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

DATE: February 1999

BUDGET ACTIVITY: 3 - Advanced Technology Development

PE NUMBER AND TITLE: 0603202F Aerospace Propulsion Subsystem Integration

PROJECT: 668A

COST *($ In Thousands*)	FY 1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
668A Aircraft Propulsion Subsystem Integration	22,253	27,722	29,825	31,022	25,495	20,027	13,766	14,197	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description: This Advanced Technology Development program develops and demonstrates gas turbine propulsion system technologies applicable to a broad range of aircraft. The Aircraft Propulsion Subsystem Integration (APSI) program includes demonstrator engines such as the Joint Technology Demonstrator Engine (JTDE) for manned systems and the Joint Expendable Turbine Engine Concept (JETEC) for uninhabited air vehicle and cruise missile applications. These demonstrator engines apply the core technology developed under the Advanced Turbine Engine Gas Generator (ATEGG) program coupled with affordable and durable system component technology such as low pressure fans and low pressure turbines (LPT), engine controls, and nozzles developed as part of APSI. This program also focuses on system integration aspects of inlets, nozzles, engine/airframe compatibility, and low-observable technologies. APSI will provide aircraft with potential for longer range and higher cruise speed with lower specific fuel consumption; surge power for successful engagements; high sortie rates with reduced maintenance; reduced life cycle cost; and improved survivability resulting in increased mission effectiveness. The APSI program supports the demonstration of performance, cost, and durability goals of the Integrated High Performance Turbine Engine Technology (IHPTET) program. IHPTET is a three phase, totally integrated DOD, Defense Advanced Research Projects Agency (DARPA), National Aeronautics and Space Administration (NASA), and industry initiative focused on doubling turbine engine propulsion capabilities while reducing cost of ownership. The IHPTET program structure provides continuous technology transition for military turbine engine upgrades and derivatives and has the added benefit of enhancing the U.S. turbine engine industry's international competitiveness.

(U) FY 1998 ($ in Thousands):

- (U) $4,733 Designed, fabricated, and demonstrated durability and integration technology for turbofan/turbojet engines for improved supportability and affordability of current and future Air Force aircraft.
- (U) $13,606 Designed, fabricated, and tested technology demonstration engines for improved performance and fuel consumption of turbofan/turbojet engines for fighters, aircraft, bombers, and transports.
- (U) $3,914 Designed, fabricated, and tested technology demonstration engines for improved performance, durability, and affordability of engines for missile and uninhabited air vehicle applications.
- (U) $22,253 Total

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(U) FY 1999 ($ in Thousands):

- (U) $3,613 Design, fabricate, and demonstrate controls technology for turbofan/turbojet engines for improved performance and reduced maintenance of current and future Air Force aircraft.
- (U) $8,830 Design, fabricate, and demonstrate durability and integration technology for turbofan/turbojet engines for improved supportability and affordability of current and future Air Force aircraft.
- (U) $9,848 Design, fabricate, and test technology demonstration engines for improved performance and fuel consumption of turbofan/turbojet engines for fighters, aircraft, bombers, and transports.
- (U) $4,551 Design, fabricate, and test technology demonstration engines for improved performance, durability, and affordability of engines for missile and uninhabited air vehicle applications.
- (U) $880 Indentified as a source for SBIR.
- (U) $27,722 Total

(U) FY 2000 ($ in Thousands):

- (U) $4,350 Design, fabricate, and demonstrate durability and integration technologies for turbofan/turbojet engines for improved supportability and affordability of current and future Air Force aircraft.
- (U) $20,864 Design, fabricate, and test advanced component technologies for improved performance and fuel consumption of turbofan/turbojet engines for fighters, aircraft, bombers, and transports.
- (U) $4,611 Design, fabricate, and test advanced component technologies for improved performance, durability, and affordability of engines for missile and uninhabited air vehicle applications.
- (U) $29,825 Total

(U) FY 2001 ($ in Thousands):

- (U) $5,522 Design, fabricate, and demonstrate durability and integration technologies for turbofan/turbojet engines for improved supportability and affordability of current and future Air Force aircraft.
- (U) $19,896 Design, fabricate, and test advanced component technologies for improved performance and fuel consumption of turbofan/turbojet engines for fighters, aircraft, bombers, and transports.
- (U) $5,604 Design, fabricate, and test advanced component technologies for improved performance, durability, and affordability of engines for missile and uninhabited air vehicle applications.
- (U) $31,022 Total

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(U) B. Budget Activity Justification: This program is in Budget Activity 3, Advanced Technology Development, since it develops and demonstrates technologies for existing system upgrades and/or new system developments that have military utility and address warfighter needs.

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

	FY 1998	FY 1999	FY 2000	FY 2001	Total Cost
(U) Previous President's Budget/FY 1999 PB	23,378	30,814	31,616	32,620	Cont
(U) Appropriated Value	24,785	27,814			
(U) Adjustments to Appropriated Value					
a. Congressional/General Reductions	-810	-92			
b. SBIR	-611				
c. Omnibus/Other Above Threshold Reprogrammings	-159				
d. Below Threshold Reprogrammings	-952				
(U) Adjustments to Budget Years Since FY 1999 PB			-1,791	-1,598	
(U) Current Budget Submit/FY 2000 PB	22,253	27,722	29,825	31,022	Cont

(U) (U) Significant Program Changes: Changes to this program since the previous President's Budget are due to higher priorities within the Science and Technology (S&T) Program.

FY 1999: $880 indentified as a source for SBIR.

(U) D. Other Program Funding Summary:

(U) Related Activities:

- (U) PE 0602203F, Aerospace Propulsion.
- (U) PE 0603112F, Advanced Materials for Weapon Systems.
- (U) PE 0603216F, Aerospace Propulsion and Power Technology.
- (U) PE 0602122N, Aircraft Technology.
- (U) PE 0603217N, Air Systems Advanced Technology Demonstration.
- (U) This project has been coordinated through the Reliance process to harmonize efforts and eliminate duplication.

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(U) E. Acquisition Strategy: Not Applicable.

(U) F. Schedule Profile: Not Applicable.