

UNCLASSIFIED

PE NUMBER: 0401115F

PE TITLE: C-130 AIRLIFT SQUADRONS

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401115F C-130 AIRLIFT SQUADRONS

Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	103.777	150.901	233.028	217.602	171.130	88.041	38.901	0.000	Continuing	TBD
4885 Avionics Modernization Program (AMP)	103.777	150.901	233.028	217.602	171.130	88.041	38.901	0.000	Continuing	TBD

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

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/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 data link 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.

USAF's C-130 fleet consists of 14 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 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: C/EC/WC-130J are not included in AMP program).

Shown here are RDT&E funds for C-130 AMP. SOCOM's AC/EC/MC/HC-130s will have additional CAAP equipment installed along with AMP that will be funded in MFP-11. 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 14 different C-130 MDSs.

Development activities continue to 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.

A Restructure Engineering Change Proposal (ECP) 1302 was awarded to Boeing 20 Aug 03. The ECP rebaselined the program due to funding reductions in FYs 03/04 which resulted in delays in System Development and Demonstration program for up to 2 years.

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.

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401115F C-130 AIRLIFT SQUADRONS

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	105.381	150.242	232.209	214.716
(U) Current PBR/President's Budget	103.777	150.901	233.028	217.602
(U) Total Adjustments	-1.604	0.659		
(U) Congressional Program Reductions	-0.895			
Congressional Rescissions				
Congressional Increases		0.659		
Reprogrammings	-0.709			
SBIR/STTR Transfer				
(U) <u>Significant Program Changes:</u>				
None				

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401115F C-130 AIRLIFT
SQUADRONS

PROJECT NUMBER AND TITLE

4885 Avionics Modernization
Program (AMP)

Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4885 Avionics Modernization Program (AMP)	103.777	150.901	233.028	217.602	171.130	88.041	38.901	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

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/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 data link 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.

USAF's C-130 fleet consists of 14 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 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: C/EC/WC-130J are not included in AMP program).

Shown here are RDT&E funds for C-130 AMP. SOCOM's AC/EC/MC/HC-130s will have additional CAAP equipment installed along with AMP that will be funded in MFP-11. 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 14 different C-130 MDSs.

Development activities continue to 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.

A Restructure Engineering Change Proposal (ECP) 1302 was awarded to Boeing 20 Aug 03. The ECP rebaselined the program due to funding reductions in FYs 03/04 which resulted in delays in System Development and Demonstration program for up to 2 years.

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) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Detailed design work continues for both Group A(wiring, racks, etc) and B (computers, instrumentation, etc.) equipment for the C/AC/EC/HC/LC/MC-130 fleets. Coding and unit testing for the software integration facility continues.	85.709	116.762	135.783	106.313
(U) Engineering Change Orders (ECO), Govt Furnished Parts and Information (GFP/GFI), and Award Fee.	6.635	14.990	29.303	20.971

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R-1 Shopping List - Item No. 211-4 of 211-8

Exhibit R-2a (PE 0401115F)

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Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE				
07 Operational System Development				0401115F C-130 AIRLIFT SQUADRONS			4885 Avionics Modernization Program (AMP)				
(U)	Developmental Test and Evaluation.			3.400			9.740	14.354	12.326		
(U)	Training System development upgrades.			0.000			2.459	45.453	69.286		
(U)	Program office support (A&AS, TDY, training and supplies).			8.033			6.950	8.135	8.706		
(U)	Total Cost			103.777			150.901	233.028	217.602		
(U)	C. Other Program Funding Summary (\$ in Millions)										
		<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>FY 2010</u>	<u>FY 2011</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, 3010, C-130			50.559	87.667	188.030	357.686	427.400	417.693	1,325.150	2,854.185
(U)	AMP, BP1100										

(U) D. 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.

A Restructure Engineering Change Proposal (ECP) 1302 was awarded to Boeing 20 Aug 2003. The ECP rebaselines the program due to funding reductions in FYs 03/04 which resulted in delays in System Development and Demonstration program by up to 2 years.

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Exhibit R-3, RDT&E Project Cost Analysis

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February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401115F C-130 AIRLIFT
SQUADRONS

PROJECT NUMBER AND TITLE

4885 Avionics Modernization
Program (AMP)

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &</u> <u>Type</u>	<u>Performing</u> <u>Activity &</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2004</u> <u>Cost</u>	<u>FY 2004</u> <u>Cost</u>	<u>FY 2004</u> <u>Award</u> <u>Date</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</u>	<u>FY 2006</u> <u>Cost</u>	<u>FY 2006</u> <u>Award</u> <u>Date</u>	<u>FY 2007</u> <u>Cost</u>	<u>FY 2007</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>														
Boeing, Long Beach, CA	CPAF		146.601	92.344	Dec-03	135.739	Dec-04	210.539	Dec-05	196.570	Dec-06	261.157	1,042.950	
Subtotal Product Development			146.601	92.344		135.739		210.539		196.570		261.157	1,042.950	0.000
Remarks:	Note: Funds shown here contain System Design & Development, ECO, Training System Upgrades and the Award Fee.													
(U) <u>Support</u>														
Program Support Office	N/A		30.810	8.033		6.276		8.135		8.706		13.461	75.421	
Subtotal Support			30.810	8.033		6.276		8.135		8.706		13.461	75.421	0.000
Remarks:	Award Dates vary throughout the year depending on activity (TDY, Training, Contractor Support)													
(U) <u>Test & Evaluation</u>														
Various			16.170	3.400	Jan-04	8.886	Jan-05	14.354		12.326		18.924	74.060	
Subtotal Test & Evaluation			16.170	3.400		8.886		14.354		12.326		18.924	74.060	0.000
Remarks:														
(U) <u>Management</u>														
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) Total Cost			193.581	103.777		150.901		233.028		217.602		293.542	1,192.431	0.000

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Exhibit R-4, RDT&E Schedule Profile

DATE

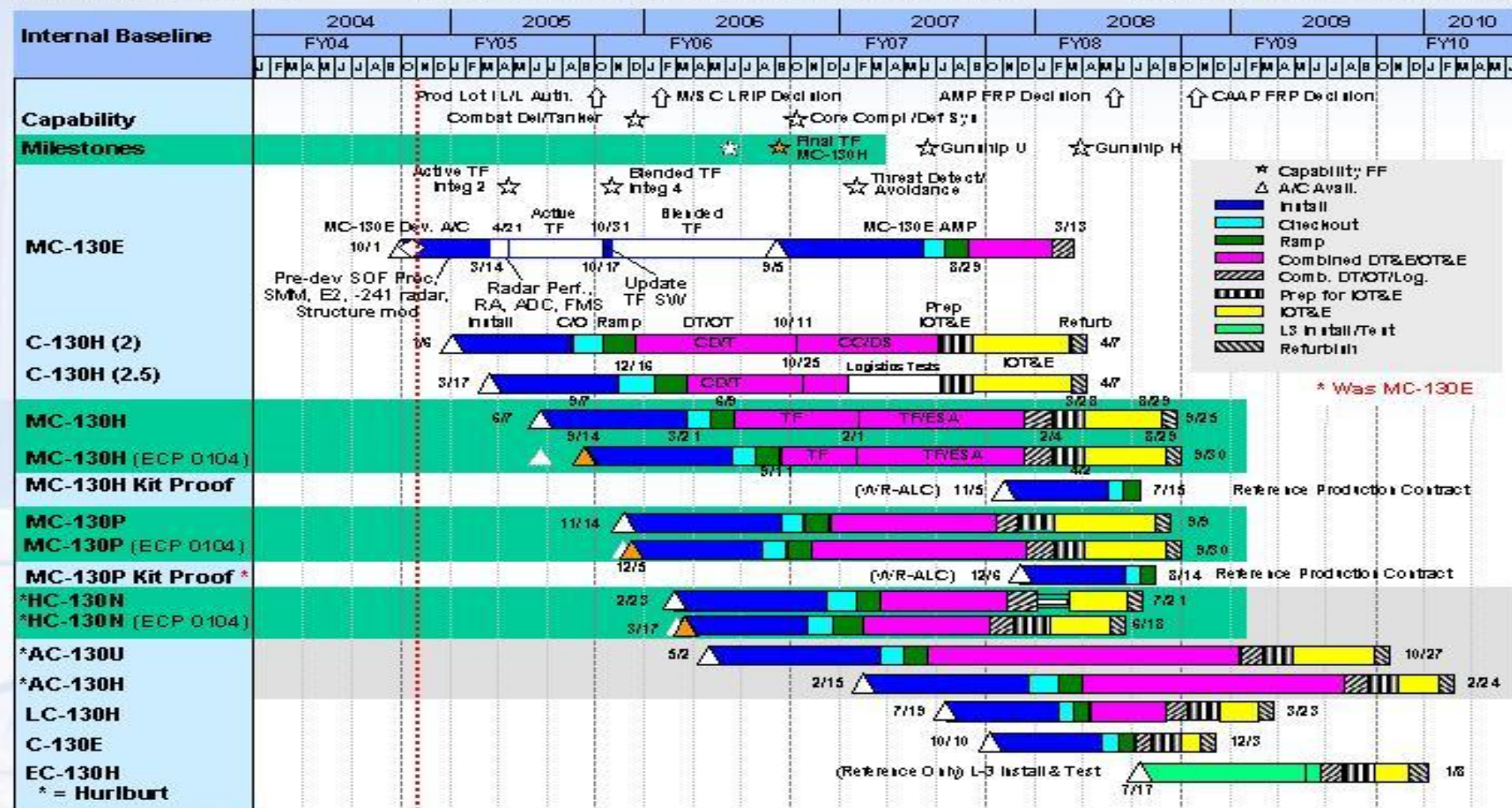
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BUDGET ACTIVITY
07 Operational System DevelopmentPE NUMBER AND TITLE
0401115F C-130 AIRLIFT
SQUADRONSPROJECT NUMBER AND TITLE
4885 Avionics Modernization
Program (AMP)

Authority: MCR 003832 for ECP 0104

C-130 AMP EMD (MC-130E Demo, Trial Install, Test)

AMP OSD 4 Rev. 2.4: 17 SEP 03; Status: 01 OCT 04



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R-1 Shopping List - Item No. 211-7 of 211-8

Exhibit R-4 (PE 0401115F)

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Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

**0401115F C-130 AIRLIFT
SQUADRONS**

PROJECT NUMBER AND TITLE

**4885 Avionics Modernization
Program (AMP)****(U) Schedule Profile**FY 2004FY 2005FY 2006FY 2007

(U) Core Preliminary Design Review (PDR)

1Q

(U) C-130 SOF/AMP PDR

2Q

(U) AMP Hardware Concept Design Review (CDR)

4Q

(U) AMP Software CDR

4Q

(U) C-130H2 First Flight

1Q

(U) M/SC/LRIP Decision

2Q

(U) MC-130 First Flight

3Q

(U) AC-130U First Flight

4Q