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**NATIONAL RADIO ASTRONOMY OBSERVATORY**  
Socorro, New Mexico

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VLBA Antenna Memo Series No.50

**North Liberty – Drive #2 wheel/bearing replacement**

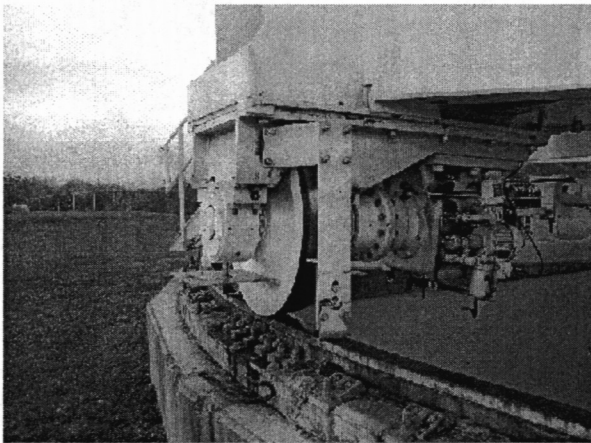
**October 20 – 23, 2003 - Trip Report**

J. E. Thunborg

Metal particles were found in the grease on the inside drive #2 azimuth bearing during the North Liberty maintenance visit. The drive assembly was then scheduled for replacement. A team consisting of Steve Aragon, Eric Carlowe, Ramon Gutierrez and Jon Thunborg traveled to North Liberty on October 20 –23, 2003 to replace the wheel assembly.

Before the wheel assembly was replaced the following measurements were made on the original wheel assembly.

	<u><b>BEFORE</b></u>	
	<b>Measured</b>	<b>Specified</b>
Conic radius	300.024"	300" $\pm$ ¼
Coupling runout	N/A	Not Specified
Axle Vertical Slope	93° 23' 14"	93° 26' 23" $\pm$ 1.4'
Axle Horizontal error	3' 08"	< 1.4'



The new wheel/axle assembly was installed and aligned. After two days of operation, the following alignment parameters were recorded for the new axle/wheel assembly. The antenna rotated smoothly without popping sounds.

	<u><b>AFTER</b></u>	
	<b>Measured</b>	<b>Specified</b>
Conic radius	299.894"	300" $\pm$ ¼
Coupling runout	0.001 TIR	Not Specified
Axle Vertical Slope	93° 25' 35"	93° 26' 23" $\pm$ 1.4'
Axle Horizontal error	43"	< 1.4'

While the wheel changing team was on site, several additional tasks were completed with the capable help of the site techs D.J. Beard and Michael Burgert. These tasks are as follows:

Replaced drive motors El # 2 and Az # 1.

Replaced and aligned the dichroic reflector.

Repaired ellipsoid actuator.

Painted and spot sealed Feed cone roof and sides.

Replaced FRM power control cable.

Repaired dry air compressor.

Replaced Vertex room door. (The door was replaced with a temporary foam core door that will eventually need to be replaced).