

SKYLAB MEDICAL EXPERIMENTS ALTITUDE TEST

DETAILED TEST OBJECTIVE

I. OPERATIONAL SYSTEM

- A. Title: Heating Food Tray
- B. Requirements Developer: M. C. Smith; D.V.M.
- C. Project Engineer: T. R. Turner

II. PURPOSE AND BACKGROUND

A. Purpose

1. To evaluate adequacy of the food tray/crew interface in prolonged daily operational use in a simulated space environment for up to 56 days.
2. To provide baseline data and evaluation of food tray use for extrapolation to the Skylab Mission.

B. Justification

Since this equipment has been designed to operate under Skylab environments of weightlessness, reduced pressure, etc., it will be of benefit to use the Heating Food Tray under conditions approximately those of Skylab with selected members of the astronaut population as crew. Use of the equipment in SMEAT will provide a next logical step in the development, testing, and evaluation cycle and provide confirmed and proven techniques for actual Skylab use.

III. PARTICIPANTS

- A. Number of participants required: Three
- B. Function of each crewman: Normal food preparation, consumption, and cleanup.

IV. FUNCTIONAL OBJECTIVES

- FO1 Evaluate fit of food cans to tray and ease of use, retention and removal capabilities.
- FO2 Evaluate heating/thawing capabilities - heater control switches, timer operations.
- FO3 Evaluate cleaning ease.
- FO4 Provide overall evaluation of adequacy of the equipment, ease of operation extrapolated to zero-g and application to the Skylab Mission.

V. TEST CONDITIONS

A. Environmental Requirements

None other than normal SMEAT Flight Plan for eating periods and planned atmosphere in chamber; however, decompress rate not to exceed 6 psi/min. without damage to tray.

B. Crew Constraints: None

VI. HARDWARE REQUIREMENTS

A. Identification and Purpose of Hardware

1. Three heating food trays - heat, thaw, and insulate flight food cans.
2. One spare heating food tray - heat, thaw, and insulate flight food cans.

B. Identification and Purpose of GSE: None required.

VII. CHAMBER INTERFACES

A. Stowage Requirements

Three trays will be mounted and maintained in position on the wardroom table for 56 days. Spare tray and lid stowage must be provided.

B. Special or Unique Interfaces

Required 30 VDC input to wardroom table providing power to heating food trays with (3) zero-g electrical connectors mating with tray receptacles (MSFC 1B69950-509) capable of providing 3.6 ampres per food heating receptacles (4 per tray).

VIII. CREW TRAINING

A. Briefing Sessions

One 30-minute briefing on heating food tray stowage, mounting, can insertion and removal, heating and timer operation should be presented approximately one month prior to chamber run.

B. Training Sessions

One operational walk through of system prior to chamber test.

IX. SCHEDULING

Normal scheduled eating periods as specified in SMEAT Flight Plan (3 per day approximately one hour duration).

X. DATA REQUIREMENTS

A. Experiment Measurements List: None

B. Unique Measurements to SMEAT: None

C. Data from Other Experiments

All video coverage of food preparation, consumption, and cleanup as provided by M151.

D. Other Requirements

Log entries and voice comments provided by the crew on ease of operation, use, and problem areas.

XI. FDF REQUIREMENTS

A timeline of activity to the daily level will be required along with the in-chamber operational procedures for the Heating Food Tray. Log books for recording of data are also required.

XII. DEVIATIONS FROM SKYLAB

Temporary stowage of food trays on 16mm camera slide assembly is not provided. One spare food tray is provided.