



## Y Axis balancing – How it works.

The drawing below shows an example of an OTA weighing 10Kg in total including diagonal, eyepiece, and a bino-viewer.

The top drawing has the telescope mounted without a Y-Axis balancer.

It is easy to balance the OTA in the horizontal position as the mass is simply set to be equal on each side of the vertical axis, sliding the telescope in its saddle to obtain balance.

However as the telescope increases in altitude the imbalance also increases to maximum at the zenith.

The imbalance is caused by the heavier mass now on the right side of the vertical axis (because of the bino-viewer and optics etc.). There is still a total of 10kg but this is now un-evenly distributed about the vertical axis, for example 4kg on one side and 6kg on the other resulting in a rotational force, i.e unbalanced.

The Y axis balancer overcomes this problem by 'using' some of the telescope tube mass to balance the offset weight of the viewing optics.

In the lower drawing the Y axis balancer allows adjustment of the telescope mass so that the weight is evenly distributed about the vertical (Y) axis and therefore elimination the rotational force and hence balanced.

The OTA is balanced and adjusted using the middle weight eyepiece expected in use, then a small counterweight is only required to compensate for the different eyepiece weights.

