Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-198

F-35

As of December 31, 2010

Defense Acquisition Management
Information Retrieval
(DAMIR)

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Program Information

Designation And Nomenclature (Popular Name)

F-35 Lightning II

DoD Component

DoD

Joint Participants

United States Navy (USN); United States Air Force (USAF); Canada; The Netherlands; Italy; Turkey; Australia; United States Marine Corps (USMC); Defense Advanced Research Projects Agency (DARPA); United Kingdom; Denmark; Norway

The F-35 Program is a joint DoD program for which Service Acquisition Executive (SAE) Authority alternates between the Department of the Navy and the Department of the Air Force, and currently resides with the Air Force.

Responsible Office

Responsible Office

VADM David Venlet
F-35 Lightning II Program Office
200 12th St South
Suite 600
Arlington, VA 22202-5402
david.venlet@jsf.mil

Phone 703-601-5504
Fax 703-602-7649
DSN Phone 329-5504
DSN Fax --

Date Assigned May 1, 2010

References

SAR Baseline (Development Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated October 26, 2001

Mission and Description

The F-35 Joint Strike Fighter (JSF) Program will develop and field an affordable, highly common family of next-generation strike aircraft for the United States Navy, Air Force, Marine Corps and allies. The three variants are the F-35A Conventional Takeoff and Landing (CTOL); F-35B Short Takeoff and Vertical Landing (STOVL); and the F-35C Aircraft Carrier suitable Variant (CV). The CTOL will be a stealthy multi-role aircraft, primary air-to-ground for the Air Force to replace the F-16 and A-10 (Service intent) and complement the F-22. The STOVL variant will be a multi-role strike fighter aircraft to replace the AV-8B and F/A-18A/C/D for the Marine Corps, and replace the AV-8 currently employed by the Italian Navy. The CV will provide the Navy a multi-role, stealthy strike fighter aircraft to complement the F/A-18E/F and replace the Sea Harrier and GR 7 for the United Kingdom and Royal Air Force.

Executive Summary

The F-35 Program has completed over nine years of System Development and Demonstration (SDD), and issued procurement contracts for four lots of Low Rate Initial Production (LRIP) aircraft. The program continues technical progress focused on developing, and delivering to the warfighter, incremental blocks of increasing capability. As of February 15, 2011, fifteen SDD jets (ten flight test and five ground test) have been delivered to the Test Program. Three SDD flight test, two LRIP I, and five LRIP II jets are on the Fort Worth, Texas flight line preparing for delivery. There are also thirty-eight aircraft in assembly build (seven LRIP II and eight LRIP III) and fabrication (nine LRIP III and fourteen LRIP IV). The first Carrier Variant (CV) flight test jet, CF-1, initially flew in June 2010. Nine test jets (AF-1, AF-2, AF-3, AF-4, BF-1, BF-2, BF-3, BF-4, and CF-1) accumulated 800 total flight test hours through February 16, 2011. Extensive structural static testing has been completed without incident, and matching predictions - static testing for Short Takeoff and Vertical Landing (STOVL) and Conventional Takeoff and Landing (CTOL) are 100% complete and CV static testing has advanced to Phase two of four phases. Approximately 81% of deliverable software (20M out of 24M Software Lines of Code) is developed, through unit test, and under developmental configuration management. Mission systems hardware/software components are flying according to the block development plan. Systems integration testing continues to mature the Block 1 capabilities of the air system via F-35 mission systems test aircraft, the Cooperative Avionics Test Bed, and extensive lab testing involving a robust simulated environment. As of February 14, 2011, the F135 engine development program has completed 12,136 hours of testing on ground-test engines, 4,229 hours on flight-test engines, and a total of 800 hours of flight testing on all three variants of F-35 aircraft. In 2010, the F135 propulsion contractor delivered the final Flight Test Engine and the first twelve production engines, which includes all the LRIP I engines and some from LRIP II. Also in 2010, six F136 engines were tested and accumulated 923 ground test hours. The F136 engine program has completed a total of 1,141 hours of testing on SDD ground-test engines. Current estimates for all Key Performance Parameters (KPP) are within threshold requirements with the exception of the CTOL Combat Radius KPP.

In April 2010, the Secretary of the Air Force notified Congress that the F-35 Program was in a critical Nunn-McCurdy breach. On June 2, 2010, the Under Secretary of Defense for Acquisition, Technology and Logistics issued an Acquisition Decision Memorandum (ADM) certifying the F-35 Program in accordance with section 2433a of title 10, United States Code. As required by section 2433a, of title 10, Milestone (MS) B was rescinded. A Defense Acquisition Board (DAB) was held in November 2010. Prior to the DAB, the F-35 Program Executive Officer commissioned a Technical Baseline Review (TBR) to help determine the resources in time and money required to complete SDD. The TBR team consisted of 120 subject matter experts from the Aeronautical Systems Center, Naval Air Systems Command, and the Office of the Secretary of Defense. At the same time, a Manufacturing Review Team (MRT) conducted a separate audit of the contractor’s ability to produce aircraft and their ability to ramp up production efforts. No decision was rendered at the November 2010 DAB. In January 2011, the Secretary of Defense announced program decisions based on the TBR results; these decisions include adding $4.6B to the SDD program, extending the schedule for SDD, de-coupling testing of the STOVL from the CV and CTOL versions, placing the STOVL variant on a two-year probationary period, and slowing production of the F-35 by reducing the aircraft buys by 124 jets over the Future Years Defense Plan. The Secretary also announced that the program is completing a Technology Readiness Assessment on the Helmet Mounted Display and awaiting an Independent Cost Estimate before returning for a milestone review scheduled for May 2011. Currently, cumulative cost and schedule pressures result in a critical Nunn-McCurdy breach to both the original (2001) and current (2007) baseline for both the Program Acquisition Unit Cost (PAUC) and Average Procurement Unit Cost (APUC). The breach is currently reported at 78.23% for the PAUC and 80.66% for the APUC against the original baseline and 27.34% for the PAUC and 31.23% for the APUC against the current baseline; these increased costs reflect the comprehensive program restructure occurring as a result of the TBR, the MRT review and the department-wide review that occurred in 2010. These breach values were reported as part of the 2010 Nunn-McCurdy and new calculations will be completed against the new Acquisition Program Baseline (APB) currently being updated for the MS B review scheduled to occur in May 2011.

The F-35 remains the Department of Defense's largest cooperative program, with eight International Partners participating with the U.S. under Memorandums of Understanding for SDD and for Production, Sustainment and Follow-on Development. Israel signed a Letter of Offer and Acceptance in October 2010, becoming the first Foreign

Military Sale (FMS) for the F-35 Program.

The program restructure described above includes additional funding and time to address software risk and flight test.

The program definitized the LRIP IV contract in November 2010 for the airframe. This contract included the purchase of thirty-one aircraft to include one for the United Kingdom along with the option for the Nethlerlands to purchase one aircraft.

This program will submit an Exception SAR to Congress in the quarter immediately following the MS B review and the approval of the updated APB. A new subprogram APB will be developed in Fall 2011 to support a subprogram SAR in December 2011.

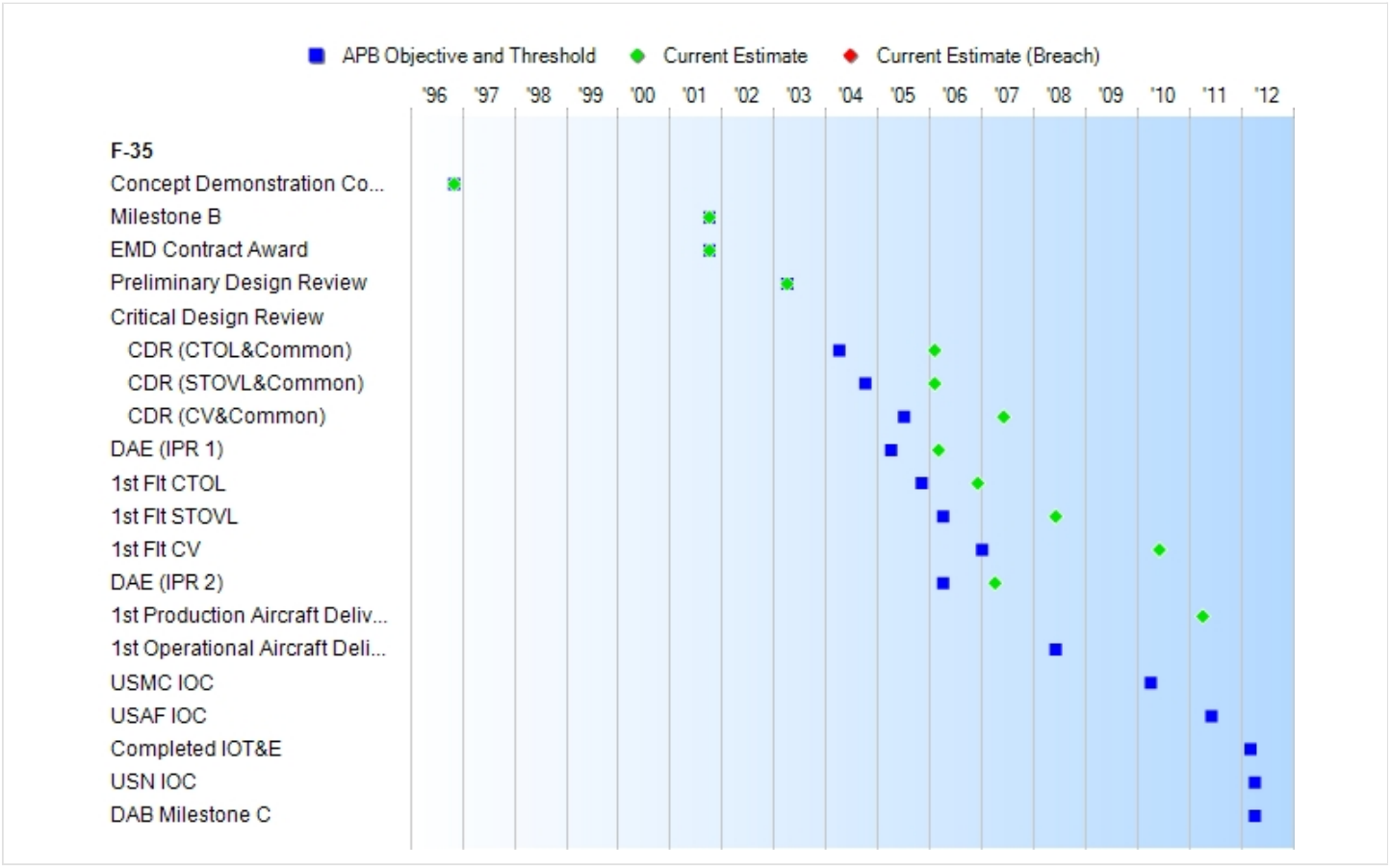
On March 24, 2011, a stop-work order was issued by the F-35 Primary Contracting Officer (PCO) to the General Electric/Rolls Royce Fighter Engine Team, Limited Liability Company on the F136 System Demonstration and Development contract. This stop-work order is in effect for a maximum of 90 days through June 22, 2011 unless recscinded by the PCO, but may be extended upon mutual agreement by both parties.

Threshold Breaches

APB Breaches		
Schedule		☐
Performance		☐
Cost	RDT&E	☐
	Procurement	☐
	MILCON	☐
	Acq O&M	☐
Unit Cost	PAUC	☐
	APUC	☐

Nunn-McCurdy Breaches		
Current UCR Baseline		
	PAUC	None
	APUC	None
Original UCR Baseline		
	PAUC	None
	APUC	None

Schedule


APB Objective and Threshold
Current Estimate
Current Estimate (Breach)
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
'09
'10
'11
'12
F-35
Concept Demonstration Co...
Milestone B
EMD Contract Award
Preliminary Design Review
Critical Design Review
CDR (CTOL&Common)
CDR (STOVL&Common)
CDR (CV&Common)
DAE (IPR 1)
1st Flt CTOL
1st Flt STOVL
1st Flt CV
DAE (IPR 2)
1st Production Aircraft Deliv...
1st Operational Aircraft Deli...
USMC IOC
USAF IOC
Completed IOT&E
USN IOC
DAB Milestone C

Milestones	SAR Baseline Dev Est	Current APB Objective/Threshold		Current Estimate	
Concept Demonstration Contract Award	NOV 1996	N/A	N/A	NOV 1996	
Milestone B	OCT 2001	N/A	N/A	OCT 2001	
EMD Contract Award	OCT 2001	N/A	N/A	OCT 2001	
Preliminary Design Review	APR 2003	N/A	N/A	APR 2003	
Critical Design Review					
CDR (CTOL&Common)	APR 2004	N/A	N/A	FEB 2006	
CDR (STOVL&Common)	OCT 2004	N/A	N/A	FEB 2006	
CDR (CV&Common)	JUL 2005	N/A	N/A	JUN 2007	
DAE (IPR 1)	APR 2005	N/A	N/A	MAR 2006	
1st Flt CTOL	NOV 2005	N/A	N/A	DEC 2006	
1st Flt STOVL	APR 2006	N/A	N/A	JUN 2008	
1st Flt CV	JAN 2007	N/A	N/A	JUN 2010	(Ch-1)
DAE (IPR 2)	APR 2006	N/A	N/A	APR 2007	
1st Production Aircraft Delivered	N/A	N/A	N/A	APR 2011	(Ch-2)
1st Operational Aircraft Delivered	JUN 2008	N/A	N/A	N/A	
USMC IOC	APR 2010	N/A	N/A	TBD	(Ch-3)
USAF IOC	JUN 2011	N/A	N/A	TBD	(Ch-3)
Completed IOT&E	MAR 2012	N/A	N/A	TBD	(Ch-4)
USN IOC	APR 2012	N/A	N/A	TBD	(Ch-3)
DAB Milestone C	APR 2012	N/A	N/A	TBD	(Ch-5)

Acronyms And Abbreviations

CDR - Critical Design Review
CTOL - Conventional Takeoff and Landing
CV - Aircraft Carrier Suitable Variant
DAB - Defense Acquisition Board
DAE - Defense Acquisition Executive
EMD - Engineering and Manufacturing Development
Flt - Flight
IOC - Initial Operational Capability
IOT&E - Initial Operational Test and Evaluation
IPR - Interim Progress Review
STOVL - Short Takeoff and Vertical Landing
USAF - United States Air Force
USMC - United States Marine Corps
USN - United States Navy

Change Explanations

(Ch-1) 1st Flight Aircraft Carrier Suitable Variant changed from May 2010 to June 2010 to reflect the actual 1st flight date.

(Ch-2) 1st Production Aircraft Delivered changed from October 2010 to April 2011 as a result of manufacturing delays.

(Ch-3) The Services are currently reviewing their Initial Operational Capabilities (IOCs) based on the restructured F-35 Program. The IOC's are determined by the Services based on both the program's performance and how the Services define IOC. Each Service has a somewhat different definition, depending on what capabilities they intend to have at IOC.

(Ch-4) Initial Operational Test and Evaluation (IOT&E) Completion is still under review by the Services.

(Ch-5) The Defense Acquisition Board Milestone C date is yet to be determined pending IOT&E completion date.

Performance

Characteristics	SAR Baseline Dev Est	Current APB Objective/Threshold		Demonstrated Performance	Current Estimate	
STOVL Mission Performance	Execute 550 ft STO with 4 JDAM (2 external & 2 internal), 2 AIM -120 (internal), fuel to fly 550 nm	N/A	N/A	TBD	Execute 544 ft. STO with 2 JDAM (internal), 2 AIM-120 (internal), fuel to fly 450nm	(Ch-2)
Combat Radius NM - CTOL Variant	690	N/A	N/A	TBD	584	(Ch-1)
Combat Radius NM - STOVL Variant	550	N/A	N/A	TBD	469	(Ch-2)
Combat Radius NM -CV Variant	730	N/A	N/A	TBD	615	(Ch-2)
Internal Weapons Carriage - CTOL Variant	Sufficient bay volume to load, carry & employ objective Annex A weapons	N/A	N/A	TBD	Sufficient bay volume to load, carry & employ threshold Annex A weapons	
Internal Weapons Carriage - STOVL Variant	Sufficient bay volume to load, carry & employ objective Annex A weapons	N/A	N/A	TBD	Sufficient bay volume to load, carry & employ threshold Annex A weapons	
Internal Weapons Carriage - CV Variant	Sufficient bay volume to load, carry & employ objective Annex A weapons	N/A	N/A	TBD	Sufficient bay volume to load, carry & employ threshold Annex A weapons	
Radio Frequency (RF) Signature	See Classified Extract	N/A	N/A	TBD	Classified	
Logistic Footprint -CTOL Variant	Less than or equal to 6 C-17 equivalent loads	N/A	N/A	TBD	Less than or equal to 6.67 C-17 equivalent loads	

Logistic Footprint - STOVL Variant	Less than or equal to 4 C-17 equivalent loads	N/A	N/A	TBD	Less than or equal to 5.22 C-17 equivalent loads	
Logistic Footprint -CV Variant	Less than or equal to 46,000 cu ft, 183 Short Tons	N/A	N/A	TBD	Less than or equal to 29,407 cu ft, 164.4 Short Tons	
Sortie Generation Rate - CTOL Variant	4/day initial surge; 3/day sustained surge; 2/day Wartime Sustained based on ASD of 2.5	N/A	N/A	TBD	3.55/day initial surge; 3.30/day sustained surge; 1/day Wartime Sustained based on ASD of 2.5	
Sortie Generation Rate - CV Variant	4/day initial surge; 3/day sustained surge; 1/day Wartime Sustained based on ASD of 1.8	N/A	N/A	TBD	3.90/day initial surge; 2.88/day sustained surge; 1/day Wartime Sustained based on ASD of 1.8	
Sortie Generation Rate - STOVL Variant	6/day initial surge; 4/day sustained surge; 2/day Wartime Sustained based on ASD of 1.1	N/A	N/A	TBD	6.10/day initial surge; 5.55/day sustained surge; 1/day Wartime sustained based on ASD of 1.1	(Ch-2)
Interoperability	100% of all top level IERs	N/A	N/A	TBD	Less than 100% of critical top level IERs	
Mission Reliability	98% for all variants at ASD's listed in Table 13	N/A	N/A	TBD	98.4% for CV, 98.0% for STOVL & 97.1% for CTOL at ASD's	(Ch-2)

					listed in Table 13	
CV Recovery Performance, Approach Speed	Max approach speed (Vpa) at RCLW of less than 140 kts	N/A	N/A	TBD	Max approach speed (Vpa) at RCLW of less than approxi-mately 144.6 kts w/15 kts WOD at RCLW	(Ch-2)

Acronyms And Abbreviations

ASD - Average Sortie Duration
CTOL - Conventional Takeoff and Landing
CU FT - Cubic Feet
CV - Aircraft Carrier Suitable Variant
IER - Information Exchange Requirement
JDAM - Joint Direct Attack Munitions
KTS - Knots
NM - Nautical Miles
RCLW - Required Carrier Landing Weight
STO - Short Takeoff
STOVL - Short Takeoff and Vertical Landing
TBD - To be determined
Vpa - Max Approach Speed
WOD - Wind Over the Deck

Change Explanations

(Ch-1) Based on updated estimate of engine bleed, the existing Conventional Takeoff and Landing Variant's Combat Radius prediction of 584 nautical miles (nm) is below the threshold of 590 nm. The current prediction is based on estimates for bleed usage, aircraft performance, and fuel capacity that are not yet fully known. Current estimates have built-in margin that may not be realized. Non-material (analysis and test) measures continue to reduce key performance parameter (KPP) uncertainty. Realistic aircraft modifications to add fuel capacity exist to recapture the KPP. These design modifications are being matured to sufficient level to allow for a program decision on incorporation if the current estimate remains below threshold as uncertainty is reduced. This estimate is based on preliminary data. The Program is still in the data analysis stage.

(Ch-2) The current estimates changed from the December 2009 SAR due to design maturation.
Short Takeoff and Vertical Landing (STOVL) Mission Performance changed from 524 ft to 544 ft.
Combat Radius Nautical Miles (NM) - STOVL Variant changed from 481 to 469.
Combat Radius NM - Aircraft Carrier Suitable (CV) Variant changed from 651 to 615.
Sortie Generation Rate - STOVL changed from 3.36/day sustained surge to 5.55/day sustained surge.
Mission Reliability - CV changed from 97.8% to 98.4%, STOVL changed from 98.3% to 98.0%, and CTOL changed from 97.6% to 97.1%.
CV Recovery Performance, Approach Speed changed from 143.0 kts to 144.6 kts.

Track To Budget

General Memo

F-35 is DoD's largest cooperative development program. In addition to the above DoD funding lines, eight other International Partners are providing funding in the System Development and Demonstration (SDD) Phase under a Memorandum of Understanding (MOU): United Kingdom, Italy, the Netherlands, Turkey, Canada, Australia, Denmark, and Norway. All but Turkey and Australia were partners in the prior phase. Associated financial contributions are reflected in the Annual Funding section as Appropriation 9999, Research, Development, Test and Evaluation Non-Treasury Funds.

RDT&E

APPN 1319	BA 04	PE 0603800N	(Navy)	
		RDT&E, Navy CDP		(Sunk)
APPN 1319	BA 05	PE 0604800M	(Navy)	
	Project 2262	RDT&E, Marine Corps		
APPN 1319	BA 05	PE 0604800N	(Navy)	
	Project 2261	RDT&E, Navy EMD/JSF		
	Project 3194	RDT&E, Navy EMD/Joint Reprogramming Center		
	Project 9999	RDT&E, Navy EMD/Congressional Adds		
APPN 3600	BA 04	PE 0603800F	(Air Force)	
		RDT&E, Air Force CDP		(Sunk)
APPN 3600	BA 05	PE 0604800F	(Air Force)	
	Project 3831	RDT&E, Air Force EMD/Joint Strike Fighter Quantity of RDT&E Articles		
APPN 0400	BA 03	PE 0603800E	(DoD)	
		RDT&E, DARPA		(Sunk)

Research, Development, Test, and Evaluation cost excludes Follow-On Development Funding.

Procurement

APPN 1506	BA 01	PE 0204146N	(Navy)

	ICN 0147	JSF (Navy)		
APPN 1506	BA 01	PE 0204146M	(Navy)	
	ICN 0152	JSF (Marine Corps)		
APPN 1506	BA 06	PE 0204146M	(Navy)	
	ICN 0605	Initial Spares (Marine Corps)		
APPN 1506	BA 06	PE 0204146N	(Navy)	
	ICN 0605	Initial Spares (Navy)	(Shared)	
APPN 3010	BA 06	PE 0207142F	(Air Force)	
	ICN 000999	Initial Spares (Air Force)	(Shared)	
APPN 3010	BA 01	PE 0207142F	(Air Force)	
	ICN ATA000	JSF (Air Force)		
APPN 3010	BA 05	PE 0207142F	(Air Force)	
	ICN F03500	Mods (Air Force)		(Sunk)

MILCON

APPN 1205		PE 0212576N	(Navy)	
		MILCON, USN		
APPN 3300		PE 0207142F	(Air Force)	
		MILCON, AF		

Cost and Funding

Cost Summary

Total Acquisition Cost and Quantity

	BY $M			BY2002 $M	TY $M		
Appropriation	SAR Baseline Dev Est	Current APB Objective/Threshold		Current Estimate	SAR Baseline Dev Est	Current APB Objective	Current Estimate
RDT&E	32300.0	--	--	48385.8	34400.0	--	54396.7
Procurement	143300.0	--	--	221756.5	196600.0	--	324444.9
Flyaway	121215.6	--	--	186521.2	166349.7	--	274644.5
Recurring	116093.7	--	--	166535.1	159390.4	--	245980.9
Non Recurring	5121.9	--	--	19986.1	6959.3	--	28663.6
Support	22084.4	--	--	35235.3	30250.3	--	49800.4
Other Support	15403.4	--	--	20343.7	21109.3	--	27841.9
Initial Spares	6681.0	--	--	14891.6	9141.0	--	21958.5
MILCON	1500.0	--	--	457.4	2000.0	--	551.2
Acq O&M	0.0	--	--	0.0	0.0	--	0.0
Total	177100.0	--	--	270599.7	233000.0	--	379392.8

Research, Development, Test, and Evaluation cost excludes Follow-On Development Funding.

F-35 procurement cost reflects DoD cost only, but assumes the quantity benefits of 730 International Partner aircraft in accordance with the signed Production Sustainment and Follow-on Development (PSFD) Memorandum of Understanding (MOU). Procurement cost excludes Partner non-recurring cost shares required under the PSFD MOU.

Since the Services have not yet fully established F-35 basing plans, the Milestone (MS) B and approved Acquisition Program Baseline (APB) Military Construction (MILCON) estimates reflect a top-level parametric estimate, not discrete estimates for specific sites. The Current Estimate (CE) reflects specific MILCON requirements identified in the Fiscal Year 2012 President's Budget Future Years Defense Program. The MILCON CE will continue to be updated as the Services identify additional specific MILCON requirements in the MS B APB.

Quantity	SAR Baseline Dev Est	Current APB	Current Estimate
RDT&E	14	0	14
Procurement	2852	0	2443
Total	2866	0	2457

Procurement Quantities:
1763 - Air Force (Conventional Takeoff and Landing (CTOL) variant)
680 - Department of Navy (DoN) (Aircraft Carrier (CV) and Short Takeoff and Vertical Landing (STOVL) variants)
2443 - Total Department of Defense.

The October 2001 Milestone B procurement baseline for the DoN reflected 609 STOVL variants for the United States Marine Corps (USMC) and 480 CV variants for the United States Navy (USN) for a DoN total of 1089. Subsequently, the DoN Tactical Aviation (TACAIR) Integration Plan reduced total F-35 CV/STOVL procurement quantities to 680.

Compared to the Current Acquisition Program Baseline, the Current Estimate of 14 flight test aircraft quantity reflects the net decrease of 2 jets in accordance with the Fall 2007 Mid-Course Risk Reduction plan approved by the Undersecretary of Defense for Acquisitions, Technology and Logistics, and increase of 1 jet in accordance with the February 2010 program restructure.

Cost and Funding

Funding Summary

Appropriation and Quantity Summary
FY2012 President's Budget / December 2010 SAR (TY$ M)

Appropriation	Prior	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	To Complete	Total
RDT&E	41413.3	2450.1	2720.5	2583.4	2263.5	1733.1	1232.8	0.0	54396.7
Procurement	14084.6	7674.5	6948.9	7923.1	9829.7	11749.9	14290.4	251943.8	324444.9
MILCON	227.8	139.7	73.8	82.3	0.0	27.6	0.0	0.0	551.2
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2012 Total	55725.7	10264.3	9743.2	10588.8	12093.2	13510.6	15523.2	251943.8	379392.8
PB 2011 Total	56069.2	11902.5	12109.3	14119.7	14334.1	14657.4	13519.4	191541.3	328252.9
Delta	-343.5	-1638.2	-2366.1	-3530.9	-2240.9	-1146.8	2003.8	60402.5	51139.9

Research, Development, Test, and Evaluation (RDT&E) Non-Treasury Funds contains $4.8 billion of financial contributions under International Cooperative Agreements with the following international partners: United Kingdom, Canada, Denmark, The Netherlands, Norway, Italy, Turkey, and Australia (see annual funding section, APPN 9999).

An Independent Cost Estimate is currently being developed that will extend the RDT&E funds past FY 2016 to accomodate the development schedule extension.

Quantity	Undistributed	Prior	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	To Complete	Total
Development	14	0	0	0	0	0	0	0	0	14
Production	0	58	32	32	42	62	81	108	2028	2443
PB 2012 Total	14	58	32	32	42	62	81	108	2028	2457
PB 2011 Total	14	58	43	45	71	90	113	130	1893	2457
Delta	0	0	-11	-13	-29	-28	-32	-22	135	0

Cost and Funding

Annual Funding By Appropriation

Annual Funding TY$
1319 | RDT&E | Research, Development, Test, and Evaluation, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
1994	--	--	--	--	--	--	29.5
1995	--	--	--	--	--	--	98.3
1996	--	--	--	--	--	--	80.4
1997	--	--	--	--	--	--	243.3
1998	--	--	--	--	--	--	448.2
1999	--	--	--	--	--	--	471.3
2000	--	--	--	--	--	--	238.4
2001	--	--	--	--	--	--	341.2
2002	--	--	--	--	--	--	721.3
2003	--	--	--	--	--	--	1640.9
2004	--	--	--	--	--	--	2081.4
2005	--	--	--	--	--	--	2083.8
2006	--	--	--	--	--	--	2187.1
2007	--	--	--	--	--	--	2109.4
2008	--	--	--	--	--	--	1848.9
2009	--	--	--	--	--	--	1704.3
2010	--	--	--	--	--	--	1886.2
2011	--	--	--	--	--	--	1318.0
2012	--	--	--	--	--	--	1310.3
2013	--	--	--	--	--	--	1373.5
2014	--	--	--	--	--	--	1330.0
2015	--	--	--	--	--	--	1124.9
2016	--	--	--	--	--	--	871.7
Subtotal	**9**	**--**	**--**	**--**	**--**	**--**	**25542.3**

Annual Funding BY$
1319 | RDT&E | Research, Development, Test, and Evaluation, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2002 $M	Non End Item Recurring Flyaway BY 2002 $M	Non Recurring Flyaway BY 2002 $M	Total Flyaway BY 2002 $M	Total Support BY 2002 $M	Total Program BY 2002 $M
1994	--	--	--	--	--	--	32.5
1995	--	--	--	--	--	--	106.4
1996	--	--	--	--	--	--	85.6
1997	--	--	--	--	--	--	255.9
1998	--	--	--	--	--	--	467.5
1999	--	--	--	--	--	--	485.9
2000	--	--	--	--	--	--	242.2
2001	--	--	--	--	--	--	342.0
2002	--	--	--	--	--	--	715.7
2003	--	--	--	--	--	--	1604.7
2004	--	--	--	--	--	--	1980.2
2005	--	--	--	--	--	--	1931.8
2006	--	--	--	--	--	--	1966.1
2007	--	--	--	--	--	--	1851.1
2008	--	--	--	--	--	--	1593.6
2009	--	--	--	--	--	--	1451.5
2010	--	--	--	--	--	--	1588.2
2011	--	--	--	--	--	--	1094.6
2012	--	--	--	--	--	--	1071.6
2013	--	--	--	--	--	--	1104.9
2014	--	--	--	--	--	--	1052.1
2015	--	--	--	--	--	--	875.0
2016	--	--	--	--	--	--	666.7
Subtotal	**9**	**--**	**--**	**--**	**--**	**--**	**22565.8**

Research, Development, Test, and Evaluation cost excludes Follow-On Development Funding.

Annual Funding TY$
3600 | RDT&E | Research, Development, Test, and Evaluation, Air Force

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
1995	--	--	--	--	--	--	83.8
1996	--	--	--	--	--	--	81.3
1997	--	--	--	--	--	--	251.6
1998	--	--	--	--	--	--	444.3
1999	--	--	--	--	--	--	456.1
2000	--	--	--	--	--	--	249.1
2001	--	--	--	--	--	--	341.2
2002	--	--	--	--	--	--	712.4
2003	--	--	--	--	--	--	1610.6
2004	--	--	--	--	--	--	2019.9
2005	--	--	--	--	--	--	2080.1
2006	--	--	--	--	--	--	2264.8
2007	--	--	--	--	--	--	2074.0
2008	--	--	--	--	--	--	1955.0
2009	--	--	--	--	--	--	1742.1
2010	--	--	--	--	--	--	2033.5
2011	--	--	--	--	--	--	1043.6
2012	--	--	--	--	--	--	1387.9
2013	--	--	--	--	--	--	1198.3
2014	--	--	--	--	--	--	933.5
2015	--	--	--	--	--	--	608.2
2016	--	--	--	--	--	--	361.1
Subtotal	**5**	**--**	**--**	**--**	**--**	**--**	**23932.4**

Annual Funding BY$
3600 | RDT&E | Research, Development, Test, and Evaluation, Air Force

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2002 $M	Non End Item Recurring Flyaway BY 2002 $M	Non Recurring Flyaway BY 2002 $M	Total Flyaway BY 2002 $M	Total Support BY 2002 $M	Total Program BY 2002 $M
1995	--	--	--	--	--	--	90.7
1996	--	--	--	--	--	--	86.5
1997	--	--	--	--	--	--	264.6
1998	--	--	--	--	--	--	463.4
1999	--	--	--	--	--	--	470.2
2000	--	--	--	--	--	--	253.1
2001	--	--	--	--	--	--	342.0
2002	--	--	--	--	--	--	706.9
2003	--	--	--	--	--	--	1575.1
2004	--	--	--	--	--	--	1921.7
2005	--	--	--	--	--	--	1928.4
2006	--	--	--	--	--	--	2036.0
2007	--	--	--	--	--	--	1820.0
2008	--	--	--	--	--	--	1685.1
2009	--	--	--	--	--	--	1483.7
2010	--	--	--	--	--	--	1712.3
2011	--	--	--	--	--	--	866.7
2012	--	--	--	--	--	--	1135.1
2013	--	--	--	--	--	--	964.0
2014	--	--	--	--	--	--	738.4
2015	--	--	--	--	--	--	473.1
2016	--	--	--	--	--	--	276.2
Subtotal	**5**	**--**	**--**	**--**	**--**	**--**	**21293.2**

Research, Development, Test, and Evaluation cost excludes Follow-On Development Funding.

Annual Funding TY$
0400 | RDT&E | Research, Development, Test, and Evaluation, Defense-Wide

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
1996	--	--	--	--	--	--	28.9
1997	--	--	--	--	--	--	68.2
1998	--	--	--	--	--	--	20.9
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**118.0**

Annual Funding BY$
0400 | RDT&E | Research, Development, Test, and Evaluation, Defense-Wide

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2002 $M	Non End Item Recurring Flyaway BY 2002 $M	Non Recurring Flyaway BY 2002 $M	Total Flyaway BY 2002 $M	Total Support BY 2002 $M	Total Program BY 2002 $M
1996	--	--	--	--	--	--	30.8
1997	--	--	--	--	--	--	71.7
1998	--	--	--	--	--	--	21.8
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**124.3**

Annual Funding TY$
9999 | RDT&E | Non Treasury Funds

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
1996	--	--	--	--	--	--	14.0
1997	--	--	--	--	--	--	71.0
1998	--	--	--	--	--	--	77.2
1999	--	--	--	--	--	--	54.7
2000	--	--	--	--	--	--	34.5
2001	--	--	--	--	--	--	2.5
2002	--	--	--	--	--	--	306.4
2003	--	--	--	--	--	--	425.8
2004	--	--	--	--	--	--	517.8
2005	--	--	--	--	--	--	758.1
2006	--	--	--	--	--	--	802.5
2007	--	--	--	--	--	--	710.3
2008	--	--	--	--	--	--	552.7
2009	--	--	--	--	--	--	244.6
2010	--	--	--	--	--	--	109.5
2011	--	--	--	--	--	--	88.5
2012	--	--	--	--	--	--	22.3
2013	--	--	--	--	--	--	11.6
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**4804.0**

Annual Funding BY$
9999 | RDT&E | Non Treasury Funds

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2002 $M	Non End Item Recurring Flyaway BY 2002 $M	Non Recurring Flyaway BY 2002 $M	Total Flyaway BY 2002 $M	Total Support BY 2002 $M	Total Program BY 2002 $M
1996	--	--	--	--	--	--	14.9
1997	--	--	--	--	--	--	74.7
1998	--	--	--	--	--	--	80.5
1999	--	--	--	--	--	--	56.4
2000	--	--	--	--	--	--	35.1
2001	--	--	--	--	--	--	2.5
2002	--	--	--	--	--	--	304.0
2003	--	--	--	--	--	--	416.4
2004	--	--	--	--	--	--	492.6
2005	--	--	--	--	--	--	702.8
2006	--	--	--	--	--	--	721.4
2007	--	--	--	--	--	--	623.3
2008	--	--	--	--	--	--	476.4
2009	--	--	--	--	--	--	208.3
2010	--	--	--	--	--	--	92.2
2011	--	--	--	--	--	--	73.5
2012	--	--	--	--	--	--	18.2
2013	--	--	--	--	--	--	9.3
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**4402.5**

Annual Funding TY$
1506 | Procurement | Aircraft Procurement, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
2007	--	124.5	--	--	124.5	--	124.5
2008	6	1171.5	--	40.0	1211.5	11.9	1223.4
2009	7	1365.1	--	237.1	1602.2	273.2	1875.4
2010	20	3100.5	--	651.1	3751.6	722.6	4474.2
2011	10	1803.1	--	614.5	2417.6	807.9	3225.5
2012	13	1803.5	--	398.6	2202.1	931.2	3133.3
2013	18	2288.2	--	563.0	2851.2	985.6	3836.8
2014	22	2593.0	--	399.1	2992.1	1211.6	4203.7
2015	31	3280.2	--	465.0	3745.2	1510.8	5256.0
2016	38	3799.6	--	538.2	4337.8	1478.6	5816.4
2017	50	5157.7	--	722.3	5880.0	1598.2	7478.2
2018	50	4983.6	--	542.0	5525.6	1442.7	6968.3
2019	50	4959.7	--	531.8	5491.5	1270.7	6762.2
2020	50	5009.1	--	525.3	5534.4	1335.9	6870.3
2021	50	5100.2	--	532.0	5632.2	1240.1	6872.3
2022	50	5167.0	--	536.9	5703.9	1105.9	6809.8
2023	50	5173.5	--	542.7	5716.2	1004.9	6721.1
2024	50	5321.1	--	548.9	5870.0	790.6	6660.6
2025	50	5400.3	--	544.3	5944.6	718.5	6663.1
2026	50	5106.5	--	428.9	5535.4	692.8	6228.2
2027	15	1960.9	--	173.8	2134.7	350.9	2485.6
Subtotal	**680**	**74668.8**	**--**	**9535.5**	**84204.3**	**19484.6**	**103688.9**

Annual Funding BY$
1506 | Procurement | Aircraft Procurement, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2002 $M	Non End Item Recurring Flyaway BY 2002 $M	Non Recurring Flyaway BY 2002 $M	Total Flyaway BY 2002 $M	Total Support BY 2002 $M	Total Program BY 2002 $M
2007	--	107.8	--	--	107.8	--	107.8
2008	6	1000.6	--	34.1	1034.7	10.2	1044.9
2009	7	1152.5	--	200.1	1352.6	230.7	1583.3
2010	20	2583.8	--	542.7	3126.5	602.1	3728.6
2011	10	1480.6	--	504.6	1985.2	663.4	2648.6
2012	13	1457.4	--	322.1	1779.5	752.5	2532.0
2013	18	1818.4	--	447.4	2265.8	783.3	3049.1
2014	22	2026.2	--	311.9	2338.1	946.8	3284.9
2015	31	2520.4	--	357.3	2877.7	1160.8	4038.5
2016	38	2870.7	--	406.6	3277.3	1117.1	4394.4
2017	50	3831.6	--	536.6	4368.2	1187.2	5555.4
2018	50	3640.4	--	395.9	4036.3	1053.8	5090.1
2019	50	3562.3	--	382.0	3944.3	912.7	4857.0
2020	50	3537.7	--	371.0	3908.7	943.5	4852.2
2021	50	3541.8	--	369.4	3911.2	861.2	4772.4
2022	50	3528.2	--	366.6	3894.8	755.2	4650.0
2023	50	3473.6	--	364.4	3838.0	674.7	4512.7
2024	50	3513.0	--	362.4	3875.4	521.9	4397.3
2025	50	3505.7	--	353.3	3859.0	466.4	4325.4
2026	50	3259.5	--	273.8	3533.3	442.2	3975.5
2027	15	1230.7	--	109.1	1339.8	220.3	1560.1
Subtotal	**680**	**53642.9**	**--**	**7011.3**	**60654.2**	**14306.0**	**74960.2**

Cost Quantity Information
1506 | Procurement | Aircraft Procurement, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned with Quantity) BY 2002 $M
2007	--	--
2008	6	1000.6
2009	7	1152.5
2010	20	2583.8
2011	10	1480.6
2012	13	1457.4
2013	18	1818.4
2014	22	2026.2
2015	31	2520.4
2016	38	2870.7
2017	50	3831.6
2018	50	3640.4
2019	50	3562.3
2020	50	3537.7
2021	50	3541.8
2022	50	3528.2
2023	50	3473.6
2024	50	3543.0
2025	50	3535.7
2026	50	3289.5
2027	15	1248.5
Subtotal	**680**	**53642.9**

Annual Funding TY$
3010 | Procurement | Aircraft Procurement, Air Force

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
2006	--	117.4	--	--	117.4	--	117.4
2007	2	475.2	--	50.1	525.3	56.3	581.6
2008	6	1111.4	--	207.8	1319.2	162.6	1481.8
2009	7	1170.5	--	340.2	1510.7	211.0	1721.7
2010	10	1475.6	--	550.6	2026.2	458.4	2484.6
2011	22	2902.6	--	675.9	3578.5	870.5	4449.0
2012	19	2402.6	--	540.4	2943.0	872.6	3815.6
2013	24	2690.1	--	595.1	3285.2	801.1	4086.3
2014	40	3868.6	--	482.8	4351.4	1274.6	5626.0
2015	50	4557.8	--	534.8	5092.6	1401.3	6493.9
2016	70	5639.8	--	656.5	6296.3	2177.7	8474.0
2017	80	6786.8	--	906.1	7692.9	1455.0	9147.9
2018	80	6475.9	--	675.6	7151.5	1400.5	8552.0
2019	80	6474.1	--	669.1	7143.2	1331.2	8474.4
2020	80	6547.3	--	666.3	7213.6	1423.8	8637.4
2021	80	6693.5	--	683.5	7377.0	1479.4	8856.4
2022	80	6883.6	--	698.4	7582.0	1419.3	9001.3
2023	80	6998.3	--	710.5	7708.8	1427.9	9136.7
2024	80	7181.3	--	725.0	7906.3	1380.1	9286.4
2025	80	7310.0	--	735.6	8045.6	1330.3	9375.9
2026	80	7429.9	--	751.7	8181.6	1235.3	9416.9
2027	80	7715.3	--	783.9	8499.2	1306.0	9805.2
2028	80	8032.0	--	809.4	8841.4	1186.1	10027.5
2029	80	8228.5	--	822.7	9051.2	1001.8	10053.0
2030	80	8431.7	--	835.9	9267.6	792.2	10059.8
2031	80	8639.2	--	852.6	9491.8	746.4	10238.2
2032	80	8859.5	--	871.4	9730.9	765.8	10496.7
2033	80	9082.8	--	888.7	9971.5	785.3	10756.8
2034	80	9241.3	--	856.6	10097.9	806.2	10904.1
2035	73	7889.5	--	550.9	8440.4	757.1	9197.5
Subtotal	**1763**	**171312.1**	**--**	**19128.1**	**190440.2**	**30315.8**	**220756.0**

Annual Funding BY$
3010 | Procurement | Aircraft Procurement, Air Force

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2002 $M	Non End Item Recurring Flyaway BY 2002 $M	Non Recurring Flyaway BY 2002 $M	Total Flyaway BY 2002 $M	Total Support BY 2002 $M	Total Program BY 2002 $M
2006	--	104.1	--	--	104.1	--	104.1
2007	2	411.6	--	43.5	455.1	48.7	503.8
2008	6	949.2	--	177.5	1126.7	138.9	1265.6
2009	7	988.2	--	287.1	1275.3	178.2	1453.5
2010	10	1229.7	--	458.8	1688.5	382.1	2070.6
2011	22	2383.4	--	555.1	2938.5	714.7	3653.2
2012	19	1941.5	--	436.7	2378.2	705.2	3083.4
2013	24	2137.8	--	472.9	2610.7	636.7	3247.4
2014	40	3023.0	--	377.3	3400.3	996.0	4396.3
2015	50	3502.0	--	410.9	3912.9	1076.7	4989.6
2016	70	4260.9	--	496.0	4756.9	1645.3	6402.2
2017	80	5041.8	--	673.1	5714.9	1080.9	6795.8
2018	80	4730.7	--	493.5	5224.2	1023.2	6247.4
2019	80	4650.1	--	480.6	5130.7	956.1	6086.8
2020	80	4624.0	--	470.6	5094.6	1005.6	6100.2
2021	80	4648.3	--	474.7	5123.0	1027.3	6150.3
2022	80	4700.4	--	476.9	5177.3	969.1	6146.4
2023	80	4698.8	--	477.0	5175.8	958.8	6134.6
2024	80	4741.1	--	478.6	5219.7	911.2	6130.9
2025	80	4745.4	--	477.6	5223.0	863.5	6086.5
2026	80	4742.6	--	479.8	5222.4	788.5	6010.9
2027	80	4842.4	--	492.1	5334.5	819.7	6154.2
2028	80	4957.0	--	499.5	5456.5	732.0	6188.5
2029	80	4993.3	--	499.2	5492.5	608.0	6100.5
2030	80	5031.1	--	498.8	5529.9	472.7	6002.6
2031	80	5068.6	--	500.3	5568.9	437.9	6006.8
2032	80	5111.1	--	502.7	5613.8	441.8	6055.6
2033	80	5152.4	--	504.1	5656.5	445.5	6102.0
2034	80	5154.6	--	477.8	5632.4	449.7	6082.1
2035	73	4327.1	--	302.1	4629.2	415.3	5044.5
Subtotal	**1763**	**112892.2**	**--**	**12974.8**	**125867.0**	**20929.3**	**146796.3**

Cost Quantity Information
3010 | Procurement | Aircraft Procurement, Air Force

Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned with Quantity) BY 2002 $M
2006	--	--
2007	2	411.6
2008	6	949.2
2009	7	988.2
2010	10	1229.7
2011	22	2383.4
2012	19	1941.5
2013	24	2137.8
2014	40	3023.0
2015	50	3502.0
2016	70	4260.9
2017	80	5041.8
2018	80	4730.7
2019	80	4650.1
2020	80	4624.0
2021	80	4648.3
2022	80	4700.4
2023	80	4698.8
2024	80	4741.1
2025	80	4745.4
2026	80	4742.6
2027	80	4842.4
2028	80	4957.0
2029	80	4993.3
2030	80	5031.1
2031	80	5068.6
2032	80	5141.1
2033	80	5182.4
2034	80	5184.6
2035	73	4341.2
Subtotal	**1763**	**112892.2**

Annual Funding TY$
1205 | MILCON | Military Construction, Navy and Marine Corps

Fiscal Year	Total Program TY $M
2004	24.4
2005	--
2006	--
2007	--
2008	--
2009	--
2010	3.0
Subtotal	**27.4**

Annual Funding BY$
1205 | MILCON | Military Construction, Navy and Marine Corps

Fiscal Year	Total Program BY 2002 $M
2004	22.8
2005	--
2006	--
2007	--
2008	--
2009	--
2010	2.5
Subtotal	**25.3**

Annual Funding TY$
3300 | MILCON | Military Construction, Air Force

Fiscal Year	Total Program TY $M
2004	20.1
2005	10.6
2006	--
2007	--
2008	74.3
2009	22.0
2010	73.4
2011	139.7
2012	73.8
2013	82.3
2014	--
2015	27.6
Subtotal	**523.8**

Annual Funding BY$
3300 | MILCON | Military Construction, Air Force

Fiscal Year	Total Program BY 2002 $M
2004	18.7
2005	9.6
2006	--
2007	--
2008	63.4
2009	18.6
2010	61.2
2011	114.6
2012	59.5
2013	65.3
2014	--
2015	21.2
Subtotal	**432.1**

Low Rate Initial Production

	Initial LRIP Decision	Current Total LRIP
Approval Date	10/26/2001	2/24/2010
Approved Quantity	465	420
Reference	ADM	ADM
Start Year	2006	2006
End Year	2015	2018

The Defense Acquisition Executive (DAE) approved the Low Rate Initial Production (LRIP) quantity of 465 (in six LRIP lots) in the Milestone B Acquisition Decision Memorandum dated October 26, 2001. This quantity exceeded 10% of the planned total production and was necessary to meet Service Initial Operational Capability (IOC) requirements, prevent a break in production and to ramp up to full rate production. The LRIP quantity has been revised to 420 (in nine LRIP lots) based on Department decisions on the February 2010 program restructure. The current LRIP quantity also exceeds 10% for the reasons cited above.

Foreign Military Sales

Country	Date of Sale	Quantity	Total Cost $M	Memo
Israel (IS)	10/7/2010	19	2750.0	

Nuclear Cost

None

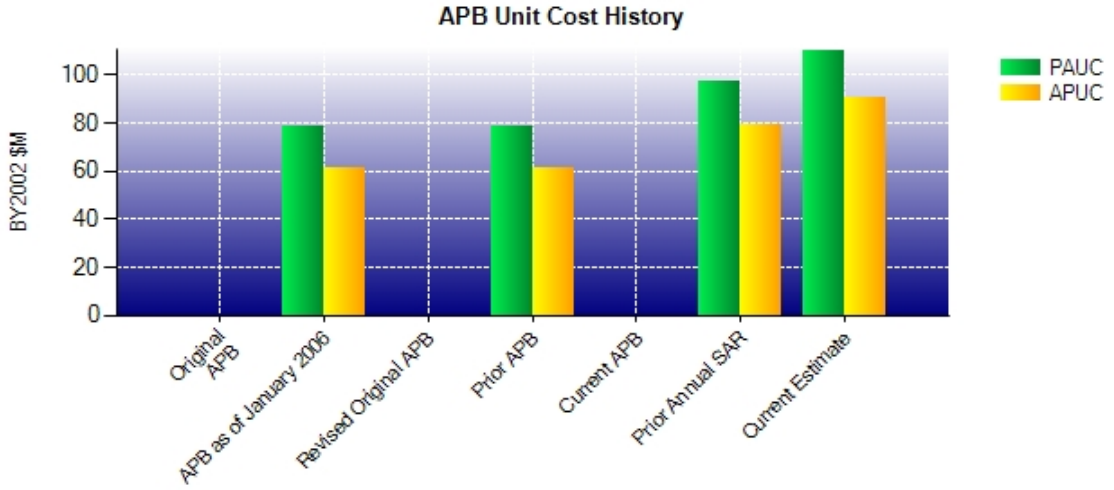
Unit Cost

Unit Cost Report

Unit Cost	BY2002 $M Current UCR Baseline	BY2002 $M Current Estimate (DEC 2010 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	--	270599.7	
Quantity	--	2457	
Unit Cost	--	110.134	--
Average Procurement Unit Cost (APUC)			
Cost	--	221756.5	
Quantity	--	2443	
Unit Cost	--	90.772	--

Unit Cost	BY2002 $M Original UCR Baseline	BY2002 $M Current Estimate (DEC 2010 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	--	270599.7	
Quantity	--	2457	
Unit Cost	--	110.134	--
Average Procurement Unit Cost (APUC)			
Cost	--	221756.5	
Quantity	--	2443	
Unit Cost	--	90.772	--

Unit Cost History



		BY2002 $M		TY $M	
	Date	PAUC	APUC	PAUC	APUC
Original APB	N/A	N/A	N/A	N/A	N/A
APB as of January 2006	MAR 2004	78.592	61.195	100.407	81.826
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	MAR 2004	78.592	61.195	100.407	81.826
Current APB	N/A	N/A	N/A	N/A	N/A
Prior Annual SAR	DEC 2009	97.110	79.003	133.599	113.604
Current Estimate	DEC 2010	110.134	90.772	154.413	132.806

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY $M)

Initial PAUC Dev Est	Changes								PAUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
81.298	-3.249	3.245	14.210	5.205	45.232	0.000	8.472	73.115	154.413

Current SAR Baseline to Current Estimate (TY $M)

Initial APUC Dev Est	Changes								APUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
68.934	-3.685	1.130	11.071	3.853	42.983	0.000	8.520	63.872	132.806

SAR Baseline History

Item/Event	SAR Planning Estimate (PE)	SAR Development Estimate (DE)	SAR Production Estimate (PdE)	Current Estimate
Milestone I	N/A	NOV 1996	N/A	NOV 1996
Milestone B	MAR 2001	OCT 2001	N/A	OCT 2001
Milestone C	TBD	APR 2012	N/A	TBD
IOC	TBD	APR 2010	N/A	TBD
Total Cost (TY $M)	24800.0	233000.0	N/A	379392.8
Total Quantity	N/A	2866	N/A	2457
Prog. Acq. Unit Cost (PAUC)	N/A	81.298	N/A	154.413

Pursuant to section 2433, title 10, United States Code, the SAR Planning Estimate reflected Research, Development, Test, and Evaluation cost only.

The Milestone (MS) C date is under review pending the Services determination of the Initial Operational Test & Evaluation timeframe. This is being updated in the new Acquisition Program Baseline and will be approved at the MS B review in April 2011.

The Services are currently reviewing their Initial Operational Capabilities (IOC) based on the restructured F-35 Program. The IOCs are determined by the Services based on both the program's performance and how the Services define IOC. Each Service has a somewhat different definition, depending on what capabilities they intend to have at IOC, their operational test and training requirements, and the number of aircraft they require for IOC.

Cost Variance

Cost Variance Summary

Summary Then Year $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Dev Est)	34400.0	196600.0	2000.0	233000.0
Previous Changes				
Economic	+963.2	-7553.3	-4.9	-6595.0
Quantity	+157.0	-25434.9	--	-25277.9
Schedule	+7866.9	+23895.5	--	+31762.4
Engineering	+3122.5	+9414.0	+252.8	+12789.3
Estimating	+3658.5	+69592.0	-1696.7	+71553.8
Other	--	--	--	--
Support	--	+11020.3	--	+11020.3
Subtotal	+15768.1	+80933.6	-1448.8	+95252.9
Current Changes				
Economic	+63.0	-1449.8	--	-1386.8
Quantity	--	--	--	--
Schedule	--	+3151.0	--	+3151.0
Engineering	--	--	--	--
Estimating	+4165.6	+35415.4	--	+39581.0
Other	--	--	--	--
Support	--	+9794.7	--	+9794.7
Subtotal	+4228.6	+46911.3	--	+51139.9
Total Changes	+19996.7	+127844.9	-1448.8	+146392.8
CE - Cost Variance	54396.7	324444.9	551.2	379392.8
CE - Cost & Funding	54396.7	324444.9	551.2	379392.8

Summary Base Year 2002 $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Dev Est)	32300.0	143300.0	1500.0	177100.0
Previous Changes				
Economic	--	--	--	--
Quantity	+130.6	-16249.1	--	-16118.5
Schedule	+6779.4	+2017.7	--	+8797.1
Engineering	+2814.6	+6644.8	+227.3	+9686.7
Estimating	+3111.4	+50538.8	-1269.9	+52380.3
Other	--	--	--	--
Support	--	+6753.0	--	+6753.0
Subtotal	+12836.0	+49705.2	-1042.6	+61498.6
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+3249.8	+22353.5	--	+25603.3
Other	--	--	--	--
Support	--	+6397.8	--	+6397.8
Subtotal	+3249.8	+28751.3	--	+32001.1
Total Changes	+16085.8	+78456.5	-1042.6	+93499.7
CE - Cost Variance	48385.8	221756.5	457.4	270599.7
CE - Cost & Funding	48385.8	221756.5	457.4	270599.7

Previous Estimate: December 2009

RDT&E	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	+63.0
Adjustment for current and prior escalation. (Estimating)	-53.1	-59.2
Increase due to revised estimate of required risk funding based on OSD lead Independent program assessments. (Navy) (Estimating)	+2327.0	+2976.4
Increase due to revised estimate of required risk funding based on OSD lead Independent program assessments. (Air Force) (Estimating)	+975.9	+1248.4
RDT&E Subtotal	+3249.8	+4228.6

Procurement	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	-1449.8
Increase for revised DoD procurement profile, (i.e. lower near-term ramp). (Air Force) (Schedule)	0.0	+1755.9
Increase for revised DoD procurement profile, (i.e. lower near-term ramp and procurement completion extended one year to FY 2027). (Navy) (Schedule)	0.0	+1395.1
Adjustment for current and prior escalation. (Estimating)	+33.8	+40.8
Increase to Airframe due to incorporation of latest actual costs for LRIP lots. (Air Force) (Estimating)	+6099.2	+9730.1
Increase to Airframe due to incorporation of latest actual costs for LRIP lots. (Navy) (Estimating)	+1878.0	+2910.1
Increase to Mission Systems due to incorporation of latest actual costs for LRIP lots. (Air Force) (Estimating)	+593.5	+947.3
Increase to Mission Systems due to incorporation of latest actual costs for LRIP lots. (Navy) (Estimating)	+178.2	+276.0
Decrease to Vehicle Systems due to incorporation of latest actual costs for LRIP lots. (Air Force) (Estimating)	-20.8	-32.7
Increase to Vehicle Systems due to incorporation of latest actual costs for LRIP lots. (Navy) (Estimating)	+124.5	+193.0
Increase due to incorporation of latest prime and subcontractor labor rates. (Air Force) (Estimating)	+1357.3	+2165.5
Increase due to incorporation of latest prime and subcontractor labor rates. (Navy) (Estimating)	+393.1	+609.1
Increase due to revised estimate of required risk funding based on OSD led Independent program assessments for Air Vehicle and Propulsion. (Air Force) (Estimating)	+8835.8	+14095.2
Increase due to revised estimate of required risk funding based on OSD led Independent program assessments for Air Vehicle and Propulsion. (Navy) (Estimating)	+1486.7	+2301.8
Increase for revised, slower International Partner procurement quantity profile. (Air Force) (Estimating)	+1039.0	+1657.2
Increase for revised, slower International Partner procurement quantity profile. (Navy) (Estimating)	+238.5	+369.4
Increase to Propulsion due to incorporation of latest actual costs for LRIP lots. (Air Force) (Estimating)	+266.3	+425.1

Increase to Propulsion due to incorporation of latest actual costs for LRIP lots. (Navy) (Estimating)	+1349.0	+2090.1
Decrease to Propulsion due to changes in estimating assumptions based on latest data from analogous engine. (Air Force) (Estimating)	-1509.3	-2407.7
Decrease to Propulsion due to changes in estimating assumptions based on latest data from analogous engine. (Navy) (Estimating)	-836.7	-1294.5
Multi-Year start changed from FY 2016 to 2018. (Air Force) (Estimating)	+579.9	+924.9
Multi-Year start changed from FY 2016 to 2018. (Navy) (Estimating)	+267.5	+414.7
Adjustment for current and prior escalation. (Support)	+8.6	+10.6
Increase due to cost maturity, definition of customer requirements, and further definition of Service beddown plans. (Air Force) (Support)	+3247.5	+4558.4
Increase in Initial Spares due to revised estimate. (Air Force) (Support)	+1251.6	+2094.5
Increase due to cost maturity, definition of customer requirements, and further definition of Service beddown plans. (Navy) (Support)	+1548.2	+2465.6
Initial spares increase due to revised estimate. (Navy) (Support)	+341.9	+665.6
Procurement Subtotal	+28751.3	+46911.3

Contracts

Appropriation: RDT&E

Contract Name	**JSF Air System SDD**
Contractor	Lockheed Martin
Contractor Location	Fort Worth, TX 76101
Contract Number, Type	N00019-02-C-3002, CPAF
Award Date	October 26, 2001
Definitization Date	October 26, 2001

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
18981.9	N/A	14	27593.8	N/A	14	33317.6	33317.6

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date	-998.8	-391.5
Previous Cumulative Variances	-727.4	-358.4
Net Change	-271.4	-33.1

Cost And Schedule Variance Explanations

The net unfavorable change in cost variance was primarily due to continued delays in the delivery of System Development and Demonstration (SDD) test articles and software, rework, and supplier cost overruns. The net unfavorable change in schedule variance was primarily due to late delivery of parts, parts shortages/availability and assembly delays on SDD test articles.

Contract Comments

The contract price increased since award primarily due to schedule extensions and cost overruns associated with the approved program Replans that were definitized in 2005 and 2009, both of which incorporated Over Target Baselines (OTBs). The Estimated Price at Completion reflects projected additional overrun, planned extension of the SDD schedule, planned addition of one CV flight test aircraft, and other aspects of the ongoing program restructure. A Technical Baseline Review (TBR) was conducted in 2010 and is serving as the basis of a program replan now underway which will result in an OTB and an Over-Target Schedule (OTS) in 2011. The Estimated Price at Completion will be re-assessed as impacts of the program restructure and TBR are further defined. The Program Manager's Estimate at Completion is currently being re-assessed and changes will be incorporated in the quarterly exception SAR submitted to Congress following the Milestone B review which is currently scheduled for May 2011.

Appropriation: RDT&E

Contract Name	**Propulsion JSF F135 SDD**
Contractor	Pratt and Whitney
Contractor Location	East Hartford, CT 06108
Contract Number, Type	N00019-02-C-3003, CPAF
Award Date	October 26, 2001
Definitization Date	October 26, 2001

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
4827.8	N/A	33	6672.7	N/A	30	6910.8	6769.8

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date	-77.2	-50.5
Previous Cumulative Variances	+10.1	-66.0
Net Change	-87.3	+15.5

Cost And Schedule Variance Explanations

The net favorable change in schedule variance was primarily due to schedule recovery, particularly in Systems Development & Validation (testing) and the Rolls Royce Lift Fan (RRLF). On December 22, 2010, the Short Take-Off Vertical Landing (STOVL) Initial Service Release (ISR) milestone was reached. The net unfavorable cost variance was primarily driven by RRLF tasks requiring more effort than planned (e.g., Indianapolis Engineering Support and Qualification effort) in addition to unplanned design iterations and hardware delays. The second major driver of the unfavorable cost variance was the incorporation of the FY 2003-2006 Final Reporting Rates in March 2010 and the FY 2009 Final Reporting Rates in August 2010.

Contract Comments

The contract price increased since award primarily due to schedule extension and added scope in accordance with the approved program Replan that was definitized in 2005, and subsequent implementation of an Over Target Baseline due to cost overruns andfunding for affordability tasks. The Program Manager's Estimate at Completion is currently being re-assessed and changes will be incorporated in the quarterly exception SAR submitted to Congress following the Milestone B review, currently scheduled for May 2011.

Appropriation: RDT&E

Contract Name	**F136 Propulsion Sys SDD**
Contractor	GE/Rolls-Royce
Contractor Location	Cincinnati, OH 45215
Contract Number, Type	N00019-04-C-0093, CPAF
Award Date	August 19, 2005
Definitization Date	August 19, 2005

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
2486.2	N/A	6	2418.9	N/A	6	2763.9	2142.3

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date	-140.5	-47.0
Previous Cumulative Variances	-107.8	-29.7
Net Change	-32.7	-17.3

Cost And Schedule Variance Explanations

The net unfavorable change in cost variance was primarily due to greater than planned hardware costs and technical interface complexity issues with Fans, overspend for Augmentor testing and design, and inefficiencies with the High Pressure Turbine Nozzle and Low Pressure Turbine design. The net unfavorable change in schedule variance was primarily due to delays in engine testing caused by implementing an aggressive test plan with known delays already scheduled and instrumentation issues with three ground test engines.

Contract Comments

The contract price decreased since initial award due to award fee not being earned. The Program Manager's Estimate at Completionreflects funds through FY 2011 and lack of F136 funding budgeted in FY 2012 and subsequent years. On March 24, 2011, a stop-work order was issued by the F-35 Primary Contracting Officer (PCO) to the General Electric/Rolls Royce Fighter Engine Team, Limited Liability Company on the F136 System Development and Demonstration contract. This stop-work order is in effect for a maximum of 90 days through June 22, 2011 unless rescinded by the PCO, but may be extended upon mutual agreement by both parties.

Appropriation: Procurement

Contract Name	**JSF Air System LRIP 2**
Contractor	Lockheed Martin
Contractor Location	Fort Worth, TX 76101
Contract Number, Type	N00019-07-C-0097, CPIF/CPAF
Award Date	July 27, 2007
Definitization Date	May 08, 2008

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
2208.0	N/A	12	2585.8	N/A	12	2585.8	2585.8

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date	-250.9	-130.1
Previous Cumulative Variances	-71.4	-110.4
Net Change	-179.5	-19.7

Cost And Schedule Variance Explanations

The net unfavorable change in cost variance was primarily due to delayed supplier parts, rework and inefficiencies of out-of-station work (has reduced, but continues to be a driver). The net unfavorable change in schedule variance was primarily due to parts delays, parts shortages, and components unavailable causing delays in the manufacturing line.

Contract Comments

The contract price increased since award primarily due to scope modification for Diminishing Manufacturing Sources, the planned aircraft capability block upgrade/retrofits for the Block III fleet, additional Production Non-Recurring Costs including tooling, and overruns in proposal preparation and technical assistance. The Program Manager's Estimate at Completion is currently being re-assessed and changes will be incorporated in the quarterly exception SAR submitted to Congress following the Milestone B review, currently scheduled for May 2011.

Appropriation: Procurement

Contract Name	**Propulsion JSF F135 LRIP 2**
Contractor	Pratt & Whitney
Contractor Location	East Hartford, CT 06108
Contract Number, Type	N00019-07-C-0098, CPAF/CPIF
Award Date	August 24, 2007
Definitization Date	August 23, 2008

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
392.1	N/A	16	495.8	N/A	16	543.9	543.9

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date	-36.7	-29.8
Previous Cumulative Variances	--	--
Net Change	-36.7	-29.8

Cost And Schedule Variance Explanations

The unfavorable cost variance is primarily driven by greater than planned costs for Rolls Royce Lift Fan hardware due to late production definitions; an increase in Blade forging scrap material and additional engineering assistance to Production resources required; Engine Fan Integrally Bladed Rotors repair and re-work to correct the dimensional and visual defects, Fan Cases and Inlet Guide Vanes, High and Low Pressure Turbine Vanes casting and machining costs; and higher Engine Assembly costs due to multiple engine teardowns and rebuilds to address issues. The unfavorable schedule variance is primarily driven by a variety of late hardware deliveries with the Rolls Royce Lift Fan, Organic Matrix Composite Ducts, Divergent and Convergent hardware for the Nozzle, Centre Cases for the Rolls Royce 3 Bearing Swivel Duct and Engine Assembly delayed due to hardware delays in other components.

Contract Comments

This is the first time this contract is being reported.

The contract price has increased since the initial award due to the exercise of the Short Takeoff and Vertical Landing variant Option (established to meet the "fly before you buy" requirement), the exercise of the proposal preparation option and the additional spare fan Follow-On Development kit procurement. The estimated price at completion contains the identified contract price changes as well as activities costing more than originally planned, rate changes and the estimated cost of future risks. The Program Manager's Estimate at Completion is currently being re-assessed and changes will be incorporated in the quarterly exception SAR submitted to Congress following the Milestone B review, currently scheduled for May 2011.

Appropriation: Procurement

Contract Name	**JSF Air System LRIP 3**
Contractor	Lockheed Martin
Contractor Location	Fort Worth, TX 76101
Contract Number, Type	N00019-08-C-0028, CPIF/CPAF
Award Date	May 14, 2008
Definitization Date	June 02, 2009

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
2775.2	N/A	17	2795.1	N/A	17	3612.5	3612.5

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date	-163.5	-136.5
Previous Cumulative Variances	-14.8	-1.9
Net Change	-148.7	-134.6

Cost And Schedule Variance Explanations

The net unfavorable change in cost variance was primarily due to delayed parts and tooling issues, parts which required rework, and inefficiencies of out-of-station work. The net unfavorable change in schedule variance was primarily due to delayed parts, late material, and unavailable tooling.

Contract Comments

The initial contract price includes the purchase of two jets for the United Kingdom. The contract price increased since the award date primarily due to added scope for additional Production Non-Recurring Costs including tooling and technical assistance, and the exercise of option to purchase one jet for the Netherlands. The Program Manager's Estimate at Completion is currently being re-assessed and changes will be incorporated in the quarterly exception SAR submitted to Congress following the Milestone B review, currently scheduled for May 2011.

Appropriation: Procurement

Contract Name	**Propulsion JSF F135 LRIP 3**
Contractor	Pratt and Whitney
Contractor Location	East Hartford, CT 06108
Contract Number, Type	N00019-08-C-0033, CPIF/CPAF
Award Date	August 02, 2008
Definitization Date	July 15, 2009

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
649.2	N/A	21	673.1	N/A	21	709.5	709.5

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date	-11.8	-108.3
Previous Cumulative Variances	-0.4	+0.4
Net Change	-11.4	-108.7

Cost And Schedule Variance Explanations

The net unfavorable change in cost variance was primarily due to greater than planned costs for the Rolls Royce Lift Fan hardware, Oil Tank, Hydraulic Control Unit, Tubes harnesses and Block 3.5 Externals Brackets and Variable Area Vane Box Nozzle engineering support, High and low Pressure Turbine Blades and Vanes and Engine Assembly Tooling. The net unfavorable change in schedule variance was primarily due to the Low Rate Initial Production 2 contract engine delivery delays.

Contract Comments

The contract price increased since award due to exercise of Tooling Option and procurement of additional Conventional Takeoff and Landing spare parts. The Estimated Price at Completion reflects the identified contract price changes as well as activities costing more than originally planned, rate changes and the estimated cost of future risks. The Program Manager's Estimate at Completion is currently being re-assessed and changes will be incorporated in the quarterly exception SAR submitted to Congress following the Milestone B review, currently scheduled for May 2011.

Appropriation: Procurement

Contract Name	**JSF Air System LRIP 4**
Contractor	Lockheed Martin
Contractor Location	Ft. Worth, TX 76101
Contract Number, Type	N00019-09-C-0010, FPIF
Award Date	March 11, 2009
Definitization Date	November 19, 2010

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
3783.1	4026.4	31	3783.1	4026.4	31	3783.1	3783.1

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date	0.0	0.0
Previous Cumulative Variances	--	--
Net Change	+0.0	+0.0

Cost And Schedule Variance Explanations

Due to the recent definitization of this contract, EarnedValue Managmentdata is not yet being reported. The contractor will begin submitting cost performance reports in April 2011.

Contract Comments

This is the first time this contract is being reported.

The initial contract price includes the purchase of one jet for the United Kingdom. The contract prices listed above account for the definitized portion of the contract. The total current contract price including the undefinitized contract actions for sustainment and production non-recurring is $5,122.7M. The Program Manager's Estimate at Completion is currently being re-assessed and changes will be incorporated in the quarterly exception SAR submitted to Congress following the Milestone B review, currently scheduled for May 2011.

Deliveries and Expenditures

Deliveries To Date	Plan To Date	Actual To Date	Total Quantity	Percent Delivered
Development	13	10	14	71.43%
Production	14	0	2443	0.00%
Total Program Quantities Delivered	27	10	2457	0.41%

Expenditures and Appropriations (TY $M)			
Total Acquisition Cost	379392.8	Years Appropriated	18
Expenditures To Date	45544.8	Percent Years Appropriated	42.86%
Percent Expended	12.00%	Appropriated to Date	65990.0
Total Funding Years	42	Percent Appropriated	17.39%

Operating and Support Cost

Assumptions And Ground Rules

The Department's Cost Analysis and Program Evaluation (CAPE) office is in the process of updating the Operating and Support (O&S) cost estimate for the Milestone B review, currently scheduled for May 2011. The F-35 family of highly common aircraft variants will replace or augment four current aircraft: F-16, A-10, F/A-18C/D, and AV-8B. The F-35 O&S estimate is based on F-18C, F-16C, and AV-8B history, when F-35 specific data is not available. F-35 O&S costs shown in comparison with the antecedent system reflect cost-per-flying-hour for the F-35 Conventional Takeoff and Landing (CTOL) variant only. The CTOL variant will make up the majority of the F-35 aircraft DoD buy, 1,763 of the 2,443 total. The O&S differences between F-35 CTOL and F-16 are representative of the comparisons across legacy fleets.

F-16 does not report certain cost elements such as Support Equipment Replacement, Modifications, and Indirect costs in their Operational Cost per Flying Hour. These costs have been removed from the F-35A cost per flight hour to better align with the antecedent program. F-35 varies from other legacy platforms that we fully fund the cost of supporting the training centers, training devices at the operational sites, and Autonomic Logistics Information System (ALIS) with program funds.

F-35 CTOL costs reflect 24-aircraft squadrons operating at 300 flying hours per aircraft per year. The F-16 costs have been developed in a joint effort with the F-35 Program Office and the Air Force Cost Analysis Agency. F-35 "Cost per Flying Hour" includes various cost categories that are not included in the F-16 estimate. Total O&S Cost ($ in Millions) below reflects total O&S costs for all three U.S. variants based on an estimated 8,000 hour service life and predicted attrition and usage rates, and are not a simple extrapolation of CTOL costs shown in the upper table. A comparable number for antecedent systems is not available.

Costs BY2002 $K		
Cost Element	**F-35 Cost per Flying Hour ($)**	**F-16C/D Cost per Flying Hour ($)**
Unit-Level Manpower	4.605	5.534
Unit Operations	2.219	2.171
Maintenance	7.627	3.778
Sustaining Support	1.820	0.431
Continuing System Improvements	0.154	0.217
Indirect Support	--	1.335
Other	--	--
Total Unitized Cost (Base Year 2002 $)	16.425	13.466

Total O&S Costs $M	F-35	F-16C/D
Base Year	420322.2	--
Then Year	1005342.0	--