Image Cover Sheet

CLASSIFICATION	SYSTEM NUMBER
UNCLASSIFIED	139994

TITLE

PERFORMANCE OF 500 LB. BOMB AIR BURST WITH HB/MM AT O DEGREES C AND BELOW

System Number:

Patron Number:

Requester:

Notes:

DSIS Use only:

Deliver to:

UNCLASSIFIED UNLIMITED

Classification / Designation
Changed to / Remplacée par U/U
By Authority of
Sur l'Autorisation de C. Laforce
Date 25 Feb 98 Signature D. Kuseler
Appointment
Fonction

COPY NO. 41

DATE: 31 Dec 43.

EXPERIMENTAL STATION,
SUFFIELD, ALBERTA.

FIELD EXPERIMENT NO. 172.

PERFORMANCE OF 500 LB. BOMB AIR BURST WITH HB/TM AT 0°C AND BELOW

1. OBJECT

These trials are preliminary to an investigation into the cooling characteristics of this bomb in flight. The present Air Staff requirements for the endurance of weapons on prolonged flight at high altitude include a starting temperature of 0°C. It is necessary to check the performance of the bombs when the charging is at a uniform temperature of 0°C. At the same time the opportunity will be taken to check the perfoimance at still lower temperatures which may be attained during prolonged flight at high altitude by a part at least of the charging.

DEFENCE SCIENTIFIC INFORMATION SERVICE
DEFENCE RESEARCH BOARD
Date : DEC 23 1952
From : SES
Copy No. : 2 of 172
ACC. No. : 52/13960

2. REFERENCE

S.38.

3. WEATHER

Suitable for flight at 14,000 ft.
Temperature below 0°C.
Wind speed to 2000 ft. below 25 mi/hr.

4. MATERIAL

For each Part:
Two bombs A/C L.C. 500 lb. Mk. II charged HB containing 450,000/MW % MM dyed deeply any available colour. (Suggest stock of any dye unsuitable for quantitative assessment be used).
One similarly charged bomb with thermocouples.
Fuze No. 42 in tail. Capsule No. 12.
Burster. Charge Ejection No. 1 Mk. I in tail burster container.

PROCEDURE

5. Cooling of Bombs

Pt. I. - The two bombs will be put in the refrigerator chamber at 0°C for 3 days before the trial. A third bomb fitted with thermocouples will be placed between them so that a record can be kept of charging temperatures.

6. Pt. II. - If the results of Pt. I justify it, further bombs will be treated in the same way with the refrigerator chamber at -5°C..

7. Pt. III. - Similarly at -10°C.

8. Carriage and Release

The bombs will be insulated, removed from the cold chamber and bombed up onto a Boston A/C as quickly as possible. The A/C will take off without delay and will aim the first bomb from 13,500 ft. at the triangle; the second will follow 5 secs. later. The minimum time must elapse between removal from the chamber and release. A record of external air temperature against time and height will be kept by the bomb aimer every 2 mins..

9. Aiming Mark

A triangle will be put out by M.E.O. No layout is needed. Short grass area is preferable. Observers will be in a position from which the triangle can be seen.

10. Inspection of Contamination.

Gun boots will be provided for observers. Photographs will be taken of the contamination as required by P.R.S. M.E.O. will provide 12 clean jump cards 18" square for the use of Photo. S.

11. ADMINISTRATION

M.E.O.	Safety. Aiming Mark. 12 clean 18" jump cards.
O.M. & E.	Charged weapons including one with thermocouples inserted as suggested by P & M.S.. Cooling. Provision of securely attached insulation for two bombs. Time from removal of bomb from chamber to take off. Inspection of contamination. Details of charging. Report.
P. & M.S.	Thermocouple readings. Inspection of contamination. Report.
Photo. S.	Still photographs as required. Report.
P.R.S.	Inspection of contamination.
R.C.A.F.	Log of flight (Temperature/Time/Height/until bombs released). Height and speed of aircraft. Report.

Alan R. Harper Maj RCA.
for (K. Birchall) W/C
C.E.O.

(H.J. Hadow)
P.R.S.
Experimental Station.

HJH/JS
17 Dec. 43.

139994