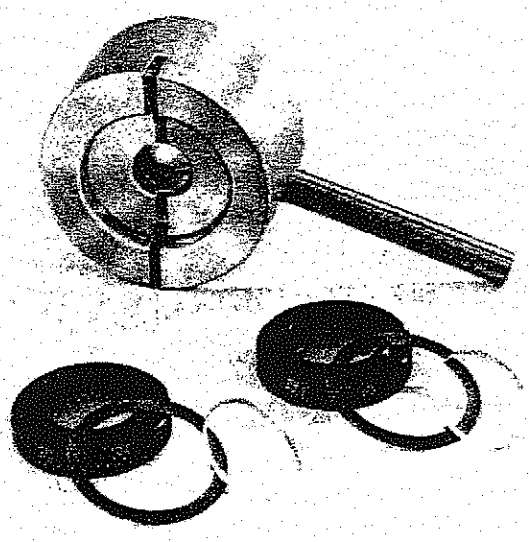
Place the Modified Objective Cover in the work stand. Place the pod inside the Modified Cover and fasten with work screws.

Remove the Eyepiece Adapters - grasp and unscrew from the Dust Seal Cap.

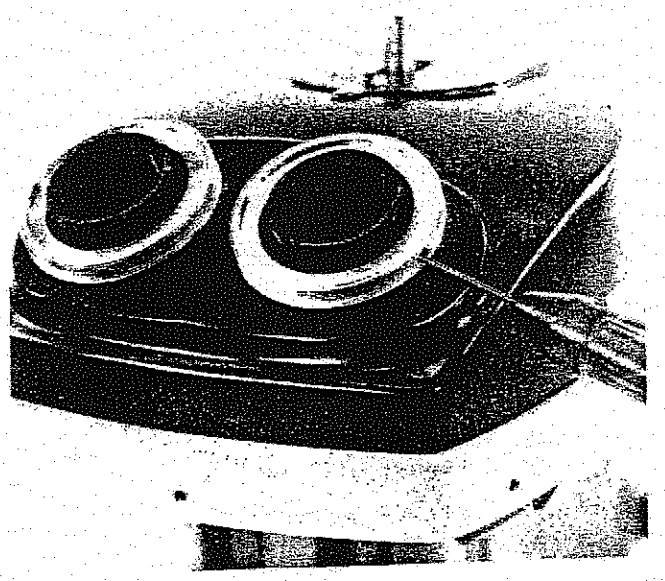
Remove the Magnification Knob Assembly.



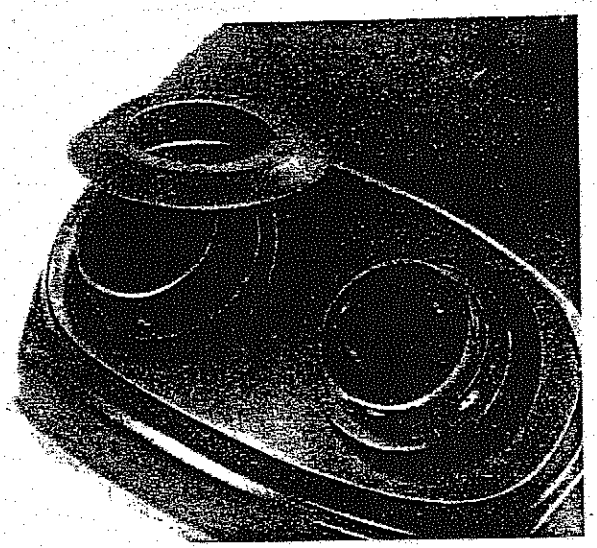




With the Retainer (T37136-H), loosen the adapter and remove. You can now remove the Dust Seal Washer and Dust Cover Lens.

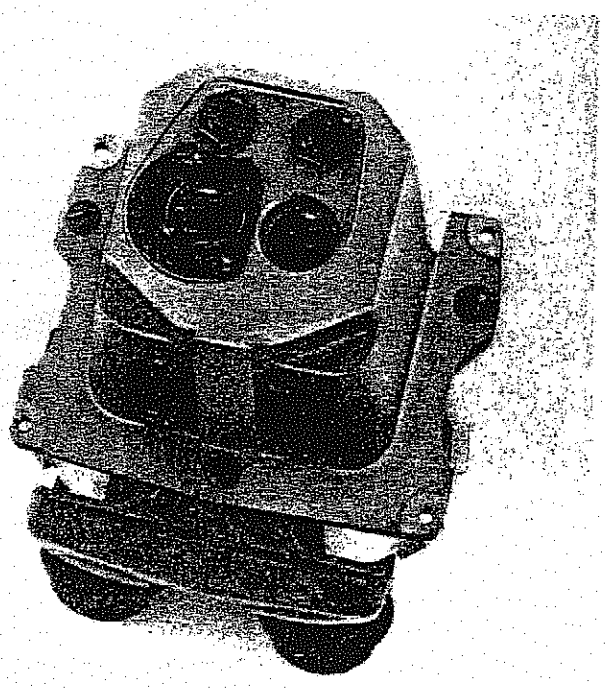


With a .050" Allen Wrench, loosen the longest Allen Set Screw and remove the Dust Seal Cap.

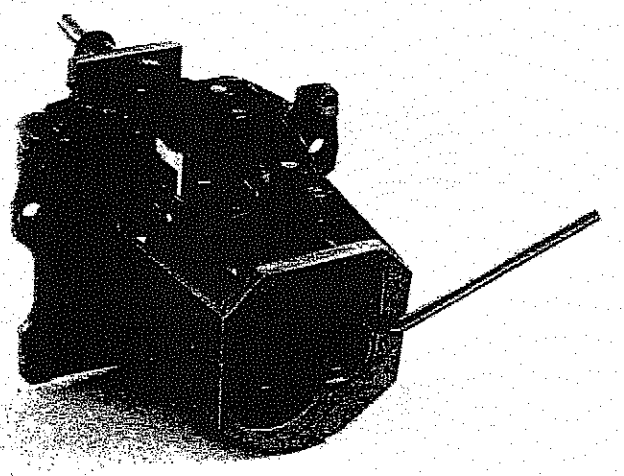


Remove Dust Seal

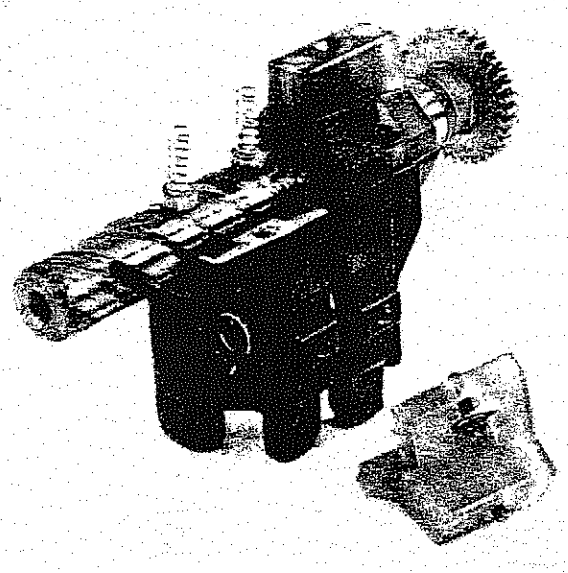
The Mirror Housing will now lift off the pod exposing the Mirror Clusters.



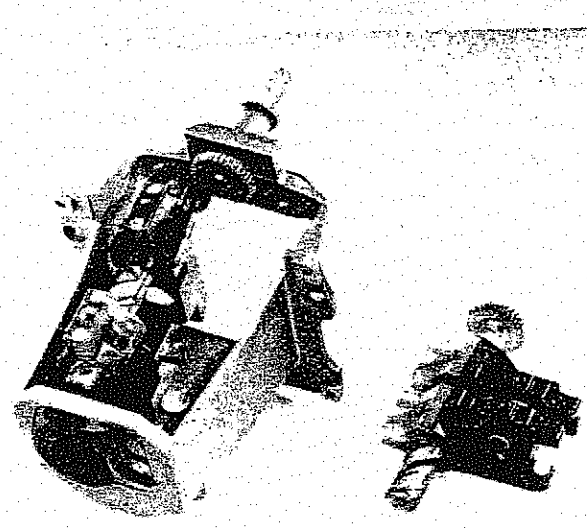
Remove the work screws and lift the pod out of the Modified Objective Cover. Remove the three screws that hold the Eyepiece Mount to the lead screw mount.



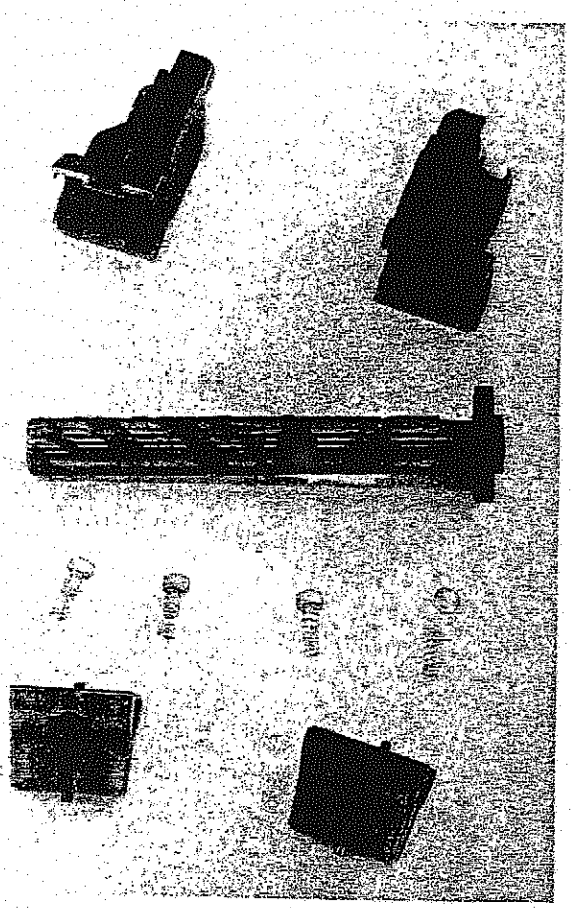
Loosen the Lock Nut and the Allen (1/8") Screw located on the underside of the Lead Screw Mount.



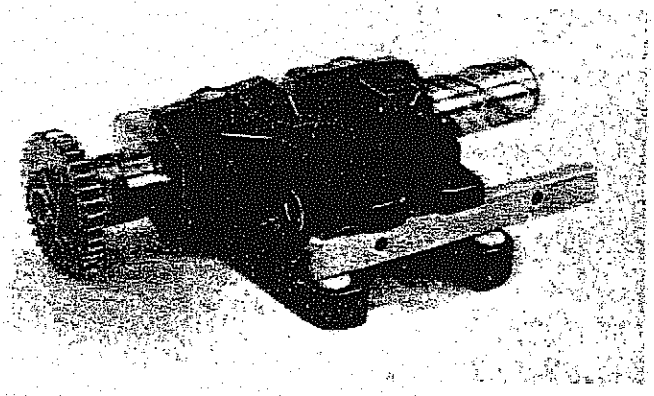
Remove the Lead Screw; the spring and pads that run on the bars will come out; replace them in the cell mounts.



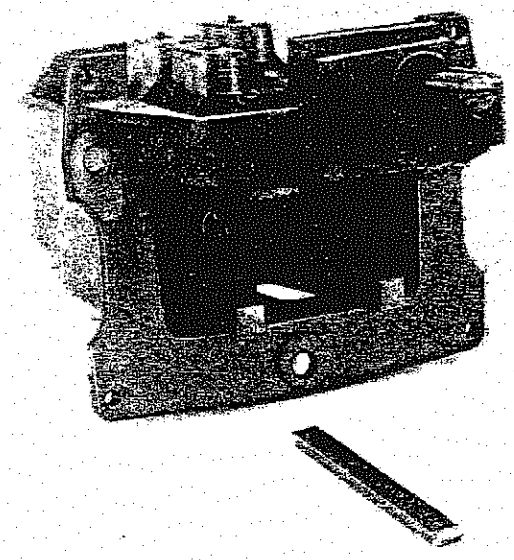
The cover can be removed from the cell mount at this time. It is held on by two screws. There are springs under the covers so hold down the covers when you remove the screws.



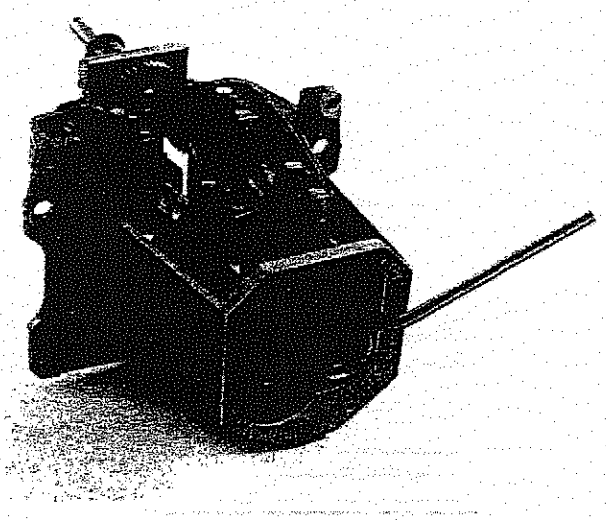
Disassemble the Lead Screw Assembly at this time. Clean all parts including the glass. Grease with Magnalube-G, then re-assemble.



When you are ready to place the Lead Screw Assembly back into the Lead Screw Mount, place the Cap Pin Gage in the cell mount to hold the pads in; oil the bar with a light oil.

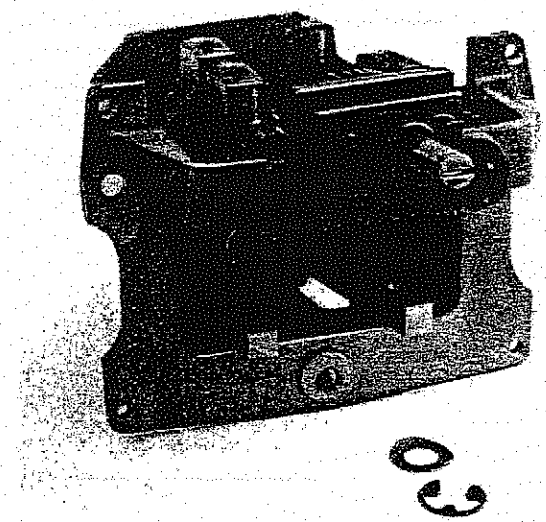


Place the Lead Screw Assembly over the bar so pads will be captured; slide out bar.



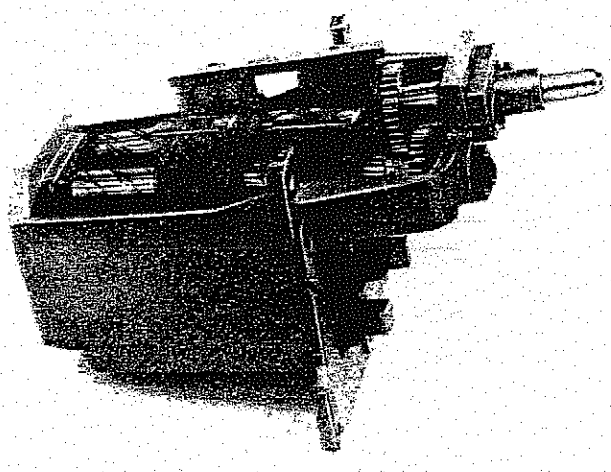
Tighten the Allen Screw located on the underside of the Lead Screw Mount so there is no shake in the lead screw. It will turn freely. Tighten the Lock Nut.

The same procedure will be used to clean and grease the Lead Screw Assembly on the other side.

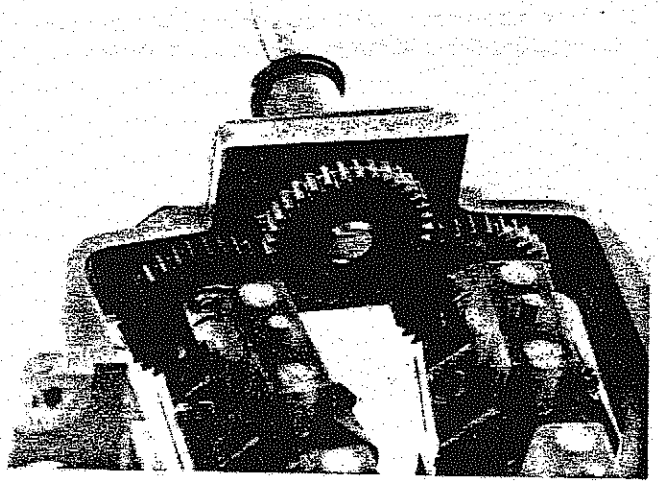


Loosen the two screws that hold the Gear Drive Support in position.

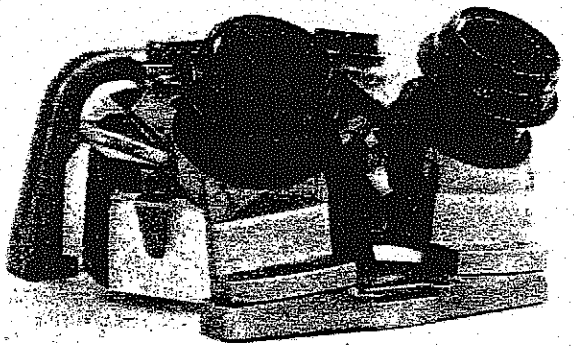
Remove the Tru Arc Retainer and spring washer from Drive Gear Shaft.



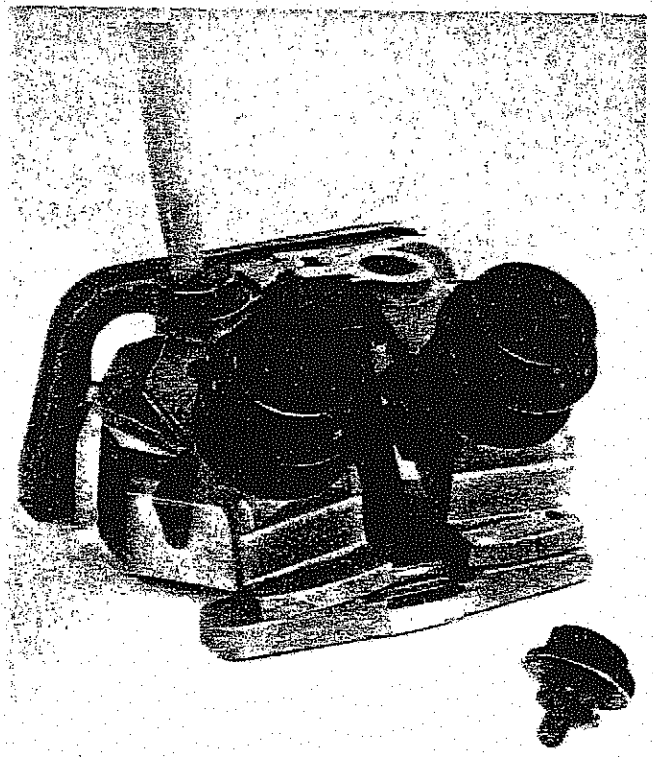
Slide the Drive Gear out of the way and place the Cap Pin Gage over pins on cover. Do the same to both sides. This gives you a starting point for parfocaling the pod.



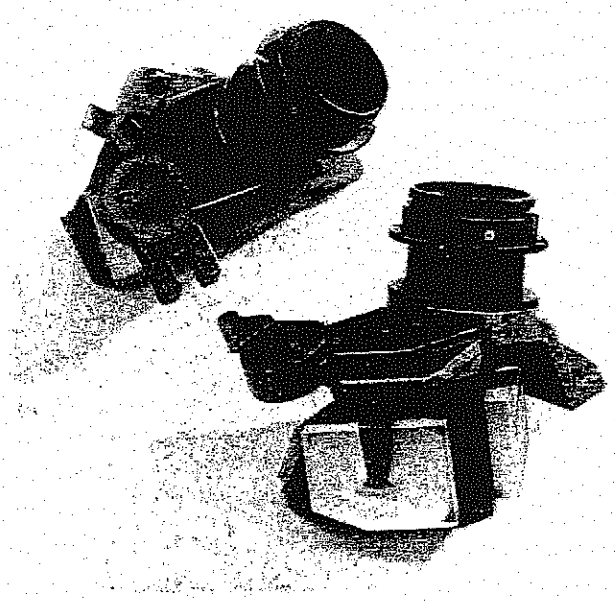
Slide the Drive Gear back into position and adjust the gears by moving the gear support so the gear teeth mesh. There should be the same movement between the teeth of all the gears; one side should not move before the other.



Check the Eyepiece Mount Support and Eyepiece Mount to make certain that there is no gap between the two bearing surfaces; if there is, you should change the Eyepiece Mount.

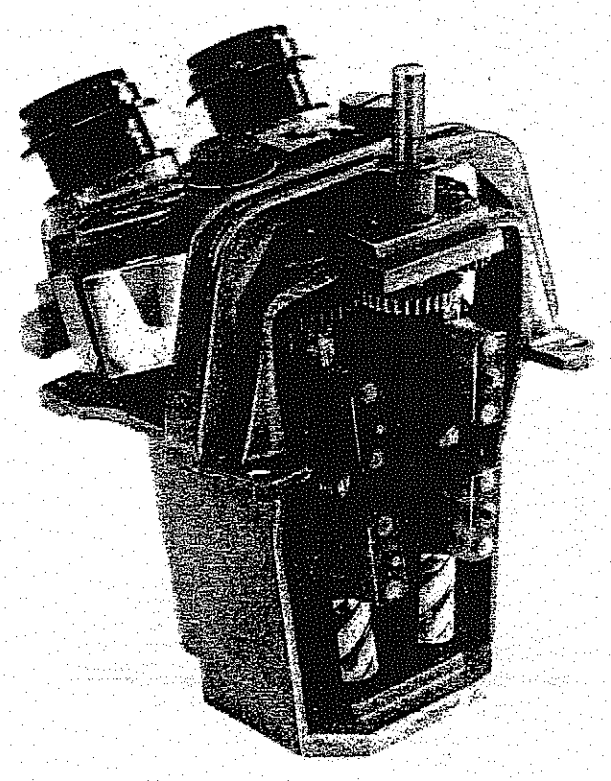


Remove the two large screws in order to remove the Eyepiece Mount from the Eyepiece Mount Support.



The Mirror Mount is held to the Eyepiece Mount by three screws. The screws are cemented in position. Use a solvent to loosen the cement.

Check the mirror for looseness and clean at this point.

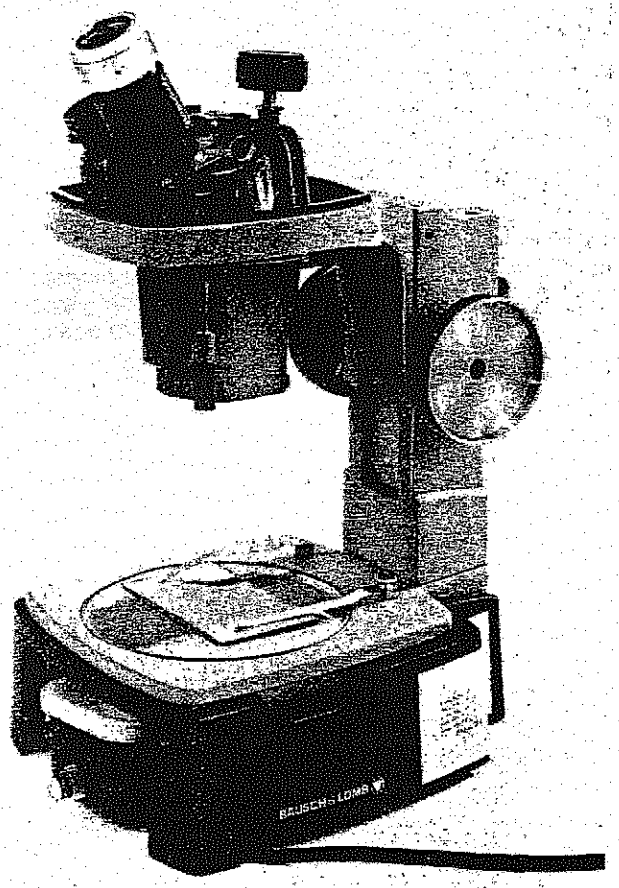


Replace parts as needed.

Re-assemble the Eyepiece Mount to the support. Grease all the bearing surfaces with Magnalube-G.

Place the Mirror Mount Assembly back on the pod.

Screw the work tube on the right eyepiece tube. Place the pod in work stand with the resolution target on the stage.



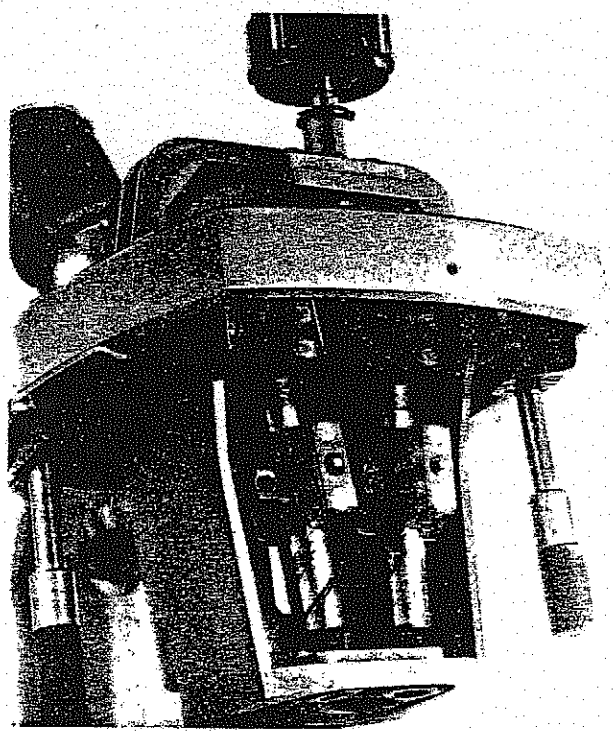
RESOLUTION

Place the 20X Eyepiece in work tube.

The horizontal and vertical resolutions should be the following:

3X Magnification 150 lines/mm; 0.7X Magnification 60 lines/mm

Place the work tube and the eyepiece on the left side and check it. It should resolve the same.



The E.F. Lens controls high power. Rotate the lens for best resolution.

The AB Lens controls low power. Rotate the lens for best resolution.

If low or high power is bad, the CD Lens may be defective. Remove the EF Lens, rotate CD. Follow the same procedure for the other side.

*At low check center only.

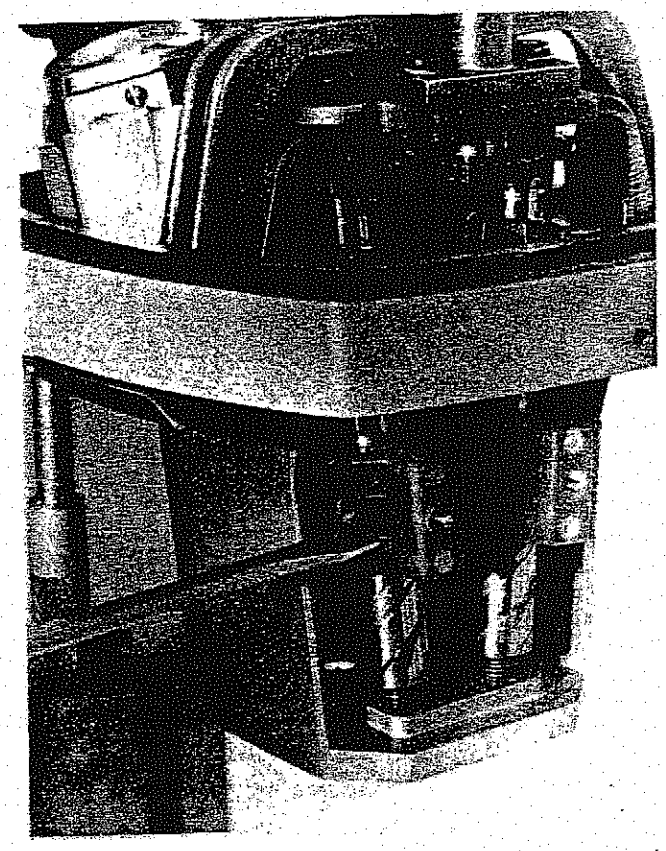
**This refers to old style only. Old style lenses are held in mounts with retainers.

AB LENS
CD LENS
EF LENS

New style lenses are cemented to mounts and cannot be rotated. The lens and mounts must be replaced as a set. A set of lenses are matched for resolution and centered during assembly.

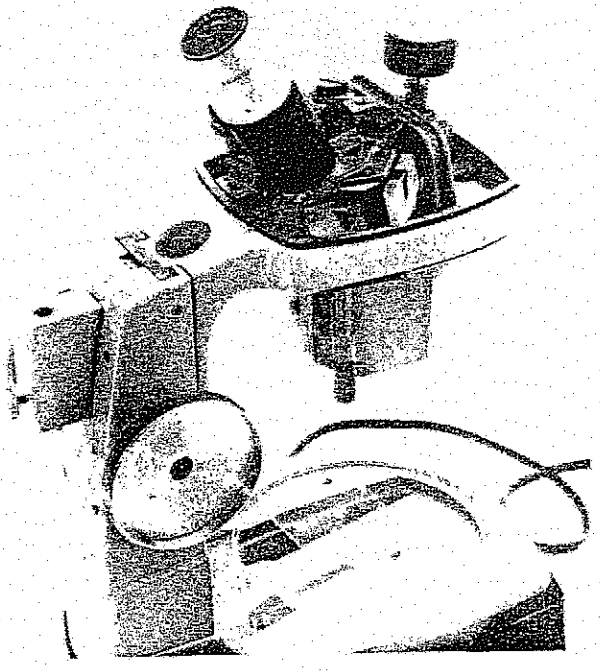
TO FOCUS:

Place the 15X Eyepiece and work tube on the right side. Focus on the resolution target at 3X by adjusting the stand zoom to low; the pod should stay in focus. Move the upper cap to adjust low power.



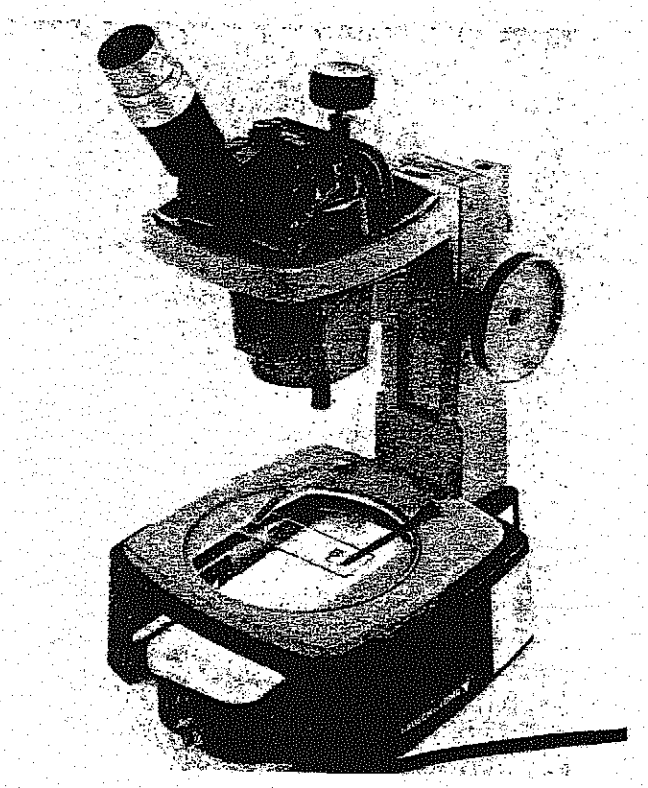
If you need to move the cap, loosen the two hold down screws and place a screwdriver between the screw and the cap and twist until you move the cap.

Place the 15X Eyepiece and work tube on the left side (do not adjust the coarse focus knob). If high power is not in focus, move the lower cap to bring high power into focus. Zoom to low and bring into focus by adjusting the upper cap.



CENTERING:

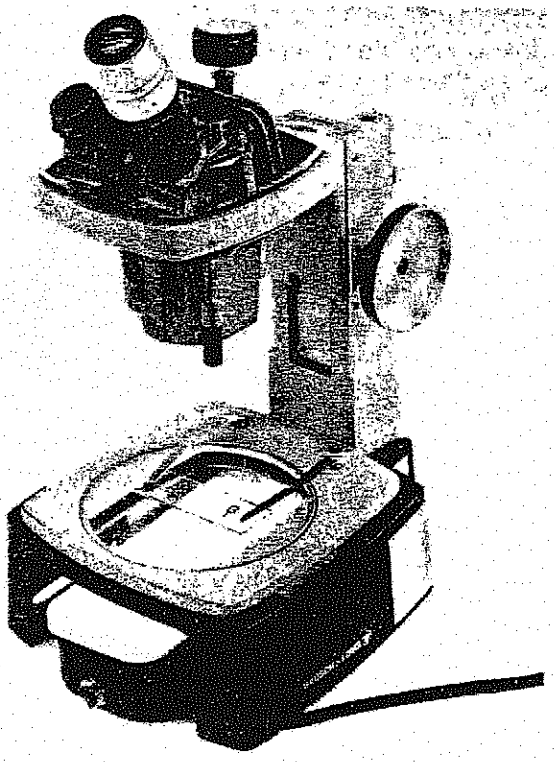
Place the Centering Eyepiece and work tube on left side. Place the crossline slide on the stage of the workstand. Focus at high. Run to low. Adjust the slide so image runs in a straight line from high to low.



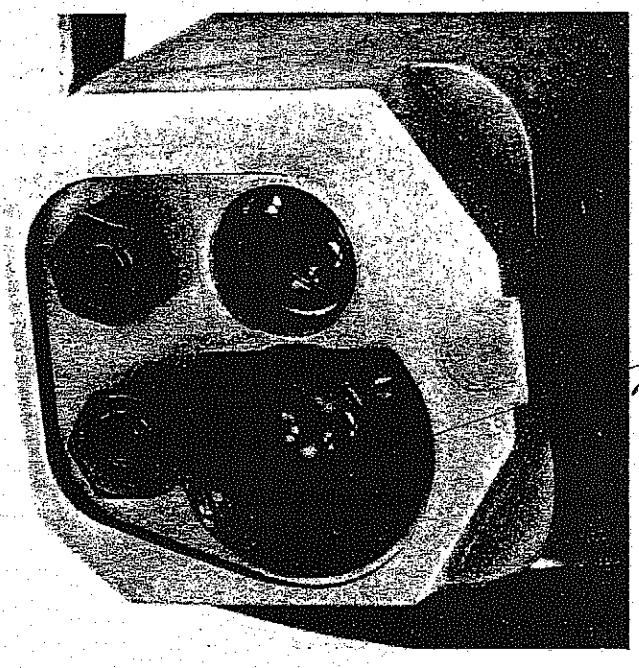
Once you get the image to run in a straight line you can center the image by adjusting the mirror. Adjust to within ½mm of center. If this is done you can center at final adjustment.

Place the Centering Eyepiece and work tube on the right side. Repeat the above procedure, except do not adjust the slide or coarse adjustment.

If the image does not run in straight line from high to low, adjust the E.F. Assembly.



Loosen two screws that hold the E.F. Assembly and cement if needed. By moving the E.F. Assembly you can straighten the zoom. Then adjust the mirror to bring the image to within ½mm of center.

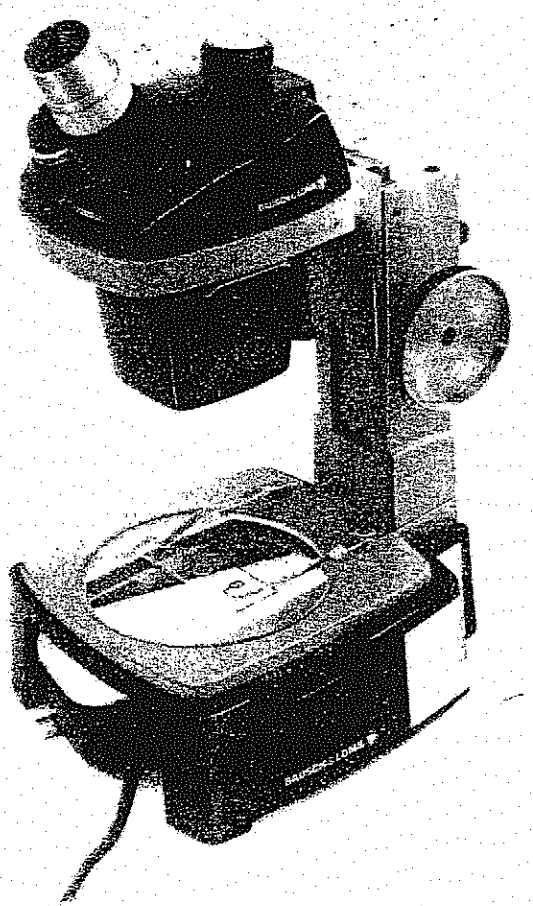


Check to see that when you open and close the I.P.D. and run the zoom from high to low that the Mirror and Cam Gear do not touch at any point.

Assemble the cover and Dust Seal. Place the Dust Seal Caps over the body tube with long screws in the slot of body tube. Replace the Dust Seal Washer and Dust Cover Lens.

Just start the Dust Cover Retainer into adapter. Screw the adapter on to the body tube.

Place the Modified Eyepiece Adapter on the Dust Seal Cap and the Crossline Slide on the stage of the workstand. Place the Centering Eyepiece in the adapter. Straighten the zoom as before.



Finally center the image into the tolerance box of the eyepiece by adjusting the three screws in the Dust Seal Cap. Tighten down the Dust Seal and Dust Cover Retainer.

Repeat the procedure for the other side.

Remove the Modified Eyepiece Adapter and replace with customer's unit. Place the resolution target on the stage. Focus at high zoom to low and set the collar on the left side. Leave at low and set the collar on the right side. Zoom to high, - it should be in focus. If not, remove the bottom cover and adjust.

MAGNIFICATION:

With the Centering Eyepiece in the right side and the Stage Micrometer (813438-021) on the stage; focus on high, run to low. Line up ⚲ on target with ⚲ on the Centering Eyepiece. Check magnification, - it should be from 14 to 14.7 ± 2 divisions.