8” D & G Setup Instructions

1) **Required Tools:**
   a) Flat head screw driver – medium.
   b) 3/16” & 1/4” allen wrenches – set in box if all else fails.
   c) Ply bar or large screw driver.
   d) Towels for drying.

2) **Set Pier:**
   a) Make sure equatorial head is off prior to moving pier outdoors.
   b) Rope 1’ – 2’ from base will find center of gravity for one person movement.
   c) Outlet faces south – sight along azimuth block for alignment.
   d) Mount tray.

3) **Set German Equatorial Head:**
   a) Pull three cap screws and store in tray – double washer is north. (3/16” allen wrench)
   b) Place head on pier.
   c) Loosely fasten rear cap screws followed by the front.
   d) Tighten front cap screw followed by rears. Torque progressively and check for firm fit.

4) **Declination Shaft Attachment:**
   a) Rotate head to the east and loosen both plastic knobs. Tangent arm should be slightly free.
   b) Place ¼” allen wrench, weight side ring, and tangent arm attachment hardware, in tray.
   c) Stage weights, and spring clamps (in tray).
   d) Slide declination shaft into head about ½” from home. Be careful not to lose head bearing.
   e) Attach tangent arm to brass carrier on worm screw. Plastic shim in contact with carrier.
   f) Run declination shaft home and secure with weight side ring. Tighten firmly.
   g) Tighten the top plastic knob (near the saddle) and set the other snug (near weights).
   h) Rotate the head to counter weights down and pointed at the pole. Home position.
   i) Check polar alignment.

5) **Adding Weights:**
   a) Run one spring clamp to top of the shaft – angled up.
   b) Place the weights as follows (top to bottom):
      i) 1 ea 2.5 pound weight
      ii) 3 ea 5.0 pound weight
      iii) 2 ea 10 pound weight
   c) Run second spring clamp up the shaft just ¼” past the end – angled down.
   d) Chinch weights with upper clamp.

6) **Preparing the Tube:**
   a) Find the loop and two spanner pieces of wood – dowel stops outboard.
   b) Lift one end and support with wood spanner – I did focuser end first – may have to reverse.
   c) Lift and support other end.
   d) Rotate so Telrad base is up, and attach dew shield, finder, & Telrad.
   e) Stow lens cover, rag, wood, and rope.
7) **Mounting the Tube:**
   a) Stage the eyepiece counter weight (midway). Stage ladder facing south.
   b) Open rings and loosen clamps fully.
   c) Two man job. Place tube in the rings with electrician tape just forward of the front ring.
   d) Pinch the rings and begin to tighten clamps. Adjust ring position as clamping fully.
   e) Attach the eyepiece counter weight. Wedge a piece of foam between it and the tube.

8) **Polar Alignment:**
   a) Adjust azimuth with pry bar under north leg.
   b) No adjustment for altitude.

9) **Balancing the Scope:**
   a) Attach diagonal and 30mm eyepiece. Lighter than the 20mm Nagler.
   b) Check eyepiece counter weight is at the midpoint.
   c) Check Right Ascension balance.
   d) Check Declination balance.
   e) Return to home position.

10) **Electronics:**
    a) Plug extension cord into outlet inside observatory – south wall, easterly of door.
    b) Run cord through east leg and plug in to power.
    c) If not running drive corrector – loosen zip tie and plug RA motor into the pier outlet.
    d) If running drive corrector:
       i) Plug corrector into pier outlet.
       ii) Plug RA motor into corrector – back labeled RA.
       iii) Connect tangent arm motor – back labeled DEC.
       iv) Connect hand paddle to front.
       v) Test movements – tangent arm is visible – RA drive is audible.
    e) If utilizing focus motor – plug yellow cord into hand controller and mount on tube.

11) **Disassembly:**
    a) Reverse the steps above.
    b) When removing the head, rotate the declination shaft assembly for proper storage.
    c) Don’t forget to unplug the power inside the observatory.
    d) Dry the tube off with a towel and blow dry the optics and focuser.