



Cornerstones
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Library Telescope Modification Tips



Ron Thompson

Slide 2: (add) Save round cardboard to use as drill surface for rear cell cover, OTA cover and eyepiece cap.

Slide 8: (changed) Use Loctite 425 on the barrel and eyecup threads; Loctite contact gel on the rubber eyecup, 5 spots

Slide 9: (changed) Use Loctite 425 on eyepiece ring. 425 is for plastic to metal surfaces

USE GLUE SPARINGLY

Preparing Telescope

Unpack Telescope

Remove Telescope, with bag, from foam.. Return foam and bag to box.

Plastic bag will be reused to transport, with foam, in original shipping box.

Save the Round Cardboard for base when drilling rear cell, front cover and eyepiece cap.



The bag keeps the foam from sticking to the base. Nasty stuff to remove.
The round cardboard can be used to hold cell screws and as a drilling surface for three cell holes, OTA cap and EP cap.

Preparing Telescope

Lay Telescope on its' side and glue rubber feet to base if needed

Tighten Base, if necessary, to allow smooth rotation

If grinding, separate base and re-seat the lifted staple (s)



Make sure feet are well attached. We've lost some in the past when they were just inserted and not glued in.

Occasionally, a base needs to be separated and the bushing staples need to be driven deeper, to keep from rubbing/scratching the base. You'll know when to do this.

Preparing Telescope

Open clam shell, remove Optical Tube and remove paper. Replace Optical Tube with opening facing Hand-Hold

Loosen two Accessory Bar screws

Lift to remove Accessory Bar and tighten screws



Accessory bars make great tool hangers in the workshop.

Rear Cell

Unscrew Three Screws Holding Cell

Carefully Remove Cell With Mirror



Use the screwdriver to poke three holes in the “round” cardboard for the three screws.

If you’re modifying more than one, use the “round” from each scope.

Rear Cell (Mirror)

Remove three screws to free rear cell. Remove Cell from OTA. Remove adjusting hardware used for collimating. Place mirror assembly face down on a clean rag...screws facing up. (Use existing screws) Ensure existing screws are tight on the cell. (remove springs, turn snugly, CCW, with needle-nose pliers, replace springs)

Use new hardware (3 washers and 3 locknuts, 5mm threads). Align screws in smaller holes, (drill out to 15/64") attach washer and locknuts onto protruding threads and tighten flush with locknuts (ensure free movement)

Reinstall cell. Set OTA aside for Collimating

IMAGES FOLLOW...When turning the screws CCW, remove the springs and grasp the screw as close to the cover as possible...to avoid crimping the threads where the locknuts screw on.

Rear Cell Assembly



1. Place mirror side down screws up



2. Drill out small holes to 15/64



3. Install washers and locknuts



4. Reinstall mirror cell

Remove all six pieces of hardware on rear of cell and remove the black round paper from rear of mirror.

Drill existing small holes to 15/64" holes and make sure they align with the three screws for full range of motion, up and down on the springs without side pressure. Check tightness of screws, (remove springs, (temporarily), turn screws with needle-nose pliers, CCW, for tightness).

(Use the round packing cardboard as a base for holding cell screws and for drilling cell cover, tube cover and eyepiece cap.)

Press down on rear cover to attach washers and screws...hand tighten.

Use socket wrench to tighten locknuts until screw is flush with top of nut and re-insert cell into rear of the tube. Set OTA aside for collimating.

Zoom Eyepiece (EP)

Unscrew eyecup and apply a spot of Loctite 425 on threads and contact gel on rubber eyecup

EP is unscrewed from the 1.25" barrel. Put a drop of Loctite 425 on threads and reassemble

Use glue sparingly on EP; set aside to cure



USE GLUE SPARINGLY...VERY IMPORTANT

Give time to dry. Rotate the Zoom eyepiece from end to end to ensure the glue did not lock the main body.

Contact gel on base of rubber eyecup in five spots to hold in place. (apply just a small drop of the super glue gel)

Focuser

Rotate focuser outward and unscrew Eyepiece Ring from Focuser

Apply Loctite 425 to threads and screw Ring back onto focuser tube

Remove thumbscrews on Eyepiece Ring and replace with new Hex Head screws



Hex head screws



After removing ring from focuser, apply 425 Loctite to the ring threads sparingly.

Leave focuser extended. Rethread the focus ring and let dry before inserting hex-head screws and using collimator.

Focuser and Eyepiece

Mount the Zoom Eyepiece in the focuser and tighten the two hex head screws

Do not over-tighten.

Rotate Zoom Eyepiece, stop to stop and check for ease of movement



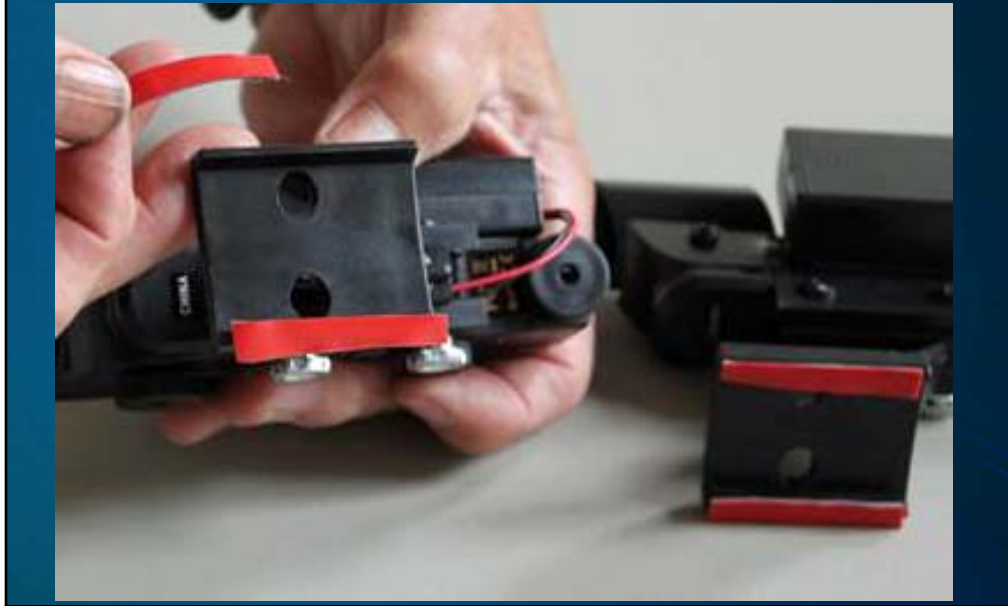
Zoom eyepiece may be an Orion, 7mm to 21mm...or...a Celestron, 8mm to 24mm. (2018)

EZ Finder II (Red Dot LED)



The mount in this image is slightly different...actual mount has open rails and no back "tab" hanging down, and two holes to mount on the screws on top of the Optical Tube.

EZ Finder II



Cut strips of heavy duty, double sided tape, (3M, black, is good and I just cut the width of the spool), and place them on the mount “rails”, centered with the screw holes. (they don’t need to go “end-to-end”)

Check the Alt/AZ adjustment screws and center them through their range of motion. (you can tell)

EZ Finder II

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Mounting and Alignment of EZ Finder. (1) Center a distant object in the EP and Zoom-in to 8mm, maintain object in center. (2) Remove the red paper from the tape on the rails. (3) Switch on the Red LED, using the on/off switch.

(4) With object still centered, place the EZ Finder mount, over the screws on the OTA and onto the tube while keeping the red dot as close to the centered object as possible, centered vertically, and press it down onto the tube.

(5) Thread the holding nuts onto the screws and tighten them on the mount, to the tube. Keep alignment as close as possible, by checking alignment as you tighten the nuts onto the base and holding the finder in position. (It helps to have three hands :<))

(6) Check for centered object in EP and adjust Alt/AZ controls to “place” red dot on object that is centered in the EP. (should be minimal)

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Camera Bag and Accessories





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