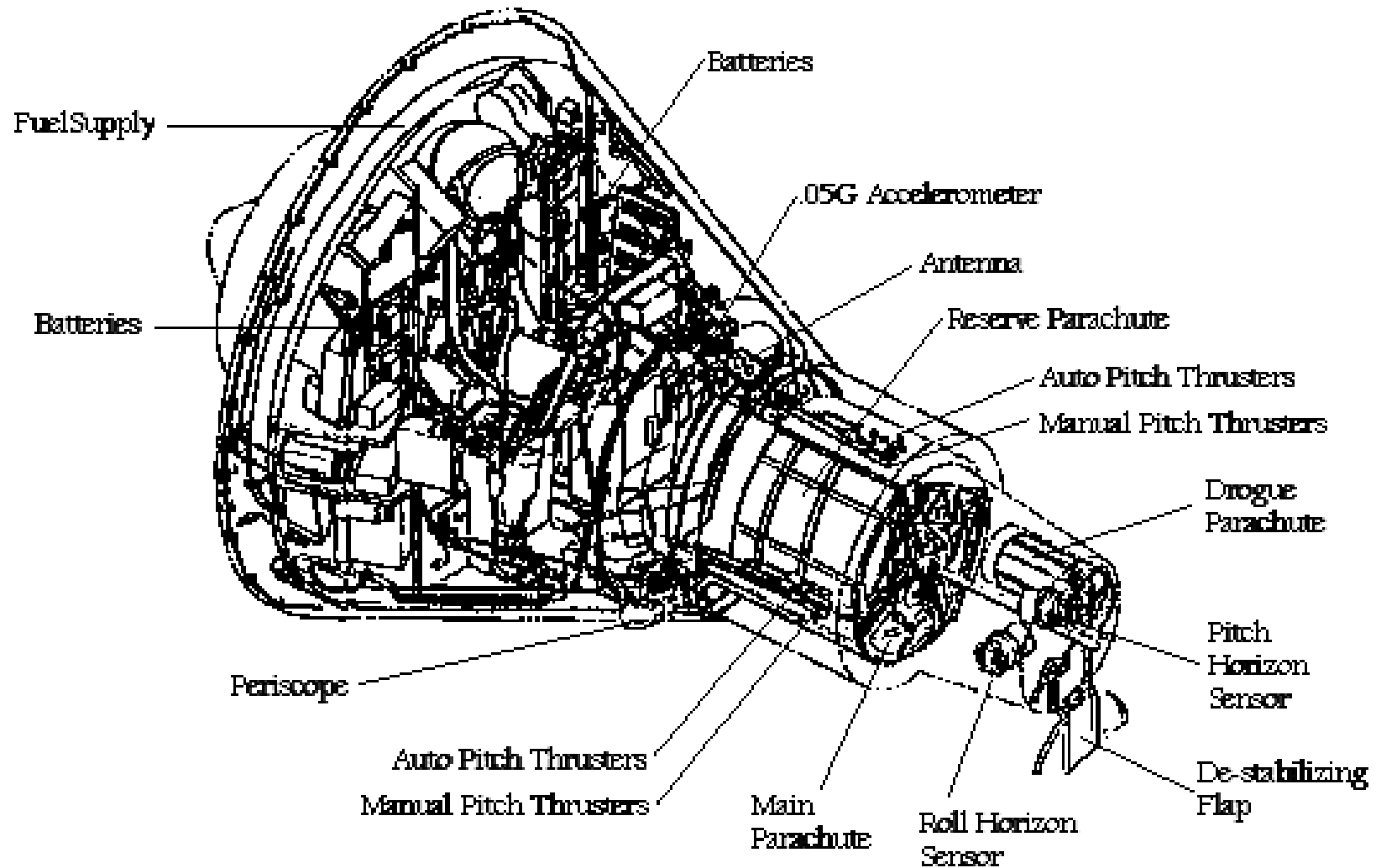


OG Human Factors and Habitability

- Overview
- Required Crew Volumes
- Human Physiological Adaptation to OG
- Workstation Design
- Restraint Design
- Ideal Cabin Layout
- Stowage



Mercury Spacecraft Interior Layout



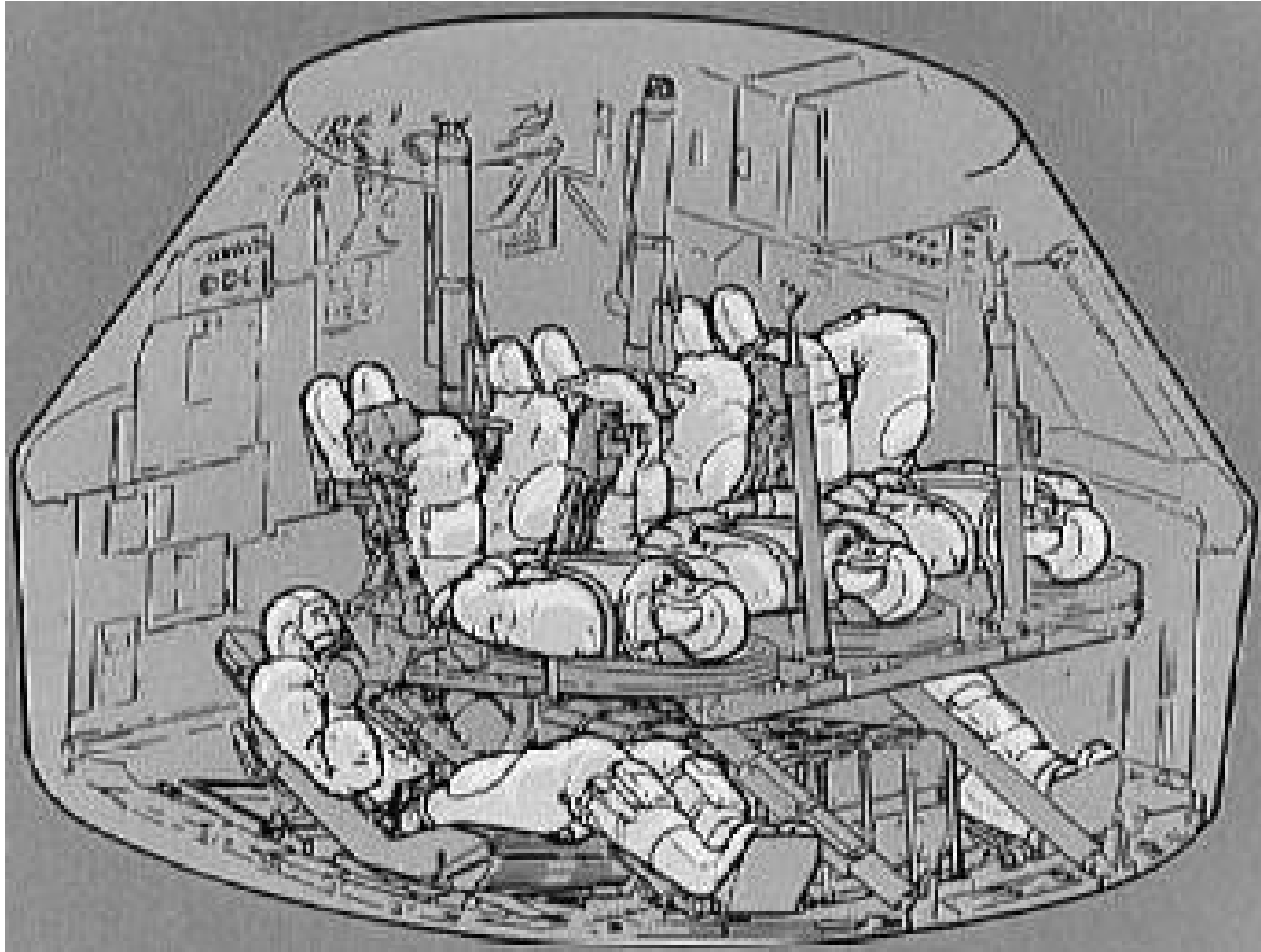
Gemini 4 Crew Cabin



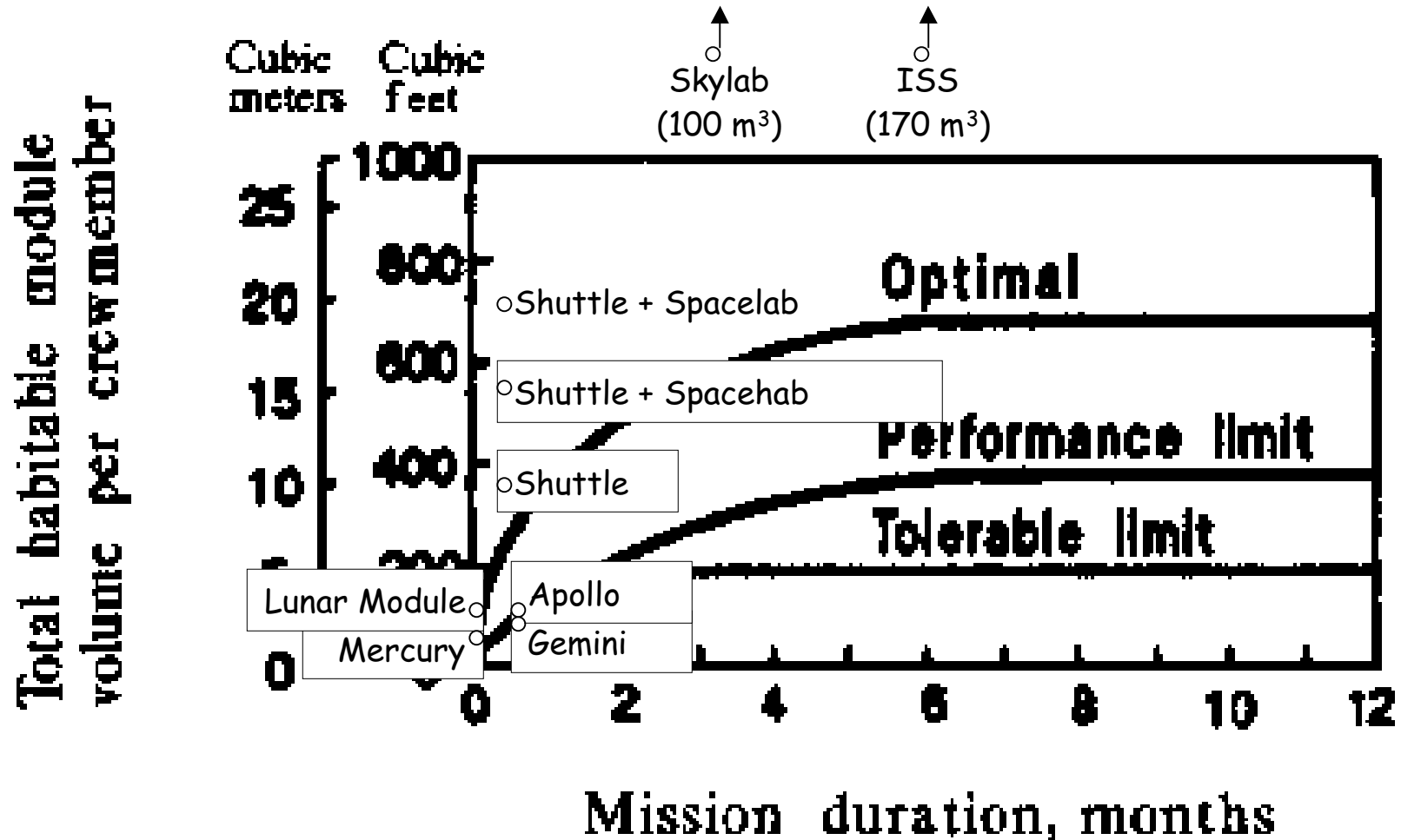
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Apollo Spacecraft (Rescue Configuration)



Required Habitable Volume



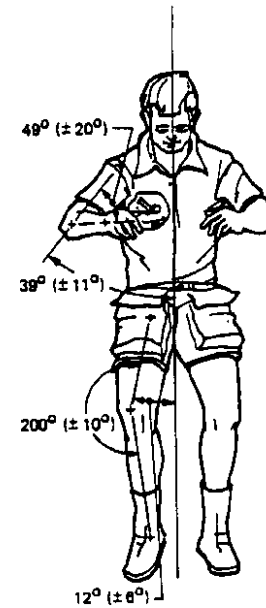
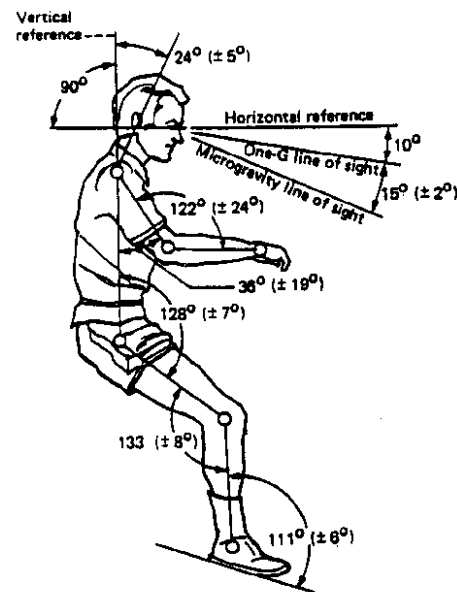
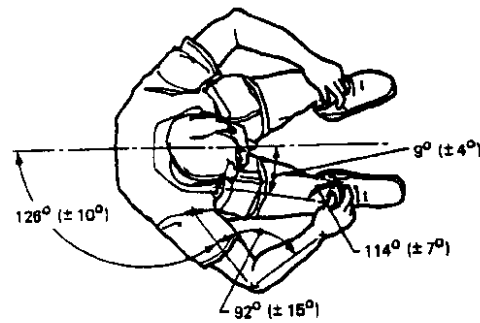
From Nicogossian et. al., *Space Biology and Medicine, Vol. II: Life Support and Habitability*, AIAA, 1994



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OG Neutral Body Posture



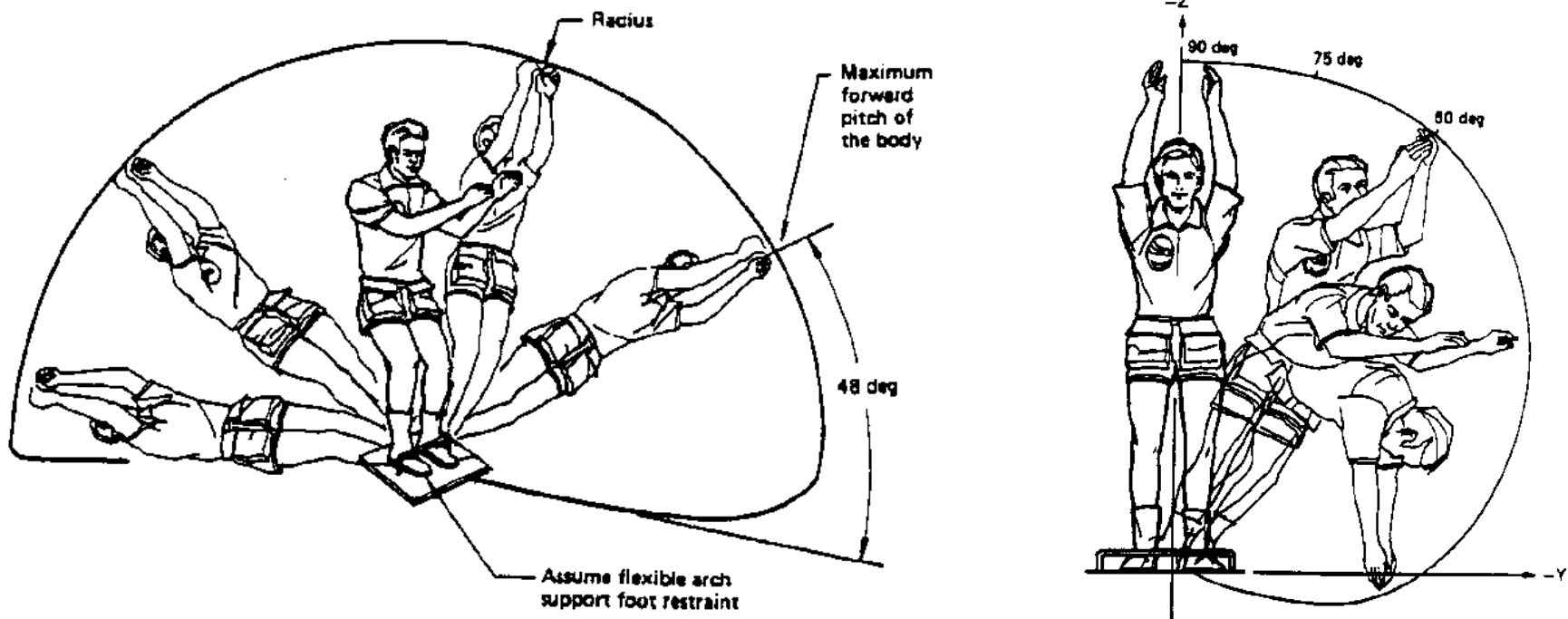
From Nicogossian et. al., *Space Biology and Medicine, Vol. II: Life Support and Habitability*, AIAA, 1994



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OG Restrained Reach Envelope



From Nicogossian et. al., *Space Biology and Medicine, Vol. II: Life Support and Habitability*, AIAA, 1994

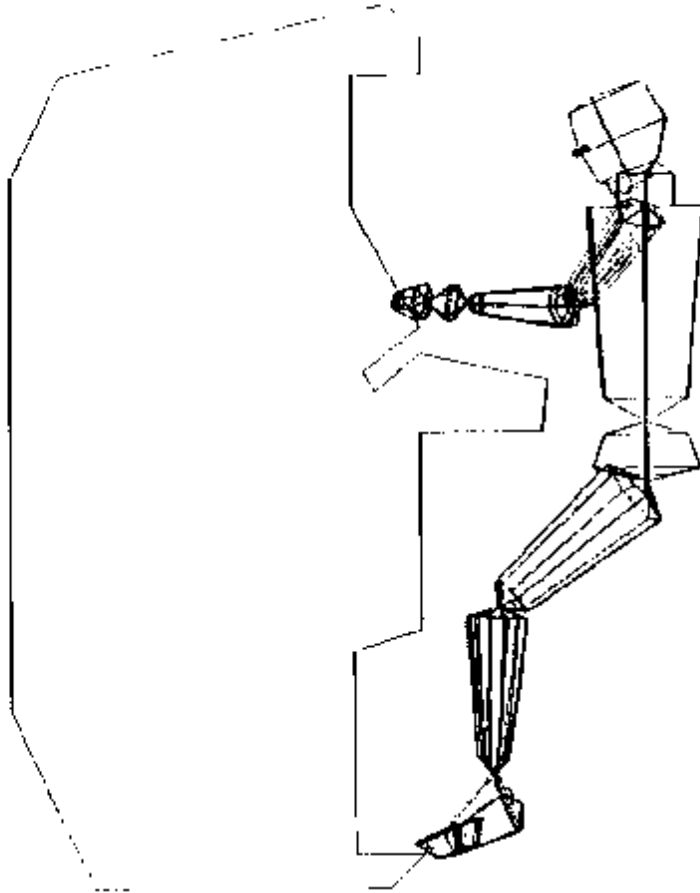


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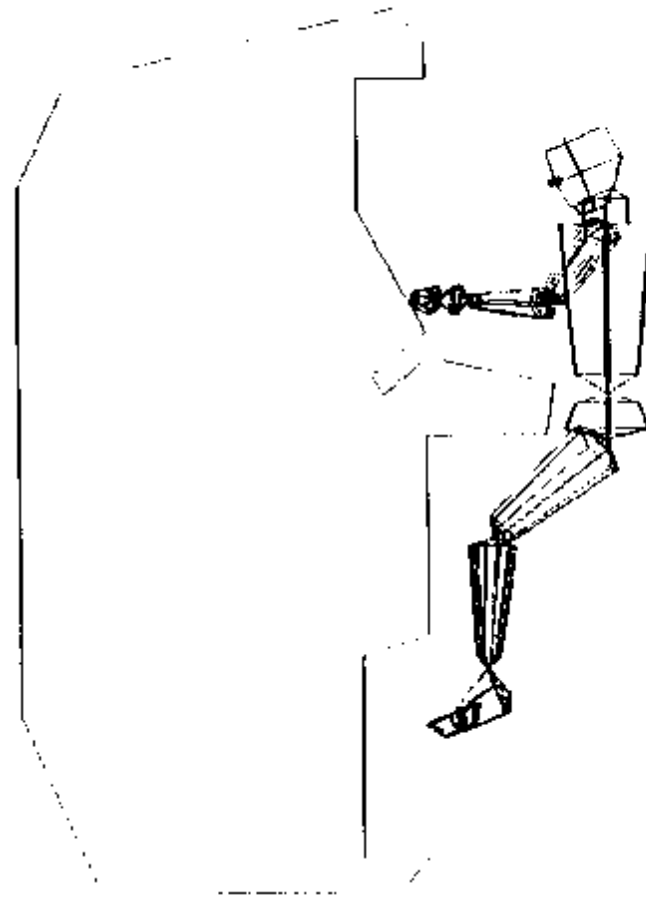
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OG Workstation Layout

95 PERCENTILE MALE, 20 INCH EYEPOINT



5 PERCENTILE FEMALE, 16 INCH EYEPOINT



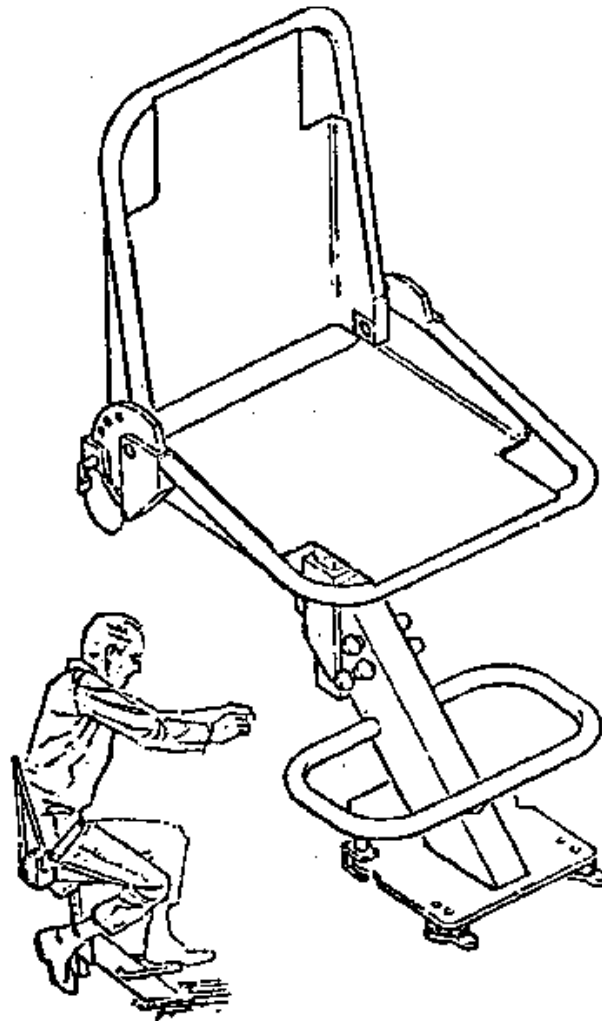
From Nicogossian et. al., *Space Biology and Medicine, Vol. II: Life Support and Habitability*, AIAA, 1994



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Skylab Chair Restraint



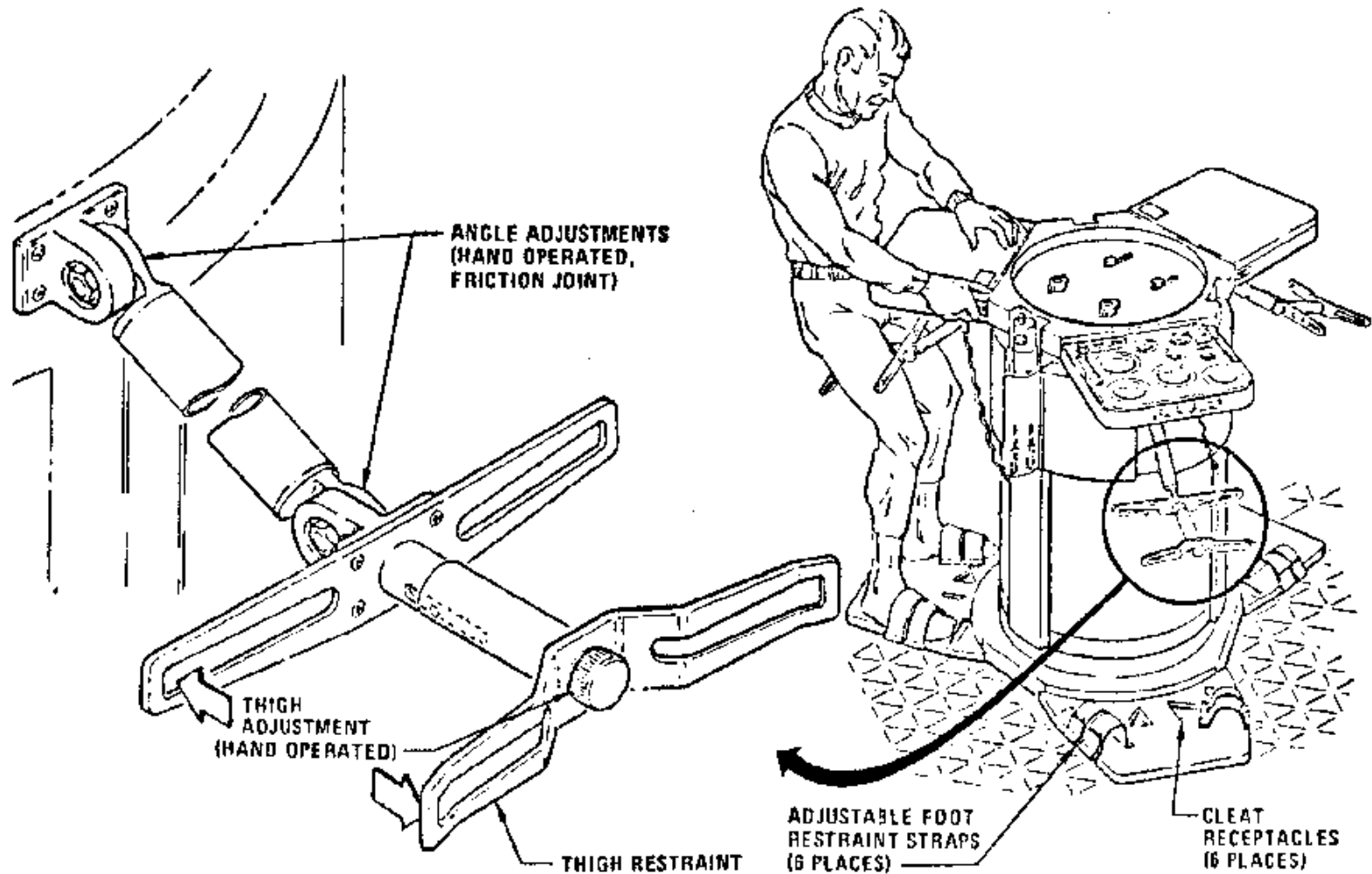
From *MSFC Skylab Crew Systems Mission Evaluation*, NASA TM X-64825, 1974



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Skylab Table Restraints



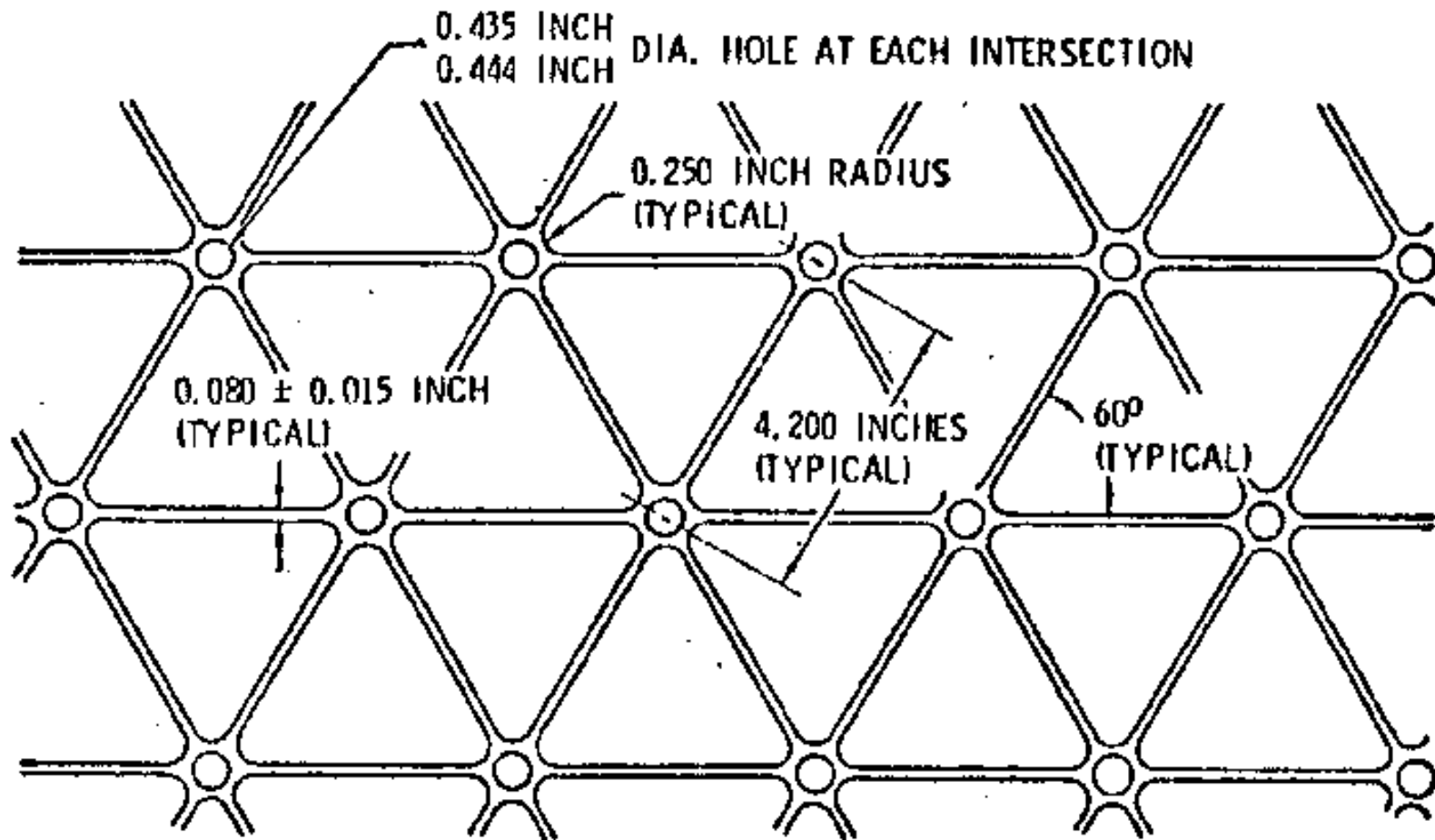
From *MSFC Skylab Crew Systems Mission Evaluation*, NASA TM X-64825, 1974



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Isogrid Flooring Design



MADE FROM HALF-INCH ALUMINUM PLATE, MACHINED TO 0.400 INCH THICKNESS

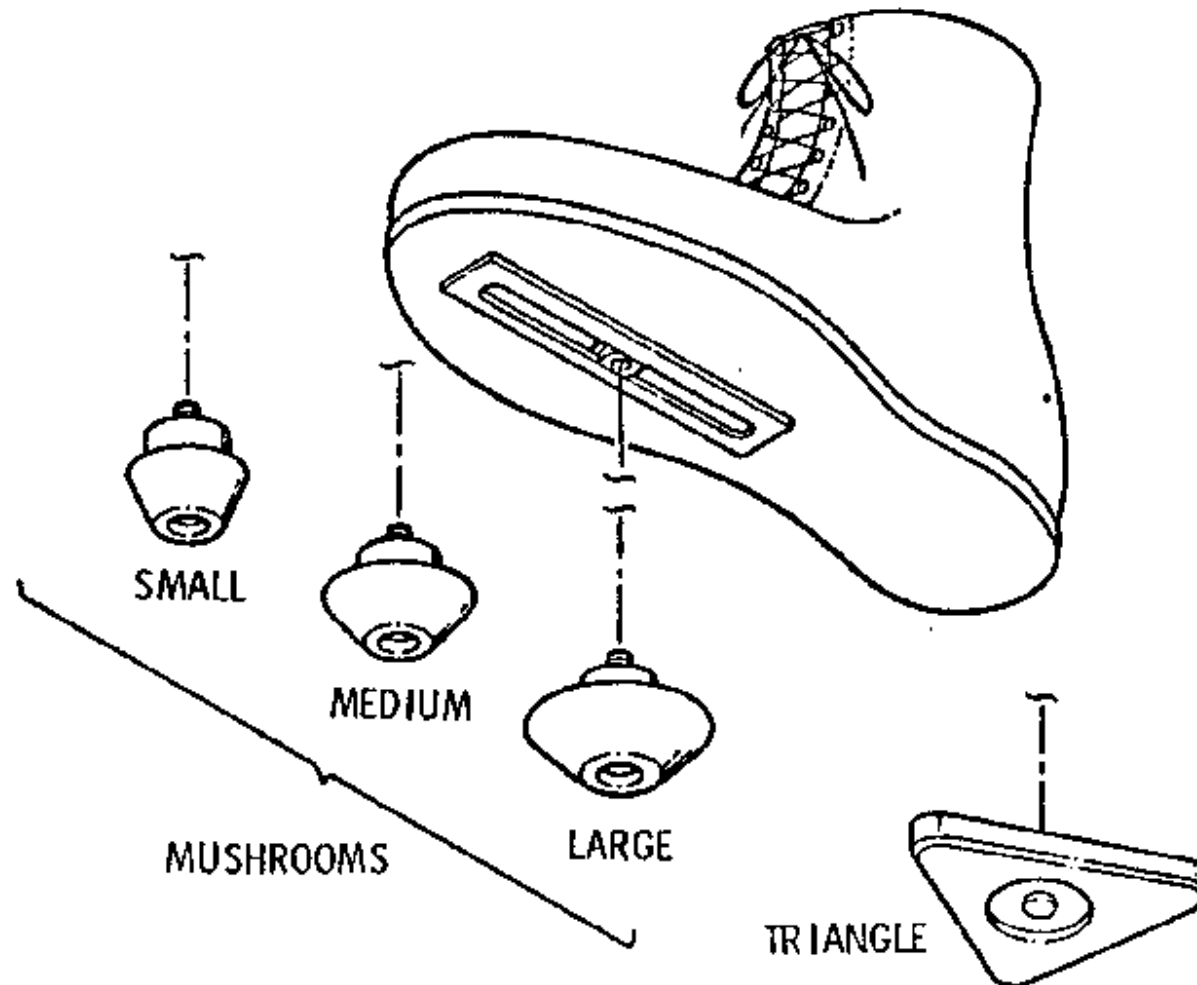
From *MSFC Skylab Crew Systems Mission Evaluation*, NASA TM X-64825, 1974



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Cleat Restraint System



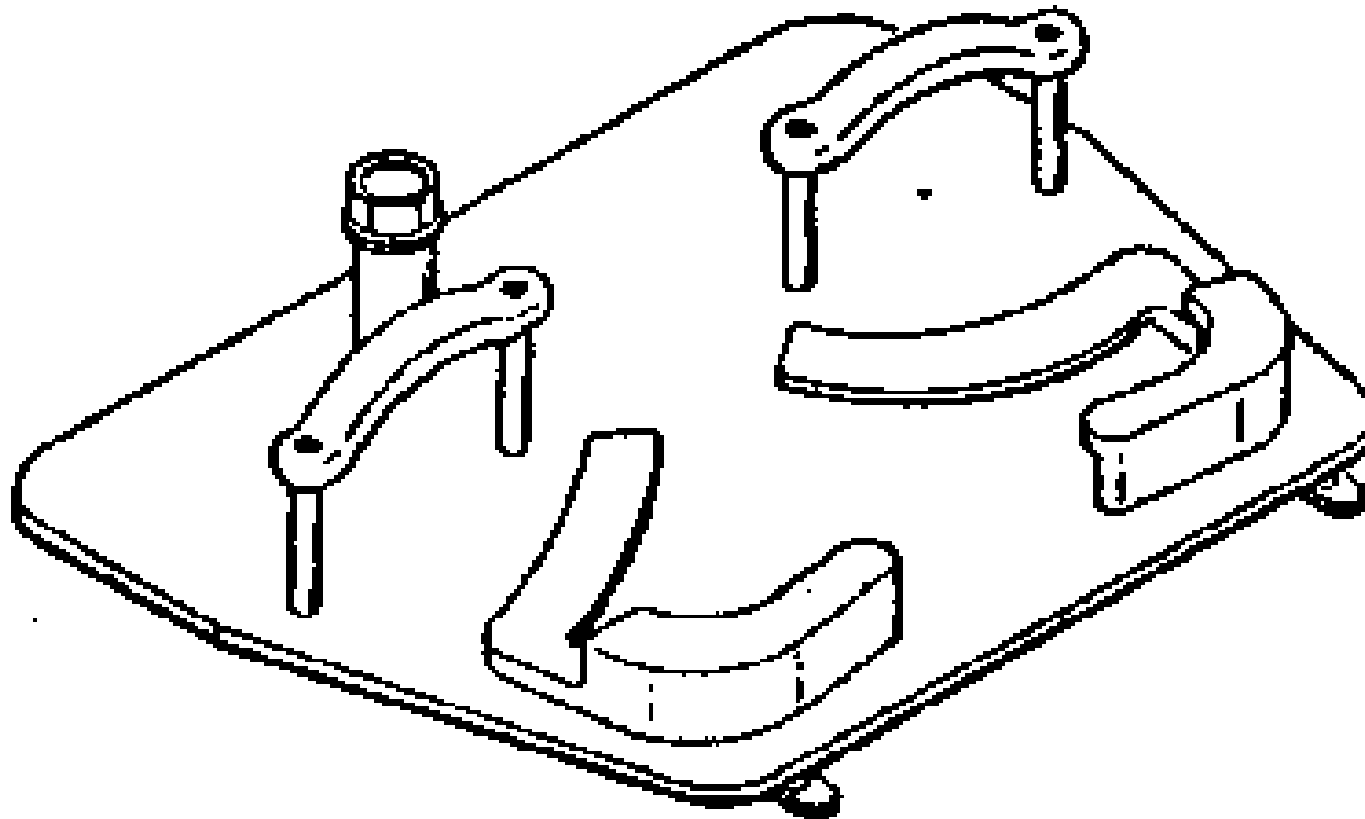
From *MSFC Skylab Crew Systems Mission Evaluation*, NASA TM X-64825, 1974



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EVA Foot Restraints



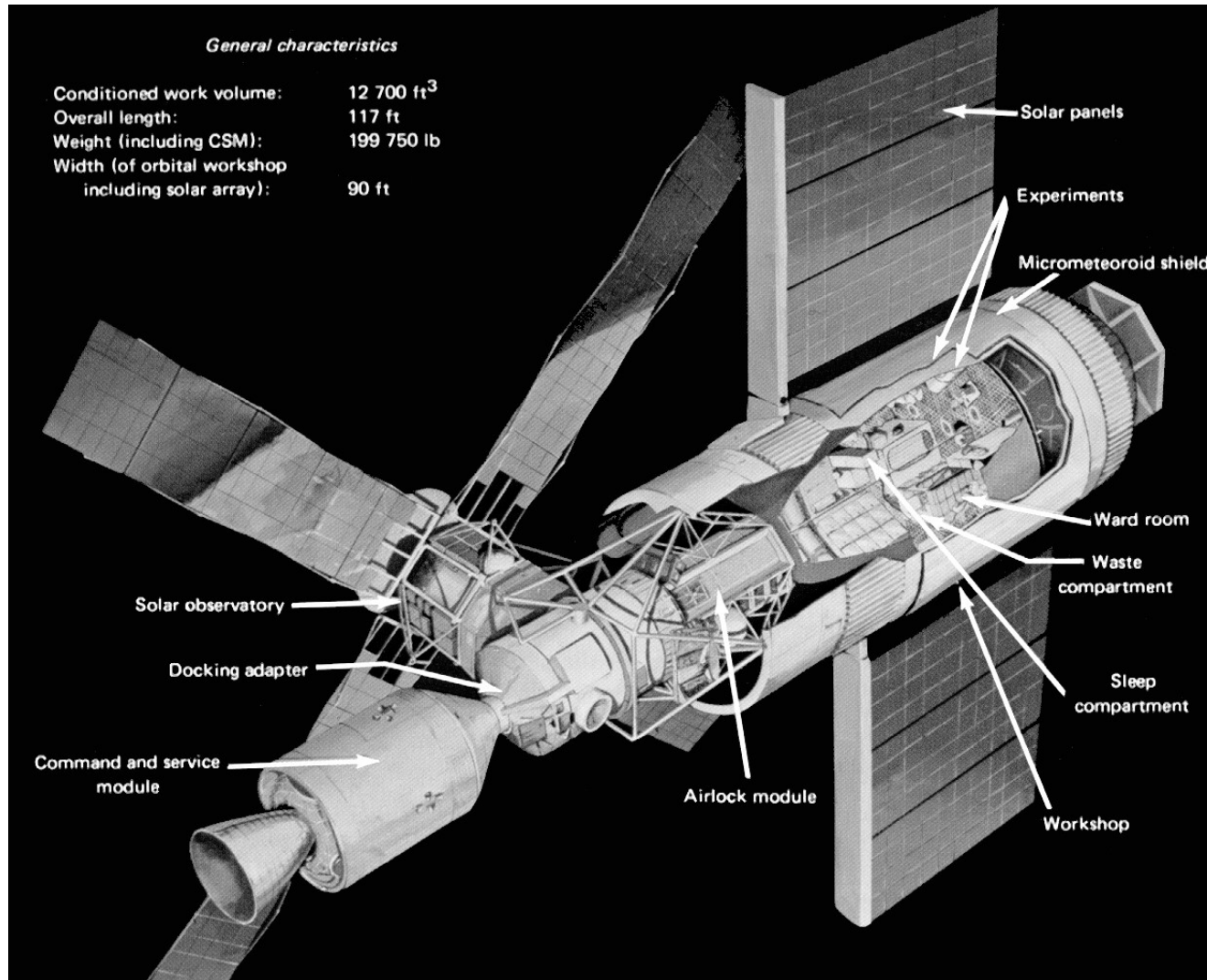
From *MSFC Skylab Crew Systems Mission Evaluation*, NASA TM X-64825, 1974



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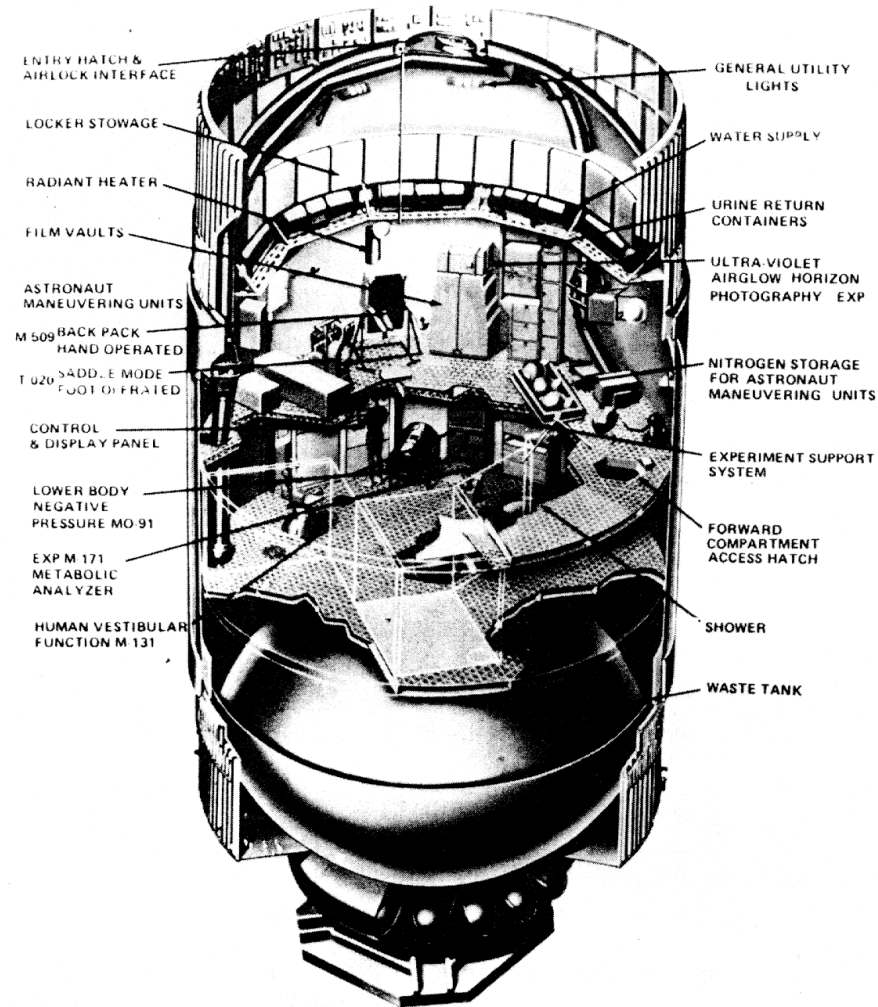
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Skylab Exterior Configuration

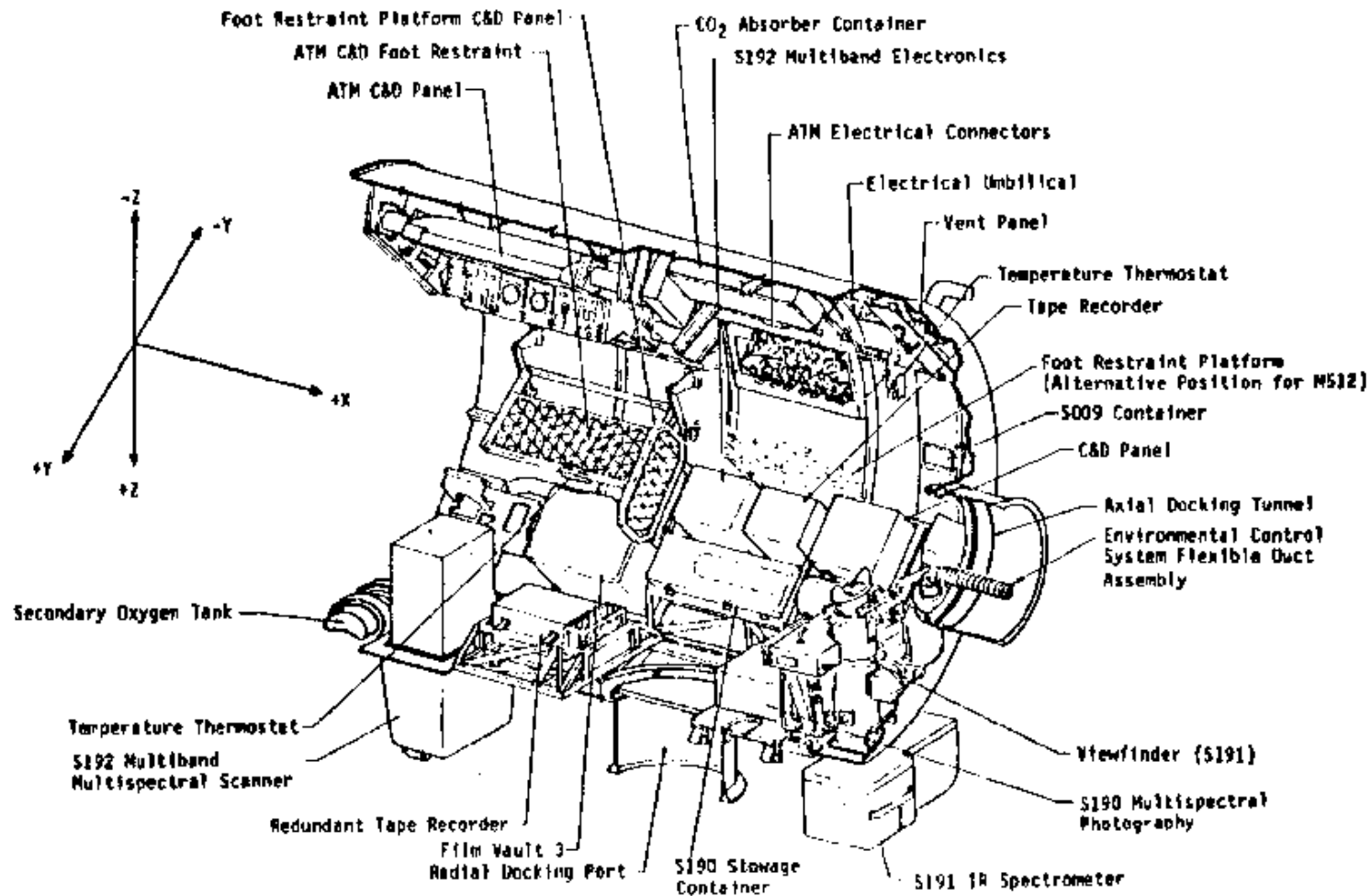


Skylab Orbital Work Shop Interior

SKYLAB ORBITAL WORKSHOP



Skylab Multiple Docking Adapter Layout



From *MSFC Skylab Crew Systems Mission Evaluation*, NASA TM X-64825, 1974



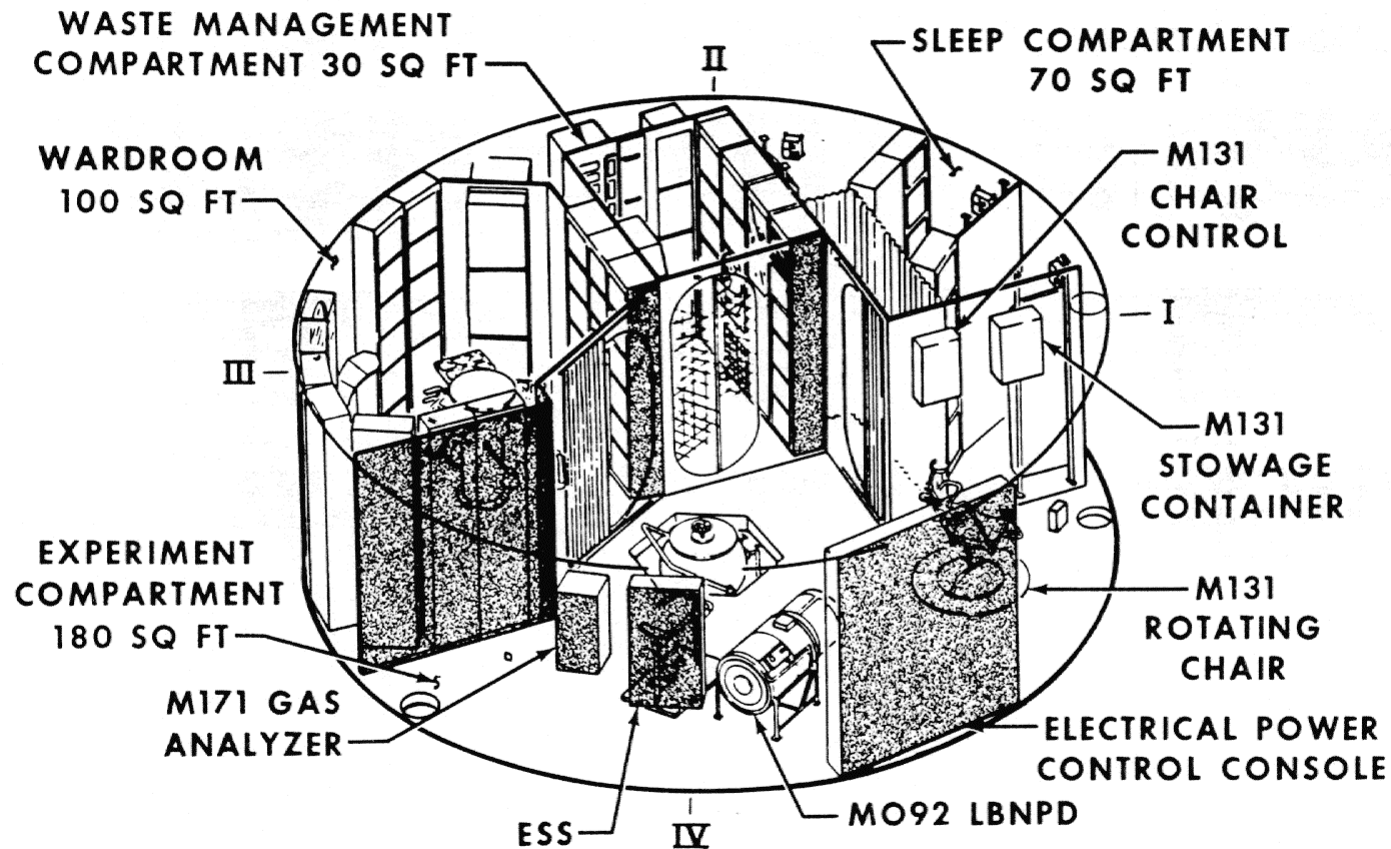
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Skylab Living Quarters Layout

NASA-S-73-1066

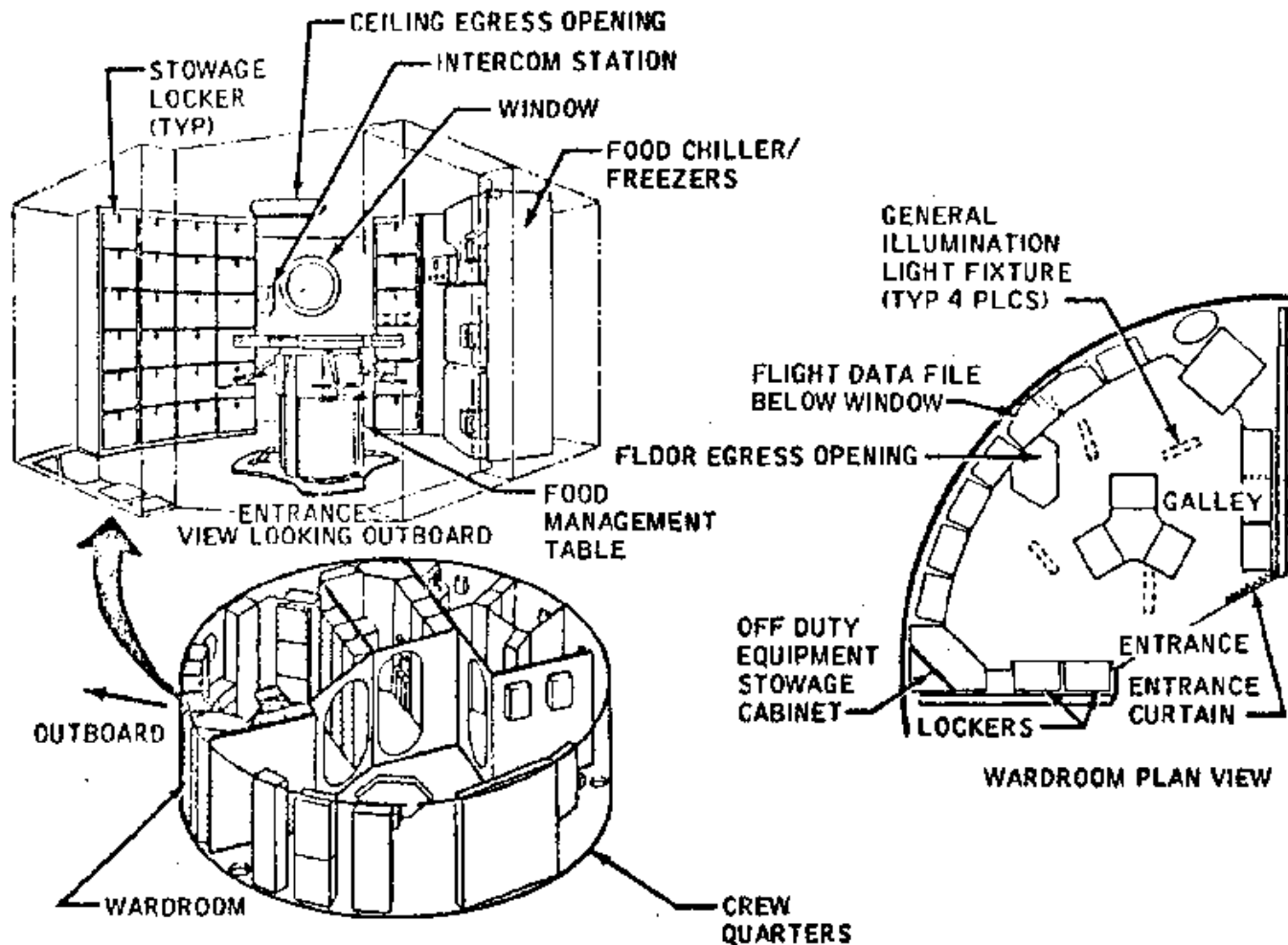
ORBITAL WORKSHOP CREW QUARTERS INSTALLATIONS



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Skylab Wardroom Layout



From *MSFC Skylab Crew Systems Mission Evaluation*, NASA TM X-64825, 1974

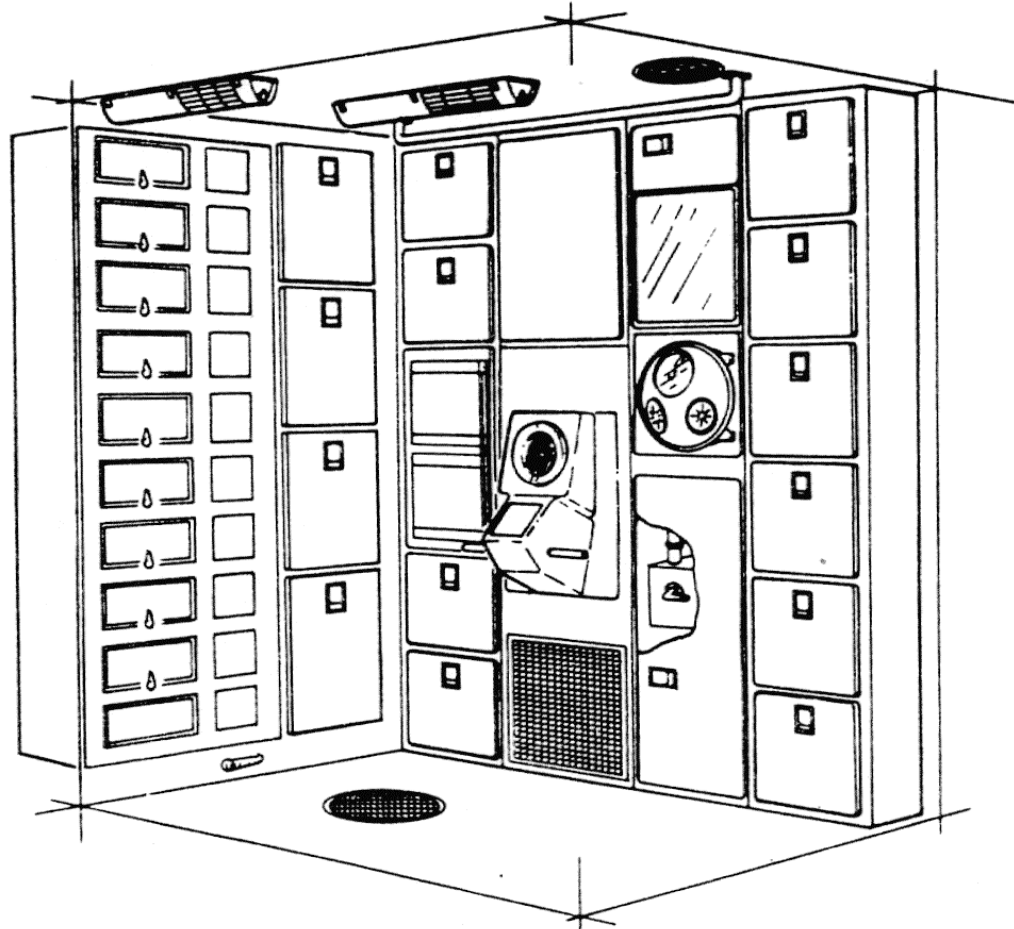


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Skylab Waste Management Compartment

ORBITAL WORKSHOP
WASTE MANAGEMENT COMPARTMENT



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Human Factors and Habitability
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Stowage

- Number of items stowed proportional to volume, crew size, duration, complexity of mission
 - Mercury: 48 items
 - Gemini: 196
 - Apollo: 1727
 - Shuttle: 2600
 - Skylab: 10,160
 - ISS: >20,000
- After you stow it, how do you find it?



Psychosocial Issues

- Scheduling and planning
- Recreation
- Command structure
- Issues affecting crew morale
 - Environment
 - Food and drink
 - Exercise
 - Hygiene
 - Noise
 - Lighting



International Space Station



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A Tour of ISS



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