Creating a Zero Point for a ZEQ25GT mount

As a few of you ZEQ25 owners may have noticed, there are no markings on the mount for a 'Zero Point'. A 'Zero Point' is basically the park position of the mount, OTA on top, counterweight in line with the North facing tripod leg. This is the starting point for all visual observing and imaging sessions.

A good zero point is dependent on a good level. Use the mount bubble level for a reference if you remove the mount from the tripod frequently. The mount’s bubble level does not have to be super accurate, we are only using it for a reference, we are going to square the mount's RA and DEC axes to the level.

If you do not remove the mount from the tripod, and carry it out complete, as I do, then you can install a small bubble or t-level on the tripod spreader and use it as a reference level.

Image of my tripod spreader bubble below.
Remember, we are using whatever level you choose, as a reference point to square the mount's RA and DEC axes. The mount bubble or the spreader level will be used as a basic reference starting point and should be leveled prior to any other procedures.

The first thing we're going to do is level the circular mount bubble, or the spreader level, by adjusting the tripod's legs. The following image has the bubbles centered in both planes after adjusting the legs.
The only tool you will be required to have is a Carpenter's level, it must have a v-groove to level the RA axis.

Now we need to square the RA axis to the mount/tripod bubble. There are no really flat areas on the ZEQ25, so we will use the DEC housing's front radiused surface.
Place the carpenter's level on the radiused surface, and then center the bubble using the RA slew buttons. Anything over speed '5' is too fast. Experiment.

This is what you should end up with after leveling in RA. Now it's time to move on to the DEC axis.

The DEC axis is a little tricky, due to the stepped design of the saddle. Open the saddle very wide, so that the carpenter's level has plenty of side to side play. Then, with your fingertips, just maintain pressure against the left edge of the saddle shoulder. The main thing is to keep the level flat. If you are up on the shoulder, you will not be able to get an accurately centered bubble.
Once you are convinced that the level is indeed flat and flush in the saddle, slew in DEC until the bubble is centered in the level. This is what you should end up with.

Now your RA and DEC axes are orthogonal (squared) to the mount or tripod bubble. It is now time to mark the RA and DEC joints to establish that magical zero point. I use readily available self adhesive labels, drawing a straight pen line on the label prior to sticking it on the mount. The labels are easily removed should you have to and are not permanent.
After placing your labels, you must cut through the labels at the RA and DEC joints with a razor or knife.

Now it's time to stand back and admire your work, and be confident that you will always have an initial setup, a 'zero position' from which all subsequent adjustments are done. If you accidentally pull a power cord out in the middle of a session, it's easy to plug it back in, slew back to your zero marks, shut the mount off and back on, and then continue from there.
It's also very reassuring, at the end of a long night viewing, or imaging, to hit the Return to Zero Position button and watch the mount slew back to your marks.

This procedure works with all Equatorial mounts, as long as you can find the surfaces to place the level on. Please save a copy of this to refer to, and pass along to someone who is having difficulties wrapping his or her head around the 'Zero Point' concept.

Hope a few people find this helpful. Paul Chasse, aka ‘Astronewb’