

JUNE 2001

SPECIAL OPERATIONS COMMAND RDT&E PROGRAM

Appropriation: 0400 Research Development Test & Evaluation Defense - WideTOA, \$ in Millions

<u>Program Element #</u>	<u>Item</u>	<u>Budget Activity</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>
0304210BB	Special Reconnaissance Capabilities (SRC)	7		3.765	4.422
1160279BB	Small Business Innovative Research	7	4.896	5.160	
1160401BB	Spec Operations Technology Development	7	6.851	9.957	
1160402BB	Spec Operations Advanced Technology Development	7	7.716	13.615	
1160404BB	Spec Operations Tactical Systems Development	7	148.171	157.130	
1160405BB	Spec Operations Intelligence Systems Development	7	5.754	7.790	
1160407BB	SOF Medical Technology Development	7	3.849	2.004	
1160408BB	SOF Operational Enhancements	7	57.250	74.111	85.109
1160444BB	SOF Acquisition	7			252.334
Total Operational Systems Development:			234.487	273.532	341.865
Total Special Operations Command:			234.487	273.532	341.865

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE			
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7							R-1 ITEM NOMENCLATURE PE1160279BB Small Business Innovative Research			
COST (Dollars in Millions)	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	Cost to Complete	Total Cost
PE1160279BB	4.896	5.160							Cont.	Cont.
S050 SMALL BUSINESS INNOVATIVE RESEARCH	4.896	5.160							Cont.	Cont.
<p>A. Mission Description and Budget Item Justification</p> <p>The Small Business Innovative Research (SBIR) program element consists of a highly competitive three- phase award system which provides qualified small business concerns with the opportunity to propose high quality innovative ideas that meet specific research and development needs of USSOCOM. SBIR is a result of the Small Business Development Act of 1992. It was enacted by Congress in Public Law 97-219, reenacted by Public Law 99-443, and reauthorized by the SBIR Program Reauthorization Act of 2001. Starting in FY 1994, the SBIR program was refocused toward dual use and defense reinvestment efforts. Phase I projects evaluate the scientific technical merit and feasibility of an idea. Awards are up to \$.100M with a maximum six-month period of performance. Phase II projects expand the results of, and further pursue, the developments of Phase I. Awards are up to \$.750M with a maximum two-year period of performance. Phase III is for commercialization of the results of Phase II and requires the use of private or non-SBIR federal funding. DoD publishes government agency proposal projects twice per year for a consolidated DoD Request for Proposal. USSOCOM then awards its proposed SBIR projects.</p> <p>Change Summary Explanation:</p> <p>Funding: None.</p> <p>Schedule: None.</p> <p>Technical: None.</p>										

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APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7		R-1 ITEM NOMENCLATURE PE1160279BB Small Business Innovative Research		
B. Program Change Summary		FY 2000	FY 2001	FY 2002
Previous President's Budget		4.896		
Appropriated Value				
Adjustments to Appropriated Value / President's Budget			5.160	
Current Budget Submit		4.896	5.160	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE			
							JUNE 2001			
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7			R-1 ITEM NOMENCLATURE PE1160444BB SOF Acquisition							
COST (Dollars in Millions)	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	Cost to Complete	Total Cost
PE1160444BB	172.341	190.496	252.334						Cont.	Cont.
3284 SOF AIRCRAFT DEFENSIVE SYSTEM	13.525	13.540	15.583						Cont.	Cont.
3326 AC-130U GUNSHIP	1.284	1.477	.469						Cont.	Cont.
D476 PSYOPS ADV DEV	.705	1.052	.550						Cont.	Cont.
D615 SOF AVIATION	9.926	11.219	10.224						Cont.	Cont.
S0417 UNDERWATER SYSTEMS ADV DEV	49.429	34.484	40.383						Cont.	Cont.
S100 SO TECHNOLOGY BASE DEV	6.851	9.957	7.606						Cont.	Cont.
S200 SPECIAL OPERATIONS SPECIAL TECHNOLOGY	7.716	13.615	7.582						Cont.	Cont.
S275 SOF MEDICAL TECHNOLOGY	3.849	2.004	1.917						Cont.	Cont.
S350 SOFPARS	4.036	2.353	5.089						Cont.	Cont.
S375 WEAPONS SYSTEMS ADV DEV	1.079	1.727	.402						Cont.	Cont.
S400 SO INTELLIGENCE	5.754	7.790	3.089						Cont.	Cont.
S625 SOF TRAINING SYSTEMS	9.552	6.876	22.000						Cont.	Cont.
S700 SO COMMUNICATIONS ADV DEV	3.307	3.612	.852						Cont.	Cont.
S800 SO MUNITIONS ADV DEV	4.831	11.499	3.000						Cont.	Cont.
S900 SO MISCELLANEOUS EQUIPMENT ADV DEV	2.669	.484	.301						Cont.	Cont.
SF100 AVIATION SYSTEMS ADV DEV	6.394	20.718	31.626						Cont.	Cont.
SF200 CV-22	33.522	43.774	101.661						Cont.	Cont.
<p>Note: USSOCOM restructured its Program Elements (PEs) for FY2002. PE 1160444BB contains all SOF acquisition except for SBIR and Combat Development activities. PE 1160444BB consolidates the following PEs: PE 1160401BB (Project S100); PE1160402BB (Project S200); PE1160407BB (Project S275); PE 1160405BB (Project S400); and all other projects formerly included in PE 1160404BB.</p>										

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<p>A. Mission Description and Budget Item Justification</p> <p>This program element provides for acquiring requirements unique to Special Operations Forces (SOF), conducting studies and developing laboratory prototypes for applied research and advanced technology development, leveraging other organizations technology projects that may not otherwise be affordable within MFP-11, and conducting rapid prototyping and advanced technology demonstrations. Specialized equipment acquired by SOF permits small, highly trained forces to conduct 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. This program element includes tactical intelligence and related activities funds.</p> <p>B. Program Change Summary:</p> <p>Funding FY 2002:</p> <p>Project 3284: Increase of \$2.9M is a net result of a -\$8.9M decrease in the Directional Infrared Countermeasures program and a -\$0.5M decrease to the C-130 Engine Infrared Suppression program which reflects USSOCOM realignment of resources to support higher command priorities, and initial funding of \$12.3M for the Towed Decoy program.</p> <p>Project 3326: Decrease of -\$1.7M reflects USSOCOM realignment of resources to support higher command priorities.</p> <p>Project D476: Increase of \$0.6M is for developmental and operational testing of the Psychological Operations Broadcast System.</p> <p>Project D615: Increase of \$6.2M is a net result of delaying Night Vision Devices one year to FY03 (-\$0.2M); realigning resources for the AN/APQ-174B multi-mode radar (-\$1.0M); funding Mission Processors (\$2.7M), MH-47E Air Transportability Kits (\$0.3M), Integrated Defensive Armed Penetrator Upgrades (\$0.4M), and MH-47D/E Service Life Extension Program (\$4.0M).</p> <p>Project S0417: Increase of \$31.1M is a net result of increasing Advanced Sea, Air, Land (SEAL) Delivery System (ASDS) developmental testing (\$30.1M); providing additional Pre-Planned Product Improvement (P3I) for the Semi-Autonomous Hydrographic Reconnaissance Vehicle (\$1.0M) and for testing and continued development of the Non-Gasoline Burning Outboard Engine (\$0.3M); and delaying the</p>	

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<p>replacement of obsolete electronic equipment on the SEAL Delivery Vehicle (-\$.3M).</p> <p>Project S100: Decrease of -\$.7M reflects USSOCOM realignment of resources to support higher command priorities.</p> <p>Project S1684: Decrease of \$3.5M is the result of delaying next generation Rigid Inflatable Boat (-\$.9M), and the restructuring of the Special Operations Craft-Riverine Program to defer development of P3I efforts for Forward-Looking Infrared, Advanced Ballistic Protection, Advanced Weapons and Advanced Smoke/Obscurant systems (-\$.2.6).</p> <p>Project S200: Decrease of -\$.7M reflects USSOCOM realignment of resources to support higher command priorities.</p> <p>Project S275: Decrease of -\$.2M reflects USSOCOM realignment of resources to support higher command priorities.</p> <p>Project S350: Increase of \$2.0M to conduct the development and modification of automated tools to meet ground mission requirements.</p> <p>Project S375: Decrease of -\$.2M reflects USSOCOM realignment of resources to support higher command priorities.</p> <p>Project S400: Increase of \$1.5M reflects the initiation of Joint Threat Warning System ground variant prototype development.</p> <p>Project S625: Increase of \$2.9M reflects a more current cost estimate for the Mission Enhancement Little Bird Light Assault Attack Reconfigurable Simulator.</p> <p>Project S700: Decrease of -\$.3.0M due to the deletion of planned technology upgrades in the Joint Base Station (\$.4M) and SOF Tactical Connectivity System programs (\$.4M) and the deletion of the Mission Planning, Analysis, Rehearsal and Execution Program (\$2.2M).</p> <p>Project S800: Increase of \$2.2M for the Time Delay Firing Device and Sympathetic Detonator programs which were merged into one R&D effort.</p> <p>Project S900: Decrease of -\$.2M reflects USSOCOM realignment of resources to support higher command priorities.</p> <p>Project SF100: Decrease of -\$15.6M reflects a net result of a \$1.7M increase in the MC-130H Air Refueling program resulting from restructuring the program, a -\$9.3M decrease to support higher command priorities, and a -\$8M decrease in the Common Avionics</p>	

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<p>Architecture for Penetration (CAAP) program. The reduction in the CAAP program reflects realignment of resources to support higher command priorities as a result of anticipated efficiencies within the program from merging the SOF C-130 requirements of the program with the USAF C-130 Avionics Modernization Program.</p> <p>Project SF200: The Blue Ribbon Panel recommended restructuring the V/CV-22 program using a phased approach to return to flight and fleet introduction. As a result, RDT&E was increased by \$62.4M to reduce concurrency risk of the Block 10 CV-22 effort, to develop and incorporate laser detection capability into the AAR-54 missile warning sensor, to develop a DIRCM turret with less weight and drag, and to preserve manufacturing vendor base due to recommended reduced buy profile pending correction of V/CV-22 deficiencies.</p> <p>Schedule:</p> <p>Project S0417: The Advanced SEAL Delivery System program has experienced slippages resulting from delays in completing deep water testing and system certification. Initial operational capability is expected in Apr 02. The Non-Gasoline Burning Engine has experienced slippages due to delays in resolving technical issues and corresponding delays in developmental testing. Also, the manufacturer filed Chapter 11 and company assets subsequently have been purchased by another vendor, allowing for continued engine development. Milestone C is now expected to take place 4QTR01. The Semi-Autonomous Hydrographic Reconnaissance Vehicle has experienced slippages due to manufacturing problems. Milestone C is now expected to take place 4QTR01.</p> <p>Project D615: The Mission Enhancement Little Bird has experienced slippage due to testing delays resulting from damage caused by a hard landing. Milestone IIB was achieved with the requirement to improve the tail rotor with a more powerful engine 2QTR01</p> <p>Project S800: The Improved Limpet Mine program has experienced slippages due to design delays. The development efforts have not yielded a materiel solution; therefore, the current effort is being terminated.</p> <p>Project SF100: The MC-130H Air Refueling System modification program was restructured due primarily to poor test results through the Foreign Comparative Test program. The program was slipped by 12 months and Milestone III decision was slipped from January 2002 to January 2003.</p>	

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B. Program Change Summary	FY 2000	FY 2001	FY 2002	
Previous President's Budget	171.057	153.745	166.282	
Appropriated Value	171.057	153.745		
Adjustments to Appropriated Value / President's Budget	1.284	36.751	86.052	
Current Budget Submit	172.341	190.496	252.334	

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)					DATE JUNE 2001					
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7			R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project 3284							

COST (Dollars in Millions)	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	Cost to Complete	Total Cost
3284, Special Operations Forces Aircraft Defensive System	13.525	13.540	15.583							

NOTE: FY00 and FY01 funds are in PE1160404BB.

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 development of AC-130 engine IR suppression system and IR jamming system. Project also provides systems for SOF-unique portions of the Warner Robins-Air Logistics Center Electronic Warfare Avionics Integrated Systems Facility. Sub-projects include:

- C-130 Engine IR Suppression (AC-130H/U, MC-130E/H, HC-130P/N, EC-130E). Program to develop an engine IR signature suppression system for Air Force Special Operations Command (AFSOC) C-130 aircraft. The system will reduce the IR signature of these aircraft, thereby reducing their susceptibility to generation I and II IR missile threats.
- Directional Infrared Countermeasures (DIRCM). A joint international cooperative United Kingdom (UK)/United States (US) 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.

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<ul style="list-style-type: none"> Electronic Warfare Avionics Integrated Systems Facility (EWAISF). The EWAISF directly supports software development and testing. The EWAISF effort is a type of systems integration laboratory designed to support the incorporation of SOF aircraft defensive systems modifications into specific SOF platforms. High Power Fiber Optic Towed Decoys (HPFOTD) for AC-130 H/U Gunships and MC-130 E/H Talon aircraft. Program funds the development and testing of a nondevelopmental item, HPFOTD (hereafter referred to as the Towed Decoy), that uses the ALQ-172 as a techniques generator. The Towed Decoy 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. <p>FY 2000 ACCOMPLISHMENTS:</p> <ul style="list-style-type: none"> (4.033) C-130 Engine IR Suppression. Awarded engineering and manufacturing development (EMD) contract. Fabricated production representative flight test suppression system. (1QTR01) (8.864) DIRCM. Continued to support a cooperative UK/US development production program for 59 SOF C-130 aircraft. Continued to fund non-recurring engineering costs for development of a laser upgrade insert for the DIRCM for MC-130H Combat Talon II and AC-130U Gunship models. (1QTR00-4QTR00) (0.628) EWAISF. Supported Multi-mission Advanced Tactical Terminal (MATT) laboratory efforts to include update of the Integrated Electronic Warfare Support Station (IEWS), supported IEWS/MATT correlation effort and modified electro-optical/infrared scene database for existing scene generator. (2QTR00) 		

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<p>FY 2001 PLAN:</p> <ul style="list-style-type: none"> • (4.606) C-130 Engine IR Suppression. Conduct Developmental Testing /Initial Operational Test & Evaluation, complete EMD, support the flight test program, and prepare for Milestone III. (1QTR01-4QTR01) • (7.465) DIRCM. Continue to support a cooperative UK/US development production program for 59 SOF C-130 aircraft. Continue to fund non-recurring engineering costs for development of a laser upgrade insert for the DIRCM for MC-130H Combat Talon II, AC-130U Gunship, and CV-22 aircraft. Begin Operational Test & Evaluation for MC-130E/H Combat Talon II and AC-130H/U Gunship models. (1QTR01-4QTR01) • (1.469) EWASIF. Continue to support laboratory efforts to maintain SOF aircraft defensive systems. (1QTR01-2QTR01) <p>FY2002 PLAN:</p> <ul style="list-style-type: none"> • (1.706) DIRCM. Continue to support a cooperative UK/US development production program for 59 SOF C-130 aircraft. Continue to fund non-recurring engineering costs for the DIRCM for MC-130H Combat Talon II and AC-130U Gunship models. Complete Operational Test & Evaluation for MC-13-E/H Combat Talon II and AC-130H/U Gunship models. (1QTR02-3QTR02) • (1.514) EWASIF. Continue to support laboratory efforts to maintain SOF aircraft defensive systems. (1QTR02-2QTR02) • (12.363) Towed Decoy. Begin non-recurring engineering efforts on Towed Decoy and on aircraft integration efforts. (1QTR02-4QTR02) 	

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B. Other Program Funding Summary

	<u>FY00</u>	<u>FY01</u>	<u>FY02</u>
PROC, C130 Mods			
DIRCM	59.277		
O&M			
Towed Decoy			1.000

C. Acquisition Strategy:

- C-130 Engine IR Suppression. Produce request for proposals and competitively select one contractor to enter engineering and manufacturing development. This program is a continuing effort, based upon lessons learned, of a previous suppression program. A market survey was done (to minimize risk) which proved the maturity of the technology that is available in the industry today.
- DIRCM. The memorandum of agreement between the UK/US established the cooperative international DIRCM program. The UK Ministry of Defense is the lead for the program. UK law applies to all acquisition actions. USSOCOM program manager is the US Deputy to the UK DIRCM program manager. There is a separate sustaining engineering contract which includes laser and advanced missile warning systems. (Current DoD policy prevents cooperative laser development with UK.)
- EWAISF. Award sole source contracts to the manufacturer of the prime mission equipment required for hardware and software integration into the EWAISF.

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					JUNE 2001				
APPROPRIATION / BUDGET ACTIVITY			R-1 ITEM NOMENCLATURE / PROJECT NO.						
RDT&E, DEFENSE-WIDE / 7			PE 1160444BB Special Operations Forces (SOF) Acquisition / Project 3284						

- Towed Decoy. Perform a market survey of the existing Towed Decoys currently available in the US market place. Conduct an assessment to determine which non-developmental item device meets operational requirements. If more than one vendor meets all requirements, downselect based on best value. Perform non-recurring engineering efforts in preparation of aircraft integration on all AFSOC AC-130H/U and MC-130E/H platforms.

D. Schedule Profile	<u>FY00</u>				<u>FY01</u>				<u>FY02</u>				
	1	2	3	4	1	2	3	4	1	2	3	4	
C-130 Engine IR Suppression													
EMD Contract Award										x			
Developmental Testing/Initial Operational Testing & Evaluation						x	x	x	x				
DIRCM													
AC-130H/U and MC-130E/H Operational Testing & Evaluation							x	x	x	x	x	x	
Laser Development						x	x	x					
Advanced Missile Warning System Development							x						
EWAISF Facility													
Contract award for electro-optical/IR Scene Dev												x	
Contract award for IEWS/MATT Correlation												x	
Laboratory Testing and Evaluation							x	x	x	x	x	x	x
Towed Decoy Non-recurring Engineering and Aircraft Integration												x	x

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Exhibit R-3 COST ANALYSIS						DATE: JUNE 2001					
APPROPRIATION / BUDGET ACTIVITY				Special Operations Forces (SOF) Acquisition/PE1160444BB							
RDT&E DEFENSE-WIDE / 7				SOF 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 FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	Budget Cost FY02	Award Date FY02	To Complete	Total Program
Primary Hardware Dev											
Directional Infrared Countermeasures (DIRCM)	SS/FFP	Northrop (Chicago)	77.507							Cont.	Cont.
Sust Engineering DIRCM	SS/CPFF	Northrop (Chicago)		0.159	Jun-00	0.965	Sep-01	0.600	Mar-02	Cont.	Cont.
	MIPR	VARIOUS		0.466	Aug-00					Cont.	Cont.
LASER	SS/CPFF	Northrop (Chicago)		4.710	Jul-00	5.800	Jun-01				10.510
	MIPR	AFEWS		0.500	Sep-00						0.500
Infrared Suppression System	CPFF/FFP	TBD		4.033	Dec-00	2.833	Dec-00				8.033
Electronics Warfare Avionics											
Integrated Systems Facility	SS/CPFF	GTRI, GA	7.960	0.628	May-00	1.469	Mar-01	1.514	Mar-02	Cont.	Cont.
Towed Decoy	TBD	TBD						11.557	Mar-02	Cont.	Cont.
Subtotal Product Dev			85.467	10.496		11.067		13.671		Cont.	Cont.
Remarks:											
Development Spt											
Subtotal Spt											
Remarks:											

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Exhibit R-3 COST ANALYSIS						DATE: JUNE 2001					
APPROPRIATION / BUDGET ACTIVITY				Special Operations Forces (SOF) Acquisition/PE1160444BB							
RDT&E DEFENSE-WIDE / 7				SOF 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 FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	Budget Cost FY02	Award Date FY02	To Complete	Total Program
Developmental Test & Eval	MIPR	WSMR/46TW/Other (DIRCM)	13.047	1.000	Aug-00	0.700	Sep-01			Cont.	Cont.
Infrared Suppression System	TBD	TBD				1.749	Dec-00				0.615
Subtotal T&E			13.047	1.000		2.449				Cont.	Cont.
Remarks:											
Contractor Engineering Spt	FP	BAH (DIRCM)	15.405	2.019	Aug-00			1.912	Aug-02	Cont.	Cont.
	SS/FFP	MTI; Warner Robins, Ga	4.820							Cont.	Cont.
	SS/CPFF	SSAI; Warner Robins, Ga	3.172							Cont.	Cont.
Government Engineering Spt	MIPR	Crane DIV/other	0.184							Cont.	Cont.
Travel	N/A		1.319	0.010	VARIOUS	0.024	VARIOUS			Cont.	Cont.
Subtotal Management			24.900	2.029		0.024		1.912		Cont.	Cont.
Remarks:											
Total Cost			123.414	13.525		13.540		15.583		Cont.	Cont.
Remarks:											

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APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7						R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project D615									
COST (Dollars in Millions)						FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	Cost to Complete	Total Cost
D615, Special Operations Forces Aviation						9.962	11.219	10.224							
<i>NOTE: FY00 and FY01 funds are in PE1160404BB.</i>															
A. <u>Mission Description and Budget Item Justification</u>															
<p>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 the Special Operations 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, and MH-47D/E/G. Efforts include:</p> <ul style="list-style-type: none"> • A/MH-6. (1) Develops lightweight, rapidly reconfigurable mission support equipment. (2) Prototypes, tests, and fields structural fuselage modifications to increase the maximum gross weight by 25%. • MH-47/MH-60K. (1) Develops and tests aircraft survivability equipment hardware and software. (2) Develops and tests the MH-60 fuel control system, develops and tests ballistically tolerant composite small arms protection system for vulnerable helicopter systems. (3) Develops and tests cockpit, hardware, and software improvements to communication and navigation systems. (4) Develops, procures and installs a system that inerts (exchanging oxygen with nitrogen) in the main and auxiliary fuel tanks to improve survivability from small arms fire. (5) Provides for non-recurring engineering and vibration testing for MH-47 Service Life Extension Program. 															

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE JUNE 2001
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project D615
<p>FY 2000 ACCOMPLISHMENTS:</p> <ul style="list-style-type: none"> • (3.191) MH-47/MH-60. Continued MH-47 Infrared Exhaust Suppression Program. Provided for testing and installation of On-Board Inert Gas Generation System. Initiated integration of 200-gallon internal auxiliary fuel tanks for MH-60 aircraft. Continued Ballistic Protection System modification of MH-60 aircraft. (1QTR00-4QTR00) • (1.978) A/MH-6. Initiated the integration of the Allison 250-C30/R3 engine, and Full Authority Digital Electronic Control software refinement into the Mission Enhancement Little Bird (MELB) aircraft. Provided for extensive Electromagnetic Interference/Electromagnetic Countermeasure integration and testing of MELB aircraft. This included shipboard compatibility, full certification at the Dahlgren facility, and additional shielding/protection for the aircraft systems. Partially replaced large single functional analog components with fleet common miniaturized, lightweight multifunctional reconfigurable displays for flight, navigation, communication, and weapons systems management. (1QTR00-4QTR00) • (4.793) MH-47/MH-60. Rehosed Integrated Avionics System software onto new mission processor. Developed and provided for installation of weather radar mode and incorporation of Electromagnetic Environmental Effects fixes. Provided for Radar Altimeter Enhancement. (1QTR00-4QTR00) <p>FY 2001 PLAN:</p> <ul style="list-style-type: none"> • (.960) MH-47/MH-60. Continues combined Infrared Countermeasures (IRCM) and Suite of Infrared Countermeasures integration to treat MH-47 and MH-60 fleet IRCM as a single integrated program. Provides for testing and installation of aircraft survivability equipment fixes. Initiates development, integration and testing of Nuclear, Biological, and Chemical (NBC) crew protection system and NBC point detection system. (1QTR01-4QTR01) • (3.962) A/MH-6. Continues prototype testing of the MELB aircraft to include integration of the Allison 250-C30/R3 engine, and Full Authority Digital Electronic Control software refinement. Continues to provide for extensive Electromagnetic Interference/Electromagnetic Countermeasure integration 	

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APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project D615
<p>and testing of MELB aircraft. This includes shipboard compatibility, full certification at the Dahlgren facility and additional shielding/protection for the aircraft systems. Completes the replacement of large single functional analog components with fleet common miniaturized, lightweight multifunctional reconfigurable displays for flight, navigation, communication and weapons systems management. (1QTR01-4QTR01)</p> <ul style="list-style-type: none"> • (3.799) MH-47/MH-60. Continues to rehost Integrated Avionics System software onto new mission processor. Provides for accelerated integration and testing of Modular Avionics. Program incorporates modularized avionics and open systems computer architecture. (1QTR01-4QTR01) • (2.498) MH-47/MH-60. Modifies Army Airborne Command and Control antenna pack to conform to existing SOF unique configuration. Incorporates Global Positioning System/Inertial Navigation System to meet mandated national airspace requirements and integrates into all MH-47 and MH-60 aircraft. Continues development and installation of weather radar mode and incorporation of Electromagnetic Environmental Effects fixes. (1QTR01-4QTR01) <p>FY 2002 PLAN:</p> <ul style="list-style-type: none"> • (4.281) MH-47/MH-60. Completes the development, integration and testing of the NBC crew protection system and NBC point detection system. Provides for airframe vibration analysis and non-recurring engineering drawings for the MH-47 Service Life Extension Program. (1QTR02-4QTR02) • (0.433) A/MH-6. Continues prototype testing of the MELB aircraft. Completes the integration of Allison 250-C30/R3 engine and Full Authority Digital Electronic Control software refinement. Provides for the G Cal 50 machine gun, which replaces the current M2AC machine gun for the MELB aircraft. Completes Electromagnetic Interference/Electromagnetic Countermeasure integration and testing of MELB aircraft. This includes shipboard compatibility, full certification at the Dahlgren facility and additional shielding/protection for the aircraft systems. (1QTR02-4QTR02) 	

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE JUNE 2001								
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project D615								
<ul style="list-style-type: none"> • (4.767) MH-47/MH-60. Funds development of new multi-function displays. Continues integration and testing of Modular Avionics, which incorporates modularized avionics and open system computer architecture. Continues to rehost Integrated Avionics System software into a new mission processor. The rehosting is essential prior to procurement of a new mission processor to alleviate significant technical risk. (1QTR02-4QTR02) • (0.743) MH-47E/MH-60L. Provides for SOF unique modification to Air Transportability Kits for the MH-47E. Initiates development, integration, and testing of MH-60L Defensive Armed Penetrator improvements to include the life cycle upgrade/replacement of the current Heads Up Display, weapons management system and weapons. (1QTR02-4QTR02) <p>B. <u>Other Program Funding Summary</u></p> <table style="margin-left: 100px; border: none;"> <thead> <tr> <th style="text-align: left;"></th> <th style="text-align: center;"><u>FY00</u></th> <th style="text-align: center;"><u>FY01</u></th> <th style="text-align: center;"><u>FY02</u></th> </tr> </thead> <tbody> <tr> <td style="padding-left: 20px;">PROC, Rotary Wing Upgrades & Sustainment</td> <td style="text-align: center;">86.518</td> <td style="text-align: center;">77.487</td> <td style="text-align: center;">79.084</td> </tr> </tbody> </table> <p>C. <u>Acquisition Strategy</u>: None.</p>			<u>FY00</u>	<u>FY01</u>	<u>FY02</u>	PROC, Rotary Wing Upgrades & Sustainment	86.518	77.487	79.084
	<u>FY00</u>	<u>FY01</u>	<u>FY02</u>						
PROC, Rotary Wing Upgrades & Sustainment	86.518	77.487	79.084						

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RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)					DATE JUNE 2001											
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7					R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project D615											
					<u>FY00</u>		<u>FY01</u>			<u>FY02</u>						
D. Schedule Profile					1	2	3	4	1	2	3	4	1	2	3	4
MELB Prototype Testing					x	x	x	x	x	x	x	x	x	x	x	x
MELB Miniaturization					x	x	x	x	x	x	x	x				
MELB MS IIIB										x						
MELB Electro-magnetic Interference/Electro-magnetic Countermeasures Integration and Testing								x	x	x	x	x	x			
ASE Testing and Installation									x	x	x					
Multimode Radar Weather Card								x	x	x	x	x				
MH-47 Ballistic Protection System Contract Award						x										
NBC Crew Protection MH-60/MH-47									x	x	x	x	x	x	x	
MH-47 Service Life Extension Program													x	x	x	
A/MH-6 G Cal 50													x	x	x	
Modular Avionics									x	x	x	x	x	x	x	
Army Airborne Command and Control Antenna Pack										x	x	x				
Global Positioning System/Inertial Navigation System										x						
MH 60L Defensive Armed Penetrator Improvements													x	x		
MH-47E Air Transportability Kits														x	x	x
Multi-Function Displays													x	x	x	x

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Exhibit R-3 COST ANALYSIS						DATE: JUNE 2001					
APPROPRIATION / BUDGET ACTIVITY				Special Operations Forces (SOF) Acquisition/PE1160444BB							
RDT&E DEFENSE-WIDE / 7				SOF 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 FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	Budget Cost FY02	Award Date FY02	To Complete	Total Program
Primary Hardware Dev											
MH-47/60	VARIOUS	PM TAPO/Ft Eustis, VA		3.194	Dec-99	6.454	May-01	7.926	May-02	Cont.	Cont.
A/MH-6	VARIOUS	PM-MELB/Ft Eustis, VA		0.791	Dec-99	1.602	Mar-01	0.157	Jan-02	Cont.	Cont.
Subtotal Product Dev			0.000	3.985		8.056		8.083		Cont.	Cont.
Remarks:											
Subtotal Spt											
Remarks:											

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Exhibit R-3 COST ANALYSIS						DATE: JUNE 2001					
APPROPRIATION / BUDGET ACTIVITY				Special Operations Forces (SOF) Acquisition/PE1160444BB							
RDT&E DEFENSE-WIDE / 7				SOF 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 FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	Budget Cost FY02	Award Date FY02	To Complete	Total Program
Developmental Test & Eval MH-47/60	VARIOUS	PM TAPO/Ft Eustis, VA		4.790	Dec-99	0.803	VARIOUS	1.865	VARIOUS	Cont.	Cont.
A/MH-6	VARIOUS	PM-MELB/Ft Eustis, VA		1.187	Dec-99	2.360	VARIOUS	0.276	VARIOUS	Cont.	Cont.
Subtotal T&E			0.000	5.977		3.163		2.141		Cont.	Cont.
Remarks:											
Subtotal Management											
Remarks:											
Total Cost			0.000	9.962		11.219		10.224		Cont.	Cont.
Remarks:											

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)					DATE JUNE 2001					
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7			R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project S0417							

COST (Dollars in Millions)	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	Cost to Complete	Total Cost
S0417, Underwater Systems Advanced Development	49.429	34.484	40.383							

NOTE: FY00 and FY01 funds are in PE1160404BB.

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 manned combatant mini-submarine used for the clandestine delivery of Special Operations Forces (SOF) personnel and weapons. The ASDS will provide the requisite range, endurance, payload, and other capabilities for operation in the full range of threat environments.
- 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 include the following:
 - NSW Very Shallow Water Mine Countermeasures (VSW MCM). Phased development/improvement of low magnetic and acoustic signature equipment to support the combat swimmer in the NSW VSW MCM operational environment.
 - Non-Gasoline Burning Outboard Engine (NBOE). Development of a submersible outboard engine, which does not use highly volatile gasoline, for use on SOF Combat Rubber Raiding Craft.

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)		DATE JUNE 2001
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project S0417	
<ul style="list-style-type: none"> Swimmer Transport Device (STD). Test and procure a Commercial-Off-the-Shelf (COTS)/Non-Developmental Item (NDI) undersea mobility vehicle to transport combat swimmers when the distance from host delivery vehicles to the target area or landing site is excessive. SEAL Delivery Vehicle (SDV). The SDV is a mini wet submersible that requires replacement of obsolescent electronics with maintainable systems to improve reliability. <p>FY 2000 ACCOMPLISHMENTS:</p> <ul style="list-style-type: none"> (45.155) ASDS. Continued contractor sea trials and certification of the first ASDS vehicle. Initiated primary host fitup and conversion of second host ship. Continued development for hydrodynamic testing of host ship maneuvering characteristics and support of Virginia Class host submarine design efforts. Initiated development of Pre-Planned Product Improvements (P3I) for degaussing and battery. (1QTR00-4QTR00) (2.664) NSW VSW MCM. Semi-Autonomous Hydrographic Reconnaissance Vehicle (SAHRV) - Achieved a MS A/B decision, and completed development. Hydrographic Reconnaissance Littoral Mapping Device (HRLMD) – Achieved a MS A/B decision. Initiated modifications to a COTS Hydrographic Reconnaissance System. (1QTR00-4QTR00) (0.954) NBOE. Completed contractor/developmental testing and completed integration of new Environmental Protection Agency standards. (1QTR00-4QTR00) (0.656) STD. Initiated testing utilizing COTS/NDI units. (1QTR00-4QTR00) 		

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)		DATE JUNE 2001
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project S0417	
<p>FY 2001 PLAN:</p> <ul style="list-style-type: none"> • (30.613) ASDS. Complete deep water testing, final certification, and accept delivery of first ASDS vehicle. Complete hydrodynamic testing of host ship maneuvering characteristics and support of Virginia Class host submarine design efforts. Continue development of P3I to include degaussing and batteries. (1QTR01-4QTR01) • (3.098) NSW VSW MCM. Conduct developmental testing/operational testing, achieve a MS C decision, and begin P3I development efforts SAHRV. Complete modifications to the HRLMD, complete developmental and operational testing, and achieve a MS C decision in preparation for award of a production contract. (1QTR01-4QTR01) • (0.260) STD. Complete testing of COTS/NDI units. (1QTR01-3QTR01) • (0.513) SDV. Develop, test and procure improved electronics components. (1QTR01-4QTR01) <p>FY 2002 PLAN:</p> <ul style="list-style-type: none"> • (37.850) ASDS. Complete host ship sea trials, acoustic trials, and Live Fire Test and Evaluation efforts. Continue P3I development efforts and host submarine support. (1QTR02-4QTR02) • (1.978) NSW VSW MCM. Continue P3I development efforts for the SAHRV program. (1QTR02-4QTR02) • (0.301) NBOE. Initiate P3I to continue development and testing of the NBOE. (1QTR02-4QTR02) • (0.254) SDV. Develop, upgrade/replace obsolete and/or unsupportable electronic equipment. (1QTR02-4QTR02) 		

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)		DATE	JUNE 2001
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7		R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project S0417	

B. Other Program Funding Summary

	<u>FY00</u>	<u>FY01</u>	<u>FY02</u>
ASDS			
PROC, ASDS	13.341	10.474	33.439
PROC, ASDS Adv Proc	.728	18.972	13.697
NSW VSW MCM			
PROC, Maritime Equip.		5.777	1.168
STD			
PROC, Maritime Equip.		.917	1.188
PROC, MK8 MOD 1 SDV			0.504

C. Acquisition Strategy:

- 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.
- HRLMD. HRLMD program was established to acquire a small, handheld unit to be used by NSW forces in the conduct of clandestine hydrographic reconnaissance, ship attack and mine countermeasures missions. The program will utilize COTS technology and will employ a phased acquisition strategy designed to leverage similar efforts currently being pursued by the Navy. User evaluation of prototype units and further design refinement, as well as developmental testing and follow-on operational assessment, will culminate in a Technical Data Package sufficient to permit a competitive procurement leading to award in FY01. Full rate production is planned for FY03.

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)		DATE	JUNE 2001
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project S0417		

- NBOE. Transition of technology demonstrator to an acquisition program which commenced with advanced demonstration and validation. Modifications to current Military Amphibious Reconnaissance System engine include advanced electronically controlled direct fuel injection and ignition technologies. A competitive source selection was held, with three vendors responding, resulting in a down-select to a single contractor.
- SDV. This effort replaces obsolete and/or unsupportable electronics equipment with current equipment. It also adds required electronics for craft locating and navigational aids. 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.
- SAHRV. SAHRV is a small unmanned underwater vehicle for use by NSW personnel in the conduct of VSW MCM. SAHRV utilizes COTS technology and employs a phased acquisition strategy designed to leverage Office of Naval Research sponsored initiatives. Four engineering development models (EDMs) were delivered in December 2000. The EDMs support developmental testing and operational testing and evaluation. Following operational testing and evaluation, a production decision will commence the production phase. Initial operational capability is planned for 2nd Qtr FY02. Full operational capability of 14 units is planned to be completed by 4th Qtr FY02.

D. <u>Schedule Profile</u>	<u>FY00</u>				<u>FY01</u>				<u>FY02</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
ASDS												
Shallow Water Testing	x	x										
Deep Water Testing			x	x	x	x	x	x				
Host ship/Acoustic trials/LFT&E									x	x	x	x
Delivery of First Unit								x				
Hydrodynamic Testing (HOST)						x	x	x				
P31 Development				x	x	x	x	x	x	x	x	x

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RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)					DATE JUNE 2001											
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7					R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project S0417											
					<u>FY00</u>				<u>FY01</u>				<u>FY02</u>			
<u>D. Schedule Profile</u>					1	2	3	4	1	2	3	4	1	2	3	4
NBOE																
DT					x	x	x	x								
Milestone C												x				
P3I													x	x	x	x
NSW VSW MCM																
Milestone A/B (SAHRV)						x										
DT (SAHRV)									x	x						
OT (SAHRV)											x					
Milestone C (SAHRV)												x				
P3I (SAHRV)											x	x	x	x	x	x
Milestone A/B (HRLMD)						x										
DT/OT (HRLMD)											x	x				
Milestone C (HRLMD)												x				
STD																
Test COTS/NDI					x	x	x	x	x	x	x					
SDV																
Develop and Test Improved Electronics									x	x	x	x	x	x	x	x

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Exhibit R-3 COST ANALYSIS						DATE: JUNE 2001					
APPROPRIATION / BUDGET ACTIVITY				Special Operations Forces Acquisition/PE1160444BB							
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 FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	Budget Cost FY02	Award Date FY02	To Complete	Total Program
Primary Hardware Dev											
SAHRV	FFP	WHOI, Woods Hole, MA	2.448	1.404	Mar-00	0.980	Dec-00	1.425	Dec-01	2.240	8.497
HRLMD	FFP	UT-ARL, Austin, TX		0.430	Apr-00	0.500	Dec-00				0.930
NBOE	CPF	OMC, Waukegan, IL	0.507	0.341	VARIOUS			0.250	Dec-01		1.098
SDV	WR	TBD	11.719			0.476	VARIOUS	0.229	VARIOUS	Cont.	Cont.
STD	FFP	Stidd Systems, Inc. Greenport, NY		0.403	Sep-00	0.162	VARIOUS				0.565
ASDS	CPIF/C	Northrop-Grumman	212.982	39.696	VARIOUS	27.791	VARIOUS	11.000	VARIOUS	Cont.	Cont.
ASDS	CPFF	Newport News Ship Yard, VA	12.400	2.066	VARIOUS	0.584	VARIOUS				15.050
ASDS	VARIOUS	VARIOUS		3.768							3.768
Subtotal Product Dev			243.824	44.340		30.493		12.904		2.240	333.801
Remarks											
Technical Data											
HRLMD	WR	CSS, Panama City, FL				0.200	Dec-00				0.200
NBOE	WR	CSS, Panama City, FL	0.043								0.043
ASDS	VARIOUS	VARIOUS	6.500	0.899	VARIOUS	1.264	VARIOUS	0.645	VARIOUS	Cont.	Cont.
Subtotal Supt.			6.543	0.899		1.464		0.645			9.551
Remarks											
Test & Evaluation											
Engineering T&E (NBOE)			0.268	0.193	Jan-00						0.461
OT&E (STD)	MIPR	OPTEVFOR, Norfolk, VA		0.070	May-00						0.070
OT&E (ASDS)	VARIOUS	OPTEVFOR, Norfolk, VA						1.085	VARIOUS		1.085
Host Testing (ASDS)	VARIOUS	NAVSEA, Arlington, VA						19.115	VARIOUS		19.115
LFT&E (ASDS)	VARIOUS	NAVSEA, Arlington, VA						5.000	VARIOUS		5.000
DT&E (SAHRV)	WR	CSS, Panama City, FL	0.035	0.024	Aug-00	0.187	Dec-00				0.246

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Exhibit R-3 COST ANALYSIS						DATE: JUNE 2001					
APPROPRIATION / BUDGET ACTIVITY				Special Operations Forces Acquisition/PE1160444BB							
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 FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	Budget Cost FY02	Award Date FY02	To Complete	Total Program
Test & Evaluation (Cont.)											
DT&E (SAHRV)	WR	CARDEROCK, West Bethesda, MD				0.037	Dec-00				0.037
OT&E (SAHRV)	WR	OPTEVFOR, Norfolk, VA				0.049	Apr-01				0.049
DT&E (HRLMD)	WR	CSS, Panama City, FL		0.020	Sep-00	0.118	Jan-01				0.138
OT&E (HRLMD)	WR	TBD				0.020	Mar-01				0.020
Subtotal T&E			0.268	0.307		0.411		25.200			26.186
Remarks:											
Management											
Contract Eng. Supt. (SAHRV)	FFP	ANADAC, Arlington, VA	0.451	0.041	Jan-00	0.223	Dec-00	0.224	Dec-01	0.284	1.223
Govt. Eng. Supt. (SAHRV)	WR	CSS, Panama City, FL	0.210	0.395	Jan-00	0.498	Dec-00	0.229	Dec-01	0.348	1.680
Program Mgt. Supt.(SAHRV)	WR	NAVSEA, Arlington, VA	0.075	0.032	VARIOUS	0.075	VARIOUS	0.100	VARIOUS	0.211	0.493
Contract Eng. Supt. (HRLMD)	FFP	ANADAC, Arlington, VA		0.186	Jan-00	0.050	Dec-00				0.236
Govt. Eng. Supt. (HRLMD)	WR	CSS, Panama City, FL		0.117	Mar-00	0.089	Dec-00				0.206
Program Mgt. Supt. (HRLMD)	WR	NAVSEA, Arlington, VA		0.015	VARIOUS	0.072	VARIOUS				0.087
Contract Eng. Supt. (NBOE)	FFP	DMR, Panama City, FL	0.165	0.072	Mar-00						0.237
Program Mgt. Supt (NBOE)	WR	CSS, Panama City, FL	0.781	0.348	Jan-00			0.051	Dec-01	0.050	1.230
Program Mgt Spt (SDV)	WR	NAVSEA, Arlington, VA	0.374			0.037	Dec-00	0.025	VARIOUS	Cont.	Cont.
VARIOUS (ASDS)	VARIOUS	VARIOUS	2.950	2.494	VARIOUS	0.974	VARIOUS	1.005	VARIOUS	Cont.	Cont.
Program Mgt Supt. (STD)	VARIOUS	VARIOUS		0.183	VARIOUS	0.098	VARIOUS				
Subtotal Management			5.006	3.883		2.116		1.634		0.893	13.532
Remarks:											
Total Cost			255.641	49.429		34.484		40.383		Cont.	379.937
Remarks:											

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)					DATE JUNE 2001					
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7			R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition/Project S100							

COST (Dollars in Millions)	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	Cost to Complete	Total Cost
S100, Special Operations Forces Technology Base Development	6.851	9.957	7.606							

NOTE: FY00 and FY01 funds are in PE1160401BB.

A. Mission Description and Budget Item Justification

This project conducts studies and develops laboratory prototypes for applied research and advanced technology development, as well as leverages other organizations' technology projects that may not otherwise be affordable within MFP-11. Applying small incremental amounts of investments to DoD, other government agencies, and commercial organizations allow the Commander-in-Chief USSOCOM to influence the direction of technology development or the schedule against which it is being pursued, and to acquire emerging technology for Special Operations Forces (SOF). This project provides an investment strategy for USSOCOM to link non-systems technology opportunities to USSOCOM deficiencies, capability objectives, technology development objectives and mission area analyses. Sub-projects include:

- Active Noise Cancellation. Reduce acoustic signature of SOF propeller craft.
- Color Night Vision Fusion. Develop broad-spectrum sensors and fuse these sensors while incorporating SOF size, weight, and human factor requirements.
- Head-Mounted Thermal Vision. Lightweight, low-volume, low-power thermal viewer providing a passive night/obscured vision capability using an uncooled infrared focal plane array. This project leverages other government efforts.

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APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition/Project S100
<ul style="list-style-type: none"> • Low Probability of Intercept/Detection Imagery Forwarding. A high data-rate, secure server, long-range data transmission capability. This project leverages various commercial and government technology efforts. • Special Operators Mobile Robotic Vehicle. Focus tele-operated and tele-supervised (limited autonomy) systems. • SOF Clothing and Equipment. Peripheral sensor technologies to monitor status of an individual SOF operator and his equipment and to detect threats. <p>FY 2000 ACCOMPLISHMENTS:</p> <ul style="list-style-type: none"> • (2.160) SOF Command, Control, Communications, Computers and Intelligence (C4I) Technologies. Completed evaluation and transition of Low Probability of Intercept/Detection (LPI/D) Imagery Forwarding and SOF Color Night Vision Fusion devices. Completed development of and evaluated FY99 sub-projects. Exploited technologies to provide SOF with improved situational awareness in all mission environments. Exploited technologies to provide significant improvements to SOF's capability to accurately detect and track threats or targets. Conducted a laboratory demonstration of LPI/D imagery forwarding capabilities with a self forming wireless network with multiple nodes. Conducted initial design of a man-portable counter mortar system. Explored restricted line of sight personnel locating technologies. Initiated the tactical display technologies that will enhance situational awareness to SOF operators. Completed and transitioned the head mounted thermal imaging device and the laboratory color fusion device. (1QTR00-4QTR00) • (1.710) SOF Mobility Technologies. Completed development of and evaluated FY99 sub-projects. Exploited technologies to improve the performance and reduce the detection of SOF mobility assets. Exploited technologies to provide SOF the capability to conduct undetectable ground, air and sea mobility operations in denied areas. Completed an evaluation of an active noise reduction system for use in SOF fixed wing platforms. Explored terrain following and terrain avoidance technologies utilizing pseudo noise wave forms with LPI radar. Provided a hydrographic reconnaissance capability for harbors, rivers and beach areas. (1QTR00-4QTR00) 	

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<ul style="list-style-type: none"> • (0.911) SOF Weapons Technologies. Initiated efforts to exploit technologies that provide SOF with stand-off capabilities for targeting, tracking and locating personnel and equipment. Exploited technologies to broaden the range and performance of SOF munition capabilities to support a variety of operations. Continued active denial technologies. Commenced the design for a universal initiating device that will reduce the amount of apparatus needed in SOF demolitions. (1QTR00-3QTR00) • (1.364) SOF Sustainment Technologies. Completed development and began evaluation of threat detection devices for the individual SOF operator. Continued to exploit technologies to increase SOF's survivability and performance. Exploited technologies to improve the human sensory performance without interfering with normal sensory functions. Exploited technologies to provide SOF with a lightweight and accurate system to assess potential assault zone areas. Exploited information technologies to provide SOF with advanced mission planning and rehearsal capabilities. Improved human sensory performance by investigating non-global positioning system navigation approaches in an urban environment. Fabricated an initial prototype hydrogen fuel cell and micro-generator for individual SOF operator utility. (1QTR00-3QTR00) • (0.506) Concept Exploration Studies. Conducted maritime weapons platform study. Developed the technology roadmap for maritime platform to synchronize future technologies with future acquisition programs. (2QTR00) • (0.200) Technology Development Exploitation. Explored technologies to enhance a 25mm anti-material rifle in a shoulder launched configuration. (3QTR00) <p>FY 2001 PLAN:</p> <ul style="list-style-type: none"> • (1.802) SOF C4I Technologies. Complete development of FY00 sub-projects. Continue to exploit technologies that provide SOF with improved situational awareness and communications in all environments. Develop technologies to provide significant improvements to SOF's capability to accurately detect and track threats or targets. Develop C4I technologies to support mission accomplishment with reality manipulation techniques. 	

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<p>Complete laboratory demonstrations of networked software and interfacing to SOF radios for imagery forwarding. Continue to develop and evaluate the use of polarimetry to enhance SOF night vision capabilities. Continue effort to demonstrate a man portable counter mortar radar. Continue effort to demonstrate a radio frequency device to support location of personnel in non line of sight environments. Continue efforts to demonstrate tactical displays for use on platforms by the individual operator. Initiate effort to demonstrate extended range psychological operations broadcasts. Initiate effort to fabricate and evaluate wrist worn emergency locator transmitters. Initiate effort to develop and demonstrate equipment to support SOF reconnaissance missions. Initiate effort to enhance situational awareness and command and control of SOF forces in high threat environments. (1QTR01-3QTR01)</p> <ul style="list-style-type: none"> • (1.750) SOF Mobility Technologies. Complete development of FY00 sub-projects. Continue to exploit technologies to improve the performance and reduce the detection of SOF mobility assets. Continue to exploit and develop technologies to provide SOF the capability to conduct undetectable ground, air, and sea mobility operations in denied areas. Continue the wind tunnel integrated real time in the cockpit/real time out of the cockpit experiments and demonstrations effort for situational awareness to improve the performance for SOF aircraft and reducing its detectability. Continue effort to demonstrate terrain following/threat avoidance radar for SOF aircraft. Continue effort to demonstrate tactile sensors for enhanced situational awareness avoiding information overload on SOF aircrews. Initiate effort to provide SOF aircrews with improved unobstructed night vision. Initiate demonstration of a communications radio frequency and acoustic communications node. Initiate the demonstration of a threat awareness receiver for SOF aircraft. (1QTR01-3QTR01) • (1.074) SOF Weapons Technologies. Complete development of FY00 sub-projects. Continue to exploit technologies to provide SOF with stand-off capabilities for targeting, tracking and locating personnel and equipment. Exploit technologies to discriminate targets and provide real-time active decision making capabilities. Exploit technologies that enhance logistics, reduce cost and enhance performance of SOF weapons and munitions. Exploit technologies to reduce weapon overpressure in support of SOF missions. Continue the development of a universal initiator for SOF munitions and weapons. Continue development and demonstration of wind sensing devices. Continue development and demonstration of a 25mm anti-materiel round. Initiate effort to demonstrate a shoulder launched fire and forget munition. (1QTR01-3QTR01) 	

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<ul style="list-style-type: none"> • (1.803) SOF Sustainment Technologies. Complete development of FY00 sub-projects. Continue to exploit technologies to increase SOF's survivability and performance. Continue to exploit technologies to improve the human sensory performance without interfering with normal sensory functions. Complete demonstration of technology that waterproofs SOF equipment to 66 feet sea water. Continue development of a personal navigation system for use in global positioning system denied or degraded areas. Continue development of enhanced energy sources to reduce operator logistics and weight. Continue the development of a smart intrusion sensor system to protect SOF operators in high threat environment. (1QTR01-3QTR01) • (0.515) Concept Exploration Studies. Explore/validate concepts for projects being continued or initiated in support of the USSOCOM desired operational capabilities. (2QTR01) • (0.199) Technology Development Exploitation. Exploit technologies to meet critical SOF capability objectives. Requirements in these areas may be advertised to industry and government research and development agencies via broad area announcements and calls for white papers. (3QTR01) • (2.814) Special Operations Mobile Robotics Vehicles. Focus on tele-operated and tele-supervised (limited autonomy) systems. (2QTR01) <p>FY 2002 PLAN:</p> <ul style="list-style-type: none"> • (1.616) SOF C4I Technologies. Complete development of FY01 sub-projects. Continue to exploit technologies that provide SOF with improved situational awareness and communications in all environments. Develop technologies to provide significant improvements to SOF's capability to accurately detect and track threats or targets. Exploit and demonstrate technologies that provide enhanced sensors and command and control. Continue the development of the man-portable counter mortar system, color fusion using polarimetry, restricted line of sight personal locator tactical display technologies, psychological operations extended range broadcast system, emergency locator devices and reconnaissance technologies. Projects planned to be transitioned to Special Operations Special Technology are man portable mortar system and restricted line of sight locator. Planned C4I projects: situational mission enhancements data for SOF and day/night/thermal video imaging device which explore in both the visual and 	

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<p>infrared spectrum higher resolution electro-optics integrated with more precise targeting and locating defensive countermeasures. Initiate enhanced situational awareness technologies for SOF platforms while enroute and during prosecution of missions. (1QTR02-3QTR02)</p> <ul style="list-style-type: none"> • (1.549) SOF Mobility Technologies. Complete development of FY01 sub-projects. Continue to exploit technologies to improve the performance and survivability, and reduce the detectability of SOF mobility assets. Continue to exploit and develop technologies to provide SOF the capability to conduct ground, air, and sea mobility operations in denied areas. Continue to exploit and develop technologies to enhance logistics support, reduce cost and improve the performance of SOF mobility platforms. Continue the development of wind tunnel integrated real time in the cockpit/real time out of the cockpit experiments and demonstrations and maritime study, night vision windshield, undersea master communications node and special threat awareness receiver/transmitter. Planned mobility projects: conformal load-bearing antenna structure/systems LPI/LPD antennas for SOF combatant craft, aircraft camouflage paint/visual and infrared signature reduction, ultra- hi-intensity, eye safe long range illumination for NSW craft. Investigate autonomous high fidelity modeling and scaling of maritime platforms and initialize composite type technologies for SOF craft reliability and survivability properties. (1QTR02-3QTR02) • (1.599) SOF Weapons Technologies. Complete development of FY01 sub-projects. Continue to exploit technologies to provide SOF with stand-off capabilities for targeting, tracking and locating personnel and equipment. Exploit technologies to discriminate targets and provide real-time active decision making capabilities. Exploit technologies that enhance logistics, reduce cost and enhance performance of SOF weapons and munitions. Exploit technologies to provide multipurpose, adaptable weapons applicable to SOF platform and missions. Continue the development of the shoulder fired smart round and the universal initiator. Planned project to be transitioned to SOST universal initiator and planned weapons projects: Enhanced M4 carbine technology prototypes and destructive countermeasures which explore advanced munition technologies to improve indirect fire accuracy and lethality. (1QTR02-3QTR02) • (0.992) SOF Sustainment Technologies. Complete development of FY01 sub-projects. Continue to exploit technologies to increase SOF's survivability and performance. Continue to exploit technologies to improve the human sensory performance without interfering with normal sensory functions. Continue the development of the shoulder-fired smart round and the universal initiator. Planned sustainment projects: special tactics rappel system. (1QTR02-3QTR02) 	

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<ul style="list-style-type: none"> • (0.750) Concept Exploration Studies. Explore/validate concepts for projects being continued or initiated in support of the USSOCOM desired operational capabilities. (2QTR02) • (0.300) Technology Development Exploitation. Exploit technologies to meet critical SOF capability objectives. Requirements in these areas may be advertised to industry and government research and development agencies via broad area announcements and calls for white papers. (3QTR02) • (0.800) Details of this project are provided under separate cover. (1QTR02-2QTR02) <p>B. <u>Other Program Funding Summary</u>: None.</p> <p>C. <u>Acquisition Strategy</u>: None.</p> <p>D. <u>Schedule Profile</u>: None.</p>		

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APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7			R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition/ Project S200									
COST (Dollars in Millions)			FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	Cost to Complete	Total Cost
S200, Special Operations Special Technology			7.716	13.615	7.582							
NOTE: FY00 and FY01 funds are in PE1160402BB.												
A. <u>Mission Description and Budget Item Justification</u>												
<p>This project conducts rapid prototyping and Advanced Technology Demonstrations (ATDs). It provides a means for demonstrating and evaluating the utility of emerging/advanced technologies in as realistic an operational environment as possible by Special Operations Forces (SOF) users. This project integrates efforts with each other and conducts technology demonstrations in conjunction with joint experiments and other assessment events. Evaluation results are included in a transition package, which assists in the initiation of or insertion into an acquisition program. The project also addresses sub-projects that are a result of unique joint, special mission, or area-specific needs for which a few-of-a-kind prototypes must be developed on a rapid response basis, or are of sufficient time sensitivity to accelerate the prototyping effort of a normal acquisition program in any phase. Sub-projects include:</p> <ul style="list-style-type: none"> • Advanced Sensors. ATD to provide SOF with an integrated hand-held, multi-sensor reconnaissance capability to observe, locate, and report on targets. • Advanced Sniper Weapon Fire Control. Full wind vector ballistic solution at extended range (1200 meters). • Aircraft Off/On Load System. Demonstrate system to air drop platforms or SOF-unique pallets without the use of material handling equipment. • Integrated Bridge System. A system that enhances maritime craft bridge-console and operator interface through human factor engineering and integration with console design and displays. 												

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<ul style="list-style-type: none"> • Intrusion Sensor. A miniature, multi-sensor system to detect local threats. • Low Probability of Intercept/Detection (LPI/D) Imagery Link. Demonstrate a short range, high data rate, networked communications link for SOF applications. • Maximum Efficiency Language Trainer. Demonstrate an advanced computer based virtual reality interactive language tutor for SOF applications. • Quick Erect Antenna. Improved antenna to reduce set-up time requirements in support of psychological operations. • Remote Miniature Weather Station. Man-portable, air-drop capable weather sensors with a transmission system for terrestrial based unattended weather collection operations. • SOF Autonomous Landing System. Demonstrate the capability to provide navigation guidance for SOF aircraft approaching a landing field in adverse weather. • SOF Enhanced Weapons. Weapons and munitions prototypes for increased range, improved accuracy, and improved performance against hardened targets. • SOF Robotics. Leverage air, ground, and maritime robotics technology for SOF evaluations to determine operational utility. • Tactical Personal Computer. Demonstrate advanced wearable computer technology for SOF special reconnaissance and combat control team applications. 	

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<ul style="list-style-type: none"> • Underwater Adhesives. Demonstrate advanced adhesive technologies for emplacing underwater demolitions. • Small Combatant Craft. Fabricate and test a high speed, low signature craft for the insertion and extraction of SOF. • Littoral Warfare Craft. Demonstrate a high speed, medium range watercraft that submerges on target, which can perform insertion/extraction missions. <p>FY 2000 ACCOMPLISHMENTS:</p> <ul style="list-style-type: none"> • (2.123) SOF Command, Control, Communications, Computer and Intelligence (C4I) ATDs. Completed development of and evaluated LPI/D Imagery Link. Continued to exploit emerging robotics technology for SOF applications. Exploited emerging technology to conduct ATDs that provide SOF with a robust C4I capability to ensure uninterrupted information exchange, influence situations to support mission accomplishment, and reduce an adversary's ability to use information. Exploited emerging technology to conduct ATDs that provide SOF with a restricted line-of-sight personnel locator system. Fabricated initial design for a phased array hatch mounted antenna for SOF fixed wing aircraft, developed applications for the tactical personal computer for SOF mission areas, conducted design for a wide field of view night vision goggle, conducted robotics demonstrations that evaluated communications developments. Completed the development of the Miniature Audio/Visual Surveillance System and transitioned the remote miniature weather station to the unattended ground sensor Advanced Concept Technology Demonstrator. (1QTR00-4QTR00) • (1.905) SOF Mobility ATDs. Completed evaluation and transition of SOF Autonomous Landing System. Continued to exploit emerging technology to conduct ATDs that provide SOF with survivable mobility operations in high threat areas and enhanced situational awareness. Exploited emerging technology to conduct ATDs that provide SOF mobility assets with enhanced situational awareness and beyond line-of-sight threat detection. Conducted maritime analysis for craft and weapons associated with SOF maritime platforms. Explored advanced mobility technologies for robotics to 	

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<p>include drive train, center of gravity issues and climbing capabilities. Completed and transitioned the structural usage monitor system and integrated bridge system. (1QTR00-2QTR00)</p> <ul style="list-style-type: none"> • (1.002) SOF Weapons ATDs. Completed evaluation and transition of Advanced Sniper Weapon Fire Control. Completed development of FY 1999 sub-projects to completion and evaluation. Exploited emerging technology to conduct ATDs that provide SOF with a man-portable system to detect enemy indirect fire systems. Completed and transitioned the development of the advanced warhead device and active denial technologies. (1QTR00-2QTR00) • (1.586) SOF Sustainment ATDs. Completed development of and evaluated FY 1999 sub-projects. Continued to exploit emerging technologies to conduct ATDs that provide SOF with increased survivability and performance. Conducted demonstration of the tactile sensor. Conducted demonstrations utilizing fuel cell and other alternative fuel technologies in place of conventional batteries. Evaluated acoustic based sensor that detects personnel and vehicle movement used in perimeter protection. Conducted analysis to waterproof a digital radio to 66 feet. Conducted a demonstration of an underwater adhesive device capable of attaching underwater demolitions to a variety of surfaces. Completed and transitioned the quick erect antenna mast and maximum efficiency language translator. (2QTR00-4QTR00) • (0.500) Technology Exploitation Initiative (TEI). Exploited emerging technologies to meet critical SOF requirements and encouraged industry and government lab participation in identifying enhancements to SOF in critical areas. The wind tunnel integrated real time in the cockpit/real time out of the cockpit experiments and demonstrations were conducted and completed. (4QTR00) • (0.600) Details of this project are provided under separate cover. (1QTR00-2QTR00). <p>FY 2001 PLAN:</p>	

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<ul style="list-style-type: none"> • (2.120) SOF C4I ATDs. Complete development and evaluation of FY00 sub-projects. Continue to exploit emerging technologies to conduct ATDs that provide SOF with a robust C4I capability to ensure uninterrupted information exchange, influence situations to support mission accomplishments, and reduce an adversary's ability to use information. Exploit emerging technology to conduct ATDs that provide SOF with increased sensory performance. Exploit emerging technologies to locate and track targets or items of interest. Sub-projects include: night vision enhancements, LPI/D Imagery Links, communications suite for robotics and other tactical uses, acoustic sensors and intelligence systems. Initiate projects in conformal antennas burst and other tactical communications. (1QTR01-3QTR01). • (2.025) SOF Mobility ATDs. Complete development and evaluation of FY00 sub-projects. Continue to exploit emerging technologies to conduct ATDs that provide SOF with survivable mobility operations in high threat areas and with enhanced situational awareness. Exploit emerging technologies to conduct ATDs that provide SOF mobility assets with a reduction in logistic support requirements. Exploit emerging technologies to rapidly deploy and extract SOF personnel and craft. Exploit technologies to allow reconnaissance and conduct direct action in high threat areas using unmanned systems. Sub-projects include: penetrating aircraft terrain following/terrain avoidance systems and a geological survey kit and mobility enhancements for robotic platforms. Initiate projects for a Sea, Air, Land Delivery Vehicle (SDV) airdrop system, SDV periscope, and vehicle camouflage system. (2QTR01-3QTR01). • (1.697) SOF Weapons ATDs. Complete development and evaluation of FY00 sub-projects. Continue to exploit emerging technologies to conduct ATDs that provide SOF with multi-role/multi-purpose weapons and demolitions with a broader range of potential effects and increased accuracy. Sub-projects include: underwater adhesives and advanced wind sensors for sniper weapons. Initiate projects for an enhanced M203 munition that provides infrared illumination. (2QTR01-3QTR01). • (1.211) SOF Sustainment ATDs. Continue development and evaluation of FY00 sub-projects. Continue to exploit emerging technologies to conduct ATDs that provide SOF with increased survivability and performance. Sub-projects include: tactical personal computer – develop applications for SOF operators to effectively and efficiently manage airfield seizure. Initiate project for a standoff silent loudspeaker. (1QTR01-3QTR01). 	

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<ul style="list-style-type: none"> • (0.496) TEI. Exploit emerging technology to meet critical SOF requirements and encourage industry and government lab participation in identifying enhancements to SOF in critical areas. (3QTR01). • (0.729) Littoral Warfare Craft. Exploit established technology to demonstrate craft as a conceptual, multi-mission platform. Explore a variety of mission modules and equipment. (2QTR01-3QTR01) • (5.337) SOF Combatant Craft. Fabricate and test a semi-submersible, high speed, low signature demonstrator vessel intended for short to medium range insertion/extraction missions. (2QTR01-3QTR01) <p>FY 2002 PLAN:</p> <ul style="list-style-type: none"> • (1.282) SOF C4I ATDs. Complete development and evaluation of FY01 sub-projects. Continue to exploit emerging technologies to conduct ATDs that provide SOF with a robust C4I capability to ensure uninterrupted information exchange, influence situations to support mission accomplishment, and reduce an adversary's ability to use information. Exploit emerging technology to conduct ATDs that provide SOF with increased sensory performance. Exploit emerging technologies to locate and track targets or items of interest. Continue the development of the antenna enhancements, LPI/D imagery forwarding, robotics, burst communications & low probability of detection antenna project, standoff silent loudspeaker and tactical communications technologies projects. Planned projects that will be completed are LPI/D imagery link and tactical personal computer. Planned C4I projects: special tactics reaction man-portable integrated global broadcasting system/joint broadcasting system and day/night sniper scope. These projects will demonstrate and prototype decoy electro-optic destructive countermeasures to deny engagement by lasers and directed energy weapons, demonstrate long range illumination compatible with night vision devices, improve image intensifiers by integrating other technologies to obtain color images and then record and transfer data, and develop situational awareness devices utilizing satellite receivers and conformal antenna technologies. (1QTR02-3QTR02) 	

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<ul style="list-style-type: none"> • (1.855) SOF Mobility ATDs. Complete development and evaluation of FY01 sub-projects. Continue to exploit emerging technologies to conduct ATDs that provide SOF with survivable mobility operations in high threat areas and with enhanced situational awareness. Exploit emerging technologies to conduct ATDs that provide SOF mobility assets with a reduction in logistic support requirements. Exploit emerging technologies to rapidly deploy and extract SOF personnel and craft. Exploit technologies to allow reconnaissance and conduct direct action in high threat areas using unmanned systems. Exploit technologies to reduce cost or enhance the performance of existing SOF platforms. Continue the development of robotics; penetrating aircraft terrain following/terrain avoidance technologies; sea, air, land delivery vehicle airdrop; vehicle camouflage system; and a low observable periscope for maritime platforms. Planned mobility projects: tactical system specific emitter identification technology insertion and portable cradle for NSW RIB. These will demonstrate an integrated maritime autonomous vehicle with sensors and communications technologies which will be a force multiplier for SOF, combatant craft technologies that will enhance the reliability of hulls, and propulsion and weapons systems for SOF maritime craft. (2QTR02-3QTR02) • (1.966) SOF Weapons ATDs. Complete development and evaluation of FY01 sub-projects. Continue to exploit emerging technologies to conduct ATDs that provide SOF with multi-role/multi-purpose weapons and demolitions with a broader range of potential effects and increased accuracy. Demonstrate capabilities of smart munitions and fire and forget capability. Exploit technologies to increase stand-off from threat weapons systems. Decrease cost and logistic support requirements for SOF weapons systems. Continue the development of infrared search track technologies, wind sensing technologies and enhanced M203 munitions. Planned projects that will be completed are the advanced sniper weapon fire control system, active denial technology and the advanced lightweight grenade launcher. Planned weapons projects: remote stand-off capable/remote operations small arms mount and joint SOF demolitions kit. Demonstrate and prototype munitions that enhance mortars and grenades; develop explosives that are pourable, lighter and more efficient; and enhance weapons mounted optics for long range targets and reconnaissance. (1QTR02-3QTR02) • (1.379) SOF Sustainment ATDs. Continue development and evaluation of FY01 sub-projects. Continue to exploit emerging technologies to conduct ATDs that provide SOF with increased survivability and performance. Continue the development of intrusion sensor system, equipment waterproofing technologies, underwater adhesive technologies and alternative power sources technologies. Planned project that will be completed is battery recharging system. Planned sustainment projects: develop camouflage schemes through paint patterns and coatings for SOF personnel and equipment, 	

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<p>prototype advanced navigation system for military free-fall operations utilizing global positioning system and inertial navigation technologies, and develop advanced learning technologies that use web-based, decision-aided tools. (1QTR02-3QTR02)</p> <ul style="list-style-type: none"> • (0.500) TEI. Exploit emerging technology to meet critical SOF requirements and encourage industry and government lab participation in identifying enhancements to SOF in critical areas. (3QTR02) • (0.600) Details of this project are provided under separate cover. (1QRT02-2QTR02) <p>B. <u>Other Program Funding Summary</u>: None.</p> <p>C. <u>Acquisition Strategy</u>: None.</p> <p>D. <u>Schedule Profile</u>: None.</p>	

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APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7			R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project S275							

COST (Dollars in Millions)	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	Cost to Complete	Total Cost
S275, Special Operations Forces Medical Technology	3.849	2.004	1.917							

NOTE: FY00 and FY01 funds are in PE1160407BB.

A. Mission Description and Budget Item Justification

This project provides studies, non-system exploratory advanced technology development and evaluations. The focus is on medical technologies, centering on physiologic, psychologic, and ergonomic factors affecting the ability of Special Operations Forces (SOF) to perform their missions. Current equipment and technology does not meet force requirements. The unique nature of special operations requires unique approaches to combat casualty care, medical equipment and other life support capabilities including life support for high altitude parachuting, combat swimming and other SOF unique missions. This project provides guidelines for the development of selection and conditioning criteria, thermal protection, decompression procedures, combat casualty procedures and life support systems. The project supports the development and evaluation of biomedical enhancements for the unique requirements of all SOF in the conduct of their diverse missions. This effort is defined by the following seven areas of investigation:

- Combat casualty management will: (1) review the emergency medical equipment currently used in the SOF community and compare it to currently available civilian technology, and provide field testing of emergency medical equipment in the adverse environmental conditions encountered by SOF; (2) evaluate current tactical combat casualty care doctrine to ensure consideration of the wide variety of tactical scenarios encountered and apply the latest concepts in casualty care to these circumstances; and (3) develop CD-ROM and internet compatible automated programs to support SOF medical personnel information needs while operating in austere locations and medical interviews in multiple foreign languages.
- Decompression procedures for SOF diving operations will: (1) decrease the decompression obligation in SOF diving operations through the use of surface-interval oxygen breathing; and (2) investigate pre-oxygenation requirements for high-altitude SOF parachute operations.

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)		DATE JUNE 2001
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project S275	
<ul style="list-style-type: none"> • Exercise-related injuries will evaluate the effectiveness of applying sports medicine diagnostic, therapeutic, and rehabilitative techniques in management of the traumatic and overuse injuries commonly encountered among SOF. • Inhaled gas toxicology will evaluate the feasibility of using pharmacologic intervention to reduce or eliminate the possibility of central nervous system toxicity. • Medical sustainment training techniques will: (1) examine novel ways of providing and documenting medical sustainment training for SOF corpsmen and physicians; and (2) develop a system for constantly upgrading the medical expertise of SOF medical personnel by incorporating new research reports and clinical information into a CD-ROM based computer system which can be used by medical personnel in isolated duty circumstances. • Mission-related physiology will: (1) develop accurate measures to evaluate SOF mission-related performance; (2) delineate nutritional strategies designed to help personnel apply known nutritional concepts to optimize performance in mission and training scenarios; (3) evaluate potential ergogenic agents as they apply to enhancing mission-related performance; (4) study the safety and efficacy of various substances to increase performance in sustained operations; (5) develop a quantitative test for night vision suitable for screening SOF candidates and study ways to enhance unaided night vision; and (6) study pharmacologic measures to prevent acute mountain sickness in high altitude SOF operations. • Thermal protection will evaluate the efficacy of current thermal protective measures in maintaining combat swimmer performance. <p>FY 2000 ACCOMPLISHMENTS:</p> <ul style="list-style-type: none"> • (0.888) Continued ongoing studies as follows: Characterization of SOF Mission-Related Performance Levels, High Altitude Parachute Operations after Diving, and Influence of Post Landing Exercise on Altitude Decompression Sickness. Completed ongoing studies as follows: Evaluation of Decompression Risk using the VVAL 18 Decompression Algorithm, Special Operations Interactive Medical Training Program, Tactical Combat Casualty Care in SOF Operations, Hemostatic Agents in Uncontrolled Hemorrhage, and Ergogenics in Special Operations. (1QTR00) 		

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE JUNE 2001
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project S275
<ul style="list-style-type: none"> • (2.961) Initiated new studies as follows: Laser Insitu Keratomileusis in Special Operations, Operational Medicine CD-ROM, Casualty Evacuation Delays and Outcomes, SOF Medical Skills Utilization Study, VVAL 18 Dive Planner, Enhancement of SOF Medical Readiness Training through Human Patient Simulators, Respiratory Muscle Training Operational Enhancements, Special Operations Medical Diagnostic System, Impact of Breathing Gas Mixtures on Decompression Sickness, and Efficacy of Dexedrine for SOF Performance. Completed new studies as follows: SOF Community Norm on the Mission-Related Performance Battery. (1-2QTR00) <p>FY 2001 PLAN:</p> <ul style="list-style-type: none"> • (0.978) Continue ongoing studies as follows: Impact of Breathing Gas Mixtures on Decompression Sickness, Laser Insitu Keratomileusis in Special Operations, and Enhancement of SOF Medical Readiness Training through Human Patient Simulators. Complete ongoing studies as follows: Respiratory Muscle Training Operational Enhancements, High Altitude Parachute Operations after Diving, and Influence of Post Landing Exercise on Altitude Decompression Sickness, Special Operations Medical Diagnostic System, Operational Medicine CD-ROM, Characterization of SOF Mission-Related Performance Levels, Efficacy of Dexedrine for SOF Performance, Casualty Evacuation Delays and Outcomes, SOF Medical Skills Utilization Study, and VVAL 18 Dive Planner. (1-2QTR01) • (1.026) Initiate new studies as follows: Protective Barrier Substances for Coelenterate Envenomation, Oral Fluoroquinolone Prophylaxis in Combat Trauma, Advanced Sea, Air, Land Delivery System (ASDS)/Underwater Breathing Apparatus, Caprine Analgesia, Exercise Enhanced Pre-Breathe for DCS Risk in CV-22, Health Surveillance in Deployed SOF Personnel, Warm Water Diving, Local and Distant Effects of Injectable Hemostatic Drugs, Hypoxia and High Altitude Parachute Operations, and Traumatic Obstructed Airway. Complete new studies as follows: Motion Sickness in Naval Special Warfare, Architecture and Digital Data Base for Combatant Craft Ergonomics, and Effect of Hemorrhagic Shock on Optimal Pre-Hospital Tourniquet Time. (1-2QTR01) 	

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)		DATE JUNE 2001
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project S275	
<p>FY 2002 PLAN:</p> <ul style="list-style-type: none"> • (1.051) Continue ongoing studies as follows: Impact of Breathing Gas Mixtures on Decompression Sickness, Laser Insitu Keratomileusis in Special Operations, Health Surveillance in Deployed SOF Personnel, Hypoxia and High Altitude Operations, ASDS/Underwater Breathing Apparatus, Exercise Enhanced Pre-Breathe for DCS Risk in CV-22, Oral Fluoroquinolone Prophylaxis in Combat Trauma, Local and Distant Effects of Injectable Hemostatic Agents, and Traumatic Obstructed Airway. Complete ongoing studies as follows: Enhancement of SOF Medical Readiness Training through Human Patient Simulators, Protective Barrier Substances for Coelenterate Envenomation, Caprine Analgesia, and Warm Water Diving. (1QTR02) • (0.866) Initiate new studies as follows: Medical R&D Enhancements for Non-Medical Systems, Medical Applications to Humanitarian Assistance, Rapid Diagnostic Systems, Interactive Web-based SOF Medical Education, Remote Telemetry Patient Monitoring/Casualty Assessment, Blunt Trauma Injuries, and Advanced Combat Casualty Care Procedures. Complete new studies as follows: Emergency Oxygen Decompression Procedures for the VVAL 18 Algorithm, and Casualty Retrieval Devices. (2QTR02) <p>B. <u>Other Program Funding Summary</u>: None.</p> <p>C. <u>Acquisition Strategy</u>: None.</p> <p>D. <u>Schedule Profile</u>: None.</p>		

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RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)						DATE						
						JUNE 2001						
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7			R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project S350									
COST (Dollars in Millions)			FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	Cost to Complete	Total Cost
S350, Special Operations Forces Planning and Rehearsal System (SOFPARS)			4.036	2.353	5.089	2.872	2.686	3.645	3.720	3.799	Cont.	Cont.
<p><i>NOTE: FY00 and FY01 funds are in PE1160404BB.</i></p> <p>A. <u>Mission Description and Budget Item Justification</u></p> <p>Present mission planning capabilities cannot adequately support the stated mission need. Existing systems are insufficient for planning special operations. Specifically, existing systems lack sufficient processing speed and flexibility, storage capacity, growth potential, graphics (both on-screen and hard copy output), image processing and storage, and the ability to process combat planning folder data in a timely manner. They also lack near-real-time access to national/tactical level databases and the capability to update data in a timely fashion, and the means to effectively process the data during mission planning. The mobility, complexity, quantity, and lethality of enemy threats dictate automated data input and systems that can be interfaced via electronic communication systems throughout the Special Operations Forces (SOF).</p> <p>SOF Planning and Rehearsal System (SOFPARS) is an evolutionary acquisition program for developing an automated mission planning capability with automated interfaces to Command, Control, Communications, Computer and Intelligence Systems. SOFPARS will consist of a collection of automated mission planning hardware and software tools. Those tools include SOF enhancements to the Air Force Mission Support System's personal computer-based Portable Flight Planning Software (PFPS) and the future Joint Mission Planning System (JMPS).</p> <p>Current SOFPARS funding supports software development, hardware procurement, operational support, and emergent requirements to the air components (Air Force Special Operations Command and United States Army Special Operations Command) for basic mission planning and data loading to the following aircraft: AC-130H/U, AH/MH-6J/M, MC-130E/H/P, MH-47E/D, MH-53J/M, MH-60K/L, and CV-22. The Maritime Component (Naval</p>												

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RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)		DATE JUNE 2001
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project S350	
<p>Special Warfare Command) is currently funded as a separate program known as Special Warfare Automated Mission Planning System. Although the SOFPARS Air effort will meet the joint requirement to ensure interoperability across SOF and the Services, JMPS Migration, Ground and Theater Special Operations Command requirements currently are unfunded. Upon funding, SOFPARS will also provide a timely mission critical planning/data transfer capability to the SOF ground, maritime and theater systems/forces. This would allow SOF commanders and operators to plan and respond quickly to missions of national importance, as well as day-to-day tasking and a multi-command-level planning capability at major SOF headquarters, theater headquarters, SOF forward operating bases and forward operating locations.</p> <p>FY 2000 ACCOMPLISHMENTS:</p> <ul style="list-style-type: none"> • (1.100) Began new software architecture development for interfaces to SOF component Air, Ground, & Maritime mission planning, rehearsal and execution systems environment. Completed PFPS releases 3.1 and 3.11. (3QTR00-4QTR00) • (1.255) Continued to work deferred/future requirements and aircraft weapons/electronics interface support for Personal Computer (PC)-based development and interface with joint systems. This included work to develop flight performance models for SOF aircraft. (3QTR00-4QTR00) • (1.179) Program office and engineering support/services. (1QTR00-4QTR00) • (0.502) Test and Evaluation was performed on core software, installable software modules, aircraft weapons/electronics, and flight performance models. (3QTR00-4QTR00) 		

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APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project S350	
<p>FY 2001 PLAN:</p> <ul style="list-style-type: none"> • (1.263) Continue to develop software interfaces to ensure system compatibility with service/component mission planning, rehearsal, and execution intel/ops systems environment. Planned PFPS release 3.2. (3QTR01) • (0.738) Continue meeting deferred/future requirements and aircraft weapons/electronics enhancements and interfaces with joint systems. (3QTR01) • (0.352) Continue test and evaluation on core software, installable software modules, aircraft weapons/electronics, and flight performance models. (1QTR01-3QTR01) <p>FY 2002 PLAN:</p> <ul style="list-style-type: none"> • (1.206) Continue to develop software architecture interfaces to service/component mission planning, rehearsal, and execution systems environment. Planned PFPS release 3.3. (4QTR02) • (0.706) Continue meeting deferred requirements and aircraft weapons/electronics interfaces support for PC development and interface with joint systems. (4QTR02) • (2.976) Conduct the development and modification of automated tools to meet ground mission planning requirements. (1QTR02-4QTR02) • (0.201) Continue test and evaluation on core software, installable software modules, aircraft weapons/electronics, and flight performance models. (4QTR02) 		

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RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)						DATE				
						JUNE 2001				
APPROPRIATION / BUDGET ACTIVITY			R-1 ITEM NOMENCLATURE / PROJECT NO.							
RDT&E, DEFENSE-WIDE / 7			PE 1160444BB Special Operations Forces (SOF) Acquisition / Project S350							
B. <u>Other Program Funding Summary</u>										
	<u>FY00</u>	<u>FY01</u>	<u>FY02</u>	<u>FY03</u>	<u>FY04</u>	<u>FY05</u>	<u>FY06</u>	<u>FY07</u>	To Complete	Total Cost
PROC, SOFPARS	2.328	2.003	1.448	0.929	0.949	0.570	2.202	1.537	Cont.	Cont.
C. <u>Acquisition Strategy:</u>										
<p>Develop mission planning software to support SOF operations leveraging ongoing personal computer-based efforts known as 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.</p>										
D. <u>Schedule Profile</u>										
					<u>FY00</u>		<u>FY01</u>		<u>FY02</u>	
					1	2	3	4	1	2
										3
										4
										1
										2
										3
										4
Mission Planning Environment Software Suite										
Portable Flight Planning System Releases										
	3.1						x			
	3.11							x		
	3.2								x	

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RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)					DATE JUNE 2001											
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7					R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project S350											
					<u>FY00</u>		<u>FY01</u>				<u>FY02</u>					
<u>D. Schedule Profile</u>					1	2	3	4	1	2	3	4	1	2	3	4
3.3																x
Aircraft/Weapons & Electronics Software Modules (one per Aircraft Avionics Type)																
Enhancements required to take advantage of new PFPS Functionality							x	x			x					x
Installable Software Modules																
Route Analysis Tool							x	x			x					x
Mission Planning Module									x	x						
Development and Modification of Automated Tools													x	x	X	x

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Exhibit R-3 COST ANALYSIS						DATE: JUNE 2001					
APPROPRIATION / BUDGET ACTIVITY				Special Operations Forces (SOF) Acquisition/PE1160444BB							
RDT&E DEFENSE-WIDE / 7				SOF Planning and Rehearsal System (SOFPARS)/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 FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	Budget Cost FY02	Award Date FY02	To Complete	Total Program
Subtotal Product Dev											
Remarks:											
Development Support	T&M	Tybrin, Ft Walton Beach, FL	5.236	0.550	VARIOUS	0.479	VARIOUS	0.502	VARIOUS	Cont.	Cont.
	C/CPFF	CAS, Huntsville, AL		0.875	Dec-99	0.700	Dec-00	0.809	Dec-01	Cont.	Cont.
	SS/CPFF	GTRI, Atlanta, GA		0.606	Aug-00	0.822	Dec-00	0.320	Dec-01	Cont.	Cont.
	C/CPFF	LMFS, Owego, NY	6.997	0.324	VARIOUS			0.281	VARIOUS	Cont.	Cont.
	TBD	TBD						2.976	Dec-01	Cont.	Cont.
Subtotal Spt											
			12.233	2.355		2.001		4.888		Cont.	Cont.
Remarks:											

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Exhibit R-3 COST ANALYSIS						DATE: JUNE 2001					
APPROPRIATION / BUDGET ACTIVITY				Special Operations Forces (SOF) Acquisition/PE1160444BB							
RDT&E DEFENSE-WIDE / 7				SOF Planning and Rehearsal System (SOFPARS)/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 FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	Budget Cost FY02	Award Date FY02	To Complete	Total Program
Developmental Test & Eval	MIPR	46th FTS, Hurlburt Field, FL	0.350	0.174	VARIOUS					Cont.	Cont.
Developmental Test & Eval	SS/CPFF	Salinas TECH, FL		0.017	Apr-00						0.017
Operational Test & Eval	MIPR	18th FTS, Hurlburt Field, FL	0.497	0.220	Nov-99	0.352	VARIOUS	0.141	VARIOUS	Cont.	Cont.
GFE	MIPR	Integrated Aviation Systems 21 Working Group Ft Campbell, KY	0.188	0.091	Nov-99			0.060	Nov-01	Cont.	Cont.
Subtotal T&E			1.035	0.502		0.352		0.201		Cont.	Cont.
Remarks:											
Contractor Engineering Spt	PO	CAS Inc, Huntsville, AL	3.835	0.390	Nov-99					Cont.	Cont.
Government Engineering Spt	ALLOT	AATD, Ft Eustis, VA	7.235	0.627	Nov-99					Cont.	Cont.
Travel	ALLOT	SOF PMO Ft Eustis, VA		0.070	VARIOUS					Cont.	Cont.
Overhead	ALLOT	SOF PMO Ft Eustis, VA		0.092	VARIOUS					Cont.	Cont.
Subtotal Management			11.070	1.179						Cont.	Cont.
Remarks:											
Total Cost			24.338	4.036		2.353		5.089		Cont.	Cont.
Remarks:											

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)					DATE JUNE 2001					
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7			R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project S400							

COST (Dollars in Millions)	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	Cost to Complete	Total Cost
S400, Special Operations Intelligence	5.754	7.790	3.089							

NOTE: FY00 and FY01 funds are in PE1160405BB.

A. Mission Description and Budget Item Justification

This project provides for the identification, development, and testing of Special Operations Forces (SOF) intelligence equipment to identify and eliminate deficiencies in providing timely intelligence to deployed forces. The following distinct sub-projects address the primary areas of intelligence dissemination, sensor systems, integrated threat warning to SOF mission platforms, and tactical exploitation of national system capabilities. USSOCOM has developed an overall strategy to ensure that Command, Control, Communications, Computers, and Intelligence (C4I) systems continue to provide SOF with the required capabilities throughout the 21st century. USSOCOM's C4I systems comprise an integrated network of systems providing positive command and control and timely exchange of intelligence and threat warning to all organizational echelons. The C4I systems that support this new architecture will employ the latest standards and technology by transitioning from separate systems to full integration with the infosphere. The infosphere will allow SOF elements to operate with any force combination in multiple environments. The intelligence programs funded in this project will meet annual emergent requirements and are grouped by the level of organizational element they support: Operational Element (Team), Above Operational Element (Deployed), and Above Operational Element (Garrison). Sub-projects include:

OPERATIONAL ELEMENT (TEAM)

- PRIVATEER. PRIVATEER is part of an evolutionary signal intelligence system migration and acquisition program that provides a permanent full spectrum radar and communications early warning capability aboard Cyclone-class Patrol Coastal (PC) and the MK V Special Operations Craft (SOC). PRIVATEER hosts a common software architecture that controls a variety of hardware modules designed to satisfy the unique platform

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<p>requirements of each ship class. System configuration provides the equipment necessary to monitor and provide direction finding on radar and communications signals of interest. Also provides broadcast threat warning capability. Architecture is Joint Deployable Intelligence Support System/Joint Maritime Communications and Intelligence Support System compliant with UNIX-based software. Beginning in FY2002, PRIVATEER migrates to the Joint Threat Warning System (JTWS) program.</p> <ul style="list-style-type: none"> • National Systems Support to SOF (NSSS). NSSS is a project to introduce and integrate national systems capabilities into the SOF force structure and operations. NSSS activities include increasing national systems awareness, demonstrating the tactical utility of national system data, testing technology and evaluating operational concepts in biennial Joint Staff Special Projects, and transitioning promising concepts and technologies into the SOF materiel inventory. • JTWS. JTWS develops a modular, scaleable system that consists of user defined, integrated common hardware modules driven by an interoperable software architecture and configurable for use in manpack, unattended, and platform versions (ground, aircraft, and maritime). JTWS functional requirements include communications monitoring and direction finding, and receipt and correlation of near-real-time tactical intelligence broadcasts. This JTWS program consolidates legacy systems to include PRIVATEER, SILENT SHIELD, and SOF Signals Intelligence Manpack Manpack System. • SILENT SHIELD. The program is part of an evolutionary JTWS migration being developed to support SOF-wide operations. System development emphasizes a rapid prototyping effort to develop, test, and field systems that provide direct threat warning and enhanced situational awareness data to SOF aircrews at the collateral SECRET level. This program is consolidated under JTWS beginning in FY02. <p>ABOVE OPERATIONAL ELEMENT (DEPLOYED)</p>		

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<ul style="list-style-type: none"> Special Operations Tactical Video System (SOTVS). SOTVS will provide the capability to forward digital imagery near-real-time via current and planned future organic SOF tactical communication systems in support of surveillance and reconnaissance missions. This manpackable tactical system will consist of one version: a standard splash proof version using moderately ruggedized still digital cameras (SV1A). <p>FY 2000 ACCOMPLISHMENTS:</p> <ul style="list-style-type: none"> (3.410) JTWS. Continued system architecture and software development/migration of the JTWS. (3QTR00-4QTR00) (1.105) NSSS. Continued to participate in Joint Chiefs of Staff (JCS) and theater Commander in Chief (CINC) advanced concepts technology demonstrations which continue to evaluate national technical means support to amphibious operations, overall interoperability and support of combined SOF and conventional operations. Continued to assess technology and operational utility of national systems. Provided systems engineering and technical assistance. (1QTR00-4QTR00) (1.239) SOTVS. Initiated development of SV2 (waterproof still digital camera). (4QTR00) <p>FY 2001 PLAN:</p> <ul style="list-style-type: none"> (3.895) JTWS. Continue system architecture and software development/migration of the JTWS. (1QTR01-4QTR01) (1.268) NSSS. Continue to participate in JCS and theater CINC advanced concepts technology demonstrations which continue to evaluate national technical means support to amphibious operations, overall interoperability and support of combined SOF and conventional operations. Continue to assess technology and operational utility of national systems. Provide systems engineering and technical assistance. (1QTR01-4QTR01) (1.557) PRIVATEER. Develop, integrate and test the Block 3 evolutionary technology insertion. (1QTR01-4QTR01) 		

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)		DATE JUNE 2001								
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project S400									
<ul style="list-style-type: none"> (1.070) SOTVS. Continue development of SV2. (1QTR01-4QTR01) <p>FY 2002 PLAN:</p> <ul style="list-style-type: none"> (1.582) NSSF. Continue to participate in JCS and theater CINC advanced concepts technology demonstrations which continue to evaluate national technical means support to amphibious operations, overall interoperability and support of combined SOF and conventional operations. Continue to assess technology and operational utility of national systems. Provide systems engineering and technical assistance. (1QTR02-4QTR02) (1.507) JTWS. Initiate JTWS ground variant prototype development. (1QTR01-4QTR02) <p>B. <u>Other Program Funding Summary</u></p> <table> <thead> <tr> <th></th> <th><u>FY00</u></th> <th><u>FY01</u></th> <th><u>FY02</u></th> </tr> </thead> <tbody> <tr> <td>PROC, SOF Intel Systems</td> <td>17.652</td> <td>29.612</td> <td>7.037</td> </tr> </tbody> </table> <p>C. <u>Acquisition Strategy:</u></p> <ul style="list-style-type: none"> JTWS is an evolutionary acquisition program that consolidated legacy systems to include: PRIVATEER, SILENT SHIELD and SOF Signal Intelligence Manpack System. As an evolutionary acquisition program, JTWS will continue to introduce systems improvements via evolutionary technology insertions tailored to satisfy specific platform requirements. 				<u>FY00</u>	<u>FY01</u>	<u>FY02</u>	PROC, SOF Intel Systems	17.652	29.612	7.037
	<u>FY00</u>	<u>FY01</u>	<u>FY02</u>							
PROC, SOF Intel Systems	17.652	29.612	7.037							

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APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7					R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project S400											
<ul style="list-style-type: none"> SOTVS originally consisted of two still digital versions: Splashproof (SV1) and Waterproof (SV2). SV1 is predominately a commercial off the shelf/nondevelopmental item acquisition program. SV2 had to be developed. However, SV2 proved to expensive and the requirement was terminated from the Joint Operational Requirements Document. 																
					<u>FY00</u>			<u>FY01</u>			<u>FY02</u>					
<u>D. Schedule Profile</u>					1	2	3	4	1	2	3	4	1	2	3	4
NSSS Participation in Advanced Concepts Technology Demonstrations					x	x	x	x	x	x	x	x	x	x	x	x
PRIVATEER Evolutionary Technology Insertion Software Development, Integration and Testing									x	x	x	x				
JTWS Architecture & Software Development/Migration							x	x	x	x	x	x				
JTWS Ground Variant Prototype													x	x	x	x
SOTVS Integration and Test								x	x	x	x	x				

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Exhibit R-3 COST ANALYSIS						DATE: JUNE 2001					
APPROPRIATION / BUDGET ACTIVITY				Special Operations Forces Acquisition/PE1160444BB							
RDT&E DEFENSE-WIDE / 7				Special Operations Intelligence/S400							
Actual or Budget Value (\$ in millions)											
Cost Categories	Contract		Total	Budget	Award	Budget	Award	Budget	Award		
(Tailor to WBS, or System/Item Requirements)	Method & Type	Performing Activity & Location	PYs Cost	Cost FY00	Date FY00	Cost FY01	Date FY01	Cost FY02	Date FY02	To Complete	Total Program
Primary Hardware Dev	MIPR	SPAWAR, Charleston, SC	2.306	0.180	Aug-00	5.452	Nov-00	1.507	Nov-01	Cont.	9.445
	FFP/SS	Qual-Tron, Inc., Tulsa, OK	0.050								0.050
	VARIOUS	VARIOUS	42.029	0.100	Sep-00	0.980	Aug-01				43.109
	FFP MIPR	Eastman Kodak, Inc. Rochester, NY		1.239	Aug-00						1.239
	MIPR	Battle Command Lab Ft. Hurchuen, AZ		0.493	Aug-00						
Ancillary Hardware Dev	TBD	TBD									
	FP/SS	Wave Science, Inc, E Rochester, NY	0.005								0.005
	MIPR	Naval Undersea Warfare, Kpt, WA	0.090								0.090
	MIPR	Naval Air Warfare, St Inigoes, MD	1.231					1.015	Dec-01	Cont.	1.231
	TBD	TBD									Cont.
Systems Engineering	VARIOUS	VARIOUS	0.677	0.529	Jul-00	0.168	Jun-01				1.374
	MIPR	SAF/FMB Washington D C		0.500	Apr-00	0.468	Mar-01				
	MIPR	SPAWAR, Charleston, SC				0.180	Jan-01				0.180
	MIPR	SPAWAR, Charleston, SC	0.813								0.813
	Materiel/Equipment										
Subtotal Product Dev			47.201	3.041		7.248		2.522		Cont.	Cont.
Development Spt	MIPR	ESC, Hanscom AFB, MA	0.344								0.344
	MIPR	SPAWAR, Charleston, SC	0.145								0.145
Software Dev/Integ	MIPR	Naval Systems Mgt. Activity, VA	1.180								1.180
	MIPR	SPAWAR, Charleston, SC	1.822	2.618	Apr-00						4.440
	MIPR	Pt. Mugu, CA	0.050								0.050
	FFP/C	Delfin Systems, Santa Clara, CA	0.133								0.133
	MIPR	BTG, Inc., Fairfax, VA	1.205								1.205
Software Spt	MIPR	GSA, Kansas City, MO	0.130								0.130
Training Development	MIPR	GSA, Kansas City, MO	0.080								0.080
	MIPR	Naval Air Warfare, St Inigoes, MD	0.030								0.030
Integrated Logistics Spt											
Configuration Management	MIPR	SPAWAR, San Diego, CA	0.025								0.025
Technical Data	MIPR	Naval Air Warfare, St Inigoes, MD	0.090								0.090
Subtotal Spt			5.234	2.618							7.852

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Exhibit R-3 COST ANALYSIS						DATE: JUNE 2001					
APPROPRIATION / BUDGET ACTIVITY				Special Operations Forces Acquisition/PE1160444BB							
RDT&E DEFENSE-WIDE / 7				Special Operations Intelligence/S400							
Actual or Budget Value (\$ in millions)											
Cost Categories	Contract		Total	Budget	Award	Budget	Award	Budget	Award		
(Tailor to WBS, or System/Item Requirements)	Method & Type	Performing Activity & Location	PYs Cost	Cost FY00	Date FY00	Cost FY01	Date FY01	Cost FY02	Date FY02	To Complete	Total Program
Developmental Test & Eval	MIPR	SPAWAR, Charleston, SC	0.630								0.630
	MIPR	JTIC, Ft Huachuca, AZ	0.172								0.172
OT&E	MIPR	SPAWAR, Charleston, SC	1.737								1.737
	MIPR	DESA, Kirtland, NM	0.217								0.217
	MIPR	18 FLTS, Hurlburt Field, FL	0.027								0.027
	MIPR	Naval Air Warfare, St Inigoes, MD	1.155								1.155
	MIPR	Naval Air Warfare, St Inigoes, MD	0.398								0.398
	MIPR	National Accessment Group, Kirkland AFB, NM				0.090	Feb-01				
Subtotal T&E			4.336			0.090		0.000		Cont.	4.426
Government Engineering Spt	CPFF/C	Booz-Allen & Hamilton, McLean, VA	2.763	0.068	Oct-99	0.419	Oct-00				Cont.
Program Management Spt	CPFF/C	TBD						0.510	Oct-01	Cont.	Cont.
	MIPR	SPAWAR, Charleston, SC	0.487								0.487
Travel	N/A	USSOCOM, MacDill AFB, FL	0.097	0.027	VARIOUS	0.033	VARIOUS	0.057	VARIOUS	Cont.	Cont.
Subtotal Management			3.347	0.095		0.452		0.567		Cont.	Cont.
Remarks:											
Total Cost			60.118	5.754		7.790		3.089		Cont.	Cont.

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)					DATE JUNE 2001					
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7			R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Tactical Systems Development / Project S625							

COST (Dollars in Millions)	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	Cost to Complete	Total Cost
S625, SOF Training Systems	9.552	6.876	22.000							

NOTE: FY00 and FY01 funds are in PE1160404BB

A. Mission Description and Budget Item Justification

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

- AC-130U Gunship Aircrew Training Devices/Testbed (ATD/TB) (formerly AC-130U Gunship Aircrew/Maintenance Training System): The ATD/TB develops an integrated, ground-based combination training and mission rehearsal system to support initial, mission, special qualification, continuation, upgrade and maintenance training for the AC-130U Gunship aircrews. ATD/TB will be networked with other SOF simulators.
- AC-130H Crew Station Trainer: Currently all procedural training is conducted on powered-up static aircraft, or in the air. This program develops a procedural trainer for the battle management center.
- Light Assault Attack Reconfigurable Simulator (LASAR): 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 Enhancement Little Bird (MELB), aircraft. The MELB LASAR simulator will integrate initial, mission, special qualification, continuation, and upgrade flight training, including weapons training. Currently, no training devices exist with this capability.

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)		DATE JUNE 2001
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Tactical Systems Development / Project S625	
<ul style="list-style-type: none"> HLA: DOD-wide effort sponsored by Defense Simulator Modeling and Simulation Office to support a broad spectrum of distributed simulation applications, building on the experience of distributed interactive simulation protocols. <p>FY 2000 ACCOMPLISHMENTS:</p> <ul style="list-style-type: none"> (5.581) ATD/TB. Continued development to achieve full operational capability for navigator/fire control officer and sensor operator. Continue flight deck development. (1QTR00-4QTR00) (2.656) AC-130H Crew Station Trainer. Initiated development of a procedural trainer for AC-130H aircraft. (2QTR00) (0.101) LASAR. Conducted front end analysis/market survey activities leading to proposal preparation. (3QTR00) (1.214) Provided program management office support. (1QTR00-4QTR00) <p>FY 2001 PLAN:</p> <ul style="list-style-type: none"> (3.493) ATD/TB. Complete development of navigator/fire control officer and flight deck trainer and integration with the Battle Management Center (BMC). (1QTR01-4QTR01) (2.296) HLA. Update compliant HLA system conforming to HLA rules, the HLA interface specification, and the HLA object model template for the MC-130E, MC-130H, MH-47E, and MH-60K training devices. (1QTR01-4QTR01) (1.087) Program management office support. (1QTR01-4QTR01) 		

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)		DATE	JUNE 2001
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Tactical Systems Development / Project S625		

FY 2002 PLAN:

- (21.000) LASAR. Using initial analysis and market survey results, prepare specifications/statement of objectives, release request for proposal, conduct source selection evaluation and award contract. (1QTR01-4QTR01)
- (1.000) Program management office support. (1QTR01-4QTR01)

B. Other Program Funding Summary

	<u>FY00</u>	<u>FY01</u>	<u>FY02</u>	<u>FY03</u>	<u>FY04</u>	<u>FY05</u>	<u>FY06</u>	<u>FY07</u>	<u>To Complete</u>	<u>Total Cost</u>
PROC, SOF Training Systems	3.901	2.342								

C. Acquisition Strategy:

- ATD/TB program is currently in Phase II. The two-phase acquisition strategy first built a BMC testbed using production AC-130U avionics, commercial image generation, and computers to refine user requirements prior to the second phase to procure a complete BMC and flight deck aircrew training device. A Milestone II decision occurred 4QFY97. Phase II feasibility analysis has been completed. Hardware vendor selection process is complete and proof of principle activities began 2QFY99.

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)					DATE JUNE 2001							
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7					R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Tactical Systems Development / Project S625							
<ul style="list-style-type: none"> • LASAR. Award Engineering, Manufacturing and Development contracts by full and open competition. Maximize use of non-developmental item technology and actual Airworthy Aircraft Components for design, development and test. • HLA. Develop and maintain compliant HLA systems conforming to HLA rules, the HLA interface specification, and the HLA object model template for the MC-130E, MC-130H, MH-47E, MH-60K and A/MH6 training devices. 												
					<u>FY00</u>		<u>FY01</u>			<u>FY02</u>		
<u>D. Schedule Profile</u>					1	2	3	4	1	2	3	4
Aircrew Training Device/Testbed Development/Integration					x	x	x	x	x	x	x	x
HLA Update									x			
AC-130H Crew Station Trainer Contract Award						x						
AC-130H Crew Station Development/Integration							x	x	x	x		
LASAR Request for Proposal											x	
LASAR Engineering, Manufacturing, and Development Contract Award												x

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Exhibit R-3 COST ANALYSIS						DATE: JUNE 2001					
APPROPRIATION / BUDGET ACTIVITY				PE 1160444BB SPECIAL OPERATIONS TACTICAL SYSTEMS Dev / PROJECT S625							
RDT&E DEFENSE-WIDE / 7											
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 FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	Budget Cost FY02	Award Date FY02	To Complete	Total Program
System Eng Design/Dev	TBD	TBD		0.101	VARIOUS			21.000	MAY 02	Cont.	Cont.
Light Assault Attack Reconfigurable Simulator											
Gunship Aircrew/Maintenance Training System	C/CPAF	LMIS - Orlando, FL	42.014	5.581	VARIOUS	3.493	VARIOUS				48.117
AC-130H Crew Station Trainer	C/CPAF	LMIS - Orlando, FL		2.656	NOV 99						2.587
Subtotal Product Dev			42.014	8.338		3.493		21.000		Cont.	Cont.
Dev Spt											
Subtotal Spt											
Devel Test & Eval ATD/TB											
HLA	C/FFP	LMIS - Orlando, FL				2.296	MAY 01			Cont.	Cont.
Subtotal T&E						2.296				Cont.	Cont.
Prog Mgt Spt	ALLOT	STRICOM, Orlando, FL	3.854	1.214	VARIOUS	1.087	VARIOUS	1.000	VARIOUS	Cont.	Cont.
Subtotal Management			3.854	1.214		1.087		1.000		Cont.	Cont.
Remarks:											
Total Cost			45.868	9.552		6.876		22.000		Cont.	Cont.
Remarks:											

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)					DATE JUNE 2001					
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7			R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project S700							

COST (Dollars in Millions)	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	Cost to Complete	Total Cost
S700, Special Operations Communications Advanced Development	3.307	3.612	.852	2.327	2.328	2.327	2.380	2.437	Cont.	Cont.

NOTE: FY00 and FY01 funds are in PE1160404BB.

A. Mission Description and Budget Item Justification

This project provides for development and testing of selected items of specialized equipment to meet the unique and emergent 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 actions, 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.

USSOCOM has developed an overall strategy to ensure that Command, Control, Communications, Computers, and Intelligence (C4I) systems continue to provide SOF with the required capabilities throughout the 21st century. USSOCOM's C4I systems comprise an integrated network of systems providing positive command and control and timely exchange of intelligence and threat warning to all organizational echelons. The C4I systems that support this new architecture will employ the latest standards and technology by transitioning from separate systems to full integration with the infosphere. The infosphere is a multitude of existing and projected national assets that operate with any force combination in multiple environments. The C4 programs funded in this project will meet annual emergent requirements and are grouped by the level of organizational element they support: Operational Element (Team), Above Operational Element (Deployed), and Above Operational Element (Garrison). Sub-projects include:

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE JUNE 2001
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project S700
<p>OPERATIONAL ELEMENT (TEAM)</p> <ul style="list-style-type: none"> • Multi-Band Inter/Intra Team Radio (MBITR). MBITR will provide lightweight, handheld, inter/intra team communications for Joint SOF. SOF teams conduct air, ground, and maritime missions across the entire operational spectrum. These missions currently require SOF teams to carry multiple handheld radios operating in several different frequency bands to ensure positive communications. The MBITR will provide each of these frequency bands in a single handheld radio with embedded communications security (COMSEC). • Special Mission Radio System (SMRS). SMRS is a joint radio system that provides SOF a lightweight, low probability of intercept/low probability of detection high frequency (HF) radio with co-resident military standard automatic link establishment (ALE), non-standard ALE, and internal communication security capabilities. Deployed in hostile and clandestine environments, the system consists of manpack radio and base station, and provides for capital improvements and software updates. This program also acquires vehicle adapter kits and general-purpose HF radio systems for SOF mission requirements. • Mission Planning, Analysis, Rehearsal and Execution (MPARE) System. A joint, fully integrated Command and Control (C2) system of systems that is focused on a common operational capability for SOF commanders at all levels. This program will allow for collaborative and distributed information sharing/analysis, from all echelons in and out of the SOF community, through all phases of the SOF mission for both the deliberate and time-critical environment. This program will also integrate disparate current SOF mission planning and execution systems, simulations, and simulators and ensure complete integration with relevant command, control, communications and intelligence (C4I), surveillance and reconnaissance networks. Currently, this capability does not exist and is critical for SOF commanders to maintain their information dominance well into the 21st Century. • Miniature Multiband Beacon (MMB). Provides a small, lightweight, portable radar transponder beacon for hand emplacement and orientation. MMB may be used as a point designator to provide accurate delivery of ordnance by close air support aircraft for immediate or preplanned targets, enroute navigation and drop zone marking. 	

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE JUNE 2001
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project S700
<ul style="list-style-type: none"> • Naval Special Warfare (NSW) Tactical Radio Systems (TRS). Provides NSW a maritime tactical communications system which provides radio control/interior communications and a drop-in communications package capable of housing any combination of up to four high frequency, very high frequency, ultra-high frequency, and satellite communication radios and associated communications security. <p>ABOVE OPERATIONAL ELEMENT (DEPLOYED)</p> <ul style="list-style-type: none"> • SMRS. SMRS is also planned for use at this level. • Joint Base Station (JBS). JBS is an evolutionary acquisition program, which encompasses five Service-specific requirements: TSC-135 (core capability, commercial vehicle system), TSC-135 (V)1 (military vehicle system with transit case capabilities), TSC-135 (V)2 (transit case system), TSC-135 (V)3 (fixed site system) and TSC-135 (V)4 (Improved Special Operations Communications Assemblages). JBS will provide SOF with continuous, reliable, communications among SOF component commands while allowing for differences in missions. JBS will contain line-of-sight (LOS) and beyond-LOS radios, and associated message handling, providing command and control voice, imagery, data, and facsimile. • SOF Tactical Assured Connectivity Systems (SOFTACS). SOFTACS is an integrated suite of communications systems designed to support the high-capacity, digital, secure, interoperable, transmission and switching requirements of the USSOCOM C4I architecture. <p>ABOVE OPERATIONAL ELEMENT (GARRISON)</p> <ul style="list-style-type: none"> • SMRS is also planned for use at this level. 	

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)		DATE JUNE 2001
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project S700	
<p>FY 2000 ACCOMPLISHMENTS:</p> <ul style="list-style-type: none"> • (0.289) SMRS. Performed developmental test and evaluation of the capital replacement digital message entry device to support fielded SMRS. (2QTR00-4QTR00) • (0.540) JBS. Continued test and evaluation of new technologies in support of evolutionary technology insertions (ETI) variants. (1QTR00-4QTR00) • (1.000) SOFTACS. Conducted integration and testing of the SOF unique antenna combiner ETI. (2QTR00-4QTR00) • (1.437) MBITR. Completed additional testing. (1QTR00-3QTR00) • (0.041) NSW TRS. Completed TRS integration support. (2QTR00-4QTR00) <p>FY 2001 PLAN:</p> <ul style="list-style-type: none"> • (0.882) SMRS. Complete test and evaluation of the digital message entry device. Initiate test and evaluation of a SMRS platform installation kit. (1QTR01-4QTR01) • (0.413) JBS. Complete test and evaluation of new technologies in support of ETI's for all variants. (1QTR01-4QTR01) • (.750) MBITR. Complete integration of new vehicle adapter configuration (3QT01-4QTR01) 		

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)		DATE	JUNE 2001
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7		R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project S700	

- (1.288) MPARE. Transition information technologies from R&D efforts into SOF Information Application prototypes for user evaluation and subsequent development and installation in this program. Continue to provide a formalized conduit to focus developments from internal, Defense Advanced Research Projects Agency (DARPA) and other DoD and Service agencies into a logical and coordinated set of thrusts that will lead to fieldable applications. Rapidly prototype technologies that have potential for enabling or meeting validated program requirements and deficiencies and perform operational user evaluations that will ensure form, fit and function are properly understood and defined. Continue to program resources required for their development or insertion and provide fully documented packages to Program Managers (PM) for completion of the acquisition process and fielding. (1QTR01-4QTR01)
- (0.279) MMB. Complete integration test and evaluation of candidate MMB previously initiated in FY98 as a Small Business Innovative Research (SBIR) effort. (3QTR01-4QTR01)

FY 2002 PLAN:

- (0.852) SMRS. Continue development test and evaluation of a SMRS platform installation kit. (1QTR02-4QTR02)

B. Other Program Funding Summary

	<u>FY00</u>	<u>FY01</u>	<u>FY02</u>	<u>FY03</u>	<u>FY04</u>	<u>FY05</u>	<u>FY06</u>	<u>FY07</u>	To <u>Complete</u>	Total <u>Cost</u>
PROC, Communications & Electronics	78.392	69.094	42.500	48.035	23.752	27.159	35.857	35.414	Cont.	Cont.

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)		DATE	JUNE 2001
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project S700		

C. Acquisition Strategy:

- SMRS is currently in production and is now being managed under an evolutionary acquisition strategy. The SMRS program will conduct market research, test and evaluation of new technologies to determine ETIs for SMRS components.
- JBS is currently in production and is now being managed under an evolutionary acquisition strategy. The JBS program will conduct market research, test and evaluation of new technologies and commercial off-the-shelf/non-developmental items to determine ETI's for all JBS program variants.
- MBITR is currently in production. The MBITR program will complete the integration and testing of a vehicle adapter for use with the MBITR radios.
- MMB is currently in development. The MMB program will complete the integration and testing of a candidate MMB previously initiated in FY98 as a SBIR effort.

	<u>FY00</u>				<u>FY01</u>				<u>FY02</u>			
<u>D. Schedule Profile</u>	1	2	3	4	1	2	3	4	1	2	3	4
MBITR												
Developmental Test/Operational Test	x	x	x									
MS III		x										
Integration and Testing of Vehicle Adapter							x	x				
SMRS												
Test and Evaluation of Digital Message Entry Device		x	x	x	x	x	x					
Test and Evaluation of SMRS Platform Installation Kits					x	x	x	x	x	x	x	x
JBS												

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RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)					DATE JUNE 2001											
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7					R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project S700											
					<u>FY00</u>				<u>FY01</u>				<u>FY02</u>			
<u>D. Schedule Profile</u>					1	2	3	4	1	2	3	4	1	2	3	4
ETI Testing and Integration All Variants					x	x	x	x	x	x	x	x				
SOFTAC System																
Integration and Test of Antenna Combiner ETI						x	x	x								
Milestone C														x		
MPARE																
System Engineering										x	x	x				
Testing and Evaluation											x	x				
NSW TRS																
Testing and Integration						x	x	x								
MMB																
Integration Testing and Evaluation											x	x				

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Exhibit R-3 COST ANALYSIS						DATE: JUNE 2001					
APPROPRIATION / BUDGET ACTIVITY				Special Operations Forces Acquisition/PE1160444BB							
RDT&E DEFENSE-WIDE / 7				Special Operations Communications Advance Development/S700							
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 FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	Budget Cost FY02	Award Date FY02	To Complete	Total Program
Primary Hardware Dev	Allot	NSMA; Arlington, VA	1.924								1.924
	MIPR	NAWC AD; St. Inigoes, MD	0.487	0.255	Feb-00	0.915	Nov-00	0.152	Nov-01		1.809
	MIPR	SPAWAR; Charleston, SC	0.108	1.289	Jan-00	0.435	Jan-01	0.370	Nov-01		2.202
	Cost Share	Racal; Rockville, MD	1.339	1.247	Mar-00						2.586
Ancillary Hardware Dev	Cost Share	Racal; Rockville, MD				0.750	Apr-01				0.750
Systems Engineering	MIPR	NAWC AD; St. Inigoes, MD	2.272	0.041	Feb-00						2.313
	MIPR	SPAWAR; Charlseton, SC	0.111								0.111
	MIPR	IAT/AC; Dayton, OH				0.442	Dec-00				0.442
Licenses	Allot	DISA; Reston, VA	0.500								0.500
Tooling	Allot	DSA PM SATCOM/CECOM; Ft. Monmouth, NJ	1.172								1.172
GFE	CPFF	SSDS; Englewood, CO	5.472								5.472
Award Fees	Allot	NAWC AD; St. Inigoes, MD	7.531								7.531
Subtotal Product Dev			20.916	2.832		2.542		0.522		Cont.	Cont.
Remarks:											
Development Spt	MIPR	DARPA				0.577	Apr-01				
Software Spt	MIPR	NAWC AD; St. Inigoes, MD		0.103	Oct-99						0.103
	MIPR	NSMA; Arlington, VA				0.050	Nov-00	0.050	Nov-01		0.100
Subtotal Spt				0.103		0.627		0.050			0.780
Remarks:											

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Exhibit R-3 COST ANALYSIS					DATE: JUNE 2001						
APPROPRIATION / BUDGET ACTIVITY				Special Operations Forces Acquisition/PE1160444BB							
RDT&E DEFENSE-WIDE / 7				Special Operations Communications Advance Development/S700							
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 FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	Budget Cost FY02	Award Date FY02	To Complete	Total Program
Developmental Test & Eval	VARIOUS	VARIOUS	0.446	0.182	Oct-99	0.356	Apr-01	0.140	Jan-02		1.124
Operational Test & Eval	VARIOUS	VARIOUS	0.467	0.190	Mar-00	0.087	Apr-01	0.140	Jan-02		0.884
Subtotal T&E			0.913	0.372		0.443		0.280			2.008
Remarks:											
Contractor Engineering Spt	VARIOUS	VARIOUS	1.413								1.413
Government Engineering Spt	VARIOUS	VARIOUS	6.370								6.370
Subtotal Management			7.783	0.000		0.000		0.000			7.783
Remarks:											
Total Cost			29.612	3.307		3.612		0.852		Cont.	37.383
Remarks:											

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)						DATE JUNE 2001						
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7			R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project S800									
COST (Dollars in Millions)			FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	Cost to Complete	Total Cost
S800, Special Operations Munitions Advanced Development			4.831	11.499	3.000							

A. Mission Description and Budget Item Justification

This project provides for the acquisition of selected, specialized munitions and equipment to meet unique Special Operations Forces (SOF) requirements. This is a continuing program. Sub-projects include:

- Improved Limpet Mine (ILM). The ILM was being developed to replace the existing limpet assembly modular. The ILM is required for sea, air, land delivery vehicle attacks against ships, submarines, nested patrol craft, submerged harbor facilities, and various other maritime targets. The ILM will provide greater explosive weight to be delivered to the target, decrease time-on-target by improving handling procedures, and result in an enhanced probability of mission success. Development efforts have not yielded a materiel solution; therefore, the current effort has been terminated.
- SOF Demolition Kit (SOFDK). The kit consists of inert hardware sets for explosively formed penetrators, conical shaped charges and linear shaped charges, along with tools, equipment, and attachment devices for constructing and emplacing a variety of demolition charges. The kit allows the SOF operator to tailor the demolition charges to the target providing greater effectiveness and mission flexibility.
- Time Delay Firing Device(TDFD)/Sympathetic Detonator (SYDET). Provides the SOF operator command and control of hand-emplaced munitions (i.e., influence when and how munitions will be initiated). Capability provided includes time delay and sympathetic initiation of munitions without the use of primary explosives during tactical operations. The elimination of primary explosives is a quantum leap in the safety and reliability of initiation devices.

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)		DATE JUNE 2001
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project S800	
<p>FY 2000 ACCOMPLISHMENTS:</p> <ul style="list-style-type: none"> • (2.097) ILM. Continued Advanced Demonstration Manufacturing; conducted system integration testing and critical design review. (1QTR00-4QTR00) • (0.522) SOFDK. Continued design, fabrication, and testing of several Pre-Planned Product Improvement (P3I) warheads. (1QTR00-4QTR00) • (2.212) TDFD/SYDET. Merged TDFD and SYDET programs together. Completed initial designs and documentation in support of MS B decision. (1QTR00-4QTR00) <p>FY 2001 PLAN:</p> <ul style="list-style-type: none"> • (2.868) ILM. Conduct MS II review and initiate Engineering and Manufacturing Development (EMD) and testing. However, development efforts have not yielded a materiel solution; therefore, the current effort is being terminated. The requirement remains valid. (1QTR01-4QTR01) • (3.613) SOFDK. Continue design, fabrication and testing of several P3I warheads. Conduct MS III for the extra-large Explosively Forced Penetrator (EFP). (1QTR01-4QTR01) • (5.018) TDFD/SYDET. Conduct MS B decision review. Perform EMD for the air variant of TDFD/SYDET. (2QTR01-4QTR01) 		

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)		DATE	JUNE 2001								
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7		R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project S800									
<p>FY 2002 PLAN:</p> <ul style="list-style-type: none"> (0.814) SOFDK. Continue design, fabrication, and testing of P3I warheads and kit items. Complete MS III for Multi EFP and Explosive Cable Cutters. (1QTR02-4QTR02) (2.186) TDFD/SYDET. Complete EMD and subsystem testing/system integration testing on the new TDFD/SYDET; conduct MS III 1TR02-2QTR02) <p>B. <u>Other Program Funding Summary</u></p> <table border="1"> <thead> <tr> <th></th> <th><u>FY00</u></th> <th><u>FY01</u></th> <th><u>FY02</u></th> </tr> </thead> <tbody> <tr> <td>PROC, Ordnance Acquisition</td> <td>23.675</td> <td>26.224</td> <td>9.373</td> </tr> </tbody> </table> <p>C. <u>Acquisition Strategy:</u></p> <ul style="list-style-type: none"> SOFDK. Program managed by Office of Project Manager for Mines, Countermines and Demolitions (PM-MCD). Designs developed by Army research and development centers are currently in production and are being managed under an evolutionary acquisition strategy. TDFD/SYDET. Program managed by PM-MCD. Designs and prototypes will be developed by Army research and development centers. Contract strategy is a competitive cost-plus contract. This program will be managed under an evolutionary acquisition strategy. 					<u>FY00</u>	<u>FY01</u>	<u>FY02</u>	PROC, Ordnance Acquisition	23.675	26.224	9.373
	<u>FY00</u>	<u>FY01</u>	<u>FY02</u>								
PROC, Ordnance Acquisition	23.675	26.224	9.373								

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)					DATE JUNE 2001											
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7					R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project S800											
					<u>FY00</u>				<u>FY01</u>				<u>FY02</u>			
<u>D. Schedule Profile</u>					1	2	3	4	1	2	3	4	1	2	3	4
ILM																
MS II																
System Integration Testing/Critical Design Review																
EMD																
SOFDK																
MS III (Extra-large Warhead)																
P3I Warhead Design, Fabrication, and Testing																
MS III of a P3I Warhead and explosive cable cutters																
TDFD/SYDET																
MS B																
EMD, DT/OT																
MS III																

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Exhibit R-3 COST ANALYSIS						DATE: JUNE 2001					
APPROPRIATION / BUDGET ACTIVITY				Special Operations Forces Acquisition/PE1160444BB							
RDT&E DEFENSE-WIDE / 7				Special Operations Munitions Advanced Development/S800							
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 FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	Budget Cost FY02	Award Date FY02	To Complete	Total Program
Primary Hardware Dev											
DK	FFP	PM-MCD, Picatinny, NJ		0.100	Mar-00	3.007	TBD	0.469	TBD	Cont.	Cont.
TDFD/SYDET	CPFF	ARL, Picatinny, NJ		1.295	Apr-00	3.900	TBD	0.930	TBD	Cont.	Cont.
ILM	CPFF	CSS, Panama City, FL		1.355	Jan-00	0.135	TBD			Cont.	Cont.
Subtotal Product Dev			31.465	2.750		7.042		1.399		Cont.	Cont.
Remarks:											
Development Spt											
TDFD/SYDET	ALLOT	PM-MCD, Picatinny, NJ				0.035	VARIOUS	0.050	VARIOUS	Cont.	Cont.
ILM	ALLOT	NAVSEA, WASH, DC		0.032	VARIOUS	0.050	VARIOUS			Cont.	Cont.
Training Development											
TDFD/SYDET	ALLOT	PM-MCD, Picatinny, NJ		0.095	VARIOUS	0.256	VARIOUS	0.080	VARIOUS	Cont.	Cont.
Integrated Logistics Support											
DK	ALLOT	PM-MCD, Picatinny, NJ		0.100	VARIOUS	0.100	VARIOUS	0.100	VARIOUS	Cont.	Cont.
TDFD/SYDET	ALLOT	PM-MCD, Picatinny, NJ		0.144	VARIOUS	0.081	VARIOUS	0.100	VARIOUS	Cont.	Cont.
ILM	ALLOT	NAVSEA, WASH, DC		0.200	VARIOUS	1.000	VARIOUS				
Configuration Management											
DK	ALLOT	PM-MCD, Picatinny, NJ		0.011	VARIOUS	0.011	VARIOUS	0.025	VARIOUS	Cont.	Cont.
TDFD/SYDET	ALLOT	PM-MCD, Picatinny, NJ		0.011	VARIOUS	0.023	VARIOUS	0.025	VARIOUS	Cont.	Cont.
ILM	ALLOT	NAVSEA, WASH, DC		0.010	VARIOUS	0.050	VARIOUS			Cont.	Cont.
Technical Data											
DK	ALLOT	PM-MCD, Picatinny, NJ		0.011	VARIOUS	0.011	VARIOUS	0.020	VARIOUS	Cont.	Cont.
TDFD/SYDET	ALLOT	PM-MCD, Picatinny, NJ		0.011	VARIOUS	0.023	VARIOUS	0.050	VARIOUS	Cont.	Cont.
ILM	ALLOT	NAVSEA, WASH, DC		0.010	VARIOUS	0.050	VARIOUS			Cont.	Cont.
Subtotal Spt			7.176	0.635		1.690		0.450		Cont.	Cont.
Remarks:											

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Exhibit R-3 COST ANALYSIS						DATE: JUNE 2001					
APPROPRIATION / BUDGET ACTIVITY				Special Operations Forces Acquisition/PE1160444BB							
RDT&E DEFENSE-WIDE / 7				Special Operations Munitions Advanced Development/S800							
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 FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	Budget Cost FY02	Award Date FY02	To Complete	Total Program
Developmental Test & Eval											
TDFD/SYDET	ALLOT	PM-MCD, Picatinny, NJ		0.335	VARIOUS	0.295	VARIOUS	0.300	VARIOUS	Cont.	Cont.
ILM	ALLOT	NAVSEA, WASH, DC		0.300	VARIOUS	1.393	VARIOUS			Cont.	Cont.
Operational Test & Eval											
DK	ALLOT	PM-MCD, Picatinny, NJ		0.211	VARIOUS	0.395	VARIOUS	0.100	VARIOUS	Cont.	Cont.
TDFD/SYDET	ALLOT	PM-MCD, Picatinny, NJ				0.084	VARIOUS	0.200	VARIOUS	Cont.	Cont.
Subtotal T&E			9.936	0.846		2.167		0.600		Cont.	Cont.
Remarks:											
Contractor Engineering Spt											
TDFD/SYDET	ALLOT	PM-MCD, Picatinny, NJ		0.060	VARIOUS	0.060	VARIOUS	0.100	VARIOUS	Cont.	Cont.
ILM	ALLOT	NAVSEA, WASH, DC		0.040	VARIOUS	0.040	VARIOUS			Cont.	Cont.
Government Engineering Spt											
TDFD/SYDET	ALLOT	PM-MCD, Picatinny, NJ		0.025	VARIOUS	0.025	VARIOUS	0.050	VARIOUS	Cont.	Cont.
ILM	ALLOT	NAVSEA, WASH, DC		0.025	VARIOUS	0.025	VARIOUS			Cont.	Cont.
Program Management Spt											
DK	ALLOT	PM-MCD, Picatinny, NJ		0.075	VARIOUS	0.075	VARIOUS	0.075	VARIOUS	Cont.	Cont.
TDFD/SYDET	ALLOT	PM-MCD, Picatinny, NJ		0.225	VARIOUS	0.225	VARIOUS	0.250	VARIOUS	Cont.	Cont.
ILM	ALLOT	NAVSEA, WASH, DC		0.100	VARIOUS	0.100	VARIOUS				
Travel											
DK	ALLOT	PM-MCD, Picatinny, NJ		0.014	VARIOUS	0.014	VARIOUS	0.025	VARIOUS	Cont.	Cont.
TDFD/SYDET	ALLOT	PM-MCD, Picatinny, NJ		0.011	VARIOUS	0.011	VARIOUS	0.051	VARIOUS	Cont.	Cont.
ILM	ALLOT	NAVSEA, WASH, DC		0.025	VARIOUS	0.025	VARIOUS				
Subtotal Management			6.625	0.600		0.600		0.551		Cont.	Cont.
Remarks:											
Total Cost			55.202	4.831		11.499		3.000		Cont.	Cont.
Remarks:											

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)					DATE JUNE 2001						
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7			R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project SF100								

COST (Dollars in Millions)	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	Cost to Complete	Total Cost
SF100, Aviation Systems Advanced Development	6.394	20.717	31.626	27.634	20.277	30.662	30.709	18.636	Cont.	Cont.

NOTE: FY00 and FY01 funds are in PE1160404BB.

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 (P3I). Provides correction of system deficiencies and enhancement of mission capabilities for 13 AC-130U Gunships.
- Aviation Engineering Analysis. Provides a rapid response capability to support SOF fixed-wing aircraft. The purpose is to correct systems 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, material improvements and service life extensions.

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE JUNE 2001
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<ul style="list-style-type: none"> • 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 includes enlarged paratroop door windows and non-developmental item aerial refueling pods. • Common Avionics Architecture for Penetration (CAAP). This program initiates development of terrain following/terrain avoidance radar having LPI/LPD characteristics, and it initiates development of an 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. • Leading Edge Technology. This is a Congressional plus-up 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. • Autonomous Landing Guidance (ALG) System. This is a Congressional plus-up directed toward development of aircraft systems permitting landing in near zero visibility weather conditions without the aid of land based navigation systems. <p>FY 2000 ACCOMPLISHMENTS:</p> <ul style="list-style-type: none"> • (1.432) AC-130U P3I All Light Level Television (ALLTV) Studies. Funded studies to solve identified ALLTV performance and vulnerability problems. (2QTR00-4QTR00) • (0.029) Aviation Engineering Analysis. Continued engineering analysis of SOF fixed wing aircraft avionics and sensors. (1QTR00-4QTR00) • (4.168) CAAP. Initiated prototype of modifications to an off-the shelf radar to incorporate complex waveforms aimed at improving the LPI characteristics of radar during terrain following operation. Initiated a study of alternatives for mitigating vertical lift mission processors to a modern open 	

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE JUNE 2001
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<p>system processor to permit incorporation of common LPI/LPD Terrain Following/Terrain Avoidance (TF/TA) algorithms. Initiated development of a dynamic passive detection model for TF/TA applications. Conducted analysis of requirements/cost and developed the documentation necessary to merge CAAP C-130 requirements into the US Air Force C-130 Avionics Modernization Program (AMP). (1QTR00-4QTR)</p> <ul style="list-style-type: none"> • (.765) MC-130H Air Refueling. Began development of paratroop door window group A, feasibility analysis of internal fuel tank(s), and integration of aerial refueling system under Integrated Weapon System Support Program contract. (2QTR00-4QTR00) <p>FY 2001 PLAN:</p> <ul style="list-style-type: none"> • (0.263) AC-130U P3I. Begin development of a selectable beam-size laser illuminator for precise location and identification of ground targets for the ALLTV. (3QTR01) • (0.476) Aviation Engineering Analysis. Continue engineering analysis of SOF fixed wing aircraft avionics and sensors. (1QTR01-4QTR01) • (9.864) CAAP. Continue prototyping of complex waveform modification into off-the-shelf airborne radar. Initiate CAAP TF/TA and Enhanced Situational Awareness (ESA) development under the US Air Force C-130 AMP. (1QTR01-4QTR01) • (2.836) MC-130H Air Refueling. Continue development/integration of aerial refueling system, aircraft plumbing and fuel tanks, and begin ground and flight testing. Purchase two refurbished aerial refueling pods and long lead items for engineering and manufacturing development phase. Complete Foreign Comparative Test (FCT). (1QTR01-4QTR01) • (2.911) Leading Edge Technology. Conduct demonstration of several technologies providing near real time intelligence to aircrews. Technologies include Coherent Change Detection, Vibro Electronic Signature Target Analysis and Passive Acoustic Reflection Device with Enhanced Digital Geodata Environment. (4QTR01) 	

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- (4.367) ALG System. Conduct a series of studies on autonomous landing guidance technology to include the ability of millimeter wave radar to meet enhanced vision systems requirements. (3QTR01-4QTR01)

FY 2002 PLAN:

- (0.490) Aviation Engineering Analysis. Continue engineering analysis of SOF fixed wing aircraft avionics and sensors. (1QTR02-4QTR02)
- (24.276) CAAP. Complete prototyping and conduct a ground demonstration of complex waveform modifications to an off-the-shelf airborne radar. Incorporate production of complex waveform modification. Conduct demonstration of vertical lift mission processor with CAAP functionality and time/space partitioning. Continue TF/TA and ESA development under the US Air Force AMP. (1QTR02-4QTR02)
- (6.860) MC-130H Air Refueling. Complete development/integration of aerial refueling system, aircraft plumbing and fuel tanks. Complete ground testing, initiate trial install and commence flight test. (1QTR02-4QTR02)

B. Other Program Funding Summary

	<u>FY00</u>	<u>FY01</u>	<u>FY02</u>	<u>FY03</u>	<u>FY04</u>	<u>FY05</u>	<u>FY06</u>	<u>FY07</u>	To <u>Complete</u>	Total <u>Cost</u>
PROC, C-130 Mods	33.149	29.062	2.223	27.383	32.904	51.441	38.801	46.728	Cont.	Cont.
PROC, Aircraft Support					1.412	1.411	.707	4.450	Cont.	Cont.

Includes C-130 Modifications sub-line item funds for AC-130H Low Light Level Television replacement, AC-130U P31, Reduced Drag/Weight Reduction, MC-130H Air Refueling Modification, and ALR-69 and ALQ-172 antennas; and Aircraft Support sub-line item funds for CAAP.

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APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7				R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project SF100							

C. Acquisition Strategy:

- AC-130U P3I, ALLTV laser beam shaping. Maximize use of nondevelopmental laser technology to integrate improvements to the laser illuminator. Use Integrated Weapon System Support Program contract.
- 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.
- MC-130H Aerial Refueling. Maximize use of nondevelopmental item 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 a FCT of the MK 32B-902E Aerial Refueling POD. The FCT contract includes options to support engineering, manufacturing and development and production installs.

D. Schedule Profile

	FY00				FY01				FY02			
	1	2	3	4	1	2	3	4	1	2	3	4
AC-130 P3I Studies			x									
MC-130H Aerial Refueling Development Contract Award								x				
MC-130H Aerial Refueling Development/Integration/Test				x	x	x	x	x	x	x	x	x
AC-130U ALLTV Laser Illuminator Shaping										x		
C-130 CAAP/USAF Avionics Modernization Program Contract Award							x					

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Exhibit R-3 COST ANALYSIS						DATE: JUNE 2001					
APPROPRIATION / BUDGET ACTIVITY				Special Operations Forces Acquisition/PE1160444BB							
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 FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	Budget Cost FY02	Award Date FY02	To Complete	Total Program
Primary Hardware Development											
CAAP	VARIOUS	VARIOUS		4.168	VARIOUS	9.864	TBD	24.276	TBD	Cont.	Cont.
MC-130 Air Ref (P31)	TBD	Boeing		0.765	Sep-00	2.836	Jun-01	6.860	TBD	Cont.	Cont.
Leading Edge Technology	TBD	TBD				2.911	TBD				2.911
Autonomous Landing Guidance Sys	TBD	TBD				4.366	TBD				4.366
Subtotal Product Dev				4.933		19.977		31.136		Cont.	Cont.
Remarks:											
Development Support											
Analyses/Technical Studies	VARIOUS	VARIOUS		0.029	VARIOUS	0.476	VARIOUS	0.490	VARIOUS	Cont.	Cont.
Engineering/Studies											
AC-130U Gunship	VARIOUS	VARIOUS		1.432	VARIOUS	0.265	VARIOUS			Cont.	Cont.
MC-130H Air Refueling	MIPR	46TH TW, Hurlburt Fld, FL	0.300							Cont.	Cont.
ALE-47	SS/FFP	Boeing	0.200								0.200
Subtotal Spt			0.500	1.461		0.741		0.490		Cont.	Cont.
Remarks:											

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Exhibit R-3 COST ANALYSIS						DATE: JUNE 2001					
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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 FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	Budget Cost FY02	Award Date FY02	To Complete	Total Program
Developmental Test & Evaluation											
Subtotal T&E											
Remarks:											
Support											
Subtotal Management											
Remarks:											
Total Cost			0.500	6.394		20.718		31.626		Cont.	Cont.
Remarks:											

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APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7			R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project SF200								
COST (Dollars in Millions)		FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	Cost to Complete	Total Cost
SF200, CV-22		33.522	43.773	52.661	48.827	22.069	1.815	0	0	Cont.	Cont.

NOTE: FY00 and FY01 funds are in PE1160404BB.

A. Mission Description and Budget Item Justification

This project 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 Directional Infrared Countermeasures (DIRCM), Troop Commander situational awareness connections, ALE-47 control relocation, 2nd forward firing chaff and flare dispenser, AVR-2A laser detection, AAR-54 warning sensor upgrade, and Dual Digital Map. The block 10 Required Assets Available (RAA) are necessary to achieve Initial Operational Capability. Remaining block 10 activity is necessary to achieve Full Operational Capability.

FY 2000 ACCOMPLISHMENTS:

- (23.184) Began development of RAA block 10 changes. (2QTR00-4QTR00)
- (9.000) Began DIRCM laser integration. (2QTR00-4QTR00)
- (1.338) Began program office support for block 10. (1QTR00-4QTR00)

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<p>FY 2001 PLAN:</p> <ul style="list-style-type: none"> • (13.885) Continue development of RAA block 10 changes. (1QTR01-4QTR01) • (17.458) Begin development of post initial operational capability block 10 changes. (1QTR01-4QTR01) • (2.855) Continue program office support and government engineering effort for block 10 program. (1QTR01-4QTR01) • (3.617) Provide risk reduction for Suite of Integrated Radio Frequency Countermeasures, CV-22 Joint Avionics System Software integration, and cost reduction initiatives for procurement and sustainment. (1QTR01-4QTR01) • (5.958) Begin development of Low Probability of Intercept/Low Probability of Detection Radar. (1QTR01-4QTR01) <p>FY 2002 PLAN:</p> <ul style="list-style-type: none"> • (37.161) Continue development/integration/testing of post initial operational capability block 10 program—Cost Plus Award Fee. (1QTR02-4QTR02) • (0.700) Continue program office support for block 10 program. (1QTR02-4QTR02) • (5.000) Edwards AFB test infrastructure, including spares. (1QTR02-4QTR02) • (6.500) Engineering and logistics support for block 10 programs. (1QTR02-4QTR02) 		

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE JUNE 2001
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APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160444BB Special Operations Forces (SOF) Acquisition / Project SF200
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- (3.300) Continue development of DIRCM laser integration for CV-22. (1QTR02-4QTR02)

B. Other Program Funding Summary

	<u>FY00</u>	<u>FY01</u>	<u>FY02</u>	<u>FY03</u>	<u>FY04</u>	<u>FY05</u>	<u>FY06</u>	<u>FY07</u>	To <u>Complete</u>	Total <u>Cost</u>
PROC, CV-22 SOF Osprey	1.962	8.454	99.202	156.040	174.781	177.735	186.908	202.082	564.262	1568.179

C. Acquisition Strategy:

- The CV-22 program is managed through 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 being sent from USSOCOM to PMA-275 to place on contract with the V-22 prime contractor, and began in FY00. The RDT&E funding described 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.

D. <u>Schedule Profile</u>	<u>FY00</u>				<u>FY01</u>				<u>FY02</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
Block 0 Development	x	x	x	x	x	x	x	x	x	x	x	x
Block 10 Development			x	x	x	x	x	x	x	x	x	x

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Exhibit R-3 COST ANALYSIS						DATE: JUNE 2001					
APPROPRIATION / BUDGET ACTIVITY				Special Operations Forces Acquisition/PE1160444BB							
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 FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	Budget Cost FY02	Award Date FY02	To Complete	Total Program
Primary Hardware Dev	SS/CPAF	NAVAIR/PMA-275 & Bell-Boeing, Patuxent River, MD		26.441	Feb-00	32.869	Jan-01	87.663	Jan-02	Cont.	Cont.
RF Countermeasures Development	SS/CPIF	ITT, Nutley, NJ		2.333	Jul-00						
LPI/LPD Award Fees	SS/CPIF	Boeing & Raytheon, Philadelphia, PA		0.880	Feb-00	5.958 2.092	Feb-01 Mar-01	1.798	Feb-02	Cont.	5.958 Cont.
Subtotal Product Dev				29.654		40.919		89.461		Cont.	Cont.
Remarks:											
Developmental Test & Eval	VARIOUS	Edwards AFB, CA						5.000	VARIOUS	Cont.	Cont.
Subtotal T&E								5.000		Cont.	Cont.
Remarks:											

UNCLASSIFIED

Exhibit R-3 COST ANALYSIS						DATE: JUNE 2001					
APPROPRIATION / BUDGET ACTIVITY				Special Operations Forces Acquisition/PE1160444BB							
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 FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	Budget Cost FY02	Award Date FY02	To Complete	Total Program
Primary Hardware Dev	SS/CPAF	NAVAIR/PMA-275 & Bell-Boeing, Patuxent River, MD		26.441	Feb-00	32.869	Jan-01	87.663	Jan-02	Cont.	Cont.
RF Countermeasures Development	SS/CPIF	ITT, Nutley, NJ		2.333	Jul-00						
LPI/LPD Award Fees	SS/CPIF	Boeing & Raytheon, Philadelphia, PA		0.880	Feb-00	5.958 2.092	Feb-01 Mar-01	1.798	Feb-02	Cont.	5.958 Cont.
Subtotal Product Dev				29.654		40.919		89.461		Cont.	Cont.
Remarks:											
Developmental Test & Eval	VARIOUS	Edwards AFB, CA						5.000	VARIOUS	Cont.	Cont.
Subtotal T&E								5.000		Cont.	Cont.
Remarks:											