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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)						DATE				
						FEBRUARY 2003				
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)	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	Cost to Complete	Total Cost
PE1160404BB	233.524	287.621	255.981	253.588	145.227	72.713	65.322	38.337	Cont.	Cont
3129 MC-130H COMBAT TALON				23.980						
3284 SOF AIRCRAFT DEFENSIVE SYSTEM	13.762	69.018	53.615	20.985	15.557	5.794	6.054	5.281	Cont.	Cont
3326 AC-130U GUNSHIP	.457	28.969	1.228	1.291	2.541	2.586	2.686	2.763		
D476 PSYOPS ADV DEV		.475	2.273	.358	.360	4.518	1.351	2.363		
D615 SOF AVIATION	11.920	36.450	46.094	37.196	36.693	22.789	10.704	6.805		
S0417 UNDERWATER SYSTEMS ADV DEV	45.189	31.305	16.254	2.400	2.222	1.666	.385	1.487		
S1684 SOF SURFACE CRAFT ADV SYSTEMS	1.173	.950	.471			1.338	18.796	9.283		
S350 SOFPARS	4.454	1.704	2.603	3.933	3.843	3.765	3.870	3.962		
S375 WEAPONS SYSTEMS ADV DEV	3.251	3.568	3.840	2.771	.479	4.387	.587	.256		
S625 SOF TRAINING SYSTEMS	21.414		10.326	4.707	1.534	4.499	9.940	4.339		
S700 SO COMMUNICATIONS ADV DEV	3.382	2.095								
S800 SO MUNITIONS ADV DEV	3.020	3.690	.216	.216	.215	.215	.212	.212		
S900 SO MISCELLANEOUS EQUIPMENT ADV DEV	.488	1.427								
SF100 AVIATION SYSTEMS ADV DEV	34.170	48.150	82.605	114.331	58.890	21.156	10.737	1.586		
SF200 CV-22	90.844	59.820	36.456	41.420	22.893					

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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>FY2002</u>	<u>FY2003</u>	<u>FY2004</u>	<u>FY2005</u>
Previous President's Budget	255.604	281.443	205.697	156.531
Current President's Budget	233.524	287.621	255.981	253.588
Total Adjustments	-22.080	6.178	50.284	97.057
Congressional Program Reductions	-5.500	-12.200		
Congressional Rescissions	-3.003	-4.864		
Congressional Increases		59.800		
Reprogrammings	-7.376	-29.358		
SBIR/STTR Transfer	-6.200	-7.200		

Funding:

- This program element received \$2.404 million of FY02 Defense Emergency Response Funds for the following: Leaflet Delivery System (\$.940), Psychological Operations Broadcasting System (\$.150), Special Purpose Receivers (\$.630), and Man-Portable Decontamination (\$.684).

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<p>FY02</p> <ul style="list-style-type: none"> - Project SF200: Office of Management and Budget Mid-Session Inflation adjustment (-\$3.004). - FY02 reflects (-\$9.900) decrease Congressionally added programs that were more appropriately executed in different program elements within the following projects: <ul style="list-style-type: none"> - Project 3284: SOF A/C Defense System from PE1160402BB (\$2.000). - Project D615: Rotary Wing Unmanned Aerial Vehicle to PE 1160402BB (-\$6.700). Rebreather to PE 1160407BB (-\$1.000). - Project S0417: Surface Planing Wet Submersible to PE 1160402BB (-\$3.700). - Project S900: Electronic Digital Compass System from PE 1160402BB (\$.525). - Project S375: Titanium Tilting Helmet Mounts to procurement line item Small Arms and Weapons (-\$1.000) - Project 375: Reprogrammed \$1.500 for continued development of the Lightweight Counter Mortar Radar, which was transitioned from Project S200. <p>FY03</p> <ul style="list-style-type: none"> - Reflects (\$59.800) for Congressionally added programs as follows: <ul style="list-style-type: none"> - D615: Rotary Wing Unmanned Aerial Vehicle (\$22.100), and Knowledge Superiority (\$1.700) - SF100: Leading Edge Technology (\$1.500) - S0417: Advanced SEAL Delivery System (\$21.000), and Rebreather (\$1.300) - S1684: MKV Computer Upgrade (\$1.000) - S375: Precision Target Locator Designator (\$3.500), and Joint Threat Warning System (\$1.300) - S700: Blue Force Tracking (\$2.200), and Large Format Uncooled Infrared Sensors (\$1.000) - S800: Imaging Auto Sensors for Autonomous Vehicle (\$1.700) - S900: TACNAV Electronic Digital Compass System (\$1.500) <p>The following adjustments to Congressional adds were made to move the adds to a more appropriate program element (-\$26.975):</p> <ul style="list-style-type: none"> - D615: Rotary Wing Unmanned Aerial Vehicle (-\$22.100), and Knowledge Superiority (-\$1.700) to PE 1160402BB 		

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<ul style="list-style-type: none"> - S0417: Rebreather (-\$1.300) to PE1160407BB - S375: Joint Threat Warning System (-\$1.300) to PE1160405BB - S700: Large Format Uncooled Infrared Sensors (-\$1.000) - S800: Imaging Auto Sensors for Autonomous Vehcile (-\$1.700) to PE1160401BB and, Navy transfer for the Lightweight Anti-Armored Weapon (\$2.125) - Project 3284: Net Decrease (-\$6.114) is a result of execution delay reduction. - Project 3326: Net increase (\$0.32) is a result of execution delay reduction. - Project D615: Net decrease (-\$1.111) is a result of execution delay reduction. - Project S0417: Net decrease (-\$1.223) is a result of execution delay reduction. - Project S800: Net decrease (-0.165) is a result of execution delay reduction. - Project SF100: Net decrease (\$0.871) is a result of execution delay reduction. - Project SF200: Net decrease (\$2.684) is a result of execution delay reduction. <p>Congressional Reductions: Sections 8100, 8109, and 8135 (-\$4.864)</p> <p>FY04</p> <ul style="list-style-type: none"> - Project 3284: Decrease of (\$1.085) reflects USSOCOM realignment of resources to support higher command priorities. - Project 3326: Decrease of (\$15.020) reflects USSOCOM realignment of resources to support higher command priorities. - Project D476: Increase of \$1.961 reflects USSOCOM realignment of resources to support higher command priorities. - Project D615: Increase of \$9.250 reflects USSOCOM realignment of resources to support higher command priorities. - Project S0417: Increase of \$13.201 reflects USSOCOM realignment of resources to support higher command priorities. - Project S1684: Increase of \$.471 reflects USSOCOM realignment of resources to support higher command priorities. - Project S350: Increase of \$0.706 reflects USSOCOM realignment of resources to support higher command priorities. - Project S375: Increase of \$3.339 reflects USSOCOC realignment of resources to support higher command priorities. - Project S625: Increase of \$10.326 reflects USSOCOM realignment of resources to support higher command priorities. - Project S800: Decrease of (\$1.068) reflects USSOCOM realignment of resources to support higher command priorities. 		

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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 SF100: Increase of \$42.641 reflects USSOCOM realignment of resources to support higher command priorities</p> <p>- Project SF200: Decrease of (\$14.387) reflects USSOCOM realignment of resources to support higher command priorities.</p> <p>Schedule:</p> <p>Project SF200:</p> <ul style="list-style-type: none"> - CV-22. USD (AT&L) approved a new Acquisition Program Baseline for the CV-22 program in May 2002, which incorporates numerous CV-22 schedule changes. <p>Project 3284:</p> <ul style="list-style-type: none"> - Low Band Jammer. The Low Band Jammer program was structured in the FY 2003 President's Budget assuming aircraft integration work could be done concurrently with initial procurement. However, the program office has found that major modifications to aircraft structure and wiring are required for proper integration, testing, and installation of the jammers. Consequently, procurement will not begin until FY 2005, and the program funds have been restructured accordingly. <p>Project S0417:</p> <ul style="list-style-type: none"> - Non-Gasoline Burning Outboard Engine. Original vendor declared Chapter 11 bankruptcy. The purchasing company has assumed development duties. Milestone C is now scheduled for 3rd quarter FY 2004. <p>Technical: None.</p>		

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2003
Appropriation/Budget Activity RDT&E BA # 7	MC-130 Combat Talon II/Project 3129	

Cost (\$ in millions)	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09
				23.980				
RDT&E Articles Quantity								

A. Mission Description and Budget Item Justification: In an effort to mitigate Low Density/High Density assets, the Department increased USSOCOM's MC-130H inventory by ten aircraft in FY 2005. This program modifies 10 C-130H2 aircraft to an MC-130H Combat Talon II configuration. These aircraft provide low level infiltration, exfiltration, resupply of special operations forces and equipment in hostile/denied territories. Aircraft will also refuel SOF helicopters.

B. Accomplishments/Planned Program

	FY 2002	FY 2003	FY 2004	FY 2005
System Development and Engineering				23.980
RDT&E Articles Quantity				

C. Other Program Funding Summary:

	<u>FY02</u>	<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				72.178	76.021	239.509	182.912	11.024		

D. Acquisition Strategy. Spiral development will be implemented. Initial 5 aircraft will be fielded as with Talon aircraft limited capabilities, and 6-10 fielded as MC-130H in the post Common Avionics Architecture for Penetration configuration (See SF100 exhibit). Initial 5 aircraft will be retrofitted to the final configuration.

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Exhibit R-3 COST ANALYSIS						DATE: FEBRUARY 2003					
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 FY03	Award Date FY03	Budget Cost FY04	Award Date FY04	Budget Cost FY05	Award Date FY05	To Complete	Total Program
TBD	CPAF CPAF/FFP							23.980	Feb-05		23.980
Subtotal Product Dev								23.980			23.980
Remarks:											
Development Spt											
Subtotal Spt											
Remarks:											
Developmental Test & Eval											
Subtotal T&E											
Remarks:											
Contractor Engineering Spt											
Subtotal Management											
Remarks:											
Total Cost								23.980			23.980
Remarks:											

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Exhibit R-4, Schedule Profile											Date: FEBRUARY 2003																									
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	2002				2003				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	1	2	3	4				
System Design Deveopment Contract Award														▲																						
Interim Talon Fielding (1-5)																																				
MC-130H Fielding																																				■
System Design Dev/Non-Recurring Engineering																																				

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2003
Appropriation/Budget Activity RDT&E BA # 7	SOF Aircraft Defensive System/Project 3284	

Cost (\$ in million)	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09
SOF Aircraft Defense System	13.762	69.018	53.615	20.985	15.557	5.794	6.054	5.281
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. The DIRCM Pre-Planned Product Improvement program includes upgrades to a laser jamming source and the development and installation of an advanced missile warning system.
- APR-46 Upgrades. Program focus is to reduce parts obsolescence and incorporate performance improvements on the APR-46 Electronic Warfare System installed on multiple SOF C-130 platforms.
- Electronic Warfare Avionics Integrated Systems Facility (EWASIF). The EWASIF directly supports software development and testing. The EWASIF 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 a nondevelopmental item, HPFOTD, 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 and surface to air and air to air missile systems.

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2003
Appropriation/Budget Activity RDT&E BA # 7	SOF Aircraft Defensive System/Project 3284	

- Low Band Jammer (LBJ). Program funds the development of the ALQ-172 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)	FY02	FY03	FY04	FY05
DIRCM	4.108	14.972	22.822	18.419
RDT&E Articles Quantity				
FY02 Continued to support a cooperative United Kingdom (UK)/United States (US) development/production program for 57 SOF C-130 aircraft. Continue to fund Directional Infrared Countermeasures (DIRCM) non-recurring engineering costs and contractor engineering support. Complete OT&E for MC-130-E/H Combat Talon and AC-130U Gunship models. FY03 Continue to support a cooperative UK/US development/production program for 57 SOF C-130 aircraft and contractor engineering support and fund non-recurring engineering costs. Fund development and non-recurring engineering costs of a laser upgrade jammer/lamp replacement and the Multi-Spectral Missile Warning System as pre-planned product improvement for DIRCM. FY04 Continue development of an advanced Multi-Spectral Missile Warning System as P3I for DIRCM.				
Cost (\$ in million)	FY02	FY03	FY04	FY05
APR-46 Upgrades	1.947			
RDT&E Articles Quantity				
FY02 Developed and quality tested upgrades to the APR-46 Electronic Warfare System. Goal of program is to reduce parts obsolescence and incorporate performance improvements.				
Cost (\$ in million)	FY02	FY03	FY04	FY05
Electronic Warfare Avionics Integrated Systems Facility	1.465	1.429	1.670	1.885
RDT&E Articles Quantity				
FY02 Continued to support laboratory efforts to maintain SOF aircraft defensive systems. FY03 Continue to support laboratory efforts to maintain SOF aircraft defensive systems. FY04 Continue to support laboratory efforts to maintain SOF aircraft defensive systems.				

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2003
Appropriation/Budget Activity RDT&E BA # 7	SOF Aircraft Defensive System/Project 3284	

Cost (\$ in million)	FY02	FY03	FY04	FY05
High Power Fiber Optic Towed Decoys (HPFOTD)	6.242	27.078	16.606	
RDT&E Articles Quantity				

FY02 Began nonrecurring engineering efforts and on aircraft integration requirements efforts.
 FY03 Continue nonrecurring engineering, and initiate development and testing of aircraft integration efforts.
 FY04 Continue nonrecurring engineering, development and complete testing of aircraft integration efforts.

Cost (\$ in million)	FY02	FY03	FY04	FY05
Low Band Jammer (LBJ)		25.539	12.517	681
RDT&E Articles Quantity				

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

C. Other Program Funding Summary:

	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	To Complete	Total Cost
C-130 Mods (Procurement)										
Directional Infrared Countermeasures (DIRCM)		33.632	31.824	24.492	6.762	10.839	9.069	8.482		125.100
LBJ				55.276	57.025	56.750	3.242			172.293
HPFOTD			8.563	66.233	63.598	1.542	.820			140.756

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 Directional Infrared Countermeasures (DIRCM) program manager. There is a separate contract which includes laser and advanced missile warning systems development. (Current DOD policy prevents cooperative laser development with United Kingdom.) The laser upgrade will be a sole source contract with the existing DIRCM contractor. The advanced missile warning system contract will be competitively awarded.

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2003
Appropriation/Budget Activity RDT&E BA # 7	SOF Aircraft Defensive System/Project 3284	

- Electronic Warfare Avionics Integrated Systems Facility (EWAISF). Award sole source contracts to the manufacturer of the prime mission equipment required for hardware and software integration into the EWAISF.
- Low Band Jammer (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 with the LBJ, evaluate two competing systems and use a best value approach. Program management will be provided through an Air Force System Program Office and a pre-competed contract will be used for integration and installation. Memorandum of Agreement approved combining High Power Fiber Optic Towed Decoys (HPFOTD) and LBJ programs into one engineering and manufacturing development acquisition.
- High Power Fiber Optic Towed Decoy. Perform a market survey of the existing Towed Decoy currently available in the US market place. Conduct an assessment to determine which non-developmental item meets operational requirements. If more than one vendor meets all requirements, down-select based on best value. Perform nonrecurring engineering efforts in preparation of aircraft integration on all Air Force Special Forces Command AC-130H/U and MC-130E/H platforms.

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Exhibit R-3 COST ANALYSIS						DATE: FEBRUARY 2003					
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 FY03	Award Date FY03	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)	1.734	0.310	Mar-03	4.111	Various	4.372	Various	Cont	Cont.
DIRCM Laser	SS/CPFF	Northrop (Chicago)	10.510	11.139	Jan-03	2.459	Various				24.108
DIRCM MSMWS	MIPR	AFEWS	0.500	2.359	Dec-02	14.752	Various	12.747	Various	2.935	33.293
Infrared Suppression System	CPFF/FFP	Boeing, Ft. Walton Beach, FL	5.890								5.890
Electronics Warfare Avionics											
Integrated Systems Facility	SS/CPFF	GTRI, GA	11.379	1.429	Feb-03	1.670	Feb-04	1.885	Feb-05	Cont.	Cont.
HPFOTD	CPAF	Boeing, Ft. Walton Beach, FL	9.242	27.078	Various	16.606	Feb-04				52.926
Low Band Jammer	CPAF	Boeing, Ft. Walton Beach, FL		25.539	Mar-03	12.517	Feb-04	0.681	Feb-05		38.737
Subtotal Product Dev			116.762	67.854		52.115		19.685		Cont.	Cont.
Remarks:											
Development Spt											
Subtotal Spt											
Remarks:											
Developmental Test & Eval											
Subtotal T&E			0.000	0.000		0.000					0.000
Remarks:											
Contractor Engineering Spt	FP	SVERDRUP	0.706	1.164	May-03	1.500	May-04	1.300	May-05		4.670
Subtotal Management			0.706	1.164		1.500		1.300			4.670
Remarks:											
Total Cost			117.468	69.018		53.615		20.985		Cont	Cont
Remarks:											

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Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2003
Appropriation/Budget Activity RDT&E BA # 7	AC-130U Gunship/Project 3326	

Cost (\$ in millions)	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09
AC-130U Gunship	.457	28.969	1.228	1.291	2.541	2.586	2.686	2.763
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. The AC-130U aircraft is more capable and survivable than the AC-130H aircraft. These subsystems enable the gunship to strike targets 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. AC-130U software is developed and sustained using a systems integration laboratory.

B. Accomplishments/Planned Program

	FY 2002	FY 2003	FY 2004	FY 2005
Electro-Optical Sensor Technologies	.059	.058	.075	
RDT&E Articles Quantity				

FY02 Continued cooperative effort with AF laboratory to analyze and demonstrate gunship-related emerging electro-optical sensor technologies.
 FY03 Continue cooperative effort with AF laboratory to analyze and demonstrate gunship-related emerging electro-optical sensor technologies.
 FY04 Complete cooperative effort with AF laboratory to analyze and demonstrate gunship-related emerging electro-optical sensor technologies.

	FY 2002	FY 2003	FY 2004	FY 2005
Organizational Maintenance Manual Sets (OMMS)	.196	.191	.200	.091
RDT&E Articles Quantity				

FY02 Technical order verification/validation and printing for various ongoing AC-130U modifications and for Organizational Maintenance Manual Sets (OMMS).
 FY03 Continue technical order verification/validation and printing for various ongoing AC-130U modifications and for OMMS.
 FY04 Continue technical order verification/validation and printing for various ongoing AC-130U modifications and for OMMS.

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Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2003
Appropriation/Budget Activity RDT&E BA # 7	AC-130U Gunship/Project 3326	

	FY 2002	FY 2003	FY 2004	FY 2005
Technical Studies and Reliability/Maintainability Studies	.149	.477	.200	.200
RDT&E Articles Quantity				

FY02 Continued technical studies and reliability/maintainability studies.
 FY03 Continue technical studies and reliability/maintainability studies.
 FY04 Continue technical studies and reliability/maintainability studies.

	FY 2002	FY 2003	FY 2004	FY 2005
C-130 Modifications	0	27.796	.300	.500
RDT&E Articles Quantity				

FY03 Develop modifications to four C-130H's being added to the gunship inventory, including weight and drag reduction designs, redesigns for obsolescence issues, revised survivability studies, and a common electro-optical sensor system study.
 FY04 Continue weight and drag reduction design, obsolescence engineering drawings, survivability studies, and a common electro-optical sensor system study.

	FY 2002	FY 2003	FY 2004	FY 2005
Flight Test Operations Support	.053	.447	.450	.500
RDT&E Articles Quantity				

FY02 Continued annual ground/flight test operations and support for ongoing AC-130 modifications.
 FY03 Continue annual ground/flight test operations and support for ongoing AC-130 modifications.
 FY04 Continue annual ground/flight test operations and support for ongoing AC-130 modifications.

C. Other Program Funding Summary:										
	<u>FY02</u>	<u>FY03</u>	<u>FY04</u>	<u>FY05</u>	<u>FY06</u>	<u>FY07</u>	<u>FY08</u>	<u>FY09</u>	To Complete	Total Cost
AC-130U Gunship (Procurement)	12.152	128.842	390.054	38.979	165.198	177.930	5.104	5.253	Cont.	Cont.

D. Acquisition Strategy. Modify C-130H airframes into a side-firing gunship configuration on a sole-source fixed price incentive 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. Funding increase in FY 2003 supports diminishing manufacturing source issues and non-recurring engineering for the four additional gunships.

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Exhibit R-3 COST ANALYSIS						DATE: FEBRUARY 2003					
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 FY03	Award Date FY03	Budget Cost FY04	Award Date FY04	Budget Cost FY05	Award Date FY05	To Complete	Total Program
Product Dev Organizations Tech Studies & Analysis	AF616	Air Force Research Lab, Wright Patterson AFB, OH	0.230							Cont.	Cont.
Tech Order Verification and Validation	Various	Various	0.542	0.191	Various	0.200	Various	0.091	Various	Cont.	Cont.
Reliability and Maintainability	C/CPAF	Boeing, Ft. Walton Beach, FL	0.572	0.477	Dec 02	0.203	Jan-04	0.200	Jun-05	Cont.	Cont.
Subtotal Product Dev			1.344	0.668		0.403		0.291		Cont.	Cont.
Dev Spt	AF616	Air Force Research Lab, Wright Patterson AFB, OH	1.276	0.058	Dec 02	0.075	Jun-04			Cont.	Cont.
Subtotal Spt			1.276	0.058		0.075		0.000		Cont.	Cont.
Devel Test & Eval	PO	46OG Det 1, Hurburt Field, FL	36.865	0.447	Dec 02	0.450	Feb-04	0.500	Jun-05	Cont.	Cont.
Test & Eval - (4 new Gunships)	FFP/CPFF	Boeing, Ft. Walton Beach, FL		27.796	Mar 03	0.300	Feb-04	0.500			28.096
Subtotal T&E			36.865	28.243		0.750		1.000		Cont.	Cont.
Management											
Subtotal Management											
Remarks:											
Total Cost			39.485	28.969		1.228		1.291		Cont.	Cont.
Remarks:											

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Exhibit R-4, Schedule Profile											Date: FEBRUARY 2003																									
Appropriation/Budget Activity					Program Element Number and Name											Project Number and Name																				
RDT&E/7					PE1160404BB/Special Operations Tactical System Development											Project 3326/AC-130U Gunship																				
Fiscal Year	2002				2003				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	1	2	3	4				
System Integration																																				
Acceptance Test Procedures																																				
Full Operation Capability		▲																																		
Contract Award for 4 additional AC-130U Gunships						△				△																										

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2003
Appropriation/Budget Activity RDT&E BA # 7	PSYOP Advanced Development/Project D476	

Cost (\$ in millions)	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09
		0.475	2.273	.358	.360	4.518	1.351	2.363
RDT&E Articles Quantity								

A. Mission Description and Budget Item Justification:

This program provides for the development and acquisition of Psychological Operations (PSYOP) equipment. PSYOP is planned operations to convey selected information and indicators to foreign audiences to influence their emotions, motives, objective reasoning, and ultimately the behavior of foreign governments, organizations, groups, and individuals. This project funds transformational systems and equipment to conduct PSYOP operations in support of combatant commanders. The PSYOP programs funded in this project are grouped by the level of organization they support: Operational Element (Team) and Above Operational Element (Deployed). Sub-projects include:

ABOVE OPERATIONAL ELEMENT (DEPLOYED)

- PSYOP Broadcast System (POBS), formerly Special Operations Media System A (SOMS A). POBS provides an operational/strategic mobile television/radio wide area broadcast system capability. It will receive and transmit real-time PSYOP products to and from commercial and military sources by satellite and microwave. POBS will be interoperable with the fixed site media production center at Fort Bragg, NC, Theater Media Production Center, Air National Guard Commando Solo aircraft, and the tactical Special Operations Media System B.

B. Accomplishments/Planned Program

	FY 2002	FY 2003	FY 2004	FY 2005
POBS			1.999	
RDT&E Articles Quantity				

FY04 Conduct concept exploration study to determine future long range PSYOP broadcast assets. Acquire long range broadcast advanced developmental assets for evaluation.

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2003
Appropriation/Budget Activity RDT&E BA # 7	PSYOP Advanced Development/Project D476	

	FY 2002	FY 2003	FY 2004	FY 2005						
POBS		.475	.274	.358						
RDT&E Articles Quantity										
FY03 Begin environmental and operational testing of Psychological Operations (PSYOP) Fly-Away Broadcast System (FABS) variants. Complete Developmental Testing and Operational Test & Evaluation of the Theater Media Production Center . FY04 Complete environmental and operational testing of PSYOP Distribution System (PDS) FABS variants.										
	FY 2002	FY 2003	FY 2004	FY 2005						
Defense Emergency Response Fund Plan:	1.090									
RDT&E Articles Quantity										
FY02 Leaflet Delivery System (0.940). Conducted airworthiness compatibility and certification of the PDU-5 Leaflet Bomb (0.940) and conducted user evaluation of the PDS variants (0.150).										
C. Other Program Funding Summary:									To	Total
	<u>FY02</u>	<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, PSYOP Equipment	4.522	5.532	18.264	12.433	15.204	15.835	19.659	45.370	Cont.	Cont.
D. Acquisition Strategy.										
<ul style="list-style-type: none"> PSYOP Broadcast System (POBS) consists of wide-area systems providing radio, television programming and multi-media production, distribution and dissemination support to the theater commander. POBS is comprised of several interfacing systems that can stand-alone or interoperate with other PSYOP systems as determined by mission requirements. The program acquires and modifies as necessary to meet PSYOP mission requirements commercial and governmental off the shelf systems and equipment to replace or enhance current system capabilities. The program also acquires performance enhancements to meet emergent requirements. 										

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Exhibit R-3 COST ANALYSIS						DATE: FEBRUARY 2003					
APPROPRIATION / BUDGET ACTIVITY				Special Operations Tactical Systems Development/PE1160404BB							
RDT&E DEFENSE-WIDE / 7				PSYOP Advanced Development /D476							
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 FY03	Award Date FY03	Budget Cost FY04	Award Date FY04	Budget Cost FY05	Award Date FY05	To Complete	Total Program
Primary Hardware Dev	MIPR	Natick Lab, Natick, MA	1.582								
	MIPR	NAWC AD, St Indigoes, MD	0.132								
	MIPR	NAWC AD, St Indigoes, MD	0.168								
	ALLOT	Army-CECOM, Ft Monmouth, NJ	3.655								
	MIPR	DOE, Nat'l Engr Lab, Idaho Falls, ID	3.240								
Systems Engineering	ALLOT	Army-CECOM, Ft Monmouth, NJ	1.336								
	REQN	Various	0.142								
	MIPR	SPAWAR, Charleston, SC	0.060								
	TBD	TBD				1.999	Jan-04			Cont.	Cont.
Subtotal Product Dev			10.315			1.999				Cont.	Cont.
Remarks:											
Development Spt											
Subtotal Spt											
Remarks:											
Developmental Test & Eval	Various	Various	0.113								
	MIPR	Army ATC, Aberdenn Prov Gd, MD	0.448	0.240	Jan-03	0.035	Jan-04	0.035	Jan-05	Cont.	Cont.
	MIPR	TBD	0.546								
	MIPR	JITC, Ft Huachuca, AZ	0.697	0.235	Jan-03	0.239	Jan-04	0.323	Jan-05	Cont.	Cont.
	MIPR	JITC, Ft Huachuca, AZ	0.673								
Subtotal T&E			2.477	0.475		0.274		0.358		Cont.	Cont.
Remarks:											
Contractor Engineering Spt											
Subtotal Management											
Remarks:											
Total Cost			12.792	0.475		2.273		0.358		Cont.	Cont.
Remarks:											

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2003
Appropriation/Budget Activity RDT&E BA # 7	Special Operations Forces (SOF) Aviation /Project D615	

Cost (\$ in millions)	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09
SOF Aviation	11.920	36.450	46.094	37.196	36.693	22.789	10.704	6.805
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. Third World operations are apt to involve greater distances and more challenging geographical environmental conditions than the European theater. This project will develop/upgrade SOF rotary wing aircraft systems that will be capable of successful operations in these increasingly hostile environments. Rotary wing systems supported by this project include: A/MH-6, MH-60L/K, MH-47D/E/G and MH-53. Efforts include:

- A/MH-6. (1) Integrates and tests G Cal 50 machine gun. (2) Conducts Electromagnetic Interference/Electromagnetic Countermeasure testing on Mission Enhancement Little Bird. (3) Develops lightweight conformal communications antennas. (4) 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 growth engine development 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. 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. (2) Develops and qualifies a Low Probability of Intercept/Low Probability of Detection (LPI/LPD) Obstacle Avoidance/Cable Warning system. (3) Develops and qualifies a rotary wing Terrain Following/Terrain Avoidance (TF/TA) navigation system. The system is characterized by a forward-looking LPI/PLD active sensor, digital elevation terrain data (passive) and a blended TF/TA solution of the processed active and passive navigation information. (4) 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

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2003
Appropriation/Budget Activity RDT&E BA # 7	Special Operations Forces (SOF) Aviation /Project D615	

A2C2S and SOF Command & Control platforms. (5) Develops and qualifies an infrared exhaust suppressor for MH-47 aircraft. (6) Develops and qualifies a Common Avionics Architecture for Penetration radar altimeter. (7) Develops qualifies an Intelligence Broadcast Receiver which enhances situational awareness.

- 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

	FY02	FY03	FY04	FY05
A/MH-6	.420	.411		
RDT&E Articles Quantity				

FY02 Completed prototype testing of the Mission Enhanced Little Bird (MELB) aircraft. Completed the integration of Allison 250-C30/R3 engine and Full Authority Digital Electronic Control software refinement. Completed testing of the G Cal 50 machine gun, which replaced the current M2AC machine gun for the MELB aircraft. Completed Electromagnetic Interference/Electromagnetic Countermeasure integration and testing of MELB aircraft. This included shipboard compatibility, full certification at the Naval Surface Warfare Center – Dahlgren facility, and additional shielding/protection for the aircraft’s systems.
 FY03 Completed flight testing of MELB aircraft.

	FY02	FY03	FY04	FY05
MH-47/MH-60 – Aircraft	7.693	4.679	10.658	8.825
RDT&E Articles Quantity				

FY02 Provided airframe vibration analysis and nonrecurring engineering drawings for the MH-47 Service Life Extension Program (SLEP).
 FY03 Continue nonrecurring engineering and integration for the MH-47 SLEP.
 FY04 Continue nonrecurring engineering and integration for the MH-47 SLEP. Begin engineering development for MH-60 SLEP.

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2003
Appropriation/Budget Activity RDT&E BA # 7	Special Operations Forces (SOF) Aviation /Project D615	

	FY02	FY03	FY04	FY05
MH-47/MH-60 – Avionics/Sensors	3.807	24.694	35.436	28.371
RDT&E Articles Quantity				

FY02 Continued integration and testing of Modular Avionics, which incorporated modularized avionics and an open system computer architecture. Continued development, integration, and testing of an infrared exhaust suppressor system on MH-47 aircraft.

FY03 Begin development of assault and attack Forward Looking Infrared Radar (FLIR) systems to replace aging Q-16B and D systems for the fleet of Army Special Operations Aviation (ARSOA) aircraft. Begin effort to develop a replacement radar altimeter that is less detectable. Begin development and testing of a multisensor night vision system, a rotary wing Terrain Following/Terrain Avoidance (TF/TA) navigation system and an Obstacle Avoidance/Cable Warning (OA/CW) system for use on all ARSOA platforms.

FY04 Continue development of assault and attack FLIR systems to replace aging Q-16B and D systems for the fleet of ARSOA aircraft. Completed effort to develop a replacement radar altimeter that is less detectable. Continue development and testing of a rotary wing TF/TA navigation system and an OA/CW system for use for all ARSOA platforms.

	FY02	FY03	FY04	FY05
MH-53		6.666		
RDT&E Articles Quantity		2		

FY03 Complete 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 IR frequency spectrum.

C. Other Program Funding Summary:

	<u>FY02</u>	<u>FY03</u>	<u>FY04</u>	<u>FY05</u>	<u>FY06</u>	<u>FY07</u>	<u>FY08</u>	<u>FY09</u>	<u>To</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>
Rotary Wing Upgrades & Sustainment	168.391	297.206	675.063	452.069	412.728	348.833	354.830	271.395	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. A contract modification is being evaluated for the existing Mission Enhancement Little Bird (MELB) flight test contract with the Boeing Company which has proprietary data rights to the A/MH-6 structural design, MELB flight load survey data, and the necessary test equipment to perform the required component fatigue testing and analysis efforts. The results of this effort will significantly improve the safety margin and retirement fatigue lives of flight critical components and assess the potential impact damage resulting from weapons firing. In addition, a service support contract was issued

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2003
Appropriation/Budget Activity RDT&E BA # 7	Special Operations Forces (SOF) Aviation /Project D615	

with Rolls Royce Allison Company, the manufacturer of the MELB 250 C30R3/M engine, which assisted the Army Aviation Technical Test Center with aircraft instrumentation and installation design manual specification compliance. MH-47/MH-60 Aircraft - This effort provides for the development of the MH-47 and MH-60 fleet airframe Service Life Extension programs (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 complete 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.

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Exhibit R-3 COST ANALYSIS						DATE: FEBRUARY 2003					
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 FY03	Award Date FY03	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	9.691	4.679	Various	5.968	Various	6.619	Various	Cont.	Cont.
MH-47/60 Avionics/Sensors	Various	PM TAPO/Ft Eustis, VA		16.221	Various	19.844	Various	21.278	Various	Cont.	Cont.
A/MH-6	Various	PM-MELB/Ft Eustis, VA	1.239							Cont.	Cont.
MH-53	TBD	TBD		6.666	Various						6.666
Subtotal Product Dev			10.930	27.566		25.812		27.897		Cont.	Cont.
Remarks:											
Management											0.000
Subtotal Spt			0.000			0.000		0.000			0.000
Remarks:											
Developmental Test & Eval											
MH-47/60 Aircraft	Various	PM TAPO/Ft Eustis, VA				4.690	Various	2.206	Various	Cont.	Cont.
MH-47/60 Avionics/Sensors	Various	PM TAPO/Ft Eustis, VA	7.047	8.473	Various	15.592	Various	7.093	Various	Cont.	Cont.
A/MH-6	Various	PM-MELB/Ft Eustis, VA	3.741	0.411	Jun-03					Cont.	Cont.
Subtotal T&E			10.788	8.884		20.282		9.299		Cont.	Cont.
Remarks:											
Subtotal Management											
Remarks:											
Total Cost			21.718	36.450		46.094		37.196		Cont.	Cont.
Remarks:											

Exhibit R-4, Schedule Profile											Date: FEBRUARY 2003																									
Appropriation/Budget Activity					Program Element Number and Name											Project Number and Name																				
RDT&E/7					PE1160405BB/Special Operations Tactical System Development											Project D615/SOF Aviation																				
Fiscal Year	2002				2003				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	1	2	3	4				
MELB Prototype Testing																																				
MELB Electro-magnetic Interference/Electro-magnetic Countermeasures Integration and Testing	▲																																			
MH-47 SLEP	▲																																			
A/MH-6 G Cal 50	▲			▲																																
Modular Avionics	▲			▲																																
Army Airborne Command and Control System																																				
Multi-Function Displays	▲			▲																																
Next Generation FLIR					▲																															
Radar Altimeter Modification																																				
Panoramic Night Vision Goggles																																				
Vertical Lift TF/TA					▲																															
OA/CW					▲																															
A/MH-6 Lightweight Hellfire Launcher																																				

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Exhibit R-4, Schedule Profile													Date: FEBRUARY 2003																							
Appropriation/Budget Activity					Program Element Number and Name													Project Number and Name																		
RDT&E/7					PE1160405BB/Special Operations Tactical System Development													Project D615/SOF Aviation																		
Fiscal Year	2002				2003				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	1	2	3	4				
A/MH-6 Conformal Antenna																																				
MH-47 Machine Gun Replacement																																				
MH-60 Machine Gun Replacement																																				
MH-53 DIRCM Milestone B																																				
DT/OT																																				
Milestone C																																				
Full Rate Production																																				

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2003
Appropriation/Budget Activity RDT&E BA # 7	Underwater Systems Advanced Development/Project S0417	

Cost (\$ in millions)	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09
Underwater Systems Advanced Dev	45.189	31.305	16.254	2.400	2.222	1.666	.385	1.487
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.

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2003
Appropriation/Budget Activity RDT&E BA # 7	Underwater Systems Advanced Development/Project S0417	

B. Accomplishments/Planned Program				
	FY02	FY03	FY04	FY05
Advanced Sea, Air, Land (SEAL) Delivery System (ASDS)	42.253	30.337	15.082	1.618
RDT&E Articles Quantity				
<p>FY02 Completed host ship sea trials and acoustic trials. Continue Live Fire Test and Evaluation efforts. Continue P3I (battery and acoustics) development efforts and host submarine support. Redesign propeller for silencing improvements.</p> <p>FY03 Complete government testing phase to include operational evaluation. Continue P3I efforts on battery and acoustics. Continue development effort for NSSN host platform.</p> <p>FY04 Continue P3I efforts. Continue development effort for NSSN host platform.</p>				
	FY02	FY03	FY04	FY05
Naval Special Warfare (NSW) Very Shallow Water Mine Countermeasures (VSW MCM)	1.830	.523	.600	.201
RDT&E Articles Quantity				
<p>FY02 Completed operational test for both Semi-Autonomous Hydrographic Reconnaissance Vehicle (SAHRV) and Hydrographic Reconnaissance Littoral Mapping Device (HRLMD). Achieved MS C for SAHRV. Continue P3I development efforts for the SAHRV program.</p> <p>FY03 Achieve MS C for HRLMD and continue P3I development and integration efforts for the SAHRV program.</p> <p>FY04 Continue P3I development and integration efforts for the SAHRV program.</p>				
	FY02	FY03	FY04	FY05
Non-Gasoline Burning Outboard Engine	.858	.238		
RDT&E Articles Quantity				
<p>FY02 Continue development of the alternative fuels engine.</p> <p>FY03 Complete development of the alternative fuels engine.</p>				

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2003
Appropriation/Budget Activity RDT&E BA # 7	Underwater Systems Advanced Development/Project S0417	

	FY02	FY03	FY04	FY05
Sea, Air, Land (SEAL) Delivery Vehicle (SDV)	.248	.207	.572	.581
RDT&E Articles Quantity				

FY02 Developed, upgraded/replaced obsolete and/or unsupportable electronic equipment.

FY03 Continue to develop and upgrade/replace obsolete and/or unsupportable electronic equipment.

FY04 Continue to develop and upgrade/replace obsolete and/or unsupportable electronic equipment.

C. Other Program Funding Summary:

	<u>FY02</u>	<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>
ASDS	27.098	27.564	8.351	11.698	132.998	28.337	147.446	152.586	Cont.	Cont.
ASDS Adv Proc	13.697		23.573	35.007		62.203	66.134		Cont.	Cont.
SOF Maritime Equip										
VSW MCM	5.151	.824		.794	1.127					7.896
NBOE		1.099	.925							2.024
STD	.996							1.927		2.923
MK 8 Mod 1 SDV	.501	10.673	10.100	1.772	2.109	2.394	1.946	1.596	Cont.	Cont.

D. Acquisition Strategy

- Advanced Sea, Air, Land Delivery System (ASDS). Selected three qualified companies to develop independent preliminary designs. Following completion of the preliminary design efforts, a request for proposal for the engineering and manufacturing development contract was released to these companies for proposal submittal for the design, fabrication, and test of the first ASDS. A single contractor was selected based on a best value source selection process.

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2003
Appropriation/Budget Activity RDT&E BA # 7	Underwater Systems Advanced Development/Project S0417	

- Hydrographic Reconnaissance Littoral Mapping Device. Established to acquire a small, handheld unit to be used by Naval Special Warfare (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.
- Non-Gasoline Burning Outboard Engine. 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.
- Semi-Autonomous Hydrographic Reconnaissance Vehicle (SAHRV). The SAHRV is a small unmanned underwater vehicle for use by NSW personnel in the conduct of hydrographic reconnaissance. SAHRV utilizes commercial off-the-shelf (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 is planned for 3rd Qtr FY03. Full operational capability of 14 units is planned to be completed by 2nd Qtr FY04.
- Sea, Air, Land (SEAL) Delivery Vehicle (SDV). This effort replaces obsolete and/or unsupportable electronics equipment with current equipment. Identification and development of equipment for upgrading and/or replacing systems on the SDV will be accomplished through either Best-Value acquisition or, where appropriate, original equipment manufacturer replacement efforts.
- Swimmer Transport Device (STD). The STD is a modified, COTS, non-developmental item. The system is a hydrodynamic, rugged, reliable, highly maneuverable, underwater mobility transport system built of marine grade aluminum capable of transporting two combat swimmers and 80 pounds of payload up to 5 nautical miles at speeds greater than 2 knots. The system weighs 160 pounds, is 24 inches in diameter and 48 inches when completely collapsed, and 79 inches long when fully extended. The STD provides SOF combat

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swimmers and their mission essential equipment an intermediate transport capability when operating from an insertion/extraction platform to and from target areas. The Swimmer Transport Device (STD) limits exposure time to cold water and minimizes the excessive exertion and fatigue placed on the combat swimmers while transiting the distance to target and return. The STD allows SOF combat swimmers to transit longer distances, while delivering increased payload, in adverse conditions. Determination and development of next-generation improvements, enhancements, and upgrades will be conducted using competitive processes to the maximum extent practicable. Proprietary considerations may direct some efforts to the original equipment manufacturer.

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Exhibit R-3 COST ANALYSIS						DATE: FEBRUARY 2003					
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 FY03	Award Date FY03	Budget Cost FY04	Award Date FY04	Budget Cost FY05	Award Date FY05	To Complete	Total Program
Primary Hardware Dev											
SAHRV	FFP	WHOI, Woods Hole, MA	4.853	0.323	Mar-03	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	12.424	0.207	Various	0.572	Various	0.581	Various	Cont.	Cont.
STD	FFP	Stidd Systems, Inc. Greenport, NY	0.162								0.162
ASDS	CPIF/C	Northrop-Grumman	292.000	7.468	Various					Cont.	Cont.
ASDS	CPFF	Newport News Ship Yard, VA	6.774	1.831	Various					Cont.	Cont.
ASDS P31 and Host Support	Various	Various	13.571	12.672	Various	15.082	Various	1.618	Various		42.943
Subtotal Product Dev			331.041	22.501		16.041		2.259		Cont.	Cont.
Remarks											
Technical Data											
ASDS	Various	Various	8.044								8.044
SAHRV	WR	CSS, Panama City, FL		0.105	Jan-03	0.113	Jan-04	0.035	Jan-05		0.253
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	0.129		0.113		0.035		0.000	8.564
Remarks											
Test & Evaluation											
Engineering T&E (NBOE)	Various	Various	0.268								0.268
DT&E (STD)	MIPR	CSS, Panama City, FL	0.153								0.153
OT&E (ASDS)	Various	OPTEVFOR, Norfolk, VA	1.085	2.000	Various						2.000
Host Testing (ASDS)	Various	NAVSEA, Arlington, VA	19.115	1.500	Various						1.500
Launch & Recovery Trials (ASDS)	Various	NAVSEA, Arlington, VA									0.000
LFT&E (ASDS)	Various	NAVSEA, Arlington, VA	0.050	1.100	Various						1.100
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								5.330

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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 FY03	Award Date FY03	Budget Cost FY04	Award Date FY04	Budget Cost FY05	Award Date FY05	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			21.117	4.743		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	0.026	Jan-04	0.016	Jan-05	0.077	0.394
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	5.431	3.766	Various					Cont.	Cont.
Program Mgt Supt. (STD)	Various	Various	0.013								0.013
Govt. Eng Support (STD)	MIPR	CSS, Panama City, FL	0.040								0.040
Subtotal Management			9.183	3.932		0.100		0.056		Cont.	Cont.
Remarks:											
Total Cost			369.628	31.305		16.254		2.400		Cont.	Cont.
Remarks:											

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Exhibit R-4, Schedule Profile											Date: FEBRUARY 2003																					
Appropriation/Budget Activity					Program Element Number and Name												Project Number and Name															
RDT&E/7					PE1160404BB/Special Operations Tactical System Development												Project S0417/Underwater System Advanced Development															
Fiscal Year	2002				2003				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	1	2	3	4
Milestone C (HRLMD)					▲																											
Swimmer Transport Device																																
Test COTS/NDI																																
SEAL Delivery Vehicle																																
Develop and Test Improved Electronics	▲				—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—								
Next Generation Studies																																

		Exhibit R-2a, RDT&E Project Justification				Date: FEBRUARY 2003		
Appropriation/Budget Activity RDT&E BA # 7				SOFPARS/Project S350				

	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09
Cost (\$ in millions)								
SOFPARS	4.454	1.704	2.603	3.933	3.843	3.765	3.870	3.962
RDT&E Articles Quantity								

A. Mission Description and Budget Item Justification: Special Operations Forces (SOF) Planning and Rehearsal System (SOFPARS) improves and streamlines SOF mission planning and mission execution capabilities in support of the USSOCOM core mission and tasks. This is achieved by improving data flow and information management; accelerating planning folder preparation; collaborating and sharing mission data; and providing mission equipment data initialization and interfaces. The mobility, complexity, quantity, elusiveness, and lethality of today's enemy threats dictate that SOF requires dynamic automated tools to maintain information superiority. SOFPARS will improve SOF response times and increase opportunities for pre-mission rehearsal, joint forces coordination, and crew/team rest.

The SOFPARS is a software development program following evolutionary acquisition strategies for delivering automated mission planning applications and tools with automated interfaces to Command, Control, Communications, Computers, and Intelligence systems. The applications and tools include SOF enhancements to the Air Force Mission Support System's personal computer-based Portable Flight Planning Software (PFPS) and the emerging Joint Mission Planning System (JMPS). The software enhancements tailor the baseline PFPS functions to support the Joint Chiefs Staff Pub series 3-05 that direct the methodologies for the conduct and execution of SOF missions. Additionally, the software improvements are developed to be tailorable for support of the component (Air, Ground, and Maritime) service and unit required training, tactics, and procedures, and the Theater Special Operations Commands (TSOC).

Current funding supports software development, force sustainment, operational support, and emergent requirements for the United States Army Special Operations Command, Air Force Special Operations Command, and the Naval Special Warfare Command. Future funding minimally supports the development of TSOC capabilities, and migration of the warfighter's capabilities to the JMPS. SOF commanders and warfighters must be able to plan and respond to missions of national importance, as well as day-to-day taskings and multiple command directed missions. Auto-assisted planning capabilities for SOF commands, components, forward operating bases, locations, teams, and crew are mission critical.

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2003
Appropriation/Budget Activity RDT&E BA # 7	SOPARS/Project S350	

B. Accomplishments/Planned Program:

	FY 2002	FY 2003	FY 2004	FY 2005
Planned Portable Flight Planning Software (PFPS) releases	1.468	0.830	1.496	2.400
RDT&E Articles Quantity				
<p>FY02 Release of SOF-version PFPS 3.2, 4Q FY02. Includes first issue to Army Special Forces Command. Development of PFPS SOF-only version 3.3 ongoing.</p> <p>FY03 Release of PFPS 3.3, 2QFY03. Development of joint version PFPS 4.0 with Army, Air Force and Navy functions, release 4QFY03.</p> <p>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.</p>				
	FY 2002	FY 2003	FY 2004	FY 2005
Deferred/Future Requirements	1.030	.524	.717	.503
RDT&E Articles Quantity				
<p>FY02 Developed and integrated aircraft weapons/electronics interfaces support for personal computer development and interface with joint systems.</p> <p>FY03 Develop and integrate aircraft weapons/electronics enhancements and interfaces with joint systems.</p> <p>FY04 Develop and integrate aircraft weapons/electronics enhancements and interfaces with joint systems.</p>				
	FY 2002	FY 2003	FY 2004	FY 2005
Development and Modification of Automated Tools	1.579			0.600
RDT&E Articles Quantity				
<p>FY02 Conducted the development and modification of automated tools to meet ground mission planning requirements.</p>				

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2003
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	FY 2002	FY 2003	FY 2004	FY 2005
Test and Evaluation of Core Software	.377	0.350	.390	.430
RDT&E Articles Quantity				

FY02 Continued test and evaluation on core software, installable software modules, aircraft weapons/electronics, and flight performance models.

FY03 Continue 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.

C. Other Program Funding Summary:

	<u>FY02</u>	<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>
SOPARS	4.660	0.294	0.292	0.192	0.663	0.472	0.491	0.494	Cont.	Cont.

D. 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.

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Exhibit R-3 COST ANALYSIS						DATE: FEBRUARY 2003					
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 FY03	Award Date FY03	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	2.040	0.524	Dec-02	0.717	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	2.893	0.830	Apr-03	1.496	Apr-04	2.400	Apr-05	Cont.	Cont.
	T&M	Tybrin, Ft Walton Beach, FL	5.346								5.346
	Various	Various	2.099								2.099
Subtotal Spt			20.854	1.354		2.213		3.503		Cont.	Cont.
Remarks:											

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Exhibit R-3 COST ANALYSIS						DATE: FEBRUARY 2003					
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 FY03	Award Date FY03	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	1.135	0.150	Apr-03	0.165	Apr-04	0.180	Apr-05	Cont.	Cont.
	SS/CPFF	ARINC, Annapolis, MD	0.584	0.200	Apr-03	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			2.678	0.350		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		0.000			12.249
Remarks:											
Total Cost			35.781	1.704		2.603		3.933		Cont.	Cont.
Remarks:											

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2003
Appropriation/Budget Activity RDT&E.A BA # 7	Weapons and Support Systems Advanced Development /Project S375	

Cost (\$ in millions)	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09
Weapons and Support Sys Adv Dev	3.251	3.568	3.840	2.771	.479	4.387	.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:

- 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.
- 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.
- SOF Tactical Advanced Parachute System (SOFTAPS). SOFTAPS is a static line parachute system designed to provide operators with a dependable, reduced opening shock, and lower rate of decent steerable parachute capable of use in the full spectrum of SOF operating environments. SOFTAPS will be the eventual parachute of the SOF community. In the interim, the SF-10A will be used by SOF Forces. The SF-10A will replace the aging MC1-1C and T-10 parachutes currently used by SOF. SOFTAPS will attempt to leverage the Army's Advanced Tactical Parachute System.

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2003
Appropriation/Budget Activity RDT&E.A BA # 7	Weapons and Support Systems Advanced Development /Project S375	

- SOF Personal Equipment Advanced Requirements (SPEAR) Lightweight Environmental Protection (LEP). SPEAR-LEP is a continuation of an on-going clothing insulation subsystem, which includes five garments designed to provide protection to -40 degrees Fahrenheit. LEP includes lightweight underwear, mid-weight underwear, medium weight stretch bib overalls, a pile jacket and wind resistant jacket. The system is designed to be individually configured based upon mission, terrain and climatic requirements. Follow-on Block II efforts include flame resistant capabilities designed specifically for SOF aviators and a next generation (LEP II) which will offer increased protection to the operator.

B. Accomplishments/Planned Program

	FY 2002	FY 2003	FY 2004	FY 2005
Lightweight Counter Mortar Radar (LCMR)	1.500			
RDT&E Articles Quantity	2			
FY02 Built/procured two LCMRs, established program management office, tested and gained system production certificate.				
	FY 2002	FY 2003	FY 2004	FY 2005
M4A1 SOF Carbine Accessory Kit (M4MOD)	1.460	.241	1.136	1.800
RDT&E Articles Quantity				
FY02 This initiative was a Congressional Plus-up. Funds were used to research, develop and test the Miniature Day/Night Sight. FY03 Develop Enhanced Combat Optical Sights and clip-on night vision devices, and continue 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.				
	FY 2002	FY 2003	FY 2004	FY 2005
Night Vision Devices (NVD)		3.327	2.704	.971
RDT&E Articles Quantity				10
FY03 This initiative is a Congressional Plus-up funding will be used to develop and test the next generation laser target designator. FY04 Design and test the next generation SOF NVD.				

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2003			
Appropriation/Budget Activity RDT&E.A BA # 7	Weapons and Support Systems Advanced Development /Project S375				
	FY 2002	FY 2003	FY 2004	FY 2005	
SOF Tactical Advanced Parachute System	.128				
RDT&E Articles Quantity					
FY02 Tested the SF-10A, the interim solution parachute, in order to reduce the restrictions on use.					
	FY 2002	FY 2003	FY 2004	FY 2005	
SOF Personal Equipment Advanced Requirements (SPEAR)	.163				
RDT&E Articles Quantity					
FY02 Tested the next generation SPEAR-LEP.					
	FY 2002	FY 2003	FY 2004	FY 2005	
Defense Emergency Response Fund (DERF)	.630				
Special Purpose Receiver-Variant (SPR-V)	12				
RDT&E Articles Quantity					
FY02 Developed a SPR-V that uses existing Kalashnikov magazines and Soviet Bloc 7.62X3.9MM ammunition while retaining the characteristics of the M4A1 and remaining compatible with M4MOD accessory kit components. Program has since been terminated.					
	FY 2002	FY 2003	FY 2004	FY 2005	
DERF	.684				
Man-Portable Decontamination	6				
RDT&E Articles Quantity					
FY02 Conducted decontamination testing analysis/protocol development and report, live agent testing/safety certification, materials testing, and test articles.					

Exhibit R-2a, RDT&E Project Justification

Date: FEBRUARY 2003

Appropriation/Budget Activity
RDT&E.A BA # 7

Weapons and Support Systems Advanced Development /Project S375

C. Other Program Funding Summary:

	<u>FY02</u>	<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>
Small Arms and Weapons	71.576	20.356	16.003	8.240	18.385	24.964	62.768	66.961	Cont.	Cont.

D. Acquisition Strategy.

- Lightweight Counter Mortar Radar. Transition the program from Director of Technology to a Program Executive Office, with two working prototypes. Conduct additional research and development prior to production decision.
- M41A SOF Carbine Accessory Kit (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.
- Night Vision Devices (NVD). Development of next generation NVD. Program will use evolutionary acquisition approach.
- SOF Tactical Advanced Parachute System (SOFTAPS). The SOFTAPS acquisition strategy calls for leveraging RDT&E efforts from the Army.
- SOF Personal Equipment Advanced Requirements (SPEAR)-Lightweight Environmental Protection (LEP). The SPEAR-LEP program is a continuation of currently fielded LEP. Resource dependent, the strategy calls for the full fielding of the current LEP followed by current and future RDT&E efforts designed at providing a fire retardant capability to SOF aviators across all components in the next generation LEP.

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Exhibit R-3 COST ANALYSIS						DATE: FEBRUARY 2003					
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 FY03	Award Date FY03	Budget Cost FY04	Award Date FY04	Budget Cost FY05	Award Date FY05	To Complete	Total Program
Hardware Dev											
M4MOD	Various	NSWC-Crane, Crane, IN	3.570	0.163	Various	0.225	Various	0.350	Various	Cont.	Cont.
SPEAR	FFP	Natick Soldier Center, Natick, MA	2.277							Cont.	Cont.
Titanium Tilting Helmet Mounts	FFP	Natick Soldier Center, Natick, MA	0.973								0.973
NVD	TBD	Various		3.000	Various	0.995	Various	0.287	Various	Cont.	Cont.
Subtotal Product Dev			6.820	3.163		1.220		0.637		Cont.	Cont.
Remarks:											
DERF Funds:											
SPR	FFP	NSWC-Crane, Crane, IN	0.442								0.442
Decontamination	FFP	Odenwald-Were, Ritterbach, FRG	0.503								0.503
Development Spt											
M4MOD	ALLOT	NSWC-Crane, Crane, IN	0.193	0.009	Various	0.138	Various	0.225	Various	Cont.	Cont.
NVD	TBD	Various		0.100	Various	0.824	Various	0.233	Various	Cont.	Cont.
Intregated Logistics Spt											
M4MOD	ALLOT	NSWC-Crane, Crane, IN	0.069	0.004	Various	0.072	Various	0.108	Various	Cont.	Cont.
SPEAR	ALLOT	Natick Soldier Center, Natick, MA	0.036							Cont.	Cont.
Configuration Mgmt											
M4MOD	ALLOT	NSWC-Crane, Crane, IN	0.102	0.005	Various	0.072	Various	0.109	Various	Cont.	Cont.
SPEAR	ALLOT	Natick Soldier Center, Natick, MA	0.069							Cont.	Cont.
NVD	TBD	Various		0.027	Various	0.330	Various	0.101	Various	Cont.	Cont.
Subtotal Spt			0.469	0.145		1.436		0.776		Cont.	Cont.
Remarks:											
DERF Funds:											
SPR	FFP	NSWC-Crane, Crane, IN	0.055								0.055
Decontamination	FFP	Odenwald-Were, Ritterbach, FRG	0.046								0.046

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Exhibit R-3 COST ANALYSIS						DATE: FEBRUARY 2003					
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 FY03	Award Date FY03	Budget Cost FY04	Award Date FY04	Budget Cost FY05	Award Date FY05	To Complete	Total Program
Developmental Test											
M4MOD	ALLOT	NSWC-Crane, Crane, IN	0.257	0.035	Various	0.225	Various	0.444	Various	Cont.	Cont.
SPEAR	ALLOT	Natick Soldier Center, Natick, MA	0.171							Cont.	Cont.
Operational Test											
M4MOD	ALLOT	NSWC-Crane, Crane, IN	0.360							Cont.	Cont.
SPEAR	ALLOT	Natick Soldier Center, Natick, MA	0.346							Cont.	Cont.
SOFTAPS	MIPR	OTC, ABNSOTD, Ft. Bragg, NC	0.128								0.128
NVD	TBD	Various		0.100	Various	0.500	Various	0.249	Various	Cont.	Cont.
Subtotal T & E			1.262	0.135		0.725		0.693		Cont.	Cont.
Remarks:											
DERF Funds:											
SPR	FFP	NSWC-Crane, Crane, IN	0.045								0.045
Decontamination	FFP	Odenwald-Were, Ritterbach, FRG	0.040								0.040
Government Eng Spt											
M4MOD	ALLOT	NSWC-Crane, Crane, IN	0.112	0.006	Various	0.007	Various	0.013	Various	Cont.	Cont.
SPEAR	ALLOT	Natick Soldier Center, Natick, MA	0.070							Cont.	Cont.
Program Mgmt Spt											
M4MOD	ALLOT	NSWC-Crane, Crane, IN	0.369	0.012	Various	0.280	Various	0.459	Various	Cont.	Cont.
SPEAR	ALLOT	Natick Soldier Center, Natick, MA	0.240							Cont.	Cont.
Travel											
M4MOD	ALLOT	NSWC-Crane, Crane, IN	0.123	0.007	Various	0.117	Various	0.093	Various	Cont.	Cont.
SPEAR	ALLOT	Natick Soldier Center, Natick, MA	0.104							Cont.	Cont.
NVD	TBD	Various		0.100	Various	0.055	Various	0.100	Various	Cont.	Cont.
Subtotal Management			1.018	0.125		0.459		0.665		Cont.	Cont.
Remarks:											
DERF Funds:											
SPR	FFP	NSWC-Crane, Crane, IN	0.088								0.088
Decontamination	FFP	Odenwald-Were, Ritterbach, FRG	0.073								0.073
Total Cost											
			9.569	3.568		3.840		2.771		Cont.	Cont.
Remarks:											

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Exhibit R-4, Schedule Profile														Date: FEBRUARY 2003																		
Appropriation/Budget Activity RDT&E/7								Program Element Number and Name PE1160404BB/Special Operations Tactical System Development								Project Number and Name Project S375/Weapons and Support Systems Advanced Development																
Fiscal Year	2002				2003				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	1	2	3	4
MS B										Δ																						
Developmental Test												Δ																				
SOFTAPS																																
Concept Exploration	▲	▲																														
MS O/II		▲																														
Developmental Test			▲																													
Operational Test				▲																												
MS C/III								Δ																								
SPEAR																																
FOC	▲																															
PEPSE & MBSS Proc								▲																								
LEP Nomex SPC/F&DR								▲																								
LEP II/PCU SPC								Δ																								
LEP II/PCU MS C								Δ																								

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Exhibit R-4a, Schedule Profile				Date: FEBRUARY 2003				
<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				
Schedule Profile	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009
Lightweight Counter Mortar Radar								
Developmental Test	1-4Q	1-4Q	1Q					
Transition to Special Programs		3Q						
Operational Test			1-3Q					
Milestone C			4Q					
IOC			4Q					
FOC				4Q				
M4MOD								
MDNS MS C			2Q					
GLD/NSM MS C			2Q					
FMBS MS C			2Q					
Shot Counter MS C			2Q					
EGLM MS C				3Q				
NVD								
MS A		3Q						
MS B			2Q					
Developmental Test			4Q					
SOFTAPS								
Concept Exploration	1-2Q							
MS O/II	2Q							
Developmental Test	3Q							
Operational Test	4Q							
MS C		3Q						
SPEAR								
FOC	1Q							
PEPSE & MBSS Proc		1Q						
LEP Nomex SPC/F&DR		1Q						
LEP II/PCU SPC		2-3Q						
LEP II/PCU MS C		3Q						

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2003
Appropriation/Budget Activity RDT&E BA # 7	Special Operations Forces (SOF) Training Systems /Project S625	

Cost (\$ in millions)	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09
SOF Training Systems	21.414		10.326	4.707	1.534	4.499	9.940	4.339
RDT&E Articles Quantity								

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

- Common Avionics/Architecture for Penetration (CAAP) for fixed wing aircraft and Common Avionics Architecture Systems (CAAS) for rotary wing aircraft: Conduct training systems requirements analysis and market surveys of leading industry to determine the best approach/strategy to configure CAAP/CAAS SOF simulators concurrent with their respective aircraft.
- Light Assault Attack Reconfigurable (LASAR) Simulator: Develops an integrated, combat mission flight simulator into the existing High Level Architecture (HLA) environment to conduct real-world mission rehearsal for A/MH-6M, Mission Enhanced Little Bird (MELB), aircraft. The MELB LASAR simulator enables initial, mission, special qualification, continuation, and upgrade flight training, including weapons training. Currently, no training devices exist with this capability.
- HLA: DOD-wide effort sponsored by Defense Modeling and Simulation Office to establish a Distributed Mission Training and Rehearsal (DMT/DMR) capability, building on the experience of distributed interactive simulation protocols.
- Conduct nonrecurring engineering in preparation for upgrade of an older MH 47E simulator

B. Accomplishments/Planned Program

	FY02	FY03	FY04	FY05
SOF Training Systems	21.414		10.326	4.707
RDT&E Articles Quantity				

FY02 MELB LASAR: Conducted source selection award contract and began systems engineering and requirements analysis.
 FY04 Perform development efforts for the new MH 47G/60 Combat Mission Simulator and the MH 60 CAAS Desktop and Part Task Trainer. Develop SOF Training and Rehearsal Systems to improve joint rehearsal capability and yield higher fidelity DMT/DMR. Conduct research and analysis of improved 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. Nonrecurring engineering in preparation for

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2003
Appropriation/Budget Activity RDT&E BA # 7	Special Operations Forces (SOF) Training Systems /Project S625	

upgrading older MH 47/60 combat mission simulators.

C. Other Program Funding Summary:

	<u>FY02</u>	<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	4.200	13.728	56.133	57.900	17.943	24.021	135.056	51.634	Cont.	Cont.

D. Acquisition Strategy. Mission Enhanced Little Bird Light Assault Attack Reconfigurable Simulator will be developed in two phases. Phase 1 provides for a simulator capable of satisfying basic training requirement. Phase II will provide a fully inter-operable Distributed Mission Training and Rehearsal System. MH 47G/60 Combat Mission Simulator will also be procured in 2 similar Phases – 1 in FY 04, 1 in FY 05.

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Exhibit R-3 COST ANALYSIS						DATE: FEBRUARY 2003					
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 FY03	Award Date FY03	Budget Cost FY04	Award Date FY04	Budget Cost FY05	Award Date FY05	To Complete	Total Program
Sys Eng Design/Dev HLA/Interoperability						1.475	Nov 04	0.988	Feb 05		2.463
Part Task Trainer (47/60 CMS)						4.917	Jan 04				4.917
CAAS - RW Aircraft NRE (47/60 CMS)						3.934	Jan 04	3.719	Jan 05		7.653
LASAR MELB	CPAF/CPFR FFP	PEO STRI, Orlando, FL	21.414								21.414
Subtotal Product Dev			21.414			10.326		4.707			36.447
Remarks:											
Total Cost			21.414			10.326		4.707			15.033
Remarks:											

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2003
Appropriation/Budget Activity RDT&E BA # 7	Aviation Systems Advance Development/Project SF100	

Cost (\$ in millions)	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09
Aviation Sys Adv Dev	34.170	48.150	82.605	114.331	58.890	21.156	10.737	1.586
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 initiates development of terrain following/terrain avoidance radar having LPI/LPD characteristics. It also initiates development of an On-Board Enhanced Situational Awareness System which consolidates threat data from on and off-board sensors into a single coherent image to the crew, to include software development for electronic warfare data bus to coordinate on-board defensive system response to threats.
- 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 2003
Appropriation/Budget Activity RDT&E BA # 7	Aviation Systems Advance Development/Project SF100	

- **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-130E/P Upgrades.** This program is directed toward upgrading current capabilities while examining parts obsolescence and vanishing vendor issues associated with these aircraft. This effort will focus on design and integration of new and existing technologies with emphasis on commercial off-the shelf and non-developmental solutions.
- **MC-130H Aerial Refueling.** This program extends the range of vertical lift aircraft operating in politically sensitive/denied airspace through the use of MC-130H as a penetrating tanker aircraft. Integrates the air refueling system and necessary accessories into the MC-130H 1553 data bus. Elements of the air refueling system include enlarged paratroop door windows and non-developmental item aerial refueling pods.

B. Accomplishments/Planned Program

	FY 2002	FY 2003	FY 2004	FY 2005
AC-130U Pre-Planned Product Improvement		1.843	2.439	1.890
RDT&E Articles Quantity				
FY03 Initiated APQ-180 Radar improvements: identified reliability and maintainability problems, implemented corrections, incorporated deficiency report corrections, and updated test program sets.				
FY04 Initiate All Light Level Television Selectable Laser Illuminator Beam improvements. Investigate reduced drag/weight reduction improvements.				
	FY 2002	FY 2003	FY 2004	FY 2005
Aviation Engineering Analysis	.478	.462	1.436	1.451
RDT&E Articles Quantity				
FY02 Conducted engineering analysis of SOF fixed wing aircraft avionics and sensors.				
FY03 Continued engineering analysis of SOF fixed wing aircraft avionics and sensors.				
FY04 Continue engineering analysis of SOF fixed wing aircraft avionics and sensors.				

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2003		
Appropriation/Budget Activity RDT&E BA # 7		Aviation Systems Advance Development/Project SF100		
	FY 2002	FY 2003	FY 2004	FY 2005
Common Avionics Architecture for Penetration (CAAP)	17.827	17.545	58.156	81.487
RDT&E Articles Quantity				
<p>FY02 Completed prototyping and conducted a ground demonstration of complex waveform modifications to an off-the-shelf airborne radar. Incorporated production of complex waveform modification. Conducted demonstration of vertical lift mission processor with CAAP functionality and time/space partitioning. Continued Terrain Following /Terrain Avoidance (TF/TA) and enhanced situational awareness (ESA) development under the US Air Force Avionics Modernization Program (AMP).</p> <p>FY03 Continue TF/TA and off-board ESA development under the US Air Force AMP contract. Specific CAAP activities scheduled under this contract for FY03 are: integration and test of TF/TA radar, C-130 CAAP risk reduction effort, CAAP software specification review, integration of intelligence broadcast receiver.</p> <p>FY04 Acceleration of TF/TA and off-board ESA development under the US Air Force AMP contract. Department of Defense added \$45M to CAAP in FY 2004 to accelerate 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 Talon II's 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 preliminary design review and critical design review.</p>				
	FY 2002	FY 2003	FY 2004	FY 2005
CAAP On-Board ESA		8.782	18.607	22.379
RDT&E Articles Quantity				
<p>FY03 Initiate development of below line-of-sight on-board ESA (OBESA) system. Initiate 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. Software development for correlation fusion of special receive data with off/on-board threat information.</p>				
	FY 2002	FY 2003	FY 2004	FY 2005
EC-130 Equipment Obsolescence				.680
RDT&E Articles Quantity				

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2003								
Appropriation/Budget Activity RDT&E BA # 7		Aviation Systems Advance Development/Project SF100								
		FY 2002	FY 2003	FY 2004	FY 2005					
Leading Edge Technology		4.186	1.426							
RDT&E Articles Quantity										
<p>FY02 This effort was a congressional add. Explored and demonstrated the suitability of the integration of Coherent Change Detection, Vivro-Electronic Signature Target Analysis (VESTA), Passive Acoustic Reflection Device (PARD), and Enhanced Digital Geodata Environment visualization technology on-board the AC-130U Gunship.</p> <p>FY03 Congressional add. Continue effort focusing on VESTA and PARD technologies to design, and build an aircraft interface unit and associated algorithms for target characterization.</p>										
		FY 2002	FY 2003	FY 2004	FY 2005					
MC-130E/P Upgrades					1.747					
RDT&E Articles Quantity										
		FY 2002	FY 2003	FY 2004	FY 2005					
MC-130H Aerial Refueling		11.679	18.092	1.967	4.697					
RDT&E Articles Quantity										
<p>FY02 Continued Engineering & Manufacturing Development (EMD); integration of aerial refueling system, aircraft plumbing and fuel tanks; and ground testing.</p> <p>FY03 Continue EMD activities. Initiate trial install and flight test.</p> <p>FY04 Continue EMD activities.</p>										
C. Other Program Funding Summary:									To	Total
	<u>FY02</u>	<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	16.626	71.768	214.798	174.548	154.969	89.903	22.056	33.865	Cont.	Cont.

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2003
Appropriation/Budget Activity RDT&E BA # 7	Aviation Systems Advance Development/Project SF100	

Includes C-130 Modification sub-line item funds for AC-130H aircrew information mapping system, AVQ-19 replacement system, pitot static boom replacement, night vision imaging system, and oxygen regulators; AC-130U centerwing replacement and reduced drag/weight reduction; selectable laser illuminator beam; electro-optical sensors; APX-116 beacons; MC-130E/P upgrades; EC-130 environmental control units, special mission equipment obsolescence, media compatibility, part task trainer, wideband satellite, and other upgrades; MC-130H air refueling capability; and T-56 quick engine change kits.

D. Acquisition Strategy.

- AC-130U P3I, All Light Level Television Laser Beam Shaping. Maximize use of nondevelopmental laser technology to integrate improvements to the laser illuminator. Use Integrated Weapon System Support Program contract with Boeing.
- 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. Optimal integration for vertical lift application is under investigation and will be implemented separately. USAF funds will pay for the majority of production items.
- 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-130E/P Upgrades: Initiate an upgrade program via a pre-competed contract to identify opportunities to improve required capabilities and provide solutions to parts obsolescence and vanishing vendor issues. This program will focus on maximizing use of commercial off the shelf and non-developmental item (NDI).

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2003
Appropriation/Budget Activity RDT&E BA # 7	Aviation Systems Advance Development/Project SF100	

- MC-130H Aerial Refueling. Maximize use of NDI technology to develop, design, build and test an integrated aerial refueling system via Integrated Weapon System Support Program contract. The first phase of this program is Foreign Comparative Testing (FCT) of the MK 32B-902E Aerial Refueling POD. The FCT contract includes options to support engineering, manufacturing and development and production installs.

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Exhibit R-3 COST ANALYSIS						DATE: FEBRUARY 2003					
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 FY03	Award Date FY03	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	37.202	16.529	Various	58.156	Various	81.487	Various	Cont.	Cont.
Award Fees			1.065	1.016	Dec-03					Cont.	Cont.
MC-130 Air Ref (P3I)	C/CPFF(AF)	Boeing, Ft. Walton Beach, FL	12.434	18.092	Nov-02	1.967	Jan-04	4.697	Jan-05		37.190
Leading Edge Technology	Allot	SPAWAR, Charleston, SC	7.211	1.426							8.637
ALGS	Allot	Hanscom AFB, MA	4.366	8.782							13.148
CAAP ESA	TBD	TBD			Various	18.607	Various	22.379	Various	Cont.	Cont.
Subtotal Product Dev			62.278	45.845		78.730		108.563		Cont.	Cont.
Remarks:											
Development Support											
Engineering/Studies											
Aviation Engineering Analysis	Various	AF Research Laboratory	1.811	0.462	Various	1.436	Various	1.451	Various	Cont.	Cont.
AC-130U Gunship	Various	Various	4.785	1.843	Various	2.439	Various	1.890		Cont.	Cont.
MC-130H Air Refueling	MIPR	46TH TW, Hurlburt Fld, FL	0.300								0.300
ALE-47	SS/FFP	Boeing	0.200								0.200
MC-130E/P Sustainment	TBD	Lockheed Martin, Rockwell Collins						1.747	Various	Cont.	Cont.
EC-130 Obsolescence	TBD	Lockheed Marietta						0.680	Various	Cont.	Cont.
Subtotal Spt			7.096	2.305		3.875		5.768		Cont.	Cont.
Remarks:											
Total Cost			69.374	48.150		82.605		114.331		Cont.	Cont.
Remarks:											

Exhibit R-2a, RDT&E Project Justification		Date: FEBRUARY 2003
Appropriation/Budget Activity RDT&E BA # 7	CV-22/Project SF200	

Cost (\$ in millions)	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09
CV-22	90.844	59.820	36.456	41.420	22.893			
RDT&E Articles Quantity	2 (AF)							

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 consists of integrating and testing the Directional Infrared Countermeasures, 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 SOF infiltration/exfiltration 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.

B. Accomplishments/Planned Program

	FY 2002	FY 2003	FY 2004	FY 2005
Dev/Integration/Test of Block 10 Program	78.343	52.620	29.256	34.220
RDT&E Articles Quantity	2 (AF)			

FY02 Continue development/integration/testing of Block 10 program – cost plus award fee.
 FY03 Will continue development and integration of the Block 10 capabilities, and will include the start of Block 10 Developmental Test & Evaluation (DT&E) flight testing.
 FY04 Continue development/integration/testing of Block 10 capabilities and start of Block 10 DT&E flight testing.

Exhibit R-2a, RDT&E Project Justification	Date: FEBRUARY 2003
Appropriation/Budget Activity RDT&E BA # 7	CV-22/Project SF200

	FY 2002	FY 2003	FY 2004	FY 2005
Program Office Support	.700	.700	.700	.700
RDT&E Articles Quantity	2 (AF)			
FY02 Continued program office support for Block 10 program. FY03 Continue program office support for Block 10 program. FY04 Continue program office support for Block 10 program.				
	FY 2002	FY 2003	FY 2004	FY 2005
Engineering and Logistics Support	6.500	6.500	6.500	6.500
RDT&E Articles Quantity	2 (AF)			
FY02 Engineering and logistics support for Block 10 program. FY03 Continue engineering and logistics support for Block 10 program. FY04 Continue engineering and logistics support for Block 10 program.				
	FY 2002	FY 2003	FY 2004	FY 2005
Directional Infrared Countermeasures (DIRCM) Laser Integration	5.301			
RDT&E Articles Quantity	2 (AF)			
FY02 Completed Viper laser integration testing for DIRCM system.				

C. Other Program Funding Summary:									To	Total
	<u>FY02</u>	<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, CV-22 SOF Osprey	18.202	57.404	108.790	133.244	125.646	160.343	222.638	202.920	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 2003					
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 FY03	Award Date FY03	Budget Cost FY04	Award Date FY04	Budget Cost FY05	Award Date FY05	To Complete	Total Program
Primary Hardware Dev	SS/CPAF	NAVAIR/PMA-275 & Bell-Boeing, Patuxent River, MD	115.908	51.620	Feb-03	27.184	Jan-04	32.953	Jan-05	Cont.	Cont.
Award Fees			3.890	1.000	Feb-03	2.072	Jan-04	1.267	Jan-05	Cont.	Cont.
Subtotal Product Dev			119.798	52.620		29.256		34.220		Cont.	Cont.
Remarks:											
Contractor Engineering Spt											
Government Engineering Spt	WR	NAVAIR/PMA-275, Patuxent River, MD	9.505	7.200	Oct-02	7.200	Oct-03	7.200	Oct-04	Cont.	Cont
Travel and Logistics			0.400								0.400
Subtotal Management			9.905	7.200		7.200		7.200		Cont.	Cont
Remarks:											
Total Cost			129.703	59.820		36.456		41.420		Cont.	Cont.
Remarks:											

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Exhibit R-4, Schedule Profile													Date: FEBRUARY 2003																								
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	2002				2003				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	1	2	3	4					
Acquisition Milestones																																					
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 10 Deliveries (3) △ △ △		Lot 9 Deliveries (3) △ △ △		Lot 11 Deliveries (2) △ △												
CV-22 IOC																																					

