

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

DATE
February 2000

BUDGET ACTIVITY		PE NUMBER AND TITLE							
07 - Operational System Development		0305202F Dragon U-2 (JMIP)							
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	0	0	27,546	24,118	8,224	1,936	1,931	Continuing	TBD
674818 Advanced Technology	0	0	17,616	16,443	6,285	0	0	40,694	TBD
674820 Manned Reconnaissance Systems U-2	0	0	9,930	7,675	1,939	1,936	1,931	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

(U) A. Mission Description

Manned Reconnaissance system U-2 funding for FY99 - FY00 in PE 0305207F. Advanced Technology funding for FY00 included in PE 0305206F (Only portion relates to this program)

The RDT&E portion of this program element funds efforts required to enhance and sustain the U-2 Dragon reconnaissance aircraft. The RDT&E efforts in this PE focus on sensor and safety of flight projects. In addition to the RDT&E funding there are procurement funds associated with these developments.

(U) B. Budget Activity Justification

This program element is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of operational system development for the U-2 Aircraft.

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

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
(U) Previous President's Budget (FY 2000 PBR)	0	0	0	
(U) Appropriated Value				
(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				

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07 - Operational System Development		0305202F Dragon U-2 (JMIP)		
(U)	<u>C. Program Change Summary (\$ in Thousands) Continued</u>			
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
	f. Other		0	<u>Total Cost</u>
(U)	Adjustments to Budget Years Since FY 2000 PBR			27,546
(U)	Current Budget Submit/FY 2001 PBR		0	27,546
				TBD
(U)	<u>Significant Program Changes:</u>			
	Funding for PE 35202 project 674820 was reprogrammed from PE 305207F (FY00PBR - \$14.525M).			
	Funding for PE 35202 project 674818 was reprogrammed from a portion of PE 0305206F (FY00 PBR - \$17.616M).			
	FY01 - U-2 Electronic Warfare System (EWS) reprogramming from RDT&E to procurement (\$4.595 M).			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2000	
BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0305202F Dragon U-2 (JMIP)				PROJECT 674818	
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
674818 Advanced Technology	0	0	17,616	16,443	6,285	0	0	40,694	TBD
<p>Note: FY00 funding included in PE 0305206F (Only U-2 Defensive Systems portion relates to this program)</p> <p>(U) <u>A. Mission Description</u> This project supports the U-2 Advanced Defensive System (ADS) development. ADS is designed to provide situational awareness and self-protection jamming to degrade and or detect the ability of surface-to-air and air-to-air weapon systems to engage the U-2 aircraft. A full ADS capability will be achieved through spiral upgrades. Spiral upgrades will address modern RF signals in the baseline system. Follow-on upgrades will include infrared warning and defense. Onboard and offboard data fusion will be provided as a growth provision to enhance situational awareness.</p> <p>(U) <u>FY 1999 (\$ in Thousands)</u> (U) \$0 No Activity (U) \$0 Total</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$0 Funding included in PE 0305206F (U) \$0 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$9,616 Defensive System Hardware Development (U) \$5,500 Software Development (U) \$1,000 SPO Support (U) \$1,500 System Test (U) \$17,616 Total</p> <p>(U) <u>B. Project Change Summary</u></p>									
Project 674818			Page 3 of 8 Pages				Exhibit R-2A (PE 0305202F)		

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BUDGET ACTIVITY 07 - Operational System Development	PE NUMBER AND TITLE 0305202F Dragon U-2 (JMIP)	PROJECT 674818
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(U) **C. Other Program Funding Summary (\$ in Thousands)**

	<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>	
(U) ADS RDT&E PE 35206F	0	8,600	0	0	0	0	0	Continuing	TBD
(U) ADS Production (APAF 305202)	0	0	1,561	1,522	3,895	4,042	4,121	Continuing	TBD

(U) **D. Acquisition Strategy**
 Funds are for the engineering, manufacturing and development for the U-2 Advanced Defensive System (ADS). A sole source contract will be awarded to a prime contractor which will be responsible for delivering a total system. The prime contractor may subcontract for subsystems of the ADS. Efforts include the development of ADS, integration on the U-2 aircraft, testing and production planning.

(U) **E. Schedule Profile**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) U-2 ADS Milestone 2						X						
(U) ADS Phase 2 Contract Award						X						
(U) Begin ADS Flight Testing												X

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		
07 - Operational System Development				0305202F Dragon U-2 (JMIP)				674818		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>
(U)	Hardware and Software Development									9,616
(U)	Systems Engineering									3,000
(U)	Contractor Engineering Support									2,500
(U)	Government Engineering Support									1,000
(U)	System Test									1,500
(U)	Total									17,616
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</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>Product Development Organizations</u>										
Adv Def Sys Cont	CPIF	2nd Qtr 00	TBD	TBD				15,116	Continuing	TBD
<u>Support and Management Organizations</u>										
ASC/RA								1,000	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
Eglin AFB, Edwards AFB								1,500	Continuing	TBD
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>					<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development								15,116	TBD	TBD
Subtotal Support and Management								1,000	TBD	TBD
Subtotal Test and Evaluation								1,500	TBD	TBD
Total Project								17,616	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2000	
BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0305202F Dragon U-2 (JMIP)				PROJECT 674820	
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
674820 Manned Reconnaissance Systems U-2	0	0	9,930	7,675	1,939	1,936	1,931	Continuing	TBD
<p>Note: FY99 - FY00 funding included in PE 0305207F.</p> <p>(U) <u>A. Mission Description</u> This development project supports high payoff improvements to the U-2 Advanced Synthetic Aperture Radar System (ASARS-2) through the ASARS-2 Improvement Program (AIP). AIP improves area search, precision geolocation, and image quality characteristics sufficiently to directly support the targeting of precision guided munitions (PGMs). Complex imagery will be produced by the AIP system and support significant exploitation products for the imagery analysts. AIP champions the introduction of Asynchronous Transfer Mode (ATM) datalink formats to the ISR community and supports National Imagery Transmission Format (NITF) standards. Several Line Replaceable Units (LRU) including the Process Control Unit (PCU), Receiver - Exciter (RE), and transmitter are approaching the end of their supportability life. Developing new LRUs with next generation technology will make ASARS-2 supportable through the expected service life of the U-2 and provide capability enhancements necessary to support PGMs. Improvements to the ASARS-2 are directly transferable to Global Hawk High Altitude Endurance Unmanned Aerial Vehicles (HAE UAV) should migration of this improvement become a requirement. Funding for evaluation and risk reduction of U-2 fuel conversion from JPTS to JP-8 are also contained in this program element.</p> <p>(U) <u>FY 1999 (\$ in Thousands)</u> (U) \$0 Funding included in PE 0305207F (U) \$0 Total</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$0 Funding included in PE 0305207F (U) \$0 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$289 Continued Common Exploitation Tool Development (AIP) (U) \$1,141 Fuel Conversion (U) \$414 SPO Support (AIP and Fuel Conversion) (U) \$7,311 Continue Radar Transmitter Development (AIP) (U) \$775 Begin Radar Antenna Development (AIP) (U) \$9,930 Total</p>									
Project 674820			Page 6 of 8 Pages				Exhibit R-2A (PE 0305202F)		

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BUDGET ACTIVITY 07 - Operational System Development	PE NUMBER AND TITLE 0305202F Dragon U-2 (JMIP)	PROJECT 674820
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(U) **B. Project Change Summary**

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

	<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>	
(U) RDT&E PE 0305207F - AIP	47,795	9,388	0	0	0	0	0	Continuing	TBD
(U) APAF, Manned Recce, 0305207F - AIP Production*	39,364	15,312	0	0	0	0	0	Continuing	TBD
(U) APAF, Manned Recce, 0305202F - AIP Production	0	0	12,777	18,659	15,380	6,066	4,016	Continuing	TBD

* First Upgrade Radar Transmitter Deliveries in 3QFY03

(U) **D. Acquisition Strategy**

For airborne collection capability upgrades, modify existing platform and associated ground control equipment via Engineering Change Proposals (ECPs)/Task orders to existing USAF contracts. For ASARS-2, develop and test new technology line replaceable units (LRU's). There is associated procurement funding tied to this development activity.

(U) **E. Schedule Profile**

	<u>FY 1999</u>			<u>FY 2000</u>			<u>FY 2001</u>					
	1	2	3	4	1	2	3	4	1	2	3	4
(U) ASARS-2 Improvement Program												
(U) -Begin Radar Transmitter Upgrade									X			
(U) -Deliver Block 10 Software											X	
(U) Fuel Conversion												
(U) -Cold Flow Simulation (Cont)									X			
(U) -High Altitude Cold Temp Model (Cont)									X			
(U) -Material Compatability (Cont)									X			
(U) -Thermal Stability (Cont)									X			
(U) -Engine Testing											X	

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 07 - Operational System Development					PE NUMBER AND TITLE 0305202F Dragon U-2 (JMIP)			PROJECT 674820		
(U) <u>A. Project Cost Breakdown (\$ in Thousands)</u>										
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>
(U)	Primary Hardware Development									4,175
(U)	Software Development									5,068
(U)	Government Engineering Support									408
(U)	System Testing									279
(U)	Total									9,930
(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>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>					
	<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
	<u>Product Development Organizations</u>									<u>Total</u>
	Raytheon (AIP)	CPIF	3Q96	N/A	N/A				9,243	Continuing
	<u>Support and Management Organizations</u>									
	ASC/RA								408	Continuing
	<u>Test and Evaluation Organizations</u>									
	Edwards, AFB								279	Continuing
						<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
	<u>Subtotals</u>					<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
	Subtotal Product Development								9,243	TBD
	Subtotal Support and Management								408	TBD
	Subtotal Test and Evaluation								279	TBD
	Total Project								9,930	TBD