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DEPUTY CHIEF OF STAFF RESEARCH DEV AND ACQUISITION (A--ETC F/6 5/1
DEPARTMENT OF THE AIR FORCE JUSTIFICATION OF ESTIMATES FOR FISC--ETC(U)
JAN 81
RDXM-RD-82-2

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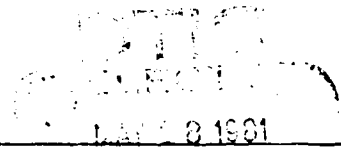
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**DEPARTMENT OF THE
AIR FORCE
JUSTIFICATION OF ESTIMATES FOR FISCAL YEAR 1982
SUBMITTED TO CONGRESS
JANUARY 1981.**

APPROVED FOR PUBLIC RELEASE;
DISTRIBUTION UNLIMITED.



9 FISCAL YEAR 82.

RESEARCH, DEVELOPMENT, TEST, & EVALUATION, AIR FORCE

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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: (6,774,011,000) to remain available for obligation until September 30, (1982). \$8,669,400,000 1983

Program and Financing (In thousands of dollars)		Budget plan (amounts for RDT&E actions programmed)		Obligations			
Identification code 57-3600-0-1-051		1980 actual	1981 est.	1982 est.	1980 actual	1981 est.	1982 est.
Program by activities:							
Direct:							
	1. Technology base	562,021	596,590	648,499	537,319	606,226	687,241
	2. Advanced technology development	269,981	271,301	357,529	277,410	270,959	356,590
	3. Strategic programs	1,565,811	2,747,845	3,459,185	1,578,964	2,579,541	3,236,554
	4. Technical programs	1,018,983	1,221,011	1,860,418	1,022,873	1,214,151	1,932,340
	5. Intelligence and communications	649,039	915,322	1,077,698	658,908	916,116	1,078,669
	6. Defensewide mission support	945,471	1,023,742	1,266,091	945,790	1,026,045	1,283,866
	Total direct	5,000,986	6,775,811	8,669,400	5,021,254	6,611,050	8,555,662
	Reimbursable program (total)	525,326	489,100	489,100	496,734	503,665	489,100
10.00	Total	5,526,312	7,264,911	9,158,500	5,517,988	7,114,915	9,044,762
Financing:							
Offsetting collections from:							
11.00	Federal funds	-492,348	-405,000	-405,000	-481,315	-405,000	-405,000
13.00	Trust funds	-25,674	-39,100	-39,100	-26,886	-39,100	-39,100
14.00	Non-federal sources	-7,106	-45,000	-45,000	-6,806	-45,000	-45,000
17.00	Recovery of prior year obligations, obl plan				-9,225		
21.40	Unobligated balance available, start of year:						
21.40	For completion of prior year budget plans				-340,436	-287,591	-437,567
21.40	Available to finance new budget plans		-39,600			-39,600	
21.40	Reprogramming from or to prior year budget plan	-60,074					
22.40	Unobligated balance transferred from other accounts	-1,200			-1,200		
23.40	Unobligated balance transferred to other accounts		39,600			39,600	
24.40	Unobligated balance available, end of year:						
24.40	For completion of prior year budget plans				287,591	437,567	551,325
24.40	Available to finance subsequent year budget plans						
25.00	Unobligated balance lapsing	39,600			39,600		
		76,474			76,474		
39.00	Budget authority	5,055,786	6,775,811	8,669,400	5,055,786	6,775,811	8,669,400
Budget authority:							
40.00	Appropriation	4,941,943	6,774,011	8,669,400	4,941,943	6,774,011	8,669,400
41.00	Transferred to other accounts	-9,600			-9,600		
42.00	Transferred from other accounts	13,113			13,113		
43.00	Appropriation (adjusted)	4,945,456	6,774,011	8,669,400	4,945,456	6,774,011	8,669,400
50.00	Reappropriation	110,330	1,600		110,330	1,600	
Relation of obligations to outlays:							
71.00	Obligations incurred, net				5,002,981	6,625,815	8,555,662
72.40	Obligated balance, start of year				1,874,059	1,857,400	2,386,215
74.40	Obligated balance, end of year				-1,857,400	-2,386,215	-3,006,877
77.00	Adjustments in expired accounts				6,148		
78.00	Adjustments in unexpired accounts				-9,225		
90.00	Outlays				5,016,583	6,097,000	7,938,000

AF Research, Development, Test, and Evaluation, Air Force 15 JAN 81
 Program and Financing (in thousands of dollars) 1979 Fiscal year program
 Identification code 57-3600-0-1-051 Budget plan (amounts for Obligations
 RT&E actions programmed) 1980 actual 1981 est. 1982 est. 1980 actual 1981 est. 1982 est.

	1980 actual	1981 est.	1982 est.	1980 actual	1981 est.	1982 est.
Program by activities:						
Direct:						
1. Technology base				6,195		
2. Advanced technology development				7,820		
3. Strategic programs				106,869		
4. Tactical programs				109,948		
5. Intelligence and communications				22,239		
6. Defensewide mission support				23,678		
Total direct				276,449		
Reimbursable program (total)				2,815		
Total				279,264		
Financing:						
Offsetting collections from:						
Adjustment to pay federal fund orders				11,031		
Adjustment to pay trust fund orders				-1,012		
Adjustment to non-federal sources				300		
Recovery of prior year obligations, obi plan				-9,222		
Unobligated balance available start of year:						
For completion of prior year budget plans				-340,435		
Reprogramming from or to prior year budget plan				-60,074		
Unobligated balance leasing				60,074		
Budget authority						

Program and Financing (in thousands of dollars)

1980 Fiscal Year Program

Identification code 57-3600-0-1-051

Obligations

Budget plan (amounts for
RDT&E actions programmed)

1980 actual 1981 est. 1982 est. 1980 actual 1981 est. 1982 est.

Program by activities:

Direct:

- 1. Technology base
- 2. Advanced technology development
- 3. Strategic programs
- 4. Tactical programs
- 5. Intelligence and communications
- 6. Defensewide mission support

Total direct
Reimbursable program (total)

10.00 Total

Financing:

Offsetting collections from:

- 11.00 Federal funds
- 13.00 Trust funds
- 14.00 Non-federal sources
- 17.00 Recovery of prior year obligations, obl plan
- 21.40 Unobligated balance available, start of year:
- 21.40 For completion of prior year budget plans
- 22.40 Available to finance new budget plans
- 23.40 Unobligated balance transferred from other accounts
- 24.40 Unobligated balance transferred to other accounts
- 24.40 For completion of prior year budget plans
- 24.40 Available to finance subsequent year budget plans
- 25.00 Unobligated balance lapsing
- 39.00 Budget authority

Budget authority:

- 40.00 Appropriation
- 41.00 Transferred to other accounts
- 42.00 Transferred from other accounts
- 43.00 Appropriation (adjusted)
- 50.00 Reappropriation

	1980 actual	1981 est.	1982 est.	1980 actual	1981 est.	1982 est.
1. Technology base	562,021			531,124	30,697	
2. Advanced technology development	269,991			269,590	391	
3. Strategic programs	1,555,511			1,472,385	83,127	
4. Tactical programs	1,018,963			912,925	106,039	
5. Intelligence and communications	649,039			636,669	12,370	
6. Defensewide mission support	945,471			922,112	23,360	
Total direct	5,000,886			4,744,806	256,184	
Reimbursable program (total)	525,326			493,919	31,407	
Total	5,526,312			5,238,724	287,591	
11.00 Federal funds	-492,348			-492,346		
13.00 Trust funds	-25,874			-25,874		
14.00 Non-federal sources	-7,106			-7,106		
17.00 Recovery of prior year obligations, obl plan						
21.40 Unobligated balance available, start of year:						
21.40 For completion of prior year budget plans						
22.40 Available to finance new budget plans		-39,600			-287,591	
23.40 Unobligated balance transferred from other accounts	-1,200			-1,200		
24.40 Unobligated balance transferred to other accounts		39,600			39,600	
24.40 For completion of prior year budget plans				287,591		
24.40 Available to finance subsequent year budget plans						
25.00 Unobligated balance lapsing	39,600			39,600		
39.00 Budget authority	16,400			16,400		
	5,055,786			5,055,786		
Budget authority:						
40.00 Appropriation	4,941,943			4,941,943		
41.00 Transferred to other accounts	-9,600			-9,600		
42.00 Transferred from other accounts	13,113			13,113		
43.00 Appropriation (adjusted)	4,945,456			4,945,456		
50.00 Reappropriation	110,330			110,330		

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Research, Development, Test, and Evaluation, Air Force

15 JAN 81

Identification code	57-3600-0-1-051	Program and Financing (in thousands of dollars)		1981 Fiscal year program obligations	
		1980 actual	1981 est.	1980 actual	1981 est.
		Budget plan (amounts for RDT&E actions programmed)			
Program by activities:		1980 actual	1981 est.	1980 actual	1981 est.
Direct:					
1. Technology base					
		596,590			577,329
	2. Advanced technology development	271,301			270,578
	3. Strategic programs	2,747,845			2,480,414
	4. Tactical programs	1,221,011			1,108,112
	5. Intelligence and communications	915,322			905,748
	6. Defensewide mission support	1,023,742			1,002,695
	Total direct	6,775,811			6,354,656
	Reimbursable program (total)	489,100			472,458
10.00	Total	7,264,911			6,827,324
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
21.40	Unobligated balance available, start of year				
24.40	Unobligated balance available, end of year				-437,567
39.00	Budget authority	6,775,811			6,775,811
Budget authority:					
40.00	Appropriation	6,774,011			6,774,011
50.00	Reappropriation	1,800			1,800

Program and Financing (in thousands of dollars)

1982 Fiscal year program

Identification code 57-3600-0-1-081

Obligations

Budget plan (amounts for
RDT&E actions programmed)

1980 actual 1981 est. 1982 est. 1980 actual 1981 est. 1982 est.

Program by activities:

Direct:

- 1. Technology base
- 2. Advanced technology development
- 3. Strategic programs
- 4. Tactical programs
- 5. Intelligence and communications
- 6. Defensewide mission support

Total direct

Reimbursable program (total)

10 00 Total

Financing:

Offsetting collections from:

- 11 00 Federal funds
- 13 00 Trust funds
- 14 00 Non-federal sources
- 24 40 Unobligated balance available, end of year
- 40 00 Budget authority

	1980 actual	1981 est.	1982 est.	1980 actual	1981 est.	1982 est.
1. Technology base			648,499			647,980
2. Advanced technology development			357,529			356,167
3. Strategic programs			3,459,185			2,879,223
4. Tactical programs			1,860,418			1,818,441
5. Intelligence and communications			1,077,698			1,069,095
6. Defensewide mission support			1,266,091			1,262,811
Total direct			8,669,400			8,134,717
Reimbursable program (total)			489,100			472,458
Total			9,158,500			8,607,175
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						551,325
40 00 Budget authority			8,669,400			8,669,400

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Research, Development, Test, and Evaluation, Air Force

15 JAN 61

Object Classification (in thousands of dollars)

	1960 actual	1961 est.	1962 est.
Identification code 57-3600-0-1-051			
Direct obligations:			
Personnel compensation:			
11.1	417,881	456,928	461,619
11.3	6,147	6,200	6,200
11.5	9,974	10,100	10,100
	-----	-----	-----
11.9	436,002	477,228	479,919
Total personnel compensation			
12.1	41,260	45,235	45,493
21.0	42,232	46,725	49,779
22.0	4,202	4,798	5,158
23.2	49,507	65,307	60,411
24.0		2,129	2,120
Other services:			
25.0	24,003	34,073	37,110
26.0	4,307,659	5,814,569	7,750,179
31.0	76,975	78,535	80,205
	36,521	42,431	45,286
	-----	-----	-----
99.0	6,021,254	6,611,050	6,555,662
Total direct obligations			
Reimbursable obligations:			
Personnel compensation:			
11.1	16,611	16,500	16,500
11.5	314	300	300
	-----	-----	-----
11.9	16,925	16,800	16,800
Total personnel compensation			
12.1	1,997	2,000	2,000
21.0	2,939	5,395	6,400
22.0	385	450	500
23.2	10,484	12,395	12,228
24.0	395	400	400
Other services:			
25.0	420,733	427,275	412,894
26.0	32,357	33,255	33,255
31.0	10,519	5,895	5,625
	-----	-----	-----
99.0	496,734	503,865	489,100
Total reimbursable obligations			
	-----	-----	-----
99.9	6,517,988	7,114,915	9,044,762

Personnel Summary (\$ In Thousands)

Identification Code 57-3600-9-1-051	1980 Actual	1981 Estimate	1982 Estimate	1983 Estimate
Total number of full-time permanent positions.....	18,498	18,692	18,858	18,858
Total compensable workyears:..				
Full-time equivalent employment.....	18,622	18,756	18,811	18,811
Full-time equivalent of overtime and holiday hours.....	196	185	185	185
Average ES salary.....	\$50,000	\$50,000	\$50,000	\$50,000
Average GS grade.....	9.38	9.37	9.37	9.37
Average GS salary.....	\$24,125	\$26,220	\$26,220	\$26,220
Average salary of ungraded positions.....	\$20,232	\$21,929	\$22,396	\$22,396

SECTION 2

PROGRAM ELEMENT
LISTING

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2. Budget Activity	13
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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, 1982 Appendix.

Data for FY 1980 and FY 1981 have been adjusted to achieve comparability with the revised program element and project structure for FY 1982. The revised structure contained in the FY 1982 budget request is consistent with the Program Element Listing, dated January 1980, except as follows:

Program Element

Remarks

Budget Activity 2, Advanced Technology Development

63363F Hypervelocity Missile

New program proposed for FY 1982.

63452F Very High Speed Integrated Circuits

Program element number change. Formerly PE62704F.

64247F Modular Automatic Test Equip

New program element initiating full scale development for PE 63247F.

Budget Activity 3, Strategic Programs

12417F CONUS Over-The-Horizon Radar

New program element initiating operational systems development for PE 63703F.

33151F WMMCCS-ADP

New program element proposed for FY 1983.

63318F Counter SUAWACS Tech Prog

Title change. Formerly Adv Strategic Air Launched Missile.

63425F	Advanced Warning Systems	Title and program element change resulting from FY 1980 Congressional language. Formerly Ballistic Missile Early Warning System, PE 12423F.
64226F	Long Range Combat A/C	New program initially funded by Congress in FY 1981.
<u>Budget Activity 4, Tactical Programs</u>		
27591F	OMEGA	New program proposed for FY 1982.
28008F	AMRAAM Operational Utility Evaluation	New program element for effort previously funded under Acft Avionics Equip Dev, PE 64201.
35887F	Simulator Validation	New program element proposed for FY 1982.
63230F	Advanced Tactical Fighter	Title change. Formerly Combat Acft Tech.
63239F	Advanced Tactical Air Reconnaissance	New program proposed for FY 1982.
63242F	Combat Aircraft Prototype	New program proposed for FY 1982.
63253F	Advanced System Integration Dev	New program proposed for FY 1982.
63616F	Advanced Assault Breaker Dev	Title change. Formerly Air Launched Assault Breaker.
63742F	Tactical Identification System	Title change. Formerly Air-To-Air Identification.
63745F	Chemical Warfare Defense	New program proposed for FY 1982.
64220F	EF-111A	Reestablishment of program element used in FY 1980 and prior.
64249F	Night Precision Attack	New program element and title initiating full scale development for the LANTIRN project previously funded under PE 63249F, Night Attack Program.

64321F Tactical Fusion Centers	Restructuring of effort previously funded under PE 27431F Tactical Air Intelligence Systems Activities.
64614F Adv Conventional Standoff Missile	Restructuring of effort previously funded under PE 63609F, Advanced Attack Weapons.
64710F Reconnaissance Equipment	Title change. Formerly Recon/Elec Warfare Equipment
64753F Combat Helicopter MOD (H-X)	New program proposed for FY 82.
64756F Side Looking Airborne Radar	New program element initiating full scale development effort for PE 63746F.
<u>Budget Activity 5, Intelligence and Communications</u>	
31314F Infrared Processing & Exploitation	Title and program element change for effort previously funded under Technical Sensor Collection PE 31015F.
31315F Missile and Space Tech Coll	Title and program element change for effort previously funded under PE 31015F, Technical Sensor Collection.
31317F Senior Year Operations	Program element number change.
31324F Forest Green	Program element number change. Formerly PE 31027F.
31357F Integrated Operational NUDETS Detection	Restructuring of effort previously funded under PE 31027F, Forest Green.
35164F NAVSTAR GPS (User Equip)	New program element proposed for FY 1983 to initiate equipment integration into non-IOT&E AF platforms and equipment acquisition.
<u>Budget Activity 6, Defensewide Mission Support</u>	
65306F Environmental Epidemiology	New program proposed for initiation in FY 1981.
65890F Installation Audiovisual Support	Restructuring of effort previously funded under PE 65806F, Acquisition and Command Support.
78019F Utah Testing and Training Range	Title change. Formerly Hill/Mendover/Dugway Range.

DEPARTMENT OF THE AIR FORCE
 FY 1982 R D T + E PROGRAM

EXHIBIT R-1

SUMMARY

DATE: 15 JAN 1981

THOUSANDS OF DOLLARS

	FY 1980	FY 1981	FY 1982	FY 1983
SUMMARY RECAP OF RESEARCH CATEGORIES				
RESEARCH	119,190	128,740	154,200	192,300
EXPLORATORY DEVELOPMENT	442,831	467,850	494,288	608,828
ADVANCED DEVELOPMENT	1,131,188	881,790	793,281	1,104,746
ENGINEERING DEVELOPMENT	1,588,633	3,090,783	4,825,847	4,596,271
MANAGEMENT AND SUPPORT	585,812	605,191	701,381	729,583
RESEARCH AND DEVELOPMENT (FYDP PROGRAM 6)	3,867,634	5,154,354	6,669,028	7,231,729
OPERATIONAL SYSTEMS DEVELOPMENT	1,133,352	1,621,457	2,000,372	1,740,878
TOTAL RESEARCH DEVELOPMENT TEST + EVAL, AIR FORCE	5,000,986	6,775,911	8,669,400	8,972,607
SUMMARY RECAP OF BUDGET ACTIVITIES				
TECHNOLOGY BASE	562,021	598,590	648,499	801,129
ADVANCED TECHNOLOGY DEVELOPMENT	269,991	271,301	357,528	445,246
STRATEGIC PROGRAMS	1,565,511	2,747,845	3,459,165	3,382,659
TACTICAL PROGRAMS	1,018,983	1,221,011	1,860,418	2,104,408
INTELLIGENCE AND COMMUNICATIONS	649,039	915,322	1,077,688	1,973,582
DEFENSEWIDE MISSION SUPPORT	945,471	1,023,742	1,266,091	1,265,583
TOTAL RESEARCH DEVELOPMENT TEST + EVAL, AIR FORCE	5,000,986	6,775,911	8,669,400	8,972,607
SUMMARY RECAP OF FYDP PROGRAMS				
STRATEGIC FORCES	270,129	354,055	479,685	356,912
GENERAL PURPOSE FORCES	172,384	242,480	257,400	226,300
INTELLIGENCE AND COMMUNICATIONS	667,569	1,001,562	1,223,407	1,113,768
AIRLIFT/SEALIFT	12,950	11,000	15,900	13,700
RESEARCH AND DEVELOPMENT (FYDP PROGRAM 6)	3,867,634	5,154,354	6,669,028	7,231,729
CENTRAL SUPPLY AND MAINTENANCE	9,200	10,380	21,400	25,500
SUPPORT OF OTHER NATIONS	2,120	1,980	2,600	2,700
TOTAL RESEARCH DEVELOPMENT TEST + EVAL, AIR FORCE	5,000,986	6,775,911	8,669,400	8,972,607

DEPARTMENT OF THE AIR FORCE
FY 1982 R D T + E PROGRAM

EXHIBIT R-1

APPROPRIATION 3600 F RESEARCH DEVELOPMENT TEST + EVAL, AIR FORCE

DATE 15 JAN 1981

PROGRAM LINE ELEMENT NO NUMBER	ITEM NOMENCLATURE	ACT	THOUSANDS OF DOLLARS				DES. SUM. PAGE
			FY 1980	FY 1981	FY 1982	FY 1983 C	
1	61101F IN-HOUSE LAB INDEPENDENT RESEARCH	1	9,000	10,200	11,500	13,600 U	1
2	61102F DEFENSE RESEARCH SCIENCES	1	110,190	118,540	142,700	178,700 U	2
3	62101F GEOPHYSICS	1	28,400	31,100	35,100	42,900 U	45
4	62102F MATERIALS	1	34,863	37,600	44,000	53,600 U	53
5	62201F AEROSPACE FLIGHT DYNAMICS	1	50,190	52,300	56,100	73,000 U	64
6	62202F AEROSPACE BIOTECHNOLOGY	1	31,860	35,600	40,700	48,200 U	78
7	62203F AEROSPACE PROPULSION	1	48,700	51,900	55,000	72,000 U	94
8	62204F AEROSPACE AVIONICS/VHSI CIRCUITS	1	55,087	56,700	64,600	76,900 U	97
9	62205F TRAINING/SIMULATION TECH	1	10,740	12,500	16,200	18,500 U	117
10	62302F ROCKET PROPULSION	1	29,230	30,750	34,800	44,200 U	123
11	62601F ADVANCED WEAPONS	1	32,600	36,900	41,000	48,600 U	133
12	62602F CONVENTIONAL MUNITIONS	1	30,125	29,500	33,300	39,800 U	146
13	62702F COMMAND/CONTROL/COMMUNICATION	1	57,935	61,300	67,999	83,029 U	162
14	62703F PERS UTILIZATION TECH	1	4,650	5,100	5,500	7,600 U	186
15	62704F VERY HIGH SPEED INTEGRATED CIRCUITS TECHNOLOGY BASE	1	26,431	26,600	-----	U	254
			562,021	596,590	649,499	601,129	
16	63202F ACFT PROPULSION SUBSYS INTEGRATION	2	19,000	13,450	16,400	23,500 U	192
17	63203F ADV AVIONICS FOR ACFT	2	7,698	13,250	17,400	23,900 U	196
18	63205F FLT VEHICLE TECHNOLOGY	2	9,400	7,900	6,800	10,000 U	203
19	63206F RECON SENSORS/PROCESSING TECHNOLOGY	2	6,900	5,900	4,200	4,600 U	209
20	63211F AEROSPACE STRUCTURES/MATERIALS	2	13,313	18,600	19,900	25,100 U	212
21	63218F AVIATION TURBINE FUEL TECHNOLOGY	2	3,321	4,350	6,900	8,900 U	221
22	63218F ADV TURBINE ENGINE GAS GENERATOR	2	30,000	26,000	28,900	32,300 U	224

DEPARTMENT OF THE AIR FORCE
 FY 1982 R D T + E PROGRAM

EXHIBIT R-1

APPROPRIATION 3800 F RESEARCH DEVELOPMENT TEST + EVAL. AIR FORCE DATE 15 JAN 1981

PROGRAM ELEMENT NO	ITEM NOMENCLATURE	ACT	THOUSANDS OF DOLLARS				DES. SUM. PAGE
			FY 1980	FY 1981	FY 1982	FY 1983	
23	63227F ADVANCED SIMULATOR DEVELOPMENT	2	2,000	3,170	2,200	4,500	U 228
24	63243F DIGITAL AVIONICS INFO SYS	2	2,700				U
25	63246F ADV FIGHTER TECH INTEGRATION	2	9,200	10,400	12,100	12,900	U 232
26	63246F AIRCRAFT SUBSYSTEMS TECH	2	2,715	5,250			U 240
27	63247F MODULAR AUTOMATIC TEST EQ	2	5,300	13,700			U 304
28	63250F LINCOLN LABORATORY	2	19,795	21,500	22,600	24,100	U 243
29	63302F ADV MSLE PROPOSITION	2	7,200	8,500	7,300	10,400	U 247
30	63363F HYPERVELOCITY MISSILE	2			8,200	900	U 252
31	63482F VERY HIGH SPEED INTEGRATED CIRCUITS	2			41,500	42,500	U 254
32	63601F CONVENTIONAL WEAPONS	2	21,750	21,500	18,100	20,900	U 260
33	63606F ADVANCED RADIATION TECH	2	78,300	58,481	82,729	101,746	U 268
34	63706F HEARTLINE DEMONSTRATION PROG	2	2,280	2,070			U
35	63723F CIVIL/ENVIRONMENTAL ENG TECH	2	2,700	3,860	4,100	4,700	U 274
36	63726F ADVANCED COMPUTER TECHNOLOGY	2	4,200	4,650	4,900	5,900	U 278
37	63743F ELECTRO-OPTICAL WARFARE	2	8,600	11,290	10,500	16,700	U 283
38	63780F COUNTER/COUNTERMEASURES	2	4,982	6,700	2,000	6,800	U 290
39	63781F INNOVATIONS IN EDUCATION/TRAINING	2	1,557	1,680	2,600	2,900	U 294
40	63789F COMD/CNTRL/COMM ADV DEV	2	7,260	9,100	15,500	22,200	U 299

DEPARTMENT OF THE AIR FORCE
 FY 1982 R D T + E PROGRAM

EXHIBIT R-1

APPROPRIATION 3600 F RESEARCH DEVELOPMENT TEST + EVAL, AIR FORCE

DATE: 15 JAN 1981

PROGRAM ELEMENT NO	ITEM NOMENCLATURE	ACT	THOUSANDS OF DOLLARS					DES. E SUM. PAGE
			FY 1980	FY 1981	FY 1982	FY 1983	C	
41	64247F MODULAR AUTOMATIC TEST EQUIPMENT	2			20,700	35,800	U	304
	ADVANCED TECHNOLOGY DEVELOPMENT		259,981	271,301	357,529	445,246		
42	63238F STRATEGIC ALCM LAUNCHER EVAL (CMCA)	3	15,000				U	
43	63241F ELECTRONICALLY AGILE RADAR	3	3,000				U	
44	63252F BOMBER PENETRATION EVALUATION (B1)	3	54,900				U	
45	63311F ADV BALLISTIC RE-ENTRY SYS	3	95,350	103,800	50,000	92,100	U	307
46	63318F COUNTER SUAWACS TECHNOLOGY PROG	3	12,300	15,800	10,600	15,900	U	312
47	63319F ADVANCED TECHNOLOGY CRUISE MISSILE	3	10,000	13,900	14,400	28,800	U	316
48	63424F MSL SURVEILLANCE TECH	3	3,980	12,100	14,200	10,200	U	320
49	63425F ADVANCED WARNING SYSTEMS	3	5,000		12,600	11,500	U	324
50	63428F SPACE SURVEILLANCE TECHNOLOGY	3	41,520	39,200	27,500	43,200	U	327
51	63429F WARNING INFORMATION CORRELATION	3	1,100	2,970			U	338
52	63431F SPACE COMMUNICATIONS	3	34,499	27,000	51,500	63,400	U	341
53	63435F INTEG OPER NUDETS DETECT SYS	3	11,900				U	1043
54	63438F SATELLITE SYS SURVIVABILITY	3	28,478	31,700	11,300	44,500	U	354
55	63439F ADV SPACE APPLICATIONS PROGRAM	3	2,000	1,090			U	
56	63703F CONUS OVER-THE-HORIZON RADAR	3	11,900	12,000	4,400	61,800	U	361
57	63731F ADV DET SYS DEV	3						
58	64226F LONG RANGE COMBAT AIRCRAFT	3		261,000		26,500	U	368
59	64312F M-X	3	670,000	1,491,000	2,408,700	2,278,800	U	372
60	64361F AIR LAUNCHED CRUISE MISSILE	3	90,827	107,300	70,800	11,300	U	382
61	64406F SPACE DEFENSE SYS	3	83,848	110,200	147,335	190,480	U	392
62	64711F SYSTEMS SURVIVABILITY (NUC AFFECTS)	3	14,000	13,860	12,300	14,300	U	407

DEPARTMENT OF THE AIR FORCE
 FY 1982 R D T + E PROGRAM

EXHIBIT R-1

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

DATE: 15 JAN 1981

PROGRAM LINE ELEMENT NO NUMBER	ITEM NOMENCLATURE	ACT	THOUSANDS OF DOLLARS				DES. SUM. PAGE
			FY 1980	FY 1981	FY 1982	FY 1983 C	
63	64758F COMPANION TRAINER AIRCRAFT DEV	3		12,400	2,400		U 415
64	1113F B-52 SQUADRONS	3	84,300	100,900	143,800	111,100	U 422
65	1118F SHORT RANGE ATTACK (AGM-69)	3	9,884				U
66	11142F KC-135 SQUADRONS	3	12,950	23,500	30,000	30,100	U 460
67	11212F TITAN SQUADRONS	3	1,300	890	300	300	U 466
68	11213F MINUTEMAN SQUADRONS	3	35,300	53,300	33,600	42,100	U 469
69	11312F POST ATTACK CMD/CNTRL SYS	3	24,500	7,000	9,600	3,700	U 478
70	11316F SAC COMMUNICATIONS	3	17,000	23,000	30,100	2,500	U 488
71	12311F NORAD CBC	3	5,875	16,000	24,100	27,600	U 494
72	12325F JOINT SURVEILLANCE SYSTEM	3	5,750	9,700	1,357	942	U 498
73	12411F SURVEILL RADAR STATIONS/SITES	3	9,770	8,500	4,400	1,200	U 501
74	12417F CONUS OVER-THE-HORIZON RADAR	3			21,700	15,200	U 504
75	12423F BALLISTIC MSL EARLY WING SYSTEM	3		9,100	13,000	6,300	U 508
76	12424F SPACETRACK	3	6,200	6,700	8,200	5,800	U 512
77	12431F DEFENSE SUPPORT PROGRAM	3	31,000	72,800	142,084	84,643	U 518
78	12432F SLBM RADAR WARNING SYSTEMS	3	4,200				U
79	12450F SPACE DEFENSE OPS	3		14,465	1,100	2,100	U 528
80	32010F WMMCCS ADP-AABNCP	3		3,370			U
81	33131F MINIMUM ESSENTIAL EMER COMM NETWORK	3	8,350	13,400	28,100	22,000	U 530
82	33151F WMMCCS - ADP	3				700	U
83	33601F AIR FORCE SAT COMM SYS	3	17,650	36,480	66,200	104,200	U 533
84	35158F SATELLITE DATA SYSTEM	3	36,400	43,200	29,100	15,600	U 541

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 FY 1982 R D T + E PROGRAM

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APPROPRIATION 9600 F RESEARCH DEVELOPMENT TEST + EVAL. AIR FORCE

DATE: 15 JAN 1981

PROGRAM ELEMENT NO	ITEM NOMENCLATURE	ACT	THOUSANDS OF DOLLARS				DES. S E PAGE
			FY 1980	FY 1981	FY 1982	FY 1983 C	
85	35992F SPECIAL ANALYSIS ACTYS	3					
	STRATEGIC PROGRAMS		1,555,511	2,747,845	3,459,166	3,982,659	
86	63228F NEXT GENERATION TRAINER ACFT	4	1,900		15,000	39,400 U	546
87	63230F ADVANCED TACTICAL FIGHTER	4	2,000		10,300	25,000 U	553
88	63234F ENFORCER	4	6,000	5,900			U
89	63239F ADV TACTICAL AIR RECONNAISSANCE SYS	4			3,100	4,200 U	557
90	63242F COMBAT AIRCRAFT PROTOTYPE	4			22,500	25,600 U	559
91	63244F ACFT NON-NUCLEAR SURVIVABILITY	4	1,488	1,290	1,700	1,900 U	563
92	63249F NIGHT ATTACK PROGRAM	4	36,601	68,400	3,100		U
93	63253F ADVANCED SYSTEM INTEGRATION DEMO	4			6,900	25,900 U	570
94	63313F ADV MSL SUBSYSTEMS DEMONSTRATION	4		3,300	6,000	7,000 U	574
95	63317F THEATER BALLISTIC MISSILE	4	1,200				U
96	63370F ADV MED RANGE A-A MSL	4	27,000	24,200	1,300		U
97	63609F ADV ATTACK WEAPONS	4	32,904	34,500	56,700	32,500 U	583
98	63616F ADV ASSAULT BREAKER DEV	4		2,970			U
99	63714F DOD PHYSICAL SECURITY EQ-EXTERIOR	4	3,900	7,500	1,000	4,100 U	587
100	63718F ELECTRONIC WARFARE TECHNOLOGY	4	10,405	14,400	12,000	22,000 U	590
101	63727F ADVANCED COMMUNICATIONS TECHNOLOGY	4	3,460	590	5,400	6,400 U	597
102	63739F ADV DRONE/REMOTELY PILOTED VEH DEV	4	3,500	4,160	2,900	2,400 U	602
103	63742F TACTICAL IDENTIFICATION SYSTEM	4	4,100	2,770	6,000	7,600 U	606
104	63746F CHEMICAL WARFARE DEFENSE	4			4,100	5,100 U	610
105	63746F SIDE LOOKING AIRBORNE RADAR	4	10,999	22,400	16		U
106	63747F PAVE MOVER	4	6,590	13,100	5,300	2,100 U	613

DEPARTMENT OF THE AIR FORCE
 FY 1982 R D T + E PROGRAM

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

DATE: 15 JAN 1981

PROGRAM ELEMENT NO	ITEM NOMENCLATURE	ACT	THOUSANDS OF DOLLARS				DES. E SUM. PAGE
			FY 1980	FY 1981	FY 1982	FY 1983 C	
107	83801F SPECIAL PROGRAMS	4					
108	84201F ACFT AVIONICS EQUIPMENT DEVELOPMENT	4	15,756	21,000	13,300	20,000 U	619
109	84212F AIRCRAFT EQUIPMENT DEV	4	7,050	4,100	2,200	9,900 U	624
110	84218F ENGINE MODEL DERIVATIVE PROG	4	39,300	66,100	21,500	18,600 U	628
111	84219F INTEGRATED DIGITAL AVIONICS	4	2,500		2,100	4,300 J	632
112	84220F EF-111A	4			14,500	19,200 U	636
113	84222F NUCLEAR WEAPONS SUPPORT	4	1,100	1,560	1,700	2,100 U	645
114	84226F ADV MEDIUM STOL TRANS	4	RB				
115	84231F C-X PROGRAM	4		34,600	252,000	375,100 U	648
116	84249F NIGHT PRECISION ATTACK	4			77,400	64,500 U	652
117	84266F ACFT ENGINE COMPONENT IMPROVE PROG	4	80,000	105,400	131,000	130,700 U	656
118	84314F ADV MED RANGE AIR-TO-AIR MSL	4			141,900	163,500 U	665
119	84321F TACTICAL FUSION CENTERS	4		5,500	10,000	8,700 U	675
120	84362F ORN LAUNCHED CRUISE MSL	4	59,501	66,400	53,200	9,000 U	681
121	84601F C/B DEFENSE EQUIPMENT	4	4,028	7,000	9,000	10,100 U	689
122	84602F ARMAMENT ORDNANCE DEVELOPMENT	4	11,237	20,000	25,800	23,200 U	696
123	84604F LOW ALTITUDE AFLD ATTACK SYS	4	31,899		10,800	38,900 U	697
124	84607F WIDE-AREA ANTI-ARMOR MUNITION	4	1,999	18,800	22,200	40,400 U	698
125	84608F CLOSE AIR SUPPORT WEAPONS SYSTEM	4	60,100	46,900	14,900	5,600 U	709
126	84610F AIR DELIVERED LAND MINES	4	4,000	4,400			
127	84612F LOW LEVEL LASER GUIDED BOMB	4	8,000	4,900	6,500	4,200 U	729
128	84614F ADV CONVENTIONAL STAND-OFF MSL	4			30,700	23,500 U	733
129	84616F AIR-LAUNCHED ASSAULT BREAKER	4			24,537	126,781 U	740

DEPARTMENT OF THE AIR FORCE
FY 1982 R D T + E PROGRAM

EXHIBIT R-1

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

DATE: 15 JAN 1981

PROGRAM LINE ELEMENT NO NUMBER	ITEM NOMENCLATURE	ACT	THOUSANDS OF DOLLARS				DES. SUM. PAGE
			FY 1980	FY 1981	FY 1982	FY 1983 C	
130	64708F LIFE SUPPORT SYSTEM	4	5,200	9,400	11,200	16,800 U	751
131	64707F WEATHER SYSTEMS	4		3,801	5,800	5,600 U	754
132	64708F OTHER OPERATIONAL EQUIPMENT	4	9,900	9,800	13,500	16,300 U	757
133	64709F IMPROVED TACTICAL BOMBING	4	8,540			U	
134	64710F RECONNAISSANCE EQUIPMENT	4	6,899	14,900	13,300	19,900 U	762
135	64718F DOD PHYSICAL SECURITY EO-EXTERIOR	4	14,600	19,900	8,000	19,400 U	768
136	64724F TAC C3 COUNTER-MEASURES	4	6,000	9,800	12,300	9,800 U	771
137	64729F ACFT IDENTIFICATION SYSTEMS	4	9,300	2,570	5,300	6,100 U	777
138	64733F SURFACE DEF SUPPRESSION	4		8,900	9,800	14,400 U	781
139	64737F AIRBORNE SELF-PROTECTION JAMMER	4	4,200	12,300	55,600	21,600 U	796
140	64738F PROTECTIVE SYSTEMS	4	61,200	53,100	87,200	79,700 U	805
141	64739F TACTICAL PROTECTIVE SYSTEMS	4	16,148	24,600	24,300	22,300 U	818
142	64740F APPL FOR INFO PROCESSING TECH	4	3,800	4,470	6,000	7,000 U	825
143	64742F PRECISION LOCATION STRIKE SYSTEM	4	15,000	14,850	83,100	77,700 U	833
144	64748F EXPENDABLE DRONES	4	4,700	5,600	8,700	5,300 U	851
145	64750F INTELLIGENCE EQUIPMENT	4	19,800	16,700	15,100	14,900 U	855
146	64751F INTRA-THEATRE IMAGING SYSTEM	4	1,000	2,180	600	U	862
147	64753F COMBAT HELICOPTER MOD (H-X)	4			19,300	33,900 U	865
148	64754F JT TAC INFO DIST SYS	4	44,600	59,400	67,600	96,600 U	869
149	64756F SIDE LOOKING AIRBORNE RADAR (SLAR)	4			29,775	19,200 U	876
150	64757F SYSTEMS PROTECTION	4	2,847	400		U	

DEPARTMENT OF THE AIR FORCE
 FY 1962 R D T + E PROGRAM

EXHIBIT R-1

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

DATE: 15 JAN 1961

PROGRAM ELEMENT NO	ITEM NOMENCLATURE	ACT	FY 1960	FY 1961	FY 1962	FY 1963	C	DES. SUM.	PAGE
151	64779F JT INTEROPERABILITY TAC COMD/CNTRL	4	4,900	8,600	7,600	7,500	U	890	
152	11133F SR-71 SQUADRONS	4							
153	27128F F-4 SQUADRONS	4	500	6,800	6,400	6,700	U	893	
154	27129F F-111 SQUADRONS	4	95	5,300	2,800	3,800	U	897	
155	27130F F-15 SQUADRONS	4	2,490	11,100	24,800	21,100	U	900	
156	27131F A-10 SQUADRONS	4	17,800	13,560	9,400	4,600	U	914	
157	27133F F-16 SQUADRONS	4	29,600	42,200	43,000	42,000	U	923	
158	27161F TACTICAL AIM MISSILE	4	2,800	3,570			U		
159	27162F TACTICAL AGM MISSILES	4	1,782	8,100		1,800	U	934	
160	27247F TACTICAL SURVEILLANCE SYS	4	300	300	300	300	U	942	
161	27252F EF-111 SQUADRONS	4	7,150	5,550			U	636	
162	27411F OVERSEAS AIR WEAPON CONT SYS	4		200	2,300	2,200	U	944	
163	27412F TACTICAL AIR CONTROL SYSTEM	4	10,101	12,400	1,200		U	947	
164	27416F USAF COMMAND/CONTROL SYS	4	6,900	6,200			U	975	
165	27417F TAC AIRBORNE COMD/CNTRL SYS	4	41,224	63,000	53,800	63,600	U	950	
166	27423F ADV COMM SYS	4	13,990	44,600	51,800	3,200	U	967	
167	27431F TAC AIR INTELL SYS ACTYS	4	9,690	2,900	9,300	7,200	U	976	
168	27591F OMEGA	4							
169	28008F AMRAAM OPER UTILITY EVAL	4			3,200	6,100	U	992	
170	28010F JT TACTICAL COMM PROG (TRI-TAC)	4	27,982	16,700	29,100	35,700	U	995	

DEPARTMENT OF THE AIR FORCE
 FY 1982 R D T + E PROGRAM

EXHIBIT R-1

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

DATE: 15 JAN 1981

PROGRAM LINE ELEMENT NO NUMBER	ITEM NOMENCLATURE	ACT	THOUSANDS OF DOLLARS			DES. SUM. PAGE
			FY 1980	FY 1981	FY 1982	
171	35887F SIMULATOR VALIDATION (SIMVAL)	4		1,400	1,200	U 1005
172	41119F C-5 AIRLIFT SQUADRONS (IF)	4	12,950	11,000	15,900	13,700 U 1008
	TACTICAL PROGRAMS		1,018,983	1,221,011	1,860,418	2,104,408
173	63738F WMMCS ARCHITECTURE	5	6,250	6,900	9,200	10,100 U 1016
174	64778F NAVSTAR OPS USER EQUIPMENT	5	135,300	126,600	170,100	125,000 U 1021
175	65708F AIRCRAFT NAVIGATION SYS VERIF	5	1,300	1,580	1,700	1,900 U 1031
176	31060F DEFENSE DISSEMINATION PROGRAM (NFIP)	5				
177	31313F DEFENSE DISSEMINATION SYSTEMS (NFIP)	5	3,200	9,540		U
178	31314F INFRARED PROCESSING + EXPLOITATION (NFIP)	5	7,200	3,186	2,400	600 U
179	31315F MISSILE AND SPACE TECH COLLECTION (NFIP)	5	11,000	16,460	15,981	591 U
180	31317F SENIOR :EAR OPERATIONS (NFIP)	5				
181	31324F FOREST GREEN (NFIP)	5	3,200	15,575	20,334	29,168 U 1035
182	31357F INTEG OPERATIONAL NUDETS DETECT SYS (NFIP)	5		11,980	4,602	2,047 U 1043
183	33110F DEF SATELLITE COMM SYS	5	24,037	39,200	35,200	24,700 U 1047
184	33126F LONG-HAUL COMMUNICATIONS (DCS)	5	7,84F	11,380	8,200	8,900 U 1061
185	33144F ELECTROMAG COMPATIBILITY ANAL CTR	5	5,680	6,000	7,000	7,500 U 1068
186	33401F COMMUNICATIONS SECURITY	5	3,080	1,090	1,600	1,400 U 1072
187	34111F SPECIAL ACTIVITIES (NFIP)	5				
188	35114F TRAFFIC CNTRL/APPROACH/LANDING SYS	5	3,058	3,070	7,200	7,300 U 1075
189	35156F SUPPORT PROGRAM	5				

DEPARTMENT OF THE AIR FORCE
 FY 1982 R D T + E PROGRAM

EXHIBIT R-1

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

DATE: 15 JAN 1981

PROGRAM LINE ELEMENT NO	ITEM NOMENCLATURE	ACT	THOUSANDS OF DOLLARS				DES. SUM. PAGE
			FY 1980	FY 1981	FY 1982	FY 1983 C	
190	35184F NAVSTAR GLOBAL POS SYS (USER EO) INTELLIGENCE AND COMMUNICATIONS	5	649,039	915,322	1,077,698	6,200 U 973,582	1021
191	63101F DEVELOPMENT PLANNING	6	1,100		3,300	3,500 U	1081
192	63232F ADV AERIAL TARGET TECH	6	2,040				U 1103
193	63401F SPACE VEHICLE SUBSYSTEMS	6	9,500	9,900			U 1084
194	63402F SPACE TEST PROGRAM	8	29,945	41,080	47,700	65,500 U	1039
195	63411F SPACE SHUTTLE	6	205,900				U 1114
196	63707F WEATHER SYSTEMS	6		2,669	1,300	3,600 U	1100
197	64211F ADV AERIAL TARGETS DEV	6	13,474	15,100	16,600	13,900 U	1103
198	64227F FLIGHT SIMULATOR DEVELOPMENT	6	6,300	5,640	7,600	16,100 U	1110
199	64411F SPACE SHUTTLE	6		243,142	272,300	256,500 U	1114
200	64735F IMPROVED CAPABILITY FOR OTE	8	13,500	12,600	23,100	26,200 U	1127
201	64747F ELECTROMAG RADIATION TEST FACIL	6	6,600	2,970	3,200	3,700 U	1133
202	65101F PROJECT AIR FORCE	8	11,700	12,470	14,100	15,100 U	1137
203	65304F ACO/COMD SPT - TELECOM	6	4,127	4,350	4,800	5,300 U	1140
204	65306F ENVIRONMENTAL EPIDEMIOLOGY	6		1,800	4,000	4,600 U	1143
205	65806F ACQUISITION AND COMMAND SUPPORT	6	227,509	228,552	266,900	267,000 U	1146
206	65807F TEST AND EVALUATION SPT	6	316,975	327,289	375,081	399,583 U	1153
207	65808F ADV SYS ENGINEERING/PLAN	6	5,300	4,100	5,100	5,700 U	1176
208	65890F INSTL AUDIOVISUAL SPT (R/D)	6		5,250	5,900	6,000 U	1180

DEPARTMENT OF THE AIR FORCE
 FY 1982 R D T + E PROGRAM

EXHIBIT R-1

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

DATE: 15 JAN 1981

PROGRAM LINE ELEMENT NO NUMBER	ITEM NOMENCLATURE	ACT	THOUSANDS OF DOLLARS				DES. SUM. PAGE
			FY 1980	FY 1981	FY 1982	FY 1983 C	
209	65898F MOT HD (RESEARCH/DEV)	6	18,901	19,800	23,600	24,400 U	1182
210	35110F SATELLITE CONTROL FACILITY	6	14,700	14,000	69,500	39,100 U	1185
211	35119F SPACE BOOSTERS	6	29,700	29,500	14,600	6,700 U	1188
212	35130F CONSOLIDATED SPACE OPERATIONS CENTER	6		6,700	19,900	23,400 U	1197
213	35180F DEF METEOROLOGICAL SATELLITE PROG	6	17,980	19,000	48,300	38,700 U	1200
214	35171F SPACE LAUNCH SUPPORT	6		3,470	15,000	10,600 U	1205
215	78019F UTAH TESTING + TRAINING RANGE	6	2,300	1,710	12,000	15,300 U	1208
216	78026F PRODUCT/RELIABLE/AVAIL/MAINTAIN PROG	6	5,900	8,600	9,400	10,200 U	1211
217	01004F INTERNATIONAL ACTIVITIES	6	2,120	1,980	2,600	2,700 U	1216
	DEFENSEWIDE MISSION SUPPORT		945,471	1,023,742	1,266,091	1,265,563	
TOTAL RESEARCH DEVELOPMENT TEST + EVAL, AIR FORCE			5,000,986	6,775,811	6,669,400	6,972,607	

Research, Development, Test and Evaluation, Air Force

Section 3 - Performer Distribution

	<u>FY 1980 Program Actual</u>	<u>FY 1981 Program Requirements</u>	<u>FY 1982 Program Requirements</u>	<u>FY 1983 Program Requirements</u>
1. For operation of installations of the reporting Service Government operated.....	769,533	792,699	885,539	933,117
2. For operation of installations of the reporting Service Contractor operated.....	134,204	146,491	162,170	170,282
3. For contracts directly in support of work performed at installations of the reporting Service	68,213	74,056	83,120	84,000
4. For work assigned to other Department of Defense activities.....	183,188	189,165	200,000	200,000
5. For work assigned to activities of other Government agencies.....	85,857	135,760	142,300	145,000
6. For work performed by industrial contractors ("profit" organizations).....	3,405,901	4,994,161	6,645,172	6,854,284
7. For work performed by educational institutions				
a. Designated Federal Contract Research Centers	57,415	72,810	86,419	103,862
b. Other Institutions.....	155,706	197,479	268,800	268,800
8. For work performed by other "non-profit" organizations.....	140,969	173,190	195,880	213,262
Total Research, Development, Test and Evaluation Appropriation	5,000,986	6,775,811	8,669,400	8,972,607

Research, Development, Test and Evaluation, Air Force

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 at installations.

INSTALLATION ANALYSIS

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Installation

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INSTALLATION ANALYSIS - IN-HOUSE

Item No.	Installation System	FY	RT&F Funds			All other Funds			TOTAL			PERSONNEL (Man-Years)			TOTAL
			Dept of Air Force	other Dept	other Dept	Sub-Total	MI PERS	Paid From Parent Dept	Civil Service	Contractor	MI PERS				
1.	Defense Resear	80	4,151	30	15	4,196	1,655	5,851	96					70	166
	Development	81	4,992	0	17	5,009	1,877	6,911	101					69	176
	Operations	82	5,081	40	17	5,148	1,905	7,097	101					69	170
	Programs	83	5,100	40	17	5,157	1,900	7,097	101					69	170
2.	Cardphysics	80	17,247	6,374	348	24,005	1,936	26,041	284					114	598
	Laboratory	81	16,438	6,926	393	23,757	2,277	26,034	276					114	589
	Lab. Program	82	17,921	7,109	405	25,435	2,227	27,662	276					114	590
	LAB. MA	83	18,410	7,334	405	26,148	2,226	28,313	276					112	588
3.	Materials	80	14,225	3,383	311	17,935	1,326	19,261	431					54	485
	Laboratory	81	12,202	3,946	558	17,006	1,528	18,734	420					54	474
	Lab. Program	82	13,476	4,030	542	18,048	1,544	19,792	409					54	484
	LAB. MA	83	14,276	4,030	542	18,863	1,544	20,407	409					54	484
4.	Acquisition	80	26,598	7,592	605	34,795	4,212	39,007	70		10			195	977
	Lab	81	25,357	7,098	596	33,051	4,200	37,251	70		10			200	1,005
	Lab. Program	82	29,931	7,051	465	37,447	4,196	41,643	70		10			200	1,005
	LAB. MA	83	30,367	7,051	465	37,883	4,196	42,111	70		10			202	1,004
5.	Acquisition	80	17,825	1,407	280	19,512	9,292	28,804	278					356	1,074
	Lab. Program	81	18,506	1,404	166	20,416	10,865	31,188	40					357	1,077
	Brooks	82	19,659	1,405	177	21,241	10,949	32,472	40					358	1,076
	LAB. MA	83	20,117	1,405	177	21,709	10,776	32,485	40					355	1,070
6.	Acquisition	80	14,475	3,813	53	18,341	1,204	19,545	429					30	481
	Program	81	14,185	3,812	6	18,003	1,308	19,311	438					34	472
	Lab. Program	82	14,227	4,159	6	18,492	1,308	19,800	434					34	472
	LAB. MA	83	14,093	4,159	6	18,308	1,308	19,616	434					34	472
7.	Acquisition	80	20,298	6,263	66	26,627	1,939	28,566	716					107	886
	Lab. Program	81	21,280	6,400	92	27,772	2,004	29,776	703					106	919
	Lab. Program	82	25,416	6,638	63	32,117	2,015	34,132	692					101	922
	LAB. MA	83	25,827	6,638	63	32,528	2,015	34,543	692					104	924

INSTALLATION ANALYSIS - IN-HOUSE

Item No.	Installation & Location	FY	TOA (\$ In Thousands)							PERSONNEL (Man-Years)							TOTAL	
			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					Paid From RDT&E	Paid From Other	Paid From RDT&E	Paid From Other	Paid From RDT&E	Paid From Other			
8.	Rocket Propulsion Lab Edwards AFB, CA	80 81 82 83	9,767 9,960 10,821 11,096	1,956 1,908 1,782 1,782	112 33 18 18	11,855 11,901 12,611 12,896	3,203 3,737 3,779 3,782	15,038 15,638 16,400 16,678	266 255 245 245	5 5 5 5	5 5 5 5	5 5 5 5	177 177 177 177	448 437 427 427				
9.	Advanced Weapons Lab, Kirtland, AFB NM	80 81 82 83	11,989 12,200 13,333 13,582	28,732 24,162 28,111 28,111	5,188 5,458 5,717 5,717	70 82 84 84	45,979 41,902 47,245 47,494	12,971 16,180 16,347 16,334	58,950 58,082 63,592 63,828	532 520 520 520	5 4 4 4	5 4 4 4	610 620 648 645	1,142 1,140 1,168 1,165				
10.	Armament Laboratory, Eglin AFB, FL	80 81 82 83	10,674 11,003 12,001 12,269	7,218 8,909 7,584 7,584	2,145 666 787 787	20,037 20,578 20,377 20,640	3,521 4,112 4,196 4,192	23,558 24,690 24,568 24,832	373 386 386 386	5 4 4 4	5 4 4 4	5 4 4 4	165 166 167 166	543 556 557 556				
11.	Command, Control & Communications Center, Griffiss AFB, NY	80 81 82 83	26,543 26,800 27,316 27,700	15,771 16,792 17,014 17,014	2,429 2,325 2,280 2,280	56 62 40 40	44,799 45,979 46,650 47,034	4,450 4,943 4,992 4,945	49,249 50,922 51,642 51,979	1,030 1,046 1,054 1,054	25 23 22 22	25 23 22 22	228 213 214 211	1,283 1,282 1,290 1,287				
12.	Human Resources Laboratory, Lackland AFB, TX	80 81 82 83	7,912 8,752 9,457 9,680	1,240 1,110 1,148 1,148		9,152 9,862 10,605 10,828	2,199 2,600 2,651 2,654	11,351 12,462 13,256 13,482	255 240 237 237				124 126 127 127	379 366 364 364				
13.	Electro-magnetic Compatibility Analysis Cntr, Annapolis, MD	80 81 82 83	5,690 6,000 7,000 7,500	4,900 5,600 5,100 5,300	9,700 10,300 10,700 11,100	7,489 7,428 7,067 7,407	27,779 29,328 29,867 31,307	182 214 213 212	27,961 29,542 30,080 31,519	40 40 40 40			175 195 225 225	593 618 648 648				
14.	Aeronautical Systems Division, Wright-Patterson AFB, OH	80 81 82 83	98,536 96,218 104,891 99,955	7,000 7,000 7,000 7,000	1,000 1,000 1,000 1,000	111,335 109,018 117,691 119,755	33,825 41,039 39,617 40,017	145,161 150,057 157,308 159,772	3,202 3,155 3,164 3,155	328 319 290 290			1,580 1,596 1,596 1,581	5,110 5,070 5,050 5,026				

INSTALLATION ANALYSIS - IN-HOUSE

Item No.	Installation & Location	FY	TUA (\$ 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	Parent Dept					other MOD	other RDT&E	Paid From Dept RDT&E	Paid From other RDT&E		
15.	Electronic Systems Division, L.G. Hanscom AFB, MA	80 81 82 83	53,425 51,914 58,467 60,825	2,000 2,000 2,000 2,000	1,000 1,000 1,000 1,000	56,425 54,914 61,467 63,825	29,611 35,927 35,357 35,714	86,036 90,841 96,824 99,539	95 92 85 85	1,574 1,590 1,595 1,583	95 92 85 85	1,365 1,377 1,407 1,390	3,034 3,059 3,087 3,058	
16.	Space Division Los Angeles, CA	80 81 82 83	33,014 34,963 38,740 39,970	200 200 200 200	264 200 200 200	33,578 35,463 39,240 40,470	28,703 34,823 34,227 34,568	62,281 70,286 73,467 75,038	2 2 2 2	860 970 968 961	2 2 2 2	1,302 1,313 1,339 1,323	2,164 2,285 2,309 2,266	
17.	Ballistic Missile Office Norton AFB, CA	80 81 82 83	6,378 7,278 7,960 8,045	100 100 100 100	100 100 100 100	6,478 7,378 8,060 8,145	6,036 7,323 7,384 7,458	13,514 14,701 15,444 15,603	1 1 1 1	232 271 275 271	1 1 1 1	278 280 294 290	511 552 570 562	
18.	Aerospace Medical Division Brooks, AFB, TX	80 81 82 83	12,620 13,367 14,483 14,535	50 50 50 50	50 50 50 50	12,670 13,417 14,533 14,585	14,934 21,017 22,053 22,186	182 189 189 192	182 189 189 192	182 189 189 192	182 189 189 192	288 291 299 296	470 480 488 488	
19.	Headquarters AF Systems Command Andrews AFB, MD	80 81 82 83	30,651 32,483 38,217 38,880	1,100 1,100 1,100 1,100	1,100 1,100 1,100 1,100	31,751 33,583 39,317 39,980	20,668 24,029 24,159 24,139	52,419 57,612 63,476 64,139	25 25 25 25	760 772 806 805	25 25 25 25	890 885 891 884	1,475 1,682 1,722 1,714	
20.	Arnold Engineering Development Center, Tallahassee, FL	80 81 82 83	94,821 106,155 118,863 129,875	39,251 43,405 51,223 53,843	2,264 3,330 1,632 1,516	143,309 159,532 173,937 189,338	144,854 161,338 176,044 191,703	150 150 189 212	150 150 189 212	150 150 189 212	150 150 189 212	95 119 134 129	3,537 3,560 3,614 3,632	
21.	Armament Division Ballin AFB, TX	80 81 82 83	109,948 109,758 125,275 136,392	37,519 46,636 51,050 53,623	2,039 2,535 2,774 2,914	150,760 160,449 180,764 194,728	203,708 223,937 243,867 259,600	122 104 83 83	122 104 83 83	122 104 83 83	122 104 83 83	3,635 3,652 3,628 3,660	7,404 7,515 7,461 7,461	

INSTALLATION ANALYSIS - IN-HOUSE

Item No.	Installation	FY	TOA (\$ In Thousands)							PERSONNEL (Man-Years)							TOTAL		
			ROTS&E Funds		All other Funds		Sub-Total	Mil Perts.	TOTAL	Civil Service			Contractor			In RDT&E Work		TOTAL	
			Dept of Air Force	other Dept.	Parent Dept.	other				Paid From RDT&E	Paid From other	Paid From RDT&E	Paid From other	Mil Perts.					
22.	AF Flight Test Center Edwards AFB, CA	80	78,488	27,891	57	1,264	108,400	43,785	152,185	1,483	90	3,281	4,854	3,191	4,741	3,175	4,719	3,197	4,740
		81	76,323	32,492	3,780	1,523	114,118	51,430	165,558	1,470	80	3,191	4,741	3,175	4,719	3,197	4,740	3,197	4,740
		82	87,905	35,012	4,495	1,299	128,621	51,994	180,615	1,476	68	3,175	4,719	3,175	4,719	3,175	4,719	3,175	4,719
		83	94,318	38,112	3,225	1,289	136,944	51,570	188,514	1,485	58	3,197	4,740	3,197	4,740	3,197	4,740	3,197	4,740
23.	4450th Test Wing Wright-Patterson AFB, OH	80	44,908	15,810	2,426	691	63,835	11,436	75,271	923	12	836	1,771	836	1,771	836	1,771	836	1,771
		81	45,682	19,665	3,729	2,848	71,924	13,433	85,359	910	10	835	1,755	835	1,755	835	1,755	835	1,755
		82	58,140	24,033	5,768	3,985	90,022	13,433	103,455	912	10	817	1,739	817	1,739	817	1,739	817	1,739
		83	59,588	31,335	3,327	3,02	94,524	13,414	107,938	910	10	818	1,738	818	1,738	818	1,738	818	1,738
24.	SHAPE Technical Center, The Hague, Netherlands	80	2,130				2,130		2,130	21									
		81	1,980				1,980		1,980	23									
		82	2,600				2,600		2,600	22									
		83	2,700				2,700		2,700	20									
25.	Military Personnel Services	80	546				546		546										
		81	4,230				4,230		4,230	160									
		82	2,700				2,700		2,700	160									
		83	2,600				2,600		2,600	160									
26.	RAAF (Royal Australian Air Force)	80	714,198	219,332	99,099	1,274	1,022,413	165,284	1,187,697	15,807	725	44,299	39,764	16,068	39,764	16,068	39,764	16,068	39,764
		81	757,481	227,863	59,444	2,830	1,047,618	163,419	1,211,037	18,076	680	44,826	39,983	16,106	39,983	16,106	39,983	16,106	39,983
		82	879,900	274,939	3,423	3,227	1,158,599	173,880	1,332,479	18,291	610	44,876	40,304	16,292	40,304	16,292	40,304	16,292	40,304
		83	911,833	275,544	34,139	3,227	1,224,743	173,880	1,400,623	19,230	600	44,876	40,331	16,210	40,331	16,210	40,331	16,210	40,331

INSTALLATION ANALYSIS - PER'S

Category	STATE PER'S			All Other	Total	Mil Pers	Personnel / Support						TOTAL	
	State	Federal	Other				Professional /			Support				
							From Parent Dept RT&E	Paid From Other RT&E	Total	From Parent Dept RT&E	Paid From Other RT&E	Total		
1. Active Personnel	14,001	5,000	0	146,931	0	146,931	901	159	631	784	138	549	0	3,162
2. Reserve Personnel	14,001	5,000	0	146,931	0	146,931	901	159	631	784	138	549	0	3,162
3. Total Personnel	28,002	10,000	0	293,862	0	293,862	1,802	318	1,262	1,568	276	1,098	0	6,324
4. Civilian Personnel	14,001	5,000	0	146,931	0	146,931	901	159	631	784	138	549	0	3,162
5. Military Personnel	14,001	5,000	0	146,931	0	146,931	901	159	631	784	138	549	0	3,162
6. Total Personnel	28,002	10,000	0	293,862	0	293,862	1,802	318	1,262	1,568	276	1,098	0	6,324
7. Support Personnel	14,001	5,000	0	146,931	0	146,931	901	159	631	784	138	549	0	3,162
8. Total Support Personnel	14,001	5,000	0	146,931	0	146,931	901	159	631	784	138	549	0	3,162
9. Total Personnel	42,003	15,000	0	440,793	0	440,793	2,703	477	1,893	2,352	414	1,647	0	9,486
10. Total Personnel	42,003	15,000	0	440,793	0	440,793	2,703	477	1,893	2,352	414	1,647	0	9,486

INSTALLATION ANALYSIS - FORCS

Item FORC & No. Location FY	TOA (\$ in Thousands)				Personnel 1/				TOTAL					
	RDT&E Funds		All Other Funds	Sub- Mil	Professional 2/		Support							
	Dept of Air Force	Other Parent Dept			DOD	Paid From Parent Dept RDT&E	Paid From Other RDT&E	Paid From Parent Dept RDT&E		Paid From Other RDT&E	Mil Pers			
20 PROJECT 80	11,700	0	0	11,700	0	11,700	141	0	141	0	0	0	282	
AIR FORCE														
81	12,470	0	0	12,470	0	12,470	136	0	136	0	0	0	272	
82	14,100	0	0	14,100	0	14,100	138	0	138	0	0	0	276	
83	15,100	0	0	15,100	0	15,100	134	0	134	0	0	0	268	
80	178,734	0	72,667	67,823	319,224	0	319,224	2,105	908	723	1,833	932	582	7,082
81	223,658	0	87,243	75,270	386,171	0	386,171	2,323	884	621	1,990	874	658	7,370
82	260,343	0	108,679	100,466	469,488	0	469,488	2,455	947	802	2,132	947	652	7,950
83	294,007	0	119,414	130,411	543,832	0	543,832	2,714	975	882	2,345	967	725	8,618

1/ Chown in manyears.

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

3/ Other DOD RDT&E Funds contain DCA and NSA Funding that is part of the Air Force ceiling. The following are the funded amounts for each FY:

FY 80	335	FY 82	1,112
FY 81	779	FY 83	1,309

To calculate the actual Air Force ceiling for each FY, add Dept Air Force RDT&E Funds + All Other Funds + the amount shown above in this footnote. The balance is other DOD ceiling.

Research, Development, Test and Evaluation, Air Force

Section 5 - Analysis of Reimbursable Program

(\$ In Thousands)

<u>Customer</u>	<u>FY 1980 Actual</u>	<u>FY 1981 Estimate</u>	<u>FY 1982 Estimate</u>
Department of the Air Force	188,066	175,098	175,098
<u>Other Department of Defense Components</u>			
Department of the Army	57,690	53,801	53,801
Department of the Navy	76,233	70,920	70,920
Defense Nuclear Agency	1,000	929	929
Other Department of Defense Components	67,954	63,094	63,094
<u>Activities Outside Department of Defense</u>			
National Aeronautics and Space Administration	47,352	44,019	44,019
Other	54,051	35,039	35,039
Trust Funds (Foreign Military Sales)	25,874	39,100	39,100
Non-Federal Sources	7,106	7,100	7,100
Total Reimbursements	525,326	489,100	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 RDTE 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 of Environmental Protection Agency; Environmental Research Development Agency; NATO AEWG; FAA Simulated Microwave Landing System.
- g. Trust Funds (Foreign Military Sales) - For support of satellite launching, tracking, range support, management services and administrative expenses 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 (RDT&E), AIR FORCE

SECTION 6 - FEDERAL CONTRACT RESEARCH CENTERS (FCRCs)

FCRCs are organizations primarily engaged in providing independent, specialized technical and scientific support necessary to supplement resources available within the Department of Defense (DOD) and assist the Air Force in the planning, development, and execution of RDT&E 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 \$390,235,000 and \$456,017,000 in FY 1982 and FY 1983, 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 DOD.

A detailed tabulation of the FCRC programs follows.

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

	<u>FY 1980 ACTUALS</u>	<u>FY 1981 ESTIMATES</u>	<u>FY 1982 ESTIMATES</u>	<u>FY 1983 ESTIMATES</u>
AEROSPACE CORPORATION				
RDT&E	78,760	105,122	115,412	127,655
MISSILE PROCUREMENT	22,113	10,900	18,200	22,700
OTHER PROCUREMENT	26,471	37,700	41,600	47,900
OPERATIONS & MAINTENANCE	<u>6,537</u>	<u>13,700</u>	<u>25,766</u>	<u>43,853</u>
TOTAL AEROSPACE CORPORATION (1)	133,881	167,422	200,978	242,108
LINCOLN LABORATORY				
RDT&E	52,637	58,178	69,393	74,047
OTHER PROCUREMENT	532	575	625	670
OPERATIONS AND MAINTENANCE	<u>7,482</u>	<u>8,735</u>	<u>8,633</u>	<u>9,367</u>
TOTAL LINCOLN LABORATORY (2)	60,651	67,488	78,651	84,084
MITRE CORPORATION				
RDT&E	57,750	73,589	87,531	105,191
AIRCRAFT PROCUREMENT	0	495	0	0
OTHER PROCUREMENT	3,896	1,692	5,797	6,166
OPERATIONS AND MAINTENANCE	<u>3,454</u>	<u>4,925</u>	<u>3,178</u>	<u>3,368</u>
TOTAL MITRE CORPORATION	65,100	80,701	96,506	114,725
RAND CORPORATION				
RDT&E	<u>11,700</u>	<u>12,470</u>	<u>14,100</u>	<u>15,100</u>
TOTAL RAND CORPORATION	11,700	12,470	14,100	15,100

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

	<u>FY 1980</u> ACTUALS	<u>FY 1981</u> ESTIMATES	<u>FY 1982</u> ESTIMATES	<u>FY 1983</u> ESTIMATES
TOTAL PROGRAM SUMMARY BY APPROPRIATION				
RDT&E	200,359	249,359	286,436	321,993
MISSILE PROCUREMENT	22,113	10,900	18,200	22,700
AIRCRAFT PROCUREMENT	0	495	0	0
OTHER PROCUREMENT	30,899	39,967	48,022	54,736
OPERATIONS & MAINTENANCE	<u>17,473</u>	<u>27,360</u>	<u>37,577</u>	<u>56,588</u>
TOTAL FCRCs	271,081	328,081	390,235	456,017

(1) Excludes funds not subject to FCRC limitations (outside contracts, flow through costs, FY 80 - \$5,039,000, FY 81 - \$7,426,000, FY 82 - \$13,000,000 and FY 83 - \$13,000,000)

(2) Includes outside procurement cost (FY 80 - \$24,442,000, FY 81 - \$28,374,000, FY 82 - \$28,314,000 and FY 83 - \$30,270,000)

FEDERAL CONTRACT RESEARCH CENTERS
 Summary by Program Element
 Aerospace Corporation

(\$ In Thousands)

	FY 1980 ACTUALS	FY 1981 ESTIMATES	FY 1982 ESTIMATES	FY 1983 ESTIMATES
<u>RDT&E APPROPRIATION</u>				
NORAD COC	2,593	1,700	1,900	1,700
DEFENSE SUPPORT PROGRAM	7,875	5,900	6,012	9,100
DEFENSE DISSEMINATION PROGRAM	75	0	0	0
DEF SATELLITE COMM SYS	4,911	5,200	2,800	700
AIR FORCE SAT COMM SYS	3,613	9,200	10,700	11,900
SPECIAL ACTIVITIES	6,134	9,800	9,100	12,855
SPACE BOOSTERS	2,694	900	2,500	2,200
SATELLITE DATA SYSTEM	1,150	2,100	2,900	3,500
DEF METEOROLOGICAL SATELLITE PROG	844	1,500	2,500	2,900
SPACE LAUNCH SUPPORT	0	0	100	100
DEFENSE RESEARCH SCIENCES	55	200	200	200
MATERIALS	120	100	100	100
ROCKET PROPULSION	199	300	300	300
ADVANCED WEAPONS	748	1,400	1,400	1,300
ADV BALLISTIC RE-ENTRY SYS	4,578	400	600	600
SPACE VEHICLE SUBSYSTEMS	1,014	1,500	0	0
SPACE TEST PROGRAM	5,079	6,000	7,600	8,500
SPACE SHUTTLE	7,648	0	0	0
MSL SURVEILLANCE TECH	642	1,200	1,700	2,300
SPACE SURVEILLANCE TECHNOLOGY	5,052	4,700	3,200	4,000
SPACE COMMUNICATIONS	1,108	1,700	2,900	3,300
INTEG OPER NUDETS DETECT SYS	321	0	0	0
SATELLITE SYS SURVIVABILITY	2,576	3,600	5,400	5,600
ADV SPACE APPLICATIONS PROGRAM	690	600	0	0
ADV RADIATION TECH	165	0	0	0
M-X	1,425	4,500	5,000	5,200

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

(\$ In Thousands)

	FY 1980 ACTUALS	FY 1981 ESTIMATES	FY 1982 ESTIMATES	FY 1983 ESTIMATES
<u>RDT&E APPROPRIATION (CONTINUED)</u>				
64406F	5,798	7,100	11,000	10,500
64411F	0	21,074	20,200	22,400
64711F	156	0	0	0
64742F	530	700	700	700
64778F	9,627	12,148	14,800	15,800
65808F	1,340	1,600	1,800	1,900
TOTAL RDT&E	78,760	105,122	115,412	127,655
<u>MISSILE PROCUREMENT APPROPRIATION</u>				
12431F	6,397	2,500	4,100	3,600
33110F	5,818	1,000	5,000	6,600
34111F	4,495	0	0	0
35119F	171	1,000	1,200	1,300
35158F	725	0	900	1,000
35160F	4,507	6,400	7,000	7,300
35171F	0	0	0	2,900
TOTAL MISSILE PROCUREMENT	22,113	10,900	18,200	22,700

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

(\$ In Thousands)

	FY 1980 ACTUALS	FY 1981 ESTIMATES	FY 1982 ESTIMATES	FY 1983 ESTIMATES
<u>OTHER PROCUREMENT APPROPRIATION</u>				
12431F DEFENSE SUPPORT PROGRAM	0	2,500	3,200	3,400
34111F SPECIAL ACTIVITIES	26,471	35,200	38,400	44,500
TOTAL OTHER PROCUREMENT APPROPRIATION	26,471	37,700	41,600	47,900
<u>OPERATIONS & MAINTENANCE APPROPRIATION</u>				
12431F DEFENSE SUPPORT PROGRAM	388	2,500	3,200	3,900
33110F DEF SATELLITE COMM SYS	500	500	900	1,000
35119F SPACE BOOSTERS	1,578	900	800	900
35158F SATELLITE DATA SYSTEM	3,161	2,500	3,000	3,300
35160F DEF METEOROLOGICAL SATELLITE PROG	120	0	0	0
35170F SPACE SUPPORT PROGRAM	790	0	0	0
35171F SPACE LAUNCH SUPPORT	0	7,300	17,866	34,753
TOTAL OPERATIONS & MAINTENANCE	6,537	13,700	25,766	43,853
TOTAL AF CEILING ESTIMATE	133,881	167,422	200,978	242,108

FEDERAL CONTRACT RESEARCH CENTERS
Summary by Program Element
Aerospace Corporation

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 Space Defense, Space Shuttle, Satellite Data System, Defense Support Program, and Special Activities. The other DOD agencies include such organizations as Defense Advanced Research Projects Agency (DARPA), Army, Navy, and Defense Mapping Agency (DMA).

FEDERAL CONTRACT RESEARCH CENTERS
 Summary by Program Element
 Lincoln Laboratory

RDT&E APPROPRIATION	(In Thousands)			
	FY 1980 ACTUALS	FY 1981 ESTIMATES	FY 1982 ESTIMATES	FY 1983 ESTIMATES
63250F LINCOLN LABORATORY	19,795	21,500	22,600	24,100
33126F LONG HAUL COMMUNICATIONS (DCS)	555	595	651	699
33401F COMMUNICATIONS SECURITY	224	217	263	678
61102F DEFENSE RESEARCH SCIENCES	916	780	848	905
62204F AEROSPACE AVIONICS/VHSI CIRCUITS	125	168	150	0
62601F ADVANCED WEAPONS	150	150	165	175
62702F COMMAND/CONTROL/COMMUNICATION	760	1,020	1,735	2,505
63311F ADV BALLISTIC RE-ENTRY SYS	7,839	6,820	8,730	10,515
63428F SPACE SURVEILLANCE TECHNOLOGY	3,823	4,988	3,485	6,580
63431F SPACE COMMUNICATIONS	5,800	6,000	9,000	11,500
63601F CONVENTIONAL WEAPONS	2,005	1,800	1,800	1,200
63727F ADVANCED COMMUNICATIONS TECHNOLOGY	1,750	0	0	0
63742F TACTICAL IDENTIFICATION SYS	4,500	2,000	5,000	5,000
63747F PAVE MOVER	1,100	4,250	5,350	1,000
64738F PROTECTIVE SYS	567	1,250	750	550
64742F PRECISION LOCATION STRIKE SYS	150	600	600	600
64754F JT TAC INFO DIST SYS	300	930	291	0
63249F NIGHT ATTACK PROGRAM	150	1,000	1,150	0
63605F ADVANCED RADIATION TECH	0	1,400	2,600	2,700
TOTAL AIR FORCE RDT&E	50,509	55,468	65,168	68,707

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

(\$ In Thousands)

	FY 1980 ACTUALS	FY 1981 ESTIMATES	FY 1982 ESTIMATES	FY 1983 ESTIMATES
<u>OTHER RDT&E SUPPORT</u>				
33125K*	930	900	1,000	1,000
33401G*	975	1,400	1,500	1,500
61102A*	0	200	1,500	2,500
62712E*	223	210	225	240
TOTAL OTHER RDT&E	2,128	2,710	4,225	5,340
TOTAL RDT&E	52,637	58,178	69,393	74,047
<u>OTHER PROCUREMENT APPROPRIATIONS</u>				
12424F	532	575	625	670
<u>OPERATIONS AND MAINTENANCE APPROPRIATION</u>				
12424F	1,546	1,926	2,080	2,240
31310F	3,191	2,955	3,250	3,495
31314F	1,320	2,854	2,303	2,632
33601F	1,425	1,000	1,000	1,000
TOTAL OPERATIONS AND MAINTENANCE APPROPRIATION	7,482	8,735	8,633	9,367
TOTAL AIR FORCE SUBCONTRACT'S	60,651	67,488	78,651	84,084
AIR FORCE CEILING ESTIMATE	24,442	28,374	28,314	30,270
	36,209	39,114	50,337	53,814

*funded by other DOD agencies, but included in Air Force Limitations

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 communications 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, Advanced Space Communication and the Low Visibility Moving Target Acquisition/Strike Program. Also supported are other DOD agencies such as DARPA, Navy, and the Defense Communications Agency (DCA).

FEDERAL CONTRACT RESEARCH CENTERS
 Summary by Program Element
 MITRE Corporation

(\$ In Thousands)

	<u>FY 1980</u>	<u>FY 1981</u>	<u>FY 1982</u>	<u>FY 1983</u>
	<u>ACTUALS</u>	<u>ESTIMATES</u>	<u>ESTIMATES</u>	<u>ESTIMATES</u>
<u>RDT&E APPROPRIATION</u>				
11312F POST-ATTACK CMD/CNTRL SYS	2,412	3,252	3,000	3,300
11316F SAC COMMUNICATIONS	3,294	3,750	4,100	1,300
12311F NORAD, COC	1,100	1,067	3,657	4,437
12325F JOINT SURVEILLANCE SYSTEM	582	746	840	910
12411F SURVEILLANCE RADAR STATIONS/SITES	900	934	720	320
12423F BALLISTIC MSL EARLY WNG SYSTEM	0	1,950	2,200	1,870
12424F SPACETRACK	2,688	1,379	1,082	1,194
27411F OVERSEAS AIR WEAPON CONT SYS	0	200	1,635	1,640
27412F TACTICAL AIR CONTROL SYSTEM	2,352	3,631	630	0
27415F USAF COMMAND/CONTROL SYS	2,680	3,976	0	0
27417F TAC AIRBORNE CMD/CNTRL SYS	4,589	4,744	5,080	5,482
27423F ADV COMM SYS	2,150	3,354	6,500	2,500
27431F TACT AIR INTELL SYS ACTYS	563	806	940	1,442
28010F JT TACTICAL COMM PROG (TRI-TAC)	5,933	9,965	7,676	9,309
33126F LONG HAUL COMMUNICATIONS (DCS)	2,288	1,127	815	1,013
33401F COMMUNICATIONS SECURITY	170	175	643	710
33601F AIR FORCE SAT COMM SYS	2,949	4,435	4,300	5,034
35114F TRAFFIC CNTRL/APPROACH/LANDING SYS	365	493	2,370	2,614
61102F DEFENSE RESEARCH SCIENCES	41	91	0	0
62101F GEOPHYSICS	32	80	90	25
62702F COMMAND/CONTROL/COMMUNICATION	1,582	1,920	1,708	1,711
63429F WARNING INFORMATION CORRELATION	520	1,932	0	0
63431F SPACE COMMUNICATIONS	1,199	433	1,710	1,982

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

(\$ In Thousands)

	FY 1980		FY 1981		FY 1982		FY 1983	
	ACTUALS	ESTIMATES	ACTUALS	ESTIMATES	ESTIMATES	ESTIMATES	ESTIMATES	ESTIMATES
<u>RDT&E APPROPRIATION (CONTINUED)</u>								
63703F CONUS OVER-THE-HORIZON RADAR	974	1,700			2,038	2,128		
63707F WEATHER SYSTEMS	0	0			080	120		
63727F ADVANCED COMMUNICATIONS TECHNOLOGY	0	300			300	327		
63735F WWMCCS ARCHITECTURE	3,742	2,483			4,800	6,217		
63742F TACTICAL IDENTIFICATION SYSTEM	1,258	0			1,000	1,090		
63747F PAVE MOVER	1,143	1,419			0	0		
63750F COUNTER/COUNTERMEASURES	0	0			1,215	1,318		
63789F COMD/CNTRL/COMM ADV DEV	915	770			2,704	3,170		
64616F AIR LAUNCHED ASSAULT BREAKER	0	0			5,020	6,310		
64707F WEATHER SYSTEMS	0	542			542	542		
64708F OTHER OPERATIONAL EQUIPMENT	80	86			104	164		
64715F DOD PHYSICAL SECURITY EJ-EXTERIOR	646	722			1,000	1,100		
64724F TAC C-3 COUNTERMEASURES	321	1,242			2,200	3,600		
64740F APPL FOR INFO PROCESSING TECH	710	1,383			816	900		
64750F INTELLIGENCE EQUIPMENT	644	623			364	517		
64751F INTRA-THEATRE IMAGING SYSTEM	299	200			200	0		
64754F JT TAC INFO DIST SYS	3,676	4,064			4,452	4,910		
64757F SYSTEMS PROTECTION	550	114			0	0		
64779F JT INTEROPERABILITY TAC COMD/CNTRL	600	2,302			400	500		
65806F ACQUISITION AND COMMAND SUPPORT	115	300			425	470		
65807F TEST AND EVALUATION SPT	531	1,016			900	619		
65808F ADV SYS ENGINEERING/PLAN	2,820	2,100			2,260	3,605		
TOTAL AIR FORCE RDT&E	57,415	72,810			86,413	103,862		

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

(\$ In Thousands)

	FY 1980 ACTUALS	FY 1981 ESTIMATES	FY 1982 ESTIMATES	FY 1983 ESTIMATES
<u>OTHER RDT&E SUPPORT</u>				
33131K* MINIMUM ESSENTIAL EMERGENCY COMM NETWORK	90	26	0	0
34111G* SPECIAL ACTIVITIES	245	178	500	651
35885G* TACTICAL CRYPTOLOGICAL PROGRAMS	0	575	612	678
TOTAL OTHER RDT&E SUPPORT	335	779	1,112	1,329
<u>AIRCRAFT PROCUREMENT APPROPRIATION</u>				
27423F ADV COMM SYS	0	495	0	0
<u>OTHER PROCUREMENT APPROPRIATION</u>				
27423F ADV COMM SYS	0	47	725	570
27431F TAC AIR INTELL SYS ACTYS	0	0	485	200
28010F JT TACTICAL COMM PROG (TRI-TAC)	0	0	970	1,552
33126F LONG HAUL COMMUNICATIONS (DCS)	3,196	1,645	1,463	1,562
33601F AIR FORCE SAT COMM SYS	700	0	654	582
33605F SATELLITE COMMUNICATIONS TERMINALS	0	0	1,500	1,700
TOTAL OTHER PROCUREMENT APPROPRIATION	3,896	1,692	5,797	6,166

*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 1980 ACTUALS	FY 1981 ESTIMATES	FY 1982 ESTIMATES	FY 1983 ESTIMATES
<u>OPERATIONS AND MAINTENANCE</u>				
<u>APPROPRIATION</u>				
12311F NORAD COC	1,100	1,200	0	0
27411F OVERSEAS AIR WEAPON CONT SYS	1,775	1,178	1,010	1,010
31011F CRYPTOLOGIC ACTIVITIES	90	698	102	0
31025G INTELLIGENCE DATA HANDLING SYS	682	828	850	904
31335F AUTOMATIC DATA PROCESSING GDIP	657	734	416	904
78019F UTAH TESTING & TRAINING RANGE	150	287	300	0
87791D TRIMIS PROGRAM OFFICE	0	0	500	550
TOTAL OPERATIONS AND MAINTENANCE APPROPRIATION	3,454	4,925	3,178	3,368
TOTAL AF CEILING ESTIMATE	65,100	80,701	96,506	114,725

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

MITRE. 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/integration and support of development planning activities. Major Air Force programs being supported by MITRE include the Post-Attack Command and Control System, Tactical Airborne Communications Control System, Joint Tactical Communications Program (TRI-TAC), and various strategic and tactical command, control and communications systems. The other DOD agencies included such organizations as the Joint Deployment Agency, DCA, DARPA, Army, Navy, Assistant Secretary of Defense (Intelligence), and the Assistant Secretary of Defense (Test and Evaluation).

FEDERAL CONTRACT RESEARCH CENTERS
 Summary by Program Element
 Project AIR FORCE

(\$ In Thousands)

<u>RDT&E APPROPRIATION</u>	<u>FY 1980 ACTUAL</u>	<u>FY 1981 ESTIMATES</u>	<u>FY 1982 ESTIMATES</u>	<u>FY 1983 ESTIMATES</u>
65101F BASIC PROGRAM	<u>11,700</u>	<u>12,470</u>	<u>14,100</u>	<u>15,100</u>
TOTAL PROJECT AIR FORCE	11,700	12,470	14,100	15,100

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 1981

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, the Secretaries of the Military Departments or their designees, and the Directors of Defense Agencies may approve facilities projects up to \$3,000,000; the Under Secretary of Defense Research and Engineering approves projects exceeding \$3,000,000. The Congress is notified in advance of starting any project involving construction, regardless of the dollar amount. The table below provides a summary listing of all such projects accomplished in FY 80 and planned in FY 81 and FY 82:

Facility/Equipment	RDT&E Project Number	Contractor	Location	1980 (Thousands of Dollars)	1981 (Thousands of Dollars)	1982 (Thousands of Dollars)	1983 (Thousands of Dollars)
Millstone Radar Site	2/ 63428F		Lincoln Laboratory	12.0	15.0		
Miscellaneous Projects Under \$50K	Various		Lincoln Laboratory	122.0	100.0		

SECTION I
Projects Accomplished or Underway

Exhibit RD-4

PART I. (CONTINUED)

Facility/Equipment	PDT&E Project Number	Contractor	Location	Total Obligational Authority (Thousands of Dollars)		
				1980	1981	1982 1983
<u>SECTION II</u>						
Projects Planned or Projected						
Bldg 1718 Alterations Reentry Systems 2/	63311F	Lincoln Laboratory	Hanscom AFB MA	75.0		
Bldg 1302B - Addition 1/	63431F	Lincoln Laboratory	Hanscom AFB MA	490.0		
Bldg 1312L - Addition 1/	63255F	Lincoln Laboratory	Hanscom AFB MA	490.0		
CONUS OTH-B Radar Facilities 1/	12417F	To Be Determined	Washington & Somerset County, MA		2,100.0	2,400.0
TOTAL PART I				134.0	1,170.0	2,100.0 2,400.0

- 1/ Initial listing.
- 2/ Previously listed in PDT&E Justification of Estimates for FY 81.

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

Chapter 251 (which was approved 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 80 and planned in FY 81 and FY 82:

Facility/Equipment	RDT&E Project Number	Location	Total Obligational Authority (Thousands of Dollars)		
			1980	1981	1982

SECTION I

Projects Accomplished or Underway

Modernize Component Research Air Facility <u>1/</u>	62203F	Wright-Patterson AFB OH	30.0	2,424.2	3,019.0	1,256.2
Install Computer Equipment Flight Control Laboratory <u>1/</u>	62201F	Wright-Patterson AFB OH	106.0			
Environmental Control Equipment, Bldg 32 <u>2/</u>	62102F	Wright-Patterson AFB OH	200.0			
Install Film Processing Equipment <u>1/</u>	65807F	Edwards AFB CA	98.4			
M-X Vertical Shelter Test <u>2/</u> <u>3/</u>	64312F	Dept of Energy Nevada Test Site NV	220.0			
Temporary Expansion Sandia Optical Range <u>1/</u>	63605F	Kirtland AFB NM		2,576.0		

PART 2. (CONTINUED)

Facility/Equipment	RDT&E Project Number	Location	Total Obligational Authority (Thousands of Dollars)		
			1980	1981	1982
<u>SECTION II</u>					
Projects Planned or Projected					
Seismically Stable Platform Prototype (Bldg 1256) 1/	65807F	Holloman AFB NM	159.6		
Turbostructure Spin Test Facility 2/	62203F	Wright-Patterson AFB OH	610.0		
AGILE Equipment Installation 1/	62201F	Wright-Patterson AFB OH	160.0		
Equipment Installation Engine Maintenance Shop 1/	65807F	Edwards AFB CA	160.0		
Relocate Avionics Lab Equipment 1/	27130F	Edwards AFB CA	86.1		
Alter Integrated Maintenance Facility (IMF) 2/	64406F	Edwards AFB CA	250.0		

PART 2. (CONTINUED)

SECTION II
(CONTINUED)

Facility/Equipment	RDT&E Project Number	Location	Total Obligational Authority (Thousands of Dollars)		
			1980	1981	1982 1983
Rocket Propellant Research Process System <u>2/</u>	62302F	Edwards AFB CA		744.0	
Rocket Propellant Test System <u>2/</u>	62302F	Edwards AFB CA		900.0	
Data Calibration Center: <u>1/</u>	62302F	Edwards AFB CA			250.0
Alter Physical Science Laboratory <u>1/</u>	62302F	Edwards AFB CA			600.0
PAD 1 ABRES "A" Site <u>1/</u>	63424F	Vandenberg AFB CA		400.0	
Install RDT&E GPS Equipment <u>1/</u>	64778F	Vandenberg AFB CA			

PART 2. (CONTINUED)

SECTION II
(CONTINUED)

Facility/Equipment	RDT&E Project Number	Location	Total Obligational Authority (Thousands of Dollars)		
			1980	1981	1982 1983
Temp Bldg/EMP Testing <u>1/</u>	64747F	Kirtland AFB NM		853.0	
Temp Control Tower <u>1/</u>	65807F	Edwards AFB CA	525.0		
Install Pulsed Chemical Laser Test Device <u>1/</u>	62601F	Kirtland AFB NM		300.0	300.0
Mod to Install 2nd Facs <u>2/</u>	62601F	Kirtland AFB NM	200.0		
Mod to Install Front End Processor <u>1/</u>	62601F	Kirtland AFB NM	150.0		
R&D Computer Haylon System <u>2/</u>	62601F	Kirtland AFB NM		300.0	
Install Chem/Oxygen - Iodine Laser Device <u>1/</u>	63605F	Kirtland AFB NM		300.0	300.0
Environmental Control for Lab Equipment <u>1/</u>	63605F	Kirtland AFB NM	130.0		

PART 2. (CONTINUED)

SECTION II
(CONTINUED)

Facility/Equipment	RDTE Project Number	Location	Total Obligational Authority (Thousands of Dollars)		
			1980	1981	1982 1983
Machinery Condition Monitoring <u>1/</u>	65807F	Arnold AFS TN	178.2	200.2	539.0
Tunnel A/B/C/ Controls <u>1/</u>	65807F	Arnold AFS TN	9.4	43.5	101.2
4T Flexible Nozzle <u>1/</u>	65807F	Arnold AFS TN	214.5		
Augmentor Viewing & Centerbody Position VAE <u>1/</u>	65807F	Arnold AFS TN	243.1		
Test Article (T520A&B) (Full Scale Horizontal Protection Shelter) <u>1/ 3/</u>	64312F	Nevada Test Site NV		10,053.0	1,540.0
Equipment Installation Temporary Facility <u>1/</u>	64724F	George AFB CA	292.0		
Radar Targeting Test Site <u>1/</u>	64708F	Wright-Patterson AFB OH	300.0		
Temporary Clean Room <u>1/</u>	35160F	Vandenberg AFB CA	487.0		
Test Capabilities for AMRAAM Program <u>1/</u>	63370F	Holloman AFB NM	155.5		

PART 2. (CONTINUED)

SECTION II
(CONTINUED)

Facility/Equipment	RDT&E Project Number	Location	Total Obligation Authority (Thousands of Dollars)			
			1980	1981	1982	1983
Temporary Test Site for PAVE MOVER <u>1/</u>	63747F	Holloman AFB NM		593.3		
Command, Control & Comm Facility (SACDIN) <u>2/</u>	11316F	Offutt AFB NE		127.0		
M-X Protective Shelter Construction Demonstration and Cannister Test Site <u>1/ 3/</u>	64312F	Nevada Test Site NV		4,000.0	10,530.0	2,000.0
TOTAL PART 2			974.0	15,989.9	26,198.7	6,286.4

1/ Initial listing.

2/ Previously listed in Justification of Estimates for FY 81.

3/ This is a prototype program previously identified for 1980. This is a continuation of the program.

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 80, and the estimated amounts planned for FY 81 and FY 82. 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 80</u>	<u>FY 81</u>	<u>FY 82</u>	<u>FY 83</u>
TOTAL PART 3	5,087.1	9,404.6	6,277.0	2,881.2
RECAP OF FUNDING				
SUBTOTAL PART 1	134.0	1,170.0	2,100.0	2,400.0
SUBTOTAL PART 2	974.0	15,989.9	26,198.7	6,286.4
SUBTOTAL PART 3	5,087.1	9,404.6	6,277.0	2,881.2
GRAND TOTAL	6,195.1	26,564.5	37,575.7	11,567.6

1 COMPONENT Air Force		FY 1981 RDT&E FACILITIES PROJECT DATA		2 DATE January 1981			
3 INSTALLATION AND LOCATION Lincoln Laboratory Hanscom AFB, Massachusetts			4 PROJECT TITLE Building 1302B - Addition				
5 PROGRAM ELEMENT 63431F		6 CATEGORY CODE	7 PROJECT NUMBER 2028	8 PROJECT COST (\$000) 490.0			
9 COST ESTIMATES							
ITEM				U/M	QUANTITY	UNIT COST	COST (\$000)
Satellite Control Center							490
10 DESCRIPTION OF PROPOSED INSTALLATION							
<p>Construct an additional 5400 square-foot room on the roof of Building 1302B, including partitions, heating, ventilating and air conditioning system, lighting, test and control areas, office and laboratory areas.</p> <p><u>PROJECT:</u> Lincoln Laboratory is assisting the Tri-Service community and the Defense Communications Agency in determining the architecture for military satellite communications systems. As a part of this effort, the Laboratory is conducting a satellite technology program in the "high risk" technical areas - primarily on-board satellite processing and adaptive antenna nulling.</p> <p><u>REQUIREMENT:</u> The General Purpose Satellite Communications System will be more complex than the present LES 8/9 satellites and will require an operating area in close proximity to the operating antennas.</p>							

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1 COMPONENT Air Force		FY 1981		RDT&E FACILITIES PROJECT DATA		2 DATE January 1981	
3 INSTALLATION AND LOCATION Lincoln Laboratory Hanscom AFB, MA				4 PROJECT TITLE Bldg 1312L - Addition Lincoln Laboratory			
5 PROGRAM ELEMENT 63250F		6 CATEGORY CODE		7 PROJECT NUMBER 649L		8 PROJECT COST (\$000) 490.0	
9 COST ESTIMATES							
ITEM				U M	QUANTITY	UNIT COST	COST (\$000)
Laboratory Space					13,692 sq ft (gross)		490
10 DESCRIPTION OF PROPOSED INSTALLATION							
<p>Construct a 13,692 square foot addition to the existing Building 1312L, including heating, ventilation and air conditioning system, lighting, and laboratory areas.</p> <p><u>REQUIREMENT:</u> During the past few years, Lincoln Laboratory has experienced a shortage of space to adequately house research personnel working on Department of Defense sponsored programs. In order to provide the required space, it has been necessary to acquire 25 trailers. The existing building has a 13,692 square foot open area between two completed wings which will be enclosed. There will be economics in construction costs since only one exterior wall and roofing will be required to complete the enclosure. Calculations indicate that the energy consumption by occupancy of the building addition will be 124,600 kwh per year less than the energy required for equivalent trailer space.</p>							

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1 COMPONENT Air Force		FY 1982 RDT&E FACILITIES PROJECT DATA			2 DATE January 1981			
3 INSTALLATION AND LOCATION Washington & Somerset County, Maine				4 PROJECT TITLE CONUS OTH-B RADAR FACILITIES				
5 PROGRAM ELEMENT 12417F		6 CATEGORY CODE 141-000	7 PROJECT NUMBER ES-82-C05		8 PROJECT COST (\$000) 4,500.0			
9 COST ESTIMATES								
ITEM					U/M	QUANTITY	UNIT COST	COST (\$000)
Transmitter, Receiver and Operational Facilities					LS			4,500
10 DESCRIPTION OF PROPOSED INSTALLATION								
<p>Transmitter, receiver and operations buildings and antenna foundation to be designed and built using modern methods, materials, and construction technology to provide an economical and functional facility for the experimental radar system. These facilities will be used for the acquisition of systems performance test data.</p> <p><u>PROJECT:</u> This project will provide technical facilities in support of a Full Scale Development (FSD) Over-The-Horizon Backscatter (OTH-B) Radar System.</p> <p><u>REQUIREMENT:</u> Headquarters USAF direction authorized the programming of an OTH-B Radar System for detection, tracking, and identification of bomber attack on the CONUS. The system will provide initial surveillance over a nominal 60° sector of azimuth and from approximately 500 to over 1800 NM range from the CONUS location.</p> <p><u>CURRENT SITUATION:</u> Present warning systems in the CONUS provide insufficient coverage and range for desired early detection of bomber attack.</p> <p><u>IMPACT IF NOT PROVIDED:</u> The existing Experimental Radar System (ERS) cannot be modified to provide an increased capability and meet operational requirements as presently envisioned and directed.</p>								

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1 COMPONENT Air Force		FY 19 ⁸⁰ RDT&E FACILITIES PROJECT DATA		2 DATE January 1981	
3 INSTALLATION AND LOCATION WPAFB, OH - TENANT (AFWAL/PO)			4 PROJECT TITLE Modernize Component Research Air Facility 20018		
5 PROGRAM ELEMENT 62203F	6 CATEGORY CODE 318-612	7 PROJECT NUMBER WP 185-0 EQ 79-9822		8 PROJECT COST (\$000) 6,729.4	
9 COST ESTIMATES					
ITEM		U M	QUANTITY	UNIT COST	COST (\$000)
Modernize the Aero Propulsion Laboratory Component Research Air Facility 20018					
Minor Construction - Enlarge Control Room		LS	(Non-add)		(100.0)
RDT&E Equipment (Non-add)		LS			(4,224.0)
Equipment Installation		LS			5,656.4
Engineering Analysis, Design and Documentation		LS			1,073.0
TOTAL Project Cost					6,729.4
10 DESCRIPTION OF PROPOSED INSTALLATION					
<p><u>SPECIFIC PURPOSE:</u> To provide additional control room space for (1) overall operational control and installation of new compressor control/monitoring equipment and (2) as an integral part of the Component Research Air Facility Modernization Program.</p> <p><u>PROJECT:</u> To modernize the Aero Propulsion Laboratory's Component Research Air Facility in support of Research and Development Class 6.2 for Turbine Engine Combustion Technology. The work is to be accomplished by replacement of RDT&E equipment. Specifically, modernization of the compressed air system by providing enhanced capability through two new air compressors and replacement of the associated heaters, valves, piping, controllers, and switch gear for system design compatibility. Enlarge control room by approximately 200 square feet and install approximately 400 LF of underground electrical distribution ductwork.</p> <p><u>REQUIREMENT:</u> To provide a modern, reliable, and maintainable Component Research Air Facility, which efficiently allows achievement of overall Air Force developmental objectives in Turbine Engine, Ramjet and Fuels Technologies. These developmental objectives include Research and Development of Turbine and Ramjet components as well as the development of the understanding of Combustion Phenomena and development of Air Force fuels.</p>					

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1 COMPONENT Air Force		FY 19 ⁸⁰ RDT&E FACILITIES PROJECT DATA		2 DATE January 1981	
3 INSTALLATION AND LOCATION Wright-Patterson AFB, Ohio			4 PROJECT TITLE FDL Install Computer Equipment Flight Control Laboratory		
5 PROGRAM ELEMENT 62201F		6 CATEGORY CODE N/A	7 PROJECT NUMBER EQ 80-9015		8 PROJECT COST (\$000) \$106.0
9 COST ESTIMATES					
ITEM		U M	QUANTITY	UNIT COST	COST (\$000)
Equipment Installation Cost					101.5
a. Secondary Electrical Work		LS			(97.9)
b. Equipment Air Conditioning Support		LS			(3.6)
Remove Existing RDT&E Equipment		LS			4.5
Computer Equipment Cost (Non add)					(6,581.7)
a. New Computer Equipment Cost		LS			(2,302.0)
b. Valuation of Relocated Equipment		LS			(4,279.7)
Design Costs (Non add)		LS			(8.1)
10 DESCRIPTION OF PROPOSED INSTALLATION					
<p><u>PROJECT:</u> Modify the secondary electrical system between the existing transformer and the computer equipment to be installed on the existing computer deck located in Room 241, Bldg 145, Area B, Wright-Patterson AFB, Ohio. This computer equipment is in support of Flight Control Research and Development work being performed by the Air Force Wright Aeronautical Laboratory's Flight Dynamics Laboratory.</p> <p><u>REQUIREMENT:</u> Installation of new computer equipment and relocation of existing computer equipment requires a complete modification of the 60 Hz and 400 Hz AC electrical distribution systems. The existing electrical grounding system in the computer room must be upgraded. Additional electrical outlets must be provided at each computer for use of lab test equipment. An automatic emergency shutdown system must be installed on the computer equipment. The electrical modification work must be completed prior to that time.</p> <p><u>CURRENT SITUATION:</u> The existing LAMARS computer support system, located on the computer deck, will remain unchanged. The existing grounding system and the existing electrical distribution system under the computer floor are inadequate to handle the new computer equipment and the relocated equipment requirements. The existing computer deck does not have an adequate number of electrical outlets for the use of lab test equipment. The existing air conditioning system supporting the computer room equipment is adequate to support the new computer equipment with minor modifications.</p>					

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1 COMPONENT Air Force		FY 19 ⁸⁰ RDT&E FACILITIES PROJECT DATA		2 DATE January 1981	
3 INSTALLATION AND LOCATION EDWARDS AFB, CALIFORNIA			4 PROJECT TITLE INSTALL FILM PROCESSING EQUIP.		
5 PROGRAM ELEMENT 65807F	6 CATEGORY CODE 141-383	7 PROJECT NUMBER 790536 (R-1)	8 PROJECT COST (\$000) 98.4		
9 COST ESTIMATES					
ITEM		U-M	QUANTITY	UNIT COST	COST (\$000)
Equipment Installation					98.4
Alter Film Processing Area (Non add)					(96.4)
A-E design costs (Non add)					(21.1)
Equipment (Non add)					
New					(204.4)
Existing					(279.7)
10 DESCRIPTION OF PROPOSED INSTALLATION					
<p>Alter rooms and utility service in building to accept three new film processing machines with chemical mix distribution, bleach regeneration and silver recovery systems. Remove five existing processing machines with related equipment and install three new machines. Install new flooring, install new drop ceiling with flourescent lights and apply vinyl covering to interior walls. This project will be A&E designed.</p> <p><u>SPECIFIC PURPOSE:</u> To provide adequate space and utilities to support new film processing equipment. Code E-5-27 Event Unit Equipment change.</p> <p><u>PROJECT:</u> Project provides for alterations to existing facility to include but not limited to new ceilings, floors, wall covering, office and work areas, and required utilities.</p> <p><u>REQUIREMENT:</u> A properly sized and configured facility is required to house the three film processing units. Modifications to the existing processing area and utilities are required to replace the outdated equipment. Existing facilities are inadequate in size and capability to accommodate the new film processing equipment.</p>					

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1 COMPONENT Air Force		FY 1981 RDT&E FACILITIES PROJECT DATA		2 DATE January 1981	
3 INSTALLATION AND LOCATION KIRTLAND AFB, NEW MEXICO			4 PROJECT TITLE TEMPORARY EXPANSION SANDIA OPTICAL RANGE		
5 PROGRAM ELEMENT 63605F	6 CATEGORY CODE 310-XXX	7 PROJECT NUMBER KLD 113-0	8 PROJECT COST (\$000) 2,576.0		

9 COST ESTIMATES				
ITEM	U-M	QUANTITY	UNIT COST	COST (\$000)
A. MATERIALS AND SPECIAL MODIFICATIONS				
1. VIPER SITE-SPECIAL MOD. & INSTALL.	LS			113
2. FLUID SUPPLY SYSTEM	LS			1,497
3. 350 METER SITE	LS			80
4. FACILITY, CONTROL & SAFETY SYSTEM	LS			298
5. ENGINEERING & ANALYSIS AREA	LS			300
6. SECOND DESTINATION CHARGES	LS			288
				<u>2,576</u>
B. SURPLUS AIR FORCE MATERIALS				
1. SURPLUS MATERIALS FROM EDWARDS AFB	LS			(2,169)
2. SURPLUS MATERIALS FROM AEDC	LS			(8,470)
				<u>(10,639)</u>
C. UNFUNDED COST				
1. SURPLUS NON AIR FORCE MATERIALS	LS			(1,007)
2. RDT&E EQUIPMENT INSTALLATION	LS			(707)
3. DESIGN	LS			(174)
				<u>(1,888)</u>
D. EXCLUDED COST - RDT&E EQUIP	LS			(10,480)
E. BUILDING ADDITIONS/MODIFICATION(Non Add)				(557)

10. DESCRIPTION OF PROPOSED INSTALLATION

Temporary R&D equipment installation at Sandia Optical Range (SOR) for an 18-month test program: (1) Install the Variable Intensity Pulsed Effects Research Laser (VIPER) into existing Bldg 66001; (2) Install the Air Force Laser II (AFL) into the existing Bldg 66042; (3) Modify and expand the SOR Fuel Farm and control the safety functions; (4) Install an Air Flow Simulator (AFS) at the 350 Meter Site; and (5) Erect a temporary structure to house the Environmental Test Simulator (ETS).

PROJECT: Install two new lasers, upgrade fuel farm and control and safety functions, install an air flow simulator and erect a temporary structure for the ETS.

REQUIREMENT: There is a lack of data on the interaction of high energy pulsed laser beams with specific targets. The new VIPER laser will provide data to determine these effects. In addition, data on long-run time continuous wave laser effects is not available. The AFL II will provide this data for extended run times and this data will be used to determine the level of hardening necessary to protect US systems and satellites against high energy lasers (HEL).

The project on the remote SOR is intended to provide a Laser Vulnerability and Effects Test capability containing two separate lasers designed to provide data on the operation of satellites and missiles in the HEL environment.

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1 COMPONENT Air Force		FY 19 ⁸⁰ RDT&E FACILITIES PROJECT DATA			2 DATE January 1981	
3 INSTALLATION AND LOCATION 6585th TG HOLLOMAN AFB, NEW MEXICO			4 PROJECT TITLE SEISMICALLY STABLE PLATFORM PROTOTYPE (BLDG 1256)			
5 PROGRAM ELEMENT 65807F		6 CATEGORY CODE 310-944	7 PROJECT NUMBER HO 78-0202		8 PROJECT COST (\$000) 159.6	
9 COST ESTIMATES						
ITEM		U/M	QUANTITY	UNIT COST	COST (\$000)	
A. <u>Seismically Stable Platform (Prototype)</u>						
1. Seismic Mass		LS			(70.0)	
2. Active Isolation System		LS			(30.0)	
3. Reaction Mass		LS			(52.0)	
TOTAL					152.0	
Contingency - 5%					7.6	
TOTAL					159.6	
B. <u>Equipment (Non add)</u>						
1. Active Control Hardware		LS			(30.0)	
2. Tiltmeters		LS			(20.0)	
3. Accelerometers		LS			(40.0)	
C. <u>Design (Non-add)</u>		LS			(30.0)	
10 DESCRIPTION OF PROPOSED INSTALLATION						
<p>Design and install a prototype seismically stable platform which is to include a reinforced concrete seismic mass, a Pneumatic Isolator/Dampening Active Control System and a reaction mass of some visco elastic material.</p> <p><u>PROJECT:</u> This project is a prototype for active controlled stable platforms of the future. Data derived from this system will establish the basis for future advancements in laboratory testing of aircraft and prototype is a key element in the FY 82 MCP Project Precision Guidance Test Facility (PGTF). The seismically stable platform is a scaled-down version of an active control system designed in 1975 during a feasibility study for PGTF.</p> <p><u>REQUIREMENT:</u> The design goal for the seismically stable platform is to obtain accuracies of 10^{-8} g's in the frequency band DC to 100 Hz. This accuracy goal is required to test advanced inertial guidance components such as the MX Missiles Specific Force Integrating Receiver (SFIR) Accelerometers and Third Generation Gyros. Data derived from this system will establish the basis for future advancements in laboratory testing of aircraft and missile inertial guidance systems and components. Once this facility modification is completed, the engineering tests will obtain data on how well earth tilts are taken out by the active control system. The second engineering answer required is to determine the transfer function, in the DC-100 Hz region, from the test pier to the top of the active control system. This data will be superimposed on the data obtained from another project, i.e., the actual seismic motions of potential PGTF sites. The resultant plot will indicate graphically if the PGTF can reach its 10^{-9} goal.</p>						

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1 COMPONENT Air Force		FY 19 ⁸¹ RDT&E FACILITIES PROJECT DATA			2 DATE January 1981	
3 INSTALLATION AND LOCATION Wright-Patterson AFB, Ohio 45433				4 PROJECT TITLE Aircraft Ground Induced Loads Evaluation		
5 PROGRAM ELEMENT 62201F		6 CATEGORY CODE 390-171	7 PROJECT NUMBER Not Assigned		8 PROJECT COST (\$000) 150.0	
9 COST ESTIMATES						
ITEM				U/M	QUANTITY	COST (\$000)
Equipment Installation						160
a. Equipment Foundations				LS		(90)
b. Secondary Utilities				LS		(70)
Alteration of Bldg 148, Area C (Non add)				LS		(90)
Design Costs (Non add)						
a. A/E Design						(20)
b. Equipment Design						(50)
Equipment (Non add)						
a. New (Hydraulic Shakers)				EA	3	130 (390)
b. New (Instrumentation)						(200)
c. Existing (Instrumentation)						(40)
10 DESCRIPTION OF PROPOSED INSTALLATION						
<p><u>SPECIFIC PURPOSE:</u> To provide adequate facilities to support the AFMAL/FI SIMULATION of AIRCRAFT LOADS on DAMAGED SURFACES Facility.</p> <p><u>PROJECT:</u> Provide a dynamic test facility to simulate aircraft dynamic loads on damaged and repaired runways. Install a large seismic foundation (approximately 350 CY, 750 Tons) to support three 60,000 lb force hydraulic shakers. Install all secondary utilities including water, electricity and drainage. Alter Bldg 148, Area C for partitions, lighting and heating systems to accommodate personnel conducting test operations.</p> <p><u>REQUIREMENT:</u> Current scenarios call for aircraft take-off and landing from battle damaged repaired runways and semi-prepared strips. Existing analytical methods for predicting aircraft response to such runway conditions are unreliable unless data from actual aircraft operation can be obtained. This facility will provide the necessary data for current and future fighter and tactical aircraft.</p> <p><u>DEFICIENCY:</u> An extensive flight test program has recently been initiated to obtain the necessary data. Such a program is extremely expensive, time-consuming and hazardous. Once the facility operation has been verified, flight testing of this kind would be greatly reduced.</p> <p><u>IMPACT IF NOT PROVIDED:</u> Flight testing would continue according to current plans, incurring high dollar and manpower expenditures.</p>						

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1 COMPONENT Air Force	FY 1980 RDT&E FACILITIES PROJECT DATA	2 DATE January 1981
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3 INSTALLATION AND LOCATION EDWARDS AFB, CALIFORNIA	4 PROJECT TITLE EQUIPMENT INSTALLATION - ENGINE MAINTENANCE SHOP
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5 PROGRAM ELEMENT 65807F	6 CATEGORY CODE 211-154	7 PROJECT NUMBER 800556 (R-1)	8 PROJECT COST (\$000) 160.0
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9 COST ESTIMATES

ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)
Facility Repair	LS			20.1
Equipment Installation				101.1
Design Costs (10% A&E)				19.4
SIQH 10%				<u>19.4</u>
TOTAL				160.0
Facility Modification (MC) (Non add)	LS			(72.8)
Equipment (Non add)				(314.9)

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10 DESCRIPTION OF PROPOSED INSTALLATION

Modify existing 9,000 SF metal portion of building to provide five engine maintenance bays; increase lighting, provide separation rails between engine bays, modular shop office, extend compressed air to bays and process area, install security locks on exterior doors and to hangar area, enlarge double doorway to hangar, provide electrical power to process areas, lights, air compressor and outlets. Provide or repair air compressor and paint interior of all areas. Install equipment and support items in new engine maintenance areas.

PROJECT: Provide modification necessary for capabilities of a five-bay engine maintenance shop within a security area in support of Program "HAVE IDEA." Specialized equipment is to be installed in the shop.

CURRENT SITUATION: No engine maintenance shop exists within secure area. The only engine shop is ten miles away, only capable for one- or two- engine repairs work and not within a secure area.

REQUIREMENTS: The required engine maintenance by the test program contract is to be accomplished within needed time frames nor additional equipment is required.

1 COMPONENT Air Force		FY 19 ⁸¹ RDT&E FACILITIES PROJECT DATA		2 DATE January 1981	
3 INSTALLATION AND LOCATION EDWARDS AFB, CALIFORNIA			4 PROJECT TITLE RELOCATE AVIONICS LAB EQUIPMENT		
5 PROGRAM ELEMENT 27130F	6 CATEGORY CODE 311-171	7 PROJECT NUMBER 800537	8 PROJECT COST (\$000) 86.1		
9 COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT COST	COST (\$000)
Equipment Installation		LS			74.9
Cost Design (10% A&E)					11.2
TOTAL					86.1
Equipment (Non add)					
New (Previously Funded via CCP 176)					(950.0)
Existing to be Relocated (Govt Property)					(2,546.3)
Existing to be Relocated (MCAIR Property)					(3.5)
Equipment Value TOTAL					(3,499.8)
Facility Modification (Non add)		LS			(36.4)
10 DESCRIPTION OF PROPOSED INSTALLATION					
<p>Modify approximately 1,650 sq ft of existing office area and attendant utilities in Bldg 1881 to accommodate an additional set of APG-63 radar benches and special test equipment (STE) in support of F-15 CCP 17E PRIP II (Programmatic Signal Processor Radar Improvement Program). Removal of existing radar benches and STE from present location and reinstallation in new lab area with PRIP II equipment. Installation to include air conditioning, Halon system, electrical, hydraulic, water supply, drain, new radomes, new signal horns and walls. Existing lab area of approximately 800 sq ft to be refurbished into suitable office area.</p> <p><u>SPECIFIC PURPOSE:</u> To provide an adequate facility to support the F-15 Programmable Signal Processor Radar Improvement Program.</p> <p><u>PROJECT:</u> Provide modifications to existing office area to support two radar benches and STE in a closed security area, and alterations to existing lab area to return it to office space.</p> <p><u>REQUIREMENT:</u> A properly sized and configured facility is required by 1 Mar 81 to house the two sets of radar benches and STE. The required testing in support of the CCP 176 PRIP II program can be accomplished only with the requested modifications and relocations. The existing lab equipment, which is required in support of ongoing F-15 DT&E programs is to be used in conjunction with the new test equipment. Relocating the existing equipment in the new location will allow sharing of certain test equipment and ensure the continued support of the F-15 DT&E program.</p>					

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1 COMPONENT Air Force		FY 1983 RDT&E FACILITIES PROJECT DATA		2 DATE January 1981	
3 INSTALLATION AND LOCATION AIR FORCE ROCKET PROPELLSION LABORATORY EDWARDS AFB, CALIFORNIA 93523			4 PROJECT TITLE ALTER DATA/CALIBRATION CENTER (1-61)		
5 PROGRAM ELEMENT 62302F	6 CATEGORY CODE 310-173	7 PROJECT NUMBER 830600A 830600C		8 PROJECT COST (\$000) 250.0	
9 COST ESTIMATES					
ITEM		U-M	QUANTITY	UNIT COST	COST (\$000)
Equipment Installation		LS			250
Design Cost (A&E design of above)					(40)
Equipment (Non add)					
New					(5,000)
Existing					(3,400)
TOTAL					(8,400)
Alter Data/Calibration Center		LS			(80)
10 DESCRIPTION OF PROPOSED INSTALLATION					
<p>Alter rooms and utility service in building to accept a new computer system programmed for FY 84, an existing NOVA computer system, a liquid flow meter calibration system, force transducer calibration equipment and electronic repair equipment. Install a HALON fire detection/protection system for the computers. Install new floor covering, walls and vinyl wall covering. This project will be A&E designed.</p> <p><u>SPECIFIC PURPOSE:</u> To provide adequate space and utilities to support the Data/Calibration Center function.</p> <p><u>PROJECT:</u> Project provides for alterations to an existing facility to include but not limited to new ceilings, walls, floor covering, office and work areas, required utilities and equipment foundations.</p> <p><u>REQUIREMENT:</u> A properly sized and configured facility is required to house the new computer system and the other existing functional equipment used by the supporting Data/Calibration Center. This alteration will provide the means to integrate the new computer software into the current laboratory programs without interruption and will provide for the centralization of the entire Data/Calibration Center function in a building suited for this function.</p> <p><u>CURRENT SITUATION:</u> Existing occupied space will be converted to Physical Science Laboratory space which is sorely needed. The basic building structure and utility routing was originally designed for laboratory functions. An added structure adjoining the basic building can be easily altered to accommodate the Data/Calibration Center function.</p>					

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1 COMPONENT Air Force		FY 19 ⁸² RDT&E FACILITIES PROJECT DATA		2 DATE January 1981	
3 INSTALLATION AND LOCATION AIR FORCE ROCKET PROPULSION LABORATORY EDWARDS AFB, CALIFORNIA 93523			4 PROJECT TITLE ALTER PHYSICAL SCIENCE LABORATORY (I-64)		
5 PROGRAM ELEMENT 62302F	6 CATEGORY CODE 310-614	7 PROJECT NUMBER 820600A 820600C		8 PROJECT COST (\$000) 600.0	
9 COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT COST	COST (\$000)
Equipment Installation (Non add)		LS			600
Secondary Utilities					
HVAC & Humidity Control					(300)
Hot, Cold, Chilled, Demineralized Water					(150)
Power and Controls					(100)
Vacuum, Nitrogen Gas System					(50)
Equipment (Non add)					
Laboratory Benches and Hoods					(250)
Propellant Research Equipment					(1,000)
Equipment - TOTAL					(1,250)
Alter Physical Science Laboratory (Non add)		LS			(90)
10 DESCRIPTION OF PROPOSED INSTALLATION					
<p>Install rocket propulsion research equipment in existing laboratory rooms complete with supporting utilities and environmental control.</p> <p><u>SPECIFIC PURPOSE:</u> Provide space and utilities in the proper configuration to conduct rocket propulsion research.</p> <p><u>PROJECT:</u> Alters an existing laboratory facility, including but not limited to, new environmental conditioning, walls, ceilings, foundations and various utilities.</p> <p><u>REQUIREMENT:</u> Increased research efforts are mandated in the rocket propellant arena to resolve technology gaps in the space application environment. Current laboratory space is inadequate to support the planned efforts.</p> <p><u>CURRENT SITUATION:</u> The basic facility is ideal to accommodate the planned research. All of the supporting science equipment and supplies are in this facility. All that remains to be done is to configure each respective room for the specific research project.</p> <p><u>IMPACT IF NOT PROVIDED:</u> The in-house research effort could not be done. No other facility exists at the AFRPL to accommodate this effort.</p>					

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1 COMPONENT Air Force		FY 1981 RDT&E FACILITIES PROJECT DATA		2 DATE January 1981		
3 INSTALLATION AND LOCATION VANDENBERG AFB (AFSC)			4 PROJECT TITLE ALTER PAD 1, ABRES "A" SITE			
5 PROGRAM ELEMENT 63424F		6 CATEGORY CODE 390-531	7 PROJECT NUMBER		8 PROJECT COST (\$000) 428.0	
9 COST ESTIMATES						
ITEM			U/M	QUANTITY	UNIT COST	COST (\$000)
MST Alter/Refurbish						103
Environmental Control System						77
Umbilical Retractor Install						156
Communications						92
TOTAL						428
Launch Pad/Flame Bucket Alterations (Non add)						(178)
Equipment (Non add)						(182)
10 DESCRIPTION OF PROPOSED INSTALLATION						
<p>Provide enclosure and environmental control system to meet missile/payload requirements. Alter the Mobile Service Tower (MST) as necessary to provide for mating, servicing and checkout of the missile/payload. Refurbish MST as required. Install Umbilical Retractor and communications. Provide all secondary utilities and necessary support.</p> <p><u>PROJECT:</u> Alters existing, but unused, Atlas Launch Facility to support two stage Minuteman launches.</p> <p><u>REQUIREMENT:</u> This project supports the Multi-Spectral Measurements Program which will gather rocket plume radiation data from re-entry vehicle deployment system. The High Performance Target Engine Measurement (HPTM) portion of the MSMP consists of two missions each involving the launch of two payloads (sensor module and liquid engine module) by a non-standard two-stage Minuteman I. During flight, the sensors separate from the MM I second stage and each other. They will track the engine and gather plume radiation data prior to impact in the open ocean area north of Hawaii.</p> <p><u>CURRENT SITUATION:</u> No two-stage Minuteman launch capability presently exists. It is more advantageous to alter and refurbish this site since it will not disturb the MM I silos.</p> <p>The above work represents the bare essential requirements for a "sounding rocket" type launch program. Alterations are temporary, and will be abandoned in place on completion of the MSMP.</p>						

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1 COMPONENT Air Force		FY 1981 RDT&E FACILITIES PROJECT DATA			2 DATE January 1981	
3 INSTALLATION AND LOCATION VANDENBERG AFB, CALIFORNIA				4 PROJECT TITLE INSTALL RDT&E GPS EQUIPMENT		
5 PROGRAM ELEMENT 64778F		6 CATEGORY CODE 131-132	7 PROJECT NUMBER AFR 80-22		8 PROJECT COST (\$000) 206.6	
9 COST ESTIMATES						
ITEM				U/M	QUANTITY	COST (\$000)
Equipment Installation						206.6
a. Raised Flooring						(52.9)
b. Equipment Air Conditioning						(9.7)
c. Secondary Utilities						(36.5)
d. Removal/Relocation Interior Partitions/Ceilings						(18.9)
e. Halon Fire Protection System						(38.6)
Field Investigation & Design (Non add)						(30.0)
Equipment (Non add)						(6,000.0)
Alteration of Building (Non add)						(58.5)
10 DESCRIPTION OF PROPOSED INSTALLATION						
<p>Alter portions of existing Bldg 22104 to install a new computer and control area. Includes rework 2800 SF of floor space, installation of 100 KW MG Set and rework of utility systems. Move MG set in Bldg 22112 from Foom 103 to Room 106. All security and utility alt/add as required to provide a complete and usable facility.</p> <p><u>PROJECT:</u> Install equipment to upgrade existing Global Positioning System (GPS) Master Control Station to support GPS Phase II RDT&E activities pending the availability of the NAVSTAR Operations Center (NOC).</p> <p><u>REQUIREMENT:</u> The NAVSTAR GPS is a space-based radio positioning navigation system that will provide extremely accurate three dimensional positioning and velocity information, together with system time, to suitably equipped users anywhere on or near the earth. In Phase II, 18 satellites will be deployed into circular 10,900 NM orbits. This project must be completed (i.e., be ready for equipment installation) in July 1981 to ensure reliable navigation/payload operations support for up to 18 satellites.</p> <p><u>CURRENT SITUATION:</u> NAVSTAR GPS is now in Phase II - Full-Scale Development Contracts for all segments (space, user, and ground control) have been or will be awarded in the near future. There are no existing facilities capable of supporting GPS Phase II RDT&E activities. The existing NAVSTAR GPS Master Control Station at Vandenberg AFB can support only six satellites.</p> <p><u>IMPACT IF NOT PROVIDED:</u> Critical support of Phase II user activities (user set, IOT&E, TRIDENT, MINUTEMAN, etc.) could be significantly impacted resulting in extensive program schedule delays and cost growth.</p>						

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1 COMPONENT Air Force		FY 19 ⁸² RDT&E FACILITIES PROJECT DATA		2 DATE January 1981	
3 INSTALLATION AND LOCATION KIRTLAND AFB, NEW MEXICO			4 PROJECT TITLE TEMPORARY BUILDINGS IN SUPPORT OF EMP TESTS		
5 PROGRAM ELEMENT 64747F	6 CATEGORY CODE 310-XXX	7 PROJECT NUMBER KLD 144-0	8 PROJECT COST (\$000) 853.0		
9 COST ESTIMATES					
ITEM		U M	QUANTITY	UNIT COST	COST (\$000)
Erect ten 28x60 metal buildings		SF	16,800	46	773
Utilities hook-up		LS			<u>80</u>
TOTAL					853
Building Purchase (Non-add)					(780)
10 DESCRIPTION OF PROPOSED INSTALLATION					
<p>Erect ten metal buildings to house approximately 150 engineers/technicians in support of the electromagnetic pulse test program.</p> <p><u>PROJECT:</u> Erect ten temporary metal shelters to house approximately 150 engineers/technicians working in the verticle and horizontal polarized dipole areas.</p> <p><u>REQUIREMENT:</u> The Air Force Weapons Laboratory (AFWL) operates several Electromagnetic Pulse (EMP) test facilities located on the south part of Kirtland Air Force Base. Approximately \$1,000,000 has been spent on these test facilities; however, there are no buildings for housing test personnel.</p> <p><u>CURRENT SITUATION:</u> Currently, each test group leases trailers for use at the test site. These trailers are expensive to lease and are high energy users.</p> <p><u>IMPACT IF NOT PROVIDED:</u> The test groups will have to lease trailers, incur air conditioning and heating costs much greater than the total costs of these temporary buildings.</p>					

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1 COMPONENT Air Force		FY 19 ⁸¹ RDT&E FACILITIES PROJECT DATA			2 DATE January 1981			
3 INSTALLATION AND LOCATION EDWARDS AFB, CALIFORNIA				4 PROJECT TITLE TEMPORARY CONTROL TOWER				
5 PROGRAM ELEMENT 65807F		6 CATEGORY CODE 149-962	7 PROJECT NUMBER 81520		8 PROJECT COST (\$000) \$525.0			
9 COST ESTIMATES								
ITEM					U M	QUANTITY	UNIT COST	COST (\$000)
Equipment (Non add)								(65.0)
Costs								477.3
Provide and Assemble Temporary Control Tower (includes provision of concrete bases and anchoring devices)								(409.1)
Secondary Utilities (Includes power and lighting)								(59.1)
Equipment Installation								(9.1)
SIQH (10%)								<u>47.7</u>
TOTAL								525.0
10 DESCRIPTION OF PROPOSED INSTALLATION								
<p>Provide and assemble a package-type temporary control tower at a pre-determined classified location. Provide secondary utilities consisting of electrical power distribution (from a Government-furnished portable generator), lighting and communication cabling installation. Install and connect GFE in tower.</p> <p><u>SPECIFIC PURPOSE:</u> To support the temporary RDT&E effort required by project "HAVE GLIB." Duration of this temporary requirement is 18 months.</p> <p><u>PROJECT:</u> Provide a temporary demountable control tower specifically for support of a classified project known as "HAVE GLIB." Specialized control equipment (GFE) will be installed in the tower.</p> <p><u>CURRENT SITUATION:</u> Present facilities at this base will not accommodate the requirements of project "HAVE GLIB."</p> <p><u>IMPACT IF NOT PROVIDED:</u> Program cannot be accomplished within schedule and time frames nor within security controls as required. Tests must begin not later than January 1981.</p>								

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1 COMPONENT Air Force		FY 19 ⁸² RDT&E FACILITIES PROJECT DATA			2 DATE January 1981		
3 INSTALLATION AND LOCATION KIRTLAND AFB, NEW MEXICO				4 PROJECT TITLE INSTALL PULSED CHEMICAL LASER DEVICE			
5 PROGRAM ELEMENT 62601F		6 CATEGORY CODE	7 PROJECT NUMBER		8 PROJECT COST (\$000) 600.0		
9 COST ESTIMATES							
ITEM				U M	QUANTITY	UNIT COST	COST (\$000)
PULSED CHEMICAL LASER TEST FACILITY				LS			600
(Laser Device) (Non add)							(600)
10 DESCRIPTION OF PROPOSED INSTALLATION							
<p>This project will involve equipment installation and associated changes within an existing facility at the Sandia Optical Range (SOR).</p> <p><u>PROJECT:</u> This facility will be used to test operations and target effects of a repetitively pulsed chemical laser.</p> <p><u>REQUIREMENT:</u> A facility to test and evaluate an advanced concept of pulsed chemical laser.</p> <p><u>CURRENT SITUATION:</u> There are existing laser device buildings at the SOR that can be modified to house this new proposed laser device.</p> <p><u>IMPACT IF NOT PROVIDED:</u> This facility and the SOR range is a one-of-a-kind laser test area. Without this project, this new laser will not be available for high priority tests.</p>							

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1 COMPONENT Air Force		FY 19 ⁸¹ RDT&E FACILITIES PROJECT DATA			2 DATE January 1981		
3 INSTALLATION AND LOCATION KIRTLAND AFB, NEW MEXICO				4 PROJECT TITLE MOD TO INSTALL FRONT END PROCESSORS			
5 PROGRAM ELEMENT 62601F		6 CATEGORY CODE 610-711	7 PROJECT NUMBER		8 PROJECT COST (\$000) \$150.0		
9 COST ESTIMATES							
ITEM				U/M	QUANTITY	UNIT COST	COST (\$000)
MOD & INSTALL FRONT END PROCESSORS Air Force Weapons Laboratory R&D Computer Facility				LS			150
10 DESCRIPTION OF PROPOSED INSTALLATION							
<p>Rehab and modify the utility systems in Bldg 412 (AFWL's R&D Computer Facility) for the installation of new front end processors.</p> <p><u>PROJECT:</u> The expansion of the utility systems in Bldg 412 to support the new front end processors.</p> <p><u>REQUIREMENT:</u> Provide adequate facilities to support new front end processors.</p> <p><u>CURRENT SITUATION:</u> AFWL has a steadily increasing demand for computational support; to meet this demand, AFWL has added and will continue to add new equipment to support these new requirements.</p> <p><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.</p>							

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1 COMPONENT Air Force		FY 19 ⁸² RDT&E FACILITIES PROJECT DATA			2 DATE January 1981	
3 INSTALLATION AND LOCATION KIRTLAND AFB, NEW MEXICO			4 PROJECT TITLE INSTALL CHEMICAL OXYGEN- IODINE LASER DEVICE			
5 PROGRAM ELEMENT 63605F		6 CATEGORY CODE	7 PROJECT NUMBER		8 PROJECT COST (\$000) \$600	
9 COST ESTIMATES						
ITEM		U/M	QUANTITY	UNIT COST	COST (\$000)	
Oxygen-Iodine Laser Facility						
Install a Chemical Oxygen-Iodine Laser into an Existing Facility (LASER (Non add))		LS			600 (1,000)	
10 DESCRIPTION OF PROPOSED INSTALLATION						
<p>Install in existing building a new chemical oxygen-iodine laser device and its supporting equipment.</p> <p><u>PROJECT:</u> This facility will be used to test and evaluate the operation of an experimental high energy laser weapon. This is an equipment installation and associated changes within an existing building.</p> <p><u>REQUIREMENT:</u> A facility to test and evaluate the operation of an experimental high energy laser weapon.</p> <p><u>CURRENT SITUATION:</u> There are existing laser laboratories that could be modified to house this new laser.</p> <p><u>IMPACT IF NOT PROVIDED:</u> This facility is in support of experimental testing of an advanced concept in laser weapons, and without this installation and associated changes there would be no place to locate and test this new device.</p>						

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1 COMPONENT Air Force		FY 19 ⁸¹ RDT&E FACILITIES PROJECT DATA			2 DATE January 1981	
3 INSTALLATION AND LOCATION KIRTLAND AFB, NEW MEXICO			4 PROJECT TITLE ENVIRONMENTAL CONTROL FOR LABORATORY EQUIPMENT			
5 PROGRAM ELEMENT 63605F		6 CATEGORY CODE	7 PROJECT NUMBER		8 PROJECT COST (\$000) 130.0	
9 COST ESTIMATES						
ITEM			U.M	QUANTITY	UNIT COST	COST (\$000)
OPTICAL COATING LABORATORY Provide Environmental Controls in an Existing Lab			LS			130
10 DESCRIPTION OF PROPOSED INSTALLATION						
<p>Modify existing optical laboratory to meet laser optics requirements for clean environment.</p> <p><u>PROJECT:</u> Provide environmental controls in existing lab in Bldg 400 to support equipment requirements. This project is in direct support of an R&D effort to develop precision coating and testing for laser optic development.</p> <p><u>REQUIREMENT:</u> The equipment in the optical coating laboratory have requirements for a clean environment. This is necessary to perform work on the high priority LS-14 laser optics project. The present coating laboratory is inadequate to allow R&D equipment to perform high precision coating and testing of the LS-14 optics.</p> <p><u>CURRENT SITUATION:</u> The existing lab does not meet the necessary clean room requirements that will allow R&D equipment to be properly used.</p> <p><u>IMPACT IF NOT PROVIDED:</u> This work is necessary to prevent schedule slippage on the LS-14 program.</p>						

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1 COMPONENT Air Force		FY 19 ⁸² RDT&E FACILITIES PROJECT DATA			2 DATE January 1981	
3 INSTALLATION AND LOCATION ARNOLD ENGINEERING DEVELOPMENT CENTER ARNOLD AFS, TN 37389				4 PROJECT TITLE MACHINERY MONITOR SYSTEM		
5 PROGRAM ELEMENT 65807F		6 CATEGORY CODE 390-614	7 PROJECT NUMBER		8 PROJECT COST (\$000) 917.4	
9 COST ESTIMATES						
ITEM				U M	QUANTITY	COST (\$000)
Equipment Installation				LS		834.0
Contingencies (10%)						<u>83.4</u>
TOTAL						917.4
Equipment (Non add)				LS		(1,481.0)
10 DESCRIPTION OF PROPOSED INSTALLATION						
<p>A combination of non-contract vibration sensors, accelerometers, and temperature sensors with associated monitors and alarms will be installed on all major (in excess of 1,000 HP) AEDC machines to provide continuous monitoring of machinery condition.</p> <p><u>REQUIREMENT:</u> Continuous monitoring and surveillance of plant machinery condition is required to protect capital investment by failure avoidance and by increasing machinery in-service time.</p> <p><u>CURRENT SITUATION:</u> The presently installed machinery equipment is aging and provides inadequate protection.</p> <p><u>IMPACT IF NOT PROVIDED:</u> Failure to provide this system could result in the loss of critical plant machinery and a decrease in testing capability. A single bearing may cost as much as \$100,000 and replacement cost of a single machine may be as high as \$2,500,000.</p>						

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1 COMPONENT Air Force		FY 19 ⁸¹ RDT&E FACILITIES PROJECT DATA			2 DATE January 1981	
3 INSTALLATION AND LOCATION ARNOLD ENGINEERING DEVELOPMENT CENTER ARNOLD AFS, TN 37389				4 PROJECT TITLE TUNNEL A/B/C CONTROLS		
5 PROGRAM ELEMENT 65807F		6 CATEGORY CODE 390-155	7 PROJECT NUMBER		8 PROJECT COST (\$000) 154.1	
9 COST ESTIMATES						
ITEM		U/M	QUANTITY	UNIT COST	COST (\$000)	
Equipment Installation		LS			140.1	
Contingency (10%)					14.0	
TOTAL					154.1	
Equipment (Non add)		LS			(771.0)	
10 DESCRIPTION OF PROPOSED INSTALLATION						
<p>High resolution rotary encoders will be installed at each jack station of the flexible plate nozzle, along with appropriate readout equipment. The encoders will provide a precise readout of plate contour without the necessity of removing the nozzle sidewall.</p> <p><u>REQUIREMENT:</u> A precise plate contour readout system is needed for manual fine adjustments in the near term and for automated plate positioning to provide constant Mach number and constant Reynolds number modes of operation in the future.</p> <p><u>CURRENT SITUATION:</u> The set points for the present nozzle positioning system are manually operated and do not provide a precise means of monitoring plate position. This system is approximately 25 years old and operation has been degraded by the effects of component aging. Setting a new contour (on-line) requires from 10 to 20 minutes. This time is frequently exceeded due to system malfunctions.</p> <p><u>IMPACT IF NOT PROVIDED:</u> Without this nozzle control, automation capability for meeting current and future test requirements will be compromised. The planned Tunnel A nozzle control system improvement will provide more precise nozzle contours and, therefore, will result in better repeatability of test conditions and elimination of flow angularity problems resulting from improper contours.</p>						

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1 COMPONENT Air Force		FY 1981 RDT&E FACILITIES PROJECT DATA			2 DATE January 1981	
3 INSTALLATION AND LOCATION ARNOLD ENGINEERING DEVELOPMENT CENTER ARNOLD AFS, TN 37389				4 PROJECT TITLE 4T FLEX NOZZLE		
5 PROGRAM ELEMENT 65807F		6 CATEGORY CODE 390-128	7 PROJECT NUMBER 805020		8 PROJECT COST (\$000) 214.5	
9 COST ESTIMATES						
ITEM				U/M	QUANTITY	COST (\$000)
Equipment Installation				LS		195.0
Contingency (10%)						19.5
TOTAL						214.5
Equipment (Non add)				LS		(386.3)

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10 DESCRIPTION OF PROPOSED INSTALLATION

A swing-link flexible nozzle will permit testing through a Mach number range up to 2.0.

REQUIREMENT: Tunnel PWT-4T is required to certify proper separation of weapons from aircraft. New fighters can carry and deliver weapons at high speeds. Proper separation must be assured over the entire speed, altitude, and aircraft attitude to satisfy both aircraft and mission requirements. A continuous Mach number capability through Mach 2.0 is required.

CURRENT SITUATION: Presently, Tunnel 4-T has fixed nozzle blocks for M = 1.6 and 2.0. Mach numbers in the range of M = 1.3 and 2.0 are not available.

IMPACT IF NOT PROVIDED: Critical store certification data through the range from transonic to supersonic speeds cannot now be obtained to assure proper delivery of weapons. Without certification, risk of aircraft damage or loss will increase, or those regions of the operating envelope where data are not available will be red-lined causing a reduction in aircraft effectiveness.

1 COMPONENT Air Force		FY 19 ⁸¹ RDT&E FACILITIES PROJECT DATA		2 DATE January 1981	
3 INSTALLATION AND LOCATION ARNOLD ENGINEERING DEVELOPMENT CENTER ARNOLD AFS, TN 37389			4 PROJECT TITLE AUGMENTOR VIEWING AND CENTERBODY POSITION		
5 PROGRAM ELEMENT 65807F	6 CATEGORY CODE 390-614	7 PROJECT NUMBER	8 PROJECT COST (\$000) 243.1		
9 COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT COST	COST (\$000)
Equipment Installation		LS			221.0
Contingency (10%)					<u>22.1</u>
TOTAL					243.1
Equipment (Non add)		LS			(703.0)
10 DESCRIPTION OF PROPOSED INSTALLATION					
<p>Install an augmentor viewing device and a remotely actuated centerbody position system for the relocated T-1 variable area ejector.</p> <p><u>REQUIREMENT:</u> Variable area ejectors must have the capability of augmentor viewing and remote positioning of the centerbody before the ultimate power saving potential can be obtained.</p> <p><u>CURRENT SITUATION:</u> The position of the variable area ejector blocks the viewing field of the existing TV systems and thus eliminates the observation of the afterburner during testing.</p> <p><u>IMPACT IF NOT PROVIDED:</u> Without the developmental work proposed by this item the final design for VAEs in other test cells would be strictly theoretical and without reliance that ultimate power savings or maximum efficiency could be obtained.</p>					

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1 COMPONENT Air Force		FY 1982 RDT&E FACILITIES PROJECT DATA			2 DATE January 1981	
3 INSTALLATION AND LOCATION NEVADA TEST SITE, NV				4 PROJECT TITLE M-X PROTECTIVE SHELTER NUCLEAR HARDNESS TEST STRUCTURES (T-520a, b)		
5 PROGRAM ELEMENT 64312F		6 CATEGORY CODE 310-477	7 PROJECT NUMBER		8 PROJECT COST (\$000) 11,593.0	
9 COST ESTIMATES						
ITEM				U/M	QUANTITY	COST (\$000)
Prototype M-X Protective Structures (Tests T-520a & T-520b)				LS		1,593
Electro Magnetic Pulse Test (T-520a) Studies/ Analysis/Instrumentation/Test Conduct/ Environments (Non add)				LS		(31,740)
Blast and Shock Test (T-520a) Studies/ Analysis/Instrumentation/Test Conduct/ Loading Environment (Non add)				LS		(38,950)
10 DESCRIPTION OF PROPOSED INSTALLATION						
<p><u>PROJECT:</u> Construct two M-X prototype protective structures for electro-magnetic pulse (EMP) and Blast and Shock testing (one protective structure for each category of testing). Both protective structures are to be 171 feet long, reinforced concrete cylinders with a steel liner, 18 foot OD, 21 inches thick, buried 5 feet. Non-nuclear hardness critical features, such as the protective structures access ramp will be included in an abbreviated manner only if required for test fidelity. The results of these tests provide a basis for validating the nuclear survivability of the M-X protective structures.</p> <p><u>REQUIREMENTS:</u> The Under Secretary of Defense for Research and Engineering has established the requirement for validating the nuclear survivability of the M-X protective structure using prototype protective structures subjected to simulated nuclear weapons environments. The T-520a test structure will be subjected to a high level EMP environment which is a simulation of the nuclear EMP loading. This test will demonstrate the survivability of the M-X protective structure to the EMP threat. The T-520b test structure will be subjected to a combined blast and shock loads simulation of the simulated threat nuclear weapons environments. The results of this test will demonstrate the adequacy of the high explosive environments simulation techniques for the combined nuclear loading and demonstrate the survivability of the M-X protective structure to the threat blast and shock combined nuclear environments. Using low-level electromagnetic fields, the protective structure to retain post attack EMP protection will be demonstrated.</p>						

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1 COMPONENT Air Force	FY 19_82 RDT&E FACILITIES PROJECT DATA	2 DATE January 1981
3 INSTALLATION AND LOCATION NEVADA TEST SITE, NV		
4 PROJECT TITLE M-X PROTECTIVE SHELTER NUCLEAR HARDNESS TEST STRUCTURES (T-520a,b)		5 PROJECT NUMBER
<p><u>CURRENT SITUATION:</u> The Under Secretary of Defense for Research and Engineering has established the requirement for validating the nuclear survivability of the M-X protective structure using prototype protective structures subjected to simulated nuclear weapons environments. Due to the unique design features and instrumentation requirements of the two prototype test protective structures, there are no existing facilities that could be used as test articles to achieve the test objectives. Due to the incompatibility of imposed environments used for EMP versus Blast and Shock testing, two separate test articles are required. The unique test instruments are imbedded within the structure of each test article and cannot be changed. Without this facility, the weapons effects loads cannot be determined accurately enough to optimize the final design to be used for 4600 Horizontal Shelter Systems (HSS). The Survivability of the HSS is a key element in the ability of the M-X system to meet its strategic objective.</p> <p><u>GENERAL:</u> The M-X Horizontal Shelter Basing concept consists of a number of cylindrical, hardened protective shelters located on horizontal shelter sites. Each protective shelter is capable of supporting a cannisterized M-X missile and launcher. Each protective shelter has two removable roof sections to permit monitoring. There is one missile/launcher and 23 shelters per cluster, and 200 clusters in the total system or a total of 4,600 protective shelters.</p> <p><u>OBJECTIVE:</u> Demonstrate the survivability of the M-X protective structure to the nuclear weapons threat.</p> <p><u>EVALUATION:</u> BMO and BMO contractors will perform a detailed evaluation of the test data to validate the survivability of the M-X protective structure to the EMP as well as blast and shock environments.</p>		

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1 COMPONENT Air Force		FY 19 ⁸¹ RDT&E FACILITIES PROJECT DATA			2 DATE January 1981	
3 INSTALLATION AND LOCATION GEORGE AFB, CALIFORNIA				4 PROJECT TITLE EQUIPMENT INSTALLATION/ TEMPORARY FACILITY		
5 PROGRAM ELEMENT 64724F		6 CATEGORY CODE 610-249	7 PROJECT NUMBER (AFR 80-22) GE 80-0231		8 PROJECT COST (\$000) 292.0	
9 COST ESTIMATES						
ITEM		U M	QUANTITY	UNIT COST	COST (\$000)	
Equipment Installation, Bldg 765		LS			107.2	
25% POHC					<u>26.8</u>	
TOTAL					134.0	
Temporary Facility (GSA Contract)		SF	4320	29.17	126.0	
Freight and Set-Up		LS			12.0	
Site Prep, Foundation & Utilities		LS			<u>20.0</u>	
TOTAL					158.0	
TOTAL REQUEST					292.0	
Equipment, Other Appropriations (Non add)					(3,295.0)	
10 DESCRIPTION OF PROPOSED INSTALLATION						
<p>Remodel the existing building 765 and install an approx 4320 SF temporary facility for Det 5, HQ USAF Tactical Air Warfare Center. Work will include increasing the electrical service and refrigerated air conditioning, providing 400 cycle and 28 VDC power, installing security features and improving the working environment within the existing building. Also, the temporary facility will consist of six 12'x60' interconnected trailer modules, utilities (water, sewer, electricity and telephone), foundation, delivery and set-up.</p> <p><u>PROJECT:</u> Provide equipment and personnel support facilities for use in Operational Test and Evaluation (OT&E) of the AGM-88 Missile and other overlapping tests such as the F4-G/ARN-101 and APR-38.</p> <p><u>REQUIREMENT:</u> USAF TAWC/Det 5 has an immediate requirement to support equipment software integration and associated hardware now being delivered. Increased Air Force and civilian contractor personnel in addition to the computer hardware will make use of the current facility impossible after January 1981.</p> <p><u>CURRENT SITUATION:</u> Det 5 is currently housed in Bldg 765. The building is an old reinforced missile assembly building which will be used to install Research and Development Test equipment. Personnel now located in the building will be relocated to the temporary facility proposed in this project.</p>						

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1 COMPONENT AIR FORCE		FY 19 ⁸¹ RDT&E FACILITIES PROJECT DATA		2 DATE January 81	
3 INSTALLATION AND LOCATION WRIGHT-PATTERSON AFB OHIO (AFLC)			4 PROJECT TITLE RADAR TARGETING SYSTEM TEST SITE		
5 PROGRAM ELEMENT 64708F	6 CATEGORY CODE 317-932	7 PROJECT NUMBER	8 PROJECT COST (\$000) \$300.0		
9 COST ESTIMATES					
ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)	
Excavation	CY	2,375		5.0	
Target Shelters					
30' Deep and 22' Dia	EA	2	45.0	90.0	
30' Long and 22' Dia	EA	1	60.0	60.0	
Mechanical	LS		65.0	65.0	
Electrical	LS		70.0	65.0	
Contingencies (5%)				15.0	
TOTAL				300.0	
Design (Inst and Equip) (Non-add)				(100.0)	
Equipment Cost (Non-add)				(435.0)	
Imaging Sensor Package				(215.0)	
Meteorological Instrumentation				(220.0)	
10 DESCRIPTION OF PROPOSED INSTALLATION					
<p><u>PROJECT:</u> Provide a special target test site consisting of one shelter 30' deep with 22' diameter and one shelter 30' long and 22' in diameter. Two earth berms with a 30' base and pyramid in shape.</p> <p><u>REQUIREMENT:</u> Establish a targeting system test site for the reconnaissance and weapon delivery division to support R&D Project 2093. This project will utilize other existing laboratory equipment.</p> <p><u>CURRENT SITUATION:</u> No test capability of this type is in existence.</p> <p><u>IMPACT IF NOT PROVIDED:</u> Mission will be hampered as will support to other organizations.</p>					

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1 COMPONENT AIR FORCE		FY 1981 RDT&E FACILITIES PROJECT DATA			2 DATE January 81	
3 INSTALLATION AND LOCATION VANDENBERG AFB CA (SAC)				4 PROJECT TITLE ERECT TEMPORARY CLEAN ROOM		
5 PROGRAM ELEMENT 35160F		6 CATEGORY CODE 319-443	7 PROJECT NUMBER		8 PROJECT COST (\$000) \$487.0	
9 COST ESTIMATES						
ITEM				U/M	QUANTITY	COST (\$000)
Facility Mods						487.0
Air Conditioning						(295.0)
Mechanical						(9.0)
Architectural						(132.0)
Electrical						(49.0)
Equipment Rental						(2.0)
Design (Non-add)						(50.0)
Structural Modifications (Non-add)						(18.3)
10 DESCRIPTION OF PROPOSED INSTALLATION						
<p>Erect within Bldg 1559 a Class 100,000 clean room to support the DMSP. Includes air conditioning, central vacuum system, utilities rework, and associated items.</p> <p>PROJECT: Provides a temporary clean room for Defense Meteorological Satellite Program (DMSP) within an existing facility.</p> <p>REQUIREMENT: The DMSP is switching to a new series of satellites and the Atlas launch vehicle. For Atlas processing, the spacecraft must be processed through a Class 100,000 clean room to avoid dust or vapors which could render the optical sensors useless.</p> <p>CURRENT SITUATION: The one adequate clean room at Vandenberg is a NASA facility and is not available during the required time frame. DMSP will transfer to the Space Shuttle operation in FY 85; however, a clean room is required in early FY 82 for a series of launches using the new payload and Atlas booster.</p> <p>IMPACT IF NOT PROVIDED: The DMSP schedule will slip until a clean room facility is available. Other classified space programs will either be delayed or launched without the specialized data to be provided by the DMSP. There are no DMS in orbit at this time.</p>						

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1 COMPONENT AIR FORCE		FY 19 ⁸¹ RDT&E FACILITIES PROJECT DATA		2 DATE January 1981	
3 INSTALLATION AND LOCATION HOLLOMAN AIR FORCE BASE, NM			4 PROJECT TITLE TEST CAPABILITIES FOR AMRAAM PROGRAM		
5 PROGRAM ELEMENT 63370F	6 CATEGORY CODE 312-477	7 PROJECT NUMBER (80-22) HO 80-0058 (R-1)	8 PROJECT COST (\$000) \$155.5		

9 COST ESTIMATES				
ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)
Installation and Support, Building 1026				102.5
Installation and Support, Building 1080				3.0
Trailer Erection				50.0
TOTAL COST				155.5

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10 DESCRIPTION OF PROPOSED INSTALLATION To support equipment installation work in Bldg 1026 provide interior partitions, suspended ceiling, air conditioning, a 1,000 pound hoist, fire detection system, etc. Relocate screen room in Bldg 1080. Erect 4 trailers including temporary utility hookups, and A/C system.

SPECIFIC PURPOSE: To provide adequate missile build-up space for two contractors in support of the AMRAAM Test Program.

REQUIREMENT: The AMRAAM program requires equipment for a missile build-up capability at Holloman AFB. Approximately 95 percent of the guided test vehicle firings in the program will be conducted over White Sands Missile Range with launch aircraft staging from Holloman AFB. The missiles must have rocket motors and flight termination systems installed and tested as well as have the guidance and control system checked for proper operation prior to launch. For this test program, a capability to allow the two contractors to work under equal conditions must be provided. The 49th TFW missile build-up facility is not available to support AMRAAM requirements. The temporary trailers are required for contractor support.

CURRENT SITUATION: Building 1026 can be used to meet the AMRAAM test requirements. Test and build-up equipment and associated support will be installed in this bldg. The AMRAAM test program is being conducted in conjunction with other Army tests at the White Sands Range. The new capability will be used to support up to five captive sorties per week per contractor during 1981. Failure to provide the facility in the time required will lose the opportunity to perform testing in conjunction with other scheduled tests at the Range.

1 COMPONENT AIR FORCE		FY 19 ⁸¹ RDT&E FACILITIES PROJECT DATA		2 DATE January 1981	
3 INSTALLATION AND LOCATION HOLLOMAN AFB NM (TAC)			4 PROJECT TITLE TEMPORARY TEST SITE FOR PAVE MOVER		
5 PROGRAM ELEMENT 63747F	6 CATEGORY CODE 316-237	7 PROJECT NUMBER (80-22) HO 80-0080 (R-1)	8 PROJECT COST (\$000. \$593.3		
9 COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT COST	COST (\$000)
A. TEMPORARY TEST SITE					
1. Pit Area - Site #1		LS			75.6
2. DPCS - Site #2		LS			131.7
3. Radar Maintenance - Site #3		LS			138.0
4. Support - Site #4		LS			247.8
TOTAL					593.3
B. DESIGN COSTS (Non-add)					(29.7)
10 DESCRIPTION OF PROPOSED INSTALLATION Provide a temporary test site for a contractor-operated test at Holloman AFB NM in support of PAVE MOVER for a 24-month period. The facilities to be provided include: <u>SITE 1:</u> A pit with adjoining ramp; install sump drain at pit/ramp interface; install pit power circuits, provide a canopy cover for pit area; overlay taxiway to the pit and miscellaneous ramp striping. <u>SITE 2:</u> Grade and level test site area for Data Processing Control Site (DPCS) facilities; asphalt area; provide three concrete pads for antennas; install utility poles and power drops; and provide 3/4 inch water tap. <u>SITE 3:</u> Grade area and erect a temporary pre-engineering building for usage as a Radar Maintenance Building for use during the test program. Building to include heating and cooling for electronic equipment; partition to separate building in half for dual occupancy; two latrines; lighting as required; and fire alarm system. <u>SITE 4:</u> Erect a temporary 5,000 square foot engineer support facility with utility hook-ups and fire protection system. <u>REQUIREMENT:</u> Private industry under contract with the Federal Government and USAF evaluators require space to conduct tests and evaluate results. The pit and canopy are specifically designed for use with the F-111 for this test. <u>CURRENT SITUATION:</u> a. The pit area and canopy cover are peculiar to the PAVE MOVER program. Therefore, they do not presently exist and must be provided. b. The test site area is peculiar to the PAVE MOVER program and presently does not exist. PAVE MOVER program is to interface with the Assault Breaker surface to surface missile demonstrations, which will be conducted at WSMR.					

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AD-A099 028

DEPUTY CHIEF OF STAFF RESEARCH DEV AND ACQUISITION (A--ETC F/G 5/1
DEPARTMENT OF THE AIR FORCE JUSTIFICATION OF ESTIMATES FOR FISC--ETC(U)
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1 COMPONENT AIR FORCE		FY 1981 RDT&E PROJECT DATA			2 DATE January 1981	
3 INSTALLATION AND LOCATION NEVADA TEST SITE, NEVADA				4 PROJECT TITLE M-X PROTECTIVE SHELTER CONSTRUCTION DEMO & CANNISTER TEST SITE		
5 PROGRAM ELEMENT 64312F		6 CATEGORY CODE 310-477	7 PROJECT NUMBER		8 PROJECT COST (\$000) \$16,530.0	

9 COST ESTIMATES

ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)
Prototype Construction Demonstration	LS	14		10,000
Site for the Cannister Assembly Launch Test Program (CALTP)	LS			6,530
Studies/Construction Equipment - Precast (Non add)	LS			(15,000)
Studies/Construction Equipment - Cast in place (Non add)	LS			(18,000)

10. DESCRIPTION OF PROPOSED INSTALLATION

Construct 14 prototype M-X Protective Shelters. Shelters to be 171' reinforced concrete cylinders with steel liners, 18' OD, 21" thick, with 600' entrance ramps. Project includes two methods of construction-cast in place and precast, studies, analysis planning, design, development of equipment, assessment of the results of equipment, materials, and construction. Provide site for CALTP.

PROJECT: Provides for prototype construction of shelters using advanced construction equipment, techniques and keeping records of costs, time and materials to increase confidence in ability to build these facilities efficiently and economically. Provide crane foundation, grading, impact area, support structure, hazardous material storage, refurbishment, and supporting items for a cannister test.

REQUIREMENT: Due to the importance of the M-X program, its high acquisition cost and the advanced nature of construction required, validation of concepts developed to date is mandatory. This demonstrated capability will aid in reducing uncertainties when the construction industry bids on large fixed-price contracts for the 4,600 M-X protective shelters. This program will take 15 months. Results are required in early 1982 for input to the design for the first operational shelters in the FY 84 MCP. Provide a site to perform cannister tests.

CURRENT SITUATION: The construction industry will either bid on the protective shelters based on existing technology and equipment which may be more expensive or it will include additional costs for risks involved with use of untested equipment and techniques. This construction demonstration program could provide large cost savings on the construction of the operational system. There are no existing capabilities to support the CALTP. Selection of this site reflects cost, schedule and technical considerations.

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Section 9

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

<u>PROGRAM ELEMENT</u>	<u>PROJECT</u>	<u>FY 1980 ACTUAL</u>	<u>FY 1981 ESTIMATE</u>	<u>FY 1982 ESTIMATE</u>	<u>FY 1983 ESTIMATE</u>
62205F	TRAINING AND SIMULATION TECHNOLOGY (PARTIAL PE)	4,736	5,200	6,750	8,007
62205F/1123	(FLYING TRAINING DEVELOPMENT)	(798)	(800)	(1,050)	(1,400)
62205F/1192	(ADVANCED SIMULATOR FOR PILOT TRAINING)	(1,100)	(3,700)	(4,550)	(4,907)
62205F/6114	(SIMULATION TECHNIQUES FOR AIR FORCE TRAINING)	(838)	(700)	(1,150)	(1,700)
63227F	ADVANCED SIMULATOR DEVELOPMENT	2,000	3,170	2,200	4,500
63227F/2363	(ADVANCED VISUAL TECHNOLOGY SYSTEM)	(2,000)	(3,170)	(2,200)	(4,500)
63751F	INNOVATIONS IN EDUCATION AND TRAINING	325	300	400	500
63751F/2359	(PILOT PERFORMANCE MEASUREMENT)	(325)	(300)	(400)	(500)
64220F	EF-111A (OFT SIMULATOR DEVELOPMENT)	(0)	(0)	9,200	16,500
64227F	FLIGHT SIMULATOR DEVELOPMENT	6,300	5,640	18,600	16,100
64227F/2201	(B-52 AERIAL REFUELING/KC-135 BOOM OPERATOR PART TASK TRAINER)	(400)	(0)	(0)	(0)
64227F/2269	(B-52 ELECTRO-OPTICAL VIEWING SYSTEM)	(2,000)	(0)	(0)	(0)
64227F/2325	(SIMULATOR DEVELOPMENT ACTIVITIES)	(700)	(1,040)	(0)	(0)
64227F/2360	(TACTICAL COMBAT TRAINER)	(1,200)	(4,600)	(0)	(0)
64227F/2769	(SIMULATOR UPDATE DEVELOPMENT)	(0)	(0)	(18,600)	(16,100)

Section 9 (Continued)		FY 1980	FY 1981	FY 1982	FY 1983
PROGRAM ELEMENT	PROJECT	ACTUAL	ESTIMATE	ESTIMATE	ESTIMATE
11113F	B-52 SQUADRONS	5,900	7,200	2,400	(0)
11113F/2632	(B-52 OAS/CMI WEAPON SYSTEM TRAINER MODIFICATION)	(5,900)	(7,200)	(2,400)	(0)
TOTAL		19,261	21,510	39,550	45,607

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