

National Radio Astronomy Observatory  
Socorro, New Mexico  
VLBA Antenna Memo #64

Mauna Kea, Hawaii VLBA Maintenance Visit July 19-August 6, 2006.  
Team members consisted of Steve Aragon, Nelson Atencio, Eric Carlowe,  
Kelly Greene, Jim Gregg, Ramon Gutierrez and Ken Lakies. VLBA Site  
Technicians Bill Hancock and Tony Sylvester assisted in all areas of antenna  
maintenance.





FRM was given a thorough inspection. The focus flex shaft was replaced. The sub reflector did not need rebalancing. The snow tarp was removed and three 1 inch drain holes were drilled in the center of the sub reflector.

FRM INA BEARING CHECK 50LBS PULL ON EAST MOTOR

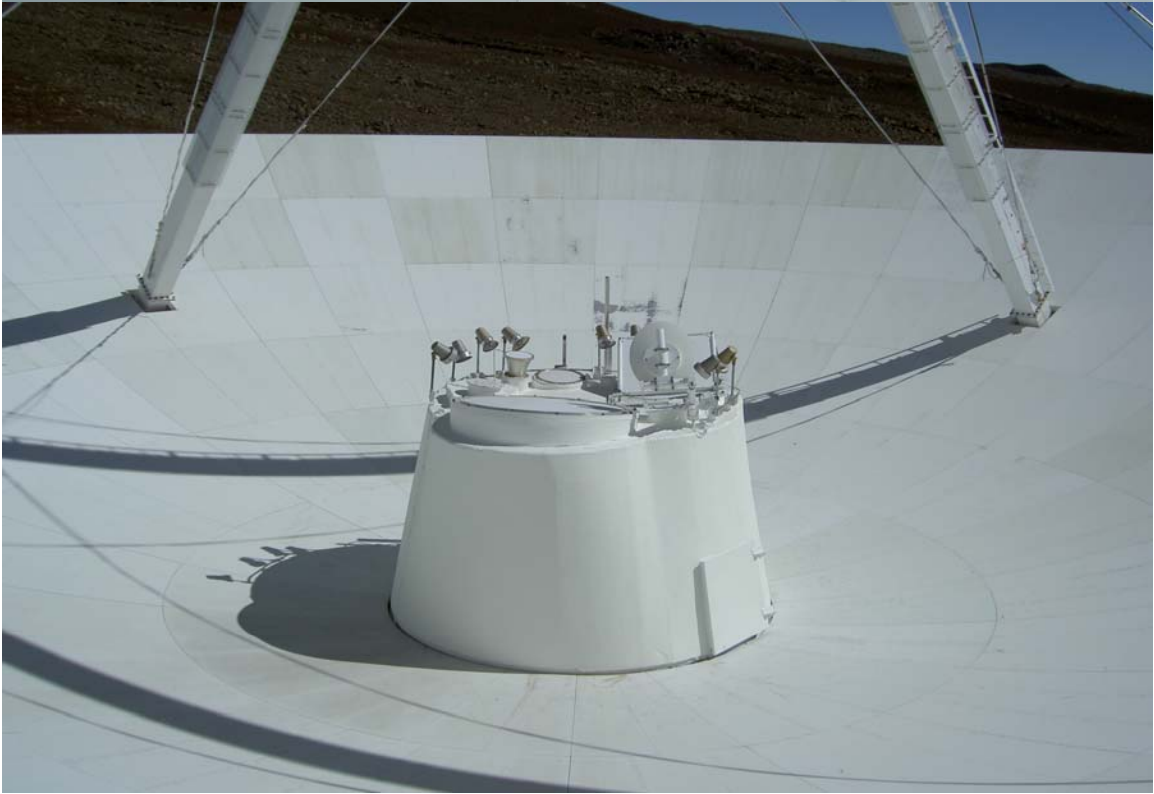
East Travel:	+0.0005	West Travel:	-.001
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FRM INA BEARING CHECK 50LBS PULL ON WEST MOTOR

East Travel:	-.0005	West Travel:	+0.001
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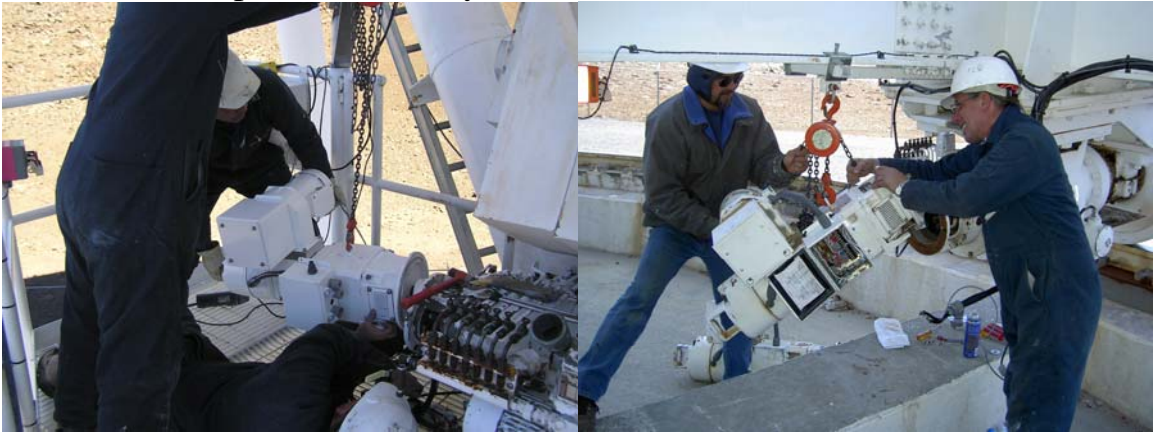
Sub reflector paint is discolored.



Dish panels are in good condition with only a few minor dents and 1 small hole next to the dish access door. The Feed Cone was spot sealed and painted with elastomeric.



Dichroic reflector is in good condition. Ellipsoid reflector is in good condition and operates correctly.



Elevation #1 and Azimuth #2 motors were both replaced. El #2 and AZ #1 motors needed new motor seals and brake assemblies. New blower motors and air boxes were also installed on EL #2 and AZ#1 motors.



The New Digital Tach modification was completed and the Site Techs were trained on tach calibration for both axis. The Azimuth stair step emergency stop cable was replaced. The Snake Pit door interlock was also repaired.



A new IF cable wrap was installed and tested. Crossed IF cables were found and corrected on the antenna. The ACU power supply and backplane modification was completed and tested.



Azimuth wheel bearings were inspected. Azimuth Drive #1 wheel assembly was replaced.

#### AZIMUTH BEARING GREASE INSPECTION

	INNER BEARING	OUTER BEARING
D1	Full of metal.	Full of metal.
D2	1 tiny flake, little scratches.	Good, no metal.
I1	Good, no metal.	Good, no metal.
I2	Good, no metal.	Tiny flakes, very few scratches.

#### ELEVATION BEARING GREASE INSPECTION

Encoder	Good grease with no metal flakes.
Synchro	Good grease with no metal flakes.
Pintle bearing grease inspection shows no signs of metal.	



Elevation axle has no visible signs of cracks. The elevation synchro side cable wrap was repaired. Both elevation axle ground cables were replaced.



Feed heaters and FE windows are in good condition. Feed heaters operated correctly. Apex paint is in fair to good condition.



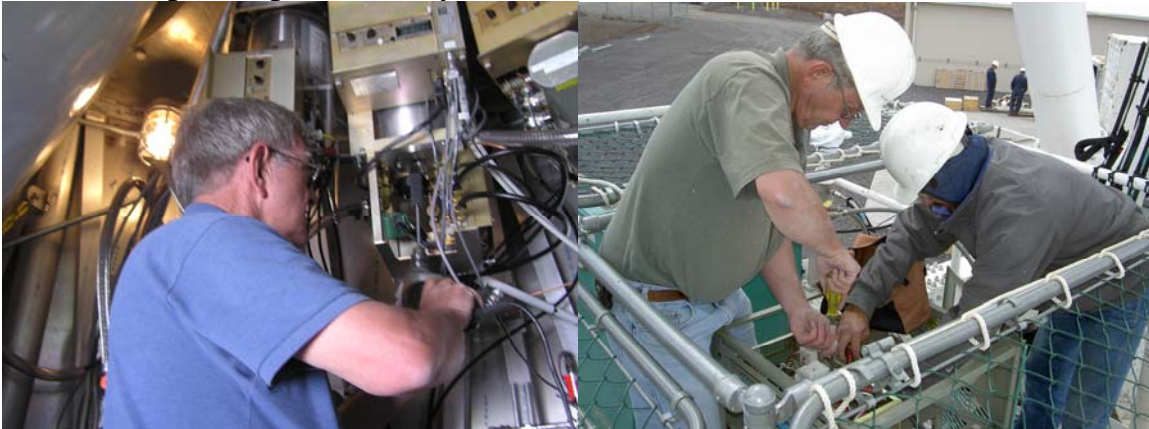
Antenna backup structure is in good condition. Paint is in fair condition.



A new Elevation HVAC platform extension was installed.



The MKV recorder and its communications were put on UPS power with the addition of a new terminal block mounted underneath the floor in room 103. Both MKIII recorders were removed. Inside the Servo drive cabinet and the Ped Room power panels many loose connections were found.

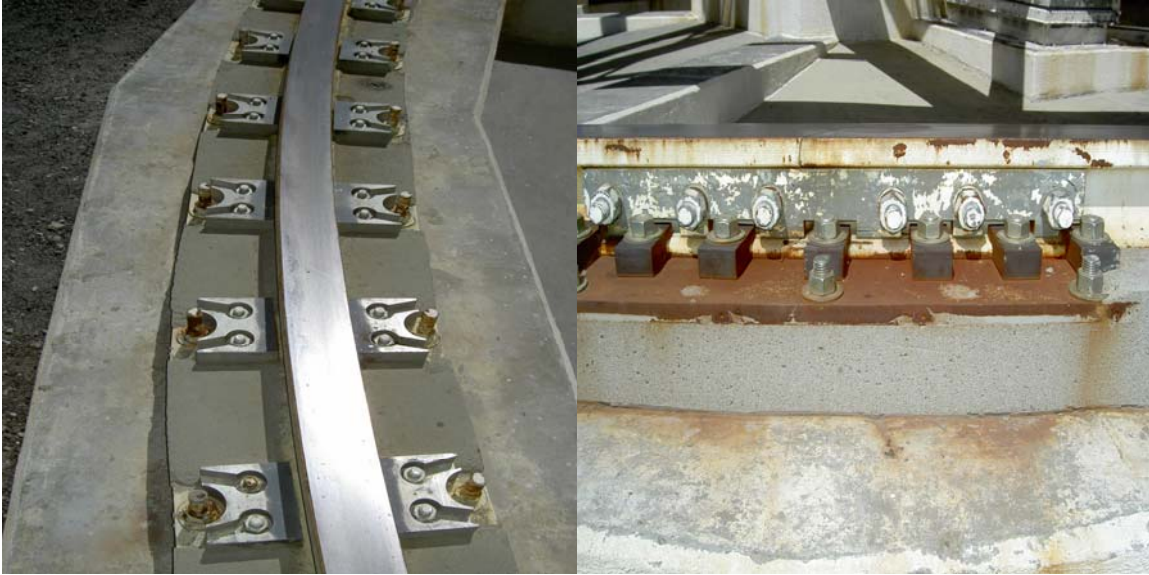


The MK antenna CRYO system was given a complete overhaul. Many persistent CRYO problems were isolated and repaired. Dry air system leaks were repaired and the system pressures adjusted for the VTX and Apex.

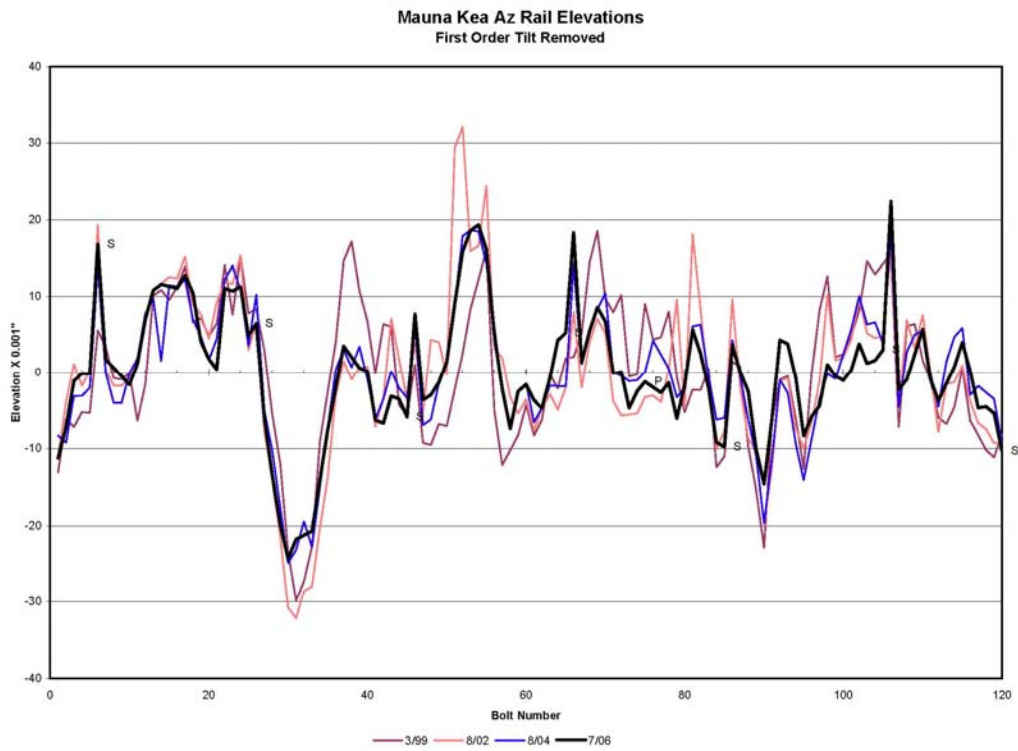


Overall the Antenna paint is in fair to good condition with surface rust found mainly on the backup structure. Paint is deteriorating on several dish panels.





Mauna Kea's rail and grout is in good condition.



Mauna Kea antenna rail elevations.