

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2002	
BUDGET ACTIVITY 03 - Advanced Technology Development				PE NUMBER AND TITLE 0603205F Flight Vehicle Technology					
COST (\$ in Thousands)	FY 2001 Actual	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	10,685	4,556	0	0	0	0	0	Continuing	TBD
2978 Flight Vehicle Technologies	3,092	0	0	0	0	0	0	Continuing	TBD
4398 Air Base Technology	7,593	4,556	0	0	0	0	0	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

Note: In FY 2002, Project 2978, efforts transferred to PE 0603211F, Project 4920 and Project 4398, efforts transferred to PE 0603112F, Project 4918.

(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 2002, Congress added \$1.8 million for AFRL [Air Force Research Laboratory] Tyndall for weapon systems logistics, deployed base systems technology, and force protection, and \$2.8 million for E-SMART Chemical and Biological Sensors.

(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 2001	FY 2002	FY 2003	Total Cost
(U) Previous President's Budget	10,944	0	0	
(U) Appropriated Value	11,045	4,600		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions		-44		

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<b>03 - Advanced Technology Development</b>		<b>0603205F Flight Vehicle Technology</b>			
(U)	<b><u>C. Program Change Summary (\$ in Thousands) Continued</u></b>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>
	b. Small Business Innovative Research	-259			
	c. Omnibus or Other Above Threshold Reprogram				
	d. Below Threshold Reprogram				
	e. Rescissions	-101			
(U)	Adjustments to Budget Years Since FY 2002 PBR				
(U)	Current Budget Submit/FY 2003 PBR	10,685	4,556	0	TBD
(U)	<u>Significant Program Changes:</u>				
	In FY 2002, Project 2978, efforts transferred to PE 0603211F, Project 4920 and Project 4398, efforts transferred to PE 0603112F, Project 4918.				

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BUDGET ACTIVITY <b>03 - Advanced Technology Development</b>				PE NUMBER AND TITLE <b>0603205F Flight Vehicle Technology</b>				PROJECT <b>2978</b>	
COST (\$ in Thousands)	FY 2001 Actual	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	3,092	0	0	0	0	0	0	Continuing	TBD
<p>Note: In FY 2002, Project 2978, efforts transferred to PE 0603211F, Project 4920.</p> <p>(U) <b><u>A. Mission Description</u></b>            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.</p> <p>(U) <b><u>FY 2001 (\$ in Thousands)</u></b></p> <p>(U) \$201 Continued development of aerospace vehicle air-to-air collision avoidance technologies to increase tactics flexibility and increase aerospace vehicle survivability. Continued 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. Initiated integration of the auto air collision avoidance algorithms into vehicle management systems architecture and validate in a laboratory environment.</p> <p>(U) \$533 Demonstrated 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. Conducted physical system ground demonstration of optical control technologies.</p> <p>(U) \$958 Developed 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.</p> <p>(U) \$1,400 Initiated Congressionally directed efforts to address development issues associated with fiber optics control technologies.</p> <p>(U) \$3,092 Total</p> <p>(U) <b><u>FY 2002 (\$ in Thousands)</u></b></p> <p>(U) \$0 Efforts transferred to PE 0603211F, Project 4920.</p> <p>(U) \$0 Total</p> <p>(U) <b><u>FY 2003 (\$ in Thousands)</u></b></p> <p>(U) \$0 No Activity</p> <p>(U) \$0 Total</p>									
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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
<b>03 - Advanced Technology Development</b>	<b>0603205F Flight Vehicle Technology</b>	<b>2978</b>
<p>(U) <b><u>B. Project Change Summary</u></b> Not Applicable.</p> <p>(U) <b><u>C. Other Program Funding Summary (\$ in Thousands)</u></b> (U) Related Activities: (U) PE 0602201F, Aerospace Vehicle Technology (U) PE 0603216F, Aerospace Propulsion and Power. (U) This project has been coordinated through the Reliance process to harmonize efforts and eliminate duplication.</p> <p>(U) <b><u>D. Acquisition Strategy</u></b> Not Applicable.</p> <p>(U) <b><u>E. Schedule Profile</u></b> (U) Not Applicable.</p>		
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<b>BUDGET ACTIVITY</b> <b>03 - Advanced Technology Development</b>	<b>PE NUMBER AND TITLE</b> <b>0603205F Flight Vehicle Technology</b>	<b>PROJECT</b> <b>4398</b>
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COST (\$ in Thousands)	FY 2001 Actual	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	7,593	4,556	0	0	0	0	0	Continuing	TBD

Note: In FY 2002, Project 4398 efforts transferred to PE 0603112F, Project 4918.

**(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 2002, Congress added \$1.8 million for AFRL[Air Force Research Laboratory] Tyndall to conduct efforts in weapon systems logistics, deployed base systems technology, and force protection, and \$2.8 million for E-SMART Chemical and Biological Sensors.

**(U) FY 2001 (\$ in Thousands)**

- (U) \$134            Developed aircraft and air base fire fighting and power generation technologies to improve fire fighting rescue. Tested safe fire fighting agents. Continued development of protective fire fighting clothing and fire risk assessment technologies. Evaluated new fire fighting training concepts.
- (U) \$125            Developed technologies, utilities, and shelters that improve air base operations. Completed the acoustic cycle heat pump technology demonstration that reduces airlift requirements in support of Aerospace Expeditionary Force operations rapid deployment.
- (U) \$134            Constructed an air transportable shelter advanced development model for field testing to support Aerospace Expeditionary Force operations rapid deployment.
- (U) \$3,000          Continued 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          Initiated 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) \$7,593          Total

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BUDGET ACTIVITY		PROJECT
<b>03 - Advanced Technology Development</b>	<b>0603205F Flight Vehicle Technology</b>	<b>February 2002</b> <b>4398</b>
<p>(U) <b><u>A. Mission Description Continued</u></b></p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$1,783                      Continue Congressional directed effort related to providing increased explosion mitigation, increased ability to conduct rapid airfield assessment, improved lightweight airfield matting, and more efficient deployable utility systems.</p> <p>(U) \$2,773                      Continue Congressional directed E-SMART effort that develops and integrates chemical and biological sensor and monitoring technologies into the E-SMART system.</p> <p>(U) \$4,556                      Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u></p> <p>(U) \$0                              No Activity</p> <p>(U) \$0                              Total</p> <p>(U) <b><u>B. Project Change Summary</u></b> Not Applicable.</p> <p>(U) <b><u>C. Other Program Funding Summary (\$ in Thousands)</u></b></p> <p>(U) Related Activities:</p> <p>(U) PE 0602201F, Aerospace Vehicle Technologies</p> <p>(U) PE 0603231F, Crew Systems and Personnel Protection Technology.</p> <p>(U) This project has been coordinated through the Reliance process to harmonize efforts and eliminate duplication.</p> <p>(U) <b><u>D. Acquisition Strategy</u></b> Not Applicable.</p> <p>(U) <b><u>E. Schedule Profile</u></b> Not Applicable.</p>		
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