

National Radio Astronomy Observatory
Socorro, New Mexico

VLBA Antenna Memo #55

Fort Davis, Texas VLBA Maintenance Visit June 10th thru 18th 2004.

Team members consisted of Nelson Antencio, Steve Aragon, Eric Carlowe Kelly Greene, Ramon Gutierrez and Ken Lakies. VLBA Site Technicians Gary Tobias and John Smith assisted in all areas of maintenance during the visit. A task list and action item list is attached.





Subreflector is in good condition. A new ladder and fall arrest were installed. Site Techs were trained on using the new fall arrest.



FRM was given a thorough inspection. A focus flex shaft was replaced and the new encoder coupling modification was installed. Focus motion analysis faults were occurring. The problem was found to an unbalanced focus motor amp and water inside the encoder. This was corrected.

FRM INA BEARING CHECK 50LBS PULL ON EAST MOTOR

East Travel:	+0.001	West Travel:	-0.001
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FRM INA BEARING CHECK 50LBS PULL ON WEST MOTOR

East Travel:	-0.001	West Travel:	+0.001
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Flip steps were installed for easier access in and out of the FRM tube. 90/50 FE cables and connectors are in good condition. Subreflector drain holes were cleared. Dipole is in good condition.



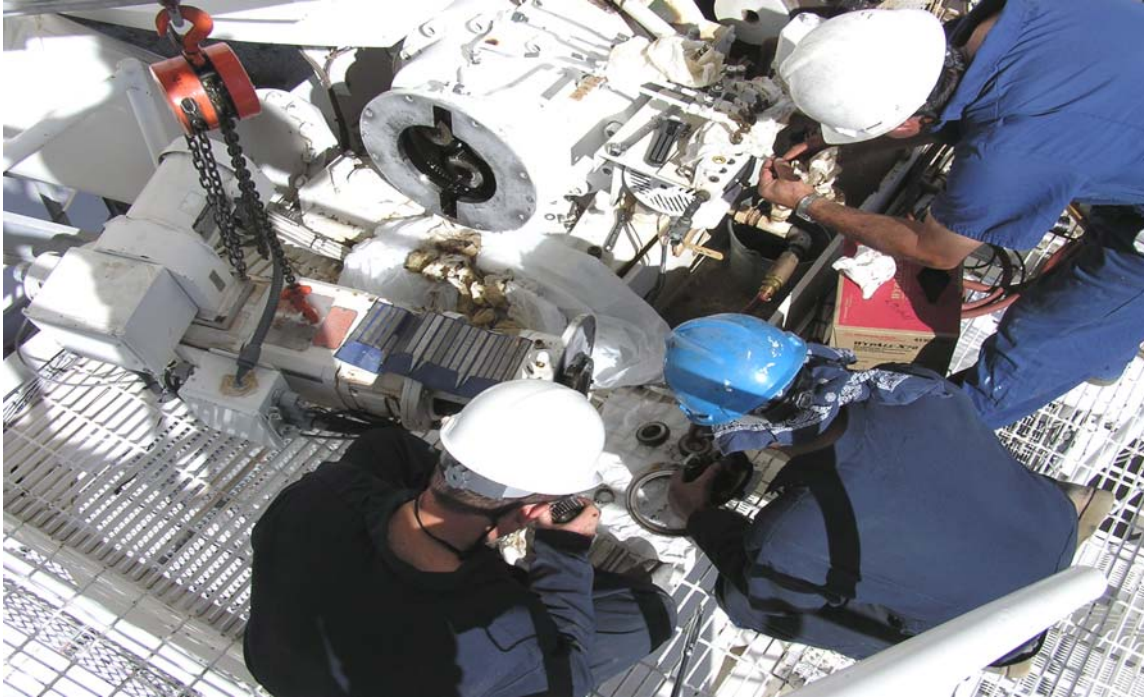
Feed cone was spot sealed and painted with elastomeric



Dichroic reflector was replaced and aligned. Dish panels are in good condition. Panels paint is in good condition. Quad legs paint and guy wires are in good condition.



New digital tachs were installed on Elevation and Azimuth motors. Elevation # 2 motor and Azimuth motor #1 were replaced.



Elevation #1 gearbox, 1st and 2nd stage gear inspection.



Steve measures $\sim .003''$ of wear with a feeler gauge. Elevation #1 gearbox is in good condition. Both elevation gearboxes oil was changed. Fish eyes and flow gauges were cleaned. Elevation #2 was not opened for inspection.



Azimuth #2 gearbox, 1st and 2nd stage gear inspection.



Steve measures $\sim .002''$ of wear with a feeler gauge. Azimuth #2 gearbox is in good condition. Both azimuth gearboxes oil was changed. Fish eyes and flow gauges were cleaned. Azimuth #1 was not opened for inspection.



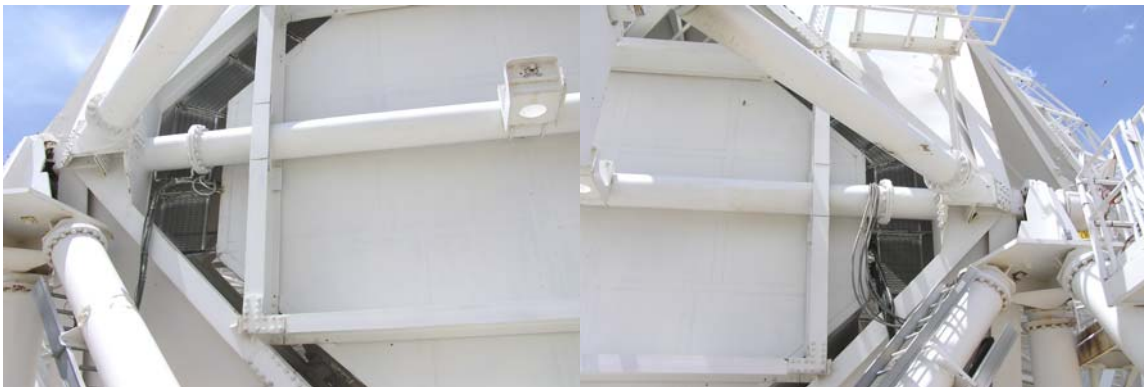
Azimuth bearings were inspected. No azimuth bearings needed replaced.

AZIMUTH BEARING GREASE INSPECTION

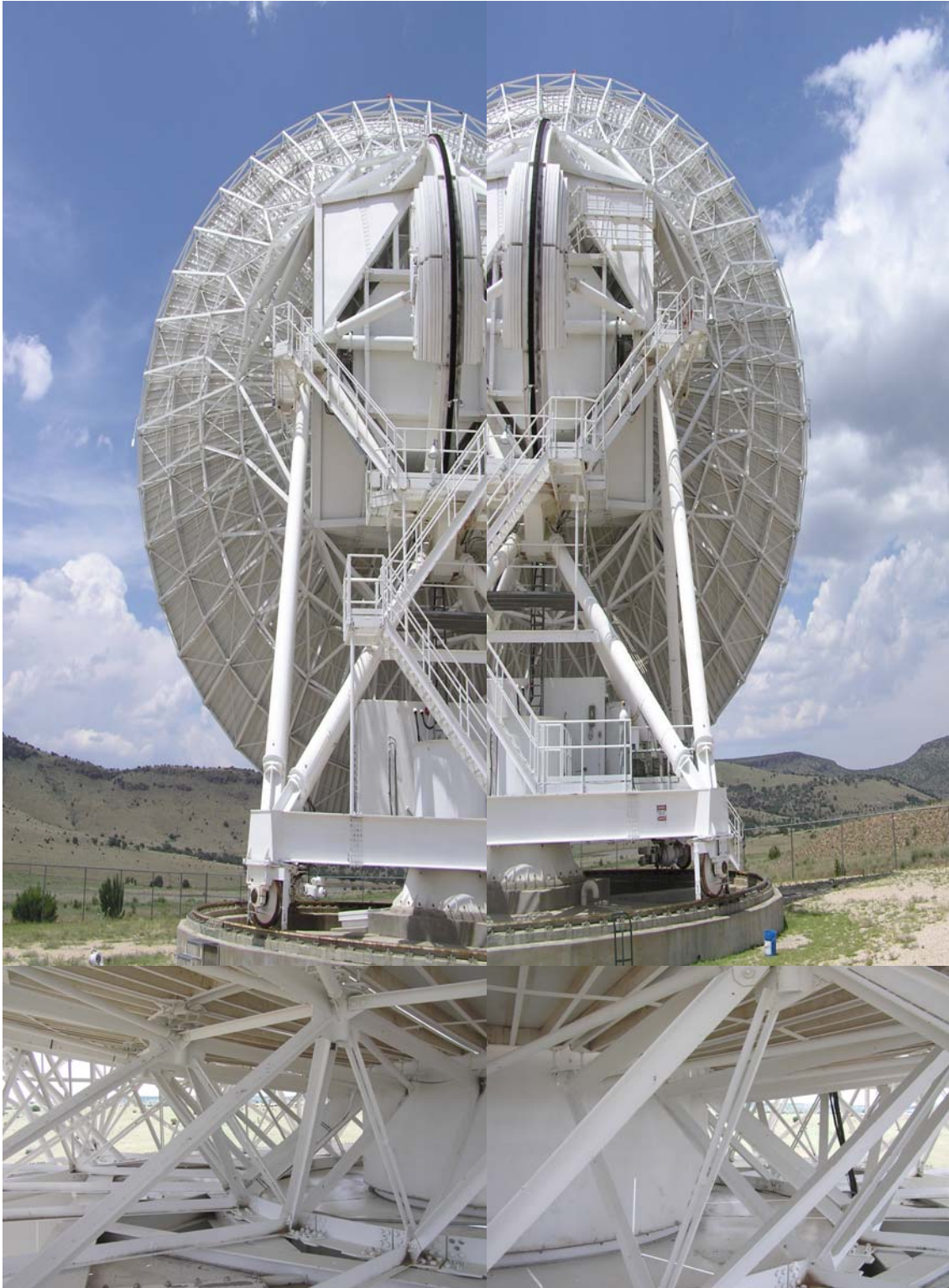
	INNER BEARING	OUTER BEARING
D1	OK	Clean, a few metal flakes.
D2	OK	OK
I1	OK	OK
I2	OK	OK
All bearings were very well lubricated.		

ELEVATION BEARING GREASE INSPECTION

Encoder	Good grease with no metal flakes.
Synchro	Good grease with no metal flakes.



Elevation axle has no visible signs of cracks. Paint is good condition. Pintle bearing is well greased with no metal flakes.

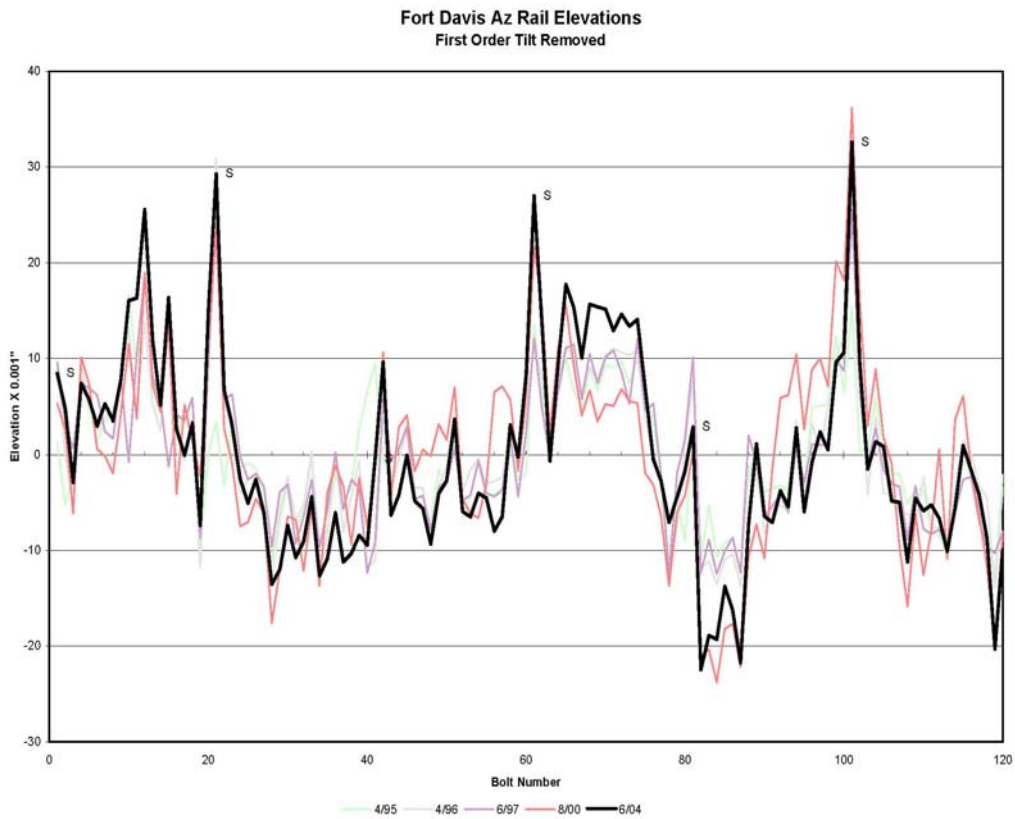


The antenna paint is in great condition.

The ACU was retrofitted with the new power supply upgrade. During the ACU servo tests Ken found a problem with the ACU not auto stowing on synchro after an encoder failure. We discovered the ACU encoder coarse fault line was tied to ground on the manual board. This was corrected on site and the ACU tested. The area inside the fence is neat and orderly.

AZIMUTH DRIVE WHEEL ALIGNMENT

	Spec.	D1	D2
Horizontal error	0d00'00" (~1'30")	0'53"	0'00"
Vertical error	3d26'23" (~1'30")	3d25'25"	3d26'37"
Radius error	300.002" (+/-.25)	300.05"	299.87"





Vulchem is beginning to deteriorate from this rail splice and all others.



Vulchem is deteriorating off rail clips and will have to be removed.

ACTION ITEMS

1. INSTALL PED ROOM BACK UP AC.
2. INSTALL PED ROOM 6KVA LIEBERT UPS.
3. INSTALL NEW ACU BACKPLANE.
4. REMOVE VULCHEM FROM RAIL.

On July 5th Paul Rhodes and Bob McGoldrick returned to Fort Davis and completed ACTION ITEMS 2 and 3. Site technicians Gary Tobias and John Smith completed ACTION ITEM #1 the following week.