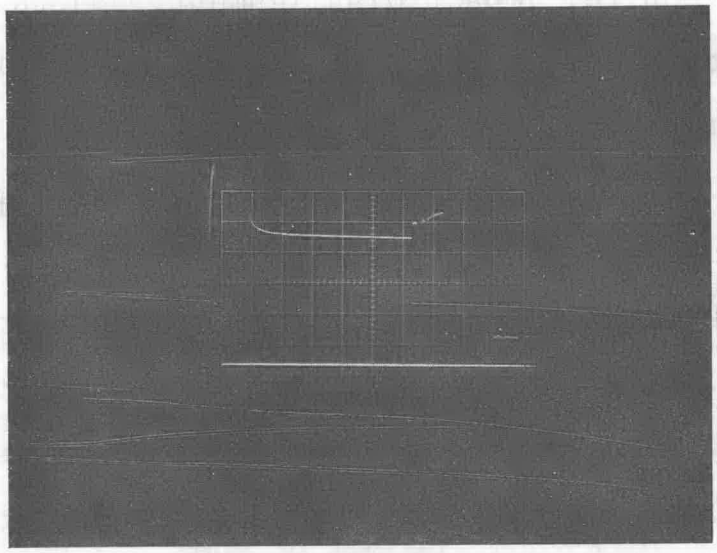
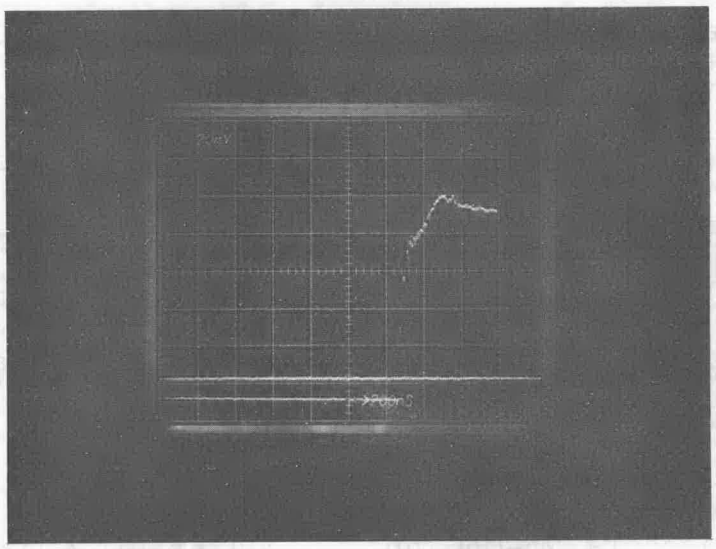


(a)



(b)

Fig. 9. Oscilloscope records. (a) Overall record from shot 73-027 showing E_o and ΔE; 0.2 V/div, 3.5 μsec/div. (b) Differential offset record from shot 73-050 showing ΔE vs. time; 0.02 V/div, 0.2 μsec/div.

silver and sapphire, impact misalignment, and the low-impedance epoxy layer adjacent to the foil edges. The foil reaches pressure equilibrium in about three shock transits across the foil (Sec. III.E.1); this takes 15 nsec. A typical impact misalignment of 0.3 milliradians would mean a time as long as 13 nsec for the shock front to cross the foil. These two time effects are additive. The pressure equilibration time of about 50 nsec for the epoxy adjacent to the foil edges will also degrade signal risetime. In conclusion, the above conditions are sufficient to account for observed risetime; response time of the resistance change is probably obscured.

In the W3N annealed foils the initial rise is followed by a gradual rise in voltage which peaks after 0.25 μsec and then decreases until arrival of the rarefaction wave. The MRC annealed foils typically show an initial overshoot and a following gradual voltage relaxation during the 0.5 μsec of observation. The highest pressure shots, 73-027 and 73-059 (Fig. A.1 (ℓ) and (m)), do not follow this pattern. In the MRC unannealed samples, the initial rise is followed by a gradual increase in the voltage level.

Very close agreement between W3N voltage-time profiles is evident in shots 73-036 and 73-044 at 88.2 and 89.6 kbar, respectively (Fig. A.1 (c) and (d)). The bumps in the profiles are qualitatively the same in size and time value. The two shots were done two weeks apart, and the silver foils used were polished, photo-etched, and annealed in different batches. While one cannot rule out the agreement as due to reproducible