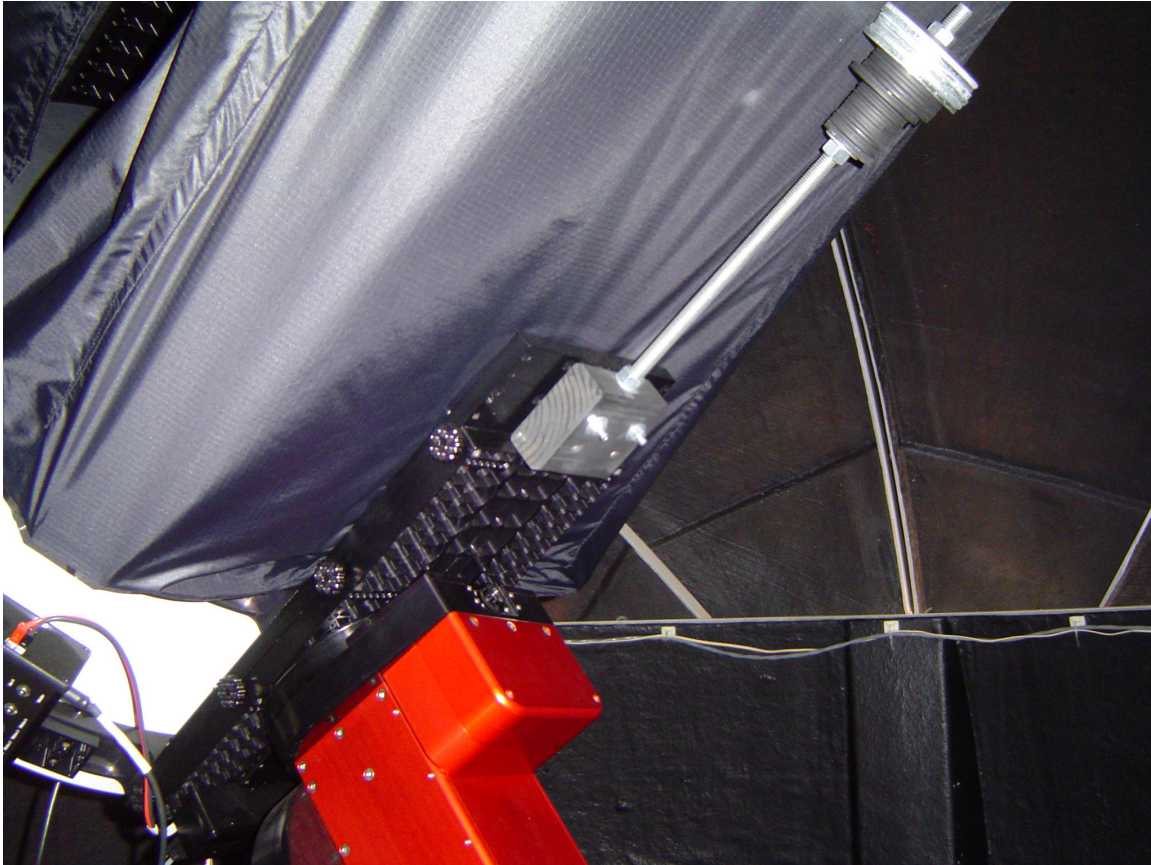
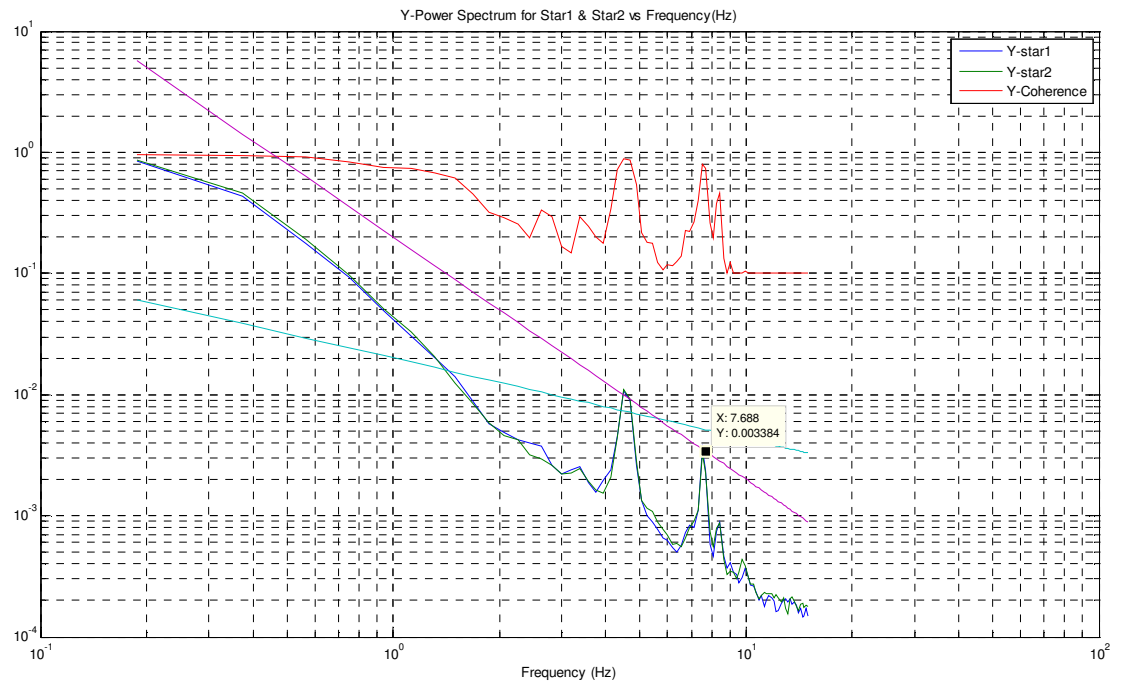


Ken, this little study shows the effect of a difference in declination counterweight resonances.

The picture immediately below is the old declination counterweight system. It is just a threaded metal rod with large washers as counterweights. At the time I was eager to get the telescope up and going and didn't have the patience to invest in a good stiff counterweight system. I remember thinking at the time that I could probably get away with using such a resonant counterweight system because the Paramount was so smooth that it wouldn't excite this declination counterweight resonance.



This counterweight system had a resonance at:7.69 Hz as shown in the next chart of the Right Ascension power spectrum.

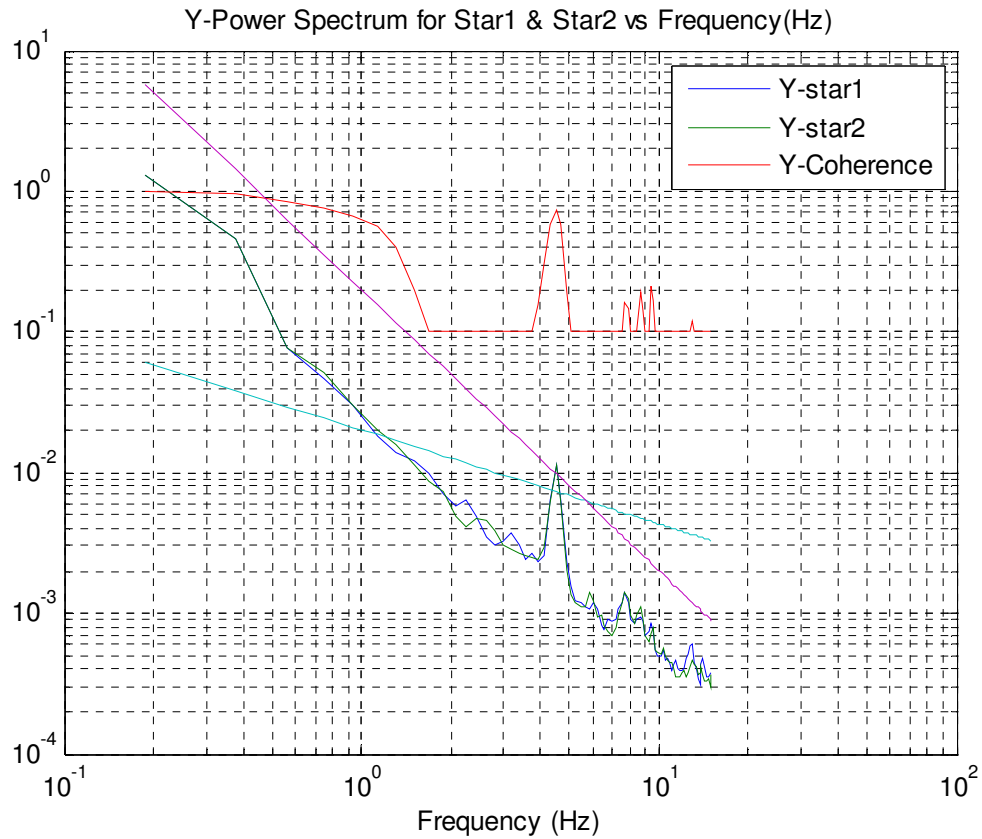


In this plot one sees the principle torsional resonance of the worm gear preload together with the rotary moment of inertia of the telescope and counterweight system that gives a resonance at 4.6 Hz. One also sees the resonance of the cantilevered declination counterweight with its resonance frequency at 7.69 Hz. Parenthetically, there is also a small amplitude resonance at 8.44 Hz whose source I am uncertain.

The new Losmandy counterweight system is much more rigid and looks like:



With this new stiffer system the counterweight resonance has been pushed to a much higher frequency that is beyond the highest excitation frequencies produced by the Paramount as it moves in Right Ascension. The next plot shows that now the resonance at 7.6 Hz. is gone.



In this plot we still see the worm gear preload / rotary inertia of the telescope and counterweights at 4.6 Hz, but the counterweight resonance at 7.69 Hz is gone.

Best Regards,

Evert

X-Power Spectrum for Star 1 & Star2 vs Frequency(Hz)

