Bye 66584-67
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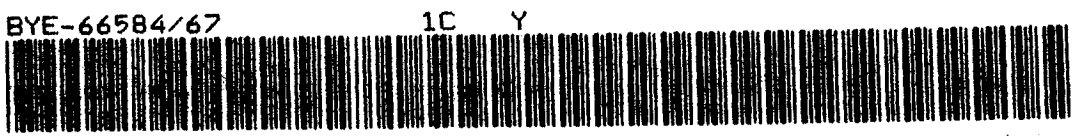
~~SECRET~~ SPECIAL HANDLING

P R O G R A M S T A T U S

~~SECRET~~ SPECIAL HANDLING

10 MAY 1967



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Handle via BYEMAN
Control System

TABLE OF CONTENTS

1

Byg GW584-67

FY 67 MILESTONES
SEGMENT CONTRACTORS

~~SECRET~~ SPECIAL HANDLING

DAC

o PART I CEI SPECS	99% COMPLETE
o CEI's FOR FACILITIES	100% COMPLETE
o MMFS FOR THERMAL TESTS	50% COMPLETE
o MMFS (38 INCH PARTIAL SECTION) ENGR TOOL	100% COMPLETE
o MMFS, MMAS ASSY TOOLS	75% COMPLETE
o COA FAB & ASSY TOOLS	100% COMPLETE
o AVE COMPONENT DEVEL TEST.	25% COMPLETE
o FIRST MMFS NON-PRIME STRUCTURE	100% COMPLETE

MAC

o RE-ENTRY VEHICLES	
GBQ DRAWING RELEASE	33% COMPLETE
AVE-2 DRAWING RELEASE	25% COMPLETE
o ADAPTER	
GBQ DRAWING RELEASE	33% COMPLETE
o CEI SPECIFICATIONS PART I	94% COMPLETE
o FACILITY CEI SPEC	100% COMPLETE
o G/B MASTER TOOL	100% COMPLETE
o ELECTRONIC SYSTEM TEST UNIT FAB	75% COMPLETE

GE

o AVE DESIGN RELEASE [redacted]	100% COMPLETE
o WOOD MOCK-UP ~~(103 & 104)~~	100% COMPLETE
o SIMULATOR FACILITY COMPLEX	100% COMPLETE
~~o MILESTONES 3 & 4 ON MDS SOFTWARE~~	~~100% COMPLETE~~
o STIMULUS MATERIAL GENERATOR	100% COMPLETE
o ELEMENTAL DEVELOPMENT SIMULATOR	100% COMPLETE

I-1026

~~SECRET~~ SPECIAL HANDLING

Handle via BYEMAN
Control System

Bye 66 584-6

FY 67 MILESTONES
SEGMENT CONTRACTORS

~~SECRET~~ SPECIAL HANDLING

DAC

o PART I CEI SPECS	99% COMPLETE
o CEI's FOR FACILITIES	100% COMPLETE
o MMFS FOR THERMAL TESTS	50% COMPLETE
o MMFS (38 INCH PARTIAL SECTION) ENGR TOOL	100% COMPLETE
o MMFS, MMAS ASSY TOOLS	75% COMPLETE
o COA FAB & ASSY TOOLS	100% COMPLETE
o AVE COMPONENT DEVEL TEST	25% COMPLETE
o FIRST MMFS NON-PRIME STRUCTURE	100% COMPLETE

MAC

o RE-ENTRY VEHICLES	
GBQ DRAWING RELEASE	33% COMPLETE
AVE-2 DRAWING RELEASE	25% COMPLETE
o ADAPTER	
GBQ DRAWING RELEASE	33% COMPLETE
o CEI SPECIFICATIONS PART I	94% COMPLETE
o FACILITY CEI SPEC	100% COMPLETE
o G/B MASTER TOOL	100% COMPLETE
o ELECTRONIC SYSTEM TEST UNIT FAB	75% COMPLETE

GE

o AVE DESIGN RELEASE	100% COMPLETE
o WOOD MOCK-UP	100% COMPLETE
o SIMULATOR FACILITY COMPLEX	100% COMPLETE
o STIMULUS MATERIAL GENERATOR	100% COMPLETE
o ELEMENTAL DEVELOPMENT SIMULATOR	100% COMPLETE

~~SECRET~~ SPECIAL HANDLING

Byf (66 584-6)

~~SECRET~~/SPECIAL HANDLING

EASTMAN KODAK STATUS
FY 67

AVE

- FULL SCALE MOCKUPS MMFS AND MMAS
- STATIC LOAD STRUCTURE FOR COA
- "RINGO" STRUCTURE AND MATE TO COA

AGE

- BREADBOARD OF HANDLING SYSTEM FOR OPTICAL PIECES
- TOTAL AGE 20% COMPLETE

TESTING

- DEFINED OPTICAL TESTS NECESSARY FOR DEVELOPMENT, ACCEPTANCE, & QUAL TESTING
- ACTIVATED LARGE GRINDING & POLISHING EQUIPMENT
- HORIZONTAL TESTING OF MASTER BLANKS

CONSTRUCTION

- UNEVACUATED OPTICAL TEST TOWERS ERECTED
- BLDG 101 FOR ENGR, POLISH, & TEST FULLY ENCLOSED
- ACOUSTIC TEST FACILITY STEEL FRAMEWORK ERECTED

Bye 6584-67

MAJOR SUBCONTRACTOR STATUS
AS OF 30 JUNE 1967

	STATUS
DAC	
5 MAJOR SUBCONTRACTORS	o PDR's COMPLETED (ALL 5 SUBS) o DEVELOPMENT TESTS STARTED (2 SUBS) o FIRST SET OF HARDWARE UNDER TEST (1 SUB)
MAC	
8 MAJOR SUBCONTRACTORS	o MAJOR VENDOR CONTRACTS PLACED (8 SUBS) o DESIGN & DEVELOPMENT COMPLETE (4 SUBS) o INITIATED FAB (3 SUBS)
GE	
9 MAJOR SUBCONTRACTORS	o GO AHEAD (9 SUBS) o PDR's COMPLETED (3 SUBS)

Byc 66584-67

MAJOR SUBCONTRACTOR STATUS (DAC)

SUBCONTRACTOR	PRODUCT	STATUS
HONEYWELL	ATTITUDE CONTROL/ TRANSLATION SYSTEM	PDR MARCH 1967
HAM.-STANDARD	ENVIRONMENTAL CONTROL SUBSYSTEM	PDR FEB 1967
		START DEVELOP - FEB 1967 MENT TESTS
IBM	DATA COMPUTATION SUBSYSTEM GROUP	PDR FEB 1967
COLLINS RADIO	COMMUNICATIONS SUBSYSTEM	PDR FEB 1967
		START TESTS FEB 1967 ON BREADBOARD UNITS
PRATT & WHITNEY	PRIMARY POWER SUBSYSTEM GROUP	PDR FEB 1967
		START APR 1967 OPERATION OF FIRST COMPLETE FUEL CELL POWER PLANT (200 HRS ACCOMPLISHED)

Bye 6684-67

MAJOR SUBCONTRACTOR (MAC)

SUBCONTRACTOR	PRODUCT	STATUS
THIOKOL	SEPARATION MOTORS RETRO ROCKETS	PDR FEB 1967 PDR FEB 1967
IBM	COMPUTER	STARTED FABRICATION
AIRESEARCH	ENVIRONMENTAL CONTROL SYSTEM	STARTED PROTOTYPE DEVELOPMENT TESTS
ELECTRO-MAGNETIC RESEARCH	DATA TRANSMISSION SYSTEM	INITIATED FAB OF DEVELOPMENT HARDWARE
COLLINS RADIO	VHF/HF TRANSCEIVERS	ACCOMPLISHED DESIGN AND DEVELOPMENT
ROCKETDYNE	RE-ENTRY CONTROL SYSTEM COMPS.	DETAIL DESIGN RVW MAR 67
HONEYWELL	INERTIAL MEASUREMENT UNIT	DESIGN AND DEVELOPMENT 60% COMPLETE
ENGR. MAGNETICS	STATIC POWER SUPPLY & COOLANT PUMP POWER INVERTER	INITIATED DESIGN & DEVELOP.
HONEYWELL	GUIDANCE INTERFACE ADAPTER	INITIATED FAB OF ESTU GIA
HONEYWELL	ATTITUDE CONTROL ELECTRONICS GROUP	INITIATED INTERFACE DESIGN & DEVELOPMENT

Bye 66584-67

~~SECRET~~/SPECIAL HANDLING

MAJOR SUBCONTRACTOR STATUS (GE)

SUBCONTRACTOR	PRODUCT	STATUS	
VECTOR	PULSE CODE MODULATION TELEMETER	GO AHEAD	JAN 67
HONEYWELL	RATE GYRO	PDR	JUN 67
BELL	LOW G ACCELEROMETER	GO AHEAD	JUN 67
KOLLSMAN	STAR TRACKER	PDR	JUN 67
ASD	MOL CITE	PDR	MAY 67
RAYTHEON	MISSION DATA ADAPTER UNIT	GO AHEAD	JAN 67
T.B.D.	BERYLLIUM GIMBAL	GO AHEAD	MAY 67
ITEK	ACQUISITION OPTICS	GO AHEAD	JAN 67
T.B.D.	ENCODER	GO AHEAD	MAY 67

L-1826

Byeman 6584-67

PDR STATUS
SEGMENT CONTRACTORS

DAC	CUM FY 67 (C)	CUM FY 68
AVE	20	26
AGE	57	87
MISSION SIMULATOR	4	4
INTERFACE SUBS	11	11
MAC		
AVE	2	2
AGE	7	7
SUBSTITUTES	3	3
GBPS COMPUTER PGM	0	1
GE		
AVE	2	11
AGE	14	22
MISSION SIMULATOR	1	3
TOTAL	121	177
PERCENT COMPLETE	68%	

Byeman 4-67

CDR STATUS
SEGMENT CONTRACTORS

DAC	CUM 67 (C)	CUM 68	CUM 69
AVE	0	3	22
AGE	4	54	81
MISSION SIMULATOR	1	2	3
INTERFACE SUBS	3	11	11
MAC			
AVE	0	2	4
AGE	0	7	7
SUBSTITUTES	0	3	3
GBPS COMPUTER PGM	0	0	1
GE			
AVE	0	5	11
AGE	0	14	19
MISSION SIMULATOR	0	0	3
TOTAL	8	101	165
PERCENT COMPLETE	5%		

Byeman 66584-67

FY 68 MILESTONES
SEGMENT CONTRACTORS

~~SECRET~~ SPECIAL HANDLING

DAC

- CDR MISSION MODULE
- START FAB LM STRUCTURE
- DELIVERIES
  - SIX MAJOR INTERFACE SUBSTITUTES
  - MMFS FOR STV
  - SIX COMPUTER PROGRAMS
  - AVE DIGITAL COMPUTER FOR DEV TEST

MAC

- CDR GBQ, AVE-2, (STRUCTURE), AGE
- COMP FAB ELECTRONIC SYSTEMS TEST UNIT
- START FAB ADAPTER STRUCTURAL DYNAMICS TEST UNIT
- DELIVER EXTERNAL CREW TRANSFER MOCK-UP & INGRESS/EGRESS TRAINER

GE

- CDR MOL COMPUTER INTEGRATED TEST EQUIPMENT
- METAL MOCK-UP COMPLETED
- COMPONENT DEV MODEL PROCURED AND FABRICATED (DC-1)
- START ASSY OF S/SYS DEV MODEL (DSS-1), STRUCT. TEST VEH (113D) AND STRUCT. TEST VEH (113T)

~~SECRET~~ SPECIAL HANDLING

Bye 66584-67

~~SECRET~~/SPECIAL HANDLING

EASTMAN KODAK

FY 68

FORMULA SAMPLE COMPLETE

BLDG 101 FACILITY OPEN "GATES"

ALL TEST PIECES OF GLASS FINISHED

BLDG 601 ENGINEERING TOWERS (UNEVACUATED) IN OPERATION

~~SECRET~~/SPECIAL HANDLING

L-1026

Byeman 66584-67
SS

FY 69 MAJOR MILESTONES
SEGMENT CONTRACTORS

~~SECRET~~ SPECIAL HANDLING

DAC

- o CDR 117 COMPLETED OUT OF 123 TOTAL
- o ASSEMBLE STRUCTURAL TEST VEHICLE
- o COMPLETE MODAL SURVEY
- o MODIFY SACTO FACILITIES
- o START HARDWARE & SOFTWARE DEV TESTS FOR MISSION SIMULATOR
- o START BUILDUP OF ELECTRONIC DEVELOPMENT COMPATIBILITY TEST UNIT
- o START FAB & ASSY OF AGE FOR PRODUCTION, SPACE CHAMBER AND VAFB

MAC

- o DELIVER
  ADAPTER STRUCTURAL DYNAMICS TEST UNIT & ADAPTER EQUIP. SECTION TO DAC
  G/B LAB ELECTRICAL INTERFACE SUBSTITUTE TO DAC
  BOILERPLATE RE-ENTRY SECTION STRUCTURAL UNIT TO DAC
  THERMO-MECH INTERFACE SUBSTITUTE TO DAC
  GEMINI B ELECTRICAL SUBSTITUTE TO MMC
- o CDR GBQ (EQUIPMENT), AVE-2 (EQUIPMENT)
- o COMPLETE
  MAJOR ASSEMBLY GBQ
  ASSEMBLY & CHECKOUT TEST ARTICLES
  ELECTRONIC SYSTEM TEST
- o START
  FINAL ASSEMBLY GBQ
  MAJOR ASSEMBLY AVE-2

GE

- o CDR ALL COMPLETED
- o COMPLETE TESTS OF COMPONENT DEV MODEL, S/SYS DEV MODEL (N&C) (CC&I)
- o PROCURE & FAB COMPONENT QUAL MODEL
- o COMPLETE ASSY & TEST OF STV (113D), THERMAL (113T) & SYS DEV TEST VEH (114)
- o START ASSY OF SYSTEM QUAL VEHICLE (115)

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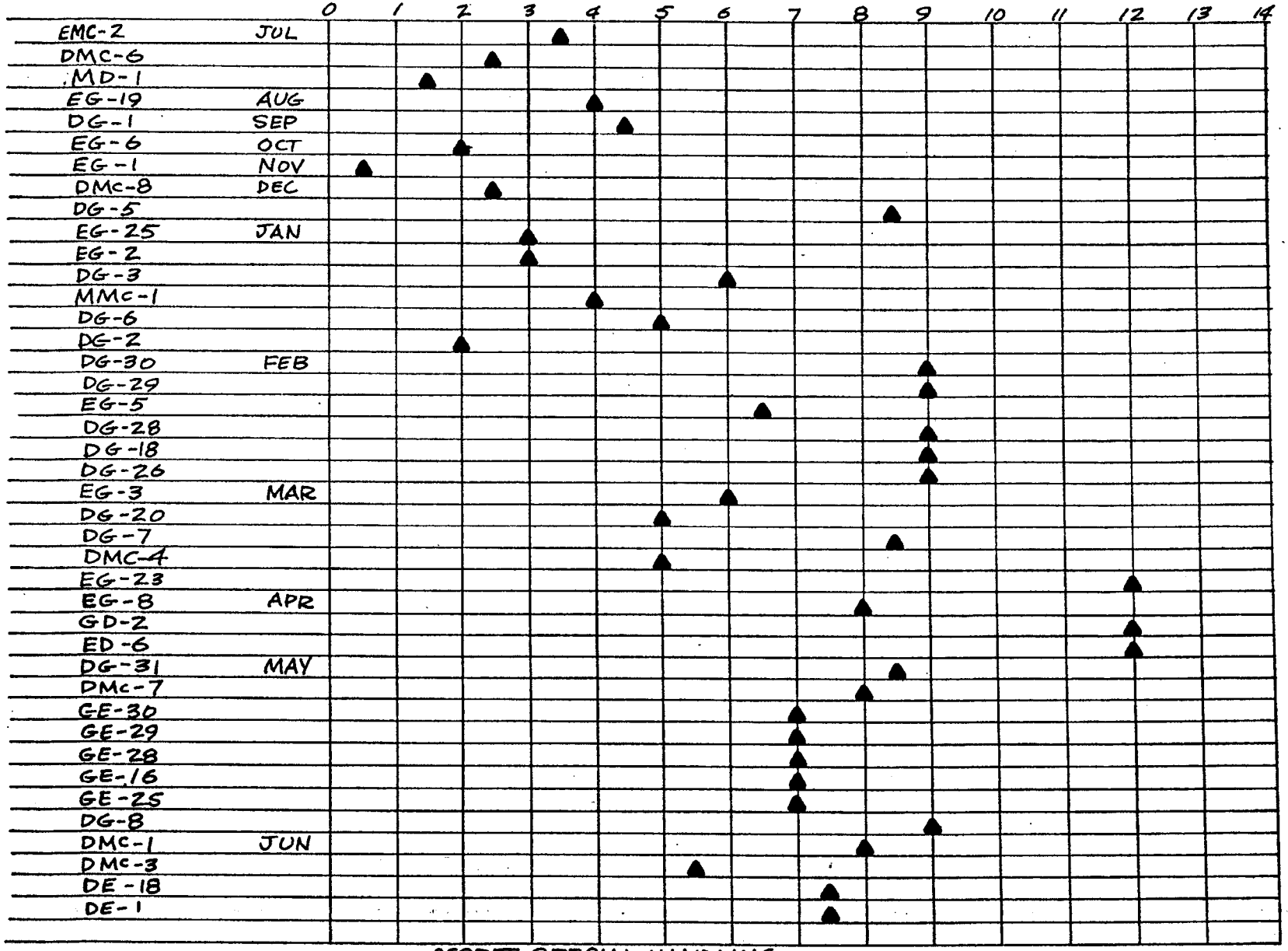
Byg 6584-67

HARDWARE EXCHANGE FY 1968



~~SECRET~~ SPECIAL HANDLING

Handle via BYEMAN Control System

TITLE: SPECIAL MOL MANAGEMENT MEETING

BRIEFER: COL F W KNISS

LOCATION: HQ USAF

ATTENDING: DR A FLAX
GEN FERGUSON
M/GEN BLEYMAIER
COL HERAN

DATE: 11 MAY 1967

TITAN-III BRIEFING OUTLINE

1. FY 67 ACCOMPLISHMENTS - FY 68-69 MILESTONES
   - A. MARTIN-MARIETTA CORPORATION
   - B. AEROJET GENERAL CORPORATION
   - C. AC ELECTRONICS
   - D. UNITED TECHNOLOGY CENTER
2. CURRENT FUNDING STATUS
3. PROGRAM COMPARISON - BASELINE, CASE 2 AND CASE 4
   - A. MANPOWER
   - B. FUNDING
4. MAJOR SUBCONTRACTOR FUNDING (BASELINE VS CASE 4)
5. ACTIONS TAKEN TO REDUCE FY 68 FUNDING & MINIMIZE SCHEDULE SLIPPAGE
6. SUMMARY/CONCLUSIONS
   - A. SUMMARY FUNDING REQUIREMENTS
   - B. SUMMARY NARRATIVE
7. RECOMMENDATIONS

PROGRAM SCHEDULE

TITAN IIIM	MARTIN MARIETTA CORPORATION
	STG-1&2-A/B-AGE - TOTAL ACTIVATION

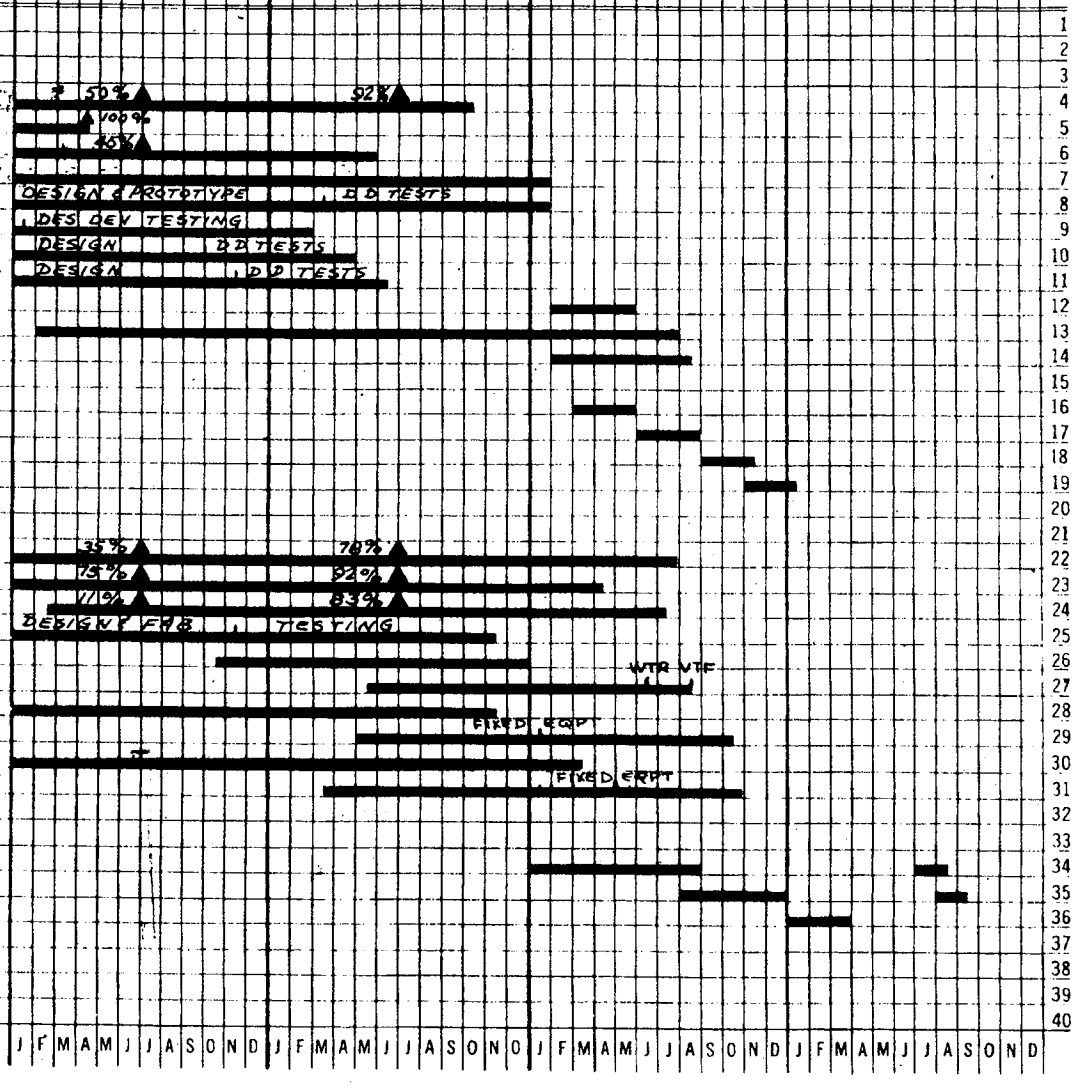
CASE 4

FY 67 | FY 68 | FY 69 | FY 70 | FY 71

CY67 | CY68 | CY 69 | CY 70

J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D

1	PHASE II START - JANUARY 1966	
2		
3	AIRBORNE	
4	ENGINEERING	*
5	PDR	
6	CDR	
7	COMPONENT DEVELOPMENT	*
8	COMPUTER	
9	ACTUATORS	
10	TARS	*
11	STATIC INVERTER	*
12	CONTROLS MOCK UP	
13	DESIGN ASSURANCE	*
14	STRUCTURAL TESTS	
15	FABRICATION	
16	FIRST ARTICLE MAJOR WELD	
17	FIRST ARTICLE FINAL ASSEMBLY	
18	ACCEPTANCE TESTS (VTF)	
19	PACK FOR SHIP	
20		
21	AGE/GIE	
22	ENGINEERING	*
23	PDR	
24	CDR	
25	CAGE & ASSOC. CEI'S PROTOTYPE	*
26	DES. REL.	
27	FABRICATION	
28	GIE & OTHER ELEC. CEI'S DES. REL.	*
29	FABRICATION	
30	STRUCT./MECH. CEI'S DES. REL.	*
31	FABRICATION	
32		
33	ACTIVATION	
34	INSTALLATIONS	
35	GROUND SYSTEMS TESTS	
36	INTEGRATED SYSTEMS TESTS	
37		
38	LAUNCHES	
39		
40		

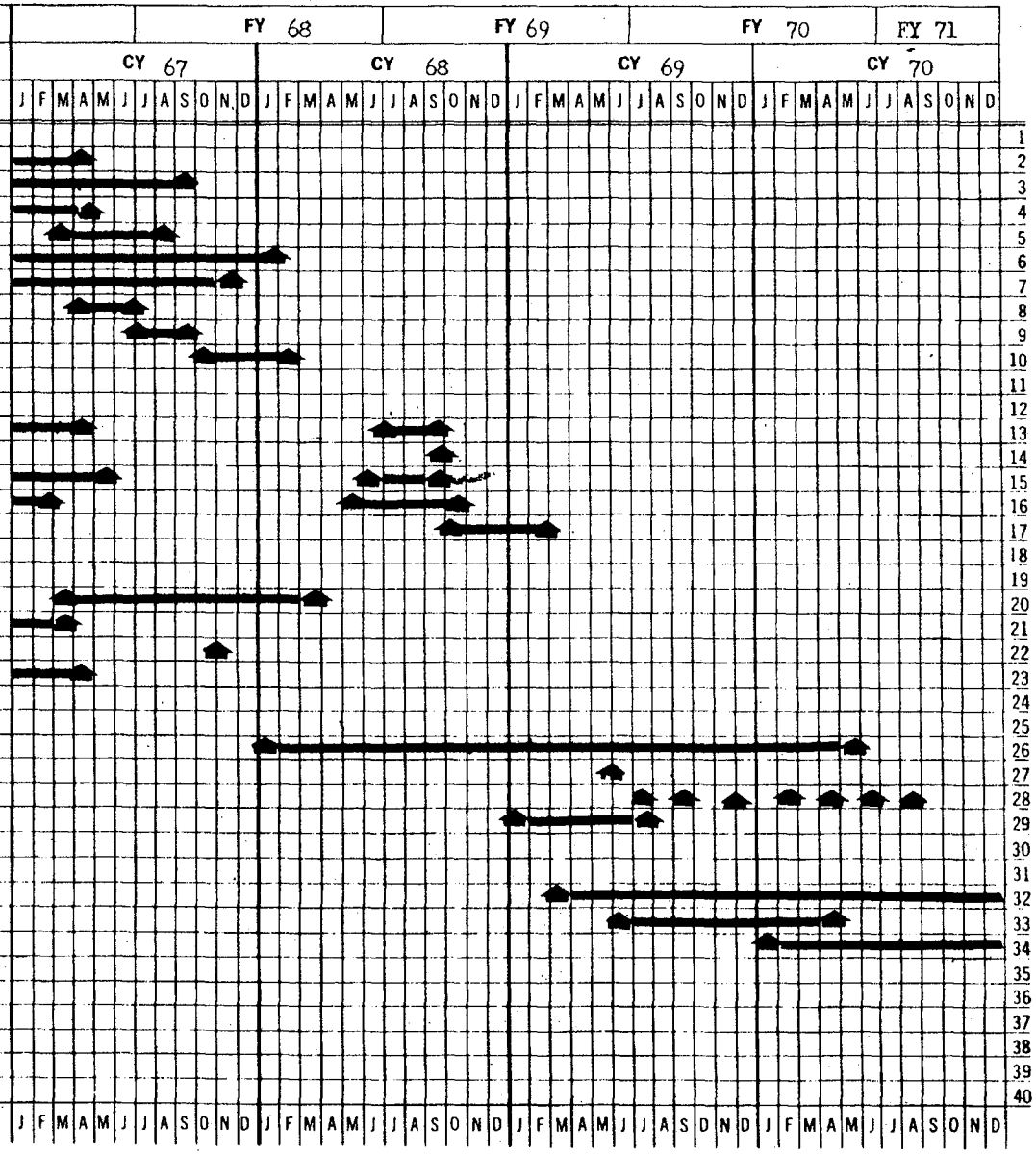


AEROSPACE FORM 2030 VELLUM 2030W BOND

* Developments which also support B,C,D Programs

PROGRAM SCHEDULE

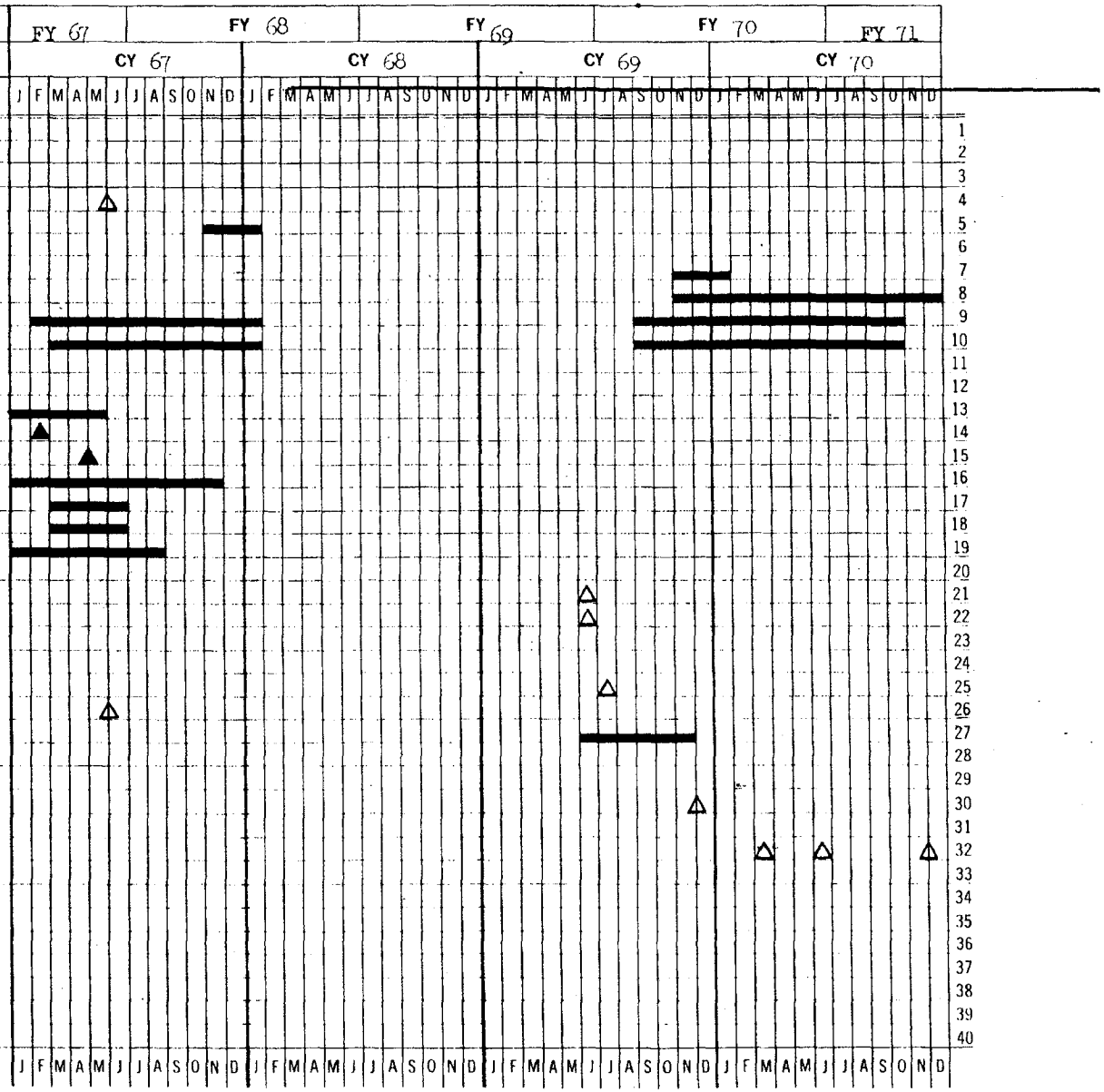
Titan IIIM — AEROJET-GENERAL CORP — CASE 4



	(15:1 ON SCHEDULE)	FY 67
1	STAGE I DEVELOPMENT*	
2	TCA-DEVEL	100
3	TPA DEVEL	75
4	PDR	100
5	CDR	70
6	SPECIFICATIONS	80
7	HARDWARE FABRICATION	60
8	TCA VERIF. TESTS	100
9	ENGINE VERIF. TESTS	0
10	ENGINE DEMONSTRATION	0
11		
12	STAGE II DEVELOPMENT	
13	COMPONENT DEVEL	80
14	CDR	0
15	SPECIFICATIONS	80
16	HARDWARE FABRICATION	10
17	ENGINE DEMONSTRATION	0
18		
19	AGE*	
20	DEVELOPMENT	20
21	PDR	100
22	CDR	0
23	SPECIFICATIONS	100
24		
25	PRODUCTION	
26	FABRICATION	0
27	ENGINE FACI	0
28	ENGINE DELIVERY	0
29	AGE DELIVERY	0
30		
31	FIELD SUPPORT	
32	DENVER	0
33	WTR ACTIVATION	0
34	WTR OPERATIONS	0
35		
36	*DEVELOPMENT SUPPORT	
37	FOR B, C, D PROGRAMS	
38		
39		
40		

PROGRAM SCHEDULE

TITAN IIIM	AC ELECTRONICS DIV OF GMC
	STG-1&2-A/B-AGE-Total Activation



PROGRAM SCHEDULE

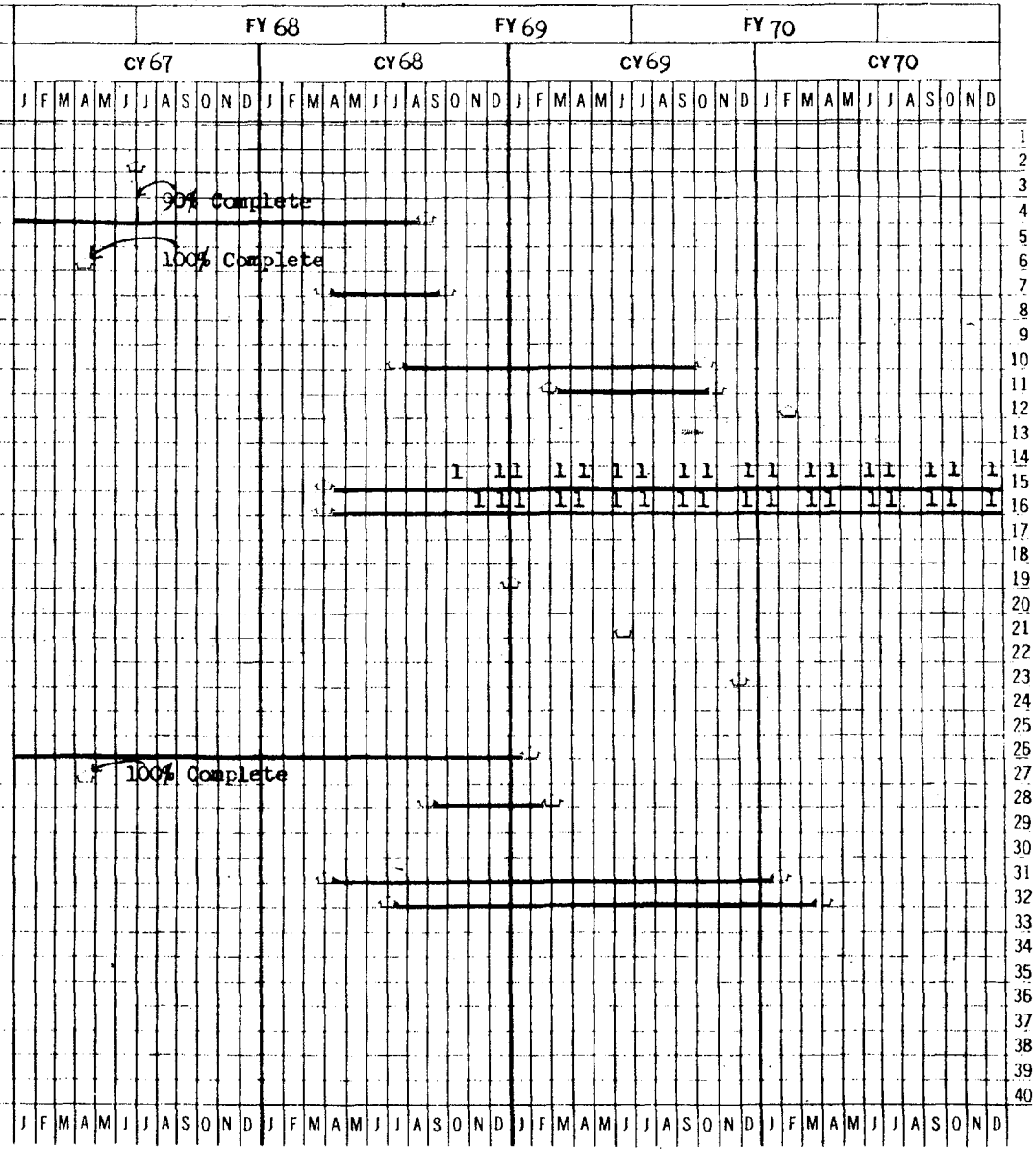
8 May 67

TITAN III M

UNITED TECHNOLOGY CENTER

STAGE "O"

CASE 4



AEROSPACE FORM 2030 VELLUM
2030W BOND

PHASE II FUND UTILIZATION

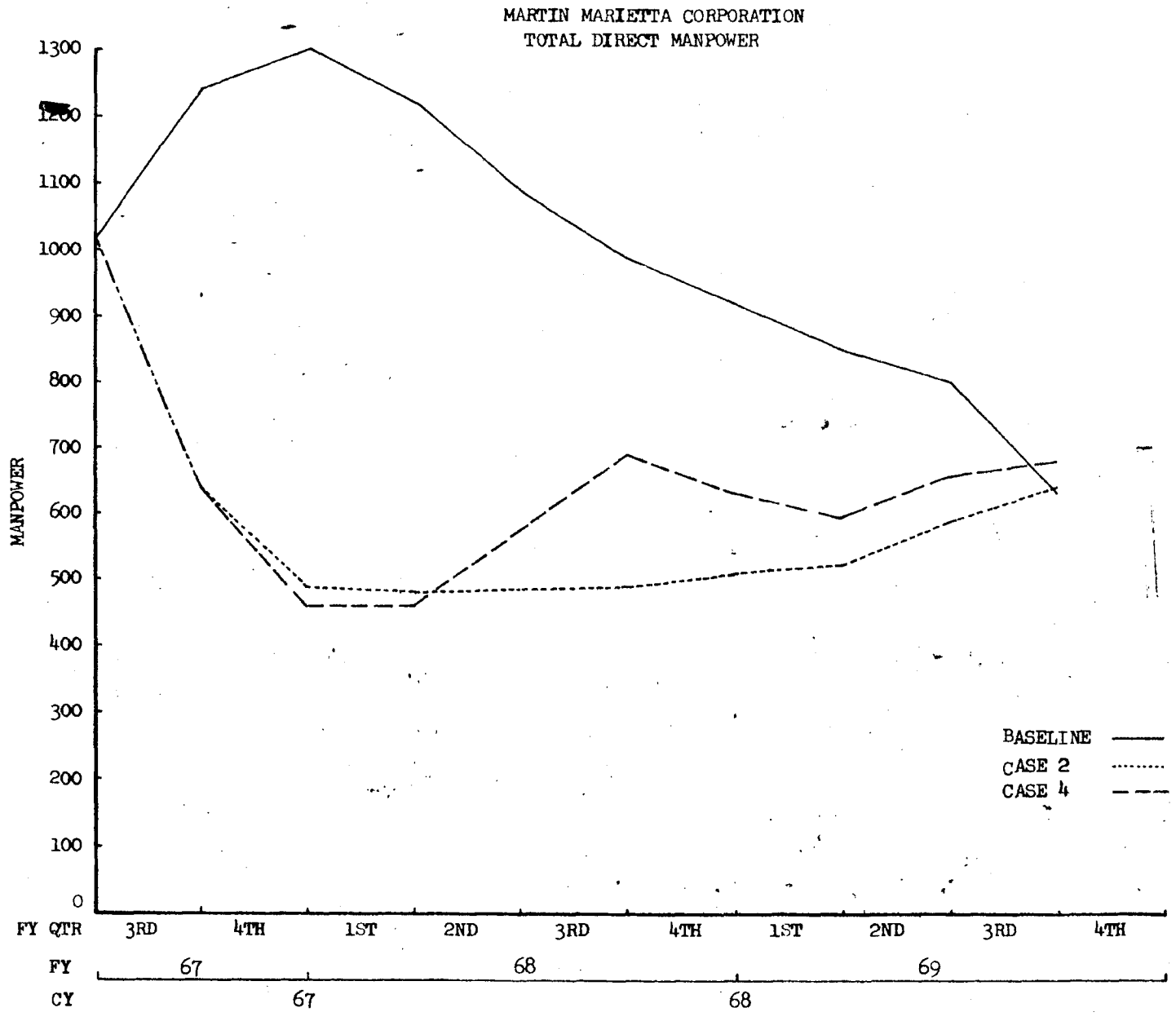
(632A Funds)

* APPROVED FUNDING $ 43.22

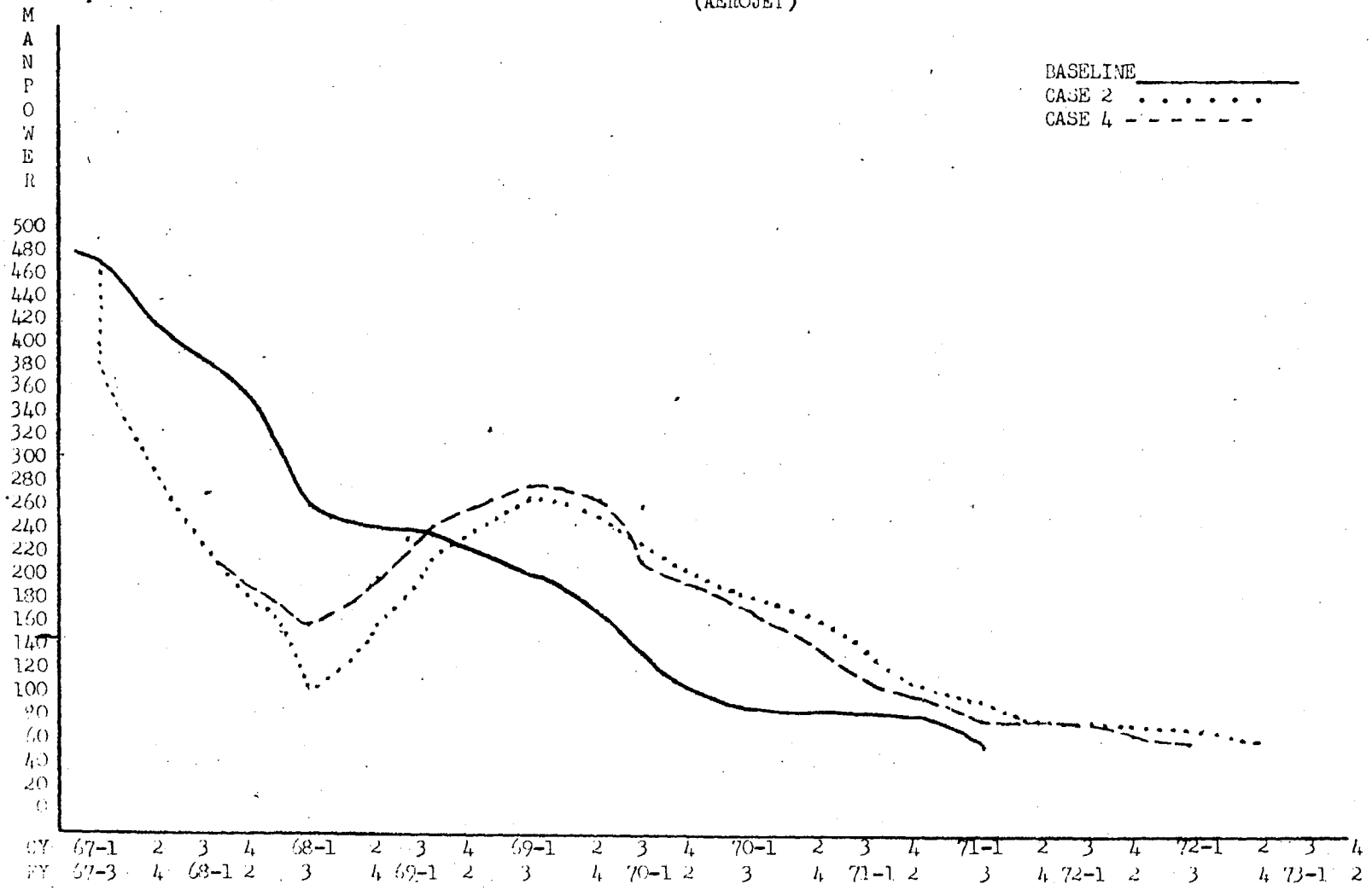
* FUNDS RELEASED $ 40.00

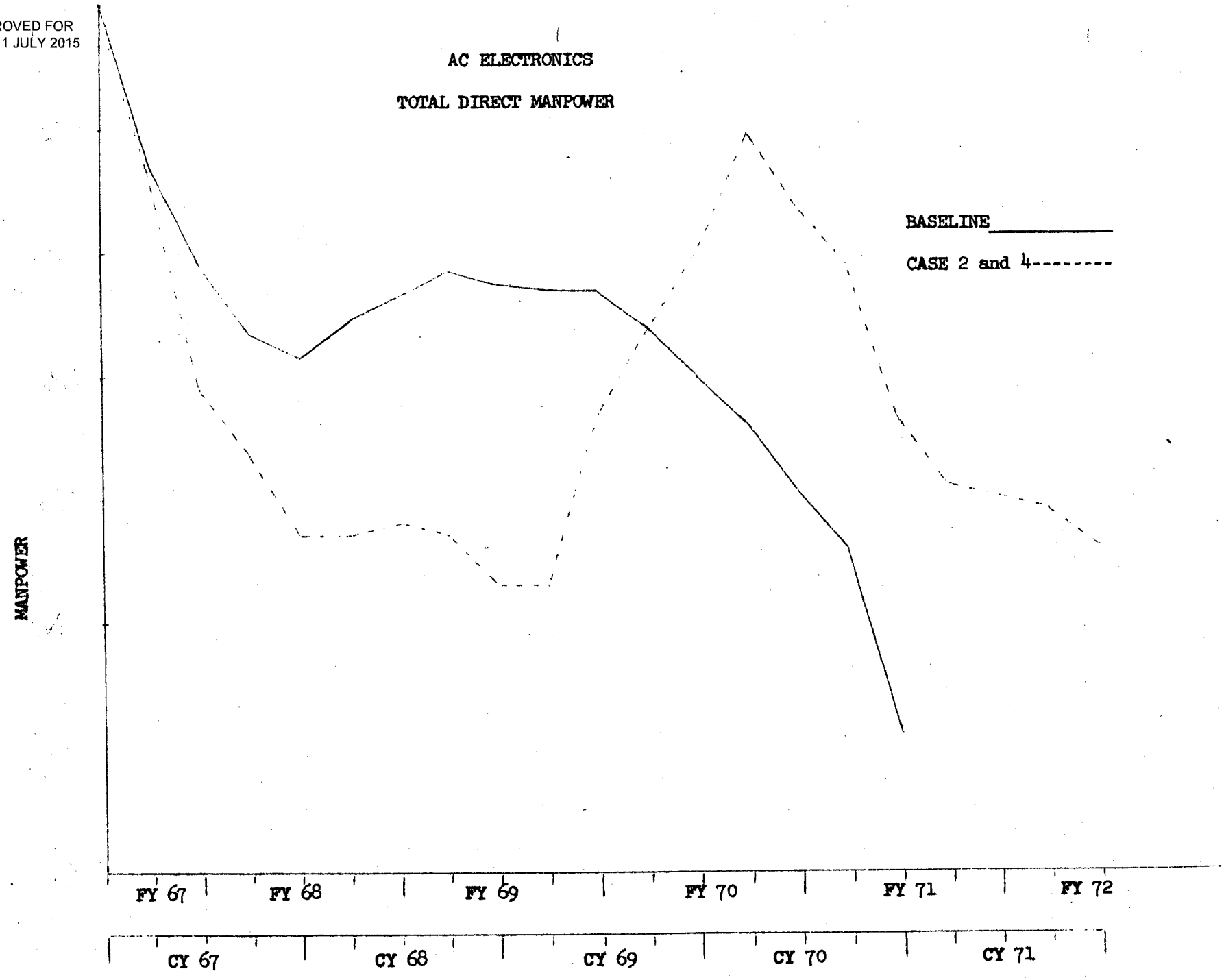
* FUNDS UTILIZED

EFFORT	FUNDS INITIATED	TO BE INITIATED	TOTAL
MARTIN - AIRFRAME	$ 17.28	$ 1.52	$ 18.80
UTC - SOLID MOTORS	5.90	-0-	5.90
AEROJET - LIQUID ENGINES	4.89	1.31	6.20
A.C. ELECTRONICS - GUIDANCE	9.07	-0-	9.07
AEROSPACE - SE & TD	2.70	-0-	2.70
NON-ASSOCIATE - MISCE	.16	.39	.55
TOTAL	$ 40.00	$ 3.22	$ 43.22



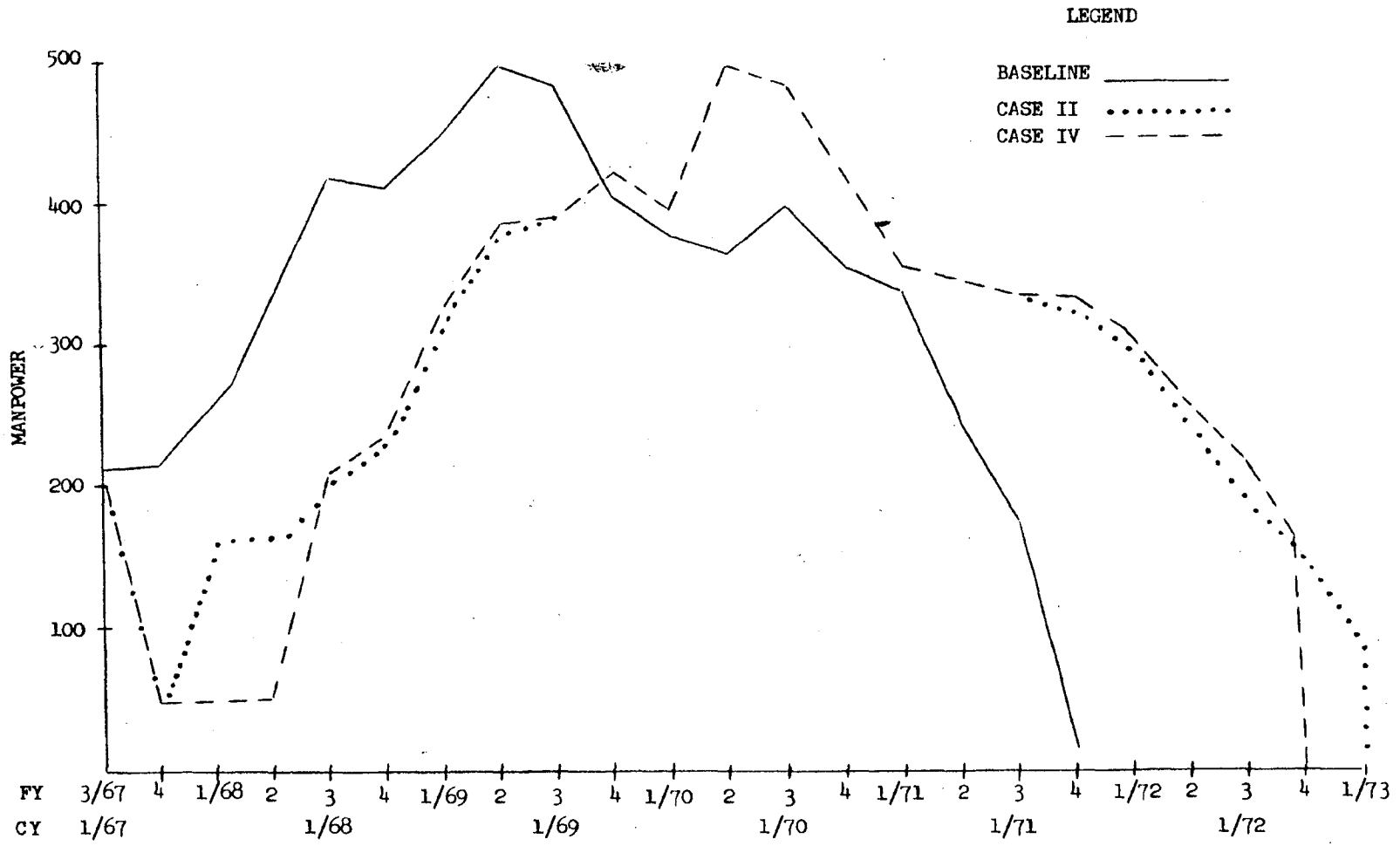
TOTAL DIRECT MANPOWER
(AEROJET)

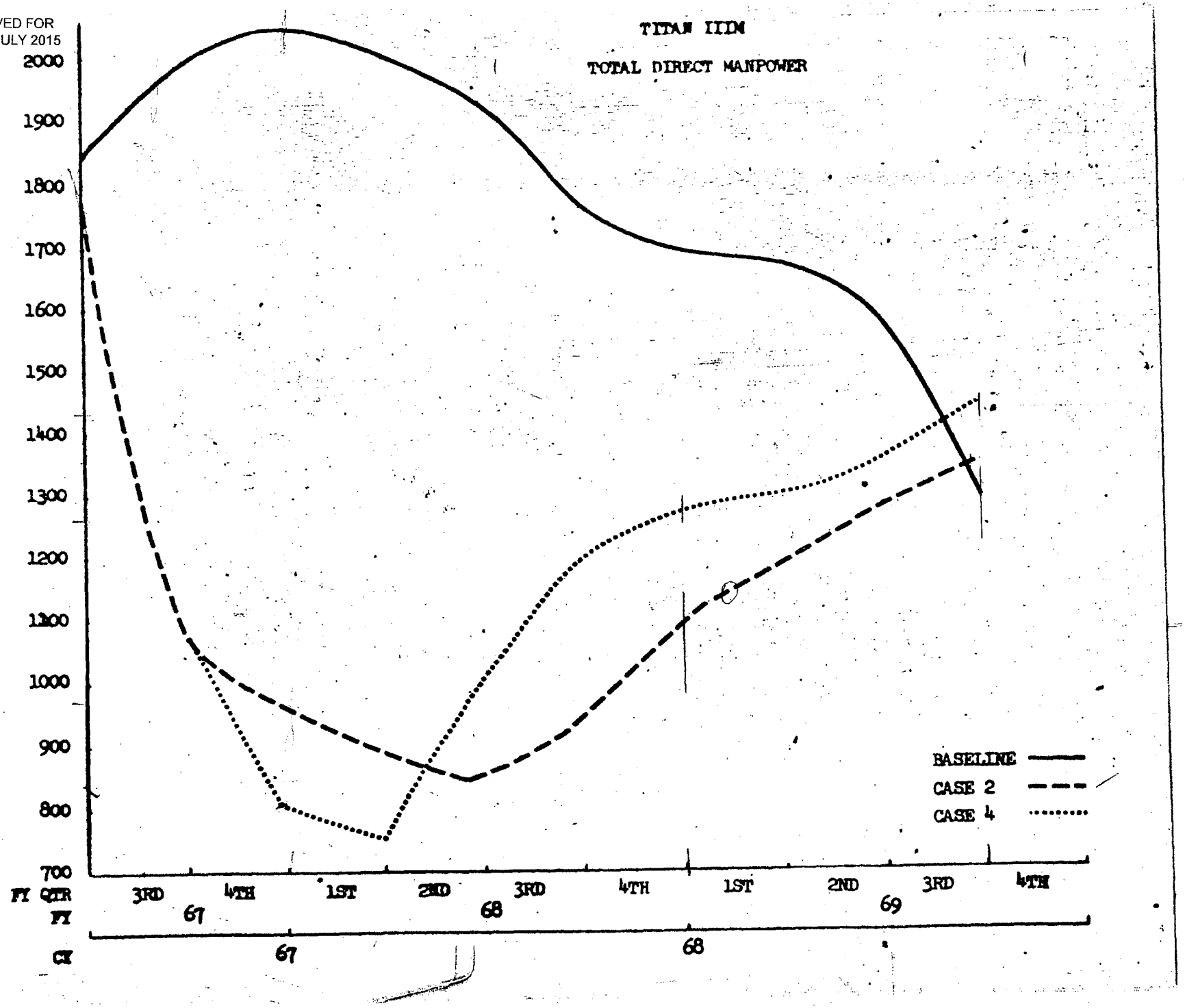


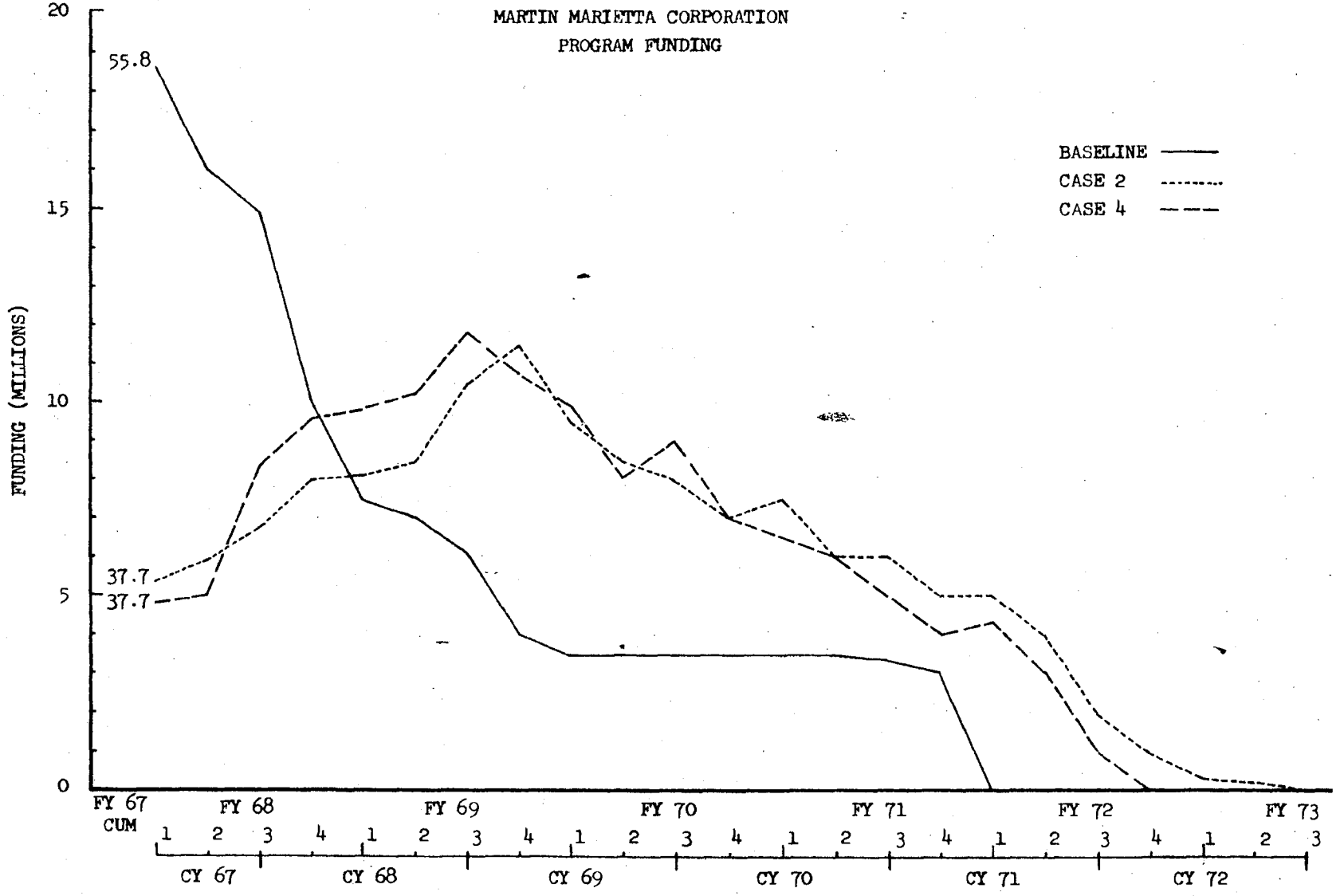


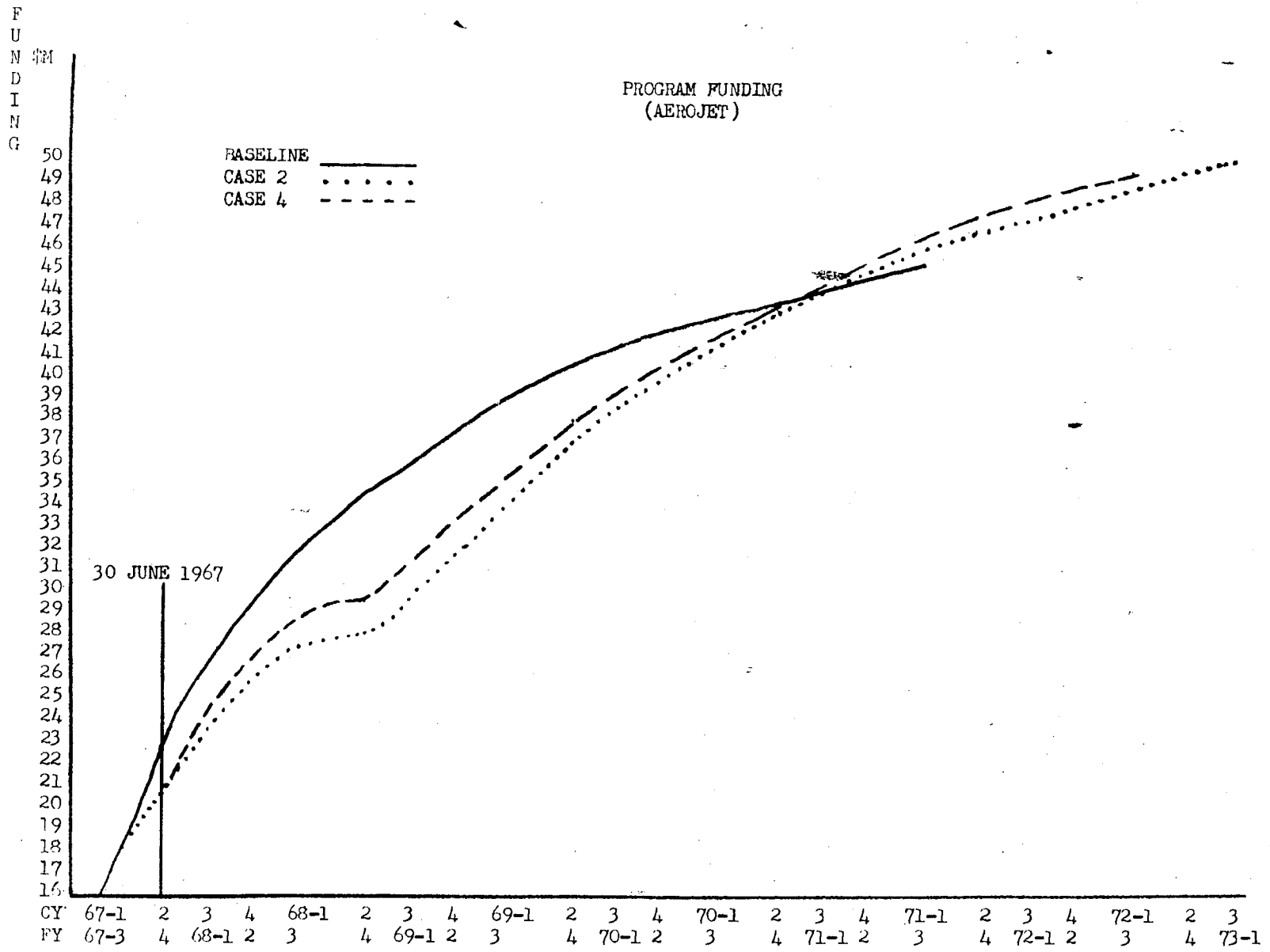
UNITED TECHNOLOGY CENTER

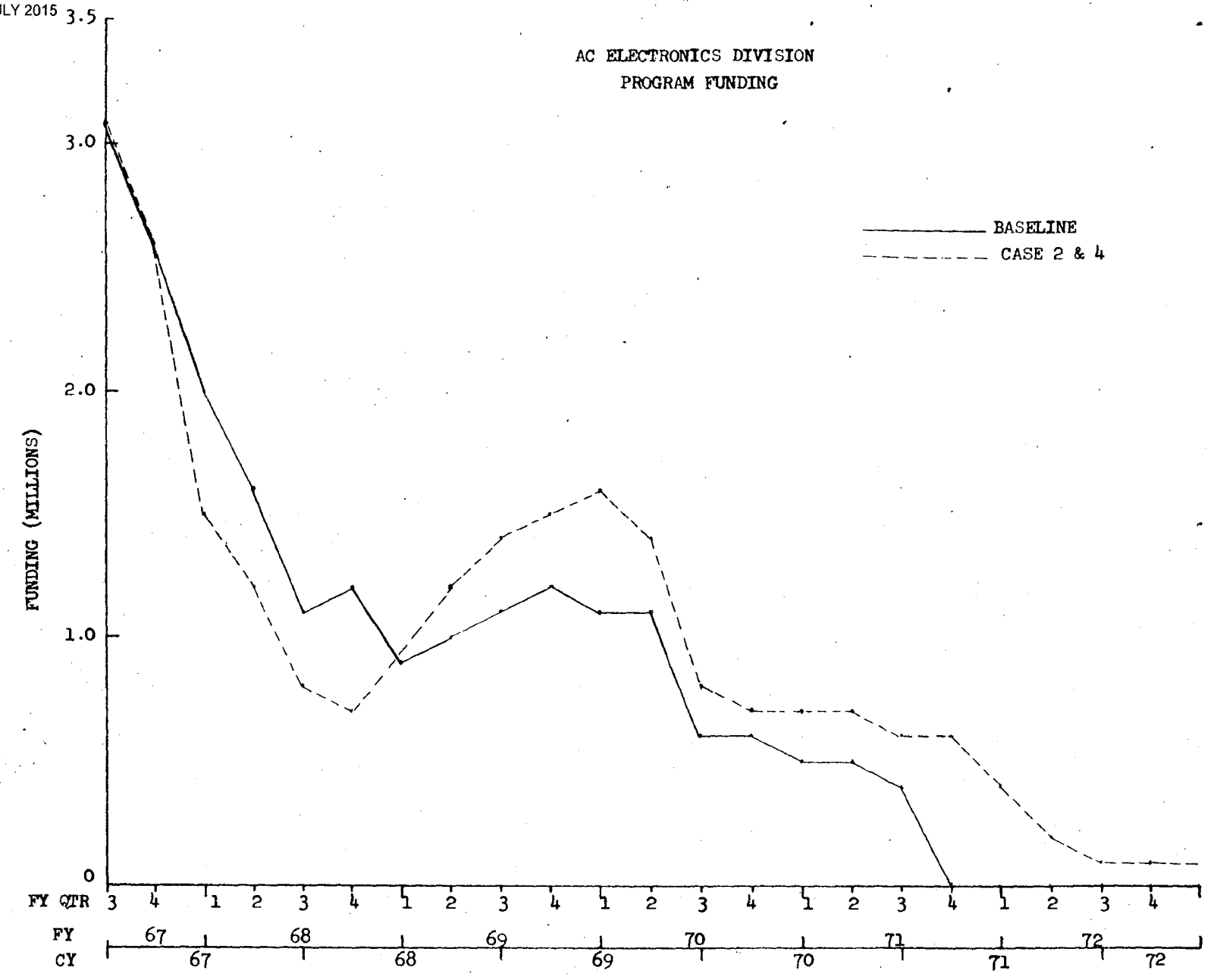
TOTAL DIRECT MANPOWER

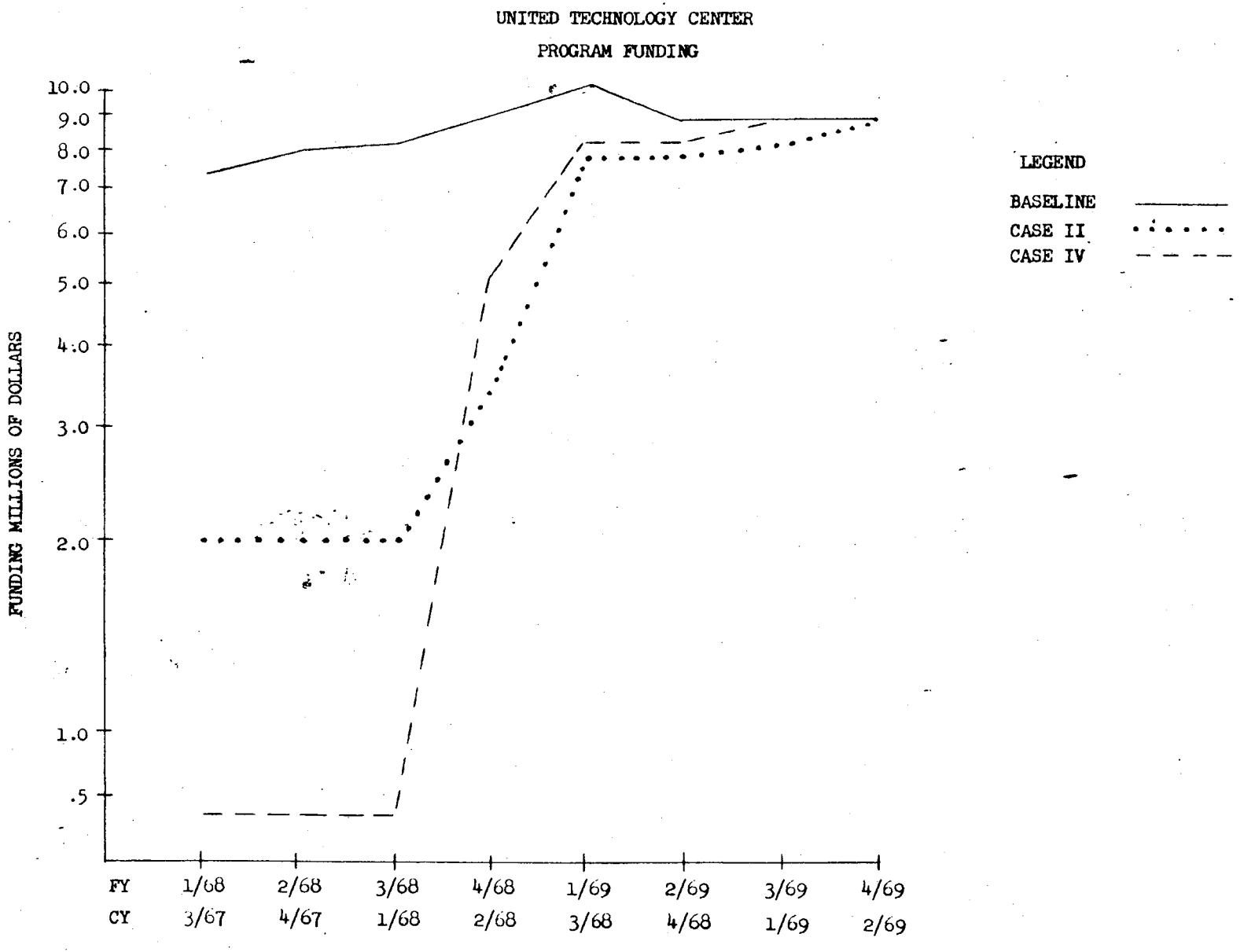












MARTIN MARIETTA CORPORATION

MAJOR SUBCONTRACTOR FUNDING

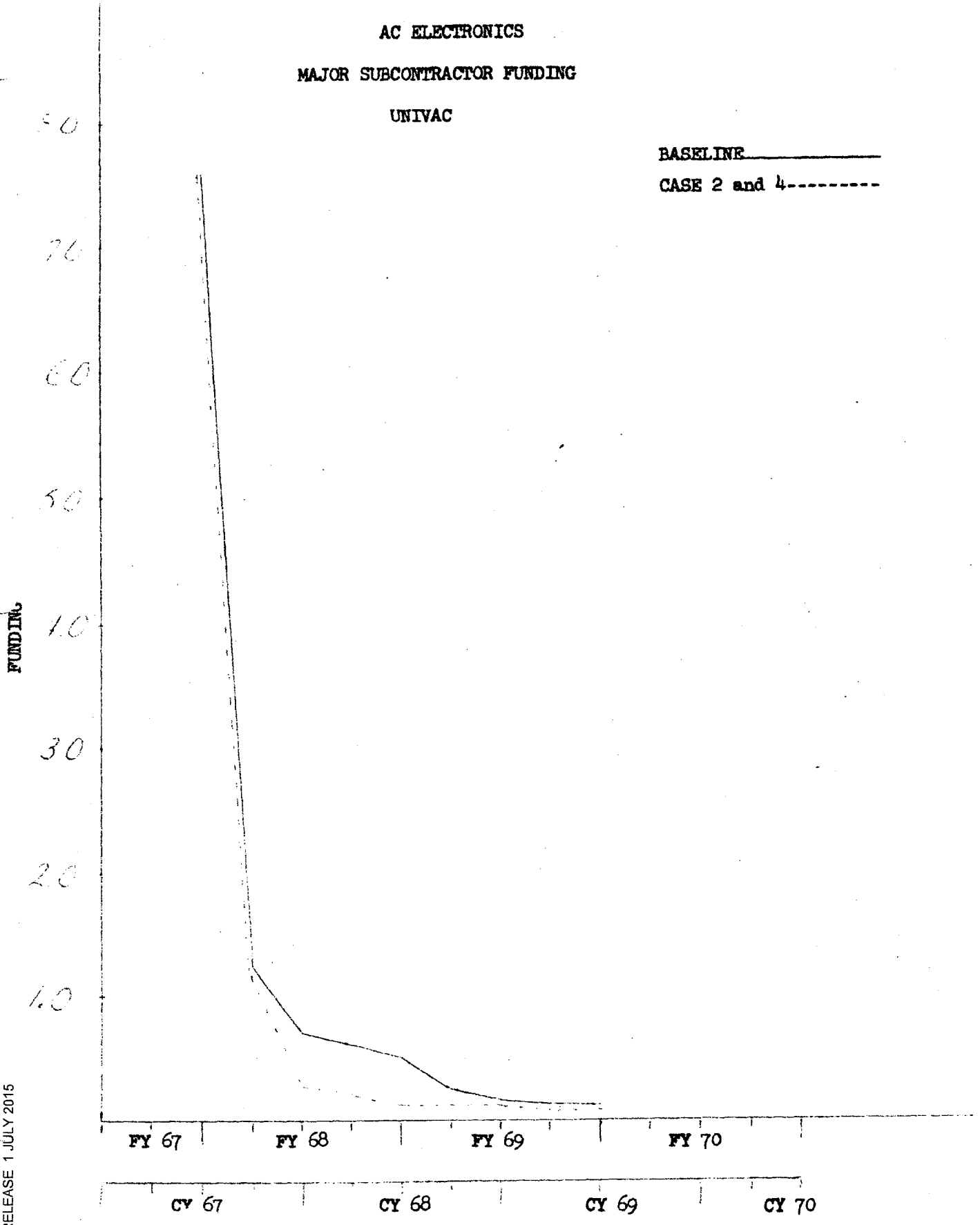
CASE 4 (DOLLARS IN THOUSANDS)

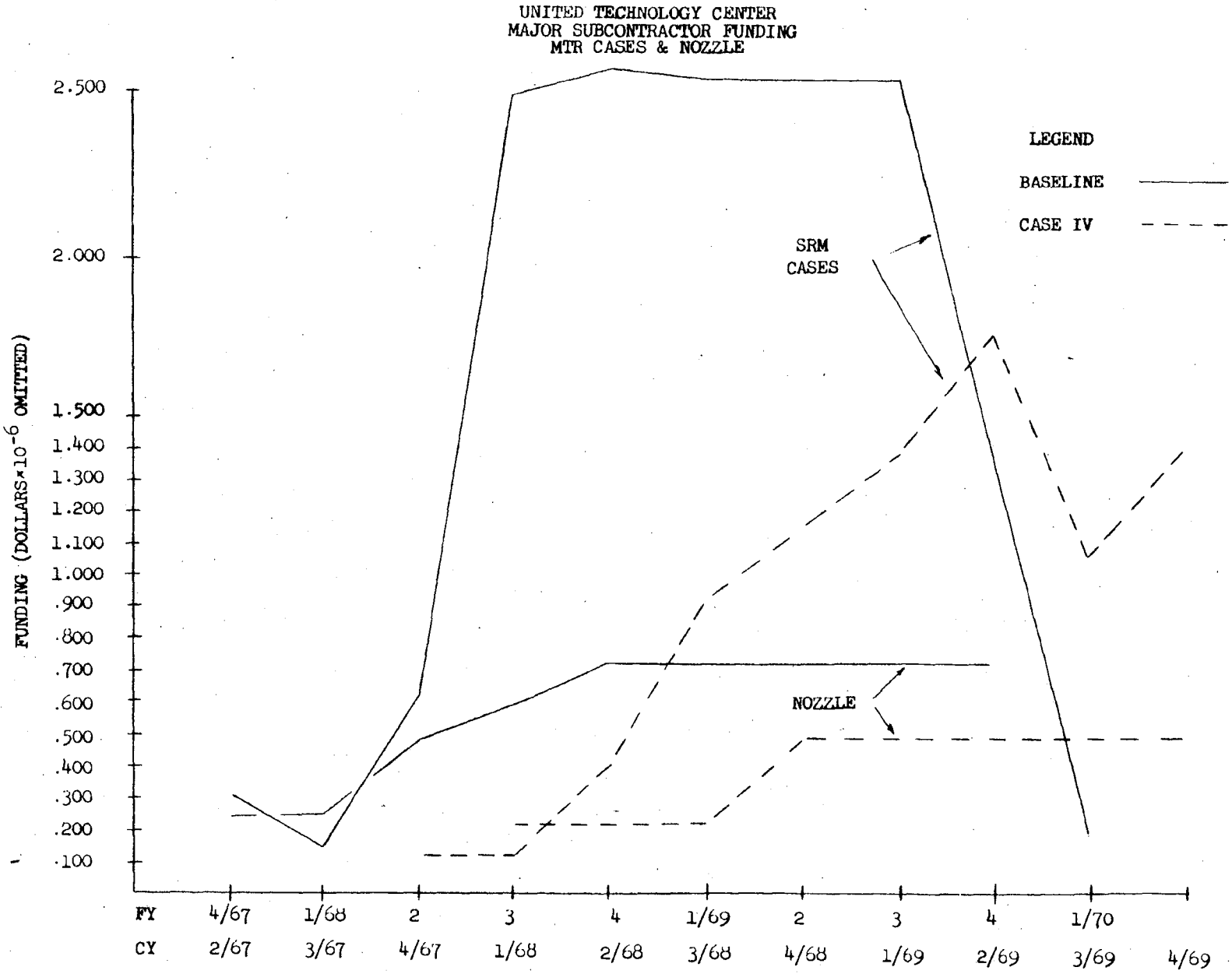
	CUM	FISCAL YEAR 1968				FISCAL YEAR 1969			
	FY 67	1ST QTR	2ND QTR	3RD QTR	4TH QTR	1ST QTR	2ND QTR	3RD QTR	4TH QTR
CAGE	380.0	$1,810.0	0	0	0	$1,510.0	0	0	0
MOOG	290.6	0	355.0	303.0	125.3	123.0	95.0	153.0	255.0
OTHER	0	150.0	79.0	112.0	40.0	20.0	20.0	48.0	0
TOTAL	670.6	1,960.0	434.0	415.0	165.3	1,653.0	115.0	201.0	255.0

AC ELECTRONICS

MAJOR SUBCONTRACTOR FUNDING

UNIVAC





~~CONFIDENTIAL~~

COMMITMENT FUNDING

(CASE 4)

	FY67	FY68				FY69				FY70	FY71	FY72	TOTAL*
		1Qtr	2Qtr	3Qtr	4Qtr	1Qtr	2Qtr	3Qtr	4Qtr				
AIRFRAME	37.7	4.8	5.0	8.3	9.6	9.8	10.2	11.8	10.7	33.9	21.5	8.3	171.6
SOLID MOTORS	11.8	.3	.3	.3	5.1	7.5	8.0	9.0	9.0	37.5	24.0	4.0	116.8
GUIDANCE	9.2	1.5	1.2	.8	.7	.9	1.2	1.4	1.5	4.5	2.6	.8	26.3
LIQUID ENGINES	20.4	3.1	3.0	1.9	.6	2.0	2.2	2.4	2.0	5.2	4.4	2.1	49.3
SE & TD	2.7	.7	.7	.8	.8	.8	.8	.7	.7	3.0	3.0	2.5	17.2
NON ASSOC CONTR	2.5												2.5
PROPELLANTS	-0-			1.0	1.0	1.2	1.2	1.2	1.1	1.1	.5	.3	8.6
IND FACILITIES	.8			.2	.3								1.3
SPARES	.3	.3		.5	.5	1.0	1.0	1.0	1.0	3.0	.4		9.0
SUPPORT	3.6												3.6
TOTAL	89.0*	10.7	10.2	13.8	18.6	23.2	24.6	27.5	26.0	88.2	56.4	18.0	406.2

* INCLUDES $45.8 OF LONG LEAD EFFORT

~~CONFIDENTIAL~~

MARTIN MARIETTA CORPORATION

PROGRAM ADJUSTMENTS

CASE 2

A. DELAYED PROCUREMENT

1. SUSPENDED NEW PURCHASE ORDERS & RELEASE ONLY AS REQUIRED BY SCHEDULE

2. VENDOR STRETCHOUT NEGOTIATED WITH MOOG AND 12 OTHER VENDORS NOW ON CONTRACT

B. REDUCED MANPOWER - FROM 1,000 TOTAL IN FEB 67 TO 638 IN MAY 67, AND 495 IN JULY 67

1. STRETCHED OUT THE AIRBORNE COMPONENT DEVELOPMENT IN FLIGHT CONTROLS ON COMPUTER, CAD PACKAGE AND SYSTEM TEST

2. STRETCHED OUT PRODUCTION ENGINEERING RELEASES OF M PECULIAR ITEMS IN GROUND GIE, GROUND MECH. CEI, AIRBORNE FLIGHT CONTROLS, ELECTRICAL/INSTRUMENTATION AND PROPULSION SYSTEMS

3. STRETCHED DESIGN ASSURANCE TEST PROGRAM ON AIRBORNE COMPONENTS TO REDUCE TEST FACILITY'S LOADING

4. DELAYED LAUNCH SITE ACTIVATION FULL 15 MONTHS

C. ESTABLISHED DEVELOPMENT SCHEDULES TO SUPPORT B,C,D WITH MINIMUM NECESSARY TITAN IIIM EFFORT

CASE 4

A. DELAYED PROCUREMENT

1. SAME AS CASE 2

2. RE-NEGOTIATE STRETCH-OUT WITH VENDORS PRIMARY EFFECT IN FY 69 FUNDING

B. M PECULIAR CAGE EQUIPMENT SCHEDULE PULLED IN THREE MONTHS TO SUPPORT EARLIER FLIGHT ARTICLE ACCEPTANCE

C. SUPPORT OF B, C, AND D SCHEDULES REQUIREMENTS UNCHANGED FROM CASE 2

D. ACCELERATE PRODUCTION FABRICATION THREE MONTHS

1. VEHICLE BUILD AND ACCEPTANCE

2. AGE BUILD AND ACCEPTANCE

E. ACTIVATION AND LAUNCH SCHEDULES PULLED IN THREE MONTHS

PROGRAM ADJUSTMENTS
(AEROJET)

	CASE 2	CASE 4
1. SCHEDULE		
	15:1 development - on schedule	On schedule
	Stage II development - 15 mo. delay	12 mo. delay
	AGE development - 6-15 mo. delay	6-12 mo. delay
	Production - 15 mo. delay (FY68-4 start)	12 mo. delay (FY68-3 start)
	Delivery - 15 mo. delay (Oct 69)	12 mo. delay (July 69)
2. COSTS		
	Reduced $1.9M-FY67	Reduced $1.9M-FY67
	Reduced $4.9M-FY68	Reduced $3.7M-FY68
	Total Increased-$5.0M	Total Increased-$4.5M
3. MANPOWER		
	Reduced 40 - FY67	Reduced 40-FY67
	Reduced 148- FY68	Reduced 122-FY68
4. RISK		
	Increased per stretchout of development tasks	Increased per stretchout of development tasks

AC ELECTRONICS

PROGRAM ADJUSTMENT

CASE 2 & 4

A. Delayed Procurement

1. First seven (7) MGC's to be delivered as originally scheduled.

2. Production of next seven (7) MGC's to be compatible with required schedule.

B. Reduced Manpower - Manpower reduced 60% 1968 through 1969

1. CMU & VTF modifications to be compatible with required schedule.

2. Launch site activation to be delayed as necessary.

UNITED TECHNOLOGY CENTER

PROGRAM ADJUSTMENTS

CASE 2

NO ADJUSTMENTS SINCE CASE 2 SIMILAR TO CASE 1 FOR SRM's.

CASE 4

1. MANNING:

   MANNING DROPS TO 50 EQUIVALENT MEN vs THE PROJECTED 260.

2. DEFERRED ITEMS:

   MOTOR CASE PROCUREMENT.

   ATTACH STRUCTURE.

   NOZZLES.

   MACHINING OF PROCURED FORGINGS.

   INSULATION OF CASE HARDWARE.

   MASTER TOOLS AND GAGES.

3. RISK:

   SCHEDULE BECOMES HIGH RISK.

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SUMMARY FUNDING REQUIREMENTS

(COMMITMENT BASIS)

	1st LAUNCH	FY67		FY68	FY69	FY70	FY71	FY72	FY73	TOTAL **
		4th QTR ALLOC	TOTAL							
OPTION 6	APR 69	--	68.2*	128.5	79.4	40.6	27.1			343.8
9 MONTH SLIP	JAN 70	--	55.3*	100.2	106.2	70.4	29.9	3.5		365.5
12 MONTH SLIP	MAR 70	--	50.3*	93.1	99.1	75.9	45.5	8.9		372.8
CASE I***	JUL 70	9.8	42.2	44.0	107.6	98.0	54.0	23.1	1.3	370.2
CASE II***	JUL 70	12.8	43.2	49.9	94.9	93.2	55.3	23.1	1.3	360.9
CASE III	OCT 70	11.8	44.2	34.1	91.3	95.9	68.9	46.9	8.7	390.0
CASE IV	APR 70	12.8	43.2	53.3	101.3	88.2	56.4	18.0		360.4

* MOL ALLOCATION-EXPENDITURE BASIS $35.0M

** DOES NOT INCLUDE $45.8M OF LONG LEAD EFFORT

*** AS MODIFIED BY 11 APR 67 TWX

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SUMMARY/CONCLUSIONS

1. EFFECT OF REDUCTION TO MINIMUM ENGINEERING LIAISON ONLY FOR FIRST 6 MONTHS OF FY 68

   A. DELAY IN DEVELOPMENT OF M PECULIAR FLIGHT CONTROLS (COMPUTER, CAD, CMU) TO THE POINT WHERE THE CAPABILITY TO RESOLVE ANY POTENTIAL PROBLEMS IS REDUCED TO THE EXTENT THAT RESULTS IN A PROGRAM SLIPPAGE.

   B. FURTHER REDUCTION OF MANPOWER IN ADDITION TO MAJOR CUTS ALREADY ACCOMPLISHED, SERIOUSLY JEOPARDIZE THE CONTRACTOR'S ABILITY TO MEET THE PROGRAM.

   C. DELAYS START OF AGE FABRICATION CAUSING LATE DELIVERIES TO SITE WHICH IS ALREADY ON 6-DAY, 2-SHIFT OPERATION. IF LATE DELIVERIES PREVENT FIRST LAUNCH ON TIME, SECOND ACTIVATION PERIOD FOR PAYLOAD CONTRACTOR'S AGE IS REDUCED THEREBY CAUSING A SCHEDULING IMPACT ON FIRST MANNED LAUNCH.

2. PROGRAM FUNDS INCREASE $3.4 M IN FY 68 FOR CASE 4 VS CASE 2, [redacted]

3. THERE ARE NO ADVANTAGES TO FY 68 FUNDING BY REDUCTION TO MINIMUM LIAISON ENGINEERING FOR FIRST SIX MONTHS OF FY 68, AND THE INCREASE IN PROGRAM RISK WILL OFFSET AN ADVANTAGE OF OVERALL PROGRAM FUNDING DECREASE AS COMPARED TO CASE 2.

MOL PROGRAM

SCHEDULES REVIEW

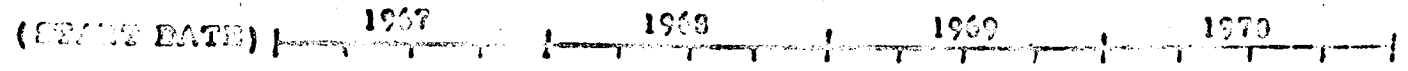
12-MONTH/BASELINE MAJOR DIFFERENCES

- BERYLLIUM GIMBAL REQUIREMENT MOVED 3 MONTHS LATER
- FLIGHT QUALITY OPTICS IN 1ST MANNED FLIGHT
- EK CONSOLES IN BOTH FV3 AND QUALIFICATION ARTICLE
- ACOUSTIC CHAMBER PROGRAMMING CONSISTENT WITH AVAILABILITY AND TEST TIME
- DELETE 114E FORWARD SECTION, BUT USE REFURBISHED THERMAL MODEL FORWARD SECTION
- DELETION OF THERMAL VACUUM TESTING OF MM WITH LM AT HUNTINGTON BEACH
- ADDED ACOUSTIC QUALIFICATION TESTING OF LM (TO FLIGHT LEVELS)
- ALLEVIATION OF EARLY STRUCTURAL DELIVERY DATES AND PRODUCTION RATES
- MORE REALISTIC TEST TIMES FOR LM AND LV
- SUFFICIENT TIME BETWEEN FLIGHTS 2 AND 3 FOR AGE INSTALLATION

D ~~SECRET~~ SPECIAL HANDLING

SCHEDULE SLIDES

BASELINE TO 12 MONTH SCHEDULE



GE THERMAL TEST — 6 mos.
STRUCTURAL TEST — 5 mos.
DEVELOPMENT TEST — 6 mos.
QUALIFICATION TEST — 8 mos.
FV3 ASSEMBLY — 10 mos.

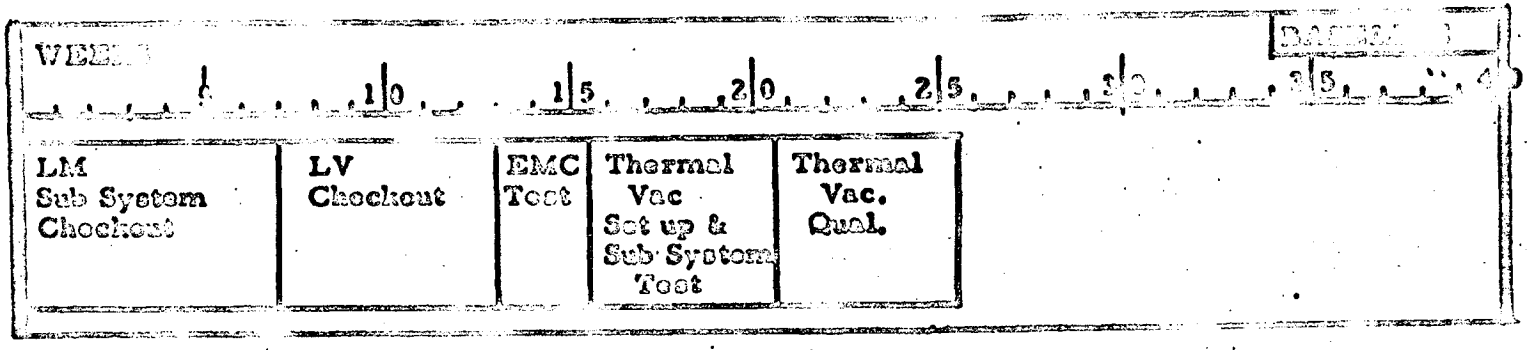
DAC STRUCTURAL TEST — 8 mos.
QUAL VEHICLE ASSEMBLY — 9 mos.
FV3 ASSEMBLY COMPLETE — 11 1/2 mos.
START AVE SUBSYST. INTEG. (EDCTU) — 1 mo

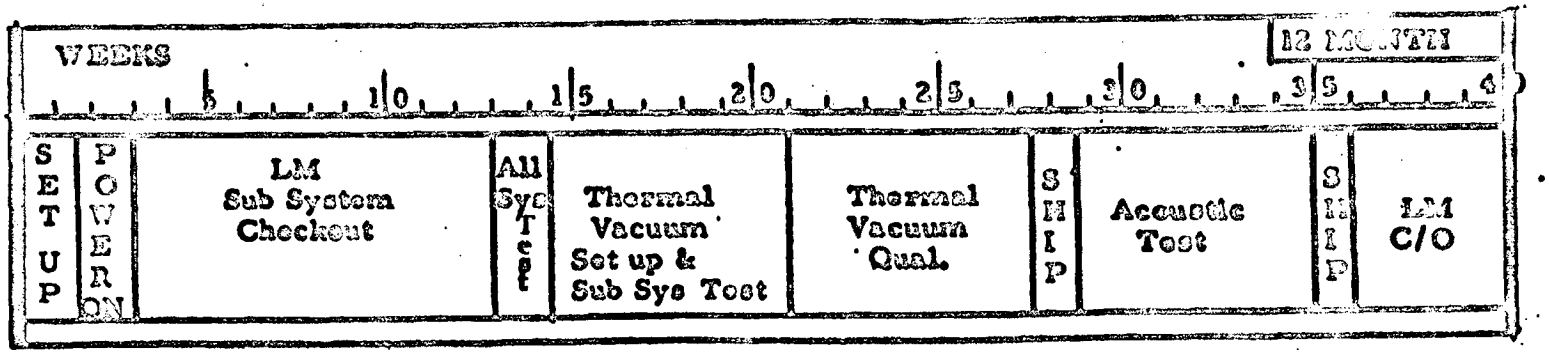
EK STRUCTURAL TEST — 6 mos
THERMAL TEST — 4.5 mos.
ENGINEERING DEV TEST — 6 mos.
QUALIFICATION TEST — 8 mos.
FV3 ASSEMBLY — 11 1/2 mos.

BLOCK TIME COMPARISON

		BASELINE	12 MONTH
GE	THERMAL TEST	48 weeks	46
	STRUCTURAL TEST	23	31
	DEVELOPMENT TEST	56	56
	QUALIFICATION TEST	40	35
	FV3 ASSY & ACCEPTANCE	26	26
DAC	MM/LV STRUCTURAL TEST	61	61
	LM QUAL VEHICLE ASSEMBLY	21	21
	LM QUAL CHECKOUT & TEST	26	40
	FV3: LM ASSEMBLY AND C/O	29	33
	FV3: LV ASSY & TEST TO DAC	13	13
EK	STRUCTURAL TEST	16	26
	THERMAL TEST	26	35
	ENGINEERING DEV TEST	57	43
	QUALIFICATION TEST	54	56
	FV3 ASSY & ACCEPTANCE	27	28

DOUGLAS LMOTV CHECKOUT & TEST





[redacted] SPECIAL HANDLING

OBJECTIVE OF 15 MONTH SLIDE

TO REDUCE FY68/69 FUNDING TO $480M/$620M

- SLIPPED FLIGHT DATES 3 MONTHS
- COMPRESSED LATTER PART OF PROGRAM 2 1/2 MONTHS
- STRETCHED OUT THE EARLY DEVELOPMENT PHASE (FY 68) 5 1/2 MONTHS

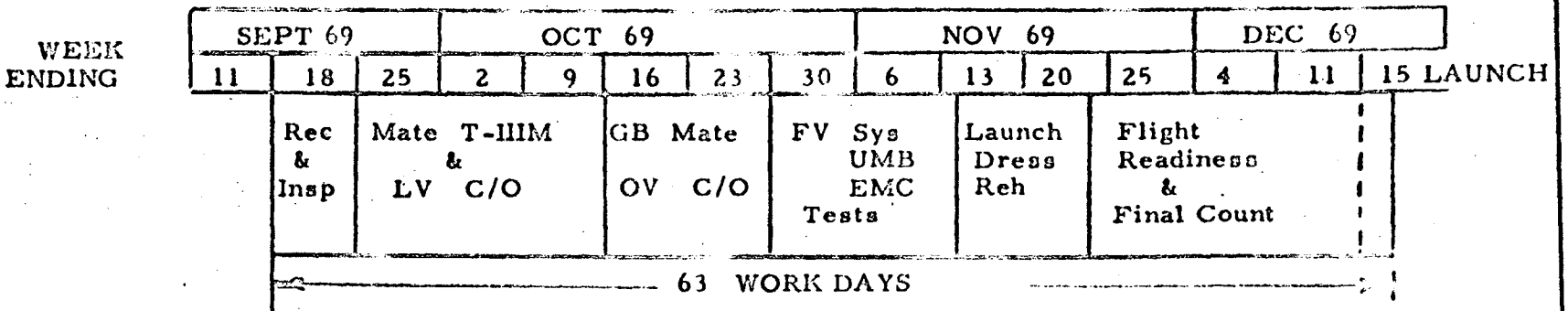
15-MONTH/12-MONTH COMPARISON

- CONTRACTION OF STAND TIME AT VAFB
- CONTRACTION OF LV CHECKOUT
- CONTRACTION OF EK QUALIFICATION PROGRAM
- DYNAMICS MODEL LEADS THERMAL AT GE
- ELIMINATION OF ALUMINUN GIMBAL FOR THERMAL MODEL
- INCREASED REFURBISHMENT TIME ON THERMAL
- MISSION SIMULATOR PROGRAM REVISED FOR SUFFICIENT INSTALLATION TIME AND CHECKOUT WITH SCF
- CHANGE MANNED LAUNCHES TO 4-MONTH LAUNCH CENTERS
- SHIFTED SCHEDULE 3 MONTHS FOR FISCAL FUNDING REASONS

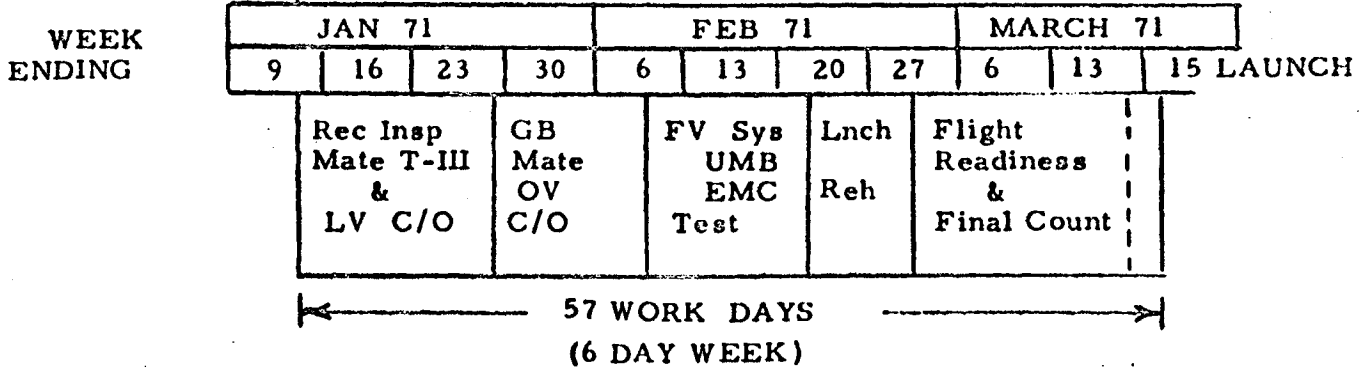
(D) ~~SECRET~~ SPECIAL HANDLING

VAFB ACTIVITIES

LV CHECKOUT SCHEDULE - 12 MO



LV CHECKOUT SCHEDULE - 15 MO



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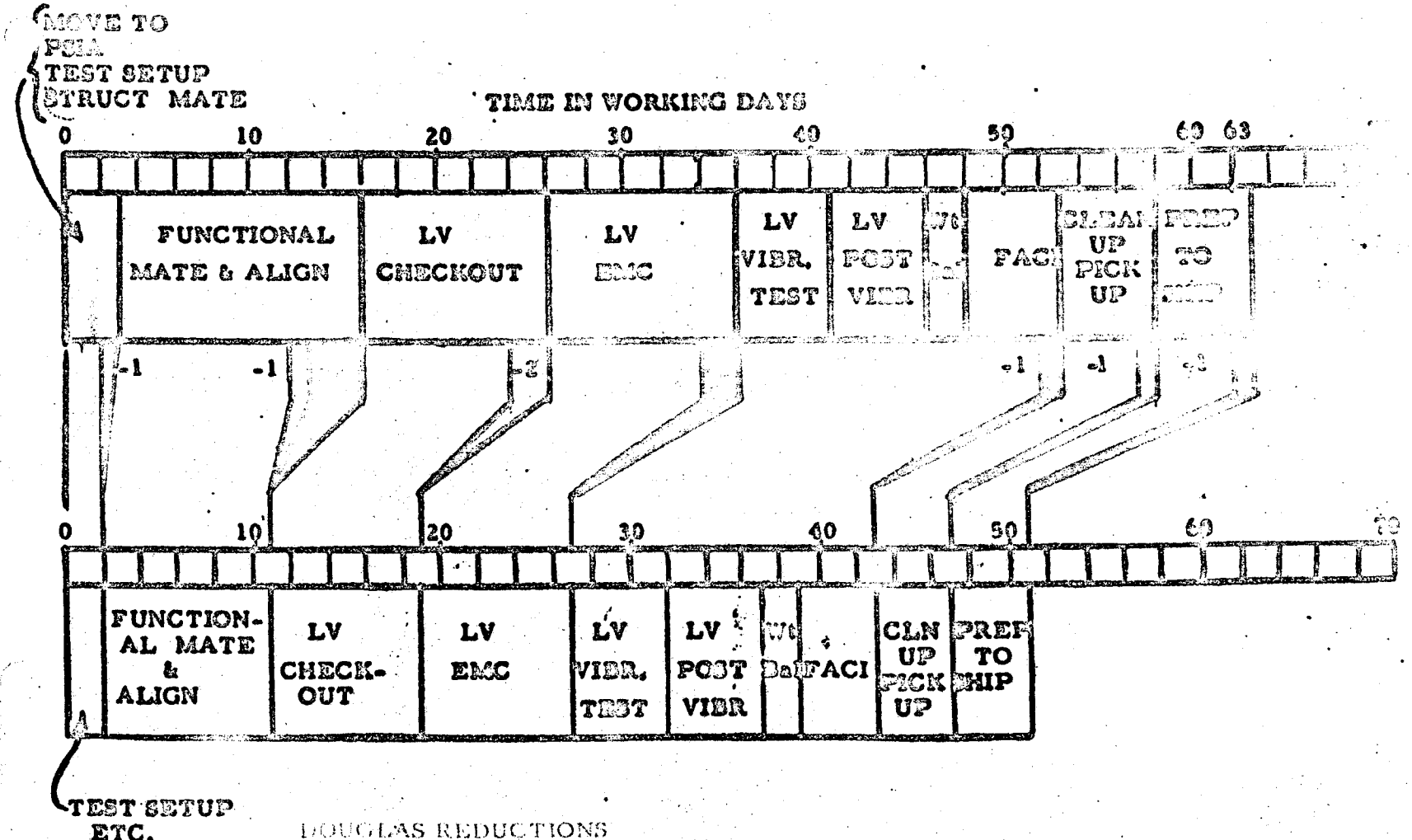
LAB VEHICLE TESTS
(HUNTINGTON BEACH)

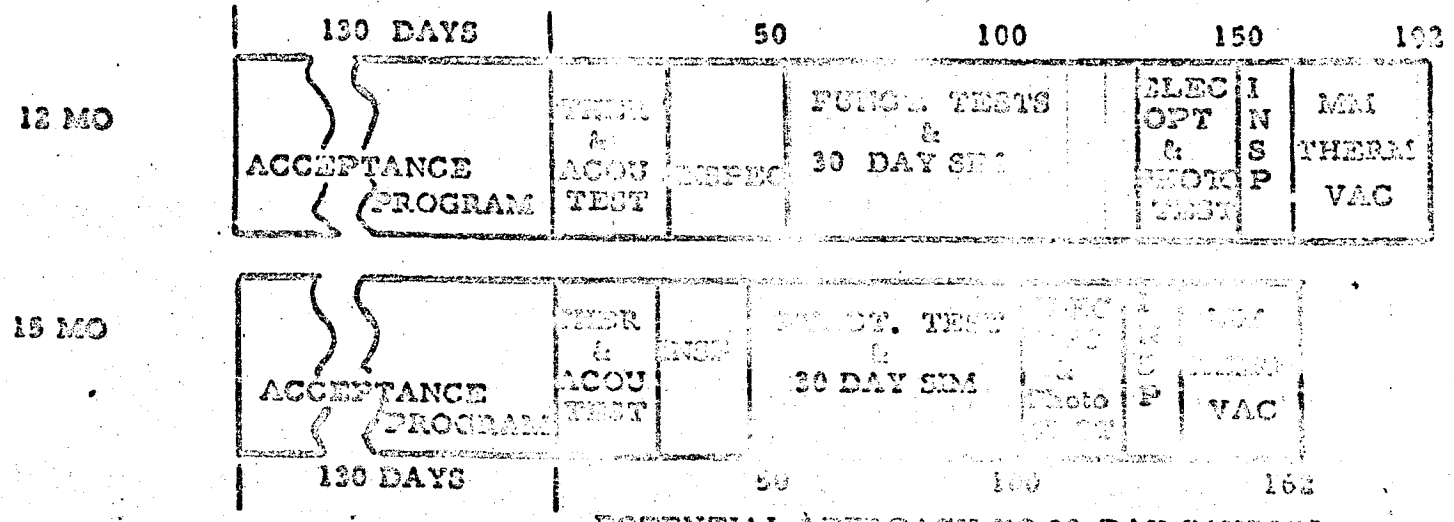


DOUGLAS REDUCTIONS

AIR FORCE REDUCTIONS

(D) ~~SECRET~~ SPECIAL HANDLING

MM QUALIFICATION PROGRAM



POTENTIAL APPROACH TO 30-DAY SAVINGS

- MISSION MOD NON-OPERATING TEMP TEST
  ASCENT VENTING & ELECT. TESTS
  ACCOUSTIC NOISE & ELECT. TESTS — 3 DAYS
- DISASSEMBLY & INSPECTION
  REASSEMBLE INSTALL MMFS SIM. & C/O — 5 DAYS
- FUNCTIONAL ELECTRICAL, OPTICAL & PHOTOGRAPHIC TESTS
  30-DAY SIMULATED MISSION — 17 DAYS
- MISSION MODULE THERMO VAC TEST — 5 DAYS

ACOUST CHAMBER

CHAMBER A

• CHAMBER A OR III

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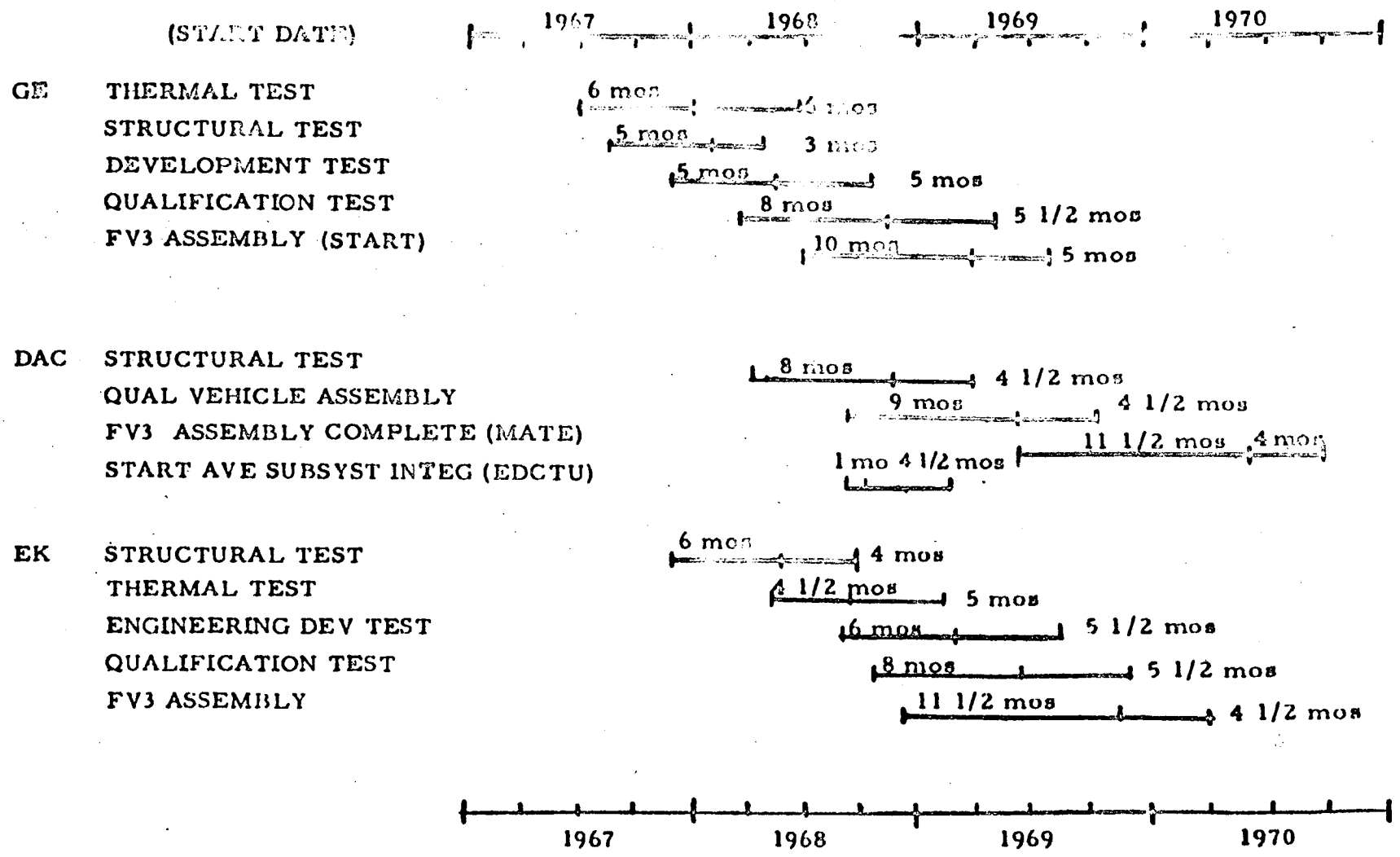
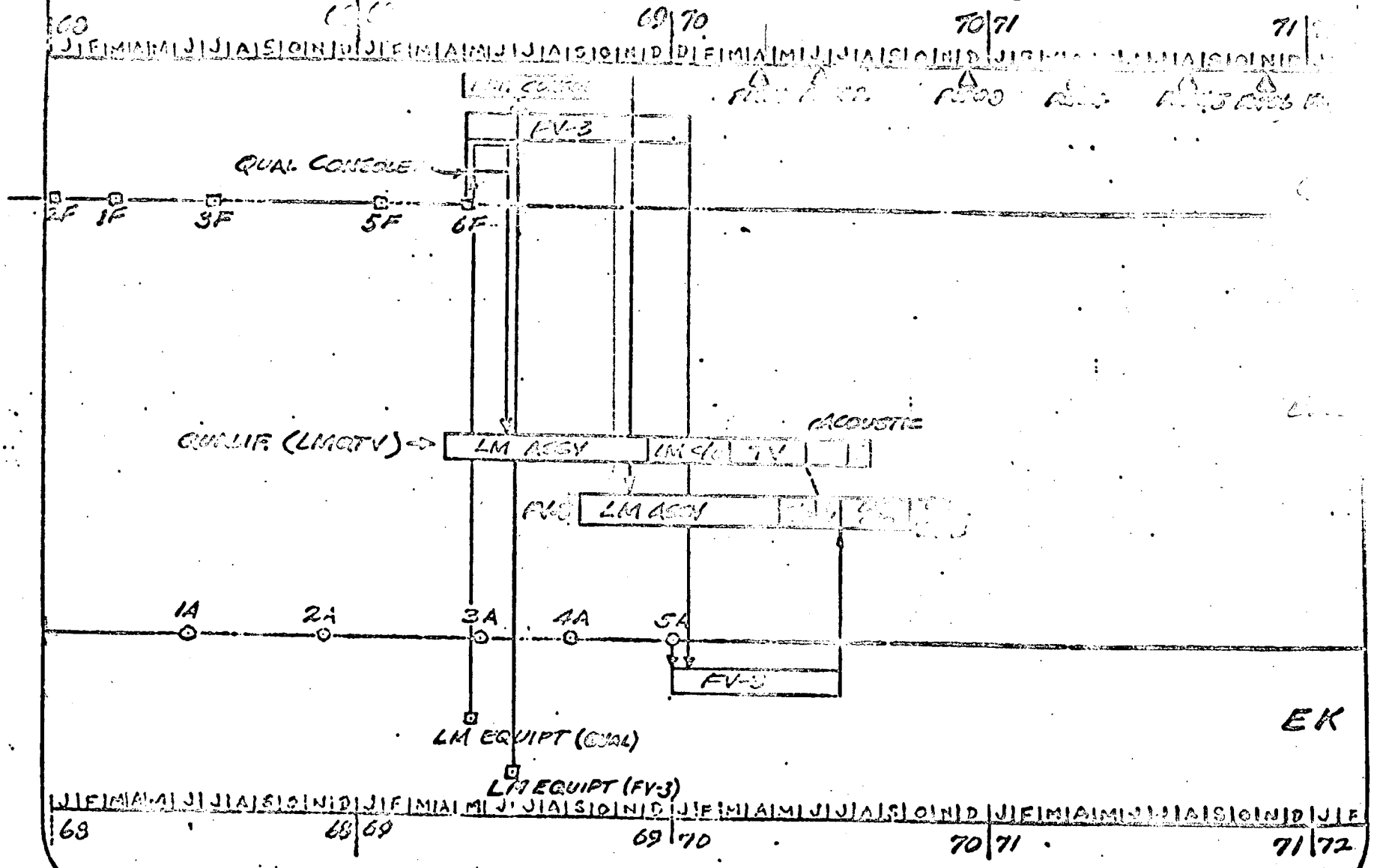
SCHEDULES SLIDES

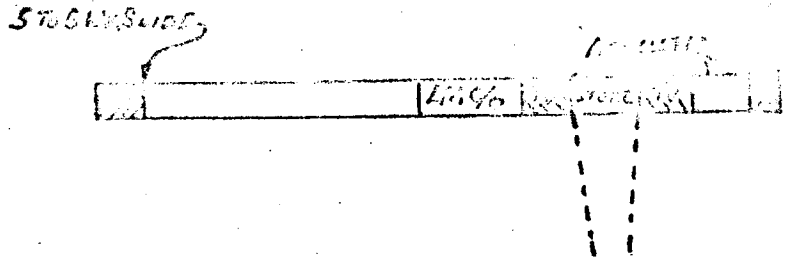
BASELINE TO 12 MONTH TO 15 MONTH SCHEDULE



12 MONTH COMPACT SCHEDULE

CONDUCT ACCEPTANCE OF GE CONSOLES AT DAC





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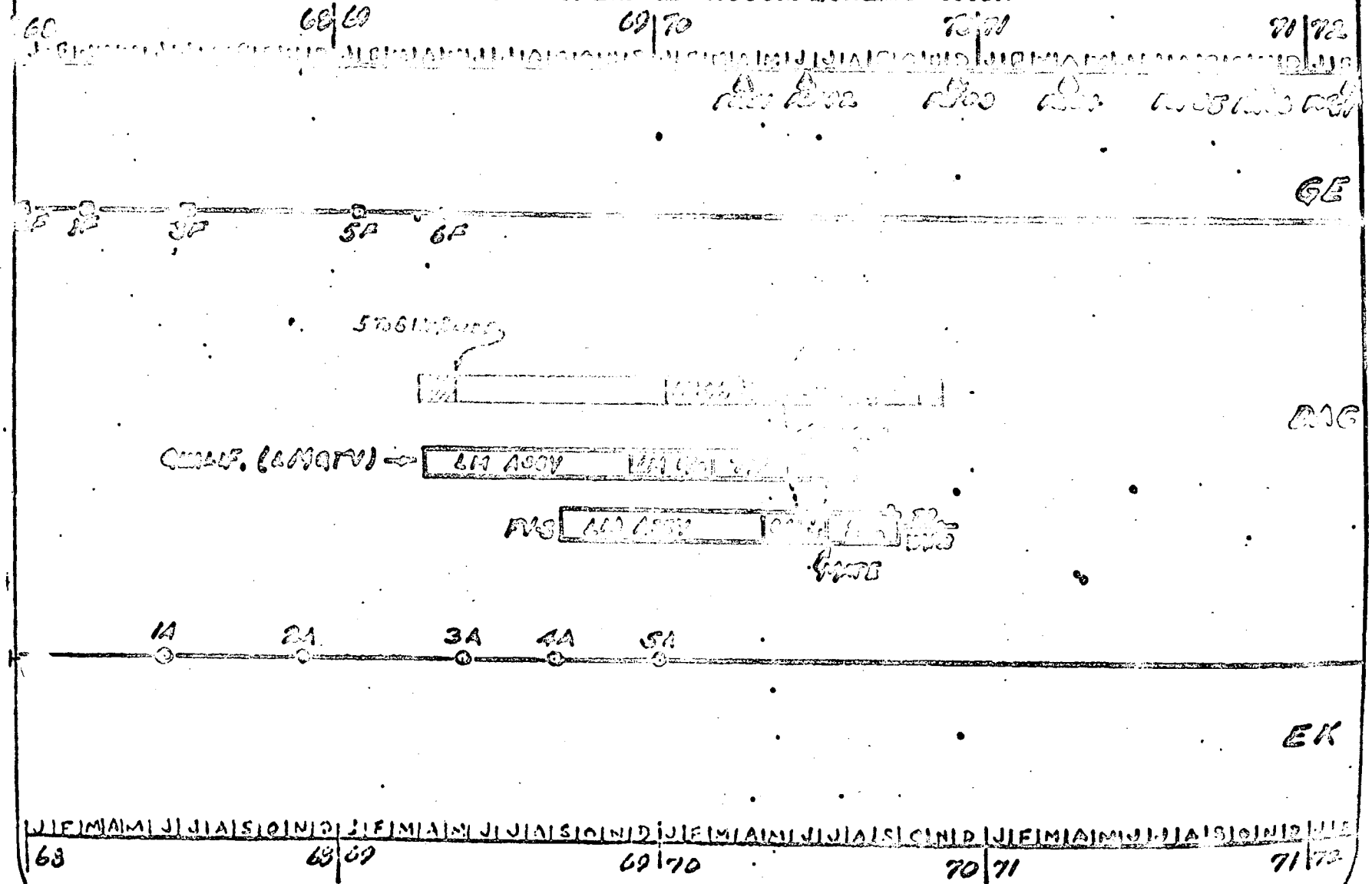
12 MONTH COMPACT SCHEDULE

DELAY OF THERMAL VACUUM QUALIFICATION



(D) ~~SECRET~~ SPECIAL HANDLING.

OTHER COST DEFERRAL OPTIONS CONSIDERED

DELAY OF THERMAL VACUUM QUALIFICATION

- SLIP LMSTV 5 TO 6 WEEKS
- PRIORITY ON USE OF TV CHAMBER FOR FV-3 REQUIRES:

  SPLIT TV QUAL INTO TWO TIME PERIODS
- HIGH RISK - QUAL COMPLETE JUST PRIOR TO LAUNCH
- HIGH RISK - COMPLEX SETUP AND INSTRUMENTATION CALIBRATION MUST BE DONE TWICE - TEST RESULTS IN QUESTION

CONDUCT ACCEPTANCE OF GE AVE MMFS WITH SUBSTITUTES

- SLIP GE MMFS (FV-3) 8 WEEKS
- CONDUCT ACCEPTANCE OF GE CONSOLES WITH SUBSTITUTE
- HIGH RISK - NO GE SYSTEM LEVEL ACCEPTANCE AT FACTORY
  - FIRST SYSTEM TEST ON FV-3 IN FINAL CONFIGURATION (ACCESS PROBLEM)
  - LV CHECKOUT TIME MUST BE INCREASED
  - ADDITIONAL SUBSTITUTES REQUIRED IN FY 68
  - GE WORK FORCE AT HUNTINGTON BEACH WOULD REQUIRE EXPANSION

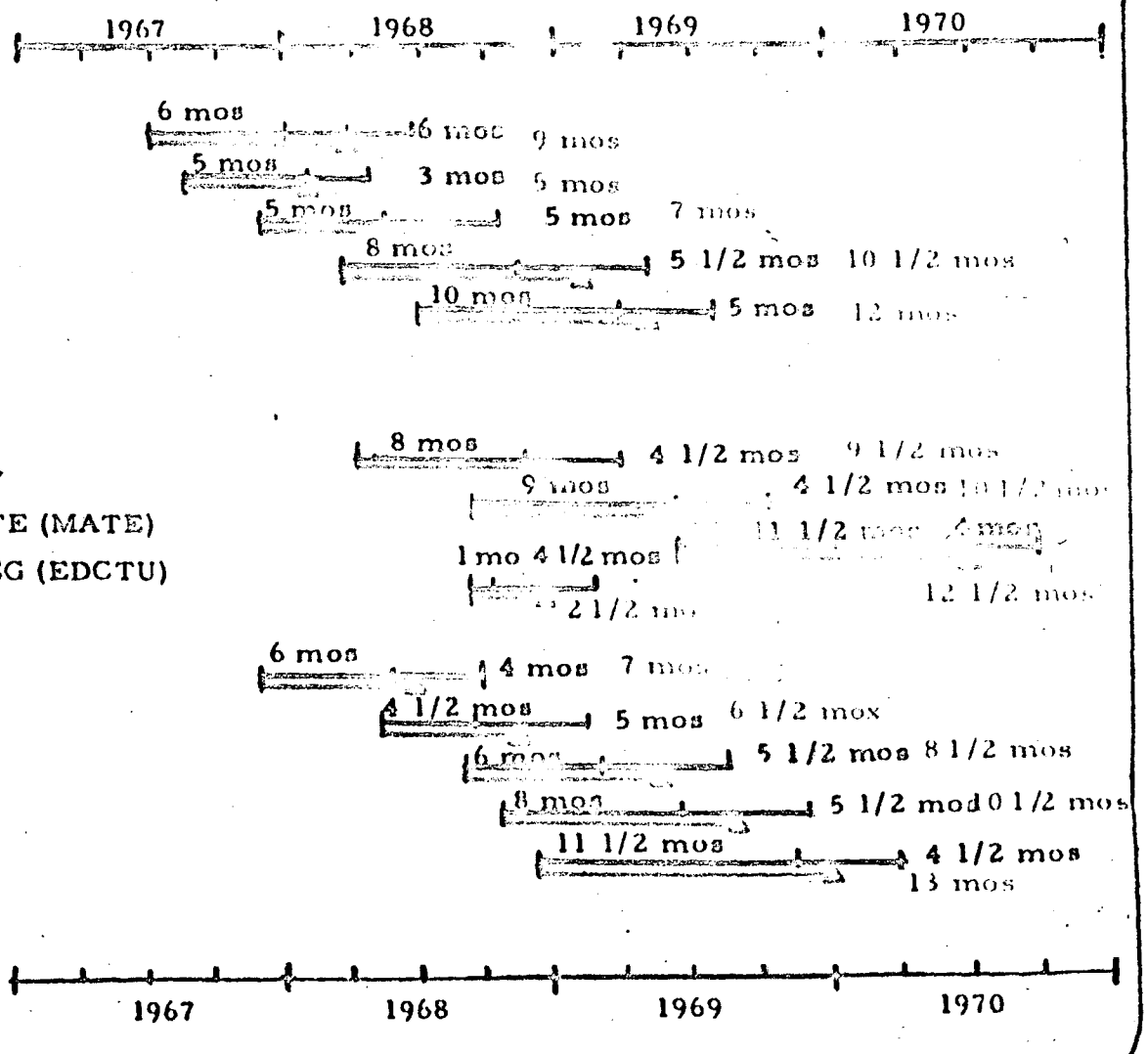
12 MONTH COMPACT RATIONALE

- EK TEST FLOW SPANS CANNOT BE COMPRESSED OVER SPANS USED IN 15 MONTH SCHEDULE
- ASSOCIATES TEST FLOW AND EXCHANGE HARDWARE KEYED TO EK
- 15 MONTH HARD POINT DATES ALL MOVED FORWARD 3 MONTHS
- ASSOCIATES TO REVIEW PROGRAM FOR COMPRESSION OF INTERNAL EFFORT TO MEET FY68/FY69 BOGIES

SCHEDULES SLIDES

BASELINE TO 12 MONTH TO 15 MONTH SCHEDULE

12 MONTH COMPACT



POTENTIAL PROBLEMS OF 12-MONTH SCHEDULE

- GE GIMBAL DELIVERIES; IN PARTICULAR, THE BERYLLIUM GIMBAL FOR DYNAMICS MODEL
- INITIAL DELIVERY OF EARLY STRUCTURAL ARTICLES WITH PROPER CONFIGURATIONS
- CLOSE SCHEDULING OF THE AVAILABILITY OF EK ACOUSTIC FACILITY
- SOFTWARE COMPILERS FOR USE WITH AGE AND MISSION SIMULATION

ALTERNATIVES FOR REDUCING FUNDING REQUIREMENTS FOR ASSOCIATE INTERNAL EFFORTS

- STRETCH-OUT OF ENGINEERING AND DEVELOPMENT TESTING FOR MORE SEQUENTIAL APPROACH
- MINIMUM SUSTAINING EFFORT AND DEVELOPMENT TESTING ON ORIGINAL BASELINE SCHEDULE
- COMPRESSION OF INTERNAL SYSTEM TESTING (HOT MOCK-UP) BY ADDED EFFORT
- TERMINATE SUBCONTRACTORS AND RE-COMPETE

(14)

SUBCONTRACTOR TERMINATION CONSIDERATIONS

DISADVANTAGES:

- CONSIDERABLE WORK ALREADY ACCOMPLISHED
  - TEAM PULLED TOGETHER
  - REQUIREMENTS AND INTERFACES ESTABLISHED
  - DESIGN EFFORT WELL ALONG
  - INITIAL TEST EFFORT UNDER WAY
- MANY OF KEY PEOPLE LOST - HIRED ELSEWHERE OR JOIN OTHER PROPOSALS
- COMPETETIVE SUBCONTRACTORS - MAY NOT NEED
- PRESENT MOL HARDWARE PROGRAM NOT PARTICULARLY ATTRACTIVE INCENTIVE TO COMPONENT SUPPLIERS
- PRESENT CONTRACT PROVIDES BASELINE FOR RENEGOTIATION

ADVANTAGES:

- STRETCH-OUT SUFFICIENT FOR NEW TECHNOLOGY TO BE CONSIDERED

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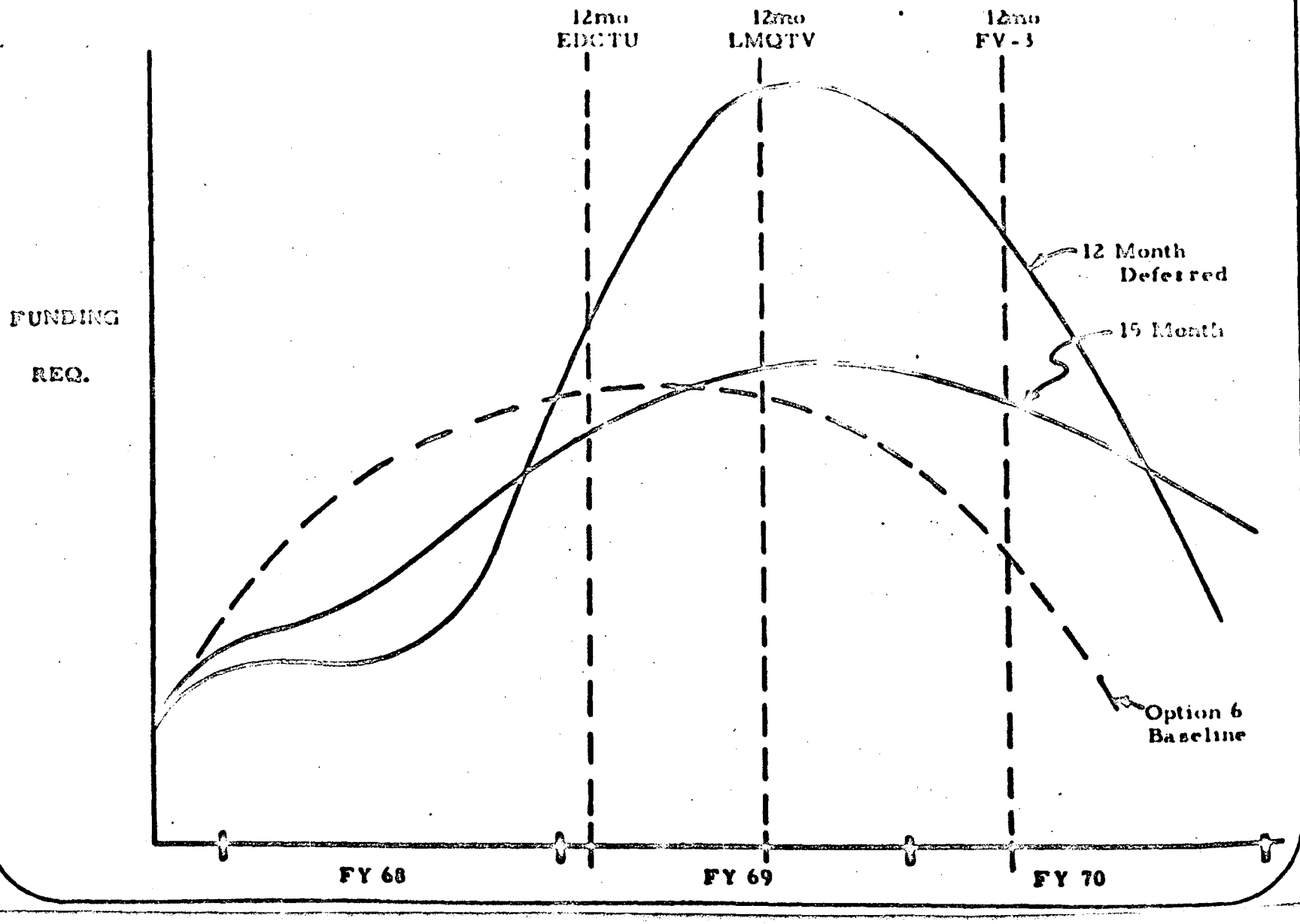
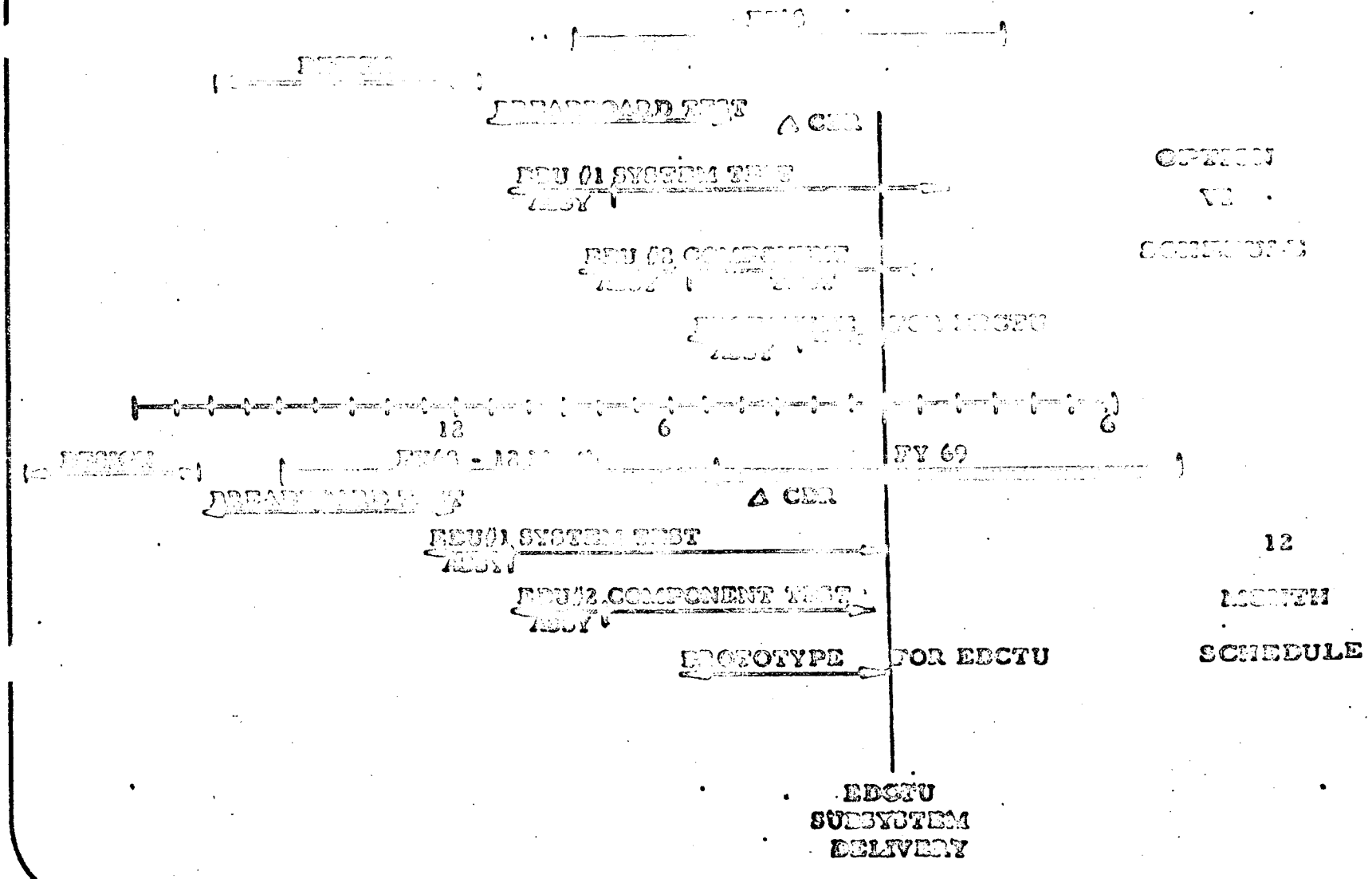
GENERAL FUNDING PROBLEM FOR REDUCED EARLY EFFORTS



19L

SUBSYSTEM LEAD TIME REQUIREMENTS
LABORATORY ACTS/SCB SUBSYSTEM



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ACTS/SCE

JUSTIFICATION FOR SCHEDULE DIFFERENCES

- o DESIGN
  - 90% COMPLETE AND DELAY IS EXTREMELY INSIGNIFICANT
- o BREADBOARD
  - EFFORT STARTED; EIGHT-MONTH SLIP OF REMAINDER OF TEST DOES NOT REMOVE EFFORT FROM FY 68
- o EDU #1 SYSTEM TESTS
  - BASELINE SCHEDULE REQUIRED CONCURRENT ASSEMBLY OF EDU #1 AND EDU #2, WHICH IS NOT PRACTICABLE ON SAME CMG
  - TASK TIME UNCHANGED
- o EDU #2 COMPONENT TESTS
  - TEST RESULTS REQUIRED PRIOR TO EDCTU TESTING
  - TASK TIME EXTENDED ONE MONTH TO INCORPORATE CEI CHANGES

[ELECTRICAL POWER]
[SUPPLEMENTARY [illegible] JUSTIFICATION]

RATIONALE: DEVELOPMENT OF BASIC MOL HIGH PERFORMANCE FUEL CELL ELECTRODE CONTINUED WITHOUT INTERRUPTION DUE TO CRITICALITY OF COMPONENT. PRESENT POWER REQUIREMENTS AS YET NOT DEMONSTRATED BY P&W.

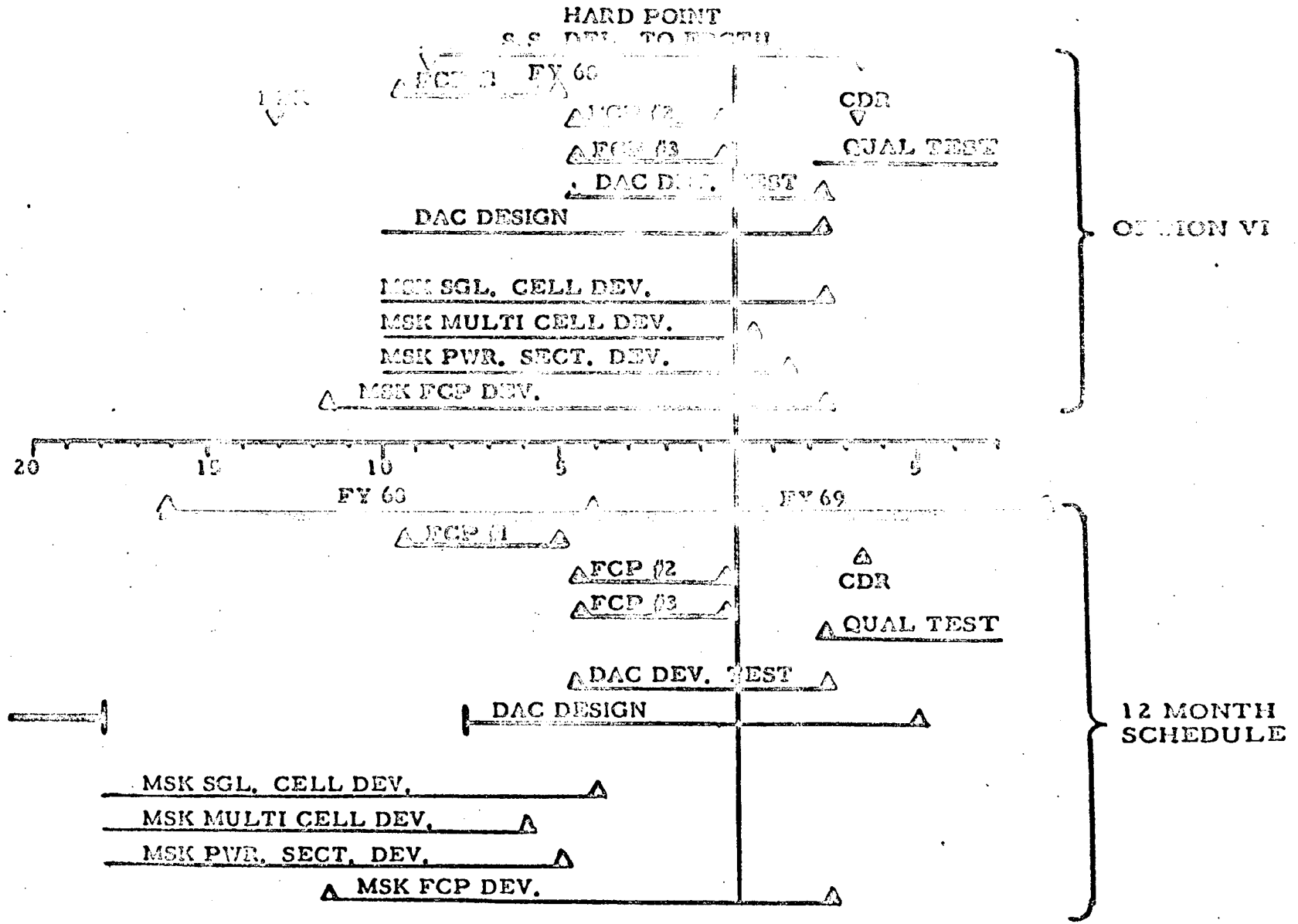
COMPLETE FUEL CELL POWER PLANT DEFERRED RELATIVE TO EDCTU.

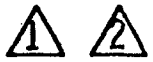
DAC DESIGN EXTENDS BEYOND HARD POINT TO SUPPORT LADTV.

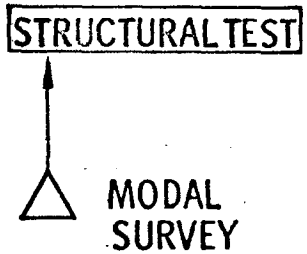
20L

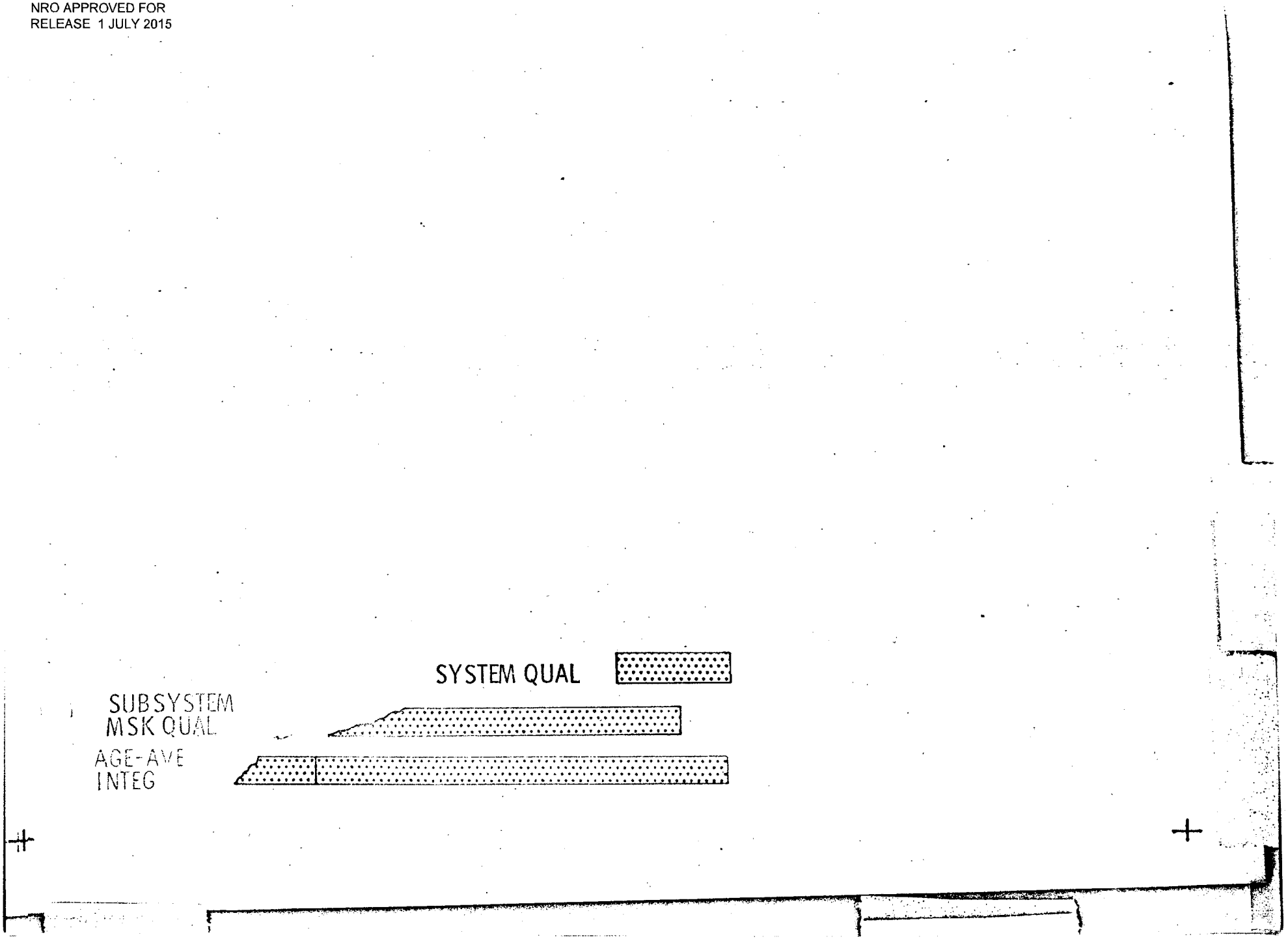
SUBSYSTEM LEAD TIME REQUIREMENTS

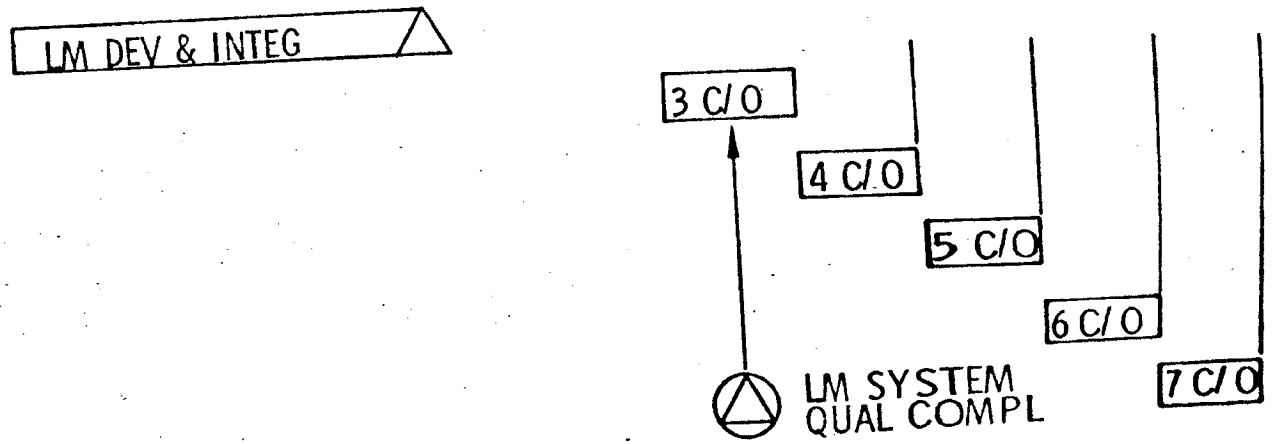
LABORATORY ELECTRICAL POWER SUBSYSTEM

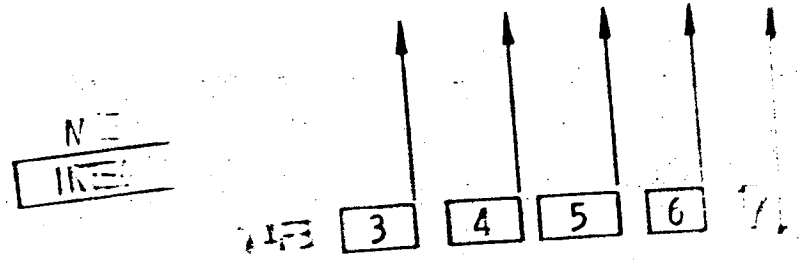












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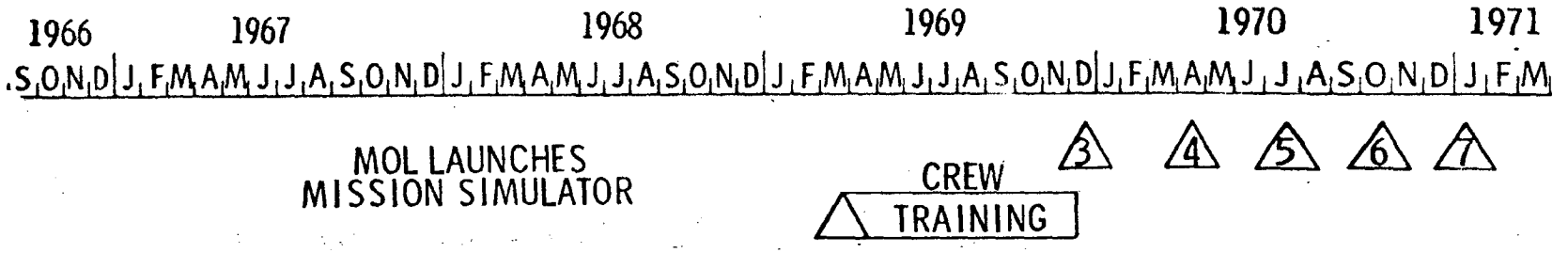
PROGRAM OBJECTIVES (U)



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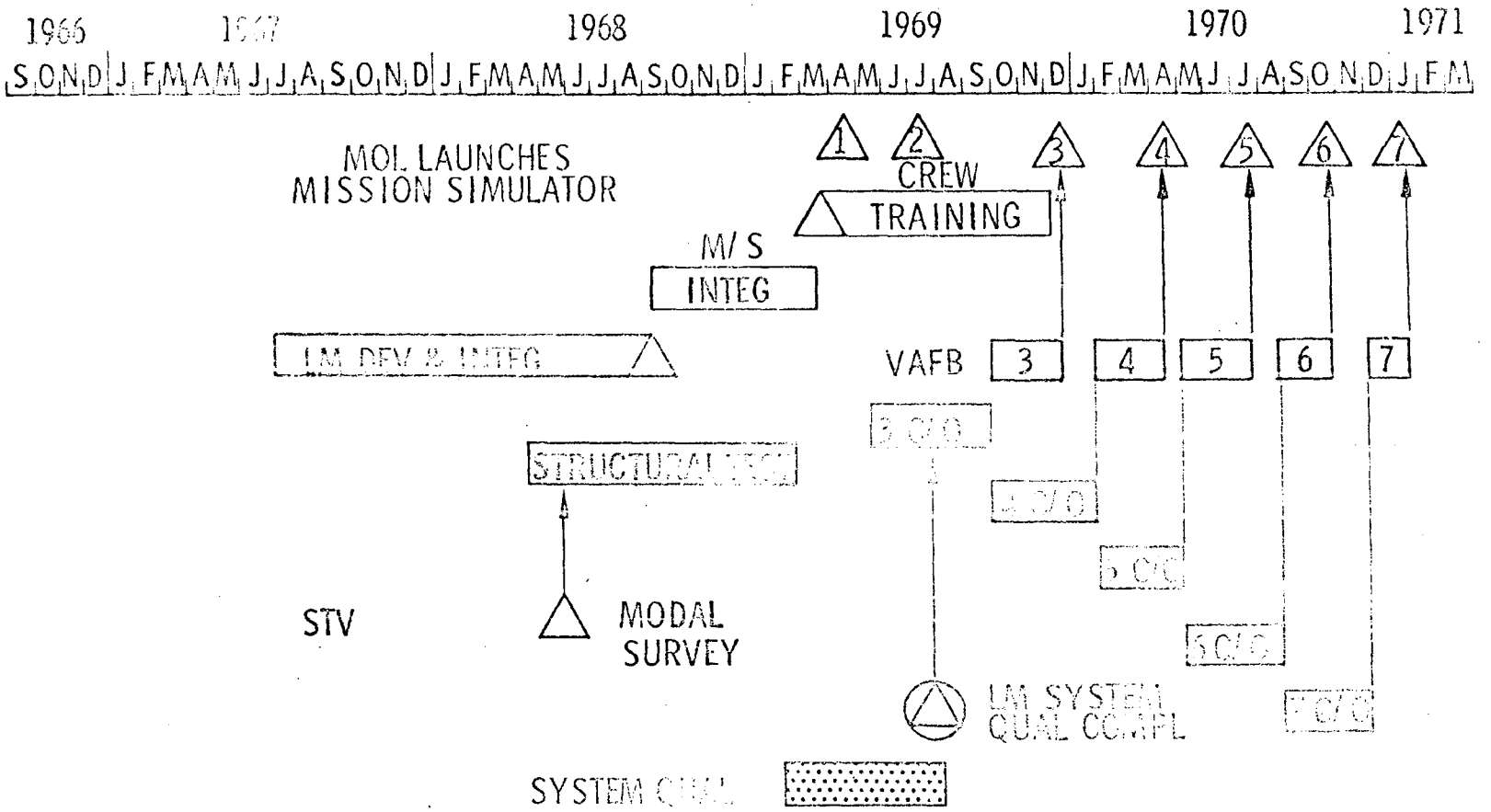
PROGRAM OBJECTIVES (U)



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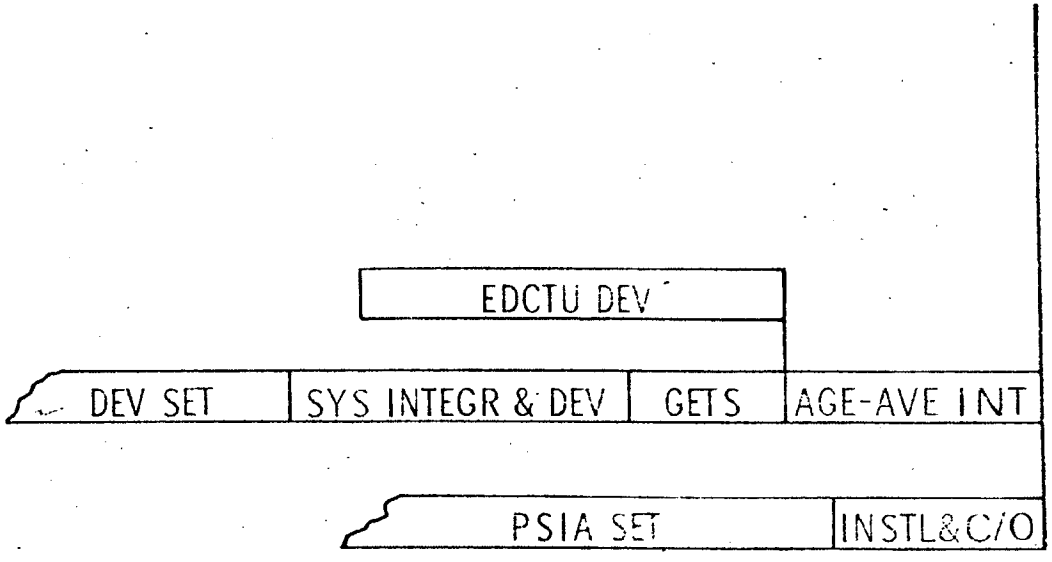

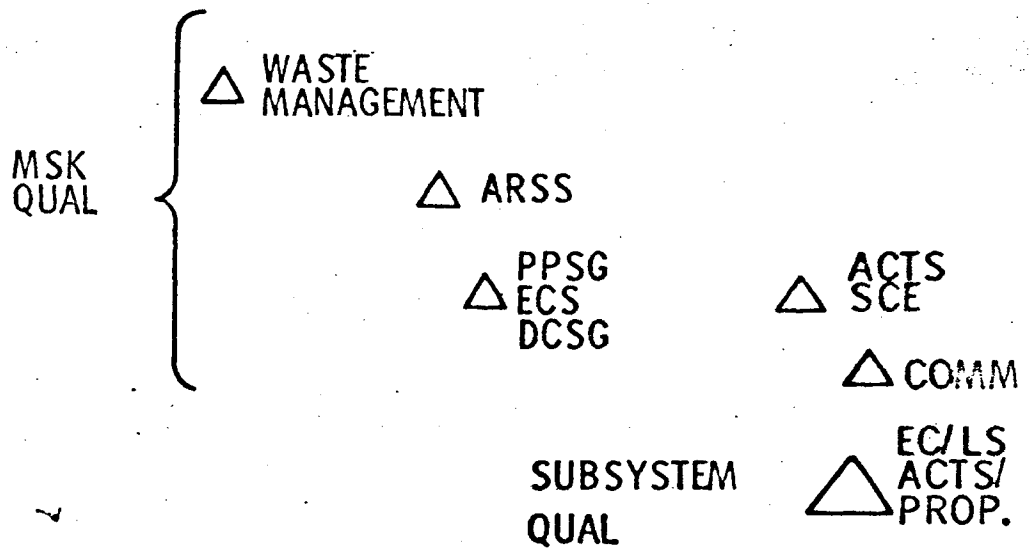

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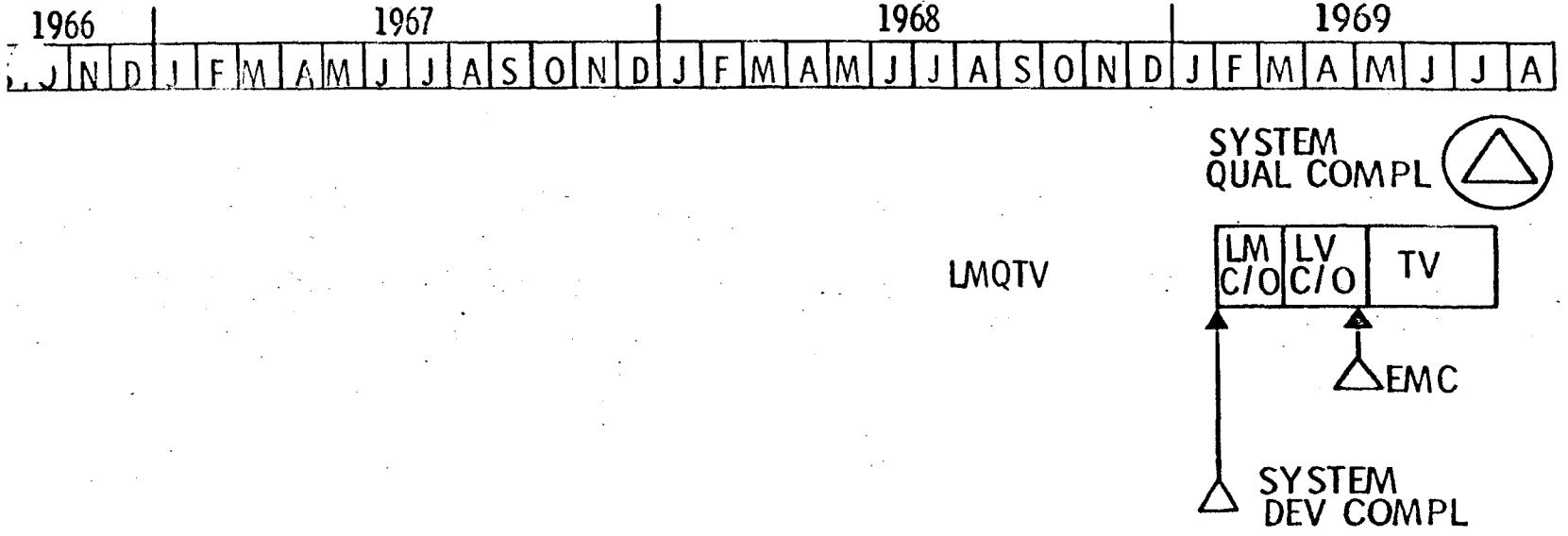
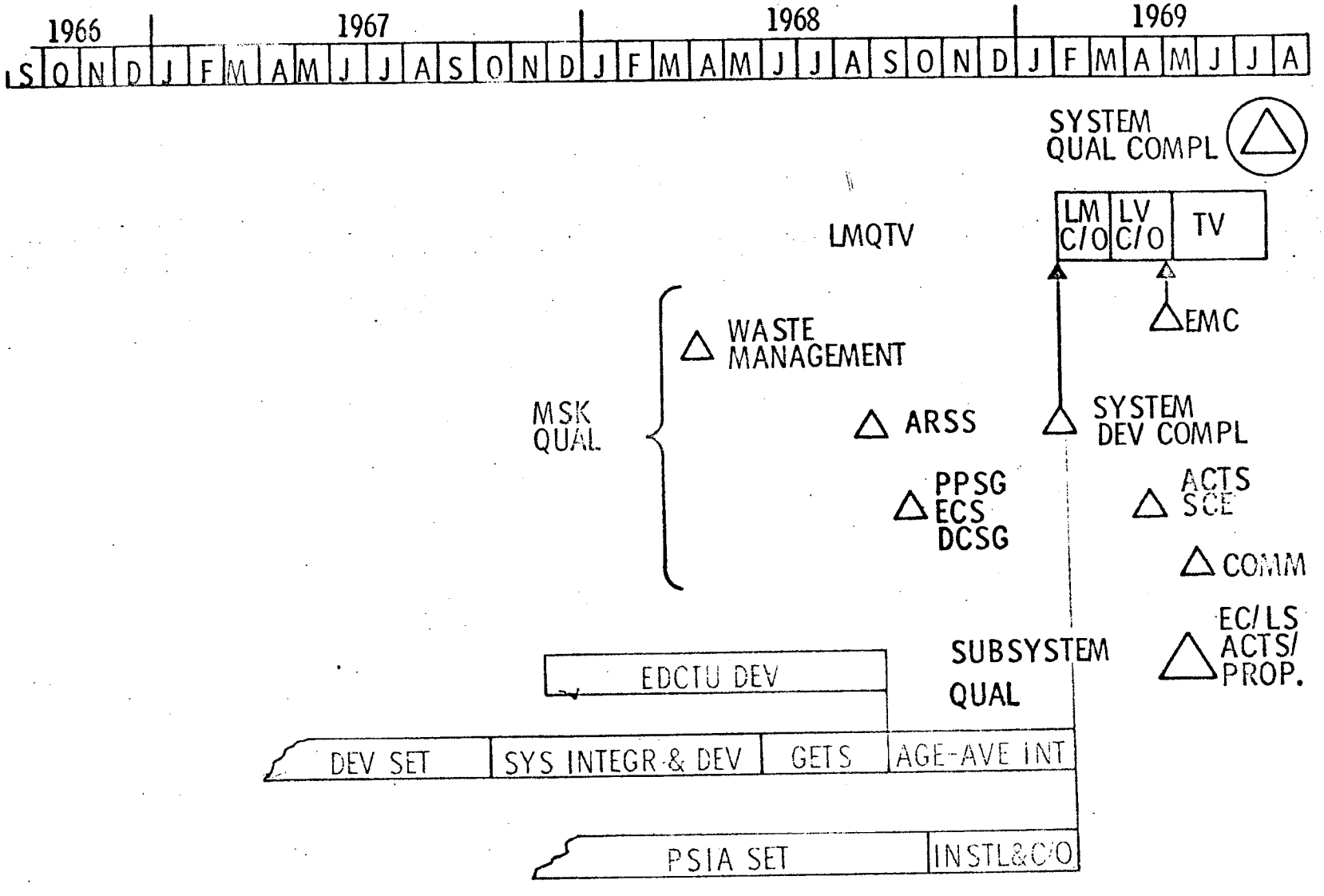
SYSTEM LEVEL QUALIFICATION (U)



V1198-9

SYSTEM LEVEL QUALIFICATION (U)



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MAJOR SUBCONTRACTS (U)

		BASELINE	TYPE OF CONTRACT
SUBSYSTEM SUBCONTRACTORS.			
• ATTITUDE CONTROL AND TRANSLATION SUBSYSTEM	- HONEYWELL	34.6	FPI
• ENVIRONMENTAL CONTROL SUBSYSTEM	- HAMILTON STANDARD	20.3	FPI
• COMMUNICATIONS SUBSYSTEM	- COLLINS RADIO	31.3	FPI
• PRIMARY POWER SUBSYSTEM	- PRATT & WHITNEY	23.0	FPI
• DATA COMPUTATION SUBSYSTEM GROUP	- IBM	23.5	FPI
• ATMOSPHERE AND REACTANTS SUPPLY SUBSYSTEM	- AIRESEARCH	10.2	FPP
• THRUSTORS	- MARQUARDT	9.9	FPP
• WASTE MANAGEMENT	- FAIRCHILD HILLER	2.3	FFP
• ACTS/ PROPELLANT TANK ASSEMBLY	- ROCKETDYNE	3.9	FFP
	SUBTOTAL	159.0	
COMPONENT SUBCONTRACTS			
• MISSION SIMULATOR COMPUTER	- IBM	2.3	FFP
• CHECKOUT COMPUTER SYSTEM	- SDS	2.5	FFP
• 24 OTHER COMPONENT SUBS	- NOT AWARDED	25.1	
	SUBTOTAL	29.9	
	GRAND TOTAL	188.9	

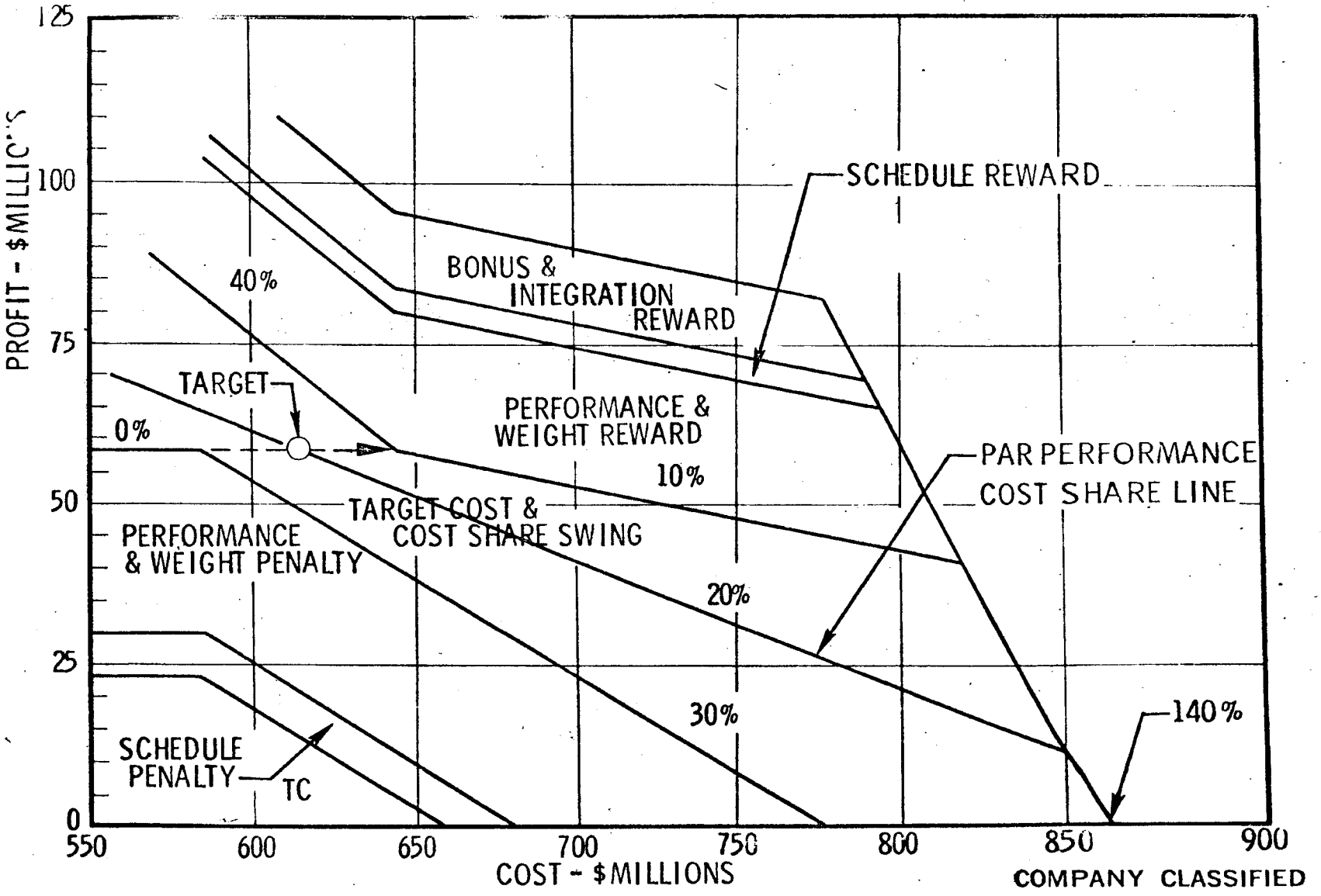
V1147-5 B

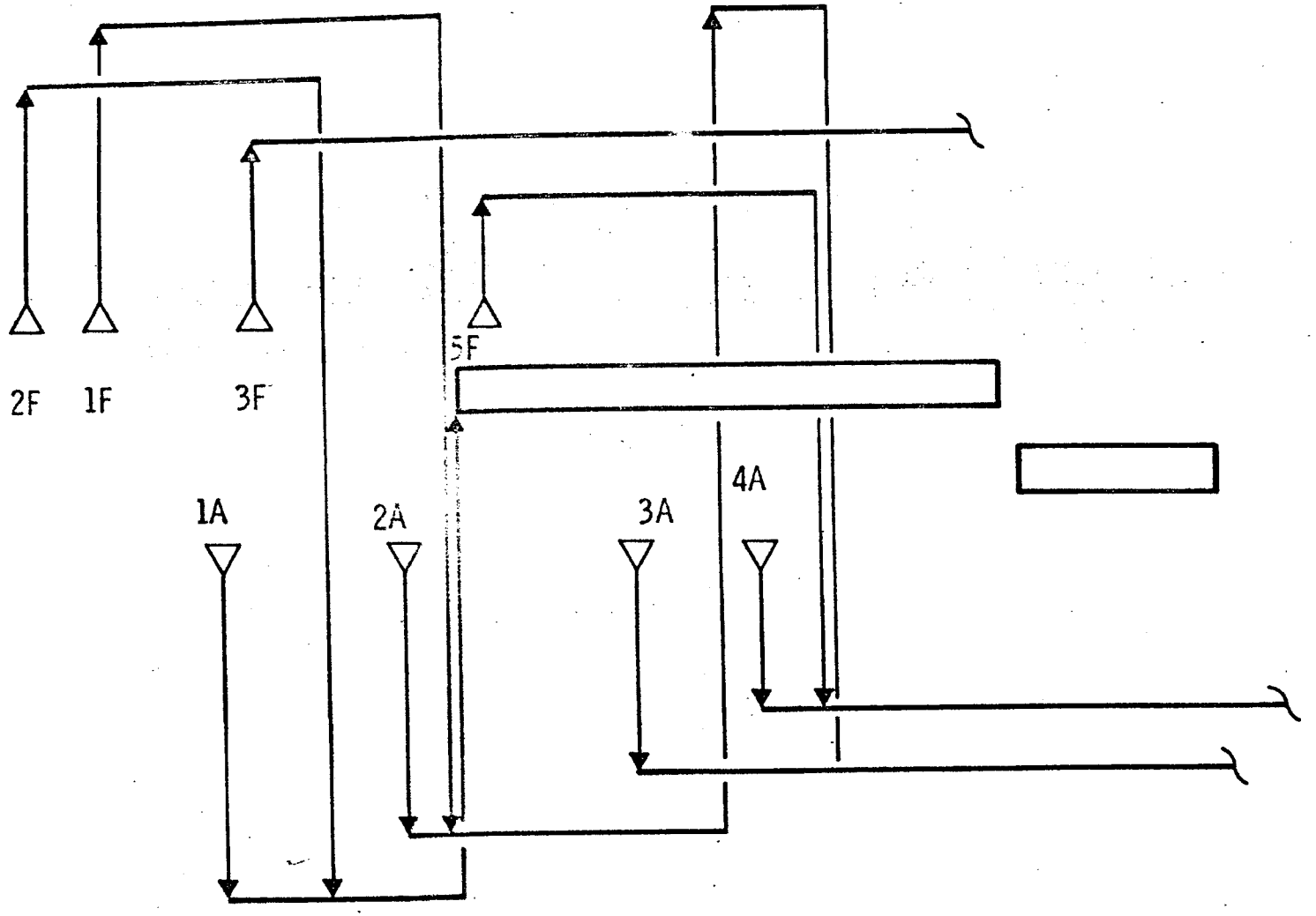
AVAILABILITY OF SUBSYSTEM COMPONENTS

LABORATORY MODULE

SUBSYSTEM	% OFF THE SHELF	% REDESIGN	GENESIS OF HARDWARE
ARSS	20	80	GEMINI, LEM, BIOS
COMM	30	70	SGLS, APOLLO
PRIMARY POWER	77	23	APOLLO
WMS	64	36	APOLLO
THRUSTORS			
HIGH	90	10	LEM, APOLLO, LUNAR ORBITER
LOW	90	10	ADVENT
ECS	21	79	LEM
ACTS/ SCE	46	54	APOLLO, LEM
DCSG	25	75	4 PI TECH, APOLLO
PROP. TANKS			
OXIDIZER	0	100	EXISTING TECHNOLOGY BUT NEW DESIGN
FUEL	0	100	

MOL INCENTIVES





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Z-4581
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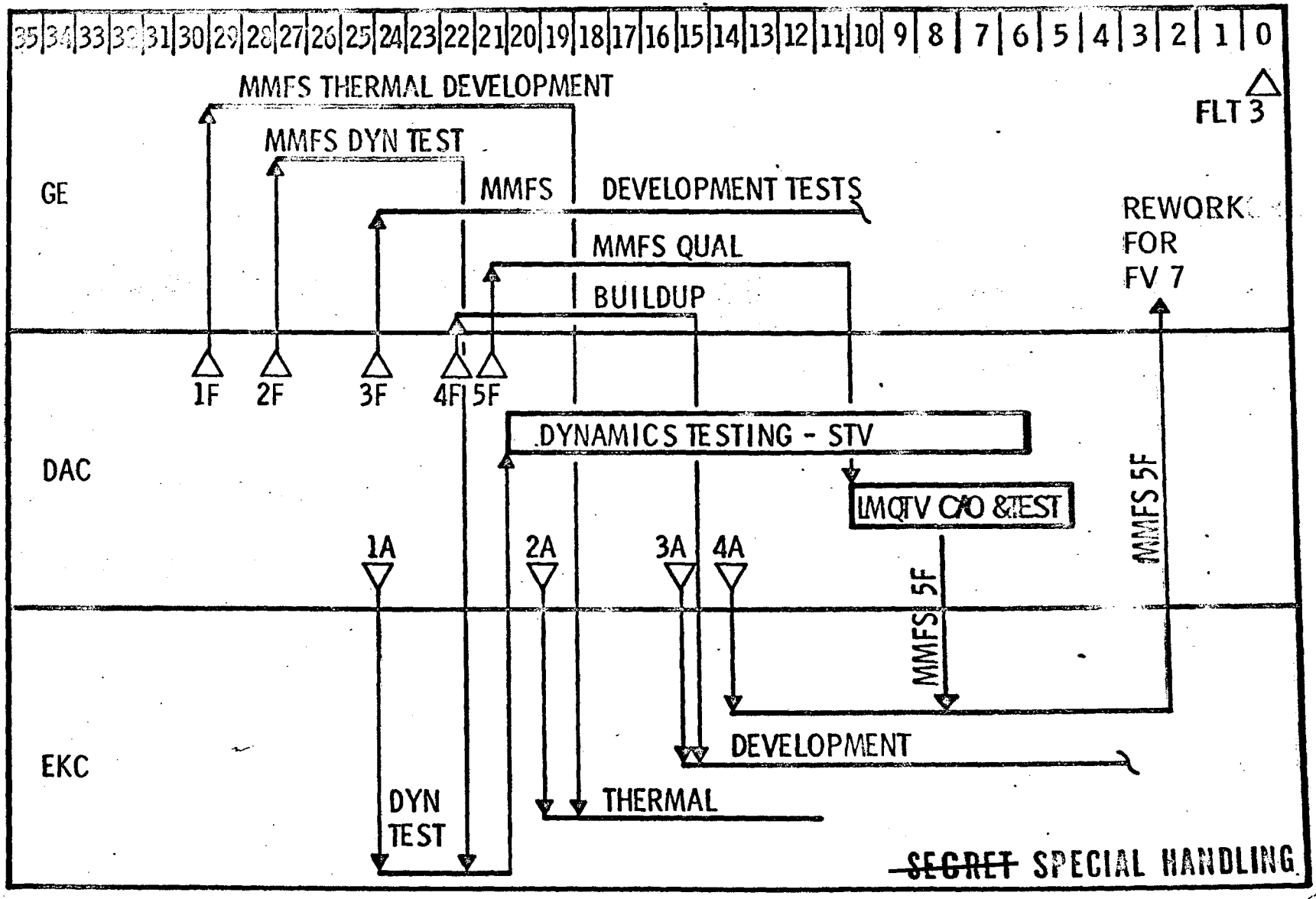
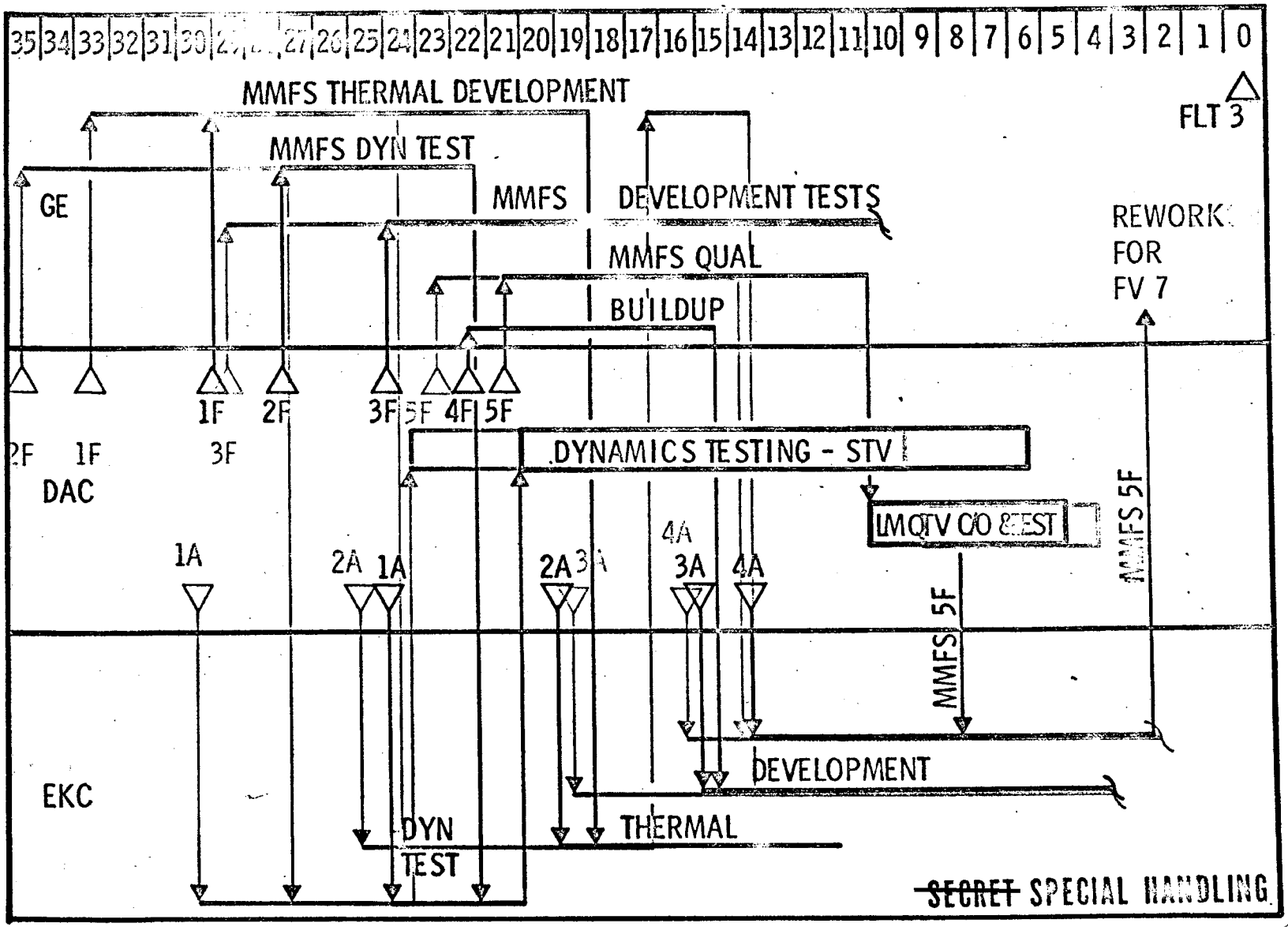
INTEGRATED TEST FLOW OF MAJOR HARDWARE



INTEGRATED TEST FLOW OF MAJOR HARDWARE

Copy 2



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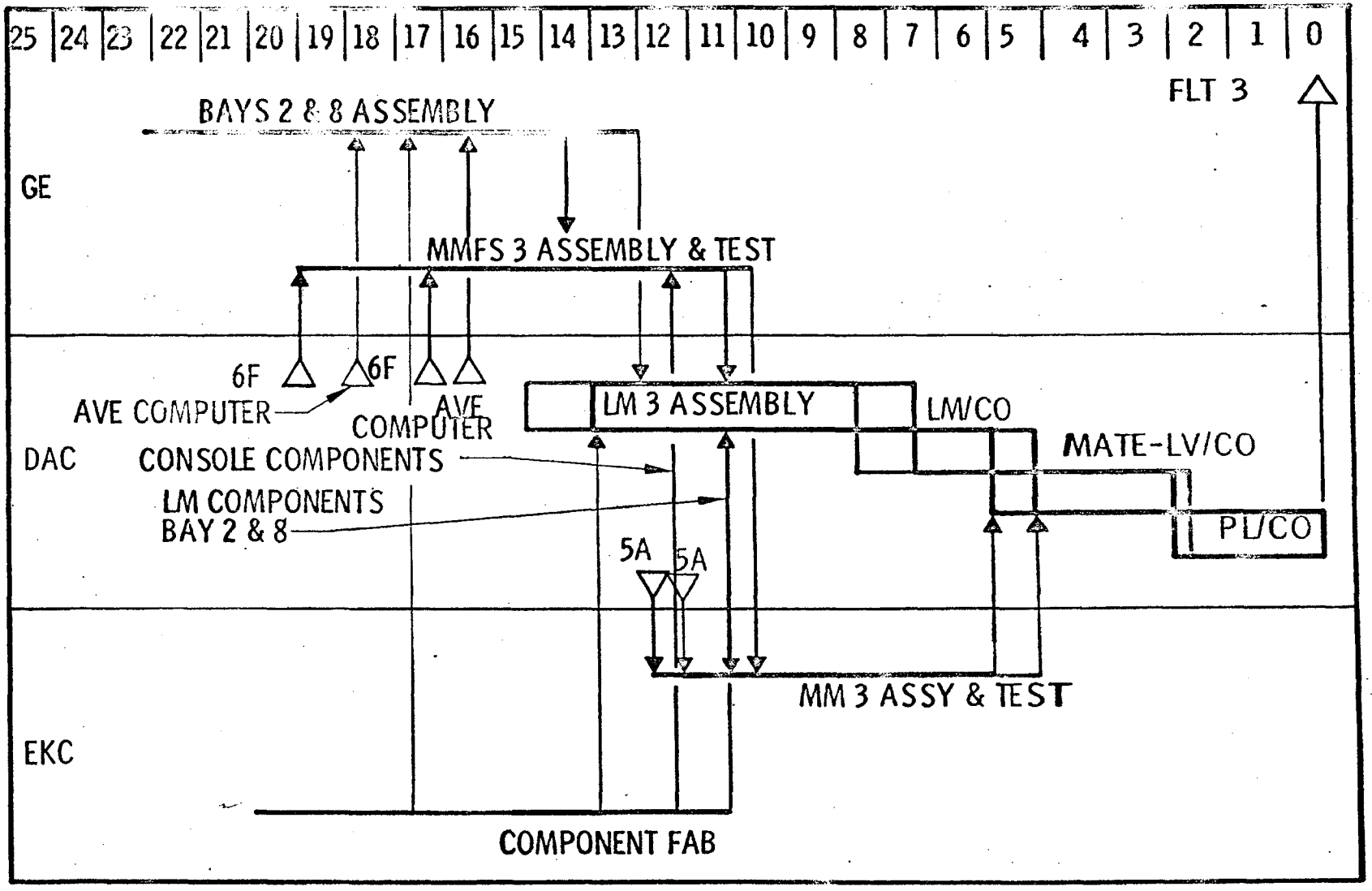
FLIGHT VEHICLE 3 ASSEMBLY AND TEST

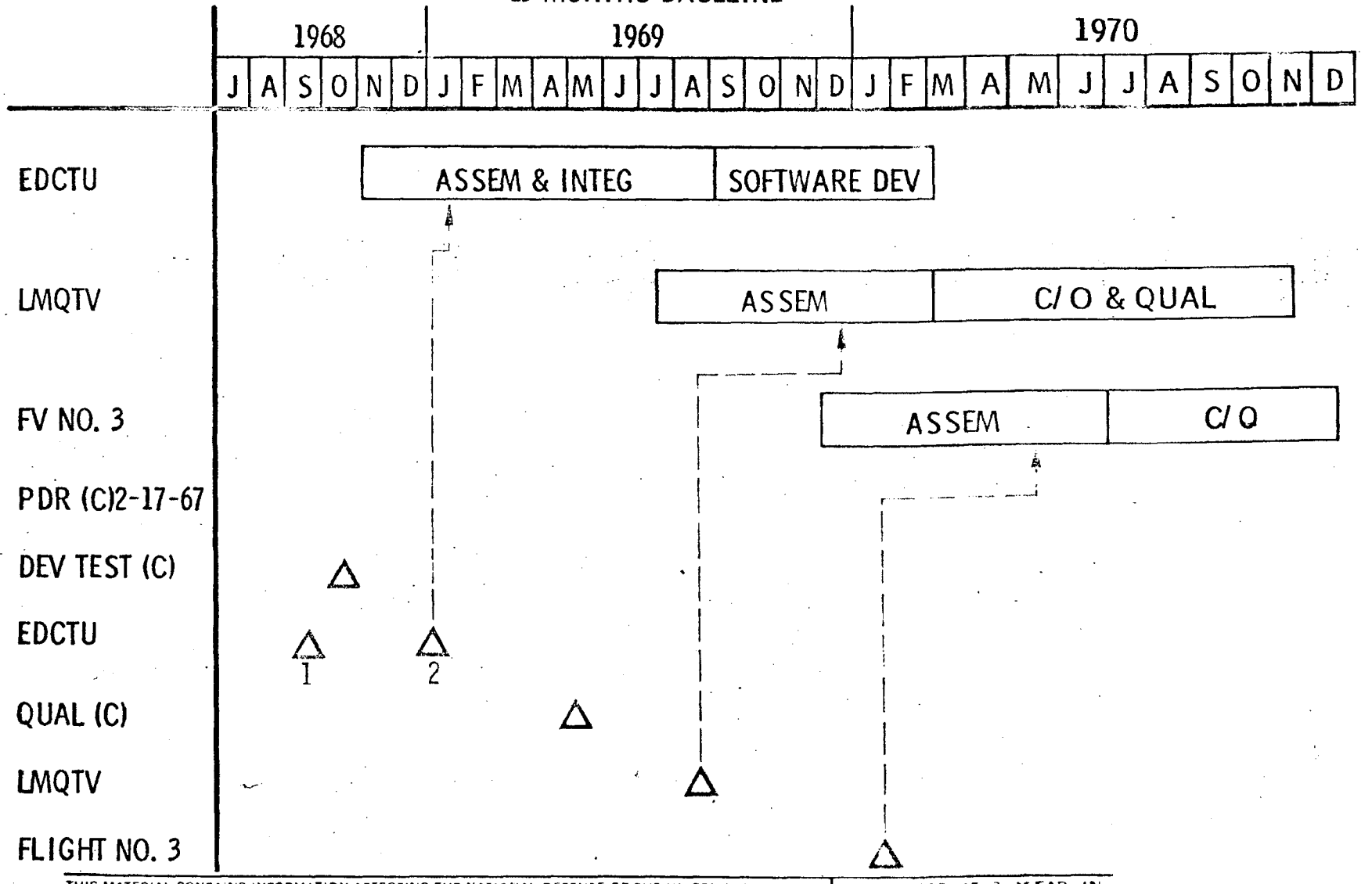


~~SECRET~~ SPECIAL HANDLING

V1199-9

~~CONFIDENTIAL~~

PRIMARY POWER SUBSYSTEM (U)
MSK TO DOUGLAS RELATIONSHIP
15 MONTHS BASELINE



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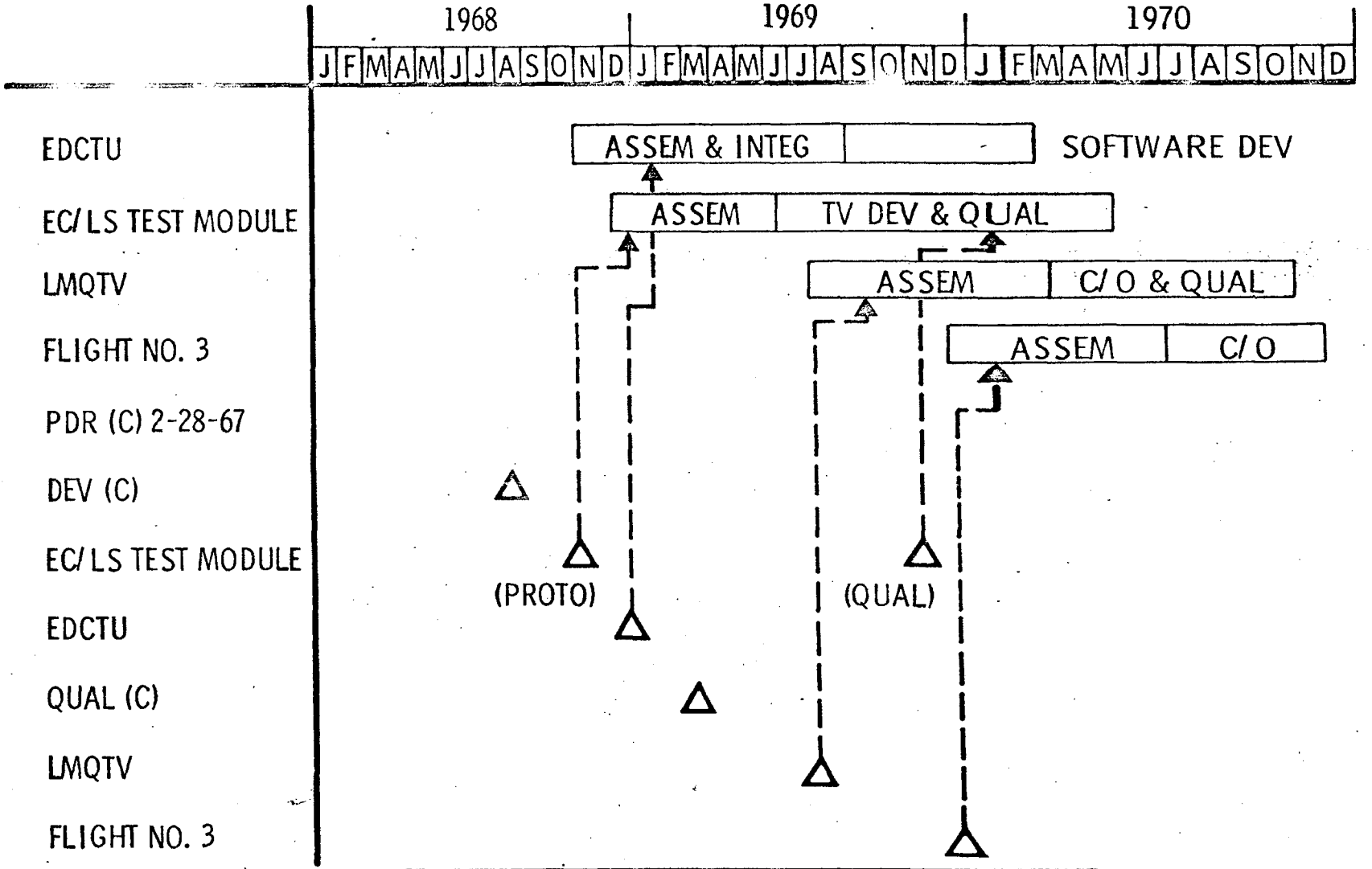
ENVIRONMENTAL CONTROL SUBSYSTEM (U)
MSK TO DOUGLAS RELATIONSHIP
15 MONTH BASELINE

V1200-4



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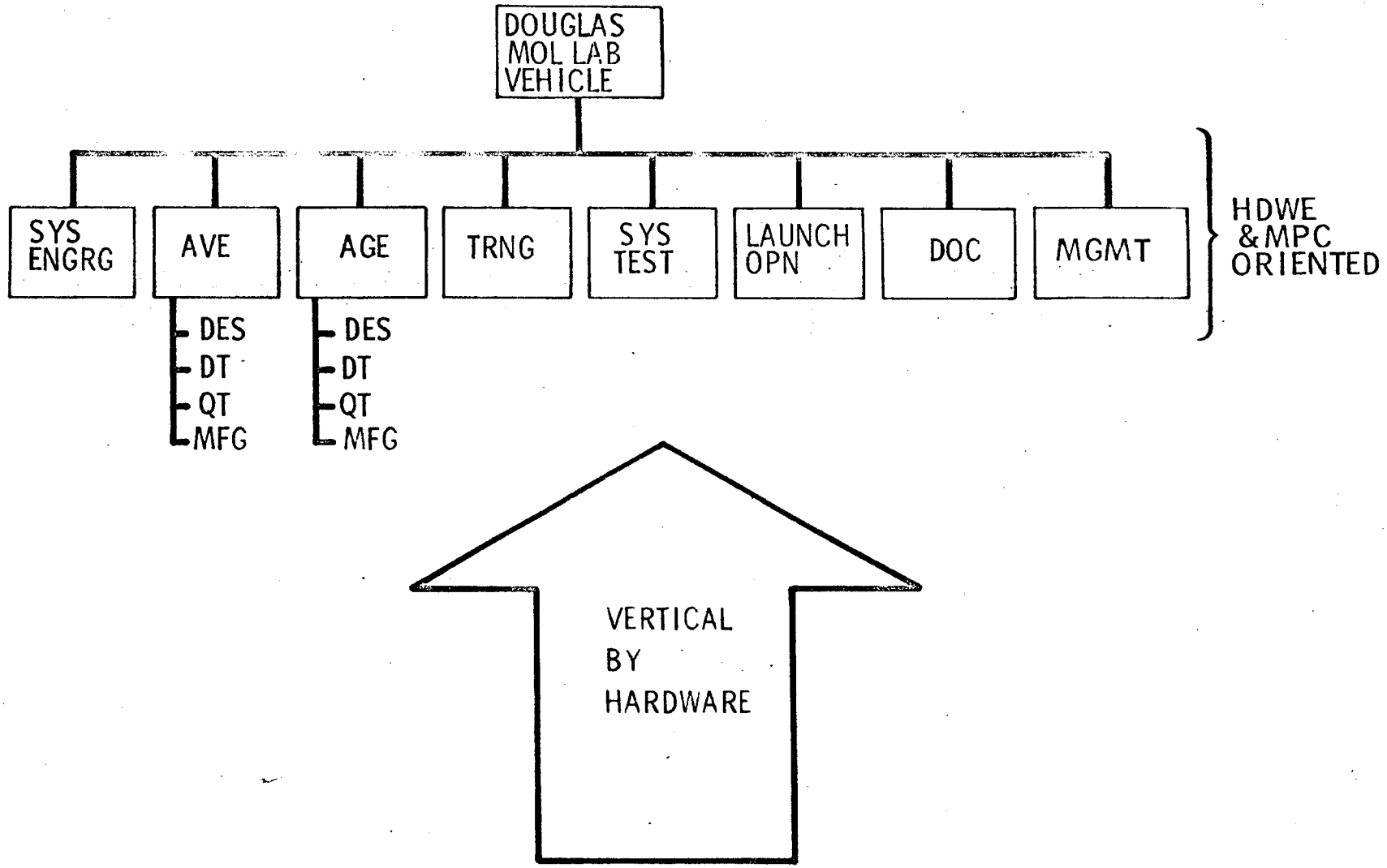
V479-7

WBS SUMMARY LEVEL

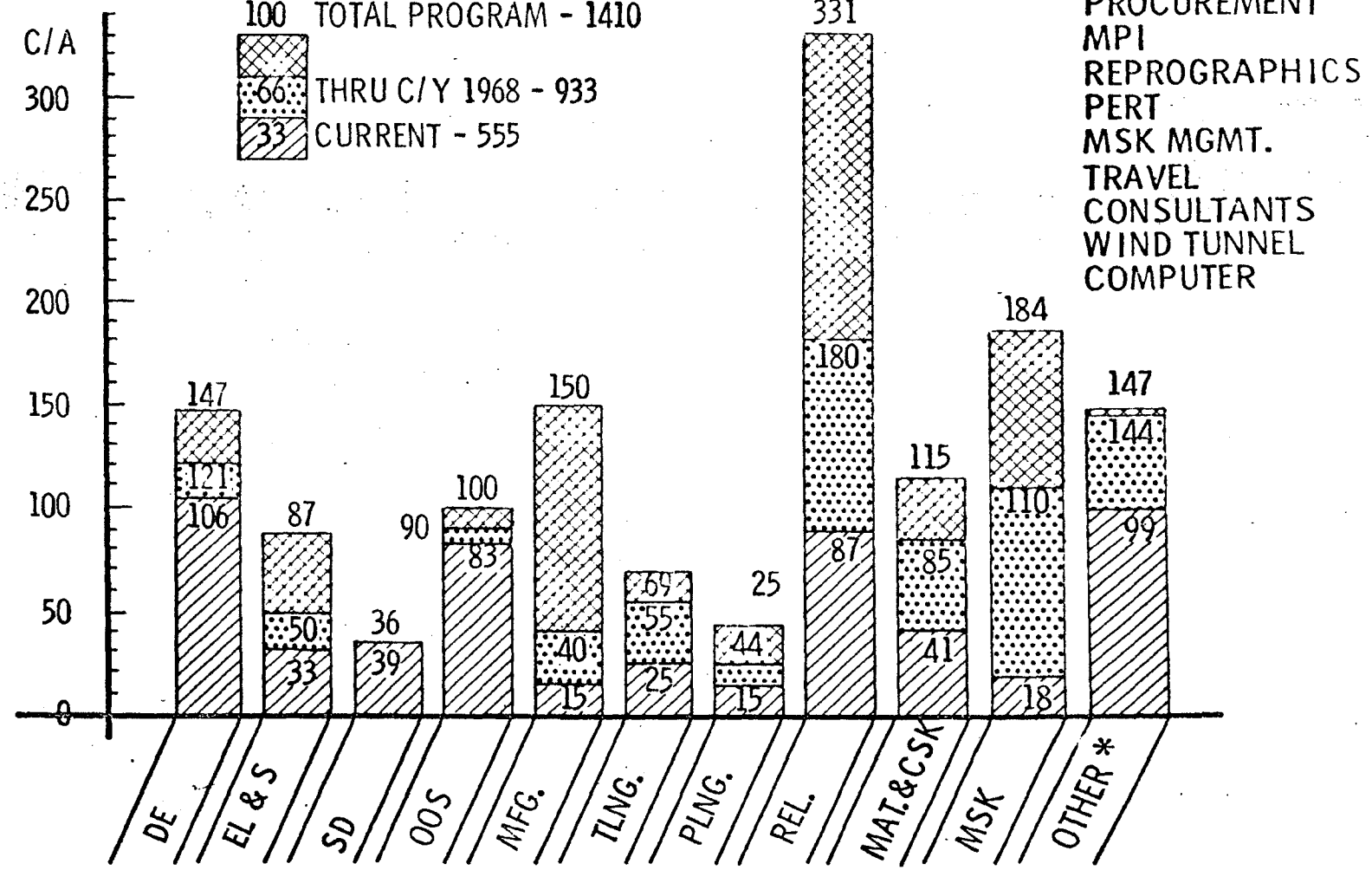


COST ACCOUNT SUMMARY

CURRENT -	555
THROUGH CALENDAR YEAR 1968 -	933
TOTAL PROGRAM -	1,410

V1196-8

COST ACCOUNT SUMMARY

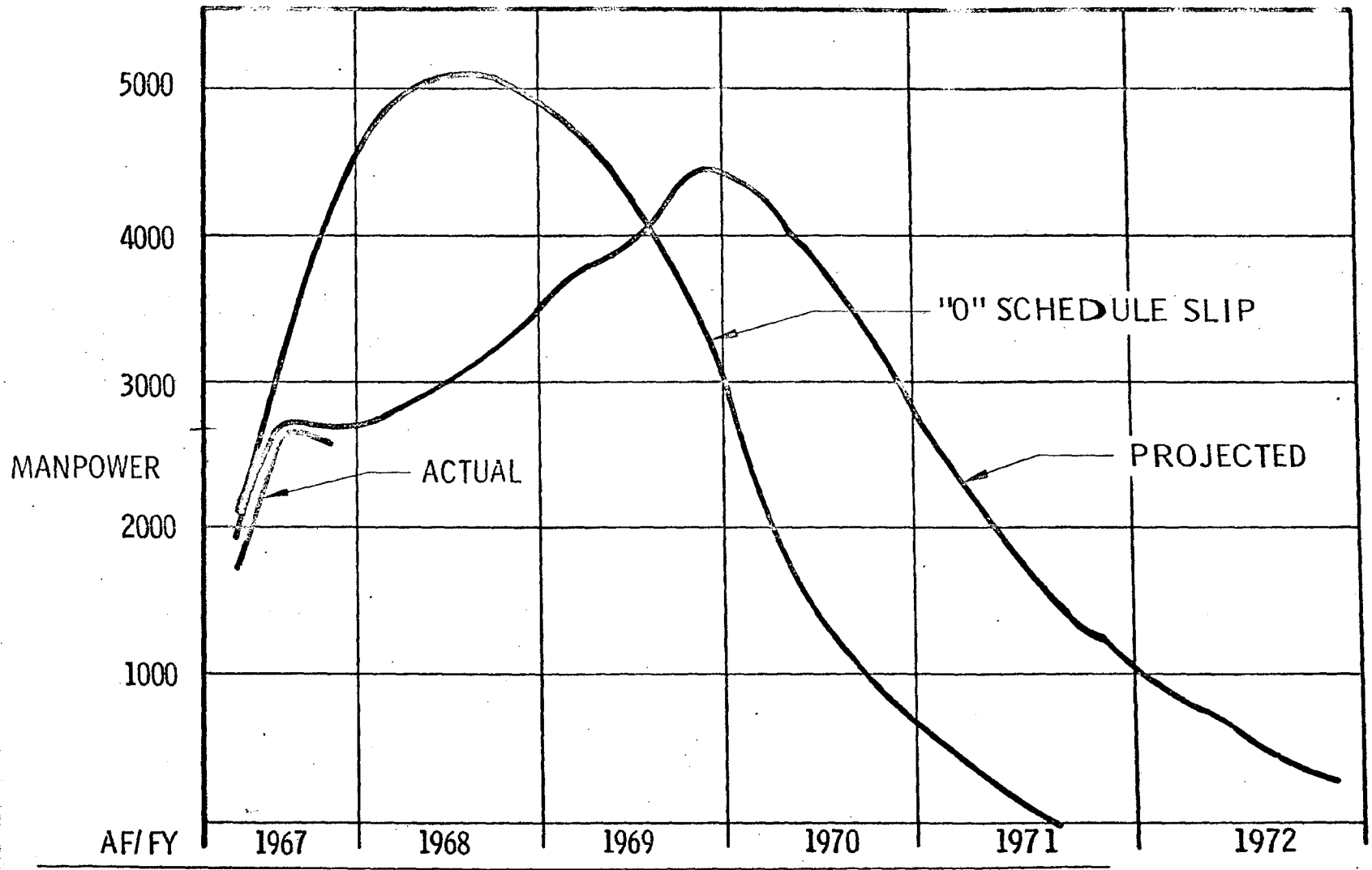


* INCL.
CONFIG. MGMT.
PROCUREMENT
MPI
REPROGRAPHICS
PERT
MSK MGMT.
TRAVEL
CONSULTANTS
WIND TUNNEL
COMPUTER

~~CONFIDENTIAL~~

V1197-7

MOL DIRECT MANPOWER (U)
TOTAL
(15 MONTHS SCHEDULE SLIP)

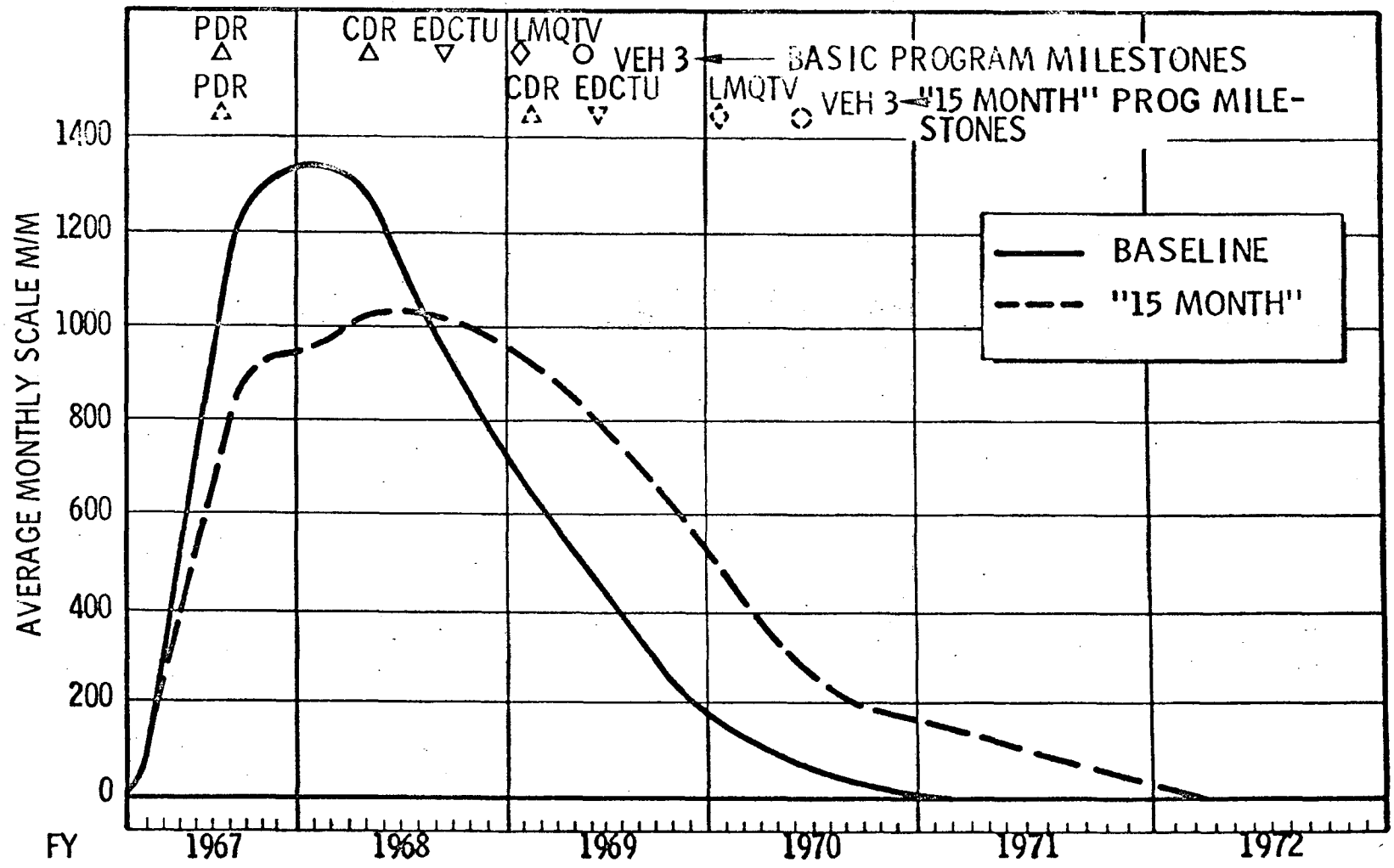


V1217-2

~~CONFIDENTIAL~~

TOTAL PROGRAM MANLOADS BY MANMONTH (U)

FOR: ACTS/SCE SUBSYSTEM, COMM SUBSYSTEM, ECS, DCSG, PP SUBSYSTEM



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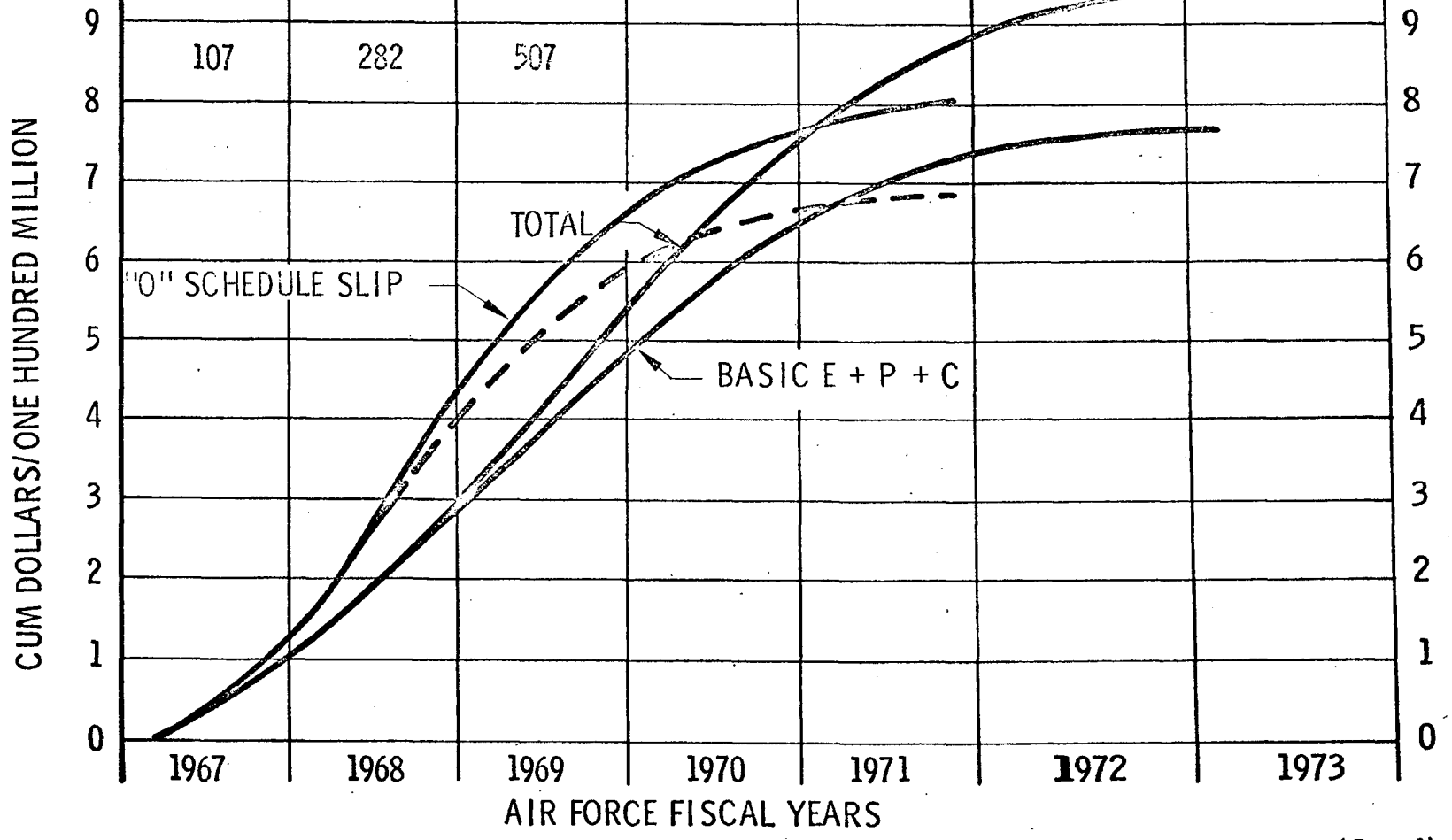
MOL EDP FUNDING - 15 MONTHS EXTENSION (U)

V1197-5

		1967	1968	1969	1970	1971	1972	1973
BAS.	RATE	104.3	184.0	196.5	162.9	90.1	28.4	1.8
	CUM	104.3	288.3	484.8	647.7	737.8	766.2	768.0
TOT.	RATE	107.1	194.4	230.5	222.6	131.2	56.3	6.3
	CUM	107.1	301.5	532.0	754.6	885.8	942.1	948.4



~~CONFIDENTIAL~~ (Gp-4)

ENGINEERING DRAWINGS

	COMPLETE	FY 67	FY 68	FY 69
PRODUCTION	496	1250	9000	5000
TEST AND MOCKUP	844	1800	4500	700
MEAS REQ DWGS	243	380	600	320
TEST CONTROL	36	105	525	70
		3535	14525 3535 24250	6090

DAE

TECHNICAL REQUIREMENT SPECIFICATIONS AND PROCUREMENT ACTIONS

V1204-6

TRS	TO DATE	FY 67	FY 68	FY 69
OUT FOR BID	69	90	1400	1000
ON PROCUREMENT	30	40	1200	1440
CRITICAL PARTS				
ANALYZED AND SCHEDULED	2561	2800	0	0
AMO'S				
RELEASED	1246	2000	9000	5000
COMPLETED AND HELD	47	0	0	0

TEST PROGRESS

- LINE ITEMS COMPLETE 2
- LINE ITEMS IN PROCESS 4
- TEST CONTROL DWGS IN ENG LABS AND SERV FOR PLNG 36 (21 BEING PLND)
- TEST SPECIMENS IN FAB 26
- DEV TEST COMPLETIONS:
  - AS OF 5-1-67 - 2
  - JULY - 1967 - 11
  - JULY - 1968 - 97
  - JULY - 1969 - 82

SPECIFICATIONS AND INTERFACE CONTROL DRAWINGS

	TOT REQ	TO DATE	FY 67	FY 68	FY 69
CEI SPECS	121	109	7	5	0
INTERFACE SPECS	62	12	12	37	1
INTERFACE CONT DWGS	61	10	10	38	3

V1205-1

PDR STATUS

DESCRIPTION	TOTAL	CUMULATIVE TO DATE	CUMULATIVE FY 67	CUMULATIVE FY 68
TOTAL SCHED	128	72	92	128
AVE	26	18	20	26
AGE	87	42	57	87
MISSION SIM	4	3	4	4
'NTERFACE SUBS	11	9	11	11
			124	256

CDR SCHEDULE

DESCRIPTION	TOTAL	CUMULATIVE TO DATE	FY 67	CUMULATIVE FY 68	FY 69
TOTAL SCHED	123	4	8	70	117
AVE	22	-	-	3	22
AGE	86	2	4	54	81
MISSION SIM	4	-	1	2	3
INTERFACE SUBS	11	2	3	11	11
				140	234
				234	
				374	

FY 1968 MILESTONES

- DELIVERIES:
  - INTERFACE SUBSTITUTES
    - EVA MOCKUP TRAINER
    - MMFS NP NO. 1 AND 2
    - LMFS (42")
    - MMFS (38")
    - DRV LAUNCH TUBE
    - LM FWD ELECT SUBSTITUTE
  - MMFS FOR STV
  - 6 COMPUTER PROGRAMS
  - AVE DIGITAL COMPUTER FOR DEV TEST
- MISSION MODULE CDR
- AVAIL COMPLETE DEV FIXTURE
- START ASTEG FAB AND ASSY (NOTE - COMPUTER ALREADY INSTALLED)
- START FAB LM STRUCTURE

V1196-4A

FY 1969 MILESTONES

- SHIP MISSION MODULE AFT BAY FOR STV
- ASSEMBLE STV
- COMPLETE MODAL SURVEY
- DEVELOP ASTEG SUBSYSTEM INTEG AND DEVELOP TEST
- START HDWE/ STWE DEV TESTS - MISSION SIMULATOR
- DEVELOP WIRE HARNESSES - DEV FIXTURE
- MODIFY SACTO FACILITIES
- START BUILDUP AND INTEGRATION - EDCTU
- START CHECKOUT - DEV ASTEG
- START FAB AND ASSY AGE FOR PSIA NO. 1 AND 2, SPACE CHAMBER AND VAFB

PRIMARY POWER SUBSYSTEM GROUP
(PRATT & WHITNEY)

V1202-7

ACCOMPLISHMENTS TO DATE

• START MULTISTACK DEVELOPMENT TESTS	NOV 1966
• START VOLTAGE LIMITER SENSOR DEVELOPMENT TESTS	FEB 1967
• (COMPLETE) ESTABLISH DESIGN REQUIREMENTS (PDR)	FEB 1967
• (COMPLETE) SIMULATOR DESIGN REVIEWS	MAR 1967
• START OPERATION OF FIRST COMPLETE FUEL CELL POWERPLANT (200 HOURS ACCOMPLISHED)	APR 1967

SIGNIFICANT TASKS TO BE ACCOMPLISHED PRIOR TO END FISCAL YEAR 1968

• DELIVER MANUFACTURING DEVELOPMENT FIXTURE	JUL 1967
• CONTINUE DEVELOPMENT TESTS	--
• COMPLETE CRITICAL DESIGN FOR AGE	JUN 1967
• DELIVER FIRST AGE (CEI 207208A) GAS CONTROL AND REACTANT EVACUATION UNIT	JUN 1968

ENVIRONMENTAL CONTROL SUBSYSTEM
(HAMILTON STANDARD)

V1203-5

- ACCOMPLISHMENTS TO DATE

• COMPLETE FINAL SYSTEM ANALYSIS	DEC 1966
• COMPLETE - ESTABLISH DESIGN REQUIREMENTS (PDR) (AGE)	DEC 1966
• PUBLISH SPECIFICATIONS - 80% COMPLETE	DEC 1966
• DEFINE TEST RIG REQUIREMENTS	JAN 1967
• COMPLETE - ESTABLISH DESIGN REQUIREMENTS (PDR) (AVE)	FEB 1967
• START DEVELOPMENT TESTS	
• CATALYTIC BURNER	FEB 1967
• MOLECULAR SEIVES AND MATERIALS	MAR 1967

- SIGNIFICANT TASKS TO BE ACCOMPLISHED PRIOR TO END FISCAL YEAR 1968

• COMPLETE MOCKUP DRAWINGS	MAY 1967
• COMPLETE PROTOTYPE HARDWARE DESIGN	
• P AND C SYSTEM	MAY 1967
• WATER MANAGEMENT	JUN 1967
• START SELECTION OF SUBCONTRACTORS	JUN 1967
• COMPLETE SELECTION OF SUBCONTRACTORS	JUL 1967
• START DEVELOPMENT TESTING OF WATER HEATER (AVE)	JAN 1968
• COMPLETE DEVELOPMENT TESTING - AVE	JUL 1968

V1204-5A

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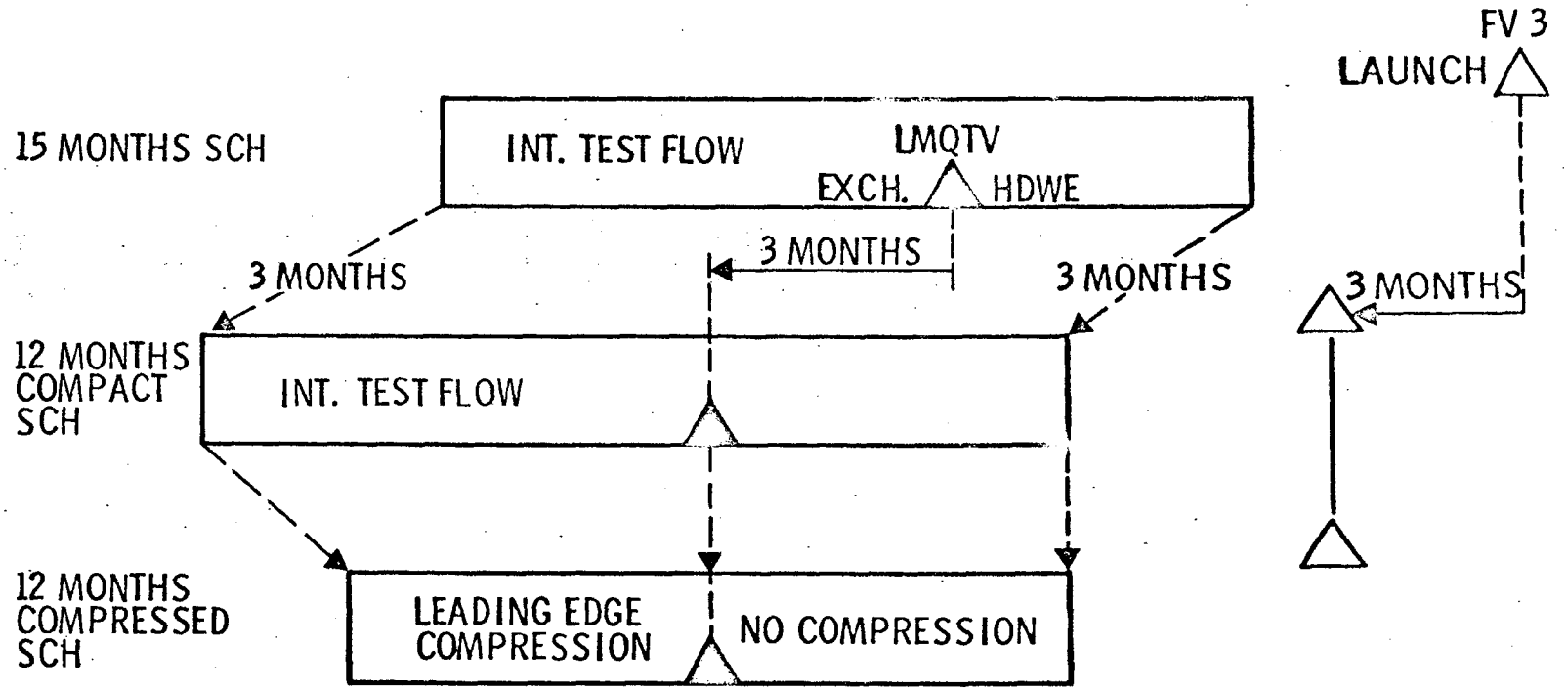
12 MONTHS SCHEDULE SELECTED ALTERNATE (U)



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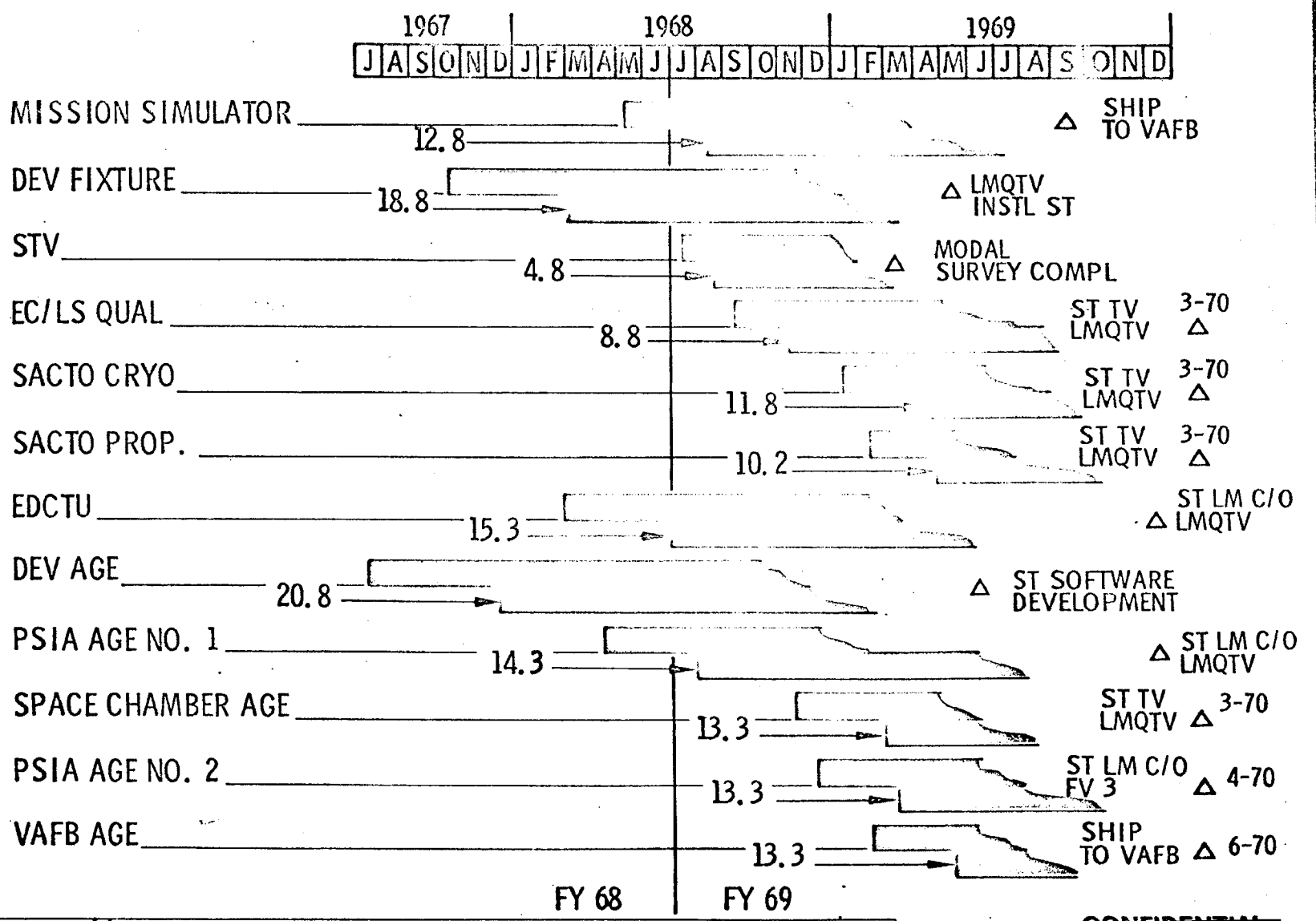
V1202-4

~~CONFIDENTIAL~~

COMPACT 12 MONTHS SCHED-COMPRESSION FY 68
(WORK WEEKS)



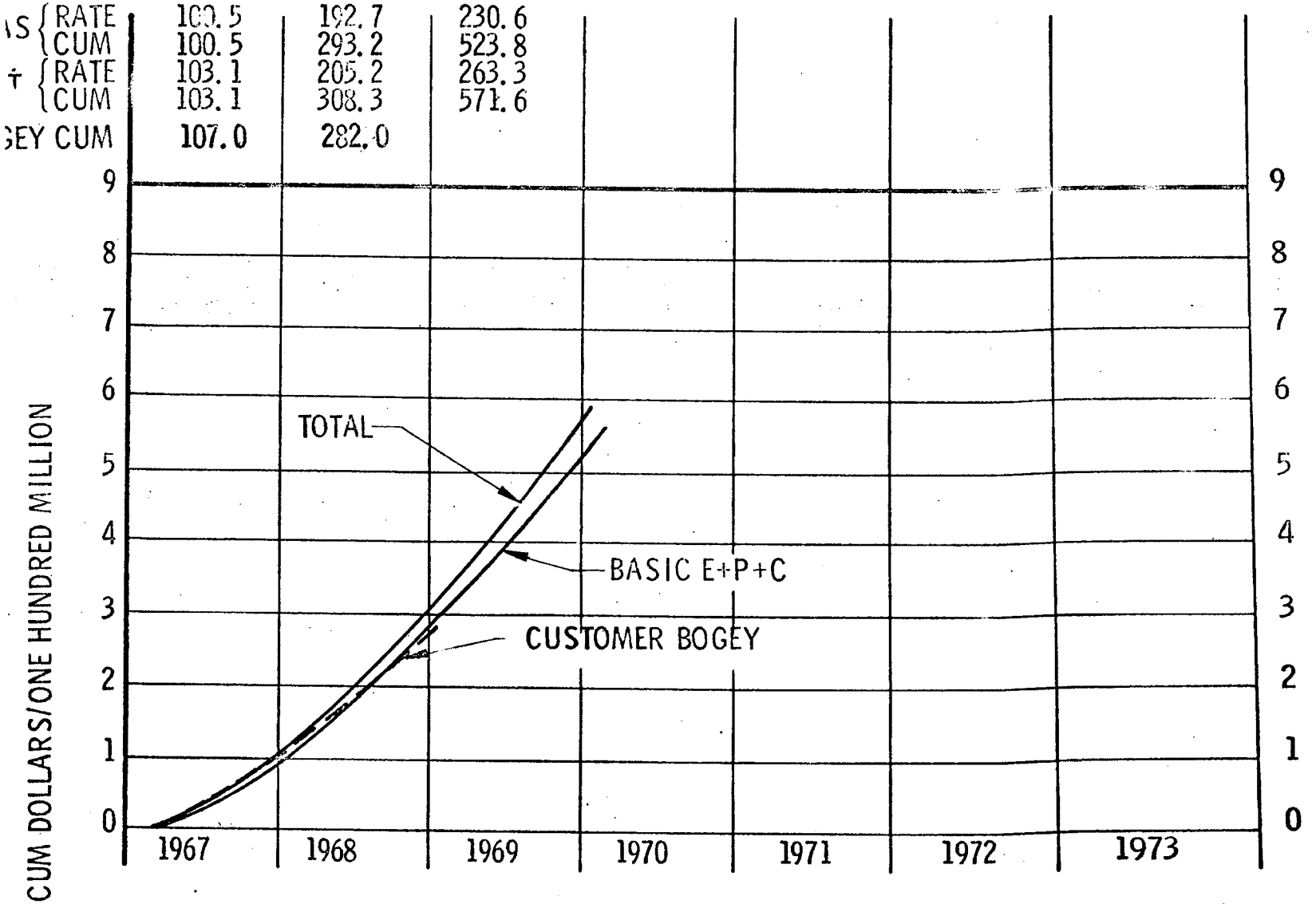
~~CONFIDENTIAL~~

V1205-4

MOL EDP FUNDING - 12 MONTHS COMPACTED SCHEDULE SLIP (C)

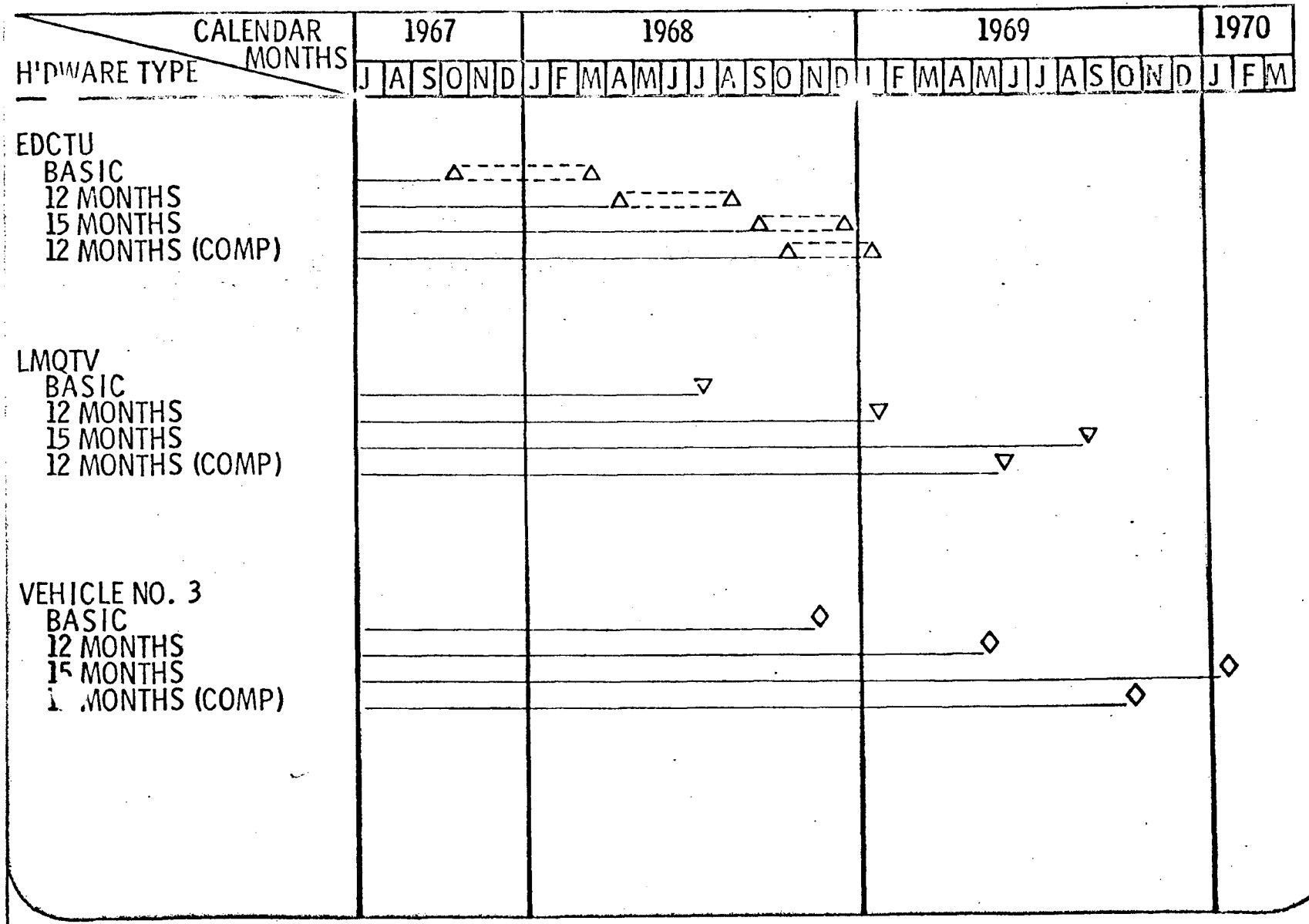
~~IFIDENTIAL~~

		1967	1968	1969
S	RATE	100.5	192.7	230.6
	CUM	100.5	293.2	523.8
†	RATE	103.1	205.2	263.3
	CUM	103.1	308.3	571.6
GEY CUM		107.0	282.0	



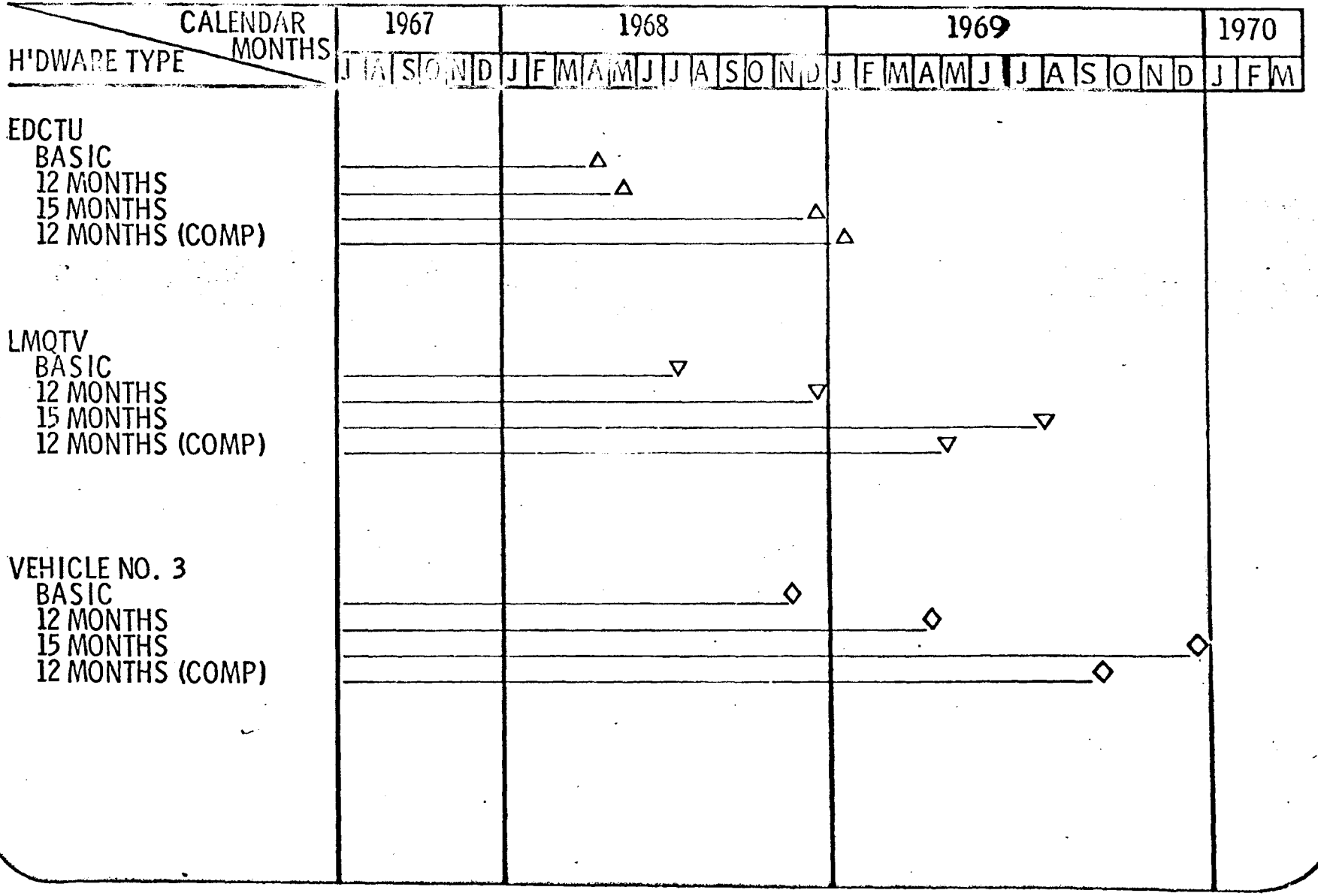
V1203-8

PRIMARY POWER - PRATT & WHITNEY SCHEDULE COMPARISON



V1203-9

ENVIRONMENTAL CONTROL - HAMILTON STANDARD SCHEDULE COMPARISON



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MAJOR SUBSYSTEM (U)
SUBCONTRACTOR FUNDING
(E+F+C) $(00,000)

V1200-9A

	1967	1968	1969	1970	1971	1972
ORIG						
— — — — RATE	57.0	65.1	31.7	5.2		
CUM	57.0	122.1	153.8	159.0		
12 MO						
..... RATE	42.3	67.8	38.9	17.1	2.2	
CUM	42.3	110.1	149.0	166.1	168.3	
15 MO						
——— - ——— RATE	38.9	65.1	41.3	21.8	9.8	.2
CUM	38.9	104.0	145.3	167.1	176.9	177.1
12 COMPR						
———— RATE	37.7	64.4	49.7	17.5	3.3	
CUM	37.7	102.1	148.2	169.3	172.6	

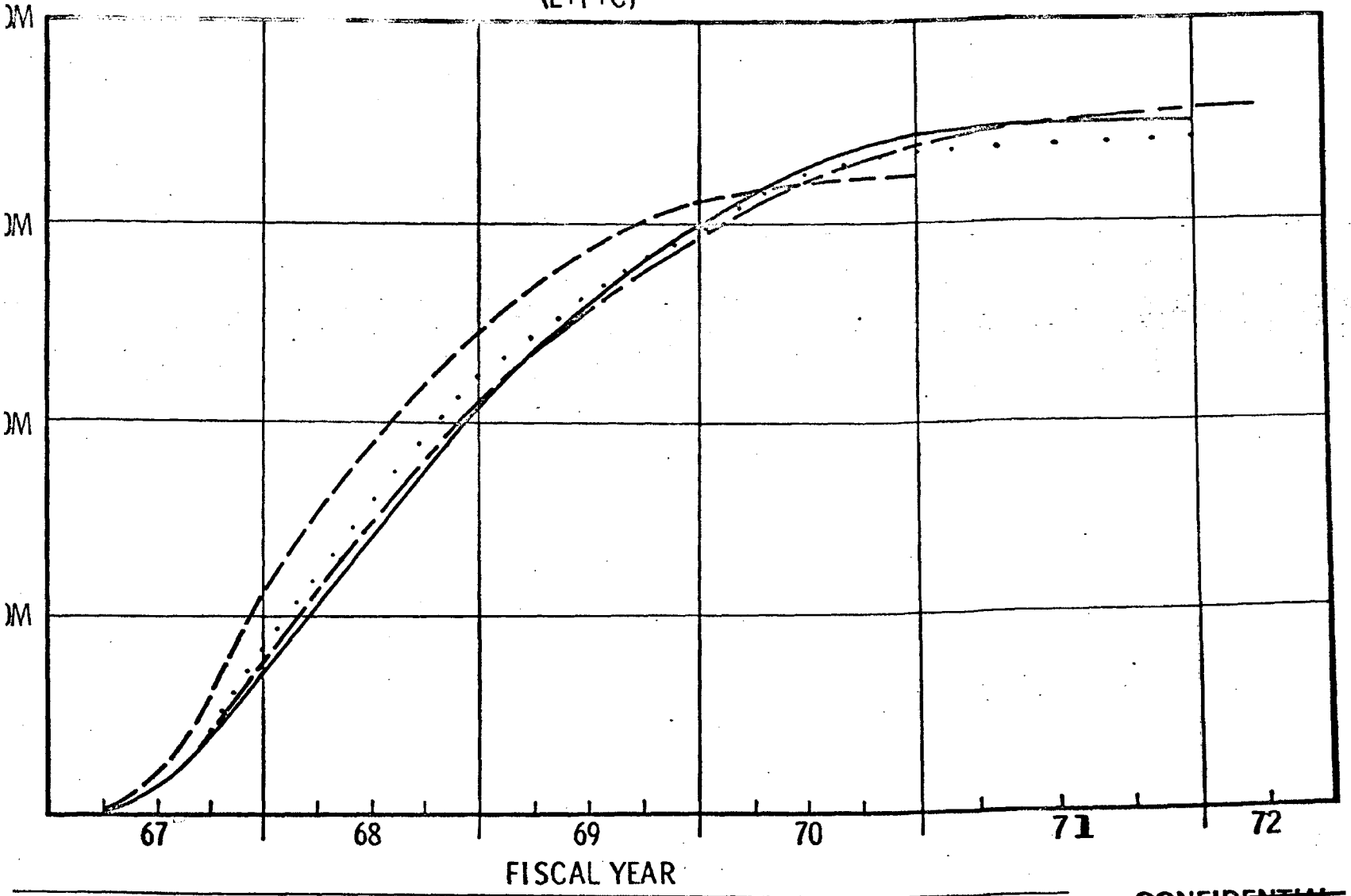
FISCAL YEAR

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

V1210-6A

MAJOR SUBSYSTEM (U)
SUBCONTRACTOR FUNDING
(E+F+C)



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FIXED PRICE INCENTIVE SUCCESSIVE TARGETS (FPIS)

CONCEPT OF USE:

- A LONG TERM FIXED-PRICE CONTRACT FOR PRODUCTION QUANTITIES WHERE THE FUTURE COSTS MAY INVOLVE EXCESS CONTINGENCIES
- APPROPRIATE FOR QUANTITY PRODUCTION WITH UNKNOWN LEARNING EXPERIENCE
- FUTURE PRODUCTION COST IS RETARGETED BASED UPON FIRST PRODUCTION ITEM COST EXPERIENCE

PROS:

- NONE FOR MOL ENGINEERING DEVELOPMENT PHASE SYSTEM PROCUREMENT

CONS:

- MOL IS NOT A QUANTITY PRODUCTION PROGRAM
- WOULD INFLATE EARLY YEAR FY FUND REQUIREMENTS
  - I.E., HIGH ACTUALS TO SUPPORT HIGH RESET TARGET

FPIS (CONT'D)

- DOES NOT ESTABLISH CONTRACTUAL BASIS FOR TOTAL PROGRAM COST
- MOST DIFFICULT IF NOT IMPRACTICABLE TO INCLUDE PERFORMANCE OR MEANINGFUL COST INCENTIVES
- CHANGES OF THE TYPE NORMAL TO ENGINEERING DEVELOPMENT PHASE WOULD BE MOST DIFFICULT TO NEGOTIATE
- INCREASES SPO AND CONTRACTOR ADMINISTRATIVE BURDEN

FIXED PRICE INCENTIVE INITIAL TARGET (FPIF)

CONCEPT OF USE:

- NEGOTIATE TOTAL PACKAGE WHICH HAS BEEN SUFFICIENTLY DEFINED TO ESTABLISH A FAIR AND REASONABLE PRICE WHICH IS REASONABLY FREE OF CONTINGENCIES

- INCLUDES PREDETERMINED FIXED PROFIT PATTERN FOR A FLEXIBLE DOLLAR AMOUNT OF PROFIT. I.E., A PROFIT SHARING FORMULA.

PROS:

- IN ACCORDANCE WITH 3200.9 POLICY OF DOD WHEN FOLLOWING CRITERIA ARE MET
  - ACHIEVABLE PERFORMANCE REQUIREMENTS
  - STABLE PROGRAM REQUIREMENTS
  - DEFINED INTERFACES AND RESPONSIBILITIES
  - ACCEPTABLE TECHNICAL APPROACHES
  - HIGH RISK AREAS IDENTIFIED
  - ESTABLISHED FIRM AND REALISTIC SCHEDULES
  - ESTABLISHED FIRM AND REALISTIC COSTS

FPIF (CONT'D)

- MINIMIZES CONS OF OTHER REDETERMINABLE TYPE CONTRACTS
- HAVE BEEN NEGOTIATED WITH MAC, DAC AND MARTIN FOR MOL PHASE II

CONS:

- NONE OVER PRICE REDETERMINABLE TYPE CONTRACTS PREVIOUSLY DESCRIBED

TYPE CONTRACTS FOR MOL

CONCLUSION:

- FPE, FPIS, FPR-A AND FPR-E REDETERMINABLE TYPE CONTRACTS NOT APPROPRIATE FOR DAC, MARTIN AND/OR McDONNELL

RECOMMENDATION:

- DO NOT DIRECT SPO TO CHANGE TYPE CONTRACTS FOR DAC, MARTIN AND/OR McDONNELL

GEMINI-B

SHUTTLE STATUS (END OF FISCAL 67)

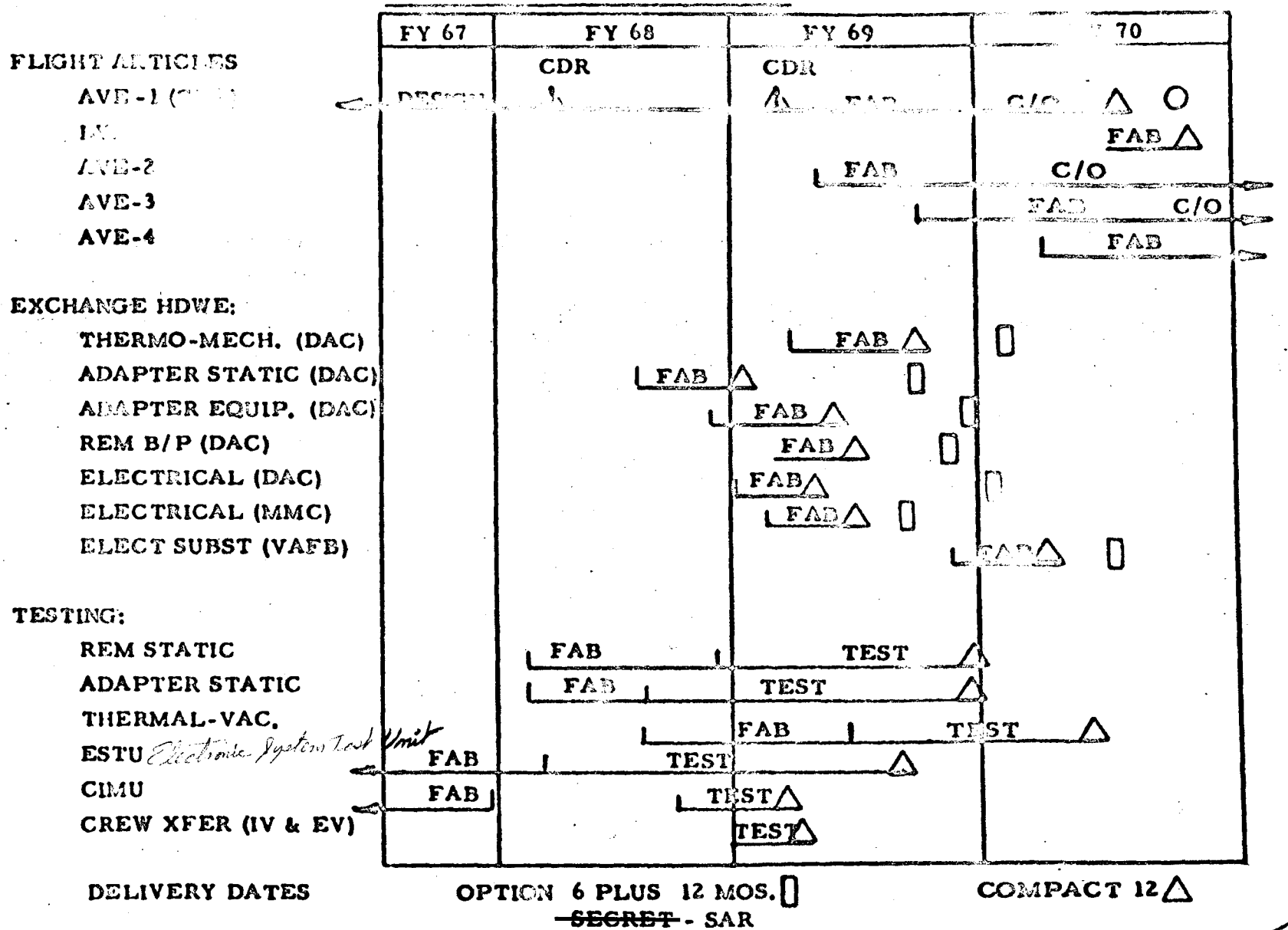
- PROGRAM STATUS
  - / AVE PDR CONDUCTED 7 - 10 FEBRUARY 1967
  - / AGE PDR CONDUCTED 20-21 APRIL 1967
  - / HST FLIGHT - 3 NOVEMBER 1968
    - o VERIFIED HATCH IN HEAT SHIELD
  - / SIGNIFICANT TECHNICAL DECISIONS/CHANGES
    - o ADD DACS AND HEAT SHIELD FOR SAFETY

- SPECIFICATION STATUS
  - / AGE AND AVE CEI'S (PART I) COMPLETE
  - / IFS'S ~ 75% COMPLETE IN TOTAL CONTENT

- SUBSYSTEM DESIGN/HARDWARE STATUS
  - / APPROXIMATELY 69% MAC DRAWING RELEASED
  - / APPROXIMATELY 90% VENDOR PURCHASE ORDERS PLACED
  - / APPROXIMATELY 99% IN-PLANT WORK ORDERS RELEASED
  - / TEST HARDWARE FABRICATION UNDER WAY

GEMINI B SCHEDULE

MINIMUM EFFECTIVE PROGRAM



WDP 5/1

MAC MINIMUM EFFECTIVE PROGRAM

- INTERFACES
  - / DESIGN, FABRICATION AND DELIVERY OF EXCHANGE HARDWARE
  - / COMPLETION AND MAINTENANCE OF DOCUMENTATION
  - / RESOLUTION OF PROBLEMS AND CHANGES
- DEVELOPMENT TESTING
  - / LOW LEVEL ESTU AND CIMU
  - / NEW HARDWARE PACS, BLAST SHIELD, STAGE 1 SHUTDOWN, PYRO, ECS (?)
  - / ALL OTHER DEFERRED
- QUALIFICATION TEST / ARTICLE FABRICATION
  - / NEW ADAPTER
  - / REM STRUCTURE
  - / NEW COMPONENTS/SUBSYSTEMS
- SAFETY IMPROVEMENTS
  - / OXYGEN SAFETY
    - MATERIALS SUBSTITUTION
    - ECS MODIFICATIONS
    - QUICK EGRESS MODIFICATIONS
  - / CONTINUING EFFORT ON ABORT SYSTEM
- MAINTAIN VENDOR CONTINUITY
- OTHER MINIMAL ENGINEERING SUPPORT OF ASSOCIATES

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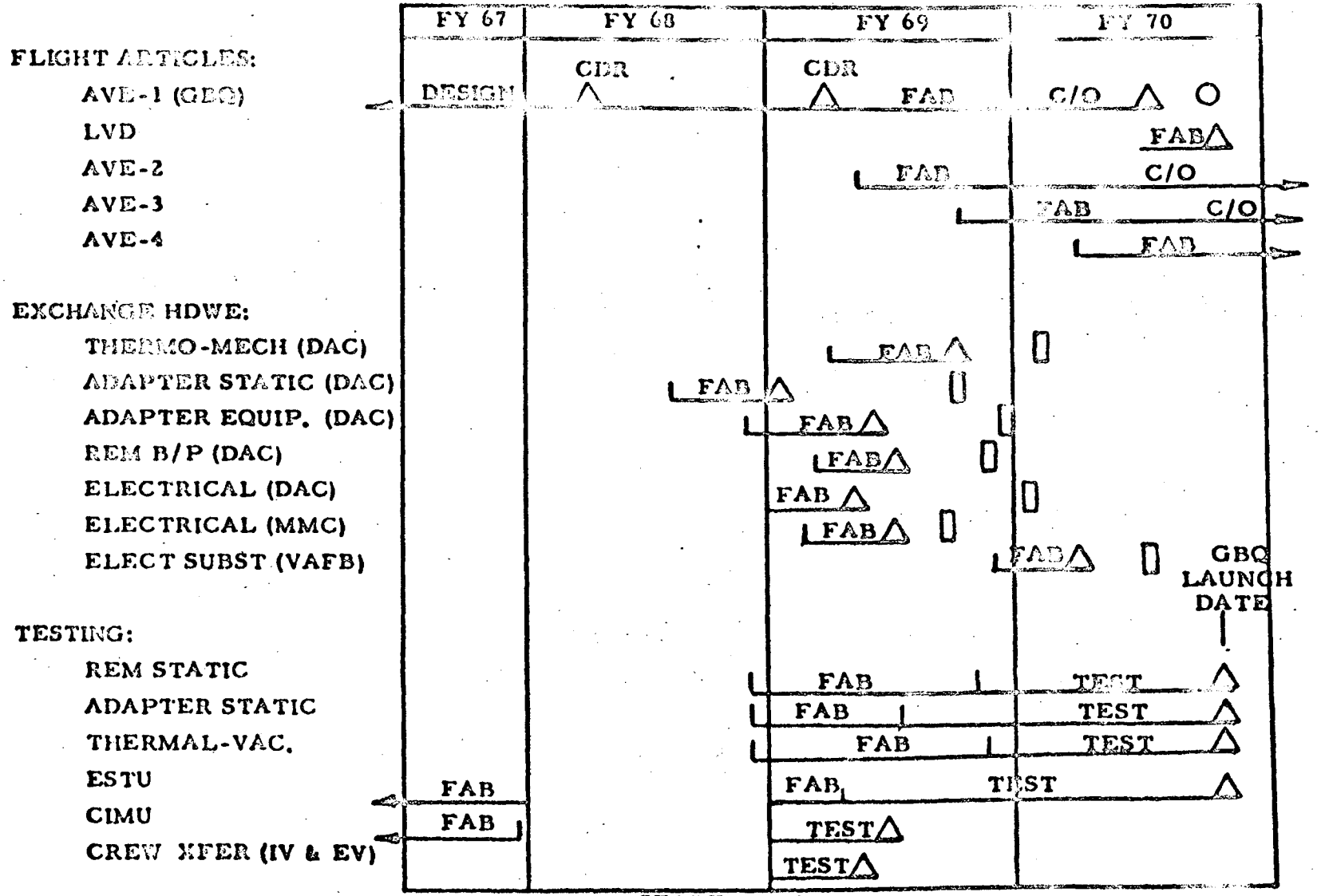
GEMINI B SCHEDULE

MINIMUM SUSTAINING PROGRAM



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DELIVERY DATES OPTION 6 PLUS 12 MOS. COMPACT 12

GEMINI B
MINIMUM SUSTAINING SCHEDULE
RISKS INVOLVED

- o DELAYED TESTING
  - / DELIVER IF SUBSTS. PRIOR TO AVE DEVELOPMENT
    RISKS: MODIFY SUBSTS AFTER DELIVERY
    INVALIDATE ASSOCIATE'S TESTS
  - / COMPLETE QUALIFICATION TESTING AFTER GBQ DELIVERY
    RISK: DELAY LAUNCH FOR TEST COMPLETION
    AND GBQ MODIFICATIONS
- o LOSE EXPERIENCED GEMINI PERSONNEL
  - / DRASTIC LOSS IN KNOW-HOW
  - / LOWER SYSTEM EFFECTIVENESS
- o LOSE QUALIFIED GEMINI VENDORS
  - / REDESIGN AND REQUALIFICATION OF COMPONENTS

KNOLLE

DESIGN REVIEWS COMPLETED

	PRELIMINARY	MAJOR	FINAL
IN-HOUSE	16	9	1
SUBCONTRACT	5	2	2
TOTAL	21	11	3

SPECIFICATION STATUS

AFF	COMPLETE	In Process	Not Started	TOTAL
IN-HOUSE	15	19	38	85
SUBCONTRACTS	12	1		

ASE				
IN-HOUSE	13	10	04	151
SUBCONTRACTS	20	24		

F-017907-CH
April 27 67

PROGRESS OF FLIGHT-TYPE REFLECTIVE OPTICAL ELEMENTS

GF 833

DEVELOPMENT OR PRIME OPTICS	QTY. REQ'D	QTY. PLANNED	USE
12" ASPHERE SOLID	1	(1) 1	F/S
11" ASPHERE (LIGHTWEIGHT) PRIMARY	8	(9) 1 2 3,4 5-9	EM — QAT, QM FM 1-5
11" PLANO (LIGHTWEIGHT TRACKING	7	(9) 1 2-9	EM QA, FM-1-5
27" PLANO LIGHTWEIGHT FOLDING	9	(10) 1 2 3 4 5 6-9 10	— EM QAT RC QM FM 1-4 FM 5
24" PLANO LIGHTWEIGHT FOLDING ROSS	9	(10) 1 2 3 4 5 6 7 8 9 10	FM QAT — RC QM FM 1-4 FM 5

CY 1966 J F M A M J J A S O N D

CY 1967 J F M A M J J A S O N D

ON ORDER

NON-PRIME

BEING ORDERED
TO BE ORDERED

NON-PRIME

BEING ORDERED
TO BE ORDERED

DELIVERY - COMPLETED - ○
GRINDING - STARTED - △
POLISHING - STARTED - □

COMPUTED - ○
COMPUTED - △
COMPLETED - □

EASTMAN KODAK CO.

~~SECRET~~
SPECIAL HANDLING

BOOK

PHOTO DOCUMENTATION

SPECIAL HANDLING
~~SECRET~~

F-017907-CH
April 27 67

CF 834

PROGRESS SELECTED OF MAJOR OPTICAL TEST ELEMENTS

TEST ELEMENT	QTY	QTY PLANED	1966 CY J F M A M J J A S O N D	1967 CY J F M A M J J A S O N D	APPLICATION
82" MASTER SPHERE	3	1 2 3 4			CHAMBER II, IIg, B, TEST
72" MASTER PARABOLA	1	1 2			CHAMBER III_a/III_b
72" MASTER PLANO	3	1 2 3 4			CHAMBER III_a, III_b, A(2)
33" LIGHTWEIGHT PLANO	3	1 2 3			CHAMBER I_{em_a}, I_{em_b}, B/C
30" NULL-CORR. SPHERE	4	1 2 3 4 5 6			CHAMBER I_{em_a}, I_{em_b}, I, Ig, TEST
28" LIGHTWEIGHT SPHERE	2	1 2			CHAMBER I_{em_a}, I_{em_b}
34" MASTER SPHERE	2	1 2			TEST MIRRORS

KEY: DELIVERY -- SCHEDULED - O ; COMPLETED O
GRINDING -- STARTED - △ ; COMPLETED △
POLISHING -- STARTED - □ ; COMPLETED □

EASTMAN KODAK CO.

~~SECRET~~
SPECIAL HANDLING

PHOTO DOCUMENTATI

MAJOR SUBCONTRACTS

1. DAC - OA STRUCTURE
2. ITEK - CAMERA AND CAMERA TEST SET
3. CORNING GLASS WORKS - OPTICAL BLANKS
4. LING-TEMCO-VOUGHT - ACOUSTIC CHAMBER
5. TRW - BLOCK ASE DESIGN AND FABRICATION
6. BERTHIEZ - GRINDER
7. PDM - TEST TOWERS
8. HUBER, HUNT & NICHOLS - SPECIAL CONSTRUCTION

SIGNIFICANT ACCOMPLISHMENTS

1. AVE

FULL-SCALE MOCKUPS - LM AND MM

BREADBOARDS - FILM HANDLING

OA STRUCTURE (SLS) - DAC SUBCONTRACT

C & D MIRROR STRUCTURE AND MOUNT - EK DESIGN - LMSC PURCHASE

OA ASSEMBLY - MATED STRUCTURES

2. CHAMBERS

EM TOWERS ERECTED

3. TESTING

IDENTIFICATION AND DEFINITION OF TESTS AT MISSION MODULE LEVEL

(THERMAL-OPTICAL AND ORBITAL DYNAMICS)

ACTIVATION AND USE OF LARGE POLISHING EQUIPMENT, SPECIAL EVALUATION EQUIPMENT

ACTIVATION AND USE OF HORIZONTAL TESTING

4. ASE

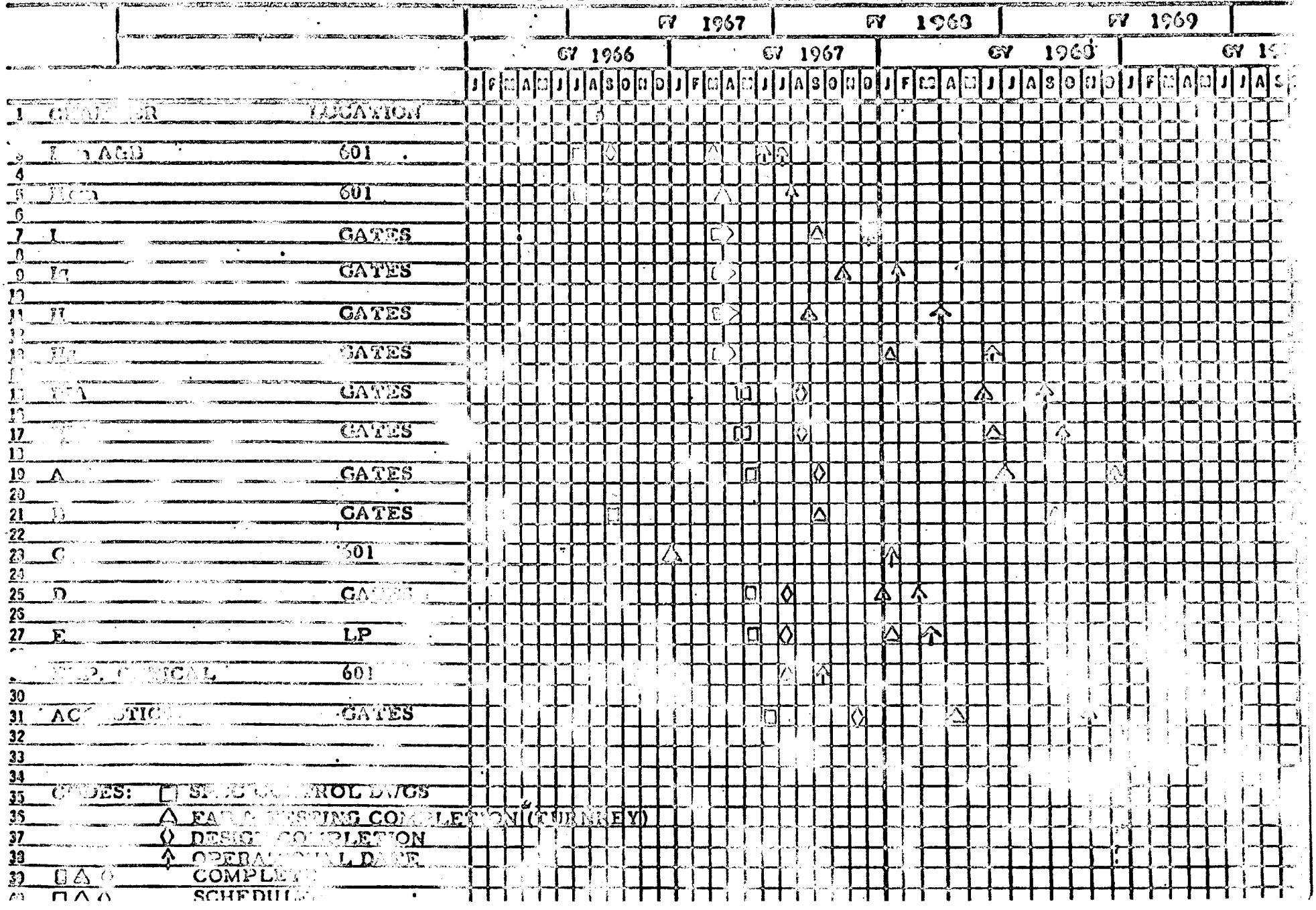
5. SPECIAL CONSTRUCTION - GATES FACILITY

F-017907-CH
April 27 67

TEST CHAMBERS

[illegible] SCHEDULE

POST CHAMBER PROGRESS



F-017907-CH
April 27 67

AEROSPACE SUPPORT EQUIPMENT

F-017907-CH
April 27 67

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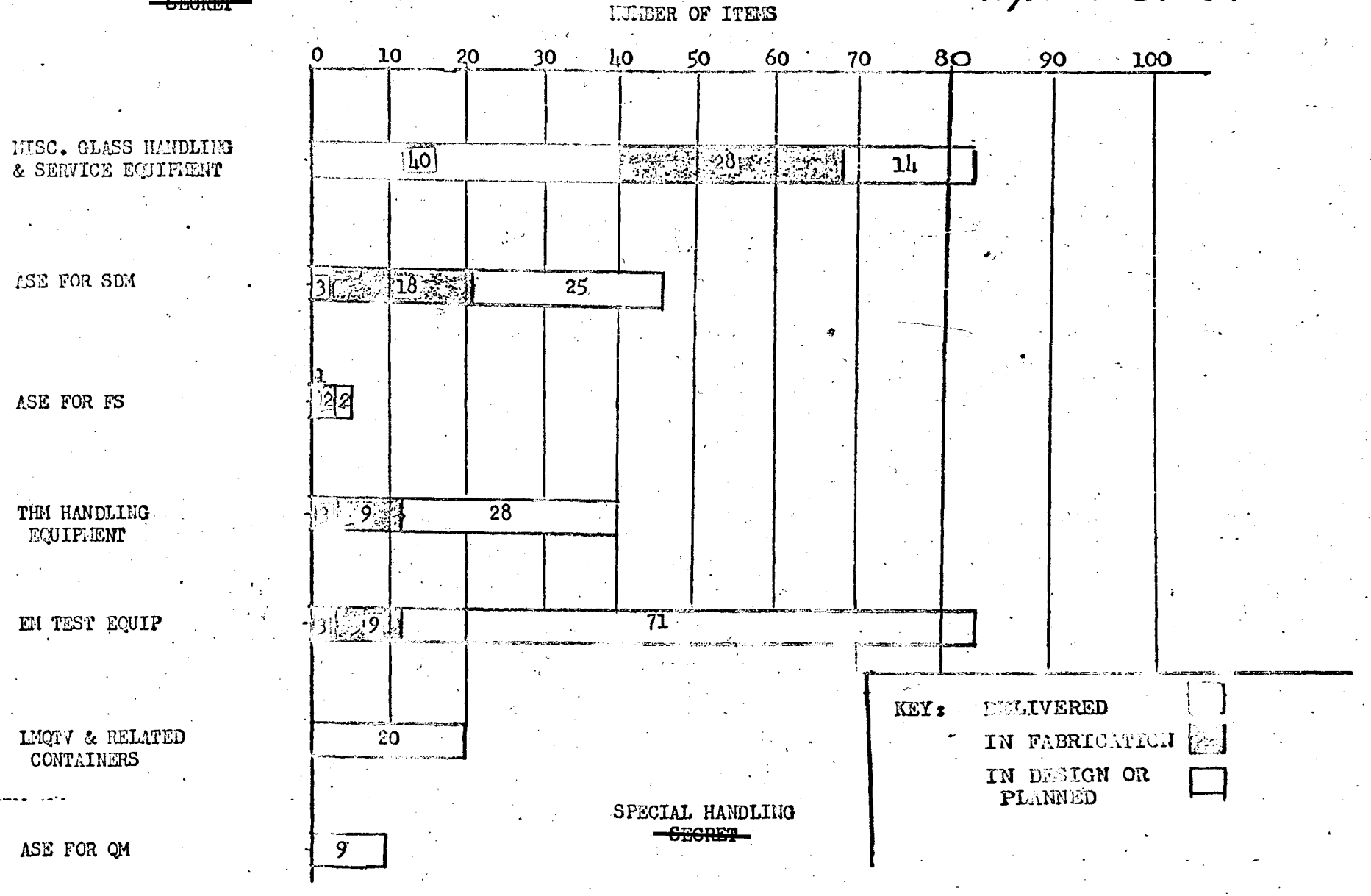
ASE PROGRESS



SPECIAL HANDLING
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SPECIAL HANDLING
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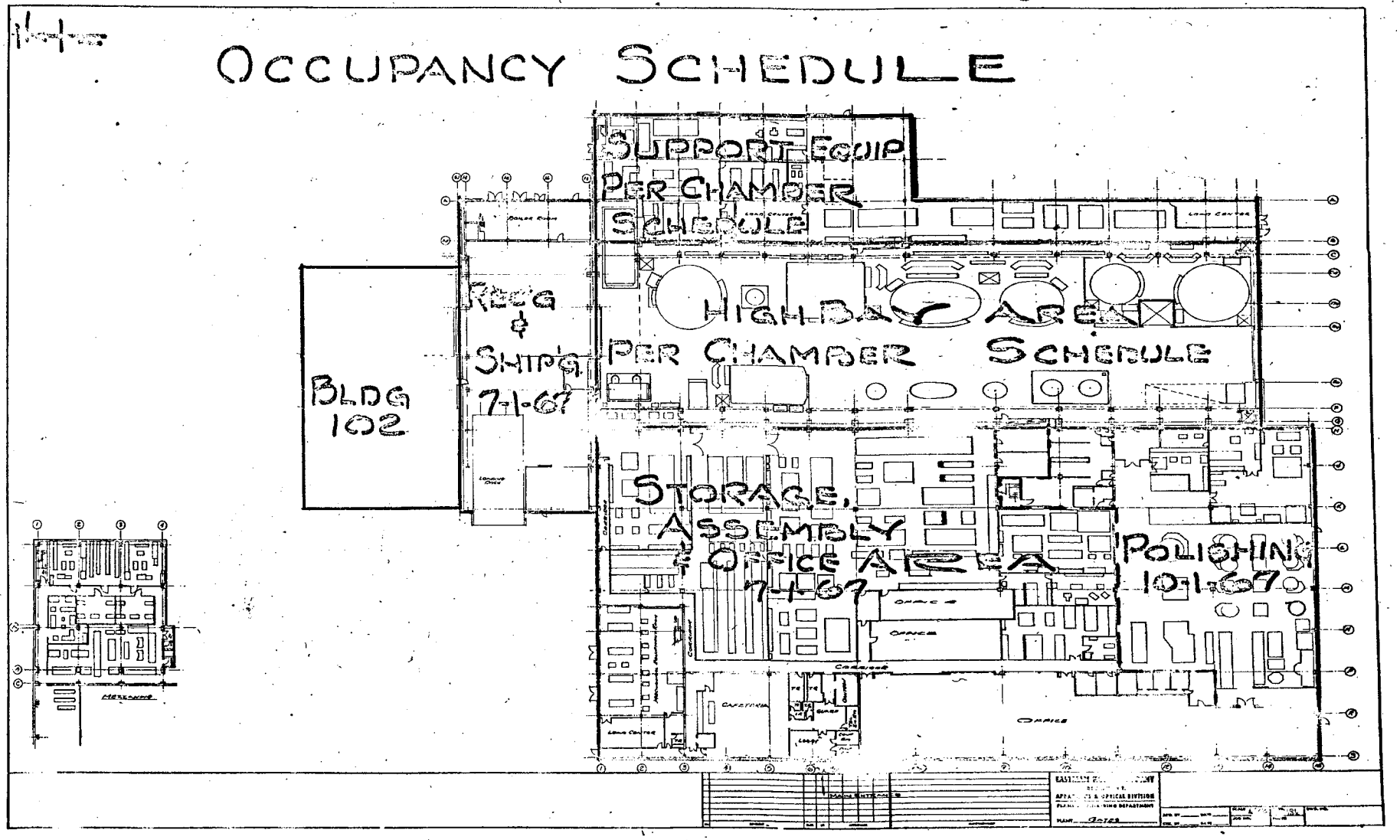
F-017907-CH
April 27 67

OCCUPANCY SCHEDULE



~~SECRET~~
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F-017907-CH
April 27 67

SPECIAL HANDLING
~~SECRET~~

INTERFACE DOCUMENTATION SCORECARD

11 SPECS REQUIRED

1 90% COMPLETE (ELECTRICAL)

3 30% COMPLETE (MDS PORTION OF SIM SPEC SIGNED BY EKC)

3 INITIAL DRAFT COMPLETE - CURRENTLY BEING REVISED BY GE

4 HAVE OUTLINE ONLY (TESTING, OPERATIONS, DATA REDUCTION)

41 DRAWINGS IDENTIFIED (MECH)

4 APPROVED BY EKC, GE, AF AND AS

14 APPROVED BY GE AND EK

12 DRAWINGS PENDING GE ACTION

6 DRAWINGS PENDING EK ACTION

5 DEFERRED TO 5/17/67 MEETING (GE/EK ACTION)

4 ICN'S OPEN

2 EK REVIEW AND ACTION REQUIRED

2 GE REVIEW AND ACTION REQUIRED

PHOTOGRAPHIC PAYLOAD SUBSYSTEM CRITICAL AREAS

IN ORDER TO MEET PHOTO-OPTICAL PERFORMANCE GOALS ON FLIGHT MODELS, EARLY AVAILABILITY AND VERIFICATION OF ADVANCES IN DESIGN AND FABRICATION OF TEST CHAMBERS AND DEVELOPMENT MODELS ARE REQUIRED.

AVE - VISUAL OPTICS (ZOOM TO STEP MAGNIFICATION)

- MATERIALS CONTROL IN LAB MODULE

- PROCUREMENT OF SERVOS FOR CAMERA

FABRICATION AND TEST - MANUFACTURE AND TEST OF λ/20 SURFACES

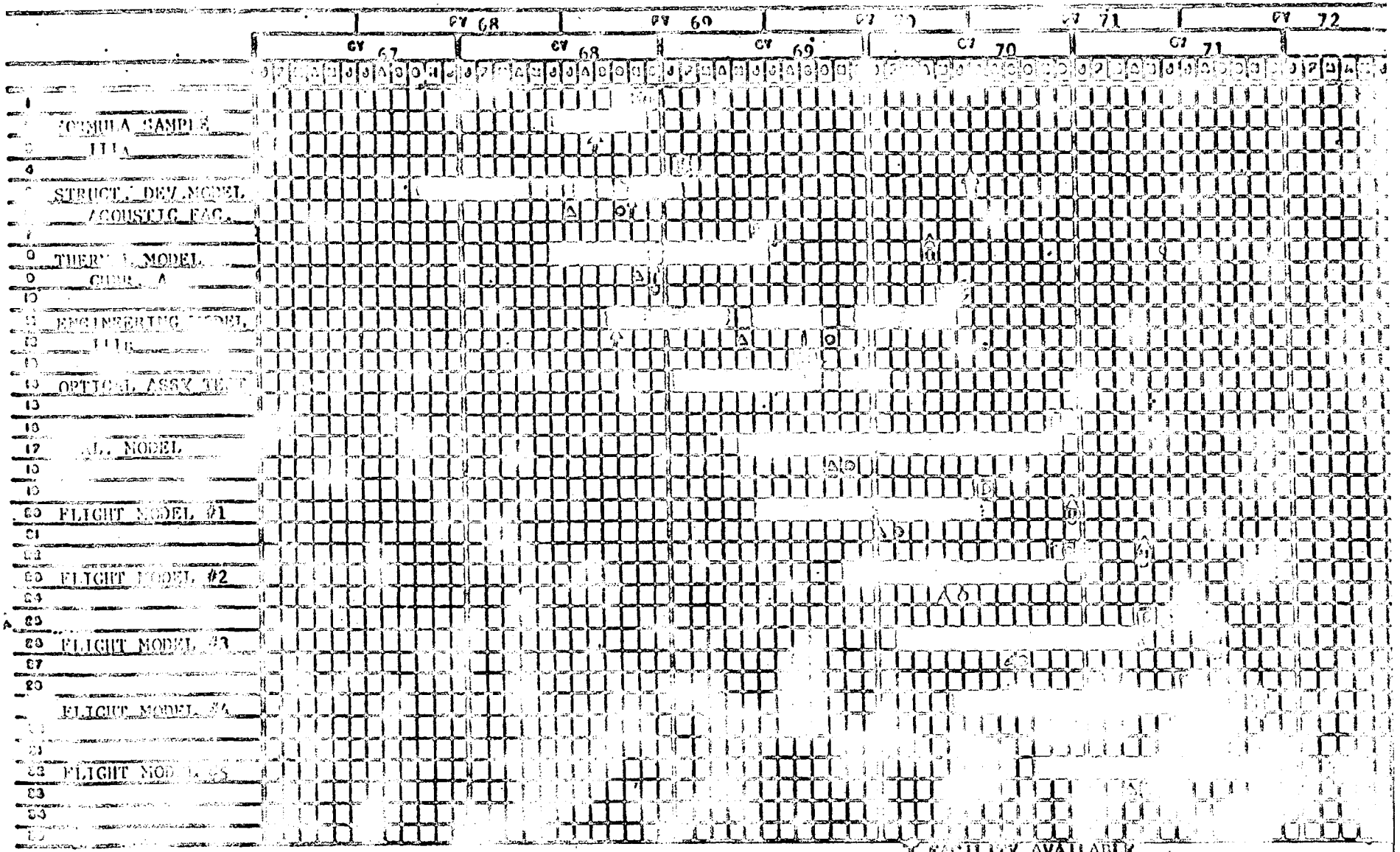
- QUALIFICATION TEST MODEL PROGRAM

- ACOUSTICAL TEST FACILITY

SPECIAL HANDLING
~~SECRET~~

DORIAN PROGRAM
MAJOR MILESTONES SUMMARY Δ 12

F-017907-CH
April 27 67

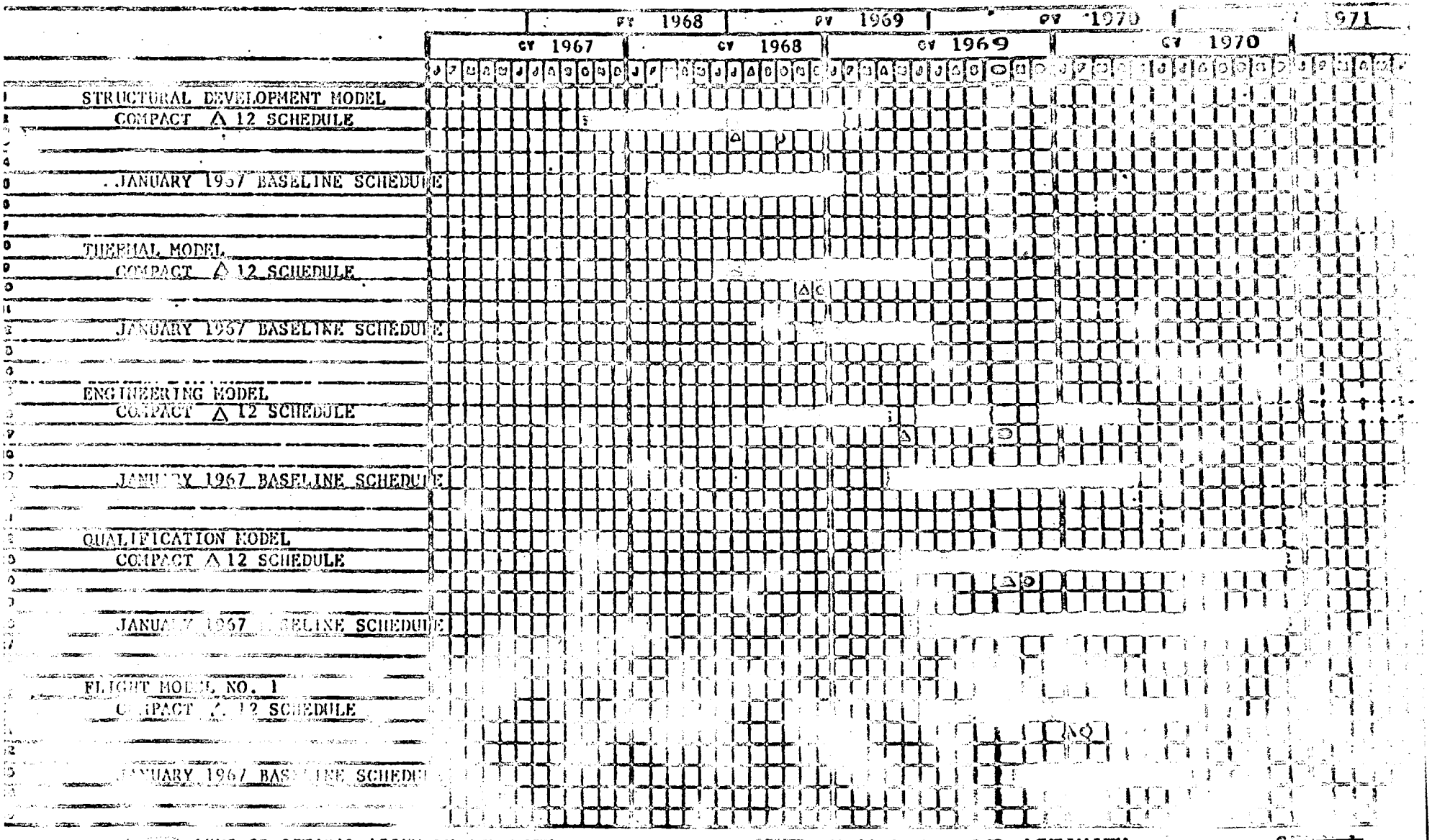


April 27 67

SPECIAL HANDLING

SCHEDULE COMPARISON BETWEEN COMPACT △ 12
AND JANUARY 1967 BASELINE

MISSION MODULE SCHEDULES



LENS OR OPTICAL ASSEMBLY ACTIVITY
REWORK AND RETEST
MISSION MODULE ACTIVITY
△ DELIVER MM AFT SECTION
○ DELIVER MM FORWARD SECTION

SPECIAL HANDLING

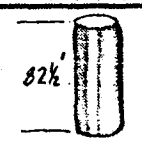
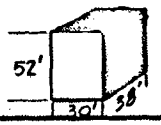
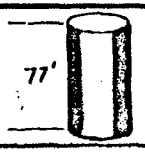
PROGRESS ON MAJOR EKC AVE COMPONENTS

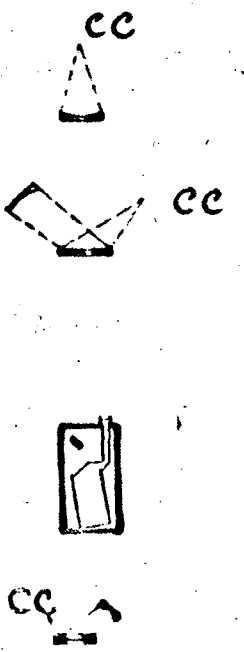
2

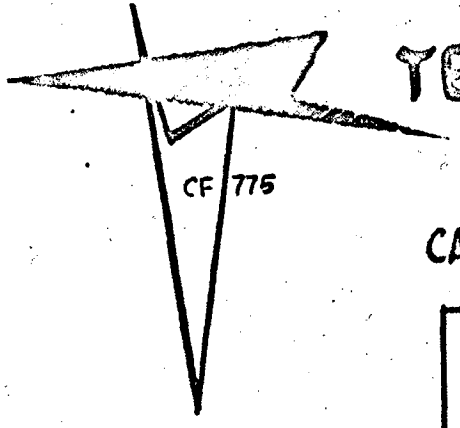
COMPONENT	DESIGN REVIEWS COMPLETED		SPECIFICATIONS COMPLETED	OTHER
OPTICAL SUBASSEMBLIES (OPTICS, MOUNTS, LOCKS, ALIGNMENT)	PRELIMINARY MAJOR	0 1	2	BLANKS IN PROCESS 11 PRIME IN PROCESS 15 TEST IN PROCESS 2 TEST COMPLETE
OA STRUCTURE AND MOUNTS	PRELIMINARY MAJOR FINAL	1 1 1	1	SLS STRUCTURE DELIVERED
THERMAL CONTROL	PRELIMINARY MAJOR	2 1	2	FLIGHT-TYPE CONTROLS DESIGN RELEASED
CAMERA (INCLUDING FOCUS)	PRELIMINARY	1	1	
FILM HANDLING	PRELIMINARY MAJOR	7 4	4	TWO BREADBOARDS COMPLETE
VISUAL OPTICS	PRELIMINARY	1	0	OPTICAL DESIGN COMPLETE FORMULA SAMPLE UNDER SUBCONTRACT
PROCESSOR			1	
ELECTRICAL SUBSYSTEMS	PRELIMINARY MAJOR	4 2	11	TWO BREADBOARDS COMPLETE

TEST CHAMBERS & TOWERS

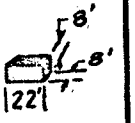
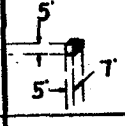
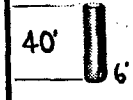
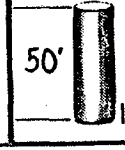
CF 774

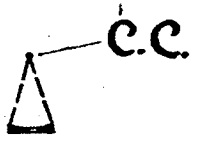
CATEGORY	CONFIGURATION (MAX INTERNAL DIMENSIONS)	DESCRIPTION
I		TESTING OF CURVED SURFACES eg: PRIMARY MIRROR, MASTER PARABOLA & MASTER SPHERE
II		TESTING OF FLAT SURFACES eg: TRACKING MIRROR
III		TESTING OF OPTICAL SUBASSEMBLIES IN VACUUM
A		MM THERMAL-OPTICAL TESTING
B		TM THERMAL TESTING





TEST CHAMBERS AND TOWERS

CATAG'Y.	CONFIG.	DESCRIPTION
C		HALF SCALE THERMAL OPTICAL TESTING
D		LM COMPONENTS & ASS'IES ENVIRONMENTAL TESTING
E		PROCESSOR ENVIRONMENTAL TESTING
X		TEST EQUIPMENT DEVELOR MENT & QUALIFICATION
F		MM GROUND CONDITIONING TEST



SPECIAL HANDLING
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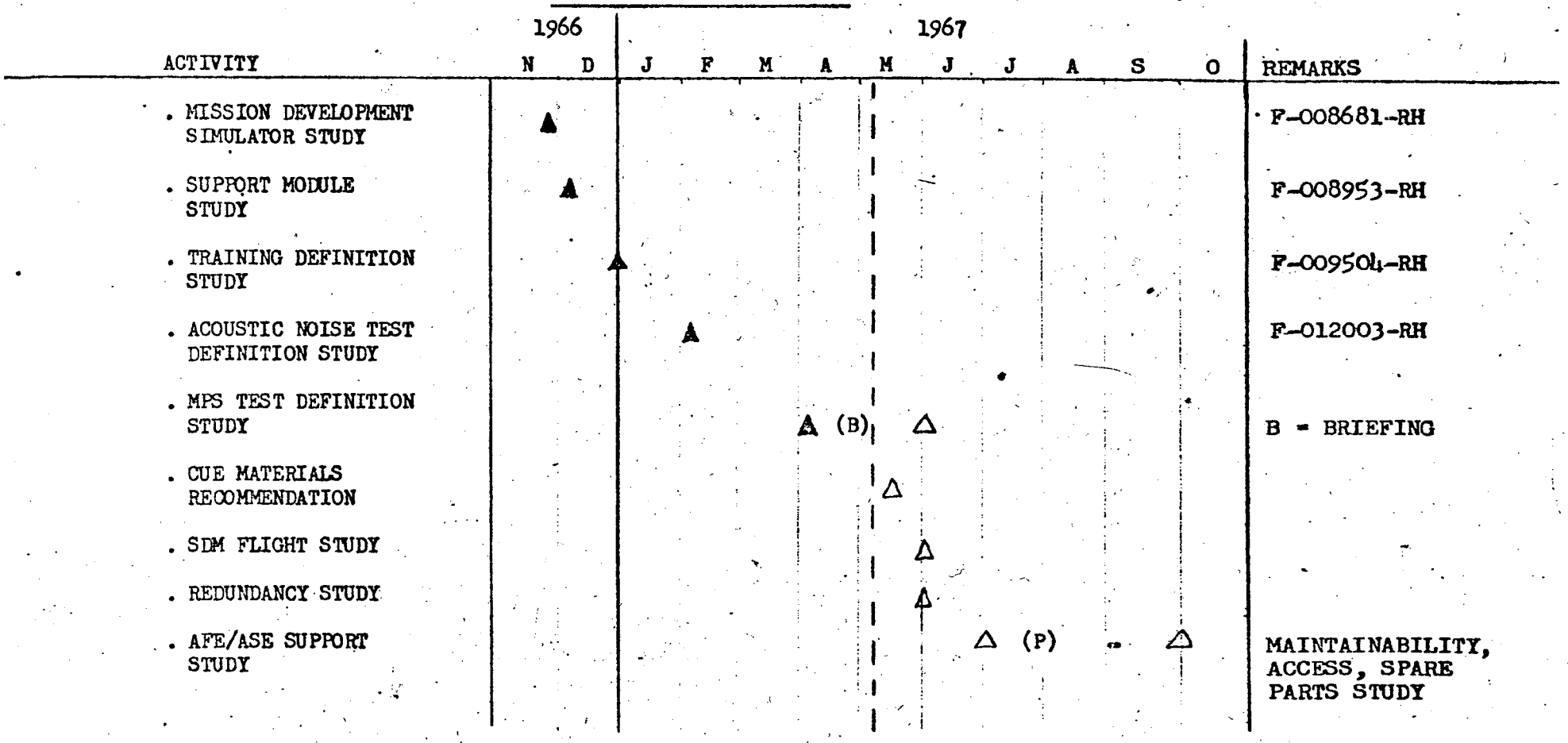
F-017907-CH
April 27 67 44

SELECTED SPECIAL STUDIES



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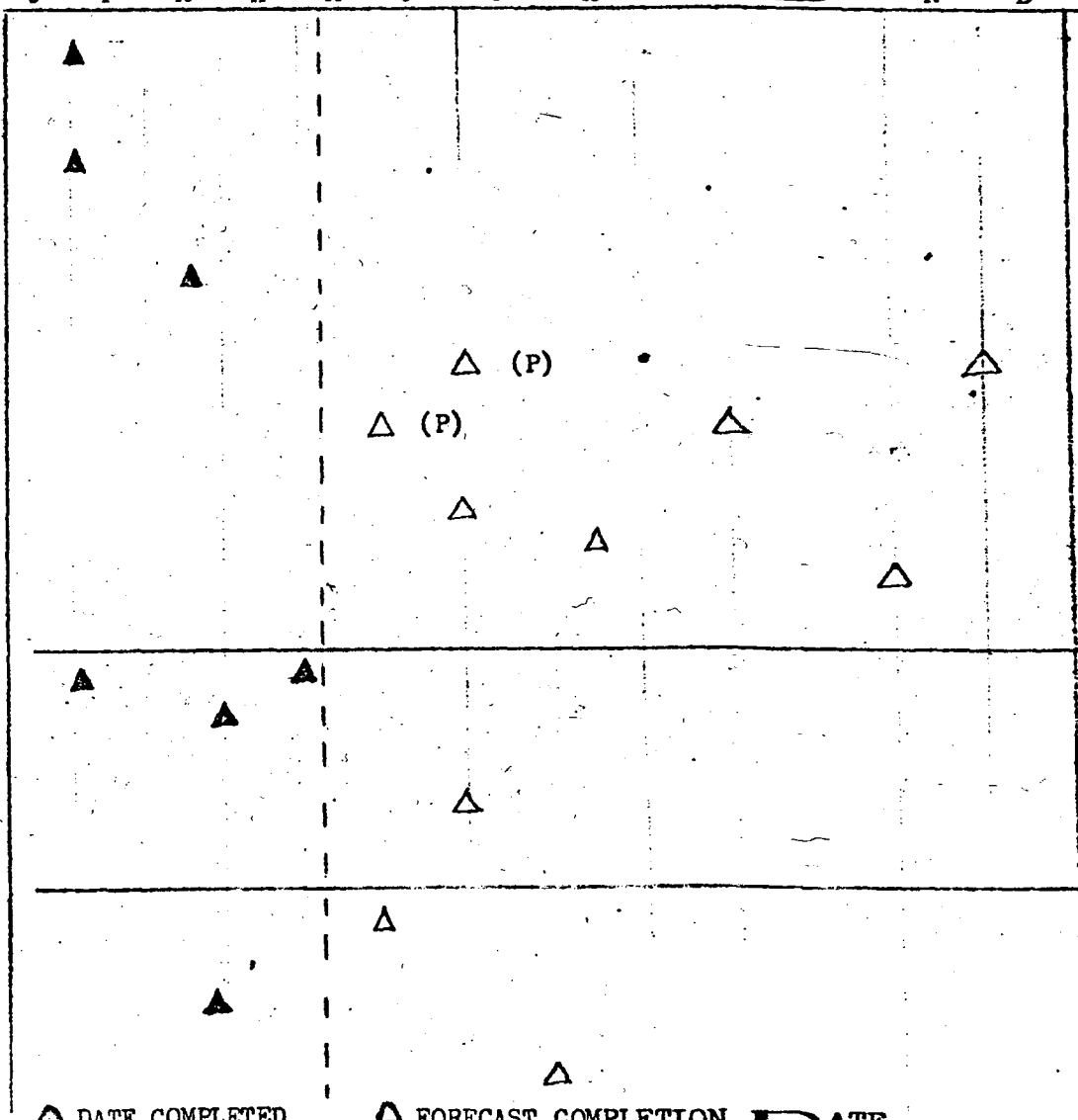
F-017907-CH
April 27 67 QS

SYSTEMS ENGINEERING DELIVERABLE DOCUMENTS

1967



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MAJOR CONTRACT CHANGES*

CCN#	DATE	DESCRIPTION	STATUS
4	8/1/66	ACOUSTIC NOISE TESTING DEFINITION STUDY	TECHNICAL WORK COMPLETE
5	9/9/66	SUPPORT MODULE STUDY	TECHNICAL WORK COMPLETE
8	9/14/66	1 SET DRC MOCK-UPS	HARDWARE SHIPPED
9	10/7/66	ADDITION TO BUILDING 101	IN PROGRESS
10	10/7/66	DELETE FM#5	CANCELED BY CCN #18
11	11/10/66	POWER SWITCHING	IN PROGRESS
12	11/18/66	MPS LONG LEAD ITEMS	IN PROGRESS
13	1/13/67	EDS DATA & MDS HARDWARE & SOFTWARE	IN PROGRESS
14	1/13/67	INCREASED CASSETTE CAPACITY	IN PROGRESS
15	3/16/67	THERMAL SLATS	IN PROGRESS
16	3/21/67	SIR ADDITIONS	IN PROGRESS
17	3/28/67	CERVIT	IN PROGRESS

*ORIGINAL NEGOTIATED CONTRACT INCLUDED CCN'S 1, 2, 3, 6 & 7

SPECIAL HANDLING
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48
F-017907-CH
April 27 67

MAJOR CONTRACT CHANGES*

CCN#	DATE	DESCRIPTION	STATUS
4	8/1/66	ACOUSTIC NOISE TESTING DEFINITION STUDY	TECHNICAL WORK COMPLETE
5	9/9/66	SUPPORT MODULE STUDY	TECHNICAL WORK COMPLETE
8	9/14/66	1 SET DRC MOCK-UPS	HARDWARE SHIPPED
9	10/7/66	ADDITION TO BUILDING 101	IN PROGRESS
10	10/7/66	DELETE FM#5	CANCELED BY CCN #18
11	11/10/66	POWER SWITCHING	IN PROGRESS
12	11/18/66	MPS LONG LEAD ITEMS	IN PROGRESS
13	1/13/67	EDS DATA & MDS HARDWARE & SOFTWARE	IN PROGRESS
14	1/13/67	INCREASED CASSETTE CAPACITY	IN PROGRESS
15	3/16/67	THERMAL SLATS	IN PROGRESS
16	3/21/67	SIR ADDITIONS	IN PROGRESS
17	3/28/67	CERVIT	IN PROGRESS

*ORIGINAL NEGOTIATED CONTRACT INCLUDED CCN'S 1, 2, 3, 6 & 7

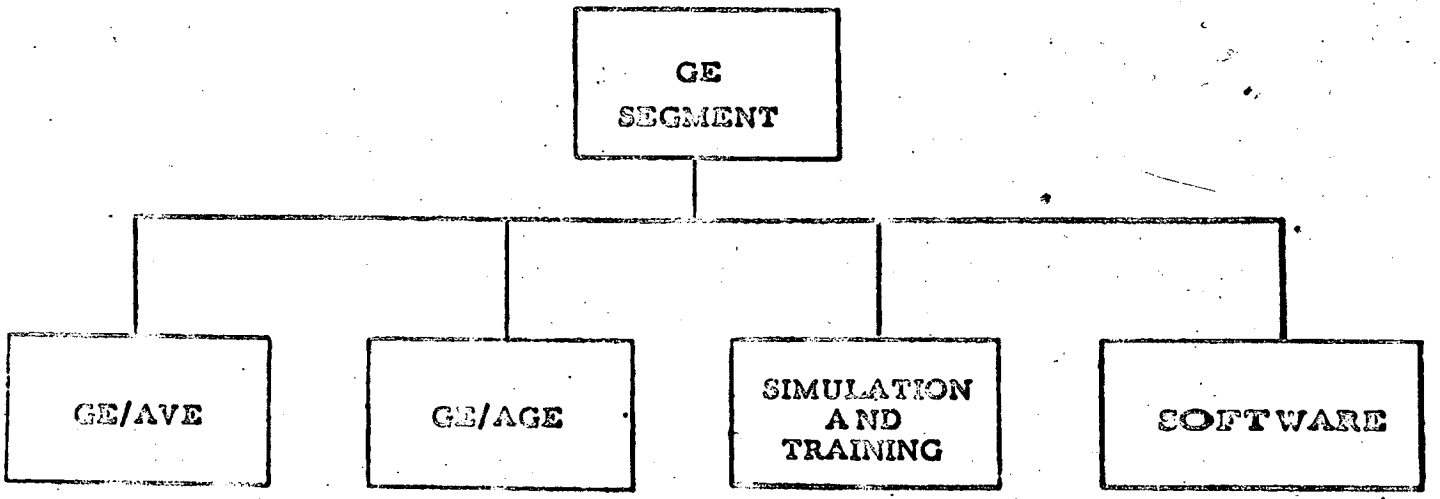
~~SECRET~~
SPECIAL HANDLING

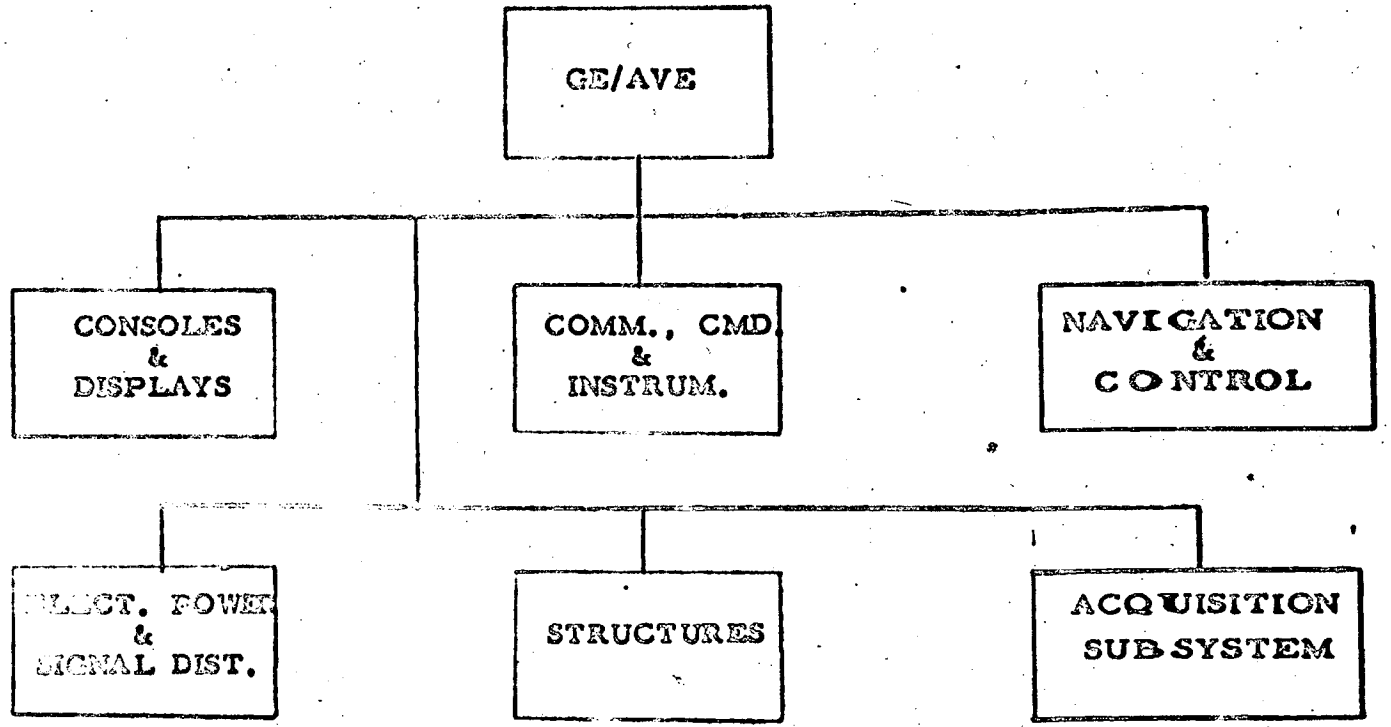
STRONG

(D) ~~SECRET~~ SPECIAL HANDLING

GENERAL ELECTRIC

(D) ~~SECRET~~ SPECIAL HANDLING





GE OVERALL SYSTEM STATUS

- ISSUED 10 SYSTEM LEVEL SPECIFICATIONS
- ESTABLISHED SYSTEMS QUALIFICATION AND ACCEPTANCE TEST REQUIREMENTS
- ISSUED ENGINEERING ANALYSIS REPORTS FOR ALL SUBSYSTEMS
- ISSUED SYSTEMS DEVELOPMENT TEST REQUIREMENTS AND GROUND TEST PLAN
- PERFORMED:
  - MPSS PERFORMANCE ANALYSIS
  - FAILURE MODES ANALYSIS
  - DEGRADED MODES ANALYSIS
- COMPLETED SAFETY MODELING METHODOLOGY AND INITIAL ALLOCATIONS
- ISSUED SELECTED MATERIALS AND PARTS LISTS
- COMPLETED 17 PDR'S
- COMPLETED 3 INTERFACE AGREEMENTS

GUIDANCE AND CONTROL

- MODEL 9 SPECIFICATIONS (13 TOTAL)
- COMPLETED STAGE I AND II S/S AND COMPONENT RELEASES
- PITCH [illegible] DRIVE BRASSBOARD - EXTENSIVE TESTING
- ROLL AXIS DRIVE BRASSBOARD - STARTED
- TORQUER RIPPLE TESTING - STARTED (DECISION NOV. 67)
- BREADBOARDING CRITICAL COMPONENTS UNDER WAY
- BEVELOPED ALIGNMENT MONITOR CONCEPT
- [illegible]FIED TEST PROGRAMS - [illegible]SYSTEM AND COMPONENT

b3

KEY MAJOR SUBCONTRACTS

S/S	ITEM	STATUS: S/C STARTED	STATUS: COMPLETE PDR	STATUS: START BREAD BOARDS	STATUS: PROPOSAL/ EVAL EFFORT	(MILLIONS OF $) SELL PRICE
N&C	ENCODER	-	-	-	6 0%	0.8
	LO G ACCELER-OMETER	-	-	-	8 0%	1.8
	RATE GYROS	YES	-	YES	10 0%	2.0
	STAR TRACKER	YES	-	YES	10 0%	9.2
	ANGULAR ACCELEROMETER	-	-	-	5 0%	2.4
CC&I	PCM TELEMETER	YES	-	YES	10 0%	1.6
	MISSION DATA ADAPTER UNIT	YES	-	-	10 0%	6.0
RUCTURE	BERYLLIUM STRUCTURE	-	-	-	10 0%	7.7
	SLIDING MASK	YES	-	-	3 0%	[illegible]
ATS	ACQUISITION OPTICS	YES	-	YES	[illegible] 0%	[illegible]
AGE	MOL-CITE	YES	YES (400A)	YES	10 0%	[illegible]

S C H E D U L E S

(D) ~~SECRET~~ SPECIAL HANDLING

BASELINE SCHEDULE

GE-MOL

FY 68 | FY 69 | FY 70

CY 67 | CY 68 | CY 69 | CY 70

J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S

DESIGN REVIEWS

PDR

CDR

PQT

(DSS-1) DEVELOPMENT SUBSYSTEM

TEST A

A TEST

(113T) STRUCTURAL THERMAL VEHICLE

(113D) STRUCTURAL DYNAMIC VEHICLE

A DEV. TEST

(114) SYSTEM DEVELOPMENT VEHICLE

(115) SYSTEM QUAL VEHICLE

A QUAL TEST

(GD-6) CONSOLES FOR DAC LM QUAL

A/T

(116) UNMANNED FLIGHT

A

LM/TPE COMPONENT QUAL COMPLETION

DEV. HDV SUBSYSTEMS AVAIL

(D) SECRET SPECIAL HANDLING

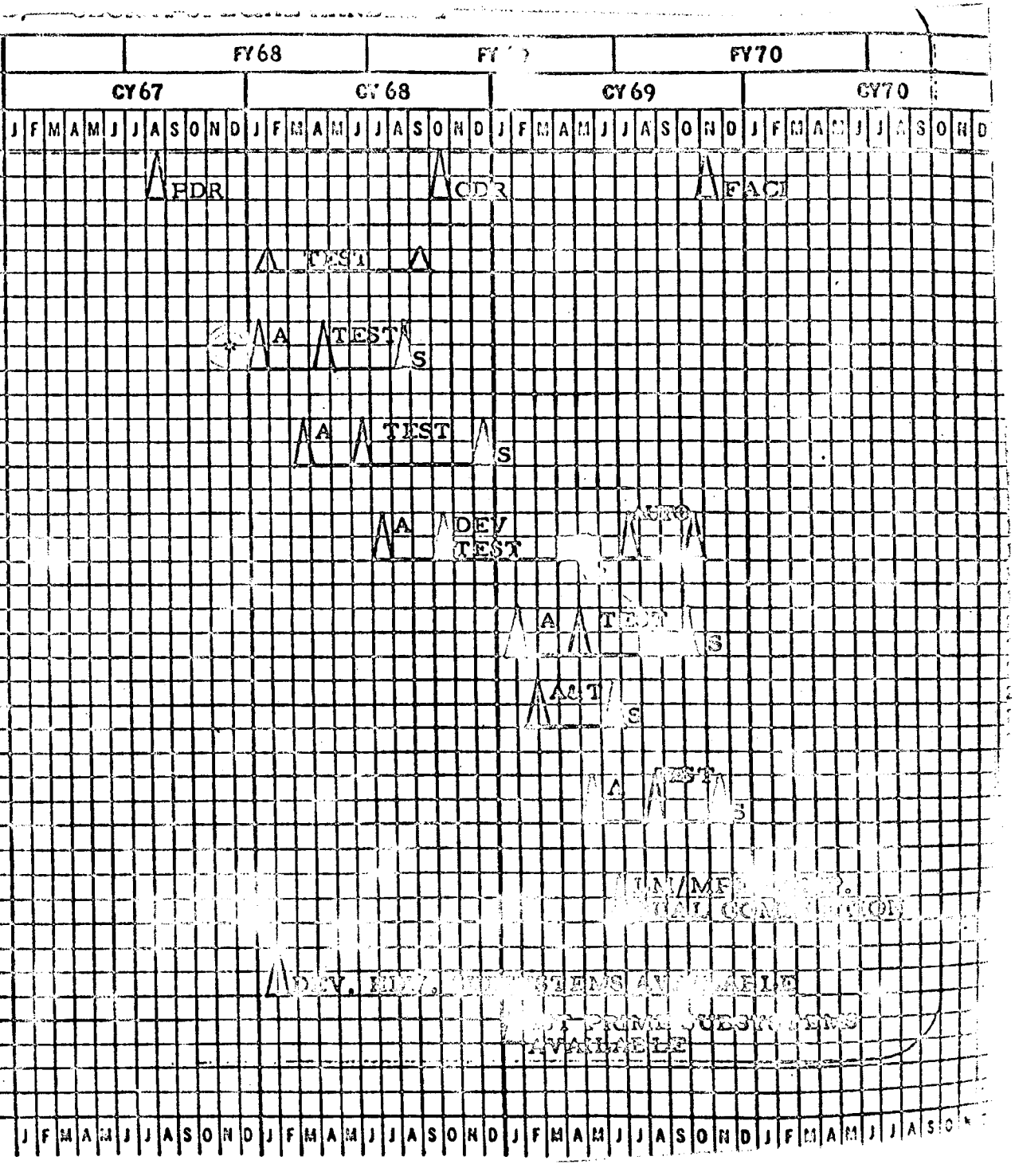
1ST PRIME SUBSYSTEMS AVAILABLE

J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S

AEROSPACE FORM 1010 VELLUM

COMPACT 12 SCHEDULE

GE-MOL



DESIGN REVIEWS

(DSS-1) DEVELOPMENT SUBSYSTEM

(113D) STRUCTURAL DYNAMIC VEHICLE

(113T) STRUCTURAL THERMAL VEHICLE

(11[illegible]) SYSTEM DEVELOPMENT VEHICLE

(11[illegible]) SYSTEM QUAL. VEHICLE

(GD-6) CONSOLES FOR DAC [illegible] QUAL

(118) [illegible] MANNED FLIGHT

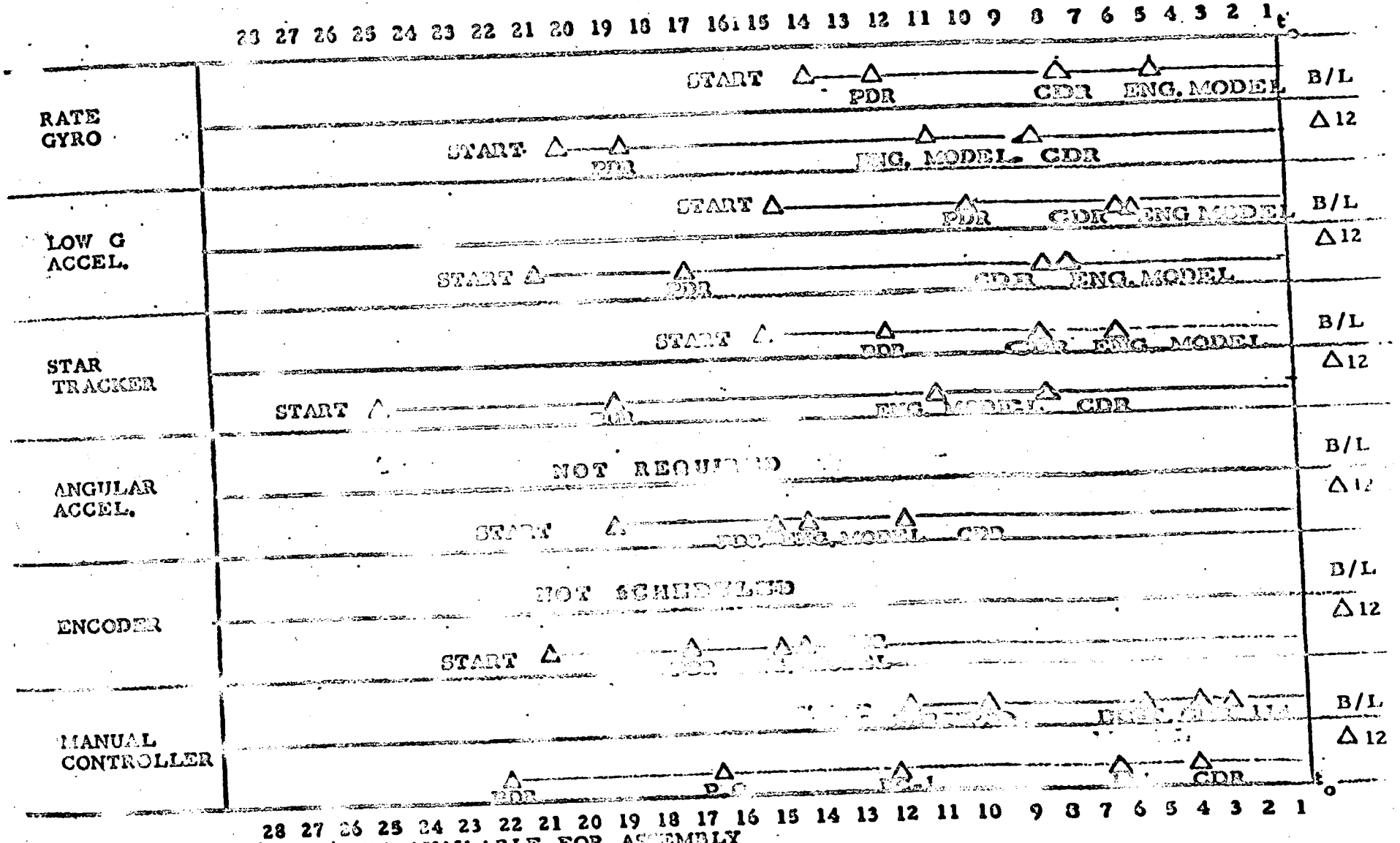
BERYLLIUM GIMBAL DELIVERY PROBLEM.

(D) SECRET SPECIAL HANDLING

(D) ~~SECRET~~ SPECIAL HANDLING

SSS-412

NAVIGATION & CONTROL



t_o - 1st PRIME SUBSYSTEM AVAILABLE FOR ASSEMBLY

N&C SUBSYSTEM

RATIONALE FOR S/C PROGRAM LENGTHS SUPPORTING S/S TESTS

- RATE GYRO
  - STARTED PRIOR TO FUNDING LIMITATIONS
  - CHANGE FROM DX TO DO PRIORITY
  - ENG. MODELS REQUIRED TO SUPPORT TRACKING MIRROR SERVO TESTS
- LO G ACCELEROMETER
  - CONCEPT NEEDED FROM SUPPLIER
  - INTERFACE ASPECTS RELATE TO MDAU
  - SUPPLIER (SOLE SOURCE) REQUIRES LEAD TIME
- STAR TRACKER
  - STARTED PRIOR TO FUNDING LIMITATIONS
  - CHANGE FROM DX TO DO PRIORITY
  - HIGH TECHNICAL RISK ITEM SO PACES N&C TESTS
  - TECHNICAL UNCERTAINTIES SLOWED EARLY PHASES RE LOCATION IN VEHICLE
- ANGULAR ACCELEROMETER
  - ENG. MODEL NEEDED EARLY FOR EVALUATION OF S/S REQUIREMENT
- ENCODER
  - SIGNIFICANT TECHNICAL CAPABILITY REQUIRED DUE TO COMBINATION SMALL SIZE AND 16 BIT RATE
  - MODEL NEEDED EARLY FOR PRELIMINARY ANALYSIS

SUBSYSTEM DEVELOPMENT PROBLEMS

NAVIGATION AND CONTROL

- TRACKING MIRROR DRIVE (26 MICRORADIANS/SEC)
  - SMOOTHNESS
  - STICTION
  - LUBRICANTS
  - PRELOAD
  - TORQUER RIPPLE
- IMAGE VELOCITY SENSOR (IDENTICALLY REPLACES CREW)
  - LOW LIGHT LEVEL
  - SMALL IMAGE VELOCITY

BERYLLIUM GIMBAL FOR TRACKING MIRROR

- FIRST HARDWARE TO BE DELIVERED FOR DEVELOPMENT TEST
- REQUIRES LIGHT WEIGHT-STIFF STRUCTURE

  (220 LBS) (13 CPS)

- FABRICATION DIFFICULT
- SCHEDULE LIMITATION MAY REQUIRE ALUMINUM GIMBAL FOR THERMAL TEST (113T)
- SOLUTION REQUIRES FURTHER WORK AMONG ADDENDEES

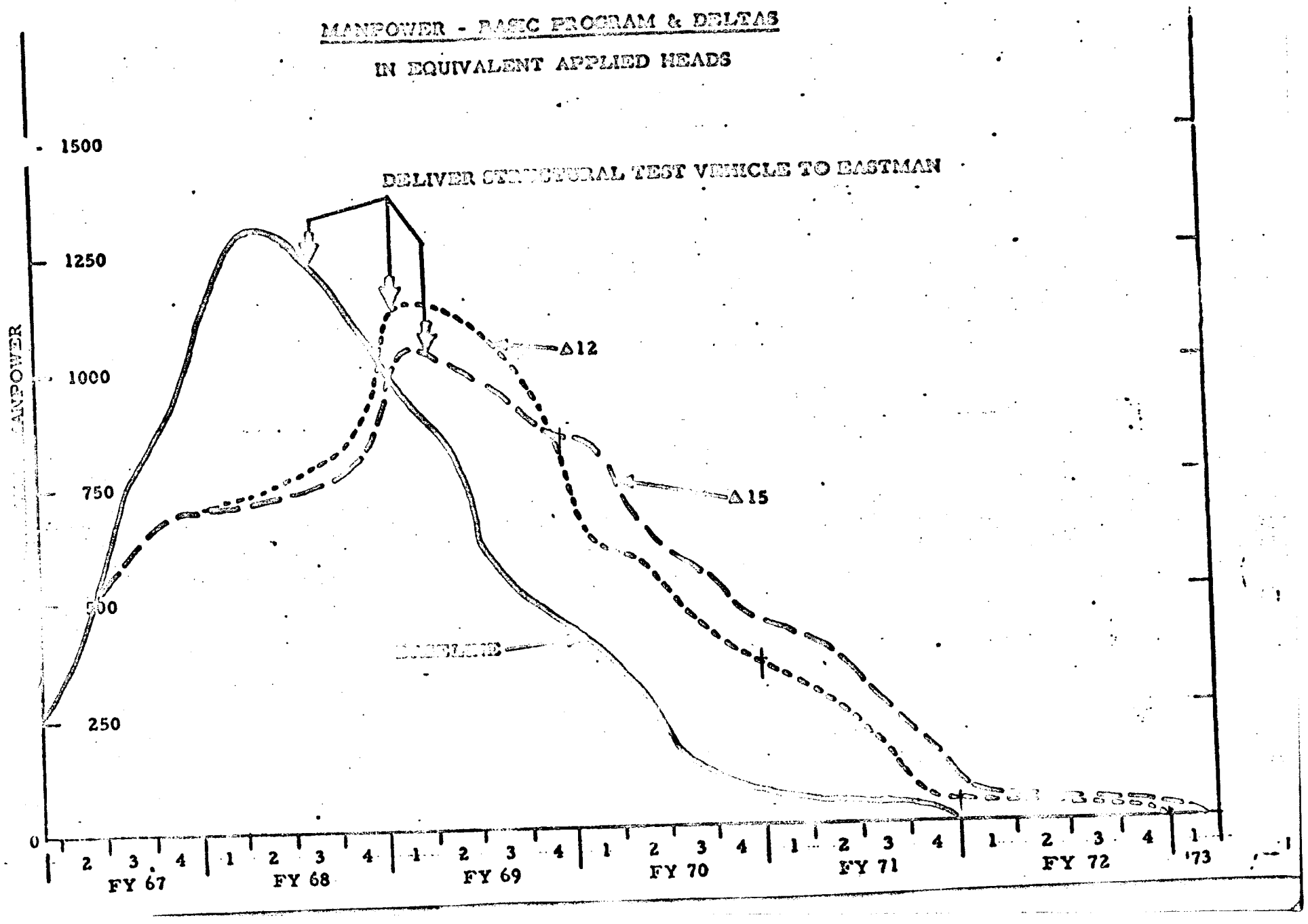
(D) ~~SECRET~~ SPECIAL HANDLING

MANPOWER & FUNDING

(D) ~~SECRET~~ SPECIAL HANDLING

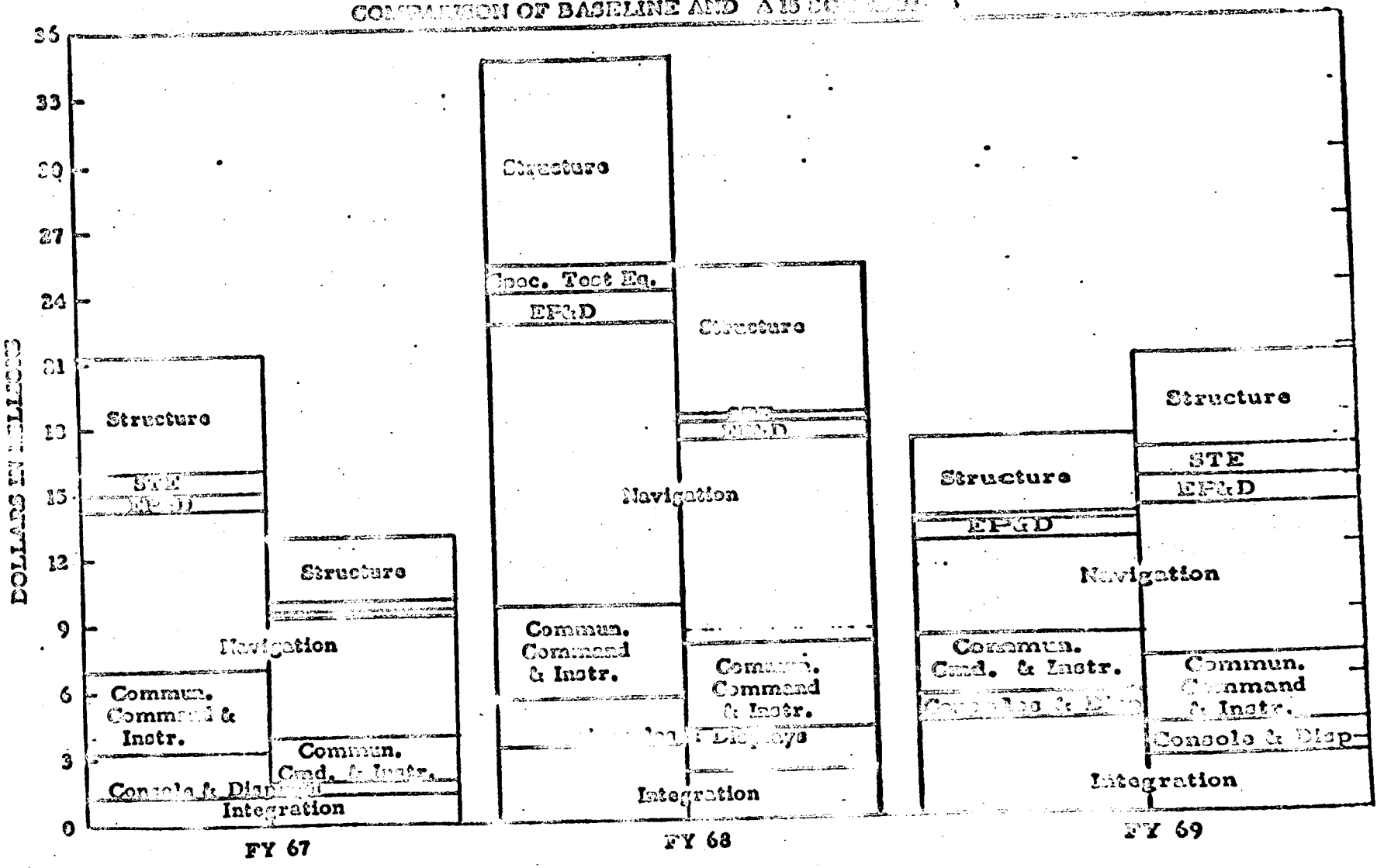
MANPOWER - BASIC PROGRAM & DELTAS

IN EQUIVALENT APPLIED HEADS



(S) ~~SECRET~~ SPECIAL HANDLING

GE AVE MAJOR SUBSYSTEMS
COMPARISON OF BASELINE AND A15 CONFIGURATION



(D) ~~SECRET~~ SPECIAL HANDLING

11 MAY 1967

OUT OF POCKET CASH TO MEET PAYROLL AND INVOICES

DAC	12.110	MILLION
GE	6.833	MILLION
MAC	5.700	MILLION
TOTAL	24.643	MILLION

11 MAY 1967

PHASE IC EXTENSIONS TO PROTECT LEAD TIMES

	THRU END APRIL 67		THRU END FY 67	
	$	DATE OF DISTRIBUTION	$	DATE OF DISTRIBUTION
DAC	28.9	25 MAY *	52.4	LATE JUNE
MAC	7.5	31 MAY *	16.8	END JUNE
GE	9.1	31 MAY *	16.8	END JUNE

* REQUIRES SECRETARIAL DIRECTION

DISTRIBUTE
UNPRICED
S/A FOR + 12

25 MAY

*

29 MAY

25 MAY

25 MAY

BY END JUNE

BY MID AUGUST

* WITH EITHER ITEMS 1 OR 1 AND 2 IN UNPRICED SUPPLEMENTAL AGREEMENT.

ITEM 1. +12 MOS. PROGRAM SCHEDULE - 25 MAY

ITEM 2. LEVEL OF EFFORT FOR FY 68 - 31 MAY

DISTRIBUTE
UNPRICED
S/A FOR + 15

15 MAY

22 MAY

29 MAY

DISTRIBUTED

DISTRIBUTED

BY END JUNE

BY MID AUGUST

11 MAY 1967

MOL PROCUREMENT

PHASE II CONTRACTS

DAC	HOLDING FOR MANUAL APPROVAL
MAC	HOLDING FOR MANUAL APPROVAL
GE	INITIAL REVIEW COMPLETE - AT GE FOR SIGNATURE
MARTIN	DISTRIBUTED
ACED	DISTRIBUTED
AEROJET	NEGOTIATED - IN PRELIMINARY REVIEW
UTC	PREPARING FOR NEGOTIATIONS
SUIT	SOURCE SELECTION COMPLETE - FORECAST DISTRIBUTION JULY 67
FOOD	SOURCE SELECTION COMPLETE - FORECAST DISTRIBUTION JULY 67
OTHER	DISTRIBUTED

RECOMMENDED SOLUTION TO FY FUNDING LIMITATIONS AND UNCERTAINTIES PROBLEM

DISTRIBUTE PHASE II CONTRACTS WITH EITHER +12 OR +15 UNPRICED SUPPLEMENTAL AGREEMENTS

- PRICE, NEGOTIATE AND DEFINITIZE THE NEW PROGRAM SCHEDULE:
  - INCORPORATE FY 67 + 68 FISCAL FUNDING LIMITS IN CONTRACTS (+12)
  - INCORPORATE FY 67 + 68 + 69 FISCAL FUNDING LIMITS IN CONTRACTS (+15)
  - PROTECT CONTRACTOR'S INVESTMENT* IN THE EVENT OF TERMINATION AT THE END OF FUNDING LIMITED FISCAL YEARS

    *(VOLUNTARY INVESTMENT TO INCREASE HIS PROBABILITY OF EARNING INCENTIVES)

- IF CONTRACT FUNDING REQUIREMENTS IN SUBSEQUENT FYs EXCEED FUND AVAILABILITY - MAKE A SYSTEM SCHEDULE ADJUSTMENT

- PRICE, NEGOTIATE AND DEFINITIZE NEW PROGRAM SCHEDULE

CONVERSION FROM FPI TO CPIF TYPE CONTRACT

MAC PROPOSED $314,082,242.00 AS TARGET COST ON 5 MAY 66 ON CPIF BASIS.

MAC PROPOSED $314,082,242.00 AS TARGET COST ON 5 MAY 66 ON FPI BASIS.

DAC PROPOSED $691,589,486.00 AS TARGET COST ON 5 NOV 66 ON CPIF BASIS.

DAC SETTLED $614,446,000.00 AS TARGET COST ON 10 DEC 66 ON FPI BASIS.

AT TARGET COST DAC POTENTIAL PROFIT WOULD BE REDUCED BY AT LEAST 16.5 MILLION (17.7 % TO 15%)

CONCLUSION:

WE WOULD PROBABLY NOT REALIZE A MEASURABLE REDUCTION IN TARGET COSTS OF THE McDONNELL DOUGLAS CORP CONTRACTS IF CONVERTED FROM FPI TO CPIF.

11 MAY 1967

COST OF TERMINATION

END FY 67

MAC	6.391 MILLION

TYPE CONTRACTS FOR MOL

- REQUIREMENTS OF MESSAGE:
  - PROS AND CONS OF USING FIXED-PRICE INCENTIVE VS REDETERMINABLE CONTRACTS FOR DAC, MARTIN, AND/OR McDONNELL IN VIEW OF FISCAL YEAR FUNDING LIMITATIONS AND UNCERTAINTIES.
- PROBLEM:
  - FISCAL YEAR FUNDING LIMITATIONS AND UNCERTAINTIES.

REDETERMINABLE TYPE CONTRACTS

- FIXED-PRICE CONTRACT WITH ESCALATION (FPE)
- FIXED-PRICE INCENTIVE CONTRACTS
  - INITIAL TARGET (FPIF)
  - SUCCESSIVE TARGETS (FPIS)
- PROSPECTIVE PRICE REDETERMINATION AT A STATED TIME OR TIMES DURING PERFORMANCE (FPR-A)
- RETROACTIVE PRICE REDETERMINATION AFTER COMPLETION (FPR-E)
- REDETERMINATION UPON HAPPENING OF A SPECIFIED CONTINGENCY (FPR-X)

PROSPECTIVE PRICE REDETERMINATION AT A STATED TIME OR TIMES DURING PERFORMANCE (FPR-A)

CONCEPT OF USE:

- A SERIES OF SHORT TERM FIXED-PRICE CONTRACTS IN LIEU OF ONE OF LONG DURATION
- EACH REDETERMINATION IS PROSPECTIVE ONLY
- APPROPRIATE FOR QUANTITY PRODUCTION WITH UNKNOWN LEARNING EXPERIENCE
- INITIAL PERIOD SHOULD COVER LONGEST PERIOD OF CONTRACT PERFORMANCE OR MAXIMUM DELIVERIES POSSIBLE FOR WHICH A FAIR AND REASONABLE PRICE CAN BE NEGOTIATED

PROS:

- NONE FOR MOL ENGINEERING DEVELOPMENT PHASE SYSTEM PROCUREMENT

CONS:

- CANNOT SEPARATE R AND D CONTRACTS INTO SHORT TERM PRECISELY DEFINED CONTRACT PACKAGES.
    - RECOGNITION OF THIS BY CONGRESS LED TO THEIR AUTHORIZATION TO USE INCREMENTAL FUNDING

FPR-A (CONT'D)

- MOL IS NOT A QUANTITY PRODUCTION PROGRAM
  - I.E., WE DON'T HAVE UNIT MOL PRICES IN WHICH WE AMORTIZE R AND D COSTS OVER A PRODUCTION RUN
- WOULD INFLATE EARLY YEAR FY FUND REQUIREMENTS
  - I.E., HIGH ACTUALS TO SUPPORT HIGH PROSPECTIVE PRICING
- DOES NOT ESTABLISH CONTRACTUAL BASIS FOR TOTAL PROGRAM COST
- MOST DIFFICULT IF NOT IMPRACTICABLE TO INCLUDE PERFORMANCE AND/OR COST INCENTIVES
- WOULD LIMIT CONTRACTOR'S FLEXIBILITY TO OPTIMIZE INTERNAL SCHEDULES
- CHANGES OF THE TYPE NORMAL TO ENGINEERING DEVELOPMENT PHASE WOULD BE MOST DIFFICULT TO NEGOTIATE WHEN AMORTIZED OVER A PRODUCTION RUN WITHOUT A PRICE
- INCREASES SPO AND CONTRACTOR ADMINISTRATIVE BURDEN

FINANCIAL MANAGEMENT OUTLINE

PRIOR ACTIONS TO MINIMIZE SCHEDULE SLIP

CURRENT FINANCIAL STATUS

ACCOMPLISHMENTS

CURRENT CONSIDERATIONS - ALTERNATIVES

RESULTS

CONCLUSIONS

MOL

PRIOR ACTIONS TAKEN TO MINIMIZE SLIP

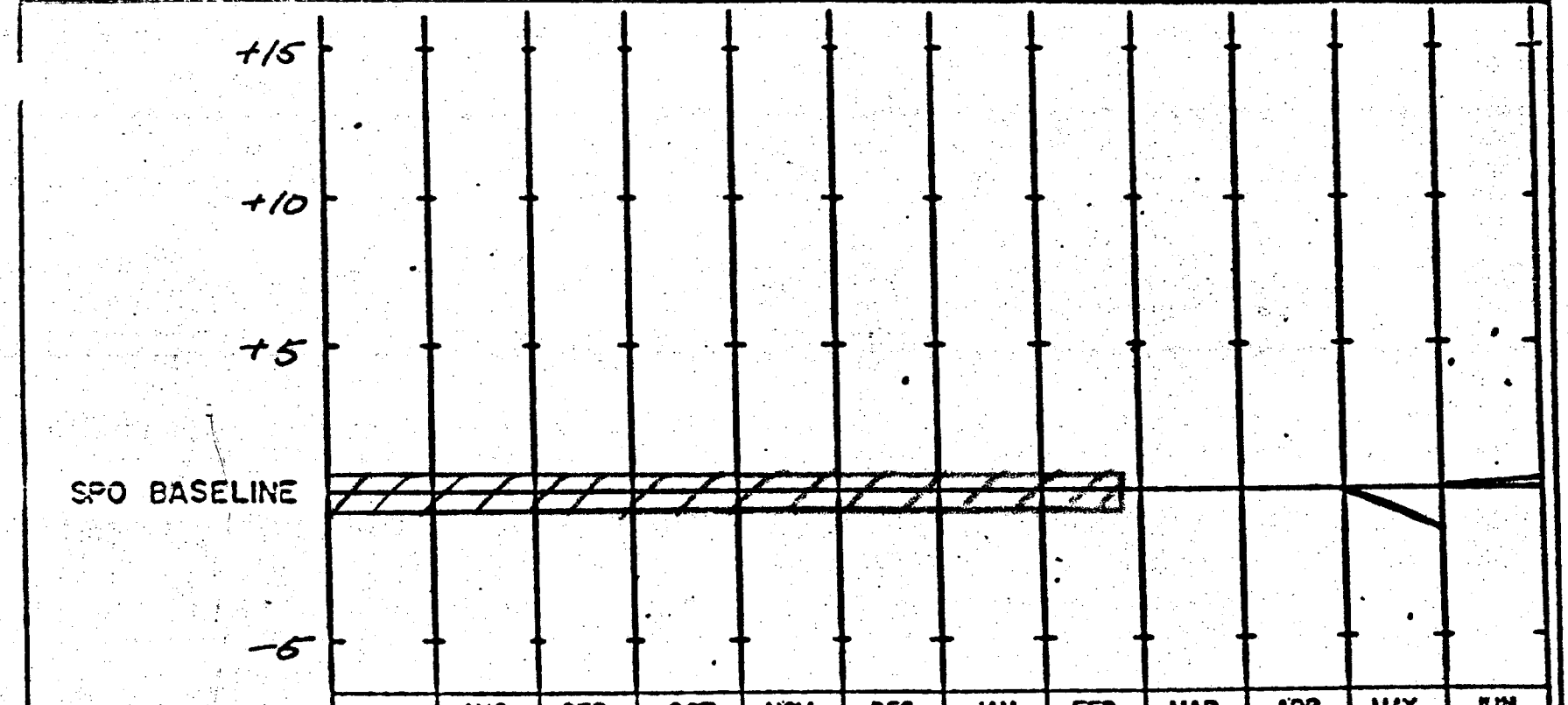
DATE	ACTION		RESULT			
			67	68	69	
10 MAR - 14 APR	SPO/ASSOCIATE CONTR MEETINGS & SCRUBDOWN OF COMMITMENTS	12 ROM	74.5	30.0	(16.3)	
		12 FIRM	67.7	26.6	(14.5)	
		15 ROM/ FIRM	33.6	17.4	(3.2)	
			67	68	69	70
16 MAR - 7 APR	PROJ OFFICES DETAILED LOOK AT ALL DEFERRED/CHANGE ITEMS TO DELAY START DATES TO LATEST POSSIBLE TIME (AND RATIONALE)	LV		- 1.9	-2.6	+ 1.5
		MM	-1.8	-18.0	+7.8	+19.4
		G-B	- .8	- 1.4	- .5	+ .7
			-2.6	-21.3	+4.7	+21.6
			69	70	71	72
8 APR - 12 APR	SPO DIRECTORATE CHIEFS RE-EVALUATION OF DEFERRED EFFORT	GE FIELD TEST	-2.7			+2.7
		DAC TESTING	-1.0		+1.0	
		DAC MM FWD SECT	- .2	+ .2		
		DAC SPT MOD	-3.0	+1.0	+1.0	+1.0
			-6.9	+1.2	+2.0	+3.7

PRIOR ACTIONS TAKEN TO MINIMIZE SLIP (CONTINUED)

DATE	ACTION	RESULTS
17 MAR - 3 MAY	DETAILED LOOK AT 15 MONTHS SCHEDULE TO COMPRESS DOWNSTREAM TASKS.	PERMITTED EARLY EFFORT TO BE DELAYED ADDITIONAL 2-1/2 MONTHS.
6 MAY	REQUESTED CONTRACTORS TO ACCEPT "COMPACT 12 MOS" SCHEDULE WITH BOGEYS OF $286/480.	CONTRACTOR INVESTMENT IN PROGRAM OF 60M AT END FY 68.

FINANCIAL STATUS FY 67

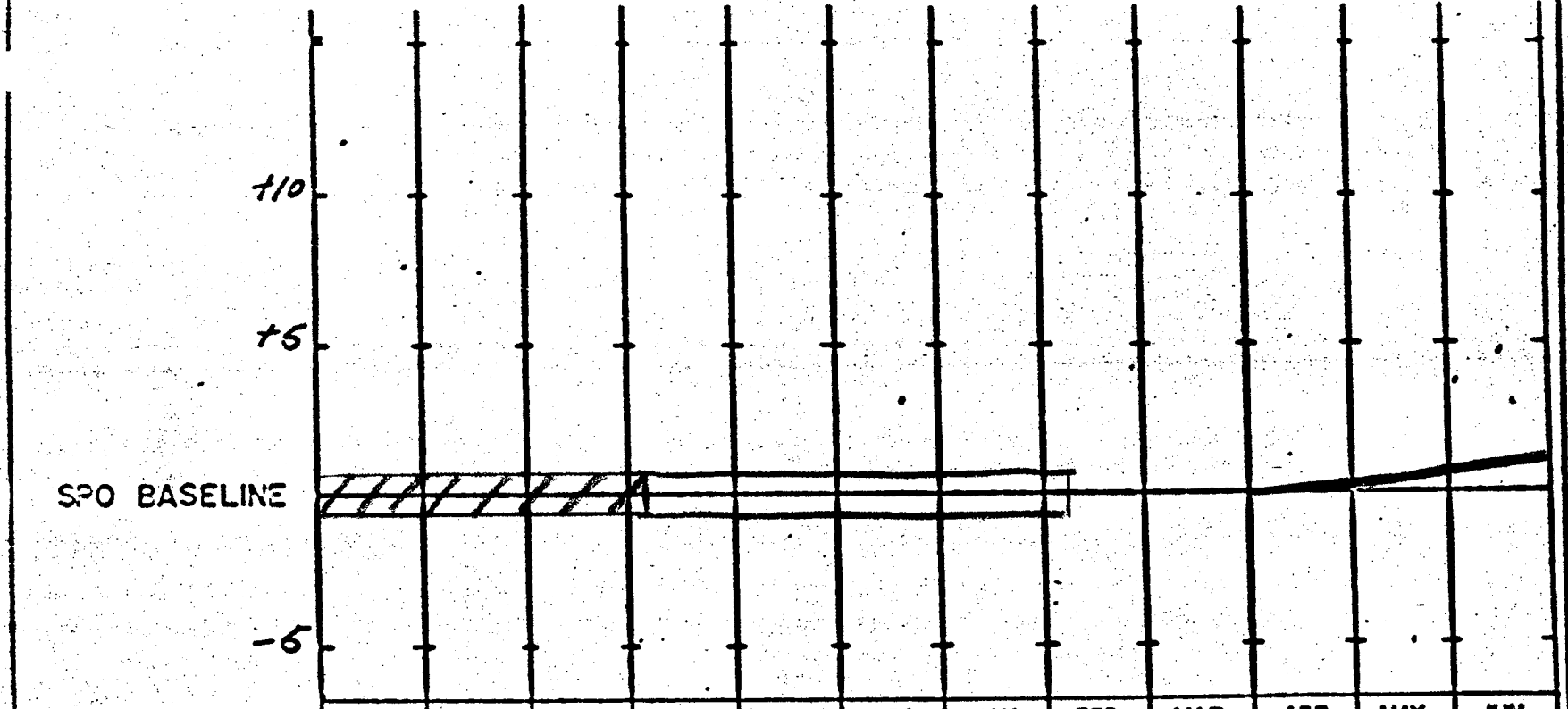
SYSTEM SEGMENT LAB VEHICLE CONTRACTOR DOUGLAS



	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
CONTRACTOR BUDGET			4.3	9.5	18.9	24.2	36.0	48.1	59.2	73.2	86.2	100.1
SPO BUDGET			4.3	9.5	18.9	24.2	36.0	48.1	59.2	73.2	86.2	100.0
CONTR EXPENDITURES			4.3	9.5	18.9	24.2	36.0	43.1	59.2	71.7		
COMMITMENT RESERVE									7.1	7.1	7.1	7.1
GOV'T OBLIGATIONS			12.0	12.0	12.0	26.1	26.1	26.1	45.4	45.4		

FINANCIAL STATUS FY 67

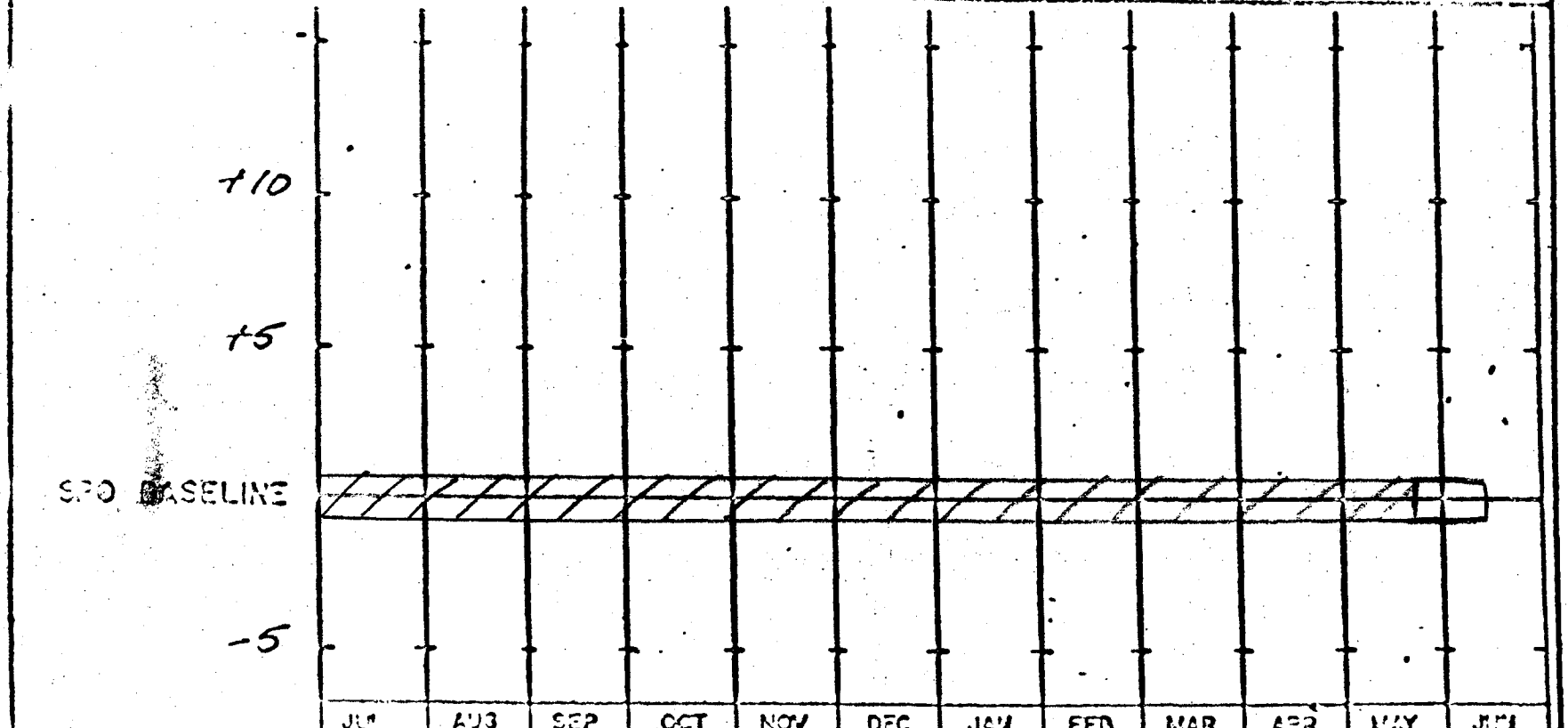
SYSTEM SEGMENT MISSION MODULE CONTRACTOR GEN. ELECTRIC



	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
CONTRACTOR BUDGET			1.2	3.2	5.9	8.8	12.7	16.4	19.9	24.3	28.7	33.7
SPO BUDGET			1.2	3.2	5.9	8.8	12.7	16.4	19.4	24.2	28.5	33.5
CONTR EXPENDITURES			1.2	3.2	5.9	8.8	12.7	16.4	19.9	24.2		
COMMITMENT RESERVE									0	0	0	0
GOV'T. OBLIGATIONS					1.7	1.7	1.7	1.7	1.7	1.7	13.2	

FINANCIAL STATUS FY 67

SYSTEM SEGMENT X CONTRACTOR

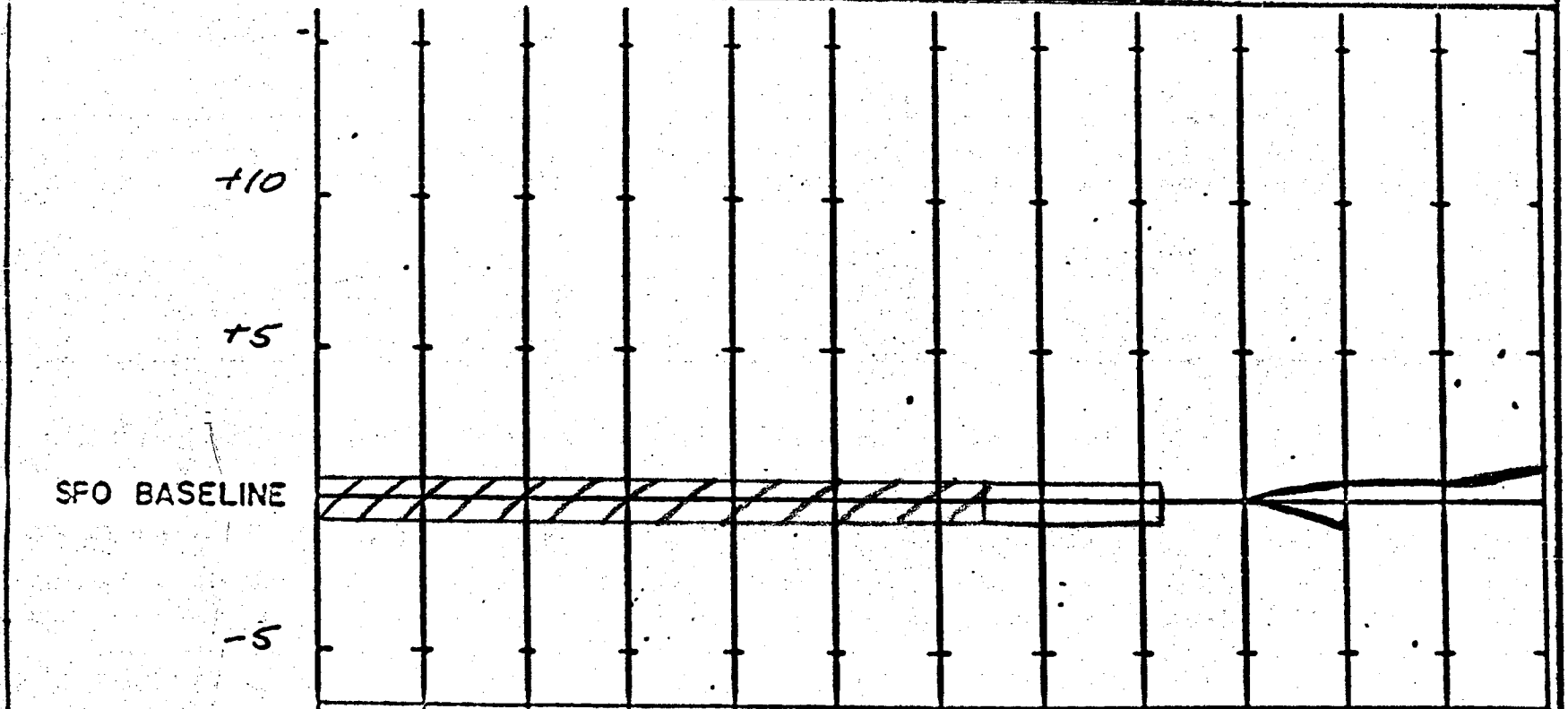


	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
CONTRACTOR BUDGET						.6	4.3	10.3	15.3	24.3	32.5	40.7
S.P.O. BUDGET						.6	4.3	10.3	15.3	24.3	32.5	40.7
CONTR. EXPENDITURES						.6	4.3	10.3	15.3	24.3		
COMMITMENT RESERVE									12.0	12.0	12.0	12.0
CONT. OBLIGATIONS				7.4	7.4	14.4	33.5	33.5	33.5	42.5	47.5	

S-SAR

FINANCIAL STATUS FY 67

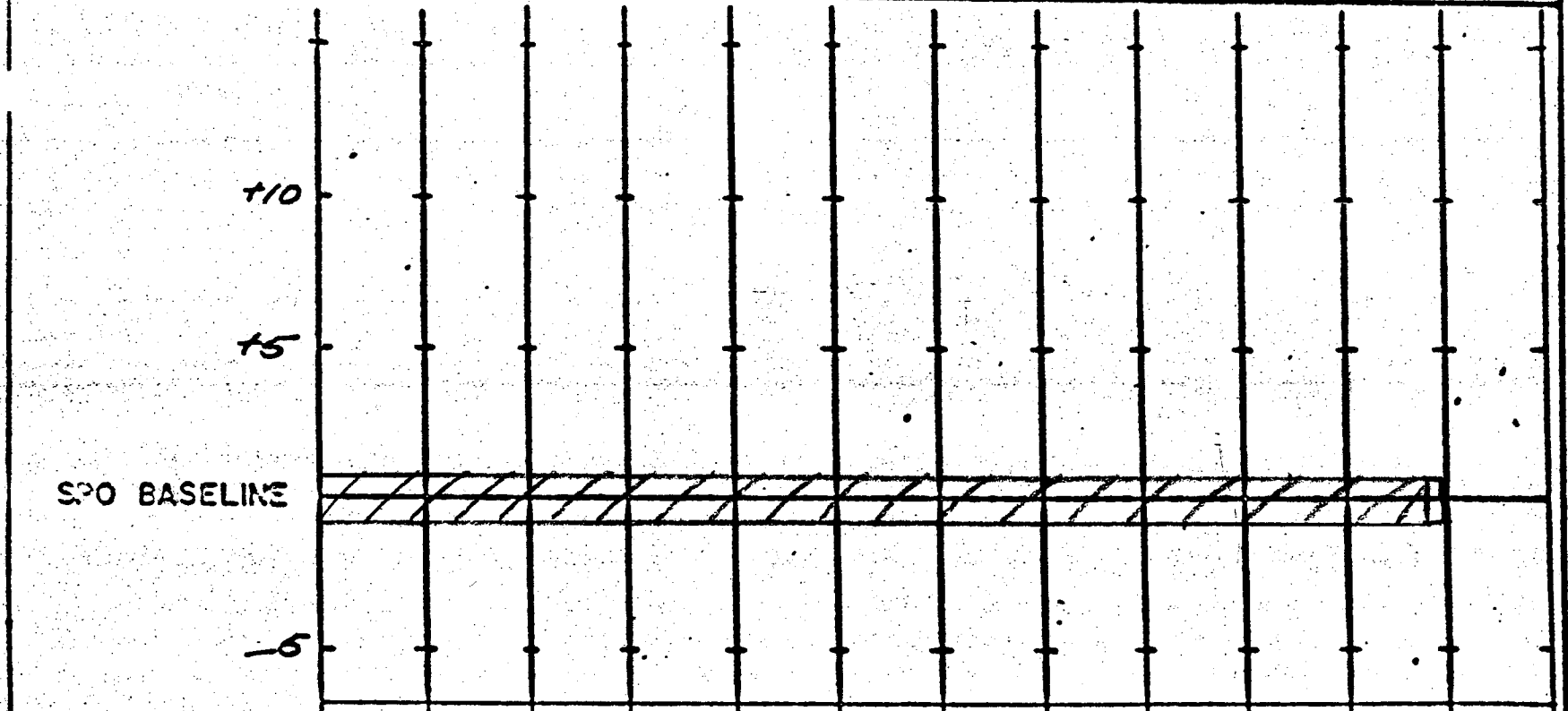
SYSTEM SEGMENT GEMINI 'B' CONTRACTOR McDONNELL



	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
CONTRACTOR BUDGET			.9	2.2	3.6	6.1	8.6	11.5	15.8	19.8	24.4	30.7
SFO BUDGET			.9	2.2	3.6	6.1	8.6	11.5	15.8	19.4	23.8	29.9
CONTR EXPENDITURES			9	2.2	3.6	6.1	8.6	11.5	15.8	18.9		
COMMITMENT RESERVE									6.4	6.4	6.4	6.4
GOV'T OBLIGATIONS				6.0	6.0	6.0	7.4	7.4	7.4	7.4	12.2	

FINANCIAL STATUS FY 67

SYSTEM SEGMENT T-III M CONTRACTOR VARIOUS

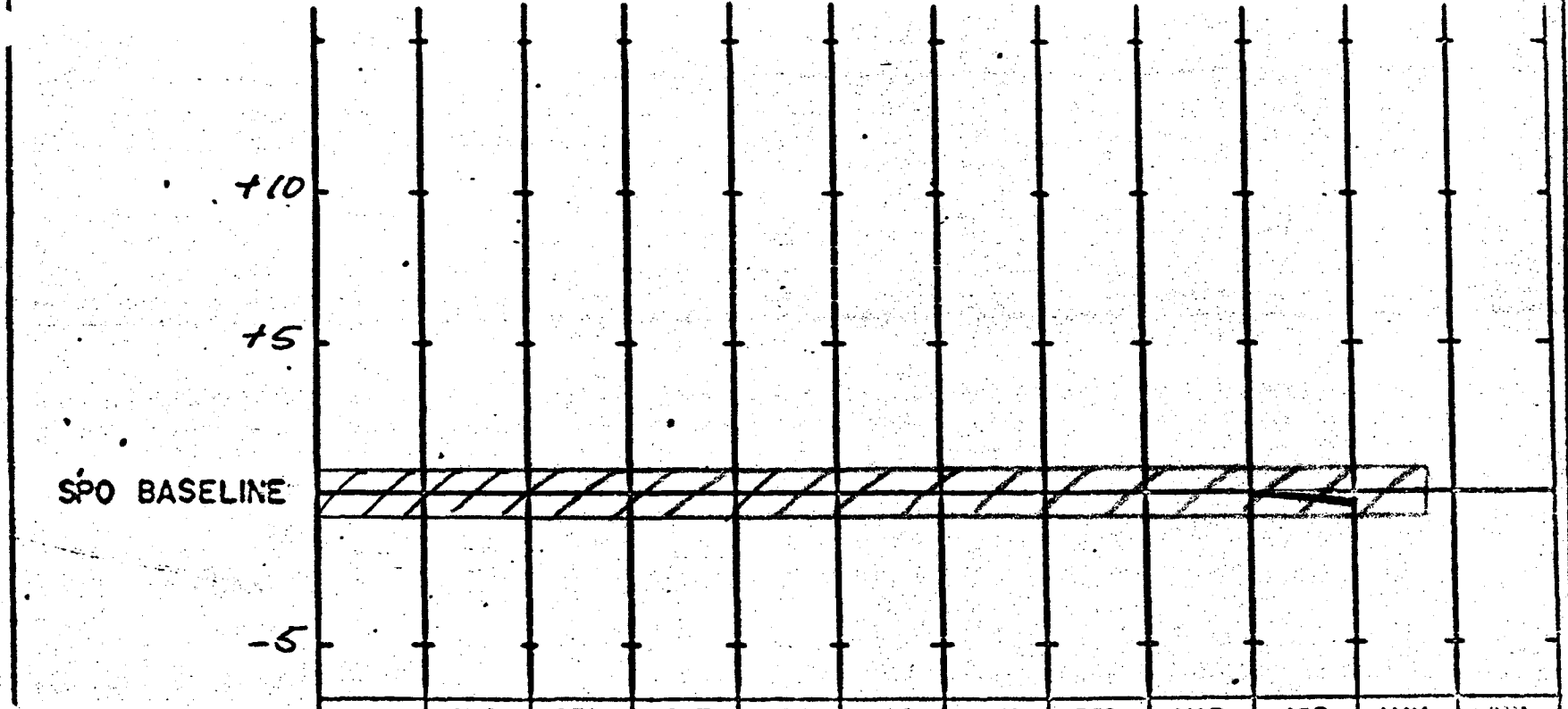


	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
CONTRACTOR BUDGET	.2	.4	.6	.8	1.1	1.3	2.3	9.5	14.7	21.0	27.8	35.1
SPO BUDGET	.2	.4	.6	.8	1.1	1.3	2.3	9.5	14.7	21.0	27.8	35.1
CONTR EXPENDITURES	.2	.4	.6	.8	1.1	1.3	2.3	9.5	14.7	21.0		
COMMITMENT RESERVE									8.1	8.1	8.1	8.1
GOV'T OBLIGATIONS							.5	.5	24.4	32.9	35.1	

C

FINANCIAL STATUS FY 67

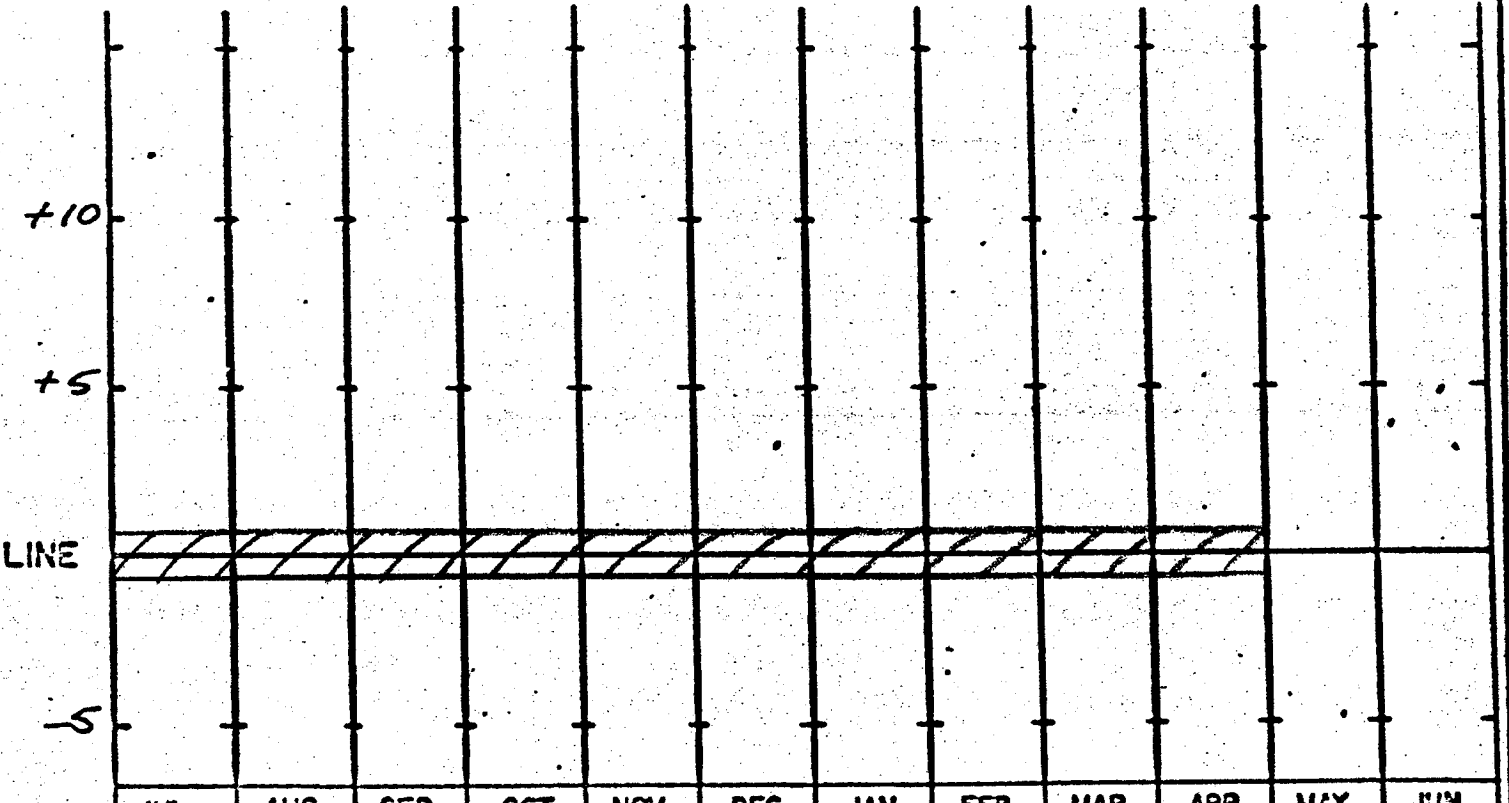
SYSTEM SEGMENT GSE/TD CONTRACTOR AEROSPACE CORP



	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
CONTRACTOR BUDGET	.1	.2	.3	.5	.6	1.2	1.9	2.5	3.4	4.4	5.4	6.5
SPO BUDGET	.1	.2	.3	.5	.6	1.2	1.9	2.5	3.4	4.4	5.4	6.5
CONTR EXPENDITURES	.1	.2	.3	.5	.6	1.2	1.9	2.5	3.4	4.2		
COMMITMENT RESERVE									0	0	0	0
GOV'T OBLIGATIONS						1.0	3.3	3.3	4.8	4.8		

FINANCIAL STATUS FY 67

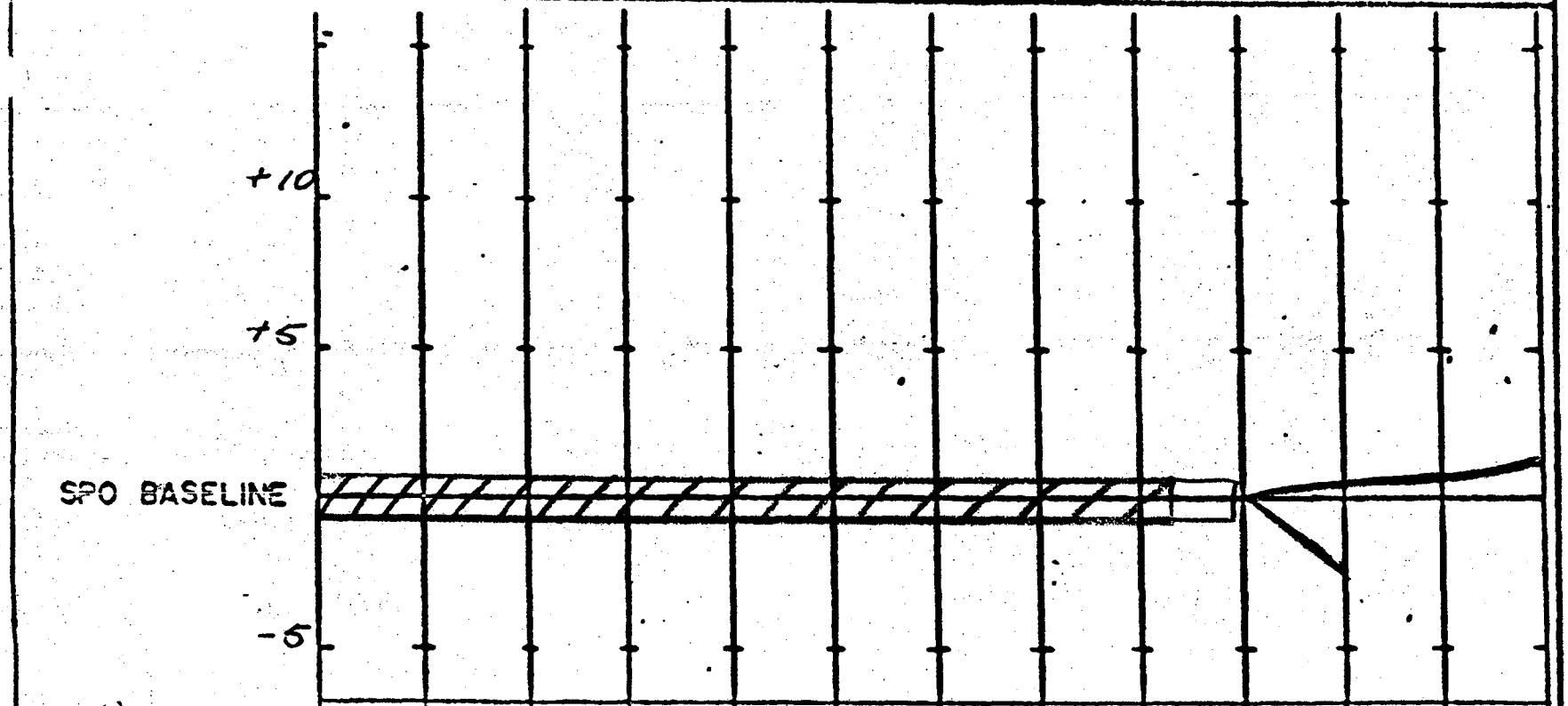
SYSTEM SEGMENT OTHER CONTRACTOR VARIOUS/GOV'T



	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
CONTRACTOR BUDGET		.2	.2	.2	1.5	1.8	2.0	5.2	6.0	6.3	7.0	9.3
SPO BUDGET		.2	.2	.2	1.5	1.8	2.0	5.2	6.0	6.3	7.0	9.3
CONTR EXPENDITURES		.2	.2	.2	1.5	1.8	2.0	5.2	6.0	6.3		
COMMITMENT RESERVE									0	0	0	0
GOV'T OBLIGATIONS		.2	.2	.2	1.5	1.8	2.0	5.2	6.0	6.3		

FINANCIAL STATUS FY 67

SYSTEM SEGMENT TOTAL MOL CONTRACTOR ALL



	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
CONTRACTOR BUDGET	.3	.8	7.5	16.4	31.6	44.0	67.8	103.5	133.8	173.3	212.0	256.1
SPO BUDGET	.3	.8	7.5	16.4	31.6	44.0	67.8	103.5	133.8	172.8	211.2	254.9
CONTR EXPENDITURES	.3	.8	7.5	16.4	31.6	44.0	67.8	103.5	133.8	170.6		
COMMITMENT RESERVE									[illegible]	33.6	33.6	[illegible]
GOV'T OBLIGATIONS		.2	12.2	27.6	30.6	51.0	74.5	77.7	26.2	141.0	164.5	

FUNDS UTILIZATION

30 APRIL 67 STATUS

CONTRACTOR EXPENDITURES	170.6
COMMITMENT RESERVE	33.6
TOTAL	204.2
RELEASED	221.0
AVAILABLE	16.8

MAY-JUNE REQUIREMENTS

MAY	38.4
JUNE	43.6
	82.0

WILL BE OUT OF CASH

MID-MAY

NEED REMAINING 65.446

IMMEDIATELY

CURRENT CONSIDERATIONS

- RESULTS OF 12 MOS FIRM QUOTES - 16 MAR

67	68	69	70	71	72	TOTAL
342.8	648.3	632.1	431.0	232.6	81.6	2368.4

REQUIREMENTS INCOMPATIBLE WITH BUDGET 286/480/620

- RESULTS OF 15 MOS FIRM QUOTES (UPDATED) - 28 APR (17 1/2)

67	68	69	70	71	72	73	TOTAL
288.9	523.9	617.1	550.4	319.4	129.4	10.0	2439.1

COULD BE COMPATIBLE WITH BUDGET BUT UNAPPROVED

- WHERE DO WE GO FROM HERE?

- CAN WE GO WITH A "12 COMPACTED" (14 1/2 MOS)?

4 - 10 MAY IN-HOUSE EFFORT

- CONSIDERATION OF VARIOUS ALTERNATIVES
- ESTABLISH BOGEYS FOR ALTERNATIVES
- ASCERTAIN WHETHER CONTRACTORS WILL ACCEPT OBJECTIVE BOGEYS
- IDENTIFY PROBLEMS INDUCED BY 12 COMPACT SCHEDULE

MOL

ALTERNATIVES CONSIDERED BY SPO

5 MAY - 15 MOS SCHEDULE INCENTIVIZED TO 12 MOS - DISAPPROVED

I. 15 MOS SCHEDULE - NO INCENTIVE TO 12 SCHED, T-III CASE II

II. 12 MOS COMPACTED - BALANCED PROGRAM

III. 12 MOS COMPACTED - T-IIIM & MAC MINIMUM SUSTAINING EFFORT ONLY

IV. 12 MOS COMPACTED - (SAME AS II, CONVERT TO CPIF MAC/DAC)

V. 12 MOS COMPACTED - T-IIIM MINIMUM SUSTAINING EFFORT ONLY

VI. $430 BUDGET IN FY 68

~~SECRET~~

SAR

MOL

CONSIDERATIONS

FY 67	-- NO PROBLEM
FY 68 & 69	-- NEGOTIATE FY LIMITATIONS
	-- DROP DRV/WBDL
	-- T-IIIM HOLD 12-15 MONTHS
	-- GEMINI B HOLD
	-- FURTHER SCHEDULE REVISION

MOL

BOGIES FOR ALTERNATIVES

		67	68	69
ALTERNATE I (15 MOS)	DAC	107.2	175	225
	GE	33.7	70	98
	EXP	52.7	105	100
	MAC	36.3	54	77
	T-IIIM	43.2	47	90
	OTHER	15.8	29	30
	TOTAL	288.9	480	620
ALTERNATE II (12 COMPACT BALANCED PROGRAM)	DAC	107.2	175	240
	GE	33.7	70	105
	EXP	52.7	110	103
	MAC	36.3	54	87
	T-IIIM	43.2	44	95
	OTHER	15.8	27	31
	TOTAL	288.9	480	661

- BOGIES ARE RECOGNIZED AS SOMEWHAT ARBITRARY NUMBERS.

- DAC, GE, & MAC ASKED TO COMMIT TO ALTERNATE I & II BOGIES (6 MAY)

S/C

MOL

BOGIES FOR OTHER ALTERNATIVES CURRENTLY BEING STUDIED

		67	68	69
ALTERNATIVE III (12 COMPACT T-IIIM MIN SUSTAINING EFFORT)	DAC	107.2	175	250
	GE	33.7	85	100
	EXP	52.7	120	100
	MAC	36.3	37	80
	T-III	43.2	34	100
	OTHER	15.8	29	31
	TOTAL	288.9	480	661

		67	68	69
ALTERNATIVE V (12 COMPACT T-III MIN SUSTAINING EFFORT)	DAC	107.2	180	260
	GE	33.7	80	100
	EXP	52.7	110	100
	MAC	36.3	49	75
	T-III	43.2	32	95
	OTHER	15.8	29	31
	TOTAL	288.9	480	661

S H

MOL

T-III RESPONSE TO SAFSL TWX

(T-III AND MAC MINIMUM SUSTAINING EFFORT)

	*FY 67	FY 68	FY 69	FY 70	FY 71	FY 72	TOTAL
12C (MIN EFFORT)	43.2	53.3	101.3	88.2	56.4	18.0	360.4
ALT II BOGEY	43.2	44.0	95.0				
	0	9.3	6.3				

NOTE: T-III B, C & D KEPT ON SCHEDULE

12 ROM	50.3	81.8	100.4	80.9	50.5	8.9	372.8
15 CASE I	42.6	44.0	107.6				
II	43.2	49.9	94.9				
III	42.7	34.1	91.3				

* ADD $45.8 NON-MOL FUNDS

C

MOL

ALTERNATE WITH $430 FOR FY 68

FY 68 BOGEYS

DAC	175
GE	70
EXP	110
MAC	24
T-IIIM	24
OTHER	27
TOTAL	430

- o FOR A BALANCED PROGRAM
  - BOGEYS ARE INCOMPATIBLE WITH REQUIREMENTS
  - BOGEYS ARE INCOMPATIBLE WITH 15 MOS & 12 MOS COMPACTED SCHEDULED EFFORT
- o COURSES OF ACTION
  - PLACE TITAN IIIM & MAC IN A "HOLD" MODE
  - REASSESS SCHEDULE
- o EFFECT
  - INCREASED TOTAL PROGRAM COSTS
  - POTENTIAL IMPACT ON SAFETY, SUBCONTRACTORS, AND SCHEDULE

SH

RESULTS

ASSESSMENT OF ALTERNATIVES

#1 15 MOS SLIP -- 480/620 FUNDING -- CAN DO

#2 12 MOS COMP -- BALANCED PROGRAM -- 480/661 -- CAN DO FY 68 WITH PRESSURE ON T-III CONTRACTORS -- FY 69 OUTSIDE OF BOGEYS.

#3 12 MOS COMP -- GB & T-III MIN SUSTAINING EFFORT ONLY -- 480/661

UNDESIRABLE TECHNICALLY -- NO LONGER REQUIRED FINANCIALLY

#4 SAME AS #2 -- CONVERT TO CPIF FOR MAC AND DAC

NO LONGER REQUIRED FINANCIALLY

UNDESIRABLE CONTRACTUALLY

#5 SAME AS #4 BUT REDUCE T-III TO LEVEL OF EFFORT

DITTO

#6 NOA $430 IN FY 68 -- VIRTUAL TERMINATION OF T-IIIM & MAC EFFORT

DECISION REQUIRED PRIOR TO 1 JULY

CONCLUSIONS

- CAN MEET ALTERNATE I
- ALTERNATE II -- ONLY MEETS FY 68 BUDGET
  - -- ASKING CONTRACTORS TO MAKE 12 MONTH SCHEDULE WITH 15 MONTH MONEY
  - -- INCREASED TECHNICAL RISK
  - -- MODIFIES T-III EFFORT
- 430 BUDGET UNBALANCES PROGRAM AND PLACES EVEN A 15 SCHEDULE UNATTAINABLE