

**HABITABILITY
SLEEP ACCOMMODATIONS**

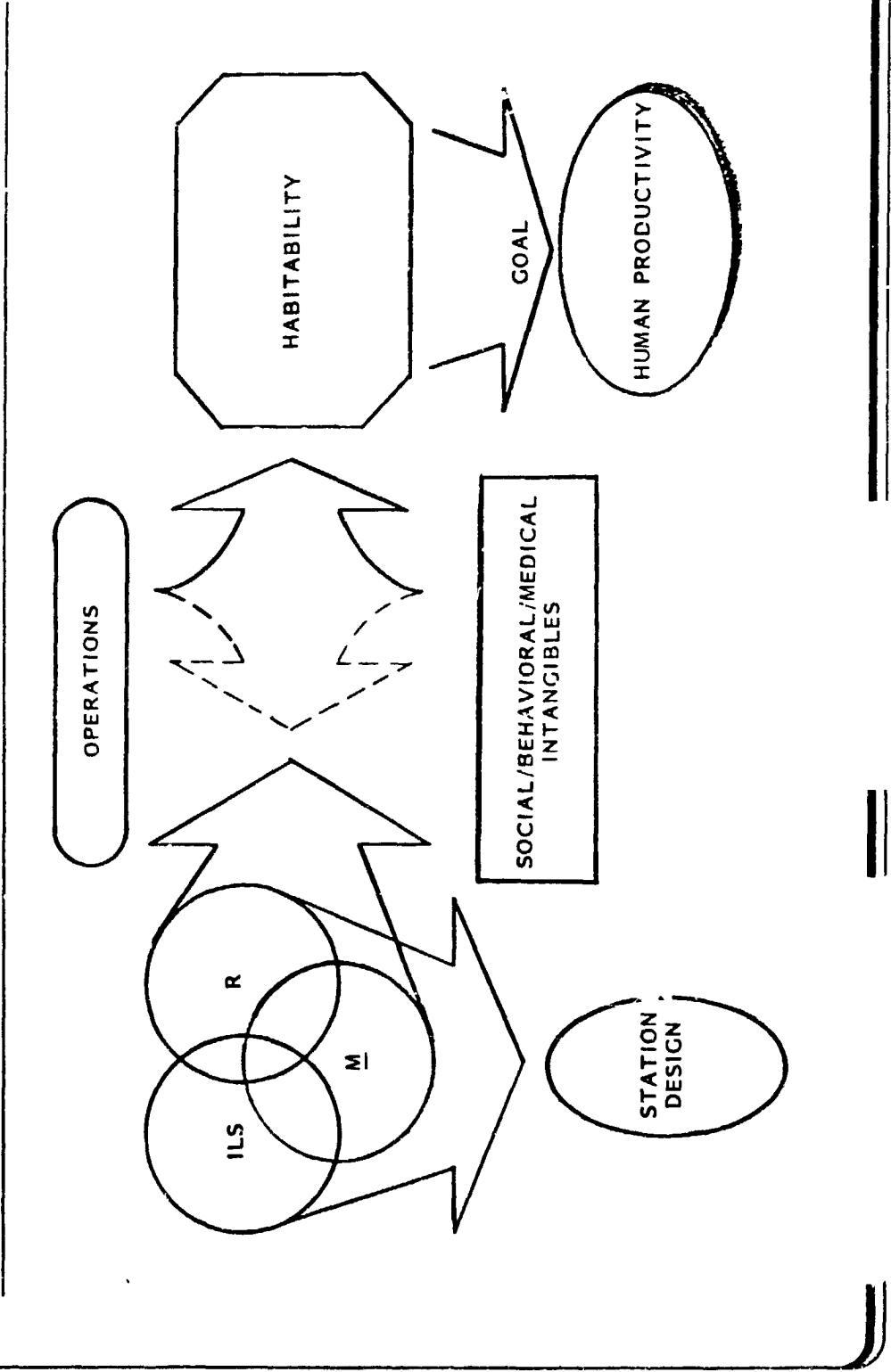
**PRESENTATION TO
SPACE STATION TASK FORCE**

1 MARCH 1984

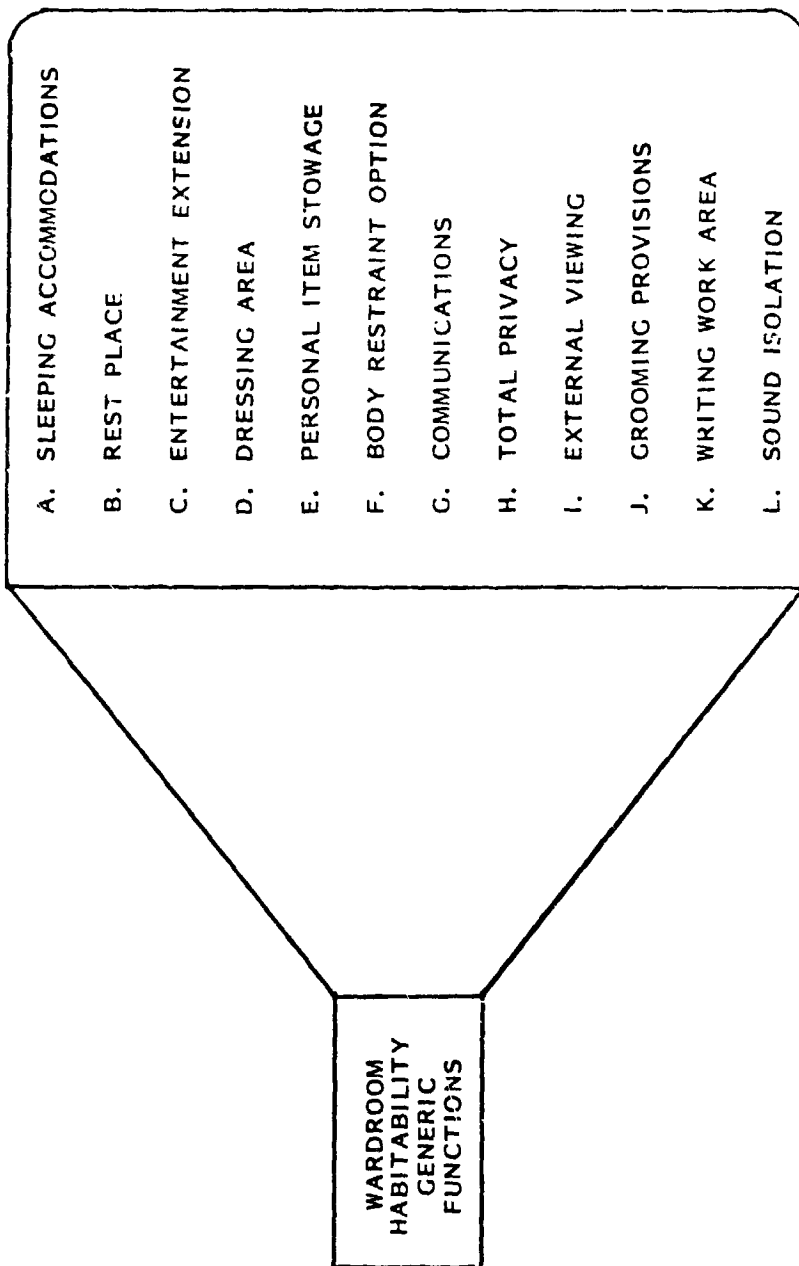
H. T. FISHER, SUPERVISOR

N85-29566

SELECTED STATION INFLUENCING FACTORS

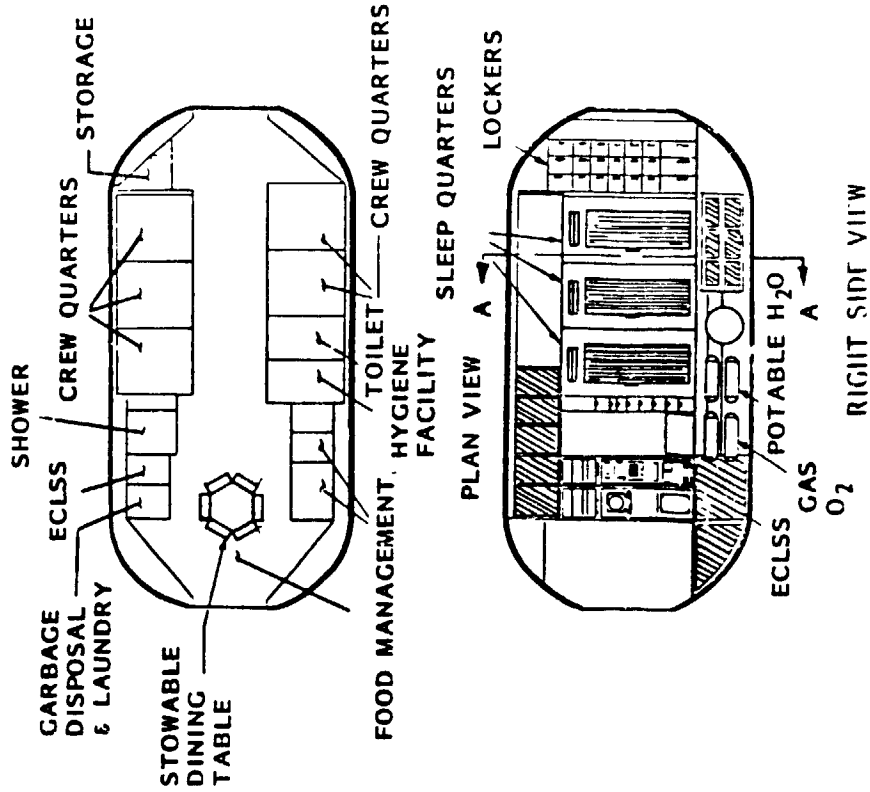


WARDROOM - GENERAL REQUIREMENTS

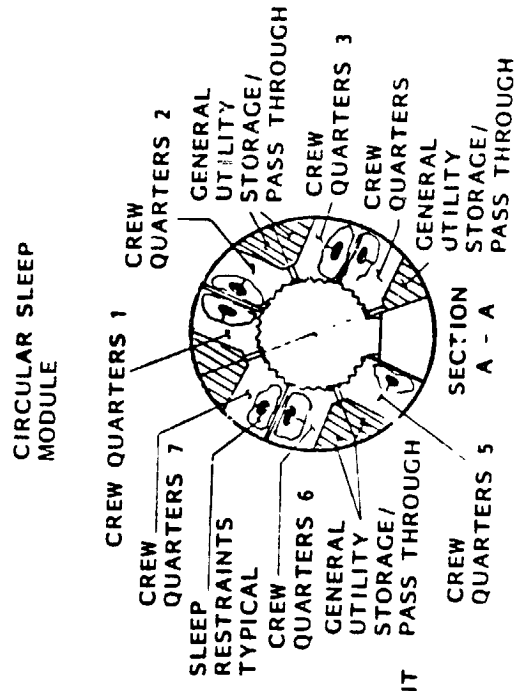
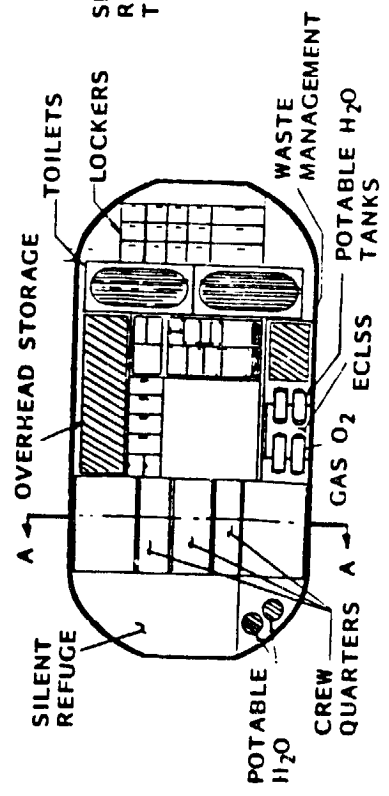
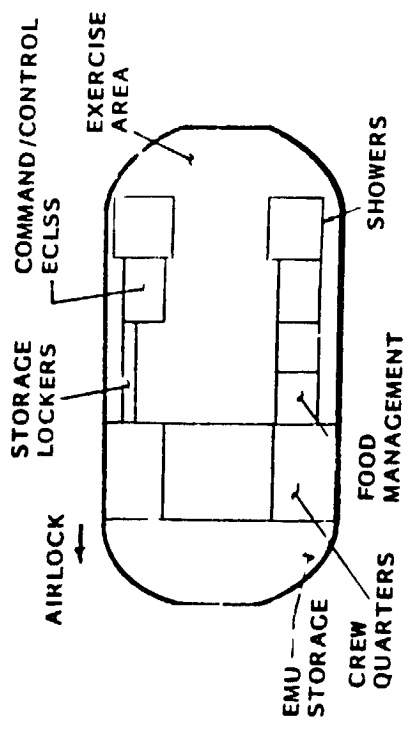


SLEEP QUARTERS CONCEPT A

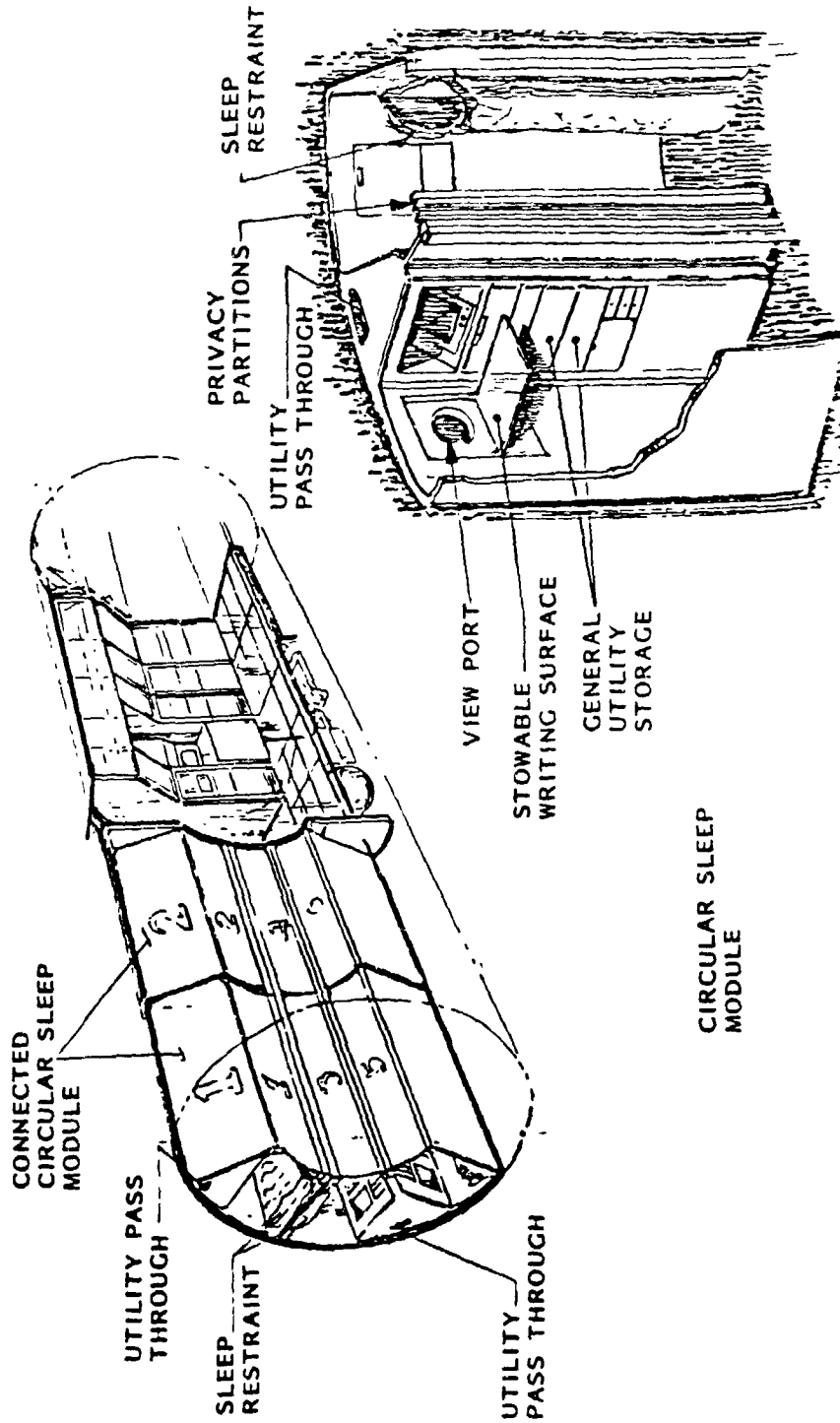
ORIGINAL PAGE IS
OF POOR QUALITY



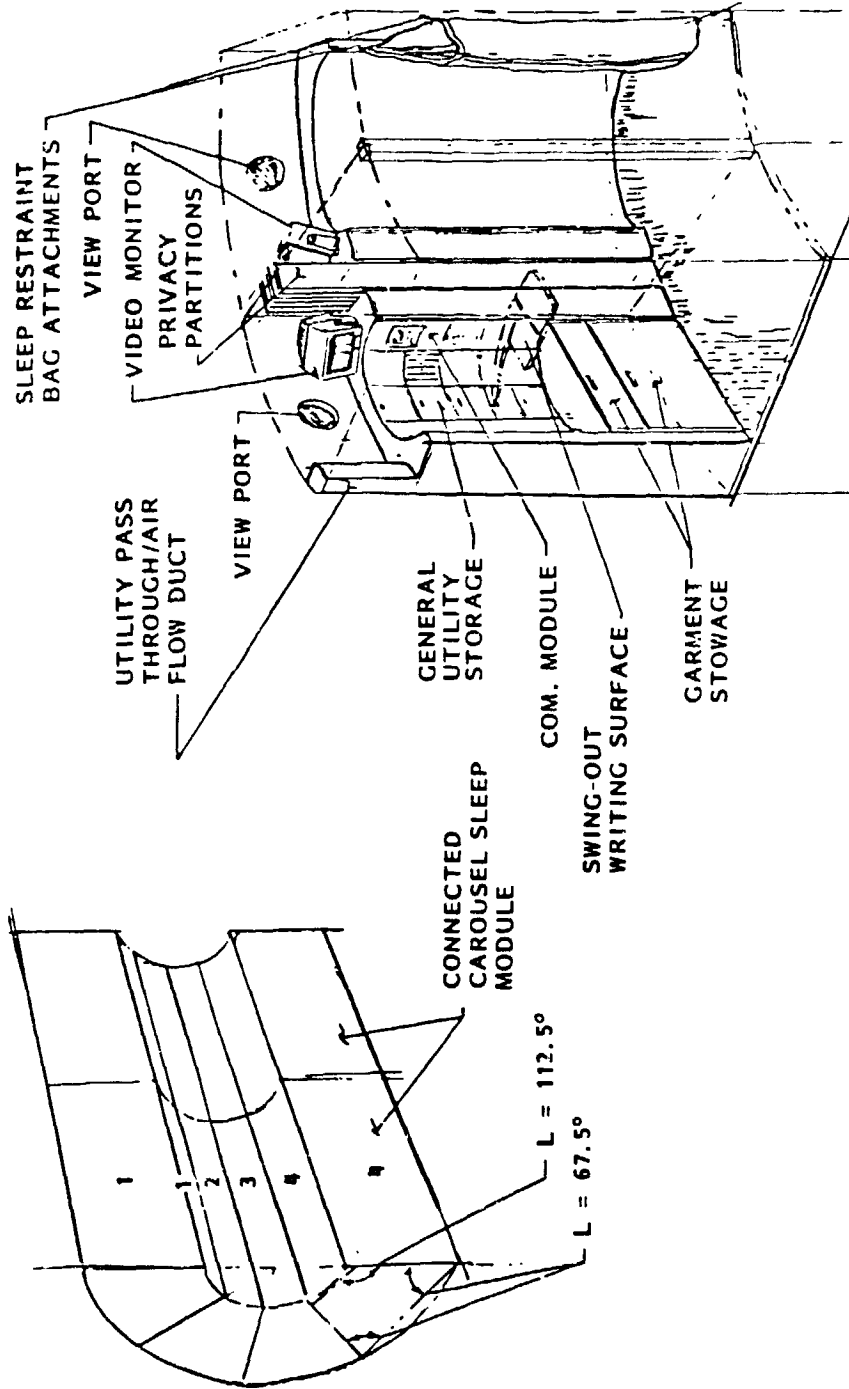
SLEEP QUARTERS CONCEPT B



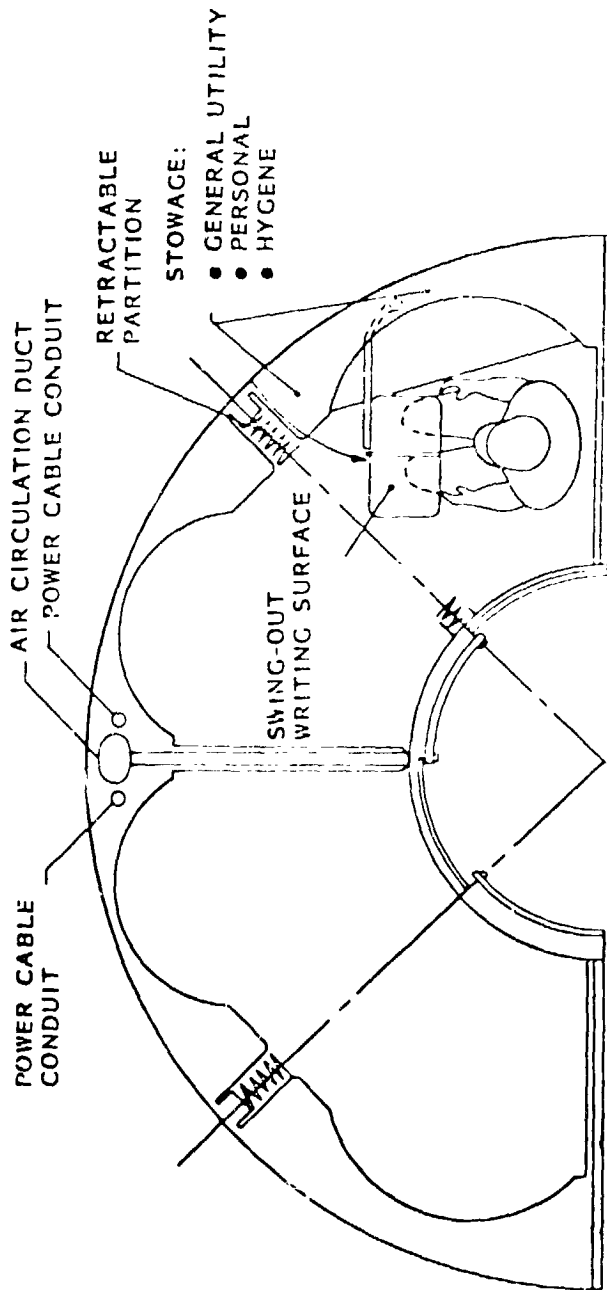
SLEEP QUARTERS CONCEPT



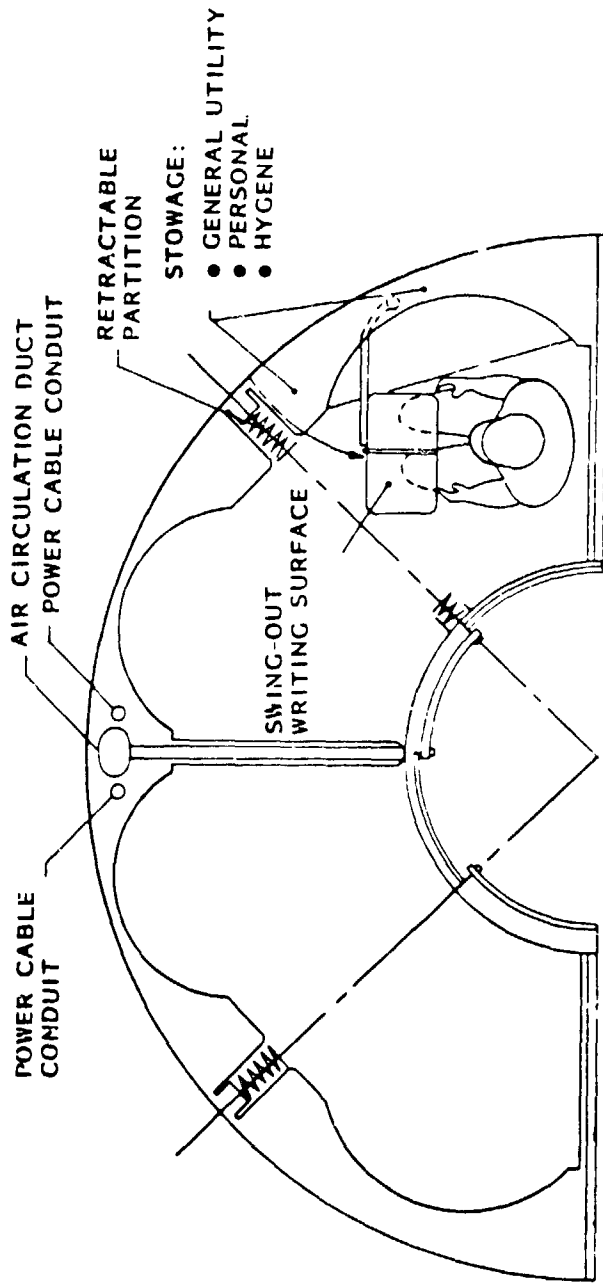
SLEEP COMPARTMENT--BUNK AREA DETAILS



SLEEP BUNK—PLAN VIEW

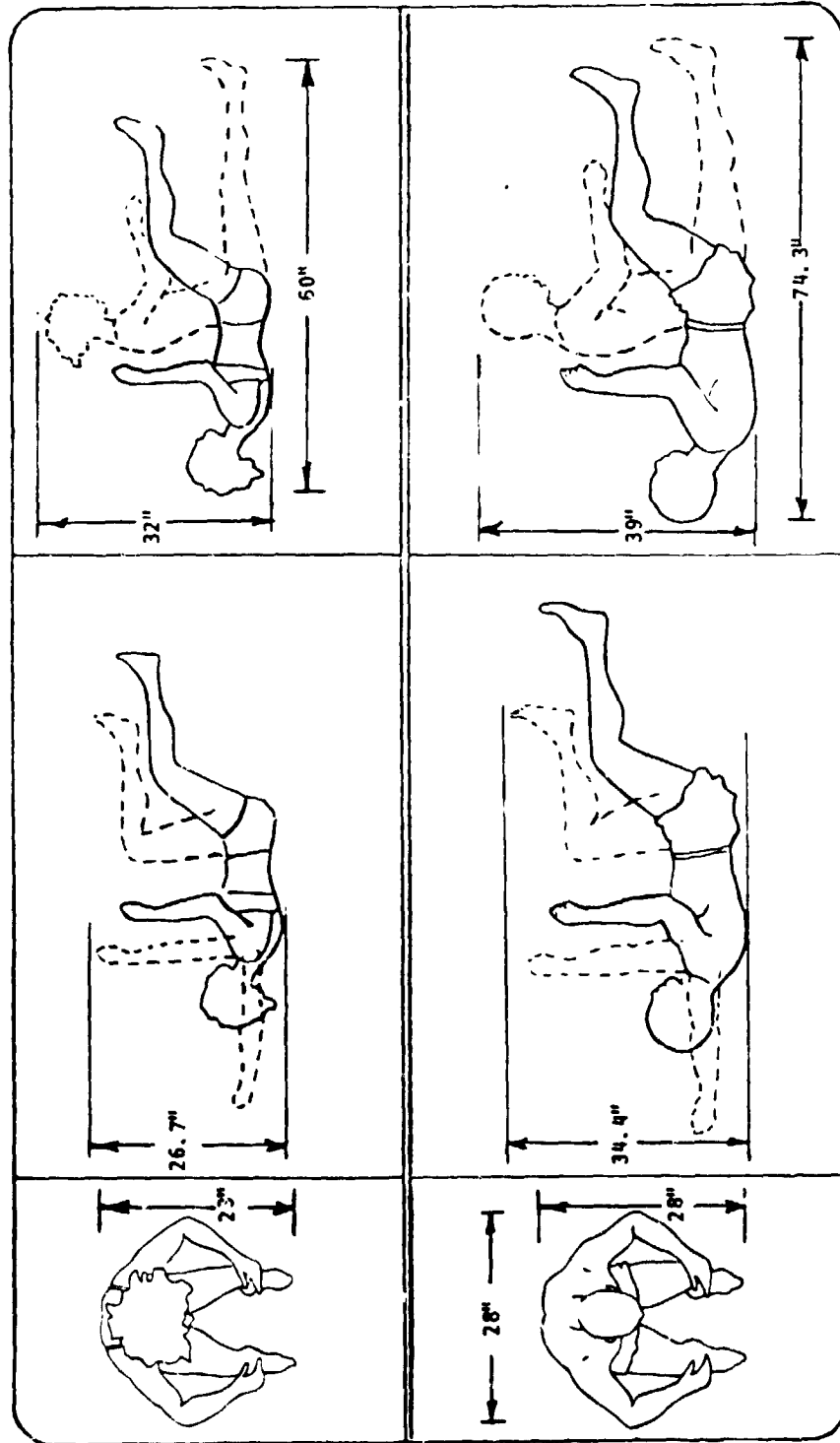


SLEEP BUNK—PLAN VIEW



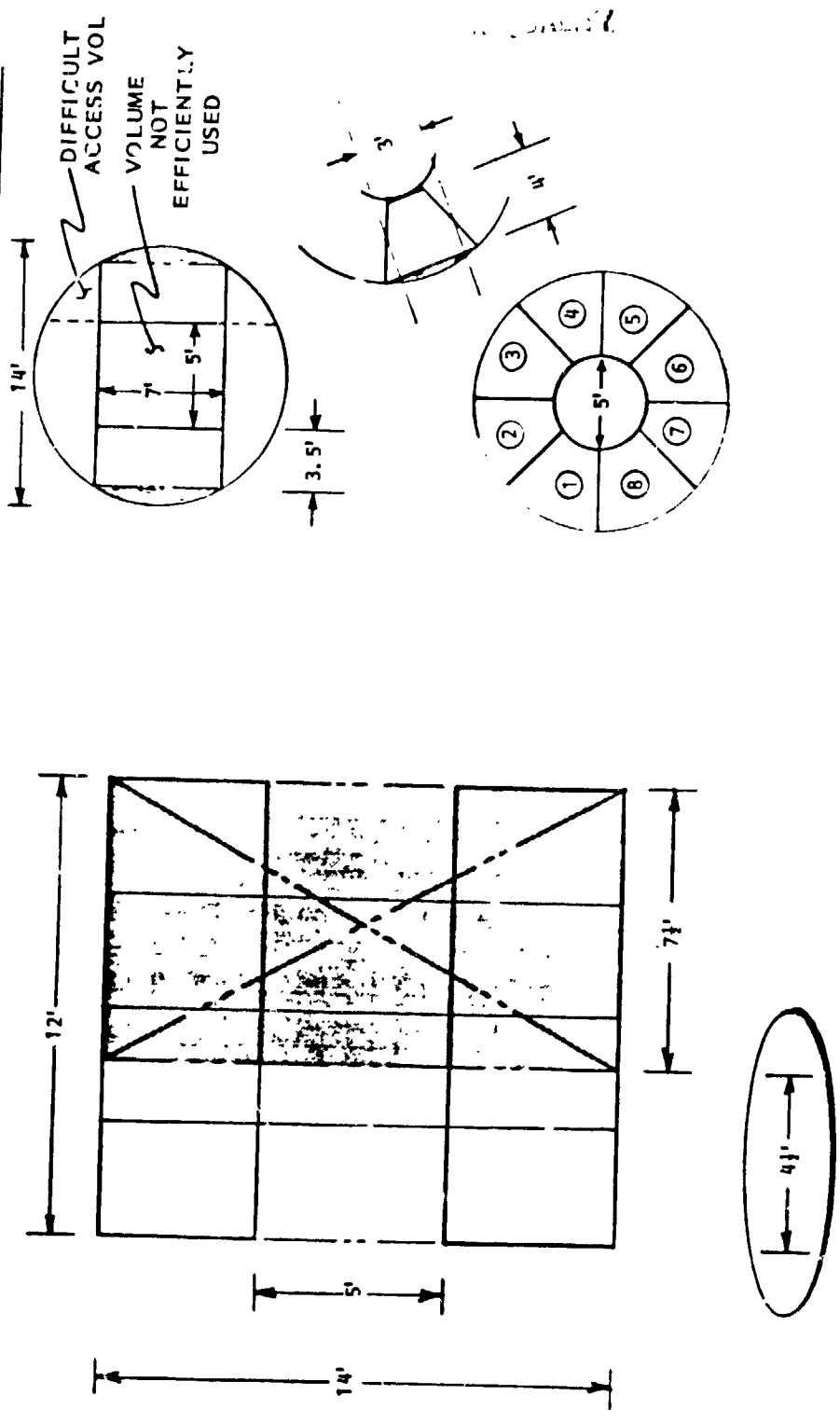
CRITICAL ELEMENTS
OF POWER CONDUIT

SLEEP/REST VOLUMETRIC FOR 5th TO 95th%tile FEMALES/MALES*



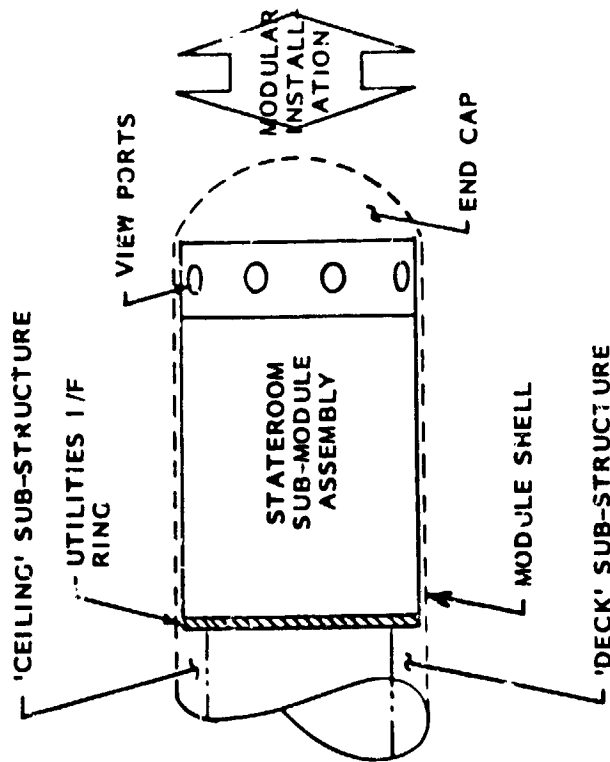
* BASED ON NASA PUB 1024

VERTICAL VS HORIZONTAL WARDROOM



WARDROOM SUB-MODULE - "MODULARITY"

- A. WARDROOM IS SUB-MODULE ASSEMBLY
- B. ASSEMBLY IS STAND-ALONE UNIT
 - PERMITS PARALLEL MFG
 - FLEXIBILITY IN SCHED. INSTALLATION
- C. ASSEMBLY IS SIMPLE B/RREL CONFIGURATION
 - EIGHT (8) SEGMENTS
 - INDIVIDUAL SEGMENT MANUFACTURING
- D. UTILITIES I/F RING
 - SIMPLE I/F TO UTILITIES
 - 360° POTENTIAL I/F TO RING
 - RING ACCEPTS:
 - ECLSS PLENUM DUCTING (LOOP)
 - SIGNAL/DATA LINES (IN/OUT)
 - POWER CABLES
 - STAND-ALONE UNIT - BOLTS ON
 - INDIVIDUAL MANUFACTURING



TOP TOP-TIER ADVANTAGES OF THE SARA' CONCEPT

- A. OVER 100 CU FT PER CREW/PERSON
- B. HORIZONTAL (EARTH-LIKE) SLEEP/REST ACCOMMODATIONS
- C. SINGLE WARDROOM CAN OPEN TO ADJACENT WARDROOM
 - DOUBLES 'OPEN AREA'
 - ADJACENT WARDROOM ALWAYS VACANT ASSUMING:
- 2 OR 3 SHIFT OPS OR
- LESS THAN 8 CREW (e.g., 4)
 - PERMITS 2 PEOPLE TO FACE ONE-ANOTHER IF OTHER WARDROOM TEMPORARILY USED
- D. ADDED 'OPEN AREA' FURTHER AVAILABLE AS EACH WARDROOM FACES:
 - OPEN CORRIDOR 60 IN DIAMETER
 - OPPOSITE WARDROOM (NOT BEING USED) - OPEN AREA
- E. WARDROOM SUB-ASSEMBLY (8 WARDROOMS) ONLY 91 IN LONG (OVERALL)
 - SEVEN (7) FT. INTERNAL
 - ONE (1) IN. END PLATES + INSULATION
 - FOUR (4) IN. FOR UTILITIES I/F RING
- F. SIMPLIFIED SUB-ASSEMBLY MODULAR CONCEPT
 - FABRICATION
 - INSTALLATION
- G. PORTHOLES ARE ALL IN ONE NARROW CIRCUMFERENTIAL 'RING SEGMENT' - STRUCTURAL ADVANTAGE
- H. LESS LENGTH USED (X AXIS) THAN VERTICAL 'BUNKS'
 - SAVES 20% OF SHORT MODULE LENGTH!

* SLEEP AND REST ACCOMMODATIONS

MICHAEL KALIL

DESIGN OF CONFINED ENVIRONMENTS

PRESENTATION MADE AT AMES RESEARCH CENTER
MOFFIT FIELD, CALIFORNIA

MARCH 1, 1984

I. DESIGN VOCABULARY AND HISTORY

- A. THE REPETITION OF FORMS IN RELATIONSHIP TO LAND BASED STRUCTURES AND SPACE BOUND OBJECTS
- B. THE COMPOSITION OF SHELTER AND ITS QUALITIES IN REGARD TO HUMAN NEEDS

II. PROTOTYPE FOR EXPERIMENTATION OF LIVING/HOME ENVIRONMENT

- A. DESIGN PHILOSOPHY
 - 1. DETERMINING BASIC HABITABILITY NEEDS
 - 2. CREATING A FORM THAT RETAINS THE BASIC NEEDS WITHIN A STRUCTURE THAT UTILIZES CURRENT TECHNOLOGY
- A. DESIGN CONCEPT - FLOOR PLANE
 - 1. MODULES AND THEIR ABILITIES TO REVEAL, CONCEAL OR TRANSFORM TO MEET THE NEEDS OF HABITABILITY
 - 2. ELECTRONICS AND THEIR CAPACITY TO MANIPULATE THE ENVIRONMENT TO THE FUNCTIONS AND THE COMFORTS OF THE USER

III. PROTOTYPE FOR EXPERIMENTATION OF WORK/OFFICE ENVIRONMENT

PROJECT RETAINS DESIGN PHILOSOPHY AND SYSTEMS AS DESCRIBED ABOVE AND EXPANDS TO ENCOMPASS FUNCTIONALITY OF EXECUTIVE RESPONSIBILITIES IN REGARD TO COMMUNICATIONS, CONFERENCE, ACCESS TO INFORMATION AND CREATIVE PRODUCTION.

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