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

DATE: February 2003

BUDGET ACTIVITY: 07 - Operational System Development

PE NUMBER AND TITLE: 0207133F F-16 SQUADRONS

PROJECT: 2671

COST ($ in Thousands)		FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
2671	F-16 Squadrons	107,035	81,639	87,478	99,867	111,954	120,079	111,450	113,519	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description

The F-16 Fighting Falcon is the world's premier multi-mission fighter. It is a fixed-wing, high performance, single-engine fighter aircraft. In its 25-year history, the F-16 has proven itself in combat in a variety of air-to-air and air-to-surface missions such as close air support, combat air patrol, forward air control, battle air interdiction (day/night and all-weather) and suppression of enemy air defenses (SEAD). Also during these years the aircraft has evolved in its capabilities to exploit the advances made in computer, avionics systems, engine, and structures technologies. The F-16 has been selected by more than 20 air forces around the world. Foreign military sales production will continue well into the 21st century. The F-16 System Program Office (SPO) develops, integrates, and qualifies systems to enhance the overall performance of the F-16 mission.

The F-16 program develops enhanced combat capability in both the air-to-ground and air-to-air role. Several modifications to improve the F-16's combat capabilities have been combined into a single modification known as the Common Configuration Implementation Program (CCIP) to save significant costs during the production phase. CCIP will modify all Block 40 and Block 50 F-16 aircraft; Block 50 is the lead platform. CCIP integrates several programs under one umbrella and allows incorporation of Modular Mission Computer, color displays, Link 16, Joint Helmet Mounted Cueing System (JHMCS), and Air-to-Air Interrogator (AAI) onto the F-16:

a. The main driver for CCIP will be the Link 16 program. Link 16 is a data link that connects main components of a battle arena to maintain awareness and to share battle management data. The Link 16 program designs the appropriate Group A (hardware mounted permanently on aircraft) to incorporate existing Group B (hardware that is easily removed from airplane) developed by the Multifunctional Information Distribution System (MIDS) Office and adapted for use on the F-16.

b. To enhance the display of the Link 16 data, the current black and white display will be replaced with a Color Multifunction Display (CMFD).

c. To have sufficient computing power in the Block 40/50 aircraft to operate Link 16 and to allow the cost savings by using a common Operational Flight Program, the General Avionics Computer (GAC) must be replaced with the Modular Mission Computer (MMC). The MMC is an upgraded version of the computer that was developed for the EPAF Mid-life Update program. The F-16 SPO is developing MMC upgrades for USAF requirements. The MMC will extend the cost effective life of the F-16 through replacement of three Line Replaceable Units and the addition of significant memory and processing growth provisions.

d. JHMCS incorporates a man-mounted, ejection capable helmet mounted display system, with the capability to cue and verify cueing of high off-axis sensors and weapons including the AIM-9x. The F-16 JHMCS program will integrate the following government furnished equipment with the F-16: flight helmet with display optics, image source, helmet tracker transducer w/attached cable, graphics processor/video hardware and software to drive the display, helmet tracker hardware and software. The integration will interface with aircraft computers, weapons and sensor hardware and will provide software to integrate the JHMCS functions with other

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(U) **A. Mission Description Continued**

onboard systems.

Note: The flight test increase reflects the amount of OFP work required for the CCIP modification.

Other modifications which are being or will be developed during the FYDP:

a. Advanced Weapons Integration will integrate Joint Direct Attack Munition (JDAM), Joint Stand-off Weapon (JSOW) and Wind Corrected Munition Dispenser (WCMD) and other smart weapons into the Block 30, Block 40, and Block 50 F-16. This task also includes performing risk reduction activities on advanced weapon integration.

b. Global Positioning System (GPS) Integration adds GPS capability to the Block 30 and supports testing of GPS changes to other F-16 Blocks. The F-16 development efforts are complemented by comprehensive Operational Flight Program (OFP) upgrades and flight tests.

c. Integrate the targeting pod on the Block 50/52 and transition the HARM Targeting System (HTS) pod to the left inlet hardpoint. This will allow the F-16 Block 50 to perform the SEAD/DEAD mission.

d. The Air-to-Air Interrogator (AAI) consists of a single unit interrogator/transponder, a beam forming network, fuselage-mounted array antenna elements, and a lower interrogator antenna. The system provides a higher reliability rate and increases performance over present systems. Initial capabilities include coverage of + or - 60 degrees azimuth and elevation coverage with a + or - 2 degree accuracy, a range accuracy of 152 meters and range of 100 nmi. 32 in beam targets can be handled. Modes 1, 2, 3/A, C, S, and 4 are available. The AAI is developed for Block 50 and will be integrated into Block 40.

e. Structural analysis from the on-going Structural Integrity Program (SIP) has indicated that the F-16 is experiencing structural fatigue that will impact the ability of the airframes to reach their 8,000 hrs service life. RDT&E funds are required to design the required structural modifications, as appropriate for each F-16 Block of aircraft. Falcon STAR development costs will be shared with the Multi-National Fighter Program (MNFP) countries.

	FY 2002 ($ in Thousands)	
(U)	$0	ACCOMPLISHMENT/PLANNED PROGRAM
(U)	$4,795	Complete Block 40 Link 16
(U)	$4,188	Complete Block 40 JHMCS
(U)	$3,230	Complete Block 40 Color Display Development/Integration
(U)	$7,850	Complete Block 40 MMC
(U)	$47,590	Continue OFP Updates
(U)	$28,172	Continue Flight Tests DT&E
(U)	$1,228	Complete Block 50 HTS/TGP Capability (Software development, design, test assets)
(U)	$6,000	Continue Falcon STAR (Structural analysis and design)

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(U) A. Mission Description Continued

(U) FY 2002 ($ in Thousands) Continued

(U)	$3,982	Distributed Training Centers
(U)	$107,035	Total

(U) FY 2003 ($ in Thousands)

(U)	$0	ACCOMPLISHMENTS/PLANNED PROGRAM
(U)	$1,978	Blk 40 AAI Congressional Plus Up
(U)	$49,897	Continue OFP Updates
(U)	$468	ALR-56M
(U)	$24,167	Continue Flight Tests DT&E
(U)	$468	Weapons Integration
(U)	$4,661	Continue Falcon STAR (Structural analysis and design)
(U)	$81,639	Total

(U) FY 2004 ($ in Thousands)

(U)	$0	ACCOMPLISHMENT/PLANNED PROGRAM
(U)	$47,415	Continue OFP Updates
(U)	$32,136	Continue Flight Tests DT&E
(U)	$497	ALR-56M
(U)	$497	Weapons Integration
(U)	$1,963	Commercial Central Interface Unit (CCIU)
(U)	$4,970	Complete Falcon STAR (Structural analysis and design)
(U)	$87,478	Total

(U) B. Budget Activity Justification

Since the development activities in this PE support an operational aircraft, these development activities are funded in the Operational System Development budget activity 7.

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

		FY 2002	FY 2003	FY 2004	Total Cost
(U)	Previous President's Budget	113,959	81,338	71,872	TBD
(U)	Appropriated Value	115,097	83,338		
(U)	Adjustments to Appropriated Value				
	a. Congressional/General Reductions	-1,138	-899		
	b. Small Business Innovative Research	-3,573			
	c. Omnibus or Other Above Threshold Reprogram		-800		
	d. Below Threshold Reprogram	-2,828			
	e. Rescissions	-523			
(U)	Adjustments to Budget Years Since FY 2003 PBR			15,606	
(U)	Current Budget Submit/FY 2004 PBR	107,035	81,639	87,478	TBD

(U) Significant Program Changes:
FY03: $2,000 Blk 40 AAI Congressional Plus Up
FY04: $15,606 continues Operation Flight Programs (OFPs) development for the F-16 Block 40/42 and 50/52

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

		FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
(U)	Aircraft Procurement (3010F), Line Item 5; F-16 C/D (MYP)	0	0	0	0	0	0				TBD
(U)	Aircraft Procurement (3010F), Line Item 34, F-16 Mods	216,681	276,024	300,596	277,006	293,803	251,044	255,688	229,688		TBD
(U)	Aircraft Procurement (3010F), Line Item 73, Post Production Support	14,147	14,110	13,871	11,961	17,747	11,820	17,179	18,781		TBD

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(U) E. Acquisition Strategy

RDT&E funds will primarily be executed in developing improved capability, maintenance and safety mods. Operational Flight Program (OFP) software will be continuously updated to complement mod development efforts. The approach to contracting varies by individual project. Lockheed Martin Aeronautics Company (LM Aero) is the prime contractor on all systems except the simulator/trainer (Hughes Co.), the 110 Engines (General Electric), and the 229 Engines (Pratt & Whitney). Contract types are CPIF, CPFF, FFP.

(U) F. Schedule Profile

		FY 2002				FY 2003				FY 2004			
		1	2	3	4	1	2	3	4	1	2	3	4
(U)	Contract Milestone												
(U)	Complete Block 50 HTS/TGP Capability				*								
(U)	Complete Falcon STAR												X
(U)	Complete Block 40 MMC/Color Display				*								
(U)	Complete Block 40 Link 16/JHMCS				*								
(U)	Distributed Training Centers										X		

* - Conpleted Activiy

X - Plan Start/Completion Date

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 2003

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PE NUMBER AND TITLE: 0207133F F-16 SQUADRONS

PROJECT: 2671

(U) A. Project Cost Breakdown ($ in Thousands)

		FY 2002	FY 2003	FY 2004
(U)	Link 16 Block 40/50	4,795	0	0
(U)	MMC Block 40	7,850	0	0
(U)	Color Display Block 40	3,230	0	0
(U)	JHMCS Block 40/50	4,188	0	0
(U)	Block 40 AAI Congressional Plus Up	0	1,978	0
(U)	Commercial Central Interface Unit	0	0	1,963
(U)	OFP Updates (Includes AAI)	47,590	49,897	47,415
(U)	Flight Tests DT&E	28,172	24,167	32,136
(U)	ALR-56M	0	468	497
(U)	Weapons Integration	0	468	497
(U)	Block 50 HTS/TGP Capability (Software development, design, test assets)	1,228	0	0
(U)	Falcon STAR (Structural analysis and design)	6,000	4,661	4,970
(U)	Distributed Training Centers	3,982	0	0
(U)	Total	107,035	81,639	87,478

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

(U) Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 2002	Budget FY 2002	Budget FY 2003	Budget FY 2004	Budget to Complete	Total Program
Product Development Organizations										
Link 16 Blk 40 (LM Aero)	SS/CPIF	Apr 98	20,281	20,281	7,252	4,795	0	0	0	12,047
MMC Blk 40 (LM Aero)	SS/CPIF	Apr 98	26,483	26,483	12,800	7,850	0	0	0	20,650
CMFDS Blk 40 (LM Aero)	SS/CPIF	Apr 98	8,674	8,674	5,505	3,230	0	0	0	8,735
JHMCS Blk 40 (LM Aero)	SS/CPIF	Apr 98	14,209	14,209	2,205	4,188	0	0	0	6,393
OFP Updates (LM Aero)	CPIF/T&M	Dec 95			153,746	47,590	49,897	47,415	Continuing	TBD
Block 50 HTS/TGP			5,967	5,967	0	1,228	0	0	0	1,228

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(U) Performing Organizations Continued:

Product Development Organizations										
Falcon STAR	FFP	Mar 01	17,500	17,500	0	6,000	4,661	4,970	0	15,631
ALE-50			1,400	1,400	1,400	0	0	0	0	1,400
CCIU			0	0	0	0	0	1,963	0	1,963
ALR-56M			0	0	0	0	468	497	0	965
Weapons Integration			0	0	0	0	468	497	0	965
AAI Block 40 Congressional Plus Up							1,978		0	1,978
Support and Management Organizations										
Radar Eval					280	0	0	0	0	280
Halon Eval					40	0	0	0	0	40
Test and Evaluation Organizations										
600 Gallon Tank					2,296	0	0	0	0	2,296
Distributed Training Centers						3,982				3,982
Flight Tests						28,172	24,167	32,136	Continuing	TBD
Subtotals					Total Prior to FY 2002	Budget FY 2002	Budget FY 2003	Budget FY 2004	Budget to Complete	Total Program
Rescission										
Subtotal Product Development					182,908	74,881	57,472	55,342	TBD	TBD
Subtotal Support and Management					320	0	0	0	0	320
Subtotal Test and Evaluation					2,296	32,154	24,167	32,136	TBD	TBD
Total Project					185,524	107,035	81,639	87,478	TBD	TBD