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

DATE: February 2002

BUDGET ACTIVITY: 07 - Operational System Development

PE NUMBER AND TITLE: 0708026F Productivity, Reliability, Availability, Maintainability Program

PROJECT: 2146

COST ($ in Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
2146	PRAM	20,304	26,623	4,767	7,409	10,224	10,567	11,224	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

(U) A. Mission Description

This program emphasizes the rapid incorporation of reliability and maintainability (R&M) technology 'fixes' that will improve the operational capability of weapon systems and equipment at a significantly lower cost. Productivity, Reliability, Availability, Maintainability (PRAM) accomplishes this by utilizing existing off-the-shelf and emerging technologies and adapting them to specific Air Force and joint-Service weapon systems and processes to solve near-term deficiencies. It relies on Major Command and field support to implement the adapted-technology when the initial investment is complete. It is a key tool for reducing the total ownership cost of fielded systems and supporting infrastructure. Average project length is twenty-seven months. PRAM currently provides services to all three Air Force Materiel Command centers: Aeronautical Systems Center; Electronic Systems Center; and Air Armament Center; as well as all Air Logistics Centers. PRAM also provides service to the Air Force Space Command Space and Missile Systems Center Note: In FY2002 Congress added $6.2M to this program for Automated Nondestructive Inspection for Turbine Engines ($4.0M) and Inspection Technology for Turbine Engines ($2.2M).

(U) FY 2001 ($ in Thousands)

(U) $5,320 Reduced the overall maintenance burden, improved capabilities and reliability, and improved mission readiness of aircraft subsystems. Reduced cost by enhancing engine trending and diagnostic systems. While current systems sound an alarm when a threshold is breached, adverse trends are not diagnosed. Applying artificial intelligence, statistical analysis, and reasoning tools will enable appropriate corrective action to be taken when an adverse trend is detected and diagnosed. Continued the ongoing project to lower engine support costs by developing new engine oil analysis techniques that will identify all wear modes during the life of an engine.

(U) $2,000 Addressed the R&M issues that drive airframe operations and support costs. Developed protective coatings and application techniques to eliminate ice accumulation on the B-1B inlet, eliminated this flight safety risk, and reduced maintenance costs.

(U) $3,600 Reduced maintenance costs and increased weapon systems availability by aggressively addressing shortfalls in support equipment and base infrastructure. Overcame parts obsolescence with current electronic warfare equipment test consoles by developing a single configuration test station to service both the ALQ-131 and ALQ-184 electronic attack pods used on the F-16, F-15, A-10, and C-130. Addressed the number one reliability driver for the Low Altitude Navigation and Targeting Infrared for Night pod by developing a test capability that will detect marginal

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(U) A. Mission Description Continued

(U) FY 2001 ($ in Thousands) Continued

performance and predict repairability of the Traveling Wave Tube before it is sent to the repair vendor.

(U)	$2,855	Continued reliabilirt and maintainability (R&M) efforts that directly support military space and missile systems, including leveraging commercial-off-the-shelf technology to replace the Constellation Control System and reduce Military Satellite Communications (MILSATCOM) operations and support (O&S) costs. Initiated a program to procure prototypes and perform qualification testing for the Peacekeeper electronics battery.
(U)	$529	Initiated high priority, quick response R&M projects identified by the operational commands to reduce maintenance downtime. These quick response issues were identified throughout the year. The Productivity, Reliability, Availability, and Maintainability (PRAM) effort is typically completed in a month or less.
(U)	$6,000	Developed and implemented a lean manufacturing approach for propulsion repair at Oklahoma City Air Logistics Center. Developed a real-time management information system to support the change over from functional shops to business units and product lines.
(U)	$20,304	Total

(U) FY 2002 ($ in Thousands)

(U)	$2,325	Complete the existing PRAM projects that are designed to reduce total ownership cost of Air Force aging aircraft such as: overcoming parts obsolescence in test equipment for electronic warfare systems; prototyping coatings and lubricants to prevent corrosion on support equipment and electrical terminals; developing life support equipment and more efficient means of publishing technical data.
(U)	$12,084	Continue airframe, subsystem, and space reliability and maintainability (R&M) efforts that reduce the overall maintenance burden, improve capabilities and reliability, and improve mission readiness. These efforts will be focused on reducing overall Air Force O&S costs.
(U)	$4,162	Continue existing aging aircraft efforts that will reduce overall Air Force O&S cost and increase aircraft availability, reliability, while maintaining operational capability and reduce mobility footprint.
(U)	$1,913	Continue the existing efforts to address reduced O&S costs within the air armaments enterprise. Cotinue development of a non-destructive test protocol that duplicates actual flight conditions for Precision-Guided Munitions and Cruise Missiles.
(U)	$2,178	Develop and complete efforts associated with Inspection Technology for Turbine Engines (Congressional add).
(U)	$3,961	Develop and complete efforts associated withAutomated Nondestructive Inspection Technology for Turbine Engine Sustainment (Congressional add).
(U)	$26,623	Total

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(U) A. Mission Description Continued

(U) FY 2003 ($ in Thousands)

(U)	$1,838	Complete previous year Productivity, Reliability, Availability and Mantainability (PRAM) projects to reduce total ownership costs of Air Force systems such as: combining the attributes of three types of Support Equipment; transitioning commercial-off- the-shelf equipment to the F-16 aircraft; developing a powder coating technique that is applicable to varied mediums; and transitioning new materials that present an improved strength-to-weight ratio resulting in greater payloads for both space and aircraft missions.
(U)	$1,070	Continue airframe, subsystem, life support, and space reliability and maintainability efforts that reduce operations and support (O&S) costs by reducing the overall maintenance burden, improving capabilities, reliability, and mission readiness.
(U)	$934	Continue existing aging aircraft efforts to reduce Air Force O&S costs. Expand the current tracking method for contingency data associated with system usage/configuration, premature failures, cost and supply. Continue development of improved efficiency air compressor.
(U)	$925	Complete the existing efforts to address reduced O&S costs within the air armaments enterprise. Complete development of a non-destructive test protocol that duplicates actual flight conditions for Precision-Guided Munitions and Cruise Missiles.
(U)	$4,767	Total

(U) B. Budget Activity Justification

This program is in Budget Activity 7, Operational System Development, because it provides support to systems in operational use.

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

		FY 2001	FY 2002	FY 2003	Total Cost
(U)	Previous President's Budget	21,032	20,689	24,108	
(U)	Appropriated Value	21,227	26,889		
(U)	Adjustments to Appropriated Value				
	a. Congressional/General Reductions		-266		
	b. Small Business Innovative Research	-518			
	c. Omnibus or Other Above Threshold Reprogram				
	d. Below Threshold Reprogram	-210			
	e. Rescissions	-195			
(U)	Adjustments to Budget Years Since FY 2002 PBR			-19,341	
(U)	Current Budget Submit/FY 2003 PBR	20,304	26,623	4,767	TBD

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(U) C. Program Change Summary ($ in Thousands) Continued

(U) Significant Program Changes:
Program funding was reduced due to higher priority Air Force requirements.

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

	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
(U) AF RDT&E									
(U) Other APPN									
(U) Related Activities:									
(U) PE 0605011F, RDT&E for Aging Aircraft.									

(U) E. Acquisition Strategy

All projects within this Program Element are awarded competitively, either by full and open competition, or by amending task order contracts with competition for subcontracts.

(U) F. Schedule Profile

	FY 2001				FY 2002				FY 2003			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Blade Repair Contract Award		*										
(U) Request For Proposal Release	*	*										
(U) Contract Awards	*	*	*		X	X	X		X	X	X	

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

DATE: February 2002

BUDGET ACTIVITY: 07 - Operational System Development

PE NUMBER AND TITLE: 0708026F Productivity, Reliability, Availability, Maintainability Program

PROJECT: 2146

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

		FY 2001	FY 2002	FY 2003
(U)	Subsystem Reliability and Maintainability (R&M)	5,320	2,325	2,138
(U)	Airframe R&M	2,000	12,084	1,070
(U)	Aero Support Equipment and Base Infrastructure R&M	3,600	4,162	934
(U)	Space and Missile Systems Reliability	2,855	1,913	625
(U)	Blade Tip Repair Project	6,000	0	0
(U)	Quick Response R&M	529	0	0
(U)	Non-destructive Inspection Technology for Engine Sustainment		3,961	
(U)	Inspection Technology for Turbine Engine		2,178	
(U)	Total	20,304	26,623	4,767

(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 2001	Budget FY 2001	Budget FY 2002	Budget FY 2003	Budget to Complete	Total Program
Product Development Organizations										
Numerous	Various	Various	N/A	N/A	3,028	7,768	18,749	2,055	Continuing	TBD
General Atomics	Various	Various	N/A	N/A	9,903	6,770	1,100		0	17,773
Lockheed Martin	Various	Various	N/A	N/A	510	1,500	1,500		0	3,510
ARINC	T&M	Feb 01	N/A	N/A	1,750	1,546	0		0	3,296
Innovative Technology	T&M	Feb 01	N/A	N/A	0	558	0		0	558
Battelle	T&M	Feb 01	N/A	N/A	0	150	150		0	300
MITRE	T&M	Jan 01	N/A	N/A	0	300	0		0	300
Lockheed Sanders	T&M	Mar 01	N/A	N/A	0	900	550		0	1,450
Southwest Research	T&M	Various	N/A	N/A	0	587	2,339	828	0	3,754

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

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(U) Performing Organizations Continued:

Product Development Organizations										
CACI	T&M	TBD	N/A	N/A	0	0	400	200	0	600
NCI Information Systems	T&M	Various	N/A	N/A	0	50	1,108	936	0	2,094
Survival Equipment Inc.	TBD	TBD	N/A	N/A	0	50	450	300	0	800
SAIC	TBD		N/A	N/A	0	125	277	448		850
Support and Management Organizations										
In-house support										
Test and Evaluation Organizations										

(U) Government Furnished Property:

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 2001	Budget FY 2001	Budget FY 2002	Budget FY 2003	Budget to Complete	Total Program
Product Development Property									
None									
Support and Management Property									
None									
Test and Evaluation Property									
None									

Subtotals	Total Prior to FY 2001	Budget FY 2001	Budget FY 2002	Budget FY 2003	Budget to Complete	Total Program
Subtotal Product Development	15,191	20,304	26,623	4,767	TBD	TBD
Subtotal Support and Management						
Subtotal Test and Evaluation						
Total Project	15,191	20,304	26,623	4,767	TBD	TBD