

Balancing Side-by-Side

In a nutshell, this is what you should do. If you are careful about following this procedure without shortcuts or “guesstimates”, you will save a lot of time and effort in the long run. People look at the procedure and say “Heck with it, I’ll just wing it.” They usually end up sorry!

The key is preparation! You are balancing 3 systems. Balance accordingly, and balance individually, first. Do ALL of this on a work table, preferably with a helper.

1. Balance the first system.
 - a. Fully assemble one of the telescope systems you will be using. This includes, but is not limited to:
 - i. The dovetail for that scope
 - ii. The rings or other attachment medium
 - iii. The complete imaging train including all adapters, correctors, telecompressors OAGs etc.
 - iv. All guiding hardware if it will be on this system
 - v. Any finders or other devices
 - vi. Any special wiring harnesses or electronic devices
 - vii. Dew Heaters and controllers.
 - viii. ANYTHING that will be attached to this system!!
 - b. Adjust focus as close as possible to where it will be for imaging.
 - c. Place a dowel rod under the mounting plate to create a see-saw. BE CAREFUL!!
 - d. Using the dowel rod as a fulcrum, find the exact balance point of the system.
 - e. Mark the exact balance point with a piece of blue painter’s tape.
2. Balance the second system.
 - a. Basically, repeat the above steps.
3. Since the two parallel dovetail saddle plates are probably somewhat offset, we need to next balance the side-by-side plate trio FRONT TO BACK first.
 - a. This should just be the bottom transverse dovetail plate and the two parallel saddle plates that are bolted on top. Nothing else.
 - b. Run the dowel rod lengthwise under the bottom dovetail plate. Try to keep it parallel with the transverse plate.
 - c. Balance the trio of plates front to back on the dowel rod.

- d. Mark each saddle plate at the point where it balances over the dowel.
 - e. Remove the dowel rod.
4. Attach each scope system. Simply line up the tape balance points on each saddle with the tape balance points on each of the parallel saddles.
5. Now place the dowel rod back under the bottom dovetail plate, but this time it is perpendicular to the dovetail (parallel to the OTAs).
 - a. Rock the system back and forth until you find its balance point.
 - b. Mark the bottom dovetail with tape at the exact balance point.
6. Put the entire system into the primary saddle plate. This plate will have limited adjustment because it is fixed by its mounting holes. The final part of this is the trickiest.
 - a. Our saddle plates offer several mounting options. Look at the setup in front of you and decide which set of mounting holes will best serve your needs.
 - b. Mark the center of the mounting hole pattern that you will be using with tape. This may not necessarily be the perfect balance point.
7. Place the dowel rod under the center of the mounting hole pattern..
8. Now, adjust the bottom dovetail in the saddle until the system is balanced above the dowel that is in the center of the Dec mounting hole pattern.
9. Mark the saddle and bottom dovetail so you know exactly where the dovetail needs to be positioned.
10. Take everything apart, but **DON'T LOSE THOSE TAPE PIECES!!**
11. When you reassemble, simply line up your tape pieces and 95% or more of your Declination side-by-side balancing will be done.
12. Final note: When balancing RA, more weight higher up on the shaft is better than less weight further down the shaft. See the attached PDF.

I hope this is helpful. If the preliminary work is done carefully, you will blow anyone away who might be watching you. Most experienced observers shake their heads when they see someone trying to set up a side-by-side system because they know how hard it can be to get the thing properly balanced. It is very satisfying to put the pieces together and have near perfection right from the get-go!