PE NUMBER: 0605011F PE TITLE: RDT&E For Aging Aircraft

	Exhib	oit R-2, RDT	&E Budge	t Item Just	ification			DATE	February	2004
BUDGE	T ACTIVITY	ion (SDD)		P			a Aircraft	•		
03 Sy	stem Development and Demonstrati	EV 2002	EV 2004	EV 2005	EV 2006		EV 2009	EV 2000	Cost to	Total
	Cost (\$ in Millions)	Actual	FI 2004 Estimate	FI 2003 Estimate	F I 2000 Estimate	FI 2007 Estimate	FI 2008 Estimate	F I 2009 Estimate	Complete	Total
	Total Program Element (PE) Cost	32 081	40 615	15 665	24 922	25 387	25 794	26 194	0.000	0.000
4685	Aging Aircraft	32.081	40.615	15.665	24.922	25.387	25.794	26.194	0.000	0.000
(U)	A. Mission Description and Budget Item This program develops technologies to ext aging aircraft fleet. Using business case an maintainability are identified. The program Logistics Centers, Product Centers, Systen makers with a common, comprehensive ur sustainment processes such as field and de million for Viable Combat Avionics Initiat This program is in Budget Activity 5, Systen procurement by already operational systen	a Justification tend the service nalyses, cross-c m develops tool n Program Offin derstanding of pot repair proce tive.	life, ensure flig utting opportur is to facilitate th ces, other Servi program areas esses. Note: In ion and Develo	ght safety, cont nities to reduce ne sharing of a ces and govern such as corros FY 2003, Con ppment, becaus	trol the rapidly total ownershi ging aircraft in ment agencies ion, wiring, etc agress added \$1 se projects/capa	rising sustainm p costs and imp formation, know , and industry. . The program .8 million for A ubilities will be	ent costs, and p prove productiv wledge, technol The program p also analyzes a Aging Aircraft I developed in th	retains the oper vity, reliability, logy, and soluti provides senior and recommend Enterprise Kno his program, the	rational capabil availability, ar ions among the Air Force deci ds changes to e wledge Portal en made availa	lity of the nd e Air ision existing and \$1.8
(U)	B. Program Change Summary (\$ in Mill	<u>lions)</u>					EX 2002		2004	EX 2005
(ID)	Provious President's Rudget						<u>FY 2003</u> 32 804	<u>FY</u>	<u>2004</u> L063	<u>FY 2005</u> 15 806
(0)	Current PBR/President's Budget						32.094	24 40) 615	15.800
(U)	Total Adjustments						-0.813	16	5.552	10.000
(U)	Congressional Program Reductions									
	Congressional Rescissions							-0	0.348	
	Congressional Increases							16	5.900	
]	Reprogrammings						-0.042			
	SBIR/STTR Transfer						-0.771			
(U)	<u>Significant Program Changes:</u> Not applicable.									
			R-1 Sho	opping List - Item	n No. 92-2 of 92-1	3			Exhibit R-2 ((PE 0605011F)

	Exh	nibit R-2a, F	RDT&E Pro	ject Justifi	cation			DATE	February	2004
BUD0 05 S	GET ACTIVITY System Development and Demonstrat	ion (SDD)		P 0	E NUMBER AND 605011F RDT	TITLE	g Aircraft	PROJECT NUM	IBER AND TITLE Aircraft	
	Cost (\$ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to	Total
100		Actual 22 081	Estimate	Estimate	Estimate	Estimate	Estimate 25.704	Estimate	Complete	0.000
408.	Ouantity of RDT&E Articles	52.081	40.615	15.005	24.922	25.387	25.794	20.194	0.000	0.000
(U) (U) (U)	A. Mission Description and Budget Item This program develops technologies to exit aging aircraft fleet. Using business case a maintainability are identified. The program Logistics Centers, Product Centers, Syster makers with a common, comprehensive un sustainment processes such as field and de million for Viable Combat Avionics Initia This program is in Budget Activity 5, Syster procurement by already operational system B. Accomplishments/Planned Program (S MAJOR THRUST: Aging Aircraft Structur structures to weapon systems, field and dep ensure continued airworthiness, control sus In FY 2003: Completed initial corrosion m procedures, and temporary repairs. Expander corrosion detection technologies. Complete corrosion, composite material delamination damage detection. Completed work on non- fasteners to reduce inspection time and elim application of ultrasonic inspection techniq aircraft to eliminate fuel tank entry requirer In FY 2004: Continue corrosion maintenar	A Justification and the service nalyses, cross-come develops tool m Program Offin derstanding of pot repair proce- tive. and Demonstrate ms. in Millions) res Projects To ot maintainers, tainment cost g aintenance implet the range of s associated wite development s, and trapped in h-destructive ins initate the poten ues to detect fai ments and poter	life, ensure fli utting opportun ls to facilitate ti ces, other Serve program areas esses. Note: In tion and Develor fhis project tran and air logistic rowth, and imp rovements. De available repain h corrosion ma and integratio tection time for noisture. Spon spection technic tial for further tigue cracks in tial damage ca ts. Continue for	ght safety, cont nities to reduce he sharing of a ices and govern such as corros: FY 2003, Con opment, becaus nsitions crosser scenter engine rove aircraft av eveloped corros r technologies to intenance action n of software a r flaws and dam sored technolo ques to detect of damage by ren internal wing s used by rivet re	trol the rapidly total ownershi ging aircraft in ment agencies ion, wiring, etc gress added \$1 as projects/capa utting technolog eers and manag vailability. sion abatement for eliminating ons by providin nd analytical to nage due to fati gy advancement roving fastener tructure from the emoval.	rising sustainm p costs and imp formation, know , and industry. . The program .8 million for <i>A</i> .8 million for <i>A</i> .9 million	ent costs, and prove productiveledge, techno The program also analyzes Aging Aircraft developed in EY	retains the operivity, reliability ology, and solu provides senio and recommer Enterprise Known this program, the <u>7 2003</u> 10.265	erational capabili c, availability, an tions among the r Air Force decis ids changes to ex owledge Portal a nen made availab <u>FY 2004</u> 11.686	ity of the d Air sion kisting and \$1.8 ble for <u>FY 2005</u> 9.154
Proi	techniques, procedures, and temporary repa structural corrosion. Continue to reduce the minimizing aircraft downtime by providing ect 4685	irs. Expand the cost and man- automated corr	e range of avail hours associate rosion detection R-1 Sho	able repair tech d with corrosion technologies.	nnologies for el on maintenance Continue deve No. 92-3 of 92-1	liminating aircr e actions and elopment and 3	1		Exhibit R-2a (F	PE 0605011F)
						-				

Exhibit R-2a, RDT&E Project Ju	stification	DATI	E February	2004
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0605011F RDT&E For Aging Aircraft	PROJECT NUM	IBER AND TITLE Aircraft	
 integration of software and analytical tools to support corrosion management work exposure models and corrosion damage analyses). Continue work on improved no deployment of corrosion and crack detection capabilities, and ongoing evaluation of techniques. Continue work to shorten detection time for flaws and damage due to f material delaminations, and trapped moisture. Continue sponsoring technology advidetection. Continue to develop and refine the Depot Technology Modernization P process. The plan will be integrated into the Air Force Long-Range Depot Strateg; (U) In FY 2005: Identify common requirements and develop implementation strategie for aircraft and depots. Focus on maintaining aircraft safety, increasing aircraft reas supporting the extension of aircraft service life with decreased operations and supp Management project). Improve fleet management software tools for Air Logistics Program managers by integrating analyses for fatigue and corrosion detection, qua determine effect of current and anticipated damage on structural integrity. Enhance advanced software code for structural assessments, damage rate calculations, and p inspection capabilities and provide hidden corrosion and sub layer crack detection, degradation monitoring, and data management for predictive analyses. Deliver enha additional forms of corrosion (exfoliation and pitting). Develop technologies to u methodologies. Provide new or improved repair methodologies, material processe software. Deliver repair and design analysis software (includes Composite Repair Analysis Software project), freeform fabrication of replacement structural compon manufacturing project). Provide new or improved products and processes that dela damage (corrosion, fatigue, etc.) (includes retrogression and re-aging project). De protection system that will transition an environmentally benign, long-life aircraft surface preparation. Transition next generation fatigue life enhancement technique 	load prediction (e.g., environmental n-destructive inspection techniques, of new and more cost-effective atigue cracking, corrosion, composi ancements to enable early damage an process and implement this 7. s for delivery of crosscutting solutio diness, mission capability, and ort cost (includes Air Vehicle Healt Center Aircraft Structural Integrity ntification, and repair analyses to e structural analysis and develop redictions. Advance non-destructiv damage quantification, structural anced hardware for detecting ograde repair and replacement s, and design and repair selection of Aircraft Structures Design & ents (includes laser additive evaluation of ten year-old composi nce fatigue and corrosion prevention y or suppress onset of structural iver an advanced aircraft corrosion coating system with chromate-free as (laser shock processing, plastic			
(U)				
(U) MAJOR THRUST: Aging Aircraft Avionics Projects Institutionalize Viable Co affordable tools and techniques, including change management roadmaps, to mana pace with technology and prevailing threat conditions in a dynamic environment. Methodology for evaluation of competitive source selections to a web-based Integr enables the system program offices to baseline the fielded platforms and merge the planning. Planned investments will establish enabling crosscutting solutions that c of mission enabling capabilities into fielded systems, extending their useful operation.	mbat Avionics (VCA), the use of ge avionics upgrades while keeping Fools range from a Best Value ated Change Roadmap process that upgrades into the programs' life cyc an facilitate the affordable insertion onal life and ensuring their combat	2.916	4.568	1.100
Project 4685 R-1 Shopping List	- Item No. 92-4 of 92-13		Exhibit R-2a (F	PE 0605011F)

Exhibit R-2a, RDT&E Project Jus	tification	DATE February 2004			
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0605011F RDT&E For Aging Aircraft	PROJECT NUMBE	ER AND TITLE		
 superiority. (U) In FY 2003: Completed initial work on technologies to maintain the structural intege ensure continued flight safety. Leveraged viable combat avionics work into commo (e.g., modular open systems architectures). (U) In FY 2004: Continue work on technologies to maintain the structural integrity of a continued flight safety. Continue techniques to incorporate bonded repairs into legation (U) In FY 2005: Maximize (VCA) tool sets through two initiatives: the development of (ICR) crosscutting tool that identifies the platforms and services that have common the design and development of a functional technology for affected platforms having will enable the VCA program to advance towards establishing a strategic capabilitie ICR crosscutting tool that identifies required by diverse platforms. Emphasis will be placelerate capability deployment to the warfighter. Planned efforts will link functio requirements, establishing integrated investment strategies focused on facilitating remission capability for the same total resources expenditure. 	rity of aging weapon systems to n integrated aging avionics solutic ging weapon systems to ensure cy airframes. F an Integrated Change Roadmap avionics upgrade requirements; and g common requirements. Initiative s investment process, integrating the e design and development of blaced on identifying opportunities nal technologies and common duced cycle-time and expanded				
 (U) (U) MAJOR THRUST: Aging Aircraft Subsystems Projects Extend the service life, c costs, and retain the operational capability of the aging aircraft fleet through aircraft Crosscutting opportunities which will reduce total ownership costs are identified usi 	ontrol the rapidly rising sustainme subsystems improvement. ng business case analyses.	2.465	2.118	4.441	
(U) In FY 2003: Developed a tool that analyzes electrical signatures of aircraft electrical monitor changes that signify impending failure, and replace components before failue Air Force Wire Integrity Program Provided wiring system integrity diagnostic/produce analysis capability. Developed maintenance procedures for preventing and abating caused by contaminants. Hydraulic Fluid Purification project. Developed hydraulic reduce waste and mobility footprint.	l components to allow technicians are thus avoiding further damage. gnostic equipment and predictive corrosion of aircraft fuel tanks fluid purification standards to				
(U) In FY 2004: Second year of a two-year project to systematically dissemble the actudetermine wear and damage mechanisms in order to improve reliability in legacy ac new systems. Evaluate replacement materials identified in the project to increase concollect data on aircraft fuel systems to identify warfighter needs and drive technolog leak detection and repair process. Continue work on identifying and analyzing agir and tanker aircraft fleets to minimize diagnostic and repair time improving aircraft a Wire Integrity project to enable early detection and classification of failing aircraft system to enable capture of all maintenance actions on aircraft wiring systems. Fosto of a 'tool set' which addresses the entire set of aging wiring issues, to include: circui location; safety analysis; automated test generation; and trending capabilities. Provide	ators from aging systems and tuators and overall performance in mponent life-cycle. Research and y improvement in the aircraft fuel g wiring problems in fighter, cargo vailability. Develop an Air Force wiring. Enhance current database er the development and application analyzers; fault detection and de wiring system awareness trainin				
Project 4685 R-1 Shopping List -	Item No. 92-5 of 92-13		Exhibit R-2a (P	E 0605011F)	

	Exhibit R-2a, RDT&E Project Jus	DA	February 2	2004	
BUE 05	GET ACTIVITY System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0605011F RDT&E For Aging Aircraft	PROJECT NU 4685 Agin	MBER AND TITLE	
(U)	across all maintenance disciplines. Continue to develop viable procedures to correct fuel tank coatings for improved corrosion protection and elimination of wing skin re- evaluate material improvement in crack detection support tools. In FY 2005: Universal Electrical Signature Analysis System Third year of a three signatures of various aircraft electrical components to monitor changes that signify in the replacement of components before failure. Provide five production units to the w operating weapon systems. Provide training and user manuals on the equipment	the delamination of aging integral placements. Continue efforts to e-year project to develop electronic mpending failure, the allowing for varfighter to collect real-time data			
an	operating weapon systems. Trovide training and user manuals on the equipment.				
(U)	MAJOR THRUST: Enterprise Knowledge Management Utilize and enhance the a embedded in the Enterprise Knowledge Management (EKM) program. Facilitate the of aging aircraft information, knowledge, technology, and solutions among Air Logis System Program Offices, other Services and government agencies, and industry. Pro capture/management system with collaboration capability for understanding the over developing an integrated strategic plan for corrective actions, and using decision tool Support the Capabilities Review and Risk Assessment in identifying and resolving ca automating the Roadmap Integration processes used by the Aeronautical, Air Arman Space enterprises. Provide participants the ability to quickly see the impact of fundin capability.	advanced collaborative tools e extraction, integration, and sharin stics Centers, Product Centers, ovide a knowledge rall scope of aging aircraft problen ls for the aging aircraft fleet. apability gaps by capturing and nent, command and control, and ng decisions on Warfighting	3.293	5.487	0.970
(U)	In FY 2003: Developed partnerships with government and commercial industry to fe processes and developed an information/knowledge portal tool to share aging aircraf the aeronautical community. Identified existing databases which contain aging aircra to a single web portal. Developed web-based data mining views that turn the raw dat strategic planning and trend analysis for reducing total ownership costs.	oster shared technologies and t technology and solutions across aft information, and connected the a into information to facilitate			
(U)	In FY 2004: Continue to develop partnerships with government and commercial ind and processes and an information/knowledge portal tool to share aging aircraft techn aeronautical community. Continue identifying existing databases which contain agir connecting them to a single web portal. Continue web-based data mining views that to facilitate strategic planning and trend analysis for reducing total ownership costs. existing/legacy avionics issues (diminishing manufacturing sources, software langua Analyze the gathered data and initiate/continue cross-cutting solutions in data acquiss aircraft internal data transfer techniques, and other similar efforts. Develop business subsystem issues. Perform business case analyses to support subsystem design integ analysis tools for predicting imminent failure of aircraft systems. Develop analysis to manufacturing source issues and analysis, identification and management of cross-cut tool specifically designed to extract and analyze crosscutting issues data from existin	ustry to foster shared technologies ology and solutions across the ng aircraft information, and contin turn the raw data into information Continue to leverage knowledge (ges, unique military interfaces, etc ition/recorders, displays, expanded strategies to address Aging Aircra rity decisions. Develop suite of ool to support diminishing atting issues. Develop data mining ag data systems. Foster cross			
Pr	ject 4685 R-1 Shopping List -	Item No. 92-6 of 92-13		Exhibit R-2a (PI	E 0605011F)

	Exhibit R-2a, RDT&E Project Jus	tification	DA	TE February 2	004
BUD 05 S	GET ACTIVITY System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0605011F RDT&E For Aging Aircraft	PROJECT NI 4685 Agin	JMBER AND TITLE g Aircraft	
(U)	program sharing of information within both Department of Defense and industry. In FY 2005: Cross enterprise support and knowledge capture. Support Fleet Viability Service Life Study. Provide a system to enable an integrated approach to support the integration, coordination, implementation, and evaluation of crosscutting solutions, s and common system requirements within the Aeronautical Enterprise, the major com-	y Board with automated Economi rapid identification, developmen ystems-of-systems architectures, mands, and higher headquarters.			
(U) (U) (U) (U)	CONGRESSIONAL ADD: Aging Landing Gear Life Extension. In FY 2003: Developed and completed engineering tasks associated with Aging Lan such as redesigning the KC-135 main landing gear piston to preclude a recurring sud In FY 2004: Develop and complete additional engineering tasks associated with Agi	ding Gear Life Extension progran den extension problem. ng Landing Gear Life Extension	9.664	1.487	0.000
(U) (U)	program. In FY 2005: Not Applicable.				
 (U) (U) (U) (U) (U) 	CONGRESSIONAL ADD: Aircraft Enterprise Knowledge Portal. In FY 2003: Developed and completed efforts associated with Aging Aircraft Enterprautomating Air Combat Command's monthly maintenance performance indicator reprine FY 2004: Not Applicable. In FY 2005: Not Applicable.	orise Knowledge Portal such as ort to reduce cycle time.	1.739	0.000	0.000
(U) (U)	CONGRESSIONAL ADD: Viable Combat Avionics Initiative. In FY 2003: Developed and completed efforts associated with the Viable Combat A tested, and implemented a Best Value Methodology template into the source selectio Change Roadmap discipline for fielded systems. Automated and established an on-lifielded avionics systems. Merged Legacy Viable Combat Avionics toolset data with a total platform Integrated Change Roadmap that addresses both sustainment and acc In EV 2004: Not Applicable	vionics Initiative. Developed, n process. Developed an Integrate ne, real-time capability for all 88 planned avionics upgrades to crea uisition.	1.739	0.000	0.000
(U) (U)	In FY 2005: Not Applicable.				
(U) (U) (U) (U)	CONGRESSIONAL ADD: Academic Center for Aging Aircraft (ACAA) In FY 2003: Not Applicable. In FY 2004: Establish an academic center to transition and leverage research in acad needs identified by the Joint Council on Aging Aircraft. ACAA will facilitate new pa organizations to work aging fleet needs. This effort will be two-fold: 1) Catalyze the infrastructure and academic network which can serve the aging aircraft community in	emia to satisfy the Aging Aircraft rtnerships with agencies and development of a self-sustaining nto the future, and 2) focus on	0.000	4.164	0.000
Pro	delivery of products in narrow problem areas which act as pilot programs to exercise ect 4685	and prove out the infrastructure a		Exhibit R-22 (PI	= 0605011E)
		062			_ 000001117)

Exhibit R-2a, RDT&E Project Just	ification	DATE February 2004			
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0605011F RDT&E For Aging Aircraft	PROJECT NU	JMBER AND TITLE g Aircraft		
methodologies established by the ACAA institutions.institutions.(U) In FY 2005: Not Applicable.(U)					
 (U) CONGRESSIONAL ADD: Enterprise Availability and Cost Optimization System. (U) In FY 2003: Not Applicable. (U) In FY 2004: Implement a standardized approach to identifying and optimizing aircra program investments with the Enterprise Availability and Cost Optimization System; the modernization and sustainment of the aging aircraft fleet. (U) In FY 2005: Not Applicable. 	ft modernization and sustainment will focus on investment plans fc	0.000	1.190	0.000	
 (U) (U) CONGRESSIONAL ADD: Fleet Capability Assessment Process. (U) In FY 2003: Not Applicable. (U) In FY 2004: Develop methodology to assess the current, programmed, and planned or The assessment will provide information on current problem areas, future aging issue that support modernization and sustainment planning within the aeronautical enterpriserisks in effectiveness, availability, deployability, sustainability, and readiness of the a impacts on planned or proposed operations. 	apabilities of the aeronautical fleas, and cross-cutting opportunities se. The tool will determine the eronautical fleet, and assess	0.000	1.983	0.000	
(U) In FY 2005: Not Applicable.(U)					
 (U) CONGRESSIONAL ADD: Air Vehicle Health Management Improved Fleet Reading (U) In FY 2003: Not Applicable. (U) In FY 2004: Improvements to fleet readiness will be made in the areas of fleet mana non-destructive inspection and health management, prevention, and repair/replacement 1) enhance risk assessment capability for the fleet; 2) evaluate state-of-the-art non-dest assessment of damage in buried structure; 3) evaluate environmentally-friendly coatin modern design practices for depot implementation on legacy aircraft. 	ess. gement/structural analysis, nt by accomplishing the followins structive inspection equipment fo ng systems; and assess/utilize	0.000	5.949	0.000	
(U) In FY 2005: Not Applicable.(U)					
 (U) CONGRESSIONAL ADD: Advanced Technology Into Legacy Avionics Systems. (U) In FY 2003: Not Applicable. (U) In FY 2004: Affordable aerospace weapon systems require avionics possessing inher accommodate change and rapidly exploit emerging technology opportunities. Funded software verification and re-verification methods and tools; 2) methodologies and cap coupling with commercial practices, processes, and technology, thus reducing incurre 3) leading edge "design for change" capabilities and tools that will help facilitate long 	ent features that can affordably l investments will establish: 1) pabilities that can facilitate tighter ed avionics cycle upgrade times; a g-term avionics viability.	0.000	1.983	0.000	
Project 4685 R-1 Shopping List - I	tem No. 92-8 of 92-13		Exhibit R-2a (PE	0605011F)	

	Exhibit R-	2a, RDT&E	Project Jus	stification			DATE	February	/ 2004
BUDGET ACTIVITY 05 System Development and De	monstration (SD	D)		PE NUMBER A 0605011F R	ND TITLE	ing Aircraft	PROJECT NUM 4685 Aging	BER AND TITLE Aircraft	
(U) In FY 2005: Not Applicable.(U) Total Cost							32.081	40.615	15.665
(U) <u>C. Other Program Funding Su</u>	<u>immary (\$ in Millio</u> <u>FY 2003</u>	<u>ons)</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>	Total Cost
(U) AF RDT&E	<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>10tai C0st</u>

(U) Other APPN

(U) Related Activities:

(U) PE 0708026F, Productivity/Reliability/Availability/Maintainability.

(U) **D. Acquisition Strategy**

Funding may be executed internally within the Aeronautical Enterprise SPO via full and open competition or released to other organizations for projects for which they are the Office of Primary Responsibility (OPR). The OPRs will determine the most appropriate contract vehicle, Design Engineering Program (DEP) contract or full and open competition, to accomplish the project.

Project 4685

R-1 Shopping List - Item No. 92-9 of 92-13

Ex	hibit R-3, RD	T&E Project Cost	Analysis	6					DATE	Februa	ry 200	4
BUDGET ACTIVITY			PE NUMBE	R AND T	ITLE			PROJE	CT NUME	BER AND TIT	LE	
05 System Development and Demonstra	ation (SDD)		0605011	F RDT8	E For A	ging A	ircraft	4685	Aging A	vircraft		
(U) Cost Categories	Contract Method	Performing Activity &	Total	FY	FY	FY	FY	FY	FY	Cost to	Total	Target
(Tailor to WBS, or System/Item	& Type	Location	Prior to FY	2003	2003	2004	2004	2005	2005	Complete	Cost	Value of
Requirements)	<u> </u>		2003	Cost	Award	Cost	Award	Cost	Award	<u> </u>		Contract
(\$ in Millions)			Cost		Date		Date		Date			
(U) Product Development												
ARINC/Boeing	T&M		0.000	0.700						0.700	1.400	
Boeing	T&M		1.100	0.950						0.000	2.050	
Southwest Research	T&M		0.250	0.350		0.150				0.000	0.750	
SAIC/Boeing	FFP		0.300	0.400						0.000	0.700	
SAIC	T&M		0.300	0.300						0.000	0.600	
UDRI/S&K Tech	TBD		0.000	0.000						3.720	3.720	
S&K Tech			5.200	9.500		6.979		9.154		0.900	31.733	
UDRI	T&M		0.000	1.000		0.350				0.250	1.600	
UDRI/NASA	T&M		1.190	0.300		0.300				0.000	1.790	
GARCIA	T&M		0.000	0.000						0.000	0.000	
Aging Landing Gear Life Extension	TBD		10.076	8.794		1.500				0.000	20.370	
Aging Wiring and Corrosion Treatment fo Aging Aircraft	1TBD		6.717	0.000						0.000	6.717	
Aging Propulsion Systems Life Extension	TBD		1.920	0.000				4.441		0.000	6.361	
Aging Aircraft Knowledge	TBD		1.000	1 000		5 500		0.070		0.000	10.010	
Portal			1.920	1.800		5.528		0.970		0.000	10.218	
Numerous	Various		10.272	6.187		21.657				Continuing	TBD	
Affordable Avionics	Various		1.325	1.800		4.151		1.100			8.376	
None											0.000	
Subtotal Product Development			40.570	32.081		40.615		15.665		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
In House											0.000	
None											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Test & Evaluation												
None											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Project 4685		R-1 Shopping List - I	tem No. 92-10) of 92-13	}					Exhibit R	-3 (PE 06	05011F)
			065									

Exhibit R-3, RDT&E P	roject Cost Analysi	6			DATE Februa	ry 2004	4		
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0605011F RDT&E For Aging Aircraft			PROJEC 4685 A	PROJECT NUMBER AND TITLE 4685 Aging Aircraft				
Remarks: (U) Management	·								
Subtotal Management	0.000	0.000	0.000	0.000	0.000	0.000 0.000	0.000		
(U) Total Cost	40.570	32.081	40.615	15.665	Continuing	TBD	0.000		
Project 4685 R-1	1 Shopping List - Item No. 92-1	1 of <u>92-13</u>			Exhibit R-	- <u>3 (PE 060</u>	05011F)		

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Exhibit R-	4, RDI & E Schedule Pro	ofile			February 2004
ACTIVITY	Р	E NUMBER AND TITLE		PROJEC	NUMBER AND TITLE
em Development and Demonstration (SDD)	0	605011F RDT&E For	Aging Aircraft	4685 A	ging Aircraft
	2003		2004	<u> </u>	2005
Task Name	ONDJFMAMJJA	SONDJFMA	MJJASON	DJF	MAMJJASOND
Subsystems					
Wire System Integrity for Legacy Acft					
Integral Fuel Tank Coating		A			
707 Working Group					
NOVA D&UST ATD			63	- 12	
AF Wire Integrity Program PH III					
Arc Fault CBs					
Electrical Signature Analysis				3	^
Fuel Tank Repair				3	
Fleet Management/Struct Analy		<u> </u>	<u></u> ^		^
Corrosion Effect on Structural Integrity					
IPRAT (incl. PROF)					
Advanced Structural Failure Criteria			59/82		
Envir Assist. Cracking					
Fleet Mgt/Struct Analysis for SHM					지하네
Prevention				1	
Advanced Acft Corrosion Protection					
Barrier Coating Assessment/Transition					
Second Gen. Non-Chrome Precoat/Prime					
Prevention for SHM				13	
NDL & Health Management					Δ
NDI Multi-Laver Structures (B-IB)		A 11			
Enhanced Crack Det Real Time Radiogra		-			
Enhanced Equip to losp for Mat Thiopion		~ ~ ~			
NDE for Exfoliation & Pitting		22		3	
NDE Corr - Artificial Intelligence					
NDE Cracks in Complex Structures					
NDE Residual Stress Massurement					
Corrosion Sensor Technologies					0
NDI for CHM			1.0		

Project 4685

R-1 Shopping List - Item No. 92-10 of 92-12

Exhibit R-4 (PE 0605011F)

02/13/2004 13:34 - FY 2005 PB (HQ USAF) Draft

Exhibit	R-4, RDT&E Schedule	Profile		C	February 2004		
BUDGET ACTIVITY 05 System Development and Demonstration (SD	D)	PE NUMBER AN 0605011F RI	ND TITLE DT&E For Aging Aircraft	PROJECT 4685 Agi	PROJECT NUMBER AND TITLE 4685 Aging Aircraft		
Taak karee	0 H D J F H 6 H J J	6 5 0 N D	<u>Же́я</u> 1 F H 6 H 1 1 6 5 0	N D J I	2005 F H 6 6 6 6 6 1 1		
Repair & Replacement		<u> </u>	<u> </u>		2		
QC of Bonded Repair Prep		_^					
Retrogression and Reaging 7075-T6 Long							
Bonded Repair Capability Enhancements			A				
CRAS Design & Analysis SW				$ \land $	/		
Weep Hole Repair Evaluation							
Retrogression & Reaging Cold Worked Hc							
Mechanical Suppression				<u> </u>			
Bonded Repair Thick Structures							
Additional Bonded Mat'ls & Process Data							
Repair & Replacement for SHM							
Material Substitution		_					
Other Structural Tasks							
Structural Analysis Lead AF Academy							
AF Coatings & Cost of Corrosion Strategy		_					
AVHM Integration (SKT Int Support)							
Avionics		_^			$\wedge \land \land$		
VCA Cost Analysis Support			<u>A</u>				
VCA Integrated Change Roadmap			<u> </u>				
Digital Video Recorder			<u> </u>				
AVCIP							
VCA Roadmap Automation					Δ		
Lead Free Solder				2	_∧		
Enhanced 1553 Bus				3	<u> </u>		
Avionics Planning Baseline		۵	<u>^</u>	2	<u>A</u>		
GATM Support		· · · · · · · · · · · · · · · · · · ·	· · · ·	3	.01		
VCA							
EKM	8 - 8						

Exhibit R-4a, RDT&E Schedule Detail		DATE February 2004	
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0605011F RDT&E For Aging Aircraft	PROJECT NUMBER AND TITLE 4685 Aging Aircraft	Ξ
(U) <u>Schedule Profile</u>	FY 2003	FY 2004	<u>FY 2005</u>
(U) Aging Aircraft Structures Health Management	1-4Q	1-2Q	2Q
(U) Aging Aircraft Subsystems Health Management		2-3Q	2-3Q
(U) Enhanced Avionics Management		2-3Q	2-3Q
(U) Knowledge Management Tools		1-4Q	1-4Q
(U) Depot Technology Modernization Plan		3Q	
(U) Academic Center for Aging Aircraft			4Q