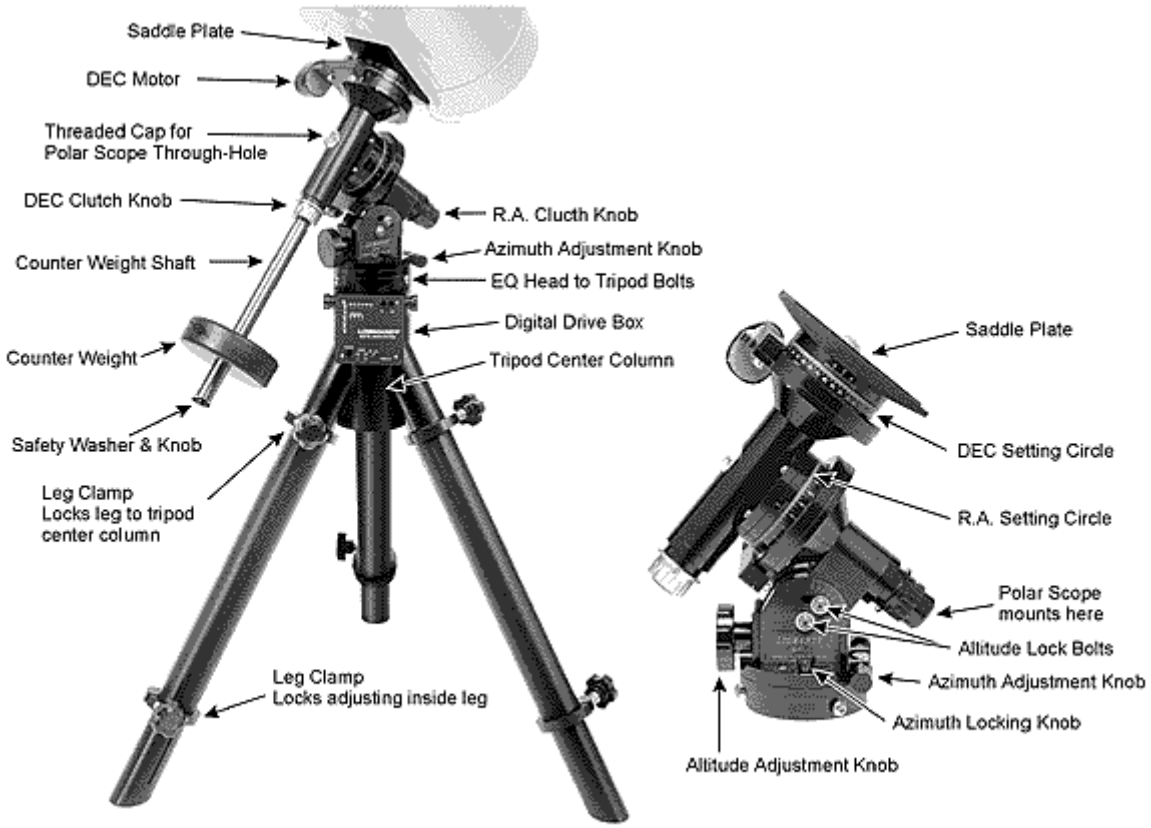
THE LOSMANDY G-11 MOUNT

Checking the parts

Depending on which accessories you ordered, your G-11 mount was shipped in four or more boxes. The contents of each box are as follows:

- Equatorial Mount
- Adjustable Tripod Legs, Leg Clamps, Counterweight Shaft
- Tripod Center Column, Digital Drive Box, Hand Control, Cables, Mounting Bolts, Allen Wrench, Counterweight Safety Screw
- 21 lb. Weight, Locking Bolt

Remove all the parts from their respective boxes and place them on a flat, clear work area. A large floor space is ideal. When setting up your Losmandy G-11, you must start with the tripod and work from there. To insure proper assembly, each task must be performed in the specific order as defined by these instructions.



Location of Parts - Click for larger image

Assembling the tripod

Remove the legs, leg clamps and weight shaft from the box. Place one leg clamp on the end of each tripod leg, making sure the screw on the side of each leg clamp lines up with the hole on the tripod leg. These clamps will remain on the legs and will not be taken off. Slide the legs onto the center column and lock in place by turning each knob on the leg clamps. The tripod is now ready for the equatorial mount.

Attaching the equatorial mount

After the tripod is set up, you are ready to attach the equatorial mount. This is the platform to which the telescope attaches and allows you to direct it anywhere in the sky. The mount is also adjustable so you can orient the axis of rotation to make it parallel with the Earth's axis of rotation (see the section on Polar Alignment). To attach the equatorial mount to the tripod:

1. Insert the base of the equatorial mount into the top of the central column.

2. Rotate the equatorial mount on the central column until the holes in the mount line up with those in the central column.

3. Insert the three screws provided through the holes in the central column and into the equatorial mount.

4. Tighten the screws to hold the equatorial mount in place.

There are three possible orientations of the equatorial mount which allow you to select the most convenient location of the electronic console.

Attaching the counterweight bar

To properly balance the telescope, the mount comes with a counterweight bar and counterweight. To install the counterweight bar:

1. Locate the opening in the equatorial mount on the DEC axis. It is opposite the telescope mounting platform.

2. Thread the counterweight bar into the opening until tight.

Once the bar is securely in place you are ready to attach the counterweight(s).

Attaching the counterweight

The Losmandy G-11 comes standard with one 21 pound counterweight.

To install the counterweight:

1. Orient the mount so that the counterweight bar points toward the ground.

2. Remove the counterweight safety thumbscrew and washer on the end of the counterweight bar (opposite the end that attaches to the mount).

3. Loosen the locking bolt on the side of the counterweight.

4. Slide the counterweight onto the shaft.

5. Tighten the locking bolt on the side of the weight to hold it in place.

6. Repeat this process if using a second optional counterweight.

7. Replace the counterweight safety thumbscrew and washer.

Attaching the telescope to the mount

The telescope attaches to the mount via a dovetail bar bolted to the bottom of the telescope. Before you attach the optical tube, make sure that the declination and right ascension clutch knobs are tight. This will ensure that the mount does not move suddenly while attaching the telescope. To mount the telescope tube:

1. Loosen the knob on the side of the telescope mounting platform. This allows you to slide the dovetail bracket of the telescope onto the mount.

2. Slide the dovetail bar of the telescope tube into the mounting platform of the mount. Slide the telescope so that the back of the dovetail bar is almost flush with the back of the mounting platform.

3. Tighten the knob on the side of the mounting platform to hold the telescope in place.

Moving the telescope in R.A. and DEC

Once the telescope is set up, you will need to point it at various locations to observe different objects. Unlike other systems, the Losmandy mounts have a clutch system. To make rough adjustments, loosen the R.A. and DEC clutch knobs slightly and move the telescope in the desired direction. The R.A. clutch knob is near the Polar Axis Finder while the DEC clutch knob is at the top of the counterweight bar. How tight should the clutch knobs be? You set the clutch knobs to the friction you like. When you want to move the telescope, all you do is grab the telescope and move it to its new position.

For fine adjustments, use the fast-set function on the hand control box. For more information please see the section on Using the Drive.

Balancing the telescope on R.A.

To eliminate undue stress on the mount, the telescope should be properly balanced around the polar axis. **Proper balancing is crucial** for accurate tracking. To balance the mount:

1. Verify that the telescope securing knob on the telescope mounting platform is tight.

2. Loosen the R.A. clutch knob and position the telescope off to one side of the mount. The counterweight bar will extend horizontally on the opposite side of the mount.

3. Release the telescope to see which way the telescope may drift as a result of an imbalance.

4. Loosen the locking bolt on the side of the counterweight so it can slide along the length of the counterweight bar.

5. Move the counterweight to a point where it balances the telescope. The telescope should remain stationary when the R.A clutch knob is loose.

6. Tighten the locking bolt on the counterweight to hold it in place.

While the above instructions describe a perfect balance arrangement, there should be *slight* imbalance to ensure the best possible tracking. When the scope is on the west side of the mount the counterweight should be slightly imbalanced to the counterweight bar side. And when the tube is on

the east side of the mount there should be a slight imbalance toward the telescope side. This is done so that the worm gear is pushing against the slight load. THE AMOUNT OF THE IMBALANCE IS VERY SLIGHT. When taking astro-photographs, this balance process can be done for the specific aim of the telescope to further optimize tracking accuracy.

Balancing the mount in DEC

Although the telescope does not track in declination, the telescope should also be balanced in this axis to prevent any sudden motions when the DEC clutch knob is loose. To balance the telescope in DEC:

1. Loosen the R.A. clutch knob and rotate the telescope so that it is on one side of the mount (as described in the previous section on Balancing the Mount in R.A.).

2. Tighten the R.A. clutch knob to hold the telescope in place.

3. Loosen the DEC clutch knob and rotate the telescope until the tube is parallel to the ground.

4. Release the tube to see which way it rotates around the declination axis.

DO NOT LET GO OF THE TELESCOPE TUBE COMPLETELY!

5. Slightly loosen the knob that holds the telescope to the mounting platform and slide the telescope either forward or backward until it remains stationary when the DEC clutch is loose.

DO NOT LET GO OF THE TELESCOPE TUBE WHILE THE KNOB ON THE MOUNTING PLATFORM IS LOOSE.

6. Tighten the knob on the telescope mounting platform to hold the telescope in place.

Like R.A. balance, these are general balance instructions and will reduce undue stress on the mount. When taking astro-photographs, this balance process should be done for the specific area at which the telescope is pointing.

Adjusting the mount for polar alignment

In order for the clock drive to track accurately, the telescope's axis of rotation must be parallel to the Earth's axis of rotation, a process known as polar alignment. Polar alignment is achieved NOT by moving the telescope in R.A, or DEC, but by adjusting the mount vertically, which is called **altitude**, and horizontally, which is called **azimuth**. This section simply covers the correct movement of the telescope during the polar alignment process. The actual process of polar alignment, (making the telescope's axis of rotation parallel to the Earth's) is described later in this manual in the section on Polar Alignment. To adjust the mount in altitude:

1. Locate the altitude adjustment knob - directly below the counterweight shaft.

2. Turn the altitude adjustment knob until the mount is at the right elevation. Each complete revolution of the knob raises or lowers the polar axis 3.2°.

The altitude range is from 14° to 64°. If you live at latitudes closer to the poles, you will need the Zero Degree Latitude Adapter which is sold as an optional accessory and increases the latitude range from 0° to 84°. To adjust the mount in azimuth:

1. Locate the azimuth lock screws and adjustment knobs on the back of the mount.

2. Loosen the two azimuth lock screws on each side of the mount.

3. Turn either of the azimuth adjustment knobs until the polar axis is pointing in the right direction. Each complete revolution of the knob is .82°.

4. Tighten the azimuth lock screws to hold the mount in place.

The mount can be moved ± 8.5° in azimuth using these knobs.

Keep in mind that adjusting the mount is done during the polar alignment process only. **Once polar aligned, the mount must NOT be moved**. Pointing the telescope is done by moving the mount in right ascension and declination, as described earlier in this manual. Once the appropriate adjustments have been made and you are aligned on the celestial pole, turn the clock drive on and the telescope will track.

Technical Specifications

Below is pertinent technical information on your Losmandy G-11 telescope that technophiles may find useful.

R.A. & DEC axis

- All machined construction
- One 3.75" thrust bearing
- One 2.00" thrust bearing
- Two 1.50" needle bearings
- 5.625" diameter 7075 aluminum gear with 360 Teeth
- Dual supported ball bearing housed stainless steel worm, heated treated and ground
- 1.25" diameter centerless ground stainless steel shafts
- Tangent arm design altitude adjusts 14°- 64°
- Latitude scale in 2° increments
- Single knob control azimuth, bi-directional ±8.5°
- 5.0" diameter laser engraved setting circles w/verniers, 1 minute R.A, 0.1° DEC
- 160 oz/in stepper driven
- Dovetail saddle plate allowing for interchanging of any tube assembly
- Removable counterweight shaft with safety knob
- 21 lb. counterweight included

• 7 lb., 12 lb. and 21 lb. extra counterweights available

• Through-the-axis polar alignment finder (northern and southern hemisphere) available as an option

• Instrument weight capacity 60 pounds

• Equatorial head weight 36 pounds
(less tripod)

Tripod

• All machined construction

• Tripod height, adjustable
(33 - 48 inches)

• Semi-Pier tripod design with removable legs for ease of transport

• Tripod weight 35 lbs.

Distance from the top of the tripod to the DEC/R.A. junction (at 34°) is 10".

Distance from the DEC/R.A. junction to the top of the saddle is 7".

Please note that these specifications are sub-ject to change without notice and stated for the Losmandy G-11 mount with the standard accessories.