he(Adam Block) Harris Telescope

Installation Procedure

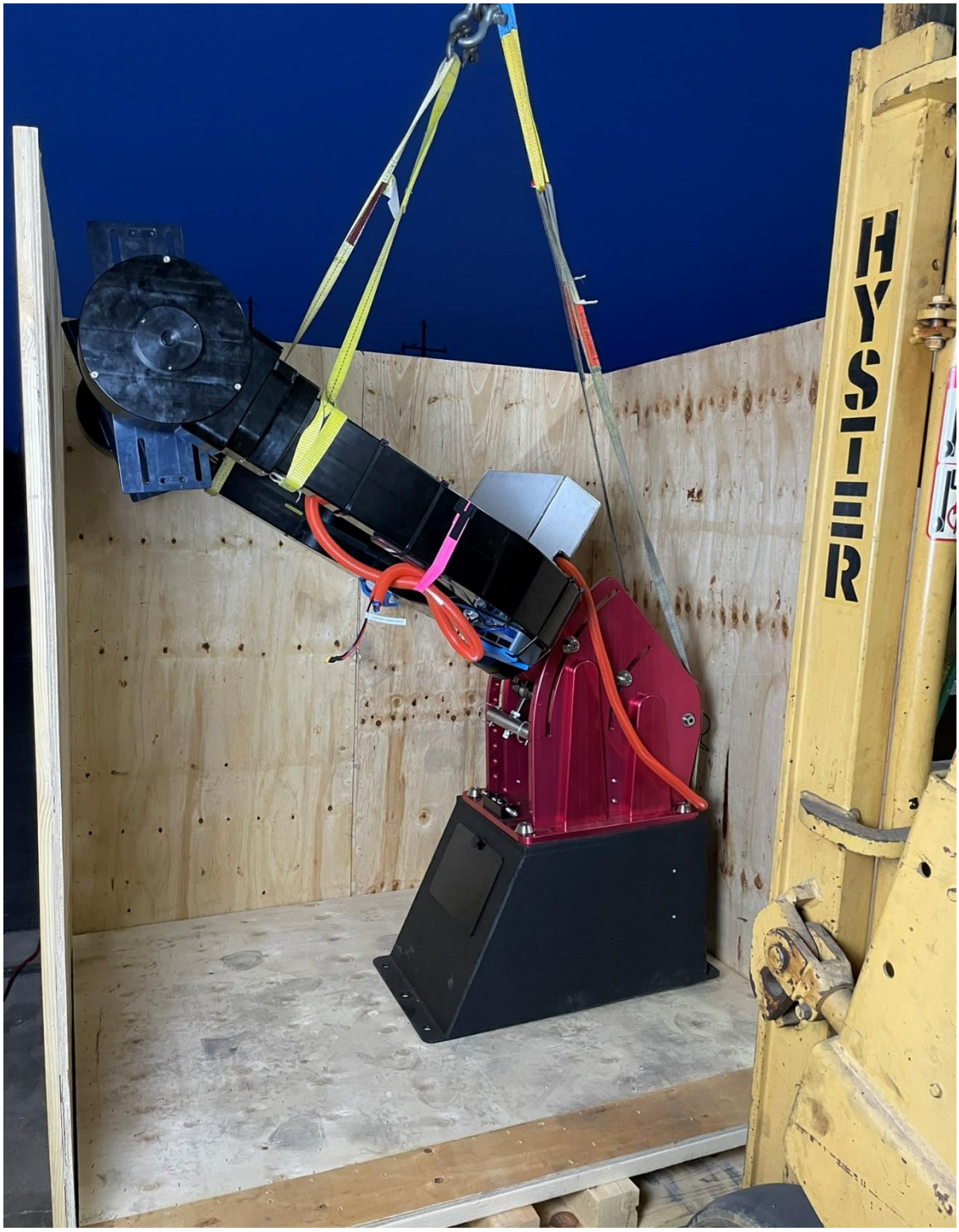
(General Note: Standard Hex Keys are in Box #6 other installation items in these instructions are in Box #1. Box #9 has counterweights. Box #10 has a refractor. These are the only small boxes you need to open. Some steps you can learn more from videos... use this QR code--→)

Step 1

Open the large crate. Carefully remove the boxes and bins.

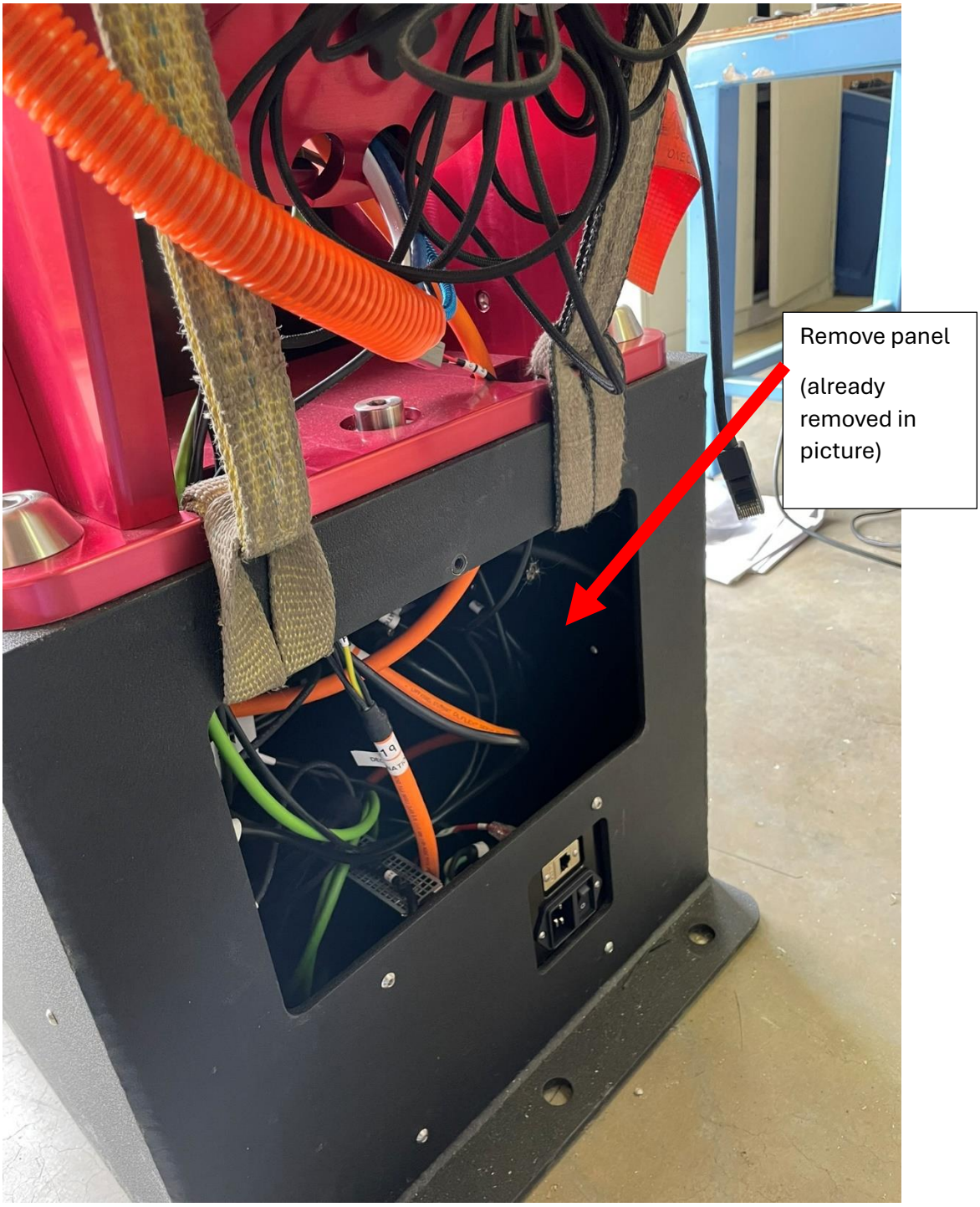
STEP 2a (Fork Lift Points)

Secure straps at lift points. !! T I P H A Z A R D !! Constrain mount before unbolting from crate.



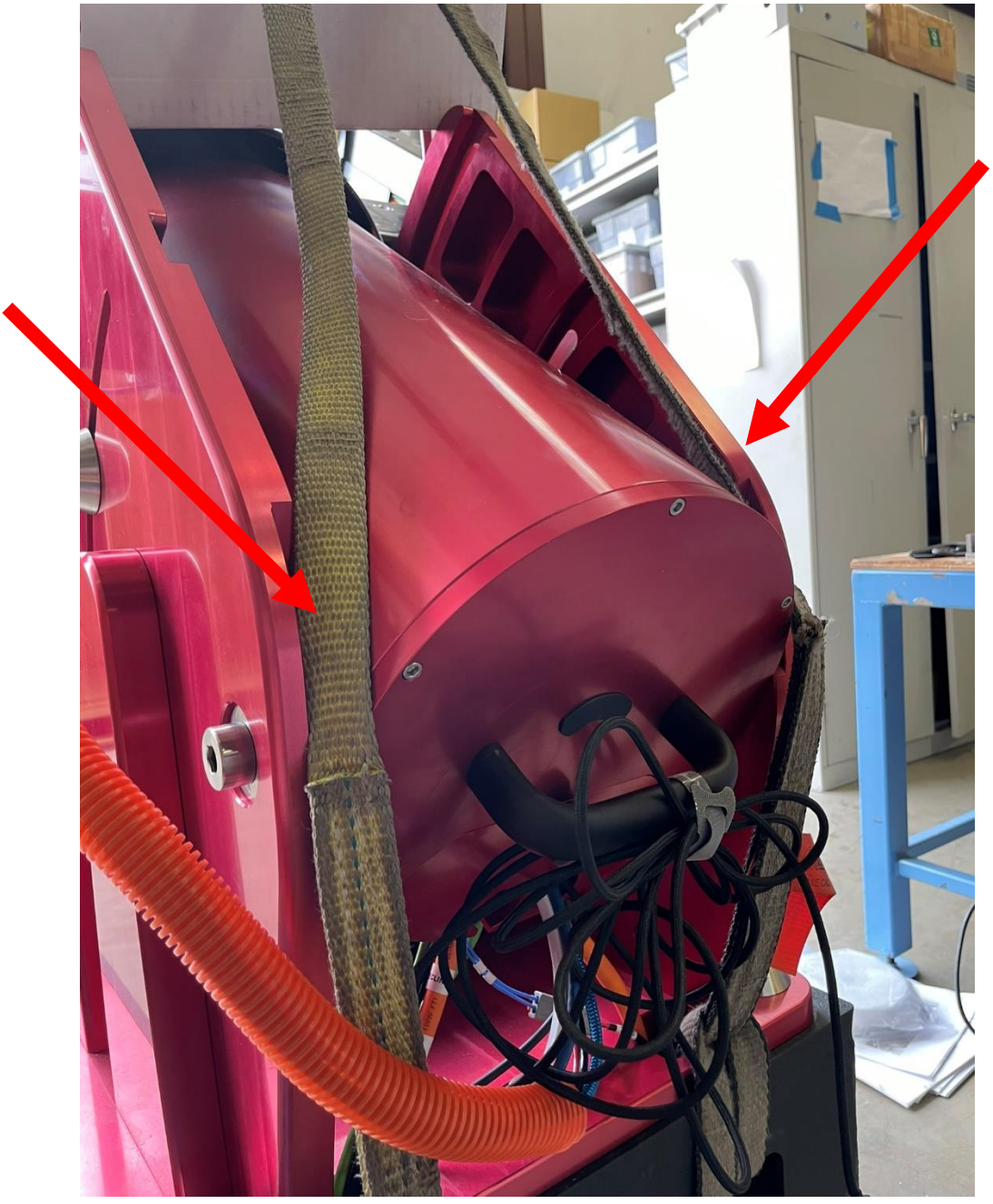
STEP 2b (Mount Lift Points)

Mount Lift Points are secured at cable cutouts at the top of the pedestal. Protect cables at all times.



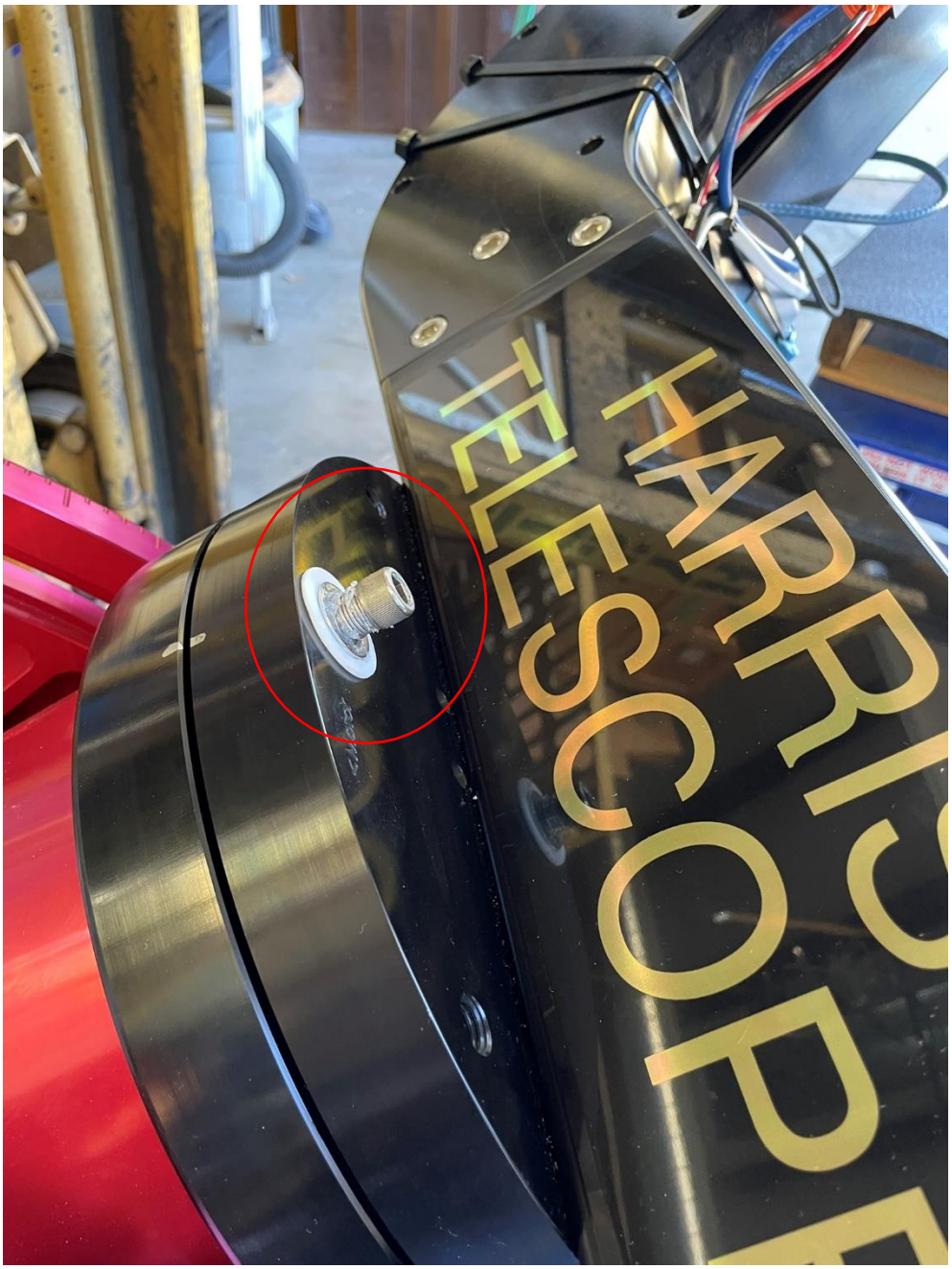
STEP 2c (Mount Lift Points)

Straps are channeled around mount drive cylinder exactly as pictured. Protect cables at all times.



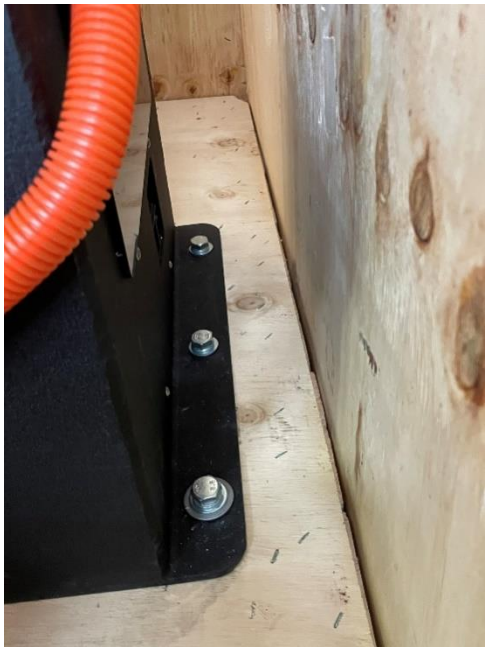
Step 2d

Verify RA locking bolt is in place.



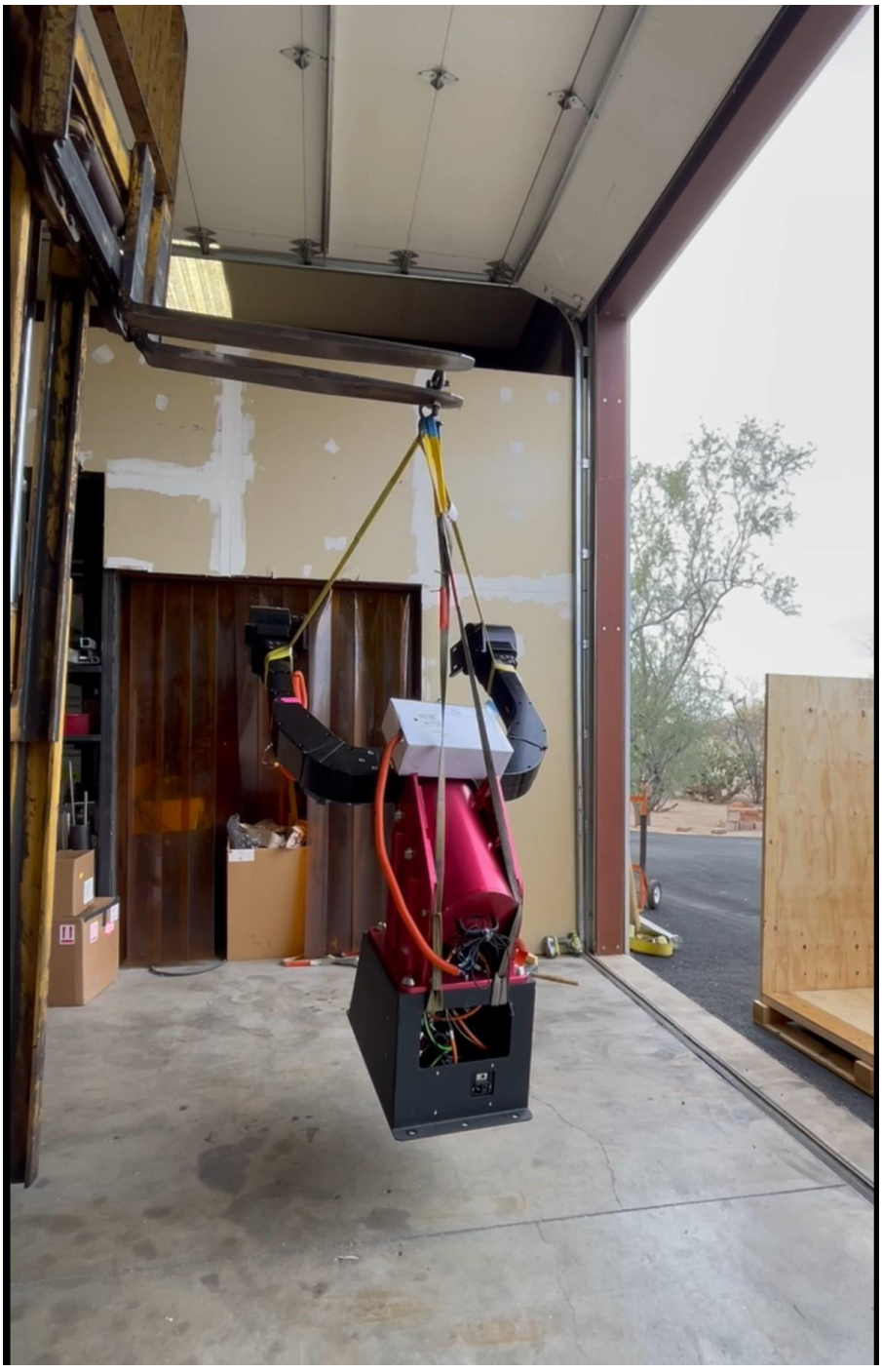
STEP 3 Remove Crate Bolts

Remove six bolts using a 14mm socket. Begin with the 3 bolts below the fork arms and then the back three bolts. Do not use these for the permanent installation. There is a separate PEDESTAL BOLT KIT that is included in the crate for the permanent installation.



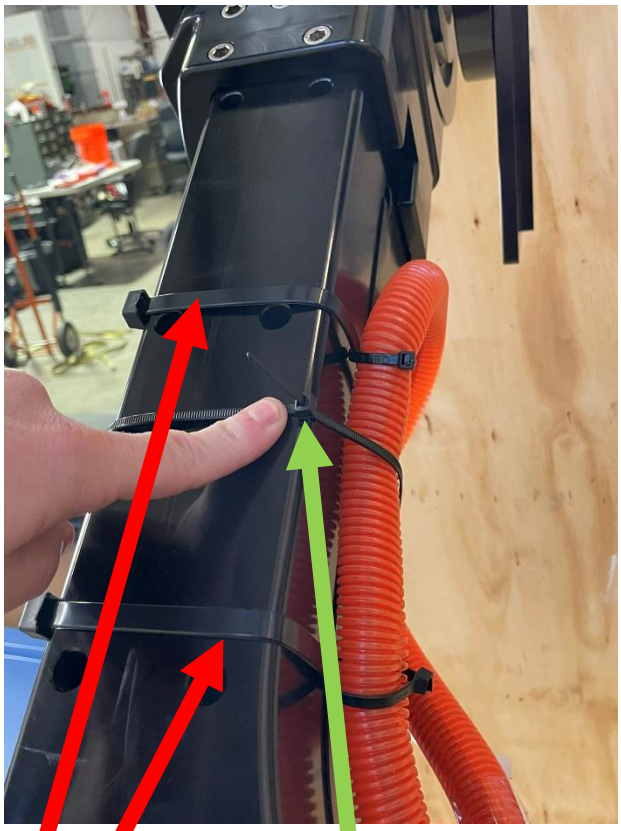
STEP 4

Carefully lift mount and position at its final destination. Mark hole pattern. Lift mount again and install expansion bolts into concrete using Bolt Kit hardware to finally install mount pedestal on pier. Refer to the instructions. Use the included drill bit and clear the holes of debris before installing bolts.



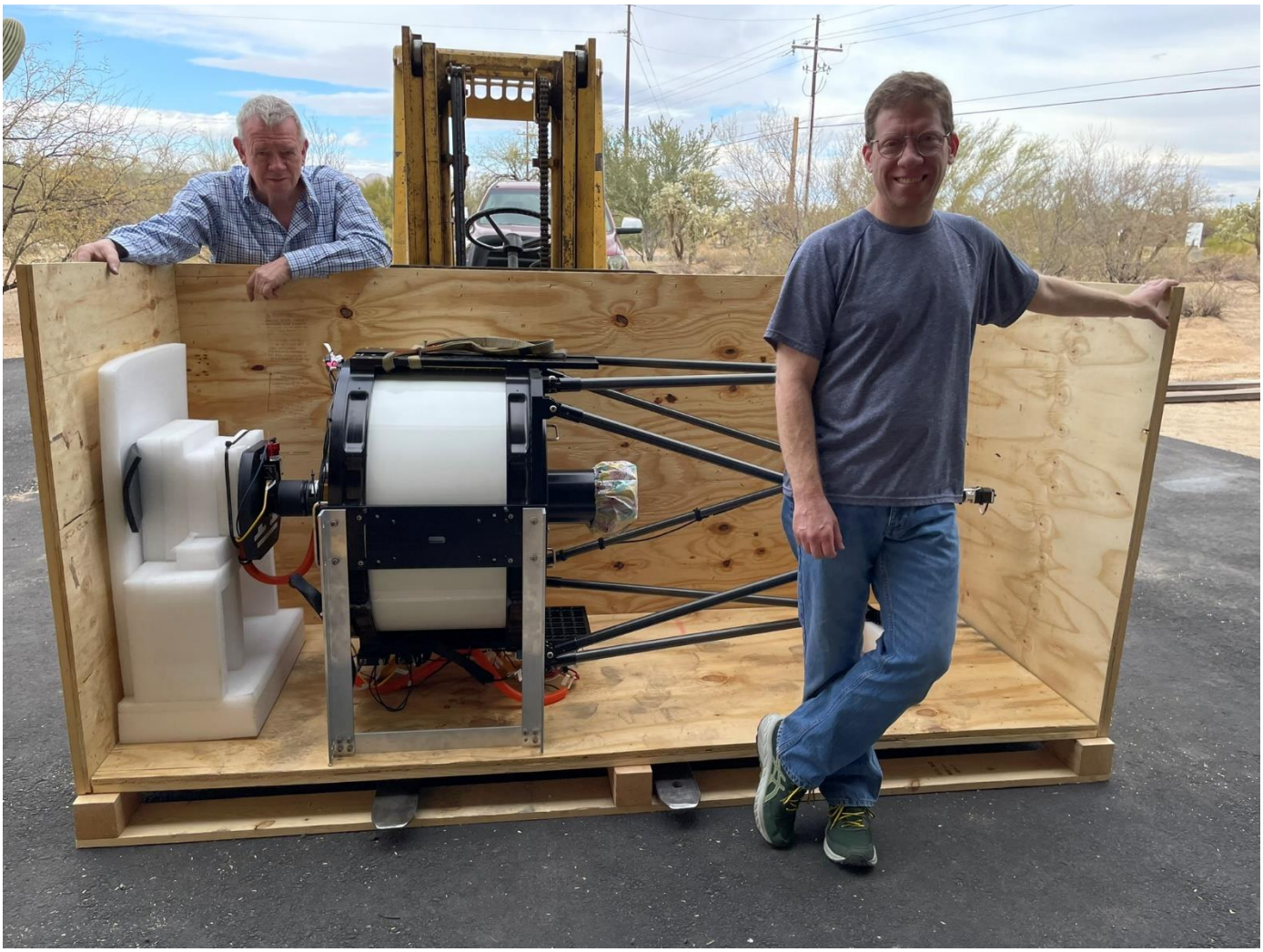
STEP 5

Cut shipping zip ties. One is on the DRIVE rail/tine the other is on the support tine.



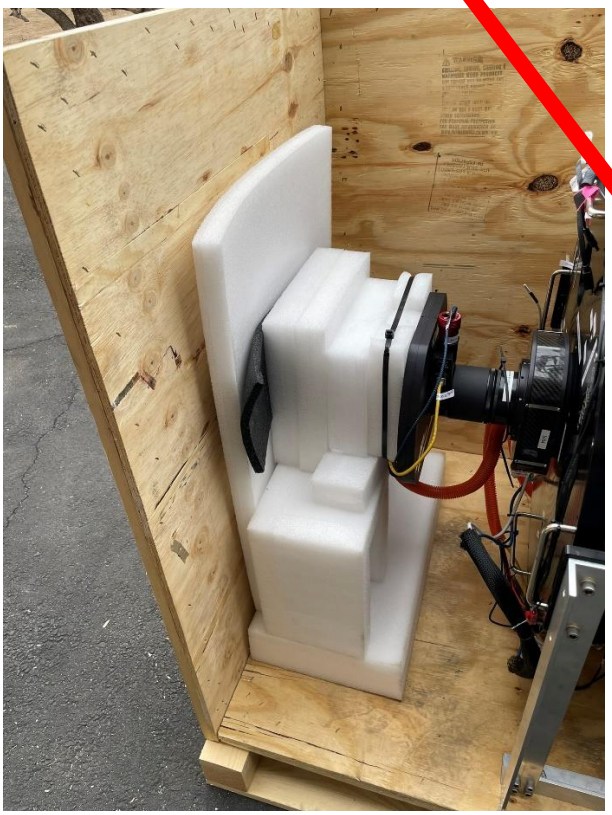
STEP 6

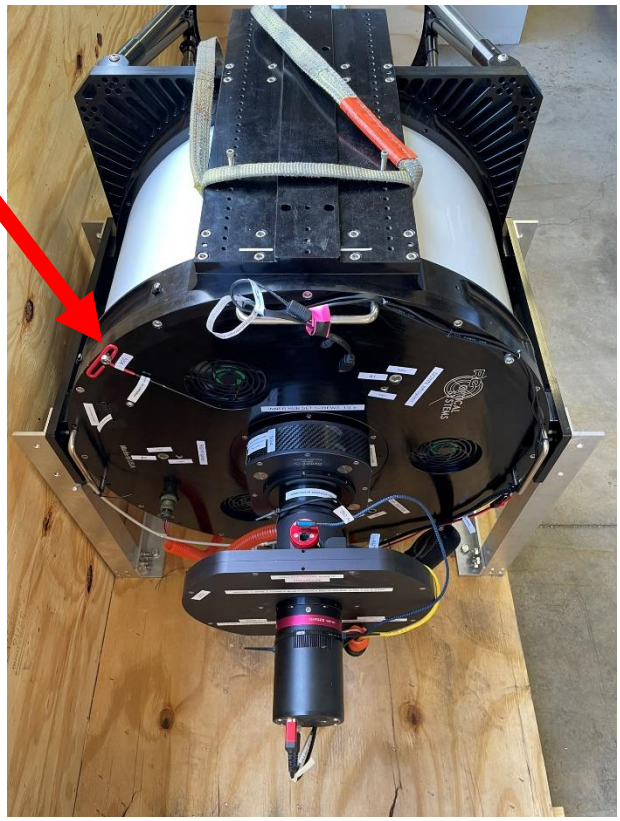
Open Telescope crate top panel first and then side panel.



STEP 7

Carefully remove packing material around camera and instrument package. Inspect for damage or loose parts (adapters). Check and tighten set screws on the image train using the supplied wrench (camera, filter wheel, etc). Hex key is on telescope.





STEP 8

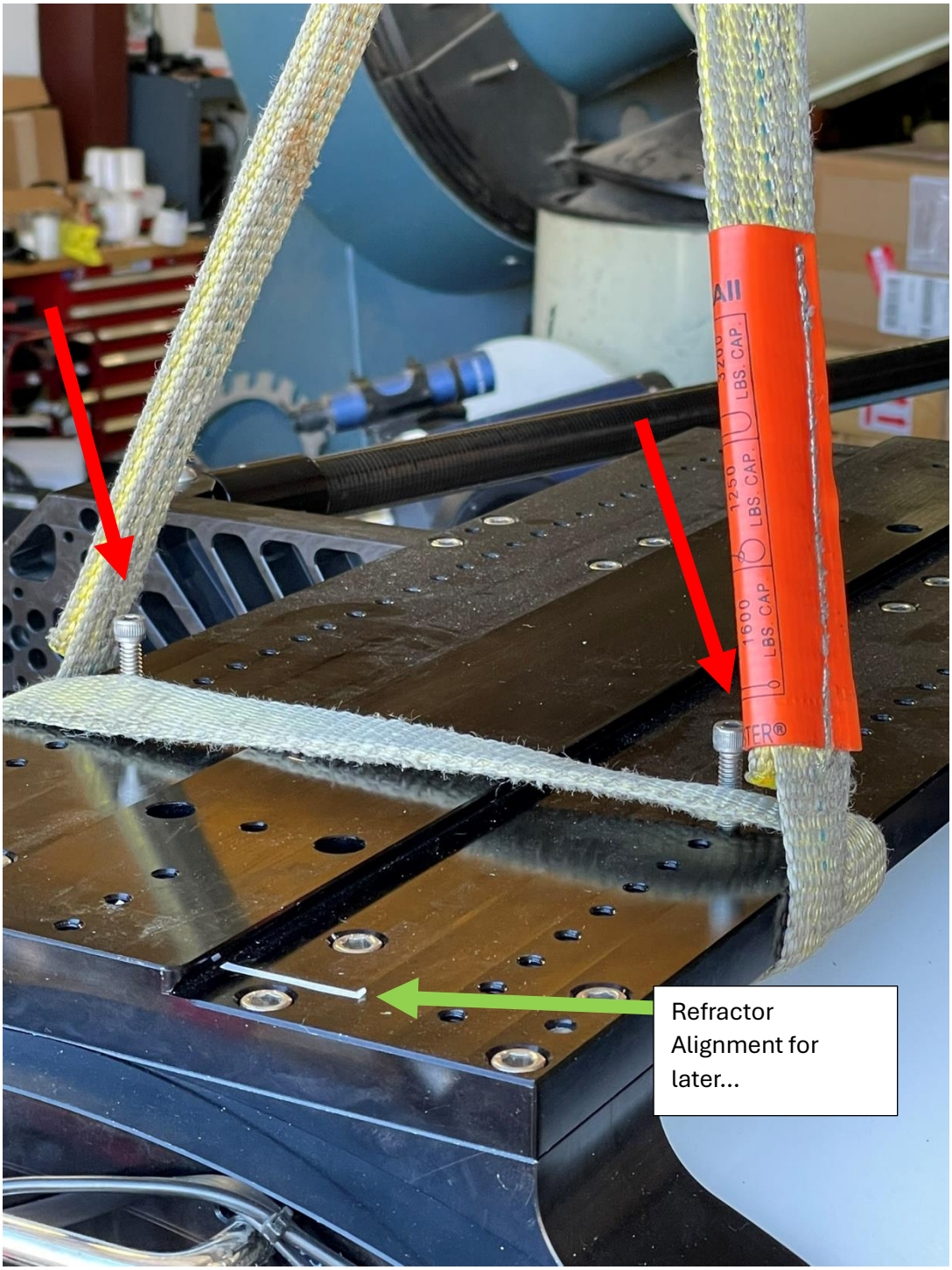
Attach straps at lift points of front ring and back dovetail. 8a and 8b show details of where straps should be.

STEP 8a

Ring lift point.

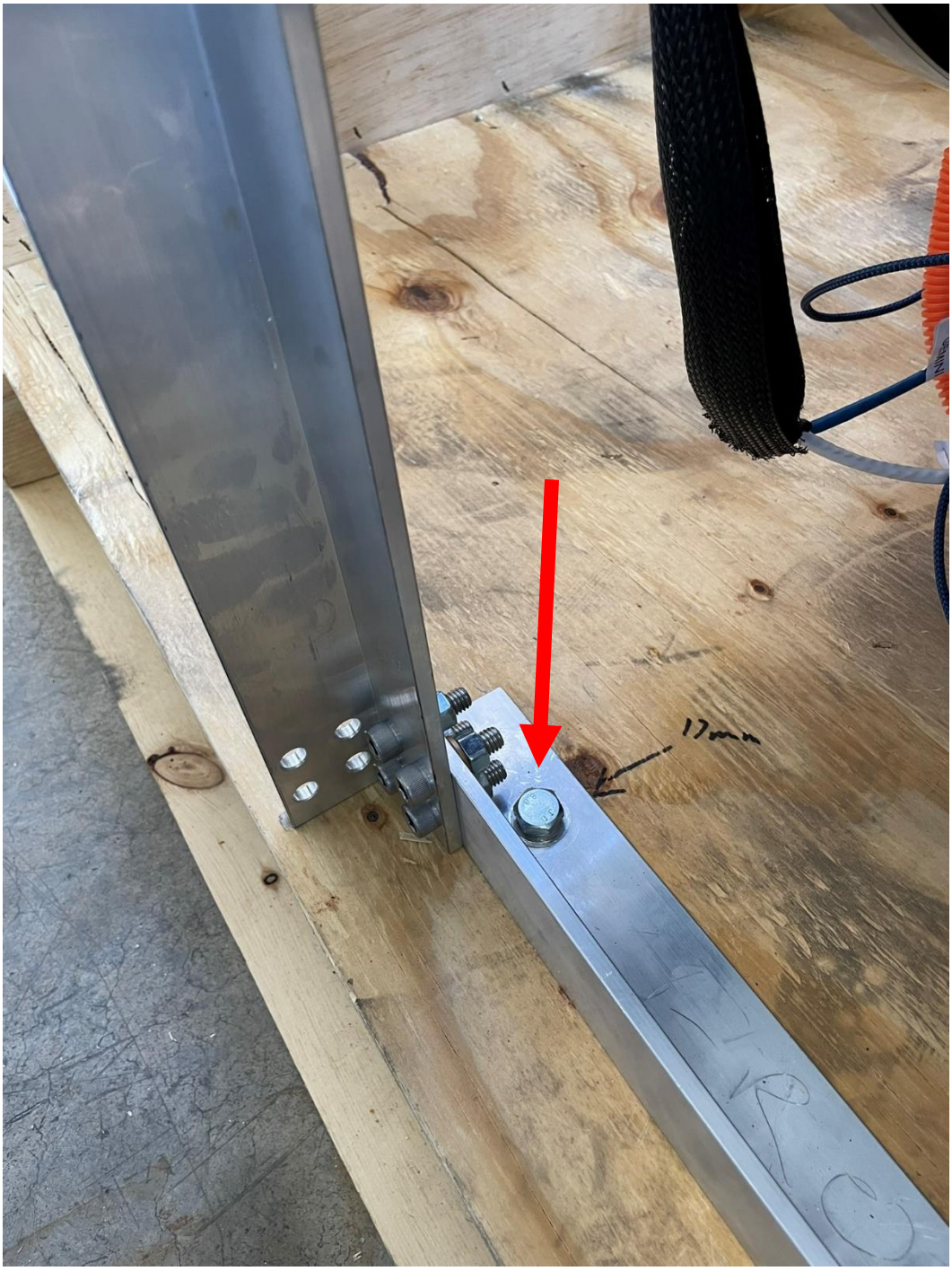
STEP 8b

Dovetail lift point. NOTE: Small bolts prevent strap from slipping. Remove bolts after installation at end-of-day.



STEP 9

Using a 17mm socket, unbolt the six hex bolts at the bottom of the telescope support frame from crate only. Leave horizontal piece of frame attached to the vertical parts.



STEP 10

Lift telescope out of crate. If necessary, telescope can be carefully set down on floor using the support frame until ready for installation in the fork arms. (We did not do this.)

STEP 11 Prepare Mount Rails

Position Rails horizontally so that the ridge is on the bottom. NOTE: The support tine's rail is shipped in the vertical position and is held in place by the clutch brake. Twist/Turn this rail by hand (against the brake) until horizontal. It will squeak some. There is some wiggle in this piece. This is normal.

STEP 12 Remove Frame from Telescope

Please save frame! It can be used if the telescope needs to be removed from mount for some reason. Save 8 bolts in a bag with frame.

STEP 13 Fork Tine Spacing Adjustment Bolt

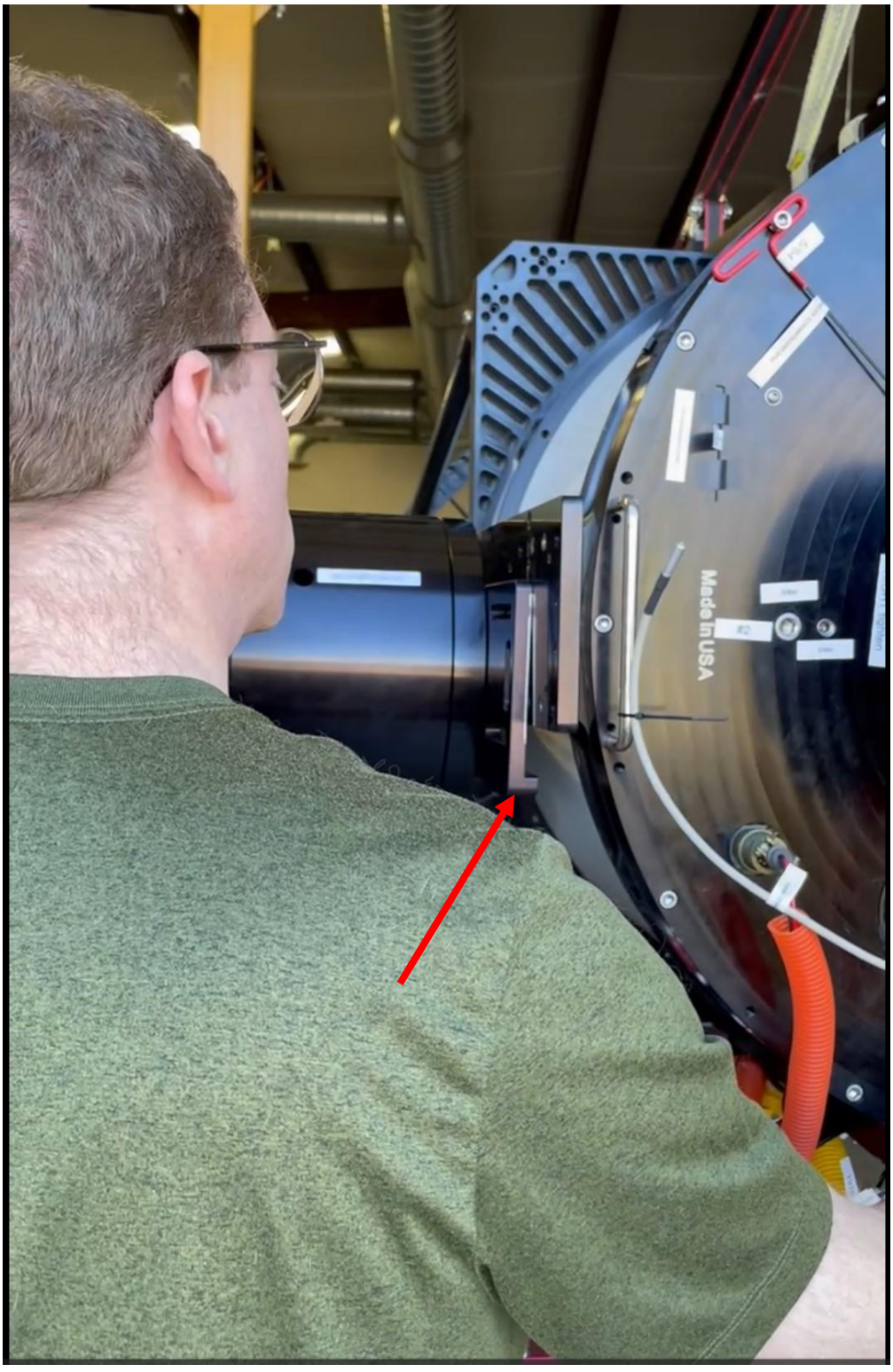
As shipped, the spacing should be correct to simply lower the telescope on to the ridges of the rails. Loosen more if necessary to adjust this.

STEP 14

Lift telescope to a position above Mount with the telescope adapter plates above the rails.

STEP 15

Slowly lower the telescope on to rails.



STEP 16

Find 8 Mount Rail Bolts (and conical washers) in BOX #1.

STEP 17

Lightly tighten Mount Rail Bolts. Begin with top interior corner bolts. The bottom interior bolt is inaccessible until the telescope is tipped upwards.

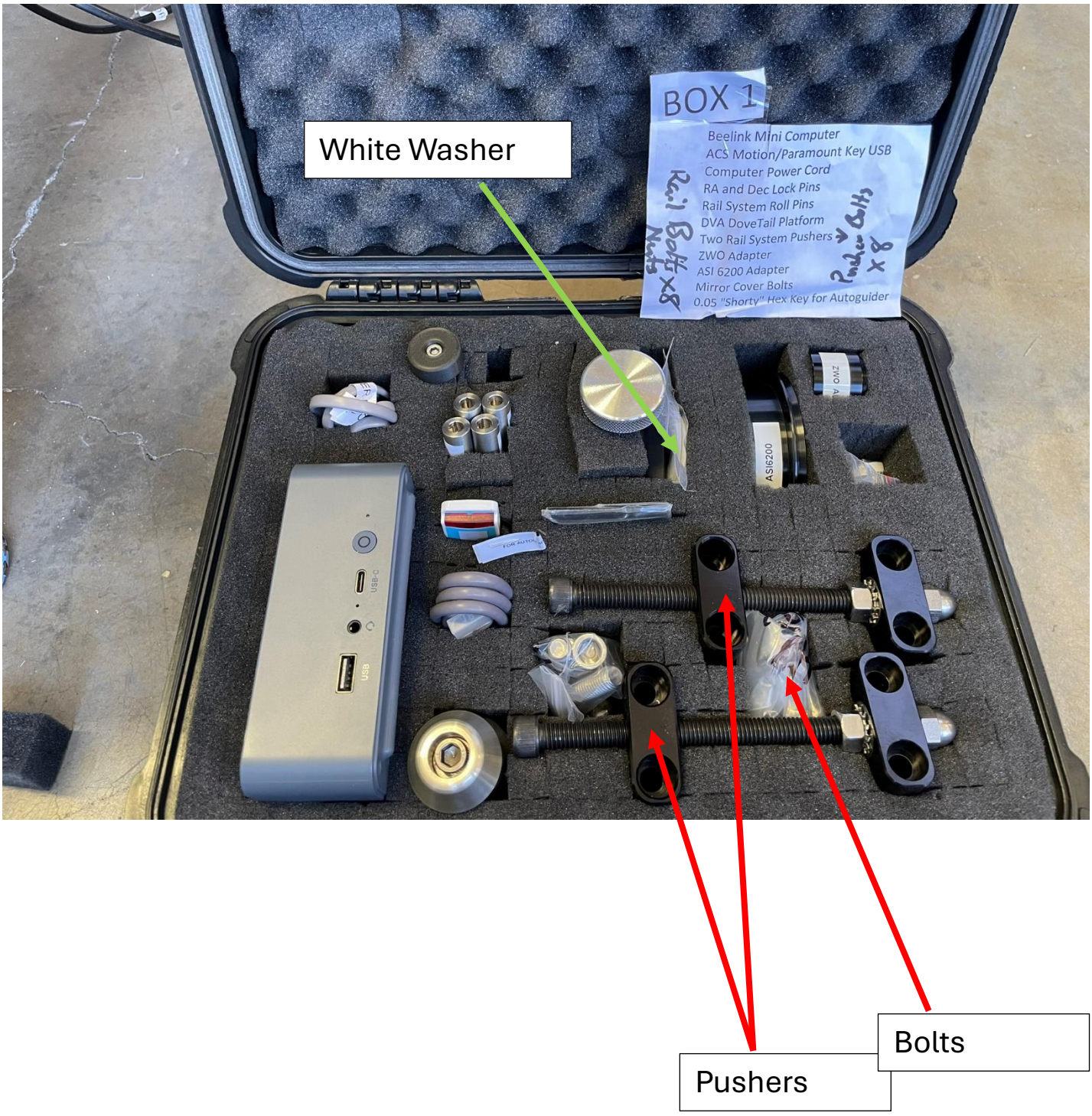
STEP 18a

Once all 8 Mount Rail Bolts are in place lightly tighten the Fork Tine Spacing Adjustment. Carefully slide telescope on rails to the marked balance position.

STEP 18b Marked Telescope balance.

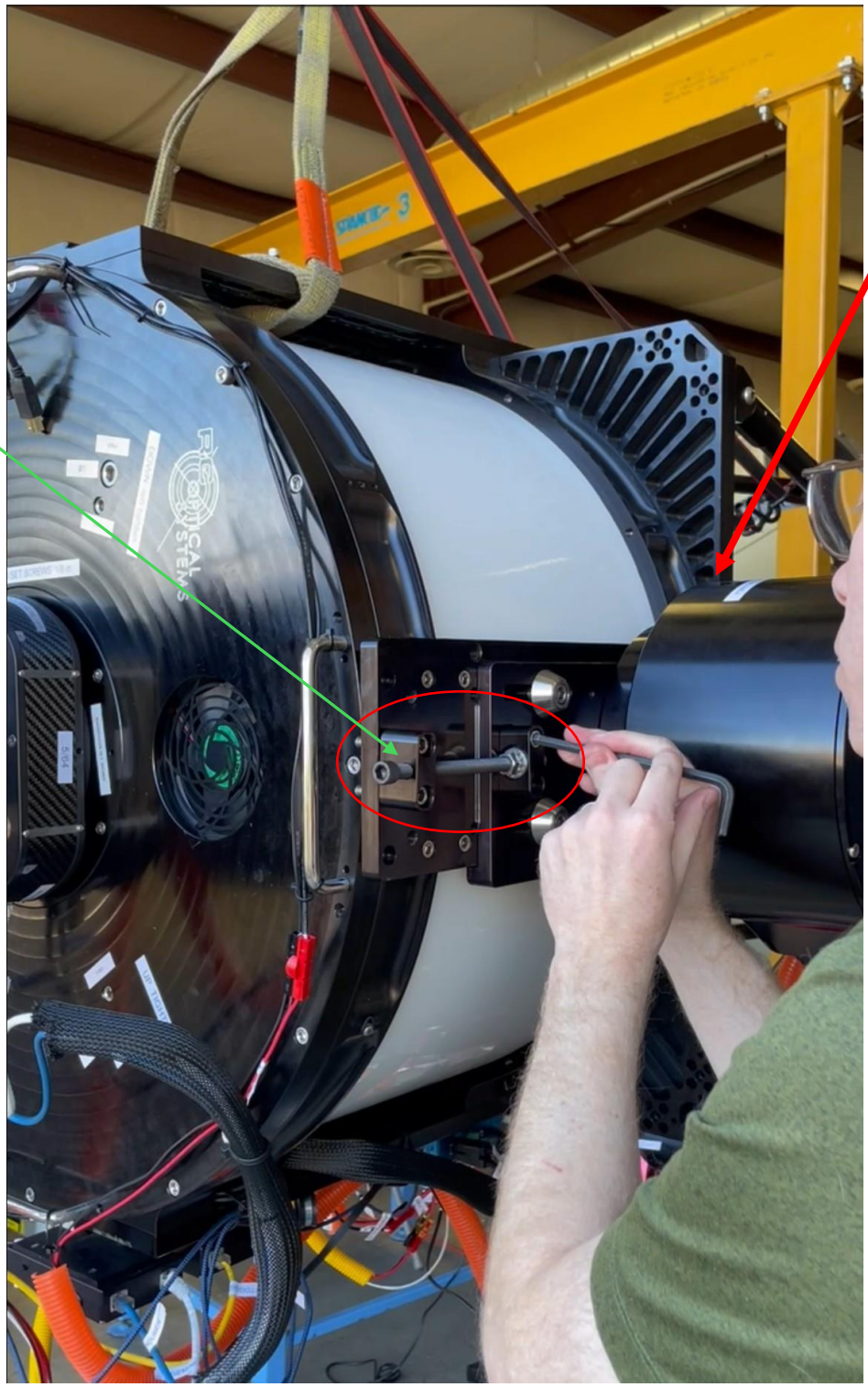
Once in balance position, moderately tighten 8 Mount Rail bolts. Note: It is not possible to truly balance telescope at this point. (e.g. Some items are both to be added and removed.)

STEP 19 Find two Pushers and 8 Bolts in Box #1



STEP 20

Install Pushers on each side of telescope as shown. The Rail/Tine side has an indent. Rotate the other pusher block until it aligns with bolt holes on plate. Completely tighten Mount Rail Bolts and the fork tine spacing adjustment.

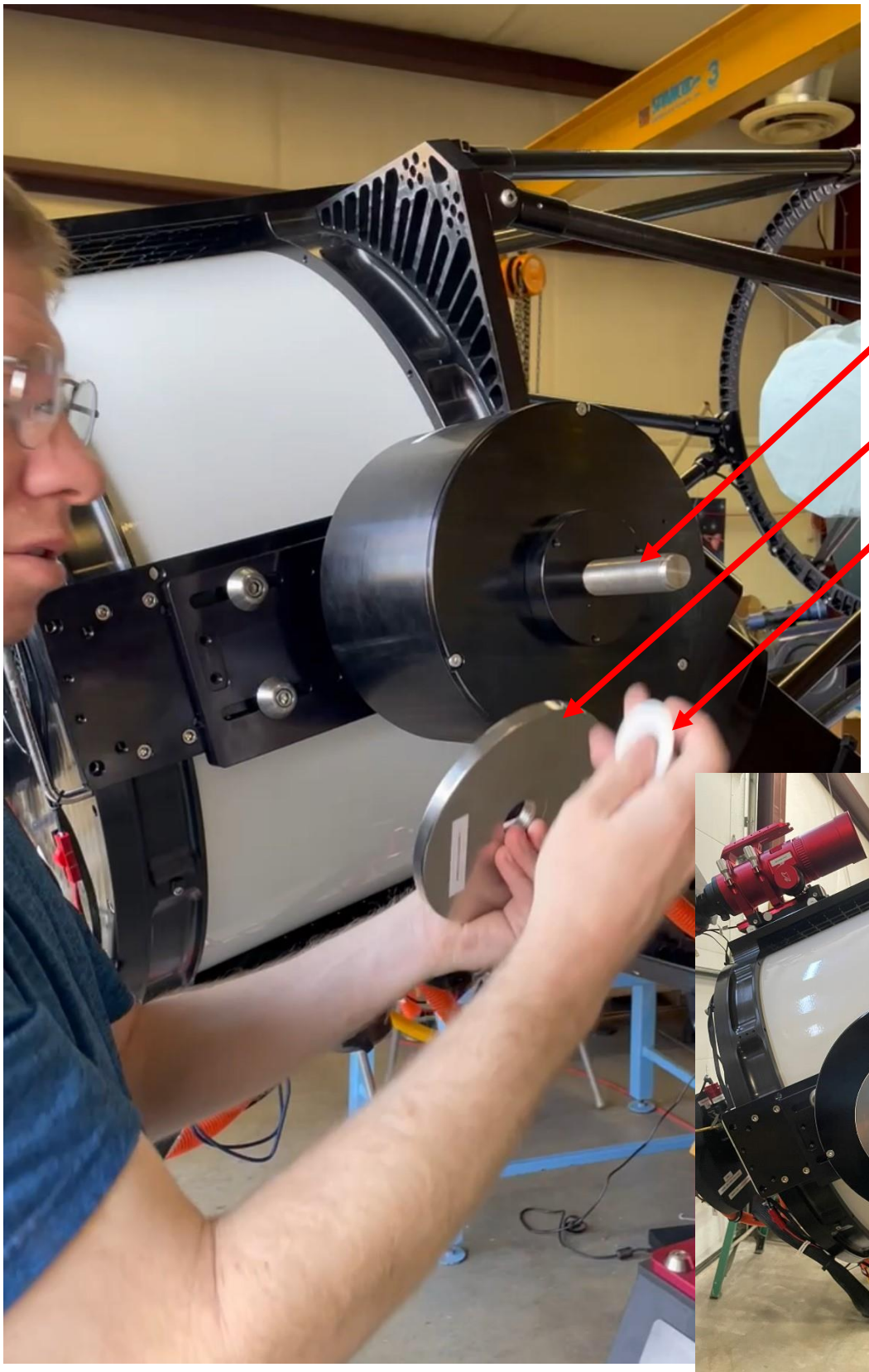


STEP 21 Counterweights

Locate Box #9 containing RA and OTA counterweights.

STEP 22 Install Counterweights (RA)

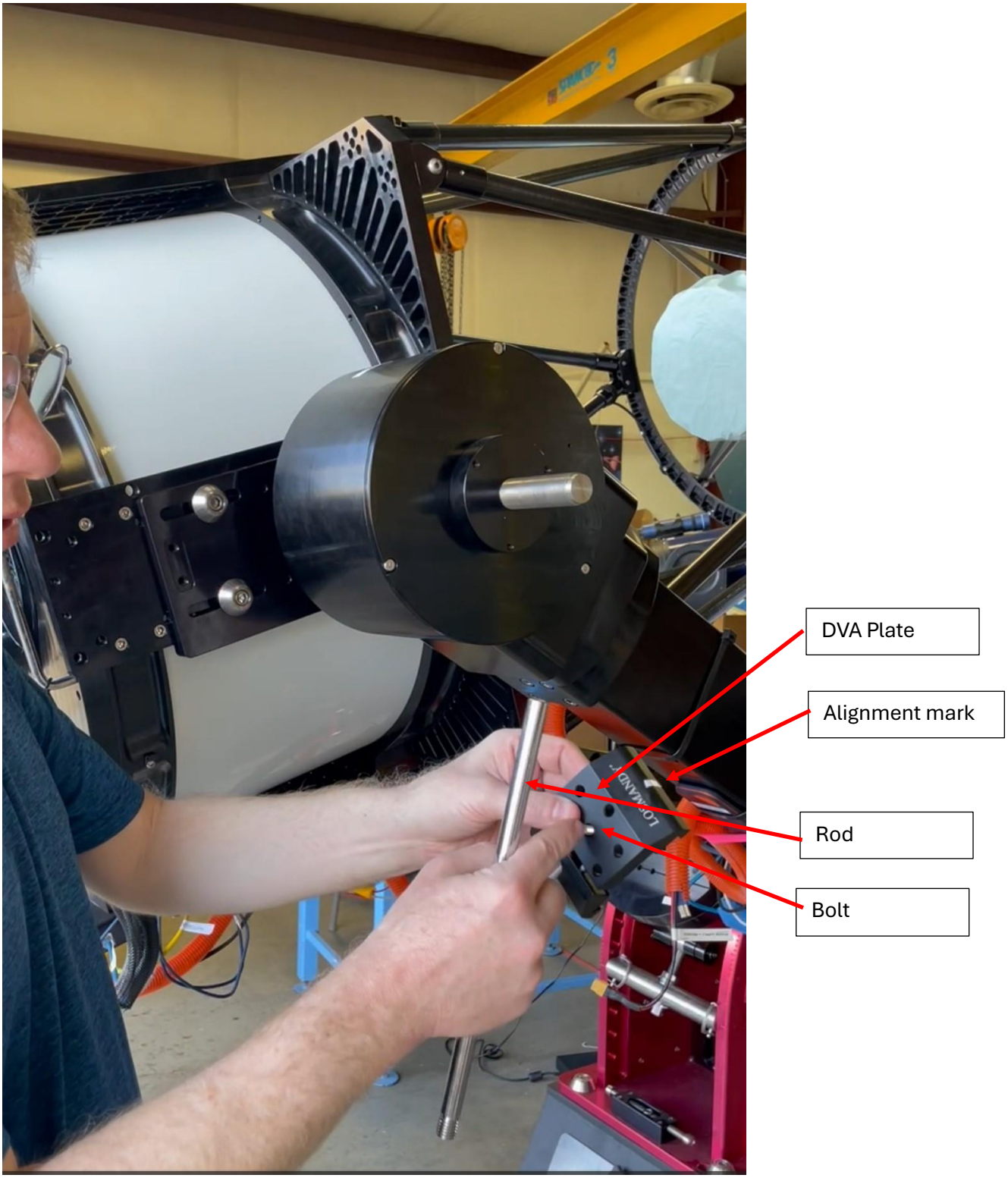
Screw in threaded rod to RA support Tine. Add white washer (found in Box #1) and thread on single counterweight disc.



Completed

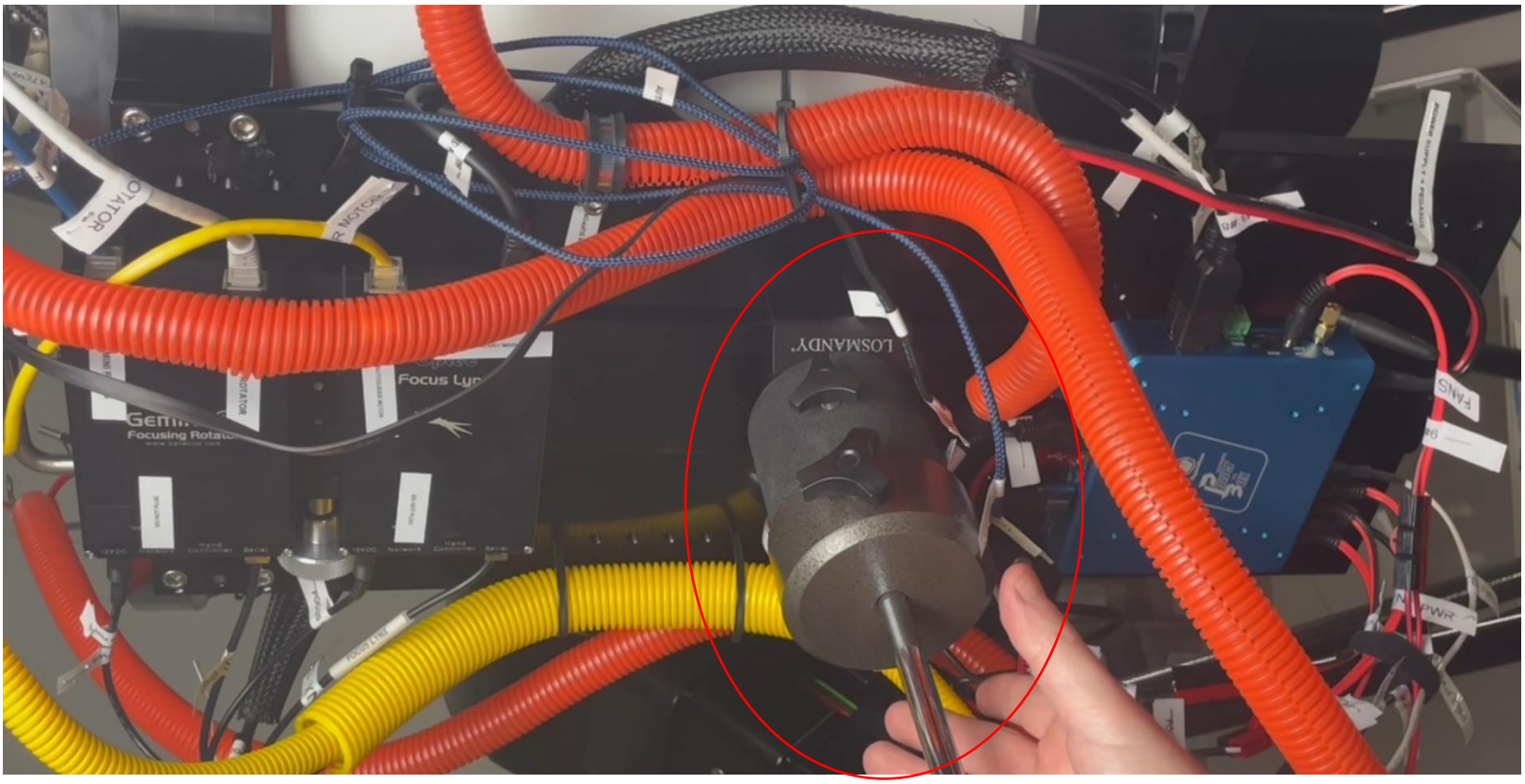
STEP 23a Install Counterweights (OTA)

Put bolt into back of DVA plate and thread rod to DVA plate. White line on DVA aligns to matching line on dovetail. Open DVA plate enough to attach to dovetail plate on bottom of telescope.



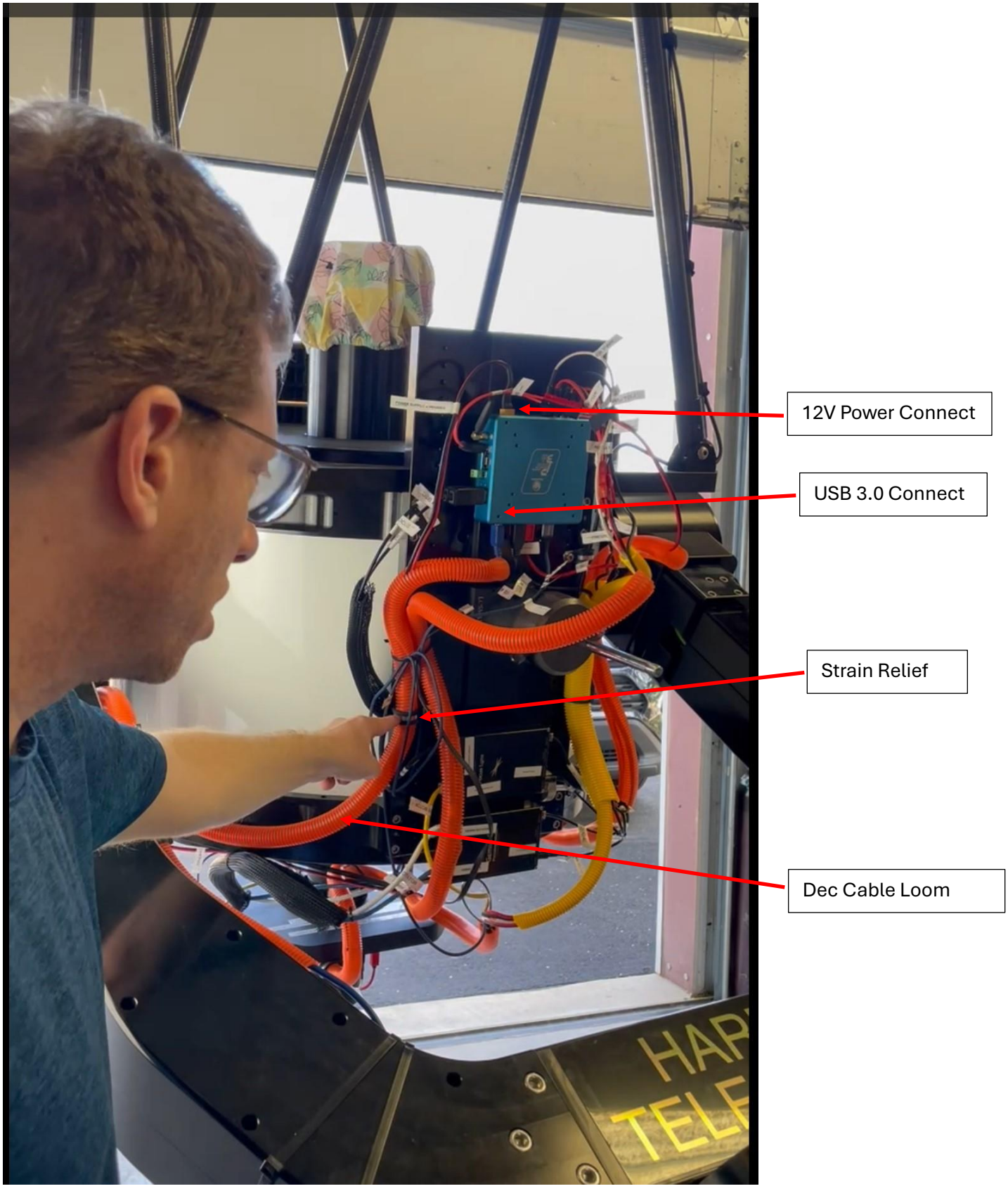
STEP 23b Install Counterweights (OTA)

Shown is the installed OTA counterweight. The cylinders are flush to the plate. This can be adjusted outward for moment-arm balance of refractor as well as translated along dovetail.



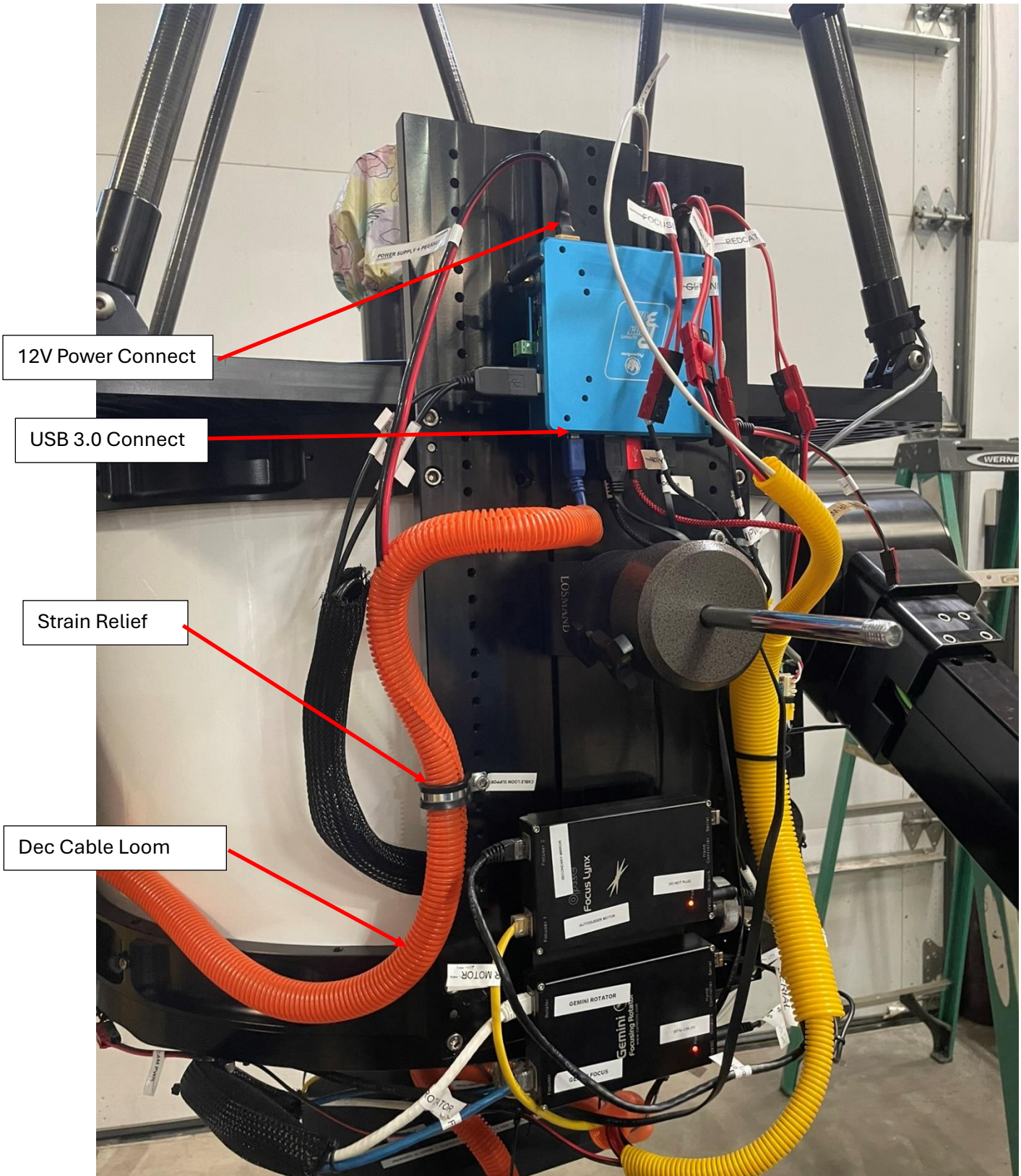
STEP 24 Connect Pegasus (Declination Cable Loom)

It is important to connect this tubing with power and USB to the Pegasus Power Box exactly as shown. See 24a!



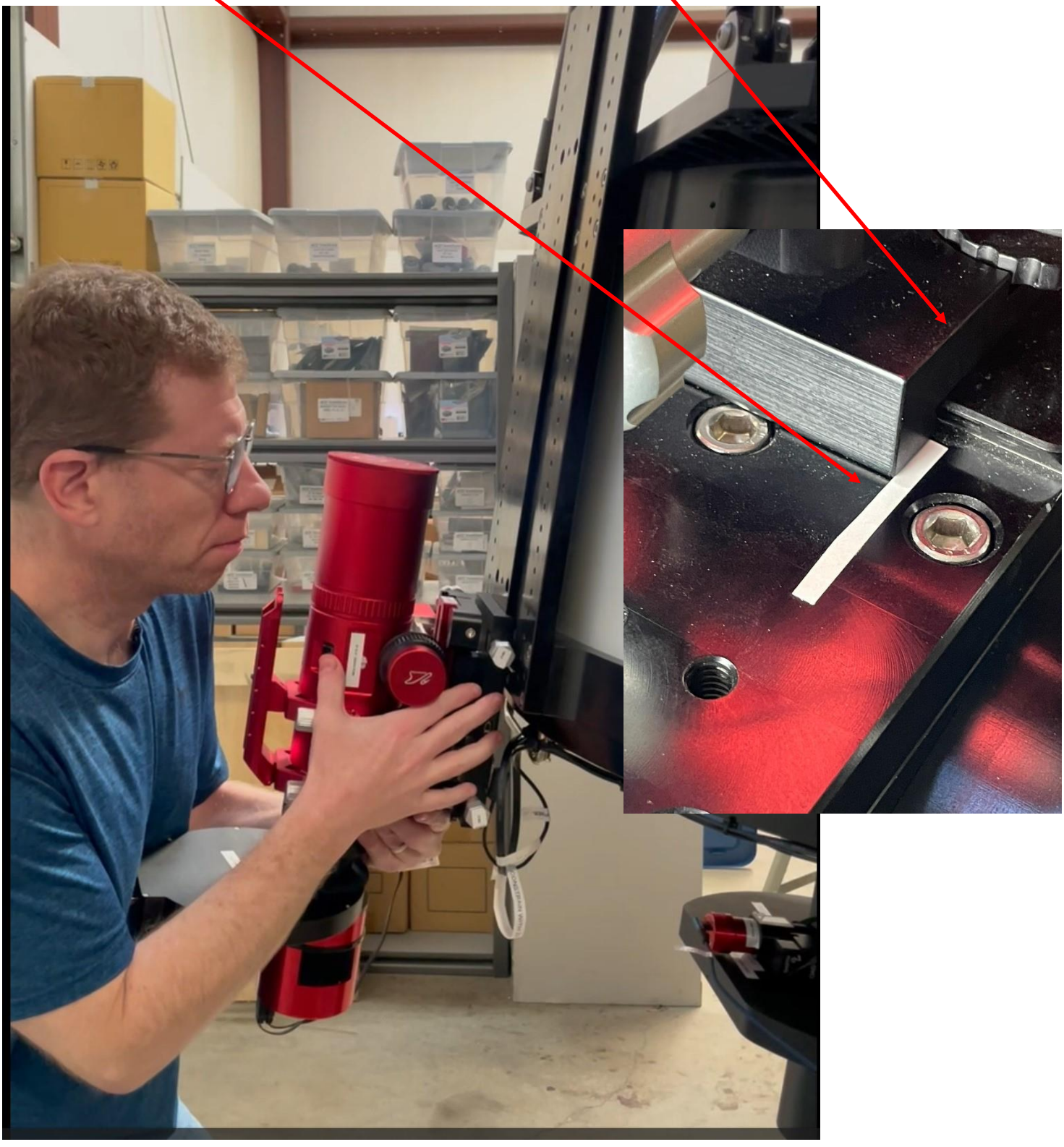
STEP 24a Connect Pegasus (Declination Cable Loom)

This is another view of the same (much clearer). Strain Relief is critical to assemble as shown. If the orientation or position is different, it changes the length of the cable loom.



STEP 25a Install RedCat 61mm Refractor

Slide refractor on to dovetail. Align backend with white alignment marks (left side shown).

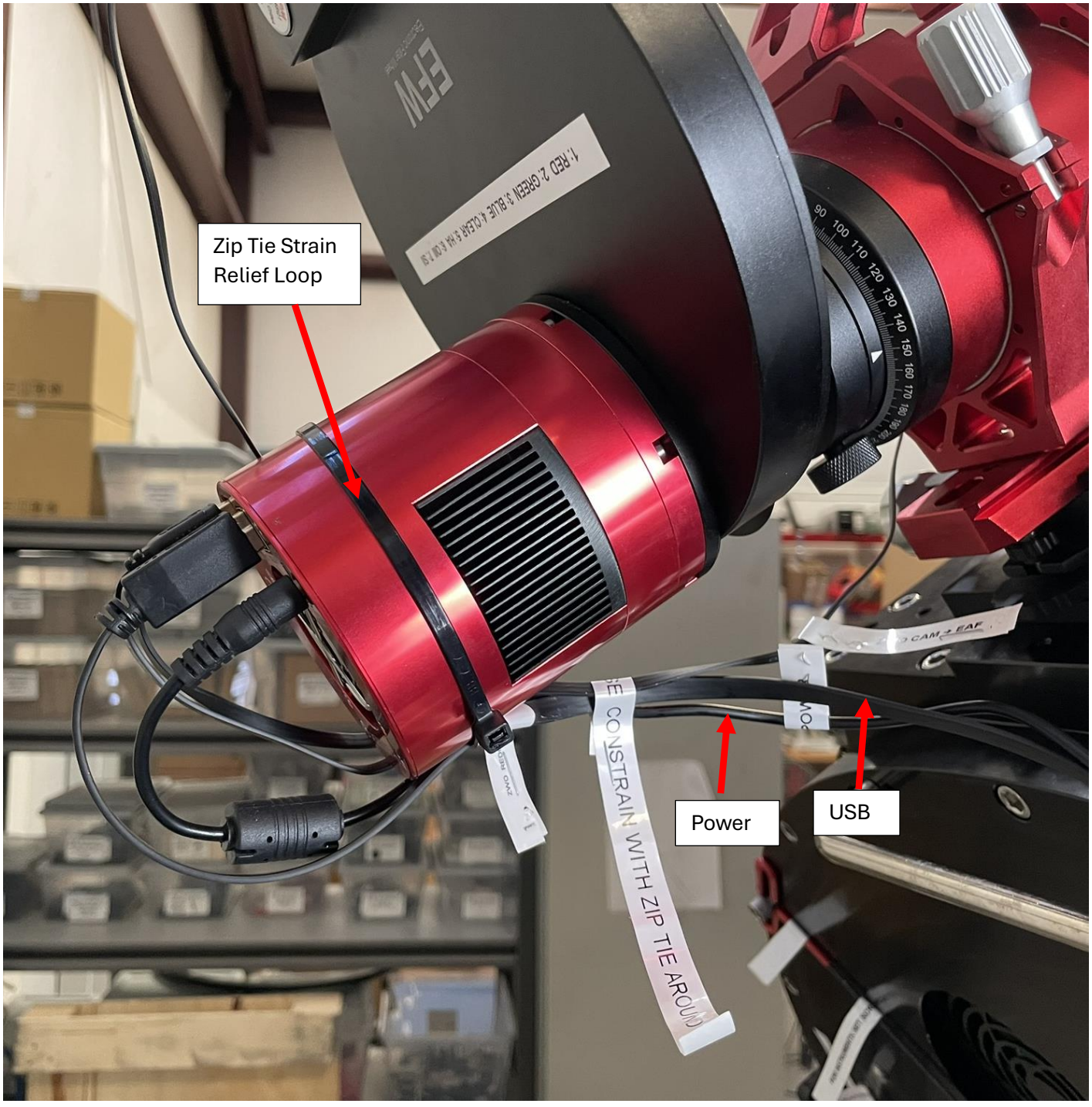


STEP 25b Install RedCat 61mm Refractor

Tighten hex-shaped bolts. Wrench is in Box #6.

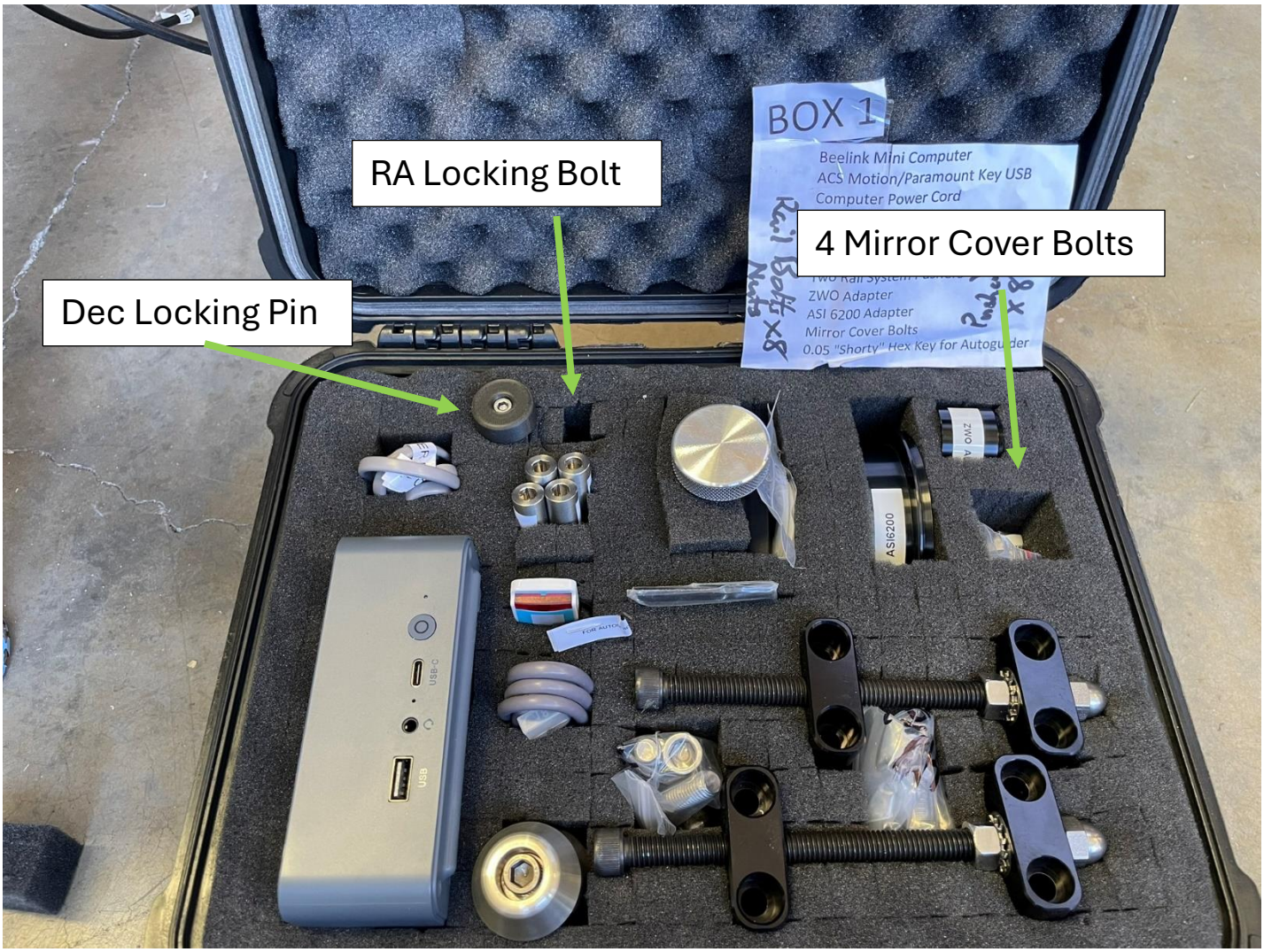
STEP 25c Install RedCat 61mm Refractor

Plug in ZWO ASI 6200 camera with USB and Power connections. Strain relief and configure with zip tie loop as shown.



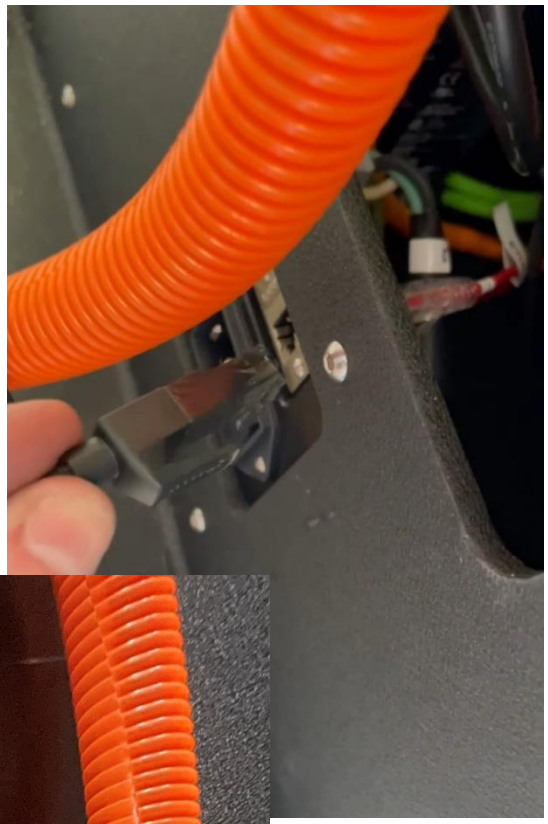
STEP 26 Rough Balance

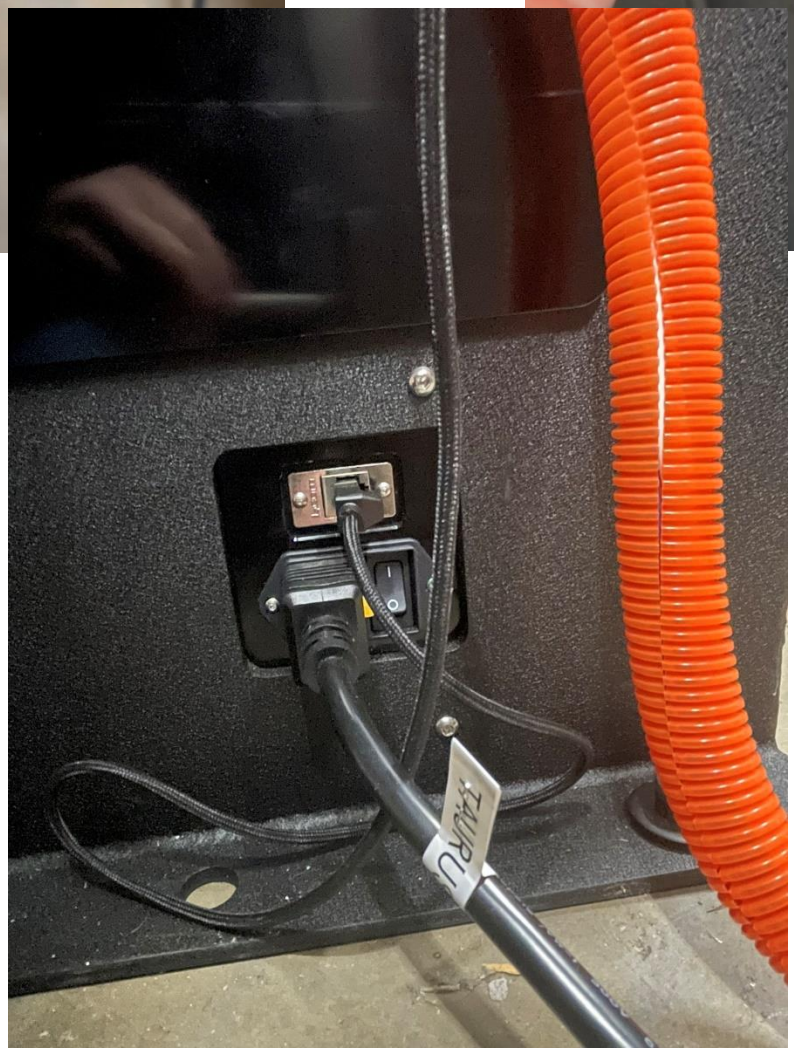
Remove RA locking bolt and put back into Box #1. Remove 4 mirror cover bolts and put back into Box #1. Remove Mirror Cover and set aside. Telescope will now move small amounts in both RA and Dec. If it is more than 1kg out of balance- pause and connect with Adam. We want to make certain everything is on telescope and configured correctly. Loosen the 8 Mount Rail Bolts and finish balancing OTA with the pushers **if necessary**.



STEP 27 Taurus Power and Network Connections

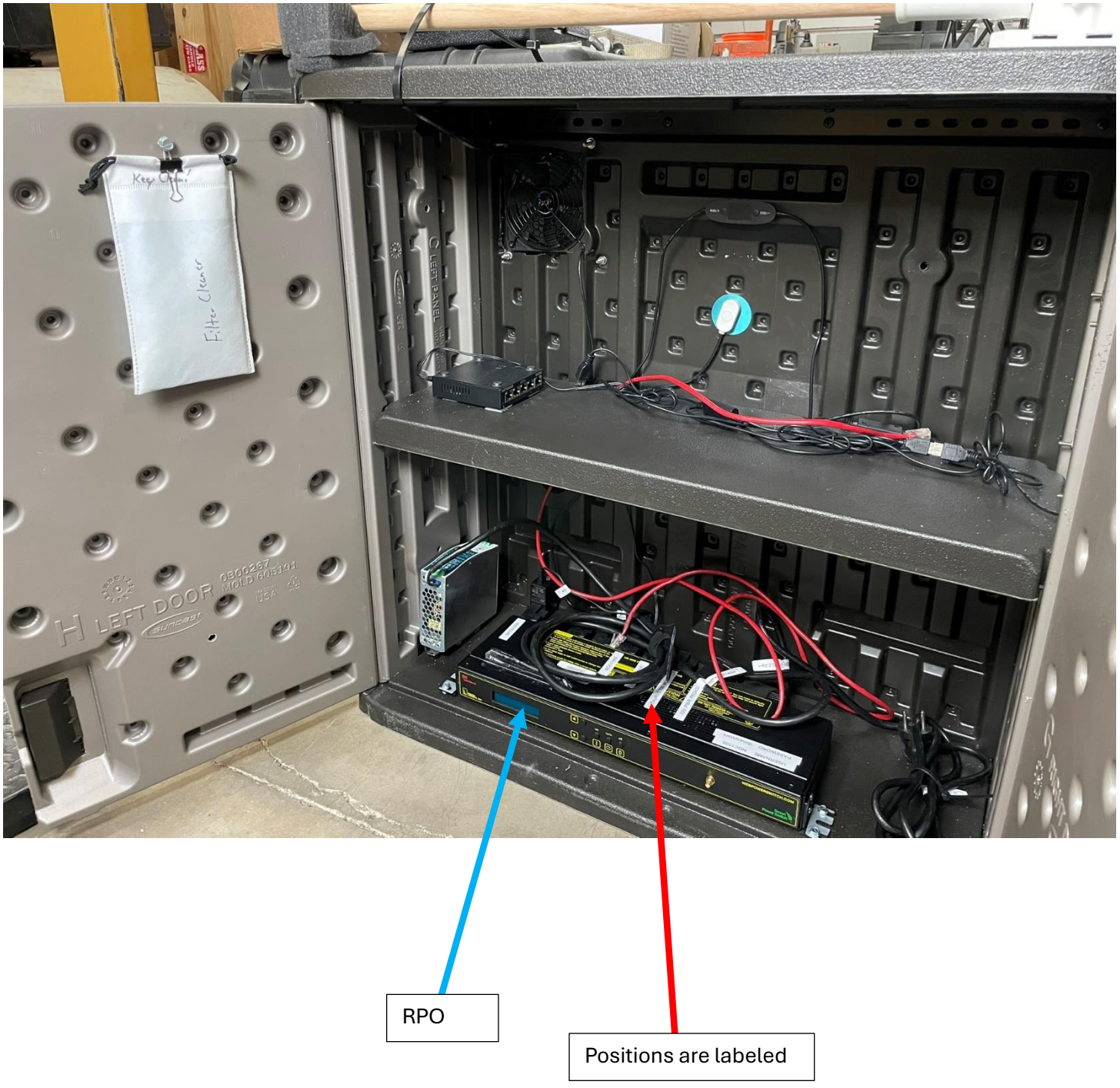
Connect Taurus power plug to back (bottom) of mount below the panel. Connect network plug as well. Put back panel back on.





STEP 28a Other Connections

Hole in gray cabinet is at the bottom left. Connect remote power outlets (RPO) to UPS (not shown). Connect Taurus Mount Power plug to RPO at labeled position. Verify Box Fans are still connected to RPO.



STEP 28b Other Connections

Pull Pegasus 12V power cable into box and connect to terminals. Then plug into RPO at labeled position. Black is V- and Red is V+.

STEP 28c Other Connections

Pull white computer power cable through hole and plug into RPO at the labeled position. Bundle the excess (sorry!). Plug the red ethernet cable from the switch to the RPO if it is not already connected. Please provide internet to the switch.

IP for Remote Power Outlets is: 192.168.0.100

IP for Taurus on computer side is: 10.0.0.101

(second ethernet Adapter on computer)

Mount is configured to be 10.0.0.100

STEP 29 Direct Computer Access
Required: Keyboard, mouse and Monitor (HDMI).
Windows password is I8manystars
(first letter is an **uppercase** “i”)
Later, access by staff can be accommodated remotely.

STEP 30 Storage and Blue Bin

The gray storage cabinet is limited by cable length for distance from telescope pedestal. Position as necessary. Store blue storage bin and Box #6 on floor *beneath* shadow of fork arms near pedestal. No one should be walking or working in this area and should not be in the way.

Step 31 Telescope Facing Camera

Raise mast and connect USB cable to camera. Be careful not to turn lens (focus). With the computer connected, feel free to focus. Point camera at telescope.