

UNCLASSIFIED

PE NUMBER: 0604800F
 PE TITLE: Joint Strike Fighter EMD

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2008
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604800F Joint Strike Fighter EMD
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Cost (\$ in Millions)	FY 2007 Actual	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	2,074.021	1,991.537	1,524.016	1,132.458	779.303	966.018	728.031	0.000	9,103.893
3831 Joint Strike Fighter	2,074.021	1,991.537	1,524.016	1,132.458	779.303	966.018	728.031	0.000	9,103.893

(U) A. Mission Description and Budget Item Justification

The Joint Strike Fighter (JSF) program will develop and deploy a family of highly common, affordable next generation, stealthy, multi-role strike fighter aircraft that meets the needs of the USN, USAF, USMC and allies with maximum commonality among the variants, consistent with National Disclosure Policy, to minimize life cycle costs. This is a joint program with no executive service. Navy and Air Force each provide approximately equal shares of annual funding to the program. The United Kingdom and seven other international countries are participants in the JSF program.

This program is funded under System Development and Demonstration (SDD) because it encompasses system development and demonstration of new end items prior to a production approval decision.

Quantity of 13 RDT&E articles reflect flight test articles (including one asset in FY06, 6 in FY08, and 12 in FY09); 6 ground test articles are also budgeted in SDD which includes total program quantities for Navy and AF.

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

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	2,132.924	1,780.874	1,541.202
(U) Current PBR/President's Budget	2,074.021	1,991.537	1,524.016
(U) Total Adjustments	-58.903		
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings	-2.632		
SBIR/STTR Transfer	-56.271		

(U) Significant Program Changes:

Note: Congressional add in FY08 for F-136 Alternate Engine, Production Affordability Initiatives and Information Assurance, and Small Business Technology Insertion.

Exhibit R-2a, RDT&E Project Justification

DATE

February 2008

BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
05 System Development and Demonstration (SDD)				0604800F Joint Strike Fighter EMD			3831 Joint Strike Fighter		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
3831 Joint Strike Fighter	2,074.021	1,991.537	1,524.016	1,132.458	779.303	966.018	728.031	0.000	9,103.893
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

The Joint Strike Fighter (JSF) program will develop and deploy a family of highly common, affordable next generation, stealthy, multi-role strike fighter aircraft that meets the needs of the USN, USAF, USMC and allies with maximum commonality among the variants, consistent with National Disclosure Policy, to minimize life cycle costs. This is a joint program with no executive service. Navy and Air Force each provide approximately equal shares of annual funding to the program. The United Kingdom and seven other international countries are participants in the JSF program.

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(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue System Development and Demonstration SDD execution of the Air System, with Lockheed Martin including International Commonality Effort (ICE) which includes airframe, vehicle systems, mission systems, autonomic logistics, systems engineering and integrated test efforts.	3,409.493	2,677.102	2,118.409
(U) Continue SDD execution of the F135 Propulsion System, with Pratt & Whitney using (ICE) which includes engine testing, autonomic logistics, integration and performing technology maturation efforts.	754.246	715.000	439.000
(U) Continue the Fighter Engineering Team (General Electric/Rolls Royce) F136 development for a second, interchangeable, JSF engine for competition in production (previously begun in associated program elements 0603800N and 0603800F). Efforts include technology maturation, engine testing, autonomic logistics and integration. Out-year funds beginning with FY07 were eliminated during the PB 07 budget cycle; however, Congressional Add actions restored \$340M to program in FY07 and \$480M in FY08.	341.290	480.000	0.000
(U) Continue SDD Systems Engineering (SE) including systems operations requirements analysis, program integration, requirements integration, and interoperability support. Government Development Test and Evaluation (DT&E) continues in support of first flight of test aircraft. Elements of DT&E include preparation for flight testing, weapons integration testing, and Program Introduction Documents (PIDs). Continue SDD Support efforts for airframe, air vehicle systems, mission systems, weapons integration, mission support, and autonomic logistics development activities. Continue management support services, travel, engineering technical services, and studies analyses and evaluations in support of program objectives.	378.733	461.176	692.599
(U) Total Cost	4,883.762	4,333.278	3,250.008

Exhibit R-2a, RDT&E Project Justification

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604800F Joint Strike Fighter EMD

PROJECT NUMBER AND TITLE

3831 Joint Strike Fighter

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

FY 2007

FY 2008

FY 2009

Note: Total cost includes USN and International partner contributions in addition to USAF funding. Exhibit R-2 data reflects USAF funding only.

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

	<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>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) USN RDT&E	2109.426	1862.541	1502.947	1000.185	1018.629	716.176	644.583		8,854.487
(U) USN RDT&E - JRC		5.505	29.801	28.489	35.305	20.535	12.961		132.596
(U) Int'l Partner Funding	700.315	479.200	223.045	171.450	144.030	16.900	9.300		1,744.240
(U) USN PROCUREMENT	124.498	1223.834	1860.898	3334.394	3201.247	5384.432	5262.819	64,286.790	84,678.912
(U) USAF PROCUREMENT	647.771	1449.136	1896.384	2437.298	3514.821	4872.043	5178.132	151,743.399	20,146.585
(U) USN Other Procurement		0.855	2.981	6.142	6.225	6.127	5.732	12.238	40.300
(U) USN Initial Spares and Repair Parts	0.000	0.000	35.128	230.912	174.837	255.853	350.513	4,050.389	1,051.243
(U) USAF Initial Spares and Repair Parts	76.067	37.039	86.576	122.608	228.791	358.581	376.115	11,239.842	12,525.619
(U) USN MILCON	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
(U) USAF MILCON 0207142F	0.000	74.300	22.100	95.743	164.795	33.267	75.952		466.157

This is a joint program with no executive service. Service Acquisition Executive (SAE) authority alternates between the Department of the Navy and the Department of the Air Force and currently resides with the Navy. Program Element 0604800N continues USN development efforts budgeted in 0603800N prior to FY2002. The United Kingdom and other International countries are participants in the SDD phase of JSF.

Note: The USAF PROCUREMENT line includes all JSF funding in Budget Activities 01 and 06. USAF Initial Spares and Repair Parts is a subset of USAF PROCUREMENT. USN Initial Spares and Repair Parts is a subset of USN PROCUREMENT. International Partner Funding includes funds provided under the Italy and Netherlands Bilateral agreements. Special Memorandum of Understanding provisions exist for those two countries to pursue country unique requirements.

RELATED RDT&E: Funding prior to JSF SDD (FY94-FY01): USN PE 0603800N \$1,950,617; USAF PE 0603800F \$1,907,352; DARPA PE 0603800E \$118,056; and International Partner contributions of \$253.921 for a total of \$4,229,896.

Procurement and Spares Cost to Complete is based on SAR-06 cost model and will be updated again when SAR-07 numbers are released in Apr-08.

(U) **D. Acquisition Strategy**

Activities in the prior phase of JSF centered around three distinct objectives to provide a sound foundation for the start of System Development & Demonstration (SDD) in Fall 2001:

Exhibit R-2a, RDT&E Project Justification

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604800F Joint Strike Fighter EMD

PROJECT NUMBER AND TITLE

3831 Joint Strike Fighter

- (1) facilitated the Services' development of fully validated, affordable operational requirements;
- (2) lowered risk by investing in and demonstrating key leveraging technologies that lowered the cost of development, production and ownership; and
- (3) demonstrated operational concepts.

Early warfighter and technologist interaction was an essential aspect of the requirements definition process and achieved JSF affordability goals. To an unprecedented degree, the JSF Program used cost-performance trades early, as an integral part of the weapon system development process. The Services defined requirements through an iterative process, balancing weapon system capability against life cycle cost (LCC) at every stage. Each iteration of the requirements was provided to industry. They evolved their designs and provided cost data back to the warfighters. The warfighters evaluated trades and made decisions for the next iteration. This iterative process produced iterations of the Services' Joint Interim Requirements Documents in 1995, 1997, 1998 and culminated in the approved joint Operational Requirements Document (ORD) in FY2000.

A sizable technology maturation effort was conducted to reduce risk and LCC through technology maturation and demonstrations. The primary emphasis was on technologies identified as high-payoff contributors to affordability, supportability, survivability and lethality. Numerous demonstrations were accomplished to validate performance and LCC impact to component, subsystem and the total system.

In November 1996, contracts were awarded to Boeing and Lockheed Martin for Concept Demonstration Programs. These competing contractors built and flew concept demonstrator aircraft, conducted concept unique ground demonstrations, and refined their respective weapon system concepts. Specifically, Boeing and Lockheed Martin demonstrated commonality and modularity, Short Take Off Vertical Landing (STOVL) hover and transition, and low speed handling qualities of their respective weapon system concepts. Pratt and Whitney provided propulsion hardware and engineering support. General Electric continued development of a second, interchangeable engine for competition in production.

Following evaluation of proposals and a favorable Milestone B decision, the JSF Program entered SDD on 26 October 2001 with SDD contract awards to Lockheed Martin and Pratt & Whitney. The SDD plan reflects a block approach, based on open systems architecture, for accomplishing aircraft and weapons integration. General Electric continues propulsion development efforts through FY08 when program funding ends.

The updated JSF Acquisition Strategy and program schedule were approved following the May 05 DAB. APR 06 DAB authorized full funding for LRIP I procurement.

DoN Advance Procurement funding was awarded during FY07 in support of the DoN's FY 08 aircraft procurement. USAF regular procurement funding for LRIP I JSF aircraft was placed on contract in FY07; USAF Advanced Procurement funding was awarded during FY06. USAF Advanced Procurement funding for LRIP II was awarded during FY07.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2008

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)				0604800F Joint Strike Fighter EMD					3831 Joint Strike Fighter			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2007 Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
Lockheed Martin	C/CPAF	Ft. Worth, TX	14,212.404	3,407.144	Oct-06	2,677.102	Oct-07	2,118.409	Oct-08	4,809.758	27,224.817	25,904.288
Lockheed Martin	SS/BOA	Ft. Worth, TX	5.630	0.000							5.630	5.630
Lockheed Martin	SS/IDIQ	Ft. Worth, TX	15.824	2.349							18.173	18.213
Pratt & Whitney	SS/CPAF	Hartford, CT	4,100.154	754.221	Oct-06	715.000	Oct-07	439.000	Oct-08	385.000	6,393.376	5,901.589
Pratt & Whitney	SS/BOA/ID IQ	Hartford, CT	50.669	0.025							50.694	50.718
General Electric	SS/CPAF	Cincinnati, OH	382.753	0.000							382.753	382.753
General Electric	SS/BOA	Cincinnati, OH	5.548	0.800							6.348	6.348
General Electric	SS/IDIQ/Tr ansition/Pha se III	Cincinnati, OH	109.850	0.000							109.850	109.850
General Electric	SS/CPAF	Cincinnati, OH	443.728	340.490	Oct-06	480.000	Oct-07				1,264.218	2,489.889
Systems Engineering		Various	121.126	56.676	Oct-06	42.711	Oct-07	34.551	Oct-08	150.247	405.311	
Subtotal Product Development			19,447.686	4,561.705		3,914.813		2,591.960		5,345.005	35,861.170	TBD
Remarks:												
(U) <u>Support</u>												
AFBTC/Eglin	Various	Various	32.693	13.622	Oct-06	9.620	Oct-07	18.056	Oct-08	28.692	102.682	
ASC/AFRL	Various	Wright Patterson AFB	21.970	6.733	Oct-06	4.802	Oct-07	8.180	Oct-08	15.540	57.226	
Bolling AFB	Various	Bolling AFB, DC	0.375	4.190	Oct-06	4.141	Oct-07	1.107	Oct-08	2.074	11.888	
DMEA	Various	Wright Patterson AFB	0.673	5.049	Oct-06	12.226	Oct-07	0.000	Oct-08	0.000	17.947	
ESC	Various	Hanscom AFB, MA	5.455	0.510	Oct-06	2.746	Oct-07	1.725	Oct-08	0.696	11.132	
AEDC/Fuel	Various	Various	12.431	53.220	Oct-06	76.034	Oct-07	123.954	Oct-08	106.944	372.584	
Jacksonville	Various	Jacksonville, FL	0.916	1.681	Oct-06	1.736	Oct-07	3.062	Oct-08	5.820	13.214	
Miscellaneous	Various	Various	82.732	18.358	Dec-06	29.916	Oct-07	54.513	Oct-08	90.290	275.809	
NAWC China Lake	Various	Various	40.944	16.875	Dec-06	17.592	Dec-07	37.578	Dec-08	71.046	184.036	
Other	Various	Various	80.745	0.000		0.000		0.000		0.000	80.745	
NAWC TSD	Various	Various	1.373	2.311	Dec-06	0.000	Dec-07	5.034	Dec-08	9.646	18.364	
NAWC Patuxent River	Various	Patuxent River, VA	138.389	54.602	Dec-06	54.278	Dec-07	106.860	Dec-08	192.834	546.962	
NSWC	Various	Various	0.845	1.402	Dec-06	0.970	Dec-07	2.156	Dec-08	4.080	9.453	
SPAWAR	Various	Various	2.059	2.905	Dec-06	4.183	Dec-07	5.333	Dec-08	10.123	24.603	
Subtotal Support			421.600	181.459		218.243		367.558		537.786	1,726.645	0.000
Remarks:												

R-1 Line Item No. 81

Page-5 of 8

Project 3831

Exhibit R-3 (PE 0604800F)

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2008

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
05 System Development and Demonstration (SDD)				0604800F Joint Strike Fighter EMD				3831 Joint Strike Fighter				
NAWC Patuxent	Various	NAWC Patuxent	70.102	24.022	Oct-06	57.000	Oct-07	97.000	Oct-08	384.217	632.341	
Edwards AFB	Various	Edwards AFB	74.682	31.752	Oct-06	49.550	Oct-07	88.100	Oct-08	403.250	647.335	
Other (including Classified PIDs)	Various	Various	26.733	9.541	Oct-06	4.965	Oct-07	29.165	Oct-08	139.260	209.664	
NAWC China Lake	Various	NAWC China Lake	23.941	4.498	Oct-06	8.730	Oct-07	8.779	Oct-08	32.815	78.764	
WEPS/Eglin	Various	Eglin AFB	15.928	17.049	Oct-06	20.055	Oct-07	0.415	Oct-08	7.300	60.748	
JITC	Various	Various	0.150	0.240	Oct-06	0.300	Oct-07	1.497	Oct-08	13.383	15.570	
OT - AFOTEC/AFFTC	Various	Various	3.468	7.485	Oct-06	4.500	Oct-07	4.200	Oct-08	120.800	140.453	
OT - JITC/OPTEV	Various	Various	0.727	0.819	Oct-06	3.900	Oct-07	3.600	Oct-08	121.200	130.246	
Subtotal Test & Evaluation			215.732	95.407		149.000		232.756		1,222.225	1,915.121	0.000
Remarks:												
(U) <u>Management</u>												
Stanley	SS/CPFF	Arlington, VA	57.897	13.731	Oct-06	16.382	Oct-07	16.228	Oct-08	53.715	157.953	
Mantech	SS/CPFF	Arlington, VA	14.800	5.700	Dec-06	6.942	Dec-07	7.000	Dec-08	32.000	66.442	
Anteon/Sverdrup	C/CPAF	Arlington, VA	20.006	10.889	Dec-06	12.070	Dec-07	13.550	Dec-08	44.851	101.367	
Wyle/AI-ES	SS/CPFF	Arlington, VA	22.193	10.328	Dec-06	11.488	Dec-07	10.308	Dec-08	46.648	100.965	
Program Management Support	Various	Arlington, VA	13.464	4.543	Oct-06	4.340	Oct-07	10.649	Oct-08	44.832	77.829	
Subtotal Management			128.361	45.191		51.222		57.734		222.047	504.556	0.000
Remarks:												
(U) Total Cost			20,213.378	4,883.762		4,333.278		3,250.008		7,327.063	40,007.492	TBD
Remarks: Prior Years reflect \$8,687,837 USAF/\$8,714,470 USN/2,811,071 International/Total \$20,213,378												
FY 2007 reflects \$2,074,021 USAF/\$2,109,426 USN/\$700,315 International/Total \$4,883,762												
FY 2008 reflects \$1,991,537 USAF/\$1,862,541 USN/\$479,200 International/Total \$4,333,278												
FY 2009 reflects \$1,524,016 USAF/\$1,502,947 USN/\$223,045 International/Total \$3,350,008												

NOTE: Totals may not add correctly due to rounding.

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

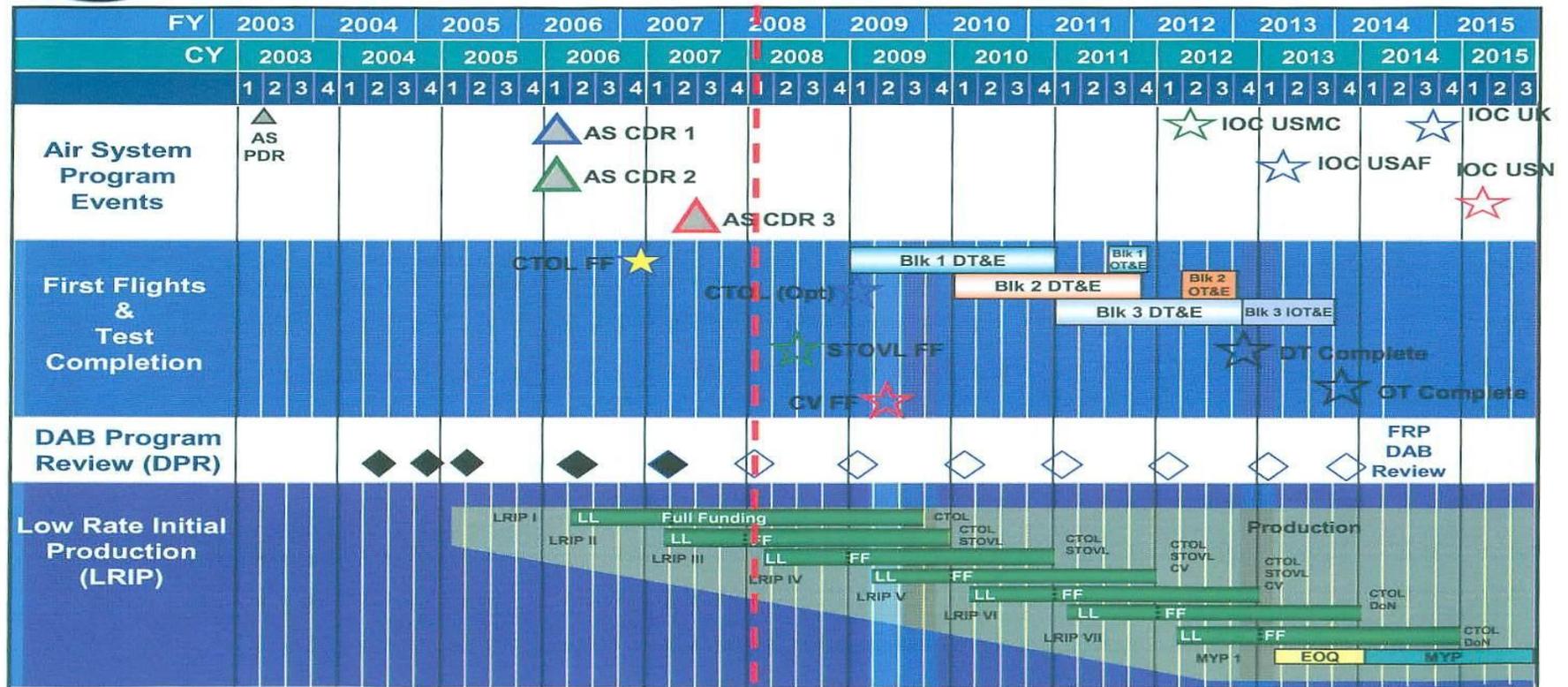
BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604800F Joint Strike Fighter EMD

PROJECT NUMBER AND TITLE
3831 Joint Strike Fighter



JSF Top-Level SDD Program Schedule



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1

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604800F Joint Strike Fighter EMD

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3831 Joint Strike Fighter

(U) <u>Schedule Profile</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) DAB Program Review (DPR)	2Q	2Q	2Q
(U) Critical Design Reviews (CDR 1&2 FY06, CDR 3 FY07)	3Q		
(U) F-35A Conventional Takeoff and Landing (CTOL) First Flight	1Q		
(U) F-35B Short Take Off and Vertical Landing (STOVL) First Flight		3Q	
(U) F-35A CTOL (Optimized Design) First Flight			1Q
(U) F-35C Carrier Variant (CV) First Flight			3Q