

National Radio Astronomy Observatory  
Socorro, New Mexico  
VLBA Antenna Memo #61

North Liberty, IA. VLBA Maintenance Visit September 20-27<sup>th</sup> 2005.  
Team members consisted of Steve Aragon, Nelson Atencio, Eric Carlowe,  
Kelly Greene, Ken Lakies and Phillip Sanchez. VLBA Site Technicians  
Mike Burgert and DJ Beard assisted in all areas of antenna maintenance.





FRM was given a thorough inspection and the focus flex shaft was replaced. Rotation was modified to operate on the West position feedback motor only. The sub reflector did not need rebalancing. The snow tarp was removed and three 1 inch drain holes were drilled in the center on the sub reflector.

**FRM INA BEARING CHECK 50LBS PULL ON EAST MOTOR**

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

East Travel:	+ .001	West Travel:	- .001
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Sub reflector is stained, but otherwise in good condition



Stained dish panels are in good condition. Feed cone is in good condition.



Dichroic reflector is good condition. Elipsoid reflector is in good condition.



Elevation #1 gear box heater was replaced. New digital tachometers were installed, calibrated and tested on azimuth and elevation motors.



The synchro side elevation cable wrap was repaired by repositioning and replacing strain relief brackets. Both elevation ground cables were replaced.



The ACU backplane upgrade was installed and tested. The ACU power supply modification had previously been installed.



Azimuth wheel bearings were inspected. Site Techs should remove excess grease from the elevation encoder bearing more frequently.

**AZIMUTH BEARING GREASE INSPECTION**

	INNER BEARING	OUTER BEARING
D1	Good, no metal.	Good, no metal.
D2	New drive wheel.	New drive wheel.
I1	Good, no metal.	Good, no metal.
I2	Good, no metal.	Good, no metal.
All bearings were very well lubricated.		

**ELEVATION BEARING GREASE INSPECTION**

Encoder	Good grease with no metal flakes.
Synchro	Good grease with no metal flakes.
All bearings were very well lubricated.	

Pintle bearing is well lubricated with no metal flakes.



Elevation axle has no visible signs of cracks. Paint is in Fair condition.



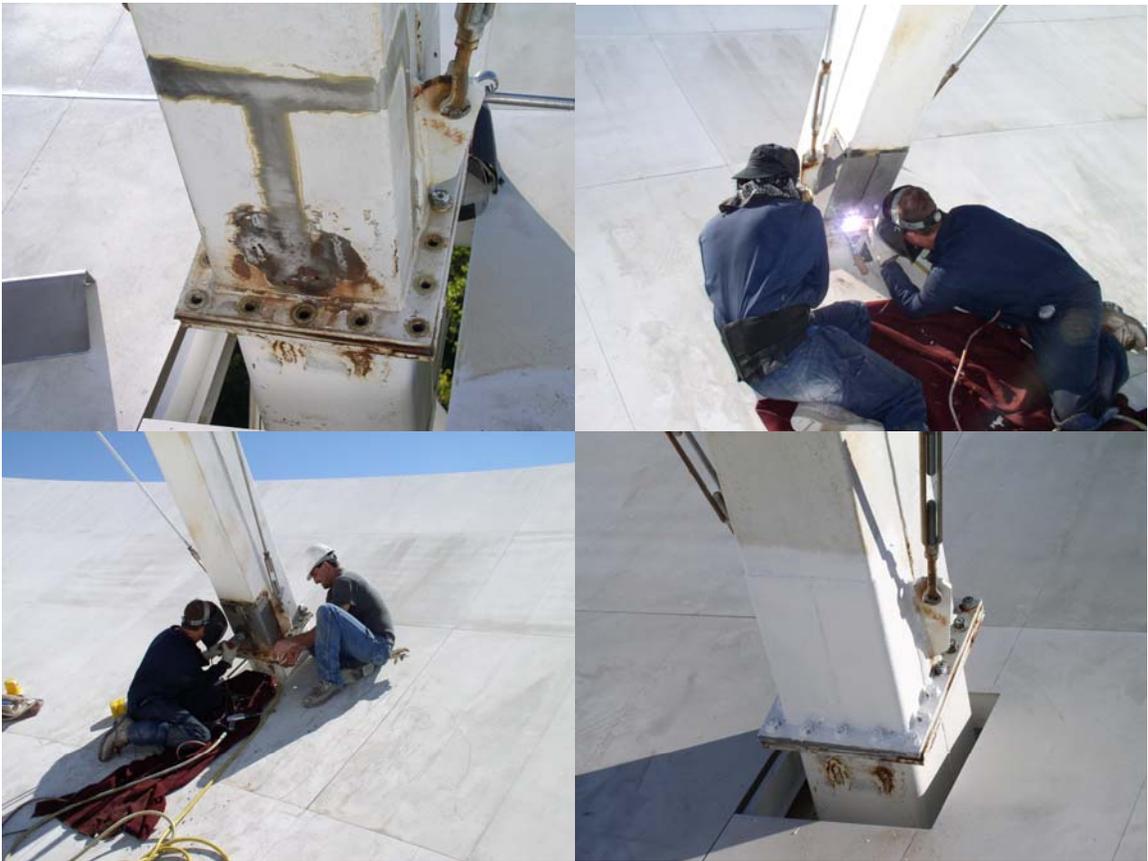
Feed windows & heaters are in good condition. Apex paint is in fair shape.



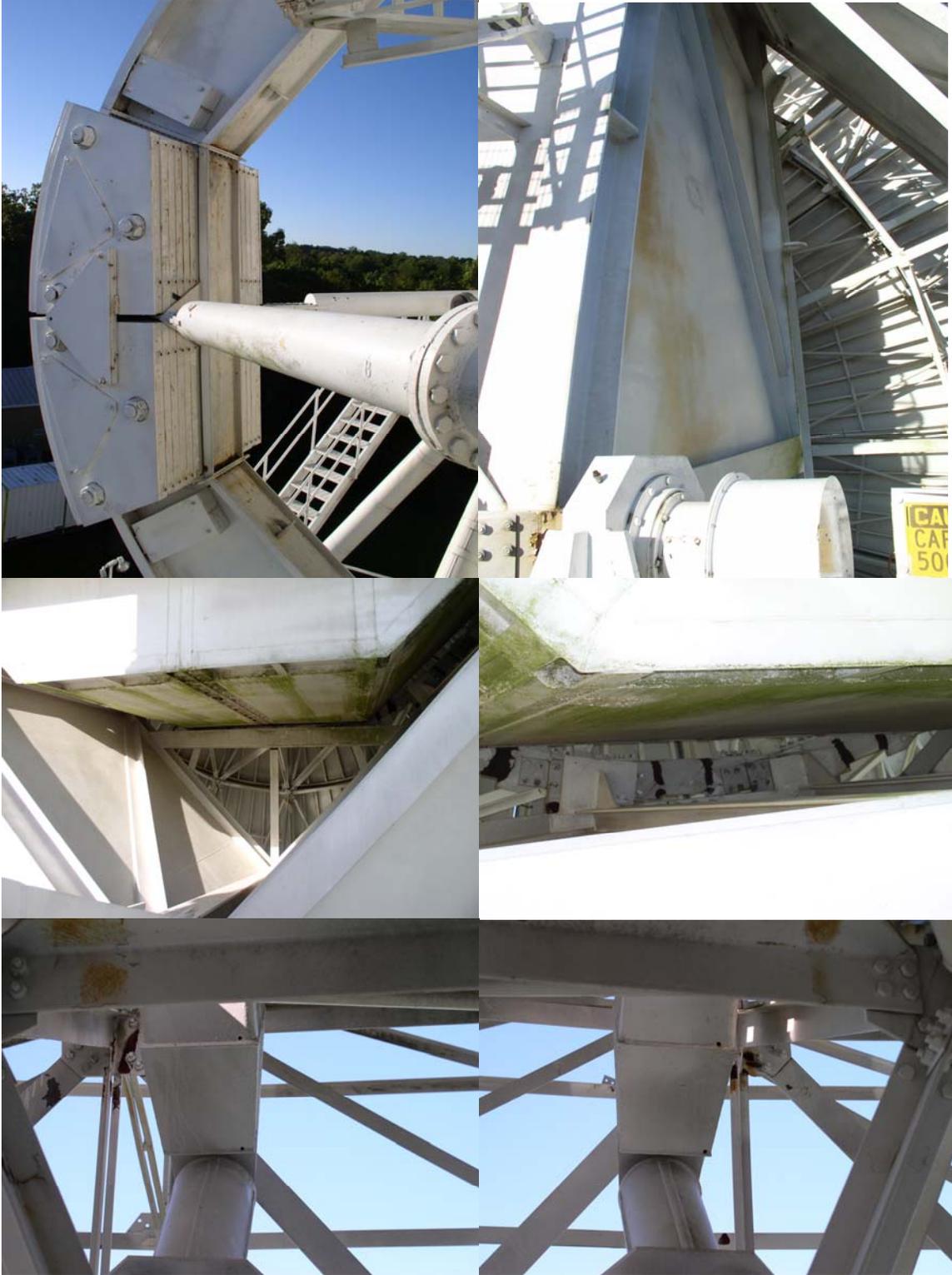
Panel backup structure is in good condition. Paint is in fair condition.



A new HVAC platform extension was installed.



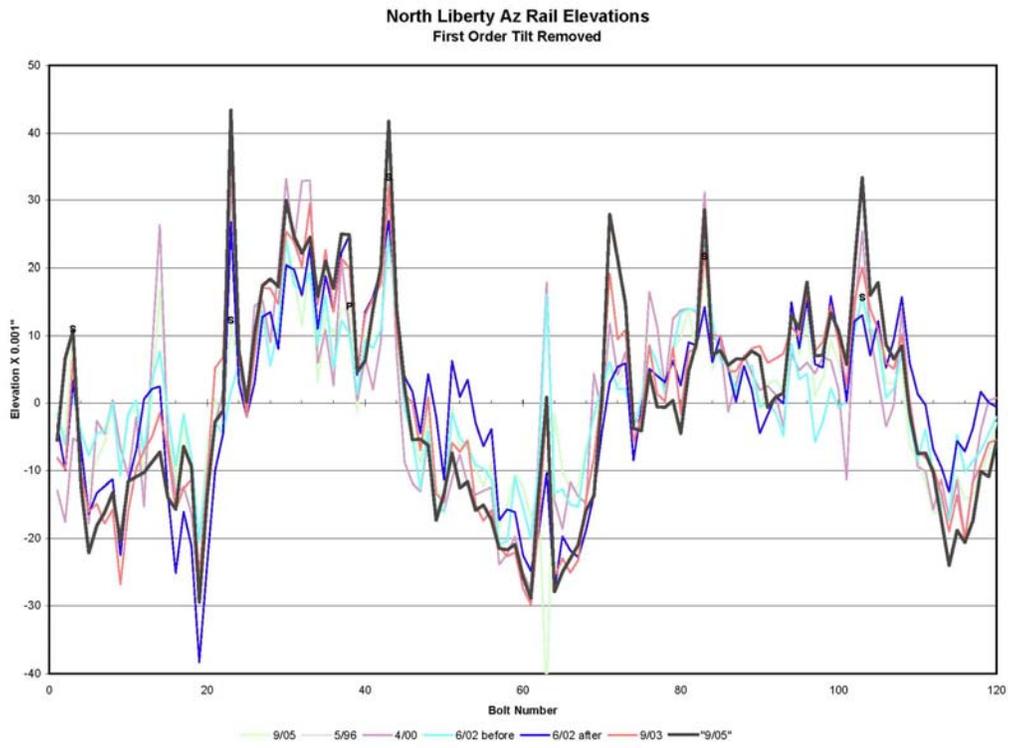
Holes were patched on the east down quad leg.



Overall paint on the North Liberty antenna is in fair condition. Notice the drain holes drilled in the quad legs.



Grout was replaced at bolt numbers, 21, 25, 41 and 45. Grout at bolt numbers, 61 and 65 is degrading. The remaining grout around the rail is in good condition.



North Liberty antenna rail elevations.