

Crew

102

August 25, 1972

SMEAT DAILY REPORT

Number 24

This report covers the period from 0800 August 24, 1972 to 0800 August 25, 1972 (test day 30).

I. Significant Accomplishments - The SMEAT test continues on schedule. Three M092 lower body negative pressure (LBNP) tests were conducted. Some problems were encountered and will be discussed under the Problem section. The principal investigator (PI) indicated that the data obtained from the M092 protocols remain unchanged. Three M171 metabolic activity tests were completed. The first test provided data comparable with previous tests. On the second and third tests, erroneous values were obtained for minute volume determinations. This problem had previously been encountered.

II. Problems

A. Hardware

1. The automatic blood pressure system malfunctioned during one M092 test. The blood pressure cuff and microphone system were replaced and usable data was obtained. The BPMS malfunction is being investigated.

2. The newly designed waist seal for the LBNP unit failed during the M092 test. The crew reported that the new seal was a definite improvement, however, a problem was encountered with the pressure sealing zipper.

B. Facility - None

C. Procedural - None

III. Misc. Items

1. The urine centrifuge speed problem reported in the 8/24/72 report has been found to be a problem in the assembly of the centrifuge seal and is not a design problem.

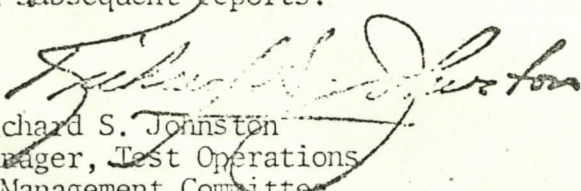
2. The crew telephone system which has been a continuing problem throughout the test, has been fixed.

3. The chamber lithium hydroxide canister filter has been redesigned in an attempt to preclude a recurrence of lithium hydroxide dusting in the chamber.

4. The chamber has been maintained at 77°F for the thermal comfort evaluation. A questionnaire is being prepared for the crew to provide their subjective comments on overall thermal comfort for normal operation and during the M171 and M092 protocols.

4. The metabolic test using the conventional lab Douglas bags to validate RQ's at the reduced pressures of SMEAT are scheduled to be conducted on Friday and Saturday. Additionally, vital capacity measurements will also be made during these tests.

5. The MSFC has submitted a failure report on the ergometer load module failure which was encountered during the second day of the SMEAT test. It has been found that the failure was not due to overheating and solder melting, but was caused by the orientation of the brushes to the rotational direction. This installation of the brushes in this manner is only peculiar to the ergometer DVTU's. The MSFC report states that the brush failure was one of fatigue rather than overheating. The damaged SMEAT ergometer has been reworked to a flight configuration and is scheduled to be airlocked into the chamber over the coming weekend. It is our intention to eliminate the red line operation on the ergometer and to proceed with a more normal evaluation of the ergometer under higher exercise work rates. Details on this evaluation will be supplied in subsequent reports.

  
Richard S. Johnston  
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Management Committee