INCLUDES BACK-UP CHARTS

SAFSP

SAFSP PLANNING FOR THE STS

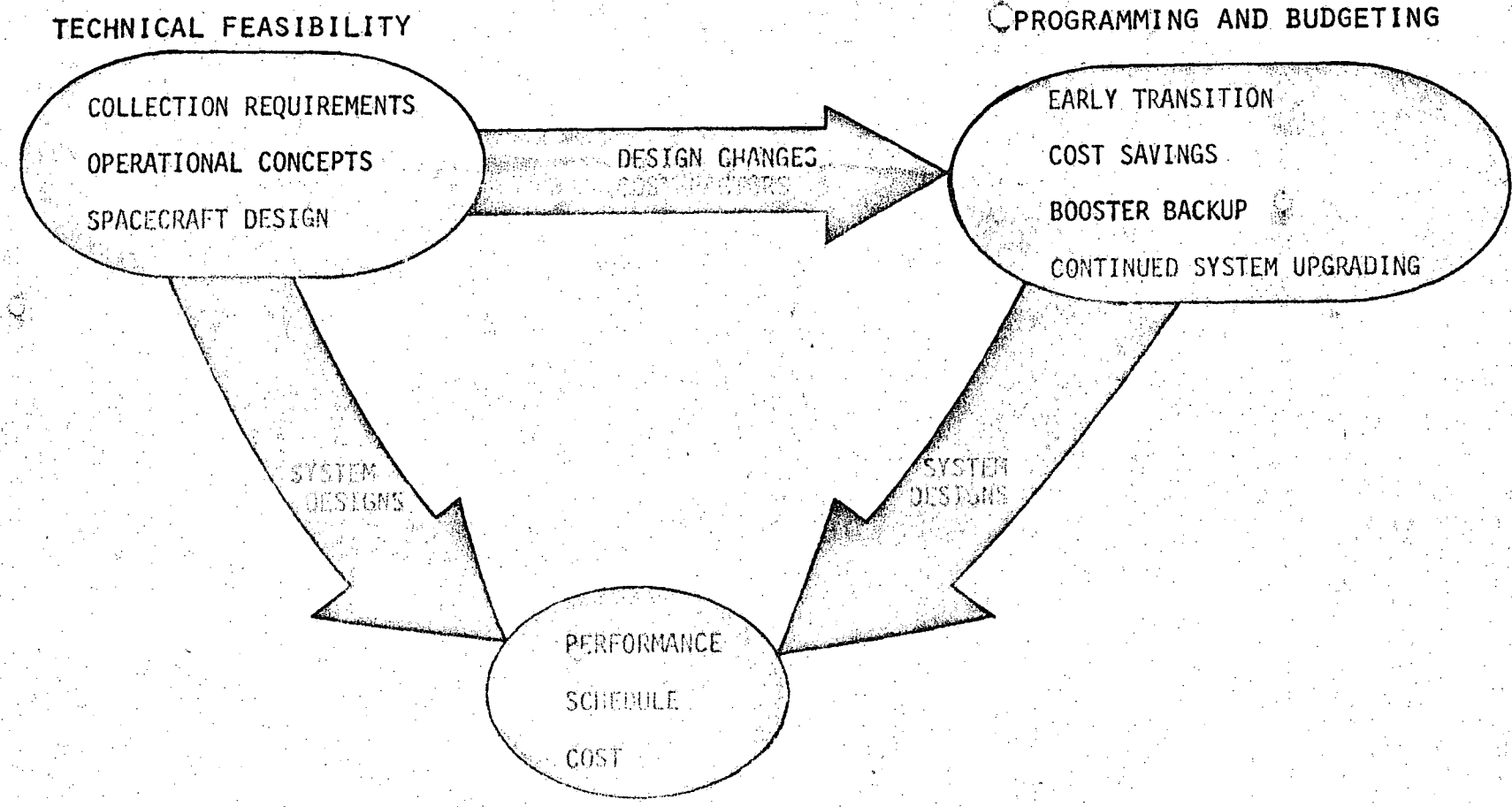
HANDLE VIA BYEMAN CONTROL
SYSTEM ONLY

~~SECRET~~ [redacted]

(b)(1)
(b)(3)

SAFSP

SAFSP/STS TRANSITION PLANNING OBJECTIVES



SECRET~~SECRET~~

HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY

(b)(1)
(b)(3)

SAFSP

SAFSP/STS PRE-TRANSITION EFFORTS

	FY 72	FY 73	FY 74	FY 75	FY 76	FY 77	FY 78
NASA	COST BENEFITS		PAYLOAD ACCOMMODATIONS		STS DEVELOPMENT		
	ORBITER DESIGN		STS/ORBITER DEVELOPMENT				
DOD	COST BENEFITS PAYLOAD DESIGN ORBITER REQUIREMENTS		DOD STS REQUIREMENTS INTERIM UPPER STAGE DESIGN		UPPER STAGE DEVELOPMENT		
PHOTO SYSTEMS							
HEXAGON	MINIMUM MODIFICATION DESIGN/COST	OPTIMIZED FOR STS DESIGN/ COST	INTERFACE REQUIREMENTS UPDATE	PRELIMINARY DESIGN/COST		SYSTEM ACQUISITION	
GAMBIT		OPTIMIZED FOLLOW-ON DESIGNS		PRELIMINARY DESIGN/COST		SYSTEM ACQUISITION	
[redacted]							
TRANSITION COST STUDIES	SS	SP/SS FOR GAO	76-86 SP	80-91 SP			

(b)(1)
(b)(3)

~~SECRET~~ [redacted] G/H [redacted]

HANDLE VIA BYEMAN CONTROL SYSTEM ONLY

SAFSP

PLANNING OBJECTIVES

- DETERMINE PERFORMANCE IMPLICATIONS OF USING STS
  - COLLECTION REQUIREMENTS
  - OPERATIONAL CONCEPTS
  - SPACECRAFT DESIGN
  - INTERFACE REQUIREMENTS
- ESTIMATE SAFSP TRANSITION COSTS
  - DESIGN-DERIVED COST FACTORS
  - EARLY TRANSITION
  - BOOSTER BACKUP DURING TRANSITION
  - CONTINUED SYSTEM PERFORMANCE UPGRADING
- ORDERLY TRANSITION PLANNING
  - PERFORMANCE
  - SCHEDULE
  - COST

SAFSP

SAFSP STS STUDIES

- O CONTRACTOR DESIGN STUDIES
  - o HEXAGON - MINIMUM MODIFICATION — JAN 1972
  - o HEXAGON - OPTIMIZED — AUG 1973
  - o GAMBIT FOLLOW-ON — SEP 1973
- O TRANSITION COST STUDIES
  - o 1976 TO 1986 — NOV 1973
  - o 1980 TO 1991 — JAN 1974

~~SECRET~~/H/G

Handle Via Byeman
Control System Only

(b)(1)
(b)(3)

SAFSP

CONTRACTOR STUDIES

HEXAGON - MINIMUM MODIFICATION DESIGN

- o BOOSTER SUBSTITUTION
- o RETRIEVAL AND REFURBISHMENT
- o STS INTERFACE

HEXAGON - OPTIMIZED FOR STS USE

- o EMPHASIS ON DESIGN
- o RETRIEVAL AND REFURBISHMENT
- o ON-ORBIT REPAIR AND RESUPPLY
- o STS INTERFACE

ULTRA HIGH RESOLUTION SYSTEM

- o CONCEPTUAL DESIGNS
- o RETRIEVAL AND REFURBISHMENT
- o ON-ORBIT REPAIR AND RESUPPLY

(b)(1)
(b)(3)

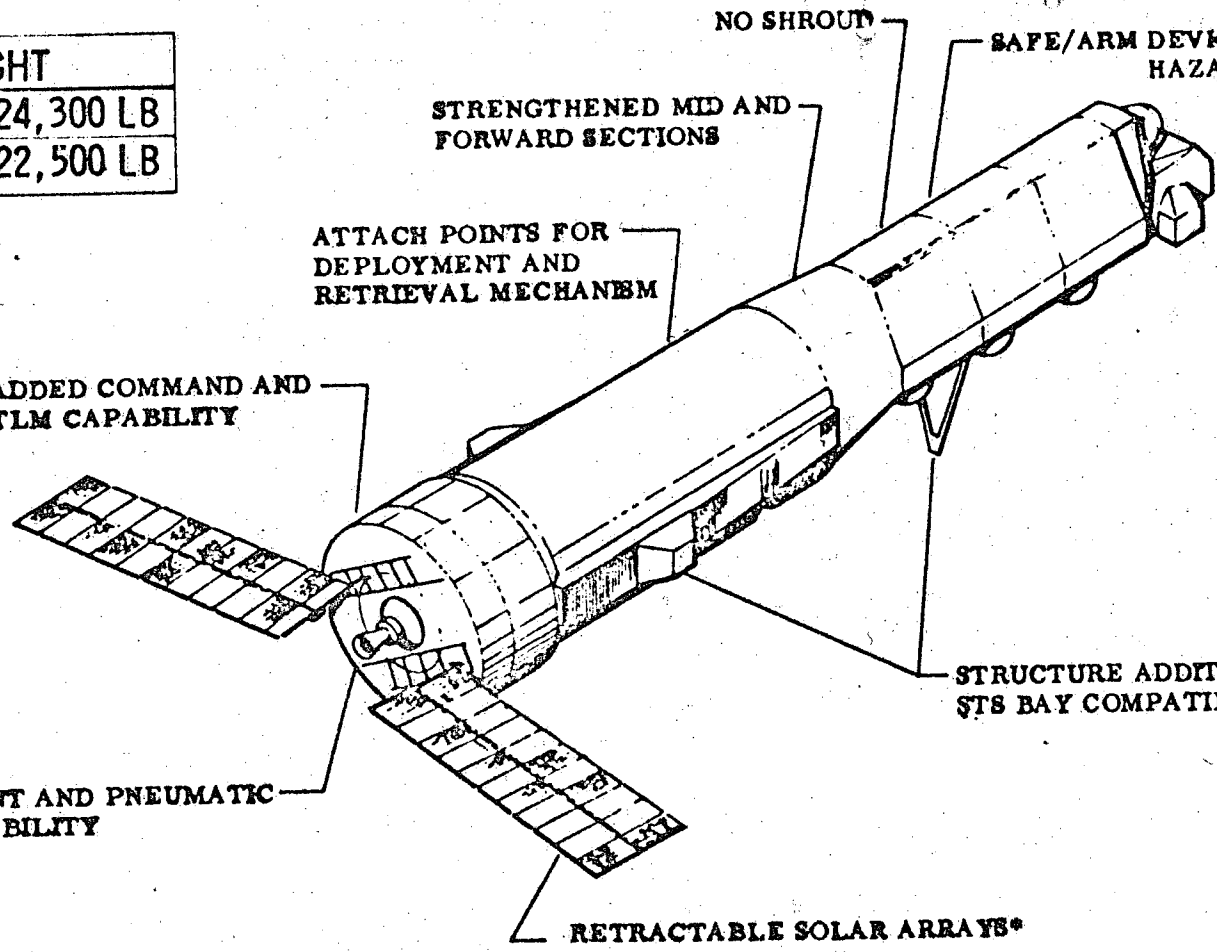
~~TOP SECRET~~ /H/

HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY

SAFSP

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*

~~SECRET~~/H

Handle Via BYEMAN Control System Only

(b)(1)
(b)(3)

SAFSP

SATELLITE VEHICLE - GENERAL

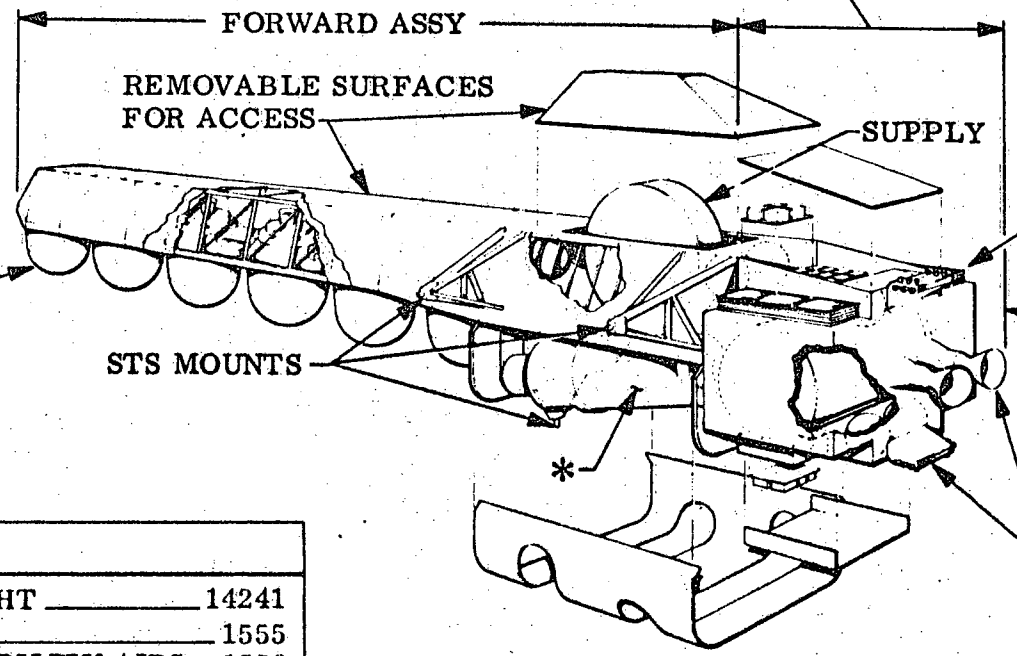
PERFORMANCE

ORBITAL LIFE
COVERAGE 36.0 M SQ N. M.
RESOLUTION 2.27 FT (NADIR)
PERIGEE RANGE 110-120 N. M.
LMSC EQUIPMENT REL. .85
TOTAL SV RELIABILITY .56

(b)(1)
(b)(3)

* OPTICAL BARS

	SV/STS	BLK III
FOCAL L.		
F NO.	2.6	3.0
FILM	SO 1414	SO 1414
LINES/MM	176	139



WEIGHTS (LB)	
SV & STS FIXED WEIGHT	14241
CONTINGENCY	1555
SUB SATS & SURVIVABILITY AIDS	1550
RVs & TAKEUPS	6240
FILM	2700
PROPELLANTS & GASES	7064
TOTAL	33,350

Handle Via BYEMAN
Control System Only

SAFSP

TECHNICAL CONCLUSIONS

- NO APPARENT OPERATIONAL OR PERFORMANCE IMPACT
- MODIFICATION OF SAFSP PHOTO AND SIGINT SYSTEMS IS TECHNICALLY FEASIBLE
- RETRIEVAL AND REFURBISHMENT OF PHOTO SYSTEMS IS POSSIBLE
- ON-ORBIT REPAIR AND RE-SUPPLY COMPLICATES DESIGN AND IS LESS COST EFFECTIVE THAN RETRIEVAL AND REFURBISHMENT

~~SECRET~~

HANDLE VIA BYEMAN CONTROL SYSTEM ONLY

(b)(1)
(b)(3)

SAFSP

SAFSP/STS TRANSITION - PHOTO SYSTEMS

74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91

STS

VAFB

HEXAGON — 2/YR — H^2 12 — 2/YR — H^3 18 — 2/YR — H^4 19, 24, 25, 26

MIN/MOD — T III-D — H^{4-M}

BLOCK CHANGE — H^5

GAMBIT — 3/YR — G^3 54, 55 — 3/YR - [redacted] — G^3 69

UPRATE AND STS — T III-D — G^4 70 — 2/YR - [redacted] — G^4

BLOCK CHANGE — G^5 1/YR — 12 MO

(b)(1)
(b)(3)

~~SECRET~~/G/H/[redacted]

HANDLE VIA BYEMAN CONTROL SYSTEM ONLY

SAFSP

COST STUDY CONCLUSIONS

- HIGH FRONT LOADING COSTS
- MODEST POTENTIAL SAVINGS BEGINNING IN LATE 80'S
- SAVINGS SENSITIVE TO REFURBISHMENT FACTOR

~~SECRET~~

HANDLE VIA BYEMAN CONTROL SYSTEM ONLY

(b)(1)
(b)(3)

SAFSP

CONCLUSIONS

- SAFSP SYSTEMS CAN BE MADE COMPATIBLE WITH STS OPERATIONS WITH NO APPARENT TECHNICAL OR OPERATIONAL IMPACT
- ONLY PHOTO SYSTEMS SUBJECT TO RETRIEVAL AND REFURBISHMENT
- ON-ORBIT REPAIR/RESUPPLY COMPLICATES DESIGN AND IS NOT COST EFFECTIVE
- COST SAVINGS MODEST AND SENSITIVE TO REFURBISHMENT FACTOR
- FRONT-LOADING COSTS AND MODEST POTENTIAL SAVINGS ECONOMICALLY UNATTRACTIVE TO SAFSP

~~SECRET~~

HANDLE VIA BYEMAN CONTROL SYSTEM ONLY

(b)(1)
(b)(3)