

## UNCLASSIFIED

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

DATE

February 2003

BUDGET ACTIVITY

07 - Operational System Development

PE NUMBER AND TITLE

0401115F C-130 AIRLIFT SQUADRONS

PROJECT

4885

COST (\$ in Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
4885 Avionics Modernization Program (AMP)	50,523	155,102	105,381	150,636	179,562	142,235	108,623	41,466	38,127	936,126
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

In FY 2003, Project 674726, Avionics Modernization Program (AMP), was changed to Project 674885 (same name) to correct an administrative error. This action did not change program content nor its funding.

(U) **A. Mission Description**

The C-130 Avionics Modernization Program (AMP) consolidates and installs the mandated DOD Navigation/Safety mods, the Global Air Traffic Management (GATM) systems and the C-130 Broad Area Review requirements on the AF's 490 C/AC/EC/HC/LC/MC-130s that are not being replaced with new C/CC/EC/WC-130Js. These mandated mods are incorporated with various other Reliability, Maintainability, and Sustainability (RM&S) upgrades to include: ETCAS, TAWS, replacement of APN-59 & APQ-175 radars, N-1/C-12 compass, dual autopilots, dual flight management systems and HF/UHF/VHF datalink to constitute C-130 AMP. AMP will allow the AF's 490 C/AC/EC/HC/LC/MC-130s complete access to the GATM-controlled international air space. Also, AMP and USSOCOM's Common Architecture for Penetration (CAAP) have been combined to eliminate any duplication of effort in these avionics programs. .

The USAF's C-130 fleet consists of 15 different mission design series (MDS) to be modified by the AMP. Within each of these MDSs are multiple variants (C-130H2, etc.) to be modified by AMP. These multiple different models and cockpit configurations create significant logistics support and aircrew training inefficiencies. Also, these differences greatly complicate aircrew and aircraft interoperability at forward operating locations. C-130 AMP standardizes the cockpit configurations and avionics for these different variants into a single cockpit configuration by installing a core avionics package, thus eliminating many of these significant logistics, interoperability and training problems. (Note: The new C/CC/EC/WC-130J aircraft are not included in this C-130 AMP program).

Shown here are RDT&E funds for C-130 AMP. SOCOM's AC/EC/MC-130s will have additional CAAP equipment installed along with AMP. This unique equipment is funded in MFP-11, and these funds are not shown here.

The Boeing Company was awarded the AMP contract on 30 July 01. Each C-130 variant or group of variants will require a specific kit development and test. Then, each will proceed through development and production serially. This waterfall approach will result in an orderly development and production sequencing for the 15 different C-130 MDSs.

At the AF's request, Boeing will conduct a Training System Requirements Analysis (TSRA), beginning in FY02. From this TSRA, an AF-fleetwide training system will be developed for the AMP/CAAP-modified fleet. This will include upgrading all AC/C/EC/HC/LC/MC-130 Weapons Systems Trainers (WSTs) to incorporate the AMP/CAAP modifications.

Development activities will initially focus on two areas: AMP's architecture and kit development for the first Combat Delivery aircraft (C-130H2) and the first Special Mission aircraft (MC-130H), as well as software development of the SOF AMP and Common Avionics Architecture for Penetration (CAAP) capabilities.

Project 4885

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Exhibit R-2 (PE 0401115F)

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February 2003

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

**07 - Operational System Development****0401115F C-130 AIRLIFT SQUADRONS****4885**(U) **A. Mission Description Continued**(U) **FY 2002 (\$ in Thousands)**

(U) \$0 Accomplishments/Planned Program

(U) \$33,911 Contract awarded to Boeing, Long Beach on 30 Jul 01. They began staffing the program almost immediately and continued this process thru FY02. Currently, their work force has stabilized at approximately 354 personnel, working the systems and software development for first two AMP core kits. The Core Systems Requirements Review (SRR) and the Core Software Specification Review (SSR) are complete. Design and software development continues for the Group A &amp; B equipment (Group A is acft wiring, racks, install points etc. Group B is the actual avionics boxes) for the crew station modules. Also, ongoing is the design of system integration lab (SIL), development of AMP training system, and continue CAAP Risk Mitigation testing.

(U) \$6,309 Engineering Change Orders (ECO), Govt Furnished Parts and Information (GFP/GFI) and Award Fee

(U) \$1,260 Developmental Test and Evaluation

(U) \$9,043 Program office support ( TDY, training and supplies).

(U) \$50,523 Total

(U) **FY 2003 (\$ in Thousands)**

(U) \$0 Accomplishments/Planned Program

(U) \$123,539 Ramp-up and design specification will be substantially completed in FY03, allowing software coding to proceed at full speed and developmental hardware acquisition to begin. Detailed design work will continue for both Group A and B equipment for the 13 follow-on C-130 MDSs. Development of the training systems will begin 4th Qtr FY03, following completion of the Training Systems Requirements Analysis. New efforts for FY03 will include the acquisition of avionics hardware to support the software integration efforts associated with both the Core Operational Flight Program (OFP) and the Combat Talon OFP. After completion of the software design is documented by the CDR for the C-130 core and SOF AMP variants, coding and unit testing for the software integration facility will begin. Software and avionics account for approximately 50% of the FY03 budget.

(U) \$14,633 Engineering Change Orders (ECO), Govt Furnished Parts and Information (GFP/GFI) and Award Fee

(U) \$4,700 Developmental Test and Evaluation

(U) \$5,370 Training System development upgrades

(U) \$6,860 Program office support ( TDY, training and supplies).

(U) \$155,102 Total

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

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BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

07 - Operational System Development

0401115F C-130 AIRLIFT SQUADRONS

4885

(U) **A. Mission Description Continued**(U) **FY 2004 (\$ in Thousands)**

(U) \$0 Accomplishments/Planned Program

(U) \$74,357 Continue developmental hardware acquisition. Detailed design work will continue for both Group A and B equipment on the follow-on MDSs. Continue development of the training systems based on the results of the Training Systems Requirements Analysis (TSRA). Continue acquisition of the avionics hardware to support the software integration efforts associated with both the Core Operational Flight Program (OFP) and the Combat Talon OFP. Coding and unit testing for the software integration facility will continue. Efforts will continue for trial installs of the AC-130 and the HC-130 to begin in late FY05/early FY06.

(U) \$11,884 Engineering Change Orders (ECOs), Govt Furnished Parts and Information (GFP/GFI) and the award fee.

(U) \$7,460 Developmental Test and Evaluation

(U) \$5,270 Training System development upgrades

(U) \$6,410 Program office support (TDY, training and supplies).

(U) \$105,381 Total

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

C-130 Avionics Modernization Program (AMP): This project is in Budget Activity 7, Operational Systems Development as it is a major avionics and cockpit configuration modernization to the AF's C/AC/EC/HC/LC/MC/-130 fleet of aircraft.

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

	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Total Cost</u>
(U) Previous President's Budget	80,533	158,978	180,534	936,126
(U) Appropriated Value	60,533	158,978		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	-742	-3,876		
b. Small Business Innovative Research	-1,637			
c. Omnibus or Other Above Threshold Reprogram				
d. Below Threshold Reprogram	-7,525			
e. Rescissions	-106			
(U) Adjustments to Budget Years Since FY 2003 PBR			-75,153	
(U) Current Budget Submit/FY 2004 PBR	50,523	155,102	105,381	

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

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February 2003

BUDGET ACTIVITY

**07 - Operational System Development**

PE NUMBER AND TITLE

**0401115F C-130 AIRLIFT SQUADRONS**

PROJECT

**4885**(U) **C. Program Change Summary (\$ in Thousands) Continued**(U) **Significant Program Changes:**(U) **D. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</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>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) Other APPN										
(U) PE 0401115F, Avionics Modernization Program (AMP), BP1100					117,043	149,086	234,035	419,089	2,266,133	3,185,386

(U) **E. Acquisition Strategy**

The C-130 AMP contract was awarded 30 July 2001. The contract is a Cost-Plus Award Fee contract to develop and install AMP kits for the 490 aircraft within the AF's AC/C/EC/HC/LC/MC-130 fleet. Revisions to the AF training system is an option under the AMP contract, which will modify the various Training Programs and Weapons Systems Trainers to the AMP configuration.

(U) **F. Schedule Profile**

	<u>FY 2002</u>				<u>FY 2003</u>				<u>FY 2004</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Core Systems Requirements Review (SRR)	*											
(U) Core Software Specification Review (SSR)			*									
(U) Core Preliminary Design Review (PDR)					X							
(U) C-130 SOF/AMP PDR						X						
(U) AMP Hardware Concept Design Review (CDR)								X				
(U) AMP Software CDR									X			
(U) SOF Hardware CDR									X			
(U) Development Activities (AC-130 & HC-130)						X						

\*: Item is complete.

X : Item is scheduled

The C-130 AMP contract was awarded on 30 Jul 01.

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2003			
BUDGET ACTIVITY					PE NUMBER AND TITLE				PROJECT		
07 - Operational System Development					0401115F C-130 AIRLIFT SQUADRONS				4885		
(U) <u>A. Project Cost Breakdown (\$ in Thousands)</u>											
					FY 2002		FY 2003		FY 2004		
(U) C-130 AMP System Development & Demonstration (SDD)					30,106		114,669		64,637		
(U) Program Office Support					9,043		6,860		6,410		
(U) GFE							0		2,380		
(U) ECO					6,309		14,633		11,884		
(U) Developmental Test and Eval					1,260		4,700		7,460		
(U) Training System Upgrade							5,370		5,270		
(U) Award Fee					3,805		8,870		7,340		
(U) Total					50,523		155,102		105,381		
(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>Performing</u>		<u>Award or</u>		<u>Performing</u>		<u>Project</u>					
<u>Activity</u>		<u>Obligation</u>		<u>Activity</u>		<u>Office</u>		<u>Total Prior</u>		<u>Total</u>	
<u>Vehicle</u>		<u>Date</u>		<u>EAC</u>		<u>EAC</u>		<u>to FY 2002</u>		<u>Program</u>	
<u>Product Development Organizations</u>											
Boeing, Long Beach, CA		CPAF		30 Jul 01				38,977		40,220	
								143,542		91,511	
								437,261		751,511	
Note: Funds shown here contain System Design & Development, ECO, Training System Upgrades and the Award Fee.											
<u>Support and Management Organizations</u>											
Program Support Office		N/A		N/A				7,993		9,043	
								6,860		6,410	
								85,006		115,312	
<u>Test and Evaluation Organizations</u>											
Various								0		1,260	
								4,700		7,460	
								55,883		69,303	
<u>Subtotals</u>					<u>Total Prior</u>		<u>Budget</u>		<u>Budget</u>		<u>Total</u>
					<u>to FY 2002</u>		<u>FY 2002</u>		<u>FY 2003</u>		<u>Program</u>
Subtotal Product Development					38,977		40,220		143,542		91,511
Subtotal Support and Management					7,993		9,043		6,860		6,410
Subtotal Test and Evaluation					0		1,260		4,700		7,460
Total Project					46,970		50,523		155,102		105,381
									578,150		936,126
Project 4885											
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Exhibit R-3 (PE 0401115F)											