

UNCLASSIFIED

PE NUMBER: 0604706F
 PE TITLE: Life Support Systems

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2004	
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604706F Life Support Systems					
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	9.982	5.026	6.630	6.414	6.085	3.468	3.714	Continuing	TBD
412A Life Support Systems	9.982	5.026	6.630	6.414	6.085	3.468	3.714	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

This program provides for development of life support equipment and subsystems to satisfy operational command requirements for improved life support equipment. There are four main projects in this PE. (1) The Aircrew Laser Eye Protection (ALEP) project provides aircrews with eye protection against a variety of laser devices which could cause temporary and permanent loss of vision. (2) The Fixed Aircrew Standardized Seat (FASS) Program seeks to evaluate and standardize seat systems and subsystems in non-ejection seat aircraft. (3) ACES II Ejection Seat improvements include Structural Upgrades, Digital Recovery Sequencer, and Preplanned Product Improvements (P3I). (4) Panoramic Night Vision Goggles (PNVG) provide a greatly enhanced field of view over current night vision goggles with spiral developments for ejection compatibility, display, and weapons cueing capability. This PE also provides for the continuing development and integration of aircrew protection systems and subsystems for aircrew operations, escape and descent, and survival and recovery such as, but not limited to, the following: flight helmets, oxygen breathing equipment for aviators, survival radio support equipment, night vision devices, active/passive noise reduction devices, aircraft seating, and parachutes. Program management support includes tasks to assess deficiencies of currently fielded equipment, provide for the transition of new technology into SDD, and support all current life support projects. Program is in Budget Activity 5 because several projects are in Acquisition Phase B, SDD

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	7.732	0.269	0.262
(U) Current PBR/President's Budget	9.982	5.026	6.630
(U) Total Adjustments	2.250	4.757	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.043	
Congressional Increases		4.800	
Reprogrammings	2.276		
SBIR/STTR Transfer	-0.026		

(U) Significant Program Changes:

FY 2003 Congressional Adds: \$2.5M for FASS; \$2.4M for ACES II Ejection Seat Improvements; \$2.0M for Aircrew Distress Signaling Systems
 FY 2004 Congressional Adds: \$4.8M for ACES II Modular Seat Development and Electromechanical Stability Control System

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604706F Life Support Systems			PROJECT NUMBER AND TITLE 412A Life Support Systems		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
412A Life Support Systems	9.982	5.026	6.630	6.414	6.085	3.468	3.714	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This program provides for development of life support equipment and subsystems to satisfy operational command requirements for improved life support equipment. There are four main projects in this PE. (1) The Aircrew Laser Eye Protection (ALEP) project provides aircrews with eye protection against a variety of laser devices which could cause temporary and permanent loss of vision. (2) The Fixed Aircrew Standardized Seat (FASS) Program seeks to evaluate and standardize seat systems and subsystems in non-ejection seat aircraft. (3) ACES II Ejection Seat improvements include Structural Upgrades, Digital Recovery Sequencer, and Preplanned Product Improvements (P3I). (4) Panoramic Night Vision Goggles (PNVG) provide a greatly enhanced field of view over current night vision goggles with spiral developments for ejection compatibility, display, and weapons cueing capability. This PE also provides for the continuing development and integration of aircrew protection systems and subsystems for aircrew operations, escape and descent, and survival and recovery such as, but not limited to, the following: flight helmets, oxygen breathing equipment for aviators, survival radio support equipment, night vision devices, active/passive noise reduction devices, aircraft seating, and parachutes. Program management support includes tasks to assess deficiencies of currently fielded equipment, provide for the transition of new technology into SDD, and support all current life support projects. Program is in Budget Activity 5 because several projects are in Acquisition Phase B, SDD

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Congressional Add for FASS Development	2.480		
(U) Congressional Add for ACES II Ejection Seat Improvements	2.384	4.800	
(U) Congressional Add for Aircrew Distress Signaling Systems	1.973		
(U) Continue ALEP Block 1 SDD (Block 2 ALEP SDD begins FY 05)	2.703		6.403
(U) Conduct Anti-Gravity Suit Study	0.131		
(U) Continue development of other Life Support items and subsystems such as ejection seats, anti-gravity suits, F/A-22 integration, night vision devices, aircrew laser eye protection, and parachutes	0.100	0.110	0.110
(U) Program Management/Technical Support/Travel/Test & Evaluation Support	0.211	0.116	0.117
(U) Completed Lightweight Environmentally Sealed Parachute Assembly (LESPA) SDD; item did not meet user requirements			
(U) Total Cost	9.982	5.026	6.630

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Items Less Than \$5M (Safety Equipment) PE 0702833F BPAC	4.520	3.920	3.383		6.539	4.823		0.000	12.640

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604706F Life Support Systems

PROJECT NUMBER AND TITLE

412A Life Support Systems

(U) C. Other Program Funding Summary (\$ in Millions)

842990: Aircrew Laser Eye Protection (ALEP)

Warfighter Rapid Acquisition

Program PE 0203761F BPAC

(U)	674936: Panoramic Night Vision Goggles (PNVG) Development	4.000						0.000	8.666
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Items Less Than \$5M (Safety Equipment) PE 0702833F BPAC

(U)	842140: Panoramic Night Vision Goggles--FYDP	5.657	7.600	9.600	10.500	19.300	20.100	20.900	0.000	73.500
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Requirements TBD

Items Less Than \$5M (Safety

Equipment) PE 0702833F BPAC

(U)	842990: Advanced Technology		0.800	0.800					
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Anti-Gravity Suit (ATAGS)

The PNVG project was selected for transition by the FY02 and FY03 Warfighter Rapid Acquisition Process (WRAP). WRAP (PE 0203761F) provides approval and rapid transition funding, up to 2 years, for the development and fielding of the results of highly successful competitive experiments, demonstrations, and innovative approaches to support the Expeditionary Air Force (EAF) and other warfighters. Subsequent to the two year transition period, all future enhancements for PNVGs are part of this PE.

(U) D. Acquisition Strategy

Acquisition strategy is carried out at the project level.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604706F Life Support Systems				PROJECT NUMBER AND TITLE 412A Life Support Systems			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
UPCO-Inflatable Rest	SS/CPAF		2.157								2.157	
Entran Devices-ACES II	FFP		0.039								0.039	
Boeing-ACES II Struc Def	SS/CPFF		0.200								0.200	
ATA Sensors-ACES II	FFP		0.031								0.031	
Gemini Elect Co-ACES II	FFP		0.009								0.009	
Denton, Inc-ACES II	FFP		0.047								0.047	
First Tech Sys-ACES II	FFP		0.193								0.193	
Boeing-ACES II --Study	SS/CPFF		0.237								0.237	
Pioneer Aerospace-ACES II	FFP		0.009								0.009	
EME Corp-ACES II	FFP										0.000	
ITT-NVS	C/CPIF		14.081								14.081	
KRUG-ATAGS	SS/FFP		0.424								0.424	
Mustang-ATAGS	SS/FFP		0.499								0.499	
ALEP - (AL/Navy)	C/CPFF		4.552								4.552	
MDA-Enhanced Drogue	SS/CPFF		1.130								1.130	
MDA-ACES II Seats	SS/FFP		0.150								0.150	
SRL-ATAGS DT&E Support	SS/CPFF		0.150								0.150	
Boeing-ACES II Pre-SDD	SS/CPFF		0.250								0.250	
Brooks AFB, Supply	Supply Reqt		0.311								0.311	
Contax	SS/FFP		0.011								0.011	
Boeing-ACES II SDD	SS/CPIF		6.747								6.747	
Boeing-ACES II SDD (Structural)	SS/CPFF		0.412								0.412	
SEI - Vacuum Packed Parachute	SS/CPFF		0.122								0.122	
Pax River	AF 185										0.000	
Holloman AFB	AF 185										0.000	
ALEP CTD	CPFF		4.667								4.667	
Rockwell/Kaiser ALEP SDD	CFFP	Thousand Oaks, CA & Ann Arbor, MI		2.174	Aug-03			6.403			8.577	
Fixed Seats-SAIC	CCPFF	San Antonio, TX	0.900	2.055	Dec-03						2.955	

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)				0604706F Life Support Systems				412A Life Support Systems			
SAIC		San Antonio, TX				0.110 May-04		0.110 May-05		0.220	
Insight - PNVG SDD	CPIF	Londonderry, NH	2.350							2.350	
BF Goodrich - ACES II P3I	CFFP	Phoenix, AZ		0.647	Jul-03					0.647	
Distress Systems	CFFP	TBD		1.973	Oct-03					1.973	
DRS-ACES II	MIPR	Naval Surface Warfare Center-Indian Head, MD		1.186	Jun-03					1.186	
ACES II-FY 04 Congressional Increase	TBD	TBD				4.800				4.800	
Subtotal Product Development			39.678	8.035		4.910		6.513		0.000	59.136
Remarks:											
<u>(U) Support</u>											
Program Management Support			3.247	0.530		0.100		0.100	Continuing	TBD	
Travel			0.716	0.200		0.016		0.017	Continuing	TBD	
Tech Eng & Acq			5.095	1.030					Continuing	TBD	
Subtotal Support			9.058	1.760		0.116		0.117	Continuing	TBD	0.000
Remarks:											
<u>(U) Test & Evaluation</u>											
Edwards Test Facility	AF 185									0.000	
FASS and ATAGS	PO and MIPR			0.055						0.055	
SDIRS	PO			0.001						0.001	
Air Combat Command Anti-G Suit Study	MIPR	AFRL		0.131					Continuing	TBD	
AFOTEC	Proj Ord-Variou		3.208							3.208	
Subtotal Test & Evaluation			3.208	0.187		0.000		0.000	Continuing	TBD	0.000
Remarks:											
<u>(U) Management</u>											
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000
Remarks:											
<u>(U) Total Cost</u>			51.944	9.982		5.026		6.630	Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604706F Life Support Systems

PROJECT NUMBER AND TITLE
412A Life Support Systems

Life Support Systems Schedule

Activity Name	FY 03				FY04				FY05				FY06			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
ACES II Digital Recovery Sequencer Phase II Testing				▲	▲		▲									
ACES II P3I CKU-5A and PNVG Testing					▲		▲									
ACES II Leg Restraint FDE (OT&E)	▲											▲				
FASS DT&E			▲									▲				
ALEP Block 1 Production				▲												
ALEP IOT&E					▲			▲								
ALEP CTD Block II									▲						▲	
PNVG BlockI LRIP						▲										
PNVG BlockII IOT&E						▲	▲									
PNVG BlockIII & IV IOT&E									▲	▲						

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604706F Life Support Systems	PROJECT NUMBER AND TITLE 412A Life Support Systems
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) ACES II Digital Recovery Sequencer Phase II Testing		3Q	
(U) ACES II P3I Task Completion for CKU-5A and PNVG		3Q	
(U) ACES II Leg Restraint Kit FDE (OT&E) Completion			4Q
(U) FASS DT&E			4Q
(U) ALEP Block 1 Production Award	4Q		
(U) ALEP IOT&E Completion		4Q	
(U) ALEP CTD Block II			2Q
(U) PNVG Block I LRIP		2Q	
(U) PNVG Block II IOT&E		3Q	
(U) PNVG Block III & IV OT&E			2Q