DEPARTMENT OF THE AIR FORCE

SUPPORTING DATA FOR FISCAL YEARS 1998/1999

RESEARCH, DEVELOPMENT, TEST AND EVALUATION

DESCRIPTIVE SUMMARIES

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VOLUME II

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TABLE OF CONTENTS

BUDGET ACTIVITY / PROGRAM ELEMENT	PE	PROGRAM ELEMENT TITLE	PAGE
#1 - BASIC RESEARCH			
1	0601102F	Defense Research Sciences	1
#2 - APPLIED RESEARCH			
2	0602102F	Materials	35
3	0602201F	Aerospace Flight Dynamics	53
4	0602202F	Armstrong Lab Exploratory Development	79
5	0602203F	Aerospace Propulsion	111
6	0602204F	Aerospace Avionics	129
7	0602269F	Hypersonic Technology Program	171
8	0602601F	Phillips Laboratory Exploratory Development	177
9	0602602F	Conventional Munitions	215
10	0602702F	Command,Control, and Communication (C3)	231
#3 - ADVANCED TECHNOLOGY DEVELOPMENT			
11	0603106F	Logistics Systems Technology	263
12	0603108F	Integrated Data Systems (IDS)	275
13	0603112F	Advanced Materials for Weapon Systems	279
14	0603202F	Aerospace Propulsion Subsystem Integration	291
15	0603203F	Advanced Avionics for Aerospace Vehicles	297
16	0603205F	Flight Vehicle Technology	317

TABLE OF CONTENTS

BUDGET ACTIVITY
PROGRAM ELEMENT

	PE	PROGRAM ELEMENT TITLE	PAGE
#3 - ADVANCED TECHNOLOGY DEVELOPMENT - Continued			
17	0603211F	Aerospace Structures	329
18	0603216F	Aerospace Propulsion and Power Technology	335
19	0603227F	Personnel, Training, and Simulation Technology	349
20	0603231F	Crew Systems & Personnel Protection Technology	355
21	0603245F	Flight Vehicle Technology Integration	365
22	0603253F	Advanced Avionics Integration	369
23	0603270F	Electronic Combat (EC) Technology	383
24	0603302F	Space and Missile Rocket Propulsion	399
25	0603311F	Ballistic Missile Technology	411
26	0603401F	Advanced Spacecraft Technology	415
27	0603410F	Space Systems Environmental Interactions Technology	441
28	0603601F	Conventional Weapons Technology	449
29	0603605F	Advanced Weapons Technology	459
30	0603707F	Weather Systems Technology	483
31	0603723F	Environmental Engineering Technology	487
32	0603726F	C3 Subsystem Integration	493
33	0603728F	Advanced Computing Technology	505
34	0603789F	C3 Advanced Development	519
#4 - DEMONSTRATION AND VALIDATION			
35	0208030F	WRM Ammunition	537

TABLE OF CONTENTS

BUDGET ACTIVITY
PROGRAM ELEMENT

	PE	PROGRAM ELEMENT TITLE	PAGE
#4 - DEMONSTRATION AND VALIDATION - Continued			
36	0603260F	Intelligence Advanced Development	541
37	0603319F	Airborne Laser Program	571
38	0603430F	Advanced MILSATCOM	579
39	0603432F	Polar Adjunct (Space)	585
40	0603434F	National Polar-orbiting Operational Environmental Satellite System (NPOESS) (Space)	589
41	0603441F	Space Based IR Arch (Dem/Val) (Space)	595
42	0603617F	Command Control & Communications Applications	609
43	0603790F	NATO Cooperative Research and Development	631
44	0603800F	Joint Adv Strike Tech Program	659
45	0603851F	ICBM Dem/Val	673
46	0603853F	Evolved Expendable Launch Veh (EELV) (Space)	705
47	0603854F	Global Broadcast Service (GBS) (Space)	711
48	0603855F	DoD Space Architect (Space)	717
49	0604237F	Variable Stability In-Flight Simulation Test Aircraft	723
50	0604327F	Hardened Target Munitions	725
#5 - ENGINEERING AND MANUFACTURING DEVELOPMENT			
51	0207325F	Joint Air-to-Surface Standoff Missile	731
52	0207414F	Combat Intelligence System	737
53	0305176F	Combat Survivor Evader Locator (CSEL)	743
54	0604201F	Integrated Avionics Planning and Development	747

TABLE OF CONTENTS

BUDGET ACTIVITY
PROGRAM ELEMENT

	PE	PROGRAM ELEMENT TITLE	PAGE
#5 - ENGINEERING AND MANUFACTURING DEVELOPMENT - Continued			
55	0604218F	Engine Model Derivative Prog	763
56	0604222F	Nuclear Weapons Support	769
57	0604226F	B-1B	785
58	0604227F	Flight Simulator Development	805
59	0604233F	Specialized Undergraduate Pilot Trng	827
60	0604239F	F-22 EMD	843
61	0604240F	B-2 Advanced Technology Bomber	855
62	0604243F	Mnpwr Pers & Trng Development	871
63	0604270F	EW Development	885
64	0604321F	Combat Intelligence System - EMD	919
65	0604441F	Space Based IR Arch (EMD) (Space)	925
66	0604479F	Milstar LDR/MDR Sat Comm (Space)	941
67	0604480F	Global Positioning System Block IIF (Space)	949
68	0604600F	Munitions Dispenser Development	953
69	0604602F	Armament Ordnance Development	959
70	0604604F	Submunitions	971
71	0604617F	Air Base Operability	977
72	0604618F	Joint Direct Attack Munitions	985
73	0604703F	Aeromedical Systems Development	991
74	0604706F	Life Support Systems	999
75	0604708F	Civil, Fire, Environmental, Shelter	1011
76	0604727F	Joint Standoff Weapon System	1029

TABLE OF CONTENTS

BUDGET ACTIVITY / PROGRAM ELEMENT	PE	PROGRAM ELEMENT TITLE	PAGE
#5 - ENGINEERING AND MANUFACTURING DEVELOPMENT - Continued			
77	0604735F	Combat Training Ranges	1035
78	0604740F	Computer Resources Management Technology (CRMT)*	1045
79	0604750F	Intelligence Equipment	1059
80	0604754F	Joint Tactical Information Distribution System	1065
81	0604770F	JSTARS	1079
82	0604779F	Joint Interoperability Tactical Command/Control	1085
83	0604851F	ICBM EMD	1093
84	0604853F	Evolved Exp Launch Veh - EMD (Space)	1115
#6 - MANAGEMENT AND SUPPORT			
85	0603402F	Space Test Program (Space)	1121
86	0604256F	Threat Simulator Development	1127
87	0604258F	Target Systems Development	1145
88	0604759F	Major Test And Evaluation Investment	1153
89	0605101F	Rand Project Air Force	1173
90	0605306F	Ranch Hand II Epidemiology Study	1177
91	0605704F	Theater Air Defense BMC4I	1181
92	0605712F	Initial Operational Test & Eval	1185
93	0605807F	Test And Evaluation Spt	1193
94	0605808F	Development Planning	1211
95	0605853F	Environmental Conservation	1215

TABLE OF CONTENTS

BUDGET ACTIVITY / PROGRAM ELEMENT	PE	PROGRAM ELEMENT TITLE	PAGE
#6 - MANAGEMENT AND SUPPORT - Continued			
96	0605854F	Pollution Prevention	1219
97	0605856F	Environmental Compliance	1223
98	0605860F	Rocket System Launch Program (Space)	1227
99	0605876F	Non-Test Minor Construction (RPM)	1231
100	0605878F	Non-Test Maint And Repair (RPM)	1235
101	0605879F	Non-Test Real Property Services (RPS)	1239
102	0605896F	Base Operations - RDT&E	1243
103	1001004F	International Activities	1253
#7 - OPERATIONAL SYSTEM DEVELOPMENT			
104	0101113F	B-52 Squadrons	1269
105	0101120F	Advanced Cruise Missile	1293
106	0102325F	Joint Surveillance System	1299
107	0102326F	Region/Sector Operations Control Center Modernization	1315
108	0102411F	Surveillance Radar Stations/Sites (SRS)	1321
109	0207131F	A-10 Squadrons	1327
110	0207133F	F-16 Squadrons	1331
111	0207134F	F-15E Squadrons	1341
112	0207136F	Manned Destructive Supression	1349
113	0207141F	F-117A Squadrons	1355
114	0207161F	Tactical AIM Missile	1363

TABLE OF CONTENTS

BUDGET ACTIVITY
PROGRAM ELEMENT

	PE	PROGRAM ELEMENT TITLE	PAGE
#7 - OPERATIONAL SYSTEM DEVELOPMENT - Continued			
115	0207163F	Adv Med Range A/A Msl	1369
116	0207217F	Podded Reconnaissance System	1377
117	0207247F	Air Force TENCAP	1385
118	0207268F	/ 0604268F Aircraft Engine Component Improvement Program	1389
119	0207320F	Sensor Fuzed Weapons	1395
120	0207323F	AGM-86C, Conventional ALCM	1401
121	0207412F	Theater Air Control System	1407
122	0207417F	Airborne Warning & Control System (AWACS)	1413
123	0207419F	Tactical Airborne Cmd & Control Sys	1421
124	0207423F	Advanced Communications Systems	1425
125	0207431F	Combat Air Intelligence System	1439
126	0207438F	Theater Battle Management (TBM) C4I	1443
127	0207581F	Joint STARS	1461
128	0207590F	Seek Eagle	1467
129	0208006F	Mission Planning Systems	1479
130	0208060F	Theater Missile Defense	1487
131	0303110F	Def Satellite Comm Sys (Space)	1503
132	0303131F	Minimum Essential Emer Comm Network	1511
133	0303140F	Information Systems Security Program	1529
134	0303141F	Global Combat Support System	1543
135	0303144F	Electromagnetic Compatibility Analysis Center (ECAC)	1549
136	0303152F	Automated Data Processing Equipment	1557

TABLE OF CONTENTS

BUDGET ACTIVITY
PROGRAM ELEMENT

	PE	PROGRAM ELEMENT TITLE	PAGE
#7 - OPERATIONAL SYSTEM DEVELOPMENT - Continued			
137	0303601F	MILSATCOM Terminals	1563
138	0305110F	Satellite Control Network (Space)	1569
139	0305111F	Weather Service	1577
140	0305114F	Traffic Cntrl/Approach/Landing Sys	1583
141	0305119F	Medium Launch Vehicles (Space)	1597
142	0305128F	Security and Investigative Activities (S&IA)	1603
143	0305137F	National Airspace System (NAS)	1609
144	0305138F	Upper Stage Space Vehicles (Space)	1615
145	0305144F	Titan Space Launch Vehicles (Space)	1621
146	0305145F	Arms Control Implementation	1627
147	0305154F	Defense Airborne Reconnaissance Program (DARP) RC-135	1637
148	0305158F	Constant Source	1649
149	0305160F	Def Meteorological Satellite Prog (Space)	1661
150	0305164F	Navstar Global Pos Sys (User Eq) (Space)	1667
151	0305165F	NAVSTAR GPS (Space/Grd Segments) (Space)	1675
152	0305182F	Eastern Space Launch Facility (Space)	1681
153	0305906F	NCMC-TW/AA Systems	1687
154	0305910F	Spacetrack (Space)	1703
155	0305911F	Defense Support Program (Space)	1721
156	0305913F	NUDET Detection System (Space)	1733
157	0305917F	DoD Space Architect (Space)	1739
158	0305953F	Evolved Expendable Launch Veh(Space)	1745

TABLE OF CONTENTS

BUDGET ACTIVITY
PROGRAM ELEMENT

	PE	PROGRAM ELEMENT TITLE	PAGE
#7 - OPERATIONAL SYSTEM DEVELOPMENT - Continued			
159	0401119F	C-5 Airlift Squadrons	1749
160	0401130F	C-17 Program	1761
161	0401214F	Air Cargo Materiel Handling (463L)	1767
162	0401218F	KC-135 Squadrons	1777
163	0404102F	Aerospace Rescue And Recovery	1799
164	0603852F	C-130J Dem/Val	1805
165	0702207F	Depot Maintenance (Non-If)	1811
166	0708011F	Industrial Preparedness	1817
167	0708026F	Product/Reliable/Avail/Maintain Prog	1825
168	0708611F	Support Systems Development (SSD)	1829
169	0804734F	Crypto/Sigint Related Skill Tng	1845
170	0901218F	Civilian Compensation Program	1851
171	1001018F	NATO JSTARS	1855

ALPHABETICAL LISTING

Program Element Title	PE	PAGE
/ 0604268F Aircraft Engine Component Improvement Program	0207268F	1389
A-10 Squadrons	0207131F	1327
Adv Med Range A/A Msl	0207163F	1369
Advanced Avionics for Aerospace Vehicles	0603203F	297
Advanced Avionics Integration	0603253F	369
Advanced Communications Systems	0207423F	1425
Advanced Computing Technology	0603728F	505
Advanced Cruise Missile	0101120F	1293
Advanced Materials for Weapon Systems	0603112F	279
Advanced MILSATCOM	0603430F	579
Advanced Spacecraft Technology	0603401F	415
Advanced Weapons Technology	0603605F	459
Aeromedical Systems Development	0604703F	991
Aerospace Avionics	0602204F	129
Aerospace Flight Dynamics	0602201F	53
Aerospace Propulsion	0602203F	111
Aerospace Propulsion and Power Technology	0603216F	335
Aerospace Propulsion Subsystem Integration	0603202F	291
Aerospace Rescue And Recovery	0404102F	1799
Aerospace Structures	0603211F	329
AGM-86C, Conventional ALCM	0207323F	1401
Air Base Operability	0604617F	977
Air Cargo Materiel Handling (463L)	0401214F	1767
Air Force TENCAP	0207247F	1385
Airborne Laser Program	0603319F	571

ALPHABETICAL LISTING

Program Element Title	PE	PAGE
Airborne Warning & Control System (AWACS)	0207417F	1413
Armament Ordnance Development	0604602F	959
Arms Control Implementation	0305145F	1627
Armstrong Lab Exploratory Development	0602202F	79
Automated Data Processing Equipment	0303152F	1557
B-1B	0604226F	785
B-2 Advanced Technology Bomber	0604240F	855
B-52 Squadrons	0101113F	1269
Ballistic Missile Technology	0603311F	411
Base Operations - RDT&E	0605896F	1243
C-130J Dem/Val	0603852F	1805
C-17 Program	0401130F	1761
C-5 Airlift Squadrons	0401119F	1749
C3 Advanced Development	0603789F	519
C3 Subsystem Integration	0603726F	493
Civil, Fire, Environmental, Shelter	0604708F	1011
Civilian Compensation Program	0901218F	1851
Combat Air Intelligence System	0207431F	1439
Combat Intelligence System	0207414F	737
Combat Intelligence System - EMD	0604321F	919
Combat Survivor Evader Locator (CSEL)	0305176F	743
Combat Training Ranges	0604735F	1035
Command Control & Communications Applications	0603617F	609
Command,Control, and Communication (C3)	0602702F	231
Computer Resources Management Technology (CRMT)*	0604740F	1045

ALPHABETICAL LISTING

Program Element Title	PE	PAGE
Constant Source	0305158F	1649
Conventional Munitions	0602602F	215
Conventional Weapons Technology	0603601F	449
Crew Systems & Personnel Protection Technology	0603231F	355
Crypto/Sigint Related Skill Tng	0804734F	1845
Def Meteorological Satellite Prog (Space)	0305160F	1661
Def Satellite Comm Sys (Space)	0303110F	1503
Defense Airborne Reconnaissance Program (DARP) RC-135	0305154F	1637
Defense Research Sciences	0601102F	1
Defense Support Program (Space)	0305911F	1721
Depot Maintenance (Non-If)	0702207F	1811
Development Planning	0605808F	1211
DoD Space Architect (Space)	0305917F	1739
DoD Space Architect (Space)	0603855F	717
Eastern Space Launch Facility (Space)	0305182F	1681
Electromagnetic Compatibility Analysis Center (ECAC)	0303144F	1549
Electronic Combat (EC) Technology	0603270F	383
Engine Model Derivative Prog	0604218F	763
Environmental Compliance	0605856F	1223
Environmental Conservation	0605853F	1215
Environmental Engineering Technology	0603723F	487
Evolved Exp Launch Veh - EMD (Space)	0604853F	1115
Evolved Expendable Launch Veh (EELV) (Space)	0603853F	705
Evolved Expendable Launch Veh(Space)	0305953F	1745
EW Development	0604270F	885

ALPHABETICAL LISTING

Program Element Title	PE	PAGE
F-117A Squadrons	0207141F	1355
F-15E Squadrons	0207134F	1341
F-16 Squadrons	0207133F	1331
F-22 EMD	0604239F	843
Flight Simulator Development	0604227F	805
Flight Vehicle Technology	0603205F	317
Flight Vehicle Technology Integration	0603245F	365
Global Broadcast Service (GBS) (Space)	0603854F	711
Global Combat Support System	0303141F	1543
Global Positioning System Block IIF (Space)	0604480F	949
Hardened Target Munitions	0604327F	725
Hypersonic Technology Program	0602269F	171
ICBM Dem/Val	0603851F	673
ICBM EMD	0604851F	1093
Industrial Preparedness	0708011F	1817
Information Systems Security Program	0303140F	1529
Initial Operational Test & Eval	0605712F	1185
Integrated Avionics Planning and Development	0604201F	747
Integrated Data Systems (IDS)	0603108F	275
Intelligence Advanced Development	0603260F	541
Intelligence Equipment	0604750F	1059
International Activities	1001004F	1253
Joint Adv Strike Tech Program	0603800F	659
Joint Air-to-Surface Standoff Missile	0207325F	731
Joint Direct Attack Munitions	0604618F	985

ALPHABETICAL LISTING

Program Element Title	PE	PAGE
Joint Interoperability Tactical Command/Control	0604779F	1085
Joint Standoff Weapon System	0604727F	1029
Joint STARS	0207581F	1461
Joint Surveillance System	0102325F	1299
Joint Tactical Information Distribution System	0604754F	1065
JSTARS	0604770F	1079
KC-135 Squadrons	0401218F	1777
Life Support Systems	0604706F	999
Logistics Systems Technology	0603106F	263
Major Test And Evaluation Investment	0604759F	1153
Manned Destructive Supression	0207136F	1349
Materials	0602102F	35
Medium Launch Vehicles (Space)	0305119F	1597
Milstar LDR/MDR Sat Comm (Space)	0604479F	941
Minimum Essential Emer Comm Network	0303131F	1511
Mission Planning Systems	0208006F	1479
MILSATCOM Terminals	0303601F	1563
Mnpwr Pers & Trng Development	0604243F	871
Munitions Dispenser Development	0604600F	953
National Airspace System (NAS)	0305137F	1609
National Polar-orbiting Operational Environmental Satellite System (NPOESS) (Space)	0603434F	589
Navstar Global Pos Sys (User Eq) (Space)	0305164F	1667
NATO Cooperative Research and Development	0603790F	631
NATO JSTARS	1001018F	1855
NAVSTAR GPS (Space/Grd Segments) (Space)	0305165F	1675

ALPHABETICAL LISTING

Program Element Title	PE	PAGE
NCMC-TW/AA Systems	0305906F	1687
Non-Test Maint And Repair (RPM)	0605878F	1235
Non-Test Minor Construction (RPM)	0605876F	1231
Non-Test Real Property Services (RPS)	0605879F	1239
Nuclear Weapons Support	0604222F	769
NUDET Detection System (Space)	0305913F	1733
Personnel, Training, and Simulation Technology	0603227F	349
Phillips Laboratory Exploratory Development	0602601F	177
Podded Reconnaissance System	0207217F	1377
Polar Adjunct (Space)	0603432F	585
Pollution Prevention	0605854F	1219
Product/Reliable/Avail/Maintain Prog	0708026F	1825
Ranch Hand II Epidemiology Study	0605306F	1177
Rand Project Air Force	0605101F	1173
Region/Sector Operations Control Center Modernization	0102326F	1315
Rocket System Launch Program (Space)	0605860F	1227
Satellite Control Network (Space)	0305110F	1569
Security and Investigative Activities (S&IA)	0305128F	1603
Seek Eagle	0207590F	1467
Sensor Fuzed Weapons	0207320F	1395
Space and Missile Rocket Propulsion	0603302F	399
Space Based IR Arch (Dem/Val) (Space)	0603441F	595
Space Based IR Arch (EMD) (Space)	0604441F	925
Space Systems Environmental Interactions Technology	0603410F	441
Space Test Program (Space)	0603402F	1121

ALPHABETICAL LISTING

Program Element Title	PE	PAGE
Spacetrack (Space)	0305910F	1703
Specialized Undergraduate Pilot Trng	0604233F	827
Submunitions	0604604F	971
Support Systems Development (SSD)	0708611F	1829
Surveillance Radar Stations/Sites (SRS)	0102411F	1321
Tactical Airborne Cmd & Control Sys	0207419F	1421
Tactical AIM Missile	0207161F	1363
Target Systems Development	0604258F	1145
Test And Evaluation Spt	0605807F	1193
Theater Air Control System	0207412F	1407
Theater Air Defense BMC4I	0605704F	1181
Theater Battle Management (TBM) C4I	0207438F	1443
Theater Missile Defense	0208060F	1487
Threat Simulator Development	0604256F	1127
Titan Space Launch Vehicles (Space)	0305144F	1621
Traffic Cntrl/Approach/Landing Sys	0305114F	1583
Upper Stage Space Vehicles (Space)	0305138F	1615
Variable Stability In-Flight Simulation Test Aircraft	0604237F	723
Weather Service	0305111F	1577
Weather Systems Technology	0603707F	483
WRM Ammunition	0208030F	537

BUDGET JUSTIFICATION FOR PROGRAM ELEMENTS OF THE DEPARTMENT OF THE AIR FORCE RESEARCH AND DEVELOPMENT PROGRAM FY 1998/1999 BIENNIAL BUDGET JUSTIFICATION BOOK FEBRUARY 1997

INTRODUCTION AND EXPLANATION OF CONTENTS

1. GENERAL: This document has been prepared to provide information on the United States Air Force (USAF) Research, Development, Test and Evaluation (RDT&E) program to Congressional committees during the hearings on the Fiscal Year 1998/1999 Budget Estimates. This information is in addition to the testimony given by DoD witnesses.

a. Contents: Volumes I and II contain all unclassified R-2 and R-3 exhibits. Volume III contains the following classified R-2 and R-2 classified exhibits. Volume IV contains the Facilities exhibit (DoD Form 1391) and the Combating Terrorism.

b. Exhibits R-2 and R-3 provide narrative information for all RDT&E program elements and projects within the USAF FY1998/1999 RDT&E program except those listed in Volume III. The formats and contents of this document are in accordance with the guidelines and requirement of the Congressional committees insofar as possible.

c. The "Other Program Funding Summary" portion of the R-2 includes, in addition to RDT&E funds, Procurement funds and quantities, Military Construction appropriation funds on specific development programs, Operations and Maintenance appropriation funds where they are essential to the development effort described, and where appropriate, Department of Energy (DoE) costs.

d. There are three FY1998/1999 "Facilities Exhibits" that contain information on major improvement to and construction of government owned facilities funded by RDT&E located in section I of Volume IV.

e. There are three FY1998/1999 "Combating Terrorism Exhibits" that contain information on physical security or counterterrorism located in section II of Volume IV.

2: CLASSIFICATION: All R-2 and R-3 exhibits contained in Volumes I and II are UNCLASSIFIED. Classified R-2 and R-3 exhibits are now contained in Volume III. Classified pages bear the appropriate security classification and classified data is identified by use of brackets []. A list of R-2 and R-3 exhibits not included in this submission (due to the level of security classification and necessity of special security clearances) is located in Volume III.

3. COMPARISON OF FISCAL YEARS 1997 AND 1998/1999 DATA. A direct comparison of Fiscal Years 1997 and 1998/1999 data shown in this document with corresponding data in the Descriptive Summaries dated February 1996 will reveal differences. The table below highlights the relationship of the FY1998/1999 budget structure to the FY1997 Budget approved by Congress:

PROGRAM ELEMENT COMPARISON SUMMARY

INTRODUCTION AND EXPLANATION OF CONTENTS

PE	REMARKS
BUDGET ACTIVITY 1: BASIC RESEARCH	
BUDGET ACTIVITY 2: APPLIED RESEARCH DEVELOPMENT	
0602203F Aerospace Propulsion	Project 3012 terminates in FY98
0602204F Aerospace Avionics	Project 2000 and 7633 have been combined into Project 2000. Project 2001 and Project 2004 have been combined into Project 2001. Project 6095 and Project 7629 have been combined into Project 6095. Project 7622 and project 7662 have been combined into Project 7622.
0602602F Conventional Munitions	Project 2543 has been combined into Project 2502 beginning in FY98.
BUDGET ACTIVITY 3: ADVANCED TECHNOLOGY DEVELOPMENT	
0603205F Flight Vehicle Tech	Efforts previously conducted under PE 0603723F, Project 2104 have been consolidated with this PE in Project 4398
0603211F Aerospace Structures	Projects 486U and 69CW have been combined into Project 486U.

BUDGET ACTIVITY 3: ADVANCED TECHNOLOGY DEVELOPMENT (Continued)

0603216F Aerospace Propulsion and Power Technology	Project 2480 terminates in FY98, Project 2697 combined into Project 2480.
0603227F Personnel, Training and Simulation Tech	Projects 2743, 2922 and 2949 have been combined into Project 2743
0603231F Crew Systems & Personnel Protection	Projects 2829, 2830 and 2868 have been combined into Project 2830
0603238F Global Surveillance & Comm Tech	Funding transferred to 0603789F
0603270F Electronic Combat Tech	Projects 2754 and 2432 have been combined into Project 2432. Projects 691X radio countermeasures efforts are now reported in Project 431G. Project 2222 expendable countermeasures and the infrared missile warning efforts from the former Project 431G are now reported in Project 691X. Project 2432 precision location and identification efforts are now reported in Project 431G
0603311F Ballistic Missile Tech	Project 4091 terminates is FY97.
0603401F Advanced Spacecraft Tech	Project 4599 was previously called Project 0003, Reusable Launch Vehicle Technology. In FY96 this project was moved to PE 0603302F and renamed Launch Vehicle Technology. The only funds remaining in this project were added by Congress.
0603410F Space Systems Environmental Interactions	Projects 2822 and 2823 were combined into Project 2822.
0603601F Conventional Weapons Tech	Global Positioning System guidance and highly agile missile flight control will be developed in project 670B vice 670A.

PROGRAM ELEMENT COMPARISON SUMMARY

INTRODUCTION AND EXPLANATION OF CONTENTS

BUDGET ACTIVITY 3: ADVANCED TECHNOLOGY DEVELOPMENT (Continued)	
0603707F Weather Systems Tech	Projects 2688, 2781 and 4026 were combined into Project 2688.
0603723F Environmental Engineering Tech	Projects 2103 and 3037 have been combined into Project 2688.
0603726F C3 Subsystem Integration	Project 3192 combined with Project 2810.
0603789F C3 Advanced Development	PE 0603238F has been incorporated into this PE as Project 4216 beginning in FY98.
BUDGET ACTIVITY 4: DEMONSTRATION AND VALIDATION	
0208030F WRM Ammunition	FY99 new start
0603319F Airborne Laser Technology	PE has transition from Budget Activity (BA) 3 to BA 4
0603790F NATO Research and Development	Funding transferred from DoD Account.
0603852F C-130J Em/Val	FY98 new start
0603855F DoD Space Architect (Space)	Funding transferred to PE 0305917F.
0604226F B-1B	Projects 1019, 1020, 1021 and 4143 were combined into Project 4596.
0604327F Harden Target Munitions	Funding adding in 0603311F in FY96. New PE established in FY97.

PROGRAM ELEMENT COMPARISON SUMMARY

INTRODUCTION AND EXPLANATION OF CONTENTS

BUDGET ACTIVITY 5: ENGINEERING AND MANUFACTURING DEV	
0207323F Conventional Air-Launched Cruise Missile	FY99 new start
0207414F Combat Intelligence System	PEs 0207431F, 0305158F, and 0604321F combined into single PE.
0305176F Combat Survivor Evader Locator (CSEL)	PE will transition from Budget Activity (BA) 3 to BA 5 in FY98.
0604226F B-1B	Projects 1019, 1020, 1021 and 4143 are combined into Project 4596.
0604321F Combat Intelligence System	Funds moved into PE 027414F beginning in FY98.
0604240F B-2	Project 3843 combined into Project 4609 beginning in FY98
0604770F JSTARS	Funds moved to new PE 0207581F.
0604851F ICBM EMD	Project 13C4 combined into PE 0303131F, Project 2832.
0604853F Evolved Exp Launch Veh -EMD	Project 0004 funding transferred from PE 0604853F.
BUDGET ACTIVITY 6: RDT&E MANAGEMENT SUPPORT	
0605704F Theater Air Defense BMC4I	Funding and efforts of this PE have been transferred to PE 0605126J beginning in FY98.
0605876F Non-Test Minor Construction (RPM)	Project 06MC was transferred from PE 0605807F, project 06MC starting in FY98.
0605878F Non-Test Maintenance and Repair	Project 06MR was transferred from PE 0605807F, project 06MR starting in FY98.

PROGRAM ELEMENT COMPARISON SUMMARY

INTRODUCTION AND EXPLANATION OF CONTENTS

BUDGET ACTIVITY 6: RDT&E MANAGEMENT SUPPORT (Continued)

0605879F Non-Test Real Property Services	Project 06CE was transferred from PE 0605896F, projects 06CE and 06UT starting in FY98.
0605807F Test and Evaluation Support	Project 06TS FY98 content and funding increased for Test and Evaluation to reflect a transfer of test facility maintenance and repair and minor construction requirements formerly identified in projects 06MR and 06MC.
0605807F Test and Evaluation Support	Project 06AS requirements and funding moved to Project 06TS beginning in FY98.
0605807F Test and Evaluation Support	Approximately 50% of Project 06MC requirements and funding were transferred to PE 0605876F (Non-Test Minor Construction), Project 06MC, beginning in FY98. The remaining 50% was identified as test mission requirements and transferred to Project 06TS.
0605807F Test and Evaluation Support	Approximately 75% of Project 06MR requirements and funding were transferred to PE 0605878F (Non-Test Maintenance), Project 06MR beginning in FY98. The remaining 25% was identified as test facility maintenance and repair to Project 06TS.
1001004F International Activities	Project 00AH has been combined into Project 4645 beginning in FY98.

PROGRAM ELEMENT COMPARISON SUMMARY

INTRODUCTION AND EXPLANATION OF CONTENTS

BUDGET ACTIVITY 7 : OPERATIONAL SYSTEM DEVELOPMENT	
0101113F B-52 SQUADRONS	Project 4493 completes in FY97. Projects 4401 and 4402 complete is FY98.
0102325F Joint Surveillance System	Projects 2976 and 4559 have been transferred to PE 0102326F, Project 4592
0102326F Joint Surveillance System	Project 4592 transferred from PE 0102325F
0207131F A-10 Squadrons	Project 3861 FY99 new start
0207320F Sensor Fuzed Weapons	Project 1016 funding for FY97 moved from Budget Activity (BA) 5 to BA 7
0207323F AGM-86C Conventional ALCMS	Project 4608 new start in FY99
0207414F Combat Intelligence Systems	PEs 0604321F, 0207431F and 35158F were combined into this PE.
0207419F Tactical Airborne Cmd & Control Sys	Project 4133 completes in FY97
0207431F Combat Air Intelligence	FY98 and later are reported in PE 0207414F Project 1004 moved to PE 0207414F.
BUDGET ACTIVITY 7 : OPERATIONAL SYSTEM DEVELOPMENT (Continued)	
0207581F Joint Stars	Funds prior to FY98 are reported in PE 0604770F
0207601F USAF Modeling and Simulation	Projects 1008 and 4582 are completed in FY98. Project 2888 was transferred from PE 0208060F

PROGRAM ELEMENT COMPARISON SUMMARY

INTRODUCTION AND EXPLANATION OF CONTENTS

BUDGET ACTIVITY 7 : OPERATIONAL SYSTEM DEVELOPMENT (Continued)

0303131F Minimum Essential Emer Comm	Project 4610 is a FY99 new start
0303140F Information Systems Security Program	Project 4585 is a FY98 new start
0303141F Global Combat Support System	Project 4533 was transferred from the O&M appropriation, PE 0308610F
0305145F Arms Control Implementation	Funds transferred to DoD (DWSA) in FY98
0305154F Defense Airborne Reconnaissance	Project 4607 completes in FY97.
0305158F Constant Source	Project 4394 transferred to PE 0207414F in FY98.
0305910F Spacetrack (Space)	Project 4239 funds moved to O&M appropriation. Project 4279 funds moved from 06072295F.
0305911F Defense Support Program (Space)	Talon/Shield ALERT activities are funded in PE 0305911F Project 3615. Prior to FY95, Talon Shield/ALERT activities were funded in PE 0305911F, Project 3624.
0305917F Space Architect	Funds moved from PE 0603855F
0305953F Evolved Expendable Launch Veh	Project 624A is a new FY99 new start
0308610F Information Management Auto	FY98 and outyear funding for this PE has been combined into PE 0303141F.
0604240F B-2	Project 3843 combined into Project 4609.

BUDGET ACTIVITY 7 : OPERATIONAL SYSTEM DEVELOPMENT (Continued)

0303601F MILSATCOM Terminals	FY97 and on funding includes Milstar terminals, SHF terminals and UHF SATCOM. FY96 and prior funding is for Milstar terminals only. PE 0303606F includes FY96 and prior funding for UHF SATCOM, and PE 0303605F includes FY96 and prior funding for SHF terminals.
0401119F C-5 Airlift Squadrons	Project 4377 completes in FY97
0401214F Air Cargo Materiel Handling	Project 5120 completes in FY97.
0401218F KC-135S	Project 4494 is a FY98 new start and Project 4403 completes in FY97
0401318F CV-22	PE terminated.
0404102F Aerospace Rescue and Recovery	PE terminates in FY97
0604770F JSTARS	Funds moved to PE 0207581F beginning in FY98.
0708611F Support Systems Development	Project 3759 terminates in FY98.
1001004F International Activities	Funds moved from Project OOAH to Project 4645 beginning in FY98. Funding moved from Budget Activity (BA) 7 to BA 6.
1001018F NATO JSTARS	Funds have been reclassified from PE 0604770.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604441F Space Based IR Arch (EMD) (Space)

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	165,171	189,638	338,413	580,298	660,876	576,664	707,069	1,109,374	Continuing	Continuing
616 SBIRS High Element EMD	156,073	189,638	338,413	549,298	582,876	426,664	287,901	184,054	209,105	3,008,722
0002 Miniature Sensor Technology Integration (MSTI)	9,098	0	0	0	0	0	0	0	0	37,398
4598 SBIRS Low Element EMD	0	0	0	31,000	78,000	150,000	419,168	925,320	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	1*	1*	2*		

Notes: * One each HEO sensor delivered in FY01 and FY03, one each spacecraft delivered in FY02 and FY03.
Unit cost not available.
FY97 funds of $3.7M being transfered from PE #603441F to BPAC 0002 to support MSTI on-orbit operations and program support.

(U) A. **Mission Description and Budget Item Justification**

(U) The purpose is to develop a system to provide increased performance to meet requirements in US Space Command's Capstone Requirements Document. The system's primary mission is to provide initial warning of a ballistic missile attack on the US, its deployed forces or its allies. The Space-Based InfraRed System (SBIRS) will incorporate new technologies that would enhance detection; improve reporting of ICBM, SLBM and tactical ballistic missiles; and provide critical mid-course tracking and discrimination data for national and theater missile defense. The system will consist of satellites in Geosynchronous Orbits (GEO), Highly Elliptical Orbits (HEO) and Low Earth Orbits (LEO) and an integrated, centralized ground station serving all space elements of the SBIRS system, as well as the Defense Support Program (DSP). This Program Element funds SBIRS Engineering and Manufacturing Development (EMD) activities and is, therefore, assigned to Budget Activity 5, Engineering and Manufacturing Development. Funding is also provided in FY96 and FY 97 for the Miniature Sensor Technology Integration (MSTI) program.

(U) **Acquisition Strategy:**

(U) The SBIRS program is a lead program for acquisition streamlining. Program documentation has been consolidated into a single document, the Single Acquisition and Management Plan (SAMP). The pre-EMD contracts were competed in a full and open competition. Two contracts were awarded to Lockheed/Loral/Aerojet and Hughes/TRW for the pre-EMD phase. Downselect to a single contractor, LMMS, was accomplished for the EMD phase.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604441F Space Based IR Arch (EMD) (Space)

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget (FY97)	162,276	173,290	300,155	540,530	Continuing
(U) Appropriated Value		199,190			
(U) Adjustments to Appropriated Value					
a. Cong Gen Reductions		-4,689			
b. SBIR		-4,863			
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogram	2,895				
(U) Adjustments to Budget Years Since FY97 PB			38,258	39,768	
(U) Current Budget Submit/President's Budget	165,171	189,638	338,413	580,298	Continuing

(U) Change Summary Explanation:

Funding: FY98 adjustments realigned other procurement (3080) funds to RDT&E.
FY99 increases for SBIRS Low acceleration from 2006 fielding to 2004 fielding to support National Missile Defense.
Schedule: Not Applicable
Technical: Not Applicable

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Complete	Total Cost
(U) Missile Procurement (PE 35915F)	0	0	0	0	0	40,810	274,416	238,789	4,700,000	5,254,015
(U) O & M (PE 35915F)			12,426	11,326	16,323	17,566	16,267	18,110		

Related RDT&E:

(U) PE #603441F - SBIRS Dem/Val
(U) PE #305911F - DSP

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) System Functional Review				X												
(U) DAE Program Review				X												
(U) EMD Authority To Proceed (ATP)					X											
(U) Consolidated Grnd IOC, Increment 1																X

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604441F Space Based IR Arch (EMD) (Space)

(U) First HEO Delivery (FY01)
(U) First GEO Launch (FY02)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE: 0604441F Space Based IR Arch (EMD) (Space) / PROJECT: 616

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
616 SBIRS High Element EMD	156,073	189,638	338,413	549,298	582,876	426,664	287,901	184,054	209,105	3,008,722

(U) A. Mission Description and Budget Item Justification

(U) The purpose is to develop a system to provide increased performance to meet requirements in US Space Command's Capstone Requirements Document. The system's primary mission is to provide initial warning of a ballistic missile attack on the US, its deployed forces or its allies. The Space-Based InfraRed System (SBIRS) will incorporate new technologies that would enhance detection; improve reporting of ICBM, SLBM and tactical ballistic missiles; and provide critical mid-course tracking and discrimination data for national and theater missile defense. The system will consist of satellites in Geosynchronous Orbits (GEO), Highly Elliptical Orbits(HEO) and Low Earth Orbits (LEO) and an integrated, centralized ground station serving all space elements of the SBIRS system, as well as the Defense Support Program (DSP). This Program Element funds SBIRS High Engineering and Manufacturing Development (EMD) activities.

(U) FY 1996

- (U) $118,943 Continue Pre-EMD contracts for space and ground segment development
- (U) $15,650 Continue Space Based InfraRed technology and phenomenology projects
- (U) $16,700 Continue program office activities
- (U) $ 4,780 Adjustment (Will be reprogrammed to BPAC 0002 to support Pegasus launch delay and MSTI program development)
- (U) $156,073 Total

(U) FY 1997

- (U) $172,238 Initiate EMD contract for space and ground segment development
- (U) $17,400 Continue program office activities
- (U) $189,638 Total

(U) FY 1998

- (U) $319,213 Continue EMD contract for Space and Ground segment development
- (U) $19,200 Continue program office activities
- (U) $338,413 Total

(U) FY 1999

- (U) $529,698 Continue EMD contract for Space and Ground segment development
- (U) $19,600 Continue program office activities
- (U) $549,298 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604441F Space Based IR Arch (EMD) (Space)
	PROJECT 616

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget (FY97)	153,178	173,290	300,155	540,530	Continuing
(U) Appropriated Value		199,190			
(U) Adjustments to Appropriated Value					
a. Cong Gen Reductions		-4,689			
b. SBIR		-4,863			
c. Omnibus or Above Threshold Reprogramming					
d. Below Threshold Reprogramming	2,895				
(U) Adjustments to Budget Years Since FY97 PB			38,258	8,768	
(U) Current Budget Submit/President's Budget	156,073	189,638	338,413	549,298	Continuing

(U) Change Summary Explanation:

Funding: FY97 decreases funds SBIR initiatives and FFRDC, Anti-terrorist and general Congressional reductions
FY98/99 increases due to realignment of funds from Other Procurement to RDT&E. Effort recognized as part of development task.
Schedule: Not Applicable
Technical: Not Applicable

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Complete	Total Cost
(U) Missile Procurement (PE 35915F)	0	0	0	0	0	40,810	274,416	238,789	Continue	Continue

Related RDT&E:

(U) PE #603441F - SBIRS Dem/Val
(U) PE #305911F - DSP

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604441F Space Based IR Arch (EMD) (Space)
	PROJECT 616

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) System Requirements Review			X													
(U) System Functional Review				X												
(U) DAE Program Review				X												
(U) EMD Authority To Proceed (ATP)					X											
(U) Consolidated Grnd IOC for DSP																X
(U) Grnd IOC for HIGH (FY01)																
(U) First HEO Delivery (FY01)																
(U) First GEO Launch (FY02)																

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604441F Space Based IR Arch (EMD) (Space)
	PROJECT 616

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) PreEMD Contract	118,943			
(U) EMD Contract		172,238	319,213	529,698
(U) Technology	6,600			
(U) Phenomenology	9,050			
(U) System Program Office Support	6,900	7,200	9,000	9,400
(U) Aerospace Corp	9,800	10,200	10,200	10,200
(U) Adjustment (Will be moved to BPAC 0002)	4,780			
(U) Total	156,073	189,638	338,413	549,298

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
LMMS & TRW (Pre-EMD)	C/CPFF	Jul 95			46,000	118,943					164,943
LMMS (EMD)	C/CPAF	Nov 96					172,238	319,213	529,698	1,537,800	2,558,949
TBD(Technology)	Various	Sep 95			5,000	6,600					11,600
TBD(Phenom)	Various	Sep 95			8,300	9,050					17,350
Sandia National Laboratory (Cobra Brass)	Various	Sep 95			10,000						10,000
Support and Management Organizations											
Aerospace Corp	MORD	Sep 95			9,400	9,800	10,200	10,200	10,200	71,400	121,200
Prgm Mgmt Supt	Various	Sep 95			6,000	6,900	7,200	9,000	9,400	81,400	119,900
Test and Evaluation Organizations											

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)											DATE: February 1997
BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE: 0604441F Space Based IR Arch (EMD) (Space)							PROJECT: 616
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Not Applicable											

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE: February 1997
BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE: 0604441F Space Based IR Arch (EMD) (Space)	PROJECT: 616

(U) B. **Budget Acquisition History and Planning Information Continued ($ in Thousands)**

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Government Furnished Property: Not Applicable.											
Subtotal Product Development					69,300	134,593	172,238	319,213	529,698	1,537,800	2,762,842
Subtotal Support and Management					15,400	16,700	17,400	19,200	19,600	152,800	241,100
Subtotal Test and Evaluation											
Adjustment for BPAC Realignment (Will be moved to 0002)						4,780					4,780
Total Project					84,700	156,073	189,638	338,413	549,298	1,690,600	3,008,722

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604441F Space Based IR Arch (EMD) (Space)

PROJECT: 0002

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
0002 Miniature Sensor Technology Integration (MSTI)	9,098	0	0	0	0	0	0	0	0	37,398

(U) **A. Mission Description and Budget Item Justification**

(U) The Miniature Sensor Technology Integration (MSTI) program will provide phenomenology data for the SBIRS program.

(U) FY 1996

–	(U) $16,515	Perform on-orbit operations and program support
–	(U) -$ 7,417	Adjustments (Funds were reprogrammed to support Pegasus launch delay and program development, not yet captured in database. BPAC 616 (SBIRS EMD) provided $4.7M, with the remainder being provided by PEs 35160, 35110, 35906).
–	(U) $ 9,098	Total

(U) FY 1997

–	(U) $3,700	Planned reprogramming from 0603441F, continue on-orbit operations & program support
–	(U) $3,700	Total

(U) FY 1998

–	(U) 0	Total

(U) FY 1999

–	(U) 0	Total

(U) B. Program Change Summary ($ in Thousands)	FY 1996	FY 1997	FY 1998	FY 1999
(U) Previous President's Budget	9,098	0	0	0
(U) Appropriated Value				
(U) Adjustments to Appropriated Value				
a. Cong Gen Reductions				
b. SBIR				
c. Internal Realignment Reprogramming				
d. Below Threshold Reprogramming				
(U) Adjustments to Budget Years Since FY97 PB				
(U) Current Budget Submit/President's Budget	9,098	0	0	0

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604441F Space Based IR Arch (EMD) (Space)
	PROJECT 0002

(U) Change Summary Explanation:
Funding: Planned reprogramming from 0603441F $3,700 in FY97
Shedule: Not Applicable
Technical: Not Applicable

(U) C. **Other Program Funding Summary ($ in Thousands)**
Not Applicable

Related RDT&E:
(U) PE #603441F - SBIRS Dem/Val
(U) PE #305911F - DSP

(U) D. **Schedule Profile**

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Spacecraft Complete																
(U) MSTI Spacecraft Launch			X													
(U) On-orbit Operations				X	X	X	X									

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604441F Space Based IR Arch (EMD) (Space)

PROJECT: 0002

(U) A. Project Cost Breakdown ($000 in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) On-orbit Ops and Support	16,515	3,700		
(U) Adjustments	-7,417	-3,700		
(U) Total Program	9,098	0	0	0

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Spectrum Astro	CPAF	Sep 95			28,300	16,515	3,700				48,515
Support and Management Organizations											
Not Applicable											
Test and Evaluation Organizations											
Not Applicable											
Subtotal Product Development					28,300	16,515	3,700	0	0	0	48,515
Subtotal Support and Management					0	0	0	0	0	0	0
Subtotal Test and Evaluation					0	0	0	0	0	0	0
Adjustments for Reprogramming					0	-7,417	-3,700	0	0	0	-11,117
Total Project					28,300	9,098	0	0	0	0	37,398

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604441F Space Based IR Arch (EMD) (Space)

PROJECT: 4598

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4598 SBIRS Low Element EMD	0	0	0	31,000	78,000	150,000	419,168	925,320	Continuing	Continuing

(U) A. Mission Description and Budget Item Justification

(U) The purpose is to develop a system to provide increased performance to meet requirements in US Space Command's Capstone Requirements Document. The system's primary mission is to provide initial warning of a ballistic missile attack on the US, its deployed forces or its allies. The Space-Based InfraRed System (SBIRS) will incorporate new technologies that would enhance detection; improve reporting of ICBM, SLBM and tactical ballistic missiles; and provide critical mid-course tracking and discrimination data for national and theater missile defense. The system will consist of satellites in Geosynchronous Orbits (GEO), Highly Elliptical Orbits(HEO) and Low Earth Orbits (LEO) and an integrated, centralized ground station serving all space elements of the SBIRS system, as well as the Defense Support Program (DSP). This Program Element funds SBIRS Low Engineering and Manufacturing Development (EMD) activities. The DoD has recently decided to accelerate the fielding of SBIRS Low from 2006 to 2004 to support National Missile Defense, making it necessary to begin pre-EMD in FY99.

(U) FY 1996 ($ in Thousands):
- (U) $0 Total

(U) FY 1997 ($ in Thousands):
- (U) $0 Total

(U) FY 1998 ($ in Thousands):
- (U) $0 Total

(U) FY 1999 ($ in Thousands):
- (U) $31,000 SBIRS Low Pre-EMD activities
- (U) $31,000 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	0	0	0	0	Cont
(U) Appropriated Value					
(U) Adjustments to Appropriated Value					

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604441F Space Based IR Arch (EMD) (Space)
	PROJECT 4598

a. Cong Reductions
b. SBIR
c. Omnibus or Other Above Threshold Reprogram
d. Below Threshold Reprogramming

(U) Adjustments to Budget Years Since FY 1997 PB				31,000	Cont
(U) Current Budget Submit/President's Budget	0	0	0	31,000	Cont

(U) Change Summary Explanation:
Funding: FY99 increases to fund SBIRS Low acceleration Pre-EMD activities
Schedule: N/A
Technical: N/A

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Complete	Total Cost
(U) Missile Procurement	0	0	0	0	0	40,810	274,416	238,789	Continue	Continue

Related RDT&E:
(U) PE #603441F - SBIRS Dem/Val
(U) PE #305911F - DSP

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Defense Acquisition Board (DAB)																
(U) First Launch (FY04)							x									

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604441F Space Based IR Arch (EMD) (Space)

PROJECT: 4598

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Total	0	0	0	31,000

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
TBD	TBD	TBD							31,000	Cont	Cont
Support and Management Organizations											
Not Applicable*											
Test and Evaluation Organizations:											
Not Applicable											
Government Furnished Property:											
Not Applicable											
Subtotal Product Development					0	0	0	0	31,000	Cont	Cont
Subtotal Support and Management					0	0	0	0	0		
Subtotal Test and Evaluation					0	0	0	0	0		
Total Project					0	0	0	0	31,000	Cont	Cont

*Note: SPO support for SBIRS is funded from the SBIRS High BPAC 616

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604479F Milstar LDR/MDR Sat Comm (Space)

PROJECT: 5010

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
5010 Milstar Sat Comm Sys	533,613	683,685	676,690	555,050	346,425	185,236	84,717	50,948	75,725	9,574,841
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description and Budget Item Justification

Milstar is a joint service program to develop and acquire extremely high frequency (EHF) satellites; a satellite mission control segment; and new or modified Army, Navy, and Air Force communication terminals for survivable, jam-resistant, worldwide, secure communications for the strategic and tactical warfighter in all levels of conflict. Satellites 1 & 2 are Milstar I satellites with a low data rate (LDR) payload only that supports strategic and tactical forces with an emphasis on highly survivable, minimum essential communications. Satellites 3M-6 are Milstar II satellites with both a LDR and a medium data rate (MDR) payload with increased tactical capabilities, including higher data rates to mobile forces and "nulling" that will neutralize close-in enemy jammers. (Satellite 3M was originally a Milstar I satellite, but is being retrofitted with a MDR payload to function as a Milstar II satellite.) This document addresses the space and mission control segments of the Milstar program. This program is in Budget Activity 5, Engineering and Manufacturing Development, based on Defense Acquisition Board and Defense Planning Guidance direction to fabricate and launch Satellites 3M through 6.

(U) FY 1996

- (U) $56,900 Milstar I
- (U) Launched and performed on-orbit checkout of Satellite 2.
- (U) Continued to support on-orbit operations for Satellite 1.
- (U) Started Milstar I Phase II IOT&E.
- (U) Implemented ECPs as needed based on operational requirement.
- (U) Developed and implemented modifications to SMCS to enhance mission control operations.
- (U) Continued contractor support for MCS software sustainment for mission planning and satellite operations.
- (U) Develop and field operator training equipment.
- (U) $427,441 Milstar II
- (U) Completed MDR payload manufacturing on Satellite 3M, and started MDR integration and test on Satellite 3M.
- (U) Started MDR payload manufacturing for Satellite 4.
- (U) Completed bus integration and test for Satellite 3M.
- (U) Continued bus component manufacturing for Satellite 4.
- (U) Completed LDR integration and test on Satellite 3M, and started LDR integration and test on Satellite 4.
- (U) Completed LDR payload manufacturing on Satellite 4.
- (U) Continued LDR unit build, MDR payload manufacturing, and bus component manufacturing for Satellites 5 and 6.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604479F Milstar LDR/MDR Sat Comm (Space)
	PROJECT 5010

–	(U)	Continued Milstar II upgrade of MCS software for mission planning.
–	(U) $49,272	Other Government Costs
–	(U) $533,613	Total

(U) FY 1997

–	(U) $56,400	Milstar I
–	(U)	Continue to support on-orbit operations for Satellites 1 and 2.
–	(U)	Complete Milstar I Phase II IOT&E.
–	(U)	Implement ECPs as needed based on operational requirement.
–	(U)	Continue to implement modifications to MCS to enhance mission control operations.
–	(U)	Transition to organic support for MCS software sustainment for mission planning and satellite operations.
–	(U)	Develop and field operator training equipment.
–	(U) $578,558	Milstar II
–	(U)	Complete MDR payload manufacturing on Satellite 4, and start MDR integration and test on Satellite 4.
–	(U)	Complete bus component manufacturing on Satellite 4.
–	(U)	Continue LDR integration and test on Satellite 4.
–	(U)	Continue LDR unit build, MDR payload manufacturing, and bus component manufacturing for Satellites 5 and 6.
–	(U)	Complete MDR payload integration and test on Satellite 3M.
–	(U)	Start satellite integration and test on Satellite 3M.
–	(U)	Continue Milstar II upgrade of MCS software for mission planning.
–	(U) $48,727	Other Government Costs
–	(U) $683,685	Total

(U) FY 1998

–	(U) $10,700	Milstar I
–	(U)	Continue to support on-orbit operations for Satellites 1 and 2.
–	(U)	Implement ECPs as needed based on operational requirement.
–	(U)	Continue to implement modifications to MCS to enhance mission control operations.
–	(U)	Develop and field operator training equipment.
–	(U) $629,894	Milstar II
–	(U)	Complete satellite integration and test on Satellite 3M.
–	(U)	Complete LDR and MDR payload integration and test and start satellite integration and test on Satellite 4.
–	(U)	Complete LDR and MDR payload and bus component manufacturing for Satellite 5.
–	(U)	Start LDR and MDR payload integration and test on Satellite 5.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE	
	February 1997	
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - Engineering and Manufacturing Development	0604479F Milstar LDR/MDR Sat Comm (Space)	5010

–	(U)	Continue LDR and MDR payload and bus manufacturing on Satellite 6.
–	(U)	Continue Milstar II upgrade of MCS software for mission planning.
–	(U) $36,096	Other Government Costs
–	(U) $676,690	Total

(U) FY 1999

–	(U) $4,901	Milstar I
–	(U)	Continue to support on-orbit operations for Satellites 1 and 2.
–	(U)	Implement ECPs as needed based on operational requirement.
–	(U) $514,450	Milstar II
–	(U)	Launch, perform on-orbit checkout, and begin on-orbit testing of Satellite 3M.
–	(U)	Complete satellite integration and test and deliver Satellite 4.
–	(U)	Complete LDR and MDR payload integration and test and start satellite integration and test on Satellite 5.
–	(U)	Continue LDR and MDR payload and bus manufacturing on Satellite 6.
–	(U)	Continue Milstar II upgrade of MCS software for mission planning.
–	(U) $35,699	Other Government Costs
–	(U) $555,050	Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604479F Milstar LDR/MDR Sat Comm (Space)
	PROJECT 5010

(U) **B. Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Previous President's Budget	541,869	700,278	672,577	580,005
(U) Appropriated Value		720,278		
(U) Adjustments to Appropriated Value				
a. Congressional General Reductions		-16,413		
b. SBIR		-20,180		
c. Omnibus and Other Above Threshold Reprogramming	-4,618			
d. Below Threshold Reprogramming	-3,638			
(U) Adjustments to Budget Years Since FY97 PB	0		4,113	-24,955
(U) Current PB Submit	533,613	683,685*	676,690	555,050

* Does not reflect -$400,000 Below Threshold Reprogramming (BTR) for Joint Program Office Deskbook and -$1,000,000 BTR for Modified Miniature Receive Terminals (MMRT) on the bomber forces.

(U) Change Summary Explanation:

Funding: FY96 appropriated value represents implementation of the special termination cost clause on the Milstar contract. FY 97-98 adjustments reflect restoral of the original Automated Communications Management System (ACMS) program schedule. FY 99 decrease reflects the reduction in contractor oversight and system engineering support.

Schedule: See ACMS funding explanation.

Technical: None.

(U) **C. Other Program Funding Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Comp	Total
(U) Milstar AF Command Post Terminals*	20,970	8,240	6,579	6,899	3,237	2,034	5,648	5,079	Cont	TBD

* Funding is maintained in PE 33601F as Other Procurement for the AF-developed ground and airborne Command Post Terminals of the Milstar program. PE 33601F includes additional funding and appropriations for other AF MILSATCOM terminals.

(U) **Related RDT&E:**

(U) PE #303601F, MILSATCOM Terminals
(U) PE #603430F, Advanced MILSATCOM
(U) PE #604577N, EHF Satellite Communications
(U) PE#603432F, Polar Satellite Communications Program (Polar Adjunct)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604479F Milstar LDR/MDR Sat Comm (Space)
	PROJECT 5010

(U) D. **Schedule Profile**

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Milstar I (LDR Only)																
(U) Satellite 2 Launch	x															
(U) IOC I							x									
(U) Start LDR IOT&E, Phase II				x												
(U) Complete LDR IOT&E, Phase II						x										
(U) Milstar II (LDR/MDR)																
(U) Satellite 3M Launch													x			
(U) Satellite 4 Launch - 1QFY00																
(U) MDR IOT&E - 2QFY00																
(U) IOC II - 1QFY01																
(U) Satellite 5 Launch - 1QFY01																
(U) Satellite 6 Launch - 1QFY02																
(U) FOC - 1QFY05																

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604479F Milstar LDR/MDR Sat Comm (Space)

PROJECT: 5010

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Satellites 1/2/3L	56,900	56,400	10,700	4,901
(U) Satellite 3M	99,366	92,759	98,938	82,534
(U) Satellite 4	215,170	231,705	235,652	150,586
(U) Satellite 5	81,082	147,361	154,020	133,605
(U) Satellite 6	31,823	106,733	141,284	147,725
(U) Other Government Costs	49,272	48,727	36,096	35,699
(U) Total	533,613	683,685	676,690	555,050

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
LMSC (Milstar I) [Sats 1,2,3L]	C/CPAF	Jun 83	2,181,587*	2,181,587*	4,670,852	56,900	56,400	10,700	4,901	1,899	4,801,652
LMSC (Milstar II) [Sats 3M, 4, 5, 6]	SS/CPAF	Oct 92/ Nov 94	3,355,600	3,355,600	1,240,954	427,441	578,558	629,894	514,450	561,163	3,952,460
Support and Management Organizations											
Aerospace	SS/CPFF/AF	Various			97,436	15,334	13,930	13,945	13,414	70,202	224,261
LINCOM	SS/CPAF	Various			13,999	4,693	3,743	2,824	1,000	2,001	28,260
Lincoln Lab	SS/MIPR	Various			17,785	2,704	4,203	3,098	2,968	2,968	33,726
Ogden	SS/MIPR	Various			7,055	1,510	1,704	1,659	1,808	14,243	27,979
Logicon	SS/CPFF	Various			7,597	757	779	802	826	11,527	22,288
ANSER	CPFF	Feb 91			3,540	1,109	966	0	0	0	5,615

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)											DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604479F Milstar LDR/MDR Sat Comm (Space)						PROJECT 5010
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Miscellaneous					323,534	23,165	23,402	13,768	15,683	79,047	478,599
Test and Evaluation Organizations None.											
Government Furnished Property:											
Product Development Property None.											
Support and Management Property None.											
Test and Evaluation Property None.											
Subtotal Product Development					5,911,806	484,341	634,958	640,594	519,351	563,062	8,754,112
Subtotal Support and Management					470,946	49,272	48,727	36,096	35,699	179,988	820,728
Subtotal Test and Evaluation											
Total Project					6,382,752	533,613	683,685	676,690	555,050	743,051	9,574,841

Note: Due to the overrun on the Milstar I contract, an Over Target Baseline (OTB) was established in Jan 91 to provide a credible cost performance baseline for the remaining contractual effort. The EAC reflects the unclassified cost of remaining work scheduled after the Jan 91 rebaseline. The total program value includes all unclassified prior funding (approx $4B in FY82 - 92), all unclassified fees & incentives, and ECPs not yet definitized.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604480F Global Positioning System Block IIF (Space)

PROJECT: 0005

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
0005 NAVSTAR GPS BLOCK IIF	18,530	35,406	71,094	67,853	27,558	24,163	17,745	14,782	405	277,536
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) **A. Mission Description and Budget Item Justification**

This program element funds Research and Development for the NAVSTAR Global Positioning System (GPS) space and control systems of the Block IIF Sustainment Program. This includes satellite design and development; control system, training simulator, and mission operation support center development and test; satellite upgrade design and development; control system, simulator and support center software upgrades; and R&D efforts to support deployment of GPS Block IIF. This PE is classified as Budget Activity 5, Engineering and Manufacturing Development (EMD),because it supports EMD of the GPS Block IIF satellite. Production funding for the Block IIF satellite is carried in PE 0305165.

(U) FY 1996 ($ in Thousands)

- (U) $15,723 Award Contract for Block IIF - System Sustainment Satellite System Development
- (U) $1,728 Award Contract for Block IIF - System Sustainment Ground System/Simulator Development
- (U) $1,079 Studies
- (U) $18,530 Total

(U) FY 1997 ($ in Thousands)

- (U) $29,342 Continue Block IIF - System Sustainment Satellite System Development
- (U) $4,095 Continue Block IIF - System Sustainment Ground System/Simulator Development
- (U) $603 Initiate Block IIF - L-5 Navigation Signal Development
- (U) $1,249 Studies
- (U) $117 Mission Support
- (U) $35,406 Total

(U) FY 1998 ($ in Thousands)

- (U) $56,826 Continue Block IIF - System Sustainment Satellite System Development
- (U) $7,559 Continue Block IIF - System Sustainment Ground System/Simulator Development
- (U) $118 Mission Support

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604480F Global Positioning System Block IIF (Space)
	PROJECT 0005

- (U) $481 Continue Block IIF - L-5 Navigation Signal Development
- (U) $6,110 Studies
- (U) $71,094 Total

(U) FY 1999 ($ in Thousands)

- (U) $27,613 Continue Block IIF - System Sustainment Satellite System Development
- (U) $12,281 Continue Block IIF - System Sustainment Ground System/Simulator Development
- (U) $127 Mission Support
- (U) $18,832 Studies
- (U) $9,000 IIF/IIR/IIA Compatibility Testing and Integration
- (U) $67,853 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	18,656	37,142	74,944	65,262	Continuing
(U) Appropriated Value	19,699	37,142			
(U) Adjustments to Appropriated Value					
a. Cong Gen Reductions	- 386	-778			
b. SBIR	- 416	-958			
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming	-6				
e. Rescision	- 361				
(U) Adjustments to Budget Years Since FY97 PB			-3,850	2,591	
(U) Current Budget Submit/President's Budget	18,530	35,406	71,094	67,853	Continuing

(U) Change Summary Explanation:
Funding: Adjustments in FY98 (-3,850) and FY99 (2,591) realign funds to the years in which they are required.
Schedule: No Change
Technical: No Change

(U) C. Other Program Funding Summary ($ in Thousands)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604480F Global Positioning System Block IIF (Space)
	PROJECT 0005

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Missile Procurement (GPS Block IIF)*	32,499	145,493	114,412	120,713	191,742	158,762	104,793	106,457		
* Funding for GPS Block IIF resides in PE35165F										

Related RDT&E:

(U) PE 0305164F, NAVSTAR GPS (User Equipment), provides receivers to use the positioning, navigation, and timing signals from satellites.

(U) PE 0101221N, Fleet Ballistic Missile System, range positioning.

(U) PE 0301357F and 0305913F (formerly 0102433F), Nuclear Detonation Detection System (NDS), fund NDS payloads on the GPS satellites.

(U) PE 0305119F Space Boosters, funds launch services (Delta II).

(U) PE 0305130F, Consolidated Space Operations Center (CSOC), funds CSOC which hosts the operational GPS Master Control Station.

(U) PE 0305165F, NAVSTAR GPS Space/Control, funds for Block IIR, CSEL, JPO support, and current ground system.

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Award Block IIF System Sustainment Contract			x													
(U) System Design Review					x											
(U) Preliminary Design Review								x								

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604480F Global Positioning System Block IIF (Space)
	PROJECT 0005

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Block IIF Development	18,530	35,406	71,094	67,853
(U) Total	18,530	35,406	71,094	67,853

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Reserved Funds for BTR	N/A	N/A	N/A	N/A	N/A	8	N/A	N/A	N/A	N/A	N/A
Block IIF Development Rockwell Int Downey, CA	CPAF	3rd Qtr 96	N/A	N/A	N/A	18,522	35,406	71,094	67,853	84,653	277,536
Subtotal Product Development						18,530	35,406	71,094	67,853	84,647	277,536
Subtotal Support and Management											
Subtotal Test and Evaluation											
Total Project						18,530	35,406	71,094	67,853	84,647	277,536

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604600F Munitions Dispenser Development

PROJECT: 1015

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
1015 Wind Corrected Munitions Dispenser Kit	50,005	53,631	18,076	7,711	0	0	0	0	0	155,741
Quantity of RDT&E Articles	14(2,142)	170(7,140)	26(1,092)	0	0	0	0	0	0	210(10,374

(U) A. **Mission Description and Budget Item Justification**

This PE develops a guidance kit for the CBU-87/B, CBU-89/B, and the CBU-97/B dispensers that provide inertial navigation to correct for the effects of wind transients and ballistic errors caused by wind when these munitions are released from medium to high altitudes. WCMD kit fitted weapons will improve effectiveness of both bombers and fighters and significantly contribute to Air Force war fighting capabilities. WCMD kit fitted CBU-97's dropped from bombers are key to stopping enemy armored forces. A full and open competition in FY 95 led to dual awards for a competitive development effort that includes a competitive fly-off and also maintains the option for competition in production. This is funded in Engineering and Manufacturing Development because this program is developing a weapon system.

(U) FY 1996 ($ in Thousands):

- (U) $23,956 Continue dual EMD contracts for test hardware fabrication and aircraft integration
- (U) $3,899 Program management support; includes travel, program office supplies and equipment, training, and technical engineering support
- (U) $1,425 Conduct flight/ground tests
- (U) $1,588 Provide other government support, GFE
- (U) $15,510 Continue aircraft integration
- (U) $3,627 Development of Common Munitions Built-In-Test (BIT)/ Reprogramming Equipment (CMBRE)
- (U) $50,005 Total

(U) FY 1997 ($ in Thousands):

- (U) $27,510 Continue dual EMD contracts. Includes 170 Wind Corrected Munitions Dispenser (WCMD) tail kits.
- (U) $6,001 Complete fly-off with two contractors
- (U) $6,664 Program management support; includes travel, program office supplies and equipment, training, and technical engineering support
- (U) $15,712 Continue aircraft integration
- (U) $744 Continue development of CMBRE
- (U) $53,631 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE	
	February 1997	
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - Engineering and Manufacturing Development	0604600F Munitions Dispenser Development	1015

(U) FY 1998 ($ in Thousands):
- (U) $11,984 Continue dual EMD contracts. Includes 26 Wind Corrected Munitions Dispenser (WCMD) tail kits.
- (U) $100 Continue flight tests
- (U) $3,492 Program management support; includes travel, program office supplies and equipment, training, and technical engineering support
- (U) $2,500 Complete integration on F-16
- (U) $18,076 Total

(U) FY 1999 ($ in Thousands):
- (U) $5,285 Complete EMD contracts
- (U) $2,426 Program management support; includes travel, program office supplies and equipment, training, and technical engineering support
- (U) $7,711 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY1998	FY1999
(U) Previous President's Budget	50,088	56,229	18,228	7,784
(U) Appropriated Value	53,254	56,229		
(U) Adjustments to Appropriated Value				
a. Cong Gen Reductions	-1,043	-1,193		
b. SBIR	-1,321	-1,405		
c. Omnibus or Other Above Threshold Reprogram	-546			
d. Below Threshold Reprogramming	-13			
e. Rescissions	-326			
(U) Adjustments to Budget Years Since FY 1997 PB			-152	-73
(U) FY 1998 PB	50,005	53,631	18,076	7,711

(U) Change Summary Explanation:
Funding: Minor adjustments in FY96 - FY99, apart from SBIR and Congressional reductions in FY97.
Schedule: No changes.
Technical: No changes.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604600F Munitions Dispenser Development

PROJECT: 1015

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) WCMD Kit Production, Proc of Ammo, AF	0	0	15,759	30,087	87,072	130,211	144,360	137,061	217,972	762,522
(U) SEEK EAGLE, Proc of Ammo, AF	0	0	4,112	0	0	1,880	0	0	0	5,992
(U) TOTAL	0	0	19,871	30,087	87,072	132,091	144,360	137,061	215,634	768,514
(U) Quantities	0	0	280	779	3,555	6,805	8,320	8,082	12,179	40,000

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Engineering Milestones																
Design Reviews			X													
Pilot Production						X										
(U) T&E Milestones																
Aircraft Cert Tests (FY 95)																
Devel Testing	X															
Competitive Fly-Off					X											
(U) Contract Milestones																
EMD Contract Award (FY 95)																
Downselect						X										
(U) Other Program Events																
DT/OT							X									
LRIP FY (B-52)										X						
RAA FY (F-16)																X
Milestone III																X
FRP FY 00/1																

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604600F Munitions Dispenser Development

PROJECT: 1015

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Major Contracts	23,956	27,510	11,984	5,285
(U) Support Contracts	1,818	1,800	1,850	1,850
(U) Program Office Support	2,081	1,864	1,642	576
(U) Test And Evaluation	1,425	6,001	100	0
(U) Aircrafr integration	15,510	15,712	2,500	0
(U) Government Furnished Equipment (GFE)	1,588	0	0	0
(U) CMBRE	3,627	744	0	0
(U) Total	50,005	53,631	18,076	7,711

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
WCMD Development Contractors	C/CPAF Lockheed Martin	Jan 95		85,096	16,361	23,956	27,510	11,984	5,285	0	85,096
Support and Management Organizations											
ANSER	C/CPAF	Feb 91		453	0	123	130	100	100	0	453
Sverdrup	C/CPAF	Jul 96		5,097	1,090	1,001	906	1,050	1,050	0	5,097
ANSTEC	C/CPAF	Aug 95		1,831	375	342	414	350	350	0	1,831
SAIC	C/CPAF	Jun 95		1,746	344	352	350	350	350	0	1,746
ASC/YH	N/A	Jan 98		7,254	1,091	2,081	1,864	1,642	576	0	7,254

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604600F Munitions Dispenser Development

PROJECT: 1015

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Test and Evaluation Organizations											
46 OG/OGML		Jan 98		8,037	511	1,425	6,001	100	0	0	8,037
Acft Integration		Jan 98		37,377	3,655	15,510	15,712	2,500	0	0	37,377
Government Furnished Property:											
Product Development Property											
SFW/CEM/SE	FPI	Apr 97		4,479	2,891	1,588	0	0	0	0	4,479
CMBRE	CPAF	Feb 97		4,371	0	3,627	744	0	0	0	4,371
Support and Management Property: None											
Test and Evaluation Property: None											
Subtotal Product Development				93,946	19,252	29,171	28,254	11,984	5,285	0	93,946
Subtotal Support and Management				16,381	2,900	3,899	3,664	3,492	2,426	0	16,381
Subtotal Test and Evaluation				45,414	4,166	16,935	21,713	2,600	0	0	45,414
TOTAL				155,741	26,318	50,005	53,631	18,076	7,711	0	155,741

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604602F Armament Ordnance Development

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	7,600	3,483	1,597	135	140	138	140	144	Continuing	TBD
3133 Bombs & Fuzes	7,463	3,354	1,461	0	0	0	0	0	0	12,278
5613 Container Design Retrieval System	137	129	136	135	140	138	140	144	Continuing	TBD
Quantity of RDT&E Articles	138($806)	609($2852)	0	0	0	0	0	0	0	747($3658)

(U) A. **Mission Description and Budget Item Justification**

The Container Design Retrieval System (CDRS), Project 5613, satisfies several USAF and tri-service requirements for standardization of armament and support equipment and eliminate unnecessary duplication of containers. The Bombs and Fuzes Project 3133 satisfies TAF ROC 323-75, Proximity Fuzes, dated 2 Sep 75; TAF SON 305-85, Hardened Target Munitions, dated 14 Oct 86; OSD letter requirement for a common bomb fuze, dated 11 Apr 80; SAC message 041901Z Feb 87, M117 High Drag Capability(s); Joint Mission Need Statement (MNS) TAF 401-91 for Adverse Weather Strike Capability, dated 4 Nov 91; and CAF MNS 314-90 for the Advanced Fuze Family, dated 13 May 93. This project funds development of specific fuze types for air-to-ground munitions. The RDT&E Research Category/Budget Activity is Engineering and Manufacturing Development because the projects support the EMD development phase of several munitions related items and functions. This program is funded in budget activity 5 - Engineering and Manufacturing Development because the projects support the EMD development phase of several munitions related items and functions.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604602F Armament Ordnance Development

(U) B. **Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	7,597	3,642	1,609	137	13,463
(U) Appropriated Value	8,075	3,642			13,463
(U) Adjustments to Appropriated Value					
a. Cong Gen Reductions	-158	-87			-245
b. SBIR	-152	-69			-221
c. Omnibus or Other Above Threshold Reprogram	-83				-83
d. Below Threshold Reprogramming	-33				-33
e. Rescissions	-49	-3			-52
(U) Adjustments to Budget Years Since FY 1997 PB			-12	-2	-14
(U) Current Budget Submit/FY 1998 PB	7,600	3,483	1,597	135	12,815

(U) Change Summary Explanation:

Funding: FY96 and FY97 changes were for general Air Force reductions.

Schedule: N/A

Technical: N/A

(U) C. **Other Program Funding Summary ($ in Thousands)**

Appropriation: Ammunition Procurement, AF,PE: 0208030F

Program Title: Joint Programmable Fuze WSC 356170

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U)	0	4,125	5,940	8,140	8,340	8,528	10,800	44,803	100,653	191,329

Related Activities: PE 0604618F and PE 0604618N, Joint Direct Attack Munition

There is no unnecessary duplication of effort within the Air Force or Department of Defense.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604602F Armament Ordnance Development

PROJECT: 3133

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
3133 Bombs & Fuzes	7,463	3,354	1,461	0	0	0	0	0	0	12,278
Quantity of RDT&E Articles	138($806)	609($2852)	0	0	0	0	0	0	0	747($3658)

(U) A. Mission Description and Budget Item Justification

Bombs and Fuzes: This project develops and improves conventional bombs and fuzes including the development of the Joint Programmable Fuze (JPF) and a unitary warhead for the Joint Direct Attack Munition (JDAM) program. The Hard Target Smart Fuze will continue its development in this project.

(U) FY 1996 ($ in Thousands):
- (U) $ 1,803 Complete JPF Cold Sled Test (CT&E)
- (U) $ 3,610 Complete JPF Developmental Test and Evaluation (DT&E1)(DT&E).
- (U) $ 2,050 Fabricate JPF Developmental Test and Evaluation 2 (DT&E2).
- (U) $7,463 Total

(U) FY 1997 ($ in Thousands):
- (U) $ 1,600 Complete JPF DT&E2
- (U) $ 1,336 Complete JPF IOT&E
- (U) $ 260 Complete JPF Functional Configuration Audit. Production Readiness Review, and Physical Configuration Audit.
- (U) $ 158 Start JPF/JDAM Integration Flight Test.
- (U) $3,354 Total

(U) FY 1998 ($ in Thousands):
- (U) $ 1,461 Complete JPF/JDAM Integration Flight Test

(U) FY 1999 ($ in Thousands):
None.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604602F Armament Ordnance Development
	PROJECT 3133

(U) **B. Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	7,460	3,509	1,473	0	12,917
(U) Appropriated Value	7,935	3,509			12,917
(U) Adjustments to Appropriated Value					
a. Cong Gen Reductions	-155	-83			-238
b. SBIR	-152	-69			-221
c. Omnibus or Other Above Threshold Reprogram	-83				-83
d. Below Threshold Reprogramming	-33				-33
e. Rescissions	-49	-3			-52
(U) Adjustments to Budget Years Since FY 1997 PB			-12		-12
(U) Current Budget Submit/FY 1998 PB	7,463	3,354	1,461	0	12,278

(U) Change Summary Explanation:

Funding: FY96 reductions were for SBIR, general Congressional Reductions, support for Bosnia operations, and rescissions for F-16s to Jordan.
FY97 reduction due to inflation adjustment.

Schedule: N/A

Technical: N/A

(U) **C. Other Program Funding Summary ($ in Thousands)**

Appropriation: Ammunition Procurement, AF, PE: 0208030F

Program Title: Joint Programmable Fuze WSC 356170

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U)	0	4,125	5,940	8,140	8,340	8,528	10,800	44,803	100,653	191,329

Related Activities: PE 0604618F and PE 0604618N, Joint Direct Attack Munition
There is no unnecessary duplication of effort within the Air Force or Department of Defense.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604602F Armament Ordnance Development PROJECT 3133

(U) D. Schedule Profile

Joint Programmable Fuze (JPF)

	FY 1996				FY 1997				FY 1998				FY 1999		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3
(U) Complete CT&E		X													
(U) Start DT&E		X													
(U) Complete DT&E						X									
(U) Start IOT&E						X									
(U) Complete IOT&E								X							

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604602F Armament Ordnance Development PROJECT 3133

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) a. Contractor	6,718	1,166	250	0
(U) b. Government				
Testing	68	1,120	322	
Contractor support	225	441	500	
Management support	341	400	300	
ECO	111	227	89	
Government Total	745	2,188	1,211	0
(U) Total	7,463	3,354	1,461	

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604602F Armament Ordnance Development PROJECT 3133

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Motorola		Jul 93	19,743	19,743	11,609	6,718	1,166	250	0	0	19,743
Support and Management Organizations											
TEAS/TEAMS		Oct 96	2,125	2,125	959	225	441	500	0	0	2,125
ASC/YHP			1,638	1,638	597	341	400	300	0	0	1,638
Other			677	677	250	111	227	89	0	0	677
Test and Evaluation Organizations											
46th Test Wing		Mar 96	4,722	4,722	3,212	68	1,120	322	0	0	4,722
Government Furnished Property: Not Applicable											
Subtotal Product Development					11,609	6,718	1,166	250			19,743
Subtotal Support and Management					1,806	677	1068	889			4.440
Subtotal Test and Evaluation					3,212	68	1,120	322			4,722
Total Project					16,627	7,463	3,354	1,461			28,905

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604602F Armament Ordnance Development		PROJECT 5613

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
5613 Container Design Retrieval System	137	129	136	135	140	138	140	144	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description and Budget Item Justification

Containers: This project funds the operation of the tri-service Container Design Retrieval System (CDRS). This system includes the maintenance of a container database to preclude proliferation and duplication of munitions containers. It also supports organic container design, prototyping, and testing capabilities. This project's efforts are limited to the study, design, and development of container systems. Any procurement will be performed and funded by the applicable weapons system project.

(U) FY 1996 ($ in Thousands):

- (U) $5 Initiate/continue/complete design/development of various CDRS projects, including containers and fixtures for AGM-142 components, Multi-Spectral Aircraft Decoy, Mobile Aircraft Arresting System, and Special Projects.
- (U) $5 Provide container design expertise, management, and technical support to programs, such as AIM-9X, AMRAAM, AGM-142, JDAM, AGM-130, Wind Corrected Munitions Dispenser (WCMD), and JPF.
- (U) $127 Manage and operate the CDRS data base and support service.
- (U) $137 Total

(U) FY 1997 ($ in Thousands):

- (U) $4 Initiate/continue/complete design/development of various CDRS projects, including a modular mobility container system, and special projects.
- (U) $5 Provide container design expertise, management, and technical support to programs such as AIM-9X, AMRAAM, AGM-142, JDAM, AGM-130, and WCMD.
- (U) $120 Manage and operate the CDRS data base and support service.
- (U) $129 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604602F Armament Ordnance Development	PROJECT 5613

(U) FY 1998 ($ in Thousands):

- (U) $5 Initiate/continue/complete design/development of various CDRS projects, including a modular mobility container system, and special projects.
- (U) $5 Provide container design expertise, management, and technical support to programs such as AIM-9X, AMRAAM, AGM-142, JDAM, AGM-130, and WCMD.
- (U) $126 Manage and operate the CDRS data base and support service.
- (U) $136 Total

(U) FY 1999 ($ in Thousands):

- (U) $5 Initiate/continue/complete design/development of various CDRS projects, including a modular mobility container system, and special projects.
- (U) $5 Provide container design expertise, management, and technical support to programs such as AIM-9X, AMRAAM, AGM-142, JDAM, AGM-130, and WCMD.
- (U) $125 Manage and operate the CDRS data base and support service.
- (U) $135 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604602F Armament Ordnance Development	PROJECT 5613

(U) B. **Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	137	133	136	137	546
(U) Appropriated Value	140	133			546
(U) Adjustments to Appropriated Value					
a. Cong Gen Reductions	-3	-4			-7
b. SBIR					0
c. Omnibus or Other Above Threshold Reprogram					0
d. Below Threshold Reprogramming					0
e. Rescissions					0
(U) Adjustments to Budget Years Since FY 1997 PB				-2	-2
(U) Current Budget Submit/FY 1998 PB	137	129	136	135	537

(U) Change Summary Explanation:
Funding: FY96/97 reduced for Congressional General Reductions, SBIR, and Bosnia.
Schedule: Not Applicable
Technical: Not Applicable

(U) C. **Other Program Funding Summary ($ in Thousands)**: Not Applicable

Related Activities: *There is no other unnecessary duplication of effort within the Air Force or Department of Defense.*

(U) D. **Schedule Profile**: Not Applicable

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604602F Armament Ordnance Development PROJECT 5613

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Travel/Transportation	7	10	12	15
(U) Supplies/Equipment	53	49	50	49
(U) Contractor Support	48	50	50	45
(U) Mission Support	29	20	24	26
(U) Test Support	0	0	0	0
(U) Total	137	129	136	135

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
N/A											
Support and Management Organizations											
Sverdrup (TEAS)		Oct 93	TBD	TBD	1,455	0	0	0	0	Continuing	1,455
ASC/YHS			TBD	TBD	568	23	24	26	27	Continuing	668
Other			TBD	TBD	451	114	105	110	108	Continuing	888
Test and Evaluation Organizations											
46th Test Wing			TBD	TBD	190	0	0	0	0	Continuing	190

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604602F Armament Ordnance Development	PROJECT 5613

(U) B. Budget Acquisition History and Planning Information Continued ($ in Thousands)

Government Furnished Property: Not Applicable

Subtotal Product Development						
Subtotal Support and Management	2,474	137	129	136	135	3,011
Subtotal Test and Evaluation	190					190
Total Project	2,664	137	129	136	135	3,201

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604604F Submunitions

PROJECT: 3166

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
3166 Joint Smart Munition Test and Evaluation Program	4,843	4,769	4,956	4,902	5,006	5,049	5,085	5,050	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description and Budget Item Justification

Project 3166 is a joint US Air Force/US Army project office which provides RDT&E support for developmental smart munitions acquisition programs in Engineering and Manufacturing Development. Project 3166 evaluates developmental smart munitions and related emerging technology with applications against mobile ground vehicle targets and Theater Air Defense units by determining performance against actual foreign targets in realistic environments and in the presence of countermeasures. Data gathered is used to meet developmental decision points requiring highly reliable, realistic performance data. The project is a major focal point for joint Air Force and Army target signature collection and dissemination for development and exploitation purposes. This PE provides support for smart munitions test and evaluation (T&E) activities including T&E support for programs in engineering and manufacturing development. Because it is a continuing RDT&E activity, this project is funded in BA 5.

(U) FY 1996 ($ in Thousands):

- (U) $1,089 Start Phase IV of the weapon effectiveness evaluation.
- (U) $300 Develop models and simulation tools to support electronic engagement simulations
- (U) $600 Continue maintenance and expansion of vulnerability/lethality and signature databases
- (U) $1,148 Plan and conduct Captive Flight Tests for signature collection and seeker/sensor evaluations and algorithm development
- (U) $1,706 Conduct advanced warhead effectiveness evaluation, and Continue vulnerability analysis of SEAD and TMD targets
- (U) $4,843 Total

(U) FY 1997 ($ in Thousands):

- (U) $1,096 Continue Phase IV of the weapon effectiveness evaluation
- (U) $300 Develop models and simulation tools to support electronic engagement simulations
- (U) $700 Continue maintenance and expansion of vulnerability/lethality and signature databases
- (U) $1,200 Plan and conduct Captive Flight Tests and signature collection for seeker/sensor evaluations and algorithm development
- (U) $700 Conduct advanced warhead effectiveness evaluation
- (U) $773 Continue vulnerability analysis of Enemy Air Defense (SEAD), and Theater Missile Defense (TMD) targets
- (U) $4,769 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604604F Submunitions PROJECT 3166

(U) FY 1998 ($ in Thousands):
- (U) $1,231 Continue Phase IV of the weapon effectiveness evaluation
- (U) $300 Develop models and simulation tools to support electronic engagement simulations
- (U) $700 Continue maintenance and expansion of vulnerability/lethality and signature database
- (U) $1,200 Plan and conduct captive carry flight tests and signature collection for seeker/sensor evaluations and algorithm development
- (U) $750 Conduct advanced warhead effectiveness evaluations
- (U) $775 Continue vulnerability analysis of Suppression of Enemy Air Defense (SEAD) and Theater Missile Defense (TMD) targets
- (U) $4,956 Total

(U) FY 1999 ($ in Thousands):
- (U) $1,177 Initiate Phase V of the weapon effectiveness evaluation
- (U) $300 Initiate advanced development of models and simulation tools to support electronic engagement simulations
- (U) $700 Continue maintenance and expansion of vulnerability/lethality and signature database
- (U) $1,200 Plan and conduct captive carry flight tests and signature collection for seeker/sensor evaluations and algorithm development
- (U) $750 Conduct advanced warhead effectiveness evaluations
- (U) $775 Continue vulnerability analysis of Suppression of Enemy Air Defense (SEAD) and Theater Missile Defense (TMD) targets
- (U) $4,902 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Previous President's Budget	14,350	4,873	4,997	4,948
(U) Appropriated Value	14,953	4,873		
(U) Adjustments to Appropriated Value				
a. Cong Gen Reductions	-293	-104		
b. SBIR				
c. Omnibus or Other Above Threshold Reprogram	-9732			
d. Below Threshold Reprogramming				
e. Rescissions	-85			
(U) Adjustments to Budget Years Since FY 1997 PB			-41	-46
(U) FY1998 PB	4,843	4,769	4,956	4,902

(U) Change Summary Explanation:

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604604F Submunitions PROJECT 3166

Funding: Minor inflation and O&M adjustments in FY96 - FY99.

Schedule: No change.

Technical: No change.

(U) C. **Other Program Funding Summary ($ in Thousands):** None

(U) D. **Schedule Profile:** Not applicable as this is a continuing test effort (target/warhead evaluation/analysis, signature tests, captive flight tests, are ongoing throughout the year and continue through the FYDP).

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604604F Submunitions

PROJECT: 3166

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Program Support	1,027	919	1,041	1,035
(U) Target Support	683	685	700	700
(U) Warhead Range Operations	280	315	315	300
(U) Captive Flight Tests	230	250	250	250
(U) Database Support (Inc TABILS)	500	440	500	500
(U) Vulnerability/Effectiveness Analysis	573	600	600	590
(U) Warhead Evaluation	450	460	450	427
(U) Target Signature Tests	800	800	800	800
(U) Models and Simulation Tools	300	300	300	300
(U) Total	4,843	4,769	4,956	4,902

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
N/A											
Support and Management Organizations											
Sverdrup	C/CIF	11 Jun 96	N/A	N/A	4,972	1,375	1,478	1,523	1,602	Cont	10,950
ANSTEC	C/FFP	10 Apr 95	N/A	N/A	579	211	245	263	278	Cont	1,576
46 OG/OGML	N/A	Jan 98	N/A	N/A	3,830	511	433	443	464	Cont	5,681

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604604F Submunitions

PROJECT: 3166

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Test and Evaluation Organizations											
46 OG/OGML					59,457	2,746	2,613	2,727	2,558	Cont	70,101
Subtotal Product Development					0	0	0	0	0	0	0
Subtotal Support and Management					9,381	2,097	2,156	2,229	2,344	Cont	18,207
Subtotal Test and Evaluation					59,457	2,746	2,613	2,727	2,558	Cont	70,101
TOTAL					68,838	4,843	4,769	4,956	4,902	Cont	88,308

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604617F Air Base Operability

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
2895 Air Base Operability	8,881	2,781	1,424	2,553	2,626	2,662	0	0	0	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) **A. Mission Description and Budget Item Justification**

This program is in budget activity 5 - Research, Development, Test and Evaluation because it supports development of systems for air base operations. Air Base Operability (ABO) integrates capabilities to rapidly deploy, and defend and sustain air base operations, which are prerequisites to establishing air superiority. ABO provide beddown for aircraft, support equipment, and forces at both main operating bases and contingency operating locations, which may have only a runway and a water source. The need for ABO was dramatically illustrated during DESERT SHIELD/DESERT STORM/PROVIDE COMFORT, and other global contingencies over the past 5 years. Lighter-weight rapidly deployable facilities and equipment have become essential in supporting contingencies for security, base defense, relief efforts, and special operations throughout the world. ABO capabilities being developed include: Joint Service (Army-led) test, evaluation and acquisition of protective vehicles to be used by Air Force security police, civil engineers, and explosive ordnance disposal technicians for air base defense and reconnaissance missions; a deployable system to repair/reinforce runways; a deployable fire protection system to detect and extinguish aircraft, and Bare Base simulation and studies to support rapid deployment and beddown of Harvest Falcon/Harvest Eagle assets.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604617F Air Base Operability

(U) FY 1996 ($ in Thousands):
- (U) $1,341 Completed Engineering and Manufacturing Development (EMD) for Up-Armored Heavy High Mobility Multi-Purpose Wheeled Vehicles (UA-HHV) and support Army production effort.
- (U) $676 Completed EMD for Deployable Fire Protection System (DFPS).
- (U) $735 Continued Repair Quality Criteria (RQC) modeling for rapid runway repair analysis.
- (U) $790 I nitiated EMD via MIPR to Army for Rapid Ordnance Removal System (RORS).
- (U) $ 47 Performed ECP for Deployable Pavement Repair System
- (U) $5,292 Continued other technical support.
- (U) $8,881 TOTAL

(U) FY 1997 ($ in Thousands):
- (U) $180 Complete RQC modeling for rapid runway repair analysis.
- (U) $430 Continue EMD for RORS.
- (U) $1,350 Initiate EMD for Deployable Power Generation and Distribution System (DPGDS).
- (U) $821 Continue other technical support.
- (U) $2,781 TOTAL

(U) FY 1998 ($ in Thousands):
- (U) $300 Initiate EMD for Medium Shelters/ECUs.
- (U) $300 Continue EMD for DPGDS.
- (U) $824 Continue other technical support.
- (U) $1,424 TOTAL

(U) FY 1999 ($ in Thousands):
- (U) $300 Complete EMD for Medium Shelters/ECUs.
- (U) $300 Continue EMD for DPGDS.
- (U) $700 Initiate Rapid Airfield Stabilization EMD Study.
- (U) $200 Initiate EMD for Lightweight Landing Mats
- (U) $1,053 Continue other technical support
- (U) $2,553 TOTAL

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604617F Air Base Operability

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	9,692	2,926	1,435	2,577	Cont
(U) Appropriated Value	9,692	2,926			
(U) Adjustments to Appropriated Value					
a. Congressional Gen Reductions	-190	-74			
b. SBIR	-226	-68			
c. Omnibus or Above Threshold Reprogramming	-98				
d. Below Threshold Reprogramming	-238				
e. Rescissions	-59	-3			
(U) Adjustments to Budget Years Since FY 1997 PB			-11	-24	
(U) Current Budget Submit/FY98 PB	8,881	2,781	1,424	2,553	Cont

(U) Change Summary Explanation:

Funding: Adjustments to FY96 were $190K for Congressional reductions, $226K for SBIR, remaining Reprogramming, and Rescissions funded Bosnia and F-16 Jordanian bill, plus other smaller cuts, and in FY97, $77K for Congressional General Reductions/recission, and $68K for SBIR.

Schedule: No change.

Technical: No change.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604617F Air Base Operability

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Other Procurement, AF, Other Base Maintenance and Support Program:										
BP 82, Vehicles (0207588F)	3,347	8,987	73,274	0	0	0	0	0	0	85,608
BP 83, Communications (0207588F)	4,497	0	0	0	0	0	0	0	0	4,497
BP 84, Explosive Ordnance Disposal (0208028F)	0	0	1,530	2,410	500	356	0	0	0	4,796
BP 84, Deployable Pavmnt Repair Sys (0208028F)	2,049	2,288	0	0	0	0	0	0	0	4,337
BP 84, Lightweight Matting (0208031F)	0	0	0	0	0	0	1,723	1,723	0	3,446
BP 84, Deployable Fire Protection Sys (0208028F)	871	1,393	0	0	0	0	0	0	0	2,264
BP 84, Air Base Utility Systems (0208028F)	0	0	0	350	1,025	0	0	0	0	1,375
BP84, Emergency Airfld Lightng Sys (0208028F)	1,380	0	0	0	0	0	0	0	0	1,380
BP84 Shelters (PE0208028F)	0	0	200	900	1,500	0	0	0	0	2,600
BP84 Shelters (PE0208031F)	0	0	0	3,200	10,689	10,930	5,776	0	0	30,595
Deployable Power Gen/Dist System (0208028F)	0	0	2,484	2,851	0	0	0	0	0	5,335
Deployable Power Gen/Dist System (0208031F)	0	0	0	0	9,000	9,000	9,000	9,000	Cont	36,000

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604617F Air Base Operability

(U) D. **Schedule Profile**

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
UP-ARMORED HEAVY HIGH MOBILITY MULTI-PURPOSE WHEELED VEHICLES																
- Complete EMD							X									
- Milestone III decision								X								
- Begin Production								X								
RAPID ORDNANCE REMOVAL SYS																
- Initiate EMD (Qualification Testing)			X													
- Begin Production									X							
DEPLOYABLE FIRE PROTECT SYS																
- Complete EMD								X								
- Milestone III Decision									X							
- Begin Production										X						
MEDIUM SHELTERS/ECUs																
- Milestone II Decision								X								
- Initiate EMD									X							
- Milestone III Decision																X
DEPLOY POWER GEN & DISTRO SYS																
- Milestone II Decision								X								
- Initiate EMD								X								
LIGHTWEIGHT LANDING MATS																
- Milestone II Decision														X		
- Initiate EMD														X		

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604617F Air Base Operability

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Engineering and Manufacturing Development (EMD)	1,696	550		
(U) Development/Operational Test and Evaluation	100			
(U) Project SETA Support	2,693	410	530	520
(U) Other Government Agencies	773	150		200
(U) Materials/Equipment	125	300		
(U) Other Test Support	0	20		200
(U) Technical Support	395	821	70	1,053
(U) Management Support	3,099	530	824	580
(U) Total	8,881	2,781	1,424	2,553

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
UA-HHV-Army TACOM	MIPR	Jun 95	1,985	1,985	405	1,341	0	0	0	0	1,746
DFPS-Keco	FFP	Sep 95	901	901	552	676	0	0	0	0	1,228
DPRS-Entwistle	FPIF	Dec 92	5,532	5,532	5,485	47	0	0	0	0	5,532
RORS-Army	MIPR	May 96	1,400	1,400	0	735	430	0	0	0	1,165
Repair Quality Criteria	AF 616/SETA	Multiple	5,723	5,723	4,268	790	180	0	0	0	5,238

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604617F Air Base Operability

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Medium Shelters/ECUs	SETA	Jun 97	770	770	0	0	0	300	300	0	600
Deployable Power	FFP	Feb 97	2,000	2,000	0	0	1,350	300	300	0	1,950
Rapid Airfield Stablization Stdy	TBD	TBD	2,000	2,000	0	0	0	0	700	1,300	2,000
Lightweight Landing Mats	TBD	TBD	600	600	0	0	0	0	200	400	600
Sub-Total					10,710	3,589	1,960	600	1,500	1,700	20,059
Support and Management Organizations											
Various	Various	Various	0	0	4,479	5,292	821	824	1,053	3,588	16,057
Test and Evaluation Organizations											
N/A											
Subtotal Product Development					10,710	3,589	1,960	600	1,500	1,700	20,059
Subtotal Support and Management					4,479	5,292	821	824	1,053	3,588	16,057
Total Project					15,189	8,881	2,781	1,424	2,553	5,288	36,116

(U) B. Budget Acquisition History and Planning Information Continued ($ in Thousands)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604618F Joint Direct Attack Munitions

PROJECT: 3890

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
3890 Joint Direct Attack Munitions	80,519	36,993	19,553	12,450	1,445	1,225	1,664	0	0	300,156
Quantity of RDT&E Articles*	14($388)	274($7596)	218($6043)	0	0	0	0	0	0	506(14027)

(U) A. **Mission Description and Budget Item Justification**

Desert Storm confirmed the need for a more accurate weapon delivery capability in adverse weather conditions from medium/high altitudes. Failure to satisfy this requirement will allow the enemy to continue to take advantage of the sanctuary of weather and/or prevent US air power from prosecuting a conflict on its terms. JDAM is an Air Force and Navy munitions program to correct these shortfalls, with the Air Force as the executive service. JDAM will upgrade the existing inventory of general purpose bombs (Mk-84, BLU-109, and Mk-83/BLU-110) by integrating them with a guidance kit consisting of a global positioning system aided inertial navigation system (INS/GPS). JDAM will provide an accurate (13 meters) adverse weather capability. JDAM will initially be integrated with the B-52H, B-2, B-1B and F/A-18C/D aircraft with follow-on integration on the F-16, F-15E, F-22, AV-8B and other aircraft. JDAM development is a two-phased Engineering and Manufacturing Development (EMD) effort. EMD Phase I emphasized competitive design and manufacturing processes. This phase completed 10 Oct 95. EMD Phase II emphasizes full scale hardware build and flight test to verify system performance and will support OT&E. This program is funded in Budget Activity 5, EMD, because of the focus on devising an affordable design and manufacturing process. JDAM is an Air Force ACAT ID program. JDAM Low Rate Initial Production (LRIP) will begin in FY97.

(U) FY 1996 ($ in Thousands):

- (U) $64,916 Initiated EMD Prime Contractor activities to fabricate development and operational test hardware and software, final definition and proof of production processes, and continued PIP development to include improved guidance concept demonstrations, concept exploration studies for GPS anti-jam capabilities and improved mission planning/target location error efforts.
- (U) $4,321 Continued Program Office Mission/Engineering Support tasks to define and coordinate the program activities of the prime contractor and various government development and test organizations.
- (U) $11,282 Began JDAM Development Test and Evaluation (DT&E) activities including B-52 Instrumented Measurement Vehicle testing, safe separation flight tests on the FA-18, F-16, B-52, and B-1, ground margin testing and related mission planning activities.
- (U) $80,519 Total

* These amounts reflect assets by delivery year and can not be reconciled to the dollar amounts (incremental funding) shown in any one year.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604618F Joint Direct Attack Munitions PROJECT 3890

(U) FY 1997 ($ in Thousands):
- (U) $13,617 Continue EMD prime contractor activities to include delivery of Guided Test Vehicles (GTVs) and ground test equipment for DT/OT&E and continue the improved GPS guidance and Anti-Jam demonstrations.
- (U) $4,407 Continue Support and Management tasks to define and coordinate the program activities of the prime contractor and various government development and test organizations.
- (U) $18,969 Conduct guided flight tests for DT/OT&E on the FA-18, F-16, B-1, B-2, and B-52.
- (U) $36,993 Total

(U) FY 1998 ($ in Thousands):
- (U) $11,590 Complete EMD prime contractor activities for Group 1 aircraft. Initiate Group 2/F-22 integration and testing.
- (U) $2,412 Continue Support and Management tasks to define and coordinate the program activities of the prime contractor and various government development and test organizations.
- (U) $5,551 Complete Group 1 aircraft flight testing and improved GPS guidance and Anti-Jam demonstrations. Continue Group 2 aircraft guided flight tests.
- (U) $19,553 Total

(U) FY 1999 ($ in Thousands):
- (U) $7,017 Continue EMD prime contractor & Group 2/F-22 integration and testing.
- (U) $1,155 Continue Support and Management tasks to define and coordinate the program activities of the prime contractor and various government development and test organizations.
- (U) $4,278 Continue Group 2 aircraft guided flight tests.
- (U) $12,450 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604618F Joint Direct Attack Munitions

PROJECT: 3890

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	85,916	38,636	34,717	24,567	337,340
(U) Appropriated Value	92,161	38,636			
(U) Adjustments to Appropriated Value					
a. Cong Reductions	-1,825	-803			
b. SBIR	-1,905	-804			
c. Omnibus or Other Above Threshold Reprogram	-945				
d. Below Threshold Reprogramming	-4559				
e. Rescissions	-2408	-36			
(U) Adjustments to Budget Years Since FY 1997 PB			-15,164	-12,117	
(U) Current Budget Submit/FY98 PB	80,519	36,993	19,553	12,450	300,156

(U) Change Summary Explanation:

Funding: FY98: $9.0M reduction due to revised estimate, $6.0M reduction in JDAM PIP seeker technologies.
FY99: $12.0M reduction in JDAM PIP.

Schedule: No change in baseline effort. PIP seeker technology efforts have been deleted.

Technical: All new efforts to improve JDAM accuracy and anti-jam have been eliminated in FY98 & beyond.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604618F Joint Direct Attack Munitions

PROJECT: 3890

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Appropriation: Ammunition Procurement, Air Force, Program Title: JDAM, PE 27583F										
(U) Ammunition Procurement	0	23,010	61,002	62,202	143,207	233,114	223,789	218,020	375,798	1,340,143
(U) Quantity (Kits)		937	2,673	2,620	6,325	10,122	10,617	10,592	18,114	62,000
(U) SEEK EAGLE			305							305

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) EMD Phase II Contract Option	X															
(U) DT&E/TECHEVAL (2,000)lb) Start	X															
(U) LRIP (Lot 1) Option							X									
(U) IOT&E/OPEVAL (2,000 lb) Start								X								
(U) DT&E/TECHEVAL (2,000 lb) Finish									X							
(U) IOT&E/OPEVAL (2,000 lb) Finish									X							
(U) Milestone III											X					

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604618F Joint Direct Attack Munitions PROJECT 3890

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Primary Hardware Development	64,916	13,617	11,590	7,017
(U) Test & Evaluation	11,282	18,969	5,551	4,278
(U) Engineering & Prog Mgt Support	4,321	4,407	2,412	1,155
(U) Total	80,519	36,993	19,553	12,450

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Prime Contractors MDA (St Louis, MO) Lockheed/Martin (Orlando, FL; FY94/95 Only)	CPAF	Oct-95	162,187	162,187	71,219	61,216	8,217	11,590	7,017	2,928	162,187
Conceptual Studies	Various	Various	26,753	26,753	17,653	3,700	5,400	0	0	0	26,753

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604618F Joint Direct Attack Munitions

PROJECT: 3890

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Support and Management Organizations											
Engineering Spt.	CPAF	Oct-97	12,326	12,326	8,900	804	1,439	999	184	0	12,326
TAMS Contractor	CPAF	Oct-97	4,269	4,269	2,736	246	640	319	328	0	4,269
Program Office	Various	Various	17,917	17,917	10,204	3,271	2,328	1,094	643	377	17,917
Test and Evaluation Organizations											
Aircraft SPO/PMA Supt.	Various	Various	27,322	27,322	16,587	527	3,045	3,616	2,534	1,013	27,322
Flight Testing	Various	Various	34,550	34,550	6,471	9,010	15,374	1,935	1,744	16	34,550
Ground Testing	Various	Various	10,087	10,087	9,434	153	500	0	0	0	10,087
GFE	Various	Various	4,745	4,745	3,103	1,592	50	0	0	0	4,745
Subtotal Product Development					88,872	64,916	13,617	11,590	7,017	2,928	188,940
Subtotal Support and Management					21,840	4,321	4,407	2,412	1,155	377	34,512
Subtotal Test and Evaluation					35,595	11,282	18,969	5,551	4,278	1,029	76,704
Total Project					146,307	80,519	36,993	19,553	12,450	4,334	300,156

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604703F Aeromedical Systems Development

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
2866 Aeromedical/Casualty Care Systems Dev	5,873	5,707	4,354	2,057	578	98	0	0	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description and Budget Item Justification

This program is in budget activity 5 - Research, Development, Test and Evaluation because it supports development of systems for treatment, evacuation, and prediction of wartime casualties in a conventional or non-conventional warfare environment. Tactical, strategic, and covert aeromedical evacuation systems and medical treatment equipment are developed and fielded to meet unique Air Force medical readiness and operational requirements.

(U) FY 1996 ($ in Thousands):

- (U) $157 Transportable Blood Transshipment Center (TBTC) - Deliver initial production units. Study module concepts to support USAF/SG medical readiness reengineering initiative.
- (U) $854 Spinal Cord Injury Transport System (SCITS) - Develop acquisition strategy and obtain Milestone I/II decision approval to support tri-Service requirements.
- (U) $1,068 Threat Related Attrition (THREAT) Model - Integrate ground attack model for Build 2 and complete integration testing, deliver Build 2 and develop nuclear, biological and chemical modules.
- (U) $126 Wartime Medical Planning System - Complete systems requirements analysis.
- (U) $1,470 Continuous/Intermittent Suction Unit (CISU) - Obtain Milestone II decision approval and begin Engineering and Manufacturing Development (EMD).
- (U) $22 Alternating Current Interface Unit (ACIU) - Complete production.
- (U) $1,105 Chemically Hardened Air Transportable Hospital/Chemically Hardened Air Management Plant (CHATH/CHAMP) - Complete CHAMP Development Test and Evaluation (DT&E).
- (U) $31 Aeromedical Systems Analysis - Conduct foundation studies and analyses to support core aeromedical and casualty care and health care requirements in support of USAF/SG medical reengineering goals and objectives. (Continuing War Gaming and Electrical Conversion Conditioning Unit)
- (U) $552 Civil Reserve Air Fleet Aeromedical Evacuation Shipsets (CRAF AES) - Continue studies and support analysis for different airframes and configurations.
- (U) $488 Funded proportional efforts of Human Systems Center, System Program Office, and Technical Engineering and Management Support contractor.
- (U) $5,873 TOTAL

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604703F Aeromedical Systems Development
	PROJECT 2866

(U) FY 1997 ($ in Thousands):

–	(U) $97	TBTC - Deliver production units and provide program/engineering support.
–	(U) $617	SCITS - Begin EMD.
–	(U) $75	THREAT Model - Integrate nuclear, biological and chemical modules for Build 3, complete integration testing, and deliver Build 3.
–	(U) $40	CISU - Complete operational testing and obtain Milestone III decision approval.
–	(U) $138	CHATH/CHAMP - Complete CHAMP operational test and evaluation (OT&E), meet initial operational capability, obtain Milestone III decision approval and exercise production option.
–	(U) $2,705	CRAF-AES - Continue development of modifications of shipsets to support Air Mobility Command selected airframes and provide associated support equipment including the Patient Loading System (PLS).
–	(U) $337	Theater Medical Information Program (TMIP) - Define, prototype and demonstrate a deployable medical information infrastructure; plan and initiate an acquisition strategy for the same.
–	(U) NSP	Aeromedical Systems Analysis - Conduct foundational studies and analyses, requirements analyses, and product demonstrations to meet operational needs, and define acquisition strategies and baselines for potential system solutions to Air Force Medical Service materiel needs identified through the Air Force Surgeon General's modernization planning process.
–	(U) $1,698	Funded proportional efforts of Human Systems Center, System Program Office, and Technical Engineering and Management Support contractor.
–	(U) $5,707	TOTAL

(U) FY 1998 ($ in Thousands):

–	(U) $34	TBTC - Program/Engineering Support for production item activation.
–	(U) $2,140	SCITS - Continue EMD.
–	(U) $74	CHATH/CHAMP - Program/Engineering Support for production item activation.
–	(U) $109	CRAF-AES - Support IOC, production decision, and Full Operational Capability (FOC) for the Patient Loading System
–	(U) $1,997	TMIP-Air Force - Integrate and test a deployable medical information infrastructure; plan and initiate a deployment strategy for the same; investigate and plan for pre-planned product improvements.
–	(U) NSP	Aeromedical Systems Analysis - Conduct foundational studies and analyses, requirements analyses, and product demonstrations to meet operational needs, and define acquisition strategies and baselines for potential system solutions to Air Force Medical Service materiel needs identified through the Air Force Surgeon General's modernization planning process. (Continuing)
–	(U) NSP	Funded proportional efforts of Human Systems Center, System Program Office, and Technical Engineering and Management Support contractor.
–	(U) $4,354	TOTAL

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604703F Aeromedical Systems Development

(U) FY 1999 ($ in Thousands):

–	(U) $1,014	SCITS - Conduct OT&E.
–	(U) $40	CHATH/CHAMP - Program/Engineering support for production item activation.
–	(U) $1,003	TMIP-AF - Execute medical information infrastructure deployment; integrate and test planned product imporvements.
–	(U) NSP	Aeromedical Systems Analysis - Conduct foundational studies and analyses, requirements analyses, and product demonstrations to meet operational needs, and define acquisition strategies and baselines for potential system solutions to Air Force Medical Service materiel needs identified through the Air Force Surgeon General's modernization planning process.
–	(U) NSP	Funded proportional efforts of Human Systems Center, System Program Office, and Technical Engineering and Management Support contractor.
–	(U) $2,057	TOTAL

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604703F Aeromedical Systems Development
	PROJECT 2866

U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	6,235	5,977	4,390	2,077	Cont
(U) Appropriated Value	6,235	5,977			
(U) Adjustments to Appropriated Value					
a. Congressional Gen Reductions	-122	-156			
b. SBIR	-113	-108			
c. Omnibus or Above Threshold Reprogramming	-64				
d. Below Threshold Reprogramming	-2				
e. Rescissions	-61	-6			
(U) Adjustments to Budget Years Since FY 1997 PB			-36	-20	
(U) Current Budget Submit/FY 1998 PB	5,873	5,707	4,354	2,057	Cont

(U) Change Summary Explanation:

Funding: Adjustments to FY96, $122K for Congressional reductions, $113K for SBIR, Reprogramming and Rescissions for Bosnia and F-16 Jordanian bill and other minor cuts; and for FY97: $162for Congressional General Reductions/Recission, and $108K for SBIR.

Schedule: No change.

Technical: No change.

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Other Procurement, AF, BP , Other Base and Maintenance Support, Medical/Dental Equipment	0	10,475	9,199	12,587	10,997	9,282	4,630	4,580	Cont	Cont

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604703F Aeromedical Systems Development PROJECT 2866

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
TRANSPORTABLE BLOOD TRANSSHIPMENT CENTER																
- FOC											X					
SPINAL CORD INJURY TRANSPORT SYS																
- Begin EMD					X											
- Begin OT&E															X	
THREAT MODEL																
- IOC		X														
- FOC								X								
CONT/INTERMIT SUCTION UNIT																
- Milestone II Decision				X												
- Begin EMD				X												
- Complete OT&E						X										
- Milestone III Decision							X									
CHATH/CHAMP																
- Complete DT&E				X												
- Complete OT&E					X											
- Milestone III Decision							X									
- Begin Production							X									
CRAF AES																
- IOT&E for PLS								X								
- IOC for PLS									X							
- FOC for PLS												X				
TMIP-AF																
- Define sys performance characteristics								X								
- Integrate and test system solutions												X				
- Deployment																X

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604703F Aeromedical Systems Development
	PROJECT 2866

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Engineering and Manufacturing Development	3,415	3,310	2,511	1,054
(U) Development/Operational Test and Evaluation	179	253	250	220
(U) Contractor Engineering Support	1,657	1,545	1,139	536
(U) Miscellaneous (System Program Office Operations)	561	538	393	186
(U) Mission Support/Supplies	61	61	61	61
(U) Total	5,873	5,707	4,354	2,057

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
TBTC-A.D. Little	CPAF/FFP	Mar 91	11,033	13,289	13,134	0	0			0	13,134
CHATH/CHAMP Ph I-EASI/Guild	FPIF	Dec 94	2,989	2,989	2,989	0	0			0	2,989
CHATH/CHAMP Phase II-TBD	FPIF	Aug 95	3,423	3,423	3,186	237	0	0	0	0	3,423
CISU	CPIF	Jul 96	TBD	69	0	50	0			0	50
SCITS	TBD	TBD	TBD	TBD	0	49	500	497	776	Cont	1,822
CRAF (PLS)	TBD	TBD	TBD	TBD	0	0	2,125				2,125
WAR-MED PS-BDM	CPAF	May 96	6,159	6,159	6,159	0	0			0	6,159
TMIP-AF	Various	Various	TBD	TBD	0	0	337	1,997	267		2,601
THREAT-BDM	CPFF	Aug 94	2,784	2,784	1,308	2,191	348	0	0	0	3,847

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)											DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604703F Aeromedical Systems Development							PROJECT 2866
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
New Business-	Various	Various			17,477	888	0			Cont	18,365
Mission Support/ Supplies	Various	Various			532	61	61	61	61	Cont	776
Support/Mgmt Organizations											
TEAMS-OpTech, McDonald Tech, MTC	Delivery Order	Various			3,061	1,657	1,545	1,156	547	Cont	7,966
SPO Operations	Various	Various			3,767	561	538	393	186	Cont	5,445
Test and Evaluation Organizations											
White Sands Missile Range					0	0	0			0	0
Aberdeen Proving Ground					0	0	0			0	0
SA-ALC					2	0	0			0	2
Armstrong Lab					0	0	0			0	0
Other					138	179	253	250	220	0	1,040

(U) B. **Budget Acquisition History and Planning Information Continued ($ in Thousands)**

	Total Prior to FY 1996						
Subtotal Product Development	44,785	3,476	3,371	2,555	1,104	0	55,291
Subtotal Support and Management	6,828	2,218	2,083	1,549	733	0	13,411
Subtotal Test and Evaluation	140	179	253	250	220	0	1,042
Total Project	51,753	5,873	5,707	4,354	2,057	0	69,744

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604706F Life Support Systems

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	4,518	10,391	3,726	3,819	3,839	3,958	555	0	31,136	TBD
3812 COMBAT EDGE	323	0	0	0	0	0	0	0	323	15,081
412A Life Support Systems	4,195	10,391	3,726	3,819	3,839	3,958	555	0	30,813	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. **Mission Description and Budget Item Justification**

This program element is devoted to Engineering and Manufacturing Development (EMD) of aircrew life support equipment. This program element is managed from pre-concept to disposal, under the Integrated Weapon System Management (IWSM) single manager concept. The Life Support program provides consolidated management for the development, acquisition, production, deployment, and support of aircrew protective equipment. These aircraft subsystems enable aircrews, passengers, and ground support personnel to operate safely in combat and training environments. Equipment developed under this program are generally classified as operational environment life support systems, escape and descent systems, and survival and recovery systems. Project 3812 developed a pressure breathing anti-Gravity (G) system for F-15 and F-16 crew members to help reduce the likelihood of G-induced loss of consciousness incidents and increase pilot endurance under high-G combat conditions. The majority of the equipment has been developed through the continuing core project, Project 412A. This project provides centralized management of life support items and subsystems. They include the following: flight clothing, flight helmets, oxygen breathing equipment for aviators, anti-G coveralls, survival radios, night vision devices, laser eye protection devices, active/passive noise reduction devices, parachute releases and aircraft ejection seats.

(U) **Acquisition Strategy:**

Acquisition strategy is incorporated at the project level.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604706F Life Support Systems

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget (PB)	4,035	4,363	3,740	3,838	TBD
(U) Appropriated Value	4,035	10,863			
(U) Adjustments to Appropriated Value					
a. Congressional General Reductions	-98	-230			
b. Omnibus/Other Above Threshold Reprogramming	-43				
c. Small Business Innovative Research (SBIR)	-85	-232			
d. Below Threshold Reprogramming (BTR)	734				
e. Rescissions	-25	-10			
(U) Adjustments to Budget Years Since FY97 PB			-14	-19	
(U) Current Budget Submit/FY98 PB	4,518	10,391	3,726	3,819	TBD

(U) Change Summary Explanation:

Funding: Below threshold reprogramming of FY96 funds increased for an ACES II ejection seat study.

Schedule: Incorporated at the Project Level

Technical: No Changes

(U) C. Other Program Funding Summary ($ in Thousands) Not Applicable

(U) D. Schedule Profile Incorporated at the Project Level

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604706F Life Support Systems

PROJECT: 3812

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
3812 COMBAT EDGE	323	0	0	0	0	0	0	0	323	15,081

(U) **A. Mission Description and Budget Item Justification**

This project develops and fields a positive pressure breathing anti-G system for F-15 and F-16 crew members, called the COMBined Advanced Technology Enhanced Design Anti-Gravity Ensemble (COMBAT EDGE). This system is designed to reduce the cumulative effects of G-induced stress and fatigue and thus reduce the number of G-induced Loss Of Consciousness (G-LOC) incidents. The system supplements the current anti-G suit garment with the additional following equipment: an upper torso counter pressure vest, a tensioning bladder modification kit incorporated into the current HGU-55/P helmet, a new oxygen mask, a modified oxygen regulator, and a modified high-flow anti-G valve. For COMBAT EDGE Gentex Corporation and Carleton Technologies are the prime contractors with firm fixed price contracts.

(U) FY 1996

- (U) $80 Conduct manrating on mask improvements (comfort and design)
- (U) $25 Complete FOT&E on mask improvements
- (U) $25 Conduct Functional Configuration Audit/Physical Configuration Audit (FCA/PCA) on overall improved mask
- (U) $193 Deploy COMBAT EDGE to F-15 units
- (U) $323 Total

(U) FY 1997 - Not Applicable

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604706F Life Support Systems	PROJECT 3812

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	323	0			15,081
(U) Appropriated Value	323				
(U) Adjustments to Appropriated Value					
a. Below Threshold Reprogramming					
(U) Adjustments to Budget Years since FY97 PB					
(U) Current Budget Submit/FY98 PB	323	0			15,081

(U) Change Summary Explanation:

Funding: FY95 Below Threshold Reprogramming was to initiate the deployment of COMBAT EDGE to F-16 units. FY96 budget year was increased to complete Follow-On Test and Evaluation (FOT&E) on mask improvements, and to complete the deployment of COMBAT EDGE to F-15 units.

Schedule: Integration tests on mask improvements (comfort and design) moved from FY95 to the first quarter of FY96 due to defective test items delivered by the contractor for FOT&E on the concept I mask improvements. The initiation in the deployment of COMBAT EDGE to F-15 units was rescheduled to begin in the first quarter of 1996.

Technical: No Changes

(U) C. Other Program Funding Summary ($ in Thousands) - Not Applicable

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604706F Life Support Systems PROJECT 3812

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) - Initiate F-15 deployment	X															
(U) - Completed F-16 deployment		X														
(U) - Integration tests on mask improvements (comfort and hang)				X												
(U) - Complete F-15 deployment					X											
(U) - Complete FOT&E on mask improvements					X											
(U) - Conduct Functional Configuration Audit/Physical Configuration Audit on overall improved mask						X										

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604706F Life Support Systems		PROJECT 412A

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
412A Life Support Systems	4,195	10,391	3,726	3,819	3,839	3,958	555	0	30,813	TBD

(U) **A. Mission Description and Budget Item Justification**

This project provides for Engineering, Manufacturing, and Development (EMD) of life support equipment and subsystems to satisfy operational command requirements for improved life support equipment. This project also provides for the continuing development of life support items and subsystems such as the following: flight clothing, flight helmets, oxygen breathing equipment for aviators, anti-G coveralls, survival radios, night vision devices, active/passive noise reduction devices, parachute releases, and aircraft ejection seats. Program management support includes tasks to assess deficiencies of currently fielded equipment. It also provides for the transitions of new technology into EMD and to support all current life support projects. Life Support Systems top three major contractors are ITT Electro-Optical Products Division, Bose Corporation, and Conax Florida Corp. Life Support efforts result from full and open competition among qualified vendors to select a single primary source for EMD and follow-on production.

(U) FY 1996

- (U) $2,246 Complete Design, then build initial test assets for combined Night Vision System (NVS) Developmental Test & Evaluation / Operational Test and Evaluation (DT&E/OT&E)
- (U) $565 Engineering & Management Support
- (U) $245 Receive NVS test assets & begin Government DT&E
- (U) NSP Complete ANR government DT&E and IOT&E. (AFSOC funded)
- (U) NSP Deliver/Support ANR production units. (Production $1,482K-AFSOC funded; Support-NSP)
- (U) NSP Start/Support UWARS production deliveries. (Support-NSP, Production funded under PE 27596F, Base Ops - Tactical Air Forces)
- (U) $500 Contract award for ACES II CIP upgrade study
- (U) $519 Program Management Support and Travel
- (U) $120 Program cost/risk management
- (U) $4,195 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604706F Life Support Systems	PROJECT 412A

(U) FY 1997

–	(U) $4,760	Initiate Laser Eye Protection (LEP) project
–	(U) $1,500	Continue ACES II ejection seat Component Improvement Program (CIP)
–	(U) $1,195	Continue receiving NVS hardware & test assets, establish Logistics support
–	(U) $610	Continue Government DT&E & OT&E on NVS test assets
–	(U) NSP	Complete/Support ANR production deliveries. (Production - AFSOC funded; Support-NSP)
–	(U) NSP	Continue UWARS production deliveries
–	(U) $991	Initiate the Advanced Technology Concept Anti-Gravity Suit (ATAGS) project
–	(U) $582	Continue contractor-conducted qualification testing of life support systems
–	(U) $434	Program Management/Mission Support and Travel
–	(U) $319	Program cost/risk management
–	(U) $10,391	Total

(U) FY 1998

–	(U) $601	Receive final test assets for NVS Developmental / Operational Test and Evaluation (DT&E / OTE), TDY & engineering support (SETA)
–	(U) $100	Complete Government OT&E on NVS test assets
–	(U) $1,873	Continue Laser Eye Protection (LEP) project
–	(U) $242	Continue contractor-conducted qualification testing of life support systems (FAMBRC)
–	(U) NSP	Complete/Support ANR production deliveries. (Production - AFSOC funded; Support-NSP)
–	(U) NSP	Continue UWARS production deliveries
–	(U) $334	Complete ATAGS program
–	(U) $483	Program Management/Mission Support and Travel
–	(U) $93	Program cost/risk management
–	(U) $3,726	Total

(U) FY 1999

–	(U) $2,779	Continuation of EMD, Laser Eye Protection (LEP) project
–	(U) $212	Receive LEP test assets; begin contractor-conducted qualification testing of LEP project
–	(U) $335	Continue contractor-conducted qualification testing of life support systems (FAMBRC)
–	(U) NSP	Complete/Support ANR production deliveries. (Production - AFSOC funded; Support-NSP)
–	(U) $493	Program Management/Mission Support and Travel
–	(U) $3,819	Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604706F Life Support Systems	PROJECT 412A

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	3,712	4,363	3,740	3,838	TBD
(U) Appropriated Value	3,712	10,863			
(U) Adjustments to Appropriated Value					
a. Congressional General Reduction	-98	-230			
b. Omnibus & Other Above Threshold Reprogramming	-43				
c. Small Business Innovative Research (SBIR)	-85	-232			
d. Below Threshold Reprogramming (BTR)	734				
e. Recisssions	-25	-10			
(U) Adjustments to Budget Years since FY97 PB			-14	-19	
(U) Current Budget Submit/98 PB	4,195	10,391	3,726	3,819	TBD

(U) Change Summary Explanation:

Funding: FY96 and FY97 NVS program re-structure incorporated an improved NVS optical design and combined DT&E with OT&E, thereby reducing testing costs while maintaining the scheduled Initial Operating Capability (IOC).

Schedule: Re-design of NVS optics resulted in later delivery of test assets; however, combination of DT&E and OT&E cut test costs and test schedule, preserving net schedule for IOC.

Technical: NVS optical design incorporates newly developed technology, and is not driven by any failure in the previous design.

(U) C. Other Program Funding Summary ($ in Thousands) - Not Applicable

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604706F Life Support Systems

PROJECT: 412A

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Receive NVS DT&E / OT&E Units			X													
(U) Perform NVS Contractor Qual Test				X												
(U) Complete ANR DT&E and IOT&E (AFSOC)					X											
(U) Complete (AFSOC) ANR Deliveries					X											
(U) Start NVS Contractor Qual Test					X											
(U) Start UWARS Production Deliveries						X										
(U) Production Award for ANR helmets						X										
(U) Award ATAGS OT&E Contract						X										
(U) Complete Government Conducted NVS DT&E / OT&E							X									
(U) Complete (AFSOC) ANR helmet deliveries								X								
(U) Receive ATAGS OT&E units									X							
(U) Start FAMBRC										X						
(U) Complete ATAGS OT&E										X						
(U) Production Award for NVS										X						
(U) EMD award for LEP											X					
(U) Production Award for ATAGS											X					
(U) First Article Tests for ATAGS												X				
(U) Start ATAGS Production Deliveries													X			

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604706F Life Support Systems

PROJECT: 412A

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Contracts	2,746	811	1,404	1,437
(U) Technical Engineering Support	565	7,505	898	921
(U) Travel	122	196	200	138
(U) Government Testing	245	1,060	100	212
(U) Program Management Support	397	346	410	399
(U) Program cost/risk management	120	473	714	712
(U) Total	4,195	10,391	3,726	3,819

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Kaiser Electronics	C,CPAF	18 Jan 93	4,831	4,831	4,831	0	0	0	0	0	4,831
ITT	C,CPAF	18 Jan 93	16,891	16,891	11,384	2,246	311	262	0	0	14,203
Future Award for (ATAGS)	C,CPFF	Dec 96	1,993	1,993	0	0	500	98	0	0	598
Future Award for (LEP)	C,CPFF	Aug 98	10,226	10,226	0	0	0	1,044	1,437	4,680	7,161
McDonnell Douglas	C,CPFF	Dec 96	749	749	0	500	0	0	0	0	500
(U) Total			34,690	34,690	16,215	2,746	811	1,404	1,437	4,600	27,293

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development			PE NUMBER AND TITLE 0604706F Life Support Systems						PROJECT 412A
Support and Management Organizations									
Program Management Support	1,137	1,137	1,615	397	346	410	399	Cont.	TBD
Travel	929	929	225	122	196	200	100	Cont.	TBD
Program cost/risk Management	0	0	0	120	473	728	731		
System Eng Tech Asst (SETA)	3,239	3,239	1,995	565	7,505	898	921	Cont.	TBD
Test and Evaluation Organizations									
Air Force Flight Test Center	4,082	4,082	2,858	245	1,060	100	212	Cont.	TBD
Subtotal Product Development	34,690	34,690	16,215	2,746	811	1,404	1,437		TBD
Subtotal Support and Management	5,305	5,305	3,835	1,204	8,520	2,236	2,189		
Subtotal Test and Evaluation	4,082	4,082	2,858	245	1,060	100	212		
Total Project	44,077	44,077	22,908	4,195	10,391	3,726	3,819		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604708F Civil, Fire, Environmental, Shelter

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	2,580	2,617	2,698	2,770	2,836	2,905	2,959	3,027	Continuing	Continuing
2054 Aerospace Facilities Engineering Development	645	689	718	740	758	774	788	806	Continuing	Continuing
2505 Aircraft Firefighting Suppression & Rescue	1,140	1,049	1,060	1,098	1,131	1,161	1,184	1,212	Continuing	Continuing
2674 Tactical Shelters	152	181	202	191	188	195	198	202	Continuing	Continuing
3788 Environmental Quality	643	698	718	741	759	775	789	807	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. **Mission Description and Budget Item Justification**

This program funds the development, testing and evaluation of materials, equipment and procedures in four separate areas: a) Facilities Engineering improves the operational effectiveness, survivability, durability, and longevity of air base pavements, buildings and utilities; the overall objective is to provide an infrastructure that effectively supports the Air Force mission, contributes to high sortie rates, supports forward projection of air power, is less susceptible to damage from enemy actions or natural disasters, and is more rapidly returned to service if damaged. b) Fire Fighting Suppression and Rescue develops new concepts and technology applications to increase fire fighting support of combat operations, to improve base recovery after attack capabilities, and to reduce fire risks to personnel and resources. c) Tactical Shelters is the USAF portion of a tri service effort to develop standardized, low maintenance, survivable shelters and shelter accessories that are easily mobilized and compatible with air, sea and land transport systems. These products will effectively support high mobility aircraft support, command and control, communications, medical, and data processing units for the tactical and strategic forces. d) Environmental Quality ensures Air Force compliance with existing laws, executive orders, and Air Force policies by developing technologies to identify, reduce, and eliminate pollutant sources, identify and dispose of hazardous waste, conduct remediation, and mitigate the effects wastes and pollutants. This project develops equipment, materials, and processes in support of the Air Force environmental program. Environmental work performed under this program element is Engineering and Manufacturing Development because it takes emerging technologies and develops them for Air Force use.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604708F Civil, Fire, Environmental, Shelter

(U) **B. Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	2,598	2,736	2,843	2,922	Cont
(U) Appropriated Value	2,598	2,736			
(U) Adjustment to Budget Years Since FY 97 PB	(16)	(119)	(145)	(222)	
(U) Adjustments to Appropriated Value					
a. Undistributed Congressional Reductions					
b. SBIR	(2)				
(U) Current Budget Submit/President's Budget	2,580	2,617	2,698	2,770	Cont

(U) Change Summary Explanation:

Funding: FY 96 and FY 97 programs adjusted for inflation and to cover higher priority requirements.

Schedule: Not Applicable.

Technical: Not Applicable.

(U) **C. Other Program Funding Summary ($ in Thousands):** Not Applicable.

(U) **D. Schedule Profile:** Not Applicable.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604708F Civil, Fire, Environmental, Shelter

PROJECT: 2054

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
2054 Aerospace Facilities Engineering Development	645	689	718	740	758	774	788	806	Continuing	Continuing

(U) **A. Mission Description and Budget Item Justification**

Develops equipment, materials, and procedures to improve the operational effectiveness of aerospace facilities.

(U) FY 1996 ($ in Thousands):
(U) $ 50 Complete EMD for Field Deployable ECUs.
(U) $595 Continue EMD for Small Shelters/ECUs.
(U) $645 Total

(U) FY 1997 ($ in Thousands):
(U) $663 *Continue EMD for Small Shelters/ECUs.
(U) $ 26 Continue other technical support
(U) $689 Total

(U) FY1998 ($ in Thousands)
(U) $681 Initiate EMD for EROWPU.
(U) $ 37 Continue other technical support
(U) $718 Total

(U) FY1999 ($ in Thousands)
(U) $684 Continue EMD for EROWPU
(U) $ 56 Continue other technical support
(U) $740 Total

(U) *Transitions to PE64617F for final year of EMD in support of ACC Mission Area Plan

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604708F Civil, Fire, Environmental, Shelter
	PROJECT 2054

(U) B. **Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	645	713	737	760	Cont
(U) Appropriated Value	645				
(U) Congressional Reductions		(24)			
(U) Adjustments to Budget Years Since FY 97 PB			(19)	(16)	
(U) Current Budget Submit/President's Budget	645	689	718	740	Cont

(U) Change Summary Explanation:

Funding: FY 96 and FY 97 programs adjusted for inflation and to cover higher priority requirements.

Schedule: Not Applicable

Technical: Not Applicable.

(U) C. **Other Program Funding Summary ($ in Thousands):** Not Applicable.

(U) D. **Schedule Profile:** Not Applicable.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604708F Civil, Fire, Environmental, Shelter
	PROJECT 2054

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Field Deployable ECUs	50			
(U) Small Shelters/ECUs	595	663		
(U) EROWPU			681	684
(U) Other technical support		26	37	56
(U) Total	645	689	718	740

(U) B. Budget Acquisition History and Planning Information ($ in Thousands): Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Small Shelters/ECUs	C/FFP	Jun 97	1,258	1,258	0	595	663	0	0	0	1,258
Support and Management Organizations											
Various	Various	Various	85	85	0	50	35	0	0	0	85
Test and Evaluation Organizations											
N/A											

(U) B. Budget Acquisition History and Planning Information Continued ($ in Thousands)

Subtotal Product Development	0	595	663	0	0	0	1,258
Subtotal Support and Management	0	50	35	0	0	0	85
Total Project	0	645	698	0	0	0	1,343

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604708F Civil, Fire, Environmental, Shelter

PROJECT: 2505

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
2505 Aircraft Firefighting Suppression & Rescue	1,140	1,049	1,060	1,098	1,131	1,161	1,184	1,212	Continuing	Continuing

(U) A. **Mission Description and Budget Item Justification**

Develops improved fire fighting, suppression and rescue equipment, materials, and methods to increase fire protection readiness, mobility, and effectiveness.

(U) FY 1996 ($ in Thousands):

(U) $ 623 Continue courseware development of FMTS. Completes courseware for HAZMAT III, IV, and V.
(U) $ 517 Continue commercial technology exploitation.
(U) $1,140 Total

(U) FY 1997 ($ in Thousands):

(U) $ 580 Continue courseware development of FMTS.
(U) $ 409 Continue commercial technology exploitation.
(U) $ 60 Continue other technical support
(U) $1,049 Total

(U) FY 1998 ($ in Thousands):

(U) $ 434 Continue courseware development of FMTS.
(U) $ 230 Continue commercial technology exploitation.
(U) $ 300 Initiate EMD for HAZMAT emergency response ensemble with body cooling system.
(U) $ 96 Continue other technical support
(U) $1,060 Total

(U) FY 1999 ($ in Thousands):

(U) $ 315 Continue courseware development of FMTS.
(U) $ 338 Continue commercial technology exploitation.
(U) $ 300 Continue EMD for HAZMAT emergency response ensemble with body cooling system.
(U) $ 50 Initiate EMD for Firefighter Crash Vehicle Enhancement.
(U) $ 95 Continue other technical support.
(U) $1,098 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604708F Civil, Fire, Environmental, Shelter	PROJECT 2505

(U) **B. Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	1,157	1,125	1,165	1,208	Cont
(U) Appropriated Value	1,157				
(U) Adjustments to Appropriated Value					
a. General Congressional Reductions					
b. SBIR		(26)			
(U) Adjustments to Budget Years Since FY 97 PB	(17)	(50)	(105)	(110)	
(U) Current Budget Submit/President's Budget	1,140	1,049	1,060	1,098	Cont

(U) Change Summary Explanation:

Funding: FY 96 and FY 97 programs adjusted for inflation and to cover higher priority requirements.

Schedule: Not Applicable.

Technical: Not Applicable.

(U) **C. Other Program Funding Summary ($ in Thousands):** Not Applicable.

(U) **D. Schedule Profile:** Not Applicable.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604708F Civil, Fire, Environmental, Shelter PROJECT 2505

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Firefighter Multimedia Training System	623	580	434	315
(U) Commercial Technology Exploitation	517	409	230	338
(U) HAZMAT Emergency Response Ensemble			300	300
(U) Firefighter Crash Vehicle Enhancement				50
(U) Other Technical Support		60	96	95
(U) Total	1,140	1,049	1,060	1,098

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands): Performing Organizations:**

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Firefighter Multimedia Training System	MIPR	Multiple	1,203	1,203	1,221	623	580	0	0	Cont	1,203
Commercial Technology Exploitation	Multiple	Multiple	926	926	842	517	409	0	0	Cont	926
HAZMAT Ensemble	TBD	TBD	0	0	0	0	0	0	0	0	0
Sub Total						1,140	989	0	0	Cont	2,129
Support and Management Organizations											
Various	Various	Various	0	0	0	0	60	0	0	Cont	156
Test and Evaluation Organizations											

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)											DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604708F Civil, Fire, Environmental, Shelter							PROJECT 2505
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
N/A											
(U) B. Budget Acquisition History and Planning Information Continued ($ in Thousands)											
Subtotal Product Development					2,063	1,140	989	0	0	Cont	4,192
Subtotal Support and Management					0	0	60	0	0	Cont	156
Total Project					2,063	1,140	1,049	0	0	Cont	4,348

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604708F Civil, Fire, Environmental, Shelter

PROJECT: 2674

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
2674 Tactical Shelters	152	181	202	191	188	195	198	202	Continuing	Continuing

(U) A. **Mission Description and Budget Item Justification**

Provides reliable, cost effective tactical shelters required to ensure the success of Air Force missions, provides Air Force membership in the DOD Tactical Shelter Program, and provides technology insertion for shelter development.

(U) FY 1996 ($ in Thousands):

(U) $152 Attend JOCOTAS and ASTM meetings. Coordinate with other Air Force agencies. Fund ESC personnel, contractor support travel, equipment, supplies, and overhead.

(U) $152 Total

(U) FY 1997 ($ in Thousands):

(U) $181 Attend JOCOTAS and ASTM meetings. Coordinate with other Air Force agencies. Fund ESC personnel, contractor support travel, equipment, supplies, and overhead.

(U) $181 Total

(U) FY 1998 ($ in Thousands):

(U) $202 Attend JOCOTAS and ASTM meetings. Coordinate with other Air Force agencies . Fund ESC personnel, contractor support travel, equipment, supplies, and overhead.

(U) $202 Total

(U) FY 1999 ($ in Thousands):

(U) $191 Attend JOCOTAS and ASTM meetings. Coordinate with other Air Force agencies . Fund ESC personnel, contractor support travel, equipment, supplies, and overhead.

(U) $191 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604708F Civil, Fire, Environmental, Shelter
	PROJECT 2674

(U) B. **Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	152	192	204	193	Cont
(U) Appropriated Value	152	185			
(U) Adjustments to Appropriated Value					
a. Undistributed Congressional Reductions		(4)			
b. SBIR					
(U) Adjustments to Budget Years Since FY 97 PB			(2)	(2)	
(U) Current Budget Submit/President's Budget	152	181	202	191	Cont

(U) Change Summary Explanation:

Funding: FY 96 and FY 97 programs adjusted for inflation and to cover higher priority requirements.

Schedule: Not Applicable.

Technical: Not Applicable.

(U) C. **Other Program Funding Summary ($ in Thousands):** Not Applicable.

(U) D. **Schedule Profile:** Not Applicable.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604708F Civil, Fire, Environmental, Shelter PROJECT 2674

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Engineering Support	152	181	202	191
(U) Total	152	181	202	191

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands):** Not Applicable.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604708F Civil, Fire, Environmental, Shelter						PROJECT 3788
COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
3788 Environmental Quality	643	698	718	741	759	775	789	807	Continuing	Continuing

(U) A. **Mission Description and Budget Item Justification**

Develops equipment, materials, and processes in support of the Air Force environmental program including pollution prevention, compliance, restoration, and conservation. The focus is on technologies to reduce and eliminate pollutant sources, provide cost effective waste disposal, conduct remediation, and mitigate the effects of wastes and pollutants.

(U) FY 1996 ($ in Thousands):

(U) $140 Compliance - Aerospace Ground Support Equipment (AGSE).
- (U) Develop/Provide characteristic emissions data for Air Force Green AGSE Program.
- (U) Execute scaled down program pending full funding support.
- (U) Develop program proposals to meet AF ESOH Needs.
- (U) Prepare for technology transition and program execution.

(U) $150 Cpmpliance - Aircraft Deicing/Anti-icing.
- (U) Research environmental laws for maintaining environmental compliance.
- (U) Develop program proposals to meet ESOH Needs.
- (U) Identify alternative deicing/anti-icing chemicals/containment technologies.
- (U) Prepare for technology transition and program execution.

(U) $47 Pollution Prevention.
- (U) Define scope and effort involved in supporting AF effort to reduce the use of ODCs and HAZMATS.
- (U) Develop and submit program proposals to NDCEE and ESTCP.
- (U) Continue execution of HAZMAT identification program for engines at NDCEE.
- (U) Prepare for technology transition and program execution.

(U) $101 Pollution Prevention/Compliance - DoD environmental systems
- (U) Research and document DoD environmental system acquisition projects and programs
- (U) Research and document funding processes

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604708F Civil, Fire, Environmental, Shelter
	PROJECT 3788

(U) A. **Mission Description and Budget Item Justification Continued**

(U) $145	In-House Contract Support
(U) $ 60	System Program Office Assessment
(U) $643	Total

(U) FY 1997 ($ in Thousands):

(U) $164 Compliance - Aerospace Ground Support Equipment Hazardous Air Pollutant Program.
- (U) Execute program pending full funding of effort.
- (U) Develop program proposals to meet AF ESOH Needs.
- (U) Prepare for technology transition and program execution.

(U) $140 Pollution Prevention - Advanced Oil/Water Separator
- (U) Determine National Pollutant Discharge Limits for oil and grease content in waste water.
- (U) Develop proposals to meet ESOH needs.
- (U) Prepare to transition technology and execute program.

(U) $ 49 Pollution Prevention.
- (U) Develop environmental roadmap for metal plating/metal finishing.
- (U) Develop and submit program proposals to NDCEE and ESTCP.
- (U) Continue execution of HAZMAT identification program for engines at NDCEE.
- (U) Define scope and effort involved in supporting AF effort to reduce the use of ODC and HAZMATs.
- (U) Prepare for technology transition and program execution.

(U) $274	In-House Contract Support
(U) $ 71	System Program Office Assessment
(U) $698	Total

(U) FY 1998 ($ in Thousands):

(U) $170 Compliance - VOC Emission Control for Spray Booth.
- (U) Analyze/comment on documentation from lab effort.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604708F Civil, Fire, Environmental, Shelter
	PROJECT 3788

(U) A. Mission Description and Budget Item Justification Continued

(U) Execute program pending full funding of effort.
(U) Develop program proposals to meet AF ESOH Needs.
(U) Prepare for technology transition and program execution.

(U) $145 Pollution Prevention-Environmental sensors for Monitoring.
(U) Establish program requirements to meet OSHA and EPA regulations.
(U) Perform analysis and input to lab technology assessments.
(U) Develop proposals to meet AF ESOH Needs.
(U) Prepare for technology transition and program execution.

(U) $57 Pollution Prevention.
(U) Develop and submit program proposals to NDCEE and ESTCP.
(U) Continue execution of HAZMAT identification program for engines at NDCEE.
(U) Prepare for technology transition and program execution.
(U) Define scope and effort involved in supporting AF effort to reduce the use of ODCs and HAZMATS.

(U) $274 (U) In-House Contract Support
(U) $ 72 (U) System Program Office Assessment
(U) $718 Total

(U) FY 1999 ($ in Thousands):

(U) $160 Compliance - Emission control technologies for engine test cells and hush houses.
(U) Determine regulatory requirements that must be met.
(U) Define scope of effort involved to support AF effort to comply with NESHAPS.
(U) Develop proposal to meet ESOH need.
(U) Prepare for technology transition and program execution.

(U) $161 Compliance - Advanced Chemical Monitoring.
(U) Determine Regulatory drivers.
(U) Review and comment on documentation from lab effort.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604708F Civil, Fire, Environmental, Shelter	PROJECT 3788

(U) A. **Mission Description and Budget Item Justification Continued**

(U) Develop program proposals to meet AF ESOH Needs.
(U) Prepare for technology transition and program execution.

(U) $ 71 Pollution Prevention.
(U) Develop environmental roadmap for metal plating/metal finishing.
(U) Develop and submit program proposals to NDCEE and ESTCP.
(U) Define scope and effort involved in supporting AF effort to reduce the use of ODCs and HAZMATS.
(U) Prepare for technology transition and program execution.
(U) Continue execution of HAZMAT identification program for engines at NDCEE.

(U) $274 In-House Contract Support
(U) $ 75 System program Office Assessment
(U) $741 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604708F Civil, Fire, Environmental, Shelter
	PROJECT 3788

(U) B. **Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	644	713	737	761	Cont
(U) Appropriated Value	644	713			
(U) General Congressional Reductions		(15)			
(U) Adjustments to Budget Years Since FY 97 PB	(1)		(19)	(20)	
(U) Current Budget Submit/President's Budget	643	698	718	741	Cont

(U) Change Summary Explanation:

Funding: FY 96 and FY 97 programs adjusted for inflation.

Schedule: Not Applicable.

Technical: Not Applicable.

(U) C. **Other Program Funding Summary ($ in Thousands):** Not Applicable.

(U) D. **Schedule Profile:** Not Applicable.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604708F Civil, Fire, Environmental, Shelter PROJECT 3788

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Compliance	290	164	170	321
(U) In-House Contract Support	145	274	274	274
(U) Pollution Prevention	148	189	202	71
(U) Systems Program Office Assessment	60	71	72	75
(U) Total	643	698	718	741

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands):** Not Applicable.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604727F Joint Standoff Weapon System

PROJECT: 1000

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
1000 Joint Standoff Weapon	41,828	22,463	24,676	23,139	14,251	1,584	0	0	0	212,214
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description and Budget Item Justification

The Joint Standoff Weapon (JSOW) is an air-to-ground weapon designed to attack a variety of targets during day, night, and adverse weather conditions. JSOW will enhance aircraft survivability as compared to current interdiction weapon systems by providing the capability for launch aircraft to standoff outside the range of point defenses. The JSOW launch-and-leave capability will allow several target kills per aircraft sortie. The program provides for development and test of a dispenser design for the JSOW/BLU-108 variant which employs a BLU-108/B submunition payload. Integration of the JSOW Baseline weapon (BLU-97 Combined Effects Munition variant) and the JSOW/BLU-108 with the F-16C/D aircraft is also included. Future integration is planned with the B-1B, B-52, and the F-15E. The program also includes the development of Common Munitions BIT (Built-In Test) Reprogramming Equipment (CMBRE) software, a tester for JSOW, Joint Direct Attack Munition (JDAM), Wind Corrected Munitions Dispenser (WCMD), BRU-55 Smart Rack, and future smart weapons. JSOW is a joint Air Force/Navy program; Navy is the lead service. JSOW is an ACAT ID program. The RDT&E Research Category/Budget Activity is Engineering and Manufacturing Development - the phase of the program following a successful Milestone II (Acquisition Decision Memorandum dated 26 April 1995).

(U) FY 1996 ($ in Thousands):

- (U) $ 14,440 - Plan, design, and produce test vehicles
- (U) $ 9,365 - Plan, design, and conduct flight testing
- (U) $ 8,017 - Design, develop, test AFMSS module; perform ILS tasks; begin Common Munitions BIT (Built-In-Test) Reprogramming Equipment (CMBRE)
- (U) $ 3,255 - Engineering support, program office support
- (U) $ 6,458 - Conduct JSOW/BLU-108 CDR; plan, design, and conduct flight testing to qualify the BLU-108 dispenser
- (U) $ 263 - Continue aircraft integration of BRU-55 Smart Rack
- (U) $ 30 - Conduct Survivability Analysis
- (U) $ 41,828 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604727F Joint Standoff Weapon System
	PROJECT 1000

(U) FY 1997 ($ in Thousands):

- (U) $ 2,421 - Plan, design, and produce Initial Operational Test & Evaluation test vehicles; and associated Systems Engineering Program Management (SEPM)
- (U) $ 7,512 - Plan and conduct Developmental Test & Evaluation flight testing and associated SEPM
- (U) $ 2,649 - Continue development and test AFMSS module and All Up Round (AUR) software changes and maintenance; perform Integrated Logistics Support (ILS) tasks; and associated SEPM
- (U) $ 5,863 - Continue engineering and structural testing to qualify BLU-108 dispenser; and associated SEPM
- (U) $ 1,719 - Continue engineering support, program office support, Navy technical support at China Lake
- (U) $ 2,299 - Continue Smart Rack integration and testing, procure JSOW test assets to support Smart Rack testing
- (U) $ 22,463 Total

(U) FY 1998 ($ in Thousands):

- (U) $ 3,784 - Complete Developmental Test and Evaluation (DT&E) flight testing, and associated SEPM
- (U) $ 3,921 - Complete development and test AFMSS module; perform ILS tasks, AUR software changes and maintenance; and associated SEPM
- (U) $ 6,852 - Continue engineering support, program office support, Navy technical support at China Lake
- (U) $ 4,600 - Continue Smart Rack integration and flight testing
- (U) $ 5,269 - Continue environmental and structural testing to qualify BLU-108 dispenser; provide training, Technical Orders (TOs), and environmental assessments; and associated SEPM
- (U) $ 250 - Complete Common Munitions BIT (Built-In Test) Reprogramming Equipment (CMBRE) integration
- (U) $ 24,676 Total

(U) FY 1999 ($ in Thousands):

- (U) $ 3,245 - Conduct Joint Developmental Test/Operational Test; plan and conduct JSOW BLU-108 P3I DT&E; and associated SEPM
- (U) $ 3,937 - Complete development and test B-52 AFMSS module; conduct beddown training; continue Sensor Fuzed Weapon (SFW) P3I BLU-108 integration into JSOW; continue integration and planning support for B-1B and F-15E; and associated SEPM
- (U) $ 3,576 - Complete engineering support, program office support; and Navy technical support at China Lake
- (U) $ 12,381 - Complete Smart Rack flight and ground tests; complete Smart Rack EMD and Operational Flight Profile software changes
- (U) $ 23,139 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604727F Joint Standoff Weapon System
	PROJECT 1000

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	44,025	23,563	16,732	10,857	184,150
(U) Appropriated Value	44,025	23,563			
(U) Adjustments to Appropriated Value					
a. Cong/Gen Reductions	-862	-505			
b. SBIR	-1,104	-595			
c. Omnibus or Other Above Threshold Reprogram	-451				
d. Below Threshold Reprogramming	490				
e. Rescissions	-270				
(U) Adjustments to Budget Years Since FY 1997 PB			7,944	12,282	
(U) Current Budget Submit/FY98 PB	41,828	22,463	24,676	23,139	246,479

(U) Change Summary Explanation:

Funding: FY96 reductions were for Congressional/General Reductions, SBIR, reprogramming for F-16s to Jordan, support for Bosnia operations. FY98 increase results from a transfer of funds from Production to Research and Development and will be used for BRU-55 (Smart Racks) and Improved-BLU-108 integration into JSOW. FY99 increase is for Smart Racks.

Schedule: None

Technical: None

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total
(U) Missile Procurement, AF	0	0	27	54,128	88,210	118,451	104,888	137,583	1,650,950	2,154,210
(U) SEEK EAGLE (PE 0207590F)	0	8,024	1,112	10,618	0	0	0	0	0	20,410
(U) Quantity	0	0	0	139	266	380	295	371	4,549	6,000

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604727F Joint Standoff Weapon System PROJECT 1000

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones																
Smart Rack Development	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	---X
Air Force Incorporation into Baseline Contract, JSOW/BLU-108 Dispenser Development	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	---X				
JSOW/BLU-108 Preliminary Design Review	X															
JSOW/BLU-108 Critical Design Review				X												
JSOW Baseline Production Readiness Reviews			X				X				X					
JSOW/BLU-108 LRIP Decision													X			
JSOW/BLU-108 Milestone III			4th Qtr FY01													
JSOW/BLU-108 Production Contract (AF)			1th Qtr FY02													
JSOW/BLU-108 IOC (AF)			FY03													
T&E Milestones																
JSOW/BLU-108 DT&E	-----	-----	-----	-----	-----	-----	-----	---X								
Complete OFP Development (F-16)		X														
JSOW/BLU-108 IOT&E						X---	-----	-----	-----	-----	-----	---X				
JSOW/BLU-108 System Qualification Test								X---	-----	-----	---X					

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604727F Joint Standoff Weapon System	PROJECT 1000

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Primary Hardware Development	9,737	2,018	1,000	
(U) Ancillary Hardware Development	131	357		
(U) Development Support Equipment	317		4,600	12,381
(U) Software Development	9,153	1,986	2,233	1,000
(U) Systems Engineering	9,432	7,439	6,670	4,481
(U) Training Development	251	57	1,119	
(U) Technical Data	237	255	274	
(U) Developmental Test and Evaluation	9,265	7,707	2,080	
(U) Contractor Engineering Support	1,343	1.568	1,033	1,064
(U) Government Engineering Support	275	813	575	75
(U) Program Management Support/ Other Direct Cite	1,657	263	5,092	4,138
(U) Survivability Analysis	30			
(U) Total	41,828	22,463	24,676	23,139

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604727F Joint Standoff Weapon System

PROJECT: 1000

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Texas Instruments	SS/CPIF	Dec 96	132,849	132,849	52,649	36,001	13,619	13,413	8,678	8,489	132,849
Lockheed	MIPR to ASC/YP		8,900	8,900	8,900						8,900
M Tech	SS/SBIR Phase 3, FP/CPIF	Mar 97	30,900	30,900	5,000	500	2,000	6,725	11,475	5,200	30,900
Textron	FPIF	Mar 96	4,184	4,184	2,972	996	0	216			4,184
Support and Management Organizations											
China Lake NWC	MIPR	Apr 97	4,371	4,228	2,590	200	500	778	100	203	4,371
ASC/YH & Other			24,372	24,372	9,681	2,847	3,711	3,304	2,886	1,943	24,372
Test and Evaluation Organizations											
AFDTC, Eglin AFB	PO	Apr 97	5,725	5,725	1,568	1,284	2,633	240			5,725

Government Furnished Property: N/A

Subtotal Product Development	69,521	36,364	15,619	20,354	20,153	13,689	176,833
Subtotal Support and Management	12,271	3,789	4,211	4,082	2,986	2,146	28,743
Subtotal Test and Evaluation	1,568	1,675	2,633	240			5,725
Total Project	83,360	41,828	22,463	24,676	23,139	15,835	211,301

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604735F Combat Training Ranges

PROJECT: 2286

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
2286 Combat Training Range Equipment	12,744	21,926	20,331	14,875	13,302	14,411	15,195	15,546	Continuing	Continuing
Quantity of RDT&E Articles	0	*	0	0	0	0	0	0	0	0

(U) **A. Mission Description and Budget Item Justification**

This program develops the electronic, telecommunications, and instrumentation equipment/systems for training ranges worldwide. These systems provide real-time monitoring and control of aircrew air-to-air, air-to-ground, and electronic warfare training along with the ability to record events for crew debriefing and analysis. The primary developmental effort is the Nellis Air Combat Training System (NACTS) at Nellis AFB. NACTS is a Global Positioning System (GPS) based system to replace the current Red Flag Measurement and Debriefing System (RFMDS) increasing to 100 the number of instrumented participants, improving aircraft position tracking accuracy, expanding range coverage, multiplying weapons simulations and adding electronic warfare threat/aircrew interaction. The development effort involves software development to increase the number of high activity players as well as the integration and test of the training system comprised of ground equipment and aircraft pods purchased by procurement funding. This program element also funds the continued development of advanced electronic threats, aircraft/pod interfaces, software interoperability among service ranges and the encryption of range/aircraft data links. The Air Force continues to participate with the Navy-led Joint Tactical Combat Training System (JTCTS) development effort to ensure interoperability with AF ranges. JTCTS is a GPS based system to track and record aircraft, surface vessel, and submarine training operations. Procurement funding will be used for ground equipment and aircraft pods. This program develops the Advanced Message Oriented Data Security Module (AMODSM) communications security equipment. The acquisition strategy is competitive, with cost plus contracts. This program is in budget activity 5 - Engineering and Manufacturing Development because the Combat Training Ranges (CTR) Program directly contributes to the effectiveness and survivability of US combat forces by developing range instrumentation and training systems to increase the effectiveness of the training spectrum from individual aircrew skill training to large-scale exercises.

* AMODSM - Quantity of RDT&E Articles: 71

(U) FY 1996 ($ in Thousands):

- (U) $2,385 Continue Combat Training Ranges (CTR) basic operating support, and system acquisition and engineering support for range threat systems
- (U) $7,800 Continue Engineering and Development (EMD) of the Nellis Combat Training System (NACTS) (Contractor: Cubic Defense Systems, CA)
  - -- Continue NACTS software design through Final Design Review and incorporate into hardware, Not Separately Priced (NSP)
  - -- Continue proof of concept of Interim - NACTS (NSP)
  - -- Continue development of prototype Pod (NSP)
  - -- Initiate hardware and software testing (NSP)
  - -- Conduct SEEK EAGLE certification program as required (NSP)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604735F Combat Training Ranges PROJECT 2286

– (U) $1,060 Continue Advanced Message Oriented Data Security Module (AMODSM) development with the Navy (Contractor: Lockheed Martin, NJ, Navy contract)
– (U) $612 Begin development of aircraft interfaces between Air Combat Training Systems (ACTS) programs and AF platforms
– -- Establish interface contacts with McDonnell Douglas (F-15) and Lockheed Martin (F-16 Block 40 & 50)
– -- Initiate ACTS/Aircraft Combined Interface Control Working Group
– (U) $887 Begin ACTS Software Support Evaluation and Test (ASSET) capability at Eglin to support program office and range users (Contractor: ASI Corp, AL)
– -- Provide organic software and technical support for development programs (NSP)
– -- Evaluate contractor designs and testing of final system configurations (NSP)
– -- Analyze system performance to reduce program risk
– -- Provide rapid Prototyping to identify disconnects between user requirements and system performance (NSP)
– -- Initiate user support program to collect and correlate user problems and determine corrective action (NSP)
– (U) $12,744 Total

(U) FY 1997 ($ in Thousands):
– (U) $2,836 Continue CTR basic operating support, and system acquisition and engineering support for range and threat systems
– (U) $8,900 Continue EMD of NACTS
– -- Finalize NACTS software design (NSP)
– -- Initiate system integration and factory testing (NSP)
– -- Complete prototype flight testing (NSP)
– -- Initiate weapons simulation integration efforts (NSP)
– (U) $2,600 Begin interoperability improvements with the Navy to include software upgrades and weapons simulations
– (U) $465 Begin advanced threat development effort
– (U) $1,500 Finalize AMODSM development with the Navy and procure EMD units for development and test interface kits into ACTS Pods and training ranges
– (U) $1,200 Continue development and support of interface between ACTS programs and Air Force platforms (Contractors: F-16 (Lockheed Martin), F-15 (McDonnell Douglas)
– -- Establish interface agreements for F-16A/B, F-16 Block 30, A-10, and B-52 (NSP)
– -- Continue Interface Control Working Group activities (NSP)
– -- Establish Interface Memorandum of Agreement (MOA) with OO-ALC for F-16 Block 30, and F-16A/B (NSP)
– -- Establish MOA with SM-ALC for A-10 (NSP)
– -- Establish MOA with OC-ALC for B-52 (NSP)
– -- Exercise interface contract option with Lockheed Martin and McDonnell Douglas (NSP)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604735F Combat Training Ranges PROJECT 2286

- --- Conduct Combined Interface Control Working Group and Technical Interchange meetings (NSP)
- (U) $1,925 Continue ASSET efforts
- (U) $2,500 Begin efforts to ensure interoperability between the Navy's Joint Tactical Combat Training System (JTCTS) and Air Force unique requirements JTCTS Contractor: Raytheon, NJ (Navy Contract)
- (U) $21,926 Total

(U) FY 1998 ($ in Thousands):
- (U) $3,432 Continue CTR basic operating support, and system acquisition and engineering support for range and threat systems
- (U) $5,000 Complete NACTS EMD
- --- Complete and test final implementation of secure data link (NSP)
- --- Complete system site installation, integration and testing (NSP)
- --- Complete implementation of weapons simulation (NSP)
- --- Achieve Initial Operational Capability (IOC) April 98 (NSP)
- (U) $1,574 Continue interoperability improvements with existing Navy ranges to include software upgrades and weapons simulation development
- (U) $1,400 Continue development of aircraft interfaces with aircraft/Pod integration for range applications with aircraft program offices and aircraft manufactures
- (U) $6,000 Continue advanced threat system development effort
- (U) $1,000 Continue interoperability efforts with JTCTS for Air Force unique requirements
- (U) $1,925 Continue ASSET efforts
- (U) $20,331 Total

(U) FY 1999 ($ in Thousands):
- (U) $3,425 Continue CTR basic operating support, and system acquisition and engineering support for range and threat systems
- (U) $2,325 Continue interoperability improvements with existing Air Force and Navy ranges to include software, upgrades, and weapons simulation development
- (U) $1,200 Continue development of aircraft interfaces with aircraft/Pod integration for range applications with aircraft program offices
- (U) $6,000 Continue advanced threat system development effort
- (U) $1,925 Continue ASSET efforts
- (U) $14,875 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604735F Combat Training Ranges

PROJECT: 2286

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	10,418	16,098	24,020	14,085	TBD
(U) Appropriated Value	10,418	23,018			
(U) Adjustments to Appropriated Value					
a. Cong Reductions	-204	-517			
b. SBIR	-258	-575			
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming	+2,852				
e. Rescissions	-64				
(U) Adjustments to Budget Years Since FY 1997 PB			-3,689	+700	
(U) FY 1998 PB	12,744	21,926	20,331	14,785	TBD

(U) Change Summary Explanation:

Funding: Decrease in FY96 is due to the rescission to fund Bosnia and F-16s for Jordan
Increase in FY96 is to support the NACTS program
Decrease in FY98 fund higher Air Force priorities
Increase in FY99 due to an increased Air Force priority for Combat Ranges

Schedule: None

Technical: None

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) PE27429F: Appropriation: Other Procurement, AF (OPAF) Budget Activity: OPAF/Electronics & Telecommunications Equipment, Program Title: Combat Training Ranges.	5,348	12,820	16,282	16,432	19,638	34,745	32,510	31,871	Cont	TBD
(U) PE27429F: Appropriation: Aircraft Procurement, AF Budget Activity: Aircraft (A/C) Procurement/Other Production Charges, Program Title: Combat Training Ranges	3,658	21,203	10,110	17,567	18,768	20,188	20,171	20,257	Cont	TBD

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE: February 1997
BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE: 0604735F Combat Training Ranges — PROJECT: 2286

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999		
	1 2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Nellis Air Combat Training System (NACTS)															
(U) Complete Streamline Modification		X													
(U) Initial Design Review (IDR)			X												
(U) Final Design Review (FDR)				X											
(U) Complete System Integration and Factory Test						X									
(U) Complete Site Installation								X							
(U) Site Acceptance Testing									X	X					
(U) System Turnover Activity									X	X					
(U) IOC										X					
(U) Advanced Threats Development															
(U) Initiate New Acquisition				X											
(U) Contract Award									X						
(U) Contract Increment												X			
(U) Joint Service Range Software Interoperability															
(U) New Block Upgrade	X	X	X	X	X				X	X	X	X	X		
(U) New Block Upgrade Installation and Checkout					X	X	X	X	X				X	X	X
(U) Advanced Message Oriented Data Security Module (AMODSM)															
(U) Deliver Engineering Development Models (EDMs)					X										
(U) Exercise Production Option					X										
(U) Deliver Production Units (1/98-1/00)								X	X	X	X	X	X	X	X

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604735F Combat Training Ranges									PROJECT 2286	
(U) Aircraft/Pod Interface Development															
(U) F-16 Block 40 & 50 Interface Contract	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
(U) F-15 Interface Contract			X	X	X	X	X	X	X	X	X	X	X	X	X
(U) Initiate Combined Interface Control Working Group			X	X	X	X	X	X	X	X	X	X	X	X	X
(U) Establish Interface MOA w/OO-ALC				X	X	X	X	X	X	X	X	X	X	X	X
(U) Establish Interface MOA w/SM-ALC					X	X	X	X	X	X	X	X	X	X	X
(U) Establish Interface MOA w/OC-ALC						X	X	X	X	X	X	X	X	X	X
(U) ASSET Facility															
(U) Begin User Support Operation	X														
(U) Contract Award/Option			X	X				X							
(U) Begin Range Display Software Support			X												
(U) New Contract Award											X				

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604735F Combat Training Ranges PROJECT 2286

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Nellis Air Combat Training System (NACTS)	7,800	8,900	5,000	0
(U) Advanced Message Oriented Data Security Module (AMODSM)	1,060	1,500	0	0
(U) Aircraft Interface Development	612	1,200	1,400	1,200
(U) Advanced Threat Development	0	465	6,000	6,000
(U) Joint Service Interoperability Improvements	0	2,600	1,574	2,325
(U) ASSET Efforts	887	1,925	1,925	1,925
(U) JTCTS Interoperability Efforts	0	2,500	1,000	0
(U) Combat Training Ranges Program Office Operation Support	2,385	2,836	3,432	3,425
(U) Total	12,744	21,926	20,331	14,875

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Cubic Defense	C/CPAF/FFP	Mar95	26,704		11,097	6,484	6,900	2,223	0	0	26,704
Raytheon	Navy Contr	Mar95			0	0	1,900	600	0	0	2,500
Lockheed Martin	Navy Contr	FY95			1,706	860	1,270	0	0	0	3,836
ASI	S/CPAF	Sep96			0	350	1,000	1,000	1,000	Cont	TBD
Advanced Threats (Contractor TBD)	Unknown	Jan98			0	0	0	5,500	5,500	20,000	31,000

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604735F Combat Training Ranges

PROJECT: 2286

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Joint Interoperability Aircraft Interface	Navy Contract Through MOAs with ALCs & Aircraft SPO Contractors	Mar98			0	0	1,000	576	1,325	Cont	TBD
		Jun96			0	412	800	898	800	Cont	TBD
Support and Management Organizations											
ASC/WMR, Eglin AFB, FL	Various				1,824	3,063	4,826	5,492	4,095	Cont	TBD
NAWC, China Lake, CA	Various						1,300	700	700	Cont	TBD
Test and Evaluation Organizations											
ASC/WMR, Eglin AFB, FL	Various				470	935	2,290	2,702	725	Cont	TBD
46 Test Wing, Eglin AFB, FL	Various					640	640	640	640	Cont	TBD
Total Project					15,097	12,744	21,926	20,331	14,785	Cont	TBD

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE: February 1997
BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE: 0604735F Combat Training Ranges	PROJECT: 2286

(U) B. Budget Acquisition History and Planning Information Continued ($ in Thousands)

Government Furnished Property: NA

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Property										
None										
Subtotal Product Development				12,803	8,106	12,870	10,797	8,625	Cont	TBD
Subtotal Support and Management				1,824	3,063	6,126	6,192	4,795	Cont	TBD
Subtotal Test and Evaluation				470	1,575	2,930	3,342	1,365	Cont	TBD
Total Project				15,097	12,744	21,926	20,331	14,785	Cont	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604740F Computer Resources Management Technology (CRMT)*

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	8,688	1,862	1,459	1,485	1,652	1,786	1,731	1,733	Continuing	Continuing
2522 Advanced Computer Technology Transition	6,120	1,228	725	698	843	966	1,731	1,733	Continuing	Continuing
2523 Architectural Implementation	669	634	734	787	809	820	0	0	TBD	TBD
2524 Reuse and Component Support	1,899	0	0	0	0	0	0	0	TBD	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description and Budget Item Justification: This Budget Activity 5, Engineering and Manufacturing Development, program reduces software life cycle costs and improves the quality of computer systems development and support. This is the only Air Force program for transitioning software technology across the board within the Air Force, rather than into specific acquisition programs. Project 2522 establishes the foundational elements of an effective methodology to support transitioned capability. Project 2523 initially addresses a particular instantiation, namely command and control architectures, of reusable technology which are available or can be developed in the near-term. After FY 2001, this project should be mature enough for ongoing use by other developmental programs. Project 2524 addresses the technologies/processes inherent in operating and maintaining a domain central repository of software, software algorithms, and reusable technologies. The Central Archive for Reusable Defense Software (CARDS) program in Project 2524 develops a reuse blueprint for DoD and establishes a reuse library. CARDS was a Congressional special interest item for which Congress added funds in FY 1996.

*Correct name for this PE is Computer Resource Technology Transition (CRTT); however, the database still reflects the old name, CRMT. Action is being taken to correct the database.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604740F Computer Resources Management Technology (CRMT)*

(U) B. **Program Change Summary ($ in Thousands):**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	8,746	1,956	2,107	2,139	Cont
(U) Appropriated Value	9,166	1,956			
(U) Adjustments to Appropriated Value					
a. Congressional/General Reductions	-180	-44			
b. SBIR	-200	-48			
c. Omnibus/Other Above Threshold Reprogrammings	-98	-2			
(U) Adjustments to Budget Years			-648	-654	
(U) Current Budget Submit/FY 1998 PB	8,688	1,862	1,459	1,485	Cont

(U) Change Summary Explanation:

Funding: Changes since the previous President's Budget are due to budget constraints and Air Force priorities. Congress added $5 million for Software Design for Reliability and Reuse and $2 million for the Central Archive for Reusable Defense Software (CARDS) program, in FY 1996, which explain the perceived decrease in FY 1997 and out.

Schedule: Not Applicable.

Technical: Not Applicable.

(U) C. **Other Program Funding Summary**: Not Applicable.

(U) D. **Schedule Profile**: Not Applicable.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604740F Computer Resources Management Technology (CRMT)*

PROJECT: 2522

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
2522 Advanced Computer Technology Transition	6,120	1,228	725	698	843	966	1,731	1,733	Continuing	Continuing

(U) A. Mission Description and Budget Item Justification: Develops, through interaction with Air Force major commands (MAJCOMs), tools and technologies for improving the software development environment and processes, and accelerates transition of software technology to the users. Emphasis is on identifying software technology items that provide the best return in investment and setting up receptor groups at the user organizations that support transition and productization.

(U) FY 1996 ($ in Thousands):

- (U) 376 Continued to develop technology transition infrastructure within the Air Force.
- (U) 140 Continued funding Joint Logistics Commanders (JLC) activities in software re-engineering and modernization of obsolescent, expensive software.
- (U) 878 Improved and continued to implement Air Force-wide metrics repository.
- (U) 4,726 Developed tools for new software design method.
- (U) 6,120 Total

(U) FY 1997 ($ in Thousands):

- (U) 323 Continue to develop technology transition infrastructure within the Air Force.
- (U) 129 Continue funding JLC activities in software re-engineering and modernization of obsolescent, expensive software.
- (U) 776 Improve and continue to implement Air Force-wide metrics repository.
- (U) 1,228 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY **5 - Engineering and Manufacturing Development**	PE NUMBER AND TITLE **0604740F Computer Resources Management Technology (CRMT)***
	PROJECT **2522**

(U) FY 1998 ($ in Thousands):

–	(U)	182	Continue to develop technology transition infrastructure within the Air Force.
–	(U)	72	Continue funding Joint Logistics Commanders (JLC) activities in software re-engineering and modernization of obsolescent, expensive software.
–	(U)	471	Improve and continue to implement Air Force-wide metrics repository.
–	(U)	725	Total

(U) FY 1999 ($ in Thousands):

–	(U)	175	Continue to develop technology transition infrastructure within the Air Force.
–	(U)	70	Continue funding JLC activities in software re-engineering and modernization of obsolescent, expensive software.
–	(U)	453	Improve and continue to implement Air Force-wide metrics repository.
–	(U)	698	Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604740F Computer Resources Management Technology (CRMT)*
	PROJECT 2522

(U) B. **Program Change Summary ($ in Thousands):**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	6,177	1,292	1,367	1,345	Cont
(U) Current Budget Submit/FY 1998 PB	6,120	1,228	725	698	Cont

(U) Change Summary Explanation:

Funding: Changes since the previous President's Budget are due to budget constraints and Air Force priorities.

Schedule: Not Applicable.

Technical: Not Applicable.

(U) C. **Other Program Funding Summary**: Not Applicable.

(U) D. **Schedule Profile**: Not Applicable.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604740F Computer Resources Management Technology (CRMT)*
	PROJECT 2522

(U) A. **Project Cost Breakdown ($ in Thousands):**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Develop technology transition infrastructure	376	323	182	175
(U) Software re-engineering and modernization (Joint Logistics Commanders (JLC) activities)	140	129	72	70
(U) Air Force-wide metrics repository	878	776	471	453
(U) Develop tools for new software design method	4,726	0	0	0
(U) Total	6,120	1,228	725	698

(U) B. **Budget Acquisition History and Planning Information**: Not Applicable.

(U) C. **Funding Profile**: Not Applicable.

(U) D. **Schedule Profile**: Not Applicable.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604740F Computer Resources Management Technology (CRMT)*

PROJECT: 2523

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
2523 Architectural Implementation	669	634	734	787	809	820	0	0	TBD	TBD

(U) A. **Mission Description and Budget Item Justification**: This project develops, through rapid prototyping and interaction with Air Force users, a tailorable architecture for support of command and control applications. The architecture will address the components common to most command centers (e.g., message processing, display processing, user interfaces) and will focus on the migration of multilevel computer security applications/technologies into Air Force operations. This project is needed to mitigate development time associated with command center acquisitions so that the system is not obsolete when delivered. After FY 2001, this project should be mature enough for ongoing use by other developmental programs.

(U) FY 1996 ($ in Thousands):
- (U) 489 Updated tailorable command center architecture and continued to qualify software components.
- (U) 180 Continued identifying multilevel security issues/solutions, testing, analysis, and technology transition.
- (U) 669 Total

(U) FY 1997 ($ in Thousands):
- (U) 434 Develop architecture for Command Center Product Line (CCPL).
- (U) 200 Qualify products for CCPL.
- (U) 634 Total

(U) FY 1998 ($ in Thousands):
- (U) 444 Develop architecture for CCPL.
- (U) 290 Qualify products for CCPL.
- (U) 734 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604740F Computer Resources Management Technology (CRMT)*
	PROJECT 2523

(U) FY 1999 ($ in Thousands):
- (U) 391 Develop architecture for Command Center Product Line (CCPL).
- (U) 396 Qualify products for CCPL.
- (U) 787 Total

(U) B. Program Change Summary ($ in Thousands):

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	669	664	740	794	Cont
(U) Current Budget Submit/FY 1998 PB	669	634	734	787	TBD

(U) Change Summary Explanation:
Funding: Changes since the previous President's Budget are due to budget constraints and Air Force priorities.

Schedule: Not Applicable.

Technical: Not Applicable.

(U) C. Other Program Funding Summary: Not Applicable.

(U) D. Schedule Profile: Not Applicable.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604740F Computer Resources Management Technology (CRMT)*
	PROJECT 2523

(U) A. **Project Cost Breakdown ($ in Thousands):**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Update tailorable command center architecture/qualify software components	489	0	0	0
(U) Continue identifying multilevel security issues/solutions, testing, analysis, and technology transition	180	0	0	0
(U) Develop architecture for Command Center Product Line (CCPL)	0	434	444	391
(U) Qualify products for CCPL	0	200	290	396
(U) Total	669	634	734	787

(U) B. **Budget Acquisition History and Planning Information:** Not Applicable.

(U) C. **Funding Profile:** Not Applicable.

(U) D. **Schedule Profile:** Not Applicable.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604740F Computer Resources Management Technology (CRMT)*
	PROJECT 2523

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE: February 1997
BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE: 0604740F Computer Resources Management Technology (CRMT)*	PROJECT: 2524

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
2524 Reuse and Component Support	1,899	0	0	0	0	0	0	0	TBD	TBD

(U) A. Mission Description and Budget Item Justification: This project develops a documented knowledge for establishing software reuse libraries that support specific application domains. These libraries will support system engineers through the reuse of large-scale software components. This program is needed so that the Air Force can reuse software that it has already purchased by developing a central repository of software and software algorithms. Reusing software will result in lower software development costs, faster software development schedules, and lower software development risks. The Central Archive for Reusable Defense Software (CARDS) program develops a reuse blueprint for DoD and establishes a reuse library. CARDS was a Congressional special interest item for which Congress added funds in FY 1996.

(U) FY 1996 ($ in Thousands):
- (U) 1,899 Update and maintain software reuse library for command, control, communications, computer, and intelligence (C4I) systems.
- (U) 1,899 Total

(U) FY 1997: Not Applicable.

(U) FY 1998: Not Applicable.

(U) FY 1999: Not Applicable.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604740F Computer Resources Management Technology (CRMT)*
	PROJECT 2524

(U) B. **Program Change Summary ($ in Thousands):**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	1,900	0	0	0	Cont
(U) Current Budget Submit/FY 1998 PB	1,899	0	0	0	TBD

(U) Change Summary Explanation:

Funding: The Central Archive for Reusable Defense Software (CARDS) program develops a reuse blueprint for DoD and establishes a reuse library. CARDS was a Congressional special interest item for which Congress added funds in FY 1996.

Schedule: Not Applicable.

Technical: Not Applicable.

(U) C. **Other Program Funding Summary**: Not Applicable.

(U) D. **Schedule Profile**: Not Applicable.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604740F Computer Resources Management Technology (CRMT)*	PROJECT 2524

(U) A. **Project Cost Breakdown**: Not Applicable.

(U) B. **Budget Acquisition History and Planning Information**: Not Applicable.

(U) C. **Funding Profile**: Not Applicable.

(U) D. **Schedule Profile**: Not Applicable.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604750F Intelligence Equipment

PROJECT: 2053

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
2053 National Air Intel Center	1,256	1,167	1,287	1,326	1,403	1,374	1,398	1,431	Cont	TBD
Quantity of RDT&E Articles		0	0	0	0	0	0	0	0	0

(U) A. Mission Description and Budget Item Justification

Intelligence Equipment (IE) provides continuing development and upgrades of threat analysis capabilities of the National Air Intelligence Center (NAIC) and Air Force Information Warfare Center (AFIWC). Both organizations are tasked with providing detailed foreign technology intelligence information to a variety of both DOD and non-DOD customers. In the past few years, customers' requirements have been more sophisticated, dictating more detailed and timely intelligence not only in the technology regime but also in the economic, world crisis, and political arenas. IE provides NAIC and AFIWC with the tools necessary to produce timely intelligence of foreign weapon systems and develops the tools to model and assess foreign airborne and aerospace systems. This effort is Budget Activity 5, Engineering & Manufacturing Development, because the program develops and inserts new technology into existing systems and models to keep existing systems current.

(U) FY 1996 ($ in Thousands)
- (U) $ 148 Continue Model Synthesis Interface.
- (U) $ 196 Complete flexible IR Signature Techniques - FIST.
- (U) $ 276 Perform Air Surveillance C3 - web-based simulation.
- (U) $ 158 Complete Man-In-The-Loop Engagement Simulation.
- (U) $ 65 Complete Threat Engagement Analysis Model (TEAM) Upgrades
- (U) $ 413 Perform Advanced Migration Tools
- **(U) $1,256 Total**

(U) FY 1997 ($ in Thousands)
- (U) $ 180 Continue Model Synthesis Interface.
- (U) $ 150 Initiate Advanced Communication Network Modeling
- (U) $ 318 Initiate High Power Microwave Device Modeling
- (U) $ 250 Perform Low Observables Design Synthesis Tools (LODST) Upgrades for UAV
- (U) $ 269 Initiate Advanced Infrared Countermeasures Assessment
- **(U) $1,167 Total**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604750F Intelligence Equipment
	PROJECT 2053

(U) FY 1998 ($ in Thousands)
- (U) $ 180 Complete Model Synthesis Interface.
- (U) $ 400 Continue Advanced Communication Network Modeling
- (U) $ 400 Complete High Power Microwave Device Modeling
- (U) $ 307 Complete Advanced Infrared Countermeasures Assessment
- **(U) $1,287 Total**

(U) FY 1999 ($ in Thousands)
- (U) $ 120 Continue Advanced Communication Network Modeling
- (U) $ 400 Initiate Electromagnetic Antenna modeling
- (U) $ 356 Initiate Electro optic Tool Set
- (U) $ 450 Initiate Reference Threat Package Generation System
- **(U) $ 1,326 Total**

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY1999	Total Cost
(U) FY97 President's Budget	1,255	1,211	1,298	1,338	TBD
(U) Appropriated Value	1,294	1,211			
(U) Adjustments to Appropriated Value					
a . Cong Reductions	-25	-25			
b. Small Business Innovative Research		-19			
d. Recissions	-13				
(U) Adjustment to Budget Years Since FY1997 PB			-11	-12	
(U) FY 1998/1999 Biennial Budget	1,256	1,167	1,287	1,326	TBD

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604750F Intelligence Equipment	PROJECT 2053

(U) Change Summary Explanation: Not Applicable

(U) C. Other Program Funding Summary ($ in Thousands) - Not Applicable

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Model Synthesis Interface complete												X				
(U) Radio Frequency Weapons Modeling complete		X														
(U) Flexible Infrared Signature Techniques complete				X												
(U) Man-In-The-Loop Engagement Simulation complete				X												
(U) Threat Engagement Analysis Model (TEAM) Upgrades complete				X												
(U) Air Surveillance C3 - web based simulation complete						X										
(U) Advanced Migration Tools complete						X										
(U) Start Advanced Communication Network Modeling							X									
(U) Complete Low Observables Design Synthesis Tools Upgrades for UAVs								X								
(U) Complete High Power Microwave Device Modeling											X					
(U) Complete Advanced Infrared Countermeasures Assessment											X					
(U) Start Electro Magnetic Modeling													X			
(U) Start Electro Optic Tool Set														X		
(U) Start Reference Threat Package Generation System													X			

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604750F Intelligence Equipment

PROJECT: 2053

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Model Synthesis Interface	148	180	180	
(U) RF Weapons Modeling				
(U) Flexible IR Signatures Techniques (FIST)	196			
(U) Man-In-The-Loop Engagement Simulation (MILES)	158			
(U) Threat Engagement Analysis Model (TEAM) Upgrades	65			
(U) Air Surveillance C3 - web based simulation	276			
(U) Advanced Migration Tools	413			
(U) Advanced Communication Network Modeling		150	400	120
(U) LODST Upgrades for UAVs		250		
(U) High Power Microwave Device Modeling		318	400	
(U) Advanced Infrared Countermeasures Assessment		269	307	
(U Electromagnetic Modeling				400
(U) Electro Optic Tool Set				356
(U) Reference Threat Package Generation System				450
(U) Total	**1,256**	**1,167**	**1,287**	**1,326**

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
GRCI 93-C-0261/0	CPFF	30 Sep 93				118	120	120	0	Cont	TBD

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604750F Intelligence Equipment

PROJECT: 2053

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Rockwell 93-C-0142	CPFF	1 Apr 93				0	0	0	0	Cont	TBD
Photon Research 93-C-0182	CPFF	30 Sep 93				161	0	0	0	Cont	TBD
GRCI 93-C-0261/1	CPFF	24 Apr 93				120	0	0	0	Cont	TBD
GRCI/Sverdrup 93-C-0261/11	CPFF	16 Mar 95				45	0	0	0	Cont	TBD
McDonnell Douglas F33657-94-D-2277		30 May 96				354	0	0	0	Cont	TBD
GRCI/U of FL 93-C-0261/22	CPFF					250	0	0	0	Cont	TBD
Contractor TBD							857	967	1,116	Cont	TBD
Rome Laboratory						208	190	200	210	Cont	TBD

Support and Management Organizations - N/A

Test and Evaluation Organizations - N/A

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604750F Intelligence Equipment	PROJECT 2053

(U) B. Budget Acquisition History and Planning Information Continued ($ in Thousands)

Government Furnished Property:

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Property - N/A										
Support and Management Property - N/A										
Test and Evaluation Property - N/A										
Subtotal Product Development Subtotal Support and Management Subtotal Test and Evaluation				7,533	1,256	1,167	1,287	1,326	Cont	TBD
Total Project					**1,256**	**1,167**	**1,287**	**1,326**	**Cont**	**TBD**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604754F Joint Tactical Information Distribution System

PROJECT: P771

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
P771 JTIDS	9,077	29,321	8,557	8,616	9,155	9,402	9,577	9,795	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description and Budget Item Justification

Joint Tactical Information Distribution System (JTIDS) effort provides the Army, Navy, Air Force, and Marine Theater Command and Control (C2) elements with a secure, jam-resistant, high capacity data link communications system for use in a tactical combat environment. JTIDS is the communications component of the Tactical Digital Information Link (TADIL) designated Link-16, and is synonymous with the TADIL J message standard. The JTIDS family of terminals (Class 2 and 2H for the Air Force, Navy and Marine Corps; and 2M for Army) is a joint development program which employs Time Division Multiple Access (TDMA), and spread spectrum techniques. JTIDS permits rapid and secure exchange of essential command control, and status information with all terminals in the tactical theater. Host platforms (i.e. E-3, E-8, F-15, RIVET JOINT, ABCCC, MAOC, and MCE) program and budget for JTIDS production terminals. This program is in budget activity 5 - Engineering and Manufacturing Development because it supports development of integration solutions, interoperability, sustainment capabilities, and test efforts.

(U) **FY 1996**

– (U) **1,357** **PROGRAMS:** Efforts associated with Acquisition and Integration of Class 2/2H and Fighter Data Link (FDL) terminals

-- (U) Write and administer contracts for E-3, E-8, F-15, RIVET JOINT, COBRA BALL, ABCCC, MAOC, and MCE platforms.

-- (U) Command and Control (C2) Terminal Acquisition Support.

--- Determine terminal technical and configuration requirements.

--- Establish delivery schedule; establish maintenance plans.

--- Establish maintenance training schedules.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604754F Joint Tactical Information Distribution System PROJECT P771

– (U) **3,278** **INTEGRATION:** Efforts associated with integration of terminals into the various platforms.
-- (U) Ongoing integration support to AWACS, RIVET JOINT, ABCCC, MAOC, MCE, JSTARS, and F-22.
-- (U) Technical Improvements:
--- Technical support to AF Platforms to integrate Pre-Planned Product Improvements (P3I).
--- Assist in processing P3I efforts.
-- (U) Field Support for F-15 Operations.
--- Provide two Shelterized JTIDS Systems (SJSs) to Nellis AFB.
--- Support flight training, exercises, and scenario development/demonstrations.
--- Support Data Link Utility Evaluation through OSP and follow-on activities.
--- Support F-15 Electronic Combat Identification (CID) Development Test and Engineering (DT&E) and follow-on activities.
-- (U) Provide technical assistance to Boost Phase Intercept Programs.
--- High Gear Program: Testing sensor tracking of theater missile.
--- Airborne Interceptor: Establish procedures for intercepting theater missile.
-- (U) Begin Integration studies for Link 16: RADC, F-16, B-1, B-2 and B-52

– (U) **1,603** **INTEROPERABILITY:** Efforts associated with ensuring Link-16 operates effectively across all host platforms.
-- (U) AF platform interoperability.
--- Support Multi-Service Interoperability Tests.
--- Support All Service Combat Identification Evaluation Team (ASCIET) tests.
--- Support to Engineering Interoperability Review Groups (IORGS US/UK bilateral).
--- Support definition of Link-16 Network Structures.
-- (U) Network Support.
--- Air Force Network Design.
---- Provide Network Design Expertise.
---- Determine Network Design for Integration Testing.
---- Provide Network Design for Integration Testing.
---- Maintain AF Network Design Aid for Operations.
---- Evaluate Navy Network Design Aid for ACC Users.
--- Investigate internet-networking of JTIDS and Transport Control Protocol Internet Protocol Networks.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604754F Joint Tactical Information Distribution System PROJECT P771

- (U) **1,153** **SUSTAINMENT:** Efforts associated with ensuring fielded terminals are supported.
  - -- (U) ISSA technical engineering software support at Warner Robins AFB.
  - -- (U) Class 2/2H Technical Manual updates.
  - -- (U) Class 2 Log support (PRE-OP).
  - -- (U) Maintain and upgrade the SJSs, Link-16 Winnebagos.
  - -- (U) Maintain and upgrade the MULTI-LINK Translator and Display System (MTDS) prototype hardware.

- (U) **1,686** **TEST:** Efforts associated with fielding terminals.
  - -- (U) Support provided by the 46th Test Squadron.
    - --- Software Support.
    - --- Platform integration support.
    - --- Product improvement and special projects support.
    - --- Regression test and integration.
    - --- Product improvement/Development support.
- (U) **9,077** **TOTAL**

- (U) **FY1997**
- (U) **100** **PROGRAMS:** Efforts associated with Acquisition and Integration of Class 2/2H and Fighter Data Link.
  - -- (U) Class 2/2H Terminals.
    - --- Write and administrate contracts for E-3, E-8, F-15, RIVET JOINT, COBRA BALL, ABCCC, MAOC, and MCE platforms.
  - -- (U) Command and Control (C2) Terminal Acquisition Support.
    - --- Determine Terminal Technical and Configuration Requirements.
    - --- Establish delivery schedule.
    - --- Coordinate Spare Requirements.
    - --- Establish Maintenance Plans.
    - --- Establish Maintenance Training Schedules.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604754F Joint Tactical Information Distribution System PROJECT P771

– (U) 24,443 **INTEGRATION:** Continue efforts associated with integration of terminals into the various platforms.

-- (U) Ongoing integration support to AWACS, RIVET JOINT, ABCCC, MAOC, MCE, JSTARS, and F-22.

-- (U) Technical Improvements:

--- Technical support to AF Platforms to integrate Pre-Planned Product Improvements (P3I).

--- Assist in processing P3I efforts.

-- (U) Field Support for F-15 Operations.

--- Provide two SJSs to Nellis AFB.

--- Support flight training, exercises, and scenario development/demonstrations.

--- Support Data Link Utility Evaluation through Operational Special Project (OSP) and follow-on activities.

--- Support F-15 Electronic Combat Identification (CID) DT&E and Follow-on Activities.

-- (U) Provide technical assistance to Boost Phase Intercept Programs.

--- High Gear Program: Testing sensor tracking of Theater Missile.

--- Airborne Interceptor: Establish procedures for intercepting Theater Missile.

-- (U) Purchase MIDS terminals for early integration, testing, and prototype activity.

-- (U) Continue engineering studies for Link 16 into the F-16.

-- (U) Begin Link 16 engineering studies for platform development/upgrade on F-15.

-- (U) Conduct Link 16 engineering studies on secondary platforms: Joint Stars, AWACS, ABCCC, Rivet Joint, AFMSS, A-10, and B-1.

-- (U) Investigate approaches to implementing a modern, COTS-based, open systems architecture processor between Link 16 host system processors and Link 16 terminals through a generic interface processor study and demonstration.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604754F Joint Tactical Information Distribution System PROJECT P771

- (U) **3,689** **INTEROPERABILITY:** Efforts associated with ensuring Link-16 operates effectively across all Host Platforms.
  - -- (U) AF Platform Interoperability.
    - --- Support multi-service interoperability tests.
    - --- Support All Service Combat Identification Evaluation Team (ASCIET) tests.
    - --- Support to Engineering Interoperability Review Groups (IORGS US/UK bilateral).
    - --- Support definition of Link-16 network structures to support Interoperability.
    - --- Develop Enhanced Position Location Radio System (EPLRS)/Link-16 gateway.
  - -- (U) Network Support.
    - --- Air Force Network Design.
      - ---- Provide network design expertise.
      - ---- Determine network design for integration testing.
      - ---- Provide network design for integration testing.
      - ---- Maintain AF network design aid for operations.
      - ---- Evaluate Navy network design aid for ACC users.
    - --- Investigate internet-networking of JTIDS and transport control internet protocol networks.

- (U) **200** **SUSTAINMENT:** Efforts associated with ensuring fielded terminals are supported.
  - -- (U) ISSA technical engineering software support at Warner Robins AFB.
  - -- (U) Maintain and upgrade the SJSs, Link-16 Winnebagos.
  - -- (U) Maintain and upgrade the MULTI-LINK Translator and Display System (MTDS) prototype hardware.

- (U) **889** **TEST:** Efforts associated with fielding terminals.
  - -- (U) Support provided by the 46th Test Squadron.
    - --- Software support.
    - --- Platform integration support.
    - --- Product improvement and special projects support.
    - --- Regression test and integration.
    - --- Product improvement/development support.

- (U) **29,321** **TOTAL**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604754F Joint Tactical Information Distribution System PROJECT P771

– (U) **FY1998**

– (U) **103** **PROGRAMS:** Efforts associated with acquisition and integration of Link 16 terminals for Air Force platforms.
-- (U) Class 2/2H Terminals.
--- Administer contracts for Air Force platforms.

– (U) **5,403** **INTEGRATION:** Efforts associated with integration of Link 16 terminals into Air Force platforms.
-- (U) On-going engineering integration support to F-15C, AWACS, RIVET JOINT, ABCCC, MAOC, MCE, and JSTARS.
-- (U) Engineering integration support.
--- New platforms to include F-15E, F-16, F-22, B-1, B-2, B-52, A-10, F-117, and Joint Strike Fighter.
--- Perform initial evaluation for new mission areas.
--- Integration cost reduction initiatives for interface processor.
-- (U) Technical Improvements:
--- Technical support for integration of Class 2 terminal P3I efforts.
--- Technical support and demos for Link 16 capacity enhancements.
-- (U) Field Support.
--- Support special exercises and tests.
-- (U) Provide technical assistance to Link 16 Demonstration programs to include Project Strike (Link 16 delivery of information to support strikes on time critical targets).

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604754F Joint Tactical Information Distribution System PROJECT P771

– (U) **1,845** **INTEROPERABILITY:** Efforts associated with ensuring Link-16 operates effectively across all host platforms.
- -- (U) End-to-End operator interoperability.
  - --- Support Multi-Service operational tests.
  - --- Support exercises to include Roving Sands, All Service Combat Identification Evaluation Team (ASCIET), US/UK operations, and USAF deployments.
  - --- Provide engineering support to Interoperability Working Groups (IORGS, US/UK bilateral, MIDS).
  - --- Support definition of interoperable Link-16 Network Structures.
- -- (U) Network Support.
  - --- Support to Air Force Network Design Facility.
    - ---- Provide Network Design expertise and training.
    - ---- Provide Network Design guidelines.
    - ---- Provide Network Design for integration testing and engineering community demonstrations.
    - ---- Maintain AF Network Design Aid until replaced by Joint Service Design Aid.
    - ---- Evaluate Navy Network Design Aid for ACC Users.
  - --- Investigate internetworking of Link 16.
    - ---- Gateway to Transport Control Protocol Internet Protocol (TCP/IP) networks.
    - ---- Gateway to Intel Products (NTM platforms).

– (U **206** **SUSTAINMENT:** Efforts associated with ensuring fielded terminals are supported.
- -- (U) Technical engineering software support.
- -- (U) Maintain and upgrade the SJSs and Link-16 Winnebagos.
- -- (U) Maintain and upgrade the MULTI-LINK Translator and Display System (MTDS) prototype hardware.

– (U) **1,000** **TEST:** Efforts associated with fielding terminals.
- -- (U) Test Support.
  - --- Software version release field test.
  - --- Platform integration support.
  - --- Product improvement and Special projects support.
  - --- Regression test and integration.

– (U) **8,557** **TOTAL**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604754F Joint Tactical Information Distribution System PROJECT P771

- (U) FY1999
- (U) 106 **PROGRAMS:** Efforts associated with acquisition and integration of Link 16 terminals for Air Force platforms.
  - -- (U) Class 2/2H Terminals.
    - --- Administer contracts for Air Force platforms.

- (U) 5,568 **INTEGRATION:** Efforts associated with integration of Link 16 terminals into Air Force platforms.
  - -- (U) Ongoing engineering integration support to F-15C, AWACS, RIVET JOINT, ABCCC, MAOC, MCE, and JSTARS.
  - -- (U) Engineering integration support.
    - --- Platforms to include F-15E, F-16, F-22, B-1, B-2, B-52, A-10, F-117, and Joint Strike Fighter.
    - --- Perform initial evaluation for new mission areas.
    - --- Integration cost reduction initiatives for interface processor.
    - --- On going generic integration investigation.
  - -- (U) Technical Improvements:
    - --- Technical support for integration of Class 2 terminal P3I efforts.
    - --- Technical support and demos for Link 16 capacity enhancements.
  - -- (U) Field Support.
    - --- Support special exercises and tests.
  - -- (U) Provide technical assistance to Link 16 Demonstration programs to include Project Strike (Link 16 delivery of information to support strikes on time critical targets).

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604754F Joint Tactical Information Distribution System PROJECT P771

– (U) **1,690** **INTEROPERABILITY:** Efforts associated with ensuring Link-16 operates effectively across all host platforms.
- -- (U) End-to-End operator interoperability.
  - --- Support Multi-Service operational tests.
  - --- Support exercises.
  - --- Provide engineering support to Interoperability Working Groups.
  - --- Support definition of interoperable Link-16 Network Structures.
- -- (U) Network Support.
  - --- Support to Air Force Network Design Facility.
    - ---- Provide Network Design expertise and training.
    - ---- Provide Network Design guidelines.
    - ---- Provide Network Design for integration testing and engineering community demonstrations.
    - ---- Assist ACC in determining/developing requirements and verification testing for Joint Service Design Aid.
    - ---- Evaluate Navy Nertwork design Aid for ACC Users.
  - --- Investigate internetworking of Link 16.
    - ---- Gateway to Transport Control Protocol Internet Protocol (TCP/IP) networks.
    - ---- Gateway to Intel Products (NTM platforms).

– (U) **212** **SUSTAINMENT:** Efforts associated with ensuring fielded terminals are supported.
- -- (U) Technical engineering software support.
- -- (U) Maintain and upgrade the SJSs and Link-16 Winnebagos.
- -- (U) Maintain and upgrade the MULTI-LINK Translator and Display System (MTDS) prototype hardware.

– (U) **1,040** **TEST:** Efforts associated with fielding terminals.
- -- (U) Test Support.
  - --- Software version release field test.
  - --- Platform integration support.
  - --- Product improvement and Special projects support.
  - --- Regression test and integration.

– (U) **8,616** **TOTAL**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604754F Joint Tactical Information Distribution System
	PROJECT P771

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget (FY 1997)	10,146	11,075	9,449	9,525	TBD
(U) Appropriated Value		30,875			
(U) Adjustments to Appropriated Value					
a. General Congressional Reduction	-598	-786			
b. Small Business Innovative Research	-217	-768			
c. Omnibus and Other Above Threshold Reprogrammings	-204				
d. Below Threshold Reprogrammings					
e. Recissions	-50				
(U) Adjustments to Budget Years Since FY97 PB			-892	-909	
(U) Current Budget Submit/98 President's Budget	9,077	29,321	8,557	8,616	TBD

(U) Change Summary Explanation:

Funding: FY 1997 change is Congressional plus-up to accelerate Link 16 across multiple platforms
FY 1998/99 changes are due to FFRDC reduction, AQ cut, and Coral Convert Transfer.

Schedule: None

Technical: None

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Complete	Total Cost
(U) Other Proc AF, PE 27419F (ABCCC)	1,900	0	0	0	0	0	0	1,900
(U) Other Proc AF, PE 27417F (AWACS)	9,400	24,000	4,000	3,200	0	0	0	40,600
(U) Other Proc AF, PE 27412F (MCE)	0	0	22,100	15,000	0	0	0	37,100
(U) Other Proc AF, PE 35154F (AIA)	7,800	3,400	4,800	4,800	0	0	0	20,800

- (U) Related RDT&E:

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604754F Joint Tactical Information Distribution System PROJECT P771

(U)- Program Element #64770F E-8 (Joint STARS)
(U)- Program Element #27417F, E-3 (AWACS)
(U)- Program Element #27412F Modular Control Equipment (MCE)
(U)- Program Element #27419F Airborne Battlefield Command and Control Center (ABCCC)
(U)- Program Element #35154F AIA.

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Acquisition Milestones																
- Milestone III FRP Class 2/2H																
- LRIP Decision Class 2M																
- Milestone III FRP 2M						XX										
(U) T&E Milestones																
- F-15 OSP Complete																
- MCE IOT&E							XX									
- JSTARS IOT&E			XX													
- MS OT-III					XX											
- RIVET JOINT IOT&E			XX													
- IOT&E Class 2M					XX											
(U) Contract Milestones																
- FRP Class 2/2H																
- LRIP Contract Award Class 2M	XX															
- FRP Class 2M							XX									
- FRP II						XX										
- FRP III										XX						
- FRP IV														XX		

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604754F Joint Tactical Information Distribution System

PROJECT: P771

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Programs	1,357	100	103	106
(U) Integration	3,278	24,443	5,403	5,568
(U) Interoperability	1,603	3,689	1,845	1,690
(U) Sustainment	1,153	200	206	212
(U) Test	1,686	889	1,000	1,040
(U) Total	9,077	29,321	8,557	8,616

NOTE 1: In FY 1995 Interoperability is included in the Integration line.

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
GEC-MARCONI	FFP	DEC 85	80,727	80,727	60,170	374	0	0	0	Continue	TBD
LOCKHEED	FFP	JUN 93	3,373	3,373	4,661	0	0	0	0	0	4,661
GEC-MARCONI	FFP	JUN 93	850	850	850	0	0	0	0	0	850
CACD	FFP	JUN 93	1,072	1,072	1,072	0	0	0	0	0	1,072
MCAIR	CPFF	MAR 94	2,434	2,434	2,434	0	0	0	0	0	2,434

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604754F Joint Tactical Information Distribution System

PROJECT: P771

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
RADC	PO/616	Various	Various	Various	2,670	197	0	0	0	0	2,867
WR-ALC	PO/616	Various	Various	Various	2,509	457	254	0	0	0	3,220
NADEP	MIPR	Various	Various	Various	795	0	0	0	0	0	795
ACSI	FFP	SEP 94	445	445	445	47	0	0	0	0	492
TBD	Competitive	Various	Various	Various			8,911				
AF Platforms	PO/616	Various	Various	Various			1,031				
Navy-MIDS	MIPR	Various	Various	Various			2,500				
F-15 SPO	PO/616	Various	Various	Various			3,200				
ViaSat	FFP	Dec-96	300	300	0	300	75				
F-16 SPO	PO/616	Various	Various	Various	0	400	3,611				
B-52 SPO	PO/616	Various	Various	Various	0	150					
B-1 SPO	PO/616	Various	Various	Various	0	150					
Support and Management Organizations											
ESC	Various	Various	26,600	26,600	17,509	1,705	2,049	1,966	2,035	Continue	TBD
CONTRACTOR SUPPORT	Various	Various	52,457	52,457	37,390	2,375	1,576	1,293	1,214	Continue	TBD
MITRE	FPLOE	Various	89,854	89,854	75,194	2,146	5,225	4,298	4,327	Continue	TBD
Test and Evaluation Organizations											
MT HOME AFB	PO/616	Various	Various	Various	416						416
EGLIN AFB	PO/616	Various	Various	Various	50	776	889	1,000	1,040	Continue	TBD

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE: February 1997
BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE: 0604754F Joint Tactical Information Distribution System						PROJECT: P771
Government Furnished Property: NOT APPLICABLE							
Subtotal Product Development	75,606	2,075	19,582	0	0	Continue	TBD
Subtotal Support and Management	130,093	6,226	8,850	7,557	7,576	Continue	TBD
Subtotal Test and Evaluation	466	776	889	1,000	1,040	Continue	TBD
Total Project	206,165	9,077	29,321	8,557	8,616	Continue	TBD

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604770F JSTARS

PROJECT: 3551

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
3551 JSTARS	154,939	215,210*	0	0	0	0	0	0	0	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description and Budget Item Justification

NOTE: The FY96 and FY97 funds shown above are for PE 0604770F. For FY98 and subsequent years, the Joint STARS RDT&E funds were moved to PE 0207581F, Joint STARS, and are reported under that PE.

This program is in Budget Activity 5 - Engineering and Manufacturing Development, Research Category 6.5. There is an Air Force and Army need to provide, from airborne platforms, near-real time surveillance and targeting information on moving and stationary ground targets (growth to maritime operations), slow moving rotary and fixed wing aircraft, and rotating antennas. This information would enable operational and tactical commanders to make and execute battle decisions. To meet these needs, the Air Force and Army initiated the Joint Surveillance Target Attack Radar System (Joint STARS) program with the Air Force as lead service. Joint STARS will be capable of providing target information for pairing direct attack aircraft and standoff weapons against selected targets. The system will be capable of being cued by other reconnaissance, surveillance, and target acquisition systems; able to respond rapidly to worldwide contingencies; and provide surveillance and attack information in all light and near-all-weather conditions. The operational utility of the system was effectively demonstrated by the outstanding performance of two developmental aircraft in support of combat operations during Desert Storm. In Dec 1995 two developmental aircraft (one E-8A and one E-8C) were deployed in support of Operation Joint Endeavor in Bosnia. At a Defense Acquisition Board (DAB) Milestone III Review on 17 Sep 96, Full Rate Production of 19 aircraft was approved. In Nov 1996 two E-8Cs were again deployed in support of Operation Joint Endeavor. This time the first production aircraft and the test aircraft were deployed.

*FY97 funds include $6.3M realigned to PE 1001018F, NATO Alliance Ground Surveillance Program. Congressional approval has been requested for $21.6M reprogrammed from Appropriation 3010 aircraft procurement funds.

(U) FY 1996 ($ in Thousands):

- (U) 13,383 Continue E-8C follow-on development and testing program
- (U) 38,514 Continue Support Systems and Self Defense Suite (SDS)
- (U) 22,798 Continue Multi-Stage Improvement Plan (MSIP) and Crew Trainers Development
- (U) 32,645 Complete Post Delivery Test Support (PDTS) contract and start E-8C Follow-on Test Support (FOTS) contract
- (U) 44,099 Continue GFE, program support, test, and other miscellaneous efforts
- (U) 3,500 Start Life Cycle Cost Reduction Initiatives
- (U) 154,939 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604770F JSTARS PROJECT 3551

(U) FY 1997 ($ in Thousands):
- (U) 13,908 Continue E-8C follow-on development and testing program
- (U) 37,516 Continue Support Systems and Crew Trainer Development
- (U) 53,070 Continue SDS, E-8C FOTS, and MSIP
- (U) 58,616 Continue GFE, NATO, program support, test, and other miscellaneous efforts
- (U) 52,100 Continue Life Cycle Cost Reduction Initiatives
- (U) 215,210 Total

(U) FY 1998 ($ in Thousands): (Reported under PE 0207581F)

(U) FY 1999 ($ in Thousands): (Reported under PE 0207581F)

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY 1997 President's Budget	165,002	207,284			TBD
(U) Appropriated Value	182,202	203,784			
(U) Adjustments to Appropriated Value					
a. General Congressional Reductions	(5,566)	(5,075)			
b. Small Business Innovative Research	(4,035)	(5,099)			
c. Omnibus, Other Above Threshold Reprogramming	(7,859)				
d. Below Threshold Reprogramming	(1,193)				
e. Rescissions	(4,300)				
f. NATO Alliance Ground Surveillance (AGS) Prog.	(4,310)				
(U) Adjustments to Budget Since FY 1997 PB		21,600			
(U) FY 1998 President's Budget	154,939	215,210			TBD
(U) Change Summary Explanation					

Funding: The FY96 appropriation included a $20M increase for communications, a $12M reduction for tech order overrun, and a $4.5M increase for NATO for a net increase of $12.5M. Adjustments to the FY96 and FY97 funding are as stated above. The $21.6M adjustment to FY97 reflects a planned reprogramming (DD-1415) from Joint STARS Procurement for implementation of the Joint STARS Life Cycle (Skantze) Cost Reduction effort.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604770F JSTARS	PROJECT 3551

Schedule: The FY98 President's Budget contains funding for one E-8C in FY98 and two in FY99, a change from the March 96 report which showed procurement of two E-8Cs in FY98 and one in FY99.

Technical:

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Aircraft Procurement (BP 10)	467,816	536,866	336,391	671,268	593,702	517,974	407,583	36,448		5,438,638
(U) Quantities	2	2	1	2	2	2	2	0	0	19
(U) Modifications (BP 11)				72,854						72,854
(U) Initial Spares (BP 16)	68,753	0	35,139	95,188	65,311	52,740	36,133	27,817	14,665	494,951

Note: Procurement began with 2 aircraft in FY93, 2 in FY94, and 2 in FY95. Total cost figures include procurement funds starting in FY92.
NATO Alliance Ground Surveillance (AGS) funds are reported under PE A1001018F, NATO JSTARS.

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) MOT&E Start	X															
(U) First SDS Installation (Group A)		X														
(U) Depot Support Date			X													
(U) First Trng Squadron Ready for Trng				X												
(U) Required Assets Availability (RAA)						X										
(U) MOT&E Complete				X												
(U) Production Aircraft Deliveries			X*		X			X		X		X	X		X	
(U) Software Support Facility Delivery				X												
(U) Milestone III				X												
(U) Full Rate Production Contract Award							X									
(U) Organic Support Capability								X								
(U) IOC								X								
(U) Mature Reliability												X				
(U) Follow-On OT&E Start																X

* First Aircraft Delivery to ACC

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604770F JSTARS

PROJECT: 3551

NOTE: Joint STARS RDT&E funds for FY98 and out have been transferred from PE 0604770F to PE 0207581F. Funds reported are for PE 0604770F only. FY98 and later funds are reported under PE 0207581F.

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Product Development	76,124	141,163		
(U) Support and Management	35,080	32,886		
(U) Test and Evaluation	43,735	41,161		
(U) Total	154,939	215,210		

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
GMSD* F19628-85-C-0053	C/FPI	Sep 85	1,156,200	1,156,200	962,646						962,646
GMSD F19628-90-C-0197	SS/CPIF	Nov 90	843,226	843,226	770,949	25,172	47,105				843,226
GMSD F19628-91-C-0034	SS/CPIF	Oct 93	25,662	25,662	25,662						25,662
Boeing N0001983C0176	SS/FP	Jan 83	95,617	95,617	95,617						95,617
GMSD F19628-93-C-0067	SS/CPIF	Oct 93	107,925	107,925	74,087	23,536	10,302				107,925

* Grumman Melbourne Systems Division

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604770F JSTARS

PROJECT: 3551

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
SDS Studies		Various			4,026						4,026
Various Contracts											
MSIP Block I GMSD	Various	Various	6,559	6,559	6,506	53					6,559
Other Misc Studies	Various	Various	11,884	11,884	1,123	161	10,600				11,884
Depl Mission Spt Cap (DMSC) GMSD	SS/CPIF	Mar 97	600	600		600					600
Flt Crew Sim Dual and Assoc. F33657-93-C-0046	SS/CPAF/FFP	May 94	19,833	19,833	8,423	5,895	5,515				19,833
Maint Trainers	Various		33,723	33,723	16,996	16,725	2				33,723
MSIP Blk2 Upgr	TBD	TBD	39,819	39,819			39,819				39,819
Interop Certif Cap GMSD	SS/CPIF	Dec 96	24,757	24,757		3,578	21,179				24,757
NATO GMSD	SS/T&M	Feb 97	6,300	6,300			6,300				6,300
Support and Management Organizations											
MITRE F19628-85-C-0001		Ongoing			141,191	11,741	10,609				163,541
TEMS - Various		Ongoing			75,131	7,398	7,450				89,979
INFOTEC F19628-85-C-0022	C/FP	Apr 85			38,035						38,035
Other Spt & Mgt					129,247	15,941	14,827				160,015
Test and Evaluation Organizations											

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604770F JSTARS

PROJECT: 3551

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
3246 Test Wing	PO				23,756	1,038	1,066				26,040
Eglin AFB Range Spt - PO											
Elect Technical Lab - RVAN	MIPR				10,404						10,404
PDTS F19628-94-C-0040	SS/FFP	Jun 94	66,448	66,448	51,973	14,475					66,448
E-8C FOTS GMSD	SS/FFP/CPFF	Aug 96	68,469	68,469	16,045	20,270	32,154				68,469
JTF Support	Allotment				40,614	7,882	7,871				56,367
Other Test Spt		Ongoing			21,006	70	70				21,146
Product Development Property											
JTIDS			Ongoing		17,976	388	291				18,655
MILSTRIP/GFE	Various		Ongoing		5,456	16	50				5,522
GMSD											
Support and Management Property											
Test and Evaluation Property											
Subtotal Product Development					1,989,467	76,124	141,163				2,206,754
Subtotal Support and Management					383,604	35,080	32,886				451,570
Subtotal Test and Evaluation					163,798	43,735	41,161				248,694
Total Project					2,536,869	154,939	215,210				2,907,018

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604779F Joint Interoperability Tactical Command/Control

PROJECT: 2189

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
2189 JINTACCS	5,771	5,606	5,929	5,940	6,089	6,159	6,262	6,400	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description and Budget Item Justification

This program is in budget activity 5 - Engineering and Manufacturing Development, because it is designed to improve the interoperability of Tactical Command and Control (C2) Systems used in support of joint operations. JINTACCS supports Air Force participation with the Army, Navy and Marines, and the Joint Interoperability and Engineering Organization (JIEO) which acts as the Executive Agent. Service and agency activities are governed by Joint Chiefs of Staff (JCS) approved documentation including Technical Interface Concepts and Technical Interface Design Plans. Close liaison across each of the Service JINTACCS programs precludes duplication of efforts. Elements of the Tactical Air Control System, E-3 Airborne Warning and Control System (AWACS) and Joint Tactical Information Distribution System (JTIDS) participate in this program. The JINTACCS program, formerly Ground and Amphibious Military Operation (GAMO), is directed by JCS Memorandum 205-72, dated 1 April 1971, as modified by a Secretary of Defense memorandum, "Reorganization of the DoD Program to Achieve Interoperability of Tactical C2 Systems for GAMO," dated 2 Aug 1977. The program complies with requirements of DoD Directive 4630.5, "Compatibility, Interoperability, and Integration of Command, Control, Communications, and Intelligence (C3I) Systems," November 12, 1992, and DoD Instruction 4630.8, "Procedures for Compatibility, Interoperability, and Integration of C3I Systems," November 18, 1992. The JINTACCS program entails the compatibility and interoperability of C3 systems including tactical intelligence for joint or combined operations through the development and management of a joint architecture, requirements process, interface definitions, message text formats (MTFs), Tactical Digital Information Links (TADILs), and other combat data link standards. This includes the coordination of all combat data link and MTF testing certification and configuration management of standards efforts under one program element. This project supports the efforts to ensure C3 systems' interoperability among all the CINCs, DoD agencies, and the services. Development/certification testing is a pre-production requirement in accordance with DoDD 4630.5 and DoDI 4630.8.

(U) **FY 1996**

- (U) $ 175 Began Combat Air Forces (CAF) testing of Modular Control Element (MCE) Pre-Planned Product Improvements (P3I).
- (U) $ 150 Began CAF testing of Intelligence Advanced Development System (IADS).
- (U) $ 300 Began acquisition of JSTARS test equipment.
- (U) $ 200 Began integration of JSTARS Operations Facility (OPFAC) into test facility.
- (U) $ 600 Began development/evaluation of follow-on United States Message Text Format (USMTF) replacement.
- (U) $ 500 Began development of interactive USMTF tool.
- (U) $ 164 Continued exercise participation for expanded USMTF processing Proof-of-Concept.
- (U) $ 200 Continued Theater Battle Management (TBM) C4I architecture development/data model development.
- (U) $ 200 Continued technology exchange/integration with Joint Staff Global Command and Control System (GCCS) project.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604779F Joint Interoperability Tactical Command/Control
	PROJECT 2189

- (U) $ 100 Continued CAF preliminary testing of TADIL-J in Airborne Battlefield Command and Control Center (ABCCC) and E-3.
- (U) $ 200 Continued review of impact of emerging DoD data element standardization on USMTF standard.
- (U) $ 234 Continued feasibility analysis of ADA 9X for use in object-oriented prototype development.
- (U) $ 100 Continued acquisition of JTIDS Test Device (JTD)/enhancements.
- (U) $ 400 Continued development of automated test analysis system.
- (U) $ 300 Continued modification of message standards supporting Theater Missile Defense (TMD).
- (U) $ 166 Continued development of Digital Message Transfer Device (DMTD) and Variable Message Format (VMF) standards.
- (U) $ 300 Continued development of TADIL-J capability.
- (U) $ 500 Continued network design and aids development for JTIDS network design facility and architecture.
- (U) $ 482 Continued advanced MTF processing development.
- (U) $ 300 Continued expansion of MTF certification testing to fielded systems.
- (U) $ 200 Completed integration of MCE OPFAC into test facilities.
- (U) $ **5,771** **Total**

(U) **FY 1997**

- (U) **Testing**
- (U) $ 72 Direct Technical support (contractor support).
- (U) $ 168 Begin Joint testing of IADS.
- (U) $ 155 Continue acquisition of JTD/enhancements.
- (U) $ 100 Begin development of follow-on automated test tools.
- (U) $ 100 Continue CAF and Joint certification testing of ABCCC.
- (U) $ 100 Continue CAF and Joint certification testing of E-3.
- (U) $ 100 Continue CAF and Joint testing of ROCC/AWACS Digital Information Link (RADIL).
- (U) $ 300 Complete acquisition of JSTARS test equipment.
- (U) $ 225 Complete integration of JSTARS OPFAC into test facility.
- (U) **Message Text Formats**
- (U) $ 832 Message Text Standards Configuration Management (contractor support).
- (U) $ 277 NATO Message Text Standards configuration management.
- (U) $ 647 Future information exchange development efforts.
- (U) $ 60 Continue expansion of MTF certification testing to fielded systems.
- (U) **TADILs Management**
- (U) $ 646 TADIL configuration management (contractor support).
- (U) $ 554 Link 16 Migration support (contractor support).

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604779F Joint Interoperability Tactical Command/Control
	PROJECT 2189

- (U) $ 370 TADIL configuration management (contractor support).
- (U) $ 300 Continue development of TADIL documentation on CD-ROM.
- (U) $ 100 Continue modification of message standards supporting TMD.
- (U) $ 200 Continue development of DMTD, VMF, and TADIL J capability.
- (U) $ 100 Continue network design and aids development for JTIDS network design facility and architecture.
- (U) $ 200 Start hardware/software integration for F-15E, F-16 Block 50/52, and ROCC/SOCC.

(U) $ **5,606** **Total**

(U) **FY 1998**

- (U) **Testing**
- (U) $ 60 Direct technical support (contractor support).
- (U) $ 135 Continue CAF testing of JSTARS.
- (U) $ 135 Continue annual CAF and Joint certification testing requirements for IADS.
- (U) $ 85 Continue development of automated test tools.
- (U) $ 60 Continuing annual CAF and Joint certification testing requirements for E-3 Block 30/35 (TADIL A, B, J).
- (U) $ 60 Continuing annual CAF and Joint certification testing requirements for IADS (TADIL A, B).
- (U) $ 60 Continuing annual CAF and Joint certification testing requirements for E-3 Block 20/25 (TADIL A, B).
- (U) $ 60 Continuing annual CAF and Joint certification testing requirements for MCE (TADIL A, B).
- (U) $ 135 Begin annual CAF and Joint certification testing requirements for MCE P3I TADIL J/Link 16.
- (U) $ 60 Continuing annual CAF and Joint certification testing requirements for RADIL.
- (U) $ 135 Begin CAF and Joint certification testing for Senior Troupe (TADIL A, B).
- (U) $ 135 Begin CAF and Joint certification testing for Senior Scout (TADIL A).
- (U) $ 135 Begin CAF and Joint certification testing for CTAPS/TBMCS.
- (U) $ 60 Begin CAF and Joint certification testing for ABCCC (TADIL J).
- (U) $ 135 Begin CAF and Joint certification testing for Battlefield Situation Display (BSD) (TADIL A, B, J).
- (U) $ 100 Existing automated test tool upgrades (JTD, SMARTS).
- (U) **Message Text Formats**
- (U) $ 832 Message Text Standards configuration management (contractor support).
- (U) $ 277 NATO Message Text Standards configuration management (contractor support).
- (U) $ 647 Future information exchange development efforts.
- (U) $ 60 Direct technical support (contractor support).
- (U) $ 60 Continue expansion of MTF certification testing to fielded systems.
- (U) **TADILs Management**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604779F Joint Interoperability Tactical Command/Control PROJECT 2189

- (U) $ 992 TADIL configuration management (contractor support).
- (U) $ 554 Link 16 migration support (contractor support).
- (U) $ 275 TADIL configuration management (contractor support).
- (U) $ 94 Continue modification of message standards supporting TMD.
- (U) $ 94 Continue development of DMTD and VMF standards.
- (U) $ 100 Continue network design and aids development for JTIDS network design facility and architecture.
- (U) $ 120 Hardware/software integration technical support (contractor support).
- (U) $ 150 Continue hardware/software integration for F-15E, F-16 Block 50/52, ROCC/SOCC.
- (U) $ 50 Start hardware/software integration for F-16 Block 40/42.
- (U) $ 74 Continue development of TADIL documentation on CD ROM.

(U) $ **5,929** **Total**

(U) **FY 1999**

- (U) $ 1,608 **Testing**
- (U) $ 1,728 **Message Text Formats**
- (U) $ 2,604 **TADILs Management**

(U) $ **5,940** **Total**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604779F Joint Interoperability Tactical Command/Control
	PROJECT 2189

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget (FY1997)	6,356	5,976	6,174	6,226	TBD
(U) Appropriated Value	6,356	5,976			
(U) Adjustments to Appropriated Value					
a. General Congressional Reduction	-268	-223			
b. Small Business Innovative Research	-134	-147			
c. Omnibus and other Above Threshold Reprogrammings	-130				
d. Below Threshold Reprogrammings					
e. Recissions					
(U) Adjustments to Budget Years Since FY97 PB	-53		-245	-286	
(U) Current Budget Submit/98 President's Budget	5,771	5,606	5,929	5,940	TBD

(U) Change Summary Explanation:

Funding: FY 1998 and 99 reductions due to FFRDC cut.
Schedule: None.
Technical: None.

(U) C. Other Program Funding Summary ($ in Thousands) NOT APPLICABLE

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604779F Joint Interoperability Tactical Command/Control PROJECT 2189

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) CERTIFICATION TESTING																
- MCE P³I																
CAF			X													
Joint					X											
- IADS																
CAF			X													
Joint					X											
- JSTARS																
CAF							X									
Joint										X						
- E-3 AWACS												X				
CAF														X		
Joint																
(U) OPFAC INSTALL/INTEGRATION																
- ABCCC																
Complete																
- MCE P³I																
Complete		X														
- F-15E																
Begin										X						
Complete															X	
- JSTARS																
Begin		X														
Complete						X										

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604779F Joint Interoperability Tactical Command/Control PROJECT 2189

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Testing	1,525	1,320	1,550	1,608
(U) Message Text Formats	2,480	1,816	1,876	1,728
(U) TADILs Management	1,766	2,470	2,503	2,604
(U) Total	5,771	5,606	5,929	5,940

Above categories have been changed beginning in FY97 to more accurately reflect program content.

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

NOT APPLICABLE

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604851F ICBM EMD

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	179,685	202,153	137,944	86,990	30,371	0	0	0	0	1,201,365
133B Rapid Execution and Combat Targeting (REACT)	5,006	0	0	0	0	0	0	0	0	293,980
3085 Guidance Replacement Program (GRP)	112,607	115,961	66,943	20,993	0	0	0	0	0	547,731
4210 Propulsion Replacement Program (PRP)	62,072	83,434	71,001	65,997	30,371	0	0	0	0	356,896
13C4 Strategic C4 Program	0	2,758	0	0	0	0	0	0	0	2,758
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description and Budget Item Justification

(U) ICBM modernization efforts will extend the operational life of the Minuteman ICBM weapon system. The Rapid Execution and Combat Targeting (REACT) Program replaced unsupportable Minuteman launch control center equipment with a modern command, control, and communications system. The Guidance Replacement Program (GRP) will replace failing guidance system electronics. The Propulsion Replacement Program (PRP) will remanufacture solid fuel stages to correct age-related degradations and maintain existing weapon system reliability. The Strategic C4 (Command, Control, Communications, and Computers) Program will modernize the command, control, communications, and computer systems associated with assured force execution/termination of the ICBM forces. These efforts were defined and validated in DoD's Nuclear Posture Review.

(U) This program is in Budget Activity 5 - Engineering and Manufacturing Development, Research Category 6.4, because the projects are for service use and program control is exercised at the project level.

(U) Acquisition Strategy:

(U) REACT. This program covers the production and installation of the REACT Class V modification. The contractual vehicle, a fixed-price incentive (firm target)/award fee (FPIF/AF), was issued as a sole source acquisition. Deployment was completed in FY96.

(U) Guidance Replacement Program. An EMD contract was awarded to develop, test, and replace selected guidance electronics and software. A cost plus-award-fee (CPAF) contract was issued following full and open competition.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604851F ICBM EMD

(U) Propulsion Replacement Program. Planned acquisition will consist of all hardware and software modifications; integration and flight test support; delivery of remanufactured Stage 1, 2, and 3 motors; nuclear certification analysis tasks; and independent software certification. All contractual actions are sole source negotiated procurements using cost plus-award-fee (CPAF) contracts.

(U) Strategic C4. The program will initially focus on the modification and integration of existing Miniature Receive Terminals (MRT) into Modified Miniature Receive Terminals (MMRT) for use in ICBM launch control centers (LCC). The type of engineering and manufacturing development (EMD) contract, and the production contract are TBD. An acquisition strategy similar to that used for the E-4B/E-6B MEECN-sponsored MMRT program is anticipated.

(U) **B. Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	180,911	198,595	120,510	67,916	1,158,124
(U) Appropriated Value	192,719	212,295			
(U) Adjustments to Appropriated Value					
a. Cong Reductions	-3,773	-4,675			
b. SBIR	-5,210	-5,467			
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming	-4,051				
(U) Adjustments to Budget Years Since FY 1997 PB			17,434	19,074	
(U) Current Budget Submit/President's Budget	179,685	202,153	137,944	86,990	1,193,615

(U) Change Summary Explanation: See individual projects.

(U) **C. Other Program Funding Summary ($ in Thousands):**

Related RDT&E: None.

(U) **D. Schedule Profile:** See individual programs.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604851F ICBM EMD

PROJECT: 133B

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
133B Rapid Execution and Combat Targeting (REACT)	5,006	0	0	0	0	0	0	0	0	293,980

(U) A. **Mission Description and Budget Item Justification**

(U) Minuteman launch control centers (LCCs) have been deployed since the early 1960's. Since the original deployment, numerous communications and weapon system modifications have been installed on a stand-alone basis without consideration for human engineering interfaces and space limitations of the LCC. Additional communications requirements and changes in crew procedures have, over time, resulted in task saturation of the crew members. Air Force Material Command studies show that the weapon system control element is reaching the end of its useful life. Manufacturers no longer produce many of the replacement parts and computer memory capacity has reached its limits. The Rapid Execution and Combat Targeting (REACT) program was initiated in 1988 to address these concerns. The program combines five related efforts to improve maintainability, supportability, reliability, responsiveness and operability of the weapon system: weapon system controller hardware replacement, rapid message processing, rapid retargeting software, launch control center console integration, and missile procedures trainer computer replacement. The program will modify LCCs and associated trainers. The new weapon system control element provides significantly increased system capacity and eliminates supportability difficulties of the current weapon system controller. REACT will be integrated into both currently deployed versions of the Minuteman LCC (AM & B weapon systems). The rapid message processing element and rapid retargeting will streamline current procedures and provide greater flexibility for crew members responding to critical National Command Authority directives. The missile procedures trainer modification will reflect current operational configurations and ensure crew members receive maximum benefit from training time. This project sustains a fielded operational weapon system.

(U) FY 1996 ($ in Thousands):
- (U) $3,084 FAD of B system, B system deployment, Last Asset Delivery (LAD).
- (U) $1,922 Other
- (U) $5,006 Total

(U) FY 1997 ($ in Thousands): Not applicable

(U) FY 1998 ($ in Thousands): Not applicable

(U) FY 1999 ($ in Thousands): Not applicable

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604851F ICBM EMD

PROJECT: 133B

(U) B. **Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	3,988	0	0	0	292,962
(U) Appropriated Value	4,092	0			
(U) Adjustments to Appropriated Value					
a. Cong Reductions	-81				
b. SBIR					
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming	995				
(U) Adjustments to Budget Years Since FY 1997 PB					
(U) Current Budget Submit/President's Budget	5,006	0	0	0	293,980

(U) Change Summary Explanation:

Funding: FY96 funding reflects adjustments for RDT&E actuals.

Schedule: No change.

Technical: No change.

(U) C. **Other Program Funding Summary ($ in Thousands):**

Related RDT&E: None.

(U) D. **Schedule Profile**

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Last Asset Delivery (AM System)				X*												
(U) First Asset Delivery (B System)		X*														
(U) Last Asset Delivery (B System)				X*												

* Complete

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604851F ICBM EMD	PROJECT 133B

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) B Systems Test	1,819			
(U) Complete AM & B Deployment	1,265			
(U) Other	1,922			
(U) Total	5,006	0	0	0

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Loral	FFP/CPAF	4 Apr 89	160,200	159,200	288,974	3,084	0	0	0	0	292,058
Support and Management Organizations											
Other				0	0	1,922	0	0	0	0	1,922
Test and Evaluation Organizations											
None											

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604851F ICBM EMD	PROJECT 133B

Government Furnished Property:

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Property										
None										
Support and Management Property										
None										
Test and Evaluation Property										
None										
Subtotal Product Development				288,974	3,084					292,058
Subtotal Support and Management					1,922					1,922
Subtotal Test and Evaluation										
Total Project				288,974	5,006					293,980

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE: February 1997	
BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE: 0604851F ICBM EMD						PROJECT: 3085
COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
3085 Guidance Replacement Program (GRP)	112,607	115,961	66,943	20,993	0	0	0	0	0	547,731

(U) A. **Mission Description and Budget Item Justification**

(U) Ongoing Minuteman life extension efforts are required to extend the life of the Minuteman. The Joint Requirements Oversight Council validated the Mission Need Statement for a Future Guidance System for Intercontinental Ballistic Missiles (ICBM) on 5 November 1992. GRP replaces failing guidance system electronics, and preserves the option to configure the missiles with the Peacekeeper Mk 21 reentry vehicle and an advanced inertial measurement unit. The Engineering and Manufacturing Development (EMD) contract was awarded to Rockwell International in August 1993. GRP includes the EMD, production, and installation of replacement guidance components to extend the life of the operational Minuteman force. Funding reflected here is for EMD.

(U) FY 1996 ($ in Thousands):

- (U) $96,303 Hardware/software development.
- (U) $2,492 Nuclear safety cross check analysis and independent validation and verification.
- (U) $248 ICBM codes development.
- (U) $7,267 Systems engineering and technical support.
- (U) $564 Labs and support agencies.
- (U) $3,064 Testing and other engineering support.
- (U) $2,669 Other
- (U) $112,607 Total

(U) FY 1997 ($ in Thousands):

- (U) $90,335 Hardware/software development.
- (U) $4,805 Nuclear safety cross check analysis and independent validation and verification.
- (U) $1,400 ICBM codes development.
- (U) $6,745 Systems engineering and technical support.
- (U) $6,394 Labs and support agencies.
- (U) $6,282 Testing and other engineering support.
- (U) $115,961 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604851F ICBM EMD
	PROJECT 3085

(U) FY 1998 ($ in Thousands):

- (U) $34,308 Hardware/software development.
- (U) $4,438 Nuclear safety cross check analysis and independent validation and verification.
- (U) $572 ICBM codes development.
- (U) $4,824 Systems engineering and technical support.
- (U) $10,752 Labs and support agencies.
- (U) $12,049 Testing and other engineering support.
- (U) $66,943 Total

(U) FY 1999 ($ in Thousands):

- (U) $11,016 Hardware/software development.
- (U) $1,600 Nuclear safety cross check analysis and independent validation and verification.
- (U) $1,993 Systems engineering and technical support.
- (U) $2,981 Labs and support agencies.
- (U) $3,403 Testing and other engineering support.
- (U) $20,993 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	110,753	108,211	44,352	0	494,546
(U) Appropriated Value	120,755	121,911			
(U) Adjustments to Appropriated Value					
a. Cong Reductions	-2,364	-2,783			
b. SBIR	-5,210	-3,167			
c. Omnibus or Other Above Threshold Reprogram	-2,428				
d. Below Threshold Reprogramming	1,854				
(U) Adjustments to Budget Years Since FY 1997 PB			22,591	20,993	
(U) Current Budget Submit/President's Budget	112,607	115,961	66,943	20,993	547,731

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604851F ICBM EMD

(U) Change Summary Explanation:

Funding: FY98 and FY99 funding rephasing required for fact-of-life schedule and contract cost growth.

Schedule: Completion of operational model development/testing delayed; some acquisition/program milestones slipped (see Schedule Profile, R-2 Para D below).

Technical: No change.

(U) C. Other Program Funding Summary ($ in Thousands):

Related RDT&E: None.

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Program Milestones																
(U) Milestone III AFSARC													X			
(U) Engineering Milestones																
(U) PDR	X*															
(U) CDR								X								
(U) T&E Milestones																
(U) Combined DT&E/IOT&E Start										X						
(U) First Flight Test													X			
(U) Contract Milestones																
(U) Low Rate Initial Production										X						

* Complete

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604851F ICBM EMD PROJECT 3085

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Hardware/Software Development	96,303	90,335	34,508	11,016
(U) ICBM Codes Contract	248	1,400	572	0
(U) Nuclear Safety Cross Check Analysis Contract	2,492	4,805	4,438	1,600
(U) Labs/Agencies	564	6,394	10,752	2,981
(U) SETA	7,267	6,745	4,624	1,993
(U) Other Engineering Support & Testing	3,064	6,282	12,049	3,403
(U) Other	2,669			
(U) Total	112,607	115,961	66,943	20,993

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Boeing-North American	CPAF	31 Aug 93		409,053	183,727	96,303	90,335	34,508	11,016	0	415,889
Codes Contract				4,919	2,699	248	1,400	572	0	0	4,919
Support and Management Organizations											
NSCCA/IV&V	CPAF	31 Mar 94		19,761	6,130	2,492	4,805	4,438	1,600	0	19,465
SETA	CPAF	4 Jan 94		47,493	26,481	7,267	6,745	4,624	1,993	0	47,110
CSDL	FP	30 Jun 94		5,264	5,264	0	0	0	0	0	5,264
Other Engineering Support		31 Aug 93		42,089	6,402	5,476	10,783	13,003	6,339	0	42,003

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604851F ICBM EMD

PROJECT: 3085

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Test and Evaluation Organizations											
AGMC	PO			182	135	47	0	0	0	0	182
White Sands	PO			812	41	276	225	225	45	0	812
VAFB	PO/MIPR			8,919	236	283	0	8,400	0	0	8,919
Strategic Missile Integration Complex (SMIC)	PO			90	0	0	45	45	0	0	90
Maxwell	MIPR			37	37	0	0	0	0	0	37
Sandia	PO/MPIR			2,303	0	193	1,130	1,060	0	0	2,383
NSA	MIPR			75	75	0	0	0	0	0	75
Physics Int	MIPR			22	0	22	0	0	0	0	22
Little Mountain	PO			561	0	0	493	68	0	0	561

Government Furnished Property:

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Property										
None										
Support and Management Property										
None										
Test and Evaluation Property										
None										

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604851F ICBM EMD	PROJECT 3085

	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Subtotal Product Development	186,426	96,551	91,735	35,080	11,016		420,808
Subtotal Support and Management	44,277	15,235	22,333	22,065	9,932		113,842
Subtotal Test and Evaluation	524	821	1,893	9,798	45		13,081
Total Project	231,227	112,607	115,961	66,943	20,993		547,731

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604851F ICBM EMD

PROJECT: 4210

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4210 Propulsion Replacement Program (PRP)	62,072	83,434	71,001	65,997	30,371	0	0	0	0	356,896

(U) A. **Mission Description and Budget Item Justification**

(U) The Propulsion Replacement Program will remanufacture solid fuel stages to correct age-related degradations, maintain existing weapon system reliability, and support Minuteman life extension. Any of the degradations (propellant cracking, case corrosion, liner deterioration, inhibitor deterioration, and liner debond) can cause catastrophic motor failure and, in turn, mission failure. RDT&E efforts will identify replacement materials that are no longer available or which have become environmentally unacceptable, reduce life cycle costs, and identify corrections to age-related degradations. This project incorporates only changes that can be demonstrated in an appropriate time frame to ensure the Minuteman propulsion system continues to meet existing performance capabilities and remains viable and supportable. The project entered Phase 2 (Engineering Manufacturing and Development) in FY94.

(U) FY 1996 ($ in Thousands):

- (U) $22,245 Fabrication, tooling and waste disposal for change verification motors.
- (U) $21,784 Integration of program activities such as system engineering, program management, range support, AEDC testing, booster disassembly/assembly, booster transportation.
- (U) $17,821 Component reuse and materials replacement studies, continued stage design and development to include refurbishment.
- (U) $222 Other
- (U) $62,072 Total

(U) FY 1997 ($ in Thousands):

- (U) $25,368 Continue component reuse and materials replacement studies, continue stage design and development to include refurbishment.
- (U) $25,055 Integrate program activities such as system engineering, program management, range support, AEDC testing, booster disassembly/assembly, booster transportation.
- (U) $27,083 Continue fabrication, tooling and waste disposal for change verification motors.
- (U) $3,561 Begin software modification.
- (U) $1,900 Begin ordnance development effort
- (U) $467 Other
- (U) $83,434 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604851F ICBM EMD PROJECT 4210

(U) FY 1998 ($ in Thousands):

- (U) $21,148 Continue component reuse and materials replacement studies, continue stage design and development to include refurbishment.
- (U) $23,143 Integrate program activities such as system engineering, program management, range support, AEDC testing, booster disassembly/assembly, booster transportation.
- (U) $22,575 Continue fabrication, tooling and waste disposal for change verification motors.
- (U) $3,137 Continue software modification.
- (U) $998 Continue ordnance development effort
- (U) $71,001 Total

(U) FY 1999 ($ in Thousands):

- (U) $19,657 Continue component reuse and materials replacement studies, continue stage design and development to include refurbishment.
- (U) $21,509 Integrate program activities such as system engineering, program management, range support, AEDC testing, booster disassembly/assembly, booster transportation.
- (U) $20,983 Continue fabrication, tooling and waste disposal for change verification motors.
- (U) $2,919 Continue software modification.
- (U) $929 Continue ordnance development effort
- (U) $65,997 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	66,170	87,567	76,158	67,916	372,274
(U) Appropriated Value	67,872	87,567			
(U) Adjustments to Appropriated Value					
a. Cong Reductions	-1,328	-1,833			
b. SBIR	-374	-2,300			
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming	-4,098				
(U) Adjustments to Budget Years Since FY 1997 PB			-5,157	-1,919	
(U) Current Budget Submit/President's Budget	62,072	83,434	71,001	65,997	356,896

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604851F ICBM EMD

(U) Change Summary Explanation:

Funding: FY98-02 funding totals reflect adjustments to fund other AF and DoD priorities. FY97 spend plan revised based on FY96 accomplishments.

Schedule: No significant impact.

Technical: No significant impact.

(U) C. **Other Program Funding Summary ($ in Thousands):**

Related RDT&E: None.

(U) D. **Schedule Profile**

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Engineering Milestones																
(U) Stage PDR					X*											
(U) Stage CDR												X				
(U) T&E Milestones																
(U) Change Verification Test	X*	X*	X*	X*	X*	X	X	X								
(U) Contract Milestones																
(U) Software Contract Award					X*											
(U) DT&E/IOT&E										X	-----	-----	-----	-----	-----	--->
(U) LRIP																1Q00
(U) Milestone III																4Q00

* Complete

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604851F ICBM EMD
	PROJECT 4210

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Technology Insertion	54,209	63,078	48,869	46,538
(U) Software	0	3,981	5,780	4,712
(U) Other Program Costs	0	2,617	5,033	8,893
(U) SETA	6,639	7,983	8,312	5,854
(U) ECO	0	2,691	200	0
(U) Risks	1,002	2,617	2,807	0
(U) Other	222	467	0	0
(U) Total	62,072	83,434	71,001	65,997

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Thiokol	SS CPAF	Aug 94	91,739	91,739	9,820	15,250	25,110	16,849	17,332	4,941	89,302
Aerojet	SS CPAF	Jul 94	88,670	88,670	12,843	16,495	19,231	14,465	15,035	8,164	86,233
CSD	SS CPAF	Jul 94	93,083	93,083	11,993	22,464	18,737	17,555	14,171	5,729	90,649
Ordnance	C CPAF	2QFY97	TBD	6,419	0	0	1,953	2,800	1,900	0	6,653
Software	C CPAF	1QFY97	TBD	16,515	0	0	3,981	5,780	4,712	1,640	16,113
Support and Management Organizations											
TRW	SS CPAF	Oct 94	n/a	36,343	5,214	6,639	7,983	8,312	5,854	592	34,594
Program Integration			n/a	n/a	380	213	4,256	3,280	0	2,074	10,203
Other						222	467				689

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604851F ICBM EMD

PROJECT: 4210

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Test and Evaluation Organizations											
AEDC	PO	Periodic	n/a	n/a	487	789	1,716	1,960	2,247	2,380	9,579
Range (VAFB)	PO	Nov 99	n/a	n/a	0	0	0	0	4,746	4,851	9,597
Phillips Lab	PO		n/a	n/a	15	0	0	0	0	0	15

Government Furnished Property:

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Property										
None										
Support and Management Property										
None										
Test and Evaluation Property										
None										
Subtotal Product Development				34,656	54,209	69,012	57,449	53,150	20,474	288,950
Subtotal Support and Management				5,594	7,074	12,706	11,592	5,854	2,666	45,486
Subtotal Test and Evaluation				502	789	1,716	1,960	6,993	7,231	19,191
Total Project				40,752	62,072	83,434	71,001	65,997	30,371	353,627

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604851F ICBM EMD

PROJECT: 13C4

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
13C4 Strategic C4 Program	0	2,758	0	0	0	0	0	0	0	2,758

(U) A. Mission Description and Budget Item Justification

(U) The Strategic C4 Program will modernize the command, control, communications and computers (C4) systems associated with assured force execution and/or termination of the ICBM forces. The program will initially focus on modification and integration of existing government furnished Miniature Receive Terminals (MRT) for use in ICBM launch control centers (LCCs). The MRT is a VLF receiver that is already designed, developed, and installed in the B-1B and B-52 bombers. This program will use assets no longer required by the B-1B and B-52. Effective in FY98, all future MMRT development will be accomplished under PE 0303131F, Minimum Essential Emergency Communications Network (MEECN), BPAC 2832, VLF/LF System Improvements.

(U) FY 1996 ($ in Thousands): Not Applicable.

(U) FY 1997 ($ in Thousands):
- (U) $2,758 MMRT modification and integration into ICBM LCCs
- (U) $2,758 Total

(U) FY 1998 ($ in Thousands): Future work to be performed under MEECN (PE 0303131F)

(U) FY 1999 ($ in Thousands): Future work to be performed under MEECN (PE 0303131F)

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	0	2,817	0	0	2,817
(U) Appropriated Value	0	2,817			
(U) Adjustments to Appropriated Value					
a. Cong Reductions		-59			
b. SBIR					
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
(U) Adjustments to Budget Years Since FY 1997 PB					
(U) Current Budget Submit/President's Budget	0	2,758	0	0	2,758

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604851F ICBM EMD PROJECT 13C4

(U) Change Summary Explanation: FY97 funding reflects congressionally mandated reductions.

(U) **C. Other Program Funding Summary ($ in Thousands):**

Related RDT&E: None.

(U) **D. Schedule Profile**

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) MMRT development for ICBM LCCs					X	-----	-----	-----	(Future work to be performed under MEECN (PE 0303131F)							

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604851F ICBM EMD	PROJECT 13C4

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Development of MMRTs for ICBM LCCs	0	2,758	0	0
(U) Total	0	2,758	0	0

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
TBD	TBD	TBD		2,758	0	0	2,758	0	0	0	2,758
Support and Management Organizations											
None											
Test and Evaluation Organizations											
None											

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604851F ICBM EMD	PROJECT 13C4

Government Furnished Property:

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Property										
None										
Support and Management Property										
None										
Test and Evaluation Property										
None										
Subtotal Product Development						2,758				2,758
Subtotal Support and Management										
Subtotal Test and Evaluation										
Total Project						2,758				2,758

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604853F Evolved Exp Launch Veh - EMD (Space)

PROJECT: 0004

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
0004 EELV EMD	0	0	28,376	293,950	324,891	232,991	256,797	419,280	162,200	1,718,485
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. **Mission Description and Budget Item Justification:**
The Evolved Expendable Launch Vehicle (EELV) program is a space launch system development program. The purpose of this program is to replace the current fleet of medium to heavy-lift class expendable launch vehicles (Titan II, Delta II, Atlas II, and Titan IV) with a more affordable family of space launch vehicles. With a nonrecurring development cost of $2 billion, EELV is projected to save 25-50 percent over the current fleet of expendable launch vehicles during a 20 year period. Program content includes the development of the system design, demonstrations of key technologies, modifications to industrial capability and launch facilities, and demonstration launches of both medium and heavy-lift EELV variants. In accordance with the approved EELV acquisition strategy, portions of the EMD contract funds will fund modification and construction of RDT&E launch facilities at both Cape Canaveral AS (CCAS) FL and Vandenberg AFB (VAFB) CA. The EELV family of vehicles must be capable of meeting the Government's spacelift needs (DoD, intelligence, and other government missions) through at least 2020, as defined in the National Mission Model. The first operational launch for the Medium-Lift Variant (MLV) is required by FY02 to support satellite block changes and transitions. The first operational capability for the Heavy-Lift Variant (HLV) is required by FY05 to provide for continued assured access to space following the Titan IV phaseout. The program is in Budget Activity 5, Engineering and Manufacturing Development, because it supports engineering and manufacturing development of the EELV concept leading to deployment of a lower cost expendable launch vehicle system.

(U) **Acquisition Strategy:**
The EELV concept of a family of launch vehicles emphasizes commonality of hardware and infrastructure and economies of scale to enhance production, operations, and support efficiencies. Cost improvements will be achieved through commonality, consolidation, reduction of supporting infrastructure (launch pads, manufacturing facilities, workforce), and optimization of production and launch operations, processes, and rates. Development contracts will be competitively awarded. Downselect to a single EELV contract/concept is planned at the EMD decision point (third quarter FY98). Production contracts will be sole source to the EELV EMD contractor.

(U) **FY 1996**
– (U) $0 Not Applicable. EELV was funded in PE 0603853F in FY 1996 and FY1997.

(U) **FY 1997**
– (U) $0 Not Applicable. EELV was funded in PE 0603853F in FY 1996 and FY 1997.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604853F Evolved Exp Launch Veh - EMD (Space)
	PROJECT 0004

(U) FY 1998

- (U) $9,900 Competitively award a single EMD contract in mid 1998. Contract will span through FY04. If EMD contractor does not complete the Tailored Critical Design Review (TCDR) in Pre-EMD, then TCDR will be completed under this contract.
- (U) $15,000 Portion of EMD contract funds that will fund modification and construction of launch facilities at both Cape Canaveral AS (CCAS) FL and Vandenberg AFB (VAFB) CA. Actual modification costs are pending final downselect of EMD contractors. Includes Project Numbers XUMU983006 and DBEH983007.
- (U) $3,476 Program management and other support costs.
- (U) $28,376 Total

(U) FY 1999

- (U) $117,100 Continue EMD contract.
- (U) $150,000 Portion of EMD contract funds that will fund modification and construction of launch facilities at both CCAS FL and VAFB CA. Actual modification costs are pending final downselect of EMD contractors.
- (U) $26,850 Program management and other support costs.
- (U) $293,950 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Previous President's Budget			93,500	297,915
(U) Appropriated Value				
(U) Adjustments to Appropriated Value				
a. Congressional General Reductions				
b. Small Business Innovative Research				
c. Omnibus or other above threshold reprogramming				
d. Below Threshold Reprogramming				
(U) Adjustments to Budget Years Since FY97 PB			-65,124	-3,965
(U) Current Budget Submit/President's Budget			28,376	293,950

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604853F Evolved Exp Launch Veh - EMD (Space)
	PROJECT 0004

(U) **Change Summary Explanation:**

- Funding: FY98 funds were reduced by $63.260 million and transferred to PE 0603853F (EELV Dem/Val program element) to reflect the approved schedule for the pre-EMD phase. The pre-EMD phase will run from December 1996 to May 1998. The change is required to implement the approved acquisition strategy as documented in the Single Acquisition Management Plan (SAMP).
- Schedule: Not Applicable.
- Technical: Not Applicable.

(U) C. **Other Program Funding Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Comp	Total
(U) National User (non-AF budget)	72,300	18,600	7,100							98,000
(U) Missile Procurement, AF (PE 030593F)					245,428	285,471	171,951	303,782	Cont.	Cont.
Related RDT&E:										
(U) EELV EMD (PE 0603853F).	36,894	42,333	63,260	0	0	0	0	0	0	172,533
(U) EELV (Space) (PE 0305953F)				3,383	3,480	3,577	2,398	795	Continue	Continue
(U) Medium Launch Vehicles (PE 0305119F).										
(U) Titan Space Launch Vehicles (PE 0305144F).										

(U) D. **Schedule Profile**

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
EMD Module																
(U) Defense Acquisition Board											X					
(U) EMD contract award											X					
(U) Tailored Critical Design Review completed No Later Than date Dec 98												X				
(U) Low Rate Initial Production start planned for 1st quarter FY00																
(U) System Test Flight #1 (MLV) planned for FY01																
(U) System Test Flight #2 (HLV) planned for FY03																

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604853F Evolved Exp Launch Veh - EMD (Space)
	PROJECT 0004

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) EMD Contract			24,900	267,100
(U) Mission Support			3,476	26,850
(U) Total			28,376	293,950

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Prime Contract	C/CP (EMD)	Jun 98			0	0	0	24,900	267,100	1,265,100	1,557,100
Support and Management Organizations											
SPO Mission Spt	Various	Various	N/A	N/A	0	0	0	276	1,750	4,200	6,226
FFRDC	CPAF	FY95	N/A	N/A	0	0	0	1,200	5,400	29,400	36,000
Ranges	Various	Various	N/A	N/A	0	0	0	0	200	1,300	1,500
Other Cntr Spt	Various	Various	N/A	N/A	0	0	0	2,000	19,500	96,159	117,659
Test and Evaluation Organizations											
Not Applicable					0	0	0	0	0	0	0

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE: February 1997
BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE: 0604853F Evolved Exp Launch Veh - EMD (Space)		PROJECT: 0004

(U) B. Budget Acquisition History and Planning Information Continued ($ in Thousands)

Government Furnished Property: Not Applicable

Subtotal Product Development	0	0	0	24,900	267,100	1,265,100	1,557,100
Subtotal Support and Management	0	0	0	3,476	26,850	131,059	161,385
Subtotal Test and Evaluation	0	0	0	0	0	0	0
Total Project	0	0	0	28,376	293,950	1,396,159	1,718,485

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0603402F Space Test Program (Space)

PROJECT: 2617

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
2617 Free Flyer Spacecraft Missions	44,731	43,439	42,241	56,157	51,748	53,536	55,360	57,444	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. **Mission Description and Budget Item Justification**

(U) Space Test Program (STP) is a Budget Activity 6 RDT&E Management Support program. It provides support to the DoD space research community by centrally financing the launch and initial operations costs for experiments with military relevance whose scope ranges from basic research to advanced development. STP missions are the most cost-effective way to flight test new space systems technologies, concepts and designs, providing an inexpensive way to:

- Demonstrate the feasibility of new space systems and technologies,
- Improve operational design by characterizing the space environment and event or sensor physics proposed for an operational system or system upgrade,
- Provide early operational capabilities to evaluate usefulness or quickly react to new developments,
- Perform operational risk reduction through direct flight test of prototype components,
- Develop the knowledge base from which to plan new and improved operational systems and system upgrades, and
- Exploit unanticipated discoveries and opportunities.

This DoD program provides the primary spaceflight capability to perform fly-before-buy, risk-reducing demonstrations of advanced technologies in operational space environments. The Secretary of Defense issued a policy statement in November 1995 reaffirming STP's role as the primary provider of spaceflight for the entire DoD space research community.

(U) The space research experiments that STP supports are justified, developed and delivered by various Service laboratories and DoD agencies, with the goal of improving DoD's current and future operational space systems' performance. Experiments are considered for spaceflight based on the priority that they are assigned by a DoD Space Experiments Review Board, a group that is independent of the STP Program Office, and is comprised of Air Force, Army, Navy, BMDO and other representatives with expertise in DoD operational space requirements. The Board gives the prioritized list of experiments to STP, who then seeks out the most cost effective means of spaceflight so as to maximize the number of experiments flown within the constraints of priority, opportunity and available funding. The most common spaceflight opportunities include piggybacking on military or commercial satellites, both foreign and domestic, and the various payload modes of the Space Shuttle. For those experiments whose requirements cannot be satisfied with these "secondary" opportunities, dedicated STP spacecraft and launch vehicle hardware are procured within the constraints of available funding and according to experiment requirements. These include Small and Medium Launch Vehicle class satellites, as well as Small Launch Vehicle class boosters (such as Pegasus, Taurus, and LMLV) themselves. Medium Launch Vehicle class boosters are provided as required by PE 35119F. If a particular manifested experiment fails to materialize or is deemed impractical to fly given current funding, or if the appropriate spaceflight opportunity becomes unavailable, STP shifts what resources remain to provide spaceflight support for the next highest priority experiments.

(U) The Air Force requires a stable funding level and the flexibility necessary to take advantage of whatever means of spaceflight is deemed to be most cost effective for a given experiment or complement of experiments. This flexibility is essential to take advantage of inexpensive "target of opportunity" space hardware, including

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0603402F Space Test Program (Space)
	PROJECT 2617

operational spacecraft, where margin is usually firmly identified during the later stages of spacecraft development. This assures that the greatest amount of DoD space research is accomplished with the limited funds available. Without the requested funding, DoD would lose its most successful and most cost-effective capability to launch and test new technologies prior to their incorporation into our nation's very expensive and demanding operational space systems. Insufficient funding would also force each of the Services and DoD agencies to create individual launch capabilities in an attempt to duplicate STP's current low-cost, risk mitigating capability. Such a redundancy would result in the loss of the contractual economy of scale that a single space test organization provides, as well as the filtering function of the STP Space Experiment Review Board in assuring quality experiments and minimum duplication.

(U) FY 1996

- (U) $ 9,622 Piggyback/secondary payload launch/mission studies, Aerospace support, mission support, Program Office support, and contract close-out costs.
- (U) $ 2,516 Space Shuttle payload engineering, analysis, pre- and post-launch processing, and launch support.
- (U) $32,148 Development and construction of Space Test Experiments Platform Mission 4 (STEP-4), Advanced Research & Global Observation Satellite (ARGOS), and Tri-Service Experiments Mission 5 (TSX-5) satellites; incremental funding of Pegasus XL boosters, and booster integration for STEP-4 and the Fast On-Orbit Recording of Transient Events (FORTE) missions.
- (U) $ 445 Launch processing and initial operations support for Radiation Experiment II (REX II) mission.
- (U) $44,731 Total

(U) FY 1997

- (U) $11,638 Piggyback/secondary payload launch/mission studies, Aerospace support, mission support, and Program Office support.
- (U) $13,539 Completion of STEP-4 and ARGOS satellites; launch processing and initial operations support for STEP-4, ARGOS, and FORTE missions.
- (U) $ 2,815 Space Shuttle payload engineering, analysis, pre- and post-launch processing, and launch support.
- (U) $15,447 Continue development of TSX-5 satellite and launch service; incremental funding of Taurus for Multispectral Thermal Imager (MTI) mission.
- (U) $43,439 Total

(U) FY 1998

- (U) $13,004 Piggyback/secondary payload launch/mission studies, Aerospace support, mission support, and Program Office support.
- (U) $ 4,350 Contract close-out and operations support for ARGOS and STEP-4.
- (U) $ 2,900 Space Shuttle payload engineering, analysis, pre- and post-launch processing, and launch support.
- (U) $21,987 Complete development of TSX-5; begin development of TSX-6 and first EELV mission (dedicated STP mission); incremental funding of Taurus for MTI mission; launch processing and initial operations support for TSX-5 mission.
- (U) $42,241 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0603402F Space Test Program (Space)
	PROJECT 2617

(U) FY 1999

- (U) $ 12,193 Piggyback/secondary payload launch/mission studies, Aerospace support, mission support, and Program Office support.
- (U) $ 3,000 Space Shuttle payload engineering, analysis, pre- and post-launch processing, and launch support.
- (U) $ 15,961 New mission studies/development. (Experiments to be selected based on 1997 and 1998 Space Experiments Review Board results.)
- (U) $ 25,003 Close out TSX-5 contract; continue development of TSX-6 and EELV missions; launch processing and initial operations support of MTI mission.
- (U) $ 56,157 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Previous President's Budget	45,032	44,752	45,731	46,701
(U) Appropriated Value		44,752		
(U) Adjustments to Appropriated Value				
a. Cong Gen Reductions		-1,174		
b. SBIR		-139		
c. Omnibus or Other Above Threshold Reprogram				
d. Below Threshold Reprogramming	-13			
e. Rescission	-288			
(U) Adjustments to Budget Years Since FY97 PB			-3,490	9,456
(U) Current Budget Submit/President's Budget	44,731	43,439	42,241	56,157

(U) Change Summary Explanation:

Funding: FY96 reductions for higher priority Air Force requirements. FY98-FY03 dollars increased due to PDM I adds. FY98 dollars rephased into FY99 by OSD because of execution.

Schedule: Not applicable.

Technical: Not Applicable.

(U) C. Other Program Funding Summary ($ in Thousands):

Related RDT&E:

(U) PE #305119F, Medium Launch Vehicles

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0603402F Space Test Program (Space)
	PROJECT 2617

Experiments are funded by many S&T PE's in: Air Force, Army, Navy, ARPA, BMDO, DoE, NASA, and NRO programs.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0603402F Space Test Program (Space)

PROJECT: 2617

(U) D. Schedule Profile (Current projection. Experiments are added as new spaceflight opportunities and budget permits)

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) STS-72 FLEX BEAM, STL/NIH-C (P93-6)		X														
(U) REX II (P94-2)		X														
(U) BINRAD (COSMOS) (P93-1)		X														
(U) STS-76 TRIS II (S85-2)		X														
(U) STS-77 LMTE (LiTE), STL-A (S93-5)			X													
(U) STS-78 STL, MSX			X													
(U) STS-79 MSX, SIMPLEX				X												
(U) STS-80 CCM-A, MSX					X											
(U) STS-81 CREAM, MSX						X										
(U) STS-82 MSX						X										
(U) STS-83 CRYOFD, MSX						X										
(U) STS-84 RME-III, CREAM, MSX, SIMPLEX							X									
(U) MPTB (Classified Host) (S96-1)								X								
(U) FORTE (P94-1)								X								
(U) STEP 4 EMPE, OOAM, DIDM (P95-A)								X								
(U) ARGOS - ESEX, USA, GIMI, CIV, SPADUS, HIRAAS, HTSSE II, EUVIP (P91-1)								X								
(U) STS-85 CFE, MSX, SIMPLEX								X								
(U) STS-86 MSX, SIMPLEX, CREAM								X								
(U) STS-87* MSX, SIMPLEX									X							
(U) STS-88* MightySat I, MSX, SIMPLEX									X							
(U) POAM III (SPOT IV) (S96-2)										X						
(U) STS-89* CREAM, MSX, SIMPLEX										X						
(U) TSX-5 STRV II, CEASE (P95-2)											X					
(U) POGS-II (S92-1)														X		

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE
	February 1997

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
6 - Management and Support	0603402F Space Test Program (Space)	2617

*NOTE: NASA does not manifest shuttle flights (STS) beyond 18 months. Experiments are proposed.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0604256F Threat Simulator Development

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	57,046	53,496	51,846	36,238	38,316	40,691	38,781	39,716	Continuing	TBD
3321 Electronic Warfare Test Resources	43,023	38,917	50,305	34,275	31,342	32,178	29,362	30,039	Continuing	TBD
6510 Electronic Warfare Flight Test Resources	10,242	10,836	0	0	0	0	0	0	0	0
2900 Radar Target Scatter (RATSCAT) Upgrade	1,937	1,948	0	0	0	0	0	0	0	0
2907 Electronic Warfare Intel Support	1,844	1,795	1,541	1,963	2,022	2,079	2,000	2,047	Continuing	TBD
7500 Foreign Materiel Program	0	0	0	0	4,952	6,434	7,419	7,630	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. **Mission Description and Budget Item Justification:** This PE provides funding for the elements necessary to support the AF Electronic Warfare (EW) Test Process. This test process provides a methodology to ensure the effective disciplined and efficient testing of AF EW and avionics systems. Each capability or facility improvement is pursued in concert with the others so as to avoid duplicate capabilities while at the same time produce the proper mix of test resources needed to support the AF EW Test Process. This PE provides funding for the management and technical oversight of implementation activities, the Air Force-led tri-Service effort to establish a common modeling and simulation architecture, measurement facilities operation and improvements, hardware in the loop test facilities operation and improvements, installed system test facility improvement, and development and improvement of open air threat simulators for flight testing. This PE also provides funding to support the acquisition and exploitation efforts of the Foreign Materiel Program, as well as to support EW intelligence efforts through foreign materiel operational test and evaluation (FMOT&E). In FY 98, Projects 6510, Electronic Warfare Flight Test Resources, and 2900, RATSCAT Upgrade were combined into Project 3321, Electronic Warfare Test Resource as part of consolidation and simplification efforts in T&E investment accounts.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0604256F Threat Simulator Development

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	55,113	43,635	44,879	33,689	
(U) Appropriated Value	55,410	55,435			
(U) Adjustments to Appropriated Value					
a. Cong Adjustments		-1,203			
b. SBIR		-736			
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
(U) Adjustments to Budget Years Since FY 1997 PB	1,636		6,967	2,549	
(U) Current Budget Submit/FY 1998 PB	57,046	53,496	51,846	36,238	

(U) Change Summary Explanation:

Funding:

FY 98:

Electronic Combat Integrated Test (ECIT)	+3,283
Increased J-MASS Threat Modeling	+7,531
General program reductions	- 3,847

FY 99:

Increased J-MASS Threat Modeling	+4,600
General program reductions	- 2,051

Schedule: None.

Technical: None.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0604256F Threat Simulator Development

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
Appropriation: Military Construction, Budget Activity: Defense-Wide Mission Support, Program Title: Electronic Combat Integrated Test (ECIT)	11,100	4,900							N/A	16,000
Appropriation: RDT&E, Budget Activity: Defense-Wide Mission Support, Program Title: Central Test and Evaluation Investment Program (CTEIP)	21,214	37,600	39,643	26,100					N/A	124,557

Related RDT&E:
(U) PE 0604759F, Major T&E Investment
(U) PE 0604735F, Combat Training Ranges

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) REDCAP Surveillance Radar Integration (Option C) Complete							X									
(U) AFEWES RAI Upgrade IOC.			X													
(U) J-MASS Releases.	X				X			X								
(U) AAIS IOC																X
(U) ECIT Infrastructure and Generic Test Capability IOC															X	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0604256F Threat Simulator Development

PROJECT: 3321

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
3321 Electronic Warfare Test Resources	43,023	38,917	50,305	34,275	31,342	32,178	29,362	30,039	Continuing	TBD
Quantity of RDT&E Articles										

(U) A. **Mission Description and Budget Item Justification:** The AF requires a comprehensive set of test facilities to implement the Air Force Electronic Warfare (EW) Test Process. In order that program risk can be managed effectively throughout the weapon system acquisition process, and test and evaluation (T&E) be conducted effectively and efficiently, a spectrum of T&E capabilities from modeling and simulation through open-air ranges is required. The EW Test Process Support task provides for investment management, coordinated technical oversight, and application of EW T&E facilities, including studies, analyses, and related documentation. The Joint Modeling and Simulation System (J-MASS) is an Air Force-led, tri-service project to establish a common, DoD-wide, digital simulation architecture in support of T&E. The current J-MASS program supports model development to meet the needs of the B-1B Defensive System Upgrade Program (DSUP). The expanded J-MASS project includes development of a limited set of threat and environment models to support acquisition and test of multiple programs including the B-1B, F-22, and Joint Strike Fighter (JSF). The Radar Target Scatter (RATSCAT) upgrade project provides improvements to the RATSCAT measurement facility at Holloman AFB to support radar cross section (RCS) measurement requirements of DoD customers. The Hardware in the Loop (HITL) test facilities evaluate electronic support and countermeasures effectiveness prior to installation on the aircraft. Together, the two AF HITL facilities, the Air Force Electronic Warfare Evaluation Simulator (AFEWES) and the Real Time Electromagnetic Digitally Controlled Analyzer and Processor (REDCAP), provide the ability to realistically evaluate hardware components against manned hardware threat representations early enough to affect final system design. The Electronic Combat Integrated Test (ECIT) project upgrades the AF Installed System Test Facility (ISTF) at Edwards AFB, CA. This ISTF consists of a large, instrumented, anechoic chamber which provides for evaluation of an EW system when installed on its host aircraft, both prior to and during flight test. The Advanced Airborne Interceptor Simulator (AAIS) project funds development and acquisition of advanced signal sources to represent ground and airborne threats during EW open-air testing. RATSCAT Upgrades, ECIT, and AAIS also receive OSD funding through the Central Test and Evaluation Improvement Program (CTEIP). In FY 98, Projects 6510, Electronic Warfare Flight Test Resources, and 2900, RATSCAT Upgrade were combined into Project 3321, Electronic Warfare Test Resources.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0604256F Threat Simulator Development
	PROJECT 3321

(U) FY 1996 ($ in Thousands):

– (U) $1,497	EW Test Process Support. Continued the definition of a test facilities network that will support the full application of the EW Test Process in each phase of the DoD System Acquisition Process for federated and integrated avionics systems. Formulated an investment strategy and implementation plan to realize this network.
– (U) $2,624	J-MASS. Developed capability to run simulations composed of models that can be written on a variety of hardware platforms. Integrated MOSAIC models to provide an infrared simulation capability. Integrated the SUPPRESSOR model to provide mission training. Continued providing J-MASS user support and training. Added terrain modeling and an object-oriented database management system.
– (U) $7,592	AFEWES Operation and Upgrade. Continued AFEWES operations in support of Air Force, Army, Navy, and non-DoD test customers. Completed development of the Test Director Station and Reconfigurable Airborne Interceptor (RAI) simulator. Upgraded the TWS-10 simulator to conform to the latest intelligence data. Initiated upgrades to the infrared (IR) laboratories to test integrated IR alert/response, improve jammer-to-signal (J/S) ratio, and IR computer.
– (U) $12,665	REDCAP Operation and Upgrade. Continued REDCAP operations in support of Air Force, Army, Navy, and non-DoD test customers. Initiated digital threat system modeling and simulation, including an integrated air defense model in support of the EW Test Process.
– (U) $18,645	ECIT. Completed risk-reduction phase and selected contractor for full-scale development of generic EW and avionics installed system test facility. Began military construction of ECIT facilities.
– (U) $43,023	Total

(U) FY 1997 ($ in Thousands):

– (U) $1,475	EW Test Process Support. Begin implementation of the EW test facilities network. Continue the analysis and planning of upgrades to the network to improve implementation of the EW Test Process and support emerging EW technologies.
– (U) $3,895	J-MASS. Improve model and scenario development tools, such as visual programming, graphical user interface, hardware-in-the-loop and man-in-the-loop, and data management capabilities. Increase simulation speed. Increase the number of hardware platforms that J-MASS can support. Support a growing library of models, and provide user training, support and documentation.
– (U) $2,946	AFEWES Operation and Upgrade. Continue AFEWES operations in support of Air Force, Army, Navy, and non-DoD test customers. Complete IR laboratory upgrades.
– (U) $6,527	REDCAP Operation and Upgrade. Continued operation in support of Air Force, Army, Navy, and non-DoD test customers. Integrate Option C radar signature simulations into the Digital Integrated Air Defense System (DIADS) model.
– (U) $19,275	ECIT. Continue development of infrastructure and generic EW and avionics installed system test capabilities. Complete military construction efforts for ECIT facilities.
– (U) $4,799	Eglin Test and Training Range Operations and Upgrade. Funds development of threat system simulators (emitters, signal sources, real world threat systems with instrumentation) and intelligence upgrades of existing systems to support Air Force Special Operations Command requirements.
– (U)$38,917	Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0604256F Threat Simulator Development
	PROJECT 3321

(U) FY 1998 ($ in Thousands):

- (U) $1,201 EW Test Process Support. Continue implementation and EW test facilities network.
- (U) $11,395 J-MASS. Continue to improve model and scenario development tools. Increase number of hardware platforms supported by J-MASS. Operate and maintain EW model library. Develop and implement J-MASS compliant models of surface-to-air missiles (SAMs), Air-to-Air Missiles (AAMs) and Airborne Interceptors (AIs) to support acquisition and test of multiple programs including the B-1, F-22, and JSF.
- (U) $1,973 RATSCAT Upgrades. Procure radar system and integration for RAMS Radar Replacement program. Begin preliminary design of advanced background clutter reduction techniques.
- (U) $4,525 AFEWES Operation and Upgrade. Continue AFEWES operations in support of Air Force, Army, Navy, and non-DoD test customers. Continue upgrades of RF and IR HITL simulations.
- (U) $1,412 REDCAP Operation. Transition Integrated Air Defense System (IADS) HITL capability to the Air Force Flight Test Center (AFFTC). Support Air Force, Army, Navy and non-DoD test customers with digital IADS HITL capability.
- (U) $20,844 ECIT. Continue development of infrastructure and generic EW and avionics installed system test capabilities. Complete military construction efforts for ECIT facilities.
- (U) $8,955 AAIS. Complete integration and begin testing.
- (U) $50,305 Total

(U) FY 1999 ($ in Thousands):

- (U) $1,393 EW Test Process Support. Continue implementation and EW test facilities network.
- (U) $8,631 J-MASS. Continue to improve model and scenario development tools. Increase number of hardware platforms supported by J-MASS. Operate and maintain EW model library. Continue development and implementation of J-MASS compliant SAM, AAM and AI models.
- (U) $1,980 RATSCAT Upgrades. Complete integration of RAMS radar replacement. Complete transfer of all Advanced Static RCS Measurement program elements to operational status. Continue design of advanced background reduction techniques and begin design of advanced target support concepts.
- (U) $2,679 AFEWES Operation. Continue AFEWES operations in support of Air Force, Army, Navy, and non-DoD test customers.
- (U) $1,597 REDCAP Operation. Support Air Force, Army, Navy and non-DoD test customers with digital IADS HITL capability.
- (U) $12,876 ECIT. Complete development of infrastructure and generic test capability. Integrate with CTEIP funded radar target generator (RTG) and communications-navigation-identification (CNI) simulator in preparation for customer testing.
- (U) $5,119 AAIS. Complete testing and deliver pod system to users.
- (U) $34,275 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management and Support	PE NUMBER AND TITLE: 0604256F Threat Simulator Development — PROJECT: 3321

(U) **B. Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	41,090	28,744	42,975	31,708	
(U) Appropriated Value	41,090	40,544			
(U) Adjustments to Appropriated Value					
a. Cong Adjustments		-891			
b. SBIR		-736			
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
(U) Adjustments to Budget Years Since FY 1997 PB	1,933		7,330	2,567	
(U) Current Budget Submit/FY 1998 PB	43,023	38,917	50,305	34,275	

(U) Change Summary Explanation:

Funding:

FY 98:

Electronic Combat Integrated Test (ECIT)	+3,283
Increased J-MASS Threat Modeling	+7,531
General program reductions	- 3,484

FY 99:

Increased J-MASS Threat Modeling	+4,600
General program reductions	- 2,033

Schedule: None.

Technical: None.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0604256F Threat Simulator Development

PROJECT: 3321

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
Appropriation: Military Construction, Budget Activity: Defense-Wide Mission Support, Program Title: Electronic Combat Integrated Test (ECIT)	11,100	4,900							N/A	16,000
Appropriation: RDT&E, Budget Activity: Defense-Wide Mission Support, Program Title: Central Test and Evaluation Investment Program (CTEIP)	21,214	37,600	39,643	26,100					N/A	124,557

Related RDT&E:
(U) PE 0604759F, Major T&E Investment
(U) PE 0604735F, Combat Training Ranges

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) REDCAP Surveillance Radar Integration (Option C) Complete							X									
(U) AFEWES RAI Upgrade IOC.			X													
(U) J-MASS Releases.	X				X				X							
(U) AAIS IOC																X
(U) ECIT Infrastructure and Generic Test Capability (I&GTC) IOC															X	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE: February 1997	
BUDGET ACTIVITY: 6 - Management and Support				PE NUMBER AND TITLE: 0604256F Threat Simulator Development						PROJECT: 6510
COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
6510 Electronic Warfare Flight Test Resources	10,242	10,836	0	0	0	0	0	0	0	0
Quantity of RDT&E Articles										

(U) A. **Mission Description and Budget Item Justification** The AF requires a comprehensive set of test facilities to implement the Air Force Electronic Warfare (EW) Test Process. In order that program risk can be managed effectively throughout the weapon system acquisition process, and test and evaluation (T&E) be conducted effectively and efficiently, a spectrum of T&E capabilities from modeling and simulation through open-air ranges is required. The Advanced Airborne Interceptor Simulator (AAIS) project funds development and acquisition of advanced signal sources to represent ground and airborne threats during EW open-air testing. In FY 98, Projects 6510, Electronic Warfare Flight Test Resources, and 2900, RATSCAT Upgrade were combined into Project 3321, Electronic Warfare Test Resources.

(U) FY 1996 ($ in Thousands):
- (U) $10,242 AAIS. Completed design phase and began fabrication phase.
- (U) $10,242 Total

(U) FY 1997 ($ in Thousands):
- (U) $10,836 AAIS. Complete fabrication phase. Begin preparation for integration/testing phases.
- (U) $10,836 Total

(U) FY 1998 ($ in Thousands):
- (U) $0 Not applicable.

(U) FY 1999 ($ in Thousands):
- (U) $0 Not applicable.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0604256F Threat Simulator Development
	PROJECT 6510

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	10,242	11,067			
(U) Appropriated Value	10,242	11,067			
(U) Adjustments to Appropriated Value					
a. Cong Reductions		-231			
b. SBIR					
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
(U) Adjustments to Budget Years Since FY 1997 PB					
(U) Current Budget Submit/FY 1998 PB	10,242	10,836			

(U) Change Summary Explanation:

Funding:

Schedule:

Technical:

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U)										

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) AAIS IOC																X

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0604256F Threat Simulator Development

PROJECT: 2900

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
2900 Radar Target Scatter (RATSCAT) Upgrade	1,937	1,948	0	0	0	0	0	0	0	0
Quantity of RDT&E Articles										

(U) A. **Mission Description and Budget Item Justification** This project provides improvements to the Radar Target Scatter (RATSCAT) facility in order to assure support to address radar cross section (RCS) measurement requirements of DoD customers. Key areas of improvement complement and support the existing stand-alone Central Test and Evaluation Improvement Program (CTEIP) funded program and include radar upgrades standardization of data processing equipment and techniques, bistatic testing, pylon background reduction, low frequency measurement capability upgrades, and efficiency related equipment. The DoD continues an aggressive R&D program to achieve low observable technology. This project provides a continuous effort to allow test technology to keep pace with these activities. In a related effort, OSD CTEIP provides funding for the Data Acquisition and Processing System (DAPS), Bistatic Coherent Measurement System (BICOMS), RATSCAT Advanced Measurement System (RAMS) Radar Replacement, and the Next Generation Pylon. For DAPS, CTEIP funds the hardware, development, instrumentation, and spares. For BICOMS, CTEIP funds part of the hardware and labor. For the Next Generation Pylon, CTEIP funds the pylon and installation. For RAMS Radar Replacement, CTEIP funds the hardware and labor. In FY 98, Projects 6510, Electronic Warfare Flight Test Resources, and 2900, RATSCAT Upgrade were combined into Project 3321, Electronic Warfare Test Resources.

(U) FY 1996 ($ in Thousands):
- (U) $1,937 RATSCAT Upgrades. Procured risk reduction hardware for North Range Radar efficiency upgrades. Completed the design specifications for RAMS Radar Replacement. Bought additional Data Acquisition and Processing Systems (DAPS).
- (U) $1,937 Total

(U) FY 1997 ($ in Thousands):
- (U) $1,948 RATSCAT Upgrades. Complete procurement of DAPS for Mainsite. Continue North Range Radar Improvements. Procure RAMS radar to improve the dynamic range and system sensitivity.
- (U) $1,948 Total

(U) FY 1998 ($ in Thousands):
- (U) Not applicable.

(U) FY 1999 ($ in Thousands):

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0604256F Threat Simulator Development
	PROJECT 2900

– (U) Not applicable.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0604256F Threat Simulator Development
	PROJECT 2900

(U) **B. Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	1,937	1,990			
(U) Appropriated Value	1,937	1,990			
(U) Adjustments to Appropriated Value					
a. Cong Reductions		-42			
b. SBIR					
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
(U) Adjustments to Budget Years Since FY 1997 PB					
(U) Current Budget Submit/FY 1998 PB	1,937	1,948			

(U) Change Summary Explanation:

Funding: None.

Schedule: None.

Technical: None.

(U) **C. Other Program Funding Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U)										

(U) **D. Schedule Profile**

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U)																

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0604256F Threat Simulator Development

PROJECT: 2907

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
2907 Electronic Warfare Intel Support	1,844	1,795	1,541	1,963	2,022	2,079	2,000	2,047	Continuing	TBD
Quantity of RDT&E Articles										

(U) A. **Mission Description and Budget Item Justification** This project provides funding to support Foreign Materiel Operational Test and Evaluation (FMOT&E) which ensures the ability of operational commands to test and develop effective Electronic Attack/Electronic Protection (EA/EP) and tactics. Funds are required for: deployment of blue systems to test facilities, travel for personnel to the test sites to evaluate and validate test results real-time, reimbursement for industrial-funded range and laboratory costs; costs for instrumentation of blue systems; contracted engineering support for the conduct of tests and subsequent reporting. Funding for this program is required to prevent future aircraft losses due to improper and inaccurate aircrew tactics (e.g., lack of evasive action or proper tactics training to avoid missile attack).

(U) FY 1996 ($ in Thousands):
- (U) $1,844 Funded testing for foreign materiel operational exploitation. Accomplished extensive evaluations and reporting.
- (U) $1,844 Total

(U) FY 1997 ($ in Thousands):
- (U) $1,795 Funds continued testing for foreign materiel operational exploitation. Extensive evaluations and reporting to be accomplished.
- (U) $1,795 Total

(U) FY 1998 ($ in Thousands):
- (U) $1,541 Funds continued testing for foreign materiel operational exploitation. Extensive evaluations and reporting to be accomplished.
- (U) $1,541 Total

(U) FY 1999 ($ in Thousands):
- (U) $1,963 Funds continued testing for foreign materiel operational exploitation. Extensive evaluations and reporting to be accomplished.
- (U) $1,963 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0604256F Threat Simulator Development	PROJECT 2907

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	1,844	1,834	1,904	1,981	
(U) Appropriated Value	1,844	1,834			
(U) Adjustments to Appropriated Value					
a. Cong Reductions					
b. SBIR					
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
(U) Adjustments to Budget Years Since FY 1997 PB			-357		
(U) Current Budget Submit/FY 1998 PB	1,844	1,834	1,547	1,981	

(U) Change Summary Explanation:
Funding: Minor adjustments in FY 1998.
Schedule: None.
Technical: None.

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) N/A										

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) N/A																

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0604256F Threat Simulator Development

PROJECT: 7500

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
7500 Foreign Materiel Program	0	0	0	0	4,952	6,434	7,419	7,630	Continuing	TBD
Quantity of RDT&E Articles										

(U) A. **Mission Description and Budget Item Justification:** This project is established for the specific purpose of supporting the USAF Foreign Materiel Program in the acquisition and exploitation of foreign materiel. Items considered for these Foreign Materiel Acquisition and Exploitation (FMA&E) funds are included in the prioritized Air Force Foreign Materiel Acquisition (FMA) list established each year and are not eligible for OSD FMA&E funds. The USAF FMA list is established annually by Major Command representatives using specific criteria and a well-established process. The draft list is then approved by each Major Command and final approval comes from the Air Force Vice Chief of Staff. Exploitations are based on and driven by acquisitions.

(U) FY 1996 ($ in Thousands):
- (U) Not applicable.

(U) FY 1997 ($ in Thousands):
- (U) Not applicable.

(U) FY 1998 ($ in Thousands):
- (U) Not applicable.

(U) FY 1999 ($ in Thousands):
- (U) Not applicable.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0604256F Threat Simulator Development
	PROJECT 7500

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget					
(U) Appropriated Value					
(U) Adjustments to Appropriated Value					
a. Cong Reductions					
b. SBIR					
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
(U) Adjustments to Budget Years Since FY 1997 PB					
(U) Current Budget Submit/FY 1998 PB					

(U) Change Summary Explanation:

Funding: None.

Schedule: None.

Technical: None.

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) N/A										

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) N/A																

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0604258F Target Systems Development

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	5,049	4,762	4,780	4,818	5,179	5,252	5,382	5,512	Continuing	TBD
2459 Target Payload	3,924	4,762	4,780	4,818	5,179	5,252	5,382	5,512	Continuing	TBD
3165 QF-4 Development	1,125	0	0	0	0	0	0	0	0	0
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. **Mission Description and Budget Item Justification**

Aerial Targets are used to determine air-to-air weapons effectiveness and mission proficiency of our tactical systems against enemy aircraft. The overall objective is to improve air-to-air weapons systems accuracy and reliability by developing improved aerial target systems for Air Force weapons system test and evaluation. Specialized target payload subsystems are developed for full-scale and subscale targets for missile scoring, electronic and infrared (IR) countermeasures, and radar and IR signature augmentation. An Interim Vector Scoring (IVS) system is being produced to provide missile path and position relative to the target at point of closest approach, essential to accurately calculate the probability of a kill. Electronic and infrared countermeasures being developed include chaff and flare dispenser systems. IR signature augmentation systems are developed for subscales to provide a signature representative of threat military jet engines. The Drone Radar Cross Section (RCS) Electronic Enhancement Mechanism (DREEM) is being developed to provide subscale RCS enhancement to replicate full size threat aircraft. This program also provided for the development of the QF-4E Full Scale Aerial Target until completed in FY 1996. This program is in budget activity 6 - Management Support because it provides overall support to research and development activities.

(U) **Acquisition Strategy:**

The acquisition strategy is competitive, cost plus contracts.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0604258F Target Systems Development

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	5,362	4,966	5,223	5,367	TBD
(U) Appropriated Value	5,362	4,966			
(U) Adjustments to Appropriated Value					
a. Cong Reductions	-105	-114			
b. SBIR	-91	-85			
c. Omnibus or Other Above Threshold Reprogram	-55				
d. Below Threshold Reprogramming	-29				
e. Rescissions	-33	-5			
(U) Adjustments to Budget Years Since FY 1997 PB			-443	-549	
(U) Current Budget Submit/ FY 1998 PB	5,049	4,762	4,780	4,818	TBD

(U) Change Summary Explanation:

Funding: Decrease in FY96 is due to the rescission to fund Bosnia and F-16s to Jordan
Decreases in FY98 and FY99 occurred during FY98 PB formulation to fund higher Air Force priorities

Schedule: None

Technical: None

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) PE35116F: Appropriation: Missile Procurement, AF Budget Activity: 2 Program Title: Target Drones										
WSC: MQM107 (MQM-107E)	0	14,102	7,910	17,690	21,069	22,728	23,134	23,447	Cont	TBD
WSC: M04AQF (QF-4)	27,838	23,899	17,808	19,272	17,676	17,223	17,159	17,391	Cont	TBD
Spares: BQM-34, QF-4, MQM-107, QF-106	5,188	2,918	1,118	2,619	3,499	3,552	3,701	3,768	Cont	TBD
(U) PE35116F: Appropriation: Operations and Maintenance, AF Budget Activity: 4 Program Title: Target Drones										
	410	662	2,579	2,469	1,889	2,128	2,117	2,294	Cont	TBD

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY **6 - Management and Support**	PE NUMBER AND TITLE **0604258F Target Systems Development**

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Full-Scale Aerial Target Systems																
- QF-4 Contract Award 2/92																
- White Sands (DT&E/OT&E) 3/95-1/96	X															
- Production Options (Lots 2 & 3)			X				X									
- IOC					X											
- Follow-on QF-4 Production Options									X				X			
(U) Target Payloads																
(U) DREEM																
- RFP Release			X													
- Contract Award				X												
- Factory Testing										X	X	X				
- Ground Testing												X	X			
- Flight Testing													X			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0604258F Target Systems Development

PROJECT: 2459

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
2459 Target Payload	3,924	4,762	4,780	4,818	5,179	5,252	5,382	5,512	Continuing	TBD
Quantity of RDT&E Articles										

(U) A. **Mission Description and Budget Item Justification**

Specialized payload subsystems are developed for full-scale and subscale targets for missile scoring, electronic and infrared (IR) countermeasures, and radar and IR signature augmentation. Current scoring systems provide only miss distance information. An Interim Vector Scoring (IVS) system is being produced to provide missile path and position relative to the target at point of closest approach, this is essential to accurately calculate the probability of a kill. IR signature augmentation on subscale targets provides a signature representative of threat military jet engines. Electronic and IR countermeasures (ECM & IRCM) include systems such as chaff and flare dispensers, Drone Radar Cross Section (RCS) Electronic Enhancement Mechanism (DREEM) provides RCS enhancement of Subscale Aerial Targets to replicate full size threats, and is used for Developmental Test and Evaluation/Initial Operational Test and Evaluation of air-to-air missiles, air-to-air Weapons System Evaluation Program (WSEP). The acquisition strategy is competitive, cost plus contracts.

(U) FY 1996 ($ in Thousands):

- (U) $290 Gulf Range Drone Control Upgrade System (GRDCUS)/MQM-107E Simulation and Integration
- (U) $1,265 Initiate Demonstration and Evaluation (DEMVAL) for DREEM, Contractor: Boeing, Defense Space Group - Seattle, Washington
- (U) $36 GRDCUS/BQM-34 Heading Hold Integration
- (U) $821 MQM-107E Signal Processor Vehicle Interface/Digital Autopilot (SPV/DAP) Combination, Contractor: Tracor - Austin, Texas
- (U) $200 Target Reliance Technical Support
- (U) $38 Initiate Enhanced Subscale Demonstration
- (U) $1,274 Other Technical Support
- (U) $3,924 Total

(U) FY 1997 ($ in Thousands):

- (U) $575 Initiate Follow-on Aerial Targets Study
- (U) $1,385 Continue DEMVAL for DREEM
- (U) $358 MQM-107E SPV/DAP Combination
- (U) $200 Targets Reliance Technical Support
- (U) $50 Continue Enhanced Subscale Demonstrations
- (U) $479 Integrated Pod Capabilities

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0604258F Target Systems Development
	PROJECT 2459

- (U) $1,715 Other Technical Support
- (U) $4,762 Total

(U) FY 1998 ($ in Thousands):
- (U) $500 *Continue Follow-on Aerial Targets Study*
- (U) $2,500 Continue DEMVAL for DREEM
- (U) $200 QF-4 Risk Reduction Study Recommendations
- (U) $200 Target Reliance Technical Support
- (U) $1,380 Other Technical Support
- (U) $4,780 Total

(U) FY 1999 ($ in Thousands):
- (U) $200 Next Generation Aerial Target (NGAT) Target Control Support
- (U) $200 QF-4 Risk Reduction Study Recommendations
- (U) $200 Target Reliance Technical Support
- (U) $1,500 Enhanced ECM
- (U) $500 Common Flare/Chaff Dispenser
- (U) $500 Towed Radar Decoy
- (U) $400 On-board Video
- (U) $1,318 Other Technical Support
- (U) $4,818 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0604258F Target Systems Development

PROJECT: 2459

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	4,171	4,966	5,223	5,367	Continuing
(U) Appropriated Value	4,171	4,966			
(U) Adjustments to Appropriated Value					
a. Cong Reductions	-82	-114			
b. SBIR	-91	-85			
c. Omnibus or Other Above Threshold Reprogram	-24				
d. Below Threshold Reprogramming	-17				
e. Rescissions	-33	-5			
(U) Adjustments to Budget Years Since FY 1997 PB			-443	-549	
(U) Current Budget Submit/ FY 1998 PB	3,924	4,762	4,780	4,818	TBD

(U) Change Summary Explanation:

Funding: Decrease in FY96 is due to the rescission to fund Bosnia and F-16s to Jordan.
Decreases in FY98 and FY99 occurred during FY98 PB formulation to fund higher Air Force priorities

Schedule: None

Technical: None

(U) C. Other Program Funding Summary ($ in Thousands)

Refer to Other Program Funding Summary, Page 2, Section C.

(U) D. Schedule Profile

Refer to Schedule Profile, Page 2, Section D.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0604258F Target Systems Development

PROJECT: 3165

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
3165 QF-4 Development	1,125	0	0	0	0	0	0	0	0	0
Quantity of RDT&E Articles										

(U) A. **Mission Description and Budget Item Justification**

The Air Force is lead for a tri-service program for the development of the QF-4E Full Scale Aerial Target (FSAT). The QF-4E is the follow-on to the QF-106 FSAT used today. The final buy of the QF-106 was in FY93 with deliveries complete in 4QtrFY94. The first QF-4 production was delivered in 3Qtr FY96 and is funded by PE 35116F procurement. Additional production options are scheduled to begin delivery in 3Qtr97 and 3Qtr98 respectively. The QF-4 FSAT will be operated at Tyndall AFB, FL to meet over-water test requirement, and then (4Qtr97) operated at the White Sands Missile Range, NM to meet over-land test requirement. The Navy will begin using the QF-4E in FY03. Full-scale targets are representative of the threat, with realistic maneuvering performance, radar cross section and afterburning engine infrared (IR) signature. The overall objective is to improve air-to-air weapon system accuracy and reliability by developing aerial target systems for Air Force weapon system test and evaluation. Public law mandates all new or upgraded weapon systems must demonstrate lethality against a representative threat before approval to proceed with procurement. In addition to AMRAAM, AIM-7, AIM-9X, and F-22, full-scale targets are also used to support US Army air defense test and evaluation programs such as the Divisional Air Defense follow-on program, Stinger, Patriot and Improved Hawk.

(U) FY 1996 ($ in Thousands):

- (U) $897 Complete EMD Phase of QF-4 Program, Contractor: Tracor - Austin, Texas
- -- Complete White Sands Missile Range Testing, Not Separately Priced (NSP)
- -- Conduct Drone Operations Training (NSP)
- -- Conduct QF-4 FSAT Physical Configuration Audit (NSP)
- -- Deliver FSAT System Level III Drawing Package (NSP)
- -- Exercise Production Option 2 (NSP)
- -- Receive First Production QF-4 FSAT Target (NSP)
- (U) $228 Other Technical Support
- (U) $1,125 Total

(U) FY 1997 ($ in Thousands):

- (U) $0 Total
-

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0604258F Target Systems Development
	PROJECT 3165

(U) FY 1998 ($ in Thousands):
- (U) $0 Total

(U) FY 1999 ($ in Thousands):
- (U) $0 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	1,191	0	0	0	TBD
(U) Appropriated Value	1,191				
(U) Adjustments to Appropriated Value					
a. Cong Reductions	-23				
b. SBIR					
c. Omnibus or Other Above Threshold Reprogram	-31				
d. Below Threshold Reprogramming	-12				
(U) Adjustments to Budget Years Since FY 1997 PB					
(U) Current Budget Submit/ FY 1998 PB	1,125				

(U) Change Summary Explanation:

Funding: FY96 Reduced to reflect revised inflation and rescission for Bosnia.

Schedule: None

Technical: None

(U) C. Other Program Funding Summary ($ in Thousands)

Refer to Other Program Funding Summary, Page 2, Section C.

(U) D. Schedule Profile

Refer to Schedule Profile, Page 2, Section D.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0604759F Major Test And Evaluation Investment

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	38,446	32,340	47,336	43,809	50,255	59,829	53,018	49,839	Continuing	TBD
4597 (U) Air Force Test Investments	0	0	47,336	43,809	50,255	59,829	53,018	49,839	Continuing	TBD
3120 Air Force Development Test Center	10,546	9,206	0	0	0	0	0	0	Continuing	TBD
3285 Arnold Engineering Development Center	5,368	5,625	0	0	0	0	0	0	Continuing	TBD
3620 Air Force Flight Test Center	19,622	17,509	0	0	0	0	0	0	Continuing	TBD
2904 Holloman Hypersonic Sled Trak	2,910	0	0	0	0	0	0	0	0	0
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description and Budget Item Justification

This program element provides planning, improvements, and modernization for test capabilities at three Air Force Test Centers: Arnold Engineering Development Center (AEDC), Air Force Development Test Center (AFDTC), and Air Force Flight Test Center (AFFTC). The purpose is to help test centers keep pace with emerging weapon system technologies. Test investment activities are also funded at the Space and Missile Systems Center Test Directorate (SMC/TE) and the Joint Program Office (JPO) for T&E. The fluctuations in the funding at these locations are due to changing priorities in the improvement and modernization requirements as defined through the AF Test Investment Planning & Programming. Also, all projects have been reviewed through the Tri-Service Reliance effort (to communicate AF efforts to the other services and avoid unwarranted duplication of effort) and are documented in the Test Capability Master Plans. Further, each project has its own planning, development, equipment acquisition/facility construction, equipment installation, and checkout phases which often requires significant differences in funding from one year to the next. As such, the changes in funding from year to year do not necessarily indicate program growth but rather a planned phasing of improvement and modernization efforts. The test capabilities at these centers enable testing through all phases of weapon system acquisition from system concept exploration through component and full scale integrated weapon system testing to operational testing. These three test centers have over $10B worth of unique test facilities/capabilities. They are a national asset operated and maintained by the Air Force for DoD test and evaluation missions, but they are available to others having a requirement for their unique capabilities. Beginning in FY98, T&E investments are consolidated in this project to properly reflect that Air Force investments are determined at the component and DoD level. Prior to FY98 investments were reflected by test center and led to misperceptions that investment planning was geographically determined.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0604759F Major Test And Evaluation Investment

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	38,446	33,529	39,472	39,580	
(U) Appropriated Value		33,529			
(U) Adjustments to Appropriated Value					
a. Cong Reductions		-735			
b. SBIR		-454			
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
(U) Adjustments to Budget Years Since FY 1997 PB			7,864	4,229	
(U) Current Budget Submit/FY 1998 PB	38,446	32,340	47,336	43,809	Cont

(U) Change Summary Explanation:

Funding: FY98/99 increases reflect an Air Force initiative to upgrade the severely deteriorated AEDC Propulsion Wind Tunnel complex. This initiative is a multi-year effort.

Schedule: None.

Technical: None.

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
Appropriation: Military Construction, Budget Activity: Defense-Wide Mission Support, Program Title: Fighter Inlet Flow				8,690						8,690

Related RDT&E:
(U) PE 0604940D, Central Test & Evaluation Improvement Program
(U) PE 0604256F, Threat Simulator Development
(U) PE 0604735F, Combat Training Ranges

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0604759F Major Test And Evaluation Investment

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U)																

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 6 - Management and Support			PE NUMBER AND TITLE 0604759F Major Test And Evaluation Investment						PROJECT 4597	
COST (*$ In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4597 (U) Air Force Test Investments	0	0	47,336	43,809	50,255	59,829	53,018	49,839	Continuing	TBD

(U) A. **Mission Description and Budget Item Justification** The AFDTC, located at Eglin AFB, FL, conducts and supports developmental test and evaluation and operational test and evaluation of non-nuclear air armaments, C^4I systems, and target acquisition and weapon delivery systems; provides a climatic simulation capability; and determines target/test item electronic signatures. The Guided Weapon Evaluation Facility (GWEF) provides a full spectrum, multifunctional seeker/sensor laboratory test capability for all guided weapons. Common Airborne Instrumentation System (CAIS) Integration provides standardized airborne test to enhance interoperability and commonality. GPS Range Systems will provide a major improvement for Time-Space-Position-Information (TSPI) at all MRTFBs and specifically at the Eglin Ranges for munitions testing. Command, Control, Communications, Computers and Intelligence (C^4I) Test Capabilities Upgrade will provide connectivity to existing capabilities and add needed networks and hardware to develop a C^4I test bed. The Preflight Integration of Munitions and Electronic Systems (PRIMES) facility conducts preflight test and evaluation of total integrated weapon systems in a secure anechoic chamber. The Armament Systems Test Environment (ASTE) Range Systems effort upgrades instrumentation of the major data collection systems supporting open air testing. The Climatic Test Facility modernization of instrumentation and environmental capabilities supports the military construction upgrade, extending its useful life to 2015. Mission Control/Data Analysis provides for real-time central mission control and analysis. Multispectral Missile Engagement Hardware-in-the-Loop (HITL) Test provides a capability to support multiple and wide field-of-view missile engagements incorporating multispectral stimulations. These projects ensure test center technology is compatible with weapon systems to be tested such as AMRAAM, JDAM, AGM-130, ASRAAM, JTIDS, JSTARS, Combat Talon, etc.

Arnold Engineering Development Center (AEDC), Arnold AFB, TN, provides ground environmental test support for DoD aeronautical, missile, and space programs. The center has 53 test facilities providing: aerodynamic testing of scale model aircraft, missile, and space systems; testing of large and full-scale satellites, sensors, and space vehicles in a simulated space environment; altitude environmental testing for aircraft, missile, and spacecraft propulsion systems; and testing of large-scale models such as space boosters together with their propulsion systems. The AEDC Data Acquisition and Processing System (DAPS) provides processing capability for advanced turbine engine testing on programs like the F-22. This effort also upgrades data systems for the arc heaters and hypervelocity gun facility for Theater High Altitude Air Defense (THAAD) testing. Inefficiencies in these current data systems result in increased program costs and schedule delays. The Computer Aided Modernization Project (CMP) will provide increased capability for data processing and storage and provide wider availability of workstations. The Propulsion Wind Tunnel (PWT) Sustainment project sustains long-term operation of tunnels 16T and 16S to meet transonic/supersonic test needs. The Improve Turbine Engine Structural Integrity project will provide new state-of-the-art structural test monitoring and data analysis systems to support turbine engine structural tests to detect and analyze high cycle fatigue.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0604759F Major Test And Evaluation Investment
	PROJECT 4597

The AFFTC, located at Edwards AFB, conducts and supports developmental test and evaluation and operational test and evaluation of aircraft and aircraft systems, aerospace research vehicles, unmanned miniature vehicles, cruise missiles, parachutes delivery/recovery systems, and cargo-handling systems. The AF Common Airborne Instrumentation System (CAIS) Integration & Support (CAIS I&S) supports DoD objectives for interoperability/commonality. The goal of CAIS I&S is to integrate CAIS equipment and supporting instrumentation equipment and systems to provide a full airborne instrumentation operational capability. The Advanced Data Acquisition and Processing Systems (ADAPS) project provides an integrated capability to satisfy real-time first generation post-test data processing, archival, and display requirements of the next decade. The developmental approach is directed towards providing a high degree of interoperability between systems and components by adherence to Air Force and DoD guidelines. The technologies being developed under ADAPS have the potential to satisfy data processing and display needs at various multi-service test ranges. The Space Based Data Relay (SBDR) project provides the capability for ARIA to fulfill customer needs for real time, high-speed data, and greatly improve the overall range data relay capability. The Flight Simulator Modernization project will upgrade the Test and Evaluation Modeling and Simulation (TEMS) facility to meet future man-in-the loop simulator requirements.

The Space and Missile Systems Center's Test Directorate (SMC/TE) is located at Kirtland AFB, NM and is responsible for test planning and implementation for all space and ballistic missile systems. The Combined Space Test Task Force project will provide the capability to develop and test new satellites and ground control systems.

Beginning in FY98, T&E investments are consolidated in this project to properly reflect that Air Force investments are determined at the component and DoD level. Prior to FY98 investments were reflected by test center and led to misperceptions that investment planning was geographically determined.

(U) FY 1996 ($ in Thousands):

- (U) $ Not applicable.

(U) FY 1997 ($ in Thousands):

- (U) $ Not applicable.

(U) FY 1998 ($ in Thousands):

Air Force Development Test Center

- (U) $5,324 Continue CAIS integration, procure CAIS production units, and continue procurement of support equipment.
- (U) $2,650 C^4I Test Capabilities Upgrade. Complete the acquisition of workstations, continue procurement of network connections and hardware/software, and begin acquisition of interconnectivity software.
- (U) $3,707 GWEF will complete the expanded radar simulator and begin development of a multispectral man-in-the-loop capacity.
- (U) $1,123 Continue GPS integration on the range and Central Control Facility. Begin acquisition of a translator/processor system.
- (U) $1,850 PRIMES will acquire a Communication-Navigation-Identification (CNI) simulator. Begin development of a reactive munitions loop and phased angle of arrival capability.
- (U) $1,375 ASTE Range Systems. Begin upgrades to TSPI systems, timing, telemetry, microwave, communications, arenas, gun test, photo-optics, and fiber optics.

Arnold Engineering Development Center

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0604759F Major Test And Evaluation Investment
	PROJECT 4597

- (U) $3,140 Continue AEDC DAPS with acquisition and installation of additional workstation/processors in engine test cells and Aerodynamic and Propulsion Test Unit (APTU). IOC of T/J cells portion of DAPS.
- (U) $2,030 Continue purchase of CMP workstations (fourth increment).
- (U) $8,270 Begin PWT Sustainment projects. Begin design and procurement of PWT data acquisition and processing systems. Start requirements planning for flow quality and electric motor repower improvements.
- **Air Force Flight Test Center**
- (U) $6,535 CAIS I&S development. Purchase CAIS components for AFFTC use. Continue TIMS development with automated setup of systems, automated diagnostics, and simulation capability.. Continue development of a CAIS optical bus interface unit. Begin development of an on-board processing capability.
- (U) $4,824 ARIA Space Based Data Relay. Complete the communications portion of the SBDR program. Continue software integration of the SBDR subsystems upgrades.
- (U) $6,173 Continue integration of ADAPS with ground test simulation capabilities. Begin developing capabilities to support multiple flight test missions including Tri-Service Operational flight tests. Develop capability to increase test data flow throughput and decrease flight test mission turnaround time. Begin integration of test planning requirements with the ADAPS system setup capability.
- **Other Projects**
- (U) $335 Continue Joint Program Office T&E support activities.
- (U) $47,336 Total

(U) FY 1999 ($ in Thousands):

- **Air Force Development Test Center**
- (U) $2,970 Continue CAIS integration, procure CAIS production units, and continue procurement of support equipment
- (U) $1,939 C^4I Test Capabilities Upgrade. Complete the network connections and continue the acquisition of interconnectivity software and equipment for a classified C^4I test capability.
- (U) $3,184 GWEF will continue the multispectral man-in-the-loop effort and begin development of an active laser simulator.
- (U) $2,402 Continue GPS integration and complete the acquisition of translator/processor system.
- (U) $1,990 PRIMES will continue development of the reactive munitions loop, complete the phased angle of arrival, and begin acquisition of chamber free space instrumentation.
- (U) $2,189 ASTE Range Systems will continue upgrades to TSPI systems, timing, telemetry microwave, communications, arenas, gun test, and photo-optics.
- (U) $1,174 Mission Control/Data Analysis will begin procurement of data acquisition equipment and real-time TM equipment.
- (U) $2,400 The Multispectral Missile Engagement HITL Test Capacity will begin acquisition of a target generator and development of target and clutter models.
- (U) $797 Begin Climatic Test Facility upgrade.
- **Arnold Engineering Development Center**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0604759F Major Test And Evaluation Investment PROJECT 4597

–	(U) $1,106	AEDC DAPS. Complete installation of J5/J6 rocket test cell DAPS. FOC of C/T/J cells portion of DAPS.
–	(U) $2,040	Continue purchase of CMP workstations (fifth increment).
–	(U) $4,599	PWT Sustainment. Continue installation of data acquisition and processing system in 16T and 16S. Continue installation of 16T/16S pre-test checkout system. Begin design of plant control systems. Continue planning for flow quality and electric motor repower improvements
–	(U) $2,016	Improve Turbine Engine Structural Integrity. Integrate requirements for all enabling hardware/software technologies. Continue design of aeromechanical test hardware and data analysis techniques.
		Air Force Flight Test Center
–	(U) $4,480	CAIS I&S development. Continue TIMS development with automated setup of systems, automated diagnostics, and simulation capability. Continue development of a CAIS optical bus interface unit. Continue development of an on-board processing capability. Begin development of an advanced solid state recorder.
–	(U) $1,493	ARIA Space Based Data Relay. Continue software integration of the SBDR subsystems upgrades.
–	(U) $5,638	ADAPS. Continue to integrate simulation system with real-time data analysis capability. Continue to provide the traditional post-test analysis capability in near real-time in the Ridley Mission Control Rooms. Rehost the ground based data processing capabilities airborne data processing system. Provide avionics data processing in near real-time in the Ridley Mission Control Rooms.
–	(U) $1,000	Flight Simulation Modernization. Begin the upgrade of the TEMS facility to meet future man-in-the-loop simulator requirements for programs such as the Joint Strike Fighter (JSF). Procure hardware to support the development of a reconfigurable Air Warfare Mission Simulator (AWMS) cockpit simulator.
–	(U) $238	Begin ARIA record and timing system upgrade.
–	(U) $796	Begin linked interactive T&E networking.
		Other Projects
–	(U) $358	Continue Joint Project Office T&E support activities.
–	(U) $1,000	Combined Space Test Task Force. Begin development of an accurate US space resource database along with space resource models. Begin procurement of necessary hardware and software to support database models.
–	(U) $43,809	Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0604759F Major Test And Evaluation Investment PROJECT 4597

(U) **B. Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget			39,472	39,580	
(U) Appropriated Value					
(U) Adjustments to Appropriated Value					
a. Cong Reductions					
b. SBIR					
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
(U) Adjustments to Budget Years Since FY 1997 PB			7,864	4,229	
(U) Current Budget Submit/FY 1998 PB			47,336	43,809	Cont

(U) Change Summary Explanation:

Funding: FY98/99 increases reflect an Air Force initiative to upgrade the severely deteriorated AEDC Propulsion Wind Tunnel complex. This initiative is a multi-year effort.

Schedule: None.

Technical: None.

(U) **C. Other Program Funding Summary ($ in Thousands)**

(U)	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost

(U) **D. Schedule Profile**

(U)	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0604759F Major Test And Evaluation Investment

PROJECT: 3120

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
3120 Air Force Development Test Center	10,546	9,206	0	0	0	0	0	0	Continuing	TBD
Quantity of RDT&E Articles										

(U) A. **Mission Description and Budget Item Justification:** The AFDTC, located at Eglin AFB, FL, conducts and supports developmental test and evaluation and operational test and evaluation of non-nuclear air armaments, C^{4}I systems, and target acquisition and weapon delivery systems; provides a climatic simulation capability; and determines target/test item electronic signatures. The Guided Weapon Evaluation Facility (GWEF) provides a full spectrum, multifunctional seeker/sensor laboratory test capability for all guided weapons. Common Airborne Instrumentation System (CAIS) Integration provides standardized airborne test to enhance interoperability and commonality. GPS Range Systems will provide a major improvement for Time-Space-Position-Information (TSPI) at all MRTFBs and specifically at the Eglin Ranges for munitions testing. Command, Control, Communications, Computers and Intelligence (C^{4}I) Test Capabilities Upgrade will provide connectivity to existing capabilities and add needed networks and hardware to develop a C^{4}I test bed. These projects ensure test center technology is compatible with weapon systems to be tested such as AMRAAM, JDAM, AGM-130, ASRAAM, JTIDS, JSTARS, Combat Talon, etc.

(U) FY 1996 ($ in Thousands):

- (U) $5,441 CAIS integration procured interim CAIS production units to provide commonality and interoperability to aircraft instrumentation. Continued pod development and procurement of video cameras, recorders and time code generators.
- (U) $3,258 GWEF developed software and hardware to provide multimode targets for hardware-in-the-loop (HITL) testing, continued investments in an expanded radar simulator with acquisition of software and hardware to provide expanded RF/MMW simulation capabilities in the GWEF. Completed the IR target generator project, adding target/background scenes required to conduct HITL testing of long-wave guided weapons.
- (U) $1,847 GPS Range integration continued data link acquisition and integration of RAJPO equipment to fully implement GPS architecture on Eglin Test Ranges.
- (U) $10,546 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0604759F Major Test And Evaluation Investment
	PROJECT 3120

(U) FY 1997 ($ in Thousands):
- (U) $2,367 Continue CAIS integration, procure CAIS production units, and continue procurement of support equipment for bench, laboratory, and preflight.
- (U) $1,747 C^4I Test Capabilities Upgrade. Begin procurement of workstations, network connections, and hardware/software for a classified C^4I test capability.
- (U) $3,081 GWEF will complete the multimode project and continue the expanded radar simulator.
- (U) $2,011 Continue procurement of GPS instrumentation for surface and airborne TSPI.
- (U) $9,206 Total

(U) FY 1998 ($ in Thousands):
- (U) Not applicable.

(U) FY 1999 ($ in Thousands):
- (U) Not applicable.

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	10,546	9,405			
(U) Appropriated Value		9,405			
(U) Adjustments to Appropriated Value					
a. Cong Reductions		-199			
b. SBIR					
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
(U) Adjustments to Budget Years Since FY 1997 PB					
(U) Current Budget Submit/FY 1998 PB	10,546	9,206			

(U) Change Summary Explanation:
Funding: None.
Schedule: None.
Technical: None.

(U) C. Other Program Funding Summary ($ in Thousands)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0604759F Major Test And Evaluation Investment	PROJECT 3120

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U)										

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U)																

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0604759F Major Test And Evaluation Investment		PROJECT 3285

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
3285 Arnold Engineering Development Center	5,368	5,625	0	0	0	0	0	0	Continuing	TBD
Quantity of RDT&E Articles										

(U) A. **Mission Description and Budget Item Justification** Arnold Engineering Development Center (AEDC), Arnold AFB, TN, provides ground environmental test support for DoD aeronautical, missile, and space programs. The center has 53 test facilities providing: aerodynamic testing of scale model aircraft, missile, and space systems; testing of large and full-scale satellites, sensors, and space vehicles in a simulated space environment; altitude environmental testing for aircraft, missile, and spacecraft propulsion systems; and testing of large-scale models such as space boosters together with their propulsion systems. The AEDC Data Acquisition and Processing System (DAPS) provides processing capability for advanced turbine engine testing on programs like the F-22. This effort also upgrades data systems for the arc heaters and hypervelocity gun facility for Theater High Altitude Air Defense (THAAD) testing. Inefficiencies in these current data systems result in increased program costs and schedule delays. The Computer Aided Modernization Project (CMP) will provide increased capability for data processing and storage and provide wider availability of workstations. The Fighter Engine Test Capability will upgrade turbine engine test cells to accommodate higher thrust engines, and upgrade J-2 test cell with Exhaust Gas Management System for axisymmetric vectored exhaust nozzles.

(U) FY 1996 ($ in Thousands):
- (U) $3,693 Began installation of the Aeropropulsion System Test Facility (ASTF) portion of the Data Acquisition and Processing System (DAPS). Completed design and procure system equipment for the engine test cells and complete upgrades to all data analysis areas. Completed data recording upgrade for Trenton cells.
- (U) $1,675 Completed IOC of Phase I of CMP (replacement of current system) and purchase Phase II workstations. (second increment) Completed Reengineering of Processes by which CAM/CAD/CAE functions are accomplished internally and also with external customers.
- (U) $5,368 Total

(U) FY 1997 ($ in Thousands):
- (U) $3,714 Continue AEDC DAPS with acquisition and installation of additional work stations/processors in the engine test cells. IOC ASTF and J4 rocket test cell portions of DAPS.
- (U) $1,336 Continue purchase of Phase II CMP workstations (third increment). Continue training of personnel.
- (U) $575 Complete fighter engine test capability upgrade.
- (U) $5,625 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management and Support	PE NUMBER AND TITLE: 0604759F Major Test And Evaluation Investment / PROJECT: 3285

(U) FY 1998 ($ in Thousands):
- (U) Not applicable.

(U) FY 1999 ($ in Thousands):
- (U) Not applicable.

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	5,368	5,745			
(U) Appropriated Value		5,745			
(U) Adjustments to Appropriated Value					
a. Cong Reductions		-120			
b. SBIR					
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
(U) Adjustments to Budget Years Since FY 1997 PB					
(U) Current Budget Submit/FY 1998PB	5,368	5,625			

(U) Change Summary Explanation:

Funding: None.

Schedule: None.

Technical: None.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0604759F Major Test And Evaluation Investment PROJECT 3285

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Appropriation: Military Construction, Budget Activity: Defense-Wide Mission Support, Program Title: Fighter Inlet Flow				8,690						8,690

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U)																

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0604759F Major Test And Evaluation Investment

PROJECT: 3620

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
3620 Air Force Flight Test Center	19,622	17,509	0	0	0	0	0	0	Continuing	TBD
Quantity of RDT&E Articles										

(U) A. **Mission Description and Budget Item Justification** The AFFTC, located at Edwards AFB, conducts and supports developmental test and evaluation and operational test and evaluation of aircraft and aircraft systems, aerospace research vehicles, unmanned miniature vehicles, cruise missiles, parachutes delivery/recovery systems, and cargo-handling systems. The AF Common Airborne Instrumentation System (CAIS) Integration & Support (CAIS I&S) supports DoD objectives for interoperability/commonality. The goal of CAIS I&S is to integrate CAIS equipment and supporting instrumentation equipment and systems to provide a full airborne instrumentation operational capability. The Advanced Data Acquisition and Processing Systems (ADAPS) project provides an integrated capability to satisfy real-time first generation post-test data processing, archival, and display requirements of the next decade. The developmental approach is directed towards providing a high degree of interoperability between systems and components by adherence to Air Force and DoD guidelines. The technologies being developed under ADAPS have the potential to satisfy data processing and display needs at various multi-service test ranges. The AF GPS RAJPO Equipment project provides funding for the purchase of production GPS equipment developed by the RAJPO (OSD funded) for tri-service application. The Space Based Data Relay (SBDR) project provides the capability for ARIA to fulfill customer needs for real time, high-speed data, and greatly improve the overall range data relay capability. The ARIA Extended S-Band Telemetry upgrade ensures the compatibility of the ARIA with the Expendable Launch Vehicles (ELV) and major DoD ranges.

(U) FY 1996 ($ in Thousands):

- (U) $6,342 Continued CAIS I&S development. Completed CAIS diagnostic bench integration. Purchased CAIS low rate data recorder initial spares. Completed TIMS integration with CAIS (assumes availability of CAIS units).
- (U) $5,363 Completed IOC of first ADAPS Real-Time/Post-Flight Processing (RT/PFP) system. Procured the first mass storage archive system to replace nine track tapes currently being used.
- (U) $3,408 Continued purchase of RAJPO GPS equipment. Conducted acceptance testing of GPS equipment purchased in FY 95.
- (U) $2,812 Continued ARIA Space Based Data Relay System program. Completed non-recurring engineering work on system design and T-2 aircraft modification. Commenced equipment installation and aircraft modification.
- (U) $1,697 Continued the ARIA Extended S-Band program equipment installation and aircraft #1-4 modification.
- (U) $19,622 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management and Support	PE NUMBER AND TITLE: 0604759F Major Test And Evaluation Investment / PROJECT: 3620

(U) FY 1997 ($ in Thousands):
- (U) $6,248 Continue ARIA Space Based Data Relay program. Continue equipment installation/fabrication and #2 aircraft modification.
- (U) $3,998 Continue CAIS I&S development. Purchase CAIS components for AFFTC use. Continue TIMS development with automated setup of systems, automated diagnostics, and simulation capability. Begin development of a CAIS optical bus interface unit.
- (U) $880 Complete purchase of RAJPO GPS equipment.
- (U) $5,733 FOC of ADAPS RT/PFP. Procure second mass storage archive system. Begin integration of ADAPS with ground test simulation capabilities.
- (U) $650 Complete the ARIA Extended S-Band equipment installation and modification project.
- (U) $17,509 Total

(U) FY 1998 ($ in Thousands):
- (U) Not applicable.

(U) FY 1999 ($ in Thousands):
- (U) Not applicable.

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	19,622	18,379	17,850	14,237	
(U) Appropriated Value		18,379			
(U) Adjustments to Appropriated Value					
a. Cong Reductions		-416			
b. SBIR		-454			
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
(U) Adjustments to Budget Years Since FY 1997 PB			-152	-137	
(U) Current Budget Submit/FY 1998 PB	19,622	17,509	17,698	14,100	

(U) Change Summary Explanation:
Funding: None.
Schedule: None.
Technical: None.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0604759F Major Test And Evaluation Investment
	PROJECT 3620

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U)										

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U)																

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0604759F Major Test And Evaluation Investment

PROJECT: 2904

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
2904 Holloman Hypersonic Sled Trak	2,910	0	0	0	0	0	0	0	0	0
Quantity of RDT&E Articles										

(U) **A. Mission Description and Budget Item Justification** Provides technological upgrades to the Holloman Hypersonic Sled Track through the Magnetic Levitation (Maglev) development program.

(U) FY 1996 ($ in Thousands):
- (U) $2,910 Completed development and prototyping of a sled and rail girder system.
- (U) $2,910 Total

(U) FY 1997 ($ in Thousands):
- (U) Not applicable.

(U) FY 1998 ($ in Thousands):
- (U) Not applicable.

(U) FY 1999 ($ in Thousands):
- (U) Not applicable.

(U) **B. Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	3,000	0	0	0	
(U) Appropriated Value		0			
(U) Adjustments to Appropriated Value					
a. Cong Reductions					
b. SBIR					
c. Omnibus or Other Above Threshold Reprogram					

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0604759F Major Test And Evaluation Investment
	PROJECT 2904

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
d. Below Threshold Reprogramming					
(U) Adjustments to Budget Years Since FY 1997 PB	-90				
(U) Current Budget Submit/FY 1998 PB	2,910	0	0	0	

(U) Change Summary Explanation:

Funding: None.

Schedule: None.

Technical: None.

(U) C. **Other Program Funding Summary ($ in Thousands)**

(U)	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost

(U) D. **Schedule Profile**

(U)	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605101F Rand Project Air Force

PROJECT: 1110

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
1110 RAND Project Air Force	23,862	21,061	21,768	21,594	21,447	21,271	21,643	22,223	Continuing	Continuing

(U) A. **Mission Description and Budget Item Justification**

This program is in budget activity 6 - Management and Support, Research Category 6.5 because it funds RAND Project AIR FORCE (PAF), the only Air Force Federally Funded Research and Development Center for studies and analyses. This program provides for continuing analytical research across a broad spectrum of aerospace issues and concerns. The PAF research agenda is focused primarily on mid- to long-term problems; in addition, PAF provides quick response assistance for senior Air Force officials on high priority, near term issues. Results and analytical findings directly impact senior management deliberations on major issues. The Air Force Advisory Group (AFAG), chaired by the Vice Chief of Staff, reviews, monitors, and approves PAF annual research efforts. Each project is initiated, processed, and approved IAW PAF Sponsoring Agreement which requires General Officer (or SES equivalent) sponsorship and involvement on a continuing basis.

(U) PAF is organized in the three primary research program areas. The principle focus of PAF research is the transition of the Air Force to the 21st Century; to provide for the projection of aerospace power across the spectrum of conflict in an era of declining budgets, personnel and force structure. These programs are continuing efforts and do not lend themselves to a specific schedule profile.

(U) In FY96, principal research efforts included studies on USAF capabilities in MOOTW, potential sources of conflict and their implications for Air Force operations, preliminary evaluation of the Air Force's concept for near-term national defense, potential vulnerabilities of Air Force information systems, future role of the Air Force in space, implementation of lean logistics, improved access to private sources of support, and enhanced use of the commercial industrial base. A major integrative effort, shaping the role of air power, was conducted in parallel with the major Air Force initiative in long-range planning.

(U) In FY97, the principal focus of PAF research will continue to be Transition of the Air Force to the 21st Century. The overall research agenda will be coordinated with the decisions resulting from the Air Force long-range planning process, the demands of the quadrennial defense review, and continuing efforts to meet national security needs with lesser resources.

(U) In FY98, PAF's main research thrust will focus on shaping the future Air Force, taking into account the findings of the QDR and national defense review. Major topics will include the evolving role of air and space power, force modernization - including transition to UAVs and integration of space operations, streamlining and reduction of the supporting infrastructure.

(U) In FY99, research and analysis will continue on the long-term projects initiated in FY98 and prior years. New topics will evolve from major issues established by the Air Force senior leadership. Topics to be addressed by PAF will be commensurate with the special expertise and competencies purposefully developed, so PAF

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management and Support	PE NUMBER AND TITLE: 0605101F Rand Project Air Force / PROJECT: 1110

can continue to make unique contributions to the Air Force. PAF research will continue to be organized in the three interrelated programs with integrated research at the division level.

(U) Projects to be undertaken in PAF studies will address organizational cross-cutting issues using an end-to-end approach. The scope of the research agenda is intentionally broad, encompassing the future security environment, strategy, doctrine, force development and application, operational sustainment, applications of new technology, advances in modeling and simulation and analytical methods, resource management and system acquisition.

(U) PAF efforts span functional and organizational boundaries and is managed in a manner to facilitate independence and freedom from organizational bias providing perspectives and deliberative thought to senior Air Force leaders which may otherwise reflect parochial spins not necessarily in the best interest of the Air Force at large. As a result, the research conducted relates to a wide spectrum of Air Force activities and emerging issues.

(U) Benefits of independent non-Department of Defense analysis of complex present day and emerging issues are enjoyed beyond the immediacy of the Air Force. PAF study results are given wide dissemination within the DOD on a routine basis and deposited with the Defense Technical Information Center available to a broad range of qualified government and commercial individuals and activities.

(U) FY96 actual level of effort and projected levels for FY97, FY98 and FY99 are shown below.

(U) FY 1996 ($ in Thousands):
- (U) $4,800 Strategy and Doctrine
- (U) $7,600 Force Employment and Modernization
- (U) $7,200 Resource Management and Systems Acquisition
- (U) $4,262 Division-Wide
- (U) $23,862 Total

(U) FY 1997 ($ in Thousands):
- (U) $4,000 Strategy and Doctrine
- (U) $6,500 Force Employment and Modernization
- (U) $6,561 Resource Management and Systems Acquisition
- (U) $4,000 Division-Wide
- (U) $21,061 Total

(U) FY 1998 ($ in Thousands):
- (U) $4,000 Strategy and Doctrine
- (U) $6,768 Force Employment and Modernization

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605101F Rand Project Air Force
	PROJECT 1110

- (U) $7,000 Resource Management and Systems Acquisition
- (U) $4,000 Division-Wide
- (U) $21,768 Total

(U) FY 1999 ($ in Thousands):
- (U) $4,000 Strategy and Doctrine
- (U) $6,594 Force Employment and Modernization
- (U) $7,000 Resource Management and Systems Acquisition
- (U) $4,000 Division-Wide
- (U) $21,594 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	24,000	23,292	23,151	22,997	TBD
(U) Appropriated Value	24,000	23,292			
(U) Adjustments to Appropriated Value					
a. Cong Reductions		-1,655			
b. SBIR		-576			
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
e. Recessions	-138				
(U) Adjustments to Budget Years Since FY 1997 PB			-1,383	-1,403	
(U) Current Budget Submit/FY98 President's Budget	23,862	21,061	21,768	21,594	

(U) Change Summary Explanation:

FY96 decrease: $138K in support of Bosnia

FY97 decreases: $1,167K FFRDC reduction, $576K SIBR and $488K general reductions since FY97PB

FY98 decreases: $1,383K redirected to other Air Force priorities since FY97PB

FY99 decreases: $1,403K redirected to other Air Force priorities since FY97PB

(U) C. Other Program Funding Summary ($ in Thousands) Not Applicable

(U) D. Schedule Profile Not Applicable

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605306F Ranch Hand II Epidemiology Study

PROJECT: 2767

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
2767 Ranch Hand II Epidemiology Study	3,006	8,842	10,933	4,488	4,625	4,685	11,959	11,573	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. **Mission Description and Budget Item Justification:** This RDT&E Management Support program was directed in 1980 by the Assistant to the President of the United States for Domestic Affairs and Policy upon the recommendation of the Interagency Working Group on the Possible Long-Term Effects of Phenoxy Herbicides and Contaminants. As a result of this Presidential direction, PE 0605306F was established to conduct a 20-year epidemiology investigation of approximately 1,200 Air Force personnel who were involved with aerial spraying of herbicides in Vietnam from 1962 to 1971 (Operation Ranch Hand). The objective of this investigation is to determine whether long-term health effects exist and can be attributed to occupational exposure to phenoxy herbicides and their associated dioxins. Dioxin is an unwanted by-product from manufacturing Herbicide Orange.

This project involves a 20-year study that compares United States Air Force (USAF) Ranch Hand personnel to other USAF crew members and support personnel who were not exposed to herbicides while serving in Vietnam. Approximately 2,200 individuals (exposed personnel group plus control group) are participating in the study. Analyses of yearly mortality rates and the past and present health status of the study population were begun in 1982 with follow-up health examination schedules at the 3-, 5-, 10-, 15-, and 20-year time periods. The study includes examination of the possible occurrence of birth defects in children as determined from children's medical records and family medical histories.

(U) FY 1996 ($ in Thousands):
- (U) $1,881 Issued Air Force Health Study contract.
- (U) $513 Completed annual mortality update.
- (U) $162 Developed and archived optical disk storage system.
- (U) $248 Updated the Participant Data Base with recent medical records, address, and phone numbers.
- (U) $202 Conducted statistical analyses in support of journals and reports.
- (U) $3,006 Total

(U) FY 1997 ($ in Thousands):
- (U) $7,117 Initiate next cycle of physical examinations, questionnaires, and participant data base.
- (U) $344 Conduct assays and data searches in support of ongoing epidemiologic study.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605306F Ranch Hand II Epidemiology Study
	PROJECT 2767

- (U) $1,381 Process and document examination data.
  - (U) Archive previous cycles' examination data and digitize the 1997 data as received.
  - (U) Conduct medical records coding and examination data base verification.
  - (U) Perform annual mortality analysis.
- (U) $8,842 Total

(U) FY 1998 ($ in Thousands):

- (U) $8,419 Complete next cycle of physical examinations, questionnaires, and participant data base.
  - (U) Conduct serum dioxin assay and address searches.
- (U) $2,514 Process and document examination data.
  - (U) Conduct examination data base verification.
  - (U) Complete archiving previous cycles'examination data and digitize the 1998 data as received.
  - (U) Conduct medical records coding.
  - (U) Perform annual mortality analysis.
  - (U) Conduct data analysis for journals and reports.
- (U) $10,933 Total

(U) FY 1999 ($ in Thousands):

- (U) $2,826 Complete examination data base and conduct statistical analyses.
  - (U) Conduct serum dioxin assay and address searches.
- (U) $1,662 Process and document examination data.
  - (U) Update participant data base.
  - (U) Initiate archiving of examination data.
  - (U) Conduct medical records coding.
  - (U) Perform annual mortality analysis.
  - (U) Conduct data analysis for journals and reports.
- (U) $4,488 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605306F Ranch Hand II Epidemiology Study	PROJECT 2767

(U) B. **Program Change Summary ($ in Thousands):**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	3,025	9,212	9,703	4,526	Cont
(U) Appropriated Value	3,139	9,212			
(U) Adjustments to Appropriated Value					
a. Congressional/General Reductions	-61	-192			
b. SBIR	-52	-170			
c. Omnibus/Other Above Threshold Reprogrammings	-19	-8			
d. Below Threshold Reprogrammings	-1				
(U) Current Budget Submit/FY 1998 PB	3,006	8,842	10,933	4,488	Cont

(U) Change Summary Explanation:

Funding: Funding levels vary due to timing of patient physical exams.

Schedule: Not Applicable.

Technical: Not Applicable.

(U) C. **Other Program Funding Summary:** Not Applicable.

(U) D. **Schedule Profile:** Not Applicable.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605704F Theater Air Defense BMC4I

PROJECT: 1010

COST (*$ In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
1010 Theater Air Defense Battle Mgt C4I	12,362	12,010	0	0	0	0	0	0	0	0
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

This project was established in response to a charter from ASD/C3I identifying the Air Force as the Executive Agent for Theater Air Defense Battle Management Command, Control, Communications, Computers, and Intelligence (TAD BMC4I). In order to establish a single DoD organization for joint theater air and missile defense requirements, the Secretary of Defense and the Chairman of the Joint Chiefs of Staff have formed the Joint Theater Air and Missile Defense Organization (JTAMDO). By direction of OSD and JCS, the funding and activities of the EA TAD BMC4I program transferred to PE 0605126J so FY97 is the final budget year for EA TAD BMC4I.

(U) A. **Mission Description and Budget Item Justification**

The EA TAD BMC4I program described below supported the study, analysis, demonstration and establishment of integrated TAD BMC4I which fuses and expands on existing capabilities to support the theater CINCs. It involved defining baseline TAD BMC4I architectures and developing near-term and objective architectures; analyzing TAD BMC4I issues in a coordinated Joint Staff/Services/CINCs/Defense Agencies manner; reviewing TAD requirements, programs, systems, architectures, studies, modeling and any associated impacts on TAD BMC4I interoperability; identifying TAD BMC4I shortfalls and proposed solutions; establishing and maintaining a TAD BMC4I requirements data base; assessing allied TAD BMC4I issues; and supporting exercises and demonstrations of integrated TAD BMC4I capabilities.

(U) FY 1996 ($ in Thousands):

- (U) $1,630 Developed baseline TAD BMC4I integrated architectures.
- (U) $9,555 Performed interoperability reviews for requirements, programs, systems, architectures, and modeling for TAD BMC4I. Explored Service and Joint BMC4I systems for disconnects and opportunities to improve joint integrated BMC4I.
- (U) $650 Developed TAD Command and Control (C2) Plan.
- (U) $527 Supported CINCs' assessments of operational Theater Air Defense capabilities, identified procedural and architectural shortcomings, and experimented with potential procedural and hardware/software solutions and demonstrations which support TAD architecture.
- (U) $12,362 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605704F Theater Air Defense BMC4I
	PROJECT 1010

(U) FY 1997 ($ in Thousands):
- (U) $4,046 Developed framework and concepts for architecture validation and migration roadmap for near-term TAD BMC4I architecture (FY2003), including required system, technical and operational/functional migrations. Developed near-term TAD BMC4I architectures including required systems level and framework for technical standards development for future TAD enhancements.
- (U) $4,871 Continued interoperability reviews for requirements, programs, systems, architectures, and modeling for TAD BMC4I. Explored Service and Joint Battle Management Command, Control, Communications, Computers, and Intelligence (BMC4I) systems for disconnects and opportunities to improve joint integrated BMC4I.
- (U) $ 720 Continued Command and Control (C2) Plan development to fully integrate Battle Management and Intelligence functions, and planned automated Joint TAD BMC4I planning capability.
- (U) $2,373 Funded management support activities.
- (U) $12,010 Total

(U) FY 1998 ($ in Thousands):
- (U) $0 N/A
- (U) $0 Total

(U) FY 1999 ($ in Thousands):
- (U) $0 N/A
- (U) $0 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget		12,496	18,300	18,050	48,846
(U) Appropriated Value	0	12,496			
(U) Adjustments to Appropriated Value					
a. Cong Gen Reductions	-257	-357			
b. SBIR	-207	-129			
c. Omnibus or Other Above Threshold Reprogram	+12,960				
d. Below Threshold Reprogramming					
(U) Adjustments to Budget Years Since FY 1997 PB	-134		-18,300	-18,050	
(U) Current Budget Submit/President's Budget	12,362	12,010	0	0	24372

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605704F Theater Air Defense BMC4I PROJECT 1010

(U) Change Summary Explanation:

Funding:. FY98 and FY99 funding transferred to JTAMDO organization (PE 0605126J)

Schedule: Program content transferred to JTAMDO

Technical: Program content transferred to JTAMDO

(U) C. **Other Program Funding Summary ($ in Thousands) : Not Applicable**

(U)	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605712F Initial Operational Test & Eval

PROJECT

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
0191 Initial Operational Test & Evaluation (IOT&E)	22,948	21,454	28,319	25,035	28,935	30,063	31,112	31,841	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. **Mission Description and Budget Item Justification:** This program funds IOT&E tests conducted to evaluate a system's operational effectiveness and suitability and to identify any operational deficiencies or need for modifications in support of the acquisition process. IOT&E is an evaluation of a system's performance when the complete system is tested and evaluated against operational criteria by personnel with the same qualifications as those who will operate, maintain and support the system when deployed. In general, IOT&E is performed on new systems in development, major modifications and other systems as directed. This PE funds Congressionally mandated IOT&E to support major weapon system acquisition decisions (Milestone III). For major systems designated for use in combat, the law requires IOT&E be completed under realistic field conditions before proceeding beyond low rate initial production. As an essential element of IOT&E, this PE will fund major Operational Utility Evaluations (OUE), Early Operational Assessments (EOA) and Operational Assessments (OA) which support major milestones and decision points prior to Milestone III. IOT&E programs are identified in five categories: aircraft/support; space; missile/munitions; computer, communication, command and control and information (C4I); and general. This PE funds the costs of the test (e.g., data reduction, range costs, etc.), not the development of test resources or the maintenance of test infrastructure.

(U) FY 1996 ($ in Thousands):

– (U) $22,948 (U) FY 96 IOT&E Accomplishments: F-22; B-1B CMUP BLK E; B-2; CMU, MILSTAR, Theater Battle Management C2 Information Processing System (TBM); E3 Radar System Improvement Program (E3 RSIP); AIM-9X (Air Intercept Missile) and etc.

(U) Category: Aircraft/Support Accomplishments:
- F-22: Completed and obtained approval of F-22 comparison test concept. Developed draft operational assessment (OA) plan.
- B-1B CMUP BLK E: Conducted pretest planning.
- B-2: Continued combined developmental and operational flight test missions in support of B-2 test and evaluation for report due in Dec 97.

(U) Category: Space:
- CMU: Missile warning IOT&E completed
- MILSTAR: Completed 80 percent MILSTAR low data rate testing.

(U) Category: Missile/Munitions
- AIM-9X: Digital missile model development - to evaluate kinematic performance and capabilities of missiles, and modeling /simulation to support AIM-9X lethality assessment.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605712F Initial Operational Test & Eval PROJECT

(U) Category: Computer, Communication, Command and Control and Information System (C4 I).
- TBM: Advance planning stage; accomplished test readiness review.
- E3 RSIP: Program complete. Finished IOT&E and coordinating briefing trail/milestone III for RSIP.

– (U) $22,948 Total

(U) FY 1997 ($ in Thousands):

– (U) $21,454 (U) FY 97 IOT&E Planning Program: Conduct IOT&E on the F-22; Joint Strike Fighter (JSF); F- 15C/E TEWS; B-1 CMUP BLK D; B-1 CMUP BLK E; B-1B CMUP BLK F; CV-22; and etc.

(U) Category: Aircraft/Support. Conduct IOT&E on the F-22; Joint Strike Fighter (JSF); F- 15C/E TEWS; B-1 CMUP BLK D; B-1 CMUP BLK E; B-1B CMUP BLK F; CV-22; and other systems.
- F-22: Develop and gain approval for the Operational Assessment Plan to support Low Rate Initial Production (LRIP). Conduct F-22 FMS Review. Develop modeling/simulation plan, F-15C Comparison Test Plan, Roll-up Methodology Model, and Integrated Data Processing Plan.
- JSF: Develop and implement initial AFOTEC Test Concept. Initiate the development of Critical Operational Issues (COIs), Measures of Effectiveness (MOEs), and Measures of Performance (MOPs) with USN, USMC, and ACC.
- F-15 TEWS: The system provides self protection for F-15 aircraft. TEWS consists of four federated subsystems; the ALR-56 Radar Warning Receiver (RWR), The ALQ-135 Internal Countermeasures Set (ICS-a jammer), the ALQ-128 Electronic Warfare Warning Set (EWWS), and the ALE-45 Countermeasures Dispenser (CMD). The ALR-56C provides threat warning for F-15C/E aircraft. The Band 3 provides countermeasures for F-15C/E aircraft. Neither the ALR-56C, Band 3, or Bank 1.5 have ever undergone an IOT&E. All of the ALR-56Cs and Band 3s have been produced.
- B-1 CMUP Block D: Conduct Operational Assessment.
- B-1 CMUP Blocks E/F: Conduct advance planning.
- CV-22: Conduct Operational Assessment.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605712F Initial Operational Test & Eval PROJECT

(U) Category: Space. Conduct IOT&E on CMU-CMU; ICBM Minuteman III GRP; MILSTAR; Evolved Expendable Launch Vehicle (EELV); Space Based Infrared System (High); Space Based Infrared System-LOW (SBIRS-LEO) and etc.
- CMU: Conduct Granite Shield and Air Mission Testing.
- ICBM GRP: Conduct Operational Assessment and modeling/simulation.
- MILSTAR: Complete Low Data Rate IOT&E and pre-test planning for MILSTAR II IOT&E
- EELV: Conduct Operational Assessment, IOT&E Pre-test planning and Modeling/Simulation.
- SBIRS (High): Conduct pre-test planning, modeling/simulation, validation verification & accreditation (VV&A) effectiveness model, ground and space segment survivability analysis, and manning, workload and performance assessment.
- SBIRS (Low): Conduct OT&E program readiness assessment, monitoring design and test activities, infrared sensor stimulation/risk reduction analysis (IRSS), hardware/software integration for flight test demo, hardbody radiation analysis, and pre-test planning.

(U) Category: Missile/Munitions. - Conduct IOT&E on Joint Direct Attack Munitions (JDAM); Joint Standoff Weapon (JSOW); AIM-9X Air-to-Air (AIM-9X); and Joint Air-to Surface Stand-OFF Missile (JASSM), and etc.
- JDAM: Conduct test planning, operational assessment and IOT&E contractor support, target build-up, and range support.
- JSOW: Conduct test planning, test execution, contractor support, and range support.
- AIM-9X: Conduct Modeling/Simulation.
- JASSM: Oct 96 - Mar 97. Complete Evaluation Concept and start OT&E Test Plan including: test design matrix, refine test scenarios, complete development of JASSM survivability, damage, and reliability methodology. Outline Preliminary Data Management Analysis Plan (DMAP).

(U) Category: Computer, Communication, Command and Control and Information System (C4 I). Conduct IOT&E on JTIDS Class 2 Terminal Multiservice (JTIDS CL2) and etc.
- JTIDS Class 2 Terminal: Conduct Multi-service IOT&E and range support.

(U) Category: General. Conduct IOT&E on Wind Corrected Munitions Dispenser (WCMD) and Chemical Hardened Air Transportable Hospital (CHATH).
- WCMD: System is a new tail kit designed to correct for launch transients, ballistic error from lofts, medium-and high altitude deliveries, and unknown winds between release point and function altitude for CBU (CEM/Gator/SFW) munitions. The combined DT/IOT&E will support an initial LRIP decision in Nov 97, a B-52 required assets available (RAA) data in Feb 97 and Milestone III in FY99.
- CHATH: Program is a modification to the currently-fielded Air Transportable Hospital (ATH). The additional configuration includes currently-fielded M-28 chemical liners and airlocks, and the developed chemically hardened air management plan (CHAMP), a four-to-one replacement for the ECU. The CHAMP provides the over-pressurization and filtered air needed to chemically harden the ATH. DT&E completed in Dec 96, system certification in Feb. 97, IOT&E testing 3 Mar - 7 Apr 97, and Milestone III decision in May 97.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605712F Initial Operational Test & Eval PROJECT

– (U) $21,454 Total

(U) FY 1998 ($ in Thousands):

– (U) $28,319 (U) FY 98 IOT&E Planning Program: Conduct IOT&E on the F-22; Joint Strike Fighter (JSF); F-15 TEWS; B-1 CMUP BLK D; B-1B CMUP BLK E; B-1B CMUP BLK F; CV-22; and etc.

(U) Category: Aircraft/Support. Conduct IOT&E on the F-22; Joint Strike Fighter (JSF); F-15 TEWS; B-1 CMUP BLK D; B-1 CMUP BLK E; B-1B CMUP BLK F; CV-22; and etc.
- F-22: Implement Operational Assessment plan and reporting results to LRIP. Finalize Roll-up Methodology Model and F-15C Comparison Test Plan and coordinate required range and aircraft requirements.
- JSF: Develop, coordinate with USN/USMC, and gain approval of Early Operational Assessment Plan. Prepare resource requirement plan and initiate resource acquisition.
- F-15 TEWS: Conduct suitability assessment, and type 1 training
- B-1B CMUP Block D: Conduct IOT&E testing.
- B-1B CMUP Block E: Conduct advance planning, contractor support modeling simulation
- B-1B CMUP Block F: Conduct advance planning, contractor support, fuze model development, Joint Modeling and Simulation System (JMASS), and end game interface work.
- CV-22: Conduct operational test.

(U) Category: Space. Conduct IOT&E on CMU-CMU; ICBM-Minuteman III Guidance Program (ICBM-MMIII GRP); MILSTAR; Evolved Expendable Launch Vehicle (EELV); Space Based Infrared System-High; Space Based Infrared System-LOW (SBIRS-LEO); and etc.
- CMU: Finish air mission testing, and Cheyenne Mountain testing.
- ICBM GRP: Modeling/Simulation, range support, and guidance replacement testing.
- MILSTAR: Participate in combined DT/OT.
- EELV: Conduct Operational Assessment, IOT&E pre-test planning, modeling/simulation
- SBIRS (HIGH): Modeling/simulation, Validation Verification and Accreditation (VV&A) Effectiveness models, ground and space segment survivability analysis, operational assessment of ground consolidation, hardware/software integration, and planning for FY99 IOT&E.
- SBIRS (LOW): OT&E Program Readiness Assessment, Modeling and Simulation, Test and Evaluation Planning; and pre-test planning.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management and Support	PE NUMBER AND TITLE: 0605712F Initial Operational Test & Eval — PROJECT

(U) Category: Missile/Munitions. Conduct IOT&E on Joint Direct Attack Munitions (JDAM); Joint Standoff Weapon (JSOW); AIM-9X Air-to-Air (AIM-9X); and Joint Air-to Surface Stand-OFF Missile (JASSM), and etc.
- JDAM: Conduct IOT&E testing, contractor support, and range support
- JSOW: IOT&E testing, phase II test planning and contract support
- AIM-9X: Data Reduction, DMAP production and modeling/simulation
- JASSM: Oct 97 - Jan 98 - Complete OT&E Test Plan; develop and provide program introduction document to test ranges; complete and brief Milestone II operational assessment; finalize CDT/OT plan with JPO and contractors, range costs including simulator initial checkout and possible simulator deployments.

(U) Category: Computer, Communication, Command and Control and Information System (C4I). Conduct IOT&E on Region/Sector Air Operations Center (R/SAOC); Joint Precision Approach and Landing System (JPALS) and etc.
- R/SAOC (formerly R/SOCC): Concept development and test plan developments.
- JPALS: Conducting Operational Test, contractor support, data analysis, data reduction, and range support.

(U) Category: General. Conduct IOT&E on Wind Corrected Munitions Dispenser (WCMD); etc.
- WCMD: IOT&E test continues at Eglin AFB FL., and Utah Test and Training Range. Dedicated IOT&E will employ inert munitions to evaluate multiple-wean deliveries and to measure CEP to an 80% confidence level.

– (U) $28,319 Total

(U) FY 1999 ($ in Thousands):

– (U) $25,035 (U) FY99 IOT&E Planning Program: Conduct IOT&E on the F-22, Joint Strike Fighter (JSF); F-15 TEWS; B-1B CMUP BLK E; B-1B CMUP BLK F; an etc.

(U) Category: Aircraft/Support. Conduct IOT&E on the F-22; Joint Strike Fighter (JSF); F-15C/E TEWS; B-1 CMUP BLK E; B-1B CMUP BLK F; CV-22; and etc.
- F-22 : Conduct F-15C Comparison Test open-air Testing; Conduct Operational Assessment to Support Certification Ready for IOT&E.
- JSF: Conduct Early Operation Assessment.
- F-15 TEWS: Conduct IOT&E testing.
- B-1B CMUP Block E: Advance planning, contractor support, and modeling/simulation.
- B-1B CMUP Block F: Advance Planning, contractor support, and fuze model development.
- CV-22: Contractor support for operational evaluation (OPEVAL)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605712F Initial Operational Test & Eval PROJECT

(U) Category: Space. Conduct IOT&E on CMU-CMU; MILSTAR; Evolved Expendable Launch Vehicle (EELV); and etc.
- CMU: Complete Cheyenne Mountain Testing.
- MILSTAR: Participate in combined DT/OT.
- EELV: Conduct Operational Assessment #2.

(U) Category: Missile/Munitions. Conduct IOT&E for Joint Standoff Weapon (JSOW); AIM-9X Air-to-Air (AIM-9X); and Joint Air-to Surface Stand-OFF Missile (JASSM), etc.
- JSOW: Conduct IOT&E testing, phase II testing planning, and contractor support.
- AIM-9X: Conduct data reduction, DMAP Production, and modeling/simulation.
- JASSM: Participate and accomplish CDT/OT; prepare for IOT&E (planned start Feb). Provide manpower and equipment, and range cost including possible simulator deployment and early CDT/OT testing.

(U) Category: Computer, Communication, Command and Control and Information System (C4I). Conduct IOT&E on Region/Sector Air Operation Center (R/SACC), etc.
- R/SAOC (formerly R/SOCC): Conduct OT&E testing

(U) Category: General. Conduct IOT&E Casualty Care Systems; Base Intrusion Security Systems (BISS); Chemical Warfare Defense, Next Generation Generators and External Control Unit; etc.
- CCS: Test all newly developed flyaway transportable medical care systems.
- BISS: Conduct on-going tests of various commercial off-the-shelf and other personnel and asset protection techniques.
- CWD: AF focus of chemical protection programs.
- Next Generation Generator and External Control Units: Support the Airbase Operability Concept.

– (U) $25,035 Total

(U) B. Program Change Summary ($ in Thousands):

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	23,806	26,921	34,601	31,320	Cont
(U) Appropriated Value		21,921			
(U) Adjustments to Appropriated Value		-467			
a. Congressional Adjustments		-467			
(U) Adjustments to Budget Years Since FY 1997 PB			-6,282	-6,285	
(U) Current Budget Submit/President's Budget	22,948	21,454	28,319	25,035	Cont

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605712F Initial Operational Test & Eval PROJECT

(U) Change Summary Explanation:

Funding: FY97 congressional reduction of $5 million. FY98 and FY99 budget changes reflect content and requirements adjustments.

Schedule: None.

Technical: None.

(U) C. **Other Program Funding Summary ($ in Thousands):** Not applicable.

(U) D. **Schedule Profile:** Not applicable

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605807F Test And Evaluation Spt

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	436,454	414,901	389,348	389,527	396,398	382,594	396,079	410,520	Continuing	TBD
06TS Test and Evaluation Support (1)	317,370*	306,651*	367,175	366,258	372,737	359,309	369,955	383,416	Continuing	TBD
06AS Aircraft Support (2)	12,294*	11,899	0	0	0	0	0	0	0	TBD
06MC Minor Construction (3)	3,838*	3,640	0	0	0	0	0	0	0	TBD
06MR Maintenance and Repair (4)	81,588*	72,557	0	0	0	0	0	0	0	TBD
06TG 46 Test Group	21,364*	20,154*	22,173	23,269	23,661	23,285	26,124	27,104	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(1) Beginning in FY98, all test support mission requirements and their associated funding are consolidated in projects 06TS and 06TG of PE 0605807F. All test support aircraft requirements and funding were realigned to 06TS for FY98-03 (formerly in project 06AS for FYs 96 and 97). Also consolidated in project 06TS starting in FY98 are the test facility maintenance, repair and minor construction requirements formerly funded in projects 06MR and 06MC. Those two projects captured both test and non-test requirements in FYs 96 and 97. Beginning in FY98, the non-test maintenance and repair and minor construction requirements (i.e., in support of non-test general installation infrastructure such as dormitories, general purpose buildings) were transferred to PE 0605878 (Maintenance and Repair) and PE 0605876F (Minor Construction), respectively, thus carving out the non-test requirements and placing them in PEs whose nomenclature mirrors the rest of the Air Force's base support functions. In addition, approximately $20M each year across the FYDP from PE 0605896F (Base Operations Support) was deemed test related content and therefore transferred to this project starting in FY98.

(2) Aircraft Support requirements and funding moved to Test and Evaluation Support, project 06TS, for FYs 98-03.

(3) Approximately 50% of FY98-03 content and funding for Minor Construction, project 06MC, were transferred to PE 0605876F. This transfer provides better focus and alignment of resources for non-test, common base operations support functions at Arnold, Eglin and Edwards AFBs. The other 50% of content was identified specifically as test mission support requirements and accordingly transferred to project 06TS.

(4) Approximately 75% of FY98-03 content and funding for Maintenance and Repair, project 06MR, were transferred to PE 0605878F. This transfer provides better focus and alignment of resources for non-test, common base operations support functions at Arnold, Eglin and Edwards AFBs. The other 25% was identified specifically as test facility maintenance and repair requirements and was accordingly transferred to project 06TS.

* This R-2's FY96/97 project totals (shown above) are correct. Due to an administrative error, the automated budget submission has incorrect project allocations in FY96 (06TS $324,612 / 06AS $14,156 / 06MC $3,588 / 06MR $85,865 / 06TG $8,233) and FY97 (06TS $279,874 / 06TG $46,931).

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605807F Test And Evaluation Spt

(U) A. Mission Description and Budget Item Justification: This program element funds infrastructure resources (civilians, aircraft, facilities and ranges) to operate the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB). Test facilities/capabilities operated through this program include wind tunnels, rocket and jet engine test cells, limited space environmental simulation chambers, armament test ranges, climatic test facilities, avionics test facilities, aircraft testbeds, dry lakebed landing sites, and instrumented test ranges. It also provides resources for maintaining Air Force Materiel Command (AFMC) assigned test and test support coded aircraft. The 46 Test Group (46TG) provides the following unique capabilities as part of the DoD MRTFB: the High Speed Test Track (HSTT), Central Inertial Guidance Test Facility (CIGTF), and the Radar Target Scatter (RATSCAT) facility.

(U) B. Program Change Summary ($ in Thousands):

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	423,827	425,195	437,024	435,323	Cont
(U) Appropriated Value		425,195			
(U) Adjustments to Appropriated Value		-10,388			
a. Congressional Adjustments		-10,388			
(U) Adjustments to Budget Years Since FY 1997 PB			-47,676	-45,796	
a. DBOF financial services (DFAS) transfer			-9,900	-9,900	
b. Transfers to non-test RPM/MC PEs			-57,053	-59,444	
c. Test support content from PE 0605896F			20,633	20,740	
d. Tunnel 9 transfer from Navy effective FY98			4,000	4,000	
e. Misc adjustments			-5,356	-1,192	
(U) Current Budget Submit/President's Budget	436,454	414,797	389,348	389,527	Cont

(U) Change Summary Explanation:

Funding: FYs 98-03 incorporates several revisions to move all non-test base support functions out of the test support PE. Likewise, all content in PE 0605896F that is more accurately identified as test support has been transferred to this PE effective FY98. The cumulative effect of these changes carves out test from non-test, aligns test vs non-test requirements in their appropriate PEs, and shows a more accurate accounting for both test support and base support functions. Navy's Tunnel 9 facility becomes an Air Force test facility effective 1 Oct 97. Tunnel 9 will be captured under AEDC's infrastructure requirements; thus its $4M/yr overhead funding was added to this PE across the FYDP.

Schedule: None.

Technical: None.

(U) C. Other Program Funding Summary ($ in Thousands): Not applicable.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605807F Test And Evaluation Spt

Related RDT&E:
(U) PE 0604759F, Major T&E Investment (Technical capability improvement and modernization)
(U) PE 0604256F, Threat Simulator Development
(U) PE 0604940D, Central Test & Evaluation Improvement Program (T&E investments for new tri-service test capabilities)

(U) D. Schedule Profile: Not applicable.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE: February 1997	
BUDGET ACTIVITY: 6 - Management and Support				PE NUMBER AND TITLE: 0605807F Test And Evaluation Spt						PROJECT: 06TS
COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
06TS Test and Evaluation Support (1)	317,370*	306,651*	367,175	366,258	372,737	359,309	369,955	383,416	Continuing	TBD
Quantity of RDT&E Articles	NA	NA	NA	NA	NA	NA	NA	NA		

(1) FY98 requirements and funding increased for Test and Evaluation Support, project 06TS, to reflect a transfer of test mission maintenance and repair and minor construction requirements formerly identified in projects 06MR and 06MC, respectively. Likewise, all content in PE 0605896F (RDT&E Base Operations Support) that was more accurately identified as test support has been transferred to this project effective starting in FY98. In addition, all aircraft support requirements and funding (FYs 98-03) are now reflected in this project for FY98-03 (formerly in project 06AS). The cumulative effect of these changes carves out test from non-test, aligns test vs non-test requirements in their appropriate PEs, and shows a more accurate accounting for both test support and base support functions.

* This R-2's FY96/97 project totals (shown above) are correct. Due to an administrative error, the automated budget submission has incorrect project allocations in FY96 ($324,612) and FY97 ($279,874).

(U) A. **Mission Description and Budget Item Justification:** This project provides resources to operate the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB). Test facilities/capabilities operated through this program include wind tunnels, rocket and jet engine test cells, limited space environmental simulation chambers, armament test ranges, climatic test facilities, avionics test facilities, aircraft testbeds, dry lakebed landing sites, instrumented test ranges, and test aircraft maintenance. T&E Support funds test infrastructure overhead activities including: Command and supervisory staffs; supply stocks; maintenance, repair, and replacement of worn or obsolete test equipment and facilities; test infrastructure for data collection, transmission, reduction, and analysis; civilian salaries; temporary duty travel; support contract costs for hardware and software engineering and maintenance; and minor improvement and modernization projects. It also funds overhead test aircraft depot level maintenance such as: Programmed Depot Maintenance (PDM), the calendar-based cyclic scheduling of aircraft into depots for update/inspection; modifications and any other depot level repairs required by the aircraft System Program Directors (SPD); engine overhauls; depot-provided area assistance; and assorted ground support equipment overhauls. Three major Air Force test centers are supported by this project: (1) Arnold Engineering and Development Center (AEDC), located at Arnold Air Force Base, TN, whose test infrastructure overhead supports operations for the largest complex of ground test facilities in the free world (includes transonic, supersonic, and hypersonic wind tunnels; rocket motor and turbine engine test cells; space environmental test chambers, hyperballistic ranges; and other specialized facilities). (2) Air Force Flight Test Center (AFFTC), located at Edwards AFB, CA, whose test infrastructure overhead supports weapons system development and operational test and evaluation for aircraft, aircraft subsystems and aircraft weapon systems, aerospace research vehicles, unmanned miniature vehicles, cruise missiles, parachute delivery/recovery systems, cargo handling systems, and Electronic Warfare (EW) systems for DoD and allied forces. The AFFTC mission includes the USAF Test Pilot School. AFFTC's adjunct operation of the Utah Test and Training Range (UTTR) in Northwest Utah transfers to ACC (effective 1 Oct 97) in accordance with BRAC 95 direction. (3) Air Force Development Test Center (AFDTC), located at Eglin AFB, FL, whose test infrastructure overhead supports development testing of non-nuclear air armaments (including aircraft guns, ammunition, bombs, and missiles). AFDTC provides a scientific test process that supports the development and enhancement of munitions systems.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management and Support	PE NUMBER AND TITLE: 0605807F Test And Evaluation Spt
	PROJECT: 06TS

(U) FY 1996 ($ in Thousands)

Arnold Engineering and Development Center

- (U) $107,217 — Continued test infrastructure overhead support to enable ground testing for classified programs, and unclassified programs (F-22, JDAM, F-15, F-16, JSF, B-1B, B-2, C-130, AMRAAM, AIM 9X, Minuteman, EELV, Titan IV and F-18).

Aircraft Modification Directorate

- (U) $3,600 — Funded indirect labor and supporting expenses (training, travel, office supplies, etc.) and support services required for the Developmental Manufacturing and Modification Facility (DMMF) mission.

Air Force Flight Test Center

- (U) $106,924 — Continued to provide test infrastructure overhead support enabling testing of the B-1B, B-2, F-16, F-15, F-15E, F-22, AFTI/F-16, C-17, ATIC, ARIA, SMILS, ECCM, EW (B-1B ALQ-161, F-16 AN/ASQ-213, C-130 ALQ-172, etc.) and classified programs.
- (U) $18,000 — USAF Test Pilot School operating costs.

Air Force Development Test Center

- (U) $69,891 — Continued test infrastructure overhead support for non-nuclear air armaments (AMRAAM, WCMD, JASSM, AGM 130, IDL, OFP, SEEK EAGLE, TMD, JDAM, JSOW, etc.), EW (JSTARS, F15-TEWS, etc); C4I (JTIDS, AWACS, BISS, AFMSS), and refurbishment of the Climatic Test Facility.
- (U) $2,163 — Hurricane Opal Relief from FY96 Omnibus Reprogramming.

Other Support

- (U) $175 — Support for DoD Vision 21 consolidation study
- (U) $9,400 — Financial Reporting Support: Provided funding from Defense Business Operating Fund (DBOF) for T&E financial reporting.
- (U) $317,370 — Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605807F Test And Evaluation Spt
	PROJECT 06TS

(U) FY 1997 ($ in Thousands)

Arnold Engineering and Development Center

- (U) $107,801 Continued test infrastructure overhead support to enable ground testing for classified programs, and unclassified programs (F-22, JDAM, F-15, F-16, JSF, B-1B, B-2, C-130, AMRAAM, AIM 9X, Minuteman, EELV, Titan IV and F-18).

Aircraft Modification Directorate

- (U) $2,900 Fund indirect labor and supporting expenses (training, travel, office supplies, etc.) and support services required for the aircraft modification mission.

Air Force Flight Test Center

- (U) $97,788 Continue to provide test infrastructure overhead support enabling testing of the B-1B, B-2, F-16, F-15, F-15E, F-22, AFTI/F-16, C-17, ATIC, ARIA, ECCM, EW (B-1B ALQ-161, F-16 AN/ASQ-213, C-130 ALQ-172, etc.), and classified programs.
- (U) $18,600 USAF Test Pilot School operating costs.

Air Force Development Test Center

- (U) $69,212 Continued test infrastructure overhead support for non-nuclear air armaments (AMRAAM, SEEK EAGLE, TMD, JDAM, JSOW, WCMD, etc.); C4I (JTIDS, BISS, TMD), and aircraft software upgrades.

Financial Reporting Support

- (U) $9,900 Provide funding for Defense Business Operating Fund (DBOF) DFAS financial reporting.
- (U) $ 450 Federal Workforce Restructuring Act (FWRA) payment
- (U) $306,651 Total

(U) FY 1998 ($ in Thousands):

Arnold Engineering and Development Center

- (U) $115,038 Continued test infrastructure overhead support to enable ground testing for classified programs, and unclassified programs (F-22, JDAM, F-15, F-16, JSF, B-1B, B-2, C-130, AMRAAM, AIM 9X, Minuteman, EELV, Titan IV and F-18). Begin test infrastructure overhead support for Tunnel 9 that was transferred from the Navy to the USAF effective 1 Oct 97.
- (U) $ 29,253 Maintenance, repair and minor construction for test infrastructure requirements.

Air Force Flight Test Center

- (U) $103,166 Continue to provide test infrastructure overhead support enabling testing of the B-1B, B-2, F-16, F-15, F-15E, F-22, AFTI/F-16, C-17, ATIC, ARIA, ECCM, EW (B-1B ALQ-161, F-16 AN/ASQ-213, C-130 ALQ-172, etc.), and classified programs.
- (U) $18,900 USAF Test Pilot School operating costs.
- (U) $12,878 Programmed Depot Maintenance and engine overhauls for aircraft assigned to AFFTC.
- (U) $5,127 Maintenance, repair and minor construction for test infrastructure requirements.

Air Force Development Test Center

- (U) $70,536 Continued test infrastructure overhead support for non-nuclear air armaments (AMRAAM, SEEK EAGLE, TMD, JDAM, JSOW, WCMD, etc.); C4I (JTIDS, BISS, TMD), and aircraft software upgrades.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605807F Test And Evaluation Spt
	PROJECT 06TS

- (U) $ 2,759 Programmed Depot Maintenance and engine overhauls for aircraft assigned to AFDTC.
- (U) $ 9,518 Maintenance, repair and minor construction for test infrastructure requirements.
- (U) $367,175 Total

(U) FY 1999 ($ in Thousands):

Arnold Engineering and Development Center

- (U) $117,828 Continued test infrastructure overhead support to enable ground testing for classified programs, and unclassified programs (F-22, JDAM, F-15, F-16, JSF, B-1B, B-2, C-130, AMRAAM, AIM 9X, Minuteman, EELV, Titan IV and F-18). Continue Tunnel 9 infrastructure support.
- (U) $29,812 Maintenance, repair and minor construction for test infrastructure requirements.

Air Force Flight Test Center

- (U) $104,224 Continue to provide test infrastructure overhead support enabling testing of the B-1B, B-2, F-16, F-15, F-15E, F-22, AFTI/F-16, C-17, ATIC, ARIA, ECCM, EW (B-1B ALQ-161, F-16 AN/ASQ-213, C-130 ALQ-172, etc.),
- (U) $19,200 USAF Test Pilot School operating costs.
- (U) $11,218 Programmed Depot Maintenance and engine overhauls for aircraft assigned to AFFTC.
- (U) $5,275 Maintenance, repair and minor construction for test infrastructure requirements.

Air Force Development Test Center

- (U) $66,481 Continued test infrastructure overhead support for non-nuclear air armaments (AMRAAM, SEEK EAGLE, TMD, JDAM, JSOW, WCMD, etc.); C4I (JTIDS, BISS, TMD), and aircraft software upgrades.
- (U) $ 2,632 Programmed Depot Maintenance and engine overhauls for aircraft assigned to AFDTC.
- (U) $ 9,588 Maintenance, repair and minor construction for test infrastructure requirements.
- (U) $366,258 Total

(U) B. Program Change Summary ($ in Thousands):

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	317,370	314,101	322,541	317,638	Cont
(U) Appropriated Value		314,101			
(U) Adjustments to Appropriated Value		-7,450			
a. Congressional Adjustments		-7,450			
(U) Adjustments to Budget Years Since FY 1997 PB			-44,634	-48,620	
a. DBOF Financial Services (DFAS) Realignment			-9,900	-9,900	
b. Test support aircraft realignment from proj 06AS			13,137	13,850	
c. Test support content from PE 0605896F			20,633	20,740	
d. Tunnel 9 transfer from Navy effective FY98			4,000	4,000	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE: February 1997
BUDGET ACTIVITY: 6 - Management and Support	PE NUMBER AND TITLE: 0605807F Test And Evaluation Spt		PROJECT: 06TS

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
e. Test support M&R/MC from 06MR & 06MC			28,583	25,663	
f. Utah Test/Training Range transfer to ACC			-1,832	-1,885	
g. Misc adjustments			-9,987	-3,848	
(U) Current Budget Submit/President's Budget	317,370	306,651	367,175	366,258	Cont

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605807F Test And Evaluation Spt
	PROJECT 06TS

(U) Change Summary Explanation:.

Beginning in FY98, all test support mission requirements and their associated funding are consolidated in projects 06TS and 06TG of PE 0605807F. All test support aircraft requirements and funding were realigned to 06TS for FY98-03 (formerly in project 06AS for FYs 96 and 97). Also consolidated in project 06TS starting in FY98 are the test facility maintenance, repair and minor construction requirements formerly funded in projects 06MR and 06MC. Those two projects captured both test and non-test requirements in FYs 96 and 97. Beginning in FY98, the non-test maintenance and repair and minor construction requirements (i.e., in support of non-test general installation infrastructure such as dormitories, general purpose buildings) were transferred to PE 0605878 (Maintenance and Repair) and PE 0605876F (Minor Construction), respectively, thus carving out the non-test requirements and placing them in PEs whose nomenclature mirrors the rest of the Air Force's base support functions. In addition, approximately $20M each year across the FYDP from PE 0605896F (Base Operations Support) was deemed test related content and therefore transferred to this project starting in FY98. The Navy's Tunnel 9 operation becomes Air Force responsibility effective 1 Oct 97. The Utah Test and Training Range mission and funding transfers from this project to Air Combat Command (O&M funding) effective 1 Oct 97 in accordance with BRAC 95 direction.

Schedule: None.

Technical: None.

(U) C. Other Program Funding Summary ($ in Thousands): Not applicable.

Related RDT&E:
(U) PE 0604759F, Major T&E Investment (Technical capability improvement and modernization)
(U) PE 0604256F, Threat Simulator Development
(U) PE 0604940D, Central Test & Evaluation Improvement Program (T&E investments for new tri-service test capabilities)

(U) D. Schedule Profile: Not applicable.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605807F Test And Evaluation Spt

PROJECT: 06AS

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
06AS Aircraft Support (2)	12,294*	11,899	0	0	0	0	0	0	0	TBD
Quantity of RDT&E Articles	NA	NA	NA	NA	NA	NA	NA	NA		

(U) A. **Mission Description and Budget Item Justification:** The RDT&E aircraft support program provides resources for maintaining Air Force Materiel Command (AFMC) assigned test and test support coded aircraft whose flying missions support the Department of Defense Major Range and Test Facility Base (MRTFB). This program supports a multitude of mission designs and configurations, with many prototype, preproduction, and extensively modified/instrumented one-of-a-kind aircraft. Funds pay for overhead test infrastructure depot level maintenance such as: Programmed Depot Maintenance (PDM), the calendar-based cyclic scheduling of aircraft into depots for update/inspection; modifications and any other depot level repairs required by the aircraft System Program Directors (SPD); engine overhauls; depot-provided area assistance; and assorted ground support equipment overhauls. Aircraft Support requirements and funding moved to Test and Evaluation Support, project 06TS, for FYs 98-03. This change eliminates the misunderstanding that Aircraft Support requirements are independent of Test and Evaluation Support—they are dependent on one another, contribute to the same mission, and operate under the same reimbursable guidelines.

* This R-2's FY96 project total (shown above) is correct. Due to an administrative error, the automated budget submission has an incorrect total ($14,156) in FY96.

(U) FY 1996 ($ in Thousands):
- (U) $12,294 Perform PDM and engine overhauls.
- (U) $12,294 Total

(U) FY 1997 ($ in Thousands):
- (U) $11,899 Perform PDM and engine overhauls.
- (U) $11,899 Total

(U) FY 1998 ($ in Thousands):
- (U) $0 Not applicable.

(U) FY 1999 ($ in Thousands):
- (U) $0 Not applicable.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605807F Test And Evaluation Spt	PROJECT 06AS

(U) **B. Program Change Summary ($ in Thousands):**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	12,294	12,161	13,137	13,850	Cont
(U) Appropriated Value		12,161			
(U) Adjustments to Appropriated Value		-262			
a. Congressional Adjustments		-262			
(U) Adjustments to Budget Years Since FY 1997 PB			-13,137	-13,850	
(U) Current Budget Submit/President's Budget	12,294	11,899	0	0	Cont

(U) Change Summary Explanation:

Funding: FYs 98-03 reflect a zero balance because aircraft support requirements and funding were transferred to T&E Support, project 06TS.

Schedule: None.

Technical: None.

(U) **C. Other Program Funding Summary ($ in Thousands):** Not applicable.

Related RDT&E:
(U) PE 0604759F, Major T&E Investment (Technical capability improvement and modernization)
(U) PE 0604256F, Threat Simulator Development
(U) PE 0604940D, Central Test & Evaluation Improvement Program (T&E investments for new tri-service test capabilities)

(U) **D. Schedule Profile:** Not applicable.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605807F Test And Evaluation Spt

PROJECT: 06MC

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
06MC Minor Construction (3)	3,838*	3,640	0	0	0	0	0	0	0	TBD
Quantity of RDT&E Articles	NA	NA	NA	NA	NA	NA	NA	NA		

(1) Approximately 50% of FY98-03 content and funding for Minor Construction, project 06MC, were transferred to PE 0605876F. This transfer provides better focus and alignment of resources for non-test, common base operations support functions at Arnold, Eglin and Edwards AFBs. The other 50% of content was identified specifically as test mission support requirements and accordingly transferred to project 06TS.

* This R-2's FY96 project total (shown above) is correct. Due to an administrative error, the automated budget submission has an incorrect total ($3,588) in FY96.

(U) A. **Mission Description and Budget Item Justification:** This project provides essential minor construction at three AFMC installations: Eglin AFB FL, Edwards AFB CA, and Arnold AFB TN. Physical plant maintained by this account covers 800,000 acres of land; over four thousand structures in excess of 30 years old encompassing fifteen million square feet; over five million square yards of airfield pavement; 1900 miles of road network; utility systems that include 120 wells, 10 sewage treatment plants, 20 substations and over 1600 miles of high voltage electrical distribution lines.

(U) FY 1996 ($ in Thousands):
- (U) $3,838 Financed in-house work performed by government employees (to include supplies, materials and equipment). Financed construction of airman leadership school and classroom (2nd building), explosive ordnance disposal facility and performance of the most critical minor construction at the three MRTFBs.
- (U) $3,588 Total

(U) FY 1997 ($ in Thousands):
- (U) $3,640 Finance in-house work performed by government employees (to include supplies, materials and equipment). Finance construction of Human Resource Development Computer Laboratory, replace plenum escape system transformer and add 16KV circuit breaker to plenum escape system substation; and finance addition to equipment research laboratory and provide additional well reservoir.
- (U) $3,640 Total

(U) FY 1998 ($ in Thousands):
- (U) $0 Not applicable.

(U) FY 1999 ($ in Thousands):
- (U) $0 Not applicable.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605807F Test And Evaluation Spt	PROJECT 06MC

(U) **B. Program Change Summary ($ in Thousands):**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	3,588	3,717	3,893	4,084	Cont
(U) Appropriated Value		3,717			
(U) Adjustments to Appropriated Value		-77			
a. Congressional Adjustments					
(U) Adjustments to Budget Years Since FY 1997 PB			-3,893	-4,084	
(U) Current Budget Submit/President's Budget	3,588	3,640	0	0	Cont

(U) Change Summary Explanation:
Approximately 50% of FY98-03 content and funding for Minor Construction, project 06MC, were transferred to PE 0605876F. This transfer provides better focus and alignment of resources for non-test, common base operations support functions at Arnold, Eglin and Edwards AFBs. The other 50% of content was identified specifically as test mission support requirements and accordingly transferred to project 06TS.

Schedule: None.

Technical: None.

(U) **C. Other Program Funding Summary ($ in Thousands):** Not applicable.

(U) **D. Schedule Profile:** Not applicable.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605807F Test And Evaluation Spt		PROJECT 06MR

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
06MR Maintenance and Repair (4)	81,588*	72,557	0	0	0	0	0	0	0	TBD
Quantity of RDT&E Articles	NA	NA	NA	NA	NA	NA	NA	NA		

(1) Approximately 75% of FY98-03 content and funding for Maintenance and Repair, project 06MR, were transferred to PE 0605878F. This transfer provides better focus and alignment of resources for non-test, common base operations support functions at Arnold, Eglin and Edwards AFBs. The other 25% was identified specifically as test facility maintenance and repair requirements and were accordingly transferred to project 06TS.

* This R-2's FY96 project total (shown above) is correct. Due to an administrative error, the automated budget submission has an incorrect total ($85,865) in FY96.

(U) A. Mission Description and Budget Item Justification: This project provides essential Real Property Maintenance and Repair at three AFMC Bases whose host units are MRTFB activities: Eglin AFB FL, Edwards AFB CA, and Arnold AFB TN. Physical plant maintained by this account covers 800,000 acres of land; over four thousand structures in excess of 30 years old encompassing fifteen million square feet; over five million square yards of airfield pavement; 1900 miles of road network; utility systems that include 120 wells, 10 sewage treatment plants, 20 substations and over 1600 miles of high voltage electrical distribution lines. Beginning in FY 96, the increases represent an Air Force corporate decision to implement a new initiative to measure and improve facility conditions: the Commander's Facility Assessment (CFA). CFA puts a "readiness face" on real property maintenance requirements by having commanders at all levels assess their facility's condition and its impact on mission accomplishment. Facilities are assessed as either Level 1 (Unsatisfactory - minimal mission support) or Level 2 (Degraded - impaired mission support). The field commanders have unanimously endorsed CFA as the best way to determine and address mission impacts due to facility deficiencies. The program increases represent a concerted effort to fund the majority of the Level 1 requirements with a particular emphasis on operational facilities and base infrastructure.

(U) FY 1996 ($ in Thousands) Planned Program:
- (U) $34,853 Financed in house work force.
- (U) $12,889 Repaired heat exchangers in engine test facility, 26,500 hp rotor and starter, process air valve, liquid rheostats and water manifolds, and installed EMC and SCADA systems. .
- (U) $10,834 Repaired various water and sewer lines, dorms, circuit breakers, asbestos abatement, seismic studies, and various roofs.
- (U) $6,712 Commander's Facility Assessment (CFA) requirements necessary to repair "unsatisfactory" conditions.
- (U) $16,300 Hurricane Opal damage recovery (Omnibus Funding)
- (U) $81,588 Total

(U) FY 1997 ($ in Thousands) Planned Program:
- (U) $38,445 Finance in-house work force.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management and Support	PE NUMBER AND TITLE: 0605807F Test And Evaluation Spt / PROJECT: 06MR

- (U) $13,225 Repair refrigerant insulation, rotor discs, gaseous helium refrigerators, heaters in air processing system and water control valves.
- (U) $12,350 Repair various roads, underground cable, HVAC (heating, ventilation and air conditioning), airfield pavement, electrical distribution lines , and asbestos abatement, seismic studies, and re-roof buildings.
- (U) $8,537 CFA exercise identified requirements necessary to repair "unsatisfactory" conditions.
- (U) $72,557 Total

(U) FY 1998 ($ in Thousands):
- (U) $0 Not applicable.

(U) FY 1999 ($ in Thousands):
- (U) $0 Not applicable.

(U) B. Program Change Summary ($ in Thousands):

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	69,565	74,122	75,898	77,524	Cont
(U) Appropriated Value		74,122			
(U) Adjustments to Appropriated Value		-1,565			
a. Congressional Adjustments		-1,565			
(U) Adjustments to Budget Years Since FY 1997 PB			-75,898	-77,524	
(U) Current Budget Submit/President's Budget	81,588	72,557	0	0	Cont

(U) Change Summary Explanation:

Approximately 75% of FY98-03 content and funding for Maintenance and Repair, project 06MR, were transferred to PE 0605878F. This transfer provides better focus and alignment of resources for non-test, common base operations support functions at Arnold, Eglin and Edwards AFBs. The other 25% was identified specifically as test facility maintenance and repair requirements and were accordingly transferred to project 06TS.

Schedule: None.

Technical: None.

(U) C. Other Program Funding Summary ($ in Thousands): Not applicable.

(U) D. Schedule Profile: Not applicable.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 6 - Management and Support				PE NUMBER AND TITLE 0605807F Test And Evaluation Spt					PROJECT 06TG	
COST *($ In Thousands)*	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
06TG 46 Test Group	21,364*	20,154*	22,173	23,269	23,661	23,285	26,124	27,104	Continuing	TBD
Quantity of RDT&E Articles	NA	NA	NA	NA	NA	NA	NA	NA		

(U) A. **Mission Description and Budget Item Justification:** This project funds test infrastructure overhead support including: Command and supervisory staffs; supply stocks; upkeep, refurbishment, repair, and replacement of non-repairable or obsolete test equipment; test infrastructure for data collection, transmission, reduction, and analysis; civilian salaries, utilities, temporary duty travel, support contract costs for hardware and software engineering and maintenance. Project infrastructure support is provided for the unique capabilities of the 46th Test Group facilities: the High Speed Test Track (HSTT), Central Inertial Guidance Test Facility (CIGTF), and the Radar Target Scatter (RATSCAT) facility.

* This R-2's FY96/97 project totals (shown above) are correct. Due to an administrative error, the automated budget submission has incorrect totals in FY96 ($8,233) and FY97 ($46,931).

(U) FY 1996 ($ in Thousands) Planned Program:

- (U) $21,364 Provided infrastructure test support for programs such as AICON, IRCM, Peacekeeper, THAAD, F-111, Sparrow, Corps SAM, Standard Missile II, Patriot III, GPS jamming and spoofing, FAA Wide Area Augmentation System, GPS integrated and imbedded INS programs, aircraft navigation systems, including B-2, missile and munitions navigation systems for Trident and JDAM, F-22, and static RCS testing for QF-4, JDAM, ATACMS, CCV and low observable testbeds; and initiated acquisition of special avionics to support GPS integration and testing.
- (U) $21,364 Total

(U) FY 1997 ($ in Thousands) Planned Program:

- (U) $20,154 Provide infrastructure test support for programs such as AICON, F-22A escape system, 4th Generation Ejection Seat, Standard Missile 2, PAC-3 LFT&E, JPATS Escape System, THAAD LFT&E, Directed Infrared Countermeasures (DIRCM), SOF DIRCM and AN/AAR44 System improvements, continued GPS-JPO RTO responsibilities, Project 2000 integration support, GPS jamming and spoofing, FAA Wide Area Augmentation System, GPS integrated and embedded INS programs, aircraft navigation systems, including B-2 and F-22, missile and munitions navigation systems for Trident and JDAM, and static RCS testing for stores, low observable testbeds, and other classified programs.
- (U) $20,154 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management and Support	PE NUMBER AND TITLE: 0605807F Test And Evaluation Spt / PROJECT: 06TG

(U) FY 1998 ($ in Thousands):

- (U) $22,173 Provide infrastructure test support for programs such as AICON, F-22A escape system, 4th Generation Ejection Seat, Standard Missile 2, PAC-3 LFT&E, JPATS Escape System, THAAD LFT&E, Directed Infrared Countermeasures (DIRCM), SOF DIRCM and AN/AAR44 System improvements, continued GPS-JPO RTO responsibilities, Project 2000 integration support, GPS jamming and spoofing, FAA Wide Area Augmentation System, GPS integrated and embedded INS programs, aircraft navigation systems, including B-2 and F-22, missile and munitions navigation systems for Trident and JDAM, and static RCS testing for stores, low observable testbeds, and other classified programs.
- (U) $22,173 Total

(U) FY 1999 ($ in Thousands):

- (U) $23,269 Provide infrastructure test support for programs such as AICON, F-22A escape system, 4th Generation Ejection Seat, Standard Missile 2, PAC-3 LFT&E, JPATS Escape System, THAAD LFT&E, Directed Infrared Countermeasures (DIRCM), SOF DIRCM and AN/AAR44 System improvements, continued GPS-JPO RTO responsibilities, Project 2000 integration support, GPS jamming and spoofing, FAA Wide Area Augmentation System, GPS integrated and embedded INS programs, aircraft navigation systems, including B-2 and F-22, missile and munitions navigation systems for Trident and JDAM, and static RCS testing for stores, low observable testbeds, and other classified programs.
- (U) $23,269 Total

(U) B. Program Change Summary ($ in Thousands):

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	21,364	21,094	21,555	22,227	Cont
(U) Appropriated Value		21,094			
(U) Adjustments to Appropriated Value		-940			
a. Congressional Adjustments		-940			
(U) Adjustments to Budget Years Since FY 1997 PB			618	1,042	
(U) Current Budget Submit/President's Budget	21,364	20,154	22,173	23,269	Cont

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605807F Test And Evaluation Spt
	PROJECT 06TG

(U) Change Summary Explanation:
Funding: Misc adjustments.

Schedule: None.

Technical: None.

(U) C. **Other Program Funding Summary ($ in Thousands):** Not applicable.

(U) D. **Schedule Profile:** Not applicable.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605808F Development Planning

PROJECT: 3361

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
3361 Mission & System Planning	6,437	6,194	6,049	6,197	5,871	6,028	6,149	6,316	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) **A. Mission Description and Budget Item Justification**

The Air Force is in compliance with the DoD 5000 series regulations which mandate that a full range of requirements analyses be conducted to identify and substantiate current operational deficiencies through the Air Force Modernization Planning Process. This PE supports this process and has a substantial impact on Air Force acquisitions prior to Milestone 0 decisions. First, a Mission Area Assessment (MAA) is conducted to identify tasks and substantiate operational deficiencies. These deficiencies must relate directly to assigned Air Force operational roles, missions, and supporting tasks that cannot be performed efficiently or in a cost effective manner. Second, a Mission Needs Analysis (MNA) is conducted to identify potential cost effective, non-materiel and materiel alternatives that address the deficiency, or present new technological opportunities. Non-materiel alternatives include doctrine, tactics, training, and organizational changes. Materiel alternatives will include modification and review of all existing DoD, Allied and non-developmental systems, or development of new systems. Operational requirements analyses and supporting acquisition milestone documentation include MAAs, MNAs, and Mission Need Statements (MNS). Phase 0 concepts studies and Analysis of Alternatives (AOAs) are not normally conducted in this program element. This program is in budget activity 6 - Management Support, Research Category 6.5 because the efforts perform operational requirements studies and analyses directed in support of assigned mission areas and mission area plans. Studies are competitively selected on a yearly basis. There is no unnecessary duplication of effort within the Air Force or DoD.

(U) FY 1996 ($ in Thousands):

- (U) $719 Initiate MAP analysis support to Counterair, Strategic Attack/Interdiction, Theater Missile Defense, and Close Air Support MAPs.
- (U) $965 Continue surveillance and reconnaissance mission area study to identify architecture alternatives to support the battlefield commander.
- (U) $656 Initiate Standard Data Base Architecture study to identify and recommend a solution to C4I architecture and database deficiencies stated in the Air Force Special Operations Command MAPs, the Air Force Intelligence Functional Area Plan (FAP), the Air Force C4 FAP, and the Air Force Surveillance and Reconnaissance MAP.
- (U) $380 Continue Air Education and Training Command mission areas throughput and resource allocation model development.
- (U) $713 Continue Future Space Architectures (FSA) studies to support development of Air Force Space Command MAPs.
- (U) $456 Initiate effort to adapt existing air mobility modeling and simulation tools to distributed interactive simulation (DIS) standards to support air mobility MAAs.
- (U) $390 Initiate a study to determine modeling and simulation (M&S) requirements for Special Operations Forces missions and produce a list of existing M&S tools that can be used as is or modified, or recommend other alternatives as required.
- (U) $1076 Complete MAA/MNA of Air Mobility Command's missions to identify requirements for a single, integrated command and control system.
- (U) $238 Initiate studies on health and safety issues of non-lethal weapons to support AF Surgeon General functional area analysis and assessment.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605808F Development Planning
	PROJECT 3361

- (U) $625 Continue IDEF MAA/MNA of combat weather support requirements for worldwide Air Force and Army missions.
- (U) $219 Initiate study to support MNA for the Special Operations Forces Provide Mobility in Denied Territory mission area.
- (U) $6,437 Total

(U) FY 1997 ($ in Thousands):

- (U) $1057 Continue surveillance and reconnaissance mission area study to identify architecture alternatives to support the battlefield commander.
- (U) $427 Initiate analysis of the Aeromedical Evacuation mission and environment during contingency operations.
- (U) $446 Continue effort to adapt existing air mobility modeling and simulation tools to distributed interactive simulation (DIS) standards to support air mobility MAAs.
- (U) $56 Initiate effort to identify comprehensive measures of merit and effectiveness of space and missile systems to support analyses.
- (U) $995 Initiate analytical baseline of life cycle cost of ownership of weapon systems to support Air Combat Command's (ACC) mission area planning.
- (U) $710 Continue study to support MNA for the Special Operations Forces Provide Mobility in Denied Territory mission area.
- (U) $282 Initiate assessment of deficiencies in various fleet mixes of intratheater airlift aircraft and the impact of the deficiencies on a campaign.
- (U) $493 Initiate effort to project sizing requirements for the communications pipeline to and from Air Mobility Command bases and deployed sites.
- (U) $207 Initiate analysis of combat identification architectures to address correlating off-board sensor data with shooter on-board fire control data.
- (U) $440 Initiate establishment of objective and quantifiable methodology to examine integrated warfighting concepts across ACC mission areas.
- (U) $263 Initiate development of a methodology to analyze and optimize airpower allocations within a theater campaign.
- (U) $141 Initiate development of a family of optimized mixes of space and missile systems/concepts over a 25-year horizon.
- (U) $305 Initiate identification and analysis of AF Medical Service casualty management requirements from future biowarfare or directed energy weaponry.
- (U) $372 Continue Air Education and Training Command (AETC) mission areas throughput and resource allocation model development.
- (U) $6,194 Total

(U) FY 1998 ($ in Thousands):

- (U) $490 Complete study to support MNA for the Special Operations Forces Provide Mobility in Denied Territory mission area.
- (U) $150 Initiate efforts to identify opportunities to streamline, consolidate, and automate AF Modernization Planning processes.
- (U) $1375 Continue surveillance and reconnaissance mission area study to identify architecture alternatives to support the battlefield commander.
- (U) $1200 Continue analysis of optimized space and missile capabilities, and force structure trades across all space Mission Areas.
- (U) $700 Initiate analysis of integration and interdependencies of land and sea transportation to allow determination optimal mix of mobility resources.
- (U) $1240 Complete efforts to baseline and forecast operations and support, modernization and infrastructure costs for combat aircraft and training systems.
- (U) $595 Initiate efforts to strengthen linkages between ACC Mission Area deficiencies and modernization investment
- (U) $182 Initiate analysis of training to identify more efficient, effective methods in support of AETC Mission Areas.
- (U) $117 Continue analysis of the Aeromedical Evacuation mission and environment during contingency operations.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605808F Development Planning
	PROJECT 3361

- (U) $6,049 Total

(U) FY 1999 ($ in Thousands): Estimates. Projects have not been selected.

- (U) $300 Continue efforts to identify opportunities to streamline, consolidate, and automate AF Modernization Planning processes.
- (U) $1400 Continue surveillance and reconnaissance mission area study to identify architecture alternatives to support the battlefield commander.
- (U) $600 Continue analysis of optimized space and missile capabilities, and force structure trades across all space Mission Areas.
- (U) $495 Continue efforts to strengthen linkages between ACC Mission Area deficiencies and modernization investment
- (U) $410 Complete analysis of the Aeromedical Evacuation mission and environment during contingency operations.
- (U) $2992 Initiate or continue efforts in support of Air Force Modernization Planning, to be selected in December 1997.
- (U) $6,197 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	6,495	6,531	6,673	6,832	Continuing
(U) Appropriated Value	6,745	6,531			
(U) Adjustments to Appropriated Value					
a. Cong Reductions	-198	-185			
b. SBIR		-152			
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming	-17				
e. Recissions	-93				
(U) Adjustments to Budget Years Since FY 1997 PB			-624	-635	
(U) Current Budget Submit/98 PB	6,437	6,194	6,049	6,197	Continuing

(U) Change Summary Explanation:

Funding: Funding is reduced in FY98 and FY99 to support higher priority efforts and for revised economic assumptions.
Schedule: Not applicable.
Technical: Not applicable.

(U) C. Other Program Funding Summary ($ in Thousands) Not applicable.

FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605808F Development Planning

PROJECT: 3361

(U)	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
(U) Execute projects	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605853F Environmental Conservation

PROJECT: 4392

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4392 Environmental Conservation	8,194	10,429	11,914	12,752	12,807	12,553	12,461	14,164	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0		0	0	0

(U) A. Mission Description and Budget Item Justification

– This program element provides environmental conservation services at three Air Force Material Command Major Range and Test Facility Bases: Eglin AFB, FL, Edwards AFB, CA, and Arnold AFB, TN. The account pays for Class 0 (recurring work to keep the gates open), Class I (work to correct non-compliance with federal, state or local environmental laws in the current and budget years) and Class II (work to correct non-compliance prior to compliance deadlines) projects. Typical services and projects include: surveying, monitoring and protection of endangered species; environmental assessments and impact analysis; surveying, monitoring and protection of wetlands and floodplains; cultural resources evaluations; and archeological surveys.

(U) FY 1996

- (U) $5356 Recurring Costs (Class 0)
  - (U) $540 Manpower and Education and Training
  - (U) $4816 Other Recurring Costs
- (U) $2838 Non-recurring Costs (Class I Projects)
  - (U) $1256 T&E Species
  - (U) $100 Wetlands
  - (U) $342 Other Natural Resources
  - (U) $1140 Historical & Cultural Resources
- (U) $8194 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605853F Environmental Conservation
	PROJECT 4392

(U) FY 1997

- (U) $7758 Recurring Costs (Class 0)
  - (U) $91 Manpower and Education and Training
  - (U) $7667 Other Recurring Costs

- (U) $2671 Non-recurring Costs (Class I Projects)
  - (U) $1037 T&E Species
  - (U) $834 Wetlands
  - (U) $0 Other Natural Resources
  - (U) $800 Historical & Cultural Resources

- (U) $10,429 Total

(U) FY 1998

- (U) $6269 Recurring Costs (Class 0)
  - (U) $621 Manpower and Education and Training
  - (U) $5648 Other Recurring Costs

- (U) $5645 Non-recurring Costs (Class I Projects)
  - (U) $1161 T&E Species
  - (U) $964 Wetlands
  - (U) $2560 Other Natural Resources
  - (U) $960 Historical & Cultural Resources

- (U) $11,914 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management and Support	PE NUMBER AND TITLE: 0605853F Environmental Conservation / PROJECT: 4392

(U) FY 1999

- (U) $5994 Recurring Costs (Class 0)
  - (U) $634 Manpower and Education and Training
  - (U) $5360 Other Recurring Costs

- (U) $6758 Non-recurring Costs (Class I Projects)
  - (U) $2374 T&E Species
  - (U) $954 Wetlands
  - (U) $2580 Other Natural Resources
  - (U) $850 Historical & Cultural Resources

- (U) $12,752 Total
-

(U) **Acquisition Strategy:** ***Not Applicable***

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY97 President's Budget	14,169	10,870	11,195	11,203	TBD
(U) Appropriated Value	4,169	10,870			
(U) Adjustments to Appropriated Value					
a. Congressional General Reductions	(82)	(227)			
b. SBIR		(214)			
c. Omnibus or Other Above Threshold Reprogram	4,700				
d. Below Threshold Reprogramming	(535)				
e. Rescissions	(58)				
f. Adjustments to Budget Years since FY97 PB			719	1,549	
(U) Current Budget Submit/President's Budget	8,194	10,429	11,914	12,752	TBD

(U) Change Summary Explanation:
Funding: Adjustments to FY96 appropriations since the FY97 PB submission include a) Omnibus reprogramming of $4,700,000 to cover must pay Class 0 and Class I requirements and b) a below threshold reprogramming of $534,000 to PE 0605856f to cover Hurricane Opal damages at Eglin AFB, FL. Adjustments to

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605853F Environmental Conservation
	PROJECT 4392

FY97 appropriations include a Congressional general reduction of $227,000 and small business investment research reduction of $214,000. Increase to FY98 and FY99 is due to additional Class 0 work required at Eglin AFB, FL.

Schedule: *Not Applicable*

Technical: *Not Applicable*

(U) C. **Other Program Funding Summary ($ in Thousands)** ***Not Applicable***

(U) D. **Schedule Profile** ***Not Applicable***

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605854F Pollution Prevention

PROJECT: 1007

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
1007 Pollution Prevention	13,397	19,756	5,880	4,314	5,331	5,406	5,689	5,860	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0		0	0	0

(U) A. **Mission Description and Budget Item Justification**

– This program element funds pollution prevention efforts required to accomplish the objectives and subobjectives of the Air Force Pollution Prevention Strategy to include installation level programs at Air Force Material Command Major Range and Test Facility bases (Eglin, Arnold, and Edwards AFBs) and cross-cutting weapons systems pollution prevention tools. It also funds efforts to validate and qualify environmentally acceptable materials and processes to replace existing common hazardous materials and processes. The account provides funds for Class 0 (recurring work to keep the gates open), Class 1 (work required to eliminate dependence on ozone depleting chemicals, work to correct current non-compliance with federal, state or local environmental laws, and work required to satisfy pollution prevention Executive Orders) and Class 2 (work required to meet future goals, policies, and legal requirements). Typical services and projects include: eliminating ozone depleting chemicals and hazardous materials; reducing the generation of hazardous waste, air emissions, and solid wastes; establishing and operating recycling and composting programs; and establishing and operating hazardous material pharmacies and centralized hazardous material tracking programs.

(U) FY 1996

- (U) $2889 Recurring Costs (Class 0)
  - (U) $236 Manpower and Education and Training
  - (U) $2653 Other Recurring Costs

- (U) $3980 Non-recurring Costs (Class I Projects)
  - (U) $915 RCRA Subtitle C - Hazardous Waste
  - (U) $279 RECRA Subtitle D - Solid Waste
  - (U) $358 Clean Air Act
  - (U) $40 Clean Water Act
  - (U) $2189 Hazardous Material Reduction
  - (U) $199 Other

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management and Support	PE NUMBER AND TITLE: 0605854F Pollution Prevention / PROJECT: 1007

- (U) $6,528 Validation and qualification of commercially available material, equipment, and processes to support the Montreal Protocol and Air Force Pollution Prevention Strategy objectives and subobjectives in accordance with the Environmental Research and Development Strategic Plan.

- (U) $13,397 Total

(U) FY 1997

- (U) $2058 Recurring Costs (Class 0)
  - (U) $662 Manpower and Education and Training
  - (U) $1396 Other Recurring Costs

- (U) $2094 Non-recurring Costs (Class I Projects)
  - (U) $356 RCRA Subtitle C - Hazardous Waste
  - (U) $84 RECRA Subtitle D - Solid Waste
  - (U) $251 Clean Air Act
  - (U) $21 Clean Water Act
  - (U) $1277 Hazardous Material Reduction
  - (U) $105 Other

- (U) $15,604 Validation and qualification of commercially available material, equipment, and processes to support the Montreal Protocol and Air Force Pollution Prevention Strategy objectives and subobjectives in accordance with the Environmental Research and Development Strategic Plan.

- (U) $19,756 Total

(U) FY 1998

- (U) $1374 Recurring Costs (Class 0)
  - (U) $583 Manpower and Education and Training
  - (U) $791 Other Recurring Costs

- (U) $1186 Non-recurring Costs (Class I Projects)
  - (U) $202 RCRA Subtitle C - Hazardous Waste
  - (U) $47 RECRA Subtitle D - Solid Waste
  - (U) $142 Clean Air Act

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605854F Pollution Prevention
	PROJECT 1007

- (U) $12 Clean Water Act
- (U) $724 Hazardous Material Reduction
- (U) $59 Other

- (U) $3,320 Validation and qualification of commercially available material, equipment, and processes to support the Montreal Protocol and Air Force Pollution Prevention Strategy objectives and subobjectives in accordance with the Environmental Research and Development Strategic Plan.

- (U) $5,880 Total

(U) FY 1999

- (U) $1418 Recurring Costs (Class 0)
  - (U) $610 Manpower and Education and Training
  - (U) $808 Other Recurring Costs

- (U) $1212 Non-recurring Costs (Class I Projects)
  - (U) $182 RCRA Subtitle C - Hazardous Waste
  - (U) $85 RECRA Subtitle D - Solid Waste
  - (U) $97 Clean Air Act
  - (U) $12 Clean Water Act
  - (U) $788 Hazardous Material Reduction
  - (U) $48 Other

- (U) $1,684 Validation and qualification of commercially available material, equipment, and processes to support the Montreal Protocol and Air Force Pollution Prevention Strategy objectives and subobjectives in accordance with the Environmental Research and Development Strategic Plan.

- (U) $4,314 Total

(U) **Acquisition Strategy:** ***Not Applicable***

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605854F Pollution Prevention

PROJECT: 1007

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY97 President's Budget	14,046	20,628	6,686	4,743	TBD
(U) Appropriated Value	14,046	20,628			
(U) Adjustments to Appropriated Value					
a. Congressional General Reductions	(275)	(470)			
b. SBIR	(176)	(402)			
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
e. Rescission	(194)				
f. Adjustments to Budget Years since FY97 PB	(4)		(806)	(429)	
(U) Current Budget Submit/President's Budget	13,397	19756	5,880	4,314	TBD

(U) Change Summary Explanation:

Funding change between FY 96 and FY 97 is primarily due to initial front loading to accomplish the program's most significant pollution prevention goals - reduce/eliminate dependence on ozone depleting chemicals and reduce the use of hazardous materials. Also, the program had significant start-up costs associated with instituting installation pollution prevention programs (hazardous material pharmacies and recycling/composting programs). Finally, funding increases can be contributed to the aggressive pursuit of easily identifiable qualification opportunities to transition environmental technologies into operational use. Reduced funding levels for FY 98 and FY 99 are primarily due to the maturity of the program - most of the initial start-up investments have been made and fewer Class 1 requirements and qualification opportunities have been identified. Adjustments to FY 96 include Congressional reductions of $275,000, small business investment research reduction of $176,000, Bosnia rescissions of $194,000 and a below threshold reprogramming of $4,000. Adjustments to FY 97 include Congressional reductions of $470,000 and small business investment research reduction of $402,000. Decreases in FY 98 and FY 99 result from changes in revised cost estimates and increased efficiencies in operations and services resulting in lower costs and the deferral of all Class II requirements until they become Class I.

Schedule: *Not Applicable*

Technical: *Not Applicable*

(U) C. Other Program Funding Summary ($ in Thousands) ***Not Applicable***

(U) D. Schedule Profile ***Not Applicable***

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605856F Environmental Compliance

PROJECT: 5856

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
5856 Environmental Compliance	26,053	21,865	17,126	21,705	22,197	23,547	24,989	26,798	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0		0	0	0

(U) A. **Mission Description and Budget Item Justification**

– This program element provides environmental compliance efforts required to meet federal, state or local environmental laws and standards at three Air Force Material Command Major Range and Test Facility Bases: Eglin AFB, FL, Edwards AFB, CA, and Arnold AFB, TN. The enviromental compliance program includes requirements to meet new legal requirements, ensure adherence with existing legal requirements and correct out of compliance situations when violations are identified. Air Force installations, like all other Federal facilities, are subject to regulation and inspection by state and local regulatory agencies, as well as the Environmental Protection Agency (EPA) and the Occupational Safety and Health Administration (OSHA). The primary focus areas of the environmental compliance program are air quality, hazardous waste, storage tanks, polychlorinated biphenyls (PCBs), drinking water, storm water, wastewater, hazardous materials, asbestos and lead-based paint. The account provides funds for Class 0 (recurring work to keep the gates open), Class I (work to correct non-compliance with federal, state or local environmental laws in the current and budget years) and Class II (work to correct non-compliance prior to compliance deadlines) projects. Typical services and projects include: hazardous waste management and disposal; upgrade and removal of underground storage tanks; air and water pollution compliance projects, asbestos abatement and disposal. Account also funds for environmental sampling and analysis; studies; testing and inspections; permits and fees.

(U) FY 1996

- (U) $16,604 Recurring Costs (Class 0)
  - (U) $6021 Manpower and Education and Training
  - (U) $1299 Permits and Fees
  - (U) $1788 Sampling, Analysis, Monitoring
  - (U) $2669 Waste Disposal
  - (U) $4827 Other Recurring Costs

- (U) $9,449 Non-recurring Costs (Class I Projects)
  - (U) $330 RCRA Subtitle C - Hazardous Waste
  - (U) $0 RECRA Subtitle D - Solid Waste
  - (U) $2144 RCRA Subtitle I - Underground Storage Tanks

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management and Support	PE NUMBER AND TITLE: 0605856F Environmental Compliance
	PROJECT: 5856

- (U) $2198 Clean Air Act
- (U) $2861 Clean Water Act
- (U) $0 Planning
- (U) $1916 Other

- (U) $26,053 Total

(U) FY 1997

- (U) $15,714 Recurring Costs (Class 0)
  - (U) $6322 Manpower and Education and Training
  - (U) $1040 Permits and Fees
  - (U) $1465 Sampling, Analysis, Monitoring
  - (U) $2570 Waste Disposal
  - (U) $4317 Other Recurring Costs

- (U) $6151 Non-recurring Costs (Class I Projects)
  - (U) $240 RCRA Subtitle C - Hazardous Waste
  - (U) $0 RECRA Subtitle D - Solid Waste
  - (U) $522 RCRA Subtitle I - Underground Storage Tanks
  - (U) $1330 Clean Air Act
  - (U) $1165 Clean Water Act
  - (U) $0 Planning
  - (U) $2894 Other

- (U) $21,865 Total

(U) FY 1998

- (U) $14,641 Recurring Costs (Class 0)
  - (U) $5496 Manpower and Education and Training
  - (U) $960 Permits and Fees
  - (U) $1297 Sampling, Analysis, Monitoring
  - (U) $2561 Waste Disposal

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605856F Environmental Compliance
	PROJECT 5856

- (U) $4327 Other Recurring Costs

- (U) $2485 Non-recurring Costs (Class I Projects)
  - (U) $250 RCRA Subtitle C - Hazardous Waste
  - (U) $0 RECRA Subtitle D - Solid Waste
  - (U) $0 RCRA Subtitle I - Underground Storage Tanks
  - (U) $835 Clean Air Act
  - (U) $800 Clean Water Act
  - (U) $0 Planning
  - (U) $600 Other

- (U) $17,126 Total

(U) FY 1999

- (U) $14,731 Recurring Costs (Class 0)
  - (U) $5337 Manpower and Education and Training
  - (U) $945 Permits and Fees
  - (U) $1437 Sampling, Analysis, Monitoring
  - (U) $2586 Waste Disposal
  - (U) $4426 Other Recurring Costs

- (U) $6974 Non-recurring Costs (Class I Projects)
  - (U) $0 RCRA Subtitle C - Hazardous Waste
  - (U) $0 RECRA Subtitle D - Solid Waste
  - (U) $0 RCRA Subtitle I - Underground Storage Tanks
  - (U) $1460 Clean Air Act
  - (U) $2454 Clean Water Act
  - (U) $0 Planning
  - (U) $3060 Other

- (U) $21,705 Total

(U) **Acquisition Strategy:** ***Not Applicable***

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605856F Environmental Compliance

PROJECT: 5856

(U) B. **Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY97 President's Budget	26,423	22,698	22,632	21,631	TBD
(U) Appropriated Value	26,423	22,698			
(U) Adjustments to Appropriated Value					
a. Congressional General Reductions	(517)	(475)			
b. SBIR	(11)	(358)			
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming	524				
e. Rescissions	(366)				
f. Adjustments to Budget Years since FY97 PB			(5,506)	74	
(U) Current Budget Submit/President's Budget	26,053	21,865	17,126	21,705	TBD

(U) Change Summary Explanation:

Funding: Adjustment to FY96 appropriations since the FY97 PB submission is primarily due to a below threshold reprogramming of $534,000 from PE 0605853f to cover Hurricane Opal damages at Eglin AFB, FL. Adjustments to FY97 appropriations include a Congressional general reduction of $475,000 and small business investment research reduction of $358,000. Adjustments to FY98 and FY99 reflect a) increased efficiencies in operations and services resulting in lower costs and b) deferral of Class II projects until they become Class I projects. Increase from FY98 to FY99 is required to support deferred Class II projects that become Class I requirements the following year.

Schedule: *Not Applicable*

Technical: *Not Applicable*

(U) C. **Other Program Funding Summary ($ in Thousands)** ***Not Applicable***

(U) D. **Schedule Profile** ***Not Applicable***

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605860F Rocket System Launch Program (Space)

PROJECT: 1023

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
1023 Rocket System Launch Program (RSLP)	36,900	32,218	8,013	8,023	8,255	8,360	8,522	8,729	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description and Budget Item Justification

(U) Rocket System Launch Program (RSLP) is tasked to provide Research, Development, Test and Evaluation (RDT&E) launch vehicle support to DoD and other government agencies using excess ballistic missiles assets. RSLP mission was established by the Secretary of Defense in 1972. It provides mission planning, payload integration, launch support, booster storage and disposal, maintenance and logistics support for selected DoD RDT&E launches. Costs directly attributable to a specific launch or program are paid by the user (Air Force, Navy, Army, Ballistic Missile Defense Organization, etc.). RSLP directly supports deactivation of Minuteman II by providing storage of these and other assets. RSLP performs research and development support operations required for general rocket system launch research and development use.

(U) This program is in Budget Activity 6 - Management and Support, Research Category 6.5, because RSLP provides research and development effort and/or operations support for general research and development use.

(U) FY 1996 ($ in Thousands):

- (U) $8,377 Storage and refurbishment of deactivated Minuteman and other missile flight test assets.
- (U) $11,500 Launch support for Air Force Academy cadet-developed satellite.
- (U) $16,800 Transportable range equipment development.
- (U) $0 Provided launch assets and technical assistance for DoD RDT&E launches. (Funded by users.)
- (U) $223 Other
- (U) $36,900 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997	
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605860F Rocket System Launch Program (Space)	PROJECT 1023

(U) FY 1997 ($ in Thousands):

- (U) $6,126 Continue storage and refurbishment of deactivated Minuteman and other missile flight test assets.
- (U) $2,026 Perform aging surveillance-related activities on stored motors; perform analyses/studies to identify and evaluate potential safety-related issues affecting stored motors.
- (U) $23,421 Accomplish atmospheric interceptor technology, plasma attenuation, and materials demonstration flight testing for BMDO.
- (U) $0 Provide launch assets and technical assistance for DoD RDT&E launches. (Funded by users.)
- (U) $645 Other
- (U) $32,218 Total

(U) FY 1998 ($ in Thousands):

- (U) $6,013 Continue storage and refurbishment of deactivated Minuteman and other missile flight test assets.
- (U) $2,000 Perform aging surveillance-related activities on stored motors; perform analyses/studies to identify and evaluate potential safety-related issues affecting stored motors.
- (U) $0 Provide launch assets and technical assistance for DoD RDT&E launches. (Funded by users.)
- (U) $8,013 Total

(U) FY 1999 ($ in Thousands):

- (U) $6,023 Continue storage and refurbishment of deactivated Minuteman and other missile flight test assets.
- (U) $2,000 Perform aging surveillance-related activities on stored motors; perform analyses/studies to identify and evaluate potential safety-related issues affecting stored motors.
- (U) $0 Provide launch assets and technical assistance for DoD RDT&E launches. (Funded by users.)
- (U) $8,023 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605860F Rocket System Launch Program (Space)
	PROJECT 1023

(U) B. **Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	32,808	8,152	8,474	8,609	Continuing
(U) Appropriated Value	22,749	33,252			
(U) Adjustments to Appropriated Value					
a. Cong Reductions	-220	-705			
b. SBIR	-523	-329			
c. Omnibus or Other Above Threshold Reprogram	11,275				
d. Below Threshold Reprogramming	3,619				
(U) Adjustments to Budget Years Since FY 1997 PB			-461	-586	
(U) Current Budget Submit/President's Budget	36,900	32,218	8,013	8,023	Continuing

(U) Change Summary Explanation:

Funding: FY97 reflects congressional-mandated reductions; FY98-02 funding reflects reductions to fund other AF and DoD priorities.

Schedule: No significant impact.

Technical: No significant impact.

(U) C. **Other Program Funding Summary ($ in Thousands):**

Related RDT&E: PE 0603851F, ICBM Dem/Val.

(U) D. **Schedule Profile:** Not applicable.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605876F Non-Test Minor Construction (RPM)

PROJECT: 06MC

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
06MC Minor Construction (1)	0*	0*	1,853	1,941	1,998	2,055	2,246	2,328	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(1) Minor Construction, project 06MC, was transferred from PE 0605807F, project 06MC, effective FY 98. Funding in FY 96/97 refers to PE 0605807F, project 06MC. *FY 96: $3,588K, FY 97: $3,640K.

(U) **A. Mission Description and Budget Item Justification**

This program is in budget activity 6 - Management and Support, Research Category 6.5 because the program element provides essential non-test minor construction at three locations: Eglin AFB FL, Edwards AFB CA, and Arnold AFB TN. Physical plant maintained by this account covers 800,000 acres of land; over four thousand structures in excess of 30 years old encompassing fifteen million square feet; over five million square yards of airfield pavement; 1900 miles of road network; utility systems that include 120 wells, 10 sewage treatment plants, 20 substations and over 1600 miles of high voltage electrical distribution lines. Beginning in FY 98, the Air Force moved the non-test portions of minor construction to PE 0605876F and out of PE 0605807F, Test and Evaluation Support, in order to align test functions under test PEs and non-test, base support items under non-test base support PEs. This action places the proper focus on test and non-test activities and aligns the base support functions of these three bases in-line with the rest of the Air Force's PEs.

(U) FY 1996 ($ in Thousands) (PE 0605807F, project 06MC):
- (U) $3,588 Financed in-house minor construction work performed by government employees (included supplies, materials and equipment) and by contract. Covered work on test and non-test facilities.
- (U) $3,588 Total

(U) FY 1997 ($ in Thousands) (PE 0605807F, project 06MC):
- (U) $3,640 Finance in-house minor construction work performed by government employees (included supplies, materials and equipment) and by contract. Covered work on test and non-test facilities.
- (U) $3,640 Total

(U) FY 1998 ($ in Thousands):
- (U) $1,853 Finance in-house non-test minor construction work performed by government employees (included supplies, materials and equipment) and by contract. Covers work on only non-test facilities and infrastructure.
- (U) $1,853 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605876F Non-Test Minor Construction (RPM)
	PROJECT 06MC

(U) FY 1999 ($ in Thousands):

- (U) $1,941 Finance in-house non-test minor construction work performed by government employees (included supplies, materials and equipment) and by contract. Covers work on only non-test facilities and infrastructure.
- (U) $1,941 Total

(U) B. Program Change Summary ($ in Thousands)

* Funding in FY 96/97 refers to PE 0605807F, projects 06MC.

	FY 1996*	FY 1997*	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	3,588	3,717	3,893	4,084	Cont
(U) Appropriated Value		3,717			
(U) Adjustments to Appropriated Value					
a. Cong Reductions		-77			
b. SBIR					
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
(U) Adjustments to Budget Years Since FY 1997 PB			-2,040	-2,143	
(U) Current Budget Submit/President's Budget	3,588	3,640	1,853	1,941	Cont

(U) Change Summary Explanation:

Funding: Change in funding in FY 98 and FY 99 represents the transfer of the non-test base support elements into separate program elements (This R-2 documents the transfer from PE 0605807F, project 06MC, to PE 0605878F; Other related non-test base support PEs are listed below). This realignment places the test emphasis on the test PEs and the base support emphasis on the non-test base support activities and aligns the base support functions of these three bases in-line with the rest of the Air Force's PEs.

Schedule: None.

Technical: None.

(U) C. Other Program Funding Summary ($ in Thousands): Not applicable.

Related non-test base support PEs:
(U) PE 0605878F, Non-Test Maintenance & Repair (RPM)
(U) PE 0605879F, Non-Test Real Property Services (RPS)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605876F Non-Test Minor Construction (RPM)
	PROJECT 06MC

(U) PE 0605896F, Non-Test Base Operating Support (BOS)
(U) PE 0605853F, Environmental Compliance
(U) PE 0605854F, Pollution Prevention
(U) PE 0605856F, Environmental Conservation

(U) D. Schedule Profile: Not applicable.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605878F Non-Test Maint And Repair (RPM)

PROJECT: 06MR

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
06MR Maintenance and Repair (1)	0*	0*	55,200	57,503	69,209	70,635	73,124	74,877	Continuing	0
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(1) Maintenance and Repair, project 06MR, was transferred from PE 0605807F, project 06MR, effective FY 98. Funding in FY 96/97 refers to PE 0605807F, project 06MR. *FY 96: $85,865K, FY 97: $72,557K.

(U) **A. Mission Description and Budget Item Justification**

This program is in budget activity 6 - Management and Support, Research Category 6.5 because this project provides essential non-test facility Real Property Maintenance and Repair at these three locations: Eglin AFB FL, Edwards AFB CA, and Arnold AFB TN. Physical plant maintained by this account covers 800,000 acres of land; over four thousand structures in excess of 30 years old encompassing fifteen million square feet; over five million square yards of airfield pavement; 1900 miles of road network; utility systems that include 120 wells, 10 sewage treatment plants, 20 substations and over 1600 miles of high voltage electrical distribution lines. Beginning in FY 98, the Air Force moved the non-test portions of Real Property Maintenance to PE 0605878F and out of PE 0605807F, Test and Evaluation Support, in order to align test functions under test PEs and non-test, base support items under non-test base support PEs. This action places the proper focus on test and non-test activities and aligns the base support functions of these three bases in-line with the rest of the Air Force's PEs.

(U) FY 1996 ($ in Thousands) (PE 0605807F, project 06MR):
- (U) $29,408 Financed in-house work force.
- (U) $21,057 Materials, fuel, supplies, and equipment employed by in-house work force performing day-to-day maintenance on test and non-test facilities.
- (U) $35,400 Real Property Maintenance by Contract, includes Hurricane Opal damage repair (FY96 Omnibus reprogramming)
- (U) $85,865 Total

(U) FY 1997 ($ in Thousands) (PE 0605807F, project 06MR):
- (U) $30,290 Finance in-house work force.
- (U) $21,317 Materials, fuel, supplies, and equipment employed by in-house work force performing day-to-day maintenance on test and non-test facilities.
- (U) $20,950 Real Property Maintenance by Contract
- (U) $72,557 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605878F Non-Test Maint And Repair (RPM)
	PROJECT 06MR

(U) FY 1998 ($ in Thousands):
- (U) $31,199 Finance in-house work force.
- (U) $15,330 Materials, fuel, supplies, and equipment employed by in-house work force performing day-to-day maintenance on test and non-test facilities.
- (U) $8,671 Real Property Maintenance by Contract
- (U) $55,200 Total

(U) FY 1999 ($ in Thousands):
- (U) $32,135 Finance in-house work force.
- (U) $15,667 Materials, fuel, supplies, and equipment employed by in-house work force performing day-to-day maintenance on test and non-test facilities.
- (U) $9,701 Real Property Maintenance by Contract
- (U) $57,503 Total

(U) B. Program Change Summary ($ in Thousands)

* Funding in FY 96/97 refers to PE 0605807F, projects 06MR.

	FY 1996*	FY 1997*	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	69,565	74,122	75,898	77,524	Cont
(U) Appropriated Value		74,122			
(U) Adjustments to Appropriated Value					
a. Cong Reductions		-1,565			
b. SBIR					
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
(U) Adjustments to Budget Years Since FY 1997 PB			-20,698	-20,021	
(U) Current Budget Submit/President's Budget	85,865	72,557	55,200	57,503	

(U) Change Summary Explanation:

Funding: Change in funding in FY 98 and FY 99 represents the transfer of the non-test base support elements into separate program elements (This R-2 documents the transfer from PE 0605807F, project 06MR, to PE 0605878F; Other related non-test base support PEs are listed below). This realignment places the test emphasis on the test PEs and the base support emphasis on the non-test base support activities and aligns the base support functions of these three bases in-line with the rest of the Air Force's PEs.

Schedule: None.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997	
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605878F Non-Test Maint And Repair (RPM)	PROJECT 06MR

Technical: None.

(U) C. **Other Program Funding Summary ($ in Thousands):** Not applicable.

Related non-test base support:
(U) PE 0605876F, Non-Test Minor Construction (RPM)
(U) PE 0605879F, Non-Test Real Property Services (RPS)
(U) PE 0605896F, Non-Test Base Operating Support (BOS)
(U) PE 0605853F, Environmental Compliance
(U) PE 0605854F, Pollution Prevention
(U) PE 0605856F, Environmental Conservation

(U) D. **Schedule Profile:** Not applicable.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605879F Non-Test Real Property Services (RPS)

PROJECT: 06CE

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
06CE Other Support (1) (2)	0*	0*	49,614	47,809	43,311	64,963	56,963	60,241	Continuing	0
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(1) Other Support, project 06CE, was transferred from PE 0605896F, projects 06CE and 06UT, effective FY 98, and is to be renamed Real Property Services. Funding in FY 96/97 refers to PE 0605896F, projects 06CE and 06UT. *FY 96: $48,658K, FY 97: $47,291K.

(2) During the separation of test and non-test functions, correction of manpower alignments, and the attempted transfer to the Operation and Maintenance Appropriation the FY 00 to 03 non-test base support amounts were misaligned. The Air Force will correctly align the non-test base support program during the FY 99 program cycle.

(U) **A. Mission Description and Budget Item Justification**

This program is in budget activity 6 - Management and Support, Research Category 6.5 because this program element provides basic, essential real property services and base operating support at Eglin AFB, FL; Edwards AFB, CA; and Arnold AFB, TN. This program supports the non-test portions of these three installations. The program also finances "quality of life" costs for day-to-day support for these three bases who have over 90 tenant organizations and an aggregate population in excess of 55,000 people. In-house workforce represents approximately 30 percent of the total program, with the remainder of the program financing training, utility operations, and civil engineering services, such as custodial, fire protection, hazardous material system certification, refuse collection, insect & pest control. Beginning in FY 98, the Air Force moved all non-test base support functions out of test and into non-test base support PEs. This action places the proper focus on test and non-test activities and organizes the base support functions of these three bases in-line with the rest of the Air Force's PEs.

(U) FY 1996 ($ in Thousands) (PE 0605896F, projects 06CE and 06UT):

- (U) $15,664 Financed in-house work force.
- (U) $4,699 Materials, fuel, supplies, and equipment employed by in-house work force performing civil engineering services.
- (U) $20,457 Purchased utilities.
- (U) $7,838 Contract services such as cleaning ducts and tanks and inspecting/certifying overhead doors, elevators, and fuel tanks and annual service contracts such as custodial and refuse collection.
- (U) $48,658 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605879F Non-Test Real Property Services (RPS)
	PROJECT 06CE

(U) FY 1997 ($ in Thousands) (PE 0605896F, projects 06CE and 06UT):
- (U) $15,899 Finance in-house work force.
- (U) $4,793 Materials, fuel, supplies, and equipment employed by in-house work force performing day-to-day maintenance on test and non-test facilities.
- (U) $20,646 Purchased utilities.
- (U) $5,953 Contract services such as cleaning ducts and tanks and inspecting/certifying overhead doors, elevators, and fuel tanks and annual service contracts such as custodial and refuse collection.
- (U) $47,291 Total

) FY 1998 ($ in Thousands):
- (U) $16,455 Finance in-house work force.
- (U) $4,937 Materials, fuel, supplies, and equipment employed by in-house work force performing day-to-day maintenance on test and non-test facilities.
- (U) $21,265 Purchased utilities.
- (U) $6,957 Contract services such as cleaning ducts and tanks and inspecting/certifying overhead doors, elevators, and fuel tanks and annual service contracts such as custodial and refuse collection.
- (U) $49,614 Total

(U) FY 1999 ($ in Thousands):
- (U) $16,620 Finance in-house work force.
- (U) $4,967 Materials, fuel, supplies, and equipment employed by in-house work force performing day-to-day maintenance on test and non-test facilities.
- (U) $21,361 Purchased utilities.
- (U) $4,861 Contract services such as cleaning ducts and tanks and inspecting/certifying overhead doors, elevators, and fuel tanks and annual service contracts such as custodial and refuse collection.
- (U) $47,809 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management and Support	PE NUMBER AND TITLE: 0605879F Non-Test Real Property Services (RPS) / PROJECT: 06CE

(U) **B. Program Change Summary ($ in Thousands)**

* Funding in FY 96/97 refers to PE 0605896F, projects 06CE and 06UT.

	FY 1996*	FY 1997*	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	48,658	48,304	52,651	54,231	Cont
(U) Appropriated Value		48,304			
(U) Adjustments to Appropriated Value					
a. Cong Reductions		-1,013			
b. SBIR					
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
(U) Adjustments to Budget Years Since FY 1997 PB			-3,037	-6,422	
(U) Current Budget Submit/President's Budget	48,658	47,291	49,614	47,809	

(U) Change Summary Explanation:

Funding: Change in funding in FY 98 and FY 99 represents the transfer of the non-test base support elements into separate program elements (This R-2 documents the transfer from PE 0605896F, projects 06CE & 06UT, to PE 0605879F; Other related non-test base support PEs are listed below). This realignment places the test emphasis on the test PEs and the base support emphasis on the non-test base support activities and aligns the base support functions of these three bases in-line with the rest of the Air Force's PEs. Test mission content and associated funding were transferred to PE 0605807F, Test and Evaluation Support.

Schedule: None

Technical: None

(U) C. Other Program Funding Summary ($ in Thousands): Not applicable.

Related non-test base support PEs:
(U) PE 0605876F, Non-Test Minor Construction (RPM)
(U) PE 0605878F, Non-Test Maintenance & Repair (RPM)
(U) PE 0605896F, Non-Test Base Operating Support (BOS)
(U) PE 0605853F, Environmental Compliance
(U) PE 0605854F, Pollution Prevention
(U) PE 0605856F, Environmental Conservation

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605879F Non-Test Real Property Services (RPS)
	PROJECT 06CE

(U) D. Schedule Profile: Not applicable.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605896F Base Operations - RDT&E

COST *($ In Thousands)*	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	134,232	125,979	65,365	63,188	57,085	54,564	53,211	54,341	0	0
06BS Base Operating Support (1)	85,574	78,688	65,365	63,188	57,085	54,564	53,211	54,341	0	0
06CE Other Support (2)	22,792	20,688	0	0	0	0	0	0	0	0
06UT Operations Of Utilities (3)	25,866	26,603	0	0	0	0	0	0	0	0
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(1) Prior to FY98, this PE represented Base Operating Support (BOS) requirements for Arnold, Eglin and Edwards AFBs. In also included all BOS-type services for the test centers (host units) located at these AFBs, respectively: Arnold Engineering Development Center (AEDC), Air Force Development Center (AFDTC), and Air Force Flight Test Center (AFFTC). Beginning in FY98, any BOS-type requirements associated with test facilities or ranges were deemed "test support requirements" and accordingly transferred to PE 0605807F, project 06TS. This transfer purifies this 06BS project to represent the day-to-day quality of life requirements at these bases that are separate from their host unit's testing mission. Beginning in FY98, this PE's description and content is consistent with all other Air Force Base BOS requirements that are budgeted in the Operation & Maintenance appropriation.

(2) Other support requirements and funding were transferred to PE 0605879F (Real Property Services) beginning in FY98. These requirements were not related to the test mission. They represented direct support of real property at each of the bases and therefore were transferred to PE 0605879F.

(3) Operations of utilities requirements and funding were transferred to PE 0605879F beginning in FY98. These requirements were not related to the test mission. They represented direct support of real property at each of the bases and therefore were transferred to PE 0605879F.

(U) A. Mission Description and Budget Item Justification: This program element provides basic, essential services of base operating support at three Air Force Materiel Command (AFMC) bases: Eglin AFB FL, Edwards AFB CA, and Arnold AFB TN. The program finances "quality of life" costs of day-to-day support for DoD civilian and military personnel, dependents of military personnel, and all transient personnel requiring base services. These three locations have over 90 tenant organizations and an aggregate population in excess of 50,000 people. Beginning in FY98, civilian payroll represents approximately 60 percent of the total program. BOS encompasses security and guard services, dormitories, billeting, food services, training, transportation, comptroller, chaplain, personnel, supply, information management and administrative support for numerous quality of life services. For FYs 96 and 97, civil engineering and utility operations were included in this PE. Those requirements and the associated funding have been transferred to PE 0605879F (Non-test Real Property Services) starting in FY98.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605896F Base Operations - RDT&E

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	121,556	132,224	134,789	125,468	
(U) Appropriated Value	128,456	132,224			
(U) Adjustments to Appropriated Value		-6,245			
a. Congressional Adjustments		-6,245			
b. Omnibus or Other Above Threshold Reprogram	5,776				
(U) Adjustments to Budget Years Since FY 1997 PB			-69,424	-62,280	
a. RPS transfer to PE 0605879F			-49,614	-47,809	
b. Test services alignment to PE 0605807F			-20,633	-20,740	
c. Misc adjustments			823	6,269	
(U) Current Budget Submit/President's Budget	134,232	125,979	65,365	63,188	

(U) Change Summary Explanation:

Funding: Beginning in FY98, any civil engineering and utility requirements tied to non-test real property requirements were transferred to PE 0605879F (Non T&E Real Property Services). In addition, any BOS-type requirements associated with test facilities or ranges were deemed "test support requirements" and accordingly transferred to PE 0605807F, project 06TS. These transfers carve out test from non-test and properly align real property services in their own PE. Beginning in FY98, this PE's description and content is consistent with all other Air Force Base BOS requirements that are budgeted in the Operation & Maintenance appropriation.

Schedule:

Technical:

(U) C. Other Program Funding Summary ($ in Thousands): Not applicable.

Related RDT&E:
(U) PE 0605876F, Non-Test Minor Construction (MC)
(U) PE 0605878F, Non-Test Maintenance & Repair (RPM)
(U) PE 0605879F, Non-Test Real Property Services (RPS)

(U) D. Schedule Profile: Not applicable.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 6 - Management and Support				PE NUMBER AND TITLE 0605896F Base Operations - RDT&E					PROJECT 06BS	
COST *($ In Thousands)*	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
06BS Base Operating Support (1)	85,574	78,688	65,365	63,188	57,085	54,564	53,211	54,341	0	0
Quantity of RDT&E Articles										

(U) A. **Mission Description and Budget Item Justification**

(U) FY 1996 ($ in Thousands):
- (U) $42,227 Financed civilian payroll.
- (U) $1,585 Financed mission-related travel.
- (U) $5,132 Financed rental and transportation costs (permanent change of stations (PCS)).
- (U) $8,164 Financed communications systems, tools, contract education, and equipment maintenance.
- (U) $22,458 Financed supplies, fuels, and miscellaneous contract services.
- (U) $6,008 Financed information processing and other equipment, data processing services, and non-flying support of depot-level repairables.
- (U) $85,574 Total

(U) FY 1997 ($ in Thousands):
- (U) $35,793 Financed civilian payroll.
- (U) $1,618 Financed mission-related travel.
- (U) $4,600 Financed rental and transportation costs (permanent change of stations (PCS)).
- (U) $8,055 Financed communications systems, tools, contract education, and equipment maintenance.
- (U) $22,352 Financed supplies, fuels, and miscellaneous contract services.
- (U) $6,270 Financed information processing and other equipment, data processing services, and non-flying support of depot-level repairables.
- (U) $78,688 Total

(U) FY 1998 ($ in Thousands):
- (U) $39,518 Financed civilian payroll.
- (U) $310 Financed mission-related travel.
- (U) $2,902 Financed rental and transportation costs (permanent change of stations (PCS)).
- (U) $1,446 Financed communications systems, tools, contract education, and equipment maintenance.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management and Support	PE NUMBER AND TITLE: 0605896F Base Operations - RDT&E
	PROJECT: 06BS

- (U) $18,992 Financed supplies, fuels, and miscellaneous contract services.
- (U) $2,197 Financed information processing and other equipment, data processing services, and non-flying support of depot-level repairables.
- (U) $65,365 Total

(U) FY 1999 ($ in Thousands):
- (U) $38,952 Financed civilian payroll.
- (U) $355 Financed mission-related travel.
- (U) $2,942 Financed rental and transportation costs (permanent change of stations (PCS)).
- (U) $1,367 Financed communications systems, tools, contract education, and equipment maintenance.
- (U) $17,551 Financed supplies, fuels, and miscellaneous contract services.
- (U) $2,021 Financed information processing and other equipment, data processing services, and non-flying support of depot-level repairables.
- (U) $63,188 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	72,898	80,372	82,138	71,237	
(U) Appropriated Value	79,798	80,372			
(U) Adjustments to Appropriated Value		-1,684			
a. Congressional Adjustments		-1,684			
b. Omnibus or Other Above Threshold Reprogram	5,776				
(U) Adjustments to Budget Years Since FY 1997 PB			-16,773	-8,049	
a. Realignment to PE 0605807F (test support content)			-20,633	-20,740	
b. Requirement vs funding adjustment			3,860	12,691	
(U) Current Budget Submit/President's Budget	85,574	78,688	65,365	63,188	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management and Support	PE NUMBER AND TITLE: 0605896F Base Operations - RDT&E / PROJECT: 06BS

(U) Change Summary Explanation:

Funding: FYs 98 and 99 budget adjustments reflect a transfer of test-related services from this project to PE 0605807F (T&E Support), project 06TS. This transfer properly aligns all test support functions into one PE. A thorough scrub of requirements and their associated funding for FYs 98-03 identified adjustments to this project across the FYDP ($3.860M in FY98 and $12.691M in FY99).

Schedule:

Technical:

(U) C. Other Program Funding Summary ($ in Thousands): Not applicable

Related RDT&E:
(U) PE 0605876F, Non-Test Minor Construction (MC)
(U) PE 0605878F, Non-Test Maintenance & Repair (RPM)
(U) PE 0605879F, Non-Test Real Property Services (RPS)

(U) D. Schedule Profile: Not applicable

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605896F Base Operations - RDT&E PROJECT 06CE

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
06CE Other Support (2)	22,792	20,688	0	0	0	0	0	0	0	0
Quantity of RDT&E Articles										

(U) A. Mission Description and Budget Item Justification: Provides resources for fundamental civil engineering services such as custodial, fire protection, hazardous material systems certification, refuse collection, insect and pest control, rentals and leases, architectural and engineering design, grounds maintenance as well as civil engineering administrative costs, including equipment, supplies, temporary duty and civilian pay.

(U) FY 1996 ($ in Thousands):
- (U) $13,430 Financed in-house workforce.
- (U) $2,580 Materials, fuel, supplies, and equipment employed by in-house work force performing civil engineering services.
- (U) $6,782 Contract services such as custodial service, supplies, equipment purchases, inspecting/certifying overhead doors, elevators, and annual service contracts.
- (U) $22,792 Total

(U) FY 1997 ($ in Thousands):
- (U) $13,571 Financed in-house workforce.
- (U) $2,321 Materials, fuel, supplies, and equipment employed by in-house work force performing civil engineering services.
- (U) $4,796 Contract services such as custodial service, supplies, equipment purchases, inspecting/certifying overhead doors, elevators, and annual service contracts.
- (U) $20,688 Total

(U) FY 1998 ($ in Thousands):
- (U) $ Not applicable.
- (U) $0 Total

(U) FY 1999 ($ in Thousands):
- (U) $ Not applicable.
- (U) $0 Total

(U) B. Program Change Summary ($ in Thousands)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605896F Base Operations - RDT&E	PROJECT 06CE

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	22,792	21,131	24,663	25,403	
(U) Appropriated Value		21,131			
(U) Adjustments to Appropriated Value		-443			
a. Congressional Adjustments		-443			
(U) Adjustments to Budget Years Since FY 1997 PB			-24,663	-25,403	
(U) Current Budget Submit/President's Budget	22,792	20,688	0	0	

(U) Change Summary Explanation:

Funding: Other support requirements and funding were transferred to PE 0605879F (Real Property Services) beginning in FY98. These requirements were not related to the test mission. They represented direct support of real property at each of the bases and therefore were transferred to PE 0605879F.

Schedule:

Technical:

(U) C. Other Program Funding Summary ($ in Thousands): Not applicable.

Related RDT&E:
(U) PE 0605876F, Non-Test Minor Construction (MC)
(U) PE 0605878F, Non-Test Maintenance & Repair (RPM)
(U) PE 0605879F, Non-Test Real Property Services (RPS)

(U) D. Schedule Profile: Not applicable.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE: February 1997
BUDGET ACTIVITY: 6 - Management and Support	PE NUMBER AND TITLE: 0605896F Base Operations - RDT&E		PROJECT: 06UT

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
06UT Operations Of Utilities (3)	25,866	26,603	0	0	0	0	0	0	0	0
Quantity of RDT&E Articles										

(U) A. Mission Description and Budget Item Justification: Finances purchase of utilities (electricity, natural gas, water and sewage treatment), base operation of water and sewage treatment plants and distribution systems. Amounts of utilities consumed and waste processed for discharge exceed those of other operating bases due to unique test mission.

(U) FY 1996 ($ in Thousands):
- (U) $2,234 Financed in-house workforce.
- (U) $20,457 Purchases utitilities.
- (U) $2,119 Materials, fuel, supplies, and equipment employed by in-house work force performing civil engineering services.
- (U) $1,056 Contract services such as cleaning or inspecting ducts and fuel tanks and annual service contracts.
- (U) $25,866 Total

(U) FY 1997 ($ in Thousands):
- (U) $2,328 Financed in-house workforce.
- (U) $20,646 Purchased utilities.
- (U) $2,472 Materials, fuel, supplies, and equipment employed by in-house work force performing civil engineering services.
- (U) $1,157 Contract services such as cleaning or inspecting ducts and fuel tanks and annual service contracts.
- (U) $26,603 Total

(U) FY 1998 ($ in Thousands):
- (U) $ Not applicable.
- (U) $0 Total

(U) FY 1999 ($ in Thousands):
- (U) $ Not applicable.
- (U) $0 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605896F Base Operations - RDT&E
	PROJECT 06UT

(U) B. **Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	25,866	27,173	27,988	28,828	
(U) Appropriated Value		27,173			
(U) Adjustments to Appropriated Value		-570			
a. Congressional Adjustments		-570			
(U) Adjustments to Budget Years Since FY 1996 PB			-27,988	-28,828	
(U) Current Budget Submit/President's Budget	25,866	26,603	0	0	

(U) Change Summary Explanation:

Funding: Operations of utilities requirements and funding were transferred to PE 0605879F beginning in FY98. These requirements were not related to the test mission. They represented direct support of real property at each of the bases and therefore were transferred to PE 0605879F.

Schedule:

Technical:

(U) C. **Other Program Funding Summary ($ in Thousands):** Not applicable.

Related RDT&E:
(U) PE 0605876F, Non-Test Minor Construction (MC)
(U) PE 0605878F, Non-Test Maintenance & Repair (RPM)
(U) PE 0605879F, Non-Test Real Property Services (RPS)

(U) D. **Schedule Profile:** Not applicable.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 1001004F International Activities

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	3,583	3,554	3,715	3,827	3,912	3,991	4,068	4,132	Continuing	TBD
00AH *NATO C3 Agency, NATO (RTO), AFIPSA, ICR&D, AFMC Support	3,583	3,554	0	0	0	0	0	0	0	0
4645 *International Cooperative Research & Development	0	0	3,715	3,827	3,912	3,991	4,068	4,132	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

*The BPAC title was changed and a new project number assigned for administrative purposes to accurately reflect the nature of work being accomplished. FY97 and prior funding is reflected in BPAC Project 00AH, FY98 and outer years have been reassigned to BPAC Project 4645.

(U) A. **Mission Description and Budget Item Justification**

The mission of this budget activity is to gain access to our allies best defense technologies, eliminate costly duplication of research and development efforts, accelerate availability of defense systems, and to deploy and sustain common or interoperable USAF and Allied equipment through international cooperative research and development.

The USAF is party to multiple international cooperative agreements to solve common US and Allied military scientific and technological problems and to develop materiel solutions to harmonize coalition requirements. This budget activity funds the Department of the Air Force to support, develop, process, negotiate, implement, and manage these international cooperative agreements and projects in compliance with statutory reporting provisions and exacting legal statutes, fiscal constraints, technology transfer controls, intellectual property rights, third party transfer provisions, quid-pro-quo criteria, industrial base factors, and political-military interests. Included in this budget are domestic and international technology assessment teams; specialized working groups; long-term technology project developments; support for cooperative opportunity assessments; developing, processing, and negotiating international agreements; oversight of International Cooperative Research and Development (ICR&D) projects; overseas R&D liaison and coordination offices; bilateral and multilateral staff talks; and the Engineering and Scientist Exchange Program (ESEP). Funds NATO Air Force Armaments Group (NAFAG) and Research and Technology Organization formerly Advisory Group for Aerospace Research & Development (AGARD). When the budget activities were initially realigned, our budget activity was inadvertently changed from BA 6 to BA7, we have now correctly realigned it back to BA 6 Management and Support.

(U) **Acquisition Strategy:**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 1001004F International Activities

This program element is the only source of USAF funds to identify and initiate opportunities for international armament's cooperation to (a) deploy and support common or interoperable equipment with our allies; (b) leverage USAF resources with our allies through cost sharing and economies of scale; and (c) exploit the best US and allied technologies for equipping coalition forces. We obtain these benefits only after international cooperative opportunities are identified, explored, developed, assessed and after the international agreements are negotiated and concluded. This program element provides funds to execute up front armaments cooperation responsibilities, rationalize cooperative opportunities, assess allied technologies, and generate sound, cost-effective cooperative programs between the USAF and our international partners. Once these initiatives and programs are started as international efforts they are transferred to the appropriate technology or systems program office and are funded in their own program elements.

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	3,713	3,633	3,729	3,846	
(U) Appropriated Value					
(U) Adjustments to Appropriated Value					
a. Cong Reductions	-76	-76			
b. SBIR	-2	-3			
c. Omnibus or Other Above Threshold Reprogram	-29				
d. Below Threshold Reprogramming					
(U) Adjustments to Budget Years Since FY 1997 PB	-23		-14	-19	
(U) Current Budget Submit/President's Budget	3,583	3,554	3,715	3,827	

(U) Change Summary Explanation:
Funding: N/A
Schedule: N/A
Technical: N/A

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) N/A										

(U) D. Schedule Profile

(U) See Individual Projects

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE February 1997	
BUDGET ACTIVITY 6 - Management and Support				PE NUMBER AND TITLE 1001004F International Activities						PROJECT 00AH
COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
00AH *NATO C3 Agency, NATO (RTO), AFIPSA, ICR&D, AFMC Support	3,583	3,554	0	0	0	0	0	0	0	0

(U) A. **Mission Description and Budget Item Justification**

The mission of this budget activity is to gain access to our allies best defense technologies, eliminate costly duplication of research and development efforts, accelerate availability of defense systems, and to deploy and sustain common or interoperable USAF and Allied equipment through international cooperative research and development.

The USAF is party to multiple international cooperative agreements to solve common US and Allied military scientific and technological problems and to develop materiel solutions to harmonize coalition requirements. This budget activity funds the Department of the Air Force to support, develop, process, negotiate, implement, and manage these international cooperative agreements and projects in compliance with statutory reporting provisions and exacting legal statutes, fiscal constraints, technology transfer controls, intellectual property rights, third party transfer provisions, quid-pro-quo criteria, industrial base factors, and political-military interests. Included in this budget are domestic and international technology assessment teams; specialized working groups; long-term technology project developments; support for cooperative opportunity assessments; developing, processing, and negotiating international agreements; oversight of International Cooperative Research and Development (ICR&D) projects; overseas R&D liaison and coordination offices; bilateral and multilateral staff talks; and the Engineering and Scientist Exchange Program (ESEP). Funds NATO Air Force Armaments Group (NAFAG) and Research and Technology Organization formerly Advisory Group for Aerospace Research & Development (AGARD).

(U) FY 1996 ($ in Thousands):

- (U) $112 **SHAPE Technical Center (STC)** - Funded US R&D coordination office and administrative support to US engineering and technical professionals assigned to the STC.
- (U) $545 **Von Karman Institute (VKI)**- Funded US share of the VKI budget and awarded two USAF VKI fellowships.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 1001004F International Activities	PROJECT 00AH

– (U) $500 **Advisory Group for Aerospace R&D (AGARD)** - Fully Funded US national-level representation at HQ AGARD Delegates Board. Funded technical experts from Air Force field-level and US industry/university-level to support 7 technical panels, 21 working groups, 3 study groups, and 1 study committee sponsored by NATO AGARD. Funded technical reports and exchanges in 13 areas as follows: (1) Minimizing Collateral Damage During Peace Support Operations, (2) Radar Cross-Section Analysis and Imaging of Military Targets, (3) Remote Sensing, (4) Space Systems Contributions to NATO Defense Strategy, (5) Advanced Architectures for Mission Avionics, (6) Characterization and Modification of Wakes from Lifting Vehicles in Fluids, (7) Aerodynamics of Wind Tunnel Circuits and their Components, (8) Aging Combat Aircraft Fleets - Long Term Implications, (9) Smart Structures and Materials - Implications for Military Aircraft of a New Generation, (10) Medical Complications and Screening for Sustained High-G and Positive Pressure Breathing, (11) Service-Life of Solid Rocket Propellants, (12) Accute Visual and Cognitive Incapacitation of Aircrews: Protection Management and Cockpit Integration, and (13) Aircraft Fire Safety. Continued the Partnership for Peace initiative through AGARD outreach program incorporating additional Eastern Europe and Former Soviet Union scientific and technical groups.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management and Support	PE NUMBER AND TITLE: 1001004F International Activities / PROJECT: 00AH

– (U) $241 **Air Force International Programs Support Agency (AFIPSA)** - Fully funded AFIPSA and USAF to reduce the growing backlog of proposals for International Cooperative R&D Agreements. The following is a list of proposed candidate agreements that were either under development or signed in FY96: **Brazil**: Developed (1) Ionospheric Experiments, (2) ESEP; **Canada**: Signed: (1) Master Technology Research & Development Agreement, (2) Crew Technology for Military Aircraft;(3) Regional/Sector Air Operations Center Modernization Program, **Egypt**: Developed (1) Seismic Monitoring Station; (2) Technical Research Development Project Agreement, **Four-Powers** (Germany, France, UK, and US): Developed (1) Aircraft Armament Avionics Agility, (2) Post 2020 Armament Concepts and Technologies, (3) Tactical Laser Hardened Material, Signed (1) High Powered Microwaves, (2) Aircraft Survivability Technologies, (3) Non-Destructive Evaluation, (4) Insensitive High Explosive for Penetrators, (5) Future Multiband, Multiwaveform Modular Tactical Radio; **France**: Developed (1) Reliability of Electronic Components, (2) Techniques and Technologies for Aerial Reconnaissance and Geographic Data, (3) Oxygen/Iodide Laser Radiation and Material Interaction Tests, (4) Effects of the Ionosphere on Communications and Surveillance Systems, (5) Subminiature Data Acquisition and Telemetry System, (6) Very High Resolution Imaging by Interferometry, (7) High Resolution Imaging by Adaptive Optics and Speckle Techniques, Signed: (1) Optical Properties of the Environment; (2) Military Satellite Communications Technology, **Germany**: Developed (1) Free Piston Shock Tunnel, (2) Observations and Modeling for Space Weather; (3) Cooperative Space Measurements Signed: (1) Software technology (2) Trans-Atlantic Research into Air Combat Engagement; **Japan**: Developed (1) ESEP, (2) Aerodynamic Fluid Flow Dynamics; Signed: (1) F-2 Production; **Israel**: Developed (1) Strengthening of Concrete Structures for Enhanced Structural Survivability; Signed: (1) Photonics Technology, (2) Technical Research Development Project Agreement, **Korea**: Developed: (1) Seismic Monitoring Station; Signed (1) Technology Research Development Project (s) **Multilateral**: Developed (1) Master Advanced Medium Range Air-To-Air Missile (AMRAAM) Users' Group Agreement; Signed: (1) Exchange of Research & Development Information, **The Netherlands**: Developed (1) Advanced ECM Transmitter; Signed: (1) Measurement and Analysis of the Infrared Celestial Background; **Pakistan**: Developed (1) Seismic Monitoring Station; **Russia**: Signed (1) Seismic Monitoring Station; **Turkey**: Developed (1) Seismic Monitoring Station; **United Kingdom**: Developed (1) Joint Air-to-Surface Standoff Missile/Conventionally Armed Standoff Missile, (2) Short Range Air-to Surface Missile Technologies, (3) Air Worthiness of Aging Aircraft, (4) Advanced Flooding Agent, (5) Dense Metal Case Penetrating Weapons (6) Aftbody/Nozzle Aeroacoustic Program, (7) Programmable Integrated Ordinance Suite, Signed: (1) Joint Tactical Information Distribution System, (2) Experimental Air Operations Center, (3) Ramburner, (4) Effects of the Ionosphere on C3I Systems, (5) Vista Warrior, (6) Single Mode Fibers for Array Imaging and Environmental Sensing, (7) Towed Radio Frequency Decoys, (8) Solar Panels, (9) Advanced Concept Technology Demonstration, (10) Penetration Target Acquisition & Attack Technology, (11) Tactical Imagery Data Explortation, (12) Non-Acoustics Technology.

– (U) $930 **ICR&D** - Funded USAF overseas R&D liaison offices. Funded management support and oversight of USAF Foreign Comparative Test Program and NATO Cooperative R&D Program. Funded USAF participation at the NATO Four-power Council, NAFAG, and its six subgroups to promote NATO harmonization of requirements, standardization, and new cooperative R&D programs. Funded USAF participation at the US-Japan Systems and Technology Forum and technology assessments under the FS-X program. Funded USAF participation in international Continuous Acquisition Life Cycle Support (CALS). Funded expanded technology acquisition contacts and follow-on cooperative opportunities with Russia, Ukraine, and Eastern Europe. Partially funded technical assessments and international agreements negotiation start-up costs associated with promising cooperative R&D programs. This PE also funded preliminary and negotiation costs associated with USAF NATO cooperative R&D funded programs, support for the NATO Board of Directors, and the Air Force Technology Booth at International Forums.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 1001004F International Activities
	PROJECT 00AH

– (U) $1,255 **AFMC** - Fully funded Air Force Material Command activities to identify, assess, and develop support packages and project arrangements as required by statute for the above cited new candidate agreements. Funded Material Command initiatives and technical support to the Chair of the NAFAG. Supported Material Command activities for engineer and scientist exchanges, USAF Foreign Comparative Test, and NATO Cooperative R&D Programs. Funded USAF participation in panel meetings of the Technical Cooperation Program, Air Standardization Coordinating Committee, Standard NATO Agreements Working Groups, and NATO Alliance Ground Surveillance Program Office. Funded exploratory visits to France, Germany, Israel, United Kingdom and other countries on new technology exchange projects. Funded the International Focal Point Officers at Centers and Laboratories to assist program officers and project engineers to identify, create and staff new international cooperative agreements. This program in addition, funded the support, management and documentation of these ICR&D efforts.

– (U) $3,583 Total

(U) FY 1997 ($ in Thousands):

– (U) $110 **NATO C3 Agency (formally STC)** - Funds US R&D coordination office and administrative support to US engineering and technical professionals assigned to the NATO C3 Agency.

– (U) $253 **ESEP** - Will fund the management oversight of the Engineer and Scientist Exchange Program.

– (U) $500 **NATO Research & Technology Organization (R&TO formerly AGARD)** - Fully fund US national-level representation at NATO R&T Delegates Board. Funds technical experts from Air Force field-level and US industry/university-level to support 7 technical panels, 21 working groups, 3 study groups, and 1 study committee sponsored by NATO R&TO. FY97 program of work as endorsed by US National Delegates and approved by the AGARD National Delegates Board and NATO Military Committee in 13 areas as follows for 1997: (1) Injury Prevention In Aircraft Crashes: Investigative Techniques and Applications, (2) Manned Combat Aircraft-highlights of Future Technological Developments for Improved Affordability and Combat Effectiveness, (3) Aging Combat Aircraft Fleet-Long Term Implications, (4) Helicopter/Weapon System Integration, (5) Fully Automated Conduct Air Traffic Management, (6) Strategic Management of the Cost Problem of Future Weapon Systems, (7) Advanced Non-Intrusive Instrumentation for Propulsion Engines, (8) Multisensors Systems and Data Fusion for Telecommunications, Remote Sensing and Radar, (9) System Design Considertions for Unmanned Tactical Aircraft, (10) Sustained Hypersonic Flight: From Demonstration to Applications, (11) Propulsion, (12) Critical Technology Advances in military Aerospace Support Systems, (13) Operational Enhancements via Human System Technologies. Continues Partnership for Peace initiative through the NATO R&TO outreach program incorporating new scientist and engineers from Central Europe

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 1001004F International Activities
	PROJECT 00AH

– (U) $274 **AFIPSA** - Fully funds AFIPSA to continue clearing the backlog of proposals for International Cooperative R&D Agreements. The following is a list of candidate agreements for development and signature in FY97 that are in addition to the ones that were under development but not signed in FY96. **Australia**: (1) Air-Breathing Developed Propulsion Technology, (2) Aging Aircraft Life Prediction/Extension, (3) Project Refractive Turbulence, (4) Navigation Warfare; (5) Aircraft Cargo Loader (6) Adaptive Flexible Structures; **Canada**: (1) Infrared Spectral Imaging of Low Observable Signatures, (2) Structural Integrity of Aging Aircraft, (3) C-130 CALS Pilot Project, (4) Hard Chrome Alternative, (5) Integrated Defense Environment Generator, (6) E-Beam Cured Composites, (7) Electrochemical Remmediation for the Removal of Hazardous Chemicals, (8) Sensor Fusion (9) Infared Imaging Spectro Radiometer, (10) Joint Strike Fighter; **Chile**: Ionspheric Research Project **Four-Powers** (Germany, France, UK, and US): (1) Human Effects of Lasers and Protection, (2) Aircraft Battle Damage Repair, (3) Distributed Simulation Technologies, (4) Tactical Missiles Propellants, (5) Beyond Visual Range Air-To-Air Missile, (6) Infrared Imaging Spectro-radiometer, **France** (1) Advanced Training Technologies for Aircraft Maintenance, (2) Ducted Rockets; **Germany**: (1) Administration and Professional Exchange Program (2) Harmonization of Safety Regulations for Defense Material; (3) Ground Test Methodologies and Support for Aircraft; **Israel** (1) Construction and Engineering in the Air Force; **Mulitateral** (Netherlands, Norway, Denmark): (1) Joint Strike Fighter; **Trilateral**: (Australia, Canada, US) (1) C-130 CALS, (2) Theatre Battle Management Core Systems, (3) Reliability of Electronic Components and Equipment; **Italy**: (1) Optics Technology; **Japan**: (1) Crew Escape System, (2) ESEP; **Kazakhstan**: (1) Seismic Monitoring System; **Korea**: (1) Hard Target Penetration, (2) Aging Aircraft Structures; **NATO**: (1) NATO Alliance Ground Surveillance Project; (2) NATO AWACS Mid-Term Modernization Program, (3) US-NAPMO AWACS Modernization Program; **Norway**: (1) Air Battle Management and C3I; **Peoples Republic of China**: (1) Seismic Monitoring Station; **Poland**: (1) ESEP, (2) Aircrew Simulation and Performance; **Russia**: (1) K-36 Ejection Seat; **Sweden**: (1) Master Technology R&D Agreement (2) Pilot Performance and Mental Workload (3) Administration and Professional Exchange Program; **Turkmenistan**: (1) Seismic Monitoring Agreement; **United Kingdom**: (1) Joint Airborne Navigation and Attack (UK and France), (2) Weather Impact Decision Aids, (3) Covert All Weather Landing Guidance, (4) Cosmic Radiation Environment and Activation Monitor, (5) Atlas Aircraft Cargo Loader. In addition preliminary work for FY98 agreements will be started.

– (U) $1,183 **ICR&D** - Funds USAF overseas R&D liaison offices. Funds management support and oversight of USAF Foreign Comparative Test Program and NATO Cooperative R&D Program. Funds USAF participation at the NATO Four-power Council, NAFAG, and its six subgroups to promote NATO harmonization of requirements, standardization, and new cooperative R&D programs. Funds USAF participation at the US-Japan Systems and Technology Forum it's four sub-groups and international CALS. Funds expanded technology acquisition contacts and follow-on cooperative opportunities with Russia, Ukraine, and Eastern Europe. Partially funds technical assessments and international agreements negotiation start-up costs associated with promising cooperative R&D programs. This PE will also fund preliminary and negotiation costs associated with USAF NATO cooperative R&D funded programs. Funds support for the NATO Board of Directors, and the Air Force Technology Booth at International Forums.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 1001004F International Activities
	PROJECT 00AH

- (U) $1,234 **AFMC** - Fully funds Air Force Material Command activities to identify, assess, and develop support packages and project arrangements as required by statute for the above cited new candidate agreements. Funds Material Command initiatives and technical support to the Chair of the NAFAG. Supports Material Command activities for USAF Foreign Comparative Test and NATO Cooperative R&D Programs. Funds USAF participation in panel meetings of the Technical Cooperation Program, Air Standardization Coordinating Committee, Standard NATO Agreements Working Groups, and NATO Alliance Ground Surveillance Program Office. Funds exploratory visits to France, Germany, Israel, United Kingdom and other countries on new technology exchange projects. Funds the International Focal Point Officers program officers and project engineers at centers and laboratories in identifying, creating and staffing new international cooperative agreements. This program will, in addition, fund the support, management and documentation of all of the above ICR&D efforts.
- (U) $3,554 Total

(U) FY 1998 ($ in Thousands):
- (U) $0 Total

(U) FY 1999 ($ in Thousands):
- (U) $0 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	3,713	3,633			
(U) Appropriated Value					
(U) Adjustments to Appropriated Value					
a. Cong Reductions	-76	-76			
b. SBIR	-2	-3			
c. Omnibus or Other Above Threshold Reprogram	-29				
d. Below Threshold Reprogramming					
(U) Adjustments to Budget Years Since FY1997 PB	-23				
(U) Current Budget Submit/President's Budget	3,583	3,554			

(U) Change Summary Explanation:
Funding: N/A
Schedule: N/A
Technical: N/A

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 1001004F International Activities
	PROJECT 00AH

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) N/A										

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998	FY 1999
	1	2	3	4	1	2	3	4		
(U)										
-VKI Board of Directors	X	X								
-NATO C3 Agency Program Review	X		X		X		X			
-Research & Technology Delegate Board		X		X		X		X		
-Aerospace Applications Studies Committee	X				X					
-Bilateral Technology R&D Projects MOUs	X				X					
-Cooperative R&D Projects	X	X	X	X	X	X	X	X		
-Foreign Comparative Testing Prioritization Board			X				X			
-NATO Cooperative R&D Prioritization Board			X				X			
-R&D Loans of Defense Equipment	X	X	X	X	X	X	X	X		
-Systems & Technology Forum (JA)		X		X		X		X		
-Other Bilateral forums (CA, BZ)	X		X		X		X			
-Data/Information Exchange Annexes	X	X	X	X	X	X	X	X		
-Engineer and Scientist Exchanges	X	X	X	X	X	X	X	X		
-NATO Air Force Armaments Group		X		X		X	X			
-Four-Power Air Senior National	X		X	X			X			
-Four-Power Long-Term Technology		X		X		X		X		

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 1001004F International Activities

PROJECT: 4645

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4645 *International Cooperative Research & Development	0	0	3,715	3,827	3,912	3,991	4,068	4,132	Continuing	TBD

*FY97 and prior year funding is reflected in BPAC Project 00AH, the BPAC title was changed and a new Project Number assigned for administrative purposes to more actively reflect the nature of work being accomplished.

(U) A. **Mission Description and Budget Item Justification**

The mission of this budget activity is to gain access to our allies best defense technologies, eliminate costly duplication of research and development efforts, accelerate availability of defense systems, and to deploy and sustain common or interoperable USAF and Allied equipment through international cooperative research and development.

The USAF is party to multiple international cooperative agreements to solve common US and Allied military scientific and technological problems and to develop materiel solutions to harmonize coalition requirements. This budget activity funds the Department of the Air Force to support, develop, process, negotiate, implement, and manage these international cooperative agreements and projects in compliance with statutory reporting provisions and exacting legal statutes, fiscal constraints, technology transfer controls, intellectual property rights, third party transfer provisions, quid-pro-quo criteria, industrial base factors, and political-military interests. Included in this budget are domestic and international technology assessment teams; specialized working groups; long-term technology project developments; support for cooperative opportunity assessments; developing, processing, and negotiating international agreements; oversight of International Cooperative Research and Development (ICR&D) projects; overseas R&D liaison and coordination offices; bilateral and multilateral staff talks; and the Engineering and Scientist Exchange Program (ESEP). Funds NATO Air Force Armaments Group (NAFAG) and Research and Technology Organization formerly Advisory Group for Aerospace Research & Development (AGARD).

Justification for Budget Activity Assignment

This program element funds general R&D management for all USAF international cooperative R&D. This includes management support and execution of projects in (1) Basic Research (2) Concept Exploration (3) Demonstration and Validation and (4) Engineering and Manufacturing Development.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management and Support	PE NUMBER AND TITLE: 1001004F International Activities / PROJECT: 4645

(U) FY 1998

- (U) $110 **NATO C3 Agency** - Funds US R&D coordination office and administrative support to US professionals assigned to the agency.
- (U) $253 **ESEP** - Funds the Air Force execution and the management oversight of the Engineer and Scientist Exchange Program (ESEP). Funds approximately ten field level military and civilian scientists from Air Force Laboratories, Product Centers, Test Centers and Air Logistics Centers in two year tours at selected European and Asian Government Research Laboratories or other Technical Institutions. ESEP Memoranda of Understanding are in place with 14 countries.
- (U) $266 **AFIPSA** - Fully funds AFIPSA to continue clearing the backlog of proposals for International Cooperative R&D Agreements. The following is a list of candidate agreements for signature in FY98, that are in addition to the one's that were under development but not signed in FY97. **Canada**: (1) Processing of High Strain, Low Hysteresis Piezoelectric and Electrostictive Materials and Devices for use in Smart Structures, (2) Heat/Cool Avionics, (3) Structural Boron Nitride Fiber, (4) Laser Designators, (5) Transportable Satellite Image Terminal, (6) Flux Free Soldering Process for Space Applications, (7) Substitute for Methylene Chloride Paint Strippers, (8) Functionally Integrated Resources (9) Aircraft Cockpit Displays Compatibility with Night Vision Imaging, (10) Landing Gear Stability Analysis and Testing, (11) Low Temperature CVD Process for II-IV Semiconductors for Infrared, **France**: (1) Advanced Combustor Chamber Concepts, (2) Integrated Tactical Aircraft Control; **Four-Power**: (1) International Precision Airdrop Concept, **Germany**: (1) Transatlantic Research into Air Combat Engagements (Phase 2), (2) Hard Target Defeat Technology, **Japan**: (1) Advance Hybrid Tactical Propulsion, (2) Robotics and Mine Clearing Technologies; **Morocco**: (1) Seismic Monitoring Agreement, **NATO**: (1) Air C3I Capabilities; **Oman**: (1) Seismic Monitoring Agreement, **Russia**: (1) Master Data Exchange Agreement; **Sweden**: (1) Ground Collisions Avoidance System for Fighter Aircraft, **United Kingdom**: (1) Air Battle Management Capabilities, (2) Integrated Flight/Propulsion Control System Technology Demonstration, (3) Metal Matrix Composites for Aerospace Application, (4) Directed Energies Technology, (5) Navigation Warfare, (6) Multi-Disciplinary Organization to Replace Optimization of Aircraft Structures.
- (U) $500 **NATO Research & TechnologyOrganization** - Funds US National Delegates participation in the NATO R&T Board and USAF, industry, and academia participation in the R&TO aerospace related panel activity. The FY98 program of work will consist of studies, technical exchanges, and reports in the following areas: (1) Presentation of the Probable Changes in Information Management and Technology, (2) Hypersonic Experimental and Computational Capabilities, (3) Aeromedical Support issues in Contingency Operations, (4) Advanced Aerodynamic Measurement Technology, (5) Virtual Manufacturing, (6) Numerical Unsteady Aerodynamics and Aeroelastic Simulation, (7) Thermal Barrier Coatings, (8) Advances in Soft Computing Technologies Application in Mission Systems, (9) Effect of Rain, Icing and Deicing Systems on Wing Performance, (10) Turbulence in Compressible Flows, (11) Flight Test Instrumentation, (12) Current Concepts and New Developments in Impact and Escape System Dummy Specifications and Instrumentation, (13) Structural Optimization. Continues Partnership for Peace initiative through the R&T outreach program incorporating new scientist and engineers from Central Europe.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 1001004F International Activities
	PROJECT 4645

- (U) $1,352 **ICR&D** - Funds USAF overseas R&D liaison offices. Funds management support and oversight of USAF Foreign Comparative Test Program and NATO Cooperative R&D Program. Funds USAF participation at the NATO Four-power Council, NAFAG, and its six subgroups to promote NATO harmonization of requirements, standardization, and new cooperative R&D programs. Fund USAF participation at the US-Japan Systems and Technology Forum, its four sub-groups and the USAF participation in international CALS. Funds expanded technology acquisition contracts and follow-on cooperative opportunities with Russia, Ukraine, and Eastern Europe. Partially funds technical assessments and international agreements negotiation start-up costs associated with promising cooperative R&D programs. This PE will also fund preliminary and negotiation costs associated with USAF NATO cooperative R&D funded programs. Funds support for the NATO Board of Directors, and the Air Force Technology Booth at International Forums.

- (U) $1,234 **AFMC** - Fully funds Air Force Material Command activities to identify, assess, and develop support packages and project arrangements as required by statute for new and existing candidate agreements. Supports Materiel Command activities for the USAF Foreign Comparative Test, and NATO Cooperative R&D Programs. Funds USAF participation in panel meetings of the Technical Cooperation Program, Air Standardization Coordinating Committee, Standard NATO Agreements Working Groups, and other NATO forums. Funds periodic bilateral meetings to define new areas of possible cooperation, and exploratory visits to France, Germany, Israel, United Kingdom, Canada, and other countries on new technology exchange projects. Funds the International Focal Point Officers, and project engineers at centers and laboratories in identifying, creating and staffing new international cooperative agreements. Funds HQ staff to support and promote international research and development cooperation throughout AFMC. Funds small contracts in support of technology initiatives. This program will, in addition, fund the support, management and documentation of these ICR&D efforts.
- (U) $3,715 Total
- **(U) FY 1999**
- (U) $110 **NATO C3 Agency** - Fund US R&D coordination office and administrative support to US professionals assigned to the agency.
- (U) $245 **ESEP** - Funds the Air Force execution and the management oversight of the Engineer and Scientist Exchange Program (ESEP). Funds approximately ten field level military and civilian scientists from Air Force Laboratories, Product Centers, Test Centers and Air Logistics Centers in two year tours at selected European and Asian Government Research Laboratories or other Technical Institutions. ESEP Memoranda of Understanding are in place with 14 countries.
- (U) $378 **AFIPSA** - Work will continue on developing, processing, and negotiating the growing number of cooperative programs proposed by field activities. This will include completing agreements started in FY 98 and initiating new cooperative efforts resulting from prior year technology assessments.
- (U) $500 **NATO Research & Technology Organization** - Continues funding of USAF, industry, and academia participation in the R&T National Delegates Board and aerospace related panel activity according to a program of work to be approved by the National Delegates Board. Continues Partnership for Peace initiative through the R&TO outreach program incorporating new scientist and engineers from Central Europe.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management and Support	PE NUMBER AND TITLE: 1001004F International Activities / PROJECT: 4645

- (U) $1,352 **ICR&D** - Funds USAF overseas R&D liaison offices. Fund management support and oversight of USAF Foreign Comparative Test Program and NATO Cooperative R&D Program. Funds USAF participation at the NATO Four-power Council, NAFAG, and its six subgroups to promote NATO harmonization of requirements, standardization, and new cooperative R&D programs. Fund USAF participation at the US-Japan Systems and Technology Forum, its four sub-groups and USAF participation in international CALS. Funds expanded technology acquisition contracts and follow-on cooperative opportunities with Russia, Ukraine, and Eastern Europe. Partially funds technical assessments and international agreements negotiation start-up costs associated with promising cooperative R&D programs. This PE will also fund preliminary and negotiation costs associated with USAF NATO cooperative R&D funded programs. Funds support for the NATO Board of Directors, and the Air Force Technology Booth at International Forums.
- (U) $1,242 **AFMC** - Fully funds Air Force Material Command activities to identify, assess, and develop support packages and project arrangements as required by statute for new and existing candidate agreements. Supports Materiel Command activities for the USAF Foreign Comparative Test, and NATO Cooperative R&D Programs. Funds USAF participation in panel meetings of the Technical Cooperation Program, Air standardization Coordinating Committee, Standard NATO Agreements Working Groups, and other NATO forums. Funds periodic bilateral meetings to define new areas of possible cooperation, then fund exploratory visits to France, Germany, Israel, United Kingdom, Canada, and other countries on new technology exchange projects. Funds the International Focal Point Officers at Centers and Laboratories to assist program officers and project engineers in identifying, creating and staffing new international cooperative agreements. Funds HQ staff to support and promote international research and development cooperation throughout AFMC. Funds small contracts in support of technology initiatives. This program will, in addition, fund the support, management and documentation of these ICR&D efforts.
- (U) $3,827 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 1001004F International Activities	PROJECT 4645

(U) **Acquisition Strategy:**

This program element is the only source of USAF funds to identify and initiate opportunities for international armament's cooperation to (a) deploy and support common or interoperable equipment with our allies; (b) leverage USAF resources with our allies through cost sharing and economies of scale; and (c) exploit the best US and allied technologies for equipping coalition forces. We obtain these benefits only after international cooperative opportunities are identified, explored, developed, assessed and after the international agreements are negotiated and concluded. This program element provides funds to execute up front armaments cooperation responsibilities, rationalize cooperative opportunities, assess allied technologies, and generate sound, cost-effective cooperative programs between the USAF and our international partners. Once these initiatives and programs are started as international efforts they are transferred to the appropriate technology or systems program office and are funded in their own program elements.

(U) **B. Program Change Summary ($ in Thousands)**

	FY1996	FY1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget			3,729	3,846	
(U) Appropriated Value					
(U) Adjustments to Appropriated Value					
a. Cong General Reductions					
b. SBIR					
c. Omnibus or other above reprogramming threshold					
d. Below threshold reprogramming					
(U) Adjustments to budget years since FY97 PB			-14	-19	
(U) Current Budget Submit/President's Budget			3,715	3,827	

(U) **Change Summary Explanation:**

Funding: N/A
Schedule: N/A
Technical: N/A

(U) **C. Other Program Funding**

Related RDT&E:

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 1001004F International Activities
	PROJECT 4645

(U) This program provides for USAF management of NATO Cooperative R&D funded by DoD (PE 0603790D) and USAF (PE 0603790F) and DoD funded Foreign Comparative Test (FCT) (PE 0605130D) programs. It also provides international agreement support for 6.1 through 6.3 programs for USAF Laboratories and for 6.4 through 6.5 programs for USAF Product and Logistics Centers.

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U)																
-NATO C3 Agency Program Review									X		X		X		X	X
-Research & Technology Delegate Board										X		X	X		X	X
-Aerospace Applications Studies Committee									X				X			
-Bilateral Technology R&D Projects MOUs									X				X			
-Cooperative R&D Projects									X	X	X	X	X	X	X	X
-Foreign Comparative Testing Prioritization Board											X				X	
-NATO Cooperative R&D Prioritization Board											X				X	
-R&D Loans of Defense Equipment									X	X	X	X	X	X	X	X
-Systems & Technology Forum (JA)										X		X		X		X
-Other Bilateral forums (CA, BZ)									X		X		X		X	
-Data/Information Exchange Annexes									X	X	X	X	X	X	X	X
-Engineer and Scientist Exchanges									X	X	X	X	X	X	X	X
-NATO Air Force Armaments Group										X	X			X	X	
-Four-Power Air Senior National									X		X		X		X	
-Four-Power Long-Term Technology										X		X		X		X

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0101113F B-52 Squadrons

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	19,870	10,612	3,427	3,765	0	0	0	0	0	37,674
4401 Air Force Mission Support System	2,801	5,200	948	0	0	0	0	0	0	8,949
4370 Advanced Weapons Integration	3,832	0	2,479	3,765	0	0	0	0	0	10,076
4371 Global Positioning System TACAN Emulation	8,866	0	0	0	0	0	0	0	0	8,866
4402 Electronic Countermeasures Improvement	0	4,818	0	0	0	0	0	0	0	4,818
4493 B-61 Mod 11 Flight Tests	4,371	594	0	0	0	0	0	0	0	4,965
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. **Mission Description and Budget Item Justification**

This program is in budget activity 7 - Operational System Development, Research Category 6.6 because it supports a currently operational system. The B-52 is the primary nuclear roled bomber in the USAF inventory. It provides the only Air Launch Cruise Missile carriage in the USAF. The B-52 also provides theater CINCs with a long range strike capability. The B-52 is undergoing a Conventional Enhancement Modification which allows it to carry MIL-STD 1760 weapons. The current service life of the aircraft extends to 2040. The Advanced Weapons Integration (AWI) program supports the conventional enhancement of the B-52 through the addition of the Wind Corrected Munitions Dispenser (WCMD), Joint Direct Attack Munition (JDAM), Joint Stand-off Weapon (JSOW), and the Joint Air-to-Surface Stand-off Missile (JASSM). The Air Force Mission Support System supports the Air Force movement of all mission planning to a common system. GPS TACAN Emulation provides support to the Congressionally-directed GPS-2000. Electronic Countermeasures Improvement supports a DESERT STORM identified deficiency. The B-61 Mod 11 program was added at the direction of the Nuclear Posture Review and Presidential Decision Directive-30. The B-52 program management is provided by Air Force Material Command's Oklahoma Air Logistics Center. The prime contractor for these projects is Boeing Defense and Space Group.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0101113F B-52 Squadrons

(U) **Acquisition Strategy:**

1. The AFMSS program is organically conducted at OC-ALC/LAS. Previously funded by the AFMSS program element.
2. The AWI program placed Boeing Defense and Space Group, Wichita KS, (BD&SG) on a Cost-Plus-Fixed-Fee contract as the Product Development Organization supported by OC-ALC/LH. Due to the short notice requirement, interface development and initial software requirements definition is being accomplished under the B-52 fleet support contract; a time and materials contract. The first phase will be to support the Direct Attack Stores Management Overlay (SMO) Developmental Test and Evaluation (DT&E) and DT&E of hardware interface equipment. The Direct Attack SMO supports WCMD and JDAM. The second phase will support the DT&E of the Stand-off SMO. The Stand-off SMO supports JSOW and JASSM. Due to the need for rapid Required Assets Availability and Initial Operational Capability dates, the Single Acquisition and Management Plan directed concurrence for RDT&E of the Direct Attack SMO and the production hardware (MIL-STD 1760 umbilicals to transfer 1760 data from the weapons pylon to the weapon itself). Although production continues through development of the Stand-off SMO, development of the production materials is completed in FY 97. JSOW and JASSM will use the same umbilicals as WCMD and JDAM.
3. The GPS TACAN program placed Boeing Defense and Space Group, Wichita, KS on a Firm-Fixed-Price contract as the Product Development Organization, supported by OC-ALC/LH, WR-ALC/LKN.
4. The ECM Improvement program placed Boeing Defense and Space Group, Wichita, KS and ITT Avionics Nutley, NJ on Firm-Fixed-Price contracts as Product Development Organizations. Boeing provides the aircraft specific integration expertise, while ITT provides expertise on the ALQ-172 system. They are supported by OC-ALC/LH and WR-ALC/LNR.
5. The Department of Energy is organically conducting the modifications to the B-61 Mod 11 weapon.

(U) **B. Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	16,505	7,457	955	0	24,917
(U) Appropriated Value	21,005	11,035			21,005
(U) Adjustments to Appropriated Value					
a. Cong Reductions	-1,129	-231			
b. SBIR		-192			
c. Omnibus or Other Above Threshold Reprogram	0				
d. Below Threshold Reprogramming	0				
(U) Adjustments to Budget Years Since FY 1997 PB	0		2,472	3,765	
(U) Current Budget Submit/President's Budget	19,870	10,612	3,427	3,765	37,674

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0101113F B-52 Squadrons

(U) Change Summary Explanation:

Funding: FY 96 Congressional Appropriations added $4.5M for AGM-130 Integration. Since Air Combat Command did not have a requirement to integrate the AGM-130 on the B-52 Congress authorized the Air Force to transfer these funds into the B-62 Mod 11 program. FY 98 PB adds $2.5M to FY 98 and $3.8M to FY 99 for Advanced Weapons Integration.

Schedule: None

Technical: None

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Aircraft Procurement (PE 11113F)	4,765	8,782	28,854	61,641	43,039	34,241	20,953	6,779	0	209,054
(U) Missile Procurement (PE 11113F)	2,002	1,855	0	0	0	0	0	0	n/a	3,857
(U) Mission Planning Systems (PE 28006F)	180	0	0	0	0	0	0	0	n/a	180

(U) D. Schedule Profile

	FY 1997				FY 1998				FY 1999				FY 2000			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) WCMD/JDAM IOC						X										
(U) GPS TACAN IOC										X						
(U) ECM Improvement IOC														X		
(U) B-61 Mod 11 Flight Test Completed				X												

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0101113F B-52 Squadrons

PROJECT: 4401

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4401 Air Force Mission Support System	2,801	5,200	948	0	0	0	0	0	0	8,949

(U) A. **Mission Description and Budget Item Justification**

Air Force Mission Support System (AFMSS) previously funded out of the AFMSS program element. Develops an aircraft specific avionics/weapons/electronic countermeasures (A/W/E) module to be used in conjunction with core AFMSS. AFMSS is the replacement mission planning system for the current B-52 Mission Data Preparation System. AFMSS will provide future ground/inflight mission planning capability. Block 1 provides the capability to plan conventional gravity missions at the unit level. Block 2 provides the capability to plan nuclear and advanced weapons via AFMSS. Block 3 of this project will add smart weapons (like JDAM and JASSM) capabilities and enhancements to the first two AFMSS blocks. Provides funding for the Periodic Depot Maintenance of the B-52 test aircraft stationed at Edwards Air Force Base.

(U) FY 1996 ($ in Thousands):
- (U) $2,801 Support WCMD and JDAM flight test with Block 1.3 engineering release
- (U) $2,801 Total

(U) FY 1997 ($ in Thousands):
- (U) $5,200 Develop Block 2 operational software for WCMD and JDAM, and PDM for the B-52 test aircraft
- (U) $5,200 Total

(U) FY 1998 ($ in Thousands):
- (U) $948 Develop Block 3 operational software for JSOW and JASSM, and other advanced weapons, as required
- (U) $948 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0101113F B-52 Squadrons
	PROJECT: 4401

(U) **B. Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	2,983	5,507	951	0	6,320
(U) Appropriated Value	2,983	5,507	0	0	8,490
(U) Adjustments to Appropriated Value					
a. Cong Reductions	-182	0	0	0	-182
b. SBIR	0	0	0	0	0
c. Omnibus or Other Above Threshold Reprogram	0	0	0	0	0
d. Below Threshold Reprogramming	0	0	0	0	0
(U) Adjustments to Budget Years Since FY 1997 PB	-182	-307	-3	0	-492
(U) Current Budget Submit/President's Budget	2,801	5,200	948	0	8,949

(U) Change Summary Explanation:

Funding: $3,121 added to FY97 budget to support Periodic Depot Maintenance of the B-52 test aircraft.

Schedule: None

Technical: None

(U) **C. Other Program Funding Summary ($ in Thousands) - not applicable**

(U) **D. Schedule Profile**

The B-52 peculiar mission planning software development is accomplished and delivered incrementally. Each work package within a block build is treated as a mini-development with its own analysis, design, and test. The work package are integrated with one another and with the AFMSS core. Requirements are continually evolving, however, the program is geared to complete known requirements by Sep 98.

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Contract award Block 2				X												
(U) Software development Block 2					X	X	X	X	X							
(U) Contract award Block 3								X								
(U) Software development Block 3									X	X	X	X				
(U) Test aircraft PDM					X											

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0101113F B-52 Squadrons

PROJECT: 4401

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Software development	2,751	2,050	885	0
(U) System Program Office support	50	50	63	0
(U) OC-ALC/LH Program Depot Maintenance	0	3,100	0	0
(U) Total	2,801	5,200	948	0

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Oklahoma ALC/LAS	Project Order			5,686	0	2,751	2,050	885	0	n/a	5,686
Support and Management Organizations											
OC-ALC/LH	Project order			163	0	50	50	63	0	n/a	3,263
OC-ALC/LH	Project order			3,100			3,100				
Test and Evaluation Organizations											
OO-ALC/LIRC	compatability										
USAFAWC/28	flight testing										
TESTS	Project order										

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0101113F B-52 Squadrons

PROJECT: 4370

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4370 Advanced Weapons Integration	3,832	0	2,479	3,765	0	0	0	0	0	10,076

(U) A. **Mission Description and Budget Item Justification**

The requirement exists for the integration of near precision and precision guided MIL-STD 1760 weapons on the B-52. This includes the Wind Corrected Munitions Dispenser (WCMD), Joint Direct Attack Munition (JDAM), Joint Stand-off Weapon (JSOW), and the Joint-Air-to-Surface Stand-off Missile (JASSM). The B-52 is designated as the threshold bomber test platform for WCMD, JDAM, and JASSM with the objective of meeting aircraft integration and weapon testing requirements. To provide complete understanding of the program and its funding, the following schedule information will reflect the money received from the WCMD, JDAM, and JASSM program elements for weapons integration on the B-52.

(U) FY 1996 ($ in Thousands):
- (U) $3,832 Software requirements for WCMD and JDAM. Hardware requirements for WCMD, JDAM, JSOW, and JASSM.
- (U) $3,832 Total

(U) FY 1997 ($ in Thousands):
- (U) $0 Total

(U) FY 1998 ($ in Thousands):
- (U) $2,479 Software development for JSOW and JASSM
- (U) $2,479 Total

(U) FY 1999 ($ in Thousands):
- (U) $3,765 Software development for JSOW and JASSM
- (U) $3,765 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0101113F B-52 Squadrons	PROJECT 4370

(U) **B. Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	3,977	0	2,489	3,784	10,250
(U) Appropriated Value	3,900	0	0	0	3,900
(U) Adjustments to Appropriated Value					
a. Cong Reductions	-68	0	0	0	-68
b. SBIR	0	0	0	0	0
c. Omnibus or Other Above Threshold Reprogram	0	0	0	0	0
d. Below Threshold Reprogramming	0	0	0	0	0
(U) Adjustments to Budget Years Since FY 1997 PB	0	0	-10	-19	6,176
(U) Current Budget Submit/President's Budget	3,832	0	2,479	3,765	10,076

(U) Change Summary Explanation:

Funding: FY 96 -$68K Undistributed Congressional Reductions.

Schedule: None

Technical: None

(U) **C. Other Program Funding Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) RDT&E (WCMD - PE 27600F)	5,900	3,035	0	0	0	0	0	0	n/a	8,935
(U) RDT&E (JDAM - PE 27583F)	4,525	7,110	0	0	0	0	0	0	n/a	11,635
(U) RDT&E (JASSM - PE 27160F)	1,500	8,500	8,000	3,400	0	0	0	0	n/a	21,400
(U) Aircraft Procurement (PE 11113F)	0	4,181	6,600	5,100	0	0	0	0	n/a	15,881

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE: February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0101113F B-52 Squadrons	PROJECT: 4370

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Direct Attack SMO																
(U) Software/hardware Req DT&E	X	X	X													
(U) Test planning	X	X	X	X	X	X										
(U) Technical data development				X	X	X	X	X								
(U) Ground/flight testing			X			X	X	X								
(U) AFMSS module DT&E	X	X	X	X	X	X	X	X								
(U) Program office support	X	X	X	X	X	X	X	X								
(U) Stand-off SMO																
(U) Contractor Interface Development			X	X												
(U) Software/hardware Req DT&E	X	X	X	X	X	X	X	X								
(U) Test planning				X	X	X	X	X	X	X						
(U) Technical data development							X	X	X							
(U) Ground/flight testing							X	X			X	X	X	X	X	X
(U) AFMSS module DT&E							X	X	X	X	X	X	X	X	X	X
(U) Program support office					X	X	X	X	X	X	X	X	X	X	X	X

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0101113F B-52 Squadrons PROJECT 4370

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Software/hardware requirements	3,832	0	2,479	3,765
(U) Total	3,832	0	2,479	3,765

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Boeing Defense and Space Group Wichita, KS	CPFF		10,076	0	0	3,832	0	2,479	3,765	n/a	10,076
Support and Management Organizations											
Test and Evaluation Organizations											

(U) B. **Budget Acquisition History and Planning Information Continued ($ in Thousands)**

Government Furnished Property: None

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0101113F B-52 Squadrons

PROJECT: 4371

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4371 Global Positioning System TACAN Emulation	8,866	0	0	0	0	0	0	0	0	8,866

(U) A. Mission Description and Budget Item Justification

GPS TACAN Emulation includes installation of a Control Display Unit (CDU) at the pilot and copilot stations and the integration of concurrent TACAN capabilities into the on-board GPS system. The TACAN Replacement System (TRS) will satisfy current TACAN emulation requirements directed by Congressional mandate and provide an architecture to expand/increase navigational capabilities/requirements planned by FAA and International Civil Organization bodies. The system allows the crew to fly a non-precision approach using the GPS constellation for navigation guidance. In addition, as an open architecture system, it can be easily upgraded to allow precision approaches when standards are established.

(U) FY 1996 ($ in Thousands):
- (U) $1,281 System Requirement Review completion
- (U) $100 Preliminary Design Review
- (U) $1,900 Fabrication of lab demonstration system
- (U) $3,300 Fabrication of system mock-up
- (U) $2,000 Fabrication of prototype unit
- (U) $85 Critical Design Review
- (U) 200 Test and Evaluation
- (U) $8,866 Total

(U) FY 1997 ($ in Thousands):
- (U) $0 No activity

(U) FY 1998 ($ in Thousands):
- (U) $0 No activity

(U) FY 1999 ($ in Thousands):
- (U) $0 No activity

(U) B. Program Change Summary ($ in Thousands)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0101113F B-52 Squadrons

PROJECT: 4371

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	9,545	0	0	0	9,545
(U) Appropriated Value	9,360	0	0	0	9,360
(U) Adjustments to Appropriated Value					
a. Cong Reductions	-494	0	0	0	-494
b. SBIR	0	0	0	0	0
c. Omnibus or Other Above Threshold Reprogram	0	0	0	0	0
d. Below Threshold Reprogramming	0	0	0	0	0
(U) Adjustments to Budget Years Since FY 1997 PB	-494	0	0	0	-494
(U) Current Budget Submit/President's Budget	8,866	0	0	0	8,866

(U) Change Summary Explanation:

Funding: $494 taken in FY 96 for Undistributed Congressional Reductions and bills to pay for Bosnia operations.

Schedule: Schedule changes were necessary to provide concurrent RDT&E with GPS Line-Replaceable-Units (LRU) redesign effort. The requirement for 24 additional aircraft to receive NAVSTAR GPS provoked re-design of key Group B LRUs. The TRS new start provided an opportunity to combine the two efforts, reducing additional LRUs originally planned for TRS and incorporating requirements into a single, integrated design. Thus, instead of designing and fielding two separate systems (GPS and TRS), the software and hardware requirements will be integrated. Reducing engineering time and independent costs associated with each program.

Technical: Technical changes include eliminating the requirement for a separate Interface Unit for TACAN and integrating TACAN system requirements in the GPS Interface Unit, currently installed on NAVSTAR GPS equipped aircraft. This also eliminates the requirement for a Signal Data Converter to interface the GPS and TRS. The majority of the TRS program requirements will affect software integration. The hardware requirements are essentially CDUs at the pilot and copilot positions and associated Group A necessary for installation.

(U) C. **Other Program Funding Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Aircraft Procurement (PE 11113F)	0	3,000	11,400	15,700	4,662	0	0	0	n/a	34,762

(U) D. **Schedule Profile**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE
	February 1997

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
7 - Operational System Development	0101113F B-52 Squadrons	4371

	FY 1996				FY 1997				FY 1998				FY 1999		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Contract award		X														
(U) System Requirement Review documentation		X														
(U) Human resource interface on equipment placement			X													
(U) Preliminary Design Review			X													
(U) Fabrication of upgraded development at contractor support facilities				X	X	X										
(U) Critical Design Review						X										
(U) Development of prototype unit							X	X	X							
(U) Ground/flight testing									X	X	X					

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0101113F B-52 Squadrons PROJECT 4371

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) System Requirement Review completion	1,281			
(U) Preliminary Design Review completion	100			
(U) Fabrication of lab demonstration system	1,900			
(U) Fabrication of system mock-up	3,300			
(U) Fabrication of prototype unit	2,000			
(U) Critical Design Review	85			
(U) Test and evaluation	200			
(U) Total	8,866			

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Boeing Defense and Space Group Wichita, KS	FFP	Mar 96	8,766		0	8,766	0	0	0	n/a	8,766
Support and Management Organizations											
OC-ALC/LH				50	0	50	0	0	0	n/a	50
WR-ALC/LKN				50		50	0	0	0	n/a	50
Test and Evaluation Organizations											

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0101113F B-52 Squadrons	PROJECT 4371

(U) B. Budget Acquisition History and Planning Information Continued ($ in Thousands)

Government Furnished Property: None

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0101113F B-52 Squadrons

PROJECT: 4402

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4402 Electronic Countermeasures Improvement	0	4,818	0	0	0	0	0	0	0	4,818

(U) A. Mission Description and Budget Item Justification

The electronic countermeasures of the B-52 ALQ-172 ECM suite must be improved to cover a requirement identified during DESERT STORM. The improvement provides for an increased memory capability to handle advanced threats as well as correcting a coverage capability problem. The project adds a third ALQ-172 to the ECM suite and develops the new display required by the addition of the third system. The modification also improves two common core Line-Replaceable-Units. Normal circuit cards are replaced with circuit cards holding erasable PROMs and gate array modules. Memory is increased 400% and Mean-Time-Between-Failure is increased. Development program will be completed in FY 97.

(U) FY 1996 ($ in Thousands):
- (U) $0 No activity
- (U) $0 Total

(U) FY 1997 ($ in Thousands):
- (U) $150 System Requirement Review
- (U) $300 Fabrication of lab mock-up
- (U) $4,268 Developmental kit fabrication
- (U) $100 System Program Office support
- (U) $4,818 Total

(U) FY 1998 ($ in Thousands):
- (U) $0 No activity
- (U) $0 Total

(U) FY 1999 ($ in Thousands):
- (U) $0 No activity
- (U) $0 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0101113F B-52 Squadrons

PROJECT: 4402

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	0	5,071	0	0	5,071
(U) Appropriated Value	0	4,921	0	0	4,921
(U) Adjustments to Appropriated Value					
a. Cong Reductions	0	-103	0	0	-103
b. SBIR	0	0	0	0	0
c. Omnibus or Other Above Threshold Reprogram	0	0	0	0	0
d. Below Threshold Reprogramming	0	0	0	0	0
(U) Adjustments to Budget Years Since FY 1997 PB	0	0	0	0	-103
(U) Current Budget Submit/President's Budget	0	4,818	0	0	4,818

(U) Change Summary Explanation:

Funding: OSD directed reductions.

Schedule: None

Technical: None

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Aircraft Procurement (PE 11113F)	0	0	4,749	22,100	31,300	31,700	20,953	6,779	n/a	117,781

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Contract award					X											
(U) Kit proof								X								
(U) System Requirement Review								X								

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0101113F B-52 Squadrons

PROJECT: 4402

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) System Requirement Review	0	150	0	0
(U) Mock-up fabrication	0	300	0	0
(U) Developmental kit proof	0	4,268	0	0
(U) System Program Office support	0	100	0	0
(U) Total	0	4,818	0	0

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Boeing Defense and Space Group Wichita, KS	FFP	Oct 96	4,418		0	0	4,418	0	0	n/a	4,418
ITT Avionics, Nutley, NJ	FFP	Oct 96	300		0	0	300	0	0	n/a	300
Support and Management Organizations											
OC-ALC/LH				50	0	0	50	0	0	n/a	50
WR-ALC/LKN				50	0	0	50	0	0	n/a	50
Test and Evaluation Organizations											
419th FLTS Edwards AFB, CA	Project order										

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0101113F B-52 Squadrons	PROJECT 4402

(U) B. Budget Acquisition History and Planning Information Continued ($ in Thousands)

Government Furnished Property: None

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0101113F B-52 Squadrons

PROJECT: 4493

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4493 B-61 Mod 11 Flight Tests	4,371	594	0	0	0	0	0	0	0	4,965

(U) A. Mission Description and Budget Item Justification

The program involves development and testing of a modified nuclear weapon on B-52 operational aircraft. Replacement of a strategic weapon was recommended by the Nuclear Posture Review and directed by Presidential Decision Review-30. Congress was notified during the second quarter of FY 1995, of the Department of Defense, and the Department of Energy intent to modify an existing weapon to provide a replacement option. Modifications (made by the Department of Energy) to the B-61 Mod 7 strategic bomb accomplish the mission requirements of the replaced weapon. Modification of an existing weapon is less expensive than the cost to develop a new weapon from "scratch." Flight testing by the 419th FLTS, Edwards AFB, CA is required to certify the modified weapon mass and physic properties are the same as the Mod 7 device. The Air Force asked and received permission from Congress to reprogram the $4.5M FY 96 Congressional plus-up for AGM-130 integration on the B-52, into the B-61 Mod 11 Flight Test program. This program will be completed in FY 97.

(U) FY 1996 ($ in Thousands):
- (U) $756 Complete 6 Degree of Freedom aerodynamic analysis for release and initial development of flight test characteristics
- (U) $981 Complete operational flight tests for Major Assembly Release (MAR) and Aircraft Compatability Control Release Drawing release by DOE
- (U) $1,221 Complete aeroballistic and dispersion flight tests and Alaska proof test series for final aerodynamic model development verification of ballistic dispersion/CEP requirement defines in Military Characteristics (MCs)
- (U) $1,413 Data analysis and develop new ballistics tables for aircraft operational delivery
- (U) $4,371 Total

(U) FY 1997 ($ in Thousands):
- (U) $594 Complete data analysis and develop new ballistics tables for aircraft operational delivery
- (U) $594 Total

(U) FY 1998 ($ in Thousands):
- (U) $0 No activity
- (U) $0 Total

(U) FY 1999 ($ in Thousands):
- (U) $0 No activity
- (U) $0 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0101113F B-52 Squadrons

PROJECT: 4493

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	0	607	0	0	5,100
(U) Appropriated Value	0	607	0	0	5,100
(U) Adjustments to Appropriated Value					
a. Cong Reductions	0	0	0	0	0
b. SBIR	0	0	0	0	0
c. Omnibus or Other Above Threshold Reprogram	0	0	0	0	0
d. Below Threshold Reprogramming	0	0	0	0	-4,500
(U) Adjustments to Budget Years Since FY 1997 PB	4,371	-13	0	0	4,365
(U) Current Budget Submit/President's Budget	4,371	594	0	0	4,965

(U) Change Summary Explanation:

Funding: FY 96 Congressional Appropriations added $4.5M for AGM-130 integration. Since Air Combat Command did not have a requirement to integrate the AGM-130 on the B-52 Congress authorized the Air Force to transfer these funds into the B-61 Mod 11 program. Original funding request was for FY97 expenditures. The Air Fore is expending all moneys in FY 97 to complete the program.

Schedule: None

Technical: None

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) not applicable										

(U) D. Schedule Profile

FY 1996	FY 1997	FY 1998	FY 1999

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0101113F B-52 Squadrons PROJECT 4493

	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Major Assembly Release test					X											
(U) Aeroballistic/Dispersion tests						X	X	X								
(U) DOE modification program						X	X	X								

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0101113F B-52 Squadrons PROJECT 4493

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Software development	1,413	594	0	0
(U) Developmental test and evaluation	2,202	0	0	0
(U) Program management support	236	0	0	0
(U) Contractor support	470	0	0	0
(U) Travel	50	0	0	0
(U) Total	4,371	594	0	0

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
San Antonio ALC/Nuc Wpns Integration Division	MIPR	Jan 97	4,965		0	4,371	594	0	0	n/a	4,965
Support and Management Organizations											
Test and Evaluation Organizations											

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0101113F B-52 Squadrons PROJECT 4493

(U) B. Budget Acquisition History and Planning Information Continued ($ in Thousands)

Government Furnished Property: None

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0101120F Advanced Cruise Missile

PROJECT: 3844

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
3844 (U) Advanced Cruise Missile	6,743	1,107	2,393	0	0	0	0	0	0	10,243
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. **Mission Description and Budget Item Justification**

The Advanced Cruise Missile (ACM) is a low-observable, air-launched, strategic missile with significant improvements over the Air Launched Cruise Missile B version (ALCM-B) in range, accuracy, and survivability. Armed with a W80 warhead, it is designed to evade air and ground-based defenses in order to strike heavily defended, hardened targets at any location within any enemy's territory. The ACM is designed for B-52H external carriage. Missile procurement is complete. FY 96, FY 97 and FY98 funds are required to complete depot development work. This program is in budget activity 7, Operational System Development, because the program effort involves depot development.

(U) FY 1996 ($ in Thousands):
- (U) $2,467 Complete Development of Sensor Repair Capabilities at Depot
- (U) $1,800 Continue Development of Software Repair Capabilities at Depot
- (U) $1,846 Complete Development of Guidance Repair Capabilities at Depot
- (U) $ 630 Mission Support/Other
- (U) $6,743 Total

(U) FY 1997 ($ in Thousands):
- (U) $1,107 Complete Development of Software Repair Capabilities at Depot
- (U) $1,107 Total

(U) FY 1998 ($ in Thousands):
- (U) $2,393 Develop Aging and Hardness Maintenance/Surveillance Capabilities at Depot

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0101120F Advanced Cruise Missile	PROJECT 3844

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	7,060	1,165	2,403		
(U) Appropriated Value	7,060	1,165			
(U) Adjustments to Appropriated Value					
a. Congressional General Reductions	(137)	(28)			
b. SBIR	(76)	(30)			
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming	(5)				
e. Rescissions	(99)				
(U) Adjustments to Budget Years Since FY 97 PB			(10)		
(U) Current Budget Submit/98PB	6,743	1,107	2,393		10,243

(U) Change Summary Explanation:

Funding: None
Schedule: None
Technical: None

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0101120F Advanced Cruise Missile PROJECT 3844

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Weapon Procurement (3020)										
(U) Budget Activity										
(U) 2. Other Missiles	1,816	1,235	843	1,018	1,071	2,058	2,087	2,114	0	12,242
(U) 4. Replenishment Spares	537	242	465	404	393	333	344	356	0	3,074
(U) Operations and Maintenance (3400)	17,350	13,168	18,593	14,811	14,782	13,317	12,937	13,812	0	118,770

(U) Related RDT&E (3600): None

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Contract Milestones																
(U) NONE																
(U) Other Program Events																
(U) Depot Activation/Completion								X								
(U) Aging and Surveillance Programs									X							

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0101120F Advanced Cruise Missile	PROJECT 3844

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Depot Activation				
(U) Sensor Depot Test/Repair	2,467	167		
(U) Guidance Depot Test/Repair	1,846			
(U) Software Compiler Rehost	1,800	940		
(U) Surveillance			2,393	
(U) Operational Test Launch Payloads				
(U) Redesign Test Payloads				
(U) Other Efforts				
(U) Support Contracts	484			
(U) Mission Support	146			
(U) Total	6,743	1,107	2,393	

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0101120F Advanced Cruise Missile		PROJECT 3844

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

(U) Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
(U) Product Development Organizations											
Hughes MSC Tucson, AZ	SS/FPIF	May 92	16,914	16,914	15,946	1,767					17,713
Kearfott Wayne, NJ	SS/FFP	Aug 93	8,077	8,077	6,200	1,846					8,046
Rockwell Newark, OH	SS/CPAF	Jul 96									
AGMC	PO	Oct 94/ Sep 96			3,361						3,361
OC-ALC	PO	Oct 94/ Dec 96			3,135	2,500	1,107				6,742
	Contract	Sep 97						2,393			2,393
SA-ALC	PO	Oct 94			25						25
Miscellaneous					6,907						6,907

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE: February 1997
BUDGET ACTIVITY: 7 - Operational System Development		PE NUMBER AND TITLE: 0101120F Advanced Cruise Missile				PROJECT: 3844
(U) Support and Management Organizations						
Logistics CAAS	Jan 95	1,943	236			2,179
Miscellaneous CAAS	Dec 94	599	248			847
DSO Mission Support		3,165	146			3,311
(U) Test and Evaluation Organizations : Not Applicable						
(U) Government Furnished Property: Not Applicable						
(U) Subtotal Product Development		35,574	6,113	1,107	2,393	45,187
(U) Subtotal Support and Management		5,707	630			6,337
(U) Subtotal Test and Evaluation						
(U) Total Project		41,281	6,743	1,107	2,393	51,524

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0102325F Joint Surveillance System

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	6,050	12,626	2,020	2,219	0	0	0	0	0	TBD
2976 Joint Surveillance System Connectivity (JSS-C)	637	583	0	0	0	0	0	0	0	10,056
2996 FAA/AF Radar Replacement (FARR)*	5,413	3,632	2,020	2,219	0	0	0	0	0	23,793
4559 Region/Sector Air Operations Center (R/SAOC)**	0	8,411	0	0	0	0	0	0	0	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

*Due to an administrative error FY96 R/SAOC funding was placed in BPAC 2996. As a result,$1.499M is being executed from BPAC 4559.
**Funds in this Project will be reclassified to PE 12326 in FY 97. FY 98 and outyear funds were budgeted in PE 12326

(U) A. **Mission Description and Budget Item Justification**

The Joint Surveillance System (JSS) provides command, control and communications (C^3) capability in support of CINC NORAD's (North Atlantic Aerospace Defense) Atmospheric Tactical Warning and Attack Assessment (ATW/AA) air sovereignty, and air defense requirements. The JSS Connectivity (JSS-C) program provides improvements to this capability by integrating new sensor data and enhancing communications capabilities via the Advanced Interface Control Unit (AICU). The FAA/Air Force Radar Replacement (FARR) program will replace 40 existing JSS radars with solid-state, three-dimensional ARSR-4 radars to improve mission performance and reduce operation and maintenance costs. The JSS-C portion of this PE falls under Budget Activity 7, research category 6.6, Operational System Development, as it is a system being deployed to the operational community to solve an operational deficiency in the existing operational system and is post Milestone Three. The FARR portion of this program element also falls under Budget Activity 7, Operational System Development, as it has received approval for production. The Region and Sector Air Operations Center (R/SAOC) Modernization program will provide a modernized C4I system with enhanced capability to integrate data from existing and future civil and military defense surveillance systems into a comprehensive recognized air picture to enhance NORAD's capability to conduct peacetime air sovereignty, transition and conventional warfare in the event of aggression toward the North American Continent. The current system has reached saturation in its capability to receive, process, display, exchange, and employ air surveillance data from current sensor systems. In some cases, it has exceeded processing and displaying capacity, thus contributing to delayed C4I decisions. The outdated technology has become increasingly difficult and costly to maintain. This program is in budget activity 7 - Operational System Development because it provides funding for the modernization of a currently existing and operating system.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0102325F Joint Surveillance System

.(U) **Acquisition Strategy:**

Management for the R/SAOC Modernization is by ESC, AFMC, Hanscom AFB, MA. The R/SAOC Modernization acquisition is currently being refined in preparation of the MS II decision. Development of the system will be executed through full and open competition. Management of the JSS Connectivity is by the Electronic Systems Center, Air Force Materiel Command, Hanscom AFB, MA. The prime contractor for the AICU is TRW, Aurora, CO. Enhanced Traffic Management System (ETMS), Department of Transportation, Cambridge, MA provides the AICU with flight plan information from FAA sources. The Federal Aviation Administration (FAA) is the lead acquisition agency for the FAA/AF Radar Replacement Program in accordance with a 19 November 1984 sub-agreement (as amended by Amendment 1, dated 1 September 1988) to FAA/AF National Agreement (NAT) 711. The FAA and the Air Force have established a joint Program Office at HQ, FAA, Washington, DC for this procurement. Northrup Grumman Corporation, Linthicum, MD is the prime contractor for the FARR program.

(U) **B. Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY1997 President's Budget	4,582	13,239	15,824	19,927	TBD
(U) Appropriated Value	4,582	13,239			
(U) Adjustments to Appropriated Value					
a. Cong /General Reductions		-387			
b. SBIR		-226			
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming	1,499				
e, Rescissions					
(U) Adjustments to Budget Years Since FY 1997 PB	-31		-13,804	-17,708	
(U) FY1998 President's Budget	6,050	12,626	2,020	2,219	TBD

(U) Change Summary Explanation:

Funding: FY97 -$75 for App Act Sec 8037(E), -$35 for Sec 8037(H), -$264 for Sec 8136, -$13 for Sec 8138.

Schedule: None

Technical: None

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0102325F Joint Surveillance System

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Other Procurement AF	535	0	135	65	0	0	0	0	TBD	TBD
(U) Budget Activity 6, WSC 86190A	553	0	135	65	0	0	0	0	TBD	TBD

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) R/SAOC MOU with Canada completed				x												
(U) Industry submits RFI packages for R/SAOC				x												
(U) R/SAOC ORD II approved					x											
(U) R/SAOC RFP released					x											
(U) R/SAOC Milestone II					x											
(U) R/SAOC contract award						x										
(U) AICU System Engineering	x	x	x	x												
(U) AICU FOC		x														
(U) FARR first operational readiness date				x												
(U) FARR first acceptance of systems 21-26	x															
(U) FARR first acceptance of systems 27-33		x														
(U) FARR first acceptance of systems 34-40			x													
(U) FARR last operational readiness date									x							
(U) FARR follow-on support including baselining/commissioning before FAA final acceptance									x	x	x	x	x	x	x	x

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE: February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0102325F Joint Surveillance System		PROJECT: 2976

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
2976 Joint Surveillance System Connectivity (JSS-C)	637	583	0	0	0	0	0	0	0	10,056

(U) **A. Mission Description and Budget Item Justification**

The JSS Connectivity provides improvements to Atmospheric Tactical Warning and Attack Assessment (ATW/AA), air sovereignty, and air defense command, control, and communications (C3) by integrating new sensor data and enhancing communications capabilities.

(U) FY 1996 ($ in Thousands):
- (U) $50 Provide program office support
- (U) $89 Provide system engineering support for AAMDS
- (U) $11 Provide system integration support for Enhanced Traffic Management System (ETMS) in support of AAMDS
- (U) $280 R/SAOC Modernization System Engineering Support
- (U) $207 R/SAOC Modernization program office management and technical support
- (U) $637 Total

(U) FY 1997 ($ in Thousands):
- (U) $583 R/SAOC Modernization reclassified to PE 12326F (R/SAOC) approved 4 Feb 97 (IR 97-21 IR)
- (U) $583 Total

(U) FY 1998 ($ in Thousands):
- (U) $0
- (U) $0 Total

(U) FY 1999 ($ in Thousands):
- (U) $0
- (U) $0 Total

(U) **B. Program Change Summary ($ in Thousands)**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0102325F Joint Surveillance System — PROJECT: 2976

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY1997 President's Budget	637	611	633	638	11,355
(U) Appropriated Value	637	611			
(U) Adjustments to Appropriated Value					
a. Cong /General Reductions		-28			
b. SBIR					
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
e. Rescissions					
(U) Adjustments to Budget Years Since FY 1997 PB			-633	-638	
(U) FY1998 President's Budget	637	583	0	0	10,056

(U) Change Summary Explanation:

Funding: FY97 funding reclassification to PE 12326F is pending OSD approval
FY97 -$15 for App Act Sec 8037(E), -$12 for Sec 8136, -$1 for Sec 8138.

Schedule: None

Technical: None

(U) C. **Other Program Funding Summary ($ in Thousands)** Not Applicable

(U) D. **Schedule Profile**

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Advanced Interface Control Unit FOC		x														
(U) System Engineering	x	x	x	x												

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0102325F Joint Surveillance System

PROJECT: 2976

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) System Engineering Support (AICU)	100	0	0	0
(U) System Engineering Support (R/SAOC)	280	0		
(U) Program Office Support (AICU)	50	0	0	0
(U) Program Office Support (R/SAOC)*	207	583		
(U) Total	637	583	0	0

* FY97 proposed reclassification to PE 12326F is pending OSD approval.

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations None											
Support and Management Organizations											
TEMS	Various Contracts	Ongoing	(AICU)		7,580	89	0			0	7,889
			(R/SAOC)			220					
Miscellaneous	Various Contracts	Ongoing	(AICU)		1,256	37	0			0	1,876
			(R/SAOC)				583*				
MITRE	F19628-94-C-0001	Ongoing	(R/SAOC)			291	0			0	291
Test and Evaluation Organizations None											
Total Project					8,836	637	583	0	0	0	10,056

* FY97 proposed reclassification to PE12326F (R/SOCC) is pending OSD approval.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE: February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0102325F Joint Surveillance System		PROJECT: 2996

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
2996 FAA/AF Radar Replacement (FARR)*	5,413	3,632	2,020	2,219	0	0	0	0	0	23,793

(U) A. **Mission Description and Budget Item Justification**

The FAA/AF Radar Replacement (FARR) program will replace 40 existing JSS radars with solid-state, three dimensional ARSR-4 radars to improve mission performance and reduce operation and maintenance costs. This includes technical radar site surveys and interface engineering in preparation for system installation, test, and checkout.

(U) FY 1996 ($ in Thousands):

- (U) $545 Provided program office support* (BPAC 2996 - 296 and BPAC 4559 -249)
- (U) $984 Continued test support for FARR JPO (BPAC 2996)
- (U $929 Continued radar production, installation, test, and system checkout (BPAC 2996)
- (U) $1,705 Continued interoperability evaluations and commissioning support (BPAC 2996)
- (U) $584 System Engineering Support* (BPAC 4559)
- (U) $666 Program Management and Technical Support* (BPAC 4559)
- (U) $5,413 Totals
- *NOTE: $1.499M was added to this BPAC due to an administrative error. It should be listed under BPAC 4559. Refer to break-out above.

(U) FY 1997 ($ in Thousands):

- (U) $405 Provide program office support
- (U) $844 Continue test support for FARR Joint Program Office (JPO)
- (U) $832 Continue radar production, installation, test, and system checkout
- (U) $1,551 Continue interoperability evaluations and commissioning support
- (U) $3,632 Total

(U) FY 1998 ($ in Thousands):

- (U) $193 Provide program office support
- (U) $302 Continue test support for FARR Joint Program Office (JPO)
- (U) $463 Continue installation, test and system checkout
- (U) $1,062 Continue interoperability evaluations and commissioning support
- (U) $2,020 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0102325F Joint Surveillance System PROJECT 2996

(U) FY 1999 ($ in Thousands):

- (U) $217 Provide program office support
- (U) $436 Continue test support for FARR
- (U) $626 *Continue test and system checkout*
- (U) $940 Continue interoperability evaluations and commissioning support
- (U) $2,219 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY1997 President's Budget	5,415	12,628	15,191	19,289	61,562
(U) Appropriated Value	5,415	12,628			
(U) Adjustments to Appropriated Value					
a. Cong /General Reductions		-8,996			
b. SBIR					
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
e. Rescissions					
(U) Adjustments to Budget Years Since FY 1997 PB	-2		-13,171	-17,070	
(U) FY1998 President's Budget	5,413*	3,632	2,020	2,219	23,793

(U) Change Summary Explanation:

Funding:* Due to an administrative error FY96 R/SAOC funding was placed in BPAC 2996. As a result,$1.499M is being executed from BPAC 4559.
FY97 -$8868 Cong RDT&E, -$21 for App Act Sec 8037(H), -$28 for Sec 8037(E), -$75 for Sec 8136, -$4 for Sec 8138.
FY98/99 funding reprogrammed to PE 12326F.

Schedule: None

Technical: None

(U) C. Other Program Funding Summary ($ in Thousands) Not Applicable

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0102325F Joint Surveillance System PROJECT 2996

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) First operational readiness date			x													
(U) First acceptance of systems 21-26	x															
(U) First acceptance of systems 27-33		x														
(U) First acceptance of systems 34-40			x													
(U) FARR last operational readiness date						x										
(U) FARR follow-on support including commissioning/baseling before FAA final acceptance									x	x	x	x	x	x	x	x

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0102325F Joint Surveillance System	PROJECT 2996

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Systems engineering	1191	596	460	242
(U) Contractor engineering support	1200	858	835	710
(U) Installation/Test/Checkouts	1776	1773	532	1,050
(U) Program Office support	580	405	193	217
(U) Program Management and Technical Support	666			
(U) Total	5,413	3,632	2,020	2,219

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0102325F Joint Surveillance System	PROJECT 2996

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Support and Management Organizations											
MITRE	F19628-94-C-0001	Ongoing	(FARR) (R/SAOC)		2,612	1191	596	460	242	0	5,101
TEMS	Various	Ongoing	(FARR)		1,669					0	1,669
Martin Marietta	MDA903-89-C-0059	Ongoing	(FARR)		3,475	1866	858	835	710	0	7,744
Miscellaneous	Various	Ongoing	(FARR)		507	580	405	193	217	0	1,902
Test and Evaluation Organizations											
Various					2,246	1,776	1,773	532	1,050	0	7,377
Subtotal Product Development					0					0	0
Subtotal Support and Management					8,263	3,637	1,859	1,488	1,169	0	16,416
Subtotal Test and Evaluation					2,246	1,776	1,773	532	1,050	0	7,377
Total Project					10,509	5,413	3,632	2,020	2,219	0	23,793

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0102325F Joint Surveillance System

PROJECT: 4559

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4559 Region/Sector Air Operations Center (R/SAOC)**	0	8,411	0	0	0	0	0	0	0	TBD

(U) **A. Mission Description and Budget Item Justification**

The Region and Sector Air Operations Center (R/SAOC) Modernization program will provide a modernized C4I system with enhanced capability to integrate data from existing and future civil and military defense surveillance systems into a comprehensive recognized air picture to enhance NORAD's capability to conduct peacetime air sovereignty, transition and conventional warfare in the event of aggression toward the North American Continent. The current system has reached saturation in its capability to receive, process, display, exchange, and employ air surveillance data from current sensor systems. In some cases, it has exceeded processing and displaying capacity, thus contributing to delayed C4I decisions. The outdated technology has become increasingly difficult and costly to maintain.
This program is in budget activity 7 - Operational System Development, Research Category 6.6 because it provides funding for the modernization of a currently existing and operating system.

(U) FY 1996 ($ in Thousands):
- (U) $0 Due to an administrative error FY96 R/SAOC funding was placed in BPAC 2996. As a result,$1.499M is being executed from BPAC 4559.
- (U) $0 Total

(U) FY 1997 ($ in Thousands):
- (U) $8,411 R/SAOC Modernization
- (U) $8,411 Total

(U) FY 1998 ($ in Thousands):

- (U) $0
- (U) $0 Total

(U) FY 1999 ($ in Thousands):
- (U) $0
- (U) $0 Total

(U) **B. Program Change Summary ($ in Thousands)**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0102325F Joint Surveillance System

PROJECT: 4559

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY1997 President's Budget	0	0	0	0	TBD
(U) Appropriated Value	0	0	0	0	TBD
(U) Adjustments to Appropriated Value					
a. Cong /General Reductions		8,637			
b. SBIR		-226			
c. Omnibus or Other Above Threshold Reprogram					
(U) Adjustments to Budget Years Since FY 1997 PB					
(U) FY1998 President's Budget	0*	8,411	0	0	TBD

(U) Change Summary Explanation:

Funding * Due to an administrative error FY96 R/SAOC funding was placed in BPAC 2996. As a result,$1.499M is being executed from BPAC 4559.
FY97 Congressional add $8,868, -$32 for App Act Sec 8037(E), -$14 for Section 8037(H), -$177 for Section 8136, -$8 for Section 8138.
FY97 R/SAOC Modernization Reclassified to PE 12326

Schedule: None
Technical: None

(U) C. Other Program Funding Summary ($ in Thousands) Not Applicable

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) MOU with Canada completed				x												
(U) Industry submits RFI packages				x												
(U) R/SAOC ORDII approved					x											
(U) R/SAOC RFP released					x											
(U) R/SAOC Mod Milestone II					x											
(U) R/SAOC Mod Contract Award						x										

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0102325F Joint Surveillance System	PROJECT 4559

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Systems Engineering Support	0	1,280	0	0
(U) Contract Award		4,633		
(U) Program Office Support	0	1,010	0	0
(U) Program Management and Technical Support	0	1,488	0	0
(U) Total	0	8,411	0	0

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)											DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0102325F Joint Surveillance System							PROJECT 4559

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Support and Management Organizations											
Mitre	F19628-94-C-001B	ongoing	(R/SAOC)		0	0	1,280	0	0	Cont	TBD
TEMS	Various	ongoing	(R/SAOC)		0	0	1,488	0	0	Cont	TBD
Prime Contractor	TBD	28 Feb 97	(R/SAOC)		0	0	4,633	0	0	Cont	TBD
MISC	Various	ongoing	(R/SAOC)		0	0	1,010	0	0	Cont	TBD
Test and Evaluation Organizations											
Product Development Property											
Support and Management Property											
Test and Evaluation Property											
Subtotal Product Development					0	0	0	0		0	0
Subtotal Support and Management					0						
Subtotal Test and Evaluation					0	0	8,411	0		Cont	TBD
Total Project					0	0	8,411	0		Cont	TBD

* New PE established for R/SAOC Modernization (12326F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0102326F Region/Sector Operations Control Center Modernization

PROJECT: 4592

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4592 Region/Sector Air Operations Center (R/SAOC)*	0	0	20,512	14,065	8,953	3,920	6,012	6,087	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description and Budget Item Justification

The Region and Sector Air Operations Center (R/SAOC) Modernization program will provide a modernized C4I system with enhanced capability to integrate data from existing and future civil and military defense surveillance systems into a comprehensive recognized air picture to enhance CINC NORADS's (North Atlantic Aerospace Defense) capability to conduct peacetime air sovereignty, transition and conventional warfare in the event of aggression toward the North American Continent. The current system has reached saturation in its capability to receive, process, display, exchange, and employ air surveillance data from current sensor systems. In some cases, it has exceeded processing and displaying capacity, thus contributing to delayed C4I decisions. The outdated technology has become increasingly difficult and costly to maintain.

This program is in budget activity 7 - Operational System Development, Research Category 6.6 because it provides funding for the modernization of a currently existing and operating system.

(U) FY 1996 ($ in Thousands):
- (U) $0 *$1,499 executed from the Joint Surveillance System PE (12325F)
- (U) $0 Total

(U) FY 1997 ($ in Thousands):
- (U) $0 $8,994 Approved by OUSD(C) on 4 Feb 97 (FY 97-21 IR)
- (U) $0 Total

(U) FY 1998 ($ in Thousands):
- (U) $16,503 Establish Contractor Development Facility and Start Development/Modification of Software for Core Operational Capability (COC)
- (U) $1,538 Systems Engineering Support
- (U) $1,721 Program Management and Technical Support
- (U) $750 Program Office Support
- (U) $20,512 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0102326F Region/Sector Operations Control Center Modernization PROJECT 4592

(U) FY 1999 ($ in Thousands):
- (U) $10,637 Conclude Software Development/Modification for COC and Prepare for Install of New Equipment at First Site
- (U) $1,413 Systems Engineering Support
- (U) $1,265 Program Management and Technical Support
- (U) $750 Program Office Support
- (U) $14,065 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY1997 President's Budget	0	0	0	0	TBD
(U) Appropriated Value	0	0	0	0	TBD
(U) Adjustments to Appropriated Value					
a. Cong /General Reductions		-259			
b. SBIR		-226			
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
e. Rescissions					
(U) Adjustments to Budget Years Since FY 1997 PB	0	9,479*	20,512	14,065	
(U) FY1998 President's Budget	0	8,994*	20,512	14,065	Cont

(U) Change Summary Explanation:
Funding: *FY97 funding approved for reclassification from Joint Surveillance System (PE 12325F)

Schedule: None

Technical: None

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0102326F Region/Sector Operations Control Center Modernization PROJECT 4592

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) WSC 834340	0	0	0	11,500	4,893	2,000	5,070	5,319	Cont	TBD
(U) Other Procurement AF	0	0	0	11,500	4,893	2,000	5,070	5,319	Cont	TBD

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Complete H/W Comm Installation at Integration Test Facility 1										x						
(U) Complete INCO/Demo at Integration Test Facility 1											x					
(U) Complete System Test Facility 1												x				
(U) Start Operational Sites													x			
(U) Complete DT&E/IOT&E integration													x			
(U) Core operational capability/IOC													x			
(U) Hardware procurement for sites 2,3,4													x	x	x	x
(U) WADS and Alaska sites Hardware procurement													x	x	x	x
(U) Systems Engineering/Program Management													x	x	x	x

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0102326F Region/Sector Operations Control Center Modernization PROJECT 4592

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) System Engineering Support			1,538	1,413
(U) Program Office Support			750	750
(U) Program Management and Technical Support			1,721	1,265
(U) Development/Modification of Software for COC			16,503	10,637
(U) Total	0	0	20,512	14,065

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0102326F Region/Sector Operations Control Center Modernization PROJECT 4592

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)
Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Support and Management Organizations											
MITRE	F19628-94-C-001B	On-Going	(R/SAOC)		0	0	0	1,538	1,413	Cont	TBD
TEMS	Various	On-Going	(R/SAOC)		0	0	0	1,721	1,265	Cont	TBD
Prime Contractor	TBD (CPAF)	28 Feb 97	(R/SAOC)		0	0	0	16,503	10,637	Cont	TBD
MISC	Various	On-Going	(R/SAOC)				0	750	750	Cont	
Test and Evaluation Organizations											
Product Development Property					0	0	0	0	0	Cont	TBD
Support and Management Property					0	0	0	0	0	Cont	TBD
Test and Evaluation Property					0	0	0	0	0	Cont	TBD
Subtotal Product Development					0	0	0	0	0	Cont	TBD
Subtotal Support and Management					0	0	0	20,512	14,065	Cont	TBD
Subtotal Test and Evaluation					0	0	0	0	0	Cont	TBD
Total Project					0	0	0	20,512	14,065	Cont	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0102411F Surveillance Radar Stations/Sites (SRS)

PROJECT: 2980

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
2980 Surveillance Radar Stations/Sites (SRS)	6,702	4,962	1,442	0	0	0	0	0	0	60,548
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description and Budget Item Justification

This program provides improvements to command, control, and communications (C3) and air surveillance capabilities in Iceland. The Control Reporting Center (CRC) and air surveillance radars support air defense requirements in the strategically important Greenland-Iceland-Norwegian gap. The program is a joint program with NATO funding infrastructure while the US funds cryptographic capabilities, system engineering and integration activities. The program is in budget activity 7 since it supports improvements to these currently operational systems.

(U) FY 1996 ($ in Thousands)
- (U) 2,159 Provide program office support.
- (U) 1,836 Provide systems engineering support for IADS.
- (U) 2,707 Perform on island DT&E & OT&E.
- (U) 6,702 Total

(U) FY 1997 ($ in Thousands)
- (U) 2,088 Provide program office support.
- (U) 2,522 Provide systems engineering support for IADS.
- (U) 352 Complete support for DT&E & OT&E.
- (U) 4,962 Total

(U) FY 1998 ($ in Thousands)
- (U) 1,022 Provide program office support
- (U) 420 Provide systems engineering support for IADS
- (U) 1,442 Total

(U) FY 1999 ($ in Thousands)
- (U) 0 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0102411F Surveillance Radar Stations/Sites (SRS)
	PROJECT 2980

(U) B. **Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY1997 President's Budget	8,502	5,278	5,311	0	67,636
(U) Appropriated Value	8,502	5,278			
(U) Adjustments to Appropriated Value					
a. Congressional General Reduction		-233			
b. Below Threshold Reprogramming	-1,800				
c. SBIR reduction		-83			
(U) Adjustment to Budget Years			-3,869		
(U) FY1998 President's Budget	6,702	4962	1,442	0	60,548

(U) Change Summary Explanation:

Funding:

FY96 BTR -$1,500 to PE 12325F for the R/SOCC Modernization effort
FY96 BTR -$300 to PE 27412F for Theater Air Control System Improvements (TACSI)
FY97 -$27 for Appr Act Sec 8037(H), -$95 for Section 8037(E), -$106 for Section 8136 and -$5 for Section 8138.
FY98 Budget adjustment for support of the Reliability, Maintainability, Supportability (RMS) effort in PE 12412F minus FFRDC and general reductions.

Schedule: None

Technical: None

(U) C. **Other Program Funding Summary ($ in Thousands)**

Not Applicable

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0102411F Surveillance Radar Stations/Sites (SRS)
	PROJECT 2980

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Ground-Air-Ground Radio Checkout	x															
(U) Control Reporting Center Building Complete	x															
(U) First Intercept Complete		x														
(U) On-Site Development Test & Evaluation							x									
(U) Functional Configuration Audit (FCA)/Physical CA							x									
(U) System Operational Test & Evaluation							x									
(U) FOC								x								
(U) Preparation for JFAI, CI-13 Install									x	x	x	x				
(U) Finish SPO support for On-Island program residuals and T&E													x			

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0102411F Surveillance Radar Stations/Sites (SRS)
	PROJECT 2980

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Engineering Support	1,836	2,088	420	0
(U) Test and Evaluation Support	2,707	352	0	0
(U) Program Support	2,159	2,522	1,022	0
(U) Total	6,702	4,962	1,442	0

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)											DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0102411F Surveillance Radar Stations/Sites (SRS)							PROJECT 2980

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
ESC											
Support and Management Organizations											
MITRE	F19628-94-C-0001/LOE	Oct 94			32,118	1,836	2,522	420	0	0	36,896
TEMS	Various Contracts	Jun 94			13,664	1,051	987	400		0	16,102
Miscellaneous	Various Contracts				1,202	1,108	1,101	622	0	0	4,033
Test and Evaluation Organizations											
Various					458	2,707	352	0	0	0	3,517
Subtotal Product Support					0	0	0	0	0	0	0
Subtotal Support and Management					46,984	3,995	4,610	1,442	0	0	57,031
Subtotal Test and Evaluation					458	2,707	352	0	0	0	3,517
Total Project					47,442	6,702	4,962	1,442	0	0	60,548

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207131F A-10 Squadrons

PROJECT: 3861

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
3861 A-10 Squadrons	0	0	0	2,358	7,127	6,955	3,223	10,908	TBD	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	TBD	TBD

(U) A. Mission Description and Budget Item Justification

This program is in budget activity 7 - Operational System Developement, Research Category 6.6 because it supports an operational system. The A-10 aircraft is the Air Force's dedicated Close Air Support (CAS) aircraft for support of ground manuever forces. There is a need to upgrade and modernize the A/OA-10 aircraft to enhance its ability to support CAS and interdiction mission requirements. The Low Altitude SAfety and Targeting Enhancement (LASTE) computer upgrade will enhance the computer memory, throughput, and system architecture to allow the aircraft to integrate advanced weapons and accomodate a situational awareness display, a data-link capability, an Electronic Warfare Management System, and the Digital Terrain System.

(U) Acquisition Strategy:

1. The LASTE development will be conducted under the A-10 Prime Contract scheduled to be awarded in March 1998 on a full-and-open basis.

(U) FY 1999 ($ in Thousands):

- (U) $2,358 LASTE Computer Upgrade
- (U) $2,358 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	0	0	6,091	8,904	TBD
(U) Adjustments to Budget Years Since FY 1997 PB			-6,091	-6,546	
(U) Current Budget Submit/President's Budget	0	0	0	2,358	TBD

(U) Change Summary Explanation:

Funding: The Fighter Configuration Plan (FICOP) reduced FY98-99 funding to accomplish other higher priority projects. The Situation al Awareness Data Link (SADL) was cancelled resulting in reduced funding requirements in FY99-FY02.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0207131F A-10 Squadrons / PROJECT: 3861

Schedule: The FICOP delayed initial procurement of the LASTE computer upgrade one year. The Common Missile Warning System program is also delayed by two years. SADL was cancelled.

Technical: Not Applicable

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Aircraft Procurement, BP-11 (PE 27131F)	27,025	35,823	24,971	28,315	26,569	49,997	26,084	27,704	TBD	TBD

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Low Altitude Safety and Targeting Enhancement (LASTE) computer upgrade RDT&E													X			

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207131F A-10 Squadrons PROJECT 3861

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) LASTE				2,358
(U) Total				2,358

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
LASTE											
TBD	TBD	1Q99							2,358	8,100	10,501
Support and Management Organizations											
Not Applicable											
Test and Evaluation Organizations											
Not Applicable											
Total Project									2,358		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207133F F-16 Squadrons

PROJECT: 2671

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
2671 F-16 Squadrons	146,114	126,228	100,223	100,491	108,769	118,399	86,171	43,493	TBD	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	8

(U) A. Mission Description and Budget Item Justification

(U) The F-16 fighter aircraft program satisfies the need for modernization of the USAF and allied multimission tactical fighter forces. The F-16 is a single-engine, single-seat, multirole tactical fighter with full air-to-air and air-to-surface combat capabilities. The F-16 complements the F-15 in counter-air missions and as the primary aircraft in the surface attack role. The F-16C/D program develops, integrates, and qualifies systems to enhance the overall performance of the F-16 mission.

(U) The F-16 program also develops enhanced combat capability in both the air-to-ground and air-to-air role. Improvements (all within the FYDP) include completion of the Mid-Life Update (MLU) Program, the Modular Mission Computer (MMC), Block 30 GPS Integration, Smart Weapons Integration, and Pratt & Whitney 229 Engine design improvements. The planned program also develops Close Air Support (CAS) enhancements for 250 Block 40 C/D by integrating the Night Vision (NVIS) imaging system. The F-16C/D development efforts are complemented by comprehensive Operational Flight Program (OFP) upgrades.

(U) To meet the need beyond the turn of the century, a Mid-Life Update (MLU) of aircraft avionics is being conducted by our European partners. MLU involves various mods to European F-16A/B, including the Modular Mission Computer (MMC), which USAF Block 50s will eventually employ. The MMC will extend the cost effective life of the F-16 through replacement of three Line Replaceable Units and the addition of significant memory and processing growth provisions. The latest version of the F-16C/D has significantly improved display processors, enabling increased pilot situational awareness. Efforts are underway to upgrade the IDM data link capability on the Block 50 aircraft with the latest version of the High Speed Anti-Radiation Missile (HARM). The program includes enhancements to the HARM Targeting System to enable the F-16 Block 50 to better perform in the Suppression of Enemy Air Defenses role.

(U) Additionally, future capability is highlighted by new developments such as: new Color Displays for Blocks 40/50; Improved Flight Controls for Blocks 30/40/50; Link 16 for Blocks 40/50; MMCs added for Block 40s; Advanced Weapons Integration, Night Vision Imaging System (NVIS), Enhanced/Expanded Fire Control Computer, Improved Flight Control Computer (E^2FCC) for the Block 30; Improved Airborne Video Tape Recorder (AVTR) for Block 50 and On-Board Oxygen Generating System (OBOGS) for all F-16 C/D aircraft; and Common Configuration Integration Program (CCIP) Integration (Time & Materials). The On-Board Oxygen Generation System provided oxygen-enriched breathing gas to the pilot by separating oxygen from engine bleed air taken from the environmental control system (ECS). Benefits of OBOGS include significant cost of ownership reductions, reduced logistics support and mobility footprint, increased reliability and increased safety. CCIP will modify all Block 40 and Block 50 F-16 aircraft. CCIP pulls together three related programs under one umbrella:

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0207133F F-16 Squadrons / PROJECT: 2671

a. The main driver for CCIP will be the Link 16 program. Link 16 is a data link that connects main components of a battle arena to maintain awareness and to share position data. The Link 16 program designs the appropriate Group a (hardware mounted permanently on aircraft) to incorporate existing Group B (hardware that is easily removed from airplane) developed by the Multifunctional Information Distribution System (MIDS) Office and adapted for use on the F-16.

b. To enhance the display of the Link 16 data, the current black and white display will be changed out with the color display used by the European Partner Air Force (EPAF) countries on the Mid-Life Update (MLU) Program.

c. To have sufficient computing power in the Block 40 aircraft to operate Link16 and to allow the cost savings of using a common Operational Flight Program, the Multimission Computer (MMC) has to be upgraded to the same as used on the Block 50 aircraft.

(U) The F-16, which received Milestone III approval in FY 1977, is an operational aircraft. Since the development activities in this PE support an operational aircraft, these development activities are funded in the Operational System Development budget activity seven.

(U) FY 1996 ($ in Thousands):

- (U) $11,600 Continue Mid-Life Update (MLU) Engineering & Manufacturing Development (EMD)
- (U) $29,984 Continue Modular Mission Coumpter (MMC) computer upgrade
- (U) $19,053 Continue Block 40 Close Air Support (CAS) EMD
- (U) $8,100 Initiate Block 30 Global Positioning System
- (U) $6,950 Initiate Advanced Weapons Integration
- (U) $22,300 Continue Flight Tests DT&E
- (U) $39,100 Continue (from FY 95 Procurement) Operational Flight Program updates
- (U) $3,027 Identified for Redristribution Within Program by F-16 System Program Office (SPO) [See R-3]
- (U) $1,500 Start On-Board Oxygen Generating System (OBOGS) Development
- (U) $1,400 ECIT Edwards PBD Action
- (U) $3,100 Other (See R3)
- (U) $146,114 Total

(U) FY 1997 ($ in Thousands):

- (U) $1,500 Complete Mid-Life Update Engineering and Manufacturing Development (EMD)
- (U) $10,930 Continue MMC upgrase
- (U) $10,000 Continue F-16 Block 40 Close Air Support EMD
- (U) $4,500 Continue Block 30 Global Positioning System
- (U) $12,020 Continue Advanced Weapons integration
- (U) $39,400 Continue Operational Flight Program
- (U) $26,098 Continue Flight Tests Developmental Test & Evaluation

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0207133F F-16 Squadrons
	PROJECT: 2671

- (U) $2,200 Start Enhanced/Expanded Fire Control Computer Block 30 (E^2FCC)
- (U) $6,000 Start Common Configuration Implementation Program (CCIP)
- (U) $1,000 Continue On-Board Oxygen Generation System (OBOGS)
- (U) $8,664 Identified for Redristribution Within Program by F-16 System Program Office (SPO) [See R-3]
- (U) $3,916 Other (See R-3)
- (U) $126,228 Total

(U) FY 1998 ($ in Thousands):

- (U) $9,400 Start Link 16 Development/Integration
- (U) $3,000 Continue Unit Training Devices (UTDs)
- (U) $37,600 Continue Flight Tests Development Test & Evaluation
- (U) $5,900 Complete Block 40 Close Air Support EMD
- (U) $3,700 Complete Modular Mission Computer (MMC) on Block 50
- (U) $24,608 Continue OFP Updates
- (U) $7,000 Continue Advanced Weapons Integration
- (U) $4,700 Continue Block 30 Global Positioning System (GPS)
- (U) $1,325 Government Test/Support
- (U) $3,000 Start Color Display Development/Integration for Block 50
- (U) $100,233 Total

(U) FY 1999 ($ in Thousands):

- (U) $13,200 Continue Link 16
- (U) $3,900 Start Block 40 and Continue Block 50 Color Display Development/Integration
- (U) $32,535 Continue Flight Tests Development Test & Evaluation
- (U) $34,984 Continue OFP Updates
- (U) $1,293 Complete Advanced Weapons Integration
- (U) $3,200 Complete Block 30 Global Positioning System (GPS) Integration
- (U) $3,000 Start MMC for Block 40
- (U) $4,179 Unit Training Devices (UTDs)
- (U) $4,200 Start New Support Equipment Development
- (U) $100,491 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207133F F-16 Squadrons	PROJECT 2671

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	175,600	142,202	118,890	116,736	TBD
(U) Appropriated Value	175,600	132,202			
(U) Adjustments to Appropriated Value					
a. Congressional General Reductions	-3,439	-2,772			
b. SBIR	-4,221	-3,202			
c. Omnibus or Other Above Threshold Reprogram	-13,336				
d. Below Threshold Reprogramming	-7,415				
e. Recissions	-1,075				
(U) Adjustments to Budget Years Since FY 1997 PB			-18,657	-16,245	
(U) Current Budget Submit/FY 98 PB	146,114	126,228	100,233	100,491	TBD

(U) **Change Summary Explanation:**

Funding: Reduces net of $69.1 million RDT&E funds in FY 96-99. This net decrease is resultant from the most recent Warfighter's Fighter Configuration Plan (FICOP 96) and includes:

- $4.2 million add to start Support Equipment efforts in FY 99
- $9.4 million add in FY 98 and $13.2 million add in FY 99 to initiate LINK 16 integration on F-16 aircraft
- $3.0 million add in FY 98 and $3.9 million add in FY 99 to initiate development efforts on Color Displays
- $1.9 million add in FY 96 for miscellaneous studies/etc.
- $1.5 million add in FY 96 and $1.0 million add in FY 97 to initiate/complete development of On-Board Oxygen Generating System (OBOGS)
- $1.4 add for ECIT PBD Action in FY 96
- $1.1 million add in FY 96, $0.5 million add in FY 97, $1.3 million add in FY 98, and $0.1 million decrease in FY 99 in Government Test/Support
- $6.0 million add to initiate/complete Common Configuration Implementation Program (CCIP) in FY 97
- $2.2 million add to initiate/complete Enhanced/Expanded Fire Control Computer (E^2FCC) for Block 30 in FY 97
- $5.8 million decrease in FY 97, $0.1 million decrease in FY 98, and $3.0 million add in FY 99 for Block 40 Modular Mission Computer (MMC) Engineering Manufacturing Development (EMD)
- $6.0 million decrease in FY 96, $0.6 million decrease in FY 97, $0.6 million decrease in FY 98, and $13.7 million decrease in FY 99 for Flight Tests
- $15.8 million decrease in FY 97, $23.5 million decrease in FY 98, and $4.0 million decrease in FY 99 for Operational Flight Program (OFP) Updates
- $26.5 million decrease in Integrated Modular Avionics (IMA)
- $5.7 million decrease in FY 96 and $1.2 million decrease in FY 97 for Mid-Life Update (MLU)
- $9.0 million decrease in FY 96, $6.6 million decrease in FY 97, and $0.2 million decrease in FY 98 for Block 40 CAS

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0207133F F-16 Squadrons
	PROJECT: 2671

- $4.8 million decrease in FY 96, $3.4 million decrease in FY 97, $0.6 add in FY 98, and $1.1 million decrease in FY 99 for Block 30 GPS
- $0.5 million decrease in FY 96 and $3.6 million decrease in FY 98 for Unit Training Devices (UTDs)
- $1.1 decrease in FY 96 and $1.0 million decrease in FY 97 for P & W 229 Engines
- $3.0 million identified in FY 96 and $8.7 million identified in FY 97 by the F-16 System Program Office for redistribution among higher priority projects. (Initial plan FY 96: +$1.0 million for Government Test /Support, +$1.1 million to restore P&W 229 Engines, +$0.9 million for additional Studies; initial plan FY 97: +$3.8 million for Governent Test/Support, +$2.0 million for OFP Updates, +$1.0 million to restore P&W 229 Engines, +$0.9 million for MLU, $0.5 million for additional Studies, +$0.3 million for Block 30 GPS, and +$0.2 million for Flight Test Support)

Schedule:

- Modular Mission Computer (MMC) development extended from FY 98 through FY 01
- On-Board Oxygen Generating System (OBOGS) is a new start in FY 96
- Support Equipment development is a new start in FY 99 (Previously planned but zeroed due to budget pressures)
- IMA (previously scheduled for an FY 99 new start) canceled
- LINK 16 development/integration initiated in FY 98
- Color Display development initiated in FY 98
- CCIP is a new start in FY 97
- E^2 FCC for Block 30 is a new start in FY 97

Technical:

- The improved capabilities inherent in adding LINK 16, Color Display, OBOGS and plans for future Improved Flight Controls in FY 01

(U) C. Other Program Funding Summary ($ in Thousands)

PE 0207133F, F-16 SQUADRONS, AIRCRAFT PROCUREMENT (APPN 3010), AF	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) F-16 APAF, BA-2	157,129	154,754							TBD	TBD
(U) F-16 Modifications, BA-5	115,591	116,152	173,563	207,904	281,715	226,156	186,119	194,978	TBD	TBD
(U) F-16 Post Production Support, BA-7	122,326	66,589	22,402	28,323	16,429	13,677	13,248	13,304	TBD	TBD

(U) D. Schedule Profile

FY 1996	FY 1997	FY 1998	FY 1999

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207133F F-16 Squadrons

PROJECT: 2671

	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) ENGINEERING MILESTONES:																
MMC Avionics CDR	X															
Blk 50T4 CDR																
Blk 25/30 Software (SW) Update SCU-2																
F-16 Close Air Support (CAS) SRR																
F-16A/B SW Update Z2 FCA/PCA	X															
Blk 50T5 and M2 Authorization			X													
Blk 40 CAS Airframe CDR	X															
Blk 40 CAS SW CDR		X														
Blk 25/30 SCU-3	X															
Blk 50T4 FCA/PCA					X											
Blk 50T5 CDR							X									
(U) T&E MILESTONES																
Flight Tests Dev Test & Eval (DT&E)																
Blk 40 CAS DT&E Start						*										
MLU DT&E Start																
MMC DT&E Start																
(U) CONTRACT MILESTONES																
Continue MLU																
Continue MMC																
Blk 40 CAS																
LINK 16										*						
MMC										*						
Color Display										*						
On-Board Oxygen Generating System				*				X								
CCIP (T&M)						*										
Comet/AISF (Support Equipment)														*		
Digital Terrain System Mod															*	
Block 30 GPS EMD		*														X
Advanced Weapons Integration Dev			*													X
Block 30 Night Vision System Mod										*						
Screech Reduction for F110-129s Mod											*					
Block 30 Enh Fire Cont Computer Mod														*		

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207133F F-16 Squadrons

PROJECT: 2671

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

X=Effort Completed ***=Effort Started**

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Pratt & Whitney 229 Engine	0	0	0	0
(U) LINK 16	0	0	9,400	13,200
(U) Unit Training Devices (UTDs)	0	3,416	3,000	4,179
(U) Government Test/Support	1,200	500	1,325	0
(U) Flight Tests Developmental Test & Evaluation	22,300	26,098	37,600	32,535
(U) Mid-Life Update	11,600	1,500	0	0
(U) Block 40 Close Air Support	19,053	10,000	5,900	0
(U) Modular Mission Computer (MMC)	29,984	10,930	3,700	3,000
(U) OFP Upgrades	39,100	39,400	24,608	34,984
(U) Advanced Weapons Integration	6,950	12,020	7,000	1,293
(U) Blk 30 Global Positioning System (GPS) Integration	8,100	4,500	4,700	3,200
(U) Color Display	0	0	3,000	3,900
(U) Support Equipment	0	0	0	4,200
(U) Other Ongoing Studies/Etc.	1,900	0	0	0
(U) On-Board Oxygen Generating System (OBOGS)	1,500	1,000	0	0
(U) ECIT PBD Action	1,400	0	0	0
(U) Enhanced/Expanded Fire Control Computer Bk 30	0	2,200	0	0
(U) Common Configuration Implementation Program (CCIP)	0	6,000	0	0
(U) ID for Redistribution within Program by F-16 SPO*	3,027	8,664	0	0
(U) Total	146,114	126,228	100,233	100,491

*See Page 4, Funding Change Summary

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207133F F-16 Squadrons	PROJECT 2671

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Mid-Life Update (MLU) Airframe Kit Development -- Lockheed-Martin Tactical Aircraft Systems (LMTAS)											
LMTAS (Au)	SS/CPIF	Jan 92	71,956	73,100	69,336	9,590	40				73,126
LMTAS (Unau)				12,768	1,228						7,054
MLU Radar Kit Development											
WEC (Au)	SS/CPIF	Mar 92	11,149	11,769	10,842	385	542				11,769
All Other MLU-Related Activities											
Misc. Contractors					7,744	1,625	918				10,287
Modular Mission Computer (MMC)											
LMTAS	SS/CPIF	Jan 92	243,900	253,100	219,424	29,984	10,930	3,700	3,000	TBD	TBD
MMC Operational Flight Program Development (OFP)											
LMTAS	SS/CPIF	Sep 94	17,225	17,225	17,225						17,225
Other MMC-Related Activities											
Misc.					5,653						20,567
Main Fuel Shutoff Valve											
LMTAS	SS/FPIF	Mar 95	497	497	497						497
Government Furnished Equipment Loan Payback											
LMTAS	SS/FPIF	Sep 95	1,100	1,100	1,100						1,100
Quick Reaction Capability											
LMTAS	SS/FFP	Sep 95	3,500	3,500	3,500						3,500
Comet/AISF											
TBD	TBD	FY 99			157,900				4,200	TBD	TBD
Unit Training Devices (UTDs)											

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207133F F-16 Squadrons

PROJECT: 2671

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
TBD	TBD	1Q96					3,416	3,000	4,179	TBD	TBD
Blk 40 Close Air Support (CAS)											
LMTAS	Proj Orders	Jan 95	25,318	25,318	25,318						25,318
LMTAS	SS/CPIF	Feb. 95				19,053	10,000	5,900			36,933
OFP Updates											
LMTAS	CPIF/T&M	Dec 95				39,100	39,400	24,608	34,984	TBD	TBD
Smart Weapons Integration											
TBD	TBD	3Q96				6,950	12,020	7,000	1,293	TBD	TBD
Avionics Upgrades											
LMTAS	SS/FFP				5,000						5,000
Blk 30 Global Positioning System (GPS)											
TBD	TBD	2Q96				8,100	4,500	4,700	3,200		21,700
Blk 30 GPS Pre-Integration											
LMTAS	SS/FPIF	Sep 95	970	970	970						970
Other Complete Contracts					943,130						943,130
LINK 16/MMC											
LMTAS	CP	2Q98						9,400	13,200	TBD	TBD
Color Display											
TBD	TBD	FY 99						3,000	3,900	TBD	TBD
Improved Flt Control											
TBD	TBD	FY 01								TBD	TBD
CCIP (T&M)											
TBD	**TBD**	**Feb 97**	**6,000**	**6,000**		**6,000**					6,000
On-Board Oxygen Generating System (OBOGS)											
LMTAS	SS/CPIF	Jul 96	2,500	2,500		1,500	1,000				2,500
Enhanced/Expanded Fire Control Computer (E^2FCC) Bk 30											
LTMAS	SS/FFP	Feb 97	2,200	2,200			2,200				2,200
ECIT PBD Action	Form 616	Done	1,400	1,400		1,400					

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 EXHIBIT)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207133F F-16 Squadrons

PROJECT: 2671

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Support and Management Organizations											
F-16 SPO (In-House Support)					176,022	0					176,022
Other AF/DoD/ Contractor Spt					89,650	3100	500	1,325			94,575
Test and Evaluation Organizations											
Flight Tests											
Government			195,531	195,531	29,057	13,300	17,700	28,600	23,535	TBD	TBD
Contractors			63,000	63,000	10,413	9,000	9,000	9,000	9,000	TBD	TBD
LMTAS											
Identified forRedistribution Within Program by F-16 System Program Office (SPO)											
TBD	TBD	TBD	11,691	11,691		3,027	8,664			TBD	TBD
Subtotal Product Development					1,563,267	117,687	90,966	61,308	67,956	TBD	TBD
Subtotal Support and Management					265,672	3,100	500	1,325	0	0	270,597
Subtotal Test and Evaluation					39,470	22,300	26,098	37,600	32,535	TBD	TBD
Withheld For Redistribution by F-16 SPO						3,027	8,664	0	0	TBD	TBD
Total Project					1,868,409	146,114	126,228	100,233	100,491	TBD	TBD

(U) B. Budget Acquisition and Planning Information ($ in Thousands)

Government Furnished Property: Not Applicable

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207134F F-15E Squadrons

PROJECT: 0131

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
0131 Initial Operational Test and Evaluation	160,917	150,981	137,538	109,798	123,742	112,284	100,043	53,242	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	20 A/C

(U) A. Mission Description and Budget Item Justification

The F-15E is the most versatile fighter in the world today. Configured with conformal fuel tanks (CFTs), the F-15E can deploy worldwide with minimal tanker support and arrive combat-ready. The F-15E retains air superiority capability and adds systems, such as Low Altitude Navigation Targeting Infrared for Night (LANTIRN), to meet the requirement for all-weather, deep penetration, and night/under-the-weather, air-to-surface attack. However, the threat includes a new generation of aircraft possessing all-weather detection and kill capabilities. The F-15E's avionics, armament, airframe, and engines must be improved to maintain its superiority against the threat into the next century. Avionics updates, exploiting proven technological advances, are being incorporated into the F-15E providing expanded capability and supporting an updated and fully integrated electronic warfare suite. As a result, this project develops enhanced offensive and defensive capability and survivability.
(The F-15E PE also funds RDT&E activities for PE # 0207130, F-15A-D). The F-15E, which received contract award approval in FY84, is an operational aircraft and therefore the development activities in the PE are included in Budget Activity 7, Operational Systems Development.

(U) FY 1996 ($ in Thousands):

- (U) $86,295 Continued development and testing of F-15 improvements including GPS, ECCM, and APG-63 radar.
- (U) $32,589 Continued OFP development efforts.
- (U) $7,700 Continued development of improvements attributed to Diminishing Manufacturing Sources (DMS).
- (U) $0,827 Repaired government furnished equipment used for R&D.
- (U $1,900 Continued development of PW-229 engine improvements.
- (U) $17,446 Continued flight test of the OFP and flight testing of improvements initiated in prior years.
- (U) $1,160 Continued software development, airframe component qualification, and flight test preparation for GE-129 engine.
- (U) $13,000 Expanded development of the Programmable Armament Control Set (PACS) upgrade.
- (U) $160,917 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE
	February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0207134F F-15E Squadrons
	PROJECT: 0131

(U) FY 1997 ($ in Thousands):

- (U) $60,021 Continue development and testing of F-15 improvements including ECCM and APG-63 radar.
- (U) $33,406 Continue OFP development efforts.
- (U) $5,963 Continue improvements contibuted to DMS.
- (U) $1,020 Repair government furnished equipment used for R&D.
- (U) $1,000 Continue development of -229 engine improvements.
- (U) $26,398 Continue flight test of the OFP and flight testing of improvements initiated in prior years.
- (U) $7,673 Continue development of PACS upgrade.
- (U) $0,500 TEWS Intermediate Support System (TISS) replacement
- (U) $15,000 Development of ALQ-135, Band 1.5
- (U)$150,981 Total

(U) FY 1998 ($ in Thousands):

- (U) $37,320 Completes development and improvements of the APG-63 radar.
- (U) $41,175 Continue OFP development efforts.
- (U) $17,300 Continue flight test of the OFP and flight testing of improvements initiated in prior years.
- (U) $8,100 Continue improvements attributed to DMS.
- (U) $6,200 Development of the Link-16 data link for the F-15E.
- (U) $6,270 Development of the Joint Helmet Mounted Cueing System (JHMCS).
- (U) $1,790 Development of the Combat Identification (ID) System.
- (U) $0,600 Repair government furnished equipment used for R&D.
- (U) $0,523 Continue development of PACS upgrade.
- (U) $2,360 TISS replacement
- (U) $15,900 Continue development of ALQ-135, Band 1.5
- (U) $137,538 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207134F F-15E Squadrons PROJECT 0131

(U) FY 1999 ($ in Thousands):

- (U) $36,448 Continue OFP development efforts.
- (U) $18,200 Continue flight test of the OFP and flight testing of improvements initiated in prior years.
- (U) $14,700 Continue development of the Link-16 data link for the F-15E.
- (U) $13,840 Continue development of the ALQ-135 Band 1.5.
- (U) $8,600 Continue developments attributed to DMS.
- (U) $6,770 Continue development of the Combat ID System.
- (U) $3,980 Continue development of the JHMCS.
- (U) $3,490 Development of the Air Data Processor (ADP).
- (U) $1,730 Continue development of PACS upgrade.
- (U) $0,600 Repair government furnished equipment used for R&D.
- (U) $1,440 TISS replacement
- (U) $109,798 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget (FY97)	160,288	143,095	114,523	96,230	Continuing
(U) Appropriated Value	171,337	158,095			
(U) Adjustments to Appropriated Value					
a. Cong Gen Reductions	-3,354	-3,326			
b. SBIR	-4,074	-3,788			
c. Omnibus or Other Above Threshold Reprogram	+0,624				
d. Below Threshold Reprogramming					
e. Recissions	-3,616				
(U) Adjustments to Budget Years Since FY 1997 PB			+23,015	+13,568	
(U) Current Budget Submit/FY98 PB	160,917	150,981	137,538	109,798	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207134F F-15E Squadrons

PROJECT: 0131

(U) Change Summary Explanation:

Funding: Funds added in FY98 and FY99 due to changes in Fighter Configuration Plan (FICOP) priorities. Major adds are F-15E Link-16 data link and the ALQ-135 Band 1.5. Major reduction in FY98 and FY99 is Programmable Armament Control Set (PACS).

Schedule: PAC S delayed two years in FiCop due to budget constraints.

Technical: No changes.

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Aircraft Procurement BP10 (PE0270134F)	351,253	275,183	170,000	165,000	0	0	0	0	0	TBD
(U) Aircraft Procurement BP11 (Mods)	87,285	158,869	169,568	193,121	228,312	273,677	324,428	328,564	TBD	TBD
(U) Aircraft Procurement BP13 (Post Prod Spt)	6,978	7,493	8,089	8,149	8,167	8,239	8,368	8,426	TBD	TBD

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) JHMCS DT start									X							
(U) PACS CDR				X												
(U) PACS DT&E complete								X								
(U) OFP Suite 3																
(U) MSIP DT&E start				X												
(U) E-model DT&E start							X									
(U) MSIP release								X								
(U) E-model release												X				
(U) OFP Suite 4 VCC CDR															X	
(U) APG-63 ground integration test start					X											
(U) APG-63 DT flight test start								X								
(U) APG-63 OT flight test start												X				
(U) Link-16 DT start														X		
(U) Combat ID DT start														X		
(U) ALQ-135, Band 1.5 development start							X									
(U) TISS replacement								X								

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207134F F-15E Squadrons	PROJECT 0131

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Flight Test	17,446	26,398	17,300	18,200
(U) OFP	32,589	33,406	41,175	36,448
(U) ECCM	2,827	0,952	0	0
(U) Link-16 data link	0	0	6,200	14,700
(U) APG-63(V)1	81,840	59,069	37,320	0
(U) Helmet Mounted Cueing System	0	0	6,270	3,980
(U) GPS	1,628	0	0	0
(U) GFE/GFP Repair	0,827	1,020	0,600	0,600
(U) Falcon -229	1,900	1,000	0	0
(U) Parts Obsolescence	7,700	5,963	8,100	8,600
(U) PACS Upgrade	13,000	7,673	0,523	1,730
(U) Development for GE -129 Engine	1,160	0	0	0
(U) Combat ID	0	0	1,790	6,770
(U) ALQ-135 Band 1.5	0	15,000	15,900	13,840
(U) Air Data Processor	0	0	0	3,490
(U) TISS Replacement	0	0,500	2,360	1,440
(U) Total	160,917	150,981	137,538	109,798

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207134F F-15E Squadrons	PROJECT 0131

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
McAir (ECCM)	CPFF	Feb 94	10,629	10,629	6,850	2,827	0,952				10,629
McAir (GPS)	FFP	Mar 94	7,235	7,235	5,607	1,628					7,235
P&W (-229 Eng)	CPAF	Sep 94	6,520	6,520	3,620	1,900	1,000				6,520
GE (-129 Eng)			7,130	7,130	5,970	1,160					7,130
McAir (GFE/GFP)	FFP	Dec 93	5,447	5,447	0,500	0,827	1,020	0,600	0,600	1,900	5,447
OFP Development	CPIF	Oct 97	261,505	261,505	4,657	32,589	33,406	41,175	36,448	113,230	261,505
McAir APG63 (Feasability Study)	CPFF	Feb 94	0,778	0,778	0,778						778
(Risk Reduction)	CPFF	Feb 94	9,892	9,892	9,892						9,892
(EMD)	CPAF	Sep 94	234,057	234,057	55,828	81,840	59,069	37,320			234,057
McAir (JHMCS A-D)	CPIF	Nov 97	14,230	14,230				6,270	3,980	3,980	14,230
PACS Upgrade		May 95	37,353	37,353		13,000	7,673	0,523	1,730	10,100	33,026
Wright Lab (DMS)	MIPR/PRs	Sep 94	71,109	71,109	4,346	7,700	5,963	8,100	8,600	36,400	71,109
Smart Weapons Integration	CPIF	Nov 99	40,640	40,640						40,640	40,640
ADP(E)	CPIF	Nov 98	5,280	5,280					3,490	1,790	5,280

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207134F F-15E Squadrons

PROJECT: 0131

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
ADCP(E)	CPIF	Dec 99	53,280	53,280						53,280	53,280
NGA (ALQ-135 Band 1.5)	CPIF	May 97	73,320	73,320			15,000	15,900	13,840	28,580	73,320
Link-16 data link	CPIF	Nov 97	20,900	20,900				6,200	14,700		20,900
Combat ID	CPIF	Jan 98	24,890	24,890				1,790	6,770	16,330	24,890
TISS Replacement	CPIF	Aug 97					0,500	2,360	1,440		4,300
Support and Management Organizations											
(Msn Spt) Misc.					16,708						16,708
Test and Evaluation Organizations											
McAir (Flt Test)	FFP	Oct 96			37,210	4,105	14,442	9,579	7,000	33,000	105,336
Edwards (OFP)	PO	Oct 96			23,292	8,200	9,556	5,891	6,400	64,455	117,794
Eglin (Flt Test)	PO	Oct 96			4,269	5,141	2,400	1,830	4,800	15,000	33,440

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207134F F-15E Squadrons	PROJECT 0131

(U) B. **Budget Acquisition History and Planning Information Continued ($ in Thousands)**

Government Furnished Property:

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Subtotal Product Development				98,048	143,471	124,583	120,238	91,598	306,230	884,168
Subtotal Support and Management				16,708						16,708
Subtotal Test and Evaluation				64,771	17,446	26,398	17,300	18,200	112,455	256,570
Total Project				179,527	160,917	150,981	137,538	109,798	418,685	1,157,446

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 EXHIBIT)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207136F Manned Destructive Supression

PROJECT: 2671

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
2671 F-16 HARM Targeting System (HTS)	10,208	11,821	13,561	2,492	0	0	0	0	0	144,816
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. **Mission Description and Budget Item Justification**

The Manned Destructive Suppression (MDS) program funds the development, procurement and sustainment of the Air Force's lethal Suppression of Enemy Air Defenses (SEAD) capability. The program provides certain F-16 aircraft the capability to carry and employ the AGM-88 High-Speed Anti-Radiation Missile (HARM). The F-16C/Blk 50 has been modified to carry the AN/ASQ-213 HARM Targeting System (HTS) for real-time targeting and "range known" HARM employment--the missile's most lethal mode. Additionally, the MDS program has funded efforts investigating the feasibility of integrating preemptive destruction weapons or decoys on the F-16 or F-15. The Air Force is evaluating Light Defender on the F-15E for its potential to satisfy preemptive destruction requirements. The Light Defender Foreign Comparative Test (FCT) proposal was approved in FY95 as the USAF's highest priority FCT.

(U) FY 1996

- (U) $512 Complete R5 software upgrade and the developmental flight test support.
- (U) $3,227 Begin EMD on HTS Upgrade.
- (U) $4,800 Light Defender FCT
- (U) $1,669 Mission Support
- (U) $10,208 **Total**

(U) FY 1997

- (U) $8502 Continue EMD of HTS Upgrade development.
- (U) $937 Develop HTS-specific Air Force Mission Support System (AFMSS) modifications.
- (U) $ 890 Begin HTS Test and Evaluation.
- (U) $1,492 Mission Support
- (U) $11,821 **Total**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207136F Manned Destructive Supression
	PROJECT 2671

(U) FY 1998

–	(U)	$8,479	Continue EMD of HTS Upgrade development.
–	(U)	$958	Develop HTS-specific Air Force Mission Support System (AFMSS) modifications.
–	(U)	$ 2,685	Begin HTS Test and Evaluation.
–	(U)	$1,439	Mission Support
–	(U)	$13,561	**Total**

(U) FY 1999

–	(U)	1,995	Continue EMD of HTS upgrade development.
–	(U)	497	HTS Test and Evaluation.
–	(U)	2,492	**Total**

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Previous President's Budget	2,908	12,384	11,914	2,365
(U) Appropriated Value	10,908	12,384		
(U) Adjustments to Appropriated Value:				
a. General Congressional Reductions	(213)	(251)		
b. SBIR	(231)	(300)		
c. Omnibus or Other Above Threshold Reprogramming	(109)			
d. Below Threshold Reprogramming				
d. Rescissions	(147)	(12)		
(U) Adjustments to Budget Years Since FY97 PB			1,647	127
(U) Current Budget Submit/FY98 PB	10,208	11,821	13,561	2,492

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207136F Manned Destructive Supression
	PROJECT 2671

(U) Change Summary Explanation:

Funding:

- HTS: Although HTS was initially fielded as an interim solution, the Air Force transitioned to a longer term approach and significantly increased sustainment funds. This increase in sustainment funding allowed the Air Force to transfer RDT&E funds allocated to sustaining engineering to O&M beginning in FY00. Additionally, the Air Force increased funding in FY98 to accommodate additional flight test of the HTS/F-16 50T5 system and realigned mission support funds to more accurately reflect the type of work supported (RDT&E, procurement, and sustainment).
- Light Defender: This project was initially funded in FY95 as part of the F-15 MDS project. Congress increased the FY96 PB $5,000,000 to expand the scope of the Light Defender foreign comparative test (FCT). Funding for follow on testing provided by Congress is currently sufficient for the Air Force to reach a procurement decision by fall 1998.

Schedule: Air Force began the HTS upgrade in Feb 96. By linking HTS development with the current F-16 Operational Flight Program (OFP) schedule, we expect to field this upgrade in FY99. Light Defender test planning began in Sep 95, and completed the FCT flight demonstration in Sep 96. Following a review of FCT results the Air Force expects to resume follow on testing in Jan 97 and end in late FY97 or in early FY98.

Technical: The AF accelerated the HTS upgrade based on options developed during the prototyping study completed in Jun. 95.

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) HTS Aircraft Procurement, AF PE 0207136F	3,541	0	12,172	13,779	145	0	0		0	29,637
(U) HTS Ops & Maintenance, AF PE 0207136F	3,443	6,440	9,129	7,641	7,090	8,762	8,718	9,682	Continuing	TBD
(U) Foreign Comparative Tests, OSD PE 0605130D	2,778	0	0	0	0	0	0		0	2,778

Related RDT&E: PE 0207133F, F-16 Squadrons. PE0605130D, Foreign Comparative Tests

NOTES: a.) Prior to FY96 the HTS was funded under a classified PE. FY97-FY01 funding includes retrofit of new buy Lot 1, Procurement of new buy Lot 2, upgrade retrofit and program office support (FY98-FY00).

b.) FY97-FY01 funding includes Air Force MSS (AFMSS) and WTT sustaining support, contractor sustaining engineering, depot development, repair, program office support and other related support activities.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207136F Manned Destructive Supression PROJECT 2671

U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) F-16 HTS Upgrade Development		X												X		
(U) HTS 50T5 Flight Test										X						
(U) F-16 HTS Upgrade Deliveries (Field this upgrade in FY99/FY00)																X
(U) Light Defender FCT	X			X												
(U) Light Defender Follow On Testing						X		X								

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207136F Manned Destructive Supression PROJECT 2671

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) HTS R5 Software Upgrade				
(U) Test & Evaluation	512	0	0	0
(U) HTS Upgrade Project				
(U) HTS Pod Development	3,227	5,802	8,479	1,995
(U) Acft/System Integration		2,700		0
(U) Test & Evaluation		890	2,685	497
(U) Training & Support Equip Development		937	958	0
(U) Mission Support	1,669	1,492	1,439	0
(U) Light Defender Foreign Comparative Test	4,800			
(U) Total	10,208	11,821	13561	2,492

NOTE: FY95 and prior year HTS funding reported under a separate program element, with the exception of $5,400,000 RDT&E reprogrammed into this PE from FY93 & FY94 and $11,587,000 FY95 RDT&E realigned to the HTS project in FY96.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 EXHIBIT)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207136F Manned Destructive Supression

PROJECT: 2671

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Texas Instruments	SS/CPAF	Various	7,193	7,193	5,975	938	293	0	0	0	7,206
Texas Instruments	SS/CPAF	Feb 96	30,500	30,500	15,246	2,289	5,509	8,479	1,995	0	33,518
Lockheed Ft Worth	TBD	Various	TBD		0	0	2,700		0	0	2,700
AFMSS Classified			TBD		0	0	937	958	0		1,895
Support and Management Organizations											
Prog. Office Supt	Various	Various			0	1,669	1,492	1,439			4,600
Test and Evaluation Organizations											
Eglin	PO	Various			0	512	740	1,020	420		2,692
Edwards	PO	Various			0		150	1,665	77		1,892
Light Defender Support Orgs.		Various			922	4,800					5,722
Subtotal Product Development					21,221	3,227	9,439	9,437	1,995		45,319
Subtotal Support and Management						1,669	1,492	1,439			4,600
Subtotal Test and Evaluation					922	5,312	890	2,685	497		10,306
Total Project					22,143	10,208	11,821	13,561	2,492		60,225

Government Furnished Property: Not Applicable.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207141F F-117A Squadrons

PROJECT: 3956

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
3956 F-117A Stealth Fighter	3,647	11,797	9,520	5,251	5,016	2,987	2,440	3,780	TBD	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. **Mission Description and Budget Item Justification**

The F-117A is the world's only operational low-observable (LO) combat aircraft. Its combination of stealth and precision weapons delivery capability allows the United States Air Force to hold even the most highly defended targets at risk. This program provides funds to develop improved systems for the F-117A aircraft. These improvements will enhance combat capability while maintaining a safe, reliable, and supportable aircraft. The F-117A is currently planned to be in service at least through the year 2015. The major research budget activity category is operational systems development; in addition, some research being performed is engineering and manufacturing development (EMD). The final F-117A delivery to the Air Force (number 59) was July 1990. The program is well past production; currently the single operational F-117A unit is stationed at Holloman AFB. The program uses Aircraft Procurement Air Force (APAF) modification (BA-5) money for an extensive modification program to keep the F-117A current with operational system and reliability/maintainability upgrades. Some of the modification projects require development efforts before they are integrated into the fleet (RDT&E money). In addition, small amounts of F-117A RDT&E funding, support quick look integration, threat system, and technology quick look studies as required by the user. This program is in budget activity 7, Operational System Development, because all aircraft have been delivered and program is now in its deployment phase.

This project currently provides research and development for multiple modifications for the F-117A weapons system. The first FY 98 RDT&E effort continues the development work for the MIL-STD-1760 Stores Management Processor. This modification will enable the platform to integrate advanced weapons such as the Joint Direct Attack Munition (JDAM) & the Wind Corrected Munitions Dispenser (WCMD). The second FY 98 RDT&E subproject will continue development of new spray coating application techniques and panel access technologies to improve the reliability and maintainability of the weapon system. This modification will allow the weapon system to move towards a single configuration for all F-117 airframes. This subproject will also include efforts to move the weapon system towards a single configuration of leading edges compatible with the overall Low Observable aircraft system. The next modification will develop a new fuel tank inerting system which will conform to environmental standards. The current aircraft inerting system uses halon, an ozone layer depleting chemical which is being withdrawn from service.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE: February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0207141F F-117A Squadrons
	PROJECT: 3956

(U) A. Mission Description and Budget Item Justification - Continued

(U) FY 1996 ($ in Thousands):
- (U) $1,839 Development work on Stores Management system Processor (SMP) (formerly known as MIL-STD-1760)
- (U) $1,808 Development work on Single Configuration Fleet (SCF) (formerly known as RAM recoating)
- (U) $3,647 Total

(U) FY 1997 ($ in Thousands):
- (U) $5,227 Continue development work on SMP
- (U) $4,420 Continue development work on SCF
- (U) $2,150 Development work on Ozone Depleting Chemical
- (U) $11,797 Total

(U) FY 1998 ($ in Thousands):
- (U) $4,958 Continue development work on SMP
- (U) $4,264 Continue development work on SCF
- (U) $298 Smart weapons integration
- (U) $9,520 Total

(U) FY 1999 ($ in Thousands):
- (U) $4,855 Continue development work on SMP
- (U) $396 Continue smart weapons integration
- (U) $5,251 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207141F F-117A Squadrons	PROJECT 3956

(U) B. **Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	3,881	12,050	5,001	0	TBD
(U) Appropriated Value	3,881	12,050			
(U) Adjustments to Appropriated Value					
a. Cong Gen Reductions	-82	-253			
b. SBIR	-81				
c. Omnibus or Other Above Threshold Reprogram	30				
d. Below Threshold Reprogramming	-3				
e. Recissions	-38				
(U) Adjustments to Budget Years Since FY 1997 PB			4,519	5,251	
(U) Current Budget Submit/FY98 PB	3,647	11,797	9,520	5,251	TBD

(U) Change Summary Explanation:

Funding: See Technical Summary below.

Schedule:

Technical: Additional funds ($4.6M) were provided in FY98 for the continuation of the Single Configuration Fleet modification ($4.3M) and the initiation of Smart Weapons Integration effort ($.3M). Additional funds ($5.3M) were also provided in FY99 for the continuation of the Smart Weapons Integration effort ($.4M) and the continuation of the Stores Management system Processor modification ($4.9M).

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE: February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0207141F F-117A Squadrons
	PROJECT: 3956

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Aircraft Procurement (BA-5), Appn 3010/BP1100, AF F117A Squadrons, PE 27141F	46,271	29,209	28,296	29,326	30,212	33,122	30,895	23,657	TBD	TBD
(U) Other Procurement (BA-5), Appn 3080, AF F117A Squadrons, PE 27141F	366	400	366	513	524	535	541	537	TBD	TBD

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) F3 IRADS (RDT&E Start FY93, Retrofit Start Mar 95, Finish Jan 97)						F										
(U) RNIP+ (RDT&E Start Aug 91, Retrofit Start Oct 96 Finish Jun 00)					R											
(U) AP-102 Computer Upgrade (Retrofit Start Oct 96, Finish Jun 00)					R											
(U) SMP (RDT&E Start Jul 96; Retrofit Start Oct 99 Finish Sep 03)				D												
(U) SCF (RDT&E Start Apr 96, Retrofit Start Oct 99 Finish Mar 04)			D													
(U) HI-Pressure Turbine Cooling Plate Retrofit CA FY 2/98, Finish FY 3/01										R						
(U) High Temperature Edges Retrofit CA FY 2/93, Finish FY 2/98										F						
(U) Single Configuration Fleet Retrofit CA FY 2/99, Finish FY 3/04														R		
(U) Stores Management Processor Upgrade Retrofit Contract Award (CA) FY 2/99, Finish FY 1/02														R		
(U) Replace Life-Limited Skin Panels & Web retrofit CA FY 2/99, Finish FY 2/04														R		

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207141F F-117A Squadrons

PROJECT: 3956

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Ozone Depleting Chemical upgrade (RDT&E Start Feb 97, Retrofit Start Jan 99 Finish Dec 03)						D								F		
(U) Smart Weapons Integration (RDT&E Start Oct 97)									D							

D = Development, R = Retrofit, F = Finish

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Development work on SMP (MIL-STD-1760)	1,839	5,227	4,958	4,855
(U) Development work on SCF (RAM recoating)	1,808	4,420	4,264	
(U) Development work on Ozone Depleting Chemical		2,150		
(U) Smart weapons integration			298	396
(U) Total	3,647	11,797	9,520	5,251

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207141F F-117A Squadrons

PROJECT: 3956

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Compl	Total Program
Product Development Organizations											
Smart Wpn Integration											
Sacramento Air Logistics Center, McClellan AFB, CA	Allot	1 Oct 97	contin.	contin.		0	0	298	396	11,800	12,196
Single Configuration Fleet (RAM Recoat Modification)											
Wright Laboratory, Signature technology office	AF 616	Apr 96	100	100		100	0	0	0	0	100
Sandia Labs, Albuquerque NM	MIPR	May 96	4,000	4,000		500	2,620	780	0	0	3,900
Lockheed Martin Skunk Works (RAM), Palmdale CA	T&M	Jun 96	6,558	6,558		1,208	1,800	3,484	0	0	6,492
Ozone Depleting Modification											
Lockheed Martin Skunk Works (Ozone), Palmdale CA	CPFF	Feb 97	2,200	2,200		0	2,150	0	0	0	2,150
SMS Processor (Mil-Std-1760 modification)											
Lockheed Martin Skunk Works (1760), Palmdale CA	CPAF	Jul 96	19,439	19,439		1,839	5,227	4,958	4,855	2,400	19,279
Support and Management Organizations N/A											
Test and Evaluation Organizations N/A											

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207141F F-117A Squadrons	PROJECT 3956

Government Furnished Property: N/A

Subtotal Product Development	3,647	11,797	9,520	5,251	14,200	44,415
Subtotal Support and Management						
Subtotal Test and Evaluation						
Total Project	3,647	11,797	9,520	5,251	14,200	44,415

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207161F Tactical AIM Missile

PROJECT: 4132

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4132 AIM-9 Product Improvement	18,982	31,798	53,171	54,031	41,806	17,479	2,785	0	0	220,052
Quantity of RDT&E Articles	0	0	5	7	11	0	0	0	0	23

Note: The RDT&E articles are deliverables under the Engineering and Manufacturing Development contract and are not separately priced.

(U) **A. Mission Description and Budget Item Justification**

The AIM-9 Sidewinder short range air-to-air missile (SRM) is a launch and leave, air combat munition that uses passive infrared (IR) energy for acquisition and tracking of enemy aircraft and complements the Advanced Medium Range Air-to-Air Missile. Air superiority in the SRM arena is essential and includes first shot, first kill opportunity against an enemy employing IR countermeasures. The AIM-9X is a long-term evolution to the AIM-9, a fielded system, qualifying this as research category operational systems development. Improvements in missile seeker and kinematics allow retrofit of components to current missiles to the maximum extent possible. Retrofitting of components will extend the operational effectiveness of existing inventories at an affordable cost while continuing evolution of the AIM-9 series. This program is in budget activity 7 - Operational System Development, Research Category 6.7 because it is an improvement to a fielded missile system. AIM-9X is an ACAT I joint-service program with Navy lead.

(U) FY 1996 ($ in Thousands):
- (U) $11,402 Continued Program Definition and Risk Reduction Phase for missile seeker prototype and other elements to support a Milestone II Engineering and Manufacturing Development (EMD) decision. Conduct Systems Design Review.
- (U) $7,580 Continued engineering support from China Lake and other agencies for program definition and risk reduction.
- (U) $0 Prepared request for proposal for AIM-9X EMD (Not Separately Priced [NSP])
- (U) $0 Began preparation and analysis for Milestone II decision to enter Phase II, EMD (NSP).
- (U) $18,982 Total

(U) FY 1997 ($ in Thousands):
- (U) $13,060 Awarded contract for EMD.
- (U) $16,738 Continued sustaining engineering and in-house efforts
- (U) $2,000 Began EMD development test (DT-IIA and captive carry tests)
- (U) $31,798 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0207161F Tactical AIM Missile / PROJECT: 4132

(U) FY 1998 ($ in Thousands):

- (U) $31,000 Continue manufacturing development, conduct Design Review II (DR II), fly captive test units, and start delivery of safe separation vehicles for DT-IIB
- (U) $7,890 Continue providing aircraft interface information to EMD contractor to include any available wind tunnel data.
- (U) $2,300 Continue preparations for DT-IIB and start DT-IIB.
- (U) $11,981 Provide for consulting services, technical engineering, and management support.
- (U) $53,171 Total

(U) FY 1999 ($ in Thousands):

- (U) $26,260 Continue the manufacturing development contract.
- (U) $6,590 Continue providing aircraft interface to the EMD contractor. Relate results of wind tunnel.
- (U) $8,590 Complete DT-IIB and start DT-IIC.
- (U) $12,591 Provide for consulting services, technical engineering, and management support.
- (U) $54,031 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget/FY 1997 PB	20,082	36,382	65,220	81,051	300,622
(U) Appropriated Value	20,082	32,882			
(U) Adjustments to Appropriated Value					
a. Cong Reductions	-393	-661			
b. SBIR	-291	-392			
c. Omnibus or Other Above Threshold Reprogram	-206				
d. Below Threshold Reprogramming	-87				
e. Rescissions	-123	-31			
(U) Adjustments to Budget Years Since FY 1997 PB			-12,049	-27,020	
(U) Current Budget Submit/President's Budget	18,982	31,798	53,171	54,031	220,052

(U) Change Summary Explanation:

Funding: FY 96 reprogrammings/rescissions include -$206 for Bosnia I, -$115 for Jordanian F-16s, -$16 for an administration and personnel rescission, and -$74 for PE 0604270F to support the electronic warfare partnership process. FY 98 and FY 99 funding adjustments reflect reductions (-9,150 in FY 98 and -12,200 in FY99) to offset Defense Business Operating Funds, and savings (-3,900 in FY97, -2,400 in FY98, -14,200 in FY99) resulting from Acquisition Reform Initiatives.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207161F Tactical AIM Missile	PROJECT 4132

Schedule: The testing phase of the program was optimized by combining compatible developmental and operational test objectives. This change in schedule allows LRIP to begin one year earlier (FY 00 instead of FY01).

Technical: None.

(U) C. **Other Program Funding Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Missile Procurement, Budget Activity 2, PE 0207161F, Program Title: Tactical AIM Missile					36,182	42,593	69,953	70,625	1,090,642	1,309,995
(U) Qty					75	125	300	300	4200	5000
(U) Missile Procurement, Budget Activity 2, PE 0207590F, Program Title: SEEK EAGLE						6,180	0	8,674	0	14,854

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207161F Tactical AIM Missile PROJECT 4132

(U) D. **Schedule Profile**

		FY 1996				FY 1997				FY 1998				FY 1999			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Acquisition Milestones																	
MS II						X											
MS III	2Q/FY02																
(U) Engineering Milestones																	
DR I									X								
DR II												X					
TRR for TECHEVAL	4Q/FY00																X
(U) Test and Evaluation Milestones																	
DT-IIA (Captive Carry)								X									
DT-IIB (Safe Separation)													X				
DT-IIC (Guided Launches)															X		
DT-IID (TECHEVAL)	1Q/FY00																
OT-IIA (Guided Launches)																	X
OT-IIB (OPEVAL)	4Q/FY00																
(U) Contract Milestones																	
EMD Award						X											
LRIP Award	2Q/FY00																
Production/Deployment	4Q/FY01																

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207161F Tactical AIM Missile PROJECT 4132

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Project Cost Categories				
a. Primary Hardware Development	11,399	13,060	31,000	26,240
b. Government Engineering Support	4,881	11,344	10,361	11,055
c. Contractor Engineering Support	181	4,180	7,890	6,590
d. Miscellaneous	1,084	720	920	880
e. Development Test and Evaluation	1,061	2,000	2,300	7,590
f. Travel	376	494	700	676
(U) Total	18,982	31,798	53,171	54,031

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Hughes	C/CPIF	Dec 94	5,694	5,694	0	5,694					5,694
Raytheon	C/CPIF	Dec 94	5,695	5,695	0	5,695					5,695
Hughes (EMD)	C/CPIF	Dec 96	100,596	100,596	0	0	13,060	31,000	26,240	30,296	100,596
McDon-Doug	C/CPIF	Jan 96	20,910	20,910	0	181	4,180	7,890	6,590	2,250	21,091
NAWC CL	WR	Oct 96	76,499	76,499	0	5,955	12,618	11,971	18,931	27,024	76,499
Misc In-House			6,136	6,105	0	898	720	920	880	2,500	5,918

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207161F Tactical AIM Missile

PROJECT: 4132

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Support and Management Organizations											
Various Contracts	FFP				0	559	1,220	1,390	1,390	0	4,559
Test and Evaluation Organizations (Included in product development)											

(U) B. Budget Acquisition History and Planning Information Continued ($ in Thousands)

Government Furnished Property:

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Property (Not applicable)										
Support and Management Property (Not applicable)										
Test and Evaluation Property (Included in product development)										

Subtotal Product Development	18,423	30,578	51,781	52,641	62,070	215,493
Subtotal Support and Management	559	1,220	1,390	1,390		4,559
Subtotal Test and Evaluation						
Total Project	18,982	31,798	53,171	54,031	62,070	220,052

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207163F Adv Med Range A/A Msl

PROJECT: 3777

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
3777 AMRAAM	44,202	24,745	50,781	45,985	45,650	42,742	36,877	27,995	143,500	690,096
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. **Mission Description and Budget Item Justification**

The Air Force and Navy developed the baseline Advanced Medium Range Air-to-Air Missile (AMRAAM) as a high performance, all weather missile to counter existing air vehicle threats operating at high or low altitude and having advanced Electronic Protection (EP) capabilities. The AMRAAM Pre-planned Product Improvement (P3I) program provides for a continuing, Joint Air Force/Navy research and development program which enables AMRAAM to: (1) be compatible with advanced fighters, (2) enhance AMRAAM capability and operational flexibility against mid-1990's and beyond threats, (3) incorporate high payoff technology developments, and (4) investigate new variants and/or alternate missions which may use many baseline missile attributes. Currently, improvements under the P3I program include enhanced EP capabilities; improved weapon effectiveness through improved warhead, fuzing, and guidance; and increased kinematics via a new 5-inch stretched rocket motor. This program is in budget activity 7 - Operational System Development, Research Category 6.7 providing upgrades to the AIM-120C missile now in production. The AMRAAM program is an Air Force ACAT 1C program.

(U) FY 1996 ($ in Thousands):

- (U) $32,536 Continued P3I Phase 2 Engineering and Manufacturing Development (EMD) for Electronic protection (EP) and weapons effectiveness improvements. Initiated kinematic improvements (5- inch rocket motor) via modification of Phase 2 contract.
- (U) $11,666 Continued Phase 3 risk reduction to enhance EP and guidance capabilities.
- (U) $N/A Continued Navy participation in AMRAAM P3I Phase 1 & 2 programs with emphasis on Navy unique requirements and aircraft integration compatibility (Funded by USN).
- (U) $44,202 Total

(U) FY 1997 ($ in Thousands):

- (U) $16,462 Continue P3I Phase 2 EMD for EP, weapons effectiveness, and kinematic improvements.
- (U) $8,283 Continue Phase 3 risk reduction to enhance EP and guidance.
- (U) $N/A Continue Navy participation in AMRAAM P3I Phase 2 program with emphasis on Navy unique requirements and aircraft integration compatibility (Funded by USN)
- (U) $24,745 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207163F Adv Med Range A/A Msl
	PROJECT 3777

(U) FY 1998 ($ in Thousands):
- (U) $36,470 Complete P3I Phase 2 EMD for EP, weapons effectiveness, and kinematic improvements.
- (U) $14,311 Complete Phase 3 risk reduction to enhance EP and guidance, and initiate Phase 3 EP/Guidance EMD.
- (U) $N/A Continue Navy participation in P3I Phase 2 program and begin Navy participation in P3I Phase 3 program with emphasis on Navy unique requirements and aircraft integration compatibility (Funded by USN)
- (U) $50,781 Total

(U) FY 1999 ($ in Thousands):
- (U) $42,801 Continue P3I Phase 3 EMD for EP and guidance EMD.
- (U) $3,184 Complete P3I Phase 2 flight testing and contract close out.
- (U) $N/A Continue Navy participation in AMRAAM P3I Phase 2 and 3 program with emphasis on Navy unique requirements and aircraft integration compatibility (Funded by USN)
- (U) $45,985 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	42,311	25,883	75,051	39,293	702,937
(U) Appropriated Value	47,311	25,883			
(U) Adjustments to Appropriated Value					
a. Cong Reductions	-926	-569			
b. SBIR	-991	-545			
c. Omnibus or Other Above Threshold Reprogram	-485				
d. Below Threshold Reprogramming	-417				
e. Rescissions	-290	-24			
(U) Adjustments to Budget Years Since FY 1997 PB			-24,270	6,692	
(U) Current Budget Submit/President's Budget	44,202	24,745	50,781	45,985	690,096

(U) Change Summary Explanation:

Funding: FY96 Congressional appropriation increased FY96 (+$5,000) for Phase 3 risk reduction. In addition, FY96 funding was reprogrammed to support Bosnia and F-16s to Jordan. FY97 was reduced by -$1,138 for General Congressional reductions and SBIR. FY98 and FY99 were adjusted by -$24,270 and +6,692, respectively, to further align funding with program execution.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0207163F Adv Med Range A/A Msl — PROJECT: 3777

Schedule: Phase 2 Tape 7A PDR/CDR have been completed on schedule. FCA(A) is scheduled for Mar 97 approximately four months late from original schedule. Tape 7A will be introduced in AIM-120C production Lot 9 (CY97 deliveries) and will be reprogrammed into Lot 8 AIM-120C missiles. Phase 2 Tape 7B PDR has been completed on schedule. Tape 7B CDR has been rescheduled from Oct 96 to Mar 97 to focus work force on Tape 7A after the contractor experienced a computer network problem. The revised schedule still supports Tape 7B introduction into AIM-120C production Lot 11 and reprogramming into all Lot 8, 9 and 10 missiles. The schedule also supports production incorporation of the improved warhead (weapon effectiveness) and new 5-inch stretched rocket motor (kinematic improvements) in AIM-120C production Lot 12 (CY00 deliveries). Phase 3 risk reduction efforts remain on track to support a 3rd quarter FY98 contract award.

Technical: No change.

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Missile Procurement, Budget Activity: #2										
(U) BP20 AMRAAM	177,116	116,178	117,768	124,636	151,286	165,808	148,457	174,909	564,900	7,178,970
(U) BP25 Replenishment Spares	12,734	13,414	0	10,337	10,826	10,745	10,770	10,691	45,332	147,771
(U) BP26 Initial Spares	4,781	3,865	1,082	2,713	2,793	2,777	2,839	2,884	4.645	85,579
(U) QTY	291	133	173	196	267	293	254	316	623	8,534

Note: Total quantity includes 36 AMRAAM missiles previously procured for SEEK EAGLE testing.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE
	February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0207163F Adv Med Range A/A Msl — PROJECT: 3777

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) P3I Phase 2 Tape 7A FCA						X										
(U) P3I Phase 2 Tape 7B PDR/CDR		X				X										
(U) P3I Phase 2 Tape 7A Flt Test Comp						X										
(U) P3I Phase 2 Tape 7B Flt Test Comp												X				
(U) P3I Phase 2 Warhead CDR/FCA		X						X								
(U) P3I Phase 2 SCAS CDR/FCA				X				X								
(U) P3I Phase 2 Rocket Motor CDR/FCA				X				X								
(U) P3I Phase 3 EMD Contract Award											X					
(U) P3I Phase 3 PDR														X		

"X" = Completion or Milestone

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207163F Adv Med Range A/A Msl	PROJECT 3777

(U) A. Project Cost Breakdown ($ in Thousands)

(U) Project Cost Categories	FY 1996	FY 1997	FY 1998	FY 1999
(U) a. Contract/COEA	33,710	16,201	38,622	36,689
(U) b. Government Costs (Test, Support)	7,282	5,909	9,123	6,091
(U) c. GFE	0	25	99	325
(U) d. Contractor Support	3,210	2,610	2,937	2,880
(U) Total	44,202	24,745	50,781	45,985

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Misc. Contracts Various	FFP	Dec 95 - Mar 96	N/A	N/A	6,937	821	1,340	140	140	1,316	10,694
F08635-90-C-0201 Hughes	FFP	Aug 90	N/A	N/A	5,200						5,200
F08626-91-C-0034 Hughes	CPIF	Mar 91	91,704	93,506	93,506						93,506
F08626-93-C-0044 (Phase 2) Hughes	CPAF	Jun 94	118,442	123,181	64,718	23,469	7,820	25,915	1,259	0	123,181

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)											DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0207163F Adv Med Range A/A Msl							PROJECT 3777
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Phase 3 Risk Reduction		Oct 95			5,071	9,420	7,041	3,045	0	0	24,577
Phase 3 EP/Guidance EMD Contract		3Q FY98						9,521	35,290	116,239	161,050
Phase 3 Follow on		2Q FY03						0	0	113,014	113,014
Support and Management Organizations											
COEA	PO/MIPR	Jan 94			3,358						3,358
Contractor Support	PR/REO	Oct 95 - Mar 96			6,799	3,210	2,609	2,938	2,880	18,941	37,377
JSPO Operations	REO/MIPR	Oct 95 - Sep 96			15,446	760	984	818	836	6,639	25,483
Test and Evaluation Organizations											
Government Test	PO/MIPR	Oct 95 - Sep 96			24,204	6,522	4,926	8,305	5,255	36,928	86,140

(U) B. Budget Acquisition History and Planning Information Continued ($ in Thousands)

Government Furnished Property:

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Property										
None.										

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE: February 1997
BUDGET ACTIVITY: 7 - Operational System Development				PE NUMBER AND TITLE: 0207163F Adv Med Range A/A Msl						PROJECT: 3777
Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Support and Management Property										
None.										
Test and Evaluation Property										
TM/ECM Pods	MIPR/PO			2,380	0	25	99	325	3,687	6,516
Subtotal Product Development				175,432	33,710	16,201	38,621	36,689	230,569	531,222
Subtotal Support and Management				25,603	3,970	3,593	3,756	3,716	25,580	66,218
Subtotal Test and Evaluation				26,584	6,522	4,951	8,404	5,580	40,615	92,656
Total Project				227,619	44,202	24,745	50,781	45,985	296,764	690,096

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207217F Podded Reconnaissance System

PROJECT: 4611

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4611 Theater Airborne Reconnaissance System*	3,000	6,438	299	0	0	0	0	0	0	9,737
Quantity of RDT&E Articles	0	1	0	0	0	0	0	0	0	0

***For administrative purposes, Project number was changed from 3652 to 4611 beginning in FY97.**

(U) A. Mission Description and Budget Item Justification

(U) The Theater Airborne Reconnaissance System (TARS) Podded Reconnaissance System (PRS) provides a responsive (on-demand), day/under-the-weather manned reconnaissance capability to support intelligence requirements of military, multinational, and other government agency users. It will provide literal, selective aspect electro-optical (EO) sensor imagery for bomb damage assessment. TARS will use on-board imagery recording and ground-based first phase imagery exploitation. It is intended to fill the penetrating, low altitude, under-the-weather medium-to-high threat niche not accomplished by current systems (national, UAVs, and other manned systems). TARS supports Combat Air Force (CAF) Mission Need Statement 328-93, Theater Airborne Reconnaissance System, 5 Jun 95.

(U) TARS will consist of 20 podded systems with embedded electro-optical (EO) sensor suites, provisions for a data link and second sensor, five transportable Squadron Ground Systems (SGS), logistics support, and spares. It will be integrated into Air National Guard (ANG) Block 30 F-16C squadrons. Each TARS PRS system will provide a single forward/oblique EO sensor, sensor controller, wide-band recorder, second sensor window, and internal pod environmental control. The pod will interface with the F-16 cockpit Electronic Warfare Management System. The PRS will also provide space and environmental control required to implement a second vertical/oblique EO sensor and provisions for a P3I (Pre-Planned Product Improvement) Common Data Link. The SGS will interface with Combat Intelligence System (CIS) terminals.

(U) The TARS Program is in Budget Activity 7, Operational System Development. It involves commercial/government off-the-shelf technology and integration into operational (fielded) platforms. First year activities (FY96) included long lead item acquisition (pods, subsystem LRUs, etc.) and risk reduction to support first article development and procurement of production shipsets. Second year activities include first article testing, delivery of production systems, SGS segments, integration, and initiation of ANG unit activations. Final year activities include continuing unit activations, integration of the mid-bay sensor, and P3I activities.

(U) Aeronautical Systems Center (ASC), Wright-Patterson AFB, OH is the lead development activity. TARS will be CIGSS and CDL compliant IAW Defense Airborne Reconnaissance Office guidelines. The acquisition strategy uses concurrent development/production and a firm fixed price contract.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207217F Podded Reconnaissance System
	PROJECT 4611

(U) A. **Mission Description and Budget Item Justification (con't)**

(U) FY 1996 ($ in Thousands):

- (U) $155 Training
- (U) $100 Modeling and Simulation
- (U) $2,700 Non-Recurring Engineering
- (U) $45 Program Support
- (U) $3,000 Total

(U) FY 1997 ($ in Thousands):

- (U) $100 Modeling and Simulation
- (U) $1,000 Flight Test
- (U) $4,138 NRE
- (U) $200 SEEK EAGLE Stores Certification
- (U) $600 Miscellaneous
- (U) $400 Program support
- (U) $6,438 Total

(U) FY 1998 ($ in Thousands):

- (U) $299 Program Support
- (U) $299 Total

(U) FY 1999 ($ in Thousands):

- (U) $0 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207217F Podded Reconnaissance System PROJECT 4611

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY97 President's Budget		6,714			6,714
(U) Appropriated Value		6,714			
(U) Adjustments to Appropriated Value					
a. Cong Reductions		-140			
b. Small Business Innovative Research		-136			
c. Below Threshold Reprogramming	3,000				
(U) Adjustments to Budget Years Since FY 1997 PB					
a.Add			299	0	
(U) FY 1998 President's Budget	3,000	6,438	299	0	9,737

(U) Change Summary Explanation:

Funding: $299 (FY98 RDT&E) was added to the Podded Reconnaissance program element.

Schedule: Not Applicable

Technical: Not Applicable

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207217F Podded Reconnaissance System PROJECT 4611

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Appn 3010, Procurement	33,700		6,221							39,921

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Source Selection / Contract Award			X	X												
(U) Devel/test/procurement/IOC				X	X	X	X	X	X	X	X	X	X	X		
(U) Mid-Bay sensor decision/procure									X	X	X	X	X			
(U) P3I									X	X	X					

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207217F Podded Reconnaissance System PROJECT 4611

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Training	155	0	0	
(U) SEEK EAGLE Stores Certification	0	200	0	
(U) Modeling and Simulation	100	100	0	
(U) Non-Recurring Engineering	2,700	4,138	0	
(U) Miscellaneous	0	600	0	
(U) Flight test	0	1000	0	
(U) Program Support	45	400	299	
(U) Total	3,000	6,438	299	

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207217F Podded Reconnaissance System PROJECT 4611

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Performing Organizations: (Note: Reason for TBDs - Change of major subcontractor and expected Engineering Change Proposal. Contract modification to be signed by end of Mar 97.)

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
ASC	FFP	27 Sep 96	TBD	TBD	0	2,900	5,138	299	0	0	8,337
DESC (M&S)	MIPR	8 Oct 96	N/A	N/A	0	100	100	0	0	0	200
SEEK EAGLE	TBD	TBD	N/A	N/A	0	0	200	0	0	0	200
Support and Management Organizations											
TBD	TBD	TBD	TBD	TBD	0	0	TBD	TBD			TBD
Test and Evaluation Organizations											
AFFTC	TBD	TBD	N/A	N/A	0	0	1000	0	0	0	1000

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207217F Podded Reconnaissance System	PROJECT 4611

(U) B. **Budget Acquisition History and Planning Information Continued ($ in Thousands)**

Government Furnished Property: DCRsi Tape Recorders and Rack Mount

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Property										
TBD	TBD	TBD	TBD			TBD	TBD			TBD
Support and Management Property										
TBD	TBD	TBD	TBD			TBD	TBD			TBD
Test and Evaluation Property										
TBD	TBD	TBD	TBD			TBD	TBD			TBD
Subtotal Product Development				0	3,000	5,438	299			8,737
Subtotal Support and Management				0	0	0	0			0
Subtotal Test and Evaluation				0	0	1000	0			1,000
Total Project				0	3,000	6,438	299			9,737

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207247F Air Force TENCAP

PROJECT: 0001

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
0001 Air ForceTENCAP	20,556	19102	15251	16277	20436	20290	20661	21133	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. **Mission Description and Budget Item Justification**

Air Force TENCAP is a Congressionally directed program to provide the Tactical Exploitation of National Capabilities (TENCAP). The objective of TENCAP is to pursue seamless integration of present and future national space systems' capabilities into military operations for the warfighter. TENCAP expedites improvements to Air Force combat capabilities by performing operational concept demonstrations with rapid prototyping. TENCAP is not a developmental program per normal acquisition guidelines, but does support future operational systems development. To enhance combat effectiveness, TENCAP will focus in three areas:

1) Exploit existing national systems for the tactical warfighter (TENCAP will conceive and demonstrate capabilities to exploit national systems).
2) Influence the design and operation of new national systems for the warfighter by advocating tactical impacts of the new systems (in the form of analysis and integration of national systems into roadmaps and architectures for Air Force weapons/C^4I systems).
3) Educate warfighters about national systems capabilities (in the form of training, exercises, and readiness activities).

Since this effort supports fielded systems, it is in the budget activity #7 Operational Systems Development.

(U) FY 1996 ($ in Thousands):

- (U) $18,398 Exploit the tactical use of existing national systems for the warfighter
- --Talon Warrior (Support for training, exercises, and TENCAP applications)
- --Talon Ready (Support mission planning)
- --Talon Shooter (Support for weapons delivery)
- --Talon Knight (Support Special Operations)
- --Talon Command (Support for Air Force C2 systems)
- --Talon Vision (Support for emerging technologies and applications)
- (U) $425 Transition of TENCAP Concept Demonstrations to field
- (U) $1,733 Program support
- (U) $20,556 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE
	February 1997

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
7 - Operational System Development	0207247F Air Force TENCAP	0001

(U) FY 1997 ($ in Thousands):

– (U)	$15,602	Exploit the tactical use of existing national systems for the warfighter
–		--Talon Warrior (Support for training, exercises, and TENCAP applications)
–		--Talon Ready (Support mission planning)
–		--Talon Shooter (Support for weapons delivery)
–		--Talon Knight (Support Special Operations)
–		--Talon Command (Support for Air Force C2 systems)
–		--Talon Vision (Support for emerging technologies and applications)
– (U)	$1,000	Transition of TENCAP Concept Demonstrations to field
– (U)	$2,500	Program support
– (U)	$19,102	Total

(U) FY 1998 ($ in Thousands):

– (U)	$12,751	Exploit the tactical use of existing national systems for the warfighter
–		--Talon Warrior (Support for training, exercises, and TENCAP applications)
–		--Talon Ready (Support mission planning)
–		--Talon Shooter (Support for weapons delivery)
–		--Talon Knight (Support Special Operations)
–		--Talon Command (Support for Air Force C2 systems)
–		--Talon Vision (Support for emerging technologies and applications)
– (U)	$700	Transition of TENCAP Concept Demonstrations to field
– (U)	$1800	Program support
– (U)	$15,251	Total

(U) FY 1999 ($ in Thousands):

– (U)	$13,577	Exploit the tactical use of existing national systems for the warfighter
–		--Talon Warrior (Support for training, exercises, and TENCAP applications)
–		--Talon Ready (Support mission planning)
–		--Talon Shooter (Support for weapons delivery)
–		--Talon Knight (Support Special Operations)
–		--Talon Command (Support for Air Force C2 systems)
–		--Talon Vision (Support for emerging technologies and applications)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0207247F Air Force TENCAP — PROJECT: 0001

- (U) $800 Transition of TENCAP Concept Demonstrations to field
- (U) $1,900 Program support
- (U) $16,277 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	20,707	20,116	18,895	20,046	Continuing
(U) Appropriated Value	21,966	20,116			
(U) Adjustments to Appropriated Value					
a. Cong Gen Reductions	-801	-497			
b. SBIR	-459	-517			
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming	-15				
e. Rescission	-135				
(U) Adjustments to Budget Years Since FY1997 PB			-3644	-3,769	
(U) Current Budget Submit/President's Budget	20,556	19,102	15,251	16,277	Continuing

(U) Change Summary Explanation:
Funding: FY98/99 reductions fund other AF and DoD priorities.
Schedule: N/A
Technical: N/A

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Other Procurement, BA 3, BPAC 2070	203	196	198	199	203	208	211	211	Cont	Cont

(U) D. Schedule Profile: Not applicable. TENCAP is not organized as an acquisition program.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207247F Air Force TENCAP	PROJECT 0001

(U) A. **Project Cost Breakdown ($ in Thousands):** Not applicable.

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations: None.											
Support and Management Organizations:											
Multiple	Various	Multiple			18,510	8,489	9,102	5,251	6,277	Cont	Cont
Lockheed Martin	CPAF	Sep 95	Cont	Cont		12,067	10,000	10,000	10,000	Cont	Cont
Test and Evaluation Organizations: None.											
Subtotal Product Development					0	0	0			0	0
Subtotal Support and Management					18,510	20,556	19,102	15,251	16,277	Cont	Cont
Subtotal Test and Evaluation					0	0	0			0	0
Total Project					18,510	20,556	19,102	15,251	16,277	Cont	Cont

Government Furnished Property: Not applicable. No Government property furnished to non-Government entities.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207268F / 0604268F Aircraft Engine Component Improvement Program

PROJECT: 1012

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
1012 Aircraft Engine CIP	96,107	92,704	93,122	93,921	95,952	97,998	99,088	101,380	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

Note: The FY96 funds shown above are for PE 0604268F. For FY97 and subsequent years the PE was changed to PE 0207268F.

(U) **A. Mission Description and Budget Item Justification**

CIP provides critical sustaining engineering support (only source) for in-service Air Force engines to maintain flight safety (highest priority), to correct service revealed deficiencies, to improve system Operational Readiness (OR) and Reliability and Maintainability (R&M), to reduce engine Life Cycle Cost (LCC), and to sustain engines throughout their service life. Historically, aircraft systems change missions, tactics, and environments to meet changing threats throughout their lives. Numerous new problems can develop in the engines through actual use during deployment, production, and service, and CIP provides the only funds to develop fixes for these field problems. CIP starts with delivery of the first production engine purchased with procurement funds, and continues over the engine's life, gradually decreasing to a minimum level (safety/depot repairs) sufficient to keep older inventory engines operational. CIP addresses out-of-warranty usage and life and enables the Air Force to obtain additional warranties when manufacturers incorporate CIP improvements into production engines. Since operational and safety problems arise throughout a system's service life, CIP must be maintained at a level to provide the engineering support to make the changes essential for continued satisfactory system performance at affordable costs. CIP ensures continued improvements in engine R&M factors, which reduce outyear support costs. Historically, R&M related CIP efforts reduce outyear Operations and Maintenance (O&M) and spares costs by a ratio greater than 21 to 1. O&M and spares budgets assume a viable CIP effort is in place. Without the outyear cost avoidance provided by CIP, outyear support funding would have to be increased drastically. CIP funding is driven by field events and types/maturity of engines, not by the total engine quantity. This program is in budget activity 7 - Operational System Development, Research Category 6.6 because all efforts support fielded systems.

(U) FY 1996 ($ in Thousands): (Under PE 0604268F)

- (U) $ 96,107 Continued efforts to increase engine operability and supportability, reduce air aborts, aircraft safety incidents, non-mission capable rates, scheduled and unscheduled engine removals, maintenance man hours, and overall costs. Program included approximately 8500 test hours (7100 sea level, 1300 altitude, 100 flight test), to analyze, verify and qualify CIP tasks. Program included 540 CIP tasks (209 redesign tasks, 278 repair development tasks, 53 analysis tasks) generating $3.1 billion in potential LCC savings/cost avoidance.
- (U) $96,107 Total (PE 0604268F)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207268F / 0604268F Aircraft Engine Component Improvement Program PROJECT 1012

(U) FY 1997 ($ in Thousands): Change in PE in report title reflects change to Operational Systems Development Budget Category

- (U) $92,704 Continue efforts to increase engine operability and supportability, reduce air aborts, aircraft safety incidents, non-mission capable rates, scheduled and unscheduled engine removals, maintenance man hours, and overall costs. Program will include approximately 600 CIP tasks (230 redesign tasks, 300 repair development tasks, 70 analysis tasks) and approximately 7500 test hours generating $2.6 Billion in potential LCC savings/cost avoidance.
- (U) $92,704 Total

(U) FY 1998 ($ in Thousands):

- (U) $ 93,122 Continue efforts to increase engine operability and supportability, reduce air aborts, aircraft safety incidents, non-mission capable rates, scheduled and unscheduled engine removals, maintenance man hours, and overall costs. Program will include approximately 575 CIP tasks (229 redesign tasks, 278 repair development tasks, 68 analysis tasks) and approximately 7250 test hours (6620 sea level, 630 altitude), generating $2.2 Billion in potential LCC savings/cost avoidance.
- (U) $93,122 Total

(U) FY 1999 ($ in Thousands):

- (U) $ 93,921 Continue efforts to increase engine operability and supportability, reduce air aborts, aircraft safety incidents, non-mission capable rates, scheduled and unscheduled engine removals, maintenance man hours, and overall costs. Program will include approximately 590 CIP tasks (239 redesign tasks, 270 repair development tasks, 81 analysis tasks) and 7500 test hours to analyze, verify and qualify CIP tasks generating $3.1 Billion in potential LCC savings/cost avoidance.
- (U) $93,921 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE: February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0207268F / 0604268F Aircraft Engine Component Improvement Program — PROJECT: 1012

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget FY97 PB	124,714	99,050	93,905	94,804	Continuing
(U) Appropriated Value	133,230	96,850			
(U) Adjustments to Appropriated Value					
a. Congressional/General Reductions	-2,608	-1,937			
b. SBIR	-3,138	-2,119			
c. Omnibus or Other Above Threshold Reprogram	-30,936				
d. Below Threshold Reprogramming	+375				
e. Rescissions	-816	-90			
(U) Adjustments to Budget Years Since FY 1997 PB			-783	-883	
(U) Current Budget Submit/FY98 PB	96,107	92,704	93,122	93921	Continuing

(U) Change Summary Explanation:

Funding: Congress added funds to CIP and directed re-enginning of Rivet Joint aircraft in FY96. The -$30,936 in line (c.) above was reprogrammed for that purpose.

Schedule: No change.

Technical: No Change

(U) C. Other Program Funding Summary ($ in Thousands) Not Applicable

(U) RELATED ACTIVITIES:

(U) - PEs # 0604268A and #0604268N, Army/Navy Aircraft Engine CIPs for prior years
(U) - PEs # 0207268A and #0207268N, Army/Navy Aircraft Engine CIPs for FY96 and following years

(U) D. Schedule Profile: Not Applicable. CIP is a level of effort program that funds some 600 separate engineering tasks. Most are completed within two years.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207268F / 0604268F Aircraft Engine Component Improvement Program PROJECT 1012

(U) A. **Project Cost Breakdown ($ in Thousands)):** A project cost breakdown is not applicable to this Program, because there are no individual projects, but several hundred independently managed tasks. The bulk of the funding goes to the major engine manufacturers. The FY96 costs are broken down as follows. Cost breakdown for follow-on years is expected to be of similar proportions.

	FY96	FY97	FY98	FY99
Contracted Tasks:	$82,900	76,923	$ 75,292	$ 76,391
AFFTC Flight Tests:	733	3,020	3,000	2,000
AEDC Altitude Tests:	7,048	4,904	6,900	7,500
Petroleum/Oil/Lubricants:	4,579	6,530	6,630	6,730
Mission Support:	847	1,300	1,300	1,300
PE TOTAL	96,107	92,704	93,122	93,921

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
GE-Evandale, OH	CPAF	Jan 97	NA	NA	NA	32,234	38,604	$39,435	$44,270	CONT	CONT
Pratt & Whitney	CPAF	Jan 97	NA	NA	NA	43,873	32,537	30,071	26,398	CONT	CONT
GE-Lynn, MA	CPFF	Jan 97	NA	NA	NA	2,500	2,551	2,601	2,568	CONT	CONT
Allison	CPFF	Jan 97	NA	NA	NA	1,469	1,300	1,350	1,400	CONT	CONT

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207268F / 0604268F Aircraft Engine Component Improvement Program

PROJECT: 1012

Product Development Organizations (Continued)

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Teledyne	CPFF	Jan 97	NA	NA	NA	790	733	710	730	CONT	CONT
Allied Signal	CPFF	Jan 97	NA	NA	NA	1,278	1,200	1,100	1,000	CONT	CONT
Garrett	CPFF	Jan 97	NA	NA	NA	756	25	25	25	CONT	CONT
Support and Management Organizations											
In House Support					NA	847	1,300	1,300	1,300	CONT	CONT
POL					NA	4,579	6,530	6,630	6,730	CONT	CONT
Test and Evaluation Organizations											
AFFTC					NA	733	3,020	3,000	2,000	CONT	CONT
AEDC					NA	7,048	4,904	6,900	7,500	CONT	CONT
Subtotal Product Development						82,900	76,950	75,658	76,874	CONT	CONT
Subtotal Support and Management						5,426	7,830	7,930	8,030	CONT	CONT
Subtotal Test and Evaluation						7,781	7,924	9,900	9,500	CONT	CONT
Total Project						96,107	92,704	93,122	$93,921	CONT	CONT

Government Furnished Property: None

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207320F Sensor Fuzed Weapons

PROJECT: 1016

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
1016 SFW Pre-Planned Product Improvement (P3I)	9,517	18,695	19,804	3,622	0	0	0	0	0	53,067
Quantity of RDT&E Articles	0	4 (1,600)	3 (1,200)	0	0	0	0	0	0	7 (2,800)

Note: Currently, the FY98 and FY99 funds are in BA 5 but we are in the process of moving these funds to BA 7 -- will complete the transfer before the next submission.

(U) **A. Mission Description and Budget Item Justification**

This project continues development of the Sensor Fuzed Weapon (SFW) Pre-Planned Product Improvement (P3I). The P3I improvements to the baseline SFW will enhance weapon performance against primary targets (land combat vehicles), targets with countermeasures, and potentially allow for use against alternative targets. The improvements will also enhance the performance of SFW when fitted with the Wind Corrected Munitions Dispenser (WCMD) kit and the anti-armor version of the Joint Standoff Weapon (JSOW). This program is in budget activity 7 - Operational System Development, Research Category 6.6 because this activity funds improvements to the SFW, which is currently in production. This program is an Air Force ACAT 1C program.

(U) FY 1996 ($ in Thousands):
- (U) $7,896 Award P3I development contract for design, development, and test of SFW P3I
- (U) $1,537 Conduct sensor and warhead tests
- (U) $12 Program management support, includes travel, program office supplies and equipment, training and technical engineering support
- (U) $72 GFE
- (U) $9,517 Total

(U) FY 1997 ($ in Thousands):
- (U) $17,453 Continue the P3I development, qualification, integration of the dual mode sensor and multi-mission warhead
- (U) $1,242 Program management support, includes travel, program office supplies and equipment, training and technical engineering support
- (U) $18,695 Total

(U) FY 1998 ($ in Thousands):
- (U) $14,226 Continue the P3I development, qualification, integration of the dual mode sensor and multi-mission warhead. Conduct munition tests.
- (U) $4,476 Conduct sensor and warhead tests
- (U) $1,102 Program management support, includes travel, program office supplies and equipment, training and technical engineering support
- (U) $19,804 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0207320F Sensor Fuzed Weapons / PROJECT: 1016

(U) FY 1999 ($ in Thousands):
- (U) $2,552 Complete the P3I development program with comprehensive test and evaluation; integrate P3I into the production program
- (U) $686 Complete warhead, projectile and munition testing. Conduct flight tests
- (U) $384 Program management support, includes travel, program office supplies and equipment, training and technical engineering support
- (U) $3,622 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Previous President's Budget	0	0	0	0
(U) Appropriated Value	0	19,100		
(U) Adjustments to Appropriated Value				
a. Cong Reductions		-400		
b. SBIR		-5		
c. Omnibus or Other Above Threshold Reprogram	9.578			
d. Below Threshold Reprogramming				
e. Rescissions	-61			
(U) Adjustments to Budget Years Since FY 1997 PB			+19,804	+3,622
(U) FY 1998 PB	9,517	18,695	19,804	3,622

(U) Change Summary Explanation:

Funding: Congress added funds in FY97 to continue the development of the SFW P3I. The Air Force funded FY98 and FY99 to complete the program.

Schedule: In the FY97 PB, the SFW P3I program ended in FY96 because that was the only year of P3I funding. The program is now fully funded and continues untill completion in FY99. The production of SFW with P3I begins in FY99.

Technical: Complete P3I development.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207320F Sensor Fuzed Weapons

PROJECT: 1016

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) SFW Production, Procurement of Ammo, AF	160,811	152,000	153,861	143,343	171,343	168,777	170,150	236,617	110,312	1,797,355
(U) SEEK EAGLE, Procurement of Ammo, AF	4,636	0	0	0	0	0	0	0	0	10,888
(U) Total	165,447	152,000	153,861	143,343	171,343	168,777	170,150	236,617	109,800	1,807,731
(U) Quantity	500	542	556	352	516	504	502	752	265	5,000

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Contract Award			X													
(U) System Requirement Review (SRR)				X												
(U) System Design Meeting						X										
(U) Design and Development			X	X	X	X	X	X	X	X	X	X	X	X		
(U) Trade Studies			X	X	X	X										
(U) Preliminary Design Review (PDR)							X									
(U) Detailed Design/Development Tests				X	X	X	X	X	X	X	X	X	X	X		
(U) Critical Design Review (CDR)											X					
(U) Hardware Build/Qualification Tests												X	X	X	X	X
(U) P3I ECP																X

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207320F Sensor Fuzed Weapons

PROJECT: 1016

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Major Contracts	7,896	17,453	14,226	2,552
(U) Support Contracts	0	184	238	191
(U) Program Office Support	12	1,058	864	193
(U) Test and Evaluation	1,537	0	4,476	686
(U) Government Furnished Equipment (GFE)	72	0	0	0
(U) Total	9,517	18,695	19,804	3,622

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Textron Defense	C/CPAF	Apr 96	42,127	42,127	0	7,896	17,453	14,226	2,552	0	42,127
Support and Management Organizations											
VEDA	C/CPAF	Jul 96	52	52	0	0	52	0	0	0	52
ANSTEC	C/CPFF	Aug 95	411	411	0	0	132	138	141	0	411
SAIC	C/CPAF	Jun 95	150	150	0	0	0	100	50	0	150
ASC/YH	N/A	Jan 98	3,556	3,556	1,429	12	1,058	864	193	0	3,556
Test and Evaluation Organizations											
46 OG/OGML	N/A	Jan 98	6,699	6,699	0	1,537	0	4,476	686	0	6,699

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207320F Sensor Fuzed Weapons	PROJECT 1016

(U) B. Budget Acquisition History and Planning Information Continued ($ in Thousands)

Government Furnished Property:

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Property										
RHA Plates (ARMU Aberdeen)		Jun 96	Dec 96	0	72	0	0	0	0	72
Support and Management Property										
None										
Test and Evaluation Property										
None										
Subtotal Product Development				0	7,968	17,453	14,226	2,552	0	42,199
Subtotal Support and Management				1,429	12	1,242	1,102	384	0	4,169
Subtotal Test and Evaluation				0	1,537	0	4,476	686	0	6,699
Total Project				1,429	9,517	18,695	19,804	3,622	0	53,067

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207323F AGM-86C, Conventional ALCM

PROJECT: 4608

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4608 CALCM	0	2,875	0	22,091	9,309	0	0	0	0	34,275
Quantity of RDT&E Articles	0	0	0	30($300K)	100($300K)	0	0	0	0	130

(U) A. **Mission Description and Budget Item Justification**

The Conventional Air-Launched Cruise Missile (CALCM) Block II (AGM-86D) is a new variant of CALCM with a near precision (< 5m), hardened target penetrating warhead, with long range (standoff outside theater defenses) capability. FY97 funds were added: a) to develop a CALCM related Hard Target Smart Fuze for use with CALCM's penetrating warhead; b) to start development of the penetrating CALCM; c) to study the cost and operational effectiveness of CALCM with a forward shaped charge warhead in a hard and deeply buried target kill capability; d) and to study the effectiveness of CALCM as an agent defeat delivery vehicle. This combination of warheads is expected to give CALCM Block II a hard and deeply buried target capability similar to the GBU-28, but delivered from CALCM standoff ranges. With a successful FCT and/or study showing such a capability is prudent, the RDT&E funds in FY99 and FY00 will be used for the Block II EMD. Limited production (modification of ALCM to Block II CALCM) for up to 130 CALCM Block II missiles is scheduled to begin in FY00 and finish in FY01. Also, in FY99 are funds to improve the accuracy of CALCM Block I (AGM-86C) using lessons learned from the Precision Strike demonstration.

(U) FY 1996 ($ in Thousands):
- (U) $0 Total

(U) FY 1997 ($ in Thousands):
- (U) $ 672 Plan, design, and produce Hard Target Smart Fuze for CALCM Block II
- (U) $ 288 Plan, design, and produce CALCM Block II
- (U) $ 576 Conduct CALCM penetrating warhead sled test
- (U) $ 862 Conduct CALCM related Hard and Deeply Buried Target Defeat System Analysis
- (U) $ 477 Conduct CALCM related Agent Defeat Analysis
- (U) $2,875 Total

(U) FY 1998 ($ in Thousands):
- (U) $0
- (U) $0 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207323F AGM-86C, Conventional ALCM
	PROJECT 4608

(U) FY 1999 ($ in Thousands):
- (U) $10,000 Plan, design, and produce CALCM Block II with penetrating warhead and improved precision
- (U) $12,091 Plan, design, and produce Block I with improved precision
- (U) $22,091 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	0	0	0	22,205	TBD
(U) Appropriated Value		3,000			
(U) Adjustments to Appropriated Value					
a. Cong Reductions					
b. SBIR		62			TBD
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
(U) Adjustments to Budget Years Since FY 1997 PB					
(U) Current Budget Submit/FY98 President's Budget		2,875		22,091	TBD

(U) Change Summary Explanation:

Funding: FY97 additions added for: a) To develop a Hard Target Smart Fuze for use with CALCM's planned penetrating J-1000 warhead; b) to develop a penetrating warhead capability for CALCM; c) to study the cost and operational effectiveness of CALCM with a forward shaped charge warhead in a hard and deeply buried target kill capability; d) and to study the effectiveness of CALCM as an agent defeat delivery vehicle. FY99 additions are to plan, design, and produce the CALCM Block II; and to plan, design, and produce CALCM Block I INS with improved reliability.

Schedule: None.

Technical: None.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207323F AGM-86C, Conventional ALCM
	PROJECT 4608

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Missile Procurement, buy AGM-86D	0	0	0	0	8,984	29,596	0	0	0	38,580
(U) Missile Procurement, mod ALCM to AGM-86C	14,852	14,986								29,838
(U) Missile Procurement, upgrade AGM-86C with Precision Strike accuracy				15,527						15,527
(U) MILCON	0	0	19,500	0	0	0	0	0	0	19,500
(U) Quantity (AGM-86D)	0	0	0	0	30	100	0	0	0	130
(U) Quantity (ALCM to AGM-86C)	100	100								200
(U) Quantity (AGM-86C Precision Strike upgrade)	0	0	0	300	0	0	0	0	0	300
(U) RDT&E CALCM Related Hard Tgt Smart Fuze		672							0	672
(U) RDT&E Hard Tgt Smart Fuze (PE 28030F)				5,944					0	5,944
(U) Procurement Hard Tgt Smart Fuze (PE 28030F)				8,000	8,000				0	16,000

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Penetrating Warhead Development					----	----	X									
(U) CALCM related Hard Target Smart fuze Development					----	----	X									
(U) CALCM penetrating warhead sled test						X										
(U) CALCM related Hard & Deeply Buried Target Analyses					----	----	----	----	----	X						
(U) CALCM related Agent Defeat Analyses					----	----	----	----	----	X						
(U) AGM-86C Precision Strike Improvement Development													----	----	X	
(U) AGM-86D Development		3rd	Qtr										----	----	----	----

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0207323F AGM-86C, Conventional ALCM — PROJECT: 4608

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U)		TBD		TBD
(U) Total		2,875		22,091

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	*Contract* Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Motorola	CPIF	Jul 97	672	672	0	0	672	0	0	TBD	TBD
TRW, ARA, VEDA	FPAF	Nov 96	862	862	0	0	862	0	0	TBD	TBD
Support and Management Organizations											
OC-ALC	PMA Costs (Sled test)	Jul 97	126	126	0	0	126	0	0	TBD	TBD
OC-ALC	PMA Costs (AGM-86D development)	Jul 97	288	288	0	0	288	0	22,091	TBD	TBD
SA-ALC NWIE	MIPR	TBD	477	477	0	0	477	0	0	TBD	TBD
Test and Evaluation Organizations											
ASC/WL	JON	Jul 97	200	200	0	0	200	0	0	TBD	TBD
79TEG	JON	Jul 97	250	250	0	0	250	0	0	TBD	TBD

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207323F AGM-86C, Conventional ALCM	PROJECT 4608

(U) B. **Budget Acquisition History and Planning Information Continued ($ in Thousands)**

Government Furnished Property: Excess Air-Launched Cruise Missile (ALCM) bodies will be required for warhead sled testing. Determined by available assets.

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Total Project				0	0	2,875	0	22,091	9,309	34,275

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207412F Theater Air Control System

PROJECT: 485L

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
485L Theater Air Control Sys Imp (TACSI)	535	590	393	440	487	471	460	451	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. **Mission Description and Budget Item Justification**

Ground Theater Air Control System (GTACS) provides the means through which the Air Component Commander exercises control of his forces to accomplish his assigned mission. This program provides for major improvements to the existing Tactical Air Control System (TACS) which was designed in the 1960s and is now unsupportable. The GTACS RDT&E program consists primarily of the Modular Control Equipment (MCE) Pre-Planned Product Improvements (P3I) program which replaces obsolete equipment (operator consoles, shelters, computers, radios, etc.) in the GTACS. The modernization upgrades C2 interoperability, flexibility, mobility, communications and worldwide operations. The P3I program is structured into multiple phases. Phase one consisted of the integration of secure anti-jam UHF radios, an upgrade to the weapons control and Joint Tactical Air Operations data link software (S/W), and development of a Chemical, Biological and Radiological protection capability. These improvements have already been incorporated into the MCE production line. The current R&D includes the integration of a Joint Tactical Information Distribution System (JTIDS)/Tactical Digital Information Link-J (TADIL-J) capability, the integration of an Automated Air Tasking Order (AATO) capability, integration of secure anti-jam VHF (SINCGARS) radios and upgrades to the Ground Mobile Forces/Satellite Communications digital communications interfaces. This program also includes production funding for JTIDS terminals, JTIDS Modules (JMs), JTIDS Interface Boxes (JIBs) and Operations Modules (OM) Interface Kits, all of which are required to integrate JTIDS/COMM into the MCE. The next planned phase includes a software interoperability upgrade to the TADIL-J Reissue 2 baseline, which works towards a Theater Missile Defense capability and the implementation of the Interim JTIDS Message Specification. This program is in budget activity 7 - Operational System Development because the Ground Theater Air Control System (GTACS) is a fielded, operational system currently undergoing major modifications/upgrades.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE
	February 1997

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
7 - Operational System Development	0207412F Theater Air Control System	485L

(U) FY 1996 ($ in Thousands)
- (U) 285 Continue development of interoperability upgrades to the MCE P3I system.
- (U) 250 Continue program support, test, and other miscellaneous efforts.
- (U) 535 Total

(U) FY 1997 ($ in Thousands)
- (U) 274 Continue development of interoperability upgrades to MCE P3I system.
- (U) 316 Continue program support, test, and other miscellaneous efforts.
- (U) 590 Total

(U) FY 1998 ($ in Thousands)
- (U) 135 Continue development of interoperability upgrades to MCE P3I systems.
- (U) 258 Continue program support, test, and other miscellaneous efforts.
- (U) 393 Total

(U) FY 1999 ($ in Thousands)
- (U) 162 Continue development of interoperability upgrades to MCE P3I systems
- (U) 278 Continue program support, test, and other miscellaneous efforts
- (U) 440 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE: February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0207412F Theater Air Control System	PROJECT: 485L

B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY1997 President's Budget	242	622	723	802	TBD
(U) Appropriated Value	242	622			
(U) Adjustments to Appropriated Value					
a. General Congressional Reductions		-20			
b. SBIR		-12			
c. Omnibus / Other Above Threshold Reprogramming					
d. Below Threshold Reprogramming	293				
f. Rescissions					
(U) Adjustments to Budget since FY97 PB			-330	-362	
(U) FY1998 President's Budget	535	590	393	440	TBD

(U) Change Summary Explanation:

Funding: FY97 -$12 for Appr Act Sec 8136, -$1 for Section 8136, -$7 for Section 8037(E).

Schedule: None

Technical: None

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207412F Theater Air Control System

PROJECT: 485L

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Other Procurement AF Total	18,197	10,007	28,254	26,630	25,108	19,988	20,988	21,104	Cont	TBD
Budget Activity 3, WSC 833040	7,685	4,174	22,950	21,491	20,291	19,988	20,525	20,650	Cont	TBD
Budget Activity 3, WSC 834010	0	0	0	0	0	0	0	0	0	3,020
Budget Activity 3, WSC 83790A	0	0	0	0	0	0	0	0	0	2,730
Budget Activity 6, WSC 838010	0	0	0	2,000	2,500	0	0	0	TBD	TBD
Budget Activity 4, WSC 84590A	0	0	0	0	0	0	0	0	0	6,166
Budget Activity 6, WSC 86190A	10,512	5,791	5,304	3,139	2,317	0	463	454	Cont	TBD

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) MCE P3I OM Interface Kit Follow-on Production Award	x								x							
(U) MCE P3I OM Interface Kit Article IOT&E							x			x						
(U) MCE P3I Initial Operational Capability (IOC)								x				x				
(U) JIB Development Complete			x													
(U) JM Development Complete			x			x										
(U) Radar RM&A										x	x	x	x	x	x	x

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207412F Theater Air Control System	PROJECT 485L

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Developmental Test and Evaluation	285	274	135	162
(U) Program Management Support	250	316	258	278
(U) Total	535	590	393	440

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Not Applicable.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207417F Airborne Warning & Control System (AWACS)

PROJECT: 411L

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
411L Airborne Warning & Control System (AWACS)	88,843	78,635	46,807	29,266	26,652	37,464	23,118	41,915	TBD	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description and Budget Item Justification

This program develops and integrates system improvements which enable the E-3 AWACS to remain an effective, survivable airborne surveillance system for command and control of tactical forces and for strategic defense of the U.S. These improvements include Electronic Support Measures (ESM), Central Computer Memory Upgrade, Joint Tactical Information Distribution System (JTIDS) Class 2H/TADIL J and NAVSTAR Global Positioning System (GPS) terminal integrations (collectively known as Block 30/35); the Radar System Improvement Program (RSIP); Extend Sentry effort; and Offensive Counter Air (OCA) activities (which include Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) Improvement efforts). RSIP will increase radar reliability and maintainability, restore required E-3 surveillance capability against the evolving threats posed by low radar cross section fighters and cruise missiles, improve electronic counter countermeasures (ECCM), and enhance man-machine interface. Extend Sentry is a collection of 100+ projects that target investment in three areas. Extend Sentry prevents grounding of aircraft, buys back aircraft from maintenance downtime, and corrects deficiencies to meet operational requirements. OCA includes C4ISR improvements such as Link-16 data integration using improved display capabilities for AWACS Controller Consoles to expand AWACS - to - shooter interoperability. OCA also provides for Tactical Information Broadcast System (TIBS) integration, and Cruise Missile Defense (CMD) technology efforts. Category of research: Operational Systems Development. AWACS is a fielded, operational system currently undergoing major modifications/block upgrades/continuing sustainment.

(U) Acquisition Strategy:

Block 30/35: ESM is joint development with NATO. Priced FPIF options with Boeing for ESM and 30/35 Group A hardware. CC-2E contract with LORAL Federal Systems with fixed price options. JTIDS and GPS acquired via respective program office-awarded contracts. RSIP is a cooperative development with NATO. Boeing is prime integrating contractor, Westinghouse is the subcontractor for radar equipment items. FFP contract sole source to Boeing for production. Extend Sentry acquisition strategy approved, contract vehicle awarded, and tasks continually being added.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207417F Airborne Warning & Control System (AWACS)
	PROJECT 411L

(U) FY 1996 ($ in Thousands):
- (U) $ 4,619 Blk 30/35 will complete EMD including Electronic Library File (ELF) restructure.
- (U) $31,085 RSIP activities include the completion of FCA/PCA and IOT&E.
- (U) $25,005 Extend Sentry efforts.
- (U) $19,603 TS-3 aircraft support, program sustaining efforts.
- (U) $ 8,531 Offensive Counter Air (OCA) efforts
- (U) $88,843 Total

(U) FY 1997 ($ in Thousands):
- (U) $ 300 Blk 30/35 EMD contract close out actions.
- (U) $26,734 Extend Sentry efforts.
- (U) $10,585 Offensive Counter Air (OCA) efforts.
- (U) $17,143 TS-3 aircraft support, program sustaining efforts.
- (U) $23,873 Re-Engining efforts
- (U) $78,635 Total

(U) FY 1998 ($ in Thousands):
- (U) $14,259 Extend Sentry efforts.
- (U) $20,220 Offensive Counter Air (OCA) Efforts
- (U) $12,328 TS-3 aircraft support, program sustaining efforts.
- (U) $46,807 Total

(U) FY 1999 ($ in Thousands):
- (U) $ 2,748 Extend Sentry efforts.
- (U) $12,500 Offensive Counter Air (OCA) Efforts
- (U) $14,018 TS-3 aircraft support, program sustaining efforts.
- (U) $29,266 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207417F Airborne Warning & Control System (AWACS)

PROJECT: 411L

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY 1997 President's Budget	96,696	57,559	29,782	25,225	TBD
(U) Appropriated Value	96,696	82,559			
(U) Adjustments to Appropriated Value					
a. Congressional General Reductions	(2,237)	(1,929)			
b. SBIR	(2,035)	(1,995)			
c. Omnibus & Other Above Threshold Reprogramming	(3,520)				
(U) Adjustments to Budget Since FY97 PB	(61)		17,025	4041	
(U) FY 1998 President's Budget	88,843	78,635	46,807	29,266	TBD

(U) Change Summary Explanation:

Funding: FY97 Appropriations Act included a $25M add to begin an E-3 re-engining program. OSD has placed the re-engining plus-up monies on withhold. FY98 and out years reflect adjustments made to the Extend Sentry program and additional funds for CMD technology efforts

Schedule: 31 Jul 96 APB update approved. RSIP IOT&E complete changed to objective/threshold of Nov 96/May 97 vs Dec 95/Jun 96. This change had no impacts to program other program milestones or funding requirements.

Technical: None.

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Aircraft Procurement, AF,BA-5 AWACS Mod	222,764	265,865	134,659	114,941	102,996	111,784	73,524	30,710	Cont	TBD
(U) O&M, AF, AWACS Extend Sentry	600	7,100	2,000	2,100	1,200	4,300	2,300	1,100	Cont	TBD

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207417F Airborne Warning & Control System (AWACS) PROJECT 411L

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) RSIP IOT & E Complete					X											
(U) RSIP PCA		X														
(U) RSIP LRIP Decision	X															
(U) RSIP MSIII Decision								X								
(U) RSIP Trial Install											X					
(U) RSIP RAA 1QTR00																
(U) RSIP IOC 1QTR00																
(U) BLK 30/35 PCA Complete				X												
(U) BLK 30/35 Trial Install Complete			X													
(U) BLK 30/35 LRIP Kit Proof Complete (2)				X	X											
(U) BLK 30/35 Support capability- O Level					X											
(U) - I Level							X									
(U) - D Level										X						
(U) BLK 30/35 RAA								X								
(U) BLK 30/35 IOC								X								
(U) RSIP KIT DELIVERY (#1)									X							
(U) RSIP KIT DELIVERY (#2)											X					
(U) RSIP KIT DELIVERY (#3)														X		
(U) RSIP KIT DELIVERY (#4)																X
(U) RSIP KIT DELIVERY (#5)																X

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207417F Airborne Warning & Control System (AWACS)
	PROJECT 411L

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Contracts	60,332	67,253	42,426	24,637
(U) MITRE/TEMS	12,965	6,592	3,635	3,635
(U) GFE	9,193	250		
(U) Travel	842	908	385	415
(U) Other	5,511	3,632	361	579
(U) Total	88,843	78,635	46,807	29,266

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207417F Airborne Warning & Control System (AWACS) — PROJECT 411L

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
(U) Boeing(RSIP)	C/FPIF	9/89	88,500	93,517	85,327	8,190	0			0	93,517**
(U) WECO(RSIP)	C/FPIF	9/89	327,400	306,900	244,588	14,657	0			0	259,155**
(U) Boeing(Blk 30/35)	SS/FPIF	5/87	N/A	N/A	287,067	4,600	300			0	291,667**
(U) Extend Sentry	Multiple	N/A*	N/A	N/A	0	15,734	26,734	12,943	2,382	cont	TBD
(U) Offensive Counter Air	Studies	N/A	N/A	N/A	19,967	9,401	10,585	6,804	2,534	cont	TBD
(U) Re-Engining	N/A	N/A	N/A	N/A	0		18,751			0	

* N/A based on Extend Sentry Acquisition Strategy which includes multiple contracts with multiple organizations with overlapping and continuing performance periods.
** Total Program does not include NATO funds and covers contract plus ECPs.

Support and Management Organizations								
(U) Support/TEMS MITRE/Other	529,090	19,318	11,132	4,381	4,629	Cont	TBD	
Test and Evaluation Organizations								
(U) Test System-3 ADAPT Contract/ Other test Activities	22,990	10,810	10,883	11,363	11,855	Cont	TBD	

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207417F Airborne Warning & Control System (AWACS)	PROJECT 411L

(U) B. Budget Acquisition History and Planning Information Continued ($ in Thousands)

Government Furnished Property: None

Subtotal Product Development	638,173	58,715	56,620	31,063	12,782	Cont	TBD
Subtotal Support and Management	529,090	19,318	11,132	4,381	4,629	Cont	TBD
Subtotal Test and Evaluation	22,990	10,810	10,883	11,363	11,855	Cont	TBD
Total Project	1,190,253	88,843	78,635	46,807	29,266	Cont	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207419F Tactical Airborne Cmd & Control Sys

PROJECT: 4133

	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4133 Abn Battlefield Cmd & Ctl Ctr Imp	1910	325	0	0	0	0	0	0	0	5,031
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

Note: The RDT&E portion of this effort will be completed with FY97 funding. No funding is requested for FY98 and out.

(U) A. Mission Description and Budget Item Justification

The Airborne Battlefield Command and Control Center (ABCCC) provides rapid worldwide Command, Control, Communications and Computer (C4) capabilities to the Joint Force Air Component Commander or Joint Task Force Commander. During combat or contingency operations, ABCCC extends ground based C4I capabilities and can function in a stand alone mode during the absence of ground based units. The primary mission of the ABCCC is to provide on-scene theater battle management for the Combat Air Forces. It receives target nominations from the Air Operations Center (AOC) or other C4I systems(Joint Surveillance Target Attack Radar System (JSTARS), Air Support Operations Center (ASOC), etc,) and directs attack from air, sea and/or land assets to targets in the theater of operations. It can also function as a direct extension of the AOC, and airborne ASOC, or the Air Component Commander's operations center. ABCCC supports functions across a broad spectrum of operations; from Forward Battle Coordination and coordination of Joint Forces, to Close Air Support, Air Drops, Search and Rescue and Crisis Management. Category of research: Operational Systems Development, ABCCC is a fielded, operational system currently undergoing pre-planned product improvements (P3I) which includes integration of the Joint Tactical Information Distribution System (JTIDS), integration of the Air Force Single Channel Ground and Airborne Radio System (SINCGARS), and upgrade of the Satellite Communications capabilities.

(U) FY 1996 ($ in Thousands):

- (U) $566 Completed SINCGARS design.
- (U) $1087 Completed documentation and acceptance of SINCGARS First Article.
- (U) $257 Conducted SINCGARS system verification, validation and test.
- (U) $1,910 Total

(U) FY 1997 ($ in Thousands):

- (U) $269 Conduct SATCOM study.
- (U) $50 Pre-Planned product improvements cost estimates.
- (U) $6 Travel.
- (U) $325 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207419F Tactical Airborne Cmd & Control Sys
	PROJECT 4133

(U) FY 1998 ($ in Thousands):
- (U) $0 Total

(U) FY 1999 ($ in Thousands):
- (U) $0 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY 1997 President's Budget	2093	342			
(U) Appropriated Value	2093	342			
(U) Adjustments to Appropriated Value					
a. General Congressional Reductions	(96)	(9)			
b. SBIR	(45)	(8)			
c. Ominibus and Other Above Threshold Reprogramming	(42)				
d. Below Threshold Reprogramming					
(U) Adjustments to Budget Years Since FY97 PB					
(U) FY 1998 President's Budget	1910	342			

(U) Change Summary Explanation:

Funding:

Schedule:N/A

Technical:N/A

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207419F Tactical Airborne Cmd & Control Sys
	PROJECT 4133

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Appropriation Aircraft Procurement, Air Force, Budget Activity 5, C-130 Mods	7,110	47	50	516	54	54			0	13,008

Related RDT&E: None

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
SINCGARS EMD Contract Award (May 95)																
PDR (Sept 95)																
CDR (Apr 96)		X														
DT&E (Jun 96)			X													
Operational Capabilities Demonstration (Dec 96)				X												
First Article Delivery (April 97)							X									
Production (April-Sept 97)				X			X	X								
Initial Operational Capability (Mar 97)						X										
Last Kit Delivery (Sept. 97)								X								

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207419F Tactical Airborne Cmd & Control Sys PROJECT 4133

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
Development	136			
Systems Engineering	268			
Technical Data	181			
Test	307			
Engineering/ Management Support	1001			
Travel	11	6		
Research Personnel	0	269		
Miscellaneous	6	50		
Total	1,910	325	0	0

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands):** Not required.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207423F Advanced Communications Systems

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	1,821	1,646	2,966	2,895	2,987	3,031	3,091	3,162	Continuing	TBD
1013 Theater Deployable Communications (TDC)	1,605	1,450	2,766	2,674	2,760	2,801	3,091	3,162	Continuing	TBD
2982 Anti-Jam Radio Communications	216	196	200	221	227	230	0	0	0	0
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Descriptions and Budget Item Justification

The Advanced Communication Systems program procures commercially available ground communications equipment for deployment to theaters of operation and develops and procures jam resistant ultra high frequency (UHF) and very high frequency (VHF) frequency-hopping tactical radios. The HAVE QUICK UHF radios provide the primary Air Force and DOD UHF Electronic Counter-Countermeasures (ECCM) voice communications. SINCGARS (Single Channel Ground and Airborne Radio System) provides anti-jam, VHF frequency-hopping voice and data communications and is the primary means of ECCM communications between Air Force, Army, and USMC aircraft and ground units involved in close air support and joint battlefield operations. RDT&E funds in this program element are used to examine appropriate emerging technologies; provide software development support for the fielded HAVE QUICK family of radios; and determine and resolve integration issues pertaining to commercial-off-the-shelf (COTS) equipment, making this program budget activity 7, Operational System Development. The Theater Deployable Communications (TDC) program provides funding for the research, development, test and evaluation for the modernization of operational deployable communications, and integration of COTS equipment that support tactical air operations in a combat environment. This includes the integration of deployable communications equipment for active duty, Air National Guard combat communications and Theater Air Control System units.

(U) Acquisition Strategy: There are three (3) contracts within this Program Element; two cost plus fixed fee (CPFF) contracts for Theater Deployable Communications (TDC) Lightweight Multiband Satellite Terminals (LMST) and The Integrated Communication Access Packages (ICAP) that are Indefinite Delivery (ID) /Indefinite Quantity (IQ) plus a firm-fixed price contract for PACER SPEAK. All contracts within this Program Element were awarded after full open competition. (When restricted technologies are involved, foreign competition is not allowed.) All are contracts are ID/IQ and cost plus fixed fee (CPFF) type, and when it is deemed appropriate by Contracting Officer and Program Manager, award fee contract or firm-fixed price contracts are used.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207423F Advanced Communications Systems

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) 1997 PB President's Budget (97)	1,842	1,822	3,146	3,084
(U) Appropriated Value	1,934	1,822		
(U) Adjustments to Appropriated Value				
a. Congressional Reductions	(38)	(137)		
b. Small Business Innovative Research	(37)	(39)		
c. Omnibus and Other AboveThreshold Reprogramming	(18.3)			
d. Below Threshold Reprogramming	(1.2)			
e. Rescissions	(19)			
Adjustment to Budget Years Since FY 1998 President Budget			(180)	(189)
(U) FY 1998 President's Budget	1,821	1,646	2,966	2,895

(U) Change Summary Explanation:

Funding: FY 1998/9 reductions were in two categories: (1) One time Air Force Materiel Command (AFMC) reimbursement FY98/99 (149/155) respectively from MAJCOMs. and (2) corrective action personnel funding shortfall (FY98/99 $13/13) respectively.

Schedule: N/A

Technical: N/A

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207423F Advanced Communications Systems

(U) C. **Other Program Funding Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Other Procurement AF, Budget Activity 3, Weapon System Code 837100, PE 0207422F	0	0	0	0	0	0			0	51,182
Other Procurement AF, Budget Activity 3, Weapon System Code 837100, PE 0207423F	26,628	26,345	20,868	34,595	34,463	42,365	44,207	43,720	Cont.	TBD
(U) Other Procurement AF, Budget Activity 3, Weapon System Code 837290, PE 0207423F	0	0	0	0	0	0			0	8,478
(U) Aircraft Procurement AF, Budget Activity 5, Weapon System Code OTHACF, PE 0207423F	1,921	352	0	0	0	0			0	22,227
(U) Operations and Maintenance AF, PE 0207422F	1,078	1,845	2,502	3,309	4,437	5,644			Cont.	
(U) Operational and Maintenance AF PE 0207423F										TBD

Other Advanced Communication Systems Programs

- PACER SPEAK Operates the Air Force Air Request Net (AFARN), which is the principal means of communications through which theater forces plan, request, coordinate, and control immediate close air support (CAS), reconnaissance, and airlift requests. The AFARN is operated by the Tactical Air Control Parties (TACPs).
- HAVE QUICK Frequency-hopping UHF radio that provides jam-resistant voice and data communications.
- SINCGARS Secure, jam-resistant VHF frequency-hopping voice and data communications system that can be configured in ground and airborne modes.
- *Digital Communications Terminal (DCT) The DCT is used for message generation and transmission over the AFARN by land maneuver units.*

(U) D. **Schedule Profile**: See individual projects

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207423F Advanced Communications Systems

PROJECT: 1013

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
1013 Theater Deployable Communications (TDC)	1,605	1,450	2,766	2,674	2,760	2,801	3,091	3,162	Continuing	TBD

(U) **A. Mission Description and Budget Item Justification**

As clearly demonstrated during Desert Shield/Desert Storm (DS/DS), today's generation of deployable communications equipment is bulky, inflexible in design and does not meet today's projected airlift availability or interoperability standards. Air Force planning calls for initial communications assets to be in place prior to the arrival of flying forces. Deployment priorities for DS/DS did not allow timely arrival of communications assets. Funds for this program are to complete joint interoperability certification testing, begin development and implementation of integrated network management software, and to support field activities and conduct integration activities. This program will research COTS equipment that will either augment existing assets or replace tactical communications packages. The resulting Theater Deployable Communications (TDC) packages will reduce airlift requirements and be designed to support a wide range of operational scenarios during deployment/employment, expansion and sustaining operations. Communications packages will be used by theater air control, combat communications, and special operations units as well as deployed air wings and mobility forces worldwide.

(U) FY 1996 ($ in Thousands):

- (U) $421 Communications architecture planning.
- (U) $534 Development of automation tools.
- (U) $650 Support field interoperability and integration activities
- (U) $1,605 Total

(U) FY 1997 ($ in Thousands):

- (U) $356 Communications architecture planning.
- (U) $457 Development of automation tools
- (U) $637 Field interoperablity and integration activities
- (U) $1,450 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0207423F Advanced Communications Systems — PROJECT: 1013

(U) FY 1998 ($ in Thousands):
- (U) $475 Communications Architecture Planning
- (U) $570 Development of automation tools
- (U) $1,394 Continue Field Interoperability and Integration Activities
- (U) $327 Production Improvement and Interface Development
- (U) $2,766 Total

(U) FY 1999 ($ in Thousands):
- (U) $375 Communications Architecture Planning
- (U) $615 Development of automation tools
- (U) $1,271 Continue Field Interoperability and Integration Activities
- (U) $413 Production Improvement and Interface Development
- (U) $2,674 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) FY1997 President's Budget	1,606	1,622	3,146	3,084
(U) Appropriated Value	1,606	1,622		
(U) Adjustments to Appropriated Value				
a. Congressional Reductions		(133)		
b. Small Business Innovative Research		(39)		
c. Omnibus and Other Above Threshold Reprogramming	(1)			
(U) Adjustment to Budget Years Since FY 97 President Budget			(180)	(189)
(U) FY 1998 President's Budget	1,605	1,450	2,966	2,895

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207423F Advanced Communications Systems PROJECT 1013

(U) Change Summary Explanation:

Funding: N/A

Schedule: N/A

Technical: N/A

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Other Procurement AF, Budget Activity 3, Weapon System Code 837100, PE 0207422F	0	0	0	0	0	0			0	51,182
(U) Other Procurement AF, Budget Activity 3, Weapon System Code 837100, PE 0207423F	15,972	15,638	17,243	24,080	25,952	27,368	28,362	29,316	Cont.	TDB
(U) Operations and Maintenance AF, PE 0207422F	1,023	1,743	2,445	3,218	4,288	5,414	5,533	5,655	Cont.	TDB

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207423F Advanced Communications Systems PROJECT 1013

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1013 Theater Deployable Comm																
(U) Acquisition Milestones						II/III (LMST)										
(U) Contract Milestones																
(U) Production SATCOM Contract Award (Awarded AUG 95)				X												
(U) Production SATCOM Deliveries Start				X												
(U) Production Contract for Integrated Communication Access Packages (ICAP) Award (Awarded OCT 96)					X											
(U) Production of Integrated Communications Access Packages (ICAP) Deliveries Start								X								
(U) Integrated Net Mgt. Contract Award																
• Communication Architecture Planning																
• Development of Automation Tool																
(U) Test and Evaluation Milestones																
(U) Complete SATCOM (OT) (TBD)					X											
(U) Complete ICAP (OT)									X							

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207423F Advanced Communications Systems

PROJECT: 1013

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Software Support	534	457	902	786
(U) Engineering Support	404	356	400	294
(U) Integration Activities	580	580	1,394	1,524
(U) Travel	55	40	55	60
(U) Miscellaneous	32	17	15	10
(U) Total	1,605	1,450	2,766	2,674

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Performing Organizations: ESC/TG

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
				Theater Deployable Communications							
Product Development Organizations											
Support and Management Organizations											
MITRE	FFP	OCT 96	ESC/TGT	TDC	1713	1039	976	1849	1878	Cont	Cont
TEMS	FFP	Varies				566	474	917	796		
Test and Evaluation Organizations											
Air Force Test & Evaluation Command	TBD										

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE: February 1997
BUDGET ACTIVITY: 7 - Operational System Development				PE NUMBER AND TITLE: 0207423F Advanced Communications Systems						PROJECT: 1013
Government Furnished Property: Not Applicable										
Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Property										
N/A										
Support and Management Property										
N/A										
Test and Evaluation Property										
TBD										
Subtotal Product Development										
Subtotal Support and Management				1713	1605	1450	2766	2674	Cont	Cont
Subtotal Test and Evaluation										
Total Project				1713	1605	1450	2766	2674	Cont	Cont

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE: February 1997	
BUDGET ACTIVITY: 7 - Operational System Development				PE NUMBER AND TITLE: 0207423F Advanced Communications Systems						PROJECT: 2982
COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
2982 Anti-Jam Radio Communications	216	196	200	221	227	230	0	0	0	0

(U) A. **Mission Description and Budget Item Justification**

The fast paced development of new frequency hopping radio technologies by potentially hostile nations dictates that the U.S. maintains a technological lead. Ultra high frequency (UHF) frequency hopping voice radios are needed for jam resistant communications between tactical aircraft and airborne and ground control elements. The HAVE QUICK wave form used in these radios is the NATO standard for UHF anti-jam communications. The HAVE QUICK UHF radios provide the primary Air Force and DOD UHF Electronic Counter-Countermeasures (ECCM) voice communications. SINCGARS (Single Channel Ground and Airborne Radio System) provides anti jam,very high frequency (VHF) frequency hopping radios and data communications and is the primary means of ECCM communications between Air Force, Army, USMC aircraft and ground units involved in close air support and joint battlefield operations.

(U) FY 1996 ($ in Thousands):
- (U) $50 Continued software support for the HAVE QUICK II radios.
- (U) $106 Investigate improvements in anti-jam performance and other anti-jam techniques.
- (U) $60 Continue support of SINCGARS Phase II Qualification Testing and support platform integration analyses.
- (U) $216 Total

(U) FY 1997 ($ in Thousands):
- (U) $50 Continued software support for the HAVE QUICK II radios.
- (U) $96 Investigate improvements in anti-jam performance and other anti-jam techniques.
- (U) $50 Continue support of SINCGARS Phase II Qualification Testing and support platform integration analyses.
- (U) $196 Total

(U) FY 1998 ($ in Thousands):
- (U) $100 Investigate Improvements in Anti-Jam performance and other etc.
- (U) $50 Continue support of SINCGARS Phase II Qualification Testing
- (U) $50 SINCGARS data base upgrades
- (U) $200 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207423F Advanced Communications Systems
	PROJECT 2982

(U) FY 1999 ($ in Thousands):

- (U) $100 Investigate Improvements in Anti-Jam performance and other etc.
- (U) $50 Continue support of SINCGARS Phase II Qualification Testing
- (U) $71 SINCGARS data base upgrades
- (U) $221 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) FY1997 President's Budget	221	209	209	233
(U) Appropriated Value	221	200		
(U) Adjustments to Appropriated Value				
a. Congressional Reductions	(4)	(4)		
b. Small Business Innovative Research				
c.OMINIBUS and Other AboveThreshold Reprogramming	(1)			
(U) Adjustment to Budget Years Since FY97 President Budget.			(9)	(12)
(U) FY 1998 President's Budget	216	196	200	221

(U) Change Summary Explanation:

Funding: N/A

Schedule: N/A

Technical: N/A

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207423F Advanced Communications Systems

PROJECT: 2982

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Other Procurement AF, Budget Activity 3, Weapon System Code 837100, PE 0207423F	8,211	8,437	3,659	3,878	4,067	11,040	11,293	11,447	0	TBA
(U) Aircraft Procurement AF Budget Activity 5, Weapon System Code OTHACF, PE 0207423F	1,921	512	0	0	0	0			0	23,230

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Software Support Efforts	X				X											
(U) Platform Integration analyses		X				X										
(U) Contract Milestones																
(U) SINCGARS Production Option																

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207423F Advanced Communications Systems

PROJECT: 2982

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) a. Software Support	50	46	49	50
(U) b. Engineering Support	35	28	28	30
(U) c. Evaluation Analysis	72	77	73	78
(U) c. Test and Evaluation	30	20	25	25
(U) d. Travel	14	13	14	20
(U) e. R&D Centers Payments	0	0	0	0
(U) f. Miscellaneous	15	12	11	18
(U) Total	216	196	200	221

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Performing Organizations: ESC/TG

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
N/A											
Support and Management Organizations											
MITRE	FFP	OCT 96	ESC/TGT	Adv	108.5	137	125	126	133	Cont	Cont
TEMS	FFP	Varies		Coms Sys		79	71	74	88		
Test and Evaluation Organizations											
AFOTEC	TBD										

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207423F Advanced Communications Systems

PROJECT: 2982

Government Furnished Property: Not Applicable

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Property										
NA										
Support and Management Property										
N/A										
Test and Evaluation Property										
TBD										
Subtotal Product Development Subtotal Support and Management Subtotal Test and Evaluation				108.5	216	196	200	221	Cont	Cont
Total Project				108.5	216	196	200	221	Cont	Cont

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207431F Combat Air Intelligence System

PROJECT: 1004

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
1004 Pegasus	0	7,385	0	0	0	0	0	0	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) **Note:** The funding request for Project 1004 Pegasus for FY98 and later has been reprogrammed into PE 0207414F. Together with other funds from Pes 0604321F and 0305158, this was done to consolidate RDT&E funding in a single PE, for program clarity and reporting efficiency.

(U) **A. Mission Description and Budget Item Justification**

Combat Intelligence System (CIS) is the Air Force's single, standard automated intelligence system optimizing both component and unit-level intelligence functions to provide warfighters with the most accurate and timely intelligence data available. CIS is the core capability for automating the receipt, correlation, and dissemination of intelligence information to a variety of intelligence and operational systems which support combat planning and execution. As the intelligence segment to Theater Battle Management Core Systems (TBMCS), it provides an automated capability at the component and unit levels to rapidly receive and process all-source intelligence data to support Contingency Theater Automated Planning System (CTAPS). CIS builds and maintains in-theater situational awareness during deployment to the theater and provides indications and warning support after arrival. CIS provides the capability to receive all-source intelligence near-real-time from national, theater, tactical reconnaissance, and intelligence functions. CIS is electronically interpretable and compatible with other intelligence systems providing an integrated system capable of intelligence support to decision makers, battle planners, mission planners, and warfighter.

(U) Acquisition Strategy: Full and open competition has led to a cost plus award fee contract with Lockheed Martin Command and Control Systems to develop capabilities and integrate this system and software.

(U) FY 1997 ($ in Thousands):

- (U) $4,384 Continue software design of TBMCS version 1.0.
- (U) $1,724 Complete CIS version 1.2 development.
- (U) $1,277 Mission Support.
- (U) $7,385 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0207431F Combat Air Intelligence System — PROJECT: 1004

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	Total Cost
(U) FY97 President's Budget	0	7,749	TBD
(U) Appropriated Value	0	7,749	
(U) Adjustments to Appropriated Value			
a. Cong Reductions	0	-162	
b. Small Business Innovative Research	0	-202	
(U) FY 1998/1999 Biennial Budget	0	7,385	TBD

(U) Change Summary Explanation:

Funding: Air Force has moved these funds into PE 0207414F starting in FY98.

Schedule: Not Applicable

Technical: Not Applicable

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0207431F Combat Air Intelligence System — PROJECT: 1004

(U) C. **Other Program Funding Summary ($ in Thousands)**

	FY 96	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	To Compl	Total Cost
(U)RDT&E, PE 0604321F, Combat Intelligence System (CIS)	3,619	2,791	0	0	0	0	0	0	Cont	TBD
(U) Other Procurement, PE 0207431F, CAIS	3,597	4,293	5,487	4,886	6,666	5,189	4,813	4,829	Cont	TBD
(U) Other Procurement, PE 0207414F, Combat Intelligence System (Proc)	9,114	9,705	15,252	13,173	18,730	14,631	12,077	12,125	Cont	TBD
(U) O&M, PE 0207431, CAIS	10,826	3,479	3,330	3,353	4,326	5,371	5,488	5,615	Cont	TBD
(U) RDT&E, PE 0305158F, Const Source	1,989	1,954	0	0	0	0	0	0	Cont	TBD
(U) Other Procurement, PE 0305158F, Constant Source	968	1,951	0	0	0	0	0	0	0	2,919

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207431F Combat Air Intelligence System PROJECT 1004

(U) D. **Schedule Profile**

	FY 1997			
	1	2	3	4
(U) CIS 1.2 Release	X			
(U) TBMCS V1.0 Preliminary Design Review (PDR)	X			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207438F Theater Battle Management (TBM) C4I

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	27,403	32,766	24,013	35,341	24,972	13,141	13,896	14,356	Continuing	TBD
3330 Cmd Cntrl Info Process Sys (C2IPS)	5,531	5,469	4,764	22,102	12,333	2,376	2,374	2,477	Continuing	TBD
4287 Contingency Theater Automated Planning System (CTAPS)	18,425	23,970	12,886	9,222	8,765	6,847	11,522	11,879	Continuing	TBD
4288 Wing C2 System (WCCS)	3,447	3,327	6,363	4,017	3,874	3,918	0	0	0	31,778
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. **Mission Description and Budget Item Justification**

The Theater Battle Management Core Systems (TBMCS) develops force-level and wing-level command, control, and intelligence systems which utilize DoD's Global Command and Control System (GCCS) Defense Information Infrastructure (DII) common operating environment (COE). Acquisition of these systems will allow the execution of TBM planning, intelligence, and operational functions of the Joint Force Air Component Commander (JFACC), including the air tasking order (ATO). Projects included in this program are Command & Control Information Processing System (C2IPS), Contingency Theater Automated Planning System (CTAPS), and Wing Command & Control System (WCCS). Another project, Combat Intelligence System (CIS), is also part of the TBMCS, but RDT&E funds for CIS are programmed under PEs 0604321F, 0207431F, and 0305158F (FY97), and 0207414F (FY98+). The TBMCS program is in Budget Activity 7, Operational Systems Development, and is a Post Milestone III effort.

(U) **Acquisition Strategy:**

Electronic Systems Center (ESC), Hanscom AFB, MA will manage the overall TBMCS program (CTAPS, WCCS, CIS, and C2IPS). Lockheed-Martin Command and Control Systems (LMCCS) was competitively selected and is performing the TBMCS software integration and - when directed by the government - will develop individual applications consistent with the GCCS DII COE. C2IPS efforts will continue under the current prime contractor, Computer Sciences Corporation (CSC), through FY97. C2IPS migration into TBMCS will begin in FY98 using the TBMCS Integration & Development (I&D) contractor LMCCS.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207438F Theater Battle Management (TBM) C4I

(U) B. **Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY 1997 President's Budget	27,844	30,915	14,980	12,411	TBD
(U) Appropriated Value	29,813	34,415			
(U) Adjustments to Appropriated Value					
a. Congressional Reductions	-1,034	-827			
b. Small Business Innovative Research	-634	-822			
c. Rescissions	-742				
(U) Adjustments to Budget Years Since FY 1997 PB			+9,033	+22,930	
(U) FY 1998/1999 Biennial Budget	27,403	32,766	24,013	35,341	TBD

(U) Change Summary Explanation:

Funding: FY96: Appropriated Value includes a Congressional "increase of $5,000,000 [over FY96 PB request of $24,813 thousand] only for ... the capability to generate and automatically disseminate Air Tasking Orders." Rescissions for Bosnia/Jordanian F-16s ($718 thousand total) and Administrative/Personnel ($24 thousand).

FY97: Appropriated Value includes $3,500,000 increase "to support a 1998 completion date of version 1.0 of the TBMCS."

FY98: Funds added to C2IPS program and TBM fund realignment.

FY99: Funds added to integrate Combat Integration Capability into TBMCS; incorporate the new ATO format into C2IPS and WCCS; begin migrating C2IPS into TBMCS.

Schedule: See Individual Projects.

Technical: See Individual Projects.

(U) C. **Other Program Funding Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Other Procurement, AF (0207438F)	58,025	48,433	51,259	50,862	52,027	56,911	49,678	47,902	Cont	TBD
(U) Operations and Maintenance, AF (0207438F)	15,520	9,912	7,627	9,410	9,720	10,654	10,365	10,885	Cont	TBD
(U) Operations and Maintenance, AF (0207415F)	7,679	9,105	18,566	20,505	20,871	22,302	13,376	13,645	Cont	TBD

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) WCCS 1.2 Release						X										
(U) CTAPS Version 5.2 Release							X									
(U) TBMCS I&D Contract Award	X															
(U) TBMCS S/W Version 1.0																
(U) Preliminary Design Review					X											
(U) In-Plant Test											X					
(U) Version 1.0 Release												X				
(U) TBMCS S/W Version 2.0																
(U) Preliminary Design Review														X		
(U) In-Plant Test																⇒
(U) Version 2.0 Release																⇒

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207438F Theater Battle Management (TBM) C4I

PROJECT: 3330

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
3330 Cmd Cntrl Info Process Sys (C2IPS)	5,531	5,469	4,764	22,102	12,333	2,376	2,374	2,477	Continuing	TBD

(U) A. **Mission Description and Budget Item Justification**

The Command & Control Information Processing System (C2IPS) project develops communications and information processing hardware and software for all echelons of the Air Mobility Command (AMC). C2IPS provides AMC the capability to monitor in real-time the operational airlift and tanker functions associated with mission execution worldwide. The integration of C2IPS computer resources and software with improved High Frequency (HF) equipment and other available communications media will result in a unified AMC C2 System.

The C2IPS will be developed and installed in four increments. Increment 1 provided a digital data message handling capability at each Information Processing System (IPS) node and implements mission execution monitoring. Increment 2 builds on Increment 1 software to support mission planning and scheduling. Increment 3 will provide C2IPS with a client server architecture as part of the system migration efforts. Increment 4 completes the directed C2IPS efforts for the incremental development, and lays the foundation for the migration strategy that will merge features of C2IPS into TBMCS. This project is in Budget Category 7, Operational Systems Development and is a post-Milestone III effort.

(U) FY 1996 ($ in Thousands)

- (U) $ 1,956 Complete Increment 2 software development.
- (U) $ 3,189 Starts Increment 3 software development.
- (U) $ 386 Continue implementation of force- and unit-level migration strategies.
- **(U) $5,531 Total**

(U) FY 1997 ($ in Thousands)

- (U) $ 3,053 Complete Increment 2.0D software development
- (U) $ 325 Complete Increment 3 software development
- (U) $ 500 Start Increment 4 software development.
- (U) $ 1,336 Continue implementation of force- and unit-level migration strategies.
- (U) $ 255 Complete Operational Test & Evaluation (OT&E) force and unit level migration.
- **(U) $5,469 Total**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0207438F Theater Battle Management (TBM) C4I / PROJECT: 3330

(U) FY 1998 ($ in Thousands)
- (U) $ 2,582 Increment 4 software development
- (U) $ 2,182 Continue implementation of force- and unit-level migration strategies
- **(U) $4,764 Total**

(U) FY 1999 ($ in Thousands)
- (U) $19,986 Theater Battle Management migration
- (U) $ 2,116 Continue implementation of force- and unit-level migration strategies
- **(U) $22,102 Total**

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY 1997 President's Budget	5,701	5,779	0	0	TBD
(U) Appropriated Value	5,701	5,779			
(U) Adjustments to Appropriated Value					
a. Congressional Reductions		-172			
b. Small Business Innovative Research		-138			
c. Rescissions	-170				
(U) Adjustments to Budget Years Since FY 1997 PB			+4,764	+22,102	
(U) FY 1998/1999 Biennial	5,531	5,469	4,764	22,102	TBD

(U) Change Summary Explanation:

Funding: FY96: Rescissions include a distributed amount of reductions for Bosnia/Jordanian F-16s.
FY98 and 99 funds are realigned from project 4288.

Schedule: N/A

Technical: N/A

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I
	PROJECT 3330

(U) C. **Other Program Funding Summary ($ in Thousands)** - Not Applicable.

(U) D. **Schedule Profile**

	FY 1996				FY 1997				FY1998				FY1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Increment 2.0C																
(U) Test Readiness Review (TRR)		X														
(U) Development Test & Evaluation (DT&E)			X													
(U) Increment 2.0D																
(U) TRR	X															
(U) DT&E							X									
(U) Operational Test & Evaluation (OT&E)								X								
(U) Increment 3																
(U) System Requirement Review (SSR)				X												
(U) PDR/CDR					X											
(U) TRR						X										
(U) DT&E									X							
(U) Increment 4																
(U) SSR									X							
(U) PDR										X						
(U) TRR											X					
(U) DT&E												X				

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207438F Theater Battle Management (TBM) C4I

PROJECT: 3330

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Major Product Development Contracts	3,024	3,614	2,582	19,986
(U) Support Contracts	1,861	1,394	1,754	1,582
(U) Program Management Support	646	461	428	534
(U) Total	**5,531**	**5,469**	**4,764**	**22,102**

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
CSC	C/FFIP/FP	Dec 88	n/a	n/a	4,106	3,024	3,614	2,582	19,986	Cont.	TBD
Support and Management Organizations											
MITRE	SS/T&M	Oct 94	n/a	n/a	1,471	1,431	1,148	1,508	1,336	Cont.	TBD
TEMS	Various	Various	n/a	n/a	230	430	246	246	246	Cont.	TBD
ESC	n/a	n/a	n/a	n/a	824	646	461	428	534	Cont.	TBD

Test and Evaluation Organizations - Not Applicable.

Government Furnished Property: Not Applicable

Subtotal Product Development					4,106	3,024	3,614	2,582	19,986	Cont.	TBD
Subtotal Support and Management					2,525	2,507	1,855	2,182	2,116	Cont.	TBD
Subtotal Test and Evaluation											
Total Project					**6,631**	**5,531**	**5,469**	**4,764**	**22,102**	**Cont.**	**TBD**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207438F Theater Battle Management (TBM) C4I

PROJECT: 4287

COST (*$ In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4287 Contingency Theater Automated Planning System (CTAPS)	18,425	23,970	12,886	9,222	8,765	6,847	11,522	11,879	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The Contingency Theater Automated Planning System (CTAPS) program directly supports the Joint Forces Air Component Commander (JFACC) in the planning and execution of the theater air campaign down to the unit level. The system is designed to an open system standard, promoting interoperability among USAF, Services, and Allied command and control systems. The air tasking order generation and dissemination capabilities of CTAPS are the standard for all DoD command and control systems. The program utilizes an evolutionary acquisition strategy that accommodates changes in user requirements and improvements in commercial technology through a series of planned incremental software releases. On-going efforts are migrating the current system to Global Command and Control System (GCCS) Defense Information Infrastructure (DII) common operating environment (COE), ensuring compatibility, interoperability, and commonality among services

(U) FY 1996 ($ in Thousands)

- (U) $ 3,000 Complete and field CTAPS software version 5.2.
- (U) $ 5,425 Continue version planning process, design and development for TBMCS software version 1.0, and initiate full Ops/Intel interoperability.
- (U) $ 500 Continue development and testing for a Battlefield Situational Awareness capability.
- (U) $ 2,200 Continue Air Support Operations Center (ASOC) software development and complete engineering and manufacturing development effort.
- (U) $ 215 Complete Rome Lab development of the Advanced Planning System (Transitioned to I&D Contractor).
- (U) $ 5,000 Initiate Air Battle Planning and Architecture modifications to support the new Air Tasking Order (ATO) format.
- (U) $ 775 Initiate Air Battle Operations and execution modifications to support the new ATO format.
- (U) $ 1,310 Systems engineering and support.
- **(U) $18,425 Total**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997	
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I	PROJECT 4287

(U) FY 1997 ($ in Thousands)
- (U) $17,120 Complete version planning process, continue design/development of TBMCS version 1.0, and the full Ops/Intel interoperability.
- (U) $ 1,300 Complete ASOC software development.
- (U) $ 3,500 Continue Air Battle Planning and Architecture modifications to support the new Air Tasking Order (ATO) format.
- (U) $ 1,000 Initiate version planning and design for TBMCS Version 2.
- (U) $ 1,050 Systems engineering and support.
- **(U) $23,970 Total**

(U) FY 1998 ($ in Thousands):
- (U) $ 9,593 Complete TBMCS software version 1.0 development and initiate TBMCS software version 2.0 development.
- (U) $ 1,293 System engineering and support.
- (U) $ 2,000 Integrate Combat Integration Capability (CIC) into TBMCS.
- **(U) $12,886 Total**

(U) FY 1999 ($ in Thousands):
- (U) $ 6,862 Continue TBMCS software version 2.0 development and initiate TBMCS software version 3.0 planning and design.
- (U) $ 1,360 System engineering and support.
- (U) $ 1,000 Continue integration efforts of CIC into TBMCS.
- **(U) $9,222 Total**

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY 1997 President's Budget	18,555	21,634	11,231	8,500	TBD
(U) Appropriated Value	20,524	25,134			
(U) Adjustments to Appropriated Value					
a. Congressional Reductions	-1,034	-563			
b. Small Business Innovative Research	-634	-601			
c. Rescissions	-431				
(U) Adjustments to Budget Years Since FY 1997 PB			+1,655	+722	
(U) FY 1998/1999 Biennial Budget	18,425	23,970	12,886	9,222	TBD

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I
	PROJECT 4287

(U) Change Summary Explanation:

Funding: FY96: In addition to cuts taken to pay for Congressionally mandated reductions, rescissions include a distributed amount of reductions for Bosnia/Jordanian F-16s and Administrative/Personnel reductions.
FY97: Appropriated Value includes $3,500,000 increase "to support a 1998 completion date of version 1.0 of the TBMCS."
FY98: Funds added integrate Combat Integration Capability (CIC) into TBMCS.
FY99: Funds added to continue to integrate CIC into TBMCS.

Schedule: Not Applicable.

Technical: FY 98/99: Add Combat Integration Capability (CIC) within TBMCS.

(U) C. **Other Program Funding Summary ($ in Thousands)** - Please see Program Summary above.

(U) D. **Schedule Profile** - Please see Program Summary above.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207438F Theater Battle Management (TBM) C4I

PROJECT: 4287

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) System Integration and Development	17,115	22,920	11,593	7,862
(U) System Engineering	380	400	618	640
(U) TEMS	200	400	400	400
(U) SPO Support	730	250	275	320
(U) Total	**18,425**	**23,970**	**12,886**	**9,222**

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
LMCCS	C/CPAF/PR	Oct 95	n/a	n/a	1,169	10,640	21,620	11,593	7,862	Cont.	TBD
SAIC (S/W INT) Hampton VA	C/CPFF/FCA	Mar 94	n/a	n/a	11,085	3,000	0	0	0	0	14,085
SAIC (ASOC/BSD) Hampton VA, Anchorage AK	C/CPFF/FCA	Feb 94	n/a	n/a	3,759	1,800	1,300	0	0	0	6,859
PARAMAX (APS) St Paul MN	C/CPFF/FCA	Mar 94	n/a	n/a	1,207	0	0	0	0	0	1,207
INEL (ASOC) Idaho Falls ID	C/CPFF/FCA	Oct 94	n/a	n/a	1,243	900	0	0	0	0	2,143
Miscellaneous	Various	Various	n/a	n/a	410	775	0	0	0	Cont.	TBD

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207438F Theater Battle Management (TBM) C4I

PROJECT: 4287

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Support and Management Organizations											
MITRE	SS/T&M	Oct 94	n/a	n/a	5,237	380	400	618	640	Cont.	TBD
TEMS	C/T&M	Various	n/a	n/a	1,430	200	400	400	400	Cont.	TBD
Miscellaneous	Various	Various	n/a	n/a	2,137	730	250	275	320	Cont.	TBD
Test and Evaluation Organizations - Not Applicable											
Government Furnished Property: Not Applicable											
Subtotal Product Development					18,873	17,115	22,920	11,593	7,862	Cont.	TBD
Subtotal Support and Management					8,804	1,310	1,050	1,293	1,365	Cont.	TBD
Subtotal Test and Evaluation					0	0	0	0	0	Cont.	TBD
Total Project					**27,677**	**18,425**	**23,970**	**12,886**	**9,222**	**Cont.**	**TBD**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE February 1997	
BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I						PROJECT 4288
COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4288 Wing C2 System (WCCS)	3,447	3,327	6,363	4,017	3,874	3,918	0	0	0	31,778

(U) A. Mission Description and Budget Item Justification

This project includes development of mission critical application software for WCCS operating on commercially available hardware and system software. Wing commanders require an accurate, composite picture of their wing's total resources to effectively command, control, and manage their forces in support of their combat sortie generation and reporting responsibilities. Key functional areas (operations, maintenance, mission planning, intelligence, weather, etc.) use WCCS to support the wing commander in the mission execution and reporting process by exchanging critical command and control and intelligence information with functional counterparts located throughout the wing. The introduction of increasingly sophisticated weapon systems - with their need for and ability to produce large amounts of data - require an automated C2 system to bring meaningful, consolidated information to the Commander in near real-time. Today, this information is relayed over secure and unsecured telephones, radios, and other communications devices, as well as by runners to update multi-user status displays (grease boards) or hand written logs. These techniques have not changed substantially since World War II, and are cumbersome, error-prone, are subject to security compromise, and involve duplication of effort. Disparate programs have led to the proliferation of stovepipe systems which can not provide interoperability and do not adequately meet the needs of today's air operations. The WCCS program will design, develop, and install an automated, standard wing-level C2 system that will be tailored to meet unique organizational requirements, provide interoperability, and reduce training and maintenance costs. This is in Budget Activity 7, Operational Systems Development. This program is a post-Milestone III effort.

(U) FY 1996 ($ in Thousands):

- (U) $ 2,436 Initiate version planning process, design and development for TBMCS software version 1.0.
  - (U) Continue graphical user interface standardization.
  - (U) Continue Decision Support System (DSS) Module.
  - (U) Initiate Scheduler.
  - (U) Continue first phase of security enhancement implementation.
  - (U) Continue unit/force level integration.
- (U) $ 1,011 System engineering and support.
- **(U) $3,447 Total**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I
	PROJECT 4288

(U) FY 1997 ($ in Thousands):
- (U) $ 2,067 Continue design and development of TBMCS software version 1.0.
  - (U) Complete scheduler.
  - (U) Phase II Decision Support System (DDS) Module.
  - (U) Continue first phase of security enhancement implementation.
  - (U) Include/modify unit/force level interfaces (Air Force Mission Support System (AFMSS), Automated Weather Distribution System (AWDS), Base Recovery Control System (BRCS), and Combat Ammunition System-Base (CAS-B).
  - (U) P3I efforts.
  - (U) Continue force/unit level migration.
- (U) $ 500 Initiate TBMCS software version 2.0 version planning and design.
- (U) $ 760 System engineering and support.
- **(U) $3,327 Total**

(U) FY 1998 ($ in Thousands):
- (U) $2,614 Development work to incorporate new ATO format into WCCS.
- (U) $2,759 Continue TBMCS software version 1.0 development and initiate TBMCS software version 2.0 development.
- (U) $ 990 System engineering and support.
- **(U) $6,363 Total**

(U) FY 1999 ($ in Thousands):
- (U) $3,067 Continue TBMCS software version 2.0 development; initiate planning and design for TBMCS software version 3.0.
- (U) $1,950 System engineering and support.
- **(U) $4,017 Total**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I PROJECT 4288

(U) B. **Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY 1997 President's Budget	3,588	3,502	3,749	3,911	TBD
(U) Appropriated Value	3,588	3,502			
(U) Adjustments to Appropriated Value					
a. Congressional Reductions		-92			
b. Small Business Innovative Research		-83			
c. Rescissions	-141				
(U) Adjustments to Budget Years Since FY 1997 PB			+2,614	+106	
(U) FY 1998/1999 Biennial Budget	3,447	3,327	6,363	4,017	TBD

(U) Change Summary Explanation:

Funding: FY96: Rescissions include a distributed amount of reductions for Bosnia/Jordanian F-16s.
FY98 and FY99: Funds added to integrate the new Air Tasking Order (ATO) into WCCS.

Schedule: N/A

Technical: FY 98 and 99: Add new format ATO capability.

(U) C. **Other Program Funding Summary ($ in Thousands)** - Please see Program Summary above.

(U) D. **Schedule Profile** - Please see Program Summary above.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I PROJECT 4288

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) System Integration and Development	2,436	2,567	5,373	3,067
(U) System Engineering	344	400	470	440
(U) TEMS	220	200	280	280
(U) SPO Support	447	160	240	230
(U) Total	**3,447**	**3,327**	**6,363**	**4,017**

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
LMCCS	C/CPAF/PR	Oct 95	n/a	n/a	50	2,436	2,567	5,373	3,067	Cont.	TBD
SAIC	C/CPFF/FCA	Jan 94	n/a	n/a	5,000	0	0	0	0	0	5,000
Support and Management Organizations											
MITRE	SS/T&M	Oct 94	n/a	n/a	750	344	425	470	440	Cont.	TBD
Miscellaneous	Various	Various	n/a	n/a	904	642	335	520	510	Cont.	TBD

Test and Evaluation Organizations - Not Applicable

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I					PROJECT 4288	
Government Furnished Property:										
Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Property										
Local Purchase	Various	Various	Various	128	25	0	0	0	Cont.	TBD
Support and Management Property - Not Applicable										
Test and Evaluation Property - Not Applicable										
Subtotal Product Development				5,178	2,461	2,592	5,373	3,067	Cont.	TBD
Subtotal Support and Management				1,654	986	735	990	950	Cont.	TBD
Subtotal Test and Evaluation				0	0	0	0	0	Cont.	TBD
Total Project				**6,832**	**3,447**	**3,327**	**6,363**	**4,017**	**Cont.**	**TBD**

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207581F Joint STARS

PROJECT: 0003

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
0003 JSTARS	0	0	119,189	84,458	77,269	57,253	46,933	37,742	Continuing	3,388,100
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description and Budget Item Justification

Note: Joint STARS funds for FY98 and subsequent years have been transferred to PE 0207581F from PE 0604770F. Program funding for the years through FY97 is reported under PE 0604770F. Total cost shown above, also reported in the Dec 96 Selected Acquisition Report (SAR), is for FY82-03. RDT&E funds will still be required after FY03 for system upgrades and follow-on testing.

This program is in Budget Activity 7 - Operational System Development, Research Category 6.6. There is an Air Force and Army need to provide, from airborne platforms, near-real time surveillance and targeting information on moving and stationary ground targets (growth to maritime operations), slow moving rotary and fixed wing aircraft, and rotating antennas. This information would enable operational and tactical commanders to make and execute battle decisions. To meet these needs, the Air Force and Army initiated the Joint Surveillance Target Attack Radar System (Joint STARS) program with the Air Force as lead service. Joint STARS will be capable of providing target information for pairing direct attack aircraft and standoff weapons against selected targets. The system will be capable of being cued by other reconnaissance, surveillance, and target acquisition systems; able to respond rapidly to worldwide contingencies; and provide surveillance and attack information in all light and near-all-weather conditions. The operational utility of the system was effectively demonstrated by the outstanding performance of two developmental aircraft in support of combat operations during Desert Storm. In Dec 1995 two developmental aircraft (one E-8A and one E-8C) were deployed in support of Operation Joint Endeavor in Bosnia. At a Defense Acquisition Board (DAB) Milestone III Review on 17 Sep 96, Full Rate Production of 19 aircraft was approved. In Nov 1996 two E-8Cs were deployed in support of Operation Joint Endeavor. This time the first production aircraft and the test aircraft were deployed.

(U) FY 1996 ($ in Thousands): (Reported under PE 0604770F)

(U) FY 1997 ($ in Thousands): (Reported under PE 0604770F)

(U) FY 1998 ($ in Thousands):

- (U) 3,720 Complete E-8C follow-on development and testing program
- (U) 16,699 Continue Support Systems and Crew Trainer Development
- (U) 25,932 Continue SDS, MSIP and E-8C FOTS
- (U) 15,738 Continue GFE, program support, test, and other miscellaneous efforts
- (U) 57,100 Continue Life Cycle Cost Reduction Initiatives
- (U) 119,189 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0207581F Joint STARS — PROJECT: 0003

(U) FY 1999 ($ in Thousands):

- (U) 7,936 Continue Support Systems and Crew Trainer Development
- (U) 27,214 Continue SDS, MSIP and E-8C FOTS
- (U) 17,008 Continue GFE, program support, test, and other miscellaneous efforts
- (U) 32,300 Continue Life Cycle Cost Reduction Initiatives
- (U) 84,458 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY 1997 President's Budget			206,358	64,803	3,402,000*
(U) Appropriated Value					
(U) Adjustments to Appropriated Value					
a. General Congressional Reductions					
b. Small Business Innovative Research					
c. Omnibus, Other Above Threshold Reprogramming					
d. Below Threshold Reprogramming					
e. Rescissions					
f. NATO Alliance Ground Surveillance (AGS) Prog.					
(U) Adjustments to Budget Since FY 1997 PB			(87,169)	19,655	
(U) FY 1998 President's Budget			119,189	84,458	3,388,100
(U) Change Summary Explanation					

* As reported in the Dec 95 SAR

Funding: FY98: Adjustment reflects decreases for FY96 and prior execution and realigned Air Force priorities, and increase to fund Life Cycle Cost Reduction Initiatives.

FY99: Increase to fund Life Cycle Cost Reduction Initiatives.

Schedule: The FY98 President's Budget contains funding for one E-8C in FY98 and two in FY99, a change from the March 96 report which showed procurement of two E-8Cs in FY98 and one in FY99.

Technical:

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207581F Joint STARS

PROJECT: 0003

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Aircraft Procurement (BP 10)	467,816	536,866	336,391	671,268	593,702	517,974	407,583	36,448		5,438,638
(U) Quantities	2	2	1	2	2	2	2	0	0	19
(U) Modifications (BP 11)				72,854						72,854
(U) Initial Spares (BP 16)	68,753	0	35,139	95,188	65,311	52,740	36,133	27,817	14,665	494,951

Note: Procurement began with 2 aircraft in FY93, 2 in FY94, and 2 in FY95. Total cost figures include procurement funds starting in FY92.
NATO Alliance Ground Surveillance (AGS) funds are reported under PE A1001018F, NATO JSTARS.

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) MOT&E Start	X															
(U) First SDS Installation (Group A)		X														
(U) Depot Support Date			X													
(U) First Trng Squadron Ready for Trng				X												
(U) Required Assets Availability (RAA)						X										
(U) MOT&E Complete				X												
(U) Production Aircraft Deliveries			X*		X			X		X		X	X		X	
(U) Software Support Facility Delivery				X												
(U) Milestone III				X												
(U) Full Rate Production Contract Award							X									
(U) Organic Support Capability								X								
(U) IOC								X								
(U) Mature Reliability												X				
(U) Follow-On OT&E Start																X

* First production aircraft delivery to ACC

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207581F Joint STARS PROJECT 0003

NOTE: Joint STARS RDT&E funds for FY98 and out have been transferred from PE 0604770F to PE 0207581F. Funds reported here are in PE 0207581F. Joint STARS RDT&E funds through FY97 are reported under PE 0604770F.

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Product Development			83,572	43,197
(U) Support and Management			6,852	5,950
(U) Test and Evaluation			28,765	35,311
(U) Total			119,189	84,458

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
GMSD* F19628-90-C-0197	SS/CPIF	Nov 90	14,074	14,074				14,074			14,074
Other Misc Studies	Various	Various	3,400	3,400						3,400	3,400
Flt Crew Sim Dual and Assoc. F33657-93-C-0046	SS/CPAF/FFP	May 94	4,635	4,635				3,699	936		4,635
MSIP Blk2 Upgr	TBD	Various	132,099	132,099				52,613	35,035	44,451	132,099
Interop Certif Cap GMSD	SS/CPIF	Dec 96	20,000	20,000				13,000	7,000		20,000

* Grumman Melbourne Systems Division

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207581F Joint STARS

PROJECT: 0003

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Support and Management Organizations											
MITRE F19628-85-C-0001		Ongoing						200			200
Other Spt & Mgt								6,652	5,950	18,200	30,802
Test and Evaluation Organizations											
3246 Test Wing Eglin AFB Range Spt - PO	PO							1,100	2,810	8,800	12,710
E-8C FOTS GMSD	SS/FFP/CPFF	Aug 96	154,188	154,188				20,065	24,479	109,644	154,188
JTF Support	Allotment							7,530	7,942	34,422	49,894
Other Test Spt		Ongoing						70	80	280	430
Product Development Property											
JTIDS		Ongoing						186	226		412
Support and Management Property											
Test and Evaluation Property											
Subtotal Product Development								83,572	43,197	47,851	174,620
Subtotal Support and Management								6,852	5,950	18,200	31,002
Subtotal Test and Evaluation								28,765	35,311	153,146	217,222
Total Project								119,189	84,458	219,197	422,844

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207590F Seek Eagle

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	13,654	15,075	17,716	19,146	24,066	21,856	20,228	19,544	Continuing	Continuing
2784 Armament Standardization/Control/Munitions Material Handling Equipment	1,152	1,125	1,150	1,202	1,235	1,264	1,301	1,341	Continuing	Continuing
4037 SEEK EAGLE Certification	12,502	13,950	16,566	17,944	22,831	20,592	18,927	18,203	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. **Mission Description and Budget Item Justification**

The Air Force has a variety of combat aircraft and numerous stores (munitions, missiles, fuel tanks, electronic countermeasures pods, etc.). Aircraft carry these stores in countless different loading combinations determined by operational scenarios, missions, and tactics. Loading configurations change as operational plans and tactics change, and as new aircraft and stores are developed. Before operational use, the Air Force must certify these configurations for safe loading, carriage, and separation (jettison and normal release), and must verify ballistics accuracy under the user-certified carriage and employment parameters. The Air Force SEEK EAGLE program completes these certifications through any combination of ground and flight testing, wind tunnel testing, and engineering analysis. Over 700 aircraft-store combinations exist to be certified, with new ones added on a regular basis. Depending upon the complexity, certification takes from months to years. The SEEK EAGLE program is also responsible for insertion of new and emerging technologies into the SEEK EAGLE process and providing resources for sustainment of a viable Air Force aircraft-store certification capability. Electronic Technical Orders (TO's) are developed through the Combat Weapons Delivery Software (CWDS). The Armament Standardization/Control/Munitions Material Handling Equipment (MMHE), Project 2784, satisfies several USAF and Tri-service requirements for standardization of armament and support equipment and eliminates unnecessary duplication of MMHE. The RDT&E Research Category/Budget Activity is Operational Systems Development because the PE supports fielded systems.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207590F Seek Eagle

(U) **B. Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	17,390	15,469	16,102	19,353	Continuing
(U) Appropriated Value	17,390	15,469			
(U) Adjustments to Appropriated Value					
a. Congressional General Reductions	-341	-370			
b. SBIR	-27	-24			
c. Omnibus or Other Above Threshold Reprogram	-178				
d. Below Threshold Reprogramming	-3,083				
e. Recissions	-107				
(U) Adjustments to Budget Years Since FY 1997 PB			1,614	-207	
(U) Current Budget Submit/FY98 PB	13,654	15,075	17,716	19,146	Continuing

(U) Change Summary Explanation:

Funding: FY96 reductions were for Congressional General Reductions, SBIR, reprogramming for F-16s for Jordan, and support for Bosnia operations. FY98 PB increases are required for certification of new weapons (JDAM, JSOW, WCMD, JASSM & AIM-9X).

Schedule: N/A

Technical: N/A

(U) **C. Other Program Funding Summary ($ in Thousands)**

Appropriation:

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Missile Procurement	0	8,024	1,112	10,618	8,206	8,538	10,515	8,674	Cont.	Cont.
(U) Procurement of Ammunition, AF	5,874		4,112			1,880				

(U) **D. Schedule Profile**

SEEK EAGLE program does not execute in accordance with established acquisition program milestones. Each aircraft-store configuration requested by the user goes through the SEEK EAGLE process by the designated user priority.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207590F Seek Eagle		PROJECT 2784

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
2784 Armament Standardization/Control/Munitions Material Handling Equipment	1,152	1,125	1,150	1,202	1,235	1,264	1,301	1,341	Continuing	Continuing
Quantity of RDT&E Articles										

(U) **A. Mission Description and Budget Item Justification**

Armament Standardization/Control/Munitions Handling Equipment (MMHE): This continuing project develops and improves the standardization and commonality of improved munitions handling and armament equipment to preclude duplication and proliferation. This project's efforts are limited to the study, design and development of MMHE and armament control systems. Any Procurement will be performed and funded by the applicable weapons system project. (Funding for Project 2784 for FY96 and beyond is transferred to PE 27590F, SEEK EAGLE from PE 64602F, Armament/Ordnance Development.)

(U) FY 1996 ($ in Thousands):

- (U) $ 252 Initiate/continue/complete design/development of various MMHE projects, including completing design of the B-2 Bomb Rack Assembly Cross-load Adapter, GBU Fin Rack, B-1 Nuclear Ram Assembly, and completing testing of the B-1B Preloading Adapter, F-22 Pylon Adapter, and T-Bar Adapter.
- (U) $ 500 Continue design and manufacture of the Robotic Advanced Technology Demonstrator
- (U) $ 150 Continue the design of MHU-110 Trailer Upgrades
- (U) $ 250 Continue design/prototype B-1/B-52/B-2 Rotary Launcher Load Adapter and B-52H Pylon Load Adapter
- (U) $ 1,152 Total

(U) FY 1997 ($ in Thousands):

- (U) $ 450 Initiate/continue/complete design/development of various MMHE projects, including new development technology, Locally Manufactured Munitions Equipment (LMME), and completing design of the Rocket and Computer Control Group (CCG) Modules, 40-Foot Trailer Trolleys, Flare Rack, B-52 Air Launched Cruise Missile (ALCM) Pylon Adapter, and testing GBU Fin Rack, B-1 Nuclear Ram Assembly, and 40-Foot Trailer Rails.
- (U) $ 150 Complete design/prototype MHU-110 Trailer upgrades
- (U) $ 475 Complete construction and initiate evaluation of the Robotic Advanced Technology Demonstrator (ATD)
- (U) $ 50 Complete testing of B-1/B-52/B-2 Rotary Launcher Load Adapter
- (U) $ 1,125 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207590F Seek Eagle
	PROJECT 2784

(U) FY 1998 ($ in Thousands):

- (U) $ 550 Initiate/continue/complete design/development of various MMHE projects, including new development technology, LMME and testing of Rocket and CCG Modules, Flare Rack, B-1 Nuclear Ram and ALCM Pylon adapter
- (U) $ 300 Complete evaluation of Advanced Technology Demonstrator
- (U) $ 150 Complete test/development of MHU-110 Trailer Upgrades
- (U) $ 150 Complete design and prototype WUC Ram Assembly
- (U) $ 1,150 Total

(U) FY 1999 ($ in Thousands):

- (U) $ 627 Initiate/continue/complete design/development of various MMHE projects, including new development technology and LMME
- (U) $ 150 Complete development of Rocket and CCG Modules, Flare Rack, and ALCM Pylon Adapter
- (U) $ 75 Complete development of B-1B nuclear Ram
- (U) $ 350 Initiate EMD Next Generation Bomb Lift Truck
- (U) $ 1,202 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	1,175	1,181	1,154	1,208	Cont.
(U) Appropriated Value	1,175	1,181			
(U) Adjustments to Appropriated Value					
a. Congressional General Reductions	-23	-32			
b. SBIR		-24			
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
e. Rescissions					
(U) Adjustments to Budget Years Since FY 1997 PB			-4	-6	
(U) Current Budget Submit/FY98 PB	1,152	1,125	1,150	1,202	Cont.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207590F Seek Eagle
	PROJECT 2784

(U) B. Program Change Summary ($ in Thousands) (Continued)

(U) Change Summary Explanation:

Funding: FY96 reductions were for general Congressional Reductions. FY97/FY99 changes were from inflation adjustments.

Schedule: N/A

Technical: N/A

(U) C. Other Program Funding Summary ($ in Thousands)

Related Activities: These is no other unnecessary duplication of effort within the Air Force or Department of Defense.

(U) D. Schedule Profile: Not Applicable

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207590F Seek Eagle	PROJECT 2784

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Various MMHE Projects	252	450	550	977
(U) Robotics ATD	500	475	300	
(U) MHU-110 Trailer Upgrade	150	150	150	
(U) Rotary Launcher/Pylon Loading Adapters	250	50		
(U) RAM Assembly			150	75
(U) Rocket, Computer Control Group, and Flare Modules				150
(U) Total	1,152	1,125	1,150	1,202

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE: February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0207590F Seek Eagle		PROJECT: 2784

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Dept of Energy/ NASA	T&M	Oct 96			0	500	475	300	350	Continuing	Continuing
Support and Management Organizations											
TEAS/TEAMS	CP	Oct 96	Continuing	Continuing	0	377	369	536	534	Continuing	Continuing
AFDTC/FM	CP	Oct 96	Continuing	Continuing	0	130	130	130	130	Continuing	Continuing
646 SUPS/LGS	CP	Cont.	Continuing	Continuing	0	13	13	20	20		
WL/MN	CP	Cont.	Continuing	Continuing	0	100	100	130	130		
Other	CP	Oct 96	Continuing	Continuing	0	12	18	14	18	Continuing	Continuing
Test and Evaluation Organizations											
46th Test Wing			Continuing	Continuing	0	20	20	20	20	Continuing	Continuing
Government Furnished Property: Not Applicable											
Subtotal Product Development					0	500	475	300	350		
Subtotal Support and Management					0	632	630	830	832		
Subtotal Test and Evaluation					0	20	20	20	20		
Total Project					0	1,152	1,125	1,150	1,202	Cont	Cont

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE February 1997	
BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0207590F Seek Eagle						PROJECT 4037
COST *($ In Thousands)*	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4037 SEEK EAGLE Certification	12,502	13,950	16,566	17,944	22,831	20,592	18,927	18,203	Continuing	Continuing
Quantity of RDT&E Articles										

(U) A. Mission Description and Budget Item Justification

Air Force aircraft carry a variety of combat stores (munitions, missiles, fuel tanks, electronic countermeasures, pods, etc.) in countless different loading combinations determined by operational scenarios, missions, and tactics. Loading configurations change based on operational plans and tactics, and as new aircraft and stores are developed. Before operational use, the Air Force must certify these configurations for safe loading, carriage, and separation (jettison and normal release), and must verify ballistics accuracy under the user-specified carriage and employment parameters. The SEEK EAGLE program completes these certifications through any combination of ground and flight testing, wind tunnel testing, and engineering analysis. More than 700 aircraft-store configurations exist to be certified, with new ones added on a regular basis. Certification may take months to years to complete because of the diversity and interaction among systems being tested. The SEEK EAGLE program is also responsible for insertion of new and emerging technologies into the SEEK EAGLE process and providing resources to sustain a viable Air Force aircraft/store certification capability. Electronic Technical Orders (TO's) are developed through the Combat Weapons Delivery Software (CWDS).

(U) FY 1996 ($ in Thousands):
- (U) $ 185 Complete certification of F-16 C/D Block 50/52D and AGM-88 B/C (4 HARM)
- (U) $ 1,140 Initiate aircraft load/separation modeling capability using Applied Computational Fluid Dynamics (ACFD).
- (U) $ 10,677 Initiate/continue/complete various aircraft-store certification on fighter and bomber aircraft
- (U) $ 2,200 Initiate/continue/develop/complete various automated Technical Orders/mission planning tools using Combat Weapons Delivery Software (CWDS)
- (U) $ 1,300 Initiate certification of F-15 A/B/C/D/E, F-16 and AMRAAM P3I.
- (U) $ 15,502 Total

(U) FY 1997 ($ in Thousands):
- (U) $ 231 Initiate/design/develop F-22 models to use for follow-on certification
- (U) $ 1,682 Continue/complete aircraft load/separation prediction capability using Applied Computational Fluid Dynamics (ACFD)
- (U) $ 10,237 Initiate/continue/complete aircraft-store certification on fighter and bomber aircraft
- (U) $ 1,800 Initiate/continue/develop/complete various automated Technical Orders/mission planning tools using CWDS
- (U) $ 13,950 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207590F Seek Eagle PROJECT 4037

(U) FY 1998 ($ in Thousands):
- (U) $ 1,244 Initiate/continue/develop F-22 models to use for follow-on certification
- (U) $ 1,789 Continue/complete aircraft load/separation prediction capability using Applied Computational Fluid Dynamics (ACFD)
- (U) $ 1,641 Initiate/continue/develop/complete various automated Technical Orders/mission planning tools using CWDS
- (U) $ 11,892 Initiate/continue/complete aircraft-store certification on fighter and bomber aircraft
- (U) $ 16,566 Total

(U) FY 1999 ($ in Thousands):
- (U) $ 2,014 Initiate/continue/develop F-22 models to use for follow-on certification
- (U) $ 1,647 Initiate/continue/develop/complete various automated Technical Orders/mission planning tools using CWDS
- (U) $ 1,932 Continue/complete aircraft load/separation prediction capability using Applied Computational Fluid Dynamics (ACFD)
- (U) $ 12,351 Initiate/continue/complete aircraft-store certification on fighter and bomber aircraft
- (U) $ 17,944 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	16,215	14,288	14,948	18,145	Continuing
(U) Appropriated Value	16,215	14,288			
(U) Adjustments to Appropriated Value					
a. Congressional General Reductions	-317	-338			
b. SBIR	-27				
c. Omnibus or Other Above Threshold Reprogram	-178				
d. Below Threshold Reprogramming	-3,084				
e. Rescissions	-107				
(U) Adjustments to Budget Years Since FY 1997 PB			1,618	-201	
(U) Current Budget Submit/FY98 PB	12,502	13,950	16,566	17,944	Continuing

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207590F Seek Eagle PROJECT 4037

(U) B. Program Change Summary ($ in Thousands) (continued)

(U) Change Summary Explanation:

Funding: FY96 reductions were for Congressional General Reductions, SBIR, reprogramming for F-16s to Jordan, and support for Bosnia operations. FY98 increase is required for certification of new weapons (JDA, JSOW, WCMD, JASSM & AIM-9X).

Schedule: N/A

Technical: N/A

(U) C. Other Program Funding Summary ($ in Thousands)

Appropriation:

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Missile Procurement	0	8,024	1,112	10,618	8,206	8,538	10,515	8,674	Continuing	TBD
Procurement of Ammunition	5,874		4,112			1,880				

(U) D. Schedule Profile

The SEEK EAGLE program does not execute in accordance with established acquisition program milestones. Each aircraft-store configuration requested by the user goes through SEEK EAGLE process by the designated user priority.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207590F Seek Eagle	PROJECT 4037

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Process Sustainment	1,100	1,657	2,065	2,562
(U) Engineering Analysis	2,010	2,650	2,900	3,100
(U) Flight Testing	4,435	4,562	5,935	6,596
(U) Wind Tunnel Testing	1,642	1,660	2,497	2,430
(U) Other	2,242	1,800	1,641	1,647
- Ballistic/ Safe Escape Analysis				
- Tech Order/P.C. Floppy Disk				
- Loading Process Development/Verification				
(U) Mission Support	1,073	1,621	1,528	1,609
(U) Total	13,502	13,950	16,566	17,944

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0207590F Seek Eagle PROJECT 4037

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations	N/A										
Support and Management Organizations											
Mission Support	PO/REO	Continuous		Continuous	6,094	1,073	1,621	1,528	1,609	Continuing	Cont
Test and Evaluation Organizations											
46th Test Wing	PO/REO	Continuous		Continuous	61,098	4,985	5,130	5,478	6,409	Continuing	Cont
		Continuous		Continuous	8,941	1,692	2,219	3,006	3,006	Continuing	Cont
		Continuous		Continuous	26,643	4,752	4,980	6,554	6,920	Continuing	Cont
Government Furnished Property:	Not Applicable										
Subtotal Product Development					N/A						
Subtotal Support and Management					6,094	1,073	1,621	1,528	1,609	Continuing	Cont
Subtotal Test and Evaluation					96,682	11,429	12,329	15,038	16,335	Continuing	Cont
Total Project					102,776	12,502	13,950	16,566	17,944	Continuing	Cont

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 EXHIBIT)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0208006F Mission Planning Systems

PROJECT: Project

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Air Force Mission Support System (AFMSS)	19,067	17,635	16,526	17,434	17,487	17,755	18,052	18,433	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) The Mission Planning System program was established in 1990 to consolidate mission planning system development efforts into a single unit-level mission planning system. This program maintains and preserves combat capability on old existing "legacy" planning systems which will migrate into a USAF wide standard mission planning system known as the Air Force Mission Support System (AFMSS). AFMSS acquisition strategy leverages military and commercial software integrated on Commercial-Off-The-Shelf (COTS) hardware. AFMSS encompasses evolutionary software and hardware development in an open systems architecture with planned annual software releases. AFMSS is the single unit-level mission planning system supporting all current/future aircraft and associated weapons: A/OA-10, F-15, F-16, F-22, EF-111, F-117, JSTARS, AWACS, ABCCC, U-2, AGM-130/GBU-15, JSSAM, JDAM, JSOW, B-1, B-2, B-52, KC-10, KC/EC/RC-135, C-5, C-17, C-141, MH/AH-6, MH-47, MH-53, MH-60, C/AC/EC/MC-130 and Tier II+/Tier III- Unmanned Aerial Vehicles (UAVs). AFMSS is currently being used operationally by six USAF aircraft and will be fielded to other aircraft as their software becomes available. It is also in daily use by the US Special Operations Command (USSOCOM).

(U) Mission Planning Systems is budget activity 7, Operational System Development, because the program currently supports deployed AFMSS systems, which include transportables, non-deployable, and portable laptop workstations. AFMSS Block C1.5 software is operationally fielded to the Combat Air Forces (CAF). The AFMSS Block C2.0 software release is completing developmental testing in preparation for OT&E in the 2nd quarter of FY97. AFMSS Block C2.1, which merges USSOCOM and USAF requirements into one common software baseline is currently in final development for release in the 3rd quarter of FY97. The AFMSS C2.0/2.1 MPS hardware suite, placed on contract for delivery in FY97, incorporates new technology that reduces the number of transportable cases from 15 to six, reducing world-wide deployment requirements for operational squadrons.

(U) The AFMSS program is managed by the Directorate for Mission Planning Systems, Electronic Systems Center, Hanscom AFB, Massachusetts. Contractor for the AFMSS project is Sanders, a Lockheed Martin Company, Nashua, New Hampshire. In-house (Government) work is performed by Oklahoma City-Air Logistics Center (OC-ALC), Tinker AFB, Oklahoma; Sacramento Air Logistics Center (SM-ALC), McClellan AFB, Sacramento, California; Warner Robins Air Logistics Center, (WR-ALC), Warner Robins AFB, Georgia; and Ogden Air Logistics Center (OO-ALC), Hill AFB, Utah.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0208006F Mission Planning Systems
	PROJECT Project

(U) FY 1996

--	(U) $14,969	AFMSS Block C2.0/C2.1 software development continued.
--	(U) $ 992	The next AFMSS software release, C2.2, underwent requirements generation and analysis.
--	(U) $ 1,368	Began AFMSS/PC rearchitecture Global Command and Control System (GCCS) migration study effort.
--	(U) $ 1,738	Continued AFMSS A/W/E support/integration to A/OA-10, F-15, F-16, F-22, EF-111, F-117, JSTARS, AWACS, ABCCC, AGM-130/GBU-15, JDAM, JSOW, B-1, B-2, B-52, KC-10, KC/EC/RC-135, C-5, C-17, C-141, MH/AH-6, MH-47, MH-53, MH-60, U-2, and C/AC/EC/MC-130, WCMD, and SR-71.
--	(U) $19,067	Total

(U) FY 1997

--	(U) $11,970	Finalize additional C2.0/C2.1 software requirements development.
--	(U) $ 3,050	Begin C2.2 software development.
--	(U) $ 1,785	Continue AFMSS A/W/E support/integration to A/OA-10, F-15, F-16, F-22, EF-111, F-117, JSTARS, AWACS, ABCCC, AGM-130/GBU-15, JDAM, JSOW, B-1, B-2, B-52, KC-10, KC/EC/RC-135, C-5, C-17, C-141, MH/AH-6, MH-47, MH-53, MH-60, U-2, and C/AC/EC/MC-130, WCMD, and SR-71.
--	(U) $ 830	Continue AFMSS/PC rearchitecture (GCCS) migration study effort.
--	(U) $17,635	Total

(U) FY 1998

--	(U $12,601	Continue C2.2 software development.
--	(U) $ 2,555	Begin AFMSS/PC rearchitecture (GCCS) migration effort.
--	(U) $ 1,370	Continue AFMSS A/W/E support/integration to A/OA-10, F-15, F-16, F-22, EF-111, F-117, JSTARS, AWACS, ABCCC, AGM-130/GBU-15, JDAM, JSOW, B-1, B-2, B-52, KC-10, KC/EC/RC-135, C-5, C-17, C-141, MH/AH-6, MH-47, MH-53, MH-60, U-2, and C/AC/EC/MC-130, WCMD, and SR-71.
--	(U) $16,526	Total

(U) FY 1999

--	(U) $ 1,740	Continue and finalize C2.2 development with release scheduled for 1st quarter.
--	(U) $14,324	Continue AFMSS / PC re-architecture GCCS migration

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0208006F Mission Planning Systems
	PROJECT: Project

-- (U) $ 1,370 Continue AFMSS A/W/E support/integration to A/OA-10, F-15, F-16, F-22, EF-111, F-117, JSTARS, AWACS, ABCCC, AGM-130/GBU-15, JDAM, JSOW, B-1, B-2, B-52, KC-10, KC/EC/RC-135, C-5, C-17, C-141, MH/AH-6, MH-47, MH-53, MH-60, U-2, and C/AC/EC/MC-130, WCMD, and SR-71.

-- (U) $17,434 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY 1997 President's Budget	19,068	18,500	17,129	18,118	TBD
(U) Appropriated Value	20,585	18,500			
(U) Adjustments to Appropriated Value					
a. General Congressional Reductions	-209	-423			
b. Small Business Innovative Research (SBIR)	-439	-442			
c. Below Threshold Reprogramming	-77				
d. Rescissions	-793				
(U) Adjustments to Budget Years Since FY97 PB			-603	-684	
(U) FY 1998 Presidentís Budget	19,067	17,635	16,526	17,434	TBD

(U) Change Summary Explanation:

(U) Schedule: The C2.0/C2.1 software releases have been rescheduled for delivery to the field in middle/late FY97 following developmental and operational testing to verify fixes to operational deficiencies.

(U) Technical: AFMSS C1.5 software update release to C1.0 is operationally fielded. Other aircraft and weapons will integrate with AFMSS once C2.0/C2.1 is available.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0208006F Mission Planning Systems
	PROJECT Project

(U) C. **Other Program Funding Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Other Procurement, Air Force, PE 0208006F	17,513	18,245	16,428	16,365	16,460	16,571	16,645	16,698	Cont	TBD
(U) Operations & Maintenance, Air Force 0208006F	20,874	25,187	23,716	23,380	25,079	29,990	25,351	27,749	Cont	TBD

(U) O&M funds for PE 28006F support the software and hardware maintenance costs of AFMSS and CMPS. These funds also support the maintenance of the following existing operational systems until replaced by AFMSS. Mission Support System II (MSS IIA) supports existing combat capability for the F-15 and F-16 aircraft mission planning (F/RF-4 and F-111 are now retired). Mission Data Preparation System (MDPS) supports conventional and nuclear mission planning, aircraft/weapons avionics loading, compatibility between evolving B-1B, B-52H avionics, their weapons systems, and USSTRATCOM. O&M funding supported approximately 240 older systems in FY94. By FY99, a similar amount of funding will support over 1500 mission planning systems world-wide.

(U) There are no other related RDT&E activities for unit level mission planning in the USAF. Over 40 individual aircraft and weapons programs develop their respective software that is used in conjunction with the AFMSS core software. The aircraft and weapons software is a complimentary, synergistic effort that provides specific aircraft and weapons information and functionality to the core AFMSS software. The combined software gives the warfighter the full spectrum of mission planning and combat capabilities for their aircraft or weapon including interoperability with planned Theater Battle Management (TBM) systems.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0208006F Mission Planning Systems PROJECT Project

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) AFMSS Block C Workstation Deliveries	X	X				X	X	X	X	X	X	X				
(U) Block C1.5 Cleared for Operational Use				X												
(U) AFMSS Block C1.0 OT&E	X*															
(U) AFMSS Block C2.0/C2.1 Development	X	X	X	X												
(U) AFMSS Block C2.0/C2.1 Engineering Software Releases / FQT	X			X*												
(U) AFMSS Block C2.0 Early Operational Assesment				X												
(U) AFMSS Block C2.0 Software Release					X											
(U) AFMSS Block C2.1 Software Release						X										
(U) AFMSS Portable Deliveries					X	X	X	X	X	X	X	X	X	X	X	X
(U) AFMSS Block C2.0 OT&E begin						X										
(U) AFMSS Block C2.2 Software Development						X	X	X	X							
(U) AFMSS Block C2.2 Engineering Software Releases / FQT									X							
(U) AFMSS Block C2.2 Software Release										X						
(U) CMPS Software Delivery						X										
* - completion																
(U) AFMSS / PC Migration and Rearchitecture GCCS Effort								X	X	X	X	X	X	X	X	X

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0208006F Mission Planning Systems	PROJECT Project

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Primary Software Development	13,495	12,087	11,269	12,199
(U) Aircraft/Weapons/Electronics (A/W/E) Development Suuport	1,222	1,201	1,110	1,110
(U) Systems Engineering	2,559	2,554	2,424	2,496
(U) Program Management	1,029	969	917	873
(U) Miscellaneous	762	824	836	756
(U) Total	19,067	17,635	16,556	17,434

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0208006F Mission Planning Systems	PROJECT Project

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Lockheed Martin	FFP	Apr 91	2,702	2,702	2,702	0	0	0	0	0	2,702
Lockheed Martin	CPAF	Dec 92	167,939	167,939	56,774	17,057	13,288	12,349	13,309	55,161	167,939
Logicon	CPAF	Aug 94	2,438	2,438	2,438	0	0	0	0	0	2,438
Boeing	FFP		6,455	6,455	6,455	0	0	0	0	0	6,455
Miscellaneous					2,892	0	0	0	0	0	2,892
ESC					14,534	762	824	836	756	3,024	20,736
Support and Management Organizations											
FFRDC					6,947	219	2,554	2,424	2,496	10,050	24,471
Miscellaneous					4,095	1,029	969	917	873	3,492	10,346
Test and Evaluation Organizations											
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

(U) B. Budget Acquisition History and Planning Information Continued ($ in Thousands)

Subtotal Product Development	85,795	17,819	14,112	13,185	14,065	58,185	203,161
Subtotal Support and Management	11,042	1,248	3,523	3,341	3,369	13,542	36,065
Total Project	96,837	19,067	17,635	16,526	17,434	71,727	239,226

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0208060F Theater Missile Defense

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	24,059	30,585	29,182	31,682	30,330	33,319	28,301	25,120	TBD	Continuing
4478 Command, Control, Communications, Computers, and Intelligence Enhancements	12,167	21,860	21,162	23,588	21,749	24,150	17,838	14,026	TBD	Continuing
4479 Attack Operations Concept Development	11,892	8,725	8,020	8,094	8,581	9,169	10,463	10,951	TBD	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description and Budget Item Justification

Air Force Theater Missile Defense (TMD) is focused in three areas: Command, Control, Communications, Computers, and Intelligence (C4I) enhancements; Improvements to existing Attack Operations systems; and the development of the Airborne Laser. PE028060F is primarily concerned with C4I and Attack Operations as part of the Air Force focus in TMD, but also addresses some initial BMC4I studies and analysis for the Airborne Laser (ABL) technology program. AF TMD concentrates on defining improvements to existing operational capabilities, developing and evaluating prototypes, demonstrating as well as simulating modifications during operational concept demonstrations, and coordinating the transition of these capabilities to operational systems. C4I improvements contribute greatly to the overall effectiveness of TMD systems developed by each of the Services and the Ballistic Missile Defense Organization (Patriot, THAAD, etc.). C4I enhancements improve our ability to assess, target, plan and task attackers to counter Theater Missile (TM) threats. The C4I program encompasses JTIDS TMD Upgrades (including, for example, TMD Message Set Integration and JTIDS Range Extension), Distributed Battle Management, Operations Decision Tools (Time Critical Target Aid (TCTA), Defensive Planning Module (DPM), and Attack Operations Decision Aid (AODA)), Intel Support Systems (Intel Support Concept and Real Time Intel Tools) and integration of these systems within the Air Force and among the Services. Attack Operations focuses on improving the ability to locate, identify, target and destroy theater missiles and supporting infrastructure, including theater missile threats in production, deployment, prior to and during launch, as well as soon after launch before critical mobile targets are able to egress to hide locations. The foundation for Attack Operations is improved C4I and automatic target cueing/recognition (ATC/R) upgrades to one or more airborne platforms (Joint STARS, F-15E, Rivet Joint, U-2). The Air Force program is based upon taking our defense against the growing theater missile threat to the enemy by making near-term modifications to existing theater assets. The TMD program seeks to improve existing operational capability, evaluate and demonstrate prototypes, as well as simulate and demonstrate modifications during operational concept demonstrations.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0208060F Theater Missile Defense

(U) **Acquisition Strategy:** HQ ASC provides the program management for the concept exploration of TMD Attack Operations. ASC conducts lab demonstrations with Wright Labs and support Concept of Operations (CONOPS) development and requirements definition by analyzing and demonstrating measures of effectiveness for various sensor improvements and cueing schemes. HQ ESC provides program management for the concept exploration of C4I enhancements. Prototypes and analysis of improvements to existing C4I assets will complement the Attack Operations effort with combined participation in Operational Concept Demonstrations. These Attack Operations and C4I analyses and demonstrations are specifically targeted against operational deficiencies identified in the TMD Mission Area Plan (MAP), are traceable to the AF and JROC Mission Need Statement (MNS) and are consistent with the Air Force and Joint TMD CONOPS and in accordance with Joint Doctrine. Integration of TMD requirements and fielding of proposed material solutions will continue beyond concept exploration in the appropriate program element for a particular system. For example, the TMD demonstration and requirements analysis for F-15E ATC/R may transition into a F-15E Engineering & Manufacturing Development (EMD) and P3I project within the F-15E program element. Existing contracts will be used for those systems where engineering change proposals are appropriate. Systems Engineering and Technical Analysis (SETA) contracts will be used to support the requirements definition phase of TMD improvements. In those areas where new material solutions are necessary to correct a deficiency, the source selection process will be followed to establish a new contract.

(U) **B. Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	24230	22285	45134	45713	TBD
(U) Appropriated Value	25102	31285			TBD
(U) Adjustments to Appropriated Value					
a. Congressional General Reductions	-679	-700			
b. Small Business Innovative Research (SBIR)					
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming	-17				
e. Rescissions	-347				
(U) Adjustments to Budget Years Since FY 1997 PB		+9000	-15952	-14031	
(U) Current Budget Submit/FY 1997 President's Budget	24059	30585	29182	31682	TBD

(U) Change Summary Explanation:

Funding: FY97 plus-up for UH-1N Simulator integration into the TACCSF simulation environment. Changes in FY98 and FY99 were due to deletion of Link-16 integration in the F-15E, deletion of the Active Defense Decision Aid (ADDA), and deletion of an early airborne prototype for Distributed Battle Management (DBM). These programs were deleted to fund higher priority AF programs.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0208060F Theater Missile Defense

Schedule: The deletion of Link-16 integration in the F-15E from this PE will delay implementation of a datalink capability in air to ground aircraft until the planned integration under the F-15E program (after FY00). An Airborne Distributed Battle Management prototype will be delayed until FY00/01, when DBM is integrated into Theater Air Control System (TACS) C2 nodes.

Technical: N/A

(U) C. **Other Program Funding Summary ($ in Thousands):** N/A

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0208060F Theater Missile Defense

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) ATC/R Demos (F-15E/Surveillance)							X	X			X					X
(U) TPS-75 Expert Missile Tracker Prototypes/Contingency Support Systems								X								
(U) TACCSF				X				X								
(U) Intel Support Systems: ISC updates; Syria, Iran, and Iraq, and automation of country studies				X				X				X				X
(U) TMD TACS systems requirements (JTIDS message upgrades, decision aids & planning tools)			X				X				X					X
(U) Ops Concept Demonstrations			X				X				X				X	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0208060F Theater Missile Defense

PROJECT: 4478

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4478 Command, Control, Communications, Computers, and Intelligence Enhancements	12,167	21,860	21,162	23,588	21,749	24,150	17,838	14,026	TBD	Continuing

(U) A. **Mission Description and Budget Item Justification**

C4I enhancements are needed to reduce the battle management and command & control timelines associated with the theater missile threat. The C4I program includes:

1) Operations and maintenance of the Theater Air Command and Control Simulation Facility (TACCSF);

2) Procurement of four MCE/TPS-75 prototypes with expert missile tracker (EMT) and correlator capability;

3) Intel Support Systems which include the development and revision of the Intel Support Concept (ISC), digitization of the country studies and development of processes and tools for automated application of TMD Intelligence Preparation of the Battlespace (IPB);

4) JTIDS TMD upgrades which are the development and integration of TMD messages into JTIDS host platforms and the extension of JTIDS beyond line of sight;

5) Operations Decision Support Tools which include the integration of the Time Critical Target Aid into TBM Core Systems (TBMCS) architecture, the development and migration of the Defensive Planning Module into TBMCS, and initiating the development of the Attack Operations Decision Aid.

6) Distributed Battle Management concept, which enhances the forward execution capabilities of the TACS to counter the short timeline of time critical targets. This includes the development, integration and test of the DBM capability on an airborne platform. The program will leverage off the capabilities of the current ground Combat Integration Capability (CIC) program which integrates and fuses various intelligence and surveillance feeds to provide the Joint Force Commander (JFC)/Joint Force Air Component Commander (JFACC) with an effective battle management capability.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0208060F Theater Missile Defense
	PROJECT 4478

(U) FY 1996 ($ in Thousands):

- (U) $5200 Continued support for Theater Air Command and Control Simulation Facility (TACCSF) operations for C4I simulation and analysis
- (U) $3817 *Continued missile tracker prototype acquisition for MCE/TPS-75*
- (U) $650 Intel Support Systems--Developed processes and tools for automatic production of digitized TMD Intel Prep of the Battlefield (IPB) information.
- (U) $2500 TMD JTIDS message integration into CRC, Rivet Joint, and Cobra Ball; JTIDS Range Extension concept implementation; Development of TCTA and Defensive Planning Module (DPM) and began design for Theater Battle Management Core Systems (TBMCS) integration; started Distributed Battle Management (DBM) analysis and design.
- (U) $12,167 Total

(U) FY 1997 ($ in Thousands):

- (U) $14900 Complete TACCSF operations support for C4I simulation and analysis; begin incorporation of simulator link to UH-1N SOF simulator.
- (U) $3000 Complete MCE/TPS-75 missile tracker and correlator capability with final delivery.
- (U) $1300 Intel Support Systems - Update Intelligence Support Concept (ISC); Complete development of tool for automatic application of digitized TMD IPB information and transition into Theater Battle Management Core Systems (TBMCS).
- (U) $2660 JTIDS TMD message integration into JSTARS, ABCCC and AOC; Complete JTIDS Range Extension performance and cost analysis; Continue development of TCTA (DIS compatible) and DPM V1.0 and transition to TBMCS; Complete DBM trade and analysis/platform impacts and CONOPS validation; Investigate procedures and advanced technology for Attack Operations Decision Aid (AODA).
- (U) $21,860 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0208060F Theater Missile Defense
	PROJECT 4478

(U) FY 1998 ($ in Thousands):

- (U) $2717 Integrate IPB Tool and release with TBMCS; Adapt IPB tool for Air Intelligence Agency's Virtual Production environment; Demonstrate automated procedures and system capabilities in Ops Concept Demonstrations, CINC experiments and Joint Exercises.
- (U) $11045 Continue to integrate JTIDS TMD message sets into JTIDS host platforms; Begin JTIDS Range Extension implementation; Establish Airborne DBM development environment and DBM unique prototyping/technology development.
- (U) $7400 Integrate DPM V2.0 and TCTA (ground targeting) and release with TBMCS; Begin AODA prototype/technology development. Explore use of promising planning tools, C2 decision aids, communication and computer processing improvements, sensor fusion technology and sensor upgrade impacts to BMC4I Theater Missile Defense connectivity.
- (U) $21,162 Total

(U) FY 1999 ($ in Thousands):

- (U) $4350 Continue to adapt the IPB tool for Air Intelligence Agency's Virtual Production environment; Demonstrate improved automated procedures and IPB system capabilities in Ops Concept Demonstrations (OCDs), CINC experiments and Joint Exercises.
- (U) $8860 JTIDS/Link-16 Integration: Complete integration of JTIDS/Link-16 TMD message sets onto major C2 nodes; Continue JTIDS Range Extension implementation.
- (U) $10378 Operations Decision Support Tools - Upgrade DPM (deployment planner), continue to explore BMC4I/sensor improvements that compress Theater Missile engagement timelines and demonstrate integrated capabilities in OCDs, CINC experiments, and Joint Exercises. Begin DBM platform upgrades: battle management, target nomination and communication improvements; Complete AODA prototype/technology development and design for CIC integration.
- (U) $23,588 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0208060F Theater Missile Defense	PROJECT 4478

(U) B. **Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	12059	13374	26713	27086	TBD
(U) Appropriated Value	12590	13374			TBD
(U) Adjustments to Appropriated Value					
a. Congressional General Reductions	-304	-514			
b. Small Business Innovative Research (SBIR)					
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
e. Rescissions	-119				
(U) Adjustments to Budget Years Since FY 1997 PB		+9000	-5551	-3498	
(U) Current Budget Submit/98 PB	12167	21860	21162	23588	TBD

(U) Change Summary Explanation:

Funding: FY97 plus-up for integration of UH-1N Simulator into the TACCSF simulation environment. Changes in FY98 and FY99 were due to deletion of Active Defense Decision Aid (ADDA), and deletion of an early airborne prototype for Distributed Battle Management (DBM). These programs were deleted to fund higher priority AF programs.

Schedule: An airborne Distributed Battle Management prototype will be delayed until FY00/01, when DBM is integrated into Theater Battle Management Core Systems (TBMCS).

Technical: N/A

(U) C. **Other Program Funding Summary ($ in Thousands): N/A**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0208060F Theater Missile Defense PROJECT 4478

(U) D. Schedule Profile: See page 3.

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) TPS-75 Expert Missile Tracker Prototypes/Contingency Support Systems								X	X							
(U) TACCSF				X				X								
(U) Intel Support Systems: ISC updates; Syria, Iran, and Iraq, and automation of country studies				X				X				X				X
(U) TMD TACS systems requirements (JTIDS message upgrades, decision aids & planning tools)			X				X				X				X	

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0208060F Theater Missile Defense

PROJECT: 4478

(U) A. Project Cost Breakdown ($0 in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) TACCSF	5100	14900	0	0
(U) Intelligence Support Systems (ISC/Automated IPB)	650	1300	2717	4350
(U) MCE/TPS-75 Missile Tracking System	3709	3000	0	0
(U) JTIDS/Link-16 Integration & Beyond LOS Capability	1000	520	8645	8860
(U) Distributed Battle Management (DBM)	1100	300	2400	6378
(U) Operations Decision Support Tools (planning tools, decision aids, C4I processing and sensor fusion technologies)	608	1840	7400	4000
(U) Total	12,167	21,860	21,162	23,588

(U) B. Budget Acquisition History and Planning Information ($0 in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Martin Marietta (TACCSF)	FFP	Oct 95		ACCDRA	9100	4700	14900	0	0	TBD	28,700
North/Grumman (TPS-75)	FFP	Oct 95		ESC/AVT		2069	2142	0	0	TBD	4,211
Zeltech/SPARTA PSR/BETAC (IPB)	T&M	May 96		ACC/INX	500	837	830	2294	3693	TBD	8,154
Logicon (DBM)	T&M	May 96		ESC/XRS		1131	0	2038	5397	TBD	8,566
Alphatech (DPM)	T&M	Mar 95		ESC/XRS		500	840	3736	849	TBD	5,925
Motorola (TCTA)	T&M	Mar 96		ESC/XRS		500	885	849	0	TBD	2,234

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0208060F Theater Missile Defense

PROJECT: 4478

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
North/Grm (MSI)	T&M	Nov 96		ESC/JSX	0	0	170	1189	425	TBD	1,784
AODA-For Profit Contractor	TBD	Oct 97		ESC/XRS	0	0		1698	2547	TBD	
Lock/Mart (MSI)	T&M	Mar 97		ESC/XRS			50	0	0	TBD	50
MASC	TBD	Nov 96		ESC/XRS	0	0	200	0	0	TBD	200
JRE-For Profit Contractor	TBD	Oct 97		ESC/XRS	0	0	0	6151	7098	TBD	
Support and Management Organizations											
FFRDC					1605	1395	975	1784	1992	TBD	7,751
Non-FFRDC					1935	1035	534	892	996	TBD	5,392
HQ ESC					2251	0	334	531	591	TBD	3,707
Test and Evaluation Organizations											
TBD											
Total Project					15391	12167	21860	21162	23588	TBD	TBD

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0208060F Theater Missile Defense

PROJECT: 4479

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4479 Attack Operations Concept Development	11,892	8,725	8,020	8,094	8,581	9,169	10,463	10,951	TBD	Continuing

(U) A. **Mission Description and Budget Item Justification**

Improvements in Attack Operations are based on the ability to locate, identify, and destroy theater missiles, their launchers, and associated infrastructure on the ground. In addition to the enhancements to C4I, the Attack Operations Project focuses on advanced sensor and target identification capabilities, CONOPS and requirements development for TMD offensive counter-air and their optimized integration with defensive systems. Specific technologies such as automatic target cueing/recognition (ATC/R) and moving target indicator/track (MTI/T) upgrades to Joint STARS, F-15E and potentially the U-2, F-16 and UAVs are to be analyzed using constructive analysis and evaluated through Technology/Operational Concept Demonstrations and CINC Experiments along with command and control connectivity upgrades critical to their optimum employment against time-critical targets. Effectiveness and affordability parameters defined will be used in support of follow on acquisition decisions involving P3I upgrades to existing weapon systems and potential new start programs within existing/other program elements.

(U) FY 1996 ($ in Thousands):

- (U) $495 Prototype analysis of surveillance ATC/R demonstration.
- (U) $895 Conducted Operational Concept Demonstration with participation in CINC experiments.
- (U) $2604 Continued requirements definition and analysis of sensor prototypes and Attack Operations improvements
- (U) $3013 Conducted definition studies and analysis on Airborne Laser
- (U) $4885 F-15E ATC/R demonstration.
- (U) $11,892 Total

(U) FY 1997 ($ in Thousands):

- (U) $1190 Conduct demonstration of surveillance ATR prototype.
- (U) $3367 Conduct Attack Operations Operational Concept Demonstration.
- (U) $1528 Continue analysis of architectures with weapon system upgrades, improved model fidelity and threat scenarios.
- (U) $2640 Conduct demonstration of F-15E ATC/R prototype.
- (U) $8,725 Total

(U) FY 1998 ($ in Thousands):

- (U) $2468 Conduct Attack Operations Operational Concept Demonstration.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0208060F Theater Missile Defense / PROJECT: 4479

- (U) $1650 Continue analysis of architectures with weapon system and BMC4I upgrades, incorporate model and threat scenario upgrades and perform engagement analyses for input to future year mission analysis.
- (U) $3902 Conduct development of F-15E ATC/R prototype integrated with improved on/off-board sensor fusion.
- (U) $8,020 Total

(U) FY 1999 ($ in Thousands):
- (U) $2458 Conduct Attack Operations Operational Concept Demonstration.
- (U) $1755 Continue analysis of updated architectures with weapon system and BMC4I upgrades, incorporate obscured targets and weapon effects and perform engagement analyses for input to future year mission analysis.
- (U) $3881 Conduct demonstration of F-15E ATC/R prototype with sensor fusion.
- (U) $8,094 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	12171	8911	18421	18627	TBD
(U) Appropriated Value	12512	8911			TBD
(U) Adjustments to Appropriated Value					
a. Congressional General Reductions	-375	-186			
b. SBIR					
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming	-17				
e. Recissions	-228				
(U) Adjustments to Budget Years Since FY 1997 PB			-10401	-10533	
(U) Current Budget Submit/98 PB	11892	8725	8020	8094	TBD

(U) Change Summary Explanation:

Funding: Change in FY97 due to payment of Air Force Bills. Changes in FY98 and FY99 were due to deletion of Link-16 integration in the F-15E.

Schedule: The deletion of Link-16 integration in the F-15E from this PE will delay implementation of a datalink capability in air to ground aircraft until the planned integration under the F-15E program (after FY00).

Technical: N/A

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0208060F Theater Missile Defense
	PROJECT 4479

(U) D. **Schedule Profile:**

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) ATC/R Demos (F-15E/Surveillance)							X	X			X					X
(U) Ops Concept Demonstrations			X				X				X				X	

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0208060F Theater Missile Defense

PROJECT: 4479

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Definition Studies/Analysis Airborne Laser	3013	0	0	0
(U) Joint STARS ATC/R Demonstration/Improvements	495	1190	0	0
(U) Operational Concept Demonstration	895	3367	2468	2458
(U) Sensor Prototypes and Attack Ops Demonstrations/Sims	2604	1528	1650	1755
(U) F-15E ATC/R Demonstrations	4885	2640	3902	3881
(U) Total	11,892	8,725	8020	8094

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Boeing	F3361594C1 436	Aug 94		HQ/ASC	772	0	0	0	0	781	781
Boeing	F3361585C1 765	30 May 86		HQ/ASC	890	0	0	0	0	890	890
Geometric	F3361594C1 441	Mar 95		HQ/ASC	65	0	0	0	0	TBD	TBD
Hughes-FD	F3361594D1 420000004	Mar 95		HQ/ASC	1234	1565	350	3006	1665	TBD	TBD
Norden	F3361592C1 045	Sep 94		HQ/ASC	540	0	0	0	0	TBD	TBD

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0208060F Theater Missile Defense

PROJECT: 4479

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Veda	F3361594D1 4000006	Feb 95		HQ/ASC	200	400	0	0	0	TBD	TBD
Lincoln Lab	AF FM 616	Mar 95		HQ/ASC	100	0	0	0	0	100	100
Sverdrup	F3361594C1 425	Mar 95		HQ/ASC	565	35	0	0	0	TBD	TBD
HSC/AL	AF FM 616	Aug 94		HQ/ASC	2470	715	985	0	0	TBD	TBD
Sandia Nat Labs	MIPR	Mar 95		HQ/ASC	8586	0	240	0	0	TBD	TBD
Lockheed Martin	AF FM 616	TBD		HQ/ASC	0	2422	1825	746	1521	TBD	TBD
Optimetrics	TBD	TBD		HQ/ASC	0	0	0	0	150	TBD	TBD
ESC//JTF	MIPR	TBD		HQ/ASC	0	0	600	0	0	TBD	TBD
Grumman	AF FM 616	Sep 96		HQ/ASC	0	500	350	0	0	850	850
ACC/XPSAS	AF FM 616	TBD		HQ/ASC	0	0	0	500	505	TBD	TBD
WL/AAZ	AF FM 616	TBD		HQ ASC	0	85	96	0	0	TBD	TBD
WL/AAR	AF FM 616	TBD		HQ/ASC	0	0	0	650	675	TBD	TBD
AL/CFHI	AF FM 616	TBD		HQ/ASC	0	0	0	800	745	TBD	TBD
WL/AAJT	AF FM 616	TBD		HQ/ASC	0	0	0	0	112	TBD	TBD
Support and Management Organizations											
FFRDC				HQ/ASC	757	82	648	210	230	TBD	TBD
Non-FFRDC				HQ/ASC	471	0	355	160	192	TBD	TBD
HQ ASC					561	4943	960	948	559	TBD	TBD
Test and Evaluation Organizations											
28 Test/TOT	AF FM 616	Mar 95		HQ/ACC	16	910	1316	950	1040	TBD	TBD
AFSAA	AF FM 616	Feb 95		HQ/ACC	350	85	0	0	0	TBD	TBD
Eglin-46 Tst Wg		May 94		HQ/ASC	5296	150	1000	50	700	TBD	TBD
Total Project					22874	11892	8725	8020	8094	TBD	TBD

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303110F Def Satellite Comm Sys (Space)

PROJECT: 2638

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
2638 Defense Satellite Communications Sys	33,477	27,279	10,547	17,589	6,872	6,506	3,062	2,304	5,200	634,014
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description and Budget Item Justification

(U) Defense Satellite Communications System (DSCS) is the backbone of the Government's satellite communications system, providing both secure voice and high data rate transmissions in the SHF frequency band. DSCS provides unique and vital national security communications for global command and control, crisis management, relay of intelligence and early warning data, treaty monitoring and surveillance information, and diplomatic traffic. The communications relayed through DSCS support the National Command Authorities, Global Command and Control System, Diplomatic Telecommunications Service, White House Communications Agency, the Navy, the Air Force Satellite Control Network, and ground mobile forces of all services.

(U) This program is in Budget Activity 7, Operational System Development, because DSCS is a production system consisting of a fully operational satellite constellation plus satellites awaiting launch as a part of the operational system. Any enhancement to the satellites not yet launched will be sole source contract awards.

(U) Based on the DoD Space Architect's recommendation, the Service Life Enhancement Program (SLEP) will include additional antenna modifications that increase the capacity of the last four satellites to tactical users by more than 200%. SLEP is on schedule and fully funded.

(U) FY 1996 ($ in Thousands):

- (U) $5,477 Continued DSCS mission support activities
  - Supported program office operations
  - Conducted programmatic tradeoffs and analyses
  - Paid performance incentives for development satellites that were still on orbit and operational

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0303110F Def Satellite Comm Sys (Space) / PROJECT: 2638

– (U) $28,000 Start Service Life Enhancement Program (SLEP) modification
- Parts characterization and qualification
- Procured components to develop modifications for first article insertion
- Completed system preliminary design review (PDR) and prepared for system critical design review (CDR)
- Designed low noise amplifier (LNA) upgrade to enhance performance and increase capacity for tactical users
- Designed satellite bandwidth modification to increase capacity level of less capable DSCS satellites to that of satellites B8 - B14
- Began development of modkits for variable gain step attenuator and channel 5 switch to gimbaled dished antenna (GDA)

– (U) $33,477 Total

(U) FY 1997 ($ in Thousands):

– (U) $4,279 Continue Defense Satellite Communications System (DSCS) mission support activities
- Support program office operations
- Conduct programmatic tradeoffs and analyses
- Pay performance incentives for development satellites that are still on orbit and operational

– (U) $23,000 Continue Service Life Enhancement Program (SLEP) modification
- Complete system critical design review (CDR)
- Fabricate and assemble components for first article insertion
- Continue to develop low noise amplifier (LNA) upgrade to enhance performance and increase capacity for tactical users
- Continue to develop satellite bandwidth modification to increase capacity level of less capable DSCS satellites to that of satellites B8 - B14
- Continue to develop modkits for variable gain step attenuator and channel 5 switch to gimbaled dished antenna (GDA)

– (U) $27,279 Total

(U) FY 1998 ($ in Thousands):

– (U) $3,597 Continue DSCS mission support activities
- Support program office operations
- Conduct programmatic tradeoffs and analyses
- Pay performance incentives for development satellites that are still on orbit and operational

– (U) $5,300 Continue SLEP modification
- Conduct final assembly of first article
- Conduct SLEP rework verification test
- Continue to develop LNA upgrade to enhance performance and increase capacity for tactical users
- Continue to develop satellite bandwidth modification to increase capacity level of less capable DSCS satellites to that of satellites B8 - B14

– (U) $1,650 - Begin integration development for transition of the last two satellites to Evolved Expendable Launch Vehicles (EELVs)

– (U) $10,547 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE: February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0303110F Def Satellite Comm Sys (Space) / PROJECT: 2638

(U) FY 1999 ($ in Thousands):

–	(U) $5,539	Continue Defense Satellite Communications System (DSCS) mission support activities - Support program office operations - Conduct programmatic tradeoffs and analyses - Pay performance incentives for development satellites that are still on orbit and operational - Investigate and develop DSCS III performance enhancements
–	(U) $12,050	- Continue transition development of last two satellites to Evolved Expendable Launch Vehicles (EELVs)
–	(U) $17,589	Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303110F Def Satellite Comm Sys (Space)

PROJECT: 2638

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Previous President's Budget	31,077	24,527	10,239	6,130
(U) Appropriated Value		28,127		
(U) Adjustments to Appropriated Value				
a. Cong Gen Reductions		-589		
b. SBIR		-259		
c. Omnibus or Other Above Threshold Reprogram				
d. Below Threshold Reprogramming	2,400			
(U) Adjustments to Budget Years Since Final FY 1997 PB			308	11,459
(U) Current Budget Submit/President's Budget	33,477	27,279	10,547	17,589

(U) Change Summary Explanation:

Funding: FY98/99 adjustments realign funding with actual program spending requirements.

Schedule: None

Technical: None

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303110F Def Satellite Comm Sys (Space)
	PROJECT 2638

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost*
(U) Missile Procurement	19,771	28,766**	76,434	29,587	32,080	24,095	28,571	24,433	73,500	1,619,551

* Tracked back to FY76.

** Includes $13.5 million advanced procurement for SLEP.

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Launch DSCS/IABS 6 (Oct 97)									X							
(U) Launch DSCS/IABS 7 (Jul 99)																X
(U) Launch DSCS/IABS 8 (May 00)																
(U) Launch DSCS/IABS 9 (May 02)																
(U) Launch DSCS/IABS 10 (May 03)																
(U) SLEP Implementation Study (Mar 95 - Jan 96)	X	X														
(U) SLEP Modification Program (Mar 96 - Aug 00)		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
(U) SLEP PDR (Sep 96)				X												
(U) SLEP CDR (Mar 97)						X										
(U) GTS Upgrade Completion (Oct 96)					X											
(U) EELV Integration (May 98 - Jan 00)											X	X	X	X	X	X

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303110F Def Satellite Comm Sys (Space)

PROJECT: 2638

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Basic Program Activities	5,477	4,279	3,597	5,539
(U) Service Life Enhancement Program (SLEP)	28,000	23,000	5,300	
(U) EELV			1,650	12,050
(U) Total	33,477	27,279	10,547	17,589

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996*	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Lockheed Martin	FFP/AF	Oct 84	437,500	437,500	376,600	29,977	24,579	6,697	2,039	4,044	443,936
Miscellaneous	CPAF	TBD	N/A	N/A	124,978	0	0	1,650	12,050	800	139,478
Support and Management Organizations											
Aerospace Corp	PO	Various	N/A	N/A	11,900	1,000	700	0	0	0	13,600
Miscellaneous	Various	Various	N/A	N/A	7,700	2,500	2,000	2,200	3,500	19,100	37,000
Test and Evaluation Organizations											
None											

* Tracked back to FY86. All other prior year funds included in the Miscellaneous line for Product Development Organizations.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE: February 1997
BUDGET ACTIVITY: 7 - Operational System Development				PE NUMBER AND TITLE: 0303110F Def Satellite Comm Sys (Space)						PROJECT: 2638

(U) B. Budget Acquisition History and Planning Information Continued ($ in Thousands)

Government Furnished Property:

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Property										
N/A										
Support and Management Property										
N/A										
Test and Evaluation Property										
N/A										
Subtotal Product Development				501,578	29,977	24,579	8,347	14,089	4,844	583,414
Subtotal Support and Management				19,600	3,500	2,700	2,200	3,500	19,100	50,600
Subtotal Test and Evaluation										
Total Project				521,178	33,477	27,279	10,547	17,589	23,944	634,014

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303131F Minimum Essential Emer Comm Network

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	13,068	20,842	34,409	29,019	40,239	20,413	9,915	2,759	Continuing	Continuing
2832 VLF/LF System Improvements	13,068	9,668	14,686	11,778	15,607	8,136	9,638	2,759	Continuing	Continuing
4521 DIRECT	0	11,174	19,723	4,747	1,035	279	277	0	0	37,235
4610 MEECN EHF	0	0	0	12,494	23,597	11,998	0	0	0	48,089
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

NOTES:

- Project 4521, DIRECT, was established to consolidate efforts related to DIRECT being or planned for accomplishment in PE 0603851F, ICBM Modernization Dem/Val (BPAC 1024, ICBM C2 Applications), PE 0604851F, ICBM Modernization EMD (BPAC 13C4, Strategic C4 Program), PE 0101213F, Minuteman Squadrons, and PE 0303131F, MEECN (BPAC 2832, VLF/LF Systems Improvements). FY96 DIRECT efforts are reported under BPAC 2832, VLF/LF System Improvements, this PE.
- Project 2832, VLF/LF System Improvements, received a $3,900 Below Threshold Reprogramming (BTR) for FY96 that although distributed to the Program Office has not yet been entered into the ABIDES database.

(U) A. Mission Description and Budget Item Justification

(U) MEECN systems provide assured communications connectivity between the National Command Authority (NCA) and the strategic deterrence forces. Past MEECN projects included the High Power Transmit Set (HPTS), Ground Wave Emergency Network (GWEN), and Dual Frequency MEECN Receiver (DFMR). Current projects include the Modified Miniature Receive Terminal (MMRT) with High Data Rate (HIDAR) transmission mode, the Defense IEMATS Replacement Command and Control Terminals (DIRECT), and the MEECN EHF capability for the ICBM Launch Control Centers (LCCs).

(U) This program is in Budget Activity 7 - Operational System Development, Research Category 6.6 because it supports work on currently operating systems.

(U) Acquisition Strategy:

(U) Modified Miniature Receive Terminal (MMRT) Program. Program to satisfy both the Air Force and Navy requirements via a joint interest effort with the Air Force Electronics Systems Center, Hanscom AFB, MA as the lead agency. Modifies existing Miniature Receive Terminals (MRTs). EMD contract awarded in FY96

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303131F Minimum Essential Emer Comm Network

for three platforms: the E-4B (National Airborne Operations Center (NOAC)); E-6B (Take Charge and Move Out (TACAMO)); and an option for the ICBM Launch Control

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303131F Minimum Essential Emer Comm Network

Centers (LCCs). Limited EMD option for MMRT in ICBM LCCs to be exercised in 2QtrFY97. Production contract award planned for FY00. Complete deployment of Air Force and Navy MMRT units by 2004.

(U) DIRECT Program. A contract for EMD was awarded on 12 Jul 96. Production contract to be negotiated at a later date.

(U) MEECN EHF Program. Program will provide reliable, secure, and survivable communications between the NCA and ICBM LCCs. It replaces the ICBM Super High Frequency (SHF) Satellite Terminal (ISST) receipt and the ultra high frequency report-back links.

(U) **B. Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	14,895	21,902	11,334	1,914	Continuing
(U) Appropriated Value	15,777	21,902			
(U) Adjustments to Appropriated Value					
a. Cong Reductions	-405	-525			
b. SBIR	-355	-535			
c. Omnibus or Other Above Threshold Reprogram	-218				
d. Below Threshold Reprogramming	-1,731				
(U) Adjustments to Budget Years Since FY 1997 PB			23,075	27,105	
(U) Current Budget Submit/President's Budget	13,068	20,842	34,409	29,019	Continuing

(U) Change Summary Explanation: See individual projects.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303131F Minimum Essential Emer Comm Network

(U) C. **Other Program Funding Summary ($ in Thousands):**

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) APPN 16, Other Procurement - AF, BA-07, Electronics and Telecommunications Equip (MEECN, PE 0303131F)			3,488	10,088	1,129	56,534	2,979	2,974	0	77,192

Related RDT&E: PE 0603851F, ICBM Dem/Val, and PE 0604851F, ICBM EMD.

(U) D. **Schedule Profile:** See individual projects.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303131F Minimum Essential Emer Comm Network PROJECT 2832

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
2832 VLF/LF System Improvements	13,068	9,668	14,686	11,778	15,607	8,136	9,638	2,759	Continuing	Continuing

(U) A. **Mission Description and Budget Item Justification**

(U) The Modified Miniature Receive Terminal (MMRT) Program will modify existing Miniature Receive Terminals (MRTs) and provide High Data Rate (HIDAR) capability for installation in three platforms: the E-4B, National Airborne Operations Center (NOAC); the E-6B, Take Charge and Move Out (TACAMO); and ICBM Launch Control Centers (LCCs). MRT is a Very Low Frequency/Low Frequency (VLF/LF) receiver already designed, developed, and installed in the B-1 and B-52 bombers. This program will make VLF/LF receivers fully interoperable in all three platforms.

(U) HIDAR is a Joint Staff-directed effort to provide a fast and interoperable MEECN mode. This program will develop and test modifications required to retrofit current MEECN platforms with the HIDAR software and firmware.

(U) The Improved Emergency Message Automated Transmission System (IEMATS) replacement system, which has been named Defense IEMATS Replacement Command and Control Terminal (DIRECT), is a Strategic Nuclear Command and Control (C2) system directly supporting the Chairman of the Joint Chief Staff (CJCS) and the National Command Authority (NCA). DIRECT will provide all current IEMATS requirements, including the build, release and transmission of Emergency Action Messages (EAM), to allow the CJCS and warfighter to remain responsive to NCA directives. DIRECT will be compatible with the Defense Message System (DMS) when it supplants the automated digital network (AUTODIN).

(U) High Power Transmit Set (HPTS) was a joint Air Force and Navy Program to provide the E-4 and the E-6 aircraft with an improved and supportable VLF transmission capability. HPTS completed development phase in 2QtrFY95 and procurement for the E-4 is under Departmental review.

(U) FY 1996 ($ in Thousands):

- (U) $6,792 MMRT modification (A- and B-Kits) for E-4B and E-6B, and HIDAR
- (U) $800 HIDAR development program
- (U) $5,476 IEMATS replacement (a.k.a. DIRECT)
- (U) MMRT modification (B-Kit) for ICBM LCCs $3,900*
- (U) $13,068 Total

* Approved BTR which has been distributed to Program Office but not yet entered in ABIDES database.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303131F Minimum Essential Emer Comm Network
	PROJECT 2832

(U) FY 1997 ($ in Thousands):

- (U) $5,384 Continue MMRT development
- (U) $3,999 IEMATS replacement (a.k.a. DIRECT)
- (U) $285 Continuing Evaluation Program (CEP) and Other
- (U) $9,668 Total

(U) FY 1998 ($ in Thousands):

- (U) $14,349 Continue MMRT development
- (U) $204 Secondary VLF/LF Link study/analysis
- (U) $133 Continuing Evaluation Program (CEP)
- (U) $14,686 Total

(U) FY 1999 ($ in Thousands):

- (U) $11,631 Continue MMRT development
- (U) $147 Continuing Evaluation Program (CEP)
- (U) $11,778 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996*	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	14,895	10,489	11,334	1,194	Continuing
(U) Appropriated Value	15,777	10,489			
(U) Adjustments to Appropriated Value					
a. Cong Reductions	-405	-286			
b. SBIR	-355	-535			
c. Omnibus or Other Above Threshold Reprogram	-218				
d. Below Threshold Reprogramming	-1,731				
(U) Adjustments to Budget Years Since FY 1997 PB			3,352	10,584	
(U) Current Budget Submit/President's Budget	13,068	9,668	14,686	11,778	Continuing

* Does not include $3,900 FY96 BTR approved and distributed to Program Office but not yet entered into database.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303131F Minimum Essential Emer Comm Network
	PROJECT 2832

(U) Change Summary Explanation:

Funding: FY96 Funding adjusted for actuals. FY97 funding adjusted for congressionally-mandated reductions. FY98-03 funding adjusted to reflect the baseline extension, the MMRT initiative, and reductions to fund other AF and DoD priorities.

Schedule: MMRT effort for ICBM LCCs has been restructured.

Technical: MMRT EMD will develop a common receiver for all three platforms (E-4B, E-6B, and ICBM LCCs) thereby reducing unit and lifetime sustainment costs.

(U) C. **Other Program Funding Summary ($ in Thousands):**

Related RDT&E: PE 0604851F, ICBM EMD.

(U) D. **Schedule Profile**

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) MMRT RFP Release			X*													
(U) MMRT EMD																
(U) EMD for Aircraft				X*	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	--->	FY00
(U) EMD for ICBM LCCs (Phase 1)						X	-----	-----	-----	-----	-----	X				
(U) EMD for ICBM LCCs (Phase 2)															Start:	FY00
(U) DIRECT Contract Award				X*												

*Start/Complete

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303131F Minimum Essential Emer Comm Network PROJECT 2832

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996*	FY 1997	FY 1998	FY 1999
(U) Primary Hardware Development	8,738	7,741	8,834	7,325
(U) Software Development	1,200	311	1,521	1,234
(U) Systems Engineering	1,830	425	1,124	912
(U) Development Test and Evaluation	390		1,100	596
(U) Contractor Engineering Support	240	379	451	366
(U) Government Engineering Support	470	425	820	667
(U) Travel	200	102	380	308
(U) Miscellaneous			456	370
(U) Other		285		
(U) Total	13,068	9,668	14,686	11,778

* Does not include $3,900 FY96 BTR approved and distributed to Program Office but not yet entered into database.

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996*	Budget FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Rockwell	CPAF	Aug 92	13,500	13,500	13,500	0	0	0	0	0	13,500
Various	Various	Various	n/a	n/a	28,381	11,768	8,856	11,479	9,471	Continuing	Continuing
Support and Management Organizations											
Various					0	910	527	2,107	1,711	Continuing	Continuing
Other					0		285	0	0	0	285
Test and Evaluation Organizations											
Various					0	390	0	1,100	596	Continuing	Continuing

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303131F Minimum Essential Emer Comm Network	PROJECT 2832

(U) B. Budget Acquisition History and Planning Information Continued ($ in Thousands)

Government Furnished Property:

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	Budget FY 1996*	Budget FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Property										
None										
Support and Management Property										
None										
Test and Evaluation Property										
None										
Subtotal Product Development				41,881	11,768	8,856	11,479	9,471	Continuing	Continuing
Subtotal Support and Management					910	812	2,107	1,711	Continuing	Continuing
Subtotal Test and Evaluation					390		1,100	596	Continuing	Continuing
Total Project				41,881	13,068	9,668	14,686	11,778	Continuing	Continuing

* Does not include $3,900 FY96 BTR approved and distributed to Program Office but not yet entered into database.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303131F Minimum Essential Emer Comm Network

PROJECT: 4521

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4521 DIRECT	0	11,174	19,723	4,747	1,035	279	277	0	0	37,235

NOTE: This project was established in Jan 96 to consolidate efforts related to DIRECT currently being or planned for accomplishment in PE 0603851F, ICBM Modernization Dem/Val (BPAC 1024, ICBM C2 Applications), PE 0604851F, ICBM Modernization EMD (BPAC 13C4, Strategic C4 Program), PE 0101213F, Minuteman Squadrons, and 0303131F, MEECN (BPAC 2832, VLF/LF System Improvements). FY96 DIRECT efforts are reported under BPAC 2832, VLF/LF System Improvements, in this PE.

(U) A. Mission Description and Budget Item Justification

(U) The Defense IEMATS Replacement Command and Control Terminals (DIRECT), which is the Improved Emergency Message Automated Transmission System (IEMATS) replacement program, is a Strategic Nuclear Command and Control (C2) system directly supporting the Chairman of The Joint Chief of Staff (CJCS) and the National Command Authorities (NCA). DIRECT will provide for all current IEMATS requirements, including the build, release, and transmission of Emergency Action Messages (EAM) to allow the CJCS and warfighters to remain responsive to NCA directives. DIRECT will be compatible with the Defense Message System (DMS) when it supplants the Automated Digital Network (AUTODIN) and will interface with all other EAM distribution communications systems. An urgent and compelling need to field an IEMATS replacement system no later than second quarter FY99 has been established to insure the orderly closure of AUTODIN Switching Centers (ASC).

(U) FY 1996 ($ in Thousands):

- (U) $0 IEMATS Replacement (a.k.a., DIRECT) (Funded in BPAC 2832)
- (U) $0 Total

(U) FY 1997 ($ in Thousands):

- (U) $10,244 DIRECT Engineering and Manufacturing Development
- (U) $800 Automated Codebook Module (ACM)
- (U) $130 Continuing Evaluation Program (CEP)
- (U) $11,174 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303131F Minimum Essential Emer Comm Network
	PROJECT 4521

(U) FY 1998 ($ in Thousands):

- (U) $17,589 Continue DIRECT Engineering and Manufacturing Development
- (U) $2,000 Continue Automated Codebook Module (ACM)
- (U) $134 Continuing Evaluation Program (CEP)
- (U) $19,723 Total

(U) FY 1999 ($ in Thousands):

- (U) $3,609 Continue DIRECT Engineering and Manufacturing Development
- (U) $1,000 Continue Automated Codebook Module (ACM)
- (U) $138 Continuing Evaluation Program (CEP)
- (U) $4,747 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996*	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget		11,413	0	0	0
(U) Appropriated Value		11,413			
(U) Adjustments to Appropriated Value					
a. Cong Reductions		-239			
b. SBIR					
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
(U) Adjustments to Budget Years Since FY 1997 PB			19,723	4,747	
(U) Current Budget Submit/President's Budget		11,174	19,723	4,747	41,088

* - Funded in VLF/LF System Improvements (BPAC 2832, this PE).

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303131F Minimum Essential Emer Comm Network
	PROJECT 4521

(U) Change Summary Explanation:

Funding: DIRECT funded in VLF/LF System Improvements (BPAC 2832, this PE) for FY96. FY98-03 funding adjusted for baseline extension and reductions to fund other AF and DoD priorities.

Schedule: IOC NLT 2QtrFY99 necessary to eliminate dependence on AUTODIN Switching Centers (ASCs) scheduled for closure.

Technical: None

(U) C. Other Program Funding Summary ($ in Thousands):

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) APPN 16, Other Procurement - AF, BA-07, Electronics and Telecommunications Equip (MEECN, PE 0303131F)			3,488	10,088	1,129				0	14,705

Related RDT&E: PE 0603851F, ICBM Dem/Val.

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Contract Award				X*												
(U) Development Test and Evaluation							X	-----	-----	X						
(U) Operational Test and Evaluation											X	-----	X			
(U) Procurement									X	-----	-----	-----	-----	-----	-----	--->
(U) Required DIRECT IOC														X		

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303131F Minimum Essential Emer Comm Network
	PROJECT 4521

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996*	FY 1997	FY 1998	FY 1999
(U) Primary Hardware Development		2,793	5,310	1,274
(U) Software Development		4,016	7,556	1,807
(U) Systems Engineering		1,258	2,391	573
(U) Technical Data		85	161	39
(U) Development Test and Engineering		121	230	55
(U) Government Engineering Support		2,008	2,379	592
(U) Program Management Support		811	1,541	370
(U) Travel		82	155	37
(U) Total		11,174	19,723	4,747

* - Funded in VLF/LF System Improvements (BPAC 2832, this PE).

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996*	Budget FY 1996*	Budget FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
GTE							7,352	15,418	3,693	990	27,453
National Security Agency (NSA)							800				800
Support and Management Organizations											
Various							2,901	4,075	999	601	8,576
Test and Evaluation Organizations											
Various							121	230	55	0	406

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303131F Minimum Essential Emer Comm Network	PROJECT 4521

(U) B. Budget Acquisition History and Planning Information Continued ($ in Thousands)

Government Furnished Property:

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996*	Budget FY 1996*	Budget FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Property										
None										
Support and Management Property										
None										
Test and Evaluation Property										
None										
Subtotal Product Development						8,152	15,418	3,693	990	28,253
Subtotal Support and Management						2,901	4,075	999	601	8,576
Subtotal Test and Evaluation						121	230	55		406
Total Project						11,174	19,723	4,747	1,591	37,235

* - Funded in VLF/LF System Improvements (BPAC 2832, this PE).

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303131F Minimum Essential Emer Comm Network

PROJECT: 4610

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4610 MEECN EHF	0	0	0	12,494	23,597	11,998	0	0	0	48,089

(U) A. **Mission Description and Budget Item Justification**

(U) This effort will provide reliable, secure, and survivable communications in the extremely high frequency (EHF) for the command and control of the warfighting forces of the United States. Specifically, this effort is currently focused on replacing the satellite-based, ground communication links with the ICBM forces. It replaces the ICBM Super High Frequency (SHF) Satellite Terminal (ISST) receipt, providing force direction/execution, and the ultra high frequency (UHF) report-back links. ISST relies upon the Single Channel Transponder (SCT) package aboard the Defense Satellite Communications System (DSCS) which is expected to be non-operational by 2003. Extending the use of DSCS is not practical. This second survivable link is required to meet the dual media communication link requirements to the strategic forces.

(U) FY 1996 ($ in Thousands): Program starts in FY99.

(U) FY 1997 ($ in Thousands): Program starts in FY99.

(U) FY 1998 ($ in Thousands): Program starts in FY99.

(U) FY 1999 ($ in Thousands):

- (U) $12,494 EHF engineering and manufacturing development
- (U) $12,494 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303131F Minimum Essential Emer Comm Network
	PROJECT 4610

(U) **B. Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	0	0	0	0	0
(U) Appropriated Value	0	0			
(U) Adjustments to Appropriated Value					
a. Cong Reductions					
b. SBIR					
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
(U) Adjustments to Budget Years Since FY 1997 PB				12,494	
(U) Current Budget Submit/President's Budget	0	0	0	12,494	48,089

(U) Change Summary Explanation: This program initiated in response to DoD direction with RDT&E commencing in FY99.

(U) **C. Other Program Funding Summary ($ in Thousands):**

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) APPN 16, Other Procurement - AF, BA-07, Electronics and Telecommunications Equip (MEECN, PE 0303131F)						56,534	2,979	2,974	0	62,487

Related RDT&E: None.

(U) **D. Schedule Profile**

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Contract Award														X		

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303131F Minimum Essential Emer Comm Network PROJECT 4610

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Primary hardware development				5,876
(U) Software development				1,315
(U) Systems engineering				1,800
(U) Development Test and Evaluation				252
(U) Contractor engineering support				275
(U) Program management support				1,800
(U) Government engineering support				580
(U) Misc/Travel				596
(U) Total				12,494

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
TBD	TBD	2QtrFY99			0	0	0	0	8,991	TBD	TBD
Support and Management Organizations											
TBD	TBD	TBD			0	0	0	0	3,251	TBD	TBD
Test and Evaluation Organizations											
TBD	TBD	TBD			0	0	0	0	252	TBD	TBD

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303131F Minimum Essential Emer Comm Network
	PROJECT 4610

(U) B. Budget Acquisition History and Planning Information Continued ($ in Thousands)

Government Furnished Property:

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Property										
TBD										
Support and Management Property										
TBD										
Test and Evaluation Property										
TBD										
Subtotal Product Development								8,991	TBD	TBD
Subtotal Support and Management								3,251	TBD	TBD
Subtotal Test and Evaluation								252	TBD	TBD
Total Project								12,494	35,595	48,089

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303140F Information Systems Security Program

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	10,381	6,548	5,298	6,589	6,337	5,634	5,391	5,515	Continuing	TBD
7820 Computer Security RDT&E: Firestarter	10,381	6,549	3,561	4,550	5,044	5,634	5,391	5,515	Continuing	TBD
4585 Cryptologic 2020	0	0	1,737	2,039	1,293	0	0	0	TBD	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. **Mission Description and Budget Item Justification**

This program provides the capability to protect and defend USAF Command, Control, Communications, and Intelligence, Surveillance, and Reconnaissance (C4ISR) and Weapon Systems from IW attacks and recover from those attacks. The program element consists of two complementary projects. The computer security project directs the R&D of Information Protection technology and tools to defend AF C4ISR systems, with emphasis on computer and network systems security, risk management, and multi-level systems security. This project focuses on protection and defense of the Air Force, Joint, National, and Defense Information Infrastructures. This R&D provides adequate access control, integrity, assured services and meets warfighter's requirements. The Cryptologic 2020 project comprises R&D for the Air Force Electronic Key Management System (AFEKMS). The AFEKMS, in concert with NSA's EKMS, provides a secure and flexible capability for the electronic generation, distribution, and management of key material, voice callwords, and Communications Security (COMSEC) publications for the F-22. AFEKMS replaces the existing physical distribution and management system providing COMSEC KEYS for USAF Information Protection. The Air Force unique AFEKMS software is required because the production software developed by NSA can not provide the capabilities to distribute the system keys in the format needed by the F-22 Mission Support System.

This program is in budget activity 7 - Operational System Development, because it addresses the development and transition of information security, protection and defensive capabilities and technologies to protect, detect, respond to, and defend against information attack by new and emerging IW threats

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303140F Information Systems Security Program

(U) B. **Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY 1997 Previous President's Budget	11,261	6,900	4,978	4,581	TBD
(U) Appropriated Value	11,261	6,900			
(U) Adjustments to Appropriated Value					
a. Cong Reductions	(414)	(182)			
b. SBIR	(236)				
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming	(7)				
e. Rescissions	(223)				
(U) Adjustments to Budget Years Since FY 1997 PB			320	2,008	
(U) FY 1998 President's Budget	10,381	6,548	5,298	6,589	TBD

(U) Change Summary Explanation:

Funding:

FY96: Actual reductions (thousands) consist of general Congressional reductions, SBIR, BTR, and rescissions. FY97: Actual reductions (thousands) consist of general Congressional reductions and RDT&E for innovative small business research.
FY98 and FY 99: Funds for this on-going project were converted from 3080 to 3600 within this program element.

Schedule:

Delays completion and start of numerous Firestarter Project research efforts until FY99, including such as planned emissions security, communications security, computer security. Curtails the capability to keep pace with new and emerging IW threats and meet mission needs. Delays the insertion of essential technology into AF systems. Extends the window of vulnerability that would allow an adversary to exploit and degrade AF and other warfighting units in performing their missions. Specific impacts are: delays transition of intrusion detection technology into the Base Network Control Center (BNCC) multi-level security and secure distributed operations for the F-22 Mission Planning System, and Secure Data Handling System security for the distributed AOC. Delays start of voice callword automation until FY99.

Technical:

None.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303140F Information Systems Security Program

:(U) C. **Other Program Funding Summary ($ in Thousands)** Related RDT&E:

(U) For research and development efforts pursued under Program Element (PE) 33140F there is complementarywork being performed under PE 35167G which addresses the development of generic technology in the area of information security. Products from PE 33140F transition to other agencies through PE 64740F Computer Resource Management Technology Transition

(U) D. **Schedule Profile:** See Individual Project Schedules

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE: February 1997	
BUDGET ACTIVITY: 7 - Operational System Development				PE NUMBER AND TITLE: 0303140F Information Systems Security Program						PROJECT: 7820
COST (*$ In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
7820 Computer Security RDT&E: Firestarter	10,381	6,549	3,561	4,550	5,044	5,634	5,391	5,515	Continuing	TBD

(U) A. **Mission Description and Budget Item Justification**

This program directs the Research & Development (R&D) of Information Protect technology/tools to provide the capability to defend USAF Command, Control, Communications, Computer and Intelligence (C4I) Systems from Information Warfare (IW) Cyber attacks and to recover from those attacks. As the USAF single manager for Information Protect (R&D), this program directs C41 system Information Protect R&D with emphasis in computer/network systems security, risk management and multi-level system security. With the advent of the information age, the battlefield commander's ability to fight and win becomes more dependent upon the availability, timeliness, and integrity of the information flow/processing capability available. The requirement for global presence and global power has demanded increasing reliance on these advanced information systems with global accessibility. The susceptabilities inherent in such reliance and accessibility has heightened the awareness that the National Information Infrastructure (NII) and Defense Information Infrastructure (DII) must be protected against attack.

Emphasis is therefore placed on R&D areas that provide deterrence of attack through cyberspace surveillance, Tactical Indications & Warning (I&W), intrusion detection and characterization of attack. As adversaries may gain access to critical US information systems through a variety of means, including the Internet, other dial-up connections, and DSNET, this technology will provide the capability of collecting, integrating and displaying threat, vulnerability, and system data indicating an attack is about to take place and/or is taking place. As an integral part of a Joint Information Protection architecture, countermeasure technology will also be developed to prevent, contain and recover from such attacks. It is also imperative that these information protection mechanisms be developed in conjunction with commercial enterprises in order to transition this important technology to enterprise networks which may become launching places for IW attacks. These launching places provide opportunities to monitor networks, alter critical information, deny or degrade service, and destroy penetrated systems, within the DII and the NII.

Also, R&D is required in automated risk management/vulnerability assessment processes because the Air Force does not currently have the automated assessment, planning, and decision tools to support prudent Information Operations risk management. Summarizing, this program is in budget activity 7-Operational System Development, Research category 6.7, because it addresses the development and transition of communications and computer network Information Protection and risk management technologies/tools in order to protect, detect, defend, and respond to information attack against Base Network Control Centers (BNCCs) and the National/Defense Information Infrastructure.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0303140F Information Systems Security Program / PROJECT: 7820

(U) FY 1996 ($ in Thousands):
- (U) $3966 Continue development of Air Force Electronic Key Management System
- (U) $1500 Complete development of Trusted Rubix
- (U) $719 Complete Joint Service secure distributed computing experiments
- (U) $450 Initiate development of analysis tools for Base Information Protection
- (U) $410 Develop security architecture for Air Force Mission Support System
- (U) $1363 Continue development of technology for adaptive voice/data networks
- (U) $1324 Develop network security interfaces for Theater Battle Management
- (U) $649 Continue development of security interfaces for Theater Battle Management
- (U) $10,381 Total

(U) FY 1997 ($ in Thousands):
- (U) $230 Initiate development of secure data handling system for F-22 Integrated Weapon System (IWS) Data Base
- (U) $545 Develop mechanisms to protect databases from IW attacks
- (U) $545 Continue development of security analysis tools for Base Information Protection
- (U) $710 Initiate development of secure interoperable distributed computing system
- (U) $1100 Prototype adaptive voice/data networks
- (U) $250 Initiate effort to develop technology for secure distributed collaborate planning
- (U $150 Initiate effort to transition DARPA intrusion detection technology to Air Force Information Warfare Center (AFIWC)
- (U) $400 Initiate effort to demonstrate INFOSEC for Air Force Mission Support System
- (U) $2618 Complete development of Air Force Electronic Key Management System
- (U) $6,548 Total

(U) FY 1998 ($ in Thousands):
- (U) $430 Continue development of secure interoperable distributed computing system
- (U) $430 Prototype security analysis tools for Base Information Protection
- (U) $430 Continue effort to transition DARPA intrusion detection technology to AFIWC (BNCC/BIP)
- (U) $430 Continue effort to transition INFOSEC technology into Base Network Control Center
- (U) $430 Continue development of secure distributed collaborative planning system
- (U) $550 Continue investigation of techniques for commercial software evaluation
- (U) $861 Develop prototype of secure wrapper to protect COTS software
- (U) $3,561 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303140F Information Systems Security Program
	PROJECT 7820

(U) FY 1999 ($ in Thousands):

–	(U)	$256	Continue development of secure data handling system for F-22 IWS DB
–	(U)	$780	*Continue development of secure interoperable distributed computing system*
–	(U)	$770	Continue development of technology for self-healing network system
–	(U)	$744	Develop methodology for commercial software evaluation
–	(U)	$510	Complete effort to transition DARPA intrusion detection technology to AFIWC
–	(U)	$490	Complete effort to transition INFOSEC technology to Base Network Control Center
–	(U)	$500	Initiate effort to transition secure wrapper technology *into air Force systems*
–	(U)	$500	Initiate effort for automatic capability to trace source of intrusions
–	(U)	$4,550	Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303140F Information Systems Security Program
	PROJECT 7820

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget (FY97)	11,261	6,900	4,978	4,581	TBD
(U) Appropriated Value	11,261	6,900			
(U) Adjustments to Appropriated Value					
a. Cong Reductions	(414)	(182)			
b. SBIR	(236)				
c. Below Threshold Reprogramming	(7)				
d. Rescissions	(223)				
(U) Adjustments to Budget Years Since FY 1997 PB					TBD
a. Program execution decisions			(1,400)		
b. Small business RDT&E		(170)			
c. Other AF requirements			(17)	(31)	
(U) Current Budget Submit/FY98 PB	10,381	6,548	$3,561	4,550	TBD

(U) Change Summary Explanation:

Funding:

FY96: Actual reductions (thousands) consist of general Congressional reductions, SBIR, BTR, and rescissions.

Schedule:

Delays completion and start of numerous Firestarter Project research efforts until FY99, including such as planned emissions security, communications security, computer security. Curtails the capability to meet mission needs. Delays the insertion of essential technology into AF systems. Extends the window of vulnerability that would allow an adversary to exploit and degrade AF and other warfighting units in performing their missions. Specific impacts are: delays transition of intrusion detection technology into the BNCC,multi-level security and secure distributed operations for the F-22 Mission Planning System, and Secure Data Handling System security for the distributed AOC.

Technical:

FY98:

Adjustments deletes critical analysis, assessment, and decision support tools for Defensive IW and F-22 software applications

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997	
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303140F Information Systems Security Program	PROJECT 7820

(U) C. **Other Program Funding Summary ($ in Thousands)**

Not Applicable

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303140F Information Systems Security Program PROJECT 7820

(U) D. Schedule Profile

	FY96				FY97				FY98				FY99			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Requirements Review Board			X				X				X				X	
(U) Secure x.500 Directory Server				X												
(U) AFMSS Security Architecture				X												
(U) BNCC INFOSEC Transition								X			X					
(U) Adaptive Voice/Data Network Demonstrations				X				X								
(U) Secure Wrapper Development											X					
(U) Self-Healing Network Demonstration															X	
(U) F-22 IWS DB													X			X
(U) Secure Interoperable Distributed Computing System				X												X
(U) Trusted Rubix						X										
(U) Theater Battle Management Secure Interfaces				X				X								

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE: February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0303140F Information Systems Security Program		PROJECT: 4585

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4585 Cryptologic 2020	0	0	1,737	2,039	1,293	0	0	0	TBD	TBD

(U) A. Mission Description and Budget Item Justification

The Cryptologic project consists of the Air Force Electronic Key Management System (AFEKMS). This project was transferred from 3080 in PE 33140F to 3600 in 33140F to consolidate and realign efforts under the proper RDT&E program and appropriation. This project is not a new start because these efforts were previously conducted using Other Procurement, Air Force funds within the same Program Element designation. During the FY98 POM, these funds were converted from 3080 to 3600 within the same PE for the same project. AFKEMS, in concert with NSA's EKMS, provides a secure and flexible capability for the electronic generation, distribution, accounting, and management of key material, voice callwords, and Communications Security (COMSEC) publications for the F-22 and all AF weapon systems. AFEKMS replaces the existing physical distribution and management system providing USAF Information Protection. Information Protection emphasizes access control, multi-level secure databases, trusted computing and information integrity. AFEKMS is a three tier system structured in a hierarchical arrangement. This tiered structure provides "wholesale" to "retail" to "consumer" capability to distribute, manage, and account for COMSEC keying material. Tier 1 installations comprises the "wholesale" capability. Tier 2 installations comprises the distribution network and tier 3 comprises the "retail locations" where keying material leaves the AFEKMS and enters the End Item COMSEC Equipment (EICE), --the consumer.

Acquisition includes Commercial off-the Shelf (COTS) computers and software, contractor developed application software, Government furnished equipment (GFE) and software such as the NSA's Local COMSEC Management Software (LCMS). Also, USAF developed user application software (UAS) is necessary for unique systems such as the F-22 and unique key fill requirements of EICE for other airborne platforms. The F-22 platform employs KOV-5 modules and uses three types of keys (system keys and codes, traffic keys, and Firefly session keys and parameters). Using a Data Transfer Device (DTD), these keys are loaded directly into the KOV-5 and ground based KS-5 using a Firefly process. The F-22 employs a unique process for getting cryptographic keys into the KOV-5 onboard the F-22 platform. The production software developed by NSA can not provide the capabilities to distribute the system keys in the format needed by the F-22 Mission Support System.

(U) FY 1996 ($ in Thousands):
- (U) $0
- (U) $0 Total

(U) FY 1997 ($ in Thousands):
- (U) $0
- (U) $0 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303140F Information Systems Security Program
	PROJECT 4585

(U) FY 1998 ($ in Thousands):
- (U) $1487 Continue LCMS application software development (F-22)
- (U) $250 Continue DTD software Development
- (U) $1,737 Total

(U) FY 1999 ($ in Thousands):
- (U) $250 Initiate Voice Callword software development
- (U) $1489 Continue LCMS application software development (F-22)
- (U) $300 Continue DTD software development and system integration
- (U) $2,039 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0303140F Information Systems Security Program / PROJECT: 4585

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY 1997 President's Budget	0	0	0	0	TBD
(U) Appropriated Value					
(U) Adjustments to Appropriated Value					
a. Cong Reductions					
b. SBIR					
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
(U) Adjustments to Budget Years Since FY 1997 PB	0	0	3,250	2,050	TBD
a. Realignment of Cryptologic 2020 project			(1,500)		
b. Other AF requirements			(13)	(11)	
(U) Current Budget Submit/FY98 PB	0	0	1,737	2,039	TBD

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303140F Information Systems Security Program
	PROJECT 4585

(U) Change Summary Explanation:

Funding:

FY98 and FY99:
$3.25 million (FY98) and $2.05 million (FY99) transfered from 3080 funds in this PE to develop application software that would manage and distribute cryptographic key material for the F-22 and voice callword automation.
FY98:
A $1.5 million reduction assesed to this project due internal budget realignment.

Schedule:

FY98:
Delays Voice Callword Automation project until FY99.

Technical:

None

(U) C. Other Program Funding Summary ($ in Thousands)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303140F Information Systems Security Program PROJECT 4585

(U) D. **Schedule Profile**

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Requirements Review Board			X				X				X				X	
(U) Initiate Voice Callword Development											X					X
(U) Complete F-22 UAS Development											X					
(U) Initiate other LCMS UAS software Development									X							
(U) Initiate DTD UAS Development									X							
(U) Complete Voice Callword Software									X							X

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303141F Global Combat Support System

PROJECT

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
GCSS-AF (BLSM II)	9,790*	14,543	20,894	18,334	20,225	21,926	20,657	23,225	TBD	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

* The FY96 RDT&E funding for this project is located in PE 0308610F, Information Management Automation Program. The FY97 and outyear RDT&E funding for the same project has been transferred from PE 0306810F to PE 0303141F, Global Combat Support System - Air Force. Because the FY96 DoD Appropriations Act directed GCSS-AF to be RDT&E funded and because of the high interest in this program, the GCSS-AF program was broken out from PE 0308610F into this separate program element.

(U) A. Mission Description and Budget Item Justification

The mission of GCSS-AF is to be an umbrella program for modernizing combat support information systems that are responsive during wartime and peacetime. This will be accomplished through:

(1) developing, procuring, and refreshing a development and runtime Common Operating Environment (COE) that runs on an open system architecture and permits developing and hosting modernized combat support information systems

(2) modernizing/rehosting prototype combat support information systems, maintaining or improving current functional capability while reducing life-cycle costs

(3) providing an integrated view across modernized combat support information systems through use of an enterprise data base and common data elements.

This program is in Budget Activity 7, Operational System Development, because the program modernizes Automated Information Systems (AISs).

	(U) FY 1996	
– (U)	$4,300	Phase 1 Pilots [Air Force Operational Resources Management System (AFORMS), Manpower Data System (MDS), and Logistics Module - Base Level (LOGMOD-B)].
– (U)	$2,145	Phase 2 Milestone Review and Source Selection.
– (U)	$1,500	Standard Base Supply System (SBSS) Increment 1 Modernization/Test.
– (U)	$1,000	Rehost AFORMS, MDS, LOGMOD-B, and Cargo Movement Operations System (CMOS).
– (U)	$845	Common Operating Environment (COE) Migration/Architecture.
– (U)	$9,790	Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303141F Global Combat Support System PROJECT

(U)	FY 1997	
– (U)	$3,153	System Program Office Operations/Contractors Sustaining Mgmt/Award Fee
– (U)	$2,298	Modernization Planning & System Integration Lab
– (U)	$492	Phase 1 Pilots (AFORMS, MDS, and LOGMOD-B).
– (U)	$2,500	SBSS Increment 1 Modernization/Test
– (U)	$2,300	Rehost AFORMS, MDS, LOGMOD-B, and CMOS.
– (U)	$3,800	COE Migration/Architecture
– (U)	$14,543	Total
(U)	FY 1998	
– (U)	$11,498	System Program Office Operations (includes manpower costs)/Contractor Sustaining Mgmt/Award Fee
– (U)	$799	Modernization Planning/SIL
– (U)	$3,597	SBSS Increment 1 Modernization/Test
– (U)	$2,600	Rehost AFORMS, MDS, LOGMOD-B, and CMOS.
– (U)	$2,400	COE Migration/Architecture
– (U)	$20,894	Total
(U)	FY 1999	
– (U)	$9,410	System Program Office Operations (includes manpower costs)/Contractor Sustaining Mgmt/Award Fee
– (U)	$813	Modernization Planning/SIL
– (U)	$2,502	SBSS Increment 1 Modernization/Test
– (U)	$2,003	SBSS Increment 2 Modernization/Test
– (U)	$3,606	COE Refresh/Architecture
– (U)	$18,334	Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303141F Global Combat Support System

PROJECT

(U) B. Program Change Summary ($ in Thousands)	FY 96	FY 97	FY 1998	FY 1999	Total Cost
(U) FY97 President's Budget	10,400	15,193	15,597	16,096	TBD
(U) Appropriated Value	10,400	15,193			
(U) Adjustments to Appropriated Value					
a. Cong Reductions	-201	-304			
b. Small Business Innovative Research	-225	-332			
c. Omnibus or Other Above Threshold Reprogram	-114				
d. Below Threshold Reprogramming	-3				
e. Rescissions	-64	-14			
(U) Adjustments to Budget Years Since FY97 PB			5,297	2,238	
(U) FY 1998/1999 Biennial Budget	9,793	14,543	20,894	18,334	TBD

(U) Change Summary Explanation:

(U) Funding: The FY96 Appropriations bill required much of the GCSS-AF activity to be funded with RDT&E vice O&M funds. The FY98 and FY99 addition reflects the net of three funding adjustments: (1) an addition to offset FY96 O&M funding reduction, (2) a reduction to fund higher priority Air Force programs, and (3) the realignment of Program Office operations and Base Operating Support O&M funds to RDT&E for GCCS.

(U) Schedule: Full Standard Base Supply System (SBSS) modernization delayed 2 years.

(U) Technical: No change to program technical requirements.

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 96	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	To Compl	Total Cost
(U) Other Proc, AF (Phase 1)*	11,516	996								12,512
(U) Other Proc, AF (Phase 2)**		7,200								7,200
(U) O&M, AF***		7,900								7,900

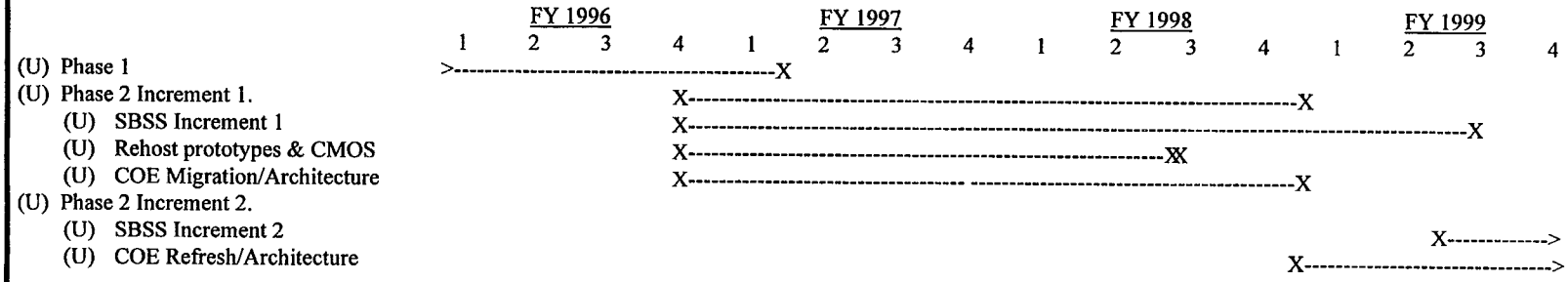
* Funding for fielding the Phase 1 prototype systems.

** Funding for enterprise license for Commercial Off-the-Shelf Software part of SBSS modernization solution

*** Support Phase I prototype systems and manpower/DBOF costs (in FY98+ these costs are in RDT&E lines shown above)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303141F Global Combat Support System PROJECT

(U) D. **Schedule Profile**



RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303141F Global Combat Support System PROJECT

(U) A. **Project Cost Breakdown ($000 in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) System Program Office Operations/Contractor Sustaining Management/Award Fee		3,153	11,498	9,410
(U) Phase 1	4,300	492		
(U) Phase 2 Milestone Review and Source Selection	2,145			
(U) Modernization Planning/SIL		2,298	799	813
(U) SBSS Increment 1 Modernization/Test.	1,500	2,500	3,597	2,502
(U) Rehost AFORMS, MDS, LOGMOD-B, and CMOS.	1,000	2,300	2,600	
(U) COE Migration/Architecture.	845	3,800	2,400	
(U) SBSS Increment 2 Modernization/Test.				2,003
(U) COE Refresh/Architecture				3,606
(U) Total.	9,790	14,543	20,894	18,334

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Not applicable.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303144F Electromagnetic Compatibility Analysis Center (ECAC)

PROJECT: 649E

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
649E Joint Spectrum Center (JSC)	1,500	7,307	7,844	7,973	8,204	8,328	8,950	9,233	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. **Mission Description and Budget Item Justification**(U) The Joint Spectrum Center (JSC) serves as the DoD focal point for electromagnetic (EM) spectrum management matters in support of the Unified Commands, Military Departments, and Defense Agencies in planning, acquisition, training, and operations. The JSC receives operational guidance from the Joint Staff (J6) and policy guidance from the Assistant Secretary of Defense for Command, Control, Communications and Intelligence (ASD(C^3I)). The JSC is the responsible activity for DoD spectrum management and use automation for strategic, theater, and tactical operations. The JSC has the responsibility for architecture and standardization of DoD automated spectrum information and management systems. Specifically, the Center designs, develops, and maintains DoD automated spectrum management systems, evaluation tools, and databases employed by the Unified Commands, Military Departments, and Defense Agencies. The JSC databases are the prime sources of information for DoD use of the EM spectrum. The JSC provides guidance and assistance to Office of Assistant Secretary of Defense (OASD), Joint Staff, DoD activities and Unified Commands to ensure development and acquisition of electromagnetically compatible systems and for the effective deployment of these systems in military operations. This Center is the focal point for spectrum related support, Electromagnetic Environmental Effects (E^3), and EM interference resolution assistance to operational units including deployable support to CINC Joint Task Forces. The JSC mission is integral to other vital activities such as Information Warfare (IW), Command and Control (C^2) Protect and other defensive C^3 warfare activities as directed by the Joint Staff. This program is in budget activity 7 - Operational System Development, because it involves efforts supporting operational systems development.

NOTE: FY 1995 RDT&E funding was budgeted within the Air Force under PE 0303144F, Electromagnetic Compatibility Analysis Center (ECAC) which was renamed the Joint Spectrum Center effective 28 Sep 94. For FY 1996, Executive Agent responsibility and funds for JSC were transferred from the Air Force to Defense Information Systems Agency (DISA). However, in November 1995, Air Force was redesignated as the Executive Agent and agreed to provide FY 1996 funding for PE 0303144F to support those mission requirements not funded under the DISA PE 0303153K. Beginning FY 1997, the JSC responsibility and funds returned to the Air Force.

(U) FY 1996 ($ in Thousands):
- (U) 700 Identify and develop techniques and procedures to ensure E^3 effects to ordnance are addressed during joint service operations.
- (U) 800 Plan/coordinate and design standard DoD Spectrum Management Information System in support of CINCs/Services
- (U) 1,500 Total

(U) FY 1997 ($ in Thousands):
- (U) 250 Procure Fast Hopper Direction Finder (DF) System (<2 GHz) to support Joint Spectrum Interference Resolution (JSIR)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303144F Electromagnetic Compatibility Analysis Center (ECAC)
	PROJECT 649E

- (U) 220 Enhance automated database systems (i.e., Consolidated Maintenance Center (CMC), EMC Catalog System, Tactical Environment Generator/Workstation (TEGEN/WS), and INTEL Data Resources (IDR))
- (U) 1,110 Enhance the Joint Spectrum Management System (JSMS) and Frequency Resource Record System (FRRS) in accordance with user requirements defined by the CINCs and Services
- (U) 1,300 Initiate implementation of standard DoD Spectrum Management Information System in support of CINCs/Services
- (U) 560 Provide support to ASD(C^3I) on issues expected to arise in preparation for the World Radio Conference 97 and on other issues regarding reallocation of Government spectrum to the civil sector
- (U) 300 Integrate Electromagnetic Environment Effects (E^3) requirements within DoD modeling and simulation architectures
- (U) 227 Continue improvement of Joint Spectrum Center (JSC) Cosite Analysis Model by adding user friendly graphics interfaces
- (U) 500 Develop Space/Earth EMC and Radiation (SEER) visualization capabilities
- (U) 1,090 Complete initial Aircraft inter-Antenna Propagation with Graphics (AAPG)-2000 capability, perform advanced research efforts in area of supplementary measurements and modification to the transmitter/receiver (T/R) module algorithm, and continue research of E^3 analysis of ultra-wideband (UWB) ultra-high resolution (UHR) radar waveforms
- (U) 480 Develop Radar Coverage Model to enhance/provide new visualization graphics capabilities for system-level analysis on a personal computer (PC)
- (U) 230 Assess advanced communications/weapons systems technologies for electromagnetic compatibility (EMC) implications and EMC modeling limitations
- (U) 300 Develop database to provide E^3 Hazards of Electromagnetic Radiation to Ordnance (HERO) susceptibility and equipment characteristics data, and begin development of Joint Ordnance E^3 Risk Assessment Database and the PC HERO Susceptibility System
- (U) 740 Identify and develop techniques and procedures to ensure E^3 effects to ordnance are addressed during joint service operations
- (U) 7,307 Total

(U) FY 1998 ($ in Thousands):

- (U) 150 Procure Fast Hopper DF System (> 2 GHz) to support Joint Spectrum Interference Resolution (JSIR)
- (U) 190 Initiate development of new database capabilities to provide access to JSC data over INTEL link and develop new capabilities to permit access to Defense Information Infrastructure (DII)/Global Command and Control System (GCCS) resident capabilities
- (U) 1,120 Enhance the JSMS and FRRS in accordance with user requirements defined by the CINCs and Services
- (U) 1,299 Continue implementation of Standard DoD Spectrum Management Information System to support CINCs/Services,
- (U) 570 Provide support to ASD(C^3I) on issues regarding reallocation of Government spectrum to the civil sector
- (U) 360 Continue integration of E^3 requirements within DoD modeling and simulation architectures and assemble a suite of simulations to support the acquisition of C-E equipment
- (U) 305 Complete development of JSC cosite model graphical improvements
- (U) 830 Complete development of E^3 visualization packages into Space/Earth EMC and Radiation (SEER)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303144F Electromagnetic Compatibility Analysis Center (ECAC)
	PROJECT 649E

- (U) 640 Conduct research to develop techniques to analyze stealth materials, continue advanced research efforts in transmitter/receiver (T/R) module algorithms, and continue research of Electromagnetic Environment Effects (E^3) analysis ultra-wideband (UWB) ultra-high resolution (UHR) radar waveforms
- (U) 490 Enhance Radar Coverage Model to include communications systems and continue development of new visualization graphics capabilities for system-level analysis on a personal computer (PC)
- (U) 160 Develop visualization products to highlight and graphically depict E^3 effects in models & simulations
- (U) 230 Assess advanced communications/weapons systems technologies for electromagnetic compatiblity (EMC) implications and EMC modeling limitations
- (U) 400 Continue development of E^3 Hazards of Electromagnetic Radiation to Ordnance (HERO) Susceptibility System and Joint Ordnance E^3 Risk Assessment Database
- (U) 1,100 Identify and develop techniques and procedures to ensure E^3 effects to ordnance are addressed during joint service operations
- (U) 7,844 Total

(U) FY 1999 ($ in Thousands):

- (U) 450 Procure Intercept Receiver to support Joint Spectrum Interference Resolution (JSIR)
- (U) 300 Develop new capabilities to enhance the efficiency, quality, and functional capability of the databases, and to permit access to Defense Information Infrastructure (DII)/Global Command and Control System (GCCS) resident capabilities
- (U) 2,070 Release Initial Operating Capability for Standard DoD Spectrum Management Information System and add additional capabilities required for full operational capability
- (U) 590 Provide support to ASD(C^3I) on issues expected to arise in preparation for the World Radio Conference 99, and on other issues regarding reallocation of Government spectrum to the civil sector
- (U) 455 Continue integration of E^3 requirements within DoD modeling and simulation architectures and assemble a suite of simulations to support the acquisition of C-E equipment
- (U) 470 Develop algorithm for analyzing advanced systems, and integrate EM coupling models into the cosite model
- (U) 680 Integrate Space/Earth EMC and Radiation (SEER) display capability with graphical database select
- (U) 650 Implement techniques developed to account for stealth materials in AAPG-2000;continue research of E^3 analysis of UWB UHR Rdr waveforms
- (U) 450 Develop advance features to Radar Coverage Model and continue development of new visualization graphics capabilities for system-level analysis on a PC
- (U) 160 Develop visualization products to highlight and graphically depict E^3 effects in models & simulations
- (U) 230 Assess advanced communications/weapons systems technologies for EMC implications and EMC modeling limitations
- (U) 410 Complete Joint Ordnance E^3 Risk Assessment Database and develop additional data and analysis tools to manipulate data
- (U) 1,058 Identify and develop techniques and procedures to ensure E^3 effects to ordnance are addressed during joint service operations
- (U) 7,973 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303144F Electromagnetic Compatibility Analysis Center (ECAC)
	PROJECT 649E

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	0	7,667	7,910	8,049	
(U) Appropriated Value		7,667			
(U) Adjustments to Appropriated Value					
a. Cong Reductions		-160			
b. SBIR		-200			
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
(U) Adjustments to Budget Years Since FY 1997 PB	1,500		-66	-76	Cont
(U) Current Budget Submit/President's Budget	1,500	7,307	7,844	7,973	Cont

(U) Change Summary Explanation:

Funding: Effective FY 1997 funding for JSC transferred from DISA to the Air Force.

Schedule: Not Applicable

Technical: Not Applicable

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) O&M AF BA 1	4,802	11,823	12,466	12,773	12,776	12,862	13,154	13,470	Cont	Cont

FY 1996 - O&M funding provided by DISA PE 0303153K. In November 1995, Air Force redesignated as the Executive Agent and provided FY 1996 funding for PE 0303144F to support those mission requirements not funded under DISA PE 0303153K. FY 1997 and beyond--O&M funding budgeted by the Air Force.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303144F Electromagnetic Compatibility Analysis Center (ECAC)

PROJECT: 649E

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Decision on Exercise of Option ITT Research Institute (F19628-95C-0060)							X									
(U) Exercise of Option ITT Research Institute (F19628-95C-0060)								X								
(U) Commerce Business Daily for Follow-on Contract																X

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303144F Electromagnetic Compatibility Analysis Center (ECAC)
	PROJECT 649E

(U) A. **Project Cost Breakdown ($ in Thousands)**

(U) Program Management Personnel	FY 1996	FY 1997	FY 1998	FY 1999
(U) Contractor Engineering Support	1,500	7,307	7,844	7,973
(U) Total	1,500	7,307	7,844	7,973

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Support and Management Organizations											
Test and Evaluation Organizations											
IIT Research Institute, Annapolis MD	C/CPAF/	17 May 95	32,982	32,982	1,504	1,500	7,057	7,694	7,523	7,704	32,982

(U) B. **Budget Acquisition History and Planning Information Continued ($ in Thousands)**

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0303144F Electromagnetic Compatibility Analysis Center (ECAC)						PROJECT 649E
Government Furnished Property:										
Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Property										
Support and Management Property										
Test and Evaluation Property										
GFP	C/CPAF	17May95	1Jul95-30Sep98			250	150	450	Cont	
Subtotal Product Development										
Subtotal Support and Management										
Subtotal Test and Evaluation						250	150	450	Cont	Cont
Total Project				1,504	1,500	7,307	7,844	7,973	Cont	Cont

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303152F Automated Data Processing Equipment

PROJECT: 4485

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4485 AF-Global Command and Control System (AF-GCCS)	0	7,299	6,820	6,650	6,798	6,658	6,771	6,917	TBD	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

Note: The Air Force is in the process of changing the title of Program Element 0303152F from Automated Data Processing Equipment to Global Command and Control System (GCCS). This is an effort to consolidate/centralize accounting for the AF-GCCS program, which is now the operational system of record.

(U) A. **Mission Description and Budget Item Justification**

(U) The Global Command and Control System (GCCS) is the designated Command and Control migration system for the DoD. It is an integrated Command, Control, Communications, Computer, and Intelligence (C4I) system capable of supporting all echelons of the US military command structure. GCCS solves C4I interoperability problems between Service components by establishing a Defense Information Infrastructure (DII) Common Operating Environment (COE), as the first step to eliminating stovepipe systems. The AF is responsible for developing four of the modules that will make up this COE, and integration of AF unique applications with the COE. This effort is Budget Activity 7, Operational System Development, because the program develops and implements software for an operational computer network.

(U) FY 1996
- (U) 0 Total

(U) FY 1997
- (U) 4,492 COE Development
- (U) 1,872 Crisis Action Planning Evolution
- (U) 935 Enhancement to the Operational Tasking and Priority System (OT&P) to support user identified Functional Process Improvements
- (U) 7,299 Total

(U) FY 1998
- (U) 4,103 COE Development
- (U) 2,717 Crisis Action Planning Evolution
- (U) 6,820 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303152F Automated Data Processing Equipment
	PROJECT 4485

(U) FY 1999
- (U) 3,990 COE Development
- (U) 2,660 Crisis Action Planning Evolution
- (U) 6,650 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY 1997 President's Budget	0	7,481	7,296	7,196	TBD
(U) Appropriated Value		7,481			
(U) Adjustments to Appropriated Value					
a. Cong Reductions		-157			
b. Small Business Innovative Research		-25			
(U) Adjustments to Budget Year since FY97 PB			-476	-546	
(U) FY 1998 Biennial Budget	0	7,299	6,820	6,650	TBD

(U) Change Summary Explanation:

Funding: FY 95 reprogramming initiated program; FY96 President's Budget was submitted before the requirement for RDT&E AF funds were identified, FY97 was first budget submission.

Schedule: Loss of funding in FY98/99 will delay Crisis Action Planning Enhancements. The schedule is currently being defined.

Technical: GCCS is an evolutionary system. The DII COE requirements continually evolve to solve C4I interoperability problems and to support the efficient migration/integration of C4I applications at all levels of command. Funding reductions delay critical DII migration and C4I interoperability.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303152F Automated Data Processing Equipment
	PROJECT 4485

(U) C. **Other Program Funding Summary in PE 33152F ($ in Thousands)**

	FY1996	FY1997	FY1998	FY1999	FY2000	FY2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Other Procurement, Air Force	5,137	10,165	7,319	5,980	5,992	5,998	6,098	6,146	TBD	TBD
(U) Military Personnel	1,023	931	986	967	987	1,017	1,047	1,078	TBD	TBD
(U) Operations and Maintenance, Air Force	9,232	10,332	17,297	17,673	18,025	18,557	18,590	19,322	TBD	TBD

(U) D. **Schedule Profile**

	FY 1996				FY 1997				FY 1998				FY 1999		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1.) (U) Common Operating Environment (COE) Development																
• Multi-Media								X				X				X
• Distributed Computing Services								X				X				X
• Office Automation								X				X				X
• Management Services								X				X				X
2.) (U) Crisis Action Planning Enhancement								X								

(U) Note: The schedule for the initial GCCS COE was originally established in FY95. The release was adjusted to align with the Defense Information Systems Agency (DISA) DII COE delivery schedule.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303152F Automated Data Processing Equipment	PROJECT 4485

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Common Operating Environment (COE) Development		4,492	4,103	3,990
(U) Crisis Action Planning Evolution		1,872	2,717	2,660
(U) Operational Testing and Planning (OT&P) Enhancement		935		
(U) Total	0	7,299	6,820	6,650

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303152F Automated Data Processing Equipment PROJECT 4485

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Product Development Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Total Program
(U) Rome Lab	FFP/FCA	Jun 95	N/A	N/A	250	0	0	0	0	TBD
(U) Material Systems Group	various	various	N/A	N/A	1,400	0	0	0	0	TBD
(U) Miscellaneous	various	various	N/A	N/A	85	0	0	0	0	TBD
(U) ESC	various	various	N/A	N/A	0	0	7,299	6,820	6,650	TBD
Support and Management Organizations										
(U)TEMS	OT&M	Jun 95	N/A	N/A	150	0	0	0	0	150
(U) Miscellaneous	various	various	N/A	N/A	15	0	0	0	0	15

Test and Evaluation Organizations
(U) Not Applicable

Government Furnished Property: Not Applicable

(U) Total					1,900	0	7,299	6,820	6, 650	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303601F MILSATCOM Terminals

PROJECT: 2487

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
2487 MILSATCOM Terminals	40,678	19,289	12,871	8,799	13,030	28,274	2,531	418	5,446	1,943,047
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

Note: FY96 funding is only for Milstar EHF terminals. From FY97 on, funding includes Milstar EHF terminals, SHF terminals and UHF SATCOM. Prior and FY96 funding for UHF SATCOM is in PE 0303606F (UHF SATCOM). Prior funding for SHF terminals is in PE 0303605F. Prior year funding for all programs is included in total program cost.

(U) A. Mission Description and Budget Item Justification

Military Satellite Communications (MILSATCOM) provides worldwide communications to strategic and tactical warfighters. The MILSATCOM Terminals Program contains efforts to develop equipment for Air Force users to communicate over military satellites, including Milstar, Ultra High Frequency (UHF) satellites, and Defense Satellite Communication System (DSCS). Enhancements to the Milstar ground and airborne Command Post Terminals (CPT), which were procured in FY93 through two contractors, are continuing. The Air Force's Milstar tactical terminals, the Single Channel Anti-Jam Manportable (SCAMP) and the Secure, Mobile, Anti-Jam, Reliable, Tactical Terminal (SMART-T), are funded by the Air Force and procured by the Army. Increasing requirements for UHF satellite capacity, coupled with limited channel capacity, led the Joint Staff to mandate new standards for UHF users that are designed to improve satellite access and efficiency by utilizing Demand Assigned Multiple Access (DAMA) techniques. Development efforts in the UHF SATCOM program are primarily focused on the design and implementation of the Network Control System (NCS) and ground and airborne DAMA terminals. DSCS terminal procurement efforts sustain and modernize the Ground Mobile Forces terminal and the Jam-Resistant Secure Communications (JRSC) subnet of DSCS. This effort is in Budget Activity 7, Operational System Development, because it has completed a Milestone III review and is in production.

(U) FY 1996
- (U) $4,028 Continue basic activities required to support the Milstar Terminals program
- (U) $28,990 Develop CPT upgrades and modifications
- (U) $5,070 Continue UHF terminal and AFSATCOM modifications
- (U) $1,870 Support testing activities
- (U) $704 AFSATCOM Payload Integration on Classified Host
- (U) $16 Reserved for other DoD reprogramming needs
- (U) $40,678 Total

(U) FY 1997
- (U) $4,077 Continue basic activities required to support the MILSATCOM Terminals program

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303601F MILSATCOM Terminals PROJECT 2487

- (U) $10,498 Develop CPT upgrades and modifications
- (U) $589 Continue UHF terminal and AFSATCOM modifications
- (U) $1,850 Support Milstar testing activities
- (U) $2,275 Conduct worldwide system test on Network Control System
- (U) $19,289 Total

(U) FY 1998 ($ in Thousands):
- (U) $3,322 Continue basic activities to support MILSATCOM terminals
- (U) $9,549 Develop CPT upgrades and processor modifications
- (U) $12,871 Total

(U) FY 1999 ($ in Thousands):
- (U) $2,105 Continue basic activities to support MILSATCOM terminals
- (U) $6,694 Develop CPT upgrades and processor modifications
- (U) $8,799 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996*	FY 1997	FY 1998	FY 1999
(U) Previous President's Budget	40,969	26,962	19,925	12,628
(U) Appropriated Value		20,348		
(U) Adjustments to Appropriated Value				
a. Congressional General Reductions		-904		
b. SBIR		-155		
c. Omnibus and Other Above Threshold Reprogram	-261			
d. Below Threshold Reprogramming	-29			
(U) Adjustments to Budget Years Since FY97PB			-7,054	-3,829
(U) Current Budget Submit/FY98PB	40,678	19,289	12,871	8,799

(U) Change Summary Explanation:

Funding reductions in FY98-99 reflect deletion of Joint MILSATCOM UHF Network Integrated Controller (JMINI) development funds and other small reductions. FY96 funds include $16 reserved for other DoD reprogramming needs.
Schedule: None.
Technical: None.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303601F MILSATCOM Terminals PROJECT 2487

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Aircraft Procurement, Air Force	473	20,288	16,678	10,777	19,628	20,627	36,954	65,495	Cont	Cont
(U) Other Procurement, Air Force	47,708	52,042	20,353	27,893	32,521	25,906	21,842	21,942	Cont	Cont

Note: FY96 includes Milstar and SHF terminals. FY97and beyond includes Milstar, SHF and UHF SATCOM.
Other Procurement funding does not include spares.

Related RDT&E: PE 0604479F Milstar LDR/MDR Satellite Communications

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) CPT IOT&E Phase II				x	x	x										
(U) CPT IOC I					x											
(U) CPT Production Deliveries	x	x	x	x												
(U) DFS 3					x	x	x	x	x	x	x	x				
(U) DFS 4									x	x	x	x	x	x	x	x
(U) DFS 5													x	x	x	x
(U) SCAMP Production Begins		x														
(U) SCAMP Deliveries Begin *									x							
(U) SMART-T Low-Rate Initial Production Begins						x										
(U) Network Control System																
(U) Testing	x	x	x	x												
(U) Deliveries				x	x											
(U) Worldwide System Test						x	x									
(U) DAMA Modem Certification Testing	x	x	x													
(U) Airborne DAMA Terminal Upgrade																
(U) Contract Award/Option			x						x				x			
(U) Deliveries						x	x	x			x	x	x		x	x

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303601F MILSATCOM Terminals

PROJECT: 2487

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Ground DAMA Terminal Deliveries				x	x	x	x	x			x	x	x	x		

* Air Force deliveries begin Oct 97

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303601F MILSATCOM Terminals

PROJECT: 2487

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) CPT Upgrades	28,990	10,498	9,549	6,694
(U) UHF Upgrades	5,070	589		
(U) Testing Support/Studies	1,870	1,850		
(U) SPO Ops (PSA, TDY, Trng, Sup/Equip, Ktr Conv)	4,028	4,077	3,322	2,105
(U) AFSATCOM Payload Integration	704			
(U) Network Control System World Wide system test		2,275		
(U) Reserved for other DoD reprogramming needs	16			
(U) Total	40,678	19,289	12,871	8,799

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Raytheon Corp	FPIF/FFP	Jun 85	896,384	896,384	851,988	17,960	7,978	7,966	5,502	4,792	896,186
Rockwell	CPIF	Aug 93	43,068	43,068	43,068	0	0			0	43,068
Miscellaneous	Various	Various	N/A	N/A	643,797	5,967	589			0	650,353
ViaSat	C/FFP	Oct 95	33,814	33,814			2,108			31,539	33,647
Support and Management Organizations											
MITRE	CPAF	Various	N/A	N/A	84,453	8,505	3,607	1,916	1,469	4,243	104,193
SPT Contractors	Various	Various	N/A	N/A	146,973	5,012	1,643	1,650	563	2,513	158,354
Tecolote	Various	Various	N/A	N/A	698	682	0	705	726	1,518	4,329
Miscellaneous	Various	Various	N/A	N/A	16,512	1,338	2,214	634	539	5,094	26,331

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303601F MILSATCOM Terminals

PROJECT: 2487

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Test and Evaluation Organizations											
Wright-Labs	AF-616**	N/A	N/A	N/A	19,066	1,025	1,150			0	21,241
Miscellaneous	Various	Various	N/A	N/A	5,156	189	0			0	5,345
Subtotal Product Development					1,538,853	23,927	10,675	7,966	5,502	36,331	1,623,254
Subtotal Support and Management					248,636	15,537	7,464	4,905	3,297	13,368	293,207
Subtotal Test and Evaluation					24,222	1,214	1,150	0	0	0	26,586
Total Project*					1,811,711	40,678	19,289	12,871	8,799	49,699	1,943,047

Government Furnished Property: N/A

Product Development Property N/A

Support and Management Property N/A

Test and Evaluation Property N/A

* FY96 total project funding includes $16K reserved for other DoD reprogramming needs.
** An AF-616 is an internal transfer of funds between AF organizations.

Note: FY96 funding includes Milstar terminals. From FY97 on, funding includes Milstar terminals, SHF terminals and UHF SATCOM. FY96 funding for UHF SATCOM is in PE 0303606F (UHF Satellite Communications). Funding for SHF terminals (prior to FY95) is in PE 0303605F. Prior funding for all programs is included in total costs.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305110F Satellite Control Network (Space)

PROJECT: 3276

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
3276 Satellite Control Network	74,896	82,640	80,011	104,061	99,867	102,853	92,876	95,209	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description and Budget Item Justification

(U) The Air Force Satellite Control Network (AFSCN) mission is to fly operational USAF and other DoD satellites. The AFSCN also provides launch & early orbit tracking operations in support of all major US launches. Air Force Space Command (AFSPC) performs operations and maintenance and Air Force Materiel Command (AFMC) performs modernization and sustainment of the system to meet requirements validated by a HQ USAF approved Operational Requirements Document (ORD). This effort funds the development and acquisition of this integrated national satellite telemetry, tracking, commanding, and data relay capability. to meet the requirements of the growing inventory of operational and developmental DoD, National, Civil, and foreign satellite systems. Improvement and Modernization efforts in command & control, communications, and range elements of the AFSCN will ensure DoD space systems are operationally ready to support the CINCs' warfighting requirements.

(U) The AFSCN consists of four segments: Command & Control, Communications, Range, and Support. The system is a global infrastructure of control centers, remote tracking stations, and communications links that provide the highly reliable command and control, communications, and range systems required to support the nation's surveillance, navigation, communications, and weather satellite operations. The AFSCN is the DoD common user network that provides satellite state-of-health, tracking, telemetry, and commanding (TT&C) for the following operational satellite systems: DMSP, GPS, DSCS, DSP, FLTSAT, MILSTAR, UHF F/O, Skynet, NATO II/IV, and Classified Programs.

(U) AFSCN Improvement and Modernization (I&M): AFSCN I&M is an on-going program of replacements and upgrades which will replace non-standard, unsupportable equipment with more reliable, maintainable and standardized hardware and software. This new equipment will enable AFSPC satellite operations to be performed with fewer, lower skilled personnel and will significantly reduce HW/SW maintenance costs. The principal efforts within this program are: Network Operations Upgrades (Command & Control System Upgrades), Communications Upgrades, and Range Upgrades.

(U) NETWORK OPERATIONS UPGRADES: The Network Operations Upgrades effort will develop a replacement for the current Command and Control System (CCS) segment of the Network. The current CCS provides approximately 130,000 real-time satellite contacts per year using an old IBM mainframe-based, centralized computer system. The new system, the Standard Satellite Control Subsystem (SSCS), will employ a server-workstation-based, open architecture system using a high speed communications backbone. It will use standard hardware and software elements and will provide improved capability with reduced operations and support costs. The mission critical computer systems which are to be replaced perform satellite telemetry processing and commanding, orbit data processing, network scheduling, and software/database maintenance and testing in AFSCN satellite operations centers, mission control complexes, scheduling complexes, and related training and operational software support facilities. The SSCS upgrades will be based on AFSPC's prioritized list of needed enhancements and will be implemented in a phased approach to meet

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305110F Satellite Control Network (Space)
	PROJECT 3276

satellite program windows of opportunity. The current Resource Management System (RMS), which deconflicts and allocates network telemetry, tracking & command assets to support operational space vehicles, will be replaced with an automated system which includes network resource scheduling and orbit analysis functions to include ephemeris and events generation, radio frequency interference detection and collision avoidance. This evolution offers tremendous potential for reducing satellite control O&M costs through enhanced commonality and standardization, simplified operations, and automation. Commercial off-the-shelf (COTS) hardware and software will be procured for the new Resource Management System (network scheduling, which includes portions of space safety and hazard analysis previously provided by Inter-Range Operations facilities) and the SSCS. The software portions of these systems will be modified to meet AFSPC's common set of network operations and satellite control operational requirements.

(U) COMMUNICATIONS UPGRADES: This effort will transition the current, costly point-to-point AFSCN communications network to a communications grid system that integrates government and commercial networks as technology becomes available. Several standardization efforts are being implemented to improve and modernize the communications and ground segment elements of the AFSCN, including: Archival recording systems to replace obsolete, manpower-intensive analog equipment with automated, standardized digital COTS systems; a Centralized Control and Monitor (CC&M) system which will consolidate communications operations, provide remote control of tracking station equipment, and increase fault detection and isolation capabilities to reduce O&M costs; Wide Area Network Interface Units (WANIU) which standardize hardware and reduce O&M costs for performing multiplexing functions in the AFSCN, as well as provide an Asynchronous Transfer Mode (ATM) interface; and Operational Switch Replacement (OSR) to provide increased capacity, reliability, data quality, and user access.

(U) RANGE UPGRADES: This effort will upgrade the current Automated Remote Tracking Station (ARTS) and other Range assets. Several integrated projects will standardize the remote tracking stations, upgrade and/or replace outdated equipment in order to reduce failures, correct operational deficiencies, and reduce operating and sustainment costs.

(U) This effort is in Budget Activity 7, Operational System Development, because it supports a fielded system.

(U) ACQUISITION STRATEGY: The primary objective of the AFSCN I&M program is to reduce the cost of satellite control operations while maintaining or improving reliability, maintainability, operability, and capability of current systems. A combination of performance based specifications and commercial/industrial specifications and standards were used for these acquisitions and were tailored to state only the Government's minimum performance needs. All development contracts were competitively awarded and utilized commercial practices and streamlining to the maximum extent possible.

The AFSCN utilized multiple development contracts in the past. Starting in FY96, a new streamlined contracting strategy was implemented with the award of three new contracts. The new strategy resulted in the Range & Communications Development Contract (RCDC), the Network Operations Upgrade Contract (NOUC), and the Network Integration Contract (NIC). Integration efforts had previously been spread across functional and contracting lines but with the new AFSCN contracting strategy the NIC contractor will be responsible for inter-segment integration. Development upgrades will be designed to be flexible in meeting new satellite program requirements while minimizing sustainment costs by taking advantage of development efforts in satellite control over a large number of government and non-government development activities. It is believed that these objectives can best be reached by developing systems with an open software design and a distributed system architecture using COTS products wherever feasible.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997	
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305110F Satellite Control Network (Space)	PROJECT 3276

(U) FY 1996

(U) $28,800 **Network Operations Upgrades (Command and Control System Upgrades):**
(U) Initiated implementation of systems necessary to make network operations more affordable. Provides primary and back-up systems and necessary security controls. Consists of development and testing of Resource Scheduling, Basic Orbit Service, Control and Status, and Network Performance capabilities. Identified modifications for the Standard Satellite Control Subsystem (SSCS) for integration into the first Satellite Operations Complex (SOC). These upgrades will include upgrade of the Telemetry, Tracking, and Commanding system with SSCS in the consolidated communication, navigation, surveillance, weather, and RDT&E SOC's as prioritized by AFSPC. Scheduled program completion FY 01.

(U) $31,300 **Communications Upgrades:**
(U) Continued Communications Segment archival recorder system upgrades through integration and test of standardized COTS digital telemetry recorders. Continued development of the Centralized Control and Monitor (CC&M) network including design and integration of hardware and software. Continued development of COTS based hardware and software for WANIU by developing first unit prototypes. Began OSR studies and requirements analysis.

(U) $14,796 **Network Integration and Systems Engineering**: (U) Continued system engineering and integration of hardware/software to meet evolving satellite program requirements at Operational Control Nodes (OCNs) and Remote Tracking Stations (RTS).

(U) $74,896 **Total**

(U) FY 1997

(U) $33,600 **Network Operations Upgrades (Command and Control System Upgrades):**
(U) Continue software development of Resource Scheduling, Basic Orbit Service, and Network Performance capabilities. Begin effort to field and sustain an early schedule input and dissemination capability until RMS delivery. Initiate effort to move the primary orbit analysis functions of RMS to Onizuka for use by the Inter-Range Operations organization. Begin design of Standard Satellite Control Subsystem software modifications. The modifications will augment or change software code in the government-furnished satellite control system. Scheduled completion FY02. Continue developing priority user-requested modifications to command and control systems.

(U) $35,540 **Communications Upgrades:**
(U) Continue supporting hardware and software integration of standardized COTS archival recorder units at Remote Tracking Stations (RTS). Complete development of WANIU and begin operational testing of prototype in AFSCN. Continue CC&M development. Continue Operational Switch Replacement studies and requirements analysis. Scheduled completion FY01.

(U) $13,500 **Network Integration and Systems Engineering:** (U) Continue system engineering and integration of hardware/software to meet evolving satellite program requirements at OCNs and RTSs.

(U) $82,640 **Total**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305110F Satellite Control Network (Space)
	PROJECT 3276

(U) FY 1998

(U) $25,185 **Network Operations Upgrades (Command and Control System Upgrades):**
(U) Develop, test, and field Resource Scheduling, Basic Orbit Service, Control and Status, and Network Performance capabilities in primary locations. Begin implementation of additional orbit service capabilities into RMS. Complete initial version of the SSCS and delivery to satellite SPO. Scheduled completion FY01.

(U) $26,700 **Communications Upgrades:**
(U) Continue supporting hardware and software installation of standardized COTS archival recorder units at RTSs. Continue integration and test of WANIUs into the AFSCN. Complete CC&M development and deliver baseline system. Continue development of Operational Switch Replacement.

(U) $14,900 **Range Upgrades:**
(U) Begin development of Remote Tracking Station Control & Status upgrades which provides a distributed, multi-processor architecture, and replaces memory and processing deficient 80286 computers. Begin development of operational Range & Communications Centralized Control Monitor (RC3M) upgrades to provide centralized, remote control of Range equipment from the Falcon AFB control node. Payoff is to reduce operations & support costs.

(U) $13,226 **Network Integration and Systems Engineering:** Continue system engineering an integration of hardware/software to meet evolving satellite program requirements at OCNs and RTSs.

(U) $80,011 **Total**

(U) FY 1999

(U) $12,800 **Network Operations Upgrades (Command and Control System Upgrades):**
(U) Begin Resource Scheduling integration and test of orbit service at back-up operational location. Complete second release of SSCS and deliver to SBIRS and GPS. Initiate RMS trainer.

(U) $26,664 **Communications Upgrades:**
(U) Complete Archival Recorder System and CC&M development projects. Continue developing Operational Switch Replacement.

(U) $50,400 **Range Upgrades:**
(U) Begin development of antenna upgrades. Current 1960's technology antennas are very expensive to maintain. Modern designs are available off-the-shelf to provide increased performance, reduced interference (required by FCC allocation of adjacent frequencies to Commercial users), and multi-frequency alternatives. Continue C&S and RC3M efforts.

(U) $14,197 **Network Integration and Systems Engineering:**
(U) Continue system engineering an integration of hardware/software to meet evolving satellite program requirements at OCNs and RTSs.

(U) $104,061 **Total**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305110F Satellite Control Network (Space)

PROJECT: 3276

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Previous President's Budget	78,830	89,960	93,366	107,136
(U) Appropriated Value		86,960		
(U) Adjustments to Appropriated Value				
a. Cong Gen Reductions		-2,062		
b. SBIR		-2,258		
c. Omnibus and Other Above Threshold Reprogram	-1,321			
d. Below Threshold Reprogramming	-2,095			
e. Recissions	-518			
(U) Adjustments to Budget Years since FY 97 PB			-13,355	-3,075
(U) Current Budget Submit/President's Budget	74,896	82,640	80,011	104,061

(U) Change Summary Explanation:
FY98 and FY99 adjustments fund higher Air Force and DoD priorities.
Schedule: Delivery of first complete SSCS delayed one year due to funding adjustments for higher Air Force priorities.
Technical: Not Applicable.

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Other Procurement, AF; Budget Activity: 3, AFSCN	24,094	17,144	32,197	40,025	24,961	34,447	47,022	47,350	Continue	Continue

Related RDT&E:
(U) Not Applicable.

(U) D. Schedule Profile

FY 1996 | FY 1997 | FY 1998 | FY 1999

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305110F Satellite Control Network (Space)

PROJECT: 3276

	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Communications Upgrades																
Award RCDC Contract		X														
Install OCN archival recorders			X													
Start OSR Study		X														
Archival CDR							X									
RTS archival IOC											X					
CC&M CDR							X									
CC&M IOC												X				
WANIU CDR											X					
WANIU IOC													X			
OSR CDR											X					
Network Operations Upgrades																
Award NOUC Contract			X													
Complete Specification for SSCS					X											
SSCS design								X								
Resource Management CDR								X								
Resource Management IOC												X				
Range Upgrades																
Start Control & Status									X							
Start RC3M									X							
Start antenna upgrades													X			
Network Integration & Systems Engr.																
Award Network Integration Contract			X													

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305110F Satellite Control Network (Space)
	PROJECT 3276

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Network Ops Upgrades (Command and Control Upgrades)	28,800	33,600	25,185	12,800
(U) Communications Upgrades	31,300	35,540	26,700	26,664
(U) Range Upgrades			14,900	50,400
(U) Network Integration and Systems Engineering	14,796	13,500	13,226	14,197
(U) Total	74,896	82,640	80,011	104,061

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC**	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	To Complete	Total Program
Product Development Organizations											
Multiple	Multiple	Multiple	72,296	72,296		72,296	0	0	0	0	72,296
Lockheed Martin*	C/CPAF	Mar 96		186,404		0	35,540	41,600	66,464	42,800	186,404
Lockheed Martin	C/CPAF	Apr 96	41,179	71,585		0	33,600	25,185	12,800	0	71,585
Range Upgrades	TBD	TBD		150,600		0	0	0	10,600	140,000	150,600
Lockheed Martin	C/CPAF	May 96	34,900	95,723		2,600	13,500	13,226	14,197	52,200	95,723

*Assumes award of C&S, OSR, and RC3M upgrades
**Only includes projections/options exercised to date

Support and Management Organizations
N/A
Test and Evaluation Organizations
N/A

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305110F Satellite Control Network (Space) — PROJECT 3276

Government Furnished Property: N/A

	FY 1996	FY 1997	FY 1998	FY 1999	To Complete	Total Program
Subtotal: Product Development	74,896	82,640	80,011	104,061	continuing	continuing
Subtotal: Support and Management						
Subtotal: Test and Evaluation						
Total Project	74,896	82,640	80,011	104,061	continuing	continuing

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305111F Weather Service

PROJECT: 2738

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
2738 Weather Service	5,321	4,919	9,057	8,424	11,723	12,004	12,217	12,499	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. **Mission Description and Budget Item Justification**

(U) This effort is in Budget Activity 7, Operational System Development, because it supports software development and system tests associated with the upgrade and replacement of currently operational systems, systems already in production, and systems with approved production funds in the DoD budget. This program provides for the modification, sustainment, and acquisition of meteorological hardware and software needed to support the observing and forecasting needs of worldwide Air Force and Army operations. Efforts include: (a) Cloud Depiction and Forecast System II (CDFS II), replaces logistically unsupportable mainframe computers at the Air Force's Global Weather Central (AFGWC) and upgrades satellite data processing, cloud depiction and forecasting, and classified weather support functions for operational commanders and national programs; (b) Global Theater Weather Analysis and Prediction System (GTWAPS), acquires theater weather models and associated hardware to improve AFGWC's theater support capabilities; (c) Tactical Weather Radar (TWR), provides lightweight, portable Doppler weather radar to support combat operations worldwide; (d) Space Weather Analysis and Forecast System (SWAFS), replaces aging 50th Weather Squadron (AFSPC) hardware and software to move to a more open, efficient computing environment; (e) Meteorological Operations Capability (MOC), which builds upon weather systems successfully integrated into operational C4I systems and supports the "train as you fight" concept by assuring fixed and deployable systems are the same. (f) Satellite Data Handling System II (SDHS II) will retrieve satellite data and meteorological fields from a centralized data base to a graphical user interface capable of 3-D and 4-D visualization. Provides operators and commanders better situational awareness of conditions in their operating environment and battlespace.

(U) FY 1996 ($ in Thousands):
- (U) $4,772 CDFS II: Continue development of cloud depiction and forecast software.
- (U) $ 399 GTWAPS: Cost executability analysis.
- (U) $ 150 SWAFS: Develop technical alternatives.
- (U) $5,321 Total

(U) FY 1997 ($ in Thousands):
- (U) $3,087 CDFS II: Continue development of cloud depiction and forecast software, prepare for FY98 production/integration contract award.
- (U) $1,607 GTWAPS: Milestone decision and development contract award.
- (U) $ 225 SWAFS: Conduct Milestone I/II/III documentation
- (U) $4,919 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0305111F Weather Service / PROJECT: 2738

(U) FY 1998 ($ in Thousands):
- (U) $5,118 CDFS II: Continue to create, rewrite and host software modules.
- (U) $2,485 GTWAPS: Continue development contract award.
- (U) $ 954 TWR: Milestone I/III documentation.
- (U) $ 500 MOC (FS21): Prepare and conduct Milestone I.
- (U) $9,057 Total

(U) FY 1999 ($ in Thousands):
- (U) $3,400 CDFS II: Continue development of cloud depiction and forecast software.
- (U) $1,633 GTWAPS: Continue development contract award.
- (U) $ 250 TWR: SPO support.
- (U) $2,801 MOC (FS21): Begin software development.
- (U) $ 340 SDHS II: Assessment of operational alternative study.
- (U) $8,424 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY1997 President's Budget	5,360	5,126	9,347	8,728	Cont.
(U) Appropriated Value	5,771	5,126			
(U) Adjustments to Appropriated Value					
a. Cong Reductions	-224	-122			
b. Small Business Innovative Research	-116	-85			
c. Below Threshold Reprogramming	-39	0			
d. Rescissions	-71	0			
(U) Adjustments to Budget Years Since FY 1997 PB	0	0	-290	-304	
(U) FY 1998 President's Budget	5,321	4,919	9,057	8,424	Cont.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305111F Weather Service PROJECT 2738

(U) Change Summary Explanation:

Funding: Reductions in FY96 since the FY1997 President's budget are due to Congressional reductions ($-224), SBIRS ($-116), inflation adjustments ($-39), and rescisions ($-71). FY97 changes are due to Congressional reductions in the FY97 Appropriations Act , Section 8136, General Reduction of FY97 RDT&E ($-103), Section 8138 Cancellation/Recession of FY97 RDT&E ($-5), Section 8037 RDT&E ($-14), and Small Business Innovative Research ($-85). FY98 changes are due to AFMC zero based transfer ($-42) for mission support, ESC restructure of the Coral Convert Program ($-213), inflation adjustment ($-32), general reductions for O&M/AF supply ($-2) and WHS ($-1). FY99 changes are due to AFMC zero based transfer ($-37) for mission support, ESC restructure of the Coral Convert Program ($-223), inflation adjustment ($-40), general reductions for O&M/AF supply ($-3) and WHS ($-1).

Schedule: N/A

Technical: N/A

(U) C. **Other Program Funding Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Other Procurement, AF (35111F WSC 833070)	0	0	10,596	19,147	28,868	28,743	30,764	31,694	Cont.	Cont.

Only includes procurement funds for investment programs described in this R-2 Exhibit.

Related RDT&E:

(U) PE #603707F, Weather Systems Advanced Development
(U) PE #305160F, Defense Meteorological Satellite Program
(U) PE #603434F, National Polar-orbiting Operational Environmental Satellite System
(U) PE #207438F, Theater Battle Management C4I
(U) PE #208006F Air Force Mission Planning System

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE
	February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0305111F Weather Service
	PROJECT: 2738

(U) D. **Schedule Profile**

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) CWS TFS Software Complete					X											
(U) GTWAPS Milestone I/II					X											
(U) TWR Milestone II/III									X							
(U) GTWAPS Milestone III											X					
(U) MOC Milestone I												X				

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305111F Weather Service

PROJECT: 2738

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) 1st Article Development	0	0	142	66
(U) System Software Integration	0	214	1,003	312
(U) System Engineering Support	1,300	801	1,147	1,794
(U) Contractor Engineering Support	145	500	997	2,258
(U) Software Development	3,439	3,074	5,517	3,638
(U) Travel	147	87	105	111
(U) Program Management Support	290	243	146	245
(U) Laboratory Support	0	0	0	0
(U) Total	5,321	4,919	9,057	8,424

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Phillips Lab	MIPR	May 94	270	270	270	0	0	0	0	0	270
CalTech	LOE	Jun 94	1,880	1,880	1,172	0	0	346	362	0	1,880
CSC	LOE	Jan 94	2,494	2,494	2,127	0	0	182	285	0	2,594
GTE	FFP/PR	Oct 90	13,064	13,064	13,064	0	0	0	0	0	13,064
PRISM (Raytheon)	LOE	Jan 93	3,844	3,844	3,497	0	0	201	414	0	4,112
PRISM (Hughes)	LOE	Jan 93	3,400	3,400	3,121	0	0	183	346	0	3,650
Sterling	CPAF	Jun 95	21,173	21,173	4,600	4,751	3,186	5,153	3,400	0	21,173

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305111F Weather Service

PROJECT: 2738

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Air Weather Svc (CDFS II related work)	MIPR	4FY95	2,900	2,900	2,900	0	0	0	0	0	2,900
Hughes		Sep 95	1,682	1,682	1,682	0	0	0	0	0	1,682
DNA	MIPR	Jan 95	100	100	100	0	0	0	0	0	100
ATSP/SM-ALC	MIPR	TBD	TBD	TBD	0	0	257	1,556	1,826	4,988	8,627
CCPL/ESC											
Support and Management Organizations											
Electronic Systems Center (ESC)					632	150	323	194	345	Cont	Cont
Space and Missile Center (SMC)					0	250	250	267	285	Cont	Cont
MITRE/ Aerospace TEMS					1009	170	903	975	1,161	Cont	Cont
Test and Evaluation Organizations											
Not Applicable											
Subtotal Product Development						4,751	3,443	7,621	6,633	Cont.	Cont.
Subtotal Support and Management						570	1,476	1,436	1,791	Cont.	Cont.
Subtotal Test and Evaluation						0	0	0	0	Cont.	Cont.
Total Project						5,321	4,919	9,057	8,424	Cont.	Cont.

(U) B. Budget Acquisition History and Planning Information Continued ($ in Thousands)

Government Furnished Property: Not Applicable

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305114F Traffic Cntrl/Approach/Landing Sys

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	5,440	7,643	6,571	925	7,160	5,739	5,824	5,968	Continuing	TBD
2026 System Support	195	374	267	279	252	266	252	262	Continuing	TBD
3587 Precision Landing Development	5,245	7,269	6,304	646	6,908	5,473	5,572	5,706	Continuing	TBD
Quantity of RDT&E Articles	0	10/20k ea	0	0	0	0	0	0	0	0

(U) A. **Mission Description and Budget Item Justification**

This program is in budget activity 7 - Operational System Development, because it upgrades avionics in currently fielded weapon systems. This effort was originally established for development of Military Microwave Landing System Avionics (MMLSA) and acquisition of the commercially developed Commercial Microwave Landing System Avionics (CMLSA). It was originally part of a twenty-year program to transition Air Force operations from the use of Precision Approach Radar (PAR) and Instrument Landing System (ILS) to the Microwave Landing System (MLS) for precision approach and landing. With termination of the MLS as the national precision landing standard, the effort is now being redirected to develop a replacement box for ILS avionics to sustain precision landing capability until the follow-on capability is chosen. The current Air Force ILS receivers do not meet the new specification required by the International Civil Aviation Organization (ICAO) for protection from interference problems forecast to occur after 1998. This budget activity will also accomplish an Analysis of Alternatives (AOA) for the Joint Precision Approach and Landing System (JPALS) program which will result in identification of the follow-on to the ILS and PAR systems. Project 2026 funds ongoing liaison and interagency cooperative studies, between the USAF ATCALS program office and various organizations to include other Services, the Federal Aviation Administration (FAA) and ICAO.

(U) **Acquisition Strategy:** Engineering Manufacturing Development, Fixed Price Incentive Fee (FPIF), Completion FY98, No NDI

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305114F Traffic Cntrl/Approach/Landing Sys

(U) **B. Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY 1997 President's Budget	3,968	4,007	1,835	1,164	TBD
(U) Appropriated Value	3,968	3870			
(U) Adjustments to Appropriated Value	-275	-129			
a. Cong Reductions	-138	-97			
b. SBIR	-79				
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming	1,747	3,999			
(U) Adjustments to Budget Years Since FY 1997 PB	-58		4,736	-239	
(U) FY 1998 President's Budget	5,440	7,643	6,571	925	TBD

(U) Change Summary Explanation:

Funding: Funding decreases in FY96, FY97, FY98 and FY99 due to higher AF funding priorities Funding increase of $1.747 in FY96 was for the Joint Precision Approach and Landing System (JPALS) program; increase of $3.999M in FY97 is for the Air Mobility Command Contingency Precision Approach and Landing Capability (AMC PAC); increase of $4.7M in FY98 is for JPALS.

Schedule: N/A

Technical: N/A

(U) **C. Other Program Funding Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Aircraft Procurement AF Budget Activity 5, Weapon System Code 3587	2,460	147	150	157	4821	4790	4907	4908	cont	TBD

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305114F Traffic Cntrl/Approach/Landing Sys

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Acquisition Milestones:																
(U) Milestone III															X	
(U) Contract Milestones																
(U) Award Precision Landing ECO				X												
(U) Initial MMLS Delivery	X															
(U) Initial TRV Delivery									X							
(U) Test and Evaluation Milestones																
TRV First Article Complete						X										
TRV Operational Testing								X								
Complete																
(U) Other																
(U) MMLS IOC				X												
(U) CMLSA Depot Activation						X										

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305114F Traffic Cntrl/Approach/Landing Sys

PROJECT: 2026

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
2026 System Support	195	374	267	279	252	266	252	262	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

This continuing effort funds ongoing liaison and interagency cooperative studies, as well as interoperability analyses between the USAF ATCALS program office and various organizations which include the other services, the FAA, and the ICAO. Continues mission support for the ATCALS programs including several joint efforts with the FAA. RDT&E funds are used to resolve or minimize technical interface problems associated with interoperability between existing or planned DoD/FAA ATCALS equipment and capabilities.

(U) FY 1996 ($ in Thousands):
- (U) $48 Support for all ATCALS projects (FY96/1)
- (U) $70 Conduct interoperability and interface evaluations (FY96/1)
- (U) $77 Support for the portable precision landing system studies for the Joint Special Operations Command (JSOC) (FY96/2)
- (U) $195 Total

(U) FY 1997 ($ in Thousands):
- (U) $67 Support for all ATCALS projects (FY97/1-4)
- (U) $181 Continue interoperability and interface evaluations (FY97/1-4)
- (U) $126 Support for the portable precision landing system studies for the Joint Special Operations Command (JSOC) (FY97/2-4)
- (U) $374 Total

(U) FY 1998 ($ in Thousands):
- (U) $47 Support for all ATCALS projects (FY98/1-4)
- (U) $105 Conduct interoperability and interface evaluations (FY98/1-4)
- (U) $115 Support for the precision landing system studies for the Joint Special Operations Command (JSOC) (FY98/1-4)
- (U) $267 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0305114F Traffic Cntrl/Approach/Landing Sys — PROJECT: 2026

(U) FY 1999 ($ in Thousands):
- (U) $50 Support for all ATCALS projects (FY99/1-4)
- (U) $120 Conduct interoperability and interface evaluations (FY99/1-4)
- (U) $109 Support for the precision landing system studies for the Joint Special Operations Command (JSOC) (FY99/2-4)
- (U) $279 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY 1997 President's Budget	283	456	287	298	TBD
(U) Appropriated Value	283	423			
(U) Adjustments to Appropriated Value	-88				
a. Cong Reductions		-49			
b. SBIR	-79				
c. Below Threshold Reprogramming	-9				
(U) Adjustments to Budget Years Since FY 1997 PB			-20	-19	
(U) FY 1998 President's Budget	195	374	267	279	TBD

(U) Change Summary Explanation:

Funding: Programmatic adjustments

Schedule: N/A

Technical: N/A

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305114F Traffic Cntrl/Approach/Landing Sys PROJECT 2026

(U) C. **Other Program Funding Summary ($ in Thousands)** None

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost

(U) D. **Schedule Profile**

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Acquisition Milestones N/A																
(U) Contract Milestone																
(U) Initial TRV Delivery									X							
(u) Test and Evaluation Milestones																
(U) First Article Testing Complete						X										
(U) Operational Testing Complete								X								

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305114F Traffic Cntrl/Approach/Landing Sys PROJECT 2026

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) System Engineering	77	80	70	73
(U) Contract Engineering	60	129	88	92
(U) Test and Evaluation Support	28	120	84	87
(U) Program Management Support	20	20	10	12
(U) Travel	10	25	15	15
(U) Total	195	374	267	279

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Performing Organizations: AFMC, ESC, Hanscom AFB, MA manages the overall ATCALS effort. MITRE Corporation, Bedford, MA, provides technical engineering support

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program

Product Development Organizations: ESC/TG - No contracts in excess of $1.0M

Support and Management Organizations
SM-ALC

Test and Evaluation Organizations
N/A: NO TESTING ACTIVITIES

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305114F Traffic Cntrl/Approach/Landing Sys	PROJECT 2026

(U) B. **Budget Acquisition History and Planning Information Continued ($ in Thousands)**

Government Furnished Property:

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Property	N/A									
Support and Management Property	N/A									
Test and Evaluation Property	N/A									
Subtotal Product Development	N/A									
Subtotal Support and Management	N/A									
Subtotal Test and Evaluation	N/A									
Total Project										

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE: February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0305114F Traffic Cntrl/Approach/Landing Sys		PROJECT: 3587

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
3587 Precision Landing Development	5,245	7,269	6,304	646	6,908	5,473	5,572	5,706	Continuing	TBD

(U) A. **Mission Description and Budget Item Justification**

DoD and the Department of Transportation (DOT) have a goal to develop and acquire a common civil/military precision approach and landing system that is capable of operating with Category I, II, or III signal guidance accuracy. The International Civil Aviation Organization (ICAO) and NATO designated worldwide implementation for PLS for January 1998 with MLS as the standard. Due to the emergence of the Global Positioning System (GPS), as a more cost effective solution, the Air Force's precision landing development has been redirected to develop a replacement box for ILS to support a precision landing capability until GPS becomes available. The replacement box capability will allow DoD to meet the ICAO requirements for FM frequency protection. This is especially critical in Europe where there is a high density of FM radio stations. The Air Force has a worldwide deployment commitments and large numbers of it's aircraft have a requirement for compliance with the ICAO Standards and recommended practices. In FY97, the Air Force began a new effort to install the precision landing system receiver on its C-17 aircraft to solve short-term operational deficiencies. FY96/97 funding will also accomplish an Analysis of Alternatives (AOA) for the Joint Precision Approach and Landing System (JPALS) program. The primary objective of the AOA is to conduct a comprehensive evaluation of precision landing alternatives in the context of relevant scenarios and user requirements, and to recommend a preferred solution(s) to replace ILS and precision approach radar systems.

(U) FY 1996 ($ in Thousands):
- (U) $2,640 Development of a precision landing capability to include Differential GPS (FY96/1)
- (U) $208 National Precision Approach Strategy Study (FY96/2)
- (U) $650 Perform platform integration and system engineering analyses (FY96/2)
- (U) $1,747 Begin Joint Precision Approach and Landing System (JPALS) Analysis of Alternatives (AOA) (FY96/3)
- (U) $5,245 Total

(U) FY 1997 ($ in Thousands):
- (U) $2,750 Development of a precision landing capability to include Differential GPS (FY97/1-4)
- (U) $520 Perform platform integration and system engineering analyses (FY97/1-4)
- (U) $3,999 Begin work on AMC PAC (includes cost of RDT&E articles) (FY97/2-4)
- (U) $7,269 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305114F Traffic Cntrl/Approach/Landing Sys
	PROJECT 3587

(U) FY 1998 ($ in Thousands):
- (U) $970 Development of a precision landing capability to include Differential GPS (FY98/1-2))
- (U) $126 Perform platform integration and system engineering analyses (FY98/1-4)
- (U) $308 Begin PLS flight certification (FY98/2-4)
- (U) $4,900 JPALS (funds to be reprogrammed in FY98 to PE 0603860)
- (U) $6,304 Total

(U) FY 1999 ($ in Thousands):
- (U) $105 Continue to perform platform integration and system engineering analyses (FY99/1-4)
- (U) $541 Continue PLS flight certification (FY99/1-4)
- (U) $646 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY 1997 President's Budget	3,685	3,551	1,548	866	TBD
(U) Appropriated Value	3,685				
(U) Adjustments to Appropriated Value	-187				
a. SBIR					
b. Omnibus or Other Above Threshold Reprogram			4,900		
c. Below Threshold Reprogramming	1,747	3,999			
(U) Adjustments to Budget Years Since FY 1997 PB	-187	-281	-144	-220	
(U) FY 1998 President's Budget	5,245	7,269	6,304	646	TBD

(U) Change Summary Explanation:

Funding: Funding decreases in FY96 through FY99 are due to higher AF funding priorities Funding increase of $1.747 in FY96 was for the Joint Precision Approach and Landing System (JPALS) program; increase of $3.999M in FY97 is for the Air Mobility Command Contingency Precision Approach and Landing Capability (AMC PAC); increase of $4.9M in FY98 is for JPALS (These funds will be reprogrammed into PE 0603860 in FY98).

Schedule: N/A

Technical: N/A

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305114F Traffic Cntrl/Approach/Landing Sys PROJECT 3587

(U) C. **Other Program Funding Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Aircraft Procurement AF Budget Activity 5, Weapon System Code 3587	2,460	147	150	157	4821	4790	4907	4908	cont	TBD

(U) D. **Schedule Profile**

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Acquisition Milestones:																
(U) Milestone III															X	
(U) Contract Milestones																
(U) Award Precision Landing ECO				X												
(U) Initial MMLS Delivery	X															
(U) Test and Evaluation Milestones N/A																
(U) Other																
(U) MMLS IOC				X												
(U) CMLSA Depot Activation						X										

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305114F Traffic Cntrl/Approach/Landing Sys PROJECT 3587

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Primary Hardware Development	2,640	2,650	970	
(U) Test and Evaluation Support	206		308	545
(U) Engineering/Technical Support	525	269	90	89
(U) Avionics Integration Efforts		231		
(U) Program Management Support	90	90	20	
(U) Analysis of Alternatives (JPALS)	1,747		4,900	
(U) AMC PAC		3,999		
(U) Travel	37	30	16	12
(U) Total	5,245	7,269	6,304	646

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
GEC Marconi	FPIF	Jun 93	19.4	19.4	9.3	2.6	5.5	1.5	0.5	Continue	TBD
Support and Management Organizations											
None											
Test and Evaluation Organizations											
FAA Test Center	MIPR	May 97	300	300	0	0	300	0	0	0	300

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305114F Traffic Cntrl/Approach/Landing Sys PROJECT 3587

(U) B. **Budget Acquisition History and Planning Information Continued ($ in Thousands)**

Government Furnished Property:

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Property: N/A										
Support and Management Property: N/A										
Test and Evaluation Property: N/A										
Subtotal Product Development										
Subtotal Support and Management										
Subtotal Test and Evaluation										
Total Project										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305119F Medium Launch Vehicles (Space)

PROJECT: 624A

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
624A Medium Launch Vehicle	16,614	12,720	5,719	14,623	10,470	7,750	5,646	2,117	0	445,215
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) **A. Mission Description and Budget Item Justification**

National Security requirements dictate a continuing, highly reliable means of placing critical Department of Defense (DoD) satellites into required orbits. Assured access to space, directed by the President in the National Security Launch Strategy, will be accomplished through the use of a robust mix of Expendable Launch Vehicles (ELVs). The Medium Launch Vehicle (MLV) program provides sustainment, procurement and launch of DoD ELVs, including Atlas II and Delta II at Cape Canaveral AFS, FL and at Vandenberg AFB, CA. The RDT&E funding for engineering support of active launch programs and post-flight assessment of DoD ELVs to maintain their high reliability. The preceding tasks require the funds to be in Budget Activity 7, Operational Systems Development.

(U) FY 1996:

- (U) $ 5,477 Complete Delta II range safety required facility upgrades this year, first flight with new upgrades this year
- (U) $ 67 Continue STP (ARGOS) mission integration
- (U) $ 1,117 West Coast Atlas II activation continues
- (U) $ 752 Complete GPS IIR mission integration
- (U) $ 5,787 Base support and environmental programs
- (U) $ 3,414 Sustaining engineering and mission support for MLV launch facilities, infrastructure, and launch operations includes space launch complexes 3, 17, and 36 and supporting facilities
- (U) $16,614 Total

(U) FY 1997:

- (U) $ 5,104 Base support and environmental programs
- (U) $ 1,070 West Coast Atlas II activation continues
- (U) $ 1,589 DSCS integration
- (U) $ 3,174 Delta II range required facilities upgrade
- (U) $ 1,783 Sustaining engineering and mission support for MLV launch facilities, infrastructure, and launch operations includes space launch complexes 3, 17, and 36 and supporting facilities
- (U) $12,720 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305119F Medium Launch Vehicles (Space)
	PROJECT 624A

(U) FY 1998:

- (U) $ 844 Delta II range required facilities upgrade
- (U) $ 598 Sustaining engineering and mission support for MLV launch facilities, infrastructure, and launch operations includes space launch complexes 3, 17, and 36 and supporting facilities
- (U) $ 702 West Coast Atlas II activation continues
- (U) $ 1,475 DSCS integration
- (U) $ 2,100 Delta II systems integration
- (U) $ 5,719 Total

(U) FY 1999:

- (U) $ 500 Delta II range required facilities upgrade
- (U) $ 8,721 Sustaining engineering and mission support for MLV launch facilities, infrastructure, and launch operations includes space launch complexes 3, 17, and 36 and supporting facilities
- (U) $ 1,200 Delta II systems integration
- (U) $ 702 West Coast Atlas II activation continues
- (U) $ 3,500 DSCS integration
- (U) $14,623 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total
(U) Previous President's Budget	20,683	13,368	13,073	22,993	
(U) Appropriated Value	21,898	13,368			
(U) Adjustments to Appropriated Value					
a. Congressional Gen Reductions	- 429	-335			
b. SBIR	- 786	-301			
c. Omnibus or Other Above Threshold Reprogram	-4,063				
d. Below Threshold Reprogramming	-6				
e. Rescissions		-12			
(U) Adjustments to Budget Years Since FY 1997 PB			-7,354	-8,370	
(U) Current Budget Submit/President's Budget	16,614	12,720	5,719	14,623	445,215

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305119F Medium Launch Vehicles (Space)
	PROJECT 624A

(U) Change Summary Explanation:

FY98/99 cuts to support AF FY98 BES
- Reflects IBR and SSPC reductions

Schedule: Not Applicable
Technical: Not Applicable

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Complete	Total Cost
(U) Missile Procurement, Air Force	177,630	174,878	218,498	214,121	109,539	65,359	38,699	11,153	0	2,732,831

Related RDT&E:

(U) Space & Missile Rocket Propulsion (PE #603302F)
(U) Evolved Expendable Launch Vehicle (EELV, PE #603853F, 0604853F, 0305953F)

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Delta/GPS Launch		X	X	X		X	XX	X		XX		X	X		XX	
(U) Delta/STP Launch								X								
(U) Atlas/DSCS Launches									X		X				X	
(U) Atlas West Coast Pad Activation	X	X	X	X	X	X	X	X								

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305119F Medium Launch Vehicles (Space)

PROJECT: 624A

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Primary Hardware Development	16,614	12,720	5,719	14,623
(U) Total	16,614	12,720	5,719	14,623

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Lockheed Martin	SS/FFP	Jun 88	N/A	N/A	70,817	110	1,078	2,100	3,500	3,000	80,605
McDonnell Douglas Aerospace	SS/FFP	Sep 87	N/A	N/A	205,203	67					236,598
McDonnell Douglas	FFP	Apr 93	N/A	N/A	14,342	5,531	2,511	2,056	2,015	4,873	
GSAC	Various	Various	N/A	N/A	2,549	772	1,031	1,540	1,602	5,200	12,694
Austere Improvements	Various	Various			10,484						10,484
Support and Management Organizations											
Mission Support	FPI	FY94	N/A	N/A	9,320	6,174	3,726	23	7,380	12,363	38,986
Various SMC	Various	FY94	N/A	N/A	49,033	219	642				49,894
Other Ktr Sup	FFP	FY94	N/A	N/A	457	106	118		126	547	1,354
Vandenberg Sup	Various	Various	N/A	N/A	1,745	685	766				3,196

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305119F Medium Launch Vehicles (Space)

PROJECT: 624A

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Environment/ Safety	Various	Various	N/A	N/A	5,606	2,950	2,848				11,404

Test and Evaluation Organizations
Not Applicable

(U) B. Budget Acquisition History and Planning Information Continued ($ in Thousands)

Government Furnished Property: Not Applicable

Subtotal Product Development	303,395	*6,480*	4,620	*5,696*	7,117	*13,073*	340,381
Subtotal Support and Management	66,161	10,134	8,100	23	7,506	12,910	104,834
Subtotal Test and Evaluation							
Total Project	369,556	16,614	12,720	5,719	14,623	25,983	445,215

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305128F Security and Investigative Activities (S&IA)

PROJECT: 1931

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
1931 TECH SURVEIL COUNTER MEAS EQPT	282	275	530	467	486	494	499	506	Continuing	TBD
Quantity of RDT&E Articles	2	1	2	2	2	2	2	2		

* Cost of test articles embedded in overall project cost; breakout not available.

(U) A. Mission Description and Budget Item Justification

This program is in budget activity 7 - Operational System Development, Research Category 6.6. It funds 70% of the Air Force Office of Special Investigations' (AFOSI) manpower and operations and maintenance costs, as well as 100% of its procurement and research and development costs. AFOSI conducts specialized investigative activities and force protection support for Air Force (AF) commanders worldwide. This assists AF commanders in protecting their people and resources. AFOSI's mission includes investigating criminal matters affecting AF personnel, contract fraud and economic crimes involving AF weapons systems and spare parts, the investigation of environmental crime, counterdrugs, computer intrusion detection and forensic media analysis of computer crimes. This element supports Technical Surveillance Countermeasures (TSCM) and technical support to criminal and counterintelligence investigations and operations conducted by AFOSI. AFOSI's TSCM mission provides security assessments to both AF and DoD facilities and programs. While most research to meet operational requirements is Operational System Development, there is also research in the category of Engineering and Manufacturing Development due to a need for modifications to present technology.

The equipment required to provide technical support to investigations is unique and complex. This equipment must be continually updated to provide state-of-the-art capabilities to detect and neutralize criminal activities targeted against the AF and DoD. In an era of advancing technology, reduced manning, and increasingly high level fraud, environmental crime and computer crime investigations, technical investigative equipment must be continuously updated to enable AFOSI special agents to have the most cost effective and best possible means of thwarting criminal acts. The evolution of a new wave of computer crimes has made AFOSI responsible for the collection, investigative analysis, national level law enforcement coordination, and dissemination of hacker activity and intrusion incidents for the Air Force. AFOSI's computer crime equipment must stay on the leading edge of technology to collect criminal information as well as pursue and apprehend criminals through a global medium. There were 2800 computer security violations and/or intrusion incidents reported to AFOSI in 1996. AFOSI must continually update its existing high tech computer surveillance equipment to support ongoing and future investigative operations to identify hackers and hacker groups, as well as potential hostile government activities targeting Air Force communication and control systems.

(U) FY 1996 ($ in thousands)

- (U) $110 TSCM Receiver/Software Suite
- -- (U) RDT&E of the incorporation of monolithic microwave integrated circuit (MMIC) technology into a receiver
- -- (U) RDT&E of software analysis tools for RF spectrum analysis and integration with receiver systems

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305128F Security and Investigative Activities (S&IA)
	PROJECT 1931

- -- (U) RDT&E of the integration of data analysis tools with receiver hardware and suitable microprocessing systems
  -- (U) Test articles: 1 (Prototype procured through Initial Operational Test and Evaluation)

- (U) $20 TSCM Support Equipment. Demonstration and validation of specialized TSCM support equipment to be included in Support Unit Kits.
  -- (U) Test articles: 1 (Low Rate Initial Production articles)
- (U) $152 Telephone Analyzer. Demonstration and validation of countermeasure units for field applications
  -- (U) Test articles: 0
- (U) $282 Total

(U) FY 1997 ($ in thousands)
- (U) $154 TSCM Receiver/Software Suite. Demonstration and validation of TSCM Receiver Suite
  -- (U) Test articles: 1 (Prototype procured through Initial Operational Test and Evaluation)
- (U) $121 Telephone Analyzer. Demonstration and validation of countermeasure units for field applications
  -- (U) Test articles: 0
- (U) $275 Total

(U) FY 1998 ($ in thousands)
- (U) $170 Telephone Analyzer. Demonstration and validation of upgraded software
  -- (U) Test articles: 0
- (U) $200 Computer Crimes Investigative (CCI) Equipment. RDT&E of CCI software
  -- (U) Test articles: 0
- (U) $160 Global Positioning System (GPS) Vehicle Tracking. RDT&E of GPS vehicle tracking equipment
  -- (U) Test articles: 2 (Low Rate Initial Production articles)
- (U) $530 Total

(U) FY 1999 ($ in thousands)
- (U) $169 Telephone Analyzer. Demonstration and validation of upgraded software
  -- (U) Test articles: 0
- (U) $200 Computer Crimes Investigative (CCI) Equipment. RDT&E of CCI software
  -- (U) Test articles: 0
- (U) $ 98 GPS Vehicle Tracking. RDT&E of GPS vehicle tracking equipment
  -- (U) Test articles: 2 (Low Rate Initial Production articles)
- (U) $467 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305128F Security and Investigative Activities (S&IA)
	PROJECT 1931

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	299	299	534	471	1603
(U) Appropriated Value					
(U) Adjustments to Appropriated Value					
a. General Reductions	-6	-6			
b. SBIR	-6	-8			
b. Rescissions (Bosnia)	-4				
b. Below Threshold Repropgrammi ng	-1				
(U) Adjustments to Budget Years Since FY 1997 PB		-10	-4	-4	
(U) Current Budget Submit/FY98 PB	282	275	530	467	1554

(U) Change Summary Explanation:

Funding:

Schedule:

Technical:

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) 3080 - Other Procurement -- AF	1611	1772	2518	2185	3117	3162	3197	3212	TBD	TBD

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE: February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0305128F Security and Investigative Activities (S&IA) — PROJECT: 1931

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) TSCM Receiver/Software Suite				X	X	X	X									
(U) TSCM Support Equipment				X												
(U) Telephone Analyzer				X	X	X	X	X	X	X	X	X	X	X	X	X
(U) CCI Equipment										X	X	X	X	X	X	X
(U) GPS Vehicle Tracking											X	X	X	X	X	X

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305128F Security and Investigative Activities (S&IA)
	PROJECT 1931

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Primary Hardware Development	255	237	330	267
(U) Software Development	27	38	200	200
(U) Total	282	275	530	467

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Matrix Engineering	SS/FFP	Feb 97	N/A	N/A	0	130	154	0	0	284	284
S.T. Research Corp.	SS/FFP	Mar 97	N/A	N/A	0	152	121	170	169	Ongoing	TBD
TBD	SS/FFP	Jan 98	N/A	N/A	0	0	0	200	200	Ongoing	TBD
TBD	SS/FFP	Jan 98	N/A	N/A	0	0	0	160	98	258	258

Support and Management Organizations:
None

Test and Evaluation Organizations
None

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305128F Security and Investigative Activities (S&IA)
	PROJECT 1931

(U) B. **Budget Acquisition History and Planning Information Continued ($ in Thousands)**

Government Furnished Property: None

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Property										
None										
Support and Management Property										
None										
Test and Evaluation Property										
None										
Subtotal Product Development				0	282	275	530	467	Ongoing	TBD
Subtotal Support and Management										
Subtotal Test and Evaluation										
Total Project				0	282	275	530	467	Ongoing	TBD

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305137F National Airspace System (NAS)

PROJECT: 4090

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4090 National Airspace System (NAS)	12,140	11,858	12,830	1,919	297	214	217	219	Continuing	Continuing
Quantity of RDT&E Articles	1 (309)	1 (950)	0	0	0	0	0	0	0	0

(U) A. Mission Description and Budget Item Justification

The DoD National Airspace System program will modernize the DoD Air Traffic Control (ATC) system in parallel with the Federal Aviation Administration (FAA) modernization. DoD will acquire, to the maximum extent practical, systems on contract or systems to be on contract with the FAA to reduce development costs and prevent duplication. The DoD NAS program provides systems and facilities compatible/interoperable with the FAA modernization, prevents DoD flight delays and cancellations, continues DoD's access into Special Use Airspace (SUA), provides transparent services to military and civil aircraft, replaces aging DoD ATC systems, and increases flight safety. The Military Airspace Management System (MAMS) will effectively schedule and manage SUA. DoD military ATC and fighting/flying readiness will be maintained. This program is in budget activity 7 - Operational Systems Development, because the DoD Air Traffic Control system, is an operational system.

(U) FY 1996

- (U) 3,600 Continue Military Airspace Management System (MAMS) development
- (U) 1,085 Continue site surveys, facility/transition planning
- (U) 1,265 Continue NAS DoD subsystem analysis for each DoD site
- (U) 2,850 Continue Radar acquisition and test
- (U) 1,615 Continue Automation acquisition and test
- (U) 1,725 Continue Voice Switch acquisition and test
- (U) 12,140 Total

(U) FY 1997

- (U) 1,805 Continue Military Airspace Management System (MAMS) development
- (U) 1,015 Continue site surveys, facility/transition planning
- (U) 248 Continue NAS DoD subsystem analysis for each DoD site
- (U) 3,950 Continue Radar acquisition and test
- (U) 3,290 Continue Automation acquisition and test
- (U) 1,550 Complete Voice Switch acquisition and test
- (U) 11,858 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0305137F National Airspace System (NAS) / PROJECT: 4090

(U) FY 1998

- (U) 2,995 Complete Military Airspace Management System (MAMS) development
- (U) 537 Complete facility/transition planning and continue site surveys,
- (U) 768 Continue NAS DoD subsystem analysis for each DoD site
- (U) 940 Complete Radar acquisition and test
- (U) 7,590 Continue Automation acquisition and test
- (U) 12,830 Total

(U) FY 1999

- (U) 354 Continue site surveys
- (U) 600 Complete NAS DoD subsystem analysis for each DoD site
- (U) 965 Complete Automation acquisition and test
- (U) 1,919 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget (FY 1997)	12,627	12,614	13,516	2,290	TBD
(U) Appropriated Value	13,759	12,614			
(U) Adjustments to Appropriated Value					
a. Congressional General Reductions	-707	-264			
b. SBIR	-287	-279			
c. Omnibus & Other Above Threshold Reprogramming					
d. Below Threshold Reprogramming					
e. Rescissions	-621				
(U) Adjustments to Budget Years Since FY 97 PB	-4	-213	-686	-371	
(U) Current Budget Submit/98 PB	12,140	11,858	12,830	1,919	TBD

(U) Change Summary Explanation: Funding: Funds were realigned to source higher priority programs FY98/99.
Schedule: None.
Technical: None.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0305137F National Airspace System (NAS) / PROJECT: 4090

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Other Procurement, BA 16 Weapon system code 833020, PE0305137F	0	0	16,615	54,591	56,293	58,885	66,574	51,531	Cont.	Cont.
(U) Other Procurement, BA16 Weapon system code 86190A, PE0305137F, (Initial Spares)			.029	.162	.398	.605	.644	.533	Cont	Cont
(U) Military Construction, BA 24 AF PE 0305137F	0	0	0	0	0	2,089	0	0	0	2,089

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305137F National Airspace System (NAS)

PROJECT: 4090

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Acquisition Milestone																
(U) Milestone II (4QFY95)																
(U) Milestone III											X					
(U) Contract Milestones																
(U) MAMS Contract Awarded	X															
(U) Radar																
RFP Release	X															
Contract Award				X												
(U) Automation																
RFP Release		X														
Contract Award				X												
(U) Voice Switch																
RFP Released																
Contract Award (July 95)																
NAS IOC Apr 2000																
NAS FOC Apr 2006																

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305137F National Airspace System (NAS)

PROJECT: 4090

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Software Development	3,600	1,805	2,995	
(U) Site Surveys	250	100	100	100
(U) Facility/Transition Planning	200	100	50	
(U) Integration/Interface Planning	100	50	50	
(U) System Engineering	740	682	768	590
(U) Contractor Engineering Support	300			
(U) Primary Hardware and Test Evaluation	6,425	8,790	8,530	965
(U) Program Management Support	465	281	285	215
(U) Travel	60	50	52	49
(U) Total	12,140	11,858	12,830	1,919

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
a. Computer Based Systems	CPAF	Jun 94	N/A	10,000	3,500	0	0	0	0	0	3,500
b. Hughes Aircraft	CPFF	Nov 95	11,300	11,300	3,000	3,500	1,805	2,995	0	0	11,300
c. Raytheon	IDIQ - FFP	Aug 96	N/A	21,339	13,599	2,850	3,950	940	0	0	21,339
d ESC					48,191	5,465	5,403	8,395	1,619	947	70,020

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305137F National Airspace System (NAS)

PROJECT: 4090

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Support and Management Organizations											
SM-ALC					0	0	0	0	0	0	0
Test and Evaluation Organizations											
46th Test Wing, Eglin AFB, FL					210	325	700	500	300	0	2,035
Government Furnished Property: Not Applicable											
Subtotal Product Development					68,290	11,815	11,158	12,330	1,619	947	106,159
Subtotal Support and Management					0	0	0	0	0	0	0
Subtotal Test and Evaluation					210	325	700	500	300	0	2,035
Total Project					68,500	12,140	11,858	12,830	1,919	947	108,194

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305138F Upper Stage Space Vehicles (Space)

PROJECT: 4053

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4053 Upper Stage Space Vehicles	2,931	3,010	3,337	3,369	3,467	3,516	1,712	0	0	36,304
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) **A. Mission Description and Budget Item Justification**

(U) The Upper Stages Program provides consolidated acquisition of the Inertial Upper Stage (IUS) to support the DoD Mission Model. This effort includes flight operations at the Cape Canaveral Air Station, FL; support to flight operations at the Consolidated Space Test Center (CSTC). IUS supports the launch of Defense Support Program (DSP) satellites. IUS is the upper stage on a Titan IV (or it can be modified for Shuttle) and takes the DSP satellite to the required orbit. The RDT&E program continuously evaluates and improves upper stage reliability, cost effectiveness, and responsiveness. It supports redesign of aging equipment and spares which are no longer manufactured or available; investigation of flight anomalies; and small studies to assist in defining future upper stages. The preceding tasks require funding in Budget Activity Research Category Operational Systems Development.

(U) **Acquisition Strategy:** Program is in final production under the fourth production contract. Six remaining IUS units are procured (in storage). Remaining procurement effort is for replacement parts and component shelf life extension. Within the RDT&E budget for IUS, Avionics Obsolescence Activity (AOA) will replace obsolete, insupportable guidance, navigation and control system. The third part of the strategy involves the integration and launch services, flight operations, and post-flight analysis. The final portion of the strategy is the independent validation and verification of the IUS.

(U) FY 1996

- (U) $ 1,368 Study and design corrective actions for anomalies and obsolete items
- (U) $ 1,000 Avionics Obsolescence Mitigation
- (U) $ 563 Program Management Support Activities
- (U) $2,931 Total

(U) FY 1997

- (U) $ 1,167 Study and design corrective actions for anomalies and obsolete items
- (U) $ 1,000 Avionics Obsolescence Mitigation
- (U) $ 843 Program Management Support Activities
- (U) $3,010 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305138F Upper Stage Space Vehicles (Space)
	PROJECT 4053

(U) FY 1998

- (U) $ 1,392 Study and design corrective actions for anomalies and obsolete items
- (U) $ 1,000 Avionics Obsolescence Mitigation
- (U) $ 945 Program Management Support Activities
- (U) $ 3,337 Total

(U) FY 1999

- (U) $ 1,542 Study and design corrective actions for anomalies and obsolete items
- (U) $ 900 Avionics Obsolescence Mitigation
- (U) $ 927 Program Management Support Activities
- (U) $3,369 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	3,359	3,154	3,365	3,401	
(U) Appropriated Value	3,554	3,154			
(U) Adjustments to Appropriated Value					
a. Cong Gen Reductions	-70	-70			
b. SBIR	-75	-74			
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming (BTR)	-477				
(U) Adjustments to Budget Years Since FY97 PB	-1		-28	-32	
(U) Current Budget Submit/President's Budget	2,931	3,010	3,337	3,369	36,304

(U) Change Summary Explanation:

Funding: Not Applicable
Schedule: Not Applicable
Technical: Not Applicable

(U) C. Other Program Funding Summary ($ in Thousands)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0305138F Upper Stage Space Vehicles (Space) / PROJECT: 4053

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Complete	Total Cost
(U) Missile Procurement	55,714	47,293	49,990	57,736	59,720	60,388	32,674	3,780	0	367,295

Related RDT&E:

(U) PE 0305144F, Titan Vehicles

(U) PE 0102431F, Defense Support Program (DSP)

(U) Inertial Upper Stage (IUS) program supports the NASA Space Transportation System as the upper stage is used with the Space Shuttle

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) DoD Launch						X					X				X	
(U) Avionics Replacement*	X	X	X	X	X	X	X	X								
(U) Integration, Launch Support, and Life Extension Modification*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

* Activities are continuous throughout the year.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305138F Upper Stage Space Vehicles (Space)

PROJECT: 4053

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Avionics Obsolescence Mitigation	1,000	1,000	1,000	900
(U) Program Management Support	563	913	945	927
(U) Systems Engineering	1,368	1,097	1,392	1,542
(U) Total	2,931	3,010	3,337	3,369

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Boeing	FPI/AF	Jul 85	906,671*	942,335*	5,350	798	630	0	0	0	6,778
	FPI/AF	Mar 91	151,189*	158,055*	1,421	570	587	1,292	1,310	3,120	8,300
	CPAF/LOE	Sep 90	N/A	N/A	4,098	1,000	950	1,100	1,132	2,880	11,160
United Tech Corp/Pratt & Whitney	CPFF	Mar 95	N/A	N/A	855	0	0	0	0	0	855
Support and Management Organizations											
Space and Missile Systems Center, LAAFB	N/A	N/A	N/A	N/A	3,238	563	843	945	927	2,695	9,211

*Figures include funds used for IUS under previous Program Elements

Test and Evaluation Organizations Not Applicable

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305138F Upper Stage Space Vehicles (Space)
	PROJECT 4053

(U) B. Budget Acquisition History and Planning Information Continued ($ in Thousands)

Government Furnished Property: Not Applicable

	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Subtotal Product Development	11,724	2,368	2,167	2,392	2,442	6,000	27,093
Subtotal Support and Management	3,238	563	843	945	927	2,695	9,211
Subtotal Test and Evaluation	0	0	0	0	0	0	0
Total Project	14,962	2,931	3,010	3,337	3,369	8,695	36,304

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305144F Titan Space Launch Vehicles (Space)

PROJECT: 4135

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Titan Space Launch Vehicles	128,942	97,487	82,384	137,602	53,241	49,351	44,425	40,205	50,000	3,320,678
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description and Budget Item Justification

(U) National security requirements dictate a continuing, highly reliable means of placing critical DoD satellites into required orbits. The Titan IV program provides the capability to launch the largest of these satellites into near-earth or geosynchronous orbits from either the east or west coast launch facilities. Titan IV is used to launch Air Force, NRO, and NASA payloads. This program provides several different configurations for the Titan IV [No Upper Stage (NUS), Inertial Upper Stage (IUS), and Centaur]. In addition, the Titan IV program has developed a new vehicle configuration, the Titan IVB, with solid rocket motor upgrade (SRMU), new avionics and ground support equipment to meet reliability and increased performance requirements. This program provides continuing integration support to the payload community as well as continuing engineering support to maintain system characterization and reliability.

(U) Beginning in FY94, this program element also included funding for engineering costs, payload integration, and Government costs for the Titan II space launch vehicle. This program is included in Budget Activity 7, Operational Systems Development, since both Titan II and Titan IV are operational launch vehicles.

(U) FY 1996

- (U) $48,599 41 Vehicle Reallocation/completion/Solid Rocket Motor Upgrade (SRMU) static firing
- (U) $35,800 Continue development of Titan IVB
- (U) $7,481 Continue integration for the Defense Support Program (DSP) and Milstar
- (U) $35,600 Continue Titan Booster support
- (U) $1,462 Award Fee
-
-
- (U) $128,942 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0305144F Titan Space Launch Vehicles (Space) / PROJECT: 4135

(U) FY 1997

(U)	$37,540	41 Vehicle Reallocation/completion/Solid Rocket Motor Upgrade (SRMU) static firing
(U)	$35,400	Continue development of Titan IVB
(U)	$4,500	Continue integration for the Defense Support Program (DSP) and Milstar
(U)	$20,047	Continue Titan Booster support
(U)	$97,487	Total

(U) FY 1998

(U)	$39,580	41 Vehicle Reallocation/completion/Solid Rocket Motor Upgrade (SRMU) static firing
(U)	$11,200	Continue development of Titan IVB
(U)	$26,000	Continue integration for the Defense Support Program (DSP) and Milstar
(U)	$5,604	Continue Titan Booster support
(U)	$82,384	Total

(U) FY 1999

(U)	$87,436	41 Vehicle Reallocation/completion/Solid Rocket Motor Upgrade (SRMU) static firing
(U)	$8,876	Continue development of Titan IVB
(U)	$38,000	Continue integration for the Defense Support Program (DSP) and Milstar
(U)	$3,290	Continue Titan Booster support
(U)	$137,602	Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305144F Titan Space Launch Vehicles (Space)
	PROJECT 4135

(U) **Acquisition Strategy:**

(U) The program has implemented a revised acquisition strategy for the entire 41-vehicle program. During FY1996, Titan IV has transitioned from the old 41-vehicle development/production and payload integration contracts to new contracts designed to improve cost accountability, correct contract discrepancies, and establish an overall programmatic view for the effort to complete the program. The new contracts combine Titan II and Titan IV production, storage, pad maintenance and deactivation, launch operations, anomaly resolution, development and hardware requalification, payload integration, and program studies to provide the greatest potential for cost savings by maximizing use of resources and eliminating duplicative processes.

(U) **B. Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Previous President's Budget	126,330	105,472	179,741	90,648
(U) Appropriated Value				
(U) Adjustments to Appropriated Value				
a. Cong Gen Reductions		-5,403		
b. SBIR		-2,582		
c. Omnibus or Other Above Threshold Reprogram	8,750			
d. Below Threshold Reprogramming (BTR)	-5,308			
e. Rescissions	-830			
(U) Adjustments to Budget Years Since 97PB			-97,357	+46,954
(U) Current Budget Submit/BES/98PB	128,942	97,487	82,384	137,602

(U) Change Summary Explanation:

Funding: FY96 Omnibus Reprogram includes additional funds for Solid Rocket Motor Upgrade requalification requirements, and deletes some funding to pay for higher Air Force priorities. Other FY96 reductions are due to higher Air Force priorities. FY98 reduction realigns SRMU requalification funds to missile procurement appropriation. FY99 increase is for deferred engineering design effort of Titan IVB vehicles.

Schedule: FY96 and FY97 reductions result from deletion of the CPF Acquisition Program Baseline (APB) Initial Operational Capability (IOC) milestone in June 97.

Technical: FY96 and FY97 reductions result from termination of the off-pad Centaur upper stage processing , cryogenic tanking, and storage capability.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305144F Titan Space Launch Vehicles (Space)

PROJECT: 4135

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Missile Procurement, Budget Activity 5, Space Boosters	407,238	432,194	555,304	585,288	393,892	333,006	328,303	254,909	800,300	4,090,434

Related RDT&E:

(U) Not Applicable

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U)Draft Single Acquisition Management Plan (SAMP) to OSD staff						X										
(U) 41-Vehicle Production and Launch Operations Ltr. Contract Award				X												
U) 41-Vehicle Production and Launch Operations Contract Definitization			X													
(U) Titan IV-B (SRMU) Initial Operational Capability (IOC)						X										
(U) Titan Development (Hardware Requal) Contract Definitization								X								

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305144F Titan Space Launch Vehicles (Space)

PROJECT: 4135

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Titan IV				
(U) Contract Costs R&D (85-C-0019/96-C-0035)	84,399	72,940	50,780	96,312
(U) Contract Costs UPI (92-C-0028)	7,481	4,500	26,000	38,000
(U) Other Government Costs	37,062	20,047	5,604	3,290
(U) Total	128,942	97,487	82,384	137,602

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC**	Project Office EAC**	Total Prior to FY 1996*	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
LMC 85-C-0019	SS/FPIF	1QFY85	11,110,900	11,203,100	2,191,584	14,733					
LMC 85-C-0085	SS/FPIF	1QFY85	638,600	638,600	82,067						
LMC 92-C-0028	SS/CPAF	3QFY92	619,975	609,400	83,370	7,481	4,500	26,000	38,000	Cont	Cont
LMC - 96-C-0035	SS/CPAF	3QFY96	57,840	57,840	0	69,666	72,940	50,780	96,312	Cont	Cont
Facilities	n/a	n/a			93,300	0	0	0	0	0	93,300

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305144F Titan Space Launch Vehicles (Space)

PROJECT: 4135

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC**	Project Office EAC**	Total Prior to FY 1996*	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Support and Management Organizations											
Tecolote, SRS, TRW, Antioch,			Not App	Not App	118,204	32,342	15,661	5,604	3,290	Cont	Cont
Aerospace			Not App	Not App	68,516	4,720	4,386				
Pending Reprog											
Test and Evaluation Organizations											
Not Applicable											
Subtotal Product Development					2,450,321	91,880	77,440	76,780	134,312	Cont	Cont
Subtotal Support and Management					186,720	37,062	20,047	5,604	3,290	Cont	Cont
Subtotal Test and Evaluation											
Total Project					2,637,041	128,942	97,487	82,384	137,602	Cont	Cont

* These figures are only Air Force Titan IV RDT&E funds

** NOTE: EAC Includes all sources of funds (NASA, NRO, DSP and Milstar)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305145F Arms Control Implementation

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	948	27,841	0	0	0	0	0	0	0	948
4190 Treaty Prep/Verification Support	473	0	0	0	0	0	0	0	0	473
4283 Open Skies Treaty Systems Develop	475	0	0	0	0	0	0	0	0	475
4520 Comp Test Ban Treaty Data Ctr Dev	0	27,841	0	0	0	0	0	0	0	0
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description and Budget Item Justification

(U)This element directly supports implementation and planning for current and pending arms control agreements.

- (U) Treaty preparation/verification support activities encompass a wide range of projects necessary to ensure United States compliance with ongoing and future arms control treaties and agreements.
- (U) Open Skies Treaty Systems Development support includes:
  - (U) Aircraft systems integration, engineering, test, and evaluation
  - (U) Synthetic Aperture Radar (SAR) prototype development
  - (U) Data Annotation and Recording Mapping System (DARMS) prototype development
  - (U) Ground processing software development.
- (U) Comprehensive Test Ban Treaty (CTBT) Prototype International Data Center Development and related CTBT technology development programs transfer from the Advanced Research Projects Agency (ARPA) to AF Arms Control in FY97. Work on seismic event identification techniques performed by Phillips Laboratory (Project 1010) and research on seismology in support of nuclear monitoring performed under the auspices of the AF Office of Scientific Research (Project 2309) were also transformed to AF Arms Control (PE 35145F) in FY97. These actions were taken to consolidate DoD funding and management of key treaty implementation activities and monitoring technologies into one program element.

(U) B. Program Change Summary ($ in Thousands)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305145F Arms Control Implementation

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	998	26,786	10,997	11,115	
(U) Appropriated Value					
(U) Adjustments to Appropriated Value					
a. Congressional General Reductions	-20	+1,718			
b. SBIR	-16				
c. Omnibus and Above Threshold Reprogramming					
d. Below Threshold Reprogramming					
e. Rescission	-14				
(U) Air Force Funding Crosswalked to DoD DSWA			-10,997	-11,115	
(U) Current Budget Submit/President's Budget	948	28,477	0	0	

(U) Change Summary Explanation:
(U) Funding: Transfer of funds during FY98-03 POM.
Schedule: Not Applicable
Technical: Not Applicable

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	Cost To Compl	Total Cost
(U) Aircraft Procurement: OC-135B	429	0	0	0	0	0	0	0	0	977
(U) Other Procurement: Items less than $2.0	38	0	0	0	42	43	0	0	Cont.	Cont.

(U) D. Schedule Profile

(U) See individual project schedules

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305145F Arms Control Implementation

PROJECT: 4190

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4190 Treaty Prep/Verification Support	473	0	0	0	0	0	0	0	0	473
Quantity of RDT&E Articles										

(U) A. Mission Description and Budget Item Justification

- (U) Treaty preparation/verification support activities encompass a wide range of projects necessary to ensure United States compliance with impending arms control treaties and agreements. They include modifications and enhancements to the Arms Control Treaty Information Operating Network (ACTION) system, research and analysis activities associated with preparing the USAF to support immediate compliance with existing agreements and analysis of the implications of future agreements and negotiations.
- (U) Research and analysis associated with this project will be complete in FY96. No further funding has been programmed beyond FY96.

(U) FY 1996

- (U) $473 Accomplishes research to model threats and analyze feasibility of AF's National Missile Defense strategy. Analyzes compliance with ABM treaty.
- (U) $473 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	498	0	0	0	498
(U) Appropriated Value					
(U) Adjustments to Appropriated Value					
a. Congressional General Reduction	-10				
b. SBIR	-8				
c. Omnibus and Above Threshold Reprogramming					
d. Below Threshold Reprogramming					

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305145F Arms Control Implementation PROJECT 4190

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
e. Rescission	-7				
(U) Adjustments to Budget Years Since FY97 PB		0			
(U) Current Budget Submit/President's Budget	473	0	0	0	473

(U) Change Summary Explanation:

(U) Funding: SBIR, Rescission, Omnibus and Above Threshold, and General Congressional Reduction in FY96.
Schedule: Not Applicable
Technical: Not Applicable

(U) C. **Other Program Funding Summary ($ in Thousands)**: Not Applicable

(U) D. **Schedule Profile**:

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Analysis and Support	X	X	X	X												

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305145F Arms Control Implementation

PROJECT: 4283

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4283 Open Skies Treaty Systems Develop	475	0	0	0	0	0	0	0	0	475
Quantity of RDT&E Articles										

(U) A. Mission Description and Budget Item Justification

- (U) Open Skies support includes development of Synthetic Aperture Radar (SAR), SAR media processing equipment, the Data Annotation and Recording Mapping System (DARMS), as well as systems integration, engineering, test, and evaluation. This includes:
  - (U) Aircraft systems integration, engineering, test, and evaluation
  - (U) Synthetic Aperture Radar (SAR) prototype development
  - (U) Data Annotation and Recording Mapping System (DARMS) prototype development
  - (U) Ground processing software development
- (U) System integration and test & evaluation of the FOC trainer OC-135B aircraft will be complete in FY96. No further funding has been programmed beyond FY96.

(U) FY 1996
- (U) $475 Completes system integration and test & evaluation of the FOC trainer OC-135B aircraft.
- (U) $475 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	500	0	0	0	500
(U) Appropriated Value					
(U) Adjustments to Appropriated Value					
a. Congressional General Reductions	-10				

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305145F Arms Control Implementation

PROJECT: 4283

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
b. SBIR	-8				
c. Omnibus and Above Threshold Programming	-7				
d. Below Threshold Reprogramming					
(U) Current Budget Submit/President's Budget	475	0	0	0	475

(U) Change Summary Explanation:
(U) Funding: Omnibus and Above Threshold and General Congressional Reduction in FY96.
Schedule: Not Applicable
Technical: Not Applicable

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Aircraft Procurement: OC-135B	429	0	0	0	0	0	0	0	0	977
(U) Other Procurement: Items less than $2.0	38	0	0	0	42	43	0	0	Cont	TBD

(U) D. Schedule Profile

Includes all Program activities not just RDT&E

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Milestone II/III (Complete Mar 93)																
(U) Critical Design Complete (3010)																
(U) FOC Aircraft #1																
(U) Modifications	X															
(U) T&E (3600)	X	X	X													
(U) Delivery			X													
(U) FOC Aircraft #2																
(U) Modifications (3010)	X	X	X													
(U) T&E (3600)			X	X	X											
(U) Delivery					X											
(U) FOC Retrofit of IOC Aircraft																
	X	X	X	X	X											

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305145F Arms Control Implementation

PROJECT: 4283

Includes all Program activities not just RDT&E	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) T&E (3600)					X	X	X									
							X									
(U) Ground Proc'ng Facility Enhancements (3600)	X	X	X	X	X											
(U) Engine Stage III Noise Abatement																

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305145F Arms Control Implementation	PROJECT 4520

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4520 Comp Test Ban Treaty Data Ctr Dev	0	27,841	0	0	0	0	0	0	0	0
Quantity of RDT&E Articles										

(U) A. Mission Description and Budget Item Justification

(U) The CTBT effort will encompass a multitude of activities in FY97 that enable the DoD to prepare for US treaty implementation and compliance. Prior to FY97, these activities were managed by AFTAC, ARPA, Phillips Labs, and the Office of Scientific Research. Activities include:

- (U) Development of National and International Data Centers ($16.3 million)
  - (U) secure and robust data communication and acquisition
  - (U) automated systems development and integration
  - (U) automated signal processing and integration into operational system
  - (U) expansion from seismic-only processing to include hydroacoustic, infrasound, and radionuclide data
  - (U) development of man-machine interface
  - (U) automation and integration of knowledge bases, multi-source cueing, and regional discrimination research
  - (U) complete integration of automated and interactive processing algorithms
  - (U) demonstrate atmospheric transport capability for radionuclide location
  - (U) prototype multi-technique data fusion and correlation system
  - (U) data authentication
  - (U) conclude testing of the integrated system
  - (U) initiation of transition of the IDC to CTBT Organization/Preparatory Commission

- (U) Treaty Implementation and Technical Support ($4.593 million)
  - (U) definition of processes and techniques for treaty required data exchanges and notifications
  - (U) compliance and verification decision tools
  - (U) interface to other National Systems
  - (U) interface to the US research community

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0305145F Arms Control Implementation / PROJECT: 4520

- (U) support to Preparatory Commission activities
- (U) provide capability to analyze, characterize and resolve events located in the US in order to minimize frivolous on-site inspection requests by foreign governments and the CTBT international organization

- (U) Research and development of nuclear monitoring techniques ($5.893 million)
  - (U) Seismic, hydroacoustic, infrasound and radionuclide data exploitation
    - (U) improved understanding of the phenomenology of signal and noise sources
    - (U) calibrated location and discrimination of small events globally, with emphasis on the former Soviet Union
    - (U) modeling of sources and propagation
    - (U) new techniques for multi-source data fusion
  - (U) Seismic-specific data exploitation
    - (U) improved detection and identification of surface waves
    - (U) improved depth estimation
  - (U) Hydroacoustic and infrasound-specific data exploitation
    - (U) use of spatially- and temporally-varying velocity models for real-time event location
    - (U) new discriminates for identification of events
  - (U) Radionuclide specific data exploitation
    - (U) new techniques for detection and identification of fission products for gamma spectroscopy
    - (U) improved event location using data from multiple stations and advance atmosphere transport models
  - (U) Satellite-specific data exploitation
    - (U) characterization of low-level explosion and natural phenomena

- (U) Prior to FY97, ARPA, Phillips Labs, and OSR managed these activities under the following PEs:

(U) ARPA	PE 0602301E, Project ST-23
(U) OSR	PE 0601102F, Project 2309
(U) Phillips Labs	PE 0602601F, Project 1010

- (U) Funding and management of these efforts transferred to DSWA effective FY98.

(U) FY 1996

- (U) $0 N/A
- (U) $0 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305145F Arms Control Implementation
	PROJECT 4520

(U) FY 1997
- (U) $26,786 Multiple
- (U) $26,786 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	0	26,786	10,997	11,115	
(U) Appropriated Value		0	0	0	
(U) Adjustments to Appropriated Value					
a. Reprogramming		0	-10,997	-11,115	Continuing
(U) Current Budget Submit/President's Budget	0	26,786	0	0	Continuing

(U) Change Summary Explanation:
(U) Funding: FY98-99 -- Transfers funding from AF to DSWA.
Schedule: Not Applicable
Technical: Not Applicable

(U) C. Other Program Funding Summary ($ in Thousands):

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Prototype IDC Development					X	X	X	X								
(U) NDC Development					X	X	X	X								
(U) Monitoring Technologies Development					X	X	X	X								
(U) Treaty Implementation & Technical Support					X	X	X	X								

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305154F Defense Airborne Reconnaissance Program (DARP) RC-135

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	29,558	4,750	0	0	0	0	0	0	0	34,308
4590 DARO Engines	29,558	0	0	0	0	0	0	0	0	29,558
4607 COBRA BALL (FLD)	0	4,750	0	0	0	0	0	0	0	4,750
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description and Budget Item Justification

(U) This project supports design studies, engineering analyses, non-recurring engineering, and other efforts associated with modifications to the RC-135 or its mission systems. The results of these efforts provide the requisite engineering necessary to implement modifications or provide a preliminary assessment of the technical feasibility, operability or general military utility of developing a proposed application.

(U) Acquisition Strategy:

(U) RC-135 sustainment and modification are managed by the Air Force through the BIG SAFARI program. Programs managed under BIG SAFARI are directed only by the Air Force Acquisition Executive (SAF/AQ). These projects are managed by a single Air Force Material Command (AFMC) organization, ASC/RA. That office provides technical oversight and management of all aircraft, ground and support system modification management, integration and flight test engineering responsibility, product assurance and acceptance testing, logistics and training activities.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305154F Defense Airborne Reconnaissance Program (DARP) RC-135

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY1997 President's Budget	0	0	0	0	0
(U) Appropriated Value	31,500	5,000			36,500
(U) Adjustments to Appropriated Value					
a. Cong Reductions		-120			
b. Small Business Innovative Research (SBIR)		-130			
d. Below Threshold Reprogramming	-1,942				
(U) FY1998/1999 Biennial Budget	29,558	4,750	0	0	34,308

(U) Change Summary Explanation:

Funding:

a. 4590: $31.5M FY96 Congressional plus-up to provide non-recurring engineering (NRE) for the reengining of the RC-135. No additional funds requested.

b. 4607: $5M FY97 Congressional plus-up to provide a preliminary assessment of the technical feasiblity of developing an airborne application of the field laser radar demonstration (FLD). No additional funds requested.

Schedule:

Technical:

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Not Applicable										

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305154F Defense Airborne Reconnaissance Program (DARP) RC-135

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Reenginging - Non-recurring engineering (NRE) delivery (4590)											X					
(U) FLD - Long Range Stand-off Detection (4607)										X						
(U) FLD - Signatures & Backgrounds Measurements (4607)										X						
(U) FLD - Advanced Transmitter Development (4607)											X					
(U) FLD - Target Chemical Spectral Database (4607)											X					
(U) FLD - Simulation and Modeling (4607)									X							

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY **7 - Operational System Development**	PE NUMBER AND TITLE **0305154F Defense Airborne Reconnaissance Program (DARP) RC-135**
	PROJECT **4590**

COST *($ In Thousands)*	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4590 DARO Engines	29,558	0	0	0	0	0	0	0	0	29,558

(U) A. **Mission Description and Budget Item Justification**

(U) This project provides the non-recurring engineering to support reengining of the RC-135.

(U) The reengining of an RC-135 consists of four CFM56 engines with a service bulletin installed to obtain 5th and 9th stage bleed air, turbine engine monitoring system, fire detection and extinguishing system, new electrical power generation sytem, new nacelles and struts, new fairings, new fan ducts, reinforcements of wing structure in the strut area, fuel temperature probes, strengthened main landing gear, jet fuel starter on one engine in lieu of the auxilliary power units, overheat warning, revised nose wheel steering, flight control augmentation system, dual fuel level control valves and associated cockpit controls and displays associated with the new/revised systems.

(U) Reengining the RC-135 aircraft will increase its mission effectiveness by increasing operating altitude/sensor coverage, range and time-on-station.

(U) FY 1996 ($ in Thousands):
- (U) $29,558 Non Recurring Engineering
- (U) $
- (U) $
- (U) $29,558 Total

(U) FY 1997 ($ in Thousands):
- (U) $
- (U) $
- (U) $
- (U) $0 Total (No additional funding requested)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305154F Defense Airborne Reconnaissance Program (DARP) RC-135
	PROJECT 4590

(U) FY 1998 ($ in Thousands):
- (U) $
- (U) $
- (U) $
- (U) $0 Total

(U) FY 1999 ($ in Thousands):
- (U) $
- (U) $
- (U) $
- (U) $0 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY1997 President's Budget	0	0	0	0	0
(U) Appropriated Value	31,500				31,500
(U) Adjustments to Appropriated Value					
a. Below Threshold Reprogramming	-1,942				-1,942
(U) FY 1998/1999 Biennial Budget	29,558	0	0	0	29,558

(U) Change Summary Explanation:

Funding: $31.5M Congressional plus-up to provide for the non-recurring engineering to reengine the RC-135. No additional funding is requested.

Schedule:

Technical:

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305154F Defense Airborne Reconnaissance Program (DARP) RC-135 PROJECT 4590

(U) C. **Other Program Funding Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Not Applicable										

(U) D. **Schedule Profile**

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Non recurring engineering delivery											X					

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305154F Defense Airborne Reconnaissance Program (DARP) RC-135
	PROJECT 4590

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Non Recurring Engineering	$29,558			
(U) Total	$29,558			

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
ASC/RAB			$29,558	$29,558	0	$29,558	0	0	0	0	$29,588
Support and Management Organizations											
Test and Evaluation Organizations											

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305154F Defense Airborne Reconnaissance Program (DARP) RC-135
	PROJECT 4590

(U) B. Budget Acquisition History and Planning Information Continued ($ in Thousands)

Government Furnished Property:

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Property										
Support and Management Property										
Test and Evaluation Property										
Subtotal Product Development										
Subtotal Support and Management										
Subtotal Test and Evaluation										
Total Project										

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305154F Defense Airborne Reconnaissance Program (DARP) RC-135

PROJECT: 4607

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4607 COBRA BALL (FLD)	0	4,750	0	0	0	0	0	0	0	4,750

(U) A. **Mission Description and Budget Item Justification**

(U) This project conducts Congressionally directed design studies, analyses, and other efforts associated with determining the feasibility of downsizing the current field laser radar demonstration (FLD) for possible future installation on airborne platforms. The results of the effort will provide a preliminary assessment of the technical feasibility, operability and general military utility of developing an airborne application of the FLD.

(U) FY 1996 ($ in Thousands):
- (U) $
- (U) $
- (U) $
- (U) $0 Total

(U) FY 1997 ($ in Thousands):
- (U) $2,650 Long Range Stand-off Detection
- (U) $500 Signatures & Backgrounds Measurements
- (U) $1,100 Advanced Transmitter Development
- (U) $280 Target Chemical Spectral Database
- (U) $220 Simulation & Modeling
- (U) $4,750 Total

(U) FY 1998 ($ in Thousands):
- (U) $
- (U) $
- (U) $
- (U) $0 Total (No additional funding is requested)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305154F Defense Airborne Reconnaissance Program (DARP) RC-135
	PROJECT 4607

(U) FY 1999 ($ in Thousands):
- (U) $
- (U) $
- (U) $
- (U) $0 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY1997 President's Budget		0			0
(U) Appropriated Value		5,000			5,000
(U) Adjustments to Appropriated Value					
a. Cong Reductions		-120			-120
b. Small Business Innovative Research (SBIR)		-130			-130
(U) FY1998/1999 Biennial Budget		4,750	0	0	4,750

(U) Change Summary Explanation:

Funding: $5M appropriated by Appropriations Conference Committee. No additional funding is requested.

Schedule:

Technical:

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305154F Defense Airborne Reconnaissance Program (DARP) RC-135
	PROJECT 4607

(U) C. **Other Program Funding Summary ($ in Thousands)**

(U) Not Applicable	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost

(U) D. **Schedule Profile**

	FY 1996				FY 1997				FY 1998				FY 1999		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Long Range Stand-off Detection										X						
(U) Signatures & Backgrounds Measurements										X						
(U) Advanced Transmitter Development											X					
(U) Target Chemical Spectral Database											X					
(U) Simulation and Modeling								X								

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305158F Constant Source

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	2,872	2,799	258	242	249	252	257	264	Cont	TBD
4394 Combat Intelligence System	1,989	1,954	0	0	0	0	0	0	0	3,956
4395 Radio	883	845	258	242	249	252	257	264	Cont	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) Note: The funding request for Project 4394 Combat Intelligence System (CIS) for FY98 and later has been reprogrammed into PE 0207414F. Together with other funds from PEs 0604321F and 0207431F, this was done to consolidate RDT&E funding in a single PE, for program clarity, and reporting efficiency.

(U) A. Mission Description and Budget Item Justification

This program was established as part of the Air Force Tactical Exploitation of National Capabilities (TENCAP) normalization effort. Recently, the Constant Source Operator Terminal (CSOT) functionality was transformed into the Combat Intelligence System (CIS). This terminal processes the near-real-time threat information utilized by combat units/aircrews for mission planning and execution. The radio project in this program enables the warfighter to access critical data provided by national and tactical intelligence sources. Currently over 130 ground systems are deployed. Air Force is jointly developing and procuring an airborne qualified radio called Multi-mission Advanced Tactical Terminal (MATT) with US Special Operations Command (SOCOM), Defense Support Program Office (DSPO), and the Navy. This Program Element is assigned in Budget Activity 7, Operational System Development because it involves post-Milestone III efforts and supports development of operational systems.

(U) Acquisition Strategy:

Project 4394 - Full and open competition led to a Cost Plus Award Fee contract with Lockheed Martin Command and Control Systems.

Project 4395 - Technology transfer from the Naval Research Laboratory to the contractor. Evolutionary acquisition strategy was implemented with a core capability procured during the first production option. Firm Fixed Price.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305158F Constant Source

(U) **B. Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY 97 President's Budget	2,892	2,914	870	815	TBD
(U) Appropriated Value	3,089	2,914			
(U) Adjustments to Appropriated Value					
a. Cong Reductions	-107	-70			
b. Small Business Innovative Research	-59	-45			
c. Below Threshold Reprogramming	-1				
d. Rescissions	-50				
(U) Adjustments to Budget Years Since FY 1997 PB			-612	-573	
(U) FY 1998/1999 Biennial Budget	2,872	2,799	258	242	TBD

(U) Change Summary Explanation:

Funding: FY 98/99 reductions due to CIS consolidation in PE 0207414.
Schedule: N/A
Technical: N/A

(U) **C. Other Program Funding Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Other Procurement, AF (0305158F)	5,494	7,583	8,350	4,424	5,390	8,015	8,959	9,034	Cont	TBD
(U) O&M, PE 0207431, CAIS	10,826	3,479	3,330	3,353	4,326	5,371	5,488	5,615	Cont	TBD

(U) **D. Schedule Profile** - See individual projects for Schedule Profiles.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305158F Constant Source		PROJECT 4394

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4394 Combat Intelligence System	1,989	1,954	0	0	0	0	0	0	0	3,956

(U) Note: The funding request for Project 4394 Combat Intelligence System (CIS) for FY98 and later has been reprogrammed into PE 0207414F. Together with other funds from PEs 0604321F and 0207431F, this was done to consolidate RDT&E funding in a single PE, for program clarity, and reporting efficiency.

(U) A. Mission Description and Budget Item Justification

(U) Combat Intelligence System (CIS) is the Air Force's single, standard automated intelligence system optimizing both component and unit-level intelligence functions to provide warfighters with the most accurate and timely intelligence data available. CIS is the core capability for automating the receipt, correlation, and dissemination of intelligence information to a variety of intelligence and operational systems which support combat planning and execution. As the intelligence segment to Theater Battle Management Core Systems (TBMCS), it provides an automated capability at the component and unit levels to rapidly receive and process all-source intelligence data to support Contingency Theater Automated Planning System (CTAPS). CIS builds and maintains in-theater situational awareness during deployment to the theater and provides indications and warning support after arrival. CIS provides the capability to receive all-source intelligence near-real-time from national, theater, and tactical reconnaissance platforms. CIS is electronically interoperable and compatible with other intelligence systems, providing an integrated network capable of intelligence support to decision makers, battle planners, mission planners, and warfighters.

(U) FY 1996 ($ in Thousands):

- (U) $ 468 Continue SCI level correlation enhancements
- (U) $1,216 Auto Associator Enhancements under Theater Battle Management (TBM) Core Systems
- (U) $ 305 Conduct Studies for future CIS intelligence interoperabilities
- **(U) $1,989 Total**

(U) FY 1997 ($ in Thousands):

- (U) $ 245 Continue studies for CIS intelligence interoperability
- (U) $1,202 Continue CIS software development under TBM Core Systems
- (U) $ 507 Implement results of studies into CIS software under TBM Core Systems
- **(U) $1,954 Total**

(U) FY 1998 and FY 1999: Funding is programmed in PE 0207414F.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305158F Constant Source
	PROJECT 4394

(U) B. **Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY97 President's Budget	2,009	2035	607	569	TBD
(U) Appropriated Value	2,150	2035			
(U) Adjustments to Appropriated Value					
a. Cong Reductions	-73	-50			
b. Small Business Innovative Research	-47	-31			
c. Below Threshold Reprogramming	-1				
d. Rescissions	-40				
(U) Adjustments to Budget Years Since FY 1997 PB			-607	-569	
(U) FY 1998/1999 Biennial Budget	1,989	1,954	0	0	TBD

(U) Change Summary Explanation:

Funding: FY 98/99 reductions due to CIS consolidation into PE 0207414F.
Schedule: N/A
Technical: N/A

(U) C. **Other Program Funding Summary ($ in Thousands)** - See Other Program Funding Summary above.

(U) D. **Schedule Profile**

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) CIS 1.2 Release							X									
(U) TBMCS Contract Award	X															
(U) TBMCS 1.0 Release												X				
(U) Initial Operational Capability											X					

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305158F Constant Source
	PROJECT 4394

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Software Development	1,678	1,634	0	0
(U) Systems Engineering Support	134	130	0	0
(U) Program Management Support	177	190	0	0
(U) Total	**1,989**	**1,954**	**0**	**0**

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Lockheed Martin Cmnd & Ctrl Syst F19628-95-C0143 and various others	SS/CPAF	Oct 95	TBD	TBD	2,301	1,691	1,634	0	0	0	3,406
Support and Management Organizations											
MITRE		On going	TBD	TBD	551	134	130	0	0	0	815
TEMS Various Contractors		On going	TBD	TBD	271	177	190	0	0	0	638

Test and Evaluation Organizations - N/A

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305158F Constant Source	PROJECT 4394

(U) B. Budget Acquisition History and Planning Information Continued ($ in Thousands)

Government Furnished Property: N/A

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Property										
Support and Management Property										
Test and Evaluation Property										
Subtotal Product Development				2,301	1,678	1,634	0	0	0	5626
Subtotal Support and Management				822	311	320	0	0	0	1,453
Subtotal Test and Evaluation				0	0	0	0	0	0	0
Total Project				**3,123**	**1,989**	**1,954**	**0**	**0**	**0**	7,079

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE: February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0305158F Constant Source		PROJECT: 4395

COST (*$ In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4395 Radio	883	845	258	242	249	252	257	264	Cont	TBD

(U) A. Mission Description and Budget Item Justification

(U) This program provides the capability to receive near-real-time threat information utilized by combat units/aircrews for threat warning, mission planning, and execution. It enables the warfighter to access critical data provided by national and tactical intelligence sources. Current fielded radios include the Tactical Receive Equipment (TRE) and Multi-mission Advanced tactical terminal (MATT). The MATTS are being integrated into air and ground platforms which require tactical broadcast functionality. The follow on capability will be provided by the Joint Tactical Terminal and/or Common Integrated Broadcast Service Modules (CIBS-M).

(U) FY 1996 ($ in Thousands):
- (U) $ 150 Plan and support integration on DoD aircraft and weapon systems
- (U) $ 633 Support MATT radio P^{3}I development effort
- (U) $ 100 Support migration of MATT into next generation tactical terminal
- **(U) $ 883 Total**

(U) FY 1997 ($ in Thousands):
- (U) $ 150 Plan and support integration on DoD aircraft and weapon systems
- (U) $ 595 Support MATT radio P^{3}I development effort
- (U) $ 100 Support migration of MATT into next generation tactical terminal
- **(U) $ 845 Total**

(U) FY 1998 ($ in Thousands):
- (U) $ 150 Plan and support integration on DoD aircraft and weapon systems
- (U) $ 108 Support migration of MATT into next generation tactical terminal
- **(U) $ 258 Total**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305158F Constant Source	PROJECT 4395

(U) FY 1999 ($ in Thousands):

- (U) $ 150 Plan and support integration on DoD aircraft and weapon systems
- (U) $ 92 Support migration of MATT into next generation tactical terminal
- **(U) $ 242 Total**

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY97 President's Budget	870	879	263	246	TBD
(U) Appropriated Value	939				
(U) Adjustments to Appropriated Value					
a. Cong Reductions	-34	-20			
b. Small Business Innovative Research	-12	-14			
c. Rescissions	-10				
(U) Adjustments to Budget Years Since FY 1997 PB			-5	-4	
(U) FY 1998/1999 Biennial Budget	883	845	258	242	TBD

(U) Change Summary Explanation:

Funding: N/A
Schedule: N/A
Technical: N/A

(U) C. Other Program Funding Summary ($ in Thousands) - See Other Program Funding Summary above.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305158F Constant Source PROJECT 4395

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) FY96 Production Run/Deliveries Start			X													
(U) Exercise FY97 Production Option					X											
(U) FY97 Production Run/Deliveries Start								X								
(U) Exercise Tactical Information Broadcast System (TIBS) Production Option				X												
(U) TIBS Production Run Start				X												
(U) Delivery to Platform Start							X									
(U) Block II Production										X						

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305158F Constant Source

PROJECT: 4395

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Software Development	553	515	58	42
(U) Travel	100	100	75	75
(U) Government Engineering Support	230	230	125	125
(U) Total	**883**	**845**	**258**	**242**

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Allied Signal, Inc. MDA911-93-C0008 and TBD	FFP	Apr 93	TBD	TBD	0	553	515	58	42	Cont	TBD
Support and Management Organizations											
Mission Support		Ongoing			0	330	330	200	200	Cont	TBD

Test and Evaluation Organizations - N/A

(U) B. Budget Acquisition History and Planning Information Continued ($ in Thousands)

Government Furnished Property:

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305158F Constant Source

PROJECT: 4395

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Property										
Support and Management Property										
Test and Evaluation Property										
Subtotal Product Development					553	515	58	42	Cont	TBD
Subtotal Support and Management					330	330	200	200	Cont	TBD
Subtotal Test and Evaluation										
Total Project					**883**	**845**	**258**	**242**	**Cont**	**TBD**

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305160F Def Meteorological Satellite Prog (Space)

PROJECT: 0001

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
0001 DMSP	18,221	14,769	14,076	19,143	18,920	18,003	14.965	11,547	19,700	831,100
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. **Mission Description and Budget Item Justification**

The Defense Meteorological Satellite Program (DMSP) is a fully operational joint-service program supporting all military services. Operational commanders require timely, quality weather information to effectively employ weapon systems and protect DoD resources. DMSP is the DoD's most important and often the only source of global weather data. It provides visible and infrared cloud cover imagery (1/3 nm constant resolution) and other meteorological, oceanographic, and solar-geophysical information. This data is required over the entire earth to support global and theater military operations. At least two satellites are required in sun synchronous 450nm polar orbit at all times (sun synchronous means the satellites cross the equator at the same local sun time on each of their 14 orbits/day). This program is in Budget Activity 7,Operational Systems Development,because it supports the current operational DMSP program. Vice President Gore's National Performance Review directed convergence of DMSP with NOAA's weather satellite system. In FY 98, DMSP satellite operations will consolidate with NOAA satellite operations at NOAA's Suitland MD Satellite Operations Control Center (SOCC).

(U) FY 1996

- (U) $14,407 *Continue system integration and test, calibration and validation, and related support activities.*
- (U) $1,951 Continue enhanced Small Tactical Terminal (mobile weather terminal) algorithm development.
- (U) $200 Continue MARK IVB tactical weather terminal enhanced algorithm integration.
- (U) $238 Continue Titan II integration effort (transition from Atlas E due to inventory depletion).
- (U) $306 Support civilian (DOC/NOAA)/military command and control consolidation efforts
- (U) $1,119 Continue Special Sensor Microwave Imager/Sounder (SSMIS) contract litigation support.
- (U) $18,221 Total

(U) FY 1997

- (U) $12,060 Continue system integration and test, calibration and validation, and related support activities.
- (U) $631 Complete Small Tactical Terminal (mobile weather terminal) enhanced algorithm development and implementation.
- (U) $1,428 Begin Mark IVB tactical weather terminal software upgrade for the next block of satellites (5D-3)
- (U) $650 Continue Titan II integration effort (transition from Atlas E due to inventory depletion)
- (U) $14,769 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305160F Def Meteorological Satellite Prog (Space)
	PROJECT 0001

(U) FY 1998

- (U) $9,770 Continue system integration and test, calibration and validation, and related support activities.
- (U) $1,212 Continue Titan II integration effort (transition from Atlas E due to inventory depletion).
- (U) $2,050 Begin Small Tactical Terminal (mobile weather terminal) tactical cloud analysis software upgrades.
- (U) $1,044 Continue Mark IVB tactical weather terminal software upgrade for the next block of satellites (5D-3)
- (U) $14,076 Total

(U) FY 1999

- (U) $15,209 Continue system integration and test, calibration and validation, and related support activities.
- (U) $1,311 Continue Titan II integration effort (transition from atlas E due to inventory depletion).
- (U) $2,058 Continue Small Tactical Terminal (mobile weather terminal) tactical cloud analysis software upgrades.
- (U) $565 Continue Mark IVB tactical weather terminal software upgrade for the next block of satellites (5D-3)
- (U) $19,143 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Previous President's Budget	19,913	17,964	16,901	19,622
(U) Appropriated Value		15,664		
(U) Adjustments to Appropriated Value				
a. Cong Gen Reductions		-533		
b. SBIR		-362		
c. Omnibus or Above Threshold Reprogramming				
d. Below Threshold Reprogramming	-1,560			
e. Recission	-131			
(U) Adjustments to Budget Years Since FY97 PB			-2,825	-479
(U) Current Budget Submit/President's Budget	18,221	14,769	14,076	19,143

(U) Change Summary Explanation:

Funding: FY 98/99 adjustments fund higher prioity AF and DoD requirements.

Schedule: Launch of F-14 scheduled for 3Q FY97 (was projected for 3Q FY98 (Jun)) and F-15 1Q FY 99 (as projected).

Technical: No changes.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305160F Def Meteorological Satellite Prog (Space)
	PROJECT 0001

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Missile Procurement	27,873	27,610	35,243	36,835	36,699	38,325	35,396	35,830	71,900	1,898,711
(U) Other Procurement	19,889	15,708	13,445	12,541	10,270	8,392	7,994	3,667	21,400	320,306

Related RDT&E:
(U) PE #603434F, National Polar Operational Environmental Satellite System (NPOESS)
(U) PE #305160N, DMSP (provides funds for Navy unique studies)

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Small Tactical Terminal First Delivery				X												
(U) Small Tactical terminal FOT&E					X											
(U) 5D-3 Spacecraft Delivery (S16-20)						X	X		X		X	X				
(U) Planned 5D-2 Launches (F-14/F-15)							X						X			
(U) Suitland SOC IOC (DMSP Ops)											X					
(U) DMSP SOC Closure												X				

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305160F Def Meteorological Satellite Prog (Space)
	PROJECT 0001

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Launch Vehicle Transition	238	650	1,212	1,311
(U) Spacecraft Integration	4,978	3,791	3,779	4,819
(U) Calibration/Validation	96	55	359	1,335
(U) Algorithm Development	1,154	1,030	548	452
(U) SSMIS Litigation Support	1,119	0	0	0
(U) On-Orbit Performance Incentives (primary sensor)	0	0	0	0
(U) MARK IVB/STT Enhancements	2,151	2,059	3,094	2,623
(U) Systems Engineering Support	4,696	4,031	1,695	2,625
(U) Program Management Support	3,483	3,153	3,389	5,978
(U) Command and Control Consolidation	306	0	0	0
(U) Total	18,221	14,769	14,076	19,143

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Lockheed -Martin	SS/CPAF	Apr 92	4,312	4,312	2,727	1,385	200	0	0	0	4,312
Lockheed-Martin	SS/CPAF	May 97	3,658	3,658	0	0	333	800	1,000	1,525	3,658
Northrop-Grummn	SS/CPAF	Apr 90	3,785	3,785	3,785	0	0	0	0	0	3,785
Northrop-Grummn	SS/CPAF	May 95	3,074	3,074	0	811	478	559	700	526	3,074
Lockheed-Martin	C/CPAF	Oct 88	39,466	39,466	39,266	200	0	0	0	0	39,466
Harris	C/CPAF	Jun 94	5,442	5,442	2,860	1,951	631	0	0	0	5,442
SM-ALC	FCA	Jan 97	4,219	4,219	0	0	1,428	1,044	565	1,182	4,219

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305160F Def Meteorological Satellite Prog (Space)

PROJECT: 0001

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
SMC/CL (Titan)	PO	Oct 94			282	238	650	1,212	1,311	Cont	Cont
Aerojet	SS/CPAF	May 92	1,990	1,990	787	596	607	0	0	0	1,990
Aerojet	C/CPAF	Mar 89	36,062	36,062	35,886	149	27	0	0	0	36,062
TBD (SSMIS Sys Eng Spt)	TBD	Dec 97			0	0	0	715	806	3,366	4,887
Hughes	SS/CPFF	May 91	1,092	1,092	1,082	10	0	0	0	0	1,092
Hughes	SS/CPFF	May 96	658	658	0	15	198	201	120	124	658
Phillips Lab	MIPR/PD	Oct 95			2,096	725	1,017	2,985	3,426	Cont	Cont
Lockheed-Martin	C/CPAF	Jul 91	7,026	7,026	7,026	0	0	0	0	0	7,026
Lockheed-Martin	C/CPAF	Jul 91	6,893	6,893	6,893	0	0	0	0	0	6,893
NRL	MIPR/Various	Oct 95			755	1,201	1,024	547	748	Cont	Cont
APL	MIPR/Various	Oct 95			200	760	536	374	760	Cont	Cont
SMC (Det 3 SSSG)	FCA	Dec 95			0	306	0	0	0	0	306
Sandia	MIPR/Various	Oct 96			0	286	240	331	874	Cont	Cont
Other	Various				1,603	290	216	224	230	Cont	Cont
Support and Management Organizations											
FFRDC	MORD*	Oct 95			4,171	3,230	2,375	1,695	1,125	Cont	Cont
PRC	C/CPAF	Aug 95			0	1,466	1,656	0	1,500	Cont	Cont
Program Mgmt					2,359	3,483	3,153	3,389	5,978	Cont	Cont
Litigation Support					690	1,119	0	0	0	0	1,809
Other	Various	Jul 91			1,958	0	0	0	0	0	1,958

*MORD - Miscellaneous Obligation/Reimbursement Document -a vehicle/method for committing and obligating funds. In this case the program office sends a letter to SMC/FM to commit & obligate the funds programmed for Aerospace support.

Test and Evaluation Organizations

Not Applicable.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 1997	
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305160F Def Meteorological Satellite Prog (Space)						PROJECT 0001

(U) B. Budget Acquisition History and Planning Information Continued ($ in Thousands)

Government Furnished Property: Not Applicable.

Subtotal Product Development	105,248	8,923	7,585	8,992	10,540	Cont	Cont
Subtotal Support and Management	9,178	9,298	7,184	5,084	8,603	Cont	Cont
Project Total	114,426	18,221	14,769	14,076	19,143	Cont	Cont

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305164F Navstar Global Pos Sys (User Eq) (Space)

PROJECT: 3028

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
3028 Navstar GPS (User Equipment)	16,314	29,810	46,300	68,590	46,637	23,075	16,028	16,457	97,600	360,811
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. **Mission Description and Budget Item Justification**

The Global Positioning System (GPS) is a space-based radio positioning, navigation, and time distribution system. GPS User Equipment (UE) consists of standardized receivers, antennas, antenna electronics, etc., grouped together to form sets which derive navigation and time information utilizing data transmitted by the satellites. These receiver sets are used by all the Services and DoD. RDT&E funds UE development and testing, studies and engineering to assist integration into aircraft, software upgrades, product improvement studies, testing and evaluation of commercial GPS UE, and mission support. UE passed DAB Milestone IIIB in January 92 and is, therefore, in Budget Activity 7, Operational System Development.

(U) FY 1996 ($ in Thousands):

- (U) $452 Continue integration studies.
- (U) $879 Continue to support development testing for aircraft integrations.
- (U) $235 Continue developing software block upgrade for 5-channel GPS airborne receiver.
- (U) $639 Conduct GPS receiver product improvement studies.
- (U) $322 Continue development and product improvement testing for user equipment.
- (U) $3,640 Continue NAVWAR Advanced Concept Technology Demonstration (ACTD).
- (U) $3,743 Continue support contracts.
- (U) $1,364 Continue in-house support.
- (U) $740 Complete Hands-On Threat Demonstration.
- (U) $4,300 Continue Selective Availability Anti-Spoof Module (SAASM) development.
- (U) $16,314 Total

(U) FY 1997 ($ in Thousands):

- (U) $200 Continue integration studies.
- (U) $869 Continue to support development testing for aircraft integrations.
- (U) $193 Continue developing software block upgrade for 5-channel GPS airborne receiver.
- (U) $700 Continue development and product improvement testing for user equipment.
- (U) $5,070 Continue ACTD.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305164F Navstar Global Pos Sys (User Eq) (Space)
	PROJECT 3028

- (U) $1,700 Continue support contracts.
- (U) $3,304 Continue in-house support.
- (U) $6,720 Continue SAASM development.
- (U) $11,054 Investigate GPS signal prevention/protection development options consistent with GPS NAVWAR program.
- (U) $29,810 Total

(U) FY 1998 ($ in Thousands):

- (U) $800 Continue to support development testing for aircraft integrations.
- (U) $200 Continue developing software block upgrade for 5-channel GPS airborne receiver.
- (U) $1,100 Continue development and product improvement testing for user equipment.
- (U) $260 Complete ACTD development.
- (U) $1,854 Continue support contracts.
- (U) $2,761 Continue in-house support.
- (U) $6,500 Continue SAASM development.
- (U) $17,625 Continue investigation of GPS signal prevention/protection development options consistent with GPS NAVWAR program.
- (U) $15,200 Begin development of advanced receivers.
- (U) $46,300 Total

(U) FY 1999 ($ in Thousands):

- (U) $731 Continue to support development testing for aircraft integrations.
- (U) $200 Continue developing software block upgrade for 5-channel GPS airborne receiver.
- (U) $4,570 Continue development and product improvement testing for user equipment.
- (U) $1,910 Continue support contracts.
- (U) $2,727 Continue in-house support.
- (U) $620 Continue SAASM development.
- (U) $25,703 Continue investigation of GPS signal prevention/protection development options consistent with GPS NAVWAR program.
- (U) $28,129 Continue development of advanced receivers.
- (U) $4,000 Begin development of advanced antenna/antenna electronics.
- (U) $68,590 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305164F Navstar Global Pos Sys (User Eq) (Space)

PROJECT: 3028

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Previous President's Budget	16,460	32,450	24,599	24,639
(U) Appropriated Value	17,371	31,250		
(U) Adjustments to Appropriated Value				
a. Cong Gen Reductions	-345	-734		
b. SBIR	-354	-706		
c. Omnibus or Other Above Threshold Reprogram				
d. Below Threshold Reprogramming	-39			
e. Rescision	-319			
(U) Adjustments to Budget Years Since FY97 PB			21,701	43,951
(U) Current Budget Submit/President's Budget	16,314	29,810	46,300	68,590

(U) Change Summary Explanation:
Funding: Adjustments to budget years FY98 (21,701) and FY99 (43,951) reflect increased funding for Advanced Concept Technology Demonstration (ACTD) development and NAVWAR prevention/protection efforts.

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Operations and Maintenance	997	843	1,313	1,976	2,394	2,579	2,644	2,701	Cont	Cont
(U) Aircraft Procurement	41,707	34,744	44,318	45,624	39,998	61,139	111,235	146,433	Cont	Cont
(U) Other Procurement (BA 3/6)	5,051	3,360	3,152	4,102	3,985	4,028	4,493	4,576	Cont	Cont
(U) OSD RDT&E (ACTD Funding: PE 63750D)	6,669	4,500	3,900	300						

Related RDT&E:
(U) PE #305165F, NAVSTAR GPS (Space/Grd Segments)
(U) PE #604480F, GPS Block IIF
(U) PE#305176F, Combat Survivor/Evader Locator

(U) D. Schedule Profile

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305164F Navstar Global Pos Sys (User Eq) (Space)

PROJECT: 3028

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Advanced Receiver Technology																
(U) Brassboard Delivery						x										
(U) Anti-Jam Development (MCM)																
(U) Integration Complete							x									
(U) Testing Complete							x									
(U) F-16 Study Complete					x											
(U) SAASM																
(U) Multi-chip Module (MCM) Test Start								x								
(U) HW Development Test Start			x													
(U) SW Development Start/Complete			x						x							
(U) P3I Trade Studies Start/Complete			x				x									
(U) Protection Technology Develop							x									
(U) MAGRU/3AU (Receiver Upgrades)																
(U) SRD/System Specs		x														
(U) Design & Build Prototype/GRAMS								x								
(U) PRDA Studies																
(U) Start / Complete				x				x								
(U) PRDA Evaluation																
(U) Start / Complete			x					x								
(U) NAVWAR EMD																
(U) Start												x				
(U) Completion (Sep 00)																
(U) NAVWAR Production																
(U) Start (Oct 01)																
(U) Advanced antenna/electronics begin													x			

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305164F Navstar Global Pos Sys (User Eq) (Space)
	PROJECT 3028

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Integration Studies	452	200		
(U) Technical Support for Aircraft Integrations	879	869	800	731
(U) Selected Availability Anti-spoofing Module (SAASM)	4,300	6,720	6,500	620
(U) Advanced Concept Technology Demonstration	3,640	5,070	260	
(U) Software Upgrade	235	193	200	200
(U) Product Improvement Studies	639			
(U) Development & Product Improvement Testing	322	700	1,100	4,570
(U) Support Contracts	3,743	1,700	1,854	1,910
(U) In-House Support	1,364	3,304	2,761	2,727
(U) Hands-On Threat Demonstration	740			
(U) Signal Denial /Protection		11,054	17,625	25,703
(U) Advanced Receivers			15,200	28,129
(U) Advanced Antenna/Antenna Electronics				4,000
(U) Total	16,314	29,810	46,300	68,590

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305164F Navstar Global Pos Sys (User Eq) (Space)	PROJECT 3028

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Rockwell (MAGR)	FPIF/FFP/ CPAF	Various	Cont	Cont	19,058	235	193	200	200	Cont	Cont
DOE Sandia (SAASM)	MIPR*	Feb 96	Cont	Cont	1,185	2,050	930	3,200	1,000	Cont	Cont
NAWC (SAASM)	MIPR*	Various	5,360	5,360	930	2,250	2,180	0	0	0	5,360
General Dynamics	Time and Materials	Jan 96	1,810	1,810	1,358	452	0	0	0	0	1,810
OO-ALC (F-16 Study)	Project Order	n/a	327	327	327	0	0	0	0	0	327
Various (ACTD)	Various	Various	9,145	9,145	175	3,640	5,070	260	0	0	9,145
Various (Prevent/Protect)	Various	Various	Cont	Cont	0	0	11,054	17,625	28,129	Cont	Cont
Various (Adv Receivers)	Various	Various	71,303	71,303	0	0	0	15,200	25,703	28,400	69,303
Various (Adv Antenna/Elc)	Various	Various	6,000	6,000	0	0	0	0	4,000	2,000	6,000
Miscellaneous	Various	Various	Cont	Cont	13,750	2,257	4,679	4,100	351	Cont	Cont
Support and Management Organizations											
Overlook Sys (DUSD/Space)	C/CPFF	Dec 95	Cont	Cont	9,276	1,200	1,300	1,400	1,400	Cont	Cont

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305164F Navstar Global Pos Sys (User Eq) (Space)

PROJECT: 3028

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Aerospace Corp (Technical Supt)	CPFF	Various	Cont	Cont	0	1,200	400	454	510	Cont	Cont
SMC/FMB (Shared Prg Cost)	Various	Various	Cont	Cont	1,684	0	2,550	2,575	2,536	Cont	Cont
PRC (Technical Supt)	Time and Materials	Dec 95	Cont	Cont	0	714	0	0	0	Cont	Cont
Miscellaneous	Various	Various	Cont	Cont	4,774	1,994	754	186	191	Cont	Cont
* MIPR - Military Inter-departmental Purchase Request											
Test and Evaluation Organizations											
46th TG (SAASM/Test)	Project Order	Dec 95	Cont	Cont	31,665	322	500	500	1,070	Cont	Cont
46th TG (Prevent/Protect)	Project Order	Various	5,700	5,700	0	0	200	600	3,500	1,400	5,700

(U) B. **Budget Acquisition History and Planning Information Continued ($ in Thousands)**

Government Furnished Property:

(U) Not Applicable.

Subtotal Product Development	36,783	10,884	24,106	40,585	59,383	239,722	411,463
Subtotal Support and Management	15,734	5,108	5,004	4,615	4,637	111,133	146,231
Subtotal Test and Evaluation	31,665	322	700	1,100	4,570	14,395	52,752
Total Project	84,182	16,314	29,810	46,300	68,590	365,250	610,447

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305165F NAVSTAR GPS (Space/Grd Segments) (Space)

PROJECT: 3030

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
3030 NAVSTAR GPS (Space/Ground)	25,257	40,442	26,685	21,580	11,376	9,336	9,517	9,729	867,485	1,154,905
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. **Mission Description and Budget Item Justification**

This program element funds Research and Development for the NAVSTAR Global Positioning System (GPS) space and control segments of the overall GPS program. This includes: satellite development (except Block IIF), procurement, and deployment; training simulators; Mission Operation Support Center (MOSC); and operation of the ground control segment, including sustaining engineering, upgrades to the space and ground segments, and R&D efforts to support deployment of the entire GPS system. As a post-Milestone 3 program, we are classified as Budget Activity 7, Operational Systems Development.

(U) **Acquisition Strategy:** The acquisition strategy is to competitively procure Block IIR satellites and associated supporting services.

(U) FY 1996 ($ in Thousands)

- (U) $2,562 Began development of Training Simulator.
- (U) $2,000 Developed data storage and retrieval system software required for launch and on-orbit operations.
- (U) $4,710 Continued system engineering including configuration management.
- (U) $1,343 Continued GPS Joint Program Office support.
- (U) $14,132 Continued Operational Control System (OCS) consolidated contract for Common Operator Support Environment (COSE), OCS Architectural Implementation, and Block IIR full functionality.
- (U) $510 Reprogrammed to higher priority program.
- (U) $25,257 Total

(U) FY 1997 ($ in Thousands)

- (U) $4,824 Continue system engineering including configuration management.
- (U) $3,300 Continue development of training simulator.
- (U) $1,424 Continue GPS Joint Program Office Support.
- (U) $16,634 Continue OCS Consolidated Contract for COSE, OCS Architectural Implementation, and Block IIR Full Functionality.
- (U) $3,760 Investigate space/control segment solutions as part of GPS Navigation Warfare (NAVWAR) program.
- (U) $10,500 Continue Sensor to Shooter accuracy improvement effort
- (U) $40,442 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305165F NAVSTAR GPS (Space/Grd Segments) (Space)
	PROJECT 3030

(U) FY 1998 ($ in Thousands)

- (U) $3,170 Continue system engineering including configuration management.
- (U) $2,000 Continue development of training simulator.
- (U) $13,936 Continue OCS Consolidated Contract for COSE, OCS Architectural Implementation, and Block IIR Full Functionality.
- (U) $6,262 Continue Sensor to Shooter accuracy improvement effort.
- (U) $1,317 Continue GPS Joint Program Office Support.
- (U) $26,685 Total

(U) FY 1999 ($ in Thousands)

- (U) $2,901 Continue system engineering including configuration management.
- (U) $630 Complete development of training simulator.
- (U) $11,904 Continue OCS Consolidated Contract for COSE, OCS Architectural Implementation, and Block IIR Full Functionality.
- (U) $2,625 Complete Sensor to Shooter accuracy improvement effort.
- (U) $3,520 Continue GPS Joint Program Office Support.
- (U) $21,580 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Previous President's Budget	28,023	42,243	31,684	24,198
(U) Appropriated Value	25,921	42,243		
(U) Adjustments to Appropriated Value				
a. Cong Gen Reductions	- 507	-899		
b. SBIR	- 72	-902		
c. Omnibus or Other Above Threshold Reprogram				
d. Below Threshold Reprogramming	392			
e. Rescision	- 477			
(U) Adjustments to Budget Years Since FY97 PB			-4,999	-2,618
(U) Current Budget Submit/President's Budget	25,257	40,442	26,685	21,580

(U) Change Summary Explanation:

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305165F NAVSTAR GPS (Space/Grd Segments) (Space)
	PROJECT 3030

Funding: FY98 (-4,999) and FY99 (-2,618) adjustments reflect a realignment from FY98 to FY99 to pay for higher priority Air Force requirements as well as non-pay inflation.
Schedule: No change.
Technical: No change.

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Operations and Maintenance	18,696	22,599	22,003	21,298	22,803	25,876	26,611	27,216	380,051	681,456
(U) Missile Procurement	154,155	197,944	163,837	174,948	231,104	199,412	140,879	140,648	3,453,700	6,988,900
(U) Other Procurement	6,806	9,737	7,596	4,454	557	689	829	901	64,125	122,994

Related RDT&E:
(U) PE #0305164F, NAVSTAR GPS (User Equipment)
(U) PE #0101221N, Fleet Ballistic Missile System
(U) PE #0301357F and 0305913F (formerly 0102433F), Nuclear Detonation Detection System (NDS)
(U) PE #0305119F Space Boosters, funds launch services (Delta II)
(U) PE #0604480F, GPS Block IIF

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Continue Block IIR software development	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
(U) Delivery of Block IIR software to AFSPC										x				x		
(U) Continue Joint Program Office Support	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
(U) Development of Training Simulator		x	x	x	x	x	x	x	x	x	x	x	x	x		
(U) Investigate GPS NAVWAR system mods					x	x	x	x								
(U) Continue OCS Consolidated Contract	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305165F NAVSTAR GPS (Space/Grd Segments) (Space)
	PROJECT 3030

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Block IIR Data Storage/Retrieval System Development	2,000			
(U) Operational Control Segment (OCS) Development/Sustainment	14,132	16,634	13,936	11,904
(U) Training Simulator Development	2,562	3,300	2,000	630
(U) Sensor to Shooter		10,500	6,262	2,625
(U) Program Office Support	1,343	1,424	1,317	3,520
(U) System Engineering including Configuration Management	4,710	4,824	3,170	2,901
(U) GPS NAVWAR system mods investigation		3,760		
(U) Reprogrammed out since database locked	510			
(U) Total	25,257	40,442	26,685	21,580

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Lockheed-Martin	CPAF	Jun 90	119,253	119,253	116,222	2,515	600				119,338
Lockheed-Martin	CPAF/FFP	Jul 95	100,000	100,000	5,061	14,179	29,834	22,198	15,159	13,569	100,000
GPS NAVWAR	Multiple	Multiple					3,760				3,760
Support and Management Organizations											

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305165F NAVSTAR GPS (Space/Grd Segments) (Space)

PROJECT: 3030

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
System Engineering	Various	Various	n/a	n/a	8,199	6,710	4,824	3,170	2,901	Cont	Cont
Mission Support	Various	n/a	n/a	n/a	4,016	1,343	1,424	1,317	3,520	Cont	Cont
"Classified/other activity"	Various	n/a	n/a	n/a	n/a	510	0	0	0	TBD	510
Test and Evaluation Organizations											
Not Applicable.											
Subtotal Product Development					121,283	16,694	34,194	22,198	15,159	725,759	935,287
Subtotal Support and Management					12,215	8,563	6,248	4,487	6,421	181,684	219,618
Subtotal Test and Evaluation					0	0	0	0	0	0	0
Total Project					133,498	25,257	40,442	26,685	21,580	907,443	1,154,905

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305182F Eastern Space Launch Facility (Space)

PROJECT: 4137

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4137 Range Standardization and Automation (RSA) Program	47,943	33,956	34,186	33,472	46,974	42,243	40,573	41,481	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. **Mission Description and Budget Item Justification**

Two national ranges, the Eastern Range (ER) at Patrick AFB, FL, and the Western Range (WR) at Vandenberg AFB, CA, provide tracking, telemetry, communications, command/control and other support capabilities necessary to safely and successfully conduct civil, commercial, and national security spacelift operations, ballistic missile test and evaluation (T&E), and a variety of aeronautical and guided weapons T&E. Range assets are based on 1950s/1960s designs and technology and are arrayed in a highly inefficient, manpower-intensive architecture. Range instrumentation reliability is deteriorating and over 40% of the components are obsolete with no sources of support. The ranges do not provide the responsiveness and flexibility critical to affordably support the nation's spacelift needs. Replacement of the aging systems is a necessity. Range Standardization and Automation (RSA) will completely overhaul and modernize both the ER and the WR, treating the two as a single integrated range system with an Eastern and Western segment. RSA will develop the integrated range system, using remote control and automation techniques to reduce the number of required operators, sites and facilities, and to produce improved responsiveness. The result will be a range system reconfigurable from one major operation to another in less than 4 hours versus 2-3 days, capable of being operated for 20% less than current ranges, and supportable through existing Air Force logistics infrastructure and standard practices. RSA is critical to the future of the spacelift ranges; performance and cost goals cannot be achieved without RSA. Categorized as Budget Activity 7, Operational Systems Development, because it upgrades existing operational capabilities with new systems. Funding for RSA design and integration for both Eastern and Western Ranges is consolidated in this Eastern Range program element to reflect the standard range being developed for both ranges. A parallel sustaining improvement and modernization activity for existing range systems is separately funded with procurement funds.

(U) FY 1996

- (U) $31,178 Continued RSA Phase I Contract: Complete design and begin integration of Cape Canaveral Air Station (CCAS) communications network.
- (U) $9,800 Awarded RSA Phase IIA Contract in Nov 95: Initiate range architecture design, including instrumentation, weather, surveillance, Western Range Operations Control Center (WROCC) systems, centralized data processing, and optical systems for both ranges. Contract will continue through 2006.
- (U) $2,494 Continued ROCC Engineering Services Contract.
- (U) $4,471 Program support includes System Program Office, Air Logistics Center support, and Aerospace support.
- (U) $47,943 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997	
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305182F Eastern Space Launch Facility (Space)	PROJECT 4137

(U) FY 1997

– (U)	$8,566	Continue RSA Phase I Contract: Integrate and begin test of communications network.
– (U)	$20,453	Continue RSA Phase IIA Contract: Complete range architecture design; develop weather, optical instrumentation, Control & Display basic infrastructure, and begin integration and test of first delivery increment.
– (U)	$4,937	Program support includes System Program Office, Air Logistics Center support, and Aerospace support.
– (U)	$33,956	Total

(U) FY 1998

– (U)	$5,993	Continue RSA Phase I Contract: Complete design and begin integration of Consolidated Telemetry Processing System (CTPS).
– (U)	$22,393	Continue RSA Phase IIA Contract: Continue Control & Display planning and scheduling development; begin development of communications network to an Asynchronous Transfer Mode (ATM) system, including network controllers.
– (U)	$5,800	Program support includes System Program Office, Air Logistics Center support, Aerospace support, and SATCOM lease.
– (U)	$34,186	Total

(U) FY 1999

– (U)	$3,635	Continue RSA Phase I Contract: Finishes integration of CTPS. Completes system test and evaluation.
– (U)	$21,937	Continue RSA Phase IIA Contract: Continue Control & Display integration and test for operational turnover; continue development of network including network core
– (U)	$ 7,900	Program support includes System Program Office, Air Logistics Center support, Aerospace support, and SATCOM lease.
– (U)	$33,472	Total

(U) Acquisition Strategy:

The RSA Phase I Contract was competitively awarded in FY 1993 to provide Consolidated Instrumentation Facilities (CIF) at Antigua and Ascension, satellite communications from these sites to the Eastern Range Operations Control Center, a Central Telemetry Processing System for both ranges, and Cape Canaveral Air Station communications network upgrades. The FY 1996 RSA Phase IIA contract was competitively awarded to provide design and integration of the complete range architecture and also procure a Western Range Operations Control Center; imaging systems; communications systems; mobile metric, telemetry and command assets; surveillance systems; weather data collection and prediction systems; debris tracking systems; planning and scheduling systems and data processing/display systems. An FY 2003 follow-on equipment contract will provide the primary telemetry receiving, metric tracking, and command systems.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305182F Eastern Space Launch Facility (Space)
	PROJECT 4137

(U) B. **Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Previous President's Budget	48,279	35,704	36,410	38,466
(U) Appropriated Value		35,704		
(U) Adjustments to Appropriated Value				
a. Congressional/General		-820		
b. SBIR		-928		
c. Omnibus and other Above Threshold				
d. Recision	-320			
e. Below Threshold Reprogramming	-16			
(U) Adjustments to Budget Years			-2, 224	-4,994
(U) Current Budget Submit/President's Budget	47,943	33,956	34,186	33,472

(U) Change Summary Explanation:

Funding: FY 1998/1999 reductions fund higher AF and DoD priorities

Schedule: FY 1998/1999 reductions caused a rephasing of the Range Standardization and Automation (RSA) program deliveries.

Technical: RSA Phase I Contract projected overruns necessitated a restructure of the Consolidated Instrumentation Facilities (CIF) equipment at Antigua and Ascension. Will supply new radar trackers and transmitters to upgrade existing radars in place of the Unified Tracking Antenna (UTA) concept originally planned.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305182F Eastern Space Launch Facility (Space)

PROJECT: 4137

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Complete	Total Cost
(U) Other Procurement, AF*	110,447	101,695	81,957	100,938	96,205	102,239	114,955	99,421	Continuing	Continuing
(U) MILCON, AF **	4,000		26,876							30,876

(U) Related RDT&E: Not Applicable.

* In addition to RSA, this PE includes funds required for ongoing Eastern Range sustaining improvement and modernization (I&M) program. Western Range RSA and I&M is included in PE 35181F. Funding shown is for both PEs.

** FY 1996 and 1998 MILCON funds are in PE 35181F; FY 1996 funds are for Chemical Test and Analysis Laboratory at Vandenberg AFB, and FY 1998 funds are for Western Range Operations Control Center (WR OCC) to house WR OCC RSA systems.

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) RSA Phase I Prelim Design Review	X															
(U) Software Maintenance Facility Compl	X															
(U) RSA Phase IIA Contract Award	X															
(U) RSA Phase IIA System Reqmt Review				X												
(U) RSA Phase I Critical Design Review						X										
(U) RSA Phase IIA System Design Rev						X										
(U) RSA Phase IIA Integ & Test First Del								X								
(U) RSA Phase I Developmental T&E									X							
(U) RSA Phase I Cape FO Network Inst'l												X				
(U) RSA Phase I SATCOM Installation												X				
(U) WR Ops Control Cntr MILCON BOD															X	
(U) RSA Phase IIA Integ & Test 2nd Del																X
(U) RSA Phase I Operational T&E															X	
(U) RSA Phase I System Turnover															X	

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305182F Eastern Space Launch Facility (Space)

PROJECT: 4137

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) RSA Phase I Contract	31,178	8,566	5,993	3,635
(U) RSA Phase IIA Contract	9,800	20,453	22,393	21,937
(U) ROCC Engineering Services	2,494			
(U) Program Support	4,471	4,937	5,800	7,900
(U) Total	47,943	33,956	34,186	33,472

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligat'n Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	To Complete	Total Program
Product Development Organizations											
Harris Corp/ Loral (RSA Phase I)	C/CPAF	Jun 93	88,638	88,638	38,573	31,178	8,566	5,993	3,635	0	87,945
Lockheed Martin (RSA Phase IIA)	C/CPAF	Nov 95	165,000	165,000	0	9,800	20,453	22,393	21,937	88,082	162,665
Harris Corp. (ROCC Eng'r Services)	SS/CPAF	Apr 94	23,852	23,852	21,358	2,494	0	0	0	0	23,852
Various (Other RSA)	Various	Various	N/A	N/A	2,913	0	0	0	0	0	2,913

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)											DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development					PE NUMBER AND TITLE 0305182F Eastern Space Launch Facility (Space)						PROJECT 4137
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligat'n Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	To Complete	Total Program
Support and Management Organizations											
Mission Support	Various	Various	N/A	N/A	5,550	4,471	4,937	5,800	7,900	Cont.	Cont.
Test and Evaluation Organizations											
TBD	TBD	1998	N/A	N/A	0	0	0	0	0	TBD	TBD
Government Furnished Property: RSA Phase IIA contract awarded Nov 95; process underway to identify GFE											
Subtotal Product Development					62,844	43,472	29,019	28,386	25,572	88,082	277,375
Subtotal Support and Management					5,550	4,471	4,937	5,800	7,900	Cont.	Cont
Subtotal Test and Evaluation					N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Project					68,394	47,943	33,956	34,186	33,472	Cont.	Cont

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305906F NCMC-TW/AA Systems

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	56,712	29,466	7,362	5,036	4,256	3,939	3,967	3,936	Continuing	Continuing
3880 CMU	37,893	16,010	603	120	0	0	0	0	0	1,297,524
3881 Integrated TW/AA	11,074	8,800	5,132	3,871	4,256	3,939	3,967	3,936	Continuing	Continuing
4409 Legacy Interfaces	7,745	4,656	1,627	1,045	0	0	0	0	0	47,516
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. **Mission Description and Budget Item Justification**

This program element funds the replacement systems for the Cheyenne Mountain Complex (CMC) which provides the Command, Control, Communications and Computers (C4) in support of the Integrated Tactical Warning/Attack Assessment (Integrated TW/AA) system. This program incrementally upgrades and replaces the current operational systems without loss of attack warning capability during the phased transition. The CMC supports the Commander-in-Chief (CINC) North American Aerospace Defense Command (NORAD)/CINC US Space Command in providing the National Command Authorities, USSTRATCOM and other forward users with early warning (missile, air, and space) and assessment of attack on North America or its allies.

This program element has three related projects: The first project, Cheyenne Mountain Upgrade (CMU), is six acquisitions that are supported by both the second and third project. The second project, Integrated TW/AA System Engineering, provides interface analysis and disconnect resolution between CMU and over twenty other Integrated TW/AA systems and program upgrades and supports the development of the Cheyenne Mountain Training System (CMTS). The third project, Legacy Interfaces, provides software development upgrades to post-IOC CMU subsystems and direct mission software support to meet operational needs.

This program element is in Budget Activity 7 Operational System Development because it involves post-Milestone III efforts, and the projects in this program element support development acquisition programs or upgrades.

(U) **Acquisition Strategy:**

The CMU program was restructured in FY94 to implement an acquisition strategy that tests and delivers four phases of user capability. Phase 1 implemented the complete missile warning capability in Sep 95. Phase 2 operational acceptance occurred in Aug 96. Phases 3/4 will test and implement CMU capabilities in annual blocks (with O&M version releases) and incorporate upgrades and changes to meet evolving user requirements.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305906F NCMC-TW/AA Systems

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Previous President's Budget	63,554	31,692	7,623	5,291
(U) Appropriated Value		31,692		
(U) Adjustments to Appropriated Value				
a. Cong Reductions		-1446		
b. SBIR		-780		
c. Omnibus or Other Above Threshold Reprogram				
d. Below Threshold Reprogramming	-6,842			
(U) Adjustments to Budget Years Since FY97 PB			-261	-255
(U) Current Budget Submit/98 BES	56,712	29,466	7,362	5,036

(U) Change Summary Explanation:

Funding: FY96 reductions funded higher priority Air Force and DoD requirements. FY97 reductions are Congressional actions (Sec 8136, 8138 and 8037) and Small Business Innovative Research (SBIR).

Schedule: Phase 1 (complete missile warning) was implemented in Sep 1995, two months ahead of schedule. Acquisition approach tests and implements Phase 2 (survivable communications) with operational acceptance which occurred in Aug 1996. Phases 3 and 4 (development of subsystem capability and software upgrades) are tied to annual O&M version releases.

Technical: No change.

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Other Procurement *	9,043	5,321	8,969	12,520	4,773	13,304	12,343	11,333	Cont	Cont
(U) Operations & Maintenance	91,422	85,769	99,330	94,929	87,230	96,019	92,803	98,564	Cont	Cont

* Includes spares for CMU and CINC Mobile Alternate Headquarters (CMAH) and modifications.

Related RDT&E:

(U) #604441F, Space-Based Infrared System
(U) #305910F, Spacetrack
(U) #305911F, Defense Support Program

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305906F NCMC-TW/AA Systems

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) CMU Phase 1 Operational Acceptance																
(U) Missile Warning IOT&E				x												
(U) CMU Phase 2 Operational Acceptance				x												
(U) Air Warning Mission Operational Acceptance							x									
(U) CMU Phase 3 Operational Acceptance								x								
(U) Space Control Mission Operational Acceptance											x					
(U) CMU Phase 4 Operational Acceptance											x					
(U) CMU Integrated Mission IOT&E														x		

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305906F NCMC-TW/AA Systems

PROJECT: 3880

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
3880 CMU	37,893	16,010	603	120	0	0	0	0	0	1,297,524

(U) A. **Mission Description and Budget Item Justification**

The CMU program must meet Joint Chiefs of Staff (JCS) requirements to provide the National Command Authorities with timely, reliable, and unambiguous Integrated TW/AA data for force survival or retaliatory decisions in the face of air, space, or ballistic missile threats. The program will provide: 1) survivable communications access for missile attack warning; 2) integrated warning of ballistic missile, atmospheric, and space threats; 3) standard user displays and warning processing systems at selected command centers; 4) an austere alternate facility capable of early/trans-attack warning and peacetime backup to the Missile Warning Center at Cheyenne Mountain. The CMU program implements an acquisition strategy that tests and delivers four phases of user capability. Phase 1 implemented the missile warning capability in Sept 1995. Phases 2/3/4 will test and implement CMU capabilities in annual blocks completing all planned capabilities by Aug 1998, with CMU Integrated Mission IOT&E completed by Mar 1999.

(U) FY 1996

(U) $10,175	Completed CMU Phase 2 (Aug 96); continued Survivable Secure Communications Network Phase 2; delivered SCIS (I4)/Processing and Display System (May 96)
(U) $2,406	Completed ATAMS Phase 1 (May 96)
(U)	Continue CMU Phase 3 to include:
(U) $2,724	Missile Warning remote from APCC
(U) $11,924	Granite Sentry (Air Warning) at Cheyenne Mountain
(U)	Initiate Phase 4 to include:
(U) $10,664	SPADOC 4C version 2 interface development and testing with CSSR
(U) $37,893	Total

(U) FY 1997

(U) $7,733	Complete Phase 3 (Aug 97) with operational acceptance of Granite Sentry and Missile Warning remote capability
(U) $7,441	Continue Phase 4, SPADOC 4C version 2 interface development with CSSR
(U) $836	Complete Missile Warning IOT&E residuals and deliver SSCN Phase 2 (Feb 97)
(U) $16,010	Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0305906F NCMC-TW/AA Systems / PROJECT: 3880

(U) FY 1998

- (U) $603 Complete CMU Phase 4 and Space Control Mission Operational Acceptance
- (U) $603 Total

(U) FY 1999

- (U) $120 Complete CMU Integrated Mission IOT&E
- (U) $120 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Previous President's Budget	46,947	21,375	608	122
(U) Appropriated Value		21,375		
(U) Adjustments to Appropriated Value				
a. Cong Reductions		-588		
b. SBIR		-780		
c. Project Realignment	-2,212	-3,997		
d. Below Threshold Reprogramming	-6,842			
e. Omnibus or Other Above Threshold Reprogram				
(U) Adjustments to Budget Years Since FY97 PB			-5	-2
(U) Current Budget Submit/President's Budget	37,893	16,010	603	120

(U) Change Summary Explanation:

Funding: FY96 reductions funded higher priority Air Force and DoD requirements. Project Realignment reflects a transfer of $2,212 from project 3880 to 3881 in FY96 and $3,997 from project 3880 to 3881. FY97 reductions are Congressional actions (Sec 8136, 8138 and 8037) and Small Business Innovative Research (SBIR).

Schedule: Phase 1 completed (missile warning) Sep 1995. Acquisition approach tests and implements Phases 2, 3 and 4 (development of subsystem capability and software upgrades) are tied to annual O&M version releases.

Technical: Includes Missile Warning remote from APCC and development of ATAMS.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305906F NCMC-TW/AA Systems

PROJECT: 3880

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Other Procurement *	9,043	5,321	8,969	12,520	4,773	13,304	12,343	11,333	Cont	Cont
(U) Operations & Maintenance	91,422	85,769	99,330	94,929	87,230	96,019	92,803	98,564	Cont	Cont

* Includes spares for CMU and CINC Mobile Alternate Headquarters (CMAH).

(U) D. Schedule Profile

	FY1996				FY1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) CMU Phase 1 Operational Acceptance																
(U) Missile Warning IOT&E				x												
(U) CMU Phase 2 Operational Acceptance				x												
(U) Air Warning Mission Operational Acceptance							x									
(U) CMU Phase 3 Operational Acceptance								x								
(U) Space Control Mission Operational Acceptance											x					
(U) CMU Phase 4 Operational Acceptance											x					
(U) CMU Integrated Mission IOT&E															x	

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305906F NCMC-TW/AA Systems	PROJECT 3880

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Major Contract Incremental Funding	9,296	1,780		
(U) Award/Performance Fee	2,363	13		
(U) Target To Ceiling/Overrun		645		
(U) ECPs/Correction of Deficiencies/Incomp	2,233	1,389		
(U) Interoperability/Test Support	2,171	1,060	603	120
(U) Pre-Operational Support/SWSC Maintenance	314			
(U) Type I Training/TDY	72			
(U) SSCN/SCIS Fallback/Secure Voice Tell Network	442			
(U) Tech Manuals	11	4		
(U) Missile Warning Remote Display	1,302			
(U) SPO Support				
(U) MITRE	9,556	5,048		
(U) TEMS/SDAS/WSI/SAIC/NSR	6,325	3,791		
(U) Program Support	3,333	2,280		
(U) Other Support	475	0		
(U) Adjustment for BPAC misalignment				
(U) Total	37,893	16,010	603	120

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305906F NCMC-TW/AA Systems

PROJECT: 3880

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Lockheed-Martin CO Springs CO	C/CPIF/AF	Oct 91	72,300	72,300	267,606	4,063	1,873			0	273,542
E-Systems St Petersburg FL	C/FPI/AF	Aug 86	107,000	106,500	100,576	2,664	0			0	103,240
TRW, Inc Carson CA	C/FPI/AF	Jun 87	172,600	172,600	211,540	2,221	0			0	213,761
GTE Needham Hgts MA	C/CPIF/AF	Jan 92	16,500	16,500	236,662	1,401	300			0	238,363
Lockheed-Martin CO Springs CA	SS/CPIF/AF	Mar 93	41,300	41,300	113,602	6,111	2,733			0	122,446
DISA (Govt) Reston VA	PO	Oct 93	9,092	9,092	8,650	442	0			0	9,092
KAMAN Sciences CO Springs, CO	AF616/C	Aug 95	3,176	3,176	1,874	1,302	0	0	0	0	3,176
Support and Management Organizations											
MITRE	SS/PR	Oct 95	N/A	N/A	153,941	9,556	5,048			0	168,545
TEMS	C/PR	Oct 95	N/A	N/A	62,311	6,325	3,791			0	72,427
Program Support	Various	Nov 95	N/A	N/A	86,136	3,808	2,265	603	120	0	92,932
Test and Evaluation Organizations											
N/A											

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE: February 1997	
BUDGET ACTIVITY: 7 - Operational System Development		PE NUMBER AND TITLE: 0305906F NCMC-TW/AA Systems					PROJECT: 3880

(U) B. Budget Acquisition History and Planning Information Continued ($ in Thousands)

Government Furnished Property: Not Applicable.

Subtotal Product Development	940,510	18,204	4,906			0	963,620
Subtotal Support and Management	302,388	19,689	11,104	603	120	0	333,904
Subtotal Test and Evaluation							
Adjustment for BPAC misalignment							
Total Project (See R-2 for actuals)	1,242,898	37,893	16,010	603	120	0	1,297,524

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305906F NCMC-TW/AA Systems

PROJECT: 3881

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
3881 Integrated TW/AA	11,074	8,800	5,132	3,871	4,256	3,939	3,967	3,936	Continuing	Continuing

(U) A. Mission Description and Budget Item Justification

This project was set up in 1989 when Air Force recognized the phased transition of CMU program into the Integrated TW/AA network could only be achieved through rigorous system-of-systems design and engineering analysis of all interfaces and relationships among the twenty-six systems of the network. This project provides for the efficient integration of CMU through interface analysis, schedule management and disconnect resolution between CMU and over twenty other Integrated TW/AA systems and program upgrades as required to support the Integrated TW/AA network's continually evolving system-of-systems (e.g., Space-Based Infrared System) and changes driven by new missions/threats.

(U) FY 1996

(U) $5,441 SEIT: Provide operation integration of CMU Phase 2 installation, check-out, test and assessment; maintain program schedule; identify, track and resolve CMU disconnects

(U) $2,172 TPE: Maintain CMU technical baseline; evaluate CMU performance and track to prescribed requirements; provide system engineering for CMU Phase 2, and accomplish systems engineering studies for proposed ITW/AA system improvements.

(U) $2,133 CMTS: Continue to support CMTS program

(U) $1,328 Interface Control System Development

(U) $11,074 Total

(U) FY 1997

(U) $6,632 SEIT: Provide operation integration of CMU Phase 3 installation, check-out, test and assessment; maintain program schedule; identify, track and resolve CMU disconnects

(U) $2,168 TPE: Maintain CMU technical baseline; evaluate performance and track to prescribed requirements; provide system engineering for Phase 3, and accomplish systems engineering studies for proposed ITW/AA system improvements.

(U) $8,800 Total

(U) FY 1998

- (U) $1,577 SEIT: Provide operation integration of CMU Phase 4 installation, check-out, test and assessment; maintain program schedule; identify, track and resolve disconnects within the ITW/AA system.
- (U) $3,555 DSM: Manages planned incremental capability modifications to NCMC-TW/AA systems.
- (U) $5,132 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE
	February 1997

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
7 - Operational System Development	0305906F NCMC-TW/AA Systems	3881

(U) FY 1999
- (U) $239 SEIT: Integrated Mission IOT&E for CMU Phase 3
- (U) $3,632 DSM: Manages planned incremental capability modifications to NCMC-TW/AA systems.
- (U) $3,871 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Previous President's Budget	8,861	5,562	5,375	4,115
(U) Appropriated Value		5,562		
(U) Adjustments to Appropriated Value				
a. Cong Reductions		-759		
b. Project realignment	2,213	3,997		
c. Omnibus or Other Above Threshold Reprogram				
d. Below Threshold Reprogramming				
(U) Adjustments to Budget Years Since FY97 PB			-243	-244
(U) Current Budget Submit/President's Budget	11,074	8,800	5,132	3,871

(U) Change Summary Explanation:

Funding: Funding: FY96 reductions funded higher priority Air Force and DoD requirements. Project realignment reflects a transfer of $2,212 from project 3880 (CMU) and $1 from project 4409 (Legacy Interface) to 3881 (ITW/AA) in FY96 and $3,997 from project 3880 to 3881 in FY97. FY97 reductions are Congressional actions (Sec 8136, 8138 and 8037).

Schedule: No change.

Technical: No change.

(U) C. Other Program Funding Summary ($ in Thousands)

(U) Not Applicable.

(U) D. Schedule Profile

(U) Not Applicable. This is a sustaining engineering effort that supports project 3880 with no distinct milestones.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305906F NCMC-TW/AA Systems

PROJECT: 3881

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Major Contract Incremental Funding	0	0		
(U) Award/Performance Fee	248	0		
(U) CMTS Systems Integration	1,885	0		
(U) Interface Control System Development	1,328			
(U) SPO Support				
(U) MITRE	4,672	4,852	3,012	2,006
(U) TEMS/WSI	2,704	3,846	1,152	958
(U) Program Support	237	102	968	907
(U) Total	11,074	8,800	5,132	3,871

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Support and Management Organizations											
MITRE	CPFF	Oct 95	N/A	N/A	39,313	4,672	4,852	3,012	2,006	Cont	Cont
TEMS	CPAF	Oct 95	N/A	N/A	24,715	2,704	3,846	1,152	958	Cont	Cont
Program Support	N/A	Nov 95	N/A	N/A	6,725	237	102	968	907	Cont	Cont
Prime Contractors	(Various)				812	0	0			TBD	TBD

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)									DATE February 1997	
BUDGET ACTIVITY 7 - Operational System Development					PE NUMBER AND TITLE 0305906F NCMC-TW/AA Systems				PROJECT 3881	

Product Development Organizations

DISA	MIPR	Apr 96	1,328	1,328		1,328			0	1,328
LORAL Aerospace Co Springs, CO	C/CPIF/AF	Jun 95	6,390	6,390	4,257	2,133			0	6,390

Test and Evaluation Organizations

N/A

(U) B. Budget Acquisition History and Planning Information Continued ($ in Thousands)

Government Furnished Property:

Not Applicable.

Subtotal Product Development	4,257	3,461					7,718
Subtotal Support and Management	71,565	7,613	8,800	5,132	3,871	Cont	Cont
Subtotal Test and Evaluation							
Total Project	75,822	11,074	8,800	5,132	3,871	Cont	Cont

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305906F NCMC-TW/AA Systems

PROJECT: 4409

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4409 Legacy Interfaces	7,745	4,656	1,627	1,045	0	0	0	0	0	47,516

(U) A. **Mission Description and Budget Item Justification**

The FY95 Appropriations Conference Committee transferred $41.5M from the O&M Critical Space Contract Operations Line to the RDT&E R-1 line in this program element. Congress realigned these funds from O&M to RDT&E to identify the costs associated with CMU software development upgrades to the CMU program. To clearly account for this funding, this project, Legacy Interfaces, was established. This project provides funding for software development upgrades to the CMU program and for direct mission software support to meet operational needs.

(U) FY 1996

(U) $1,581	Provide SPADOC software support/upgrades
(U) $3,176	Provide Cheyenne Mountain software support/upgrades
(U) $2,988	Provide Warning Systems software support/upgrades
(U) $7,745	Total

(U) FY 1997

(U) $500	Provide SPADOC software support/upgrades
(U) $1,344	Provide warning system software upgrades for space, communications, and missile warning systems at Cheyenne Mountain
(U) $2,812	Provide Cheyenne Mountain complex test support to include scenario development and development network software engineering
(U) $ 4,656	Total

(U) FY 1998

– (U) $1,627	Provide SPADOC software support/upgrades
– (U) $1,627	Total

(U) FY 1999

– (U) $1,045	Provide SPADOC software support/upgrades
– (U) $1,045	Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305906F NCMC-TW/AA Systems

PROJECT: 4409

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Previous President's Budget	7,746	4,755	1,640	1,054
(U) Appropriated Value		4,755		
(U) Adjustments to Appropriated Value				
a. Cong Reductions		-99		
b. SBIR				
c. Project Realignment	-1			
d. Below Threshold Reprogramming				
(U) Adjustment to budget years since FY97 PB			-13	-9
(U) Current Budget Submit/President's Budget	7,745	4,656	1,627	1,045

(U) Change Summary Explanation:

Funding: Project realignment reflects a transfer of $1 to Project 3881 in FY96. FY97 reductions are Congressional actions (Sec 8136 and 8138).

Schedule: No change.

Technical: No change.

(U) C. Other Program Funding Summary ($ in Thousands)

(U) Not Applicable.

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) SPADOC software support/upgrades	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
(U) CMAS software support	x	x	x	x												
(U) Warning systems software support/upgrades	x	x	x	x	x	x	x	x								
(U) CMC Test Support					x	x	x	x								
(U) CMAS software upgrades	x	x	x	x	x	x	x	x								

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305906F NCMC-TW/AA Systems

PROJECT: 4409

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Major Contract Incremental Funding	7,096	4,181		
(U) Award/Performance Fee	649	475		
(U) Total Legacy Interfaces Project	7,745	4,656	1,627	1,045

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Lockheed-Martin CO Springs CO	CP/AF	Oct 94	12,024	12,024	7,271	1,581	500	1,627	1,045		12,024
E-Systems St Petersburg FL	FPIF/AF	Oct 94	1,880	1,880	1,880						1,880
Kaman Sciences CO Springs CO	CP/AF	Oct 94	18,166	18,166	12,453	2,851	2,812				18,116
Kaman Sciences CO Springs CO	CP/AF	Oct 94	12,520	12,520	8,139	2,988	1,344				12,471
Navy/NISE	MIPR	Sep 95	3,025	3,025	2,700	325					3,025
Support and Management Organizations: N/A											
Test and Evaluation Organizations: N/A											
Government Furnished Property: N/A											
Subtotal Product Development					32,443	7,745	4,656	1,627	1,045	0	47,516
Subtotal Support and Management											
Subtotal Test and Evaluation											
Total Project					32,443	7,745	4,656	1,627	1,045	0	47,516

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305910F Spacetrack (Space)

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	54,334	31,851	28,573	14,147	24,509	0	0	0	TBD	Continuing
2295 Space Surveil Net Improvement Pgm (SSNIP)*	7,927	0	0	0	0	0	0	0	0	Continuing
4239 Air Force Maui Optical Station	6,132	6,297	0	0	0	0	0	0	0	Continuing
4241 Advanced Electro Optical System (AEOS)	16,886	20,281	23,800	0	0	0	0	0	TBD	TBD
4279 Have Stare Radar	23,389	5,273	4,773	14,147	24,509	0	0	0	TBD	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

* Note: These sustainment efforts were not terminated but will continue in the Operations & Maintenance (O&M Appropriation) from FY97 and on.

(U) A. **Mission Description and Budget Item Justification**

The SPACETRACK program element represents a worldwide Space Surveillance Network (SSN) of dedicated, collateral, and contributing electro-optical, passive radio frequency (RF) and radar sensors. The SSN is tasked to provide space object cataloging and identification, satellite attack warning, timely notification to U.S. forces of satellite fly-over, space treaty monitoring, and scientific and technical intelligence gathering. The continued increase in satellite and orbital debris populations, as well as the increasing diversity in launch trajectories, non-standard orbits, and geosynchronous altitudes, necessitates continued modernization of the SSN to meet existing and future requirements and ensure their cost-effective supportability. SPACETRACK also developed the systems interfaces necessary for the command and control, targeting, and damage assessment of a potential future U.S. Anti-satellite (ASAT) system. The Image Information Processing Center and Supercomputing facility for the Air Force Maui Optical Station (AMOS), were transferred to PE 0602601F in FY92. The resources and responsibility for completing the HAVE STARE Radar System development were transferred to SPACETRACK from an intelligence program per Congressional direction in FY93. All of these projects are Budget Activity 7 Operational Systems Development because they involve development of or modifications to operational sensor network sites.

(U) **Acquisition Strategy:**

Except for the Congressionally-directed Maui Space Surveillance Site facilities expansion project, Advanced Electro Optical System (AEOS), and the HAVE STARE radar acquisition, the other projects in this Program Element are competetive sustaining engineering infrastructure support operations and maintenance efforts.

(U) B. **Program Change Summary ($ in Thousands)**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305910F Spacetrack (Space)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Previous President's Budget	54,705	18,867	0	0
(U) Appropriated Value		33,867		
(U) Adjustments to Appropriated Value				
a. Cong Gen Reductions		-1190		
b. SBIR		-826		
c. Omnibus or Other Above Threshold Reprogram				
d. Below Threshold Reprogramming	-371			
e. Recission				
(U) Adjustments to Budget Years Since FY97 PB			28,573	14,147
(U) Current Budget Submit/President's Budget	54,334	31,851	28,573	14,147

(U) Change Summary Explanation:

Funding: FY 96 reductions funded other Air Force program priorities. The Air Force budgeted continuation of the AEOS project in FY 97 and FY 98. All funds budgeted in FY 99 are to continue the HAVE STARE project.

Schedule: HAVE STARE site selection was not finalized until early FY 1996; the IOC is planned for FY00.

Technical: None.

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Other Procurement										
Space Mods with Initial Spares	18,385	10,200	7,362	1,472	1,275	4,005	4,006	4,005	Cont	Cont

Related RDT&E: (U) Program Element #0305906F, NORAD Cheyenne Mountain Complex Tactical Warning/Attack Assessment System of Systems.

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) GEODSS Telescopes O&M Mods																
(U) Implementation & sustainment				x												
(U) AEOS telescope/facility																
(U) Factory acceptance/occupancy							x									

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305910F Spacetrack (Space)

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) HAVE STARE radar																
(U) Overseas site selection decision		x														
(U) Deinstall Test Site												x				
(U) Reinstall at Operational Site															x	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305910F Spacetrack (Space)

PROJECT: 2295

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
2295 Space Surveil Net Improvement Pgm (SSNIP)*	7,927	0	0	0	0	0	0	0	0	Continuing

* Note: These sustainment efforts were not terminated but will continue in the Operations & Maintenance (O&M Appropriation) from FY97 and on.

(U) **A. Mission Description and Budget Item Justification**

Space surveillance includes space object cataloging and identification and supports the Space Defense missions of weapons support, attack warning for U.S. satellites, maintenance of space order of battle, cover-up alerts, and identification/assessment of space objects. The Space Surveillance Network Improvement Program (SSNIP) provides the sustaining engineering to correct identified deficiencies in support of those mission requirements. SSNIP also implements modifications required to reduce supportability/maintainability O&M costs. SSNIP efforts currently include reducing uncorrelated target errors, orbital debris measurement and research, communications/data link optimization, system architecture analyses and changes to the Ground-based Electro-Optical Deep Space Surveillance System (GEODSS). This activity will continue as part of normalized sustaining engineering support services in the O&M appropriation account from FY97 and on. This project is in Budget Activity 7 Operational Systems Development because it involves a level-of-effort for sustained engineering support for development of, or modifications to, an operational SPACETRACK network site.

(U) FY 1996

- (U) $4,718 Continue level-of-effort support to GEODSS and Eglin O&M cost reduction modifications.
- (U) $2,109 Continue systems engineering level-of-effort to define, analyze and model operating and maintenance sustainment efforts for FY97 and on.
- (U) $1,100 Continue astrodynamic standards, star catalog maintenance and deep space anomaly detection efforts to improve the accuracy of orbital element data, to improve consistency between sensors and to correct basic inadequacies of existing models for non-standard orbits.
- (U) $7,927 Total

(U) FY 1997

- (U) $0 Not Applicable.

(U) FY 1998

- (U) $0 Not Applicable

(U) FY 1999

- (U) $0 Not Applicable

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305910F Spacetrack (Space)
	PROJECT 2295

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	7,909	0	0	0	Continuing
(U) Appropriated Value					
(U) Adjustments to Appropriated Value					
a. Cong Gen Reductions					
b. SBIR					
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming	18				
(U) Adjustments to Budget Years Since FY97 PB					
(U) Current Budget Submit/President's Budget	7,927	0	0	0	Continuing

(U) Change Summary Explanation:
Funding: FY 96 increased due to returned funds from overpayment of miscellaneous Air Force bills.
Schedule: None.
Technical: None.

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Other Procurement										
(U) Space Mods with Initial Spares	18,317	10,200	7,383	1,477	1,281	4,031	4,034	4,040	Cont	Cont

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) GEODSS cost savings mods																
(U) Implementation and sustainment					x											

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305910F Spacetrack (Space)	PROJECT 2295

(U) **A. Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Sustaining Engineering Level-of-Effort	7,927	0	0	0
(U) Total	7,927	0	0	0

(U) **B. Budget Acquisition History and Planning Information ($ in Thousands)**

Not Applicable.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305910F Spacetrack (Space)

PROJECT: 4239

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4239 Air Force Maui Optical Station	6,132	6,297	0	0	0	0	0	0	0	Continuing

(U) A. Mission Description and Budget Item Justification

AMOS serves as a testbed for electro-optics and imaging technology supporting government and academic communities. It also provides operational data to Air Force Space Command: infrared signature data and compensated, imaging data used for space object identification and mission/payload assessment. Other government labs, national science foundations and other scientific agencies use of this facility are funded separately. This project is in Budget Activity 7 Operational Systems Development because it involves a level-of-effort for sustained engineering support for development of, or modifications to, an operational SPACETRACK network site.

(U) FY 1996

- (U) $3,132 Continue basic AMOS facility operations, maintenance and support of upgrade integration efforts.
- (U) $2,000 Continue development of an observatory control system in support of AEOS, Maui supercomputer and Hi-Class Lidar projects.
- (U) $1,000 Continue development of sensors for daylight imaging and geosynchronous space object identification.
- (U) $6,132 Total

(U) FY 1997

- (U) $6,297 Continue support to Maui Space Surveillance Site (MSSS) R&D upgrades, development of MSSS observatory control system, and operational transition of AEOS.

(U) FY 1998

- (U) $0 Not Applicable

(U) FY 1999

- (U) $0 Not Applicable

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305910F Spacetrack (Space)	PROJECT 4239

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	6,132	0	0	0	Cont
(U) Appropriated Value		6,500			
(U) Adjustments to Appropriated Value					
a. Cong Gen Reductions		-203			
b. SBIR					
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
(U) Adjustments to Budget Years Since FY97 PB					
(U) Current Budget Submit/President's Budget	6,132	6,297	0	0	Cont

(U) Change Summary Explanation:

Funding: Congress added $6,500 in FY 97.
Schedule: None.
Technical: None.

(U) C. Other Program Funding Summary ($ in Thousands)
Not Applicable.

(U) D. Schedule Profile
Not Applicable.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305910F Spacetrack (Space)	PROJECT 4239

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Operations and maintenance support level of effort	6,132	6,297	0	0
(U) Total	6,132	6,297	0	0

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**
Not Applicable.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305910F Spacetrack (Space)

PROJECT: 4241

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4241 Advanced Electro Optical System (AEOS)	16,886	20,281	23,800	0	0	0	0	0	TBD	TBD

(U) A. Mission Description and Budget Item Justification

The Advanced Electro-Optical System (AEOS) is a 3.67 meter telescope addition to the Air Force Maui Optical Station (AMOS). The AEOS program was initiated in FY91 per Congressional direction. Congress continued to appropriate funding for this project in FY93, FY94, FY95, FY96, and FY 97. The Air Force budgeted for the continuation of AEOS in FY 97 and FY 98. This project is in Budget Activity 7 Operational Systems Development because it involves sustained engineering support for development of, or modifications to, an operational SPACETRACK network site.

(U) FY 1996

- (U) $9,386 Continue telescope development incremental funding.
- (U) $6,500 Continue sensor instrumentation acquisitions.
- (U) $1,000 Continue lab support.
- (U) $16,886 Total

(U) FY 1997:

- (U) $13,427 Continue telescope development incremental funding.
- (U) $6,854 Continue atmospheric characterization studies, spectrograph research, development of adaptive optics system, and sensors development.
- (U) $20,281 Total

(U) FY 1998

- (U) $23,800 Continue development of adaptive optics, sensors, and integration of the telescope system, purchase pre-operational spares, continue development of AEOS and MSSS observatory control system, and R&D upgrades to MSSS.
- (U) $23,800 Total

(U) FY 1999

- (U) $0 Not Applicable

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305910F Spacetrack (Space)	PROJECT 4241

(U) **B. Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	16,886	13,427	0	0	TBD
(U) Appropriated Value		21,927			
(U) Adjustments to Appropriated Value					
a. Cong Gen Reductions		-820			
b. SBIR		-826			
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
(U) Adjustments to Budget Years Since FY97 PB			23,800		
(U) Current Budget Submit/President's Budget	16,886	20,281	23,800	0	TBD

(U) Change Summary Explanation:

Funding: Congress added $8,500 in FY 97. The Air Force budgeted for project continuation in FY98.
Schedule: Facility delays due to weather impacts/dome installation.
Technical: None.

(U) **C. Other Program Funding Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003
Other Procurement	18,385	10,200	7,362	1,472	1,275	4,005	4,006	4,005

(U) **D. Schedule Profile**

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Factory acceptance/occupancy facility							x									
(U) Telescope Factory Acceptance								x								

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE
	February 1997

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
7 - Operational System Development	0305910F Spacetrack (Space)	4241

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305910F Spacetrack (Space)	PROJECT 4241

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Directed level of effort for AEOS Maui facilities expansion	16,886	20,281	23,800	0
(U) Total	16,886	20,281	23,800	0

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Not Applicable.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305910F Spacetrack (Space)

PROJECT: 4279

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4279 Have Stare Radar	23,389	5,273	4,773	14,147	24,509	0	0	0	TBD	TBD

(U) A. Mission Description and Budget Item Justification

The HAVE STARE (HS) radar was transferred from the intelligence budget in FY93 at the direction of Congress. The Air Force has identified a requirement for the HS system and has programmed funding in this program element to complete development and to deploy the system. HS is a high resolution X-band tracking and imaging radar with a 27 meter mechanical dish antenna. HS will be deployed as a dedicated space surveillance sensor to support the mission of space object catalog maintenance of deep space objects and mission payload assessment. HS will retain its original design features and their inherent potential to support other missions. This system is currently in the EMD phase leading to an IOC in FY00.

(U) FY 1996

- (U) $4,000 Continue in-CONUS developmental and integration testing and evaluation at Vandenberg AFB, CA.
- (U) $6,000 Continue incorporation of functionality and connectivity modifications required for integration with the Space Surveillance Network.
- (U) $10,155 Begin site preparation at classified operational deployment location.
- (U) $20,155 Total

(U) FY 1997

- (U) $4,000 Continue in-CONUS developmental and integration testing and evaluation at Vandenberg AFB, CA.
- (U) $1,273 Continue site preparation at classified operational deployment location.
- (U) $5,273 Total

(U) FY 1998

- (U) $2,400 Continue radar development incremental funding.
- (U) $2,373 Continue preparations for deployment
- (U) $4,773 Total

(U) FY 1999

- (U) $1,000 Continue radar development incremental funding.
- (U) $2,000 Continue facility preparations
- (U) $10,147 Deploy and re-install program equipment
- (U) $1,000 Logistics and training
- (U) $14,147 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305910F Spacetrack (Space)	PROJECT 4279

(U) FY 2000

- (U) $8,000 Complete facility preparations.
- (U) $7,000 Continue installation and checkout
- (U) $3,000 Logistics and Training
- (U) $6,509 Conduct system formal testing and turnover
- (U) $24,509 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	23,778	5,440	0	0	TBD
(U) Appropriated Value		5,440			
(U) *Adjustments to Appropriated Value*					
a. Cong Gen Reductions					
b. SBIR		-167			
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming	-389				
(U) Adjustments to Budget Years Since FY97PB			4,773	14,147	
(U) Current Budget Submit/President's Budget	23,389	5,273	4,773	14,147	TBD

(U) Change Summary Explanation:

Funding: FY 96 reduction for other Air Force program priorities. The Air Force budgeted to continue this project in FY 98 and FY 99.
Schedule: Project delayed due to delay in overseas site selection and previously withheld funding.
Technical: Development delayed due to withheld funding based on delayed siting decision.

(U) C. Other Program Funding Summary ($ in Thousands)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305910F Spacetrack (Space)	PROJECT 4279

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) None.										

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) HAVE STARE Radar Siting Decision		x														
(U) HAVE STARE Deinstall Test Site												x				
(U) HAVE STARE Reinstall at Operational Site															x	

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305910F Spacetrack (Space)	PROJECT 4279

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Prime Contract	12,789	3,455	2,773	10,000
(U) Site Preparation	8,500			2,000
(U) SPO Support	2,100	1,818	2,000	2,147
(U) Total	23,389	5,273	4,773	14,147

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305911F Defense Support Program (Space)

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	33,969	25,009	23,193	39,946	24,446	20,208	34,355	35,140	0	2,054,500
3615 Shield/Alert	5,262	9,089	9,108	8,602	3,625	4,247	0	0	0	56,371
3624 Defense Support Program	28,707	15,920	14,085	31,344	20,821	15,961	34,355	35,140	0	1,998,129
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

Note: FY96 $3.72M to be transfered from BPAC 3624 to 3615 to correct erroneous Shield/ALERT reductions.

(U) A. Mission Description and Budget Item Justification

The Defense Support Program (DSP) is a system of satellites in geostationary orbits, fixed and mobile ground processing stations, one multi-purpose facility, and a ground communications network. DSP's primary mission is to provide tactical warning and limited attack assessment of a ballistic missile attack. The Shield/ALERT (Attack and Launch Early Reporting to Theater) is a ground station mission processing upgrade which exploits inherent satellite capability to provide theater missile warning and cueing. DSP is an operational system and is, therefore, included in Budget Activity 7, Operational Systems Support.

(U) Acquisition Strategy:

DSP is currently sustaining production of the remaining satellites, 18 through 23. This sustainment includes post production storage, testing, preparation for launch and on orbit testing. Current contract efforts are required to stretch the support of launch centers to 12 months from the originally contracted 6 month launch centers. Satellite 23 will be the last of the DSP satellites to be procured. The follow-on to DSP, Space Based Infrared Systems satellites, will replace DSP starting in FY02. The ALERT squadron was activated on 1 Oct 94 with an ALERT Initial Operating Capability reached on 10 Mar 95. Further Shield RDT&E efforts will be required to meet the Air Force Space Command Full Operational Capability requirements and for use as the path finder for the first increment of the ground consolidation.

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget (FY97)	34,870	29,397	36,715	36,022	Continuing
(U) Appropriated Value		26,844			
(U) Adjustments to Appropriated Value					
a. Congressional General Reduction/Adds		-1,277			
b. SBIR/Other		-558			
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming	-901				
(U) Adjustments to Budget Years Since FY97 PB			-13,522	3,924	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305911F Defense Support Program (Space)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Current Budget Submit/President's Budget	33,969	25,009	23,193	39,946	Continuing

(U) Change Summary Explanation:

Funding: FY98/99 reductions fund other AF and DoD priorities

Schedule: None.

Technical: None.

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Complete	Total Cost
(U) Missile Procurement	64,729	70,693	113,708	137,722	195,527	181,402	140,498	140,735	Continue	Continue
(U) Other Procurement	37,476	3,386	186	90	14	6	0	0	0	45,438

Related RDT&E:

(U) PE #603441F - SBIRS Dem/Val

(U) PE #604441F - SBIRS EMD

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) DSP Satellite Deliveries		X												X		
(U) Begin ALERT Blue Suit Org. Maint.					X											
(U) Final ALERT Hardware Installation						X										
(U) SBIRS MCS Operational																X
(U) DSP Satellite Launches						X				X				X		

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0305911F Defense Support Program (Space) / PROJECT: 3615

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
3615 Shield/Alert*	5,262	9,089	9,108	8,602	3,625	4,247	0	0	0	56,371

(U) A. **Mission Description and Budget Item Justification**

The Shield project identified changes to existing DSP processing to enhance theater missile defense warning capabilities. These enhancements will facilitate more timely and accurate detection, identification, location and tracking of theater missile threats. This data supports attack operations/counterforce operations by providing accurate, timely launch prediction. In addition, this data will support active and passive defense forces by providing target cueing data and precise impact point prediction. The Air Force will transition these enhancements to an operational system, ALERT, to provide continuous real-time warning to the warfighter.

(U) FY 1996

- (U) $7,086 Continue development to achieve ALERT full operational capability.
- (U) $329 Continue Operations and Maintenance Training Plan development and implementation.
- (U) $1,567 FFRDC and office support.
- (U) -$3,720 Funds to be transferred from BPAC 3624 to BPAC 3615, within PE 35911F, to correct erroneous Shield/ALERT reductions.
- (U) $5,262 Total

(U) FY 1997

- (U) $6,876 Continue engineering task development to protype and implement ALERT capabilities leading up to Increment I.
- (U) $2,213 FFRDC and office support.
- (U) $9,089 Total

(U) FY 1998 ($ in Thousands):

- (U) $7,273 Continue engineering task development to prototype and implement ALERT capabilities leading up to Increment I.
- (U) $1,835 FFRDC and office support.
- (U) $9,108 Total

(U) FY 1999 ($ in Thousands):

- (U) $6,967 Continue engineering task development to prototype and implement ALERT capabilities leading up to Increment I.
- (U) $1,635 FFRDC and office support.
- (U) $8,602 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305911F Defense Support Program (Space)

PROJECT: 3615

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget (FY97)	5,100	912	9,185	8,685	
(U) Appropriated Value		912			
(U) Adjustments to Appropriated Value					
a. Congressional General Reductions		-270			
b. SBIR	0	0			
c. Omnibus or Other Above Threshold Reprogramming		8,447			
d. Below Threshold Reprogramming	162				
(U) Adjustments to Budget Years Since FY97 PB			-77	-83	
(U) Current Budget Submit/President's Budget	5,262	9,089	9,108	8,602	39,933

(U) Change Summary Explanation:

Funding: FY96 increase was transfered from BPAC 3624 , Defense Support Program.

Schedule: None.

Technical: None.

(U) C. Other Program Funding Summary ($ in Thousands)

Not Applicable

Related RDT&E:

(U) PE #603441F - SBIRS Dem/Val

(U) PE #604441F - SBIRS EMD

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Begin ALERT Blue Suit Org. Maint.					X											
(U) Final ALERT Hardware Installation						X										
(U) SBIRS MCS Operational																X

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305911F Defense Support Program (Space)

PROJECT: 3615

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Contractor Engineering Support	0	835	600	447
(U) Software Development	100	1,458	1,250	1,455
(U) Program Management Support	1,833	1,711	1,776	1,595
(U) Training Development	1,380	200	903	365
(U) Developmental Test and Evaluation	0	2,672	1,271	1,327
(U) Technical Data	4,102	0	1,473	1,778
(U) Travel	63	30	35	35
(U) Government Engineering Support	1,504	2,183	1,800	1,600
(U) Adjustments	-3,720			
(U) Total	5,262	9,089	9,108	8,602

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Aerojet	CPAF	Aug 92			7,898						7,898
SPARTA	CPAF	Aug 94			487						487
Lincoln Lab	PO	Mar 95			288						288
Aerojet (FO)*	CPAF	Oct 95	27,035	27,671	0	6,948	6,491	7,273	6,967	7,002	34,681
NRC						239					239
Support and Management Organizations											
SMC					1,624	1,567	2,213	1,835	1,635	870	9,744
Dept Air Force	AF616				6,141	228	385				6,754
Test and Evaluation Organizations											
Not Applicable											

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305911F Defense Support Program (Space)	PROJECT 3615

(U) B. Budget Acquisition History and Planning Information Continued ($ in Thousands)

Government Furnished Property:

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Property										
GF Hardware			Aug 94							427
Support and Management Property										
Not Applicable										
Test and Evaluation Property										
Not Applicable										
*EAC does not include award fee										
Subtotal Product Development				8,673	7,187	6,491	7,273	6,967	7,002	43,593
Subtotal Support and Management				7,765	1,795	2,598	1,835	1,635	870	16,498
Subtotal Test and Evaluation										
Adjustments					-3,720					-3,720
Total Project				16,438	5,262	9,089	9,108	8,602	7,872	56,371

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305911F Defense Support Program (Space)

PROJECT: 3624

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
3624 Defense Support Program	28,707	15,920	14,085	31,344	20,821	15,961	34,355	35,140	0	1,998,129

(U) A. **Mission Description and Budget Item Justification**

The Defense Support Program (DSP) system provides a space-based surveillance system to detect and report missile and space launches and nuclear detonations in near real time during pre-, trans-, and post-attack periods. The DSP system consists of a constellation of satellites in geostationary orbits, fixed and mobile ground processing stations, one multi-purpose facility, and a ground communications network. DSP's primary mission is to provide tactical warning and limited attack assessment of a ballistic missile attack. DSP also detects and reports nuclear detonation events and provides information for theater warning and exploitation. This program element provides funding for development to modernize ground stations to ensure continued operability, integration of satellites to launch vehicles, procurement of satellites and ground station hardware, and operation of the DSP ground stations.

(U) FY 1996

- (U) $752 Continue special studies to support DSP satellite manufacturing, production, test, and launch activities as required.
- (U) $5,077 Continue orbital constellation support software development and anomaly resolution.
- (U) $106 Continue independent verification and validation.
- (U) $3,696 FFRDC.
- (U) $6,743 Program office support (TDYs, supplies, etc.).
- (U) $3,594 Continue yearly software development facility support to ground station operations activities.
- (U) $250 Continue development to replace unsupportable RADEC (Radiation Detection) Data Units at the fixed ground stations.
- (U) $1,273 Continue development and sustaining capabilities for acquisition logistics engineering.
- (U) $1,410 Continue acquisition and engineering support..
- (U) $2,086 Continue engineering task development to prototype and implement ALERT capabilities leading up to Increment I.
- (U) $3,720 Funds transferred from BPAC 3624 to BPAC 3615 within PE 35911F
- (U) $28,707 Total

(U) FY 1997

- (U) $1,690 Development of engineering efforts for DSP Spacecraft.
- (U) $5,378 Development of engineering efforts for DSP Sensor.
- (U) $274 Continue independent verification and validation.
- (U) $740 FFRDC.
- (U) $1,041 Continue acquisition and engineering support.
- (U) $1,000 Continue development and sustaining capabilities for acquisition logistics engineering.
- (U) $5,797 Program office support (TDYs, supplies, etc.).

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305911F Defense Support Program (Space)
	PROJECT 3624

- (U) $15,920 Total

(U) FY 1998 ($ in Thousands):
- (U) $11,485 Software changes to accomodate Year 2000 roll-over
- (U) $800 FFRDC
- (U) $1,800 Program office support (computer support)
- (U) $14,085 Total

(U) FY 1999 ($ in Thousands):
- (U) $5,000 Software changes to accomodate Year 2000 roll-over
- (U) $1,800 Program office support (computer support)
- (U) $800 FFRDC
- (U) $23,744 ECO Risk
- (U) $31,344 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305911F Defense Support Program (Space)

PROJECT: 3624

(U) B. Program Change Summary ($ in Thousands)	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget (FY97)	29,770	28,485	27,530	27,337	Continuing
(U) Appropriated Value		25,485			
(U) Adjustments to Appropriated Value					
a. Congressional General Reductions		-9,007			
b. SBIR/Other		-558			
c. Omnibus or Other Above Threshold Reprogramming					
d. Below Threshold Reprogramming	-1,063				
(U) Adjustments to Budget Years Since FY97 PB			-13,445	4,007	
(U) Current Budget Submit/President's Budget	28,707	15,920	14,085	31,344	Continuing

(U) Change Summary Explanation:

Funding: FY98 reductions funded other AF and DOD priorities

Schedule: None.

Technical: None.

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Complete	Total Cost
(U) Missile Procurement	64,729	70,693	113,708	137,722	195,527	181,402	140,498	140,735	Continuing	Continuing
(U) Other Procurement	37,476	3,386	186	90	14	6				41,158

Related RDT&E:

(U) PE #603441F - SBIRS Dem/Val

(U) PE #604441F - SBIRS EMD

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Satellite deliveries		X												X		
(U) Satellite launches						X				X				X		

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305911F Defense Support Program (Space)

PROJECT: 3624

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Program Office Support	5,743	4,797	1,800	1,800
(U) Contractor Engineering Support	11,615	7,342	11,485	5,000
(U) Research Personnel (FFRDC)	3,696	740	800	800
(U) Travel	1,000	1,000	0	0
(U) Government Engineering Support	2,933	2,041		
(U) Adjustments	3,720			
(U) ECO/Risk				23,744
(U) Total	28,707	15,920	14,085	31,344

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Aerojet*	CPAF	Oct 93	24,352	24,352	16,922	5,077					21,999
Aerojet	CPAF	Sep 93			9,025						9,025
Aerojet	CPFF				25,743						25,743
Aerojet	CPAF	Oct 95			124	2,454					2,454
Loral	FPI/AF/CPF		28,137	37,732	37,510	222					37,732
DOE	P.O.				10,474	250					10,724
Program Off Sppt	Various				57,751	6,743	5,797	1,800	1,800	6,230	80,122
ECO Risk									23,744	104,670	23,744
Loral	CPAF		22,975	22,975	22,975						22,975

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305911F Defense Support Program (Space)

PROJECT: 3624

Contractor or Government Performing Activity *EAC is also	Contract Method/Type or Funding Vehicle funded by	Award or Obligation Date other	Performing Activity EAC appropria-tions	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Support and Management Organizations											
Various	MIPRs				5,956	345					
Aerojet	CPFF		1,305	1,305	1,305						1,305
Aerojet/ Consolidated	FFP	May 96			197		5,378				5,575
Aerospace Corp	MORD				37,673	3,696	740	800	800	3,200	46,909
Other Gov't Cost *					17,913	2,683		11,485	5,000		37,081
TRW	CPFF				9,120	752					9,872
TRW Consolidated	CPAF	May 96					1,690				1,690
PRC	FPIF	Apr 94			4,839	1,047	2,315				8,201
SPARTA	CPAF	Aug 94			150						150
	MORDs				13,325	1,718					15,043

*Note: HQ AFMC Space Systems Support Group (SSSG) for Year 2000 software development

Test and Evaluation Organizations

Not Applicable.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE: February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0305911F Defense Support Program (Space)		PROJECT: 3624

(U) B. Budget Acquisition History and Planning Information Continued ($ in Thousands)

Government Furnished Property:

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Property										
SRSU	FFIF/CPAF	1989								
Support and Management Property										
Not Applicable										
Test and Evaluation Property										
Not Applicable										
Subtotal Product Development				1,535,219	14,746	5,797	1,800	25,544	110,900	1,694,006
Subtotal Support and Management				266,681	10,241	10,123	12,285	5,800	3,200	308,330
Subtotal Test and Evaluation										
Adjustment					3,720					3,720
Project Total				1,801,900	28,707	15,920	14,085	31,344	114,100	2,006,056

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305913F NUDET Detection System (Space)

PROJECT: 2808

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
2808 Nuc Detonation Det Sys (Sensors)	12,064	13,018	14,145	14,982	14,003	13,023	13,014	15,258	160,906	293,676
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description and Budget Item Justification

The Nuclear Detonation (NUDET) Detection System (NDS) consists of space, control, and user equipment segments. The space segment consists of NUDET detection sensors on the GPS satellites. The control segment consists of ground control hardware and software known as the Integrated Correlation and Display System (ICADS). The user equipment segment consists of the Ground NDS Terminals (GNT). The NDS provides a worldwide, highly survivable capability to detect, locate, and report any nuclear detonations in the earth's atmosphere or near space and in near real time. The NDS supports NUDET detection requirements for AFSPC (Integrated Tactical Warning and Attack Assessment [ITWAA]), USSTRATCOM (Nuclear Force Management), and AFTAC (Treaty Monitoring). NDS is classified Budget Activity 7, Operational Systems Development, because it is a post-Milestone 3 program.

(U) FY 1996 ($ in Thousands)

- (U) $8,010 Continue ICADS and GNT development
- (U) $924 Continue NDS Electomagnetic Pulse (EMP) Sensor on-orbit qualification
- (U) $1,196 Continue system engineering and program management for ICADS, GNT and Advanced Radiation Detection Unit (ARDU)
- (U) $1,934 Continue mission support requirements
- (U) $12,064 Total

(U) FY 1997 ($ in Thousands)

- (U) $10,898 Continue ICADS and GNT development
- (U) $925 Continue EMP sensor on-orbit qualification
- (U) $953 Continue system engineering and program management for ICADS, GNT and ARDU
- (U) $242 Continue mission support requirements
- (U) $13,018 Total

(U) FY 1998 ($ in Thousands)

- (U) $11,941 Continue ICADS and GNT development
- (U) $960 Continue EMP sensor on-orbit qualification

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305913F NUDET Detection System (Space)
	PROJECT 2808

- (U) $989 Continue system engineering and program management for ICADS, GNT and ARDU
- (U) $255 Continue mission support requirements
- (U) $14,145 Total

(U) FY 1999 ($ in Thousands)

- (U) $12,709 Continue ICADS and GNT development
- (U) $981 Continue EMP sensor on-orbit qualification
- (U) $1,024 Continue system engineering and program management for ICADS, GNT and ARDU
- (U) $268 Continue mission support requirements
- (U) $14,982 Total

(U) Acquisition Strategy:

The NDS Acquisition Strategy is to develop and procure components to sustain the NDS capability for the GPS satellites.

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Previous President's Budget	12,154	13,623	9,869	6,144
(U) Appropriated Value	13,277	13,623		
(U) Adjustments to Appropriated Value				
a. Cong Gen Reductions	- 260	-304		
b. SBIR	- 728	-301		
c. Omnibus or Other Above Threshold Reprogram				
d. Below Threshold Reprogramming	-9			
e. Rescision	-216			
(U) Adjustments to Budget Years Since FY97 PB			4,276	8,838
(U) Current Budget Submit/President's Budget	12,064	13,018	14,145	14,982

(U) Change Summary Explanation:

Funding: Adjustments to FY98 (4,276) and FY99 (8,838) reflect a realignment of funds to more closely approximate programmatic requirements.
Schedule: No Changes
Technical: No Changes

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305913F NUDET Detection System (Space)

PROJECT: 2808

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Operations & Maintenance	5,570	5,265	5,731	5,962	6,219	7,003	9,252	8,620	69,311	Cont
(U) Missile Procurement	18,502	4,081	1,194	3,012	1,615	1,534	1,569	1,608	15,059	174,059
(U) Other Procurement	5,580	2,085	7,995	1,313	1,797	1,597	3,513	0	22,264	46,144

Related RDT&E:

(U) PE #305165F, NAVSTAR GPS (Space/Ground Segment)
(U) PE #604480F, GPS Block IIF
(U) PE #305911F, Defense Support Program

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) **ICADS Milestones & Program Events**																
(U) Build 5 System Req Review (SRR)					x											
(U) Build 5 System Design Review (SDR)									x							
(U) Build 5 Preliminary Design Review (PDR)													x			
(U) Build 5 Critical Design Review (CDR)																x
(U) Build 4B Acceptance test (AT)										x						
(U) **GNT Milestones & Program Events**																
(U) Phase II GNT Delivery									x							
(U) Phase I Initial OT&E										x						
(U) Phase III PDR															x	
(U) Phase III CDR																x

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305913F NUDET Detection System (Space) — PROJECT 2808

(U) A. ***Project Cost Breakdown ($ in Thousands)***

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Systems Engineering	989	1,013	1,277	1,065
(U) Software Development	6,016	6,472	6,578	8,460
(U) Software Upgrade	2,700	3,000	3,375	2,928
(U) Miscellaneous	1,247	1,387	1,534	1,331
(U) Technical Data	98	92	153	133
(U) Development Test & Evaluation	767	791	921	799
(U) Program Management Support	247	263	307	266
(U) Total	12,064	13,018	14,145	14,982

(U) B. ***Budget Acquisition History and Planning Information ($ in Thousands)***

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
ICADS:											
Sandia Labs	MIPR*	Jan 96	Cont	Cont	10,994	6,100	9,782	10,502	12,709	195,587	245,674
SAIC	Time & Materials	Dec 95	Cont	Cont	1,054	399	318	330	342	3,343	Cont
GNT:											
Sandia Labs	MIPR*	Jan 96	Cont	Cont	7,218	1,910	1,116	1,439	0	0	11,683
Intermetrics	CPFF	Dec 93	1,262	1,262	666	0	0	0	0	0	666
SAIC	Time & Materials	Dec 95	Cont	Cont	0	399	318	330	341	3,353	4,741
ARDU:											
SAIC	Time & Materials	Dec 95	Cont	Cont	0	398	317	329	341	3,352	4,737

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305913F NUDET Detection System (Space)

PROJECT: 2808

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
AALF:											
SAIC	Time & Materials	Dec 94	198	198	198	0	0	0	0	0	198
W-Sensor Support:											
SRI	C/CPFF	Aug 94	415	415	415	0	0	0	0	0	415
Los Alamos	MIPR*	Jan 96	Cont	Cont	1,367	924	925	960	981	5,560	10,717
Mission	Multiple	N/A	Cont	Cont	952	1,934	242	255	268	5,009	8,660
Sandia Labs	MIPR*	Oct 94	399	399	399	0	0	0	0	0	399
Subtotal Product Development					23,263	12,064	13,018	14,145	14,982	216,204	293,676
Subtotal Support and Management											
Subtotal Test and Evaluation											
Total Project					23,263	12,064	13,018	14,145	14,982	216,204	293,676

* MIPR - Military Inter-departmental Purchase Request

Support and Management Organizations

Not Applicable.

Test and Evaluation Organizations

Not Applicable.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 EXHIBIT)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305917F DoD Space Architect (Space)

PROJECT: 2677

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
2677 Space Architect	0	0	14,590	14,590	14,566	14,541	14,821	15,287	0	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. **Mission Description and Budget Item Justification** - The Under Secretary of Defense (USD) for Acquisition and Technology (A&T) established the DoD Office of the Space Architect (OSA) to consolidate responsibilities for DoD space missions and system architecture development into a single organization in response to Congressional concerns regarding DoD space management. The DoD OSA integrates space architectures and systems, eliminates unnecessary vertical stovepiping of programs, and achieves efficiencies in acquisition and future operations through program integration, thus improving space support to military operations. The OSA obtains direct support from various space planning and development organizations across the federal government and industry for DoD space architecture planning and development. This program is in Budget Activity 7 because the ongoing design effort affects facets of all space systems and their acquisition and design strategies.
Note: All funding transferred from PE 63855F for FY 1998 - 2003 to consolidate R&D and O&M appropriations into one Program Element.

(U) **Acquisition Strategy:** RDT&E funds will be used to obtain infrastructure support and direct support from various space planning and development organizations across the DoD and industry. This includes FFRDCs and contracted System Engineering and Technical Assistance (SETA) in direct support of DoD space architecture planning and development. Funds will be applied to existing contract vehicles.
- As primary support, the DoD Space Architect proposes to use two existing SMC contracts for technical support:
  - -- Engineering, Analysis, Design and Development (EADD) Contract; Nichols Research Corporation
  - -- Engineering, Analysis and Design (EAD) Contract; Nichols Research Corporation
- These contracts currently provide support to the Air Force Space and Missile Systems Center long-range planning, conceptual development, and engineering analysis and assessment efforts.

(U) FY 1996 ($ in Thousands):
- (U) $0 Program funded in PE 63855F
- (U) $0 Total

(U) FY 1997 ($ in Thousands):
- (U) $0 Program funded in PE 63855F
- (U) $0 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 EXHIBIT)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305917F DoD Space Architect (Space)
	PROJECT 2677

(U) FY 1998 ($ in Thousands):
- (U) $240 MILSATCOM
- (U) $378 Space Control
- (U) $540 Satellite Operations
- (U) $3,800 Position Navigation
- (U) $1,700 Environmental Sensing
- (U) $1,000 Communications Study
- (U) $2,800 Missile Warning
- (U) $2,742 Advanced Weather
- (U) $1,390 In-House Support
- (U) $14,590 Total

(U) FY 1999 ($ in Thousands):
- (U) $14,590 Architecture studies and documentation
- (U) $14,590 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Previous President's Budget	0	0	0	0
(U) Appropriated Value				
(U) Adjustments to Appropriated Value				
a. Cong Gen Reductions				
b. SBIR				
c. Omnibus or Other Above Threshold Reprogram				
d. Below Threshold Reprogramming				
(U) Adjustments to Budget Years Since FY 1997 PB			14,590	14,590
(U) Current Budget Submit/President's Budget	0	0	14,590	14,590

(U) Change Summary Explanation:
Funding: Reflects realignment of funding from PE 63855F in FY98 President's Budget.
Schedule: None
Technical: None

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305917F DoD Space Architect (Space)
	PROJECT 2677

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) N/A										

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) N/A																

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305917F DoD Space Architect (Space)	PROJECT 2677

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
MILSATCOM			240	TBD
Space Control			378	TBD
Satellite Operations			540	TBD
Position Navigation			3,800	TBD
Environmental Sensing			1,700	TBD
Communications Study			1,000	TBD
Missile Warning			2,800	TBD
Advanced Weather			2,742	TBD
In-House Support			1,390	TBD
Total	0	0	14,590	14,590

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
None					0	0	0	0	0	Cont	Cont
Support and Management Organizations											
Aerospace	CPAF	1993						1,400	TBD	Cont	Cont
TASC	CPAF	Sept 1994						TBD	TBD	Cont	Cont
ANSER	CPFF	1993						576	TBD	Cont	Cont
Mitre	CPAF	1993						938	TBD	Cont	Cont
EAD	CPAF	Feb 1997						5,200	TBD	Cont	Cont
EADD	CPAF	Feb 1997			0	0	0	5,400	TBD	Cont	Cont

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305917F DoD Space Architect (Space)

PROJECT: 2677

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Test and Evaluation Organizations											
None					0	0	0	0	0	Cont	Cont
Government Furnished Property: None											
Subtotal Product Development					0	0	0	0	0	Cont	Cont
Subtotal Support and Management					0	0	0	0	0	Cont	Cont
Subtotal Test and Evaluation					0	0	0	14,590	14,590	Cont	Cont
Total Project					0	0	0	14,590	14,590	Cont	Cont

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305953F Evolved Expendable Launch Veh(Space)

PROJECT: 624A

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
624A Medium Launch Vehicles	0	0	0	3,383	3,480	3,577	2,398	795	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. **Mission Description and Budget Item Justification:**
The Evolved Expendable Launch Vehicle (EELV) program is a space launch system development program. The purpose of this program is to replace the current fleet of medium to heavy-lift class expendable launch vehicles (Titan II, Delta II, Atlas II, and Titan IV) with a more affordable family of space launch vehicles. With a nonrecurring development cost of $2 billion, EELV is projected to save 25-50 percent over the current fleet of expendable launch vehicles during a 20 year period. Program content includes the development of the system design, demonstrations of key technologies, modifications to industrial capability and launch facilities, and demonstration launches of both medium and heavy-lift EELV variants. The EELV family of vehicles must be capable of meeting the Government's spacelift needs (DoD, intelligence, and other government missions) through at least 2020, as defined in the National Mission Model. The first operational launch for the Medium-Lift Variant (MLV) is required by FY02 to support satellite block changes and transitions. The first operational capability for the Heavy-Lift Variant (HLV) is required by FY05 to provide for continued assured access to space following the Titan IV phaseout. The program is in Budget Activity 7 Operational System Support because it supports operational deployment of a system in production.

(U) **Acquisition Strategy:**
The EELV concept of a family of launch vehicles emphasizes commonality of hardware and infrastructure and economies of scale to enhance production, operations, and support efficiencies. Cost improvements will be achieved through commonality, consolidation, reduction of supporting infrastructure (launch pads, manufacturing facilities, workforce), and optimization of production and launch operations, processes, and rates. Development contracts will be competitively awarded. Downselect to a single EELV contract/concept is planned at the EMD decision point (third quarter FY98). Production contracts will be sole source to the EELV EMD contractor.

(U) **FY 1996**

– (U) $0 Not Applicable. EELV was funded in PE 0603853F in FY 1996.

(U) **FY 1997**

– (U) $0 Not Applicable. EELV was funded in PE 0603853F in FY 1996.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305953F Evolved Expendable Launch Veh(Space)
	PROJECT 624A

(U) **FY 1998**

– (U) $0 Not Applicable. EELV is funded in PE 0603853F and PE 0604853F in FY 1998.

(U) **FY 1999**

– (U) $3,383 Prepare for EELV Production contracts (to be awarded in FY 2000) and start mission planning and non-recurring integration for initial operational satellites.

– (U) $3,383 Total

(U) **B. Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Previous President's Budget				
(U) Appropriated Value				
(U) Adjustments to Appropriated Value				
a. Congressional General Reductions				
b. Small Business Innovative Research				
c. Omnibus or other above threshold reprogramming				
d. Below Threshold Reprogramming				
(U) Adjustments to Budget Years Since FY97 PB				+3,383
(U) Current Budget Submit/President's Budget				3,383

(U) **Change Summary Explanation:**

- Funding: FY99 funds moved from MLV PE (0305119F) as part of the transition from Atlas and Delta to EELV.
- Schedule: Not Applicable.
- Technical: Not Applicable.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305953F Evolved Expendable Launch Veh(Space)

PROJECT: 624A

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Comp	Total
(U) Missile Procurement, AF (PE 030593F)					245,428	285,471	171,951	303,782	Cont.	Cont.
(U) Missile Procurement, AF (QTY)					5	6	3	5	Cont.	Cont.
(U) National User (non-AF budget)	72,300	18,600	7,100							98,000
Related RDT&E:										
(U) EELV EMD (PE 0603853F).	36,894	42,333	63,260	0	0	0	0	0	0	172,533
(U) EELV EMD (PE 0604853F).			28,376	293,950	324,891	232,991	256,797	419,280	162,200	1,718,485
(U) Medium Launch Vehicles (PE 0305119F).										
(U) Titan Space Launch Vehicles (PE 0305144F).										

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
EMD Module																
(U) Defense Acquisition Board											X					
(U) EMD contract award											X					
(U) Tailored Critical Design Review completed No Later Than date Dec 98												X				
(U) Low Rate Initial Production start planned for 1st quarter FY00																
(U) System Test Flight #1 (MLV) planned for FY01																
(U) System Test Flight #2 (HLV) planned for FY03																

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305953F Evolved Expendable Launch Veh(Space)
	PROJECT 624A

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Non-recurring integration funding				3,383
(U) Total				3,383

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

TBD

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401119F C-5 Airlift Squadrons

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	0	1,124	9,751	14,204	0	0	0	0	0	25,079
4377 Airborne Broadcast Intelligence (ABI)	0	653	0	0	0	0	0	0	0	653
4495 AWFCS Reliability Improvement Program	0	471	9,751	14,204	0	0	0	0	0	24,426
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. **Mission Description and Budget Item Justification**

4377: Airborne Broadcast Intelligence (ABI) (name change from Real-Time Information in the Cockpit (RTIC)): Airlift and Air Refueling Mission Area Plans identify a deficiency in ability to protect aircraft from hostilities during combat operations. The ABI system addresses this deficiency and increases aircrew survivability by providing aircrews with portable, on-aircraft, mission equipment to receive and display critical, real-time intelligence information. Strategic mobility aircrews often fly extended missions or transit enroute stations without full intelligence information capability. Information provided prior to mission departure is often outdated or incomplete upon arrival in theater. ABI provides increased threat situational awareness and enables aircrews to make mission modifications to avoid enemy threats under rapidly changing combat conditions. To limit system implementation costs, it is envisioned that ABI will "snap-on" to any AMC mobility fleet aircraft when this capability is needed. These systems are intended to be interchangeable between KC-135, KC-10, C-141, C-5, and C-17 operational wings, as required. This project is an FY97 new start to modify and integrate previously developed intelligence communication and display equipment to meet AMC requirements. This project is comprised of low technical risk efforts supporting fielded weapons systems and, therefore, is assigned to Budget Activity 7, Operational Systems Development.

4495: AWFCS Reliability Improvement Program: The C-5 All-Weather Flight Control System (AWFCS) Reliability Improvement Program replaces low reliability Line Replaceable Units (LRUs) in the automatic flight control system and replaces aging mechanical instruments in the engine and flight systems. Current trends indicate some components of the existing C-5 AWFCS will be insupportable within five years. This modification redesigns the architecture of the avionics using Commercial-Off-The-Shelf (COTS) LRUs. This project is comprised of low technical risk efforts supporting fielded weapons systems and, therefore, is assigned to Budget Activity 7, Operational Systems Development.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0401119F C-5 Airlift Squadrons

(U) **Acquisition Strategy:**

Airborne Broadcast Intelligence (ABI): The intended acquisition strategy for ABI is to make maximum use of existing software and non-developmental hardware currently under development.

AWFCS Reliability Improvement Program: The acquisition strategy for the program is to establish a single integrating contractor to: modify and qualify individual COTS LRUs and software to meet C-5 performance requirements; update existing C-5 engineering and technical data; develop interface control specifications based on performance requirements; prototype the new system; and support ground and flight testing.

(U) **B. Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget		1,153	3,533	1,831	6,517
(U) Appropriated Value		1,153			
(U) Adjustments to Appropriated Value					
a. Cong/General Reductions		-24	-39	-73	-141
b. SBIR		-5			
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
(U) Adjustments to Budget Years Since FY 1997 PB			6,257	12,446	18,703
(U) Current Budget Submit/President's Budget		1,124	9,751	14,204	25 ,079

(U) Change Summary Explanation:

Funding: FY97 funds have been reduced by $29K for Congressional/general reductions. General reductions totaled $39K in FY98 and $73K in FY99. Addition of $6,257K in FY98 and $12,446K in FY99 based upon actual costs in similar but less complex C-141 AWFCS program.

Schedule: New Program Start for C-5 AWFCS in FY97.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0401119F C-5 Airlift Squadrons

Technical: N/A

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) PE# 040119F/C-5 Squadrons										
Aircraft Procurement, AF, BA-7,C-5 Mods, ABI	0	0	1,518	1,433	1496	1528	1379	1345	0	8,699
Aircraft Procurement, AF, BA-5,C-5 Mods, AWFCS	0	0	0	0	44,761	44,442	67,729	48,680	90,430	296,042
(U) PE# 0401218F/KC-135 Squadrons										
RDT&E, AF, BA-7	0	715	0	0	0	0	0	0	0	715
Aircraft Procurement, AF, BA-7, KC-135 Mods, ABI	0	0	1,525	1,512	1,572	1,530	1,564	1,525	TBD	TBD
Operations & Maintenance, AF, BA-2	0	0	1,000	1,019	1,050	1,071	1,091	TBD	TBD	5,231

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Airborne Broadcast Intelligence																
(U) AWFCS Reliability Improvement																

See Individual Project R-2 Exhibits for Schedule Profiles

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401119F C-5 Airlift Squadrons

PROJECT: 4377

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4377 Airborne Broadcast Intelligence (ABI)	0	653	0	0	0	0	0	0	0	653

(U) A. Mission Description and Budget Item Justification

4377: Airborne Broadcast Intelligence (ABI): Airlift and Air Refueling Mission Area Plans identify a deficiency in ability to protect aircraft from hostilities during combat operations. The ABI system addresses this deficiency and increases aircrew survivability by providing aircrews with portable, on-aircraft, mission equipment to receive and display critical, real-time intelligence information. Strategic mobility aircrews often fly extended missions or transit enroute stations without full intelligence information capability. Information provided prior to mission departure is often outdated or incomplete upon arrival in theater. ABI provides increased threat situational awareness and enables aircrews to make mission modifications to avoid enemy threats under rapidly changing combat conditions. To limit system implementation costs, it is envisioned that ABI will "snap-on" to any AMC mobility fleet aircraft when this capability is needed. These systems are intended to be interchangeable between KC-135, KC-10, C-141, C-5, and C-17 operational wings, as required. This project is an FY97 new start to modify previously developed intelligence communication and display equipment to meet AMC requirements. This project is comprised of low technical risk efforts supporting fielded weapons systems and, therefore, is assigned to Budget Activity 7, Operational Systems Development.

(U) FY 1996 ($ in Thousands):
- (U) $ N/A
- (U) $0 Total

(U) FY 1997 ($ in Thousands):
- (U) $588 Engineering study/analysis; prototype development, modification, retrofit, and qualification/certification testing.
- (U) $ 65 Mission support
- (U) $653 Total

(U) FY 1998 ($ in Thousands):
- (U) $ N/A
- (U) $0 Total

(U) FY 1999 ($ in Thousands):
- (U) $ N/A
- (U) $0 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0401119F C-5 Airlift Squadrons	PROJECT 4377

(U) **B. Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	0	672	0	0	672
(U) Appropriated Value	0	672			
(U) Adjustments to Appropriated Value	0	0	0	0	
a. Cong/Gen Reductions		-14			-19
b. SBIR		-5			
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
(U) Adjustments to Budget Years Since FY 1997 PB	0	0	0	0	
(U) Current Budget Submit/President's Budget	0	653	0	0	653

(U) Change Summary Explanation:

Funding: FY97 funds have been reduced by $14K by Congressional and general reductions and $5k for SBIR.

Schedule: N/A

Technical: N/A

(U) **C. Other Program Funding Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) PE# 040119F/C-5 Squadrons										
Aircraft Procurement, AF, BA-7, C-5 Mods, ABI	0	0	1,518	1,433	1,496	1,528	1,379	1,345	0	8,699
(U) PE# 0401218F/KC-135 Squadrons										
RDT&E, AF, BA-7, ABI	0	715	0	0	0	0	0	0	0	715
Aircraft Procurement, AF, BA-7, KC-135 Mods, ABI	0	0	1,525	1,512	1,572	1,530	1,564	1525	TBD	TBD
Operations & Maintenance, AF, BA-2, ABI	0	0	1,000	1,019	1,050	1,071	1,091	TBD	TBD	TBD

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE
	February 1997

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
7 - Operational System Development	0401119F C-5 Airlift Squadrons	4377

(U) D. **Schedule Profile**

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Program Office Startup				X												
(U) AOA/RDT&E Studies Complete							X									
(U) Prototype Demo								X								
(U) Initial Delivery										X						

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401119F C-5 Airlift Squadrons

PROJECT: 4377

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Eng study/analysis; prototype development & testing	0	588	0	0
(U) Mission support	0	65	0	0
(U) Total	0	653	0	0

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
							653	0	0	TBD	TBD

Product Development Organizations
ESC

Support and Management Organizations
SA-ALC

Test and Evaluation Organizations

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401119F C-5 Airlift Squadrons

PROJECT: 4495

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4495 AWFCS Reliability Improvement Program	0	471	9,751	14,204	0	0	0	0	0	24,426

(U) **A. Mission Description and Budget Item Justification**

4495: AWFCS Reliability Improvement Program: The C-5 All-Weather Flight Control System (AWFCS) Reliability Improvement Program replaces low reliability Line Replaceable Units (LRUs) in the automatic flight control system and replaces aging mechanical instruments in the engine and flight systems. Current trends indicate some components of the existing C-5 AWFCS will be insupportable within five years. This modification redesigns the architecture of the avionics.

(U) FY 1996 ($ in Thousands):
- (U) $ N/A
- (U) $0 Total

(U) FY 1997 ($ in Thousands):
- (U) $436 Contractor Technical Support
- (U) $ 35 Mission Support
- (U) $471 Total

(U) FY 1998 ($ in Thousands):
- (U) $1,574 System Engineering
- (U) $3,303 Hardware Design
- (U) $4,089 Software Development
- (U) $ 171 Design Data
- (U) $ 614 Program Management
- (U) $9,751 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0401119F C-5 Airlift Squadrons / PROJECT: 4495

(U) FY 1999 ($ in Thousands):
- (U) $ 1,629 System Engineering
- (U) $ 980 Hardware Design
- (U) $ 1,812 Software Development
- (U) $ 134 Design Data
- (U) $ 1,340 Program Management
- (U) $ 1,710 Prototype Fab/Install
- (U) $ 5,326 System Test and Evaluation
- (U) $ 1,273 Pre-Production Fab
- (U) $14,204 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	0	481	3,533	1,831	5,845
(U) Appropriated Value	0	481			
(U) Adjustments to Appropriated Value	0	0			
a. Cong/Gen Reductions		-10	-39	-73	-122
b. SBIR					
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
(U) Adjustments to Budget Years Since FY 1997 PB	0	0	+6,257	+12,446	+18,703
(U) Current Budget Submit/98 PB	0	471	9,751	14,204	24,426

(U) Change Summary Explanation:

Funding: FY97 includes $10K of Congressional reductions. General reductions include $39K in FY98 and $73K in FY99. Additions of $6,257K in FY98 and $12,446K in FY99 required because FY97 Budget was based upon the similar but less complex C-141 upgrade because detailed estimates were available. Detailed estimates were completed in Apr 96 and revealed the need for additional funding based on increased complexity of the integration effort.

Schedule: New Program Start

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0401119F C-5 Airlift Squadrons PROJECT 4495

Technical: New Program Start

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) PE# 040119F/C-5 Squadrons										
Aircraft Procurement, AF, BA-5, C-5 Mods, AWFCS	0	0	0	0	44,761	44,442	67,729	48,680	90,430	296,042

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Acquisition Strategy						X										
(U) Draft RFP							X									
(U) Final RFP								X								
(U) Installation Start (FY01/3)																
(U) Installation Complete (FY06/2)																

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0401119F C-5 Airlift Squadrons PROJECT 4495

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) System Engineering	0	0	1,574	1,629
(U) Hardware Design	0	0	3,303	980
(U) Software Development	0	0	4,089	1,812
(U) Design Data	0	0	171	134
(U) Prototype Fab/Install	0	0	0	1,340
(U) Program Management	0	0	614	1,710
(U) System Test and Evaluation	0	0	0	5,326
(U) Pre-Production Fab	0	0	0	1,273
(U) Contractor Technical Support	0	436	0	0
(U) Mission Support	0	35	0	0
(U) Total	0	471	9,751	14,204

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
SA-ALC/LA	FFP	Jan 98					471	9,751	14,204	0	24,426
Support and Management Organizations											
SA-ALC/LA											

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)												DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development					PE NUMBER AND TITLE 0401119F C-5 Airlift Squadrons							PROJECT 4495
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program	
Test and Evaluation Organizations AFOTEC												

(U) B. Budget Acquisition History and Planning Information Continued ($ in Thousands)

Government Furnished Property:

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Property N/A										
Support and Management Property N/A										

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401130F C-17 Program

PROJECT: 2569

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
2569 C-17 Program	71,956	71,774	113,605	202,344	172,137	167,240	82,599	84,405	0	6,627,754
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	1*

FY96 RDT&E funding is under PE 64231F in Budget Activity 5, EMD
*** Aircraft T-1, FY87 Funded**

(U) **A. Mission Description and Budget Item Justification**

Airlift provides essential flexibility when responding to contingencies on short notice anywhere in the world. It is a major element of America's national security strategy and constitutes the most responsive means of meeting U.S. mobility requirements. Additional airlift capability is needed for rapid deployment of combat forces in support of national objectives. Specific tasks associated with the airlift mission include deployment, employment (airland and airdrop), sustaining support, retrograde, and combat redeployment. The C-17 can perform the entire spectrum of airlift missions and is specifically designed to operate effectively and efficiently in both strategic and theater environments. The C-17 provides a vast increase in overall airlift capability necessary to replace and exceed the capabilities lost from retiring the aging C-141 fleet from the Air Force inventory. The C-17 is capable of performing the airlift mission well into the 21st century.

This program element is budgeted in Budget Activity 7, Operational System Development, because the program has completed Milestone III and is continuing producibility and performance improvements to support full-rate production and increase the operational capability of the C-17 through programmed modifications.

(U) FY 1996 ($ in Thousands):
- (U) $7,100 3rd life durability test
- (U) $45,550 Continue product improvement development & testing
- (U) $5,400 T-1 refurbishment
- (U) $13,906 Producibility Enhancement/Performance Improvement (PE/PI) Government flight test
- (U) $71,956 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997	
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0401130F C-17 Program	PROJECT 2569

(U) FY 1997 ($ in Thousands):
- (U) $65,474 Continue product improvement development & testing
- (U) $1,300 3rd life durability test
- (U) $5,000 PE/PI Government flight test
- (U) $71,774 Total

(U) FY 1998 ($ in Thousands):
- (U) $105,305 Continue product improvement development & testing
- (U) $8,300 PE/PI Government flight test
- (U) $113,605 Total

(U) FY 1999 ($ in Thousands):
- (U) $193,444 Continue product improvement development & testing
- (U) $8,900 PE/PI Government flight test
- (U) $202,344 Total

(U) Acquisition Strategy

The C-17 Acquisition Strategy is based on five separate contracts to support the entire scope of the C-17 weapon system. These five contracts are: 1) a multi-year production (MYP) aircraft contract (to economically purchase the full complement of production aircraft); 2) a Producibility Enhancement and Performance Improvement (PE/PI) contract (to develop cost reduction changes, capability enhancements, and design fixes to service-revealed problems); 3) a field support contract (to support the current and future fielded aircraft); 4) a MYP engine contract (for Government Furnished Equipment [GFE] engines); and 5) an aircrew training systems (ATS) contract (for aircrew training).

The Congressionally-mandated Mobility Requirements Study (MRS), initially forwarded to Congress on 23 Jan 92 and updated on 28 Mar 95, validated the need for the C-17 aircraft. Two C-17 Defense Acquisition Board (DAB) decisions, contained in the 3 Nov 95 and 1 Feb 96 USD(A&T) Acquisition Decision Memoranda (ADMs), directed the Air Force to proceed with a 120-aircraft production program and pursue a multi-year procurement for the last 80 aircraft. The FY96 Supplemental Appropriations Act and FY97 Defense Appropriations Bill approved a 7-year MYP program. The Air Force is proceeding with an 80-aircraft MYP program (along with engines to support them) to complete a 120-aircraft total purchase at the maximum affordable rate (FY97-03: 8-9-13-15-15-15-5), beginning with the economic order quantity (EOQ) for FY96.

(U) B. Program Change Summary ($ in Thousands)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0401130F C-17 Program	PROJECT 2569

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	69,968	87,486	107,114	178,538	6,628,995
(U) Appropriated Value	73,803	77,486			
(U) Adjustments to Appropriated Value					
a. Congressional/General Reductions	-1,465	-5,631			
b. SBIR	-1,268	-81			
c. Omnibus or Other Above Threshold Reprogram	-1,302				
d. Below Threshold Reprogramming	2,188				
(U) Adjustments to Budget Years Since FY 1997 PB			6,491	23,806	
(U) Current Budget Submit/President's Budget	71.956	71,774	113,605	202,344	6,627,754

(U) Change Summary Explanation:

Funding: The FY97 funding changes reflect congressional action decreasing the budget by $10 million, a transfer of $3.999 million to Electronic Systems Center for Precision Landing System Receiver program requirements, SBIR, miscellaneous bills mandated by congressional language, and to fund other DoD priorities for combat airlift and operations and maintenance supply accounts. Planned product improvement development and testing was rephased to reflect funding profile changes.

Schedule: No changes.

Technical: No changes.

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) APAF Budget Activity 02	2,485,631	2,112,618	2,201,511	2,960,600	3,236,504	3,225,157	3,056,748	1,202,980	186,800	32,237,641
(Aircraft Quantity)	(8)	(8)	(9)	(13)	(15)	(15)	(15)	(5)	(0)	(120)
(U) APAF Budget Activity 06 (Spares)	79,985	4,358	88,800	121,581	197,459	238,153	217,859	216,614	345,500	2,058,323
(U) APAF Budget Activity 05 (Mods)	20,817	41,934	59,053	42,936	73,024	232,577	295,167	318,265	113,800	1,226,390
(U) MilCon Budget Activity	6,900	80,905	9,655	73,893	29,600	10,700	3,700			373,448

(U) D. Schedule Profile

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401130F C-17 Program

PROJECT: 2569

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Acquisition Milestones:																
Milestone III	X*															
(U) Engineering Milestones:																
Static Article Test Complete																
Durability Article Test (1st Lifetime)																
Durability Article Test (2nd Lifetime)																
Durability Article Test (3rd Lifetime)						X										
DT&E																
DIOT&E																
Live Fire Test Comp (final rpt, 26 Sep 95)																
(U) Contract Milestone																
Lot VIII (8 a/c)		X*														
Lot IX Adv Proc (8 a/c)			X*													
Lot IX (8 a/c)					X*											
Lot X Adv Proc (9 a/c)					X*											
Lot X									X							
Lot XI Adv Proc (13 a/c)										X						
Lot XI												X				
Lot XII Adv Proc (15 a/c)														X		

Other Program Milestone: N/A

* Denotes milestone completion

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0401130F C-17 Program	PROJECT 2569

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Contractor Furnished Equipment	45,550	66,774	105,305	193,444
(U) Training Other Government Contractor (OGC)	0	0	0	0
(U) Test OGC	13,906	5,000	8,300	8,900
(U) Mission Support OGC	4,000	0	0	0
(U) Engine Data/Refurb OGC	0	0	0	0
(U) Site Activation OGC	100	0	0	0
(U) Miscellaneous	8,400	0	0	0
(U) Total	71,956	71,774	113,605	202,344

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Douglas Aircraft F33657-81-C-2108	C,FPI/FP	8/31/81	5,190,914	5,190,914	5,190,366	547	0	0	0	0	5,190,914
Douglas Aircraft F33657-95-D-2026	CPFF	7/13/95	905,927	882,454	27,120	45,003	66,774	105,305	193,444	468,281	905,927
Pratt & Whitney F33657-89-C-0032	C,FP	5/24/91	25,346	25,346	25,346	0	0	0	0	0	25,346
Douglas Aircraft F33657-89-C-0018	C,FPI	4/14/89			83,885	0	0	0	0	0	83,885

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)											DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development					PE NUMBER AND TITLE 0401130F C-17 Program						PROJECT 2569
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Support and Management Organizations											
Mission Support OGC	PO				93,100	4,000	0	0	0	0	97,100
Site Activation OGC	PO				1,500	100	0	0	0	0	1,600
Miscellaneous	PO				46,805	2,300	0	0	0	0	49,105
Test and Evaluation Organizations											
Combined Test Force	PO	Dec 97			180,290	13,906	5,000	8,300	8,900	38,100	254,496
Live Fire Test	PO				10,252	0	0	0	0	0	10,252
Other	PO				3,030	6,100	0	0	0	0	9,130
(U) B. Budget Acquisition History and Planning Information Continued ($ in Thousands)											
Government Furnished Property: N/A											
Subtotal Product Development					5,326,717	45,550	66,774	105,305	193,444	468,281	6,206,071
Subtotal Support and Management					141,405	6,400	0	0	0	0	147,805
Subtotal Test and Evaluation					193,572	20,006	5,000	8,300	8,900	38,100	273,878
Total Project					5,661,694	71,956	71,774	113,605	202,344	506,381	6,627,754

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401214F Air Cargo Materiel Handling (463L)

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	0	3,145	7,947	522	524	0	0	0	0	12,138
5120 60K Pound Capacity Aircraft Loader	0	579	0	0	0	0	0	0	0	579
5150 Next Generation Small Loader (NGSL)	0	2,566	7,947	522	524	0	0	0	0	11,559
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) **A. Mission Description and Budget Item Justification**

This program element contains two projects integral to the Air Force's ability to mobilize forces and equipment worldwide. The two projects involve testing, developing, and fielding two new aircraft cargo loaders. These new loaders will alleviate critical existing loader deficiencies and provide the Air Force with a flexible balance of large and small loader capability for the future. The 60K will replace the 40K loader as the strategic aerial port workhorse servicing all cargo military aircraft and Civil Reserve Air Fleet (CRAF). More importantly, the 60K will have the capability to reach and directly interface with Wide-Body Aircraft (WBA), which the 40K lacks. NGSL replaces aging 25K loaders, which are rapidly declining in reliability. NGSL, with WBA capability, complements the 60K capability by providing greater deployability and cargo handling capacity at a number of smaller, but vital, peacetime and contingency airfields. Fielding of the 60K and NGSL also eliminates the requirement for a Wide-Body Elevator Loader (WBEL) fleet, a stationary transfer platform currently used in conjunction with 40K and 25K loaders to service WBA. Starting in FY97, the Air Force realigned 60K RDT&E funding from PE 0604704F, Common Support Equipment Development, into this program element, which also contains the 60K procurement funding. The RDT&E efforts of the NGSL have also been aligned to this program element which likewise includes the procurement funding for production units. Operational System Development involves acquisition of two loaders to support mobility aircraft; neither requires significant additional development.

(U) **Acquisition Strategy:**

60K Loader: The 60K loader program incorporated an approach whereby two manufacturers built two prototypes each to compete in a "drive-off" competition. This competition resulted in a production contract award to one manufacturer. The 60K loader strategy baselines a reliability growth testing program that decreases failure rates to a level that supports deployment requirements to numerous worldwide locations.

NGSL: Commercial Off-the-Shelf & Non-Developmental Item (COTS/NDI) loaders are currently undergoing an operational suitability assessment. The Air Force will develop a definitive acquisition plan, maximizing the use of COTS/NDI, following this assessment.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0401214F Air Cargo Materiel Handling (463L)

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	Total Cost
(U) Previous President's Budget		3,212	8,420	841	529	13,002
(U) Appropriated Value		3,212				
(U) Adjustments to Appropriated Value						
a. Cong/General Reductions		-67				-67
b. SBIR						
c. Omnibus or Other Above Threshold Reprogram						
d. Below Threshold Reprogramming						
(U) Adjustments to Budget Years Since FY 1997 PB			-473	-319	-5	-797
(U) Current Budget Submit/President's Budget		3,145	7,947	522	524	12,138

(U) Change Summary Explanation:

Funding: For 60K efforts, $404,000 of the FY98 and $314,000 of the FY99 RDT&E funding was planned to support program management administrative expenses. Under PAP56 guidance, these funds have been realigned to O&M. FY97 Congressional reductions total $67,000. Additional funding adjustments ($69,000 in FY98, $5,000 in FY99, and $5,000 in FY00) decrease funding for ALC mission support functions.

Schedule:

Technical:

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Other Procurement, AF, BA-4, Air Cargo Materiel Handling	42,336	0	84,154	125,975	126,430	54,154	44,495	50,865	TBD	TBD

(U) D. Schedule Profile:

See Each Project

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401214F Air Cargo Materiel Handling (463L)

PROJECT: 5120

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
5120 60K Pound Capacity Aircraft Loader	0	579	0	0	0	0	0	0	0	579

(U) A. **Mission Description and Budget Item Justification**

5120: 60K Pound Capacity Aircraft Loader: Project 653852, 60,000 (60K) Pound Capacity Aircraft Transporter Loader: this project completes the development of the 60,000 pound capacity aircraft transporter/loader to fulfill Air Mobility Command's (AMC's) requirement, as documented in Operational Requirement Document (ORD) 002-89-1. The project provides a single unique loader to on/off load various aircraft like the C-17, C-5, C-141, C-130, C-27, KC-10, and Civil Reserve Air Fleet (CRAF) in combination with the 40K, wide-body elevator, and lower lobe loaders. The 60K loader will be driven on/off of the C-17, C-5, and C-141 aircraft without shoring, and it will be the only loading vehicle capable of moving a type V airdrop platform carrying a full 60,000 pounds required by the US Army. The 60K loader will be significantly more reliable than the 40K loader. The 60K loader will facilitate a major reduction in deployment preparation time from 30 man-hours to 3 man-hours.

(U) FY 1996 ($ in Thousands): Not applicable*

(U) FY 1997 ($ in Thousands):
- (U) $ 44 Research ECPs
- (U) $535 Continued contracted advisory and assistance services and program management support
- (U) $579 Total

(U) FY 1998 ($ in Thousands):
- (U) $0 Total

(U) FY 1999 ($ in Thousands):
- (U) $0 Total

* FY 96 efforts were funded in PE 0604704F, Common Support Equipment Development

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401214F Air Cargo Materiel Handling (463L)

PROJECT: 5120

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	0	592	404	314	1310
(U) Appropriated Value					
(U) Adjustments to Appropriated Value					
a. Cong/General Reductions		-13			-13
b. SBIR					
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
(U) Adjustments to Budget Years Since FY 1997 PB			-404	-314	-718
(U) Current Budget Submit/President's Budget	0	579	0	0	579

(U) Change Summary Explanation:

Funding: FY98/99 RDT&E funding was planned to support program management administrative expenses. Under PAP56 guidance, $404,000 in FY98 and $314,000 in FY99 have been realigned to O&M. FY97 Congressional reductions total $13,000.

Schedule: 60K loader reliability was not sufficient to accept loaders for IOT&E. The Air Force is implementing a corrective action plan and program restructure with a one year slip in schedule. Congress denied FY97 procurement funds in response to this slip.

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Other Procurement (includes initial spares), AF, BA-4, Air Cargo Materiel Handling	42,336	0	84,154	96,018	95,794	22,555	4,552	3,062	TBD	350,236

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Complete IOT&E											X					
(U) Milestone III												X				
(U) IOC													X			

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0401214F Air Cargo Materiel Handling (463L)
	PROJECT 5120

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Research ECPs		44		
(U) Advisory and assistance services and program mgmt spt		535		
(U) Total		579		

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
AFMC/											
WR-ALC/LVA											
Support and Management Organizations											
AMC/XPQ											
Test and Evaluation Organizations											
AFOTEC											

(U) B. **Budget Acquisition History and Planning Information Continued ($ in Thousands)**

Government Furnished Property: Not Applicable

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE: February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0401214F Air Cargo Materiel Handling (463L)		PROJECT: 5150

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
5150 Next Generation Small Loader (NGSL)	0	2,566	7,947	522	524	0	0	0	0	11,559

(U) A. Mission Description and Budget Item Justification

5150: Next Generation Small Loader: The NGSL (25K to 35K capacity) program supports acquisition and delivery of approximately 256 loaders that will eventually, along with the 60K loader, form the backbone of the Global Reach airlift 463L (pallet) system. NGSL, equipped with WBA capability, complements the 60K loader acquisition. Upgrading the current loader fleet with the NGSL will correct critical high-reach shortcomings and provide increased flexibility to ensure the Air Force meets its global mobility commitments.

Currently the Air Force uses a 30-year old 25K loader with an extremely low mean time between failure (around 10 hours). The existing 25K loader lacks high reach capability and requires a separate elevator/transfer platform to off/on load KC/10 and CRAF WBA. The NGSL will replace the aging 25K loader and wide-body elevator loaders, providing the Department of Defense with a single cargo handling system that can reach the deck heights of the KC-10 and CRAF WBA and lower to the C-130 deck height. Additionally, the NGSL will be air transportable on the C-17, C-5, C-141, and C-130, thus allowing worldwide deployment to contingency and front line airfields.

The NGSL program will procure NDI loaders for testing and evaluation. The Air Force will then select a contractor to build loaders that contain the necessary follow-on engineering changes identified by the initial test program. This approach will accelerate the acquisition process and result in an earlier operational capability.

(U) FY 1996 ($ in Thousands): Not Applicable

(U) FY 1997 ($ in Thousands): Not Applicable
- (U) $2,266 Acquire test articles
- (U) $ 300 Provide program management support
- (U) $2,566 Total

(U) FY 1998 ($ in Thousands):
- (U) $7,047 Acquire test articles; conduct reliability growth tests
- (U) $ 900 Provide program management support
- (U) $7,947 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0401214F Air Cargo Materiel Handling (463L)
	PROJECT 5150

(U) FY 1999 ($ in Thousands):
- (U) $522 Provide program support
- (U) $522 Total

U) FY 2000 ($ in Thousands):
- (U) $524 Provide program support
- (U) $524 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	Total Cost
(U) Previous President's Budget	0	2,620	8,016	527	529	11,692
(U) Appropriated Value						
(U) Adjustments to Appropriated Value						
a. Cong/General Reductions		-54				-54
b. SBIR						
c. Omnibus or Other Above Threshold Reprogram						
d. Below Threshold Reprogramming						
(U) Adjustments to Budget Years Since FY 1997 PB			-69	-5	-5	-79
(U) Current Budget Submit/President's Budget		2,566	7,947	522	524	11,559

(U) Change Summary Explanation:

Funding: Funding adjustments ($69,000 in FY98, $5,000 in FY99, and $5,000 in FY00) decrease funding for ALC mission support functions. FY97 Congressional reductions total $54,000.

Schedule:

Technical:

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0401214F Air Cargo Materiel Handling (463L)
	PROJECT 5150

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Other Procurement, AF, BA-4, Air Cargo Materiel Handling	0	0	0	29,957	30,636	31,599	39,943	47,803	TBD	TBD

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Quick Look Assessment (completion)						X										
(U) Test article contract award								X								
(U) Run-off competition (completion)												X				
(U) Procurement														X		

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0401214F Air Cargo Materiel Handling (463L)
	PROJECT 5150

(U) A. ***Project Cost Breakdown ($ in Thousands)***

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
(U) Acquire test articles		2,266	7,047		
(U) Provide program management support		300	900	522	524
(U) Total		2,566	7,947	522	524

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
AFMC/WR-ALC/LVA											
Support and Management Organizations											
AMC/XP											
Test and Evaluation Organizations											
AFOTEC											

(U) B. **Budget Acquisition History and Planning Information Continued ($ in Thousands)**

Government Furnished Property: Not Applicable

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401218F KC-135 Squadrons

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	11,519	715	1,992	1,704	2,367	515	514	525	0	19,851
4286 Multipoint Modification	11,519	0	0	0	0	0	0	0	0	11,519
4403 Airborne Broadcast Intelligence (ABI)	0	715	0	0	0	0	0	0	0	715
4494 KC-135 Aging Aircraft Program	0	0	1,992	1,704	2,367	515	514	525	0	7,617
Quantity of RDT&E Articles	0	2/500	0	0	0	0	0	0	0	2/500

(U) A. **Mission Description and Budget Item Justification**

4286: Multipoint Modification: The Multipoint Refueling System (MPRS) enhances interoperability with the Navy, the Marines, NATO, and other Allied nations. It permits simultaneous and independent refueling of two, probe-equipped, receiver aircraft. These systems provide enhanced reliability and efficiency for probe/drogue refueling and permits refueling of probe-equipped and receptacle-equipped receiver aircraft during a single mission (not simultaneously). This requirement was established by Air Mobility Command (AMC) Mission Need Statement 003-92 and AMC Operational Requirements Document 003-92-I/II. The project is a low technical risk effort supporting a fielded weapon system and, therefore, is assigned to Budget Activity 7, Operational Systems Development.

4403: Airborne Broadcast Intelligence (ABI) (name change from Real-Time Information in the Cockpit (RTIC)): The AMC Airlift and Air Refueling Mission Area Plans identify a deficiency in the ability to protect aircraft from hostilities during combat operations. ABI addresses this deficiency and increases air crew survivability by providing aircrews with portable, on-aircraft, mission equipment to receive and display critical, real-time intelligence information. Strategic mobility aircrews often fly extended missions or transit enroute stations without full intelligence information capability. Information provided prior to mission departure is often outdated or incomplete upon arrival in theater. ABI provides increased threat situational awareness thus enabling aircrews to make mission modifications to avoid enemy threats under rapidly changing combat conditions. To limit system implementation costs, it is envisioned that ABI will be "snapped-on" to any AMC mobility fleet aircraft when this capability is needed. These systems are intended to be transferred between KC-135, KC-10, C-141, C-5, and C-17 operational wings, as required. This project is an FY97 new start to modify and integrate on the KC-135 previously developed intelligence communication and display equipment to meet AMC requirements. Two RDT&E test articles will be procured in FY97 with delivery in FY98. This endeavor consists of low technical risk efforts supporting fielded weapons systems and, therefore, is assigned to Budget Activity 7, Operational Systems Development.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0401218F KC-135 Squadrons

4494: KC-135 Aging Aircraft Program: This program, in part, supports the aging aircraft corrosion and fatigue project--CORAL REACH. CORAL REACH studies include the analysis and testing efforts in the area of aging aircraft, to include corrosion, fatigue, and stress corrosion cracking. The USAF will utilize CORAL REACH activities to improve KC-135 Programmed Depot Maintenance efficiency and to provide direction for future aging aircraft efforts to maintain the KC-135 as a viable airframe. CORAL REACH results provide accurate data for incorporation into the KC-135 Economic Life Study planned for FY00. The KC-135 Economic Service Life Study consists of studies for structure, systems, and component support as well as cost benefit analyses to support an Analysis of Alternatives (AOA). The AOA addresses replacement schedules for the KC-135 based on economic decision points. This effort is a low technical risk effort supporting a fielded weapon system and, therefore is assigned to Budget Activity 7, Operational Systems Development.

(U) **Acquisition Strategy:**

4286: Multipoint Modification: The acquisition strategy for the Multipoint modification began as a full and open competition for a fixed price, Multipoint Wing Pod procurement. The contracting effort concluded as a sole-source procurement to Boeing.

4403: Airborne Broadcast Intelligence (ABI): The intended acquisition strategy for ABI is to re-utilize software and non-developmental hardware already prototyped in a competitive, fixed-price, contract award environment.

4494: KC-135 Aging Aircraft Program: The acquisition strategy consists primarily of separate task orders (with separate statements of work) ranging from fixed price to cost plus contracts. These task orders address a myriad of aging aircraft activities against existing contract vehicles, such as the SPO-managed KC-135 Fleet Support Contract and Design Engineering Program contracts managed through the Air Logistics Centers.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0401218F KC-135 Squadrons

(U) **B. Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	12,727	793			cont
(U) Appropriated Value	12,727	757			
(U) Adjustments to Appropriated Value					
a. Cong/Gen Reductions	-376	-23			
b. SBIR	-294	-19			
c. Omnibus or Other Above Threshold Reprogram	0				
d. Below Threshold Reprogramming	-460				
e. Rescissions	-78				
(U) Adjustments to Budget Years Since FY 1997 PB			1,992	1,704	cont
(U) Current Budget Submit/98 PB	11,519	715	1,992	1,704	cont

(U) Change Summary Explanation:

Funding: FY96 reductions of $1,208 due to SBIR, Economic and Overhead/Improved Management Reductions, Bosnia I, Bosnia II, below threshold reprogramming, and McClellan Nuclear Reactor bills. FY97 funds are for Airborne Broadcast Intelligence (ABI), an FY97 new program start. ABI funding reduced $19K for SBIR and by $23K for general Congressional reductions. FY98 POM initiative for KC-135 Aging Aircraft Program has FY98 through FY03 funding. USAF integrated these funds with the former KC-135 Economic Life Study BPAC that had $959K in FY00.

Schedule: N/A

Technical: N/A

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401218F KC-135 Squadrons

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) PE# 0401218F/KC-135 Squadrons										
(U) Aircraft Procurement, AF, BA-5 KC-135 Mods, Multipoint	12,206	21,601	22,120	20,126	40,260	40,801	12,800			169,914
(U) Aircraft Procurement, AF, BA-7 Other Production Charges, ABI, BP-19			1,525	1,512	1,572	1,530	1,564	1,525	TBD	TBD
(U) Operations & Maintenance, AF, BA-2 Mobilization, ABI			1,000	1,019	1,050	1,071	1,091	TBD	TBD	TBD
(U) PE# 0401119F/C-5 Squadrons			1,518	1,433	1,496	1,528	1,379	1,345	TBD	TBD
Aircraft Procurement, AF, BA-7 Other Production Charges, ABI										
Related RDT&E:										
(U) PE# 0401119F/C-5 Squadrons										
RDT&E, AF, BA-7 Operational Systems Development, ABI		653								653

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Multipoint Modification																
(U) Airborne Broadcast Intelligence (ABI)	See Individual Project R-2 Exhibits for Schedule Profiles															
(U) KC-135 Aging Aircraft Program																

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401218F KC-135 Squadrons

PROJECT: 4286

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4286 Multipoint Modification	11,519	0	0	0	0	0	0	0	0	11,519

(U) A. **Mission Description and Budget Item Justification**

The Multipoint Refueling System (MPRS) enhances interoperability with the Navy, the Marines, NATO, and other Allied nations. It permits simultaneous and independent refueling of two, probe-equipped, receiver aircraft. This system provides enhanced reliability and efficiency for probe/drogue refueling and permits refueling of probe-equipped and receptacle-equipped receiver aircraft during a single mission (not simultaneously). This requirement was established by Air Mobility Command (AMC) Mission Need Statement 003-92 and AMC Operational Requirements Document 003-92-I/II. This project is a low technical risk effort supporting a fielded weapon system and, therefore, is assigned to Budget Activity, Operational Systems Development.

(U) FY 1996 ($ in Thousands):

- (U) $5,656 Engineering design, procurement, assembly & installation of MPRS Group-A; pod & pylon procurement of Group B
- (U) $2,130 Test planning and support
- (U) $371 System Engineering and Technical Assistance (SETA) support
- (U) $1,221 ECO
- (U) $635 Mission support
- (U) $500 Aircraft maintenance
- (U) $506 GFP (MILSTRIP, GFE, fuel, and miscellaneous)
- (U) $500 USAF realignment of $500K (FY96) from Multipoint into the Aging Aircraft Program, with new start and realignment approved by Congress on 22 Oct 96.
- (U) $11,519 Total

(U) FY 1997 ($ in Thousands):

- (U) $0 Total

(U) FY 1998 ($ in Thousands):

- (U) $0 Total

(U) FY 1999 ($ in Thousands):

- (U) $0 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0401218F KC-135 Squadrons PROJECT 4286

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	12,727				12,727
(U) Appropriated Value	12,727				12,727
(U) Adjustments to Appropriated Value					
a. Cong/Gen Reductions	-376				
b. SBIR	-294				
c. Omnibus or Other Above Threshold Reprogram	0				
d. Below Threshold Reprogramming	-460				
e. Rescissions	-78				
(U) Adjustments to Budget Years Since FY 1997 PB					
(U) Current Budget Submit/98 PB	11,519				11,519

(U) Change Summary Explanation:

Funding: FY96 reductions of $1,208 due to SBIR, Economic and Overhead/Improved Management Reductions, Bosnia I, Bosnia II, below threshold reprogramming, and McClellan Nuclear Reactor bills. USAF realignment of $500K (FY96) from Multipoint into the Aging Aircraft Program, with new start and realignment approved by Congress on 22 Oct 96.

Schedule: N/A

Technical: N/A

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Aircraft Procurement, AF, BA-5, KC-135 Mods, MN-KC4231, Multipoint	12,206	21,601	22,120	20,126	40,260	40,801	12,800			169,914

Related RDT&E:

(U) N/A

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0401218F KC-135 Squadrons PROJECT 4286

(U) D. **Schedule Profile**

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Design/Build/Install	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
(U) Ground Test Complete							X									
(U) Flight Test Complete								X								
(U) Production Option Award			X*		X*				X				X			
(U) IOC (FY02/4)																

*Denotes milestone completion

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0401218F KC-135 Squadrons	PROJECT 4286

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Group A + Group B	5,656			
(U) Test planning and support	2,130			
(U) SETA support	371			
(U) ECO	1,221			
(U) Mission support	635			
(U) Aircraft maintenance	500			
(U) GFP (MILSTRIP, GFE, fuel, and miscellaneous)	506			
(U) USAF realigned $500K (FY96) from Multipoint into the Aging Aircraft Program, with new start and realignment approved by Congress on 22 Oct 96.	500			
(U) Total	11,519	0	0	0

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE: February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0401218F KC-135 Squadrons	PROJECT: 4286

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Boeing	FFP	28 Sep 95	ASC/LCA		20,197	7,612					27,809
ASC/LCA					167	440					607
Support and Management Organizations											
SETA					209	371					907
Contractors						327					
* See below						500					500
Test and Evaluation Organizations											
Edwards AFB					0	1,180					1,180
Pax River NAS					0	583					583

* USAF realigned $500K (FY96) from Multipoint into the Aging Aircraft Program, with new start and realignment approved by Congress on 22 Oct 96.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0401218F KC-135 Squadrons	PROJECT 4286

(U) B. **Budget Acquisition History and Planning Information Continued ($ in Thousands)**

Government Furnished Property:

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Property										
Shipping, Misc.					103					103
Support and Management Property										
MILSTRIP					300					300
Test and Evaluation Property										
KC-135 Fuel					103					103
Subtotal Product Development				20,364	8,155					28,519
Subtotal Support and Management				209	1,498					1,707
Subtotal Test and Evaluation					1,866					1,866
Total Project				20,573	11,519					32,092

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401218F KC-135 Squadrons

PROJECT: 4403

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4403 Airborne Broadcast Intelligence (ABI)	0	715	0	0	0	0	0	0	0	715

(U) A. Mission Description and Budget Item Justification

The Air Mobility Command (AMC) Airlift and Air Refueling Mission Area Plans identify a deficiency in the ability to protect aircraft from hostilities during combat operations. The Airborne Broadcast Intelligence (ABI) system (name change from Real-Time Information in the Cockpit (RTIC)) addresses this deficiency and increases aircrew survivability by providing aircrews with portable, on-aircraft, mission equipment to receive and display critical, real-time intelligence information. Strategic mobility aircrews often fly extended missions or transit enroute stations without full intelligence information capability. Information provided prior to mission departure is often outdated or incomplete upon arrival in theater. ABI provides increased threat situational awareness and enables aircrews to make mission modifications to avoid enemy threats under rapidly changing combat conditions. To limit system implementation costs, ABI will "snap-on" to any AMC mobility fleet aircraft when this capability is needed. These systems are intended to be transformed between KC-135, KC-10, C-141, C-5, and C-17 operational wings, as required. This project is an FY97 new start to modify and integrate on the KC-135 previously developed intelligence communication and display equipment to meet AMC requirements. USAF will procure two RDT&E test articles in FY97 with delivery in FY98. This project is comprised of low technical risk efforts supporting fielded weapons systems and, therefore, is assigned to Budget Activity 7, Operational Systems Development.

(U) FY 1996 ($ in Thousands):
- (U) $0 Total

(U) FY 1997 ($ in Thousands):
- (U) $676 Engineering study/analysis; prototype development, modification, retrofit, and qualification/certification testing
- (U) $39 Mission support
- (U) $715 Total

(U) FY 1998 ($ in Thousands):
- (U) $0 Total

(U) FY 1999 ($ in Thousands):
- (U) $0 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0401218F KC-135 Squadrons	PROJECT 4403

(U) **B. Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget		793			793
(U) Appropriated Value		757			757
(U) Adjustments to Appropriated Value					
a. Cong/Gen Reductions		-23			
b. SBIR		-19			
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
e. Rescissions					
(U) Adjustments to Budget Years Since FY 1997 PB					
(U) Current Budget Submit/98 PB		715			715

(U) Change Summary Explanation:

Funding:. ABI funding reduced $19K for SBIR and by $23K for general Congressional reductions.

Schedule: N/A

Technical: N/A

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401218F KC-135 Squadrons

PROJECT: 4403

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) PE# 0401218F/KC-135 Squadrons			1,525	1,562	1,572	1,533	1,564	1,525	TBD	TBD
Aircraft Procurement, AF, BA-7										
Other Production Charges, ABI, BP-19										
(U) Operations & Maintenance, AF, BA-2			1,000	1,019	1,050	1,071	1,091	TBD	TBD	TBD
Mobilization, ABI										
(U) PE# 0401119F/C-5 Squadrons		653								653
RDT&E, AF, BA-7										
Operational Systems Development, ABI										
(U) Aircraft Procurement, AF, BA-7			1,518	1,433	1,496	1,528	1,379	1,345	TBD	TBD
Other Production Charges, ABI										

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) AOA/RDT&E Studies Complete							X									
(U) Certification/Qualification Testing								X								
(U) Prototype Demo								X								
(U) Program Office Startup				X*												
(U) Integration (Deliverables to Unit)										X	X	X	X	X	X	X

* Denotes milestone completion

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401218F KC-135 Squadrons

PROJECT: 4403

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Engineering study/analysis, prototype development testing		676		
(U) Mission support		39		
(U) Total		715		

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
ESC	TBD	TBD	TBD	TBD			715				715
Support and Management Organizations							0				0
Test and Evaluation Organizations							0				0

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0401218F KC-135 Squadrons	PROJECT 4403

(U) B. Budget Acquisition History and Planning Information Continued ($ in Thousands)

Government Furnished Property:

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Property										
N/A										
Support and Management Property										
N/A										
Test and Evaluation Property										
N/A										
Subtotal Product Development						715				715
Subtotal Support and Management						0				0
Subtotal Test and Evaluation						0				0
Total Project						715				715

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE: February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0401218F KC-135 Squadrons		PROJECT: 4494

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4494 KC-135 Aging Aircraft Program	0	0	1,992	1,704	2,367	515	514	525	0	7,617

(U) A. Mission Description and Budget Item Justification

This program, in part, supports the aging aircraft corrosion and fatigue project--CORAL REACH. CORAL REACH studies include the analysis and testing efforts in the area of aging aircraft, to include corrosion, fatigue, and stress corrosion cracking. The USAF will utilize CORAL REACH activities to improve KC-135 Programmed Depot Maintenance efficiency and to provide direction for future aging aircraft efforts to maintain the KC-135 as a viable airframe. CORAL REACH results provide accurate data for incorporation into the KC-135 Economic Life Study planned for FY00. The KC-135 Economic Service Life Study consists of studies for structure, systems, and component support as well as cost benefit analyses to support an Analysis of Alternatives (AOA). The AOA addresses replacement schedules for the KC-135 based on economic decision points. This effort is a low technical risk effort supporting a fielded weapon system and, therefore is assigned to Budget Activity 7, Operational Systems Development.

(U) FY 1996 ($ in Thousands):

- (U) $0 Total

Project CORAL REACH - Aging aircraft corrision, fatigue, and supportability investigations.
NOTE: USAF realigned $500K (FY96) from Multipoint into the Aging Aircraft Program, with new start and realignment approved by Congress on 22 Oct 96. Activities will be:
--$100 Corrosion/crack growth rate and fatigue determination and testing
--$123 Basic materiels test and predictive technique
--$103 Functional Systems Integrity Program (FSIP)
--$174 Mission support/contractor support

(U) FY 1997 ($ in Thousands):

- (U) $0 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0401218F KC-135 Squadrons
	PROJECT 4494

(U) FY 1998 ($ in Thousands):

–	(U)	Project CORAL REACH - Aging aircraft corrosion, fatigue, and supportability investigations
–	(U) $141	-- Corrosion/crack growth rate and fatigue determination and testing
–	(U) $107	-- Basic materials test and predictive technique
–	(U) $1,045	-- Functional Systems Integrity Program (FSIP)
–	(U) $699	-- Mission support/contractor support
–	(U) $1,992	Total

(U) FY 1999 ($ in Thousands):

–	(U)	Project CORAL REACH - Aging aircraft corrosion, fatigue, and supportability investigations
–	(U) $100	-- Corrosion/crack growth rate and fatigue determination and testing
–	(U) $495	-- Functional Systems Integrity Program (FSIP)
–	(U) $1,000	-- Market survey and system cost estimates
–	(U) $109	-- Mission support/contractor support
–	(U) $1,704	Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0401218F KC-135 Squadrons	PROJECT 4494

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget					
(U) Appropriated Value					
(U) Adjustments to Appropriated Value					
a. Cong/Gen Reductions					
b. SBIR					
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
e. Rescissions					
(U) Adjustments to Budget Years Since FY 1997 PB	0		1,992	1,704	cont
(U) Current Budget Submit/98 PB	0		1,992	1,704	cont

(U) Change Summary Explanation:

Funding: FY98 POM initiative for KC-135 Aging Aircraft Program has FY98 to FY03 funding. USAF integrated these funds with the former KC-135 Economic Life Study BPAC that had $959K in FY00. USAF realigned $500K (FY96) from Multipoint into the Aging Aircraft Program, with new start and realignment approved by Congress on 22 Oct 96.

Schedule: N/A

Technical: N/A

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0401218F KC-135 Squadrons PROJECT 4494

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) N/A										

Related RDT&E:
(U) N/A

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Begin Corrosion & Fatigue Testing							X*									
(U) Begin Materials Test & Predictive							X*									
(U) Begin FSIP						X*										
(U) Begin Mission Support						X*										

* USAF realigned $500K (FY96) from Multipoint into the Aging Aircraft Program, with new start and realignment approved by Congress on 22 Oct 96.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0401218F KC-135 Squadrons	PROJECT 4494

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Corrosion/crack growth determination and testing	(100)*		141	100
(U) Basic materials test and predictive technique	(123)*		107	
(U) Functional Systems Integrity Program (FSIP)	(103)*		1,045	495
(U) Market survey and system cost estimates				1,000
(U) Mission support/contractor support	(174)*		699	109
(U) Total	(500)*		1,992	1,704

* USAF realigned $500K (FY96) from Multipoint into the Aging Aircraft Program, with new start and realignment approved by Congress on 22 Oct 96.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0401218F KC-135 Squadrons PROJECT 4494

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Boeing	C/KC-135 Fleet Support	Oct 97-Sep 98	KC-135 SPO			(400)*		1,398	1,195	TBD	TBD
Support and Management Organizations											
ARINC, Frontier, other support contractors	Design Engineering Program (DEP)	Oct 97-Sep 98						292	251	TBD	TBD
Test and Evaluation Organizations											
FAA, Wright Labs, etc.	Project Order/MPIR	Oct 97-Sep 98				(100)*		302	258	TBD	TBD

* USAF realigned $500K (FY96) from Multipoint into the Aging Aircraft Program, with new start and realignment approved by Congress on 22 Oct 96.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0401218F KC-135 Squadrons	PROJECT 4494

(U) B. **Budget Acquisition History and Planning Information Continued ($ in Thousands)**

Government Furnished Property:

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Property										
N/A										
Support and Management Property										
N/A										
Test and Evaluation Property										
N/A										
Subtotal Product Development					(400)*		1,398	1,195	TBD	TBD
Subtotal Support and Management							292	251	TBD	TBD
Subtotal Test and Evaluation					(100)*		302	258	TBD	TBD
Total Project					(500)*		1,992	1,704		TBD

* USAF realigned $500K (FY96) from Multipoint into the Aging Aircraft Program, with new start and realignment approved by Congress on 22 Oct 96.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0404102F Aerospace Rescue And Recovery

PROJECT: 1325

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
1325 HH-60G	5,097	3,165	0	0	0	0	0	0	0	0
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. **Mission Description and Budget Item Justification**

This program is in budget activity 7 - Operational System Development, Research Category 6.6 - because the HH-60G Pave Hawk helicopter is a fielded weapon system. The mission of the HH-60G is search and rescue in hostile environments. To effectively perform this mission, the HH-60G must be capable of communicating at long ranges with command and control and supporting forces. In addition, the rescue platform must be survivable while penetrating medium threat hostile airspace and conducting operations at low level. These funds are used to engineer (1) the installation of long-range communications, a missile warning receiver, radar warning receiver, and chaff and flare dispensers; and (2) control of all communication radios, transponders, and navigation radios on to the current MIL STD-1553 data bus and aircraft control display software. This program also integrates the AAR-47 missile warning receiver, ALE-47 flare/chaff dispensers, and ALR-69 radar warning receiver on to the MIL STD-1553 data bus and into aircraft control display unit software to provide both manual and automatic threat identification and countermeasure dispensing. This RDT&E effort completes with FY1997 funding.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE: February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0404102F Aerospace Rescue And Recovery / PROJECT: 1325

(U) FY 1996 ($ in Thousands):
- (U) $2,250 Engineering integration and control of all avionics.
- (U) $2,847 Engineering and integration of Infrared Countermeasures (IRCM) and Missile Warning Receiver (MWR).
- (U) $5,097 Total

(U) FY 1997 ($ in Thousands):
- (U) $1,345 Avionics Operational Test and Evaluation.
- (U) $1,820 Infrared Countermeasures (IRCM) and Missile Warning Receiver (MWR) Operational Test and Evaluation.
- (U) $3,165 Total

(U) FY 1998 ($ in Thousands):
- (U) $0 Total

(U) FY 1999 ($ in Thousands):
- (U) $0 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0404102F Aerospace Rescue And Recovery

PROJECT: 1325

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	5,109	3,322	0		8,431
(U) Appropriated Value	5,369	3,322			8,691
(U) Adjustments to Appropriated Value					
a. Cong Reductions	-104	-71			
b. SBIR	-114	-86			
c. Omnibus or Other Above Threshold Reprogram	-33				
d. Below Threshold Reprogramming	-21				
(U) Adjustments to Budget Years Since FY 1997 PB					
(U) Current Budget Submit/President's Budget	5,097	3,165	0		8,262

(U) Change Summary Explanation:

Funding: FY97 includes SBIR and Congressional reductions.

Schedule: Not Applicable.

Technical: Not Applicable.

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Aircraft Procurement - Attrition Reserve		107,900								107,900
(U) Aircraft Modifications - AF		5,980	6,939	12,078	10,798	11,441	46,935	29,805	58,752	182,728

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Contract Award				X*												
(U) QT&E Completion								X								
(U) OT&E Completion										X						

* Denotes milestone completion

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0404102F Aerospace Rescue And Recovery PROJECT 1325

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Avionics Upgrade				
(U) Systems Engineering	950	0		
(U) Program Management Support	450	0		
(U) Configuration Management	235	0		
(U) Technical Data	235	0		
(U) Integrated Logistics Support	350	0		
(U) Operational Test & Evaluation	0	1,345		
(U) Travel	30	0		
(U) Integration of Infrared Countermeasures (IRCM) and Missile Warning Receiver (MWR)				
(U) System Engineering	950	0		
(U) Program Management Support	688	0		
(U) Configuration Management	235	0		
(U) Technical Data	235	0		
(U) Integrated Logistics Support	700	0		
(U) Operational Test & Evaluation	0	1,820		
(U) Travel	39	0		
(U) Total	5,097	3,165		

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0404102F Aerospace Rescue And Recovery PROJECT 1325

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Contract Winner	SS/C	9/96	N/A	N/A	0	5,037	0	0	0	0	5,037
Support and Management Organizations											
WR-ALC/LU	Allot	1/96	N/A	N/A	0	60	40	0	0	0	100
Test and Evaluation Organizations											
ACC & AFOTEC	PO	3/97	N/A	N/A	0	0	3,125	0	0	0	3,125

Government Furnished Property: Not Applicable

Subtotal Product Development	5,037	0	5,037
Subtotal Support and Management	60	40	100
Subtotal Test and Evaluation	0	3,125	3,125
Total Project	5,097	3,165	8,262

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0603852F C-130J Dem/Val

PROJECT: 4025

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4025 C-130J Dem/Val	0	0	3,968	0	0	0	0	0	0	8,800
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. **Mission Description and Budget Item Justification**

The C-130J is the next generation C-130. The weapon system incorporates a redesigned, 2-crewmember flight station, a modern technology propulsion system, and an integrated digital avionics subsystem. The program modernizes the fleet of Weather Reconnaissance (WC-130), Special/Psychological (EC-130), and Airborne Battlefield Command and Control Center (ABCCC) aircraft. Additionally, this program continues a theater airlift modernization effort to replace aging C-130E/Hs. This program is in budget activity 7 - Operational System Development, Research Category 6.6 because this effort conducts Live Fire Test (LFT) and the military utility testing of an Air Force unique system. USAF has concluded a vulnerability assessment that shows no significant difference in vulnerability between "H" and "J" model aircraft. However, USAF will conduct a vulnerability reduction program to explore the potential to further reduce the chance of wing leading edge and dry bay fires (applicable to the entire C-130 fleet) and to test the new six-bladed composite propeller. USAF is working with OSD to finalize the LFT approach. Military utility testing includes cargo/paratroop drop certification, airdrop/airland short field demonstration, electro-magnetic interference testing, heavy gross weight takeoff, etc. These tests will evaluate the aircraft's capability to perform its mission requirements.

Acquisition Strategy

USD (A&T) designated the C-130J program a Regulatory Pilot Program and the C-130 Contracting Officer determined the C-130J is a commercial item. Consequently, the Milestone Decision Authority (MDA) has directed the program use commercial practices and that all contract provisions, review documents, and plans be streamlined to the maximum extent possible. The MDA conducted a Commercial Acquisition Review and Approval prior to contract award. The SPO negotiated and awarded a firm fixed price (FFP) type contract with an FY96 base year and FFP options for four additional years. Contract options will provide prices for variable quantities to accommodate program, budget, and appropriation changes. The C-130 SPO will execute acquisitions of C-130J and derivative aircraft for the active Air Force, Air National Guard, Air Force Reserve, other military services, other government agencies, and selected Foreign Military sales. All US Government C-130 aircraft will be priced based on a standard USAF C-130J configuration. Unique equipment, components, or services for other customers (represented by USAF) or unique USAF mission requirements will be negotiated separately.

(U) FY 1996 ($ in Thousands):

- (U) $0
- (U) $0
- (U) $0
- (U) $0 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0603852F C-130J Dem/Val; PROJECT: 4025

(U) FY 1997 ($ in Thousands):
- (U) $0
- (U) $0
- (U) $0
- (U) $0 Total

(U) FY 1998 ($ in Thousands):
- (U) $3,968 Conduct Live Fire Component Testing as required
- (U) $
- (U) $
- (U) $3,968 Total

(U) FY 1999 ($ in Thousands):
- (U) $0
- (U) $0
- (U) $0
- (U) $0 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	0	0	0	0	0
(U) Appropriated Value	0	0	0	0	4,832*
(U) Adjustments to Appropriated Value	0	0	0	0	0
a. Cong Gen Reductions	0	0	0	0	0
b. SBIR	0	0	0	0	0
c. Omnibus or Other Above Threshold Reprogram	0	0	0	0	0
d. Below Threshold Reprogramming	0	0	0	0	0
(U) Adjustments to Budget Years Since FY 1997 PB	0	0	0	0	0
(U) Current Budget Submit/President's Budget	0	0	3,968	0	8,800

*FY95 Congressional Add

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0603852F C-130J Dem/Val

PROJECT: 4025

(U) Change Summary Explanation:

Funding: FY98 funds are designated for a Live Fire Test (LFT) program. USAF has concluded a vulnerability assessment that shows no significant difference in vulnerability between "H" and "J" model aircraft. However, USAF proposes a vulnerability reduction program to explore methods to reduce the chance of wing leading edge and dry bay fires (applicable to the entire C-130 fleet) and to test the new six-bladed composite propeller.

Schedule: NA

Technical: NA

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) APAF Budget Activity 02, Other Airlift	*106,400*	*68,815*	*50,674*	0	0	0	*171,449*	*194,164*	TBD	TBD
(Aircraft Quantity)	2	1	1	0	0	0	2	2	TBD	TBD

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Acquisition Milestones																
Contract Award - H/J Swap aircraft	X*															
Proposal Received - Follow-on Aircraft		X*														
Commercial Acq. Review & Approval				X*												
Contract Award - Follow-on Aircraft						X										
First Delivery to USAF									X							
(U) Engineering Milestones																
Rollout - First USAF Aircraft	X*															
First Flight			X*													
Vulnerability Assessment Complete				X*												
Begin Live Fire Test											X					
Complete Live Fire Test												X				

* Denotes milestone completion

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0603852F C-130J Dem/Val

PROJECT: 4025

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Live Fire Component Testing (as required)	0	0	3,968	0
(U) Total	0	0	3,968	0

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Lockheed Martin	NA	NA			NA						
Support and Management Organizations											
SPO	PO	Oct 95			250			250			500
Test and Evaluation Organizations											
AFFTC	PO	Oct 95			4,880						4,880
TBD								3,718			3,718

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0603852F C-130J Dem/Val	PROJECT 4025

(U) B. Budget Acquisition History and Planning Information Continued ($ in Thousands)

Government Furnished Property:

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Property										
N/A										
Support and Management Property										
N/A										
Test and Evaluation Property										
N/A										
Subtotal Product Development										
Subtotal Support and Management										
Subtotal Test and Evaluation										
Total Project										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0702207F Depot Maintenance (Non-If)

PROJECT: 3326

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
3326 Precision Measurement & Calibration	1,414	1,377	1,482	1,530	1,566	1,602	1,629	1,667	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. **Mission Description and Budget Item Justification**

This program is in budget activity 7 - Operational System Development, Research Category 6.6 because it supports operational systems. This program develops, tests, and evaluates national and Air Force measurement standards and calibration equipment in support of all Air Force programs and activities, including over 120 base Precision Measurement Equipment Laboratories (PMELs) worldwide. Metrology research and development provides technology to support systems in all phases of development and acquisition, as well as Air Force R&D laboratories, test ranges, ground test facilities, and operational weapons systems support. Rapidly changing technology requires continuing research and development of measurement standards and calibration equipment to ensure modern weapon systems meet Air Force readiness objectives. This program addresses all metrology disciplines and includes the technology areas of laser, infrared, microwave, millimeter wave, mechanical, electrical, electronic, and ionizing radiation measurements.

Metrology is a technical discipline devoted to the science of measurements and to the study and improvement of measurement technology. Measurements are the foundation of military system development, quality assurance, hardware conformance testing and system readiness tests. The integrity of these tests is assured through calibration and traceability assurance schemes. The capability to measure and calibrate must parallel the emergence of new technology, new ranges, and new capabilities of military systems. Lack of new measurement capability impedes or blocks the successful exploitation of new technologies, especially in the movement from development laboratory to production to deployment. R&D efforts are essential within the DoD to pace these requirements, otherwise, these same new systems will suffer time delays, excessive cost, and increased risk due to unreliable test results in all phases of development, production, deployment and operation.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0702207F Depot Maintenance (Non-If)
	PROJECT 3326

(U) FY 1996 ($ in Thousands):

- (U) $125 Completed development of IR transmittance standards for IR weapon systems.
- (U) $380 Continued development of pyroelectric radiometer standard and visible/IR detector standards for electro-optical weapon systems and radiometer system calibration methods.
- (U) $280 Continued development of microwave standards for noise figure measurements and improvement of accuracy and NIST traceability for Air Force radar cross-section test range measurements of low observable aircraft.
- (U) $230 Continued development of power standards for microwave communication and radar systems.
- (U) $205 Completed development of efficient calibration methodologies for coordinate measuring machines (CMMs) used for measuring size and shape of aircraft components, and continued identification and improvement of CMM measurement uncertainties.
- (U) $145 Completed development of DC voltage standards and continued to develop standards and measurement methods for the calibration of high accuracy electronic test equipment.
- (U) $49 Continued to develop national standards and NIST traceability for calibration of ionizing radiation hazard instrumentation.
- (U) $1414 Total

(U) FY 1997 ($ in Thousands):

- (U) $620 Complete development of radiance and irradiance detector standards and pyroelectric radiometer standard and continue development of national measurement standards to support Air Force infrared / laser / electro-optical weapon systems and support equipment.
- (U) $391 Continue development of microwave standards for noise figure measurements, radar cross-section test range measurements, and high power standards to support radar and RF communication systems.
- (U) $191 Continue identification / improvement of measurement uncertainty of CMMs used for dimensional measurements of aircraft components and begin calibration studies of micro-machined pressure transducers used in aircraft engines.
- (U) $132 Continue development of national standards for electrical resistance and high speed pulse measurements to support high accuracy electronic test equipment.
- (U) $43 Continue to develop national standards and NIST traceablility for calibration of ionizing radiation hazard instrumentation.
- (U) $1377 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0702207F Depot Maintenance (Non-If) / PROJECT: 3326

(U) FY 1998 ($ in Thousands):

- (U) $663 Complete development of improved blackbody calibrator for AF standards lab and continue development of national measurement standards to support Air Force infrared / laser / electro-optical weapon systems and support equipment.
- (U) $399 Complete high power standards and continue development of microwave standards for noise figure measurements and radar cross-section test range measurements to support radar and RF communication systems.
- (U) $204 Continue development of improved CMM measurement uncertainty and develop standards to calibrate micro-machined pressure transducers used in aircraft engines.
- (U) $164 Complete development of natioanal standards for electrical resistance and continue development of high speed pulse measurements to support high accuracy electronic test equipment.
- (U) $52 Continue to develop national standards and NIST traceablility for calibration of ionizing radiation hazard instrumentation.
- (U) $1482 Total

(U) FY 1999 ($ in Thousands):

- (U) $674 Continue development of national measurement standards to support infrared / laser / electro-optical weapon systems and support equipment.
- (U) $403 Complete high power microwave standards and continue development of standards for radar support, RF communications systems, and radar cross-section range measurements.
- (U) $204 Continue devlopment of improved calibration support for CMMs and for micro-machined pressure transducers used in aircraft engines.
- (U) $199 Continue development of standards for electrical measurements to support high accuracy electronic test equipment.
- (U) $50 Complete development of national standards for calibration of ionizing radiation hazard instrumentation.
- (U) $1530 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0702207F Depot Maintenance (Non-If)

PROJECT: 3326

(U) **B. Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	1463	1444	1494	1543	TBD
(U) Appropriated Value	1463	1444			
(U) Adjustments to Appropriated Value					
a. Cong Reductions	-28	-30			
b. SBIR		-37			
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming			-5	-7	
e. Recissions	-21				
(U) Adjustments to Budget Years Since FY 1997 PB			-7	-6	
(U) Current Budget Submit/FY 1998 PB	1414	1377	1482	1530	

(U) Change Summary Explanation:
Funding: None
Schedule: None
Technical: None

(U) **C. Other Program Funding Summary ($ in Thousands)**

(U)	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Complete	Total Cost

(U) **D. Schedule Profile**

(U)	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0702207F Depot Maintenance (Non-If)

PROJECT: 3326

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Develop Measurement Standards & Calibration Support	1394	1356	1460	1507
(U) Travel	20	21	22	23
(U) Total	1414	1377	1482	1530

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Organizations											
National Institute of Standards & Technology	Funds Transfer (SF 1080)	1st QTR	TBD	TBD	9560	1394	1356	1460	1507	Continue	TBD
AFMC	In House	Various	TBD	TBD	77	20	21	22	23	Continue	TBD
Support and Management Organizations											
Test and Evaluation Organizations											

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0702207F Depot Maintenance (Non-If)	PROJECT 3326

(U) B. **Budget Acquisition History and Planning Information Continued ($ in Thousands)**

Government Furnished Property: N/A

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Product Development Property										
Support and Management Property										
Test and Evaluation Property										
Subtotal Product Development				9637	1414	1377	1482	1530	*Continue*	TBD
Subtotal Support and Management										
Subtotal Test and Evaluation										
Total Project				7649	1414	1377	1482	1530	Continue	TBD

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0708011F Industrial Preparedness

PROJECT: 2865

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
2865 Industrial Preparedness-Manufacturing Technology	57,040	50,632	48,429	45,923	42,749	40,455	40,194	39,856	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. **Mission Description and Budget Item Justification:** This is in Budget Activity 7 - Operational System Development, Research Category 6.6, because it provides support to systems in production and/or in operational use. The Manufacturing Technology (MANTECH) program establishes and demonstrates advancements in manufacturing process technologies, manufacturing engineering systems, and industrial practices and transitions these pervasive advancements into all design, development, acquisition, and/or sustainment programs. The program provides cost reduction processes and practices and new manufacturing capabilities applicable to existing and new programs. The program strives to make superior mission enabling technologies an affordable life cycle reality by expanding access to a capable, responsive, multi-use industrial base with efficiencies comparable to world-class enterprises. Program efforts accelerate shop floor manufacturing process maturation at every stage of development through increased emphasis on cost, time, and quality risks in transition. Best processes are evaluated and adapted for application. Where mature processes are not available, laboratory-developed initial process capabilities are matured and inserted into all programs. The MANTECH program goes beyond the factory floor manufacturing/repair processes to encompass every activity within an industrial enterprise, ranging from above the shop floor activities (including tools for integrating product process development (IPPD)) to supplier base interactions and performance. The strategies and best practices of world-class enterprises are analyzed and the performance of defense suppliers benchmarked. The world's best industrial practices are adapted and validated in multiple pilot projects and deployed in defense applications. Project efforts address and target all industry levels, from large prime contractors to small material and parts vendors. Program efforts also enhance the organic repair/remanufacture capability to affordably sustain the aging weapon systems inventory. Note: Congress added $7.6 million for the Computer-Assisted Technology Transfer (CATT) effort in FY 1996 and $3.0 million for a general program increase in FY 1997 which explains the perceived decrease in FY 1997 and out.

(U) FY 1996 ($ in Thousands):

- (U) $15,355 Demonstrated integrated product/process development tools capable of affecting reduced cost and accelerated cycle time in the design and manufacture of defense systems. Established and demonstrated electronic data exchange concepts and tools and their applications in affecting networked enterprise relationships, product producibility, manufacturing systems interoperability, and technology affordability.
- (U) Continued effort to establish and demonstrate the methodologies and tools for the capture of tester-independent test requirements to reduce the warfighter's systems life cycle cost burden.
- (U) Continued effort to demonstrate a product definition management system which spans bills of material in multiple production environment.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997	
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0708011F Industrial Preparedness	PROJECT 2865

- (U) $8,469	Facilitated process maturation and standardization for military unique modules, sensors, arrays, solar cells, automatic test systems, and devices to enable the low-risk, affordable utilization of mission enabling technologies. Established and demonstrated process modeling and statistical process control metrics for electronics systems components, materials, test, and inspection techniques. - (U) Continued effort to establish a manufacturing process to produce affordable tactical grade fiber optic gyroscopes. - (U) Demonstrated electronic manufacturing process improvements for low-cost ferrite circulators and for maintenance-free batteries. - (U) Initiated manufacturing efforts on multi-bandgap solar cells for spacecraft to complement Phillips Laboratory development effort.
- (U) $7,793	Established and demonstrated advanced processes for metal material manufacturing. Facilitated process maturation to accelerate affordable, low-risk exploitation of mission enabling technologies. Established process control and improvement aimed at reducing product variability with special emphasis laced on process considerations in the design phase. Achieved industrial base risk reduction by promulgating critical process technologies. - (U) Established manufacturing capacity for large welded titanium assemblies for fighter aircraft. - (U) Demonstrated thin-wall casting manufacturing process for turbine engines leading to product validation.
- (U) $8,590	Established integrated process/product capabilities for the design and manufacture of mission enabling, low-cost composite structures. Facilitated process maturation to accelerate expanded composites utilization. Demonstrated in situ process control and closed-loop improvement capabilities. Achieved industrial base risk reduction by facilitating enhanced composites affordability. - (U) Demonstrated rapid manufacture of thermoplastic ramose spare parts for special purpose aircraft. - (U) Validated reproducible and affordable processes for the manufacture of multi-functional structures for fighter aircraft.
- (U) $16,833	Benchmarked world-class enterprise processes and practices aimed at identifying capabilities and/or approached for reducing cycle time and at eliminating waste and inefficiencies. Conducted pathfinder and pilot efforts in high-payoff endeavors aimed at validating potential benefits accrued from flexible manufacturing, commercial military integration, quality processing, supplier improvements, and integrated product/process development. - (U) Continued pilot efforts to demonstrate manufacture of military electronics components on a commercial line. - (U) Continued effort to implement Lean Aircraft Initiative findings in support of fighter and tactical missile Air Force needs.
- (U) $57,040	Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0708011F Industrial Preparedness PROJECT 2865

(U) FY 1997 ($ in Thousands):

- (U) $37,30 Esta Establish and demonstrate cost-effective and efficient manufacturing technologies for critical, high quality, reliable structural, propulsion, and electronic components and assemblies required for existing and next generation aircraft. Conduct pilot efforts in high-payoff endeavors aimed at validating potential benefits accrued from flexible manufacturing, commercial military integration, qual quality processing, and supplier improvements. Conduct long-term projects focused on integrated product process development (IPPD) tools.
  - (U) Initiate effort to validate revolutionary concepts for manufacture of "all composite" vehicles at cost of 50% of alternate structures.
  (U) - (U) Continue effort to reduce investment casting manufacturing costs by 50%, focusing on the gas turbine engine supplier base.
  - (U) Complete effort for affordable production of multifunctional radomes for fighters, achieving a 30% manufacturing cost reduction.
  - (U) Establish the capability to reproducibly fabricate affordable, high performance rugate coatings for optical components.
- (U) $6,130 Esta Establish and demonstrate cost-effective repair and remanufacturing technologies to affordably sustain existing weapon systems and to enhance mission readiness. Reduce repair and maintenance cycle time for aging systems and establish remanufacturing capabilities able to rapidly generate standardized replacement parts on demand.
  - (U) Complete effort to provide Air Logistics Centers (ALCs) with the tools needed to prepare spare parts procurement packages.
  - (U) Establish metal forming simulation remanufacturing processes for logistics centers to generate standardized replacement structures.
  - (U) Continue lean sustainment effort to transform the aerospace depot maintenance support infrastructure into a world class enterprise.
  - (U) Complete effort to enable the ALCs to efficiently design and develop a composite secondary structure by providing an automated drafting and analysis capability.
- (U) $4,385 Esta Establish and demonstrate efficient and cost-effective manufacturing methods for high performance, high reliability electronics, lightweight structures, and efficient propulsion methods for advanced tactical missiles. Establish manufacturing improvements required to transition precision guided munitions subsystems into production. Conduct pilot efforts in high-payoff endeavors aimed at validating potential benefits accrued from inserting best practices in production of weapon systems.
  - (U) Complete effort manufacturing processes capable of producing affordable tactical grade fiber optic gyroscopes in support of missiles.
  - (U) Initiate effort to enable the affordable manufacture of ballistic wind sensors for use in munitions targeting and/or wind shear dete detection systems.
  - (U) Continue programs to implement lean benchmark findings by demonstrating a modular factory approach to the manufacture of missile components.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0708011F Industrial Preparedness PROJECT 2865

- (U) $2,816 Esta spac elec Establish and demonstrate affordable, flexible manufacturing processes to reduce the cost and lead time of higher performance spacecraft and launch vehicles. Establish effective and efficient manufacturing technology for critical high quality, reliable electronic components and assemblies required for surveillance, tracking communications links, and data/signal processing. Conduct pilot pilot efforts in high-payoff endeavors aimed at providing an efficient, low-cost capability to produce components and weapon systems in the space, launch, and command, control, communications, and integration (C3I) industrial base sectors.
  - (U) Continue process refinement phase of effort to establish manufacturing processes for affordable power-efficient, space-qualified multi-bandgap solar cells.
  - (U) Initiate activity defining benchmarking approach for applying lean principles to space and launch industry sector.

- (U) $50,632 Total

(U) FY 1998 ($ in Thousands):

- (U) $34,589 Establish and demonstrate cost-effective manufacturing technologies for critical, high quality, reliable structural, propulsion, and electronic components and assemblies required for existing and next generation aircraft. Conduct pilot efforts in high-payoff endeavors aimed at validating potential benefits accrued from flexible manufacturing, commercial military integration, quality processing, and supplier improvements. Conduct long-term projects focused on integrated product and process development (IPPD) tools.
  - (U) Complete pilot effort to demonstrate manufacture of military electronics components on a commercial line.
  - (U) Initiate pilot effort to demonstrate manufacturing development and management of supplier processes, and to implement lean technologies in producing critical defense products.
  - (U) Complete methodology effort that will establish functional electronic specifications critical to expanded product life.
- (U) $8,596 Establish and demonstrate cost-effective repair and remanufacturing technologies to affordability sustain existing weapon systems and to enhance mission readiness. Reduce repair and maintenance cycle time for aging systems and establish remanufacturing capabilities able to rapidly generate standardized replacement parts on demand.
  - (U) Complete effort to establish and demonstrate the capability to capture electronic device test requirements independent of specific test equipment, thereby, reducing the warfighter's systems life cycle burden.
  - (U) Initiate efforts such as large area structural repair to establish process improvements for repair/remanufacture of aging aircraft.
  - (U) Initiate effort to address the issue of electronics parts obsolesence.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0708011F Industrial Preparedness
	PROJECT: 2865

- (U) $2,575 Establish and demonstrate cost-effective repair and remanufacturing technologies to affordably sustain existing weapon systems and to enhance mission readiness. Reduce repair and maintenance cycle time for aging systems and establish remanufacturing caspabilities able to rapidly generate standardized replacements parts on demand.
  - (U) Continue effort to establish large area structural repair capability for aging aircraft and to address the issue of electronics parts obsolesence.
  - (U) Continue effort on lean implementation of turbine engine blade tip repair to cut repair costs and reduce scrap by 30%.
- (U) $2,669 Establish and demonstrate affordable, flexible manufacturing processes to reduce the cost and lead time of higher performance spacecraft and launch vehicles. Establish effective and efficient manufacturing technology for critical high quality, reliable electronic components and assemblies required for surveillance, tracking communications links, and data/signal processing. Conduct pilot efforts in high-payoff endeavors aimed at providing an efficient, low-cost capability to produce components and weapon systems in the space, launch, and command, control, communications, and integration (C3I) industrial base sectors.
  - (U) Initiate process validation phase of effort to establish manufacturing processes for affordable power efficient, space-qualified multi-bandgap solar cells.
  - (U) Continue effort to infuse lean principles into the defense space industry and initiate pilot efforts on lean concepts in the space and launch industry sector.
- (U) $48,429 Total

(U) FY 1999 ($ in Thousands):

- (U) $26,377 Establish and demonstrate cost-effective and efficient manufacturing technologies for critical, high quality, reliable structural, propulsion, and electronic components and assemblies required for existing and next generation aircraft. Conduct pilot efforts in high-payoff endeavors aimed at validating potential benefits accrued from flexible manufacturing, commercial military integration, quality processing, and supplier improvements. Conduct long-term projects an integrated product and process development (IPPD) tools.
  - (U) Continue effort to reduce investment casting manufacturing costs by 50%, focusing on the gas turbine engine supplier base.
  - (U) Continue effort to validate revolutionary approaches for manufacture of "all composite" air vehicles at costs of 50% alternative structures.
  - (U) Initiate effort to improve manufacturing process understanding and reduce process variability.
  - (U) Complete Phase II of the Lean Aircraft Initiative

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0708011F Industrial Preparedness PROJECT 2865

–	(U) $10,504	Establish and demonstrate cost-effective repair and remanufacturing technologies to affordably sustain existing weapon systems and to enhance mission readiness. Reduce repair and maintenance cycle time for aging systems and establish remanufacturing capabilities able to rapidly generate standardized replacements parts on demand. - (U) Continue effort to establish large composite patch repair capability for aging aircraft. - (U) Initiate effort to address the issue of electronics parts obsolescence. - (U) Continue effort on lean implementation of turbine engine blade tip repair to cut repair costs and reduce scrap by 30%. - (U) Initiate manufacturing processing effort to improve the high cycle fatigue performance of turbine engine components.
–	(U) $3,051	Establish and demonstrate efficient and cost-effective manufacturing methods for high performance, high reliability electronics, lightweight structures, and efficient propulsion methods for advanced tactical missiles. Establish manufacturing improvements required to transition precision guided munitions subsystems into production. Conduct pilot efforts in high-payoff endeavors aimed at validating potential benefits accrued from flexible manufacturing, commercial military integration, quality processing, and supplier improvements. - (U) Continue effort to enable the affordable manufacture of ballistic wind sensor for use in munitions targeting and/or wind shear detection systems
–	(U) $5,991	Establish and demonstrate affordable, flexible manufacturing processes to reduce the cost and lead time of higher performance spacecraft and launch vehicles. Establish effective and efficient manufacturing technology for critical high quality, reliable electronic components and assemblies required for surveillance, tracking communications links, and data/signal processing. Conduct pilot efforts in high-payoff endeavors aimed at providing an efficient, low-cost capability to produce components and weapon systems in the space, launch, and command, control, communications, and integration (C3I) industrial base sectors. - (U) Complete effort to establish manufacturing processes for affordable power-efficient, space-qualified multi-bandgap solar cells. - (U) Continue Lean Space Initiative. - (U) Initiate Lean Space implementation pilots.
–	(U) $45,923	Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0708011F Industrial Preparedness	PROJECT 2865

(U) **B. Program Change Summary ($ in Thousands):**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	57,945	49,969	51,851	51,811	Cont
(U) Appropriated Value	60,932	52,969			
(U) Adjustments to Appropriated Value					
a. Congressional/General Reductions	-1,181	-1,145			
b. SBIR	-1,150	-1,143			
c. Omnibus/Other Above Threshold Reprogrammings	-1,617	-49			
d. Below Threshold Reprogrammings	+56				
(U) Adjustments to Budget Years			-3,422	-5,888	
(U) Current Budget Submit/FY 1998 PB	57,040	50,632	48,429	45,923	Cont

(U) Change Summary Explanation:

Funding: Changes since the previous President's Budget are due to budget constraints and Air Force priorities.

Schedule: Not Applicable.

Technical: Not Applicable.

(U) **C. Other Program Funding Summary:** Not Applicable.

(U) **D. Schedule Profile:** Not Applicable.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 EXHIBIT)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0708011F Industrial Preparedness PROJECT 2865

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0708026F Product/Reliable/Avail/Maintain Prog

PROJECT: 2146

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
2146 Productivity, Reliability, Availability, Maintainability (PRAM)	16,840	15,842	1,032	990	991	31,488	31,705	32,115	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description and Budget Item Justification

PRAM addresses acute reliability and maintainability (R&M) deficiencies by funding prototypes of developing and mature, commercial off-the-shelf technologies that can be incorporated into existing AF weapon systems and subsystems. The objective of this program is to emphasize the rapid incorporation of R&M technology "fixes" that will improve the operational capability of weapon systems and equipment at a significantly lower cost. Average project length is twenty-seven months. This program constitutes one of the most cost effective programs within the Air Force, with a proven return on investment for the entire program averaging 5:1. PRAM, a level-of-funding program, depends on MAJCOM and field support to implement the technology when the initial investment is completed. Listed below are projects being pursued as identified by the Air Force Materiel Command (AFMC) Technology Master Process (TMP) as they apply to the PRAM Program. The objective of the TMP is to strategically focus technology application/insertion for the Air Force's future needs. A periodic review for all projects is held to ascertain the opportunity for success of those currently underway and to select new projects. This program in budget activity 7, Operational Systems Development, because projects are being engineered for already operational weapon systems. Congress provided $3,000 thousand for Blade Tip Repair Program which is currently on withhold by OSD.

(U) FY 1996

- (U) $5,949 Continue incremental funding on Advanced Hybrid Oxygen System, Nickel-Hydrogen Battery, Reusable Software for Spacecraft, Next Generation Munitions Handler, Planar Optics Display, Digital Map System, and Fiber Optic Rate Gyro.
- (U) $400 Start Durability Patch.
- (U) $300 Start Composite Mobile Maintenance Stands.
- (U) $394 Start Solid State High Band Generator.
- (U) $700 Start Advanced Technology Anti-G Suit.
- (U) $410 Start Inflatable Overwing Fairing Seal.
- (U) $200 Start Bird Proof Canopy.
- (U) $188 Start and Complete Manufacturing Data Digitizing Process.
- (U) $500 Start and Complete Munitions Facility Siting Aid.
- (U) $1400 Start and Complete Module Bus Standardization Initiative.
- (U) $250 Start and Complete AP-101C Avionics Control Unit.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0708026F Product/Reliable/Avail/Maintain Prog
	PROJECT 2146

– (U)	$2,059	Start and Complete the following Quick Response Projects: Cable Wrap Tester, Jig Borer to Jig Grinder, Sloping Longeron, Real-Time Multiple Signal Processor, Composite Engine Cowl Doors, USM - 601, Heat Exchanger Replacement, and Robot Eyes, USM-464 and Wet Cell Battery Cart Replacement.
– (U)	$200	Complete Advanced Magnetic Azimuth Detector.
– (U)	$100	Complete Thin Dense Chrome Bearings.
– (U)	$55	Complete Compressor and Turbine Balancing.
– (U)	$400	Complete Testable and Monitorable Modular Mission Computer.
– (U)	$350	Complete Laser Ultrasonic Inspection System.
– (U)	$85	Complete Combustor Rework Cell.
– (U)	$300	Complete Joint MAJCOM Paint Project
– (U)	$700	Complete C-141 Electric Starlifter
– (U)	$1,900	Upgrade Nuclear Reactor at Sacramento Air Logistics Center (SM-ALC).
– (U)	$16,840	Total

(U) FY 1997

– (U)	$5,292	Complete activity on EVS Data Presentation Group, Advanced Hybrid Oxygen System, Next Generation Munitions Handler, Reusable Software for Spacecraft, Combination Generator Air Conditioner, Solid State High Band Generator, Fiber Optic Rate Gyro, Recore of Primary/Secondary Heat Exchanger, EXCM Bay Gasket, Low Observable Field Tester, and Module Bus Standardization Initiative.
– (U)	$498	The TMP will review needs and funding during 2nd Qtr FY96 to consider future projects. The TMP will identify potential projects with the highest payback in terms of operational capability, reliability and maintainability improvement, and cost for execution. Quick response projects will be started immediately and continuously throughout FY 97 as needs evolve.
– (U)	$1,550	Aging Aircraft Initiatives in Corrosion, Composites, and Repair.
– (U)	$300	Continue Composite Mobile Maintenance Stands.
– (U)	$500	Continue Inflatable Overwing Fairing Seals.
– (U)	$700	Continue Bird Proof Canopy.
– (U)	$50	Continue Nickel-Hydrogen Battery
– (U)	$700	Continue Durability Patch
– (U)	$2	C-141 Electric Starlifter
– (U)	$700	Planar Optics Display
– (U)	$500	Start and Complete Low Observable Field Tester
– (U)	$500	H-1 Heater Replacement Project.
– (U)	$1,000	ALR-20 Panoramic Indicator
– (U)	$450	CMBRE Tester
– (U)	$100	System 2000 Maintainer Project.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0708026F Product/Reliable/Avail/Maintain Prog — PROJECT: 2146

- (U) $3,000 Blade Tip Repair Project - Congressional Add
- (U) $15,842 Total

(U) FY 1998

- (U) $1,032 Complete activity on Durability Patch, Nickel-Hydrogen Battery, Bird Proof Canopy, Planar Optics Display, Composite Mobile Maintenance Stands, H-1 Heater Replacement Project, and Inflatable Overwing Fairing Seals.
- (U) $1,032 Total

(U) FY 1999

- (U) $990 The TMP will review needs and funding during 2nd Qtr FY98 to consider future projects. The TMP will identify potential projects with the highest payback in terms of operational capability, reliability and maintainability improvement, and cost for execution, but quick response projects will undoubtedly require the full $995 thousand of funding.
- (U) $990 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY97 President's Budget	14,290	13,564	14,240	14,899	Continuing
(U) Appropriated Value	15,865	16,564			
(U) Adjustments to Appropriated Value					
a. Cong Reductions	-308	-346	-4	-5	
b. Small Business Innovative Research		-376			
c. Omnibus/Other Above Threshold Reprogramming	-312				
d. Below Threshold Reprogramming	+1,899				
e. Rescissions	-304				
(U) Adjustments to Budget Years since FY97 PB			-13,204	-13,904	
(U) FY 1998/1999 Biennial Budget	16,840	15,842	1,032	990	Continuing

(U) Change Summary Explanation:

Funding: $1,899 thousand added in FY 96 to fund upgrade of Nuclear Reactor facility at Sacramento Air Logistics Center. FY98-99 reductions will cause postponement of projects that increase reliability and maintainability and warfighter capability. $3,000 thousand added by Congress for FY 97 work on Blade Tip Repair Project.

Schedule: None.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0708026F Product/Reliable/Avail/Maintain Prog PROJECT 2146

Technical: None.

(U) C. **Other Program Funding Summary ($ in Thousands)**
Not applicable.

(U) D. **Schedule Profile**
Not applicable.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0708611F Support Systems Development (SSD)

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	5,454	8,107	3,657	3,767	3,913	12,407	6,122	6,261	Continuing	Continuing
3090 Embedded Computer Resources Support Improvement Program (ESIP)	3,072	2,913	2,207	2,391	2,488	7,489	3,576	3,657	Continuing	Continuing
3318 Product Data Systems Modernization (PDSM)	1,923	1,933	1,450	1,376	1,425	4,918	2,546	2,604	Continuing	Continuing
3759 Air Force Support Equipment Management (AFSEM)*	459	3,261	0	0	0	0	0	0	0	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

* AFSEM program terminates at end of FY 97.

(U) A. Mission Description and Budget Item Justification

This program improves support of embedded computer system software, automates and standardizes weapon system support processes, establishes advanced support methodologies, provides automated tools and infrastructure environments, and improves readiness support to facilitate rapid software turnaround in response to changing mission and/or threat requirements. It conducts research and development to update Air Force digital data standards to commercial industry standards that support the Continuous Acquisition and Life-Cycle Support (CALS) concept. It funds the Air Force support equipment (SE) management objective to develop, support, distribute, and maintain products that improve Air Force SE acquisition. It supports the Air Force Automatic Test Systems (ATS) Product Master Plan and Air Force ATS Database to identify and evaluate all Air Force ATS for both long and short-term planning. This program is in budget activity 7 - Operational System Development, because projects are being engineered to support already operational weapon systems.

(U) Acquisition Strategy:

Not applicable. This is a mission support program.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0708611F Support Systems Development (SSD)

(U) **B. Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY97 President's Budget	5,613	5,405	5,687	5,817	Continuing
(U) Appropriated Value	5,906	8,405			
(U) Adjustments to Appropriated Value					
a. Cong Reductions	-116	-170			
b. Small Business Innovative Research	-119	-120			
c. Omnibus/Other Above Threshold Reprogramming	-59				
d. Rescissions	-158	-8			
(U) Adjustments to Budget Since FY 97 PB			-2,030	-2,050	
(U) FY 1998/1999 Biennial Budget	5,454	8,107	3,657	3,767	Continuing

(U) Change Summary Explanation:

Funding: Not applicable.

Schedule: Not applicable.

Technical: Not applicable.

(U) **C. Other Program Funding Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Other Procurement - AF (Project 3090 ESIP)	1,777	1,645	2,044	2,705	2,357	2,408	2,479	2,548	Cont	Cont
(U) O&M- AF (Project 3090, ESIP)			13,626	14,026	12,584	17,115	16,076	17,680	Cont	Cont
(U) Other Procurement - AF (IMDS)*			2,866	2,827	2,808	2,786	2,802	2,772	Cont	Cont
(U) O&M - AF (IMDS)*			970	966	1,936	2,092	1,939	2,157	Cont	Cont
Related RDT&E:										
(U) PE 0603108F, Integrated Data Systems (IDS)	14,406	17,332	19,753	19,706	20,511	37,135	20,527	20,989	Cont	Cont

* RDT&E funds located within PE 0603108F, Project 4427, Integrated Maintenance Data Systems (IMDS).

(U) **D. Schedule Profile:**

See individual projects.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0708611F Support Systems Development (SSD)

PROJECT: 3090

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
3090 Embedded Computer Resources Support Improvement Program (ESIP)	3,072	2,913	2,207	2,391	2,488	7,489	3,576	3,657	Continuing	Continuing

(U) A. Mission Description and Budget Item Justification

This project conducts research to improve support of embedded computer system software. It encompasses automation and standardization of support processes, advanced support methodologies, tools and environments, and readiness support to facilitate rapid turnaround of software in response to changing mission and/or changing threat requirements. It is in Budget Activity 7, Operational System Development, because projects are being engineered to support already operational weapon systems.

(U) FY 1996

- (U) $200 Demonstrate real-time fault tolerant software techniques.
- (U) $600 Demonstrate virtual hypermedia-based support environment.
- (U) $270 Demonstrate automated testing for Diverse Avionics Scenarios.
- (U) $700 Develop virtual simulator module switching unit.
- (U) $470 Transition radio frequency (RF) testing techniques to Air Logistics Centers (ALCs).
- (U) $270 Reengineering of JOVIAL code to well-engineered Ada..
- (U) $562 Develop Advanced Avionics Verification and Validation (AAV&V) static analysis capability
- (U) $3,072 Total

(U) FY 1997

- (U) $1,008 Test and demonstrate virtual simulator module switching unit.
- (U) $470 Develop JOVIAL prototype verification and validation system.
- (U) $270 Demonstrate AAV&V of cockpit displays.
- (U) $70 Demonstrate initial automated visualization capability.
- (U) $25 Final real-time fault-tolerant software demonstration.
- (U) $470 Enhanced Ada re-engineering demonstration
- (U) $600 Final demonstration of RF test techniques.
- (U) $2,913 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0708611F Support Systems Development (SSD)
	PROJECT 3090

(U) FY 1998

- (U) $200 Advanced Avionics Verification and Validation (AAV&V).
- (U) $200 Automated Operational Flight Program (OFP) Validation (AutoVal).
- (U) $350 Incremental Software Evolution for Real-Time (INSERT).
- (U) $300 Legacy Software Re-Engineering Technology (LSRET).
- (U) $1,157 Virtual Test Station.
- (U) $2,207 Total

(U) FY 1999

- (U) $300 Automated OFP Validation (AutoVal).
- (U) $350 Incremental Software Evolution for Real-Time (INSERT).
- (U) $250 Legacy Software Re-Engineering Technology (LSRET).
- (U) $1,165 Virtual Test Station.
- (U) $326 Future Embedded Computer Systems Support Technologies (FEST)
- (U) $2,391 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY97 President's Budget	3,106	2,975	3,226	3,413	Continuing
(U) Appropriated Value	3,268	2,975			
(U) Adjustments to Appropriated Value					
a. Cong Reductions	-64	-59			
b. Small Business Innovative Research	-65				
c. Omnibus/Other Above Threshold Reprogramming	-35				
d. Rescissions	-32	-3			
(U) Adjustments to Budget Since FY97 PB			-1,019	-1,022	
(U) FY 1998/1999 Biennial Budget	3,072	2,913	2,207	2,391	Continuing

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0708611F Support Systems Development (SSD)
	PROJECT 3090

(U) Change Summary Explanation:

Funding: Not applicable

Schedule: Not applicable.

Technical: Not applicable.

(U) C. Other Program Funding Summary ($ in Thousands):

See page 2, C., Other Program Funding Summary.

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Demonstrate real-time fault tolerant software techniques.	X					X										
(U) Demonstrate virtual hypermedia-based support environment.	X															
(U) Demonstrate automated testing for diverse avionics scenarios.	X															
(U) Develop virtual simulator module switching unit.		X			X											
(U) RF testing techniques.		X						X								
(U) Enhanced Ada re-engineering demonstration.			X					X								
(U) Advanced Avionics Verification and Validation (AAV&V).				X			X			X						
(U) JOVIAL prototype verification and validation system.					X											
(U) Demonstrate automated visualization capability.						X										
(U) Automated OFP Validation (AutoVal)									X				X			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0708611F Support Systems Development (SSD)

PROJECT: 3090

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Incremental Software Evolution for Real-Time (INSERT).										X				X		
(U) Legacy Software Re-Engineering Technology (LSRET).											X				X	
(U) Virtual Test Station.											X				X	
(U) Future Embedded Computer Systems Support Technologies (FEST)													X			

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0708611F Support Systems Development (SSD)
	PROJECT 3090

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Demonstrate real-time fault tolerant software techniques.	200	25		
(U) Demonstrate virtual hypermedia-based support environment.	600			
(U) Demonstrate automated testing for diverse avionics scenarios.	270			
(U) Develop virtual simulator module switching unit.	700	1,008		
(U) RF testing techniques.	470	600		
(U) Enhanced Ada re-engineering demonstration.	270	470		
(U) Advanced Avionics Verification and Validation (AAV&V).	562	270	200	
(U) JOVIAL prototype verification and validation system.		470		
(U) Demonstrate automated visualization capability.		70		
(U) Automated OFP Validation (AutoVal)			200	300
(U) Incremental Software Evolution for Real-Time (INSERT).			350	350
(U) Legacy Software Re-Engineering Technology (LSRET).			300	250
(U) Virtual Test Station.			1,157	1,165
(U) Future Embedded Computer Systems Support Technologies (FEST)				326
(U) Total	3,072	2,913	2,207	2,391

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**

Not applicable

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0708611F Support Systems Development (SSD)

PROJECT: 3318

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
3318 Product Data Systems Modernization (PDSM)	1,923	1,933	1,450	1,376	1,425	4,918	2,546	2,604	Continuing	Continuing

(U) A. **Mission Description and Budget Item Justification**

This project implements digital product data management within the Air Force Integrated Weapon System Management infrastructure and ensures uninterrupted transition of functional capabilities of legacy systems to the new joint systems. It is Budget Activity 7, Operational System Development because activities support development and implementation of common information system programs.

(U) FY 1996

- (U) $474 Manage AF technical data activities.
- (U) $242 Plan/participate/activate AF JEDMICS (Joint Engineering Data Management Information and Control System) sites.
- (U) $170 Complete digital data templates for use in JCALS (Joint Computer-Aided Acquisition and Logistics Support) DT&E/IOT&E).
- (U) $507 Plan/participate in JCALS to ensure AF requirements and schedules are met.
- (U) $302 Begin to activate AF JCALS sites to ensure timely and accurate data is available and useable.
- (U) $170 Test digital data specifications/standards and represent AF at international standards activities.
- (U) $58 Provide direct support to weapon systems, Logistics and Product Centers, and Major Commands (MAJCOMs).
- (U) $1,923 Total

(U) FY 1997

- (U) $300 Manage AF technical data activities.
- (U) $265 Plan/participate/activate JEDMICS sites.
- (U) $206 Develop and maintain digital data templates for new acquisition technical orders.
- (U) $420 Plan/participate in JCALS to ensure AF requirements and schedules are met.
- (U) $474 Activate AF JCALS sites to ensure timely and accurate data is available and useable.
- (U) $208 Test digital data specifications/standards and represent AF at international standards activities.
- (U) $60 Provide direct support to weapon systems, Logistics and Product Centers, and MAJCOMs.
- (U) $1,933 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE: February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0708611F Support Systems Development (SSD) / PROJECT: 3318

(U) FY 1998

–	(U)	$232	Manage AF technical data activities.
–	(U)	$89	Plan/participate/activate/sustain JEDMICS.
–	(U)	$179	Develop and maintain digital data templates for new acquisition technical orders.
–	(U)	$242	Plan/participate in JCALS to ensure AF requirements are met.
–	(U)	$470	Activate AF JCALS sites to ensure timely and accurate data is available and useable.
–	(U)	$179	Test digital data specifications/standards and represent AF at international standards activities.
–	(U)	$59	Provide direct support to weapon systems, Logistics and Product Centers, and MAJCOMs.
–	(U)	$1,450	Total

(U) FY 1999

–	(U)	$220	Manage AF technical data activities.
–	(U)	$85	Sustain JEDMICS.
–	(U)	$170	Develop and maintain digital data templates for new acquisition technical orders.
–	(U)	$230	Plan/participate in JCALS to ensure AF requirements are met.
–	(U)	$451	Activate AF JCALS sites to ensure timely and accurate data is available and useable.
–	(U)	$170	Test digital data specifications/standards and represent AF at international standards activities.
–	(U)	$50	Provide direct support to weapon systems, Logistics and Product Centers, and MAJCOMs.
–	(U)	$1,376	Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0708611F Support Systems Development (SSD)

PROJECT: 3318

(U) B. **Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY97 President's Budget	2,044	1,974	1,972	1,889	Continuing
(U) Appropriated Value	2,149	1,974			
(U) Adjustments to Appropriated Value					
a. Cong Reductions	-42	-39			
b. Small Business Innovative Research	-43				
c. Omnibus/Other Above Threshold Reprogramming	-20				
d. Rescissions	-121	-2			
(U) Adjustments to Budget Since FY 1997 PB			-522	-513	
(U) FY 1998/1999 Biennial Budget	1,923	1,933	1,450	1,376	Continuing

(U) Change Summary Explanation:

Funding: Not applicable

Schedule: Not applicable.

Technical: Not applicable.

(U) C. **Other Program Funding Summary ($ in Thousands)**

Not applicable

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0708611F Support Systems Development (SSD)
	PROJECT 3318

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Testing digital data specifications/ standards and represent AF at international standards activities. (On-going)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	---->
(U) Management of AF technical data activities. (On-going)	X	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	---->
(U) Plan/participate/activate AF JEDMICS sites. (On-going)	X	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	---->
(U) Plan/participate in JCALS.	X	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	---->
(U) Provide direct support to weapon systems, Logistics and Product Centers, and MAJCOMs. (On-going)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	---->
(U) Develop digital data templates for use in JCALS DT&E/IOT&E.				X												
(U) Begin to activate JCALS sites.		X														
(U) Develop digital data templates for new acquisition technical orders. (On-going)					X	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	---->

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0708611F Support Systems Development (SSD)
	PROJECT 3318

(U) A. Project Cost Breakdown ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Manage AF technical data activities.	474	300	232	220
(U Plan/participate/activate JEDMICS sites.	242	265	89	85
(U) Test digital data specifications/standards and represent AF at international standards activities.	170	208	179	170
(U) Complete digital data templates for use in JCALS DT&E/IOT&E.	170			
(U) Develop and maintain digital data templates for new acquisition technical orders		206	179	170
(U *Plan/participate in JCALS to ensure AF requirements and* schedules are met.	*507*	420	242	230
(U) Activate AF JCALS sites to ensure timely and accurate data is available and useable.	302	474	470	451
(U) Provide direct support to weapon systems, Logistics and Product Centers, and Major Commands (MAJCOMs).	58	60	59	50
(U) Total	1,923	1,933	1,450	1,376

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)
Not applicable.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0708611F Support Systems Development (SSD)

PROJECT: 3759

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
3759 Air Force Support Equipment Management (AFSEM)*	459	3,261	0	0	0	0	0	0	0	Continuing

* AFSEM program terminates at end of FY 97.

(U) A. Mission Description and Budget Item Justification

This program is Budget Activity 7, Operational System Development, because projects are being engineered to support already operational weapon systems. The Automatic Test Systems (ATS) Product Group Manager (PGM) Product Master Plan (PMP) and ATS Database development effort is designed to give the ATS Product Group Manager (PGM) the tools to track and plan Air Force ATS direction. The PMP will support standardization and ATS PGM long-term planning by capturing essential data on all Air Force ATS. The Database will include all ATS identified in the PMP and be used to interface with Integrated Weapon System Master Plans. The ATS Database will also include the ATS Tracking Requirements Database. It will provide ATS users and managers the capability to determine existing ATS inventory and ATS developments. The ATS Database will be made available remotely to ATS PGM customers via Ethernet Local Area Network and be accessible on the World Wide Web. The follow-on effort to use the developed ATS Product Master Plan and ATS Database tools require specialized studies focusing on targeted ATS product lines to achieve ATS standardization and common support equipment goals. The ATS Standardization effort will accomplish analyses, development and/or acquisition plans for standardized ATS and ATS software to satisfy replacement requirements for aging/unsupportable Depot and intermediate avionics ATS, and include expansion capabilities for the addition of new weapon system requirements. Accomplishment of up-front ATS requirements analyses with a goal to provide improved logistics support for multiple weapon systems, while downsizing the Air Force ATS inventory, will ensure Air Force and DoD goals are met.

(U) FY 1996

- (U) 433 Develop detailed Product Line Master Plans.
- (U) 20 Update ATS Database.
- (U) 5 Maintain ATS Database software.
- (U) 1 Program Management Support.
- (U) 459 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0708611F Support Systems Development (SSD)
	PROJECT 3759

(U) FY 1997

- (U) 235 Develop detailed Product Line Master Plans.
- (U) 20 Update ATS Database.
- (U) 5 Maintain ATS Database software.
- (U) 1 Program Management Support.
- (U) 3,000 SPARES Project - Congressional add
- (U) 3,261 Total

(U) FY 1998

Not applicable. Program terminated.

(U) FY 1999

Not applicable. Program terminated.

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY97 President's Budget	463	456	489	515	TBD
(U) Appropriated Value	489	3,456			
(U) Adjustments to Appropriated Value					
a. Cong Reductions	-10	-69			
b. Small Business Innovative Research	-11	-120			
c. Omnibus/Other Above Threshold Reprogramming	-5				
d. Below Threshold Reprogramming		-3			
e. Rescissions	-4	-3			
(U) Adjustments to Budget Since FY 1997 PB			-489	-515	
(U) FY 1998/1999 Biennial Budget	459	3,261	0	0	TBD

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0708611F Support Systems Development (SSD)
	PROJECT 3759

(U) Change Summary Explanation:

Funding: AFSEM efforts terminate at end of FY97.

Schedule: Not applicable.

Technical: Elimination of AFSEM funding will limit the ability of the ATS PGM to track and plan ATS development efficiently.

(U) C. Other Program Funding Summary ($ in Thousands)

Not applicable.

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Program Management support	X---	-----	-----	-----	-----	-----	-----	---X								
(U) Update ATS Database	X---	-----	-----	-----	-----	-----	-----	---X								
(U) Maintain ATS Database software	X---	-----	-----	-----	-----	-----	-----	---X								
(U) Develop detailed Product Line Master Plans (Continue)	X---	-----	-----	-----	-----	-----	-----	---X								
(U) Upgrade Database hardware and software.			X													

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0708611F Support Systems Development (SSD)
	PROJECT 3759

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998*	FY 1999*
(U) Develop Product Line Master Plan	433	235		
(U) Update ATS Database	20	20		
(U) Maintain ATS database software	5	5		
(U) Program Management Support	1	1		
(U) SPARES		3,000		
(U) Total	459	3,261		

* AFSEM efforts will terminate at end of FY97.

(U) B. **Budget Acquisition History and Planning Information ($ in Thousands)**
Not applicable.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0804734F Crypto/Sigint Related Skill Tng

PROJECT: 1005

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
1005 SENTINEL BRIGHT PHASE II/SENTINEL II	1,009	1,781	1,427	0	0	0	0	0	4,342	7,668
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. **Mission Description and Budget Item Justification:** Provides funding required for the SENTINEL II (SII) Integration Program which is designed to complete the software development begun under SENTINEL II BRIGHT II (SBII) and to automate and integrate the commercial off-the-shelf hardware and software purchased for SBII and SENTINEL ASPEN II (SAII) systems. SBII supports cryptologic analysts and maintenance personnel; SAII supports general military personnel. This program parallels the fielding of modernized operational intelligence systems and corrects long-standing deficiencies in training "mission ready" intelligence professionals. System Development will be completed in FY98.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE: February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0804734F Crypto/Sigint Related Skill Tng — PROJECT: 1005

(U) FY 1996 ($ in Thousands):
- (U) $266 SENTINEL II Contract
- (U) $500 Courseware Development
- (U) $243 Program Office
- (U) $1,009 Total

(U) FY 1997 ($ in Thousands) :
- (U) $1,282 SENTINEL II Contract
- (U) $369 Courseware Development
- (U) $130 Program Office
- (U) $1,781 Total

(U) FY 1998 ($ in Thousands):
- (U) $816 SENTINEL II Contract
- (U) $477 Courseware Development
- (U) $134 Program Office
- (U) $1,427 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0804734F Crypto/Sigint Related Skill Tng	PROJECT 1005

(U) **B. Program Change Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	1,139	1,954	1,438	0	7,900
(U) Appropriated Value	1,139	1,887			
(U) Adjustments to Appropriated Value					
a. Cong Gen Reductions	-94	-65			
b. SBIR	-19	-41			
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming	-17				
(U) Adjustments to Budget Years Since FY 1997 PB			-11		
(U) Current Budget Submit/President's Budget	1,009	1,781	1,427	0	7,668

(U) Change Summary Explanation:

Funding: Changes due to Congressional reductions and budget constraints

Schedule:

Technical:

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0804734F Crypto/Sigint Related Skill Tng
	PROJECT 1005

(U) C. **Other Program Funding Summary ($000 in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U)RDT&E in PE 35885G, Tactical Crypto Program (National Security Agency)	2,567	0	0	0	0	0	0	0	2,567	6,723

(U) D. **Schedule Profile**

Not Applicable

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0804734F Crypto/Sigint Related Skill Tng PROJECT 1005

(U) A. **Project Cost Breakdown ($000 in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) Software Development	266	1,282	816	0
(U) System Engineering Development	500	369	477	
(U) Configuration Management	065	0	0	
(U) Travel	030	40	50	
(U) Program Office Support	148	90	084	
(U) Total	1,009	1,781	1,427	0

(U) B. **Budget Acquisition History and Planning Information ($000 in Thousands)**

Performing Organizations

Contractor or Government Performing Activity	Contract Method / Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to PY	PY	CY	BY1	BY2	To Complete	Total Program
E-Systems F19628-93-C0042	CPAF	Mar 93	TBD	2,098	1,768	266	1,282	816	0	0	4,132
ESC - Hanscom Courseware Dev	N/A	N/A	TBD	846	1,237	500	369	477	0	0	2,583
Program Office Sup	N/A	N/A	TBD	264	321	243	130	134	0	0	828
Total				3,208	3,326	1,009	1,781	1,427	0	0	7,543

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0901218F Civilian Compensation Program

PROJECT: 4139

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
4139 Civilian Compensation Program	6,024	5,793	6,497	6,756	6,973	7,210	7,019	7,149	0	0

(U) A. **Mission Description and Budget Item Justification**

This program element provides for payment of civilian compensation benefits for disability due to personal injury sustained while in the performance of duty or due to employment-related disease according to the Federal Employees Compensation Act (FECA) under Title 5 U.S.C., Chapter 81. The Department of Labor (DOL) administers this program and charges the Department of the Air Force for its employee costs; therefore, this is a MUST PAY bill for Air Force. The PE excludes manpower authorizations and costs.

(U) FY 1996 ($ in Thousands):
- (U) $6,024 Funded and paid disability compensation of personnel assigned to RDT&E activities for injuries and/or illnesses in the performance of duties or due to employment-related disease.
- (U) $6,024 Total

(U) FY 1997 ($ in Thousands):
- (U) $6,260 Required to continue a program to compensate employees assigned to RDT&E facilities for worked-related injury or disease.
- (U) $6,260* Total (Actual AF bill)

(U) FY 1998 ($ in Thousands):
- (U) $6,497 Required to continue a program to compensate employees assigned to RDT&E facilities for worked-related injury or disease
- (U) $6,497 Total

(U) FY 1999 ($ in Thousands):
- (U) $6,756 Required to continue a program to compensate employees assigned to RDT&E facilities for worked-related injury or disease
- (U) $6,756 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0901218F Civilian Compensation Program	PROJECT 4139

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) Previous President's Budget	6,024	5,917	6,146	6,401	
(U) Appropriated Value					
(U) Adjustments to Appropriated Value					
a. Cong Gen Reductions		-124			
b. SBIR					
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogramming					
e. Recission					
(U) Adjustments to Budget Years Since FY 1997 PB		+343	+351	+355	
(U) Current Budget Submit/98 PB		6,260	6,497	6,756	

(U) Change Summary Explanation:

Funding: Increases in FY97 (343), FY98 (351), and FY99 (355) for civilian injury and unemployment compensation costs are due to medical inflation increases and Consumer Price Index (CPI) increases. This information was provided by the Department of Labor (DOL) based on their analysis of FY 96 Federal Employees Compensation Act (FECA) Chargeback costs. DOL administers this program and charges the Air Force for its employee's compensation costs; therefore, both programs are MUST PAY bills mandated by law (5 USC, Chapter 81). DOL bills the Air Force two years after they make the payments for civilian injury compensation benefits, e.g. FY94 bill due in FY 96.

Schedule:

Technical:

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0901218F Civilian Compensation Program PROJECT 4139

(U) C. **Other Program Funding Summary ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
(U) Operation and Maintenance	23,814	21,283	21,562	22,355	22,679	23,528	25,245	25,759		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: A1001018F NATO JSTARS

PROJECT: Project

COST ($ In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
NATO JSTARS	4,281*	6,300*	36,061	97,607	0	0	0	0	0	0
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) *NOTE: Funds have been reclassified from PE 64770 into PE A1018F in support of the on-going NATO AGS effort.

(U) **A. Mission Description and Budget Item Justification**

NATO initiated the Alliance Ground Surveillance (AGS) program to provide NATO commanders near-real time surveillance and targeting information on moving and stationary ground targets (growth to maritime operations), slow moving rotary and fixed wing aircraft, and rotating antennas from an airborne platforms. To meet these needs, the US proposed the modification and enhancement of the US Joint Surveillance Target Attack Radar System (Joint STARS). The Air Force and Army effort currently define an AGS system within the NATO architecture based on JSTARS and the Common Ground Station (CGS). The Air Force is lead service. A NATO AGS system based on Joint STARS and the CGS will be capable of providing target information for pairing direct attack aircraft and standoff weapons against selected targets. The system will be capable of being cued by other reconnaissance, surveillance, and target acquisition systems; able to respond rapidly to worldwide contingencies; and provide surveillance and attack information in near-all-weather conditions. This information would enable operational and tactical commanders to make and execute battle decisions. The operational utility of the system was effectively demonstrated by the outstanding performance of the two developmental aircraft in support of combat operations during Desert Storm and Bosnia.

*NOTE: Funds were identified in PE 64770 BES submission to support the NATO AGS effort. These funds did not transfer with the establishment of the new NATO Joint STARS PE (A1018F). Funds have been reclassified from PE 64770 into PE A1018F in support of the ongoing NATO AGS effort.

(U) FY 1996 ($ in Thousands)
- (U) $2,978 Phase II/III NATO Study
- (U) $63 Embryonic Program Office
- (U) $1,240 Other Government Costs (ESC/JPO Support)
- (U) $4,281 Total

(U) FY 1997 ($ in Thousand)
- (U) $3,782 Phase IV NATO Study
- (U) $50 Provisional Program Office
- (U) $2,468 Other Government Costs (SAF/ESC/JPO Support)
- (U) $6,300 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE A1001018F NATO JSTARS
PROJECT NO. AND NAME 0002 NATO JSTARS	PROJECT Project

(U) FY 1998 ($ in Thousands)
- (U) $29,161 Phase I EMD
- (U) $6,900 Other Government Costs (JPO Support, PPO, GFE, etc.)
- (U) $36,061 Total

(U) FY 1999 ($ in Thousands)
- (U) $4,638 Continue Phase I EMD
- (U) $92,969 Phase II EMD
- (U) $97,607 Total

(U) B. Program Change Summary ($ in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999	Total Cost
(U) FY97 President's Budget	4,500*	6,300*	0	0	TBD
(U) Appropriated Value	4,500				
(U) Adjustments to Appropriated Value					
a. Cong Gen Reductions					
b. SBIR	190				
c. Omnibus or Other Above Threshold Reprogram	29				
(U) Adjustments to Budget Years Since FY 1997 PB			36,061	97,607	
(U) FY 1998/1999 Biennial Budget	4,281	6,300	36,061	97,607	TBD

(U) Change Summary Explanation:

(U) Funding: * FY96 and FY97 Appropriations Acts provided $4.5 Million and $6.3 Million to Joint STARS, PE 64770, in support of the initial NATO AGS effort. Funds have been reclassified from PE 64770F into A1018F.
(U) Schedule: None
(U) Technical: None

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE A1001018F NATO JSTARS PROJECT Project

(U) C. Other Program Funding Summary ($ in Thousands)

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
(U) Aircraft Procurement, BA 7, P-1 70, Misc. Production Charges					94,000	TBD	TBD	TBD	TBD

(U) D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) CNAD Production Decision									*							
(U) Complete NATO Architecture Definition										*						
(U) Phase I EMD Start										*						
(U) Phase II EMD/Production Start														*		
(U) Complete Subsystem Integration of Minimum Interoperability Mods															*	
(U) Prototype Flight of NATO Mods																*

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE: February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: A1001018F NATO JSTARS	PROJECT: Project

(U) A. **Project Cost Breakdown ($ in Thousands)**

	FY 1996	FY 1997	FY 1998	FY 1999
(U) NATO Studies	2,978	3,782	0	0
(U) EMD (Phase I)			29,161	4,638
(U) EMD (Phase II)				92,969
(U) Other Government Costs	1,303	2,518	6,900	
(U) Total	4,281	6,300	36,061	97,607

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE A1001018F NATO JSTARS	PROJECT Project

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Northrop Grumman	F19628-94-C-0040	Oct/Dec 95			1,890						1,737
Northrop Grumman	F19628-94-C-0040	Apr 96				2,478					2,478
Rome Labs	F30602095-D-0059	Sep 96				485					485
Northrop Grumman	F19628-94-C-0040	Jan 97					3,782				3,782
Northrop Grumman	TBD	Jan 98						29,161	4,638	TBD	TBD
Northrop Grumman	TBD	Jan 99							92,969	TBD	TBD
Product Development Organizations											
ESC								6,900			
Support and Management Organizations											
MITRE	F19628-94-C-0001	Oct 94/ Jun 96			0	518	739	TBD	0	TBD	TBD
TEMS	Various Contracts	Mar - May 96			0	476	628	TBD	0	YBD	TBD
Miscellaneous	Various Contracts				0	324	1,151	TBD	0	TBD	TBD

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: A1001018F NATO JSTARS

PROJECT: Project

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	Budget FY 1996	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
Northrop Grumman	F19628-94-C-0040	Oct/Dec 95			1,890						1,737
Northrop Grumman	F19628-94-C-0040	Apr 96				2,478					2,478
Rome Labs	F30602095-D-0059	Sep 96				485					485
Northrop Grumman	F19628-94-C-0040	Jan 97					3,782				3,782
Northrop Grumman	TBD	Jan 98						29,161	4,638	TBD	TBD
Northrop Grumman	TBD	Jan 99							92,969	TBD	TBD
Total Project					1,890	4,281	6,300	36,061	97,607	TBD	TBD