

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)					DATE				
					FEBRUARY 2004				
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7			R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations (SO) Tactical Systems Development						
COST (Dollars in Millions)	FY03	FY04	FY05	FY06	FY07	FY08	FY09	Cost to Complete	Total Cost
PE1160404BB	254.715	298.825	311.966	190.438	85.036	60.730	43.209	Cont.	Cont.
3129 MC-130H COMBAT TALON			23.920						
3284 SOF AIRCRAFT DEFENSIVE SYSTEM	49.950	56.261	58.041	46.858	17.557	6.051	6.286	Cont.	Cont.
3326 AC-130U GUNSHIP	36.292	1.186	1.288	2.534	2.580	2.684	2.767	Cont.	Cont.
D476 PSYOPS ADV DEV	.988	2.195	.357	1.456	6.704	1.350	2.366		
D615 SOF AVIATION	22.970	44.554	29.198	28.649	23.410	10.697	6.815		
S0417 UNDERWATER SYSTEMS ADV DEV	27.483	16.711	2.395	2.216	1.662	.385	1.489		
S1684 SOF SURFACE CRAFT ADV SYSTEMS	.949	1.421			1.335	18.785	9.295		
S350 SOFPARS	1.617	2.516	6.916	3.832	3.757	3.868	3.967		
S375 WEAPONS SYSTEMS ADV DEV	4.158	7.299	5.758	4.401	.386	.587	.256		
S625 SOF TRAINING SYSTEMS	.169	13.537	4.765	11.203	4.489	5.111	1.165	Cont.	Cont.
S700 SO COMMUNICATIONS ADV DEV	2.107	6.819							
S800 SO MUNITIONS ADV DEV	7.155	.003	.215	.816		.482			
S900 SO MISCELLANEOUS EQUIPMENT ADV DEV	1.464								
SF100 AVIATION SYSTEMS ADV DEV	66.944	67.713	103.982	59.662	23.156	10.730	8.803		
SF200 CV-22	32.469	78.610	75.131	28.811					

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APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations (SO) Tactical Systems Development		

A. Mission Description and Budget Item Justification:

This program element provides for development, testing, and integration of specialized equipment to meet the unique requirements of Special Operations Forces (SOF). Specialized equipment will permit small, highly trained forces to conduct required operations across the entire spectrum of conflict. These operations are generally conducted in harsh environments, for unspecified periods and in locations requiring small unit autonomy. SOF must infiltrate by land, sea, and air to conduct unconventional warfare, direct action, or deep reconnaissance operations in denied areas against insurgent units, terrorists, or highly sophisticated threat forces. The requirement to operate in denied areas controlled by a sophisticated threat mandates that SOF systems remain technologically superior to threat forces to ensure mission success.

B. Program Change Summary:

	<u>FY2003</u>	<u>FY2004</u>	<u>FY2005</u>
Previous President's Budget	287.621	255.981	253.588
Current President's Budget	254.715	298.825	311.966
Total Adjustments	-32.906	42.844	58.378
Congressional Program Reductions	-0.428	-3.286	
Congressional Rescissions	-25.000		
Congressional Increases		53.700	
Reprogrammings	-7.478	-0.509	
SBIR			

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APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations (SO) Tactical Systems Development	
<p>Funding:</p> <p>FY03</p> <ul style="list-style-type: none"> - Congress rescinded \$25 million from this program element in the FY 2004 Appropriations Conference Report. - Reprogrammings to higher command priorities to support the War on Terrorism and from the Air Force and Navy to reflect proper execution of Congressional adds resulted in a net decrease of \$7.478M. <p>FY04</p> <p>Reflects \$19.700 million for Congressionally added programs as follows:</p> <ul style="list-style-type: none"> - Project SF100 – Digital Auto Flight Control System (\$4.200). - Project S1684 – MKV Computer Upgrades (\$1.000). - Project S375 – Gunshot Detection System (\$2.500). Lightweight Counter-Mortar Radar (\$1.000). - Project S625 – ST Air-Ground Interface Simulator (\$4.200). - Project S700 – Material Improvement & Corrosion Control (\$2.550) Multi-Band Multi-Mode Radar (\$4.250) <p>Also reflects a transfer from the Navy for Project SF200.PR (CV-22) (\$34.000).</p> <p>Congressional Reductions: Sections 8094 and 8126 (-\$6.279)</p> <p>FY05</p> <ul style="list-style-type: none"> - Project 3284: The Low Band Jammer, the Towed Decoy, and the DIRCM Multi-Spectral Missile Warning System modification efforts were restructured to reflect the most recent cost estimates (+\$15.8 million, +\$16.0 million, and +\$6.0 million, respectively). - Project D615: The MH-60 Service Life Extension Program (SLEP) was increased by \$3 million to reflect the latest schedule, and the MH-47/MH-60 Vertical Lift Terrain Following/Terrain Avoidance modification was decreased by \$11.1 million to support higher command requirements. 		

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APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations (SO) Tactical Systems Development
<p>- Project S350: The SOFPARS program was increased to begin the development of the Theater Special Operations Commands' command and control nodes, as well as to begin the development and modification of automated tools to meet ground mission planning requirements (+\$3.6 million).</p> <p>- Project S375: Funds were added to develop a laser targeting device capable of providing the geo-location of a target to support the delivery of global positioning system guided munitions (+\$3.0 million).</p> <p>- Project SF100: Various C-130 modification efforts were decreased to support higher command priorities (-\$3.7 million), and the CAAP program was decreased to reflect an FY 2003 acceleration (-\$6.6 million).</p> <p>- Project SF200: The CV-22 RDT&E effort was restructured beginning in FY 2003 to better reflect execution of the Block 10 development and integration effort (+\$33.7 million).</p> <p>Schedule:</p> <p>- Project 3284: Low Band Jammer and Towed Decoy: These programs are tied together to make the program executable. The program rebaselined aircraft from AC-130H to MC130E to use the E model first because of ease of installation. The H model already has a low band jammer. The milestone C (production) and IOC decision were both moved forward one year.</p> <p>- Project SF100: CAAP buys back one year of a two year AMP schedule slip due to AMP restructure and adds RDT&E funds to the AMP/CAAP program to minimize the 24+ month schedule slip.</p> <p>Technical:</p> <p>- Project SF100: DIRCM Laser: An inherent design defect was discovered and deemed not cost effective. Cost and schedule impact was considered impractical. Therefore, the effort was cancelled and the lasers will not be put on the large lamp based system of SOF C-130 DIRCM.</p> <p>- Project 3326: AC-130U+4: In order to complete production costs (spares, trainers, etc) of the new 30mm gun, development of enhanced survivability systems was delayed. Enhanced survivability schedules were incompatible with the Plus 4 production schedule.</p>	

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2004
Appropriation/Budget Activity RDT&E BA # 7	MC-130 Combat Talon II/Project 3129	

Cost (\$ in millions)	FY03	FY04	FY05	FY06	FY07	FY08	FY09
			23.920				
RDT&E Articles Quantity							

A. Mission Description and Budget Item Justification: In an effort to mitigate Low Density/High Demand assets, the Department provided funding, starting in FY05, to increase USSOCOM's MC-130H inventory by ten aircraft. This program modifies 10 C-130H2 aircraft to an MC-130H Combat Talon II configuration. These aircraft provide low level infiltration, exfiltration, and resupply of special operations forces and equipment in hostile/denied territories. Aircraft will also refuel SOF helicopters.

B. Accomplishments/Planned Program

		FY 2003	FY 2004	FY 2005
System Development and Engineering				23.920
RDT&E Articles Quantity				

FY05 Begin development of Electro-Optical/Infrared command sensor and nonrecurring engineering for the 10 C-130H2 aircraft being modified to MC-130H Combat Talon II.

C. Other Program Funding Summary:

	<u>FY03</u>	<u>FY04</u>	<u>FY05</u>	<u>FY06</u>	<u>FY07</u>	<u>FY08</u>	<u>FY09</u>	To <u>Complete</u>	Total <u>Cost</u>
Procurement	7.804	8.772	82.079	82.348	247.014	191.821	19.350	Cont.	Cont.

D. Acquisition Strategy. Program procures Talon II systems and installs these in conjunction with the C-130 Avionics Modernization/Common Avionics Architecture for Penetration (AMP/CAAP) modifications (program will not procure systems replaced by AMP/CAAP). Objective is to open the aircraft once to install the MC-130H Talon II plus ten and AMP/CAAP systems.

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2004
Appropriation/Budget Activity RDT&E BA # 7	MC-130 Combat Talon II/Project 3129	

Cost (\$ in millions)	FY03	FY04	FY05	FY06	FY07	FY08	FY09
			23.920				
RDT&E Articles Quantity							

A. Mission Description and Budget Item Justification: In an effort to mitigate Low Density/High Demand assets, the Department provided funding, starting in FY05, to increase USSOCOM's MC-130H inventory by ten aircraft. This program modifies 10 C-130H2 aircraft to an MC-130H Combat Talon II configuration. These aircraft provide low level infiltration, exfiltration, and resupply of special operations forces and equipment in hostile/denied territories. Aircraft will also refuel SOF helicopters.

B. Accomplishments/Planned Program

		FY 2003	FY 2004	FY 2005
System Development and Engineering				23.920
RDT&E Articles Quantity				

FY05 Begin development of Electro-Optical/Infrared command sensor and nonrecurring engineering for the 10 C-130H2 aircraft being modified to MC-130H Combat Talon II.

C. Other Program Funding Summary:

	<u>FY03</u>	<u>FY04</u>	<u>FY05</u>	<u>FY06</u>	<u>FY07</u>	<u>FY08</u>	<u>FY09</u>	To <u>Complete</u>	Total <u>Cost</u>
Procurement	7.804	8.772	82.079	82.348	247.014	191.821	19.350	Cont.	Cont.

D. Acquisition Strategy. Program procures Talon II systems and installs these in conjunction with the C-130 Avionics Modernization/Common Avionics Architecture for Penetration (AMP/CAAP) modifications (program will not procure systems replaced by AMP/CAAP). Objective is to open the aircraft once to install the MC-130H Talon II plus ten and AMP/CAAP systems.

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Exhibit R-3 COST ANALYSIS						DATE: FEBRUARY 2004					
APPROPRIATION / BUDGET ACTIVITY				Special Operations Tactical Systems Development/PE1160404BB							
RDT&E DEFENSE-WIDE / 7				MC-130H Combat Talon II /3129							
Actual or Budget Value (\$ in millions)											
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	Budget Cost FY04	Award Date FY04	Budget Cost FY05	Award Date FY05			To Complete	Total Program
System Design Development	CPAF/FFP	Various				23.920	Oct-04				23.920
Subtotal Product Dev						23.920					23.920
Remarks:											
Development Spt											
Subtotal Spt											
Remarks:											
Developmental Test & Eval											
Subtotal T&E											
Remarks:											
Contractor Engineering Spt											
Subtotal Management											
Remarks:											
Total Cost						23.920					23.920
Remarks:											

Exhibit R-4, Schedule Profile													Date: FEBRUARY 2004																			
Appropriation/Budget Activity					Program Element Number and Name												Project Number and Name															
RDT&E/7					PE1160404BB/Special Operations Tactical System Development												Project 3129/MC-130H Combat Talon II															
Fiscal Year	2004				2005				2006				2007				2008				2009											
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4								
System Design Development Contract Award					△																											
System Design Development NRE					△	—————		△																								

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2004
Appropriation/Budget Activity RDT&E BA # 7	SOF Aircraft Defensive System/Project 3284	

Cost (\$ in million)	FY03	FY04	FY05	FY06	FY07	FY08	FY09
SOF Aircraft Defense System	49.950	56.261	58.041	46.858	17.557	6.051	6.286
RDT&E Articles Quantity							

A. Mission Description and Budget Item Justification: This project provides definition, development, prototyping and testing of aircraft defensive avionics systems. Project identifies hardware and software enhancements for each Special Operations Forces (SOF) aircraft that will reduce detection, vulnerability, and threat engagement from threat radars and Infrared (IR) missiles, thereby increasing the overall survivability of SOF assets. This project identifies and develops enhancements to each platform to meet the projected threat. Recommendations for equipment modification or replacement will be developed by each system program manager based upon the results of ongoing engineering assessments and user operational requirements. This project funds dispenser upgrade and improvement programs, threat and missile warning receiver enhancements, radio frequency jammer improvements, and enhanced IR jamming systems. Project also provides systems for SOF-unique portions of the Warner Robins-Air Logistics Center Electronic Warfare Avionics Integrated Systems Facility. Sub-projects include:

- Directional Infrared Countermeasures (DIRCM). The baseline program is a joint international cooperative United Kingdom/United States project to develop and procure an IR jammer for MC-130E/H and AC-130H/U aircraft capable of countering missile threats in the band one, two and four IR frequency spectrum.
- Next Generation Missile Warning System (NexGen MWS). Increment 3 in the spiral development of the AAQ-24 DIRCM System. Cooperative development program with Air Force to significantly extend DIRCM threat engagement range. Funds support two contracts through completion of System Design and Development (SDD) phase.
- Electronic Warfare Avionics Integrated Systems Facility (EWAISF). The EWAISF directly supports software development and testing. The EWAISF effort is a type of systems integration laboratory designed to support the incorporation of SOF aircraft defensive systems modifications into specific SOF platforms.
- High Power Fiber Optic Towed Decoys (HPFOTD) for AC-130 H/U Gunships and MC-130 E/H Talon aircraft. Program funds the testing of the HPFOTD ALE-55 that uses the ALQ-172 as a techniques generator. The HPFOTD will be installed on all AFSOC AC-130 H/U and MC-130 E/H aircraft to provide protection against monopulse and other radar guided, surface to air, and air to air missile systems.

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2004
Appropriation/Budget Activity RDT&E BA # 7	SOF Aircraft Defensive System/Project 3284	

- Low Band Jammer (LBJ). Program funds the development of the ALQ-196 LBJ modification. The LBJ will improve the capability of the ALQ-172 radio frequency jammer by adding low band jamming coverage for 13 AC-130U Gunships and 22 MC-130H Combat Talon II aircraft.

B. Accomplishments/Planned Program

Cost (\$ in million)	FY03	FY04	FY05
DIRCM	3.982	5.029	5.658
DIRCM NexGen MWS		14.596	18.700
DT&E Articles Quantity			
<p>FY03 Continued to support a cooperative UK/US development/production program for 57 SOF C-130 aircraft and contractor engineering support and nonrecurring engineering costs. Funded development and nonrecurring engineering costs for a laser upgrade to the existing lamp system.</p> <p>FY04 Continue to support a cooperative UK/US development/production program for 57 SOF C-130 aircraft and contractor engineering support fund nonrecurring engineering costs. Initiate development of an NexGen MWS as P3I for DIRCM. Exploit Tier II missiles for jam code development.</p> <p>FY05 Continue to support a cooperative UK/US development/production program for 57 SOF C-130 aircraft and contractor engineering support and nonrecurring engineering costs. Continue development of an NexGen MWS as P3I for DIRCM. Exploit Tier II missiles for jam code development.</p>			
Cost (\$ in million)	FY03	FY04	FY05
EWASIF	1.397	1.614	1.880
RDT&E Articles Quantity			
<p>FY03 Continued to support laboratory efforts to maintain SOF aircraft defensive systems.</p> <p>FY04 Continue to support laboratory efforts to maintain SOF aircraft defensive systems.</p> <p>FY05 Continue to support laboratory efforts to maintain SOF aircraft defensive systems.</p>			

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2004
Appropriation/Budget Activity RDT&E BA # 7	SOF Aircraft Defensive System/Project 3284	

Cost (\$ in million)			FY03	FY04	FY05
(HPFOTD)			32.671	22.922	16.051
RDT&E Articles Quantity					

FY03 Continued nonrecurring engineering, and initiated development and testing of aircraft integration efforts.
 FY04 Continue nonrecurring engineering and development, and complete test of aircraft integration efforts.
 FY05 Continue nonrecurring engineering and development, and begin developmental test/operational test and evaluation efforts for MC-130E aircraft.

Cost (\$ in million)			FY03	FY04	FY05
LBJ			11.900	12.100	15.752
RDT&E Articles Quantity					

FY03 Began development and nonrecurring engineering for the LBJ modification for AC-130U and MC-130H aircraft. Funds provided for trial installation on one aircraft from each fleet.
 FY04 Continue nonrecurring engineering and development for aircraft integration efforts.
 FY05 Continue nonrecurring engineering and initiate testing for aircraft integration for AC-130U aircraft.

C. Other Program Funding Summary:

	FY03	FY04	FY05	FY06	FY07	FY08	FY09	To Complete	Total Cost
C-130 Mods (Procurement)									
DIRCM	.846	30.704	14.457	6.746	10.824	9.072	8.501		
LBJ	2.000		13.966	51.877	22.170	21.907	21.850		133.770
HPFOTD			26.634	35.616	36.249	13.404	13.430		125.333

D. Acquisition Strategy:

- DIRCM. The memorandum of agreement between the United Kingdom (UK)/United States (US) established the cooperative international baseline DIRCM program. The UK Ministry of Defense is the lead for the program. UK law applies to all baseline acquisition actions. USSOCOM program manager is the US Deputy to the UK DIRCM program manager.
- NexGenMWS. Competitively award a contract to two contractors for the SDD phase of the program. A separate contract will be

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2004
Appropriation/Budget Activity RDT&E BA # 7	SOF Aircraft Defensive System/Project 3284	

competitively awarded for the production phase.

- EWAISF. Award sole source contracts to the manufacturer of the prime mission equipment required for hardware and software integration into the EWAISF. Capability improvements are on-going system changes.
- LBJ. Program will complete modification of two remaining aircraft series (AC-130U and MC-130H) with LBJ capability. Program will capitalize on previous SOF aircraft modifications using the ALQ-196 system currently installed on MC-130E aircraft. The ALE-55 system was selected as the best value decision on all MC-130/AC-130 aircraft. Program management will be provided through an Air Force System Program Office and a pre-competed contract will be used for integration, production, and installation.
- HPFOTD. Performed a market survey of the existing Towed Decoy currently available in the US market place. Conducted an assessment to determine which non-developmental item meets operational requirements. The ALE-55 system was selected as the best value decision.

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Exhibit R-3 COST ANALYSIS						DATE: FEBRUARY 2004					
APPROPRIATION / BUDGET ACTIVITY				Special Operations Tactical Systems Development/PE1160404BB							
RDT&E DEFENSE-WIDE / 7				Special Operations Forces Aircraft Defensive System/3284							
Actual or Budget Value (\$ in millions)											
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	Budget Cost FY04	Award Date FY04	Budget Cost FY05	Award Date FY05			To Complete	Total Program
Primary Hardware Dev											
Directional Infrared Countermeasures (DIRCM)	SS/FFP	Northrop (Chicago)	77.507								77.507
PM Engineering DIRCM	SS/CPFF	Northrop (Chicago)	3.498	3.801	Mar-04	5.658	Various			Cont	Cont.
DIRCM Laser	SS/CPFF	Northrop (Chicago)	24.177								24.177
NexGen MWS	CPIF	TBD	2.859	14.596	Mar-04	18.700	Various			8.935	45.090
Electronics Warfare Avionics											
Integrated Systems Facility	SS/CPFF	GTRI, GA	15.360	1.614	Feb-04	1.880	Feb-05			Cont.	Cont.
HPFOTD	CPAF	Boeing, Ft. Walton Beach, FL	71.631	22.922	Nov-03	16.051	Jan-05			18.980	129.584
Low Band Jammer	CPAF	Boeing, Ft. Walton Beach, FL	23.800	12.100	Nov-03	15.752	Jan-05			18.253	69.905
Subtotal Product Dev			218.832	55.033		58.041				Cont.	Cont.
Remarks:											
Development Spt											
Subtotal Spt											
Remarks:											
Developmental Test & Eval											
Subtotal T&E											
Remarks:											
Contractor Engineering Spt											
DIRCM	FP	SVERDRUP	1.870	1.228	May-04						3.098
Subtotal Management			1.870	1.228		0.000					3.098
Remarks:											
Total Cost			220.702	56.261		58.041				Cont	Cont
Remarks:											

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Exhibit R-4, Schedule Profile		Date: FEBRUARY 2004																														
Appropriation/Budget Activity RDT&E/7					Program Element Number and Name PE1160404BB/Special Operations Tactical System Development																Project Number and Name Project 3284/SOF Aircraft Defensive Systems											
Fiscal Year	2004				2005				2006				2007				2008				2009											
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4								
AC-130H																																
LBJ Dev																																
MC-130E	—————							△																								
AC-130U					△	—————	—————	—————	—————	—————	—————	—————																				
MC-130H					△	—————	—————	—————	—————	—————	—————	—————				△																
LBJ Prod																																
MC-130E																	△	—————	—————	—————												
AC-130U																	△	—————	—————	—————	—————	—————	—————	—————								
MC-130H																																

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2004
Appropriation/Budget Activity RDT&E BA # 7	AC-130U Gunship/Project 3326	

Cost (\$ in millions)	FY03	FY04	FY05	FY06	FY07	FY08	FY09
AC-130U Gunship	36.292	1.186	1.288	2.534	2.580	2.684	2.767
RDT&E Articles Quantity							

A. Mission Description and Budget Item Justification: This project provides development of aircraft subsystems including precision navigation, target acquisition and strike radar, fire control computers integrated on redundant MIL-STD-1553B data buses, electronic countermeasures, infrared countermeasures, aerial refueling, covert lighting, trainable weapons, all light level television, infrared sensor, and secure communications systems. These subsystems enable the gunship to strike target with surgical accuracy, to loiter safely in the target area for extended periods, and to perform these tasks at night and in adverse weather conditions. Every effort has been made to adapt off-the-shelf equipment. To the maximum extent possible, the subsystems in the AC-130U are common with systems on other Air Force (AF) Special Operations Command aircraft.

B. Accomplishments/Planned Program

	FY 2003	FY 2004	FY 2005
AC-130U Plus Four	35.119		
RDT&E Articles Quantity			

FY03 Funded engineering analysis for obsolescence issues in support of the four C-130H's added to the gunship inventory.

	FY 2003	FY 2004	FY 2005
AC-130U Post Production Support	1.173	1.186	1.288
RDT&E Articles Quantity			

FY03 Continued weight and drag reduction designs, survivability, technical/reliability and maintainability studies, and tech order verification validation and ground flight test support.

FY04 Continue weight and drag reduction design, obsolescence engineering drawings, survivability studies, and ground/flight test support.

FY05 Continue weight and drag reduction design, obsolescence engineering drawings, survivability studies, and ground/flight test support.

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2004
Appropriation/Budget Activity RDT&E BA # 7	AC-130U Gunship/Project 3326	

C. Other Program Funding Summary:								To	Total
	<u>FY03</u>	<u>FY04</u>	<u>FY05</u>	<u>FY06</u>	<u>FY07</u>	<u>FY08</u>	<u>FY09</u>	<u>Complete</u>	<u>Cost</u>
AC-130U Gunship (Procurement)	124.204	363.571	14.694	165.368	177.910	4.650	4.764	Cont.	Cont.

D. Acquisition Strategy. Modify C-130H airframes into a side-firing gunship configuration on a sole-source fixed price contract. A cost plus fixed fee contract line item will be included to accommodate any required changes due to obsolescence, vanished vendors or other required changes. The AC-130U is logistically supported at organizational, intermediate and depot levels. Initial operational capability occurred in March 1996, and full operational capability was declared March 2002.

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Exhibit R-3 COST ANALYSIS						DATE: FEBRUARY 2004					
APPROPRIATION / BUDGET ACTIVITY				Special Operations Tactical Systems Development/PE1160404BB							
RDT&E DEFENSE-WIDE / 7				AC-130U Gunship /3326							
Actual or Budget Value (\$ in millions)											
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	Budget Cost FY04	Award Date FY04	Budget Cost FY05	Award Date FY05			To Complete	Total Program
Post Production Support	Various	Various	1.173	1.186	Various	1.288	Various			Cont.	Cont. 0.000
AC-130U Plus 4			35.119								0.000 35.119
Subtotal Product Dev			36.292	1.186		1.288					Cont.
Dev Spt											
Subtotal Spt											
Subtotal T&E											
Management											
Subtotal Management											
Remarks: * Close out original Ac-130U purchase											
Total Cost			36.292	1.186		1.288				Cont.	Cont.
Remarks:											

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Exhibit R-4, Schedule Profile													Date: FEBRUARY 2004															
Appropriation/Budget Activity RDT&E/7					Program Element Number and Name PE1160404BB/Special Operations Tactical System Development										Project Number and Name Project 3326/AC-130U Gunship													
Fiscal Year	2004				2005				2006				2007				2008				2009							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Full Rate Production Decision	▲																											
Exercise Option to Purchase Remaining Three Aircraft	▲																											
Production Delivery Plus Four Aircraft				▲	▲			▲																				
Post Production Support		▲																										▲

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2004
Appropriation/Budget Activity RDT&E BA # 7	Special Operations Forces (SOF) Aviation /Project D615	

Cost (\$ in millions)	FY03	FY04	FY05	FY06	FY07	FY08	FY09
SOF Aviation	22.970	44.554	29.198	28.649	23.410	10.697	6.815
RDT&E Articles Quantity							

A. Mission Description and Budget Item Justification: This project provides aviation support to Special Operations Forces (SOF) in worldwide contingency operations and low-intensity conflicts. The specialized aircraft for these missions must be capable of rapid deployment and undetected penetration of hostile areas. These aircraft must be capable of operating at extended ranges under adverse weather conditions to infiltrate, provide logistics for, reinforce, and extract SOF. The threat is characterized by an extensive and sophisticated ground based air defense system and an upgraded air-to-air capability targeted against helicopters. This project will develop/upgrade SOF rotary wing aircraft systems that will be capable of successful operations in increasingly hostile environments. Rotary wing systems supported by this project include: A/MH-6M, MH-60L/K/M, and MH-47D/E/G, and MH-53. Efforts include:

- A/MH-6. (1) Conducts flight testing on Mission Enhancement Little Bird. (2) Develops lightweight conformal communications antennas. (3) Develops and qualifies a lightweight version of the MIL-STD-1760 Hellfire launcher.
- MH-47/MH-60 Aircraft. (1) Develops a follow-on weapon system to the currently fielded M-134 Mini Gun. Replacement will be lighter, more reliable/maintainable, with improved suppressive fire capability. (2) Continues nonrecurring engineering, integration and testing for MH-47 Service Life Extension Program (SLEP). (3) Develops, integrates and tests a fly-by-wire flight control system for the MH-60 SLEP.
- MH-47/MH-60 Avionics/Sensors. (1) Develops and qualifies a “next generation” Forward Looking Infrared Radar (FLIR). New FLIRs will provide significantly increased performance, weight savings, and improved reliability/maintainability. (2) Develops and qualifies a multiple sensor night vision system (Distributed Aperture System) that incorporates and blends the best attributes of image intensification, infrared, and low light level camera. (3) Develops and qualifies a Low Probability of Intercept/Low Probability of Detection (LPI/LPD) Obstacle Avoidance/Cable Warning system. (4) Develops and qualifies a rotary wing Terrain Following/Terrain Avoidance (TF/TA) navigation system. The system is characterized by a forward-looking LPI/LPD active sensor, digital elevation terrain data (passive) and a

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2004
Appropriation/Budget Activity RDT&E BA # 7	Special Operations Forces (SOF) Aviation /Project D615	

blended TF/TA solution of the processed active and passive navigation information. (5) Develops/integrates the Army-provided Army Aviation Command & Control System (A2C2S) into the MH-47. Develops the ability to control Unmanned Aerial Vehicles from the A2C2S and SOF Command & Control platforms. (6) Develops and qualifies an infrared exhaust suppressor for MH-47 aircraft. (7) Develops and qualifies a Common Avionics Architecture for Penetration radar altimeter. (8) Included in the modular avionics modifications, develops the SOF unique requirements to upgrade the Enhanced Global Positioning System/Inertial Navigation System (GPS/INS) as part of a tri-service GPS/INS upgrade program.

- MH-53. Provides nonrecurring engineering associated with incorporation of the Directional Infrared Countermeasures (DIRCM) system. DIRCM provides an Infrared (IR) jamming capability that counters missile threats in the band one, two, and four infrared frequency spectrum.

B. Accomplishments/Planned Program

	FY03	FY04	FY05
A/MH-6	.419		
RDT&E Articles Quantity			
FY03 Completed flight testing of MELB aircraft.			
	FY03	FY04	FY05
MH-47/MH-60 – Aircraft	0	10.545	11.970
RDT&E Articles Quantity			
FY04 Continue nonrecurring engineering and integration for the MH-47 SLEP. Begin engineering development for MH-60 SLEP (fly-by-wire flight control system).			
FY05 Continue MH-60 SLEP fly-by-wire flight control system development.			

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2004		
Appropriation/Budget Activity RDT&E BA # 7	Special Operations Forces (SOF) Aviation /Project D615			
	FY03	FY04	FY05	
MH-47/MH-60 – Avionics/Sensors	16.652	34.009	17.228	
RDT&E Articles Quantity				
<p>FY03 Began development of assault and attack FLIR systems to replace aging Q-16B and D systems for the fleet of Army Special Operations Aviation (ARSOA) aircraft. Completed development of a replacement radar altimeter that is less detectable. Began development and testing of a multisensor night vision system, a rotary wing TF/TA navigation system and an Obstacle Avoidance/Cable Warning (OA/CW) system for use on all ARSOA platforms. Developed/qualified an Intelligence Broadcast Receiver. Continued development, integration, and testing of an IR engine exhaust suppressor for the MH-47.</p> <p>FY04 Continue development of assault and attack FLIR systems to replace aging Q-16B and D systems for the fleet of ARSOA aircraft. Continue development and testing of a rotary wing TF/TA navigation system. Complete OA/CW development and testing. Complete development of the SOF-unique requirements to upgrade the GPS/INS which is a sub-effort of modular avionics.</p> <p>FY05 Continue development of the TF/TA navigation system. Develop/integrate A2C2S into the MH-47.</p>				
	FY03	FY04	FY05	
MH-53	5.899			
RDT&E Articles Only	1			
<p>FY03 Completed nonrecurring engineering associated with the incorporation of the DIRCM system. DIRCM provides an IR jamming capability that counters missile threats in band one, two, and four IR frequency spectrum.</p>				

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2004
Appropriation/Budget Activity RDT&E BA # 7	Special Operations Forces (SOF) Aviation /Project D615	

C. Other Program Funding Summary:

	<u>FY03</u>	<u>FY04</u>	<u>FY05</u>	<u>FY06</u>	<u>FY07</u>	<u>FY08</u>	<u>FY09</u>	<u>To Complete</u>	<u>Total Cost</u>
Rotary Wing Upgrades & Sustainment	376.891	567.973	447.272	225.463	274.403	339.708	329.438	Cont.	Cont.

D. Acquisition Strategy. A/MH-6 - This effort provides necessary structural and fatigue analyses, component testing, and test support/data analysis efforts required to enhance operational safety margins and airworthiness of A/MH-6M aircraft.

MH-47/MH-60 Aircraft - This effort provides for vibration testing and analysis of the MH-47 airframe, the development of the fly-by-wire flight control system for the MH-60 SLEP and develops and qualifies the replacements for the M-134 weapons system. The program leverages engineering and production assets off the CH-47F remanufacture and UH-60 SLEP programs (both funded by the Army) that will minimize costs required to install special operations forces-peculiar modernization initiatives. Proprietary considerations drive efforts to each original airframe manufacturer. A competitive source selection process will be held for M-134 replacement program.

MH-47/MH-60 Avionics/Sensors - determination and development of next-generation improvements, enhancements, and upgrades to sensors and avionics systems will be conducted using competitive processes to the maximum extent practicable. Proprietary considerations may direct some efforts to the original equipment manufacturer.

MH-53 – Provides production, installations, and associated interim contractor support at the depot level that is associated with the incorporation of the DIRCM system. DIRCM provides an IR jamming capability that counters missile threats in the band one, two and four infrared frequencies.

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Exhibit R-3 COST ANALYSIS						DATE: FEBRUARY 2004					
APPROPRIATION / BUDGET ACTIVITY				Special Operations Tactical Systems Development/PE1160404BB							
RDT&E DEFENSE-WIDE / 7				Special Operations Forces Aviation/D615							
Actual or Budget Value (\$ in millions)											
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	Budget Cost FY04	Award Date FY04	Budget Cost FY05	Award Date FY05			To Complete	Total Program
Primary Hardware Dev											
MH-47/60 Aircraft	Various	PM TAPO/Ft Eustis, VA	40.288	5.839	Various	11.970	Various			Cont.	Cont.
MH-47/60 Avionics/Sensors	Various	PM TAPO/Ft Eustis, VA	35.136	30.951	Various	17.228	Various			Cont.	Cont.
A/MH-6	Various	PM-MELB/Ft Eustis, VA	3.500							Cont.	Cont.
MH-53	Cost Plus Fixed Fee	PM-DIRCM/USSOCOM, FL	7.000								
Subtotal Product Dev			85.924	36.790		29.198				Cont.	Cont.
Remarks:											
Management											
Subtotal Spt											0.000
Remarks:											
Developmental Test & Eval											
MH-47/60 Aircraft	Various	PM TAPO/Ft Eustis, VA	35.981	4.706	Various					Cont.	Cont.
MH-47/60 Avionics/Sensors	Various	PM TAPO/Ft Eustis, VA	16.120	3.058	Various					Cont.	Cont.
A/MH-6	Various	PM-MELB/Ft Eustis, VA	14.826							Cont.	Cont.
Subtotal T&E			66.927	7.764						Cont.	Cont.
Remarks:											
Subtotal Management											
Remarks:											
Total Cost			152.851	44.554		29.198				Cont.	Cont.
Remarks:											

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Exhibit R-4, Schedule Profile													Date: FEBRUARY 2004																				
Appropriation/Budget Activity RDT&E/7													Project Number and Name Project D615/SOF Aviation																				
Fiscal Year	2004				2005				2006				2007				2008				2009												
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4									
Army Airborne Command and Control System						▲	—	▲																									
Next Generation FLIR	—	—	—	▲																													
Advanced Night Vision Goggles															▲	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
OA/CW	—	—	—	▲																													
Vertical Lift TF/TA	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			
MH-60 SLEP			▲	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			
MH-60 Machine Gun Replacement											▲	—	▲																				
MH-47 SLEP		▲	—	▲																													
MH-47 Machine Gun Replacement																			▲	—	▲												
A/MH-6 Conformal Antenna															▲	—	▲																
A/MH-6 Lightweight Hellfire Launcher															▲	—	▲																

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2004
Appropriation/Budget Activity RDT&E BA # 7	Underwater Systems Advanced Development/Project S0417	

Cost (\$ in millions)	FY03	FY04	FY05	FY06	FY07	FY08	FY09
Underwater Systems Advanced Dev	27.483	16.711	2.395	2.216	1.662	.385	1.489
RDT&E Articles Quantity							

A. Mission Description and Budget Item Justification: This project funds the development of Naval Special Warfare (NSW) support items used during hydrographic/inland reconnaissance, beach obstacle clearance, underwater ship attack, and other direct action missions. Sub-projects include:

- Advanced Sea, Air, Land (SEAL) Delivery System (ASDS). The ASDS is a one atmosphere submersible that will provide Naval Special Operations Forces with a new clandestine long range insertion capability required to conduct traditional SEAL missions ranging from reconnaissance to direct action. ASDS advantages over the current SEAL Delivery Vehicle, a wet submersible, include greatly increased range, increased payload and passenger capacity, state of the art communications, the ability to loiter in a target area, and protection of personnel from complex dive profiles and exposure to long cold water transit.
- Undersea Systems. Development of undersea systems, which provide the SOF combat swimmers with the necessary diving and diving related equipment to fulfill assigned underwater combat missions, includes the following:
 - Naval Special Warfare (NSW) Very Shallow Water Mine Countermeasures (VSW MCM). Phased development/improvement of equipment to support the combat swimmer in the NSW VSW MCM operational environment.
 - Non-Gasoline Burning Outboard Engine (NBOE). Development of a submersible alternative fuel outboard engine for use on SOF Combat Rubber Raiding Craft.
 - SEAL Delivery Vehicle (SDV). Develop replacements for obsolete and/or unsupportable electronics with current technology to improve safety, reliability and performance. Upgrade mobility capabilities for insertion and extraction of the SDVs. Evaluate technologies for next-generation SDVs.

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2004
Appropriation/Budget Activity RDT&E BA # 7	Underwater Systems Advanced Development/Project S0417	

B. Accomplishments/Planned Program			
	FY03	FY04	FY05
ASDS	25.243	15.578	1.614
RDT&E Articles Quantity			
FY03 Completed government testing phase to include Operational Evaluation. Continued Pre-planned Product Improvement (P3I) efforts on battery and acoustics. FY04 Continue Li-Ion battery development. Continue P3I efforts. FY05 Continue P3I efforts.			
	FY03	FY04	FY05
NSW VSWMCM	.587	.580	.201
RDT&E Articles Quantity			
FY03 Achieved MS C for Hydrographic Reconnaissance Littoral Mapping Device (HRLMD) and continued P3I development efforts for the Semi-Autonomous Hydrographic Reconnaissance Vehicle (SAHRV) program. FY04 Continue P3I development efforts for the SAHRV program. FY05 Continue P3I development for the SAHRV program.			
	FY03	FY04	FY05
NBOE	.394		
RDT&E Articles Quantity			
FY03 Completed development of the alternative fuels engine.			
	FY03	FY04	FY05
SDV	1.259	.553	.580
RDT&E Articles Quantity			
FY03 Continued to develop and upgrade/replace obsolete and/or unsupportable electronic equipment. FY04 Continue to develop and upgrade/replace obsolete and/or unsupportable electronic equipment. FY05 Continue to develop and upgrade/replace obsolete and/or unsupportable electronic equipment.			

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2004
Appropriation/Budget Activity RDT&E BA # 7	Underwater Systems Advanced Development/Project S0417	

C. Other Program Funding Summary:

	<u>FY03</u>	<u>FY04</u>	<u>FY05</u>	<u>FY06</u>	<u>FY07</u>	<u>FY08</u>	<u>FY09</u>	<u>To Complete</u>	<u>Total Cost</u>
ASDS	29.307	10.364	5.864	191.965	29.902	203.522	203.884	422.176	1,096.714
ASDS Adv Proc		23.398	34.921		67.892	69.663		70.150	266.024
SOF Maritime Equip									
VSW MCM	4.544	.781	.792	1.124					7.896
NBOE		.921	1.596						2.024
STD							1.931		2.923
MK 8 Mod SDV	10.512	10.025	1.768	2.104	2.391	1.947	1.600	Cont.	Cont.

D. Acquisition Strategy

- **ASDS.** ASDS was designated an Acquisition Category (ACAT) 1C Major Defense Acquisition Program in Mar 03. Milestone C decision from ASN RDA scheduled for Feb 04 will determine acquisition strategy for remaining ASDS.
- **HRLMD.** Established to acquire a small, handheld unit to be used by NSW forces in the conduct of clandestine hydrographic reconnaissance, ship attack and harbor penetration missions. The program utilizes commercial-off-the-shelf (COTS) technology and employs a phased acquisition strategy designed to leverage similar efforts currently being pursued by the Navy. Following user evaluation of prototype units and further design refinement, as well as developmental testing and a follow-on operational assessment, the program was authorized to proceed with production.
- **NBOE.** Transition of technology demonstrator to an acquisition program which commenced with advanced demonstration and validation. Modifications to current Military Amphibious Reconnaissance System engine include advanced electronically controlled direct fuel injection and ignition technologies. A competitive source selection was held, with three vendors responding, resulting in a down-select to a single contractor. That contractor filed Chapter 11 bankruptcy and the purchasing company has assumed development duties.

	Exhibit R-2a, RDT&E Project Justification	Date: FEBRUARY 2004
Appropriation/Budget Activity RDT&E BA # 7	Underwater Systems Advanced Development/Project S0417	

- SAHRV. The SAHRV is a small unmanned underwater vehicle for use by NSW personnel in the conduct of hydrographic reconnaissance. SAHRV utilizes COTS technology and employs a phased acquisition strategy designed to leverage Office of Naval Research sponsored initiatives. Four Engineering Development Models (EDM) were delivered in December 2000. The EDM supported developmental testing and operational testing and evaluation. Following operational testing and evaluation, a production decision commenced the production phase. Initial operational capability was completed 2nd Qtr FY03. Full operational capability of 14 units is planned to be completed by 2nd Qtr FY04.
- SDV. This effort replaces obsolete and/or unsupportable electronics equipment with current equipment. Identification and development of equipment for installing, upgrading and/or replacing systems on the SDV will be accomplished through either Best-Value acquisition or, where appropriate, original equipment manufacturer replacement efforts.

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Exhibit R-3 COST ANALYSIS						DATE: FEBRUARY 2004					
APPROPRIATION / BUDGET ACTIVITY				Special Operations Tactical Systems Development/PE1160404BB							
RDT&E DEFENSE-WIDE / 7				Underwater Systems Advance Development/S0417							
Actual or Budget Value (\$ in millions)											
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	Budget Cost FY04	Award Date FY04	Budget Cost FY05	Award Date FY05	Budget Cost FY06	Award Date FY06	To Complete	Total Program
Primary Hardware Dev											
SAHRV	FFP	WHOI, Woods Hole, MA	5.176	0.387	Jan-04	0.060	Jan-05				5.623
HRLMD	FFP	UT-ARL, Austin, TX	0.500								0.500
NBOE	Various	Various	0.757								0.757
SDV	WR	CSS, Panama City, FL	12.631	0.572	Various	0.581	Various		Various	Cont.	Cont.
STD	FFP	Stidd Systems, Inc. Greenport, NY	0.378								0.378
ASDS	CPIF/C	Northrop-Grumman	299.468								Cont.
ASDS	CPFF	Newport News Ship Yard, VA	8.605								Cont.
ASDS P31 and Host Support	Various	Various	26.243	9.606	Various	1.618	Various	2.110	Various		45.071
Subtotal Product Dev			353.758	10.565		2.259		2.110		Cont.	Cont.
Remarks											
Technical Data											
ASDS	Various	Various	8.044								8.044
SAHRV	WR	CSS, Panama City, FL		0.113	Jan-04	0.035	Jan-05				0.148
HRLMD	WR	CSS, Panama City, FL	0.200								0.200
NBOE	WR	CSS, Panama City, FL	0.043	0.024	Jan-03						0.067
Subtotal Supt.			8.287	0.137		0.035		0.000		0.000	8.459
Remarks											
Test & Evaluation											
Engineering T&E (NBOE)	Various	Various	0.268								0.268
DT&E (STD)	MIPR	CSS, Panama City, FL	0.357								0.357
OT&E (ASDS)	Various	OPTEVFOR, Norfolk, VA	3.085	2.500	Various						5.585
Host Testing (ASDS)	Various	NAVSEA, Washington Navy Yard	20.615								20.615
Launch & Recovery Trials (ASDS)	Various	NAVSEA, Washington Navy Yard									0.000
LFT&E (ASDS)	Various	NAVSEA, Washington Navy Yard	1.150	0.500	Various						1.650
DT&E (SAHRV)	WR	CSS, Panama City, FL	0.222					0.050	Oct-04		0.272
DT&E (SAHRV)	WR	CARDEROCK, West Bethesda, MD	0.037								0.037
OT&E (SAHRV)	WR	OPTEVFOR, Norfolk, VA	0.049								28.784

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Exhibit R-3 COST ANALYSIS						DATE: FEBRUARY 2004					
APPROPRIATION / BUDGET ACTIVITY				Special Operations Tactical Systems Development/PE1160404BB							
RDT&E DEFENSE-WIDE / 7				Underwater Systems Advance Development/S0417							
Actual or Budget Value (\$ in millions)											
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	Budget Cost FY04	Award Date FY04	Budget Cost FY05	Award Date FY05	Budget Cost FY06	Award Date FY06	To Complete	Total Program
Test & Evaluation (Cont.)											
DT&E (HRLMD)	WR	CSS, Panama City, FL	0.118								0.118
OT&E (HRLMD)	WR	TBD	0.020								0.020
DT&E (NBOE)	MIPR	CSS, Panama City, FL		0.095	Jan-03						0.095
OT&E (NBOE)	WR	OPTEVFOR, Norfolk, VA		0.048	Jan-03						0.048
Subtotal T&E			25.921	3.143		0.000		0.050			0.138
Remarks											
Management											
Contract Eng. Supt. (SAHRV)	FFP	ANADAC, Arlington, VA	0.898								0.898
Govt. Eng. Supt. (SAHRV)	WR	CSS, Panama City, FL	0.910	0.070	Jan-03	0.074	Jan-04	0.040	Jan-05	0.254	1.348
Program Mgt. Supt.(SAHRV)	WR	NAVSEA, Washington, DC	0.250	0.025	Feb-03	0.027	Jan-04	0.016	Jan-05	0.077	0.395
Contract Eng. Supt. (HRLMD)	FFP	ANADAC, Arlington, VA	0.050								0.050
Govt. Eng. Supt. (HRLMD)	WR	CSS, Panama City, FL	0.089								0.089
Program Mgt. Supt. (HRLMD)	WR	NAVSEA, Arlington, VA	0.072								0.072
Contract Eng. Supt. (NBOE)	FFP	DMR, Panama City, FL	0.165	0.019	Jan-03						0.184
Program Mgt. Supt (NBOE)	MIPR	CSS, Panama City, FL	0.832	0.052	Jan-03						0.884
Program Mgt Spt (SDV)	WR	NAVSEA, Arlington, VA	0.433							Cont.	Cont.
Various (ASDS)	Various	Various	9.197	2.700	Various					Cont.	Cont.
Program Mgt Supt. (STD)	Various	Various	0.031								0.031
Govt. Eng Support (STD)	MIPR	CSS, Panama City, FL	0.043								0.043
Subtotal Management			12.970	2.866		0.101		0.056		Cont.	Cont.
Remarks:											
Total Cost			400.936	16.711		2.395		2.216		Cont.	Cont.
Remarks:											

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Exhibit R-4, Schedule Profile											Date: FEBRUARY 2004																	
Appropriation/Budget Activity RDT&E/7					Program Element Number and Name PE1160404BB/Special Operations Tactical System Development											Project Number and Name Project S0417/Underwater System Advanced Development												
Fiscal Year	2004				2005				2006				2007				2008				2009							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Advanced Sea, Air Land (SEAL Delivery System)																												
P3I Development	—————													▲														
Non-Gasoline Burning Outboard Engine																												
Development/ Testing	▲																											
Milestone C			▲																									
Naval Special Warfare Very Shallow Water Mine Countermeasures																												
P3I (SAHRV)	—————									▲																		
SEAL Delivery Vehicle																												
Develop and Test Improved Electronics	—————										▲																	
Next Generation Studies																				▲	—————	▲						
Develop Alternative Mobility										▲	—————	▲																

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2004
Appropriation/Budget Activity RDT&E BA # 7	SOFPARS/Project S350	

Cost (\$ in millions)	FY03	FY04	FY05	FY06	FY07	FY08	FY09
SOFPARS	1.617	2.516	6.916	3.832	3.757	3.868	3.967
RDT&E Articles Quantity							

A. Mission Description and Budget Item Justification: Special Operations Forces (SOF) Planning and Rehearsal System (SOFPARS) provides automated integrated mission planning and execution tools required for time critical command and control of globally deployed SOF and, if required, coalition forces. The SOFPARS Program automates time-intensive planning activities and provides enhanced situational awareness, as well as interoperable automated adaptive war planning and collaborative environments for horizontal, vertical and parallel development of component parts of mission plans. SOFPARS spans all echelons of SOF command to include Theater Special Operations Commands (TSOCs), Joint Special Operations Task Forces (JSOTFs), Joint Special Operations Aviation Components (JSOAC), with automated interfaces to warfighters and warfighting platforms. SOFPARS develops and integrates software applications

B. Accomplishments/Planned Program:

	FY 2003	FY 2004	FY 2005
Planned Portable Flight Planning Software (PFPS) releases	0.747	1.496	2.383
RDT&E Articles Quantity			

FY03 Released PFPS 3.3, 1QFY04. Continued to develop joint version PFPS 4.0 with Army, Air Force and Navy functions, planned release 4QFY05. Also continue to develop PFPS 3.3.1 with planned release 4QFY04.

FY04 Begin development of SOC-level software development and integration. First-look migration evaluation of Joint Mission Planning System (JMPS). Transition planning and software conversion to JMPS framework begins.

FY05 Continue development of SOC-level software development and integration. Continue migration evaluation of JMPS. Continue transition planning and software conversion to JMPS framework.

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Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2004
Appropriation/Budget Activity RDT&E BA # 7	SOFPARS/Project S350	

	FY 2003	FY 2004	FY 2005
Deferred/Future Requirements	.520	.630	.503
RDT&E Articles Quantity			
FY03 Developed and integrated aircraft weapons/electronics enhancements and interfaces with joint systems. FY04 Continue to develop and integrate aircraft weapons/electronics enhancements and interfaces with joint systems. FY05 Continue to develop and integrate aircraft weapons/electronics enhancements and interfaces with joint systems.			
	FY 2003	FY 2004	FY 2005
Development and Modification of Automated Tools			3.600
RDT&E Articles Quantity			
FY05 Begin the development and modification of automated tools to meet ground mission planning requirements. Begin the development of TSOC Command and Control (C2) nodes.			
	FY 2003	FY 2004	FY 2005
Test and Evaluation of Core Software	0.350	.390	.430
RDT&E Articles Quantity			
FY03 Continued test and evaluation on core software, installable software modules, aircraft weapons/electronics, and flight performance models. FY04 Continue test and evaluation on core software, installable software modules, aircraft weapons/electronics, and flight performance models. FY05 Continue test and evaluation on core software, installable software modules, aircraft weapons/electronics, and flight performance models.			

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2004
Appropriation/Budget Activity RDT&E BA # 7	SOFPARS/Project S350	

C. Other Program Funding Summary:

	<u>FY03</u>	<u>FY04</u>	<u>FY05</u>	<u>FY06</u>	<u>FY07</u>	<u>FY08</u>	<u>FY09</u>	To <u>Complete</u> Cont.	Total <u>Cost</u> Cont.
SOFPARS		0.290	0.192	0.661	0.471	0.491	0.495		

Acquisition Strategy. Develop mission planning software to support SOF operations by leveraging ongoing personal computer-based efforts known as Portable Flight Planning Software (PFPS) under the Air Force Mission Support System program and migration to the Joint Mission Planning System in the future year defense program. Integration of SOF specific requirements into PFPS along with maximum use of commercial off-the-shelf software technology and components reduces overall costs and schedule. Contract strategy combines various contracts and types to include competitively awarded cost plus time & materials and sole source cost-no-fee (educational institution) contracts. Maximize use of state of the art commercial hardware technology procured via firm fixed price contract to take advantage of software portability and open system architecture. Focuses on platform specific software interface modules required to initialize and upload platform mission computers avionics systems through the use of electronic data transfer devices.

Exhibit R-3 COST ANALYSIS						DATE: FEBRUARY 2004					
APPROPRIATION / BUDGET ACTIVITY				Special Operations Tactical Systems Development/PE1160404BB							
RDT&E DEFENSE-WIDE / 7				Special Operations Forces Planning and Rehearsal System /S350							
Actual or Budget Value (\$ in millions)											
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	Budget Cost FY04	Award Date FY04	Budget Cost FY05	Award Date FY05			To Complete	Total Program
Subtotal Product Dev											
Remarks:											
Development Support	C/CPFF	CAS, Huntsville, AL	2.564	0.630	Dec-03	0.503	Dec-04			Cont.	Cont.
	C/CPFF	LMFS, Owego, NY	7.629								7.629
	Various	Various	0.847			0.600	Dec-04				0.847
Software Dev/Integ	SS/CPFF	GTRI, Atlanta, GA	3.723	1.496	Apr-04	2.383	Apr-05			Cont.	Cont.
	T&M	Tybrin, Ft Walton Beach, FL	5.346								5.346
	Various	Various	2.099								2.099
	Various	Various				3.000	Various				
Subtotal Spt			22.208	2.126		6.486				Cont.	Cont.
Remarks:											

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Exhibit R-3 COST ANALYSIS						DATE: FEBRUARY 2004					
APPROPRIATION / BUDGET ACTIVITY				Special Operations Tactical Systems Development/PE1160404BB							
RDT&E DEFENSE-WIDE / 7				Special Operations Forces Planning and Rehearsal System /S350							
Actual or Budget Value (\$ in millions)											
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	Budget Cost FY04	Award Date FY04	Budget Cost FY05	Award Date FY05			To Complete	Total Program
Developmental Test & Eval	MIPR	46th FTS, Hurlburt Field, FL	1.285	0.165	Apr-04	0.180	Apr-05			Cont.	Cont.
	SS/CPFF	ARINC, Annapolis, MD	0.784	0.225	Apr-04	0.250	Apr-05			Cont.	Cont.
	SS/CPFF	Salinas Tech, FL	0.017								0.017
Operational Test & Eval GFE	MIPR	18th FTS, Hurlburt Field, FL	0.663								0.663
	MIPR	Integrated Aviation Systems 21 Working Group Ft Campbell, KY	0.279								0.279
Subtotal T&E			3.028	0.390		0.430				Cont.	Cont.
Remarks:											
Contractor Engineering Spt	PO	CAS Inc, Huntsville, AL	4.206								4.206
Government Engineering Spt	ALLOT	AATD, Ft Eustis, VA	7.881								7.881
Travel	ALLOT	SOF PMO Ft Eustis, VA	0.070								0.070
Overhead	ALLOT	SOF PMO Ft Eustis, VA	0.092								0.092
Subtotal Management			12.249	0.000		0.000					12.249
Remarks:											
Total Cost			37.485	2.516		6.916				Cont.	Cont.
Remarks:											

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Exhibit R-4, Schedule Profile											Date: FEBRUARY 2004																					
Appropriation/Budget Activity					Program Element Number and Name											Project Number and Name																
RDT&E/7					PE1160404BB/Special Operations Tactical System Development											Project S350/SOFPARS																
Fiscal Year	2004				2005				2006				2007				2008				2009											
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4								
Portable Flight Planning System (PFPS) Releases 4.0	Δ							Δ																								
JMPS										Δ		Δ	Δ			Δ	Δ			Δ	Δ			Δ								
PFPS Functionality	Δ		Δ		Δ		Δ		Δ		Δ		Δ		Δ		Δ		Δ		Δ		Δ									
Route Analysis Tool	Δ		Δ		Δ		Δ		Δ		Δ		Δ		Δ		Δ		Δ		Δ		Δ									
Mission Planning Module	Δ		Δ		Δ		Δ		Δ		Δ		Δ		Δ		Δ		Δ		Δ		Δ									
Development of Automated Tools							Δ	Δ																								
TSOC C2 Planning Tools							Δ	Δ	Δ			Δ																				
TSOC C2 Nodes					Δ		Δ																									

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2004
Appropriation/Budget Activity RDT&E.A BA # 7	Weapons and Support Systems Advanced Development /Project S375	

Cost (\$ in millions)	FY03	FY04	FY05	FY06	FY07	FY08	FY09
Weapons and Support Sys Adv Dev	4.158	7.299	5.758	4.401	.386	.587	.256
RDT&E Articles Quantity							

A. Mission Description and Budget Item Justification: This project provides for development and testing of specialized, lightweight individual weapons, fire control/surveillance devices, and combat equipment to meet the unique requirements of Special Operations Forces (SOF). SOF often deploy as small, independent, quick reaction, foot-mobile teams independent of primary logistics support. Existing weapons and combat equipment are frequently unsuited to these conditions. Sub-projects include:

- Body Armor/Load Carrying System (BALCS). Provides a tactical, deployable body armor and load carriage system capable of improving survivability while optimizing the load carrying capabilities of the SOF operator. BALCS consists of modular body armor, load carriage and backpacks.
- Family of Sniper Detection Systems (FSDS). Provides the capability for SOF units to rapidly locate the position of a sniper's origin of fire in near real time. Detects and locates small arms gunfire from 5.56mm, 7.62mm and .50 caliber weapons with effective detection ranges that allow for the conduct of counter-sniper operations.
- Lightweight Counter Mortar Radar (LCMR). The LCMR provides a man-portable, lightweight, 360° counter-mortar radar system designed to acquire hostile mortar and other indirect fire out to a range of 5,000 meters. The LCMR is compatible with current Command and Control communications and provides an all weather capability to the SOF operator on the ground, providing the operator with a precise target location used for counter-fire. This effort was transitioned from Project S200 in FY 2002.
- M4A1 SOF Carbine Accessory Kit (M4MOD). The M4MOD Kit enhances the standard Army M4 Carbine by using the latest technological advances in optional accessories (up to 30 different functions/capabilities) such as day scopes, night scopes, active aiming laser module, visible lights, grenade launchers, suppressors, hand grips, and close quarters battle sights. These accessories greatly enhance the lethality of the weapon system and the survivability of the SOF operator. The SOF Combat Assault Rifle (SCAR) is a subproject of the M4MOD program to further enhance the performance of SOF equipment. The SCAR will provide an enhanced family of weapons.

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2004
Appropriation/Budget Activity RDT&E.A BA # 7	Weapons and Support Systems Advanced Development /Project S375	

- Night Vision Devices (NVD). The SOF NVD system includes advanced field of view goggles, improved sensors, multi-spectral imaging, sensor fusion, Precision Targeting Location Designator (PTLD), and micro-laser integration and improved displays. The PTLD will be a combined laser range finder, geological locator, and laser designator for directing precision guided munitions.
- Precision Laser Targeting Device (PLTD). The PLTD will be a hand-held binocular device with an embedded global positioning system (GPS) to provide the SOF operator with the ability to direct close air support missions by determining the geo-location of a target to support the delivery of GPS-guided munitions.

B. Accomplishments/Planned Program

	FY 2003	FY 2004	FY 2005
BALCS		.203	
RDT&E Articles Quantity		150	
FY04 Conduct ballistics testing on Special Operations Forces (SOF) multi hit APM2 plates and other non-SOF plates for the purpose of establishing a body armor ballistics protection database.			
	FY 2003	FY 2004	FY 2005
FSDS		2.417	
RDT&E Articles Quantity			
FY04 DD Fm 1415 request submitted to Office of the Secretary of Defense to reprogram this Congressional Plus-up from RDT&E to Procurement to continue buying out the basis of issue of Gunfire Detection Systems (GDS).			
	FY 2003	FY 2004	FY 2005
LCMR	.300	.966	
RDT&E Articles Quantity			
FY03 Completed additional research and development prior to production decision on two working prototypes transitioned from technology development program.			
FY04 Congress added funds to further develop the pre-production prototype LCMRs and investigate alternative sources that may possibly meet the LCMR Operational Requirements Document.			

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2004		
Appropriation/Budget Activity RDT&E.A BA # 7		Weapons and Support Systems Advanced Development /Project S375		
		FY 2003	FY 2004	FY 2005
M4MOD		.235	1.099	1.796
RDT&E Articles Quantity				
FY03 Developed Enhanced Combat Optical Sights and clip-on night vision devices, and continued efforts on the Enhanced Grenade Launcher Module (EGLM).				
FY04 Research, develop and test the next generation day/night and various next generation lasers and continue efforts on the EGLM. Funds will also support document preparation and solicitation in support of a MS B decision and conduct early user assessments and developmental testing on candidate SCAR weapon systems.				
FY05 Research, develop and test the next generation kit items and continue efforts on next generation lasers. Funds will also be used to award contracts for SCAR engineering test units and to conduct an additional early user assessment and development testing.				
		FY 2003	FY 2004	FY 2005
NVD		3.623	2.614	.969
RDT&E Articles Quantity				10
FY03 This initiative was Congressional Plus-up funding used to develop and test the next generation laser target designator.				
FY04 Design and test the next generation SOF NVD.				
FY05 Design and test the next generation (fusion) SOF goggle. The fusion goggle combines an image intensification tube and a thermal micro bolometer sensor to provide the ability for the SOF operator to improve his ability to see in dust, smoke, fog, and periods of non-ambient light.				
		FY 2003	FY 2004	FY 2005
PLTD				2.993
RDT&E Articles Quantity				30
FY05 Develop a laser targeting device capable of providing the geo-location of a target to support the delivery of global positioning system guided munitions.				

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2004
Appropriation/Budget Activity RDT&E.A BA # 7	Weapons and Support Systems Advanced Development /Project S375	

C. Other Program Funding Summary:

	FY03	FY04	FY05	FY06	FY07	FY08	FY09	To Complete Cont.	Total Cost Cont.
Small Arms and Weapons	115.346	74.657	8.221	30.758	40.091	48.695	27.697		

D. Acquisition Strategy.

- BALCS. Maximizes the use of Commercial Off the Shelf (COTS) and Non-Developmental Item technology, combined milestone decisions, early user involvement, Integrated Product Teams and streamlined source selection procedures to rapidly build, test and field operational capability.
- FSDDS. The GDS uses proven/existing technology validated under a Foreign Comparative Test program. Sole source contract to the vendor, Metravib, was awarded using streamlined procedures. Operational and environmental tests were conducted to support Milestone C, Full Rate Production and Fielding and Deployment Release.
- LCMR. Transitioned the program from Director of Technology to a Program Executive Office, with two working prototypes. Conduct additional research and development prior to production decision.
- M4MOD. The intent of the M4MOD program is to provide SOF with the ability to adapt the M4A1 Carbine to increase its operational effectiveness through improved target recognition, acquisition, and hit capability during day and night from close quarters to 600 meters. The program calls for continuing efforts contained in blocks that are first developed and tested, and then fielded to the full spectrum of SOF operators. Future blocks include a program to develop a pocket scope mount, an enhanced M203 capability, family of muzzle break suppressors, shot counter and numerous other components designed to enhance the capabilities of the weapon while at the same time combining or increasing capability. The SCAR effort will use an evolutionary acquisition approach.
- NVD. Development of next generation NVD. Program will use evolutionary acquisition approach.
- PLTD. The PLTD will leverage COTS capability and develop a more accurate laser targeting device capable of providing geo-location of a target for the delivery of global positioning system guided munitions. The improved accuracy is necessary to eliminate the possibility of fratricide incidents.

Exhibit R-3 COST ANALYSIS				DATE: FEBRUARY 2004							
APPROPRIATION / BUDGET ACTIVITY				Special Operations Tactical Systems Development/PE1160404BB							
RDT&E DEFENSE-WIDE / 7				Weapons Systems Advance Development/S375							
Actual or Budget Value (\$ in millions)											
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	Budget Cost FY04	Award Date FY04	Budget Cost FY05	Award Date FY05			To Complete	Total Program
Hardware Dev											
BALCS (Test Articles)	Various	PM Spear, Natick, MA		0.050	Various					Cont.	Cont.
LCMR	TBD	PM LCMR, Ft. Monmouth, NJ	0.050							Cont.	Cont.
M4MOD	Various	NSWC-Crane, Crane, IN	3.733	0.225	Various	0.346	Various			Cont.	Cont.
NVD	TBD	Various	3.000	0.904	Various	0.287	Various			Cont.	Cont.
PLTD	TBD	PM Sensors & Lasers, Ft. Belvoir, VA				2.000	Various			Cont.	Cont.
Subtotal Product Dev			6.783	1.179		2.633				Cont.	Cont.
Remarks:											
Development Spt											
M4MOD	ALLOT	NSWC-Crane, Crane, IN	0.202	0.128	Various	0.225	Various			Cont.	Cont.
NVD	TBD	Various	0.100	0.824	Various	0.231	Various			Cont.	Cont.
PLTD	TBD	PM Sensors & Lasers, Ft. Belvoir, VA				0.250	Various			Cont.	Cont.
Intregated Logistics Spt											
M4MOD	ALLOT	NSWC-Crane, Crane, IN	0.073	0.072	Various	0.108	Various			Cont.	Cont.
Configuration Mgmt											
LCMR	ALLOT	PM LCMR, Ft. Monmouth, NJ		0.100	Various					Cont.	Cont.
M4MOD	ALLOT	NSWC-Crane, Crane, IN	0.107	0.072	Various	0.108	Various			Cont.	Cont.
NVD	TBD	Various	0.027	0.330	Various	0.102	Various			Cont.	Cont.
PLTD	TBD	PM Sensors & Lasers, Ft. Belvoir, VA				0.250	Various			Cont.	Cont.
Subtotal Spt			0.509	1.526		1.274				Cont.	Cont.
Remarks:											

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Exhibit R-3 COST ANALYSIS					DATE: FEBRUARY 2004						
APPROPRIATION / BUDGET ACTIVITY				Special Operations Tactical Systems Development/PE1160404BB							
RDT&E DEFENSE-WIDE / 7				Weapons Systems Advance Development/S375							
Actual or Budget Value (\$ in millions)											
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	Budget Cost FY04	Award Date FY04	Budget Cost FY05	Award Date FY05			To Complete	Total Program
Developmental Test											
LCMR	ALLOT	PM LCMR, Ft. Monmouth, NJ		0.250	Various					Cont.	Cont.
M4MOD	ALLOT	NSWC-Crane, Crane, IN	0.292	0.214	Various	0.444	Various			Cont.	Cont.
PLTD	TBD	PM Sensors & Lasers, Ft. Belvoir, VA				0.493	Various			Cont.	Cont.
Operational Test											
BALCS	SS/FFP	HP White Lab, Street, MD		0.070	Mar-04					Cont.	Cont.
LCMR	ALLOT	PM LCMR, Ft. Monmouth, NJ	0.150	0.350	Various					Cont.	Cont.
M4MOD	ALLOT	NSWC-Crane, Crane, IN	0.360							Cont.	Cont.
SPEAR	ALLOT	Natick Soldier Center, Natick, MA	0.346							Cont.	Cont.
NVD	TBD	Various	0.100	0.500	Various	0.249	Various			Cont.	Cont.
Subtotal	T & E		1.248	1.384		1.186				Cont.	Cont.
Remarks:											
Government Eng Spt											
BALCS	ALLOT	PM SPEAR, Natick, MA		0.050	Various					Cont.	Cont.
LCMR	ALLOT	PM LCMR, Ft. Monmouth, NJ	0.050	0.066	Various					Cont.	Cont.
M4MOD	ALLOT	NSWC-Crane, Crane, IN	0.118	0.007	Various	0.013	Various			Cont.	Cont.
Program Mgmt Spt											
BALCS	ALLOT	PM SPEAR, Natick, MA		0.025	Various					Cont.	Cont.
LCMR	ALLOT	PM LCMR, Ft. Monmouth, NJ	0.050	0.150	Various					Cont.	Cont.
M4MOD	ALLOT	NSWC-Crane, Crane, IN	0.381	0.280	Various	0.459	Various			Cont.	Cont.
Travel											
BALCS	ALLOT	PM SPEAR, Natick, MA		0.010	Various					Cont.	Cont.
LCMR	ALLOT	PM LCMR, Ft. Monmouth, NJ		0.050	Various					Cont.	Cont.
M4MOD	ALLOT	NSWC-Crane, Crane, IN	0.130	0.100	Various	0.093	Various			Cont.	Cont.
NVD	TBD	Various	0.100	0.055	Various	0.100	Various			Cont.	Cont.
Subtotal Management			0.829	0.793		0.665				Cont.	Cont.
Remarks:											
FSDS	DD Form 1415 to re-color to Procurement			2.417							
Total Cost			9.369	7.299		5.758				Cont.	Cont.
Remarks:											

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Exhibit R-4, Schedule Profile										Date: FEBRUARY 2004																
Appropriation/Budget Activity					Program Element Number and Name										Project Number and Name											
RDT&E/7					PE1160404BB/Special Operations Tactical System Development										Project S375/Weapons and Support Systems Advanced Development											
Fiscal Year	2004				2005				2006				2007				2008				2009					
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4		
4. M4MOD																										
FMBS MS C	Δ																									
SCAR Market Research			Δ	Δ																						
MDNS MS C (Multiple)				Δ																						
Shot Counter MS C				Δ																						
EGLM DT/OT				Δ	Δ																					
EGLM MS C					Δ																					
SCAR Initial Awards/Eval Test Articles					Δ	Δ																				
5. NVD (PTLD)																										
MS A/B		Δ																								
Developmental Test				Δ																						
MS C						Δ																				
NVD (Fusion Goggle)																										
MS A/B						Δ																				
DT/OT								Δ																		
MS C										Δ																

Exhibit R-4a, Schedule Profile				Date: FEBRUARY 2004				
<u>Appropriation/Budget Activity</u>	<u>Program Element Number and Name</u>			<u>Project Number and Name</u>				
RDT&E/7	PE1160404BB/Special Operations Tactical Systems Development			Project 375/Weapons and Support Systems Advanced Development				
<u>Schedule Profile</u>	<u>FY2004</u>	<u>FY2005</u>	<u>FY2006</u>	<u>FY2007</u>	<u>FY2008</u>	<u>FY2009</u>		
1. Body Armor/Load Carrying System								
Ballistic Plate Test	2-3Q							
Ballistic Plate Effectiveness Database	3-4Q							
Ballistic Plate Test Report	4Q							
2. Family of Sniper Detection Systems								
No RDT&E Activities planned - DD Fm 1415 request submitted to change RDT&E to Procurement to purchase production systems								
3. Lightweight Counter Mortar Radar								
Developmental Test	1Q							
Operational Test	1-2Q							
Milestone B	4Q							
Milestone C			1Q					
IOC			3Q					
FOC				3Q				
4. M4MOD								
FMBS MS C	1Q							
SCAR Market Research	3-4Q							
MDNS MS C (Multiple)	4Q							
Shot Counter MS C	4Q							
EGLM DT/OT	4Q	1Q						
EGLM MS C		1Q						
SCAR Initial Awards/Eval Test Articles		1-3Q						

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2004
Appropriation/Budget Activity RDT&E BA # 7	Special Operations Forces (SOF) Training Systems /Project S625	

Cost (\$ in millions)	FY03	FY04	FY05	FY06	FY07	FY08	FY09
SOF Training Systems	.169	13.537	4.765	11.203	4.489	5.111	1.165
RDT&E Articles Quantity							

A. Mission Description and Budget Item Justification: This project funds the analysis, development, test, and integration of Special Operations Forces (SOF) simulator training and mission rehearsal systems and upgrades. Sub-projects include:

- MH-47G/MH-60-BLK-1 Combat Mission Simulator (CMS) – Develops a common database (using a single common source) used to run all the different computers on the simulator, including the visual, sensor, threat, weather, and computer generated forces. The common environment developmental effort will enable increased levels of Joint Simulator interoperability because, eventually, all SOF simulators will use and share the common single source. Will be initially developed, tested and fielded on the first MH-47G Model Simulator for the 160th Special Operations Aviation Regiment..
- SOF Air to Ground Interface Simulator (SAGIS) for Air Force Special Operations Command (AFSOC) Combat Controllers and United States Army Special Operations Command (USASOC) Special Forces Teams. Develops training capability to allow Ground units to virtually interface with SOF Aircrews to practice and rehearse Joint Close Air Support, Terminal Attack Control, and ordnance delivery. Funds the initial development using incremental, spiral development methodology.
- A/MH-6 CMS. Develops an integrated combat mission flight simulator into the existing high level architecture environment to conduct real-world mission rehearsal. This simulator enables initial, mission special qualification, continuation and upgrade flight training, including weapons training. Currently, no training device exists with this capability.
- AFSOC Simulator Block Upgrade. Funds the upgrade of the AFSOC simulators to overcome obsolescence and concurrency issue. Additionally develops a common electronic warfare.
- USASOC Simulator Block Upgrade. Funds the upgrade of USASOC simulators to overcome obsolescence and concurrency issues.

B. Accomplishments/Planned Program

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Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2004
Appropriation/Budget Activity RDT&E BA # 7	Special Operations Forces (SOF) Training Systems /Project S625	

	FY03	FY04	FY05
MH-47-60 CMS		8.255	3.791
RDT&E Articles Quantity			
<p>FY04 Develop the Common Environment for the new MH-47G/60 CMS and the MH- 60 Block-1 in the Common Avionics Architecture System (CAAS) configuration to improve joint rehearsal capability and yield higher fidelity Joint Distributed Mission Training/Distributed Mission Rehearsal (DMT/DMR). Develop a joint common architecture resulting in higher levels of correlation between the simulator's out the window view, sensors, threat, weather, and weapons effects with the rest of the SOF training and rehearsal network.</p> <p>FY05 Continue development of the new MH-47/G/60 CMS and the MH-60 Block-1 in the CAAS configuration to improve joint rehearsal capability and yield higher fidelity Joint DMT/DMR. Develop a joint common architecture resulting in higher levels of correlation between the simulator's out the window view, sensors, threat, weather, and weapons effects with the rest of the SOF training and rehearsal network.</p>			
	FY03	FY04	FY05
SAGIS		4.059	
RDT&E Articles Quantity			
FY04 Begin increment zero of the first SAGIS prototype, focusing on the Terminal Attack Control requirements.			
	FY03	FY04	FY05
CMS	.169		
RDT&E Articles Only			
FY03 Funded an A/MH-6 upward adjustment due to Canadian/U.S. exchange rate calculation.			
	FY03	FY04	FY05
AFSOC Simulator Block Upgrade			.974
RDT&E Articles Quantity			
FY05 Begins Requirements Analysis and Concept Exploration for a common threat environment/AFSOC Electronic Warfare Officer Station.			

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2004
Appropriation/Budget Activity RDT&E BA # 7	Special Operations Forces (SOF) Training Systems /Project S625	

	FY03	FY04	FY05
USASOC Simulator Block Upgrade		1.223	
RDT&E Articles Only			

FY04 Funds the upgrade of USASOC simulators to overcome obsolescence and concurrency issues

C. Other Program Funding Summary:

	<u>FY03</u>	<u>FY04</u>	<u>FY05</u>	<u>FY06</u>	<u>FY07</u>	<u>FY08</u>	<u>FY09</u>	To <u>Complete</u>	Total <u>Cost</u>
Proc, SOF Training Systems	24.434	65.716	49.192	24.298	25.662	110.665	28.834	Cont.	Cont.

D. Acquisition Strategy. MH 47G/60 BLK-1 Part task Trainers, Developable Mission Rehearsal Devices, and Combat Mission Simulators developed in concert with the Common architecture developed using a spiral development, phased approach.

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Exhibit R-3 COST ANALYSIS						DATE: FEBRUARY 2004					
APPROPRIATION / BUDGET ACTIVITY				Special Operations Tactical Systems Development/PE1160404BB							
RDT&E DEFENSE-WIDE / 7				Special Operations Forces (SOF) Training System /S625							
Actual or Budget Value (\$ in millions)											
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYS Cost	Budget Cost FY04	Award Date FY04	Budget Cost FY05	Award Date FY05			To Complete	Total Program
USASOC Simulator Block Upgrade Program	FFP	PEO STRI, Orlando, FL		1.223	Mar-04						1.223
MH-47G/60M CMS	CPAF	PEO STRI, Orlando, FL		8.255	Feb-04	3.791	Feb-04				12.046
SAGIS - Increment 0	CPAF	PEO STRI, Orlando, FL		4.059	Feb-04						4.059
AFSOC Simulator Block Upgrade	FFP	Hill AFB, UT				0.974					0.974
A/MH-6 CMS	CPAF	PEO STRI, Orlando, FL	21.583								21.583
Subtotal Product Dev			21.583	13.537		4.765					39.885
Remarks:											
Total Cost			21.583	13.537		4.765					Cont.
Remarks:											

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Exhibit R-4, Schedule Profile													Date: FEBRUARY 2004															
Appropriation/Budget Activity RDT&E/7					Program Element Number and Name PE1160404BB/Special Operations Tactical System Development													Project Number and Name Project S625/SOF Training System										
Fiscal Year	2004				2005				2006				2007				2008				2009							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
USASOC SBUD		▲	—		▲																							
MH60/47 CMS	▲	—			—	—			—	—		▲																
SAGIS Increment 0	▲	—			—	—	▲																					
AFSOC SBUD						▲	—		—	—		▲																

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2004
Appropriation/Budget Activity RDT&E BA # 7	Aviation Systems Advance Development/Project SF100	

Cost (\$ in millions)	FY03	FY04	FY05	FY06	FY07	FY08	FY09
Aviation Sys Adv Dev	66.944	67.713	103.982	59.662	23.156	10.730	8.803
RDT&E Articles Quantity							

A. Mission Description and Budget Item Justification: This project investigates the applicability of current and maturing technologies that have great potential for direct application to the development and procurement of specialized equipment to meet Special Operations Forces (SOF)-unique aviation requirements. Timely application of SOF-unique technology is critical and necessary to meet requirements in such areas as: Low Probability of Intercept/Low Probability of Detection (LPI/LPD) radios and radar; LPI formation/rendezvous flight; digital terrain elevation data and electronic order of battle; digital maps; LPI radar altimeter; display technology; situational awareness; near-real-time intelligence to include data fusion; laser radar/millimeter wave radar obstacle avoidance; imagery; threat detection and avoidance; electronic support measures for threat geolocation and specific emitter identification; navigation; target detection and identification technologies; aerial refueling; and studies for future SOF aircraft requirements. Sub-projects include:

- AC-130U Pre-Planned Product Improvement. Provides correction of system deficiencies and enhancement of mission capabilities for the AC-130U Gunship fleet.
- Aviation Engineering Analysis. Provides a rapid response capability to support SOF fixed wing aircraft. The purpose is to correct system deficiencies, improve asset life, and enhance mission capability through the means of feasibility studies and engineering analyses. This sub-project provides the engineering required to improve the design and performance integrity of the aircraft support systems, sub-systems, equipment, and embedded computer software as they relate to the maintenance, overhaul, repair, quality assurance, modifications, materiel improvements and service life extensions.
- Common Avionics Architecture for Penetration (CAAP). This program is joined with the USAF C-130 Avionics Modernization Program (AMP). CAAP initiates development of terrain following/terrain avoidance (TF/TA) radar having LPI/LPD characteristics for SOF C-130s. It also initiates development of an On-Board Enhanced Situational Awareness System (OBESA) which consolidates threat data from on and off-board sensors into a single coherent image to the crew. OBESA will be integrated on SOF C-130s, CV-22s, MH-60s and MH-47s.
- EC-130 Obsolescence. This program provides for development and design to resolve special mission equipment obsolescence and vanishing vendor issues.

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2004
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<ul style="list-style-type: none"> • Leading Edge Technology. This program is directed toward improving near-real-time intelligence on SOF aircraft. This program will mature technologies enabling exploitation of vibroacoustic signatures relating to targets or tracking of friendly forces. • MC-130H Aerial Refueling (MCAR). Provides 22 Air Force Special Operations Command MC-130H Combat Talon II aircraft with the capability to air refuel Special Operations Forces rotary wing aircraft. This extends the range of rotary wing aircraft operating in politically sensitive/denied airspace. Elements of the air refueling system include non-developmental item aerial refueling pods, 2 internal flat stackable tanks, and enlarged paratroop door windows. • Digital Auto Flight Control System (DAFCS). This is a congressional plus-up for the MH-47s. 			
B. Accomplishments/Planned Program			
	FY 2003	FY 2004	FY 2005
AC-130U Pre-Planned Product Improvement		2.356	
RDT&E Articles Quantity			
FY04 Initiate risk reduction strategies for an All Light Level Television replacement.			
	FY 2003	FY 2004	FY 2005
Aviation Engineering Analysis	.453	1.333	1.447
RDT&E Articles Quantity			
FY03 Continued engineering analysis of SOF fixed wing aircraft avionics and sensors. FY04 Continue engineering analysis of SOF fixed wing aircraft avionics and sensors. FY05 Continue engineering analysis of SOF fixed wing aircraft avionics and sensors.			

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Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2004		
Appropriation/Budget Activity RDT&E BA # 7		Aviation Systems Advance Development/Project SF100		
		FY 2003	FY 2004	FY 2005
Common Avionics Architecture for Penetration (CAAP)		42.631	41.346	74.849
RDT&E Articles Quantity				
<p>FY03 Continued TF/TA and off-board ESA development under the US Air Force AMP contract. Continued integration and test of TF/TA radar; began CAAP risk reduction effort; completed CAAP hardware and software specification reviews; continued development and integration of intelligence broadcast receiver.</p> <p>FY04 Accelerate TF/TA and off-board ESA development under the US Air Force AMP contract. Department of Defense accelerated CAAP in FY 2004 for TF/TA development and qualification. This acceleration was necessitated by a 26 month slip in the Air Force AMP program which creates unacceptable risks and cost to SOF's effort to field additional MC-130H Combat Talon IIs to address low density/high demand issues. Specific CAAP activities scheduled are acceleration of TF/TA risk reduction, initiation of developmental testing for MC-130H platforms, CAAP hardware preliminary design review; and CAAP software specification review.</p> <p>FY05 Continue acceleration of TF/TA and off-board ESA development. Specific activities scheduled for FY05: AMP/CAAP preliminary and critical design reviews; Gunship software specification review; and test readiness review for Talon I preliminary DT&E.</p>				
		FY 2003	FY 2004	FY 2005
CAAP On-Board ESA		4.903	16.717	22.323
RDT&E Articles Quantity				
<p>FY03 Initiated development of below line-of-sight (BLOS) On-Board ESA (OBESA) system. Initiated engineering analysis and development of special receiver technology for ESA.</p> <p>FY04 Continue development of below line-of-sight OBESA system. Continue engineering analysis and development of special receiver, digital map and color displays. Develop software for correlation fusion of special receive data with off/on-board threat information.</p> <p>FY05 Continue development of BLOS OBESA and special receiver systems. Continue integration and test of special receiver data with off/on-board threat information. Initiate development of special transmitter technology system.</p>				
		FY 2003	FY 2004	FY 2005
EC-130 Equipment Obsolescence				.678
RDT&E Articles Quantity				
FY05 Develop and design improvements to resolve special mission equipment obsolescence.				

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2004
Appropriation/Budget Activity RDT&E BA # 7	Aviation Systems Advance Development/Project SF100	

	FY 2003	FY 2004	FY 2005
Leading Edge Technology	1.424		
RDT&E Articles Quantity			

FY03 This initiative is a Congressional plus-up. Continued effort focusing on Vivro-Electronic Signature Target Analysis and Passive Acoustic Reflection Device technologies to design and build an aircraft interface unit and associated algorithms for target characterization.

	FY 2003	FY 2004	FY 2005
MC-130H Aerial Refueling	17.533	1.902	4.685
RDT&E Articles Quantity			

FY03 Continued engineering and manufacturing development (EMD) activities. Initiated trial install and flight test.
 FY04 Continued EMD activities. Continue flight testing of MC-130H MCARs.
 FY05 Develop carry-on internal flat stackable tanks.

C. Other Program Funding Summary:								To	Total
	<u>FY03</u>	<u>FY04</u>	<u>FY05</u>	<u>FY06</u>	<u>FY07</u>	<u>FY08</u>	<u>FY09</u>	<u>Complete</u>	<u>Cost</u>
Proc, C-130 Mods	98.744	130.365	42.418	28.743	17.524	11.640	15.145	Cont.	Cont.

- D. Acquisition Strategy.
- AC-130U P3I. Conduct engineering analysis to improve electro-optical sensor capability.
 - Aviation Engineering Analysis. Continue engineering analysis activities to correct system deficiencies, improve asset life, and enhance mission capability of SOF fixed-wing aircraft avionics and sensors.
 - Common Avionics Architecture for Penetration (CAAP). Develop a common technical solution satisfying fixed and rotary wing requirements for penetration missions. The program will leverage knowledge gained on previously conducted advanced technology demonstrations to implement a low risk solution. The fixed wing application of CAAP will be accomplished by merging with the USAF C-130 Avionics Modernization Program (AMP).

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2004
Appropriation/Budget Activity RDT&E BA # 7	Aviation Systems Advance Development/Project SF100	

- EC-130 Obsolescence. Initiate a special mission equipment program via a pre-competed contract to identify obsolete and vanishing vendor parts replacements, maximizing use of commercial off the shelf and non-developmental items.
- MC-130H Aerial Refueling. Integrate a non-developmental item aerial refueling system onto MC-130H Talon II aircraft. The first phase of this program is Foreign Comparative Testing (FCT) of the MK 32B-902E Aerial Refueling POD. Phase II development of aircraft integration and production installations completed on a pre-competed contract with Boeing, Ft. Walton Beach, FL.

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Exhibit R-3 COST ANALYSIS						DATE: FEBRUARY 2004					
APPROPRIATION / BUDGET ACTIVITY				Special Operations Tactical Systems Development/PE1160404BB							
RDT&E DEFENSE-WIDE / 7				Aviation Systems Advance Development/SF100							
Actual or Budget Value (\$ in millions)											
Cost Categories (Tailor to WBS, or System/ Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	Budget Cost FY04	Award Date FY04	Budget Cost FY05	Award Date FY05			To Complete	Total Program
Primary Hardware Development											
CAAP	C/CPAF	Boeing, Long Beach, CA	78.817	41.346	Various	74.849	Various			35.205	230.217
Award Fees			2.081							Cont.	Cont.
MC-130 Air Ref	CPAF	Boeing, Ft. Walton Beach, FL	29.967	1.902	Jan-04	4.685	Jan-05				36.554
Leading Edge Technology	Allot	SPAWAR, Charleston, SC	8.635								8.635
CAAP OBESA	CPIF	Northrop Grumman, Dayton, OH	4.903	16.717	Various	22.323	Various			37.677	81.620
Digital Auto Flight Control System	Various	Boeing		4.059	Various						4.059
Subtotal Product Dev			124.403	64.024		101.857				Cont.	Cont.
Remarks:											
Development Support											
Engineering/Studies											
Aviation Engineering Analysis	Various	AF Research Laboratory	2.264	1.333	Various	1.447	Various			Cont.	Cont.
AC-130U Gunship P3I	Various	Various	4.785	2.356	Various						7.141
MC-130H Air Refueling	MIPR	46TH TW, Hurlburt Fld, FL	0.300								0.300
EC-130 Obsolescence	TBD	Lockheed Marietta				0.678	Various			Cont.	Cont.
Subtotal Spt			7.349	3.689		2.125				Cont.	Cont.
Remarks:											
Total Cost			131.752	67.713		103.982				Cont.	Cont.
Remarks:											

Exhibit R-2a, RDT&E Project Justification				Date: FEBRUARY 2004			
Appropriation/Budget Activity RDT&E BA # 7				CV-22/Project SF200			
Cost (\$ in millions)	FY03	FY04	FY05	FY06	FY07	FY08	FY09
CV-22	32.469	78.610	75.131	28.811			
RDT&E Articles Quantity							
<p>A. Mission Description and Budget Item Justification: This program provides capabilities necessary to meet Special Operations Forces (SOF) operational requirements. The CV-22 acquisition program delayed the incorporation of some operational capabilities until the completion of a Block 10 (formerly Pre-Planned Product Improvement) CV-22 program. This strategy was based on a developmental funding cap agreed to by the Department of the Navy and the USSOCOM Acquisition Executive and concerns over the technical maturity of parallel acquisition programs. Block 10 includes integrating and testing the Directional Infrared Countermeasures (DIRCM), a system to provide protection against infrared guided missiles; design and integration of the Troop Commander Situational Awareness station to provide the embarked troop commander access to the CV-22's communication, navigation and mission management system; relocation of the ALE-47 chaff and flare dispenser control head to allow any cockpit crew member to activate defensive countermeasures; addition of a second forward firing chaff and flare dispenser to provide an adequate quantity of consumable countermeasures for the extended duration of SOF infiltration/exfiltration/resupply missions; and the incorporation of a dual access feature to the Digital Map System to allow both the pilot and copilot to independently access and control the digital map display from the mission computer. This program includes modification of an existing undelivered MV-22 to a CV-22 Additional Test Aircraft (ATA) configuration.</p> <p>B. Accomplishments/Planned Program</p>							
				FY 2003	FY 2004	FY 2005	
Dev/Integration/Test of Block 10 Program				32.469	33.734	67.015	
ATA Modification					37.148		
RDT&E Articles Quantity							
<p>FY03 Continued development, integration, and developmental testing of Block 10 capabilities; commenced ATA modification efforts.</p> <p>FY04 Continue development and integration of Block 10 capabilities, to include the start of Block 10 flight testing; continue and complete ATA modification efforts.</p> <p>FY05 Continue development/integration/testing of Block 10 capabilities.</p>							

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2004
Appropriation/Budget Activity RDT&E BA # 7	CV-22/Project SF200	

	FY 2003	FY 2004	FY 2005
Program Office Support		0.777	0.816
RDT&E Articles Quantity			
FY03 Continued program office support for Block 10 program. FY04 Continue program office support for Block 10 program. FY05 Continue program office support for Block 10 program.			

	FY 2003	FY 2004	FY 2005
Engineering and Logistics Support	6.578	6.951	7.300
RDT&E Articles Quantity			
FY03 Continued engineering and logistics support for Block 10 program. FY04 Continue engineering and logistics support for Block 10 program. FY05 Continue engineering and logistics support for Block 10 program.			

C. Other Program Funding Summary:

	<u>FY03</u>	<u>FY04</u>	<u>FY05</u>	<u>FY06</u>	<u>FY07</u>	<u>FY08</u>	<u>FY09</u>	To <u>Complete</u>	Total <u>Cost</u>
Proc, CV-22 SOF Osprey	43.449	114.565	126.083	122.299	162.419	200.094	160.305	Cont.	Cont.

D. Acquisition Strategy. The CV-22 program is managed by the Navy V-22 program office (NAVAIR PMA-275). This ensures that the CV-22 changes are incorporated into the ongoing V-22 production line with minimum impact. RDT&E funding is sent from USSOCOM to PMA-275 to place on contract with the V-22 prime contractor. The RDT&E funding will be used to fund Block 10 (formerly Pre-Planned Product Improvement) development. Block 10 capability is required for full compliance with the Joint Operational Requirements Document. Funding for the baseline CV-22 Engineering Manufacturing and Development, known as Block 0, is embedded in the Navy budget.

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Exhibit R-3 COST ANALYSIS						DATE: FEBRUARY 2004					
APPROPRIATION / BUDGET ACTIVITY				Special Operations Tactical Systems Development/PE1160404BB							
RDT&E DEFENSE-WIDE / 7				CV-22/SF200							
Actual or Budget Value (\$ in millions)											
Cost Categories (Tailor to WBS, or System/ Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	Budget Cost FY04	Award Date FY04	Budget Cost FY05	Award Date FY05			To Complete	Total Program
Primary Hardware (H/W) Dev	SS/CPAF	NAVAIR/PMA-275 & Bell-Boeing, Patuxent River, MD	120.957	30.868	Feb-04	64.104	Feb-05			Cont.	Cont.
Additional Test Aircraft (ATA) Modification	SS/CPAF/IF	NAVAIR/PMA-275 & Bell-Boeing, Patuxent River, MD	31.797	30.798	Jan-04					0.000	62.595
Award/Incentive Fees Primary H/W Dev ATA			4.890	2.866 6.350	Feb-04 Mar-04	2.911	Feb-05			Cont.	Cont.
Subtotal Product Dev			157.644	70.882		67.015				Cont.	Cont.
Remarks:											
Contractor Engineering Spt	WR	Various		3.963	Dec-03	4.089	Dec-04			Cont.	Cont.
Government Engineering Spt	WR	Various	17.825	3.465	Dec-03	3.627	Nov-04			Cont.	Cont.
Travel and Logistics			0.400	0.300	Dec-03	0.400	Nov-04			Cont.	Cont.
Subtotal Management			18.225	7.728		8.116				Cont.	Cont.
Remarks:											
Total Cost			175.869	78.610		75.131				Cont.	Cont.
Remarks:											

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Exhibit R-4, Schedule Profile										Date: FEBRUARY 2004														
Appropriation/Budget Activity					Program Element Number and Name										Project Number and Name									
RDT&E/7					PE1160404BB/Special Operations Tactical System Development										Project SF200/CV-22									
Fiscal Year	2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones								V-22 MS III																
CV-22 Block 10 Development																								
Block 0/10 Flight Test																								
CV-22 IOT&E																								
CV-22 Deliveries							PRTV #1	PRTV #2	Lot 8 Deliveries (2)			Lot 9 Deliveries (3)					Lot 10 Deliveries (2)			Lot 11 Deliveries (2)				
CV-22 IOC																								

