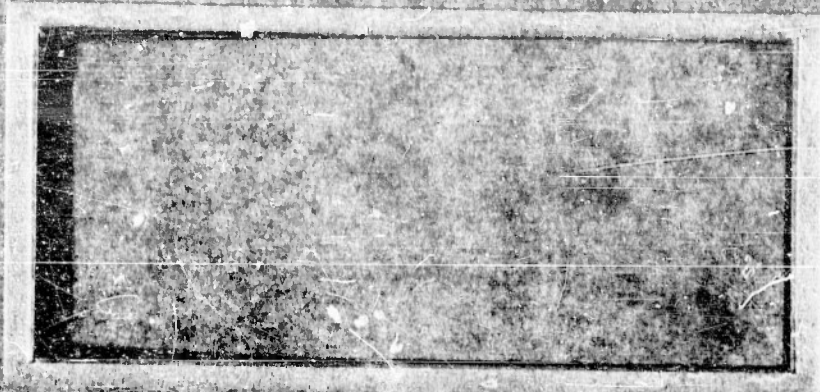


General Mills, Inc.
Mechanical Division



AD. NO. 19115

ASIA FILE COPY

ENGINEERING RESEARCH & DEVELOPMENT
DEPARTMENT

201 EAST HENNEPIN AVENUE
MINNEAPOLIS 11, MINN.

GENERAL MILLS, INC.
Mechanical Division
Engineering Research & Development Department
2003 E. Hennepin
Minneapolis 13, Minn.

FINAL REPORT

PROJECT 85008

REPORT NO. 1226

PREPARED BY

Keith C. Giles
Keith C. Giles

DATE: 4 SEPTEMBER 1953

APPROVED BY

J. R. Smith
J. R. Smith
Balloon and Meteorological
Systems Group

I. INTRODUCTION

On 21 August 1952, Contract Noar 875(00) between General Mills, Inc. and the Office of Naval Research was amended to provide for the execution of an experiment designed to carry a scientific payload to high altitudes. A payload was supplied by the Naval Research Laboratory, Nucleonics Division. General Mills, Inc. was to supply a "Skyhook" balloon to carry the load aloft, together with balloon controls, recording and safety equipment. The flight was to be launched by General Mills technical personnel.

II. PROJECT PROGRAM

A traditional "Skyhook" balloon flight program was outlined for this project. The balloon was flown from Pyote Air Force Base, Pyote, Texas, on 29 August 1952. The following items constituted the flight train:

1. A polyethylene balloon, 85 feet in diameter, 1 mil thick.
2. A 28-foot parachute on which the instruments and payload were to be returned to earth.
3. A timer set to cut the load free from the balloon at a predetermined time when the scientific experiment is concluded.
4. Safety devices required by C.A.A., including a pressure switch set to prevent floating below 80,000 ft.
5. A barograph to give a record of the altitude reached.
6. A radio transmitter whose signal is modulated by a pressure sensor.
7. A payload provided by the Naval Research Laboratory, Nucleonics Division.

8. An additional small payload provided by the National Institutes of Health, Bethesda, Maryland.

Helium provided by the Navy was used for inflation.

The balloon and accessory equipment was flown successfully and the desired services were provided. Tracking was attempted using an Air Force AT-6 from Pyote Air Force Base. Poor mechanical condition prevented a successful tracking effort. The balloon landed in Mexico, and the equipment and payload were found and returned in good condition.

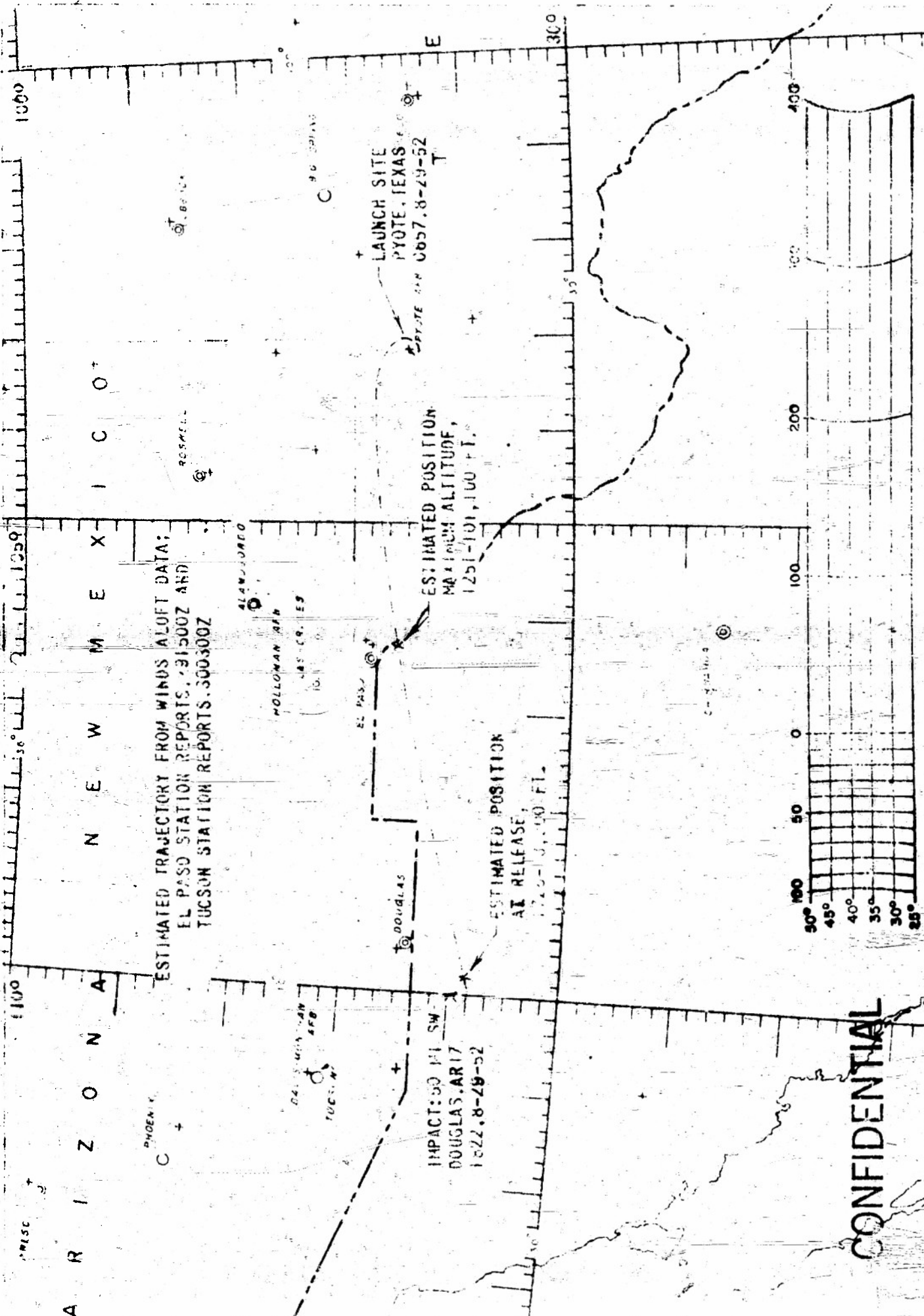
The flight data are presented in the next section of this report.

It is hoped that the scientific payload performed satisfactorily and that the entire operation met with success. General Mills, Inc. is happy to have had the opportunity of working with the Office of Naval Research and the Naval Research Laboratory in carrying out this experiment.

CENTRAL MILLS, INC.
Engineering Research and Development Department
Minneapolis, Minn.

FLIGHT SUMMARY

Flight No.: 679 Date: 29 August 1952
Launch site: Pyote AFB Launching time: 0657 CST
Balloon type: 851A Serial No.: 501 Weight: 148#
Who: NRL - Shapiro
What: Plates, Beacon, Barograph & Timers
Scheduled duration: 10 1/2 hrs. Load on Balloon: 117#
Actual Duration: 10 1/2 hrs.
Gross Load: 265# Free lift: 34.5# 13% gross load
Maximum altitude: 101,000 ft. Rate of rise: 1029 ft/min to 97,000 ft.
Theoretical Altitude: 101,800 ft. Altitude Maintenance: Excellent
Recovery: where? 50 Mi. SW Douglas, Arizona.
Balloon Success: Excellent
Scientific Purpose: To carry plates for NRL Nucleonics Division.
Scientific Success as known: Late recovery caused much background on plates
though data very usable per Nat Seaman (NRL)
Critique: Launched in lee of hangar. Wind shear over hangar held balloon down after
leaving platform and dragged balloon 75 ft. on ground. High rate of rise.



ESTIMATED TRAJECTORY FROM WINDS ALOFT DATA;
 EL PASO STATION REPORTS, 21500Z AND
 TUCSON STATION REPORTS, 300300Z

ESTIMATED POSITION
 MAXIMUM ALTITUDE,
 125,000 FT.

ESTIMATED POSITION
 AT RELEASE,
 125,000 FT.

IMPACT: 50 MI SW
 DOUGLAS, AR 17
 1222, 8-29-52

LAUNCH SITE
 PYOTE, TEXAS
 0657, 8-29-52

CONFIDENTIAL

STATUTE MILES 0 100 200 300 400

SCALE 1:25,000,000
 PROJ. 6308

APP. DATE 11-20-52

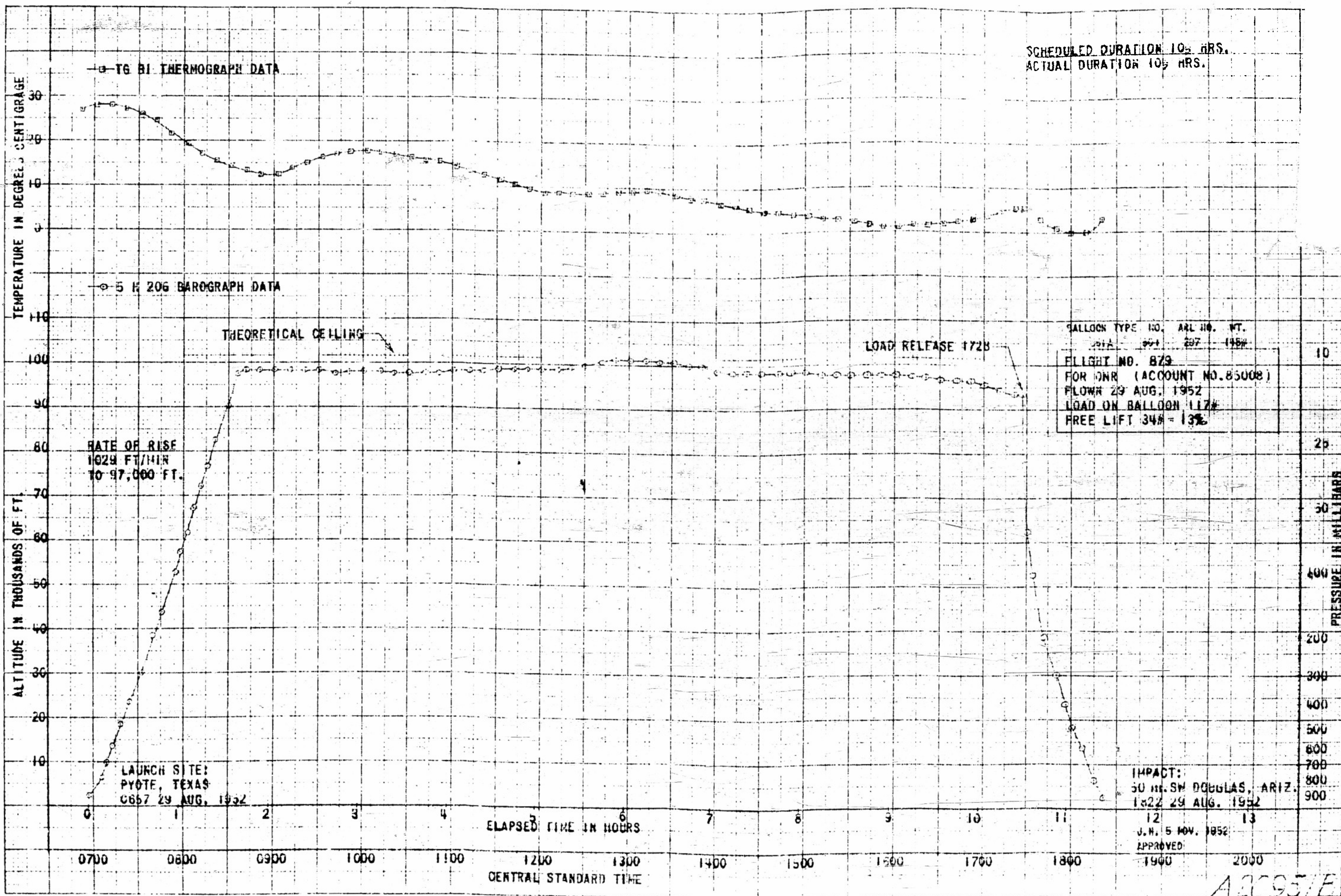
APP. D.R. APP. 577

APP. 1953

BALLOON TRAJECTORY, FLIGHT NO. 879, FOR
 KRL SHAPIRO, STILLER, FLOWN 25 AUG. 1952

A-21023A

GENERAL MILLS, INC., ENGINEERING RESEARCH AND DEVELOPMENT DEPARTMENT, MINNEAPOLIS, MINN.



SCHEDULED DURATION 10 1/2 HRS.
 ACTUAL DURATION 10 1/2 HRS.

TG BI THERMOGRAPH DATA

5 H 206 BAROGRAPH DATA

THEORETICAL CEILING

LOAD RELEASE 1728

BALLOON TYPE NO.	ARL NO.	WT.
201A	207	145#
FLIGHT NO. 879		
FOR ONR (ACCOUNT NO. 85008)		
FLOWN 29 AUG. 1952		
LOAD ON BALLOON 117#		
FREE LIFT 34# = 13%		

RATE OF RISE
 1024 FT/MIN
 TO 97,000 FT.

LAUNCH SITE:
 PYOTE, TEXAS
 0657 29 AUG. 1952

IMPACT:
 50 MI. SW DOUGLAS, ARIZ.
 1822 29 AUG. 1952

J.H. 5 NOV. 1952
 APPROVED:

ARC 957E