

VLBA ACQUISITION MEMO #285
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TO : VLBA Acquisition Group
FROM : Dan Smythe
SUBJECT : Write Driver Improvements

Further studies of the VLBA write driver have suggested modifications to the fixes suggested in VLBA Acquisition Memo #258:

Fix 3] The original 100 Ω resistor in series with the output works fine up to 18 Mb/s and suppresses the overshoot in the output waveform.

Fix 4] Putting an 8 pf speed-up capacitor in parallel with the 15 K Ω R_x compensates for the capacitance of the track select multiplexers and improves the rise time of the monitor output. Since 8-pf capacitors were not available, I used 12 pf with $R_x = 10$ K Ω . Any reasonable combination with an RC time constant of 120 ns should work equally well. This time constant is optimum for tracks 0-31, which use two multiplexors, but overcompensate tracks 32-35, which have only one multiplexor, and require 9 pf speed-up capacitors.

Fig. 1 compares the Monitor Outputs at 9 Mb/s with a speed-up capacitor on track 15 (Channel A) and no capacitor on track 31 (Channel B). Fig. 2 shows track 33 with a 9 pf capacitor (Channel A) and track 31 with a 12 pf capacitor (Channel B). Fig. 3 is the same as Fig. 2 with the data rate changed to 18 Mb/s.

9 MHz (ϕF) TRACK 15 10K/12 pf

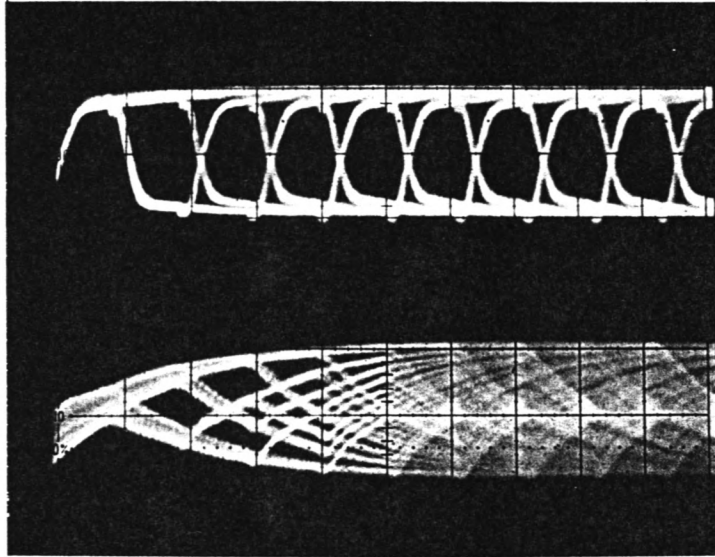


FIG. 1

10-4-91 (1F) TRACK 31 10K DLS

9 MHz ($\Sigma 1$) TRACK 33 10K/9 pf

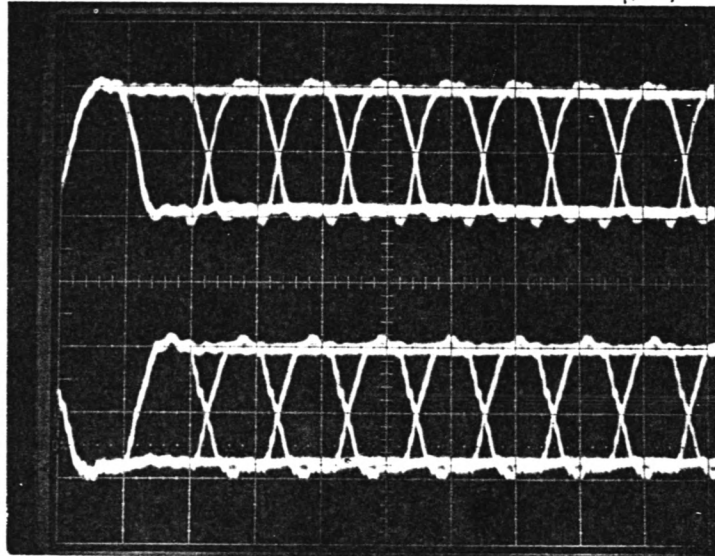
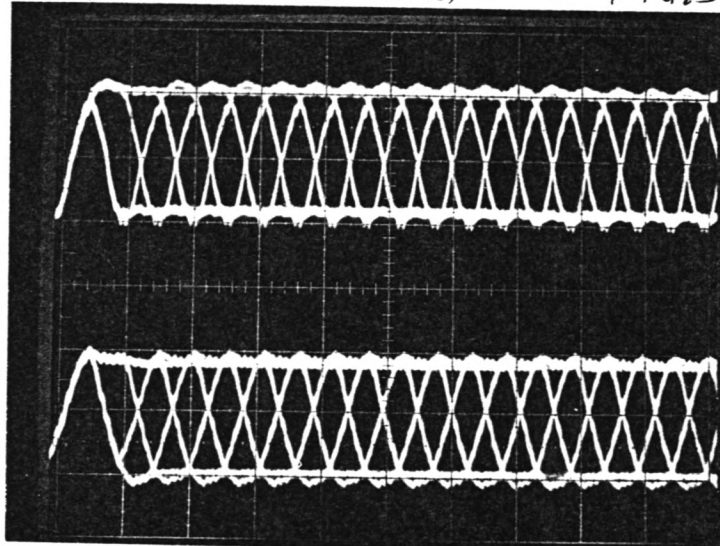


FIG. 2

10/4/91 (1F) TRK 31 10K/12 pf DLS

18 Mb/s TRACK 33 ($\Sigma 2$) FIG. 3



10-4-91 TRACK 31 (1F_x) DLS