S A F S P

BRIEFING AGENDA

- BACKGROUND/POLICY
- STS INTERFACES
  - SAMSO
  - ROCKWELL
  - NASA
- TRANSITION COST ESTIMATING
- TRANSITION COST VARIABLES
- PRELIMINARY TRANSITION SCHEDULE

SAFSP

BACKGROUND OF NRO STS ACTIVITIES

- JAN 72 - SPACE SHUTTLE PROGRAM APPROVED BY THE PRESIDENT
- JAN 72 - HEXAGON MINIMUM MODIFICATION STUDY
- FEB 72 - IN-HOUSE STS ANALYSIS
  - DEPENDENCE ON SMALL NUMBER OF LV'S
  - AVOID USSR OVERFLIGHT
  - VULNERABILITY OF STS
  - RETRIEVAL OF S/C
- AUG 73 - HEXAGON OPTIMIZATION STUDY
- DEC 73 - EXPLORATION OF ADAPTATION OF SELECTED PAYLOADS TO STS
- JUL 74 - [redacted] GIVEN PRIMARY RESPONSIBILITY FOR THE STS
- AUG 74 - [redacted] MINIMUM MODIFICATION STUDIES
- SEP 74 - DNRO APPROVED SAFSP STS TRANSITION PLAN
- SEP 74 - HEXAGON INTERFACE STUDY
- JAN 75 - [redacted] MINIMUM MODIFICATION STUDY
- MAR 75 - [redacted] TRADEOFF STUDY
- APR 75 - [redacted] MINIMUM MODIFICATION STUDY

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NRO POLICY ON STS TRANSITION

- PRIMARY CONSIDERATION IN PLANNING FOR TRANSITION
  - NRP MISSION ACCOMPLISHMENT
  - NRP SECURITY
  - EFFICIENT AND COST EFFECTIVE OPERATION OF NRP
- NRO PROGRAM PLANS FOR TRANSITION TO STS SHOULD CONSIDER:
  - MAJOR CHANGES TO CURRENT SYSTEMS
  - NEW SYSTEMS
- NEAR TERM EMPHASIS ON BETTER DEFINITION OF SYSTEMS REQUIREMENTS AND COST
- NASA AND NASA-CONTRACTOR INVOLVEMENT IN SYSTEM STUDIES
- MINIMUM INTERFACE INITIALLY WITH SHUTTLE
- DESIGN FOR UNIQUE FEATURES OF STS

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NEAR TERM OBJECTIVES

- TO REFINE NRO TRANSITION PLANS, OPERATIONS CONCEPT, SYSTEM REQUIREMENTS AND TRANSITION COSTS, SPECIFICALLY:
  - DEVELOP NRO STS REQUIREMENTS DOCUMENT
  - DEVELOP EXPENDABLE BACKUP LAUNCH VEHICLE PLAN
  - EVALUATE CONCEPTS TO EXPLOIT THE STS
  - PERFORM PROGRAM STUDIES
  - PERFORM DETAILED INTERFACE ANALYSIS
  - DEFINE KSC AND VAFB FACILITY REQUIREMENTS
  - DEVELOP NRO MISSION AND GROUND OPERATIONS CONCEPT
  - DEVELOP NRO SECURITY PLAN

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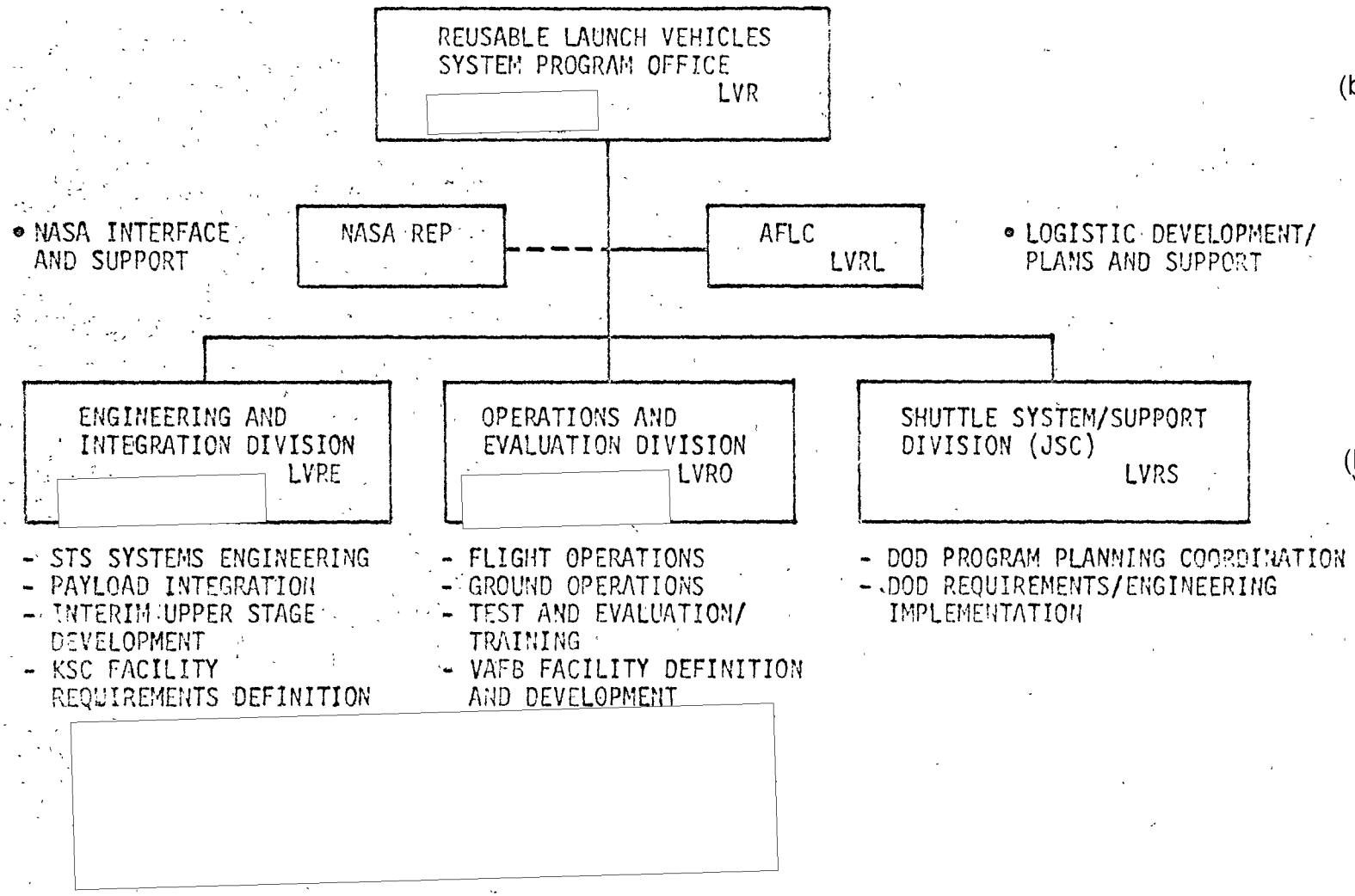
SPACE AND MISSILE SYSTEM ORGANIZATION
REUSABLE LAUNCH VEHICLES - SYSTEM PROGRAM OFFICE



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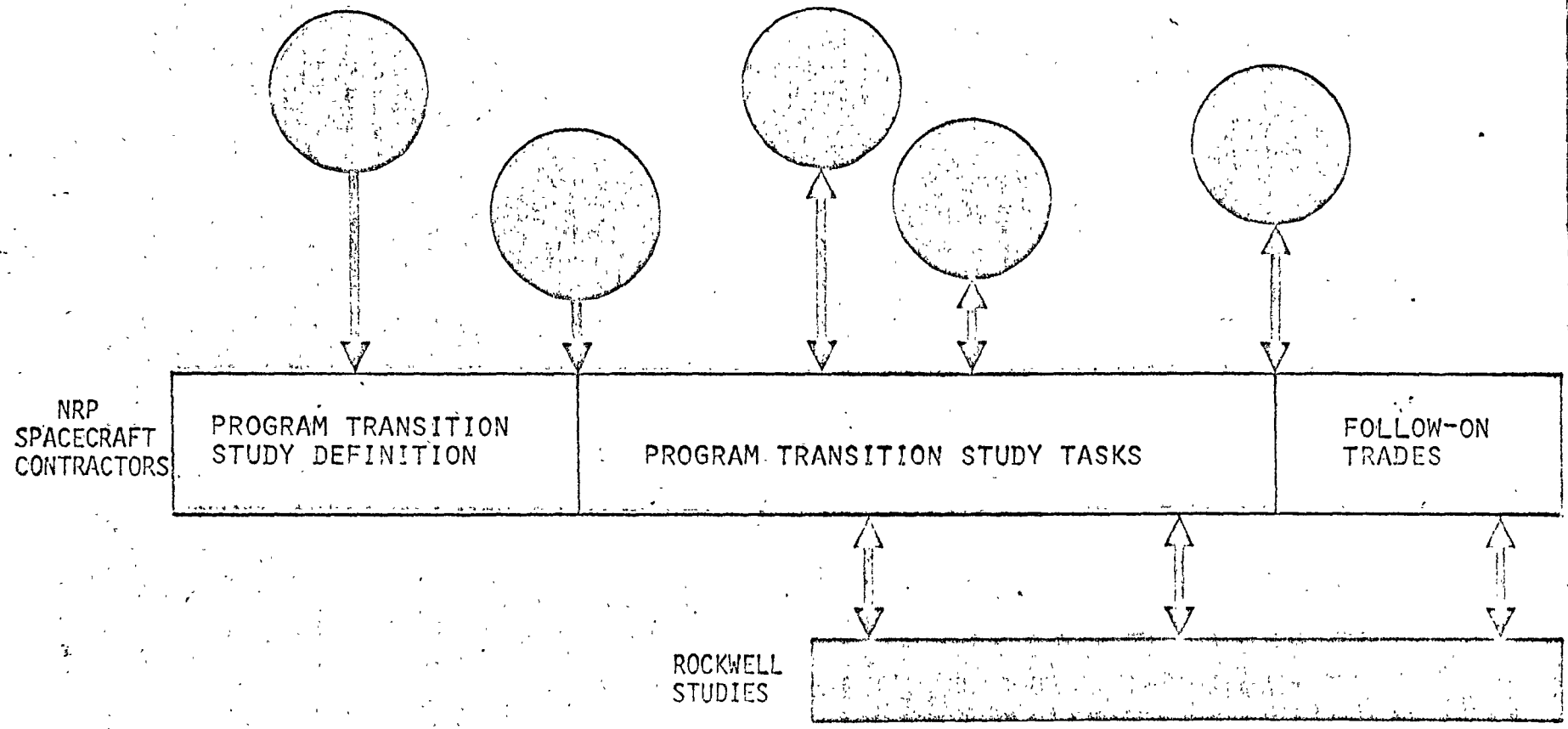
ROCKWELL TASKS



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NRP ACCESS MANAGEMENT

ACCESS AT NASA HO LEVEL:

NRO STAFF AND NASA BCO WILL MANAGE ACCESS UNDER CURRENT AGREEMENTS.

ACCESS AT NASA FIELD LEVEL:

SAFSP WILL BE INTEGRAL TO PROCESS FOR DETERMINING INDIVIDUAL ACCESS REQUIREMENTS.

SAFSP WILL PROVIDE INITIAL BRIEFINGS TO JSC AND KSC PERSONNEL,

AND/OR

SAFSP WILL APPROVE CONTENT OF ACCESS BRIEFINGS GIVEN BY NASA BCO TO JSC AND KSC PERSONNEL.

BYEMAN PRACTICES AND PRINCIPLES APPLY (E.G., DISCUSSION ONLY IN APPROVED FACILITIES, SPECIAL COMMUNICATIONS SYSTEMS, ETC.)

NASA BCO WILL ADMINISTER BYEMAN ACCESS AND CONTROLS IN COORDINATION WITH SAFSP.

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COSTING DATA INPUT TO BUDGET PROCESS

CALENDAR YEAR

STUDIES	1972	1973	1974	1975	1976	1977
HEXAGON MIN-MOD				JULY EXCOM	NOV EXCOM	JULY EXCOM
HEXAGON OPTIM.						
HEXAGON MIN-MOD						

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PROGRAM TRANSITION BUDGET DERIVATION

NON-RECURRING (NR)

$$\frac{\text{NR HEXAGON MIN-MOD (WITH / WITHOUT OPTICS)}}{\text{HEXAGON SPACECRAFT BASIC COST}} = \text{NR PROGRAM COST FACTORS}$$

RECURRING (R)

$$\frac{\text{R HEXAGON MIN-MOD COST (WITH / WITHOUT OPTICS)}}{\text{HEXAGON SPACECRAFT BASIC COST}} = \text{R PROGRAM COST FACTORS}$$

PROGRAM COST FACTOR X BASIC VEHICLE COST = PROGRAM TRANSITION COST

PROGRAM TRANSITION BUDGET = NR AND R PROGRAM TRANSITION COST + LAUNCH VEHICLE INTEGRATION COST + SHUTTLE [redacted] LAUNCH COST

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PLANNED APPROACH FOR JULY 76 EXCOM

- REFINE PROGRAM DESIGN AND BUILD BUDGET LINE SUBMISSION
  - JOINT SYSTEM STUDIES
  - DETAIL INTERFACE ANALYSIS
    - AGE AND FACILITY REQUIREMENTS
    - LOADS ANALYSIS
  - EXPLOITATION STUDIES
  - NRO OPERATIONS AND SECURITY CONCEPTS

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TRANSITION COST VARIABLES

MAN-RATED SYSTEMS

STRUCTURAL BEEF-UP

- INCREASED SAFETY FACTORS
- 9 g CRASH LOADS (HEAVY MASS CONSTRAINT)

TELEMETRY AND COMMAND SYSTEM INTERFACES

ORDNANCE ISOLATION (S&A'S)

ELECTRICAL ISOLATION (CRITICAL CIRCUITRY AND SWITCHES)

EXPANDED TESTING AND ANALYSIS (RELIABILITY, SAFETY, CERTIFICATIONS)

RELATED MANAGEMENT AND DOCUMENTATION IMPACT

NEW FLIGHT ENVIRONMENT

LIFT-OFF LOADS
LANDING LOADS
ACOUSTIC (T-111C)

→

ANALYSIS
DESIGN CHANGES (PRIME STRUCTURE & COMPONENTS)
RETEST & QUALIFICATION
TEST HARDWARE
TOOLING

NEW ATTACH MECHANISMS (CRADLES, FITTINGS, MANIPULATOR)

TRANSITION COST VARIABLES (cont'd)

EMC CONSIDERATIONS

- COMPLETE ANALYSIS (SPACECRAFT/IUS/ORBITER/GROUND SYSTEM)
- SPACECRAFT ISOLATION (SINGLE POINT GROUND)
  - DESIGN
  - TEST
  - KITS

NEW OPERATIONAL INTERFACE

- DEVELOPMENT, DOCUMENTATION, TRAINING, VALIDATION OF LAUNCH AND MISSION OPERATIONS PROCEDURES
- NEW OR MODIFIED AGE
- NEW INTERFACES WITH GROUND STATIONS

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TRANSITION COST VARIABLES (CONT'D)

NEW ON-ORBIT DEPLOYMENT TECHNIQUES

- THERMAL ANALYSES
- ELECTRICAL POWER CHANGES (CHARGING VS ADDED CAPACITY)
- SEPARATION ANALYSES
- CONTAMINATION PROTECTION
- GROUND STATION COMMAND AND CONTROL PROCEDURAL CHANGES

RETRIEVAL CAPABILITY

- INCREASED COMPLEXITY OF COMMAND AND CONTROL INTERFACE
- EXPANDED HAZARDS ANALYSES
- MODIFY TO RE-ENTER ORBITER BAY

EXPENDABLE BACKUP LAUNCH VEHICLE *

- HARDWARE & LOGISTICS
- LAUNCH PAD COSTS
- PERSONNEL PROFICIENCY
- DUAL INTERFACE FOR SPACECRAFT

* No estimate to date

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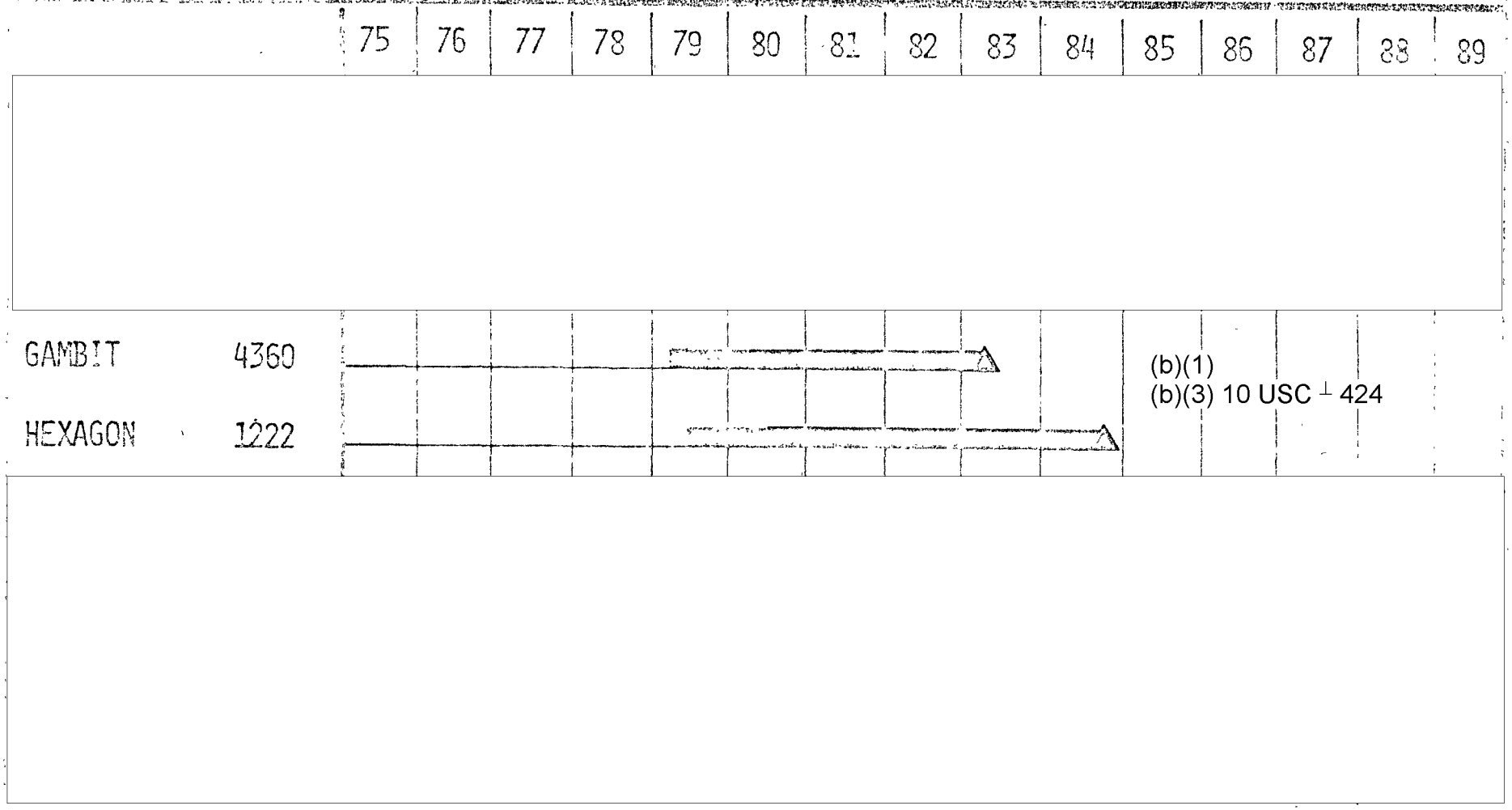
NRO - STS TRANSITION



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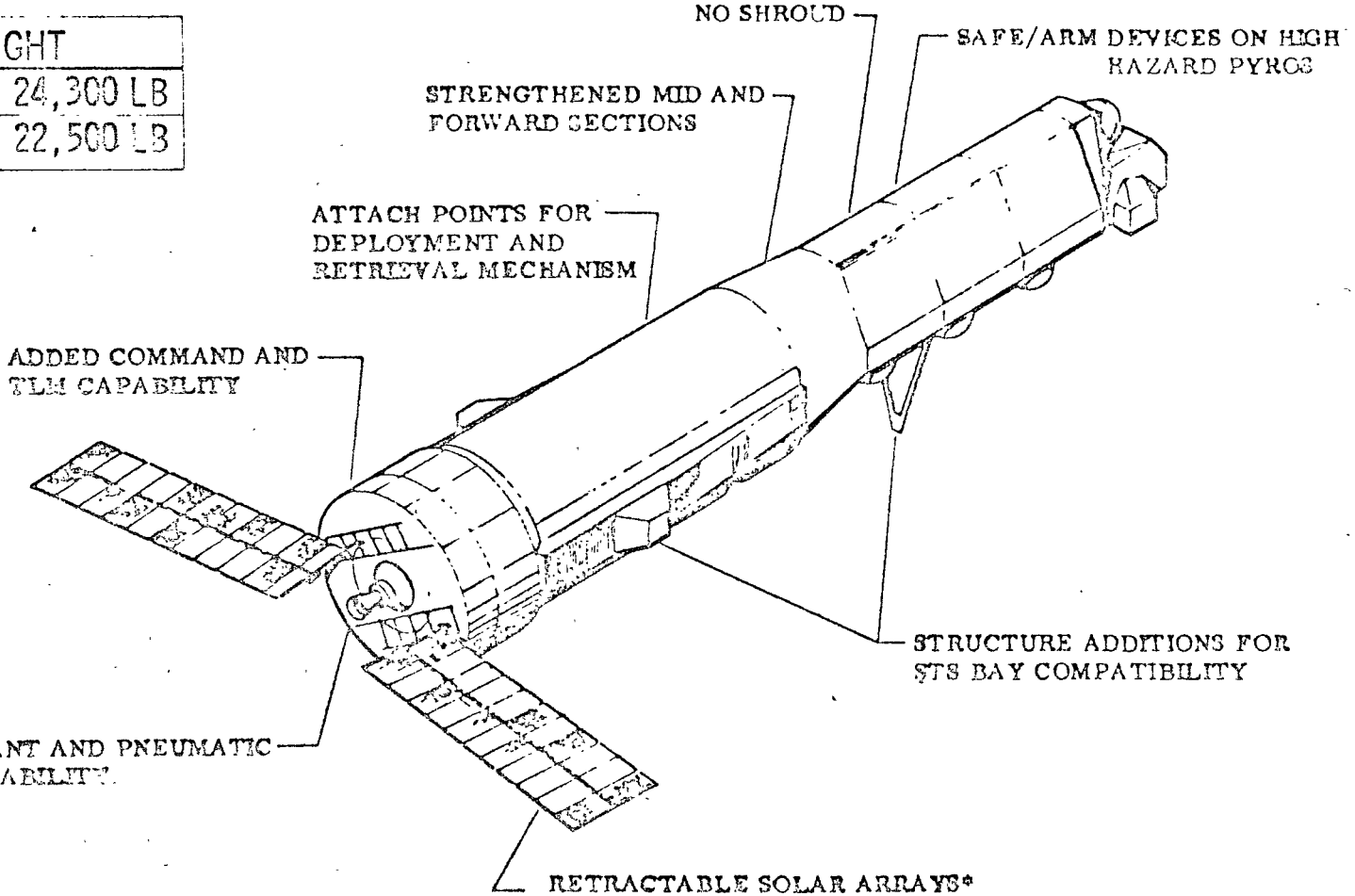
SV MODIFICATIONS FOR STS OPERATIONS

SV WEIGHT	
FOR STS	24,300 LB
SV 7 -12	22,500 LB



*REQUIRED FOR ONLY RETRIEVAL AND REFURBISHMENT

- MODEST DESIGN CHANGES FOR REFURBISHMENT*
- LIFE TESTS TO EXTEND CALENDAR/OPERATING LIFE OF SELECTED ITEMS*

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