Using the Binofloat™ Floating Binocular Support

The Binofloat lets you use giant binoculars just as if they were small hand-held binoculars. The Binofloat cancels the weight of the binoculars while giving you complete freedom to move them in three dimensions and aim them in any direction. You can let go of the binoculars and they will remain in place.

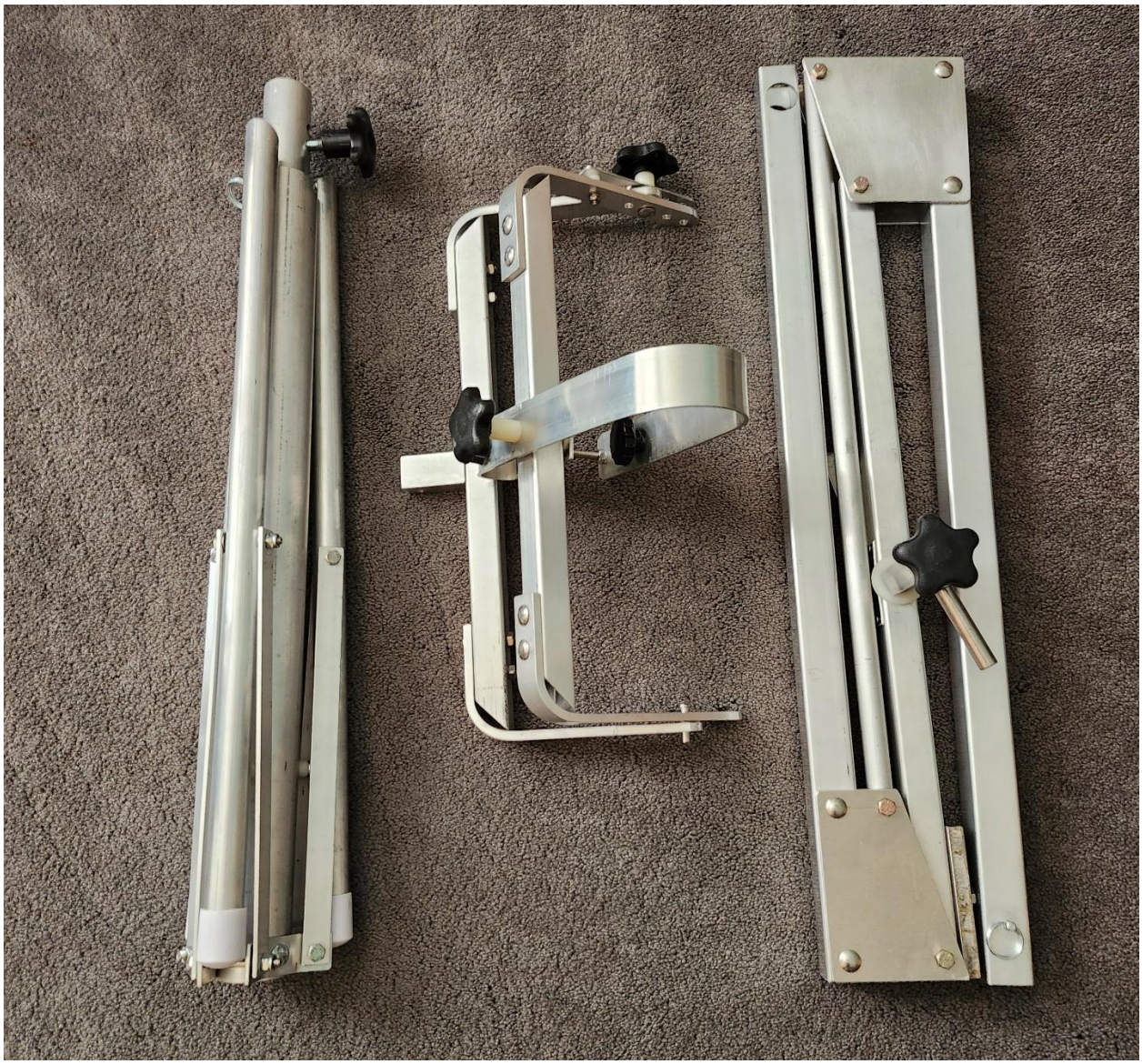
To achieve 3-dimensional freedom of movement, the Binofloat employs a parallelogram frame. But unlike other parallelogram mounts, the binoculars and counterweight move in opposite directions so the whole assembly remains balanced as the binoculars move forward and back, up and down, and from side to side.

Unlike a telescope mount, the Binofloat is not designed to hold the binoculars rigidly in place. Instead, they “float” as if supported in water. If you bump the binoculars, they jump to a new position and stay there. The Binofloat does have clamping knobs on all axes so you can lock the binoculars in position if necessary to resist wind or imbalance.

The Binofloat works with any size of binoculars weighing up to 12 pounds. It is intended for use with “straight through” binoculars, not binoculars with angled eyepieces. The binoculars need to be equipped with a tripod support bracket, either an “L” bracket or a sliding center post or other attachment device. This should have a standard ¼-20 threaded attachment as is commonly used with camera tripods.

For astronomy, the Binofloat is best used with a reclining chair. For terrestrial observation, it can be used with a straight chair or stool. It can also be used while standing or lying on the ground.

In order to get the full benefits of the Binofloat, it is important to set it up correctly as described below.



The Binofloat consists of four main parts: the pier, the parallelogram, the binocular frame, and the counterweight. The pier rests on the ground behind the observer. The parallelogram is attached to the top of the pier. The binocular frame is attached to the front of the parallelogram and holds the binoculars. The counterweight (not shown in the above picture) is attached to the back of the parallelogram and balances the binoculars.

Step 1: Set up the chair. Set the chair in the direction you will be observing. You can comfortably observe through a range of about 180 degrees.

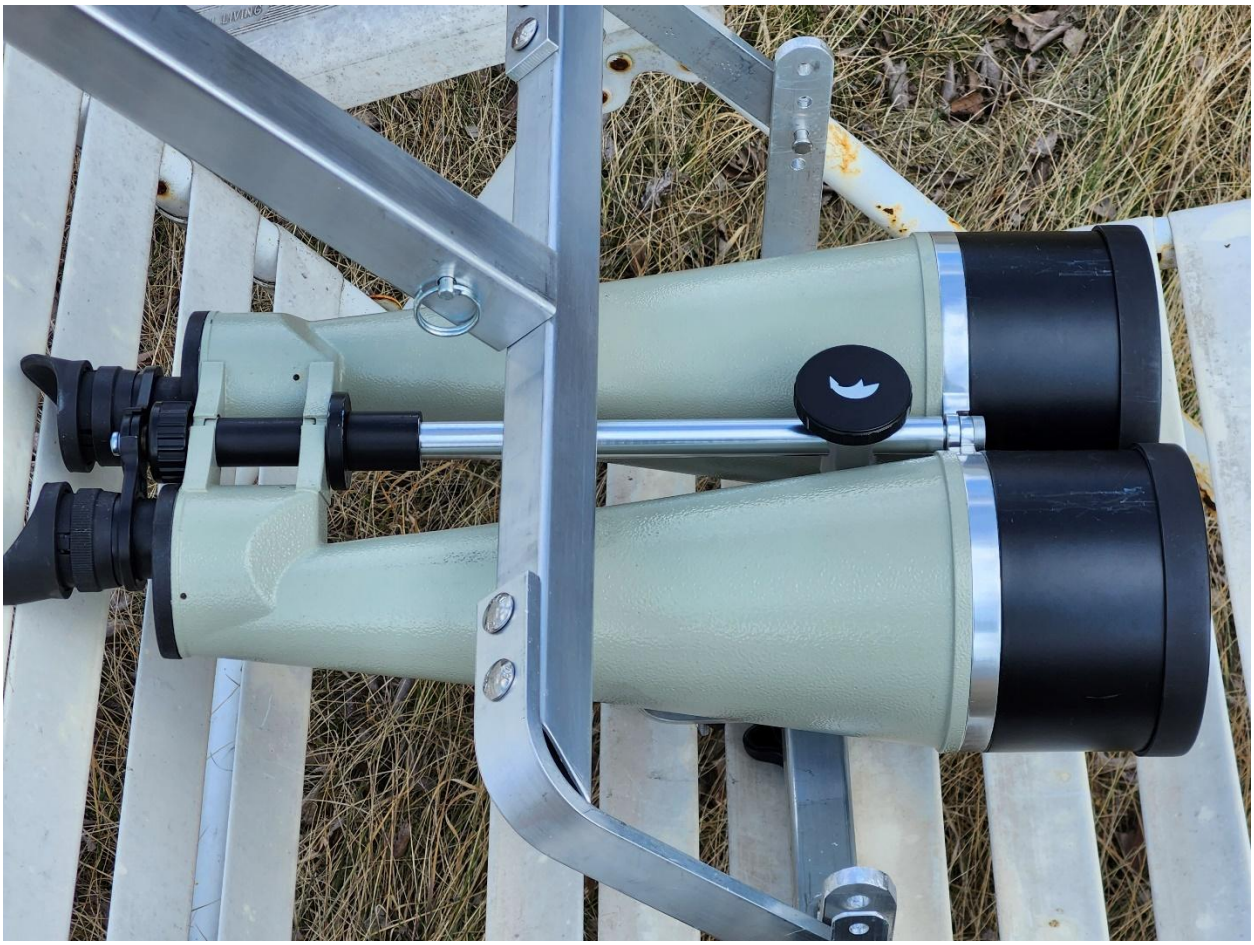
Step 2: Set up the pier. Unfold the legs. The legs are not permanently connected to the central tube. Instead, each leg is connected to a pair of struts which are connected to the tube. Pull the leg away from the tube until the struts are horizontal. Then push the top of the leg over the small bolt on the tube a few inches from the bottom. The strut, the top of the leg, and the bottom of the tube will form a right triangle. When all three legs are in position, the pier should feel very solid.

Set the pier on the ground behind the chair. One leg should extend straight back from the chair, the other two at an angle to the sides of the chair. The knob at the top of the pier should be to the right as you are facing the back of the chair. The top of the pier should be about one foot behind the top of the chair. This distance gives you maximum range of motion from horizon to zenith. If you position the pier closer to the chair, you get better range for horizontal viewing. For better vertical viewing, position the pier farther from the chair.

Adjust the height of the pier so the top of the pier is about level with the top of your head as you sit in the chair. Pull out the pin at the top of the pier, pull up the inside tube of the pier until the top of the pier is at the right height, and re-insert the pin into one of the lower holes.

Step 3: Set up the parallelogram. With the parallelogram still folded closed, set the ½” diameter pin near the center of the parallelogram into the hole at the top of the pier. Rotate the parallelogram in the hole so it hangs off the left side of the pier, opposite from the knob on the top of the pier. Tighten the knob on the parallelogram slightly so there is some friction in the parallelogram frame. Unfold the parallelogram and rotate it so the front end, where the binocular frame attaches, hangs above the chair.

Step 4: Attach the binocular frame. Pull out the ring-grip pin at the front end of the parallelogram. Slide the square bar on the binocular frame into the front end of the parallelogram. The knob on the side of the binocular frame should be towards the right as you are facing the chair. Insert the ring-grip pin into the front of the parallelogram, locking the binocular frame in place. It's a tight fit, and it helps to twist on the pin as you are inserting it. Let the binocular frame rest on the chair.



Step 5: Attach the binoculars. Unfold the binocular frame so the upper (attached to the parallelogram) and lower parts are in a straight line. Rotate the binocular attachment bar (the curved aluminum bar) so the big curve faces forward. Holding the binoculars in one hand, use the other hand to grab the captive knob on the binocular attachment bar and twist it into the threaded hole in the binocular attachment bracket or post. The big curve in the binocular attachment bar should be between and parallel to the binocular objectives.

Step 6: Attach the counterweight. Extend the parallelogram to its full length. Insert the 1” diameter counterweight bar into the 1” hole in the back end of the parallelogram. Put counterweight plates, 1” washers and end clips onto the bar until the binoculars are perfectly balanced. For best balance, put approximately equal weights on either side of the frame.

Step 7: Balance the binoculars. Loosen the altitude adjustment knob on the right side of the binocular frame. Point the binoculars straight up. Adjust the small bar knob near the end of the long bolt until the binoculars are balanced.

There is about 2 inches of adjustment range. Unfortunately, there is a much larger range in the balance point of various sizes and brands of binoculars. If you cannot get your binoculars to balance and want to be able to aim them vertically with a minimum of friction, you should be able to achieve this by using a different pair of holes in the frame pivots.

CAUTION: Before taking the binocular frame apart, remove the counterweight. If you remove the binoculars or frame without first removing the counterweight, the frame will jerk upward possibly causing injury.

Remove the hardware holding the upper and lower frame sections together, try another pair of holes, then re-install the hardware. In general, larger binoculars require using the holes closer to the end of the curved bars.

Once the binoculars are balanced while pointing straight up, swing them over to point horizontally. The Binofloat has no mechanism for balancing the binoculars in the horizontal direction. If your binoculars have an adjustable center post, adjust it until they are balanced. If the binoculars have only an “L” bracket or something similar and they are not balanced, you might need to drill additional holes or add a dovetail or counterweight.

Once the binoculars are balanced, you might need to make a slight adjustment to the counterweight.

If everything is balanced right, you should be able to aim the binoculars in any direction with little or no friction on the knobs. There might be slight imbalance caused by bending of the frame or looseness in the bearings.

Usually it's best to put as little friction as possible on the axes. If you want to show an object to someone else, a good way to do this is to tighten all the knobs except for the one at the top of the pier. Swing the binoculars to one side so the other observer can get into the chair and then swing the binoculars back into position.

CAUTION: When you are done observing, always remove the counterweight first before removing the binoculars. If you remove the binoculars without first removing the counterweight, the binocular frame will jerk upward possibly causing injury. It's also a good practice to tighten all the knobs to reduce any sudden movements.