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COPY NO 41

EXPERIMENTAL STATION

21 October 1943

SUFFIELD ALBERTA

FIELD EXPERIMENT NO. 155

Assessment of Special Darts Dropped from Aircraft

OBJECT:

To assess the effectiveness of Special Darts as an Offensive Weapon when dropped from Operational Heights (100 and 10,000 feet) at Operational Speeds (250 mi/hr.).

METEOROLOGICAL CONDITIONS

(a) Wind speed up to 100 ft. - 15 to 20 mi/hr.
Wind Direction - any.
Temperature - any.

(b) Mean wind speed up to 10,000 ft. - 15 to 20 mi/hr.
Mean wind direction up to 10,000 ft. - any.
Temperature - any.

MATERIALS

(a) 1 S.B.C. charged with three liners each containing approximately 10,000 Special Darts.

(b) 2 S.B.C. each charged with three liners each containing approximately 10,000 Special Darts.

Boston Aircraft.

PROCEDURE

(a) 1. Layout will be as in Appendix I, Fig. I.

2. P & M. S. will inform M.E.O. as to position of aiming marks. (Trucks)

3. One charged S.B.C. will be loaded into the bomb-bay of the Boston aircraft.

4. The aircraft will fly at 250 mi/hr. T.A.S. at 100 feet above terrain along an indicated track. The S.B.C. will be functioned at the instant when the bombing target (a triangle in the line of aiming marks) comes in line with the bomb sight.

5. Photo. S. will take representative photographs (stills) of the layout as indicated by the C.E.O. on the day of the trial.

6. Wireless communication will be used.

7. The instant of release will be communicated to ground by radio. P & M. S. will measure time of fall, starting stop watches on receipt of signal from A/C.

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Field Experiment No. 155 (cont.)

8. Relevant meteorological data will be recorded in the field.

(b) 1. Layout as in Appendix I, Fig. II.

2. P & M. S. will inform M.E.O. as to positioning of aiming marks (smoke candles).

3. 2 charged S.B.C. will be loaded into the bomb-bay of the Boston aircraft.

4. The aircraft will fly at 250 mi/hr. T.A.S. at 10,000 feet above terrain along an indicated track. Both S.B.C. will be functioned at the instant when the bombing target (a triangle in the line of aiming marks) comes in line with the bomb sight. (S.B.C. wired for salvo release).

5. Representative photographs (stills) of the layout, as indicated by the C.E.O., will be taken.

6. Wireless communication will be used.

7. The instant of release will be communicated to ground by radio. P & M. S. will measure times of fall, starting stop watches on receipt of signal from A/C.

8. Relevant meteorological data will be recorded in the field.

NOTE: Bomb sights should be set at an angle of 45° to the vertical in part (a), 10° in part (b).

ADMINISTRATION

C.E.O.

Organization of trial and departmental warnings. Provision of transport and collection of reports.

M.E.O.

Layout. Placing of aiming marks on advice from P & M. S. Collection of jump cards and delivery to P & M. S. Report.

A.F.E.O.

Provision and flying of aircraft. Co-operation with O.M.&E. on installation of S.B.C. into aircraft. Report.

O. M. & E.

Charging of S.B.C' with Special Darts and installation into aircraft. Report.

PHYS. S.

Provision and positioning of goats on layout. Physiological assessment of goats. Report.

P & M. S.

Recording meteor data, times of fall. Decision as to positioning of aiming marks. Assessment of jump cards. Report.

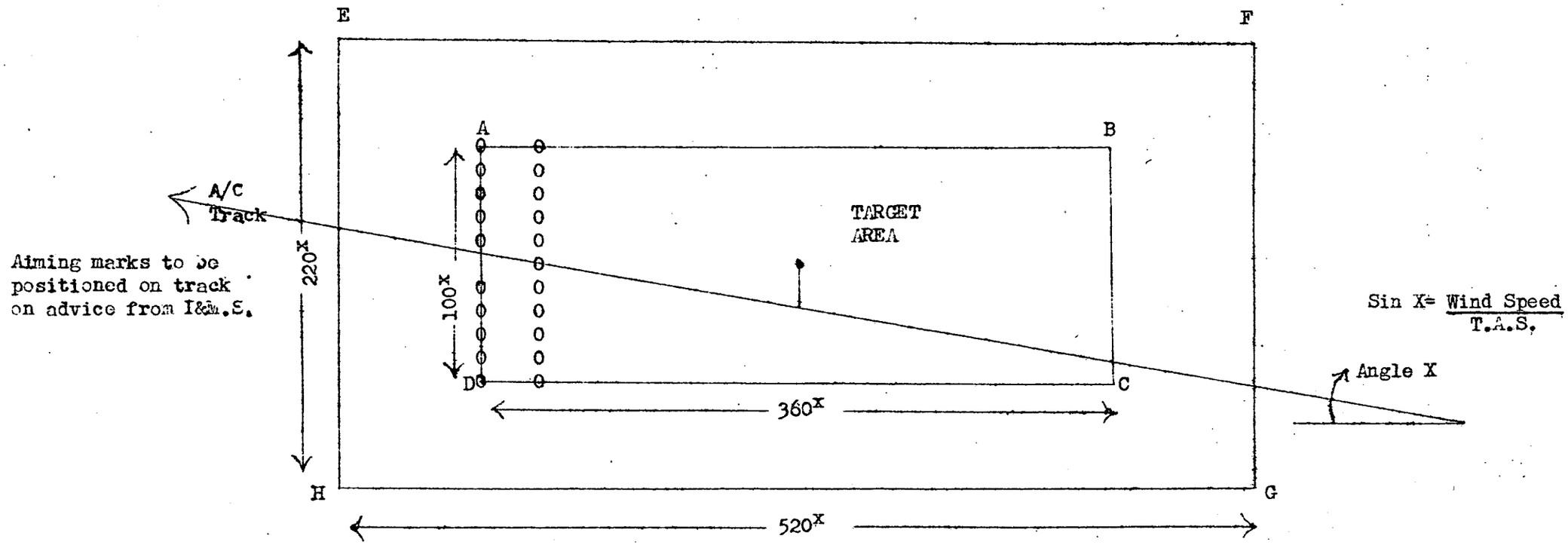
PHOTO. S.

Photographs of layout. Report.

(K. Birchall) S/Ldr.
C.E.O.
Experimental Station

KB/REA

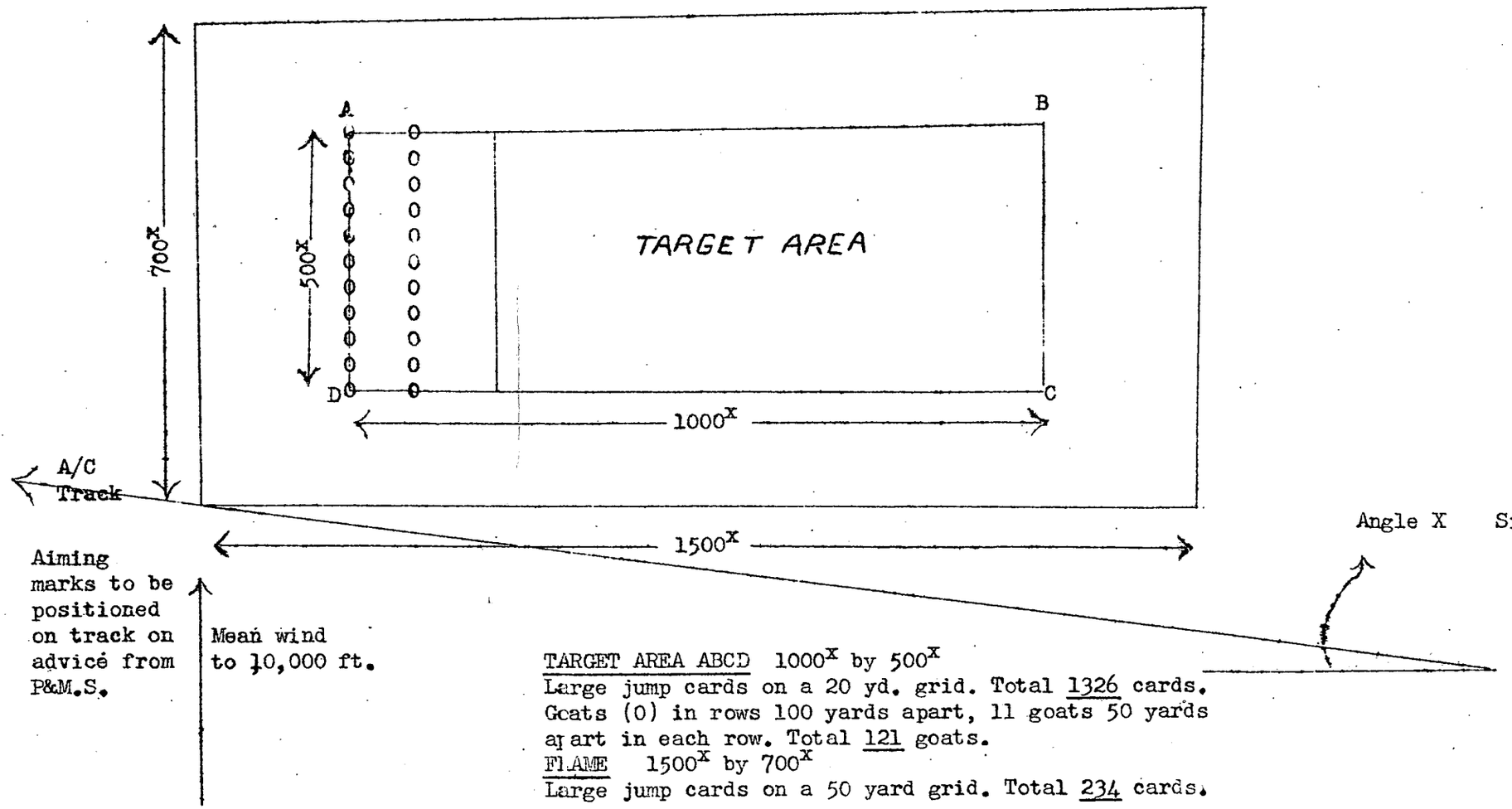
APPENDIX I. FIG. I



TARGET AREA ABCD 360X by 100X
Large jump cards on a 10 yard grid. Total 407 cards.
Goats (0) in rows 40 yards apart, 11 goats 10 yards apart in each row. Total 110 goats.

FRAME 520X by 220X (outside dimensions)
Large jump cards on a 20 yard grid. Total 160 cards.

APPENDIX I. Fig. 2



TARGET AREA ABCD 1000X by 500X
Large jump cards on a 20 yd. grid. Total 1326 cards.
Goats (0) in rows 100 yards apart, 11 goats 50 yards apart in each row. Total 121 goats.
FLAME 1500X by 700X
Large jump cards on a 50 yard grid. Total 234 cards.