

National Radio Astronomy Observatory  
Charlottesville, Virginia

June 3, 1988

To: VLBA Electronics Group  
From: A. R. Thompson  
Subject: VLBA Electronics Division Meeting, June 2, 1988

Attendees: (GB) Norrod; (CV) Balister, Crady, Crawford, Morris, Romney  
Schlecht, Simon, Spaulding, Thompson; (VLA) Campbell, Lilie  
Oty, Stetten, Walker.

Data Acquisition Rack. Jack Campbell has recently made measurements of the temperature differentials and air flow in the D-Rack at Pie Town. This was undertaken as a result of inadequate cooling of the Formatter in the rack. Jack concludes that the problem is caused by too little air flow through the whole rack. This results from the use of too small a duct at the bottom of the rack, and from obstruction of air flow by the 19-inch wide, 5-volt, Lambda power supply for the Formatter. A larger air duct will be fitted, and the 19-inch power supply will be replaced by a unit mounted in a VLBA module of four-unit width. Figure 1 shows a possible change of layout for the D-Rack to allow more air flow up to the formatter. Jack concludes from his measurements that such a design is not necessary. Thus it is decided that the design for D-Racks serial three and onwards will follow the proposed design given in VLBA Acquisition Memo No. 89 by A.E.E. Rogers (see Fig. 2) for the bins below the Formatter. However, for the two bins mounted above the Formatter the layout should follow Figure 1, in which the unused slots provide better cooling for the high-current, 5-volt, power supply.

Front Ends. Roger Norrod has just completed serial six 4.8 GHz front end. Serial five 1.5 GHz front end is ready for cooldown tests, but has only one amplifier installed at the present time. Amplifiers will be supplied from Charlottesville following the resolution of a calibration problem in the test procedure for new units. Erich Schlecht reported that serial two 2.3 GHz front end is undergoing a small redesign of the first mixer and to reduce the gain variations across the passband. This involves using broader bandwidth isolators so that the mixer output will be matched at both the intermediate and local-oscillator frequencies.

Racks. Serial five set of racks A B and C is complete except for the Switch Driver Module, which should be available by mid-June. The racks will then be tested. Serial six A-Rack is wired and ready for modules, and serial six and seven B-Racks are under construction.

Station Timekeeping. There was some discussion of timekeeping problems at Pie Town. These largely involve questions of operations procedures and software, but a final solution may involve moving the generator for the one-second pulses from the C-Rack to the maser rack.

*	P101 +15V	P103 +5V		P105 +5V (FORMATTER)
	P101 +15V	P101 -15V		P103 -5V
FORMATTER				
	5MHz DIST.	32MHz DIST.		OUT. RATE SMTH
	IF DIST. A/B	IF DIST. C/D		SAMP 1
	BBC 1	BBC 2		BBC 3
	* BBC 5	* BBC 6		* BBC 7
				* BBC 8

\* FOR EXPANSION

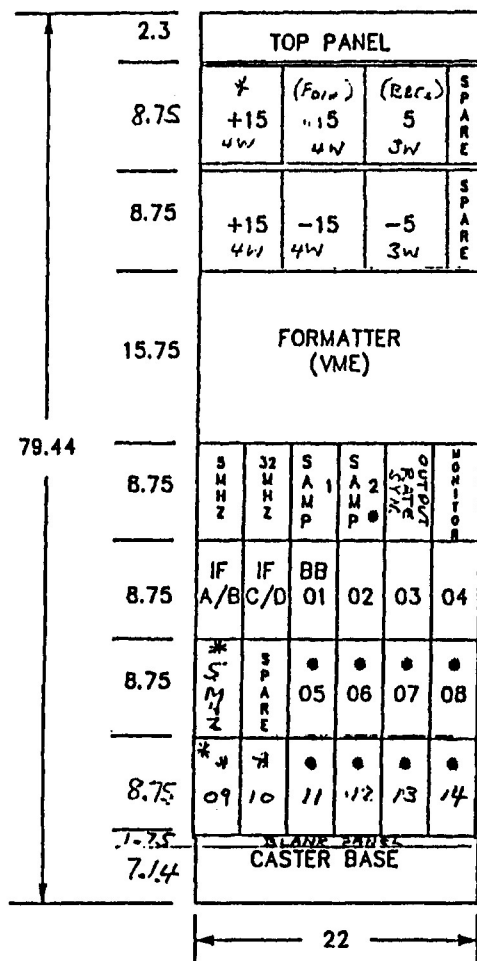


EMPTY SLOTS FOR  
AIR FLOW.

Possible Layout for Data Acquisition Rack.

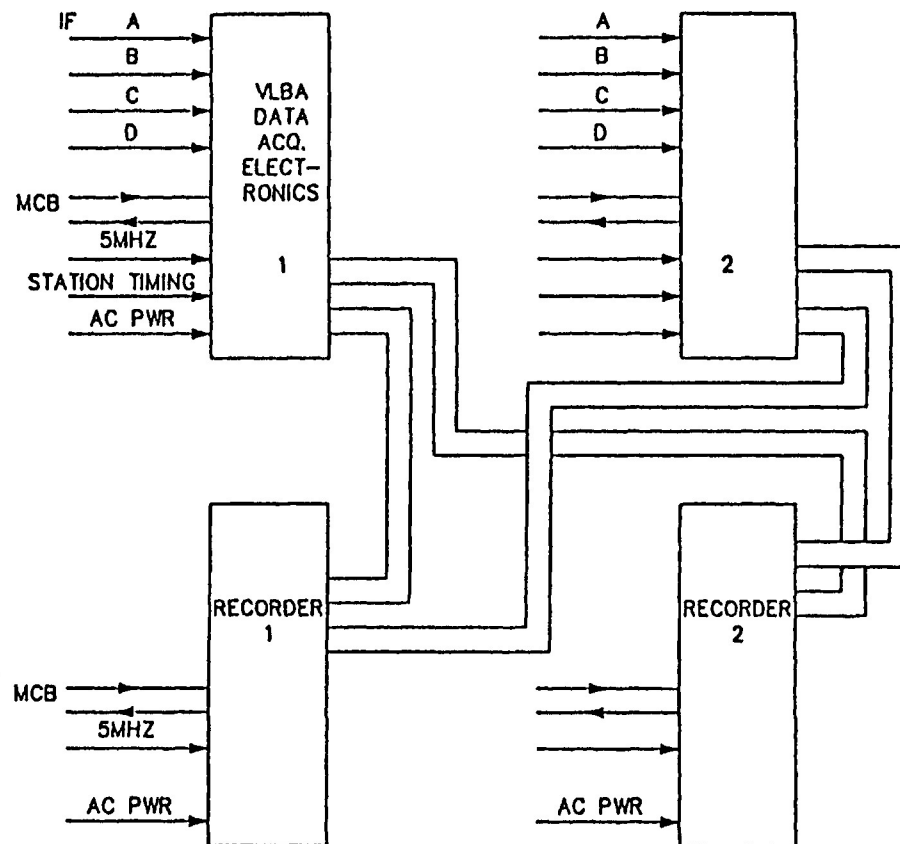
FIGURE 1

ART. 5/24/88



• FOR EXPANSION

### DATA ACQUISITION RACK LAYOUT



### FULL VLB CONFIGURATION

1. EACH ELECTRONICS RACK HAS 4 BB CONV. EXPANDED TO 8.
2. EACH FORMATTER HAS 32 DATA OUTPUTS BUFFERED TO EACH RECORDER MAX OUTPUT DATA RATE 256 MB/S PER FORMATTER (EXPANDABLE TO 512 MB/S PER FORMATTER).
3. RACKS ARE INDEPENDANT.

### NOTES

#### MATERIAL

#### FINISH AND/OR HEAT TREATMENT

#### SHOP NOTES: UNLESS OTHERWISE SPECIFIED

1. DIMENSIONS ARE IN INCHES
2. TOLERANCE ON DIMENSIONS: FRACTIONAL & 1/16 DECIMAL .010 & .005 ANGULAR & 0.004
3. SURFACE FINISH: PER MIL-STD-10
4. REMOVE BURRS AND BREAK SHARP EDGES 1/64 MAX.
5. SCREW THREADS PER MIL-STD-8
6. ALL DIMENSIONS TO APPLY BEFORE PLATING OR CONVERSION COATING.

#### USED ON

#### NOT ASSEMBLY

#### SCALE

#### CLASSIFICATION

#### DESIGNED BY

#### DRAWN BY

#### CHECKED BY

#### PROJECT

#### ENGINEER

#### MATERIAL PROCESS

#### STRUCTURE

#### DETAIL

#### REVISION

NORTHEAST RADIO OBSERVATORY CORPORATION  
HAYSTACK OBSERVATORY  
WESTFORD, MASSACHUSETTS

### PROPOSED RACK CONFIGURATION

C 54100D006  
AER/RACK DIM. SIZE DIM. NO. REV.

FIGURE 2