**Feed Status**

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| --- | --- |
| Document last update | 2021-06-28 |
| Feed ser. num. (rev) | 5C4-007-A |
| Last worked on | 2019-01-09 |
| Antenna (previous/current) | 1C, 3L |
| Original build date | 2015-9-08 |
| Number of cooldown cycles | 2 (2018-10-23) |
|  |  |

**Critical Component Summary**

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| --- | --- |
| ATA Feed  Control Board | S.N. 21a |
| Sunpower CryoTel GT  Cryocooler | S.N. GT15-68 / GT15-109 |
| Sunpower GT Gen II  Cryo Controller | S.N. 50031064091 |
| Pfeiffer Hi Pace 80  Turbo Pump | S.N. 15861436 |
| Pfeiffer TC 110  Electronic Drive Unit | S.N. 73061953 |
| Pfeiffer MVP 006-4  Diaphragm Pump | S.N. 28377429 |
| H.S. Martin  Borosilicate Glass Radome | S.N. 013 |
| Pyramid | S.N. 004 |

**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 | 0.15 | 0.04 |  |  |  |
| Y | 0.05 | 0.05 |  |  |  |
| Z | 0.38 | 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**

2015-10-01 Chassis, Cooler vibration system up-date, Metal Flex bellows 347/304ss, cryo cooler, vacuum system, pax box & basic wire completed. Some sub-assemblies completed for Pyramid/LNA assembly. Cooler seemed to be quite noisy from vibration so I tried to rotate the dampener to a position that reduced vibration, but no luck solving problem. Dome is 013 typical 0.062 thick. Also flange was thick had to expand band, so now matched set with 2 red dots. X & Y poles Vg adjustments did not work. Error in cable FH17 at 8 pin quench connector yellow & black swapped 2 places. A correction was made at FH15 Dewar connector, pins 2 & 4 were swapped and pins 6 & 8 were swapped.

2015-10-23 Delivered to HC(3of3), installed on antenna 1C, 24+48v power supply up-dates added to Rim Box, all systems working properly.

2015-10-29 Feed Test Report sent to HC (Elin).

2017-02-07 RTD ColdHd temp sensor fluctuating +/- 5K, power fluctuating, instructed Elin on changing Cryo mode from temp to power (SET PID=0, SET PWOUT=155), power constant now at 155watts, LNA temp at 75K.

2017-06-(13-14) Shutdown Cryo & Turbo, once Feed warmed-up, bleed off vacuum, on the antenna removed glass dome, installed Coldhd temp sensor with up-dated wire length & support, re-installed glass, started pump & cooldown, vac & cryo working fine.

2017-07-07 Cryo cooler shutting down on its own, turbo working fine, Mark cycled the 24 + 48v, Feed pumped & cooled down but still shutdown it Cryo cooler (data saved).

2017-07-(11-12) Matt was at HC (SRI), he cycled the Cryo power (48v), the Feed cooled down from 300K to 65K, but is now over shooting the 65K target (61/67K/240w, 90k/15w) (data saved), Rob is e-mailing Elin about the low Cryo temp.

2017-08-07 Cold head temp number jumping around (57-160-226)? Put Cryo into power mode, started cooling down for a few hours (90k/15w, 163/198K/173w) but shut off?

2017-08-22 Have tried all sorts of things (resets, power cycles, temp & power modes, checked wiring), switched out cryo board, no change, spoke to Sunpower (Cliff FarlicK), they say we have touched all the bases, we will plan to go to HCRO to repair or replace the Cryo Cooler.

2017-09-12 Went to HCRO, replaced Cryo Cooler (-109), Turbo & new Cooler (-68) working fine now 90k/15w, 240/268K/106w.

2017-09-(21-27) Turbo pump won’t stay running, e-mailed back & forth Elin & Mark to help. Turbo Pump won’t start at all now, will plan to go to HCRO to repair or replace the Vacuum components.

2017-10-03 Went to HCRO, could not get the Turbo to run more than 10k rpms, vacuum leak, most likely Bellows failure/crack, removed Feed from antenna 1C & return to Minex for Base plate/Bellows assy replacement, may need other repairs.

2017-10-(05-11) Tried to get Turbo to run, still won’t go above 10k rpms, leak tested Feed & found a large leak at the bellows, started disassembly to Feed to replace SS Base plate/bellows assy. Reassembled Feed with new SS Base plate/Bellows assy (BellowsTech). Up-dated 48v wiring through Control board, Turbo Centering Ring w/screen & foreline up-dated. Started pumpdown over weekend (90k/15w), started cooldown on Tuesday morning, Vacuum & Cryo good, 65K/71K/216w, 90k/16w (data saved). Moved Feed into screen room, checked LNA’s in hot load, both poles have structure, biasing working ok, Feed needs to be disassembled to check the Tip for damage.

2017-10-13 Glass Dome removed to inspect for Tip damage, found all four leads from input coax to Arms broken(photos taken), rexolite stand-off show a lot of wear, arms have too much movement, moved Pyramid into clean room for repairs.

2017-10-19 Found Arm mounting hardware not tight, one of Y poles center electro & dielectrics has retracted into the jacket .025”+(photos taken), removed Arms & LNA module.

2018-10-10 Started LNA Module build-up.

2018-10-(18-19) LNA module assy completed, LNA Module & Arms installed in Pyramid, LNA Temp Sensor working, Matt completes Tip final assembly.

2018-10-(22-23) 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, 3 try’s 90k/17w, both poles LNA’s

working fine (data saved), started cooldown, cooldown completed 65K/170w, both poles LNA’s working fine (data saved).

2018-11-26 Checked on Cryo & Turbo, Cryo 65K/189w, Vac is good 90k/16w.

2019-01-02 Checked Feeds Vac & Cryo, 90k rpms/16w, 65K/71K/201w, everything looks good (data saved).

2019-01-08 Did Accelerometer/Vibration testing, Cooler didn’t like being shout down 2 or 3 times, 66K/240w, new TTARGET 69.5K, 69.5K/76.6K/198w.