SAS Adjustment Platform

07-09-19
Changes

Feedback from Mateusz:

- Removing the gearboxes driving the lateral flexures, use differential threads (like DBQs)
- Increasing the spring forces:
  - Look into Belleville washers
- Ease installation of vertical flexures:
  - Lock orientation of the wedges
  - Reconsider separating the adjustment platform from the girder
Orientation of wedge relative to the mounting tube fixed by a grub screw
Orientation of the mounting tube relative to the girder fixed by mounting features
Orientation of wedge relative to the girder fixed
Increased length and taper of the vertical flexure
Installation of vertical flexure from above
Lateral flexure inserted and fixed with screw
Rotation of the lateral flexure fixed by a grub screw
Differential nut installation
Coarse external thread

Fine internal thread
Longitudinal flexure installation
Springs Vs Belleville Washers

Belleville Washers
- Much greater stiffness possible
  - Up to 80kN/mm
- Limited range
  - Around 0.5mm
  - Stacking possible to increase the range
- Not good with off axis deflection

Compression Springs
- Stiffness up to 800N/mm
- Sufficient range (±1.5mm)
- Can cope with the off axis deflection
Alternative: Plate Mounted Assembly

Also discussed with Mateusz; possibility to return to a separate adjustment assembly mounted on top of the girder

Pros:
• Easier assembly
  • Although fit around the vertical flexures remains the same

Cons:
• Increased number of machined components
• Requires accurate positioning of the assembly on the girder