

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
---	------------------------------

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207133F F-16 SQUADRONS
--	--

Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	124.482	151.997	90.620	113.843	117.613	108.562	110.668	112.928	Continuing	TBD
2671 F-16 Squadrons	124.482	151.997	90.620	113.843	117.613	108.562	110.668	112.928	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

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 28-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 and foreign military sales production continues in the 21st century. The 312th Aeronautical Systems Group (312 AESG, the F-16 Development Management Office) develops, integrates, and qualifies systems to enhance the overall performance of the F-16 mission.

Enhancements which are being or will be developed during the FYDP include:

- a. Advanced Weapons Integration will include Joint Air-to-Surface Stand-off Missile (JASSM), Joint Direct Attack Munition (JDAM), Joint Stand-off Weapon (JSOW), Wind Corrected Munition Dispenser (WCMD), Small Diameter Bomb (SDB), AMRAAM, AIM-9X and updates to existing weapons into the F-16. This activity includes tasks such as performing risk reduction activities on advanced weapon integration, developing/integrating of advanced racks, pylons, adapters, and the Universal Armament Interface, as well as includes nuclear surety, safety and compatibility tasks.
- b. The AN/APG-68(V)10 radar program is in the process of being terminated.
- c. The Mode S program develops the on-aircraft kit required to integrate and certify a Mode S capable Identification Friend or Foe (IFF) Transponder on Blk 40/42 aircraft to meet Global Air Traffic requirements in Europe.
- d. The Mode 5 program provides secure, encrypted IFF capability to meet OSD mandates. This program will add Mode 5 capability to the Blk 40/42 IFF Transponder installed in the Mode S program through software-only activities. The program modifies the Blk 50/52 Air-to-Air Interrogator (AAI) system through integration of a Mode 5 capable Combined Interrogator/Transponder (CIT) and associated software updates.
- e. The Sniper and LITENING targeting pods will be integrated and the HARM Targeting System (HTS) pod will be transitioned to the left inlet hard point. This will allow the F-16 to perform the Destruction of Enemy Air Defenses (DEAD) mission and includes integration of future pod upgrades.
- f. The F-16 development efforts are complemented by comprehensive operational flight program (OFP) upgrades including Hardware and Group A development associated with OFP software candidates. Integration efforts include manned fighter reconnaissance capabilities and Joint Helmet Mounted Cueing System (JHMCS) which allows the pilot to designate and shoot targets at high angles without maneuvering the aircraft. Advanced weapons integration moves under the OFP updates line starting in FY08 and includes Joint Air-to-Surface Stand-off Missile (JASSM) and Joint Direct Attack Munition (JDAM), Joint Stand-off Weapon (JSOW), Wind Corrected Munition Dispenser (WCMD), Small Diameter Bomb (SDB), AMRAAM and updates to existing weapons into the F-16. Integration with the high angle off-bore sight AIM-9X missile provides the F-16 with enhanced first-look/first-shoot/first-kill advantage in the "dogfight" arena. Weapons integration also includes tasks such as performing risk reduction activities on advanced weapon integration, development and integration of advanced racks, pylons, adapters, and the

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2007

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207133F F-16 SQUADRONS

Universal Armament Interface, as well as includes nuclear surety, safety and compatibility tasks. Link 16 provides the F-16s with a secure, jam resistant, high-capacity data communications link with other combat aircraft, airborne control aircraft, and ground control centers. Embedded GPS/INS (EGI) systems will provide improved targeting capability to take full advantage of GPS-aided precision weapons to conduct evolving missions. Starting with M6/M6+ OFP, LM Aero will start transfer of OFP workload and maintenance of M-series OFP tapes to OO-ALC and assumes a "leader/follower" transition where LM Aero will produce M6/M6+ OFP as OO-ALC builds up capability (personnel, special test equipment, OFP development tools & processes, and training). OO-ALC will then assume system lead responsibility for the next M-series OFP program (M7/M7+). During transition, both Lockheed and Ogden may have some concurrent software development capabilities both in terms of special test equipment and personnel since OFP tape developments overlap. This funding is broken out for clarity to separate these transition efforts from OFP Development.

g. The EMD Hardware Development line provides funding to test, qualify, and field aircraft subsystems replaced or modified due to requirements changes, Pre-Planned Product Improvements (P3I) and Diminishing Manufacturing Source (DMS). The approach to contracting varies by individual project. EMD solutions include but are not limited to MMC upgrade, digital video recorder, Advanced Data Transfer Cartridge/Unit (ADTC/DTU), display upgrades, radio and communication enhancements and other hardware development activities. The MMC upgrade is broken out for clarity

h. The ALR-56M line provides for upgrades to the ALR-56M Radar Warning Receiver software.

i. Blk 30 JHMCS is added as part of congressional plus up starting in FY07

j. The F16 Secure Line of Sight (SLOS) communication mod is in response to CENTCOM Urgent Operational Need for secure line-of-sight/single channel ground and airborne radio system (SINCGARS) communication capabilities which can be upgraded to secure beyond line of sight (BLOS) capability in the future. The F16 needs SLOS to communicate with many rotary wing and ground maneuver units in the theater of operations.

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

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	154.533	148.373	108.888	106.710
(U) Current PBR/President's Budget	124.482	151.997	90.620	113.843
(U) Total Adjustments	-30.051	3.624		
(U) Congressional Program Reductions	-0.010			
Congressional Rescissions		-0.576		
Congressional Increases		4.200		
Reprogrammings	-25.872			
SBIR/STTR Transfer	-4.169			
(U) <u>Significant Program Changes:</u>				
FY06 Omnibus (-\$15.97M), Higher AF priorities (-\$9.9M)				
FY07 Congressional plus up \$4.2M (\$1.6M JHMCS Blk 30, \$2.6M (v)10 radar)				
FY08 reductions due to (v)10 radar (-\$8M), higher AF priorities (-\$10.12M); inflation + \$970K				

R-1 Line Item No. 130

Page-2 of 8

Exhibit R-2 (PE 0207133F)

Exhibit R-2a, RDT&E Project Justification

DATE

February 2007

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE			
07 Operational System Development				0207133F F-16 SQUADRONS				2671 F-16 Squadrons			
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
2671 F-16 Squadrons	124.482	151.997	90.620	113.843	117.613	108.562	110.668	112.928	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

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 28-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 and foreign military sales production continues in the 21st century. The 312th Aeronautical Systems Group (312 AESG, the F-16 Development Management Office) develops, integrates, and qualifies systems to enhance the overall performance of the F-16 mission.

Enhancements which are being or will be developed during the FYDP include:

- a. Advanced Weapons Integration will include Joint Air-to-Surface Stand-off Missile (JASSM), Joint Direct Attack Munition (JDAM), Joint Stand-off Weapon (JSOW), Wind Corrected Munition Dispenser (WCMD), Small Diameter Bomb (SDB), AMRAAM, AIM-9X and updates to existing weapons into the F-16. This activity includes tasks such as performing risk reduction activities on advanced weapon integration, developing/integrating of advanced racks, pylons, adapters, and the Universal Armament Interface, as well as includes nuclear surety, safety and compatibility tasks.
- b. The AN/APG-68(V)10 radar program is in the process of being terminated.
- c. The Mode S program develops the on-aircraft kit required to integrate and certify a Mode S capable Identification Friend or Foe (IFF) Transponder on Blk 40/42 aircraft to meet Global Air Traffic requirements in Europe.
- d. The Mode 5 program provides secure, encrypted IFF capability to meet OSD mandates. This program will add Mode 5 capability to the Blk 40/42 IFF Transponder installed in the Mode S program through software-only activities. The program modifies the Blk 50/52 Air-to-Air Interrogator (AAI) system through integration of a Mode 5 capable Combined Interrogator/Transponder (CIT) and associated software updates.
- e. The Sniper and LITENING targeting pods will be integrated and the HARM Targeting System (HTS) pod will be transitioned to the left inlet hard point. This will allow the F-16 to perform the Destruction of Enemy Air Defenses (DEAD) mission and includes integration of future pod upgrades.
- f. The F-16 development efforts are complemented by comprehensive operational flight program (OFP) upgrades including Hardware and Group A development associated with OFP software candidates. Integration efforts include manned fighter reconnaissance capabilities and Joint Helmet Mounted Cueing System (JHMCS) which allows the pilot to designate and shoot targets at high angles without maneuvering the aircraft. Advanced weapons integration moves under the OFP updates line starting in FY08 and includes Joint Air-to-Surface Stand-off Missile (JASSM) and Joint Direct Attack Munition (JDAM), Joint Stand-off Weapon (JSOW), Wind Corrected Munition Dispenser (WCMD), Small Diameter Bomb (SDB), AMRAAM and updates to existing weapons into the F-16. Integration with the high angle off-bore sight AIM-9X missile provides the F-16 with enhanced first-look/first-shoot/first-kill advantage in the "dogfight" arena. Weapons integration also includes tasks such as performing risk reduction activities on advanced weapon integration, development and integration of advanced racks, pylons, adapters, and the Universal Armament Interface, as well as includes nuclear surety, safety and compatibility tasks. Link 16 provides the F-16s with a secure, jam resistant, high-capacity data communications link with other combat aircraft, airborne control aircraft, and ground control centers. Embedded GPS/INS (EGI) systems will

Exhibit R-2a, RDT&E Project Justification

DATE

February 2007

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207133F F-16 SQUADRONS

PROJECT NUMBER AND TITLE

2671 F-16 Squadrons

provide improved targeting capability to take full advantage of GPS-aided precision weapons to conduct evolving missions. Starting with M6/M6+ OFP, LM Aero will start transfer of OFP workload and maintenance of M-series OFP tapes to OO-ALC and assumes a "leader/follower" transition where LM Aero will produce M6/M6+ OFP as OO-ALC builds up capability (personnel, special test equipment, OFP development tools & processes, and training). OO-ALC will then assume system lead responsibility for the next M-series OFP program (M7/M7+). During transition, both Lockheed and Ogden may have some concurrent software development capabilities both in terms of special test equipment and personnel since OFP tape developments overlap. This funding is broken out for clarity to separate these transition efforts from OFP Development.

g. The EMD Hardware Development line provides funding to test, qualify, and field aircraft subsystems replaced or modified due to requirements changes, Pre-Planned Product Improvements (P3I) and Diminishing Manufacturing Source (DMS). The approach to contracting varies by individual project. EMD solutions include but are not limited to MMC upgrade, digital video recorder, Advanced Data Transfer Cartridge/Unit (ADTC/DTU), display upgrades, radio and communication enhancements and other hardware development activities. The MMC upgrade is broken out for clarity

h. The ALR-56M line provides for upgrades to the ALR-56M Radar Warning Receiver software.

i. Blk 30 JHMCS is added as part of congressional plus up starting in FY07

j. The F16 Secure Line of Sight (SLOS) communication mod is in response to CENTCOM Urgent Operational Need for secure line-of-sight/single channel ground and airborne radio system (SINCGARS) communication capabilities which can be upgraded to secure beyond line of sight (BLOS) capability in the future. The F16 needs SLOS to communicate with many rotary wing and ground maneuver units in the theater of operations.

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

(U) B. Accomplishments/Planned Program (\$ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
(U) AN/APG-68(V)10	5.829			
(U) Continue OFP Updates	55.131	87.771	49.963	61.969
(U) ALR-56M	0.463	0.463	0.500	0.500
(U) Continue Flight Tests DT&E	22.725	24.802	25.399	30.149
(U) Weapons Integration	0.230	0.460		
(U) Mode S IFF for CAF Aircraft	2.800	6.696	2.870	
(U) Mode 5 IFF for CAF Aircraft			2.130	6.000
(U) MMC Upgrade Development	10.057	5.507	1.651	1.572
(U) EMD HW	0.750	0.100	0.500	0.500
(U) EGI/INS Development	3.693	3.190	0.910	0.303
(U) OFP Transition	12.204	7.950	6.697	12.850
(U) Blk 30 JHMCS		1.600		
(U) Secure Line of Sight (SLOS) (New start notification submitted)	9.500			
(U) Withhold (Includes (v)10 radar plus ups - FY06 \$1.1M, FY07 \$2.6M)	1.100	13.458		
(U) Total Cost	124.482	151.997	90.620	113.843

R-1 Line Item No. 130

Page-4 of 8

Project 2671

Exhibit R-2a (PE 0207133F)

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207133F F-16 SQUADRONS	PROJECT NUMBER AND TITLE 2671 F-16 Squadrons
---	---	--

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Aircraft Procurement (3010), Line Item 35, F-16 Mods	418.200	366.314	329.370	292.472	234.365	202.662	72.268	41.234		TBD
(U) Aircraft Procurement (3010), Line Item 80, Post Production Support	17.594	12.200	19.454	20.758	20.510	20.812	21.224	21.644		TBD

(U) **D. 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. OFP updates will transition to OO-ALC starting in FY06. The EMD Hardware Development line provides funding to test, qualify, and field aircraft subsystems replaced or modified due to requirement changes, Pre-Planned Product Improvements (P3I), radio and communications upgrades as well as Diminishing Manufacturing Source (DMS). The approach to contracting varies by individual project. Lockheed Martin Aeronautics Company (LM Aero) is the prime contractor on all systems except the 110 Engines (General Electric), and the 229 Engines (Pratt & Whitney). Contract types are T&M, CPIF, CPFF and FFP.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207133F F-16 SQUADRONS	PROJECT NUMBER AND TITLE 2671 F-16 Squadrons
--	--	---

<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2006</u> <u>Cost</u>	<u>FY 2006</u> <u>Cost</u>	<u>FY 2006</u> <u>Award</u> <u>Date</u>	<u>FY 2007</u> <u>Cost</u>	<u>FY 2007</u> <u>Award</u> <u>Date</u>	<u>FY 2008</u> <u>Cost</u>	<u>FY 2008</u> <u>Award</u> <u>Date</u>	<u>FY 2009</u> <u>Cost</u>	<u>FY 2009</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>														
OFP Updates	CPIF, T&M	LM Aero		55.131	Jan-06	87.771	Nov-06	49.963	Jan-08	61.969	Jan-09	Continuing	TBD	
OFP Transition	T&M, Organic	LM Aero, OO-ALC		12.204	Feb-06	7.950	Feb-07	6.697	Feb-08	12.850	Feb-09	Continuing	TBD	
ALR-56M	Organic	WRALC/LN		0.463	Jan-06	0.463	Dec-06	0.500	Dec-07	0.500	Dec-08	Continuing	TBD	
Weapons Integration AN/APG-68(V)10	T&M/FFP	LM Aero		0.230	Jan-06	0.460	Jan-07	0.000				Continuing	TBD	
	T&M/CPF	Northrup										Continuing	TBD	
	F	Grumman / LM Aero		5.829	Feb-06							Continuing	TBD	
Mode S IFF for CAF Aircraft (Blk 40/42)	CPIF	LM Aero		2.800	Jun-06	6.696	Jan-07	2.870	Jan-08			Continuing	TBD	
Mode 5 IFF for CAF Aircraft (Blk 50/52)	CPIF	LM AERO					Jan-07	2.130	Jan-08	6.000	Jan-09	Continuing	TBD	
MMC Upgrade Development	FFP/CPIF	LM Aero		10.057	Mar-06	5.507	Jan-07	1.651	Jan-08	1.572	Jan-09	Continuing	TBD	
EMD HW	T&M, FFP	LM Aero		0.750	Sep-06	0.100	Mar-07	0.500	Mar-08	0.500	Mar-09	Continuing	TBD	
EGI/INS Development	FFP	Northrop Grumman		3.693	Jan-06	3.190	Jan-07	0.910	Jan-08	0.303	Jan-09	Continuing	TBD	
Secure Line of Sight	FFP/CPIF	LM Aero		9.500									9.500	
Blk 30 JHMCS	FFP/CPIF	LM Aero				1.600	Mar-07						1.600	
Reprogramming for OSD OMNIBUS				1.100		13.458							14.558	
Subtotal Product Development			0.000	101.757		127.195		65.221		83.694		Continuing	TBD	0.000
Remarks:														
<u>(U) Support</u>														
Subtotal Support			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Test & Evaluation</u>														
Flight Tests	T&M/CPF	LM Aero/												
	F, Organic	Edwards AFB		22.725	Jan-06	24.802	Dec-06	25.399	Dec-07	30.149	Dec-08	Continuing	TBD	
Subtotal Test & Evaluation			0.000	22.725		24.802		25.399		30.149		Continuing	TBD	0.000
Remarks:														
<u>(U) Management</u>														
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Rescission</u>														
Total Cost			0.000	124.482		151.997		90.620		113.843		Continuing	TBD	0.000
Remarks:														

R-1 Line Item No. 130

Page-6 of 8

Project 2671

Exhibit R-3 (PE 0207133F)

Exhibit R-4, RDT&E Schedule Profile

DATE
February 2007

BUDGET ACTIVITY
07 Operational System Development

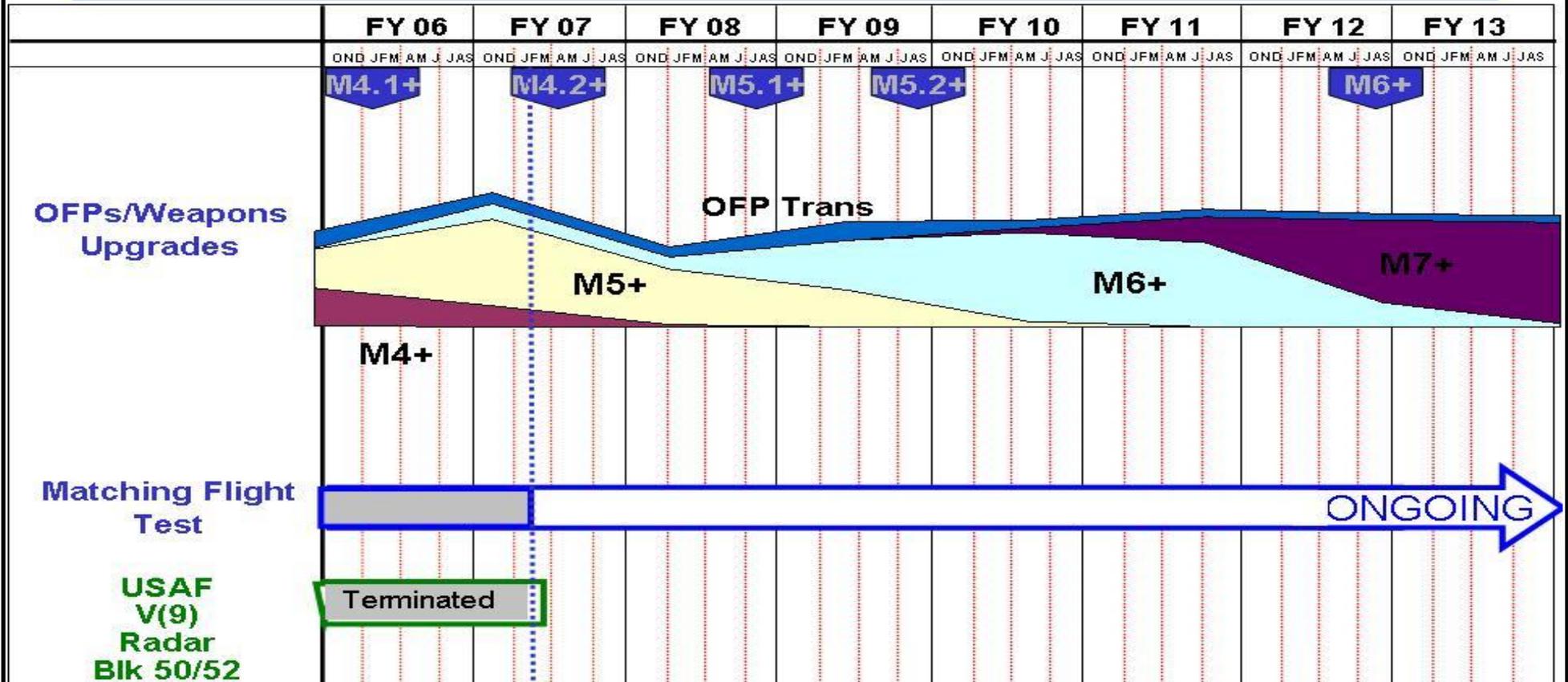
PE NUMBER AND TITLE
0207133F F-16 SQUADRONS

PROJECT NUMBER AND TITLE
2671 F-16 Squadrons



F-16 Program Schedule - USAF

U.S. AIR FORCE



UNCLASSIFIED

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
--	------------------------------

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207133F F-16 SQUADRONS	PROJECT NUMBER AND TITLE 2671 F-16 Squadrons
--	--	---

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Schedule Profile				
(U) Flight Test Continuous, no end date	1-4Q	1-4Q	1-4Q	1-4Q
(U) OFP Development, continuous	1-4Q	1-4Q	1-4Q	1-4Q
(U) OFP Transition, continuous	1-4Q	1-4Q	1-4Q	1-4Q
(U) ALR-56M, continous	1-4Q	1-4Q	1-4Q	1-4Q
(U) Weapons Integration, continous	1-4Q	1-4Q		
(U) AN/APG-68(V)10 (Terminated Notice, Negotiated)	1Q	2Q		
(U) Mode S IFF for CAF Aircraft	3-4Q	1-4Q	1-4Q	
(U) Mode 5 IFF for CAF Aircraft			2-4Q	1-4Q
(U) EMD Hardware (contiuous)/MMC Development Development	1-4Q	1-4Q	1-4Q	1-4Q
(U) EGI/INS Development	1-4Q	1-4Q	1-4Q	1Q
(U) Secure Line of Sight (SLOS) Blk 50 development complete			1Q	
(U) Blk 30 JHMCS		2Q	1-4Q	