**Feed Status**

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| --- | --- |
| Document last update | 2021-06-28 |
| Feed Ser. Num. (Rev) | 5C4-018-A |
| Last worked on | 2019-01-02 |
| Antenna (previous/current) | NA |
| Original Build Date | 2017-03-07 |
| Number of cooldown cycles | 5 (2018-09-13) |
|  |  |

**Critical Component Summary**

|  |  |
| --- | --- |
| ATA Feed  Control Board | S.N. 7a |
| Sunpower CryoTel GT  Cryocooler | S.N. GT15-63  ~~GT15-72~~ |
| Sunpower GT Gen II  Cryo Controller | S.N. 50031064091  ~~50031064081~~ |
| Pfeiffer Hi Pace 80  Turbo Pump | S.N. 15790026 |
| Pfeiffer TC 110  Electronic Drive Unit | S.N. 74455287 |
| Pfeiffer MVP 006-4  Diaphragm Pump | S.N. 28377436 |
| H.S. Martin  Borosilicate Glass Radome | S.N. 021 |
| Pyramid | S.N. 018 |

**Retrofits**

|  |  |
| --- | --- |
| Temp S. Isolation | X |
| New Wire Harness | X |
| Bellow Removed | X |
| Cryo Tuned | X |
| Firmware 5.4 | X |

**Vibration Measurements**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Before Tuning | Tuned | Re-tune #1 | Re-tune #2 | Re-tune #3 |
| X | 0.22 | 0.11 |  |  |  |
| Y | 0.08 | 0.07 |  |  |  |
| Z | 0.18 | 0.11 |  |  |  |

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| --- | --- |
| **Chassis Up-Dates** | **Vac & Cryo Up-Dates** |
| 15 pin Hermetic Feedthur Filter | RTD Wire Routing |
| 48v Through Control Board | Buna-N O-Rings |
| Vibration System (BellowsTech) | Turbo Centering Ring w/Screen |
| Control Board 12v Jumper |  |
| Control Board Firmware 3.12 |  |
| Foreline/Valve Layout Change |  |
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|  |  |
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**HISTORY**

2017-03-07 Started chassis & sub-assembly build-up.

2017-04-03 Installed Bellows adapter (MetalFlex 347 SS) in SS Base plate & passed leak test. SS base plate, Cryo pump assy & vacuum system components installed in chassis, wiring 90% completed.

2017-04-28 Installed dumpy Pyramid (heat load) on Flex/Base plate assembly, finished wiring, new RTD sensor wire length & routing, started Vac pumpdown, & Cryo cooling for bellows run-in test (90k/13w, 65K/148w)

2017-05-10 Vacuum system shutdown overnight? Stopped Cryo, after warm up (24hrs), started Pumpdown (6hrs) & then started cooldown, leaving log to collect data if it shuts off again, log failed in 72 hrs?

2017-05-25 Vacuum system shut down again? Cryo on & faint amount of frost on Pyramid, restarted pumpdown & cooldown.

2017-06-06 Bellows run-in test ok.

2017-06-12 Shutdown Bellows test, removed SS Base plate assembly for repair of Feed -015 on Antenna 3C at HC.

2017-06-23 Installed dumpy Pyramid assy(heat load) on SS Base plate/bellows assy (BellowsTech 316/347 SS), finished wiring, new RTD sensor wire length & routing, started Vac pumpdown & Cryo cooling for bellows run-in test, 90k/11w, 65K/160w (data saved).

2017-07-07 Bellows run-in test going fine, 90k/9w, 65K/168w.

2017-08-21 Bellows run-in test going fine, 90k/8w, 65K/218w.

2017-09-(14-15) Shutdown Cryo & Turbo, will let Feed warm-up to allow contaminants

to outgas, start roughing pump in high speed mode, after a few hours started Turbo & normal roughing, once Turbo at 90k & watts less than 20, started Cryo cooldown.

90k/16w, 65K/167w.

2017-09-25 Bellows run-in test going fine, 90k/10w, 65K/176w.

Multiple checks of run-in tests (data saved).

2018-03-19 Bellows run-in test going fine, 90k/9w, 65K/183w.

2018-04-02 Bellows run-in test, 90k/9w, 65K/219w, shutting down cryo.

2018-05-04 Bellows run-in test, vac only, 90k/9w, 294K/0.0w.

2018-07-20 Started LNA module build-up.

2018-08-06 Bellows run-in test, vac only, 90k/9w, 295K/0.0w.

2018-08-(23-26) Pyramid/LNA assy completed, stopped Bellows run-in test, prepped Base plate & flex plate, installed Pyramid/LNA assy on Base plate, LNA temp sensor working, installed Glass Dome & finished the rest of the Enclosures wiring. Started pumpdown, LNA temp not showing on log, replaced Control Board, all sensors reading on log correctly, pumpdown completed in 60min, 90k rpms/ 9watts, let vacuum run over the weekend.

2018-08-(27-28) moved Feed into Screen Room (hot load) to check LNA’s before cooldown. Both LNA’s biased & working correctly at 290k (data saved), started cooldown & completed in 6.25hrs, 65.0K/69.0K/195watts (data saved), LNA’s biasing & working correctly (data saved). Looked for “comb” that Billy Barott recorded at HC, worked with various Spectrum Analyzer settings in the 1-10ghz range, no comb found (data saved), sent a screen image to Billy for his input. Feed is ready for Noise Testing.

2018-09-10 Vac 90k/10w, Cryo 65K/217w.

2018-09-(11-14) Cryo at 240 watts, 70K, ttarget is 65K. Shutdown cryo to let warm-up & outgas, restarted cryo next morning, after 5 hrs. Cryo stalled out at 70K. Turning everything off & will change out the Cryo pump. New Cryo pump installed, started pumpdown & cooldown, Turbo 90k/10w, Cryo 72K/240w, stalled out again can’t get to 65K. Cryo pump vibrating more than others, changed out damper, smoother running now. Slowly worked a deg at a time down to 67.5K/187w, 67K produced 240 watts. LNA’s working & biasing fine (data saved). In the screen room, used Antonio’s Sniffer idea with the Spectrum Analyzer to look for RF/Comb signals (data saved).

2018-09-17 Checked on Cryo, 67.5K/157w, tried to bring down ttarget to 65K & it worked, 65K/69.9K/175w?? Turning off Cryo to let Feed warm-up to 100K. Will try a normal Cryo board

cooldown from 100K to 65K. Cooldown went smoothly, vac 90k/10w, cryo 65K/69.9K/181w. Cryo wattage is normal & running fine.

2018-11-26 Checked on Cryo & Turbo, Cryo watts are rising to 240?, TTARGET set again to 67.5K/192w, Vac is good 90k/11w.

2018-12-20 Set TTARGET to 65K again, cryo watts staying within range, check in January.

2019-01-02 Checked Feeds Vac & Cryo, 90k rpms/10w, 65K/70K/204w, everything looks good (data saved).