

MEMORANDUM

Lyndon B. Johnson Space Center



| | | | |
|---|------------------------|---|------|
| REFER TO: CG5-77-76 | DATE March 25, 1977 | INITIATOR CG5/JLGarner:vn:3/24/77:4271 | ENCL |
| TO: Distribution | | CC | |
| FROM: CG5/Chief, Flight Activities Branch | | SIGNED: <i>T. W. Holloway</i> 3/25/77 T. W. Holloway | |

SUBJ:

Basic Integrated Spacelab Mission Development Test III (SMD III) Crew Activity Plan

Enclosed is the Basic Integrated SMD III Crew Activity Plan. This plan includes the STS and the experiment activities required.

FLIGHT OPERATIONS DIRECTORATE

BASIC

**SPACELAB
MISSION DEVELOPMENT TEST
SMD III
INTEGRATED CREW ACTIVITY
PLAN**

MARCH 15, 1977



**PREPARED BY
FLIGHT ACTIVITIES BRANCH
CREW TRAINING & PROCEDURES DIVISION**
National Aeronautics and Space Administration
LYNDON B. JOHNSON SPACE CENTER
Houston, Texas

SPACELAB MISSION DEVELOPMENT TEST III
CREW ACTIVITY PLAN
BASIC


March 15, 1977


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SECTION 1
CREW ACTIVITY PLAN NOTES

1.0 INTRODUCTION

This document contains the planned sequence of crew activities for the third Spacelab Mission Development test (SMD III). SMD III is a 7 day simulation of a Shuttle flight with a Mission Specialist (MS) and two payload specialists (PS1 and PS2). The crew activity plan depicts the activities of a commander (CDR) and pilot (PLT) in addition to those of the MS, PS1 and PS2 for a total typical Shuttle flight crew complement of five; however, the CDR and PLT activities will not be simulated in SMD III.

1.1 CREW DESIGNATIONS

Crew designations for SMD III are as follows:

| | |
|-----|----------------------|
| MS | W. Thornton, M.D. |
| PS1 | W. Williams, Ph. D. |
| PS2 | C. Alexander, Ph. D. |

1.2 SIMULATION (FLIGHT) PROFILE

The SMD III Crew Activity Plan is based on a typical 7 day Shuttle flight profile developed by MPAD. Major events are:

| Flight Event | Day | GMT | SMD III |
|-----------------------|-----|------|------------------|
| Launch | 1 | 1300 | Start of SMD III |
| OMS 1 | 1 | 1311 | |
| OMS 2 | 1 | 1345 | |
| Spacelab Activation | 1 | 1500 | |
| Spacelab Deactivation | 7 | 1245 | |
| Deorbit Burn | 7 | 1809 | |
| Landing | 7 | 1904 | End of SMD III |

Flight parameters are:

| | |
|------------------|------------------------------------|
| Altitude | 160 N.M1 |
| Inclination | 55.0 degrees |
| Vehicle Attitude | Orb Rate (LVLH Y=0 P=0, R=0) |

1.3 SMD III FACILITIES

Major facilities include a Spacelab mockup and Orbiter mid and aft-crew station mockup.

1.4 TYPICAL CREW DAY

The typical crew day for the MS, PS1 and PS2 consist of the following:

HR:MIN

- o Three meals 1:00 (each)
- o Sleep periods 8:00
- o Post sleep activities :45
- o Pre sleep activities :45
- o Time available for experimentation 11:30

All crewmen will be on a one shift crew work/rest cycle.

1.5 EXPERIMENT OPERATIONS

Experiments planned for SMD III are:

| <u>SMD III EXPERIMENTS</u> | |
|----------------------------|-----------------------|
| <u>NO.</u> | <u>TITLE</u> |
| X03 | RAT COLLAGEN |
| X05 | BIOFEEDBACK |
| X08 | INSULIN |
| X10 | SOMATOMEDIN |
| X11 | 3-METHYL HISTIDINE |
| X12 | PROTEOLYTIC ENZYMES |
| X13 | MUSCLE DEGRADATION |
| X15 | OTOLITH ACTIVITY |
| X21 | HYPOTHALMIC STRUCTURE |
| X23 | ANGIOTENSION |
| X27 | LYMPHOID TISSUE |
| X39 | BONE RESORPTION |
| X42 | DROSOPHILA AGING |
| X49 | DOPPLER FLOW |
| X50 | CV ALTERATION |
| X51 | MOTION SICKNESS |
| X57 | NUCLEATE BOIL |
| X58 | CP FUNCTION |
| X59 | METABOLISM |
| X60 | PYROGENS |
| X66 | OTOLITH OUTPUT |
| X68 | ERYTHROKINETICS |
| X74 | IMMUNE RESPONSE |
| X75 | BASAL METABOLISM |
| X76 | (18) CV DYNAMICS |
| | (33) HEMOLYSIS |
| | (44) METABOLISM |
| X77 | INFLIGHT ELECTROLYTES |
| X78 | EARTH OBSERVATIONS |

Scheduling requirements and data for each experiment are contained in section 3.0.

1.6 OTR OPERATIONS

OTR's planned for SMD III are:

| <u>QTR</u> | |
|------------|---|
| <u>NO.</u> | <u>TITLE</u> |
| 001 | MICROPROCESSER |
| 002/04 | MEDICAL KIT DEFINITION/REVIEW |
| 003/12 | MEDICAL MONITORING |
| 005/06/07 | POTABLE WATER/URINE MONITORING/WASTE MGT. SYS |
| 008 | VOLATILE METABOLITES |
| 009 | CONTAMINATION CONTROL |
| 011 | SURGICAL BENCH |
| 013 | CREW HEALTH STABILIZATION |
| 014/15 | BIO. SPECIMAN HOLDING FAC. (LMSC) |
| 016/17 | BIO. SPECIMAN HOLDING FAC. (MDAC) |
| 018/19 | PRIMATE AND SMALL VERTIBRA TRANSPORTER (GE) |
| 020 | HYGIENE/PERSONAL CLEANSING/HOUSEKEEPING |

Scheduling requirements and data for each OTR are contained in section 4.0

1.7 COMMUNICATIONS

Changes to the crew activity plan and to the crew's checklists will be via a CRT and hardcopy device. An example of the format (51 characters per line and 26 lines) simulating the Orbiter CRT is shown in Figure 1.

Voice communication, experiment data, and TV will be restricted to TDRSS coverage.

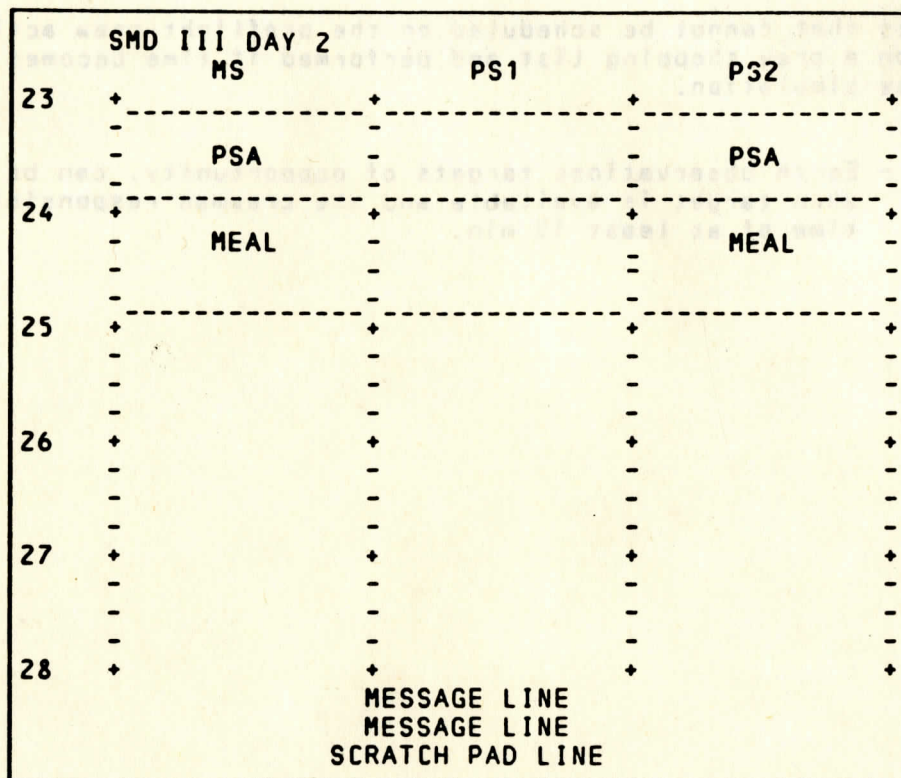


FIGURE 1 UPLINK FORMAT

1.8 SHOPPING LIST

Activities that cannot be scheduled on the preflight crew activities plan will be on a crew shopping list and performed if time becomes available during the simulation.

- X78 - Earth observations targets of opportunity, can be scheduled when target is available and the crewman responsible has free time of at least 15 min.

2.0 SMD III TIMELINES

The following pages contain the integrated timeline with no CDR/PLT activities scheduled. These timelines schedule the experiments and OTR's in sections 3 and 4.

One of the major scheduling constraints is the limited capability to down link data from the SMD III simulator to the ground. Table 1 contains a list of the patch panels and configurations with a description of the experiments and OTR's that can be down linked in parallel.

| | |
|---------------|----|
| 76 BACKGROUND | 76 |
| 75 BACKGROUND | 75 |
| 74 BACKGROUND | 74 |
| 73 BACKGROUND | 73 |
| 72 BACKGROUND | 72 |
| 71 BACKGROUND | 71 |
| 70 BACKGROUND | 70 |
| 69 BACKGROUND | 69 |
| 68 BACKGROUND | 68 |
| 67 BACKGROUND | 67 |
| 66 BACKGROUND | 66 |
| 65 BACKGROUND | 65 |
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| 46 BACKGROUND | 46 |
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| 43 BACKGROUND | 43 |
| 42 BACKGROUND | 42 |
| 41 BACKGROUND | 41 |
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| 39 BACKGROUND | 39 |
| 38 BACKGROUND | 38 |
| 37 BACKGROUND | 37 |
| 36 BACKGROUND | 36 |
| 35 BACKGROUND | 35 |
| 34 BACKGROUND | 34 |
| 33 BACKGROUND | 33 |
| 32 BACKGROUND | 32 |
| 31 BACKGROUND | 31 |
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| 29 BACKGROUND | 29 |
| 28 BACKGROUND | 28 |
| 27 BACKGROUND | 27 |
| 26 BACKGROUND | 26 |
| 25 BACKGROUND | 25 |
| 24 BACKGROUND | 24 |
| 23 BACKGROUND | 23 |
| 22 BACKGROUND | 22 |
| 21 BACKGROUND | 21 |
| 20 BACKGROUND | 20 |
| 19 BACKGROUND | 19 |
| 18 BACKGROUND | 18 |
| 17 BACKGROUND | 17 |
| 16 BACKGROUND | 16 |
| 15 BACKGROUND | 15 |
| 14 BACKGROUND | 14 |
| 13 BACKGROUND | 13 |
| 12 BACKGROUND | 12 |
| 11 BACKGROUND | 11 |
| 10 BACKGROUND | 10 |
| 9 BACKGROUND | 9 |
| 8 BACKGROUND | 8 |
| 7 BACKGROUND | 7 |
| 6 BACKGROUND | 6 |
| 5 BACKGROUND | 5 |
| 4 BACKGROUND | 4 |
| 3 BACKGROUND | 3 |
| 2 BACKGROUND | 2 |
| 1 BACKGROUND | 1 |

TABLE 1.- DATA DOWNLINK CONFIGURATIONS

| | |
|--------------------------|--|
| PATCH PANEL 1 CONFIG. | DESCRIPTION |
| 10 | 76 LBNP POD A |
| PATCH PANEL 2 CONFIG. | DESCRIPTION |
| 20 | 76 LBNP POD B |
| PATCH PANEL 3 | |
| 99 | 76 BACKGROUND |
| 30 | 76 ENHANCED BACKGROUND |
| 31 | 76 BACKGROUND + 75 |
| 32 | 76 BACKGROUND + OTR1 |
| PATCH PANEL 4 CONFIG. | DESCRIPTION |
| 99 | 76 BACKGROUND |
| 41 | 58 + 76 BACKGROUND |
| 42 | 58 + 75 + 76 BACKGROUND |
| 43 | 58 + OTR 1 + 76 BACKGROUND |
| PATCH PANEL 5 CONFIG. | DESCRIPTION |
| 99 | 66 + 76 BACKGROUND |
| 51 | 66 + 75 + 76 BACKGROUND |
| PATCH PANEL 6 CONFIG. | DESCRIPTION |
| 99 | 76 BACKGROUND |
| 61 | 5 + 76 BACKGROUND |
| 62 | 5 + 75 + 76 BACKGROUND |
| 63 | 5 + OTR 1 + 76 BACKGROUND |
| PATCH PANEL 7 CONFIG. | DESCRIPTION |
| 97 | 76 BACKGROUND NOTE THE DIFFERENCE IN THE PATCH PANEL |
| 71 | 57 + 76 BACKGROUND |
| 72 | 57 + 75 + 76 BACKGROUND |
| 73 | 57 + OTR 1 + 76 BACKGROUND |

TABLE I.- DATA DOWNLINK CONFIGURATIONS (Concluded)

PATCH PANEL 8
CONFIG.

| | DESCRIPTION |
|----|----------------------------|
| 99 | 76 BACKGROUND |
| 81 | 15 + 76 BACKGROUND |
| 82 | 15 + 75 + 76 BACKGROUND |
| 83 | 15 + OTR 1 + 76 BACKGROUND |
| 84 | 50 + 76 BACKGROUND |
| 85 | 50 + 75 + 76 BACKGROUND |
| 86 | 50 + OTR 1 + 76 BACKGROUND |

PATCH PANEL 9
CONFIG.

| | DESCRIPTION |
|----|----------------------------|
| 99 | 76 BACKGROUND |
| 91 | 13 + 76 BACKGROUND |
| 92 | 13 + 75 + 76 BACKGROUND |
| 93 | 13 + OTR 1 + 76 BACKGROUND |

| CDT | | FD/DCY | | HOUSTON DATE | | | BETA ANGLE | | MOON PHASE | | FLIGHT | | GMT | | EDITION | | PUBLICATION DATE | |
|----------------------|-------|---|--------|------------------------------|------------|----------|------------|-------|------------|-----|----------|------------|-------------------|-----|---------|-----|------------------|-----------------------|
| 187:0700/188:0700 | | 1/187 | | July 6, 1977 | | | | | | | SMD III | | 187:1200/188:1200 | | BASIC | | March 15, 1977 | |
| ORBIT | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | |
| MET | | <div> <div>1</div> <div>3</div> <div>5</div> <div>7</div> <div>9</div> <div>11</div> <div>13</div> <div>15</div> <div>17</div> <div>19</div> <div>21</div> <div>23</div> </div> | | | | | | | | | | | | | | | | |
| CMN | CDR | | | | | | | | | | | | | | | | | ORBITER CONFIGURATION |
| | PLI | | | | | | | | | | | | | | | | | KIT # |
| | MS | LAUNCH (0800 EDT) | LAUNCH | SPACELAB | | MEAL | | | | | | | | | | | | |
| | PS1 | | PHASE | P BDM OPEN X39 XFER + INJ | ACTIVATION | X76 (18) | MEAL | X51 | | X50 | | X58 SET UP | X58 | X05 | MEAL | PSA | | SLEEP |
| | PS2 | | | | | X15 | MEAL | X51 | X39 DRAW | X50 | X39 ANAL | X15 | | X05 | MEAL | PSA | | SLEEP |
| DAY/NIGHT | | <div> <div>X49</div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> </div> | | | | | | | | | | | | | | | | |
| EARTH TRACE W/SAG | | | | | | | | | | | | | | | | | | |
| TDRS COVERAGE | | <div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> </div> | | | | | | | | | | | | | | | | |
| DEGRAD OPPORTUNITIES | | 00:59 | | 07:21 | | | | 08:55 | | | | | | | | | | |
| ATT | REQD | | | | | | | | | | | | | | | | | |
| MNVR | CONT. | | | | | | | | | | | | | | | | | |
| NOTES | | <div> <div>• X76 (33) FILTER CHANGE</div> <div>• X76 (33) FILTER CHANGE</div> <div>• X39 ANALYSIS WILL HAVE TO BE ACCOMPLISHED DURING PSA</div> <div>• X76 (33) FILTER CHANGE</div> </div> | | | | | | | | | | | | | | | | |

| CDT | | FD/DOY | | HOUSTON DATE | | | BETA ANGLE | | MOON PHASE | | FLIGHT | | GMT | | EDITION | | PUBLICATION DATE | | | |
|-----------------------|--|-------------------------------------|------|--------------|-------------|--------|------------|------|------------|----------|---------|-----------------|--------------------------|----------|---------|------|------------------|-------|--------------------------------|--|
| 188:0700/189:0700 | | 2/188 | | July 7, 1977 | | | | | | | SMD III | | 188:1200/189:1200 | | BASIC | | March 15, 1977 | | | |
| ORBIT | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | | | |
| MET | <div> <div>25</div> <div>27</div> <div>29</div> <div>31</div> <div>33</div> <div>35</div> <div>37</div> <div>39</div> <div>41</div> <div>43</div> <div>45</div> <div>47</div> </div> | | | | | | | | | | | | | | | | | | | |
| CMN | CDR | PSA | MEAL | | | | | MEAL | | | | | MEAL | PSA | SLEEP | | | | ORBITER CONFIGURATION KIT # | |
| | FLT | PSA | MEAL | | | | | MEAL | | | | | MEAL | PSA | SLEEP | | | | | |
| | MS | AM BLOOD DRAW | PSA | MEAL | ANIMAL CARE | x75 | | x42 | MEAL | x76 (44) | | PM BLOOD DRAW | x13 | SA/DN | MEAL | PSA | SLEEP | | | |
| | PS1 | AM BLOOD DRAW | PSA | MEAL | ANIMAL CARE | x59/60 | x15 | x75 | MEAL | | x27 | x39 DRAW SUPINE | PM BLOOD DRAW | x39 ANAL | x15 | MEAL | PSA | SLEEP | | |
| | PS2 | AM BLOOD DRAW, ANALYSIS, PSA & MEAL | | ANIMAL CARE | x77 | x10/12 | x03 | | MEAL | | x27 | x77 SUPINE | PM BLOOD DRAW & ANALYSIS | x77 | MEAL | PSA | SLEEP | | | |
| DAY/NIGHT | <div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> </div> | | | | | | | | | | | | | | | | | | | |
| EARTH TRACE W/SHA | | | | | | | | | | | | | | | | | | | | |
| TDRS COVERAGE | <div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> </div> | | | | | | | | | | | | | | | | | | | |
| DEGRBIT OPPORTUNITIES | 23:34 | 31:31 | | | | 33:04 | | | | | | | | | | | | 46:09 | | |
| ATT REQD | | | | | | | | | | | | | | | | | | | | |
| MNVRs CONT. | | | | | | | | | | | | | | | | | | | | |
| NOTES | <div> <div>• X76 (33) FILTER CHANGE</div> <div>• X76 (33) FILTER CHANGE</div> <div>• X76 (33) FILTER CHANGE</div> <div>• X76 (33) FILTER CHANGE</div> </div> | | | | | | | | | | | | | | | | | | | |

| CDT | | FD/DGY | | HOUSTON DATE | | BETA ANGLE | | MOON PHASE | | FLIGHT | | GMT | | EDITION | | PUBLICATION DATE | | | | | | | | | |
|----------------------|-------|--|-------|--------------|----------|------------|-------|------------|------|-------------------|------------|-------|----------|----------------|----------|------------------|--------|--------|------|-----------------------|-------|-------|-------|----|--|
| 189:0700/190:0700 | | 3/189 | | July 8, 1977 | | | | SMD III | | 189:1200/190:1200 | | BASIC | | March 15, 1977 | | | | | | | | | | | |
| ORBIT | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | | | | | | | | | |
| MET | | 49 | | 51 | | 53 | | 55 | | 57 | | 59 | | 61 | | 63 | | 65 | | 67 | | 69 | | 71 | |
| CMN | CDR | PSA | MEAL | | | MEAL | | | | MEAL | | PSA | | | | SLEEP | | | | ORBITER CONFIGURATION | | KIT # | | | |
| | PLT | PSA | MEAL | | | MEAL | | | | MEAL | | PSA | | | | SLEEP | | | | | | | | | |
| | MS | PSA | MEAL | ANIMAL CARE | X76 (18) | | | MEAL | X42 | X50 | X51 SET UP | X51 | X39 DRAW | X158 SET UP | 001 | X58 | X05 | S/L DN | MEAL | PSA | | | SLEEP | | |
| | PS1 | PSA | MEAL | ANIMAL CARE | X15 | | | MEAL | | X50 | X51 SET UP | X51 | X39 DRAW | X15 | X39 ANAL | X05 | S/L DN | MEAL | PSA | | | SLEEP | | | |
| | PS2 | PSA | MEAL | ANIMAL CARE | X76 (18) | X66 | X66 | | MEAL | | X76 (44) | 001 | | X58 | | S/L DN | MEAL | PSA | | | SLEEP | | | | |
| DAY/NIGHT | | | | | | | | | | | | | | | | | | | | | | | | | |
| EARTH TRACE W/SAF | | | | | | | | | | | | | | | | | | | | | | | | | |
| TORS COVERAGE E W | | | | | | | | | | | | | | | | | | | | | | | | | |
| DEGRAD OPPORTUNITIES | | 47:43 | 54:06 | | | | 55:40 | | | | | | | | 70:18 | | | | | | | | | | |
| ATT | REQD | | | | | | | | | | | | | | | | | | | | | | | | |
| MNVRS | CONT. | | | | | | | | | | | | | | | | | | | | | | | | |
| NOTES | | <ul style="list-style-type: none"> • X76 (33) FILTER CHANGE • X76 (33) FILTER CHANGE • X76 (33) FILTER CHANGE • X76 (33) FILTER CHANGE | | | | | | | | | | | | | | | | | | | | | | | |

| CDT | | FD/DOY | | HOUSTON DATE | | | BETA ANGLE | | MOON | | FLIGHT | | GMT | | EDITION | | PUBLICATION DATE | | | | |
|-----------------------|-------|--|------|--------------|--------|-------|------------|-------|-------|----------|---------|----------|-------------------|------|---------|-------|------------------|-----------------------------------|-------|--|--|
| 190:0700/191:0700 | | 4/190 | | July 9, 1977 | | | | | PHASE | | SMD III | | 190:1200/191:1200 | | BASIC | | March 15, 1977 | | | | |
| ORBIT | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | | | | | |
| MET | | <div>73 75 77 79 81 83 85 87 89 91 93 95</div> | | | | | | | | | | | | | | | | | | | |
| CMN | CDR | PSA | MEAL | | | | MEAL | | | | MEAL | PSA | SLEEP | | | | | ORBITER CONFIGURATION KIT # | | | |
| | PLT | PSA | MEAL | | | | MEAL | | | | MEAL | PSA | SLEEP | | | | | | | | |
| | MS | PSA | MEAL | ANIMAL CARE | 009 | | MEAL | x13 | | 001 | x57 | | S/L DN | MEAL | PSA | SLEEP | | | | | |
| | PS1 | PSA | MEAL | ANIMAL CARE | 139/60 | | MEAL | x15 | x21 | 139 DRAW | | 139 ANAL | x15 | MEAL | PSA | SLEEP | | | | | |
| | PS2 | | MEAL | ANIMAL CARE | | x66 | | x66 | MEAL | x76(44) | | x03 | x10/12 | 001 | S/L DN | MEAL | PSA | | SLEEP | | |
| DAY/NIGHT | | | | | | | | | | | | | | | | | | | | | |
| EARTH TRACE W/SAA | | | | | | | | | | | | | | | | | | | | | |
| TORS COVERAGE E W | | | | | | | | | | | | | | | | | | | | | |
| DEORBIT OPPORTUNITIES | | | | | | 78:15 | | 79:49 | | | | | | | | 92:54 | | 94:28 | | | |
| ATT | REQD | | | | | | | | | | | | | | | | | | | | |
| MNVRS | CONT. | | | | | | | | | | | | | | | | | | | | |
| NOTES | | <div> • X76 (33) FILTER CHANGE : 009 SAMPLE : 009 SAMPLE </div> <div> • X76 (33) FILTER CHANGE : X57 EQUIPMENT TURN ON </div> <div> • X76 (33) FILTER CHANGE </div> <div> • X76 (33) FILTER CHANGE </div> | | | | | | | | | | | | | | | | | | | |

| CDT | | FD/DCY | | HOUSTON DATE | | BETA ANGLE | | MOON | | FLIGHT | | GMT | | EDITION | | PUBLICATION DATE | | | | | | | | | |
|-----------------------|-------|--|------|---------------|-----|------------|------|------------|------|---------|------------|-------------------|-----------------------------------|---------|----|------------------|----------|--------|----------|--------|--------|------|-------|-------|--|
| 191:0700/192:0700 | | 5/191 | | July 10, 1977 | | | | PHASE | | SMD III | | 191:1200/192:1200 | | BASIC | | March 15, 1977 | | | | | | | | | |
| ORBIT | | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | | | | | | | | |
| MET | | 97 | 99 | 101 | 103 | 105 | 107 | 109 | 111 | 113 | 115 | 117 | 119 | | | | | | | | | | | | |
| CMN | CDR | PSA | MEAL | | | MEAL | | | MEAL | PSA | SLEEP | | ORBITER CONFIGURATION KIT # | | | | | | | | | | | | |
| | PLT | PSA | MEAL | | | MEAL | | | MEAL | PSA | SLEEP | | | | | | | | | | | | | | |
| | MS | PSA | MEAL | ANIMAL CARE | x75 | | MEAL | x58 SET UP | x05 | x58 | 001 | x51 | | | | | | x50 | | S/L DN | MEAL | PSA | SLEEP | | |
| | PS1 | PSA | MEAL | ANIMAL CARE | x15 | | x75 | MEAL | x05 | x23 | x51 SET UP | x51 | | | | | x39 DRAW | x50 | x39 ANAL | x15 | S/L DN | MEAL | PSA | SLEEP | |
| | PS2 | PSA | MEAL | ANIMAL CARE | x77 | x66 | | x66 | MEAL | x77 | x76 (44) | | | | | | | x58 | 001 | x77 | MEAL | PSA | SLEEP | | |
| DAY/NIGHT | | | | | | | | | | | | | | | | | | | | | | | | | |
| EARTH TRACE W/SAA | | | | | | | | | | | | | | | | | | | | | | | | | |
| TORS COVERAGE | | | | | | | | | | | | | | | | | | | | | | | | | |
| DEORBIT OPPORTUNITIES | | 100:50 | | | | 102:25 | | | | | | | | 117:03 | | | | 118:37 | | | | | | | |
| ATT | REQD | | | | | | | | | | | | | | | | | | | | | | | | |
| MINVRS | CONT. | | | | | | | | | | | | | | | | | | | | | | | | |
| NOTES | | <div> <div>•x76 (33) FILTER CHANGE</div> <div>•x76 (33) FILTER CHANGE</div> <div>•x76 (33) FILTER CHANGE</div> <div>•x76 (33) FILTER CHANGE</div> </div> | | | | | | | | | | | | | | | | | | | | | | | |

| CDT | | FD/DOY | | HOUSTON DATE | | | BETA ANGLE | | MOON | | FLIGHT | | GMT | | EDITION | | PUBLICATION DATE | | | | | | | | |
|-----------------------|-------|--|------|---------------|-------------|-------------|------------|----------|----------|------|------------|----------|-------------------|------|-----------------|-----------------|------------------|--------------------------------|-----------------|-----------------|-----|-----|--|-----|--|
| 192:0700/193:0700 | | 6/192 | | July 11, 1977 | | | | | PHASE | | SMD III | | 192:1200/193:1200 | | BASIC | | March 15, 1977 | | | | | | | | |
| ORBIT | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | | | | | | | | | |
| MET | | 121 | | 123 | | 125 | | 127 | | 129 | | 131 | | 133 | | 135 | | 137 | | 139 | | 141 | | 143 | |
| CMN | CDR | PSA | MEAL | | | MEAL | | | | | | MEAL | | PSA | SLEEP (7 HOURS) | | PSA | ORBITER CONFIGURATION KIT # | | | | | | | |
| | PLT | PSA | MEAL | | | MEAL | | | | | | MEAL | | PSA | SLEEP (7 HOURS) | | PSA | | | | | | | | |
| | MS | BLOOD DRAW | PSA | PSA | ANIMAL CARE | ANIMAL CARE | x76 (18) | MEAL | x76 (44) | x13 | x51 SET UP | x51 | S/L DN | MEAL | PSA | SLEEP (7 HOURS) | | | PSA | | | | | | |
| | PS1 | BLOOD DRAW SUPINE | PSA | PSA | ANIMAL CARE | ANIMAL CARE | x59/60 | x15 | MEAL | x21 | x23 | x39 DRAW | x27 | x51 | x39 ANAL S/L DN | MEAL | PSA | | SLEEP (7 HOURS) | | PSA | | | | |
| | PS2 | BLOOD DRAW SUPINE | x77 | ANALYSIS | ANALYSIS | ANIMAL CARE | ANALYSIS | ANALYSIS | x76 (18) | MEAL | x77 | | x03 | x27 | x10/12 | x77 | MEAL | | PSA | SLEEP (7 HOURS) | | PSA | | | |
| DAY/NIGHT | | | | | | | | | | | | | | | | | | | | | | | | | |
| EARTH TRACE W/SAF | | | | | | | | | | | | | | | | | | | | | | | | | |
| TDRS COVERAGE | | | | | | | | | | | | | | | | | | | | | | | | | |
| DEGRBIT OPPORTUNITIES | | 125:00 | | | | 126:34 | | | | | | | | | | | | | | 141:13 | | | | | |
| ATT | REQD | | | | | | | | | | | | | | | | | | | | | | | | |
| MNRS | CONT. | | | | | | | | | | | | | | | | | | | | | | | | |
| NOTES | | <ul style="list-style-type: none"> *GLUCOSE DRINK *X76 (33) FILTER CHANGE *+30 MIN. BLOOD DRAW *+60 MIN. BLOOD DRAW *+120 MIN. BLOOD DRAW *+180 MIN. BLOOD DRAW *X76 (33) FILTER CHANGE *X13 EQUIPMENT TURN ON *X76 (33) FILTER CHANGE *X76 (33) FILTER CHANGE | | | | | | | | | | | | | | | | | | | | | | | |

| CDT | | FD/DOY | | HOUSTON DATE | | BETA ANGLE | MOON | FLIGHT | GMT | EDITION | PUBLICATION DATE | |
|--|-------|-------------------------|--------------|---------------|-----|------------|-------|---------|-------------------|---------|------------------|-----------------------------------|
| 193:0700/194:0700 | | 7/193 | | July 12, 1977 | | | PHASE | SMD III | 193:1200/194:1200 | BASIC | March 15, 1977 | |
| ORBIT | 96 | 97 | 98 | 99 | 100 | | | | | | | |
| <div> <div> <div>145</div> <div>147</div> <div>149</div> <div>151</div> <div>153</div> <div>155</div> <div>157</div> <div>159</div> <div>161</div> <div>163</div> <div>165</div> <div>167</div> </div> <div> <div>145</div> <div>147</div> <div>149</div> <div>151</div> <div>153</div> <div>155</div> <div>157</div> <div>159</div> <div>161</div> <div>163</div> <div>165</div> <div>167</div> </div> </div> | | | | | | | | | | | | |
| CMN | CDR | MEAL | | | | | | | | | | ORBITER CONFIGURATION KIT # |
| | PLT | MEAL | SPACELAB | REENTRY | | | | | | | | |
| | MS | MEAL | DEACTIVATION | PHASE | | | | | | | | |
| | PS1 | MEAL | | | | | | | | | | |
| | PS2 | MEAL | | | | | | | | | | |
| DAY/NIGHT | | | | | | | | | | | | |
| EARTH TRACE W/SHA | | | | | | | | | | | | |
| TORS E COVERAGE | | | | | | | | | | | | |
| DEORBIT OPPORTUNITIES | | 149:09 | | | | | | | | 165:22 | | |
| ATT | REQD | | | | | | | | | | | |
| MNVS | CONT. | | | | | | | | | | | |
| NOTES | | •X76 (33) FILTER CHANGE | | | | | | | | | | |

3.0 EXPERIMENT DATA SHEETS

EXPERIMENT

| <u>NO.</u> | | <u>TITLE</u> |
|------------|------|-----------------------|
| X03 | | RAT COLLAGEN |
| X05 | | BIOFEEDBACK |
| X08 | | INSULIN |
| X10 | | SOMATOMEDIN |
| X11 | | 3-METHYL HISTIDINE |
| X12 | | PROTEOLYTIC ENZYMES |
| X13 | | MUSCLE DEGRADATION |
| X15 | | OTOLITH ACTIVITY |
| X21 | | HYPOTHALMIC STRUCTURE |
| X23 | | ANGIOTENSION |
| X27 | | LYMPHOID TISSUE |
| X39 | | BONE RESORPTION |
| X42 | | DROSOPHILA AGING |
| X49 | | DOPPLER FLOW |
| X50 | | CV ALTERATION |
| X51 | | MOTION SICKNESS |
| X57 | | NUCLEATE BOIL |
| X58 | | CP FUNCTION |
| X59 | | METABOLISM |
| X60 | | PYROGENS |
| X66 | | OTOLITH OUTPUT |
| X68 | | ERYTHROKINETICS |
| X74 | | IMMUNE RESPONSE |
| X75 | | BASAL METABOLISM |
| X76 | (18) | CV DYNAMICS |
| | (33) | HEMOLYSIS |
| | (44) | METABOLISM |
| X77 | | INFLIGHT ELECTROLYTES |
| X78 | | EARTH OBSERVATIONS |

| EXPERIMENT NO. X 03 | | | DATE: 03/15/77 | |
|---------------------|--------------------|-----------------------|----------------|------------|
| TITLE: RAT COLLAGEN | | | | |
| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS PS1 PS2 |
| X03 | DAILY FEED & WATER | | | |
| X03 | DAY 1 INJECTION | 15 | ONE | X |
| X03 | DAYS 2, 4, & 6 | 45 | ONE | X |

| |
|---|
| <p>SCHEDULING CRITERIA & CONSTRAINTS</p> <ol style="list-style-type: none"> 1. FEED, WATER, COLLECT URINE AND FECES DAILY. 2. SACRIFICE 2 RATS ON DAYS 2, 4, & 6. 3. SURGICAL BENCH REQUIRED ON DAYS 1, 2, 4 & 6. 4. DAY 2 SACRIFICE 24 HRS AFTER DAY 1 INJECTION. |
|---|

3.0 EXPERIMENT DATA SHEETS

EXPERIMENT

| <u>NO.</u> | | <u>TITLE</u> |
|------------|------|-----------------------|
| X03 | | RAT COLLAGEN |
| X05 | | BIOFEEDBACK |
| X08 | | INSULIN |
| X10 | | SOMATOMEDIN |
| X11 | | 3-METHYL HISTIDINE |
| X12 | | PROTEOLYTIC ENZYMES |
| X13 | | MUSCLE DEGRADATION |
| X15 | | OTOLITH ACTIVITY |
| X21 | | HYPOTHALMIC STRUCTURE |
| X23 | | ANGIOTENSION |
| X27 | | LYMPHOID TISSUE |
| X39 | | BONE RESORPTION |
| X42 | | DROSOPHILA AGING |
| X49 | | DOPPLER FLOW |
| X50 | | CV ALTERATION |
| X51 | | MOTION SICKNESS |
| X57 | | NUCLEATE BOIL |
| X58 | | CP FUNCTION |
| X59 | | METABOLISM |
| X60 | | PYROGENS |
| X66 | | OTOLITH OUTPUT |
| X68 | | ERYTHROKINETICS |
| X74 | | IMMUNE RESPONSE |
| X75 | | BASAL METABOLISM |
| X76 | (18) | CV DYNAMICS |
| | (33) | HEMOLYSIS |
| | (44) | METABOLISM |
| X77 | | INFLIGHT ELECTROLYTES |
| X78 | | EARTH OBSERVATIONS |

| EXPERIMENT NO. X 03 | | | DATE: 03/15/77 | |
|---------------------|--------------------|-----------------------|----------------|------------|
| TITLE: RAT COLLAGEN | | | | |
| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS PS1 PS2 |
| X03 | DAILY FEED & WATER | | | |
| X03 | DAY 1 INJECTION | 15 | ONE | X |
| X03 | DAYS 2, 4, & 6 | 45 | ONE | X |

SCHEDULING CRITERIA & CONSTRAINTS

1. FEED, WATER, COLLECT URINE AND FECES DAILY.
2. SACRIFICE 2 RATS ON DAYS 2, 4, & 6.
3. SURGICAL BENCH REQUIRED ON DAYS 1, 2, 4 & 6.
4. DAY 2 SACRIFICE 24 HRS AFTER DAY 1 INJECTION.

EXPERIMENT NO. X 05

DATE: 03/15/77

TITLE: BIOFEEDBACK

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS | PS1 | PS2 |
|--------------|-------------------------|-----------------------|---------------|----|-----|-----|
| X05 | THREE DAYS 1, 3, & 5 | 60 | TWO | X | X | |

SCHEDULING CRITERIA & CONSTRAINTS

1. PS 1 IS SUBJECT AND REQUIRES 30 MIN.
2. MS WILL APPLY SENSORS AND REQUIRES 30 MIN.
3. X05 IS CONDUCTED ON FLIGHT DECK.
4. DATA DOWNLINK CONFLICT.

EXPERIMENT NO. X 08/10/68/74

DATE: 03/15/77

TITLE: AM BLOOD DRAW

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS | PS1 | PS2 |
|---------------------|------------|-----------------------|---------------|----|-----|-----|
| AM BLOOD DRAW | DAYS 2 & 6 | | THREE | X | X | X |

SCHEDULING CRITERIA & CONSTRAINTS

1. PS1 & PS2 ARE TO REMAIN SUPINE IN BED AFTER AWAKENING AND UNTIL BLOOD SAMPLES HAVE BEEN COLLECTED.
2. SUBJECTS MUST HAVE AN OVERNIGHT FAST AND REMAIN FASTED UNTIL AFTER THE FIXATIVE SAMPLE HAS BEEN COLLECTED ON DAY 2. ON DAY 6 FASTING CONTINUES UNTIL THE END OF X 08.
3. MS SETS UP EQUIPMENT, DRAWS BLOOD, INJECTS ISOTOPE AND COLLECTS FIXATIVE SAMPLES ON PS1 & PS2.
4. PS2 DRAWS BLOOD FROM MS.
5. PS2 DOES BLOOD ANALYSIS.

EXPERIMENT NO. X 08

DATE: 03/15/77

TITLE: INSULIN

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS | PS1 | PS2 |
|--------------|--|-----------------------|---------------|----|-----|-----|
| X 08 | DAY 6 | | THREE | X | X | X |
| <hr/> | | | | | | |
| | DRAW BLOOD AT TIME INDICATED AFTER GLUCOSE DRINK | | | | | |
| X 08 | T + 0 DRINK GLUCOSE | | THREE | X | X | X |
| X 08 | T + 30 MIN | | THREE | X | X | X |
| X 08 | T + 60 MIN | | THREE | X | X | X |
| X 08 | T + 120 MIN | | THREE | X | X | X |
| X 08 | T + 180 MIN | | THREE | X | X | X |

SCHEDULING CRITERIA & CONSTRAINTS

1. X 08 IS A CONTINUATION OF THE DAY 6 AM BLOOD DRAW.
2. IN ADDITION TO THE AM BLOOD DRAW CONSTRAINTS, THE SUBJECTS MAY NOT EXERCISE PRIOR TO OR DURING TEST OR ENGAGE IN VIGOROUS ACTIVITIES.
3. PS1 SETS UP X 08 AND ADMINISTERS GLUCOSE DRINK.
4. PS2 DOES BLOOD ANALYSIS.

EXPERIMENT NO. X 10/12

DATE: 03/15/77

TITLE: SOMATOMEDIN

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS PS1 PS2 |
|--------------|-------------------------------------|-----------------------|---------------|------------|
| X 10 | FEED, WATER & FREEZE URINE DAILY | | | |
| X 10 | DAYS 2, 4, & 6 | 60 | ONE | X |
| X | | | | |
| X | | | | |
| X | | | | |
| X | | | | |
| X | | | | |

SCHEDULING CRITERIA & CONSTRAINTS

1. CREW BLOOD DRAWS ACCOMPLISHED BY AM & PM BLOOD DRAWS.
2. DAYS 2, 4, & 6 SACRIFICE 6 RATS.
3. SURGICAL BENCH REQUIRED ON DAYS 2, 4, & 6.

EXPERIMENT NO. X 11

DATE: 03/15/77

TITLE: 3-METHYL HISTIDINE

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS PS1 PS2 |
|--------------|--------------------|-----------------------|---------------|------------|
| X 11 | DAILY FEED & WATER | | | |

SCHEDULING CRITERIA & CONSTRAINTS

1. COLLECT RAT AND HUMAN URINES.
2. HUMAN VOIDS - AS NECESSARY.
3. SCHEDULE WITH 006 & X77.

EXPERIMENT NO. X 12

DATE: 03/15/77

TITLE: PROTEOLYTIC ENZYMES

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS PS1 PS2 |
|--------------|--------------------|-----------------------|---------------|------------|
| X 12 | DAILY FEED & WATER | | | |

SCHEDULING CRITERIA & CONSTRAINTS

1. X 12 HAS BEEN COMBINED WITH X 10.

EXPERIMENT NO. X 13

DATE: 03/15/77

TITLE: MUSCLE DEGRADATION

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS PS1 PS2 |
|--------------|--------------------|-----------------------|---------------|------------|
| X 13 | DAILY FEED & WATER | | | |
| X 13 | DAYS 2 & 4 | 45 | ONE | X |
| X 13 | DAY 6 | 150 | ONE | X |

SCHEDULING CRITERIA & CONSTRAINTS

1. SACRIFICE 2 RATS ON DAY 6.
2. SURGICAL BENCH REQUIRED ON DAYS 2, 4, & 6.
3. DAY 6 REQUIRES EQUIPMENT TURN ON AND WARM-UP FOR APPROXIMATELY 2 HOURS PRIOR TO RUNNING EXPERIMENT.
4. DATA DOWNLINK CONFLICT ON DAY 6.
5. PS 2 ASSIST AS REQUIRED ON DAY 6.

| | | | | | |
|--|-----------------|-----------------------|----------------|----|---------|
| EXPERIMENT NO. X 15 | | | DATE: 03/15/77 | | |
| TITLE: OTOLITH ACTIVITY | | | | | |
| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS | PS1 PS2 |
| X 15 | TWO TIMES A DAY | 45 EA. | ONE | | X |
| <p>SCHEDULING CRITERIA & CONSTRAINTS</p> <ol style="list-style-type: none"> 1. X15 REQUIRES THE SWING TO BE MOUNTED IN THE CENTER OF THE SPACELAB IN FRONT OF POD A. 2. DATA DOWNLINK CONFLICT. | | | | | |

EXPERIMENT NO. X 21

DATE: 03/15/77

TITLE: HYPOTHALAMIC STRUCTURE

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS | PS1 | PS2 |
|--------------|--------------------|-----------------------|---------------|----|-----|-----|
| X 21 | DAILY FEED & WATER | | | | | |
| X 21 | DAY 4 | 150 | ONE | | X | |
| X 21 | DAY 6 | 90 | ONE | | X | |

SCHEDULING CRITERIA & CONSTRAINTS

1. DAY 6 SACRIFICE 5 MICE.
2. SURGICAL BENCH REQUIRED ON DAYS 4 & 6.

EXPERIMENT NO. X 23

DATE: 03/15/77

TITLE: ANGIOTENSION

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS | PS1 | PS2 |
|--------------|--------------------|-----------------------|---------------|----|-----|-----|
| X 23 | DAILY FEED & WATER | | | | | |
| X 23 | DAY 5 | 30 | ONE | | X | |
| X 23 | DAY 6 | 120 | ONE | | X | |

SCHEDULING CRITERIA & CONSTRAINTS

1. SCHEDULE DAY 5 PROCEDURE APPROX. 2 HRS PRIOR TO LIGHTS OUT IN S/L.
2. DAY 6 SACRIFICE 12 RATS.
3. SURGICAL BENCH REQUIRED ON DAYS 5 & 6.

EXPERIMENT NO. X 27

DATE: 03/15/77

TITLE: LYMPHOID TISSUE

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS PS1 PS2 |
|--------------|--------------------|-----------------------|---------------|------------|
| X 27 | DAILY FEED & WATER | | | |
| X 27 | DAYS 2 & 6 | 150 | TWO | X X |
| X | ONE | 75 | ONE | X |
| X | ONE | 75 | ONE | X |
| X | ONE | 75 | ONE | X |
| X | TWO | 150 | TWO | X |

SCHEDULING CRITERIA & CONSTRAINTS

1. DAYS 2 & 6 REQUIRE 75 MIN. EACH FOR PS1 & PS2.
2. DAYS 2 & 6, HARVEST TISSUE AND SACRIFICE 5 RATS.
3. SURGICAL BENCH REQUIRED ON DAYS 2 & 6.

EXPERIMENT NO. X 39

DATE: 03/15/77

TITLE: BONE RESORPTION

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS | PS1 | PS2 |
|--------------|--------------------------|-----------------------|---------------|----|-----|-----|
| X 39 | DAILY 2 THRU 6 | 30 | ONE | | X | |
| X 39 | DAY 1 ACTIVATION | 10 | TWO | X | X | |
| X 39 | DAY 1 INJECTION | 20 | ONE | | X | |
| X 39 | DAY 1 INJECTION + 6 HRS | 45 | ONE | | X | |
| X 39 | DAY 1 INJECTION + 12 HRS | 45 | ONE | | X | |
| X 39 | DAY 7 DEACTIVATION | 10 | TWO | X | X | |

SCHEDULING CRITERIA & CONSTRAINTS

1. SURGICAL BENCH REQUIRED FOR EACH INJECTION AND BLOOD DRAW.
2. ACTIVITIES FOR EACH BLOOD DRAW
 - a. INJECT MONKEY - 10 MIN.
 - b. DRAW BLOOD - 10 MIN.
 - c. WAIT FOR CLOT - 45 MIN. PLUS
 - d. BLOOD WORK - 30 MIN.

EXPERIMENT NO. X 42

DATE: 03/15/77

TITLE: DROSOPHILA AGING

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS PS1 PS2 |
|--------------|-----------|-----------------------|---------------|------------|
| X 42 | DAY 2 | 45 | ONE | X |
| X 42 | DAY 3 | 20 | ONE | X |

SCHEDULING CRITERIA & CONSTRAINTS

1. SURGICAL BENCH REQUIRED ON DAY 2.

EXPERIMENT NO. X 49

DATE: 03/15/77

TITLE: DOPPLER FLOW

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS | PS1 | PS2 |
|--------------|-----------|-----------------------|---------------|----|-----|-----|
| X 49 | DAY 1 | 45 | TWO | X | | X |
| X 49 | DAY 7 | 60 | TWO | X | | X |

SCHEDULING CRITERIA & CONSTRAINTS

1. MID DECK OPERATION (LAUNCH & LANDING ONLY)
2. PS 2 IS SUBJECT AND REQUIRES 30 MIN ON LAUNCH & LANDING.
3. MS IS OBSERVER AND REQUIRES 15 MIN. ON LAUNCH & 30 MIN. ON LANDING.

DATE: 03/15/77

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS | PS1 | PS2 |
|--------------|---------------|-----------------------|---------------|----|-----|-----|
| X 50 | DAYS 1, 3 & 5 | 180 | TWO | X | X | |

SCHEDULING CRITERIA & CONSTRAINTS

1. MS IS OBSERVER AND REQUIRES 90 MIN.
2. PS1 IS SUBJECT AND REQUIRES 90 MIN.
3. X 50 SHARES EQUIPMENT WITH 001 & X 58.
4. DATA DOWNLINK CONFLICT.
5. TILT TABLE REQUIRED.
6. MAY REQUIRE DARKENED SPACELAB.

EXPERIMENT NO. X 51

DATE: 03/15/77

TITLE: MOTION SICKNESS

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS PS1 PS2 |
|--------------|------------------|-----------------------|---------------|------------|
| X 51 | DAYS 1, 3, 5 & 6 | 30 SET-UP 65 RUN | TWO | X X |

SCHEDULING CRITERIA & CONSTRAINTS

1. MS IS OPERATOR, PS1 IS THE SUBJECT.
2. X 51 SHARES EQUIPMENT WITH X 66.
3. DATA IS HAND LOGGED.

EXPERIMENT NO. X 57

DATE: 03/15/77

TITLE: NUCLEATE BOIL

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS PS1 PS2 |
|--------------|----------------|-----------------------|---------------|------------|
| X 57 | TIME AVAILABLE | | | |
| X 57 | ACTIVATION | 2 | ONE | X or X |
| | EQUIP. WARM-UP | 90 | | |
| X 57 | OPERATION | 120 | ONE | X or X |

SCHEDULING CRITERIA & CONSTRAINTS

1. X 57 EQUIPMENT IS LOCATED UNDER THE FLOOR IN FRONT OF X 39 PRIMATE CAGE.
2. EQUIPMENT REQUIRES 90 TO 120 MIN. WARM-UP PRIOR TO OPERATION.

EXPERIMENT NO. X 58

DATE: 03/15/77

TITLE: C P FUNCTION

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS | PS1 | PS2 |
|--------------|----------------|-----------------------|---------------|----|-----|-----|
| X 58 | DAYS 1, 3, & 5 | 90 | TWO | X | | X |

SCHEDULING CRITERIA & CONSTRAINTS

1. 45 MIN. EACH SESSION FOR MS & PS2.
2. SCHEDULE CONSECUTIVELY FOR 90 MIN.
3. X 58 SHARES EQUIPMENT WITH 001, X 50, & X 75.

EXPERIMENT NO. X 59/60

DATE: 03/15/77

TITLE: METABOLISM

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS PS1 PS2 |
|--------------|----------------|-----------------------|---------------|------------|
| X 59/60 | DAILY FEED | | | |
| X 59/60 | DAYS 2, 4, & 6 | 15 | ONE | X |

SCHEDULING CRITERIA & CONSTRAINTS

EXPERIMENT NO. X 60

DATE: 03/15/77

TITLE: PYROGENS

TITLE: METABOLISM

| CAP TITLE | FREQUENCY (PERIODS) | DURATION (MINUTES) | CREW REQ'D | MS PS1 PS2 TITLE |
|--------------|------------------------|-----------------------|---------------|---------------------|
| X 60 | ONE | 15 | 2 | X 60 |

SCHEDULING CRITERIA & CONSTRAINTS

SCHEDULING CRITERIA & CONSTRAINTS

1. COMBINED WITH X 59.

EXPERIMENT NO. X 66

DATE: 03/15/77

TITLE: OTOLITH OUTPUT

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS PS1 PS2 |
|--------------|----------------|-----------------------|---------------|------------|
| X 66 | DAYS 3, 4, & 5 | 240 | ONE | X |

SCHEDULING CRITERIA & CONSTRAINTS

1. ACCESS TO SURGICAL BENCH CANNOT BE GAINED DURING THIS EXPERIMENT.
2. X 66 SHARES EQUIPMENT WITH X 51.
3. DATA DOWNLINK CONFLICT.
4. X 66 IS SUSCEPTIBLE TO VIBRATION, MAY HAVE TO RESTRICT TRAFFIC.

EXPERIMENT NO. X 68

DATE: 03/15/77

TITLE: ERYTHROKINETICS

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS | PS1 | PS2 |
|---------------------|-----------|-----------------------|---------------|----|-----|-----|
| PM BLOOD DRAW | DAY 2 | | THREE | X | X | X |

SCHEDULING CRITERIA & CONSTRAINTS

1. IN ADDITION TO THE AM BLOOD DRAW, X 68 REQUIRES A PM BLOOD DRAW.
2. PS1 & PS2 MUST BE SUPINE FOR 30 MIN. PRIOR TO GIVING BLOOD SAMPLES.
3. BLOOD DRAWS MUST BE PRIOR TO THE EVENING MEAL.
4. MS SETS UP EQUIPMENT, DRAWS BLOOD, INJECTS ISOTOPE AND COLLECTS FIXATIVE SAMPLES ON PS1 & PS2.
5. PS2 DRAWS BLOOD FROM MS.
6. PS2 DOES BLOOD ANALYSIS.

EXPERIMENT NO. X 74

DATE: 03/15/77

TITLE: IMMUNE RESPONSE

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS PS1 PS2 |
|--------------|-----------------------------|-----------------------|---------------|------------|
| X 74 | DAYS 2 & 6 (BLOOD DRAWS) | | THREE | X X X |

SCHEDULING CRITERIA & CONSTRAINTS

1. BLOOD DRAWS FOR X 08, X 10, X 68, & X 74 WILL BE DONE AT THE SAME TIME.

EXPERIMENT NO. X 75

DATE: 03/15/77

TITLE: BASAL METABOLISM

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS PS1 PS2 |
|--------------|------------|-----------------------|---------------|------------|
| X 75 | DAYS 2 & 5 | 90 | TWO | X X |

SCHEDULING CRITERIA & CONSTRAINTS

1. X 75 SHARES EQUIPMENT WITH 001 & X 58.
2. MASK HOSE IS APPROXIMATELY 10 FEET LONG.
3. ACCOMPLISH IN THE MORNING.
4. NO FOOD INTAKE OR EXERCISE FOR 2 HOURS PRIOR TO TEST.
5. CANNOT SCHEDULE WITH 001, X 50, & X 58.

EXPERIMENT NO. X 76 (18)

DATE: 03/15/77

TITLE: C V DYNAMICS

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS PS1 PS2 |
|--------------|--|-----------------------|---------------|------------|
| X 76 (18) | DAILY FEED, WATER, & DISPOSE OF URINE | | | |
| X 76 (18) | DAYS 2, 4, & 5 | 20 | ONE | X |
| X 76 (18) | DAYS 1, 3, & 6 | 40 | TWO | X X |

SCHEDULING CRITERIA & CONSTRAINTS

1. DAYS 2, 4, & 5 SERVICE PUMP & CATHETER PATENCY.
2. DAYS 1, 3, & 6 MICROSPHERE INJECTION.
3. ON DAYS 1, 3, & 6, SCHEDULE X 76 (18) BEFORE X 76 (44) LBNP.

EXPERIMENT NO. X 76 (33)

DATE: 03/15/77

TITLE: HEMOLYSIS

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS PS1 PS2 |
|--------------|----------------------------------|-----------------------|---------------|------------|
| X 76 (33) | EVERY 4 HOURS OF AWAKE PERIOD | 5 | ONE | X |

SCHEDULING CRITERIA & CONSTRAINTS

1. CHANGE FILTER EVERY 4 HOURS OF AWAKE PERIOD.
2. LAST DAILY FILTER CHANGE REQUIRES TWO FILTERS.

EXPERIMENT NO. X 76 (44)

DATE: 03/15/77

TITLE: METABOLISM

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS PS1 PS2 |
|--------------|-----------|-----------------------|---------------|------------|
| X 76 (44) | DAILY | 120 | ONE | X OR X |

SCHEDULING CRITERIA & CONSTRAINTS

1. ON DAYS 1, 3, & 6 SCHEDULE AFTER 76 (18) MICROSPHERE.
2. SCHEDULE X 76 (44) IN MID AFTERNOON.
3. DATA DOWNLINK CONFLICT.

EXPERIMENT NO. X 77

DATE: 03/15/77

TITLE: INFLIGHT ELECTROLYTES

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS PS1 PS2 |
|--------------|-----------------------------------|-----------------------|---------------|------------|
| X 77 | DAY 1 - 2 TIMES DAYS 2, 5, & 6 | 60 | 1 | X |
| X 77 | 3 TIMES A DAY | 90 | 1 | X |

SCHEDULING CRITERIA & CONSTRAINTS

1. EXPERIMENT TO BE PERFORMED BY PS2 AFTER HUMAN VOIDS.
2. RUN SAMPLES APPROXIMATELY EVERY 8 HOURS.

| | | | | |
|---|----------------|-----------------------|----------------|------------|
| EXPERIMENT NO. X 78 | | | DATE: 03/15/77 | |
| TITLE: EARTH OBSERVATIONS | | | | |
| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS PS1 PS2 |
| X 78 | TIME AVAILABLE | 15 MIN PLUS | ONE | X |
| <p>SCHEDULING CRITERIA & CONSTRAINTS</p> <p>1. TARGET OF OPPORTUNITY.</p> | | | | |

4.0 OTR DATA SHEETS

| <u>NO.</u> | <u>TITLE</u> |
|------------|---|
| 001 | MICROPROCESSER |
| 002/04 | MEDICAL KIT DEFINITION/REVIEW |
| 003/12 | MEDICAL MONITORING |
| 005/06/07 | POTABLE WATER/URINE MONITORING/WASTE MGT. SYS |
| 008 | VOLATILE METABOLITES |
| 009 | CONTAMINATION CONTROL |
| 011 | SURGICAL BENCH |
| 013 | CREW HEALTH STABILIZATION |
| 014/15 | BIO. SPECIMEN HOLDING FAC. (LMSC) |
| 016/17 | BIO. SPECIMEN HOLDING FAC. (MDAC) |
| 018/19 | PRIMATE AND SMALL VERTIBRA TRANSPORTER (GE) |
| 020 | HYGIENE/PERSONAL CLEANSING/HOUSEKEEPING |

OTR DATA SHEET

| | | | | |
|-----------------------|----------------|-----------------------|---------------|------------|
| OTR NO. 001 | | DATE: 03/15/77 | | |
| TITLE: MICROPROCESSOR | | | | |
| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS PS1 PS2 |
| 001 | DAYS 3, 4, & 5 | 30 | TWO | X X |

SCHEDULING CRITERIA & CONSTRAINTS

1. 15 MIN EACH SESSION

2. 001 SHARES EQUIPMENT WITH X 58 & X 75.

OTR NO. 002/004

DATE: 03/15/77

TITLE: SHUTTLE MEDICAL KIT DEFINITION/REVIEW

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS PS1 PS2 |
|--------------|-------------|-----------------------|---------------|------------|
| 002/004 | AS REQUIRED | 15 | | |

SCHEDULING CRITERIA & CONSTRAINTS

OTR NO. 003/012

DATE: 03/15/77

TITLE: MEDICAL MONITORING

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS PS1 PS2 |
|--------------|-------------|-----------------------|---------------|------------|
| 003/012 | AS REQUIRED | | | |

SCHEDULING CRITERIA & CONSTRAINTS

OTR NO. 005/06/07

DATE: 03/15/77

TITLE: POTABLE WATER/URINE MONITORING/WASTE MANAGEMENT SYSTEMS

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS PS1 PS2 |
|--------------|-------------------|-----------------------|---------------|------------|
| 005/06/07 | DAILY AS REQUIRED | | THREE | X X X |

SCHEDULING CRITERIA & CONSTRAINTS

| | | | | | |
|--------------------------------------|-----------|-----------------------|---------------|-----------------------------|---------|
| OTR NO. 008 | | DATE: 03/15/77 | | TITLE: VOLATILE METABOLITES | |
| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS | PS1 PS2 |
| 008 | DAILY | 1 | ONE | | ANY |
| SCHEDULING CRITERIA & CONSTRAINTS | | | | | |
| 1. ACCOMPLISH DURING AM ANIMAL CARE. | | | | | |

OTR NO. 009

DATE: 03/15/77

TITLE: CONTAMINATION CONTROL

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS PS1 PS2 |
|--------------|-----------|-----------------------|---------------|------------|
| 009 | DAY 4 | 90 | THREE | X X X |

SCHEDULING CRITERIA & CONSTRAINTS

1. MS WILL TAKE SAMPLES INCLUDING SAMPLES FROM PS1 & PS2.

OTR NO. 011

DATE: 03/15/77

TITLE: SURGICAL BENCH

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS PS1 PS2 |
|--------------|--------------------------------|-----------------------|---------------|------------|
| 011 | AS REQUIRED FOR EXPERIMENTS | | | |

SCHEDULING CRITERIA & CONSTRAINTS

OTR NO. 013

DATE: 03/15/77

TITLE: CREW HEALTH STABILIZATION

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS PS1 PS2 |
|--------------|-----------|-----------------------|---------------|------------|
| 013 | DAILY | | ONE | X |

SCHEDULING CRITERIA & CONSTRAINTS

1. MS VOICE TO GROUND CREW HEALTH STATUS.

OTR NO. 014/15

DATE: 03/15/77

TITLE: BIO. SPECIMAN HOLDING FAC (LMSC)

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS PS1 PS2 |
|--------------|-----------|-----------------------|---------------|------------|
| 014/15 | | | | |

SCHEDULING CRITERIA & CONSTRAINTS

OTR NO. 016/17

DATE: 03/15/77

TITLE: BIO. SPECIMAN HOLDING FAC. (MDAC)

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS PS1 PS2 |
|--------------|-----------|-----------------------|---------------|------------|
| 016/17 | | | | |

SCHEDULING CRITERIA & CONSTRAINTS

OTR NO. 018/19

DATE: 03/15/77

TITLE: PRIMATE & SMALL VERTIBRA TO TRANSPORTER (GG)

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS PS1 PS2 |
|--------------|-----------|-----------------------|---------------|------------|
| 018/19 | | | | |

SCHEDULING CRITERIA & CONSTRAINTS

OTR NO. 020

DATE: 03/15/77

TITLE: HYGIENE/PERSONAL CLEANSING/HOUSEKEEPING

| CAP TITLE | FREQUENCY | DURATION (MINUTES) | CREW REQ'D | MS PS1 PS2 |
|--------------|-------------|-----------------------|---------------|------------|
| 020 | AS REQUIRED | | ALL | |

SCHEDULING CRITERIA & CONSTRAINTS

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