SPACE TRANSPORTATION ARCHITECTURE STUDY STS MISSION OPERATIONS MANPOWER & COSTING SUMMARY

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Cost Analysis Office

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NASA
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Space Administration

Lyndon B. Johnson Space Center
Houston, Texas

Acknowledgement

This data package was collected and prepared by Michael L. Emmerling/Barrios, and Susan Gabriel/Barrios, with approval by Kelley Cyr/BX/Johnson Space Center.

Any questions regarding its contents should be directed to Kelley Cyr/BX/JSC (713/483-4193), or Michael Emmerling/Barrios (713/280-1997)
483-0374 713/280-1996
282-7950

The purpose of the STAS task is to develop a cost projection model to be used for future architectures. The manpower and costing data will be collected and analyzed from each organization at JSC supporting STS operations. The timeframe for which the data is being collected is the period between and including STS-5 through STS-51L.

This STAS manpower costing report contains data collected for the Mission Operations Directorate (MOD). The contents of the report are as follows:

JSC Organization Charts

Figure 1. JSC Organization with respect to MOD

Figure 2. Space Operations Organization with overview of MOD responsibilities

Figure 3. Mission Operations Directorate Organization with overview of Division Responsibilities

1985 MYE Breakdown - JSC Directorates Supporting STS Operations

Figure 4. 1985 MYE Breakdown for the Space Operations Directorates

Figure 5. 1985 MYE Breakdown for the Research and Engineering Directorates

Figure 6. 1985 MYE Breakdown for the Center Support Directorates

Figure 7. 1985 MYE Breakdown for the Staff Offices

MOD Manhour Summaries

Figure 8. MOD Flight Specific Manhour Summary

Figure 9. MOD Non-Flight Specific Manhour Summary

Figure 10. DA Flight Specific Manhour Summary

Figure 11. DA Non-Flight Specific Manhour Summary

Figure 12. DE Flight Specific Manhour Summary

Figure 13. DE Non-Flight Specific Manhour Summary

Figure 14. DF Flight Specific Manhour Summary

Figure 15. DF Non-Flight Specific Manhour Summary

Figure 16. DG Flight Specific Manhour Summary

Figure 17. DG Non-Flight Specific Manhour Summary

Figure 18. DH Flight Specific Manhour Summary

Figure 19. DH Non-Flight Specific Manhour Summary

Figure 20. DM Flight Specific Manhour Summary

Figure 21. DM Non-Flight Specific Manhour Summary

Attachment A - MOD Task Descriptions

The MOD task descriptions contain Directorate as well as Division level task descriptions. Please note: MOD task descriptions are applicable when there is no further Division breakdown.

JSC

ORGANIZATION CHARTS

FIGURES 1 - 3

N .SA

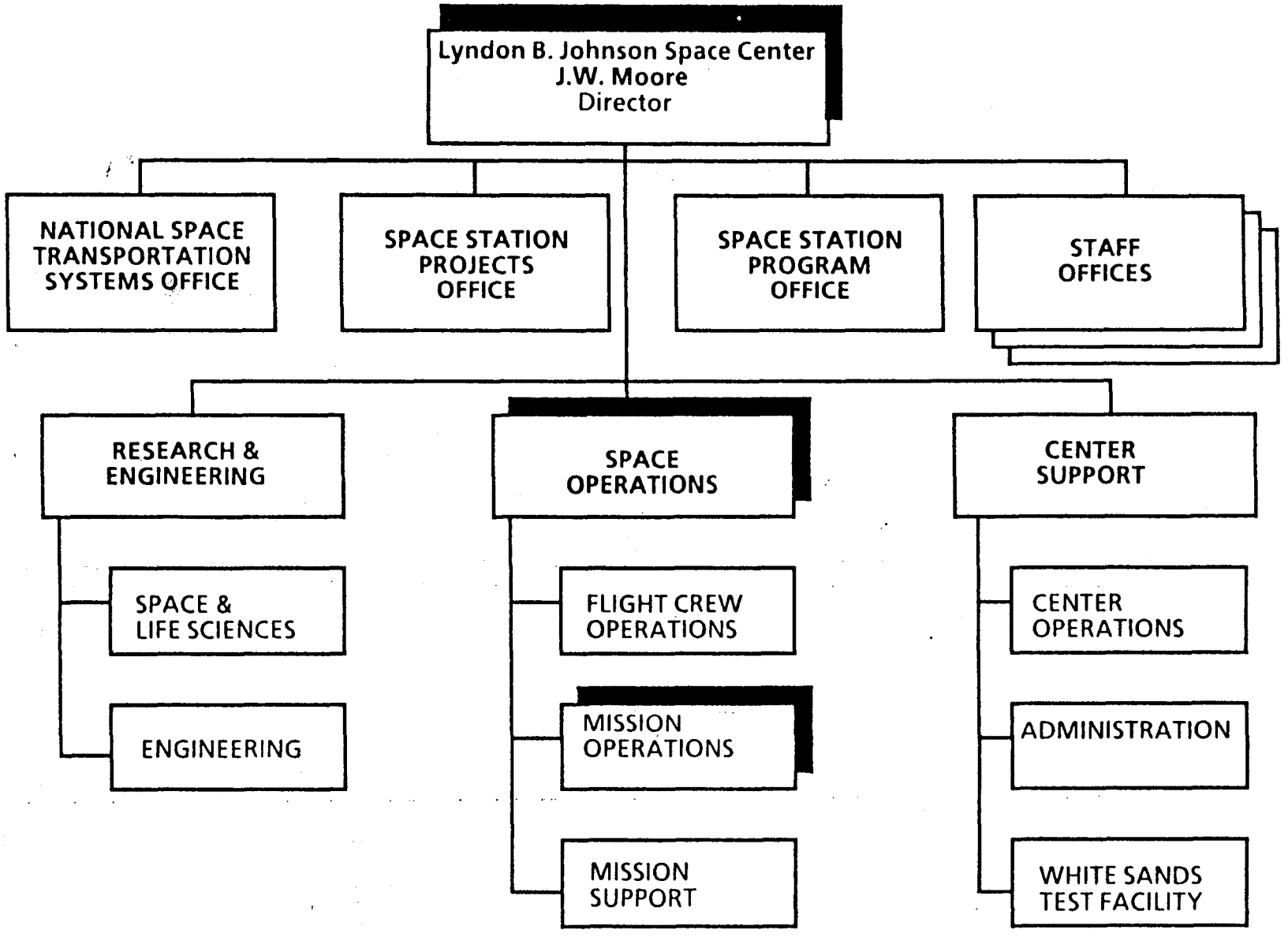


FIGURE 1

Detailed Data Available for Highlighted Boxes

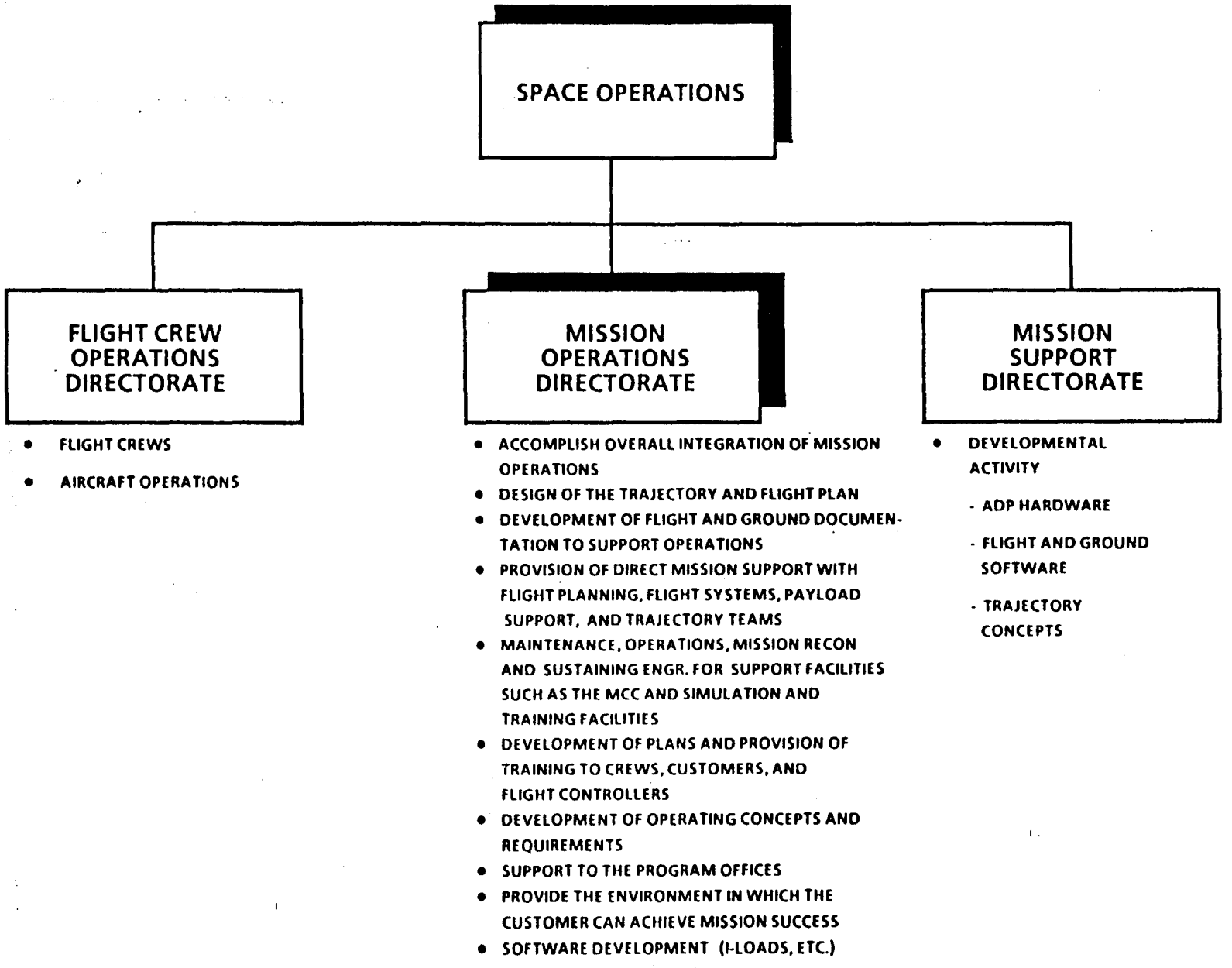

SPACE OPERATIONS
FLIGHT CREW OPERATIONS DIRECTORATE
• FLIGHT CREWS
• AIRCRAFT OPERATIONS
MISSION OPERATIONS DIRECTORATE
• ACCOMPLISH OVERALL INTEGRATION OF MISSION OPERATIONS
• DESIGN OF THE TRAJECTORY AND FLIGHT PLAN
• DEVELOPMENT OF FLIGHT AND GROUND DOCUMENTATION TO SUPPORT OPERATIONS
• PROVISION OF DIRECT MISSION SUPPORT WITH FLIGHT PLANNING, FLIGHT SYSTEMS, PAYLOAD SUPPORT, AND TRAJECTORY TEAMS
• MAINTENANCE, OPERATIONS, MISSION RECON AND SUSTAINING ENGR. FOR SUPPORT FACILITIES SUCH AS THE MCC AND SIMULATION AND TRAINING FACILITIES
• DEVELOPMENT OF PLANS AND PROVISION OF TRAINING TO CREWS, CUSTOMERS, AND FLIGHT CONTROLLERS
• DEVELOPMENT OF OPERATING CONCEPTS AND REQUIREMENTS
• SUPPORT TO THE PROGRAM OFFICES
• PROVIDE THE ENVIRONMENT IN WHICH THE CUSTOMER CAN ACHIEVE MISSION SUCCESS
• SOFTWARE DEVELOPMENT (I-LOADS, ETC.)
MISSION SUPPORT DIRECTORATE
• DEVELOPMENTAL ACTIVITY
- ADP HARDWARE
- FLIGHT AND GROUND SOFTWARE
- TRAJECTORY CONCEPTS

FIGURE 2

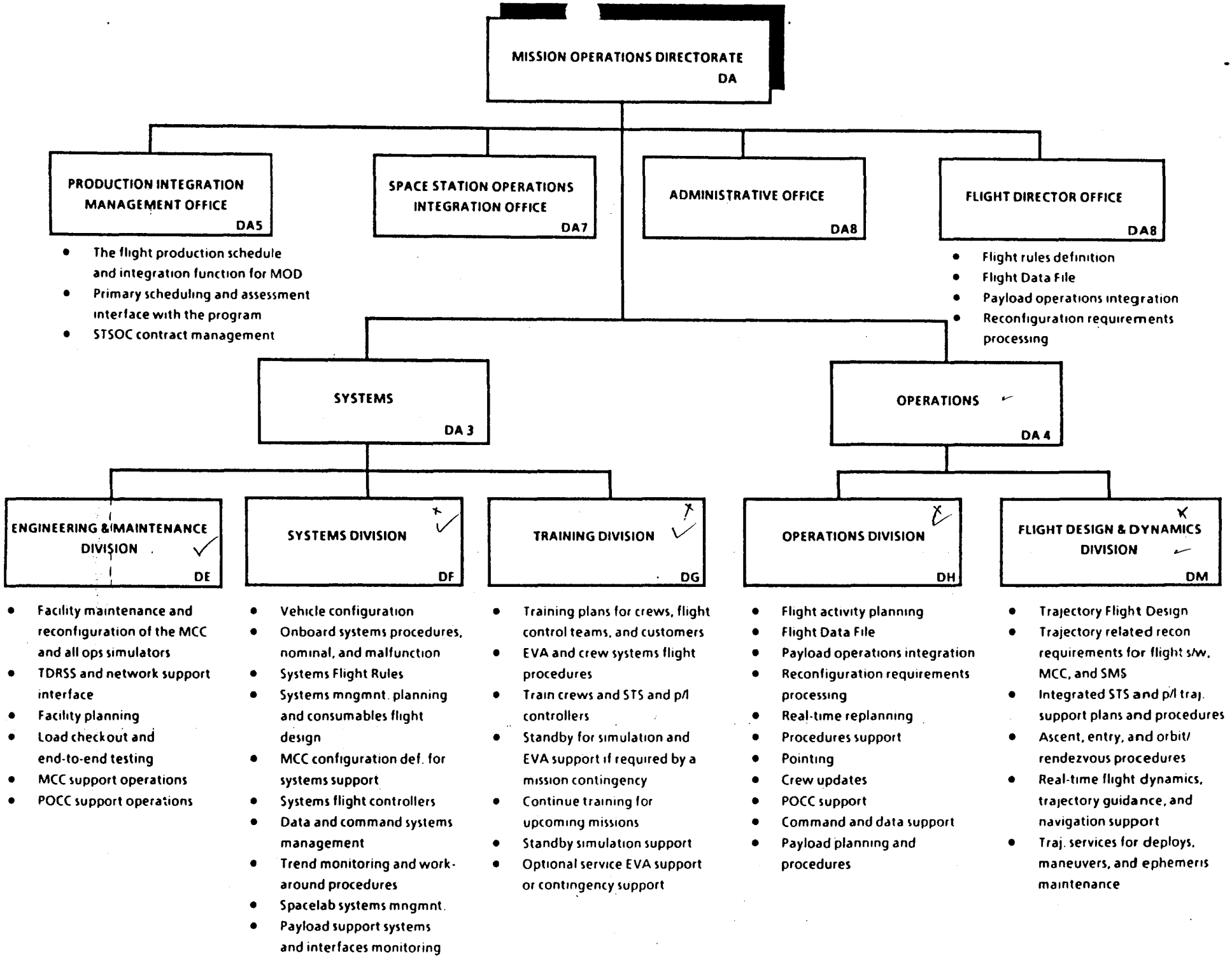

MISSION OPERATIONS DIRECTORATE
DA
PRODUCTION INTEGRATION MANAGEMENT OFFICE
DA5
The flight production schedule and integration function for MOD
Primary scheduling and assessment interface with the program
STSOC contract management
SPACE STATION OPERATIONS INTEGRATION OFFICE
DA7
ADMINISTRATIVE OFFICE
DA8
FLIGHT DIRECTOR OFFICE
DA8
Flight rules definition
Flight Data File
Payload operations integration
Reconfiguration requirements processing
SYSTEMS
DA 3
OPERATIONS
DA 4
ENGINEERING & MAINTENANCE DIVISION
DE
Facility maintenance and reconfiguration of the MCC and all ops simulators
TDRSS and network support interface
Facility planning
Load checkout and end-to-end testing
MCC support operations
POCC support operations
SYSTEMS DIVISION
DF
Vehicle configuration
Onboard systems procedures, nominal, and malfunction
Systems Flight Rules
Systems mngmnt. planning and consumables flight design
MCC configuration def. for systems support
Systems flight controllers
Data and command systems management
Trend monitoring and work-around procedures
Spacelab systems mngmnt.
Payload support systems and interfaces monitoring
TRAINING DIVISION
DG
Training plans for crews, flight control teams, and customers
EVA and crew systems flight procedures
Train crews and STS and p/l controllers
Standby for simulation and EVA support if required by a mission contingency
Continue training for upcoming missions
Standby simulation support
Optional service EVA support or contingency support
OPERATIONS DIVISION
DH
Flight activity planning
Flight Data File
Payload operations integration
Reconfiguration requirements processing
Real-time replanning
Procedures support
Pointing
Crew updates
POCC support
Command and data support
Payload planning and procedures
FLIGHT DESIGN & DYNAMICS DIVISION
DM
Trajectory Flight Design
Trajectory related recon requirements for flight s/w, MCC, and SMS
Integrated STS and p/l traj. support plans and procedures
Ascent, entry, and orbit/ rendezvous procedures
Real-time flight dynamics, trajectory guidance, and navigation support
Traj. services for deploys, maneuvers, and ephemeris maintenance

FIGURE 3

1985 MYE

BREAKDOWN

JSC - DIRECTORATES

FIGURES 4 - 7

1985 MYE Breakdown - JSC Directorates Supporting STS Operations

MYE Category Definitions

MGT & ADMIN - (Management and Administration) - Management staff required to manage/administer the support contractor, prime contractor, and civil service.

SUST ENGR (Sustaining Engineering) - Manpower applied to anomaly investigations, problem solving, and providing resolutions.

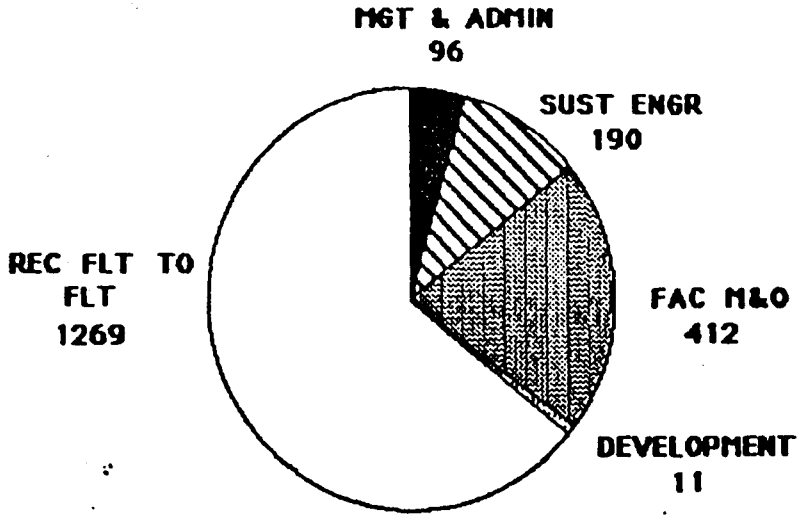
FAC M&O (Facility Maintenance & Operations) - Manpower applied to maintaining and operating the laboratories and facilities.

DEVELOPMENT (Development) - Manpower applied to support shuttle hardware/software still under development, new hardware/software added to program, and hardware/software upgrades.

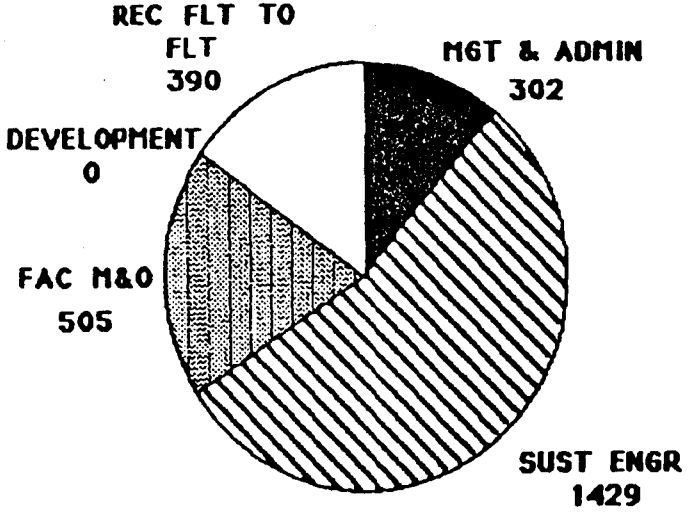
REC FLT TO FLT (Recurring Flight-to-Flight Products) - Manpower applied to providing those services and hardware required for each mission. These include pre-flight simulations, training, hardware pre-pack, flight operations activities, and post-flight analyses.

1985 MYE BREAKDOWN FOR THE SPACE OPERATIONS DIRECTORATES THAT CONTRIBUTE TO STS OPERATIONS

MISSION OPERATIONS DIRECTORATE - 1978



MISSION SUPPORT DIRECTORATE - 2626



FLIGHT CREW OPERATIONS DIRECTORATE - 413

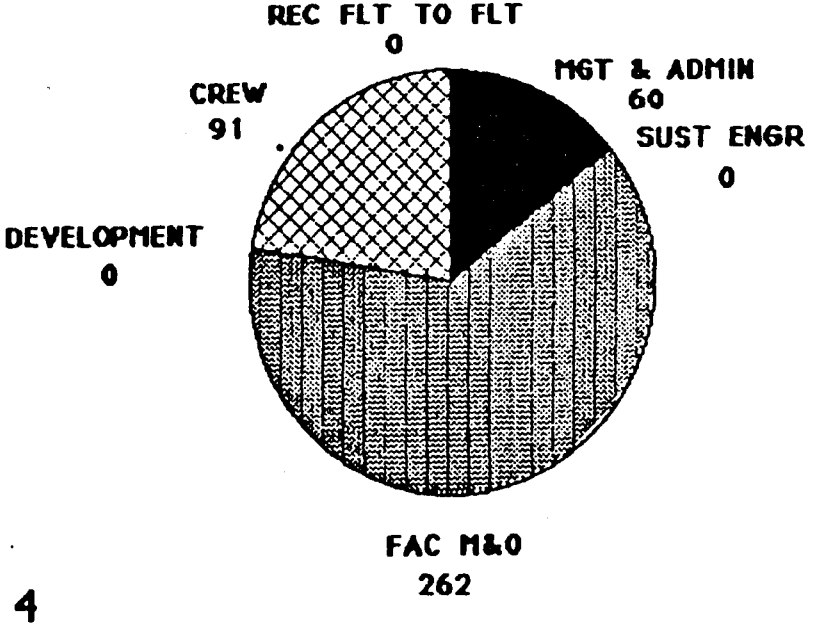
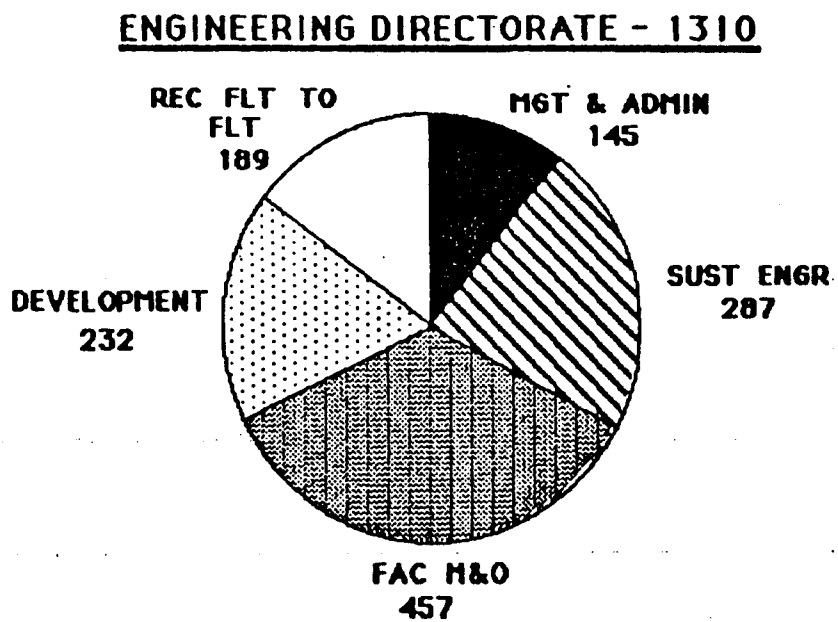


FIGURE 4

1985 MYE BREAKDOWN FOR THE RESEARCH AND ENGINEERING DIRECTORATES THAT CONTRIBUTE TO STS OPERATIONS



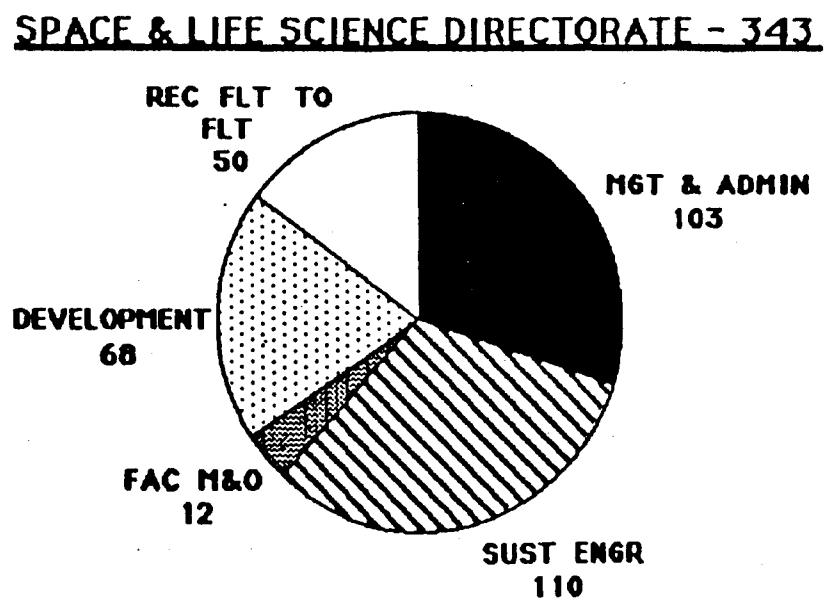
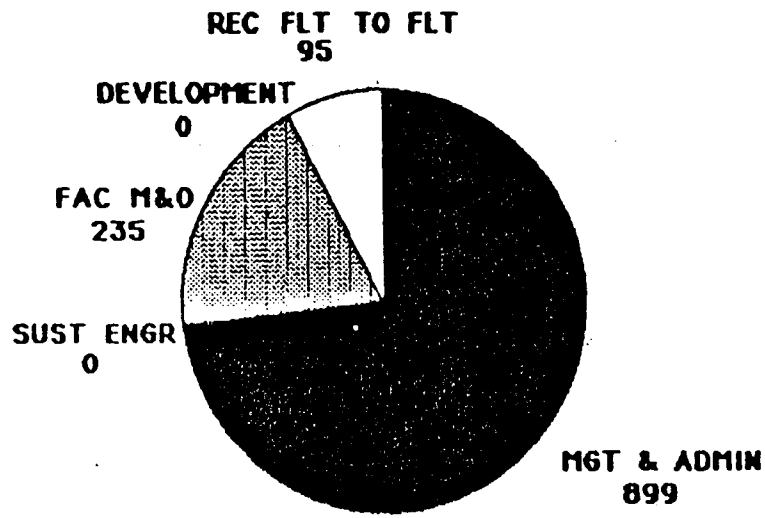


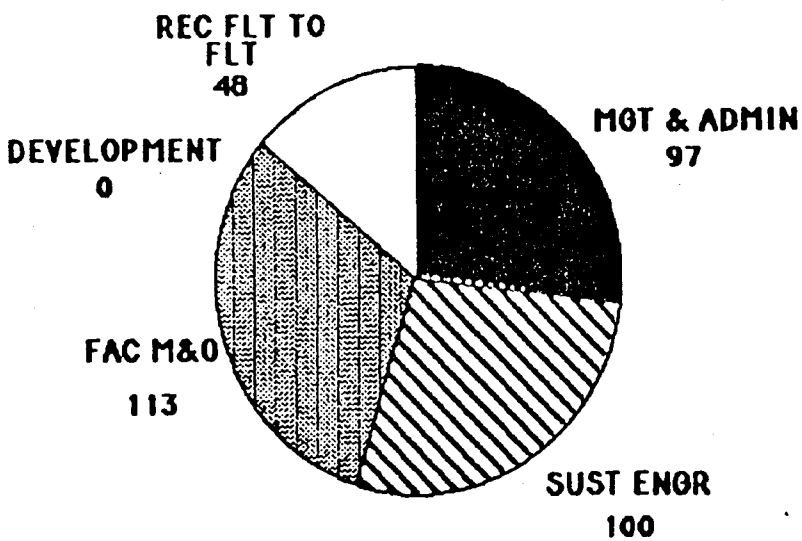
FIGURE 5

1985 MY BREAKDOWN FOR THE CENTER SUPPORT DIRECTORATES THAT CONTRIBUTE TO STS OPERATIONS

CENTER OPERATIONS DIRECTORATE- 1229



WHITE SANDS TEST FACILITY - 358



ADMINISTRATION DIRECTORATE - 184

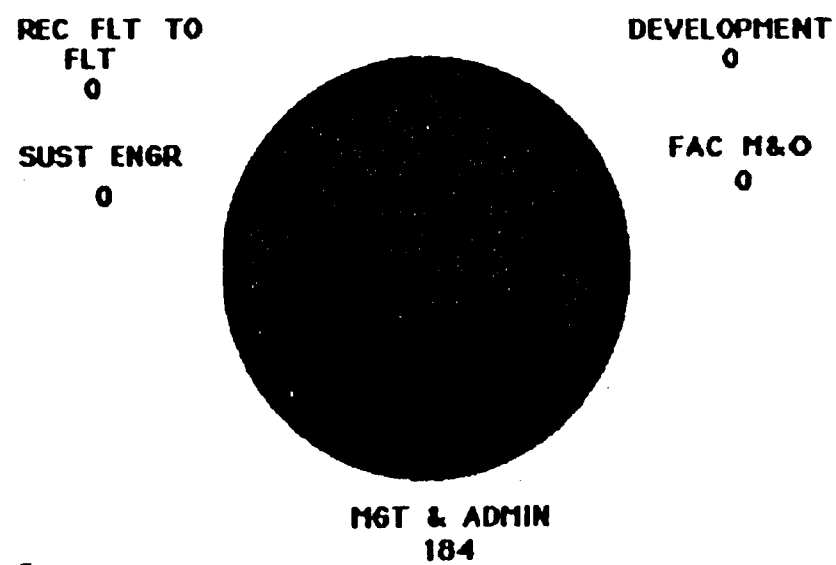
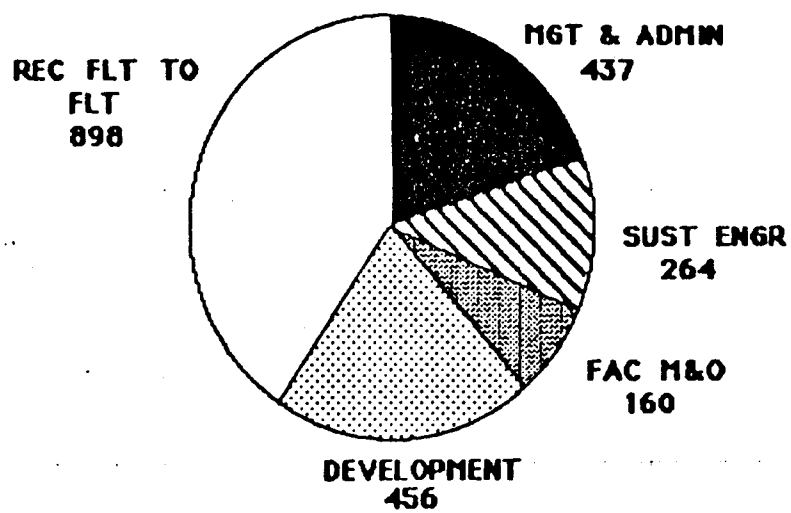


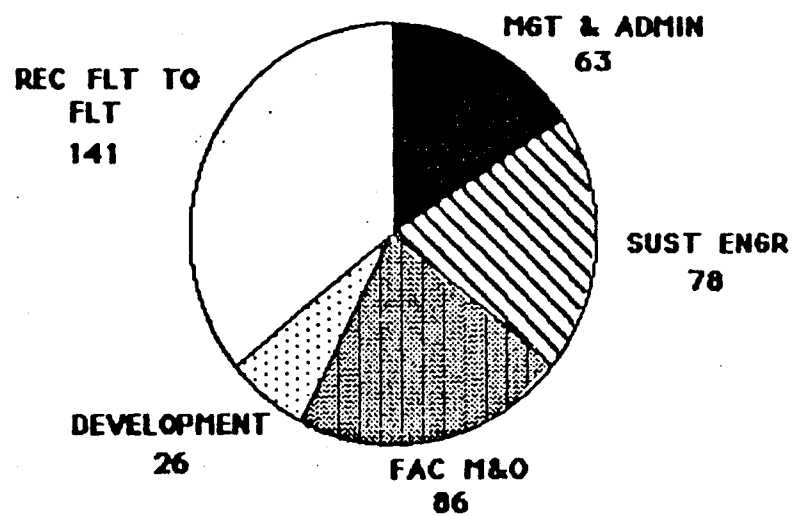
FIGURE 6

1985 MYE BREAKDOWN FOR THE STAFF OFFICES THAT CONTRIBUTE TO STS OPERATIONS

NSTS PROGRAM OFFICE - 2215 *



SAFETY, RELIABILITY, & QA OFFICE - 394



* INCLUDES ROCKWELL SYSTEMS ENGINEERING AND INTEGRATION SUPPORT

FIGURE 7

MOD MANHOUR

REPORTS

FIGURES 8 - 21

MOD Manhour Reports

All reports: * Organization ID is the top left corner of the reports.

MOD - Mission Operations Directorate (totals)
DA - MOD Administration and Management
DE - Engineering and Maintenence Division
DF - Systems Division
DG - Training Division
DH - Operations Division
DM - Flight Design and Dynamics Division

* Task No. can be used to reference detailed task descriptions using Attachment A.

Flight Specific Reports:

* Availible data from MOD started with STS-41C.
* Only contains completed missions.
* Remanifested missions that were combined are represented by both Flight Nos. (i.e. 51D/E)
* Date = Launch month and year.
* Total = Total manhours charged to a task (right) or mission (bottom).
* Avg = Total manhours charged to a task divided by the number of flights with charges to the task.

  Example: Figure 8 - Task No. 02 07 02
  Total = 18
  No. Flts. charged = 2 (51L, 61B)
  Avg = 18/2 = 9

Non-Flight Specific Reports:

* Actvy = Non-Flight specific activity for which charges were made against a specific task.

  FLT - "Flight" - same as N/F

  GEN - "Generic" - contains both GFL & GSM data prior to being divided into two activity codes.

  GFL - "Generic Flight" - Used when secure mission tasks were being performed on a non-secure system. Also used for the development of generic product sets.

  GSM - "Generic Simulation" - Used when a secure mission simulation was being performed on a non-secure system. Also used for training & system verification.

LAB - "Test Labs" - Used for development/testing of products, and feasibility studies for a Western Test Range (WTR) launch.

LN1 - "DOD Launch on Need" - Mission 1 - advanced preparation of flight products to support short notice launch needs.

LN2 - "DOD Launch on Need" - Mission 2 - advanced preparation of flight products to support short notice launch needs.

N/F - "Non-Flight" - Tasks that were performed for the benefit of several flights. Also used for work performed on payloads that had not been scheduled, or for flights with launch dates more than two years away.

SIM - Same as GSM.

TL - Same as Lab

* MOS - Duration of activity in months - (not availible for this report)

* TOTAL - Total manhours charged to a task.

* AVG/FLT - Total manhours charged to a task divided by 15 (No. of flights during this period). Will change to AVG/MOS in future.

STS Mission Profiles

Flight No.	No. of Crew Members	Durations (Days)	Activities
41-C	5	7	Deploy LDEF, SM Repair
41-D/F	6	6	Deploy Syncom IV, OAST, SBS and Telstar
41-G	8	8	Deploy ERBS, operate Large Format Camera, perform Orbiter refueling system
51-A	5	6	Deploy Telesat-H, ARABSAT-A, Retrieve 2 Huges Satellites
51-B	7	7	Spacelab - 3
51-C			DOD
51-D/E	7	6	Deploy Syncom IV, Retrieve LDEF
51-F	7	7	IPS, Spacelab - 2
51-G	6	7	Deploy Morelos-A and ARABSAT-A

51-I	7	8	Repair & Salvage Leasat/Syncom IV-B
51-J			DOD
61-A	8	7	Spacelab D-1
61-B	7	5	Deploy SATCOM-KU, MORELOS-B, AUSSAT-2
61-C	7	5	SATCOM-KU, operation of the Material Science Lab - 2

MOD FLIGHT-SPECIFIC MANHOURS SUMMARY 08/07/86

TASK	TASK DESC.	FLT.--) DATE--)	41C 04/84	41D/F 08/84	41G 10/84	51A 11/84	51B 04/84	51C 01/85	51D/E 04/85	51F 07/85	51G 06/85	51I 07/85	51J 10/85	51L 01/86	61A 10/85	61B 11/85	61C 01/86	TOTAL	AVG.
01 01 00	CONSOLE PRODUCT DEV		4,065	8,222	2,703	1,643	5,238	1,179	2,594	10,767	2,584	1,737	886	543	3,118	918	923	47,120	3,141
01 02 00	SCHEDULING						20		2	26	5	14	14	10	2		9	102	11
01 03 00	FLT DIRECTOR TEAM SUPPORT		3,208	3,658	2,394	1,957	2,863	2,197	4,122	5,529	2,305	3,273	2,426	2,319	1,879	2,210	1,299	41,639	2,775
01 04 00	REMOTE OPS PLANNING		4,516	11,071	8,717	1,730	2,334	1,545	1,044	2,493	1,052	798	1,815	1,568	1,887	374	447	41,391	2,759
01 05 00	SUSTAINING ENGR/OPS			72	354	238	1,587	625	2,561	3,649	3,231	3,656	1,886	1,058	2,663	1,925	2,224	25,729	1,837
01 05 10	GROUND OPS PLANS/PROC											55	48	71	24	74	68	340	56
01 06 00	ADVANCED PROGRAM DEV					39	475	91	279	9	256	70	8	19	34	54	19	1,353	112
01 07 00	FACIL MGT & OPS SUPPORT						24		14	257	108	84	127	124	164	47	118	1,067	106
01 08 10	CUSTOMER SUPPORT		2,033	2,680	3,879	861	439	553	1,461	1,042	1,827	1,046	506	974	1,006	798	389	19,494	1,299
01 08 20	SAFETY SUPPORT									8	17	69	28	88	3	7	8	228	28
01 11 40	PROCEED. MGMT + LOGISTICS		5,416	14,030	4,235	3,599	4,187	5,473	7,621	4,069	4,127	2,886	3,524	2,203	3,425	3,025	2,581	70,401	4,693
4 01 11 80	ONBOARD PRODUCT DEV		18,740	26,403	11,986	9,595	7,634	3,676	9,564	13,963	6,915	4,424	3,543	5,044	4,500	5,240	2,829	134,056	8,937 4 10.4%
01 11 90	CAP/FLT DSN/SYS DEV		4,094	10,831	5,506	2,779	4,152	3,243	6,774	6,377	7,363	5,258	3,693	5,621	6,173	6,391	4,829	83,084	5,538
01 11 91	TRAJ. DESIGN PLANNING						185		125	800	181	728	262	133	180	391	227	3,212	321
01 11 92	TRAJ DESIGN PROD CFP						898	12	154	943	1,122	695	530	356	539	719	510	6,478	588
01 11 93	TRAJ DESIGN PROD DFP			5		14	289	31	45	3,529	931	3,977	3,258	4,578	3,359	4,199	6,260	30,475	2,344
01 11 94	TRAJ DESIGN MANIFEST						5		12	35	4	16	7	115	12	63	56	325	32
01 11 95	TRAJ DESIGN FLT SPEC					31	336		353	1,343	881	2,644	588	900	1,315	1,758	1,107	11,256	1,023
01 11 96	TRAJ DESIGN GEN ANAL					9	50		8	332	192	993	265	717	506	726	641	4,439	403
01 11 97	TRAJ DESIGN COM TO F								30	624	304	1,004	389	1,172	910	831	1,329	6,593	732
01 12 10	TRAJ DESIGN 1-LOADS						18	10	12	194	52	409	504	916	306	463	894	3,778	343
01 12 30	TRAJ DESIGN MCC						5		2	47	45	213	130	159	105	105	110	921	92
01 14 99	DIRECT PROG OFC SUPT											114	132	122	30	41	104	543	90
01 15 00	DIRECT PROG OFC SUPT		1,371	2,562	1,519	792	375	279	310	320	155	240	36	4	35	18		8,016	572
2 01 18 00	PERS STUDY & MSN PRE		15,006	27,647	11,483	7,295	13,908	6,939	14,887	12,087	6,274	6,915	4,803	6,028	10,609	5,138	6,192	155,211	10,34[illegible] 1 12.1%
02 01 00	MCC/POCC/SMS/NTWK RE		1,455	3,936	3,361	826	1,835	682	1,209	2,315	2,229	736	882	482	833	745	571	22,097	1,473
02 02 00	FLT SYS RQMTS/REVIEW		3,121	6,030	5,636	2,416	1,753	1,368	2,970	2,652	2,698	2,898	1,277	1,698	2,422	1,829	1,397	40,165	2,677
02 03 00	SMS/MCC/POCC RECONFI									335	317	266	497	371	526	300	814	3,426	428
02 04 00	SW DATA RECONFIG									69	13	34	62	394	508	85	153	1,318	164
02 06 00	TRAINING SYS REQMTS		3,716	4,832	2,823	951	2,986	187	1,304	2,685	873	973	404	489	954	586	674	24,437	1,629
02 06 99	MOD SUPPORT SYS									13	2	3	11	2	46			77	12
02 07 00	MOD SUPPORT SYS DEV		659	1,549	2,579	23	68	308	131	86	114	1						5,518	551
02 07 01	SMTF UPGRADE				20	56	135	60	651	270	174	153	61	14	72	60	137	1,863	143
02 07 02	MODIS													8		10		18	9
02 07 03	TPS/FOPS/CAPS				10	38	13		23	33	1	7	31	2	42	3	65	268	22
02 07 04	SCAP/FAP				32	247	25	76	44	33		49	30		30	16	4	586	53
02 07 05	TRAJ DESIGN CPTR SYS									108	7	10			24	7	6	162	27
02 07 08	MITS DEVELOPMENT													3				3	3
02 08 00	MOD SYS DEV TRAINING		112	330	364	233	59	35	91	347	76	48	27	36	3	49	17	1,827	121
03 01 00	TRAINING RECEIVED		4,053	4,702	2,211	1,672	1,683	723	2,044	2,130	1,259	1,459	1,198	703	1,452	1,488	867	27,644	1,842
03 02 00	TRNG OPS PLANS + PRO		2,290	4,278	2,158	1,825	2,345	2,417	2,717	1,897	1,924	1,180	1,073	2,045	2,054	1,370	1,353	30,926	2,061
03 02 10	TECH TRNG DOCUMENT		745	810	217	74	665	144	83	595	56	48	8	40	16	32	25	3,558	237
03 02 20	CLASSROOM/TRAINER OPS		2,582	1,423	933	918	856	467	1,089	1,124	525	575	377	690	562	638	461	13,220	881
03 02 30	SMS OPS		5,932	9,218	5,671	4,124	4,114	3,733	6,895	5,549	3,786	2,632	2,120	3,778	2,684	3,901	2,991	67,128	4,475
04 01 00	OLD TASK CODE				87	42							31					160	53
2 04 02 00	MCC SIMULATION OPS		16,662	24,232	10,625	8,526	8,933	7,094	14,343	13,313	9,543	7,867	5,630	7,301	10,267	7,881	4,884	157,101	10,473 2 12.2%
1 05 01 00	MCC FLIGHT OPS		12,215	11,702	12,074	12,275	13,287	4,983	13,054	19,752	11,436	15,919	7,412	3,589	16,361	12,745	12,004	178,808	11,920 1 13.9%
07 01 00	ADMINISTRATION		619	717	210	244	411	207	216	417	174	288	228	250	1,222	128	172	5,503	366
07 02 00	SCHED/ACTN CNTR OPS		4	45			4	24	1	88	8	16		27	24	3		244	22
09 01 00	ALL LEAVE		158	186	42	96	77	362	39	197	60	50	59	104	133	19	58	1,640	109
TOTALS -------)			112,772	181,171	101,829	65,168	84,271	48,723	98,878	122,451	75,206	76,530	50,826	56,868	83,019	67,410	59,826	1,284,948	87,952

AVERAGE MANHOURS OVER 15 FLIGHTS ----------) 85,663

FIGURE 8

MOD NON-FLIGHT-SPECIFIC MANHOURS SUMMARY 08/07/86

TASK	TASK DESC.	ACTVY.-> 0 MOS.->	FLT	GEN	GFL	GSM	LAB	LN1	LN2	N/F	SIM	TL	TOTAL	AVG/FLT
01 01 00	CONSOLE PRODUCT DEV		9	802	2,759	21			80	73,510			77,181	5,145
01 02 00	SCHEDULING			94	277				9	1,707			2,087	139
01 03 00	FLT DIRECTOR TEAM SUPPORT		12	402	3,899	3	15	387	124	19,524	4	27	24,397	1,626
01 04 00	REMOTE OPS PLANNING		122	328	706			18	104	27,768			29,046	1,936
01 05 00	SUSTAINING ENGR/OPS		315	5,015	14,265	137	11			124,286		46	144,075	9,605
01 05 10	GROUND OPS PLANS/PROC		22	8	41					6,222			6,293	419
01 06 00	ADVANCED PROGRAM DEV		100	265	276				15	21,353			22,009	1,467
01 07 00	FACIL MGT & OPS SUPPORT		134	2,832	8,205					14,801			25,972	1,731
01 08 10	CUSTOMER SUPPORT		942	78	360	2		177	93	47,082			48,734	3,248
01 08 20	SAFETY SUPPORT		14	21	24					1,543			1,602	106
01 11 40	PROCEED. MGMT + LOGISTICS		36	90	1,097	177		181	253	14,673		9	16,516	1,101
01 11 80	ONBOARD PRODUCT DEV		221	1,863	6,947		27	492	332	66,180		97	76,159	5,077
01 11 90	CAP/FLT DSN/SYS DEV		1,365	8,972	12,702	12		369	332	61,118			84,870	5,658
01 11 91	TRAJ. DESIGN PLANNING		21	3,720						4,077			7,818	521
01 11 92	TRAJ DESIGN PROD CFP		123	622	1,778		15			6,780		201	9,519	634
01 11 93	TRAJ DESIGN PROD OFP		17	2,295	6,850		414		7	28,958		1,554	40,095	2,673
01 11 94	TRAJ DESIGN MANIFEST		466	192	944		33			8,802		2	10,439	695
01 11 95	TRAJ DESIGN FLT SPEC		458	475	1,528		24	1	3	4,379		132	7,000	466
01 11 96	TRAJ DESIGN GEN ANAL		379	15,851	38,444	112	46			24,088		396	79,316	5,287
01 11 97	TRAJ DESIGN COM TO F		2	242	497					329		18	1,088	72
01 12 10	TRAJ DESIGN I-LOADS			447	584					1,427		41	2,499	166
01 12 30	TRAJ DESIGN MCC			253	41	17	21			2,519		64	2,915	194
01 14 99	DIRECT PROG OFC SUPT		4	22	79				6	1,983			2,094	139
01 15 00	DIRECT PROG OFC SUPT							82	152	16,164			16,398	1,093
(2) 01 18 00	PERS STUDY-&-MSN-PRE		443	4,116	13,277	454	4	36	542	243,835		10	262,717	17,514 (2) 8.3%
02 01 00	MCC/POCC/SMS/NTWK RE		863	1,389	4,562	103	5	6	215	65,905		47	73,095	4,873
02 02 00	FLT SYS RQMTS/REVIEW		529	2,118	4,289	78		50	110	106,471			113,645	7,576
02 03 00	SMS/MCC/POCC RECONFI		78	914	2,592	251			20	32,286		41	36,182	2,412
02 04 00	SW DATA RECONFIG			283	242					7,666			8,191	546
02 06 00	TRAINING SYS REQMTS		94	1,776	2,561	1,146		439	296	63,384	62		69,758	4,650
02 06 99	MOD SUPPORT SYS									577			577	38
02 07 00	MOD SUPPORT SYS DEV									81,224			81,224	5,414
02 07 01	SMTF UPGRADE			2,237	1,646					44,075			47,958	3,197
02 07 02	MODIS			6	26					56,934			56,966	3,797
02 07 03	TPS/FOPS/CAPS				10					94,331			94,341	6,289
02 07 04	SCAP/FAP			368	337					8,956			9,661	644
02 07 05	TRAJ DESIGN CPTR SYS		5	4,936	7,178		2			90,878		5	103,004	6,866
02 07 06	ALGORITHM DEVELOPMENT				47					1,926			1,973	131
02 07 07	CAS DEVELOPMENT				712					6,399			7,111	474
02 07 08	MITS DEVELOPMENT									1,853			1,853	123
02 07 09	MCC UPGRADE				318					1,374			1,692	112
02 07 10	DG NASA CAPS SUPPORT									63			63	4
02 07 11	DG SECURE CAPS SUPPORT									50			50	3
02 07 12	SCAP									56			56	3
02 07 13	STAR NETWORK									2,329			2,329	155
02 07 14	HARRIS 800 SYS SUPPORT									13			13	0
02 08 00	MOD SYS DEV TRAINING		80	666	3,324	158				187,869		1	192,098	12,806
02 08 01	FCT				104					2,281			2,385	159
02 08 02	CAIT									23			23	1
02 08 03	DG EXPERT SYS PROTO				4					969			973	64
02 08 04	DG FUTURE PROJECTS									1,442			1,442	96
(4) 03 01 00	TRAINING RECEIVED		177	2,508	9,028	431	8		13	191,421	24		203,610	13,574 (4) 6.4%
03 02 00	TRNG OPS PLANS + PRO		49	519	1,506	48		83	8	76,680			78,893	5,259
03 02 10	TECH TRNG DOCUMENT		29	1,760	2,512	121			12	45,175			49,609	3,307
03 02 20	CLASSROOM/TRAINER OPS		6	1,036	783	182		2	16	35,794			37,819	2,521
03 02 30	SMS OPS		8	589	1,493	982	3	33	10	35,963	13	1	39,095	2,606
04 02 00	MCC SIMULATION OPS		121	1,281	3,579	4,985	184	118	121	31,234	140	80	41,843	2,789
05 01 00	MCC FLIGHT OPS		6	3,950	8,645	111			134	10,726			23,572	1,571
(3) 07 01 00	ADMINISTRATION		3	1,093	3,495	24			27	233,813		8	238,463	15,897 (3) 7.5%
(1) 07 02 00	SCHED/ACTN CNTR OPS		21	28	80	8			54	46,151			46,342	3,089
(1) 09 01 00	ALL LEAVE			67	155	37		161	13	508,705			509,138	33,942 (1) 16.0%
TOTALS------->			7,274	76,529	174,808	9,600	812	2,635	3,101	2,898,104	243	2,780	3,175,886	211,725

FIGURE 9

DA FLIGHT-SPECIFIC MANHOURS SUMMARY 08/0 /86

TASK	TASK DESC.	FLT.--> DATE-->	41C 04/84	41D/F 08/84	41G 10/84	51A 11/84	51B 04/84	51C 01/85	51D/E 04/85	51F 07/85	51G 06/85	51I 07/85	51J 10/85	51L 01/86	61A 10/85	61B 11/85	61C 01/86	TOTAL	AVG.
01 01 00	CONSOLE PRODUCT DEV						91	49	8	82	10	20	30	3	21	8	17	339	30
01 03 00	FLT DIRECTOR TEAM SUPPORT		591	1,139	991	763	1,189	1,552	2,423	2,118	885	1,929	1,788	1,733	889	1,702	750	20,442	1,362
01 04 00	REMOTE OPS PLANNING		10	26	15		16	34	21	12	3		20		2			159	15
01 05 00	SUSTAINING ENGR/OPS				11		13	1	6	26	10			3	19			89	11
01 06 00	ADVANCED PROGRAM DEV						1								10			11	5
01 08 10	CUSTOMER SUPPORT			5	1		4	40	8		5	2	14	4	26		3	112	10
01 11 40	PROCEED. MGMT + LOGISTICS		19	44	5		26	2	15	2								113	16
01 11 80	ONBOARD PRODUCT DEV		1,815	2,238	913	1,334	146	235	86	78	8	6	16	4	21	5	3	6,908	460
01 11 90	CAP/FLT DSN/SYS DEV		22	105	20	150	52	22	258	79	750	184	86	110	585	61	20	2,504	166
01 15 00	DIRECT PROG OFC SUPT		229	357	318	37	28	2	77	1	50	3				12		1,114	101
01 18 00	PERS STUDY & MSN PRE		135	522	192	153	379	86	903	382	384	250	214	196	122	47	157	4,122	274
02 01 00	MCC/POCC/SMS/NTWK RE		32	50	19			7	3		16		29	3		37		196	21
02 02 00	FLT SYS RQMTS/REVIEW		367	1,045	689	577	201	426	721	337	808	540	155	260	502	250	55	6,933	462
02 03 00	SMS/MCC/POCC RECONFI										7	8	24	2	3		8	52	8
02 06 00	TRAINING SYS REQMTS		20	35			6	7	24	5	9		8		8			122	13
02 07 00	MOD SUPPORT SYS DEV				4													4	4
02 07 02	MODIS													8				8	8
03 01 00	TRAINING RECEIVED		292	358	209	112	78	32	221	187	73	106	111	140	69	114	89	2,191	146
03 02 00	TRNG OPS PLANS + PRO			6	4				4			7	24		2			47	7
03 02 30	SMS OPS			9														9	9
04 01 00	OLD TASK CODE				87	42												129	64
04 02 00	MCC SIMULATION OPS		167	359	189	212	213	272	332	307	193	66	97	81	579	83	22	3,172	211
05 01 00	MCC FLIGHT OPS		837	706	921	884	1,253	451	753	1,413	1,327	1,472	923	263	1,217	1,712	791	14,923	994
07 01 00	ADMINISTRATION		70	136	17	28	85	30	8	23	8	27	36	88	3	12	42	613	40
07 02 00	SCHED/ACTN CNTR OPS													27	24			51	25
09 01 00	ALL LEAVE							25										25	25
TOTALS ------->			4,606	7,140	4,605	4,292	3,781	3,273	5,871	5,052	4,546	4,620	3,575	2,925	4,102	4,043	1,957	64,388	4,499

AVERAGE MANHOURS OVER 15 FLIGHTS ----------> 4,292

FIGURE 10

DA NON-FLIGHT-SPECIFIC MANHOURS SUMMARY 08/07/86

TASK	TASK DESC.	ACTVY.-> 8 MOS.->	FLT	GEN	GFL	GSM	LAB	LN1	LN2	N/F	SIM	TL	TOTAL	AVG/FLT
01 01 00	CONSOLE PRODUCT DEV				40					144			184	12
01 03 00	FLT DIRECTOR TEAM SUPPORT			257	2,630			371	55	3,709			7,022	468
01 04 00	REMOTE OPS PLANNING									537			537	35
01 05 00	SUSTAINING ENGR/OPS									24			24	1
01 06 00	ADVANCED PROGRAM DEV		10		5				15	484			514	34
01 08 10	CUSTOMER SUPPORT									426			426	28
01 11 40	PROCEED. MGMT + LOGISTICS									113			113	7
01 11 80	ONBOARD PRODUCT DEV							59	7	726			792	52
01 11 90	CAP/FLT DSN/SYS DEV				21			15	3	548			587	39
01 15 00	DIRECT PROG OFC SUPT							8	3	5,198			5,209	347
01 18 00	PERS STUDY & MSN PRE					12		2		2,192			2,206	147
02 01 00	MCC/POCC/SMS/NTWK RE				68					568			636	42
02 02 00	FLT SYS RQMTS/REVIEW			4	21			10	9	26,111			26,155	1,743
02 03 00	SMS/MCC/POCC RECONFI				89					391			480	32
02 06 00	TRAINING SYS REQMTS									289			289	19
02 07 00	MOD SUPPORT SYS DEV									187			187	12
02 07 02	MODIS									71			71	4
02 08 00	MOD SYS DEV TRAINING									17			17	1
03 01 00	TRAINING RECEIVED			3	87	15				3,243			3,348	223
03 02 00	TRNG OPS PLANS + PRO				4					217			221	14
03 02 30	SMS OPS									32			32	2
04 02 00	MCC SIMULATION OPS			8	42	131				626			807	53
05 01 00	MCC FLIGHT OPS									1,260			1,260	84
07 01 00	ADMINISTRATION									19,315			19,315	1,287
07 02 00	SCHED/ACTN CNTR OPS		21		47				54	24,777			24,899	1,659
09 01 00	ALL LEAVE									23,993			23,993	1,599
TOTALS------->			31	272	3,054	158	0	465	146	115,198	0	0	119,324	7,954

FIGURE 11

E FLIGHT-SPECIFIC M IHOURS SUMMARY 08/(/86

TASK	TASK DESC.	FLT.--> DATE-->	41C 04/84	41D/F 08/84	41G 10/84	51A 11/84	51B 04/84	51C 01/85	51D/E 04/85	51F 07/85	51G 06/85	51I 07/85	51J 10/85	51L 01/86	61A 10/85	61B 11/85	61C 01/86	TOTAL	AVG.
01 02 00	SCHEDULING						20		2	26	5	14	14	19	2		9	102	11
01 03 00	FLT DIRECTOR TEAM SUPPORT						14			12	11	15	87	18	7	1		165	20
01 04 00	REMOTE OPS PLANNING						8			45	71	46	416	323	70	10	30	1,019	113
01 05 00	SUSTAINING ENGR/OPS						57		21	242	331	342	421	109	581	242	523	2,869	286
01 07 00	FACIL MGT & OPS SUPPORT						24		14	257	108	84	127	124	164	47	118	1,067	106
01 08 10	CUSTOMER SUPPORT										5							5	5
01 11 90	CAP/FLT DSN/SYS DEV									6	6		4					16	5
01 18 00	PERS STUDY & MSN PRE						69		6	120	68	72	105	45	83	20	100	688	68
02 01 00	MCC/POCC/SMS/NTWK RE						72			109	117	137	184	182	121	136	139	1,197	133
02 02 00	FLT SYS RQMTS/REVIEW						99	8		88	52	57	23	72	54	50	134	637	63
02 03 00	SMS/MCC/POCC RECONFI									307	301	227	427	199	319	155	650	2,585	323
02 06 00	TRAINING SYS REQMTS						4			4	9		3		8		5	33	5
02 07 01	SMTF UPGRADE														2			2	2
03 01 00	TRAINING RECEIVED						32		66	134	48	7	32	85	50	29	104	587	58
03 02 30	SMS OPS						38	4	19	143	90	65	74	29	47	37	24	570	51
04 01 00	OLD TASK CODE												24					24	24
04 02 00	MCC SIMULATION OPS						99		43	895	577	780	724	419	699	387	457	5,080	508
05 01 00	MCC FLIGHT OPS						204		994	1,882	345	1,432	991	764	1,471	1,226	905	10,214	1,021
07 01 00	ADMINISTRATION						19		5	38	12	33	12	35	3	6	56	219	21
07 02 00	SCHED/ACTN CNTR OPS						1			88	8	16						113	28
09 01 00	ALL LEAVE																3	3	3
TOTALS ------->			0	0	0	0	760	12	1,170	4,396	2,164	3,327	3,668	2,414	3,681	2,346	3,257	27,195	2,862

AVERAGE MANHOURS OVER 15 FLIGHTS ----------> 1,813

FIGURE 12

DE NON-FLIGHT-SPECIFIC MANHOURS SUMMARY 08/07/86

TASK	TASK DESC.	ACTVY.-> / # MOS.->	FLT	GEN	GFL	GSM	LAB	LN1	LN2	M/F	SIM	TL	TOTAL	AVG/FLT
01 02 00	SCHEDULING			94	277				9	1,707			2,087	139
01 03 00	FLT DIRECTOR TEAM SUPPORT			17	291					117			425	28
01 04 00	REMOTE OPS PLANNING		5	58	312					327			702	46
01 05 00	SUSTAINING ENGR/OPS			817	4,985	113				11,779			17,694	1,179
01 07 00	FACIL MGT & OPS SUPPORT		134	2,832	8,205					14,801			25,972	1,731
01 08 10	CUSTOMER SUPPORT				40					54			94	6
01 11 90	CAP/FLT DSN/SYS DEV				45					24			69	4
01 18 00	PERS STUDY & MSM PRE			40	83	4				926			1,053	70
02 01 00	MCC/POCC/SMS/NTWK RE		777	439	975	101				5,545			7,837	522
02 02 00	FLT SYS RQMTS/REVIEW			272	837					1,017			2,126	141
02 03 00	SMS/MCC/POCC RECONFI		78	839	2,308	247			20	25,549		41	29,082	1,938
02 06 00	TRAINING SYS REQMTS			102	43					481			626	41
02 07 01	SMTF UPGRADE			92	111					1,991			2,194	146
03 01 00	TRAINING RECEIVED			250	84					3,259			3,593	239
03 02 30	SMS OPS			92	137	8				3,298			3,535	235
04 02 00	MCC SIMULATION OPS			90	428	412				490	8	1	1,429	95
05 01 00	MCC FLIGHT OPS			55	5					162			222	14
07 01 00	ADMINISTRATION			647	1,958					22,066			24,671	1,644
07 02 00	SCHED/ACTN CNTR OPS			28	33	8				181			250	16
09 01 00	ALL LEAVE			3	31					29,677			29,711	1,980
TOTALS------->			994	6,767	21,188	893	0	0	29	123,451	8	42	153,372	10,224

FIGURE 13

JF FLIGHT-SPECIFIC M.NHOURS SUMMARY 08/ 7/86

TASK	TASK DESC.	FLT.--) DATE--)	41C 04/84	41D/F 08/84	41G 10/84	51A 11/84	51B 04/84	51C 01/85	51D/E 04/85	51F 07/85	51G 06/85	51I 07/85	51J 10/85	51L 01/86	61A 10/85	61B 11/85	61C 01/86	TOTAL	AVG.
01 01 00	CONSOLE PRODUCT DEV		1,885	4,265	932	586	4,011	966	1,632	9,909	1,096	596	376	111	1,624	348	662	28,909	1,927
01 03 00	FLT DIRECTOR TEAM SUPPORT		646	962	469	369	959	356	778	2,612	770	777	218	307	734	326	394	10,677	711
01 04 00	REMOTE OPS PLANNING		1,304	2,265	1,075	460	619	212	243	1,436	175	2	204	63	311	11	184	8,564	570
01 05 00	SUSTAINING ENGR/OPS			49	288	173	599	357	272	1,119	329	780	320	197	600	649	250	5,982	427
01 06 00	ADVANCED PROGRAM DEV					12	16		37	1	83	6	2	5	7	24	14	207	18
01 08 10	CUSTOMER SUPPORT		337	190	119	66	35	105	90	98	89	13	25	26	119	12	8	1,332	88
01 11 40	PROCEED. MGMT + LOGISTICS		102	1,720	485	143	1,379	401	269	758	211	164	75	51	175	26	98	6,057	403
01 11 80	ONBOARD PRODUCT DEV		3,031	5,721	3,293	1,220	3,037	675	1,812	5,566	851	659	406	561	2,342	893	498	30,565	2,037
01 11 90	CAP/FLT DSN/SYS DEV		128	275	166	132	616	188	939	2,125	1,366	1,196	763	1,690	2,510	1,832	1,938	15,864	1,057
01 15 00	DIRECT PROG OFC SUPT		309	567	338	150	90	41	27	284	44	11	4		20			1,885	157
01 18 00	FERS STUDY & MSN PRE		6,984	11,757	3,645	2,547	5,406	3,824	4,428	4,219	1,623	2,326	1,462	1,538	3,193	1,551	1,924	56,427	3,761
02 01 00	MCC/POCC/SMS/NTWK RE		1,010	2,260	777	567	1,316	562	755	1,776	730	150	285	93	351	166	150	10,948	729
02 02 00	FLT SYS RQMTS/REVIEW		529	1,314	1,071	470	760	458	849	1,496	330	403	474	327	819	252	350	9,902	660
02 06 00	TRAINING SYS REQMTS		80	468	55	85	29	37	59	47					6			866	96
02 07 00	MOD SUPPORT SYS DEV		600	1,192	254	8	32	300	127	5	29	1						2,548	254
02 07 01	SMTF UPGRADE				20	8	135	60	625	262	147	135	56	14	70	60	125	1,717	132
02 07 04	SCAP/FAP				32	247	25	76	44	33		49	30		30	16	4	586	53
02 07 08	MITS DEVELOPMENT													3				3	3
02 08 00	MOD SYS DEV TRAINING		67	93	15	30	15	25	48	68	24	1	19	9	3	17	5	439	29
03 01 00	TRAINING RECEIVED		2,800	2,850	1,560	830	805	368	775	460	475	355	263	96	922	894	350	13,803	920
03 02 00	TRNG OPS PLANS + PRO		134	180	42		24	8		9	4			4		4		409	45
03 02 10	TECH TRNG DOCUMENT					3	8		7	6	3			4	6		4	41	5
03 02 20	CLASSROOM/TRAINER OPS													1	6			7	3
03 02 30	SMS OPS		110	136	21	136	127	25	95	264	51	115	60	78	151	29	107	1,505	100
04 02 00	MCC SIMULATION OPS		6,197	8,894	3,862	3,506	3,447	2,625	5,280	5,262	2,952	2,471	1,815	1,956	3,848	2,602	1,789	56,506	3,767
05 01 00	MCC FLIGHT OPS		6,443	6,126	6,185	6,219	5,649	2,685	5,128	8,213	4,480	5,520	2,623	1,137	6,940	5,647	4,626	77,621	5,174
07 01 00	ADMINISTRATION		440	343	88	54	53	93	69	308	47	98	70	36	1,111	38	47	2,895	193
09 01 00	ALL LEAVE		58	50	12	8	9	264		36	8		5	52	58			560	50
TOTALS -------)			33,194	51,677	24,804	18,029	29,201	14,711	24,388	46,372	15,827	15,828	9,555	8,359	25,956	15,397	13,527	346,825	23,381

AVERAGE MANHOURS OVER 15 FLIGHTS ----------) 23,121

FIGURE 14

DF NON-FLIGHT-SPECIFIC MANHOURS SUMMARY 08/07/86

TASK	TASK DESC.	ACTVY.-) # MOS.-)	FLT	GEN	GFL	GSM	LAB	LNI	LN2	N/F	SIM	TL	TOTAL	AVG/FLT
01 01 00	CONSOLE PRODUCT DEV		9	580	2,094				77	57,449			60,209	4,013
01 03 00	FLT DIRECTOR TEAM SUPPORT		12	77	653			1	9	12,019	4		12,775	851
01 04 00	REMOTE OPS PLANNING		9		268				72	7,799			8,148	543
01 05 00	SUSTAINING ENGR/OPS		313	2,026	3,894					28,235			34,468	2,297
01 06 00	ADVANCED PROGRAM DEV		90	157	263					14,992			15,502	1,033
01 08 10	CUSTOMER SUPPORT		115	38	195				2	2,424			2,774	184
01 11 40	PROCEED. MGMT + LOGISTICS		17	24	339				7	2,827			3,214	214
01 11 80	ONBOARD PRODUCT DEV		124	212	2,738				46	23,902			27,022	1,801
01 11 90	CAP/FLT DSN/SYS DEV		1,291	8,572	12,102			4	12	23,588			45,569	3,037
01 11 91	TRAJ. DESIGN PLANNING									176			176	11
01 15 00	DIRECT PROG OFC SUPT							44	16	5,594			5,654	376
01 18 00	PERS STUDY & MSN PRE		240	1,076	7,178	6		15	334	77,183		6	86,038	5,735
02 01 00	MCC/POCC/SMS/NTWK RE		2	39	108			6		13,534			13,689	912
02 02 00	FLT SYS RQMTS/REVIEW		64	90	1,511	10			8	32,120			33,803	2,253
02 06 00	TRAINING SYS REQMTS		2		593					2,785			3,380	225
02 07 00	MOD SUPPORT SYS DEV									17,218			17,218	1,147
02 07 01	SMTF UPGRADE			2,122	940					36,440			39,502	2,633
02 07 02	MODIS			6	26					1,753			1,785	119
02 07 04	SCAP/FAP			368	292					8,676			9,336	622
02 07 05	TRAJ DESIGN CPTR SYS									392			392	26
02 07 06	ALGORITHM DEVELOPMENT				47					1,880			1,927	128
02 07 07	CAS DEVELOPMENT				5					610			615	41
02 07 08	MITS DEVELOPMENT									913			913	60
02 07 09	MCC UPGRADE				22					653			675	45
02 08 00	MOD SYS DEV TRAINING		80	85	63					6,486			6,714	447
02 08 01	FCT									1			1	0
03 01 00	TRAINING RECEIVED		101	1,188	1,845	210			13	38,362	24		41,743	2,782
03 02 00	TRNG OPS PLANS + PRO		5		816					2,277			3,098	206
03 02 10	TECH TRNG DOCUMENT				1,214					284			1,498	99
03 02 20	CLASSROOM/TRAINER OPS		6		417					435			858	57
03 02 30	SMS OPS			32	36	26				459			553	36
04 02 00	MCC SIMULATION OPS		31	367	692	2,164	27	16	38	8,998	83	23	12,439	829
05 01 00	MCC FLIGHT OPS				7	99			132	1,802			2,040	136
07 01 00	ADMINISTRATION		3	287	667				25	67,339			68,321	4,554
09 01 00	ALL LEAVE				10			90	12	121,211			121,323	8,088
TOTALS-------)			2,514	17,346	39,035	2,515	27	176	803	620,816	111	29	683,372	45,558

FIGURE 15

DG FLIGHT-SPECIFIC MANHOURS SUMMARY 08/07/86

TASK	TASK DESC.	FLT.--) DATE--)	41C 04/84	41D/F 08/84	41G 10/84	51A 11/84	51B 04/84	51C 01/85	51D/E 04/85	51F 07/85	51G 06/85	51I 07/85	51J 10/85	51L 01/86	61A 10/85	61B 11/85	61C 01/86	TOTAL	AVG.
01 01 00	CONSOLE PRODUCT DEV		18	12		72			16		46	11			49	33		257	32
01 03 00	FLT DIRECTOR TEAM SUPPORT		45	3	63	251	66	17	36	386	37	116	16	16	22	29		1,103	78
01 04 00	REMOTE OPS PLANNING		371	227	203	26	87	5	9	197	215	69	271	13	57	12	91	1,853	123
01 05 00	SUSTAINING ENGR/OPS					45		5	108		315	166	60	9		31		739	92
01 06 00	ADVANCED PROGRAM DEV					7	1		45	4	147	44	3	14		30	5	300	30
01 08 10	CUSTOMER SUPPORT		94	165	233	15	38		28	200	13	85	3	84	136	116	41	1,251	89
01 11 40	PROCEED. MGMT + LOGISTICS		183	252	364	53	16	34			8							910	130
01 11 80	ONBOARD PRODUCT DEV		6,279	3,154	2,040	2,757	1,555	483	986	1,192	558	522	459	612	502	1,138	430	22,667	1,511
01 11 90	CAP/FLT DSN/SYS DEV		180	32	4	42	24		8	3	835	31			6	75	10	1,250	104
01 15 00	DIRECT PROG OFC SUPT		167	184	290	33				4		4			5	2		689	86
01 18 00	PERS STUDY & MSN PRE		2,195	3,863	1,803	1,118	2,452	333	1,900	1,487	1,018	1,312	658	772	2,538	1,129	1,354	23,932	1,595
02 01 00	MCC/POCC/SMS/NTWK RE				4			5			43					8		60	15
02 02 00	FLT SYS RQMTS/REVIEW		275	87	181	335	195	46	199	96	155	423	19	104	140	322	99	2,676	178
02 06 00	TRAINING SYS REQMTS		3,616	4,329	2,762	866	2,947	143	1,221	2,629	855	973	393	489	932	586	669	23,410	1,560
02 07 00	MOD SUPPORT SYS DEV		6	167	24	14	36	4	4	77	69							401	44
02 07 01	SMIF UPGRADE																12	12	12
02 07 02	MODIS															10		10	10
02 07 03	TPS/FOPS/CAPS						12											12	12
02 08 00	MOD SYS DEV TRAINING		44	180	40		22		20	196			8	24		32	4	570	57
03 01 00	TRAINING RECEIVED		486	260	74	133	68	37	99	46	24	95	8	37	56	44	47	1,514	100
03 02 00	TRNG OPS PLANS + PRO		2,156	4,089	2,112	1,825	2,321	2,409	2,713	1,888	1,920	1,173	1,049	2,041	2,052	1,366	1,353	30,467	2,031
03 02 10	TECH TRNG DOCUMENT		744	810	215	71	657	144	76	589	53	48	8	36	10	32	21	3,514	234
03 02 20	CLASSROOM/TRAINER OPS		2,499	1,423	933	918	856	467	1,074	1,110	522	575	377	689	536	638	461	13,078	871
03 02 30	SMS OPS		5,730	8,767	5,492	3,954	3,762	3,628	6,679	5,105	3,595	2,441	1,976	3,671	2,486	3,832	2,856	63,974	4,264
04 02 00	MCC SIMULATION OPS		5,826	9,072	3,073	2,616	2,425	2,232	4,320	2,782	2,473	1,876	1,008	2,590	1,707	2,194	882	45,076	3,005
05 01 00	MCC FLIGHT OPS		1,059	502	736	894	308	113	675	438	383	709	153	149	471	617	97	7,304	486
07 01 00	ADMINISTRATION		22	57	6	54	70	1	23	5	27	48		26	3	10	4	356	25
09 01 00	ALL LEAVE		66	100		80	68	41	36	27	41		24	31	13		15	542	45
TOTALS -------)			32,061	37,735	20,652	16,179	17,986	10,147	20,275	18,461	13,352	10,721	6,493	11,407	11,721	12,286	8,451	247,927	16,828

AVERAGE MANHOURS OVER 15 FLIGHTS ----------) 16,528

FIGURE 16

DG NON-FLIGHT-SPECIFIC MANHOURS SUMMARY 08/07/86

TASK	TASK DESC.	ACTVY.-> # MOS.->	FLT	GEN	GFL	GSM	LAB	LN1	LN2	N/F	SIM	TL	TOTAL	AVG/FLT
01 01 00	CONSOLE PRODUCT DEV			46	160	8				2,699			2,913	194
01 03 00	FLT DIRECTOR TEAM SUPPORT			17	68					201			286	19
01 04 00	REMOTE OPS PLANNING			62	47					1,348			1,457	97
01 05 00	SUSTAINING ENGR/OPS			285						912			1,197	79
01 06 00	ADVANCED PROGRAM DEV			17	8					1,700			1,725	115
01 08 10	CUSTOMER SUPPORT				28	1				3,339			3,368	224
01 11 40	PROCEED. MGMT + LOGISTICS							16	28	210			254	16
01 11 80	ONBOARD PRODUCT DEV		20	1,068	1,419			32	52	6,481			9,072	604
01 11 90	CAP/FLT DSN/SYS DEV			2						1,239			1,241	82
01 15 00	DIRECT PROG OFC SUPT							12	3	985			1,000	66
01 18 00	PERS STUDY & MSM PRE		4	1,902	3,403	285		4	4	109,735			115,337	7,689
02 01 00	MCC/POCC/SMS/NTWK RE									36			36	2
02 02 00	FLT SYS RQMTS/REVIEW			360	513	66		24	24	8,482			9,469	631
02 03 00	SMS/MCC/POCC RECONFI									8			8	0
02 06 00	TRAINING SYS REQMTS		92	1,674	1,925	1,146		439	296	59,813	62		65,447	4,363
02 07 00	MOD SUPPORT SYS DEV									43,243			43,243	2,882
02 07 01	SMTF UPGRADE				595					1,911			2,506	167
02 07 02	MODIS									55,085			55,085	3,672
02 07 03	TPS/FOPS/CAPS									46,225			46,225	3,081
02 07 04	SCAP/FAP				45					280			325	21
02 07 06	ALGORITHM DEVELOPMENT									46			46	3
02 07 07	CAS DEVELOPMENT				707					5,789			6,496	433
02 07 08	MITS DEVELOPMENT									940			940	62
02 07 09	MCC UPGRADE				296					721			1,017	67
02 07 10	DG NASA CAPS SUPPORT									63			63	4
02 07 11	DG SECURE CAPS SUPPORT									50			50	3
02 07 12	SCAP									56			56	3
02 07 13	STAR NETWORK									2,329			2,329	155
02 07 14	HARRIS 800 SYS SUPPORT									13			13	0
02 08 00	MOD SYS DEV TRAINING			93	139	158				161,711			162,101	10,806
02 08 01	FCT				104					2,248			2,352	156
02 08 02	CAIT									23			23	1
02 08 03	DG EXPERT SYS PROTO				4					969			973	64
02 08 04	DG FUTURE PROJECTS									1,430			1,430	95
03 01 00	TRAINING RECEIVED		13	147	218	25				47,193			47,596	3,173
03 02 00	TRNG OPS PLANS + PRO		44	519	686	48		83	8	74,186			75,574	5,038
03 02 10	TECH TRNG DOCUMENT		29	1,760	1,298	121			12	44,891			48,111	3,207
03 02 20	CLASSROOM/TRAINER OPS			1,036	366	182		2	16	35,355			36,957	2,463
03 02 30	SMS OPS		8	459	1,320	948	3	33	7	31,975	13	1	34,767	2,317
04 02 00	MCC SIMULATION OPS			449	1,013	1,102		102	71	15,089	32		17,858	1,190
05 01 00	MCC FLIGHT OPS			60	21					1,282			1,363	90
07 01 00	ADMINISTRATION			77	26	4				50,297			50,404	3,360
09 01 00	ALL LEAVE			40	61	37		54		133,737			133,929	8,928
TOTALS------->			210	10,073	14,470	4,131	3	801	521	954,325	107	1	984,642	65,642

FIGURE 17

DH FLIGHT-SPECIFIC MANHOURS SUMMARY 08/07/86

TASK	TASK DESC. FLT.--) DATE--)	41C 04/84	41D/F 08/84	41G 10/84	51A 11/84	51B 04/84	51C 01/85	51D/E 04/85	51F 07/85	51G 06/85	51I 07/85	51J 10/85	51L 01/86	61A 10/85	61B 11/85	61C 01/86	TOTAL	AVG.
01 01 00	CONSOLE PRODUCT DEV	2,162	3,945	1,771	985	1,111	164	890	763	1,473	1,110	480	429	1,424	529	244	17,480	1,165
01 03 00	FLT DIRECTOR TEAM SUPPORT	1,926	1,554	871	574	622	272	832	240	489	247	281	191	141	70	48	8,358	557
01 04 00	REMOTE OPS PLANNING	2,831	8,553	7,424	1,244	1,595	1,294	747	755	565	634	870	1,063	1,435	305	104	29,419	1,961
01 05 00	SUSTAINING ENGR/OPS		23	55	12	243	219	1,256	419	208	348	7		190			2,980	270
01 05 10	GROUND OPS PLANS/PROC										55	48	71	24	74	68	340	56
01 06 00	ADVANCED PROGRAM DEV				20	455	91	184	4	26	19	3		17			819	91
01 08 10	CUSTOMER SUPPORT	1,602	2,320	3,526	780	360	408	1,335	739	1,715	946	464	857	723	669	337	16,781	1,118
01 08 20	SAFETY SUPPORT								8	17	69	28	88	3	7	8	228	28
01 11 40	PROCEED. MGMT + LOGISTICS	5,112	12,014	3,381	3,403	2,766	5,036	7,264	3,309	3,908	2,722	3,449	2,152	3,250	2,999	2,483	63,248	4,216
01 11 80	ONBOARD PRODUCT DEV	7,615	15,290	5,740	4,284	2,418	2,266	5,658	4,580	4,177	2,105	2,118	2,048	1,012	2,030	1,546	62,887	4,192
01 11 90	CAP/FLT DSN/SYS DEV	3,764	10,419	5,316	2,455	3,460	3,033	5,553	4,158	4,406	3,847	2,839	3,821	3,072	4,423	2,861	63,427	4,228
01 14 99	DIRECT PROG OFC SUPT										114	132	122	30	41	104	543	90
01 15 00	DIRECT PROB OFC SUPT	666	1,454	573	572	257	236	206	31	61	222	32	4	10	4		4,328	309
01 18 00	PERS STUDY & MSN PRE	5,692	11,505	5,843	3,466	5,335	2,688	7,009	5,372	2,762	2,581	2,020	2,893	4,455	1,709	2,326	65,656	4,377
02 01 00	MCC/POCC/SMS/NTWK RE	413	1,626	2,561	259	433	108	423	364	1,281	312	194	120	236	340	163	8,833	588
02 02 00	FLT SYS RQMTS/REVIEW	1,950	3,584	3,695	1,034	430	430	1,143	585	1,256	1,338	498	862	846	827	689	19,167	1,277
02 03 00	SMS/MCC/POCC RECONFI								28	9	31	46	170	204	145	156	789	98
02 04 00	SW DATA RECONFIG								69	13	34	62	394	508	85	153	1,318	164
02 06 00	TRAINING SYS REQMTS			6													6	6
02 06 99	MOD SUPPORT SYS								13	2	3	11	2	46			77	12
02 07 00	MOD SUPPORT SYS DEV	53	190	2,297	1		4		4	16							2,565	366
02 07 01	SMTF UPGRADE				48			26	8	27	18	5					132	22
02 07 03	TPS/FOPS/CAPS			10	38	1		23	33	1	7	31	2	42	3	65	256	21
02 08 00	MOD SYS DEV TRAINING	1	57	309	203	4	10	20	3	1	25						633	63
03 01 00	TRAINING RECEIVED	475	1,234	368	597	449	286	644	777	233	457	687	206	177	238	156	6,984	465
03 02 00	TRNG OPS PLANS + PRO		3														3	3
03 02 10	TECH TRNG DOCUMENT	1		2													3	1
03 02 20	CLASSROOM/TRAINER OPS	83						15	14	3				20			135	27
03 02 30	SMS OPS	92	306	158	34	123	76	78	10	38	11	10				4	940	78
04 02 00	MCC SIMULATION OPS	4,472	5,907	3,501	2,160	1,683	1,955	3,511	1,973	1,340	911	637	935	1,810	1,075	526	32,396	2,159
05 01 00	MCC FLIGHT OPS	3,876	4,368	4,232	4,259	2,525	1,666	2,723	3,111	2,444	2,777	1,235	654	2,885	1,947	2,275	40,977	2,731
07 01 00	ADMINISTRATION	87	181	99	108	179	76	74	27	64	21	36	49	56	51		1,108	79
07 02 00	SCHED/ACTN CNTR OPS	4	45			3	24	1							3		80	13
09 01 00	ALL LEAVE	34	36	30	8		32	3	130		9	30	1	44	6	33	396	30
TOTALS -------)		42,911	84,614	51,768	26,544	24,452	20,374	39,618	27,527	26,535	20,973	16,253	17,134	22,660	17,580	14,349	453,292	30,875

AVERAGE MANHOURS OVER 15 FLIGHTS ----------) 30,219

FIGURE 18

DH NON-FLIGHT-SPECIFIC MANHOURS SUMMARY 08/07/86

TASK	TASK DESC.	ACTVY.-> / # MOS.->	FLT	GEN	GFL	GSM	LAB	LN1	LN2	N/F	SIM	TL	TOTAL	AVG/FLT
01 01 00	CONSOLE PRODUCT DEV			176	465	13			3	12,745			13,402	893
01 03 00	FLT DIRECTOR TEAM SUPPORT				19			15	60	2,986			3,080	205
01 04 00	REMOTE OPS PLANNING		108	187	79			18	32	16,794			17,218	1,147
01 05 00	SUSTAINING ENGR/OPS			18						2,729			2,747	183
01 05 10	GROUND OPS PLANS/PROC		22	8	41					6,222			6,293	419
01 06 00	ADVANCED PROGRAM DEV									3,588			3,588	239
01 08 10	CUSTOMER SUPPORT		827	40	97	1		177	91	39,887			41,120	2,741
01 08 20	SAFETY SUPPORT		14	21	24					1,543			1,602	106
01 11 40	PROCEED. MGMT + LOGISTICS		19	66	758	177		165	218	11,517		9	12,929	861
01 11 80	ONBOARD PRODUCT DEV		6	291	829			401	227	21,984			23,738	1,582
01 11 90	CAP/FLT DSN/SYS DEV		74	398	534	12		350	317	35,653			37,338	2,489
01 14 99	DIRECT PROG OFC SUPT		4	22	79				6	1,983			2,094	139
01 15 00	DIRECT PROG OFC SUPT							18	130	4,387			4,535	302
01 18 00	PERS STUDY & MSM PRE		96	715	1,278	147		15	183	41,819			44,253	2,950
02 01 00	MCC/POCC/SMS/NTWK RE		84	748	3,053	2			215	41,015			45,117	3,007
02 02 00	FLT SYS RQMTS/REVIEW		442	849	1,062	2		16	69	32,248			34,688	2,312
02 03 00	SMS/MCC/POCC RECONFI			75	195	4				6,338			6,612	440
02 04 00	SW DATA RECONFIG			283	242					7,666			8,191	546
02 06 00	TRAINING SYS REQMTS									16			16	1
02 06 99	MOD SUPPORT SYS									577			577	38
02 07 00	MOD SUPPORT SYS DEV									20,576			20,576	1,371
02 07 01	SMTF UPGRADE									3,071			3,071	204
02 07 02	MODIS									25			25	1
02 07 03	TPS/FOPS/CAPS				10					48,106			48,116	3,207
02 08 00	MOD SYS DEV TRAINING									1,495			1,495	99
02 08 01	FCT									32			32	2
02 08 04	DG FUTURE PROJECTS									12			12	0
03 01 00	TRAINING RECEIVED			507	1,053	98				45,787			47,445	3,163
03 02 20	CLASSROOM/TRAINER OPS									4			4	0
03 02 30	SMS OPS								3	182			185	12
04 02 00	MCC SIMULATION OPS		26	56	226	471			12	4,588	9		5,388	359
05 01 00	MCC FLIGHT OPS			40					2	3,856			3,898	259
07 01 00	ADMINISTRATION			9	13	14			2	51,290			51,328	3,421
07 02 00	SCHED/ACTN CNTR OPS									21,185			21,185	1,412
09 01 00	ALL LEAVE				3			17	1	122,222			122,243	8,149
TOTALS------->			1,722	4,509	10,060	941	0	1,192	1,571	614,128	9	9	634,141	42,276

FIGURE 19

DM FLIGHT-SPECIFIC M..NHOURS SUMMARY 08/ 7/86

TASK	TASK DESC.	FLT.--) DATE--)	41C 04/84	41D/F 08/84	41G 10/84	51A 11/84	51B 04/84	51C 01/85	51D/E 04/85	51F 07/85	51G 06/85	51I 07/85	51J 10/85	51L 01/86	61A 10/85	61B 11/85	61C 01/86	TOTAL	AVG.
01 01 00	CONSOLE PRODUCT DEV						25		48	13	49							135	33
01 03 00	FLT DIRECTOR TEAM SUPPORT						13		53	161	113	189	36	54	86	82	107	894	89
01 04 00	REMOTE OPS PLANNING						9		24	48	23	47	34	106	12	36	38	377	37
01 05 00	SUSTAINING ENGR/OPS					8	675	43	898	1,843	2,038	2,020	1,078	740	1,273	1,003	1,451	13,070	1,089
01 06 00	ADVANCED PROGRAM DEV						2		13			1						16	5
01 08 10	CUSTOMER SUPPORT						2			5				3	2	1		13	2
01 11 40	PROCEED. MGMT + LOGISTICS								73									73	73
01 11 80	ONBOARD PRODUCT DEV						478	17	1,022	2,547	1,321	1,132	544	1,819	623	1,174	352	11,029	1,002
01 11 90	CAP/FLT DSN/SYS DEV								16	6			1					23	7
01 11 91	TRAJ. DESIGN PLANNING						185		125	800	181	728	262	133	180	391	227	3,212	321
01 11 92	TRAJ DESIGN PROD CFP						898	12	154	943	1,122	695	530	356	539	719	510	6,478	588
01 11 93	TRAJ DESIGN PROD OFP			5		14	289	31	45	3,529	931	3,977	3,258	4,578	3,359	4,199	6,260	30,475	2,344
01 11 94	TRAJ DESIGN MANIFEST						5		12	35	4	16	7	115	12	63	56	325	32
01 11 95	TRAJ DESIGN FLT SPEC					31	336		353	1,343	881	2,644	588	900	1,315	1,758	1,107	11,256	1,023
01 11 96	TRAJ DESIGN GEN ANAL					9	50		8	332	192	993	265	717	506	726	641	4,439	403
01 11 97	TRAJ DESIGN COM TO F								30	624	304	1,004	389	1,172	910	831	1,329	6,593	732
01 12 10	TRAJ DESIGN I-LOADS						18	10	12	194	52	409	504	916	306	463	894	3,778	343
01 12 30	TRAJ DESIGN MCC						5		2	47	45	213	130	159	105	105	110	921	92
01 18 00	PERS STUDY & MSN PRE					11	267	8	641	507	419	374	344	584	218	682	331	4,386	365
02 01 00	MCC/POCC/SMS/NTWK RE						14		28	66	42	137	190	84	125	58	119	863	86
02 02 00	FLT SYS RQMTS/REVIEW						68		58	50	97	137	108	73	61	128	70	850	85
02 07 05	TRAJ DESIGN CPTR SYS									108	7	10			24	7	6	162	27
02 08 00	MOD SYS DEV TRAINING						18		3	80	51	22		3			8	185	26
03 01 00	TRAINING RECEIVED						251		239	526	406	439	97	139	178	169	121	2,565	256
03 02 30	SMS OPS						64		24	27	12					3		130	26
04 01 00	OLD TASK CODE												7					7	7
04 02 00	MCC SIMULATION OPS					32	1,066	10	857	2,094	2,008	1,763	1,349	1,320	1,624	1,540	1,208	14,871	1,239
05 01 00	MCC FLIGHT OPS					19	3,348	68	2,781	4,695	2,457	4,009	1,487	622	3,377	1,596	3,310	27,769	2,314
07 01 00	ADMINISTRATION						5	7	37	16	16	61	74	16	46	11	23	312	28
09 01 00	ALL LEAVE									4	11	41		20	18	13	7	114	16
TOTALS -------)			0	5	0	124	8,091	206	7,556	20,643	12,782	21,061	11,282	14,629	14,899	15,758	18,285	145,321	12,700

AVERAGE MANHOURS OVER 15 FLIGHTS ----------) 9,688

FIGURE 20

DM NON-FLIGHT-SPECIFIC MANHOURS SUMMARY 08/ 7/86

TASK	TASK DESC.	ACTVY.-> # MOS.->	FLT	GEN	GFL	GSM	LAB	LN1	LN2	N/F	SIM	TL	TOTAL	AVG/FLT
01 01 00	CONSOLE PRODUCT DEV									473			473	31
01 03 00	FLT DIRECTOR TEAM SUPPORT			34	238	3	15			492		27	809	53
01 04 00	REMOTE OPS PLANNING			21						963			984	65
01 05 00	SUSTAINING ENGR/OPS		2	1,869	5,386	24	11			80,607		46	87,945	5,863
01 06 00	ADVANCED PROGRAM DEV			91						589			680	45
01 08 10	CUSTOMER SUPPORT									952			952	63
01 11 40	PROCEED. MGMT + LOGISTICS									6			6	0
01 11 80	ONBOARD PRODUCT DEV		71	292	1,961		27			13,087		97	15,535	1,035
01 11 90	CAP/FLT DSN/SYS DEV									66			66	4
01 11 91	TRAJ. DESIGN PLANNING		21	3,720						3,901			7,642	509
01 11 92	TRAJ DESIGN PROD CFP		123	622	1,778		15			6,780		201	9,519	634
01 11 93	TRAJ DESIGN PROD OFP		17	2,295	6,850		414		7	28,958		1,554	40,095	2,673
01 11 94	TRAJ DESIGN MANIFEST		466	192	944		33			8,802		2	10,439	695
01 11 95	TRAJ DESIGN FLT SPEC		458	475	1,528		24	1	3	4,379		132	7,000	466
01 11 96	TRAJ DESIGN GEN ANAL		379	15,851	38,444	112	46			24,088		396	79,316	5,287
01 11 97	TRAJ DESIGN COM TO F		2	242	497					329		18	1,088	72
01 12 10	TRAJ DESIGN I-LOADS			447	584					1,427		41	2,499	166
01 12 30	TRAJ DESIGN MCC			253	41	17	21			2,519		64	2,915	194
01 18 00	PERS STUDY & MSN PRE		103	383	1,335		4		21	11,980		4	13,830	922
02 01 00	MCC/POCC/SMS/NTWK RE			163	358		5			5,207		47	5,780	385
02 02 00	FLT SYS RQMTS/REVIEW		23	543	345					6,493			7,404	493
02 07 01	SMTF UPGRADE			23						662			685	45
02 07 05	TRAJ DESIGN CPTR SYS		5	4,936	7,178		2			90,486		5	102,612	6,840
02 08 00	MOD SYS DEV TRAINING			488	3,122					18,160		1	21,771	1,451
03 01 00	TRAINING RECEIVED		63	413	5,741	83	8			53,577			59,885	3,992
03 02 30	SMS OPS			6						17			23	1
04 02 00	MCC SIMULATION OPS		64	311	1,178	705	157			1,443	8	56	3,922	261
05 01 00	MCC FLIGHT OPS		6	3,795	8,612	12				2,364			14,789	985
07 01 00	ADMINISTRATION			73	831	6				23,506		8	24,424	1,628
07 02 00	SCHED/ACTN CNTR OPS									8			8	0
09 01 00	ALL LEAVE			24	50					77,865			77,939	5,195
TOTALS------->			1,803	37,562	87,001	962	782	1	31	470,186	8	2,699	601,035	40,069

FIGURE 21

ATTACHMENT A

MOD TASK DESCRIPTIONS

MOD TASK DESCRIPTIONS

FLIGHT PLANNING

01 01 00 CONSOLE PRODUCT DEVELOPMENT

MOD - Activities such as planning, layout, drafting, systems analysis collection of reference material, reviews, etc., associated with the development of the systems handbooks, Cargo Systems Manuals, and FDF (Flight Data File) reference material (use of these documents for console operations or training is not charged to this category.

DG - Includes systems handbooks, console handbooks, FCOH, systems briefs, notes of interest, MDM interpretation handbook, onboard software flows.

DH - FDF Reference Material, D & C Procedures Nomenclature Documents, Facts Users Handbook, Cargo Systems Manuals.

01 02 00 SCHEDULING

MOD - All activities supporting the scheduling of the MCC and SMS facilities.

01 03 00 FLIGHT DIRECTOR TEAM SUPPORT

MOD - Flight rules and flight rule rationale. Also used for launch commit criteria-development and review for miscellaneous support plans including range safety plans, data management, facilities management plans, equipment plans, contingency planning, and DOD procedures (not FCOH).

DG - Includes flight rules, team meetings, flight techniques, launch commit criteria, range safety, and flight specific procedure development.

DH - Task is limited to only flight rules/rationale and related activity. Support plans are not charged to this task. FRD C.G., Range Safety Working Group, Flight Rules, Deorbit OMS delta V's.

DM - Work originating from the flight director office through flight techniques or flight director meetings. Not used for normal production work that is done as part of the reconfiguration process.

01 04 00 REMOTE OPS PLANNING

MOD - Activity associated with the interface to remote site operations including such places as KSC, Vandenberg, remote POCC, and other remote flight operations facilities. This includes KSC related OMI reviews, and support to KSC testing such as TCDT, End-to-End, and CEIT (Crew Equipment Interface Test). Also included are vehicle integration test activities, flight hardware, (including FDF) test/checkout/stowage support, flight crew equipment check, as well as crew equipment operations requirements and CITE/Pad, countdown, and launch operations.

DH - NORAD Schedule, Landing Site Tacan Status, ARTCC/FAA Memo, KSC/Van FDF Activity, JOIP, OMI Reviews, End-to-End, Testing Ops support Timeline, Launch/Landing Terminal Count.

DM - Work associated with remote site activities. Includes NORAD support schedules, emergency control center activities, KSC testing etc.

01 05 00 SUSTAINING ENGR/OPS

MOD - Activity associated with the development and preparation of MCC console procedures and handbook, FCOH (Flight Control Operations Handbook), procedures, general operating SOP's checklists, work schedules, console data sheets, and handbook assembly. Also includes STS operations concepts, and manning concepts.

DH - Landing Opportunities Table (LOT), Deorbit PSAT, Deorbit Groundtrack, HP Adjust Curves, Nominal Deploy Vectors, Tracking Priorities, Deploy and Rendezvous Timelines, Ground Tracking Schedule, Mass Property Update Timeline, Prelaunch Balloon Schedule, Daily Balloon Memo, LSEAT Briefs, Sun Angle analysis, Wx Pad Schedule, Ground Support Schedule Navaids/Landing Aids Chart, Entry Winds Chart/Timeline, TAL Comm Schedule, TAL/RTLS RV Line, AOA Target Data, Special AME Data, Target Sheet, Pre-MECO Dump Chart, SODS/ARD FPR, EO Underspeed Plot Console Handbook, CAP's User Guide, CAP's Ops Proc. Doc., Payload Console Handbook FCOH, OIO Console/Handbook, SOPC Ops Plans, Space Station Ops Plans, STS Baseline Ops Plans, EMCC Plans Operations Policy Formulation.

DM - Work associated with general work such as general operating procedures, console handbooks, and operations concepts. Includes items that were formerly charged to personal study and mission prep.

01 05 10 GROUND OPS PLANS/PROC

01 06 00 ADVANCED PROGRAM DEV

01 07 00 FACILITIES MANAGEMENT & OPS SUPPORT

01 08 10 CUSTOMER SUPPORT

MOD - PIP (Payload Integration Plan) Annex and Users Guide (activity related to the development, preparation, and publication of a user's guide for shuttle payload user interface).

DG - All PIP work.

DH - PIP Reviews, IWG's, Annex Status Logs, Blank Book (2) Development, Blank Book (3) Development, POWG Support.

01 08 20 SAFETY SUPPORT

01 11 40 PROCEDURES MANAGEMENT AND LOGISTICS

MOD - Includes CPCB (Crew Procedures Control Board), FDF standards development and fabrication, and documentation system support activity.

DH - Crew Procedures Management Plans, Appendices (A - H), FDF Manifest, Secure CAP's Ops/Procedures, CAP's S/W Description, CAP's Configuration Control Doc., CDPA Level A Requirement, D&C Proc. Nomenclature Document, FDF/PL Cross Reference, FDF Schedules, 482/FDF Status Logs, CPCB Support, Lead FDF Coordinator Activities.

01 11 80 ONBOARD PRODUCT DEVELOPMENT

MOD - Procedures development and support (including Orbiter systems and payload support systems), flight techniques, development and review, flight/integrated procedures and checklists (all activity in support of flight-phase procedures, integrated EVA/IVA procedures, and payload integrated flight procedures.

DG - Includes all FDF development, procedures verification, FDF book management/logistics, GRID, SPOC, and associated software.

DH - Flight Procedures Handbooks, Flight Computer Programs, Landing Procedures, Flight Data File - (Checklists, Books, Supplements), HP41 Computer Programs, SPOC Computer Programs, Procedures Verification, Flight Techniques Support, Flight Director Status Meetings, Astronaut Support Personnel Prelaunch, Switch Matrix, FDF Top Assembly Drawing, Annex 3 Development

DM - Includes all FDF generation, SPOC work, HP41C work, and flight procedures handbooks.

01 11 90 CAP/FLT DESIGN SYSTEM PLANNING

MOD - Work on flight operations guidelines constraints and mission and flight test requirements development and review payload integration, detailed flight planning, crew activity plans/procedures and review (including checklists, and FDF), development of flight planning techniques, standardization of planning elements, and development of the crew activity planning data base. Also to be used for mission design review activity related to FOP's (Flight Operations Panel), POWG's (Payload Operation Working Groups), abort working groups, and mission reviews.

DH - Ascent/Entry CRT Trajectory I-Loads, FOP Support, POWG Support, T/L Scheduling & Constraints, Overview T/L's - All CAPs, CAP Guidelines/Constraints Doc.

01 11 91 TRAJECTORY DESIGN PLANNING

DM - Old charge code which was used for all flight design and flight planning activities including analysis work associated with mission feasibility, ascent performance, descent DTO assessment , post flight analysis.

01 11 92 TRAJECTORY DESIGN PRODUCT DEVELOPMENT (CFP)

DM - Used for all flight design and flight planning activities associated with the Conceptual Flight Profile products.

01 11 93 TRAJECTORY DESIGN PRODUCT DEVELOPMENT (OFP)

DM - Used for all flight design and flight planning activities associated with Operational Flight Profile.

01 11 94 TRAJECTORY DESIGN MANIFEST

DM - Used for all flight assessment activities requested by level II or III associated with missions not currently in the flight manifest.

01 11 95 TRAJECTORY DESIGN FLIGHT SPECIFIC

DM - Used for all general design and work on flights currently in the flight manifest and not specifically defined in other charge categories. Includes analysis work associated with mission feasibility, ascent performance, descent DTO assessment, post flight analysis, etc.

01 11 96 TRAJECTORY DESIGN GENERAL ANALYSIS

DM - Used for all non-flight specific analysis studies such as standardization work, generic WTR analysis studies.

01 11 97 TRAJECTORY DESIGN COM TO FLIGHT

DM - Used in the I-load and flight design verification activities. Includes both internal and level III verification activities such as SPF and SAIL testing.

01 12 10 TRAJECTORY DESIGN I-LOADS

DM - Used for work in the generation of the onboard software I/loads.

01 12 30 TRAJECTORY DESIGN MCC

DM - Used for the MCC reconfiguration and verification activities.

01 14 99 DIRECT PROGRAM OFFICE SUPPORT

01 15 00 DIRECT PROGRAM OFFICE SUPPORT

01 18 00 PERSONAL STUDY & MISSION PREPARATION

MOD - Activity related to individual preparation other than formal training for specific missions, i.e. study or update of documentation, team meetings, preparation of special procedures, logistics planning, and systems brushup.

DH - Generally, there are no formal products produced under this task except personal reference book material. However, notes of interest would generally fall into this category.

REQUIREMENTS

02 01 00 MCC/POCC/SMS/NETWORK REQUIREMENTS

MOD - Effort associated with development of MCC requirements, including POCC (Payload Operations Control Center) and offline MCC system requirements. All level A, B, C, D activity.

DH - SMS Reset Points, D14 Inputs, SPL, Display Updates, MCC Processor Requirement Updates, Data Pack, Comm Configuration, MCC I-Loads Sets, ERRP, NRT Formats, MCC Upgrade Level A Requirements, Display Development/Updates, Special Comps, MCC Requirements Management, Customer Facility Arrangements, POCC Interface Requirements, MCC Design Reviews Support, MCC Design Review DR's.

DM - Used for all requirements definition work for the MCC, POCC, SMS, and NTWK.

02 02 00 FLIGHT SYSTEMS REQUIREMENTS/REVIEW

MOD - Flight systems software and hardware requirements including reviews of operational constraints, interface control specifications for spacecraft and payloads. All CR's (change requests), RECP's, PCIN's, DN's, etc.

Activity related to management meetings directed or requested by program or project offices and including TSR, CCP (Configuration Control Panel), CCB (Configuration Control Board), OASCB (Orbiter Avionics Software Control Board), PRCB (Program Requirements Control Board), FRR (Flight Readiness Review), PDR (Preliminary Design Reviews), CDR (Critical Design Review), review and generation of test requirements, CARR (Customer Acceptance Readiness Review), DCR (Design Certification Review), CIR (Cargo Integration Review/Dry Runs), IHSR (Integrated Hardware/Software Reviews), FOR (Flight Operations Review), PRD's and OR's, MICB (Mission Integration Control Board), Payload Safety Panel, Safety Review Team, agenda items and all types of formal and informal activities in support of the program or project office. Requested studies, analyses, and meeting attendance.

DG - Flight Systems software and hardware requirements including reviews of operational constraints, interface control specifications, "Tiger Teams", etc., for spacecraft and payloads. All CR's, RECP's, etc. Work associated with writing a Flight Software CR. Meetings, etc. on real world payload problems.

DH - All support to the Payload C & D annex, FSSR Support/Inputs, onboard Display Development, TLM Format Definition, Office Reviews in support of safety panel activities and development of presentation material, logistics, and completion of action items from these reviews.

DM - Used for meeting attendance at program or MOD reviews. Includes the FOP, POMT, FOR, MICB, etc.

02 03 00 SMS/MCC/POCC RECONFIGURATION

02 04 00 SW DATA RECONFIGURATION

02 06 00 TRAINING SYSTEMS REQUIREMENTS

MOD - All activity associated with the development of requirements for simulators (includes SMS, SES, SST, CST, RST, FCT, RTF, 1-G trainer, neutral buoyancy, loose equipment and SIMFAC).

DG - All training requirements (Part task trainers or SMS).

02 06 99 MOD SUPPORT SYSTEM

02 07 00 MOD SUPPORT SYSTEM DEVELOPMENT

02 07 01 SHUTTLE MISSION TRAINING FACILITY UPGRADE

MOD - Activities related to improvements of the SMS Visual, simulated models and facility. Includes reviews such as PDR's and CDR's, document reviews, team meetings, preparation of briefs or white papers, etc.

DG - All operations leading toward major improvements of the SMS training facility.

DH - Any work done on requirements, reviews, testing, validation, and software for any of these systems.

02 07 02 Mission Operations Directorate Information System (MODIS)

MOD - All activity associated with developing MODIS (Mission Operations Directorate Information System) vertical integration applications.

DG - Includes Systems and Applications Software Development and Programming of MODIS facility (host and PC) to user requirements.

DH - Work on the MODIS.

02 07 03 TPS/FOPS/CAPS

MOD - Effort associated with design and development of these support systems.

DH - Any work done on requirements, reviews, testing, validation, and software for any of these systems. Includes FACTS development.

02 07 04 SCAP/FAP

02 07 05 TRAJECTORY DESIGN COMPUTER SYSTEM

DM - Used for all development and M & M work done on the division computer tools. Includes both flight design and flight dynamics tools. Does not include training tools.

02 07 06 ALGORITHM DEVELOPMENT

MOD - All activity associated with definition, documentation, development, integration and validation of systems monitoring automation algorithms for development in the CAS environment for inclusion in MCCU.

DG - Includes all MOD development requirements, implementation, and integration tools for inclusion in the algorithm development area of the MCC upgrade.

02 07 07 CAS DEVELOPMENT

MOD - All activity associated with development, integration and testing of integrated real time and near real time telemetry monitoring with distribution on multiple local area network systems.

DG - Includes all MOD development requirements, implementation, and integration tools for inclusion in the CAS development environment of the MCC upgrade.

02 07 08 MITS DEVELOPMENT

MOD - Continued development in response to CR's/DR's, and M&O of existing MITS/NRT applications.

DG - Includes all MOD development requirements, implementation, and integration tools for inclusion in the MITS/NRT development environment of the MCC Upgrade.

02 07 09 MCC UPGRADE

MOD - All activity associated with MOD user interface requirements, prototype, applications development, and integration as well as systems planning and design and test bed operations.

02 07 10 DG NASA CAPS SUPPORT

MOD - DG5 effort associated with the NASA Crew Activity Planning Systems.

DG - Includes system software development and programming of the NASA Crew Activity Planning System.

02 07 11 DG SECURE CAPS SUPPORT

MOD - DG5 effort associated with the NASA's Secure Crew Activity Planning Systems.

DG - Includes system software development and programming of the NASA's Secure Crew Activity Planning System.

02 07 12 SCAP

MOD - Training Division effort associated with rehosting/integrating the present system with MCCU and developing the expert SCAP system.

DG - Includes systems software requirements, development and programming of expert FAP system. All requirements for inclusion of FAP into the MCCU.

02 07 13 STAR NETWORK

MOD - Includes systems development, installation, and systems administration of the STAR network.

02 07 14 HARRIS 800 SYSTEM SUPPORT

MOD - DG5 effort associated with development and use of Harris 800 system.

DG - Includes system software and hardware development of the Harris 800 system.

02 07 15 VAX DEVELOPMENT

MOD - DG5 effort associated with developing worker level applications.

DG - Includes systems and application software development of the VAX facility to user requirements.

02 07 16 MISSION SUPPORT DATABASE

MOD - All activity associated with development of Mission Support Data Base systems, applications, and user interfaces.

02 08 00 MOD SYSTEM DEVELOPMENT TRAINING

MOD - Effort associated with design and development of in-house facilities for training.

DG - Includes all DG5 development efforts for the SST and CST, including facility configuration management.

DH - Any work done on writing FCT, Regency, HP or other training systems requirements and material (including software).

DM - Used for time spent on developing in-house training tools and capabilities.

02 08 01 FCT DEVELOPMENT

MOD - DG effort associated with the design and development of the FCT facility.

DG - Includes systems and applications software development and programming for the FCT.

02 08 02 Computer Aided Instructor Training (CAIT)

MOD - Effort associated with the software development of the CAIT.

02 08 03 DG EXPERT SYSTEM PROTOTYPE

MOD - Training Division effort associated with the design and development of expert and artificial intelligent systems.

DG - Includes development efforts and programming of new computer languages in support of artificial intelligent or expert systems.

02 08 04 DG FUTURE PROJECTS

MOD - Training Division effort associated with the design and development of future projects.

DG - Includes design and development efforts such as design specifications, configuration options, cost estimates, floor space requirements, etc., for new projects.

TRAINING

03 01 00 TRAINING RECEIVED

MOD - Technical and non-technical classroom training including briefings, self-study programmed instruction texts and workbooks and word/data processing systems; training received using simulators, trainers, SST, CST, RST, SES, SMS/SLS.

DG - All formal training received including Instructor Certification sessions.

DH - Primarily SST time and the time spent in DH3 being trained on the HP. New employees will charge time to this code for workbooks, classes, etc. All OJT for a flight, does not include simulations.

DM - All time spent on capability development including in-house tools and external simulators or classes.

03 02 00 TRAINING OPS PLANS AND PROCEDURES

MOD - Activity associated with the design and integration of training programs including development of training objectives, instruction flow, lesson descriptions, schedules, and certification criteria. Includes records maintenance.

DG - Training Managers Operations. All training flow work, scheduling, library and records work, Post mission reports.

03 02 10 TECHNICAL TRAINING DOCUMENTATION

MOD - Detailed development of materials for technical training documents such as workbooks, manuals, and Shuttle Flight Operations Manuals (SFOM's). Includes all efforts to acquire data, develop schematics, and to support logisitcs associated with publishing and updating these documents.

DG - Writing SFOM workbooks and Training Manuals, Updating/rewriting documents (PCN's).

03 02 20 CLASSROOM/TRAINER OPERATIONS

MOD - Detailed development of lesson plans and support materials for all classroom sessions and E&D/MOD in-house, Part Task Trainer such as the 1-G Trainer, WETF, KC135, SOS, CST, SST, RST, SES, etc. This includes meetings, script writing and generating DR's. Formal checkout and verification of trainer facility's capability to support planned exercises. Formal conduct of trainer exercises and daily session reports or answers to questions generated by lessons.

DG - All classroom training. Instruction at Part Task trainer/facilities (includes prep, conduct and post).

03 02 30 SMS SIMULATION OPERATIONS

MOD - Direct support of training at the SMS/SLS including script meetings, training, checkout/verification operations, PIR's daily console reports.

DG - Instruction at the SMS/SLS (includes prep, conduct and post). SMS instructor certification time. Lesson briefings.

DH - Primarily payload GPM meetings and activity by DH6.

SIMULATION OPS

04 01 00 OLD TASK CODE

04 02 00 MCC SIMULATION OPS

MOD - Work performed in a MCC or SCA operations position during MCC simulations (including debriefings). Direct Mission Operations support of SCA operations including meetings, script generation and daily console reports.

DG - Sim support in MCC (SCA) (includes prep. conduct and post). Real-time simulator support operations. All activities to support crew or MCC during a flight.

DH - Work performed in an MCC or POCC position during integrated simulations and paper simulations (including briefings). Also includes support from a remote facility while on travel in support of simulations. Does not include OJT personnel, only prime operators.

DM - MCC simulation time.

FLIGHT OPS

05 01 00 MCC FLIGHT OPS

MOD - Work performed in either a MCC, POCC, or remote facility (SCF,POCC, etc.) operations position during real-time flight (also includes debriefings and post-mission reports and analyses). Does not include OJT personnel only prime operators.

DM - All real-time support activities.

ADMINISTRATION

07 01 00 ADMINISTRATION

MOD - Personnel activities, general work planning, staff meetings, supervisory activities, physicals. Development, preparation, and review of personnel budgets, administration of contracts and contract evaluations, contractor debriefings, preparation of job orders and work statements, and monitor time spent on RTOP's. Includes activity related to providing status and program reports of all types.

DG - Primarily for use by Section Chiefs and higher management. Physicals, tours of facilities, briefings for visitors, etc. Security briefings.

DM - Used for staff meetings, personnel activities, and contractor management activities.

07 02 00 SCHED/ACTION CENTER OPS

LEAVE

09 01 00 ALL LEAVE

MOD - All leave such as annual, sick, compensatory, holiday, jury, military, administrative, excused, without pay, etc.