

## Hutech/Borg Binoscope User Manual

This document describes the procedure for assembling and adjusting the Hutech/Borg Binoscope for optimum performance.

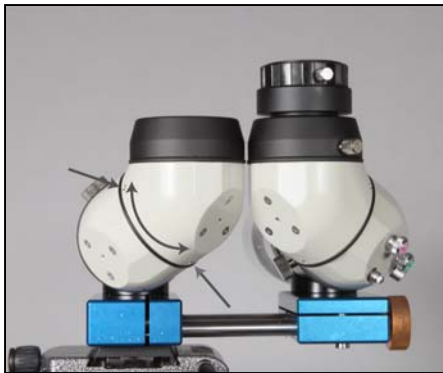
### Overview

Before assembling your binoscope, please take a moment to look at the photos in this document to familiarize yourself with the general layout of the binoscope. Pictured in this document is a binoscope based on MiniBorg scopes, but the information here is valid for all models of binoscopes.

The binoscope assembly consists of a platform which holds the two Borg scopes and allows adjustment of the image between the two scopes. Separate and distinct left-side and right-side diagonals are inserted into the scopes as pictured.

The platform can be seen as blue-anodized blocks in the photos below. The scope on the left is considered the fixed reference. The scope on the right is adjusted for collimation. Horizontal collimation is accomplished using push-pull setscrews in the left side of the platform, and vertical alignment is done using push-pull setscrews accessed from the bottom of the right side platform. Final fine adjustment is done using the mirror tilt knobs (chrome) located on the back of the right side diagonal.

### Preliminary Setup

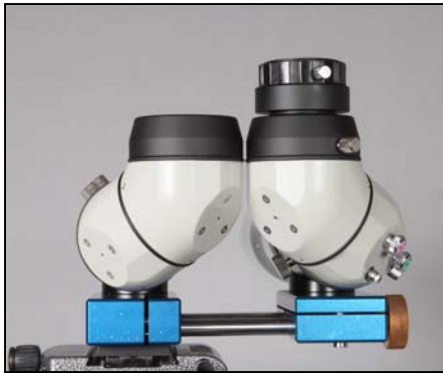


Since the left scope is the fixed reference view, it should be attached to the platform first and visually aligned with the platform with some care. Put the left diagonal into the scope and with the platform level, verify that view through the optics are also level (check against a level horizon for this). If the view is not level, adjust the back of the diagonal as indicated at left. Repeat this for the right diagonal, still using the left scope. **Note that this step should not be necessary for factory-new units.**

Also prior to going through the collimation adjustments below, the mirror collimator screws on the back of the right diagonal should be in an initial “neutral” position. **As shipped from the factory, no adjustment should be necessary.** However, to verify that the mirror collimator adjustments are in the correct starting position, put the right diagonal on the left scope and verify that the view matches the view using the left diagonal.

## Alignment Procedure

1. Mount the second scope on the right side of the binoscope platform as parallel as possible with the left scope, as shown at right.



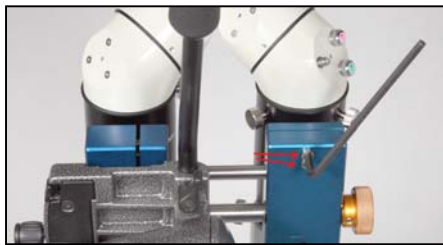
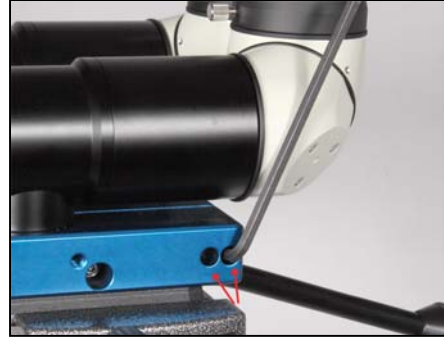
2. Insert the diagonals and set them in place at the rear of the scopes vertically in parallel to each other (see photo at left). Remove the upper sections of the diagonals to install 1.25" helical focusers.

At this point, the assembled setup should appear as shown at right.



3. Adjust the interpupillary distance for comfortable viewing with both eyes by turning the knob located on the right side of the binoscope mount as shown at left.

4. Use the push/pull setscrews on the left side of the binoscope platform to collimate the two scopes horizontally as indicated by the arrows in the photo at right.



5. Use the push/pull setscrews located at the bottom of the right side of the binoscope platform to collimate the scopes vertically. These are indicated by arrows in the photo at left.

Repeat steps 4 and 5 until the two images seen through the scopes match each other as closely as possible.

6. Finally, adjust out any residual image mismatch using the mirror adjustment knobs located at the elbow of the right-side diagonal. These screws have pink and blue markings on them.