

INTERIM REPORT ON DEVELOPMENT OF RADAR OPTIC F.E.I.

Jan 5--Feb 26

1. Work done in this period can be roughly broken down into two efforts:

a. Construction of a high accuracy scoring system designed model 3 capable of scoring large numbers of missiles spaced comparable to NOTS rockets. Design of this unit is complete and construction is approx 25% complete. Construction has been painfully slow through difficulties in obtaining supplies and often times compromises were necessary in order to proceed at all. Work has not been started on the primary time base for lack of forks ordered over 6 months ago. In order to complete this unit permission to modify drastically a substantial amount of equipment must be obtained.

b. Development of a system capable of scoring GAR series missiles. Before design or construction can actually begin the two fundamental questions of sufficient radar return from the missiles for tracking and sufficient optical resolution had to be resolved. It now appears that no insurmountable problems are involved and that radar optic scoring is possible for this missile. Hughes aircraft has been obtaining photographs from the firing aircraft using no special techniques with class A films, 6" lens and B & H Ezzmos.

Even under these conditions, pockets with flares were recorded from the firing aircraft with sufficient quality to permit assessment if cross-over times has been available. At present it is planned to use 70MM 50f.p.s. cameras. with 12" or longer lens. and infrared film. It may be necessary to fire under controlled light conditions or possibly use pyrotechnic flares on the target under these conditions optical

resolution should be sufficient. The question of sufficient radar return is presently being studied by using 5" HVAR rockets fired at ranges corresponding to employment ranges for the GAR- Form the 8 firings made thus far it appears radar return will be sufficient. With the G-40 radar locked on an F-86 firing 5"HVAR at varying distances the rocket could easily be seen until it fell out of the antenna beam. Firings were made at varying ranges up to three miles maximum with the rockets at this point still being easily discernible. With the antenna in hand control the R.O. was able to track single rockets fired at a distance 1.5 miles into the altitude line 4 miles away. Although much more testing is needed before a working design is completed it now appears that an arrangement such as that in Fig 1. would be sufficient. There is still a great deal of work to be done before a prototype can be designed. It is planned to continue the series of HVAR firings and perfect as far as possible the work at this base without resorting to actual firings other than for final tests. Fig 2. illustrated the present testing arrangement. F94C 970 equipped with a test A scope and two modified tip tanks containing various camera and lens arrangements is used to chase an F-86 firing HVAR at ranges corresponding to operational ranges of the Falcon. A portion of the firings are free i.e. without targets, while other will be made against a parachuted reflector and flare

2. The supply situation has deteriorated into a sad affair during the past two months. Tech supply has been reasonable in action.

P and C is also reasonable if I personally 'bird dog' the individual requisitions constantly. Deadline dates and priorities apparently have

no meaning. Supply areas between Tech Supply and Procurement is one vast morass which no amount prodding can move. Typical of this are two items. one a precision fork ordered on priority taking over 6 months to get off the base (this item has yet to be received) another same hi voltage power supplies air freighted in and remaining undelivered for a week despite frantic calls. These items were obtained only by reporting to the base supply officer. If I had no duties other than obtaining supplies, by devious means a fair supply situation would exist. This however is not possible. Approximately one third of my time which should have gone into desing and supervision of this project has been