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DEPARTMENT OF THE AIR FORCE WASHINGTON DC

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DEPARTMENT OF THE AIR FORCE JUSTIFICATION OF ESTIMATES FOR FISC--ETC(U)
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DEPARTMENT OF THE

AIR FORCE

JUSTIFICATION OF ESTIMATES FOR FISCAL YEAR 1981

SUBMITTED TO CONGRESS

JANUARY 1980



RESEARCH, DEVELOPMENT, TEST, & EVALUATION, AIR FORCE.

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Table of Contents:-

Page No.

Section 1 - Budget Appendix Extract	1
Appropriation Language	2
Program and financing schedules	8
Subject classification schedule	9
Personnel Summary	10
Section 2 - Program Element Listing	11
Table of Contents	14
Introduction and explanation of contents	15
Summary of research categories, Summary of budget activities, Summary of FYDP Programs	25
Details by budget activity	26
Section 3 - Performer Distribution	28
Section 4 - Installation Analysis	32
In-House Installations	34
Federal Contract Research Centers	36
Section 5 - Analysis of Reimbursable Program	52
Section 6 - Federal Contract Research Centers	58
Section 7 - Major Improvements to and Construction of Government-Owned Facilities	68
Section 8 - Project Data for Construction of Government-Owned Facilities Funded by RDT&E and	
Section 9 - Flight Simulator Programs	

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RESEARCH, DEVELOPMENT, TEST AND EVALUATION, AIR FORCE

For expenses necessary for basic and applied scientific research, development, test and evaluation, including maintenance, rehabilitation, lease, and operation of facilities and equipment, as authorized by law: (4,941,943,000) to remain available for obligation until September 30, (1981).

\$7,085,300,000
1982

Research, Development, Test, and Evaluation, Air Force

28 JAN 80

Program and Financing (in thousands of dollars)

Identification code	57-3600-0-1-051	Budget plan (amounts for RD&E actions programmed)			Obligations		
		1979 actual	1980 est.	1981 est.	1979 actual	1980 est.	1981 est.
Program by activities:							
Direct:							
1.	Technology base	492,253	552,446	633,651	493,589	505,322	630,022
2.	Advanced technology development	259,075	278,500	291,496	268,774	259,091	291,881
3.	Strategic programs	1,422,694	1,581,959	2,716,147	1,411,505	1,568,425	2,611,787
4.	Tactical programs	1,001,011	957,141	1,390,605	999,022	980,741	1,362,969
5.	Intelligence and communications	305,822	669,396	918,586	309,820	623,298	878,730
6.	Defensewide mission support	878,033	986,590	1,134,815	863,713	923,574	1,121,721
Total direct							
		4,358,888	5,026,032	7,085,300	4,346,423	4,860,451	6,897,090
Reimbursable program (total)		409,441	461,900	489,100	419,985	430,549	486,910
10.00	Total	4,768,329	5,487,932	7,574,400	4,766,408	5,291,000	7,386,000
Financing:							
Offsetting collections from:							
11.00	Federal funds	-368,133	-405,000	-405,000	-341,294	-405,000	-405,000
13.00	Trust funds	-36,728	-11,900	-39,100	-30,624	-11,900	-39,100
14.00	Non-federal sources	-4,580	-45,000	-45,000	-5,420	-45,000	-45,000
21.40	Unobligated balance available, start of year:						
	For completion of prior year budget plans						
	Available to finance new budget plans						
22.40	Reprogramming from or to prior year budget plans	-21,785	-44,000		-348,402	-296,435	-493,367
	Unobligated balance transferred from other accounts					-44,000	
24.40	Unobligated balance available, end of year:	-7,911			-7,911		
	For completion of prior year budget plans						
	Available to finance subsequent year budget plans						
25.00	Unobligated balance lapsing	44,000	44,000		44,000	44,000	
	Budget authority	21,785			21,785		
	Budget authority	4,394,977	5,026,032	7,085,300	4,394,977	5,026,032	7,085,300
Budget authority:							
40.00	Appropriation	4,321,040	4,941,943	7,085,300	4,321,040	4,941,943	7,085,300
41.00	Transferred to other accounts	-17,900			-17,900		
42.00	Transferred from other accounts	80,000	2,859		80,000	2,859	
43.00	Appropriation (adjusted)						
50.01	Reappropriation	4,383,140	4,944,802	7,085,300	4,383,140	4,944,802	7,085,300
	Relation of obligations to outlays:	11,837	81,230		11,837	81,230	
71.00	Obligations incurred, net						
72.40	Obligated balance, start of year						
74.40	Obligated balance, end of year						
77.00	Adjustments in expired accounts						
90.00	Outlays	4,079,757	4,581,000	6,019,000	4,079,757	4,581,000	6,019,000

28 JAN 80

Research, Development, Test, and Evaluation, Air Force

Program and Financing (in thousands of dollars)				1978 Fiscal year program		
				Obligations		
Identification code	57-3600-0-1-051	Budget plan (amounts for RDT&E actions programmed)				
		1979 actual	1980 est.	1981 est.	1979 actual	1980 est.
Program by activities:						
Direct:						
1.	Technology base				7,612	
2.	Advanced technology development				16,890	
3.	Strategic programs				95,714	
4.	Tactical programs				119,111	
5.	Intelligence and communications				20,320	
6.	Defensewide mission support				10,964	
Total direct					270,611	
Reimbursable program (total)					23,903	
13.00	Total				294,514	
Financing:						
Offsetting collections from:						
11.00	Federal funds				26,839	
13.00	Trust funds				6,104	
14.00	Non-federal sources				-840	
21.40	Unobligated balance available, start of year:				-348,402	
	For completion of prior year budget plans					
	Reprogramming from or to prior year budget plans				21,785	
25.00	Unobligated balance lapsing					
Budget authority						

Research, Development, Test, and Evaluation, Air Force

28 JAN 80

Program and Financing (in thousands of dollars)				1979 Fiscal year program	
Identification code	57-3600-0-1-051	Budget plan (amounts for RD&E actions programmed)		Obligations	
		1979 actual	1980 est.	1979 actual	1980 est.
Program by activities:					
Direct:					
1.	Technology base	492,253	.....	485,977	6,276
2.	Advanced technology development	259,075	.....	251,884	7,191
3.	Strategic programs	1,422,594	.....	1,315,791	106,803
4.	Tactical programs	1,001,011	.....	879,911	121,100
5.	Intelligence and communications	305,822	.....	289,500	16,322
6.	Defensewide mission support	878,033	.....	852,749	25,284
Total direct		4,358,888	.....	4,075,812	283,076
Reimbursable program (total)		409,441	.....	396,082	13,359
Total		4,768,329	.....	4,471,894	296,435
10.00			.....		.....
Financing:					
Offsetting collections from:					
11.00	Federal funds	-368,133	.....	-368,133	.....
13.00	Trust funds	-36,728	.....	-36,728	.....
14.00	Non-federal sources	-4,580	.....	-4,580	.....
21.40	Unobligated balance available, start of year: For completion of prior year budget plans Available to finance new budget plans		.....		.....
22.40	Unobligated balance transferred from other accounts	-7,911	.....	-7,911	.....
24.40	Unobligated balance available, end of year: For completion of prior year budget plans Available to finance subsequent year budget plans		.....	296,435	.....
26.00	Unobligated balance lapsing	44,000	.....	44,000	.....
Budget authority		4,394,977	.....	4,394,977	.....
Budget authority:					
40.00	Appropriation	4,321,040	.....	4,321,040	.....
41.00	Transferred to other accounts	-17,900	.....	-17,900	.....
42.00	Transferred from other accounts	80,000	.....	80,000	.....
43.00	Appropriation (adjusted)	4,383,140	.....	4,383,140	.....
50.01	Reappropriation	11,837	.....	11,837	.....

Research, Development, Test, and Evaluation, Air Force

28 JAN 80

Program and Financing (in thousands of dollars)					1980 Fiscal year program	
Identification code	57-3600-0-1-051	Budget plan (amounts for RDT&E actions programmed)			Obligations	
		1979 actual	1980 est.	1981 est.	1979 actual	1980 est.
		1981 est.				1981 est.
Program by activities:						
Direct:						
1.	Technology base	.....	552,446	.....	499,046	59,400
2.	Advanced technology development	.....	278,500	.....	251,900	26,600
3.	Strategic programs	.....	1,561,959	.....	1,461,522	120,437
4.	Tactical programs	.....	957,141	.....	859,841	97,300
5.	Intelligence and communications	.....	569,396	.....	506,976	62,420
6.	Defensewide mission support	.....	986,590	.....	898,290	88,300
Total direct		.....	5,026,032	.....	4,577,375	448,657
Reimbursable program (total)		.....	461,900	.....	417,190	44,710
10.00	Total	.....	5,487,932	.....	4,994,565	493,367
Financing:						
Offsetting collections from:						
11.00	Federal funds	.....	-405,000	.....	-405,000	.....
13.00	Trust funds	.....	-11,900	.....	-11,900	.....
14.00	Non-federal sources	.....	-45,000	.....	-45,000	.....
21.40	Unobligated balance available, start of year:	.....	.....	.....	.....	.....
For completion of prior year budget plans						
24.40	Unobligated balance available, end of year:	.....	.....	.....	.....	.....
For completion of prior year budget plans						
Budget authority		.....	5,026,032	.....	493,367	-493,367
Budget authority:						
40.00	Appropriation	.....	4,941,943	.....	4,941,943	.....
42.00	Transferred from other accounts	.....	2,859	.....	2,859	.....
43.00	Appropriation (adjusted)	.....	4,944,802	.....	4,944,802	.....
50.01	Reappropriation	.....	81,230	.....	81,230	.....

Research, Development, Test, and Evaluation, Air Force

28 JAN 80

Program and Financing (in thousands of dollars)		1981 Fiscal year program			
		Budget plan (amounts for		Obligations	
		RDT&E actions programmed)			
Identification code	57-3600-0-1-051	1979 actual	1980 est.	1981 est.	1981 est.
Program by activities:					
Direct:					
1. Technology base			633,651		576,822
2. Advanced technology development			291,496		285,281
3. Strategic programs			2,716,147		2,491,350
4. Tactical programs			1,390,605		1,255,489
5. Intelligence and communications			916,586		816,310
6. Defensewide mission support			1,134,815		1,033,421
Total direct			7,085,300		6,448,433
Reimbursable program (total)			489,100		444,200
Total			7,574,400		6,892,633
Financing:					
Offsetting collections from:					
11.00 Federal funds			-405,000		-405,000
13.00 Trust funds			-39,100		-39,100
14.00 Non-federal sources			-45,000		-45,000
24.40 Unobligated balance available, end of year:					
For completion of prior year budget plans					681,767
Budget authority			7,085,300		7,085,300

Research, Development, Test, and Evaluation, Air Force

28 JAN 80

Object Classification (in thousands of dollars)

Identification code	57-3600-0-1-051	1979 actual	1980 est.	1981 est.
Personnel compensation:				
11.1	Permanent positions	412,277	443,982	444,225
11.3	Positions other than permanent	1,746		
11.5	Other personnel compensation	7,611	8,376	8,645
	Total personnel compensation	421,634	452,358	452,870
Direct obligations:				
Personnel compensation:				
12.1	Personnel benefits: civilian personnel	400,966	431,443	434,427
13.0	Benefits for former personnel	39,429	41,294	41,632
21.0	Travel and transportation of persons	38	30	30
22.0	Transportation of things	35,313	35,428	38,244
23.2	Communications, utilities and other rent	5,767	4,061	4,222
24.0	Printing and reproduction	37,636	42,721	46,096
25.0	Other services:	1,292	773	834
	Purchases from industrial funds			
	Contracts	24,422	27,805	31,569
26.0	Supplies and materials	3,722,361	4,166,773	6,183,336
31.0	Equipment	51,528	62,636	67,587
	Total direct obligations	27,671	45,497	49,091
Reimbursable obligations:				
Personnel compensation:				
12.1	Personnel benefits: civilian personnel	20,868	20,915	18,443
21.0	Travel and transportation of persons	1,954	1,958	1,726
22.0	Transportation of things	6,071	6,078	6,569
23.2	Communications, utilities and other rent	376	410	442
24.0	Printing and reproduction	9,575	15,108	16,302
25.0	Other services:	188	406	438
	Contracts			
	Other	218,472	353,289	410,047
26.0	Supplies and materials	132,400		
31.0	Equipment	25,520	26,304	26,382
	Total reimbursable obligations	4,561	6,081	6,561
99.0	Total obligations	419,985	430,549	488,910
		4,766,408	5,291,000	7,386,000

Personnel Summary (in thousands of dollars)

Identification Code 57-3600-0-1-051

	1979 actual	1980 estimate	1981 estimate	1982 estimate
Total number of permanent positions.	18,365	18,745	18,735	18,735
Full-time equivalent of other positions.	30	30	30	30
Total compensable work-years	18,779	18,704	18,750	18,750
Average ES salary.	47,477	50,000	50,000	50,000
Average GS grade	9.42	9.42	9.42	9.42
Average GS salary.	22,558	24,372	24,279	24,279
Average salary of ungraded positions	18,968	20,392	20,652	20,652

SECTION 2

PROGRAM ELEMENT
LISTING

Table of Contents

	<u>Page No.</u>
1. Introduction and Explanation of Contents.	11
Summaries by:	
1. Research Category	14
2. Budget Activity	14
3. FYDP Program.	14
Details by Budget Activity	15

PROGRAM ELEMENT LISTING

INTRODUCTION AND EXPLANATION OF CONTENTS

This section provides an overview of the Air Force Research, Development, Test and Evaluation program. The detailed listing is preceded by three summaries; the first by Research Category, the second by Budget Activity and the third by FYDP Programs.

A separate document, Descriptive Summaries, furnishes narrative information on all RDT&E program elements and projects of \$5.0 million or more. The number in the right hand column of this Program Element Listing refers to the appropriate page in the Descriptive Summaries.

The funding information included in this listing corresponds to that contained in The Budget of the United States Government, 1981 Appendix.

Data for FY 1979 and FY 1980 have been adjusted to achieve comparability with the revised program element and project structure for FY 1981. The revised structure contained in the FY 1981 budget request is consistent with the Program Element Listing, dated January 1979, except as follows:

<u>Program Element</u>	<u>Remarks</u>
<u>Budget Activity 1, Technology Base</u>	
62704F VHSI Circuits	Restructuring of effort previously funded under 62204F, Aerospace Avionics.
<u>Budget Activity 2, Advanced Technology Development</u>	
63254F Forward Swept Wing Aircraft	New program proposed for FY 1982.
63433F Advanced Sensor Demonstration	New program proposed for FY 1982.
<u>Budget Activity 3, Strategic Programs</u>	
64758F B-52 Companion Trainer Aircraft	New program proposed for FY 1981.

Program Element

Remarks

Budget Activity 4, Tactical Programs

63234F	Enforcer Aircraft	New program funded by Congress in FY 1980.
63616F	Air-Launched Assault Breaker	New program proposed for FY 1981.
64231F	C-X	New program proposed for FY 1981.
64311F	Anti-Rad Msl Eng Dev	New program proposed for FY 1982.
64314F	Adv Med Range Air-to-Air Msl	New program element initiating full scale development effort for PE 63370F.
64412F	Common Multimode Radar	Title change. Formerly Adverse Weather Strike.
64616F	Air-Launched Assault Breaker	New program proposed for FY 1982.
64707F	Weather Systems	New program proposed for FY 1981.
64737F	Airborne Self-Protection Jammer	Restructuring of effort previously funded under PE 64739F, Tactical Protective Systems.
27252F	EF-111 Squadrons	Title and program element number change. Formerly EF-111A and 64220F.

Budget Activity 6, Defensewide Mission Support

63707F	Weather Systems	New program proposed for FY 1981.
64268F	Acft Engine Component Imp Program	New program initially funded by Congress in FY 1980.

Budget Activity 6, Defensewide Mission Support (Continued)

64411F Space Shuttle

Remarks

Program element number change. Formerly 63411F.

35130F Consolidated Space Operations Center

New program proposed for FY 1981.

DEPARTMENT OF THE AIR FORCE
FY 1981 R D-T + E PROGRAM

EXHIBIT N-1

DATE: 28 JAN 1980

SUMMARY

THOUSANDS OF DOLLARS

FY 1979 FY 1980 FY 1981 FY 1982

SUMMARY RECAP OF RESEARCH CATEGORIES

RESEARCH	115,025	119,030	144,300	171,500
EXPLORATORY DEVELOPMENT	387,228	433,446	469,351	541,338
ADVANCED DEVELOPMENT	1,189,347	1,151,460	1,041,790	1,131,729
ENGINEERING DEVELOPMENT	1,247,061	1,041,000	1,111,012	1,047,500
MANAGEMENT AND SUPPORT	538,333	543,090	589,412	625,799
RESEARCH AND DEVELOPMENT (FYDP PROGRAM 6)	3,467,594	3,886,796	5,376,461	6,330,896
OPERATIONAL SYSTEMS DEVELOPMENT	891,294	1,137,236	1,748,839	1,763,816
TOTAL RESEARCH DEVELOPMENT TEST + EVAL, AIR FORCE	4,358,808	5,026,032	7,005,300	8,111,714

SUMMARY RECAP OF BUDGET ACTIVITIES

TECHNOLOGY BASE	492,253	552,446	633,651	714,038
ADVANCED TECHNOLOGY DEVELOPMENT	259,775	278,500	291,496	300,600
STRATEGIC PROGRAMS	1,422,594	1,581,959	2,716,147	3,321,420
TACTICAL PROGRAMS	1,001,111	957,181	1,390,615	1,439,285
INTELLIGENCE AND COMMUNICATIONS	335,022	669,396	918,586	965,502
DEFENSEWIDE MISSION SUPPORT	878,333	906,590	1,134,815	1,243,059
TOTAL RESEARCH DEVELOPMENT TEST + EVAL, AIR FORCE	4,358,808	5,026,032	7,005,300	8,111,714

SUMMARY RECAP OF FYDP PROGRAMS

STRATEGIC FORCES	264,937	278,199	395,118	433,035
GENERAL PURPOSE FORCES	245,197	175,641	456,308	482,849
INTELLIGENCE AND COMMUNICATIONS	340,957	661,196	1,033,895	1,119,037
AIRLIFT/SEALIFT	36,500	12,700	11,090	15,200
RESEARCH AND DEVELOPMENT (FYDP PROGRAM 6)	3,467,594	3,886,796	5,376,461	6,330,896
CENTRAL SUPPLY AND MAINTENANCE	3,128	7,000	10,392	11,045
SUPPORT OF OTHER NATIONS	1,275	1,900	1,970	1,982
TOTAL RESEARCH DEVELOPMENT TEST + EVAL, AIR FORCE	4,358,808	5,026,032	7,005,300	8,111,714

DEPARTMENT OF THE AIR FORCE
FY 1981 R U T + E PROGRAM

EXHIBIT A-1

APPROPRIATION: 350 F RESEARCH DEVELOPMENT TEST + EVAL, AIR FORCE

DATE: 28 JAN 1980

PROGRAM LINE ELEMENT NO	ITEM NOMENCLATURE	ACT	FY 1979	FY 1980	FY 1981	FY 1982 C	Des. Sum. Pg.
1	6111F IN-HOUSE LAB INDEPENDENT RESEARCH	1	8,200	9,000	10,200	11,600	1
2	6112F DEFENSE RESEARCH SCIENCES	1	96,825	110,000	134,100	159,900	4
3	6211F GEOPHYSICS	1	25,876	27,600	32,100	35,400	45
4	6212F MATERIALS	1	32,200	34,200	39,100	43,500	53
5	6221F AEROSPACE FLIGHT DYNAMICS	1	47,175	49,000	56,800	62,500	58
6	6222F AEROSPACE BIOTECHNOLOGY	1	29,167	31,000	35,800	39,800	76
7	6223F AEROSPACE PROPULSION	1	43,417	46,500	53,500	60,100	83
8	6224F AEROSPACE AVIONICS	1	54,945	55,200	56,800	58,800	96
9	6225F TRAINING/SIMULATION TECH	1	11,381	10,500	13,000	14,000	112
10	6232F ROCKET PROPULSION	1	27,572	28,600	32,800	36,500	120
11	6261F ADVANCED WEAPONS	1	30,469	31,900	36,900	41,000	134
12	6262F CONVENTIONAL MUNITIONS	1	28,700	29,600	29,500	32,700	147
13	6272F COMMAND/CONTROL/COMMUNICATION	1	52,103	54,416	63,200	65,700	160
14	6273F PERS UTILIZATION TECH	1	4,303	4,500	5,600	6,200	191
15	6274F VERY HIGH SPEED CIRCUITS	1		30,430	34,251	41,138	197
	TECHNOLOGY BASE		492,253	552,446	633,651	714,834	
16	6322F ACFT PROPULSION SUBSYS INTEGRATION	2	13,200	19,000	13,500	21,500	201
17	6323F ADV AVIONICS FOR ACFT	2	11,170	8,300	14,900	18,700	206
18	6325F FLT VEHICLE TECHNOLOGY	2	10,000	8,900	7,900	6,000	216
19	6326F RECON SENSORS/PROCESSING TECHNOLOGY	2	3,650	6,400	6,900	7,700	222
20	6321F AEROSPACE STRUCTURES/MATERIALS	2	14,990	13,000	18,600	21,800	226
21	63215F AVIATION TURBINE FUEL TECHNOLOGY	2	2,675	2,880	4,400	2,900	236
22	63216F ADV TURBINE ENGINE GAS GENERATOR	2	18,000	30,000	25,700	28,800	240

DEPARTMENT OF THE AIR FORCE
FY 1981 RDT & E PROGRAM

EXHIBIT A-

APPROPRIATION 3612 F RESEARCH DEVELOPMENT TEST & EVAL, AIR FORCE

DATE: 20 JAN 1980

PROGRAM LINE ELEMENT AC NUMBER	ITEM NOMENCLATURE	ACT	THOUSANDS OF DOLLARS				Des. Sub. Pg.
			FY 1979	FY 1980	FY 1981	FY 1982	
23	63227F SPECIAL POWER SYSTEMS	2				7.6 U	
24	63227F ADVANCED SIMULATOR DEVELOPMENT	2	2,900	2,000	3,200	4,500 U	245
25	63243F DIGITAL AVIONICS INFO SYS	2	5,065	2,700			U
26	63245F ACV FIGHTER TECH INTEGRATION	2	6,500	9,200	10,400	11,000 U	249
27	63246F AIRCRAFT SUBSYSTEMS TECH	2	2,450	2,600	1,000	3,000 U	254
28	63247F MODULAR AUTOMATIC TEST EQ	2	3,400	5,300	13,000	20,400 U	257
29	63248F LINCOLN L43	2	19,700	19,100	21,600	23,300 U	261
30	63249F FORWARD SWEEP WING AIRCRAFT	2				7,000 U	
31	63252F ACV MSLE PROPULSION	2	3,655	7,000	8,500	9,000 U	265
32	63413F ADVANCED SENSOR DEMONSTRATION	2				15,000 U	
33	63613F CONVENTIONAL WEAPONS	2	22,470	21,000	23,500	24,900 U	270
34	63615F ADVANCED RADIATION TECH	2	90,700	84,800	76,500	92,300 U	282
35	63705F HEARTLINE DEMONSTRATION PROG	2	2,132	1,900	2,100		U 289
36	63723F CIVIL/ENVIRONMENTAL ENG TECH	2	2,500	2,700	3,900	4,600 U	293
37	63724F ADVANCED COMPUTER TECHNOLOGY	2	3,440	4,200	4,100	5,000 U	296
38	63725F ELECTRO-OPTICAL WARFARE	2	7,370	8,600	11,000	13,700 U	300
39	63750F COUNTER/COUNTERMEASURES	2	4,250	5,200	5,700	6,000 U	306
40	63751F INNOVATIONS IN EDUCATION/INTE	2	1,700	1,600	1,700	2,700 U	312

DEPARTMENT OF THE AIR FORCE
FY 1981 RDT + C PROGRAM

EXHIBIT A-1

APPROPRIATION 340 F RESEARCH DEVELOPMENT TEST + EVAL, AIR FORCE

PROGRAM LINE ELEMENT NO	ITEM ACQUISITION	ACT	FY 1979	FY 1980	FY 1981	THOUSANDS OF DOLLARS		Des. Sum. Pg.
41	67200F COMB CONTRL + COMM AGV DEV	2	6,350	6,000	9,166	17,166	U	318
	ADVANCED TECHNOLOGY DEVELOPMENT		259,075	278,500	291,456	500,600		
42	67220F CRUISE MISSILE CARRIER ACFT	3	13,200	30,070	30,000	50,600	U	322
43	67241F ELECTRONICALLY AGILE RADAR	3	12,000	30,000			U	
44	67202F BOMBER PENETRATION EVALUATION (E1)	3		54,900	3,1700		U	325
45	63305F ADVANCED ICM TECHNOLOGY	3	150,153				U	
46	63311F AGV BALLISTIC RE-ENTRY SYS	3	105,000	95,300	110,900	120,700	U	335
47	63314F STRATEGIC BOMBER ENHANCEMENT	3	50,500		15,100	20,000	U	348
48	63318F ADV STRATEGIC AIR LAUNCHED PSL	3		25,000	25,700	50,500	U	351
49	63319F ADVANCED TECHNOLOGY CRUISE MISSILE	3		10,000	13,900	3,100	U	357
50	63424F PSL SURVEILLANCE TECH	3	5,005	3,900	12,000	44,000	U	360
51	63428F SPACE SURVEILLANCE TECHNOLOGY	3	35,932	42,100	44,000	57,400	U	361
52	63429F WARNING INFORMATION CORRELATION	3	3,308	3,600	3,000	6,600	U	373
53	63431F SPACE COMMUNICATIONS	3	30,600	32,900	27,000	44,200	U	377
54	63435F INTER OPER NUJETS DETECT SYS	3	9,100	11,900			U	
55	63439F SATELLITE SYS SURVIVABILITY	3	21,305	27,000	33,300	30,500	U	390
56	63444F AC/ SPACE APPLICATIONS PROGRAM	3		2,000	4,100	6,000	U	400
57	63713F CCNUS OVER-HORIZON RADAR	3	11,194	11,900	12,100	4,200	U	404
59	64215F B-1	3	50,300				U	
60	64216F FCMRER DEFENSIVE SYSTEMS	3	1,308				U	
61	64312F M-X	3	150,000	67,000	1,000,000	6,000,000	U	412
62	64741F AIP LAUNCHED CRUISE MISSILE	3	338,005	90,000	100,000	30,000	U	419

DEPARTMENT OF THE AIR FORCE
FY 1981 RDT + E PROGRAM

EXHIBIT A-1

APPROPRIATION: 3600 F RESEARCH DEVELOPMENT TEST + EVAL, AIR FORCE

DATE: 26 JAN 1981

PROGRAM LINE ELEMENT NO NUMBER	ITEM ACQUISITION	ACT	FY 1979	FY 1980	FY 1981	FY 1982	Des. Sum. E
63	SPACE DEFENSE SYS	3	78,162	80,504	110,400	99,400	U 429
54	SYSTEMS SURVIVABILITY (NUC EFFECTS)	3	11,574	14,200	13,904	10,200	U 445
65	B-52 COMPANION TRAINER AIRCRAFT	3			15,100	20,000	J 453
66	B-52 SQUADRONS	3	71,900	96,299	142,400	147,500	U 456
67	SPOT RANGE ATTACK MSL (ACM-69)	3	7,816	8,200			U 492
68	KC-135 SQUADRONS	3	8,600	15,000	23,600	27,000	U 495
69	TITAN SQUADRONS	3	800	1,300	900	300	U 499
70	MINUTEMAN SQUADRONS	3	50,000	35,300	40,000	40,000	U 501
71	PCST ATTACK COMD/CNTRL SYS	3	26,000	24,500	8,100	7,200	J 513
72	SFG COMMUNICATIONS	3	14,000	17,000	23,100	20,000	U 528
73	NCAD COC	3	7,699	5,000	16,000	24,000	U 535
74	JCINT SURVEILLANCE SYSTEM	3	8,500	6,600	9,700	1,000	U 539
75	SURVEILL RADAR STATIONS/SITES	3	8,200	10,100	8,500	40,500	U 542
76	DEM RADAR STATIONS	3	2,470				U 545
77	BALLISTIC MSL EARLY WNG SYSTEM	3	5,000		9,100	14,500	J 548
78	SPACE TRACK	3	8,111	6,200	8,700	8,700	J 551
79	DEFENSE SUPPORT PROGRAM	3	30,550	31,000	72,000	135,000	U 557
80	SLM RADAR WARNING SYSTEMS	3	4,691	4,200			U
81	PERIMETER ACQ RADAR-ATK C-IMPACT SYS	3		5,000			U
82	SPACE DEFENSE OPS	3			14,500	20,100	J 560
83	MMQCS ACF-AA9NCP	3			3,400		J 569
84	MINIMUM ESSENTIAL EMER COMM NETWORK	3	7,300	8,500	13,500	26,900	J 573

DEPARTMENT OF THE AIR FORCE
FY 1981 RDT & E PROGRAM

EXHIBIT A-1

APPROPRIATION 300 F RESEARCH DEVELOPMENT TEST & EVAL, AIR FORCE

DATE: 26 JAN 1981
THOUSANDS OF DOLLARS

PROGRAM LINE ELEMENT AC NUMBER	ITEM NOMENCLATURE	ACT	FY 1979	FY 1980	FY 1981	FY 1982	Des. Sum. Pg.
85	376.1F AIR FORCE SAT COM SYS	3	19,711	19,200	61,400	60,400	U 580
86	3518F SATELLITE DATA SYSTEM	3	23,130	36,330	45,330	27,900	J 587
STRATEGIC PROGRAMS							
88	6328F NEXT GENERATION TRAINER ACFT	4		1,900	2,000	14,400	U 593
89	6327F COMBAT ACFT TECHNOLOGY	4	1,115	2,000	5,800	9,900	U 599
90	6324F ENFORCER AIRCRAFT	4		6,000			U
91	6324F ACFT NON-NUCLEAR SURVIVABILITY	4	1,500	700	1,300	1,900	J 603
92	6329F NIGHT ATTACK PROGRAM	4		25,600	74,800	44,400	U 607
93	6336F DEF SUPPRESSION WPNS ADV TECH	4			3,100	8,000	J 619
94	6331F ADV MSL SUBSYSTEMS DEMONSTRATION	4			8,500	9,200	J 622
95	6337F THEATRE BALLISTIC MISSILE	4	20,000				U 626
96	6337F ADV MEDIUM RANGE AIR-TO-AIR MSL	4	18,300	27,300	25,600	1,100	U 629
97	6340F ADV ATTACK WEAPONS	4	11,100	34,800	25,100	56,300	U 637
98	6361F AIR-LAUNCHED ASSAULT BREAKER	4			7,100		U 646
99	6371F CDO PHYSICAL SECURITY EO-EXTERIOR	4	5,600	3,900	7,500	7,500	U 649
100	6371F ELECTRONIC WARFARE TECHNOLOGY	4	11,990	10,000	14,400	49,700	J 653
101	6372F ADVANCED COMMUNICATIONS TECHNOLOGY	4	9,090	3,700	4,200	5,200	J 659A
102	6370F ADV DRONE/REMOTELY PILOTTED REM DEV	4	2,000	3,500	4,200	4,800	U 660
103	6374F DEFENSE SUPPRESSION (H)	4	4,560				U
104	6372F AIR-TO-AIR IDENTIFICATION	4	4,000	5,100	14,700	11,200	U 663
105	6374F SIGC LOOKING AIRBORNE RADAR	4	12,899	9,000	27,400	19,700	J 669
106	6374F PAVE MOVER	4	5,600	6,700	13,200	5,100	U 683

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DEPARTMENT OF THE AIR FORCE
FY 1991 RDT & E PROGRAM

CANALIT 1-1

APPROPRIATION 04-01 RESEARCH DEVELOPMENT TEST & EVAL AIR FORCE

July 28 Jan 1990

LINE ELEMENT NO	ITEM NOMENCLATURE	ACT	FY 1979	FY 1980	FY 1981	FY 1982	Des. Sum.
108	64212F ACFT AVIONICS EQUIPMENT DEVELOPMENT	4	7,100	12,600	17,100	22,700	689
109	64212F AIRCRAFT EQUIPMENT DEV	4	4,200	7,900	4,200	4,500	699
110	64214F ENGINE MODEL DERIVATIVE PROJ	4	2,400	39,300	48,600	20,100	705
111	64218F INTEGRATED DIGITAL AVIONICS	4		2,500	1,000	4,000	709
112	64212F NUCLEAR WEAPONS SUPPORT	4		1,100	1,600	4,600	713
113	64212F AIR MEDICAL STOL TRANSPORT	4	400	1,700			717
114	64212F C-X	4			40,700	25,000	721
115	64311F AIR-TO-AIR MISSILE ENG DEV	4			1,900		
116	64311F AIR MED RANGE AIR-TO-AIR PSU	4			7,900		
117	64312F GROUND LAUNCHED CRUISE MSL	4	33,100	6,000	67,500	30,600	725
118	64612F COMMON MULTIMODE RADAR	4			4,500	3,200	732
119	64611F C/B DEFENSE EQUIPMENT	4	5,400	3,800	7,000	8,600	735
120	64612F AIRCRAFT ORDNANCE DEVELOPMENT	4	15,600	12,100	12,300	10,300	739
121	64612F LOW ALTITUDE AFLO ATTACK SYS	4	27,999	25,300	56,000	24,000	746
122	64617F WIDE-AREA ANTI-AIRBORNE MUNITION	4		20,600	24,000	17,700	750
123	64612F CLOSE AIR SUPPORT WEAPONS SYSTEM	4	58,455	6,000	47,300	4,000	759
124	64612F AIR DELIVERED LAND MINES	4	8,308	4,000	4,900	500	779
125	64612F LOW LEVEL LASER GUIDED RUMF	4	3,735	8,000	3,000	4,000	782
126	64613F COMMON NATO MUNITIONS	4	3,300	2,200			785
127	64612F GLIDER MARK STRUCTURES MUNITION	4			600	200	788
128	64612F AIR-TO-AIR ASSAULT BREAKER	4				15,000	
129	64712F LIFE SUPPORT SYSTEM	4	5,300	5,200	11,400	14,000	791

DEPARTMENT OF THE AIR FORCE
FY 1981 RDT & E PROGRAM

EXHIBIT R-1

APPROPRIATION 3690 F RESEARCH DEVELOPMENT TEST & EVAL AIR FORCE

DATE: 26 JAN 1981

PROGRAM LINE ELEMENT NO	ITEM NOMENCLATURE	ACT	THOUSANDS OF DOLLARS				Des. Sum. Pg.
			FY 1979	FY 1980	FY 1981	FY 1982	
130	64777F WEATHER SYSTEMS	4			5,800	5,300	U 794
131	64780F OTHER OPERATIONAL EQUIPMENT	4	10,420	9,900	10,800	9,300	U 797
132	64789F IMPROVED TACTICAL BOMBING	4	9,300	7,800			U
133	64788F RECON/ELECTRONIC WARFARE EQUIPMENT	4	7,950	4,900	14,900	13,700	U 804
134	64785F CDD PHYSICAL SECURITY EQ-EXTENSION	4	9,600	18,200	29,800	23,100	U 810
135	64784F TAC C3 COUNTER-MEASURES	4	2,785	11,000	15,700	8,000	U 814
136	64783F ACFT IDENTIFICATION SYSTEMS	4		8,300	11,000	9,900	U 818
137	64782F SURFACE DEF SUPPRESSION	4	49,100		37,200	36,600	U 824
138	64777F AIRBORNE SELF-PROTECTION JAMMER	4		4,200	12,400	10,100	U 840
139	64788F PROTECTIVE SYSTEMS	4	48,499	58,300	71,100	90,200	U 843
140	64789F TACTICAL PROTECTIVE SYSTEMS	4	33,513	14,200	24,600	23,300	U 856
141	64788F APPL FOR INFO PROCESSING TECH	4	3,000	2,800	5,800	6,800	U 864
142	64787F PRECISION LOCATION STRIKE SYSTEM	4	86,800	15,000	62,600	60,800	U 869
143	64786F EXPENDABLE DRONES	4	5,790	4,700	5,600	4,000	U 892
144	64785F INTELLIGENCE EQUIPMENT	4	12,881	18,300	16,600	13,000	U 896
145	64784F INTRA-THEATRE IMAGING SYSTEM	4	500	200	2,200	500	U 904
146	64783F NATO AEW/C ACFT (H)	4	10,000				U
147	64782F JT TAC INFO DIST SYS SPT	4	41,700	54,600	71,600	83,100	U 907
148	64781F SYSTEMS PROTECTION	4	2,800	1,900	2,200	2,500	U 915
149	64780F JT INTEROPERABILITY TAC CCNC/CNTRL	4	4,325	4,900	13,000	11,100	U 918

DEPARTMENT OF THE AIR FORCE
FY 1961 R O T + E PROGRAM

EXHIBIT R-1

APPROPRIATIONS FROM R RESEARCH DEVELOPMENT TEST + EVAL, AIR FORCE

DATE: 20 JAN 1961

LINE ELEMENT NO	ITEM NOMENCLATURE	ACT	FY 1979	FY 1981	FY 1982	Des. Sum. Pg.
151	2711AF F-4 SQUADRONS	4	2,000	500	7,300	6,000 J 921
152	2711AF F-111 SQUADRONS	4	100	1,000	7,300	6,000 J 925
153	2711AF F-1F SQUADRONS	4	11,390	500	9,000	9,000 J 930
154	2711AF F-1D SQUADRONS	4	17,955	17,800	13,600	5,400 J 940
155	2711AF F-1F SQUADRONS	4	10,910	27,800	42,300	6,000 J 948
156	2711AF TACTICAL AIM MISSILE	4	4,200	1,100	3,600	J 958
157	2711AF TACTICAL AGM MISSILES	4	2,600	800	8,100	4,700 J 975
158	27207F TACTICAL SURVEILLANCE SYS	4	2	300	300	300 J 983
159	27207F EF-111 SQUADRONS	4	8,100	7,800	10,500	5,000 J 985
160	2741AF GERSSEAS AIR WEAPON MONT SYS	4	9,969	10,951	200	200 J 998
161	2741AF TACTICAL AIR CONTROL SYSTEM	4	5,000	5,900	12,500	6,000 J 1001
162	2741AF USAF COMMAND/CONTROL SYS	4	37,000	52,100	65,600	6,000 J 1005
163	2741AF TAC WIPSTONE COMPT CONT SYS	4	3,500	12,000	44,600	25,000 J 1009
164	2741AF ADV COMM SYS	4	3,500	9,000	8,400	9,000 J 1038
165	2741AF TAC AIR INTELL SYS ACTVS	4	29,105	28,400	10,700	23,700 J 1058
166	2741AF JT TACTICAL COMPT PROG	4	36,500	12,700	11,900	4,000 J 1072
167	4111AF (AF WPLIFT SQUADRONS (IF)	4	1,001,011	957,161	1,300,005	1,400,005
	TACTICAL PROGRAMS					
168	6271AF NAVSTAR GLOBAL POSITION SYS (H)	5	35,100			J
169	6271AF NAVSTAR ARCHITECTURE	5	2,900	7,100	10,000	6,000 J 1079
170	6271AF NAVSTAR SPACE CONTR EQUIP	5	32,300			U
171	6271AF TACTICAL LOGAN (H)	5	3,005			J

DEPARTMENT OF THE AIR FORCE
FY 1981 RDT + E PROGRAM

EXHIBIT A-1

APPROPRIATIONS 2010 F RESEARCH DEVELOPMENT TEST + EVAL, AIR FORCE

DATE: 26 JAN 1981

PROJECT LINE ELEMENT NO NUMBER	ITEM NOMENCLATURE	ACT	THOUSANDS OF DOLLARS				CER. C FY 1982 U FY 1983
			FY 1979	FY 1980	FY 1981	FY 1982 U	
172 6477AF	NAVSTAR GPS	5	8,200	159,100	128,759	124,800 U	1085
173 6577AF	AIRCRAFT NAVIGATION SYS VERIF	5	1,700	1,300	1,600	1,600 U	1086
175 31027F	FOREST GREEN	5	1,775	5,200	27,875	24,420 U	1070
177 35117F	DEFENSE DISSEMINATION PROGRAM	5	8,849	3,200	9,800	14,100 U	1099
179 37117F	DEF SATELLITE COMM SYS	5	30,200	22,837	21,100	16,500 U	1103
179 33126F	LONG-HAUL COMMUNICATIONS (MCS)	5	5,540	8,000	11,400	9,900 U	1119
180 33114F	ELECTRONIC COMPATIBILITY ANAL CTR	5	5,365	5,600	6,000	6,000 U	1120
181 37011F	COMMUNICATIONS SECURITY	5	1,100	1,100	1,100	1,100 U	1131
182 35114F	TRAFFIC CONTROL/APPROACH/LANDING SYS	5	2,898	4,200	3,100	2,200 U	1134
184 35117F	SUPPORT PROGRAM	5	11,901	8,200	6,822	5,026 U	
	INTELLIGENCE AND COMMUNICATIONS		305,822	609,396	918,506	905,222	
185 62111F	DEVELOPMENT PLANNING	6	1,000	1,100	2,000	4,000 U	1137
186 61212F	ADV AERIAL TARGET TECH	6	3,471	1,500			
187 62011F	SPACE VEHICLE SUBSYSTEMS	6	9,660	9,500	12,600	10,700 U	1141
188 62012F	SPACE TEST PROGRAM	6	44,800	34,400	53,900	77,500 U	1148
189 63011F	SPACE SHUTTLE	6	169,600	206,900			
190 62707F	WEATHER SYSTEMS	6			700	800 U	1161
191 60211F	ADV AERIAL TARGETS DEV	6	8,000	16,500	16,900	19,400 U	1163
192 60277F	FLIGHT SIMULATOR DEVELOPMENT	6	11,835	6,800	17,900	23,600 U	1172
193 60262F	ACT ENGINE COMPONENT IMPROVE PROG	6		8,000	105,500	137,000 U	1178

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DEPARTMENT OF THE AIR FORCE
FY 1981 - O T + E PROGRAM

EXHIBIT N-1

APPROPRIATION: 1600 F RESEARCH DEVELOPMENT TEST + EVAL, AIR FORCE

DATE: 26 JAN 1980

PROGRAM LINE ELEMENT NO NUMBER	ITEM NOMENCLATURE	ACT	FY 1979	FY 1980	FY 1981	THOUSANDS OF DOLLARS		Des. Sum. Pg.
						FY 1981	FY 1982	
194	64411F SPACE SHUTTLE	6			233,100		187,800	U 1187
195	64711F IMPROVED CAPABILITY FOR OTE	6	14,700	12,600	12,700		26,300	U 1199
196	64711F FOREIGN WEAPONS EVALUATION (M)	6	2,000					U
197	64747F ELECTROMAG RADIATION TEST FACIL	6	18,725	8,600	3,000		3,100	U 1204
198	65111F PROJECT AIR FORCE	6	11,000	11,700	12,500		43,500	U 1208
199	65114F ACQ/CMD SFT (ACS) - TELECOM	6	3,873	3,900	4,400		5,000	U 1213
200	65916F ACQUISITION AND COMMAND SFT	6	211,978	211,364	230,000		237,600	U 1216
201	65817F TEST AND EVALUATION	6	284,752	292,875	315,200		339,800	U 1233
202	65918F ACV SYS ENGINEERING/PLAN	6	6,000	4,200	4,400		5,000	U 1247
203	65808F MGT MO (RESEARCH/DEVELOPMENT)	6	19,030	17,751	21,312		23,199	U 1251
204	35110F SATELLITE CONTROL FACILITY	6	8,199	14,700	14,100		20,000	U 1254
205	35119F SPACE BOOSTERS	6	32,600	29,700	29,500		14,000	U 1258
206	35111F CONSOLIDATED SPACE OPERATIONS CENTER	6		15,980	13,780		8,480	U 1265
207	35111F DEF METEOROLOGICAL SATELLITE PROG	6	12,500		19,000		84,300	U 1268
208	35111F SPACE LAUNCH SUPPORT	6			3,433		35,000	U 1275
209	78119F HILL/WENDOVER/BOUGHWAY RANGE	6		1,700	1,800		1,900	U 1278
210	78026F PRODUCT/RELIABLE/FAIR/MAINTAIN PROG	6	3,328	5,900	8,592		9,145	U 1281
211	01804F INTERNATIONAL ACTIVITIES	6	1,275	1,900	1,970		1,982	U 1286
	DEFENSEWIDE MISSION SUPPORT		878,333	986,590	1,134,015		1,243,359	
	TOTAL RESEARCH DEVELOPMENT TEST + EVAL, AIR FORCE		6,358,888	5,026,832	7,005,380		8,100,704	

Research, Development, Test and Evaluation, Air Force

Section 3 - Performer Distribution

	<u>FY 1979 Program Actual</u>	<u>FY 1980 Program Requirements</u>	<u>FY 1981 Program Requirements</u>	<u>FY 1982 Program Requirements</u>
1. For operation of installations of the reporting Service <u>Government</u> operated.	682,002	693,707	756,098	794,753
2. For operation of installations of the reporting Service <u>Contractor</u> operated.	118,884	128,990	137,848	143,680
3. For contracts directly in support of work per- formed at installations of the reporting Service	83,338	82,000	85,000	90,000
4. For work assigned to other Department of Defense activities	67,127	73,380	98,100	103,600
5. For work assigned to activities of other Govern- ment agencies.	6,392	6,500	6,800	7,000
6. For work performed by industrial contractors ("profit" organizations)	3,107,776	3,711,664	5,629,090	6,565,475
7. For work performed by educational institutions				
a. Designated Federal Contract Research Centers	44,356	55,777	65,819	72,648
b. Other Institutions	122,600	138,600	151,800	151,800
8. For work performed by other "non-profit" organizations.	126,413	135,414	154,745	171,948
Total Research, Development, Test and Evaluation Appropriation	4,358,888	5,026,032	7,085,300	8,100,704

Section 4 - Installation Analysis

This installation analysis shows dollar and manpower resources utilized by Air Force installations in the accomplishment of in-house research, development, test and evaluation efforts, including contractor operated installations, under the management control of the Air Force. Installations reported include those classified as research, development, or test installations as well as research, development, or test units located at multi-mission installations. Funds reported cover both direct and indirect costs as well as support costs. Amounts listed under the category "RDT&E Funds" include funds received directly and reimbursable RDT&E effort performed for other Air Force activities and other Department of Defense agencies. "All Other Funds" show in-house effort for other than Research, Development, Test and Evaluation, and Military Personnel costs. Military Personnel costs include those military personnel assigned to RDT&E activities.

Personnel data is reported in terms of man years rather than the number of personnel spaces. Civilian personnel man years include both those charged directly to the RDT&E appropriation and to reimbursable activities. Contractor personnel shown are engaged in the operation of Air Force installations.

INSTALLATION ANALYSIS

INDEX

Item No.	Installation	Page No.
<u>IN-HOUSE INSTALLATIONS</u>		
1.	Defense Research Sciences (Laboratory Support at Various Locations)	28
2.	Geophysics Laboratory, Hanscom AFB, Massachusetts	28
3.	Materials Laboratory, Wright-Patterson AFB, Ohio	28
4.	Aerospace Flight Dynamics Laboratory, Wright-Patterson AFB, Ohio	28
5.	Aerospace Biotechnology, Brooks AFB, Texas	28
6.	Aerospace Propulsion Laboratory, Wright-Patterson AFB, Ohio	28
7.	Aerospace Avionics Laboratory, Wright-Patterson AFB, Ohio	28
8.	Rocket Propulsion Laboratory, Edwards AFB, California	29
9.	Advanced Weapons Laboratory, Kirtland AFB, New Mexico	29
10.	Armament Laboratory, Eglin AFB, Florida	29
11.	Command, Control & Communications Center, Griffis AFB, New York	29
12.	Human Resources Laboratory, Lackland AFB, Texas	29
13.	Electromagnetic Compatibility Analysis Center, Annapolis, Maryland	29
14.	Aeronautical Systems Division, Wright-Patterson AFB, Ohio	29
15.	Electronic Systems Division, Hanscom AFB, Massachusetts	30
16.	Space Division, Los Angeles AFS, California	30
17.	Ballistic Missile Office, Norton AFB, California	30
18.	Aerospace Medical Division, Brooks AFB, Texas	30
19.	Headquarters Air Force Systems Command, Andrews AFB, Maryland	30
20.	Arnold Engineering Center, Tullahoma, Tennessee	30
21.	Armament Development Test Center, Eglin AFB, Florida	30
22.	Air Force Flight Test Center, Edwards AFB, California	31
23.	4950th Test Wing, Wright-Patterson AFB, Ohio	31
24.	SHAPE Technical Center, The Hague, Netherlands	31

Item No.

Page No.

FEDERAL CONTRACT RESEARCH CENTERS

25.	Aerospace Corporation, Los Angeles, California	32
26.	Lincoln Laboratory, Lexington, Massachusetts.	32
27.	MITRE Corporation, Bedford, Massachusetts.	32
28.	Rand Corporation, Santa Monica, California	33

INSTALLATION ANALYSIS - IN-HOUSE

Item No.	Installation & Location	FY	TOA (\$ In Thousands)										PERSONNEL (Man-Years)						
			RDT&E Funds			All Other Funds			Sub-Total	Mil Pers	TOTAL	Civil Service			Contractor			Mil Pers	TOTAL
			Dept of Air Force	Other Parent Dept	Other DOD	Other	Other	Funds				Paid From RDT&E	Paid From Other	Paid From RDT&E	Paid From Other	Paid From RDT&E	Paid From Other		
1.	Defense Research Sciences, Various Locations	79 80 81 82	3,856 4,121 4,402 4,400	8 15 15 15	14 15 15 15				3,878 4,136 4,417 4,415	1,535 1,605 1,603 1,635	5,413 5,741 6,020 6,050	102 102 102 102						69 69 69 69	171 171 171 171
2.	Geophysics Laboratory, L.G. Hanscom AFB, MA	79 80 81 82	16,500 16,600 18,100 18,400	6,544 5,989 5,357 5,357	401 509 509 509			112 216 239 239	23,557 23,314 24,205 24,505	1,848 1,903 1,924 1,934	25,405 25,217 26,129 26,439	494 475 475 474						114 112 111 111	608 587 586 585
3.	Materials Laboratory, Wright-Patterson AFB, OH	79 80 81 82	13,500 13,300 14,200 14,400	3,465 3,444 3,636 3,636	261 256 275 275			5 10 10 10	17,231 17,010 18,121 18,321	1,254 1,284 1,305 1,310	18,485 18,294 19,426 19,631	412 390 390 390						53 52 52 52	465 442 442 442
4.	Aerospace Flight Dynamics Lab Wright-Patterson AFB, OH	79 80 81 82	24,933 25,500 27,100 27,500	7,569 7,763 7,248 7,248	215 527 307 307			591 200 66 66	33,308 33,990 34,721 35,121	4,457 4,629 4,694 4,714	37,765 38,619 39,415 39,835	776 805 805 800	10 10 10 10					213 210 209 209	999 1025 1024 1019
5.	Aerospace Biotechnology, Brooks AFB, TX	79 80 81 82	16,489 17,329 18,000 18,200	1,069 1,111 1,380 1,380	274 180 11 11			308 145 107 107	18,140 18,765 19,498 19,698	8,698 9,117 9,267 9,191	26,838 27,882 28,765 28,889	478 450 450 450						553 552 551 546	1031 1002 1001 996
6.	Aerospace Propulsion Lab, Wright-Patterson AFB, OH	79 80 81 82	12,800 13,200 14,200 14,400	3,898 3,716 4,047 4,047	12 12 12 12			10 16,916 18,247 18,447	16,720 16,916 18,247 18,447	1,137 1,165 1,183 1,187	17,857 18,081 19,430 19,634	419 389 389 389	1 1 1 1					49 48 48 48	469 438 438 438
7.	Aerospace Avionics Lab, Wright-Patterson AFB, OH	79 80 81 82	20,402 21,600 23,200 23,500	8,390 6,713 6,342 6,342	119 76 76 76			29 28,389 29,618 29,918	28,940 28,389 29,618 29,918	4,052 4,209 4,277 4,294	32,992 32,598 33,895 34,212	793 820 820 818						175 175 175 175	968 995 995 993

INSTALLATION ANALYSIS - IN-HOUSE

Item No.	Installation & Location	FY	TOA (\$ In Thousands)										PERSONNEL (Man-Years)																																																																																																																																																																																																																																																																																						
			RD&E Funds				All Other Funds	Sub-Total	Mil Pers	TOTAL	Civil Service				Contractor																																																																																																																																																																																																																																																																																				
			Dept of Air Force	Other Parent	Other DOD	RD&E					Paid From Parent Dept RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E	Paid From Other RD&E

INS ALLATION ANALYSIS - IN-HOUSE

Item No.	Installation & Location	FY	TOA (\$ In Thousands)						PERSONNEL (Man-Years)						
			RDT&E Funds			All Other Funds	Sub-Total	Mil Pers	Civil Service			Contractor		Mil Pers	TOTAL
			Dept of Air Force	Other Parent	DOD				Paid From RDT&E	Paid From Other	Paid From RDT&E	Paid From Other			
15.	Electronic Systems Division, L.G. Hanscom AFB, MA	79 80 81 82	48,281 48,447 52,373 54,101	1,500 1,500 1,500 1,500		3,500 3,500 3,500 3,500	53,281 53,447 57,373 59,101	30,045 32,292 33,655 33,575	1,542 1,563 1,564 1,589	130 130 125 100				1,431 1,479 1,509 1,496	3,103 3,172 3,198 3,185
16.	Space Division, Los Angeles, CA	79 80 81 82	38,662 32,108 36,392 37,543	5,000 5,000 5,000 5,000		400 400 400 400	44,062 37,508 41,792 42,943	23,607 25,372 26,443 26,380	848 873 906 902	2 2 2 2				1,124 1,162 1,185 1,175	1,974 2,037 2,093 2,079
17.	Ballistic Missile Office Norton AFB, CA	79 80 81 82	- 5,000 7,500 7,747			- 5,000 7,500 7,747	- 5,000 7,500 7,747	6,438 6,919 7,212 7,195	241 291 293 293					307 307 307 307	548 598 600 600
18.	Aerospace Medical Division, Brooks AFB, TX	79 80 81 82	12,330 12,461 13,370 14,015	100 100 100 100		200 200 200 200	12,630 12,761 13,670 14,315	6,009 6,228 6,491 6,475	178 183 183 183					286 286 286 286	464 469 469 469
19.	Headquarters AF Systems Command, Andrews / FB, MD	79 80 81 82	30,002 29,566 34,362 36,679	2,500 2,500 2,500 2,500		700 700 700 700	33,202 32,766 37,562 39,879	18,655 19,930 20,394 20,432	773 806 812 812	25 25 25 25				836 858 862 861	1,634 1,689 1,699 1,698
20.	Arnold Engineering Development Center, Tullahoma, TN	79 80 81 82	87,348 93,775 105,050 111,080	31,027 36,795 41,135 45,074	1,055 2,214 2,776 2,663	4,336 4,479 2,912 2,806	124,556 137,263 151,873 161,673	985 1,002 1,033 1,037	125 136 152 162	551 265 906 660		3,085 3,155 3,135 3,120	76 82 82 82	3,294 3,366 3,347 3,332	
21.	Armament Division, Eglin AFB, FL	79 80 81 82	101,444 99,528 107,098 115,725	32,210 34,696 39,188 42,143	1,819 2,369 2,394 2,394	909 1,185 1,197 1,197	136,382 137,778 149,877 161,459	47,188 48,568 50,128 50,289	2,525 2,495 2,525 2,515	149 148 148 148		1,157 1,180 1,197 1,197	3,579 3,505 3,524 3,515	7,410 7,328 7,394 7,375	

INSTALLATION ANALYSIS - IN-HOUSE

Item No.	Installation & Location	FY	TOA (\$ In Thousands)										PERSONNEL (Man-Years)									
			RDTE& Funds					All Funds					Civil Service					Contractor				
			Dept of Air Force	Other Parent Dept	Other DOD	RDTE& Parent Dept	RDTE& Other Dept	RDTE& DOD	Other Funds	Sub-Total	Mil Pers	TOTAL	Paid From Parent Dept RDTE&	Paid From Other RDTE&	Paid From Other RDTE&	Paid From Other RDTE&	Paid From Other RDTE&	Paid From Other RDTE&	Paid From Other RDTE&	Paid From Other RDTE&	Mil Pers	TOTAL
22.	AF Flight Test Center Edwards AFB, CA	79	70,116	13,972	8,826	1,595	94,509	45,336	139,845				1,469	100				3,508	5,077			
		80	71,600	16,691	7,135	1,448	96,874	46,116	142,990				1,415	100				3,303	4,818			
		81	71,140	22,283	5,282	1,752	100,457	47,529	147,986				1,366	100				3,328	4,794			
		82	78,430	24,403	5,507	918	109,258	47,723	156,981				1,363	100				3,342	4,805			
23.	4950th Test Wing Wright-Patterson AFB, OH	79	34,399	14,166	932	914	50,411	10,842	61,253				906	11				840	1,757			
		80	37,500	16,355	879	1,385	56,120	11,029	67,149				925	11				841	1,777			
		81	41,460	21,696	624	1,233	65,013	11,366	76,379				942	11				841	1,794			
		82	44,510	23,780	624	226	69,140	11,412	80,552				929	11				841	1,781			
24.	SHAPE Technical Center, The Hague, Netherlands	79	1,275				1,275		1,275				19					19				
		80	1,900				1,900		1,900				22					22				
		81	1,978				1,978		1,978				22					22				
		82	1,982				1,982		1,982				22					22				
GRAND TOTAL, IN-HOUSE		79	693,187	191,037	26,427	25,331	935,982	271,765	1,207,727	17,838			777	4,617	179			16,135	39,546			
		80	704,356	200,341	25,836	26,469	957,002	284,297	1,241,299	17,754			800	4,710	195			15,996	39,455			
		81	761,192	217,754	23,880	25,202	1,028,028	293,310	1,321,338	17,825			775	4,707	217			16,123	39,647			
		82	799,281	229,152	25,092	23,855	1,077,380	293,574	1,370,954	17,825			725	4,692	217			16,083	39,542			

INSTALLATION ANALYSIS - FCRCs

Item No.	FCRC & Location	FY	TOA (\$ in Thousands)										Personnel 1/										
			RDT&E Funds					All Other Funds	Sub-Total	Mil Pers	TOTAL	Professional 2/					Support						
			Dept of Air Force	Other Parent Dept	Other DOD	Other	Funds					Paid From Parent Dept RDT&E	Paid From Other RDT&E	Paid From Parent Dept RDT&E	Paid From Other RDT&E	Paid From Parent Dept RDT&E	Paid From Other RDT&E	Paid From Parent Dept RDT&E	Paid From Other RDT&E	Paid From Parent Dept RDT&E	Paid From Other RDT&E	Mil Pers	TOTAL
25.	AEROSPACE CORP., LOS ANGELES, CA	79	76,866	0	10,953	36,314	124,133	0	124,133	826	120	386	752	109	351			2,544					
		80	80,948	0	14,651	52,933	148,532	0	148,532	332	154	555	724	134	483			2,882					
		81	94,323	0	13,575	73,099	180,997	0	180,997	950	146	731	824	127	636			3,414					
		82	102,945	0	12,336	84,540	199,821	0	199,821	965	111	780	840	96	579			3,471					
26.	LINCOLN LAB LEX MA	79	25,815	0	32,750	7,377	65,942	0	65,942	306	367	42	517	619	71	0	0	1,922					
		80	25,840	0	32,576	10,369	68,785	0	68,785	306	356	53	517	601	89	0	0	1,922					
		81	29,024	0	34,150	10,090	73,264	0	73,264	313	346	56	528	584	95	0	0	1,922					
		82	32,713	0	36,147	10,270	79,130	0	79,130	352	307	56	540	572	95	0	0	1,922					
27.	MITRE CORP., BEDFORD MA	79	46,801	0	20,685	7,864	75,350	0	75,350	672	249	89	672	249	89	0	0	2,020					
		80	58,602	0	30,330	6,498	95,430	0	95,430	750	274	96	750	274	96	0	0	2,240					
		81	70,145	0	37,686	10,383	118,214	0	118,214	300	270	106	800	270	106	0	0	2,352					
		82	77,048	0	41,862	9,213	128,123	0	128,123	836	295	102	836	295	102	0	0	2,466					

INSTALLATION ANALYSIS - FCRCs

Item No.	FCRC & Location	FY	TOA (\$ in Thousands)						Personnel 1/									
			RDT&E Funds			All Other Funds			Professional 2/					Support				
			Dept of Air Force	Other Parent	Other DOD	Sub-Total	Mil Pers	TOTAL	Paid From Parent Dept	Paid From Other RDT&E	Paid From Parent Dept	Paid From Other RDT&E	Paid From Other RDT&E	Paid From Other RDT&E	Paid From Other RDT&E	Paid From Other RDT&E	Paid From Other RDT&E	TOTAL
28.	PROJECT AIR FORCE RAND CORP., SANTA MONICA, CA	79	11,000	0	0	11,000	0	11,000	146	0	146	0	0	0	0	0	0	292
		80	11,700	0	0	11,700	0	11,700	146	0	146	0	0	0	0	0	0	292
		81	12,500	0	0	12,500	0	12,500	146	0	146	0	0	0	0	0	0	292
		82	13,500	0	0	13,500	0	13,500	148	0	148	0	0	0	0	0	0	296
	GRAND TOTAL FCRCs	79	160,482	0	64,388	51,555	276,425	276,425	1,950	736	517	2,087	977	511	0	6,778	0	6,778
		80	177,090	0	77,557	69,800	324,447	324,447	2,034	784	734	2,137	1,009	668	0	7,335	0	7,335
		81	205,992	0	85,411	93,572	384,975	384,975	2,209	762	893	2,296	981	337	0	7,980	0	7,980
		82	226,206	0	90,345	104,023	420,574	420,574	2,301	713	918	2,364	963	876	0	8,135	0	8,135

1/ Shown in many years.

2/ Defined as members of technical staff in contracts with these institutions.

Research, Development, Test and Evaluation, Air Force

Section 5 - Analysis of Reimbursable Program

	(\$ in Thousands)		
<u>Customer</u>	<u>FY 1979 Actual</u>	<u>FY 1980 Estimate</u>	<u>FY 1981 Estimate</u>
Department of the Air Force	129,724	146,422	155,045
<u>Other Department of Defense Components</u>			
Department of the Army	53,063	60,047	63,583
Department of the Navy	56,267	63,280	67,007
Defense Nuclear Agency	1,000	924	978
Other Department of Defense Components	40,878	45,728	48,421
<u>Activities Outside Department of Defense</u>			
National Aeronautics and Space Administration	58,184	65,590	69,452
Other	29,774	33,719	35,704
Trust Funds (Foreign Military Sales)	36,809	41,571	44,019
Non-Federal Sources	<u>3,742</u>	<u>4,619</u>	<u>4,891</u>
Total Reimbursements	409,441	461,900	489,100

ANALYSIS OF REIMBURSABLE PROGRAM

Orders are received from other Air Force appropriations, the Security Assistance Program, and other activities outside the Department for RDT&E efforts for special tests conducted at various test centers and laboratories. Major requirements are:

- a. Army - Support of low cost laser seeker; Cobra Judy; wind tunnel aerodynamic testing of projectiles and missile systems; vacuum chamber testing, purchase of miniature cathode ray tubes.
- b. Navy - Support of aircraft simulation studies; cruise missile integration; support requirements of the Navy Medical Research Institute (NMRI) Toxicology Det; Advance Signal Processing for Future Satellite Communications Systems.
- c. DNA - Contract Management, TDY and Noretip test support; materials testing in support of the M-X program; in-house support in predicting and assessing the effects of low dose radiation.
- d. Other DoD Components - Provide support and services for Defense Intelligence Agency; Defense Supply Agency; Defense Communications Agency; and Defense Mapping Agency.
- e. NASA - Use of AF Plant 42, Palmdale; TDY and Stock Funded Propellants; sensor testing and rocket altitude firing of various motors.
- f. Other - Support to Environmental Protection Agency; Environmental Research Development Agency; NATO AEMC; FAA Simulated Microwave Landing System.
- g. Trust Funds (Foreign Military Sales) - For support of satellite launching, tracking, range support, management services and administrative expense, for FMS customers on a reimbursable basis.
- h. Non-Federal Sources - For support of utilities, printing, civil engineering, communications, wind tunnel testing and similar services for commercial customers.

Research, Development, Test and Evaluation, Air Force

Section 6 - Federal Contract Research Centers

Federal Contract Research Centers (FCRCs) are organizations primarily engaged in providing independent, specialized technical and scientific support necessary to supplement resources available within the Department of Defense and assist the Air Force in the planning, development, and execution of Research, Development, Test and Evaluation programs as well as programs financed by other Air Force appropriations. Amounts included in this request are specifically identified by FCRC, appropriation, and program. The estimate for the Air Force portion of the work allocated to FCRCs totals \$319,657,000 and \$354,254,000 in FY 1981 and FY 1982 respectively.

The Air Force is designated the cognizant component for Aerospace, Lincoln Laboratory, MITRE C³ Division and the Project AIR FORCE portion of The Rand Corporation. Work performed by these FCRCs is carefully managed in accordance with guidelines approved by the Under Secretary of Defense for Research and Engineering. The FCRCs are controlled to ensure that the work is appropriate for an FCRC, that their work does not duplicate that of others and that they directly support the requirements of the Department of Defense.

A detailed tabulation of the Federal Contract Research Center programs follows.

SUMMARY OF FEDERAL CONTRACT RESEARCH CENTERS BY APPROPRIATION
(\$ In Thousands)

	FY 1979 ACTUALS	FY 1980 ESTIMATE	FY 1981 ESTIMATE	FY 1982 ESTIMATE
Aerospace Corporation				
RDT&E	76,866	80,948	94,323	102,945
Missile Procurement	7,691	20,432	24,187	15,932
Other Procurement	25,077	28,233	40,434	48,443
Operations & Maintenance	3,546	4,268	8,478	20,165
Total Aerospace Corporation	(1) 113,180	(2) 133,881	(2) 167,422	(2) 187,485
Lincoln Laboratory				
RDT&E (3)	40,985	44,021	49,217	56,938
Other Procurement	920	1,000	1,248	1,305
Operations & Maintenance	6,457	9,369	8,842	8,965
Total Lincoln Laboratory	48,362	54,390	59,307	67,208
MITRE Corporation				
RDT&E	46,801	58,602	70,145	77,048
Aircraft Procurement	0	0	450	0
Other Procurement	3,139	3,246	7,357	7,930
Operations & Maintenance	4,725	3,252	2,576	1,283
Total MITRE Corporation	54,665	65,100	80,528	86,261
Rand Corporation				
RDT&E	11,000	11,700	12,500	13,500
Total Rand Corporation	11,000	11,700	12,500	13,500

SUMMARY OF FEDERAL CONTRACT RESEARCH CENTERS BY APPROPRIATION
(\$ In Thousands) CONTINUED

	FY 1979 <u>ACTUALS</u>	FY 1980 <u>ESTIMATE</u>	FY 1981 <u>ESTIMATE</u>	FY 1982 <u>ESTIMATE</u>
Total Program Summary by				
Appropriation				
RDT&E	175,652	185,271	226,185	250,431
Missile Procurement	7,691	20,432	24,187	15,932
Aircraft Procurement	0	0	450	0
Other Procurement	29,136	32,479	49,039	57,678
Operations & Maintenance	14,728	16,889	19,896	30,413
Total FCRCs	<u>227,207</u>	<u>255,071</u>	<u>319,757</u>	<u>354,454</u>

- (1) Includes approximately \$7,150,000 not subject to FCRC limitations (outside contracts, flow through costs, etc.)
- (2) Excludes approximately \$9,200,000 not subject to FCRC limitations (outside contracts, flow through costs, etc.)
- (3) Includes subcontracts

FEDERAL CONTRACT RESEARCH CENTERS
Summary by Program Element
Aerospace Corporation

(\$ In Thousands)

	<u>FY 1979</u>	<u>FY 1980</u>	<u>FY 1981</u>	<u>FY 1982</u>
	<u>ACTUALS</u>	<u>ESTIMATE</u>	<u>ESTIMATE</u>	<u>ESTIMATE</u>
<u>RDT&E APPROPRIATION</u>				
12311F NORAD COC/SPADOC	0	500	2,800	3,350
12431F Defense Support Program	7,349	0	949	5,611
31060F Defense Dissemination Program	2,772	1,850	2,185	2,190
33110F DSCS	3,799	3,890	2,380	60
33601F AF SATCOM/SSS	2,449	3,300	4,300	5,600
34111F Special Activities	5,910	8,253	8,720	7,613
35119F Space Boosters	1,629	1,713	1,430	900
35160F DMSP	300	1,100	1,025	1,675
61102F Defense Research Sciences (AFOSR)	50	55	50	50
62102F Materials (AFML)	130	20	70	25
62302F Rocket Propulsion (AFRPL)	260	198	186	75
62601F Advanced Weapons (AFWL)	637	800	1,170	1,170
63002F HAVE MELLON	360	900	1,750	2,000
63009F Strat Dev Special Prog A	1,164	1,200	3,010	3,280
63305F Adv ICBM Tech	71	0	0	0
63311F ABRES	12,093	6,642	375	405
63317F Theatre Ballistic Missile	571	600	0	0
63401F Space Vehicle Subsystem	921	855	900	1,008
63402F Space Test Program	3,728	5,133	6,300	7,056
63411F Space Shuttle	10,225	15,413	0	0
63421F NAVSTAR GPS	5,272	0	0	0
63424F Missile Surveillance	425	1,100	3,000	3,360
63428F Space Surveillance Tech	3,002	5,000	2,800	3,350
63431F Space Communications	1,400	450	1,200	1,500
63438F Satellite Systems Survivability	3,996	3,750	4,850	4,950
63439F Adv Space Applications Program	0	400	440	492
63605F Adv Radiation Tech (AFWL)	190	100	0	0
64312F M-X	0	165	0	0

FEDERAL CONTRACT RESEARCH CENTERS
Summary by Program Element
Aerospace Corporation (CONTINUED)

	(\$ In Thousands)			
	FY 1979 ACTUALS	FY 1980 ESTIMATE	FY 1981 ESTIMATE	FY 1982 ESTIMATE
<u>RD&E APPROPRIATION (Continued)</u>				
64406F	3,275	6,000	7,300	8,050
64411F	0	0	23,314	23,761
64711F	0	206	245	130
64742F	388	848	980	1,053
64778F	1,500	9,257	10,194	11,431
65808F	<u>3,000</u>	<u>1,250</u>	<u>2,400</u>	<u>2,800</u>
TOTAL RD&E	76,866	80,948	94,323	102,945
<u>MISSILE PROCUREMENT APPROPRIATION</u>				
12431F	701	9,399	11,574	2,151
33110F	2,160	2,953	4,380	6,120
34111F	329	2,079	2,423	1,891
35119F	545	1,186	500	400
63009F	1,183	635	430	470
35160F	<u>2,773</u>	<u>4,180</u>	<u>4,880</u>	<u>4,900</u>
TOTAL Missile Procurement	7,691	20,432	24,187	15,932

FEDERAL CONTRACT RESEARCH CENTERS
Summary by Program Element
Aerospace Corporation (CONTINUED)

(\$ In Thousands)

	FY 1979 ACTUALS	FY 1980 ESTIMATE	FY 1981 ESTIMATE	FY 1982 ESTIMATE
<u>OTHER PROCUREMENT APPROPRIATION</u>				
34111F Special Activities	25,077	28,233	40,434	48,443
TOTAL Other Procurement Appropriation	25,077	28,233	40,434	48,443
<u>OPERATIONS & MAINTENANCE APPROPRIATION</u>				
12431F Defense Support Program	0	0	0	2,148
31022F Scien & Tech Intelligence	175	220	330	355
33110F DSCS	215	300	440	480
35119F Space Boosters	899	988	1,071	1,155
63009F Strat Dev Special Program A	1,812	2,300	860	950
35170F Space Support Program	445	460	490	522
35171F Space Launch Support Program	0	0	5,287	14,555
TOTAL Operations and Maintenance	3,546	4,268	8,478	20,165

FEDERAL CONTRACT RESEARCH CENTERS
Summary by Program Element
Aerospace Corporation (CONTINUED)

(\$ In Thousands)

	<u>FY 1979</u> <u>ACTUALS</u>	<u>FY 1980</u> <u>ESTIMATE</u>	<u>FY 1981</u> <u>ESTIMATE</u>	<u>FY 1982</u> <u>ESTIMATE</u>
TOTAL Aerospace Corporation	113,180	133,881	167,422	187,485

AEROSPACE CORPORATION. Aerospace Corporation provides scientific and engineering assistance to the Air Force and other DoD agencies primarily in the field of space systems. Efforts include general systems engineering/integration, development planning, space technology, research and experimentation, and foreign technology. Major Air Force programs receiving Aerospace support are the Space Defense, Space Shuttle, Satellite Data System, Defense Support Program, and Special Activities. The other DoD agencies include such organizations as Defense Advanced Advanced Research Projects Agency (DARPA), Army, Navy, and Defense Mapping Agency (DMA).

FEDERAL CONTRACT RESEARCH CENTERS
Summary by Program Element
Lincoln Laboratory

(\$ In Thousands)

	<u>FY 1979</u>	<u>FY 1980</u>	<u>FY 1981</u>	<u>FY 1982</u>
	<u>ACTUALS</u>	<u>ESTIMATE</u>	<u>ESTIMATE</u>	<u>ESTIMATE</u>
<u>RD&E APPROPRIATION</u>				
63250F Basic Program	19,700	19,100	21,600	23,900
Other Programs				
33401F COMSEC	177	235	260	290
61102F Defense Research Sciences	515	945	1,155	1,235
62702F Command, Control and Comm	200	200	715	1,624
63311F Adv Ballistic Re-entry Sys	5,800	7,000	7,000	7,000
63428F Space Surveillance Tech	1,995	1,885	1,975	1,200
63431F Advanced Space Comm	6,000	5,800	6,300	11,800
63727F Advanced Comm Technology	570	600	750	750
63741F Defense Suppression	770	0	0	0
63747F PAVE MOVER	1,000	100	0	0
64725F Acft Identification Systems	0	1,500	1,800	1,800
64742F PLSS	600	1,000	1,200	1,100
64754F JTIDS	870	901	1,217	1,230
63601F Conventional Weapons	350	3,300	2,800	2,414
63249F Night Attack Program	0	200	1,000	1,000
62601F Advanced Weapons	0	0	150	160
TOTAL RD&E	38,547	42,766	47,922	55,503
<u>Other RD&E Appropriation</u>				
33401G COMSEC (NSA)	1,200	1,175*	1,300*	1,000*
33126K Long Haul Comm (DCA)	1,238	1,255	1,295	1,435
TOTAL Other RD&E	2,438	1,255	1,295	1,435

*Separate NSA Ceiling established for FY 80 and outyears.

FEDERAL CONTRACT RESEARCH CENTERS
Summary by Program Element
Lincoln Laboratory (CONTINUED)

		(\$ In Thousands)		
		FY 1979 ACTUALS	FY 1980 ESTIMATE	FY 1981 ESTIMATE
	<u>OPERATIONS AND MAINTENANCE</u>			
	<u>APPROPRIATION</u>			
12424F	Space Track	3,925	6,352	5,130
31022F	Science and Technical - Intel	1,532	2,017	2,712
33601F	AFSATCOM	<u>1,000</u>	<u>1,000</u>	<u>1,000</u>
	TOTAL Operations and Maintenance	6,457	9,369	8,842
	<u>OTHER PROCUREMENT APPROPRIATION</u>			
12424F	Space Track	<u>920</u>	<u>1,000</u>	<u>1,248</u>
	TOTAL Other Procurement	920	1,000	1,248
	TOTAL Air Force	48,362	54,390	59,307
	Subcontracts	<u>-13,170</u>	<u>-18,181</u>	<u>-20,193</u>
	Air Force Ceiling Estimate	<u>33,192</u>	<u>36,209</u>	<u>39,114</u>
				<u>67,208</u>
				<u>-24,225</u>
				<u>42,983</u>

FEDERAL CONTRACT RESEARCH CENTERS

Summary by Program Element

LINCOLN LABORATORY (Continued)

LINCOLN LABORATORY. Lincoln Laboratory is part of the Massachusetts Institute of Technology. The mission of the laboratory is to carry out a program of research and development pertinent to national defense, with particular emphasis on advanced electronics. A major portion of the research program concerns space communication satellite technology and advanced ballistic re-entry system research. The technical program is managed by the Joint Advisory Committee made up of representatives from the Army, Navy, Air Force, and Defense Advanced Research Projects Agency (DARPA). Major Air Force programs being supported by Lincoln Laboratory are the Advanced Ballistic Re-entry Systems, Reconnaissance Sensors and Advanced Space Communications. Also supported are other DOD agencies such as DARPA, Army, Navy, and Defense Communications Agency (DCA).

FEDERAL CONTRACT RESEARCH CENTERS
Summary by Program Element
MITRE Corporation

(\$ In Thousands)

	<u>FY 1979</u> <u>ACTUALS</u>	<u>FY 1980</u> <u>ESTIMATE</u>	<u>FY 1981</u> <u>ESTIMATE</u>	<u>FY 1982</u> <u>ESTIMATE</u>
<u>RDTE APPROPRIATION</u>				
PACCS	2,605	4,670	3,909	4,100
SAC Communication	2,720	3,378	3,509	4,000
JSS	325	843	1,000	1,000
Surveillance Radar Stations/Sites	800	930	900	720
DEW Radar Stations	1,150	0	0	0
BMEWS	1,115	0	1,500	2,000
SLBM Warning System	400	265	0	0
Parameter Acquisition Radar	85	13	0	0
Tactical Air Control Sys	2,645	2,410	2,200	3,000
USAFE CC Sys	945	1,080	3,579	4,388
Advanced Comm Sys	1,952	2,210	1,900	2,400
Tac Air Intel Sys Act	378	235	740	550
Joint Tac Com Prog	4,905	7,710	3,700	3,600
Long Haul Comm - DCS	0	0	662	317
MERCN	0	0	184	198
COMSEC	144	182	270	300
AFSATCOM I	2,452	3,050	3,200	3,400
Traffic Control & Landing Sys	0	0	860	1,000
Tactical Airborne Comm Cont Sys	3,895	5,550	5,431	6,579
Def Research Science	35	48	92	124
Geophysics	13	34	47	75
C ³	989	1,550	2,251	1,539
Space Surveillance Tech	1,110	2,120	2,500	2,800
Warning Info Correlation	0	0	900	1,400
Advanced Space Comm	470	1,900	1,672	1,868
CONUS OTH Radar	130	975	864	928
A-A Space ID	0	265	2,040	3,050
Adv Comp Tech	0	0	92	0
WMCCS Arch	2,900	3,335	4,500	4,640
SLAR	0	0	0	93
PAVE MOVER	290	530	1,770	1,710
C ³ Adv Dev	522	2,107	1,498	3,197

FEDERAL CONTRACT RESEARCH CENTERS
Summary by Program Element
MITRE Corporation (CONTINUED)

	<u>FY 1979</u>	<u>FY 1980</u>	<u>FY 1981</u>	<u>FY 1982</u>
	<u>ACTUALS</u>	<u>ESTIMATE</u>	<u>ESTIMATE</u>	<u>ESTIMATE</u>
<u>RDTE APPROPRIATION (CONTINUED)</u>				
64362F	0	85	90	95
64715F	450	490	600	800
64724F	205	685	2,200	2,308
64740F	650	820	1,034	1,304
64747F	80	90	92	99
64750F	75	105	773	645
64751F	0	0	400	100
64754F	3,870	3,870	3,960	4,070
64757F	870	664	500	600
64779F	2,073	1,628	600	642
65807F	63	100	1,130	900
65808F	3,045	1,850	2,500	1,830
78019F	0	0	170	279
TOTAL Air Force RDTE	44,356	55,777	65,819	72,648

FEDERAL CONTRACT RESEARCH CENTERS
Summary by Program Element
MITRE Corporation (CONTINUED)

		FY 1979 ACTUALS	FY 1980 ESTIMATE	FY 1981 ESTIMATE	FY 1982 ESTIMATE
	<u>OTHER RDT&E SUPPORT</u>				
31011G*	Digital Network (NSA)	98	45	377	491
32019K*	C3 (DCA)	0	131	400	450
32018K*	CINCEUR (DCA)	253	0	0	0
33126K*	DCS/EM Support (DCA)	0	0	368	0
65804D*	Test and Evaluation	299	325	439	489
87791D*	Network Interface System	545	1,282	1,566	1,670
63707A*	Army JTIDS	433	546	576	600
33145A*	Army CENTAG	178	0	0	0
64745A*	BETA (Army)	92	0	0	0
68342N*	GLCM (Navy)	316	0	0	0
XXXXXX*	USGC (Classified)	231	496	600	700
	TOTAL Other RDT&E Support	2,445	2,825	4,326	4,400

*Funded by other DOD agencies, but included in Air Force limitations.

FEDERAL CONTRACT RESEARCH CENTERS
Summary by Program Element
MITRE Corporation (CONTINUED)

(\$ In Thousands)

	FY 1979 ACTUAL	FY 1980 ESTIMATE	FY 1981 ESTIMATE	FY 1982 ESTIMATE
<u>Other Procurement Appropriation</u>				
11316F SAC COM	181	251	0	0
12423F BMEWS	173	0	0	0
27412F TAC Air Control Sys	0	0	500	1,000
27423F Adv Com Sys	0	0	50	0
28010F Joint TAC Com	0	0	1,000	1,125
33110F DSCS	514	0	1,100	1,100
33126F Long Haul Com	1,418	2,377	4,007	4,187
33601F AFSAT COM	586	618	700	518
35114F Traffic Control & Landing Sys	267	0	0	0
TOTAL	3,139	3,246	7,357	7,930
<u>Operations & Maintenance Appropriation</u>				
12311F NORAD COC	1,633	1,100	2,232	1,283
27415F USAFE CC Sys	1,400	1,304	344	0
31022F Scientific & Tech Intel	115	0	0	0
33126F Long Haul Comm	1,577	848	0	0
TOTAL	4,725	3,252	2,576	1,283
<u>Aircraft Procurement Appropriation</u>				
27423 Advance Comm Sys	0	0	450	0
TOTAL AF CEILING ESTIMATE	54,665	65,100	80,528	86,261

FEDERAL CONTRACT RESEARCH CENTERS

Summary by Program Element

MITRE Corporation (Continued)

MITRE. The MITRE Corporation provides scientific and engineering assistance to the Air Force and other DOD agencies primarily in the areas of command and control, communications, sensor and support systems. The Corporation performs systems engineering, technical direction and support of development planning activities. Major Air Force programs being supported by MITRE include the Advanced Airborne Command Post, Airborne Warning and Control System, Joint Tactical Communications Program (JTCI-TAC), and various strategic and tactical command, control and communications systems. The other DOD agencies include such organizations as DCA, DARPA, Army, Navy, Assistant Secretary Defense (Intelligence) and Assistant Secretary of Defense (Test and Evaluation).

FEDERAL CONTRACT RESEARCH CENTERS
Summary by Program Element
Project AIR FORCE

		(\$ In Thousands)		
		FY 1979 Actual	FY 1980 Estimate	FY 1981 Estimate
<u>RD&E Appropriation</u>				
65101F	Basic Program	11,000	11,700	12,500
	Total Project AIR FORCE	11,000	11,700	12,500

Project AIR FORCE. This project is devoted to assisting Air Force decision making by furnishing information and objective findings derived from independent research and analysis of aerospace problems. The program objective is to recommend preferred methods, techniques and instrumentalities for the development and employment of aerospace power. The project is a Federal Contract Research Center (FCRC), operated by The Rand Corporation.

MAJOR IMPROVEMENTS TO AND CONSTRUCTION OF GOVERNMENT-OWNED
FACILITIES FUNDED BY RDT&E

Department/Agency: Air Force

Date: January 1980

PART I. UTILIZATION OF SECTION 2353, TITLE 10 AUTHORITY

Specialized R&D facilities determined to be necessary for the performance of a contract for a Military Department for research and development, may be constructed by or furnished to the contractor and funded from appropriations available for research, development, test and evaluation. The Congress enacted this legislation, now 10 USC 2353, in 1956. This policy is executed through DoD Directive 4275.5. Under this policy, construction of R&D projects for contractors up to \$500,000 is normally approved by the Major Command concerned; the Service Secretary or such delegate as he may authorize approves projects up to \$1,000,000; and the Under Secretary Defense Research and Engineering approves projects over \$1,000,000. The table below provides a summary listing of all such projects accomplished in FY 79 and planned in FY 80 and FY 81:

Facility/Equipment	RDT&E Project Number	Contractor	Location	Total Obligational Authority (Thousands of Dollars)		
				1979	1980	1982

SECTION I

Projects Accomplished or Underway

Millstone Radar Site 2/	63428F	Lincoln Laboratory	Westford MA	10.0	10.0	
Miscellaneous Projects Under \$50K	Various	Lincoln Laboratory	Hanscom AFB MA	32.0	30.0	
Construction of a Transmitter and a Receiver/ Operations Building, Transmitter Antenna Foundations and Installation of 8 Trailers 2/	63703F	General Electric Co. Contract F19628-75- C0128	Washington and 1,110.0 Somerset Counties ME			

PART 1. (CONTINUED)

Facility/Equipment	RDT&E Project Number	Contractor	Location	Total Obligational Authority (Thousands of Dollars)		
				1979	1980	1981
SECTION II						
Projects Planned or Projected						
Bldg 1718 Alterations Reentry Systems 2/	63311F	Lincoln Laboratory	Hanscom AFB MA	75.0		
Satellite Antenna Test Range 2/	63431F	Lincoln Laboratory	Site to be selected		310.0	
Intermodulation Test Facility 2/	63431F	Lincoln Laboratory	Site to be Selected		135.0	
Bldg 1718 Alterations 2/	63431F	Lincoln Laboratory	Hanscom AFB MA		110.0	
TOTAL PART I				1,152.0	115.0	555.0

1/ Initial listing.
2/ Previously listed in RDT&E Justification of Estimates for FY 1980.

PART 2. UTILIZATION OF RDT&E APPROPRIATION FOR FACILITIES AT GOVERNMENT-OWNED/GOVERNMENT-OPERATED INSTALLATIONS

Chapter 251 (which was authorized by the GAO as DoD Instruction 7220.5) provides that RDT&E appropriations may finance the development, design, purchase and installation (including directly related foundations, shielding, environmental control, weather protection, structural adjustments, utilities and access) of equipment or instrumentation required for research, development, test and evaluation activities. The table below provides a summary listing of all such projects for the installation of equipment, where the cost of installation is \$100,000 or more, accomplished in FY 79 and planned in FY 80 and FY 81:

Facility/Equipment	RDT&E Project Number	Location	Total Obligational Authority (Thousands of Dollars)			
			1979	1980	1981	1982
SECTION I						
Projects Accomplished or Underway						
Multiple Aimpoint Facility 2/	63305F	Luke AFB AZ	5,290.0			
MX Vertical Shelter Test 2/	64312F	Department of Energy's Nevada Test Site NV	6,360.0	7,290.0		
Security Mods, Bldg 30 1/	63411F	Johnson Space Center TX	251.0			
Active Isolation & Control System 2/	65807F	Holloman AFB NM	327.0			
Ball Screw Drive, 165 Diffuser 2/	65807F	Arnold AFS TN	33.0	57.0		
Rocket Motor Test Equipment 1/	64312F	Arnold AFS TN		817.0	162.0	

PAR 2. (CONTINUED)

SECTION I
(CONTINUED)

Facility/Equipment	RDT&E Project Number	Location	Total Obligational Authority (Thousands of Dollars)		
			1979	1980	1981 1982
487T Test Program Temporary Facilities 2/	28010F	Ft Huachuca AZ	136.0		
Trestle Threat Level Simulator 2/	64747F	Kirtland AFB NM	6,396.0	300.0	
Rocket Propellant Research Process System 1/	62302F	Edwards AFB CA		835.0	
Rocket Propellant Test System 1/	62302F	Edwards AFB CA		965.0	
Install High Enthalpy Ablation Test (Heat) Equipment 2/	65807F	Arnold AFS TN	625.0	55.0	155.0
Equipment Installation and Alteration of Integrated Maintenance Facility 1/	64406F	Edwards AFB CA			250.0

PART 2. (CONTINUED)

Facility/Equipment	RDT&E Project Number	Location	Total Obligational Authority (Thousands of Dollars)			
			1979	1980	1981	1982
SECTION II Projects Planned or Projected						
Base Level Data Automation Phase IV (3940) 1/	65807F	Edwards AFB CA				369.9
Supersonic Aerothermal Tunnel C 1/	65807F	Arnold AFS TN		240.6		
Turbostructure Spin Test Facility 1/	62203F	Wright-Patterson AFB OH		610.0		
Stars Facility 20434 2/	63227F	Wright-Patterson AFB OH		160.0		
Environmental Control Equipment Bldg 32 1/	62102F	Wright-Patterson AFB OH		150.0		
Command Control Com- munications Facility (SACDIN) 1/	11316F	Vandenberg AFB CA Offutt AFB NE			152.0	
Mod to Install 2nd Facs 1/	62601F	Kirtland AFB NM			150.0	
Computer A/C Upgrade 2/	62601F	Kirtland AFB NM			500.0	
R&D Computer Halon System 2/	62601F	Kirtland AFB NM			300.0	
PART 2 TOTAL			19,385.0	11,422.6	1,669.0	369.9
		56			Exhibi	

PART 3. UTILIZATION OF RDT&E APPROPRIATION FOR MINOR CONSTRUCTION

For in-house installations, construction projects in support of R&D for \$100,000 or less are funded from RDT&E appropriations. Such expenditures are authorized by 10 USC 2674 and the applicable provisions of the current DoD Appropriation Act. Under this procedure, project approval at this level is authorized by the Major Command concerned, or delegated to R&D installation commanders as appropriate. The table below provides a summary total of such minor construction accomplished in FY 79, and the estimated amounts planned for FY 80 and FY 81. All minor construction must result in a complete and usable facility. In no event are two or more minor construction projects or minor and major construction projects to be contrived to form a usable facility.

SUMMARY OF MINOR CONSTRUCTION FUNDED BY RDT&E, AIR FORCE

	<u>FY 79</u>	<u>FY 80</u>	<u>FY 81</u>	<u>FY 82</u>
TOTAL PART 3	4,927.7	7,090.1	5,165.5	2,643.0
RECAP OF FUNDING				
SUBTOTAL PART 1	1,152.0	115.0	555.0	
SUBTOTAL PART 2	19,385.0	11,422.6	1,669.0	369.9
SUBTOTAL PART 3	4,927.7	7,090.1	5,165.5	2,643.0
GRAND TOTAL	25,464.7	18,627.7	7,389.5	3,012.9

1 COMPONENT AIR FORCE		FY 19 ⁸⁰ RDT&E FACILITIES PROJECT DATA		2 DATE January 80	
3 INSTALLATION AND LOCATION JOHNSON SPACE CENTER TX			4. PROJECT TITLE SECURITY MODIFICATIONS, BLDG 30		
5 PROGRAM ELEMENT 63411F	6 CATEGORY CODE 310-477	7 PROJECT NUMBER JSC 79-0001 AFR 80-22	8 PROJECT COST (\$000) 251.0		
9. COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT COST	COST (\$000)
SHIELDING:					
Walls and Doors.....					95.0
Ceiling (w/Demolition).....					90.0
Floors (w/Demolition).....					10.0
GROUNDING.....					3.0
Subtotal.....					198.0
CONTINGENCY (15%).....					30.0
Total Contract Cost.....					228.0
SIOH (10%).....					23.0
TOTAL.....					251.0
10 DESCRIPTION OF PROPOSED INSTALLATION					
Work consists of modifying a portion of the second floor administration wing in Bldg 30 by both NASA and DoD to a-low classified functions to be carried out in the CYBER data processing area. Modifications by DoD will provide a secure enclosure to include installation of rf shielding, access controls and alarms, and physical barriers. PROJECT: Security modifications to Bldg 30 CYBER 174 area. REQUIREMENT: Both NASA and DoD will utilize the CYBER data processing center, but DoD classified mission requirements dictate that operations be carried out in a secure area. DoD will require operational access to this area beginning in November 1980. CURRENT SITUATION: To support the first six NASA shuttle missions and both NASA and DoD missions thereafter, NASA is performing modifications to the second floor of Bldg 30 to accommodate a leased CYBER 174 computer. These facility modifications will provide for necessary utility and partition type work. Special DoD security modifications, that DoD will be required to provide, are presently programmed in the STS FY80 MOP with availability of funds about Jan 1980. IMPACT IF NOT PROVIDED: Should this project not be approved at this time, DoD will be denied use of the secure CYBER until approximately July 1981. Cost increase of approximately \$0.5 million would be incurred for demolition and fire protection modifications at the later date.					

58

1 COMPONENT AIR FORCE		2 DATE January 80	
3 INSTALLATION AND LOCATION ARNOLD AIR FORCE STATION, TENNESSEE		4 PROJECT TITLE ROCKET MOTOR TEST	
5 PROGRAM ELEMENT 64312F	6 CATEGORY CODE 390-614	7 PROJECT NUMBER	8 PROJECT COST (\$000) 979
9 COST ESTIMATES			
ITEM	U/M	QUANTITY	COST (\$000)
Installation (FY 80 & FY 81) Equipment			979
Data Acquisition and Control System			5691
Force Measurement System			1200
X-Ray Machine			800
J-3 Reactivation			583
J-4 Interim Test Capability			207
J-5 Parallel Test Capability			440
J-3 Special Customer Requirements			183
J-4 Special Customer Requirements			315
J-5 Special Customer Requirements			325
FY 80 Installation Equipment			817 (4731)
FY 81 Installation Equipment			162 (4034)
10 DESCRIPTION OF PROPOSED INSTALLATION			
PROJECT: Rocket Motor Test at AEDC.			
REQUIREMENT: The full-scale solid propellant rocket motors for the MX missile are to begin development testing at AEDC in Feb, CY 1981. Testing of MX rocket stages II, III, IV and stage separation tests are required by BMO and will be accomplished in AEDC Test Cells J3, J4 and J5. The installation and equipment summarized above is needed to support full-scale MX rocket development.			
CURRENT SITUATION: With the recent approval of full-scale development of the MX missile, the BMO test requirements, overall workload, and first test dates have been defined for AEDC. This new installation and equipment data is proposed to meet the BMO requirement as described above.			
IMPACT IF NOT PROVIDED: If the proposed installations are not approved, there will be no test facilities in the United States capable of supporting MX rocket motor development. Delays in approval of equipment purchase and installation in support of the associated Military Construction project will seriously impact the BMO schedule for MX rocket motor stage development and the first flight of the MX missile.			

59

1 COMPONENT AIR FORCE		FY 1980 RDT&E FACILITIES PROJECT DATA		2 DATE January 80	
3 INSTALLATION AND LOCATION AIR FORCE ROCKET PROPULSION LABORATORY EDWARDS AIR FORCE BASE, CA 93523			4 PROJECT TITLE ROCKET PROPELLANT RESEARCH PROCESS SYSTEM		
5 PROGRAM ELEMENT 62302F	6 CATEGORY CODE 310-632	7 PROJECT NUMBER 800607	8 PROJECT COST (\$000) 835		
9 COST ESTIMATES					
ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)	
Equipment Enclosures and Special Foundations	LS			405	
Equipment Installation	LS			430	
Secondary Utilities				(160)	
Electric				(80)	
Water				(190)	
HVAC & Humidity Control				835	
Project Cost				835	
Equipment (Non-Add) (GFE)				(200)	
Propellant Curing & Aging Ovens				(75)	
1/2 Pint Propellant Mixer				(150)	
Rheology Equipment				(50)	
Strand Burner				(100)	
Window Bomb				(150)	
Propellant Mill				(275)	
Data Acquisition Equipment				(1000)	
Total Equipment				(1000)	
10 DESCRIPTION OF PROPOSED INSTALLATION					
Install propellant formulation and propellant mechanical properties test equipment in individual blast protected cubicles to provide the means to conduct formulation studies and validate First Stage, Second Stage and Second Stage (Alternate) contractor candidate MX propellants. REQUIREMENTS: The current SAMSO baseline design for the MX missile specifies a mix of Class 1.1 and 1.3 propellants for the three stages of booster propulsion. This required process system will validate and evaluate those candidate propellants for the First and Second Stage which have been selected for the MX missile. For each candidate formulation the validation study will include targeting the propellant properties to match that reported by the contractor. These properties will include rheology studies, burn rate and pressure exponent determinations, mechanical properties and processability. Several propellant characteristics (viscosity, pot life, mechanical properties, ballistic, ingredient cost) affect the production and cost of propellant. Since these additives affect the propellant system in order to identify and resolve any issues encountered in FSD propellant formulation efforts, a thorough mix cycle and mechanical property characterization of MX First and Second Stage propellants is required.					

1 COMPONENT AIR FORCE		FY 19_80 RDT&E FACILITIES PROJECT DATA		2 DATE January 80	
3 INSTALLATION AND LOCATION AIR FORCE ROCKET PROPULSION LABORATORY EDWARDS AIR FORCE BASE, CA 93523			4 PROJECT TITLE ROCKET PROPELLANT TEST SYSTEM		
5 PROGRAM ELEMENT 62302F	6 CATEGORY CODE 390-612	7 PROJECT NUMBER 800606	8 PROJECT COST (\$000) 965		
9 COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT COST	COST (\$000)
Special Foundations		LS			65
Equipment Installation					
Secondary Utilities		LS			900
Electric					(70)
Water					(90)
Exhaust System					(740)
Project Cost					965
Equipment (Non-Add)					
Test Chamber					(300)
Thrust Stand					(80)
Data Acquisition Equipment					(200)
Total Equipment					(580)
10 DESCRIPTION OF PROPOSED INSTALLATION Fabricate and purchase equipment items and install in existing facilities at AFRPL. Construct concrete foundations and utilities for the installation of the rocket propellant test system equipment to support MX propellant research and candidate optimizations. All of the equipment included in this project is readily removable upon completion of the tests.					
REQUIREMENTS: This AFRPL program will assist SAMS0 in providing effective technical direction in the full scale development of MX missile system booster propulsion. Some forty motor tests will be conducted to optimize MX propellant candidates for MX and validate contractor formulations. Validation will include ovaluation of burning rate, burning rate exponent, ballistic performance and throat erosion. A complete baseline will be established since these propellants have lower solids, lower aluminum and are an all AP system. Successful completion of this program will minimize the risk associated with the first and second stage propellant candidates for MX full scale development.					

61

1 COMPONENT AIR FORCE		FY 1981 RDT&E FACILITIES PROJECT DATA		2 DATE January 80	
3 INSTALLATION AND LOCATION EDWARDS AIR FORCE BASE, CALIFORNIA			4. PROJECT TITLE EQUIP INSTALLATION & ALTER INTEGRATED MAINTENANCE FACILITY (IMF)		
5. PROGRAM ELEMENT 64406F	6. CATEGORY CODE 212-216	7. PROJECT NUMBER 81-0505	8. PROJECT COST (\$000) 250.0		
9. COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT COST	COST (\$000)
Equipment Installation - Contingencies (10%)		LS			227.3 22.7 250.0
(Excluded Costs)					
Laminar Flow Portable Clean Room		ea	3	233.0	(700.0)
Electronic System Test Set		ea			(1,200.0)
Missile Simulator		ea			(750.0)
Pylon Carrier Assembly Fixture		ea			(100.0)
Carrier Aircraft Equipment (CAE)		ea			(50.0)
Component Test Benches		ea	4	21.0	(85.0)
Radial CG Measurement Instrument		ea			(200.0)
TOTAL EXCLUDED COSTS					(3,085.0)
10 DESCRIPTION OF PROPOSED INSTALLATION Alter existing Integrated Maintenance Facility (Bldg 369) by: (1) providing flangible walls/doors, (2) providing two gravity tiedowns, & (3) vapor proofing interior walls. Install electrical system test set to include raised flooring, portable clean room & air conditioning (GFE), & rerouting of monorail & cable trays. All utilities and other support as required for a complete and usable facility.					
PROJECT: Provides the test capabilities required for DT&E and IOT&E testing of the Prototype Miniature Air Launched System (PMALS) Program.					
REQUIREMENT: The Miniature System Project (MSP) requires test capabilities in support of the PMALS. Existing test facilities will be used by contractor and Air Force personnel to accommodate testing of: (1) Miniature Vehicle/Dispenser, (2) the carrier missile, (3) a modified F-15A aircraft, (4) Carrier Aircraft Equipment (CAE), (5) mission software, (6) Air Launch Control Center (ALCC), and (7) a Prototype Mission Operations Center (PMOC). PMALS is scheduled to enter the engineering development and test phase - with approval at the DSARC IA now scheduled on 15 April 1980.					
CURRENT SITUATION: There are no appropriately configured existing facilities available to support flight testing of the PMALS. Equipment will be installed in existing modified facilities.					
IMPACT IF NOT PROVIDED: Lack of the required test capabilities will delay this program indefinitely.					
SPECIFIC PURPOSE: Provide support to engineering test and development of the PMALS by installing equipment and making changes in an existing building.					

62

1 COMPONENT AIR FORCE		FY 1982 RDT&E FACILITIES PROJECT DATA		2 DATE January 80	
3 INSTALLATION AND LOCATION EDWARDS AIR FORCE BASE, CALIFORNIA			4 PROJECT TITLE ADAL 3940 FOR CONSOLIDATED ADP FACILITY		
5 PROGRAM ELEMENT 65807	6 CATEGORY CODE 610-711	7 PROJECT NUMBER	8 PROJECT COST (\$000) 369.9		
9 COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT COST	COST (\$000)
ADAL 3940 For Consolidated ADP Facility		LS			89.2
Equipment Installation		LS			280.7
Air Conditioning		TN	10		(51.2)
Modify Air Conditioning System		LS			(16.0)
Motor Generator		LS			(145.2)
Halon Protection Detection Fire System		LS			(61.0)
Two Insolation Transformers & Electrical Connection		LS			(7.3)
Total					369.9
10 DESCRIPTION OF PROPOSED INSTALLATION					
Remodel and refurbish Bldg 3940 to house the Base Level Data Automation Phase IV computer system. Area to be provided with a raised floor, air conditioning and Halon fire protection system. Provide all necessary utilities and support. Air conditioning: 10TN.					
PROJECT: Provide for interior rework of Bldg 3940 to house the Base Level Data Automation Phase IV computer system.					
REQUIREMENT: Modifications to Bldg 3940 are required to house the BLDA Phase IV computer system which is scheduled for delivery to Edwards AFB in Jun 82. This project has been approved for implementation by Project Directive HAF-P76-7, 24 Sep 76.					
CURRENT SITUATION: The UNIVAC 1050II computer is located in Bldg 3735 and the Burroughs B3500 is located in Bldg 1408. Construction of the Flight Test Mission Control Complex (FTMCC) for the CYBER74 computer will release floor space in Bldg 3940. Modifications of this space will provide for the BLDA Phase IV and eliminate the need for a new facility.					
NOTE: Repair existing raised floor/computer room as an expense item - \$5,500.					

63

1 COMPONENT AIR FORCE		FY 1980 RDT&E FACILITIES PROJECT DATA		2 DATE January 80	
3 INSTALLATION AND LOCATION ARNOLD ENGINEERING DEVELOPMENT CENTER, TENNESSEE			4 PROJECT TITLE SUPERSONIC AEROTHERMAL TUNNEL C		
5 PROGRAM ELEMENT 65807F	6 CATEGORY CODE 390-155	7 PROJECT NUMBER ARN 78-0039	8 PROJECT COST (\$000) 240.6		
9 COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT COST	COST (\$000)
Supersonic Aerothermal Tunnel C					
Stilling Chamber & Nozzle (Non-Add)					(402.8)
Secondary Utility Work					240.6
10 DESCRIPTION OF PROPOSED INSTALLATION Install a stilling chamber and a nozzle with an exit diameter of 25 inches. PROJECT: Provide capability to combine "clean" aerodynamic flow with adequate stagnation temperatures to duplicate realistic flight environment. REQUIREMENT: As modern missiles accelerate toward their targets, severe aerodynamic heating occurs, particularly on the fragile radome or IR dome. Many failures have occurred when domes fractured due to excessive thermal conditions. Even under less severe conditions, thermal distortion causes a displacement of the image the seeker "sees", adversely affecting its kill accuracy. High temperatures can also cause unexpected changes in the seeker electronics. An urgent need has been expressed by many government and industry experts to obtain a capability to test current and future missile systems in a laboratory aerothermal environment. The AMRAAM program requires such testing in mid-1980. CURRENT SITUATION: The present test capability simulates the Mach number but does not duplicate the temperatures and heating rates that occur in flight. Data therefore must now be extrapolated to flight conditions and simulated artificially by other heating methods which often give erroneous responses. IMPACT IF NOT PROVIDED: Millions of dollars will be wasted by utilizing the "cut and try" methods that have been used up til now. Operational effectiveness of the missile will suffer from an inability to fine-tune the very heart of the missile system under realistic flight conditions. The AMRAAM Program will not be supported.					

64

1 COMPONENT AIR FORCE		FY 19 80 RDT&E FACILITIES PROJECT DATA		2 DATE January 80	
3 INSTALLATION AND LOCATION WRIGHT PATTERSON AIR FORCE BASE, OHIO			4 PROJECT TITLE INSTALL TURBO-STRUCTURE SPIN TEST FACILITY, BLDG 71B		
5 PROGRAM ELEMENT 62203F	6 CATEGORY CODE 318-612	7 PROJECT NUMBER		8 PROJECT COST (\$000) 610.0	
9 COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT COST	COST (\$000)
MC Alterations, Equip Inst & Equip Costs					
I. Minor Construction Costs (EEIC 529)		LS			(98.5)
II. Equipment Installation (EEIC 592)		LS			610.0
III. Unfunded Cost (Design 8%)		LS			(56.7)
IV. Cost of Equipment (By Other Appropriations)		LS			(746.0)
10 DESCRIPTION OF PROPOSED INSTALLATION					
<u>SPECIFIC PURPOSE:</u> To install a turbo-structure spin test facility in J-Bay, Building 71B, WPAFB. <u>PROJECT:</u> Make alterations to J-Bay including installation of masonry walls, enclosures; installing acoustic ceiling, lighting, air conditioning, paint walls and floors; providing foundations for equipment; installation of extensive piping, valves, controls and secondary wiring for equipment installation. <u>REQUIREMENT:</u> This facility when completed will provide the Air Force Aero Propulsion Laboratory with the capability to perform centrifugal and thermal loading tests on turbine engine components. It will enable investigations on the structural dynamic response of bladed disk assemblies; material characterization under rotating conditions and experimental verification of analytically determined stresses and associated life prediction techniques. <u>CURRENT SITUATION:</u> This capability currently does not exist at WPAFB. <u>IMPACT IF NOT PROVIDED:</u> The USAF will not be able to perform structural integrity testing of its aircraft turbo machinery components in this environment. The lack of this experimental and developmental capability is considered a serious detriment to the establishment and verification of turbine engine component test data.					

65

1 COMPONENT AIR FORCE		FY 19 ~~80~~ RDT&E FACILITIES PROJECT DATA		2 DATE January 80	
3 INSTALLATION AND LOCATION WRIGHT PATTERSON AIR FORCE BASE, OHIO			4 PROJECT TITLE INSTALL/REPLACE ENVIRONMENTAL CONTROL EQUIP IN FACILITY 20032		
5 PROGRAM ELEMENT 62102F	6 CATEGORY CODE N/A	7 PROJECT NUMBER 78-9706 R-3		8 PROJECT COST (\$000) 150.0	
9 COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT COST	COST (\$000)
I. Equipment Installation (592: Funded)					
a. Structural (Foundations, Supports)		LS			20.0
b. Chillers		EA	1	25000.0	25.0
c. Heat Exchangers				5000.0	30.0
d. Mechanical (Pipe, Valves, Fittings, Controls)		LS			50.0
e. Electrical (Conduit, Wire, Switches)		LS			25.0
					150.0
II. *Equipment Cost (Excluded)		LS			(392.5)
III. Design Cost (Unfunded)					(12.0)
10 DESCRIPTION OF PROPOSED INSTALLATION					
PROJECT: Replace, install control chiller and extend chilled water lines to RDT&E equipment for year-round cooling.					
REQUIREMENT: Many items of RDT&E equipment must be cooled with treated water to prevent corrosion and excessive scale accumulation.					
CURRENT SITUATION: Many types of RDT&E equipment are cooled with tap water, which is wasted to drain. The RDT&E equipment becomes limed, restricted, and damaged by this method of cooling.					
IMPACT IF NOT PROVIDED: Critical RDT&E tests will be delayed or suspended due to equipment failure/damage due to excessive heat/corrosion.					
REVISION 3: Cost increase due to revised contractor estimate. This revision requires that funds previously programmed as excluded equipment cost on R-2 be reprogrammed as equipment installation costs on R-3. The equipment cost referred to in Block 9 represents \$392,500 worth of existing RDT&E equipment which was not indicated on R-2.					

1 COMPONENT AIR FORCE		FY 19 ⁸⁰ RDT&E FACILITIES PROJECT DATA		2 DATE January 80	
3 INSTALLATION AND LOCATION Various, CONUS			4 PROJECT TITLE Command and Control Communications Facilities (SACDIN)		
5 PROGRAM ELEMENT 11316F	6 CATEGORY CODE 131-000	7 PROJECT NUMBER ES-81-001B ES-81-002B		8 PROJECT COST (\$000) 152	
9 COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT COST	COST (\$000)
Command and Control Comm Facilities.....		LS			152
Offutt AFB, NE Equipment Installation Project No. ES-81-001B		LS			(127)
Vandenburg AFB, CA Equipment Installation Project No. ES-81-002B		LS			(25)
10 DESCRIPTION OF PROPOSED INSTALLATION Alterations to mechanical and electrical systems and other necessary support. Area includes communications and operations rooms, cryptographic and equipment maintenance areas.					
<u>PROJECT:</u> This project will provide those non-construction items required at two installations in support of SAC Digital Network (SACDIN) equipment installation. See companion projects numbered ES-81-001A and ES-81-002A for construction costs. <u>REQUIREMENT:</u> This project is required to provide the environmentally controlled facilities necessary for limited field testing of the SACDIN system. This testing is required to support a production decision. <u>CURRENT SITUATION:</u> The existing SAC automated command and control system is currently using equipment which is obsolete and incompatible with other communications equipment with which it must interface, new equipment must be installed if the SAC system is to be an effective subsystem to the worldwide Command and Control Network. However, existing structural limitations preclude this change-over without first modifying these facilities. This project will provide the re-configuration necessary to accommodate these changes. <u>IMPACT IF NOT PROVIDED:</u> This construction is in support of SACDIN which is an upgrade of CINCSAC's Command and Control System. Without this system the mission of SAC would be impaired.					

67

1 COMPONENT AIR FORCE		FY 1981 RDT&E FACILITIES PROJECT DATA		2 DATE January 80	
3 INSTALLATION AND LOCATION KIRTLAND AFB, NM			4. PROJECT TITLE MOD & INSTALL 2ND FACS MACHINE		
5 PROGRAM ELEMENT 62601F	6 CATEGORY CODE 610-711	7. PROJECT NUMBER -	8. PROJECT COST (\$000) 150.00		
9 COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT COST	COST (\$000)
INSTALLATION OF 2ND FACS MACHINE IN BLDG 412 (AFWL's R&D COMPUTER FACILITY)		L/S			150.0
10 DESCRIPTION OF PROPOSED INSTALLATION					
Rehab and modify the utility systems in Bldg 412 (AFWL's R&D Computer Facility) for the installation of the 2nd FACS. <u>PROJECT:</u> Rehab and modify utility systems. <u>REQUIREMENT:</u> The expansion of the utility systems in Bldg 412 to support the existing equipment as well as the 2nd FACS computer that is being added. <u>CURRENT SITUATION:</u> The continual demand for Computational Support has steadily increased. To meet the demand, AFWL has added and will continue to add new equipment to support these new requirements. The existing utility system is inadequate to support these systems. <u>IMPACT IF NOT PROVIDED:</u> Without this project AFWL will become unable to support needed additional equipment and unable to respond to customer requirements and all excess workload would have to be contracted commercially (\$2,500/hour).					

68

Section 9

DEPARTMENT OF AIR FORCE
RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
FLIGHT SIMULATOR PROGRAMS
(\$ in Thousands)

PROGRAM ELEMENT/PROJECT	FY 1979 ACTUAL	FY 1980 ESTIMATE	FY 1981 ESTIMATE	FY 1982 ESTIMATE
62205F TRAINING AND SIMULATION TECHNOLOGY (PARTIAL PE)	5,282	4,012	5,400	5,850
62205F/1123 (FLYING TRAINING DEVELOPMENT)	(592)	(798)	(900)	(1,000)
62205F/1192 (ADVANCED SIMULATOR FOR PILOT TRAINING)	(3,886)	(2,500)	(3,700)	(3,950)
62205F/6114 (SIMULATION TECHNIQUES FOR AIR FORCE TRAINING)	(804)	(714)	(800)	(900)
63227F ADVANCED SIMULATOR DEVELOPMENT	2,900	2,000	3,200	4,500
63227F/1958 (SIMULATION TECHNOLOGY FOR PROTOTYPE SYS)	(500)	(0)	(0)	(0)
63227F/2363 (ADVANCED TACTICAL AIR COMBAT SIMULATOR)	(2,400)	(2,000)	(3,200)	(2,400)
63227F/2364 (ADVANCED C16 VISUAL/SENSOR SYS)	(0)	(0)	(0)	(2,100)
63751F INNOVATIONS IN EDUCATION & TRAINING (PARTIAL PE)	300	300	300	500
63751F/2359 (PILOT PERFORMANCE MEASUREMENT)	(300)	(300)	(300)	(500)

Section 9

DEPARTMENT OF AIR FORCE
RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
FLIGHT SIMULATOR PROGRAMS (CONT'D)
(\$ in Thousands)

PROGRAM ELEMENT/PROJECT	FY 1979 ACTUAL	FY 1980 ESTIMATE	FY 1981 ESTIMATE	FY 1982 ESTIMATE
64227F FLIGHT SIMULATOR DEVELOPMENT	11,835	6,300	17,900	27,600
64227F/2201 (B-52 AERIAL REFUELING/KC-135 BOOM OPERATOR PART TASK TRAINER)	(135)	(400)	(0)	(0)
64227F/2269 (B-52 ELECTRO-OPTICAL VIEWING SYS)	(1,100)	(2,000)	(200)	(0)
64227F/2325 (SIMULATOR DEVELOPMENT ACTIVITIES)	(700)	(700)	(1,000)	(1,600)
64227F/2360 (TACTICAL COMBAT TRAINER)	(9,900)	(3,200)	(16,700)	(26,000)
27252F EF-111A (SIMULATOR PORTION ONLY)	0	4,000	5,400	2,400
11113F B-52 Squadrons				
11113F/2632 (B-52 OAS/CMJ WEAPON SYSTEM TRAINER MODIFICATION)	(0)	5,900	7,200	700
TOTAL	20,317	22,512	39,400	41,550

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