

VLBA ACQUISITION MEMO #171

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

HAYSTACK OBSERVATORY

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Area Code 508
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To: VLBA Data Acquisition Group
From: Alan E.E. Rogers, Roger J. Cappallo
Subject: Power margin tests of REC 3.

1] Voltage range

The transport will operate satisfactorily from 100 volts to 140 volts (no test was made above 140 v) 60 Hz A.C. At about 95 volts the vacuum motor speeds up as the controller starts to malfunction.

2] Power dropouts

Dropouts of up to about 50 milliseconds have no adverse effects and the transport will ride smoothly through these dropouts. When dropouts are longer than about 50 milliseconds the recorder CPU will usually reset. Upon CPU reset the brakes are released, and if the reels are still spinning a fair amount of tape can be spilled. This problem can be fixed by setting the brakes following a reset and this change will be made in the next version of the firmware. Also, the state of the inchworm controller is not defined following a reset, and this, too, will be fixed in firmware.

When a dropout is about 50-100 milliseconds the CPU can occasionally enter a "failed" state from which there is no recovery without a manual reset or another power off. The transmission of AE51 to location 22EF will not help; the MCB microprocessor is held in reset by the CPU in this "failed" state and MCB communication is not possible. A hardware change is probably required to fix this problem, if there is no other way to reset the recorder.