

UNCLASSIFIED

**DEPARTMENT OF THE AIR FORCE
RDT&E DESCRIPTIVE SUMMARIES FOR**

FY 2001 PRESIDENT'S BUDGET

VOLUME IIB



FEBRUARY 2000

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Endurance Unmanned Aerial Vehicles	0305205F	1,427
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Specialized Undergraduate Pilot Training	0604233F	659
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Tactical AIM Missiles	0207161F	1,087
Tactical Terminals	0305158F	1,381
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Threat Simulator Development	0604256F	913
Titan Space Launch Vehicles	0305144F	1,375
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Weather Systems Technology	0603707F	353
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**Fiscal Year 2001 Budget Estimate Submission
RDT&E Descriptive Summaries, Volume II
February 2000**

INTRODUCTION AND EXPLANATION OF CONTENTS

1. (U) GENERAL. This document has been prepared to provide information on the United States Air Force (USAF) Research, Development, Test and Evaluation (RDT&E) program elements and projects in the FY2001 President's Budget Submission (PB). All formats in this document are in accordance with the guidelines of the DoD Financial Management Regulation, Volume 2B, Chapter 5 with the exception of the R-3 exhibit. The Air Force could not support the format matrix because our programs do not track their programs in the manner required to complete the exhibit.

- a. Contents: Exhibits R-2, R-2a and R-3 provide narrative information for all RDT&E program elements and projects within the USAF FY 2001 RDT&E program except the classified program elements. The formats and contents of this document are in accordance with the guidelines and requirement of the Congressional committees insofar as possible. The F-22 "P-5" budget exhibit directed by the Authorization Conference Report number 106-371 has been inserted behind the R-3 exhibit for program element 0604239F.
- b. 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.
- c. The Justification book has been assembled in accordance with DoD Financial Management Regulation 7000.14, Vol. 2B Cpt 5, Sec 050302 with the exception of the R-1; Project Funding Listing which was distributed under a separate cover due to classification.

2. (U) CLASSIFICATION.

- a. All exhibits contained in Volumes I, II and III are UNCLASSIFIED. Classified exhibits are not included in the submission due to the level of security classification and necessity of special security clearances.

PROGRAM ELEMENT COMPARISON SUMMARY

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Program Element	Remarks
BUDGET ACTIVITY 1: BASIC RESEARCH	
BUDGET ACTIVITY 2: APPLIED RESEARCH	
0602202F, Human Effectiveness Applied Research	Project 6219 was terminated after FY 1999, but Congress added funding in FY 2000.
0602269F, Hypersonic Technology Program	Project 1025 funding for this program in FY01 is contained in PEs 0602203F Aerospace Propulsion, 0603203F Aerospace Propulsion Subsystems Integration and 0603216F Aerospace Propulsion and Power Technology.
0602601F, Space Technology	Project 1011 all rocket propulsion efforts will be transferred to 0602203F, Project 4847. Project 3326 all lasers and imaging efforts will be transferred to PE 0602605F, Projects 4866 and 4867.
0602605F, Directed Energy Technology	Projects 4866 and 4867 were transferred from PE 0602601F.
0602702F, Command, Control and Communications	Project 4506, Surveillance Technology will be transferred to Project 4594, PE 0602702F and Project 7622, PE 0602204F beginning in FY01.
BUDGET ACTIVITY 3: ADVANCED TECHNOLOGY DEVELOPMENT	
0603726F, Aerospace Information Technology Systems Integration	In FY 2001, the efforts in Project 632863, Integrated Photonics, will be conducted in PE 0603203F, Project 63665A. Prior to FY 2001, the efforts in Project 634850, Collaborative C2, were performed in PE 0603253F, Projects 632735 and 63666A.
BUDGET ACTIVITY 4: DEMONSTRATION AND VALIDATION	
0603441F, Space Based IR Arch (Dem/Val)	SBIRS Low efforts performed in Project 0007 will be transferred to PE 0604442F, Project 4598 in FY00 and 01.
0603800F, Joint Strike Fighter	Project 2025 will complete in FY01.

PROGRAM ELEMENT COMPARISON SUMMARY

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Program Element	Remarks
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0603854F, Wideband Milsatcom	Project 4870 is a FY01 new start.
0603856F, Air Force/NRO Partnership	Project 4782, the Air Force/National Program Cooperation (AFNPC) effort is a FY01 new start.
0603859F, Pollution Prevention	Project 4852, Pollution Prevention will be transferred from PE 0605854F, previously in Budget Activity 6 beginning in FY01.
BUDGET ACTIVITY 5: ENGINEERING AND MANUFACTURING DEVELOPMENT	
0207249F, Precision Attack Systems Procurement	Project 2693 is a FY01 new start.
0604012F, Joint Helmet Mounted Cueing System	Project 4789 the Joint Helmet Mounted Cueing Systems effort is a FY01 new start.
0604201F, Integrated Avionics Planning and Development	Project 2257 will complete in FY01.
0604270F, EW Development	Project 8462 is a FY01 new start.
0604602F, Armament Ordnance Development	Project 3133 will complete in FY01.
0604327F, Hardened Target Munitions	Project 4641 will complete in FY00.
0604617F, Agile Combat Support	Project 2895 will complete in FY01.
0604706F, Life Support System	Project 412A, the K-36/3.5A Ejection Seat effort is a FY01 new start.
0604754F, Joint Tacital Information Distribution System	Project 4749, the Air Defense System Integrator effort is a FY01 new start
0604851F, ICBM	Project 4210 completes in FY00.
BUDGET ACTIVITY 6: MANAGEMENT AND SUPPORT	
0604256F, Threat Simulator Development	Project 3321, Joint Modeling and Simulation System (JMASS) funding and responsibility transferred in FY00 to PE 0207601F.

PROGRAM ELEMENT COMPARISON SUMMARY
INTRODUCTION AND EXPLANATION OF CONTENTS

Program Element	Remarks
BUDGET ACTIVITY 6: MANAGEMENT AND SUPPORT Continued	
0604256F, Threat Simulator Development	Project 7500, Foreign Materiel Acquisition and Exploitation (FMA/E) established a funding line in FY00.
0605808F, Development Planning	PE terminated in FY00.
0604759F, Major T&E Investment	Project 4759, two I&M projects started in FY00: Modeling & Simulation T&E Resources (MASTER); and Seeker T&E.
0604759F, Major T&E Investment	Project 4759, the Advanced Range Telemetry Integration (ARTM) was developed by CTEIP (OSD PE 0604940D). The ARTM I&S (Integration and Support) funding in this PE begins in FY01. Integrates the OSD developed ARTM into the Edwards AFB range.
0605854F, Pollution Prevention	Program moved into Budget Activity 4, to PE 0603859F beginning in FY01.
BUDGET ACTIVITY 7: OPERATIONAL SYSTEM DEVELOPMENT	
0101120F, Advanced Cruise Missile	Project 4798, the AGM-129A Advanced Cruise Missile Service Life Extension Program effort is a FY01 new start.
0207133F, F-16 Squadrons	Project 2671, the Automated Ground Collision Avoidance system, Falcon Star, and Targeting Pod/HARM Targeting Systems efforts are FY01 new starts.
0207141F, F-117A Squadrons	Project 3956, the F-117 Enhanced GBU-27 effort is a FY01 new start.
0303140F, Information Systems Security Program	Project 4585, Cryptologic 2020, will be funded under PE 33401F, Comm Sec, Project 4861, Cryptologic 2020, beginning in FY01.
0303601F, Milsatcom Terminals	Project 2487, the Airborne Wideband Terminal and Ground Multiband Terminal effort are a FY01 new start.
0305205F, Endurance Unmanned Aerial Vehicles	Project 4883 is a FY01 new start. Project 4816 will merge into 4799 in FY00.

PROGRAM ELEMENT COMPARISON SUMMARY

INTRODUCTION AND EXPLANATION OF CONTENTS

Program Element	Remarks
BUDGET ACTIVITY 7: OPERATIONAL SYSTEM DEVELOPMENT Continued	
0305206F, Airborne Reconnaissance System	Project 4882 is a FY01 new start.
0305207F, Manned Reconnaissance system	Project 4820 will be transferred to PE 0305202F beginning in FY01.
0305910F, Spacetrack	Project 4791, the Ground-Based Electro-Optical Deep Space Surveillance Sustainment effort is a FY00 new start.
0401115F, C-130 Airlift Squadrons	Project 4885 is a FY01 new start.
0401130F, C-17 Aircraft	Project 4886 is a FY01 new start.
0404011F, Special Operations Forces	Project 4860 is a FY01 new start.
0708612F, Computer Resources Support Improvement Program	FY01 funding was moved to this PE from PE 0708611F, Project 67309.
1001018F, NATO Joint Stars	Project 0002, the Project Definition of NATO Advanced Trans Atlantic Radar Project effort is a FY01 new start pending Congressional approval.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY										PE NUMBER AND TITLE	
06 - Management and Support										0604256F Threat Simulator Development	
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost		
Total Program Element (PE) Cost	32,054	31,672	34,785	37,990	39,993	42,673	43,516	Continuing	TBD		
662907 Electronic Combat Intel Support	1,886	1,708	1,968	1,882	1,913	2,033	2,053	Continuing	TBD		
663321 Electronic Warfare Ground Test Resources	30,168	27,610	26,687	29,078	30,893	33,333	33,964	Continuing	TBD		
667500 Foreign Material Acquisition/Exploitation	0	2,354	6,130	7,030	7,187	7,307	7,499	Continuing	TBD		
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

(U) A. Mission Description

This PE provides funding for the elements necessary to support the AF Electronic Warfare (EW) Test Process. This test process provides a scientific 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 producing 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, development and improvement of digital EW models, measurement facilities operation and improvements, hardware in the loop test facilities operation and improvements, installed system test facility improvements, and development and improvement of open air threat simulators for flight testing. This PE also provides funding for planning, management, budgetary, and technical support to the Air Force for corporate-level implementation of the Electronic Warfare (EW) Test Process and for improvement and modernization (I&M) and application of the test and evaluation (T&E) infrastructure. Support includes requirements definition and analysis, project planning, programming and budgeting, technical oversight, and application of T&E facility I&M. Products include studies, analyses, and related documentation. This PE provides funding to support the acquisition and exploitation efforts of the Foreign Materiel Program, as well as to support EW intelligence efforts, beginning in FY 00.

(U) B. Budget Activity Justification

This Program Element is in Budget Activity 6, Management Support, because it is a Research and Development (R&D) effort for Improvement and Modernization of T&E capabilities at Air Force Test Centers.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE		
06 - Management and Support		0604256F Threat Simulator Development		
(U)	C. Program Change Summary (\$ in Thousands)			
(U)	Previous President's Budget (FY 2000 PBR)	FY 1999	FY 2000	FY 2001
(U)	Appropriated Value	34,086	32,391	36,848
(U)	Adjustments to Appropriated Value	34,582	32,391	
	a. Congressional/General Reductions	-496	-29	
	b. Small Business Innovative Research	-679		
	c. Omnibus or Other Above Threshold Reprogram	-300	-485	
	d. Below Threshold Reprogram	-873		
	e. Rescissions	-180	-205	
	f. Other			
(U)	Adjustments to Budget Years Since FY 2000 PBR			-2,063
(U)	Current Budget Submit/FY 2001 PBR	32,054	31,672	34,785
(U)	Significant Program Changes:			
				TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
06 - Management and Support		0604256F Threat Simulator Development								662907	
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
662907	Electronic Combat Intel Support	1,886	1,708	1,968	1,882	1,913	2,033	2,053	Continuing	TBD	
(U) A. Mission Description 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) techniques 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, 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 1999 (\$ in Thousands)										
(U)	\$1,571	Funded fighter and bomber testing for foreign material operational exploitation. Extensive evaluations and reports were accomplished.									
(U)	\$236	Funded transport aircraft for foreign material operational exploitation. Extensive evaluations and reports were accomplished.									
(U)	\$79	Funded classified operational assessments for foreign material operational exploitation. Extensive evaluations and reports were accomplished.									
(U)	\$1,886	Total									
(U)	FY 2000 (\$ in Thousands)										
(U)	\$1,372	Funds fighter and bomber testing for foreign material operational exploitation. Extensive evaluations and reporting to be accomplished.									
(U)	\$281	Funds transport aircraft for foreign material operational exploitation. Extensive evaluations and reporting to be accomplished.									
(U)	\$55	Funds classified operational assessments for foreign material operational exploitation. Extensive evaluations and reporting to be accomplished.									
(U)	\$1,708	Total									
(U)	FY 2001 (\$ in Thousands)										
(U)	\$1,553	Funds fighter and bomber testing for foreign material operational exploitation. Extensive evaluations and reporting to be accomplished.									
(U)	\$344	Funds transport aircraft for foreign material operational exploitation. Extensive evaluations and reporting to be accomplished.									
(U)	\$71	Funds classified operational assessments for foreign material operational exploitation. Extensive evaluations and reporting to be accomplished.									
(U)	\$1,968	Total									
(U)	B. Project Change Summary										
(U)	None										

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
06 - Management and Support		0604256F Threat Simulator Development								662907	
(U)	<u>C. Other Program Funding Summary (\$ in Thousands)</u>										
	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to	Total Cost		
	Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete			
(U)	AF RDT&E										
(U)	Other APPN										
	None										
(U)	<u>D. Acquisition Strategy</u>										
	Not applicable.										
(U)	<u>E. Schedule Profile</u>										
	1	2	3	4	1	2	3	4			
(U)	Not applicable. Discrete tasks vary depending on availability of FMA hardware and exploitation schedules. The annual budget is based on supporting up to eight opportunities for operational units to conduct quick look assessments of available FMA.										

Project 662907

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Exhibit R-2A (PE 0604256F)

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Exhibit R-2A (PE 0604256F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE February 2000	
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
06 - Management and Support		0604256F Threat Simulator Development								663321	
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
663321	Electronic Warfare Ground Test Resources	30,168	27,610	26,687	29,078	30,893	33,333	33,964	Continuing	TBD	
(U) A. Mission Description The AF requires a comprehensive set of test facilities to implement the Air Force Electronic Warfare (EW) Test Process. To manage program risk effectively throughout the weapon system acquisition process, and conduct test and evaluation (T&E) 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 (JMASS) is an Air Force-led, tri-service project to establish a common, DoD-wide, digital simulation architecture and set of models in support of T&E. FY00 funding for the JMASS architecture and software development transitioned to PE 27601F. Prior to FY00, the EW T&E Modeling & Simulations (M&S) program provided funds to support Missile and Space Intelligence (MSIC) and National Air Intelligence Center (NAIC) in the development of Electronic Combat (EC) capable threat engagement models using the JMASS architecture. From FY00 and beyond, JMASS model development funds will be programmed under other Program Elements. The EW T&E M&S program will lead correlation, verification and validation activities of integrated simulations of validated models across the EW test facilities using the Silver Bullet measurement capability. The National RCS Test Facility - NRTS (formerly Radar Target Scatter (RATSCAT)) upgrade project provides improvements to the NRTS at Holloman AFB, NM, to support radar cross section (RCS) measurement requirements of DoD customers, with either conventional or stealth systems. The Air Force Electronic Warfare Evaluation Simulator (AFEWES) and the Digital Integrated Air Defense System (DIADS), provide the ability to realistically evaluate hardware components and simulated weapon systems against manned hardware threat representations throughout the acquisition process. AFEWES provides simulations of advanced Infrared (IR) & Radio Frequency (RF) Surface-to-Air Missiles (SAMs) and Air-to-Air Missiles (AAMs), IR/ Ultra-violet (UV) & RF missile warning, end-to-end testing of the missile warning/IR Countermeasure function; integration of actual threat hardware and ground clutter into advanced threat RF and IR missile simulations. DIADS provides algorithm based enemy command and control (C2) capabilities plus early warning radar detection and limited ground control intercept features and also allows man-in-the-loop interaction for the enemy C2 positions. The Electronic Combat Integrated Test (ECIT) project upgrades the AF Hardware-in-the-Loop (HITL), System Integration Labs (SIL), and Installed System Test Facility (ISTF) at Edwards AFB, CA. The HITL and SILs at Edwards allow for the stimulation of real aircraft avionics with the benefit of a laboratory environment. The AF ISTF consists of a large, instrumented, anechoic chamber which provides for evaluation of EW systems when installed on its host aircraft, both prior to and throughout the flight test program. The goal of the ECIT upgrade is to integrate coherent EW threat simulators into the ground test facilities at Edwards and modernize instrumentation/test operation capabilities. In FY 99 ECIT began a 3-year effort to fund the purchase of EW equipment in support of the F-22's Integrated Hardware-In-The-Loop Avionics Test (IHAT) capability. The IHAT capability is being transferred to Edwards AFB, CA from Marietta, GA. In FY 00, the Air Warfare Mission Simulator (AWMS) program will provide the electronic warfare capability into the high fidelity reconfigurable cockpits being developed under PE64759. This program will also provide the capability to link the high fidelity cockpits into the information battlespace via High Level Architecture (HLA).											

Project 663321

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Exhibit R-2A (PE 0604256F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	663321
06 - Management and Support	0604256F Threat Simulator Development		
(U) A. Mission Description Continued			
(U) FY 1999 (\$ in Thousands)			
(U) \$527	EW Test Process Support. Conducted requirements analyses and other studies in support of Air Force investments in EW test infrastructure. Completed cost-benefit analysis of digital modeling and simulation (M&S) in support of the EW Test Process.		
(U) \$7,500	JMASS. Established the JMASS Joint Program Office (JPO). Initiated development of joint version of the JMASS software, which affords compatibility with the DoD High-Level Architecture (HLA). Completed transition of JMASS to PCs and UNIX computer platforms. Continued development and integration of JMASS-compliant threat models to support the needs of various DoD customers. The EW Test and Evaluation Modeling and Simulation (EW T&E M&S) completed funding the intelligence agencies to develop JMASS compliant, digital threat models required by the B-1B DSUP customer to support the EW Test Process. Specifically the intel agencies completed development of the JMASS RF environment model, completed development of the Surface-to-Air Digital Simulator (SADS) 2c/e, finished development of an Air Intercept / Air-to-Air Missile (AI/AAM) model, and the JMASS program office established a JMASS library. Began development of verification and validation process for integrated simulations configured to support development and operational testing. Began correlation process development and correlation implementation between EW test facilities being supported by Silver Bullet.		
(U) \$1,774	RATSCAT Upgrades. Achieved Initial Operational Capability (IOC) of BICOMS Mobile Radar. Integrated and achieved IOC of RATSCAT Advanced Measurement System (RAMS) Radar Replacement. Began development on improved RAMS pylon.		
(U) \$2,486	AFEWES Operation. Continued AFEWES operation in support of Air Force, Army, Navy, and non-DoD test customers. Continued development of semi-active SAM simulations (SAM-C1 and SAM-E) simulations, and began development of Advanced Simulator modifications (SAM-C2) DIADS. Provided mission level simulation for evaluating the survivability of aircraft penetrating an enemy air defense system. Began verification and validation efforts of DIADS baseline. Began development of external linking and BLUE IADS capabilities, in support of AF, Army, Navy, and non-DoD test customers.		
(U) \$11,784	ECIT. Continued Infrastructure and Generic Test Capability (I&GTC), which provides RF simulation capability between the I&GTC and the CTEIP-funded Generic Radar Target Generator (GRTG), Infrared Sensor Simulator (IRSS), and Communications-Navigation-Identification (CNI) simulator, to support F-22 and other advanced weapon systems requirements. Completed development and acceptance of the Network and Controls portion of the I&TGC effort. Began initial planning and purchase of EW equipment in support of the F-22's Integrated Hardware-in-the-loop Avionics Test (IHAT) capability at Edwards AFB.		
(U) \$30,168	Total		
Project 663321		Page 6 of 11 Pages	
		Exhibit R-2A (PE 0604256F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
06 - Management and Support	0604256F Threat Simulator Development	663321	
(U) A. Mission Description Continued			
(U) FY 2000 (\$ in Thousands)			
(U) \$896	EC Test Process Support. Conduct requirements analyses and other studies in support of Air Force investments in EW test infrastructure. Provide systems engineering/technical assistance (SETA) support for Air Force implementation of the EW Test Process, including improvement and modernization (I&M) of the EW test infrastructure.		
(U) \$3,947	EW Test and Evaluation Modeling and Simulation (EW T&E M&S). Continue development of verification and validation process for integrated simulations configured to support development and operational testing. Continue correlation process development and correlation implementation between EW test facilities being supported by Silver Bullet. Begin study of requirements to migrate realistic sensor information from the EC environment into cockpit simulators in support of the Air Warfare Mission Simulator (AWMS) program.		
(U) \$1,959	NRTF Upgrades. Complete development on RAMS Pylon. Complete industry partnership efforts with first major EW supplier.		
(U) \$5,872	AFEWES. Continue AFEWES operation in support of Air Force, Army, Navy, and non-DoD test customers to include defining requirements for upgrades to the IR laboratory. Complete development of Advance Simulator Modifications (SAM-C2), and begin development of advanced RF semi-active SAM simulations (SAM-D).		
(U) \$2,772	DIADS. Continue providing mission level simulation for evaluating the survivability of aircraft penetrating an enemy air defense system. Continue verification and validation efforts required for achieving IOC of DIADS baseline. Continue development of external linking and BLUE IADS capabilities, in support of AF, Army, Navy, and non-DoD test customers. Begin support of major OT customers with RED IADS scenario generation and execution.		
(U) \$12,164	ECIT. Complete IOC of Infrastructure and Generic Test Capability (I&GTC), which provides RF simulation capability between the I&GTC and the CTEIP-funded Generic Radar Target Generator (GRTG), Infrared Sensor Simulator (IRSS), and Communications-Navigation-Identification (CNI) simulator, to support F-22 and other advanced weapon systems requirements. Begin requirements definitions and acquisition planning to fully integrate the suite of simulators/stimulators into a coherent multi-spectral test environment. Continue purchase and integration of EW equipment in support of the F-22's Integrated Hardware-in-the-loop Avionics Test (IHAT) capability.		
(U) \$27,610	Total		
(U) FY 2001 (\$ in Thousands)			
(U) \$909	EC Test Process Support. Conduct requirements analyses and other studies in support of Air Force investments in EW test infrastructure. Provide systems engineering/technical assistance (SETA) support for Air Force implementation of the EW Test Process, including improvement and modernization (I&M) of the EW test infrastructure.		
(U) \$3,919	EW Test and Evaluation Modeling and Simulation (EW T&E MS). Continue development of verification and validation process for integrated simulations configured to support development and operational testing. Continue correlation process development and correlation implementation between EW test facilities being supported by Silver Bullet. Complete AWMS requirement study and develop acquisition		
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)				DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT	
06 - Management and Support		0604256F Threat Simulator Development		663321	
(U)	A. Mission Description Continued				
(U)	FY 2001 (\$ in Thousands) Continued				
(U)	strategy to provide realistic EC sensor information into cockpit simulators.				
(U)	\$1,692	NRTF Upgrades. Enhance efficiency of operations and accuracy of measurements. Expand partnerships with major industry EW suppliers.			
(U)	\$6,092	AFEWES. Continue AFEWES operation in support of Air Force, Army, Navy, and non-DoD test customers to include initiation of IR lab upgrade effort. Complete development of advanced simulator modifications (SAM-C2). Complete development of advanced RF semi-active SAM simulation (SAM-D), and begin development of a second advanced RF semi-active SAM simulation (SAM-F).			
(U)	\$3,451	DIADS. Continue providing mission level simulation for evaluating the survivability of aircraft penetrating an enemy air defense system by updating the IADS scenario with current intel data. Complete verification and validation efforts required to achieve IOC of DIADS baseline. Continue development of external linking and BLUE IADS capabilities, in support of AF, Army, Navy, and non-DoD test customers.			
(U)	\$10,624	ECIT. Complete FOC of Infrastructure and Generic Test Capability (I&GTC), which provides RF simulation capability between the I&GTC and the CTEIP-funded Generic Radar Target Generator (GRTG), Infrared Sensor Simulator (IRSS), and Communications-Navigation-Identification (CNI) simulator, to support F-22 and other advanced weapon systems requirements. Begin requirements definitions and acquisition planning to fully integrate the suite of simulators/stimulators into a coherent multi-spectral test environment. Complete purchase of EW equipment in support of the F-22's Integrated Hardware-in-the-loop Avionics Test (IHAT) capability.			
(U)	\$26,687	Total			
(U)	B. Project Change Summary				
(U)	C. Other Program Funding Summary (\$ in Thousands)				
		FY 1999	FY 2000	FY 2001	FY 2002
		Actual	Estimate	Estimate	Estimate
(U)	AF RDT&E				
(U)	Other APPN				
(U)	Related RDT&E:				
(U)	PE 0604759F, Major T&E Investment				
(U)	PE 0604940D, Central T&E Investment Program				
(U)	D. Acquisition Strategy				
	Contracts funded from this program are predominately awarded on the basis of full and open competition.				
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		Exhibit R-2A (PE 0604256F)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000	PROJECT	663321		
BUDGET ACTIVITY		PE NUMBER AND TITLE										0604256F Threat Simulator Development			
06 - Management and Support															
E. Schedule Profile															
		FY 1999				FY 2000				FY 2001					
		1	2	3	4	1	2	3	4	1	2	3	4		
(U)	Establish JMASS JPO	*													
(U)	ECIT Infrastructure and Generic Test Capability (I&GTC) IOC														
(U)	ECIT SIL Integration														
(U)	ECIT BAF Integration														
(U)	Digital Integrated Air Defense System Baseline Start/Complete														
(U)	AFEWES SAM-C Upgrade														
(U)	AFEWES SAM-D Development Start/ Complete														
(U)	AFEWES SAM-E Dev Complete														
(U)	AFEWES SAM-F Dev Start														
(U)	AFEWES IR Lab Upgrade														
(U)	EW T&E M&S Threat Models Complete	*													
(U)	BICOMS Radar IOC / FOC			*											
(U)	RAMS Replacement Radar IOC			*											
(U)	RAMS Pylon IOC														
(U)	RAMS Pylon FOC														

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
06 - Management and Support		0604256F Threat Simulator Development								667500	
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
667500	Foreign Material Acquisition/Exploitation	0	2,354	6,130	7,030	7,187	7,307	7,499	Continuing	TBD	
(U)	A. Mission Description This project is established for the specific purpose of supporting the USAF requirements for 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. Each MAJCOM prepares and approves a Foreign Materiel - Mission Need Statement for each requirement. Annually, the MAJCOM commanders establish a list of their top 20 requirements. The MAJCOM's requirements list are then integrated into an Air Force requirement list. Each MAJCOM then approves the AF list and requirements, and final validation comes from the Air Force Vice Chief of Staff. Exploitations are based on and driven by acquisitions. The list is classified secret. The USAF is tasked by OSD to be the DoD Executive Agent for all threat aircraft, air-to-air missiles, and early warning radars. As the Executive Agent, the AF is tasked to acquire, exploit and provide data to all DoD components.										
(U)	FY 1999 (\$ in Thousands) \$0 No Activity \$0 Total Not applicable.										
(U)	FY 2000 (\$ in Thousands) \$1,765 Funds the acquisition of Foreign Materials IAW the prioritized Air Force Foreign Materiel Acquisition list; subject to assets availability. \$350 Funds the exploitation of acquired Foreign Materials IAW prioritized lists and specific exploitation plans. \$239 Funds the operations and maintenance of the specialized Foreign Materiel assets. \$2,354 Total										
(U)	FY 2001 (\$ in Thousands) \$2,595 Funds the acquisition of Foreign Materials IAW the prioritized Air Force Foreign Materiel Acquisition list; subject to assets availability. \$2,957 Funds the exploitation of acquired Foreign Materials IAW prioritized lists and specific exploitation plans. \$578 Funds the operations and maintenance of the specialized Foreign Materiel assets. \$6,130 Total										
(U)	B. Project Change Summary Significant Program Changes:										

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Exhibit R-2A (PE 0604256F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
06 - Management and Support		0604256F Threat Simulator Development								667500	
(U)	<u>C. Other Program Funding Summary (\$ in Thousands)</u>										
		FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to	Total Cost	
		Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete		
(U)	AF RDT&E										
(U)	Other APPN										
	None.										
(U)	<u>D. Acquisition Strategy</u>										
	Not applicable.										
(U)	<u>E. Schedule Profile</u>										
					FY 1999		FY 2000		FY 2001		
				1	2	3	4	1	2	3	
										4	
(U)	Not applicable. Details are classified and are reported through other channels.										
Project 667500		Page 11 of 11 Pages								Exhibit R-2A (PE 0604256F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE		February 2000	
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT			
06 - Management and Support		0604258F Target Systems Development								662459			
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost			
662459	Target Payloads	6,343	0	191	192	193	1,842	1,851	Continuing	TBD			
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0			
(U) A. Mission Description 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. The program develops full-scale and subscale aerial targets and target control systems. 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. Electronic countermeasures and infrared countermeasures being developed include chaff and flare dispenser systems. The Drone Radio Frequency (RF) Electronic Enhancement Mechanism (DREEM) is being developed to provide subscale radar cross section (RCS) enhancement to replicate full size threat aircraft.													
(U)	FY 1999 (\$ in Thousands)												
(U)	\$412	Continued Contractor - Support & Management											
(U)	\$295	Continued Travel, Training and Second Destination Transportation - Support & Management											
(U)	\$232	Continued Management Information Systems (MIS), Communications and Assessment - Support & Management											
(U)	\$586	Completed DREEM Demonstration Validation Testing											
(U)	\$4,818	Army Big Crow program											
(U)	\$6,343	Total											
(U)	FY 2000 (\$ in Thousands)												
(U)	\$0	Congress zeroed-out small legacy programs under \$1 million.											
(U)	\$0	Total											
(U)	FY 2001 (\$ in Thousands)												
(U)	\$129	Continue Support & Management											
(U)	\$37	Continue Travel & Training Support & Management											
(U)	\$25	Continue MIS, Communication and Assessment - Support and Management											
(U)	\$191	Total											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)					DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT		
06 - Management and Support		0604258F Target Systems Development		662459		
(U)	B. Budget Activity Justification					
	This program is in budget activity 6 - Management Support because it provides overall support to research and development activities.					
(U)	C. Program Change Summary (\$ in Thousands)					
(U)	Previous President's Budget (FY 2000 PBR)	FY 1999	FY 2000	FY 2001	Total Cost	
(U)	Appropriated Value	6,572	192	192	TBD	
(U)	Adjustments to Appropriated Value	6,666	0			
	a. Congressional/General Reductions	-75				
	b. Small Business Innovative Research	-177				
	c. Omnibus or Other Above Threshold Reprogram					
	d. Below Threshold Reprogram	-17				
	e. Rescissions	-54				
	f. Other					
(U)	Adjustments to Budget Years Since FY 2000 PBR			-1		
(U)	Current Budget Submit/FY 2001 PBR	6,343	0	191	TBD	
(U)	Significant Program Changes:					
	FY99 Congressional action added \$5M for the Army Big Crow program. Funds were passed from this PE to the Army.					
	FY00 Congress zeroed-out small legacy programs under \$1 million.					
(U)	D. Other Program Funding Summary (\$ in Thousands)					
	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2005
	Actual	Estimate	Estimate	Estimate	Estimate	Estimate
(U)	PE35116F: Appropriation:					
	Missile Procurement, AF					
	Budget Activity: 14 Program					
	Title: Target Drones					
(U)	WSC MQM107 (MQM-107E)	3,793				Continuing
(U)	WSC: M04AQF (QF-4)	21,508				Continuing
(U)	Spares: BQM-34, QF-4, MQM-107	173				Continuing
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										
BUDGET ACTIVITY						DATE		PROJECT		
06 - Management and Support						0604258F Target Systems Development		February 2000		
PE NUMBER AND TITLE						662459				
<u>D. Other Program Funding Summary (\$ in Thousands)</u>										
(U)	PE35116F: Appropriation: Aircraft Procurement, AF Budget Activity: 10 Program Title: Target Drones	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
(U)	WSC: 10TRGT	0	31,332	32,915	36,688	37,217	46,874	39,181	Continuing	TBD
(U)	Spares: 16TRGT	0	885	610	729	973	976	978	Continuing	TBD
<u>E. Acquisition Strategy</u>										
The acquisition strategy is competitive, cost plus contracts.										
<u>F. Schedule Profile</u>										
(U)	QF-4 Follow-on Production Options	FY 1999		FY 2000		FY 2001				
(U)	DREEM - Dem Val Testing	1	2	3	4	1	2	3	4	
(U)	MQM-107E - First Delivery	*	*	*	*	*	X		X	
(U)	MQM-107E - IOC						X			
(U)	Non Developmental Item (NDI) SSAT BQM-34									
(U)	- Contract Award						X			
(U)	- First Delivery						X			
(U)	- IOC						X			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
06 - Management and Support		0604759F Major T&E Investment								664597	
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
664597	Air Force Test Investments	37,995	56,659	54,057	51,136	50,053	60,502	70,242	Continuing	TBD	
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	

(U) **A. Mission Description**

This program element provides planning, improvements, and modernization for test capabilities at four Air Force test organizations: 46 Test Wing of the Air Armament Center (AAC), Arnold Engineering Development Center (AEDC), Air Force Flight Test Center (AFFTC), and the Space and Missile Systems Center's Test & Evaluation Directorate (SMC/TE). The purpose is to help test organizations keep pace with emerging weapon system technologies. For example, advances in missile seeker technology and capabilities drive the requirement for improvement in missile seeker test capabilities such as the Guided Weapon Evaluation Facility (GWEF) and the Seeker T&E projects; advances in the Global Positioning System (GPS), providing greater time-space-position accuracy, will be integrated into the ranges at Eglin and Edwards Air Force Bases; and advances in computer capabilities, which will enhance efficiencies in data collection, analysis, and distribution, will be exploited in the Data Acquisition and Processing System (DAPS) and Computer Aided Modernization Project (CMP) projects. Test investment activities are also funded at the Joint Program Office (JPO) for Test and Evaluation (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 Process. 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 locations 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 test organizations have over \$10 billion 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.

46 TW, located at Eglin AFB, FL, conducts and supports developmental test and evaluation and operational test and evaluation of non-nuclear air armaments, Command, Control, Communications, Computers and Intelligence (C4I) systems, and target acquisition and weapon delivery systems; provides a climatic simulation capability; and determines target/test item spectral 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 instrumentation to enhance interoperability and commonality. Global Positioning System (GPS) Range Systems will provide a major improvement for Time-Space-Position-Information (TSP) at all Major Range and Test Facility Bases (MRTFB) and specifically at the Eglin Ranges for munitions testing. C4I Test Capabilities Upgrade will provide

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
06 - Management and Support	0604759F Major T&E Investment	664597

(U) **A. Mission Description Continued**

connectivity to existing capabilities and add needed networks and hardware to develop a C4I 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. 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 stimulators. The Santa Rosa Island Reconstitution effort will provide hardware-in-the-loop equipment for three focus sites to support armament/munitions and C4I testing. Seeker T&E will upgrade unique Electro-Optical/Infrared/Millimeter Wave (EO/IR/MMW) field measurement capabilities to support tri-Service smart weapons development. These projects ensure test center technology is compatible with weapon systems to be tested such as AMRAAM, JDAM, ASRAAM, AGM-130, JTIDS, JSTARS, Combat Talon, etc.

AEDC, located at 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 for 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) Upgrades 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. The Hypersonic Capability Development project provides for the studies and analysis of the hypersonic wind tunnel requirements definition and program planning.

AFFTC, located at Edwards AFB, CA conducts and supports developmental test and evaluation and operational test and evaluation of aircraft and aircraft systems, aerospace research vehicles, uninhabited aerial vehicles, cruise missiles, parachutes delivery/recovery systems, and cargo handling systems. The AF Common Airborne Instrumentation System (CAIS) Integration & Support (I&S) supports DoD objectives for interoperability/commonality. The goal of CAIS I&S is to integrate CAIS equipment, develop and integrate 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 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 Flight Simulation Modernization project will upgrade the Test and Evaluation Modeling and Simulation (TEMS) facility to meet future man-in-the loop simulator requirements. The Modeling and Simulation T&E Resources (MASTER) project will provide the Test and Evaluation Modeling and Simulation (TEMS) facility with subsystem models to build future simulations and the tools to validate real-time modeling with ground tests and open-air range flight

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
06 - Management and Support	0604759F Major T&E Investment	664597	
(U) A. Mission Description Continued	test. The Linked Interactive T&E Networking (LITENING) project will provide the network infrastructure to support inter-range simulations and support the efficient transmission of flight test data to various facilities at Edwards for processing and analysis. The Advanced Range Telemetry (ARTM) Integration project will procure and integrate improved range telemetry systems to provide greater efficiencies in telemetry frequency utilization.		
	SMC/TE located at Kirtland AFB, NM 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.		
(U) FY 1999 (\$ in Thousands)			
(U) \$0	46 Test Wing, Air Armament Center		
(U) \$1,615	CAIS Integration. Continued integration, procured production units, and continued procurement of support equipment.		
(U) \$724	C4I Test Capabilities Upgrade. Continued the acquisition of workstations, network connections, and processing hardware/software.		
(U) \$2,453	GWEF. Completed the expanded radar simulator and midwave IR simulator. Began development of the multispectral man-in-the-loop simulator. Continued aircraft/munitions modeling and simulation.		
(U) \$2,109	GPS Range Integration. Continued integration and completed the acquisition of translator/processor system.		
(U) \$1,071	PRIMES. Acquired a F-15/APG 63-V1 radar interface. Began acquisition of a data link for the Com/Nav simulator.		
(U) \$1,712	ASTE Range Systems. Continued upgrades to TSPI systems, telemetry, microwave, communications, arenas, gun test, and photo-optics.		
(U) \$853	Mission Control/Data Analysis. Began procurement of data acquisition equipment and real-time TM equipment, and a 3-D terrain generation/visualization capability.		
(U) \$1,672	Multispectral Missile Warning System Test Capability. Began acquisition of a high off boresight angle flight motion simulator and countermeasure simulations.		
(U) \$2,395	Santa Rosa Island Reconstitution. Continued development of three focus sites to provide open air Hardware-in-the-Loop (HITL) capability.		
(U) \$1,197	EC Operational Test and Training. Provided for the operations and maintenance of range assets required by AFSOC to test and train aircrews at the Eglin location.		
(U) \$400	GPS Y2K Receivers. Procured required GPS receivers to conduct Y2K testing.		
(U) \$0	Arnold Engineering Development Center		
(U) \$868	AEDC DAPS. Completed installation of the J4 rocket test cell DAPS. IOC of J1/J2 test cell portion of DAPS.		
(U) \$1,097	CMP. Continued purchase of CMP workstations. Continued to implement the AEDC Reengineering Computer Base.		
(U) \$4,560	PWT Upgrades. Continued installation of data acquisition and processing system in 16T and 16S tunnels. Completed installation of the on-cart data acquisition and processing system in the 16T wind tunnel and the pre-test check out system in the 16T/16S wind tunnels. Began design of plant control systems.		
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
06 - Management and Support	0604759F Major T&E Investment	664597	
(U) A. Mission Description Continued			
(U) FY 1999 (\$ in Thousands) Continued			
(U) \$695	Improve Turbine Engine Structural Integrity. Began design and procurement of Non-Intrusive Stress Monitoring System (NSMS) hardware.		
	Installed dynamic data acquisition and processing system.		
(U) \$2,681	Hypersonic Capability Development. Continued study contracts for requirements definition and program planning.		
(U) \$0	Air Force Flight Test Center		
(U) \$3,514	CAIS I&S development. Continued rehost of TIMS to Windows NT platform (Instrumentation Loading, Integration, and Decommutation (ILIAD)) and improved TIMS with automated setup of systems, automated diagnostics, and simulation capability. Continued development of an advanced solid state recorder.		
(U) \$5,595	ADAPS. Continued to integrate simulation system with real-time data analysis capability. Began development of desktop simulation capability. Continued to provide the traditional structures & flutter post-test analysis capability in near real-time in the Ridley Mission Control Rooms. Began installation of post test analysis capabilities for flight testing. Provided avionics data processing in near real-time in the Ridley Mission Control Rooms. Ensured Y2K compliance of all systems under development.		
(U) \$1,127	Flight Simulation Modernization. Provided the reconfigurable cockpit prototype to validate the design for the reconfigurable cockpit upgrades to the TEMS facility.		
(U) \$658	LITENING. Began the network design phase. Communication Equipment Rooms have been surveyed, network traffic is in the process of being analyzed and connectivity to the Defense Research Engineering Network (DREN) has been established.		
(U) \$0	Space & Missile Systems Center T&E Directorate		
(U) \$752	Combined Space Test Task Force. Began procurement of hardware and software to complete evaluations of on-orbit R&D satellites and technologies. Began development of a satellite command and control database and models.		
(U) \$0	Other Projects		
(U) \$247	Joint Project Office for T&E support.		
(U) \$37,995	Total		
(U) FY 2000 (\$ in Thousands)			
(U) \$0	46 Test Wing, Air Armament Center		
(U) \$2,958	CAIS Integration. Continue integration, procure mini-CAIS hardware, and continue procurement of support equipment for CAD/CAM and preflight quick-look capability.		
(U) \$1,538	C4I Test Capabilities Upgrade. Continue acquisition of workstations, network connections, and processing hardware/software. Began upgrades to the JTIDS OPFAC.		
(U) \$3,787	GWEF. Continue acquisition of the multispectral man-in-the-loop. Began acquisition of an active laser simulator and an Imaging IR Simulation		
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE	PROJECT	
06 - Management and Support		0604759F Major T&E Investment	664597	
(U)	<u>A. Mission Description Continued</u>			
(U)	<u>FY 2000 (\$ in Thousands) Continued</u>			
(U)	& Projection capability. Continue development of aircraft/munitions modeling and simulation.			
(U)	GPS Range Integration. Continue acquisition of Advanced Range Data System (ARDS) pods, S/W improvements, and ground vehicle instrumentation.			
(U)	PRIMES. Begin development of aircraft/munitions interface simulations for F-15 and F-16. Continue advanced signature generator upgrades. Complete the Com/Nav simulator data link.			
(U)	ASTE Range Systems. Continue upgrades to telemetry, TSPI systems, communications and arenas. Begin upgrades to gun ranges, microwave, fuze test, range instrumentation systems and the Kinetic Energy Munition Test Facility. Acquire a Forward Looking Infrared (FLIR) system, and video phototheodolites.			
(U)	Mission Control/Data Analysis. Continue procurement of data acquisition equipment and 3-D terrain generation/visualization capability. Begin acquisition of H/W and S/W for 'near' real-time data processing.			
(U)	Multispectral Missile Warning System Test Capability. Complete the high off boresight angle flight motion simulator (FMS) and countermeasures simulation.			
(U)	Seeker T&E. Begin upgrades to the MMW measurement systems. Acquire a midwave focal plane array (FPA) imaging radiometer. Upgrade the Seeker Test Van tracking system.			
(U)	Eglin Range Upgrades. Will support three on-going projects: 1. Santa Rosa Island Reconstitution will continue development of three focus sites to provide open air Hardware-in-the-Loop (HITL) capability. 2. Armament Systems Test Environment will improve several subsystems by integrating the latest technology to support the T&E of modern weapon systems. 3. C4I Upgrades will improve multifunctional reconfigurable C4I Test and Evaluation infrastructure.			
(U)	Arnold Engineering Development Center			
(U)	CMP. Add increment five worksystems. Initiate the Aircraft Systems Test Operations Pilot effort. Integrate the Product Data Manager application software packages. Initiate the migration of real-property drawings and designs to a raster format.			
(U)	PWT Upgrades. Complete installation of data acquisition and processing system in the 16T wind tunnel. Design the 16S wind tunnel data acquisition and processing system. Begin installation of 16S wind tunnel data acquisition and processing system. Begin installation of 16T/16S wind tunnel plant control systems. Begin planning/design for electric motor repower upgrades. Begin planning for flow quality improvements.			
(U)	Improve Turbine Engine Structural Integrity. Develop Non-Intrusive Stress Monitoring System (NSMS) software to identify turbine engine rotor blade characteristics. Install additional channels for the dynamic data acquisition and processing system.			
(U)	Laser Induced Surface Induction (LISI). Fund the development and test of University of Tennessee Space Institute LISI project			
(U)	Hypersonic Capability Development. Continue study contracts for requirements definition and program planning.			
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE	PROJECT	
06 - Management and Support		0604759F Major T&E Investment	664597	
(U)	A. Mission Description Continued			
(U)	FY 2000 (\$ in Thousands) Continued			
(U)	\$0	Air Force Flight Test Center		
(U)	\$3,651	CAIS I&S. Continue development and implementation of an internet-based instrumentation management information system. Procure additional airborne Solid State Recorder. Procure bandwidth efficient telemetry transmitters and demodulators. IOC of ILIAD will be established. Begin integration of commercial tools for instrumentation support into ILIAD. Test prototype and procure a production Solid State Recorder. Complete rehost of TIMS to ILAD. Begin development of CAIS Bus to Next Generation (NextGen) Bus (Fibre Channel) bridge. Provide the capability to support new airborne instrumentation capabilities including: on-board processing innovations, on-board smart sensors, and high data rate decommutation and recording.		
(U)	\$2,807	ADAPS. Integrate real-time systems across the flight test center to replace older systems. Begin distribution of full capability for post test analysis system. Evaluate and activate first prototypes of modeling and simulation integration of real-time operations.		
(U)	\$3,367	Flight Simulation Modernization. Upgrade TEMS facility with first of four reconfigurable cockpits. This system will be a high fidelity cockpit with a high fidelity visual system. Upgrade the interfaces between the TEMS simulations to allow multi-ship testing.		
(U)	\$2,151	LITENING. Connect the Avionics Test & Integration Complex (ATIC), Ridley Mission Control Center and the Combined Test Forces together. Begin development on the ATM Network Operations Center.		
(U)	\$1,666	MASTER. Develop the repository for models and data using established procedures to validate them with data collected during ground and flight test. The models and the data will be used to support man-in-the-loop simulator testing and training, which will support configurable simulations for the AWMS cockpits. Existing models will be converted to Joint Modeling & Simulation System (J-MASS) real-time compatible models.		
(U)	\$5,021	Heavylift Launch Platform. Upgrade B-52H aircraft to perform heavy-lift launch platform duties for Re-usable Aerospace Vehicles (RAV) testing and operation. The upgrade will strengthen the B-52H wing structure and pylon mounts, increasing the external payload capacity from 25,000 to 70,000 pounds. Upgrade also includes installation of instrumentation needed for monitoring key test parameters of the launch platform and test vehicle.		
(U)	\$0	Space & Missile Systems Center T&E Directorate		
(U)	\$950	Combined Space Test Task Force. Begin development and acquisition of expert systems to support operations and testing of future technology for R&D satellites. Evaluate effectiveness of these systems and their value to support warfighter needs.		
(U)	\$0	Other Projects		
(U)	\$225	Joint Project Office for T&E support.		
(U)	\$56,659	Total		
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BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT	
06 - Management and Support	0604759F Major T&E Investment		664597	
(U) A. Mission Description Continued				
(U) FY 2001 (\$ in Thousands)				
(U) \$0	46 Test Wing, Air Armament Center			
(U) \$2,914	CAIS Integration. Complete integration and required support equipment acquisition.			
(U) \$1,762	C4I Upgrade. Complete the acquisition of workstations, connectivity, HW/SW upgrades, and JTIDS OPFAC upgrades. Acquire test analysis equipment and M&S tools.			
(U) \$2,545	GWEF. Complete the multispectral man-in-the-loop and imaging IR developments. Continue aircraft/munition M&S efforts.			
(U) \$1,711	GPS Range Integration. Complete acquisition of ARDS pods, S/W improvements, and ground vehicle instrumentation.			
(U) \$1,692	PRIMES. Complete the aircraft/munitions interface simulations and the advanced signature generator upgrades. Acquire a synthetic aperture radar target simulator.			
(U) \$1,856	ASTE Range Systems. Complete acquisition of instrumentation/equipment for infrastructure upgrades in such areas as TSPI, microwave, TM, fiber optics/communications, arena test, gun ranges, high speed video, and fuze test.			
(U) \$1,402	Mission Control/Data Analysis. Complete procurement of data acquisition equipment, near real-time data processing equipment, and a 3-D terrain generation/visualization capability.			
(U) \$862	Seeker T&E. Complete upgrades to the MMW measurement system and acquire a high speed digital data recorder, a longwave and shortwave length FPA imaging radiometers. Upgrade the Airborne Seeker Evaluation Test System (ASETS) instrumentation.			
(U) \$0	Arnold Engineering Development Center			
(U) \$3,777	CMP. Procure/Install increment six worksystems. Complete Product Data Manager integration with application software packages. Upgrade older worksystems to the state-of-the-art PC hardware configuration. FOC of CMP systems.			
(U) \$20,133	PWT Upgrades. Complete installation of 16S wind tunnel data acquisition and processing system. Complete installation of plant control systems in 16T/16S wind tunnels. Initiate procurements for electric motor upgrades. Begin design of flow quality improvements.			
(U) \$886	Improve Turbine Engine Structural Integrity. Complete installation of the dynamic data acquisition and processing system and the NSMS. Begin planning/design of the Structural Dynamic Response Analysis Capability.			
(U) \$0	Air Force Flight Test Center			
(U) \$2,662	CAIS I&S. Complete the development and integration of an internet-based instrumentation management system. Continue development of CAIS Bus to NextGen Bus (Fibre Channel) Bridge. Provide data compression and on-board processing operational capability developed under the ARTM program.			
(U) \$2,601	ADAPS. Complete integration of the post test analysis capability at the Combined Test Force level. Complete post test analysis development. Complete the installation of common data systems throughout the Flight Test Center. Upgrade control room workstations. Complete integration of modeling and simulation with real-time operations.			
Project 664597	Page 7 of 9 Pages		Exhibit R-2 (PE 0604759F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
06 - Management and Support	0604759F Major T&E Investment	664597	
(U)	A. Mission Description Continued		
(U)	FY 2001 (\$ in Thousands) Continued		
(U)	\$3,887	Flight Simulation Modernization. Upgrade TEMS Facility with the second of four reconfigurable cockpits.	
(U)	\$2,322	LITENING. Extend the ATM backbone network to critical Range Support buildings and CTFs. Develop the Network Operations Center to monitor and manage network traffic loads. Expand secure network links to allow classified test data to be transferred between integrated secret, compartmentalized facilities.	
(U)	\$1,000	MASTER. Convert and validate flying qualities and avionics models acquired from System Program Offices into J-MASS compatible models. Arnold AFB will begin to convert propulsion, weapons, and airframe interaction models.	
(U)	\$768	Advanced Range Telemetry (ARTM) Integration. Begin integration of RCC FQPSK modulation/demodulation technology into telemetry transmitters/receivers. Begin integration of PCM data compression and forward error correction technology into the range infrastructure. Begin improvement and modernization of telemetry ground stations.	
(U)	\$0	Space & Missile Systems Center T&E Directorate	
(U)	\$942	Combined Space Test Task Force. Continue development and evaluation of expert systems to support operations and testing of future technology R&D satellites. Implement lessons learned and transition technical advancements to operational users.	
(U)	\$0	Other Projects	
(U)	\$335	Joint Project Office for T&E support.	
(U)	\$54,057	Total	
(U)	B. Budget Activity Justification		
	This Program Element is in Budget Activity 6, Management and Support, because it is a Research and Development (R&D) effort for Improvement and Modernization of T&E capabilities at Air Force Test Centers.		
(U)	C. Program Change Summary (\$ in Thousands)		
(U)		FY 1999	FY 2000
(U)	Previous President's Budget (FY 2000 PBR)	40,416	47,334
(U)	Appropriated Value	41,068	57,934
(U)	Adjustments to Appropriated Value		
	a. Congressional/General Reductions	-652	-39
	b. Small Business Innovative Research	-805	
	c. Omnibus or Other Above Threshold Reprogram		-870
	d. Below Threshold Reprogram	-1,403	
Project 664597		Page 8 of 9 Pages	
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
06 - Management and Support	0604759F Major T&E Investment	664597	
(U) C. Program Change Summary (\$ in Thousands) Continued			
e. Rescissions	FY 1999	FY 2000	FY 2001
f. Other	-213	-366	
(U) Adjustments to Budget Years Since FY 2000 PBR			
(U) Current Budget Submit/FY 2001 PBR	37,995	56,659	-2,181
(U) Significant Program Changes:			54,057
Congressional action, FY00 plus up of 13,600: Eglin Range Upgrade (4,500), Hypersonic Capability Development (4,000), Heavy Launch Platform (5,100).			TBD
(U) D. Other Program Funding Summary (\$ in Thousands)			
	FY 1999	FY 2000	FY 2001
	Actual	Estimate	Estimate
(U) AF RDT&E			
(U) Other APPN			
Related RDT&E: PE 0604256F, Threat Simulator Development and PE 0604940D, Central Test and Evaluation Investment Program			
(U) E. Acquisition Strategy			
This program element uses several different contracting strategies to provide the most cost effective T&E investment solutions. The main acquisition strategy is to use full and open competition wherever possible to improve and modernize existing test capabilities.			
(U) F. Schedule Profile			
	FY 1999	FY 2000	FY 2001
	1	2	3
	4	1	2
		4	3
			4
(U) This PE contains multiple schedule profiles which are available upon request.			
Project 664597		Exhibit R-2 (PE 0604759F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
06 - Management and Support		0605101F RAND Project Air Force								661110	
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
661110	Project Air Force	23,485	19,864	24,080	20,354	20,769	21,198	21,537	Continuing		
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	
(U) A. Mission Description This program provides for continuing analytical research across a broad spectrum of aerospace issues and concerns. The Project AIR FORCE (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 Steering Group, 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 four primary research program areas: strategy and doctrine; aerospace force development; manpower, personnel and training; and resource management and system acquisition. Integrative research projects are also conducted at the division level with direct support assistance provided through the most applicable program. Research programs address organizational cross-cutting issues as defined by specific research themes approved by the Air Force Steering Group. These research themes encompass a wide spectrum of topics including external challenges to national security, integrating the ISR Mix, implementation of the Air Expeditionary Force, tailoring and reducing infrastructure and improved weapon system costing. (U) In FY 99, principal research efforts included studies on Chinese defense modernization and the USAF, NATO's role in ensuring energy security, the role of aerospace power in urban conflict, implications of unmanned air vehicles for the future shape of the Air Force, enhancing the effectiveness of air expeditionary forces, exploiting commercial communication systems, implementation of lean logistics and agile combat support, improved Air Force contracting for support services, improved weapon system cost analysis, and improved ways of measuring and forecasting Air Force readiness, managing the aging aircraft fleet, shaping the future total force, and creating a human resource system to support the expeditionary aerospace force. (U) During FY00, research undertaken by Project AIR FORCE (PAF) will be driven by specific focus areas developed through the USAF strategic planning process, force modernization initiatives, and enduring management and resource areas of concern to USAF leadership. The research agenda for FY00 extends work initiated in FY99. Work has been defined in support of research themes which focus on major external challenges and opportunities affecting USAF operations; institutionalization of the USAF vision and strategic plan, implementation of the Air Expeditionary Force concept; integration of air and space operations; power projection forces; and, force mix and infrastructure. Of particular note in FY00 will be the continuation of an assessment of Kosovo lessons learned, covering a broad spectrum of planning,											

Project 661110

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Exhibit R-2 (PE 0605101F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
06 - Management and Support	0605101F RAND Project Air Force	661110	
(U) A. Mission Description Continued operational and support activities and the application of these findings to future Air Force plans and operations. (U) For FY01, the current research themes which guide the PAF research agenda will be adjusted as necessary, primarily to reflect the major questions that will be addressed during QDR 2001. Questions of interest will likely be incorporation of Kosovo lessons learned, maturation of the AEF concept of operations, continued use of commercial sources and methods, effective use of Air Force resources and long term modernization of the aerospace force. (U) PAF research spans functional and organizational boundaries and is managed in a manner to facilitate independence and freedom from organizational bias thereby providing perspectives and insights to senior Air Force leaders free from parochial spins not necessarily in the best interest of the Air Force at large. (U) Benefits of independent non-Department of Defense analysis of complex present day and emerging issues are shared 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) FY 1999 (\$ in Thousands)			
(U) \$4,300	Strategy and Doctrine		
(U) \$6,800	Force Modernization and Employment		
(U) \$8,400	Resource Management and Systems Acquisition		
(U) \$3,985	Integrative Research/Direct Support		
(U) \$23,485	Total		
(U) FY 2000 (\$ in Thousands)			
(U) \$3,500	Strategy and Doctrine		
(U) \$6,250	Aerospace Force Development		
(U) \$2,400	*Manpower, Personnel and Training		
(U) \$6,400	Resource Management and Systems Acquisition		
(U) \$1,314	Integrative Research / Direct Support		
(U) \$19,864	Total		
* No split in FY99, program new in FY00			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE			PROJECT
06 - Management and Support	0605101F RAND Project Air Force			661110
(U) A. Mission Description Continued				
(U) FY 2001 (\$ in Thousands)				
(U) \$4,420	Strategy and Doctrine			
(U) \$6,965	Aerospace Force Development			
(U) \$2,966	Manpower, Personnel and Training			
(U) \$7,644	Resource Management and Systems Acquisition			
(U) \$2,085	Integrative Research / Direct Support			
(U) \$24,080	Total			
(U) B. Budget Activity Justification				
This program is in budget activity 6 - Management and Support, because it funds RAND Project AIR FORCE (PAF), the only Air Force Federally Funded Research and Development Center for studies and analyses.				
(U) C. Program Change Summary (\$ in Thousands)				
(U) Previous President's Budget (FY 2000 PBR)		<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
(U) Appropriated Value		19,991	20,560	20,294
(U) Adjustments to Appropriated Value		21,168	20,560	
a. Congressional/General Reductions		-1,177	-262	
b. Small Business Innovative Research		-675	-304	
c. Omnibus or Other Above Threshold Reprogram		4,300		
d. Below Threshold Reprogram		-131	-130	
e. Rescissions				
f. Other				
(U) Adjustments to Budget Years Since FY 2000 PBR			3,786	
(U) Current Budget Submit/FY 2001 PBR		23,485	19,864	24,080
(U) <u>Significant Program Changes:</u>				
N/A				
Project 661110			Page 3 of 4 Pages	
			Exhibit R-2 (PE 0605101F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
06 - Management and Support		0605101F RAND Project Air Force								661110	
(U)	D. Other Program Funding Summary (\$ in Thousands)										
		FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to	Total Cost	
		Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete		
(U)	Not Applicable										
(U)	E. Acquisition Strategy										
	The RAND Project Air Force contract is a 5 year (base + 4 option yrs) Cost Plus / Award Fee contract										
(U)	F. Schedule Profile										
					FY 1999		FY 2000		FY 2001		
					1	2	3	4	1	2	3
					*						4
						*					
(U)	Approve FY99 Research Plan										
(U)	Adjust FY99 Research Plan										
(U)	Program-Wide Evaluation - FY99					*					
(U)	Draft FY00/01 Research Plan					*					
(U)	Approve FY00/01 Research Plan										
(U)	Annual Evaluation FY00										
(U)	Draft FY01 Research Plan							X			
(U)	Approve FY01 Research Plan							X			
(U)	Adjust FY01 Research Plan							X		X	

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Exhibit R-2 (PE 0605101F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									
BUDGET ACTIVITY		PE NUMBER AND TITLE						DATE	PROJECT
06 - Management and Support		0605306F Ranch Hand II Epidemiology Study						February 2000	662767
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
662767 Ranch Hand II Epidemiology Study	4,122	4,408	4,356	11,318	10,892	4,825	4,943	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
(U) A. Mission Description This 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 Phenoxyl 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 phenoxyl herbicides and their associated dioxins. Dioxins are an unwanted by-product from numerous current manufacturing processes and a major health concern of the EPA and other government agencies. This project involves a 20-year study, which was initiated in 1982, that compares United States Air Force (USAF) Ranch Hand personnel to a control group of USAF crew members and support personnel who were not exposed to herbicides while serving in Vietnam. Approximately 20,000 individuals (exposed personnel group plus control group) are participating in the annual mortality study, with approximately 2,200 (exposed personnel group plus control group) of these participating in the detailed morbidity study during each physical examination cycle. The detailed physical examination cycle includes follow-up health examinations 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. The Congressionally-established Ranch Hand Advisory Committee has directed that all study findings be reported to the scientific community as peer-reviewed journal articles.									
(U) FY 1999 (\$ in Thousands)	Completed examination data base and conducted statistical analyses of examination data.								
(U) \$1,390	Analyzed laboratory specimens to include serum dioxin assays and completion of fat biopsy analyses as well as conducted statistical research studies to include completion of a mathematical model to integrate mortality and morbidity data for analysis.								
(U) \$229	Processed and documented examination data to include updating of the participant database; conducted medical records coding; performed the annual mortality analysis of approximately 1,200 Ranch Hand personnel and 19,000 comparison personnel; and conducted data analysis for articles to be submitted to peer-reviewed journals as directed.								
(U) \$2,503	Total								
(U) \$4,122									
Project 662767		Page 1 of 3 Pages						Exhibit R-2 (PE 0605306F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE	PROJECT
06 - Management and Support		0605306F Ranch Hand II Epidemiology Study	662767
(U)	<u>A. Mission Description Continued</u>		
(U)	<u>FY 2000 (\$ in Thousands)</u>		
(U)	\$1,120	Complete statistical analysis of examination data. Document all analyses and findings in 4,000 page, fifth cycle final report. Conduct analyses as directed by the Congressionally-established Ranch Hand Advisory Committee. Analyses are based on current morbidity data trends and findings.	
(U)	\$386	Conduct other agency/university studies supporting scientific effort; start Center for Disease Control study to test for the presence of other forms of dioxin than found in Agent Orange; conduct morbidity and mortality mathematical modeling; conduct dioxin half-life and serum dioxin analyses.	
(U)	\$2,902	Process and document examination data to include updating of the participant database; conduct medical records coding; perform the annual mortality analysis of approximately 1,200 Ranch Hand personnel and 19,000 comparison personnel; and conduct data analysis for articles to be submitted to peer-reviewed journals as directed.	
(U)	\$4,408	Total	
(U)	<u>FY 2001 (\$ in Thousands)</u>		
(U)	\$1,105	Conduct analyses as directed by the Congressionally-established Ranch Hand Advisory Committee. Analyses are based on current morbidity data trends and findings. Conduct process review prior to final examination cycle to determine potential participation rates, requirements for in-house or regional examination sites and statistical, schedule, and cost implications of the aging study population.	
(U)	\$567	Conduct other agency/university studies supporting scientific effort; complete Center for Disease Control study to test for the presence of other forms of dioxin than found in Agent Orange; complete morbidity and mathematical modeling; complete dioxin half-life and serum dioxin analyses; start semen DNA study.	
(U)	\$2,684	Process and document examination data to include updating of the participant database; conduct medical records coding; perform the annual mortality analysis of approximately 1,200 Ranch Hand personnel and 19,000 comparison personnel; and conduct data analysis for articles to be submitted to peer-reviewed journals as directed.	
(U)	\$4,356	Total	
(U)	<u>B. Budget Activity Justification</u>		
	This program is in Budget Activity 6, Management and Support, since it includes research and development efforts directed towards support of installations or operations required for general research and development use.		
Project 662767		Page 2 of 3 Pages	
		Exhibit R-2 (PE 0605306F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000		PROJECT					
BUDGET ACTIVITY										PE NUMBER AND TITLE				662767				
06 - Management and Support										0605306F Ranch Hand II Epidemiology Study				662767				
(U)	C. Program Change Summary (\$ in Thousands)										FY 1999	FY 2000	FY 2001	Total Cost				
(U)	Previous President's Budget (FY 2000 PBR)										4,273	4,510	4,554	TBD				
(U)	Appropriated Value										4,408	4,510						
(U)	Adjustments to Appropriated Value										-135	-10						
	a. Congressional/General Reductions										-78							
	b. Small Business Innovative Research											-63						
	c. Omnibus or Other Above Threshold Reprogram										-50							
	d. Below Threshold Reprogram										-23	-29						
	e. Rescissions													TBD				
	f. Other																	
(U)	Adjustments to Budget Years Since FY 2000 PBR												-198					
(U)	Current Budget Submit/FY 2001 PBR										4,122	4,408	4,356	TBD				
(U)	Significant Program Changes:																	
	Not Applicable.																	
(U)	D. Other Program Funding Summary (\$ in Thousands)										FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to	Total Cost	
											Estimate	Estimate	Estimate	Estimate	Estimate	Complete		
(U)	Not Applicable.																	
(U)	E. Acquisition Strategy																	
	Not Applicable.																	
(U)	F. Schedule Profile																	
											1	2	3	4	1	2	3	4
(U)	Not Applicable.																	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
06 - Management and Support		0605712F Initial Operational Test & Evaluation								660191	
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
660191	Initial Operational Test & Eval	29,171	26,510	28,238	29,464	29,764	30,359	30,960	Continuing	TBD	
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	
(U) A. Mission Description Initial Operational Test and Evaluation (IOT&E) is conducted to determine the operational effectiveness and suitability of systems undergoing research and development (R&D) efforts. It 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 beyond low-rate initial production (LRIP), Milestone III, fielding, and declaration of initial operational capability (IOC). 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. This PE funds the OT participation in Combined Developmental Test (DT)/OT, the Air Force participation in Multiservice Operational Test and Evaluation (MOT&E), and Follow-on Operational Test and Evaluation (FOT&E) when it is the continuation of IOT&E activities past the Milestone III decision. FOT&E answers specific questions about unresolved Critical Operational Issues (COIs) and test issues, or completes areas not finished during the IOT&E. This PE also funds related operational test and evaluation (OT&E) activities such as, Operational Utility Evaluations (OUE), Early Operational Assessments (EOA) and Operational Assessments (OA), and independent IOT&E which support major milestones and decision points prior to Milestone III, fielding, or declaration of IOC. IOT&E programs are identified in several system categories: Air; Space; Weapons; Command, Control, Communications, Computers, and Intelligence (C4I); Combat Support; and Test Support. Air Force Operational Test and Evaluation Center (AFOTEC) obtains general support services from contracts awarded after employing full and open competition contracting strategies. (U) FY 1999 (\$ in Thousands) (U) \$13,482 (U) CATEGORY: AIR SYSTEMS (renamed category Aircraft/Support to read Air Systems). Planned, executed, and reported IOT&E activities, to include the following: Airborne Laser (ABL); Common Missile Warning System (CMWS); B-1B Conventional Mission Upgrade Program (CMUP) BLK E; B-1B CMUP BLK F; CV-22; F-15 Tactical Electronic Warfare System (TEWS); F-22; Joint Helmet Mounted Cueing System (JHMCS); Joint Strike Fighter (JSF); and other systems. - ABL: Advance planning for EOA2 and IOT&E. - CMWS: Planned and executed OA; advance planning for combined DT/OT and IOT&E. - B-1B CMUP Block E: Planned and executed OA and combined DT/OT. Detailed Planning for IOT&E. - B-1B CMUP Block F: Planned and executed OA; plan for combined DT/OT. Advance planning for IOT&E.											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	660191
06 - Management and Support	0605712F Initial Operational Test & Evaluation	February 2000	
(U) <u>A. Mission Description Continued</u>			
(U) <u>FY 1999 (\$ in Thousands) Continued</u>			
	- CV-22: Advance planning for MV-22 IOT&E involvement.		
	- F-15 TEWS: Executed IOT&E and wrote report.		
	- F22: Executed OA. Advance planning for combined DT/OT and IOT&E.		
	- JHMCS: Executed IOT&E (was identified in the General category in the Feb 1999 R-2 Exhibit).		
	- JSF: Executed EOA. Advance planning for combined DT/OT.		
(U) \$0			
(U) \$2,078	(U) CATEGORY: SPACE SYSTEMS (renamed category Space to read Space Systems). Planned, executed, and reported IOT&E activities, to include the following: MILSTAR II; National Polar-Orbit Ops Environment Satellite System (NPOESS); Space Based InfraRed System (SBIRS); and other systems		
	- MILSTAR II: Planned and executed combined DT/OT. Advance planning for MOT&E.		
	- NPOESS: Early involvement; advance planning for OA.		
	- SBIRS: Detailed planning and execution of combined DT/OT and IOT&E (SBIRS High and SBIRS LEO have been combined under SIBRS).		
(U) \$0			
(U) \$6,279	(U) CATEGORY: WEAPONS (renamed category Missile/Munitions to read Weapons). Planned, executed, and reported IOT&E activities, to include the following: AIM-9X Air to-Air Missile; Hard Target Smart Fuse (HTSF); ICBM Upgrades (Guidance Replacement Program (GRP), Propulsion Replacement Program (PRP)); Joint Air-to-Surface Standoff Missile (JASSM); Joint Direct Attack Munition (JDAM); Joint Standoff Weapon (JSOW); Wind Corrected Munitions Dispenser (WCMD); and other systems.		
	- AIM-9X: Executed OA and wrote report. Participate in DT. Advance planning for IOT&E.		
	- HTSF: Advance planning for combined DT/OT (was identified in the General category in the Feb 1999 R-2 Exhibit).		
	- ICBM Upgrades: Executed GRP IOT&E and wrote final report. Detailed planning for PRP IOT&E.		
	- JASSM: Advance planning for OA and combined DT/OT.		
	- JDAM: Executed IOT&E and wrote final report.		
	- JSOW: Executed combined DT/OT. Detailed planning for MOT&E.		
	- WCMD: Detailed planning for combined DT/OT. Advance planning for IOT&E.		
(U) \$0			
(U) \$1,379	(U) CATEGORY: COMMAND, CONTROL, COMMUNICATIONS, COMPUTERS, INTELLIGENCE (C4I). Planned, executed, and reported IOT&E activities, to include the following: Deliberate Crisis Action Planning and Execution System (DCAPES); Distributed Common Ground System (DCGS); Defense IEMATS (DIRECT); Global Transportation Network (GTN); Integrated Broadcast System (IBS);		
Project 660191			Exhibit R-2 (PE 0605712F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
06 - Management and Support	0605712F Initial Operational Test & Evaluation	660191	
(U) A. Mission Description Continued			
(U) FY 1999 (\$ in Thousands) Continued	Region/Sector Air Operation Center (R/SAOC); Theater Battle Management - Core Systems (TBM-CS); TRANSCOM Regulating and C2 Evacuation System (TRAC2ES); and other systems.		
	- DCAPES: Advance planning for combined DT/OT and OUE.		
	- DCGS: Executed combined DT/OT. Advance planning for IOT&E.		
	- DIRECT: Executed OA. Detailed planning for IOT&E.		
	- GTN: Executed combined DT/OT and operational field tests (OFT) on incremental software releases.		
	- IBS: Advance planning for OUE		
	- R/SAOC: Executed combined DT/OT. Detailed planning for OFT and IOT&E.		
	- TBM-CS: Executed combined DT/OT. Advance planning for IOT&E.		
	- TRAC2ES: Executed combined DT/OT. Advance planning for IOT&E.		
(U) \$0			
(U) \$1,167	(U) CATEGORY: COMBAT SUPPORT (new category). Planned, executed, and reported IOT&E activities, to include the following: Combat Survivor Evader Locator (CSEL); Deployable Power & Generation Distribution System (DPGDS); Integrated Logistics System - Supply (ILS-S); Joint Ammunitions Management Standard System (JAMSS); Joint Computer Aided Acq and Log Systems (JCALS); Joint Service Elec Combat System Tester (JSECS); Next Generation Small Loader (NGSL); Range Standardization Automation (RSA); Tactical Weather Radar (TWR); and other systems.		
	- CSEL: Advance planning for combined DT/OT and OA.		
	- DPGDS: Executed combined DT/OT. Advance planning for IOT&E.		
	- ILS-S: Advance planning for combined DT/OT, OFT, and IOT&E.		
	- JAMSS: Executed combined DT/OT. Advance planning for IOT&E.		
	- JCALS: Executed incremental combined DT/OT events and dedicated OT events.		
	- JSECS: Advance planning for combined DT/OT and IOT&E.		
	- NGSL: Detailed planning and execution of OA. Advance planning for IOT&E.		
	- RSA: Executed incremental OUEs.		
	- TWR: Executed combined DT/OT. Complete detailed planning for and execute IOT&E.		
(U) \$0			
(U) \$4,786	(U) CATEGORY: TEST SUPPORT (renamed category General to read Test Support). Provide test capabilities infrastructure to support OT. - Test Capabilities Infrastructure: Advance planning for software evaluation tool development, non-MRTFB instrumentation, and missile		
Project 660191		Page 3 of 10 Pages	
		Exhibit R-2 (PE 0605712F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
06 - Management and Support	0605712F Initial Operational Test & Evaluation	February 2000 660191
(U) A. Mission Description Continued		
(U) FY 1999 (\$ in Thousands) Continued		
	warning sensor stimulator.	
(U) \$29,171	- Y2K: Assisted MAJCOM to plan and conduct of Y2K testing and consequence management.	
	Total	
(U) FY 2000 (\$ in Thousands)		
(U) \$15,029	(U) CATEGORY: AIR SYSTEMS. Plan, execute, and report IOT&E activities, to include the following: Airborne Laser (ABL); F-15 APG-63 Radar Upgrade (APG-63); Advanced Strategic & Tactical IR Expendable (ASTE); Common Missile Warning System (CMWS); B-1B Conventional Mission Upgrade Program (CMUP) BLK E; B-1B CMUP BLK F; CV-22; F-15 Fiber Optic Towed Decoy (F-15 FOTD); F-22; Joint Helmet Mounted Cueing System (JHMCS); Joint Strike Fighter (JSF); Miniature Air Launched Decoy (MALD); and other system.	
	- ABL: Advance planning for EOA2, combined DT/OT, and IOT&E.	
	- APG-63: Execute IOT&E Phase I and write interim summary report. Detail planning for IOT&E Phase II.	
	- ASTE: Conduct incremental IOT&E. Advance planning for FOT&E.	
	- CMWS: Advance planning for combined DT/OT and IOT&E.	
	- B-1B CMUP Block E: Write OA report; complete detailed planning for and conduct IOT&E.	
	- B-1B CMUP Block F: Executing OA; plan and execute combined DT/OT. Advance planning for IOT&E.	
	- CV-22: Participate in OPTEVFOR-led MV-22 IOT&E. Plan and execute combined DT/OT.	
	- F-15 FOTD: Advance planning for combined DT/OT and IOT&E.	
	- F-22: Execute OA. Detailed planning and execution of combined DT/OT. Advance planning for IOT&E.	
	- JHMCS: Execute IOT&E and write final report (identified in the General category in the Feb 1999 R-2 Exhibit).	
	- JSF: Execute EOA. Advance planning for combined DT/OT.	
	- MALD: Detailed planning for IOT&E.	
(U) \$0	(U) CATEGORY: SPACE SYSTEMS. Plan, execute, and report IOT&E activities, to include the following: Advanced EHF Satellite Communications; Evolved Expendable Launch Vehicle (EELV); Global Broadcast System (GBS); Global Positioning Satellite Block IIR (GPS IIR); MILSTAR II; National Polar-Orbit Ops Environment Satellite System (NPOESS); Space Based InfraRed System (SBIRS); and other systems.	
(U) \$1,059	- Advanced EHF: Detailed planning for OA.	
	- EELV: Detailed planning and execution of OA.	
	- GBS: Execute combined DT/OT and MOT&E. Detailed planning for FOT&E.	
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE		
06 - Management and Support	0605712F Initial Operational Test & Evaluation	February 2000	660191
(U) A. Mission Description Continued			
(U) FY 2000 (\$ in Thousands) Continued			
	- GPS IIR: Execute combined DT/OT. Advance planning for IOT&E.		
	- MILSTAR II: Plan and execute combined DT/OT. Detailed planning and execute MOT&E.		
	- NPOESS: Detailed planning for OA.		
	- SBIRS: Complete IOT&E and write final report. Perform initial OUE on post-Increment 1 ground system upgrade.		
(U) \$0			
(U) \$6,605	(U) CATEGORY: WEAPONS. Plan, execute, and report IOT&E activities, to include the following: AIM-9X Air-to-Air Missile; Hard Target Smart Fuse (HTSF); ICBM-MMIII Propulsion Replacement Program (PRP); Joint Air-to-Surface Standoff Missile (JASSM); Joint Standoff Weapon (JSOW); Wind Corrected Munitions Dispenser (WCMD); and other systems.		
	- AIM-9X: Plan and assist DT. Detailed planning for IOT&E.		
	- HTSF: Detailed planning for combined DT/OT. Advance planning for IOT&E.		
	- PRP: Execute IOT&E and write final report.		
	- JASSM: Conduct OA and combined DT/OT. Advance planning for IOT&E.		
	- JSOW: Execute MOT&E and write final report.		
	- WCMD: Execute combined DT/OT. Detailed planning and execution of IOT&E.		
(U) \$0			
(U) \$1,380	(U) CATEGORY: COMMAND, CONTROL, COMMUNICATIONS, COMPUTERS, AND INTELLIGENCE (C4I). Plan, execute, and report IOT&E activities, to include the following: Deliberate Crisis Action Planning and Execution System (DCAPES); Distributed Common Ground System (DCGS); Defense IEMATS (DIRECT); Global Air Traffic Management (GATM); Global Transportation Network (GTN); Integrated Broadcast System (IBS); ICBM Minuteman MEECN Program (ICBM MMP); Region/Sector Air Operation Center (R/SAOC); Theater Battle Management - Core Systems (TBM-CS); TRANSCOM Regulating and C2 Evacuation System (TRAC2ES); Global Transportation Network (GTN), and other systems.		
	- DCAPES: Execute combined DT/OT and OUE.		
	- DCGS: Execute combined DT/OT. Detailed planning for IOT&E.		
	- DIRECT: Execute IOT&E and write final report. Advance planning for FOT&E.		
	- GATM: Execute EOA. Detailed planning and execution of combined DT/OT.		
	- GTN: Execute combined DT/OT and write OFT report.		
	- IBS: Execute OUEs Advance planning for MOT&E.		
	- ICBM MMP: Detailed planning and execution of combined DT/OT and IOT&E.		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE		
06 - Management and Support	0605712F Initial Operational Test & Evaluation	February 2000	660191
(U) A. Mission Description Continued			
(U) FY 2000 (\$ in Thousands) Continued			
	- R/SAOC: Execute OFT and IOT&E. Advance planning for FOT&E.		
	- TBM-CS: Execute combined DT/OT. Advance planning for IOT&E.		
	- TRAC2ES: Continue combined DT/OT. Detailed planning and execution of IOT&E. Write final report.		
	- GTN: DT/OT final report was published Oct 99.		
(U) \$0			
(U) \$1,331	(U) CATEGORY: COMBAT SUPPORT. Plan, execute, and report IOT&E activities, to include the following: Combat Survivor Evader Locator (CSEL); Defense Civilian Personnel Data System (DCPDS); Integrated Logistics System - Supply (ILS-S); Joint Ammunitions Management Standard System (JAMSS); Joint Computer Aided Acq and Log Systems (JCALS); Joint Mission Planning System (JMPS); Joint Precision Approach & Landing system (JPALS); Joint Service Elec Combat System Tester (JSECST); Joint Simulation System (JSIMS); Next Generation Small Loader (NGSL); Range Standardization Automation (RSA); Tactical Weather Radar (TWR); Common Low Observable Verification System (CLOVerS), and other systems.		
	- CSEL: Detailed planning and execute combined DT/OT and OA. Advance planning for IOT&E.		
	- DCPDS: Detailed planning and execution of IOT&E.		
	- ILS-S: Execute combined DT/OT, OFT, and IOT&E		
	- JAMSS: Execute combined DT/OT. Detailed planning for IOT&E.		
	- JCALS: Execute incremental combined DT/OT events and dedicated OT events.		
	- JMPS: Detailed planning and execution of EOA. Advance planning for IOT&E.		
	- JPALS: Advance planning and execution of EOA.		
	- JSECST: Execute combined DT/OT and IOT&E. Write final report.		
	- JSIMS: Plan and execute B2 CE OA and write final report (National Air Space Model (NASM) was combined with JSIMS).		
	- NGSL: Complete OA and write report. Detailed planning for IOT&E.		
	- RSA: Execute incremental OUEs		
	- TWR: Complete IOT&E and write final report.		
	- CLOVerS: Advance planning for IOT&E (listed in the General category in the Feb 1999 R-2 Exhibit).		
(U) \$0	(U) CATEGORY: TEST SUPPORT. Provide test capabilities infrastructure to support OT.		
(U) \$1,106	- Test Capabilities Infrastructure: Developing software evaluation tools, non-MRTFB instrumentation, and missile warning sensor stimulator.		
(U) \$26,510	Total		
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
06 - Management and Support	0605712F Initial Operational Test & Evaluation	February 2000 660191
(U) A. Mission Description Continued		
(U) FY 2001 (\$ in Thousands)		
(U) \$15,795	(U) CATEGORY: AIR SYSTEMS. Plan, execute, and report IOT&E activities, to include the following: Airborne Laser (ABL); F-15 APG-63 Radar Upgrade (APG-63); Advanced Strategic & Tactical IR Expendable (ASTE); B-1B Conventional Mission Upgrade Program (CMUP) BLK E; B-1B CMUP BLK F; Common Missile Warning System (CMWS); CV-22; F-15 Fiber Optic Towed Decoy (F-15 FOTD); F-22; Joint Strike Fighter (JSF); Miniature Air Launched Decoy (MALD); and other systems. - ABL: Detailed planning for EOA2. Advance planning for combined DT/OT, and IOT&E. - APG-63: Execute IOT&E Phase II and write final report. - ASTE: Conduct incremental IOT&E. Advance planning for FOT&E. - B-1B CMUP Block E: Complete IOT&E and write final test report. - B-1B CMUP Block F: Complete OA and write report; continue combined DT/OT. Detailed planning for IOT&E. - CMWS: Advance planning for combined DT/OT and IOT&E. - CV-22: Continuing combined DT/OT. Detailed planning for CV-22 IOT&E. - F-15 FOTD: Advance planning for combined DT/OT and IOT&E. - F-22: Execute OA. Detailed planning and execution of combined DT/OT. Detailed planning for IOT&E. - JSF: Execute EOA. Advance planning for combined DT/OT. - MALD: Execute IOT&E and write final report.	
(U) \$0		
(U) \$1,295	(U) CATEGORY: SPACE SYSTEM. Plan, execute, and report IOT&E activities, to include the following: Advanced EHF Satellite Communications (Advanced EHF); Evolved Expendable Launch Vehicle (EELV); Global Broadcast System (GBS); Global Positioning Satellite Block IIR (GPS IIR); National Polar-Orbit Ops Environment Satellite System (NPOESS); MILSTAR II; Space Based InfraRed System (SBIRS); and other systems. - Advanced EHF: Execute OA and write report. - EELV: Complete OA and write report. Detailed planning for IOT&E. - GBS: Complete MOT&E and write final report. Execute FOT&E. - GPS IIR: Execute combined DT/OT. Advance planning for IOT&E. - MILSTAR II: Complete MOT&E and write final report. - NPOESS: Conduct OA and write report. - SBIRS: Continue performing OUEs to support Increment 2 ground system upgrades.	
(U) \$0		
Project 660191		Exhibit R-2 (PE 0605712F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
06 - Management and Support	0605712F Initial Operational Test & Evaluation	660191	
(U) A. Mission Description Continued			
(U) FY 2001 (\$ in Thousands) Continued			
(U) \$6,883	(U) CATEGORY: WEAPONS. Plan, execute, and report IOT&E activities, to include the following: Agent Defeat Weapon (ADW); AIM-9X Air-to-Air Missile; Hard Target Smart Fuse (HTSF); Joint Air-to-Surface Standoff Missile (JASSM); Joint Standoff Weapon (JSOW); and other systems.		
	- ADW: Early Involvement.		
	- AIM-9X: Continue detailed planning and execute IOT&E.		
	- HTSF: Detailed planning and execution of IOT&E.		
	- JASSM: Detailed planning and execution of IOT&E.		
	- JSOW: Advance planning for FOT&E.		
(U) \$0			
(U) \$1,219	(U) CATEGORY: COMMAND, CONTROL, COMMUNICATIONS, COMPUTERS, AND INTELLIGENCE (C4I). Plan, execute, and report IOT&E activities, to include the following: Deliberate Crisis Action Planning and Execution System (DCAPES); Distributed Common Ground System (DCGS); Global Air Traffic Management (GATM); Integrated Broadcast System (IBS); ICBM Minuteman MEECN Program (ICBM MMP); Region/Sector Air Operation Center (R/SAOC); Theater Battle Management - Core Systems (TBM-CS); Global Transportation Network (GTN), and other systems.		
	- DCAPES: Complete OUE and write final report.		
	- DCGS: Complete combined DT/OT and execute IOT&E.		
	- GATM: Continue to execute combined DT/OT.		
	- IBS: Detailed planning and execution of MOT&E.		
	- ICBM MMP: Complete IOT&E and write final report.		
	- R/SAOC: Execute FOT&E.		
	- TBM-CS: Execute Combined DT/OT. Detailed planning for IOT&E.		
	- GTN: DT/OT final report was published Oct 99.		
(U) \$0			
(U) \$1,546	(U) CATEGORY: COMBAT SUPPORT. Plan, execute, and report IOT&E activities, to include the following: Combat Survivor Evader Locator (CSEL); Integrated Logistics System - Supply (ILS-S); Joint Ammunitions Management Standard System (JAMSS); Joint Mission Planning System (JMPS); Joint Precision Approach & Landing system (JPALS); Joint Simulation System (JSIMS); Next Generation Small Loader (NGSL); Range Standardization Automation (RSA); Common Low Observable Verification System (CLOVerS), and other systems.		
	- CSEL: Detailed planning for IOT&E.		
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		Exhibit R-2 (PE 0605712F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
06 - Management and Support	0605712F Initial Operational Test & Evaluation	660191	
(U) A. Mission Description Continued			
(U) FY 2001 (\$ in Thousands) Continued			
	- ILS-S: Advance planning for Combined Test Force (CTF) activities for next software release.		
	- JAMSS: Detailed planning and execution of IOT&E. Write final report.		
	- JMPS: Detailed planning and execution of IOT&E.		
	- JPALS: Complete EOA and write report.		
	- JSIMS: Plan and execute B3 CE OA and write final report.		
	- NGSL: Execute IOT&E and write final report.		
	- RSA: Execute incremental OUEs.		
	- CLOVerS: Detailed planning and execution of IOT&E. Write final report.		
(U) \$0			
(U) \$1,500	(U) CATEGORY: TEST SUPPORT. Provide test capabilities infrastructure to support OT.		
(U) \$28,238	- Test Capabilities Infrastructure: Continue to develop test capability requirements and shortfalls (i.e. software evaluation tools, mod/sim, etc).		
	Total		
(U) B. Budget Activity Justification			
	This program element is in Budget Activity 6, RDT&E Management Support, because it funds weapon system 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.		
(U) C. Program Change Summary (\$ in Thousands)			
	Previous President's Budget (FY 2000 PBR)	<u>FY 1999</u>	<u>FY 2000</u>
(U) Appropriated Value		27,294	23,819
(U) Adjustments to Appropriated Value		29,541	27,219
a. Congressional/General Reductions		-2,247	-131
b. Small Business Innovative Research			-406
c. Omnibus or Other Above Threshold Reprogram		2,040	
d. Below Threshold Reprogram		-163	-172
e. Rescissions			
f. Other			-451
(U) Adjustments to Budget Years Since FY 2000 PBR			
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
06 - Management and Support	0605712F Initial Operational Test & Evaluation	660191	
(U) <u>C. Program Change Summary (\$ in Thousands) Continued</u>			Total Cost
(U) Current Budget Submit/FY 2001 PBR	FY 1999 29,171	FY 2000 26,510	FY 2001 28,238
(U) <u>Significant Program Changes:</u>			TBD
FY99: a below threshold reprogramming increase of \$2,400K in support of Y2K requirements; reductions of \$360K to fund other Air Force Requirements. FY00: The FY 2000 appropriated value includes a Congressional plus up of \$3.4M for IOT&E (no specific language).			
(U) <u>D. Other Program Funding Summary (\$ in Thousands)</u>			Total Cost
	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate
(U) N/A			
(U) <u>E. Acquisition Strategy</u>			Cost to Complete
N/A			
(U) <u>F. Schedule Profile</u>			
	FY 1999	FY 2000	FY 2001
	1 2 3 4	1 2 3 4	1 2 3 4
(U) IOT&E is not an acquisition program There are numerous IOT&E programs in any one fiscal year. Specific IOT&E schedules can be made available on a case-by-case basis through AFOTEC, Director of Operations.			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY											
06 - Management and Support											
0605807F Test and Evaluation Support											
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE	
06 - Management and Support		0605807F Test and Evaluation Support	
(U)	<u>C. Program Change Summary (\$ in Thousands) Continued</u>		
	e. Rescissions	FY 1999 -1,964	FY 2000 -1,570
	f. Other	-2,737	
(U)	Adjustments to Budget Years Since FY 2000 PBR		
(U)	Current Budget Submit/FY 2001 PBR	351,170	381,476
(U)	<u>Significant Program Changes:</u>		
	FY00 Congressional adjustments: Program reduction of \$15M; Big Crow Program Office addition of \$5M.		
	FY00 reductions funded other AF and DoD requirements.		
		5,570	
		386,205	
			TBD
			Total Cost

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
06 - Management and Support		0605807F Test and Evaluation Support								6606TG	
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
6606TG	46 Test Group	19,172	21,292	20,718	22,691	23,070	23,542	23,638	Continuing	TBD	
(U)	A. Mission Description 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 (TG) facilities: Central Inertial Guidance Test Facility (CIGTF/746th Test Squadron), the High Speed Test Track (HSTT/846th Test Squadron) and the National Radar Cross Section (RCS) Test Facility (NRTF). CIGTF provides independent assessments of inertial components, aircraft navigation systems, and missile guidance systems. HSTT capabilities include full-scale testing in flight environments, realistic live-fire simulations, test item and target fragment recovery, and precision trajectory analysis and high speed photography. NRTF provides radar cross section (RCS) monostatic and bi-static amplitude and phase measurements, antenna pattern measurements, glint and near field measurements for low observable targets. The 46th TG support services contracts are awarded on the basis of full and open competition.										
(U)	FY 1999 (\$ in Thousands)	Central Inertial Guidance Test Facility (CIGTF): Provided infrastructure test support for programs such as Advanced Inertial Concepts (AICON), continued Global Positioning System-Joint Program Office (GPS-JPO) Responsible Test Organization (RTO) responsibilities, Project 2000 integration support, GPS jamming and electronic countermeasures, NAVWAR, Federal Aviation Administration (FAA), Wide Area Augmentation System, GPS integrated and embedded INS program, aircraft navigation systems, including B-2 and F-22, munitions navigation systems such as JDAM and other programs.									
(U)	\$3,905	Holloman High Speed Test Track (HHSTT): Provided full-scale testing simulating in-flight environments, realistic live-fire simulations, test item and target fragment recovery, and precision trajectory analysis and high speed photography for the F-22 Ejection System, Advanced Concepts Escape System (ACES) II, Continuous Improvement Program (CIP), Standard Missile (SM) 2 Seeker, SM 2 Live Fire T&E (LFT&E), Patriot Advanced Capability (PAC) 3 LFT&E, Theater High Altitude Area Defense (THAAD) LFT&E, and other programs.									
(U)	\$4,423	National RCS Cross Section Test Facility (NRTF): Provided infrastructure test support for programs such as static RCS testing for stores, low observable testbeds, and other classified programs.									
(U)	\$6,290	46th Test Group Headquarters (46TG): Provided command guidance, resource management, plans and programs, protection services, information systems, logistics, liaison support and scheduling for WSMR airspace, photo and safety chase, support of air-to-air and air-to-ground									
Project 6606TG		Page 3 of 11 Pages								Exhibit R-2A (PE 0605807F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE		
06 - Management and Support	0605807F Test and Evaluation Support	February 2000	6606TG
(U) A. Mission Description Continued			
(U) FY 1999 (\$ in Thousands) Continued			
(U) live fire, life support equipment services, and aerospace ground equipment support.			
(U) Total			
Beginning in FY00, the justification narratives within each center have been modified to include standardized categories which better explain the nature of the test and evaluation infrastructure support activities.			
(U) FY 2000 (\$ in Thousands)			
(U) \$3,913	Continue test infrastructure overhead support to enable testing for unclassified program such as AICON, continued GPS-JPO RTO responsibilities, GPS jamming and electronic countermeasures, NAVWAR, FAA, Wide Area Augmentation System, GPS integrated and embedded INS programs, aircraft navigation systems, including B-2 and F-22, munitions navigation systems such as Joint Direct Attack Munition (JDAM), the F-22A Ejection Seat, Joint Strike Fighter (JSF), SM 2 Seeker, SM-2 Forward Looking Fuze, SM-2 LFT&E, PAC 3 LFT&E, THAAD LFT&E, Army Tactical Infrared Countermeasure System (ATIRCMS) Phase II, Long-Range Fiber Optic Guided (LONGFOG) missile, static RCS testing for stores, low observable testbeds, as well as multiple classified programs.		
(U) \$8,987	Contractor Services (in-house contract support activities)		
(U) \$8,392	T&E Civilian Pay. Filled technical positions.		
(U) \$21,292	Total		
(U) FY 2001 (\$ in Thousands)			
(U) \$3,652	Continue test infrastructure overhead support to enable testing for unclassified program such as AICON, continued GPS-JPO RTO responsibilities, GPS jamming and electronic countermeasures, NAVWAR, FAA, Wide Area Augmentation System, GPS integrated and embedded INS programs, aircraft navigation systems including B-2 and F-22, munitions navigation systems such as JDAM, the F-22A Ejection Seat, SM 2 Seeker, SM-2 Forward Looking Fuze, SM-2 LFT&E, PAC 3 LFT&E, THAAD LFT&E, ATIRCMS Phase II, LONGFOG missile, static RCS testing for stores, low observable testbeds, as well as multiple classified programs.		
(U) \$8,428	Contractor Services (in-house contract support activities)		
(U) \$8,638	T&E Civilian Pay		
(U) \$20,718	Total		
(U) B. Project Change Summary			
(U) Significant Program Changes: None			
Project 6606TG		Page 4 of 11 Pages	Exhibit R-2A (PE 0605807F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE									PROJECT
06 - Management and Support		0605807F Test and Evaluation Support									6606TG
(U)	<u>C. Other Program Funding Summary (\$ in Thousands)</u>										
		FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to		Total Cost
		Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete		
(U)	Not Applicable										
(U)	Related RDT&E:										
(U)	PE 0604759F, Major T&E Investment (Technical capability improvement and modernization)	400	0	0	949	1,018	1,098	1,255			TBD
(U)	PE 0604256F, Threat Simulator	1,774	2,003	1,705	2,075	2,140	1,743	1,934			TBD
(U)	PE 0604940D, Central Test & Evaluation Improvement Program (T&E) (investments for new tri-service test capabilities). Service programs compete for CTEIP funds on a yearly basis. FY2001 through FY2005 are To Be Determined.	6,500	8,395								TBD
(U)	<u>D. Acquisition Strategy</u>										
	Not applicable										
(U)	<u>E. Schedule Profile</u>										
					FY 1999		FY 2000		FY 2001		
				1	2	3	4	1	2	3	4
(U)	N/A										
	46TG infrastructure support operations are continuous and are not driven by discrete start/end dates.										
Project 6606TG		Page 5 of 11 Pages									Exhibit R-2A (PE 0605807F)

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

DATE

February 2000

BUDGET ACTIVITY

06 - Management and Support

PE NUMBER AND TITLE

0605807F Test and Evaluation Support

PROJECT

6606TS

COST (\$ in Thousands)

	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
6606TS Test and Evaluation Support	331,998	360,184	365,487	365,326	374,460	379,790	395,100	Continuing	TBD

(U) **A. Mission Description**

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. Test and Evaluation (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 (AFB), 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 United States Air Force (USAF) Test Pilot School. (3) Air Armament Center (AAC) located at Eglin AFB, FL, is comprised of 724 square miles of land area, and approximately 123,000 square miles of water space. AAC provides the test infrastructure and overhead required for the conduct of developmental and operational test and evaluation of non-nuclear air armaments (including aircraft guns, ammunition, bombs, and missiles); Command, Control, Communications, Computers and Intelligence (C4I) systems; target acquisition and weapon delivery systems; a multi-service climatic simulation capability, and determines target/test item spectral signatures for DOD and allied forces. AAC provides a scientific test process that supports the development and enhancement of munitions systems that support tri-service smart weapons development. AAC technology is compatible with weapon systems to be tested such as Advanced Medium Range Air-to-Air Missile (AMRAAM), Joint Direct Attack Munition (JDAM), AGM-130, Advanced Short Range Air-to-Air Missile (ASRAAM), Joint Tactical Information Distribution System (JTIDS), Joint Surveillance Target Attack Radar System (JSTARS), Combat Talon, etc. T&E support services contracts are awarded on the basis of full and open competition.

Project 6606TS

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Exhibit R-2A (PE 0605807F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE		
06 - Management and Support	0605807F Test and Evaluation Support	February 2000	6606TS
(U) A. Mission Description Continued			
(U) FY 1999 (\$ in Thousands)			
(U) \$0	ARNOLD ENGINEERING AND DEVELOPMENT CENTER (AEDC)		
(U) \$101,188	Continued test infrastructure overhead support to enable ground testing for classified programs, and unclassified programs (F-22, JDAM, F-15, F-16, Joint Strike Fighter (JSF), B-1B, B-2, C-130, Advanced Medium Range Air to Air Missile (AMRAAM), Air Intercept Missile (AIM) 9X, Minuteman, Evolved Expandable Launch Vehicle (EELV), Titan IV, F-18, F404, F414, F119, and Tunnel 9).		
(U) \$13,436	T&E specific Base Operating Support (BOS) requirements.		
(U) \$16,376	Maintenance, repair and minor construction for test infrastructure requirements.		
(U) \$0			
(U) \$0	AIR FORCE FLIGHT TEST CENTER (AFFTC)		
(U) \$96,009	Continued to provide test infrastructure overhead support enabling testing of the B-1B, B-2, F-16, F-15, F-22, Advanced Fighter Technology Integration (AFTI)/F-16, C-17, Avionics Test and Integration Complex (ATIC), Advanced Range Instrumentation Aircraft (ARIA), Electronic Combat Countermeasures (ECCM), EW (B-1B ALQ-161, F-16 AN/ASQ-213, C-130 ALQ-172, etc.) and classified programs.		
(U) \$21,800	USAF Test Pilot School operating costs.		
(U) \$4,544	Programmed Depot Maintenance and engine overhauls for aircraft assigned to AFFTC.		
(U) \$3,187	T&E specific BOS requirements.		
(U) \$1,460	Maintenance, repair and minor construction for test infrastructure requirements.		
(U) \$0			
(U) \$0	AIR ARMAMENT CENTER (AAC)		
(U) \$62,931	Continued test infrastructure support for non-nuclear air armaments (AMRAAM, SEEK EAGLE, Theater Missile Defense (TMD), JDAM, Joint Stand-Off Weapon (JSOW), Wind Corrected Munitions Dispenser (WCMD), Joint Air-to-Surface Stand-Off Missile (JASSM) etc.); C4I/Command and Control Consolidated Test Force (C2CTF) (JTIDS, Base and Installation Security System (BISS), TMD, Theater Battle Management Core System (TBMCS), and aircraft software upgrades (Air Force Mission Support System (AFMSS)).		
(U) \$2,384	Programmed Depot Maintenance and engine overhauls for aircraft assigned to AAC.		
(U) \$7,044	T&E specific BOS requirements.		
(U) \$1,639	Maintenance, repair and minor construction for test infrastructure requirements.		
(U) \$331,998	Total		
Beginning in FY00, the justification narratives within each center have been modified to include standardized categories which better explain the nature of the test and evaluation infrastructure support activities.			
Project 6606TS		Page 7 of 11 Pages	Exhibit R-2A (PE 0605807F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
06 - Management and Support	0605807F Test and Evaluation Support	6606TS	
(U) A. Mission Description Continued			
(U) FY 2000 (\$ in Thousands)			
(U) \$0	ARNOLD ENGINEERING AND DEVELOPMENT CENTER (AEDC)		
(U) \$6,581	Continue 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, F-18, F404, F414, F119, and Tunnel 9).		
(U) \$21,200	Utilities and maintenance and repair for test unique infrastructure.		
(U) \$95,600	Contractor Services (in-house contract support activities).		
(U) \$11,954	T&E Civilian Pay.		
(U) \$250	NATO Cooperative Research and Development (R&D) efforts in Imaging Spectrometer Development (AEDC/Canada). Continue effort to pool the spatial and spectral advances of both the US and Canada, and develop a high-resolution sensor system capable of characterizing signatures of rockets and aircraft, for drug interdiction, and identifying trace quantities of a broad spectrum of gases in the environment. Previously funded in PE 0603790F, NATO Cooperative R&D.		
(U) \$0			
(U) \$0	AIR FORCE FLIGHT TEST CENTER (AFFTC)		
(U) \$28,137	Continue to provide test infrastructure overhead support enabling testing of the B-1B, B-2, B-52, F-16, F-15, F-15E, F-22, F-117, AFTI/F-16, C-17, ATIC, ARIA, ECCM, EW (B-1B ALQ-161, F-26 AN/ASQ-213, C-130 ALQ-172, etc.), and classified programs. Provide funds for deferred and current equipment requirements.		
(U) \$5,323	Utilities and maintenance and repair for test unique infrastructure.		
(U) \$31,373	Contractor Services (in-house contract support activities).		
(U) \$60,185	T&E Civilian Pay.		
(U) \$21,954	Aircraft flying hour costs (to include USAF Test Pilot School) for pilot proficiency for sustained readiness to include deferred and projected programmed depot maintenance, engine overhauls, petroleum, oils and lubricants (POL), increased depot level repairable (DLR) costs and related support. Global Hawk and F-22 workload increased.		
(U) \$0			
(U) \$0	AIR ARMAMENT CENTER (AAC)		
(U) \$6,870	Continue 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) \$2,966	Utilities and maintenance and repair for test unique infrastructure.		
(U) \$17,317	Contractor Services (in-house contract support activities).		
(U) \$40,148	T&E Civilian Pay.		
Project 6606TS		Page 8 of 11 Pages	
		Exhibit R-2A (PE 0605807F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)			DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
06 - Management and Support	0605807F Test and Evaluation Support	6606TS		
(U) A. Mission Description Continued				
(U) FY 2000 (\$ in Thousands) Continued				
(U) \$10,326	Aircraft Support (Includes deferred and projected programmed depot maintenance; engine overhauls; petroleum, oils and lubricants (POL); and related support). Fund proficiency flying to minimum levels allowing AAC to meet proficiency flying goals.			
(U) \$360,184	Total			
(U) FY 2001 (\$ in Thousands)				
(U) \$0	ARNOLD ENGINEERING AND DEVELOPMENT CENTER (AEDC)			
(U) \$6,698	Continue 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, EEL V, Titan IV, F-18, F404, F414, F119, and Tunnel 9).			
(U) \$21,743	Utilities and maintenance and repair for test unique infrastructure.			
(U) \$97,800	Contractor Services (in-house contract support activities).			
(U) \$12,232	T&E Civilian Pay.			
(U) \$250	NATO Cooperative Research and Development (R&D) efforts in Imaging Spectrometer Development (AEDC/Canada). Continue effort to pool the spatial and spectral advances of both the US and Canada, and develop a high-resolution sensor system capable of characterizing signatures of rockets and aircraft, for drug interdiction, and identifying trace quantities of a broad spectrum of gases in the environment. Previously funded in PE 06063790F, NATO Cooperative R&D.			
(U) \$0				
(U) \$0	AIR FORCE FLIGHT TEST CENTER (AFFTC)			
(U) \$29,037	Continue to provide test infrastructure overhead support enabling testing of the B-1B, B-2, B-52, F-16, F-15, F-15E, F-22, F-117, AFTI/F-16, C-17, ATIC, ARIA, ECCM, EW (B-1B ALQ-161, F-26 AN/ASQ-213, C-130 ALQ-172, etc.), and classified programs.			
(U) \$5,622	Utilities and maintenance and repair for test unique infrastructure; continuing to reduce backlog.			
(U) \$33,505	Contractor Services (in-house contract support activities) increased due to privatization efforts.			
(U) \$54,320	T&E Civilian Pay (adjusted due to reengineering and privatization efforts).			
(U) \$23,352	Aircraft flying hour costs (to include USAF Test Pilot School) for pilot proficiency for sustained readiness to include programmed depot maintenance, engine overhauls, petroleum, oils and lubricants (POL); and related support; includes POL and DLR increases.			
(U) \$0				
(U) \$0	AIR ARMAMENT CENTER (AAC)			
(U) \$7,543	Continue 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) \$3,121	Utilities and maintenance and repair for test unique infrastructure.			
Project 6606TS		Page 9 of 11 Pages	Exhibit R-2A (PE 0605807F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									
BUDGET ACTIVITY		PE NUMBER AND TITLE		DATE		PROJECT			
06 - Management and Support		0605807F Test and Evaluation Support		February 2000		6606TS			
(U)	A. Mission Description Continued								
(U)	FY 2001 (\$ in Thousands) Continued								
(U)	\$20,548 Contractor Services (in-house contract support activities).								
(U)	\$39,717 T&E Civilian Pay.								
(U)	\$9,999 Aircraft Support (Includes programmed depot maintenance; engine overhauls; petroleum, oils and lubricants (POL); and related support).								
(U)	\$365,487 Total								
(U)	B. Project Change Summary								
	(U) Significant Program Change: None								
(U)	C. Other Program Funding Summary (\$ in Thousands)								
		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Total Cost
(U)	Not Applicable								
(U)	Related RDT&E:								
(U)	PE 0604759F, Major T&E Investment (Technical capability improvement and modernization)	40,117	46,038	55,326	47,804	45,781	54,088	65,937	TBD
(U)	PE 0604256F, Threat Simulator Development	22,656	25,175	26,115	26,328	27,816	30,636	31,059	TBD
(U)	PE 0604940D, Central Test & Evaluation Improvement Program (T&E) (investments for new tri-service test capabilities). Service programs compete for CTEIP funds on a yearly basis. FY2001 through FY2005 are To Be Determined.	28,928	34,530						TBD
Project 6606TS									
Exhibit R-2A (PE 0605807F)									

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
06 - Management and Support		0605807F Test and Evaluation Support								6606TS	
(U)	<u>D. Acquisition Strategy</u> Not applicable.										
(U)	<u>E. Schedule Profile</u>										
(U)	N/A										
Most T&E test infrastructure overhead requirements are continuous and are not driven by discrete start/end dates.											

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Exhibit R-2A (PE 0605807F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
06 - Management and Support		0605808F Development Planning								663361	
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
663361	Mission & System Planning	3,908	0	0	0	0	0	0	3,908	3,908	
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	
* PE terminated											
(U)	A. Mission Description This Program Element (PE) supports the Air Force Modernization Planning Process (MPP), which receives front-end guidance from Air Force Strategic Planning. Consistent with DoD 5000 series direction, the PE enables rigorous identification and substantiation of current/future operational deficiencies and needed capability, as well as associated migration plans. Such modernization planning efforts can be categorized according to three phases. First, a 'strategies-to-task', Mission Area Assessment (MAA) is conducted to identify operational tasks. These operational tasks must relate directly to currently assigned or future Air Force roles and missions as derived from a number of sources including the Air Force Vision and Strategic Plan. Second, a Mission Needs Analysis (MNA) is conducted to assess current and programmed force capabilities against operational tasks and ultimately identify specific deficiencies and needs. The third phase of the MPP is Mission Solution Analysis (MSA), which identifies potential cost effective, non-materiel (i.e. doctrine, tactics, training) and materiel alternatives that address the deficiencies/needs, or simply represent new organizational, operational, and/or technological opportunities.										
(U)	FY 1999 (\$ in Thousands)										
(U)	\$443	Analyzed operational concepts and identify technology needs for future non-lethal Suppression of Enemy Air Defenses (SEAD)									
(U)	\$470	Initiated effort to assess AF Special Operations Forces (SOF) Aircraft multi-spectral survivability for various SOF mission areas									
(U)	\$579	Quantified the impact of Weapons of Mass Destruction on air mobility operations in contingencies									
(U)	\$540	Conducted effort to analyze campaign and mission-level space force deficiency/capability through use and upgrade of detailed campaign models									
(U)	\$289	Assessed the capabilities of existing and planned weather data collection sensors, and identify the most effective strategy to support warfighter									
(U)	\$241	Initiated effort to improve Combat Forces Assessment Model for direct evaluation of SEAD effectiveness against Integrated Air Defenses									
(U)	\$700	Initiated mission solution analysis, including campaign level analyses, for future long-range conventional strike aircraft									
(U)	\$646	Initiated effort to develop and implement a common analytical framework and tool set to assess the military utility of air and space capabilities									
(U)	\$3,908	Total									

Project 663361

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Exhibit R-2 (PE 0605808F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE			PROJECT
06 - Management and Support	0605808F Development Planning			663361
(U) A. <u>Mission Description Continued</u>				
(U) FY 2000 (\$ in Thousands)				
(U) \$0 No Activity				
(U) \$0 Total				
* no appropriation				
(U) FY 2001 (\$ in Thousands)				
(U) \$0 No Activity				
(U) \$0 Total				
* PE terminated				
(U) B. <u>Budget Activity Justification</u>				
This program is in budget activity 6, Management Support, because supported studies and analyses provide inputs for Air Force Mission Area and/or Support Plans and future Air Force investment decisions. However, Phase 0 concepts studies and Analysis of Alternatives (AOAs) are not normally conducted in this program element				
(U) C. <u>Program Change Summary (\$ in Thousands)</u>				
(U) Previous President's Budget (FY 2000 PBR)			FY 1999	FY 2000
(U) Appropriated Value			4,053	5,696
(U) Adjustments to Appropriated Value			4,075	0
a. Congressional/General Reductions			-22	
b. Small Business Innovative Research			-123	
c. Omnibus or Other Above Threshold Reprogram				
d. Below Threshold Reprogram				
e. Rescissions			-22	
f. Other				
(U) Adjustments to Budget Years Since FY 2000 PBR				
(U) Current Budget Submit/FY 2001 PBR			3,908	0
(U) Significant Program Changes:				
FY00-no appropriation				-5,751
Out years-PE terminated				0
Project 663361			Exhibit R-2 (PE 0605808F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
06 - Management and Support		0605854F Pollution Prevention								661007	
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
661007	Pollution Prevention	4,956	2,498	0	0	0	0	0	Continuing	TBD	
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	
All funds were transferred from PE 65854F, Budget Activity 6 (Management & Support) to PE 63859F, Budget Activity 4 (Demonstration and Validation) beginning in FY01 to reflect the primary purpose of the funding profile.											
(U) A. Mission Description											
Beginning in FY99, all funds for Test Facility base operations support (RDT&E) were transferred to operations and maintenance. Remaining RDT&E funds were for development and test efforts to validate and qualify environmentally acceptable materials and processes to replace existing common hazardous materials and processes, cross-cutting weapons systems pollution prevention tools, and management and support costs in direct support of development efforts to meet compliance problems.											
FY00 funds target efforts that demonstrate and validate alternate aircraft painting/depainting, maintenance processes which reduce the compliance burden associated with National Emissions Standard for Hazardous Air Pollutants (NESHAP), Clean Air Act and other environmental requirements. Specifically, funds will target pollution prevention technologies, including replacement of chromate conversion coating on aluminum and magnesium based metals, nonchromated primers to replace zinc chromate, and environmentally safe replacement for cadmium plating.											
(U) <u>FY 1999 (\$ in Thousands)</u>											
(U)	\$294	Resource Conservation and Recovery Act (RCRA) Subtitle C - Hazardous Waste									
(U)	\$75	Resource Conservation and Recovery Act (RCRA) Subtitle D - Solid Waste									
(U)	\$294	Clean Air Act									
(U)	\$100	Clean Water Act									
(U)	\$621	Hazardous Material Reduction									
(U)	\$223	Other									
(U)	\$3,349	Dem/Val of Advanced Low Pollution Coating Technologies									
(U)	\$4,956	Total									
Project 661007		Page 1 of 3 Pages								Exhibit R-2 (PE 0605854F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE	PROJECT	
06 - Management and Support		0605854F Pollution Prevention	661007	
(U)	A. Mission Description Continued			
(U)	FY 2000 (\$ in Thousands)			
(U)	\$505	Resource Conservation and Recovery Act (RCRA) Subtitle C - Hazardous Waste		
(U)	\$100	Resource Conservation and Recovery Act (RCRA) Subtitle D - Solid Waste		
(U)	\$899	Clean Air Act		
(U)	\$235	Clean Water Act		
(U)	\$549	Hazardous Material Reduction		
(U)	\$210	Other		
(U)	\$2,498	Total		
(U)	FY 2001 (\$ in Thousands)			
(U)	\$0	No Activity		
(U)	\$0	Total		
(U)	B. Budget Activity Justification			
This program is in Budget Activity (BA) 6, Management and Support, because the majority of funding is directed toward support of test facilities required for general research and development use. Beginning in FY99, all O&M funds for test facility operations were transferred to O&M accounts. Action to change to BA 4, Demonstration and Validation, is complete and all remaining funds in this account were transferred to PE 63859F in FY01, as they are primarily for RDT&E Dem/Val of pollution prevention technologies.				
(U)	C. Program Change Summary (\$ in Thousands)			
(U)	Previous President's Budget (FY 2000 PBR)	FY 1999	FY 2000	FY 2001
(U)	Appropriated Value	5,144	2,553	Total Cost
(U)	Adjustments to Appropriated Value	5,173	2,553	
	a. Congressional/General Reductions	-29	-1	
	b. Small Business Innovative Research	-160		
	c. Omnibus or Other Above Threshold Reprogram		-38	
	d. Below Threshold Reprogram			
	e. Rescissions	-28	-16	
	f. Other			
(U)	Adjustments to Budget Years Since FY 2000 PBR		0	
Project 661007		Exhibit R-2 (PE 0605854F)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE							PROJECT		
06 - Management and Support		0605860F Rocket Systems Launch Program (RSLP)							661023		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
661023	Rocket System Launch Program (RSLP)	14,235	7,732	7,906	8,015	8,158	8,321	8,486	Continuing	TBD	
Quantity of RDT&E Articles		0	0	0	0	0	0	0	0	0	
(U)	A. Mission Description										
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 (BMDO), 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)	<u>FY 1999 (\$ in Thousands)</u>										
(U)	\$6,023	Continued storage and refurbishment of deactivated Minuteman and other missile flight test assets.									
(U)	\$1,649	Continued to perform aging surveillance-related activities on stored motors; continued to perform analyses/studies to identify and evaluate potential safety-related issues affecting stored motors.									
(U)	\$6,563	Performed Advanced Solid Axial Stage (ASAS) development and related activities.									
(U)	\$0	Continued to provide launch assets and technical assistance for DoD RDT&E launches. (Funded by users.)									
(U)	\$14,235	Total									
(U)	<u>FY 2000 (\$ in Thousands)</u>										
(U)	\$6,157	Continue storage and refurbishment of deactivated Minuteman and other missile flight test assets.									
(U)	\$1,575	Continue performing aging surveillance-related activities on stored motors; continue performing analyses/studies to identify and evaluate potential safety-related issues affecting stored motors.									
(U)	\$0	Continue providing launch assets and technical assistance for DoD RDT&E launches. (Funded by users.)									
(U)	\$7,732	Total									
Project 661023											
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT	
06 - Management and Support	0605860F Rocket Systems Launch Program (RSLP)		661023	
(U)	<u>A. Mission Description Continued</u>			
(U)	<u>FY 2001 (\$ in Thousands)</u>			
(U)	\$6,228	Continue storage and refurbishment of deactivated Minuteman and other missile flight test assets.		
(U)	\$1,678	Continue performing aging surveillance-related activities on stored motors; continue performing analyses/studies to identify and evaluate potential safety-related issues affecting stored motors.		
(U)	\$0	Continue providing launch assets and technical assistance for DoD RDT&E launches. (Funded by users.)		
(U)	\$7,906	Total		
(U)	<u>B. Budget Activity Justification</u>			
	This program is in Budget Activity 6 - Management and Support because RSLP provides research and development effort and/or operations support for general research and development use.			
(U)	<u>C. Program Change Summary (\$ in Thousands)</u>			
(U)	Previous President's Budget (FY 2000 PBR)	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
(U)	Appropriated Value	14,496	7,913	7,976
(U)	Adjustments to Appropriated Value	14,865	7,913	
	a. Congressional/General Reductions	-369	-1	
	b. Small Business Innovative Research	-118		
	c. Omnibus or Other Above Threshold Reprogram		-119	
	d. Below Threshold Reprogram	-63		
	e. Rescissions	-80		
	f. Other			
(U)	Adjustments to Budget Years Since FY 2000 PBR			-70
(U)	Current Budget Submit/FY 2001 PBR	14,235	7,732	7,906
(U)	<u>Significant Program Changes:</u>			
	Due to scheduling conflicts, the two Advanced Solid Axial Stage (ASAS) experiments have been delayed until 2nd and 3rd Qtr FY00 respectively; however as these are piggyback experiments, no additional costs above those already budgeted will be incurred. No other changes to either content or cost. FY01 adjustment funded higher Air Force priorities.			
Project 661023		Page 2 of 3 Pages		
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
06 - Management and Support		0605864F Space Test Program								662617	
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
662617	Free-Flyer Spacecraft Missions	40,397	50,402	46,476	50,576	53,683	54,254	55,827	Continuing	0	
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	
(U) A. Mission Description (U) The Space Test Program (STP) conducts space test missions to fly the maximum number of DoD experiments consistent with priority, opportunity, and funding. STP supports the DoD space research community by centrally financing acquisition of a host satellite or launch vehicle, 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, event, or sensor physics proposed for an operational system/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 -Develop and test advanced small launch vehicle technology and capabilities (U) 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. 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 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. This funding provides DoD's most successful and 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 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 DoD Space Experiments Review Board in assuring quality experiments and minimum duplication.											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
06 - Management and Support	0605864F Space Test Program	662617	
(U) A. Mission Description Continued			
(U) FY 1999 (\$ in Thousands)			
(U) \$8,600	Piggyback/secondary payload missions, mission planning, Aerospace Corp support, mission and program support		
(U) \$2,439	Space Shuttle payload engineering, analysis, pre- and post-launch processing, and launch support		
(U) \$12,857	Initiated experiment missions from 1998 Space Experiments Review Board (SERB) list - MightySat II.1, Coriolis, reusable upper stage/bus development		
(U) \$16,501	Continued current missions - Tri-Service Space Experiment 5 (TSX-5), Multi-spectral Thermal Imager (MTI), and Advanced Research and Global Observation Satellite (ARGOS) launch/operations		
(U) \$40,397	Total		
(U) FY 2000 (\$ in Thousands)			
(U) \$13,305	Piggyback/secondary payload missions, mission planning, Aerospace Corp support, mission and program support		
(U) \$3,150	Space Shuttle payload engineering, analysis, pre- and post-launch processing, and launch support		
(U) \$5,346	Initiate experiment missions from 1999 SERB list, such as Communication/Navigation Outage Forecasting System (C/NOFS)		
(U) \$28,601	Continue current missions - Coriolis, launch MTI, operations for ARGOS, launch/operations for TSX-5, MightySat II.1		
(U) \$50,402	Total		
(U) FY 2001 (\$ in Thousands)			
(U) \$10,945	Piggyback/secondary payload missions, mission planning, Aerospace Corp support, mission and program support		
(U) \$3,200	Space Shuttle payload engineering, analysis, pre- and post-launch processing, and launch support		
(U) \$17,346	Initiate experiment missions from 1999 and 2000 SERB lists, such as Super Transmission/Remote Atmospheric Ionospheric Detection System Integrated Polar Experiment (STRIPE) and Coronal Mass Ejection Warning System (CMEWS)		
(U) \$14,985	Continue current missions - C/NOFS; operations for TSX-5 and MightySat II.1		
(U) \$46,476	Total		
Note: New missions and funding priorities evolve as spaceflight opportunities, budget, and DoD experiment rankings change.			
(U) B. Budget Activity Justification			
STP is in Budget Activity 6, RDT&E Management and Support, because it supports RDT&E satellite launches.			

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Exhibit R-2 (PE 0605864F)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000	
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
06 - Management and Support		0605864F Space Test Program		
(U) C. Program Change Summary (\$ in Thousands)				Total Cost
(U) Previous President's Budget (FY 2000 PBR)		FY 1999	FY 2000	FY 2001
(U) Appropriated Value		45,439	51,658	49,389
(U) Adjustments to Appropriated Value		45,933	51,658	
a. Congressional/General Reductions		-494	-81	
b. Small Business Innovative Research		-1,399		
c. Omnibus or Other Above Threshold Reprogram		-3,417	-772	
d. Below Threshold Reprogram		-226	-403	
e. Rescissions				
f. Other				
(U) Adjustments to Budget Years Since FY 2000 PBR				-2,913
(U) Current Budget Submit/FY 2001 PBR		40,397	50,402	46,476
(U) Significant Program Changes:				
Space Test Program (Space) is funded in PE 0605864F starting in FY99. Prior year funding is in PE 0603402F. FY01 reductions support higher AF priorities.				
(U) D. Other Program Funding Summary (\$ in Thousands)				Total Cost
		FY 1999	FY 2000	FY 2001
		Actual	Estimate	Estimate
(U) Related Procurement:				Cost to Complete
(U) PE 0305119F, Medium Launch Vehicles			FY 2002	FY 2003
			Estimate	Estimate
(U) PE 0305144F, Titan Space Boosters				
(U) PE 0305953F, Evolved Expendable Launch Vehicle				
Experiments are funded by many Science and Technology (S&T) PEs in Air Force, Army, Navy, DARPA, BMDO, DoE, NASA, and other programs.				

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06 - Management and Support	0605864F Space Test Program	February 2000 662617																																																																																																									
(U) <u>E. Acquisition Strategy</u> Various service laboratories and DoD agencies justify, develop, finance, and deliver the space research experiments supported by STP. These experiments have a common goal to improve DoD's current and future operational space systems' performance. The DoD Space Experiments Review Board (SERB), an independent board composed of Air Force, Army, Navy, Joint Staff, NRO, BMDO, and other representatives, annually prioritizes experiments for spaceflight. The SERB gives the prioritized list of experiments to STP, which then seeks out the most cost-effective means of spaceflight 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 and using the various payload modes of the Space Shuttle and International Space Station. For experiments with requirements that cannot be satisfied with these 'secondary' opportunities, STP procures dedicated spacecraft and launch vehicle hardware within the constraints of available funding and according to experiment requirements. These include small and medium satellite busses, as well as small launch vehicle-class boosters (such as Pegasus XL, Taurus, and Athena). Medium launch vehicle-class boosters from PE 35119F (MLV), PE 35144F (Titan), and PE 35953F (EEL V) provide medium launch as required. If a service fails to adequately fund a particular experiment, if STP deems the experiment impractical to fly, or if the appropriate spaceflight opportunity becomes unavailable, STP shifts remaining resources to provide spaceflight support for the next highest priority experiment.																																																																																																											
(U) <u>F. Schedule Profile</u> <table border="1"> <thead> <tr> <th></th> <th colspan="2">FY 1999</th> <th colspan="2">FY 2000</th> <th colspan="2">FY 2001</th> </tr> <tr> <th></th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>1</th> <th>2</th> </tr> </thead> <tbody> <tr> <td>(U) STS-88 - MightySat 1, SIMPLEX</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) STS-95 CRYOTSU, MSX, MEMS, CCM-A, PANSAT, SIMPLEX, TASBE</td> <td>*</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) ARGOS(DeltaII)-ESEX, USA, GIMI, CERTO, SPADUS, HIRAAS, HTSSE, EUVIP, CIV (P91-1)</td> <td></td> <td>*</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) STS-93 STL-B, CCM-C, MSX, LFSAH, SIMPLEX, MEMS</td> <td></td> <td></td> <td></td> <td>*</td> <td></td> <td></td> </tr> <tr> <td>(U) POGS-II (DMSP-15) (S92-1)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) CHAWS-LD (OSP) (S99-2)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) CEASE, CERTO PLUS (STRV1 C/D) (S97-1, S97-2)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) MTI/HXRS (Taurus) (P97-3)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) TSX-5 (Pegasus XL)-STRV II, CEASE (P95-2)</td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> </tr> <tr> <td>(U) SINDRI/MightySat II.1 (OSP) (P99-1)</td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> </tr> <tr> <td>(U) STS-100** (ISS-6A) MACE</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> </tr> <tr> <td>(U) PICOSat (TBD LV)- PBEX, IOX, CERTO, OPPEX (P97-1)</td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> </tr> <tr> <td>(U) STS-107** ACSBIRS, STW/AR, CCM-C</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> </tr> </tbody> </table>				FY 1999		FY 2000		FY 2001			1	2	3	4	1	2	(U) STS-88 - MightySat 1, SIMPLEX							(U) STS-95 CRYOTSU, MSX, MEMS, CCM-A, PANSAT, SIMPLEX, TASBE	*						(U) ARGOS(DeltaII)-ESEX, USA, GIMI, CERTO, SPADUS, HIRAAS, HTSSE, EUVIP, CIV (P91-1)		*					(U) STS-93 STL-B, CCM-C, MSX, LFSAH, SIMPLEX, MEMS				*			(U) POGS-II (DMSP-15) (S92-1)							(U) CHAWS-LD (OSP) (S99-2)							(U) CEASE, CERTO PLUS (STRV1 C/D) (S97-1, S97-2)							(U) MTI/HXRS (Taurus) (P97-3)							(U) TSX-5 (Pegasus XL)-STRV II, CEASE (P95-2)					X		(U) SINDRI/MightySat II.1 (OSP) (P99-1)					X		(U) STS-100** (ISS-6A) MACE						X	(U) PICOSat (TBD LV)- PBEX, IOX, CERTO, OPPEX (P97-1)					X		(U) STS-107** ACSBIRS, STW/AR, CCM-C						X
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BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT
06 - Management and Support		0605864F Space Test Program		662617
<u>F. Schedule Profile Continued</u>				
(U)	STS-109** (ISS UF-2) MEMS-ER	FY 1999	1	2
(U)	Coriolis (Titan II) (P98-2) 1QFY02	FY 2000	2	3
(U)	C/NOFS (TBD LV) (P00-a) 2QFY03		3	4
(U)	* = completed event		4	1
(U)	**New spaceflight opportunity since FY00PB		2	3
(U)	X = planned launch		3	4
				X

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BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
06 - Management and Support		1001004F International Activities								664645	
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
664645	International Cooperative Research & Development	3,543	3,660	3,773	3,825	3,862	3,939	4,017	Continuing	TBD	
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	
(U)	A. Mission Description The mission of this program 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 program 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 USAF participation in the NATO Air Force Armaments Group (NAFAG) and NATO Research and Technology Organization (RTO).										
(U)	FY 1999 (\$ in Thousands)	NATO C3 Agency (NC3A) - Funded the US R&D Coordination Office and administrative support for the assigned US Engineering and Technical professionals and cooperative research and development activities assigned to the NC3A.									
(U)	\$100	Engineer and Scientist Exchange Program (ESEP) - Funded the Air Force execution and the management oversight of ESEP. Funded approximately nine field level military and civilian scientists from Air Force Research Laboratory, for two year tours at selected European and Asian Government Research Laboratories or other Technical Institutions. ESEP Memoranda of Understanding are in place with 16 countries.									
(U)	\$243	International Cooperative Research and Development (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, NATO Air Force Armaments Group (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 its four sub-groups. Funded expanded technology acquisition contracts and follow-on cooperative opportunities with Russia, Ukraine, and Eastern									
(U)	\$1,256										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
06 - Management and Support	1001004F International Activities	664645	
(U) A. Mission Description Continued			
(U) FY 1999 (\$ in Thousands) Continued			
(U) \$269	Europe. Partially funded technical assessments and international agreements negotiation start-up costs associated with promising cooperative R&D programs. Funded preliminary and negotiation costs associated with USAF AWACS NATO cooperative R&D funded programs and support for the NATO AWACS Board of Directors. Funded International Cooperative Opportunities Group (ICOG) efforts to harmonize Four-power requirements and initiate agreements to explore these opportunities. Air Force International Program Support Office (AFIPSO) - Funded AFIPSO to process ICR&D Agreements. The following is a partial list of agreements that were either signed or under development in FY99: Argentina: Seismic and Infrasonic Monitoring; Australia: Clutter Mitigation for Over the Horizon Radar, High Altitude Endurance UAV, Virtual Air Commander; Bolivia: Seismic Monitoring; Brazil: Seismic Monitoring, ESEP; Central African Republic: Seismic Monitoring; Chile: Ionospheric Research; Canada: Space Based Surveillance and Space Systems, ground and Space Radiation Effects of Quantum Well Infrared Photometer Sensors, TRDP; Czech Republic: ESEP; Egypt: TRDP, Nuclear Test Seismic Monitoring Array; Ethiopia: Seismic Monitoring; Four-Powers: Distributed Simulation Technologies, Unmanned Air Vehicles for Offensive Missions, Air Refueling Technologies; France: Effects of Ionosphere on Communications and Surveillance; Germany: ESEP, Geoscience Space Mission, Non-Linear Optics; Israel: Nonlinear Frequency Conversion Materials, Thulium Holium Energy Transfer Modeling; Italy: ESEP, Real-Time Information in the Cockpit, TRDP; Japan: ESEP; Korea: Seismic Monitoring, 3D Integrated Circuits, Modeling and Simulation of C3I Systems; LTTP: Coalition Command Control and Communications Demonstration Environment; NATO/Multilateral: C-130 Integrated Data Environment, Joint Airborne Navigation and Attack (JOANNA) II, Laser Radiation and Material Interaction; Netherlands: Vacuum and Solid State Electronics and high Voltage/ Current Power Supply; Norway: ESEP, Toxic Effects of Jet Fuels; Paraguay: Seismic Monitoring; Poland: ESEP; Sweden: ESEP, Command and Control; Turkey: Seismic Monitoring; South Africa: Seismic Monitoring; United Kingdom: Vista Warrior, Nessie Trial/Demonstration, PIOS Phase II/III, Joint Development and Evaluation of Electro-Optic Protection Measures, Space Based Surveillance System Concept Studies, Experiments and Trials. NATO Research and Technology Organization (RTO) - Funded USAF participation in the NATO Research and Technology Board and RTO panel activity. The FY99 program of work consisted of studies, technical exchanges, and reports in the following areas: (1) Computational Unsteady Aerodynamic Codes, (2) Multi-facility Wind Tunnel Testing for CFD Validation, (3) Deterministic Spectral Gust Methods, (4) Screening Protocol for Aeromedical Medications, (5) Human Consequences of Supergravity, (6) Aeromedical Lessons from Acceleration and Positive Pressure Breathing Research, (7) Aircraft Weapon Compatibility, (8) Flight Control Law Development, (9) Ice Accretion and Simulation Evaluation test, (10) Nonlinear Stability and Transition of Swept-Wing Boundary Layers, (11) Sensor Data Fusion and Integration of Human Element, (12) Integrated Mission Systems Concepts, (13) Gas Turbine Engine Combustion, Emissions and Alternative Fuels, (14) Aging and Surveillance of Solid Gun Propellants, (15) Frequency Assignment, Sparing and Conservation. Continued Partnership for Peace initiatives through the R&T outreach program with scientists and engineers from the Former Soviet Union and Central Europe.		
(U) \$250			

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Exhibit R-2 (PE 1001004F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE		
06 - Management and Support	1001004F International Activities	February 2000 664645	
(U) A. Mission Description Continued			
(U) FY 1999 (\$ in Thousands) Continued			
(U) \$1,425	AFMC - Fully funded Air Force Materiel Command activities to identify, assess, develop and report International Cooperative Agreements as required by statute for new and existing projects. Supported Materiel Command activities for the 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 other NATO forums. Funded 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. Funded the project engineers at centers and Air Force Research Laboratory (AFRL) in identifying, creating and staffing new international cooperative agreements. Funded MAJCOM staff to support and promote international research and development cooperation throughout AFMC. Funded support for the Air force Technology Booth at International Forums. Funds small contracts in support of technology initiatives. This program funded the support, management and documentation of these ICR&D efforts.		
(U) \$3,543	Total		
(U) FY 2000 (\$ in Thousands)			
(U) \$100	NC3A - Funds the US R&D Coordination Office and administrative support for the assigned US Engineering and Technical professionals and cooperative Research and Development activities assigned to the NC3A.		
(U) \$243	ESEP - Funds the Air Force execution and the management oversight of ESEP. Funds approximately ten field level military and civilian scientists from Air Force Research Laboratory, 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 expected to be in place with 18 countries.		
(U) \$1,317	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 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 and its four sub-groups. 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. Funds continued development/ upgrades to the DoD International Agreements Management System. Funds preliminary and negotiation costs associated with USAF NATO cooperative R&D funded programs and support for the NATO AWACS Board of Directors. Funds International Cooperative Opportunities Group (ICOG) efforts to harmonize Four-power requirements and initiate agreements to explore these opportunities.		
(U) \$250	AFIPSO - Fully funds AFIPSO to process proposals for ICR&D Agreements. The following is a partial list of agreements that will be either signed or developed in FY00: Australia: APEP, Refractive Turbulence, Precision Location and Identification, Small Smart Bomb, Scintillation		
Project 664645		Page 3 of 8 Pages	
		Exhibit R-2 (PE 1001004F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
06 - Management and Support	1001004F International Activities	664645	
(U) A. Mission Description Continued			
(U) FY 2000 (\$ in Thousands) Continued			
	Impacts on Communications and Navigation Systems; Bolivia: Seismic Monitoring; Brazil: Atmospheric, Ionospheric and Magnetospheric, ESEP; Central African Republic: Seismic Monitoring; Chile: Ionospheric Research, Infrasonic Monitoring; Canada: Distributed Mission Training Technologies; Czech Republic: ESEP; Egypt: TRDP, Nuclear Test Seismic Monitoring Array; Ethiopia: Seismic Monitoring; Germany: APEP, Observations and Modeling for Space Weather, Head Mounted Display; Israel: Aircraft and Battle Damage Repair; Italy: ESEP, Real-Time Information in the Cockpit, TRDP; Japan: Fiber-reinforced Ceramic Matrix Composites, ESEP; Korea: ESEP, Seismic Monitoring; Norway: Low Cost Autonomous Attack System Advanced Technology Demonstration, Global Positioning System Handheld Equipment; Paraguay: Seismic Monitoring; Poland: ESEP; Sweden: Human Centered Controls and Displays, ESEP, Command and Control; Turkey: Seismic Monitoring; South Africa: Seismic Monitoring; United Kingdom: International Collaboration on Space Radiation Sensors, Chemical Agent Monitors; Multi-lateral: Refraction and Propagation Modeling, LTTP: Aging Aircraft, Unmanned Air Vehicles for Offensive Missions, Air Refueling Technologies.		
(U) \$225	NATO RTO - Funds USAF participation in the NATO Research and Technology Board and RTO panel activity. The FY00 program of work will consist of studies, technical exchanges, and reports in the following areas: (1) Application of Unmanned Air Vehicles, (2) System Concepts for Targets and Camouflage and Decoys, (3) High Power Microwaves, (4) Electronic Warfare Warning Systems, (5) Flight Test Measurement Techniques, (6) Electromagnetic Compatibility, (7) Hypersonic Propulsion, (8) Wind Tunnel Technology, (9) Screening for Aero Medical Medications, (10) Human Factors in Virtual Reality Applications. Continues Partnership for Peace initiative through the R&T outreach program with scientists and engineers from the former Soviet Union and Central Europe.		
(U) \$1,525	AFMC - Fully funds Air Force Materiel Command activities to identify, assess, develop, and report International Cooperative Agreements as required by statute for new and existing projects. 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, NATO Working Groups, and other NATO forums. Funds periodic bilateral/multilateral 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 project engineers at centers and AFRL in identifying, creating and staffing new international cooperative agreements. Funds MAJCOM staff to support and promote international research and development cooperation throughout AFMC. Funds support for the Air Force Technology Booth at International Forums. 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) \$3,660	Total		

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Exhibit R-2 (PE 1001004F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	664645
06 - Management and Support	1001004F International Activities		February 2000
(U) A. Mission Description Continued			
(U) FY 2001 (\$ in Thousands)			
(U) \$110	NC3A - Funds the US R&D Coordination Office and administrative support for the assigned US Engineering and Technical professionals and cooperative Research and Development activities assigned to the NC3A.		
(U) \$243	ESEP - Funds the Air Force execution and the management oversight of ESEP. Funds approximately eight field level military and civilian scientists from Air Force Research Laboratory, 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 expected to be in place with 20 countries.		
(U) \$1,399	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 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 and its four sub-groups. 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. Funds continued development/ upgrades to the DoD International Agreements Management System. Funds preliminary and negotiation costs associated with USAF NATO cooperative R&D funded programs and support for the NATO AWACS Board of Directors. Funds International Cooperative Opportunities Group (ICOG) efforts to harmonize Four-power requirements and initiate agreements to explore these opportunities.		
(U) \$276	AFIPSO - Fully funds AFIPSO to process the rapidly increasing number of proposals for ICR&D Agreements. Work will continue on agreements developed, but not signed, during FY00 and work will be initiated in the following areas of interest and others resulting from prior year technology assessments: Asia: Unmanned Aerial Vehicles, Early Warning Systems, Theater Missile Defense, Satellites, Command, Control, Communication, Computer, Information and Intelligence, Effects on Global Positioning Systems; Europe: Distributed Simulation Technology, Unmanned Aerial Vehicles, Aging Aircraft, Programmable Integrated Ordnance Suite, Agent Defeat Weapon, Joint Targeting Tool, Satellites, Space, Environmental Issues; Middle East: Intelligence, Sensors, Monitoring of Chemical/Biological Warfare; Central and South America: Monitoring of Chemical/Biological Warfare, Satellites, Space, Environmental Issues.		
(U) \$200	NATO RTO - Funds USAF participation in the NATO Research and Technology Board and RTO panel activity. The FY01 program of work will consist of studies, technical exchanges, and reports in the following areas: (1) Operational and Technical Studies and Analysis, (2) Modeling and Simulation, (3) Advanced System Concepts, Integration and Engineering Techniques Across the Spectrum of Platforms and Operating Environments, (4) Affordable Electronics, (5) Active and Passive Sensors, (6) Information Warfare Systems, (7) Communication and Networks, (8) Improved Performance, Affordability, and Safety of Vehicle, Platform, Propulsion, and Power Systems, (9) Optimize Performance, Health, Well Being and Safety of the Human in Operational Environments with consideration of Affordability. Continues Partnership for Peace		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE			
06 - Management and Support	1001004F International Activities		February 2000	664645
(U) A. Mission Description Continued				
(U) FY 2001 (\$ in Thousands) Continued				
(U) \$1,545	initiate through the R&T outreach program with scientists and engineers from the former Soviet Union and Central Europe. AFMC - Fully funds Air Force Materiel Command activities to identify, assess, develop, and report International Cooperative Agreements as required by statute for new and existing projects. 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, NATO Working Groups, and other NATO forums. Funds periodic bilateral/multilateral 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 project engineers at centers and AFRL in identifying, creating and staffing new international cooperative agreements. Funds MAJCOM staff to support and promote international research and development cooperation throughout AFMC. Funds support for the Air Force Technology Booth at International Forums. 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) \$3,773	Total			
(U) B. Budget Activity Justification				
This program is in Budget Activity 6, Management and Support, because it provides for general Research & Development Management support for all aspects of International Research & Development in the USAF.				
(U) C. Program Change Summary (\$ in Thousands)				
(U) Previous President's Budget (FY 2000 PBR)		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
(U) Appropriated Value		3,598	3,750	3,807
(U) Adjustments to Appropriated Value		3,752	3,750	
a. Congressional/General Reductions		-154	-10	
b. Small Business Innovative Research		-35	-56	
c. Omnibus or Other Above Threshold Reprogram				
d. Below Threshold Reprogram		-20	-24	
e. Rescissions				
f. Other				
(U) Adjustments to Budget Years Since FY 2000 PBR				-34
(U) Current Budget Submit/FY 2001 PBR		3,543	3,660	3,773
				TBD
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE										664645
06 - Management and Support		1001004F International Activities										
(U)	<u>C. Program Change Summary (\$ in Thousands) Continued</u>											Total Cost
(U)	<u>Significant Program Changes:</u>											
	N/A											
(U)	<u>D. Other Program Funding Summary (\$ in Thousands)</u>											
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>Cost to</u>			
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>			
(U)	N/A											
(U)	<u>E. Acquisition Strategy</u>											
This program element is the only source of USAF funds to identify and initiate opportunities for international armaments 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 PE 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)	<u>F. Schedule Profile</u>											
		<u>FY 1999</u>			<u>FY 2000</u>			<u>FY 2001</u>				
		1	2	3	4	1	2	3	4	1	2	3
(U)	-NATO C3 Agency Program Review				*							
(U)	-NATO Research & Technology Board	*		*		X				X		X
(U)	-Bilateral Technology R&D Projects MOUs	*	*	*	*	X	X	X	X	X	X	X
(U)	-Cooperative R&D Projects	*	*	*	*	X	X	X	X	X	X	X
(U)	-Foreign Comparative Testing Prioritization Board		*				X				X	
(U)	-NATO Cooperative R&D Prioritization Board	*	*	*	*	X	X	X	X	X	X	X
(U)	-R&D Loans of Defense Equipment	*				X				X		
(U)	-Systems & Technology Forum (JA)	*		*	*	X	X	X	X	X	X	X
(U)	-Other Bilateral forums (CA, BZ, IS, SW, FR)	*	*	*	*	X	X	X	X	X	X	X
(U)	-Data/Information Exchange Annexes	*	*	*	*	X	X	X	X	X	X	X
(U)	-Engineer and Scientist Exchanges		*		*		X				X	
Project 664645												Exhibit R-2 (PE 1001004F)
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
06 - Management and Support		1001004F International Activities								664645	
(U)	F. Schedule Profile Continued										
		FY 1999				FY 2000		FY 2001			
		1	2	3	4	1	2	3	4		
(U)	-NATO Air Force Armaments Group	*		*		X		X			
(U)	-Four-Power Air Senior National Representatives	*		*		X		X			
(U)	-Four-Power Long-Term Technology Working Group		*		*		X		X		X

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE
BUDGET ACTIVITY										February 2000
07 - Operational System Development										
PE NUMBER AND TITLE										
0101113F B-52 SQUADRONS										
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
Total Program Element (PE) Cost	6,042	39,658	50,787	48,776	17,842	9,678	24,141	Continuing	TBD	
674370 Advanced Weapons Integrations (AWI)	3,320	0	0	0	0	0	0	0	9,393	
674401 Air Force Mission Support System (AFMSS)	2,722	2,669	0	0	0	0	0	0	14,400	
674810 Avionics Midlife Improvement (AMI)	0	29,033	38,787	31,276	17,842	0	0	0	134,400	
674875 Situational Awareness Defensive Improvement	0	7,956	12,000	17,500	0	0	0	0	71,690	
674876 B-52 Global Air Traffic Management (GATM)	0	0	0	0	0	9,678	24,141	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	

Note: RDT&E articles are not separately priced

(U) **A. Mission Description**

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. Electronic Countermeasures Improvement program improves supportability, increases memory, allows reprogrammability, and adds a new display for improved situational awareness and system control. The B-52's Avionics Midlife Improvement program is a new start that will replace insupportable mission critical parts of the Offensive Avionics System that control navigation and weapons delivery on the B-52. 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, McDonnell Defense in Wichita Kansas.

(U) **B. Budget Activity Justification**

This program is in budget activity 7 - Operational System Development, because it supports a currently operational system.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE			
07 - Operational System Development	0101113F B-52 SQUADRONS			
(U) <u>C. Program Change Summary (\$ in Thousands)</u>				
(U) Previous President's Budget (FY 2000 PBR)	FY 1999	FY 2000	FY 2001	Total Cost
(U) Appropriated Value	6,418	32,139	39,240	31,902
(U) Adjustments to Appropriated Value	6,436	40,139		
a. Congressional/General Reductions	-161			
b. Small Business Innovative Research	-199			
c. Omnibus or Other Above Threshold Reprogram				
d. Below Threshold Reprogram				
e. Rescissions		0		
f. Other	-34	-15		TBD
(U) Adjustments to Budget Years Since FY 2000 PBR			11,547	
(U) Current Budget Submit/FY 2001 PBR	6,042	39,658	50,787	TBD
\$466K reduction in FY00				
(U) <u>Significant Program Changes:</u>				
(U) One new project initiated with this submission: Avionics Midlife Improvement (AMI) starting in FY00. See individual project description (Exhibits R-2/R-3) for details.				
(U) Actual number to SPO \$5.986 total FY99 (\$3.433 AWI and \$2.553 for AFMSS)				
(U) FY01 number includes \$12.0M for the Situational Awareness Defensive Improvement (SADI) program - program reduced by \$453K in support of other AF priorities. The EMD schedule will lengthen by at least three months.				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0101113F B-52 SQUADRON								674370	
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
674370	Advanced Weapons Integrations (AWI)	3,320	0	0	0	0	0	0	0	9,393	
(U) A. Mission Description 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 in section C will reflect the money received from the WCMD, JDAM, and JASSM program elements for weapons integration on the B-52. (U) <u>FY 1999 (\$ in Thousands)</u> (U) \$3,020 Continued Software development for JSOW and JASSM (U) \$300 Flight/Ground Testing (U) \$3,320 Total (U) <u>FY 2000 (\$ in Thousands)</u> (U) \$0 No Activity (U) \$0 Total (U) <u>FY 2001 (\$ in Thousands)</u> (U) \$0 No Activity (U) \$0 Total (U) B. Project Change Summary Not applicable											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0101113F B-52 SQUADRONS								674370	
(U)	<u>C. Other Program Funding Summary (\$ in Thousands)</u>										
		FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to	Total Cost	
		Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete		
(U)	Aircraft Procurement (PE 11113F)	671	479	964	250	0			0	2,364	
(U)	Related Activities										
(U)	RDT&E (WCMD - PE 27600F)	0	0	0	0	0	0	0	0	0	
(U)	RDT&E (JDAM - PE 27583F)	0	0	0	0	0	0	0	0	0	
(U)	RDT&E (JASSM - PE 27160F)	3,457	6,420	1,775	0	0	0	0	0	11,652	
(U)	TDT&E (JSOW - PE27324F)	0	250	0	0	0	0	0	0	250	
(U)	<u>D. Acquisition Strategy</u>										
The AWI program placed Boeing Military Programs - Wichita Division, on a Cost-Plus-Fixed-Fee contract as the Product Development Organization supported by OC-ALC/LH. Due to a short notice requirement, interface development and initial software requirements definition was accomplished under the B-52 fleet support contract; a time and materials contract. AWI development is in two phases. The first phase supports WCMD and JDAM Stores Management Overlay (SMO) development, interface hardware development and Development Test and Evaluation (DT&E). The second phase supports JSOW and JASSM SMO development and DT&E. Due to the need for early Required Assets Availability and Initial Operational Capability, the Single Acquisition and Management Plan (SAMP) authorized concurrent development of software as the interface hardware (MIL-STD 1760 umbilicals and pylon attachments) transitioned to production. Although, development of SMOs for JSOW and JASSM will continue after the hardware design has been developed, the hardware design will be complete and compatible with all advance weapons.											
(U)	<u>E. Schedule Profile</u>										
		FY 1999			FY 2000			FY 2001			
		1	2	3	4	1	2	3	4	1	2
(U)	JDAM/WCMD SMO				*	X					
(U)	Software/hardware Req DT&E	*			*						
(U)	Test Planning	*			*						
(U)	Technical data development	*			*	X					
Project 674370											
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Exhibit R-2A (PE 0101113F)											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000	PROJECT	674370
BUDGET ACTIVITY		PE NUMBER AND TITLE											
07 - Operational System Development		0101113F B-52 SQUADRONS											
(U)	<u>E. Schedule Profile Continued</u>												
		FY 1999	FY 2000										
		1	2	3	4	1	2	3	4	1	2	3	4
(U)	Ground/flight testing	*			X								
(U)	AFMSS module DT&E	*			X								
(U)	Program office support	*		*		X							
(U)	JSOW/JASSM 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	X
(U)	Technical data development					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
(U)	Program support office	*	*	*	*	X	X	X	X	X	X	X	X

Project 674370

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Exhibit R-2A (PE 0101113F)

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	February 2000
BUDGET ACTIVITY										PROJECT	674370
07 - Operational System Development										PE NUMBER AND TITLE	
										0101113F B-52 SQUADRONS	
(U)	A. Project Cost Breakdown (\$ in Thousands)										
(U)	Software/hardware requirements									FY 1999	FY 2000
(U)	Test									3,014	0
(U)	Total									306	0
(U)										3,320	0
(U)	B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U)	Performing Organizations:										
	Contractor or Government	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	Product Development Organizations										
	Boeing - Wichita, KS	CPFF	4 Sep 97	5,603	5,603	2,822	2,868	0	0	0	5,690
	88CG/SCCVO	Project Order	13 Mar 96	12	12	10	2	0	0	0	12
	Support and Management Organizations										
	OC-ALC/LH	PMA	1 Oct 96	266	266	216	50	0	0	0	266
	OC-ALC/LAS	Project Order	16 Jul 97	1,350	1,350	1,350	0	0	0	0	1,350
	AEDC/DOF	Project Order	3 Jun 97	48	48	48	0	0	0	0	48
	PEO/PMA-201	MIPR		75	75	75		0	0	0	75
	4 Sep 97										
	Test and Evaluation Organizations										
	419 CTF	Project Order	3/31/99	1,952	1,952	1,552	400				1,952
						Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	Subtotals					2,832	2,870	0	0	0	5,702
	Subtotal Product Development					1,689	50	0	0	0	1,739
	Subtotal Support and Management					1,552	400				1,952
	Subtotal Test and Evaluation					6,073	3,320	0	0	0	9,393
	Total Project										
Project 674370										Exhibit R-3 (PE 0101113F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0101113F B-52 SQUADRON								674401	
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
674401	Air Force Mission Support System (AFMSS)	2,722	2,669	0	0	0	0	0	0	14,400	
Remark: Actual SPO FY99 dollars received = \$2.553.											
(U) A. Mission Description											
B-52 Air Force Mission Support System (AFMSS) was previously funded out of the AFMSS program element prior to FY98. The project develops aircraft/weapons/electronic (A/W/E) countermeasures modules to be used in conjunction with the core software modules to provide a Mission Planning Environment for planning B-52 missions. AFMSS is the replacement system for the current Mission Data Preparation System (MDPS), the legacy system used for B-52 SIOP capability. Block 1 provided the capability to plan conventional gravity missions at the unit level. Block 2 is Y2K compliant and provides the capability to plan JDAM and WCMD missions. It also adds IU/TRS capability. Block 3 adds planning capability for AGM-84 and AGM-86C. Block 4 provides TRICOMS mission data import capability and allows the retirement of MDPS. Plus, it includes capability to plan the AGM-142, JSOW and JASSM. Block 5 will enable migration of the mission planning capability to the Joint Mission Planning System (JMPS).											
(U) FY 1999 (\$ in Thousands)											
(U)	\$412	Completed operational test and installation of Block 2 software									
(U)	\$1,125	Initiated Block 4 operational requirements									
(U)	\$1,185	Continued Block 3 operational software									
(U)	\$2,722	Total									
(U) FY 2000 (\$ in Thousands)											
(U)	\$569	Initiate Block 5 operational requirements for migration to JMPS									
(U)	\$800	Complete Block 3 operational software test and installation									
(U)	\$1,300	Complete Block 4 operational software test and installation									
(U)	\$2,669	Total									
(U) FY 2001 (\$ in Thousands)											
(U)	\$0	No Activity									
(U)	\$0	Total									
(U) B. Project Change Summary											
N/A											
Project 674401										Exhibit R-2A (PE 0101113F)	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0101113F B-52 SQUADRONS								674401	
(U)	C. Other Program Funding Summary (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
(U)	AF RDT&E										
(U)	Other APPN										
(U)	D. Acquisition Strategy										
	The AFMSS program is organically conducted at OC-ALC/LAS. Previously funded by the AFMSS program element.										
(U)	E. Schedule Profile										
(U)	Complete Block 2 development										
(U)	Software development Block 3										
(U)	Contract award Block 4										
(U)	Software development Block 4										
(U)	Contract award Block 5										
(U)	Software development Block 5										
	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.										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)									
BUDGET ACTIVITY					DATE		PROJECT		
07 - Operational System Development					0101113F B-52 SQUADRONS		February 2000		
A. Project Cost Breakdown (\$ in Thousands)					FY 1999		FY 2000		
(U)	Software development				2,630		2,595		
(U)	System Program Office support				92		74		
(U)	Total				2,722		2,669		
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 1999	Budget FY 1999	Budget FY 2000	Total Program
	Product Development Organizations								
	Oklahoma ALC/LAS	Project Order	26 Mar 97	10,786	0	5,616	2,630	2,595	0
	Support and Management Organizations								
	OC-ALC/LH	Project Order	Oct 97	0	411	245	92	74	0
	OC-ALC/LAP	Project Order	Jun 97	3,053	0	3,053			0
	Test and Evaluation Organizations								
	419th DT&E		11 Dec 96	95	0	95			0
(U)	Government Furnished Property:								
	Contract								
	Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date						
	Product Development Property								
	Support and Management Property								
	Test and Evaluation Property								
	Item Description					Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Total Program

Project 674401

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
07 - Operational System Development	0101113F B-52 SQUADRONS	674401		
Subtotals	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget to Complete
Subtotal Product Development	5,616	2,630	2,595	0
Subtotal Support and Management	3,298	92	74	0
Subtotal Test and Evaluation	95			0
Total Project	9,009	2,722	2,669	0
				14,400
				10,841
				3,464
				95
				14,400

Project 674401

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0101113F B-52 SQUADRON								674810	
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
674810	Avionics Midlife Improvement (AMI)	0	29,033	38,787	31,276	17,842	0	0	66,580	134,400	
(U) A. Mission Description The current B-52H Offensive Avionics System (OAS) contains several subsystems which must be replaced. The Inertial Navigation System (INS) includes a spinning mass gyro based on 1960's technology which will soon be unsupportable. The Avionics Control Unit (ACU) is an aging computer system with limited processing capability and memory. The Data Transfer Unit Cartridges (DTUCs) are bulky, unreliable and also based on old technology. The AMI program will use existing technology to replace these systems and the associated software to significantly increase OAS reliability, maintainability, and supportability while increasing capability and reducing operating costs. (U) FY 1999 (\$ in Thousands) (U) \$0 No Activity (U) \$0 Total (U) FY 2000 (\$ in Thousands) (U) \$12,800 Design and development of Group A Hardware (U) \$16,233 Design and development of replacement software (U) \$29,033 Total \$2,062 OSD and AF withhold (U) FY 2001 (\$ in Thousands) (U) \$37,000 Design and development of replacement software (U) \$1,787 Ground and flight test (U) \$38,787 Total (U) B. Project Change Summary New start project beginning FY00.											

Project 674810

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000	
BUDGET ACTIVITY		PE NUMBER AND TITLE					PROJECT					
07 - Operational System Development		0101113F B-52 SQUADRONS					674810					
(U)	<u>C. Other Program Funding Summary (\$ in Thousands)</u>											
	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost			
(U)	AF RDT&E											
(U)	Other APPN											
(U)	Aircraft Procurement (BP1100)				0	22,808	14,513	15,624	1,600	81,384		
(U)	<u>D. Acquisition Strategy</u>											
	The AMI program will contract with Boeing Wichita for aircraft hardware integration and software development of the Flight Management System and the Stores Management Overlays. Specific vendors will be selected to provide hardware for use during EMD. The Government will contract with these vendors for production hardware to support the aircraft installations.											
(U)	<u>E. Schedule Profile</u>											
										</		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE		February 2000	
07 - Operational System Development		0101113F B-52 SQUADRONS		674810	
(U)	A. Project Cost Breakdown (\$ in Thousands)				
(U)	Prototype Hardware			FY 1999	FY 2000
(U)	Non-recurring Engineering			0	4,500
(U)	Ground/Flight Test				23,955
(U)	System Program Office Support				0
(U)	Miscellaneous Cuts				1,000
(U)	Total			0	-422
					29,033
(U)	B. Budget Acquisition History and Planning Information (\$ in Thousands)				
(U)	Performing Organizations:				
	Contract or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC
	Product Development Organizations				
	Boeing, McDonnell Defense	TBD	FY00	TBD	
	Support and Management Organizations				
	OC-ALC/LH	PMA	Oct 99	0	TBD
	WR/ALC	AF616	TBD	TBD	
	HQ ACC/DRPB	AF616	TBD	TBD	
	Test and Evaluation Organizations				
	419 FLTS	Project Order	TBD	TBD	
				Total Prior to FY 1999	Budget FY 1999
					Budget FY 2000
					Budget FY 2001
					Budget to Complete
					Total Program
	Subtotals				
	Subtotal Product Development			27,963	32,727
	Subtotal Support and Management			1,060	1,060
	Subtotal Test and Evaluation			10	5,000
	Total Project			29,033	38,787
					15,010
					115,150
					4,240
					15,010
					134,400
Project 674810				Exhibit R-3 (PE 0101113F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0101113F B-52 SQUADRON								674875	
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
674875	Situational Awareness Defensive Improvement	0	7,956	12,000	17,500	0	0	0	0	71,690	
SADI begins as FY00 New Start. As of 1 Jan 00 program underfunded by \$115 million through FY09											
(U) A. Mission Description The existing ALR-20A system provides the Electronic Warfare Officer (EWO) with the capability of simultaneously surveying, detecting, and displaying all radio frequency (RF) transmissions within its frequency range of coverage. It displays the detected signals in a spectrum analyzer like presentation (i.e., in an amplitude versus frequency format) to the EWO on a multi-trace cathode ray tube (CRT). The ALR-20A provides the EWO with two (2) capabilities. First, it is the main receiver used for providing early warning and situational awareness. Second, the analog signals displayed by the ALR-20A are required for the successful employment (i.e., jamming) of the following electronic countermeasures (ECM) systems: ALQ-122/ALQ-16A, ALT-32s, and all ALQ-155(V) systems. The present ALR-20A system was designed in the 1960's and is becoming increasingly unsupportable due to vanishing vendors and obsolete technology. SADI removes and replaces the ALR-20A Panoramic receiver system. Includes Group B System and Group A Integrator Kit. SADI begins as FY00 New Start. As of 1 Jan 00 program underfunded by \$115 million through FY09											
(U)	FY 1999 (\$ in Thousands)										
(U)	\$0	No Activity									
(U)	\$0	Total									
(U)	FY 2000 (\$ in Thousands)										
(U)	\$6,000	Group A (antennas) NRE, Group B (LRUs) NRE									
(U)	\$1,000	Software									
(U)	\$956	Program Management									
(U)	\$7,956	Total									
(U)	FY 2001 (\$ in Thousands)										
(U)	\$3,000	Group A kit and NRE									
(U)	\$3,700	Group B kit and NRE									
(U)	\$3,600	Software									
(U)	\$1,700	Program Management									
(U)	\$12,000	Total									
Project 674875											

Exhibit R-2A (PE 0101113F)

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BUDGET ACTIVITY	PE NUMBER AND TITLE	DATE
RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	0101113F B-52 SQUADRONS	February 2000 PROJECT 674875
(U) B. Project Change Summary SADI begins as FY00 New Start. As of 1 Jan 00 program underfunded by \$115 million through FY09		
(U) C. Other Program Funding Summary (\$ in Thousands)		Total Cost
FY 1999 Actual	FY 2000 Estimate	
0	0	
FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate
0	0	0
FY 2004 Estimate	FY 2005 Estimate	Cost to Complete
0	0	
(U) AF RDT&E		
(U) Other APPN		
N/A		
(U) D. Acquisition Strategy The present ALR-20A system was designed in the 1960's and is unsupportable due to vanishing vendors and obsolete technology. The SADI program will remove and replace the ALR-20A and ALR-46 RWR. The SADI program will contract with Boeing Wichita for aircraft hardware integration. Specific vendors will be selected to provide hardware for use during EMD. The Government will contract with these vendors for production hardware to support the aircraft installations.		
(U) E. Schedule Profile		
(U) Contract Award		
(U) Interface Development		
(U) Test Planning		
(U) Group A Design		
(U) Group A Fabrication		
(U) Group B Design		
(U) Group B Fabrication		
(U) DT (2 Qtr FY 02)		
(U) OT (2 Qtr FY03)		
(U) Program Office Support		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)									
BUDGET ACTIVITY					DATE		PROJECT		
07 - Operational System Development					0101113F B-52 SQUADRONS		February 2000		
07 - Operational System Development					0101113F B-52 SQUADRONS		674875		
(U)	A. Project Cost Breakdown (\$ in Thousands)								
(U)	Hardware					FY 1999	FY 2000	FY 2001	
(U)	Software						6,000	6,700	
(U)	Program management						1,000	3,600	
(U)	Total						956	1,700	
(U)							7,956	12,000	
(U)	B. Budget Acquisition History and Planning Information (\$ in Thousands)								
(U)	Performing Organizations:								
	Contract or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget to Complete
	Product Development Organizations								Total Program
	Boeing Military Programs, Wichita Division	TBD	Jun 00	TBD			7,430	11,250	44,540
									63,220
	Support and Management Organizations								
	OC-ALC/LH	PMA	Jun 00	TBD			500	700	1,134
	WR/ALC	TBD					10	20	30
	HQ ACC/XRA-52	TBD					10	20	30
	Test and Evaluation Organizations								
	419 FLTS	TBD					6	10	6,000
									6,016
(U)	Government Furnished Property:								
	Contract	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget to Complete	Total Program
	Item Description								
	Product Development Property								
	Support and Management Property								
	Test and Evaluation Property								

Project 674875

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
07 - Operational System Development	0101113F B-52 SQUADRONS	674875	
Subtotals	Total Prior to FY 1999	Budget FY 1999	Budget to Complete
Subtotal Product Development		7,430	44,540
Subtotal Support and Management		520	1,194
Subtotal Test and Evaluation		6	6,000
Total Project		7,956	51,734
			Total Program
			63,220
			2,454
			6,016
			71,690

Project 674875

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0101113F B-52 SQUADRONS								674876	
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
674876	B-52 Global Air Traffic Management (GATM)	0	0	0	0	0	9,678	24,141	Continuing	TBD	
(U)	A. Mission Description										
	Develop and install integrated Communication, Navigation, Surveillance and Air Traffic Management capability to guarantee unrestricted access to global air traffic operations in response to International Civil Aviation Organization (ICAO) and Federal Aviation Administration (FAA) requirements. Avionics upgrades will result in reduced airspace congestion, increased safety, and significant savings through more efficient flight routes and altitudes. This program is not executable under the current funding. There is significant concurrency in FY05/06 and the production funding is not adequate to modify 76 aircraft.										
(U)	FY 1999 (\$ in Thousands)										
(U)	\$0										
(U)	\$0										
(U)	FY 2000 (\$ in Thousands)										
(U)	\$0										
(U)	\$0										
(U)	FY 2001 (\$ in Thousands)										
(U)	\$0										
(U)	\$0										
(U)	B. Project Change Summary										
(U)	C. Other Program Funding Summary (\$ in Thousands)										
	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost		
(U)	AF RDT&E										
(U)	Other APPN										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE	February 2000																						
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT																							
07 - Operational System Development	0101113F B-52 SQUADRONS	674876																							
(U) <u>D. Acquisition Strategy</u> Develop and install integrated Communication, Navigation, Surveillance and Air Traffic Management capability to guarantee unrestricted access to global air traffic operations in response to International Civil Aviation Organization (ICAO) and Federal Aviation Administration (FAA) requirements. The B-52 GATM program will contract with Boeing Wichita for aircraft hardware integration and software development. Specific vendors will be selected to provide hardware for use during EMD. The Government will contract with these vendors for production hardware to support the aircraft installations. This program is not fully executable under the current funding. There is significant concurrency in FY05/06 and the production funding is not adequate to modify 76 aircraft.																									
(U) <u>E. Schedule Profile</u>																									
<table border="0"> <tr> <td></td> <td></td> <td><u>FY 1999</u></td> <td></td> <td><u>FY 2000</u></td> <td></td> <td><u>FY 2001</u></td> </tr> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>							<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>	1	2	3	4	1	2	3							
		<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>																			
1	2	3	4	1	2	3																			
(U) Contract Award est 2QTR FY04																									

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
07 - Operational System Development	0101113F B-52 SQUADRONS	674876	
(U) A. Project Cost Breakdown (\$ in Thousands)			
(U)		FY 1999	FY 2000
(U) Total			
Subtotals			
Subtotal Product Development		Total Prior to FY 1999	Budget FY 1999
Subtotal Support and Management		Budget FY 1999	Budget FY 2000
Subtotal Test and Evaluation		Budget FY 2000	Budget to Complete
Total Project			Total Program
			TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE							PROJECT		
07 - Operational System Development		0101120F Advanced Cruise Missile							674798		
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
674798	Life Extension Study	0	0	4,182	972	776	677	580	Continuing	TBD	
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	
A. Mission Description											
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. An ACM Service Life Extension Plan (SLEP) was developed to meet an AF Long Range Plan requirement to extend ACM service life to FY30. The ACM is designed for B-52H external carriage. Missile procurement is complete. The ACM fleet design service life expires between the years 2003 and 2008. The results of Service Life Extension Program (SLEP) studies will identify those components that cannot be sustained beyond the normal service life. This was reported in FY00 President's Budget (PB) as a New Start Program, but was deferred to FY01.											
(U)	FY 1999 (\$ in Thousands)										
(U)	\$0	No Activity									
(U)	\$0	Total									
(U)	FY 2000 (\$ in Thousands)										
(U)	\$0	No Activity									
(U)	\$0	Total									
(U)	FY 2001 (\$ in Thousands)										
(U)	\$750	Research/evaluate ACM components for age sensitivities. Research and develop modifications to existing Sensor components. Research and develop Automated Test Equipment (ATE) to support age sensitivity testing of Sensor components.									
(U)	\$962	Develop process to rebuild composite structures and evaluate new Radar Cross Section (RCS)									
(U)	\$2,470	Design special tooling and prototype support equipment for new/rebuilt composite structures. Develop Test and Evaluation criteria for new/rebuilt composite structures, develop process/procedures for testing new/rebuilt composite structures.									
(U)	\$4,182	Total									
Project 674798		Page 1 of 5 Pages									Exhibit R-2 (PE 0101120F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)				DATE	February 2000					
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT						
07 - Operational System Development		0101120F Advanced Cruise Missile		674798						
(U)	B. Budget Activity Justification These programs are in budget activity 7, Operational System Development. ACM has completed procurement, is fielded, and is undergoing modification to extend missile service life. AF Long Range Plan requires ACM to extend beyond design life (2003-2008). Service Life Extension Program (SLEP) requires studies to determine what components can be sustained or need to be replaced to extend life to 2030.									
(U)	C. Program Change Summary (\$ in Thousands)									
(U)	Previous President's Budget (FY 2000 PBR)	FY 1999	FY 2000	FY 2001	Total Cost					
(U)	Appropriated Value	0	688	785	TBD					
(U)	Adjustments to Appropriated Value		0							
	a. Congressional/General Reductions									
	b. Small Business Innovative Research									
	c. Omnibus or Other Above Threshold Reprogram									
	d. Below Threshold Reprogram									
	e. Rescissions									
	f. Other									
(U)	Adjustments to Budget Years Since FY 2000 PBR		0	3,397						
(U)	Current Budget Submit/FY 2001 PBR		0	4,182	TBD					
(U)	Significant Program Changes: Since funding for FY 2000 was reduced to zero, program start was deferred until FY 2001. New program start is based on AF Long Range Plan decision to maintain ACM beyond design life. The results of SLEP are required to determine other actions on critical components. The funding plus-up of \$3.397 in FY2001 is for development associated with the process of rebuilding composite structures and the evaluation of radar cross sections, and the design of special tooling and support equipment associated with the new/rebuilt composite structures.									
(U)	D. Other Program Funding Summary (\$ in Thousands)									
		FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to	Total Cost
		Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete	
(U)	Missile Procurement, AF									
(U)	Aeronautical Vehicle (BA2, PE 11120F, P-1#2)	1,395	1,039	2,006	2,022	2,038	2,031	2,156	Continuing	
(U)	Missile Modifications (BA3,	0	2,920	0	3,777	4,050	4,324	4,510	Continuing	Continuing
Project 674798		Page 2 of 5 Pages					Exhibit R-2 (PE 0101120F)			

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Exhibit R-2 (PE 0101120F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT			
07 - Operational System Development		0101120F Advanced Cruise Missile						674798			
(U)	<u>D. Other Program Funding Summary (\$ in Thousands)</u>										
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>Cost to</u>	<u>Total Cost</u>	
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		
	PE 11120F, P-1#9)										
(U)	Replen Spares & Spares (BA4, PE 11120F, P-4#17)	0	315	321	330	347	355	365	Continuing	TBD	
(U)	Mod Initial Spares (BA4, PE 11120F, P-1#17)	0	0	1,942	2,307	2,620	2,930	618	Continuing	TBD	
	FY00 Missile Modification funding moved to FY Replenishment Spares funding as of 1 Feb 00										
(U)	<u>E. Acquisition Strategy</u>										
	Development will be through the prime contractor, Raytheon. Contract is Time and Materials. Contract number: F34601-96-0775.										
(U)	<u>F. Schedule Profile</u>										
					<u>FY 1999</u>		<u>FY 2000</u>	<u>FY 2001</u>			
				1	2	3	4	1	2	3	
(U)	Replacement Component Development									4	
(U)	Contract Award										
(U)	Engineering Investigation										
(U)	PDR							X			
(U)	CDR (2nd Qtr FY02)								X	X	
(U)	FQT (4th Qtr FY02)									X	
(U)	Test & Evaluation (1st Qtr FY03										
Project 674798		Page 3 of 5 Pages								Exhibit R-2 (PE 0101120F)	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT			
07 - Operational System Development		0101120F Advanced Cruise Missile		674798			
(U)	A. Project Cost Breakdown (\$ in Thousands)	FY 1999	FY 2000	FY 2001			
(U)	Research/evaluate ACM components for age sensitivities. Research and develop modifications to existing Sensor components. Research and develop Automated Test Equipment (ATE) to support age sensitivity testing of Sensor components	0	0	750			
(U)	Develop process to rebuild composite structures and evaluate new Radar Cross Section	0	0	962			
(U)	Design special tooling and prototype support equipment for new/rebuilt composite structures.			2,470			
(U)	Develop Test and Evaluation criteria for new/rebuilt composite structures, develop process/procedures for testing new/rebuilt composite structures						
(U)	Total	0	0	4,182			
(U)	B. Budget Acquisition History and Planning Information (\$ in Thousands)						
(U)	Performing Organizations:						
	Contractor or Government	Method/Type	Award or Obligation	Project Office EAC	Total Prior to FY 1999	Budget FY 1999	
	Performing Activity	Vehicle	Date	EAC	EAC	Budget FY 2000	
	Product Development Organizations					Budget FY 2001	
	Raytheon	SS/CPT&M	Jan 01	4,182	0	4,182 Continuing	
	Support and Management Organizations					TBD	
	N/A						
	Test and Evaluation Organizations						
	N/A						
(U)	Government Furnished Property:						
	Contract	Method/Type	Award or Obligation	Delivery Date	Total Prior to FY 1999	Budget FY 1999	
	Item Description	Vehicle	Date		Budget FY 2000	Budget FY 2001	
	Product Development Property					Budget Complete	
	Support and Management Property					Total Program	

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE	PROJECT	
BUDGET ACTIVITY	PE NUMBER AND TITLE			
07 - Operational System Development	0101120F Advanced Cruise Missile			674798
(U) <u>Government Furnished Property Continued:</u>				
Test and Evaluation Property				
None				
<u>Subtotals</u>				
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 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0101122F Air Launched Cruise Missile								674797	
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
674797	Flight Testing & Navigation Enhancement	0	5,281	6,457	6,353	5,333	0	0	Continuing	TBD	
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	
(U) A. Mission Description (U) The Air Launched Cruise Missile (ALCM) AGM-86B is a subsonic, air-to-surface strategic nuclear missile, operational since 1982. Armed with a W80 warhead, it is designed to evade air and ground-based defenses in order to strike targets at any location within any enemy's territory. The ALCM is designed for B-52H internal and external carriage. Missile procurement is complete. An ALCM Service Life Extension Plan (SLEP) was developed to meet an AF Long Range Plan requirement to extend ALCM Service Life to FY30. Initial SLEP assessment requires acquisition of new Conventional Air Launched Cruise Missile/Air Launched Cruise Missile Test Instrumentation Kit (CATIK) payload doors, replacement of current obsolete navigation system, and replacement of Operational Test & Evaluation (OT&E) hardware and software. This was an ALCM new start program reported in the FY00 President's Budget (PB), based on the decision to maintain this weapon system beyond its current design life. CATIK flight test payload doors, containing range transponder and battery, are required to be replaced, due to Department of Energy (DOE) range safety requirements and lack of current payload door assets. The current navigation system has parts without spares or suppliers, and that are becoming obsolete, and has been identified as the ALCM item with largest number of unscheduled maintenance hours. (U) FY 1999 (\$ in Thousands) (U) \$0 No Activity (U) \$0 Total (U) FY 2000 (\$ in Thousands) (U) \$2,700 - CATIK payload door Interface Design/Development, Operational Flight/Flight Termination Software Development, and Automated Test Equipment Development. (U) \$472 - CATIK payload door Testing/Integration and Data Collection/Documentation. (U) \$2,109 - Inertial Navigation Element (INE) Card Development, Start Nuclear Certification process, Operational Flight Software Development (U) \$5,281 Total											

Project 674797

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE			
07 - Operational System Development	0101122F Air Launched Cruise Missile		February 2000	674797
(U) A. Mission Description Continued				
(U) FY 2001 (\$ in Thousands)				
(U) \$1,857	- Finalize CATIK payload door Interface Design/Development, Operational Flight/Flight Termination Software Development, Automated Test Equipment Development			
(U) \$201	- INE Operational Flight Software Development Testing, Testing and Integration for INE.			
(U) \$4,399	- Continue Card Development, Operational Flight Software Development, and Nuclear Certification for the INE.			
(U) \$6,457	Total			
(U) B. Budget Activity Justification				
These programs are in budget activity 7, Operational System Development. ALCM has completed procurement, is fielded, and is undergoing modification to extend its Service Life.				
(U) C. Program Change Summary (\$ in Thousands)				
(U) Previous President's Budget (FY 2000 PBR)		FY 1999	FY 2000	FY 2001
(U) Appropriated Value		0	5,344	6,514
(U) Adjustments to Appropriated Value		0	5,344	
a. Congressional/General Reductions				
b. Small Business Innovative Research				
c. Omnibus or Other Above Threshold Reprogram			-29	
d. Below Threshold Reprogram				
e. Rescissions			-34	
f. Other				
(U) Adjustments to Budget Years Since FY 2000 PBR				
(U) Current Budget Submit/FY 2001 PBR		0	5,281	-57
(U) Significant Program Changes:				
FY01 adjustment funded other AF priorities				
			6,457	TBD
Project 674797			Exhibit R-2 (PE 0101122F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY										PROJECT	674797
07 - Operational System Development										0101122F Air Launched Cruise Missile	
(U) D. Other Program Funding Summary (\$ in Thousands)										Total Cost	
	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to			
	Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete			
(U) Missile Procurement, AF											
(U) Missile Modifications	0		4,066	8,650	14,991	23,403	23,847	27,232		102,189	
(U) (BA 3, PE 11122F, P-1#14)											
(U) Replenishment +	92	213	255	255	261	266	272	Continuing		TBD	
(U) Spares/Spare Parts (BA 4, PE											
(U) 11122F, P-1#17)											
(U) Modification Initial Spares	0	0	0	0	1,582	1,736	182	Continuing		TBD	
(U) (BA 3, PE 11122F, P-1#17)											
(U) Other Procurement (BP83)	1,185	1,297	1,311	1,323	1,324	1,352	1,377	Continuing		TBD	
(U) Electronics and											
(U) Telecommunications											
(U) Equipment (BA 3, PE											
(U) 11122F, P-1#51)											
(U) E. Acquisition Strategy											
ALCM will use Boeing on a Sole Source contract for the SLEP MOD development and production. Engineering Assignments will be used for CATIK development and Cost Plus Incentive Fee contract type will be used for all SLEP MOD production and INE development. CATIK development will start in the 2nd quarter of FY00 with production contract award in May FY01. INE development contract award will be June FY00 and production contract award to be May FY03.											
(U) F. Schedule Profile											
(U) CATIK Milestones											
(U) PDR											
(U) CDR											
(U) INE Milestones											
(U) PDR											
(U) CDR											
(U) Contract Milestones- Development											
Project 674797										Exhibit R-2 (PE 0101122F)	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE			PROJECT
07 - Operational System Development	0101122F Air Launched Cruise Missile			674797
(U) A. Project Cost Breakdown (\$ in Thousands)				
(U) CATIK:		FY 1999	FY 2000	FY 2001
(U) Hardware Development				
(U) Interface Development		0	1,270	407
(U) Testing/Integration		0	100	100
(U) Software Development				
(U) Operational Flight Software		0	890	785
(U) Automated Test Equipment Development		0	444	423
(U) Testing/Integration		0	252	142
(U) Data Collection/Documentation		0	216	0
(U) INE:				
(U) Hardware Development				
(U) Card Development		0	328	1,431
(U) Nuclear Certification		0	221	205
(U) Testing/Integration		0	0	212
(U) Software Development				
(U) Operational Flight Software		0	1,403	2,654
(U) Nuclear Certification		0	144	0
(U) Automated Test Equipment Development		0	0	0
(U) Mission Planning		0	0	0
(U) Testing/Integration		0	0	81
(U) Flight Testing		0	13	17
(U) Data Collection/Documentation		0	0	0
(U) Total		0	5,281	6,457
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)				
(U) Performing Organizations:				
Project 674797				
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Exhibit R-3 (PE 0101122F)				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	February 2000
BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT	
07 - Operational System Development				0101122F Air Launched Cruise Missile						674797	
(U) Performing 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 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program	
Product Development Organizations											
Development:											
Boeing - CATIK	Eng Asgn	Mar 00	5,329	5,329	0	0	3,172	1,857	Continuing	TBD	
Boeing - INE	SS/CPIF	Jun 00	14,816	14,816	0	0	2,109	4,600	Continuing	TBD	
Support and Management Organizations											
N/A											
Test and Evaluation Organizations											
Utah Test Range	MIPR	May 02	N/A	N/A	0	0	0	0	3,000	3,000	
49th Test Wing	MIPR	May 02	N/A	N/A	0	0	0	0	500	500	
(U) Government Furnished Property:											
Contract											
Item Description	Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date		Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program	
Product Development Property											
N/A											
N/A											
Support and Management Property											
N/A											
N/A											
Test and Evaluation Property											
None											
Project 674797										Page 6 of 7 Pages	
										Exhibit R-3 (PE 0101122F)	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE				PROJECT					
07 - Operational System Development		0101122F Air Launched Cruise Missile				674797					
		Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program				
Subtotals		0	0	5,281	6,457	TBD	TBD				
Subtotal Product Development											
Subtotal Support and Management		0	0	0	0	3,500	3,500				
Subtotal Test and Evaluation		0	0	5,281	6,457	TBD	TBD				
Total Project											

Project 674797

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0102325F Joint Surveillance System								672996	
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
672996	FAA/AF Radar Replacement (FARR)	1,582	0	0	0	0	0	0	0	22,845	
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	
Note: Reprogramming request in process for \$300K for FY00 to complete turnover of final radar site. (U) A. Mission Description The Joint Surveillance System (JSS) provides command, control and communications (C3) capability in support of CINC NORAD's (North American Aerospace Defense) Atmospheric Tactical Warning and Attack Assessment (ATW/AA) air sovereignty, and air defense requirements. The FAA/Air Force Radar Replacement (FARR) program replaces 39 existing JSS radars and 1 log set radar with solid-state, three-dimensional Air Route Surveillance Radar (ARSR)-4 radars to improve mission performance and reduce operation and maintenance costs. The ARSR-4 radars provide three-dimensional (range, azimuth, and height) digital data on aircraft targets within a 200+ nautical mile radius. (U) FY 1999 (\$ in Thousands) (U) \$439 Provided program office support (U) \$600 Continued test and system checkout (U) \$543 Continued interoperability evaluations and commissioning support (U) \$1,582 Total (U) FY 2000 (\$ in Thousands) (U) \$0 No further funding in this project (U) \$0 Total (U) FY 2001 (\$ in Thousands) (U) \$0 No further funding in this project (U) \$0 Total (U) B. Budget Activity Justification This program is in budget activity 7 - Operational System Development because it provides funding for the modernization of a currently existing and operating system.											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
07 - Operational System Development	0102325F Joint Surveillance System	672996	
(U) C. Program Change Summary (\$ in Thousands)			
(U) Previous President's Budget (FY 2000 PBR)		<u>FY 1999</u>	<u>FY 2000</u>
(U) Appropriated Value		2,099	<u>FY 2001</u>
(U) Adjustments to Appropriated Value		2,175	
(U) a. Congressional/General Reductions		-76	
b. Small Business Innovative Research		-57	
c. Omnibus or Other Above Threshold Reprogram		-451	
d. Below Threshold Reprogram		-9	
e. Rescissions			
f. Other			
(U) Adjustments to Budget Years Since FY 2000 PBR		1,582	
(U) Current Budget Submit/FY 2001 PBR			-9
(U) Significant Program Changes:			22,845
(U) D. Other Program Funding Summary (\$ in Thousands)			
		<u>FY 1999</u>	<u>FY 2000</u>
		<u>Actual</u>	<u>Estimate</u>
(U) AF RDT&E		739	192
(U) Other APPN			62
			28
			0
(U) E. Acquisition Strategy			
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) F. Schedule Profile		<u>FY 1999</u>	<u>FY 2000</u>
			<u>FY 2001</u>
Project 672996		Exhibit R-2 (PE 0102325F)	
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)					
BUDGET ACTIVITY	DATE				
	February 2000				
PROJECT 672996					
07 - Operational System Development	0102325F Joint Surveillance System				
(U) <u>F. Schedule Profile Continued</u>					
(U) FARR last operational readiness date	1	FY 1999		FY 2000	
(U) FARR follow-on support including baselining/commissioning before FAA final		2	3	4	1
Note: * denotes completed event, X denotes planned event.				X	2
					3
					4

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	February 2000	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT		
07 - Operational System Development		0102325F Joint Surveillance System		672996		
(U)	A. Project Cost Breakdown (\$ in Thousands)					
		FY 1999	FY 2000	FY 2001		
(U)	Systems engineering	600	0	0		
(U)	Contractor engineering support	115	0	0		
(U)	Installation/Test/Checkouts	428	0	0		
(U)	Program Office support	439	0	0		
(U)	Total	1,582	0	0		
(U)	B. Budget Acquisition History and Planning Information (\$ in Thousands)					
(U)	Performing Organizations:					
	Contract or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1999
	Product Development Organizations					
	None					
	Support and Management Organizations					
	MITRE	Various		N/A	N/A	5,099
	TEMS	Various		N/A	N/A	1,669
	Martin Marietta	Various		N/A	N/A	6,339
	Program Office Support	Various		N/A	N/A	1,849
	Test and Evaluation Organizations					
	Various			428	0	6,307
(U)	Government Furnished Property:					
	Contract					
	Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Budget FY 1999	Budget FY 2000	Budget to Complete
	Item Description					
	Product Development Property					
	none					
Project 672996				Exhibit R-3 (PE 0102325F)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
07 - Operational System Development	0102325F Joint Surveillance System	672996		
(U) Government Furnished Property Continued:				
Support and Management Property				
none				
Test and Evaluation Property				
none				
Subtotals				
Subtotal Product Development				
Subtotal Support and Management				
Subtotal Test and Evaluation				
Total Project				
		Total Prior to FY 1999	Budget FY 1999	Budget FY 2000
				Budget to Complete
				Total Program
		14,956	1,154	0
		6,307	428	0
		21,263	1,582	0

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0102326F Region/ Sector Operations Control Center								674592	
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
674592	Region/Sector Operations Modernization Center (R/SAOC)	25,587	13,129	992	5,769	5,815	5,938	6,062	Continuing	TBD	
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	
(U) A. Mission Description NOTE: Region/Sector Air Operations Center (R/SAOC) - USAF notified congress of the termination of contractor, Litton Data Systems, Agoura, CA. Contractor terminated 1 Oct 1999 because of excessive cost growth, schedule slips, and an improved understanding of requirements by both users and industry. Program being re-structured and Congress will be notified with more detailed cost and schedule information when Bi-National Steering Committee approves re-structured R/SAOC program with the FY02 budget submission. The Region and Sector Air Operations Center (R/SAOC) Modernization Program will provide a modernized Command, Control, Communication, Computer and Intelligence (C4I) system with enhanced capability to integrate data from existing and future civil and military defense surveillance system into a comprehensive recognized air picture to enhance CINC NORAD's (North American Aerospace Defense Command) capability to conduct a 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.											
(U)	FY 1999 (\$ in Thousands)										
(U)	\$20,500	Continuation of Software Development/Modification for Core Operating Capability (COC) and Prepare for Install of New Equipment at First Site									
(U)	\$1,600	Systems Engineering Support									
(U)	\$2,566	Program Management and Technical Support									
(U)	\$921	Program Office Support									
(U)	\$25,587	Total									

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE			
07 - Operational System Development	0102326F Region/ Sector Operations Control Center		February 2000	674592
(U) A. Mission Description Continued				
(U) FY 2000 (\$ in Thousands)				
(U) \$9,198	Close out of terminated contract with Litton Data Systems			
(U) \$3,276	Program Management and Technical Support			
(U) \$655	Program Office Support			
(U) \$13,129	Total			
(U) FY 2001 (\$ in Thousands)				
(U) \$600	Program Management Technical Support			
(U) \$392	Program Office Support			
(U) \$992	Total			
(U) B. Budget Activity Justification				
	This program is a budget activity 7 - Operational System Development because it provides funding for the modernization of a currently existing and operating system.			
(U) C. Program Change Summary (\$ in Thousands)				
(U) Previous President's Budget (FY 2000 PBR)		FY 1999	FY 2000	FY 2001
(U) Appropriated Value		21,428	13,239	992
(U) Adjustments to Appropriated Value		21,792	13,239	
a. Congressional/General Reductions		-302		
b. Small Business Innovative Research		-688		
c. Omnibus or Other Above Threshold Reprogram		-143	-110	
d. Below Threshold Reprogram		4,990		
e. Rescissions		-62		
f. Other				
(U) Adjustments to Budget Years Since FY 2000 PBR				
(U) Current Budget Submit/FY 2001 PBR		25,587	13,129	992
				TBD
Project 674592			Exhibit R-2 (PE 0102326F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE		February 2000	
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT			
07 - Operational System Development		0102326F Region/ Sector Operations Control Center								674592			
(U)	C. Program Change Summary (\$ in Thousands) Continued												
(U)	Significant Program Changes:												
	NOTE: USAF notified congress of termination of contractor, Litton Data Systems, Agoura, CA - terminated 1 Oct 1999 for excessive cost growth, schedule slips and improved understanding of requirements by both users and industry. Program being re-structured and Congress will be notified with detailed cost and schedule information when Bi-National Steering Committee approves re-structured R/SAOC program with the FY02 budget submission. .												
(U)	D. Other Program Funding Summary (\$ in Thousands)												
		FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to	Total Cost			
		Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete				
(U)	AF RDT&E	0	0	0	0	0	0	0	0				
(U)	Other Procurement (3080)	0	2,871	0	4,756	4,955	5,060	5,174	Continuing			TBD	
(U)	Other APPN	0	0	0	0	0	0	0					
	NOTE 1: Both Appropriations Committees zeroed out the FY99 procurement budget at the request of the AF. Due to program restructure in FY98, the procurement requirements were deferred from FY 1999 to FY 2000 and FY2001. Program has again undergone a restructuring in FY 1999. Procurement has been deferred from FY 2000 and FY 2001 to FY 2002 and FY 2003.												
(U)	E. Acquisition Strategy												
	Management for the R/SAOC Modernization is by ESC, AFMC, Hanscom AFB MA. The R/SAOC Modernization acquisition is being pursued through an evolutionary acquisition approach to develop a modular, open system architecture, Defense Information Infrastructure (DII) Command Operating Environment (COE) compliant system through incremental software release and periodic hardware and commercial software refresh. Initial development focuses on system to provide an initial capability designated as the Core Operating Capability (COC). Prime Contract was awarded in March 1997 to Litton Data Systems Division, Agoura Hills, CA.												
	Contractor terminated 1 Oct 1999. USAF notified congress of termination of contractor, Litton Data Systems, Agoura, CA - terminated 1 Oct 1999 for excessive cost growth, schedule slips and improved understanding of requirements by users and industry. Program being re-structured and Congress will be notified with detailed cost and schedule information when Bi-National Steering Committee approves re-structured R/SAOC program with the FY02 budget submission.												
(U)	F. Schedule Profile												
		FY 1999				FY 2000				FY 2001			
		1	2	3	4	1	2	3	4	1	2	3	
			*										
(U)	Software Version 2.0b Complete												
(U)	Contractor Terminated/Congress notified												
	*Denotes completed event												
Project 674592										Exhibit R-2 (PE 0102326F)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)									
BUDGET ACTIVITY		PE NUMBER AND TITLE		DATE		PROJECT			
07 - Operational System Development		0102326F Region/ Sector Operations Control Center		February 2000		674592			
(U)	A. Project Cost Breakdown (\$ in Thousands)								
(U)	System Engineering Support			FY 1999	FY 2000			FY 2001	
(U)	Program Office Support			1,600					392
(U)	Program Management and Technical Support			921	655				600
(U)	Development/Modification of Software for COC			2,566	3,276				
(U)	Contract Close due to termination of Litton Data Systems			20,500					
(U)	Total			25,587	9,198			13,129	992
(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 1999	Budget FY 1999	Budget FY 2000	Budget to Complete
	Product Development Organizations								Total Program
	LITTON*	CPAF	14 Mar 97	Continuing	Continuing	21,242	20,500	9,198	0
	Support and Management Organizations								
	MITRE	Various	N/A	N/A	N/A	2,773	1,500	1,732	400
	TEMS	Various	N/A	N/A	N/A	2,664	1,397	1,333	200
	Program Office Support	Various	N/A	N/A	N/A	778	2,025	655	392
	Test and Evaluation Organizations								
	46th Test Wing/Other Test Act					215	165	211	0
(U)	Government Furnished Property:								
	Contract	Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget to Complete	Total Program
	Item Description								
Project 674592									
Exhibit R-3 (PE 0102326F)									

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT			
07 - Operational System Development		0102326F Region/ Sector Operations Control Center		674592			
(U) Government Furnished Property Continued:							
	<u>Contract</u>						
	<u>Method/Type</u>	<u>Award or</u>					
	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>				
	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>				
<u>Item Description</u>				<u>Total Prior</u>	<u>Budget</u>	<u>Total</u>	
				<u>to FY 1999</u>	<u>FY 1999</u>	<u>Program</u>	
					<u>FY 2000</u>	<u>Complete</u>	
					<u>FY 2001</u>	<u>Program</u>	
Product Development Property							
None							
Support and Management Property							
None							
Test and Evaluation Property							
None							
Subtotals				<u>Total Prior</u>	<u>Budget</u>	<u>Total</u>	
				<u>to FY 1999</u>	<u>FY 1999</u>	<u>Program</u>	
					<u>FY 2000</u>	<u>TBD</u>	
Subtotal Product Development				21,242	9,198	TBD	
Subtotal Support and Management				6,215	3,720	TBD	
Subtotal Test and Evaluation				215	211	TBD	
Total Project				27,672	13,129	TBD	

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 Project 674592

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0102411F North Atlantic Defense System								672980	
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
672980	North Atlantic Defense System (NADS)	537	0	0	0	0	0	0	0	61,699	
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	
(U) A. Mission Description 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 Joint Formal Acceptance Inspection (JFAI), a NATO required technical inspection of the entire system, is complete. Both the JFAI and a NATO required financial audit are completed and the system has been turned over to NATO/Iceland. In Jul 99 NATO approved full program funding for implementation of a Link 16 capability for NADS in Iceland (approx \$28M). As the host nation in Iceland, the US will be responsible for funding the system engineering and integration activities (approx \$11M over the FYDP). (U) FY 1999 (\$ in Thousands) (U) \$256 Provided program office support (U) \$201 Provided systems engineering support for NADS (U) \$80 Provided systems integration activities for NADS (U) \$537 Total (U) FY 2000 (\$ in Thousands) (U) \$0 No further funding in this project (U) \$0 Total (U) FY 2001 (\$ in Thousands) (U) \$0 No further funding in this project (U) \$0 Total (U) B. Budget Activity Justification The program is in Budget Activity 7 since it supports improvements to currently operational systems.											

Project 672980

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)				DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT			672980
07 - Operational System Development	0102411F North Atlantic Defense System				
(U) C. Program Change Summary (\$ in Thousands)		FY 1999	FY 2000	FY 2001	Total Cost
(U) Previous President's Budget (FY 2000 PBR)		569	0	0	61,702
(U) Appropriated Value		615			
(U) Adjustments to Appropriated Value					
a. Congressional/General Reductions		-46			
b. Small Business Innovative Research		-17			
c. Omnibus or Other Above Threshold Reprogram		-12			
d. Below Threshold Reprogram		-3	0		0
e. Rescissions			0		
f. Other			0		
(U) Adjustments to Budget Years Since FY 2000 PBR					
(U) Current Budget Submit/FY 2001 PBR		537	0	0	61,702
(U) Significant Program Changes:					
(U) D. Other Program Funding Summary (\$ in Thousands)		FY 1999	FY 2000	FY 2001	Total Cost
		Actual	Estimate	Estimate	Complete
(U) AF RDT&E					
(U) Other APPN					
(U) E. Acquisition Strategy					
The acquisition of hardware has been completed. Prior year funding provided engineering support during the NATO Operational Review known as the JFAI (Joint Formal Acceptance Inspection). The JFAI is a NATO technical and financial audit. Any discrepancies must be corrected to satisfy NATO.					
The anticipated three year contract will be funded under the NATO Infrastructure Program and will be conducted in accordance with NATO's document AC/4-D/2261, 'Infrastructure Committee The NATO Security Investment Programme Procedures for International Competitive Bidding (1996 Edition)'. As such, the contract type will be Firm Fixed Price (FFP). Additionally, the contract will direct that required changes to the NADS CRC software be accomplished through subcontract to Raytheon Integrated Systems Division, the OEM and owner of the software data rights.					
(U) F. Schedule Profile		FY 1999	FY 2000	FY 2001	
Project 672980					
Page 2 of 5 Pages					
Exhibit R-2 (PE 0102411F)					

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)				DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT	
07 - Operational System Development		0102411F North Atlantic Defense System		672980	
(U)	F. Schedule Profile Continued				
(U)	JFAI	1			
(U)	NATO Financial Audit	2			
(U)	Program residuals	3			
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE				PROJECT					
07 - Operational System Development		0102411F North Atlantic Defense System				672980					
(U)	<u>A. Project Cost Breakdown (\$ in Thousands)</u>										
(U)	Engineering Support	FY 1999	FY 2000	FY 2001							
(U)	Intergration Activity Support	201	0								
(U)	Program Support	80									
(U)	Total	256									
(U)		537	0								
(U)	<u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>										
(U)	<u>Performing Organizations:</u>										
	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 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	
	Product Development Organizations										
	Support and Management Organizations										
	MITRE	Various	Oct 94	N/A	N/A	37,817	281	0	0	38,098	
	TEMS	Various	Jun 94	N/A	N/A	16,583	178	0	0	16,761	
	Program Office Support	Various		N/A	N/A	3,384	78	0	0	3,462	
	Test and Evaluation Organizations										
	Various					3,378	0	0	0	3,378	
	GFP/GFE	None					0	0	0	0	
(U)	<u>Government Furnished Property:</u>										
	Contract										
	Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date								
	Item Description										
	Product Development Property										
	Support and Management Property										
	Test and Evaluation Property										

Project 672980

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
07 - Operational System Development	0102411F North Atlantic Defense System	672980	
Subtotals	Total Prior to FY 1999	Budget FY 2000	Budget to Complete
Subtotal Product Development	57,784	0	0
Subtotal Support and Management	3,378	0	0
Subtotal Test and Evaluation	61,162	0	0
Total Project			
		58,321	3,378
		61,699	
Project 672980		Exhibit R-3 (PE 0102411F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE		February 2000	
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT			
07 - Operational System Development		0207027F Air Space Command & Control Agency								674814			
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost			
674814	Expenditure Force Experiment (EFX)	0	0	24,769	88,053	25,375	65,168	25,922	Continuing	TBD			
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0			

Note: JEFX 98, 99,00 have been planned and executed within existing command and control space programs.

(U) **A. Mission Description**
The Joint Expeditionary Force Experiments (JEFX) are large-scale warfighter experiments and are part of the total AF experimentation effort. They combine live-fly forces and simulations into an operationally representative warfighter environment. These experiments provide a vehicle for experimentation with operational concepts and attendant new technologies for enhancing capabilities of the 21st century aerospace force. They are part of a broader effort to implement the Joint Vision 2010, exploit the Revolution in Military Affairs, and demonstrate emerging Air Force capabilities to deploy and employ decisive aerospace power for the Joint Force Commander. JEFX 2000 will emphasize Agile Combat Support, but exploration will also occur in managing intelligence, surveillance, and reconnaissance assets; global mobility; and dynamic battle control. JEFX 2000 is planned and will be executed with reprogrammed funds and other Air Force funding from existing command and control, global power, global reach, and space Program Elements.

In FY01, the Air Force moves to a biennial schedule for JEFX conducted in the even years. In addition, the Air Force begins the integration of proven initiatives into integrated Air Force/Joint/Coalition Command and Control providing integrated/interoperable fielded capabilities for warfighter use. Transition of selected technologies to the warfighter will be based on a rigorous, defined process which ensures interoperability with fielded programs and maximum return on investment. Specific weapon system development and procurement activities are funded in their own budget lines as applicable. A full-scale experiment as performed in FY99 and FY00 will be conducted in FY02. Integrated Air Force/Joint/Coalition Command and Control integration of new initiatives and legacy systems into an integrated Command and Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) baseline will be an ongoing activity.

(U) FY 1999 (\$ in Thousands)
(U) \$0 No Activity
(U) \$0 Total

(U) FY 2000 (\$ in Thousands)
(U) \$0 No Activity
(U) \$0 Total

Project 674814

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
07 - Operational System Development	0207027F Air Space Command & Control Agency	674814	
(U) A. Mission Description Continued			
(U) FY 2001 (\$ in Thousands)			
(U) \$2,559	Initiatives from government and industry, selection and prioritization of new and previously considered initiatives, C2 Center Communications and computer development upgrades		
(U) \$2,360	Development of systems architecture and integration, including engineering, for the experiment		
(U) \$1,850	Planning and coordination for the experiment		
(U) \$8,000	Implement JEFX 2000 architectural configuration, conduct M&S, install infrastructure, install and test LAN configurations and communications, and test operational software		
(U) \$10,000	Integration of new initiatives and legacy systems into an integrated C2ISR baseline		
(U) \$24,769	Total		
(U) B. Budget Activity Justification	This effort is Budget Activity 7, Operational System Development, because the program will develop and implement software for operational computer applications.		
(U) C. Program Change Summary (\$ in Thousands)			
(U) Previous President's Budget (FY 2000 PBR)		FY 2001	Total Cost
(U) Appropriated Value		20,000	TBD
(U) Adjustments to Appropriated Value			
a. Congressional/General Reductions			
b. Small Business Innovative Research			
c. Omnibus or Other Above Threshold Reprogram			
d. Below Threshold Reprogram			
e. Rescissions		-2,946	
f. Other		0	
(U) Adjustments to Budget Years Since FY 2000 PBR		4,769	
(U) Current Budget Submit/FY 2001 PBR		24,769	
(U) Significant Program Changes:			
			TBD
			TBD
			TBD

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000	
BUDGET ACTIVITY			PE NUMBER AND TITLE				PROJECT					
07 - Operational System Development			0207027F Air Space Command & Control Agency				674814					
(U)	D. Other Program Funding Summary (\$ in Thousands)											
	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to	Total Cost			
	Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete				
(U)	AF RDT&E	6,000	2,186	0	0	0	0	Continuing	TBD			
(U)	Other APPN	29,500	35,900	0	0	0	0	Continuing	TBD			
(U)	E. Acquisition Strategy											
	Electronic Systems Center (ESC), Hanscom AFB, MA will manage the acquisition and development process for the experimentation, integration, and fielding of selected technologies with legacy systems in an integrated C2ISR baseline. The spiral development system was created to field new and emerging technologies quickly. One of the tenets of the streamlined acquisition philosophy is to provide new capabilities through the integration of existing software components. JEPX periodically provides the opportunity to demonstrate new capabilities which provide decisive air and space power by identifying existing DII components and other software that can be integrated to further advance effectiveness. Research and development funding will be used to develop the integrating code for various systems ranging from communications, C2, computers, weapons, ISR and aerospace delivery vehicles. In addition, funds will be used to develop enhancements to existing capabilities necessary to demonstrate how emerging products can improve the warfighters' effectiveness. Spirals within the acquisition cycle allow deficiencies to be identified and considered for future spirals as well as the next experiment or applied to current capabilities. Selected technologies will be identified via a vigorous, defined process for integration with existing systems and transitioned to the field for warfighter use. Integration efforts will capitalize on the synergy between evolving technologies and on-going system program modifications to maximize the return on investment.											
(U)	E. Schedule Profile											
		FY 1999		FY 2000		FY 2001						
		1	2	3	4	1	2	3	4			
(U)	Call for Initiatives, JEPX 2000			*								
(U)	Initiative Selection, JEPX 2000											
(U)	Conduct Spiral I				*	X						
(U)	Conduct Spiral II						X					
(U)	Conduct Spiral III						X					
(U)	Conduct JEPX 2000 Experiment								X			
(U)	Perform Assessment, JEPX 2000 Experiments								X			
(U)	Commence movement of selected initiatives to the field											
(U)	Call for Initiatives, FY02 Focused Experiments								X			
(U)	Initiative Selection, FY02 Focused Experiments								X			
(U)	JEPX 2002 Architectural Development									X		

Project 674814

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

DATE _____

February 2000

BUDGET ACTIVITY

PE NUMBER AND TITLE

07 - Operational System Development

0207027F Air Space Command & Control Agency

PROJECT

674814

(U) **F. Schedule Profile Continued**

(U) Small scale experiment (4QFY01)

(U) Conduct Spiral I (1QFY02)

(U) Conduct Spiral II (2QFY02)

Conduct Spiral III (2QFY02)

(U) Conduct JEFX 2002 Experiments (4QFY02)

(U) Perform Assessment, JEFX 2002 Experiments (1OFY03)

Commence integration of selected initiatives (1QFY03)

(U) Call for Initiatives, JEFX 2004 (1QFY03)

(U) Initiative Selection, JEFX 2004 (2QFY03)

* Denotes completed event

X Denotes planned event

1	2	3
		<u>FY 1999</u>

FY 2000 3

FY 2001

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE			PROJECT			
07 - Operational System Development	0207027F Air Space Command & Control Agency			674814			
(U) A. Project Cost Breakdown (\$ in Thousands)	FY 1999	FY 2000	FY 2001				
(U) Initiatives from government and industry, selection and prioritization of new and previously considered initiatives, C2 Center Communications and Computer development upgrades						2,559	
(U) Development of systems architecture and integration, including engineering, for the experiment						2,360	
(U) Planning and coordination for the experiment						1,850	
(U) Implement JEFX 2000 architectural configurations, conduct M&S, install infrastructure, install and test LAN configurationsand communications, test operational software, conduct small -scale experimentation , and evaluate experiment results						8,000	
(U) Integration of new initiatives and legacy systems into an integrated C2ISR baseline						10,000	
(U) Total						24,769	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)							
(U) Performing Organizations:							
Contractor or Government	Contract Method/Type	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1999	Budget FY 1999	
Activity	Vehicle					Budget FY 2000	
Product Development Organizations						Budget to Complete	
ESC various	N/A	various	N/A	N/A		24,769 Continuing	
Support and Management Organizations						TBD	
Test and Evaluation Organizations							
None							
Subtotals							
Subtotal Product Development						Budget to Complete	
Subtotal Support and Management						Budget FY 2001	
Subtotal Test and Evaluation						24,769 TBD	
Total Project						24,769 TBD	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0207131F A-10 SQUADRONS								674809	
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
674809	A-10 Squadrons	2,170	8,013	8,615	8,933	10,189	44,416	9,172	Continuing	TBD	
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	
(U)	A. Mission Description The primary mission of the A/OA-10 is to provide close air support (CAS) for friendly land forces and to act as the forward air controller (FAC) to coordinate and direct friendly air forces in support of land forces. The A/OA-10 has a secondary mission of supporting search and rescue (SAR) and special forces operations. It also possesses a limited capability to perform certain types of interdiction. All of these missions may take place in a high- or low-threat environment. The A-10 System Program Office (SPO) is directed to upgrade and modernize the A/OA-10 aircraft to enhance its ability to support CAS and interdiction mission requirements. The Integrated Flight and Fire Control Computer (IFFCC), formerly known as 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 accommodate a situational awareness display, a data-link capability, an Electronic Warfare Management System, and the Digital Terrain System.										
	RDT&E funds are executed in developing improved capability, maintenance, and safety modification development efforts. Without continuing avionics, airframe and weapon systems upgrades, the A/OA-10 will have difficulty adhering to the regional CINCs requirement for a Close Air Support platform.										
(U)	FY 1999 (\$ in Thousands)										
(U)	\$2,170	Development for Integrated Flight and Fire Control Computer (IFFCC)									
(U)	\$0	- Software creation and debugging									
(U)	\$0	- OFP updates to IFFCC software									
(U)	\$2,170	Total									
(U)	FY 2000 (\$ in Thousands)										
(U)	\$4,181	Continue software update/conversion and hardware development for (IFFCC)									
(U)	\$3,832	Initiate Common Data Link Solution									
(U)	\$0	- Software development and integration solutions									
(U)	\$8,013	Total									

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)				DATE	February 2000				
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT					
07 - Operational System Development		0207131F A-10 SQUADRONS		674809					
(U)	<u>A. Mission Description Continued</u>								
(U)	<u>FY 2001 (\$ in Thousands)</u>								
(U)	\$4,411	Complete hardware development and modification of the Integrated Flight and Fire Control Computer (IFFCC)							
(U)	\$4,204	Begin software and hardware development for the Digital Terrain System (DTS)							
(U)	\$8,615	Total							
(U)	<u>B. Budget Activity Justification</u>								
	The A/OA-10 RDT&E program is in budget activity 7 - Operational System Development because it supports an operational system.								
(U)	<u>C. Program Change Summary (\$ in Thousands)</u>								
(U)	Previous President's Budget (FY 2000 PBR)	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>				
(U)	Appropriated Value	2,305	8,108	9,085	TBD				
(U)	Adjustments to Appropriated Value	2,312	8,108						
	a. Congressional/General Reductions	-7							
	b. Small Business Innovative Research	-96							
	c. Omnibus or Other Above Threshold Reprogram	-27	-44						
	d. Below Threshold Reprogram	-12	-51						
	e. Rescissions				TBD				
	f. Other				TBD				
(U)	Adjustments to Budget Years Since FY 2000 PBR			-470					
(U)	Current Budget Submit/FY 2001 PBR	2,170	8,013	8,615	TBD				
(U)	<u>Significant Program Changes:</u>								
(U)	<u>D. Other Program Funding Summary (\$ in Thousands)</u>								
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>Cost to</u>	<u>Total Cost</u>
	Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete	
(U)	AF RDT&E								
(U)	Other APPN								
(U)	Aircraft Procurement, BP-11	28,344	27,133	33,891	11,359	21,968	42,644	83,783	TBD
	(PE 27131F)								
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0207131F A-10 SQUADRONS								674809	
(U)	<u>D. Other Program Funding Summary (\$ in Thousands)</u>										
	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to	Total Cost		
	Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete			
(U)	RDT&E (PE 64270F)	2,200	3,000	2,000	1,000	0			15,678		
(U)	<u>E. Acquisition Strategy</u>										
	The Integrated Flight and Fire Control Computer (IFFCC), Digital Terrain System (DTS), On-Board Oxygen Generating System (OBOGS), Digital Data Link (DDL), Common Data Link, and 1760 BUS development will be conducted under the A-10 Prime Contract which was awarded in Dec 1997 on a full-and-open basis. CPAF contract awarded for specific modernization efforts.										
(U)	<u>F. Schedule Profile</u>										
				FY 1999			FY 2000	FY 2001			
				1	2	3	4	1	2	3	
					*						
(U)	Integrated Flight and Fire Control Computer (IFFCC) upgrade										
(U)	RDT&E										
(U)	Digital Terrain System (DTS)										
(U)	Common Data Link										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	February 2000
BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT	
07 - Operational System Development			0207131F A-10 SQUADRONS							674809	
(U)	A. Project Cost Breakdown (\$ in Thousands)										
(U)	Integrated Flight and Fire Control Computer (IFFCC)										
(U)	Digital Terrain System (DTS)										
(U)	Common Data Link										
(U)	Total										
(U)	B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U)	Performing Organizations:										
	Contractor or Government	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	Product Development Organizations										
	Lockheed Martin	IFFCC	2Q99	10,000	10,762		2,170	4,181	4,411	0	10,762
	Federal Systems	A-10 Prime Contract/CPAF									
	Lockheed Martin Federal Systems	Digital Terrain System (DTS) A-10 Prime Contract	2Q01	TBD	TBD	0	0	0	4,204	Continuing	TBD
	Lockheed Martin Federal Systems	Onboard Oxygen Generating Systems (OBOGS)	2Q02	TBD	TBD	0	0	0	0	1,747	1,747
	LMFS	Digital Data Link (DDL)	2Q03	TBD	49,998	0	0	0	0	Continuing	TBD
	LMFS	1760 Bus	2Q04	TBD	12,000	0	0	0	0	Continuing	TBD
Project 674809											
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT			
07 - Operational System Development		0207131F A-10 SQUADRONS		674809			
(U) Performing Organizations Continued:							
Product Development Organizations							
LMFS	Common Data 2Q00	TBD	3,832	0	3,832	3,832	
	Link Solution						
Support and Management Organizations							
Test and Evaluation Organizations							
(U) Government Furnished Property:							
	Contract						
	Method/Type	Award or					
	or Funding	Obligation					
	Vehicle	Date					
Item		Delivery				Total	
Description		Date				Program	
Product Development Property				Budget	Budget		
Support and Management Property			Total Prior	FY 2000	FY 2001		
Test and Evaluation Property			to FY 1999		Complete	TBD	
Subtotals							
Subtotal Product Development			0	8,013	8,615		
Subtotal Support and Management							
Subtotal Test and Evaluation			0	8,013	8,615		
Total Project						TBD	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0207133F F-16 Squadrons								672671	
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
672671	F-16 Squadrons	120,389	114,162	124,903	84,465	76,082	65,704	97,215	Continuing	TBD	
Quantity of RDT&E Articles		0	0	0	0	0	0	0	0	0	

(U) **A. Mission Description**
 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 is 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.

The F-16 program develops enhanced combat capability in both the air-to-ground and air-to-air role. Several modifications to improve the F-16's combat capabilities have been combined into a single modification known as the Common Configuration Integration Program (CCIP) to save significant costs during the production phase. CCIP will modify all Block 40 and Block 50 F-16 aircraft; Block 50 is the lead platform. CCIP integrates several programs under one umbrella and allows incorporation of AIM-9X onto the F-16:

- 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 battle management 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.
- To enhance the display of the Link 16 data, the current black and white display will be changed out with the Color Multifunction Display (CMFD) used by the European Participating Air Force's (EPAF) F-16s.
- To have sufficient computing power in the Block 40/50 aircraft to operate Link16 and to allow the cost savings by using a common Operational Flight Program, the General Avionics Computer (GAC) must be replaced with the Modular Mission Computer (MMC). The MMC is an upgraded version of the computer that was developed for the EPAF Mid-life Update program. The Block 50 F-16 is developing the MMC for USAF requirements. 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 Joint Helmet Mounted Cueing System (JHMCS) incorporates a man-mounted, ejection capable helmet mounted display system, with the capability to cue and verify cueing of high off-axis sensors and weapons. The F-16 JHMCS program will integrate the following government furnished equipment with the F-16: flight helmet with display optics, image source, helmet tracker transducer w/attached cable, graphics processor/video hardware and software to drive the display, helmet tracker hardware and software. The integration will interface with aircraft computers, weapons and sensor hardware and will provide software to integrate the JHMCS functions with other onboard systems.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
07 - Operational System Development	0207133F F-16 Squadrons	672671

(U) **A. Mission Description Continued**
 Other modifications which are being or will be developed during the FYDP:
 a. Advanced Weapons Integration will integrate Joint Direct Attack Munition (JDAM), Joint Stand-off Weapon (JSOW) and Wind Corrected Munition Dispenser (WCMD) smart weapons into the Block 40 and Block 50 F-16.
 b. Global Positioning System (GPS) Integration adds GPS capability to the Block 30 and supports testing of GPS changes to other F-16 Blocks.
 The F-16C/D development efforts are complemented by comprehensive Operational Flight Program (OFP) upgrades and flight tests.
 c. Integrate a targeting pod on the Block 50/52 and transition the HARM Targeting System (HTS) pod to the left inlet hardpoint. This will allow the F-16 Block 50 to perform the SEAD/DEAD mission.
 d. The Mark XII IFF system (Air-to-Air Interrogator) consists of a single unit interrogator/transponder, a beam forming network, fuselage-mounted array antenna elements, and a lower interrogator antenna. The system provides a higher reliability rate and increases performance over present systems. Initial capabilities include coverage of + or - 60 degrees azimuth and elevation coverage with a + or - 2 degree accuracy, a range accuracy of 152 meters and range of 100 nmi. 32 in beam targets can be handled. Modes 1, 2, 3/A, C, S, and 4 are available.
 e. Structural analysis from the on-going Structural Integrity Program (SIP) has indicated that the F-16 is experiencing structural fatigue that may impact the ability of the airframes to reach their 8,000 hrs service life. RDT&E funds are required to design the required structural modifications, as appropriate for each F-16 Block of aircraft. This program, Falcon Star, (RDT&E only) will be cost shared with the Multi-National Fighter Program (MNFP) countries.
 f. The Auto Ground Collision Avoidance System (AGCAS) program is presently a Air Force Research Laboratory (AFRL) led flight test program. The funds allocated in FY01 is required to begin the transition of the program to Engineering Manufacturing & Development (EMD). The funds will be used for risk reduction efforts which included continued flight testing of the capability available from the research program and initial design and trade studies for potential hardware and software solutions for an automatic ground collision avoidance system.

The F-16, which received Milestone III approval in FY 1977, is an operational aircraft.

(U) FY 1999 (\$ in Thousands)	
(U) \$20,085	Continued Link 16 Block 40/50
(U) \$6,255	Continued Joint Helmet Mounted Cueing System (JHMCS) Block 40/50 (formerly AIM-9X development)
(U) \$3,655	Continued Block 40 Color Display Development/Integration
(U) \$10,300	Continued Modular-Mission Computer (MMC) Block 40
(U) \$3,928	Continued Training Devices (Unit Only)
(U) \$43,279	Continued OFP Updates
(U) \$1,215	Completed Smart Weapons Integration

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
07 - Operational System Development	0207133F F-16 Squadrons	672671		
(U) A. Mission Description Continued				
(U) FY 1999 (\$ in Thousands) Continued				
(U) \$2,431	Continued Block 30 GPS Integration Activities			
(U) \$27,841	Continued Flight Tests DT&E			
(U) \$1,400	Completed ALE-50 - Congressional Kosovo Plus Up			
(U) \$120,389	Total			
(U) FY 2000 (\$ in Thousands)				
(U) \$14,472	Complete Block 50 Link 16, Continue Block 40			
(U) \$9,770	Complete Block 50 JHMCS, Continue Block 40			
(U) \$586	Continue Block 40 Color Display Development/Integration			
(U) \$8,286	Continue Block 40 MMC			
(U) \$2,450	Continue Training Devices (Unit Only)			
(U) \$46,653	Continue OFP Updates			
(U) \$888	Complete Block 30 GPS Integration Activities			
(U) \$31,057	Continue Flight Tests DT&E			
(U) \$114,162	Total			
(U) FY 2001 (\$ in Thousands)				
(U) \$5,000	Continue Block 40 Link 16			
(U) \$4,300	Continue Block 40 JHMCS			
(U) \$1,500	Continue Block 40 Color Display Development/Integration			
(U) \$5,000	Continue Block 40 MMC			
(U) \$11,351	Continue Training Devices (Unit and Maintenance)			
(U) \$54,955	Continue OFP Updates			
(U) \$32,447	Continue Flight Tests DT&E			
(U) \$600	Initiate Joint Tactical Combat Training System (JTCTS)			
(U) \$3,250	Initiate Block 50 HTS/TGP Capability (Software development, design, test assets)			
(U) \$1,500	Initiate Falcon Star (Structural analysis and design)			
(U) \$5,000	Initiate Auto GCAS (Risk reduction)			
(U) \$124,903	Total			
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)					DATE	February 2000				
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT						
07 - Operational System Development		0207133F F-16 Squadrons		672671						
(U)	B. Budget Activity Justification									
	Since the development activities in this PE support an operational aircraft, these development activities are funded in the Operational System Development budget activity 7.									
(U)	C. Program Change Summary (\$ in Thousands)									
(U)	Previous President's Budget (FY 2000 PBR)	FY 1999	FY 2000	FY 2001	Total Cost					
(U)	Appropriated Value	139,631	112,520	93,058	TBD					
(U)	Adjustments to Appropriated Value	140,076	115,520							
	a. Congressional/General Reductions	-49	-10							
	b. Small Business Innovative Research	-4,274								
	c. Omnibus or Other Above Threshold Reprogram	-12,186	-627							
	d. Below Threshold Reprogram	-2,109								
	e. Rescissions	-1,069	-721							
	f. Other				TBD					
(U)	Adjustments to Budget Years Since FY 2000 PBR			31,845						
(U)	Current Budget Submit/FY 2001 PBR	120,389	114,162	124,903	TBD					
	Note: \$600 of the BTR amount of \$2,109 used to pay canceled year bill									
(U)	Significant Program Changes:									
	FY99: 'Omnibus or Other Above Threshold Reprogram' includes transfer of \$14.486M to BP10 for advance procurement for 10 aircraft in FY 00 and receipt of the \$2.3M from the emergency supplemental fund (\$1.4M of 3600 funds for ALE-50 flight test, \$.9M exchanged for 3400 funds for ALE-50 OFF development.)									
	FY 00: \$3,000 Congressional plus up for Air to Air Interrogator development for Block 50 Aircraft.									
	FY01: \$31,845 increase to 'Adjustments to Budget Years Since FY2000 PBR' is for AAI, Blk 50 HTS/TGP capability, Falcon STAR, and Auto GCAS.									
(U)	D. Other Program Funding Summary (\$ in Thousands)									
		FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
		Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate		
(U)	Aircraft Procurement (3010F), Line Item 5; F-16 C/D (MYP)*	41,109	262,182	0	0	165,975	198,365	203,049		TBD
(U)	Aircraft Procurement	256,402	283,060	248,830	255,311	246,082	240,827	193,072		TBD
Project 672671										
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0207133F F-16 Squadrons								672671	
(U)	<u>D. Other Program Funding Summary (\$ in Thousands)</u>										
		FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to.	Total Cost	
		Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete		
	(3010F), Line Item 34, F-16										
	Mods										
(U)	Aircraft Procurement	36,634	43,932	25,464	15,500	15,705	13,861	14,340		TBD	
	(3010F), Line Item 73, Post										
	Production Support										
	* 3010F, Line Item 5 Program Funding for FY00, FY03-05, is for force structure aircraft, 10 A/C in FY 00, 6 A/C in FY 03, FY 04-FY 05 7 A/C in each respective year.										
(U)	<u>E. Acquisition Strategy</u>										
	The procurement of 30 additional Blk 50/52 aircraft, 10 FY00/6 FY03/7 FY03/7 FY04, for the active force will enable the AF to replace the Blk 10/15 F-16 A/B aircraft of two Air National Guard (ANG) Air Defense Fighter (ADF) squadrons with newer, more capable Blk 30 F-16 C/D aircraft from the active fleet. RDT&E funds will primarily be executed in developing improved capability, maintenance and safety mods. Operational Flight Program (OFP) software will be continuously updated to complement mod development efforts. The approach to contracting varies by individual project. Lockheed Martin Tactical Aircraft Systems (LMTAS) is the prime contractor on all systems except the simulator/trainer (Hughes Co.), the 110 Engines (General Electric), and the 229 Engines (Pratt & Whitney). Contract types are CPIF, CPFF, FFP.										
(U)	<u>F. Schedule Profile</u>										
		1	2	3	4	1	2	3	4		
	CONTRACT MILESTONES										
(U)	Blk 30 GPS Integration Activities										
(U)	Advanced Weapons Integration Dev										
(U)	LANTIRN BDA				X						
(U)	Block 50 HTS/TGP Capability				*						
(U)	Falcon Star								X		
(U)	Auto GCAS								X		
(U)	JTCTS						X		X		
(U)	AAI								X		
Project 672671											
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
07 - Operational System Development	0207133F F-16 Squadrons	672671		
(U) A. Project Cost Breakdown (\$ in Thousands)				
	FY 1999	FY 2000	FY 2001	
(U) Link 16 Block 50	14,633	9,186	0	
(U) Link 16 Block 40	5,452	5,286	5,000	
(U) MMC Block 40	10,300	8,286	5,000	
(U) Color Display Block 40	3,655	586	1,500	
(U) JHMCS Block 50	4,500	4,885	0	
(U) JHMCS Block 40	1,755	4,885	4,300	
(U) Training Devices	3,928	2,450	11,351	
(U) Smart Weapons Integration	1,215	0	0	
(U) Block 30 GPS Integration	2,431	888	0	
(U) OFP Updates (Includes AAI)	42,549	46,653	54,955	
(U) Block 42 IDM Integration	630	0	0	
(U) Flight Tests DT&E	27,841	31,057	32,447	
(U) Joint Tactical Combat Training System	0	0	600	
(U) LANTIRN BDA	100	0	0	
(U) Block 50 HTS/TGP Capability (Software development, design, test assets)	0	0	3,250	
(U) Falcon Star (Structural analysis and design)	0	0	1,500	
(U) Auto GCAS (Risk reduction)	0	0	5,000	
(U) ALE-50	1,400			
(U) Total	120,389	114,162		124,903
(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 1999	Budget FY 1999
			Budget FY 2000	Budget FY 2001
			Budget to Complete	Total Program
Project 672671				
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	February 2000	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE		672671		
07 - Operational System Development		0207133F F-16 Squadrons				
(U) Performing Organizations Continued:						
Product Development Organizations						
CCIP	T&M	Feb 97	5,384	5,384	0	5,384
(LMTAS)						
Link 16 Blk 50 (LMTAS)	SS/CPIF	Apr 98	29,446	5,627	14,633	0 29,446
Link 16 Blk 40 (LMTAS)	SS/CPIF	Apr 98	17,538	1,800	5,452	0 17,538
MMC Blk 50 (LMTAS)	SS/CPIF	Jan 92	172,530	172,530		0 172,530
MMC Blk 40 (LMTAS)	SS/CPIF	Apr 98	26,086	2,500	10,300	0 26,086
Color Display Blk 50	SS/CPIF	Apr 98	650	650		0 650
(LMTAS)						
Color Display Blk 40	SS/CPIF	Apr 98	7,541	1,800	3,655	0 7,541
(LMTAS)						
JHMCS Blk 50 (LMTAS)	SS/CPIF	Apr 98	10,385	750	4,500	0 10,135
JHMCS Blk 40 (LMTAS)	SS/CPIF	Apr 98	11,940	750	1,755	0 11,690
JHMCS Int Study (LMTAS)	SS/CPFF	Apr 98	4,458	4,458		0 4,458
AIM/9X	CPAF	Apr 98	115	115		0 115
(LMTAS)						
AAI Blk 50 (LMTAS)	SS/CPIF	Aug 99	6,590	0	2,990	8,681
Trainers	FFP	Apr 97	44,979	14,663	3,928	0 32,392
(Hughes)						
Smart Wpns (LMTAS)	CPIF	Dec 95	TBD	8,700	1,215	0 9,915
GPS Integration (Various)	Various	Jul 97	20,200	15,231	2,431	0 18,550
OPF Updates (LMTAS)	CPIF/T&M	Dec 95	TBD	114,007	39,292	Continuing TBD
IDM Blk 42 (LMTAS)	FP	Nov 98	670	0	630	0 630
JTCTS	TBD	TBD	TBD		600	1,200 1,800
(TBD)						
F-16 A/B SLEP	TBD	TBD	TBD	0		0
LANTIRN BDA				100		100
Block 50 HTS/TGP					3,250	3,250
Capability						
Falcon Star					1,500	1,500
Project 672671				Exhibit R-3 (PE 0207133F)		
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	PROJECT	
BUDGET ACTIVITY		PE NUMBER AND TITLE				0207133F F-16 Squadrons				February 2000		672671
(U) <u>Performing Organizations Continued:</u>												
<u>Product Development Organizations</u>												
Auto GCAS												
ALE-50												
<u>Support and Management Organizations</u>												
ALR-56M Support												
Radar Eval												
Halon Eval												
<u>Test and Evaluation Organizations</u>												
600 Gallon Tank												
Flight Tests												
F-16 Y2K Demo												
<u>Subtotals</u>												
Rescission												
Subtotal Product Development												
Subtotal Support and Management												
Subtotal Test and Evaluation												
Total Project												
		Continuing	Continuing		447	267	418	0	Continuing	5,000	5,000	
		Continuing	Continuing		280			0			1,400	
		Continuing	Continuing		40			0				
					2,296			0				
					122,991	27,841	31,057	32,447	Continuing			2,296
					850							TBD
					Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete			Total Program
					348,965	92,281	82,687	92,456	TBD			TBD
					767	267	418	0	TBD			TBD
					126,137	27,841	31,057	32,447	TBD			TBD
					475,869	120,389	114,162	124,903	TBD			TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0207134F F-15E SQUADRONS								670131	
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
670131	Initial Operational Test and Evaluation	100,974	126,172	61,260	100,865	68,582	94,367	87,859	Continuing	TBD	
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	
(U) A. Mission Description											
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. The F-15E's avionics, armament, airframe, and engines must be improved to maintain its superiority against the threat into the next century. The threat includes a new generation of aircraft possessing all-weather detection and kill capabilities. Avionics updates (exploiting proven technological advances) will be incorporated into the F-15E providing expanded capability and supporting an updated and fully integrated electronic warfare suite. This will increase the offensive and defensive capability and survivability of the F-15E. The F-15E PE also funds RDT&E activities for PE 0207130F, F-15A-D.											
(U)	FY 1999 (\$ in Thousands)										
(U)	\$43,746	Continued OFP development efforts.									
(U)	\$581	Completed development and improvements of the APG-63 radar									
(U)	\$21,106	Continued flight test of the OFP and flight testing of improvements initiated in prior years.									
(U)	\$4,800	Completed development of the Link-16 Data Link for the F-15E.									
(U)	\$7,540	Continued development of the ALQ-135 Band 1.5.									
(U)	\$4,695	Continued development attributed to DMS (Obsolete Parts)									
(U)	\$6,070	Continued development of the Combat ID System									
(U)	\$5,343	Continued development of the JHMCS.									
(U)	\$2,846	Initiated development of the Air Data Processor (ADP) Upgrade.									
(U)	\$3,507	Continued integration of Smart Weapons (formerly PACS upgrade) capability into F-15E									
(U)	\$740	Continued TISS Computer Upgrade									
(U)	\$100,974	Total									

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE	PROJECT	
07 - Operational System Development		0207134F F-15E SQUADRONS	670131	
(U) A. Mission Description Continued				
(U)	FY 2000 (\$ in Thousands)			
(U)	\$37,022	Continue OFP development efforts.		
(U)	\$20,849	Continue flight test of the OFP and flight testing of improvements initiated in prior years.		
(U)	\$18,405	Continue development of Advanced Display Core Processor (ADCP)(formerly OFP effort)		
(U)	\$15,810	Continue integration of the Smart Weapons [formerly PACS upgrade].		
(U)	\$7,092	Continue developments attributed to DMS. (Obsolete Parts)		
(U)	\$4,469	Continue development of the Combat ID System.		
(U)	\$1,875	Continue integration of the JHMCS.		
(U)	\$1,510	Complete upgrade of the Air Data Processor (ADP).		
(U)	\$196	Continue TISS Computer Upgrade		
(U)	\$15,000	Initiate development of Electronic Counter-countermeasures (ECCM) - 3 year project fully funded with FY 2000 congressional add		
(U)	\$3,944	Continue development of the ALQ-135 Band 1.5		
(U)	\$126,172	Total		
(U)	FY 2001 (\$ in Thousands)			
(U)	\$20,616	Continue OFP development efforts.		
(U)	\$12,834	Continue flight test of the OFP and flight testing of improvements initiated in prior years.		
(U)	\$20,030	Continue integration of the Smart Weapons.		
(U)	\$6,000	Continue developments attributed to DMS. (Obsolete Parts)		
(U)	\$1,780	Continue development of the Combat ID System.		
(U)	\$61,260	Total		
(U) B. Budget Activity Justification				
The F-15E, which received contract award approval in FY84, is an operational aircraft and therefore the development activities in the Program Element are included in Budget Activity 7, Operational Systems Development.				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)						DATE	February 2000		
BUDGET ACTIVITY	PE NUMBER AND TITLE					PROJECT			
07 - Operational System Development	0207134F F-15E SQUADRONS					670131			
(U) C. Program Change Summary (\$ in Thousands)	FY 1999	FY 2000	FY 2001	Total Cost					
(U) Previous President's Budget (FY 2000 PBR)	103,857	112,670	100,330						
(U) Appropriated Value	104,207	127,670							
(U) Adjustments to Appropriated Value									
a. Congressional/General Reductions	-56	-10							
b. Small Business Innovative Research	-4,115								
c. Omnibus or Other Above Threshold Reprogram		-693							
d. Below Threshold Reprogram	1,797								
e. Rescissions	-859	-795							
f. Other					TBD				
(U) Adjustments to Budget Years Since FY 2000 PBR			-39,070						
(U) Current Budget Submit/FY 2001 PBR	100,974	126,172	61,260		TBD				
(U) Significant Program Changes:									
Funding (FY00):									
Smart Weapons \$15,810 - In FY00 the Smart Weapons/PACS will develop and complete the design for the Smart Weapons software. Scheduled milestones during this period are Preliminary Design Review and Critical Design Review.									
Advance Display Core Processor (ADCP) \$18,405 - ADCP development funding for FY00 will fund initial contract award of ADCP box. Previous RDOCS submissions combined ADCP-associated OFP effort in the ADCP line; this submission moves the OFP effort to the OFP funding line.									
Electronic Counter-Countermeasures (ECCM) \$15,000 - Congressional add; one year of funding for three (3) year Study Phase and EMD effort.									
ALQ-135 Band 1.5 \$3,944 -Program restructure extends program into FY00									
Funding (FY01):									
ADCP program restructured to address higher Air Force priorities.									
(U) D. Other Program Funding Summary (\$ in Thousands)	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Actual Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate		
(U) AF RDT&E									
(U) Other APPN									
(U) Aircraft Procurement (3010F), Line Item 5, F-15E		291,607							

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										
BUDGET ACTIVITY					DATE		PROJECT			
07 - Operational System Development					February 2000		670131			
PE NUMBER AND TITLE					0207134F F-15E SQUADRONS					
D. Other Program Funding Summary (\$ in Thousands)										
	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
(U) (PE27134F) [BP 10]										
(U) Aircraft Procurement (3010F), Line Item 27, F-15A-E (PEs 27130F and 27134F) [BP 11]	233,832	308,907	258,247	249,136	258,529	263,179	103,263	Continuing		
(U) Aircraft Procurement (3010F), Line Item 27, F-15 (PE27442F) [IDECM]	0	0	0	32	21,069	21,713	22,193	Continuing		
(U) Aircraft Procurement (3010F), Line Item 66, F-15A-E [BP 13]	6,871	7,184	7,267	7,349	7,561	7,787	7,959	Continuing		
E. Acquisition Strategy										
Program is a continuation of effort which includes the development of all F-15 models. Funds are executed organically in support of equipment improvement, study, analysis, and test.										
F. Schedule Profile										
(U) JHMCS Operational Testing start			1	2	3	4	1	2	3	4
(U) Smart Weapons EMD start				*	*					
(U) Smart Weapons DT&E start				*	*					
(U) OFP Suite 4 complete										
(U) OFP Suite 4 VHSIC Central Computer Critical Design Review				*					X	X
(U) OFP Suite 5 Phase I complete									X	
(U) OFP Suite 5 Phase II complete									X	
(U) ADCP COSSI tasks complete						X				
(U) ADCP EMD start						X				
(U) APG-63 IOT&E complete					*					
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									
BUDGET ACTIVITY					DATE		PROJECT		
07 - Operational System Development					February 2000		670131		
0207134F F-15E SQUADRONS									
PE NUMBER AND TITLE									
FY 1999					FY 2000		FY 2001		
1 2 3 4 1					2 3		2 3 4		
(U) E. Schedule Profile Continued									
(U) APG-63 OT flight test complete									
(U) Link-16 flight test start									
(U) Link-16 flight test complete									
(U) Combat ID DT start									
(U) ALQ-135, Band 1.5 OT start									
(U) ALQ-135, Band 1.5 DT start									
(U) ALQ-135, Band 1.5 DT/OT start									
(U) TISS Computer Upgrade EMD complete									
(U) Air Data Processor EMD start									
(U) Air Data Processor EMD complete									
(U) ECCM Study Phase start									
(U) ECCM Study Phase complete									
(U) ECCM EMD start									

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE									
07 - Operational System Development		0207134F F-15E SQUADRONS								670131	
<u>A. Project Cost Breakdown (\$ in Thousands)</u>											
(U)	A. Project	FY 1999	FY 2000	FY 2001							
(U)	Flight Test	21,106	20,849	12,834							
(U)	OFF	43,746	37,022	20,616							
(U)	Link-16 Data Link	4,800	0	0							
(U)	APG-63(V)1	581	0	0							
(U)	Joint Helmet Mounted Cueing System	5,343	1,875	0							
(U)	DMS (Parts Obsolescence)	4,695	7,092	6,000							
(U)	Smart Weapons	3,507	15,810	20,030							
(U)	Advance Display Core Processor (ADCP)	0	18,405	0							
(U)	Combat ID	6,070	4,469	1,780							
(U)	ALQ-135 Band 1.5	7,540	3,944	0							
(U)	Air Data Processor	2,846	1,510	0							
(U)	TISS Computer Upgrade	740	196	0							
(U)	ECCM	0	15,000	0							
(U)	Total	100,974	126,172	61,260							
<u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>											
(U)	<u>Performing Organizations:</u>										
	Contractor or Government	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	<u>Product Development Organizations</u>										
	P&W (-229 Eng)	CPAF	Sep 94	6,520	6,520	6,520	0	0	0	0	6,520
	GE (-129 Eng)	CPAF	Feb 95	7,130	7,130	7,130	0	0	0	0	7,130
	Boeing (GFE/GFP)	FFP	Dec 93	1,975	1,975	1,975	0	0	0	0	1,975
	OFF Suite 4/5/6 Development	CPAF	May 98	339,808	339,808	104,551	43,746	37,022	20,616	Continuing	TBD
	Boeing APG63 (Feasibility Study) (Risk Reduction)	CPFF	Feb 94	778	778	778	0	0	0	0	778
		CPFF	Feb 94	9,892	9,892	9,892	0	0	0	0	9,892
Project 670131											
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE		PROJECT	
BUDGET ACTIVITY				PE NUMBER AND TITLE		PROJECT	
07 - Operational System Development				0207134F F-15E SQUADRONS		670131	
(U) Performing Organizations Continued:							
Product Development Organizations							
(EMD)	CPAF	Sep 94	223,033	223,033	222,452	581	0
Boeing (JHMCS A-D)	CPAF		11,358	11,358	4,140	5,343	0
PACS Upgrade	CPAF	May 95	28,343	28,343	28,343	0	0
Wright Lab (DMS)	MIPR/PRS	Sep 94	81,348	81,348	24,311	4,695	6,000
Smart Weapons Integration	CPAF	Feb 99	51,607	51,607	0	3,507	20,030
ADP(E)	CPAF	Jan 99	4,356	4,356	0	2,846	0
ADCP(E)	CPAF	Jan 00	108,522	108,522	0	0	0
NGA (ALQ-135 Band 1.5)	FFP	May 97	39,384	39,384	27,900	7,540	0
Link-16 Data Link	CPAF	Apr 98	19,400	19,400	14,600	4,800	0
Combat ID	CPAF	May 98	14,109	14,109	1,790	6,070	1,780
TISS Replacement	CPFF	Aug 97	4,896	4,896	3,560	740	400
Boeing/Raytheon ECCM	CPAF	Jan 00	15,000	15,000	0	0	0
Support and Management Organizations							
(Msn Spt) Misc.				16,708	0	0	0
Test and Evaluation Organizations							
Boeing (Flt Test)	FFP	Oct 96	123,434	123,434	51,815	9,000	7,479
Edwards (OFF)	PO	Oct 96	91,048	91,048	41,562	12,106	4,017
Eglin (Flt Test)	PO	Oct 96	21,667	21,667	12,210	0	1,338
				Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001
				to FY 1999	79,868	105,323	48,426
				457,942	0	0	TBD
				16,708	0	0	0
				105,587	21,106	20,849	TBD
				580,237	100,974	126,172	TBD
Subtotals							
Subtotal Product Development							TBD
Subtotal Support and Management							16,708
Subtotal Test and Evaluation							TBD
Total Project							TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0207136F Manned Destructive Suppression								674595	
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
674595	F-16 HARM Targeting System (HTS)	1,663	3,363	14,670	22,113	23,789	14,559	9,597	Continuing	TBD	
Quantity of RDT&E Articles		0	0	0	0	0	0	0	0	0	
(U) A. Mission Description The overall 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 F-16 Block 50/52 aircraft with the ability to employ the AN/ASQ-213 HARM Targeting System (HTS). F-16 HTS is the only currently programmed reactive SEAD capability and enables targeting the HARM missile in the most lethal 'range known' mode. This RDT&E effort continues HTS preplanned product improvement (P3I). In FY00 the HTS P3I program began development of the HTS Revision 7 (R7) upgrade. In FY01 effort will begin to develop HTS engineering changes needed to permit the F-16 to carry both an HTS pod and an advanced targeting pod (TGP). These HTS improvements represent the Air Force's near-term solution (until replaced by JSF) for Destruction of Enemy Air Defenses (DEAD) mission. R7/alternate/dual carriage will allow targeting of the Joint Standoff Weapon (JSOW) and potentially targeting of other precision guided munitions (PGMs) needed to destroy fixed and mobile enemy air defense system elements. R7 derived coordinates of threat emitters will be available to all Joint Forces via Link-16.											
(U) <u>FY 1999 (\$ in Thousands)</u> (U) \$513 Complete HTS R6 development (includes Air Force Mission Support System (AFMSS) modifications) (U) \$1,117 Continued HTS Test and Evaluation (U) \$33 Continued Mission Support (U) \$1,663 Total											
(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$2,661 Initiate HTS R7 Geolocation Upgrade Program Definition study & Risk Reduction (PDRR) (U) \$702 Continue Mission Support (U) \$3,363 Total											
(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$1,300 Complete HTS R7 Geolocation Upgrade Program Definition study & Risk Reduction (PDRR) (U) \$11,520 Continue R7 Geolocation Development (Includes HTS/TGP Dual Carriage) (U) \$150 Initiate R7 Upgrade Test and Evaluation (U) \$1,700 Continue Mission Support											
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
07 - Operational System Development	0207136F Manned Destructive Suppression	674595		
(U) A. Mission Description Continued				
(U) FY 2001 (\$ in Thousands) Continued				
(U) \$14,670 Total				
(U) B. Budget Activity Justification				
This PE is in Budget Activity 7 - Operational System Development because it supports preplanned product improvements and upgrade development of F-16 HTS, a fielded system.				
(U) C. Program Change Summary (\$ in Thousands)				
(U) Previous President's Budget (FY 2000 PBR)		FY 1999	FY 2000	FY 2001
(U) Appropriated Value		2,392	5,402	1,472
(U) Adjustments to Appropriated Value		2,443	3,402	
a. Congressional/General Reductions		-44		
b. Small Business Innovative Research		-5		
c. Omnibus or Other Above Threshold Reprogram		-715	-18	
d. Below Threshold Reprogram		-16	-21	
e. Rescissions				
f. Other				
(U) Adjustments to Budget Years Since FY 2000 PBR				13,198
(U) Current Budget Submit/FY 2001 PBR		1,663	3,363	14,670
(U) Significant Program Changes:				TBD
Funding was added in FY 2001 (\$13.2M) and in out-years to continue R7 upgrade development. R7 effort will focus on developing a HTS precision geolocation targeting capability and moving HTS pod location to allow carriage of advanced targeting pods on the F-16 Block 50/52 aircraft along with HTS. R7 will provide coordinates of threat emitters to the Joint Forces, enabling destruction of enemy air defense elements using JSOW or other precision guided munitions. Completion of R6 upgrade development and initial deployment has slipped into FY2000 due to software problems discovered during testing.				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)						DATE	February 2000		
BUDGET ACTIVITY	PE NUMBER AND TITLE					PROJECT			
07 - Operational System Development	0207136F Manned Destructive Suppression					674595			
(U) <u>D. Other Program Funding Summary (\$ in Thousands)</u>	FY 1999 <u>Actual</u>	FY 2000 <u>Estimate</u>	FY 2001 <u>Estimate</u>	FY 2002 <u>Estimate</u>	FY 2003 <u>Estimate</u>	FY 2004 <u>Estimate</u>	FY 2005 <u>Estimate</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
(U) AF RDT&E									
(U) Other APPN									
(U) HTS Aircraft Procurement (BP11)AF PE 0207136F	1,723					10,447	9,878	Continuing	
(U) HTS Aircraft Procurement (BP19)AF PE 0207136F	12,180	13,653			3,547			Continuing	
(U) <u>E. Acquisition Strategy</u>									
The HTS program objective is to develop precision geolocation capability that significantly improves speed and accuracy of emitter targeting solutions on F-16 Block 50/52 aircraft. Precision geolocation capability will permit targeting of PGMs such as JSOW, in addition to the HARM missile, against mobile and fixed sites. The objective will be accomplished through study, risk reduction, and EMD efforts that significantly upgrade and increase the F-16's and Joint Forces real-time Destruction of Enemy Air Defenses (DEAD) capabilities.									
(U) <u>F. Schedule Profile</u>									
				<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>	
			1	2	3	4	1	2	3
(U) Complete F-16 HTS R6 Upgrade Development							X		
(U) Continue F-16 HTS R7 Development					*				
(U) Award Contract for R7 PDRR						X			
(U) New Buy Lot 2 Contract Award			*						
(U) New Buy Lot 2 Pod Deliveries (16 Pods)								X	
(U) New Buy Lot 3 Contract Award					*				
(U) New Buy Lot 3 Pod Deliveries (13 Pods)								X	
(U) R6 Fielding							X		
* = Completed Event X = Planned Event									

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	PROJECT	
BUDGET ACTIVITY		PE NUMBER AND TITLE										
07 - Operational System Development		0207136F Manned Destructive Suppression									674595	
(U)	A. Project Cost Breakdown (\$ in Thousands)											
(U)	HTS R7	Program Definition study and Risk Reduction (PDRR)								FY 1999	FY 2000	FY 2001
(U)	R7	Geolocation Dev (Includes HTS/TGP Dual Carriage)									2,661	1,300
(U)		Test & Evaluation								1,117		11,520
(U)	HTS R6	(Includes AFMSS)								513		150
(U)		Mission Support								33	702	1,700
(U)		Total								1,663	3,363	14,670
(U)	B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U)	Performing Organizations:											
	Contractor or Government	Contract Method/Type	Award or Obligation	Performing Activity	Project Office	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program		
	Raytheon Systems Co.	SS/Various	Various	6,808	6,808	0	2,661	12,820	Continuing	TBD		
	Raytheon Systems Co.	SS/CPAF	Feb 96	30,931	30,931	400	0	0	0	31,331		
	AFMSS	SS/CPIF	Various	2,400	1,772	113	0	0	0	1,885		
	Lockheed/Ft Worth	SS/FFP	Various	2,400	2,400	0	0	0	0	2,400		
	Support and Management Organizations											
	Prog. Mgt. and Mission Support	Various	Various	3,950	3,950	33	702	1,700	Continuing	TBD		
	Test and Evaluation Organizations											
	Eglin	PO	Various	1,867	1,867	308	0	0	Continuing	TBD		
	Edwards	PO	Various	3,585	3,585	809	0	150	Continuing	TBD		
	Light Defender	Various	Various	922	922	0	0	0	0	922		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT		
07 - Operational System Development		0207136F Manned Destructive Suppression		674595		
(U) Government Furnished Property:						
Contract						
Item	Method/Type	Award or	Delivery			
Description	or Funding	Obligation	Date			
Vehicle		Date				
Product Development Property						
Not Applicable						
Support and Management Property						
Not Applicable						
Test and Evaluation Property						
Not Applicable						
Subtotals						
Subtotal Product Development			Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget to Complete
			41,911	513	2,661	TBD
Subtotal Support and Management			3,950	33	702	TBD
Subtotal Test and Evaluation			6,374	1,117	0	TBD
Total Project			52,235	1,663	3,363	TBD
Total Program						
TBD						

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										
BUDGET ACTIVITY		PE NUMBER AND TITLE						DATE		
07 - Operational System Development		0207141F F-117A Squadron						February 2000		
		PROJECT						673956		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
673956	F-117A Stealth Fighter	10,305	11,659	3,912	2,292	3,530	10,063	7,145	Continuing	TBD
Quantity of RDT&E Articles		0	0	0	0	0	0	0	0	0
(U)	A. Mission Description									
The F-117 is the world's first 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. The program completed production in Jul 1990 with the delivery of the final F-117 (number 59). The single operational F-117 unit is the 49th Fighter Wing stationed at Holloman AFB, NM. The program is now primarily engaged in sustainment activities for the F-117 which is projected to remain in service through at least 2018. This program provides funds to develop improved systems to enhance combat capability while maintaining a safe, reliable and supportable aircraft.										
This project provides research and development for multiple modifications to the F-117 weapons system. The MIL-STD-1760 Stores Management Processor (SMP) modification, which is expected to complete development in FY00, is an essential prerequisite for integration of advanced weapons on the F-117. Development efforts continue for Smart Weapons Integration, providing limited Joint Direct Attack Munition (JDAM) capability on the F-117. The original program plan included JDAM and Wind Corrected Munitions Dispenser (WCMD) capability, however, the current limited JDAM program will be pursued as a result of increased contractor estimates for the full 2-weapon capability. The addition of a limited integrated Enhanced GBU-27 capability with Pilot/Vehicle Interface (PVI) will be incorporated into the Smart Weapons Integration program and will begin development in FY01. Block Cycle 3 (BC3) will also begin Pre-EMD activities in FY00. BC3 Mid Life Upgrade replaces obsolete systems, establishes new vendors and improves reliability and maintainability to keep the F-117 operational through its service life.										
(U)	FY 1999 (\$ in Thousands)									
(U)	\$6,565	Continued development work on Stores Management Processor (SMP)								
(U)	\$3,740	Limited Enhanced GBU-27 development per Combat Mission Needs Statement								
(U)	\$10,305	Total								
(U)	FY 2000 (\$ in Thousands)									
(U)	\$2,212	Complete development work on SMP								
(U)	\$2,447	Continue development work on Smart Weapons Integration (JDAM Risk Reduction)								
(U)	\$7,000	Begin development work on Block Cycle 3 (Pre-EMD/PDRR)								
(U)	\$11,659	Total								
Project 673956										
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Exhibit R-2 (PE 0207141F)										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
07 - Operational System Development	0207141F F-117A Squadron	673956	
(U) A. Mission Description Continued			
(U) FY 2001 (\$ in Thousands)			
(U) \$3,912	Continue development work on Smart Weapons Integration (EMD for limited JDAM and EGBU-27)		
(U) \$3,912	Total		
(U) B. Budget Activity Justification			
This program is in budget activity 7, Operational System Development, because all aircraft have been delivered and the program is in its deployment phase.			
(U) C. Program Change Summary (\$ in Thousands)			
(U) Previous President's Budget (FY 2000 PBR)		FY 1999	FY 2001
(U) Appropriated Value		5,097	4,807
(U) Adjustments to Appropriated Value		5,147	11,807
a. Congressional/General Reductions		-35	-10
b. Small Business Innovative Research		-213	
c. Omnibus or Other Above Threshold Reprogram		3,740	-64
d. Below Threshold Reprogram		1,739	
e. Rescissions		-73	-74
f. Other			
(U) Adjustments to Budget Years Since FY 2000 PBR			1,065
(U) Current Budget Submit/FY 2001 PBR		10,305	11,659
Note: \$-61 for CANX Bill included in the FY99 Below Threshold Reprogram total			
(U) Significant Program Changes:			
FY99: The F-117 was directed through a Combat Mission Statement (CMNS) to provide an adverse weather delivery of a precision weapon, specifically the Enhanced GBU-27 (EGBU-27). \$1.8M was added to the Stores Management Processor (SMP) effort for software modification, integrating a minimum 1760 interface, which will provide power and GPS data to the EGBU-27; \$3.74M in FY99 Supplemental funds for CMNS limited EGBU-27 integration development.			
FY00: \$7M was added to fund Block Cycle 3 Pre-EMD			
FY01: \$1.1M was added to Smart Weapons Integration development effort to support JDAM testing through the use of Environmental Guided Test Vehicles.			
Project 673956		Exhibit R-2 (PE 0207141F)	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE									
07 - Operational System Development		0207141F F-117A Squadron									673956
(U)	D. Other Program Funding Summary (\$ in Thousands)										
		FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to	Total Cost	
		Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete		
(U)	AF RDT&E										
(U)	Other APPN										
(U)	Aircraft Procurement (BA-5), Appn 3010/BP1100, AF F117A Squadrons, PE 27141F	28,488	37,201	32,005	27,397	21,215	8,255	759	Continuing	TBD	
(U)	Other Procurement, Appn 3080/BP8300, AF F117A Squadrons, PE 27141F			2,377						2,377	
(U)	E. Acquisition Strategy										
	RDT&E funds are executed to develop improved capability, reliability, maintenance and safety modification development efforts. Operational Flight Program (OFP) software is continuously updated as needed to support mod efforts to complement modification development efforts. The contracting approach varies by individual effort and involves Firm Fixed Price (FFP), Cost Plus Fixed Fee (CPFF), and Cost Plus Award Fee (CPAF) contract types.										
(U)	F. Schedule Profile										
					FY 1999			FY 2000	FY 2001		
				1	2	3	4	1	2	3	
(U)	Stores Management Processor (SMP) (RDT&E Started Jul 96, Finishes Mar 00)							X			
(U)	Single Configuration Fleet (SCF) (RDT&E Started Apr 96, Finishes Jan 99)				*						
(U)	Smart Weapons Integration--Limited JDAM (PDRR Starts Sep 98, Fin Sep 00)							X			
(U)	Smart Weapons Integ--Limited JDAM & Full EGBU-27 (EMD Strt FY01, Fin FY06)								X		
(U)	Block Cyce 3 Pre-EMD (RDT&E Starts FY 00, Finishes FY 01)							X		X	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)									
BUDGET ACTIVITY		PE NUMBER AND TITLE		DATE		February 2000			
07 - Operational System Development		0207141F F-117A Squadron				PROJECT 673956			
(U)	A. Project Cost Breakdown (\$ in Thousands)					FY 1999	FY 2000		FY 2001
(U)	Development work on SMP (MIL-STD-1760)					6,565	2,212		
(U)	Limited Enhanced GBU-27 CMNS Integration					3,740			3,912
(U)	Smart Weapons Integration						2,447		
(U)	Block Cycle 3 Pre-EMD/PDRR						7,000		
(U)	Total					10,305	11,659		3,912
(U)	B. Budget Acquisition History and Planning Information (\$ in Thousands)								
(U)	Performing Organizations:								
	Contract or	Contract							
	Government	Method/Type	Award or	Performing	Project				
	Performing	or Funding	Obligation	Activity	Office				
	Activity	Vehicle	Date	EAC	EAC				
	Product Development Organizations								
	SMP (MIL-STD-1760								
	modification)								
	Lockheed Martin Skunk	CPAF	Jul 98	19,927	19,927	6,565	2,212	0	19,927
	Works, Palmdale CA								
	Single Configuration Fleet					0	0	0	0
	(RAM Recoat Modification)								
	Wright Laboratory, Signature AF 616		Apr 96	329	329	0	0	0	329
	technology office								
	Sandia Labs, Albuquerque	MIPR	Jan 98	4,751	4,751	0	0	0	4,751
	NM								
	Lockheed Martin Skunk	T&M	Apr 98	5,590	5,590	0	0	0	5,590
	Works, Palmdale CA								
	Ozone Depleting Chemical	CPFF	Sep 97	2,139	2,139	0	0	0	2,139
	Modification								
	Lockheed Martin Skunk								
	Works, Palmdale CA								
Project 673956									
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
07 - Operational System Development		0207141F F-117A Squadron			673956	
(U) Performing Organizations Continued:						
Product Development Organizations						
Smart Wpn Integration	CPAF	Sep 98	TBD	TBD	350	0
Lockheed Martin Skunk Works, Palmdale CA					2,447	3,912
Limited Enhanced GBU-27	CPAF	Sep 99	3,740	3,740	0	0
Lockheed Martin Skunk Works, Palmdale CA					0	0
Block Cycle 3 Pre-EMD	CPFF	Apr 00	7,000	7,000	0	0
Lockheed Martin Skunk Works, Palmdale CA					7,000	0
Support and Management Organizations						
Test and Evaluation Organizations						
Subtotals						
Subtotal Product Development					Total Prior to FY 1999	Budget FY 2000
Subtotal Support and Management					24,309	11,659
Subtotal Test and Evaluation					24,309	10,305
Total Project					24,309	3,912
					Budget to Complete	Total Program
					TBD	TBD
					3,912	TBD
					11,659	TBD
					3,912	TBD

Project 673956

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE									PROJECT
07 - Operational System Development		0207161F Tactical AIM Missiles									674132
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
674132	AIM-9 Product Improvement	49,348	40,513	21,706	3,510	4,847	16,451	5,836	0	241,429	
	Quantity of RDT&E Articles	1	5	6	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. Quantities are delivered in the indicated Fiscal Years. Deliveries support restructured program. (U) A. Mission Description The AIM-9X is a long-term evolution of the AIM-9, a fielded system, qualifying this as a research category operational systems development. The AIM-9X (Sidewinder) short range air-to-air missile modification program provides 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 short range air-to-air missile arena is essential and includes first shot, first kill opportunity against an enemy employing IR countermeasures. The AIM-9X employs several components common with the AIM-9M. Anti-Tamper features are being incorporated to protect improvements inherent in AIM-9X design. AIM-9X is an Acquisition Category ID (ACAT ID) joint-service program with Navy lead. Status: The program is on track to meet LRIP entry criteria in Aug 00. As of Jan 00, the AIM-9X test program has demonstrated capabilities beyond those of the currently fielded AIM-9M short range missile. USAF and USN warfighters have jointly emphasized the need to aggressively field the AIM-9X to counter the already fielded and superior threat air-to-air systems.											
(U)	EY 1999 (\$ in Thousands)										
(U)	\$31,505	Continued the manufacturing development contract and accept delivery of one test article									
(U)	\$6,602	Continued providing aircraft interface support to the Engineering and Manufacturing Development (EMD) contractor, incorporate results of wind tunnel test for the F-15 and F-18									
(U)	\$7,354	Continued Developmental Test IIB (DT-IIB), and start DT-IIC (Guided Launches), Operational Test IIA (OT-IIA) (Guided Launches), and conduct insensitive munitions tests at multiple test sites									
(U)	\$831	Field engineering support for government flight test activities									
(U)	\$2,518	Provided program office management support to include working capital funded personnel, supplies, and travel									
(U)	\$538	Provided contractor services support to the program office									
(U)	\$49,348	Total									
Project 674132		Page 1 of 7 Pages									Exhibit R-2 (PE 0207161F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
07 - Operational System Development	0207161F Tactical AIM Missiles	674132	
(U)	A. Mission Description Continued		
(U)	FY 2000 (\$ in Thousands)		
(U)	\$19,635	Continue the manufacturing development contract to include Technical Readiness Review (TRR), Production Readiness Review (PRR) leading to a Defense Acquisition Board Low Rate Initial Production (LRIP) decision in 4th Qtr FY00 with production option award in FY01, and delivery of five test articles. Continue flight testing (DT) and OT flight test support for Operational Assessment.	
(U)	\$1,300	Continue providing aircraft interface data to the EMD contractor in support of OT-IIA and DT-IIC and complete OT-IIA	
(U)	\$14,343	Continue providing government flight test support of ongoing activities defined in DT-IIB and Captive Carry Reliability Flight Program at multiple test sites	
(U)	\$1,699	Field engineering support for government flight test activities	
(U)	\$2,814	Provide program office management support to include working capital funded personnel, supplies, and travel	
(U)	\$722	Provide for consulting services, technical engineering, and management support	
(U)	\$40,513	Total	
(U)	FY 2001 (\$ in Thousands)		
(U)	\$10,095	Continue the manufacturing development contract to include completion of DT-IIB/C and start of DT-IID Launches and delivery of six test articles	
(U)	\$1,181	Continue providing aircraft interface support to the EMD contractor	
(U)	\$8,183	Continue providing government flight test support of activities defined as DT-IID and DT Assist (with operational testers) at multiple test sites	
(U)	\$602	Field engineering support for government flight test activities	
(U)	\$1,422	Provide program office management support to include working capital funded personnel, supplies, and travel	
(U)	\$223	Provide for consulting services, technical engineering, and management support	
(U)	\$21,706	Total	
(U)	B. Budget Activity Justification		
This program is in budget activity 7 - Operational System Development, since the AIM-9X is a modification to the already fielded AIM-9M and a long term evolution of the AIM-9 series of air-to-air missiles.			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
07 - Operational System Development	0207161F Tactical AIM Missiles	674132		
(U) <u>C. Program Change Summary (\$ in Thousands)</u>				
(U) Previous President's Budget (FY 2000 PBR)	FY 1999	FY 2000	FY 2001	Total Cost
(U) Appropriated Value	52,604	41,007	17,399	240,212
(U) Adjustments to Appropriated Value	52,966	41,007		
a. Congressional/General Reductions	-212	-15		
b. Small Business Innovative Research	-1,599			
c. Omnibus or Other Above Threshold Reprogram		-223		
d. Below Threshold Reprogram	-1,381			
e. Rescissions	-426	-256		
f. Other				
(U) Adjustments to Budget Years Since FY 2000 PBR			4,307	
(U) Current Budget Submit/FY 2001 PBR	49,348	40,513	21,706	241,429
(U) <u>Significant Program Changes:</u>				
General: The AIM-9X program has developed two restructuring efforts since the submission of the FY00 PB. The Jul 99 restructure resulted from the eight month delay in the flight test program and moved full rate production (MS III) from FY02 to FY03, changed the original FY02 full rate procurement (FRP) into a third LRIP, and adjusted completion of the OT-IIB period while maintaining a FY02 Required Assets Availability (RAA) date. The second restructure was due to the Appropriations Conference zeroing of FY00 procurement funding. This moves the LRIP I contract award into FY 01, slips FRP award into FY04 and the RAA date slips into FY03.				
Funding: The FY01 increase of \$4,307 is needed to support flight test activities. The delayed start of the flight test program moved test activities programmed in FY00 into FY01. Increased contractor and government support is required under the restructured program. The funding was available as a result of the program restructure, which reduced the number of missiles procured in FY01 and adjusted the procurement and RDT&E funding. Out year RDT&E funding will include an initiative to design launcher modifications to relocate older AIM-9M fin retention clips to accommodate AIM-9X (fin clips not needed and interfere with separation in high dynamic engagements) as well as P3I requirements.				
Schedule: The program is on track to meet LRIP entry criteria in Aug 00. It is important to note that the DAB will be held in 4QFY00 to ensure we are able to award the LRIP I production option in 1QFY01. The flight test program has completed three guided firings demonstrating improved capabilities over the fielded AIM-9M.				
Project 674132		Exhibit R-2 (PE 0207161F)		

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

BUDGET ACTIVITY		DATE										February 2000
07 - Operational System Development		PE NUMBER AND TITLE										PROJECT
		0207161F Tactical AIM Missiles										674132
(U)	<u>D. Other Program Funding Summary (\$ in Thousands)</u>											
		FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to	Complete	Total Cost	
(U)	AF RDT&E	Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate				
(U)	Other APPN											
(U)	Missile Procurement, P-1 line	0	0	25,510	46,079	65,409	83,014	65,781	846,127		1,131,920	
	item Tactical AIM Missile											
	Modification											
(U)	SEEK EAGLE	0	0	2,918	5,331	1,944	0	4,266	Continuing		TBD	
(U)	<u>E. Acquisition Strategy</u>											
	After a full and open competition, a Cost Plus Incentive Fee/Award Fee contract was awarded to Hughes Missile Systems Company (now Raytheon Systems Corp (RSC)) to complete missile system development and prepare for production. This EMD contract includes three Fixed Price Incentive Fee options for Low Rate Initial Production (LRIP) Lots 1, 2, and 3. These production options are planned to be exercised in FY01, FY02, and FY03. The EMD contract and production options provide strong incentives for the contractor to control costs, achieve reliability performance and deliver on schedule. The DAB will make the LRIP decision.											
	The Navy Acquisition Executive will make the Full Rate Production (FRP) decision with advice from the Air Force Acquisition Executive subsequent to the successful completion of the associated exit criteria. FRP Lots 4 through 7 contracts will be Firm Fixed-Price (FFP) with incentives provided if the contractor meets or beats his Procurement Price Commitment Curve (PPCC), a quantity price curve provided by RSC with the EMD proposal. Rewards or penalties are provided depending on RSC's performance relative to the PPCC. A Service review of RSC's Lot 4 through 7 proposals relative to the PPCC will be held prior to award of those contracts.											
(U)	<u>F. Schedule Profile</u>											
		FY 1999		FY 2000		FY 2001						
		1	2	3	4	1	2	3	4	1	2	3
			*									
					*							
(U)	DT-IIB Safe Separation Launches Start											
(U)	DT-IIC Guided Launches Start											
(U)	Conduct Insensitive Munitions Tests											
(U)	OT-IIA (Guided Launches) Starts											
(U)	PRR for LRIP											
(U)	DT-IIID (Launches) Starts											
(U)	LRIP DAB											
(U)	LRIP 1 Award											
(U)	DT Assist Starts									X		X
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000	
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		674132
07 - Operational System Development	0207161F Tactical AIM Missiles			
(U) <u>F. Schedule Profile Continued</u>				
		FY 1999	FY 2000	FY 2001
		1 2 3 4	1 2 3 4	1 2 3 4
* Completed Events X Planned Events Note: The above schedule profile reflects the Overarching IPT approved program adjusted to compensate for late start of the first AIM-9X separation flight test program. Since that time, the program has executed a total of eight separation flights and three guided tests between the Air Force and Navy to hold schedule. The fact-of-life Congressional decision to eliminate FY00 procurement funding moved the LRP 1 contract award to 1QFY01. Other identified events remain the same.				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE				PROJECT					
07 - Operational System Development		0207161F Tactical AIM Missiles				674132					
(U)	A. Project Cost Breakdown (\$ in Thousands)										
(U)	Project Cost Categories										
(U)	a. Primary Hardware Development										
(U)	b. Contractor Engineering Support (F-15 AIM-9X Aircraft Integration)										
(U)	c. Development and Test Evaluation										
(U)	d. Government Engineering Support										
(U)	e. Program Management (PMA)										
(U)	f. Contractor Services Support										
(U)	Total										
(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 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
Product Development Organizations											
	Hughes	C/CPIF	Dec 94	5,694	5,694	5,694	0	0	0	0	5,694
	Raytheon	C/CPIF	Dec 94	5,695	5,695	5,695	0	0	0	0	5,695
	Raytheon	C/CPIF	Dec 96	136,930	136,930	52,350	31,505	19,635	10,095	17,372	130,957
	Boeing	C/CPIF	Jan 96	20,397	20,397	9,505	6,602	1,300	1,181	1,809	20,397
	Engineering Services	Various	Various	N/A	N/A	13,558	831	1,699	602	4,880	21,570
	Program Management*	PO	Various	N/A	N/A	5,782	2,518	2,814	1,422	1,553	14,089
Note*: Based on a Memorandum of Agreement, RDT&E program costs includes Navy PMA working capital funded personnel funded at 50%/50% ratio per Service.											
Support and Management Organizations											
	Various Contracts	FFP	Various	N/A	N/A	1,273	538	722	223	135	2,891
Test and Evaluation Organizations											
	Field Activities	PO	Oct 96	N/A	N/A	5,138	7,354	14,343	8,183	5,118	40,136
Project 674132											
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)									
BUDGET ACTIVITY					DATE		PROJECT		
07 - Operational System Development					0207161F Tactical AIM Missiles		February 2000		
(U) Government Furnished Property:					PE NUMBER AND TITLE		674132		
Item Description	Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
Contract									
Product Development Property									
N/A	N/A	N/A	N/A	0	0	0	0	0	0
Support and Management Property									
N/A	N/A	N/A	N/A	0	0	0	0	0	0
Test and Evaluation Property									
N/A	N/A	N/A	N/A	0	0	0	0	0	0
Subtotals									
Subtotal Product Development				92,584	41,456	25,448	13,300	25,614	198,402
Subtotal Support and Management				1,273	538	722	223	135	2,891
Subtotal Test and Evaluation				5,138	7,354	14,343	8,183	5,118	40,136
Total Project				98,995	49,348	40,513	21,706	30,867	241,429

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0207163F Advanced Medium Range Air-to-Air Missile 673777								673777	
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
673777	AMRAAM	33,466	52,146	53,707	50,924	33,595	33,199	34,093	73,900	685,633	
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	
(U) A. Mission Description											
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. AMRAAM is a joint Air Force/Navy, Acquisition Category (ACAT) IC program with Air Force as lead service.											
(U) FY 1999 (\$ in Thousands)											
(U)	\$27,184	Initiated P3I Phase 3 EP and guidance EMD									
(U)	\$2,134	Continued mission support									
(U)	\$4,148	Continued test and evaluation									
(U)	\$33,466	Total									
(U) FY 2000 (\$ in Thousands)											
(U)	\$50,303	Continue P3I Phase 3 improved seeker and advanced EP updates									
(U)	\$1,769	Continue mission support									
(U)	\$74	Continue test and evaluation									
(U)	\$52,146	Total									
(U) FY 2001 (\$ in Thousands)											
(U)	\$51,569	Continue P3I Phase 3 improved seeker and advanced EP updates									
(U)	\$2,056	Continue mission support									
(U)	\$82	Continue test and evaluation									
(U)	\$53,707	Total									
Project 673777										Page 1 of 5 Pages	
										Exhibit R-2 (PE 0207163F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE					PROJECT				
07 - Operational System Development		0207163F Advanced Medium Range Air-to-Air Missile					673777				
(U)	B. Budget Activity Justification										
	This program is in budget activity 7 - Operational System Development, providing upgrades to the AIM-120C missile currently in production.										
(U)	C. Program Change Summary (\$ in Thousands)										
		FY 1999	FY 2000	FY 2001						Total Cost	
(U)	Previous President's Budget (FY 2000 PBR)	35,663	49,783	54,184						687,364	
(U)	Appropriated Value	36,078	52,783								
(U)	Adjustments to Appropriated Value										
	a. Congressional/General Reductions	-415	-22								
	b. Small Business Innovative Research	-1,050									
	c. Omnibus or Other Above Threshold Reprogram		-286								
	d. Below Threshold Reprogram	-960									
	e. Rescissions	-187	-329								
	f. Other										
(U)	Adjustments to Budget Years Since FY 2000 PBR			-477							
(U)	Current Budget Submit/FY 2001 PBR	33,466	52,146	53,707						685,633	
	Note: \$408K cancelled year bill included in FY99 Below Threshold Reprogramming total.										
(U)	Significant Program Changes:										
	None.										
(U)	D. Other Program Funding Summary (\$ in Thousands)										
		FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005		Total Cost	
		Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Cost to Complete		
(U)	Missile Procurement, Budget Activity #2, PE 0207163F,	89,714	89,670	98,075	115,384	109,564	110,846	112,426	241,780	6,814,123	
	P-1 Line Item, AMRAAM										
(U)	Replenishment Spares, BP25	5,196	327	234	240	238	195	281	400	60,036	
(U)	Initial Spares, BP26	725	192	138	119	124	123	123	400	63,653	
(U)	Seek Eagle	0	0	612	0	0	0	0	0	15,137	

Project 673777

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

DATE

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BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

07 - Operational System Development

0207163F Advanced Medium Range Air-to-Air Missile 673777

(U) **E. Acquisition Strategy**

The AMRAAM Pre-Planned Product Improvement (P3I) program takes advantage of emerging technologies to update and expand the system capabilities to meet new user requirements. The Phase 1 missile, currently in production, allows carriage on the F-22 with clipped wings and fins as well as providing some software enhancements. The Phase 2 AIM-120 C4 missile adds a new warhead which increases lethality and the AIM-120 C5 missile has a +5 inch rocket motor for kinematic improvements. The first Phase 2 AIM-120 C4 missile was delivered in Aug of FY99. The AIM-120 C5 missiles will begin delivery in Jul of FY00. The Phase 3 missile is the first major upgrade to the seeker hardware and software to meet performance requirements for the 2003 time-period. A Cost Plus Award Fee EMD contract was awarded on 29 Oct 1999. This missile will begin deliveries in FY04. The second stage of Phase 3, beginning in FY04, will develop a new rocket motor to meet increased kinematic requirements.

(U) **F. Schedule Profile**

	FY 1999		FY 2000		FY 2001	
	1	2	3	4	1	2
(U) P3I Phase 2 Tape 7B Flt Test Comp	*					
(U) P3I Phase 2 Shortened Control Actuation System (SCAS) FCA		*				
(U) P3I Phase 3 Seeker EMD Contract Award	*					
(U) P3I Phase 3 Seeker System Design Review (SDR)		*				
(U) P3I Phase 3 Fuzing Functional Configuration Audit (FCA)					X	
(U) P3I Phase 3 Seeker Preliminary Design Review (PDR)					X	
(U) P3I Phase 3 Seeker Critical Design Review (CDR)						X

Schedule Changes:

The Fuzing FCA schedule slip was caused by an increase in the software development schedule associated with the Quadrant-sensing Target Detection Device (QTDD).

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	February 2000	
BUDGET ACTIVITY			PE NUMBER AND TITLE				PROJECT					
07 - Operational System Development			0207163F Advanced Medium Range Air-to-Air Missile				673777					
(U)	A. Project Cost Breakdown (\$ in Thousands)											
(U)	a.	Phase 3 EMD Improved Seeker and Advanced EP Updates								FY 1999	FY 2000	FY 2001
(U)	b.	Gov Mission Support								27,184	50,303	51,569
(U)										2,134	1,769	2,056
(U)	c.	Gov Test & Evaluation								4,148	74	82
(U)	Total									33,466	52,146	53,707
(U)	B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U)	Performing Organizations:											
	Contractor or Government	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	Project Office	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program	
	Product Development Organizations											
	Misc. Contracts	SS/FFP	Annual	N/A	N/A	8,470	232	1,308	855	6,521	17,386	
	F08635-90-C-0201 Hughes	SS/FFP	Aug 90	5,200	5,200	5,200	0	0	0	0	5,200	5,200
	F08626-91-C-0034 Hughes	SS/CPIF	Mar 91	93,506	93,506	93,506	0	0	0	0	93,506	93,506
	F08626-93-C-0044 (Phase 2)	SS/CPAF	Jun 94	117,558	117,558	117,558	0	0	0	0	117,558	117,558
	Hughes											
	Phase 3 Risk Reduction	SS/CPAF	Oct 95	24,484	24,484	24,484	0	0	0	0	24,484	24,484
	Phase 3 Improved Fuzing Capability	SS/CPAF	Oct 99	5,287	5,287	0	5,287	0	0	0	5,287	5,287
	Phase 3 Improved Seeker and Advanced EP	SS/CPAF	Oct 99	199,365	199,365	455	21,665	48,995	50,714	77,313	199,142	199,142
	EMD Contract Phase 3	SS/CPAF	Oct 04	128,707	128,707	0	0	0	0	128,707	128,707	128,707
	Follow on											
*Note: Hughes became part of Raytheon Systems effective Dec 97												
Support and Management Organizations												
	COEA	PO/MIPR	Jan 94	N/A	N/A	3,358	0	0	0	0	3,358	3,358
	Contractor Support	REO/PR	Annual	N/A	N/A	14,719	1,467	1,229	1,420	8,024	26,859	26,859
	JSPO Operations	PR/IMPAC	Annual	N/A	N/A	17,671	667	540	636	3,720	23,234	23,234
Project 673777										Exhibit R-3 (PE 0207163F)		
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										
BUDGET ACTIVITY				DATE		PROJECT				
07 - Operational System Development				0207163F		Advanced Medium Range Air-to-Air Missile 673777				
(U) Performing Organizations Continued:										
Test and Evaluation Organizations										
Government Test	REO/MIPR	Annual	N/A	N/A	32,802	4,148	74	82	1,426	38,532
(U) Government Furnished Property:										
Contract										
Item	Method/Type	Award or	Delivery							
Description	or Funding	Obligation	Date							
Product Development Property	Vehicle	Date	Date							
Not Applicable										
Support and Management Property										
Not Applicable										
Test and Evaluation Property										
TM/ECM Pods	REO/MIPR	Annual								
					2,380	0	0	0	0	2,380
Subtotals					Total Prior	Budget	Budget	Budget	Budget to	Total
Subtotal Product Development					to FY 1999	FY 1999	FY 2000	FY 2001	Complete	Program
Subtotal Support and Management					249,673	27,184	50,303	51,569	212,541	591,270
Subtotal Test and Evaluation					35,748	2,134	1,769	2,056	11,744	53,451
Total Project					35,182	4,148	74	82	1,426	40,912
					320,603	33,466	52,146	53,707	225,711	685,633

Project 673777

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0207247F Air Force TENCAP								670001	
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
670001	Air Force TENCAP	6,003	12,929	9,826	10,779	10,497	10,707	10,919	Continuing	TBD	
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	

(U) A. Mission Description
 The Congressionally-mandated Air Force Tactical Exploitation of National Capabilities (AF TENCAP) program pursues seamless integration of space systems' capabilities into military operations for tactical use by warfighters. AF TENCAP expedites improvements to Air Force combat capabilities through rapid-prototyping projects that culminate in operational concept demonstrations. Although not a developmental program per normal acquisition guidelines, the program does support future operational systems development: successfully-demonstrated concepts are transitioned to users for fielding and deployment. Additionally, AF TENCAP-developed equipment is deployed in support of real-world contingency operations.

AF TENCAP leverages investments in space systems for tactical warfighter use in three ways, through six program branches denoted by the identifier 'TENCAP' (previously 'TALON'):

- 1) Exploiting existing space systems for tactical applications. AF TENCAP conceives and demonstrates capabilities to exploit these systems through rapid-prototyping projects in four program divisions:
 - TENCAP Command provides space systems with applications to enhance Theater Battle Management support for Command and Control (C2) systems
 - TENCAP Knight provides space system capabilities in tailored applications for use by Special Operations Forces
 - TENCAP Shooter gets time-critical intelligence obtained by space systems into aircraft cockpits and/or weapons to support weapons delivery
 - TENCAP Ready provides space systems products and applications for intelligence preparation of the battlefield through mission planning, preparation, rehearsal, and combat execution
- 2) TENCAP Vision influences the design and operation of new space systems for warfighters by advocating tactical applications and missions for them (in the form of analyses and integration of space systems into roadmaps and architectures for Air Force weapons/C4I systems)
- 3) TENCAP Warrior supports education and training of operational forces in emerging space and space-related technologies and concepts, as well as education of national providers about operational user requirements and environments, through participation in combat and contingency operations, exercises, and project demonstrations. TENCAP Warrior also supports RDT&E for and sustains (through Operations & Maintenance funds) specialized aerospace integration facilities that enhance such education and training.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
07 - Operational System Development	0207247F Air Force TENCAP	670001		
(U) A. Mission Description Continued				
(U) FY 1999 (\$ in Thousands)				
(U) \$5,065	Exploited existing space systems for tactical applications; influenced design of future space systems; supported RDT&E for training facilities			
(U) \$767	Transitioned AF TENCAP concept demonstrations to field			
(U) \$171	Program support			
(U) \$6,003	Total			
(U) FY 2000 (\$ in Thousands)				
(U) \$8,291	Exploiting existing space systems for tactical applications; influencing design of future space systems; supporting RDT&E for training facilities			
(U) \$3,000	Developing and testing hyperspectral imagery sensors and exploitation tools (per FY00 Congressional direction)			
(U) \$1,098	Transitioning AF TENCAP concept demonstrations to field			
(U) \$158	Contract bridge activities			
(U) \$382	Program support			
(U) \$12,929	Total			
(U) FY 2001 (\$ in Thousands)				
(U) \$9,141	Exploiting existing space systems for tactical applications; influencing design of future space systems			
(U) \$100	Developing and testing hyperspectral imagery sensors and exploitation tools (completing FY00 Congressional direction)			
(U) \$385	Transitioning AF TENCAP concept demonstrations to field			
(U) \$200	Program support			
(U) \$9,826	Total			
(U) B. Budget Activity Justification				
Since this effort supports fielded systems, it is in Budget Activity #7, 'Operational Systems Development'.				
(U) C. Program Change Summary (\$ in Thousands)				
	FY 1999	FY 2000	FY 2001	Total Cost
(U) Previous President's Budget (FY 2000 PBR)	6,328	10,102	9,914	TBD
(U) Appropriated Value	6,447	13,102		
(U) Adjustments to Appropriated Value	-119			
a. Congressional/General Reductions	-206			
b. Small Business Innovative Research				
Project 670001				
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
07 - Operational System Development	0207247F Air Force TENCAP	670001	
(U) C. Program Change Summary (\$ in Thousands) Continued			Total Cost
c. Omnibus or Other Above Threshold Reprogram	FY 1999	FY 2000	FY 2001
d. Below Threshold Reprogram	-85	-71	
e. Rescissions	-34	-102	
f. Other			TBD
(U) Adjustments to Budget Years Since FY 2000 PBR			-88
(U) Current Budget Submit/FY 2001 PBR	6,003	12,929	9,826
(U) Significant Program Changes:			
FY 1999: \$85K reprogrammed to support higher Air Force priorities			
FY 2001: \$88K adjustment to fund higher Air Force priorities			
(U) D. Other Program Funding Summary (\$ in Thousands)			Total Cost
	FY 1999	FY 2000	FY 2001
	Actual	Estimate	Estimate
(U) Other Procurement funding in	190	192	196
'Intelligence Communications			
Equipment', WSC 832070			203
(U) E. Acquisition Strategy			Continuing
Cost plus award fee contract with a ceiling of hours available to AF TENCAP. Theater MAJCOM mission area plan (MAP) deficiencies provide the requirements for AF TENCAP development projects. Each project must correct a MAP deficiency or deficiencies and be approved by an AF TENCAP O-6 (Colonel) Review Group. In addition, theater MAJCOMs must be willing to assume future acquisition and logistics responsibilities, budgeting for projects in their Program Objective Memorandums.			
(U) F. Schedule Profile			
	FY 1999	FY 2000	FY 2001
	1	2	3
(U) Contractor Proposals for FY00 Projects	4	1	4
(U) FY00 Project Evaluated and Approved	*	2	3
(U) FY00 Project Authority to Proceed	*	3	4
(U) FY01 Projects Identified	*	*	*
(U) Contractor Proposals for FY01 Projects			X
Project 670001		Exhibit R-2 (PE 0207247F)	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE				PROJECT					
07 - Operational System Development		0207247F Air Force TENCAP				670001					
(U)	<u>A. Project Cost Breakdown (\$ in Thousands)</u>										
(U)	Exploiting existing space systems for tactical applications	FY 1999	FY 2000	FY 2001							
(U)	Influencing design of future space systems	3,613	7,114	7,867							
(U)	Supporting RDT&E for aerospace integration facilities	974	880	1,274							
(U)	Developing/testing hyperspectral imagery sensors/exploitation (per FY00 Congressional direction)	478	297	0							
(U)	Transitioning concept demonstrations to field	0	3,000	100							
(U)	Contract Bridge Activities	767	1,098	385							
(U)	Program Support	0	158	0							
(U)	Total	171	382	200							
		6,003	12,929	9,826							
*This section has been revised since the FY 2000 President's Budget submission to display costs by AF TENCAP mission rather than AF TENCAP division											
*AF TENCAP RDT&E-funded aerospace integration facility upgrade efforts complete in FY 2000, but facility sustainment efforts (financed by Operations & Maintenance appropriations) will continue.											
*Program support costs increase in FY 2000 to support transition of the AF TENCAP acquisition function from Schriever AFB to Peterson AFB											
(U)	<u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>										
(U)	<u>Performing Organizations:</u>										
	Contractor or Government	Contract Method/Type	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	Product Development Organizations										
	Not Applicable										
	Support and Management Organizations										
	Multiple	Various	Multiple	Continuing	Continuing	19,568	1,127	6,682	5,896	Continuing	TBD
	Lockheed Martin	CPAF	Sept 95	Continuing	Continuing	31,559	4,876	6,070	0	0	42,505
	Future Contract	TBD	Aug 00	TBD	Continuing	0	0	177	3,930	Continuing	TBD
	Test and Evaluation Organizations										
	Not Applicable										

Project 670001
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE	February 2000	PROJECT	670001
BUDGET ACTIVITY		PE NUMBER AND TITLE							
07 - Operational System Development		0207247F Air Force TENCAP							
(U)	<u>Government Furnished Property:</u>								
	<u>Contract</u>								
	<u>Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Delivery Date</u>						
	<u>Item Description</u>			<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Property</u>								
	None								
	<u>Support and Management Property</u>								
	None								
	<u>Test and Evaluation Property</u>								
	None								
	<u>Subtotals</u>			<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Subtotal Product Development</u>			51,127	6,003	12,929	9,826	TBD	TBD
	<u>Subtotal Support and Management</u>								
	<u>Subtotal Test and Evaluation</u>								
	<u>Total Project</u>			51,127	6,003	12,929	9,826	TBD	TBD

Project 670001
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0207253F Compass Call								674804	
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
674804	Compass Call	11,892	12,837	5,834	3,886	3,879	3,870	0	0	40,759	
	Quantity of RDT&E Articles	2	2	2	2	2	2	0	0	0	
(U) A. Mission Description COMPASS CALL is DoD's airborne wide area coverage offensive counter information system. It denies, disrupts, degrades and deceives adversary voice and data communications, preventing and managing his ability to effectively command and control his forces in the field. The Tactical Radio Acquisition and Countermeasures Subsystem (TRACS) replaces the aging compressive receiver suite responsible for acquiring target systems with a digital, reprogrammable receiver that will enable COMPASS CALL to remain viable in countering the next generation of deployed threats. TRACS EMD and flight testing are urgently needed to complete TRACS development and enable the start of production to replace the COMPASS CALL fleet's aging receiver subsystem. The current receiver is late 1970's vintage and must be replaced to meet deployed threats and alleviate impending supportability problems. The reprogrammable nature of TRACS will allow it to remain viable for the extended future through software upgrades. These upgrades will be developed beginning in FY02 and continue throughout the life of the program, ensuring COMPASS CALL stays abreast of rapidly emerging threat technologies. (U) FY 1999 (\$ in Thousands) (U) \$11,433 Started non-recurring engineering (NRE) activities for TRACS-C production (U) \$200 Initiated flight test planning (U) \$259 Conducted TRACS-F technology trade study (U) \$11,892 Total (U) FY 2000 (\$ in Thousands) (U) \$4,200 Continue TRACS-C development and integration (U) \$453 Start flight test activities for TRACS-C (U) \$8,184 TRACS-F Development (U) \$12,837 Total											

Project 674804

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
07 - Operational System Development	0207253F Compass Call	674804		
(U) A. Mission Description Continued				
(U) FY 2001 (\$ in Thousands)				
(U) \$4,548	Complete TRACS-C development and integration			
(U) \$986	Continue flight test for TRACS-C			
(U) \$300	Conduct TRACS-F ground demonstration			
(U) \$5,834	Total			
(U) B. Budget Activity Justification				
This program is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of operational system development.				
(U) C. Program Change Summary (\$ in Thousands)				
(U) Previous President's Budget (FY 2000 PBR)			<u>FY 1999</u>	<u>FY 2000</u>
(U) Appropriated Value			12,419	4,908
(U) Adjustments to Appropriated Value			12,500	12,908
a. Congressional/General Reductions			-81	
b. Small Business Innovative Research			-460	
c. Omnibus or Other Above Threshold Reprogram			-71	
d. Below Threshold Reprogram				
e. Rescissions			-67	
f. Other				
(U) Adjustments to Budget Years Since FY 2000 PBR				
(U) Current Budget Submit/FY 2001 PBR			11,892	12,837
(U) Significant Program Changes:				
(U) D. Other Program Funding Summary (\$ in Thousands)				
			<u>FY 1999</u>	<u>FY 2000</u>
			Actual	Estimate
(U) PE 0207253F, Aircraft			7,205	9,260
Modification (3010)				
			<u>FY 2001</u>	<u>FY 2002</u>
			Estimate	Estimate
			16,729	23,039
			<u>FY 2003</u>	<u>FY 2004</u>
			Estimate	Estimate
			31,447	17,650
			<u>FY 2005</u>	<u>Cost to</u>
			Estimate	Complete
			8,341	
				<u>Total Cost</u>
				TBD
Project 674804			Exhibit R-2 (PE 0207253F)	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE				PROJECT					
07 - Operational System Development		0207253F Compass Call				674804					
(U)	<u>A. Project Cost Breakdown (\$ in Thousands)</u>										
(U)	Hardware/Software Development										
(U)	System Integration										
(U)	Total										
(U)	<u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>										
(U)	<u>Performing Organizations:</u>										
	<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	Product Development Organizations										
	Sanders	CPAF/IF	FY99	TBD	TBD		11,892	12,384	4,848	10,196	39,320
	Support and Management Organizations										
	None										
	Test and Evaluation Organizations										
	TBD	MIPR	FY00	TBD	TBD			453	986	0	1,439
	Subtotals										
	Subtotal Product Development										
	Subtotal Support and Management										
	Subtotal Test and Evaluation										
	Total Project						11,892	12,837	5,834	10,196	40,759

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE		February 2000																					
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT																					
07 - Operational System Development		0207268F Aircraft Engine Component Improvement		671012																					
		Program (CIP)																							
		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost															
671012	Aircraft Engine Component Improvement Program	93,338	158,329	166,926	174,127	186,200	211,043	168,638	Continuing	TBD															
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0															
(U) A. Mission Description The Aircraft Engine Component Improvement Program (CIP) provides critical sustaining engineering support (only source) for in-service Air Force engines throughout their service life. Aircraft Engine CIP corrects service revealed deficiencies and reduces total ownership costs (RTOC). The program's highest priority is to maintain flight safety, but also improves system Operational Readiness (OR) and Reliability and Maintainability (R&M). 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 Engine CIP provides the only funds to develop fixes for these field problems. Engine CIP funding is driven by field events and types/maturity of engines, not by the total engine quantity. Engine 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. Engine CIP addresses out-of-warranty usage and life and enables the Air Force to obtain additional warranties when manufacturers incorporate Engine CIP improvements into production engines. Since operational and safety problems arise throughout a system's service life, Engine 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. Engine CIP ensures continued improvements in engine R&M factors, which reduce outyear support costs. Historically, R&M related Engine CIP efforts reduce outyear Operations and Maintenance (O&M) and spares costs by a ratio greater than 21 to 1. MAJCOMs assume a viable Engine CIP effort is in place when submitting their budget requests for O&M and engine spares. Without the outyear cost avoidance provided by Engine CIP, outyear support funding would have to be increased drastically. <table border="0"> <tr> <td>(U)</td> <td>FY 1999 (\$ in Thousands)</td> <td></td> </tr> <tr> <td>(U)</td> <td>\$80,215</td> <td>595 CIP tasks (233 redesign tasks, 293 repair development tasks, and 69 analysis tasks)</td> </tr> <tr> <td>(U)</td> <td>\$6,602</td> <td>4694 test hours</td> </tr> <tr> <td>(U)</td> <td>\$6,521</td> <td>Petroleum, oil, lubricants and other support costs</td> </tr> <tr> <td>(U)</td> <td>\$93,338</td> <td>Total</td> </tr> </table>											(U)	FY 1999 (\$ in Thousands)		(U)	\$80,215	595 CIP tasks (233 redesign tasks, 293 repair development tasks, and 69 analysis tasks)	(U)	\$6,602	4694 test hours	(U)	\$6,521	Petroleum, oil, lubricants and other support costs	(U)	\$93,338	Total
(U)	FY 1999 (\$ in Thousands)																								
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
07 - Operational System Development	0207268F Aircraft Engine Component Improvement	671012		
	Program (CIP)			
(U) A. Mission Description Continued				
(U) FY 2000 (\$ in Thousands)				
(U) \$121,438	774 CIP tasks (294 redesign tasks, 378 repair development tasks, and 102 analysis tasks)			
(U) \$24,301	10,500 test hours			
(U) \$12,590	Petroleum, oil, lubricants and other support costs			
(U) \$158,329	Total			
(U) FY 2001 (\$ in Thousands)				
(U) \$130,810	785 CIP tasks (294 redesign tasks, 378 repair development tasks, and 113 analysis tasks)			
(U) \$22,600	12700 test hours			
(U) \$13,516	Petroleum, oil, lubricants and other support costs			
(U) \$166,926	Total			
(U) B. Budget Activity Justification				
This program is in budget activity 7 - Operational System Development, Research Category 6.6 because all efforts support fielded systems.				
(U) C. Program Change Summary (\$ in Thousands)				
(U) Previous President's Budget (FY 2000 PBR)		FY 1999	FY 2000	FY 2001
(U) Appropriated Value		96,589	160,212	168,410
(U) Adjustments to Appropriated Value		97,069	160,212	TBD
a. Congressional/General Reductions		-206	-15	
b. Small Business Innovative Research		-3,229	-870	
c. Omnibus or Other Above Threshold Reprogram		500	-998	
d. Below Threshold Reprogram		-796		
e. Rescissions				
f. Other				
(U) Adjustments to Budget Years Since FY 2000 PBR				-1,484
(U) Current Budget Submit/FY 2001 PBR		93,338	158,329	166,926
				TBD
				TBD
Project 671012			Exhibit R-2 (PE 0207268F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000																																																																		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT																																																																			
07 - Operational System Development	0207268F Aircraft Engine Component Improvement Program (CIP)	671012																																																																			
(U) <u>C. Program Change Summary (\$ in Thousands) Continued</u> (U) Significant Program Changes: FY1999 & FY2000 increase in test hour cost is due to a greater number of engine test hours being performed in altitude facilities. FY2001 President's Budget Request reflects \$1,484K downward adjustment for inflation. (U) <u>D. Other Program Funding Summary (\$ in Thousands)</u> <table border="1"> <thead> <tr> <th></th> <th>FY 1999 Actual</th> <th>FY 2000 Estimate</th> <th>FY 2001 Estimate</th> <th>FY 2002 Estimate</th> <th>FY 2003 Estimate</th> <th>FY 2004 Estimate</th> <th>FY 2005 Estimate</th> <th>Cost to Complete</th> <th>Total Cost</th> </tr> </thead> <tbody> <tr> <td>(U) AF RDT&E</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Other APPN</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> RELATED ACTIVITIES: (U) - PEs # 0604268A and #0604268N, Army/Navy Aircraft Engine CIPs for prior years (U) - PEs # 0203752A and #0205633N, Army/Navy Aircraft Engine CIPs for FY96 and following years (U) <u>E. Acquisition Strategy</u> Contracts within this Program Element are awarded sole source to engine manufacturers. CIP tasks are generally assigned to original engine manufacturers. Tasks are assigned based on available funding and prioritization of candidate tasks. (U) <u>F. Schedule Profile</u> <table border="1"> <thead> <tr> <th></th> <th colspan="3">FY 1999</th> <th colspan="3">FY 2000</th> <th colspan="3">FY 2001</th> </tr> <tr> <th></th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> </tr> </thead> <tbody> <tr> <td>(U) Not applicable. CIP is a level of effort program that funds 700+ separate engineering tasks per year.</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>					FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	(U) AF RDT&E										(U) Other APPN											FY 1999			FY 2000			FY 2001				1	2	3	4	1	2	3	4	1	2	3	4	(U) Not applicable. CIP is a level of effort program that funds 700+ separate engineering tasks per year.												
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Project 671012		Page 3 of 5 Pages																																																																			
Exhibit R-2 (PE 0207268F)		1113																																																																			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE						0207268F Aircraft Engine Component Improvement Program (CIP)		February 2000	671012
07 - Operational System Development											
(U)	<u>A. Project Cost Breakdown (\$ in Thousands)</u>										
(U)	Contracted Tasks										
(U)	AFPTC Flight Tests										
(U)	AEDC Altitude Tests										
(U)	Petroleum/Oil/Lubricants										
(U)	Mission Support										
(U)	Total										
(U)	<u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>										
(U)	<u>Performing Organizations:</u>										
	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 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	<u>Product Development Organizations</u>										
	GE-Evandale, OH	CPAF	Jan 98	N/A	N/A	43,767	65,016	51,710	Continuing	TBD	
	Pratt & Whitney	CPAF	Jan 98	N/A	N/A	28,191	45,180	72,350	Continuing	TBD	
	GE-Lynn, MA	CPFF	Jan 98	N/A	N/A	4,129	4,825	2,900	Continuing	TBD	
	Allison	CPFF	Jan 98	N/A	N/A	949	900	1,400	Continuing	TBD	
	Teledyne	CPFF	Jan 98	N/A	N/A	1,979	4,061	1,200	Continuing	TBD	
	Allied Signal	CPFF	Jan 98	N/A	N/A	505	628	500	Continuing	TBD	
	Williams	CPFF	Jan 98	N/A	N/A	200	120	250	Continuing	TBD	
	Sundstrand	CPFF	Jan 98	N/A	N/A	495	708	500	Continuing	TBD	
	<u>Support and Management Organizations</u>										
	In House Support					3,193	2,590	1,500	Continuing	TBD	
	Petroleum/Oil/Lubricants					3,328	10,000	12,016	Continuing	TBD	

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					
BUDGET ACTIVITY	PE NUMBER AND TITLE		DATE	PROJECT	
07 - Operational System Development	0207268F Aircraft Engine Component Improvement Program (CIP)		February 2000	671012	
(U) <u>Performing Organizations Continued:</u>					
Test and Evaluation Organizations					
AFPTC-Edwards AFB, CA	886	192	1,700	Continuing	TBD
AEDC-Arnold AFB, TN	5,716	24,109	20,900	Continuing	TBD
	Total Prior to FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
<u>Subtotals</u>	80,215	121,438	130,810	TBD	TBD
Subtotal Product Development	6,521	12,590	13,516	TBD	TBD
Subtotal Support and Management	6,602	24,301	22,600	TBD	TBD
Subtotal Test and Evaluation	93,338	158,329	166,926	TBD	TBD
Total Project					
Footnote: Total prior to FY 1999 is not reflected above because the program was funded in procurement through FY 1979. RDT&E funding began in FY 1980.					

Project 671012
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Exhibit R-3 (PE 0207268F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0207320F Sensor Fuzed Weapon (SFW)								671016	
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
671016	Sensor Fuzed Weapon	7,782	11,645	0	0	0	0	0	0	64,739	
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	8	
(U) A. Mission Description 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. All P3I improvements are at the BLU-108 submunition level. The P3I BLU-108 submunition will also be used in the anti-armor version of the Joint Standoff Weapon (JSOW). SFW is an ACAT 2 program. (U) <u>FY 1999 (\$ in Thousands)</u> (U) \$7,521 Continued the P3I development program with contractor test and evaluation (U) \$261 Continued program management support, includes travel, program office supplies and equipment, training and technical engineering support (U) \$7,782 Total (U) <u>FY 2000 (\$ in Thousands)</u> (U) \$9,014 Complete the P3I development program; correct technical problems; complete contractor development testing; and support govt. qualification testing (U) \$1,107 Continue program management support, includes travel, program office supplies and equipment, training and technical engineering support (U) \$1,524 Conduct and complete subsystem level testing and Cluster Bomb Unit (CBU) flight testing (U) \$11,645 Total (U) <u>FY 2001 (\$ in Thousands)</u> (U) \$0 No Activity (U) \$0 Total (U) B. Budget Activity Justification This program is in budget activity 7 - Operational System Development, because this activity funds improvements to the SFW, which is currently in production. The SFW P3I is scheduled to cut-in the production program in FY01.											

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Exhibit R-2 (PE 0207320F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
07 - Operational System Development	0207320F Sensor Fuzed Weapon (SFW)	671016	
(U) C. Program Change Summary (\$ in Thousands)			
(U) Previous President's Budget (FY 2000 PBR)	FY 1999	FY 2000	FY 2001
(U) Appropriated Value	7,504	11,785	0
(U) Adjustments to Appropriated Value	7,551	11,785	
(U) a. Congressional/General Reductions	-26	-2	
(U) b. Small Business Innovative Research	-127	-64	
(U) c. Omnibus or Other Above Threshold Reprogram	449		
(U) d. Below Threshold Reprogram	-65	-74	
(U) e. Rescissions			
(U) f. Other			
(U) Adjustments to Budget Years Since FY 2000 PBR			
(U) Current Budget Submit/FY 2001 PBR	7,782	11,645	0
(U) Significant Program Changes:			
(U) None			
(U) D. Other Program Funding Summary (\$ in Thousands)			
	FY 1999	FY 2000	FY 2001
	Actual	Estimate	Estimate
(U) AF RDT&E			
(U) Other APPN			
(U) Procurement of	117,955	85,385	
(U) Ammunition, AF			
(U) P-1 Line Item 21			
(U) E. Acquisition Strategy			
The SFW Pre-Planned Product Improvements (P3I) program is a 58 month R&D effort to enhance the BLU-108 submunition and projectile. This is a sole source Cost-Plus Award Fee (CPAF) contract for P3I to the current SFW submunition design. The SFW P3I submunition (improved BLU-108) will also be used in the JSOW weapon system.			
(U) F. Schedule Profile			
	FY 1999	FY 2000	FY 2001
Project 671016	Page 2 of 5 Pages	Exhibit R-2 (PE 0207320F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)						DATE	February 2000	
BUDGET ACTIVITY		PE NUMBER AND TITLE						
		0207320F Sensor Fuzed Weapon (SFW)						
		PROJECT 671016						
(U)	F. Schedule Profile Continued							
(U)	Design and Development of P3I							
(U)	Preliminary Design Review (PDR)							
(U)	Detailed Design/Development Tests							
(U)	Development Test Meeting							
(U)	Critical Design Review (CDR)							
(U)	Hardware Build/Qualification Tests							
(U)	Subsystem Level Testing							
(U)	System Level Testing							
	* = Completed Events							
	X = Planned Events							

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)									
BUDGET ACTIVITY					DATE		PROJECT		
07 - Operational System Development					0207320F Sensor Fuzed Weapon (SFW)		February 2000 671016		
(U) Government Furnished Property Continued:									
Contract									
Item Description		Method/Type or Funding Vehicle		Award or Obligation Date		Delivery Date			
Product Development Property		MIPR		May 97		Oct 97			
GFE (explosive) Army, Aberdeen									
GFE (RHA Plates) Army, Aberdeen		MIPR		Jun 96		Jul 96			
Support and Management Property				N/A		N/A			
Not Applicable		N/A							
Test and Evaluation Property				N/A		N/A			
Not Applicable		N/A							
Subtotals									
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 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0207325F Joint Air-to-Surface Standoff Missile (JASSM)								674515	
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
674515	Joint Air-to-Surface Standoff Missile (JASSM)	121,146	164,425	120,281	68,795	37,188	9,135	5,988	0	879,051	
Quantity of RDT&E Articles		61	0	21	0	0	0	0	0	82	
(U) A. Mission Description											
JASSM is a joint Air Force/Navy program with the Air Force as the lead service. This is an ACAT ID program to provide an affordable long range, conventional air-to-surface, autonomous, precision guided, standoff cruise missile compatible with fighter and bomber aircraft able to attack a variety of fixed or relocatable targets. Initial integration efforts are for the B-52H and F-16 (Block 50). Objective aircraft include the B-1, B-2, F-15E, F-16 (Block 40), F-117, and F/A-18E/F. This descriptive summary reflects Air Force funding only.											
(U)	FY 1999 (\$ in Thousands)										
(U)	\$96,723	Initiated Engineering and Manufacturing Development (EMD).									
(U)	\$11,188	Continued flight test support, test aircraft modifications, live fire test support, target construction/rehab.									
(U)	\$5,255	Continued aircraft integration.									
(U)	\$1,350	Continued mission planning and intelligence systems integration.									
(U)	\$5,170	Continued program office support.									
(U)	\$1,460	Continued mission support.									
(U)	\$121,146	Total									
(U)	FY 2000 (\$ in Thousands)										
(U)	\$120,857	Continue EMD.									
(U)	\$19,004	Continue flight test support, test aircraft modifications, live fire test support, target construction/rehab.									
(U)	\$14,846	Continue aircraft integration.									
(U)	\$2,120	Continue mission planning and intelligence systems integration.									
(U)	\$321	Initiate manufacturing support.									
(U)	\$6,396	Continue program office support.									
(U)	\$881	Continue mission support.									
(U)	\$164,425	Total									
Project 674515											
Page 1 of 6 Pages											
Exhibit R-2 (PE 0207325F)											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE	PROJECT	
07 - Operational System Development		0207325F Joint Air-to-Surface Standoff Missile (JASSM)	674515	
(U)	<u>A. Mission Description Continued</u>			
(U)	FY 2001 (\$ in Thousands)			
(U)	\$68,087	Continue EMD.		
(U)	\$34,889	Continue flight test support, test aircraft modifications, live fire test support, target construction/rehab.		
(U)	\$6,581	Continue aircraft integration.		
(U)	\$2,809	Continue mission planning and intelligence systems integration.		
(U)	\$323	Continue manufacturing support.		
(U)	\$6,606	Continue program office support .		
(U)	\$986	Continue mission support.		
(U)	\$120,281	Total		
(U)	<u>B. Budget Activity Justification</u>			
	This program is reflected in Budget Activity 7, Operational System Development, because production funds have been included in the DoD budget submission to begin Low Rate Initial Production (LRIP).			
(U)	<u>C. Program Change Summary (\$ in Thousands)</u>			
(U)	Previous President's Budget (FY 2000 PBR)	FY 1999	FY 2000	FY 2001
(U)	Appropriated Value	128,796	166,408	71,022
(U)	Adjustments to Appropriated Value	129,870	166,408	
	a. Congressional/General Reductions	-707	-43	
	b. Small Business Innovative Research	-2,957	-903	
	c. Omnibus or Other Above Threshold Reprogram	-4,015		
	d. Below Threshold Reprogram	-1,045	-1,037	
	e. Rescissions			
	f. Other			
(U)	Adjustments to Budget Years Since FY 2000 PBR	121,146	164,425	49,259
(U)	Current Budget Submit/FY 2001 PBR			120,281
				70,821
				879,051
Project 674515		Exhibit R-2 (PE 0207325F)		
Page 2 of 6 Pages				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000																																																		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT																																																			
07 - Operational System Development	0207325F Joint Air-to-Surface Standoff Missile (JASSM)	674515																																																			
(U) <u>C. Program Change Summary (\$ in Thousands) Continued</u> (U) <u>Significant Program Changes:</u> FY01-02 funding adjustment reflects the JASSM program restructure. Restructure funds transferred from JASSM FY01 procurement fund. Schedule: EMD schedule extended ten months. Restructure due to late subcontractor hardware deliveries. Technical: None. (U) <u>D. Other Program Funding Summary (\$ in Thousands)</u> <table border="1"> <thead> <tr> <th></th> <th>FY 1999 Actual</th> <th>FY 2000 Estimate</th> <th>FY 2001 Estimate</th> <th>FY 2002 Estimate</th> <th>FY 2003 Estimate</th> <th>FY 2004 Estimate</th> <th>FY 2005 Estimate</th> <th>Cost to Complete</th> <th>Total Cost</th> </tr> </thead> <tbody> <tr> <td>(U) AF RDT&E</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Other APPN</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Missile Procurement (AF)</td> <td></td> <td></td> <td>0</td> <td>42,922</td> <td>50,476</td> <td>101,761</td> <td>145,417</td> <td>868,852</td> <td>1,209,428</td> </tr> <tr> <td>(U) JASSM</td> <td></td> <td></td> <td>0</td> <td>744</td> <td>2,896</td> <td>3,607</td> <td>2,882</td> <td>0</td> <td>10,129</td> </tr> </tbody> </table> (U) <u>E. Acquisition Strategy</u> All major contracts within this Program Element were awarded through full and open competition. The EMD phase option for JASSM is Cost Plus Award Fee (CPAF). This contract type provides the government the flexibility to periodically evaluate contractor performance while motivating the contractor to execute a successful program with emphasis on cost, average unit procurement price (AUPP), schedule, and performance. JASSM is an OSD flagship program under Cost as An Independent Variable (CAIV). This allows the contractor to have maximum trade space to develop an affordable missile that meets the three key performance parameters. Under CAIV, the program maintains a threshold AUPP of \$700,000 (BY95\$) and an objective AUPP of \$400,000 (BY95\$). The government is buying the JASSM system based on a contractor-developed, government-approved System Performance Specification (SPS) which became contractually binding at downselect. The contractor assumes Total System Performance Responsibility (TSPPR) as defined in the SPS and warrants system performance for 15 years. Accordingly, the contractor is responsible not only for the design of the missile system, but also for planning and executing the Development Test and Evaluation (DT&E) program to verify the missile system performance. In its role as facilitator and advisor to the contractor, the government formally arranges and funds					FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	(U) AF RDT&E										(U) Other APPN										(U) Missile Procurement (AF)			0	42,922	50,476	101,761	145,417	868,852	1,209,428	(U) JASSM			0	744	2,896	3,607	2,882	0	10,129
	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost																																												
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000																																																																															
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT																																																																																
07 - Operational System Development	0207325F Joint Air-to-Surface Standoff Missile (JASSM)	674515																																																																																
(U) <u>E. Acquisition Strategy Continued</u> the use of government flight test support for DT&E. Although funded by the government, flight test support funds are part of the negotiated commitment between the contractor and the government ensuring the contractor is able to execute the DT&E program according to the scope of the EMD contract.																																																																																		
(U) <u>F. Schedule Profile</u> <table border="1"> <thead> <tr> <th></th> <th colspan="2">FY 1999</th> <th colspan="2">FY 2000</th> <th colspan="2">FY 2001</th> </tr> <tr> <th></th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>1</th> <th>2</th> </tr> </thead> <tbody> <tr> <td>(U) Milestone II Approval</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) EMD Contract Award</td> <td>*</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) First Flight Test Vehicle Prototype Flight</td> <td>*</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) First DT/OT Flight</td> <td></td> <td></td> <td>*</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) LRIP Decision - 1st Qtr FY 2002</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> </tr> <tr> <td>(U) Last DT/OT Flight - 2nd Qtr FY 2002</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) LRIP Contract Award - 1st Qtr FY 2002</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Begin IOT&E Flight Testing (AFOTEC) - 3rd Qtr FY 2002</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="7"> * = Completed Event X = Planned Event </td> </tr> </tbody> </table>							FY 1999		FY 2000		FY 2001			1	2	3	4	1	2	(U) Milestone II Approval							(U) EMD Contract Award	*						(U) First Flight Test Vehicle Prototype Flight	*						(U) First DT/OT Flight			*				(U) LRIP Decision - 1st Qtr FY 2002						X	(U) Last DT/OT Flight - 2nd Qtr FY 2002							(U) LRIP Contract Award - 1st Qtr FY 2002							(U) Begin IOT&E Flight Testing (AFOTEC) - 3rd Qtr FY 2002							* = Completed Event X = Planned Event						
	FY 1999		FY 2000		FY 2001																																																																													
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)											
BUDGET ACTIVITY					DATE		PROJECT				
07 - Operational System Development					0207325F Joint Air-to-Surface Standoff Missile (JASSM)		February 2000 674515				
					PE NUMBER AND TITLE						
(U)	A. Project Cost Breakdown (\$ in Thousands)										
(U)	Major Contracts						FY 1999	FY 2000	FY 2001		
(U)	Associated Contracts						96,723	120,857	68,087		
(U)	Support Contracts						5,255	14,846	6,581		
(U)	In-House						6,520	8,837	9,738		
(U)	Test Support						1,460	881	986		
(U)	Total						11,188	19,004	34,889		
(U)							121,146	164,425	120,281		
(U)	B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U)	Performing Organizations:										
	Contractor or Government	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	Project Office	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	Product Development Organizations										
	MDA - PDRR I	C/CPFF	Jun 96	120,439	120,439	120,439	0	0	0	0	120,439
	LM - PDRR I& II	C/CPFF	Jun 96	153,382	153,382	153,382	0	0	0	0	153,382
	LM - EMD	C/CPAF	Nov 98	340,375	340,375	6,971	96,723	120,857	68,087	47,737	340,375
	NOTE: Contractors are MDA										
	- McDonnell Douglas										
	Aircraft; LM - Lockheed										
	Martin										
	Support and Management Organizations										
	F-16 SPO	PO	Apr 96	N/A	N/A	6,045	3,716	7,869	3,310	11,728	32,668
	B-52 SPO	PO	Sep 96	N/A	N/A	17,658	1,539	6,915	3,234	1,070	30,416
	Other Acft Integ	PO	Various	N/A	N/A	3,462	0	62	37	0	3,561
	Sverdrup Inc.	C/CPAF	Jan 96	N/A	N/A	7,318	2,068	3,651	3,765	3,771	20,573
	Navy	MIPR	Jan 96	N/A	N/A	2,311	0	0	0	0	2,311
Project 674515					Page 5 of 6 Pages			Exhibit R-3 (PE 0207325F)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE				PROJECT		674515			
07 - Operational System Development		0207325F Joint Air-to-Surface Standoff Missile (JASSM)				0207325F		Missile			
(U) Performing Organizations Continued:											
Support and Management Organizations											
JASSM SPO/Other	Misc	N/A	N/A	15,112	5,912	6,067	6,959	17,800	51,850		
Test and Evaluation Organizations											
46TW	PO	N/A	N/A	19,395	11,188	19,004	34,889	39,000	123,476		
(U) Government Furnished Property:											
Contract											
Method/Type		Award or									
Item	or Funding	Delivery		Total Prior	Budget	Budget	Budget	Budget to	Total		
Description	Vehicle	Date	Date	to FY 1999	FY 1999	FY 2000	FY 2001	Complete	Program		
Product Development Property											
Not Applicable											
Support and Management Property											
Not Applicable											
Test and Evaluation Property											
Not Applicable											
Subtotals											
Subtotal Product Development				280,792	96,723	120,857	68,087	47,737	614,196		
Subtotal Support and Management				51,906	13,235	24,564	17,305	34,369	141,379		
Subtotal Test and Evaluation				19,395	11,188	19,004	34,889	39,000	123,476		
Total Project				352,093	121,146	164,425	120,281	121,106	879,051		

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Exhibit R-3 (PE 0207325F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE		February 2000	
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT			
07 - Operational System Development		0207412F Theater Air Control Systems								67485L			
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost			
67485L	Theater Air Control System Imp (TACSI)	402	6,432	19,873	27,206	27,185	30,440	48,455	Continuing	TBD			
Quantity of RDT&E Articles		0	0	0	0	0	0	0	0	0			
(U) A. Mission Description Ground Theater Air Control System (GTACS): GTACS provides battle management resources and a Command and Control (C2) air operations picture through which the Expeditionary Aerospace Forces Joint Forces Air Component Commander and theater level commanders control assigned forces accomplishing assigned missions. GTACS elements execute battle management, force allocation, control of airborne assets (counter air, aerial refueling, interdiction, close air support, reconnaissance, airlift, special operations missions and others), surveillance, early warning, identification, and theater missile defense. The GTACS mission is to deploy a rapid reaction, self-sustaining if necessary, radar/data link capability into a deployed theater of operations. This support is provided to worldwide operations ranging from military operations other than war and peacetime contingencies, to projecting decisive force into a major regional conflict to support a strategic war. GTACS consists of a family of radar/communication/electronics components largely designed in the 1970/80s and is becoming logistically unsupportable. Without modernizing, GTACS will be unable to provide an accurate and reliable integrated air picture or conduct C2 theater operations in the future. Specifically, these upgrades will provide an open Defense Information Infrastructure Common Operating Environment (DII-COE) compliant architecture, reduce a large forward deployment/airlift requirement and move a large part of aerospace battle execution activities to the rear. Theater Air defense (TAD) Missile Tracking System (MTS)(formerly referred to as Expert Missile Tracker (EMT)) will provide the Combat Air Forces (CAF) with tactical capability to detect, track, predict launch and impact points, and classify tactical ballistic missiles (TBM)s by type. A fully modernized GTACS will evolve into the Battle Control System. The BCS is a theater asset that supports the Joint Force Commander (JFC)/Joint Force Air Component Commander (JFACC) requirement for theater battle management by performing the following core competencies: Theater Air Defense (TAD) (including Joint Theater Missile Defense (JTMD) and Time Critical Targeting (TCT), C2 Data Link Management, Surveillance, Combat Identification and Air Battle Management. Fully modernized RCCs will provide minimally manned remote control sensor capability with increased reliability and improved sensitivity and target detection range. Due to manpower and equipment drawdowns and part obsolescence, there is an immediate requirement to implement modernization changes between FY00 and FY05. GTACS to meet current and future mission taskings must be pre-positioned to transition into the next generation of battle management communications, hardware, and software. The GTACS program provides interoperability among numerous elements of the CAF that encompass Navy, Marine Corps, Army, and allied coalition C2 assets.													
(U) FY 1999 (\$ in Thousands)													
(U)	\$60	Developed/fielded interoperability upgrades to Modular Control Equipment (MCE) Pre-planned Product Improvement (P3I) systems											
(U)	\$342	Program support, test, and other miscellaneous efforts											
(U)	\$402	Total											
Project 67485L		Exhibit R-2 (PE 0207412F)											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
07 - Operational System Development	0207412F Theater Air Control Systems	67485L		
(U) A. Mission Description Continued				
(U) FY 2000 (\$ in Thousands)				
(U) \$192	Concept Definition/Development for Evolutionary Upgrades to the GTACS System			
(U) \$240	Continue program support (i.e. travel, supplies, miscellaneous)			
(U) \$6,000	Initiate Development of TAD MTS Upgrade for the Radar Sensors (includes TAD MTS SPO Support)			
(U) \$6,432	Total			
(U) FY 2001 (\$ in Thousands)				
(U) \$4,593	Program Office Support to include Systems Engineering (Operational Safety, Suitability, and Effectiveness), Advanced Planning, Program Control, Travel, Supplies, Equipment and Miscellaneous			
(U) \$5,300	Continue development of TAD MTS Upgrade for the Radar Sensors (Includes dedicated TAD MTS SPO Support)			
(U) \$9,980	Continue Development of Evolutionary Upgrades to the GTACS (i.e. BCC/RCC Architecture)			
(U) \$19,873	Total			
(U) B. Budget Activity Justification				
The program is in Budget Activity 7 because GTACS is a fielded, operational system. Program will begin major modifications/upgrades in FY00.				
(U) C. Program Change Summary (\$ in Thousands)				
(U) Previous President's Budget (FY 2000 PBR)			FY 1999	FY 2000
(U) Appropriated Value			427	467
(U) Adjustments to Appropriated Value			431	467
a. Congressional/General Reductions			-3	
b. Small Business Innovative Research			-4	
c. Omnibus or Other Above Threshold Reprogram				-35
d. Below Threshold Reprogram			-19	
e. Rescissions			-3	
f. Other				
(U) Adjustments to Budget Years Since FY 2000 PBR				6,000
(U) Current Budget Submit/FY 2001 PBR			402	6,432
				19,873
				TBD
				TBD
Project 67485L			Exhibit R-2 (PE 0207412F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE		February 2000	
BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT					
07 - Operational System Development			0207412F Theater Air Control Systems					67485L					
(U) C. Program Change Summary (\$ in Thousands) Continued													
(U) Significant Program Changes:													
FY2000 includes \$6.0M of Congressional Reprogramming from OPAF to RDT&E for TAD MTS. FY2001 funding increased to continue TAD MTS development and to begin modernization (BCC/RCC). Funding of Program Office Support shifts from Production (3080) to RDT&E (3600) in conjunction with development of evolutionary upgrades to BCC/RCC architecture.													
(U) D. Other Program Funding Summary (\$ in Thousands)													
			FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to	Total Cost		
(U)	Other APPN		Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete			
(U)	Other Procurement Air Force, WSC 833040, Theater Air Control System Improvement		14,961	15,040	2,048	5,092	18,189	20,078	24,934	Continuing			TBD
(U)	Other Procurement Air Force, WSC 838010, Comm Electronic Mods		1,932	4,072	790	788	592						TBD
(U)	Other Procurement Air Force, WSC 86190A, Initial Spares		3,314	1,521	1,260	1,065	421	385	88	Continuing			TBD
(U) E. Acquisition Strategy													
Primary emphasis on this program shifts in FY00 from sustainment to modernization. ESC is analyzing potential acquisition approaches which will enhance interoperability and reduce total ownership costs. The intent is to reduce risk through the use of Commercial-Off-The-Shelf /Government-Off-The-Shelf (COTS/GOTS) and non-developmental hardware items to the fullest extent possible via an evolutionary acquisition approach(es).													
(U) F. Schedule Profile													
			FY 1999				FY 2000				FY 2001		
			1	2	3	4	1	2	3	4	1	2	3
(U)	GTACS - TAD MTS												
(U)	GTACS Modernization - BCC/RCC												
	* Denotes completed event												
	x Denotes planned event												
Project 67485L													
Page 3 of 5 Pages													
Exhibit R-2 (PE 0207412F)													

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	PROJECT						
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT							
07 - Operational System Development		0207412F Theater Air Control Systems		67485L							
(U)	A. Project Cost Breakdown (\$ in Thousands)										
(U)	Developed/fielded interoperability upgrades to Modular Control Equipment (MCE) Pre-planned Product Improvement (P3I) systems	FY 1999	FY 2000	FY 2001							
(U)	Program Support (i.e. travel, supplies, and miscellaneous)	60									
(U)	Program Office Support to include Systems Engineering (Operational Safety, Suitability, and Effectiveness), Advanced Planning, Program Control, Travel, Supplies, Equipment and Miscellaneous	342	240		4,593						
(U)	Concept Definition/Development for Evolutionary Upgrades to the GTACS		192								
(U)	Development of TAD MTS Upgrade for the Radar Sensors (includes dedicated TAD MTS SPO Support)		6,000		5,300						
(U)	Development of Evolutionary Upgrades to GTACS (i.e. BCC/RCC Architecture)				9,980						
(U)	Total	402	6,432		19,873						
(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 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	Product Development Organizations										
	Contractor TBD - TAD MTS	TBD	3QFY00	N/A	N/A	N/A		6,000	5,300		11,300
	Contractor TBD -BCC/RCC	TBD	2QFY01	N/A	N/A	N/A			9,980	Continuing	TBD
	Various Contractors MCE P3I Various	Various	Various	N/A	N/A	N/A	60			Continuing	TBD
	Support and Management Organizations										
	Miscellaneous program support (travel, supplies, etc.)	Various	Various	N/A	N/A	N/A	342	240			582
	Program Office Support - includes ITSP/Mitre, etc.	Various	Various	N/A	N/A	N/A			4,593	Continuing	TBD
	Various - Concept definition/development for	Various	Various	N/A	N/A	N/A		192			192
Project 67485L											
Exhibit R-3 (PE 0207412F)											

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

February 2000

PE NUMBER AND TITLE

0207412F Theater Air Control Systems

67485L

GFP/GFE:	None
1	1
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Budget to
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None

Budget to
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Exhibit R-3 (PE 0207412F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0207414F COMBAT INTELLIGENCE SYSTEM								674773	
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
674773	Combat Intelligence System (CIS)	13,635	0	0	0	0	0	0	0	26,684	
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	
Note: Starting in FY00 the RDT&E funding for CIS is transferred to PE 27438F under project 4790, TBMCS.											
(U) A. Mission Description											
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 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 1999 (\$ in Thousands)										
(U)	\$8,814	Continued TBMCS software version 1.0 development.									
(U)	\$808	Continued TBMCS v1.1 development.									
(U)	\$1,307	System engineering and support.									
(U)	\$2,706	Expeditionary Force Experiment									
(U)	\$13,635	Total									
(U)	FY 2000 (\$ in Thousands)										
(U)	\$0	No further funding in this project. Further evolution of this functionality continues under PE 0207438F, project 4790, TBMCS.									
(U)	\$0	Total									
(U)	FY 2001 (\$ in Thousands)										
(U)	\$0	No further funding in this project. Further evolution of this functionality continues under PE 0207438F, project 4790, TBMCS.									
(U)	\$0	Total									
Project 674773		Page 1 of 5 Pages								Exhibit R-2 (PE 0207414F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)				DATE	February 2000				
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT					
07 - Operational System Development		0207414F COMBAT INTELLIGENCE SYSTEM		674773					
(U)	B. Budget Activity Justification This program was in budget activity 5, Engineering and Manufacturing Development in FY98. In FY99, this program moved to budget activity 7, Operational Systems Development, because the TBMCS program is a post milestone III effort and because it incrementally upgrades and develops capabilities for currently operational systems.								
(U)	C. Program Change Summary (\$ in Thousands)								
(U)	Previous President's Budget (FY 2000 PBR)	FY 1999	FY 2000	FY 2001	Total Cost				
(U)	Appropriated Value	9,635							
(U)	Adjustments to Appropriated Value	9,802							
	a. Congressional/General Reductions	-167							
	b. Small Business Innovative Research	-273							
	c. Omnibus or Other Above Threshold Reprogram								
	d. Below Threshold Reprogram	4,349							
	e. Rescissions	-76							
	f. Other								
(U)	Adjustments to Budget Years Since FY 2000 PBR								
(U)	Current Budget Submit/FY 2001 PBR	13,635			26,684				
(U)	Significant Program Changes: Starting in FY00 the RDT&E, AF funding for CIS will be transferred to PE 27438F under project 4790, TBMCS, where further evolution of TBM combat intelligence capability and interoperability will continue. CIS will be integrated with several other legacy systems in a single DII/COE compliant system and will be managed as a single project with the fielding of TBMCS 1.0 in FY00. In FY99, \$2.219M was added to support EFX'99 initiative where TBMCS (CIS portion) was the CORE Operating System. \$2.130M was also added in FY99 to support multi-level security and associated TBMCS software licenses.								
(U)	D. Other Program Funding Summary (\$ in Thousands)								
	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to	Total Cost
	Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete	
(U)	AF RDT&E								
(U)	Other APPN								
(U)	Other Procurement, AF, PE 0207414F, WSC 832010,	12,826	0	0	0	0	0	0	26,937
Project 674773									
Page 2 of 5 Pages									
Exhibit R-2 (PE 0207414F)									

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									
BUDGET ACTIVITY		PE NUMBER AND TITLE						DATE	PROJECT
07 - Operational System Development		0207414F COMBAT INTELLIGENCE SYSTEM						February 2000	674773
(U) <u>D. Other Program Funding Summary (\$ in Thousands)</u>		FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Total Cost
		Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete
Intel Data Handling System, CIS Portion									
(U) Other Procurement, AF, PE 0207431F, WSC 832010,		2,858	4,650	0	0	0	0	0	
Intel Data Handling System, CIS Portion									
(U) Other Procurement, PE 0207438F, WSC 832010,		0	17,648	0	0	0	0	0	
Intel Data Handling System									
Note: The other program funds associated with PEs 0207414F and 0207431F in FY99 and with PE 0207438F in FY00 to FY05 are reported both here and as other program funds under the descriptive summary for PE 0207438F, Theater Battle Management C4I, project 4790, TBMCS. However, only the Intel Data Handling System portion of procurement funds from PE 0207438F is shown here.									
(U) <u>E. Acquisition Strategy</u>		Electronic Systems Center (ESC), Hanscom AFB, MA manages the TBMCS program, including CIS. Lockheed-Martin Mission Systems (LMMS) was competitively selected after full and open competition. They were awarded a cost plus award fee contract to develop improved capabilities in support of effective Theater Battle Management and to integrate existing capabilities in the DII Common Operating Environment. The program uses an evolutionary acquisition strategy with a series of incremental software releases. This approach accommodates refinement and prioritization of user requirements and improves adaptability to improvements in commercial technology.							
(U) <u>F. Schedule Profile</u>									
					FY 1999		FY 2000		FY 2001
					1 2 3 4		1 2 3 4		1 2 3 4
(U) TBMCS S/W Version 1.0									
(U) In-Plant Test									
(U) Version 1.0 Release							X		
(U) TBMCS Version 1.1									
(U) In-Plant Test								X	
(U) Version 1.1 Release									X
Project 674773		Page 3 of 5 Pages						Exhibit R-2 (PE 0207414F)	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)									
BUDGET ACTIVITY					DATE		PROJECT		
07 - Operational System Development					0207414F COMBAT INTELLIGENCE SYSTEM		February 2000		
					PE NUMBER AND TITLE		674773		
(U)	A. Project Cost Breakdown (\$ in Thousands)								
(U)	Software Development						FY 1999	FY 2000	FY 2001
(U)	Engineering Support						12,328	0	0
(U)	Total						1,307	0	0
(U)							13,635		
(U)	B. Budget Acquisition History and Planning Information (\$ in Thousands)								
(U)	Performing Organizations:								
	<u>Contractor or</u>	<u>Contract</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
	<u>Government</u>	<u>or Funding</u>	<u>Vehicle</u>	<u>Date</u>	<u>Activity</u>	<u>Office</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>Complete</u>
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>Complete</u>
	<u>Product Development Organizations</u>	<u>SS/CPAF/PR</u>	<u>Oct 95</u>	<u>TBD</u>	<u>TBD</u>	<u>TBD</u>	<u>12,272</u>	<u>11,849</u>	<u>0</u>
	Lockheed Martin Mission Systems								
	<u>Support and Management Organizations</u>	<u>C/T&M</u>	<u>Various</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>888</u>	<u>647</u>	<u>0</u>
	TEMS								
	<u>Test and Evaluation Organizations</u>	<u>SS/CPAF</u>	<u>Oct 94</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>419</u>	<u>508</u>	<u>0</u>
	MITRE								
	<u>Test Support</u>	<u>Project Order</u>	<u>Various</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>56</u>	<u>45</u>	<u>0</u>
(U)	Government Furnished Property:								
	<u>Contract</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Total</u>
	<u>Item</u>	<u>or Funding</u>	<u>Date</u>	<u>Date</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Program</u>
	<u>Product Development Property</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Program</u>
	<u>Support and Management Property</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Program</u>
	<u>Test and Evaluation Property</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Program</u>

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT	
07 - Operational System Development		0207414F COMBAT INTELLIGENCE SYSTEM		674773	
	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget to Complete	Total Program
Subtotals					
Subtotal Product Development	11,849	12,272		0	24,121
Subtotal Support and Management	1,155	1,307		0	2,462
Subtotal Test and Evaluation	45	56		0	101
Total Project	13,049	13,635		0	26,684

Project 674773

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0207417F Airborne Warning and Control System (AWACS)								67411L	
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
67411L	Airborne Warning & Control System (AWACS)	31,669	36,178	35,653	31,969	99,370	95,799	132,942	Continuing	TBD	
Quantity of RDT&E Articles		0	0	0	0	0	0	0	0	0	

(U) **A. Mission Description**
Develops and integrates system improvements to 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.

The Block 30/35 upgrade includes Electronic Support Measures, Central Computer Memory Upgrade, Joint Tactical Information Distribution System (JTIDS) Class 2H/TADIL J and NAVSTAR Global Positioning System Integrated Navigation System. The Block 30/35 upgrade is a production program.

The Radar System Improvement Program (RSIP) will increase radar reliability and maintainability, improve E-3 surveillance capability against evolving threats posed by low radar cross section fighters and cruise missiles, improve electronic counter-countermeasures, and enhance man-machine interface for the Airborne Radar Technicians. RSIP is a production program.

Block 40/45 Risk Reduction performs research and analysis of selected high-risk areas to the next major AWACS Mission System Computers and Displays upgrade. This essential modernization will improve the sensor-to-shooter capability, improve Combat ID, and open the existing architecture to enable cheaper and faster upgrades. To ensure the warfighter requirements are met, these risk reduction studies include concept exploration to obtain Track Quality 7, modeling/simulation of the Block 40/45 architecture, designing a COTS technology insertion process, and reducing the total ownership cost. Other research efforts focus on design alternatives for data fusion with Multi-Source Integration and Data Link Infrastructure timing constraints.

The Command & Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) System Architecture Improvements (formerly Offensive Counter Air Upgrades/Systems Architecture Improvements) are concept exploration and program definition/risk reduction efforts that implement a spiral development process allowing continuous improvements and implementation of the C2ISR roadmap for the Airborne Early Warning & Control mission area. These efforts include AWACS augmentation with UAV surveillance sensors, AWACS weapon system integration with Integrated Command and Control System, development of and migration to Real-Time Defense Information Infrastructure Common Operating Environment, development and execution of Joint Expeditionary Force Experiment (JEFFX) initiatives to be demonstrated on AWACS during JEFFX live-fly experiments, rapid prototyping of 'plug and play' applications that provide significant situational awareness improvements to the Air Battle Manager in Offensive and Defensive Counter Air missions.

Periodic Depot Maintenance/Airframe (PDMMA) are modifications to the E-3 mission equipment and aircraft systems designed to keep the aircraft operational. The E-2/E-3 commonality effort focuses primarily on advanced receiver and processing technologies. This effort provides a forum to review all activities in the E-2 and E-3 AWACS programs and identify additional opportunities for technology and development exploitation.

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Exhibit R-2 (PE 0207417F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
07 - Operational System Development	0207417F Airborne Warning and Control System (AWACS)	67411L	

(U) **A. Mission Description Continued**
 Test System 3 (TS-3)/AWACS Development and Production Test (ADAPT) support includes maintenance and operations of the government-owned/contractor-operated test aircraft and associated laboratory facilities located at Boeing in Seattle, Washington.
 Cooperative Engagement Capability (CEC) funding in FY00 provides the initial design to integrate the Navy-developed CEC hardware with the AWACS mission system to support a Single Integrated Air Picture (SIAP) flight demonstration. This activity reduces the risk of a full development program to integrate and demonstrate the AWACS contribution to a tactical sensor network with CEC on AWACS.

(U) <u>FY 1999 (\$ in Thousands)</u>	
(U) \$6,451	C2ISR System Architecture Improvements
(U) \$6,946	E-2/E-3 Commonality
(U) \$3,958	JTIDS DLI
(U) \$14,314	ADAPT support and program sustaining efforts
(U) \$31,669	Total

(U) <u>FY 2000 (\$ in Thousands)</u>	
(U) \$6,900	C2ISR System Architecture Improvements
(U) \$7,796	Test System-3/ADAPT support and program sustaining efforts
(U) \$15,800	Cooperative Engagement Capability (CEC) on TS-3
(U) \$5,682	Block 40/45 Risk Reduction (result of Congressional transfer from AWACS procurement)
(U) \$36,178	Total

(U) <u>FY 2001 (\$ in Thousands)</u>	
(U) \$13,614	C2ISR System Architecture Improvements
(U) \$15,176	Test System-3/ADAPT support and program sustaining efforts
(U) \$6,863	Block 40/45 Risk Reduction
(U) \$35,653	Total

(U) **B. Budget Activity Justification**
 Operational Systems Development, Budget Activity 7. AWACS is a fielded, operational system currently undergoing major modifications/block upgrades and continuing sustainment activities.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)				DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT	
07 - Operational System Development		0207417F Airborne Warning and Control System (AWACS)		67411L	
(U)	<u>C. Program Change Summary (\$ in Thousands)</u>				Total Cost
(U)	Previous President's Budget (FY 2000 PBR)	FY 1999	FY 2000	FY 2001	TBD
(U)	Appropriated Value	33,173	33,393	49,170	
(U)	Adjustments to Appropriated Value	34,189	36,393		
	a. Congressional/General Reductions	-1,016	-16		
	b. Small Business Innovative Research	-1,286	-199		
	c. Omnibus or Other Above Threshold Reprogram	-41			
	d. Below Threshold Reprogram	-177			
	e. Rescissions				
	f. Other				TBD
(U)	Adjustments to Budget Years Since FY 2000 PBR			-13,517	
(U)	Current Budget Submit/FY 2001 PBR	31,669	36,178	35,653	TBD
(U)	<u>Significant Program Changes:</u>				
(U)	<u>D. Other Program Funding Summary (\$ in Thousands)</u>				Total Cost
		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete
(U)	AF RDT&E				
(U)	Other APPN				
(U)	Aircraft Procurement, AF, E-3 Mods	112,774	104,254	88,654	105,826
(U)	E-3 Initial Spares, AF	3,084	40,499	8,227	8,845
(U)	<u>E. Acquisition Strategy</u>				
	Block 30/35: The Electronic Support Measures (ESM) component of Block 30/35 is joint development program with NATO. The production contract utilizes a Fixed Price Incentive Fee (FPIF) plan with options to Boeing for ESM and other Block 30/35 Group A hardware. The contract with Lockheed for the CC-2E memory upgrade is a fixed price contract with follow-on options. JTIDS and Global Positioning System hardware is acquired via their respective program office-awarded contracts. The Radar System Improvement Program (RSIP) is a cooperative development program with NATO and the United Kingdom. Boeing is the prime integrating contractor; Northrop-Grumman is the subcontractor for radar component items. The RSIP production contract is Firm Fixed Price (FFP) with priced options through FY99 and is a				
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000	
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT
07 - Operational System Development		0207417F Airborne Warning and Control System		67411L
		(AWACS)		
(U) <u>E. Acquisition Strategy Continued</u> sole source to Boeing follow-on FY00 RSIP production contract. The PDMA acquisition strategy utilizes an approved contract structure that includes multiple contracts with multiple organizations with overlapping and continuous performance periods. The Program Office has the flexibility to quickly add specific PDMA tasks as funding is made available.				
(U)	<u>E. Schedule Profile</u>			
(U)	RSIP Trial Install Start			
(U)	RSIP Trial Install Complete			
(U)	RSIP IOC 3QTR FY00			
(U)	RSIP FOT&E Complete			
(U)	RSIP KIT DELIVERY (#1)			
(U)	RSIP KIT DELIVERY (#2)			
(U)	RSIP KIT DELIVERY (#3)			
(U)	RSIP KIT DELIVERY (#4)			
(U)	RSIP KIT DELIVERY (#5)			
(U)	RSIP KIT DELIVERY (#6)			
(U)	RSIP KIT DELIVERY (#7)			
(U)	RSIP KIT DELIVERIES (#8-9)			
(U)	RSIP KIT DELIVERIES (#10-12)			
(U)	RSIP KIT DELIVERY (#13)			
(U)	BLK 30/35 RAA/IOC			
(U)	LAST BLK 30/35 MOD INDUCTION			
(U)	BLK 30/35 FOC 3QTR FY01			
	* Denotes completed events			
	X Denotes planned events			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0207417F Airborne Warning and Control System								67411L	
		(AWACS)									
(U)	A. Project Cost Breakdown (\$ in Thousands)										
(U)	Contracts	FY 1999	FY 2000	FY 2001						FY 2001	
(U)	MITRE/TEMS	26,601	32,686							32,748	
(U)	Travel	4,343	2,429							2,200	
(U)	Other	412	763							405	
(U)	Total	313	300							300	
(U)		31,669	36,178							35,653	
(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 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	Product Development Organizations										
	(U) Boeing (RSIP)**	C/FPIF	9/89	415,900	400,417	325,672				0	325,672
	(U) Boeing (Block 40/45)	FPIF/CPAF	N/A	0	0	0	0	5,682	6,863	110,297	122,842
	(U) Boeing (Blk 30/35)**	SS/FPIF	5/87	N/A	N/A	291,667				0	291,667
	(U) Boeing (PDMA)	Multiple	N/A	N/A	N/A	58,149	0	0	0		58,149
	(U) Boeing (C2ISR Sys Arch	FPIF/CPAF	N/A	N/A	N/A	950	6,451	6,900	13,614	45,670	73,585
	Imp)										
	(U) Raytheon (E-2/E-3 Commonality)	Multiple	N/A	N/A	N/A	12,752	6,946			0	19,698
	(U) Raytheon (CEC)	CPAF	11/99	42,000	42,000	0		15,800	0	3,000	18,800
	* N/A based on PDMA Acquisition Strategy which includes multiple contracts with overlapping and continuing performance periods.										
	** Total Program does not include NATO funds.										
	Support and Management Organizations										
	(U)Support/TEMS	Multiple	N/A	N/A	N/A	557,271	5,068	3,492	2,905	Continuing	TBD
	MITRE, travel, other	contracts									

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Exhibit R-3 (PE 0207417F)

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	February 2000	PROJECT	67411L
BUDGET ACTIVITY		PE NUMBER AND TITLE											
07 - Operational System Development		0207417F Airborne Warning and Control System (AWACS)											
(U)	<u>Performing Organizations Continued:</u>												
	<u>Test and Evaluation Organizations</u>												
	(U) Test System-3 ADAPT	Multiple	N/A	N/A	N/A	47,987	13,204	4,304	12,271	Continuing	TBD		
	Contract / Other test activities												
	<u>Subtotals</u>												
	Subtotal Product Development					<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>		
						689,190	13,397	28,382	20,477	158,967	910,413	TBD	
	Subtotal Support and Management					557,271	5,068	3,492	2,905	TBD	TBD		
	Subtotal Test and Evaluation					47,987	13,204	4,304	12,271	TBD	TBD		
	Total Project					1,294,448	31,669	36,178	35,653	TBD	TBD		

Project 67411L

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE									
07 - Operational System Development		0207423F Advanced Communications Systems									
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
Total Program Element (PE) Cost		5,527	0	2,867	2,907	2,954	3,013	3,074	Continuing	TBD	
671013	Theater Deployable Communications (TDC)	1,964	0	2,649	2,907	2,954	3,013	3,074	Continuing	TBD	
672982	Anti-Jam Radio Communications	3,563	0	218	0	0	0	0	0	23,139	
Quantity of RDT&E Articles		0	0	0	0	0	0	0	0	0	
(U) A. Mission Description 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 ANTI-JAM RADIO COMMUNICATIONS (HAVE QUICK) UHF radios provide the primary Air Force and DOD UHF Electronic Counter-Countermeasures (ECCM) voice communications. SINGARS (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. 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 commercial off the shelf (COTS) equipment that support tactical air operations in a combat environment. This includes the integration of deployable communications equipment for active duty, guard and reserve forces. Equipment will be fielded at wings, combat communications squadrons, Air Force Special Operations Command and Air Mobility Command communication units, and Theater Air Control System units. This funding also provides Systems Program Office (SPO) internal management, engineering and technical support for the continuing spiral development of (COTS) equipment and will examine appropriate emerging technologies. TDC equipment is composed of three components Lightweight Multi band Satellite Terminal (LMSTs), the Integrated Communications Access Packages (ICAP), and Network Management System/Base Information Protection (NMS/BIP). Together these three systems provide communications infrastructure in deployed bare base environments. FY99 funding was provided for EFX99 it is part of an annual war fighter experiment to demonstrate emerging Air Force capabilities to deploy and employ decisive air and space power for the Joint Force Commander through a Rapid Response Air Expeditionary Force (RAEF). The experiment is designed to meet Chief of Staff of the Air Force (CSAF) requirement to explore how advanced command and control capabilities and new operational processes enable modern aerospace forces to decisively halt an invading force anywhere in the world. It is a continuous spiral development process for the C2 Weapon System.											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)						DATE
BUDGET ACTIVITY		PE NUMBER AND TITLE				
07 - Operational System Development		0207423F Advanced Communications Systems				February 2000
(U)	B. Budget Activity Justification					
	This program is in budget activity 7, Operational System Development RDT&E, AF because it examines appropriate emerging technologies for the continuing spiral development of commercial off-the-shelf (COTS) equipment; provide software development; provides support for the fielded HAVE QUICK family of radios; and determines and resolves integration issues pertaining to COTS equipment					
(U)	C. Program Change Summary (\$ in Thousands)	FY 1999	FY 2000	FY 2001	Total Cost	
(U)	Previous President's Budget (FY 2000 PBR)	2,348	2,864	2,892	TBD	
(U)	Appropriated Value	2,348	0			
(U)	Adjustments to Appropriated Value	-172	0			
	a. Congressional/General Reductions	-67	0			
	b. Small Business Innovative Research					
	c. Omnibus or Other Above Threshold Reprogram	3,449	0			
	d. Below Threshold Reprogram	-31				
	e. Rescissions					
	f. Other					
(U)	Adjustments to Budget Years Since FY 2000 PBR			-25		
(U)	Current Budget Submit/FY 2001 PBR	5,527	0	2,867		
(U)	Significant Program Changes:					
	FY99: Funds reprogrammed by SAF/AQI to support EFX initiatives within PE 672982 ANTI-JAM					

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0207423F Advanced Communications Systems								671013	
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
671013	Theater Deployable Communications (TDC)	1,964	0	2,649	2,907	2,954	3,013	3,074	Continuing	TBD	
(U)	A. Mission Description As clearly demonstrated during Desert Shield/Desert Storm (DS/DS), 70'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. The Theater Deployable Communications (TDC) program emphasizes COTS equipment to augment existing assets or replace tactical communications packages. The resulting TDC packages have reduced airlift requirements and is designed to support a wide range of operational scenarios during deployment/employment, expansion and sustaining operations. Combat communications units equipped with TDC Integrated Communication Access Packages (ICAP) and Lightweight Multiband Satellite Terminals (LMST) were deployed to Bosnia and Kosovo in support of theater air operations and deployed tactical air and mobility wings. LMST provided the reach back from the forward battle area back to the National Command Center and backbone theater communications required to operate in an austere environment to expedite dissemination of critical war fighter information. Required interoperability testing is provided by Ft. Hauchua, AZ. TDC performance during these operations exceeded Air Force and CINC expectations.										
(U)	FY 1999 (\$ in Thousands) Continue communications architecture planning \$299 Continue development of automation tools \$491 Continue interoperability and integration activities \$885 Continue production improvement and interface development \$289 Total \$1,964										
(U)	FY 2000 (\$ in Thousands) No Activity \$0 Total \$0										
(U)	FY 2001 (\$ in Thousands) Prepare TDC roadmap and acquisition 'way ahead' \$680 Continue field interoperability and integration activities \$1,857 Program Management Activity (travel, supplies, etc) \$112 Total \$2,649										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									
BUDGET ACTIVITY					DATE		PROJECT		
07 - Operational System Development					0207423F Advanced Communications Systems		February 2000 671013		
PE NUMBER AND TITLE									
0207423F Advanced Communications Systems									
(U)	<u>B. Project Change Summary</u>								
(U)	<u>C. Other Program Funding Summary (\$ in Thousands)</u>								
		FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Total Cost
		Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Cost to Complete
(U)	AF RDT&E								
(U)	Other APPN								
(U)	Other Procurement AF, Budget Activity 3, PE 0207423F	36,322	66,060	90,168	77,961	126,778	158,978	121,463	Continuing
(U)	O&M PE 0207422/0208010F	2,926	5,864	8,439	5,255	5,349	15,246	15,278	Continuing
(U)	Other Procurement AF, Budget Activity 5, Weapon System Code 86190A, PE 0207423F	1,888	1,891	3,048	98	97	99	101	Continuing
(U)	TBD								
(U)	<u>D. Acquisition Strategy</u>								
	There are three Firm Fixed Price (FFP) contracts for Theater Deployable Communications (TDC): Lightweight Multiband Satellite Terminals (LMST), the Integrated Communication Access Package (ICAP) and Network Management System/Base Information Protection (NMS/BIP). The TDC contracts were awarded after full and open competitions. (When restricted technologies are involved, foreign competition is not allowed.)								
(U)	<u>E. Schedule Profile</u>								
		FY 1999			FY 2000		FY 2001		
		1	2	3	4	1	2	3	4
(U)	ICAP Production Option exercise	*							
(U)	ICAP Training Option exercise								
(U)	Y2K Compliance		*						
(U)	Acquisition Milestones (MS III ICAP)					*			
(U)	Production LMST Deliveries Start								
(U)	NMS/BIP Deliveries continuing					*			
	* denotes completed event								X
	X denotes planned event								
Project 671013									
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	February 2000	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE				
07 - Operational System Development		0207423F Advanced Communications Systems		671013		
(U)	A. Project Cost Breakdown (\$ in Thousands)					
	Software Support			FY 1999	FY 2000	FY 2001
(U)	Engineering Support			713	0	802
(U)	Integration Activities			306	0	626
(U)	Travel			880	0	1,109
(U)	Miscellaneous			55	0	100
(U)	Total			10	0	12
				1,964	0	2,649
(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 Program
	Product Development Organizations					
	Various					
	Support and Management Organizations					
	MITRE	FFP	OCT 97	TBD	TBD	TBD
	In house contractor spt	FFP	Varies	TBD	977 Continuing	TBD
	Test and Evaluation Organizations				859 Continuing	TBD
	Subtotals					
	Subtotal Product Development			Budget FY 1999	Budget FY 2000	Total Program
	Subtotal Support and Management			610	0	TBD
	Subtotal Test and Evaluation			1,354	0	TBD
	Total Project			10,341	0	TBD
				1,964	2,649	TBD
Project 671013				Exhibit R-3 (PE 0207423F)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE		February 2000					
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT					
07 - Operational System Development		0207423F Advanced Communications Systems		672982					
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
672982 Anti-Jam Radio Communications	3,563	0	218	0	0	0	0	0	23,139
(U) A. Mission Description The fast paced development of emerging communication technologies by potentially hostile nations dictates that the U.S. maintains a technological lead. Ultra high frequency (UHF) and Very High Frequency (VHF) frequency hopping voice and data radios are needed for jam resistant communications between tactical aircraft and airborne and ground control elements. The HAVE QUICK waveform used in these radios is a 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. The SINGGARS (Single Channel Ground and Airborne Radio System) waveform provides anti-jam, very high frequency (VHF) hopping voice and data communications and is the primary mode of ECCM communications between the Air Force, Army, and USMC. It is utilized during Close Air Support (CAS) for maneuver units and joint battlefield operations. (U) <u>FY 1999 (\$ in Thousands)</u> (U) \$96 Continue to investigate improvements in anti-jam performance and other anti-jam techniques (U) \$117 Continue to investigate decrease in air traffic control channel bandwidth and modulation techniques (U) \$3,350 EFX 99' (U) \$3,563 Total (U) <u>FY 2000 (\$ in Thousands)</u> (U) \$0 No Activity (U) \$0 Total (U) <u>FY 2001 (\$ in Thousands)</u> (U) \$98 Software updates for resolution of GPS incompatibility (i.e. F-16, E-3, and A-10) (U) \$10 Required printing and reproduction of the HAVE QUICK updated technical orders for GPS (U) \$50 Support fielding of AN/ARC-222 and AFKDMs (U) \$10 PMA (U) \$50 Work with users to improve supportability for AN/ARC-164, AN/ARC-222 and AN/ARC-204 units (U) \$218 Total (U) B. Project Change Summary FY00 zeroed out by Congress (Consolidation and Elimination of Small Programs)									

Project 672982

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE				PROJECT					
07 - Operational System Development		0207423F Advanced Communications Systems				672982					
(U)	A. Project Cost Breakdown (\$ in Thousands)										
(U)	Software Support	FY 1999	FY 2000	FY 2001							
(U)	Engineering Support	32	0	98							
(U)	Evaluation Analysis	30	0	80							
(U)	Test and Evaluation	40	0	20							
(U)	PMA	15	0	0							
(U)	Unreleased budget	30	0	10							
(U)	EFX 99'	12	0	0							
(U)	Miscellaneous	3,370	0	0							
(U)	Total	34	0	10							
(U)		3,563	0	218							
(U)	B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U)	Performing Organizations:										
	Contractor or Government	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	Project Office	Budget FY 1999	Total Prior to FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	
	Product Development Organizations										
	Joint Spectrum Center					4				4	
	Support and Management Organizations										
	Warner Robins ALC										
	ESC					66			48	48	
	MITRE	FFP	OCT 97	TBD	TBD	70	353	0	10	76	
	ITSP/ITEMS	FFP	Varies			41	19,005	0	0	423	
	Test and Evaluation Organizations									19,206	
	AFOTEC	N/A									
	EFX 99'					3,382				3,382	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	February 2000	
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT		
07 - Operational System Development		0207423F Advanced Communications Systems		672982		
	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
Subtotals		4				4
Subtotal Product Development	19,358	177	0	218	0	19,753
Subtotal Support and Management		3,382				3,382
Subtotal Test and Evaluation		3,563	0	218	0	23,139
Total Project	19,358					
EFX 99 funding reflected in Budget FY 1999 as Subtotal Test and Evaluation						

Project 672982

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PE NUMBER: 0207438F

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PE TITLE: Theater Battle Management (TBM) C4I

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE									
07 - Operational System Development		0207438F Theater Battle Management (TBM) C4I									
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost		
Total Program Element (PE) Cost	48,325	46,406	41,068	32,388	30,119	30,721	31,331	Continuing	TBD		
673330 Cmd Cntrl Info Process Sys (C2IPS)	9,933	11,644	9,274	2,195	2,314	0	0	0	55,654		
674287 Contingency Theater Automated Planning System (CTAPS)	34,545	0	0	0	0	0	0	0	104,634		
674288 Wing C2 System (WCCS)	3,847	0	0	0	0	0	0	0	19,975		
674790 Theater Battle Management Core System (TBMCS)	0	25,799	20,258	17,968	17,526	20,236	20,638	Continuing	TBD		
674802 Deliberate and Crisis Action Planning and Execution Segment (DCAPES)	0	8,963	11,536	12,225	10,279	10,485	10,693	Continuing	TBD		
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note: Starting in FY00 the RDT&E funding for CTAPS (project 4287), WCCS (project 4288), and Combat Intelligence System (CIS) (PE 27414F, project 4773) will be combined in PE 27438F under project 4790, TBMCS. CTAPS, WCCS and CIS will be integrated in a single Defense Information Infrastructure Common Operating Environment (DII COE) compliant system and will be managed as a single project with the fielding of TBMCS 1.0 in FY00. DCAPES was previously funded in FY99 under PE 33150F.

(U) A. Mission Description
TBM C4I develops force-level and wing-level command, control, and intelligence systems which utilize DoD's 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 Forces Air Component Commander (JFACC), including generation and dissemination of the air tasking order (ATO). Projects included in this program are Command & Control Information Processing System (C2IPS), Contingency Theater Automated Planning System (CTAPS), Wing Command & Control System (WCCS), Theater Battle Management Core Systems (TBMCS), and Deliberate and Crisis Action Planning and Execution Segment (DCAPES).

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Exhibit R-2 (PE 0207438F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE	
07 - Operational System Development		0207438F Theater Battle Management (TBM) C4I	
(U)	B. Budget Activity Justification The TBMCS effort is post Milestone III effort, and is in Budget Activity 7, Operational Systems Development because it incrementally upgrades and develops capabilities for currently operational systems.		
(U)	C. Program Change Summary (\$ in Thousands)		
(U)	Previous President's Budget (FY 2000 PBR)	FY 1999	FY 2000
(U)	Appropriated Value	30,254	43,727
(U)	Adjustments to Appropriated Value	30,792	46,727
	a. Congressional/General Reductions	-538	-130
	b. Small Business Innovative Research	-857	
	c. Omnibus or Other Above Threshold Reprogram	14,228	-191
	d. Below Threshold Reprogram	4,971	
	e. Rescissions		
	f. Other	-271	
(U)	Adjustments to Budget Years Since FY 2000 PBR		-365
(U)	Current Budget Submit/FY 2001 PBR	48,325	46,406
(U)	Significant Program Changes: FY99: \$.2475M of the below threshold reprogramming action was for EFX'99 initiative where TBMCS is the CORE Operating System. \$.806M of the BTR was to mitigate TBMCS contract cost overruns. The \$14.228M ATR was for Y2K conversion activities.		
			Total Cost
			TBD
			TBD

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Exhibit R-2 (PE 0207438F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0207438F Theater Battle Management (TBM) C4I								673330	
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
673330	Cmd Cntrl Info Process Sys (C2IPS)	9,933	11,644	9,274	2,195	2,314	0	0	0	55,654	
(U)	A. Mission Description										
	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.										
(U)	<u>FY 1999 (\$ in Thousands)</u>										
(U)	\$5,535	Completed C/S software and evaluation (3A/3B/3C)									
(U)	\$4,198	Continued increment 4 (Detailed Planning & Scheduling for integration of AMC Aircraft Schedules)									
(U)	\$200	Started requirements planning for client server architecture									
(U)	\$9,933	Total									
(U)	<u>FY 2000 (\$ in Thousands)</u>										
(U)	\$9,532	Continue Increment 4 (Detailed Planning & Scheduling for integration of AMC Aircraft Schedules)									
(U)	\$1,912	Start next level DII/COE integration									
(U)	\$200	Continue requirements planning for future C2IPS architecture migration									
(U)	\$11,644	Total									
(U)	<u>FY 2001 (\$ in Thousands)</u>										
(U)	\$7,175	Continue Increment 4 (Detailed Planning & Scheduling for integration of AMC aircraft schedules)									
(U)	\$1,900	Continue higher level integration of C2IPS in DII/COE									
(U)	\$199	Continue requirements planning for future C2IPS architecture migration									
(U)	\$9,274	Total									
(U)	B. Project Change Summary										
	N/A										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									
BUDGET ACTIVITY		PE NUMBER AND TITLE		DATE		February 2000			
07 - Operational System Development		0207438F Theater Battle Management (TBM) C4I		PROJECT		673330			
(U)	C. Other Program Funding Summary (\$ in Thousands)								
	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
(U)	AF RDT&E								
(U)	Other APPN								
(U)	D. Acquisition Strategy								
The C2IPS will be developed and installed in four increments. A spiral development process is used to produce consecutive software releases within each increment. The first three increments were developed under contract with Computer Sciences Corporation. 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 continues the evolutionary acquisition process, using modular development through government wide agency contracts. It also lays the foundation for the migration strategy that will enhance interoperability of C2IPS with TBMCs and achieve required DII/COE integration.									
(U)	E. Schedule Profile								
		FY 1999	FY 2000	FY 2001					
(U)	Increment 3 Completion Dates	1	2	3	4	1	4	1	4
(U)	Spiral A (Rel 3A)	*							
(U)	Spiral B (Rel 3B Comm Proc)	*							
(U)	Spiral C (Rel 3C Data Partitioning)		*						
(U)	Increment 4 Completion Dates								
(U)	Spiral A (Planning & Sched)								
(U)	Spiral B (Plan & Sched, DII/COE)						X		
(U)									X
Note: * Denotes Completed Event; X Denotes Planned Event									
Project 673330		Page 4 of 20 Pages		1160		Exhibit R-2A (PE 0207438F)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)									
BUDGET ACTIVITY					DATE		PROJECT		
07 - Operational System Development					February 2000		673330		
PE NUMBER AND TITLE					0207438F Theater Battle Management (TBM) C4I				
(U)	A. Project Cost Breakdown (\$ in Thousands)				FY 1999	FY 2000	FY 2001		
(U)	Major Product Development Contracts				7,281	9,100	7,424		
(U)	Support Contracts				2,161	2,013	1,657		
(U)	Program Management Support				491	531	193		
(U)	Total				9,933	11,644	9,274		
(U)	B. Budget Acquisition History and Planning Information (\$ in Thousands)								
(U)	Performing Organizations:								
	Contractor or Government	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001
	Performing Activity	Vehicle							
	Product Development Organizations								
	CSC	FPIF	Dec 88	TBD	TBD	13,847	3,904	1,271	1,724
	Unisys	IDIQ	Dec 98	TBD	TBD	0	3,377	7,829	0
	Support and Management Organizations								
	MITRE	T&M	Oct 94	N/A	N/A	4,533	1,487	1,178	1,658
	TEMS/ITSP	Various	Various	N/A	N/A	966	674	835	725
	ESC (government organization)	n/a	n/a	N/A	N/A	1,048	491	531	302
	Test and Evaluation Organizations								
	N/A								
	Subtotals					Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001
	Subtotal Product Development					13,847	7,281	9,100	7,424
	Subtotal Support and Management					6,547	2,652	2,544	1,850
	Subtotal Test and Evaluation								2,685
	Total Project					20,394	9,933	11,644	4,409
									55,654
Project 673330					Page 5 of 20 Pages				
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0207438F Theater Battle Management (TBM) C4I								674287	
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
674287	Contingency Theater Automated Planning System (CTAPS)	34,545	0	0	0	0	0	0	0	104,634	
Note: With the fielding of TBMCS 1.0.1 in FY00, CTAPS functionality will be integrated in TBMCS and further evolution of this functionality will be managed under project 4790, TBMCS.											
(U) A. Mission Description 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.											
(U)	FY 1999 (\$ in Thousands)										
(U)	\$27,033	Continued TBMCS software version 1.0.1 development.									
(U)	\$2,722	Continued TBMCS v1.1 development.									
(U)	\$1,100	Completed development of new ATO format.									
(U)	\$1,425	System engineering and support.									
(U)	\$2,265	Expeditionary Force Experiment									
(U)	\$34,545	Total									
(U)	FY 2000 (\$ in Thousands)										
(U)	\$0	No further funding in this project. Further evolution of this functionality continues under project 4790, TBMCS.									
(U)	\$0	Total									
(U)	FY 2001 (\$ in Thousands)										
(U)	\$0	No further funding in this project. Further evolution of this functionality continues under project 4790, TBMCS.									
(U)	\$0	Total									
(U)	B. Project Change Summary										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE		February 2000	
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT			
07 - Operational System Development		0207438F Theater Battle Management (TBM) C4I								674287			
(U)	C. Other Program Funding Summary (\$ in Thousands)	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to	Total Cost			
	Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete				
(U)	AF RDT&E												
(U)	Other APPN												
	See Other Program Funding Summary under project 4790, TBMCS. The summary under 4790 includes other program funding for CTAPS and WCCS in FY99 to provide a consolidated view of other program funding associated with the TBMCS program.												
(U)	D. Acquisition Strategy												
	Electronic Systems Center (ESC), Hanscom AFB, MA manages the TBMCS program, including CTAPS. Lockheed-Martin Mission Systems (LMMS) was competitively selected after full and open competition. They were awarded a cost plus award fee contract to develop improved capabilities in support of effective Theater Battle Management and to integrate existing capabilities in the DII Common Operating Environment. The program uses an evolutionary acquisition strategy with a series of incremental software releases. This approach accommodates refinement and prioritization of user requirements and improves adaptability to improvements in commercial technology.												
(U)	E. Schedule Profile												
		FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005					
		1	2	3	4	1	2	3	4				
(U)	TBMCS software Version 1.0.1												
(U)	In-Plant Test												
(U)	Version 1.0.1 Release												
(U)	TBMCS software Version 1.1												
(U)	In-Plant Test												
(U)	Version 1.1 Release												
	Note: * Denotes Completed Event; X Denotes Planned Event												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT		674287	
07 - Operational System Development		0207438F Theater Battle Management (TBM) C4I					
(U)	<u>A. Project Cost Breakdown (\$ in Thousands)</u>						
	System Integration and Development					FY 1999	FY 2000
(U)	System Engineering and Support					33,120	0
(U)	Total					1,425	0
						34,545	0
(U)	<u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>						
(U)	<u>Performing Organizations:</u>						
	<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 1999</u>	<u>Budget FY 1999</u>
	<u>Product Development Organizations</u>						
	LMMS	CPAF	Oct 95	TBD	TBD	31,307	31,946
	SAIC (S/W INT) Hampton VA	CPFF	Mar 94	N/A	N/A	11,085	
	SAIC (ASOC/BSD) Hampton VA, Anchorage AK	CPFF	Feb 94	N/A	N/A	3,759	
	PARAMAX (APS) St Paul MN	CPFF	Mar 94	N/A	N/A	1,207	
	INEL (ASOC) Idaho Falls ID	CPFF	Oct 94	N/A	N/A	2,043	
	Logicon, Inc San Pedro, CA	CPFF	Jun 94	N/A	N/A	6,160	1,100
	Miscellaneous	Various	Various	N/A	N/A	410	
	<u>Support and Management Organizations</u>						
	MITRE	CPAF	Oct 94	N/A	N/A	6,948	502
	TEMS	T&M	Various	N/A	N/A	3,910	923
	Miscellaneous	Various	Various	N/A	N/A	2,978	
	<u>Test and Evaluation Organizations</u>						
	46 TS	Project Order	Various	N/A	N/A	205	74
	JTIC	MIPR	Various	N/A	N/A	77	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE		February 2000	
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT			
07 - Operational System Development		0207438F Theater Battle Management (TBM) C4I		674287			
		Total Prior	Budget	Budget	Budget	Budget to	Total
		to FY 1999	FY 1999	FY 2000	FY 2001	Complete	Program
Subtotals							
Subtotal Product Development		55,971	33,046			0	89,017
Subtotal Support and Management		13,836	1,425			0	15,261
Subtotal Test and Evaluation		282	74			0	356
Total Project		70,089	34,545			0	104,634

Project 674287

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Exhibit R-3 (PE 0207438F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0207438F Theater Battle Management (TBM) C4I								674288	
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
674288	Wing C2 System (WCCS)	3,847	0	0	0	0	0	0	0	19,975	
Note: With the fielding of TBMCS 1.0.1 in FY00, WCCS functionality will be integrated in TBMCS and further evolution of this functionality will be managed under project 4790, TBMCS (U) A. Mission Description 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. At many wings not yet upgraded with WCCS this information is still 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 project designs, develops, and installs an automated, standard wing-level C2 system that will be tailored to meet unique organizational requirements, provide interoperability, and reduce training and maintenance costs. (U) <u>FY 1999 (\$ in Thousands)</u> (U) \$2,922 Continued TBMCS software version 1.0 development. (U) \$299 Continued TBMCS v1.1 development. (U) \$626 Systems engineering and support. (U) \$3,847 Total (U) <u>FY 2000 (\$ in Thousands)</u> (U) \$0 No further funding in this project. Further evolution of this functionality continues under project 4790, TBMCS. (U) \$0 Total (U) <u>FY 2001 (\$ in Thousands)</u> (U) \$0 No further funding in this project. Further evolution of this functionality continues under project 4790, TBMCS. (U) \$0 Total Project 674288											

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0207438F Theater Battle Management (TBM) C4I								674288	
(U)	<u>B. Project Change Summary</u>										
(U)	<u>C. Other Program Funding Summary (\$ in Thousands)</u>										
		FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to	Total Cost	
		Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete		
(U)	AF RDT&E										
(U)	Other APPN										
	See Other Program Funding Summary under project 4790, TBMCS. The summary under 4790 includes other program funding for CTAPS and WCCS in FY99 to provide a consolidated view of other program funding associated with the TBMCS program.										
(U)	<u>D. Acquisition Strategy</u>										
	Electronic Systems Center (ESC), Hanscom AFB, MA manages the TBMCS program, including WCCS. Lockheed-Martin Mission Systems (LMMS) was competitively selected after full and open competition. They were awarded a cost plus award fee contract to develop improved capabilities in support of effective Theater Battle Management and to integrate existing capabilities in the DII Common Operating Environment. The program uses an evolutionary acquisition strategy with a series of incremental software releases. This approach accommodates refinement and prioritization of user requirements and improves adaptability to improvements in commercial technology.										
(U)	<u>E. Schedule Profile</u>										
		FY 1999			FY 2000			FY 2001			
		1	2	3	1	2	3	1	2	3	
(U)	TBMCS software Version 1.0.1										
(U)	In-Plant Test										
(U)	Version 1.0.1 Release					X					
(U)	TBMCS software Version 1.1										
(U)	In-Plant Test										
(U)	Version 1.1 Release								X	X	
	Note: * Denotes Completed Event; X Denotes Planned Event										

Project 674288

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Exhibit R-2A (PE 0207438F)

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)									
BUDGET ACTIVITY		PE NUMBER AND TITLE				DATE		PROJECT	
07 - Operational System Development		0207438F Theater Battle Management (TBM) C4I				February 2000		674288	
(U)	A. Project Cost Breakdown (\$ in Thousands)								
(U)	System Integration and Development						FY 1999	FY 2000	FY 2001
(U)	Systems Engineering and Support						3,221	0	0
(U)	Total						626	0	0
(U)							3,847	0	0
(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 1999	Budget FY 1999	Budget FY 2000	Budget to Complete
	Product Development Organizations								
	LMMS	CPAF	Oct 95	TBD	TBD	8,300	3,221		0
	SAIC	CPFF	Jan 94	N/A	N/A	5,000			0
	Support and Management Organizations								
	MITRE	CPAF	Oct 94	N/A	N/A	1,106	215		0
	TEMS & Misc	Various	Various	N/A	N/A	1,594	411		0
	Test and Evaluation Organizations								
	N/A								
(U)	Government Furnished Property:								
	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date			Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget to Complete
	Product Development Property								
	Local Purchase	Various	Various	Various		128			0
	Support and Management Property								
	N/A								
Project 674288		Page 12 of 20 Pages				Exhibit R-3 (PE 0207438F)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					
BUDGET ACTIVITY	PE NUMBER AND TITLE	DATE	February 2000 PROJECT		
	07 - Operational System Development	0207438F Theater Battle Management (TBM) C4I	674288		
(U) Government Furnished Property Continued:					
Test and Evaluation Property					
N/A					
Subtotals					Total
Subtotal Product Development	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget to Complete	Program
Subtotal Support and Management	13,428	3,221		0	16,649
Subtotal Test and Evaluation	2,700	626		0	3,326
Total Project	16,128	3,847		0	19,975

Project 674288
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Exhibit R-3 (PE 0207438F)

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Exhibit R-3 (PE 0207438F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0207438F Theater Battle Management (TBM) C4I								674790	
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
674790	Theater Battle Management Core System (TBMCS)	0	25,799	20,258	17,968	17,526	20,236	20,638	Continuing	TBD	
Note: Starting in FY00 the RDT&E funding for CTAPS (4287), WCCS (4288), and CIS (27414F, 4773) will be combined in PE 27438F under project 4790, TBMCS. CTAPS, WCCS and CIS will be integrated in a single DII/COE compliant system and will be managed as a single project with the fielding of TBMCS 1.0.1 in FY00. NATO R&D funding was also transferred to this project in FY00 and FY 01.											
(U) A. Mission Description											
The Theater Battle Management Core Systems (TBMCS) develops force-level and wing-level command, control, and intelligence systems which utilize DoD's Defense Information Infrastructure (DII) common operating environment (COE). It links planning, intelligence and operations functions in an integrated battle management system for planning and executing the air war at the theater level. Functions supported include generation and dissemination of the air tasking order in support of the Joint Forces Air Component Commander (JFACC). Projects being integrated in TBMCS include the Contingency Theater Automated Planning System (CTAPS), Wing Command & Control System (WCCS), and Combat Intelligence System (CIS). Funds were added in FY00 and FY01 for NATO R&D to collectively enhance interoperability between the emerging NATO Air Command and Control System (ACCS) and TBMCS, and to share relevant research.											
(U) FY 1999 (\$ in Thousands)											
(U)	\$0	Funds were reflected under CTAPS (4287), WCCS (4288), and CIS (PE 27414F, 4773)									
(U)	\$0	Total									
(U) FY 2000 (\$ in Thousands)											
(U)	\$4,700	TBMCS software version 1.0.2 development.									
(U)	\$15,559	Continue TBMCS software version 1.1 development.									
(U)	\$2,240	Start TBMCS software version 2.0 development									
(U)	\$1,000	NATO R&D									
(U)	\$2,300	System Engineering									
(U)	\$25,799	Total									
(U) FY 2001 (\$ in Thousands)											
(U)	\$10,292	Complete TBMCS software version 1.1 development									
(U)	\$6,166	Continue TBMCS software version 2.0 development									
(U)	\$1,500	NATO R&D									
(U)	\$2,300	System Engineering									
Project 674790											
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										Exhibit R-2A (PE 0207438F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									
BUDGET ACTIVITY		PE NUMBER AND TITLE		DATE		February 2000			
07 - Operational System Development		0207438F Theater Battle Management (TBM) C4I				PROJECT			
						674790			
(U)	A. Mission Description Continued								
(U)	FY 2001 (\$ in Thousands) Continued								
(U)	\$20,258 Total								
(U)	B. Project Change Summary								
(U)	C. Other Program Funding Summary (\$ in Thousands)								
		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete
(U)	AF RDT&E								Total Cost
(U)	Other APPN	0	17,648						17,648
(U)	Other Procurement, AF, PE 27438F, WSC 832010								
(U)	Other Procurement, AF, PE 27438F, WSC 834520	79,882	47,150	51,844	55,600	54,704	55,880	56,896	Continuing
(U)	RDT&E, AF PE 0207414F, CIS	13,635	0	0	0	0	0	0	0
(U)	Other Procurement, AF, PE 0207414F, WSC 832010, Intelligence Data Handling System, Combat Intelligence System portion	12,439	0	0	0	0	0	0	0
(U)	Other Procurement, AF, PE 0207431F, WSC 832010, Intelligence Data Handling System, Combat Intelligence System portion	2,858	4,650	0	0	0	0	0	Continuing
Note: This summary includes other program funding associated with CTAPS, WCCS, and CIS in FY99 to provide a consolidated view of other program funding associated with the TBMCS program. Please note, the other program funds associated with PEs 0207414F and 0207431F in FY99 are reported both here and as other program funds under the descriptive summary for PE 0207414F, Combat Intelligence System.									
Project 674790		Page 15 of 20 Pages		Exhibit R-2A (PE 0207438F)					

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

February 2000

PE NUMBER AND TITLE

0207438F Theater Battle Management (TBM) C4I 674790

Electronic Systems Center (ESC), Hanscom AFB, MA manages the TBMCS program. Lockheed-Martin Mission Systems (LMMS) was competitively selected after full and open competition. They were awarded a cost plus award fee contract to develop improved capabilities in support of effective Theater Battle Management and to integrate existing capabilities in the DII Common Operating Environment. The program uses an evolutionary acquisition strategy with a series of incremental software releases. This approach accommodates refinement and prioritization of user requirements and improves adaptability to improvements in commercial technology.

	FY 1999				FY 2000				FY 2001			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) TBMCS software version 1.0.1												
(U) In-Plant Test				*								
(U) Version 1.0.1 Release						X						
(U) TBMCS software version 1.0.2												
(U) In-Plant Test								X				
(U) Version 1.0.2 Release									X			
(U) TBMCS software version 1.1												
(U) In-Plant Test										X		
(U) Version 1.1 Release												X

Note: * Denotes Completed Event; X Denotes Planned Event

Exhibit R-2A (PE 0207438F)

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)									
BUDGET ACTIVITY					DATE		PROJECT		
07 - Operational System Development					0207438F Theater Battle Management (TBM) C4I		February 2000 674790		
PE NUMBER AND TITLE									
FY 1999									
FY 2000									
(U)	A. Project Cost Breakdown (\$ in Thousands)								
(U)	System Integration and Development								
(U)	System Engineering and Support								
(U)	Total								
(U)	B. Budget Acquisition History and Planning Information (\$ in Thousands)								
(U)	Performing Organizations:								
	Contractor or Government	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	Project Office	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget to Complete
	Product Development Organizations								
	LMMS	CPAF	Oct 95	TBD	TBD			23,369	17,828
	Support and Management Organizations							2,300	2,300
	MITRE	CPAF	Oct 94	N/A	N/A				2,300
	Test and Evaluation Organizations								
	46TS	Project Order	Various	N/A	N/A			130	130
	Subtotals					Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget to Complete
	Subtotal Product Development							23,369	17,828
	Subtotal Support and Management							2,300	2,300
	Subtotal Test and Evaluation							130	130
	Total Project							25,799	20,258

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0207438F Theater Battle Management (TBM) C4I								674802	
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
674802	Deliberate and Crisis Action Planning and Execution Segment (DCAPES)	0	8,963	11,536	12,225	10,279	10,485	10,693	Continuing	TBD	
DCAPES funding in FY99 was under PE 33150F, project 4667.											
(U) <u>A. Mission Description</u>											
Deliberate and Crisis Action Planning and Execution Segments (DCAPES) are being developed as the next generation AF interface to the Joint Operational Planning and Execution System (JOPES). This effort is an evolutionary follow on to the Contingency Operations Mobility Planning and Execution System (COMPES), which is currently the Air Force interface to JOPES. COMPES is the legacy system ported from WWMCCS to GCCS in 1996 as a stop gap measure. DCAPES will replace the functionality of COMPES with modern relational databases, integrated-distributed database, and common and shared data consistent with the Joint vision for integrated C2. DCAPES is intended to be more tightly coupled with the range of planning support systems to provide a more effective crisis action planning capability for a wider range of operational scenarios. DCAPES provides a real time, two way interchange of manpower, logistics, and operational data between the Air Force and the warfighting CINCs. It matches people and airframes/weapons to the CINCs's warfighting requirements.											
(U)	FY 1999 (\$ in Thousands)										
(U)	\$0	No activity (FY99 funding reflected in PE 0303150F)									
(U)	\$0	Total									
(U)	FY 2000 (\$ in Thousands)										
(U)	\$5,512	DCAPES Increment 1 development, prototyping, coding, and internal testing									
(U)	\$500	Government deployment and test support									
(U)	\$500	DCAPES Increment 2 requirements definition									
(U)	\$2,451	DCAPES Increment 2 development, requirements allocation, prototyping, and coding									
(U)	\$8,963	Total									
(U)	FY 2001 (\$ in Thousands)										
(U)	\$10,637	DCAPES Increment 2 development, prototyping, coding, and testing									
(U)	\$500	Government development testing and integration and interoperability testing									
(U)	\$399	DCAPES Increment 3 requirements definition									
(U)	\$11,536	Total									
Project 674802		Page 18 of 20 Pages								Exhibit R-2A (PE 0207438F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0207438F Theater Battle Management (TBM) C4I								674802	
(U)	B. Project Change Summary										
	All funding in project 4802, DCAPES was reported in FY99 under PE 33150F, project 4667. It was transferred to group it with other TBM C4I software development efforts intended to operate in the Defense Information Infrastructure Common Operating Environment.										
(U)	C. Other Program Funding Summary (\$ in Thousands)										
		FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to	Total Cost	
		Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete		
(U)	AF RDT&E									9,122	
(U)	Other APPN										
(U)	PE 33150 (RDT&E, 4667, Global Command and Control System - AF)	9,122									
(U)	D. Acquisition Strategy										
	DCAPES will be managed by Electronic Systems Center, Hanscom AFB, MA. In July 98, the DCAPES contract was awarded to the Raytheon, Computer Sciences Corporation, and Science Applications International team under Command and Control Product Line (CCPL) contracts awarded and maintained by Electronic Systems Center. The program uses an evolutionary acquisition strategy with a series of incremental software releases. This approach accommodates refinement and prioritization of user requirements and improves adaptability to improvements in commercial technology.										
(U)	E. Schedule Profile										
		FY 1999					FY 2000		FY 2001		
		1	2	3	4	1	2	3	4		
		*									
(U)	Increment 1 Development										
(U)	Government Acceptance Testing							X			
(U)	DCAPES Initial Increment Fielded								X		
	Note: * Denotes Completed Event; X Denotes Planned Event										
Project 674802		Page 19 of 20 Pages								Exhibit R-2A (PE 0207438F)	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)									
BUDGET ACTIVITY		PE NUMBER AND TITLE				DATE		PROJECT	
07 - Operational System Development		0207438F Theater Battle Management (TBM) C4I				February 2000		674802	
(U)	A. Project Cost Breakdown (\$ in Thousands)								
(U)	Development Contract Effort	FY 1999	FY 2000	FY 2001					
(U)	Test Support	0	6,963	8,936					
(U)	Program Management Support	0	500	700					
(U)	Expeditionary Force Experiment	0	1,200	1,400					
(U)	Total	0	300	500					
	Note: DCAPES was previously funded in FY98 under PE 33152F, project 4485 and in FY99 under PE 33150F, project 4667.								
(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 1999	Budget FY 1999	Budget FY 2000	Budget to FY 2001 Complete
	Product Development Organizations								Total Program
	Raytheon/ CSC/ SAIC	FP/LH with award fee	Feb 98	N/A	N/A	0	7,263	9,436	Continuing
	Support and Management Organizations								TBD
	Mitre	CPAF					800	800	Continuing
	TEMS	T&M					400	600	Continuing
	Test and Evaluation Organizations								TBD
	46 Test Sqdn	MIPR					500	700	Continuing
	Note: DCAPES was previously funded in FY98 under PE 33152F, project 4485 and in FY99 under PE 33150F, project 4667.								
	Subtotals					Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget to FY 2001 Complete
	Subtotal Product Development					0	7,263	9,436	TBD
	Subtotal Support and Management						1,200	1,400	TBD
	Subtotal Test and Evaluation						500	700	TBD
	Total Project					0	8,963	11,536	TBD
Project 674802									
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Exhibit R-3 (PE 0207438F)									

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0207581F JOINT STARS								670003	
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
670003	JSTARS	91,701	147,582	144,118	132,993	167,012	313,925	295,338	Continuing	TBD	
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	
(U)	A. Mission Description 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 enables 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 provides target information for pairing direct attack aircraft and standoff weapons against selected targets. The system is capable of being cued by other reconnaissance, surveillance, and target acquisition systems; is able to respond rapidly to worldwide contingencies. The operational utility of the system was effectively demonstrated by the two developmental aircraft in support of combat operations during Desert Storm. Joint STARS aircraft were deployed in support of Operation Joint Endeavor in Dec 95 and again from Nov to Dec 96. Joint STARS also successfully supported Operation Allied Force from Feb to June 99. In Sep 96 the Defense Acquisition Board (DAB) Milestone III Review approved full rate production of a 19 E-8C program. The 93rd Air Control Wing, Robins AFB, GA, declared Joint STARS Initial Operational Capability (IOC) in Dec 97 and the system is now participating in operational and training exercises. After the 1996 Quadrennial Defense Review recommended a revision of the Joint STARS production profile the Air Force reduced Joint STARS production from 19 to 13 E-8Cs. Funding for 15th E-8C provided during FY01 President's Budget build.										
(U)	FY 1999 (\$ in Thousands)										
(U)	\$4,528	Continued work on Block 10 (TADIL-J, JIMIS, and DMS/COTS) Efforts									
(U)	\$20,203	Continued work on Block 20 (Computer Replacement Program (CRP)) Efforts									
(U)	\$10,357	Continued work on Block 30 (SATCOM) Efforts									
(U)	\$17,276	Continued work on Block 40 (Radar Technology Insertion Program (RTIP)); Begin Data Link Study									
(U)	\$6,171	Continued work on Support Systems									
(U)	\$247	Continued work on Advanced Development (DII COE/GCCS Studies)									
(U)	\$32,919	Continued work on Test Efforts									
(U)	\$91,701	Total									
Project 670003		Page 1 of 7 Pages								Exhibit R-2 (PE 0207581F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
07 - Operational System Development	0207581F JOINT STARS	670003	
(U) A. Mission Description Continued			
(U) FY 2000 (\$ in Thousands)			
(U) \$2,041	Continue Block 10 (JIMIS) Efforts		
(U) \$20,233	Continue Block 20 (CRP) Efforts		
(U) \$16,585	Continue Block 30 (SATCOM, Link 16 ASU, DMS COTS, DII COE Studies) Efforts		
(U) \$77,618	Continue Block 40 (RTIP)		
(U) \$31,105	Continue Test Efforts		
(U) \$147,582	Total		
Note: Realigned Link 16 ASU and DMS COTS efforts from Block 10 to Block 30.			
(U) FY 2001 (\$ in Thousands)			
(U) \$25,300	Continue Block 20 (Start Support Systems Upgrades for CRP) Efforts		
(U) \$16,104	Continue Block 30 (SATCOM, DMS COTS, DII COE Studies) Efforts		
(U) \$70,714	Continue Block 40 (RTIP) Efforts		
(U) \$32,000	Continue Test Efforts		
(U) \$144,118	Total		
(U) B. Budget Activity Justification			
This program is in Budget Activity 7 - Operational System Development. Initial operational capability was achieved in Dec 97. Developmental work continues on system upgrades.			
(U) C. Program Change Summary (\$ in Thousands)			
(U) Previous President's Budget (FY 2000 PBR)		FY 2000	FY 2001
(U) Appropriated Value		130,488	121,699
(U) Adjustments to Appropriated Value		148,488	
a. Congressional/General Reductions		-1,340	-95
b. Small Business Innovative Research		-3,188	-811
c. Omnibus or Other Above Threshold Reprogram		-5,051	
d. Below Threshold Reprogram		-513	
e. Rescissions			
f. Other			
			Total Cost
			TBD
Project 670003		Exhibit R-2 (PE 0207581F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									
BUDGET ACTIVITY					DATE		PROJECT		
07 - Operational System Development					PE NUMBER AND TITLE		670003		
					0207581F JOINT STARS				
(U)	<u>C. Program Change Summary (\$ in Thousands) Continued</u>								
(U)	Adjustments to Budget Years Since FY 2000 PBR								
(U)	Current Budget Submit/FY 2001 PBR								
(U)	Significant Program Changes:								
(U)	<u>D. Other Program Funding Summary (\$ in Thousands)</u>								
(U)	Aircraft Procurement, AF, BP10 (PE 27581F)								
(U)	Modifications, BP11 (PE 27581F)								
(U)	Spares, BP16 (PE 27581F)								
(U)	Quantity, Joint STARS E-8C Aircraft Proc.								
(U)	Note: Procurement began with 2 E-8Cs per year FY93-FY97.								
(U)	<u>E. Acquisition Strategy</u>								
	Joint STARS Low Rate Initial Production (LRIP) was approved by the Defense Acquisition Board (DAB) in FY93. Acquisition began with the procurement of 2 E-8Cs in FY93, and continued at 2 E-8Cs per year through FY97. Procurement funding continues with 1 E-8C in FY98, 2 E-8Cs in FY99, 1 E-8C in FY00, and currently concludes with one E-8C in FY01.								
(U)	<u>F. Schedule Profile</u>								
(U)	CRP EMD First Flight								
(U)	RTIP MS II								
(U)	RTIP EMD Contract Award								
	* Denotes completed event								
Project 670003					Exhibit R-2 (PE 0207581F)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000	
BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT	
07 - Operational System Development	0207581F JOINT STARS		670003	
(U) <u>F. Schedule Profile Continued</u>				
	FY 1999		FY 2000	FY 2001
1	2	3	4	1
				2
				3
				4
X Denotes planned event				
Project 670003				
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Exhibit R-2 (PE 0207581F)				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0207581F JOINT STARS								670003	
(U)	<u>A. Project Cost Breakdown (\$ in Thousands)</u>										
(U)	Block 10 (TADIL-J, JIMIS and DMS/COTS) efforts	FY 1999	FY 2000	FY 2001							
(U)	Block 20 (CRP) efforts	4,528	2,041	0							
(U)	Block 30 (SATCOM) efforts	20,203	20,233	25,300							
(U)	Block 40 (RTIP) efforts	10,357	16,585	16,104							
(U)	Support Systems and Crew Trainer Development	17,276	77,618	70,714							
(U)	Advanced Development	6,171	0	0							
(U)	Test Efforts	247	0	0							
(U)	Total	32,919	31,105	32,000							
(U)		91,701	147,582	144,118							
(U)	<u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>										
(U)	<u>Performing Organizations:</u>										
	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 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Total Program	
	* Joint STARS RDT&E funding prior to FY98 was in PE 0604770F										
	Product Development Organizations										
	GMDS** CPFF	May 97	166,491	166,491	103,411	20,203	17,577	25,300	0	166,491	
	Computer Replacement Program										
	GMDS CPFF	May 97	48,245	48,245	549	10,163	13,632	14,601	9,300	48,245	
	SATCOM										
	GMDS CPFF	May 97	741,062	741,062	5,169	17,276	71,537	70,714	576,366	741,062	
	Advanced Dev. (RTIP) Efforts										
	GMDS Other Dev. Efforts	Various	N/A	N/A	2,339,634	11,140	13,731	1,503	Continuing	TBD	
Project 670003											
Exhibit R-3 (PE 0207581F)											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	February 2000
BUDGET ACTIVITY			PE NUMBER AND TITLE				PROJECT				
07 - Operational System Development			0207581F JOINT STARS				670003				
(U) Performing Organizations Continued:											
** Grumman Melbourne Systems Division (now Northrop Grumman)											
Support and Management Organizations											
Joint Program	N/A	N/A	N/A	365,816	0	0	0	0	0	365,816	
Office, Program											
Support											
Test and Evaluation Organizations											
GMSD, E-8C	SS/FFP/CPFF	Aug 96	156,230	156,230	30,625	18,066	16,617	16,775	74,147	156,230	
Follow-On Test											
Support											
GMSD, Aircraft	SS/FFP/CPFF	Aug 96	30,596	30,596	5,480	3,295	2,480	4,618	14,723	30,596	
Over & Above											
Tests											
GMSD, Follow-On Test Support	SS/FFP/CPFF	Aug 96	3,737	3,737	1,259	179	573	333	1,393	3,737	
MILSTRIP											
Range Support	Allotment	N/A	N/A	N/A	26,696	603	1,243	1,165	Continuing	TBD	
Horizons Tech.	Time and Materials	Various	N/A	N/A	36,136	4,654	5,380	5,541	Continuing	TBD	
(SETA)											
Joint Test Force Support	Allotment	N/A	N/A	N/A	25,863	1,649	2,360	2,361	Continuing	TBD	
Misc. Test Efforts	Various	N/A	N/A	N/A	117,149	4,473	2,452	1,207	Continuing	TBD	
(U) Government Furnished Property:											
Contract											
Method/Type											
Award or											
Obligation											
Delivery											
Date											
Total Prior											
to FY 1999											
Budget											
FY 1999											
Budget											
FY 2000											
Budget											
FY 2001											
Budget											
Total											
Program											
Product Development Property											
N/A											
Support and Management Property											
N/A											
Project 670003										Exhibit R-3 (PE 0207581F)	

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)									
BUDGET ACTIVITY		DATE		PROJECT					
07 - Operational System Development		February 2000		670003					
PE NUMBER AND TITLE									
0207581F JOINT STARS									
(U) <u>Government Furnished Property Continued:</u>									
Test and Evaluation Property									
N/A									
<u>Subtotals</u>									
Subtotal Product Development		Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget to Complete	Total Program			
		2,448,763	58,782	116,477	TBD	TBD			
Subtotal Support and Management		365,816	0	0	0	365,816			
Subtotal Test and Evaluation		243,208	32,919	31,105	TBD	TBD			
Total Project		3,057,787	91,701	147,582	TBD	TBD			

Project 670003

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Exhibit R-3 (PE 0207581F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0207590F Seek Eagle								674037	
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
674037	SEEK EAGLE Certifications	17,680	22,851	19,472	17,799	17,013	18,946	18,556	Continuing	TBD	
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	
(U) A. Mission Description 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 and produced. 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, modeling and simulation, 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 are developed through the Combat Weapons Delivery Software (CWDS), creating cost savings by eliminating paper technical orders. SEEK EAGLE funds are currently budgeted to support certification for new weapons programs including F-22, Joint Strike Fighter (JSF), Sensor Fuzed Weapon (SFW), Wind Corrected Munitions Dispenser (WCMD), Joint Direct Attack Munition (JDAM), Joint Air to Surface Standoff Missile (JASSM), Joint Standoff Weapon (JSOW), AIM-9X, AIM-120 C5 (AMRAAM), and many other inventory stores on inventory aircraft.											
(U)	FY 1999 (\$ in Thousands)										
(U)	\$1,300	Continued development of F-22 data and engineering models to use for follow-on F-22 weapons certification									
(U)	\$2,400	Initiated/continued/completed various automation projects and automated Technical Orders/mission planning projects using CWDS									
(U)	\$2,150	Continued/completed various technology improvement projects and aircraft load/separation prediction capabilities using Applied Computational Fluid Dynamics (ACFD)									
(U)	\$10,404	Initiated/continued/completed various aircraft-store certifications on USAF fighter and bomber aircraft									
(U)	\$1,426	Munitions Effectiveness Evaluation of extended range CBU-87 using strap-on wing kit (LongShot)									
(U)	\$17,680	Total									

Project 674037

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Exhibit R-2 (PE 0207590F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
07 - Operational System Development	0207590F Seek Eagle	674037		
(U) A. Mission Description Continued				
(U) FY 2000 (\$ in Thousands)				
(U) \$1,800	Continue development of F-22 data and engineering models to use for follow-on F-22 weapons certification			
(U) \$2,450	Initiate/continue/complete various automation projects and automated Technical Orders/mission planning projects using CWDS			
(U) \$2,400	Continue/complete various technology improvement projects and aircraft load/separation prediction capabilities using ACFD			
(U) \$16,201	Initiate/continue/complete various aircraft-store certifications on USAF fighter and bomber aircraft			
(U) \$22,851	Total			
(U) FY 2001 (\$ in Thousands)				
(U) \$3,100	Continue development of F-22 data and engineering models to use for follow-on F-22 weapons certification			
(U) \$2,550	Initiate/continue/complete various automation projects and automated Technical Orders/mission planning projects using CWDS			
(U) \$2,500	Continue/complete various technology improvement projects and aircraft load/separation prediction capabilities using ACFD			
(U) \$11,322	Initiate/continue/complete various aircraft-store certifications on USAF fighter and bomber aircraft			
(U) \$19,472	Total			
(U) B. Budget Activity Justification				
	The RDT&E Budget Activity is 7, Operational Systems Development, because the program supports fielded systems.			
(U) C. Program Change Summary (\$ in Thousands)				
		FY 1999	FY 2000	FY 2001
(U) Previous President's Budget (FY 2000 PBR)		18,767	23,133	19,645
(U) Appropriated Value		19,090	23,133	TBD
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions		-269	-12	
b. Small Business Innovative Research		-495	-126	
c. Omnibus or Other Above Threshold Reprogram		-493		
d. Below Threshold Reprogram		-153	-144	
e. Rescissions				
f. Other				TBD
(U) Adjustments to Budget Years Since FY 2000 PBR				-173
(U) Current Budget Submit/FY 2001 PBR		17,680	22,851	19,472
				TBD
Project 674037		Page 2 of 6 Pages		Exhibit R-2 (PE 0207590F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE	PROJECT
07 - Operational System Development		0207590F Seek Eagle	674037

[illegible]

Budget authorization for procurement funds are given directly to the weapon system program offices, who then procure the required certification test articles through the weapon production contract.

	FY 1999	FY 2000	FY 2001

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0207590F Seek Eagle								674037	
(U)	<u>F. Schedule Profile Continued</u>										
		FY 1999		FY 2000		FY 2001					
		1	2	3	4	1	2	3	4		
(U)	AIM-120 C5 (AMRAAM)										
(U)	AIM-9X (Sidewinder)										
(U)	JSOW	*	*	*	*	X	X	X	X		
Note: The 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. * = Completed Event X = Planned hardware buy in support of upcoming certification activities.											

Project 674037

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT		674037					
07 - Operational System Development		0207590F Seek Eagle									
(U)	<u>A. Project Cost Breakdown (\$ in Thousands)</u>										
(U)	Process Sustainment	FY 1999	FY 2000	FY 2001							
(U)	F-22 Data & Engineering Models	2,150	2,400	2,500							
(U)	Engineering Analysis	1,300	1,800	3,100							
(U)	Flight Testing	3,600	4,000	4,250							
(U)	Extended Range JDAM Testing (Longshot)	5,004	9,101	5,222							
(U)	Wind Tunnel Testing	1,426	0	0							
(U)	Other	1,000	2,200	900							
(U)	- Ballistic/ Safe Escape Analysis	2,400	2,450	2,550							
(U)	- Tech Order/P.C. Floppy Disk										
(U)	- Loading Process Development/Verification										
(U)	Mission Support	800	900	950							
(U)	Total	17,680	22,851	19,472							
(U)	<u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>										
(U)	<u>Performing Organizations:</u>										
	Contractor or Government	Contract Method/Type	Award or Obligation	Performing Activity	Project Office	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	Lockheed Martin	C/CPFF	Jul 98	15,648	15,648	600	1,300	1,800	3,100	8,848	15,648
	Leigh Aerosystems	FFP	Jan 00	1,000	1,000	0	1,000	0	0	0	1,000
	<u>Support and Management Organizations</u>										
	Mission Support	PO/REO	Continuous	N/A	N/A	9,067	800	900	950	Continuing	TBD
	<u>Test and Evaluation Organizations</u>										
	46th Test Wing	PO/REO	Continuous	N/A	N/A	89,351	9,840	12,351	10,022	Continuing	TBD
	AEDC	PO/REO	Continuous	N/A	N/A	13,738	1,000	2,200	900	Continuing	TBD
	46th Test Wing	REO	Nov 99	426	426	0	426	0	0	0	426
	Various	PO/REO	Continuous	N/A	N/A	38,392	3,314	5,600	4,500	Continuing	TBD
Project 674037											Exhibit R-3 (PE 0207590F)
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE	February 2000		PROJECT	
BUDGET ACTIVITY		PE NUMBER AND TITLE		674037		
07 - Operational System Development		0207590F Seek Eagle				
Subtotals		Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget to Complete	Total Program
Subtotal Product Development		600	2,300	1,800	3,100	16,648
Subtotal Support and Management		9,067	800	900	950	TBD
Subtotal Test and Evaluation		141,481	14,580	20,151	15,422	TBD
Total Project		151,148	17,680	22,851	19,472	TBD

Project 674037

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE									
07 - Operational System Development		0207601F USAF Modeling and Simulation									
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost		
Total Program Element (PE) Cost	13,632	21,093	17,624	14,929	11,232	11,458	11,684	Continuing	TBD		
671008 National Air and Space Warfare Model (NASM)	11,920	15,430	11,909	11,180	7,395	7,544	7,692	Continuing	TBD		
674567 Joint Modeling and Simulation System (JMASS)	1,712	5,663	5,715	3,749	3,837	3,914	3,992	Continuing	TBD		
Quantity of RDT&E Articles	0	0	0	0	0	0	0	Continuing	TBD		
(U) A. Mission Description											
Provides RDT&E funding for major USAF Modeling and Simulation efforts such as the National Air and Space [Warfare] Model (NASM)-the air and space element of the Joint Simulation System (JSIMS); and the Joint Modeling and Simulation System (JMASS). JSIMS will be the sole readiness training simulation used by all CINCs, Services, NAFs and at all simulation centers to train Joint Force Commanders, Joint Task Force staffs, Components and their staffs, including Joint Force Air Component Commanders and Air Operations Center personnel. JMASS provides High Level Architecture (HLA)-compliant architecture for engagement level simulations.											
(U) B. Budget Activity Justification											
Initiated in FY 94, this program is in budget activity 7 - Operational System Development, Research Category because it provides RDT&E funding for major USAF Modeling and Simulation efforts.											
(U) C. Program Change Summary (\$ in Thousands)											
Previous President's Budget (FY 2000 PBR)				FY 1999		FY 2000	FY 2001		Total Cost		
Appropriated Value				14,478		19,299	17,624				
Adjustments to Appropriated Value				14,899							
a. Congressional/General Reductions				-421							
b. Small Business Innovative Research				-455							
c. Omnibus or Other Above Threshold Reprogram				-324							
d. Below Threshold Reprogram				-67							
e. Rescissions											
										Page 1 of 8 Pages	
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE		
07 - Operational System Development		0207601F USAF Modeling and Simulation		
(U)	C. Program Change Summary (\$ in Thousands) Continued	FY 1999	FY 2000	FY 2001
	f. Other		21,093	
(U)	Adjustments to Budget Years Since FY 2000 PBR			
(U)	Current Budget Submit/FY 2001 PBR	13,632	21,093	17,624
(U)	Significant Program Changes:			
	Significant Program Changes: In FY00, funding from PE64256F, Threat Simulator Development, was transferred into PE27601F in FY00 and FY01 for the Joint Modeling and Simulation (JMASS) program development.			TBD
				Total Cost

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE							PROJECT		
07 - Operational System Development		0207601F USAF Modeling and Simulation							671008		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
671008	National Air and Space Warfare Model (NASM)	11,920	15,430	11,909	11,180	7,395	7,544	7,692	Continuing	TBD	
(U)	A. Mission Description										
	This program provides funds for Air Force and Joint wargaming architecture and model development, primarily in support of battlestaff training, education, and military operations. A new wargaming model, NASM, is being developed to replace the existing Air Force standard Air Warfare Simulation (AWSIM). NASM will expand the use and role of modeling and simulation (M&S) in support of operational and acquisition decision making, and increase the interoperability between Air Force and joint efforts. NASM includes an overall USAF M&S architecture and provides a reusable, portable, scalable, robust distributed core for other simulations. It includes an air combat resolution model to meet the needs of USAF MAJCOMs and Unified/Specified Command air components to train Air Component Commanders and their battle staffs. Primary users will be the unified command air components, Commanders in Chief (CINCs), Joint Forces Air Component Commander's (JFACC), and Service components, as supported by BLUE FLAG and WPC for use in joint exercises involving air, ground, and sea campaigns. NASM is the air component portion of the DoD, Joint Staff and Services Joint Simulation System (JSIMS) which includes Enterprise partner programs from the Joint Staff, Army, Navy (and USMC), DIA, NRO and NSA under CINC JFCCOM sponsorship.										
(U)	FY 1999 (\$ in Thousands)										
(U)	\$9,795	Continued development of specific air objects to support JSIMS architecture									
(U)	\$2,125	Continued NASM integration effort and operate the program management office									
(U)	\$11,920	Total									
(U)	FY 2000 (\$ in Thousands)										
(U)	\$11,125	Continue development of specific air objects to support JSIMS architecture									
(U)	\$2,355	Continue NASM integration effort and operate the program management office									
(U)	\$1,950	Upgrade Synthetic Theater Operations Research Model (STORM) and Powerscene model.									
(U)	\$15,430	Total									
(U)	FY 2001 (\$ in Thousands)										
(U)	\$9,546	Continue development of specific air objects to support JSIMS architecture									
(U)	\$2,363	Continue NASM integration effort and operate the program management office									
(U)	\$11,909	Total									
(U)	B. Project Change Summary										

Project 671008

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Exhibit R-2A (PE 0207601F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0207601F USAF Modeling and Simulation								671008	
(U)	<u>C. Other Program Funding Summary (\$ in Thousands)</u>										
		FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to	Total Cost	
		Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete		
(U)	AF RDT&E								Continuing	TBD	
(U)	Other APPN								Continuing	TBD	
(U)	<u>D. Acquisition Strategy</u>										
NASM provides the Air and Space software components of the Joint Simulation System (JSIMS). Resources are reviewed and measured against an Enterprise program baseline, with the Earned Value and performance measurement reporting against the baseline accomplished on a monthly basis. The contract was selected by source selection and is a Cost Plus Award Fee (CPAF).											
(U)	<u>E. Schedule Profile</u>										
					FY 1999						
					1	2	3	4	1	2	
(U)	Initial Op Capability (IOC)	3QFY02									
(U)	Full Op Capability (FOC)	4QFY04									
NASM development schedule is aligned with the Joint Simulation System (JSIMS) Acquisition Program Baseline (APB) development schedule required to achieve Initial Operational Capability (IOC) in FY02 and Full Operational Capability (FOC) in FY04.											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	February 2000
BUDGET ACTIVITY										PROJECT	671008
07 - Operational System Development										0207601F USAF Modeling and Simulation	
(U) A. Project Cost Breakdown (\$ in Thousands)											
										FY 1999	FY 2000
(U)	Software development									9,795	11,125
(U)	Program Management/Contractor Support									2,125	2,355
(U)	Congressional Add; Synthetic Theater Operations Research Model (STORM) upgrade									0	1,950
(U)	Total									11,920	15,430
(U)	B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U)	Performing Organizations:										
	Contract or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
Product Development Organizations											
	Raytheon (NASM)	TRN	3 Mar 97	74,541	74,541	17,135	9,172	13,010	9,489	27,383	76,189
	Raytheon (AWSIM/R)	TRN	7 Apr 94	9,876	9,876	11,454				0	11,454
	Hughes (AWSIM/R)	TRN	2 Jun 94	4,676	4,676	4,059				0	4,059
	TRW (AFSOM)	TRN	12 Dec 97	39	39	39				0	39
Support and Management Organizations											
	Tech Eng Mgt Spt (TEMS)	Del Order	1 Feb 94	15,413	15,413	8,082	1,193	1,200	1,200	3,471	15,146
	MITRE	Contract Mod	11 Aug 94	13,200	13,200	5,869	1,194	1,200	1,200	3,471	12,934
	Other*	Various	Various	19,180	19,180	17,112	361	20	20	1,644	19,157
*Includes Prototype Contracts											
Test and Evaluation Organizations											
	Subtotals					Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	Subtotal Product Development					32,687	9,172	13,010	9,489	27,383	91,741
	Subtotal Support and Management					31,063	2,748	2,420	2,420	8,586	47,237
	Subtotal Test and Evaluation										
	Total Project					63,750	11,920	15,430	11,909	35,969	138,978
Project 671008										Exhibit R-3 (PE 0207601F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0207601F USAF Modeling and Simulation								674567	
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
674567	Joint Modeling and Simulation System (JMASS)	1,712	5,663	5,715	3,749	3,837	3,914	3,992	Continuing	TBD	
(U) A. Mission Description The Joint Modeling & Simulation System (JMASS) is a simulation support environment for the development, configuration, execution, and analysis of high fidelity, repeatable simulations with re-usable models-focus is tactical/engagement level simulations with the present concentration on electronic combat. JMASS is a full system software implementation of a modern object based simulation architecture. JMASS provides users with the tools to: Develop objects, assemble these objects into models, configure the models in a complete simulation, execute the simulation, and post process the simulation data. JMASS tools assist users in developing fully compliant objects; users concentrate on the models and analysis, not computer science. (U) FY 1999 (\$ in Thousands) (U) \$507 High Level Architecture (HLA) Compliance (U) \$245 Improved User Interface (U) \$675 Developed Request For Proposal (RFP) documentation and operate the program management office (U) \$285 Prototyped JMASS software on a Personal Computer (PC) (U) \$1,712 Total (U) FY 2000 (\$ in Thousands) (U) \$2,463 JMASS Model Space Object (MSO) development (computer representations of individual DoD weapon systems) (U) \$1,700 JMASS Architecture development (Environment, Terrain, Human interaction, background models and simulations) (U) \$1,500 JMASS Integration with Other Service Simulations (U) \$5,663 Total (U) FY 2001 (\$ in Thousands) (U) \$3,949 JMASS Model Space Object (MSO) development (computer representations of individual DoD weapon systems) (U) \$1,000 JMASS Architecture development (Environment, Terrain, Human interaction, background models and simulations) (U) \$766 JMASS Integration with Other Service Simulations (U) \$5,715 Total (U) B. Project Change Summary PE 64256F, Threat Simulator Development, transferred \$2.1M in FY00 and FY01 for JMASS Joint Program Development.											
Project 674567										Exhibit R-2A (PE 0207601F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0207601F USAF Modeling and Simulation								674567	
(U)	C. Other Program Funding Summary (\$ in Thousands)										
		FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to	Total Cost	
		Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete		
(U)	AF RDT&E										
(U)	Other APPN										
(U)	PE64256F, Threat Simulator Development Project 3321 (EW Test Resources)	4,100							Continuing	TBD	
(U)	D. Acquisition Strategy										
	All major contracts for JMASS model development will be awarded after full and open competition.										
(U)	E. Schedule Profile										
					FY 1999			FY 2000		FY 2001	
				1	2	3	4	1	2	3	4
						*					
(U)	Milestone 2 - RFP (completed 3QFY99)										
(U)	Contract Award										
(U)	Initial Delivery								X		X

Project 674567
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Exhibit R-2A (PE 0207601F)

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0207601F USAF Modeling and Simulation								674567	
(U)	<u>A. Project Cost Breakdown (\$ in Thousands)</u>										
		FY 1999	FY 2000	FY 2001							
(U)	Software Development	1,030	4,363	4,215							
(U)	Contractor Support	240	1,000	1,000							
(U)	Program Management Support	442	300	500							
(U)	Total	1,712	5,663	5,715							
(U)	<u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>										
(U)	<u>Performing Organizations:</u>										
	Contractor or	Contract									
	Government	Method/Type	Award or	Performing	Project						
	Performing	or Funding	Obligation	Activity	Office						
	Activity	Vehicle	Date	EAC	EAC						
	Product Development Organizations										
	Various	Various									
	Support and Management Organizations										
	Test and Evaluation Organizations										
	Subtotals										
	Subtotal Product Development										
	Subtotal Support and Management										
	Subtotal Test and Evaluation										
	Total Project										

Project 674567

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Exhibit R-3 (PE 0207601F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0207605F Wargaming and Simulation Centers								672888	
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
672888	Theater Air Command & Control Sim Facility (TACCSF)	3,822	19,087	3,874	6,005	6,281	6,406	6,534	Continuing	TBD	
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	Continuing	TBD	
(U) <u>A. Mission Description</u> Funding provided for the Air Force's premier warfighter-in-the-loop simulation facility operated at Kirtland AFB, NM by Det 4, 505th Exercise Control Squadron (505 ECS). TACCSF's mission is to provide advanced distributed simulation to the warfighter for improving theater air and space warfare systems and concepts of operation. TACCSF is used by the AC2TIG and other customers who require high-fidelity battle management, command, control, communications, computer, and intelligence (BMC4I) simulation for establishing system requirements, assessing interoperability, integrating actual C4I and weapon system, and conducting joint test and evaluation. TACCSF performs the upgrade of a complex equipment system consisting of 23 Air Force and Army weapon system simulators (containing over 2 million lines of software code), 18 internal computer networks, 36 mainframe computers, and 62 tactical warfighter-in-the-loop simulator consoles. These systems interoperate with joint service simulators and live fielded equipment via wide-area networks using state-of-the-art voice and data link communications over multiple long-haul communication circuits.											
(U) <u>FY 1999 (\$ in Thousands)</u>											
(U)	\$2,561	Continued to maintain core structure to support users conducting RDT&E, mission rehearsal, and concepts of operation development									
(U)	\$934	Continued to support requirements definition, test support, scenario development, analysis, system engineering support, and VV&A of core system									
(U)	\$227	Provided program management.									
(U)	\$100	DIS provided flexibility, dial-up connectivity between TACCSF and various other M&S facilities.									
(U)	\$3,822	Total									
(U) <u>FY 2000 (\$ in Thousands)</u>											
(U)	\$14,000	Provides one-time funding to move TACCSF R&D mission into new facility; includes new computers, virtual flight simulators, multi-ship simulators, and instructor control white-cell consoles for R&D distributed mission training.									
(U)	\$3,738	Continue to maintain core structure to support users conducting RDT&E, mission rehearsal, and concepts of operation development.									
(U)	\$1,000	Continue to support requirements definition, test support, scenario development, analysis, system engineering support, and VV&A of core system.									
Project 672888		Page 1 of 4 Pages								Exhibit R-2 (PE 0207605F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
07 - Operational System Development	0207605F Wargaming and Simulation Centers	672888	
(U) <u>A. Mission Description Continued</u>			
(U) FY 2000 (\$ in Thousands) Continued			
(U) \$249 Provides program management.			
(U) \$100 DIS provides flexibility, dial-up connectivity between TACCSF and various other M&S facilities.			
(U) \$19,087 Total			
(U) FY 2001 (\$ in Thousands)			
(U) \$3,058 Continue to maintain core structure to support users conducting RDT&E, mission rehearsal, and concepts of operation development.			
(U) \$466 Continue to support requirements definition, test support, scenario development, analysis, system engineering support, and VV&A of core system.			
(U) \$250 Provides program management.			
(U) \$100 DIS provides flexibility, dial-up connectivity between TACCSF and various other M&S facilities.			
(U) \$3,874 Total			
(U) <u>B. Budget Activity Justification</u>			
This program is in budget activity 7 - Operation System Development, because it continues development and upgrades of the Air Force's premier warfighter-in-the-loop simulation facility.			
(U) <u>C. Program Change Summary (\$ in Thousands)</u>			
(U) Previous President's Budget (FY 2000 PBR)		FY 2000	FY 2001
(U) Appropriated Value		5,272	3,874
(U) Adjustments to Appropriated Value		5,287	19,192
a. Congressional/General Reductions			
b. Small Business Innovative Research		-15	-105
c. Omnibus or Other Above Threshold Reprogram		-165	
d. Below Threshold Reprogram		-1,264	
e. Rescissions		-21	
f. Other			
(U) Adjustments to Budget Years Since FY 2000 PBR			
(U) Current Budget Submit/FY 2001 PBR		3,822	19,087
			3,874
			TBD
Project 672888		Exhibit R-2 (PE 0207605F)	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)						DATE	February 2000		
BUDGET ACTIVITY	PE NUMBER AND TITLE					PROJECT			
07 - Operational System Development	0207605F Wargaming and Simulation Centers					672888			
(U) C. Program Change Summary (\$ in Thousands) Continued									
(U) Significant Program Changes:									
(U) D. Other Program Funding Summary (\$ in Thousands)	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
	Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate		
(U) AF RDT&E									
(U) Other APPN									
(U) E. Acquisition Strategy									
Provides funds for development, upgrade, and maintenance of virtual simulators. Simulators include Airborne Warning and Control Systems (AWACS), Joint Surveillance Attack Radar System (JSTARS), Advanced Airborne Sensor, Airborne Laser (ABL) TSQ-73 Fire Direction Center, PATRIOT and HAWK battalion and batteries and the F-15C to name a few.									
(U) F. Schedule Profile									
	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005		
	1	2	3	4	1	2	3	4	
(U) Develop Core Structure (Phase 1: Completed 1QFY99)	*				X				
(U) Develop & Integrate DIS & HLA (Phase 1: Completed 3QFY99)									
(U) Unit Test & Evaluation Integration (Phase 1: Completed 4QFY99)			*				X		
(U) DSI Service Fee (Annual: 4QFYxx)				*					X
(U) Upgrade AWACS & MCE software & test (Phase I: Completed 4QFY99)				*			X		X
				*			X		X
				*			X		X

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0207605F Wargaming and Simulation Centers								672888	
(U)	<u>A. Project Cost Breakdown (\$ in Thousands)</u>										
(U)	Software Development	FY 1999	FY 2000	FY 2001							
(U)	Contractor Support	2,567	3,554	3,058							
(U)	Program Management Support	955	15,080	466							
(U)	Total	300	453	350							
(U)		3,822	19,087	3,874							
(U)	<u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>										
(U)	<u>Performing Organizations:</u>										
	Contractor or	Contract									
	Government	Method/Type	Award or	Performing	Project						
	Performing	or Funding	Obligation	Activity	Office						
	Activity	Vehicle	Date	EAC	EAC						
	<u>Product Development Organizations</u>										
	Det 4, 505th CCEG		1 Jan 90	Continuing	Continuing						
	<u>Support and Management Organizations</u>										
	<u>Test and Evaluation Organizations</u>										
	<u>Subtotals</u>										
	Subtotal Product Development										
	Subtotal Support and Management										
	Subtotal Test and Evaluation										
	Total Project										

Project 672888

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Exhibit R-3 (PE 0207605F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0208006F Mission Planning Systems								673858	
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
673858	Air Force Mission Support System (AFMSS)	15,415	18,084	20,755	16,976	17,228	17,573	17,919	Continuing	TBD	
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	
(U) A. Mission Description 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 existing legacy planning systems which will migrate into a USAF wide standard mission planning system known as the Air Force Mission Support System (AFMSS). Integrating military and commercial software on Commercial-Off-The-Shelf (COTS) hardware, AFMSS encompasses evolutionary software and hardware development in an open systems architecture. AFMSS today consists of the Mission Planning System (MPS), a UNIX-based system, the Portable Flight Planning Software (PFPS), a personal computer (PC)-based system, and the Joint Mission Planning System (JMPS), which is the next generation PC-based system. The MPS provides comprehensive mission planning tools to conduct missions ranging from day-to-day training, peace time operations/exercises to complex operations supporting conventional and nuclear armed conflict. The MPS design is centered around an open architecture, using standard protocols and interfaces, COTS hardware and software. The MPS currently or will support the following aircraft and associated weapons: B-1, B-2, B-52, F-15, F-16, F-117, F-22, U-2, AGM-130, AGM-142, JDAM, JSOW, WCMD, ABL, JASSM, MALD, Global Hawk, and Predator. Platforms use tailored software called Aircraft/Weapon/Electronics (A/W/E) that integrate with the core software to specialize the software for their mission. The PFPS provides flight planning tools that support day-to-day trainings, peace time operations/exercises, and conventional armed conflict. The PFPS design is based on single user PCs. The user interface is Windows 95 and Windows NT. The PFPS currently or will support the following aircrafts: F-16, MC-130, EC-130, HC-130H/N/P, AC-130, E-3, E-8, C-130E/H/J, LC-130, WC-130, C-27, C-17, E-4, T-38, C-141, RC-135, KC-10, KC-135R/E, C-5, C-9, A-10, MH-53, MH-47, AH/MH-61, and MH/HH-60. The JMPS is a continuation effort of the AFMSS MPS and PFPS directed at merging the AFMSS and the Navy's Tactical Automated Mission Planning System (TAMPS), to form a single family of systems achieving Global Command and Control System (GCCS) compatibility through compliance with the Defense Information Infrastructure and Common Operating Environment (DII/COE).											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
07 - Operational System Development	0208006F Mission Planning Systems	673858	
(U) A. <u>Mission Description Continued</u>			
(U) <u>FY 1999 (\$ in Thousands)</u>			
(U)	\$1,459	Completed MPS core software development support	
(U)	\$3,130	Began PFPS software development support	
(U)	\$3,426	Continued A/W/E development/support/integration for the platforms listed above	
(U)	\$6,400	Began JMPS migration effort	
(U)	\$1,000	Stand up Responsible Test Organization (RTO) support	
(U)	\$15,415	Total	
(U) <u>FY 2000 (\$ in Thousands)</u>			
(U)	\$1,258	Continue PFPS software development support	
(U)	\$671	Continue A/W/E development /support/integration for the platforms listed above	
(U)	\$15,435	Continue JMPS migration effort	
(U)	\$720	Continue Responsible Test Organization (RTO) support	
(U)	\$18,084	Total	
(U) <u>FY 2001 (\$ in Thousands)</u>			
(U)	\$668	Continue A/W/E development/support/integration for the platforms listed above	
(U)	\$14,687	Continue JMPS migration effort	
(U)	\$4,680	Begin JMPS Combat Capabilities, including PGM migration	
(U)	\$720	Continue Responsible Test Organization (RTO) support	
(U)	\$20,755	Total	
(U) <u>B. Budget Activity Justification</u>			
Mission Planning Systems is in budget activity 7, Operational System Development, because the program currently supports deployed AFMSS systems, which include transportable, non-deployable, and portable laptop workstations. AFMSS MPS C2.0, C2.1, and PFPS 3.0 software are operationally fielded. MPS C2.2 and PFPS 3.01 which incorporate Y2K fixes among other new requirements were released and are in the process of fielding to the Combat Air Forces. Development of JMPS v1.0 began in Jun 99.			

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Exhibit R-2 (PE 0208006F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)				DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT	
07 - Operational System Development		0208006F Mission Planning Systems		673858	
(U)	<u>C. Program Change Summary (\$ in Thousands)</u>				
(U)	Previous President's Budget (FY 2000 PBR)	FY 1999	FY 2000	FY 2001	Total Cost
(U)	Appropriated Value	16,204	16,764	20,755	TBD
(U)	Adjustments to Appropriated Value	17,090	18,264		
(U)	a. Congressional/General Reductions	-972	-81		
	b. Small Business Innovative Research	-514			
	c. Omnibus or Other Above Threshold Reprogram	-2,342	-99		
	d. Below Threshold Reprogram	2,153			
	e. Rescissions				
	f. Other				TBD
(U)	Adjustments to Budget Years Since FY 2000 PBR				
(U)	Current Budget Submit/FY 2001 PBR	15,415	18,084	20,755	TBD
(U)	<u>Significant Program Changes:</u>				
	FY99:				
	BTR/ATR: The AFMSS program was part of a large 1415-2 action requiring a consolidation of numerous sources into several PEs. Funds were BTR'd into the program as part of this 1415-2 and later removed as part of the larger 1415-2 action. The net change to the AFMSS program was -\$174. In addition, - \$15 was for a canceled bill.				
(U)	<u>D. Other Program Funding Summary (\$ in Thousands)</u>				
		FY 1999	FY 2000	FY 2001	Total Cost
		Actual	Estimate	Estimate	Complete
(U)	AF RDT&E				
(U)	Other APPN				
(U)	Other Procurement, AF	6,035	12,633	16,604	Continuing
	WSC 833040, Theater Air		13,383	16,253	TBD
	Control System Improvement				
	(TACSI)				
(U)	Other Procurement, AF, WSC	1,447	1,118	558	Continuing
	86190A, Initial Spares			380	TBD
(U)	Operations & Maintenance,	29,188	32,277	33,621	Continuing
			33,794	33,130	TBD
Project 673858		Exhibit R-2 (PE 0208006F)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0208006F Mission Planning Systems								673858	
(U) <u>D. Other Program Funding Summary (\$ in Thousands)</u>											
	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to	Total Cost		
	Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete			
AF, 0208006F											
O&M funds for PE 28006F support the software and hardware maintenance costs of the Air Force Mission Support System (AFMSS) and the Common Mapping Production System. 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/weapon 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 FY00, a similar amount of funding will support over 2900 AFMSS mission planning systems world-wide.											
There are no other AFMSS core related RDT&E activities for unit level mission planning in the USAF. Over 50 individual aircraft and weapons programs develop their respective software to be 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.											
(U) <u>E. Acquisition Strategy</u>											
The Air Force Mission Support System (AFMSS) program is managed within the Combat Air Forces (CAF) Command and Control (C2) Systems Program Office, Electronic Systems Center, Hanscom AFB, Massachusetts. The 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. The contractors for the AFMSS projects are Sanders, Nashua, NH, a Lockheed Martin Company, for the MPS and C-17, KC-10, C-5, C-9, C-141, E-3, E-8, KC-135E/R A/W/Es; Tybrin, Fort Walton Beach, FL, for the PFPS; and Logicon, San Pedro, CA for JMPS. A/W/E development is also performed in-house (government) by Oklahoma City Air Logistics Center (OC-ALC), Tinker AFB, OK; Sacramento Air Logistics Center (SM-ALC), McClellan AFB, CA; Warner Robbins Air Logistics Center (WR-ALC), Robbins AFB, GA; and Ogden Air Logistics Center (OO-ALC), Hill AFB, UT.											
The JMPS is in the development phase. Development and initial migration activities began in FY99. The current plan is to continue development and migration activities in the FY00-FY05 time frame while individual weapon systems transition with planned Operational Flight Program (OFP) upgrades.											
(U) <u>F. Schedule Profile</u>											
	FY 1999	FY 2000	FY 2001								

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	February 2000	PROJECT
BUDGET ACTIVITY										PE NUMBER AND TITLE		
07 - Operational System Development										0208006F Mission Planning Systems		
(U) A. Project Cost Breakdown (\$ in Thousands)										FY 1999	FY 2000	FY 2001
(U)	Primary Software Development									6,715	11,640	15,455
(U)	Aircraft/Weapons/Electronics (A/W/E) Integration Spt.									100	200	300
(U)	Systems Engineering									4,400	2,640	2,800
(U)	Program Management									2,600	2,823	1,300
(U)	Test and Evaluation									700	684	700
(U)	Miscellaneous									900	97	200
(U)	Total									15,415	18,084	20,755
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)												
(U) Performing Organizations:												
	Contract or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program	
Product Development Organizations												
	Logicon (JMPS)	CPAF	Jun 99	TBD	TBD	0	3,325	10,650	8,800	Continuing	TBD	
	Sanders	CPAF	Dec 92	93,773	93,773	93,201	99	0	0	Continuing	TBD	
	Tybrin (Ft Walton Beach)	Project Order	Dec 98	TBD	TBD	0	2,500	530	0	Continuing	TBD	
	A/W/E Integration Activity	Time & Mat'l	Oct 98	TBD	TBD	0	250	0	0	Continuing	TBD	
	SPO Misc					4,449	2,867	1,769	2,100	Continuing	TBD	
	JMPS Combat Capability	TBD	TBD	TBD	TBD				3,680	Continuing	TBD	
Support and Management Organizations												
	FFRDC			TBD	TBD	15,480	4,400	2,640	2,860	Continuing	TBD	
	Miscellaneous			TBD	TBD	9,532	1,254	1,775	2,595	Continuing	TBD	
	Test and Evaluation Organizations			TBD	TBD	0	720	720	720	Continuing	TBD	
	46TW (Eglin AFB)	Project Order	Oct 98	TBD	TBD							

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE	February 2000	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE						
07 - Operational System Development		0208006F Mission Planning Systems						
(U) Government Furnished Property:								
Contract								
Item	Method/Type	Award or	Delivery					
Description	or Funding	Obligation	Date					
Product Development Property	Vehicle	Date						
N/A								
Support and Management Property								
N/A								
Test and Evaluation Property								
N/A								
Subtotals								
Subtotal Product Development								
Subtotal Support and Management								
Subtotal Test and Evaluation								
Total Project								

Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
97,650	9,041	12,949	14,580	TBD	TBD
25,012	5,654	4,415	5,455	TBD	TBD
0	720	720	720	TBD	TBD
122,662	15,415	18,084	20,755	TBD	TBD

Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
97,650	9,041	12,949	14,580	TBD	TBD
25,012	5,654	4,415	5,455	TBD	TBD
0	720	720	720	TBD	TBD
122,662	15,415	18,084	20,755	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0208021F Information Warfare Support								670374	
		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
670374	ELECTRONIC COMBAT SPT, C3 PROTECTION/MULTI-MISSION, TECHNOLOGY AND SPT	2,864	1,368	1	3	3,182	3,272	3,367	0	4,233	
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	
(U) A. Mission Description This program responds to CINC requests for urgently needed technical solutions to operational problems. This program studies, develops and demonstrates Information Operations (IO) prototypes to provide warning, self protection, and support to personnel and equipment against combat systems employed by enemy forces. In response to CINC tasking, this program identifies existing military and commercial research and development efforts which can satisfy unfulfilled operational requirements as identified by the Unified Commands, and quickly bridges the gap between technology developments to meld the technology to meet the warfighter's operational requirements. The Secretary of Defense identified the need for this capability in 1983, and with unanimous approval of the Services and the Unified Commands, JCS made this function a part of the Joint Information Operations Center (JIOC) mission (formerly the Joint Command and Control Warfare Center (JC2WC)). The Air Force as executive agent is responsible for the total funding of this effort. The Information Operations Planning Tool (IOPT) initiative. IOPT is a five-year development and integration program. IOPT has four overall program objectives: (1) Determine an operational architecture (2) Develop an evolving suite of interoperable IO planning and decision support capabilities, comprised of software, hardware, and communications products. (3) Identify and implement an open, scalable system architecture which will accommodate growth in functionality, allow functional modules to interact, and remain compliant with evolving Defense Information Infrastructure (DII) common Operating Environment (DOE) standards; and (4) Implement a spiral/evolutionary acquisition process through which user requirements are systematically identified, prioritized, and address a disciplined, risk-mitigated, user-focused process, and through which new concepts and technology may be incorporated into the solution set.. (U) FY 1999 (\$ in Thousands) (U) \$63 Mayberry ACTD (U) \$252 IO Planning Process & JIOPP (U) \$880 Information Operations Planning System (IOPS) (U) \$629 EFX IO Planning System Initiative (U) \$81 Souder ACTD (U) \$959 C2W Analysis and Targeting Tool (CATT) (U) \$2,864 Total											
Project 670374										Exhibit R-2 (PE 0208021F)	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
07 - Operational System Development	0208021F Information Warfare Support	670374	
(U) A. Mission Description Continued			
(U) FY 2000 (\$ in Thousands)			
(U) \$1,368 Information Operations Planning System (IOPS)			
(U) \$1,368 Total			
(U) FY 2001 (\$ in Thousands)			
(U) \$1 Program has been phased out. The \$1K is residual and will be used to buy system supplies.			
(U) \$1 Total			
(U) B. Budget Activity Justification			
This program is in Budget Activity 7, Operational System Development, because it studies, develops and demonstrates IO prototypes to provide warning, self protection, and support to personnel and equipment against combat systems employed by enemy forces. It identifies existing military and commercial research and development efforts which can satisfy unfulfilled operational requirements as identified by the Unified Commands, and quickly bridge the gap between technology developments and meld the technology into the warfighter's operational requirements. The Secretary of Defense identified the need for this capability in 1983, and with unanimous approval of the services and the Unified Commands, JCS made this function a part of the Joint Information Operations Center (JIOC) mission (formerly the Joint Command and Control Warfare (JC2WC)). The Air Force, as executive agent, is responsible for the total funding of this effort.			
(U) C. Program Change Summary (\$ in Thousands)			
(U) Previous President's Budget (FY 2000 PBR)	FY 1999	FY 2000	FY 2001
(U) Appropriated Value	2,864	1,368	1
(U) Adjustments to Appropriated Value	2,375	1,376	
a. Congressional/General Reductions	-7		
b. Small Business Innovative Research	-80		
c. Omnibus or Other Above Threshold Reprogram		-8	
d. Below Threshold Reprogram	592		
e. Rescissions	-16		
f. Other			
(U) Adjustments to Budget Years Since FY 2000 PBR			
(U) Current Budget Submit/FY 2001 PBR	2,864	1,368	1
(U) Significant Program Changes:			
			4,233
Project 670374		Exhibit R-2 (PE 0208021F)	
Page 2 of 5 Pages			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									
BUDGET ACTIVITY								DATE	PROJECT
07 - Operational System Development								0208021F Information Warfare Support	670374
(U) D. Other Program Funding Summary (\$ in Thousands)									
	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
	Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate		
(U) AF RDT&E									
(U) Other APPN									
(U) E. Acquisition Strategy									
All major contracts within this Program Element were awarded after full and open competition.									
(U) F. Schedule Profile									
	1	2	3	4	1	2	3	4	
			FY 1999			FY 2000		FY 2001	
(U) Not Applicable									
Project 670374								Exhibit R-2 (PE 0208021F)	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)									
DATE February 2000									
PROJECT 670374									
BUDGET ACTIVITY									
PE NUMBER AND TITLE									
0208021F Information Warfare Support									
07 - Operational System Development									
(U)	<u>A. Project Cost Breakdown (\$ in Thousands)</u>								
(U)	Mayberry ACTD	FY 1999	FY 2000	FY 2001					
(U)	Instrumentation and Support	0	0	1					
(U)	Facilities	72	0						
(U)	Testing	0	0						
(U)	Engineering Services	75	0						
(U)	SME	2,717	1,368						
(U)	Total	0	0						
(U)		2,864	1,368	1					
(U)	<u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>								
(U)	<u>Performing Organizations:</u>								
	<u>Contractor or</u>	<u>Contract</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget to</u>
	<u>Government</u>	<u>or Funding</u>	<u>or Obligation</u>	<u>Date</u>	<u>Activity</u>	<u>Office</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>
	<u>Activity</u>	<u>Vehicle</u>	<u>Vehicle</u>	<u>Vehicle</u>	<u>EAC</u>	<u>EAC</u>	<u>EAC</u>	<u>FY 1999</u>	<u>FY 2000</u>
	<u>Product Development Organizations</u>								
	Bell Aerospace & Techn	DDForm 448	Jan	2	91	880	800	0	1,680
	GRCI	AF Form 9	Feb	2	91	175		0	175
	GRCI	AF Form 9	Aug	2	91	77		0	77
	Unknown	TBD		2	91		568		568
	CALSPAN	DDForm 448	Jan Jun	2	91	956		1	957
	General Dynamics	AF Form 9	Sep	2	91	629		0	629
	<u>Support and Management Organizations</u>								
	DISA	DDForm 448	Jan	2	91	54		0	54
	JC2WC	DDForm 1610	Jan-Sep	2	91	18		0	18
	<u>Test and Evaluation Organizations</u>								
	SWRI	AF Form 9	Feb	2	91	75		0	75
Project 670374									
Page 4 of 5 Pages									
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Exhibit R-3 (PE 0208021F)									

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
07 - Operational System Development		0208021F Information Warfare Support			670374	
(U) Government Furnished Property:						
Contract						
Item	Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000
Description						Budget to Complete
Product Development Property						Total Program
Support and Management Property						
Test and Evaluation Property						
Subtotals						
Subtotal Product Development						4,086
Subtotal Support and Management						72
Subtotal Test and Evaluation						75
Total Project						4,233
				Total Prior to FY 1999	Budget FY 1999	Budget FY 2000
						Budget to Complete
				2,717	1,368	4,086
				72		72
				75		75
				2,864	1,368	4,233

Project 670374

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Exhibit R-3 (PE 0208021F)

Project 670374

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0208031F WRM-EQUIPMENT/SECONDARY ITEMS								674668	
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
674668	Shelter Development	1,440	1,450	1,475	2,557	2,775	2,830	2,887	Continuing	TBD	
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	

SAF/AQPS, HQ USAF/ILSR and HQ USAF/ILEX are in the process of consolidating three small dollar Civil Engineer (CE) readiness R&D programs (PE64617f - Agile Combat Support; PE64708f - Civil, Fire, Environmental, Shelters, and the 3600 portion of PE28031f - War Reserve Material) under PE 64617. This will meet the intent of the House action to eliminate smaller PEs and provide a more cohesive, manageable CE Readiness modernization effort. This consolidation will begin in February 2000 and should be complete by the beginning of FY01 (October 2000).

(U) **A. Mission Description**

(U) A. Mission Description

1. This program supports Air Force (AF) Bare Base Mobility Equipment, also known as Harvest Falcon (HF) and Harvest Eagle (HE). Designed and sized to support the current Joint Chiefs of Staff (JCS) wartime planning scenario of two nearly simultaneous Major Theater Wars (2MTW), this equipment provides theater warfighters billeting, industrial, and air field capability to support up to 68,200 combat troops and 822 aircraft at 15 austere locations by building complete temporary bases from the ground up. Of the two systems, HF is the newest and fields the greatest capability (housekeeping plus air base infrastructures). The HF system provides capability directed in the FY90-94 Defense Planning Guidance (DPG) that initially tasked the Air Force to support United States Central Command (USCENTCOM) Rapid Deployment Forces (RDF) and save critical airlift resources through theater prepositioning. Subsequent DPGs have continued this requirement. Harvest Falcon remains a top priority procurement requirement of the Commander-In-Chief/Central Command.
2. The outstanding reputation enjoyed by the AF Bare Base program, established during the Gulf War, has continued to grow in successive Military-Operations-Other-Than-War (MOOTW) throughout the world. These include Operation Southern Watch, Provide Promise, Provide Comfort, Restore Hope, Sea Signal, Uphold Democracy, Joint Endeavor, Desert Focus, Desert Fox, Noble Anvil and Allied Force. Significant quantities of Harvest Falcon and Harvest Eagle assets were successfully employed during Operations Allied Force and Noble Anvil to support operational and humanitarian requirements in Kosovo, Albania, Italy, and Northern Turkey. The unparalleled success of the AF Bare Base program in providing critically needed austere basing facilities has resulted in continued demand for the equipment to support MOOTW. This high Operational Tempo (OPTEMPO) utilization continues to take its toll on system assets. As a result, the majority of HF and HE sets currently in the inventory require comprehensive repair or replacement. A majority of the equipment has been used for over three years, well beyond its original design parameters. Equipment modernization and reconstitution funding thus remains a crucial issue.

Project 674668

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Exhibit R-2 (PE 0208031F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
07 - Operational System Development	0208031F WRM-EQUIPMENT/SECONDARY ITEMS	674668	
(U) A. Mission Description Continued			
3. The Air Force Bare Base program has had unparalleled success meeting the demands in support of MOOTW. This has taken its toll on equipment, and as a result the majority of HF and HE equipment has been in use well beyond design parameters and requires comprehensive repair or replacement. In addition, the Expeditionary Air Force concept demands systems that are lighter leaner, more maintainable, and more deployable. Research, Development, Testing, and Evaluation (RDT&E) funds support these modernization and reconstitution requirements.			
(U) <u>FY 1999 (\$ in Thousands)</u>			
(U) \$1,227	Initiated EMD for Deployable Waste Management System		
(U) \$213	Continued other technical support		
(U) \$1,440	Total		
(U) <u>FY 2000 (\$ in Thousands)</u>			
(U) \$590	Initiate EMD for Bare Base Systems Cold Weather Package		
(U) \$600	Continue EMD for Deployable Waste Management System		
(U) \$260	Continue other technical support		
(U) \$1,450	Total		
(U) <u>FY 2001 (\$ in Thousands)</u>			
(U) \$300	Continue EMD for Bare Base Systems Cold Weather Package		
(U) \$860	Continue EMD for Deployable Waste Management System		
(U) \$315	Continue other technical support		
(U) \$1,475	Total		
(U) B. Budget Activity Justification			
This program is in Budget Activity 7 because it supports development of operational HF/HE equipment in modernized configurations which reduce deployment 'footprints', required transport airlift sorties, and increase operational efficiencies.			
Project 674668		Page 2 of 5 Pages	Exhibit R-2 (PE 0208031F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									
BUDGET ACTIVITY		PE NUMBER AND TITLE		DATE	PROJECT				
07 - Operational System Development		0208031F WRM-EQUIPMENT/SECONDARY ITEMS		February 2000	674668				
(U)	<u>C. Program Change Summary (\$ in Thousands)</u>								
(U)	Previous President's Budget (FY 2000 PBR)	FY 1999	FY 2000	FY 2001	Total Cost				
(U)	Appropriated Value	1,466	1,467	1,475	TBD				
(U)	Adjustments to Appropriated Value	1,470	1,459						
	a. Congressional/General Reductions	-12	-9						
	b. Small Business Innovative Research	-18							
	c. Omnibus or Other Above Threshold Reprogram								
	d. Below Threshold Reprogram								
	e. Rescissions								
	f. Other								
(U)	Adjustments to Budget Years Since FY 2000 PBR								
(U)	Current Budget Submit/FY 2001 PBR	1,440	1,450	1,475	TBD				
(U)	Significant Program Changes:								
(U)	<u>D. Other Program Funding Summary (\$ in Thousands)</u>								
		FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete
		Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	
(U)	AF RDT&E								
(U)	Other APPN								
(U)	Other Procurement, AF, Other								
	Base Maintenance and								
	Support Equipment:								
(U)	WRM-Equipment/Secondary	35,399	46,455	50,021	27,421	26,809	20,148	19,348	Continuing
	Items (0208031F) (WSC								
	845420), P-1: 108								

Project 674668

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Exhibit R-2 (PE 0208031F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE																																																																																																							
BUDGET ACTIVITY		PROJECT																																																																																																							
07 - Operational System Development		0208031F WRM-EQUIPMENT/SECONDARY ITEMS 674668																																																																																																							
(U) E. Acquisition Strategy The SPO is evaluating and testing commercial solutions to determine options for militarizing commercially-available products for cold weather systems and waste management systems. It will also evaluate work performed by Wright Laboratories, which has identified plasma-arc technology as a potential solution to safely, effectively and efficiently incinerate medical and hazardous wastes. This technology also provides capability to eliminate other waste materials, such as solid wastes/garbage, and other materials placed in landfills. Contracts will be competitive, firm fixed price.																																																																																																									
(U) F. Schedule Profile																																																																																																									
		<table border="1"> <thead> <tr> <th colspan="2">FY 1999</th> <th colspan="2">FY 2000</th> <th colspan="2">FY 2001</th> </tr> <tr> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> </tr> </thead> <tbody> <tr> <td colspan="8">BARE BASE COLD WEATHER PKG</td> </tr> <tr> <td colspan="8">- Release RFP</td> </tr> <tr> <td colspan="8">- Contract Award</td> </tr> <tr> <td colspan="8">- Conduct Verification Testing</td> </tr> <tr> <td colspan="8">- Milestone III Decision</td> </tr> <tr> <td colspan="8">DEPLOYABLE WASTE MGT SYS</td> </tr> <tr> <td colspan="8">- Initiate Waste Management Study</td> </tr> <tr> <td colspan="8">- Complete Waste Management Study</td> </tr> <tr> <td colspan="8">- Milestone I/II Decision</td> </tr> <tr> <td colspan="8">- Contract Award</td> </tr> <tr> <td colspan="8">- Phase I Milestone III Decision</td> </tr> </tbody> </table>		FY 1999		FY 2000		FY 2001		1	2	3	4	1	2	3	4	BARE BASE COLD WEATHER PKG								- Release RFP								- Contract Award								- Conduct Verification Testing								- Milestone III Decision								DEPLOYABLE WASTE MGT SYS								- Initiate Waste Management Study								- Complete Waste Management Study								- Milestone I/II Decision								- Contract Award								- Phase I Milestone III Decision							
FY 1999		FY 2000		FY 2001																																																																																																					
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE				PROJECT					
07 - Operational System Development		0208031F WRM-EQUIPMENT/SECONDARY ITEMS				674668					
(U)	<u>A. Project Cost Breakdown (\$ in Thousands)</u>										
(U)	Contracts	FY 1999	FY 2000	FY 2001							
(U)	A&AS Support	250	640	530							
(U)	Other Government Agencies	969	480	460							
(U)	Material/Equipment	0	50	120							
(U)	Other Technical Support	0	20	50							
(U)	Total	221	260	315							
(U)		1,440	1,450	1,475							
(U)	<u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>										
(U)	<u>Performing Organizations:</u>										
	Contractor or Government Performing Activity	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	Product Development Organizations										
	Bare Base Systems Cold Weather Package	C/FP	3Qtr/FY00	910	910	0	0	590	300	Continuing	TBD
	Deployable Waste Management System	C/FP	4Qtr/FY99	3,948	3,948	0	1,440	860	1,175	Continuing	TBD
	Support and Management Organizations										
	Test and Evaluation Organizations										
	Subtotals					Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	Subtotal Product Development					0	1,440	1,450	1,475	TBD	TBD
	Subtotal Support and Management										
	Subtotal Test and Evaluation										
	Total Project					0	1,440	1,450	1,475	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE		February 2000	
BUDGET ACTIVITY		PE NUMBER AND TITLE											
07 - Operational System Development		0208060F Theater Missile Defenses											
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost			
Total Program Element (PE) Cost		30,571	25,904	19,824	0	0	0	0	Continuing	TBD			
674478	Command, Control, Communications, Computers, and Intelligence Enhancements	22,044	17,723	19,824	0	0	0	0	Continuing	TBD			
674479	Attack Operations Concept Development	8,527	8,181	0	0	0	0	0	Continuing	TBD			
Quantity of RDT&E Articles		0	0	0	0	0	0	0	0	0			

(U) **A. Mission Description**

Air Force Theater Missile Defense/Time Critical Target (TMD/TCT) effort is focused in two areas: Battle Management/Command, Control, Communications, Computers, and Intelligence (BM/C4I) enhancements and improvements to existing Attack Operations systems and procedures. AF TMD concentrates on defining improvements to existing operational capabilities, developing and evaluating prototypes, demonstrating as well as simulating modifications through operational concept demonstrations, and coordinating the transition of these capabilities to operational systems. BM/C4I projects [including, for example, Dynamic Battle Management, Attack Operations Decision Aid (AODA), Automatic Application of Intelligence Preparation of Battlespace (A2IPB) and Joint TADIL-J Range Extension (JRE)] reduce timelines required to negate the theater missile threat by increasing interoperability, improving battle management tools, and providing accurate target data via datalinks for Offensive Counterair (Attack Operations). 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, advanced sensors, target identification capabilities, CONOPS, training, tactics and procedures, and requirements development for offensive counterair and integration with defensive systems.

(U) **B. Budget Activity Justification**

This program is in Budget Activity 7 because its projects are upgrades to existing operational systems.

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Exhibit R-2 (PE 0208060F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE	February 2000	
BUDGET ACTIVITY		PE NUMBER AND TITLE			
07 - Operational System Development		0208060F Theater Missile Defenses			
(U)	C. Program Change Summary (\$ in Thousands)	FY 1999	FY 2000	FY 2001	Total Cost
(U)	Previous President's Budget (FY 2000 PBR)	30,352	26,129	28,551	TBD
(U)	Appropriated Value	31,057	26,129		
(U)	Adjustments to Appropriated Value				
	a. Congressional/General Reductions	-705	-83		
	b. Small Business Innovative Research	-1,004			
	c. Omnibus or Other Above Threshold Reprogram		-142		
	d. Below Threshold Reprogram	1,394			
	e. Rescissions	-171			
	f. Other				TBD
(U)	Adjustments to Budget Years Since FY 2000 PBR			-8,727	
(U)	Current Budget Submit/FY 2001 PBR	30,571	25,904	19,824	TBD
(U)	Significant Program Changes:				
	PE 28060F was reduced across the FYDP to provide funding for higher AF priority programs.				

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Exhibit R-2 (PE 0208060F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0208060F Theater Missile Defenses								674478	
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
674478	Command, Control, Communications, Computers, and Intelligence Enhancements	22,044	17,723	19,824	0	0	0	0	Continuing	TBD	
(U) A. Mission Description Battle Management, Command, Control, Communications, Computers, and Intelligence (BMC4I) enhancements are needed to reduce timelines required to negate Theater Missiles and Time Critical Targets (TCTs) by increasing interoperability, improving battle management tools, and providing accurate target data via datalinks for Offensive Counterair (Attack Operations) against TCTs. The Combat Air Force (CAF) CONOPS for C2 Against Time Critical Targets and Air Superiority Mission Area Plan (MAP) provide the foundation. The BM/C4I program encompasses: 1) Dynamic Battle Management (DBM), the CAF vision for providing flexible, centralized C2 throughout conflict spectrum to meet Joint Vision 2010 objectives. Will allow JFACC to tailor decentralized execution to best meet the Rule of Engagement (ROE) and span of control requirements enabling prosecution of any TCT. DBM will identify technical capabilities and migration path required to support DBM environment consisting of wide area connectivity, decision support tools, and shared information. 2) Automated Planning Tools / Decision Aids which prototype and demonstrate advanced decision aid capabilities to upgrade the battle management tools and infrastructure to better execute the Theater Missile Defense (TMD) mission. Examples include the integration of the Time Critical Target Aid (TCTA) and Joint Defensive Planner (JDP) into Theater Battle Management Core Systems (TBMCS)/ Global Command and Control System (GCCS) architecture as well as the development and migration of the Attack Operations Decision Aid (AODA) into TACS platforms. 3) Intelligence Preparation Of Battlespace (IPB) which enables the Commander and supporting staff to visualize the full spectrum of adversary capabilities and course of actions (COAs) across all dimensions of the battlespace. Examples include the revision of the methodology for the IPB process as it supports TMD; development of an information architecture populated with linked digital products; generation of training material for use in Air Force schoolhouse and field IPB training; and development of a software Automated Assistance with IPB (A2IPB) tool for TBMCS/GCCS to assist the intelligence analyst at a Joint Intelligence Center (JIC), and the Intel/Ops Planner at an AOC. 4) Data Link Connectivity which provides upgrades to existing Air Force platforms to better utilize existing communications systems. These include Joint Tactical Information Dissemination System (JTIDS) TMD Message Set Integration and JTIDS gateways to extend range beyond line of sight and interface with National Technical Means (NTM) to provide attack and early launch reporting to theater.											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
07 - Operational System Development	0208060F Theater Missile Defenses	674478	
(U) A. Mission Description Continued			
(U) FY 1999 (\$ in Thousands)	Conducted (DBM operations onboard AWACS and JSTARS live-fly platforms during EFX 99.		
(U) \$6,316	Continued to develop IPB evolutionary prototypes (EPs) for TBMCs and Air Intelligence Agency's Virtual Production environment; demonstrate improved automated procedures and IPB system capabilities in Ops Concept Demonstrations (OCDs).		
(U) \$5,940	Completed AODA spiral 1 prototype development and EFX 99 demonstration; integrate and demonstrate JTE concept in laboratory (single site); completed ATR/TCTA integration and EFX 99 demonstration; began Intelligence Surveillance Recce (ISR) Real Time Requirements definition effort; utilized TCT test bed to improve integration into operational systems and demonstrated integrated capabilities		
(U) \$6,383	Completed JRE prototype development, EFX 99 demonstration, and implementation plan; performed kill chain based C4I analysis.		
(U) \$3,405	Total		
(U) \$22,044			
(U) FY 2000 (\$ in Thousands)	Integration of DBM concepts and prototype capabilities into TMD/TCT cell. Develop upgraded capability for Air Operations Center (AOC) and GTACS and conduct operations experiments during EFX 00.		
(U) \$4,268	Continue to develop IPB evolutionary prototypes (EPs) for TBMCs and Air Intelligence Agency's Virtual Production environment; demonstrate improved automated procedures and IPB system capabilities in Ops Concept Demonstrations (OCDs) and Joint exercises. Complete Area Limitation module development and conduct FY00 EFX demonstration.		
(U) \$5,893	Complete AODA spiral 2 prototype development; continue to develop JTE and conduct EFX 00 demonstrations (distributed, collaborative targeting). Kickoff ISR-Real Time prototype development effort based on FY99 analysis. Maintain TMD Cell Testbed to improve integration into operational systems and demonstrate integrated capabilities in operational concept demonstrations.		
(U) \$4,819	Continue to explore communications improvements that compress Theater Missile engagement timelines and demonstrate integrated capabilities in OCDs, CINC experiments, and Joint Exercises.		
(U) \$2,743	Total		
(U) \$17,723			
(U) FY 2001 (\$ in Thousands)	Continue to develop IPB evolutionary prototypes (EPs) for TBMCs and 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) \$6,165	Complete AODA spiral 2 prototype development and conduct EFX 00 demonstration; continue to develop JTE and conduct EFX 00 demonstration (distributed, collaborative targeting); kickoff ISR-Real Time prototype development effort; maintain TCT Testbed to improve integration into operational systems and demonstrate integrated capabilities in CINC experiments and joint exercises.		
(U) \$5,292	Continue to explore communications improvements that compress Theater Missile engagement timelines and demonstrate integrated capabilities		
(U) \$1,052			
Project 674478		Page 4 of 12 Pages	
		Exhibit R-2A (PE 0208060F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)					DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT		
07 - Operational System Development		0208060F Theater Missile Defenses		674478		
(U)	<u>A. Mission Description Continued</u>					
(U)	<u>FY 2001 (\$ in Thousands) Continued</u>					
	in OCDs, CINC experiments, and Joint Exercises.					
(U)	\$4,626	Conduct BMC4I and Attack Operations Operational Concept Demonstrations.				
(U)	\$2,689	Conduct development of prototype JSTARS ATR HW & SW for multisensor application in the TCTA.				
(U)	\$19,824	Total				
(U)	<u>B. Project Change Summary</u>					
	- FY2001 budget is inclusive of BMC4I initiatives and Attack Operations. The FY01-05 budget is reduced to reflect the impact due to budget constraints and funding AF higher priorities.					
(U)	<u>C. Other Program Funding Summary (\$ in Thousands)</u>					
	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
	Actual	Estimate	Estimate	Estimate	Estimate	Estimate
(U)	AF RDT&E					
(U)	Other APPN					
(U)	RDT&E, BMDO PMA	9,885	4,000	4,000	4,000	4,000
	F3261, BM/C4I					
	Funding provided by the Ballistic Missile Defense Office for BMC4I interoperability evaluations and prototype development.					
(U)	<u>D. Acquisition Strategy</u>					
	HQ Electronic Systems Center (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 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. 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.					
(U)	<u>E. Schedule Profile</u>					
				FY 1999	FY 2000	FY 2001

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									
BUDGET ACTIVITY					DATE				
07 - Operational System Development					February 2000				
PE NUMBER AND TITLE					PROJECT				
0208060F Theater Missile Defenses					674478				
(U) <u>E. Schedule Profile Continued</u>									
					FY 1999	FY 2000	FY 2001		
					1 2 3 4	1 2 3 4	1 2 3 4		
(U) TPS-75 Expert Missile Tracker Prototypes/Contingency Support Systems									
(U) Establish BMC4I prototype development plan and schedule. Annual review					*	X	X		
(U) JEFX demonstrations					*	X			
(U) Demonstrate automated IPB procedures and system capabilities in Ops Concept					*				X
(U) CINC experiments and Joint Exercises.					*	X	X	X	
(U) Evaluate use of C2 planning/decision aids. Annual Review.					*				X
(U) Continue to explore JTIDS/Link-16 Integration/Improvements. Annual Rev					*			X	X
* - Completed									
X- Planned Start Date									
Project 674478					Page 6 of 12 Pages				
					Exhibit R-2A (PE 0208060F)				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE				PROJECT					
07 - Operational System Development		0208060F Theater Missile Defenses				674478					
(U)	<u>A. Project Cost Breakdown (\$ in Thousands)</u>										
(U)	Dynamic Battle Management (DBM)	FY 1999	FY 2000	FY 2001							
(U)	Intelligence Preparation of Battlespace (IPB)	6,316	4,268								
(U)	Automated Decision Aids/Planning Tools	5,940	5,893								
(U)	JTIDS/Link-16 Integration & Beyond LOS Capability	6,383	4,819								
(U)	Operations Concept Demonstrations and CINC Exercises	3,405	2,743								
(U)	Joint STARS ATC/ATR Demonstration										
(U)	Total	22,044	17,723								
(U)	<u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>										
(U)	<u>Performing Organizations:</u>										
	Contractor or Government	Contract Method/Type	Award or Obligation Date	Performing Activity	Project Office	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	<u>Product Development Organizations</u>										
	TRW (AODA)	CPFF	Oct 97	N/A	N/A		2,879	3,080	2,000	Continuing	TBD
	Boeing (DBM)	T&M	Dec 97	N/A	N/A		2,339	0	0		2,339
	Northrop Grumman (DBM)	T&M	Dec 97	N/A	N/A		2,415	0	0		2,415
	Zel Technologies (A2IPB)	T&M	May 96	N/A	N/A		3,160	3,090	2,812	Continuing	TBD
	Sparta (Intel Data Base)	T&M	May 96	N/A	N/A		1,534	1,170	1,100	Continuing	TBD
	Raytheon (JRE)	T&M	Oct 97	N/A	N/A		2,119	405	325	Continuing	TBD
	Motorola (TCTA)	T&M	Mar 96	N/A	N/A		1,945	1,820	3,259	Continuing	TBD
	Army TEC (Area Lim)	MIPR	June 99	N/A	N/A			1,556	985		2,541
	For Profit Contractor (Analyses)	TBD	Nov 99	N/A	N/A			575		Continuing	TBD
	Sandia National Labs	MIPR	Oct 99	N/A	N/A				2,034	Continuing	TBD

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	February 2000	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT		
07 - Operational System Development		0208060F Theater Missile Defenses		674478		
(U) <u>Performing Organizations Continued:</u>						
<u>Support and Management Organizations</u>						
FFRDC		N/A	N/A	2,500	1,353	985 Continuing TBD
Non-FFRDC (ESC)		N/A	N/A	1,031	875	650 Continuing TBD
Non-FFRDC (AC2ISRC)		N/A	N/A	540	525	525 Continuing TBD
Non-FFRDC (AF/XORT)		N/A	N/A	500	955	984 Continuing TBD
<u>Test and Evaluation Organizations</u>						
C2TIG/AFTED				1,082	2,319	4,165 Continuing TBD
		<u>Total Prior</u>		<u>Budget</u>	<u>Budget</u>	<u>Total</u>
		<u>to FY 1999</u>		<u>FY 1999</u>	<u>FY 2000</u>	<u>Complete</u>
<u>Subtotals</u>				16,391	11,696	TBD
Subtotal Product Development				4,571	3,708	TBD
Subtotal Support and Management				1,082	2,319	TBD
Subtotal Test and Evaluation				22,044	17,723	TBD
Total Project						TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0208060F Theater Missile Defenses								674479	
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
674479	Attack Operations Concept Development	8,527	8,181	0	0	0	0	0	0	0	
(U) A. Mission Description 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 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 theater missile targets. Effectiveness and affordability parameters defined will be used in support of follow on acquisition decisions involving P31 upgrades to existing weapon systems and potential new start programs within existing/other program elements.											
(U)	FY 1999 (\$ in Thousands)										
(U)	\$2,135	Conducted Attack Operations Operational Concept Demonstration.									
(U)	\$1,520	Continued analysis of updated architectures with weapon system and BMC4I upgrades, to support future year mission analysis. Planned participation in future year distributed simulations to demonstrate improvements in attack operations capabilities.									
(U)	\$2,691	Conducted demonstration of F-15E ATC/R prototype with sensor fusion.									
(U)	\$2,181	Conducted development of common ATR for integration in the Time-Critical Targeting Aid (TCTA) for multi-sensor application. Continued development and demonstration planning of ATR onboard the JSTARS test aircraft (T3).									
(U)	\$8,527	Total									
(U)	FY 2000 (\$ in Thousands)										
(U)	\$2,145	Conduct Attack Operations Operational Concept Demonstration.									
(U)	\$1,900	Continue analysis of architectures with weapon system and BMC4I upgrades. Participate in a distributed simulation to verify improvements in attack operations capabilities from sensor to shooter that were demonstrated on prototype attack and surveillance systems. Support development of user's operational requirements for weapon system ORDs.									
(U)	\$2,090	Conduct demonstration of prototype TCTA with ATR. Conduct demonstration of JSTARS ATR with expanded target set of time-critical targets.									
(U)	\$2,046	Conduct development of F-15E ATC/R prototype with on- and off-board sensor fusion. Perform lab demonstration of prototyped capabilities.									
(U)	\$8,181	Total									

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
07 - Operational System Development	0208060F Theater Missile Defenses	674479	
(U) A. Mission Description Continued			
(U) FY 2001 (\$ in Thousands)			
(U) \$0	FY01 Attack Operations programs included in BPAC 674479.		
(U) \$0	Total		
(U) B. Project Change Summary			
FY01 funding consolidated in BPAC 674478			
(U) C. Other Program Funding Summary (\$ in Thousands)			
	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate
(U) AF RDT&E			
(U) Other APPN			
(U) D. Acquisition Strategy			
HQ Aeronautical Systems Center (ASC) provides the program management for the concept exploration and prototype development of TMD Attack Operations. ASC conducts lab demonstrations with Wright Labs and supports Concept of Operations (CONOPS) development and requirements definition by analyzing and demonstrating measures of effectiveness for various sensor improvements and cueing schemes.			
(U) E. Schedule Profile			
	FY 1999	FY 2000	FY 2001
(U) ATC/R Demos (F-15E/Surveillance)	1	2	3
(U) Ops Concept Demonstrations	*	2	4
* - Completed		X	
X - Planned Start Date		X	
Project 674479		Exhibit R-2A (PE 0208060F)	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)									
BUDGET ACTIVITY			PE NUMBER AND TITLE			DATE		PROJECT	
07 - Operational System Development			0208060F Theater Missile Defenses					February 2000	
(U)	A. Project Cost Breakdown (\$ in Thousands)								
(U)	Joint STARS ATC/R Demonstration/Improvements								
(U)	Operational Concept Demonstration (RS99 and EFX99)								
(U)	Sensor Prototypes and Attack Ops Demonstrations/Sims								
(U)	F-15E ATC/R Demonstrations								
(U)	Total								
(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 1999	Budget FY 1999	Budget FY 2000	Budget to FY 2001 Complete
	Product Development Organizations								
	For Profit Contractor	TBD	Nov 99	N/A	N/A		1,240	1,600	
	(Analyses)								
	Sandia National Labs	MIPR	Oct 99	N/A	N/A		2,310	2,090	
	Raytheon (F-15E Radar)	CPFF	Mar 95	N/A	N/A		2,265	1,564	
	Lockheed (Tgt Pod)	CPFF	Nov 99	N/A	N/A		1,316	891	
	Support and Management Organizations								
	FFRDC			N/A	N/A				Continuing
	Non-FFRDC			N/A	N/A				Continuing
	HQ ASC			N/A	N/A		300	355	Continuing
	Test and Evaluation Organizations								
	C2ITG/AFTED	MIPR	Mar 95	N/A	N/A		734	1,581	Continuing
	AFSAA	MIPR	Feb 95	N/A	N/A				0
	Eglin-46 Tst Wg	PO	May 94	N/A	N/A		362	100	Continuing

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT	
07 - Operational System Development		0208060F Theater Missile Defenses		674479	
Subtotals		Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget to Complete
Subtotal Product Development			7,131	6,145	13,276
Subtotal Support and Management			300	355	TBD
Subtotal Test and Evaluation			1,096	1,681	TBD
Total Project			8,527	8,181	TBD

Project 674479

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE							
BUDGET ACTIVITY		PROJECT							
07 - Operational System Development		February 2000							
PE NUMBER AND TITLE		PROJECT							
0302015F E-4B NATIONAL AIRBORNE OPERATIONS		674777							
CENTER									
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674777 E-4B Aircraft Modernization	1,824	12,597	34,410	32,314	4,168	19,353	27,904	0	132,570
Quantity of RDT&E Articles	0	0	0	1	0	0	0	0	1
(U) A. Mission Description This program encompasses modernization of National Airborne Operational Center (NAOC) essential infrastructure, mission equipment, and interior, as well as mandated Global Access, Navigation, and Safety/Global Air Traffic Management (GANS/GATM) modifications to the E-4B aircraft. The NAOC supports the National Command Authority (NCA) and Joint Chiefs of Staff with a worldwide, survivable and enduring node of the National Military Command System (NMCS) for the exercise of their national security responsibilities throughout the full spectrum of conflict. These modifications are vital in order to maintain mission effectiveness and efficiency. The upgrades: 1) replace the increasingly hard-to-support 1960s era communications and computer equipment (telecommunications switch, multiplexer, messaging systems, etc) on the aircraft with modern, reliable, digital systems that will be supportable for the planned life of the platform; 2) make the commander's console and battle staff workstations compatible with GCCS architecture and software; 3) provide sound dampening to eliminate the severe ambient noise problems that prevent normal communications in the briefing room, conference room, and battle staff area without using intercom headsets; and 4) provide GANS/GATM equipment, integration and testing.									
(U) FY 1999 (\$ in Thousands) (U) \$1,334 Engineering Trade Studies(e.g., E-4B modification and GANS/GATM Analysis) (U) \$490 System Engineering and Program Management Support (U) \$0 No Activity (U) \$1,824 Total									
(U) FY 2000 (\$ in Thousands) (U) \$6,727 Development of E-4B Modifications (U) \$4,670 Software Development; GCCS Integration (U) \$1,200 System Engineering and Program Management Support (U) \$12,597 Total									

Project 674777

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
07 - Operational System Development	0302015F E-4B NATIONAL AIRBORNE OPERATIONS	674777	
CENTER			
(U) A. Mission Description Continued			
(U) FY 2001 (\$ in Thousands)			
(U) \$3,094	Complete E-4B Modifications Development (Software and Hardware)		
(U) \$14,594	Purchase Engineering Prototype		
(U) \$10,010	Install Prototype on A/C #1		
(U) \$5,162	System Integration, Testing, and Documentation		
(U) \$1,550	System Engineering, and Program Management Support		
(U) \$34,410	Total		
(U) B. Budget Activity Justification			
This program is in budget activity 7 - Operational System Development, Research Category 6.6 because the program is developing modifications for current operations systems.			
(U) C. Program Change Summary (\$ in Thousands)			
(U) Previous President's Budget (FY 2000 PBR)	FY 1999	FY 2000	FY 2001
(U) Appropriated Value	2,137	12,666	40,516
(U) Adjustments to Appropriated Value	2,143	12,666	
a. Congressional/General Reductions	-6		
b. Small Business Innovative Research	-70		
c. Omnibus or Other Above Threshold Reprogram		-69	
d. Below Threshold Reprogram			
e. Rescissions	-243		
f. Other			
(U) Adjustments to Budget Years Since FY 2000 PBR			-6,106
(U) Current Budget Submit/FY 2001 PBR	1,824	12,597	34,410
(U) Significant Program Changes:			132,570
FY01: RDT&E and Procurement programs have been re-phased based on DepSecDef guidance.			
Project 674777		Exhibit R-2 (PE 0302015F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE		February 2000	
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT			
07 - Operational System Development		0302015F E-4B NATIONAL AIRBORNE OPERATIONS								674777			
		CENTER											
(U) D. Other Program Funding Summary (\$ in Thousands)													
		FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to	Total Cost			
		Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete				
(U)	AF RDT&E												
(U)	Other APPN												
(U)	Aircraft Procurement AF,	10,971	15,044	31,559	16,925	33,023	61,349	38,780	0	207,651			
	Budget Activity 5, Weapon												
	System Code E00400, PE												
	0302015F												
(U) E. Acquisition Strategy													
There are two contracts on the E-4B: an Engineering Services (ES) contract and a Contractor Logistics Support (CLS)/Modifications contract. The ES contract was awarded to the Boeing Company as the Original Equipment Manufacturer (also includes support for the KC-10, VC-25, T-43, and others) and provides development and prototyping efforts. The CLS/Mods contract was awarded after a full and open competition and provides Programmed Depot Maintenance and modification installations.													
The E-4B Modernization Program will be developed and trial installed under the ES contract as a Cost Plus Award Fee (CPAF) effort. The production and installation of modification kits will be performed under the CLS/Mods contract as a Firm Fixed Price (FFP) contract.													
(U) F. Schedule Profile													
		FY 1999		FY 2000		FY 2001							
		1	2	3	4	1	2	3	4	1	2	3	4
				*									
(U)	Begin Engineering Trade Studies												
(U)	Complete Engineering Trade Studies												
(U)	Begin E-4B Modifications Development					*	X						
(U)	Complete E-4B Modifications Development												
(U)	Begin Software Development							X					
(U)	Complete Software Development											X	
(U)	Purchase Engineering Prototype for A/C #1												
Note: * Denotes Completed Event. X Denotes Planned Event													
Project 674777										Exhibit R-2 (PE 0302015F)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE	February 2000
BUDGET ACTIVITY			PE NUMBER AND TITLE 0302015F E-4B NATIONAL AIRBORNE OPERATIONS 674777						
07 - Operational System Development			CENTER						
(U) Government Furnished Property:									
	<u>Contract</u>								
	<u>Method/Type</u>	<u>Award or</u>							
	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>						
	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>						
<u>Item</u>				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Total</u>	
<u>Description</u>				<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>Complete</u>	<u>Program</u>	
<u>Product Development Property</u>									
None									
<u>Support and Management Property</u>									
None									
<u>Test and Evaluation Property</u>									
None									
<u>Subtotals</u>									
Subtotal Product Development				0	1,334	11,397	32,820	126,120	
Subtotal Support and Management				0	490	1,200	1,550	6,310	
Subtotal Test and Evaluation				0			40	140	
Total Project				0	1,824	12,597	34,410	132,570	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0303110F Defense Satellite Communications System								672638	
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
672638	Defense Satellite Communications Sys	10,405	5,015	7,328	4,069	2,153	1,259	1,352	0	626,915	
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	
(U) A. Mission Description 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 Super High Frequency band. DSCS provides unique and vital national security communications for global command and control, crisis management, intelligence and early warning data relay, treaty monitoring and surveillance information, and diplomatic traffic. The communications relayed through DSCS support the National Command Authorities, Defense Information System Network, Diplomatic Telecommunications Service, White House Communications Agency, Air Force Satellite Control Network, and ground mobile forces of all services. The DSCS Service Life Enhancement Program (SLEP) includes additional modifications that increase the last four satellites capacity to tactical users by more than 200%, and implements the DoD Space Architect's recommendation. The last two DSCS III satellites will launch on the Evolved Expendable Launch Vehicle (EELV) and will require DSCS launch vehicle interface modifications and additional launch loads analyses.											
(U)	FY 1999 (\$ in Thousands)										
(U)	\$1,317	System Program Office Operations									
		- Contractor Support									
		- Mission Support									
(U)	\$1,592	Basic DSCS Program									
		- Pay performance incentives for development satellites still on orbit and operational									
		- Conduct programmatic tradeoffs and analyses									
(U)	\$7,316	Continue DSCS/EELV (Evolved Expendable Launch Vehicle) integration kit development, transitioning the last two satellites to EELV									
(U)	\$180	Continue SLEP (Service Life Enhancement Program) Modification									
(U)	\$10,405	Total									

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
07 - Operational System Development		0303110F Defense Satellite Communications System 672638	
(U) A. Mission Description Continued			
(U) FY 2000 (\$ in Thousands)			
(U) \$1,210	System Program Office Operations		
	- Contractor Support		
	- Mission Support		
(U) \$553	Basic DSCS Program		
	- Pay performance incentives for development satellites still on orbit and operational		
	- Conduct programmatic tradeoffs and analyses		
(U) \$100	Finish SLEP Modification		
(U) \$3,152	Continue DSCS/EELV integration kit development, transitioning the last two satellites to EELV		
(U) \$5,015	Total		
(U) FY 2001 (\$ in Thousands)			
(U) \$1,653	System Program Office Operations		
	- Contractor Support		
	- Mission Support		
(U) \$315	Basic DSCS Program		
	- Pay performance incentives for development satellites still on orbit and operational		
	- Conduct programmatic tradeoffs and analyses		
(U) \$5,360	Continue DSCS/EELV integration kit development, transitioning the last two satellites to EELV		
(U) \$7,328	Total		
(U) B. Budget Activity Justification			
This program is in Budget Activity 7, Operational System Development, since DSCS is a fully operational satellite constellation with replenishment satellites awaiting launch, and associated support systems.			
(U) C. Program Change Summary (\$ in Thousands)			
	FY 1999	FY 2000	FY 2001
(U) Previous President's Budget (FY 2000 PBR)	14,003	8,985	8,593
(U) Appropriated Value	14,141	5,485	
(U) Adjustments to Appropriated Value			
a. Congressional/General Reductions	-138	-7	
			Total Cost
			645,948
Project 672638		Exhibit R-2 (PE 0303110F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
07 - Operational System Development	0303110F Defense Satellite Communications System	672638	
(U) C. Program Change Summary (\$ in Thousands) Continued			
b. Small Business Innovative Research	FY 1999	FY 2000	FY 2001
c. Omnibus or Other Above Threshold Reprogram	-587		
d. Below Threshold Reprogram	-2,953	-28	
e. Rescissions	-58	-435	
f. Other			
(U) Adjustments to Budget Years Since FY 2000 PBR			-1,265
(U) Current Budget Submit/FY 2001 PBR	10,405	5,015	7,328
			626,915
(U) Significant Program Changes:			
\$2895K in FY1999 and \$1265K in FY2001 used to fund higher Air Force priorities.			
RDT&E funding beyond FY04 was transferred to the O&M appropriation for FY05 through the end of the program.			
B8 launch scheduled for Jul 99 slipped to Jan 00 due to launch scheduling issues and satellite wiring problems.			
(U) D. Other Program Funding Summary (\$ in Thousands)			
	FY 1999	FY 2000	FY 2001
	Actual	Estimate	Estimate
(U) AF RDT&E	0	0	11,500
(U) AF Wideband 3600, PE			
63854F, BPAC 836780			
(CCS-C)			
(U) Other APPN			
(U) AF Wideband 3080	0	0	4,852
Procurement (CCS-C), PE			
33600F			
(U) Missile Procurement, Budget	27,573	30,425	22,770
Activity 5, Space and Other			
Support, Line Item P-27			
(U) E. Acquisition Strategy			
All satellites have been acquired and four satellites remain to launch. Enhancements to satellites not launched will be accomplished through sole source contract awards.			
Project 672638	Page 3 of 6 Pages	Exhibit R-2 (PE 0303110F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000				
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT					
07 - Operational System Development		0303110F Defense Satellite Communications System		672638			
(U) <u>F. Schedule Profile</u>							
(U) Launch DSCS B8/IABS (Integrated Apogee Boost Subsystem) 9 (Jan 00)	1	FY 1999 2	4	1	FY 2000 2	3	4
(U) Launch DSCS B11/IABS 8 (Oct 00)							
(U) Launch DSCS B6/IABS 7 (May 02)							
(U) Launch DSCS A3/IABS 10 (May 03)							
(U) SLEP Mod Program (Mar 96-Sep 00)							
(U) EELV Integration (Sep 98 - May 03)							
* = completed event; x = planned event							

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)									
BUDGET ACTIVITY					DATE		PROJECT		
07 - Operational System Development					0303110F Defense Satellite Communications System		February 2000 672638		
A. Project Cost Breakdown (\$ in Thousands)					FY 1999		FY 2000		
(U)	System Program Office Operations				1,317		1,210		1,653
(U)	Basic DSCS Program				1,592		553		315
(U)	Evolved Expendable Launch Vehicle Integration				7,316		3,152		5,360
(U)	Service Life Enhancement Program Modifications				180		100		0
(U)	Total				10,405		5,015		7,328
B. Budget Acquisition History and Planning Information (\$ in Thousands)									
(U)	Performing Organizations:								
	Contract or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Total Program
	Product Development Organizations								
	Lockheed Martin	CPAF/AF	Oct 84/Mar 96	437,500	437,500	434,259	180	100	434,539
	Miscellaneous	CPAF	Various	N/A	N/A	132,773	7,316	3,152	151,975
	Support and Management Organizations								
	Aerospace Corp	PO	Various	N/A	N/A	12,900			12,900
	Miscellaneous	Various	Various	N/A	N/A	15,402	2,909	1,763	27,501
	Test and Evaluation Organizations								
	None								
(U)	Government Furnished Property:								
	Contract	Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Total Program
	Item Description								
	Product Development Property								
	None								

Project 672638

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					
BUDGET ACTIVITY	PE NUMBER AND TITLE	DATE	PROJECT		
	07 - Operational System Development		0303110F Defense Satellite Communications System 672638		
(U) Government Furnished Property Continued:					
Support and Management Property					
None					
Test and Evaluation Property					
None					
Subtotals					
Subtotal Product Development					
Subtotal Support and Management					
Subtotal Test and Evaluation					
Total Project					

Exhibit R-3 (PE 0303110F)
 Page 6 of 6 Pages
 Project 672638

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Exhibit R-3 (PE 0303110F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0303112F AIR FORCE COMMUNICATIONS								674884	
		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
674884	COST (\$ in Thousands)										
	Public Key Infrastructure Implementation	0	0	11,478	31,648	0	0	0	0	43,126	
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	
(U)	A. Mission Description PUBLIC KEY INFRASTRUCTURE (PKI): A Department of Defense (DoD) PKI was mandated by the Deputy Secretary of Defense on 8 Aug 97 and the Services were further directed to use the capabilities in a 6 May 99 memo. PKI, a new start program, supports the overall Defense-in-Depth strategy for information assurance capabilities -- user identification, non-repudiation, digital signatures and encryption for government electronic business and network transactions -- protecting/securing all network information. Because of the initial program efforts for integration and implementation of the PKI COTS certificates and products into our common operating environment (including network architecture), FY01 and FY02 funds were transferred from Operations and Maintenance (O&M) to Research Development Test & Evaluation (RDT&E). Funds will be used to support initial implementation and integration of PKI user smart card, public key directory storage of the PKI certificates, PKI registration for both users and servers, and initial training. In particular, the RDT&E funds will be applied to the Smart Card/Common Access Card (CAC) to integrate and test with the current Defense Enrollment Reporting System (DEERS)/Real-Time Automated Personnel Identification Systems (RAPIDS) ID and registration system. Additionally, the funds will be used to prototype and test replicating the DoD Public key directory to each Air Force base-level directory structure. Furthermore, we will perform technology integration and testing of new hardware CAC token into the user desktop environment. Finally, we allotted a small amount for AF SPO program support activities.										
(U)	FY 1999 (\$ in Thousands)										
(U)	\$0										
(U)	\$0										
(U)	Total										
(U)	FY 2000 (\$ in Thousands)										
(U)	\$0										
(U)	\$0										
(U)	Total										

Project 674884

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Exhibit R-2 (PE 0303112F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
07 - Operational System Development	0303112F AIR FORCE COMMUNICATIONS	674884	
(U) A. Mission Description Continued			
(U) FY 2001 (\$ in Thousands)			
(U) \$7,085	Prototyping support for Interface/Integration of registration Common Access Card tokens, peripheral readers with Air Force-wide computer and communication architectures		
(U) \$3,820	Testing support of Public Key Infrastructure Certificate Directories and other infrastructure components		
(U) \$573	Program and management control (SPO activities)		
(U) \$11,478	Total		
(U) B. Budget Activity Justification			
This is a budget activity 7, Operational System Development because it supports Air Force requirements to prototype, integrate, and test Public Key Infrastructure components including registration and usage hardware/software/middle-ware, Common Access Cards, and directories on Air Force computer systems and networks.			
(U) C. Program Change Summary (\$ in Thousands)			
(U) Previous President's Budget (FY 2000 PBR)		FY 1999	FY 2000
(U) Appropriated Value			FY 2001
(U) Adjustments to Appropriated Value			Total Cost
a. Congressional/General Reductions			
b. Small Business Innovative Research			
c. Omnibus or Other Above Threshold Reprogram			
d. Below Threshold Reprogram			
e. Rescissions			
f. Other			
(U) Adjustments to Budget Years Since FY 2000 PBR		11,478	
(U) Current Budget Submit/FY 2001 PBR		11,478	43,126
(U) Significant Program Changes:			
Project 674884		Exhibit R-2 (PE 0303112F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0303112F AIR FORCE COMMUNICATIONS								674884	
(U)	D. Other Program Funding Summary (\$ in Thousands)										
		FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to	Total Cost	
		Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete		
(U)	AF RDT&E			11,478	31,648					43,126	
(U)	APPN 3600/PE 33112F/PE										
	Title AF										
	Communications/BPAC										
	674884/ Title PKI										
(U)	Other APPN										
(U)	E. Acquisition Strategy										
	Electronic Systems Center (ESC) Information Assurance Product Area Directorate (PAD) manages the AF PKI Program. All major contracts within this program element are scheduled to be awarded after full and open competition or through existing government contracting vehicles. The PKI program is a new start and we will continue to address contract options. The options under review include: GSA, Standard AF contract (through the Standard Systems Group, AL), and Information Technology Services Program (ITSP) to support engineering effort and equipment for the integration of Common Access Card tokens and prototyping of AF base level directories. Current PKI program strategy is to use the ITSP contract.										
(U)	F. Schedule Profile										
		FY 1999		FY 2000		FY 2001					
		1	2	3	4	1	2	3	4		
(U)	Prototyping support for PKI Interface/Integration of Tokens										
(U)	Testing support of Public Key Infrastructure Certificate Directories						X				
	X denotes planned event						X				

Project 674884

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DATE **February 2000**

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
07 - Operational System Development	0303112F AIR FORCE COMMUNICATIONS	674884

PE NUMBER AND TITLE

0303112F AIR FORCE COMMUNICATIONS

	FY 1999	FY 2000	FY 2001
1. Operating Expenses			
2. Operating Income			
3. Non-Operating Expenses			
4. Non-Operating Income			
5. Income Before Income Taxes			
6. Income Tax Expense			
7. Income After Income Taxes			
8. Other Comprehensive Income			
9. Comprehensive Income			
10. Retained Earnings			
11. Dividends			
12. Other Equity Changes			
13. Equity			
14. Assets			
15. Liabilities			
16. Other Comprehensive Income			
17. Comprehensive Income			
18. Retained Earnings			
19. Dividends			
20. Other Equity Changes			
21. Equity			
22. Assets			
23. Liabilities			
24. Other Comprehensive Income			
25. Comprehensive Income			
26. Retained Earnings			
27. Dividends			
28. Other Equity Changes			
29. Equity			
30. Assets			
31. Liabilities			
32. Other Comprehensive Income			
33. Comprehensive Income			
34. Retained Earnings			
35. Dividends			
36. Other Equity Changes			
37. Equity			
38. Assets			
39. Liabilities			
40. Other Comprehensive Income			
41. Comprehensive Income			
42. Retained Earnings			
43. Dividends			
44. Other Equity Changes			
45. Equity			
46. Assets			
47. Liabilities			
48. Other Comprehensive Income			
49. Comprehensive Income			
50. Retained Earnings			
51. Dividends			
52. Other Equity Changes			
53. Equity			
54. Assets			
55. Liabilities			
56. Other Comprehensive Income			
57. Comprehensive Income			
58. Retained Earnings			
59. Dividends			
60. Other Equity Changes			
61. Equity			
62. Assets			
63. Liabilities			
64. Other Comprehensive Income			
65. Comprehensive Income			
66. Retained Earnings			
67. Dividends			
68. Other Equity Changes			
69. Equity			
70. Assets			
71. Liabilities			
72. Other Comprehensive Income			
73. Comprehensive Income			
74. Retained Earnings			
75. Dividends			
76. Other Equity Changes			
77. Equity			
78. Assets			
79. Liabilities			
80. Other Comprehensive Income			
81. Comprehensive Income			
82. Retained Earnings			
83. Dividends			
84. Other Equity Changes			
85. Equity			
86. Assets			
87. Liabilities			
88. Other Comprehensive Income			
89. Comprehensive Income			
90. Retained Earnings			
91. Dividends			
92. Other Equity Changes			
93. Equity			
94. Assets			
95. Liabilities			
96. Other Comprehensive Income			
97. Comprehensive Income			
98. Retained Earnings			
99. Dividends			
100. Other Equity Changes			
101. Equity			
102. Assets			
103. Liabilities			
104. Other Comprehensive Income			
105. Comprehensive			

7.085

3,820

573

11,478

1

10

Contract

Award or

Obligation

Date

Dec 00

Dec 00

Dec 00

Program

585,97

2,173
14,268

14,308
12,120

43,120

10

10

—

1

1

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Exhibit R-3 (PE 0303112F)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE									
07 - Operational System Development		0303131F Minimum Essential Emergency Communications Network (MEECN)									
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
Total Program Element (PE) Cost		37,624	45,285	15,302	2,970	2,437	2,032	2,075	Continuing	TBD	
672832	VLF/LF System Improvements	22,260	21,809	2,719	1,446	1,176	1,452	1,495	Continuing	TBD	
674521	DIRECT	3,321	1,171	1,236	1,135	873	290	290	Continuing	TBD	
674610	MEECN EHF	12,043	22,305	11,347	389	388	290	290	Continuing	TBD	
Quantity of RDT&E Articles		9	11	4	0	0	0	0	0	TBD	
(U) A. Mission Description											
MEECN systems provide assured communications connectivity between the National Command Authorities (NCA) and the strategic deterrent forces. Currently these systems include the Modified Miniature Receive Terminal (MMRT) with High Data Rate (HIDAR) mode for the E-4B and E-6B aircraft, a VLF/LF modification to the Minuteman Launch Control Center (LCC), the Defense Improved Emergency Message Automated Transmission System (IEMATS) Replacement Command and Control Terminals (DIRECT), and Extremely High Frequency (EHF) modification to the Minuteman LCC.											
(U) B. Budget Activity Justification											
This program is in Budget Activity 7 - Operational System Development, because it supports work on currently operating systems.											
(U) C. Program Change Summary (\$ in Thousands)											
Previous President's Budget (FY 2000 PBR)					FY 1999	FY 2000	FY 2001	Total Cost			
Appropriated Value					38,788	45,907	15,438				
Adjustments to Appropriated Value					39,230	45,907					
a. Congressional/General Reductions					-442	-15					
b. Small Business Innovative Research					-1,232	-249					
c. Omnibus or Other Above Threshold Reprogram											
d. Below Threshold Reprogram					278						
										Page 1 of 15 Pages	
										Exhibit R-2 (PE 0303131F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE
BUDGET ACTIVITY			February 2000
07 - Operational System Development			
PE NUMBER AND TITLE			
0303131F Minimum Essential Emergency Communications Network (MEECN)			
C. Program Change Summary (\$ in Thousands) Continued			
	FY 1999	FY 2000	FY 2001
(U) e. Rescissions	-210	-358	
(U) f. Other			
(U) Adjustments to Budget Years Since FY 2000 PBR			-136
(U) Current Budget Submit/FY 2001 PBR	37,624	45,285	15,302
(U) Significant Program Changes:			
BTR in FY99: Support to DIRECT: +\$800K; support to other AF priorities: -\$512K.			
			Total Cost
			TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0303131F Minimum Essential Emergency Communications Network (MEECN)								672832	
			FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
672832	VLF/LF System Improvements		22,260	21,809	2,719	1,446	1,176	1,452	1,495	Continuing	TBD
(U) A. Mission Description The Modified Miniature Receive Terminal (MMRT) Program will modify existing Miniature Receive Terminals (MRTs) and provide High Data Rate (HIDAR) capability for installation on the following platforms as a minimum: the E-4B, National Airborne Operations Center (NAOC); and the E-6B, Take Charge and Move Out (TACAMO). This program will make VLF/LF receivers fully interoperable. MRT is a Very Low Frequency/Low Frequency (VLF/LF) receiver without HIDAR already designed, developed, and installed on the B-1B and B-52H bombers. The MRTs to be modified for the MMRT program will be removed from the B-1Bs and some retired B-52s. HIDAR is a Joint Staff-directed effort to provide a fast and interoperable MEECN mode. The MMRT program develops and tests HIDAR modifications required to ensure the E-4 and E-6 platforms are interoperable in MEECN. ICBM Launch Control Center (LCC) VLF/LF RDT&E and Production tasks were contractually combined with the MEECN EHF effort. The combined program is referred to as the Minuteman MEECN Program (MMP). The ICBM Prime Integrating Contract (through OO-ALC) is being used as a contracting vehicle. Requirements, estimates and schedules remain the same. FY 1999 (\$ in Thousands) (U) \$8,730 Continued common MMRT and airborne integration development (U) \$3,100 MMRT Testing (U) \$1,370 Communications Evaluation Program (CEP)/Studies and Analysis (U) \$9,060 ICBM LCCs VLF/LF integration and development (part of MMP) (U) \$22,260 Total FY 2000 (\$ in Thousands) (U) \$5,000 Continue common MMRT and airborne integration development (U) \$2,091 MMRT airworthiness and nuclear certification (U) \$1,411 Communications Evaluation Program (CEP)/Studies and Analysis (U) \$13,307 ICBM LCC VLF/LF integration and development (part of MMP) (U) \$21,809 Total											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE	February 2000																																																																																															
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT																																																																																																
07 - Operational System Development	0303131F Minimum Essential Emergency Communications Network (MEECN)	672832																																																																																																
(U) A. Mission Description Continued (U) FY 2001 (\$ in Thousands) (U) \$1,409 MMRT airworthiness and nuclear certification (U) \$1,310 Communications Evaluation Program (CEP)/Studies and Analysis (U) \$2,719 Total (U) B. Project Change Summary None (U) C. Other Program Funding Summary (\$ in Thousands) <table border="1"> <thead> <tr> <th></th> <th>FY 1999 Actual</th> <th>FY 2000 Estimate</th> <th>FY 2001 Estimate</th> <th>FY 2002 Estimate</th> <th>FY 2003 Estimate</th> <th>FY 2004 Estimate</th> <th>FY 2005 Estimate</th> <th>Cost to Complete</th> <th>Total Cost</th> </tr> </thead> <tbody> <tr> <td>(U) APPN 10, Aircraft Procurement - AF, (MEECN, PE 0303131F, BA 5, P-1 XX)</td> <td>0</td> <td>5,003</td> <td>18,550</td> <td>7,236</td> <td>1,506</td> <td>0</td> <td>0</td> <td>0</td> <td>32,295</td> </tr> </tbody> </table> (U) D. Acquisition Strategy Modified Miniature Receive Terminal (MMRT) Program. Program to satisfy both the Air Force and Navy requirements via a joint 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 for the E-4B (National Airborne Operations Center (NAOC)); E-6B (Take Charge and Move Out (TACAMO)); and an option for the ICBM Launch Control Centers (LCCs). Airborne MMRT production contract award planned for FY00. Deployment of airborne Air Force and Navy MMRT units will be complete by 2003. ICBM LCC VLF/LF EMD began in FY99. ICBM LCC VLF/LF EMD tasks and production were coupled with the MEECN EHF effort contractually. The combined program is referred to as the Minuteman MEECN Program (MMP). The ICBM Prime Integrating Contract (through OO-ALC) is being used as a contracting vehicle. (U) E. Schedule Profile <table border="1"> <thead> <tr> <th></th> <th colspan="3">FY 1999</th> <th colspan="3">FY 2000</th> <th colspan="3">FY 2001</th> </tr> <tr> <th></th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> </tr> </thead> <tbody> <tr> <td>(U) Complete EMD for E-4B Aircraft</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) MMRT Aircraft Milestone III Decision</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) EMD Contract Award - ICBM LCC VLF/LF</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Preliminary Design Review - LCC VLF/LF</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>					FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	(U) APPN 10, Aircraft Procurement - AF, (MEECN, PE 0303131F, BA 5, P-1 XX)	0	5,003	18,550	7,236	1,506	0	0	0	32,295		FY 1999			FY 2000			FY 2001				1	2	3	4	1	2	3	4	1	2	3	4	(U) Complete EMD for E-4B Aircraft													(U) MMRT Aircraft Milestone III Decision													(U) EMD Contract Award - ICBM LCC VLF/LF													(U) Preliminary Design Review - LCC VLF/LF												
	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost																																																																																									
(U) APPN 10, Aircraft Procurement - AF, (MEECN, PE 0303131F, BA 5, P-1 XX)	0	5,003	18,550	7,236	1,506	0	0	0	32,295																																																																																									
	FY 1999			FY 2000			FY 2001																																																																																											
	1	2	3	4	1	2	3	4	1	2	3	4																																																																																						
(U) Complete EMD for E-4B Aircraft																																																																																																		
(U) MMRT Aircraft Milestone III Decision																																																																																																		
(U) EMD Contract Award - ICBM LCC VLF/LF																																																																																																		
(U) Preliminary Design Review - LCC VLF/LF																																																																																																		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE	February 2000	
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
07 - Operational System Development	0303131F Minimum Essential Emergency Communications Network (MEECN)	672832		
(U) <u>E. Schedule Profile Continued</u>				
		FY 1999	FY 2000	FY 2001
		1 2 3 4 *	1 2 3	2 3 4
(U) Critical Design Review - LCC VLF/LF				X
(U) Milestone III Decision - LCC VLF/LF				X
(U) Production Start - LCC VLF/LF				
* Indicates completed task				
X Indicates planned task				
Project 672832		Exhibit R-2A (PE 0303131F)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT	
07 - Operational System Development		0303131F Minimum Essential Emergency Communications Network (MEECN)		672832	
A. Project Cost Breakdown (\$ in Thousands)					
(U)	Prime Contract (MMRT)	FY 1999	FY 2000	FY 2001	
(U)	ICBM VLF/LF Development (MMP)	7,830	5,000	1,189	
(U)	Test	9,060	13,307	0	
(U)	Air Force	0	0	0	
(U)	Navy	3,100	1,100	0	
(U)	Program Management Administration (PMA)	300	600	100	
(U)	SE/TA	600	391	120	
(U)	CEP/Studies and Analysis	1,370	1,411	1,310	
(U)	Total	22,260	21,809	2,719	
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 1999
Product Development Organizations					
Rockwell	SS/CPAF	Aug 92	13,500	13,500	0
Rockwell	SS/CPAF	Jul 96	47,916	33,836	5,000
TRW	SS/CPAF	Mar 99	N/A	0	13,307
Support and Management Organizations					
SE/TA [SRC, ASEC, MCR ATT, ANSER]	LOE	Annual	1,942	391	120
MITRE	LOE	Annual	131		Continuing
PMA	Various	Annual	484	600	100
SPAWAR SysGen (CEP)	MIPR	Annual	1,068	1,411	1,310
ALCs	MIPR	Annual	355		0
Total					
13,500					
TBD					
22,367					
TBD					
TBD					
TBD					
355					
Project 672832				Exhibit R-3 (PE 0303131F)	
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE	February 2000	PROJECT		
BUDGET ACTIVITY		PE NUMBER AND TITLE			0303131F Minimum Essential Emergency Communications Network (MEECN)				
07 - Operational System Development									
(U)	<u>Performing Organizations Continued:</u>								
	<u>Test and Evaluation Organizations</u>								
	NavAir Warfare Center	MIPR	Annual		1,954	3,100	1,100	0	6,154
	Air Force	MIPR	Annual		204			0	204
(U)	<u>Government Furnished Property:</u>								
	<u>Contract</u>								
	<u>Item</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
	<u>Description</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Date</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>Complete</u>	<u>Program</u>
	<u>Product Development Property</u>	<u>Vehicle</u>	<u>Date</u>						
	N/A								
	<u>Support and Management Property</u>								
	N/A								
	<u>Test and Evaluation Property</u>								
	N/A								
	<u>Subtotals</u>				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
	Subtotal Product Development				<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>Complete</u>	<u>Program</u>
	Subtotal Support and Management				47,336	16,890	18,307	TBD	TBD
	Subtotal Test and Evaluation				3,980	2,270	2,402	TBD	TBD
	Total Project				2,158	3,100	1,100	0	6,358
					53,474	22,260	21,809	TBD	TBD

Project 672832

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Exhibit R-3 (PE 0303131F)

Project 672832

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Exhibit R-3 (PE 0303131F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0303131F Minimum Essential Emergency Communications Network (MEECN)								674521	
			FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674521	DIRECT	COST (\$ in Thousands)	3,321	1,171	1,236	1,135	873	290	290	Continuing	TBD
This project was established in Jan 96 to consolidate efforts related to DIRECT 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).											
(U) A. Mission Description 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 Chiefs 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. This program will procure system hardware for seven unified command centers, a software maintenance facility and two alternate command centers. 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. AUTODIN is scheduled for closure not later than the 2QCY00.											
(U)	FY 1999 (\$ in Thousands)										
(U)	\$2,891	Continued DIRECT Engineering and Manufacturing Development (EMD)									
(U)	\$230	Communications Evaluation Program (CEP)/Studies and Analysis									
(U)	\$200	Test									
(U)	\$3,321	Total									
(U)	FY 2000 (\$ in Thousands)										
(U)	\$921	DIRECT EMD									
(U)	\$250	Communications Evaluation Program (CEP)/Studies and Analysis									
(U)	\$1,171	Total									

Project 674521

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Exhibit R-2A (PE 0303131F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE				PROJECT					
07 - Operational System Development		0303131F Minimum Essential Emergency Communications Network (MEECN)				674521					
(U)	<u>A. Mission Description Continued</u>										
(U)	FY 2001 (\$ in Thousands)										
(U)	\$988	DIRECT/DMS Interface EMD									
(U)	\$248	Communications Evaluation Program (CEP)/Studies and Analysis									
(U)	\$1,236	Total									
(U)	<u>B. Project Change Summary</u>										
	None										
(U)	<u>C. Other Program Funding Summary (\$ in Thousands)</u>										
		FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to	Total Cost	
		Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete		
(U)	APPN 16, Other Procurement	1,502	5,122	1,584	2,076	1,085	0	0	0	23,028	
	- AF, Electronics and Telecommunications Equip (MEECN, PE 0303131F, BA 3, P-1 XX)										
(U)	<u>D. Acquisition Strategy</u>										
	DIRECT Program. A contract for EMD was awarded to GTE Government Systems (now General Dynamics-Communications Systems), Needham, MA on 12 Jul 96. A contract modification for production (using Other Procurement, AF) was awarded 11 Aug 98.										
(U)	<u>E. Schedule Profile</u>										
		FY 1999		FY 2000		FY 2001					
		1	2	3	4	1	2	3	4		
				*							
				*							
(U)	Development Test and Evaluation										
(U)	Functional Qual Test										
(U)	Begin DIRECT/DMS Interface EMD										
	* Indicates completed task										
	X Indicates planned task										
	X										

Project 674521

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Exhibit R-2A (PE 0303131F)

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE				PROJECT		PROJECT			
07 - Operational System Development		0303131F Minimum Essential Emergency Communications Network (MEECN)				674521		674521			
(U)	<u>A. Project Cost Breakdown (\$ in Thousands)</u>										
(U)	Prime Contract										
(U)	Test										
(U)	Program Management Administration (PMA)										
(U)	SE/TA										
(U)	MITRE										
(U)	CEP/Studies and Analysis										
(U)	Total										
(U)	<u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>										
(U)	<u>Performing Organizations:</u>										
	Contractor or Government	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	Product Development Organizations										
	GTE	SS/CPAF	Jul 96	30,290	30,290	27,480	1,591	587	588	Continuing	TBD
	National Security Agency (NSA)	MIPR	Annually	2,500	2,500	2,500				0	2,500
	Support and Management Organizations										
	SE/TA [ASEC, ABACUS, MCR, ATT, ANSER]	LOE	Annual	N/A		2,027	400	300	300	Continuing	TBD
	MITRE	LOE	Annual	N/A		2,068	600	0	0	Continuing	TBD
	JHU-APL(CEP)	LOE	Annual	N/A		423	230	200	248	Continuing	TBD
	PMA	Various	Annual	N/A		645	300	84	100	Continuing	TBD
	Test and Evaluation Organizations										
	Various	Various	Annual	N/A		271	200	0	0	Continuing	TBD

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	February 2000	PROJECT
BUDGET ACTIVITY				PE NUMBER AND TITLE		674521
07 - Operational System Development				0303131F Minimum Essential Emergency Communications Network (MEECN)		
(U) Government Furnished Property:						
Contract						
Item	Method/Type or Funding	Award or Obligation	Delivery	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000
Description	Vehicle	Date	Date			
Product Development Property						
N/A						
Support and Management Property						
N/A						
Test and Evaluation Property						
N/A						
Subtotals						
Subtotal Product Development				Total Prior to FY 1999	Budget FY 1999	Budget FY 2000
				29,980	1,591	587
Subtotal Support and Management				5,163	1,530	584
Subtotal Test and Evaluation				271	200	0
Total Project				35,414	3,321	1,171

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0303131F Minimum Essential Emergency Communications Network (MEECN)								674610	
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
674610	MEECN EHF	12,043	22,305	11,347	389	388	290	290	Continuing	TBD	
(U) <u>A. Mission Description</u> This MEECN project will provide reliable, secure, and survivable communications in the Extremely High Frequency (EHF) band. Specifically, this effort is currently focused on replacing the satellite-based, ground communication links with Minuteman ICBM forces. It supplants 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). The SCT will not be flown on the DSCS after 2003. Extending the use of SCT aboard DSCS is not practical. The UHF links depend upon the Air Force Satellite Communications (AFSATCOM) packages hosted aboard the Fleet Satellite Communications (FLTSATCOM) satellites. FLTSATCOM satellites are past their life expectancy. MEECN EHF is required to meet redundancy standards established by national security directives. MEECN EHF was identified as a new start effort in the FY99 budget documentation. This project was combined contractually with the ICBM LCC VLF/LF tasks from Project 2832 and together are referred to as the Minuteman MEECN Program (MMP).											
(U)	FY 1999 (\$ in Thousands)										
(U)	\$10,427	Engineering and Manufacturing Development (EMD)									
(U)	\$1,568	Integration and Test									
(U)	\$48	Communications Evaluation Program (CEP)/Studies and Analysis									
(U)	\$12,043	Total									
(U)	FY 2000 (\$ in Thousands)										
(U)	\$15,067	Continue EMD									
(U)	\$7,105	Integration and Test									
(U)	\$133	Communications Evaluation Program (CEP)/Studies and Analysis									
(U)	\$22,305	Total									

Project 674610

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE	February 2000																																																																																																														
BUDGET ACTIVITY		PE NUMBER AND TITLE	PROJECT																																																																																																														
07 - Operational System Development		0303131F Minimum Essential Emergency Communications Network (MEECN)	674610																																																																																																														
(U) <u>A. Mission Description Continued</u> (U) EY 2001 (\$ in Thousands) (U) \$6,439 Continue EMD (U) \$4,758 Integration and Test (U) \$150 Communications Evaluation Program (CEP)/Studies and Analysis (U) \$11,347 Total (U) <u>B. Project Change Summary</u> None (U) <u>C. Other Program Funding Summary (\$ in Thousands)</u> <table border="1"> <thead> <tr> <th></th> <th>FY 1999 Actual</th> <th>FY 2000 Estimate</th> <th>FY 2001 Estimate</th> <th>FY 2002 Estimate</th> <th>FY 2003 Estimate</th> <th>FY 2004 Estimate</th> <th>FY 2005 Estimate</th> <th>Cost to Complete</th> <th>Total Cost</th> </tr> </thead> <tbody> <tr> <td>(U) APPN 14, Missile Procurement -AF, (MEECN, PE 0303131F, BA 3, P-1 12)</td> <td>0</td> <td>0</td> <td>48,069</td> <td>43,502</td> <td>8,563</td> <td>6,724</td> <td>5,795</td> <td>0</td> <td>112,653</td> </tr> </tbody> </table> (U) <u>D. Acquisition Strategy</u> The ICBM Prime Integrating Contract (through OO-ALC) is being used as a contracting vehicle for the Minuteman LCC VLF/LF and EHF modifications known as Minuteman MEECN Program (MMP). (U) <u>E. Schedule Profile</u> <table border="1"> <thead> <tr> <th></th> <th colspan="3">FY 1999</th> <th colspan="3">FY 2000</th> <th colspan="3">FY 2001</th> </tr> <tr> <th></th> <th>1</th> <th>2</th> <th>3</th> <th>1</th> <th>2</th> <th>3</th> <th>1</th> <th>2</th> <th>3</th> </tr> </thead> <tbody> <tr> <td>(U) EMD Contract Award</td> <td></td> <td>*</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Preliminary Design Review</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Critical Design Review</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Milestone III Decision</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Production start</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>* Indicates completed task</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>X Indicates planned task</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>					FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	(U) APPN 14, Missile Procurement -AF, (MEECN, PE 0303131F, BA 3, P-1 12)	0	0	48,069	43,502	8,563	6,724	5,795	0	112,653		FY 1999			FY 2000			FY 2001				1	2	3	1	2	3	1	2	3	(U) EMD Contract Award		*								(U) Preliminary Design Review										(U) Critical Design Review										(U) Milestone III Decision										(U) Production start										* Indicates completed task										X Indicates planned task									
	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost																																																																																																								
(U) APPN 14, Missile Procurement -AF, (MEECN, PE 0303131F, BA 3, P-1 12)	0	0	48,069	43,502	8,563	6,724	5,795	0	112,653																																																																																																								
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Project 674610

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Exhibit R-2A (PE 0303131F)

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE				PROJECT		674610			
07 - Operational System Development		0303131F Minimum Essential Emergency Communications Network (MEECN)									
(U)	A. Project Cost Breakdown (\$ in Thousands)										
(U)	Prime Contract	FY 1999	FY 2000	FY 2001							
(U)	Test	11,195	20,684	10,497							
(U)		0	788	0							
(U)	Program Management Administration (PMA)	200	100	100							
(U)	SE/TA	400	400	400							
(U)	MITRE	200	200	200							
(U)	CEP	48	133	150							
(U)	Total	12,043	22,305	11,347							
(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 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Total Program	
	Product Development Organizations										
	TRW	SS/CPAF	Mar 99			0	11,195	20,684	10,497	TBD	
	Support and Management Organizations										
	SE/TA [SRC, MCR, ATT, ANSER]	LOE	Annual			0	400	400	400	TBD	
	MITRE	LOE	Annual			0	200	200	200	TBD	
	PMA	Various	Annual			0	200	100	100	TBD	
	CEP	LOE	Annual			0	48	133	150	TBD	
	Test and Evaluation Organizations										
	Various	Various	Annual			0	0	788	0	788	

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

DATE _____

February 2000

BUDGET ACTIVITY

PE NUMBER AND TITLE

07 - Operational System Development

0303131F Minimum Essential Emergency

Communications Network (MEECN)

**PROJECT
674610**

(U) Government Furnished Property:

Contract

Method/Type or Funding	Award or Obligation
1. Contract 2. Grant 3. Loan 4. Gift 5. Other	1. Contract 2. Grant 3. Loan 4. Gift 5. Other

<u>Delivery</u>	<u>Date</u>
1	1/1/2020
2	1/1/2020
3	1/1/2020
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or Fundir
Vehicle

<u>Item</u>	<u>Description</u>	<u>Product Development Property</u>

N/A

Support and Management Property

N/A

Test and Evaluation Property

N/A

Subtotals

Subtotal Product Development

Subtotal Support and Management

Subtotal Test and Evaluation

Total Project

<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>

<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>

Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
0	11,195	20,684	10,497	TBD	TBD
0	848	833	850	TBD	TBD
0	0	788	0	0	788
0	12,043	22,305	11,347	TBD	TBD

Project 674610

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Exhibit R-3 (PE 0303131F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE		February 2000	
BUDGET ACTIVITY		PE NUMBER AND TITLE											
07 - Operational System Development		0303140F Information Systems Security Program											
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost			
Total Program Element (PE) Cost		7,754	19,381	7,212	6,944	7,017	7,155	7,296	Continuing	TBD			
674579	Information Warfare	1,920	9,407	1,892	1,882	1,869	1,906	1,943	Continuing	TBD			
674585	Cryptologic 2020	1,957	1,233	0	0	0	0	0	Continuing	TBD			
677820	Computer Security RDT&E: Firestarter	3,877	8,741	5,320	5,062	5,148	5,249	5,353	Continuing	TBD			
Quantity of RDT&E Articles		0	0	0	0	0	0	0	0	0			
BPAC 674585, Cryptologic 2020, will be funded under PE 33401F, Comm Sec, BPAC 674861, Cryptologic 2020, beginning in FY01.													
(U) A. Mission Description													
This program provides the capability to protect and defend USAF Command, Control, Communications, Computers, and Intelligence, Surveillance, and Reconnaissance (C4ISR) and Weapon Systems from Information Warfare (IW) attacks and recover from those attacks. Primarily, the project does research and development of information protection tools and transitions them to operational systems. It also provides the acquisition community and operational warfighters the ability to manage their own risks relative to mission, task, threat, and vulnerability information; and to mitigate IW risks based on rank-ordered countermeasure recommendations. The program element consists of three complimentary projects.													
The computer security project directs the R&D of information protection technology and tools to defend C4ISR systems, with emphasis on computer and network systems security, damage assessment and recovery, and multi-level systems security. It provides 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 National Security Agency's (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 cannot provide the capabilities to distribute the system keys in the format needed by the F-22 Mission Support System. The Information Warfare project comprises R&D for Vulnerability Assessment/Risk Management (IW VA/RM) and Technology planning to build information protection into all AF C4ISR and weapons systems.													

Exhibit R-2 (PE 0303140F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 2000		
BUDGET ACTIVITY		PE NUMBER AND TITLE			
07 - Operational System Development		0303140F Information Systems Security Program			
(U)	B. Budget Activity Justification 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.				
(U)	C. Program Change Summary (\$ in Thousands)				
(U)	Previous President's Budget (FY 2000 PBR)	FY 1999	FY 2000	FY 2001	Total Cost
(U)	Appropriated Value	9,277	7,992	7,284	TBD
(U)	Adjustments to Appropriated Value	9,420	19,492		
	a. Congressional/General Reductions	-143	-5		
	b. Small Business Innovative Research	-498			
	c. Omnibus or Other Above Threshold Reprogram		-106		
	d. Below Threshold Reprogram	-981			
	e. Rescissions	-44			
	f. Other				TBD
(U)	Adjustments to Budget Years Since FY 2000 PBR			-72	
(U)	Current Budget Submit/FY 2001 PBR	7,754	19,381	7,212	TBD
(U)	Significant Program Changes: Funding: Congressional \$7.0M add in FY00 for management of the Cyber Lighthouse Security Technology Program, and \$4.5M add for continued development of the Secure Interoperable Distributed Computing Systems project.				

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Exhibit R-2 (PE 0303140F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE		February 2000	
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT			
07 - Operational System Development		0303140F Information Systems Security Program								674579			
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost			
674579	Information Warfare	1,920	9,407	1,892	1,882	1,869	1,906	1,943	Continuing	TBD			
(U) A. Mission Description Builds information protection into all AF Command and Control (C2), Intelligence, Surveillance, and Reconnaissance (ISR), and weapons systems. The project provides the acquisition community and operational warfighters the ability to manage the IW risks to their missions and operational tasks based on system threat and vulnerability information. Provides decision makers with countermeasures recommendations, rank-ordered based on operational utility and relative cost. Looking across all assessments conducted on AF systems, the project also provides the USAF a unique system-of-systems perspective for managing shared IW risks. Information Warfare Vulnerability Assessment and Risk Management (IW VA/RM): Development and sustainment of a new capability to manage both individual and shared Information Warfare (IW) risks across all AF C2 and weapon systems. This will enable AF acquisition programs to meet the information assurance requirements of AFPD 10-20, para 12. The IW VA/RM program enhances a commercially-available risk management tool so that it (1) provides risk management solutions based on mission impact and user cost; and (2) seamlessly combines government Threat, Vulnerability and Countermeasure (TVC) data with commercial TVC data at point of use. The IW VA/RM program also initiates the production of the Government TVC data; and the process of setting up a management infrastructure to coordinate all future TVC data production and distribution, similar to that established under AFI 10-703, Electronic Warfare Integrated Reprogramming (EWIR). Together, the tool with the data and supporting infrastructure will enable all AF System Program Offices (SPOs) to evaluate their IW risks and propose mission-based mitigation strategies to their users as part of a coordinated, coherent effort. To provide the overview needed to manage the shared risk across all AF systems, the IW VA/RM program establishes the means to aggregate individual SPO risk assessment results and report them based on higher-echelon mission impact. These reports will provide vital information on trends, deficiencies, and rationale for the AF Modernization Planning process. IW Technical Planning Integrated Product Team (IW TPIPT). Supports modernization planning for Counterinformation (CI) Mission Area and technology planning processes. Continuously identifies and evaluates commercial and Government inventory of available products that can be used to meet Counterinformation mission deficiencies. Develops and coordinates technology development and acquisition plans for resolving mission area deficiencies. Provides Government laboratories and private industry guidance on new technologies needed for the next 10 to 25 years.													

Project 674579

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Exhibit R-2A (PE 0303140F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)			DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE	PROJECT	674579
07 - Operational System Development		0303140F Information Systems Security Program		
(U)	<u>A. Mission Description Continued</u>			
(U)	<u>FY 1999 (\$ in Thousands)</u>			
(U)	\$700	Continued exportable VA/RM process and toolset development		
(U)	\$433	Established infrastructure: Intelligence support, metrics measurement, etc.		
(U)	\$362	Continued developing libraries and databases, system-of-systems model		
(U)	\$283	Continued IW TPIPT activities, analyses, database support		
(U)	\$142	Conducted integrated cross program assessments and solution development		
(U)	\$1,920	Total		
(U)	<u>FY 2000 (\$ in Thousands)</u>			
(U)	\$1,278	Continue exportable VA/RM process and toolset development		
(U)	\$240	Establish infrastructure: Intelligence support, metrics, etc.		
(U)	\$293	Continue to develop and update libraries and databases, system-of-systems model		
(U)	\$292	Continue IW TPIPT activities, analyses, database support		
(U)	\$304	Continue integrated cross program assessments and solution development		
(U)	\$7,000	Manage Cyber Lighthouse Security Technology Development Program (Congressional add)		
(U)	\$9,407	Total		
(U)	<u>FY 2001 (\$ in Thousands)</u>			
(U)	\$1,034	Continue exportable VA/RM process and toolset development		
(U)	\$90	Establish and support existing infrastructure: Intelligence support, metrics, etc.		
(U)	\$90	Continue to develop and update libraries and databases, system-of-systems model		
(U)	\$196	Continue IW TPIPT activities, analyses, database support		
(U)	\$482	Continue to integrate cross program assessments and solution development		
(U)	\$1,892	Total		
(U)	<u>B. Project Change Summary</u>			
	N/A			

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

DATE

February 2000

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

07 - Operational System Development

0303140F Information Systems Security Program

674579

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

FY 1999	FY 2000
Actual	Estimate

FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Estimate	Estimate	Estimate	Estimate	Estimate		

(U) AF RDT&E

(U) Other APPN

none

(U) D. Acquisition Strategy

All major contracts within this Program Element are awarded after full and open competition.

(U) E. Schedule Profile

	FY 1999			FY 2000			FY 2001			
	1	2	3	1	2	3	1	2	3	
(U) Develop and iterate versions of the Exportable VA/RM process & tool set	*	*	*	4	1	3	4	1	2	4
(U) Develop and iterate versions of the infrastructure, libraries, and database	*	*	*		*	X		X	X	
(U) Intelligence Support Plan signed					*					
(U) Establish VA/RM infrastructure: Intelligence support, metrics measurement,		*								
(U) Periodically check to ensure integration of cross program assessments and s	*	*	*		*	X		X	X	X
(U) Sustain IW TPIPT technology database (quarterly reviews)	*	*	*	*		X		X	X	X
(U) Sustain IW TPIPT technology development plan (annual)	*	*	*			X			X	X
(U) Participate and support IW TPIPT activities	*	*	*			X		X	X	X

Project 674579

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Exhibit R-2A (PE 0303140F)

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)									
BUDGET ACTIVITY					DATE		PROJECT		
07 - Operational System Development					0303140F Information Systems Security Program		February 2000 674579		
A. Project Cost Breakdown (\$ in Thousands)									
(U)	Software development								
(U)	Systems engineering support								
(U)	Program management support								
(U)	Total								
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 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001
Product Development Organizations									
	Trident Data Systems	FFP	Aug 98			0	822	1,097	820
	MITRE	FFRDC	On-going			0	0	2,332	0
	Lincoln Labs	FFRDC	On-going			0	0	2,333	0
	Carnegie-Mellon Software Engineering Institute (SEI)	FFRDC	On-going			0	0	2,333	0
Support and Management Organizations									
	MITRE	FFRDC	On-going			0	480	729	765
	ITSP (various)	ID/IQ	On-going			0	483	371	232
Test and Evaluation Organizations									
	Test & Evaluation					0	135	212	75
Subtotals									
	Subtotal Product Development					Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001
	Subtotal Support and Management					0	822	8,095	820
	Subtotal Test and Evaluation					0	963	1,100	997
	Total Project					0	135	212	75
						0	1,920	9,407	1,892
								</	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0303140F Information Systems Security Program								674585	
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
674585	Cryptologic 2020	1,957	1,233	0	0	0	0	0	Continuing	TBD	
(U) A. Mission Description NOTE: FY99 through FY00 funds are in PE 33140. Beginning in FY01, this effort will be funded in PE 33401. The Cryptologic project consists of Air Force Electronic Key Management Systems (AFEKMS). AFEKMS, 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 all AF weapon systems. AFEKMS replaces the existing physical distribution and management system providing COMSEC keying material for USAF Information Protection. Information Protection emphasizes access control, multi-level secure databases, trusted computing and information integrity. AFEKMS is a three tier system structure 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 comprise the 'wholesale' capability. Tier 2 installations comprise 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 application software (UAS) is necessary for unique systems such as the F-22 and unique key fill requirements of EICE for other airborne platforms. (U) FY 1999 (\$ in Thousands) (U) \$950 LCMS application software development (F-22) (U) \$1,007 Local Management Device/Data Management Device (LMD/DMD) software development and system integration (U) \$1,957 Total (U) FY 2000 (\$ in Thousands) (U) \$617 Transition LCMS application software development/sustainment (F-22) to Air Force (U) \$616 LMD/DMD software development and system integration (U) \$1,233 Total (U) FY 2001 (\$ in Thousands) (U) \$0 No Activity (U) \$0 Total											
Project 674585										Exhibit R-2A (PE 0303140F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									
BUDGET ACTIVITY		PE NUMBER AND TITLE				DATE		PROJECT	
07 - Operational System Development		0303140F Information Systems Security Program				February 2000		674585	
(U)	<u>B. Project Change Summary</u>								
	N/A								
(U)	<u>C. Other Program Funding Summary (\$ in Thousands)</u>								
		FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Total Cost
		Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	
(U)	AF RDT&E			4,857	4,700	5,511	5,507	4,017	TBD
(U)	Other APPN								
(U)	APPN 3600/PE 33401F/ PE								
	Title Comm Security/ BPAC								
	674861/ Cryptologic 2020								
(U)	APPN 3600/PE 64239F/PE	410							
	Title F-22/BPAC								
	654069/BPAC Title Adv.								
	Tactical Fighter								
	NOTE: BPAC 674585, Cryptologic 2020, will be funded under PE 33401, Comm Sec, BPAC 674861, Cryptologic 2020, beginning in FY01.								
(U)	<u>D. Acquisition Strategy</u>								
	All major contracts within this Program Element are awarded after full and open competition.								
(U)	<u>E. Schedule Profile</u>								
					FY 1999		FY 2000	FY 2001	
				1	2	3	4	1	2
(U)	F-22 UAS Development & Transition Complete								
(U)	DMD/DTD 2000 hardware/software development and system integration				*			X	
	* Denotes Completed Events								
	X Denotes Planned Events								
Project 674585		Page 8 of 16 Pages				Exhibit R-2A (PE 0303140F)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)									
BUDGET ACTIVITY					DATE		PROJECT		
07 - Operational System Development					0303140F Information Systems Security Program		February 2000 674585		
(U)	A. Project Cost Breakdown (\$ in Thousands)								
(U)	Hardware Development								
(U)	Software Development								
(U)	Total								
(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 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001
	Product Development Organizations								
	Motorola Inc. (F19628-97-C-0600)	SS/CPFF	Apr 97	N/A	N/A	51	950	83	0
	SAIC (GS-35F-44616)	BPA	May 98	N/A	N/A	823	1,007	575	0
	National Security Agency X35	SS/CPFF	Jun 98	N/A	N/A	517	575	575	0
	Support and Management Organizations								
	Trustest S/W Support					159			Continuing
	MSN Support					90			Continuing
	Test and Evaluation Organizations								
(U)	Government Furnished Property:								
	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date						
	Item Description								
	Product Development Property								
	Support and Management Property								
									</

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE	PROJECT	
BUDGET ACTIVITY	PE NUMBER AND TITLE			
07 - Operational System Development	0303140F Information Systems Security Program			674585
(U) <u>Government Furnished Property Continued:</u>				
Test and Evaluation Property				
Total Project				
Subtotals				
Subtotal Product Development				
Subtotal Support and Management				
Subtotal Test and Evaluation				
Total Project				

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Exhibit R-3 (PE 0303140F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE		February 2000	
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT			
07 - Operational System Development		0303140F Information Systems Security Program								677820			
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost			
677820	Computer Security RDT&E: Firestarter	3,877	8,741	5,320	5,062	5,148	5,249	5,353	Continuing	TBD			
NOTE: FY00 New Start Request currently being processed for submission to Congress. Title: Pouncer 4. Amount \$2.995M. Years: FY00													
(U) <u>A. Mission Description</u>													
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 C4I system Information Protect R&D with emphasis in computer/network systems security, damage assessment and recovery, and multi-level 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 susceptibilities inherent in such reliance and accessibility has heightened the awareness that the National Information Infrastructure (NII) and the 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 AF Force information systems through a variety of means, 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. Current Air Force systems such as the Combat Information Transport Systems (CITS), Theater Deployable Communications (TDC) leverage the technology from this project to meet their info protect needs/requirements. Additionally, this project utilizes info assurance technology investments by DARPA as a jump-start for providing a solution to Air Force requirements and cooperates with DISA and other services/agencies to ensure DII info protect requirements are complied with.													
(U)	FY 1999 (\$ in Thousands)												
(U)	\$58	Continued the development of secure data handling system for multi-level database											
(U)	\$1,512	Continued the development of secure interoperable distributed computing systems											
(U)	\$552	Initiated the development of technology for self-healing network system											
(U)	\$546	Developed methodologies for commercial software evaluation											
(U)	\$313	Completed effort to transition DARPA intrusion detection technology into the Air Force Information Warfare Center (AFIWC) and the Base Information Protection (BIP) Suite											
Project 677820		Page 11 of 16 Pages								Exhibit R-2A (PE 0303140F)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
07 - Operational System Development	0303140F Information Systems Security Program	677820	
(U) A. Mission Description Continued			
(U) FY 1999 (\$ in Thousands) Continued			
(U) \$292	Completed effort to demonstrate INFOSEC for Air Force Network Operations System Centers (AF NOSCs)		
(U) \$302	Initiated effort to transition secure wrapper technologies into Air Force systems.		
(U) \$302	Initiated effort for automatic capability to trace source of intrusions		
(U) \$3,877	Total		
(U) FY 2000 (\$ in Thousands)			
(U) \$1,103	Continue development of technology for self-healing network systems (to include automated system recovery)		
(U) \$406	Begin development of Information Attack correlation methodologies		
(U) \$660	Continue effort to transition DARPA information assurance technology to Air Force Information Warfare Center (AFIWC) and Combat Information Transport System (CITS) SPO		
(U) \$404	Continue development of methodologies for commercial software evaluation and steganography detection		
(U) \$4,912	Continue development of secure interoperable distributed agent computing (\$4.5M Congressional Add)		
(U) \$802	Begin development of extensible prototype framework for Enterprise Defense to support protection of warfighter mission critical information flows		
(U) \$454	Continue effort to transition secure wrapper technologies into Air Force systems.		
(U) \$0	Pouncer 4 - pending submission to Congress and approval of new start effort.		
(U) \$8,741	Total		
(U) FY 2001 (\$ in Thousands)			
(U) \$1,290	Continue development of technology for self-healing network systems (to include automated system recovery)		
(U) \$780	Continue development of Information Attack correlation methodologies		
(U) \$680	Continue development of methodologies for commercial software evaluation and steganography detection		
(U) \$880	Continue development of extensible prototype framework for Enterprise Defense to support protection of warfighter mission critical information flows		
(U) \$480	Continue effort to transition secure wrapper technologies into Air Force systems.		
(U) \$780	Continue effort to transition DARPA information assurance technology into AF Information Protect architecture		
(U) \$430	Begin effort to develop metrics for reliable information assurance measurement & testing		
(U) \$5,320	Total		
(U) B. Project Change Summary			
Project 677820		Page 12 of 16 Pages	Exhibit R-2A (PE 0303140F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE	February 2000	PROJECT	
BUDGET ACTIVITY			PE NUMBER AND TITLE								PROJECT		
07 - Operational System Development			0303140F Information Systems Security Program								677820		
(U)	<u>C. Other Program Funding Summary (\$ in Thousands)</u>												

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE						PROJECT	
07 - Operational System Development	0303140F Information Systems Security Program						677820	
(U) <u>E. Schedule Profile Continued</u>								
	FY 1999				FY 2000	FY 2001		
	1 2 3 4 1 2 3 4 1 2 3 4							
KEY: * Denotes Completed Events; X Denotes Planned Events.								

Project 677820
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Exhibit R-2A (PE 0303140F)

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Exhibit R-2A (PE 0303140F)

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE	February 2000				
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT							
07 - Operational System Development		0303140F Information Systems Security Program		677820							
(U)	A. Project Cost Breakdown (\$ in Thousands)	FY 1999	FY 2000	FY 2001							
(U)	Secure Data Handling System	58									
(U)	Database Protection Mechanisms										
(U)	Security Analysis Tools										
(U)	DARPA Technology Insertion/Transition	313	660		780						
(U)	Secure Distributed Computing/Collaborative Planning	1,512	4,912								
(U)	Information Protection (IP) Integration Framework	292									
(U)	Self-Healing Network System (to include automated system recovery)	552	1,103		1,290						
(U)	Wrappers to Secure Commercial-Off-the-Shelf (COTS)	302	454		480						
(U)	Information Attack Data Correlation		406		780						
(U)	Extensible framework for Enterprise for Defense	302	802		880						
(U)	COTS Software (S/W) Evaluation	546	404		680						
(U)	Reliable Information Assurance measurement & testing				430						
(U)	Total	3,877	8,741		5,320						
(U)	B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U)	Performing Organizations:										
	Contractor or Government Performing Activity	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	Product Development Organizations										
	FFRDC (MITRE)	MIPR	On-Going	N/A	N/A	652	171	490	548	Continuing	TBD
	Multiple Contractors	CPFF	On-Going	N/A	N/A	2,277	3,308	7,661	4,124	Continuing	TBD
	Universities	CPFF	On-Going	N/A	N/A	368	398	590	648	Continuing	TBD
	Support and Management Organizations										
	Test and Evaluation Organizations										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE		February 2000		PROJECT	
BUDGET ACTIVITY		PE NUMBER AND TITLE		0303140F Information Systems Security Program		677820	
07 - Operational System Development		Total Prior	Budget	Budget	Budget	Budget to	Total
		to FY 1999	FY 1999	FY 2000	FY 2001	Complete	Program
Subtotals		3,297	3,877	8,741	5,320	TBD	TBD
Subtotal Product Development							
Subtotal Support and Management							
Subtotal Test and Evaluation							
Total Project		3,297	3,877	8,741	5,320	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0303141F Global Combat Support System (GCSS)								674655	
		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
674655	BLSM	17,083	19,283	46,369	28,064	30,700	29,431	29,547	Continuing	TBD	
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	

(U) A. Mission Description

The GCSS-AF program modernizes, develops, and integrates legacy base-level standard Air Force and Department of Defense (DoD) combat support information systems. The modernized systems are being developed in compliance with and hosted on the Defense Information Infrastructure (DII) Common Operating Environment (COE). The centerpiece of the GCSS-AF effort is an architecture that provides common computing utilities and infrastructure services for all combat support systems and enables real-time access to accurate, current data. The GCSS-AF architecture will ensure on-time delivery of critical functional support data to decision support systems for wing commanders, operational commanders, and theater battlestaff at the Point-of-Attack. The modernized systems will be implemented and sustained worldwide and support both wartime and peacetime requirements using hardware, software, and communications capabilities available from standard open systems government contracts and communications infrastructure programs.

The GCSS-AF approach allows for gradual, incremental modernization of legacy 'stove-pipe' environments into an interoperable set of management information systems. Those Automated Information Systems (AISs) requiring improvements in business practices will be functionally modernized. Those AISs requiring only a modernized database management system and/or modernized programming will be technically modernized. Other AISs will be rehosted to the COE. The GCSS-AF program will also assist AISs in complying with the GCSS-AF concept. This approach supports both regional and distributed processing.

The Integrated Logistics System - Supply (ILS-S) will be one of the first systems modernized. This effort will modernize the existing legacy Standard Base Supply System (SBSS). Starting in FY00, this effort underwent a significant restructuring to decrease dependence on a commercial off-the-shelf Grand Design to using a spiral development acquisition approach to technically refresh and componentize the legacy SBSS to better meet User requirements in a more timely manner. While this approach is technically different than the one previously being pursued, it does not change program requirements. The schedule to satisfy existing program requirements has been restructured to fit within available FY funding.

Beginning in FY01, funding for the Financial Information Resource System (FIRST) was transferred to this program. FIRST is a software development effort aimed at providing an integrated, modern, seamless financial management system that enables authorized users (from Air Staff to base level) to plan, program, and execute their budgets. FIRST is ultimately envisioned to be the foundation for the Air Force's Planning, Programming, and Budgeting System (PPBS). FIRST will be compliant with the Joint Technical Architecture (JTA) and incorporate Public Key Infrastructure initiatives (such as electronic signature capability). FIRST will share information with

Project 674655

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE	PROJECT	
07 - Operational System Development		0303141F Global Combat Support System (GCSS)	674655	
(U)	A. Mission Description Continued			
	other Air Force Functional activities within the scope of the Global Combat Support System-Air Force (GCSS-AF) concept.			
(U)	<u>FY 1999 (\$ in Thousands)</u>			
(U)	\$3,239	Logistics Integration (formerly known as Core)		
(U)	\$9,241	ILS-S (Integrated Logistics System-Supply)		
(U)	\$4,603	GCSS-AF Architecture Development (formerly known as DII)		
(U)	\$17,083	Total		
(U)	<u>FY 2000 (\$ in Thousands)</u>			
(U)	\$7,242	Logistics Integration (formerly known as Core)		
(U)	\$10,052	ILS-S		
(U)	\$1,989	GCSS-AF Architecture Development (formerly known as DII)		
(U)	\$19,283	Total		
(U)	<u>FY 2001 (\$ in Thousands)</u>			
(U)	\$7,215	Logistics Integration (formerly known as Core)		
(U)	\$11,538	ILS-S		
(U)	\$9,912	GCSS-AF Architecture Development (formerly known as DII)		
(U)	\$9,912	GCSS-AF Domain Integration		
(U)	\$7,792	Financial Information Resource System (FIRST)		
(U)	\$46,369	Total		
(U)	B. Budget Activity Justification			
	This program is in Budget Activity 7, Operational System Development, because the program modernizes Automated Information Systems (AISs).			
(U)	C. Program Change Summary (\$ in Thousands)			
(U)	Previous President's Budget (FY 2000 PBR)		<u>FY 1999</u>	<u>FY 2000</u>
(U)	Appropriated Value		17,906	19,742
(U)	Adjustments to Appropriated Value		17,973	19,389
	a. Congressional/General Reductions		-67	
	b. Small Business Innovative Research		-442	
				<u>Total Cost</u>
				TBD
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			Exhibit R-2 (PE 0303141F)	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)						DATE	February 2000
BUDGET ACTIVITY	PE NUMBER AND TITLE				PROJECT		
07 - Operational System Development	0303141F Global Combat Support System (GCSS)				674655		
(U) <u>C. Program Change Summary (\$ in Thousands) Continued</u>	FY 1999	FY 2000	FY 2001	Total Cost			
c. Omnibus or Other Above Threshold Reprogram		-106					
d. Below Threshold Reprogram	-285						
e. Rescissions	-96						
f. Other							
(U) Adjustments to Budget Years Since FY 2000 PBR			25,052	TBD			
(U) Current Budget Submit/FY 2001 PBR	17,083	19,283	46,369	TBD			
(U) <u>Significant Program Changes:</u> \$18 million in FY01 RDT&E funds were added for GCSS-AF Domain Integration and GCSS-AF Architecture Development. Funding for the Financial Information Resource System (FIRST) was transferred to this PE for FY01-05. The ILS-S modernization effort was restructured at the direction of the Defense Acquisition Executive (DAE), June 1999.							
(U) <u>D. Other Program Funding Summary (\$ in Thousands)</u>	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate
(U) Other Procurement AF, BA 7, PE 0303141F	0	0	0	0	0	15,522	30,926
						Continuing	TBD
(U) <u>E. Acquisition Strategy</u> All major contracts within this Program Element were awarded after full and open competition.							
(U) <u>F. Schedule Profile</u>		FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
(U) Logistics Integration (on-going)		1	2	3	4	1	2
(U) GCSS-AF Architecture Development (on-going)							
(U) Integrated Logistics System Supply (ILS-S)	*						
(U) Alpha 1 Delivered							
(U) Alpha 2 Delivered			*				
(U) Alpha 3 Delivered							
(U) Inc 1, ILS-S						X	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
07 - Operational System Development		0303141F Global Combat Support System (GCSS)								674655	
(U)	F. Schedule Profile Continued										
		1	2	3	4	1	2	3	4		
(U)	Release 1 (Increment 1 IOC)										
(U)	Release 2										
(U)	Release 3										
	* - Completed Event										
	X - Planned Event										

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Exhibit R-2 (PE 0303141F)

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	February 2000
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT							
07 - Operational System Development		0303141F Global Combat Support System (GCSS)		674655							
(U)	<u>A. Project Cost Breakdown (\$ in Thousands)</u>										
(U)	Logistics Integration (formerly known as Core)	FY 1999	FY 2000	FY 2001							
(U)	ILS-S	3,239	7,242	7,215							
(U)	GCSS-AF Architecture Development (formerly known as DII)	9,241	10,052	11,538							
(U)	GCSS-AF Domain Integration	4,603	1,989	9,912							
(U)	Financial Information Resource System (FIRST)	0	0	9,912							
(U)	Total	0	0	7,792							
(U)		17,083	19,283	46,369							
(U)	<u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>										
(U)	<u>Performing Organizations:</u>										
	Contractor or Government	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	<u>Product Development Organizations</u>										
	Lockheed Martin	IDIQ	15 Aug 95	N/A	N/A	31,542	15,552	8,745	10,407	Continuing	TBD
	SSG/SW (Software Factory)	N/A	N/A	N/A	N/A	0	0	6,045	6,500	Continuing	TBD
	Various	TBD	TBD	N/A	N/A	0	0	0	25,860	Continuing	TBD
	<u>Support and Management Organizations</u>										
	Support Contractors	Various	Various	N/A	N/A	2,813	725	1,680	1,723	Continuing	TBD
	SSG PMO Support	N/A	N/A	N/A	N/A	5,556	806	2,813	1,879	Continuing	TBD
	<u>Test and Evaluation Organizations</u>										
						Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	Subtotals					31,542	15,552	14,790	42,767	TBD	TBD
	Subtotal Product Development					8,369	1,531	4,493	3,602	TBD	TBD
	Subtotal Support and Management					39,911	17,083	19,283	46,369	TBD	TBD
	Subtotal Test and Evaluation										
	Total Project										

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