

Appendix 2: Disassembling and Assembling the Telescopes and the Celestron Equatorial Mounts

Disassembling (classroom)

1. **The mount must be locked with the telescope situated horizontally.** Note the telescope's position with respect to the index markers located on the two axes of the mount because the telescope has to be repositioned in the same direction when reassembled.
2. **Two Persons: Remove telescope from equatorial head** by loosening the two rail clamping screws of the mount. Note the rail position markers to make reassembling and balancing the telescope easier. One person loosens the screws, while the other individual holds the scope and removes it from the rail.
3. **Detach the counterweight:** Remove the counterweight screw and stow it into the **small plastic box**. Remove the counterweight from the shaft and put it (them) into the **large plastic box** or transport the counterweights separately.
4. **Remove the equatorial head from the tripod:** Loosen the screw beneath the equatorial head until it drops and clangs; then loosen the two azimuth screws near the counterweight shaft. The equatorial head is now disconnected and can be removed from the tripod by lifting it straight up.
5. **Rotate the eyepiece holder on the tripod, and fold the tripod legs inward** for easier transportation to the Sky Deck.

6. **Transport disassembled equipment to Sky Deck:** Large Plastic Box (contains the small plastic box, blanket, Power Tank, and eyepiece case), equatorial head, tripod, and telescope are now ready to be moved to the Sky Deck.
7. **Use the elevator** to transport the heavier equipment.

Assembly of Your Telescope on the Sky Deck

1. **Note:** If your telescope is already permanently mounted on the Sky Deck this section can be ignored.
2. **TWO PERSONS can return to the classroom to bring the telescope upstairs** if there are not enough people to transport the telescope to the Sky Deck in one trip.
3. **Ask Mr. Becker for the duplicate set of keys.** Last person out locks the classroom door.

4. **Orient the Tripod Legs** to a north-facing direction by using the sets of three painted circles marked on the Sky Deck roof. The back leg is numbered and faces south. The azimuth adjustment post faces north. Compasses will not work on the Sky Deck because of the magnetic fields created by the operating motors which are found in the room below.
5. **Vibration suppression pads:** Place one pad underneath each tripod leg. The pads can be found in the small plastic box.
6. **Swivel the eyepiece holder** on the tripod so that it connects with the legs of the mount before the equatorial head is reattached to the mount.
7. **Level the Tripod:** Place the bubble level which can be found in the small plastic box into the hole on the top of the

mount and adjust the tripod legs until the bubble in the level is centered.

8. **Remove the level and attach the equatorial head** to the tripod. The screw that attaches the head to the tripod should not be super tight. Make sure that the screw below the eyepiece holder (lower screw) is firmly tightened.
9. **Attach the counterweight** onto the declination shaft to the correct position indicated by the tape and secure the locking screw for safety.
10. **Attach the power cable found in the small plastic box to the telescope and Power Tank.** The large end goes into the Power Tank while the smaller end into the telescope. Turn the Power Tank to the “On” position. A red LED will show that a good connection has been made. **Don’t turn on the telescope at the present time.**
11. **Attach the hand controller to the mount in the “HC” slot.** The hand controller will be found in the small plastic box. Use the Velcro on the hand controller to attach it to the Velcro on one of the tripod legs.
12. **Make sure the rail is in a horizontal position:**
13. **Place the telescope into the rail** at the location of the rail positioning marker(s) of the mount and lock to secure. Try not to loosen the clamping screws so that they become detached. They are spring loaded. You’ll have a “fun” time trying to find the components on a black deck in the dark.
14. **Point the telescope north.** Note that the index markers on each axis must align. If they do not, and the telescope is pointed south, it must be removed from its rail and turned around.

15. **Attach the power cable found in the small plastic box to the telescope and Power Tank.** Turn the Power Tank to the “On” position. A red LED will show that a good connection has been made. **Don’t turn on the telescope.**
16. **Attach the hand controller to the mount in the “HC” slot.** The hand controller will be found in the small plastic box. Use the Velcro on the hand controller to attach it to the Velcro on one of the tripod legs.

Balancing the Telescope

1. **Note:** If your telescope is already permanently mounted on the Sky Deck this section can be ignored.
2. **Point the telescope horizontally.**
3. **Unlock the declination clamp and move the telescope back and forth.** If the telescope feels unbalanced (pulls in one direction), reposition the telescope horizontally. Loosen the two rail clamps and move the telescope along the rail (**two-person procedure**) in the opposite direction of the unbalance. Retighten the rail clamping screw each time the balance is tested until a good balance is achieved.
4. **Unlock the right ascension (polar axis) clamp and rotate the polar axis.** If the telescope feels unbalanced, clamp the axis and move the counterweight in the opposite direction of the imbalance until the correct balance is achieved.

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