# Antonio Feed Retrofit Procedures and Concept of Operations

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## At Minex Acceptance Testing:

* Several hours before inspection request that Minex powers up the feed so the auto-start procedure has time to cool the feed.

Generally:

**How are we acquiring telemetry values?**

**Where are these stored?**

**Suggestions for qualifying the new wiring system?**

**Timing Projections?**

### Auto-start procedure:

* Cooled down the feed to 65K

### Feed controller board inspection:

* Firmware version 4.2
* No use of an external oscillator
* Externally mounted accelerometer.
* Visually inspect the new grounding bar

### I2C temp sensors are all functioning and give reasonable values:

* a0 – Controller board temp sensor
* a1 - Outside air
* a2 – PAX box air
* a3 – Exhaust
* a4 – There is no a4!
* a5 – Cooler rejection
* a6 – Cooler housing

### Accelerometer:

* Values are reasonable (What does reasonable mean?)
* Run for 30 minutes, is the accelerometer still producing values (need to be quantitative here)

### Turbo:

* Speed 90k +/- ???
* Watts >5 <20
* No bad bearing sounds are evident
* Do we have a vacuum gauge? What is the vacuum after eg. 12 hours while at room temperature?

### Cryo:

* Cold head temp is 65k
* LNA temperature less than 10 degrees K greater than the cold head temp
* Removing 24 volts from the feed controller board and the cryo shuts down automatically
* Check and monitor all cryo temperature sensors. Log the cooldown.

### RF:

* Set the LNA biasing to the correct values and monitor / log: Vd,Id,Vg
* Do a VNA measurement in antenna chamber
* Do a hot-cold Y-factor measurement pointing at the sky / absorber. Ideally using a spectrum analyzer.
* Does the Feed includes the PAX amplifier etc?

### Miscellaneous:

* Wiring is visually correspondent with ???
* Reading the 24V and 48V values are correct
* Fan speed should read 3,000 +/- ??? rpm
* Fan is turning (which FAN?)
* Unit passes vibration / accelerometer testing sub-section (Greg)
* Visually inspect the area where the bellows were removed (What are we looking for)
* Visually inspect the inside of the bulb. All is clean
* Unit acoustic noise is at or below NN dB?

### Before Loadout:

* Let run for 30 minutes and check the sensor values. All should be functioning.
* If all is running after 30 minutes, recycle the 24 and 48 volts. The unit should recover within 30 seconds and all the sensors should function

## Initial Testing at HCRO (Installation Verification)

### Install:

***Who does the install? How long should it take? How long does testing take.***

* What happens when the units are brought up to HCRO?

***Broadband EMI assessment?***

***SEFD assessment?***

***Hot load / cold load?***

***Analog signal chain?***

More info:

## Continuous Testing at HCRO

## Maintenance Intervals

Feed controller board commands are documented at https://drive.google.com/drive/folders/1UkwHI2F7ygOe4Suj7boe001FbJXg3qF2