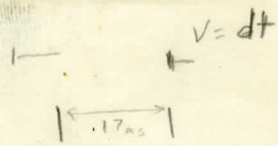
I

$$C_n = 2 A_v \left(\frac{\sin\left(\pi \frac{n t_o}{T_o}\right)}{\pi \, \frac{t_o}{T}} \right)$$

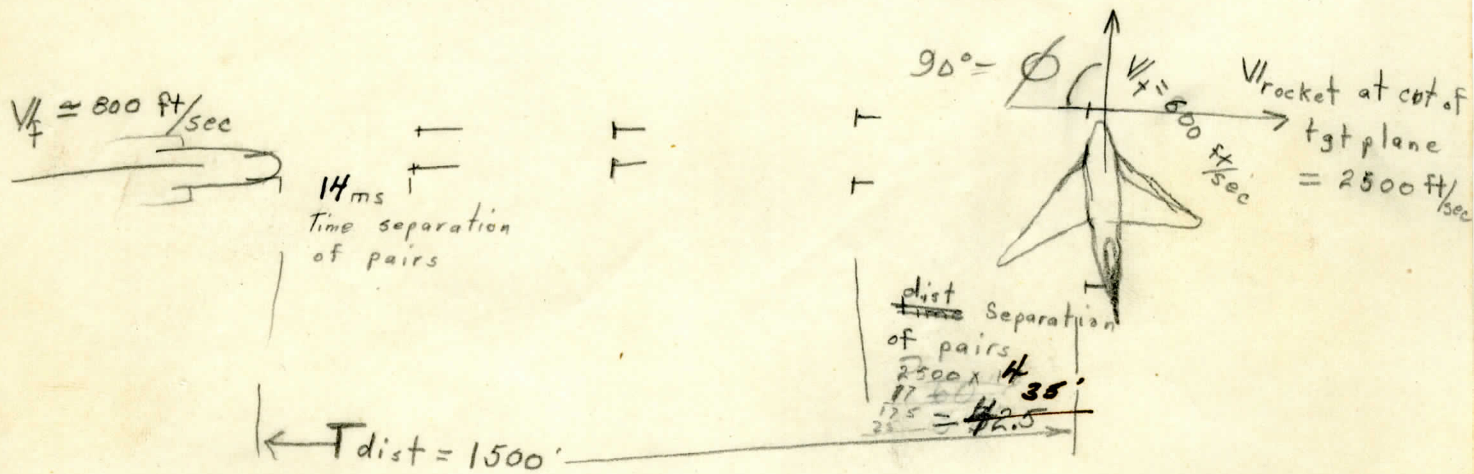
$$A_{av} = A \frac{t_o}{T_o}$$



Work on improved version of A-Scope –

Problem: Obtain best time ie (dist) resolution possible with existing equipment to be modified as little as possible – Record passage of rockets thru tgt. plane + relate it to photographs of rockets –

conditions (assume 90° beam attack)



$C = 163.88$ yds/μsec $= 491.64$ ft/μsec

Sol: I

II

Use G-30 radar on 84 chase plane -

1. Photograph 5CP11 A-scope with Cont film camera - + use neon bulb to tie it to Hulcher or other camera

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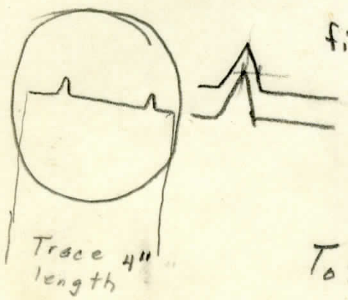
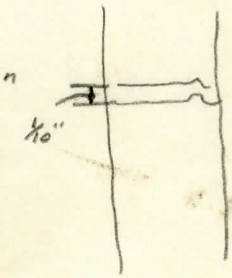


film vel (in/sec) = No sweeps/sec X trace separation

= sweeps/sec X $\frac{1}{10}$



Total film capacity = 100'

Best ~~time~~ dist resolution without interpolation (rocket cutting tgt plane) = $\frac{V_r}{\text{P.R.freq}} \cos\phi$

Initial P.R.F. to be 100 C.P.S.

Running time of camera: $\frac{\text{film cap}}{\text{film Vel}} = \frac{1200''}{10''/sec} = 120$ sec

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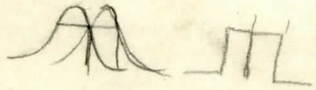
Resolution: At present with .5 μ sec pulse .5 X 491.64 = 245.820



needed: min = ~~$\frac{42.5}{491.6}$~~ = .0863 μsec = 86.3 mμsec

[illegible]

Rocket pair train = 14×10^{-3} sec.

Assuming vel at burnout = 2.5×10^3 Ft/sec

dist. of pair separation is 2.5×14 f = 35'

Min. pulse length = $\frac{35'}{492'/\mu sec}$ = .071 μsec