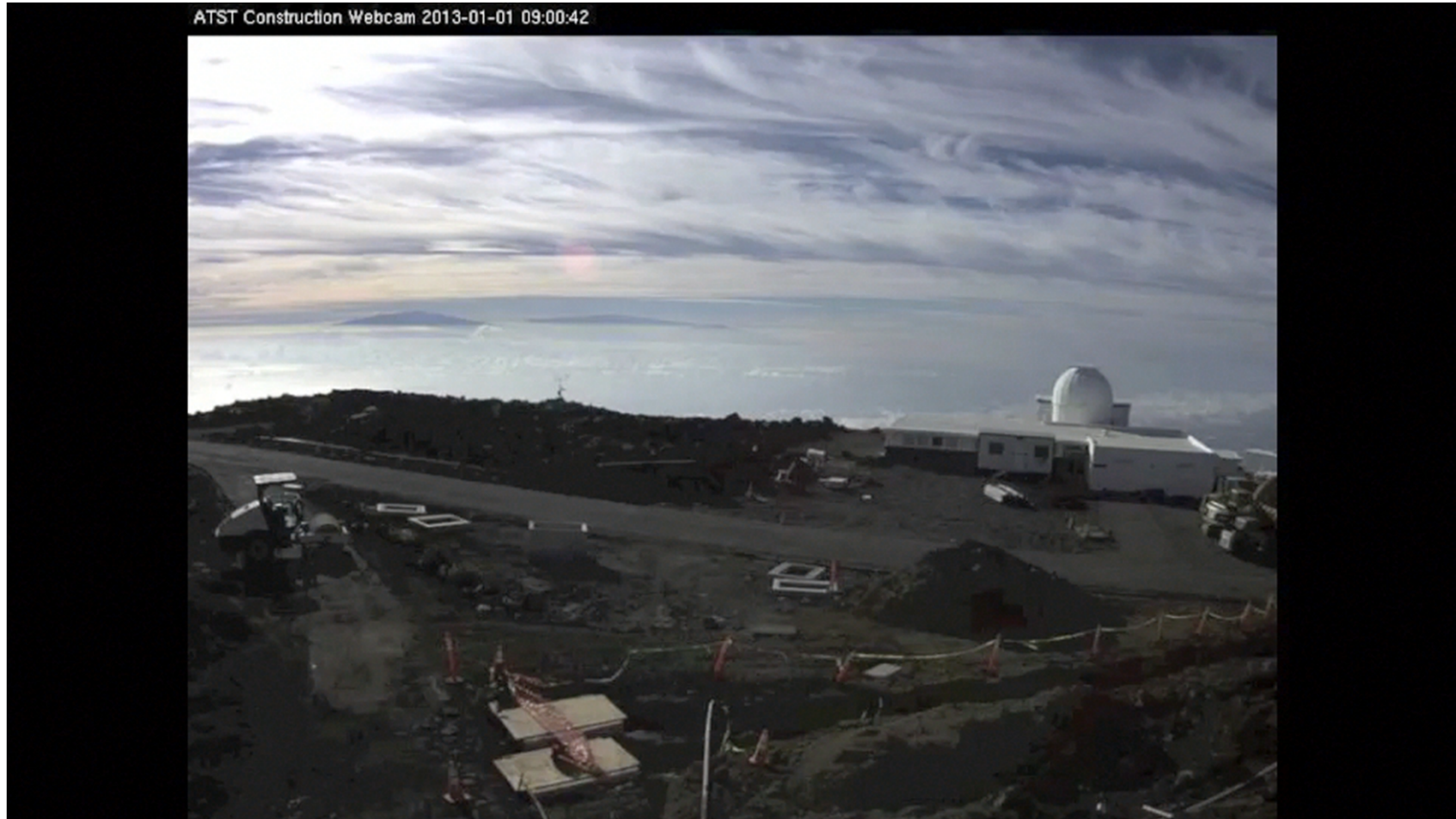




# DKIST Enclosure Overview

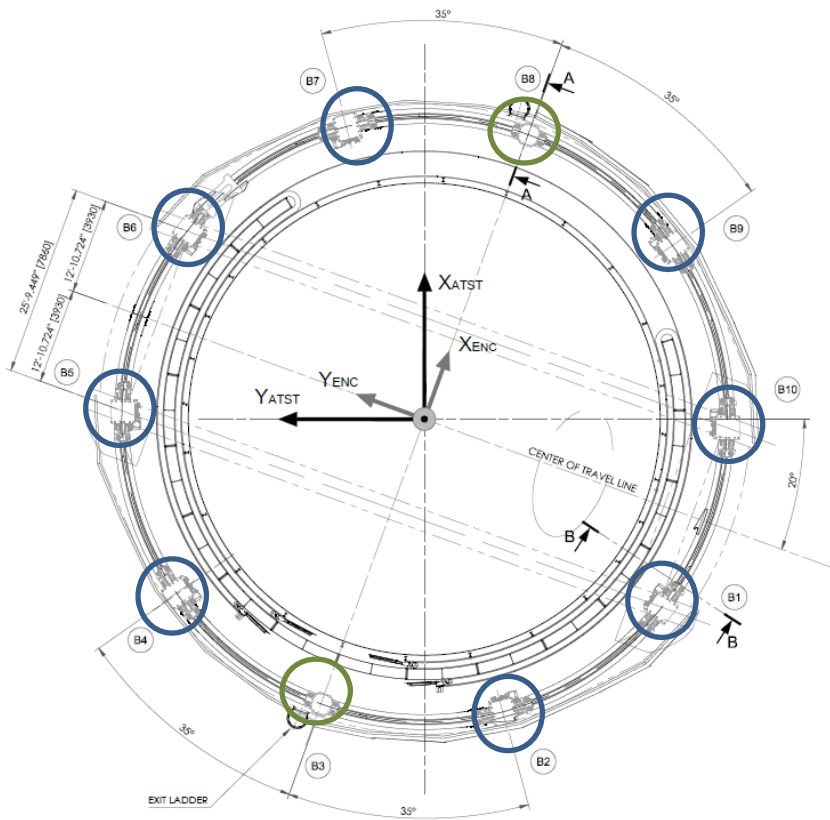
Heather Marshall  
Principal Mechanical Engineer  
National Solar Observatory  
Haleakalā, HI, USA

# Construction Video

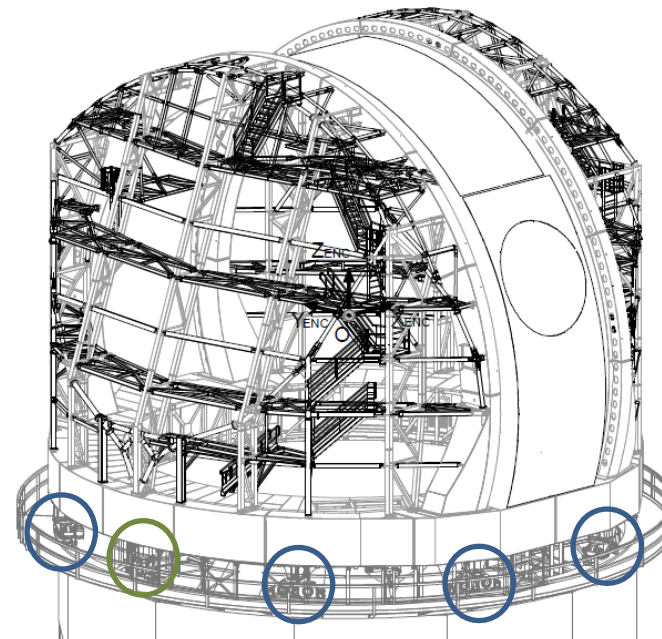


# Azimuth Arrangement

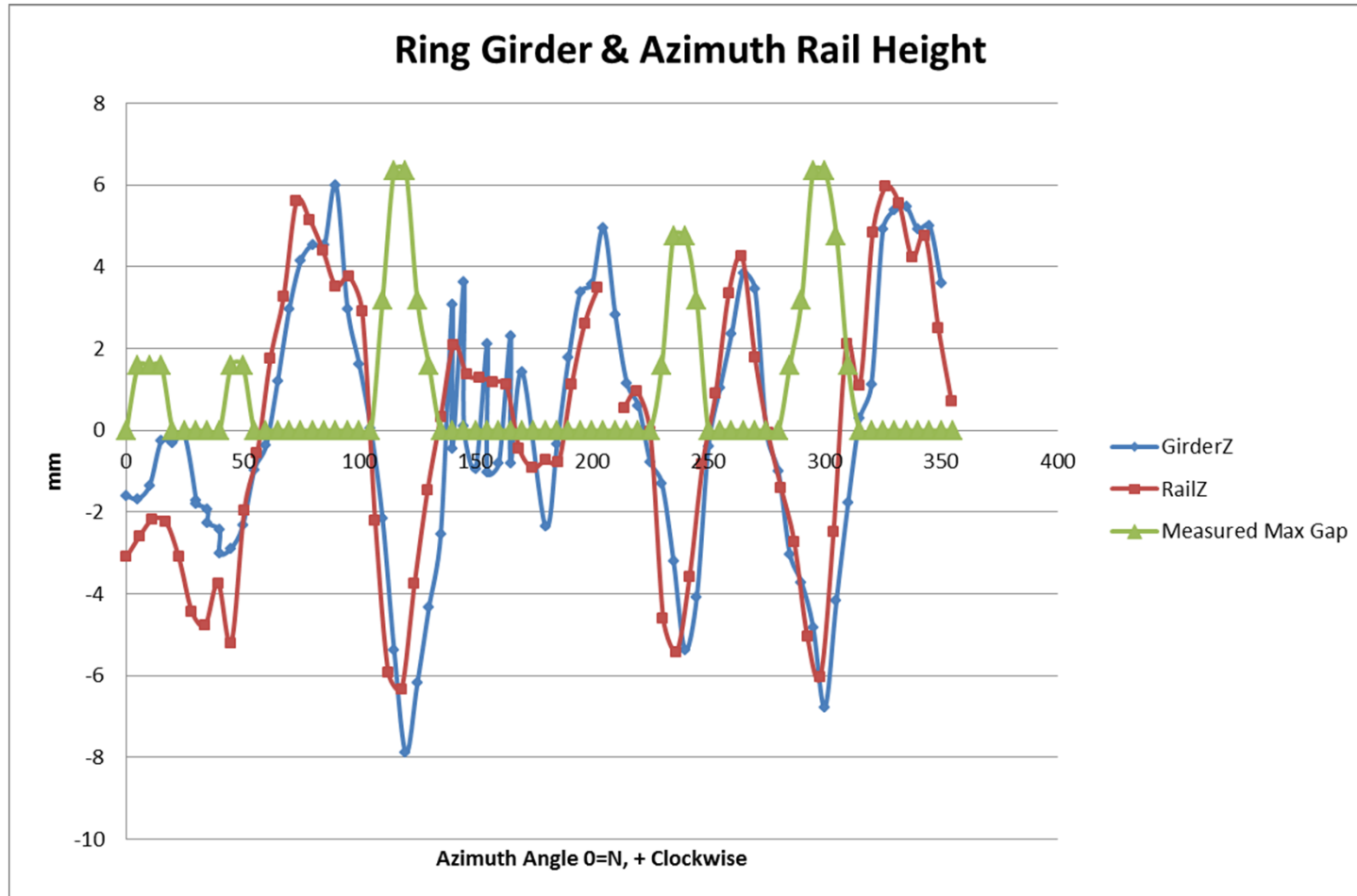
- 8 Driven Bogies
- 2 Idling Bogies



AZIMUTH MECHANISM TOP VIEW  
(BASE RING NOT SHOWN FOR CLARITY)



# Anticipated Wear Issue – Azimuth Rail Interface



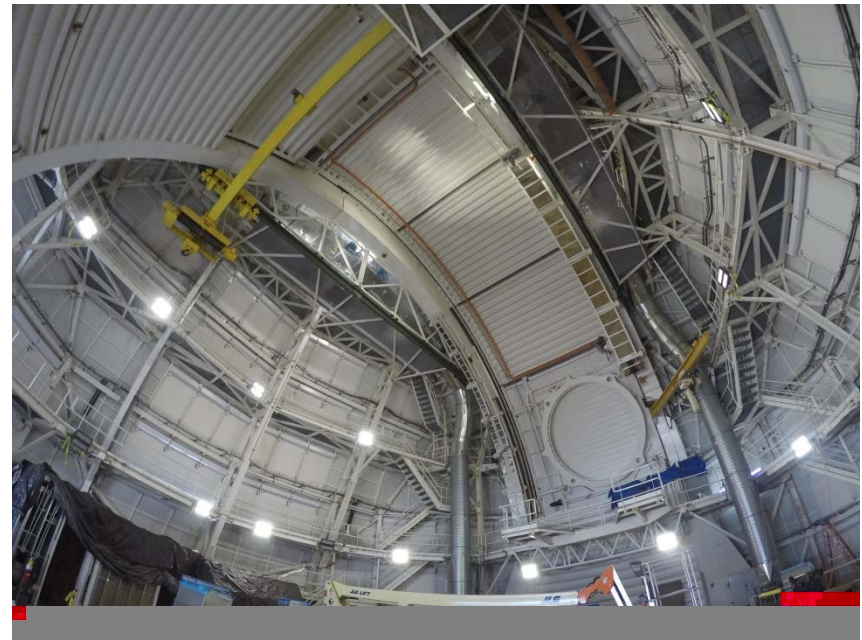
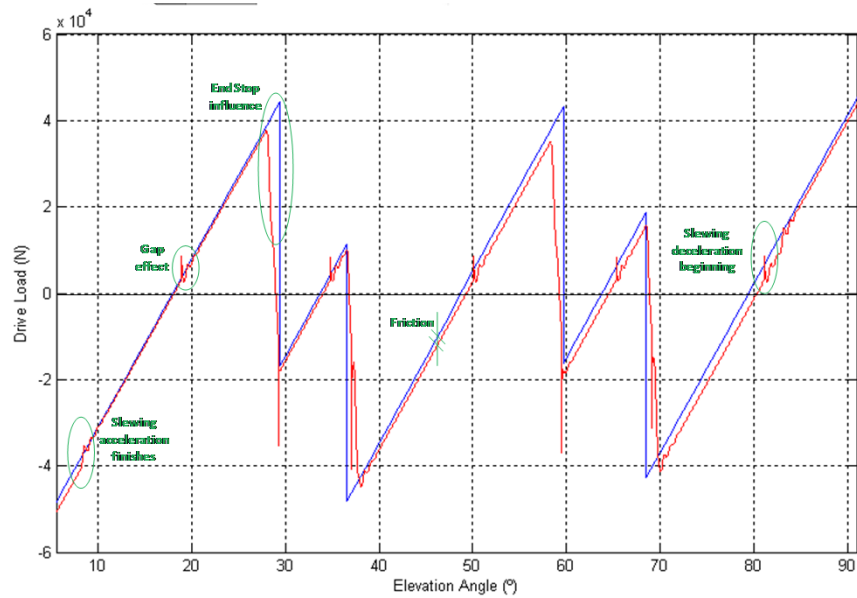


# Solutions

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- Margin on Motion Control Parameters and Braking OK with 4/8
- Select Master amongst best contacting
- Expect Uneven Torque (limit each in speed)
- Expect Uneven Wear on Rail (visible) and bearings (may not be visible)
- Inspect “Regularly”
- Lubricate “Regularly”

# Shutters

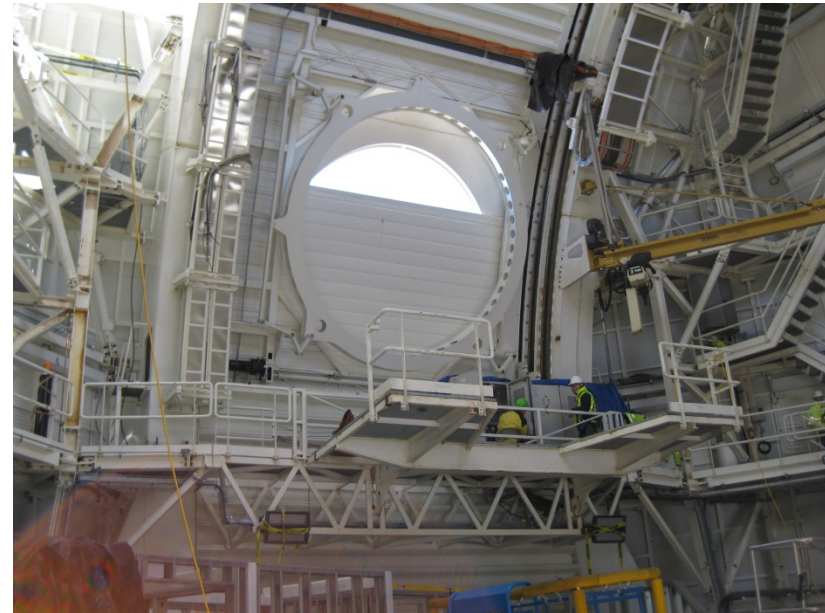




# Shutters

- Potential Issues
  - Rapid Load reversals – focused wear areas
  - Unknown Re-greasing Interval
- Leakage between sectors
- Inaccessible Seals
- Potential Solutions
  - Inspect Track Rollers
  - Difficult (impossible without disassembly) to inspect tooth wear
  - Track System Friction over time
  - Review Test Bench Data
- Keep hacking
- ?

# Ancillary Mechanisms



## Rear Door & Aperture Cover

- Rack & Pinion Mechanisms

- Both Undergoing redesign & will be retrofitted in place next year

- TEOA - electric cylinder

- Jib & Bridge Cranes – Standard parts w/ upgrades

- Transfer Bridge – pneumatic cylinders



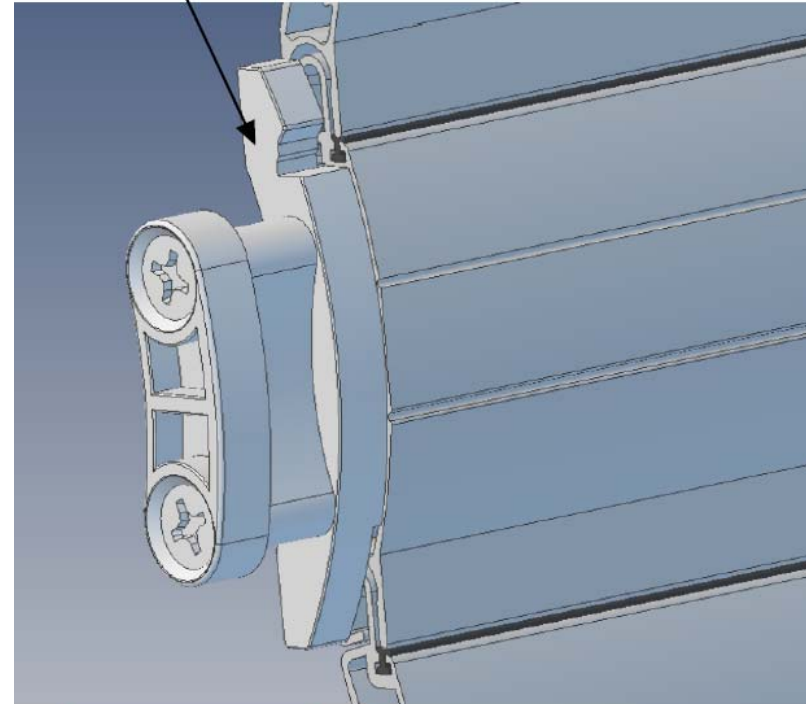


# Cladding & Vent Gates

Modular Curtain Wall Cladding  
System ~300 panels + Flashing & Seals



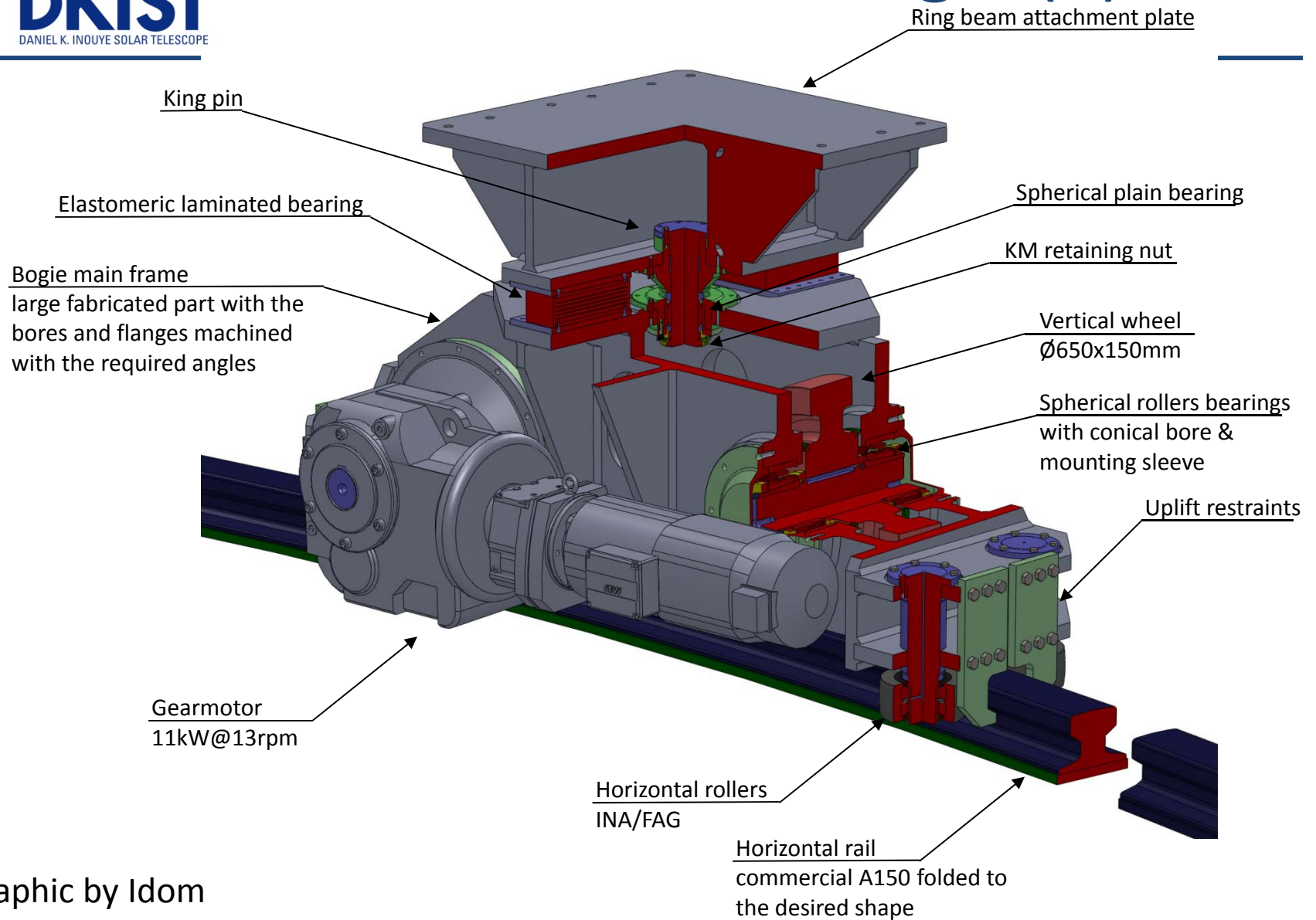
Vertical and 20° Angle  
Tri-Fin felt seals, top and sides  
Compressible Seal at Bottom





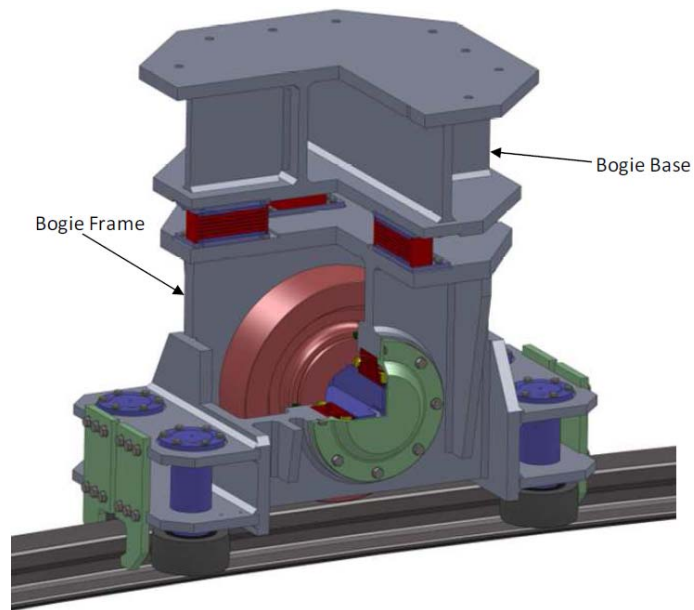
# Backup Slides

# Driven Bogie (8)

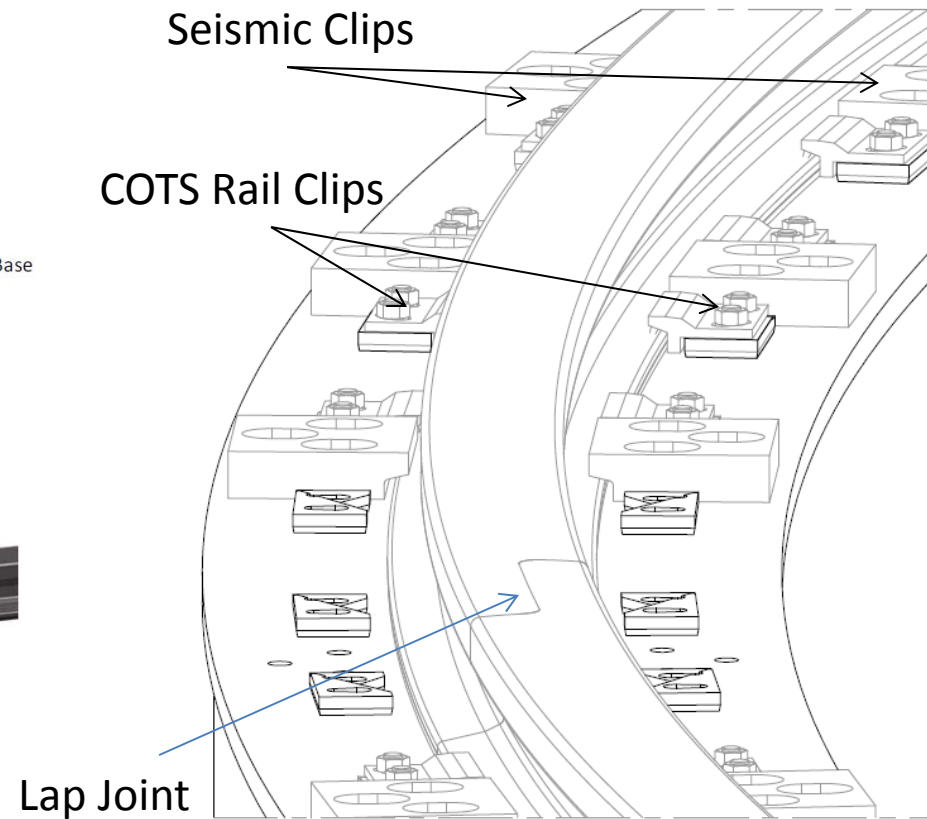


# Idling Bogie (2) & Rail

## Idling Bogie (2)



## Azimuth Rail



# Shutter Crawler

