

NATIONAL RADIO ASTRONOMY OBSERVATORY
Charlottesville, Virginia

February 4, 1987

To: VLBA Electronics Group

From: A. R. Thompson

Subject: VLBA Electronics Meeting, February 3, 1987

Attendees: Balister, Bagri, Brundage, Campbell, Dill, Heald,
Latasa, Newell, Oty, Schlecht, Spaulding,
Thompson, Walker, Walter, Wireman.

The meeting opened with a discussion of the reliability of CTI model 22 refrigerators as indicated by experience with the Voyager front ends on the VLA. Out of approximately nine such front ends, five have had refrigerator failure within 2000 hours. Most failures have taken the form of second-stage temperatures above 25 K, but in at least one case excessive mechanical noise was deemed to indicate failure. Failures have resulted from excessive wear in the seals of the displacers or in the carbon bushings of the Scotch yoke. On two of the refrigerators the carbon bushings were replaced by Envex bushings, and one of these units is now back on the antenna. A redesign of the Scotch yoke has also been made, and will be tried out on two refrigerators, retaining carbon for the bushings in these units. The cryogenics group at the VLA is preparing to have detailed discussions with CTI on these problems. On a more encouraging note, it was pointed out that two model 22 refrigerators on Voyager front ends, each of which had an early failure, have run for more than 10,000 hours on VLA antennas since being repaired.

There was some discussion of color coding used in the racks for antenna no. 1 which are under test at the VLA site. It was reemphasized that the standard VLA color code (see p. 9-45 of VLA Technical Report No. 31) should be generally followed. Only a few deviations from this code have occurred - mainly the use of green for certain ground wires. In further discussion with J. Oty after the meeting it was decided that twisted pairs carrying the m/c bus signals should follow the colors of the same twisted pairs in the Belden bus cable, i.e. red/black for command and white/black for readback (see VLBA Electronics Memo No. 69). It was requested that wiring lists for the racks should include wire size as well as color. Jim Oty reported that he is still in the process of investigating the correct ferrule size for use with the thinner m/c bus cable (Belden 9804).

Current progress in construction was briefly reviewed. Feeds for the Pie Town antenna are on schedule. Power supply modules, 1.5 GHz Converter Modules, and 4.8 GHz Converter Modules for the next two antennas are complete, and one C-Rack is complete except for the m/c bus wiring and air ducting.

The number of 2-16 GHz Synthesizer Modules to be constructed in Green Bank this year is eight: this number had not been decided when construction plans were reviewed at last month's meeting.

The final major discussion of the meeting concerned the possible recommendation of a computing language to be used for running test setups, etc. in the lab. Basic, in various forms, and Turbo Pascal are both currently in use. No decision was reached, and the problem will be considered further and discussed again at next month's meeting.