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ASSURED CREW RETURN CAPABILITY

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ASSURED CREW RETURN CAPABILITY

- OBJECTIVE:
  - DEFINE CONCEPTS FOR EMERGENCY RETURN OF CREW FROM SPACE STATION
- OPTIONS:
  - LAUNCH ON NEED - SHUTTLE
  - EXPENDABLE LAUNCH VEHICLE FOR RESUPPLY
  - EXTENDED DURATION ORBITER
  - CREW EMERGENCY RESCUE VEHICLE (CERV)

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ASSURED CREW RETURN CAPABILITY

- DESIGN REFERENCE MISSIONS
  - STS GROUNDED
  - STATION EMERGENCY
  - CREW ILLNESS

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RETURN TO CODE MC

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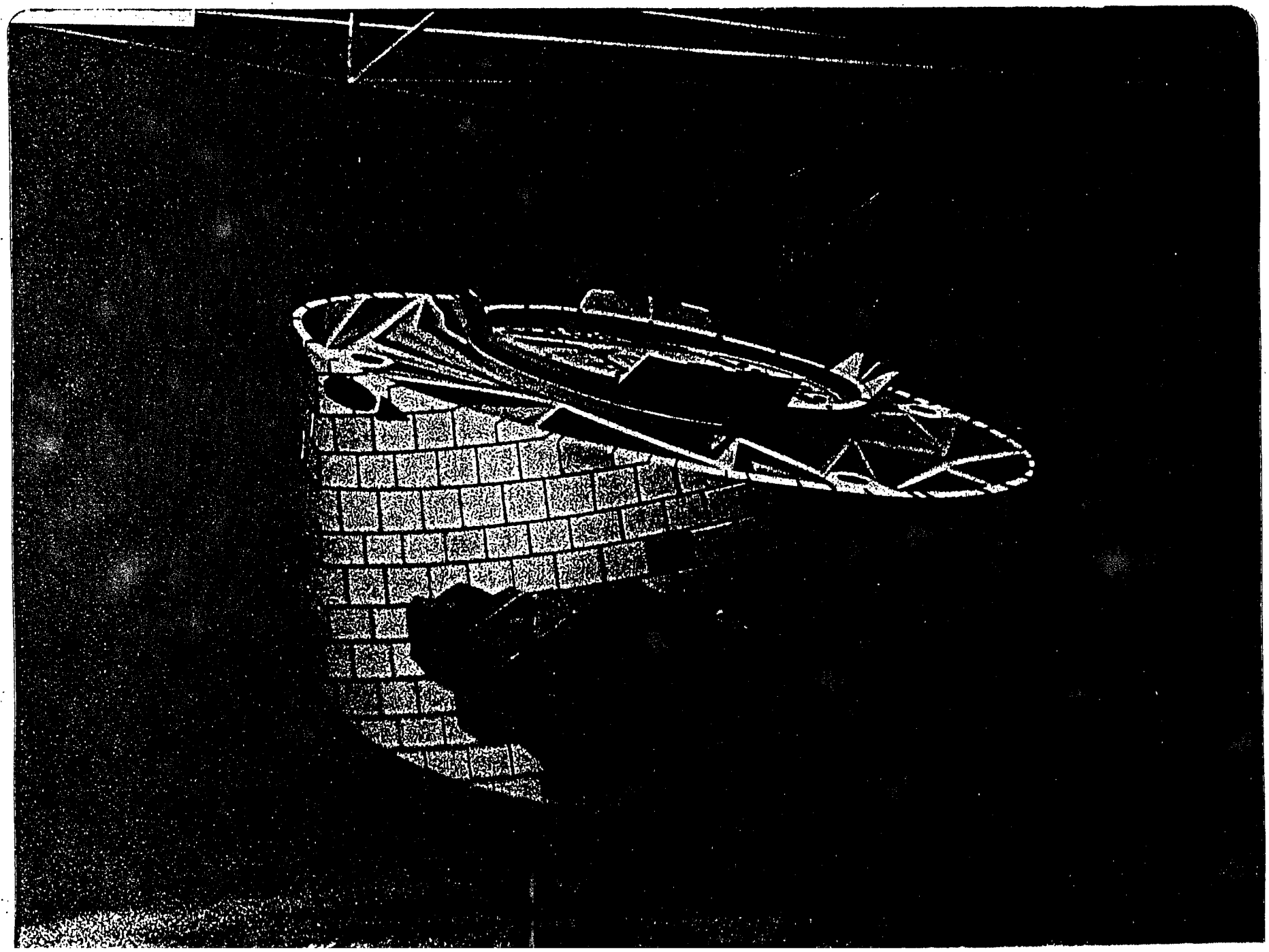

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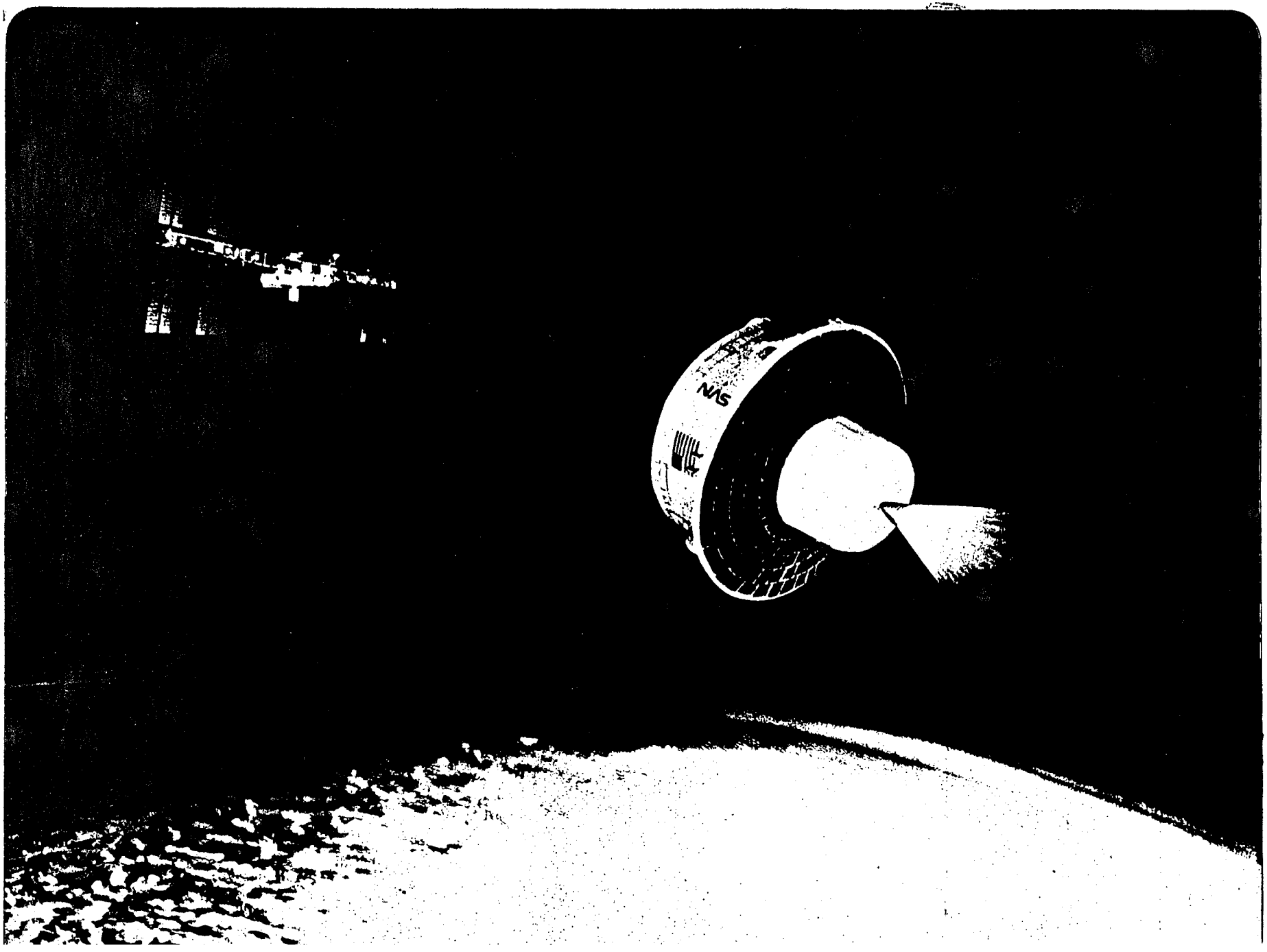

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ASSURED CREW RETURN CAPABILITY
Candidate Configurations

CONFIGURATION SHAPE	G's	WEIGHT	CREW	DIAMETER	MISSION TIME
Glider	1.5	9 Klbs	6	168 in.	31 Hours
Discoverer	4.0	10 Klbs	6	132 in.	30 Hours
Viking	8.0	9 Klbs	4	120 in.	3 Hours

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ASSURED CREW RETURN CAPABILITY
FY 89 ~ 90 Activity

- ACRC SYSTEMS DEFINITION
  - REFINE CONCEPT DEFINITION
  - DEFINE OPERATIONAL CONCEPT
  - COMPLETE PRELIMINARY DESIGN
  - DEFINE STS, SPACE STATION AND ELV INTERFACES
  - ESTABLISH COST AND SCHEDULES
- REFINE SHUTTLE LAUNCH-ON-NEED CONCEPT

ASSURED CREW RETURN CAPABILITY

PHASE A'/B SYSTEMS DEFINITION

- **COMBINE IN SINGLE PROCUREMENT TO ELIMINATE ADDITIONAL PROCUREMENT CYCLE**
- **STRUCTURE PROCUREMENT INTO 2 PARTS**
  - PHASE A' PROPOSAL -
  - PHASE B PROPOSAL - OPTION
    - **PROVIDES NASA AN OPTION TO DEFER DECISION ON IMPLEMENTATION OF PHASE B UNTIL AFTER COMPLETION OF PHASE A'**

ASSURED CREW RETURN CAPABILITY

PHASE A' ISSUES

- **CONFIGURATION OPTIONS**
  - ASSESS SENSITIVITY TO DESIGN REFERENCE MISSIONS
  - CONFIGURATION DOWNSELECT
    - **VEHICLE SIZE (2-4 PEOPLE)**
    - **NUMBER OF VEHICLES**
    - **LAND OR WATER LANDING**
    - **ENTRY G LIMITS**
- **SPACE STATION ASSESSMENT**
  - STATION LOCATIONS(S)
  - INTERFACE REQUIREMENTS
- **ELV ASSESSMENT**
  - VEHICLE CAPABILITY
  - INTERFACE REQUIREMENTS

ASSURED CREW RETURN CAPABILITY

PHASE B ISSUES

- **OPERATIONS CONSIDERATIONS**
  - ORBITAL LOITER TIME
  - LANDING SITE SELECTION / ACCURACY
- **SYSTEMS DEFINITION**
  - AVIONICS
  - DOCKING
  - POWER GENERATION
  - PROPULSION
  - ENVIRONMENTAL CONTROL
  - COMMUNICATIONS / TRACKING
  - AUTOMATION
  - THERMAL PROTECTION
  - FAULT AND REDUNDANCY MANAGEMENT
  - LANDING SYSTEM
- **COST**