UNITED STATES SPECIAL
OPERATIONS COMMAND

FISCAL YEAR 2000 - 2001
BUDGET ESTIMATES

RDT&E, DEFENSEWIDE

FEBRUARY 1999

RDT&E DOCUMENTATION FOR FY 2000 - 2001 PRESIDENT'S BUDGET

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RDT&E DOCUMENTATION FOR FY 2000 - 2001 PRESIDENT'S BUDGET

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FEBRUARY 1999

UNITED STATES SPECIAL OPERATIONS COMMAND

RESEARCH, DEVELOPMENT, TEST AND EVALUATION, DEFENSE-WIDE

OVERVIEW

The United States Special Operations Command (USSOCOM) is a unified command with worldwide responsibilities to train, equip and maintain Special Operations Forces (SOF) in a ready state in support of the contingency plans developed by the five regionally oriented unified commands (USEUCOM, USCENTCOM, USPACOM, USACOM, and USSOUTHCOM). When directed by the President, USCINCSOC will assume command of a special operation anywhere in the world. USSOCOM's Army component forces include special forces (Green Berets), Rangers, short to medium range infiltration/exfiltration aircraft, civil affairs specialists, and psychological operations specialists. Navy component forces consist of Sea, Air, Land (SEAL) Teams and special boat units. The Air Force component forces consist of special operation units which provide medium to long range air infiltration/exfiltration aircraft, specially equipped gunships, and aerial refueling capability. USSOCOM is the only operational command directly responsible for determining its own force structure requirement, determining the related materiel requirements, procuring the SOF-unique equipment, training, and deploying its own units.

FEBRUARY 1999

UNITED STATES SPECIAL OPERATIONS COMMAND
RESEARCH, DEVELOPMENT, TEST AND EVALUATION, DEFENSE-WIDE

INTRODUCTION AND EXPLANATION OF CONTENTS

1. General. This document has been prepared to provide summary information on the United States Special Operations Command Research, Development, Test and Evaluation Program to Congressional Committees for the FY 2000-2001 President Budget Submission. The R-2, R-2a, and R-3 exhibits provide narrative information on all RDT&E program elements and projects. RDT&E documentation includes:

- Exhibit R-1, Special Operations Command RDT&E Program.
- Project Listing by Program Element (PE).
- Exhibit R-2, RDT&E Budget Item Justification Sheet. These exhibits have been prepared under the following guidelines: R-2, paragraphs A and B, is submitted for RDT&E PEs; R-2a, RDT&E Project Justification, paragraphs A through F, are submitted for each project with funding greater than $1 million in budget year 1 or budget year 2.
- Exhibit R-3, RDT&E Project Cost Breakdown. An R-3 is provided for each advanced development project.
- Exhibit R-32, RDT&E Purchases from DBOF
- Investment Program New Starts and Terminations

2. Relationship of FY 2000/FY 2001 Budget Structure to the FY 1999 President's Budget Submitted to Congress. There are no project-level new starts nor terminations since submission of the February 1998 President's Budget.

3. Classification. This supplement is unclassified.

4. Classified Programs. Information on classified programs, PE 1160408BB (SOF Operational Enhancements), is provided under separate cover.

Special Operations Command
FY 2000/2001 RDT&E PROGRAM

EXHIBIT R-1

APPROPRIATION: 0400D Research Development Test & Eval, Defwide

Date: FEB 1999

Line No	Program Element Number	Item	Act	Thousands of Dollars FY 1998	FY 1999	FY 2000	FY 2001	S E C
163	1160279BB	Small Business Innovative Research/Small Bus Tech Transfer Pilot Prog	7	3,120	4,068			U
164	1160401BB	Special Operations Technology Development	7	3,890	3,750	7,093	7,706	U
165	1160402BB	Special Operations Advanced Technology Development	7	8,050	28,409	7,990	8,126	U
166	1160404BB	Special Operations Tactical Systems Development	7	101,520	121,845	106,671	132,752	U
167	1160405BB	Special Operations Intelligence Systems Development	7	9,516	8,793	1,407	2,899	U
168	1160407BB	SOF Medical Technology Development	7	1,879	1,962	2,039	2,078	U
169	1160408BB	SOF Operational Enhancements	7	23,288	46,380	62,567	76,284	U
	Operational Systems Development			**151,263**	**215,207**	**187,767**	**229,845**	
	Total Special Operations Command			**151,263**	**215,207**	**187,767**	**229,845**	

UNITED STATES SPECIAL OPERATIONS COMMAND
Exhibit R-32, RESEARCH, DEVELOPMENT, TEST & EVALUATION (RDT&E) Purchases from DBOF
(TOA, $ in Millions)

Business Areas	**FY 1999**	**FY 2000**					**FY 2001**				
Army	FY 1999 Program	Price Growth	%	Program Growth	%	FY 2000 Program	Price Growth	%	Program Growth	%	FY 2001 Program
411 Army Supply Management											
601 Army Depot Maint-Ord Arm Com											
602 Army Depot Maintenance-Other											
648 Army Information Services											
Navy											
412 Navy Supply Management	.100	.002	1.6	-.002	-0.1	.100	.002	1.6	.498	4.4	.600
615 Navy Information Services											
633 Defense Printing Service (FY 1996 only)											
Research and Development											
610 Naval Air Warfare Center											
611 Naval Surface Warfare Center	2.073	.033	1.6	.068	-2.1	2.174	.037	1.6	.621	-2.5	2.832
612 Naval Undersea Warfare Center											
614 Naval Cmd, Ctrl & Ocean Surv Ctr											
630 Naval Research Laboratory											
631 Naval Facilities Engineering Service Ctr	.090	.001	1.6	-.001	-0.1	.090	.002	1.6	-.002	-0.1	.090
Depot Maintenance											
613 Depot Maintenance- Aircraft											
631 Depot Maintenance - Ordnance											
637 Depot Maintenance-Ships	1.380	.022	1.6	-.202	-1.3	1.200	.020	1.6	-.020	-1.2	1.200
640 Depot Maintenance-Other (USMC)											
Transportation (Sealift Services):											
620 Fleet Auxiliary Force											
621 Afloat Prepositioning Ships											
623 Special Mission Supports											
624 Other Sealift Purchases											
Navy Base Support Services:											
634 Public Works - Utilities											
635 Public Works - Other											
639 Public Works (Composite Rate)											

UNITED STATES SPECIAL OPERATIONS COMMAND
Exhibit R-32, RESEARCH, DEVELOPMENT, TEST & EVALUATION (RDT&E) Purchases from DBOF
(TOA, $ in Millions)

Business Areas	**FY 1999**	**FY 2000**					**FY 2001**				
Air Force	FY 1999 Program	Price Growth	%	Program Growth	%	FY 2000 Program	Price Growth	%	Program Growth	%	FY 2001 Program
414 Air Force Supply Management											
649 Air Force Information Services											
653 Transportation (Airlift Svcs (Training))											
Air Force Depot Maintenance:											
661 Organic Operations											
662 Contract											
Defense											
402 Fuel Purchases (DFSC)											
415 DLA Supply Management											
633 Defense Printing Services (beg FY 1997)											
647 Defense Megacenters (DISA)											
650 DLA Information Services											
651 DFAS Information Services											
670 Defense Automatic Addressing Systems											
671 Communications Services (DISA)											
672 Purchases from Pentagon Reservation Maintenance Revolving Fund											
673 Financial Operations (DFAS)											
674 Distribution Depots (DLA)											
675 Def Reutilization & Mktg Svcs (DRMS)											
676 Def Industrial Plant Eqpt (FY 1996 only)											
677 Joint Logistics Systems											
680 Purchases from the Bldg Maint Fund											
USTRANSCOM											
701 AMC Cargo/Passenger (Fund)											
702 AMC SAAM/TJS (Fund)											
711 MSC Cargo (Fund)											
721 MTMC Port Handling (Fund)											

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE0602790BB Small Business Inovative Research

COST (Dollars in Millions)	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	Cost to Complete	Total Cost
PE0602790BB	3.120	4.068							Cont.	Cont.
S050 SMALL BUSINESS INNOVATIVE REARCH	3.120	4.068							Cont.	Cont.

A. Mission Description and Budget Item Justification

The Small Business Innovative Research (SBIR) project is 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 1992. 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 $100,000 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 $750,000 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.

B. Program Change Summary	FY 1999	FY 2000	FY 2001
Previous President's Budget			
Appropriated Value			
Adjustments to Appropriated Value / President's Budget	4.068		
Current Budget Submit	4.068		

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE1160401BB Spec Operations Technology Development

COST (Dollars in Millions)	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	Cost to Complete	Total Cost
PE1160401BB	3.890	3.750	7.093	7.706	8.326	8.957	9.134	9.326	Cont.	Cont.
S100 SO TECHNOLOGY BASE DEV	3.890	3.750	7.093	7.706	8.326	8.957	9.134	9.326	Cont.	Cont.

A. Mission Description and Budget Item Justification

This program conducts studies and develops laboratory prototypes for applied research and advanced technology development, as well as a means for leveraging 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 allows United States Commander-in-Chief Special Operations Command 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 program 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 the fusion of these sensors while incorporating SOF size, weight, and human factors requirements.
- Enhanced Thermal Protection. Diver thermal protection for combat swimmers during underwater operations in cold water.
- 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.
- Low Probability of Intercept/Detection (LPI/D) Imagery Forwarding. A high data-rate, secure server, long-range data transmission capability. This project leverages various commercial and government technology efforts.
- Maximum Efficiency Language Training. Joint project with Army Research Institute and Defense Advanced Research Projects Agency to demonstrate an advanced computer based virtual reality interactive language tutor.
- SOF Clothing and Equipment. Peripheral sensor technologies to monitor status of individual SOF operator and his equipment and to detect threats.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE1160401BB Spec Operations Technology Development

Change Summary Explanation:

Funding: FY 99 decrease is project cost share for Small Business Innovative Research, (SBIR) program, implementation of other Congressionally-mandated reductions, and impact of revised Administration inflation assumptions.

Schedule: None.

Technical: None.

B. Program Change Summary	FY1999	FY 2000	FY 2001
Previous President's Budget	4.026	5.197	5.264
Appropriated Value	4.026		
Adjustments to Appropriated Value / President's Budget	(.276)	1.896	2.442
Current Budget Submit	3.750	7.093	7.706

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160401BB Special Operations Technology Development / Project S100

COST (Dollars in Millions)	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	Cost to Complete	Total Cost
S100, Special Operations Technology Development	3.890	3.750	7.093	7.706	8.326	8.957	9.134	9.326	Cont.	Cont.

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 a means for leveraging 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 allows United States Commander-in-Chief Special Operations Command 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 the fusion of these sensors while incorporating SOF size, weight, and human factors requirements.
- Enhanced Thermal Protection. Diver thermal protection for combat swimmers during underwater operations in cold water.
- 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.

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160401BB Special Operations Technology Development / Project S100

- LPI/D Imagery Forwarding. A high data-rate, secure server, long-range data transmission capability. This project leverages various commercial and government technology efforts.

- Maximum Efficiency Language Training. Joint project with Army Research Institute and Defense Advanced Research Projects Agency to demonstrate an advanced computer based virtual reality interactive language tutor.

- SOF Clothing and Equipment. Peripheral sensor technologies to monitor status of individual SOF operator and his equipment and to detect threats.

FY 1998 ACCOMPLISHMENTS:

- (1.613) SOF C4I Technologies. Completed phase II demonstration and began evaluation of Head-Mounted Thermal Vision. Continued development of SOF Color Night Vision Fusion device. Began development and demonstration of LPI/D Imagery Forwarding. (1QTR98-4QTR98)

- (0.445) SOF Mobility Technologies. Continued development of the Active Noise Cancellation sub-project. (2QTR98-3QTR98)

- (0.876) SOF Sustainment Technologies. Completed development and evaluation of Enhanced Thermal Protection and waterproof tactical display efforts. Began development of SOF clothing and equipment tasks to provide SOF with threat detection capabilities. Evaluated exploratory display technologies for individual SOF operator applications. (2QTR98-4QTR98)

- (0.254) Concept Exploration Studies. Explored concepts to reduce MFP-11 operations and maintenance costs through innovative technology solutions. (3QTR98)

- (0.702) Classified project. Reported under separate cover. (1QTR98-4QTR98)

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160401BB Special Operations Technology Development / Project S100

FY 1999 PLAN:

- (0.470) SOF C4I Technologies. Complete evaluation of Head-Mounted Thermal Vision. Complete development and begin evaluation of SOF Color Night Vision Fusion device. Continue development LPI/D forwarding to completion and evaluation. Exploit emerging C4I technologies to provide improvements in weight/volume reduction, support, power consumption/management, and enhanced antennas. Exploit technology efforts to demonstrate a capability for SOF to detect surveillance threats. (1QTR99-2QTR99)

- (0.425) SOF Mobility Technologies. Complete evaluation of the Active Noise Cancellation effort. Exploit technology to improve performance, lower the probability of detection, or improve the support of SOF mobility platforms. (1QTR99-2QTR99)

- (0.175) SOF Weapons Technologies. Exploit technology to provide SOF with stand-off capabilities for targeting, tracking and locating personnel and equipment. (3QTR99)

- (0.218) SOF Sustainment Technologies. Continue development of FY98 new sub-projects to completion and evaluation. Exploit technology to provide improvements in weight/volume reduction and increased power capabilities for the individual SOF operator. Exploit micro-robotics technologies to enhance the individual SOF operator's mission capabilities. (1QTR99-2QTR99)

- (0.200) Concept Exploration Studies. Explore/validate concepts for projects being continued or initiated in support of the USSOCOM technology development objectives. (2QTR99)

- (0.100) Technology Development Exploitation. Exploit emerging technologies to meet critical SOF capability objectives. Needs in these areas will be advertised to industry and government research and development agencies via broad area announcements and calls for white papers. (3QTR99)

- (2.162) Classified Project. Reported under separate cover. (1QT99-2QTR99)

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160401BB Special Operations Technology Development / Project S100

FY 2000 PLAN:

- (2.237) SOF C4I Technologies. Complete evaluation and transition of LPI/D Imagery Forwarding and SOF Color Night Vision Fusion devices. Complete development of FY99 new sub-projects to completion and evaluation. Exploit technologies to provide SOF with improved situational awareness in all mission environments. Exploit technologies to provide significant improvements to SOF's capability to accurately detect and track threats or targets. (1QTR00-3QTR00)

- (1.710) SOF Mobility Technologies. Complete evaluation and transition of Active Noise Cancellation effort. Complete development of FY99 new sub-projects to completion and evaluation. Exploit technologies to improve the performance and reduce the detection of SOF mobility assets. Exploit technologies to provide SOF the capability to conduct undetectable ground, air and sea mobility operations in denied areas. (1QTR00-3QTR00)

- (1.076) SOF Weapons Technologies. Complete development of FY99 new sub-projects to completion and evaluation. Continue to exploit technologies to provide SOF with stand-off capabilities for targeting, tracking and locating personnel and equipment. Exploit technologies to broaden the range and performance of SOF munition capabilities to support a variety of operations. (1QTR00-3QTR00)

- (1.364) SOF Sustainment Technologies. Complete development and begin evaluation of threat detection devices for the individual SOF operation. Continue to exploit technologies to increase SOF's survivability and performance. Exploit technologies to improve the human sensory performance without interfering with normal sensory functions. Exploit technologies to provide SOF with a lightweight and accurate system to assess potential assault zone areas. Exploit information technologies to provide SOF with advanced mission planning and rehearsal capabilities. (1QTR00-3QTR00)

- (0.506) Concept Exploration Studies. Explore/validate concepts for projects being continued or initiated in support of the USSOCOM desired operational capabilities. (2QTR00)

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RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160401BB Special Operations Technology Development / Project S100

- (0.200) Technology Development Exploitation. Exploit technologies to meet critical SOF capability objectives. Needs in these areas may be advertised to industry and government research and development agencies via broad area announcements and calls for white papers. (3QTR00)

FY 2001 PLAN:

- (1.880) SOF C4I Technologies. Continue development of FY00 new sub-projects to completion. Continue to exploit technologies that provide SOF with improved situational awareness 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. (1QTR01-3QTR01)

- (1.903) SOF Mobility Technologies. Continue development of FY00 new sub-projects to completion. 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 undetecable ground, air, and sea mobility operations in denied areas. (1QTR01-3QTR01)

- (1.348) SOF Weapons Technologies. Continue development of FY00 new sub-projects to completion. 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. (1QTR01-3QTR01)

- (1.856) SOF Sustainment Technologies. Continue development of FY00 new sub-projects to completion. 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. (1QTR01-3QTR01)

- (0.519) Concept Exploration Studies. Explore/validate concepts for projects being continued or initiated in support of the USSOCOM desired operational capabilities. (2QTR01)

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160401BB Special Operations Technology Development / Project S100

- (0.200) Technology Development Exploitation. Exploit technologies to meet critical SOF capability objectives. Needs in these areas may be advertised to industry and government research and development agencies via broad area announcements and calls for white papers. (3QTR01)

B. Other Program Funding Summary NA.

C. ACQUISITION STRATEGY: NA

D. Schedule Profile NA.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE1160402BB Spec Operations Advanced Technology Development

COST (Dollars in Millions)	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	Cost to Complete	Total Cost
PE1160402BB	8.050	28.409	7.990	8.126	8.302	8.992	9.167	9.341	Cont.	Cont.
S200 SPECIAL OPERATIONS SPECIAL TECHNOLOGY ADVANCED DEVELOPMENT	8.050	28.409	7.990	8.126	8.302	8.992	9.167	9.341	Cont.	Cont.

A. Mission Description and Budget Item Justification

This project conducts rapid prototyping and Advanced Technology Demonstrations (ATDs). It provides a means for demonstrating and evaluating emerging/advanced technologies in as realistic an operational environment as possible by Special Operations Forces (SOF) users. Evaluation results are included in a transition package which assists in the initiation of or insertion into an acquisition program. The project also addresses 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:

- 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.
- Clandestine Lighting Systems. Ground- and air-based lighting system(s) that operate at the Generation III maximum sensitivity line and focused to a tight beam.
- Communications Helmet. Lightweight, protective headgear with integrated communications for use by Special Operations Forces (SOF) during small boat, repelling, and parachute operations.
- Hasty Hide Shelter. Lightweight, weatherproof, "quick hide" shelter for SOF personnel providing protection from detection.
- Integrated Bridge System. A system that enhances maritime craft bridge-console and operator interface through human factors engineering and integration with console design and displays.
- Intrusion Sensor. A miniature, multi-sensor system to detect local threats.
- Maximum Efficiency Language Trainer. Demonstrate an advanced computer based virtual reality interactive language tutor for SOF applications.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE1160402BB Spec Operations Advanced Technology Development

- 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.
- Sensor Hardening. Laser protection modules for SOF electro-optic devices.
- 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.
- Special Reconnaissance Capabilities (SRC). Special Reconnaissance is a core USSOCOM mission. The SRC effort addresses technology shortfalls for SR and consists of multiple, interrelated projects focusing on the development of components for integration into intelligence, surveillance, and reconnaissance systems and architectures.
- Structural Usage Monitor System. Demonstrate accurate flight regime algorithms to extend aircraft component lifetimes.
- Very Slender Vessel Technologies. Demonstrate advanced technologies to minimize signature and wave-shock impact to personnel onboard SOF maritime craft.
- Weapons Control System. Prototype providing improved accuracy for small arms mounted on Special Operations Forces (SOF) water craft.

Change Summary Explanation:

Funding: FY 1999 decrease is project cost share for Small Business Innovative Research, (SBIR) program, implementation of other Congressionally-mandated reductions, and impact of revised Administration inflation assumptions. FY 2000/2001 decrease is project cost share for the impact of revised Administration inflation assumptions.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE1160402BB Spec Operations Advanced Technology Development

Schedule: None.

Technical: None.

B. Program Change Summary	FY 1999	FY 2000	FY 2001
Previous President's Budget	8.020	8.122	8.271
Appropriated Value	29.020		
Adjustments to Appropriated Value / President's Budget	(.611)	(.132)	(.145)
Current Budget Submit	28.409	7.990	8.126

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160402BB Special Operations Advanced Technology Development / Project S200

COST (Dollars in Millions)	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	Cost to Complete	Total Cost
S200, Special Operations Special Technology	8.050	28.409	7.990	8.126	8.302	8.992	9.167	9.341	Cont.	Cont.

A. Mission Description and Budget Item Justification

This project conducts rapid prototyping and Advanced Technology Demonstrations (ATDs). It provides a means for demonstrating and evaluating emerging/advanced technologies in as realistic an operational environment as possible by Special Operations Forces (SOF) users. Evaluation results are included in a transition package which assists in the initiation of or insertion into an acquisition program. The project also addresses 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:

- 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.
- Clandestine Lighting Systems. Ground- and air-based lighting system(s) that operate at the Generation III maximum sensitivity line and focused to a tight beam.

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160402BB Special Operations Advanced Technology Development / Project S200

- Communications Helmet. Lightweight, protective headgear with integrated communications for use by SOF during small boat, repelling, and parachute operations.
- Hasty Hide Shelter. Lightweight, weatherproof, "quick hide" shelter for Special Operations Forces (SOF) personnel providing protection from detection.
- Integrated Bridge System. A system that enhances maritime craft bridge-console and operator interface through human factors engineering and integration with console design and displays.
- Intrusion Sensor. A miniature, multi-sensor system to detect local threats.
- 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.
- Sensor Hardening. Laser protection modules for SOF electro-optic devices.
- 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.

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160402BB Special Operations Advanced Technology Development / Project S200

- Structural Usage Monitor System. Demonstrate accurate flight regime algorithms to extend aircraft component lifetimes.
- Very Slender Vessel Technologies. Demonstrate advanced technologies to minimize signature and wave-shock impact to personnel onboard Special Operations Forces (SOF) maritime craft.

- Weapons Control System. Prototype providing improved accuracy for small arms mounted on SOF water craft.

FY 1998 ACCOMPLISHMENTS:

- (2.947) SOF C4I Technologies. Completed demonstration of Quick Erect Antenna. Completed demonstration, user evaluation, and transition of Sensor Hardening. Continued evaluation of Advanced Sensors (miniature audio/visual system) and remote miniature weather station. Exploited emerging technology to conduct Advanced Technology Demonstrations (ATDs) that provide improvements in weight reduction, size, power consumption/management, low probability of intercept/detection, and transmission rates of SOF communication and intelligence systems. Exploited emerging technology to conduct ATDs that provide SOF with improvements in their ability to detect, track, and maintain surveillance of threats/targets. Exploited emerging technologies to conduct ATDs that provide SOF with increased situation/information awareness and intelligence awareness during their missions. Conducted evaluations on robotics technology for SOF applications. (1QTR98-4QTR98)

- (2.528) SOF Mobility Technologies. Completed evaluation and transition of Clandestine Lighting System. Completed demonstration, user evaluation, and transition of Structural Usage Monitor System and Lightweight, Multi-Fuel Outboard engine. Completed demonstration of Aircraft Off/On Load System. Continued demonstration of an Integrated Bridge System. Demonstrated an ATD to provide SOF mobility platforms with enhanced visibility in adverse weather. (1QTR98-4QTR98)

- (1.061) Special Operations Forces (SOF) Weapons Technologies. Completed development and began user evaluation of the Weapon Control System and SOF Enhanced Weapons. Continued development of the Advanced Sniper Weapon Fire Control. (1QTR98-3QTR98)

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160402BB Special Operations Advanced Technology Development / Project S200

- (0.946) SOF Sustainment Technologies. Completed evaluation and transition of Hasty Hide Shelter and Communications Helmet. Completed demonstration of the Intrusion Sensor System. Exploited emerging technology to integrate and demonstrate advanced authoring capability on the Maximum Efficiency Language Trainer. (1QTR98-4QTR98)

- (0.568) Classified project. Reported under separate cover. (1QTR98-4QTR98)

FY 1999 PLAN:

- (2.769) SOF C4I Technologies. Continue development of FY 1998 new sub-projects to completion and evaluation. Continue to exploit emerging technology to conduct Advanced Technology Demonstrations (ATDs) that provide improvements in weight/volume reduction, power consumption/management, low probability of intercept/detection, and transmission rates of SOF communication and intelligence systems. Continue to exploit emerging technology to conduct ATDs that provide SOF with improvements in their ability to detect, track, and maintain surveillance of threats. Continue to exploit technology to provide SOF with increased situation/information awareness and intelligence awareness during their missions. (1QTR99-3QTR99)

- (0.425) SOF Mobility Technologies. Continue development of SOF Autonomous Landing System to completion and evaluation. (1QTR99-3QTR99)

- (1.416) SOF Weapons Technologies. Continue development of Advanced Sniper Weapon Fire Control to completion and evaluation. Continue to exploit emerging technology to conduct ATDs that provide increased lethality, enhanced flexibility, reduced weight and volume, increased accuracy, controllability, and safety of explosive charges and weapons. Continue to exploit emerging technology to conduct ATDs that provide Special Operations Forces (SOF) weapons with improvements in the responsiveness, stand-off, accuracy, reliability, and target effects. (1QTR99-3QTR99)

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160402BB Special Operations Advanced Technology Development / Project S200

- (1.000) Advanced Lightweight Grenade Launcher. Obtain weapon classification and prepare for low rate initial production. (2QTR99)

- (2.042) SOF Sustainment Technologies. Complete evaluation and transition of Intrusion Sensor System. Continue development of Maximum Efficiency Language Trainer to completion and evaluation. Continue to exploit emerging technology to conduct Advanced Technology Demonstrations (ATDs) that will provide enhanced performance and sustainment of power devices for the individual SOF operator. Exploit emerging technology to conduct ATDs that provide SOF combat swimmers with improved mission readiness. (1QTR99-3QTR99)

- (0.500) Technology Exploitation Initiative. Exploit emerging technology to meet critical Special Operations Forces (SOF) requirements and encourage industry and Government Lab participation in identifying enhancements to SOF in critical areas. (3QTR99)

- (0.729) Classified Project. Reported under separate cover. (1QTR99-2QTR99)

- (19.528) Special Reconnaissance Capabilities (SRC). Special Reconnaissance is a core USSOCOM mission. The SRC effort addresses technology shortfalls for SR and consists of multiple, interrelated projects focusing on the development of components for integration into intelligence, surveillance, and reconnaissance systems and architectures. (2QTR99-4QTR99)

FY 2000 PLAN:

- (2.210) SOF C4I ATDs. Complete development of Low Probability of Intercept/Detection Imagery Links to completion and evaluation. Continue to exploit emerging robotics technology for SOF applications. Exploit 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. Exploit emerging technology to conduct ATDs that provide SOF with a restricted line-of-sight personnel locator system. (1QTR00-3QTR00)

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160402BB Special Operations Advanced Technology Development / Project S200

- (1.905) SOF Mobility ATDs. Complete evaluation and transition of SOF Autonomous Landing System. Continue to exploit emerging technology to conduct ATDs that provide SOF with survivable mobility operations in high threat areas and enhanced situational awareness. Exploit emerging technology to conduct Advanced Technology Demonstrations (ATDs) that provide Special Operations Forces (SOF) mobility assets with enhanced situational awareness and beyond line-of-sight threat detection. (1QTR00-2QTR00)

- (1.189) SOF Weapons ATDs. Complete evaluation and transition of Advanced Sniper Weapon Fire Control. Complete development of FY 1999 new sub-projects to completion and evaluation. Exploit emerging technology to conduct ATDs that provide SOF with a man-portable system to detect enemy indirect fire systems. (1QTR00-2QTR00)

- (1.586) SOF Sustainment ATDs. Complete development of FY 1999 new sub-projects to completion and evaluation. Continue to exploit emerging technology to conduct ATDs that provide SOF with increased survivability and performance. (2QTR00)-3QTR00)

- (0.500) Technology Exploitation Initiative. Exploit emerging technology to meet critical SOF requirements and encourage industry and Government Lab participation in identifying enhancements to SOF in critical areas. (3QTR00)

- (0.600) Classified Project. Reported under separate cover. (1QTR00-2QTR00)

FY 2001 PLAN:

- (2.210) SOF C4I ATDs. Continue development of FY 2000 new sub-projects to completion and evaluation. Continue to exploit 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. Exploit emerging technology to conduct ATDs that provide SOF with increased sensory performance. (1QTR01-3QTR01)

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160402BB Special Operations Advanced Technology Development / Project S200

- (2.140) SOF Mobility ATDs. Continue development of FY 2000 new sub-projects to completion and evaluation. Continue to exploit emerging technology to conduct ATDs that provide SOF with survivable mobility operations in high threat areas and with enhanced situational awareness. Exploit emerging technology to conduct ATDs that provide SOF mobility assets with a reduction in logistic support requirements. (2QTR01-3QTR01)

- (1.757) Special Operations Forces (SOF) Weapons Advanced Technology Demonstrations (ATDs). Continue development of FY 2000 new sub-projects to completion and evaluation. Continue to exploit emerging technology to conduct ATDs that provide SOF with multi-role/multi-purpose weapons with a broader range of potential effects. (1QTR01-3QTR01)

- (1.519) SOF Sustainment ATDs. Continue development of FY2000 new sub-projects to completion and evaluation. Continue to exploit emerging technology to conduct ATDs that provide SOF with increased survivability and performance. (1QTR01-3QTR01)

- (0.500) Technology Exploitation Initiative. Exploit emerging technology to meet critical SOF requirements and encourage industry and Government Lab participation in identifying enhancements to SOF in critical areas. (3QTR01)

B. Other Program Funding Summary NA.

C. ACQUISITION STRATEGY: NA

D. Schedule Profile NA.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE1160404BB Spec Operations Tactical Systems Development

COST (Dollars in Millions)	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	Cost to Complete	Total Cost
PE1160404BB	101.520	121.845	106.671	132.752	151.828	137.814	75.857	70.587	Cont.	Cont.
3284 SOF AIRCRAFT DEFENSIVE SYSTEM	8.663	6.540	8.783	10.321	13.053	7.388	5.292	3.329	Cont.	Cont.
3326 AC-130U - GUNSHIP	2.575	1.079	1.330	1.313	2.223	2.224	2.089	2.086	Cont.	Cont.
D476 PSYOPS ADV DEV	.603	.946	.865	1.137	.097	.298	.304	.310	Cont.	Cont.
D615 SOF AVIATION	2.807	7.194	7.448	10.697	4.028	17.583	3.721	.783	Cont.	Cont.
S0417 UNDERWATER SYSTEMS ADV DEV	62.155	62.091	18.284	9.455	9.330	10.688	5.418	5.090	Cont.	Cont.
S1684 SOF SURFACE CRAFT ADVANCE SYSTEMS	.600		4.869	7.657	8.041	5.514			Cont.	Cont.
S350 SOFPARS	4.829	3.627	3.246	3.373	3.125	2.876	2.938	3.000	Cont.	Cont.
S375 WEAPONS SYSTEMS ADV DEV	3.747	1.211	.890	.884	.574	3.996	4.684	.580	Cont.	Cont.
S500B SOF OPERATIONAL ENHANCEMENTS		5.965							Cont.	Cont.
S625 SOF TRAINING SYSTEMS	9.082	21.461	10.886	9.585	19.244	1.907	1.894		Cont.	Cont.
S700 SO COMMUNICATIONS ADV DEV	1.744	2.871	2.747	2.234	1.695	1.430	.719	.734	Cont.	Cont.
S800 SO MUNITIONS ADV DEV	3.803	4.393	4.863	12.405	.816	.831	2.254	7.244	Cont.	Cont.
S900 SO MISCELLANEOUS EQUIPMENT ADV DEV	.012		.290	.501	.535				Cont.	Cont.
SF100 AVIATION SYSTEMS ADV DEV	.900	4.467	26.076	24.372	49.528	48.476	36.158	37.642	Cont.	Cont.
SF200 CV-22			16.094	38.818	39.539	34.603	10.386	9.789	Cont.	Cont.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE1160404BB Spec Operations Tactical Systems Development

A. Mission Description and Budget Item Justification

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

Change Summary Explanation:

Project D476: Projects were recosted during POM 00-05 resulting in a reduction to the estimated cost of acquiring technology.

Project D615: FY 2000 increase is addition of MH-60 200-gallon fuel tank and A/MH-6 testing being accelerated from FY 2001. FY 2001 decrease is due to acceleration of A/MH-6 tests to FY 2000.

Project SF100: FY 2000 funding increase due to additional AC-130U Pre-Planned Product Improvement (P3I) funding and POM 00-05 new start, Common Avionics Architecture Program (CAAP). FY 2001 increase due to additional AC-130U P3I finding and CAAP.

Project SF200: Funding revised based on better definition of P3I program requirements from CV-22 Preliminary Design review in August 1997.

Project S0417: Changes to FY 2000 and FY 2001 for Non-Gasoline Burning Engine (NBOE), and Naval Special Warfare Mine Countermeasure are due to program restructuring. In addition, the ASDS program has been restructured in FY 2000 per OUSD(C) direction to bring ASDS back on schedule. Change in FY 2000 for Swimmer Transport Device represents program initiation. Change in FY 2001 for SEAL Delivery Vehicle represents new effort to develop improved electronic components.

Project S1684: Increase to FY 2000 reflects initiation of the Special Operations Craft-Riverine Program. Increase to FY2001 reflects increase to begin development of the next generation offshore infiltration/exfiltration system that will replace the Naval Special Warfare Rigid Inflatable Boat.

Project S625: FY 2000-FY 2005 Strategic Planning Process Centralized Data Base Generation System capabilities (FY 2001). Onsite integration testing required additional labor to resolve test discrepancies (FY 1998).

Project S700: Subprojects were recosted during POM 00-05 resulting in reductions to the estimated cost of acquiring technology.

Project S800: FY 2000 and FY 2001 decreased reflect USSOCOM realignment of resources to support higher command priorities.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE1160404BB Spec Operations Tactical Systems Development

Schedule: Project S0417: First ASDS vehicle will be delivered FY 1999. MS II for NBOE slipped from 4QTR97 to 3QTR98. Milestone III for NBOE was changed to MS III A and slipped from 4QTR98 to 3QTR99 and a MS III B (which includes Pre-Planned Product Improvement and Environmental Protection Agency efforts) is scheduled for 3QTR00.

Technical: None.

B. Program Change Summary	FY 1999	FY 2000	FY 2001
Previous President's Budget	106.238	88.535	113.698
Appropriated Value	107.738		
Adjustments to Appropriated Value / President's Budget	14.107	18.136	19.165
Current Budget Submit	121.845	106.671	132.863

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project 3284

COST (Dollars in Millions)	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	Cost to Complete	Total Cost
3284, SOF Aircraft Defensive Systems	8.663	6.540	8.783	10.321	13.053	7.388	5.292	3.329	Cont.	Cont.

A. Mission Description and Budget Item Justification

Project provides definition, development, prototyping and testing of aircraft defensive avionics systems. The project will identify hardware and software enhancements for each Special Operations Forces (SOF) aircraft that will reduce detection, vulnerability, and threat engagement from threat radars thereby increasing the overall survivability of SOF assets. This project will identify and develop 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 on-going engineering assessments and user operational requirements. This project is funding: dispenser upgrade and improvement programs, threat and missile warning receiver enhancements, radio frequency (RF) jammer improvements, and development of AC-130 Engine Infrared Suppression System and infrared 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:

- ALQ-172 Electronic Countermeasures (AC-130H/U, MC-130H). A modification of the ALQ-172 radio frequency jammer that improves capability by adding low band jamming coverage for eight AC-130H Aircraft. In addition, program provides forflightline reprogramming capability; increase memory and growth for continuous wave countermeasures for AC-130H/U and MC-130H aircraft

- C-130 Engine Infrared Suppression (AC-130H/U, MC-130E/H, HC-130P/N, EC-130E). A program to develop and install an engine infrared (IR) signature suppression system on specific AFSOC C-130 aircraft. The signature will reduce the IR signature of these aircraft, thereby reducing their susceptibility to Generation I and II IR missile threats.

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project 3284

- Directional Infrared Countermeasures (DIRCM). A joint international cooperative United Kingdom/United States project to develop a jammer for MC-130E/H and AC-130H/U aircraft capable of countering missile threats in the band one, two and four infrared frequency spectrum.

- 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.

FY 1998 ACCOMPLISHMENTS:

- (6.904) DIRCM. Continued to support a cooperative UK/US development/production program for 59 SOC C-130 aircraft. (1QTR98-4QTR98)

- (1.480) EWAISF. Continued to support laboratory efforts to include update of the Infrared Integrated Support Station. (3QTR98)

- (0.279) ALQ-172 Electronic Countermeasures (AC-130H). Continued test and program management support for the ALQ-172 Modification Program. (1QTR98-3QTR98)

FY 1999 PLAN:

- (2.472) C-130 Engine Infrared Suppression. Competitively select up to two contractors to enter Engineering and Manufacturing Development. (1QTR99-4QTR99)

- (2.453) DIRCM. Continue to support a cooperative UK/US development/production program for 59 SOF C-130 aircraft. Anticipate production decision in 4QTR99. (1QTR99-4QTR99)

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- (0.359) ALQ-172 Electronic Countermeasures. Continue test and program management support of the ALQ-172 Low Band Jammer. (1QTR99-4QTR99)

- (1.256) Electronic Warfare Avionics Integrated Systems Facility (EWAISF). Continue to support laboratory efforts to include update of the ALQ-196 Integrated Support Station. (1QTR99)

FY 2000 PLAN:

- (4.033) C-130 Infrared (IR) Suppression. Support demonstration of critical performance criteria of prototype down select to one contractor. Support DT/IOT&E and fabricate DT/OT units. (1QTR00-4QTR00)

- (2.952) Directional Infrared Countermeasures (DIRCM). Continue to support a cooperative UK/US developmental production program for 59 SOC C-130 aircraft and fund non-recurring engineering costs for installation of a laser upgrade insert for the DIRCM for MC-130H Combat Talon II and AC-130U Gunship models. (1QTR00-4QTR00)

- (1.798) EWAISF. Continue to support laboratory efforts to include update of the EWMS ISS. (1QTR00-4QTR00)

FY 2001 PLAN:

- (0.688) C-130 IR Suppression. Support follow-on OT&E. (1QTR01-3QTR01)

- (7.860) DIRCM. Continue to support a cooperative UK/US developmental production program for 59 SOC C-130 aircraft and fund non-recurring engineering costs for installation of a laser upgrade insert for the DIRCM for MC-130H Combat Talon II and AC-130U Gunship models. (1QTR01-4QTR01)

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- (1.773) Electronic Warfare Avionics Integrated Systems Facility (EWAISF). Continue to support laboratory efforts to include update of the Directional Infrared Countermeasures (DIRCM) evaluation tool for Integrated Support Station. (1QTR01-4QTR01)

B. Other Program Funding Summary

	FY 98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	To Complete	Total Cost
PROC, C-130 Mods*	67.769	30.490	78.484	20.217	24.448	26.688	22.343	8.735	Cont.	Cont.

- Includes C-130 Modifications sub-line item funds for DIRCM Pre-Planned Product Improvement, APR-46 Improvements, ALQ-172 Low Band Jammer, and C-130 Engine Infrared Suppression, and ECP-93.

C. ACQUISITION STRATEGY:

- DIRCM. The Memorandum of Agreement between the UK/US established the cooperative international DIRCM program. The UK Ministry of Defence 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.

- EWAISF. Award sole source contracts to the manufacturer of the prime mission equipment required for hardware and hardware/software integration into the EWAISF.

- C-130 Engine Infrared Suppression. Produce request for proposals and competitively select up to two contractors to enter Engineering and Manufacturing Development. Down select to one contractor after prototype evaluation (post critical design review). This program is a continuing effort, based upon lessons learned, from 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.

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- ALQ-172 Electronic Countermeasures. Compete as part of the Integrated Weapon Systems Support Program (IWSSP) competition. The ALQ-172 Program task under the basic IWSSP contract.

D. Schedule Profile

	FY98				FY99				FY00				FY01			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Directional Infrared Countermeasures (DIRCM)																
Production Decision (MS III)							x									
Complete AC-130H Qualification Operational Test and Evaluation										x						
AC-130H Electronic Countermeasures MS III				x												
AC-130U/MC-130H ALQ-172 LBJ Contract Award				x												
C-130 Engine Infrared Suppression																
Contract Award								x								
Formal Testing														x		
MS III															x	

Exhibit R-3 COST ANALYSIS		DATE: FEBRUARY 199
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7	PE 1160404BB SPECIAL OPERATIONS TACTICAL SYSTEMS Dev / PROJECT 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 FY99	Award Date FY99	Budget Cost FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	To Complete	Total Program
Primary Hardware Dev											
DIRCM	CIFD	Northrop (Chicago)	76.813								Cont.
IRS	TBD	TBD		2.046	Jun-99	2.900					Cont.
LASER	TBD	TBD				1.000	Jun-99	4.500		Cont.	Cont.
AAR-44	SS/CPIF	Cinn. Electronics, OH	12.363								Cont.
Subtotal Product Dev			89.176	2.046		3.900		4.500		Cont.	Cont.

Remarks:

Dev Spt											
Software Spt											
Training Dev											
Integrated Logistics Spt											
Configuration Management											
Technical Data											
GFE											
Subtotal Spt											

Remarks:

Exhibit R-3 COST ANALYSIS			DATE: FEBRUARY 199								
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7			PE 1160404BB SPECIAL OPERATIONS TACTICAL SYSTEMS Dev / PROJECT 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 FY99	Award Date FY99	Budget Cost FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	To Complete	Total Program
Devel Test & Eval	MIPR	AFOTEC/other (DIRCM)	11.057	2.200	Jan-99						Cont.
	MIPR	AFOTEC/other (LASER)						1.500	Jan-01	Cont.	Cont.
	MIPR	AFOTEC/other (EIRS)				0.700	Jan-00				Cont.
Subtotal T&E			11.057	2.200		0.700		1.500		Cont.	Cont.
Remarks:											
Contractor Engineering Spt	FP	BAH (DIRCM/EIRS) LASER	15.405			1.400	Oct-00	1.400	Oct-01	Cont.	Cont.
	SS/FFP	MTI; Warner Robins, Ga	4.820	0.165	Mar-99						Cont.
	SS/CPFF	SSAF; Warner Robins, Ga	2.969	0.194	Jul-99						Cont.
Government Engineering Spt	MIPR	Crane DIV/other		0.457	Oct-99	0.715	Oct-00	0.878	Jan-01	Cont.	Cont.
Travel	Various		1.000	0.200	Nov-99	0.250	Nov-00	0.250	Nov-01	Cont.	Cont.
Overhead				0.022	Oct-99	0.020	Oct-00	0.020	Oct-01	Cont.	Cont.
Subtotal Management			24.194	1.038		2.385		2.548		Cont.	Cont.
Remarks:											
Total Cost			124.427	5.284		6.985		8.548		Cont.	Cont.
Remarks:											

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project 3326

COST (Dollars in Millions)	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	Cost to Complete	Total Cost
3326, AC-130U	2.575	1.079	1.330	1.313	2.223	2.224	2.089	2.086	Cont.	Cont.

A. Mission Description and Budget Item Justification

The AC-130U aircraft will be more capable and survivable than the existing AC-130H aircraft. The aircraft subsystems include precision navigation, target acquisition and strike radar, fire control computers integrated on redundant MIL-STD-1553B data buses, electronic countermeasures, infrared countermeasures, aerial refueling, covert lighting, trainable weapons, all light level television, infrared sensor, and secure communications systems. These subsystems enable the gunship to strike targets with surgical accuracy, to loiter safely in the target area for extended time periods, and to perform these tasks in night or adverse weather conditions. Every effort has been made to adapt off-the-shelf equipment. To the maximum extent possible, the subsystems in the AC-130U are common with systems on other Air Force Special Operations Command aircraft. AC-130U software is developed and sustained using a Systems Integration Laboratory.

FY 1998 ACCOMPLISHMENTS:

- (0.160) Continued effort on technical order verification/validation and printing. (1QTR98)
- (2.211) Developed I-level support equipment for the trainable gunmount system and the 25mm gun. (2QTR98)
- (0.101) Conducted annual software flight test operations and support. (1QTR98)
- (0.095) Continued reliability and maintainability technical studies and analysis. Examined alternative solutions for control and display problems. (1QTR98-4QTR98)

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project 3326

- (0.008) Continued mission support. (1QTR98-4QTR98)

FY 1999 PLAN:

- (0.288) Develop prototypes and risk reduction efforts for control and display subsystem improvements. (1QTR99)
- (0.093) Continue effort on technical order verification/validation and printing. (3QTR99)
- (0.184) Continue annual software flight test operations and support. (3QTR99-4QTR99)
- (0.506) Continue reliability and maintainability technical studies and analysis. Continue control and display analysis. (1QTR99)
- (0.008) Continue mission support (system safety support). (1QTR99)

FY 2000 PLAN:

- (0.220) Continue technical order verification/validation and printing. (3QTR00)
- (0.200) Continue annual software flight test operations and support (3QTR00-4QTR00)
- (0.416) Begin rehosting the system integration laboratory assets to new ADA software compiler. (1QTR00)
- (0.450) Begin cooperative effort with AF laboratory to analysis and demonstrate emerging related technologies. (1QTR00)

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- (0.044) Continue development of depot level support equipment. (1QTR00)

FY 2001 PLAN:

- (0.220) Continue technical order verification/validation. (3QTR01)
- (0.371) Continue annual software flight test operations and support. (3 QTR01-4QTR01)
- (0.672) Complete System integration laboratory rehost effort. (1QTR01)
- (0.050) Continue cooperative effort with AF laboratory to analyze and demonstrate emerging gunship related technologies. (2QTR01)

B. Other Program Funding Summary

	FY 98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	To Complete	Total Cost
PROC, AC-130U*	58.852	28.600	26.796	21.361	12.152	8.824	6.833	5.818	Cont.	Cont.

* Includes funds for interim contractor support for both hardware and software, post-production support, tech order maintenance, system integration lab support, and support equipment procurement.

C. ACQUISITION STRATEGY:

- Modify C-130H airframe into a side-firing configuration on a sole-source fixed price incentive development contract. Conduct a combined Qualification Test and Evaluation/Qualification Operational Test and Evaluation (QOT&E) and a dedicated QOT&E. The AC-130U is logistically

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supported at organizational, intermediate and depot levels via interim contractor support until organic support is established. Initial operational capability March 1996, full operational capability in FY 2001.

D. Schedule Profile

	FY98				FY99				FY00				FY01			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Initial Operational Capability: Mar 1996																
Final Aircraft Delivery: Mar 1997																
Full Operational Capability: Mar 2001														x		

Exhibit R-3 COST ANALYSIS		DATE: FEBRUARY 1995
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7	PE 1160404BB SPECIAL OPERATIONS TACTICAL SYSTEMS Dev / PROJECT 3326	

Actual or Budget Value ($ in millions)

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	Budget Cost FY99	Award Date FY99	Budget Cost FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	To Complete	Total Program
Software	C-CPIF	Boeing, Ft Walton Beach, FL	Note 1			0.416	Nov	0.672	Nov	Cont.	1.088
Studies & Analysis	C-CPAF	Boeing, Ft Walton Beach, FL	Note 1	0.506	Nov						0.506
Support Equipment	C-CPFF	DME, Orlando, FL	Note 1			0.044	Nov				0.044
Tech Order Ver & Val	Various	Various	Note 1	0.093	Apr	0.220	Apr	0.220	Apr	Cont.	0.533
Subtotal Product Dev				0.599		0.680		0.892			2.171

Remarks:

Note 1: Prior year costs have not been tracked in these cost categorues.

Dev Spt	PO	AF Res Lab, Wright-Patt AFB, OH	0.224	0.185	Dec	0.450	Various	0.050	Dec	Cont.	0.909
Subtotal Spt			0.224	0.185		0.450		0.050			0.909

Remarks:

Exhibit R-3 COST ANALYSIS						DATE: FEBRUARY 1995					
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7			PE 1160404BB SPECIAL OPERATIONS TACTICAL SYSTEMS Dev / PROJECT 3326								
Actual or Budget Value ($ in millions)											
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	Budget Cost FY99	Award Date FY99	Budget Cost FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	To Complete	Total Program
Deval Test & Eval	PO	46 Test Wing, Eglin AFB, FL	34.493	0.184	Aug	0.200	Aug	0.371	Aug	Cont.	35.248
Subtotal T&E			34.493	0.184		0.200		0.371			35.248
Remarks:											
A&AS	C-CPFF	Various		0.111	Jun						0.111
Subtotal Management				0.111							0.111
Remarks:											
Total Cost			34.717	1.079		1.330		1.313		Cont.	38.439
Remarks:											

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APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project D476

COST (Dollars in Millions)	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	Cost to Complete	Total Cost
D476, PSYOP Advanced Development	.603	.946	.865	1.137	.097	.298	.304	.310	Cont.	Cont.

A. Mission Description and Budget Item Justification

This program provides for the development and acquisition of Psychological Operations (PSYOP) equipment. The purpose of PSYOP is to reinforce foreign or hostile attitudes and behavior favorable to U.S. national objectives. New and emerging national, regional, and ethnic power groupings and religious fanaticism have increased threats of terrorism, insurgency, instability, and subversion. Successful PSYOP can lower the morale and reduce efficiency of enemy forces and create dissidence and dissatisfaction within their ranks. This project funds replacement of existing 1950's and 1960's technology equipment currently employed, and provides enhanced capability to conduct tactical and theater-level PSYOP dissemination in support of regional unified commanders and their deployed task forces. The PSYOP programs funded in this project are grouped by the level of organization they support: Operational Element (Team) and Above Operational Element (Deployed). Sub-projects include:

OPERATIONAL ELEMENT (TEAM)

- Leaflet Delivery System (LDS). LDS are a family of systems which provides PSYOP forces the ability to safely and accurately disseminate small to large quantities of PSYOP products (leaflets) over small to large area targets in all threat environments. LDS include remote-controlled systems which can be employed from perimeter areas; payloads which can be delivered from unmanned aerial vehicles; high altitude low opening delivery systems delivered by manned aircraft. In order to accurately deliver leaflets in denied, hostile, or remote areas, some LDS will require homing and guidance systems, timers, and barometric devices for activating at pre-designated altitudes and locations. The LDS family will be varied to allow PSYOP and supporting forces to choose the appropriate system for product dissemination based on policy, operational requirements, delivery platform availability, and environmental restrictions such as wind velocities and hostile fire.

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- Family of Loudspeakers (FOL). The FOL will consist of modular amplifiers and speakers that can be interconnected to form sets of loudspeakers that will provide high quality recorded audio, live dissemination, and acoustic deception capability. FOL will be transported, operated, and mounted in ground vehicles, watercraft, rotary wing aircraft, and dismounted for ground operations (tripod/manpack). FOL will replace current AN/UIH-6 (250 watt) Public Address System; AN/UIH-6A (450 watt); AEM-1492D (900 watt); and LSS-40 (AN/PIH-1) portable loudspeakers. FOL will permit the conduct of loudspeaker missions over larger areas than present equipment capability and will provide a greater stand-off distance for U. S. Forces/assets.

ABOVE OPERATIONAL ELEMENT (DEPLOYED)

- Special Operations Media System B (SOMS B). A rapid deployable, C-130 drive on/drive off tactical radio/TV broadcast, reception and electronic news gathering system. This system replaces 1950-1960s technology and enhances the capability to conduct tactical level PSYOP dissemination in support of regional unified commanders. Reduces the airlift requirement from 7 C-130 aircraft to 2 C-130 aircraft.

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

FY 1998 ACCOMPLISHMENTS:

- (0.525) Family of Loudspeakers. Conducted environmental and operational testing of low rate production systems. (2QTR98-4QTR98)

- (0.078) Leaflet Delivery System (LDS). Refined program requirement and reviewed market research. (1QTR98-4QTR98)

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FY 1999 PLAN:

- (0.500) Leaflet Delivery System. Acquire and perform integration of variant 1, Guided Parafoil Air Delivery System (GPADS) and staged Leaflet Delivery System (SLDS). (3QTR99-4QTR99)

- (0.100) Family of Loudspeakers. Complete operational testing of low rate production systems. (1QTR99-3QTR99)

- (0.262) PSYOP Broadcasting System (POBS). Conduct environmental and operational testing of PSYOP Distribution System and variants, Theater Media Production System (TMPC), and flyaway broadcast capabilities. (1QTR99-4QTR99)

- (0.084) Special Operations Media System B (SOMS B). Implement evolutionary technology insertions for Mobile Television Broadcast Systems and Mobile Radio Broadcast Systems. (2QTR99-3QTR99)

FY 2000 PLAN:

- (0.497) Leaflet Delivery System. Acquire and perform platform integration on variant 2 Precision Guided Canister Bomb and mission planning computer. (2QTR00-3QTR00)

- (0.084) Special Operations Media System B (SOMS B). Implement evolutionary technology insertions for the Mobile Television Broadcast System and Mobile Radio Broadcast System.

- (0.284) PSYOP Broadcasting System (POBS). Continue environmental and operational testing of PSYOP Distribution System variants and TMPC, and MS III Decision for Long Range Dissemination System. (2QTR00-4QTR00)

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FY 2001 PLAN:

- (0.819) Leaflet Delivery System. Acquire and conduct phase II testing on prototype Precision Guided Canister Bomb. (2QTR01-3QTR01)

- (0.318) Special Operations Media System B. Integrate and test evolutionary technology insertions for the Mobile Television Broadcast and Mobile Radio Broadcast systems. (2QTR01-3QTR01)

B. Other Program Funding Summary

	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	To Complete	Total Cost
PROC, Psyop Equipment	12.206	14.696	11.716	8.050	7.745	5.078	13.762	10.879	Cont.	Cont.

C. ACQUISITION STRATEGY: NA

D. Schedule Profile

	FY98				FY99				FY00				FY01			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Leaflet Delivery System																
Market Research	x	x	x	x												
Integration DT/OT Guided Parafoil Air Delivery System (GPADS) and DT Staged Delivery System (SLDS)							x	x								
Integration Precision Guided Canister Bomb										x	x					
DT/OT PGCB														x	x	

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D. Schedule Profile

	FY98				FY99				FY00				FY01			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Family of Loudspeakers																
Low Rate Initial Production Testing		x	x	x	x	x	x									
Special Operations Media System B																
ETI Market Survey						x	x			x	x					
ETI Integration and Testing														x	x	
PSYOP Broadcasting System																
MS I																
MS II			x													
DT/OT PSYOPS Distribution System			x	x	x	x	x	x								
MS III						x										
DT/OT Theater Media Production System					x	x	x	x								
MS III								x								
DT/OT Long Range Dissemination System										x	x					
MS III												x				

Exhibit R-3 COST ANALYSIS						DATE: FEBRUARY 199					
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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 FY99	Award Date FY99	Budget Cost FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	To Complete	Total Program
Primary Hardware Dev	MIPR	Natich Lab, Natich, MA		0.450	Apr-99	0.442	Jan-00	0.753	Jan-01		1.645
	MIPR	NAWC AD, St Indigoes, MD	0.132								0.132
	MIPR	NAWC AD, St Indigoes, MD		0.084	Feb-99	0.084	Jan-00	0.318	Jan-01		0.486
	ALLOT	Army-CECOM, Ft Monmouth, NJ	3.655								3.655
	MIPR	DOE, Nat'l Engr Lab, Idaho Falls, ID	3.240								3.240
Systems Engineering	ALLOT	Army-CECOM, Ft Monmouth, NJ	1.336								1.336
	REQN	Various	0.142								0.142
Subtotal Product Dev			8.505	0.534		0.526		1.071			10.636
Remarks:											
Subtotal Spt											
Remarks:											

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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 FY99	Award Date FY99	Budget Cost FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	To Complete	Total Program
Deval Test & Eval	Various	Various	0.113								0.113
	MIPR	Army ATC, Aberdenn Prov Gd, MD	0.391								0.391
	MIPR	TBD		0.262	Feb-99	0.284	Jan-00			1.007	1.553
Operational Test & Eval	MIPR	JITC, Ft Huachuca, AZ	0.380								0.380
	MIPR	JITC, Ft Huachuca, AZ	0.525	0.100	Feb-99						0.625
Subtotal T&E			1.409	0.362		0.284				1.007	3.062
Remarks:											
Contractor Engineering Spt	OPFF	Booz-Allen Hamilton, McLean, VA	0.305	0.050	Feb-99	0.055	Nov-99	0.066	Nov-00		0.476
Government Engineering Spt	MIPR	MITRE, McLean, VA	0.075								0.075
Program Management Spt	MIPR	SOFSA, Lexington, KY	0.053								0.053
	MIPR	LOGSA, Redstone Arsenal, AL	0.291								0.291
	Various	Various	0.072								0.072
Subtotal Management			0.796	0.050		0.055		0.066			0.967
Remarks:											
Total Cost			10.710	0.946		0.865		1.137		1.007	14.665
Remarks:											

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COST (Dollars in Millions)	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	Cost to Complete	Total Cost
D615, SOF Aviation	2.807	7.194	7.448	10.697	4.028	17.583	3.721	.783	Cont.	Cont.

A. Mission Description and Budget Item Justification

A requirement exists to provide aviation support to Special Operations Forces (SOF) in world-wide 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-60G/L/K, MH-53J, TH-53A, and MH-47D/E. Efforts include:

- A/MH-6. (1) Develops lightweight, rapid reconfigurable mission support equipment. (2) Prototypes and tests 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, conducts Congressionally mandated Live Fire testing on the MH-47E and MH-60K, 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.

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FY 1998 ACCOMPLISHMENTS:

- (0.946) MH-47/MH-60. Developed and prototyped a power amplifier to improve the effectiveness of the continuous wave/pulse wave jamming systems and an exhaust suppressor to reduce the infrared signature of the MH-47 helicopter. (1QTR98-2QTR98)

- (0.869) MH-47/MH-60. Start development of onboard inert gas generation system. Design and start development of a ballistically tolerant composite small arms protection system. (1QTR98-2QTR98)

- (0.992) A/MH6. Developed lightweight, rapid reconfigurable mission support equipment. Prototyped and tested structural fuselage modifications to increase the maximum gross weight by 25%. (1QTR98-2QTR98)

FY 1999 PLAN:

- (5.073) MH-47/MH-60. Continue development of onboard inert gas generation system. Start development and integration of an Aircraft Survivability Equipment controller. Start integration and testing of an Infrared Jammer on the MH-47 helicopter. (1QTR99-3QTR99)

- (0.502) MH-47/MH-60. Conduct Congressionally mandated Live Fire Testing on MH-47E/MH-60K components. Continue development of a ballistically tolerant composite small arms aircraft protection system. (2QTR99-3QTR99)

- (1.179) MH-47/MH-60. Continue integration and testing of a digital map system for the MH-47D and the MH-60L Direct Action Penetrator. Initiate development of the weather radar drop-in card for the Multi-Mode Radar for the MH-47E and MH-60K. (1QTR99-2QTR99)

- (0.440) A/MH-6. Continue development of lightweight, rapid reconfigurable mission support equipment. (1QTR99-2QTR99)

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FY 2000 PLAN:

- (2.941) MH-47/MH-60. Initiate combined Integrated Infrared Countermeasures (IRCM) and Suite of IRCM (SIRCM) Integration to treat IR MH-47 and MH-60 countermeasures as a single integrated program. Provides for testing and installation of Aircraft Survivability Equipment fixes. Funds integration of 200-gallon internal auxiliary fuel tank for 1/160 MH-60 aircraft not previously programmed in POM 98-03. Continues Ballistic Protection System (BPS) (formerly Small Arms Protection System). Additional funding provides BPS modification of aircraft. (1QTR00-4QTR00)

- (1.408) A/MH-6. Funds provide for the integration of the Allison 250-C30/R3 engine, and Full Authority Digital Electronic Control software refinement into the Mission Enhanced Little Bird (MELB) aircraft. Provides extensive Electro Magnetic Interference/Electro Magnetic Countermeasure (EMI/EMC) testing for the MELB aircraft. This includes shipboard compatibility, full certificate at the Dahlgren facility and additional shielding/protection for the aircraft systems. Partially replaces large single functional analog components with fleet common miniaturized, light weight multifunctional reconfigurable displays for flight, navigation, communication and weapons systems management. (1QTR00-4QTR00)

- (3.099) MH-47/MH-60. Incorporates cost to rehost Integrated Avionics System software into new mission processor. Incorporates Global Positioning System/Inertial Navigation System into the MH-47E and MH-60K aircraft. Develops and provides for installation of weather radar mode and incorporation of EMI/EMC and electromagnetic vulnerability fixes. (1QTR00-4QTR00)

FY 2001 PLAN:

- (2.978) MH-47/MH-60. Continues combined Integrated Infrared Countermeasures (IRCM) and Suite of IRCM (SIRCM) Integration to treat MH-47 and MH-60 fleet IR countermeasures as a single integrated program. Continue testing and installation of Aircraft Survivability

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Equipment (ASE) fixes. Initiates development, integration and testing of Nuclear, Biological and Chemical (NBC) crew protection system and NBC point detection system. (1QTR01-4QTR01)

- (2.306) A/MH-6. Continues to provide for the integration of the Allison 250-C30/R3 engine, and Full Authority Digital Electronic Control software refinement into the Mission Enhanced Little Bird (MELB) aircraft. Continues to provide for extensive Electro Magnetic Interference/Electro Magnetic Countermeasures (EMI/EMC) testing for the MELB aircraft. This includes shipboard compatibility and certification at the Dahlgren facility and additional shielding/protection for the aircraft systems. Continues to replace large single functional analog components with fleet common miniaturized, light weight multifunctional reconfigurable displays for flight, navigation, communication and weapon systems management. (1QTR01-4QTR01)

- (2.834) MH-47/MH-60. Continues to provide funds to rehost Integrated Avionics System software onto new mission processor. Provides for Modular Avionics testing. Program incorporates modularized avionics and open systems computer architecture. (1QTR01-4QTR01)

- (2.579) MH-47/MH-60. Funds modification of Army Aircraft 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. Integrates into all MH-47 and aircraft. Continues development and procurement/installation of weather radar mode and incorporation of EMI/EMC and electromagnetic vulnerability fixes. (1QTR01-4QTR01)

B. Other Program Funding Summary

	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	To Complete	Total Cost
PROC, Rotary Wing Upgrades & Sustainment	36.266	46.521	41.233	53.523	29.312	31.086	52.426	70.482	Cont.	Cont.
PROC, OH-6 Proc/Mods	7.712									15.023

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C. ACQUISITION STRATEGY: NA.

D. Schedule Profile	FY98				FY99				FY00				FY01			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Mission Enhanced Little Bird MS IIIB							x									
Power Amplifier Contract Award		x														
ASE Controller Contract Award					x											
Multimode Radar Weather Card MS II						x										
MH-47 Ballistic Protection System Contract Award										x						
Mission Enhanced Little Bird Miniaturization									x							
Mission Enhanced Little Bird Conformal Tanks										x						
NBC Crew Protection MH-60/MH-47													x			

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APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7	PE 1160404BB SPECIAL OPERATIONS TACTICAL SYSTEMS Dev / PROJECT 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 FY99	Award Date FY99	Budget Cost FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	To Complete	Total Program
Primary Hardware Dev	Various	MH-47/60, PM TAPO Ft Eustis, VA	1.700	5.754	Various	3.280	TBD	7.791	TBD		
	Various	A/MH-6, PM-MELB Ft Eustis, VA	0.843	0.440		0.800		0.916			
Subtotal Product Dev			2.543	6.194		4.080		8.707		Cont.	Cont.
Remarks:											
Subtotal Spt											
Remarks:											

Exhibit R-3 COST ANALYSIS		DATE: FEBRUARY 199
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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 FY99	Award Date FY99	Budget Cost FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	To Complete	Total Program
Deval Test & Eval	Various	MH-47/60, PM TAPO Ft Eustis, VA	0.115	1.000	Various	2.760	TBD	0.600	TBD		
	Various	A/MH-6, PM-MELB Ft Eustis, VA	0.149			0.608		1.390			
Subtotal T&E			0.264	1.000		3.368		1.990		Cont.	Cont.
Remarks:											
Subtotal Management											
Remarks:											
Total Cost			2.807	7.194		7.448		10.697		Cont.	Cont.
Remarks:											

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S0417

COST (Dollars in Millions)	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	Cost to Complete	Total Cost
S0417, Underwater Systems Advanced Development	62.155	62.091	18.284	9.455	9.330	10.688	5.418	5.090	Cont.	Cont.

A. Mission Description and Budget Item Justification

This project funds the development of Sea, Air, Land (SEAL) support items used during the conduct of hydrographic/inland reconnaissance, beach obstacle clearance, underwater ship attack, and other direct action missions. Sub-projects include:

- Advanced SEAL Delivery System (ASDS). The ASDS is a manned combatant submersible 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:

- Naval Special Warfare Mine Countermeasures (NSWMCM). Phased development/improvement of low magnetic and acoustic signature equipment to support the combat swimmer in the NSWMCM operational environment.

- Non-Gasoline Burning Outboard Engine. Development of a submersible outboard engine, which does not use highly volatile gasoline, for use on SOF Combat Rubber Raiding Craft.

- Swimmer Transport Device. Develop, test and procure a Commercial-Off-the-Shelf/Non-Developmental Item undersea mobility vehicle to transport combat swimmers when the distance from the ASDS to the target area or landing site is excessive.

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S0417

- Sea, Air, Land (SEAL) Delivery Vehicle (SDV). Replace obsolescent electronics with maintainable systems. Improve reliability and mission success.

FY 1998 ACCOMPLISHMENTS:

- (61.055) Advanced SEAL Delivery System (ASDS). Continued integration of the pressure hull and internal components (including Integrated Communications and Display) for the prototype/first ASDS vehicle. Continued design/fabrication of fairing and procure first set of batteries. Acquired peculiar support equipment and spares. Commenced curriculum development. Completed first article test of batteries and begin fabrication of production batteries for the first vehicle. (1QTR98-4QTR98)

- (0.417) Naval Special Warfare Mine Countermeasures. Continued development of integrating sensor suite onto an Autonomous Underwater Vehicle (AUV) and conduct early user assessment testing. (1QTR98-4QTR98)

- (0.683) Non-Gasoline Burning Outboard Engine. Complete prototype development, conduct developmental testing, accomplish Milestone II, and award Engineering and Manufacturing Development contract. (1QTR98-4QTR98)

FY 1999 PLAN:

- (60.418) ASDS. Complete integration of the prototype and certification of the first ASDS vehicle. Conduct final operational test and evaluation of the first ASDS in shallow and deep water test sites. Primary host fit up and sea trials of the first vehicle. (1QTR99-4QTR99)

- (0.954) Naval Special Warfare Mine Countermeasures. Continue development of integrating sensor suite on AUV and achieve a MS II decision. (1QTR99-4QTR99)

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S0417

- (0.719) Non-Gasoline Burning Outboard Engine (NBOE). Complete basic engine development, conduct testing, accomplish MS III A and award production contract. Continue development of Pre-Planned Product Improvement (P3I) operational improvements and integration of new Environmental Protection Agency (EPA) mandated standards. (1QTR99-4QTR99)

FY 2000 PLAN:

- (14.896) Advanced Sea, Air, Land (SEAL) Delivery System (ASDS). Complete lead vehicle design and construction. Hydrodynamic testing of host ship maneuvering characteristics and support of NSSN host submarine design efforts. Development of P3I: secondary host cradle, degaussing, external payload and communications buoy. Nickel-Cadmium and Silver Ion battery development. (1QTR00-4QTR00)

- (2.086) Naval Special Warfare Mine Countermeasures (NSWMCM). Complete development of Autonomous Underwater Vehicle, conduct developmental and operational testing, achieve a MS III decision in preparation for award of production contract. Initiate modifications to a COTS Hydrographic Reconnaissance System. (1QTR00-4QTR00)

- (0.730) NBOE. Complete development of P3I operational improvements and integration of new EPA standards, conduct testing, accomplish MS III B and award production contract. (1QTR00-3QTR00)

- (0.572) Swimmer Transport Device (STD). Initial testing utilizing Commercial Off-the-Shelf (COTS)/Non-Developmental Item units. (1QTR00-4QTR00)

FY 2001 PLAN:

- (4.665) ASDS. Hydrodynamic testing of host ship maneuvering characteristics and support of NSSN host submarine design efforts. Development of P3I: secondary host cradle, degaussing, external payload and communications buoy. NiCad and Silver Ion battery development. (1QTR01-4QTR01)

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S0417

- (3.988) Naval Special Warfare Mine Countermeasures. Complete modifications of Hydrographic Reconnaissance System, conduct developmental and operational testing, achieve a MS III decision and award production contract. Also, funds for Pre-Planned Product Improvements to the sensor/navigation systems onboard the Autonomous Underwater Vehicle. (1QTR01-4QTR01)

- (0.270) Swimmer Transport Device (STD). Continue testing of Commercial Off-The-Shelf/Non-Developmental Item (COTS/NDI) units. (1QTR01-2QTR01)

- (0.532) Sea, Air, Land (SEAL) Delivery Vehicle. Develop, test and procure improved electronics components. (1QTR01-4QTR01)

B. Other Program Funding Summary

	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	To Complete	Total Cost
ASDS										
PROC, ASDS	2.321	7.960	21.213	24.265	62.153	13.303	44.279	11.380	Cont.	Cont.
PROC, ASDS Adv Proc	0.352	0.288	17.286	22.439		19.449		19.411	Cont.	Cont.
NSWMCM										
PROC, Maritime Equip.			1.590	4.780						6.370
NBOE										
PROC, Maritime Equip.		1.439	2.683							4.122
STD										
PROC, Maritime Equip.				0.932	1.188					2.120
PROC, MK8 MOD 1 SEAL Delivery Vehicle	4.594	0.580			1.100	1.690	1.733	1.776	Cont.	Cont.

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S0417

C. AQUISITION STRATEGY:

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

D. Schedule Profile

	FY98				FY99				FY00				FY01			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Advanced SEAL Delivery System																
Start Testing First Unit						x										
Non-Gasoline Burning Outboard Engine																
Milestone II			x													
Milestone III A							x									
Milestone III B											x					
NSW Mine Countermeasures																
Milestone I/II							x									
Milestone III											x					
Swimmer Transport Device																
Initiate Testing									x							

Exhibit R-3 COST ANALYSIS			DATE: FEBRUARY 199								
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7			PE 1160404BB SPECIAL OPERATIONS TACTICAL SYSTEMS Dev / PROJECT 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 FY99	Award Date FY99	Budget Cost FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	To Complete	Total Program
Primary Hardware Dev											
NBOE	CPF	OMC, Waukegan, IL	0.249	0.258	QTRLY	0.357	QTRLY			Cont.	Cont.
NSWMCM	Various	Various	1.948	0.450	Feb-99	0.926	Dec-99	2.903	Dec-00	Cont.	Cont.
SDV	WR	See Note 1	11.719					0.476	Various		Cont.
STD	TBD	TBD				0.138		0.074			0.212
ASDS	CPIF/C	Northrop-Grumman	154.000	52.200		11.500		4.200		Cont.	Cont.
ASDS	CPFF	Newport News Ship Yard, VA	9.000	3.400		0.500					12.900
ASDS	Various	Various	3.500	0.268	Feb-99						3.768
Subtotal Product Dev			180.416	56.576		13.421		7.653		Cont.	Cont.
Remarks: Note 1: Coastal System Station, Panama City, FL.											
Technical Data											
NBOE	WR	CSS, Panama City, FL		0.043	Oct-98						0.043
NSWMCM	WR	TBD				0.100	Nov-99	0.100	Nov-00		0.200
NSWMCM	WR	NSWC, Panama City, FL				0.150	Nov-99	0.150	Nov-00		0.300
NSWMCM	WR	NSWC, Panama City, FL				0.150	Nov-99	0.150	Nov-00		0.300
NSWMCM	WR	NSWC, Panama City, FL				0.100	Nov-99	0.100	Nov-00		0.200
NSWMCM	WR	NSWC, Panama City, FL				0.100	Nov-99	0.100	Nov-00		0.200
ASDS	Various	Various	4.900	1.600	Jan-99	1.096				Cont.	Cont.
Subtotal Spt			4.900	1.643		1.696		0.600			Cont.
Remarks:											

Exhibit R-3 COST ANALYSIS						DATE: FEBRUARY 199					
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7			PE 1160404BB SPECIAL OPERATIONS TACTICAL SYSTEMS Dev / PROJECT 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 FY99	Award Date FY99	Budget Cost FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	To Complete	Total Program
Devel Test & Eval (NBOE)	WR	CSS, Panama City, FL	0.120	0.143	Oct-98	0.155	Oct-99				0.418
Oper. Test & Eval (NBOE)	WR	TBD		0.005	Oct-98	0.025	Oct-99				0.030
Devel Test & Eval (NSWMCM)	WR	Various	0.015	0.143	Jul-99						0.158
Oper. Test & Eval (NSWMCM)	WR	OPTEVFOR, Norfolk, VA				0.100	Jun-00				0.100
OT&E (STD)	WR	TBD				0.434		0.196			0.630
Subtotal T&E			0.135	0.291		0.714		0.196			1.336
Remarks:											
Contrac. Eng Spt (NBOE)	DO	ADS, Panama City, FL	0.075	0.096	Oct-98						0.171
Program Mgt Spt (NBOE)	Various	CSS, Panama City, FL	0.524	0.154	Oct-98	0.173	Oct-99				0.851
Travel (NBOE)	Various	CSS, Panama City, FL	0.020	0.020	Oct-98	0.020	Oct-99				0.060
Contrac. Eng Spt (NSWMCM)	Various	Various	0.233	0.171	Jan-99	0.178	Dec-99	0.197	Dec-00	Cont.	Cont.
Govt. Eng Spt (NSWMCM)	WR	NSWC, Panama City, FL		0.150	Nov-98	0.200	Nov-99	0.200	Nov-00		0.550
Program Mgt Spt (NSWMCM)	WR	NAVSEA, Arlington, VA	0.050	0.040	Jan-99	0.047	Dec-99	0.053	Dec-00	Cont.	Cont.
Travel (NSWMCM)	WR	NAVSEA, Arlington, VA	0.025			0.035	Dec-99	0.035	Dec-00	Cont.	Cont.
Program Mgt Spt (SDV)	WR	NAVSEA, Arlington, VA	0.374					0.056		Cont.	Cont.
Various (ASDS)	Various	Various		2.950	Various	1.800	Various	0.465	Various	Cont.	Cont.
Subtotal Management			1.301	3.581		2.453		1.006			Cont.
Remarks:											
Total Cost			186.752	62.091		18.284		9.455		Cont.	Cont.
Remarks:											

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB SOF Surface Craft AdvanceDevelopment / Project S1684

COST (Dollars in Millions)	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	Cost to Complete	Total Cost
S1684, SOF Surface Craft Advanced Development	.600	0	4.869	7.657	8.041	5.514	0	0	Cont.	Cont.

A. Mission Description and Budget Item Justification

This project provides for the development and testing of surface combatant craft and selected items of specialized equipment to meet the unique requirements of Special Operations Forces (SOF). These craft and equipment will permit small, highly trained forces to conduct required operations across the entire spectrum of conflict. Sub-projects include:

- Special Operations Craft – Riverine (SOC-R). This craft will provide SOF with the capability to insert and extract SOF in the riverine environment. The SOC-R will be capable of navigating coastal, restricted and shallow rivers, estuaries, bays and littoral, and carry light organic arms. In addition, the craft will be capable of being transported by C-130 aircraft.

- Naval Special Warfare (NSW) Rigid Inflatable Boat (RIB). The current NSW RIB has a projected five-year service life. This program begins development of the next generation system.

FY 1998 ACCOMPLISHMENTS:

- (0.600) NSW RIB initiated market survey of airdrop cradle alterations to support the airdrop operational requirement. Contracted with current boat builder to develop the NSW RIB airdrop variant and to design, develop and test the cradle. Conducted design trade studies and completed Preliminary Design Review (PDR) of boat modifications and cradle.

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB SOF Surface Craft AdvanceDevelopment / Project S1684

FY 2000 PLAN:

- (4.869) SOC-R. Conduct a Market Survey, establish Program Office, prepare proposal, award contracts for riverine craft demonstration/validation. Begin Pre-Planned Product Improvement efforts (current requirement is for a Forward Looking Infrared Radar). (1QTR00-3QTR00)

FY 2001 PLAN:

- (2.844) Rigid Inflatable Boat (RIB). Begin development of the next generation offshore infiltration/exfiltration system. (1QTR01)

- (4.813) Special Operations Craft–Riverine (SOC-R). Conduct developmental test and evaluation of craft. Down select to one vendor and award contract option for Low Rate Initial Production articles. Continue Pre-Planned Product Improvement efforts. (1QTR01-4QTR01)

B. Other Program Funding Summary

	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	To Complete	Total Cost
NSW RIB PROC, NSW RIB	12.562	15.369								
NSW RIB PROC, SOF Combatant Craft Systems			12.145	8.905	9.939	7.473	9.667	9.943	Cont.	Cont.
SOC-R PROC, SOF Combatant Craft Systems						7.370	13.969	7.294		Cont.

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB SOF Surface Craft AdvanceDevelopment / Project S1684

C. ACQUISITION STRATEGY: N/A

D. Schedule Profile	FY98 1	FY98 2	FY98 3	FY98 4	FY99 1	FY99 2	FY99 3	FY99 4	FY00 1	FY00 2	FY00 3	FY00 4	FY01 1	FY01 2	FY01 3	FY01 4
NSW RIB																
Commence P3I Effort	x															
Award Development Contract			x													
DT/OT						x	x									
Award Production Contract							x									
RIB																
Commence Studies													x			
SOC-R																
Market Survey									x							
MS I/II											x					
EMD Award											x					
DT													x			
MS III															x	
Award LRIP																x

Exhibit R-3 COST ANALYSIS		DATE: FEBRUARY 199
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7	PE 1160404BB SOF SURFACE CRAFT ADVANCE DEVELOPMENT / PROJECT S1684	

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 FY99	Award Date FY99	Budget Cost FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	To Complete	Total Program
Primary Hardware Dev											
SOC-R	CPFF	Unknown				3.300	Jun-00	3.000	Oct-00	Cont.	Cont.
RIB								1.595	Unknown	Cont.	Cont.
Subtotal Product Dev						3.300		4.595		Cont.	Cont.
Remarks:											
Development Support											
SOC-R	Various	Unknown				1.369	Unknown	0.700	Unknown	Cont.	Cont.
RIB	Various	Unknown						0.800	Unknown	Cont.	Cont.
Subtotal Spt						1.369		1.500		Cont.	Cont.
Remarks:											

Exhibit R-3 COST ANALYSIS						DATE: FEBRUARY 199					
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7			PE 1160404BB SOF SURFACE CRAFT ADVANCE DEVELOPMENT / PROJECT S1684								
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 FY99	Award Date FY99	Budget Cost FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	To Complete	Total Program
Deval Test & Eval											
SOC-R	Various	Unknown						1.062	Unknown	Cont.	Cont.
RIB	Various	Unknown								Cont.	Cont.
Subtotal T&E								1.062		Cont.	Cont.
Remarks:											
Contractor Engineering Spt											
SOC-R	CPFF	Unknown				0.200	Oct-99	0.250	Oct-00	Cont.	Cont.
RIB								0.250	Oct-00	Cont.	Cont.
Subtotal Management						0.200		0.500		Cont.	Cont.
Remarks:											
Total Cost			48.870			4.869		7.657		Cont.	Cont.
Remarks:											

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S350

COST (Dollars in Millions)	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	Cost to Complete	Total Cost
S350, Special Operations Forces Planning and Rehearsal System (SOFPARS)	4.829	3.627	3.246	3.373	3.125	2.876	2.938	3.000	Cont.	Cont.

A. Mission Description and Budget Item Justification

SOFPARS is a joint evolutionary acquisition program for the United States Special Operations Command. This program is developing an automated mission planning capability to support Special Operations Forces (SOF). 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 personal computer-based Portable Flight Planning Software (PFPS). SOFPARS will be provided to Air Force Special Operations Command (AFSOC) United States Army Special Operations Command (USASOC), and Naval Special Operation Command units. SOFPARS will automate mission planning thus allowing SOF commanders and operators to plan and respond quickly to missions of national importance as well as day-to-day taskings. To accomplish this task, SOFPARS will provide a multi-command level planning capability at major SOF headquarters, theater headquarters, SOF Forward Operating Bases and Forward Operating Locations. SOFPARS will also provide portable subsystems and mission execution support products for use by crews deployed to operational locations. Present mission planning capabilities cannot adequately support the stated mission need. Existing systems are insufficient for planning SOF 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 data bases and the capability to update data in a timely fashion, along with 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 SOF community. The SOFPARS effort meets the joint requirement to ensure interoperability and standardization of the mission planning process between SOF and the Services. Aircraft affected include MH-60G/K/L, MH-47E/D, MH-53J, MC-130E/H, AC-130H/U, AH/MH-6, MC-130P, EC-130E, and CV-22. SOFPARS will also provide timely loading/mission critical data/mission planning capability to the SOF ground and maritime platforms and/or forces.

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S350

FY 1998 ACCOMPLISHMENTS:

- (0.617) Continued Air Force Mission Support System (AFMSS) C2.2 development (SOF-unique features). (1QTR98-4QTR98)
- (2.048) Completed Personal Computer (PC)-based 3.0 enhancements and begin 3.1 enhancements to include development and integration with AFMSS C2.2 software architecture. (1QTR98-4QTR98)
- (2.164) Continued aircraft weapons/electronics interface software module development. (1QTR98-4QTR98)

FY 1999 PLAN:

- (0.907) Continue SOF unique features development. (1QTR99-4QTR99)
- (1.470) Continues PC-based development and integration with PFPS software architecture. (1QTR99-4QTR99)
- (1.250) Continue aircraft weapons/electronics interface software module development. (1QTR99-4QTR99)

FY 2000 PLAN:

- (0.914) Begin new software architecture development interfaces to component Army, Air Force and Navy mission planning, rehearsal and execution systems. (1QTR00-4QTR00)
- (1.489) Continue meeting deferred/future requirements and aircraft weapons/electronics interface support for PC development and interface with joint systems. (1QTR00-4QTR00)

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S350

- (0.843) Program office and engineering support/services. (1QTR00-4QTR00)

FY 2001 PLAN:

- (0.605) Continue software architecture development interfaces to service/component mission planning, rehearsal, and execution systems. (1QTR01-4QTR01)

- (1.866) Continue meeting deferred/future requirements and aircraft weapons/electronics interface support for Personal Computer development and interface with joint systems. (1QTR01-4QTR01)

- (0.902) Program office and engineering support/services. (1QTR01-4QTR01)

B. Other Program Funding Summary

	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	To Complete	Total Cost
PROC, SOFPARS	.0.560	1.001	2.432	2.534	1.949	0.931	0.950	.971	Cont.	Cont.

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S350

C. ACUQISITION STRATEGY:

Develop mission planning software to support SOF operations leveraging ongoing Personal Computer (PC) based efforts under the AFMSS program. Integration of PC-based Portable Flight Planning Software to support SOF requirements maximizes use of commercial off-the-shelf software technology and components to reduce overall costs and schedule. Contract strategy combines various contracts and types to include competitively awarded cost plus and sole source cost no fee (educational institution) contracts. Maximize use of existing 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 through the use of electronic data transfer devices. Uses software support facility to maintain and update software.

	FY98				FY99				FY00				FY01			
D. Schedule Profile	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
AFMSS 2.2 Development Contract Award – interface modules	x				x				x				x			
Portable Flight Planning Software (PFPS) releases																
3.0	x															
3.01			x													
3.1						x										
3.11								x								
3.2										x						
Threat import tool contract award				x												
Release						x										

Exhibit R-3 COST ANALYSIS		DATE: FEBRUARY 199
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7	PE 1160404BB SPECIAL OPERATIONS TACTICAL SYSTEMS Dev / PROJECT 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 FY99	Award Date FY99	Budget Cost FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	To Complete	Total Program
Licenses	ALLOT	ESC, Hanscom AFB, MA	26.111								
Subtotal Product Dev			26.111								
Remarks:											
Development Support	CPFF	Tybrin, Ft Walton Beach, FL	3.400	2.331	Various	1.656	Various	1.733	Various	Cont.	Cont.
Software Support	CPFF	LMFS, Owego, NY	5.047								
Training Development	CPFF		0.750								
Configuration Management	CPFF		1.200								
Technical Data	CPFF			0.238	Various	0.235	Various	0.199	Various	Cont.	Cont.
Subtotal Spt			10.397	2.569		1.891		1.932			
Remarks:											

Exhibit R-3 COST ANALYSIS			DATE: FEBRUARY 199								
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7			PE 1160404BB SPECIAL OPERATIONS TACTICAL SYSTEMS Dev / PROJECT 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 FY99	Award Date FY99	Budget Cost FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	To Complete	Total Program
Developmental Test & Eval	MIPR	46th FTS, Hurlbert Field, FL	0.200	0.100	Various	0.302	Various	0.318	Various	Cont.	Cont.
Operational Test & Eval	MIPR	18th FTS, Hurlbert Field, FL	0.303	0.194	Jan-99	0.210	Nov-99	0.221	Various	Cont.	Cont.
GFE	MIPR	IA52IWGDT		0.138	Various						
Subtotal T&E			0.503	0.432		0.512		0.539			
Remarks:											
Contractor Engineering Spt	PO	MITRE, Bedford, MA	3.414								
Government Engineering Spt	ALLOT	ESC, Hanscom AFB, MA	6.000	0.430	Oct-98	0.580	Oct-99	0.610	Oct-00	Cont.	Cont.
Travel	ALLOT	SOF PMO Ft Eustis, VA		0.080	Oct-98	0.085	Oct-99	0.090	Oct-00	Cont.	Cont.
Overhead	ALLOT	SOF PMO Ft Eustis, VA		0.116	Oct-98	0.178	Oct-99	0.202	Oct-00	Cont.	Cont.
Subtotal Management			9.414	0.626		0.843		0.902			
Remarks:											
Total Cost			46.425	3.627		3.246		3.373		Cont.	Cont.
Remarks:											

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S625

COST (Dollars in Millions)	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	Cost to Complete	Total Cost
S625, SOF Training Systems	9.082	21.461	10.886	9.585	19.244	1.907	1.894	0	Cont.	Cont.

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/Maintenance Training System (GA/MTS). The GA/MTS 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. GA/MTS will be networked with other SOF simulators. AC-130H Part Task Trainer: Currently all procedural training is conducted on powered up static aircraft or in the air. This program develops a procedural trainer. Light Assault Attack Reconfigurable Simulator: Develops an integrated combat mission flight simulator into the existing DIS/HLA environment to conduct real-world mission rehearsal. Light Assault Attack Reconfigurable Simulator will integrate initial, mission, special qualification, continuation, and upgrade flight training, including weapons training. There currently exist no training device with this capability. High Level Architecture (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.

FY 1998 ACCOMPLISHMENTS:

- (2.951) AC-130U Gunship Aircrew/Maintenance Training System (GA/MTS). Completed development of the BMC testbed. (1QTR98-4QTR98)

- (4.860) Gunship Aircrew/Maintenance Training System (GA/MTS). Began development of the flight deck and remaining crew stations. (1QTR98)

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- (0.495) Gunship Aircrew/Maintenance Training System (GA/MTS). Began sensor upgrade. (3QTR98-4QTR98)
- (0.776) Program Management Office support. (1QTR98-4QTR98)

FY 1999 PLAN:

- (18.227) GA/MTS. Continue development of flight deck and remaining crew stations. (1QTR99-4QTR99)
- (2.134) GA/MTS. Complete sensor upgrade (1QTR-3QTR99)
- (1.100) Program Management Office support. (1QTR99-4QTR99)

FY 2000 PLAN:

- (6.521) GA/MTS. Full operational capability for navigator/fire control officer, sensor operator, and electronics warfare officer. Continues flight deck development. (1QTR00-4QTR00)
- (2.765) AC-130H Part Task Trainer. Develops a procedural trainer for AC-130H Aircraft. (1QTR00-4QTR00)
- (0.700) Light Assault Attack Reconfigurable. Conduct feasibility analysis. (1QTR00-4QTR00)
- (0.900) Program Management Office Support. (1QTR00-4QTR00)

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FY 2001 PLAN:

- (4.373) Light Assault Attack Reconfigurable Simulator. Request for proposal and develop source selection process. (1QTR01-4QTR01)
- (3.439) High Level Architecture (HLA). AC-130H Trainer. Modify existing AC-130H with part task trainer configuration HLA FY 01 high level architecture using the competitively awarded Advanced Distributed Simulation Technology II (ASDT II) contract. Develops 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)
- (1.473) Gunship Aircrew/Maintenance Training System (GA/MTS). Completes development of flight deck, and electronics warfare officer station and integration with battle management center. (1QTR01-4QTR01)
- (0.300) Program Management Office Support. (1QTR01-4QTR01)

B. Other Program Funding Summary

	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	To Complete	Total Cost
PROC, SOF Training Systems	5.102	6.053	2.107	2.379	.113	.097	2.467	27.775		

C. ACQUISITION STRATEGY: GA/MTS program is currently in Phase II. The two-phase acquisition strategy first built a Battle Management Center (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 initiated to define requirements. Hardware vendor selection process is underway and proof of principle activities begin 2QFY99. Conduct Light Assault Attack Reconfigurable full and open competition. Maximize use of Non-Developmental Item (NDI)

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technology and actual Airworthy Aircraft Components for design, development and test. Develops 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.

D. Schedule Profile

	FY98				FY99				FY00				FY01			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
GA/MTS BMC Delivery	x															
GA/MTS Sensor Upgrade Delivery							x									
Begin Flight Deck Proof of Principle						x										
Begin HLA Development													x			
AC-130H Part Task Trainer									x							
Light Assault Attack Reconfigurable RFP									x							
Light Assault Attack Reconfigurable EMD Contract Award													x			

Exhibit R-3 COST ANALYSIS			DATE: FEBRUARY 199								
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7			PE 1160404BB SPECIAL OPERATIONS TACTICAL SYSTEMS Dev / PROJECT S625								
Actual or Budget Value ($ in millions)											
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	Budget Cost FY99	Award Date FY99	Budget Cost FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	To Complete	Total Program
Primary Hardware Dev											
Light Assault Attack	CCPIF	STRICOM/Orlando, FL						1.000		Cont.	Cont.
Reconfigurable Simulator											
Air Refueling System	C/FFP	Boeing (IWSSP Contractor)				1.376		2.277			
Ancillary Hardware Dev											
Light Assault Attack								0.500		Cont.	Cont.
Reconfigurable Simulator											
Air Refueling System	C/FFP	Boeing (IWSSP Contractor)				0.400		0.500			
System Engineering											
Light Assault Attack								0.500		Cont.	Cont.
Reconfigurable Simulator											
Air Refueling System	C/FFP	Boeing (IWSSP Contractor)				4.360		1.950			
Tooling								0.100		Cont.	Cont.
GFE								0.050		Cont.	Cont.
Award Fees								0.100		Cont.	Cont.
Subtotal Product Dev						6.136		6.977			
Dev Spt											
Light Assault Attack	CPIF	STRICOM/Orlando, FL				0.112		0.100		Cont.	Cont.
Reconfigurable Simulator											
Air Refueling System	C/FFP	Boeing (IWSSP Contractor)				0.240		0.240			
Software Support											
Light Assault Attack								0.400		Cont.	Cont.
Reconfigurable Simulator											
Air Refueling System	C/FFP	Boeing (IWSSP Contractor)						0.180			
Tng Dev (Air Refueling System)	C/FFP	Boeing (IWSSP Contractor)				0.050		0.075			
Integrated Log Spt (ARS)	C/FFP	Boeing (IWSSP Contractor)				0.460		0.480			
Config Mgt (ARS)	C/FFP	Boeing (IWSSPContractor)				0.250		0.265			
Technical Data											

Exhibit R-3 COST ANALYSIS		DATE: FEBRUARY 199
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7	PE 1160404BB SPECIAL OPERATIONS TACTICAL SYSTEMS Dev / PROJECT S625	

Actual or Budget Value ($ in millions)

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	Budget Cost FY99	Award Date FY99	Budget Cost FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	To Complete	Total Program
Dev Spt (cont.)											
Light Assault Attack								0.150		Cont.	Cont.
Reconfigurable Simulator											
Air Refueling System	C/FFP	Boeing (IWSSP Contractor)				0.400		0.410			
GFE						0.213		0.100			
Subtotal Spt						1.725		2.400			
Devel Test & Eval											
Light Assault Attack	CCPIF	STRICOM/Orlando, FL						0.700		Cont.	Cont.
Reconfigurable Simulator											
Air Refueling System	C/FFP	Boeing (IWSSP Contractor)						0.500			
Subtotal T&E											
Contractor Eng Spt	FFP	STRICOM, Orlando, FL				0.150		0.200		Cont.	Cont.
Government Eng Spt						0.150		0.250		Cont.	Cont.
Prog Mgt Spt						0.025		0.173		Cont.	Cont.
Travel						0.050		0.050		Cont.	Cont.
Subtotal Management						0.375		0.673		Cont.	Cont.
Remarks:											
Total Cost						8.236		10.050		Cont.	Cont.
Remarks:											

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S700

COST (Dollars in Millions)	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	Cost to Complete	Total Cost
S700, Communications Advanced Development	1.744	2.871	2.747	2.234	1.695	1.430	0.719	0.734	Cont.	Cont.

A. Mission Description and Budget Item Justification

This project provides for development and testing of selected items of specialized equipment to meet the unique requirements of Special Operations Forces (SOF). Specialized equipment will permit small, highly trained forces to conduct required operations across the entire spectrum of conflict. These operations are generally conducted in harsh environments, for unspecified periods, and in locations requiring small unit autonomy. Special Operations Forces 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 into 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 C4I programs funded in this project 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:

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OPERATIONAL ELEMENT (TEAM)

- Aircraft Wireless Intercommunication System. A wireless intercom system that allows air and ground crew members to communicate and move about, both within as well as outside (up to 500 feet), the host (fixed and rotary wing) aircraft while on the ground or inflight, without the need for physical attachment to the aircraft.

- Multi-Band Inter/Intra Team Radio (MBITR). MBITR will provide lightweight, handheld, inter/intra team communications for Joint Special Operations Forces (SOF). SOF teams conduct air, ground, and maritime missions across the entire operational spectrum. These missions currently require SOF teams 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 Operations Communications Assemblage (SOCA) Improvement. Program upgrades 80 SOCA units delivered to SOF units in FY 1993 and prior. Proposed modifications include repackaging/downsizing (no more than 70lbs. less generator), enhanced graphics, Ultra High Frequency (UHF) SATCOM DAMA capability, advanced data controllers, and document upgrades to enhance interoperability with conventional and other SOF units. The acquisition strategy is to develop and test the proposed improvements (Phase II) prior to system upgrade (Phase III).

- Special Mission Radio System (SMRS). SMRS is a joint radio system that provides SOF a lightweight, Low Probability of Intercept/Low Probability of Detection (LPI/LPD) high frequency 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 hardware improvements and software documentation. This program also acquires general purpose High Frequency (HF) radio systems for SOF mission requirements.

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- Multi-Band Multi-Mission Radio (MBMMR). Multi-band/Multi-mission Radio (MBMMR). A joint Special Operations Forces requirement, MBMMR provides a lightweight, secure, manpackable, multi-band transceiver capability operating in the following frequency bands: VHF-FM, VHF-AM, and UHF-FM satellite communications in a single radio, reducing the number of radios required to be carried by each team.

- Miniature Multi-Band Beacon (MMB): This program provide 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 ordinance by close air support aircraft for immediate or preplanned targets, enroute navigation and drop zone marking.

ABOVE OPERATIONAL ELEMENT (DEPLOYED)

- Special Mission Radio System (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 (modular communications system). JBS will provide Special Operations Forces (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 USSOCOM C4I architecture.

ABOVE OPERATIONAL ELEMENT (GARRISON)

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APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S700

- SMRS is also planned for use at this level.

- Command, Control, Communications, Computers and Intelligence Automation System (C4IAS). Beginning in FY 1998, C4IAS consolidates and migrates SOF C4I automation systems to a Joint C4I Automation System that will provide a seamless, interoperable and easy to use automation environment for the headquarters USSOCOM, component commands, and the theater Special Operations Command users to support SOF worldwide. It will provide accurate and timely information, analysis and planning tools. The Joint SOF C4I Automation System will fulfill a wide range of requirements ranging from command and control, office automation to decision-making assistance, mission analysis, as well as planning and execution support. The implementation of state-of-the-art hardware, software and communications technology will provide the Special Operations Forces (SOF) user community with the best, most efficient means to effectively satisfy SOF information and planning needs. Migration objectives include compliance with Defense Information Infrastructure Common Operating Environment, collaterization, upgraded network communications backplane, tactical extensions and national systems. Legacy systems include USSOCOM LAN/WAN, NAVSPECWARCOM LAN, AFSOC LAN, Special Tactics Network, Army Special Operations Command Network, SOF Logistics and Acquisition Management System, Command Planning Database, Special Mission Unit network, and Defense Simulation Internet. The acquisition strategy is to use existing government contracts to obtain required software and hardware upgrades through a structured evolutionary technology insertion process.

FY 1998 ACCOMPLISHMENTS:

- (0.074) Aircraft Wireless Intercommunication System. Completed operational testing and MS III Decision. (1QTR98-4QTR98)

- (0.226) Multi-Band Inter/Intra Team Radio. Continued Development and began developmental testing. (3QTR98-4QTR98)

- (0.990) Special Mission Radio System. Continued system developmental and testing and begin operational test and evaluation. (2QTR98-4QTR98)

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- (0.418) Joint Base Station. Completed follow-on test and evaluation of Variant 1 and ETI testing. (1QTR98-4QTR98)

- (0.036) SOF Tactical Assured Connectivity Systems. Conducted developmental/operational test and evaluation on the Downsized Deployable Satellite Terminal. (2QTR98)

FY 1999 PLAN:

- (0.791) Multi-Band Inter/Intra Team Radio (MBITR). Complete development and operational testing. (2QTR99-3QTR99)

- (0.010) Multi-Band Multi-Mission Radio (MBMMR). Conduct market research. (3QTR99)

- (0.319) Special Operations Communications Assemblage Improvement (SOCAIMP). Conduct market research and perform integration and test of Non-Developmental Item (NDI) upgrades. (1QTR99-4QTR99)

- (0.870) Special Mission Radio System (SMRS). Completed operational test and evaluation. Develop and test Evolutionary Technological Insertions (ETIs) for serial tone modem software. (1QTR99-3QTR99)

- (0.399) Joint Base Station (JBS). Perform test and evaluation of new technologies in support of ETIs for all variants. (1QTR99-4QTR99)

- (.277) Special Operations Forces (SOF) Tactical Assured Connectivity Systems. Complete developmental/operational test and evaluation. Conduct test-bed operations for block 2 ETIs. Conduct market research for block 3 ETIs. (1QTR99-3QTR99)

- (0.205) Command, Control, Communications, Computers and Intelligence Automation System. Complete design, integration and testing of database development efforts. (1QTR99)

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FY 2000 PLAN:

- (0.169) SOCAIMP. Complete integration and testing of NDI upgrades. (1QTR00-2QTR00)
- (0.933) SMRS. Perform test and evaluation of new technologies in support of ETIs. (1QTR00-4QTR00)
- (0.412) JBS. Continue test and evaluation of new technologies in support of ETIs for all variants. (2QTR00-4QTR00)
- (1.085) Special Operations Forces (SOF) Tactical Assured Connectivity Systems. Continue testbed operations for block 3 Evolutionary Technological Insertions (ETIs). Conduct market research for block 4 ETIs. (1QTR00-3QTR00)
- (0.148) Miniature Multi-Band Beacon (MMB): Conduct testing of Non-developmental material solution. Make MS III decision. (2QTR00-4QTR00)

FY 2001 PLAN:

- (0.947) Special Mission Radio System. Continue test and evaluation of new technologies in support of ETIs. (2QTR01-4QTR01)
- (0.419) Joint Base Station. Continue test and evaluation of new technologies in support of ETIs for all variants. (1QTR01-4QTR01)
- (0.868) SOF Tactical Assured Connectivity Systems. Conduct test-bed operations for block 4 ETIs. Conduct market research for block 5 ETIs. (1QTR01-3QTR01)

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B. Other Program Funding Summary

	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	To Complete	Total Cost
PROC, Communications & Electronics	46.906	67.737	86.758	88.945	72.936	39.729	53.648	44.692	Cont.	Cont.

C. ACQUISITION STRATEGY:

- SOF Tactical Assured Connectivity Systems (SOFTACS). The SOFTACS program will be managed under an evolutionary acquisition strategy. Evolutionary Technological Insertions (ETIs) are integrated through block upgrades. ETIs will be supported by market research and test and evaluation which will be used to evaluate the benefits and impacts on the SOFTACS system.

D. Schedule Profile	FY98				FY99				FY00				FY01			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Aircraft Wireless Intercommunication System																
QT/OT	x	x	x	x												
Hero Testing				x												
MS III				x												
Multi-Band Inter-Team Radio																
MS I/II																
Contract Award (EMD)																
DT/OT			x	x		x	x									

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D. Schedule Profile	FY98 1	FY98 2	FY98 3	FY98 4	FY99 1	FY99 2	FY99 3	FY99 4	FY00 1	FY00 2	FY00 3	FY00 4	FY01 1	FY01 2	FY01 3	FY01 4
MS III							x									
SOCA Improvement																
Market Research					x	x										
Testing and Integration							x	x	x	x						
Special Mission Radio System																
DT		x	x													
OT			x	x	x											
MS III					x											
ETI Testing and Integration						x	x		x	x	x	x		x	x	x
Joint Base Station																
DT/OT Variant 1		x														
MS III Variant 1			x													
CDR Variant 3&4					x											
DT/OT Variant 3&4							x									
MS III Variant 3&4								x								
ETI Testing and Integration All Variants	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x
SOF Tactical Assured Connectivity System																

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
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D. Schedule Profile

	FY98				FY99				FY00				FY01			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
DDST Testing		x														
DT/OT					x	x	x									
MS III								x								
ETI testing and integration							x		x	x	x		x	x	x	
C4AIS																
ETI Block Upgrade (Design Integrate and Test Data Base							x									
Miniature Multi-Band Beacon																
NDI Testing										x	x					
MS III												x				
Multi-Band Multi-Mission Radio																
Market Research							x									

Exhibit R-3 COST ANALYSIS		DATE: FEBRUARY 199
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7	PE 1160404BB SPECIAL OPERATIONS TACTICAL SYSTEMS Dev / PROJECT 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 FY99	Award Date FY99	Budget Cost FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	To Complete	Total Program
Primary Hardware Dev	Allot	NSMA; Arlington, VA	1.924	0.428	FEB 99	0.505	NOV 99	0.552	JAN 01	1.200	4.609
Ancillary Hardware Dev	Cost Share	Racal; Rockville, MD	0.646	0.506	FEB 99						1.152
Systems Engineering	MIPR	NAWC AD; St. Inigoes, MD	2.147	0.229	FEB 99	0.253	JAN 00	0.268	NOV 01	1.140	4.037
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			19.392	1.163		0.758		0.820		2.340	24.473

Remarks:

Dev Spt											
Software Spt											
Training Dev											
Integrated Logistics Spt											
Configuration Management											
Technical Data											
GFE											
Subtotal Spt											

Remarks:

Exhibit R-3 COST ANALYSIS		DATE: FEBRUARY 199
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7	PE 1160404BB SPECIAL OPERATIONS TACTICAL SYSTEMS Dev / PROJECT 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 FY99	Award Date FY99	Budget Cost FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	To Complete	Total Program
Deval Test & Eval	Various	Various	0.370	0.285	Var						0.655
Operational Test & Eval	Various	Various	0.092	0.779	Var	1.287	Var	1.065	Var	1.927	5.150
Tooling											
GFE											
Subtotal T&E			0.462	1.064		1.287		1.065		1.927	5.805
Remarks:											
Contractor Engineering Spt	Various	Various	1.231	0.305	Var	0.100	Var	0.112	Var		1.748
Government Engineering Spt	Various	Various	6.370	0.229	Var	0.458	Var	0.205	Var		7.262
Program Management Spt	Various	Various		0.110	Var	0.144	Var	0.032	Var	0.311	0.597
Travel											
Labor (Research Personnel)											
Overhead											
Subtotal Management			7.601	0.644		0.702		0.349		0.311	9.607
Remarks:											
Total Cost			27.455	2.871		2.747		2.234		4.578	39.885
Remarks:											

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S800

COST (Dollars in Millions)	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	Cost to Complete	Total Cost
S800, Special Operations Munitions Advanced Development	3.803	4.393	4.863	12.405	.816	.831	2.254	7.244	Cont.	Cont.

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 105mm Ammunition. This subproject addresses Air Force Special Operations Command needs for more effective 105mm ammunition. A 105mm high fragmentation round is required for defeat of light material and personnel targets in order to conduct close air support in increasingly hostile environments. A 105mm-guided projectile or improved conventional munitions round is required to improve first shot kill capabilities for hardened mobile and stationary targets while minimizing collateral damage. A 105mm-guided projectile or improved conventional munitions round, through increased standoff range allowed by greater probability of hit, will reduce Gunship exposure to anti-aircraft fire, thereby increasing survivability.

- Improved Limpet Mine (ILM). The ILM will replace the existing Limpet Assembly Modular. The ILM is required for Sea, Air, Land (SEAL) 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.

- Penetration Augmented Munition. Presently SOF has a limited capability to significantly damage concrete structures or pylons assigned as targets. This program develops a man portable/emplaced munition that defeats large reinforced concrete structures, replaces more than 200

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S800

pounds of C4 explosive, reduces time-on-target, and represents new capability for Special Operations Forces (SOF) by being the first hand emplaced munition to use tandem Explosively Formed Penetrator warheads and in-line electronic fuzing.

- Remote Activated Munitions System (RAMS). Provides a capability to remotely control detonation of demolition charges or the remote operation of other items of equipment such as beacons, laser markers, radios, and weapons.

- SOF Demolition Kit. The kit consists of inert hardware sets for EFPs, 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 lethality and mission flexibility.

- Time Delay Firing Device. 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.

FY 1998 ACCOMPLISHMENTS:

- (0.907) SOF Demolition Kit. Initiated design, fabrication and testing of large warhead. (1QTR98-4QTR98)

- (1.717) RAMS. Continued Engineering and Manufacturing Development (EMD) for Type B receiver. (1QTR98-4QTR98)

- (0.751) Improved Limpet Mine. Initiated program and engineering efforts for design and test. (1QTR98-4QTR98)

- (0.428) Penetration Augmented Munition. Completed EMD and conducted Milestone III review to enter production phase. (1QTR98-4QTR98)

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APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S800

FY 1999 PLAN:

- (0.883) Special Operations Forces Demolition Kit (SOFDK). Initiate design, fabrication and testing of a preplanned product improvement warhead. Complete Engineering and Manufacturing Development (EMD) and conduct Milestone III review for large warhead. (1QTR99-4QTR99)

- (0.977) Remote Activated Munitions Systems. Complete EMD and testing; conduct Milestone III review for Type B receiver. (1QTR99-2QTR99)

- (2.533) Improved Limpet Mine (ILM). Continue design and test of ILM subsystems. (1QTR99-4QTR99)

FY 2000 PLAN:

- (0.540) SOFDK. Continue design, fabrication, and testing of a preplanned product improvement warhead. (1QTR00-4QTR00)

- (2.032) ILM. Conduct MS I/II to enter EMD; conduct system integration testing and critical design review. (1QTR00-4QTR00)

- (0.984) Improved 105mm Ammunition. Initiate program and engineering efforts for the initial design and test of the improved 105mm round. (1QTR00-4QTR00)

- (1.307) Time Delay Firing Device. Initiate design, fabrication, and testing; conduct Milestone I/II to enter EMD. (1QTR00-4QTR00)

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S800

FY 2001 PLAN:

- (3.745) Special Operations Forces Demolition Kit (SOFDK). Initiate design, fabrication and testing of several preplanned product improvement warheads. Complete Engineering and Manufacturing Development (EMD) and conduct Milestone III review of a Pre-Planned Product Improvement warhead. (1QTR01-4QTR01)

- (1.474) Improved Limpet Mine (ILM). Complete EMD and testing; conduct Milestone III review for ILM. (1QTR01-4QTR01)

- (0.982) Improved 105mm Ammunition (IMP105). Continue design and test; conduct Milestone I/II review to enter EMD. (1QTR01-4QTR01)

- (6.204) Time Delay Firing Device. Continue EMD; complete subsystem testing and conduct system integration testing. (1QTR01-4QTR01)

B. Other Program Funding Summary

	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	To Complete	Total Cost
PROC, Ordnance Acquisition	18.130	17.915	15.992	33.159	8.584	8.098	8.597	8.975	Cont.	Cont.

C. ACQUISITION STRATEGY:

- ILM. Program managed by Naval Sea Systems Command, PMS 325. Designs will be developed by Naval Surface Warfare Centers.

- IMP105. Program will award a competitive development contract for system development.

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S800

- Time Delay Firing Device. Program managed by Office of Project Manager for Mines, Countermines and Demolitions, PM-MCD. Designs will be developed by Army research and development centers.

D. Schedule Profile	FY98 1	FY98 2	FY98 3	FY98 4	FY99 1	FY99 2	FY99 3	FY99 4	FY00 1	FY00 2	FY00 3	FY00 4	FY01 1	FY01 2	FY01 3	FY01 4
SOF Demolition Kit																
MS III (Large Warhead)								x								
MS III (P3I Warhead)																x
Remote Activated Munitions System																
MS III (Type B Receiver)							x									
Improved Limpet Mine																
MS I/II										x						
MS III															x	
Improved 105mm Ammunition																
MS I/II															x	
Time Delay Firing Device																
MS I/II												x				
Penetration Augmented Munition																
MS III			x													

Exhibit R-3 COST ANALYSIS		DATE: FEBRUARY 199
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7	PE 1160404BB SPECIAL OPERATIONS TACTICAL SYSTEMS DEVELOPMENT / PROJECT 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 FY99	Award Date FY99	Budget Cost FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	To Complete	Total Program
Primary Hardware Dev	ALLOT	Various		2.473		2.771		7.673		Cont.	Cont.
										Cont.	Cont.
										Cont.	Cont.
										Cont.	Cont.
Subtotal Product Dev				2.473		2.771		7.673		Cont.	Cont.

Remarks: Supports ILM, DK, RAMS, Gunship Ammo and TDFD.

Development Spt	ALLOT	Various		0.020		0.032		0.089		Cont.	Cont.
Training Development	ALLOT	Various		0.100		0.096		0.266		Cont.	Cont.
Integrated Logistics Support	ALLOT	Various		0.400		0.447		1.240		Cont.	Cont.
Configuration Management	ALLOT	Various		0.020		0.032		0.088		Cont.	Cont.
Technicial Data	ALLOT	Various		0.020		0.032		0.088		Cont.	Cont.
Subtotal Spt				0.560		0.639		1.771		Cont.	Cont.

Remarks: Supports ILM, DK, RAMS, Gunship Ammo and TDFD.

Exhibit R-3 COST ANALYSIS						DATE: FEBRUARY 1999					
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7			PE 1160404BB SPECIAL OPERATIONS TACTICAL SYSTEMS DEVELOPMENT / PROJECT 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 FY99	Award Date FY99	Budget Cost FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	To Complete	Total Program
Developmental Test & Eval	ALLOT	Various		0.560		0.640		1.771		Cont.	Cont.
Operational Test & Eval	ALLOT	Various		0.200		0.213		0.590			1.003
Subtotal T&E				0.760		0.853		2.361			3.974
Remarks: Supports ILM, DK, RAMS, Gunship Ammo and TDFD.											
Contractor Engineering Spt	ALLOT	Various		0.100		0.100		0.100		Cont.	Cont.
Government Engineering Spt	ALLOT	Various		0.050		0.050		0.050			
Program Management Spt	ALLOT	Various		0.400		0.400		0.400			
Travel				0.050		0.050		0.050			
Subtotal Management				0.600		0.600		0.600		Cont.	Cont.
Remarks: Management Support funds PMs for each of the programs executed; since there is more than one program, more than one PM is funded. This is more or less a fixed cost per program. Supports ILM, DK, RAMS, Gunship Ammo and TDFD.											
Total Cost			0.000	4.393		4.863		12.405		Cont.	Cont.
Remarks:											

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project SF100

COST (Dollars in Millions)	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	Cost to Complete	Total Cost
SF100, Aviation Systems Advanced Development	0.900	4.467	26.076	24.483	49.528	48.476	36.158	37.642	Cont.	Cont.

A. Mission Description and Budget Item Justification

This project investigates already developed and maturing technologies that have direct application for the development and procurement of specialized equipment to meet unique SOF 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) radio frequency 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-130H Weight Reduction. This program removes weight by redesigning the current 40mm and 105mm ammo racks using a lighter weight material; rebuilding the 40mm and 105mm trainable gun mounts, using lighter weight material; and removing non critical armor.

- AC-130H Low Light Level TV. This program upgrades/replaces the following high failure components: AJQ-24 Pedestal, AAQ-17 Laser Illuminator, and AXQ-17 Camera.

- AC-130U Pre-Planned Product Improvement. Provides correction of system deficiencies and enhancement of mission capabilities for 13 AC-130U Gunships. Develops and fixes for problems identified under the original AC-130U development contract, but determined this to be out-of-scope for that effort.

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project SF100

- 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. The 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.

- MC-130H Aerial Refueling. Integrates air refueling system into MC-130H 1553 data bus. Includes enlarged paratroop door windows internal fuel tanks.

- Common Avionics Architecture for Penetration. This program initiates development of terrain following/terrain avoidance radar having Low Probability of Intercept/Low Probability of Detection characteristics, initiates development of 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 EW data-bus to coordinate on-board defensive system response to threats.

IAW Defense Planning Guidance, this project also addresses consolidated technical risk reduction efforts for advanced SOF system, subsystems and equipment. Such efforts will support substantial life cycle cost savings via timely cost avoidance and cost savings from common-function/multi-platform subsystems.

FY 1998 ACCOMPLISHMENTS:

- (0.110) AC-130H Weight Reduction. Continued engineering management support of the development/design of a prototype ammo rack and gun mounts. (1QTR98-4QTR98)

- (0.735) AC-130U Pre-Planned Product Improvement. Continue activities for upgrade of All Light Level Television Laser Illuminator Assembly. (3QTR98)

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APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project SF100

- (0.055) AC-130H Low Light Level Television (LLLTV). Completed preliminary technology demonstration effort on the AC-130H LLLTV Program. (4QTR98)

FY 1999 PLAN:

- (0.462) AC-130H Weight Reduction. Complete engineering management support on prototype ammo rack and gun mounts. (1QTR99-4QTR99)

- (3.231) AC-130U Pre-Planned Product Improvement (P3I) (EW Upgrade). Begin development efforts for replacement of the Gunship's ALR-56 radar warning receiver to solve performance problems and increase commonality with other Special Operations Forces (SOF) Weapon Systems. (2QTR99)

- (0.774) Aviation Engineering Analysis. Conduct a study for improvements to situational awareness for the AC-130U Gunship. Continue engineering analysis of SOF Fixed Wing Aircraft Avionics and Sensors. (1QTR99-4QTR99)

FY 2000 PLAN:

- (10.697) AC-130U P3I (EW Upgrade). Complete development of a replacement for the ALR-56 radar warning receiver to solve performance problems and increase commonality with other SOF platforms. (3QTR00)

- (1.574) AC-130U P3I (Comm Upgrade). Develop corrections for 13 communication management system deficiencies identified during flight test. Also, fund integration of JCS-directed narrowband SATCOM capability. (1QTR00)

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- (0.564) Aviation Engineering Analysis. Continued engineering analysis of Special Operations Forces (SOF) Fixed Wing Aircraft Avionics and Sensors. (1QTR00-4QTR00)

- (5.705) Common Avionics Architecture for Penetration. Initiate design/prototyping of Terrain Following/Terrain Avoidance (TF/TA) radar, initiate design/prototyp of Enhance Situation Awareness (ESA) architecture, providing a consolidated presentation of threat data overlayed with digital map presentation. (2QTR00)

- (7.536) MC-130H Air Refueling. Begin development of group A paratroop door window, feasibility analysis of internal fuel tank(s) and integration of aerial refueling system. (1QTR00-4QTR00)

FY 2001 PLAN:

- (0.491) AC-130U P3I. Begin development of a selectable beam size laser illuminator for precise location and identification of ground targets for the All Light Level Television. (1QTR01)

- (0.491) Aviation Engineering Analysis. Continue engineering analysis of SOF Fixed Wing Aircraft Avionics and Sensors. (1QTR01-4QTR01)

- (10.729) Common Avionics Architecture for Penetration. Continue design/prototyping of TF/TA radar, ESA architecture. (2QTR01)

- (6.877) MC-130H Air Refueling. Continue development and begin ground and flight testing. (1QTR01-4QTR01)

- (5.895) Technical Risk Reserve. Initiate risk reduction analyses and alternative subsystem design and development efforts for common avionics architecture systems and/or selected advanced SOF systems, subsystems and critical components/equipment. (1QTR01-4QTR01)

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project SF100

B. Other Program Funding Summary

	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	To Complete	Total Cost
PROC, C-130 Mods*	7.499	29.231	12.784	1.076	17.937	45.200	36.566	20.159	Cont.	Cont.
Aircraft Support	3.652	.857	1.729	2.200	1.662	8.691	27.941	60.628		

*Includes C-130 Modifications sub-line item funds for AC-130H Low Light Level Television replacement, AC-130U P3I, AC-130H Weight Reduction, MC-130H Air Refueling Modification, and Common Avionics Architecture for Penetration.

C. ACQUISITION STRATEGY:

- AC-130U Pre-Planned Product Improvement (P3I), ALR-56 Replacement. Pursue a phased replacement of existing ALR-56 Radar Warning Receiving (RWR) with SOF-common ALR-69 RWR to increase capability and system commonality.
- AC-130U P3I, Narrowband SATCOM. Modify existing off the shelf radios to provide narrowband SATCOM capability and correct existing communications deficiencies.
- AC-130U P3I. All Light Level Television laser beam shaping. Maximize use of non developmental laser technology to integrate improvements to the laser illuminator.
- Common Avionics Architecture for Penetration (CAAP). Develop a common technical solution satisfying fixed and rotor wing requirements for penetration missions. The program will leverage knowledge gained on previously conducted ATDs to implement a low risk solution. Modification to SOF C-130 Aircraft is anticipated to be conducted in conjunction with currently planned avionics upgrades to minimize cost and aircraft down time. Optimal integration for CV-22 and Rotary Wing is under investigation.

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
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- MC-130H Aerial Refueling. Maximize use of non-developmental item technology to develop, design, build and test integrated aerial refueling system via Integrated Weapon System Support Program contract.

D. Schedule Profile

	FY98				FY99				FY00				FY01			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
AC-130H LLLTV Contract Award	x															
AC-130U ALR-56 Replacement Study						x										
AC-130H Weight Reduction Contract Award					x											
MC130H Aerial Refueling Contract Award									x							
AC-130U Narrowband SATCOM									x							
AC-130U All Light Level Television Laser Illuminator Shaping													x			
CAAP Development Contract Award										x						

Exhibit R-3 COST ANALYSIS		DATE: FEBRUARY 199
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7	PE 1160404BB SPECIAL OPERATIONS TACTICAL SYSTEMS DEVELOPMENT / PROJECT 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 FY99	Award Date FY99	Budget Cost FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	To Complete	Total Program
Primary Hardware Development											
AC-130U (Equip)	SS/CPAF	Bell/Boeing				10.697	OCT			Cont	Cont
CAAP	TBD	WR-ALC & HQ SOCOM				5.705		10.729		Cont	Cont
MC-130 Air Ref (P3I)		Bell/Boeing									
P3I				3.231	Jun	7.536		6.877		Cont.	Cont.
Development								0.491		Cont.	Cont.
Subtotal Product Dev				3.231		23.938		18.097			

Remarks:

Support Costs											
Annalyses/Technical Studies								5.895		Cont.	Cont
Engineering/Studies											
AC-130U Gunship	Various			0.744		0.564		0.491		Cont	Cont
Eng Mgt Spt (AC-130H)	Various			0.462						Cont	Cont
Subtotal Spt				1.206		0.564		6.386			

Remarks:

Exhibit R-3 COST ANALYSIS		DATE: FEBRUARY 1995
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7	PE 1160404BB SPECIAL OPERATIONS TACTICAL SYSTEMS DEVELOPMENT / PROJECT 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 FY99	Award Date FY99	Budget Cost FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	To Complete	Total Program
Dev Test & Evaluation											
AC-130U Flight Test						1.574				Cont.	Cont.
Subtotal T&E						1.574					
Remarks:											
Support											
Subtotal Management											
Remarks:											
Total Cost				4.437		26.076		24.483		Cont.	Cont.
Remarks:											

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project SF200

COST (Dollars in Millions)	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	Cost to Complete	Total Cost
SF200, CV-22 SOF Osprey	0	0	16.094	38.818	39.539	34.603	10.386	9.789	Cont.	Cont.

A. Mission Description and Budget Item Justification

The CV-22 acquisition program delayed the incorporation of some operational capabilities until the completion of a Pre-Planned Product Improvement (P3I) program. This strategy was based on a developmental funding cap imposed by the Department of the Navy and concerns over the technical maturity of parallel acquisition programs. The P3I capabilities are all required to meet operational requirements and have been grouped into three blocks to minimize costs. The first block specifies those capabilities required in the first aircraft for the Required Assets Available (RAA) milestone. The second block is required for aircraft delivered immediately following Initial Operational Capability (Post-IOC). The last block will be required to retrofit into all aircraft to achieve Full Operational Capability.

FY 1998 ACCOMPLISHMENTS: NA

FY 1999 PLAN: NA

FY 2000 PLAN:

- (15.099) Begin development of RAA P3I Block changes. (1QTR00-4QTR00)
- (0.995) Begin program office support for P3I Program. (1QTR00-4QTR00)

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project SF200

FY 2001 PLAN:

- (26.100) Continue development of RAA P3I Block changes. (1QTR01-4QTR01)
- (11.720) Begin development of post Initial Operational Capability (Post-IOC) Pre-Planned Product Improvement (P3I) Block changes. (1QTR01-4QTR01)

- (0.998) Continue program office support for P3I Program. (1QTR01-4QTR01)

B. Other Program Funding Summary

	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	To Complete	Total Cost
PROC, CV-22SOF Osprey		3.983	3.582	8.588	100.542	123.683	142.327	167.906	210.218	760.829

C. ACQUISITION STRATEGY:

- The CV-22 P3I program will be managed through the Navy V-22 program office (NAVAIR PMA-275). This will ensure the P3I changes are incorporated into the ongoing V-22 production line with minimum impact. RDT&E funding will be sent from USSOCOM to PMA-275 to place on contract with the V-22 prime contractor, beginning in FY 2000. The first block of changes for P3I-Required Assets Available (RAA) will be incorporated in all production CV-22 aircraft, including the first production deliveries in FY 2003. RDT&E for the second block of changes, P3I-IOC, will begin in FY 2001 to meet a production line incorporation beginning in FY 2003, with delivery in FY 2005. This minimizes the number of aircraft requiring retrofit, but keeps the P3I program from impacting the FY 2004 IOC. A final block of changes for P3I-Final Operational Capability will be developed to support incorporation in the last two CV-22 production lots, which are procured in FY 2006 and FY 2007. Earlier aircraft will be retrofit.

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project SF200

D. Schedule Profile

	FY98				FY99				FY00				FY01			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Begin P3I-RAA development									x							
BeginP3I-Post-IOC development													x			

Exhibit R-3 COST ANALYSIS		DATE: FEBRUARY 199
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7	PE 1160404BB SPECIAL OPERATIONS TACTICAL SYSTEMS DEVELOPMENT / PROJECT 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 FY99	Award Date FY99	Budget Cost FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	To Complete	Total Program
Primary Hardware Dev	SS/CPAF	NAVAIR/PMA-275				13.886	Oct	34.792	Oct	Cont.	Cont.
Award Fees						1.208	Oct	3.025	Oct	Cont.	Cont.
Subtotal Product Dev						15.094		37.817			
Remarks:											
Subtotal Support											
Remarks:											

Exhibit R-3 COST ANALYSIS						DATE: FEBRUARY 199					
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7			PE 1160404BB SPECIAL OPERATIONS TACTICAL SYSTEMS DEVELOPMENT / PROJECT 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 FY99	Award Date FY99	Budget Cost FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	To Complete	Total Program
Developmental Test & Eval										Cont.	Cont.
Operational Test & Eval										Cont.	Cont.
Subtotal T&E											
Remarks:											
Contractor Engineering Spt											
Government Engineering Spt	MIPR	NAVAIR/PMA-275				0.850	Oct	0.850	Oct	Cont.	Cont
Program Management Spt	REGN	USSOCOM/SOAL-FW				0.150	Oct	0.151	Oct	Cont.	Cont
Travel											
Labor (Research Personnel)											
Overhead											
Subtotal Management						1.000		1.001			
Remarks:											
Total Cost						16.094		38.818		Cont.	Cont.
Remarks:											

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE1160405BB Spec Operations Intelligence Systems Development

COST (Dollars in Millions)	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	Cost to Complete	Total Cost
PE1160405BB	9.516	8.793	1.407	2.899	1.366	1.395	1.533	1.686	Cont.	Cont.
S400 SO INTELLIGENCE	9.516	8.793	1.407	2.899	1.366	1.395	1.533	1.686	Cont.	Cont.

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 into 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 C4I programs funded in this project 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). The PC configuration is confined to the electronic surveillance mission area, while the MK V SOC configuration has been expanded to include an electronic attack capability for self-defense. A subset of the Joint Threat Warning System, PRIVATEER hosts a common software architecture that controls a variety of hardware modules designed to satisfy the unique platform 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.

- SILENT SHIELD. The SILENT SHIELD is part of an evolutionary Joint Threat Warning System migration being developed to support Special Operations Forces (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.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE1160405BB Spec Operations Intelligence Systems Development

- National Systems Support to SOF (NSSS). NSSS is a project to introduce and integrate national systems capabilities into the SOF force structure and operations. NISS 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.

- SOF SIGINT Manpack System/Joint Threat Warning System (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.

ABOVE OPERATIONAL ELEMENT (DEPLOYED)

- SOF Intelligence Vehicle (SOF IV). The SOF IV is a deployable, automated, multi-source intelligence processing and dissemination system. The SOF IV extends the Joint Deployable Intelligence Support System/Special Operations Command Research, Analysis and Threat Evaluation System architecture to the Joint Special Operations Task Force level permitting automated interface to all theater-level intelligence data handling systems. SOF IV provides for the receipt, processing, and manipulation of near-real-time intelligence data in order to produce highly tailored, accurate and timely intelligence products to support deployed Special Operations Forces (SOF). The system employs a high mobility multi-purpose wheeled vehicle configured with a rigid wall, standard integrated command post shelter to house computer servers, mass storage devices, and communications equipment, and a tent extension for the remote operation of analyst workstations. It incorporates DoD Intelligence Information System and Joint Deployable Intelligence Support System standards and products in accordance with JCS direction. A second configuration of the system also exists with identical performance capabilities using a modular, transit case design. SOF IV is an Evolutionary Acquisition Program. The acquisition strategy includes a block upgrade process that will occur over the life of the system.

- Special Operations Tactical Video System (SOTVS). SOTVS will provide the capability to forward digital/video 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 three versions: standard version using still digital cameras (SV1A); standard version using video cameras (SV1B); and a waterproof version using still digital cameras (SV2).

Change Summary Explanation:

Funding: FY 1999 decrease is project cost share for the Small Business Innovative Research program, implementation of other Congressionally-mandated reductions, and impact of revised Adminstration inflation assumptions. FY 2000 and FY 2001 decreases are project cost shares for revised administration inflation assumptions.

Schedule: None.

Technical: None.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE1160405BB Spec Operations Intelligence Systems Development

B. Program Change Summary	FY 1999	FY 2000	FY 2001
Previous President's Budget	1.805	2.026	3.752
Appropriated Value	8.805		
Adjustments to Appropriated Value / President's Budget	(.012)	(.619)	(.853)
Current Budget Submit	8.793	1.407	2.899

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160405BB Special Operations Intelligence Systems Development / Project S400

COST (Dollars in Millions)	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	Cost to Complete	Total Cost
S400, SOF Intelligence R&D	9.516	8.793	1.407	2.899	1.366	1.395	1.533	1.686	Cont.	Cont.

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 into 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 C4I programs funded in this project 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). The PC configuration is confined to the electronic surveillance mission area, while the MK V SOC configuration has been expanded to include an electronic attack capability for self-defense. A subset of the Joint Threat Warning System, PRIVATEER hosts a common software architecture that controls a variety of hardware modules designed to satisfy the unique platform 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.

- SILENT SHIELD. The SILENT SHIELD is part of an evolutionary Joint Threat Warning System migration being developed to support Special Operations Forces (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.

- 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.

- SOF SIGINT Manpack System/Joint Threat Warning System (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.

ABOVE OPERATIONAL ELEMENT (DEPLOYED)

- SOF Intelligence Vehicle (SOF IV). The SOF IV is a deployable, automated, multi-source intelligence processing and dissemination system. The SOF IV extends the Joint Deployable Intelligence Support System/Special Operations Command Research, Analysis and Threat Evaluation System architecture to the Joint Special Operations Task Force level permitting automated interface to all theater-level intelligence data handling systems. SOF IV provides for the receipt, processing, and manipulation of near-real-time intelligence data in order to produce highly tailored, accurate and timely intelligence products to support deployed Special Operations Forces. The system employs a high mobility multi-purpose wheeled vehicle configured with a rigid wall, standard integrated command post shelter to house computer servers, mass

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160405BB Special Operations Intelligence Systems Development / Project S400

storage devices, and communications equipment, and a tent extension for the remote operation of analyst workstations. It incorporates DoD Intelligence Information System and Joint Deployable Intelligence Support System standards and products in accordance with JCS direction. A second configuration of the system also exists with identical performance capabilities using a modular, transit case design. Special Operation Forces (SOF) IV is an Evolutionary Acquisition Program. The acquisition strategy includes a block upgrade process that will occur over the life of the system.

- Special Operations Tactical Video System (SOTVS). SOTVS will provide the capability to forward digital/video 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 three versions: standard version using still digital cameras (SV1A); standard version using video cameras (SV1B); and a waterproof version using still digital cameras (SV2).

FY 1998 ACCOMPLISHMENTS:

- (1.126) National Systems Support to SOF (NSSS). Continued to assess technology and operational utility of HAMLET's TRACK (tagging and tracking technologies). Participated in JCS and theater CINC advanced concepts technology demonstrations which evaluate National Technical Means support to amphibious operations. Continued to provide systems engineering and technical assistance. (1QTR98-4QTR98)

- (2.172) PRIVATEER. Developed the following Block 2 evolutionary technology insertions: migration of the software architecture to Defense Information Infrastructure Common Operating Environment standards with reduced size and weight; integration and migration of the software architecture to full-up Joint Maritime Communications and Intelligence Support System and Joint Deployable Intelligence Support System standards; integration and operational testing of the Multi-mission Advanced Tactical Terminal aboard the Patrol Coastal; and integration of improved signal processing for advanced modulations from existing commercial and national agency products into the PRIVATEER architecture. Integrated and tested a complete PRIVATEER system aboard a MK-V Special Operations Craft. (1QTR98-4QTR98)

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160405BB Special Operations Intelligence Systems Development / Project S400

- (0.536) SILENT SHIELD. Developmental Test and Evaluation (DT&E) of Engineering Development Model (EDM). (3QTR98-1QTR99)

- (2.841) Special Operations Forces (SOF) Intelligence Vehicle. An implementation plan to initiate the Evolutionary Acquisition Strategy. Began creating a new software baseline. Integrated and tested the new software baseline. Candidates for the upgrade process include: Dual LAN, Global Broadcast Systems, Multi-Level Security, National Migration Systems, Defense Information Infrastructure Common Operating Environment, Scalability, Mission Planning, Analysis, Rehearsal, Execution, Joint Stars, Service Migration Systems, Global Command and Control System, Access and Retrieval of Meteorological and Oceanographic Data, Video Teleconferencing, Wireless LAN, and Integrated GPS (2QTR98-2QTR99)

- (2.841) SOF SIGINT Manpack System/Joint Threat Warning System. Completed the design and development of a multi-functional trainer. (3QTR98)

FY 1999 PLAN:

- (1.034) National Systems Support to SOF (NSSS). 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. Assess technology and operational utility of HAMLET's FOREST and HAMLET's TRACK. Provide systems engineering and technical assistance. (1QTR99-4QTR99)

- (0.787) SILENT SHIELD. Complete DT&E of EDM. Conduct Operational Test and Evaluation of EDM. Prepare for MS III for system integration on TALON II Aircraft. Conduct integration and testing on other air platforms (HH53, CV22, H130, 130, etc.). (1QTR99-4QTR99)

- (4.882) Special Operations Forces Intelligence Vehicle (SOF IV). Ongoing development efforts of block upgrades to include test, analysis and discovery of future technologies for implementation within the SOF IV Evolutionary Acquisition (EA) strategy. (2QTR99-4QTR99)

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160405BB Special Operations Intelligence Systems Development / Project S400

- (2.090) SOF SIGINT Manpack System/Joint Threat Warning System (SSMS/JTWS). Conduct software development for the SSMS and JTWS. (2QTR99-3QTR99)

FY 2000 PLAN:

- (1.180) National Systems Support to SOF (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 HAMLET's FOREST and HAMLET's TRACK. Provides systems engineering and technical assistance. (1QTR00-4QTR00)

- (0.227) Special Operations Tactical Video System (SOTVS). Conduct systems integration of SOTVS test articles. Conduct concurrent developmental and operational test and evaluation. (1QTR00-3QTR00)

FY 2001 PLAN

- (1.337) 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 HAMLET's FOREST and HAMLET's TRACK. Provides systems engineering and technical assistance. (1QTR01-4QTR01)

- (1.562) PRIVATEER. Develop, integrate and test the Windows NT Operating System portion of the Block 3 Evolutionary Technology Insertion. (1QTR01-2QTR01)

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160405BB Special Operations Intelligence Systems Development / Project S400

B. Other Program Funding Summary

	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	To Complete	Total Cost
PROC, SOF Intel Systems	24.986	9.195	19.154	40.692	14.172	13.003	14.422	17.165	Cont.	Cont.

C. ACQUISITION STRATEGY: NA

	FY98				FY99				FY00				FY01			
D. Schedule Profile	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
SILENT SHIELD																
Integration and Test	x	x	x	x	x	x	x	x								
Milestone III						x										
PRIVATEER Evolutionary Technology Insertion																
Special Program Review	x	x	x													
Software Integration and Testing													x	x	x	x
JTWS Prototyping	x	x	x	x												
JTWS Software Development						x	x	x								
SOF IV Integration and Test		x	x	x		x	x	x								
SOTVS Integration and Test									x	x	x					

Exhibit R-3 COST ANALYSIS						DATE: FEBRUARY 1999					
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7			PE 1160405BB SPECIAL OPERATIONS INTELLIGENCE SYSTEMS DEVELOPMENT / PROJECT S400								
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 FY99	Award Date FY99	Budget Cost FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	To Complete	Total Program
Primary Hardware Dev	MIPR	SPAWAR, Charleston, SC	2.306								2.306
	FFP/SS	Qual-Tron, Inc., Tulsa, OK	0.050								0.050
	Various	Various	40.076	1.953	Jun-99						42.029
Ancillary Hardware Dev	MIPR	SPAWAR, Charleston, SC		0.106	Jan-99						0.106
	MIPR	SPAWAR, Charleston, SC		0.020	Jun-99						0.020
Systems Engineering	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	0.282	0.516	Mar-99						0.798
	Various	Various		0.497	Jun-99	0.796	Dec-99	0.787	Dec-00	Cont.	Cont.
Licenses	MIPR	JDISS Prog. Office, Suitland, MD		0.250	Mar-99						0.250
Materiel/Equipment	MIPR	SPAWAR, Charleston, SC	0.813								0.813
	PBAS	Naval Systems Mgt. Activity, VA		0.100	Mar-99						0.100
Subtotal Product Dev			43.622	3.442		0.796		0.787			
Development Spt	MIPR	ESC, Hanscom AFB, MA	0.089								0.089
	MIPR	SPAWAR, Charleston, SC		0.025	Jan-99						0.025
Software Dev/Integ	MIPR	SPAWAR, Charleston, SC	1.822	0.565	Jan-99			1.562	Dec-00	Cont.	Cont
	MIPR	Pt. Mugu, CA	0.050								0.050
	FFP/C	Delfin Systems, Santa Clara, CA		0.137	Jan-99						0.137
	MIPR	BTG, Inc., Fairfax, VA	1.205	1.269	Mar-99						2.474
Software Spt	MIPR	GSA, Kansas City, MO	0.130								0.130
Training Development	MIPR	GSA, Kansas City, MO	0.080								0.080
	MIPR	SPAWAR, Charleston, SC		0.010	Jan-99						0.010
	MIPR	Naval Air Warfare, St Inigoes, MD	0.030	0.060	Mar-99						0.090
Integrated Logistics Spt	MIPR	SPAWAR, Charleston, SC		0.050	Mar-99						0.050
Configuration Management	MIPR	SPAWAR, San Diego, CA	0.025	0.075	Mar-99						0.100
Technical Data	MIPR	Naval Air Warfare, St Inigoes, MD	0.090	0.150	Mar-99						0.240
GFE	MIPR	Naval Systems Mgt. Activity, VA		0.075	Mar-99						0.075
Subtotal Spt			3.521	2.416				1.562			7.499

Exhibit R-3 COST ANALYSIS						DATE: FEBRUARY 1999					
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7			PE 1160405BB SPECIAL OPERATIONS INTELLIGENCE SYSTEMS DEVELOPMENT / PROJECT S400								
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 FY99	Award Date FY99	Budget Cost FY00	Award Date FY00	Budget Cost FY01	Award Date FY01	To Complete	Total Program
Deval Test & Eval	MIPR	SPAWAR, Charleston, SC	0.258								0.258
	MIPR	JTIC, Ft Huachuca, AZ	0.172								0.172
	MIPR	Naval Air Warfare, St Inigoes, MD		0.200	Mar-99						0.200
OT&E	MIPR	SPAWAR, Charleston, SC	0.350								0.350
	MIPR	DESA, Kirtland, NM	0.217								0.217
	MIPR	18 FLTS, Hurlburt Field, FL		0.027	Nov-98						0.027
	MIPR	Det 1, Hurlburt Field, FL		0.010	Nov-98						0.010
	MIPR	Naval Air Warfare, St Inigoes, MD	0.564	0.880	Mar-99						1.444
	TBD	TBD				0.072	Jun-00				0.072
GFE	MIPR	Naval Air Warfare, St Inigoes, MD	0.398	0.150	Mar-99						0.548
Subtotal T&E			1.959	1.267		0.072					
Government Engineering Spt	MIPR	SPAWAR, Charleston , SC		0.600	Mar-99						0.600
Program Management Spt	CPFF/C	Booz-Allen & Hamilton, McLean, VA	2.162	0.451	Oct-98	0.460	Oct-99	0.470	Oct-00	Cont.	Cont.
	MIPR	SPAWAR, Charleston , SC	0.394	0.265	Mar-99						0.659
Travel	Orders	USSOCOM, MacDill AFB, FL	0.043	0.352	FY99	0.079	FY00	0.080	FY01	Cont.	Cont.
Subtotal Management			2.599	1.668		0.539		0.550			
Remarks:											
Total Cost			51.701	8.793		1.407		2.899		Cont.	Cont.
Remarks:											

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE1160407BB SOF Medical Technology Development

COST (Dollars in Millions)	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	Cost to Complete	Total Cost
PE1160407BB	1.879	1.962	2.039	2.078	2.122	2.166	2.209	2.251	Cont.	Cont.
S275 SOF MEDICAL TECHNOLOGY	1.879	1.962	2.039	2.078	2.122	2.166	2.209	2.251	Cont.	Cont.

A. Mission Description and Budget Item Justification

This program 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 program provides guidelines for the development of selection and conditioning criteria, thermal protection, decompression procedures, combat casualty procedures and life support systems. The program 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 in SOF operations will: (1) review the emergency medical equipment currently used in the SOF community and compare this to currently available civilian technology; it will also provide field testing of emergency medical equipment in the adverse environmental conditions encountered in 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 Special Operations Forces (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.

- 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 operators.

- 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 both 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.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE1160407BB SOF Medical Technology Development

- Mission-related physiology will: (1) develop accurate measures to evaluate SOF mission-related performance; (2) evaluate the suitability of new surgical procedures, for special operations personnel; (3) delineate nutritional strategies designed to help personnel apply known nutritional concepts to optimize performance in mission and training scenarios; (4) evaluate potential ergogenic agents as they apply to enhancing mission-related performance; (5) develop a quantitative test for night vision suitable for screening SOF candidates and study ways to enhance unaided night vision; (6) develop techniques for using oxygen to increase breathhold dive time; and, (7) study pharmacologic measures to prevent acute mountain sickness in high terrestrial SOF operations.

- Thermal protection will: (1) conduct a survey of available thermal protection garments and conduct a comparative study to determine their relative effectiveness at protecting personnel engaged in small boat operations; and, (2) evaluate the efficacy of current thermal protective measures in maintaining combat swimmer performance.

Change Summary Explanation:

Funding: FY 1999 decreases are project cost share for Small Business Innovative Research (SBIR) program, implementation of other Congressionally-mandated eductions, and impact of revised Administration inflation assumption. FY 2000 and FY 2001 decrease are project cost share for the impact of revised Administration inflation assumptions.

Schedule: None.

Technical: None.

B. Program Change Summary	FY 1999	FY 2000	FY 2001
Previous President's Budget	2.015	2.073	2.115
Appropriated Value	2.015		
Adjustments to Appropriated Value / President's Budget	(.053)	(.034)	(.037)
Current Budget Submit	1.962	2.039	2.078

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160407BB SOF Medical Technology Development / Project S275

COST (Dollars in Millions)	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	Cost to Complete	Total Cost
S275, SOF Medical Technology R&D	1.879	1.962	2.039	2.078	2.122	2.166	2.209	2.251	Cont.	Cont.

A. Mission Description and Budget Item Justification

This program 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 program provides guidelines for the development of selection and conditioning criteria, thermal protection, decompression procedures, combat casualty procedures and life support systems. The program 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 in SOF operations will: (1) review the emergency medical equipment currently used in the SOF community and compare this to currently available civilian technology; it will also provide field testing of emergency medical equipment in the adverse environmental conditions encountered in 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.

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APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160407BB SOF Medical Technology Development / Project S275

- 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 Special Operations Forces (SOF) operators.

- 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 both 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) evaluate the suitability of photorefractive keratectomy, a new refractive surgical procedure, for special operations personnel; (3) delineate nutritional strategies designed to help personnel apply known nutritional concepts to optimize performance in mission and training scenarios; (4) evaluate potential ergogenic agents as they apply to enhancing mission-related performance; (5) study the safety and efficacy of using caffeine to increase performance in sustained operations; (6) develop a quantitative test for night vision suitable for screening SOF candidates and study ways to enhance unaided night vision; (7) develop techniques for using oxygen to increase breathhold dive time; and, (8) study pharmacologic measures to prevent acute mountain sickness in high terrestrial SOF operations.

- Thermal protection will: (1) conduct a survey of available thermal protection garments and conduct a comparative study to determine their relative effectiveness at protecting personnel engaged in small boat operations; and, (2) evaluate the efficacy of current thermal protective measures in maintaining combat swimmer performance.

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160407BB SOF Medical Technology Development / Project S275

FY 1998 ACCOMPLISHMENTS:

- (1.063) Continued ongoing studies as follows: Fibrin Bandage Study, Special Operations Forces (SOF) Interactive Medical Training Program, Tactical Combat Casualty Equipment Review, Combat Casualty Care in SOF Operations, SOF Computer-Assisted Medical Reference System, Ergogenics (Performance Enhancing Agents) in Special Operations, Laser Eye Protection in Special Operations, Excimer Laser Photorefractive Keratectomy in SOF Personnel, Night Vision Enhancement, Air/0.7 Atmosphere Absolute Decompression, and Oxygen Enhanced Breathold Diving Training. (1QTR98)

- (0.816) Initiated new studies as follows: Respiratory Muscle Endurance Training, Effect of Submarine Deployments on SOF Mission-Related Performance, Adjuncts to Recompression Therapy, Testing of Exotemp Active Thermal Protection System, Oxygen Arterial Gas Embolism, Tactical Health Risk Assessment in Special Operations, and Evaluation of a Special Operations Resuscitative Surgical Suite, and Post-Exercise Nutrient Supplementation, Basic Underwater Demolition/SEAL Training Hazard Mitigation. (1QTR98-3QTR98)

FY 1999 PLAN:

- (1.221) Continue ongoing studies as follows: Combat Casualty Equipment Review, Tactical Combat Casualty Care in SOF Operations, Respiratory Muscle Endurance Testing, Special Operations Interactive Medical Training, SOF Computer-Assisted Medical Reference System. (1QTR99)

- (0.741) Initiate new studies as follows: Card Diagnostics in SOF, Hypotensive Fluid Resuscitation in Uncontrolled Hemorrhage, SOF Video-Based Interactive Tactical Combat Casualty Care Training, Characterization of SOF Mission-Related Performance Levels, Hemostatic Agents in Uncontrolled Hemorrhage, Fluid Resuscitation Strategies in Delayed Surgery, Adjuncts to Recompression Therapy in the Management of Dysbaric Diseases - Human Trials, Adjuncts to Recompression Therapy in the Management of Dysbaric Diseases - Animal Trials, Evaluation of Decompression Risk using the VVAL 18 Decompression Algorithm, Influence of Post-Landing Exercise on Altitude Decompression Sickness, Internet-Based Medical Information Management in Special Operations. (2QTR99)

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APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160407BB SOF Medical Technology Development / Project S275

FY 2000 PLAN:

- (1.466) Continue ongoing studies as follows: Special Operations Computer-Assisted Medical Reference System, Special Operations Interactive Medical Training Program, Special Operations Forces (SOF) Combat Casualty Care Workshops, Adjuncts to Recompression Therapy in the Management of Dysbaric Diseases, Fluid Resuscitation Strategies in Delayed Surgery, Hypotensive Fluid Resuscitation in Uncontrolled Hemorrhage, Hemostatic Agents in Uncontrolled Hemorrhage, Evaluation of Decompression Risk using the VVAL 18 Decompression Algorithm, Influence of Post Landing Exercise on Altitude Decompression Sickness, Internet-Based Medical Information Management in SOF, SOF Video-Based Interactive Tactical Combat Casualty Care Training. (1QTR00)

- (0.573) Initiate New studies as follows: Rapid Diagnostic Cards in SOF, SOF Community Norm on the Mission-Related Performance Battery. (2QTR00)

FY 2001 PLAN:

- (1.763) Continue ongoing studies as follows: Special Operations Computer-Assisted Medical Reference System, Special Operation Interactive Medical Training Program, SOF Combat Casualty Care Workshops, Adjuncts to Recompression Therapy in the Management of Dysbaric Diseases, Fluid Resuscitation Strategies in Delayed Surgery, Hypotensive Fluid Resuscitation in Uncontrolled Hemorrhage, Hemostatic Agents in Uncontrolled Hemorrhage, Rapid Diagnostic Cards in SOF, Internet-Based Medical Information Management in SOF, SOF Video-Based Interactive Tactical Combat Casualty Care Training, SOF Community Norm on the Mission-Related Performance Battery. (1QTR01)

- (0.315) Initiate New studies as follows: Post-Landing Exercise and DCS Risk in High Altitude Low Open Operations and Emergency Oxygen Decompression Procedures for the VVAL 18 Algorithm. (2QTR01)

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APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160407BB SOF Medical Technology Development / Project S275

B. Other Program Funding Summary None.

C. ACQUISITION STRATEGY: NA

D. Schedule Profile NA.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE1160408BB SOF Operational Enhancements

COST (Dollars in Millions)	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	Cost to Complete	Total Cost
PE1160408BB	23.288	46.380	62.567	76.284	80.735	69.047	23.454	22.605	Cont.	Cont.
S500A SOF OPERATIONAL ENHANCEMENT	23.288	46.380	62.567	76.284	80.735	69.047	23.454	22.605	Cont.	Cont.

A. Mission Description and Budget Item Justification

Provides funding for classified RDT&E efforts. Description and justification is provided under separate cover.

B. Program Change Summary	FY 1999	FY 2000	FY 2001
Previous President's Budget	33.799	40.188	61.626
Appropriated Value			
Adjustments to Appropriated Value / President's Budget	12.581	22.379	14.658
Current Budget Submit	46.380	62.567	76.284

RDT&E PROJECT JUSTIFICATION SHEET (R-2A Exhibit)	DATE FEBRUARY 1999
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160408BB SOF Operational Force Enhancements / Project S500A

COST (Dollars in Millions)	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	Cost to Complete	Total Cost
S500A, SOF Operational Enhancements	23.288	46.380	62.567	76.173	80.735	69.047	23.454	22.605	Cont.	Cont.

A. Mission Description and Budget Item Justification

Provides funding for classified RDT&E efforts. Description and justification is provided under separate cover.