

Altitude Drive Box Preload Procedure

3/15/10

Description

The altitude drive system is preloaded to the drive surface with two sets of rollers that attach to the backside of the drive surface. These rollers are loaded to the drive surface by two stacks of Belleville washers, one on each side. The Belleville's are arranged in 6 sets of 5 in series. It is important to have the first and last set of washers start with their crown out. Replacement Belleville's can be ordered under part number 500-073-1000 from Lee Spring Co.

Procedure

- 1) Coat all Belleville washers with anti-seize lubricant. This insures that the washers will deflect in the appropriate way to achieve the desired load.
- 2) Add 30 washers to each preload screw. They should be arranged in 6 sets of 5 in series. Be sure to start and end the preload stack with the crown of the last set facing out.
- 3) Attach the preload plate to the drive box using the preload screw.
- 4) Tighten the preload screw until you can no longer move the washers by hand. This is the zero load point. This should be done slowly on both sides to insure that no load is generated in the stack. It may be necessary to loosen the stack and star over a few times to make sure that the screw is tightened so that the washers are just unmovable.
- 5) Measure from the load washer under the bolt head to the surface of the drive box. Pick a spot to measure and use this place throughout the procedure. This measurement is the no load measurement. Do this for both sides of the box.
- 6) The plot attached gives drive box preload per side as a function of spring deflection. Alternate screws and adjust each in increments of $\frac{1}{4}$ turn, measuring after each adjustment until the desired deflection is achieved.
- 7) Start with 2500 lbs preload per side and adjust as needed to insure smooth motion of the altitude axis.

