RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: June 2001

BUDGET ACTIVITY: 03 - Advanced Technology Development

PE NUMBER AND TITLE: 0603205F Flight Vehicle Technology

	COST ($ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
	Total Program Element (PE) Cost	5,554	10,944	0	0	0	0	0	0	Continuing	TBD
2978	Flight Vehicle Technologies	4,279	3,167	0	0	0	0	0	0	Continuing	TBD
4398	Air Base Technology	1,275	7,777	0	0	0	0	0	0	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

Note: Beginning in FY 2002, this program element (PE) has been eliminated. The ongoing technical efforts from Project 2978 have been transferred to PE 0603211F, Aerospace Structures, Project 4920, Flight Vehicle Technology Integration. The ongoing efforts from Project 4398 have been transferred into PE 0603112F, Advanced Materials for Weapon Systems, Project 4918, Deployed Air Base Demonstrations.

(U) A. Mission Description

This program develops and demonstrates advanced aerospace vehicle subsystems, aerodynamic/flight controls, and vehicle-pilot interface technologies for improved aerospace vehicle performance, decreased vulnerability, and reduced logistics support. This program also demonstrates technologies for fixed and bare base assets, including airfield pavements, energy systems, air base survivability, air base recovery, protective systems, fire protection, and crash rescue. Note: In FY 2001, Congress added $1.4 million for fiber optics control technologies, $4.2 million for weapon systems logistics, deployed base systems technology, and force protection, and $3.0 million for E-SMART Warning and Response System (Congress funded this effort in PE 0603723F in FY 2000).

(U) B. Budget Activity Justification

This program is in the Budget Activity 3, Advanced Technology Development, since it develops and demonstrates technologies for existing aerospace vehicle system upgrades and/or new system developments that have military utility and address warfighter needs.

(U) C. Program Change Summary ($ in Thousands)

		FY 2000	FY 2001	FY 2002	Total Cost
(U)	Previous President's Budget (FY 2001 PBR)	5,960	2,445	500	
(U)	Appropriated Value	5,992	11,045		
(U)	Adjustments to Appropriated Value				
	a. Congressional/General Reductions				

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE June 2001
BUDGET ACTIVITY 03 - Advanced Technology Development	PE NUMBER AND TITLE 0603205F Flight Vehicle Technology

(U) C. Program Change Summary ($ in Thousands) Continued

		FY 2000	FY 2001	FY 2002	Total Cost
	b. Small Business Innovative Research				
	c. Omnibus or Other Above Threshold Reprogram	-386			
	d. Below Threshold Reprogram	-29			
	e. Rescissions	-23	-101		
(U)	Adjustments to Budget Years Since FY 2001 PBR			-500	
(U)	Current Budget Submit/FY 2002 PBR	5,554	10,944	0	TBD

(U) Significant Program Changes:

Changes to this program since the previous President's Budget are due to program element realignment within the Science and Technology Program.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)

DATE: June 2001

BUDGET ACTIVITY: 03 - Advanced Technology Development

PE NUMBER AND TITLE: 0603205F Flight Vehicle Technology

PROJECT: 2978

COST ($ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
2978 Flight Vehicle Technologies	4,279	3,167	0	0	0	0	0	0	Continuing	TBD

Note: Beginning in FY 2002, the ongoing technical efforts from Project 2978 have been transferred to PE 0603211F, Aerospace Structures, Project 4920, Flight Vehicle Technology Integration.

(U) A. Mission Description

This program develops and demonstrates advanced manned and unmanned aerospace flight controls, and vehicle-pilot interface technologies for improved aerospace vehicle performance, decreased vulnerability, and reduced logistics support. Note: In FY 2001, Congress added $1.4 million for fiber optics control technologies.

(U) FY 2000 ($ in Thousands)

(U) $1,864 Developed technologies for automatic in-flight replanning for the cockpit to reduce pilot workload. Began testing autonomous unmanned combat air vehicles systems for automatic in-flight replanning.

(U) $854 Developed algorithms for multiple ship integrated control strategies to enable the safe and effective cooperative employment of manned and unmanned strike aerospace vehicles for air combat operations. Began integrated control system testing of advanced flight control algorithms.

(U) $1,561 Developed advanced integrated aerospace vehicle subsystems to provide increased performance and decreased vulnerability while decreasing both cost and logistic supportability requirements. Started ground demonstration of a nacelle ballistic fire suppression concept. Continued flight critical stabilator actuator test to demonstrate operational military and utility.

(U) $4,279 Total

(U) FY 2001 ($ in Thousands)

(U) $201 Continue development of aerospace vehicle air-to-air collision avoidance technologies to increase tactics flexibility and increase aerospace vehicle survivability. Continue development of air collision avoidance technologies previously developed and simulated for a limited number of manned aircraft and Unmanned Air Vehicles (UAVs) to larger flights of UAVs. Initiate integration of the auto air collision avoidance algorithms into vehicle management systems architecture and validate in a laboratory environment.

(U) $533 Demonstrate optical control technologies to integrate power and control systems to significantly decrease system volume and weight and to eliminate electromagnetic interference problems in air vehicle control systems. Conduct physical system ground demonstration of optical control technologies.

(U) $1,033 Develop advanced concepts for engine nacelle ballistic impact fire suppression to increase survivability, while decreasing both cost and logistics support requirements. Complete ground demonstration of nacelle ballistic fire suppression concepts.

(U) $1,400 Initiate Congressionally directed efforts to address development issues associated with fiber optics control technologies.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE: June 2001
BUDGET ACTIVITY: 03 - Advanced Technology Development	PE NUMBER AND TITLE: 0603205F Flight Vehicle Technology	PROJECT: 2978

(U) A. Mission Description Continued

(U) FY 2001 ($ in Thousands) Continued
(U) $3,167 Total

(U) FY 2002 ($ in Thousands)
(U) $0 Efforts transferred to PE 0603211F, Project 4920.
(U) $0 Total

(U) B. Project Change Summary

Not Applicable.

(U) C. Other Program Funding Summary ($ in Thousands)

(U) Related Activities:
(U) PE 0602201F, Aerospace Flight Dynamics
(U) PE 0603216F, Aerospace Propulsion and Power.
(U) This project has been coordinated through the Reliance process to harmonize efforts and eliminate duplication.

(U) D. Acquisition Strategy

Not Applicable.

(U) E. Schedule Profile

(U) Not Applicable.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)

DATE: June 2001

BUDGET ACTIVITY: 03 - Advanced Technology Development

PE NUMBER AND TITLE: 0603205F Flight Vehicle Technology

PROJECT: 4398

COST ($ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4398 Air Base Technology	1,275	7,777	0	0	0	0	0	0	Continuing	TBD

Note: Beginning in FY 2002, the ongoing technical efforts from Project 4398 have been transferred into PE 0603112F, Advanced Materials for Weapon Systems, Project 4918, Deployed Air Base Demonstrations.

(U) A. Mission Description

This project develops technologies for fixed and bare base operations, including airfield pavements, energy systems, air base survivability, air base recovery, protective systems, airfield fire protection, and crash rescue. Note: In FY 2001, Congress added $4.2 million for weapon systems logistics, deployed base systems technology, and force protection, and $3.0 million for E-SMART Warning and Response System (Congress funded this effort in PE 0603723F in FY 2000).

(U) FY 2000 ($ in Thousands)

(U) $533 Developed aircraft and air base fire fighting and power generation technologies to improve fire fighting rescue. Tested fire fighting agents and equipment. Developed protective clothing, fire risk assessment technologies, and fire fighting training systems.

(U) $362 Developed technologies, utilities, and shelters that improve air base operations. These technologies include completion of the acoustic cycle heat pump that reduces airlift requirements in support of Aerospace Expeditionary Force (AEF) operations rapid deployment.

(U) $380 Constructed an air transportable shelter advanced development model for field testing to support AEF operations. Began laboratory testing of advanced lightweight shelter components.

(U) $1,275 Total

(U) FY 2001 ($ in Thousands)

(U) $206 Develop aircraft and air base fire fighting and power generation technologies to improve fire fighting rescue. Test safe fire fighting agents. Continue development of protective fire fighting clothing and fire risk assessment technologies. Evaluate new fire fighting training concepts.

(U) $181 Develop technologies, utilities, and shelters that improve air base operations. Complete the acoustic cycle heat pump technology demonstration that reduces airlift requirements in support of AEF operations rapid deployment.

(U) $190 Construct an air transportable shelter advanced development model for field testing to support AEF operations rapid deployment.

(U) $3,000 Continue directed E-SMART Warning and Response System effort that develops and integrates chemical and biological sensor and monitoring technologies into the E-SMART.

(U) $4,200 Initiate Congressional directed effort to expand efforts related to providing increased explosion mitigation, increased ability to conduct rapid airfield assessment, improved lightweight airfield matting, and more efficient deployable utility systems.

(U) $7,777 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE: June 2001
BUDGET ACTIVITY: 03 - Advanced Technology Development	PE NUMBER AND TITLE: 0603205F Flight Vehicle Technology
PROJECT: 4398	

(U) A. Mission Description Continued

(U) FY 2002 ($ in Thousands)

(U) $0	Efforts transferred to PE 0603112F, Project 4918.
(U) $0	Total

(U) B. Project Change Summary

Not Applicable.

(U) C. Other Program Funding Summary ($ in Thousands)

(U) Related Activities:

(U) PE 0602201F, Aerospace Flight Dynamics

(U) PE 0603231F, Crew Systems and Personnel Protection Technology.

(U) This project has been coordinated through the Reliance process to harmonize efforts and eliminate duplication.

(U) D. Acquisition Strategy

Not Applicable.

(U) E. Schedule Profile

(U) Not Applicable.