General notes:

The ATA Antonio Feed system is a complex mechanical system in a vibration environment, with some subassemblies operating at cryogenic temperatures.

1. Link Arm
   * Review the assembly procedures for process control. Are Link Arms assembled identically by the same person? - history or documentation on each feed
   * Consider increasing the material thickness
   * Consider adding a 90deg twist in Link Arm to allow compliance in two directions
   * Add length to the arm to lower stress at solder joints
   * Analyze stress in Link, verify below S-N curve for fatigue at 70K - look at this early on
   * Inspect failures under microscope, look for stress concentration at solder joints or bends -
   * The feed to coax interface effect the performance, check the RF performance
2. Feed
   * Appears first mode is ~115Hz, close to harmonic of 60Hz
   * Consider thickening the Pendants or Rib
   * Consider surface coating the Feed to reduce thermal dissipation
   * Review Rexolite insulator dimensions and fit on Feed, effect of cooling to 70K
3. Flex Plate
   * Utilize more thin leafs, lower spring constant to few lb/in
4. Cryo Cooler
   * Contact Sunpower regarding passive damper design (are coolers individually tuned?)
   * Simplify resonant system by removing bellows (issued with failing), springs, axial support (only damper on the end of the cooler)
   * Tuning passive damper in simplified cooler system while integrated (suggested by Sunpower)
   * Experience tells us frequency of cooler mechanical vibration doesn’t change over time, but perhaps amplitude
5. Instrumentation
   * Take measurements in the field on working Feeds; attach accelerometer to the chassis to survey vibration environment
   * Mount accelerometer to Chamber Baseplate and set threshold to turn system off
   * Monitor vacuum for failing cryo or rough pump
6. Lab testing
   * Vibration test for infant mortality

Transport feed to SSL, with van

Compare design of passive damper in different. Did MINEX optimize the tuned damper?

Sunpower white paper on cryocooler installation.

Feed copper structure needs change in frequency response.

CAD model from MINEX.

Acquire some vibration data from ATA on all feeds.